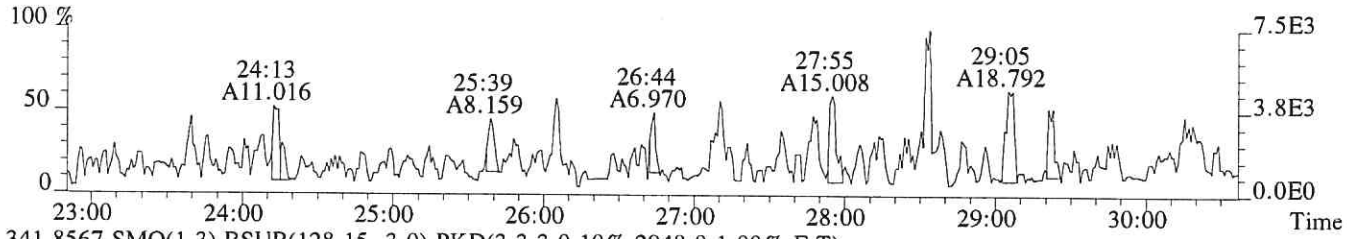
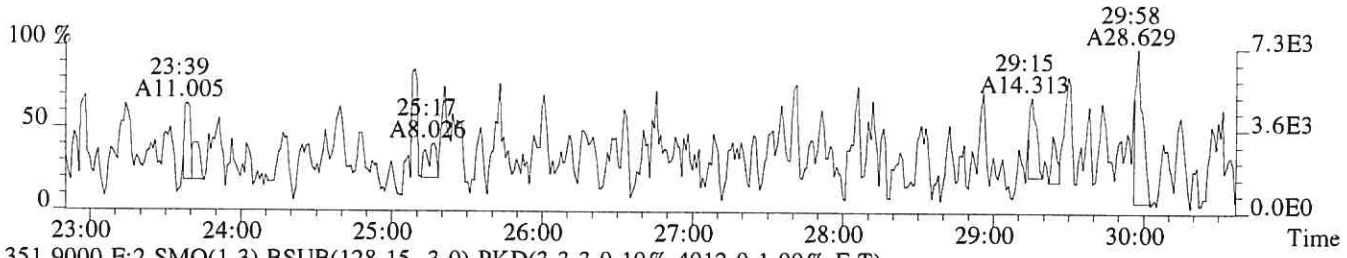
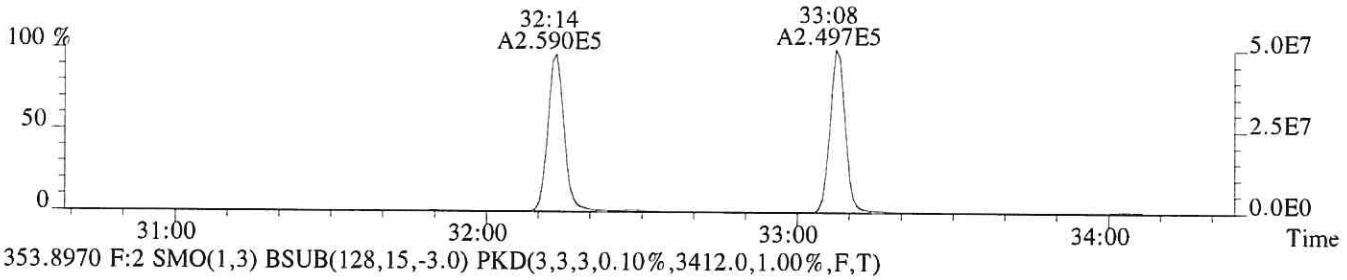
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



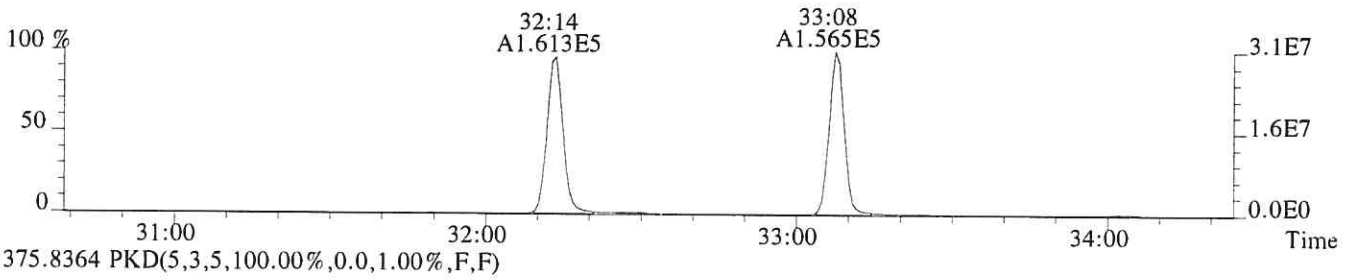
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



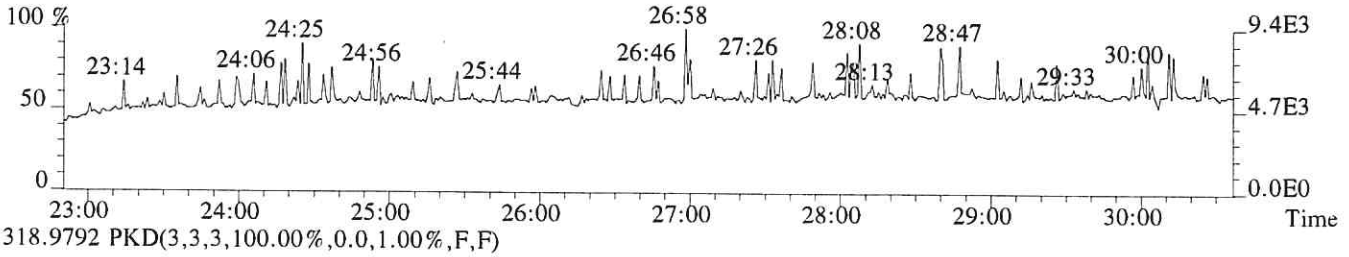
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



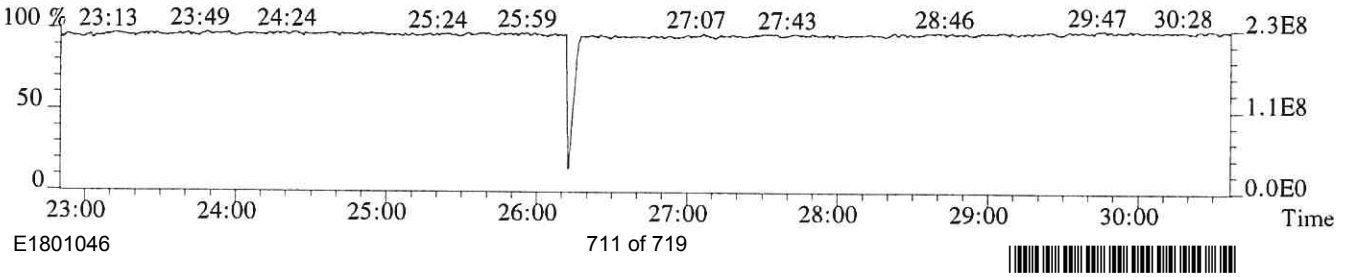
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



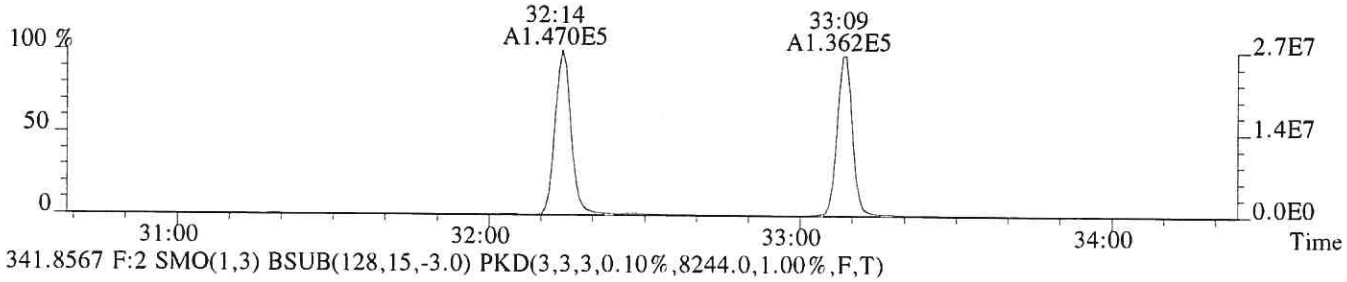
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



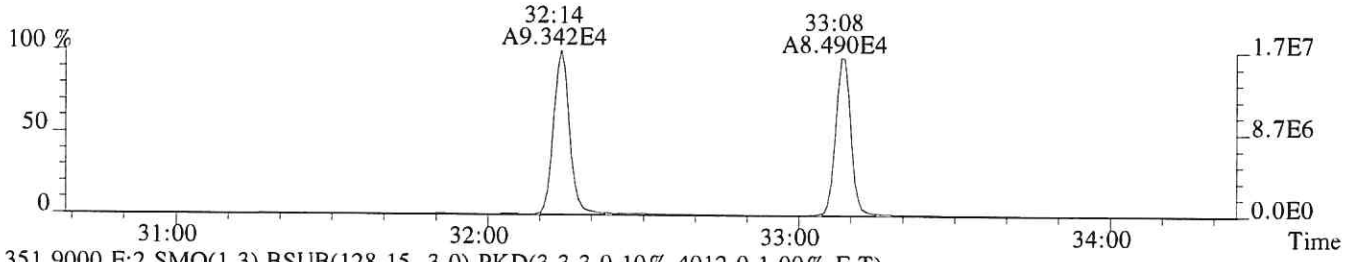
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



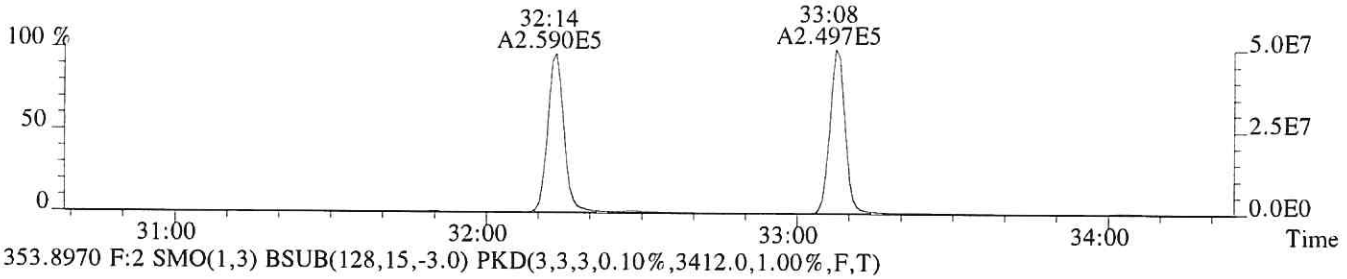
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



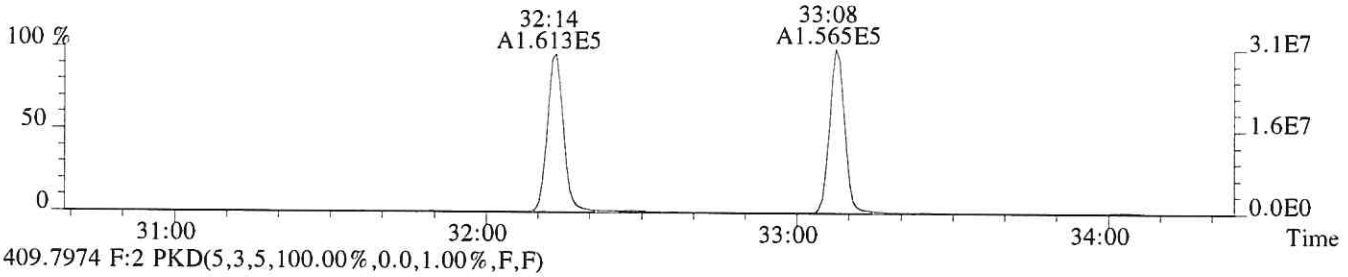
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



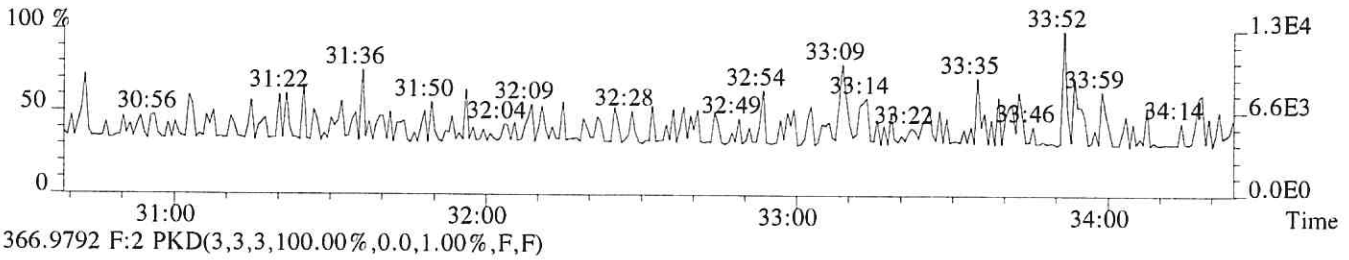
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



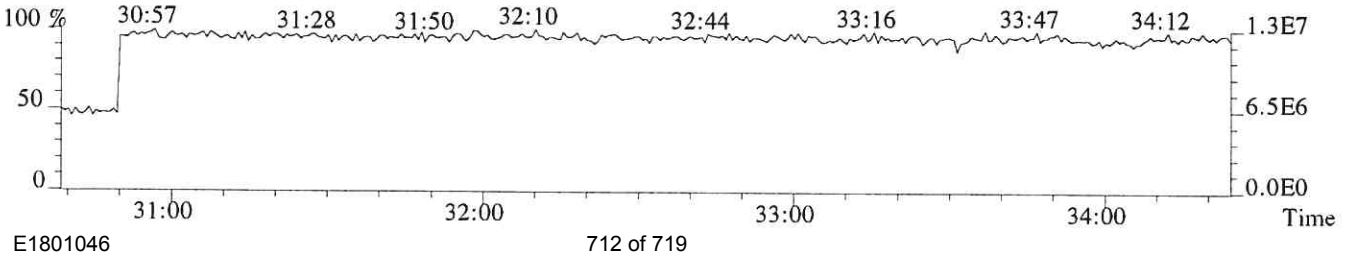
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



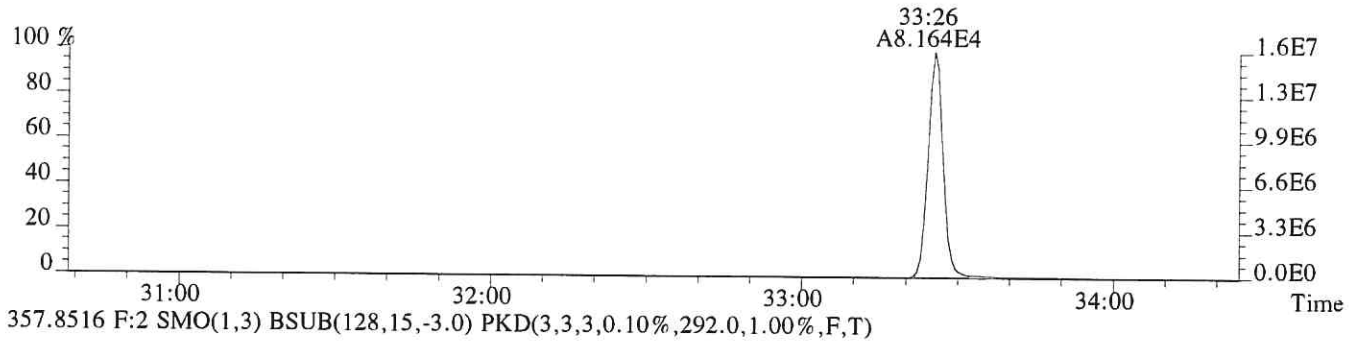
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



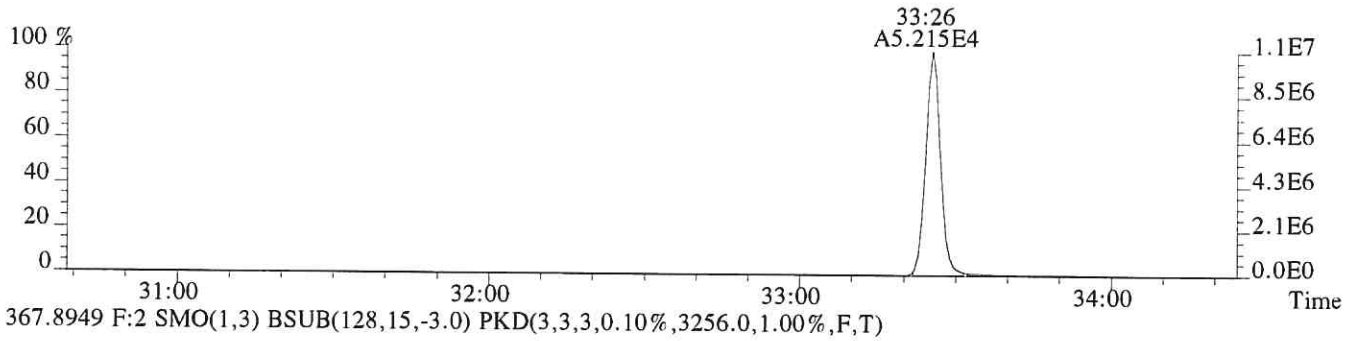
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



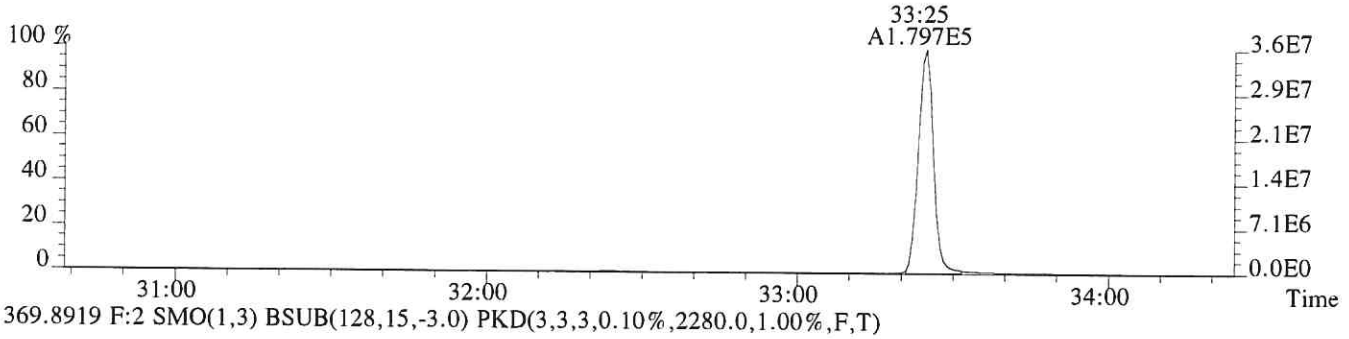
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



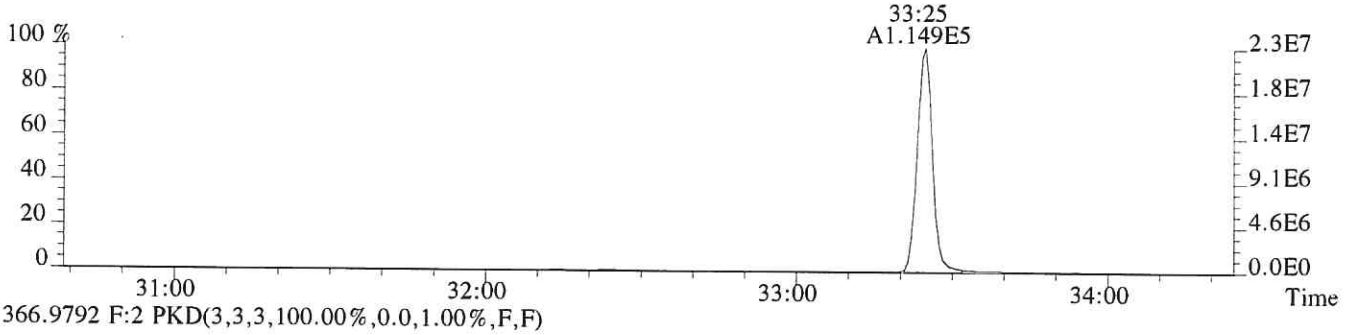
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



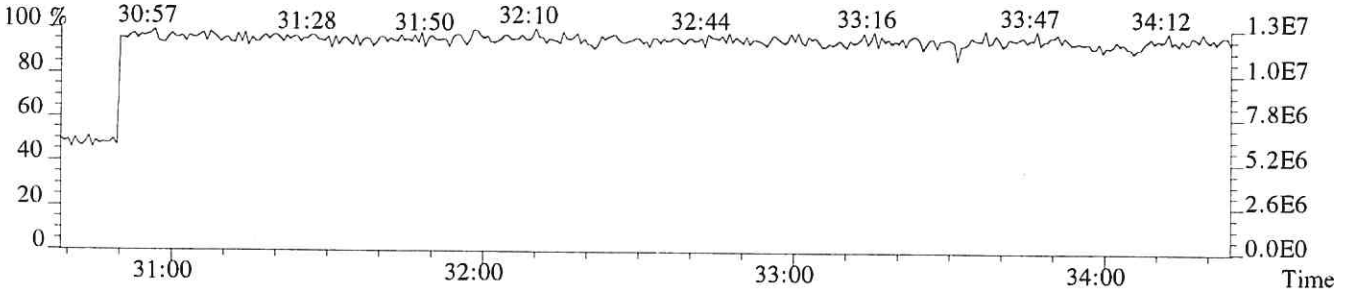
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



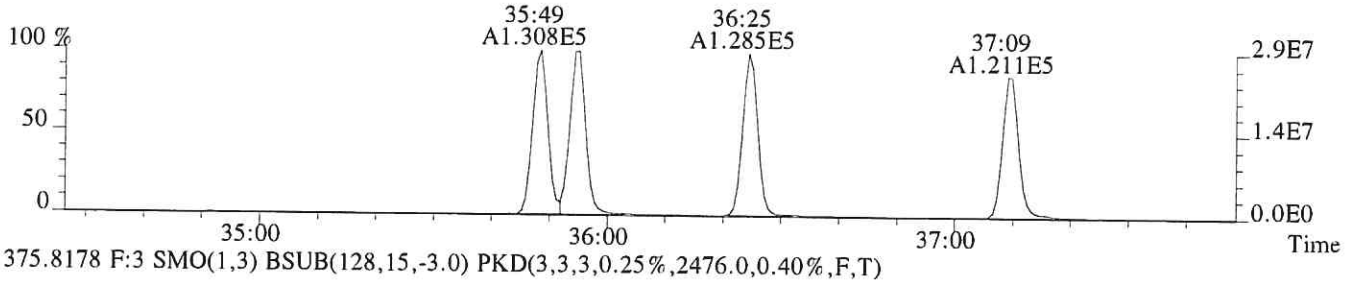
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



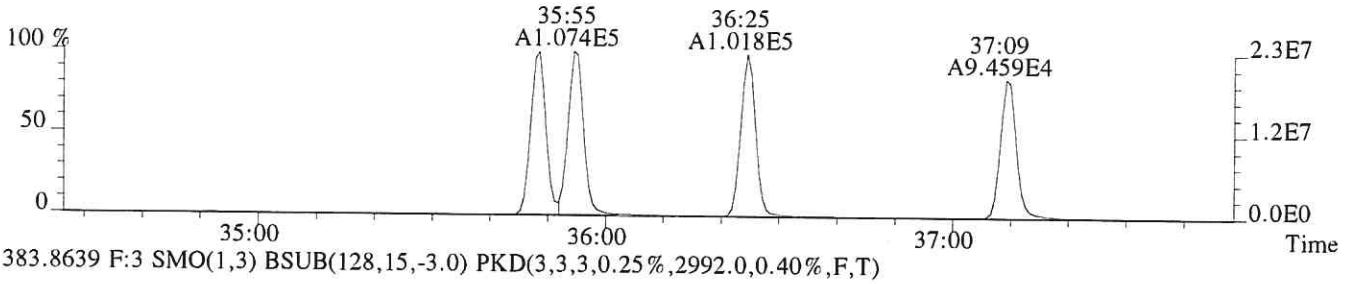
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



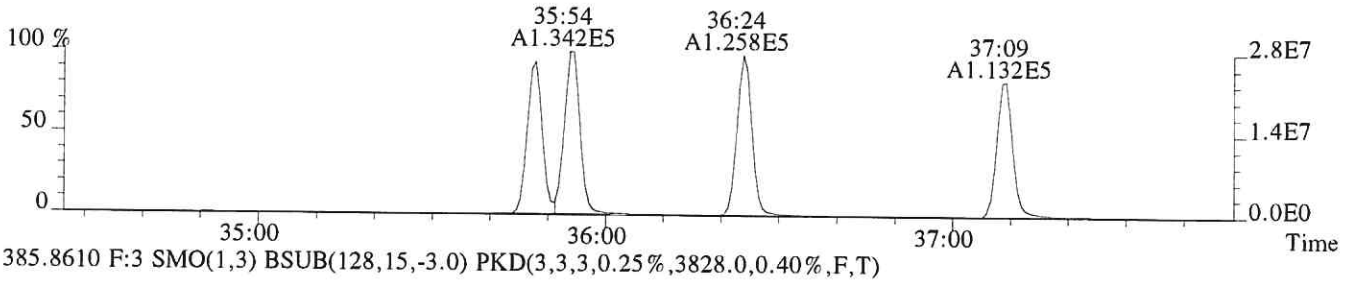
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



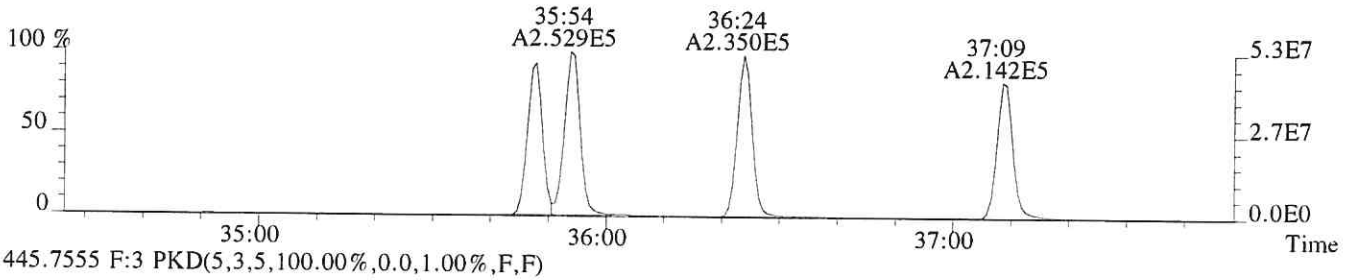
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



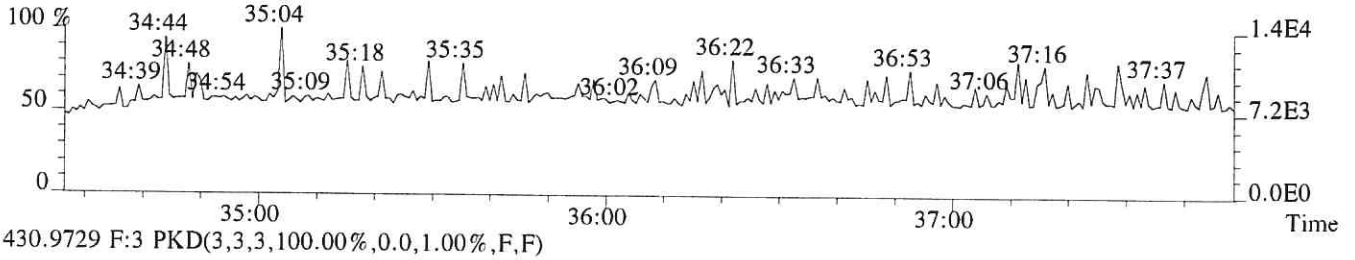
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



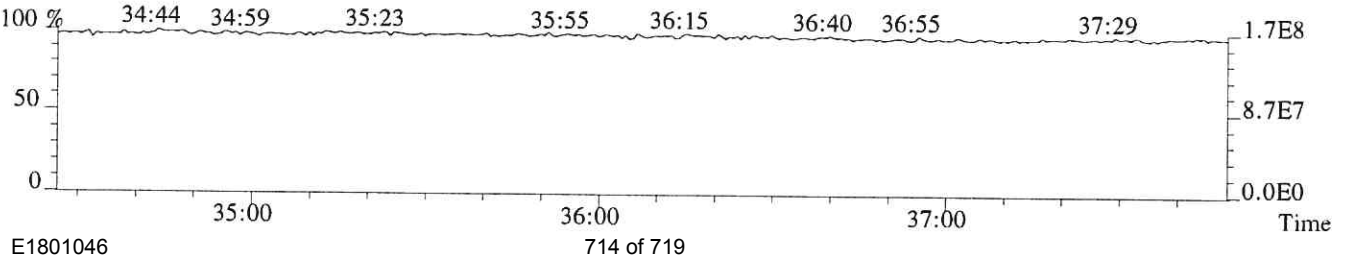
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



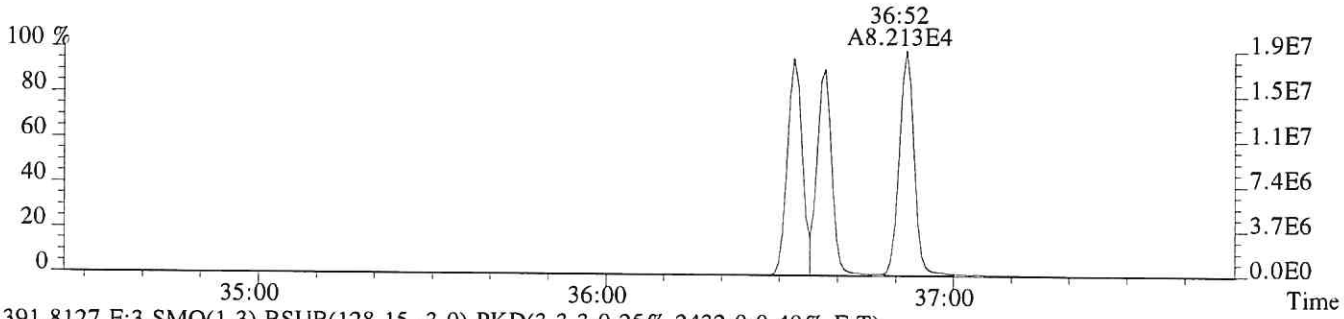
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



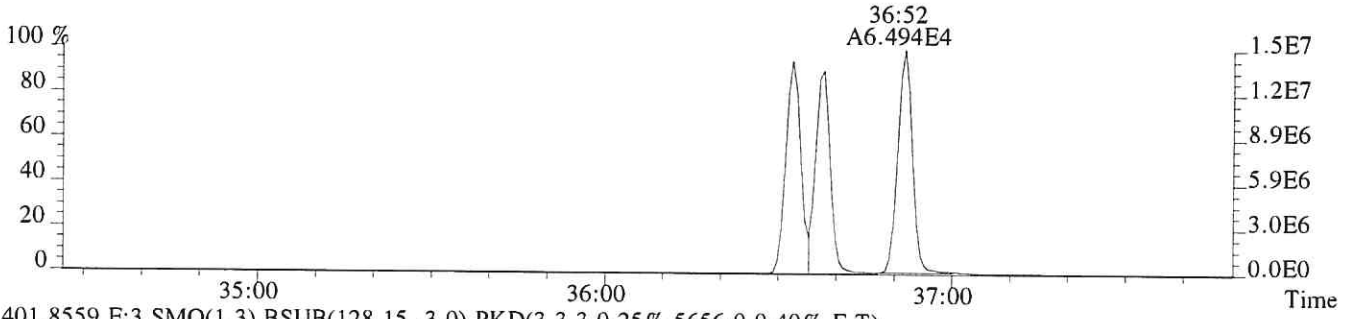
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



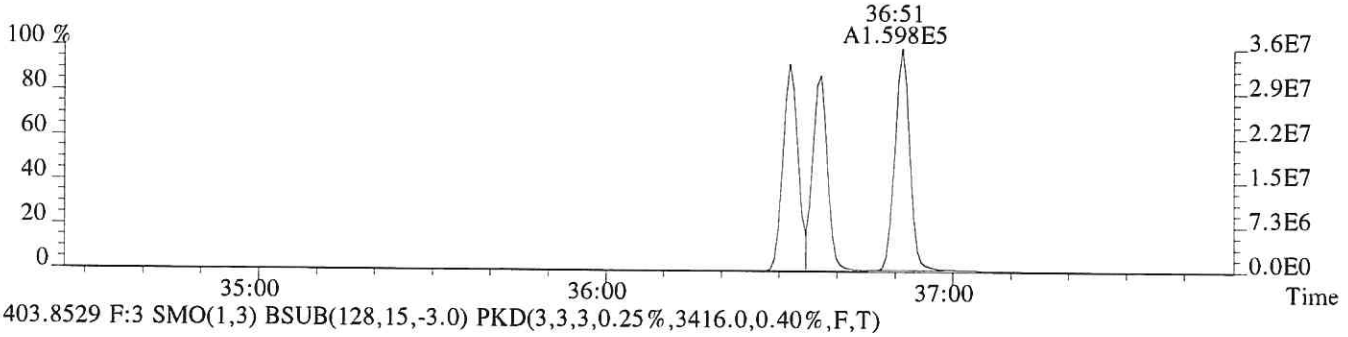
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



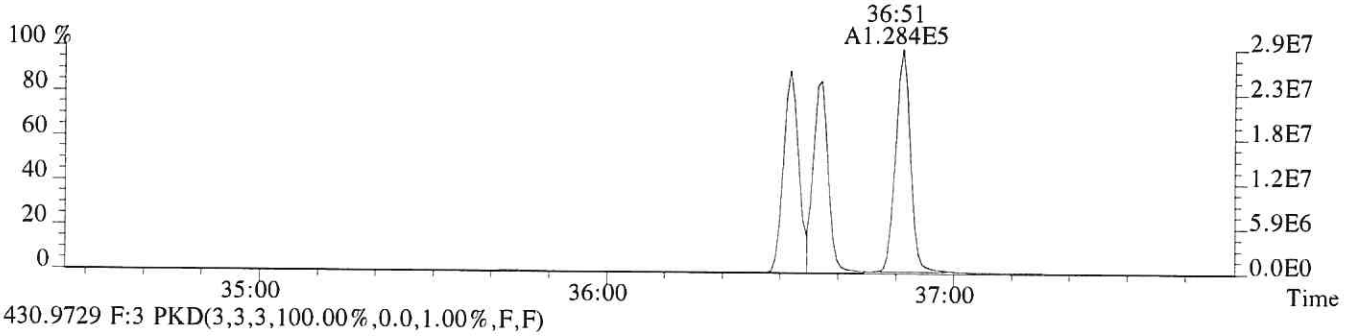
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



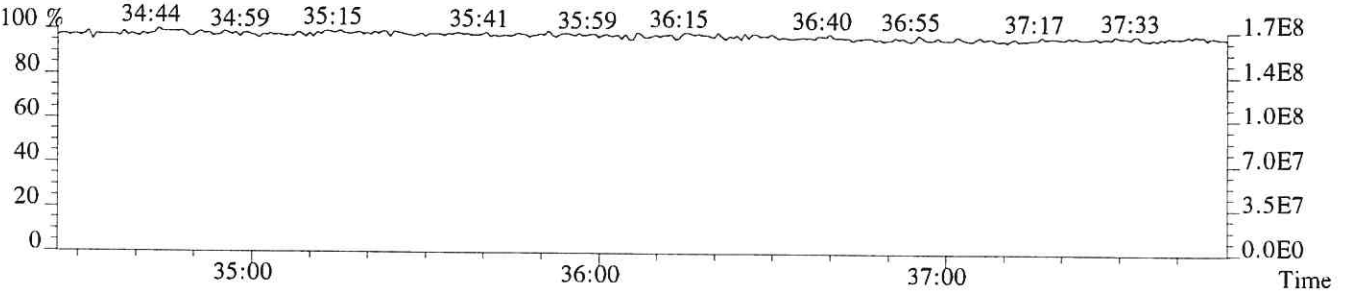
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



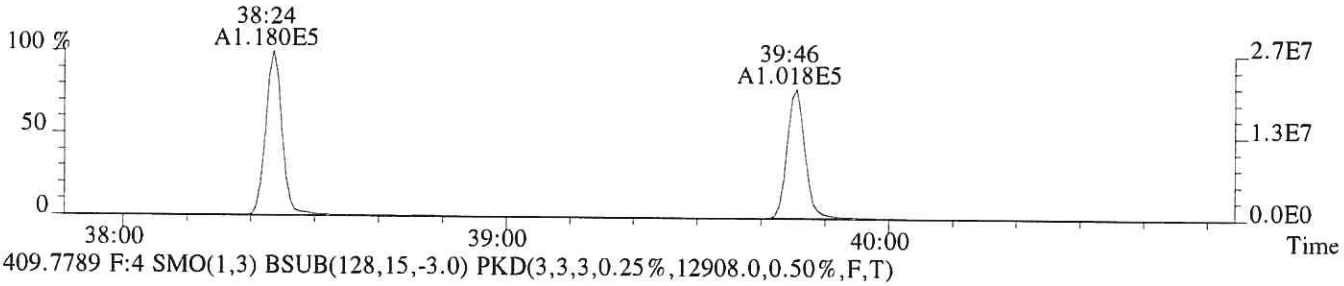
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



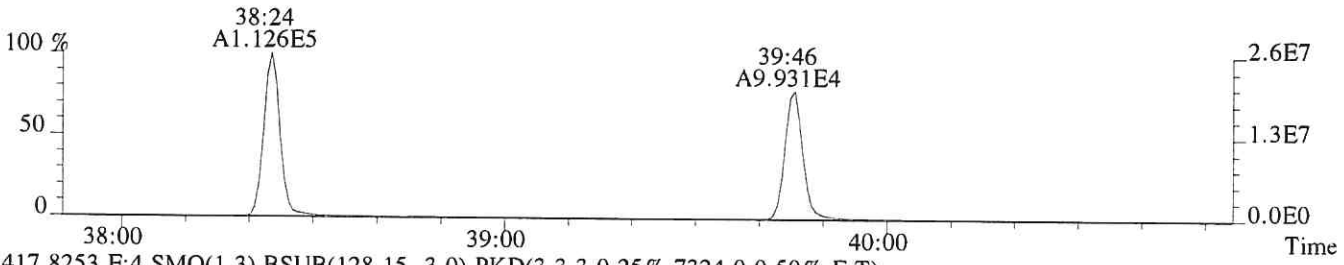
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



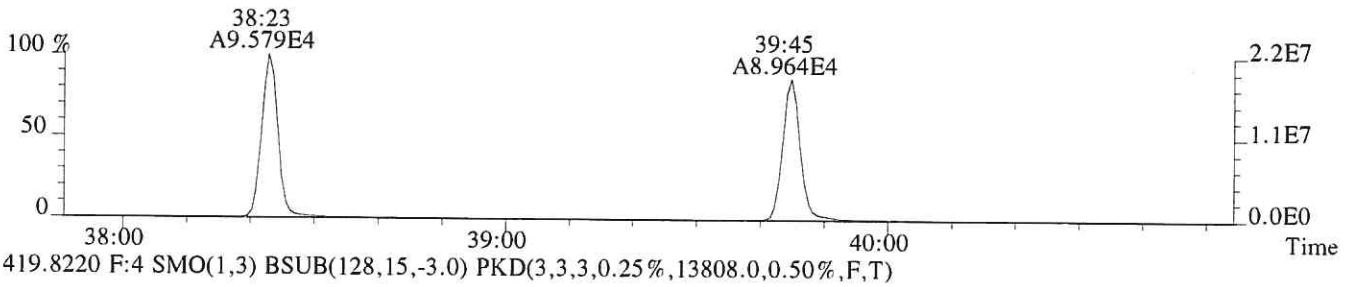
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



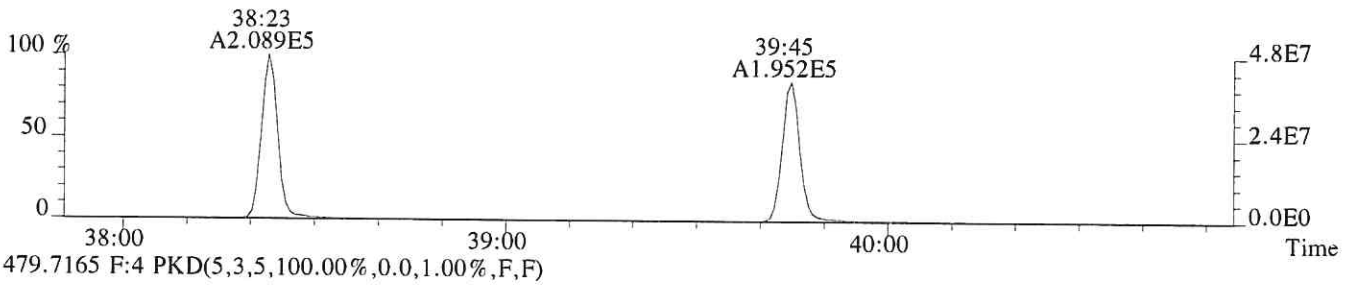
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



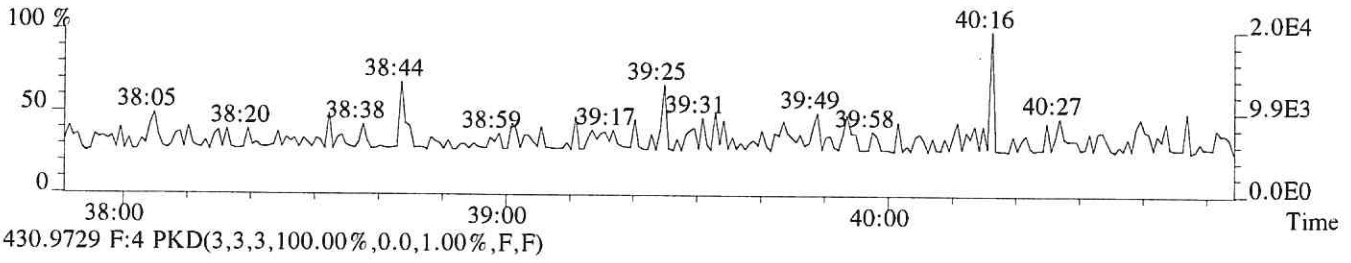
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



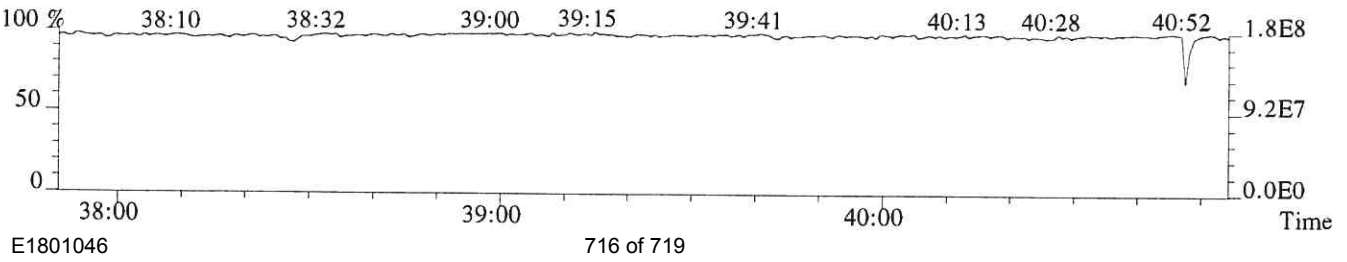
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



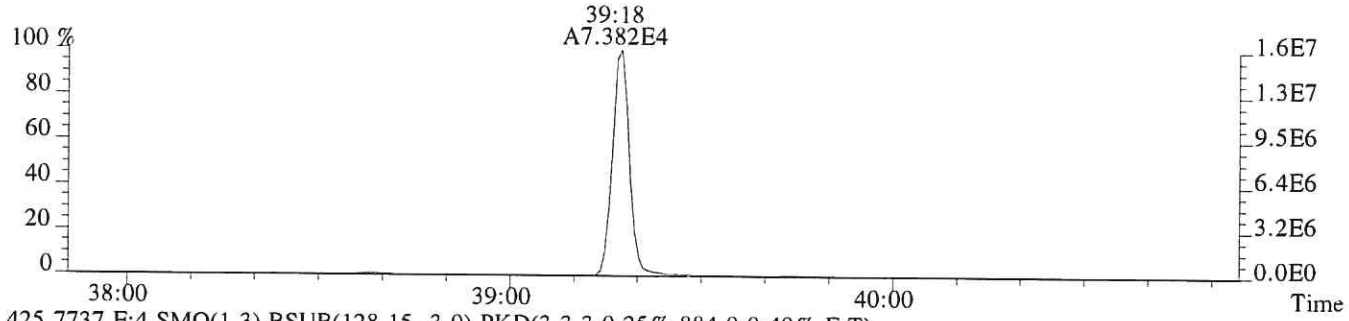
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



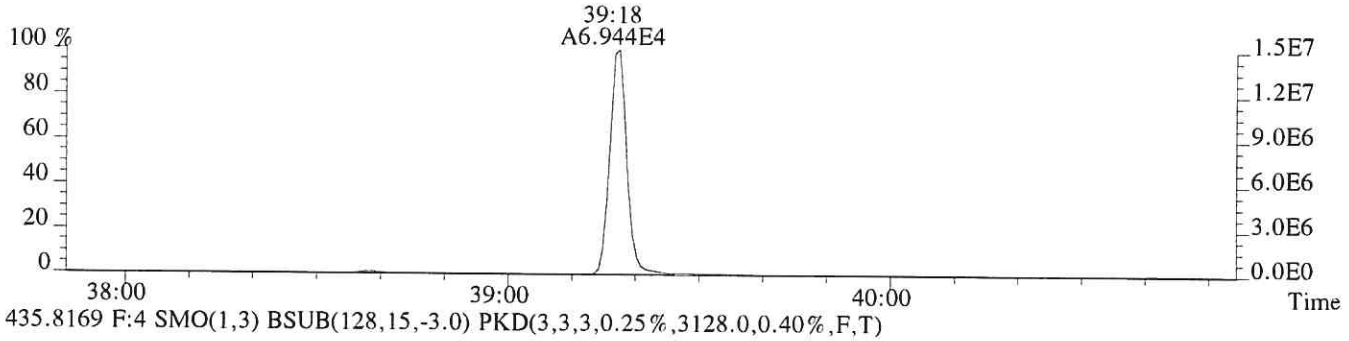
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



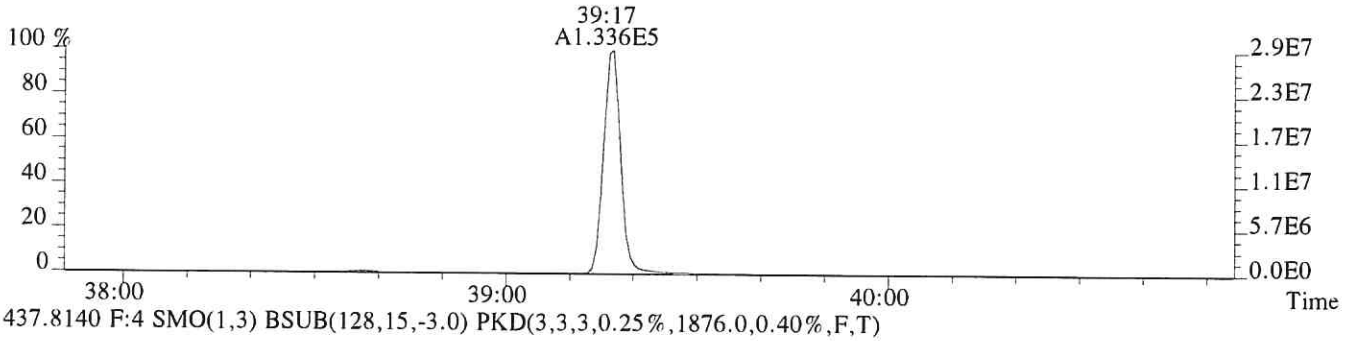
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



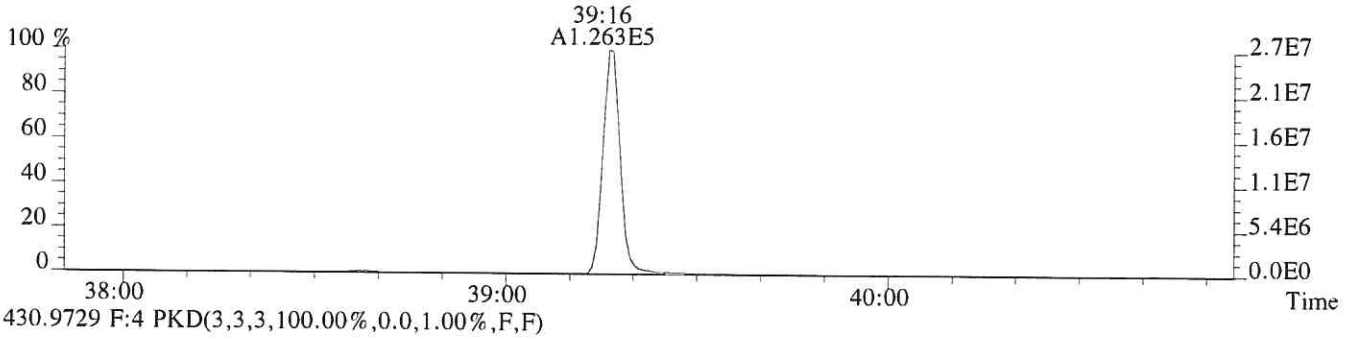
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



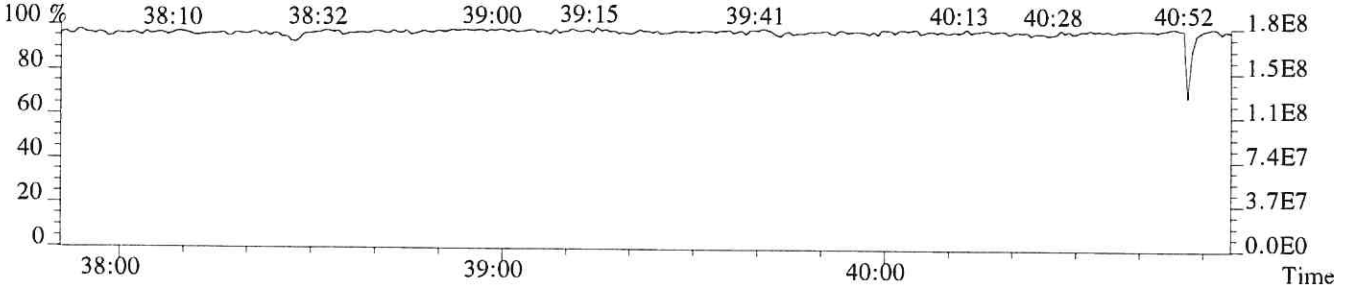
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



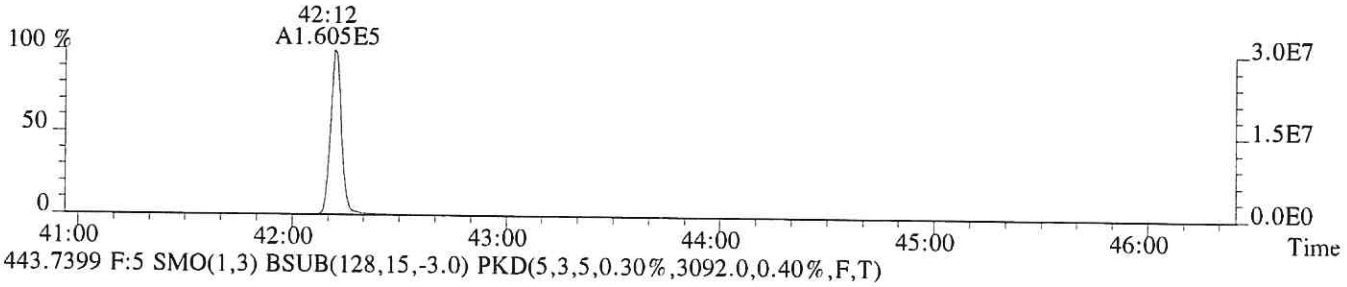
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



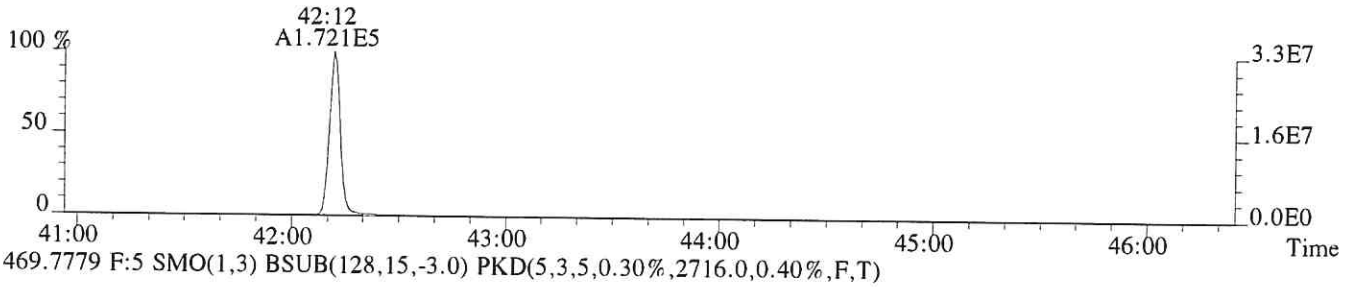
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



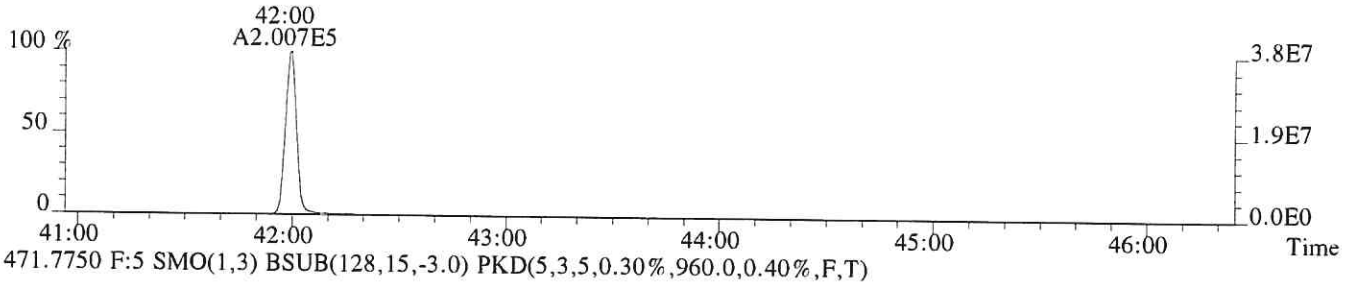
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



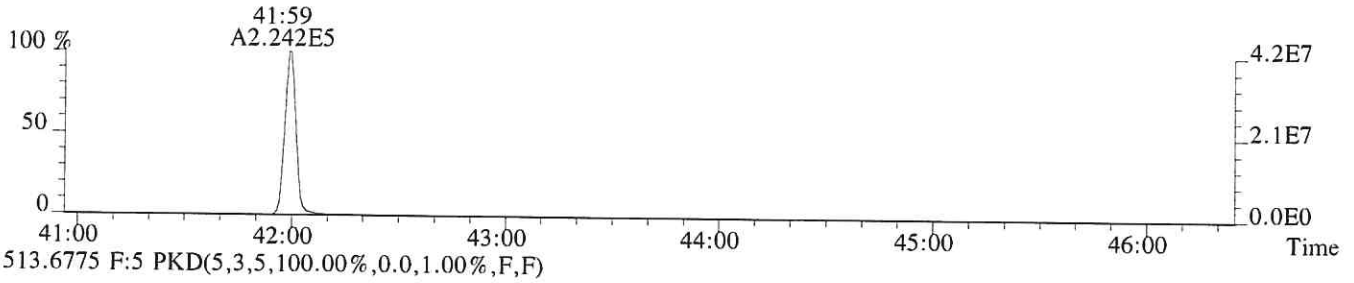
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



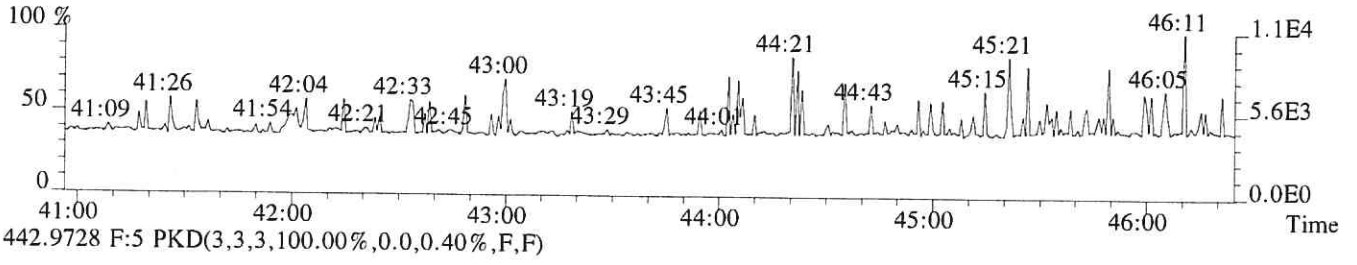
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



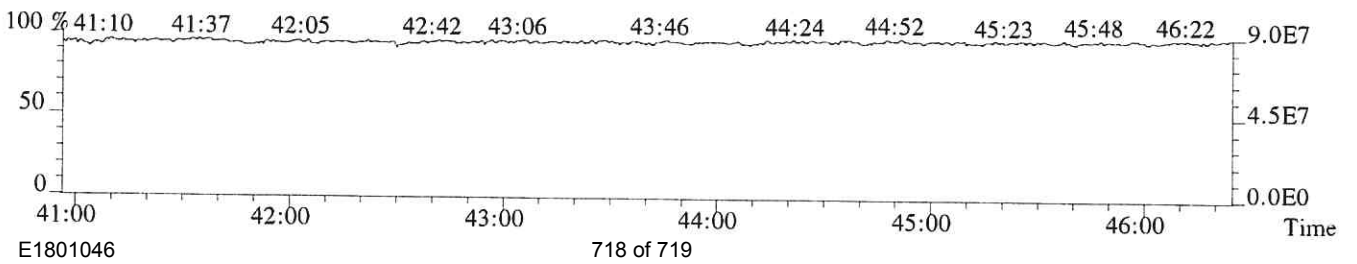
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



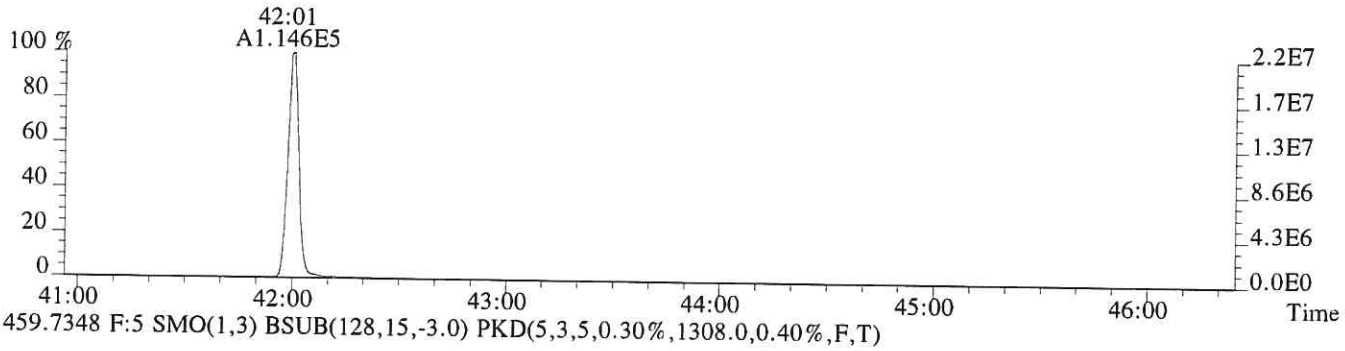
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



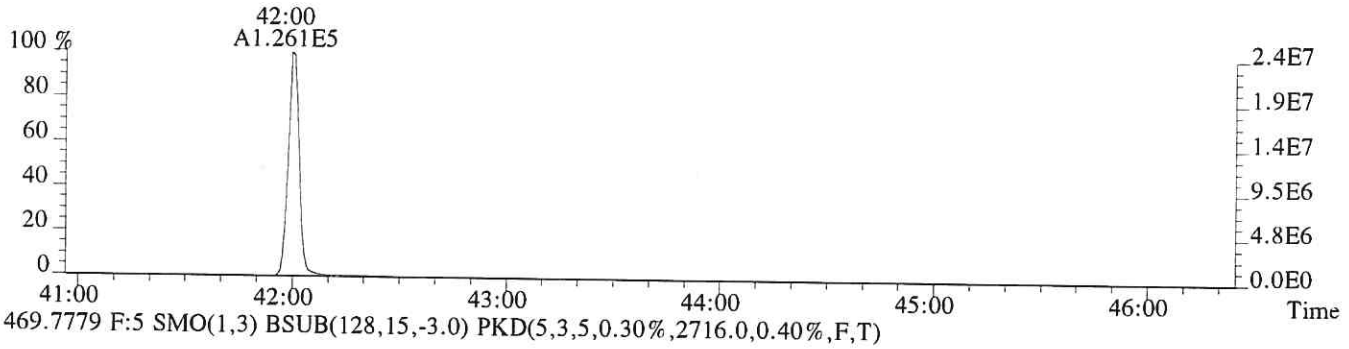
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



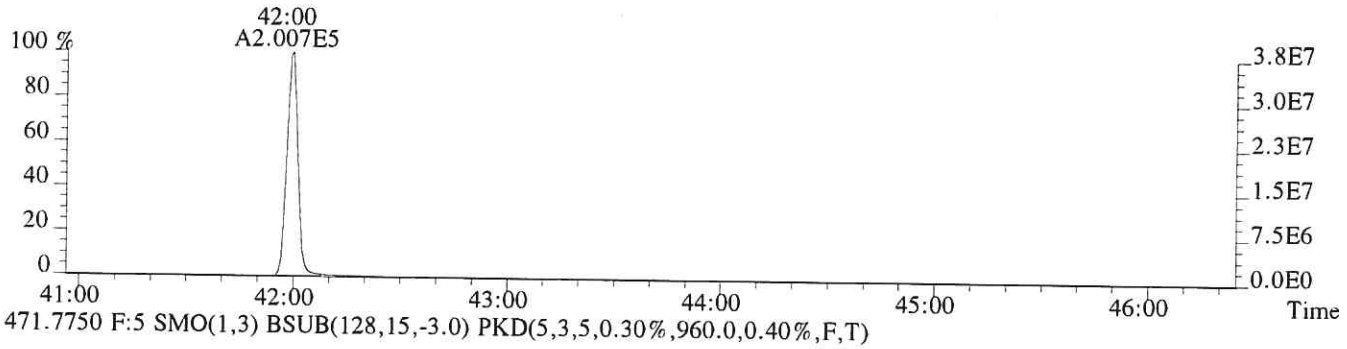
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



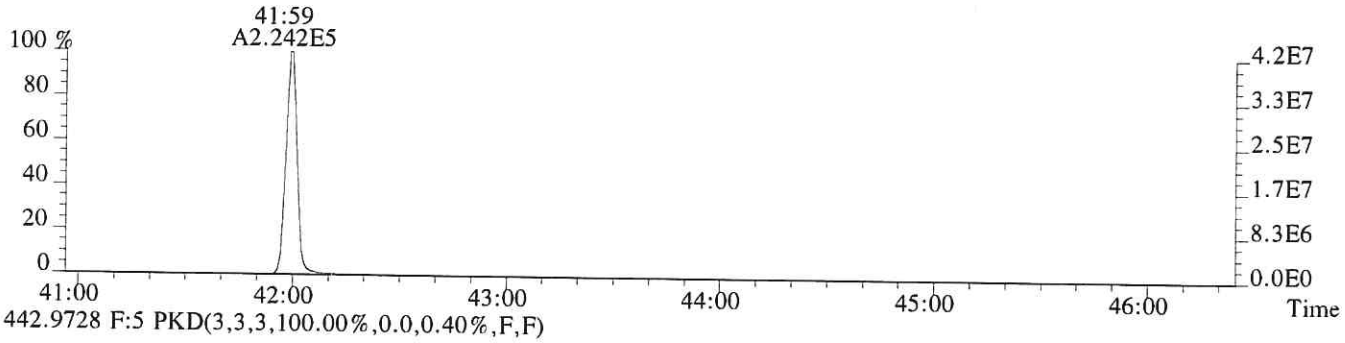
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



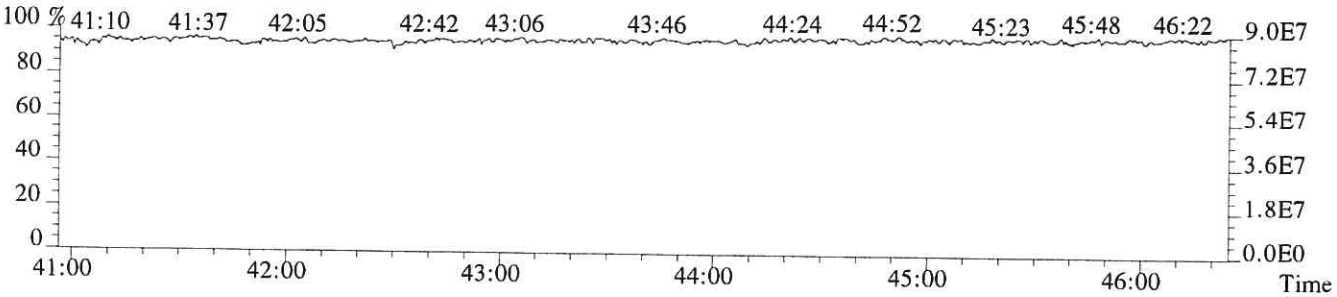
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



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



December 12, 2018 Service Request No:E1801055

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

Laboratory Results for:C1844-0501 North Impoundment

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 16, 2018
For your reference, these analyses have been assigned our service request number **E1801055.**

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

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

Certificate of Analysis

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

ALS Environmental

Client:	Integral Consulting, Inc.	**Service Request No.:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Received:**	11/16/18
Sample Matrix:	Solid		

CASE NARRATIVE

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

Sample Receipt

Eight samples were received for analysis at ALS Environmental in Houston on 11/16/18.

The samples were received at 3.3°C, 2.3°C, 2.4°C, and 2.9 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1800494-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800494: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

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

K flags

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

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the

noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

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

Manual Integrations

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

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

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

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

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

Client: Integral Consulting, Incorporated **Service Request:**E1801055

Project: C1844-0501 North Impoundment

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801055-001	SL0538	11/15/2018	0847
E1801055-002	SL0545	11/14/2018	1050
E1801055-003	SL0546	11/14/2018	1105
E1801055-004	SL0549	11/15/2018	1725
E1801055-005	SL0550	11/15/2018	1730
E1801055-006	SL0551	11/15/2018	1735
E1801055-007	SL0548	11/15/2018	1504
E1801055-008	SL0552	11/15/2018	1740

Service Request Summary

Folder #: **E1801055**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 North Impoundment
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/16/18
Internal Due Date: 12/10/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

8 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2E
Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801055-001	SL0538	Sediment	11/15/18 0847	**IV**	**IV**
E1801055-002	SL0545	Sediment	11/14/18 1050	**IV**	**IV**
E1801055-003	SL0546	Sediment	11/14/18 1105	**IV**	**IV**
E1801055-004	SL0549	Sediment	11/15/18 1725	**IV**	**IV**
E1801055-005	SL0550	Sediment	11/15/18 1730	**IV**	**IV**
E1801055-006	SL0551	Sediment	11/15/18 1735	**IV**	**IV**
E1801055-008	SL0552	Sediment	11/15/18 1740	**IV**	**IV**

Service Request Summary

Folder #: **E1801055**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 North Impoundment
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/16/18
Internal Due Date: 12/10/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

8 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 2E
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	Dioxins Furans/1613B	1	homogenize well before taking aliquot

Superset Summary

Service Request: E1801055 **SuperSet Reference:** 18-0000490843 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519360	P519350	P615971	E1801055-004
P519295	P519287	P615971	E1801055-008

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615974	P615967	P615971	E1801055-001
P615975	P615967	P615971	E1801055-002
P615976	P615967	P615971	E1801055-003
P615977	P615967	P615971	E1801055-004.R01
P615978	P615967	P615971	E1801055-005
P615979	P615967	P615971	E1801055-006
P615971	P615967	P615971	EQ1800494-01
P615980	P615967	P615971	EQ1800494-02
P615981	P615967	P615971	EQ1800494-03

Data Qualifiers

HRMS Qualifier Set

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

ALS Laboratory Group

Acronyms

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

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

SR# Unique ID: E1801055 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
12/11/18	[signature]	001-006

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

Date:	Analyst:	Samples:
12/11/18	LKL	001_006

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E180105S

DB-5MSUI (SPB-Octyl)

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

Date:	Analyst:	Samples:
12/12/18	[signature]	004DL

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

Date:	Analyst:	Samples:
12/12/18	LKL	004DL

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E 1801055 | DB-5MSUI | SPB-Octyl

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

Date:	Analyst:	Samples:
12/10/18		008

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

Date:	Analyst:	Samples:
12/10/18	LKL	008

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

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

E1801055 5

Integral Consulting, Inc.
C1844-0501 North Impoundment

CHAIN OF CUSTODY FORM

Project: C1844 - 0501 North Impoundment

Samplers: O. Hargrave

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

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

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	TCLP Extraction (EPA 1311)	Ignitibility, Flashpoint (SW1010A) pH Corrosivity (EPA 9040C)	Reactive Sulfides (SW 9034)		Extra Container	Archive	Comments
SL0538	0538	11/15/18	0847	SL	X										
SL0545	0545	11/14/18	1050	SL	X										
SL0546	0546	11/14/18	1105	SL	X										
SL0549	0547	11/15/18	1725	SL	X										
SL0550	0548	11/15/18	1730	SL	X										
SL0551	0549	11/15/18	1735	SL	X									X	homogenize well before sampling
SL0548	0598	11/15/18	1504	SL											
SL0552	0550	11/15/18	1740	SL	X										
SL0547	1845	11/15/18	1845	SL			X		X	X	X				

Hannah Hussa 11/16/2018

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

Shipped by: **Shipping Tracking No.**

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

Relinquished by: Hannah Hussa (signature) **Date/Time:** 11/16/18 0840 **Received by:** (signature) **Date/Time:**

Relinquished by: (signature) **Date/Time:** **Received by:** (signature) **Date/Time:** 11/16/18 1400

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

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

Cooler Receipt Form

ALS Environmental

Project Chemist HB

Client/Project INTEGRAL

Thermometer ID SMD4

Date/Time Received: 11/16/18 Initials: CG Date/Time Logged in: 11/16/18 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ☒ Courier (ALS) ○ Client

2. Samples received in: ☒ Cooler ○ Box ○ Envelope ○ Other

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

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

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

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/16/18	1405	PG	3.3/3.7	☒
-		↓	↓	↓	2.3/2.7	☐
-		↓	↓	↓	2.9/3.3	☐
-		↓	↓	↓	2.5/2.9	☐

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

Notes, Discrepancies, & Resolutions:

Service request Label:

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

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

Prep Run#: 327468 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/3/18 09:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801055-001	SL0538	.01	1613B/Dioxins Furans			Sediment	10.859g	Brown Dirt + Rocks
2	E1801055-002	SL0545	.01	1613B/Dioxins Furans			Sediment	10.580g	Moist Brown Sand
3	E1801055-003	SL0546	.01	1613B/Dioxins Furans			Sediment	10.346g	Moist Brown Sand
4	E1801055-004	SL0549	.01	1613B/Dioxins Furans			Sediment	10.473g	Brown Mud
5	E1801055-005	SL0550	.01	1613B/Dioxins Furans			Sediment	10.292g	Brown Mud
6	E1801055-006	SL0551	.01	1613B/Dioxins Furans			Sediment	10.954g	Brown Mud
7	E1801055-008	SL0552	.01	1613B/Dioxins Furans			Sediment	10.682g	Brown Mud
8	E1801057-001	SL0553	.01	1613B/Dioxins Furans			Sediment	10.092g	Brown Mud
9	E1801057-004	SL0556	.01	1613B/Dioxins Furans			Sediment	10.631g	Brown Mud
10	E1801057-005	SL0557	.01	1613B/Dioxins Furans			Sediment	10.877g	Brown Mud + Sand
11	E1801057-006	SL0558	.01	1613B/Dioxins Furans			Sediment	10.132g	Brown Mud
12	E1801057-007	SL0559	.01	1613B/Dioxins Furans			Sediment	10.687g	Brown Mud
13	E1801057-008	SL0560	.01	1613B/Dioxins Furans			Sediment	10.695g	Brown Mud
14	E1801065-001	SL0580	.01	1613B/Dioxins Furans			Sediment	10.480g	Brown Mud
15	E1801065-002	SL0581	.01	1613B/Dioxins Furans			Sediment	10.622g	Brown Mud
16	E1801065-003	SL0582	.01	1613B/Dioxins Furans			Sediment	10.494g	Brown Mud
17	E1801065-004	SL0583	.01	1613B/Dioxins Furans			Sediment	10.829g	Brown Mud
18	E1801065-005	SL0584	.01	1613B/Dioxins Furans			Sediment	10.444g	Brown Mud
19	E1801065-006	SL0585	.01	1613B/Dioxins Furans			Sediment	10.320g	Brown Mud
20	E1801065-007	SL0586	.01	1613B/Dioxins Furans			Sediment	10.597g	Brown Mud
21	EQ1800494-01	MB		1613B/Dioxins Furans			Solid	10.300g	
22	EQ1800494-02	LCS		1613B/Dioxins Furans			Solid	10.142g	
23	EQ1800494-03	DLCS		1613B/Dioxins Furans			Solid	10.111g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800494-02 100.00µL EQ1800494-03 100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801055-001	100.00µL	E1801055-002	100.00µL	E1801055-003	100.00µL	E1801055-004	100.00µL	E1801055-005	100.00µL	E1801055-006	100.00µL
E1801055-008	100.00µL	E1801057-001	100.00µL	E1801057-004	100.00µL	E1801057-005	100.00µL	E1801057-006	100.00µL	E1801057-007	100.00µL
E1801057-008	100.00µL	E1801065-001	100.00µL	E1801065-002	100.00µL	E1801065-003	100.00µL	E1801065-004	100.00µL	E1801065-005	100.00µL
E1801065-006	100.00µL	E1801065-007	100.00µL	EQ1800494-01	100.00µL	EQ1800494-02	100.00µL	EQ1800494-03	100.00µL		

Preparation Information Benchsheet

Prep Run#: 327468 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/3/18 09:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	195330	Logbook Ref:	195330 AL 12/3/18 2-4 ng/mL	Expires On:	01/31/2019

E1801055-001	1,000.00µL	E1801055-002	1,000.00µL	E1801055-003	1,000.00µL	E1801055-004	1,000.00µL	E1801055-005	1,000.00µL	E1801055-006	1,000.00µL
E1801055-008	1,000.00µL	E1801057-001	1,000.00µL	E1801057-004	1,000.00µL	E1801057-005	1,000.00µL	E1801057-006	1,000.00µL	E1801057-007	1,000.00µL
E1801057-008	1,000.00µL	E1801065-001	1,000.00µL	E1801065-002	1,000.00µL	E1801065-003	1,000.00µL	E1801065-004	1,000.00µL	E1801065-005	1,000.00µL
E1801065-006	1,000.00µL	E1801065-007	1,000.00µL	EQ1800494-01	1,000.00µL	EQ1800494-02	1,000.00µL	EQ1800494-03	1,000.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195003)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/3/18 09:00	Started:	12/4/18 09:00	Started:	12/4/18 11:00	Started:	12/6/18 09:00
Finished:	12/4/18 07:30	Finished:	12/4/18 10:00	Finished:	12/4/18 14:00	Finished:	12/6/18 12:00
By:	JGUIN	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 08:47
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0538	**Units:**	ng/Kg
Lab Code:	E1801055-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 15:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.859g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615974	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	72.2		0.507	0.513	0.80	1.001	1
1,2,3,7,8-PeCDD	0.805	**JK**	0.130	2.57	1.18	1.001	1
1,2,3,4,7,8-HxCDD	0.192	**JK**	0.109	2.57	2.55	1.000	1
1,2,3,6,7,8-HxCDD	0.821	**JK**	0.125	2.57	1.54	1.000	1
1,2,3,7,8,9-HxCDD	0.580	**JK**	0.109	2.57	1.03	1.006	1
1,2,3,4,6,7,8-HpCDD	22.7		0.132	2.57	1.07	1.000	1
OCDD	588		0.163	5.13	0.90	1.000	1
2,3,7,8-TCDF	184		0.445	0.513	0.79	1.001	1
1,2,3,7,8-PeCDF	8.87		0.197	2.57	1.58	1.000	1
2,3,4,7,8-PeCDF	6.45		0.212	2.57	1.64	1.000	1
1,2,3,4,7,8-HxCDF	12.9		0.0840	2.57	1.30	1.000	1
1,2,3,6,7,8-HxCDF	3.33		0.0852	2.57	1.32	1.000	1
1,2,3,7,8,9-HxCDF	1.18	**J**	0.0919	2.57	1.16	1.001	1
2,3,4,6,7,8-HxCDF	0.785	**JK**	0.0928	2.57	0.91	1.000	1
1,2,3,4,6,7,8-HpCDF	6.85		0.0557	2.57	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1.73	**J**	0.0812	2.57	1.03	1.000	1
OCDF	17.4		0.359	5.13	0.91	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 08:47
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0538	**Units:**	ng/Kg
Lab Code:	E1801055-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 15:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.859g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615974	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	79.0		0.507	0.513	0.80		1
Total Penta-Dioxins	0.201	**J**	0.130	2.57	1.49		1
Total Hexa-Dioxins	6.97		0.114	2.57	1.37		1
Total Hepta-Dioxins	56.0		0.132	2.57	1.05		1
Total Tetra-Furans	311		0.445	0.513	0.71		1
Total Penta-Furans	22.8		0.204	2.57	1.39		1
Total Hexa-Furans	22.0		0.0883	2.57	1.14		1
Total Hepta-Furans	15.9		0.0669	2.57	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 08:47
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0538	**Units:**	Percent
Lab Code:	E1801055-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 15:35
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.859g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615974	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	892.585	45		25-164	0.80	1.022
13C-1,2,3,7,8-PeCDD	2000	1272.254	64		25-181	1.56	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1377.717	69		32-141	1.34	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1284.277	64		28-130	1.22	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1419.784	71		23-140	1.04	1.066
13C-OCDD	4000	1388.002	35		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1170.340	59		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1236.422	62		24-185	1.57	1.149
13C-2,3,4,7,8-PeCDF	2000	1188.719	59		21-178	1.61	1.183
13C-1,2,3,4,7,8-HxCDF	2000	1242.957	62		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1172.884	59		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1212.064	61		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1140.046	57		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1046.708	52		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	948.525	47		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	500.597	63		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 08:47
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0538	**Units:**	ng/Kg
Lab Code:	E1801055-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**72.2**	0.507	0.513	1	1	72.2
1,2,3,7,8-PeCDD	**0.805**	0.130	2.57	1	1	0.805
1,2,3,4,7,8-HxCDD	**0.192**	0.109	2.57	1	0.1	0.0192
1,2,3,6,7,8-HxCDD	**0.821**	0.125	2.57	1	0.1	0.0821
1,2,3,7,8,9-HxCDD	**0.580**	0.109	2.57	1	0.1	0.0580
1,2,3,4,6,7,8-HpCDD	**22.7**	0.132	2.57	1	0.01	0.227
OCDD	**588**	0.163	5.13	1	0.0003	0.176
2,3,7,8-TCDF	**184**	0.445	0.513	1	0.1	18.4
1,2,3,7,8-PeCDF	**8.87**	0.197	2.57	1	0.03	0.266
2,3,4,7,8-PeCDF	**6.45**	0.212	2.57	1	0.3	1.94
1,2,3,4,7,8-HxCDF	**12.9**	0.0840	2.57	1	0.1	1.29
1,2,3,6,7,8-HxCDF	**3.33**	0.0852	2.57	1	0.1	0.333
1,2,3,7,8,9-HxCDF	**1.18**	0.0919	2.57	1	0.1	0.118
2,3,4,6,7,8-HxCDF	**0.785**	0.0928	2.57	1	0.1	0.0785
1,2,3,4,6,7,8-HpCDF	**6.85**	0.0557	2.57	1	0.01	0.0685
1,2,3,4,7,8,9-HpCDF	**1.73**	0.0812	2.57	1	0.01	0.0173
OCDF	**17.4**	0.359	5.13	1	0.0003	0.00522
		Total TEQ				96.1

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 08:47
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0538	**Units:**	Percent
Lab Code:	E1801055-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	9.649g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	89.7		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0545	**Units:**	ng/Kg
Lab Code:	E1801055-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 16:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.580g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615975	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	14.0		0.734	0.734	0.74	1.001	1
1,2,3,7,8-PeCDD	0.301**J**		0.151	2.95	1.53	1.001	1
1,2,3,4,7,8-HxCDD	0.109**JK**		0.0683	2.95	0.52	1.001	1
1,2,3,6,7,8-HxCDD	0.187**JK**		0.0790	2.95	0.62	1.000	1
1,2,3,7,8,9-HxCDD	0.349**J**		0.0683	2.95	1.21	1.006	1
1,2,3,4,6,7,8-HpCDD	3.87		0.108	2.95	0.90	1.000	1
OCDD	127		0.299	5.90	0.88	1.000	1
2,3,7,8-TCDF	26.2		0.731	0.731	0.77	1.001	1
1,2,3,7,8-PeCDF	1.03**J**		0.128	2.95	1.53	1.001	1
2,3,4,7,8-PeCDF	0.870**J**		0.140	2.95	1.74	1.000	1
1,2,3,4,7,8-HxCDF	2.00**J**		0.0927	2.95	1.19	1.000	1
1,2,3,6,7,8-HxCDF	0.578**J**		0.0934	2.95	1.29	1.000	1
1,2,3,7,8,9-HxCDF	0.158**J**		0.114	2.95	1.40	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.101	2.95			1
1,2,3,4,6,7,8-HpCDF	0.926**J**		0.0752	2.95	1.05	1.001	1
1,2,3,4,7,8,9-HpCDF	0.242**J**		0.102	2.95	1.18	1.000	1
OCDF	1.23**J**		0.481	5.90	0.98	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0545	**Units:**	ng/Kg
Lab Code:	E1801055-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 16:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.580g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615975	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	14.0		0.734	0.734	0.74		1
Total Penta-Dioxins	1.16**J**		0.151	2.95	1.69		1
Total Hexa-Dioxins	1.93**J**		0.0716	2.95	1.38		1
Total Hepta-Dioxins	13.2		0.108	2.95	1.09		1
Total Tetra-Furans	38.0		0.731	0.731	0.71		1
Total Penta-Furans	1.90**J**		0.134	2.95	1.53		1
Total Hexa-Furans	2.74**J**		0.0994	2.95	1.19		1
Total Hepta-Furans	1.17**J**		0.0874	2.95	1.05		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0545	**Units:**	Percent
Lab Code:	E1801055-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 16:24
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.580g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615975	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	532.893	27		25-164	0.79	1.022
13C-1,2,3,7,8-PeCDD	2000	993.264	50		25-181	1.55	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1074.150	54		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	974.208	49		28-130	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1106.410	55		23-140	1.05	1.066
13C-OCDD	4000	1084.289	27		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	663.632	33		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	860.481	43		24-185	1.60	1.149
13C-2,3,4,7,8-PeCDF	2000	822.103	41		21-178	1.59	1.183
13C-1,2,3,4,7,8-HxCDF	2000	878.264	44		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	866.810	43		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	852.663	43		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	846.387	42		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	746.759	37		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	747.526	37		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	302.582	38		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0545	**Units:**	ng/Kg
Lab Code:	E1801055-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**14.0**	0.734	0.734	1	1	14.0
1,2,3,7,8-PeCDD	**0.301**	0.151	2.95	1	1	0.301
1,2,3,4,7,8-HxCDD	**0.109**	0.0683	2.95	1	0.1	0.0109
1,2,3,6,7,8-HxCDD	**0.187**	0.0790	2.95	1	0.1	0.0187
1,2,3,7,8,9-HxCDD	**0.349**	0.0683	2.95	1	0.1	0.0349
1,2,3,4,6,7,8-HpCDD	**3.87**	0.108	2.95	1	0.01	0.0387
OCDD	**127**	0.299	5.90	1	0.0003	0.0381
2,3,7,8-TCDF	**26.2**	0.731	0.731	1	0.1	2.62
1,2,3,7,8-PeCDF	**1.03**	0.128	2.95	1	0.03	0.0309
2,3,4,7,8-PeCDF	**0.870**	0.140	2.95	1	0.3	0.261
1,2,3,4,7,8-HxCDF	**2.00**	0.0927	2.95	1	0.1	0.200
1,2,3,6,7,8-HxCDF	**0.578**	0.0934	2.95	1	0.1	0.0578
1,2,3,7,8,9-HxCDF	**0.158**	0.114	2.95	1	0.1	0.0158
2,3,4,6,7,8-HxCDF	ND	0.101	2.95	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.926**	0.0752	2.95	1	0.01	0.00926
1,2,3,4,7,8,9-HpCDF	**0.242**	0.102	2.95	1	0.01	0.00242
OCDF	**1.23**	0.481	5.90	1	0.0003	0.000369
		Total TEQ				17.6

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0545	**Units:**	Percent
Lab Code:	E1801055-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	6.739g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 11:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0546	**Units:**	ng/Kg
Lab Code:	E1801055-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 17:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.346g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615976	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	9.83		0.634	0.634	0.72	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.155	3.02			1
1,2,3,4,7,8-HxCDD	0.213**J**		0.0971	3.02	1.41	1.000	1
1,2,3,6,7,8-HxCDD	0.317**J**		0.112	3.02	1.42	1.000	1
1,2,3,7,8,9-HxCDD	0.269**J**		0.0967	3.02	1.25	1.006	1
1,2,3,4,6,7,8-HpCDD	4.09		0.101	3.02	1.10	1.000	1
OCDD	109		0.160	6.04	0.88	1.000	1
2,3,7,8-TCDF	20.2		0.408	0.604	0.79	1.001	1
1,2,3,7,8-PeCDF	0.730**J**		0.159	3.02	1.54	1.001	1
2,3,4,7,8-PeCDF	0.539**J**		0.172	3.02	1.61	1.001	1
1,2,3,4,7,8-HxCDF	1.65**J**		0.0855	3.02	1.17	1.000	1
1,2,3,6,7,8-HxCDF	0.361**JK**		0.0866	3.02	1.48	1.001	1
1,2,3,7,8,9-HxCDF	0.145**JK**		0.104	3.02	1.69	1.001	1
2,3,4,6,7,8-HxCDF	ND	U	0.0943	3.02			1
1,2,3,4,6,7,8-HpCDF	0.514**J**		0.0652	3.02	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	0.200**J**		0.0911	3.02	1.18	1.000	1
OCDF	0.583**JK**		0.305	6.04	0.75	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 11:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0546	**Units:**	ng/Kg
Lab Code:	E1801055-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 17:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.346g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615976	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	9.83		0.634	0.634	0.72		1
Total Penta-Dioxins	0.597**J**		0.155	3.02	1.46		1
Total Hexa-Dioxins	4.05		0.102	3.02	1.15		1
Total Hepta-Dioxins	12.6		0.101	3.02	1.04		1
Total Tetra-Furans	31.7		0.408	0.604	0.84		1
Total Penta-Furans	1.27**J**		0.165	3.02	1.54		1
Total Hexa-Furans	1.65**J**		0.0920	3.02	1.17		1
Total Hepta-Furans	0.714**J**		0.0768	3.02	1.05		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 11:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0546	**Units:**	Percent
Lab Code:	E1801055-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 17:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.346g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615976	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	741.031	37		25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1285.385	64		25-181	1.59	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1296.906	65		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1200.084	60		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1415.619	71		23-140	1.04	1.066
13C-OCDD	4000	1601.442	40		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	924.017	46		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1148.347	57		24-185	1.57	1.149
13C-2,3,4,7,8-PeCDF	2000	1082.149	54		21-178	1.59	1.183
13C-1,2,3,4,7,8-HxCDF	2000	1087.729	54		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1096.736	55		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1063.787	53		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1048.666	52		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	996.003	50		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	940.288	47		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	425.846	53		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 11:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0546	**Units:**	ng/Kg
Lab Code:	E1801055-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**9.83**	0.634	0.634	1	1	9.83
1,2,3,7,8-PeCDD	ND	0.155	3.02	1	1	
1,2,3,4,7,8-HxCDD	**0.213**	0.0971	3.02	1	0.1	0.0213
1,2,3,6,7,8-HxCDD	**0.317**	0.112	3.02	1	0.1	0.0317
1,2,3,7,8,9-HxCDD	**0.269**	0.0967	3.02	1	0.1	0.0269
1,2,3,4,6,7,8-HpCDD	**4.09**	0.101	3.02	1	0.01	0.0409
OCDD	**109**	0.160	6.04	1	0.0003	0.0327
2,3,7,8-TCDF	**20.2**	0.408	0.604	1	0.1	2.02
1,2,3,7,8-PeCDF	**0.730**	0.159	3.02	1	0.03	0.0219
2,3,4,7,8-PeCDF	**0.539**	0.172	3.02	1	0.3	0.162
1,2,3,4,7,8-HxCDF	**1.65**	0.0855	3.02	1	0.1	0.165
1,2,3,6,7,8-HxCDF	**0.361**	0.0866	3.02	1	0.1	0.0361
1,2,3,7,8,9-HxCDF	**0.145**	0.104	3.02	1	0.1	0.0145
2,3,4,6,7,8-HxCDF	ND	0.0943	3.02	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.514**	0.0652	3.02	1	0.01	0.00514
1,2,3,4,7,8,9-HpCDF	**0.200**	0.0911	3.02	1	0.01	0.00200
OCDF	**0.583**	0.305	6.04	1	0.0003	0.000175
		Total TEQ				12.4

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/14/18 11:05
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0546	**Units:**	Percent
Lab Code:	E1801055-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	6.725g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0549	**Units:**	ng/Kg
Lab Code:	E1801055-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 18:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.473g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615977	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	365		0.923	0.923	0.80	1.001	1
1,2,3,7,8-PeCDD	3.02		0.143	3.01	1.59	1.001	1
1,2,3,4,7,8-HxCDD	0.406	**J**	0.130	3.01	1.27	1.000	1
1,2,3,6,7,8-HxCDD	0.612	**JK**	0.148	3.01	1.68	1.000	1
1,2,3,7,8,9-HxCDD	0.714	**J**	0.129	3.01	1.22	1.006	1
1,2,3,4,6,7,8-HpCDD	15.2		0.104	3.01	0.95	1.000	1
OCDD	545		0.247	6.03	0.88	1.000	1
2,3,7,8-TCDF	2330		6.05	6.05	0.73	1.001	10
1,2,3,7,8-PeCDF	24.3		0.253	3.01	1.47	1.001	1
2,3,4,7,8-PeCDF	21.0		0.270	3.01	1.51	1.000	1
1,2,3,4,7,8-HxCDF	72.5		0.112	3.01	1.27	1.000	1
1,2,3,6,7,8-HxCDF	16.5		0.113	3.01	1.31	1.000	1
1,2,3,7,8,9-HxCDF	4.45	**K**	0.137	3.01	1.47	1.001	1
2,3,4,6,7,8-HxCDF	2.86	**J**	0.123	3.01	1.09	1.000	1
1,2,3,4,6,7,8-HpCDF	22.6		0.0696	3.01	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	9.89		0.0949	3.01	0.95	1.000	1
OCDF	14.8		0.310	6.03	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0549	**Units:**	ng/Kg
Lab Code:	E1801055-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 18:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.473g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615977	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	401		0.923	0.923	0.80		1
Total Penta-Dioxins	3.02		0.143	3.01	1.59		1
Total Hexa-Dioxins	9.69		0.135	3.01	1.35		1
Total Hepta-Dioxins	47.4		0.104	3.01	1.09		1
Total Tetra-Furans	1460		0.605	0.605	0.78		1
Total Penta-Furans	65.5		0.262	3.01	1.51		1
Total Hexa-Furans	99.2		0.121	3.01	1.10		1
Total Hepta-Furans	40.0		0.0811	3.01	1.06		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0549	**Units:**	Percent
Lab Code:	E1801055-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 18:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.473g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615977	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	559.499	28		25-164	0.77	1.022
13C-1,2,3,7,8-PeCDD	2000	1001.023	50		25-181	1.53	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1005.956	50		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	911.211	46		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1091.101	55		23-140	1.04	1.066
13C-OCDD	4000	1210.738	30		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	691.960	35		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	906.542	45		24-185	1.59	1.149
13C-2,3,4,7,8-PeCDF	2000	879.530	44		21-178	1.57	1.183
13C-1,2,3,4,7,8-HxCDF	2000	862.820	43		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	837.611	42		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	832.732	42		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	813.216	41		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	750.936	38		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	727.504	36		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	314.105	39		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0549	**Units:**	ng/Kg
Lab Code:	E1801055-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**365**	0.923	0.923	1	1	365
1,2,3,7,8-PeCDD	**3.02**	0.143	3.01	1	1	3.02
1,2,3,4,7,8-HxCDD	**0.406**	0.130	3.01	1	0.1	0.0406
1,2,3,6,7,8-HxCDD	**0.612**	0.148	3.01	1	0.1	0.0612
1,2,3,7,8,9-HxCDD	**0.714**	0.129	3.01	1	0.1	0.0714
1,2,3,4,6,7,8-HpCDD	**15.2**	0.104	3.01	1	0.01	0.152
OCDD	**545**	0.247	6.03	1	0.0003	0.164
2,3,7,8-TCDF	**2330**	6.05	6.05	10	0.1	233
1,2,3,7,8-PeCDF	**24.3**	0.253	3.01	1	0.03	0.729
2,3,4,7,8-PeCDF	**21.0**	0.270	3.01	1	0.3	6.30
1,2,3,4,7,8-HxCDF	**72.5**	0.112	3.01	1	0.1	7.25
1,2,3,6,7,8-HxCDF	**16.5**	0.113	3.01	1	0.1	1.65
1,2,3,7,8,9-HxCDF	**4.45**	0.137	3.01	1	0.1	0.445
2,3,4,6,7,8-HxCDF	**2.86**	0.123	3.01	1	0.1	0.286
1,2,3,4,6,7,8-HpCDF	**22.6**	0.0696	3.01	1	0.01	0.226
1,2,3,4,7,8,9-HpCDF	**9.89**	0.0949	3.01	1	0.01	0.0989
OCDF	**14.8**	0.310	6.03	1	0.0003	0.00444
		Total TEQ				618

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:25
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0549	**Units:**	Percent
Lab Code:	E1801055-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	5.551g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.2		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:30
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0550	**Units:**	ng/Kg
Lab Code:	E1801055-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 18:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.292g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615978	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.93		0.643	0.651	0.66	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.0996	3.26			1
1,2,3,4,7,8-HxCDD	ND	U	0.141	3.26			1
1,2,3,6,7,8-HxCDD	0.301**J**		0.154	3.26	1.41	1.000	1
1,2,3,7,8,9-HxCDD	0.274**JK**		0.137	3.26	0.91	1.006	1
1,2,3,4,6,7,8-HpCDD	5.21		0.102	3.26	1.15	1.000	1
OCDD	163		0.158	6.51	0.91	1.000	1
2,3,7,8-TCDF	3.83		0.383	0.651	0.78	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.111	3.26			1
2,3,4,7,8-PeCDF	0.174**JK**		0.121	3.26	1.14	1.000	1
1,2,3,4,7,8-HxCDF	0.336**J**		0.0812	3.26	1.19	1.000	1
1,2,3,6,7,8-HxCDF	0.0895**JK**		0.0835	3.26	1.74	1.001	1
1,2,3,7,8,9-HxCDF	ND	U	0.103	3.26			1
2,3,4,6,7,8-HxCDF	ND	U	0.0887	3.26			1
1,2,3,4,6,7,8-HpCDF	0.536**J**		0.0511	3.26	1.11	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0716	3.26			1
OCDF	0.841**J**		0.288	6.51	0.81	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:30
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0550	**Units:**	ng/Kg
Lab Code:	E1801055-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 18:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.292g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615978	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3.10		0.643	0.651	0.72		1
Total Penta-Dioxins	0.126**J**		0.0996	3.26	1.41		1
Total Hexa-Dioxins	3.12**J**		0.144	3.26	1.26		1
Total Hepta-Dioxins	17.3		0.102	3.26	1.01		1
Total Tetra-Furans	3.83		0.383	0.651	0.78		1
Total Penta-Furans	ND	U	0.116	3.26			1
Total Hexa-Furans	0.527**J**		0.0885	3.26	1.19		1
Total Hepta-Furans	0.962**J**		0.0604	3.26	1.11		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:30
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0550	**Units:**	Percent
Lab Code:	E1801055-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 18:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.292g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615978	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	670.585	34		25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	1175.214	59		25-181	1.56	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1311.928	66		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1316.478	66		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1482.193	74		23-140	1.06	1.066
13C-OCDD	4000	1587.350	40		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	871.563	44		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1100.552	55		24-185	1.56	1.149
13C-2,3,4,7,8-PeCDF	2000	1030.802	52		21-178	1.57	1.183
13C-1,2,3,4,7,8-HxCDF	2000	1168.663	58		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1140.494	57		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1066.919	53		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1123.528	56		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1051.602	53		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1007.343	50		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	393.822	49		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:30
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0550	**Units:**	ng/Kg
Lab Code:	E1801055-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.93**	0.643	0.651	1	1	1.93
1,2,3,7,8-PeCDD	ND	0.0996	3.26	1	1	
1,2,3,4,7,8-HxCDD	ND	0.141	3.26	1	0.1	
1,2,3,6,7,8-HxCDD	**0.301**	0.154	3.26	1	0.1	0.0301
1,2,3,7,8,9-HxCDD	**0.274**	0.137	3.26	1	0.1	0.0274
1,2,3,4,6,7,8-HpCDD	**5.21**	0.102	3.26	1	0.01	0.0521
OCDD	**163**	0.158	6.51	1	0.0003	0.0489
2,3,7,8-TCDF	**3.83**	0.383	0.651	1	0.1	0.383
1,2,3,7,8-PeCDF	ND	0.111	3.26	1	0.03	
2,3,4,7,8-PeCDF	**0.174**	0.121	3.26	1	0.3	0.0522
1,2,3,4,7,8-HxCDF	**0.336**	0.0812	3.26	1	0.1	0.0336
1,2,3,6,7,8-HxCDF	**0.0895**	0.0835	3.26	1	0.1	0.00895
1,2,3,7,8,9-HxCDF	ND	0.103	3.26	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0887	3.26	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.536**	0.0511	3.26	1	0.01	0.00536
1,2,3,4,7,8,9-HpCDF	ND	0.0716	3.26	1	0.01	
OCDF	**0.841**	0.288	6.51	1	0.0003	0.000252
		Total TEQ				2.57

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:30
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0550	**Units:**	Percent
Lab Code:	E1801055-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	6.253g		NA
			E-Balance-01

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0551	**Units:**	ng/Kg
Lab Code:	E1801055-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 19:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.954g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615979	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	9.10		0.735	0.735	0.73	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.138	3.01			1
1,2,3,4,7,8-HxCDD	ND	U	0.126	3.01			1
1,2,3,6,7,8-HxCDD	ND	U	0.136	3.01			1
1,2,3,7,8,9-HxCDD	0.259**JK**		0.122	3.01	2.11	1.007	1
1,2,3,4,6,7,8-HpCDD	6.19		0.141	3.01	1.03	1.000	1
OCDD	153		0.0827	6.02	0.89	1.000	1
2,3,7,8-TCDF	20.9		0.476	0.602	0.75	1.001	1
1,2,3,7,8-PeCDF	0.444**JK**		0.193	3.01	1.82	1.001	1
2,3,4,7,8-PeCDF	0.314**JK**		0.206	3.01	0.85	1.001	1
1,2,3,4,7,8-HxCDF	0.770**JK**		0.0757	3.01	0.92	1.000	1
1,2,3,6,7,8-HxCDF	0.303**J**		0.0781	3.01	1.15	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0970	3.01			1
2,3,4,6,7,8-HxCDF	0.0877**JK**		0.0852	3.01	2.09	1.000	1
1,2,3,4,6,7,8-HpCDF	0.445**BJKP**		0.0383	3.01	1.52	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0553	3.01			1
OCDF	0.769**J**		0.263	6.02	0.82	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0551	**Units:**	ng/Kg
Lab Code:	E1801055-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 19:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.954g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615979	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	9.10		0.735	0.735	0.73		1
Total Penta-Dioxins	ND	U	0.138	3.01			1
Total Hexa-Dioxins	1.71**J**		0.128	3.01	1.30		1
Total Hepta-Dioxins	17.6		0.141	3.01	1.08		1
Total Tetra-Furans	34.5		0.476	0.602	0.72		1
Total Penta-Furans	ND	U	0.199	3.01			1
Total Hexa-Furans	0.473**J**		0.0835	3.01	1.15		1
Total Hepta-Furans	0.412**J**		0.0459	3.01	1.10		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0551	**Units:**	Percent
Lab Code:	E1801055-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 19:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.954g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615979	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	680.437	34		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	1213.277	61		25-181	1.56	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1263.508	63		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1318.371	66		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1521.006	76		23-140	1.04	1.066
13C-OCDD	4000	1823.861	46		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	888.308	44		24-169	0.77	0.993
13C-1,2,3,7,8-PeCDF	2000	1112.527	56		24-185	1.57	1.149
13C-2,3,4,7,8-PeCDF	2000	1066.492	53		21-178	1.57	1.183
13C-1,2,3,4,7,8-HxCDF	2000	1119.805	56		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1109.010	55		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1054.508	53		29-147	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1070.043	54		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1051.534	53		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	982.569	49		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	418.606	52		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0551	**Units:**	ng/Kg
Lab Code:	E1801055-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**9.10**	0.735	0.735	1	1	9.10
1,2,3,7,8-PeCDD	ND	0.138	3.01	1	1	
1,2,3,4,7,8-HxCDD	ND	0.126	3.01	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.136	3.01	1	0.1	
1,2,3,7,8,9-HxCDD	**0.259**	0.122	3.01	1	0.1	0.0259
1,2,3,4,6,7,8-HpCDD	**6.19**	0.141	3.01	1	0.01	0.0619
OCDD	**153**	0.0827	6.02	1	0.0003	0.0459
2,3,7,8-TCDF	**20.9**	0.476	0.602	1	0.1	2.09
1,2,3,7,8-PeCDF	**0.444**	0.193	3.01	1	0.03	0.0133
2,3,4,7,8-PeCDF	**0.314**	0.206	3.01	1	0.3	0.0942
1,2,3,4,7,8-HxCDF	**0.770**	0.0757	3.01	1	0.1	0.0770
1,2,3,6,7,8-HxCDF	**0.303**	0.0781	3.01	1	0.1	0.0303
1,2,3,7,8,9-HxCDF	ND	0.0970	3.01	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0877**	0.0852	3.01	1	0.1	0.00877
1,2,3,4,6,7,8-HpCDF	**0.445**	0.0383	3.01	1	0.01	0.00445
1,2,3,4,7,8,9-HpCDF	ND	0.0553	3.01	1	0.01	
OCDF	**0.769**	0.263	6.02	1	0.0003	0.000231
		Total TEQ				11.6

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:35
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0551	**Units:**	Percent
Lab Code:	E1801055-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	6.495g		NA
			E-Balance-01

Native Analyte Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:40
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0552	**Units:**	ng/Kg
Lab Code:	E1801055-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 01:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.682g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519295	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.520	0.559			1
1,2,3,7,8-PeCDD	0.115**JK**		0.102	2.80	2.22	1.001	1
1,2,3,4,7,8-HxCDD	0.155**JK**		0.0596	2.80	0.54	1.000	1
1,2,3,6,7,8-HxCDD	0.202**JK**		0.0662	2.80	1.79	1.000	1
1,2,3,7,8,9-HxCDD	0.393**JK**		0.0613	2.80	0.93	1.007	1
1,2,3,4,6,7,8-HpCDD	10.7		0.125	2.80	1.05	1.000	1
OCDD	800		0.145	5.59	0.91	1.000	1
2,3,7,8-TCDF	1.35**B**		0.170	0.559	0.67	1.001	1
1,2,3,7,8-PeCDF	0.0880**JK**		0.0550	2.80	1.05	1.002	1
2,3,4,7,8-PeCDF	ND	U	0.0613	2.80			1
1,2,3,4,7,8-HxCDF	ND	U	0.0532	2.80			1
1,2,3,6,7,8-HxCDF	ND	U	0.0478	2.80			1
1,2,3,7,8,9-HxCDF	ND	U	0.0619	2.80			1
2,3,4,6,7,8-HxCDF	ND	U	0.0565	2.80			1
1,2,3,4,6,7,8-HpCDF	0.310**BJK**		0.0387	2.80	1.38	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0562	2.80			1
OCDF	1.60**J**		0.279	5.59	0.96	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:40
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0552	**Units:**	ng/Kg
Lab Code:	E1801055-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 01:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.682g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519295	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.520	0.559			1
Total Penta-Dioxins	0.172**J**		0.102	2.80	1.46		1
Total Hexa-Dioxins	3.29		0.0623	2.80	1.07		1
Total Hepta-Dioxins	32.6		0.125	2.80	1.10		1
Total Tetra-Furans	1.88		0.170	0.559	0.77		1
Total Penta-Furans	ND	U	0.0580	2.80			1
Total Hexa-Furans	ND	U	0.0545	2.80			1
Total Hepta-Furans	0.173**J**		0.0466	2.80	1.16		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:40
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0552	**Units:**	Percent
Lab Code:	E1801055-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 01:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.682g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519295	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	759.937	38		25-164	0.82	1.020
13C-1,2,3,7,8-PeCDD	2000	1468.909	73		25-181	1.59	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1273.411	64		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1212.235	61		28-130	1.31	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1739.001	87		23-140	1.10	1.070
13C-OCDD	4000	2684.584	67		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	1007.522	50		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1436.750	72		24-185	1.57	1.146
13C-2,3,4,7,8-PeCDF	2000	1315.307	66		21-178	1.60	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1107.808	55		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1231.134	62		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1310.656	66		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1117.499	56		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1273.750	64		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1326.179	66		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	455.324	57		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:40
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0552	**Units:**	ng/Kg
Lab Code:	E1801055-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.520	0.559	1	1	
1,2,3,7,8-PeCDD	**0.115**	0.102	2.80	1	1	0.115
1,2,3,4,7,8-HxCDD	**0.155**	0.0596	2.80	1	0.1	0.0155
1,2,3,6,7,8-HxCDD	**0.202**	0.0662	2.80	1	0.1	0.0202
1,2,3,7,8,9-HxCDD	**0.393**	0.0613	2.80	1	0.1	0.0393
1,2,3,4,6,7,8-HpCDD	**10.7**	0.125	2.80	1	0.01	0.107
OCDD	**800**	0.145	5.59	1	0.0003	0.240
2,3,7,8-TCDF	**1.35**	0.170	0.559	1	0.1	0.135
1,2,3,7,8-PeCDF	**0.0880**	0.0550	2.80	1	0.03	0.00264
2,3,4,7,8-PeCDF	ND	0.0613	2.80	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0532	2.80	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0478	2.80	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0619	2.80	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0565	2.80	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.310**	0.0387	2.80	1	0.01	0.00310
1,2,3,4,7,8,9-HpCDF	ND	0.0562	2.80	1	0.01	
OCDF	**1.60**	0.279	5.59	1	0.0003	0.000480
		Total TEQ				0.678

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/15/18 17:40
Sample Matrix:	Sediment	**Date Received:**	11/16/18 14:00
Sample Name:	SL0552	**Units:**	Percent
Lab Code:	E1801055-008	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	7.046g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.7		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.256	0.485			1
1,2,3,7,8-PeCDD	ND	U	0.0576	2.43			1
1,2,3,4,7,8-HxCDD	ND	U	0.0383	2.43			1
1,2,3,6,7,8-HxCDD	ND	U	0.0422	2.43			1
1,2,3,7,8,9-HxCDD	ND	U	0.0374	2.43			1
1,2,3,4,6,7,8-HpCDD	0.0694**J**		0.0223	2.43	0.88	1.000	1
OCDD	0.760**JK**		0.0845	4.85	0.71	1.000	1
2,3,7,8-TCDF	0.186**J**		0.103	0.485	0.67	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0642	2.43			1
2,3,4,7,8-PeCDF	ND	U	0.0734	2.43			1
1,2,3,4,7,8-HxCDF	0.0280**J**		0.0222	2.43	1.18	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0223	2.43			1
1,2,3,7,8,9-HxCDF	ND	U	0.0285	2.43			1
2,3,4,6,7,8-HxCDF	ND	U	0.0245	2.43			1
1,2,3,4,6,7,8-HpCDF	0.0449**JK**		0.0177	2.43	1.30	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0240	2.43			1
OCDF	ND	U	0.135	4.85			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.256	0.485			1
Total Penta-Dioxins	ND	U	0.0576	2.43			1
Total Hexa-Dioxins	ND	U	0.0393	2.43			1
Total Hepta-Dioxins	ND	U	0.0223	2.43			1
Total Tetra-Furans	0.186**J**		0.103	0.485	0.67		1
Total Penta-Furans	ND	U	0.0685	2.43			1
Total Hexa-Furans	0.0280**J**		0.0242	2.43	1.18		1
Total Hepta-Furans	ND	U	0.0206	2.43			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	664.870	33		25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	998.062	50		25-181	1.57	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1109.592	55		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1073.693	54		28-130	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1253.124	63		23-140	1.05	1.066
13C-OCDD	4000	1409.965	35		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	881.985	44		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	984.157	49		24-185	1.58	1.149
13C-2,3,4,7,8-PeCDF	2000	892.732	45		21-178	1.57	1.183
13C-1,2,3,4,7,8-HxCDF	2000	982.621	49		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	989.792	49		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	936.430	47		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	931.386	47		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	885.084	44		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	870.209	44		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	358.073	45		35-197	NA	1.023

Accuracy & Precision

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

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Analyzed:**	12/07/18
Sample Matrix:	Sediment	**Date Extracted:**	12/03/18

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

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618435

	Lab Control Sample EQ1800494-02			Duplicate Lab Control Sample EQ1800494-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	68.7	98.6	70	70.7	98.9	71	70-140	3	50
1,2,3,4,7,8-HxCDD	87.1	98.6	88	88.4	98.9	89	70-164	1	50
1,2,3,6,7,8-HxCDD	97.3	98.6	99	98.5	98.9	100	76-134	1	50
1,2,3,7,8,9-HxCDD	91.1	98.6	92	93.9	98.9	95	64-162	3	50
1,2,3,7,8-PeCDD	99.3	98.6	101	97.4	98.9	98	70-142	2	50
2,3,7,8-TCDD	27.8	19.7	141	29.2	19.8	148	67-158	5	50
OCDD	195	197	99	189	198	96	78-144	3	50
1,2,3,4,6,7,8-HpCDF	90.2	98.6	91	89.5	98.9	90	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	88.9	98.6	90	89.2	98.9	90	78-138	<1	50
1,2,3,4,7,8-HxCDF	87.4	98.6	89	84.8	98.9	86	72-134	3	50
1,2,3,6,7,8-HxCDF	89.1	98.6	90	89.5	98.9	90	84-130	<1	50
1,2,3,7,8,9-HxCDF	88.0	98.6	89	88.0	98.9	89	78-130	<1	50
1,2,3,7,8-PeCDF	82.8	98.6	84	81.5	98.9	82	80-134	2	50
2,3,4,6,7,8-HxCDF	90.7	98.6	92	90.3	98.9	91	70-156	<1	50
2,3,4,7,8-PeCDF	89.6	98.6	91	88.7	98.9	90	68-160	1	50
2,3,7,8-TCDF	17.9	19.7	91	19.5	19.8	98	75-158	8	50
OCDF	182	197	92	189	198	96	63-170	4	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	27.8		0.828	0.828	0.76	1.001	1
1,2,3,7,8-PeCDD	99.3		0.0934	2.46	1.53	1.001	1
1,2,3,4,7,8-HxCDD	87.1		0.0848	2.46	1.23	1.000	1
1,2,3,6,7,8-HxCDD	97.3		0.0967	2.46	1.28	1.000	1
1,2,3,7,8,9-HxCDD	91.1		0.0843	2.46	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	68.7		0.0573	2.46	1.03	1.000	1
OCDD	195		0.0904	4.93	0.91	1.000	1
2,3,7,8-TCDF	17.9		0.425	0.493	0.78	1.001	1
1,2,3,7,8-PeCDF	82.8		0.124	2.46	1.56	1.000	1
2,3,4,7,8-PeCDF	89.6		0.136	2.46	1.54	1.001	1
1,2,3,4,7,8-HxCDF	87.4		0.0692	2.46	1.26	1.000	1
1,2,3,6,7,8-HxCDF	89.1		0.0688	2.46	1.25	1.000	1
1,2,3,7,8,9-HxCDF	88.0		0.0795	2.46	1.27	1.000	1
2,3,4,6,7,8-HxCDF	90.7		0.0738	2.46	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	90.2		0.150	2.46	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	88.9		0.200	2.46	1.04	1.000	1
OCDF	182		0.181	4.93	0.89	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	27.8		0.828	0.828	0.76		1
Total Penta-Dioxins	99.3		0.0934	2.46	1.53		1
Total Hexa-Dioxins	276		0.0884	2.46	1.23		1
Total Hepta-Dioxins	69.1		0.0573	2.46	1.00		1
Total Tetra-Furans	18.3		0.425	0.493	0.76		1
Total Penta-Furans	175		0.129	2.46	1.47		1
Total Hexa-Furans	356		0.0726	2.46	1.26		1
Total Hepta-Furans	179		0.172	2.46	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	394.500	20	**Y**	25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	917.495	46		25-181	1.57	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1188.788	59		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1115.480	56		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1370.222	69		23-140	1.05	1.066
13C-OCDD	4000	1609.789	40		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	476.338	24		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	813.478	41		24-185	1.57	1.149
13C-2,3,4,7,8-PeCDF	2000	777.175	39		21-178	1.58	1.183
13C-1,2,3,4,7,8-HxCDF	2000	960.114	48		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	968.174	48		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	996.811	50		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	949.338	47		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	948.543	47		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	920.814	46		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	234.117	29	**Y**	35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	29.2		0.456	0.495	0.84	1.001	1
1,2,3,7,8-PeCDD	97.4		0.0786	2.47	1.59	1.001	1
1,2,3,4,7,8-HxCDD	88.4		0.0517	2.47	1.20	1.000	1
1,2,3,6,7,8-HxCDD	98.5		0.0589	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	93.9		0.0514	2.47	1.26	1.006	1
1,2,3,4,6,7,8-HpCDD	70.7		0.0367	2.47	1.06	1.000	1
OCDD	189		0.108	4.95	0.89	1.000	1
2,3,7,8-TCDF	19.5		0.231	0.495	0.75	1.001	1
1,2,3,7,8-PeCDF	81.5		0.0908	2.47	1.55	1.000	1
2,3,4,7,8-PeCDF	88.7		0.0969	2.47	1.51	1.001	1
1,2,3,4,7,8-HxCDF	84.8		0.0565	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDF	89.5		0.0570	2.47	1.26	1.000	1
1,2,3,7,8,9-HxCDF	88.0		0.0681	2.47	1.24	1.000	1
2,3,4,6,7,8-HxCDF	90.3		0.0611	2.47	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	89.5		0.141	2.47	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	89.2		0.201	2.47	1.03	1.000	1
OCDF	189		0.184	4.95	0.89	1.006	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	29.2		0.456	0.495	0.84		1
Total Penta-Dioxins	98.0		0.0786	2.47	1.59		1
Total Hexa-Dioxins	281		0.0539	2.47	1.20		1
Total Hepta-Dioxins	70.7		0.0367	2.47	1.06		1
Total Tetra-Furans	20.7		0.231	0.495	0.76		1
Total Penta-Furans	171		0.0937	2.47	1.62		1
Total Hexa-Furans	353		0.0605	2.47	1.28		1
Total Hepta-Furans	179		0.168	2.47	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801055
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	508.753	25		25-164	0.80	1.022
13C-1,2,3,7,8-PeCDD	2000	981.801	49		25-181	1.56	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1147.936	57		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1110.349	56		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1286.687	64		23-140	1.05	1.066
13C-OCDD	4000	1397.362	35		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	582.151	29		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	860.239	43		24-185	1.61	1.149
13C-2,3,4,7,8-PeCDF	2000	809.386	40		21-178	1.58	1.183
13C-1,2,3,4,7,8-HxCDF	2000	993.807	50		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	976.142	49		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	974.655	49		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	948.957	47		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	911.119	46		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	877.518	44		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	289.847	36		35-197	NA	1.023

Chromatograms and Selected Ion Monitoring

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Sample Response Summary

CLIENT ID.
SL0538

Run #14 Filename P615974 Samp: 1 Inj: 1 Acquired: 7-DEC-18 15:35:19
Processed: 10-DEC-18 16:28:16 Sample ID: E1801055-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	3.586e+04	4.548e+04	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	3.056e+03	1.931e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	2.034e+03	1.238e+03	1.64	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	3.851e+03	2.958e+03	1.30	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	9.942e+02	7.517e+02	1.32	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.055e+02	2.259e+02	0.91	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:57	2.962e+02	2.545e+02	1.16	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	1.480e+03	1.430e+03	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	2.867e+02	2.782e+02	1.03	yes	no	1.463
10	Unk	OCDF	41:57	1.539e+03	1.692e+03	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	7.296e+03	9.071e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	1.601e+02	1.352e+02	1.18	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	7.537e+01	2.961e+01	2.55	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	1.796e+02	1.166e+02	1.54	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	1.143e+02	1.110e+02	1.03	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	4.112e+03	3.838e+03	1.07	yes	no	1.112
17	Unk	OCDD	41:45	3.812e+04	4.240e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	3.739e+04	4.646e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	6.093e+04	3.884e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.823e+04	3.618e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	2.636e+04	5.027e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	2.866e+04	5.460e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	2.620e+04	4.954e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.512e+04	4.777e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	1.780e+04	3.945e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.419e+04	3.152e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.972e+04	2.463e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	4.412e+04	2.825e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:18	3.782e+04	2.830e+04	1.34	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	3.391e+04	2.775e+04	1.22	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	3.296e+04	3.175e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:44	2.288e+04	2.573e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	4.481e+04	5.633e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	5.978e+04	4.654e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	2.750e+04				no	1.086

$$\text{OCDD} = \frac{(3.812e+04 + 4.240e+04) \times 4000\ \text{pg} \times 1}{(2.288e+04 + 2.573e+04) \times 10.859\ \text{g} \times 89.7/100 \times 1.157} = 587.9\ \text{ng/kg}$$

CM 12/12/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0538

Run #14 Filename P615974 Samp: 1 Inj: 1 Acquired: 7-DEC-18 15:35:19
Processed: 10-DEC-18 16:28:16 LAB. ID: E1801055-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.74e+06	4.86e+03	1.2e+03	7.30e+06	8.14e+03	9.0e+02
2	1,2,3,7,8-PeCDF	5.50e+05	2.77e+03	2.0e+02	3.66e+05	5.36e+03	6.8e+01
3	2,3,4,7,8-PeCDF	3.38e+05	2.77e+03	1.2e+02	2.15e+05	5.36e+03	4.0e+01
4	1,2,3,4,7,8-HxCDF	8.25e+05	2.22e+03	3.7e+02	6.46e+05	1.62e+03	4.0e+02
5	1,2,3,6,7,8-HxCDF	2.07e+05	2.22e+03	9.3e+01	1.50e+05	1.62e+03	9.3e+01
6	2,3,4,6,7,8-HxCDF	4.62e+04	2.22e+03	2.1e+01	4.89e+04	1.62e+03	3.0e+01
7	1,2,3,7,8,9-HxCDF	6.65e+04	2.22e+03	3.0e+01	5.09e+04	1.62e+03	3.2e+01
8	1,2,3,4,6,7,8-HpCDF	3.34e+05	1.52e+03	2.2e+02	3.11e+05	6.24e+02	5.0e+02
9	1,2,3,4,7,8,9-HpCDF	5.98e+04	1.52e+03	3.9e+01	6.27e+04	6.24e+02	1.0e+02
10	OCDF	2.71e+05	7.96e+02	3.4e+02	3.26e+05	4.22e+03	7.7e+01
11	2,3,7,8-TCDD	1.33e+06	6.05e+03	2.2e+02	1.65e+06	2.27e+03	7.2e+02
12	1,2,3,7,8-PeCDD	3.39e+04	2.31e+03	1.5e+01	2.09e+04	1.01e+03	2.1e+01
13	1,2,3,4,7,8-HxCDD	1.62e+04	1.38e+03	1.2e+01	7.99e+03	1.96e+03	4.1e+00
14	1,2,3,6,7,8-HxCDD	3.74e+04	1.38e+03	2.7e+01	2.74e+04	1.96e+03	1.4e+01
15	1,2,3,7,8,9-HxCDD	2.49e+04	1.38e+03	1.8e+01	2.69e+04	1.96e+03	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	8.71e+05	1.70e+03	5.1e+02	8.51e+05	2.33e+03	3.6e+02
17	OCDD	7.10e+06	5.92e+02	1.2e+04	7.92e+06	1.08e+03	7.4e+03
18	13C-2,3,7,8-TCDF	6.12e+06	1.66e+04	3.7e+02	7.71e+06	1.20e+04	6.4e+02
19	13C-1,2,3,7,8-PeCDF	1.11e+07	1.30e+03	8.5e+03	7.13e+06	1.80e+03	4.0e+03
20	13C-2,3,4,7,8-PeCDF	1.09e+07	1.30e+03	8.4e+03	6.88e+06	1.80e+03	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	5.71e+06	2.04e+03	2.8e+03	1.08e+07	2.41e+03	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	6.08e+06	2.04e+03	3.0e+03	1.18e+07	2.41e+03	4.9e+03
23	13C-2,3,4,6,7,8-HxCDF	5.77e+06	2.04e+03	2.8e+03	1.07e+07	2.41e+03	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	5.61e+06	2.04e+03	2.8e+03	1.07e+07	2.41e+03	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+06	2.40e+03	1.7e+03	8.85e+06	3.60e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.86e+06	2.40e+03	1.2e+03	6.38e+06	3.60e+03	1.8e+03
27	13C-2,3,7,8-TCDD	3.55e+06	1.91e+04	1.9e+02	4.47e+06	8.28e+03	5.4e+02
28	13C-1,2,3,7,8-PeCDD	8.67e+06	3.00e+03	2.9e+03	5.43e+06	2.30e+03	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	8.29e+06	3.78e+03	2.2e+03	6.39e+06	3.08e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	7.20e+06	3.78e+03	1.9e+03	5.70e+06	3.08e+03	1.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.27e+06	2.06e+03	3.5e+03	6.84e+06	9.44e+02	7.2e+03
32	13C-OCDD	4.34e+06	1.24e+03	3.5e+03	4.75e+06	4.64e+02	1.0e+04
33	13C-1,2,3,4-TCDD	7.99e+06	1.91e+04	4.2e+02	1.00e+07	8.28e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.25e+07	3.78e+03	3.3e+03	9.79e+06	3.08e+03	3.2e+03
35	37Cl-2,3,7,8-TCDD	4.94e+06	3.94e+03	1.3e+03			

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Peak List Summary

CLIENT ID.
SL0538

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P615974 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 303.9020 305.8990 Tot Response: 1.37e+05 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:45	1.30e+03	1.83e+03	0.71	yes	3.13e+03		n	n
2	25:10	4.22e+02	6.19e+02	0.68	yes	1.04e+03		n	n
3	25:30	1.07e+03	1.38e+03	0.78	yes	2.45e+03		n	n
4	25:55	2.99e+02	4.20e+02	0.71	yes	7.18e+02		n	n
5	26:16	1.54e+03	2.20e+03	0.70	yes	3.74e+03		n	n
6	26:45	1.38e+04	1.79e+04	0.77	yes	3.18e+04		n	n
7	27:01	6.58e+02	8.84e+02	0.74	yes	1.54e+03		n	n
8	27:37	3.59e+04	4.55e+04	0.79	yes	8.13e+04	2,3,7,8-TCDF	n	n
9	27:58	2.51e+03	3.07e+03	0.82	yes	5.58e+03		n	n
10	28:13	3.61e+02	5.15e+02	0.70	yes	8.76e+02		n	n
11	29:31	2.29e+03	2.73e+03	0.84	yes	5.01e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0538

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P615974 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 319.8970 321.8940 Tot Response: 1.79e+04 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:26	7.30e+03	9.07e+03 0.80	yes	1.64e+04	2,3,7,8-TCDD	n	n
2	28:44	6.79e+02	8.67e+02 0.78	yes	1.55e+03		n	n

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Peak List Summary

CLIENT ID.
SL0538

Entry: 38 Totals Name: Total Penta-Furans1

Run: 14 File: P615974 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 339.8600 341.8570 Tot Response: 5.49e+02 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:27	3.37e+02	2.12e+02 1.59	yes	5.49e+02		n	n

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Peak List Summary

CLIENT ID.
SL0538

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P615974 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 339.8600 341.8570 Tot Response: 1.17e+04 RRF: 1.130

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:59	1.24e+03	8.93e+02	1.39	yes	2.13e+03		n	n
2	31:56	3.06e+03	1.93e+03	1.58	yes	4.99e+03	1,2,3,7,8-PeCDF	n	n
3	32:12	8.02e+02	5.15e+02	1.56	yes	1.32e+03		n	n
4	32:52	2.03e+03	1.24e+03	1.64	yes	3.27e+03	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0538

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P615974 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 355.8550 357.8520 Tot Response: 6.56e+01 RRF: 0.9288

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
.	32:07	3.93e+01	2.63e+01 1.49	yes	6.56e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0538

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P615974 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 373.8210 375.8180 Tot Response: 1.14e+04 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:26	1.31e+02	1.15e+02	1.14	yes	2.46e+02		n	n
2	34:35	6.20e+02	4.98e+02	1.25	yes	1.12e+03		n	n
3	35:07	5.19e+02	4.23e+02	1.23	yes	9.41e+02		n	n
4	35:33	3.85e+03	2.96e+03	1.30	yes	6.81e+03	1,2,3,4,7,8-HxCDF	n	n
5	35:40	9.94e+02	7.52e+02	1.32	yes	1.75e+03	1,2,3,6,7,8-HxCDF	n	n
6	36:57	2.96e+02	2.55e+02	1.16	yes	5.51e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0538

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P615974 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 389.8160 391.8130 Tot Response: 2.37e+03 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:57	7.69e+02	5.62e+02 1.37	yes	1.33e+03		n	n
2	35:43	6.08e+02	4.29e+02 1.42	yes	1.04e+03		n	n

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Peak List Summary

CLIENT ID.
SL0538

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P615974 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 407.7820 409.7790 Tot Response: 6.23e+03 RRF: 1.495

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:10	1.48e+03	1.43e+03	1.03	yes	2.91e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:34	1.37e+03	1.39e+03	0.98	yes	2.76e+03		n	n
3	39:32	2.87e+02	2.78e+02	1.03	yes	5.65e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0538

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P615974 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 15:35:19 Processed: 10-DEC-18 16:28:16

Mass: 423.7770 425.7740 Tot Response: 1.96e+04 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:24	5.98e+03	5.69e+03 1.05	yes	1.17e+04		n	n
2	39:04	4.11e+03	3.84e+03 1.07	yes	7.95e+03	1,2,3,4,6,7,8-HpCDD	n	n

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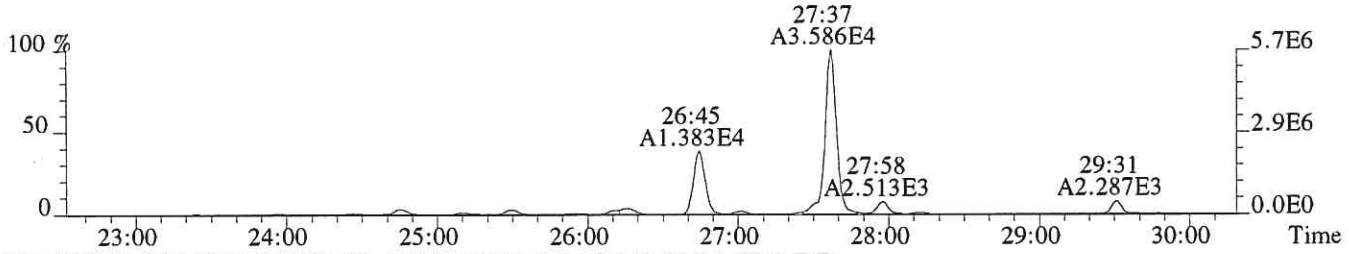
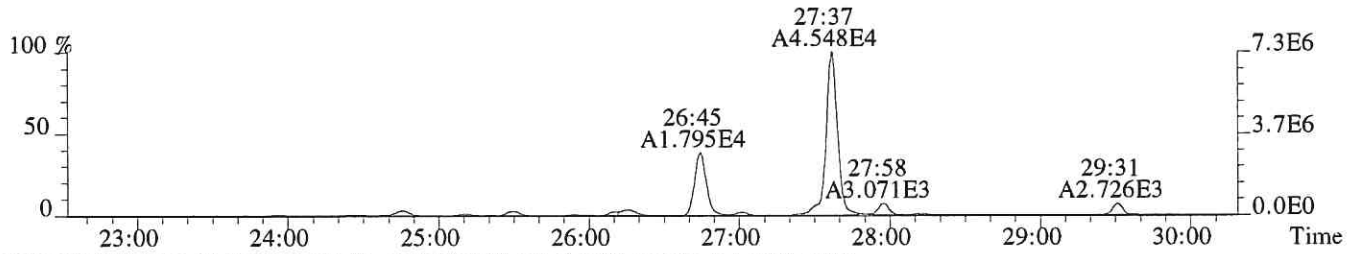
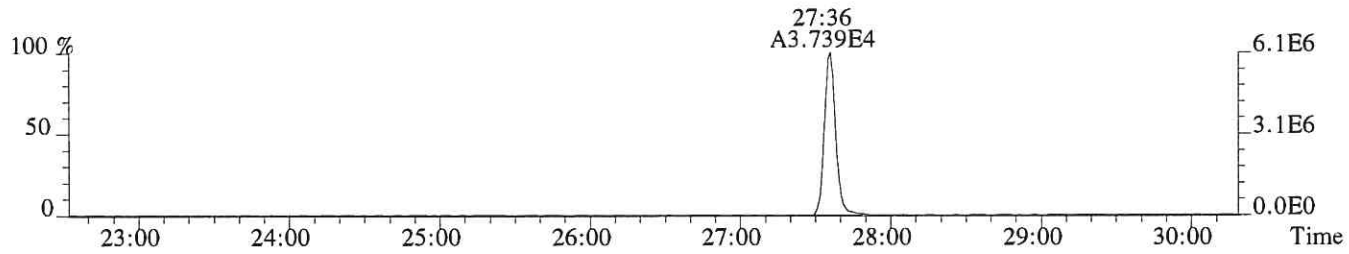
File:P615974 #1-552 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4856.0,1.00%,F,T)



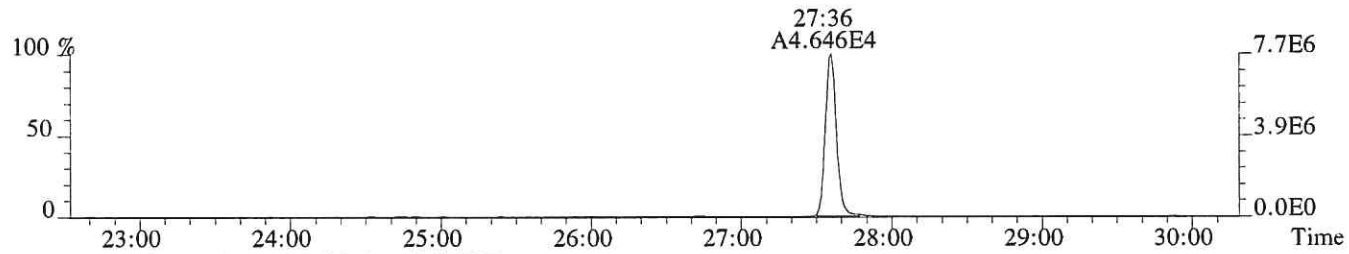
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8140.0,1.00%,F,T)



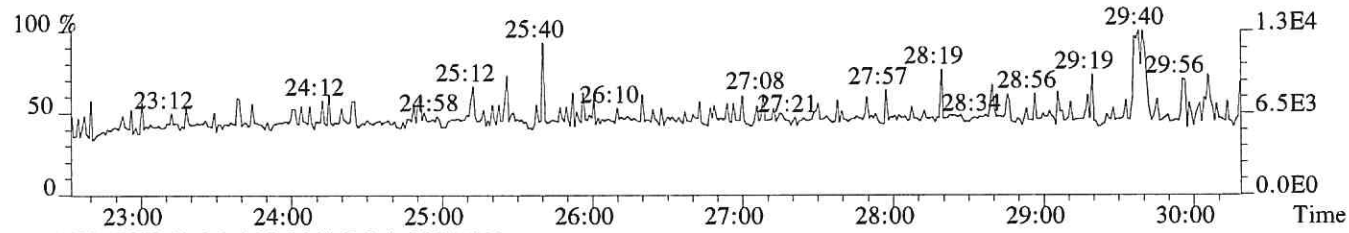
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16636.0,1.00%,F,T)



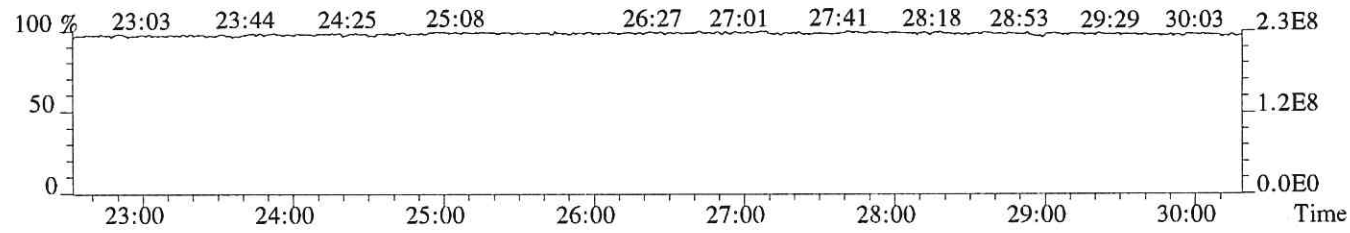
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12024.0,1.00%,F,T)



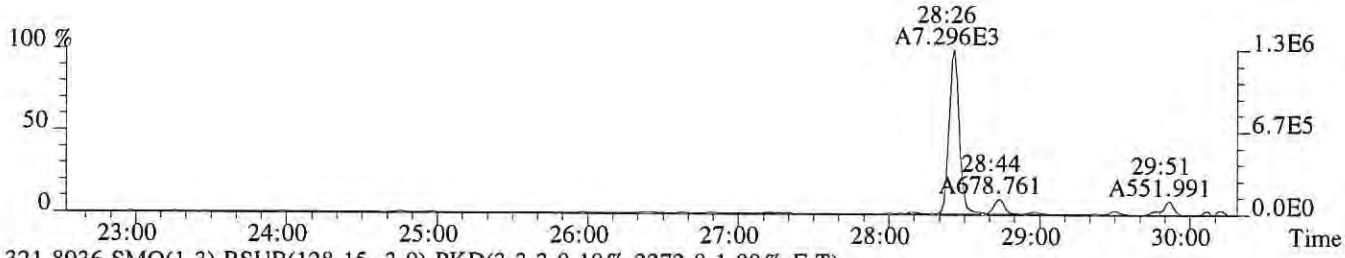
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



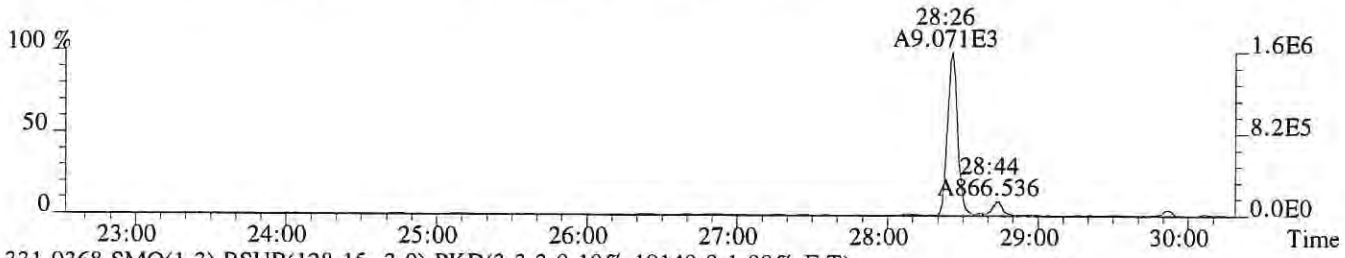
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



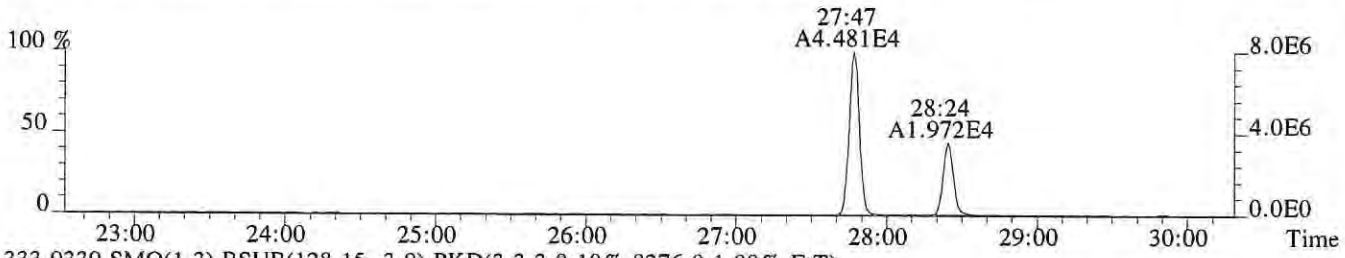
File:P615974 #1-552 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6052.0,1.00%,F,T)



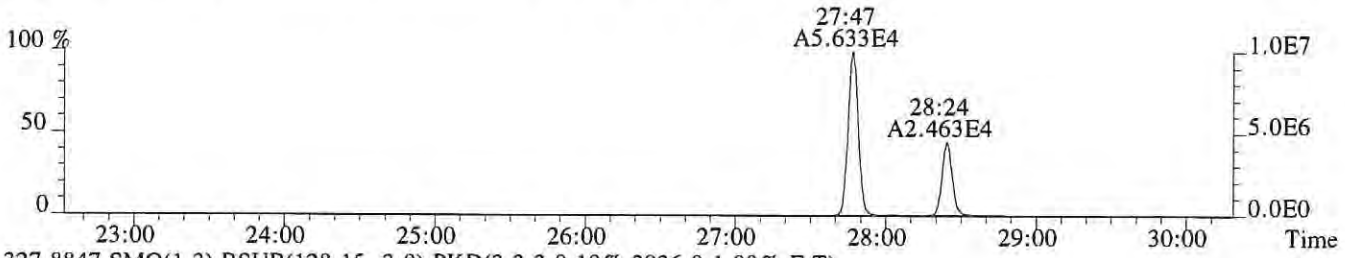
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



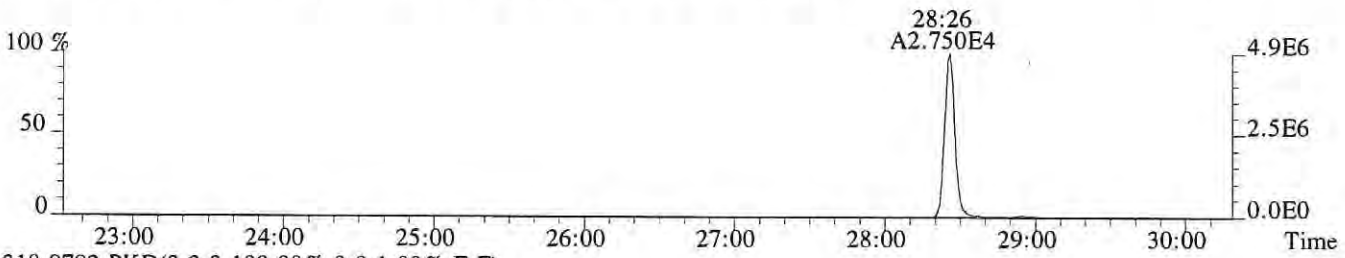
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



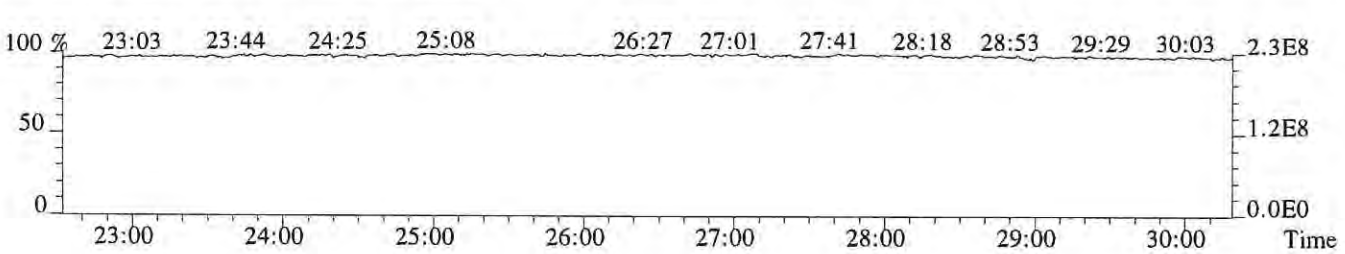
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8276.0,1.00%,F,T)



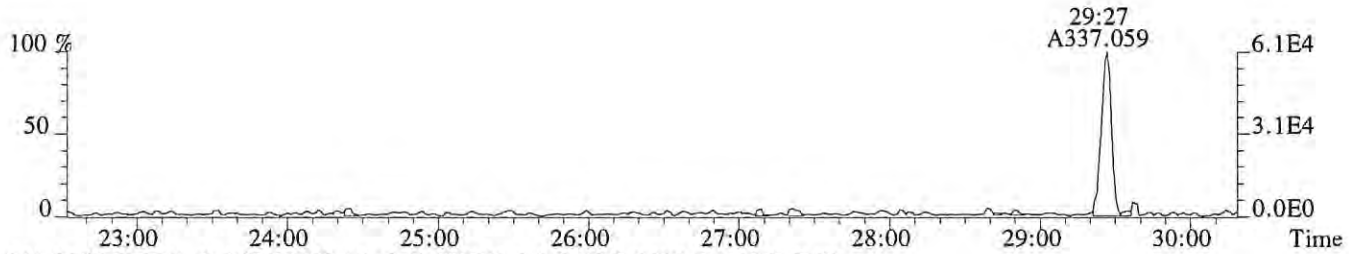
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



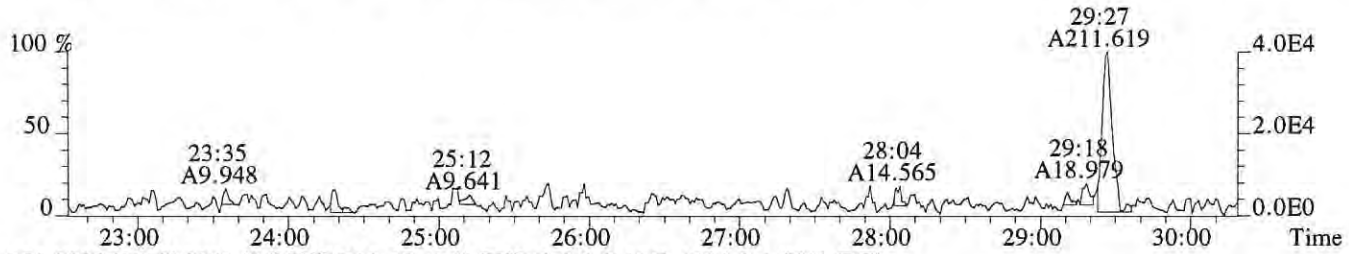
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



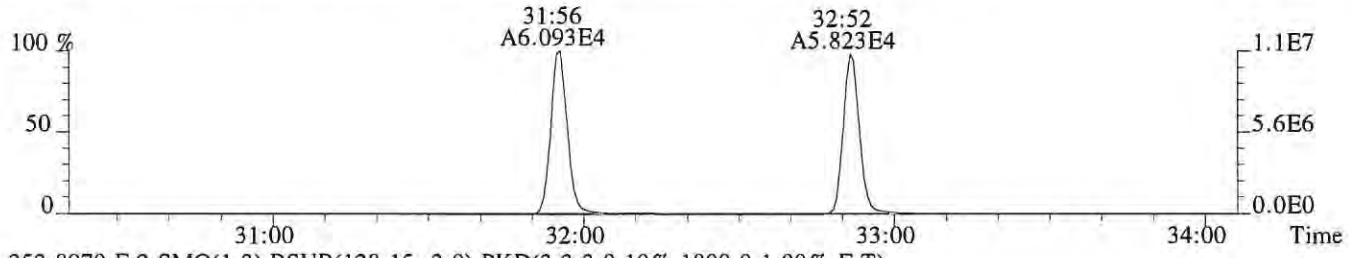
File:P615974 #1-552 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



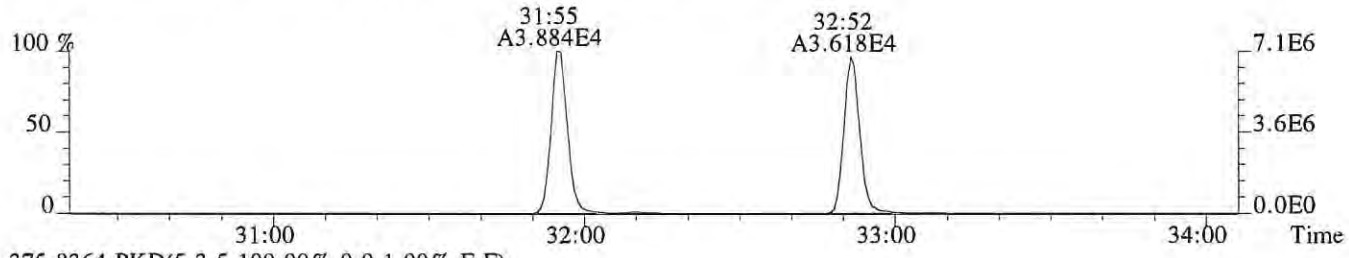
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3232.0,1.00%,F,T)



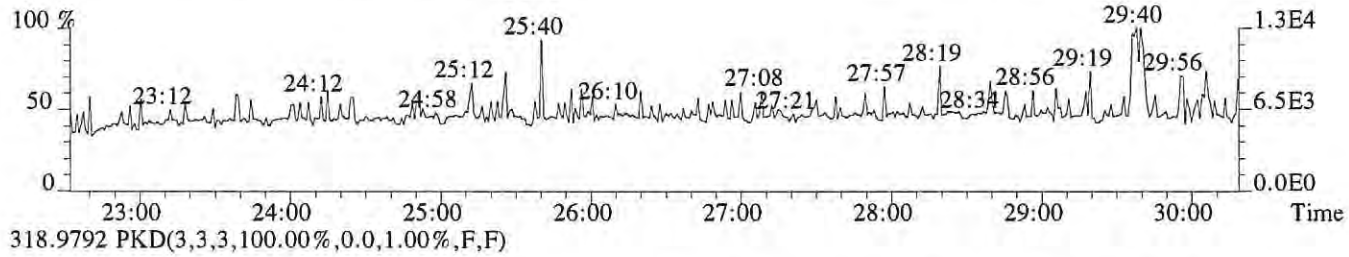
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



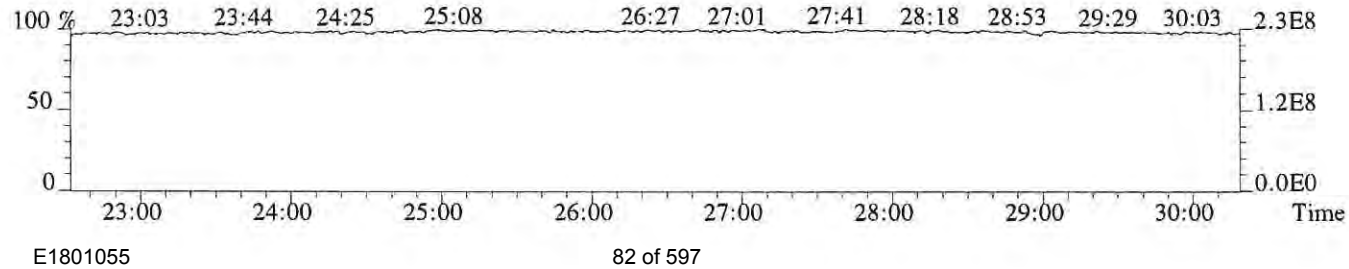
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



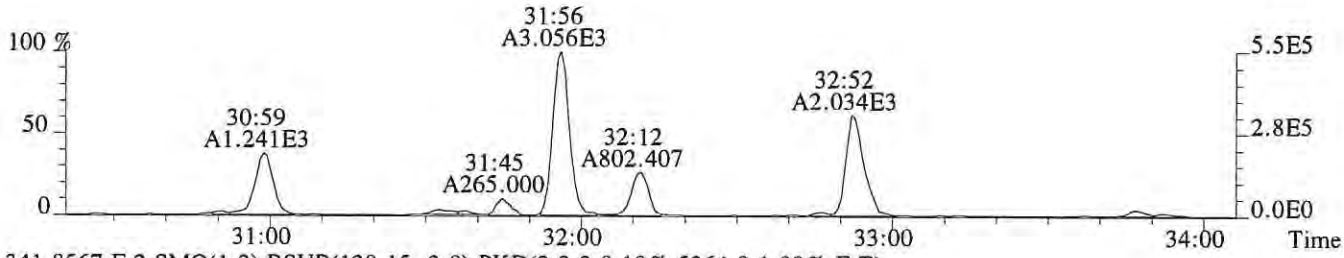
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



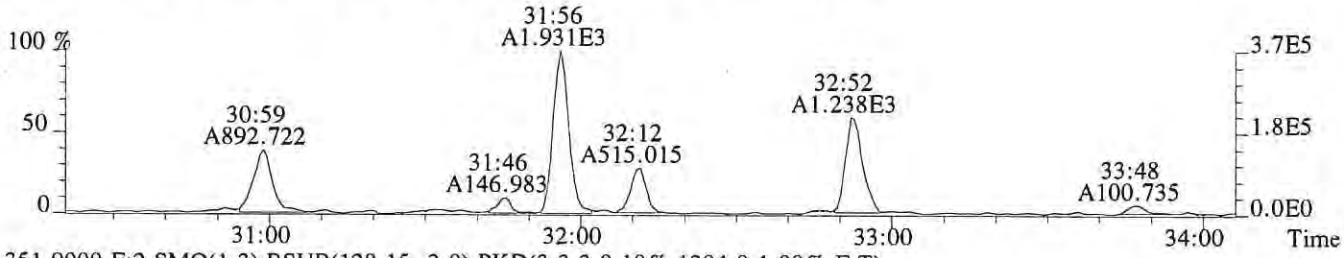
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



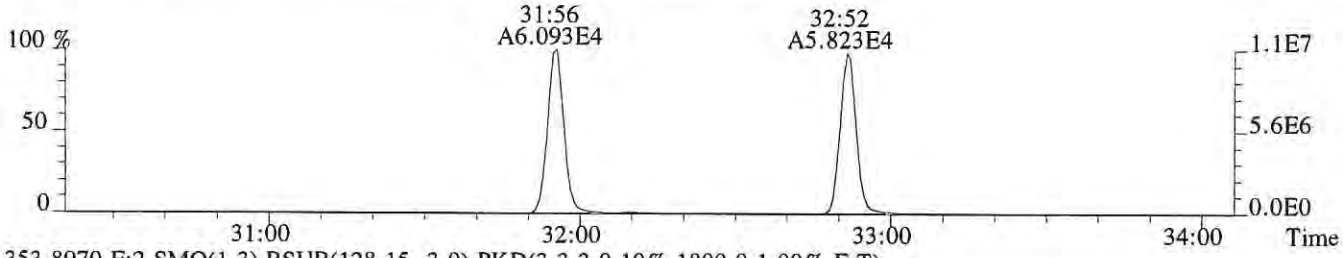
File:P615974 #1-339 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



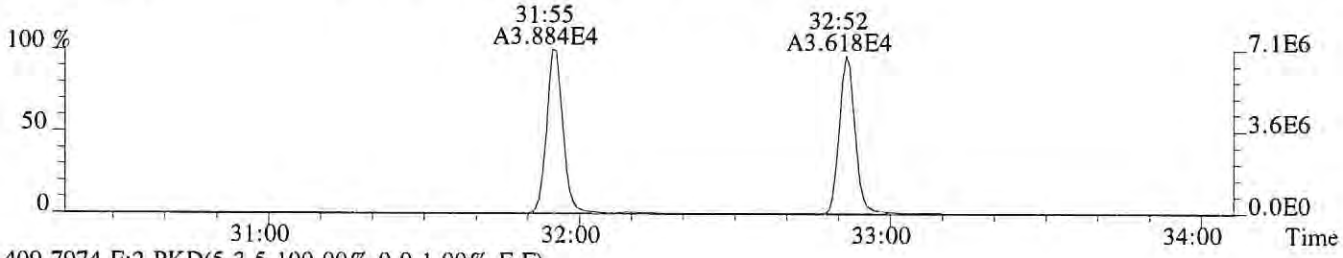
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



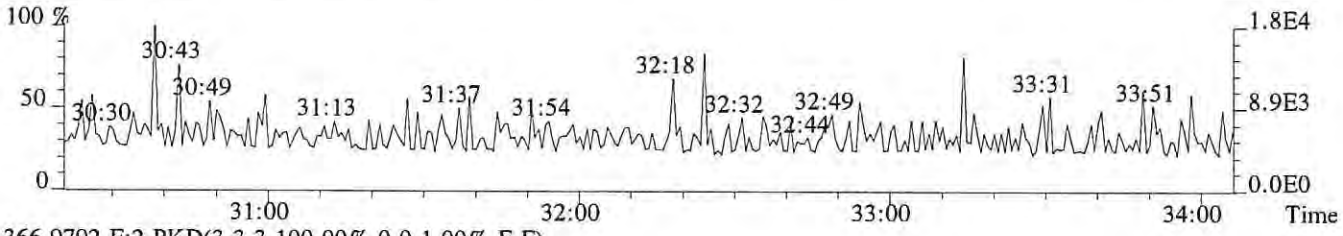
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



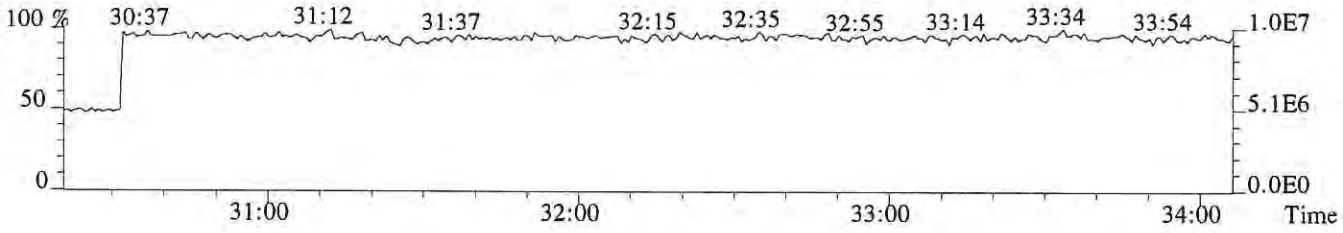
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



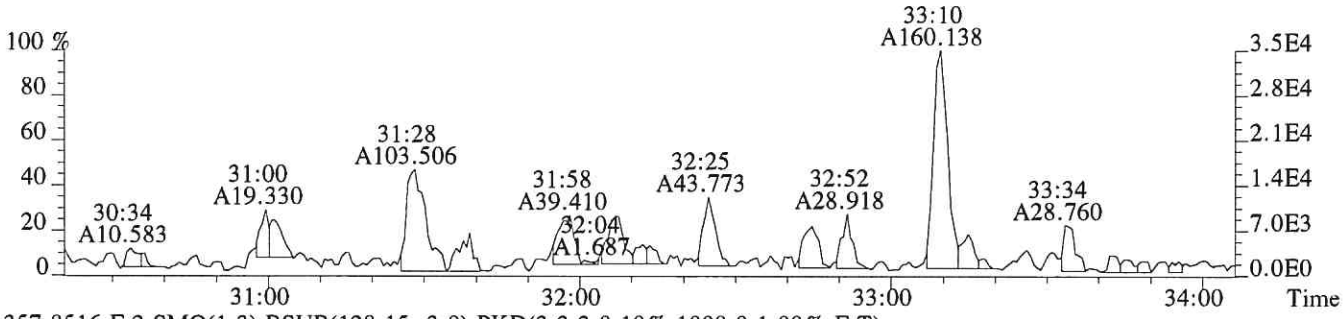
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



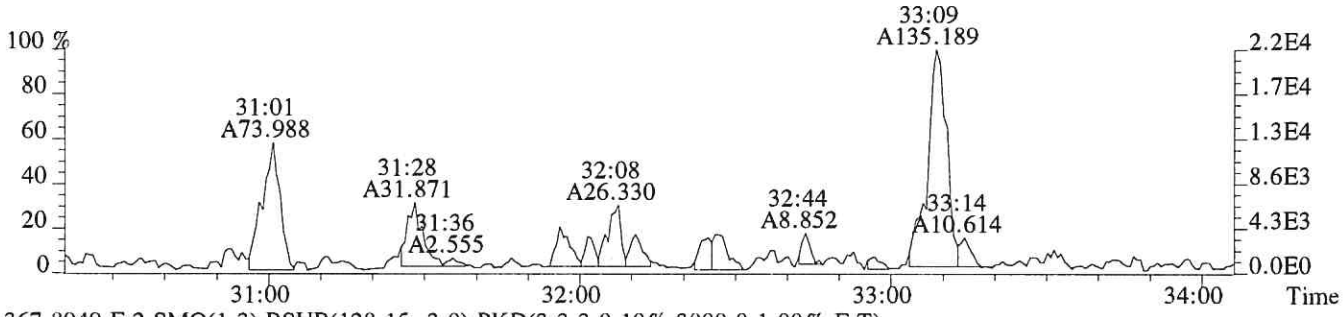
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



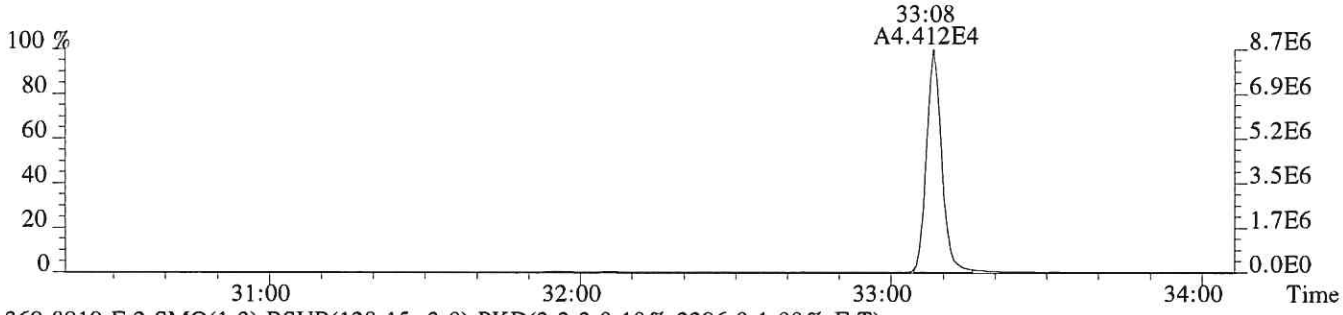
File:P615974 #1-339 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2308.0,1.00%,F,T)



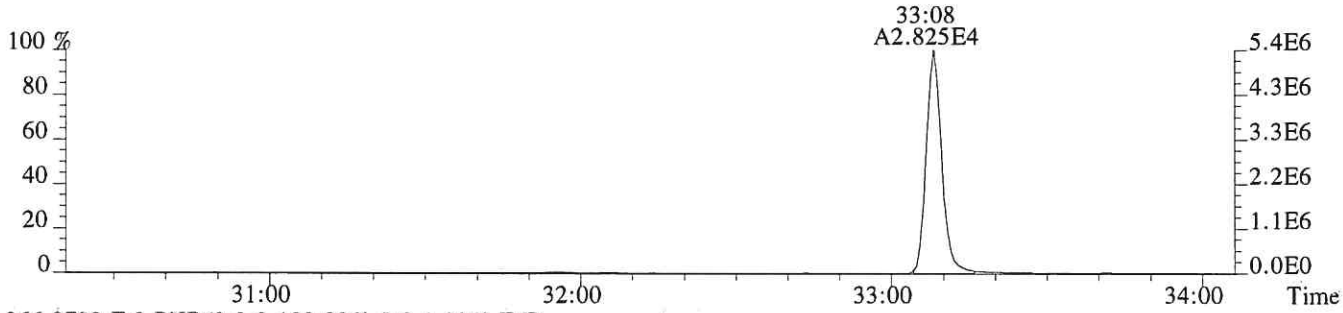
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



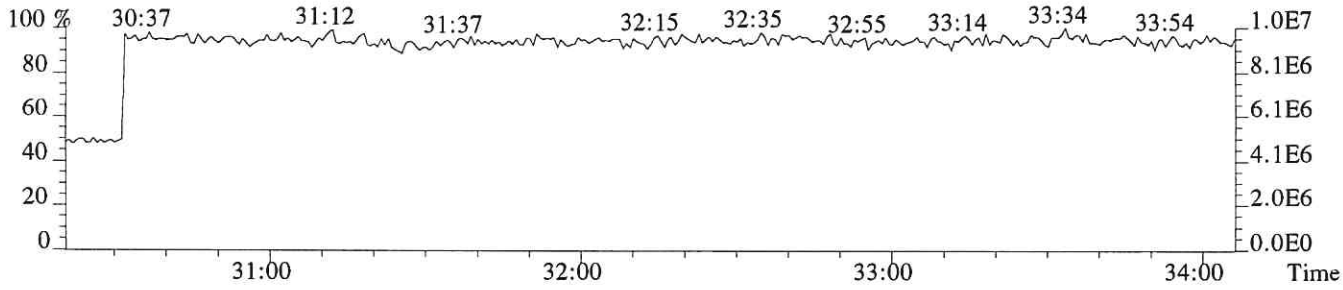
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3000.0,1.00%,F,T)



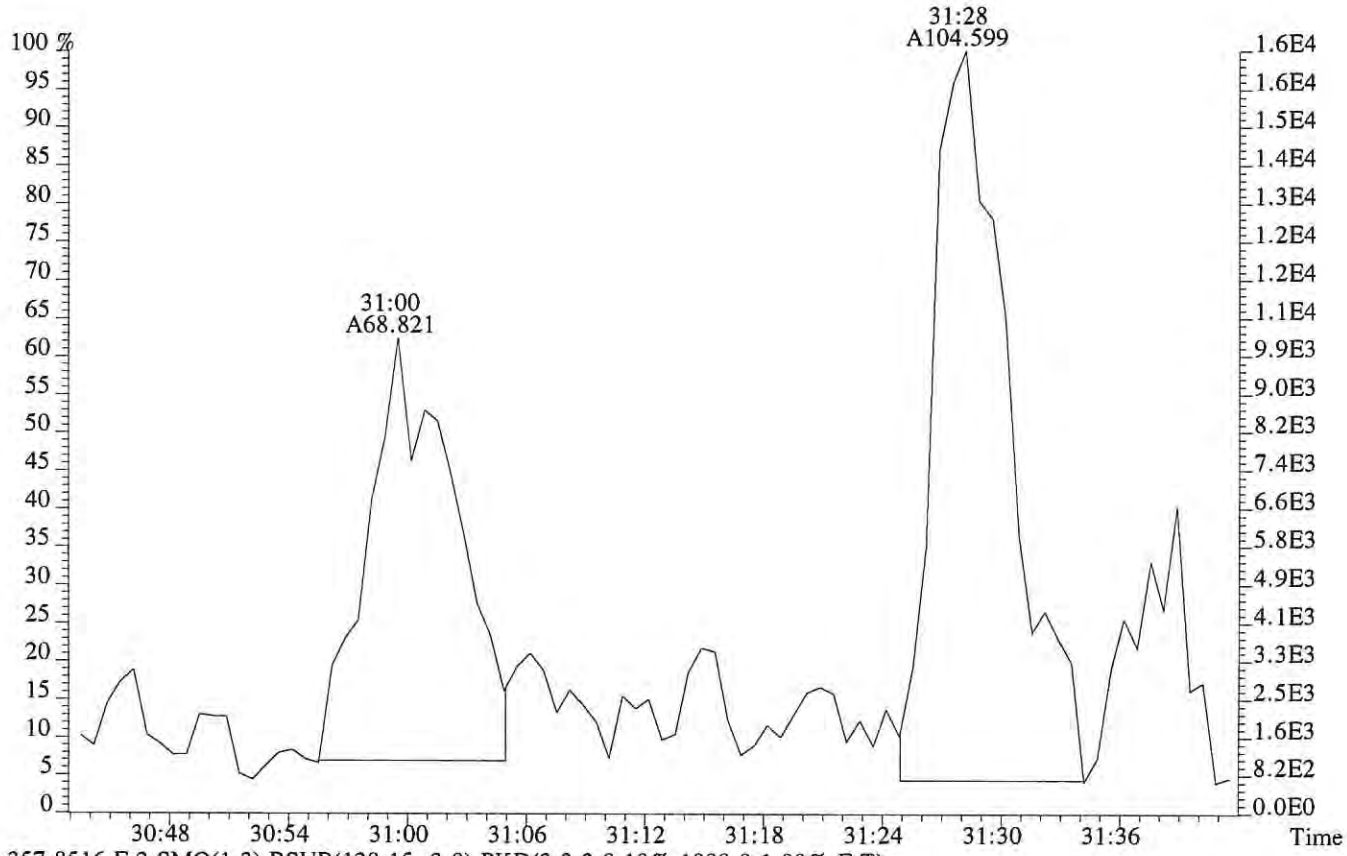
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2296.0,1.00%,F,T)



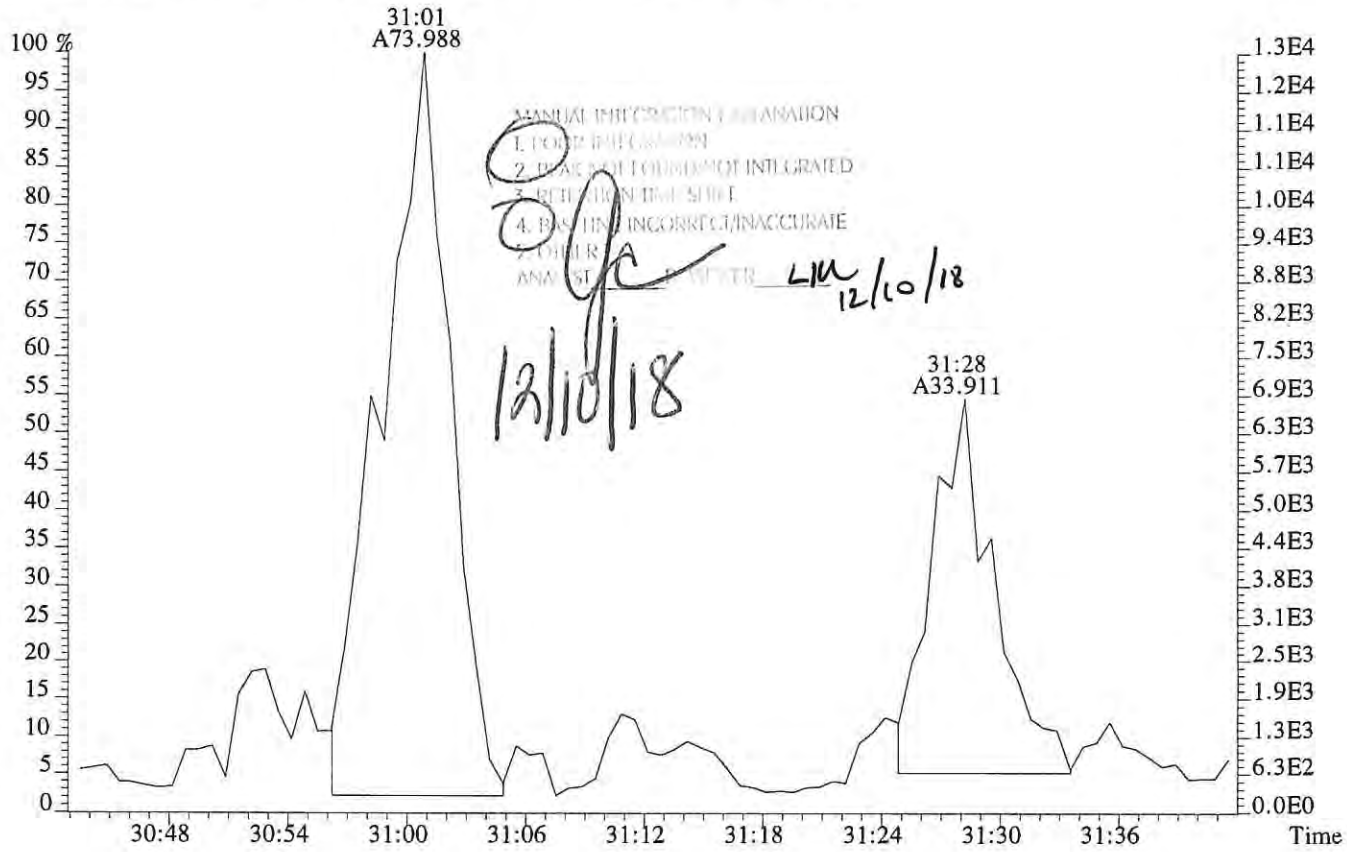
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



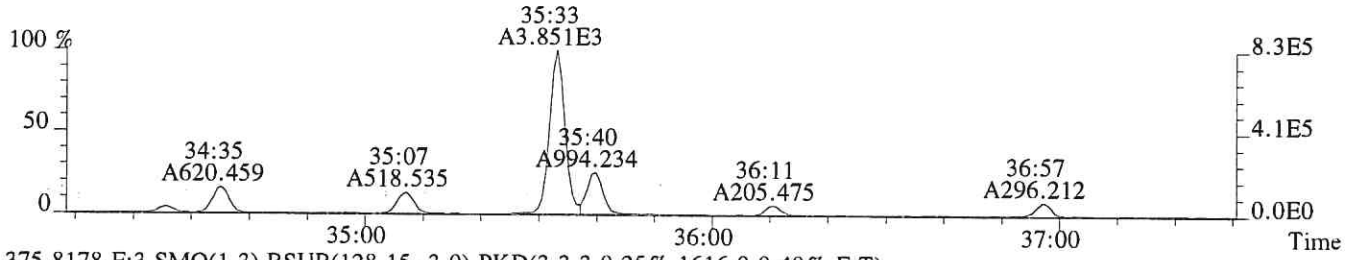
File:P615974 #1-339 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2308.0,1.00%,F,T)



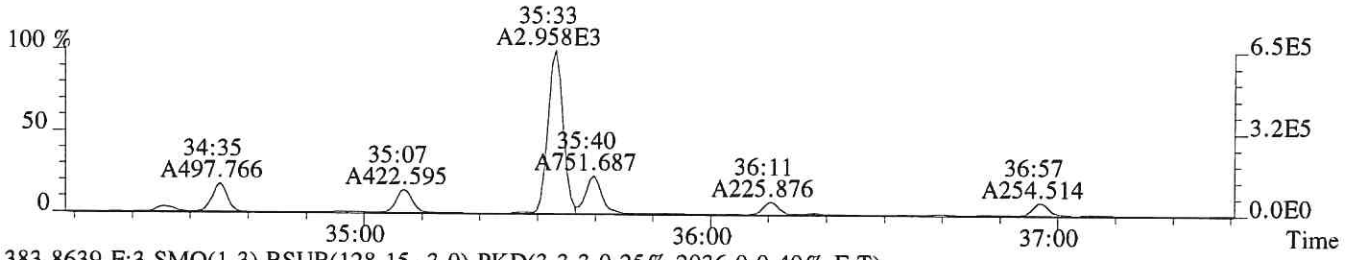
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



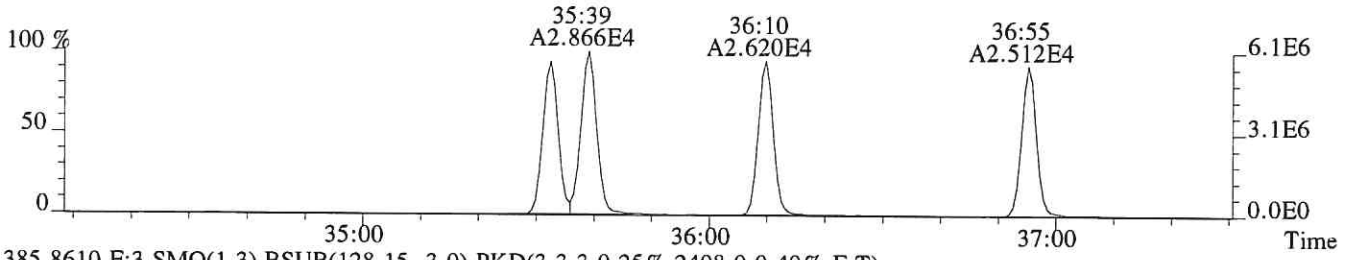
File:P615974 #1-304 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.40%,F,T)



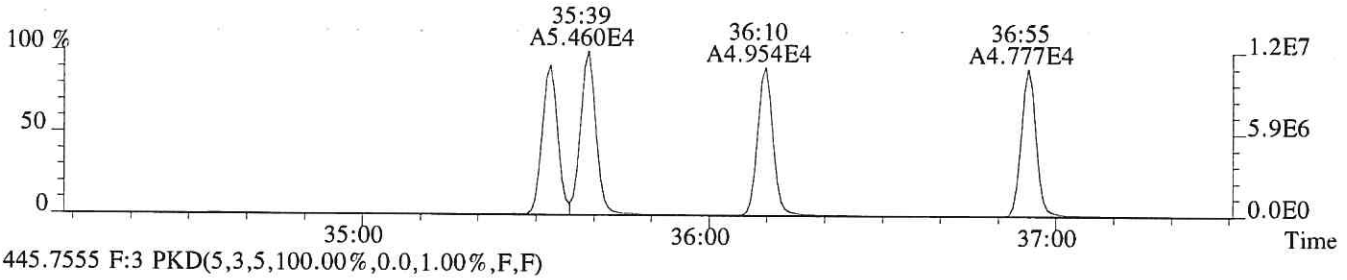
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1616.0,0.40%,F,T)



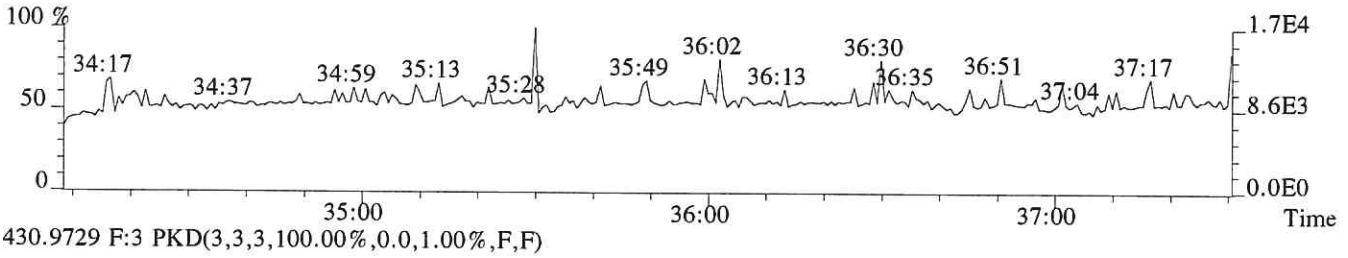
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.40%,F,T)



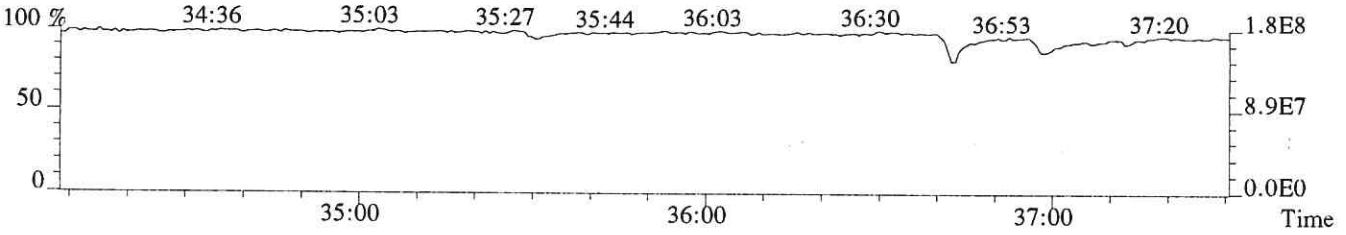
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2408.0,0.40%,F,T)



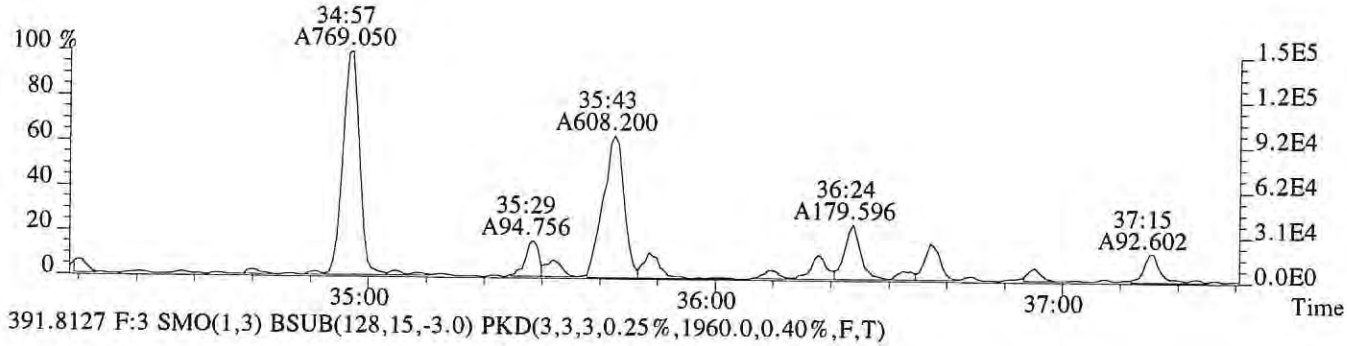
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



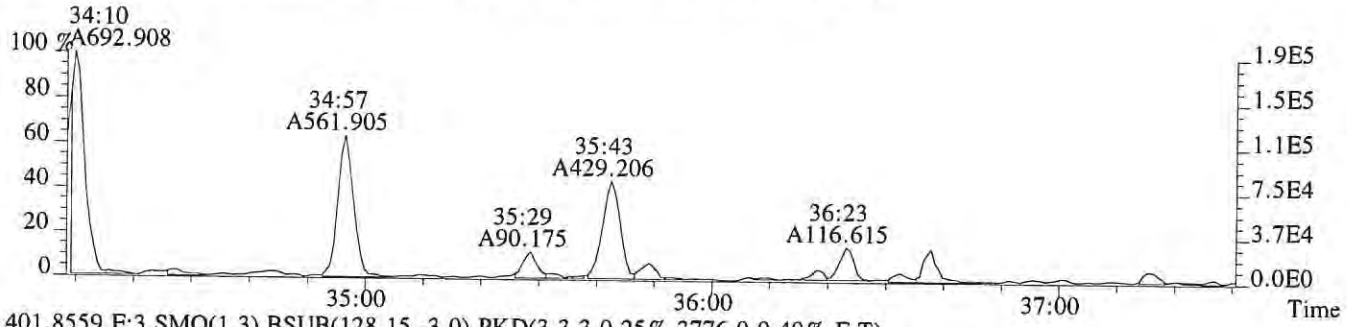
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



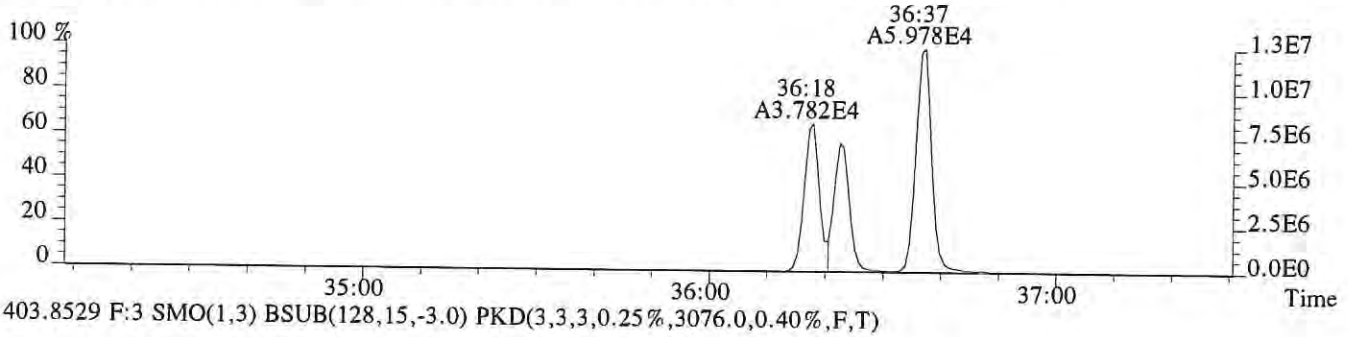
File:P615974 #1-304 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



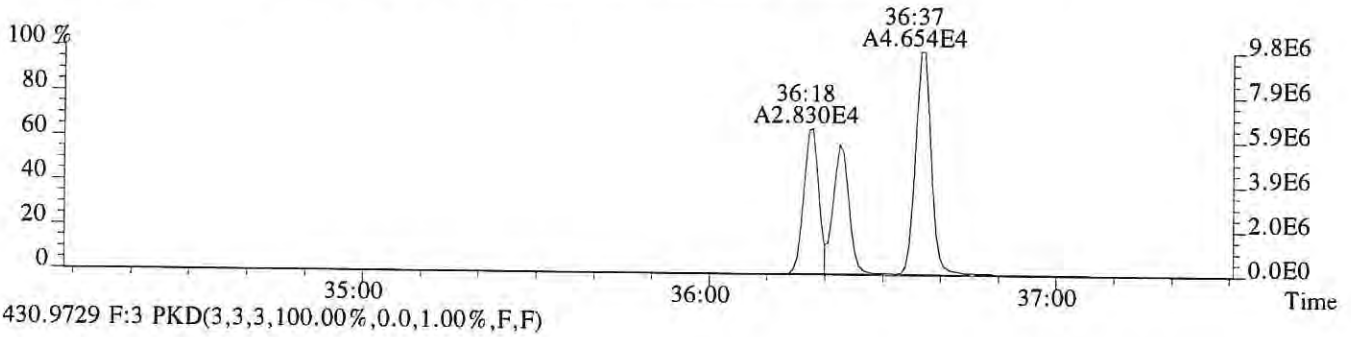
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.40%,F,T)



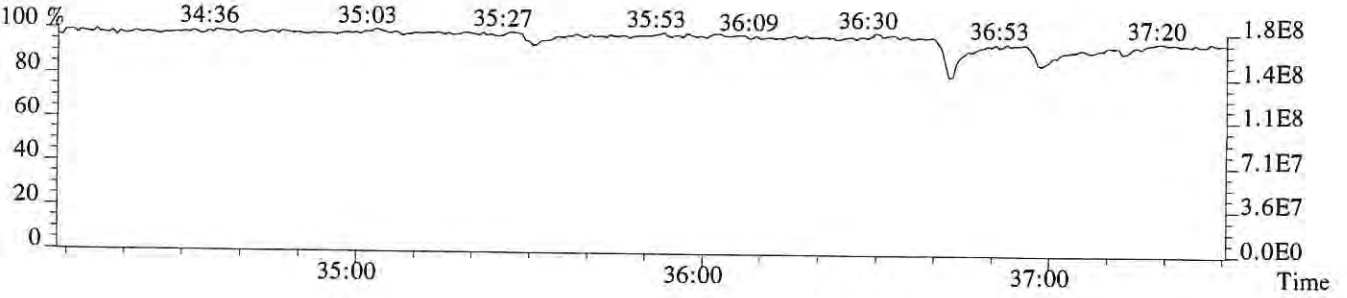
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3776.0,0.40%,F,T)



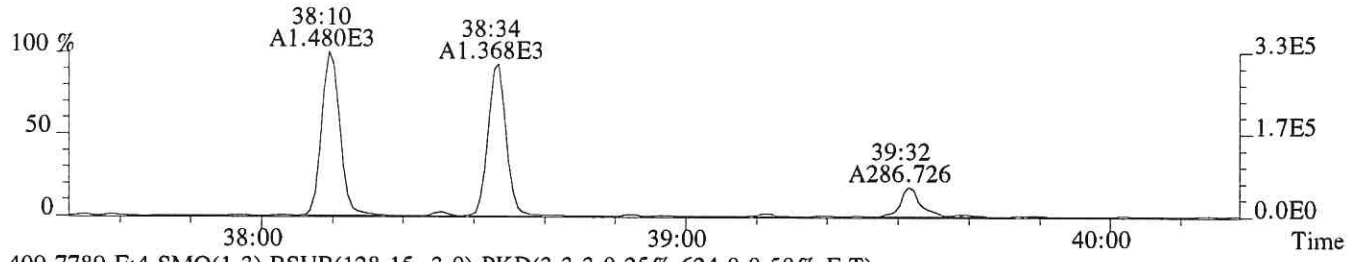
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



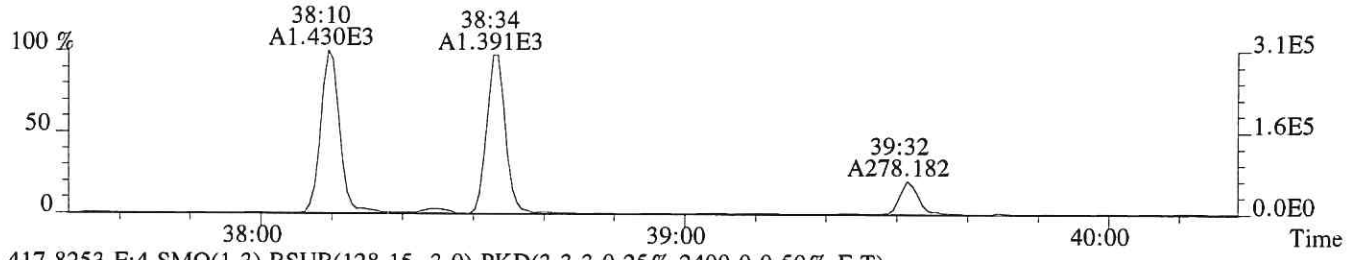
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



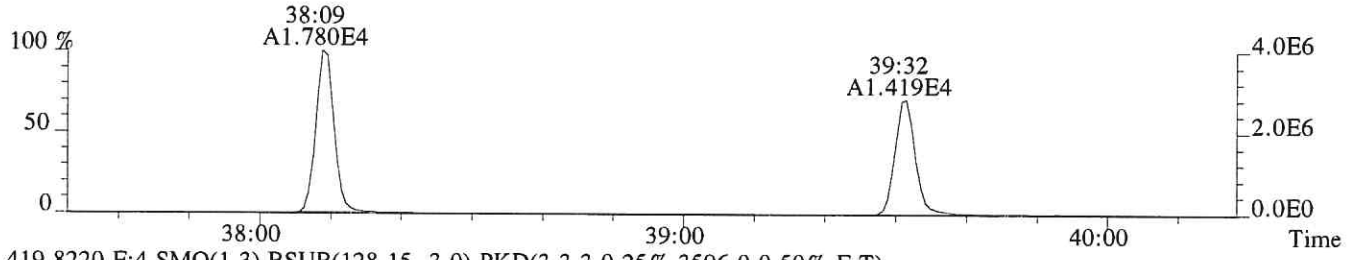
File:P615974 #1-249 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.50%,F,T)



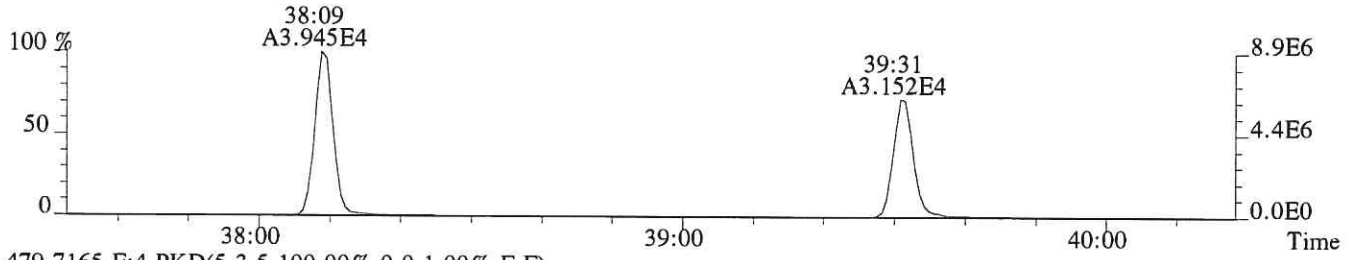
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.50%,F,T)



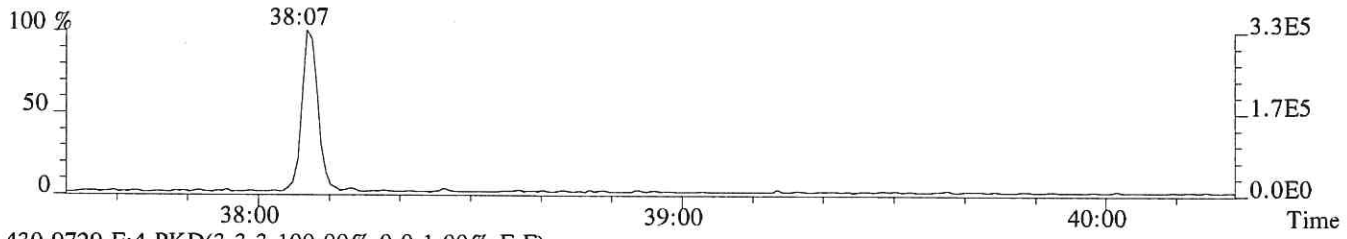
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.50%,F,T)



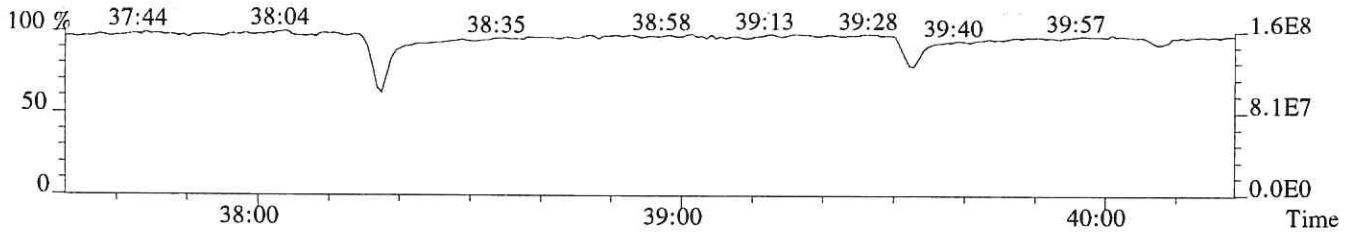
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3596.0,0.50%,F,T)



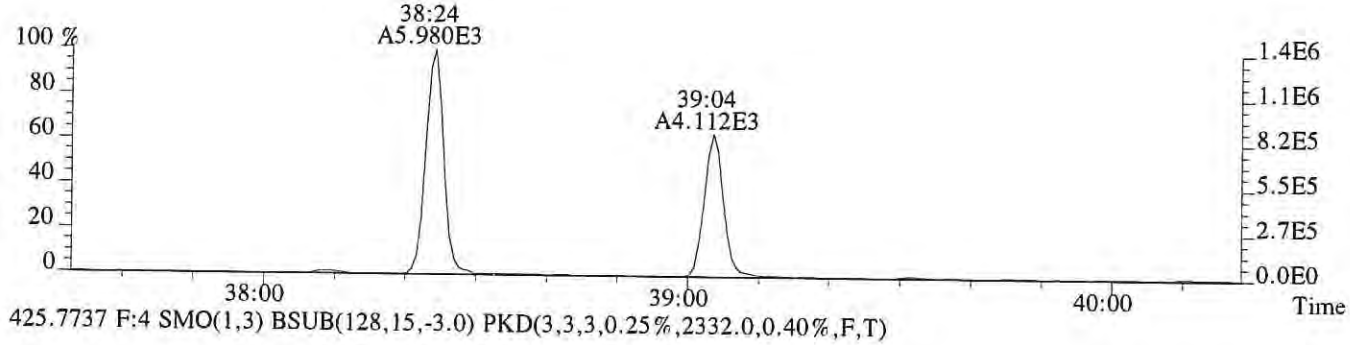
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



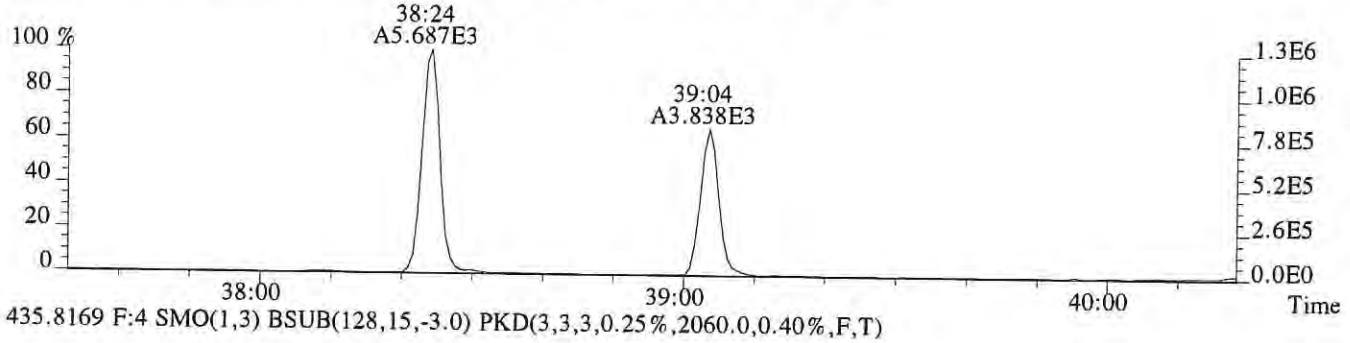
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



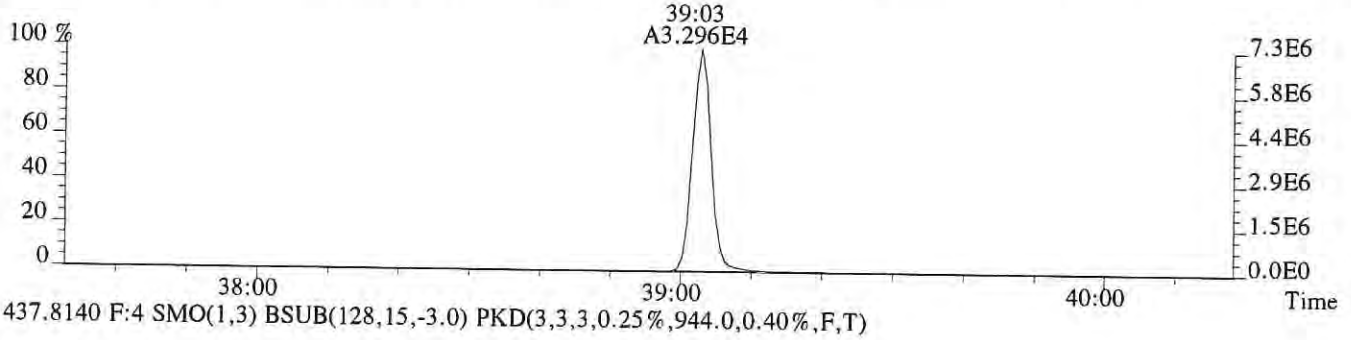
File:P615974 #1-249 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1700.0,0.40%,F,T)



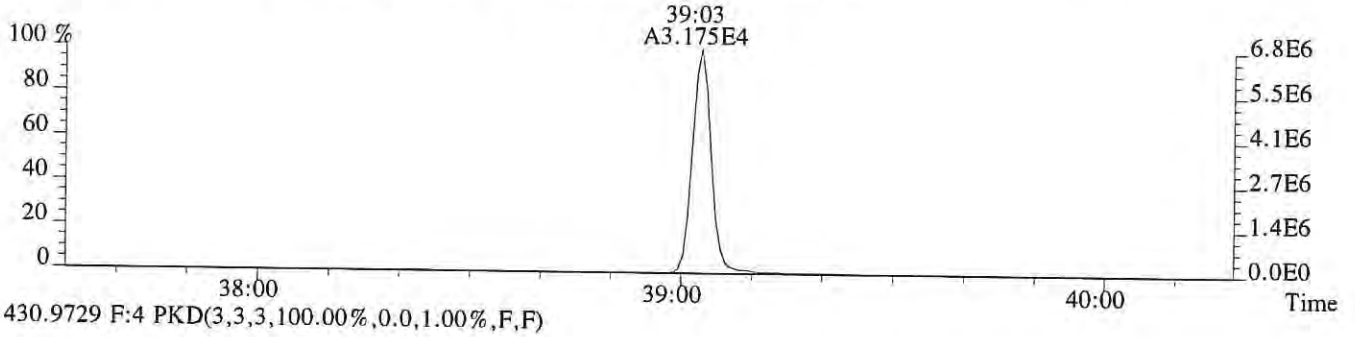
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)



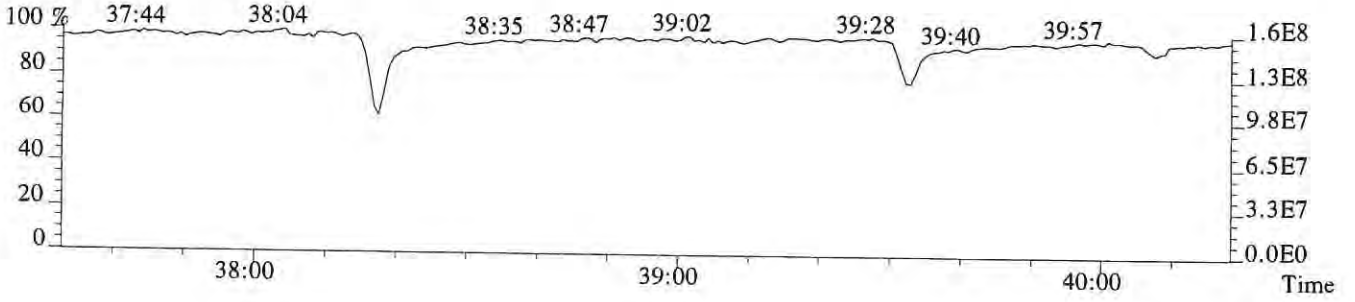
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.40%,F,T)



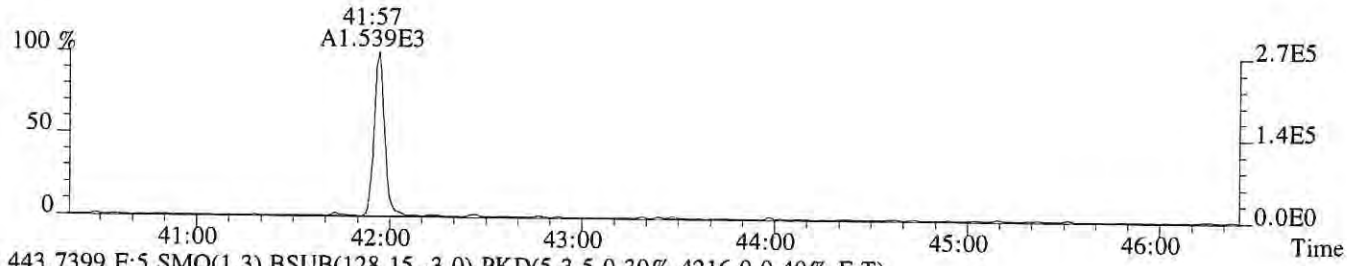
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.40%,F,T)



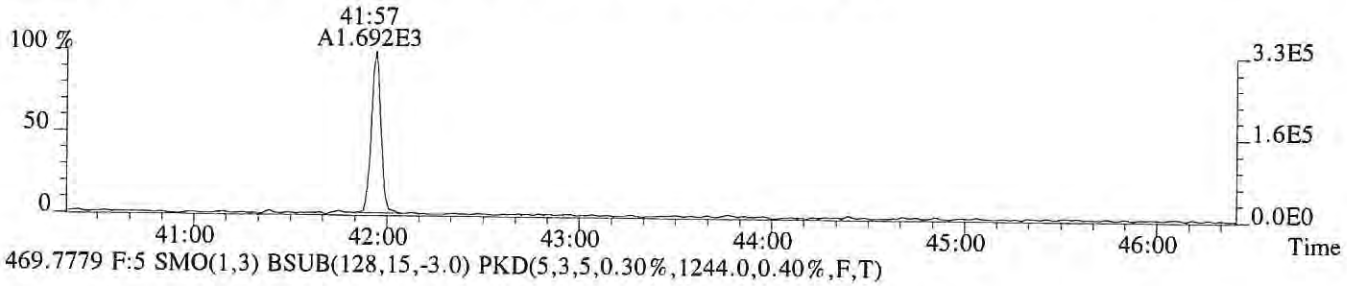
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



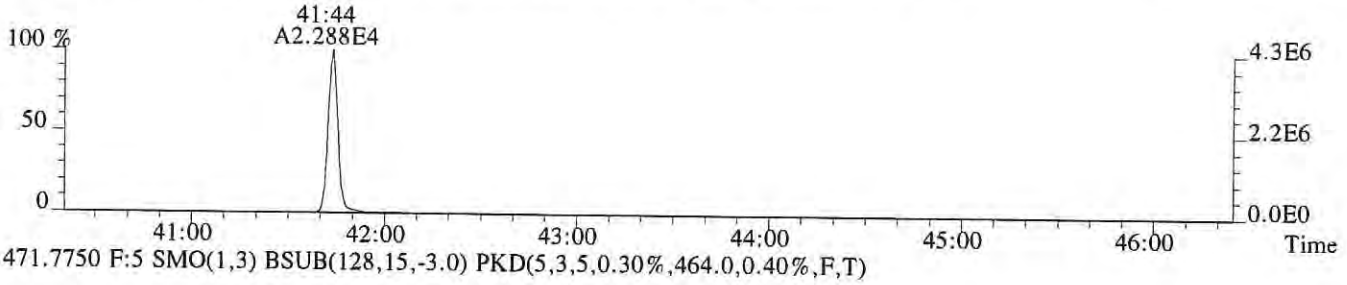
File:P615974 #1-547 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,796.0,0.40%,F,T)



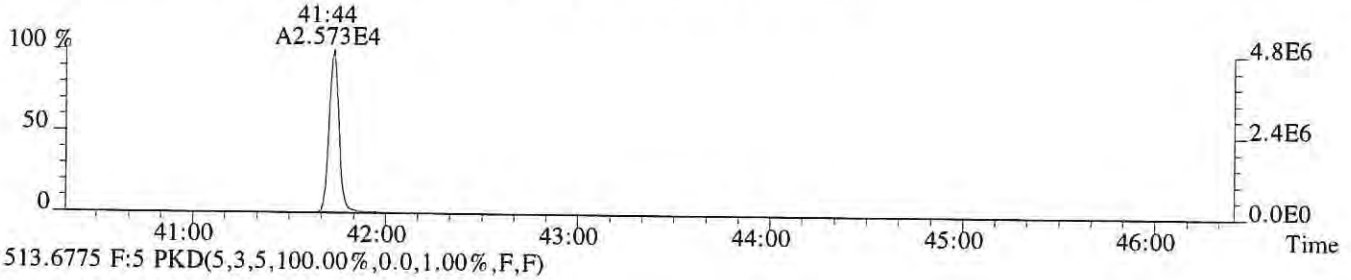
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4216.0,0.40%,F,T)



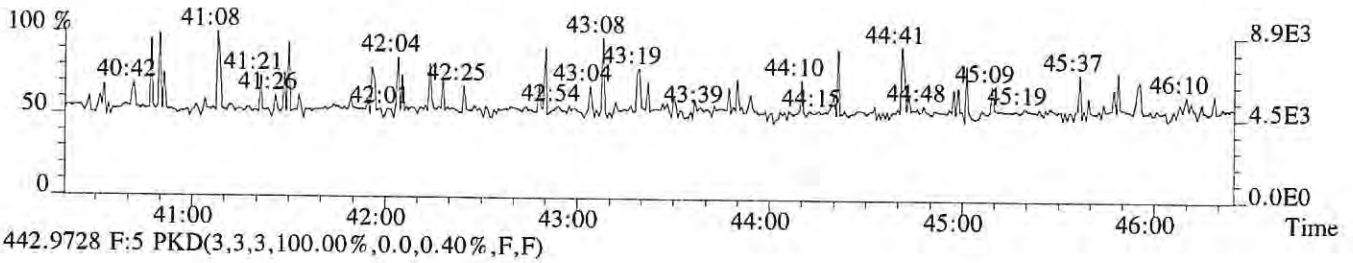
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



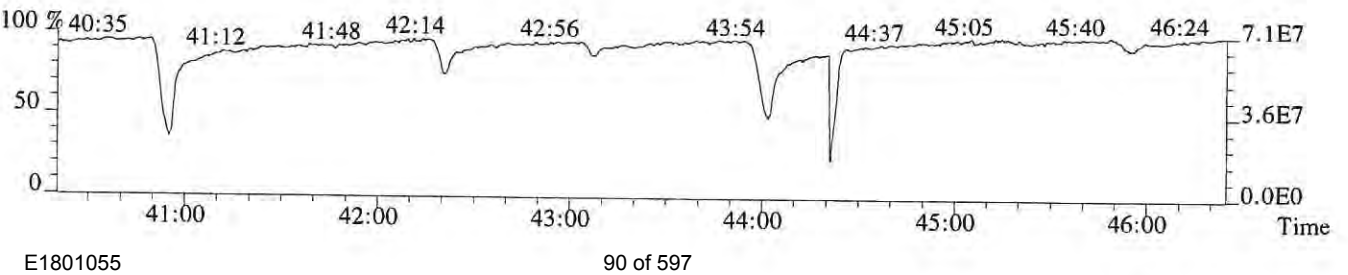
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



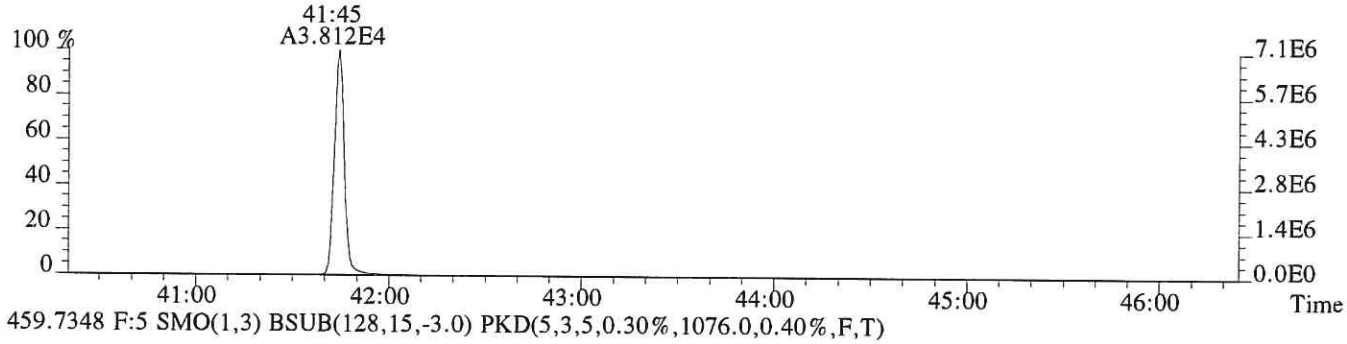
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



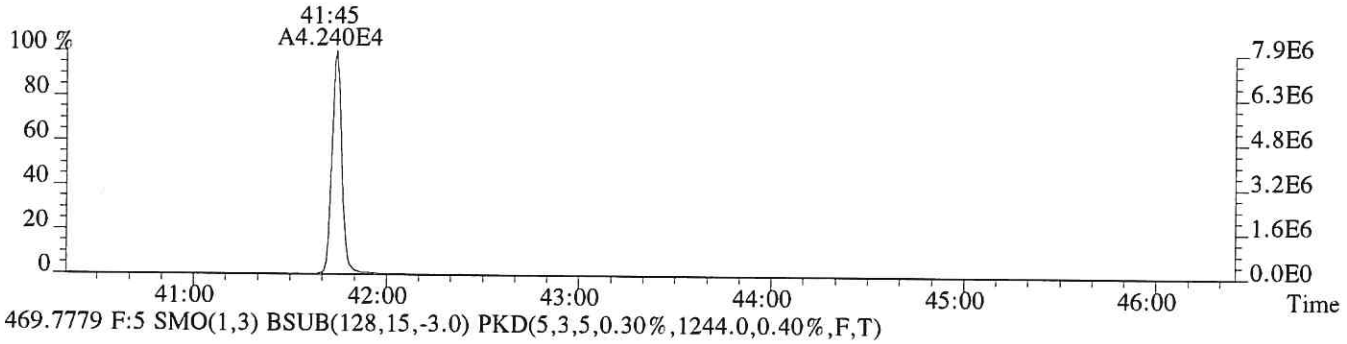
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



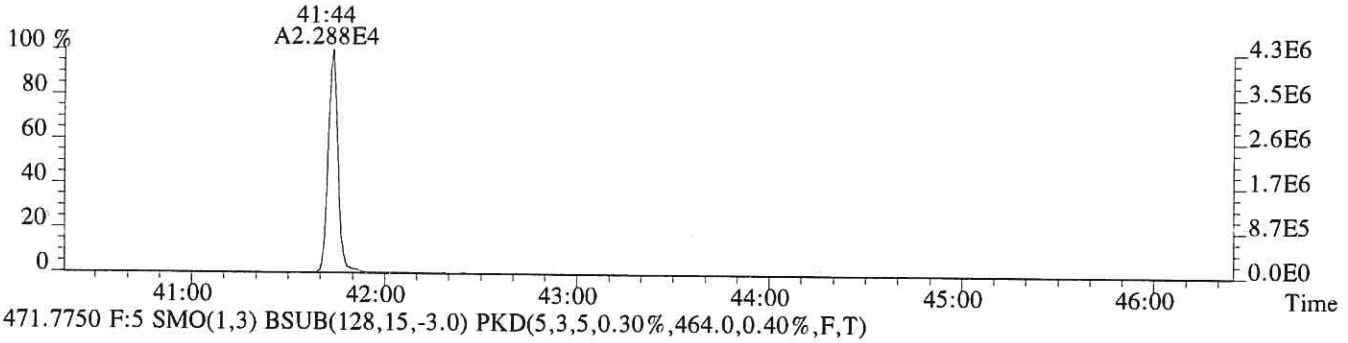
File:P615974 #1-547 Acq: 7-DEC-2018 15:35:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



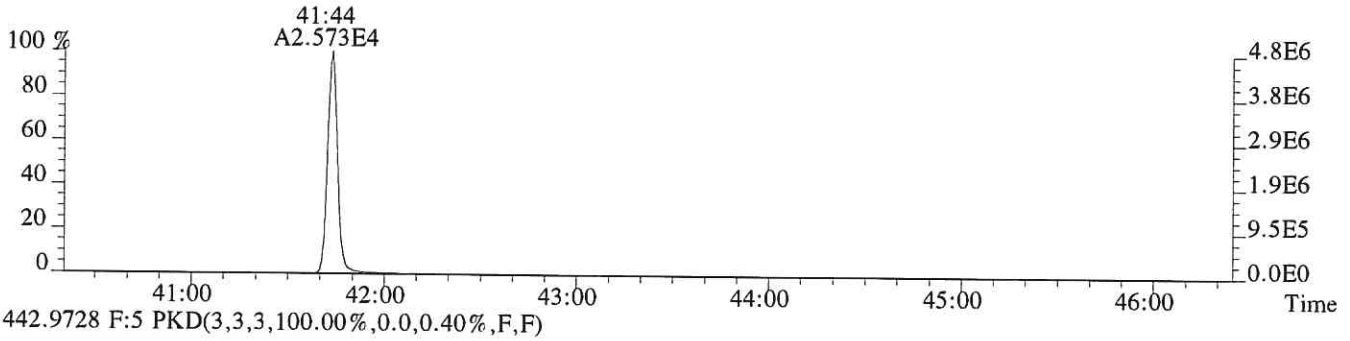
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



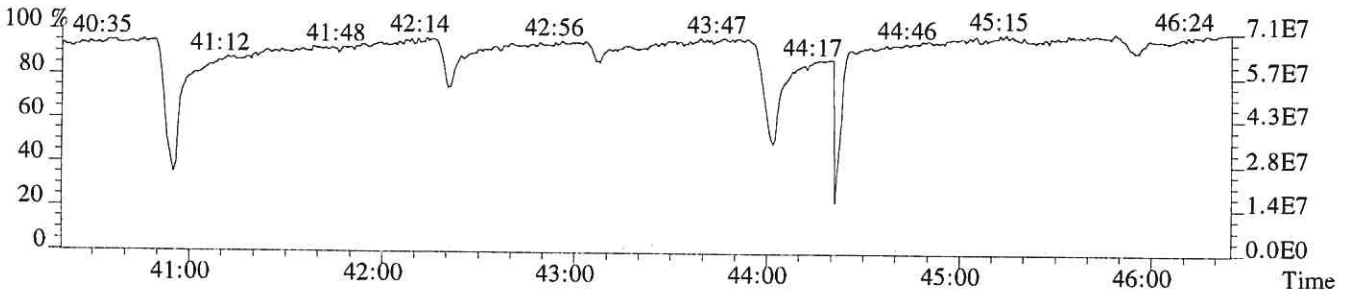
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0545

Run #15 Filename P615975 Samp: 1 Inj: 1 Acquired: 7-DEC-18 16:24:30
Processed: 10-DEC-18 16:28:18 Sample ID: E1801055-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	2.530e+03	3.278e+03	0.77	yes	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	2.155e+02	1.413e+02	1.53	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	1.713e+02	9.871e+01	1.74	yes	yes	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	3.745e+02	3.153e+02	1.19	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	1.163e+02	9.026e+01	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	2.785e+01	1.983e+01	1.40	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	1.324e+02	1.262e+02	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:31	3.097e+01	2.617e+01	1.18	yes	no	1.463
10	Unk	OCDF	41:56	8.154e+01	8.314e+01	0.98	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:25	7.119e+02	9.684e+02	0.74	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	4.110e+01	2.685e+01	1.53	yes	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:19	1.501e+01	2.879e+01	0.52	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	2.301e+01	3.696e+01	0.62	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	4.821e+01	3.994e+01	1.21	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	4.617e+02	5.121e+02	0.90	yes	no	1.112
17	Unk	OCDD	41:44	5.857e+03	6.626e+03	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	2.116e+04	2.717e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	4.344e+04	2.713e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	4.070e+04	2.566e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	1.971e+04	3.764e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	2.228e+04	4.290e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	2.058e+04	3.897e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	1.882e+04	3.549e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	1.332e+04	2.994e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	1.192e+04	2.624e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.188e+04	1.503e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	3.489e+04	2.252e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	3.051e+04	2.409e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	2.733e+04	2.221e+04	1.23	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	2.736e+04	2.605e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	1.908e+04	2.114e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	4.539e+04	5.740e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	6.251e+04	5.009e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	1.689e+04				no	1.086

$$\text{OCDD} = \frac{(5.857e+03 + 6.626e+03) \times 4000\ \text{pg} \times 1}{(1.908e+04 + 2.114e+04) \times 10.580\ \text{g} \times 80.1 / 100 \times 1.157} = 126.6\ \text{ng/kg}$$

LLL 12/12/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0545

Run #15 Filename P615975 Samp: 1 Inj: 1 Acquired: 7-DEC-18 16:24:30
Processed: 10-DEC-18 16:28:18 LAB. ID: E1801055-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.80e+05	2.96e+03	1.3e+02	5.05e+05	7.08e+03	7.1e+01
2	1,2,3,7,8-PeCDF	3.30e+04	5.64e+02	5.9e+01	2.32e+04	2.61e+03	8.9e+00
3	2,3,4,7,8-PeCDF	2.71e+04	5.64e+02	4.8e+01	1.59e+04	2.61e+03	6.1e+00
4	1,2,3,4,7,8-HxCDF	8.72e+04	1.63e+03	5.3e+01	6.62e+04	1.15e+03	5.8e+01
5	1,2,3,6,7,8-HxCDF	2.47e+04	1.63e+03	1.5e+01	1.91e+04	1.15e+03	1.7e+01
6	2,3,4,6,7,8-HxCDF	*	1.63e+03	*	*	1.15e+03	*
7	1,2,3,7,8,9-HxCDF	8.70e+03	1.63e+03	5.3e+00	3.97e+03	1.15e+03	3.5e+00
8	1,2,3,4,6,7,8-HpCDF	3.25e+04	1.38e+03	2.4e+01	2.73e+04	4.84e+02	5.6e+01
9	1,2,3,4,7,8,9-HpCDF	6.63e+03	1.38e+03	4.8e+00	7.47e+03	4.84e+02	1.5e+01
10	OCDF	1.81e+04	1.10e+03	1.6e+01	1.44e+04	3.42e+03	4.2e+00
11	2,3,7,8-TCDD	1.15e+05	3.07e+03	3.8e+01	1.54e+05	2.81e+03	5.5e+01
12	1,2,3,7,8-PeCDD	6.05e+03	1.92e+03	3.2e+00	3.35e+03	5.56e+02	6.0e+00
13	1,2,3,4,7,8-HxCDD	3.31e+03	5.12e+02	6.5e+00	6.00e+03	9.68e+02	6.2e+00
14	1,2,3,6,7,8-HxCDD	5.61e+03	5.12e+02	1.1e+01	7.54e+03	9.68e+02	7.8e+00
15	1,2,3,7,8,9-HxCDD	1.12e+04	5.12e+02	2.2e+01	7.24e+03	9.68e+02	7.5e+00
16	1,2,3,4,6,7,8-HpCDD	8.81e+04	1.03e+03	8.5e+01	1.05e+05	1.24e+03	8.5e+01
17	OCDD	1.07e+06	8.92e+02	1.2e+03	1.15e+06	1.18e+03	9.8e+02
18	13C-2,3,7,8-TCDF	3.26e+06	1.38e+04	2.4e+02	4.21e+06	1.07e+04	3.9e+02
19	13C-1,2,3,7,8-PeCDF	7.78e+06	1.56e+03	5.0e+03	4.88e+06	9.92e+02	4.9e+03
20	13C-2,3,4,7,8-PeCDF	7.52e+06	1.56e+03	4.8e+03	4.64e+06	9.92e+02	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	4.30e+06	1.96e+03	2.2e+03	8.14e+06	2.88e+03	2.8e+03
22	13C-1,2,3,6,7,8-HxCDF	4.68e+06	1.96e+03	2.4e+03	8.81e+06	2.88e+03	3.1e+03
23	13C-2,3,4,6,7,8-HxCDF	4.45e+06	1.96e+03	2.3e+03	8.24e+06	2.88e+03	2.9e+03
24	13C-1,2,3,7,8,9-HxCDF	3.77e+06	1.96e+03	1.9e+03	7.27e+06	2.88e+03	2.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.93e+06	2.86e+03	1.0e+03	6.62e+06	4.17e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.31e+06	2.86e+03	8.1e+02	5.02e+06	4.17e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.98e+06	1.73e+04	1.1e+02	2.52e+06	6.45e+03	3.9e+02
28	13C-1,2,3,7,8-PeCDD	6.34e+06	2.87e+03	2.2e+03	4.09e+06	2.50e+03	1.6e+03
29	13C-1,2,3,4,7,8-HxCDD	6.73e+06	3.12e+03	2.2e+03	5.18e+06	1.81e+03	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	5.71e+06	3.12e+03	1.8e+03	4.68e+06	1.81e+03	2.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.71e+06	1.52e+03	3.8e+03	5.40e+06	5.52e+02	9.8e+03
32	13C-OCDD	3.32e+06	1.46e+03	2.3e+03	3.72e+06	7.08e+02	5.3e+03
33	13C-1,2,3,4-TCDD	7.78e+06	1.73e+04	4.5e+02	9.78e+06	6.45e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.29e+07	3.12e+03	4.1e+03	1.02e+07	1.81e+03	5.6e+03
35	37Cl-2,3,7,8-TCDD	2.80e+06	5.14e+03	5.4e+02			

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Peak List Summary

CLIENT ID.
SL0545

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P615975 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 16:24:30 Processed: 10-DEC-18 16:28:18

Mass: 303.9020 305.8990 Tot Response: 8.41e+03 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:44	1.09e+03	1.52e+03 0.71	yes	2.61e+03		n	n
2	27:37	2.53e+03	3.28e+03 0.77	yes	5.81e+03	2,3,7,8-TCDF	y	y

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Peak List Summary

CLIENT ID.
SL0545

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P615975 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 16:24:30 Processed: 10-DEC-18 16:28:18

Mass: 319.8970 321.8940 Tot Response: 1.68e+03 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:25	7.12e+02	9.68e+02 0.74	yes	1.68e+03	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0545

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P615975 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 16:24:30 Processed: 10-DEC-18 16:28:18

Mass: 339.8600 341.8570 Tot Response: 6.27e+02 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:56	2.16e+02	1.41e+02 1.53	yes	3.57e+02	1,2,3,7,8-PeCDF	n	n
2	32:52	1.71e+02	9.87e+01 1.74	yes	2.70e+02	2,3,4,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.
SL0545

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P615975 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 16:24:30 Processed: 10-DEC-18 16:28:18

Mass: 355.8550 357.8520 Tot Response: 2.62e+02 RRF: 0.9288

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:27	1.22e+02	7.21e+01 1.69	yes	1.94e+02		n	n
2	33:10	4.11e+01	2.69e+01 1.53	yes	6.80e+01	1,2,3,7,8-PeCDD	y	n

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Peak List Summary

CLIENT ID.
SL0545

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P615975 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 16:24:30 Processed: 10-DEC-18 16:28:18

Mass: 373.8210 375.8180 Tot Response: 9.44e+02 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:33	3.74e+02	3.15e+02	1.19	yes	6.90e+02	1,2,3,4,7,8-HxCDF	n	n
2	35:39	1.16e+02	9.03e+01	1.29	yes	2.07e+02	1,2,3,6,7,8-HxCDF	n	n
3	36:56	2.79e+01	1.98e+01	1.40	yes	4.77e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0545

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P615975 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 16:24:30 Processed: 10-DEC-18 16:28:18

Mass: 389.8160 391.8130 Tot Response: 4.69e+02 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:07	1.21e+01	8.73e+00	1.38	yes	2.08e+01	n	n
2	35:15	4.15e+00	3.30e+00	1.26	yes	7.45e+00	n	n
3	35:29	1.98e+01	1.66e+01	1.19	yes	3.64e+01	n	n
4	35:43	1.84e+02	1.33e+02	1.38	yes	3.17e+02	n	n
5	36:37	4.82e+01	3.99e+01	1.21	yes	8.82e+01 1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0545

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P615975 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 16:24:30 Processed: 10-DEC-18 16:28:18

Mass: 407.7820 409.7790 Tot Response: 3.16e+02 RRF: 1.495

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:10	1.32e+02	1.26e+02	1.05	yes	2.59e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:31	3.10e+01	2.62e+01	1.18	yes	5.71e+01	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0545

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P615975 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 16:24:30 Processed: 10-DEC-18 16:28:18

Mass: 423.7770 425.7740 Tot Response: 3.31e+03 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:24	1.22e+03	1.12e+03	1.09	yes	2.34e+03		n	n
2	39:03	4.62e+02	5.12e+02	0.90	yes	9.74e+02	1,2,3,4,6,7,8-HpCDD	n	n

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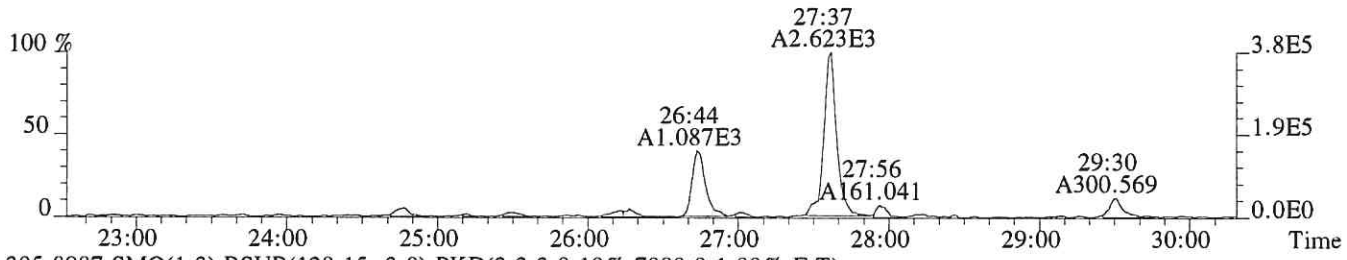
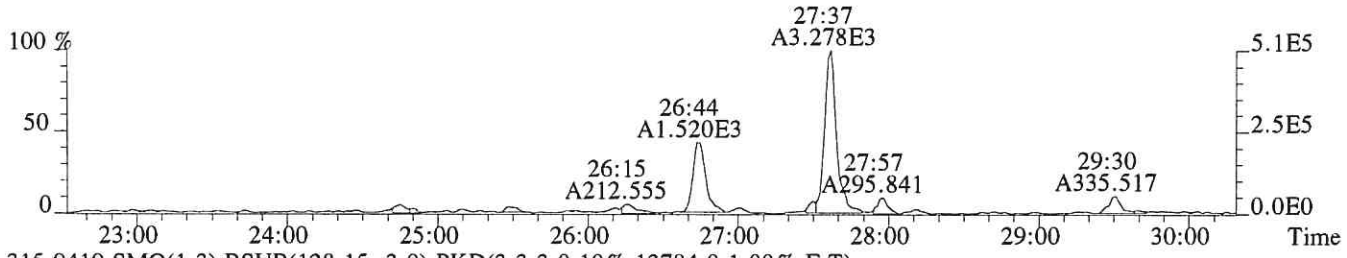
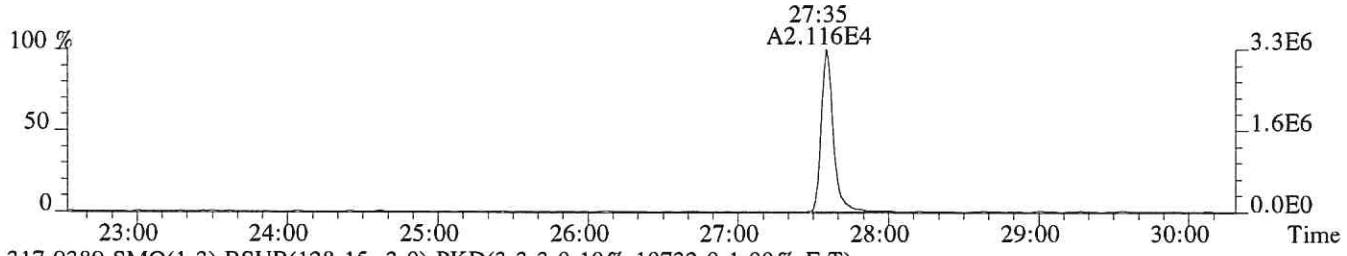
File:P615975 #1-552 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2956.0,1.00%,F,T)



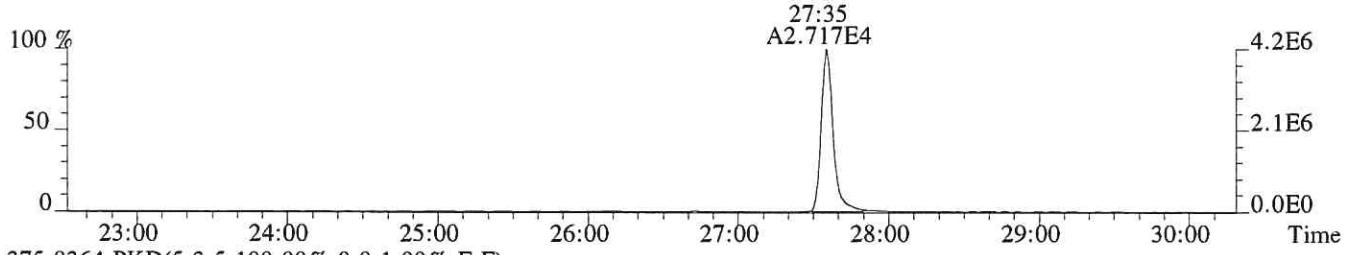
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7080.0,1.00%,F,T)



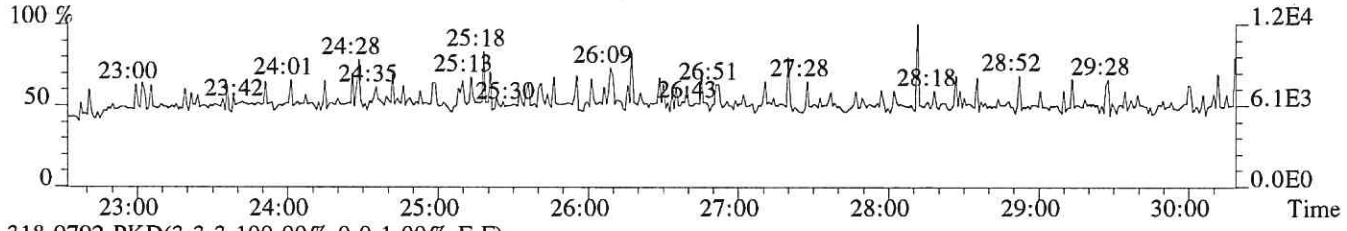
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13784.0,1.00%,F,T)



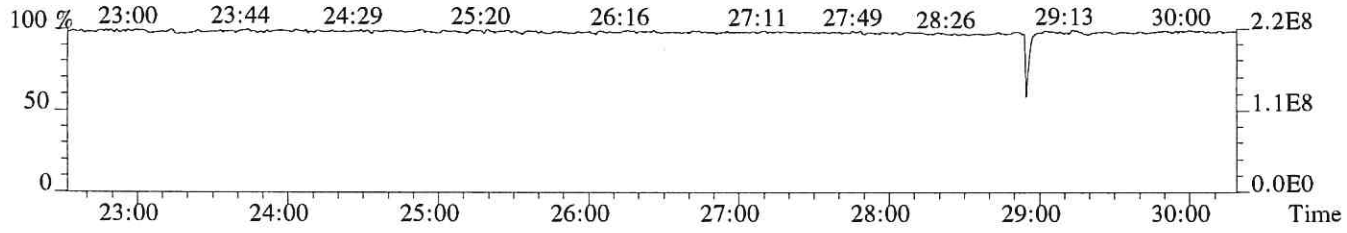
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10732.0,1.00%,F,T)



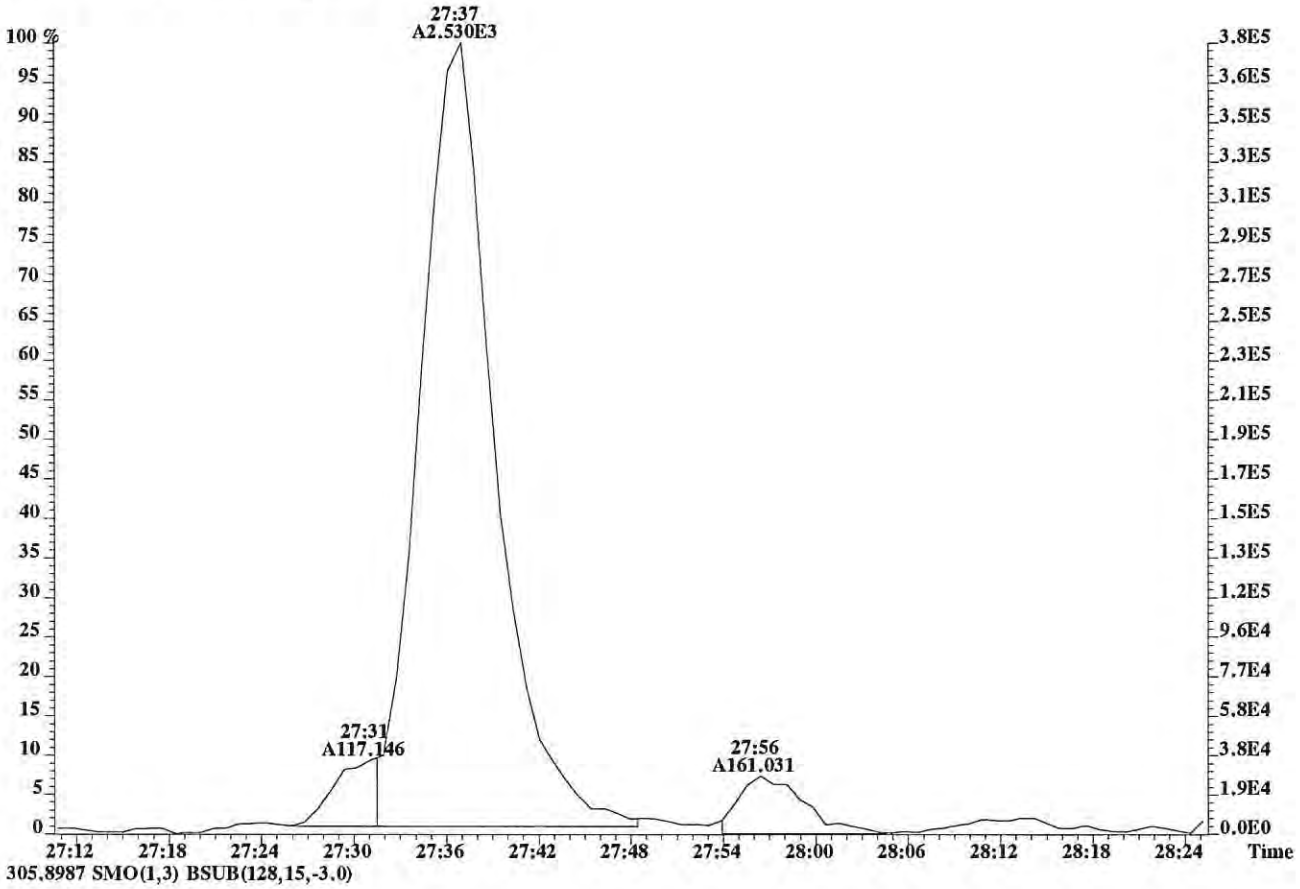
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



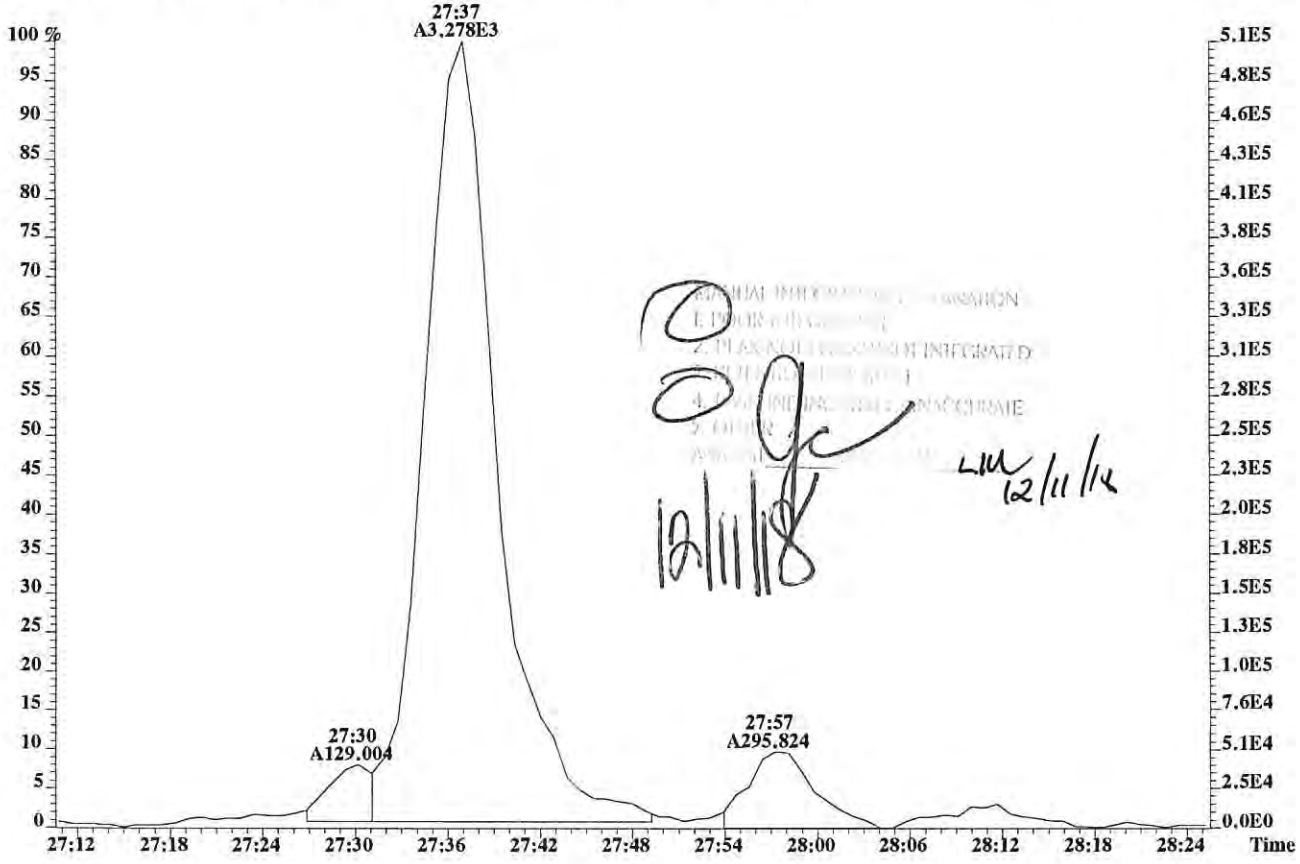
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



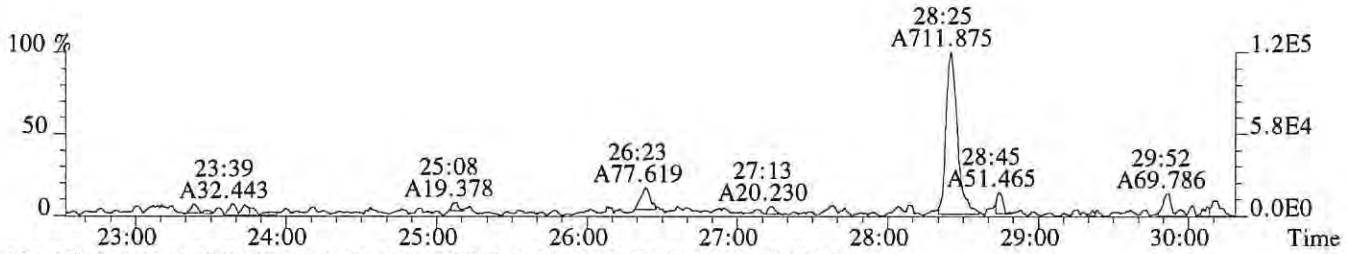
File:P615975 #1-552 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:E1801055-002
303.9016 SMO(1,3) BSUB(128,15,-3.0)



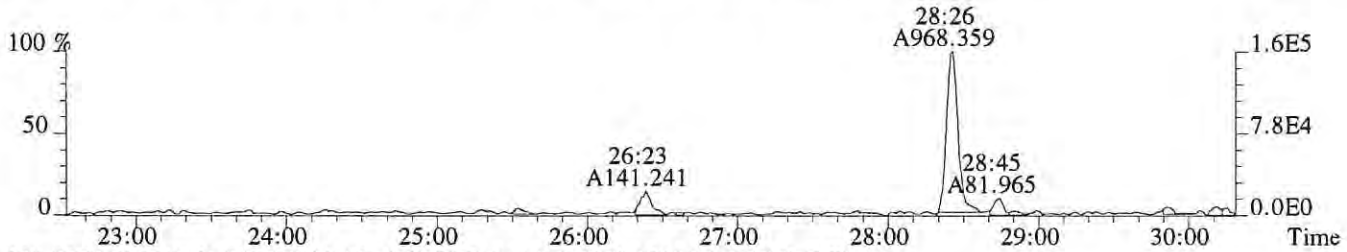
305.8987 SMO(1,3) BSUB(128,15,-3.0)



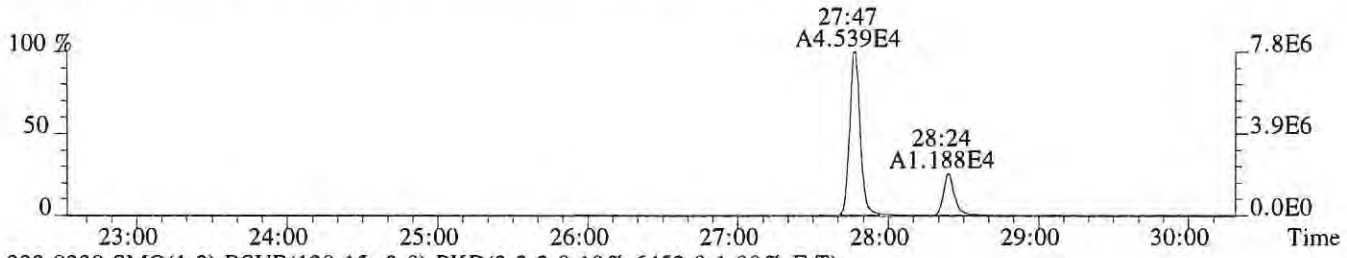
File:P615975 #1-552 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3068.0,1.00%,F,T)



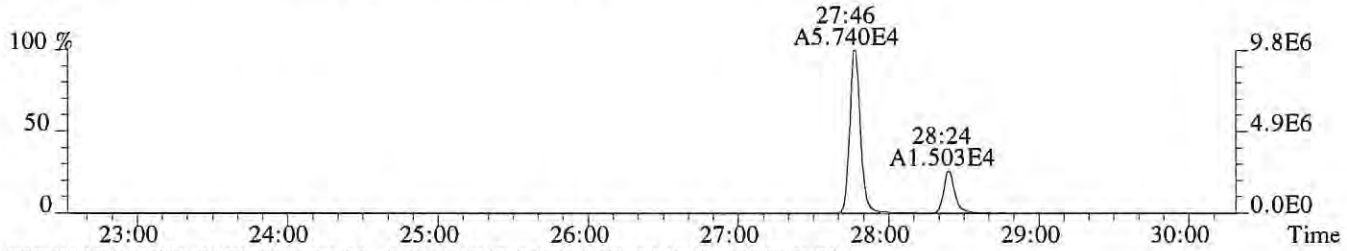
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2812.0,1.00%,F,T)



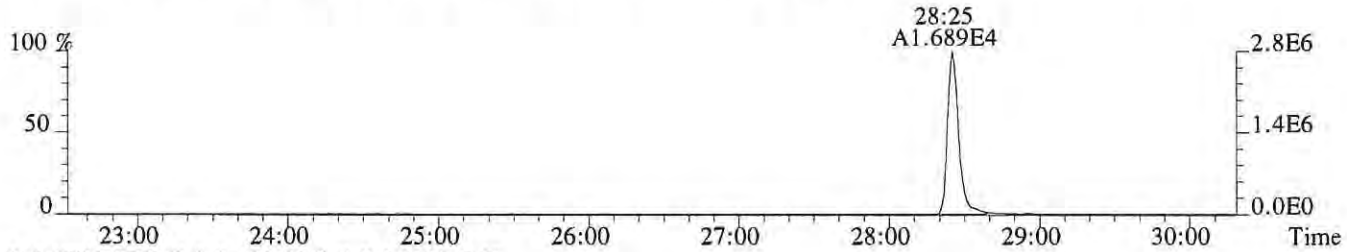
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17284.0,1.00%,F,T)



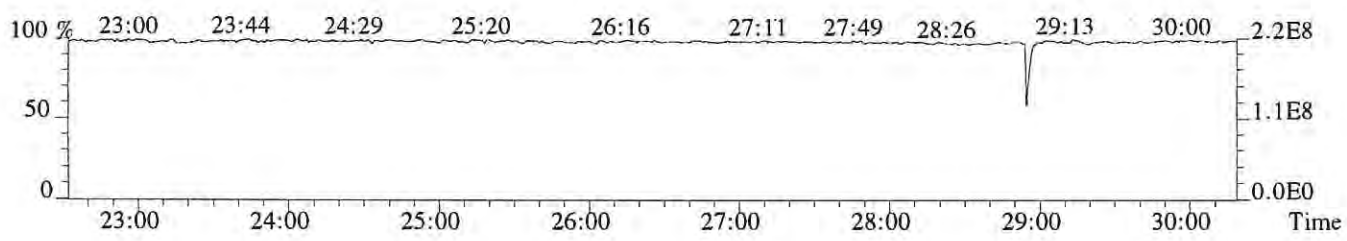
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6452.0,1.00%,F,T)



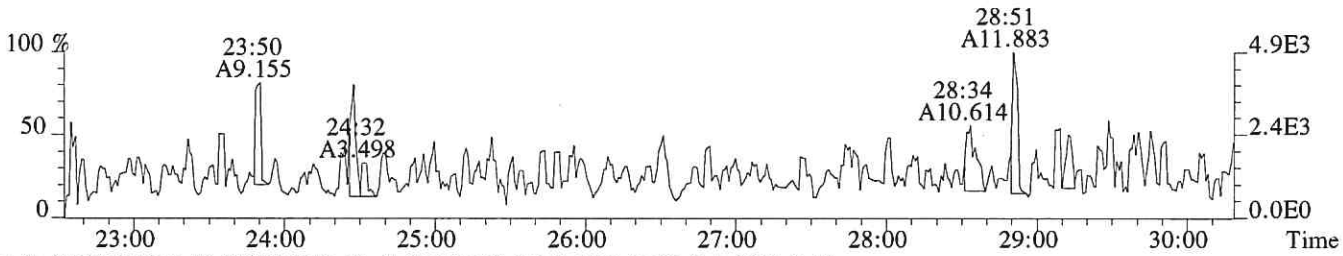
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5140.0,1.00%,F,T)



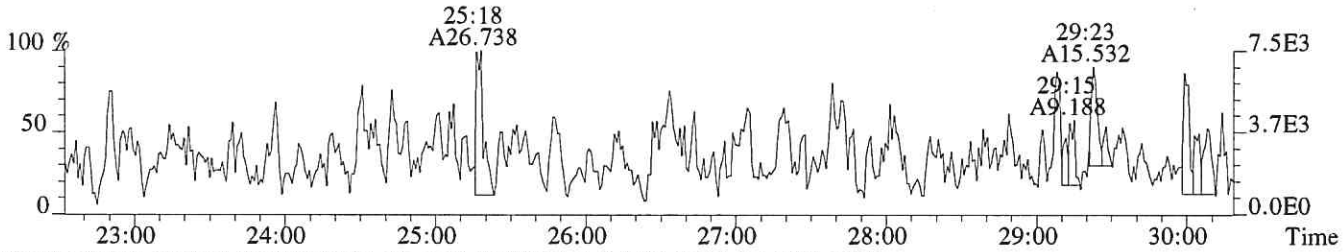
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



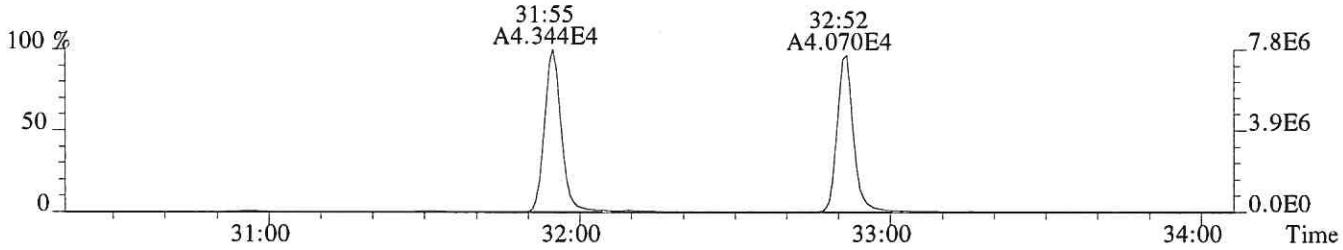
File:P615975 #1-552 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



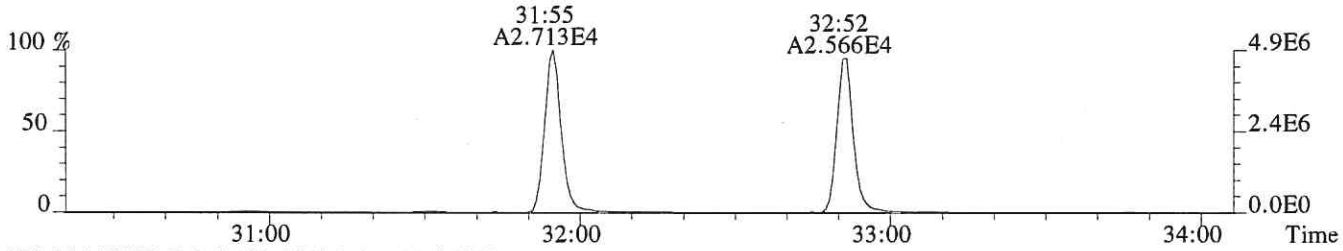
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3192.0,1.00%,F,T)



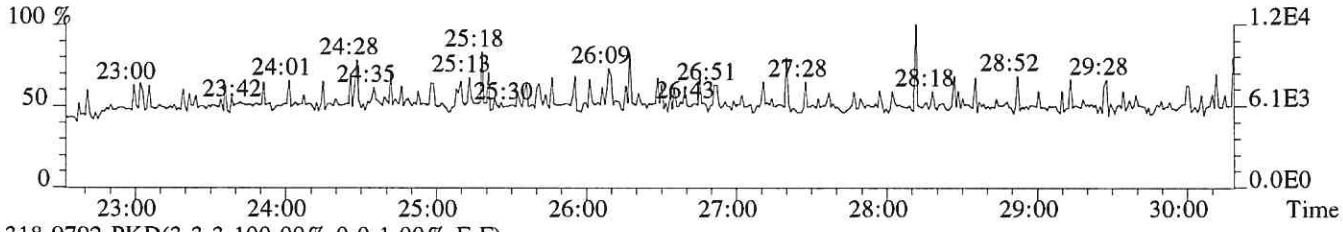
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



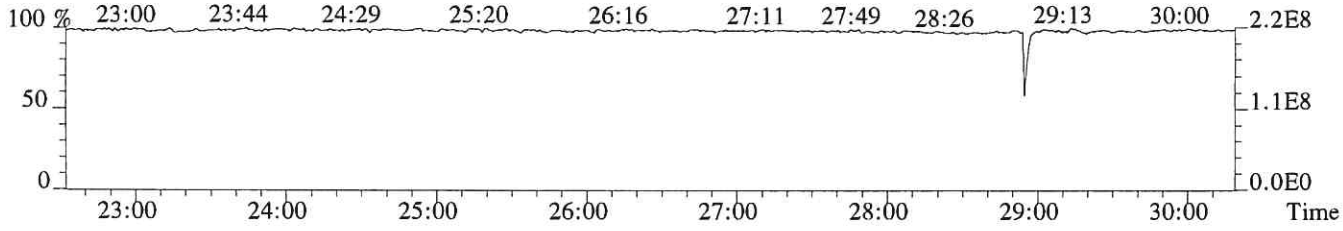
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



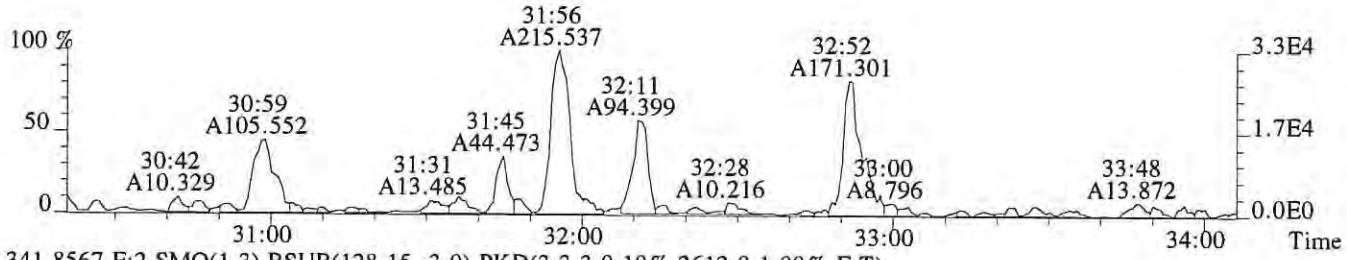
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



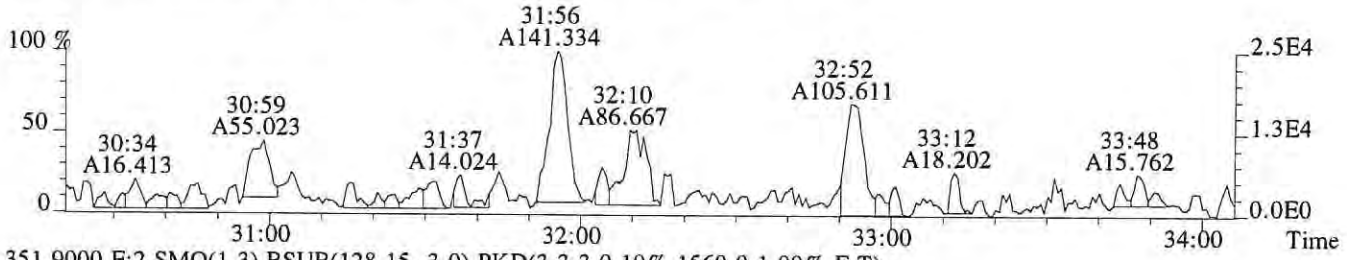
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



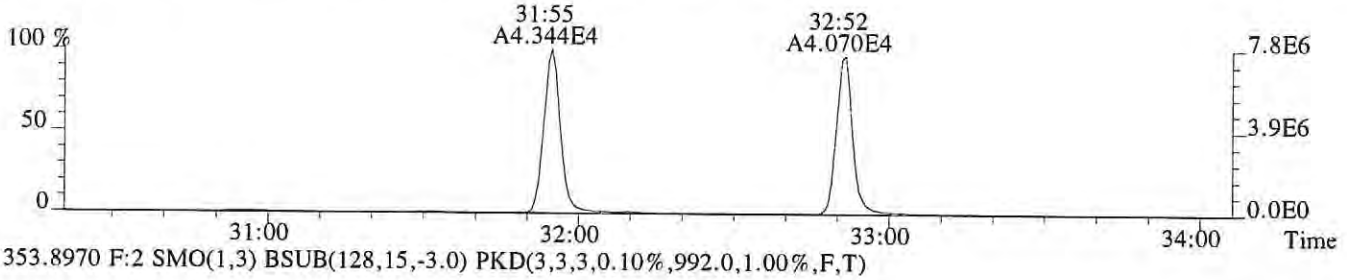
File:P615975 #1-339 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



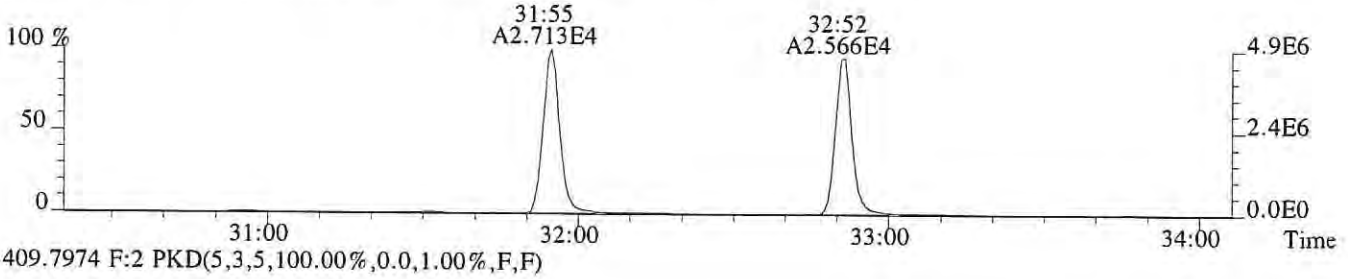
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



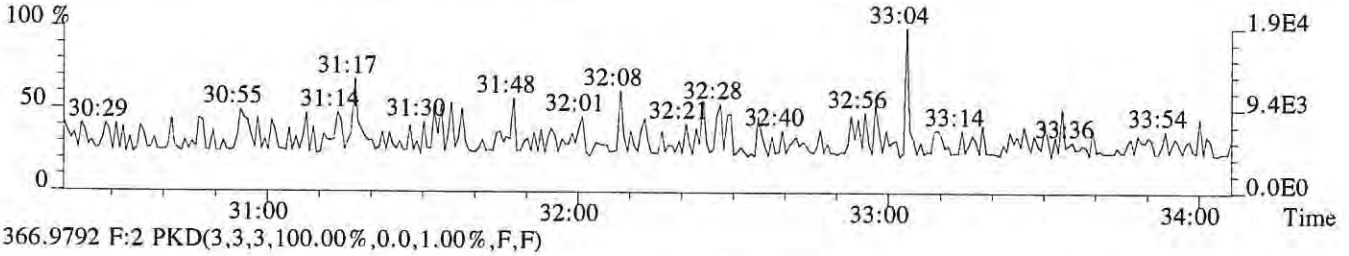
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



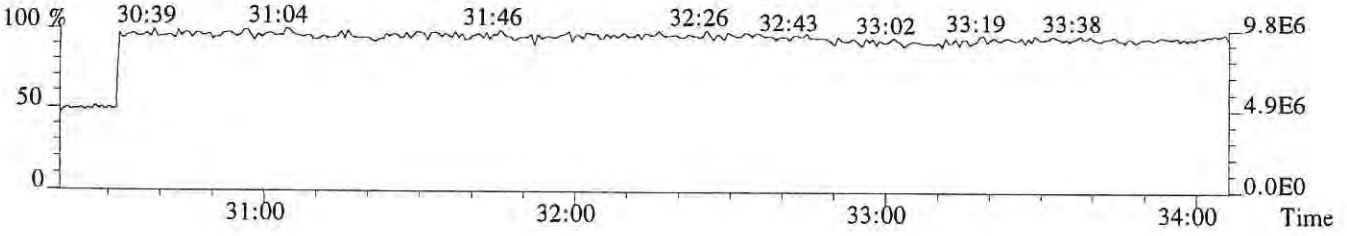
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



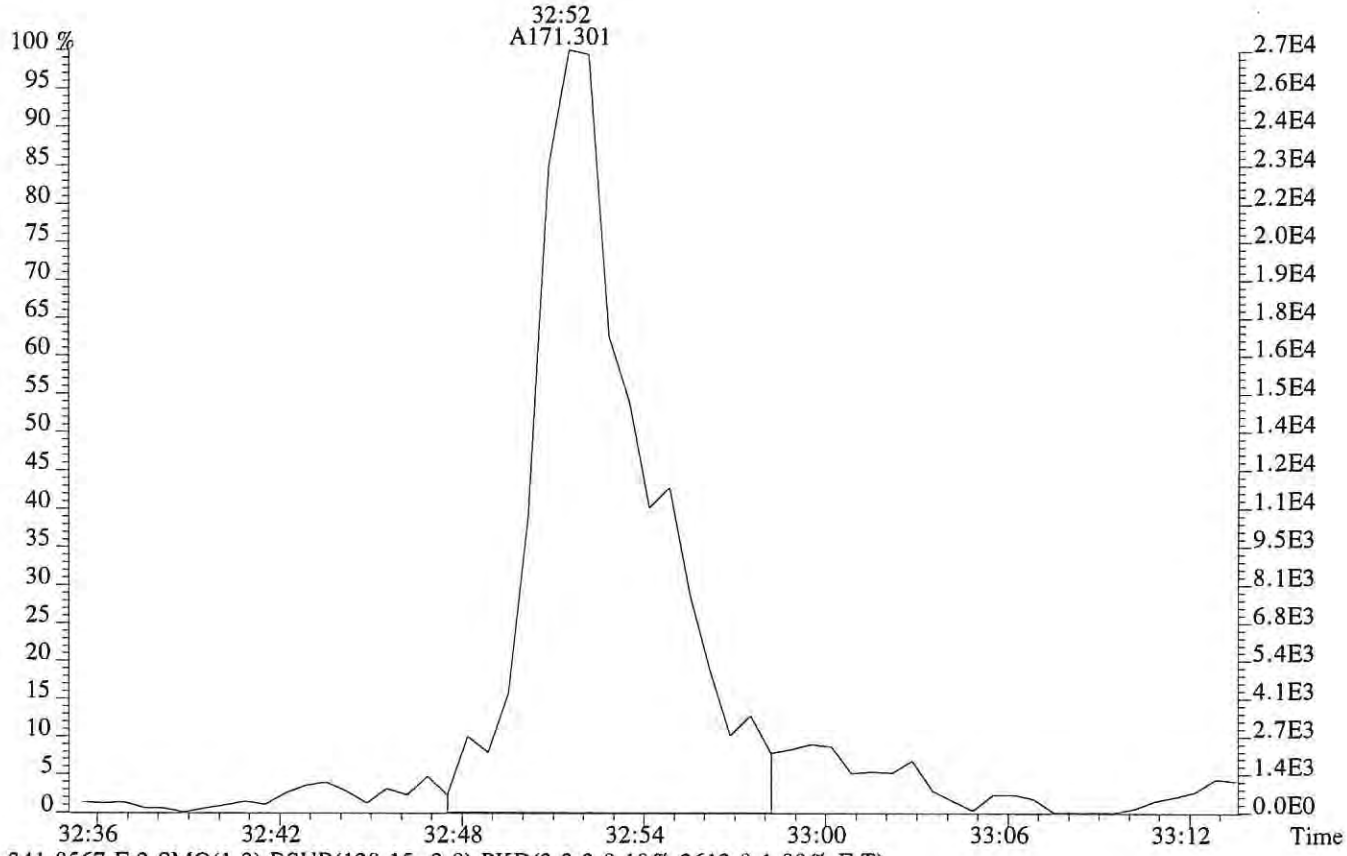
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



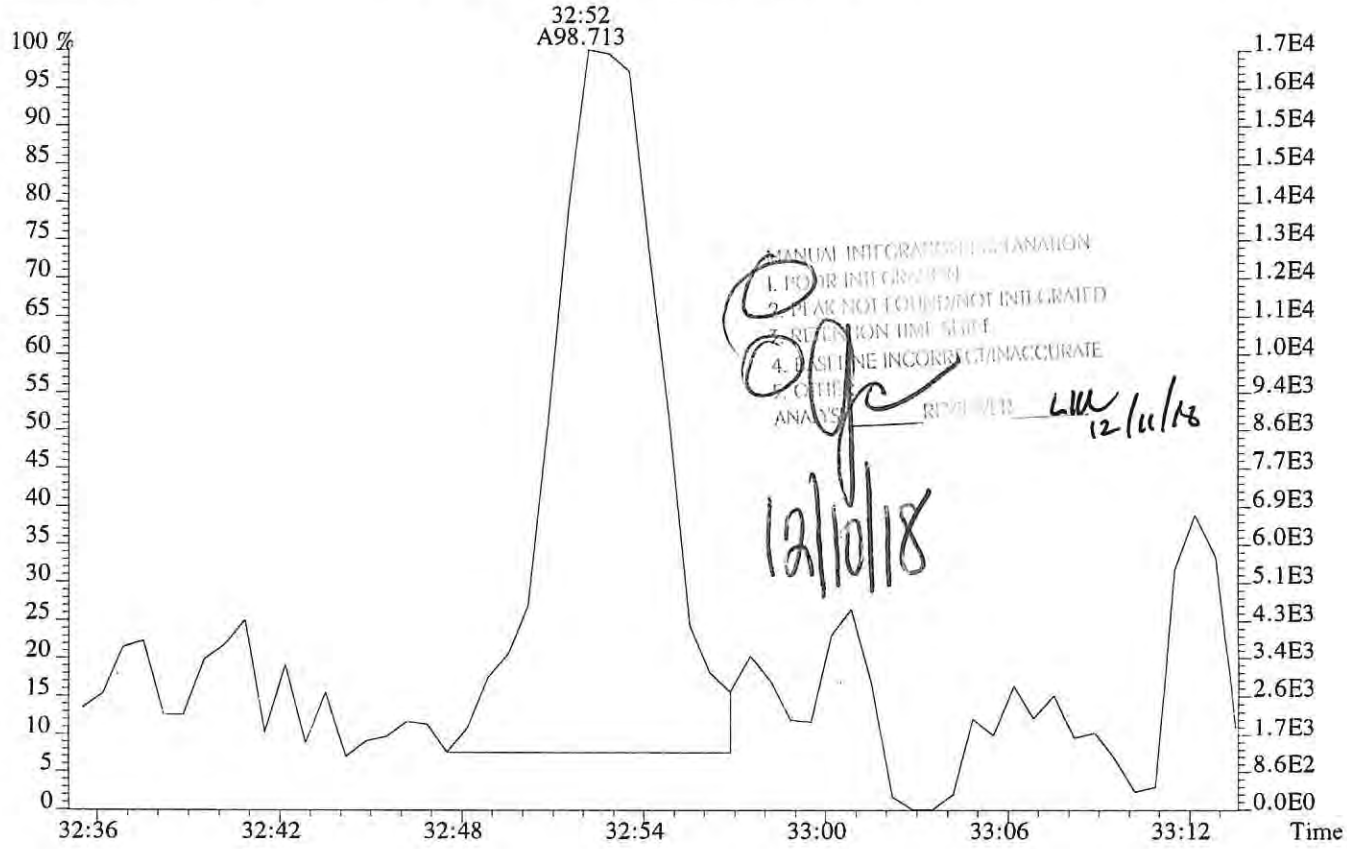
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615975 #1-339 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)

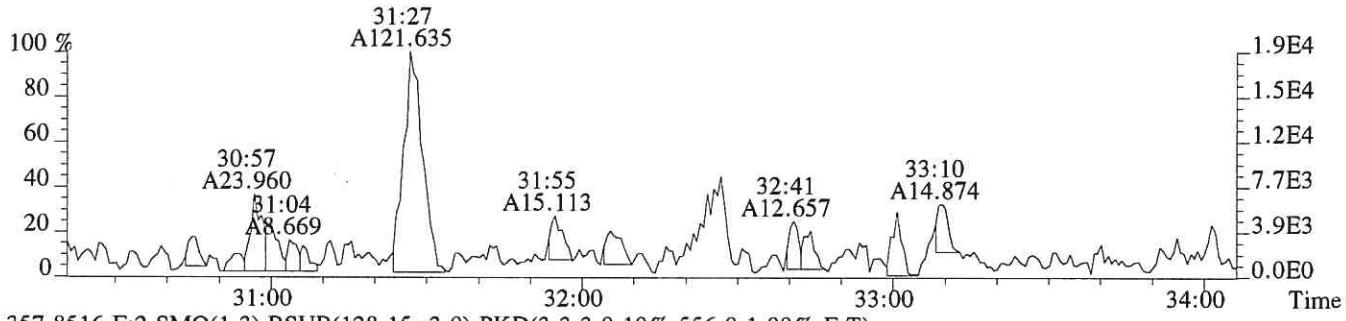


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)

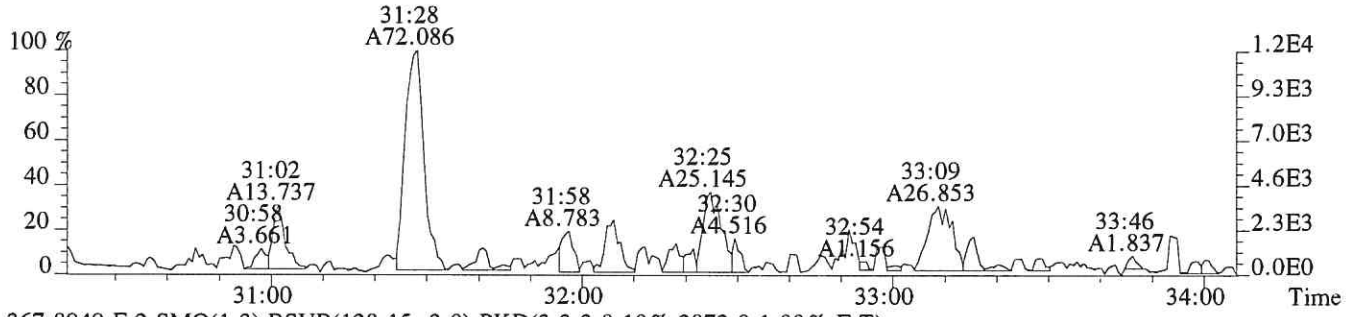


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER LMM 12/11/18
12/10/18

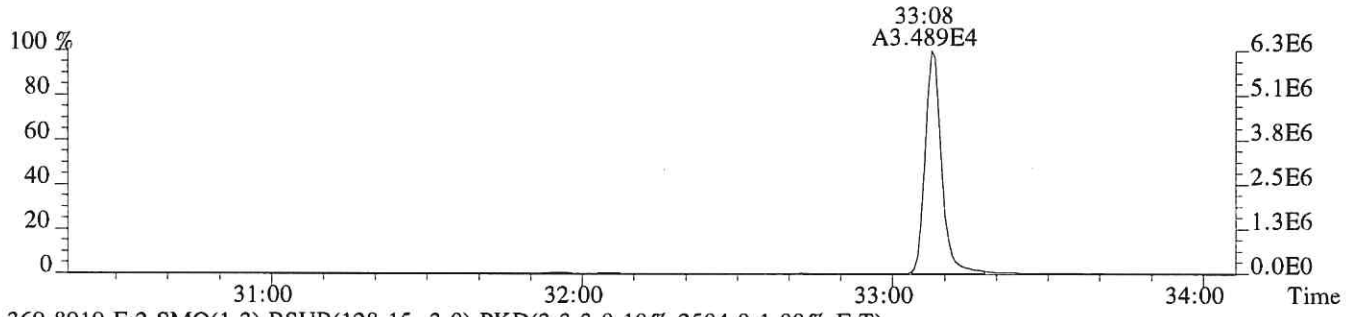
File:P615975 #1-339 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



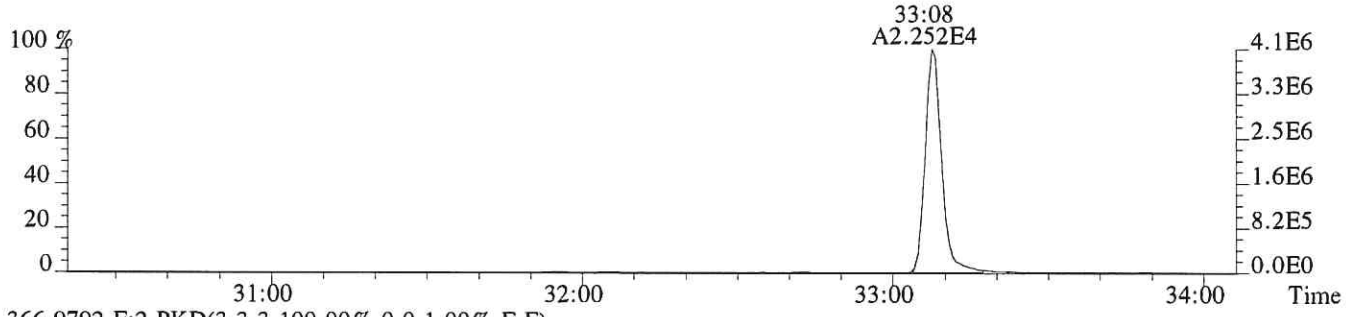
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



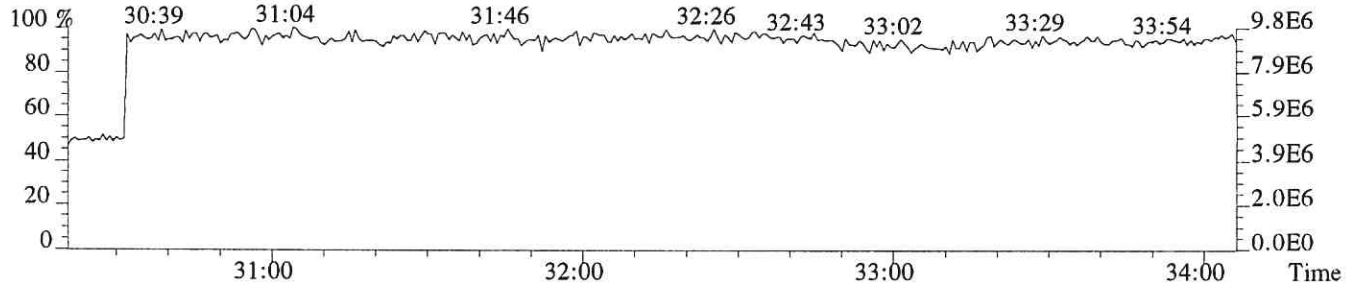
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



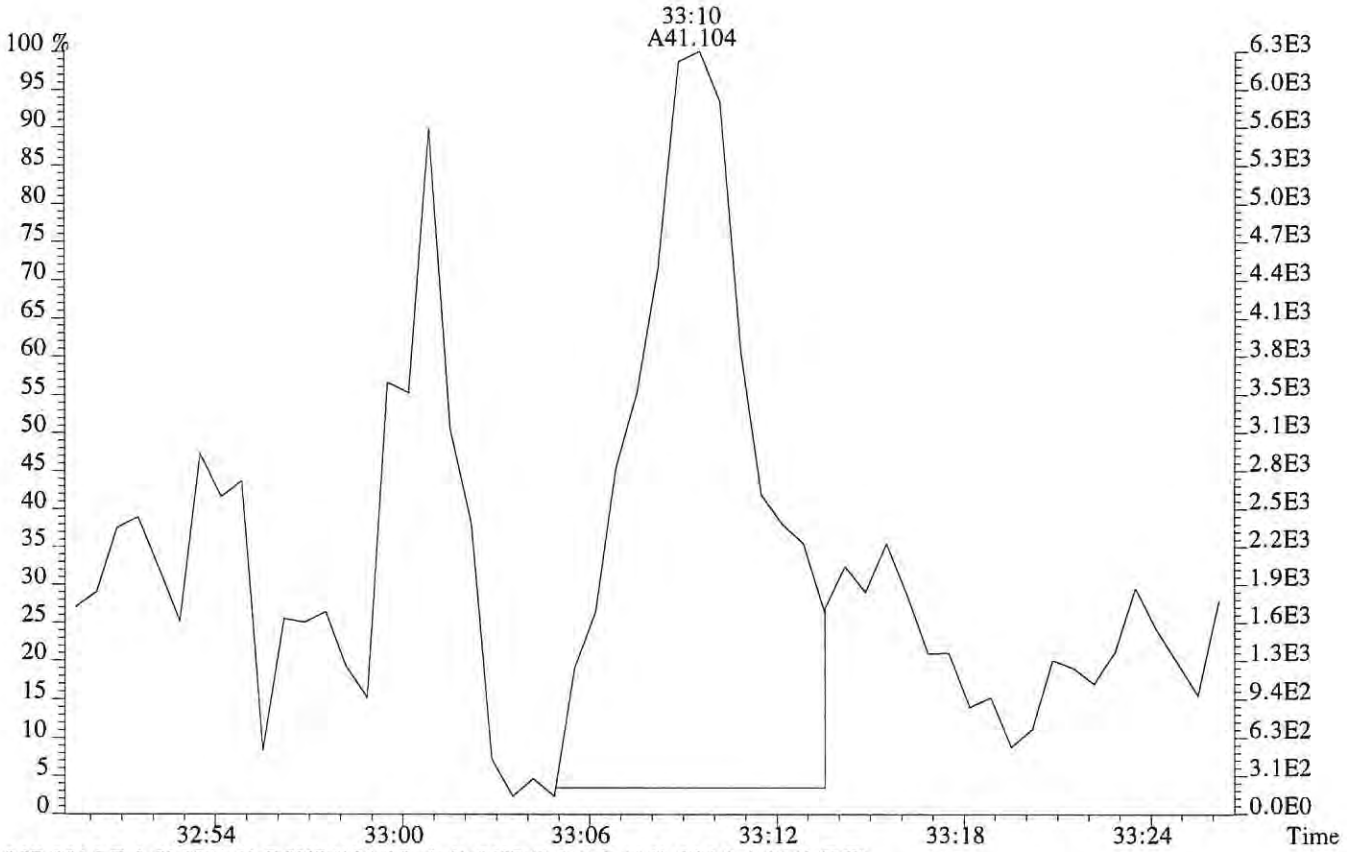
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2504.0,1.00%,F,T)



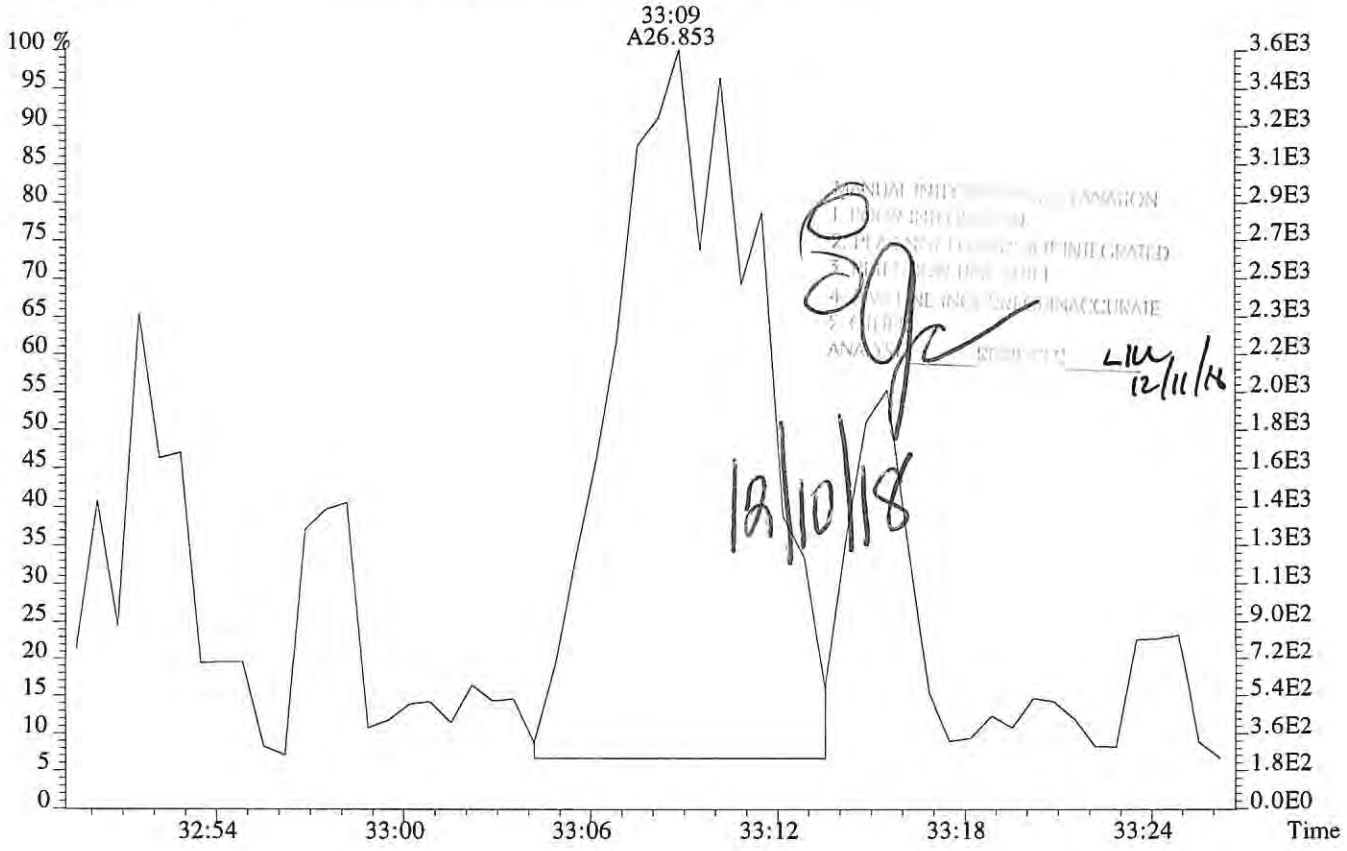
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615975 #1-339 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)

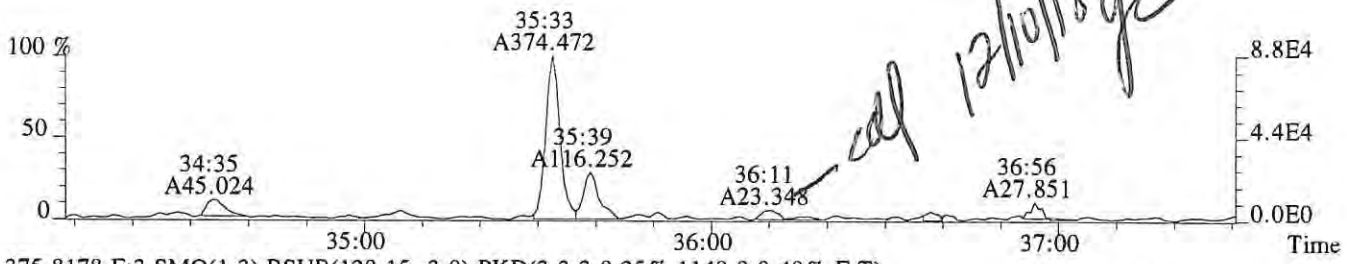


12/10/18

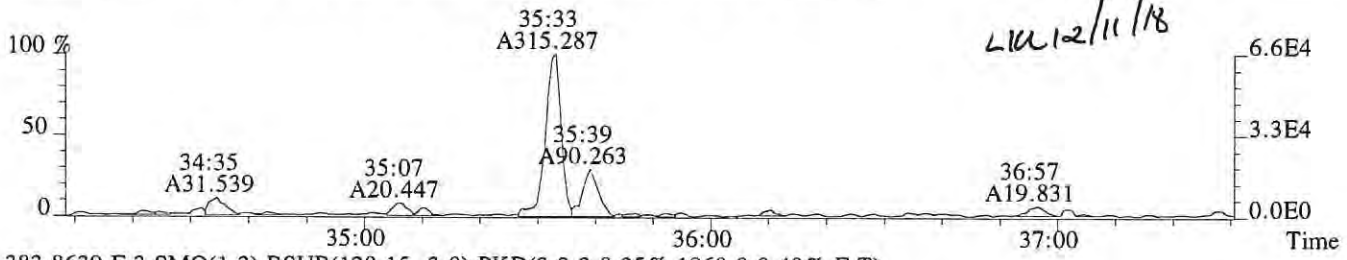
12/11/18

File:P615975 #1-304 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002

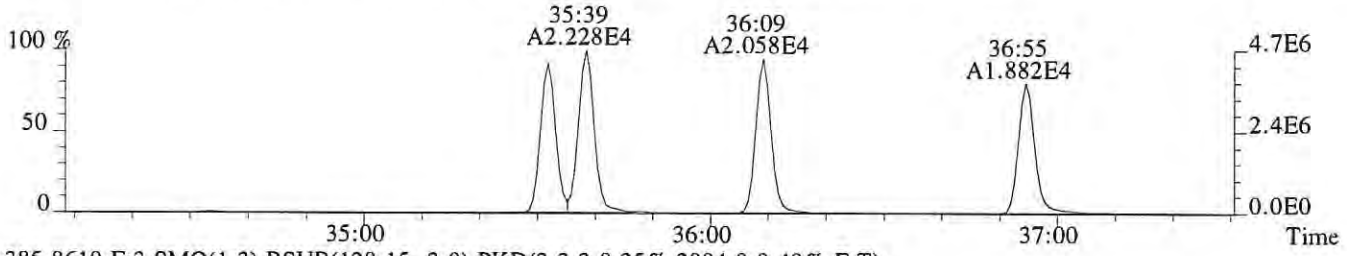
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



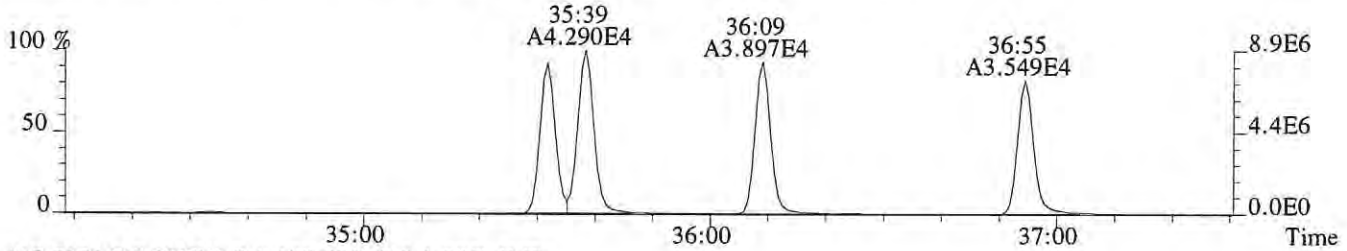
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



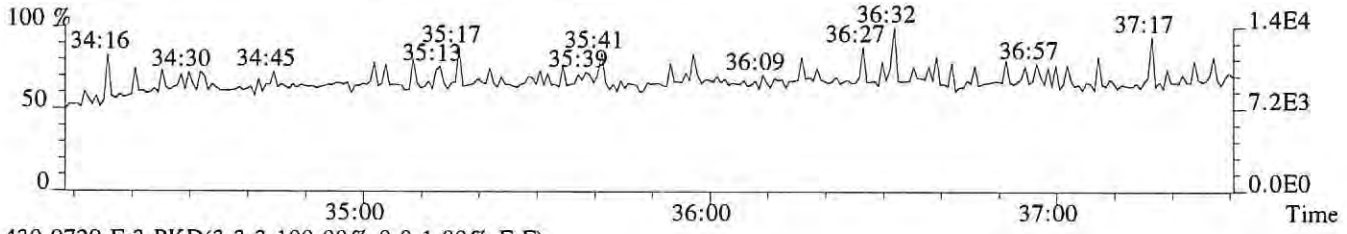
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.40%,F,T)



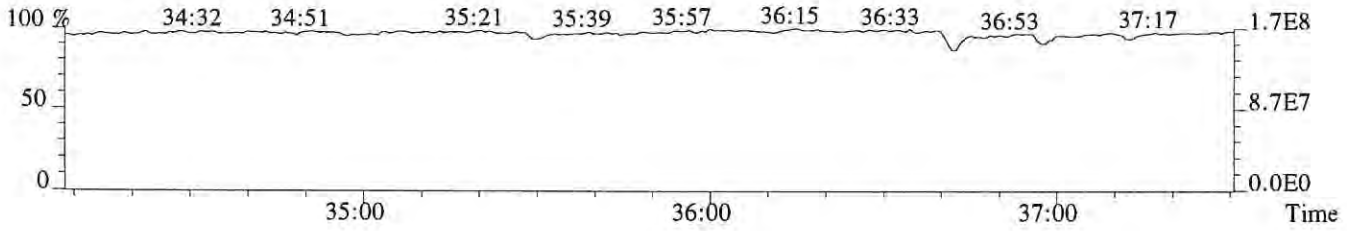
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.40%,F,T)



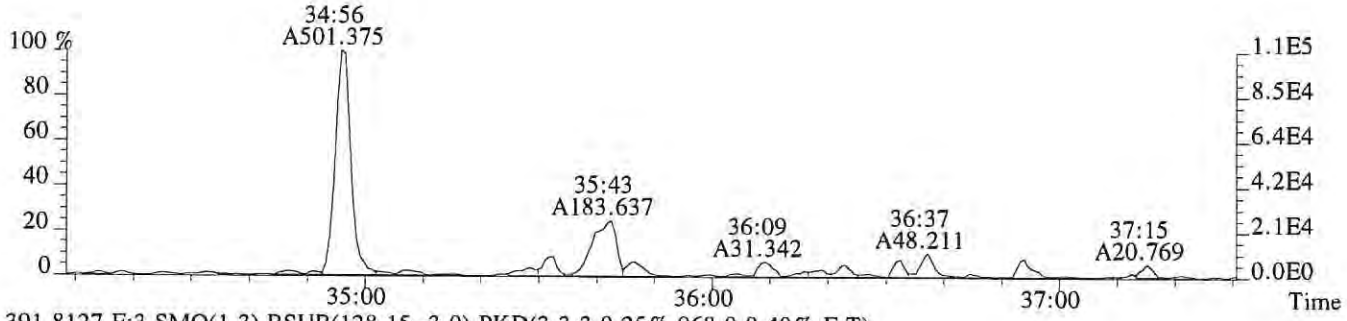
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



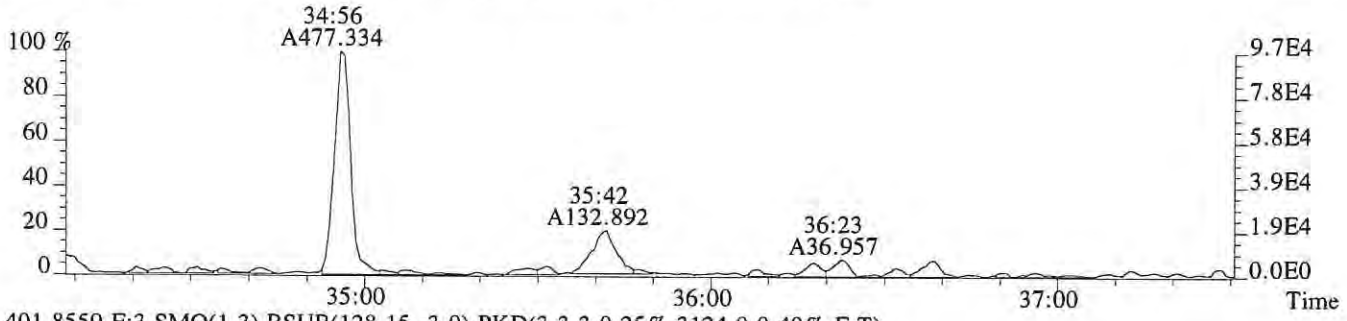
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



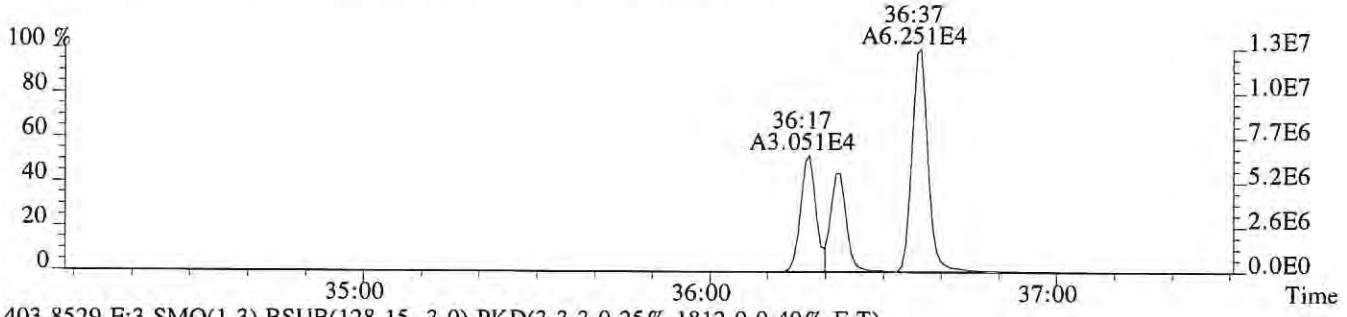
File:P615975 #1-304 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



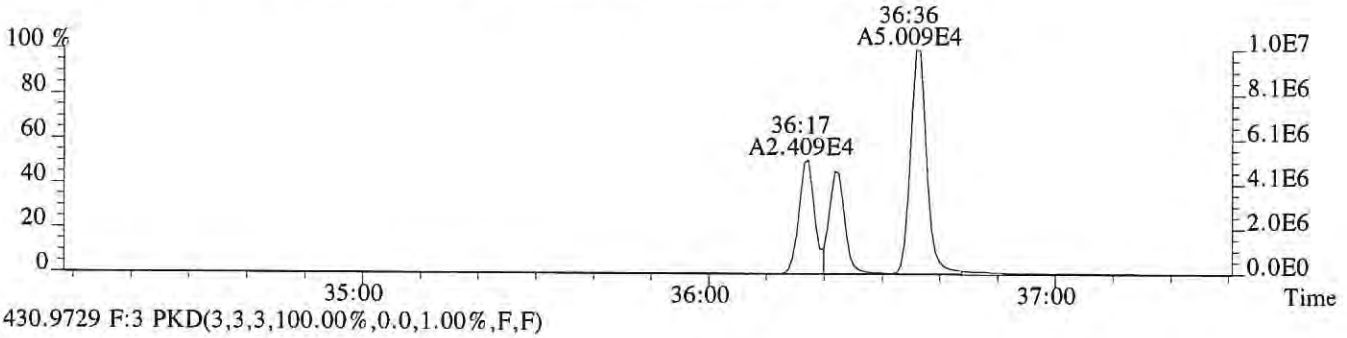
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



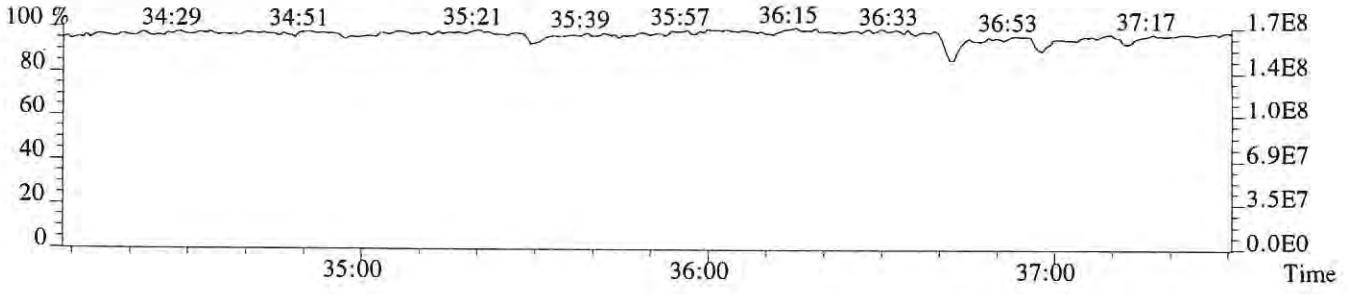
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3124.0,0.40%,F,T)



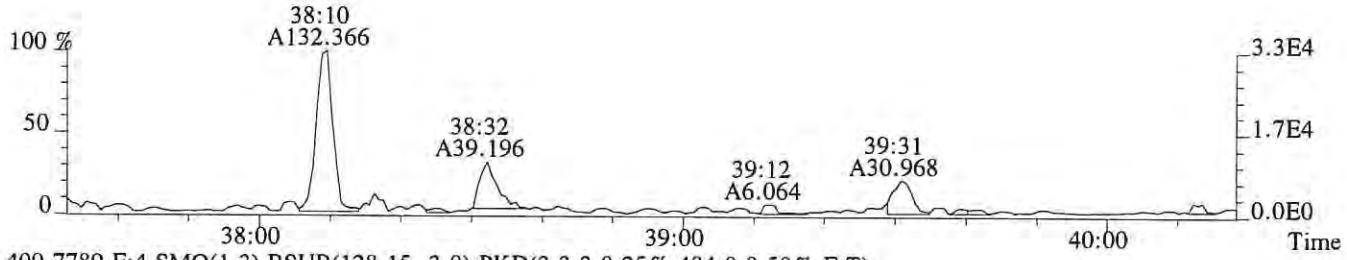
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.40%,F,T)



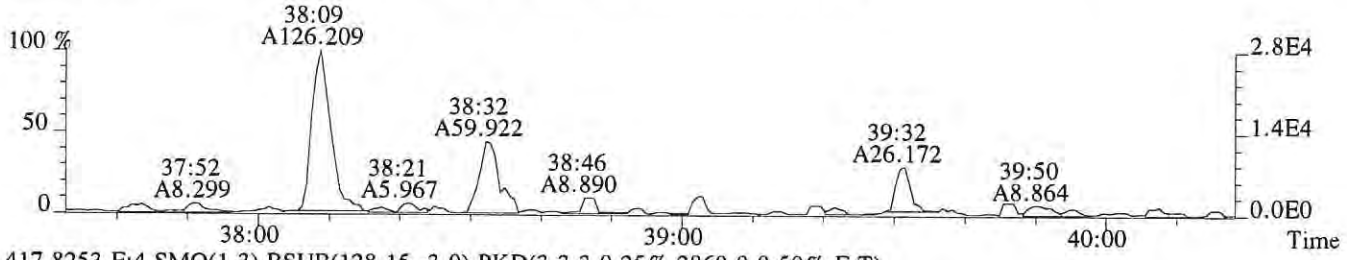
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



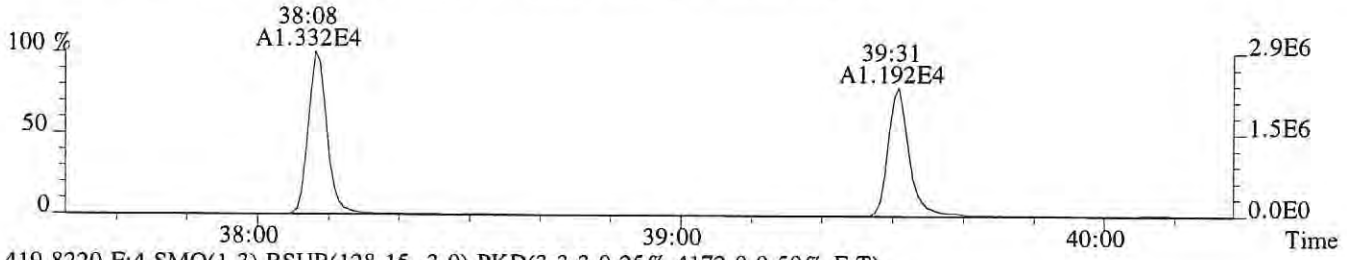
File:P615975 #1-249 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.50%,F,T)



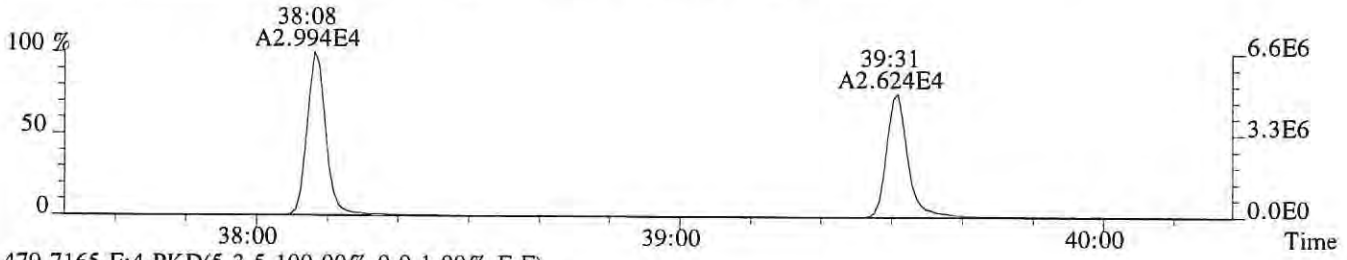
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.50%,F,T)



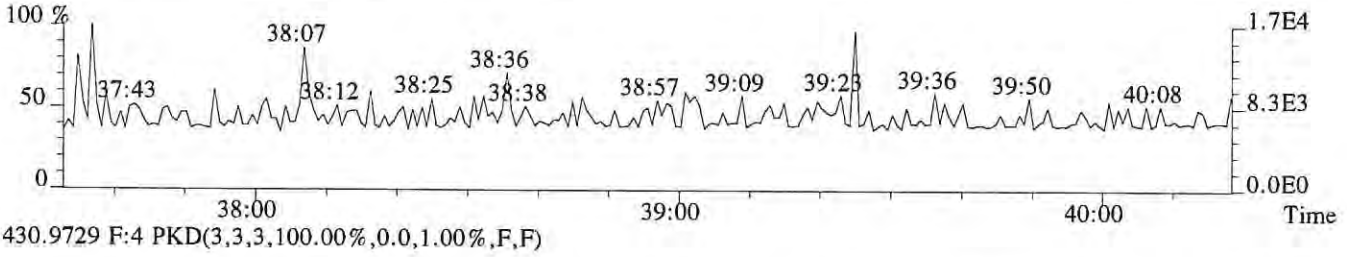
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2860.0,0.50%,F,T)



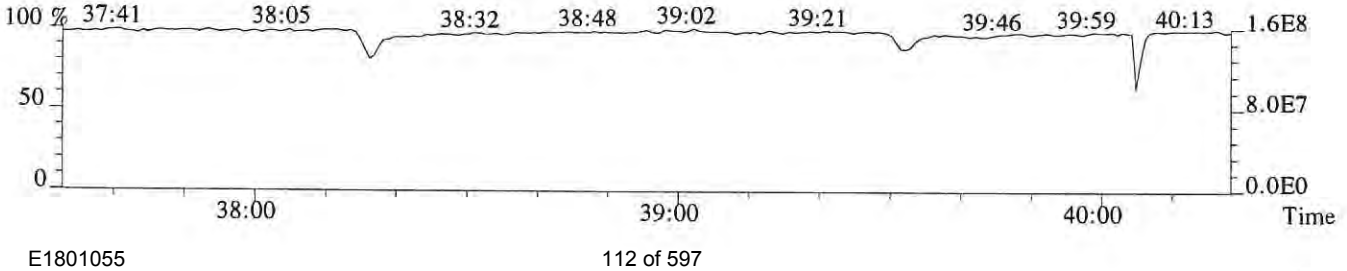
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4172.0,0.50%,F,T)



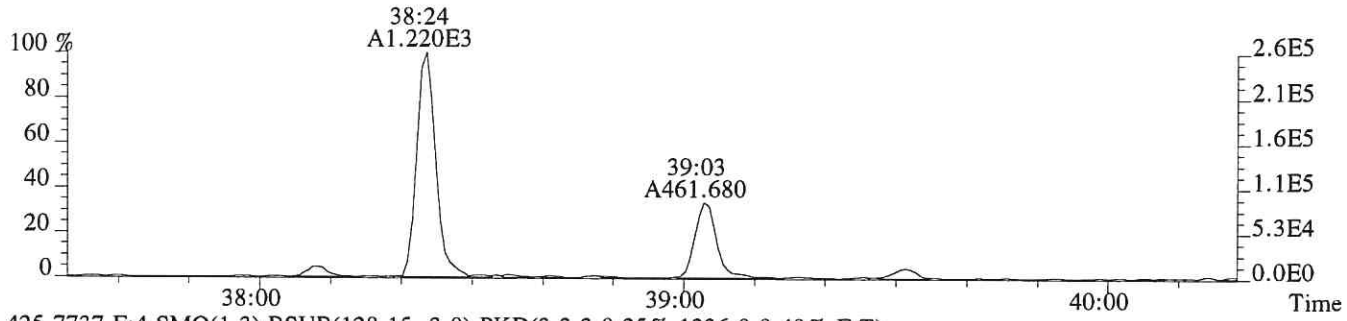
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



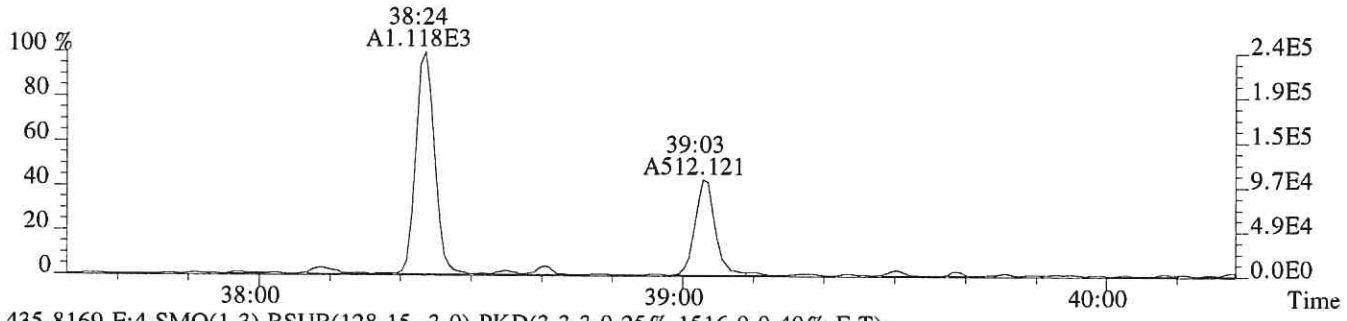
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



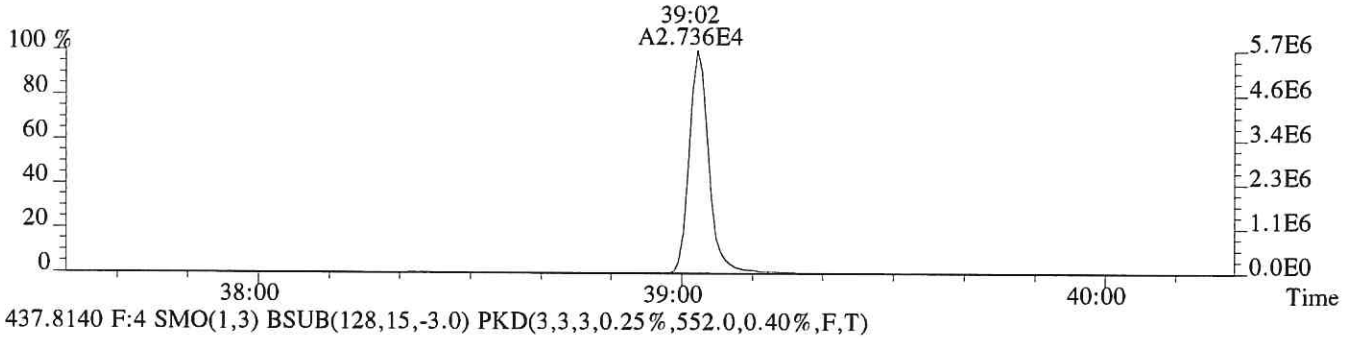
File:P615975 #1-249 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



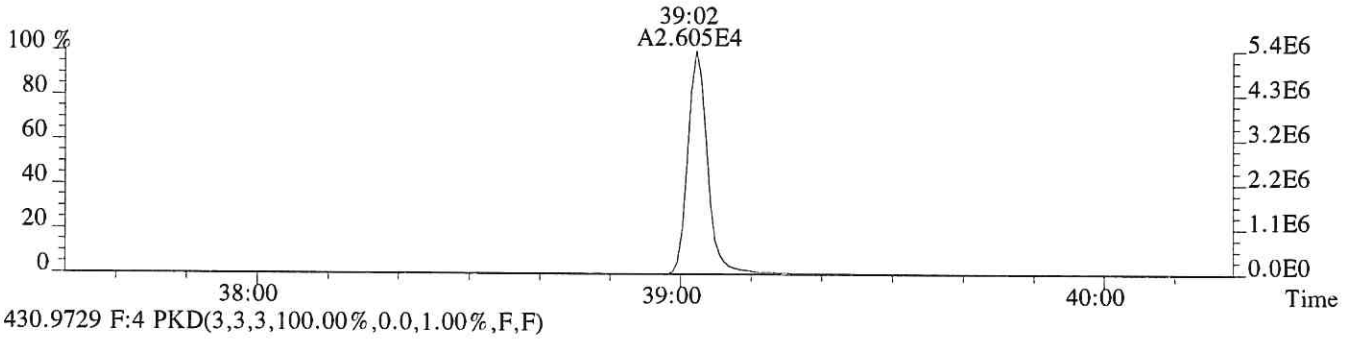
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)



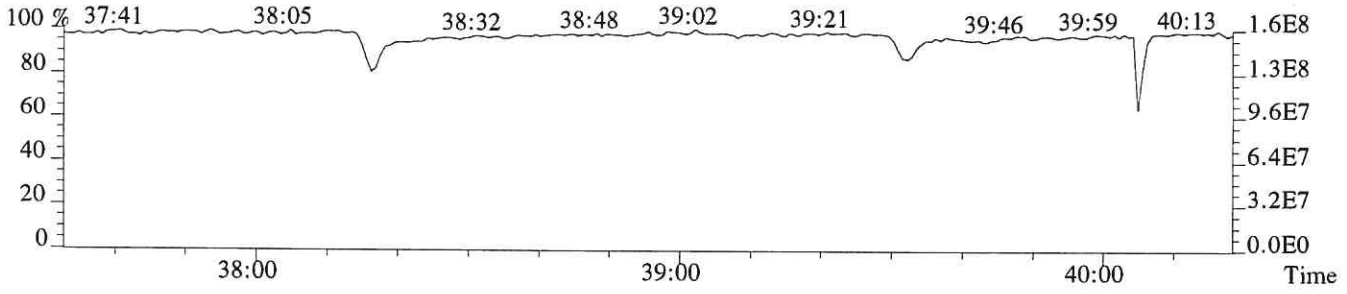
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



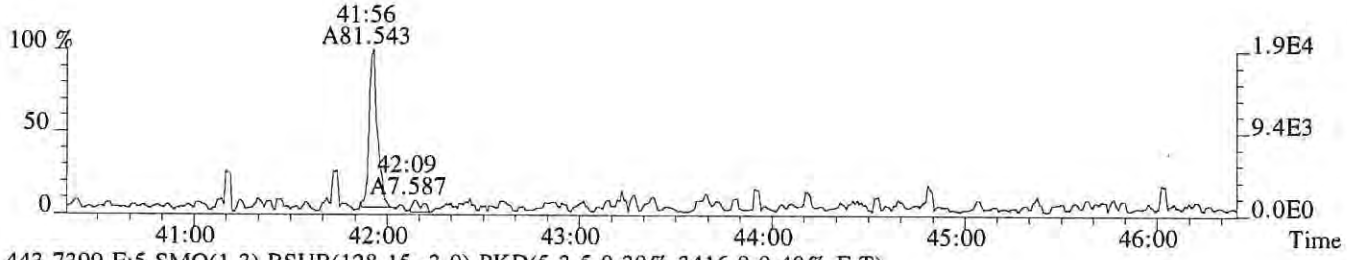
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



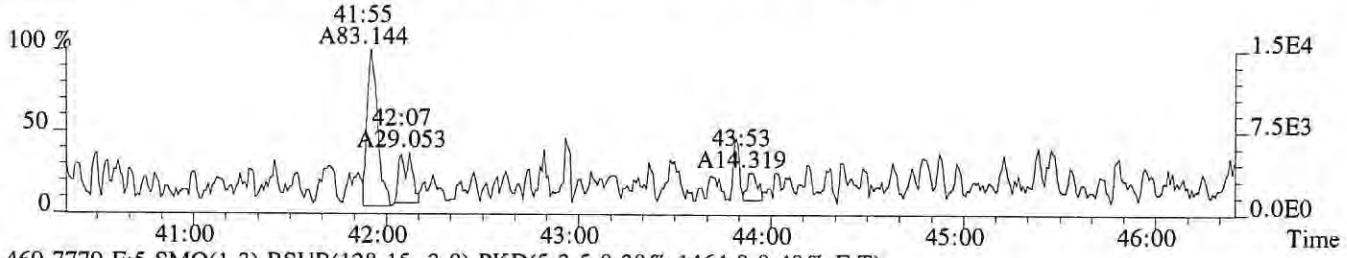
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



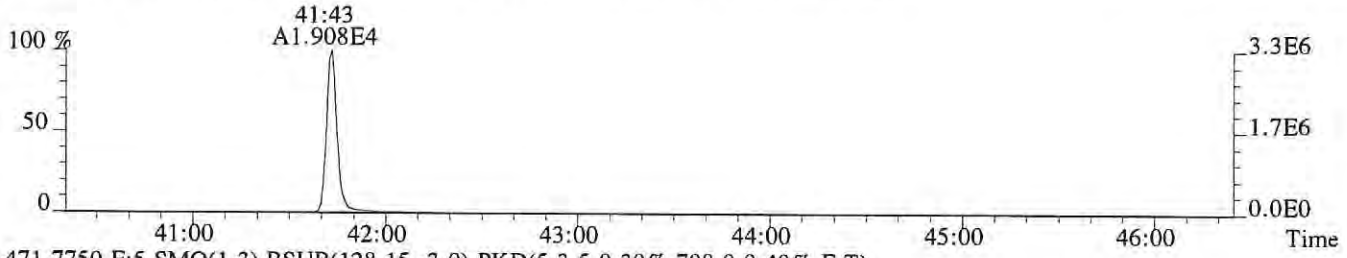
File:P615975 #1-547 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1104.0,0.40%,F,T)



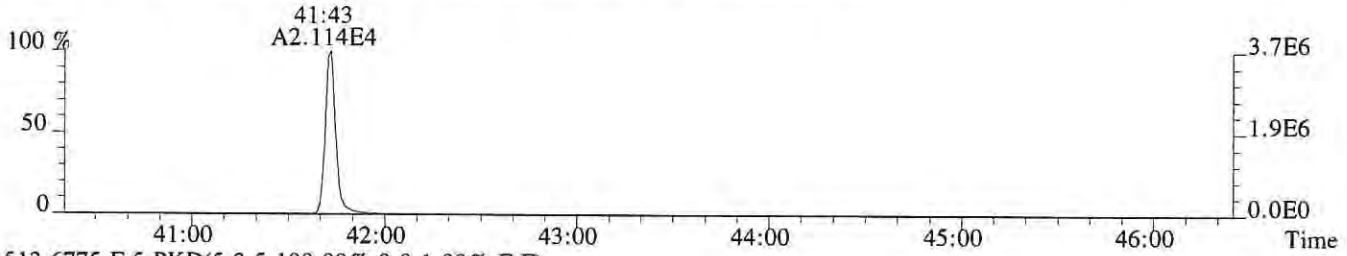
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3416.0,0.40%,F,T)



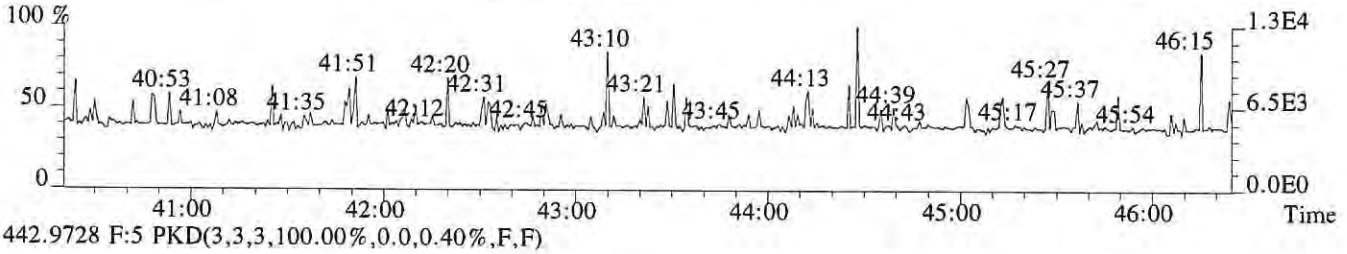
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



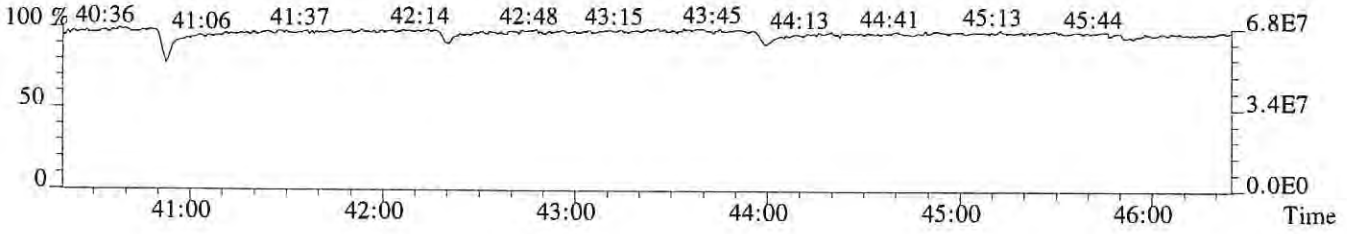
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,708.0,0.40%,F,T)



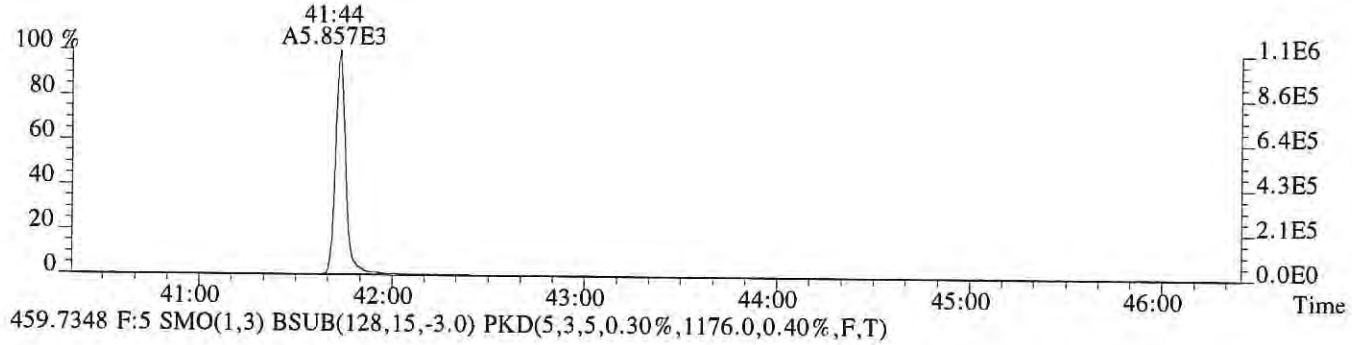
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



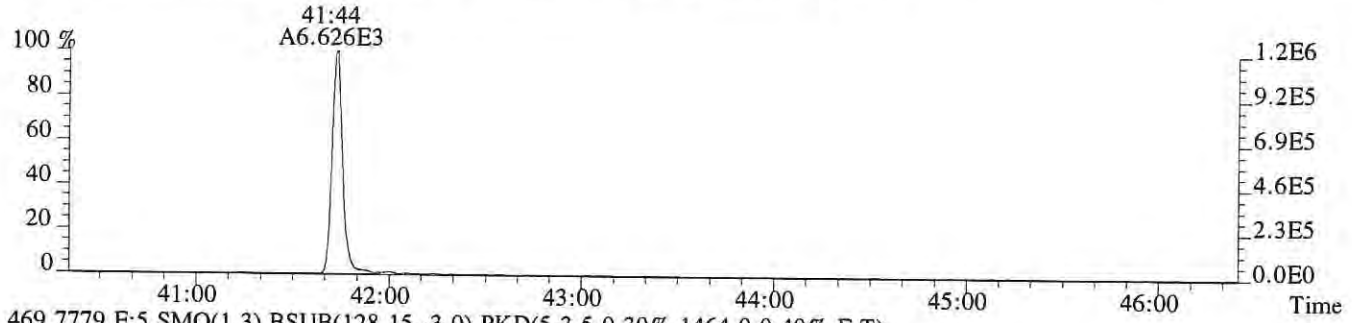
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



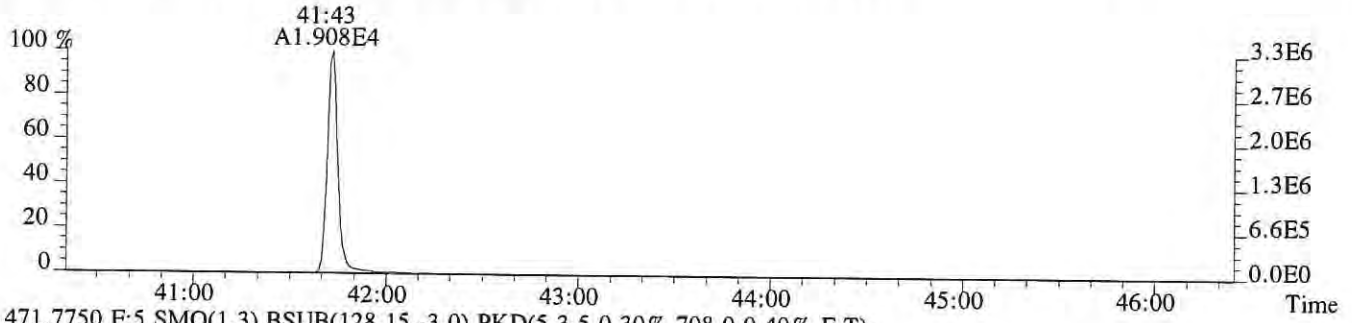
File:P615975 #1-547 Acq: 7-DEC-2018 16:24:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



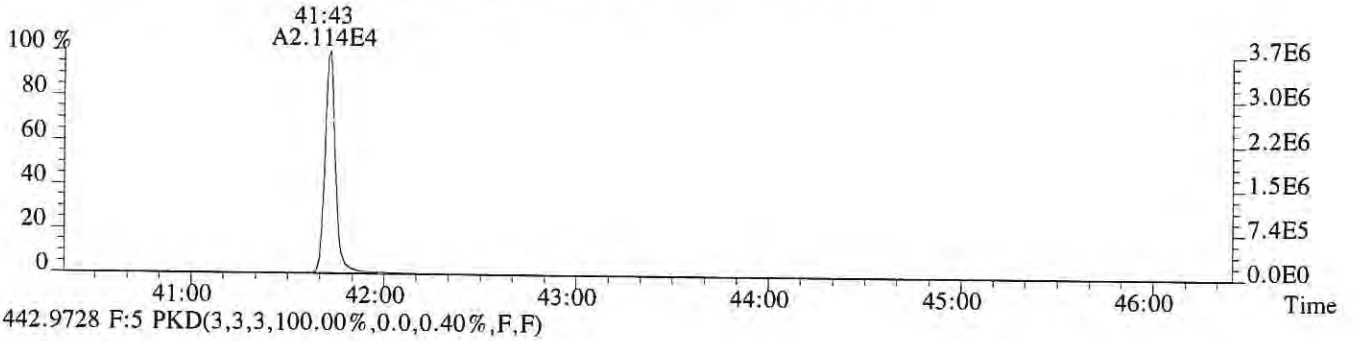
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1176.0,0.40%,F,T)



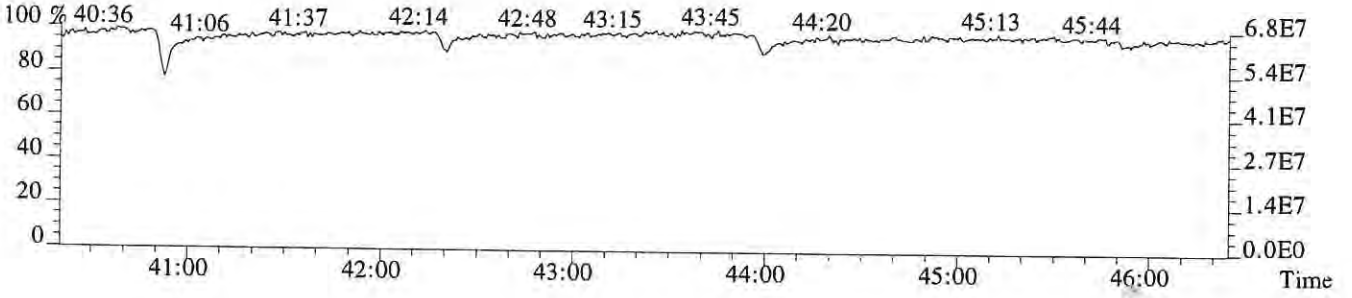
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,708.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0546

Run #16 Filename P615976 Samp: 1 Inj: 1 Acquired: 7-DEC-18 17:13:40
Processed: 10-DEC-18 16:28:19 Sample ID: E1801055-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	2.610e+03	3.286e+03	0.79	yes	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	31:57	1.932e+02	1.256e+02	1.54	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	1.285e+02	7.974e+01	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:34	3.880e+02	3.307e+02	1.17	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:41	1.099e+02	7.435e+01	1.48	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:57	4.228e+01	2.496e+01	1.69	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	1.001e+02	9.542e+01	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	3.286e+01	2.781e+01	1.18	yes	no	1.463
10	Unk	OCDF	41:57	5.537e+01	7.364e+01	0.75	no	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	6.455e+02	9.025e+02	0.72	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	3.793e+01	2.698e+01	1.41	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	5.215e+01	3.661e+01	1.42	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	4.703e+01	3.750e+01	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	7.057e+02	6.394e+02	1.10	yes	no	1.112
17	Unk	OCDD	41:45	7.578e+03	8.576e+03	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	2.849e+04	3.670e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	5.581e+04	3.543e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.199e+04	3.265e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	2.552e+04	4.871e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	2.969e+04	5.649e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	2.669e+04	5.042e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.446e+04	4.635e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:10	1.896e+04	4.135e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.543e+04	3.473e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:25	1.593e+04	2.032e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:09	4.418e+04	2.781e+04	1.59	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:18	3.851e+04	3.038e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	3.569e+04	2.809e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	3.639e+04	3.502e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:44	2.957e+04	3.251e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	4.399e+04	5.559e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	6.617e+04	5.151e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	2.304e+04				no	1.086

$$\text{OCDD} = \frac{(7.578e+03 + 8.576e+03) \times 4000\ \text{pg} \times 1}{(2.957e+04 + 3.251e+04) \times 10.346\ \text{g} \times 80.0 / 100 \times 1.157} = 108.7\ \text{ng/kg}$$

LM 12/12/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0546

Run #16 Filename P615976 Samp: 1 Inj: 1 Acquired: 7-DEC-18 17:13:40
Processed: 10-DEC-18 16:28:19 LAB. ID: E1801055-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.83e+05	2.67e+03	1.4e+02	5.20e+05	4.76e+03	1.1e+02
2	1,2,3,7,8-PeCDF	3.54e+04	1.42e+03	2.5e+01	1.89e+04	3.44e+03	5.5e+00
3	2,3,4,7,8-PeCDF	2.13e+04	1.42e+03	1.5e+01	1.32e+04	3.44e+03	3.8e+00
4	1,2,3,4,7,8-HxCDF	7.91e+04	1.83e+03	4.3e+01	6.56e+04	1.40e+03	4.7e+01
5	1,2,3,6,7,8-HxCDF	1.98e+04	1.83e+03	1.1e+01	1.54e+04	1.40e+03	1.1e+01
6	2,3,4,6,7,8-HxCDF	*	1.83e+03	*	*	1.40e+03	*
7	1,2,3,7,8,9-HxCDF	8.99e+03	1.83e+03	4.9e+00	5.14e+03	1.40e+03	3.7e+00
8	1,2,3,4,6,7,8-HpCDF	2.24e+04	1.30e+03	1.7e+01	1.83e+04	8.48e+02	2.2e+01
9	1,2,3,4,7,8,9-HpCDF	7.04e+03	1.30e+03	5.4e+00	7.58e+03	8.48e+02	8.9e+00
10	OCDF	8.61e+03	1.12e+03	7.7e+00	9.80e+03	3.27e+03	3.0e+00
11	2,3,7,8-TCDD	1.01e+05	4.92e+03	2.0e+01	1.57e+05	1.71e+03	9.2e+01
12	1,2,3,7,8-PeCDD	*	1.66e+03	*	*	1.40e+03	*
13	1,2,3,4,7,8-HxCDD	7.81e+03	8.28e+02	9.4e+00	5.62e+03	1.75e+03	3.2e+00
14	1,2,3,6,7,8-HxCDD	1.01e+04	8.28e+02	1.2e+01	8.23e+03	1.75e+03	4.7e+00
15	1,2,3,7,8,9-HxCDD	7.62e+03	8.28e+02	9.2e+00	7.59e+03	1.75e+03	4.3e+00
16	1,2,3,4,6,7,8-HpCDD	1.46e+05	1.76e+03	8.3e+01	1.26e+05	1.00e+03	1.3e+02
17	OCDD	1.34e+06	5.56e+02	2.4e+03	1.49e+06	1.14e+03	1.3e+03
18	13C-2,3,7,8-TCDF	4.43e+06	1.93e+04	2.3e+02	5.73e+06	1.23e+04	4.7e+02
19	13C-1,2,3,7,8-PeCDF	9.71e+06	9.28e+02	1.0e+04	6.27e+06	2.28e+03	2.7e+03
20	13C-2,3,4,7,8-PeCDF	9.49e+06	9.28e+02	1.0e+04	5.94e+06	2.28e+03	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	5.49e+06	1.20e+03	4.6e+03	1.06e+07	3.99e+03	2.7e+03
22	13C-1,2,3,6,7,8-HxCDF	5.96e+06	1.20e+03	5.0e+03	1.14e+07	3.99e+03	2.9e+03
23	13C-2,3,4,6,7,8-HxCDF	5.58e+06	1.20e+03	4.6e+03	1.05e+07	3.99e+03	2.6e+03
24	13C-1,2,3,7,8,9-HxCDF	4.92e+06	1.20e+03	4.1e+03	9.40e+06	3.99e+03	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.13e+06	2.92e+03	1.4e+03	8.87e+06	8.74e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.00e+06	2.92e+03	1.0e+03	6.68e+06	8.74e+03	7.6e+02
27	13C-2,3,7,8-TCDD	2.65e+06	1.85e+04	1.4e+02	3.34e+06	6.84e+03	4.9e+02
28	13C-1,2,3,7,8-PeCDD	7.92e+06	2.68e+03	3.0e+03	4.93e+06	1.82e+03	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	8.41e+06	3.14e+03	2.7e+03	6.54e+06	3.14e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	7.30e+06	3.14e+03	2.3e+03	5.84e+06	3.14e+03	1.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.53e+06	1.77e+03	4.3e+03	7.28e+06	8.36e+02	8.7e+03
32	13C-OCDD	5.21e+06	1.50e+03	3.5e+03	5.82e+06	2.20e+02	2.6e+04
33	13C-1,2,3,4-TCDD	7.46e+06	1.85e+04	4.0e+02	9.54e+06	6.84e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.35e+07	3.14e+03	4.3e+03	1.06e+07	3.14e+03	3.4e+03
35	37Cl-2,3,7,8-TCDD	3.81e+06	4.39e+03	8.7e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0546

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P615976 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 17:13:40 Processed: 10-DEC-18 16:28:19

Mass: 303.9020 305.8990 Tot Response: 9.24e+03 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:44	1.34e+02	1.60e+02 0.84	yes	2.94e+02		n	n
2	24:55	1.24e+01	1.55e+01 0.80	yes	2.79e+01		n	n
3	26:45	1.17e+03	1.33e+03 0.88	yes	2.50e+03		n	n
4	27:37	2.61e+03	3.29e+03 0.79	yes	5.90e+03	2,3,7,8-TCDF	y	y
5	29:31	2.35e+02	2.91e+02 0.81	yes	5.26e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0546

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P615976 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 17:13:40 Processed: 10-DEC-18 16:28:19

Mass: 319.8970 321.8940 Tot Response: 1.55e+03 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:26	6.46e+02	9.02e+02 0.72	yes	1.55e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0546

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P615976 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 17:13:40 Processed: 10-DEC-18 16:28:19

Mass: 339.8600 341.8570 Tot Response: 5.27e+02 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:57	1.93e+02	1.26e+02 1.54	yes	3.19e+02	1,2,3,7,8-PeCDF	n	n
2	32:53	1.28e+02	7.97e+01 1.61	yes	2.08e+02	2,3,4,7,8-PeCDF	n	n

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

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Peak List Summary

CLIENT ID.
SL0546

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P615976 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 17:13:40 Processed: 10-DEC-18 16:28:19

Mass: 355.8550 357.8520 Tot Response: 1.65e+02 RRF: 0.9288

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:29	9.81e+01	6.71e+01 1.46	yes	1.65e+02		n	n

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Peak List Summary

CLIENT ID.
SL0546

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P615976 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 17:13:40 Processed: 10-DEC-18 16:28:19

Mass: 373.8210 375.8180 Tot Response: 7.19e+02 RRF: 1.324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:34	3.88e+02	3.31e+02 1.17	yes	7.19e+02	1,2,3,4,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0546

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P615976 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 17:13:40 Processed: 10-DEC-18 16:28:19

Mass: 389.8160 391.8130 Tot Response: 1.21e+03 RRF: 1.092

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:57	5.22e+02	4.53e+02	1.15	yes	9.75e+02		n	n
2	36:18	3.79e+01	2.70e+01	1.41	yes	6.49e+01	1,2,3,4,7,8-HxCDD	n	n
3	36:24	5.21e+01	3.66e+01	1.42	yes	8.88e+01	1,2,3,6,7,8-HxCDD	n	n
4	36:37	4.70e+01	3.75e+01	1.25	yes	8.45e+01	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0546

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P615976 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 17:13:40 Processed: 10-DEC-18 16:28:19

Mass: 407.7820 409.7790 Tot Response: 2.56e+02 RRF: 1.495

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:10	1.00e+02	9.54e+01 1.05	yes	1.96e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:32	3.29e+01	2.78e+01 1.18	yes	6.07e+01	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0546

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P615976 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 17:13:40 Processed: 10-DEC-18 16:28:19

Mass: 423.7770 425.7740 Tot Response: 4.15e+03 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:24	1.43e+03	1.38e+03	1.04	yes	2.80e+03		n	n
2	39:04	7.06e+02	6.39e+02	1.10	yes	1.35e+03	1,2,3,4,6,7,8-HpCDD	n	n

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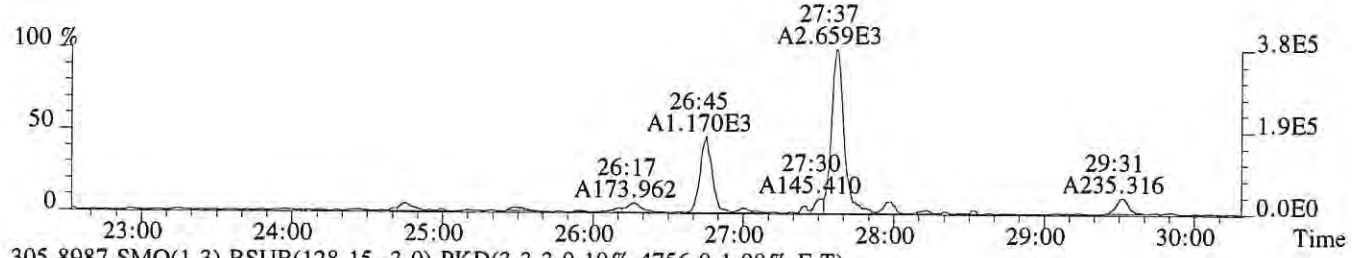
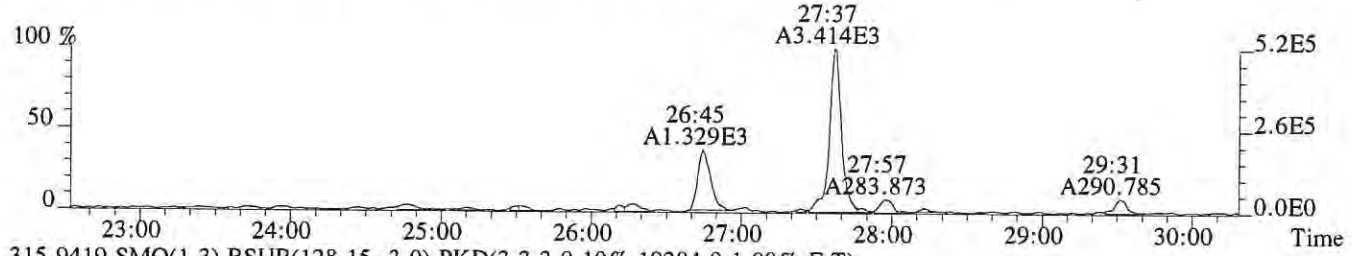
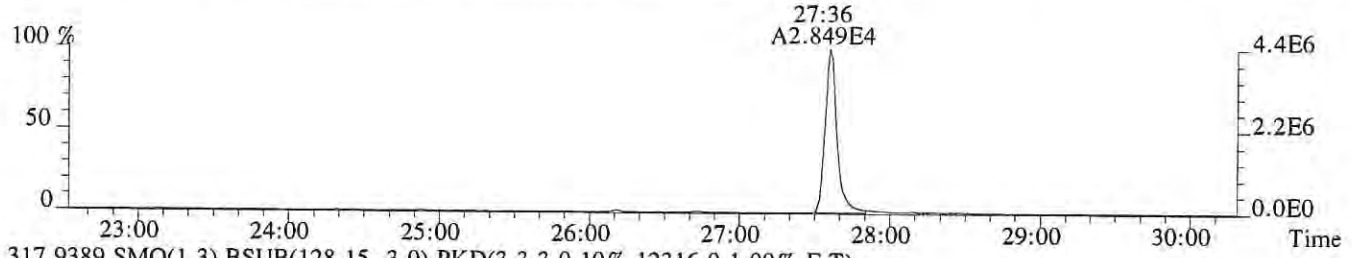
File:P615976 #1-552 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



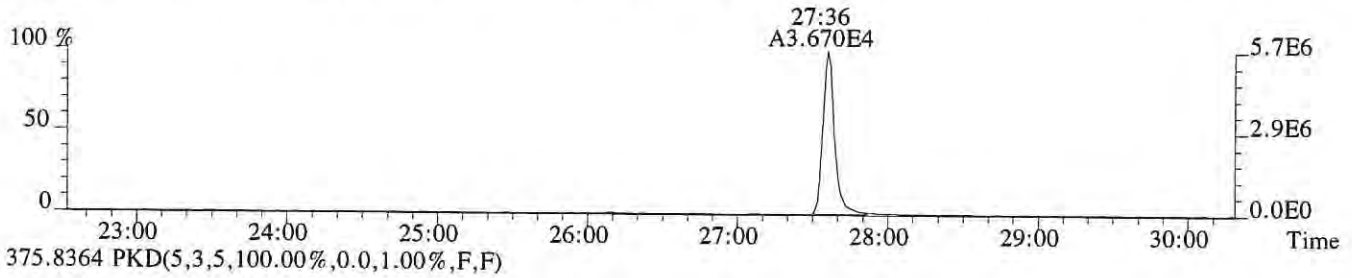
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4756.0,1.00%,F,T)



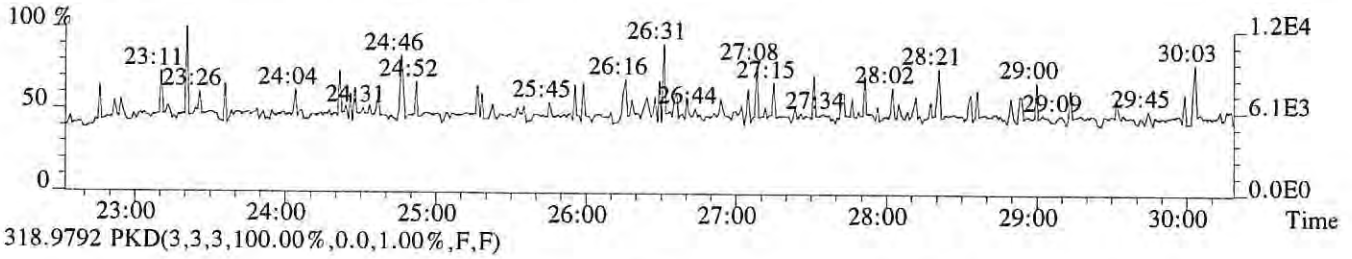
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19284.0,1.00%,F,T)



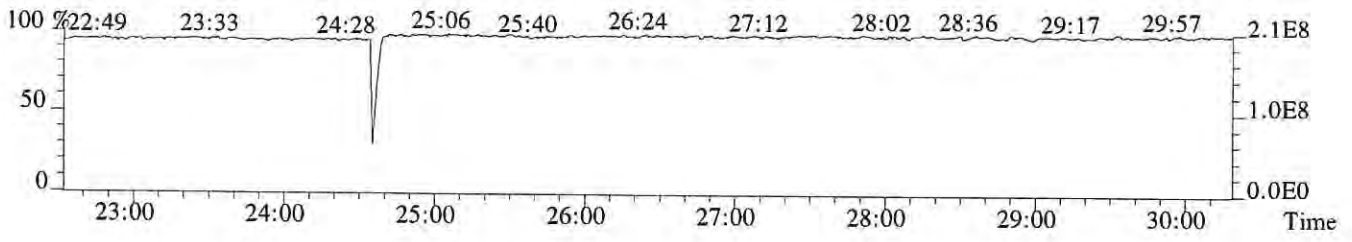
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12316.0,1.00%,F,T)



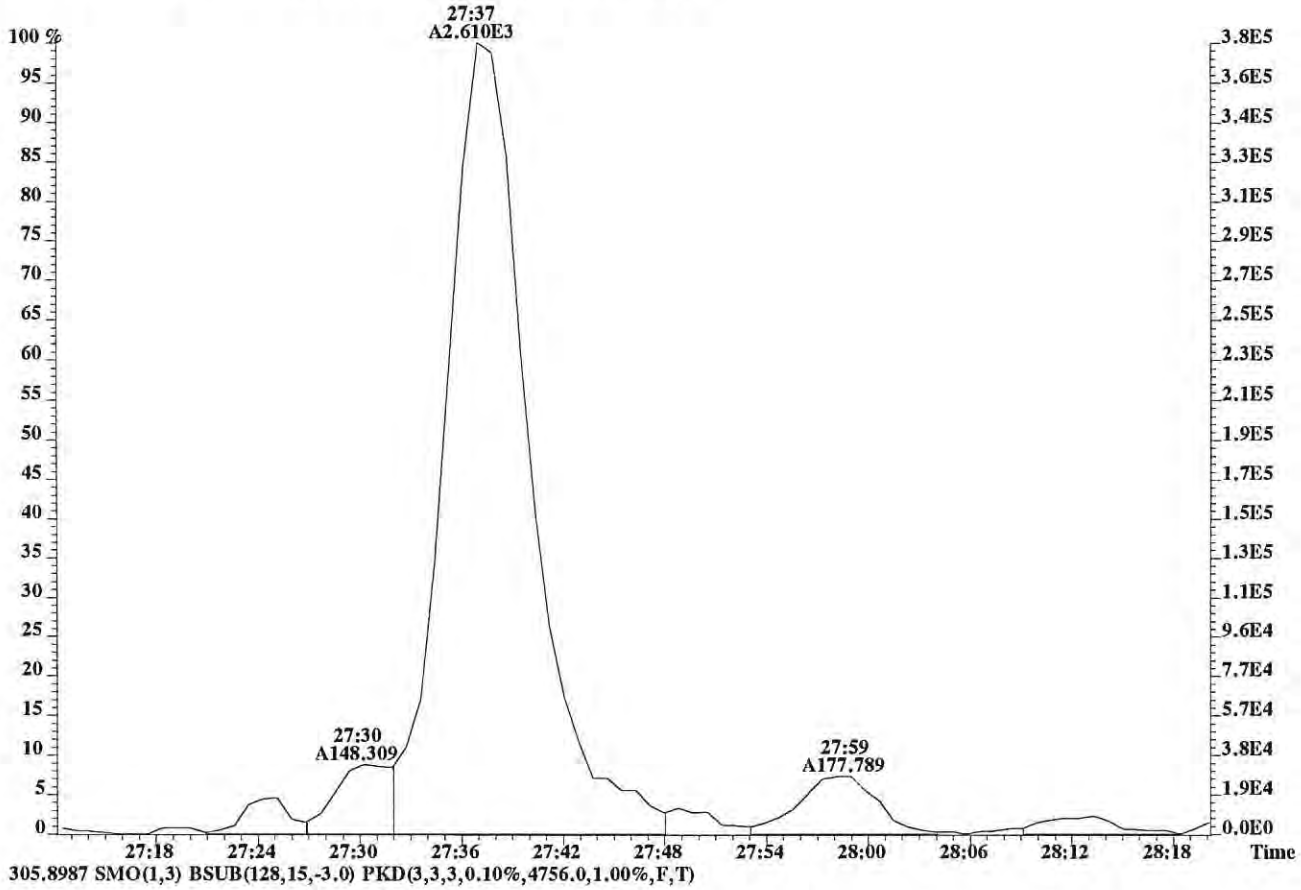
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



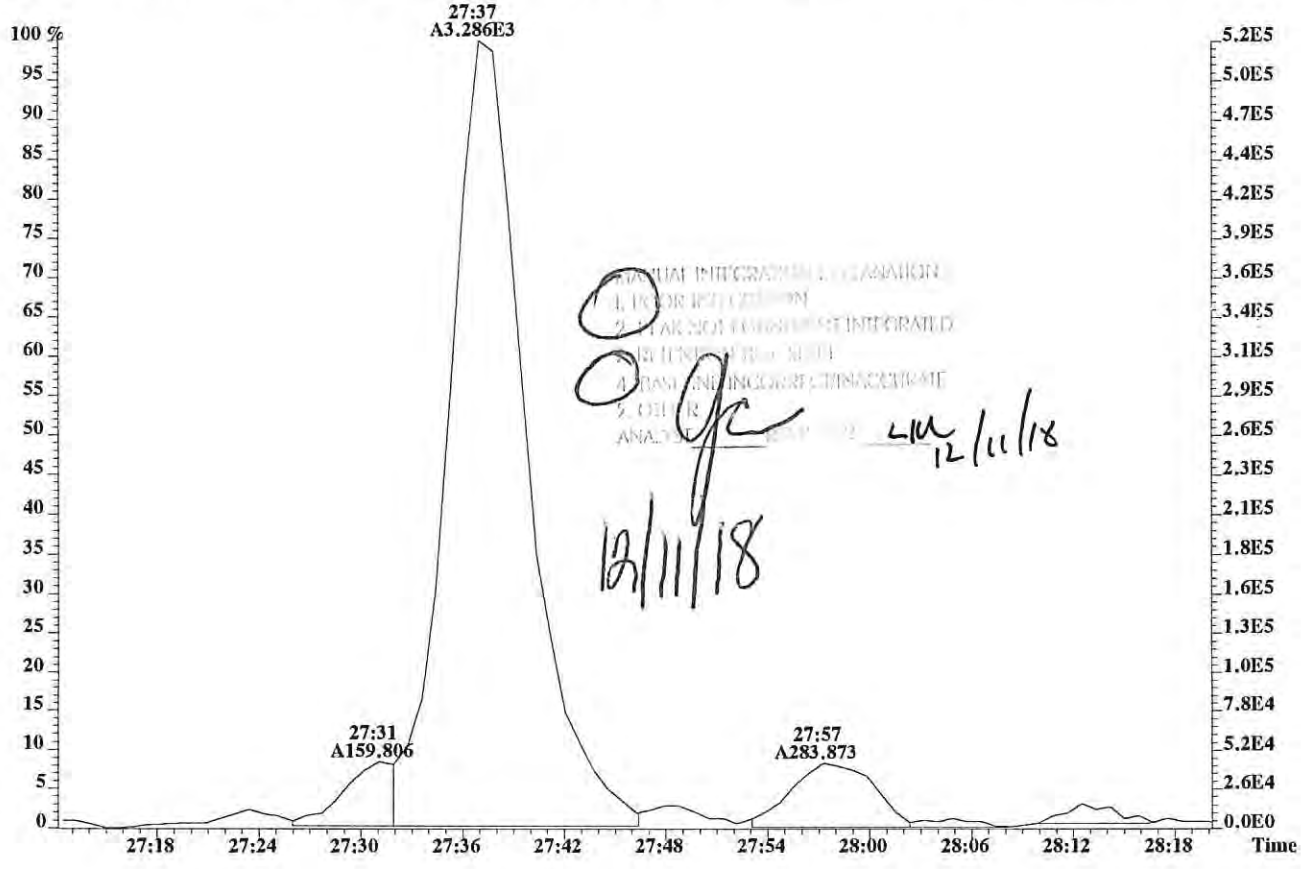
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615976 #1-552 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:E1801055-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



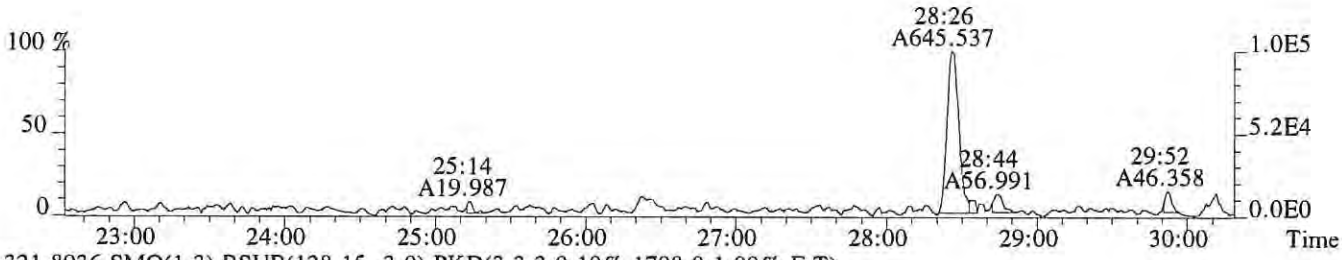
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4756.0,1.00%,F,T)



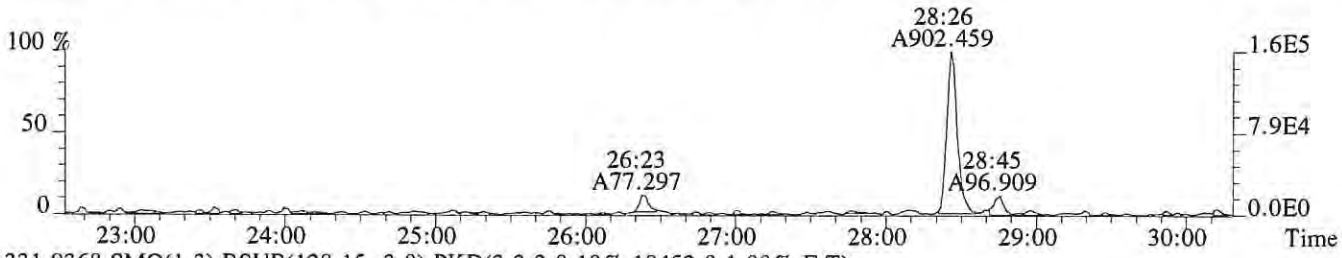
12/11/18

12/11/18

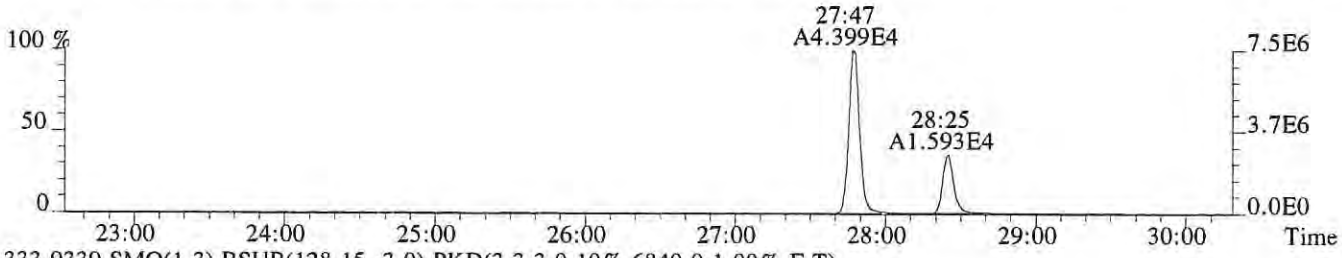
File:P615976 #1-552 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4920.0,1.00%,F,T)



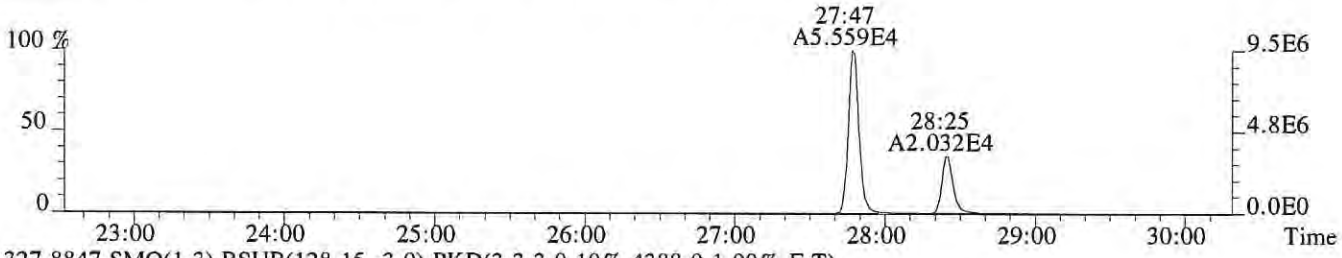
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



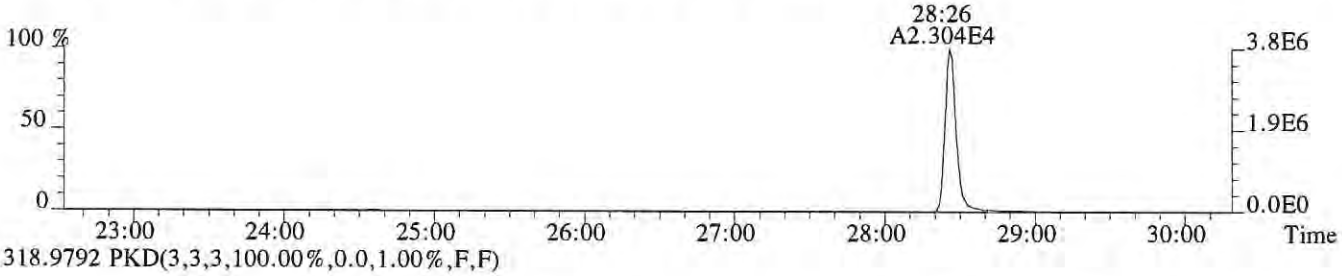
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18452.0,1.00%,F,T)



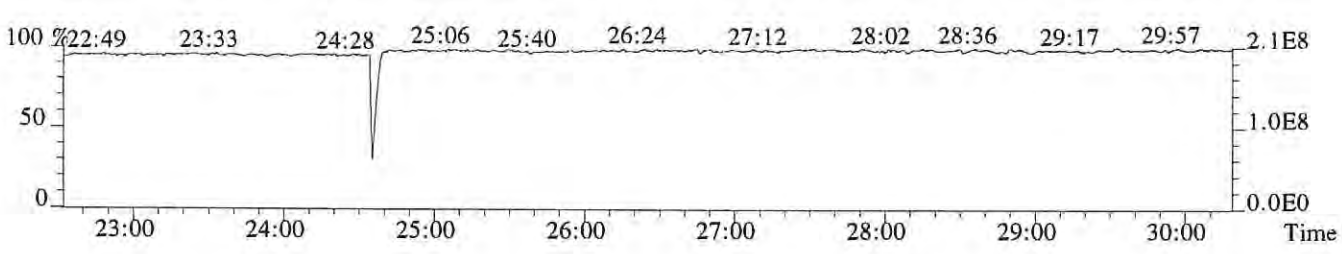
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6840.0,1.00%,F,T)



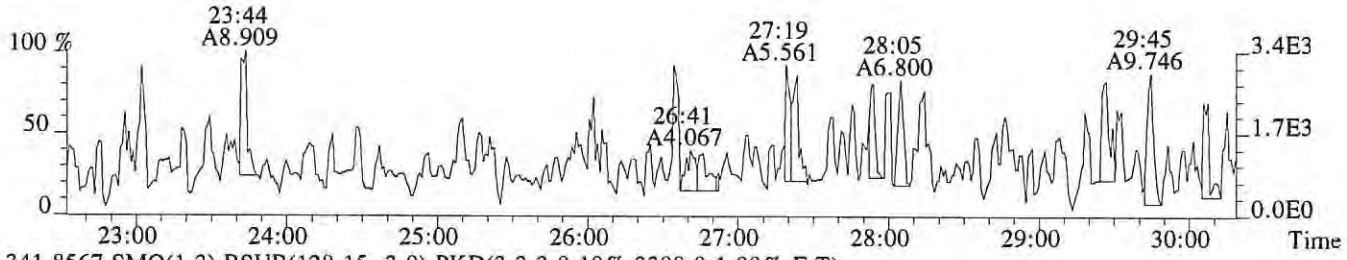
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



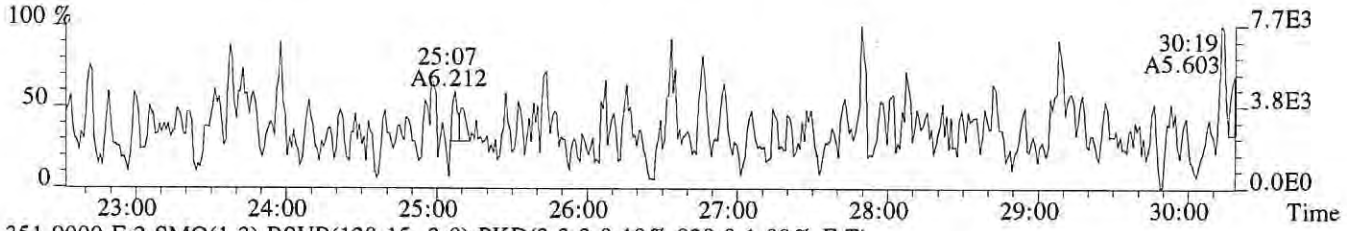
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



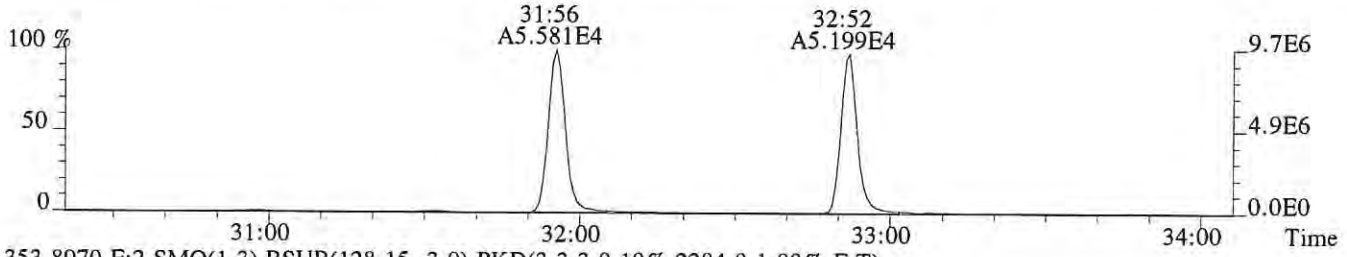
File:P615976 #1-552 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



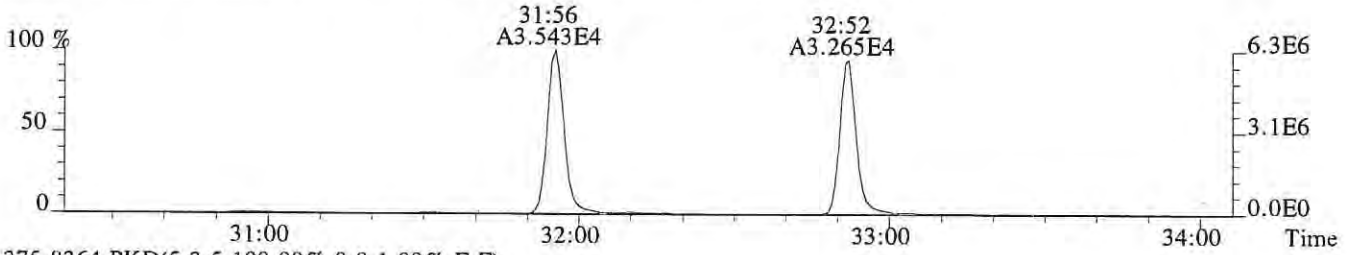
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3308.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



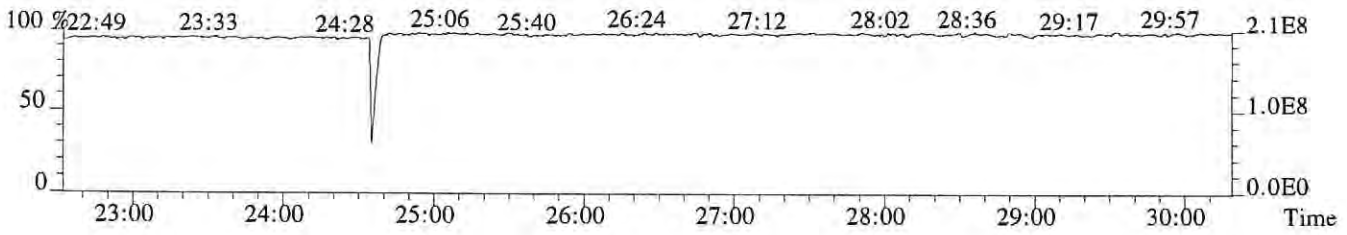
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



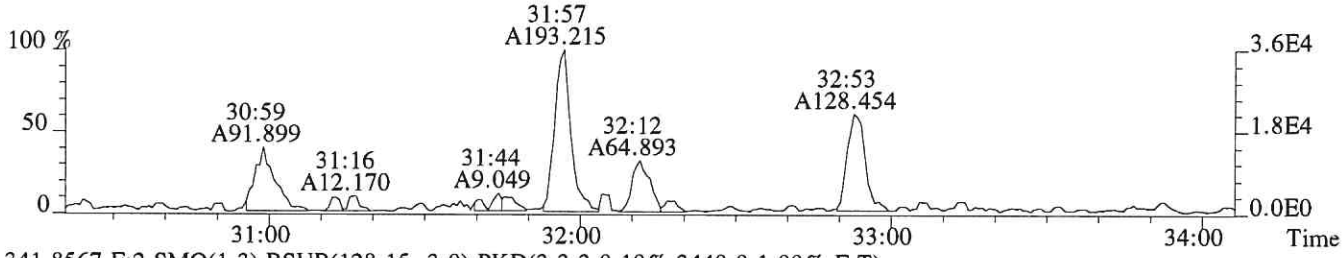
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



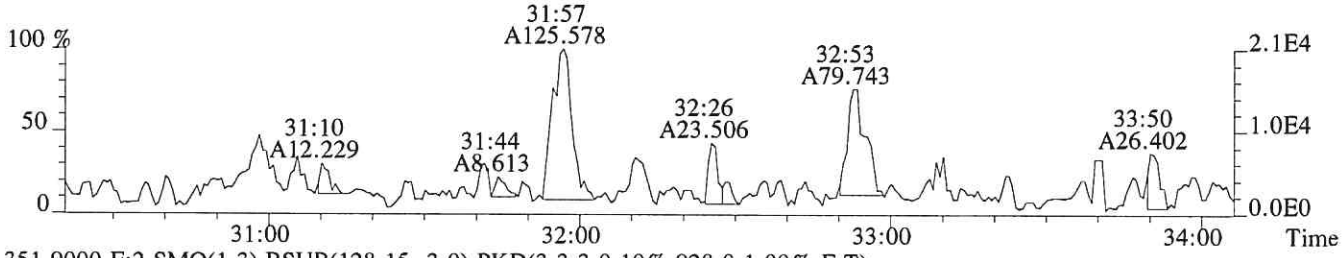
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



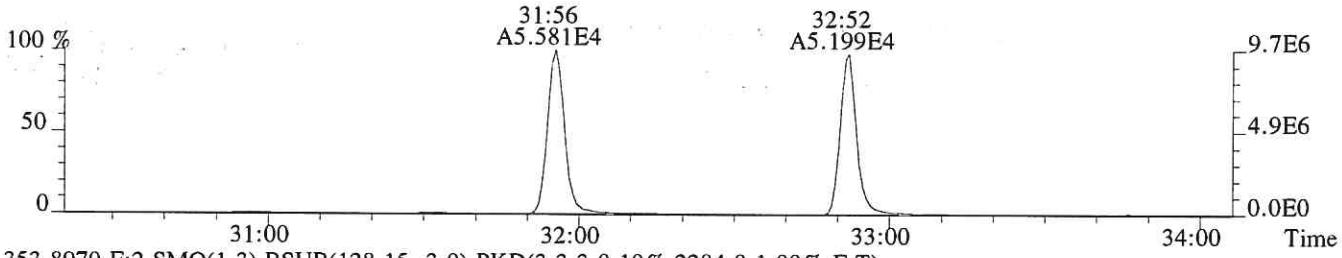
File:P615976 #1-339 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



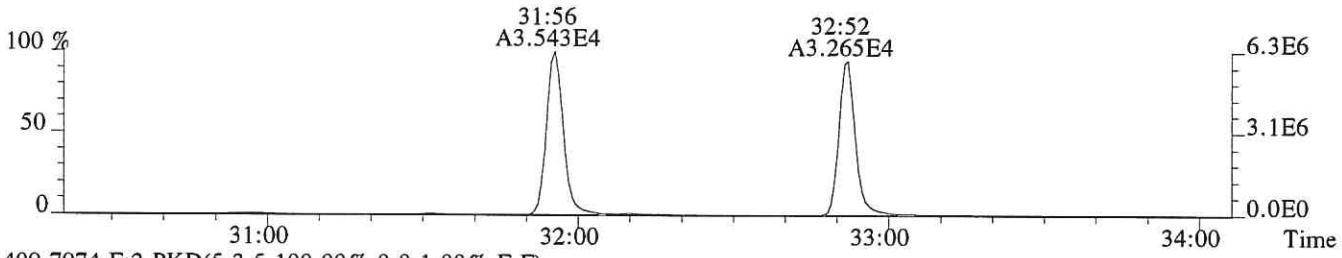
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3440.0,1.00%,F,T)



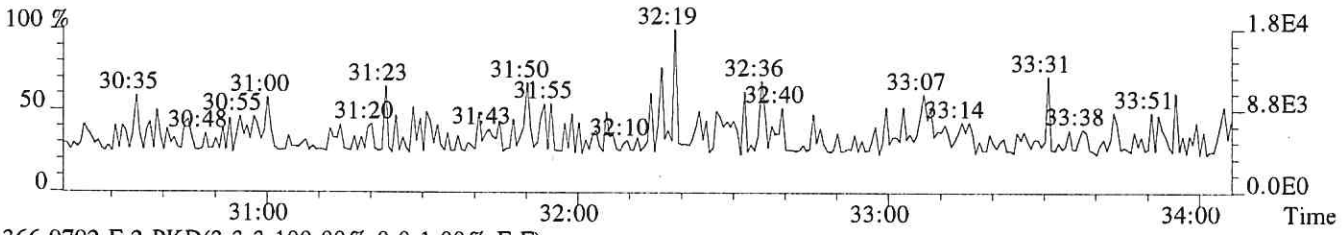
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



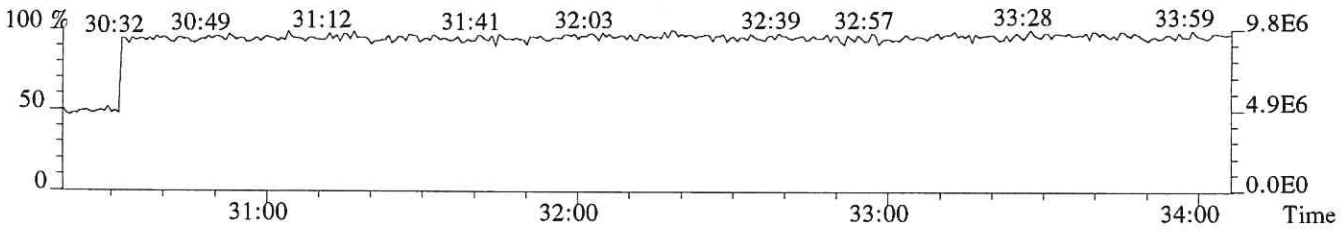
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



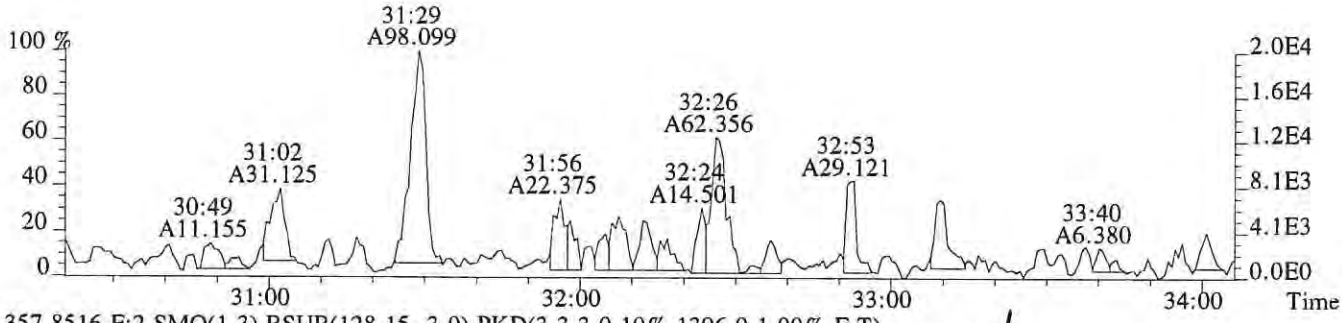
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



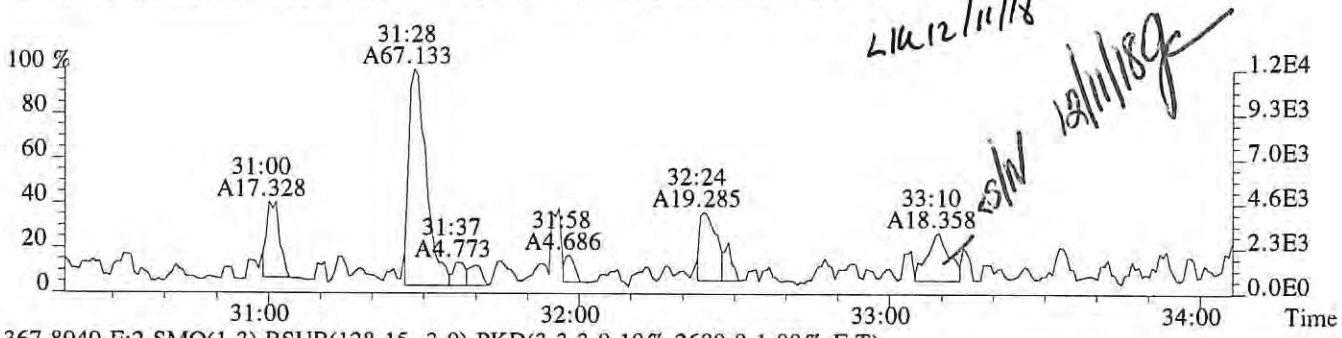
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



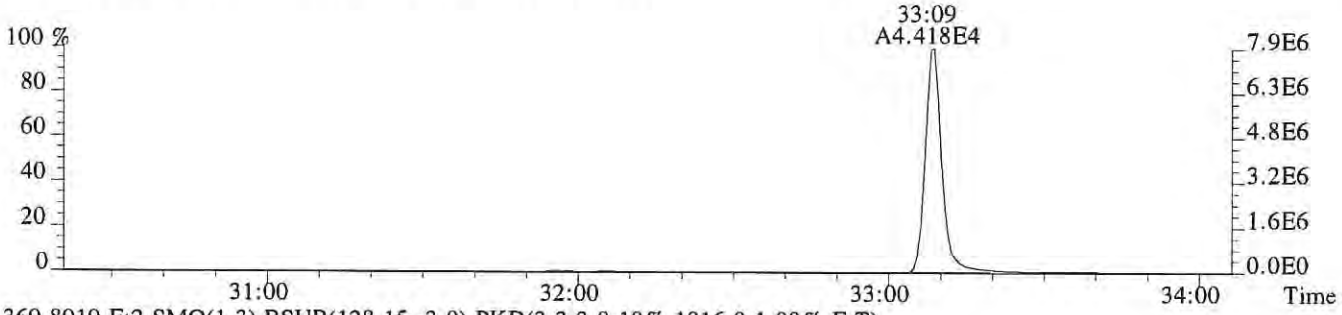
File:P615976 #1-339 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



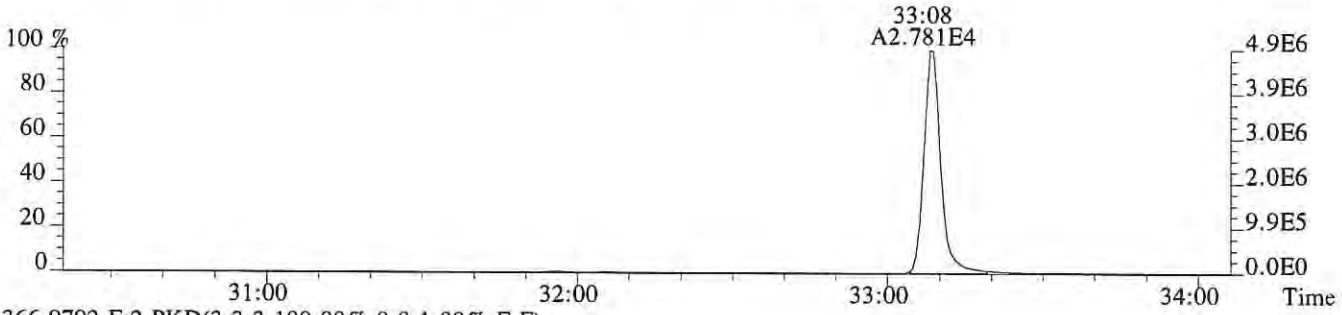
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



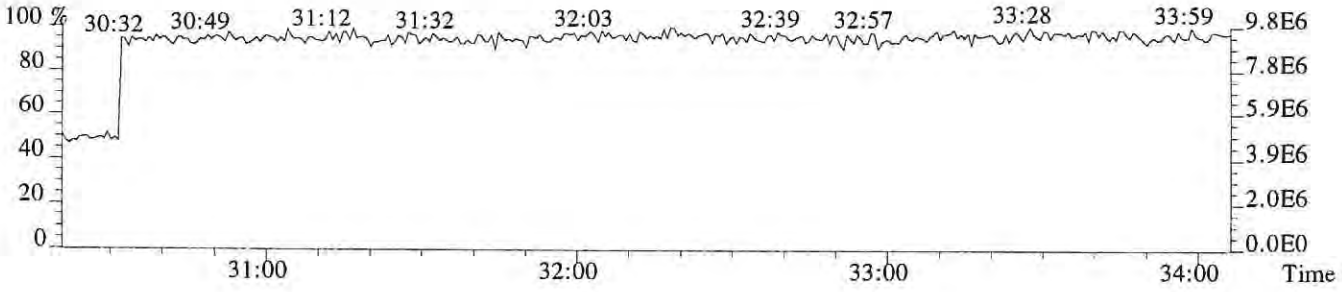
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2680.0,1.00%,F,T)



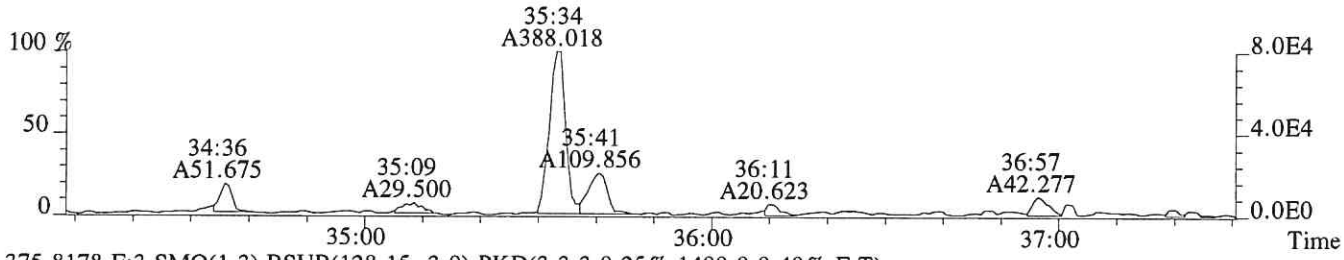
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



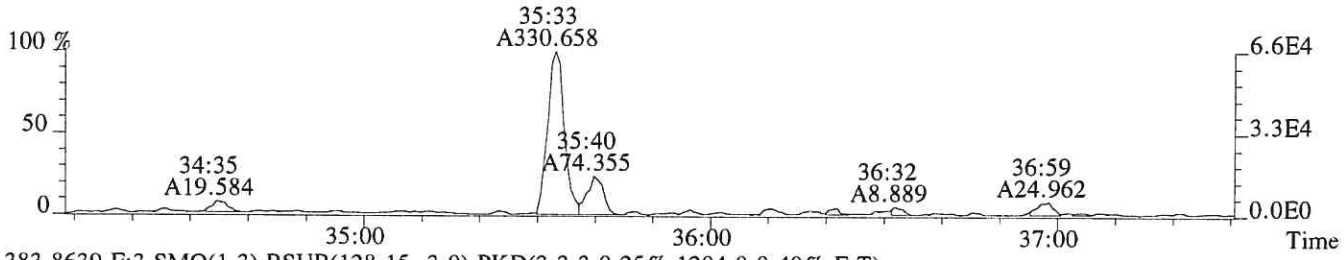
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



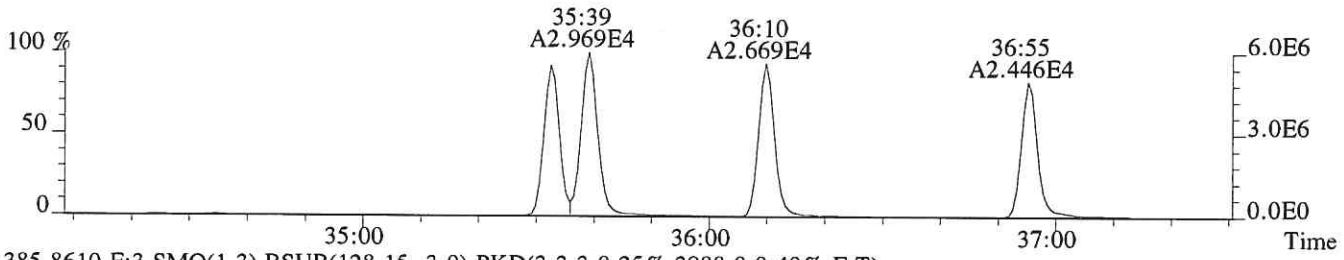
File:P615976 #1-304 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1828.0,0.40%,F,T)



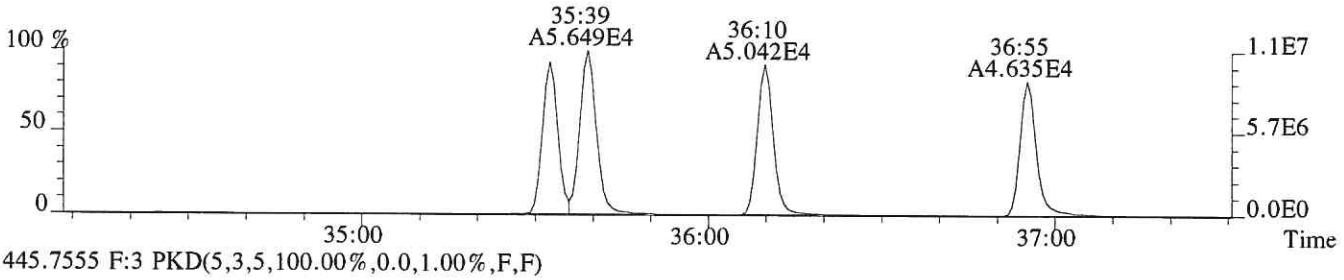
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



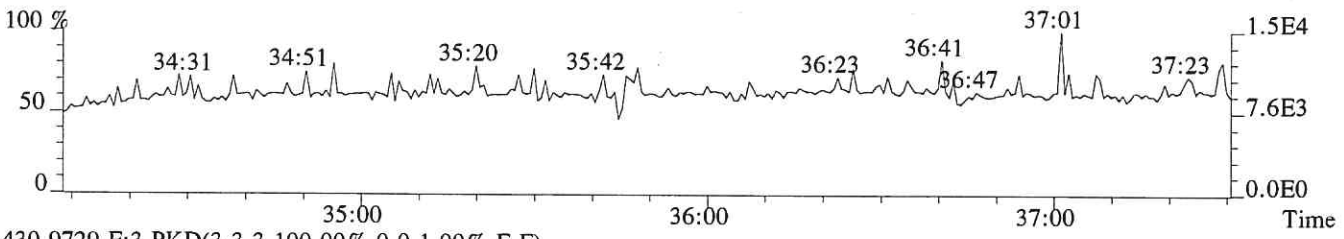
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



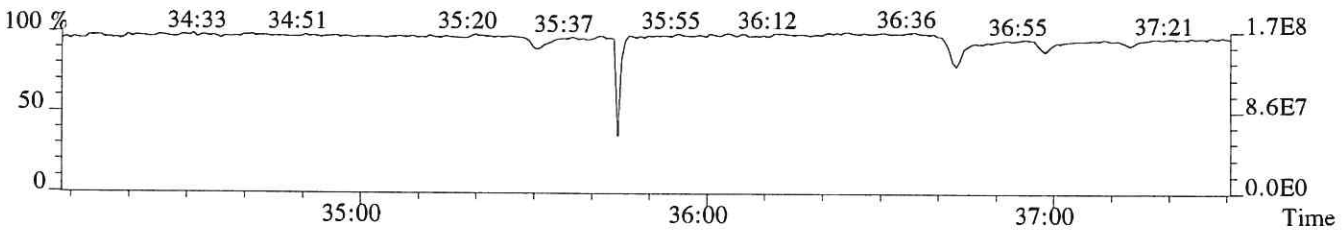
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3988.0,0.40%,F,T)



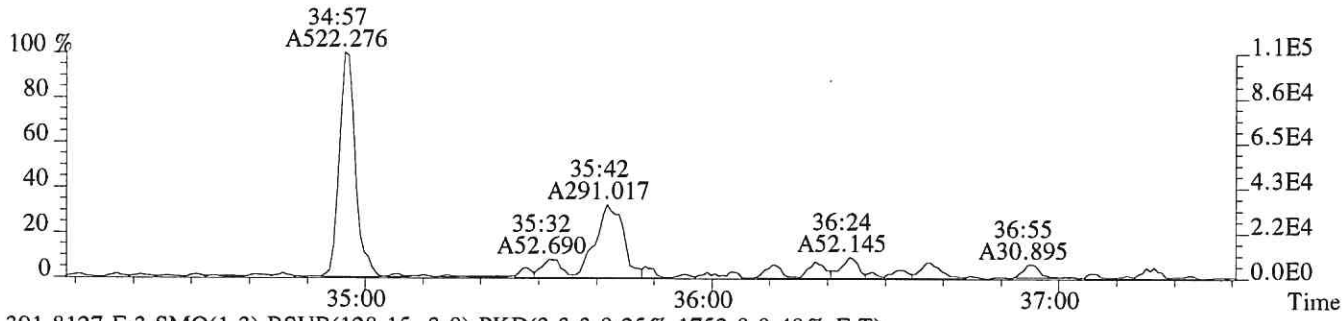
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



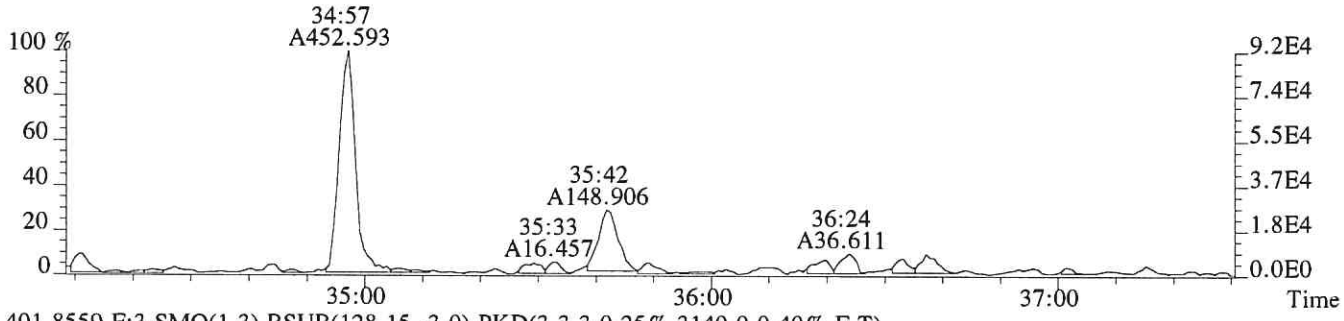
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



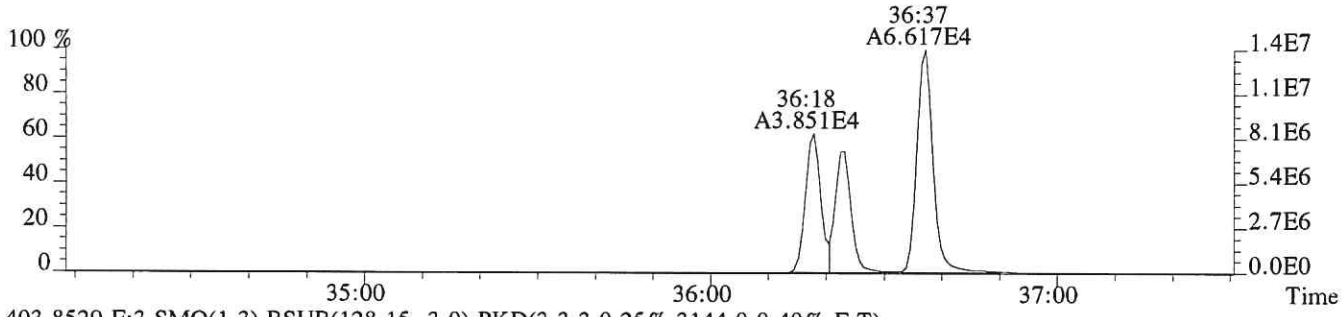
File:P615976 #1-304 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



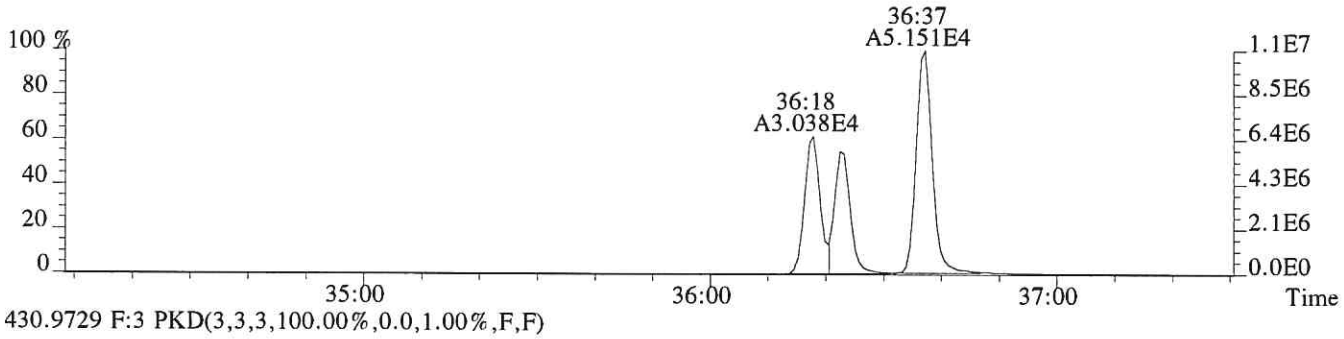
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



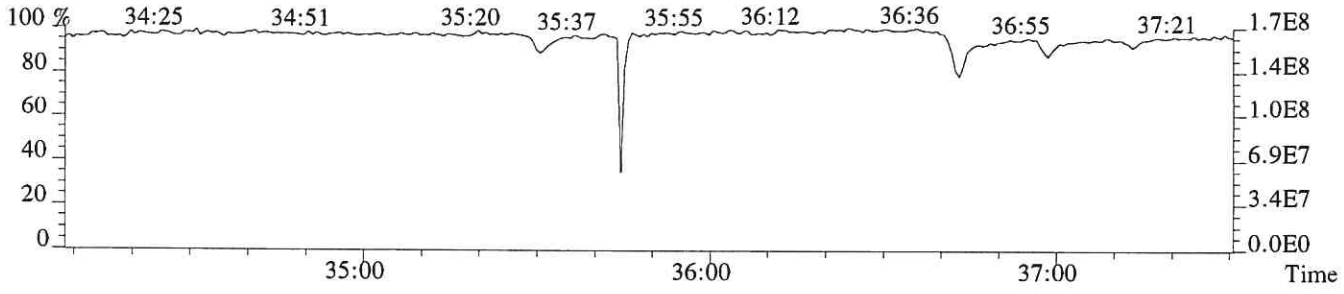
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3140.0,0.40%,F,T)



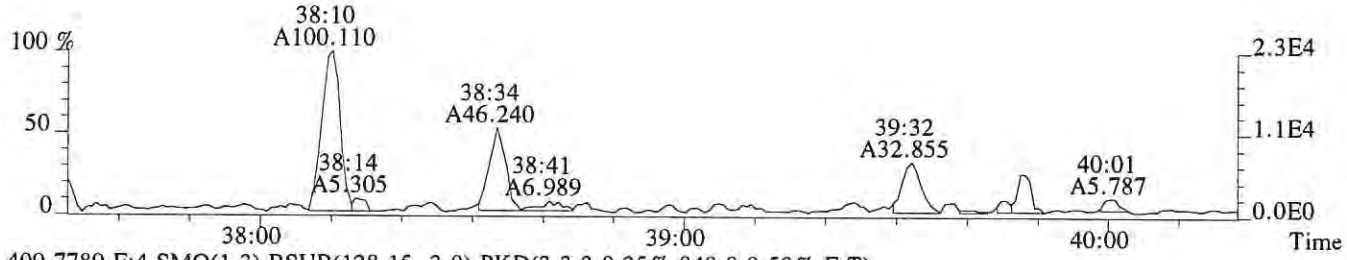
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3144.0,0.40%,F,T)



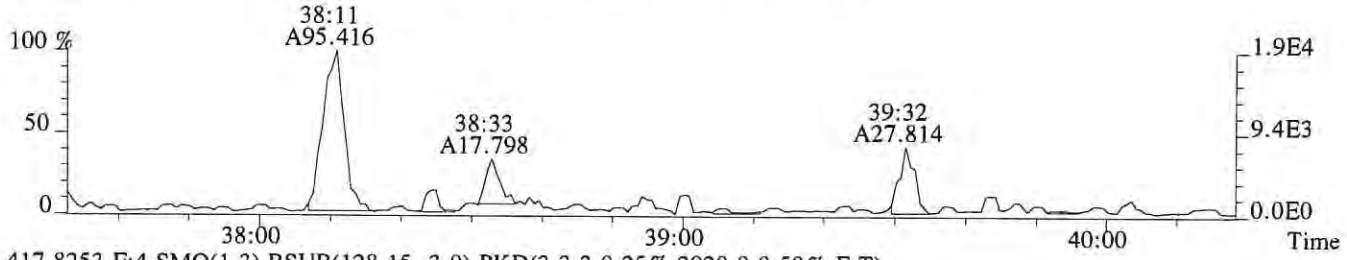
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



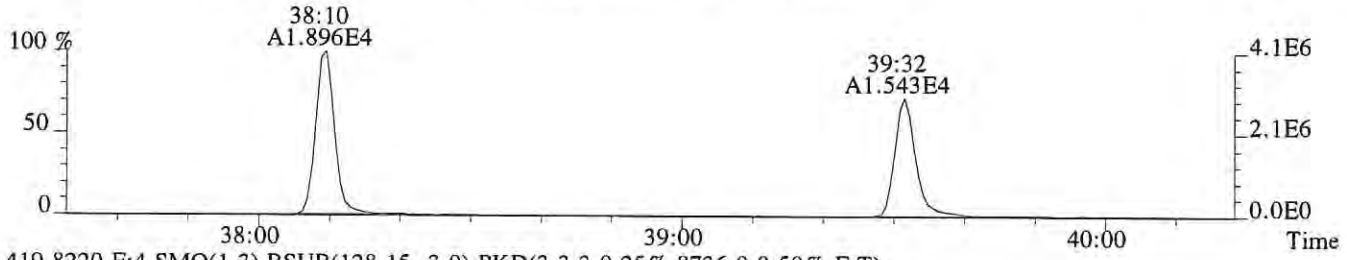
File:P615976 #1-249 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.50%,F,T)



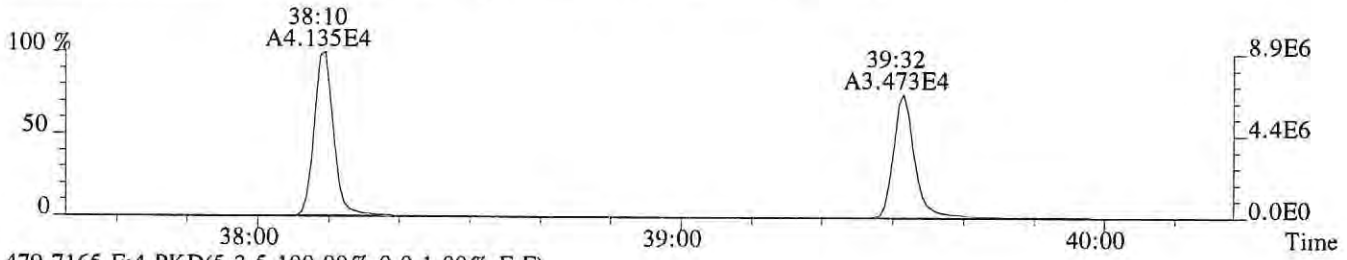
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.50%,F,T)



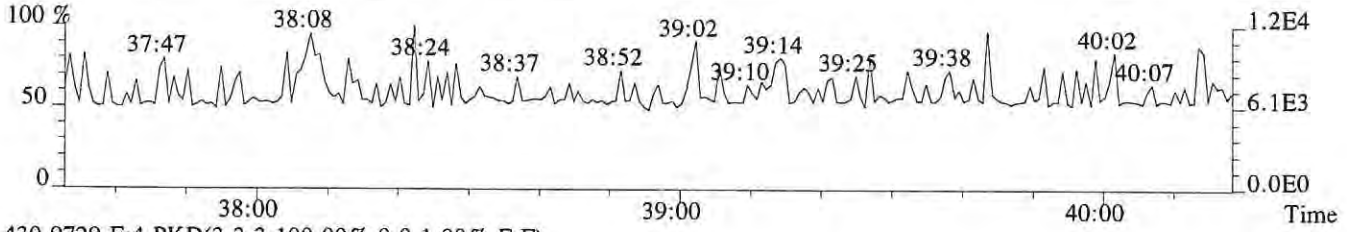
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2920.0,0.50%,F,T)



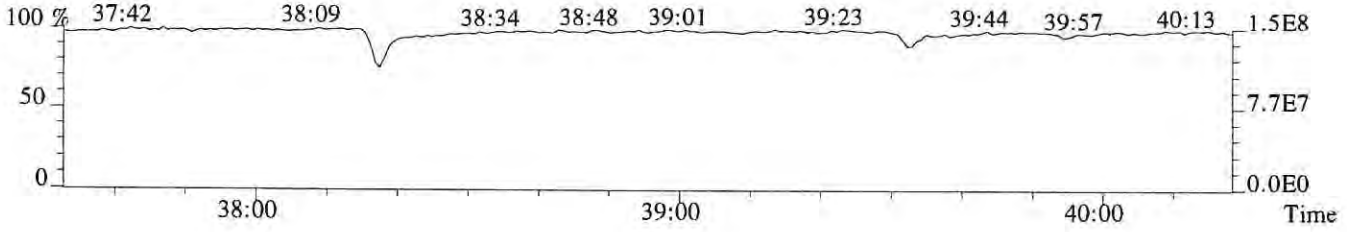
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8736.0,0.50%,F,T)



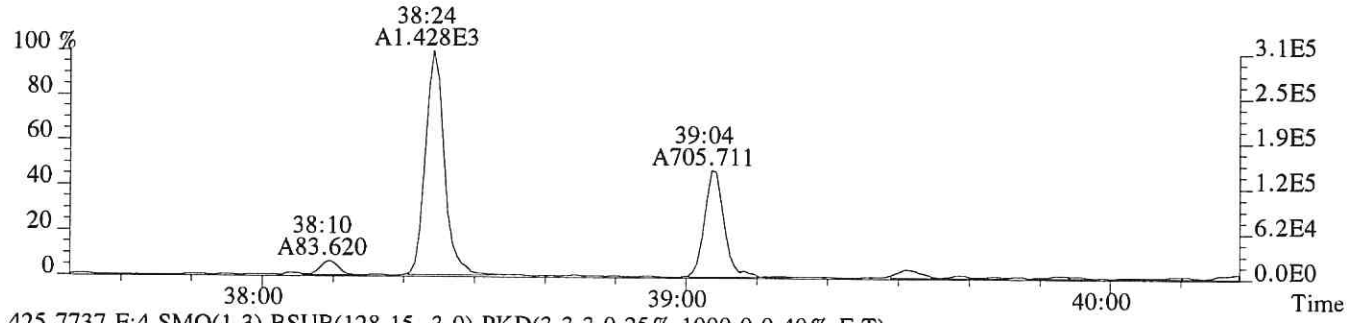
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



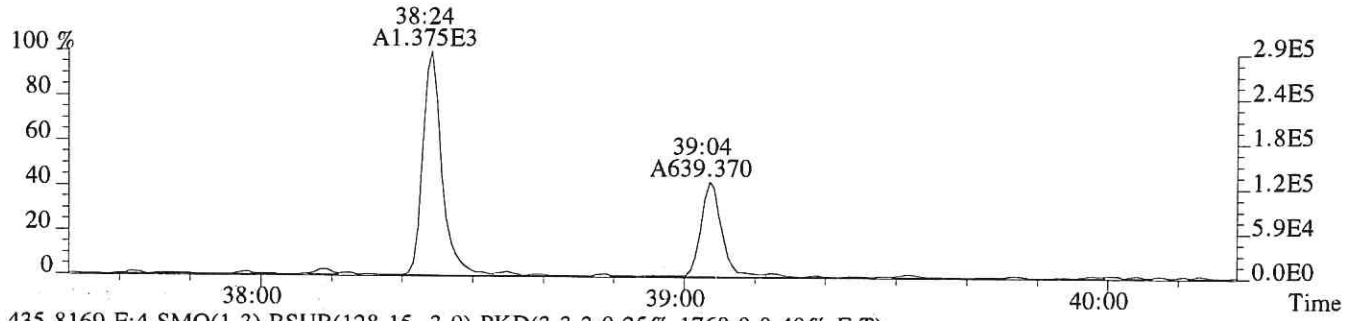
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



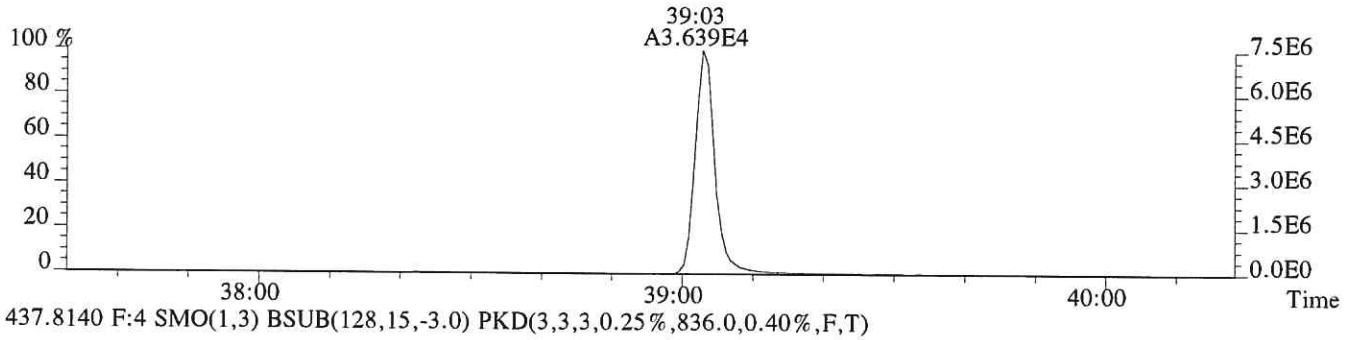
File:P615976 #1-249 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.40%,F,T)



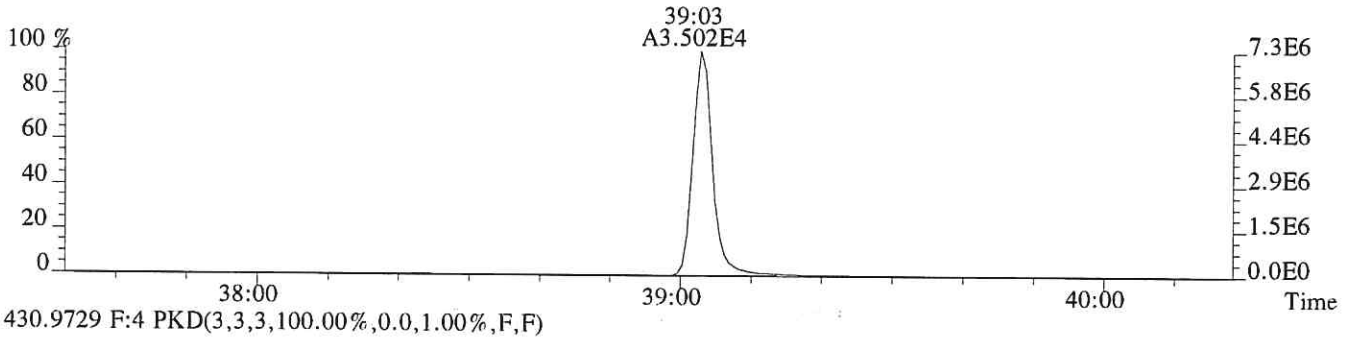
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



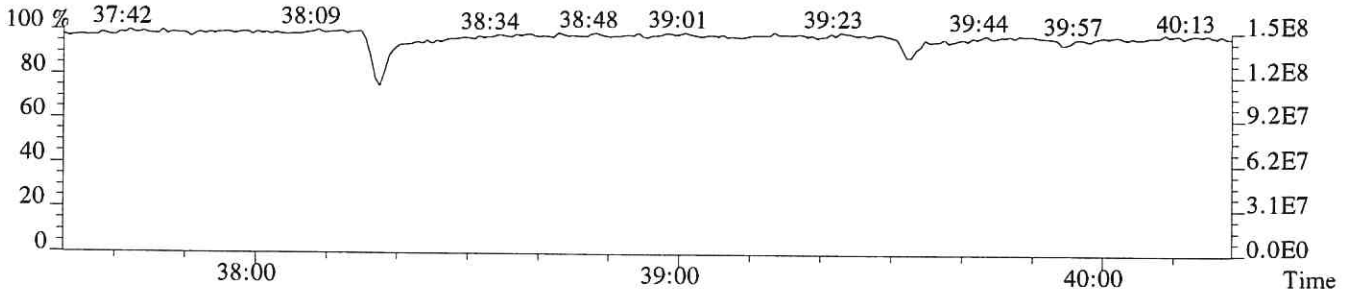
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



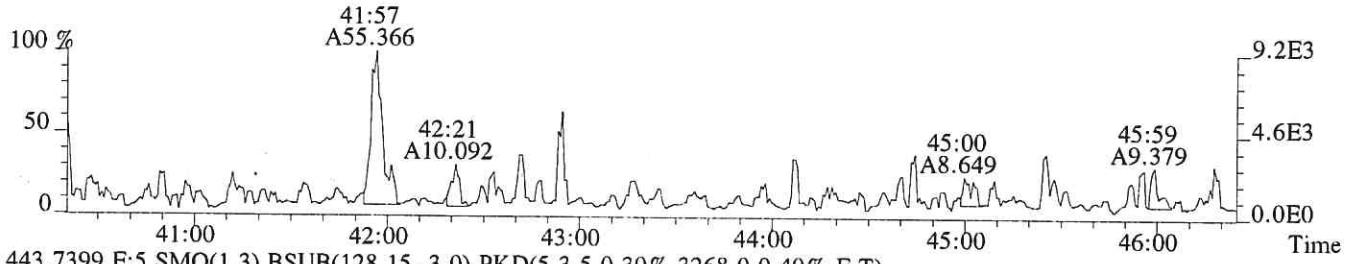
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



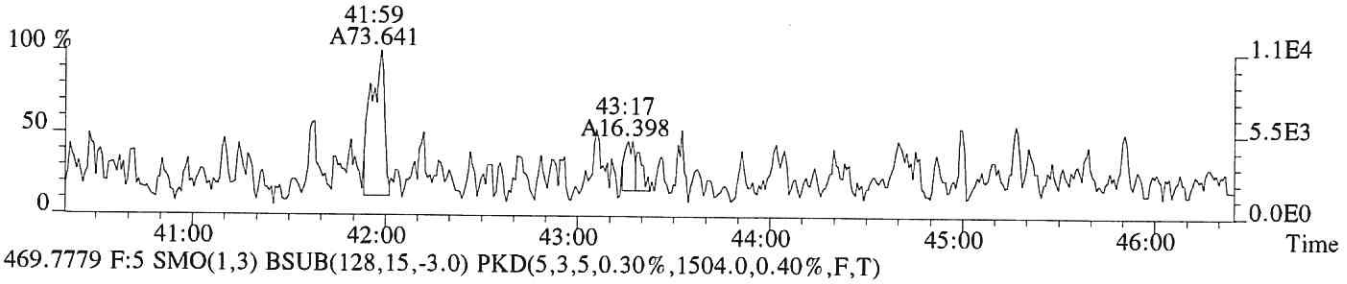
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



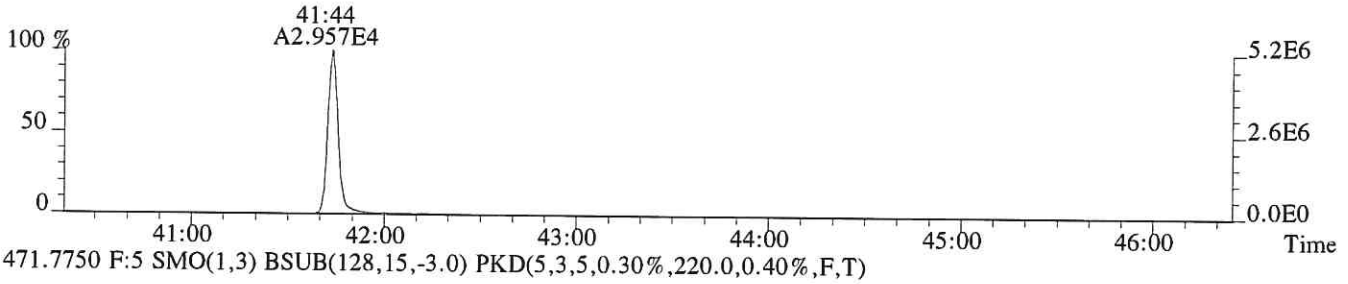
File:P615976 #1-547 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1116.0,0.40%,F,T)



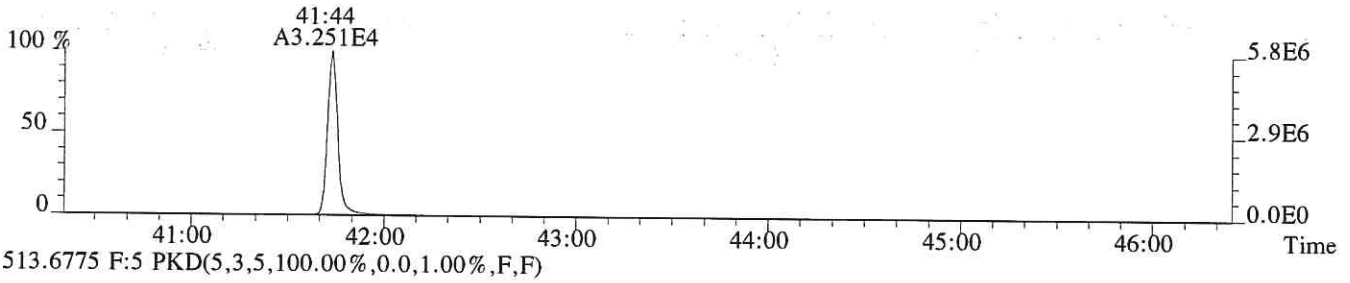
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3268.0,0.40%,F,T)



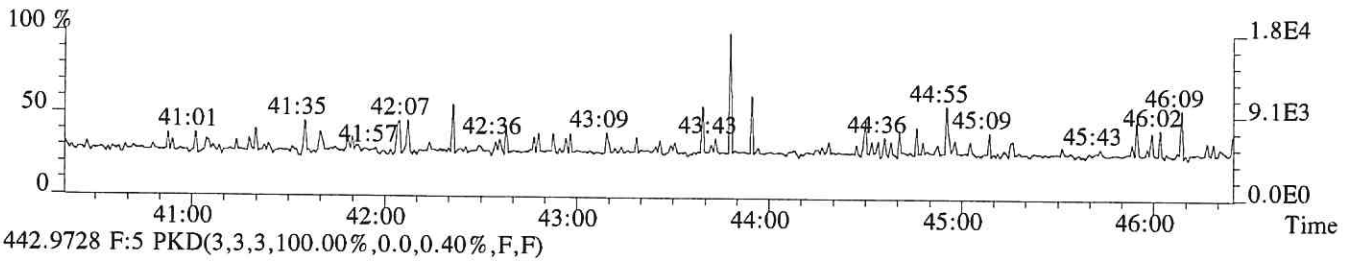
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1504.0,0.40%,F,T)



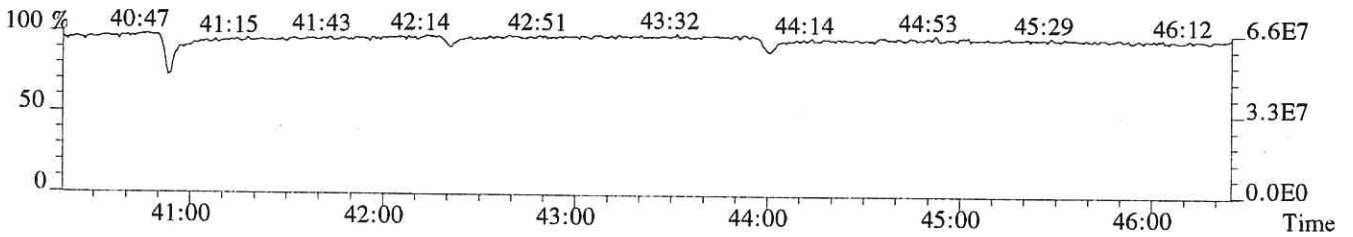
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



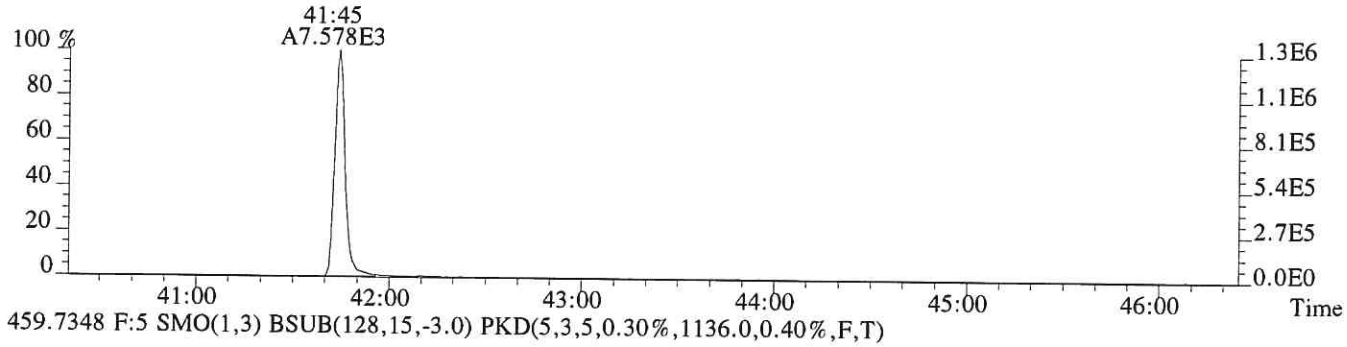
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



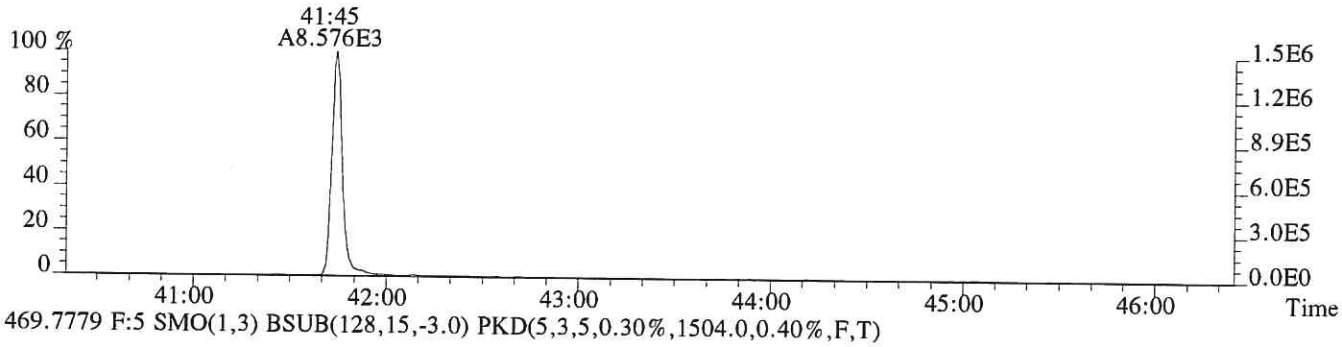
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



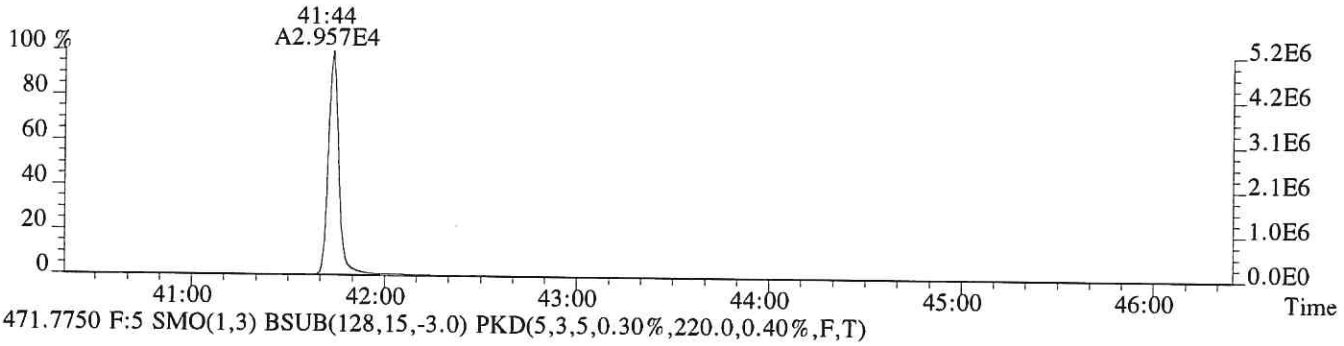
File:P615976 #1-547 Acq: 7-DEC-2018 17:13:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



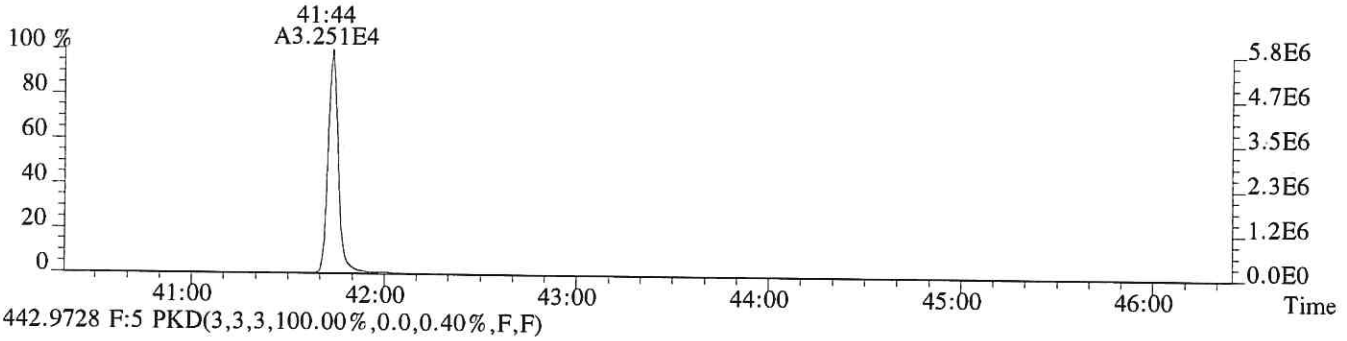
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1136.0,0.40%,F,T)



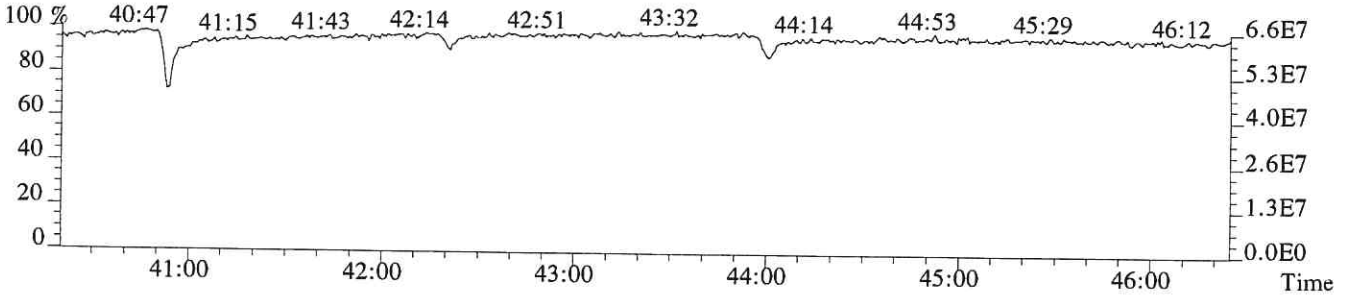
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1504.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0549

Run #17 Filename P615977 Samp: 1 Inj: 1 Acquired: 7-DEC-18 18:02:47
Processed: 10-DEC-18 16:28:21 Sample ID: E1801055-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	8.945e+04	1.155e+05	0.77	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	5.404e+03	3.686e+03	1.47	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	4.304e+03	2.850e+03	1.51	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	1.530e+04	1.205e+04	1.27	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	3.616e+03	2.750e+03	1.31	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:10	5.175e+02	4.766e+02	1.09	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:57	9.607e+02	6.552e+02	1.47	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	3.651e+03	3.438e+03	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	1.241e+03	1.303e+03	0.95	yes	no	1.463
10	Unk	OCDF	41:56	1.149e+03	1.328e+03	0.86	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:25	2.092e+04	2.615e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:09	4.344e+02	2.724e+02	1.59	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	5.882e+01	4.633e+01	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	1.065e+02	6.344e+01	1.68	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	1.036e+02	8.502e+01	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	2.046e+03	2.159e+03	0.95	yes	no	1.112
17	Unk	OCDD	41:44	3.132e+04	3.568e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	2.319e+04	2.970e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	4.791e+04	3.013e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	4.552e+04	2.900e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	2.224e+04	4.205e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	2.470e+04	4.717e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	2.255e+04	4.275e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.083e+04	3.970e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	1.550e+04	3.414e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	1.334e+04	2.904e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.288e+04	1.678e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	3.675e+04	2.399e+04	1.53	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	3.247e+04	2.588e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	2.962e+04	2.326e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	3.068e+04	2.942e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:43	2.431e+04	2.693e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	4.736e+04	6.053e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	7.144e+04	5.706e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	1.841e+04				no	1.086

$$\text{OCDD} = \frac{(3.132e{+}04 + 3.568e{+}04) \times 4000\ \text{pg} \times 1}{(2.431e{+}04 + 2.693e{+}04) \times 10.473\ \text{g} \times 79.2 / 100 \times 1.157} = 544.9\ \text{ng/kg}$$

HH 12/12/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0549

Run #17 Filename P615977 Samp: 1 Inj: 1 Acquired: 7-DEC-18 18:02:47
Processed: 10-DEC-18 16:28:21 LAB. ID: E1801055-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
-	2,3,7,8-TCDF	1.40e+07	2.50e+03	5.6e+03	1.79e+07	7.59e+03	2.4e+03
2	1,2,3,7,8-PeCDF	1.04e+06	2.54e+03	4.1e+02	7.23e+05	4.53e+03	1.6e+02
3	2,3,4,7,8-PeCDF	7.61e+05	2.54e+03	3.0e+02	4.94e+05	4.53e+03	1.1e+02
4	1,2,3,4,7,8-HxCDF	3.37e+06	2.00e+03	1.7e+03	2.65e+06	1.76e+03	1.5e+03
5	1,2,3,6,7,8-HxCDF	7.71e+05	2.00e+03	3.8e+02	5.73e+05	1.76e+03	3.3e+02
6	2,3,4,6,7,8-HxCDF	1.15e+05	2.00e+03	5.7e+01	9.85e+04	1.76e+03	5.6e+01
7	1,2,3,7,8,9-HxCDF	1.81e+05	2.00e+03	9.0e+01	1.34e+05	1.76e+03	7.7e+01
8	1,2,3,4,6,7,8-HpCDF	8.01e+05	9.88e+02	8.1e+02	7.57e+05	9.08e+02	8.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.28e+05	9.88e+02	2.3e+02	2.66e+05	9.08e+02	2.9e+02
10	OCDF	2.01e+05	1.32e+03	1.5e+02	2.32e+05	2.38e+03	9.7e+01
11	2,3,7,8-TCDD	3.83e+06	6.12e+03	6.2e+02	4.90e+06	2.71e+03	1.8e+03
12	1,2,3,7,8-PeCDD	8.50e+04	1.73e+03	4.9e+01	5.07e+04	8.92e+02	5.7e+01
13	1,2,3,4,7,8-HxCDD	1.49e+04	1.44e+03	1.0e+01	9.48e+03	1.54e+03	6.2e+00
14	1,2,3,6,7,8-HxCDD	1.94e+04	1.44e+03	1.3e+01	1.19e+04	1.54e+03	7.7e+00
15	1,2,3,7,8,9-HxCDD	2.25e+04	1.44e+03	1.6e+01	1.78e+04	1.54e+03	1.2e+01
16	1,2,3,4,6,7,8-HpCDD	4.34e+05	1.54e+03	2.8e+02	4.37e+05	9.20e+02	4.8e+02
17	OCDD	5.72e+06	1.31e+03	4.4e+03	6.35e+06	8.56e+02	7.4e+03
18	13C-2,3,7,8-TCDF	4.09e+06	1.70e+04	2.4e+02	5.18e+06	1.29e+04	4.0e+02
19	13C-1,2,3,7,8-PeCDF	8.97e+06	3.23e+03	2.8e+03	5.56e+06	2.66e+03	2.1e+03
20	13C-2,3,4,7,8-PeCDF	8.68e+06	3.23e+03	2.7e+03	5.57e+06	2.66e+03	2.1e+03
21	13C-1,2,3,4,7,8-HxCDF	4.97e+06	2.16e+03	2.3e+03	9.37e+06	2.36e+03	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	5.31e+06	2.16e+03	2.5e+03	1.03e+07	2.36e+03	4.4e+03
23	13C-2,3,4,6,7,8-HxCDF	4.97e+06	2.16e+03	2.3e+03	9.37e+06	2.36e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	4.30e+06	2.16e+03	2.0e+03	8.28e+06	2.36e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.35e+06	3.10e+03	1.1e+03	7.40e+06	2.90e+03	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.60e+06	3.10e+03	8.4e+02	5.58e+06	2.90e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.40e+06	1.89e+04	1.3e+02	3.07e+06	7.26e+03	4.2e+02
28	13C-1,2,3,7,8-PeCDD	7.15e+06	3.25e+03	2.2e+03	4.70e+06	2.56e+03	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	7.21e+06	4.16e+03	1.7e+03	5.65e+06	2.96e+03	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	6.43e+06	4.16e+03	1.5e+03	4.98e+06	2.96e+03	1.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.50e+06	1.12e+03	5.8e+03	6.29e+06	6.00e+02	1.0e+04
32	13C-OCDD	4.37e+06	8.84e+02	4.9e+03	4.77e+06	8.56e+02	5.6e+03
33	13C-1,2,3,4-TCDD	8.46e+06	1.89e+04	4.5e+02	1.08e+07	7.26e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.53e+07	4.16e+03	3.7e+03	1.22e+07	2.96e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	3.45e+06	4.35e+03	7.9e+02			

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Peak List Summary

CLIENT ID.
SL0549

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P615977 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 18:02:47 Processed: 10-DEC-18 16:28:21

Mass: 303.9020 305.8990 Tot Response: 3.46e+05 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:26	5.83e+02	7.53e+02	0.78	yes	1.34e+03		n	n
2	24:45	3.70e+03	4.64e+03	0.80	yes	8.34e+03		n	n
3	25:10	9.76e+02	1.35e+03	0.72	yes	2.33e+03		n	n
4	25:29	2.88e+03	3.86e+03	0.75	yes	6.74e+03		n	n
5	25:54	6.79e+02	8.14e+02	0.83	yes	1.49e+03		n	n
6	26:44	3.64e+04	4.68e+04	0.78	yes	8.32e+04		n	n
7	27:01	1.84e+03	2.36e+03	0.78	yes	4.20e+03		n	n
8	27:37	8.95e+04	1.15e+05	0.77	yes	2.05e+05	2,3,7,8-TCDF	n	n
9	27:57	6.29e+03	8.21e+03	0.77	yes	1.45e+04		n	n
10	28:12	1.07e+03	1.50e+03	0.71	yes	2.56e+03		n	n
11	29:30	7.26e+03	9.25e+03	0.78	yes	1.65e+04		n	n

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Peak List Summary

CLIENT ID.
SL0549

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P615977 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 18:02:47 Processed: 10-DEC-18 16:28:21

Mass: 319.8970 321.8940 Tot Response: 5.18e+04 RRF: 1.049

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	28:25	2.09e+04	2.62e+04	0.80	yes	4.71e+04	2,3,7,8-TCDD	n	n
	28:44	2.03e+03	2.67e+03	0.76	yes	4.70e+03		n	n

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Peak List Summary

CLIENT ID.
SL0549

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P615977 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 18:02:47 Processed: 10-DEC-18 16:28:21

Mass: 339.8600 341.8570 Tot Response: 2.35e+04 RRF: 1.130

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:58	2.22e+03	1.47e+03	1.51	yes	3.69e+03		n	n
2	31:45	5.46e+02	3.19e+02	1.71	yes	8.64e+02		n	n
3	31:56	5.40e+03	3.69e+03	1.47	yes	9.09e+03	1,2,3,7,8-PeCDF	n	n
4	32:11	1.57e+03	1.11e+03	1.41	yes	2.68e+03		n	n
5	32:52	4.30e+03	2.85e+03	1.51	yes	7.15e+03	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0549

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P615977 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 18:02:47 Processed: 10-DEC-18 16:28:21

Mass: 355.8550 357.8520 Tot Response: 7.07e+02 RRF: 0.9288

	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	33:09	4.34e+02	2.72e+02 1.59	yes	7.07e+02	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0549

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P615977 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 18:02:47 Processed: 10-DEC-18 16:28:21

Mass: 373.8210 375.8180 Tot Response: 3.74e+04 RRF: 1.324

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	34:25	6.03e+01	5.47e+01	1.10	yes	1.15e+02		n	n
	34:35	9.50e+02	7.12e+02	1.33	yes	1.66e+03		n	n
	35:07	4.70e+02	4.05e+02	1.16	yes	8.75e+02		n	n
	35:33	1.53e+04	1.21e+04	1.27	yes	2.74e+04	1,2,3,4,7,8-HxCDF	n	n
	35:39	3.62e+03	2.75e+03	1.31	yes	6.37e+03	1,2,3,6,7,8-HxCDF	n	n
	36:10	5.18e+02	4.77e+02	1.09	yes	9.94e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0549

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P615977 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 18:02:47 Processed: 10-DEC-18 16:28:21

Mass: 389.8160 391.8130 Tot Response: 2.45e+03 RRF: 1.092

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	34:57	6.88e+02	5.09e+02	1.35	yes	1.20e+03		n	n
	35:43	3.85e+02	2.86e+02	1.35	yes	6.70e+02		n	n
	35:49	1.12e+02	1.02e+02	1.11	yes	2.14e+02		n	n
	36:18	5.88e+01	4.63e+01	1.27	yes	1.05e+02	1,2,3,4,7,8-HxCDD	n	n
	36:33	4.33e+01	3.36e+01	1.29	yes	7.69e+01		n	n
	36:37	1.04e+02	8.50e+01	1.22	yes	1.89e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0549

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P615977 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 18:02:47 Processed: 10-DEC-18 16:28:21

Mass: 407.7820 409.7790 Tot Response: 1.18e+04 RRF: 1.495

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	38:09	3.65e+03	3.44e+03	1.06	yes	7.09e+03	1,2,3,4,6,7,8-HpCDF	n	n
	38:33	1.09e+03	1.04e+03	1.05	yes	2.13e+03		n	n
	39:32	1.24e+03	1.30e+03	0.95	yes	2.54e+03	1,2,3,4,7,8,9-HpCDF	n	n

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CLIENT ID.
SL0549

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P615977 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 18:02:47 Processed: 10-DEC-18 16:28:21

Mass: 423.7770 425.7740 Tot Response: 1.31e+04 RRF: 1.112

	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
	38:24	4.66e+03	4.28e+03	1.09	yes	8.94e+03		n	n
	39:03	2.05e+03	2.16e+03	0.95	yes	4.20e+03	1,2,3,4,6,7,8-HpCDD	n	n

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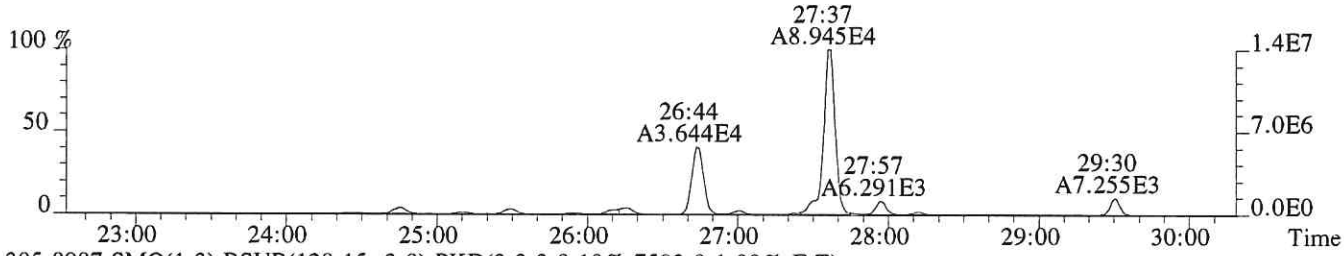
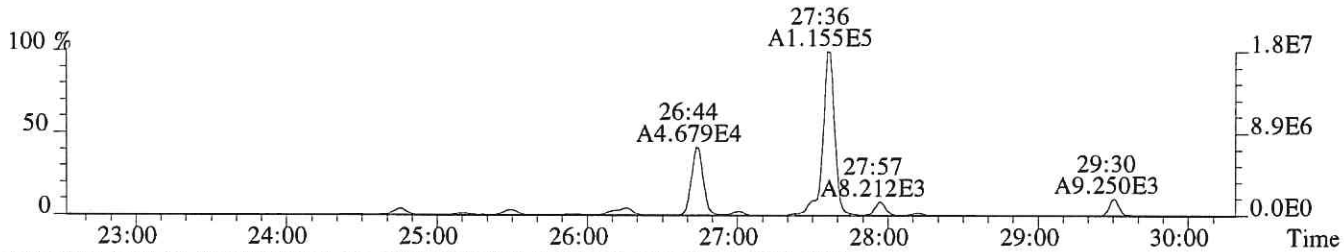
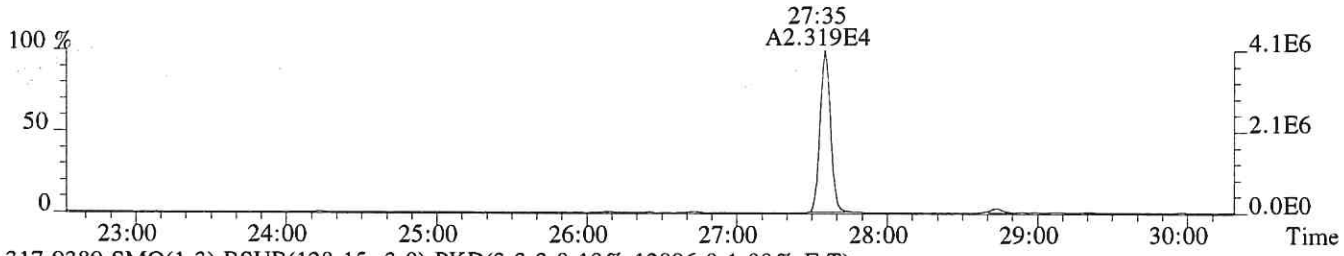
File:P615977 #1-552 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2500.0,1.00%,F,T)



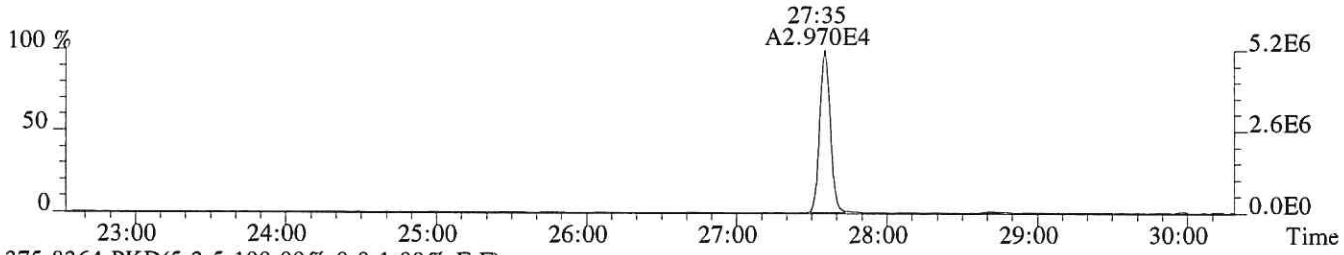
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7592.0,1.00%,F,T)



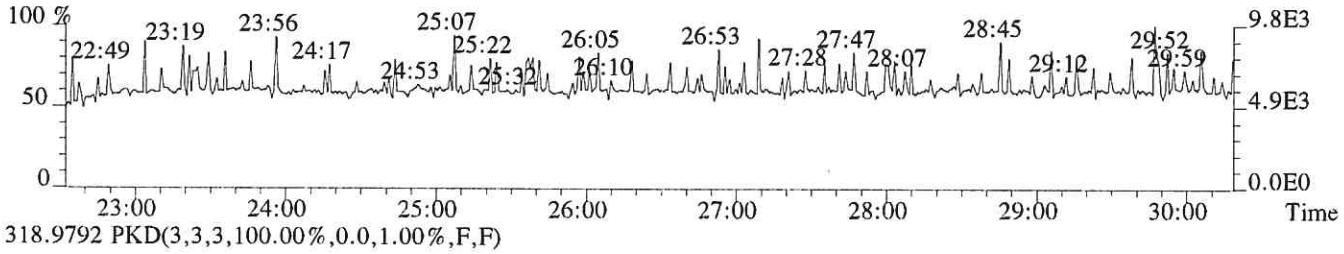
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16984.0,1.00%,F,T)



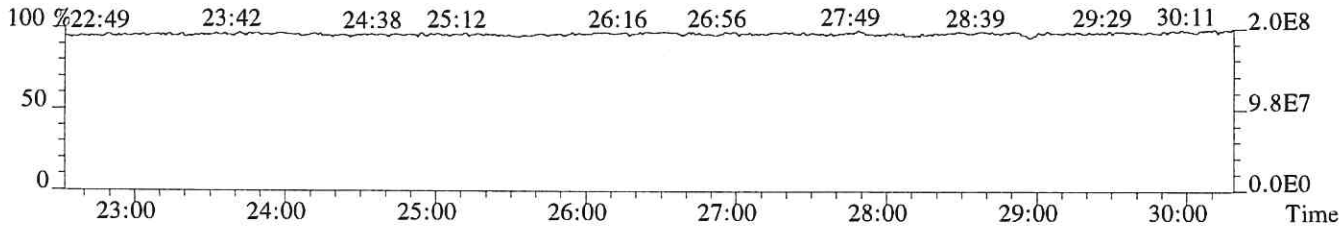
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12896.0,1.00%,F,T)



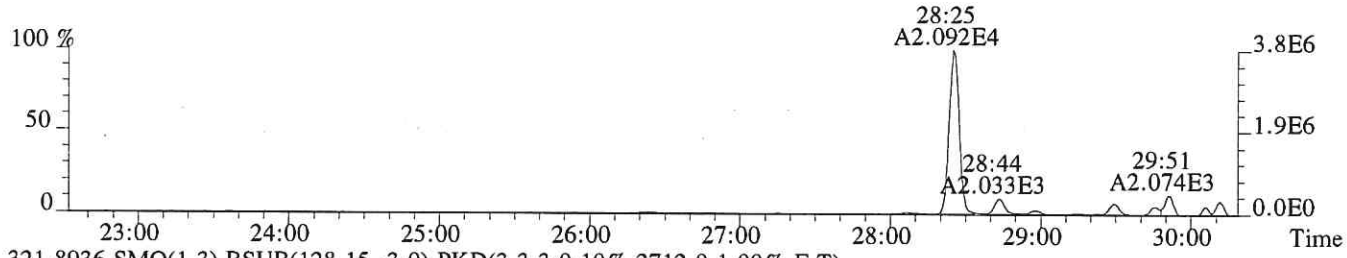
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



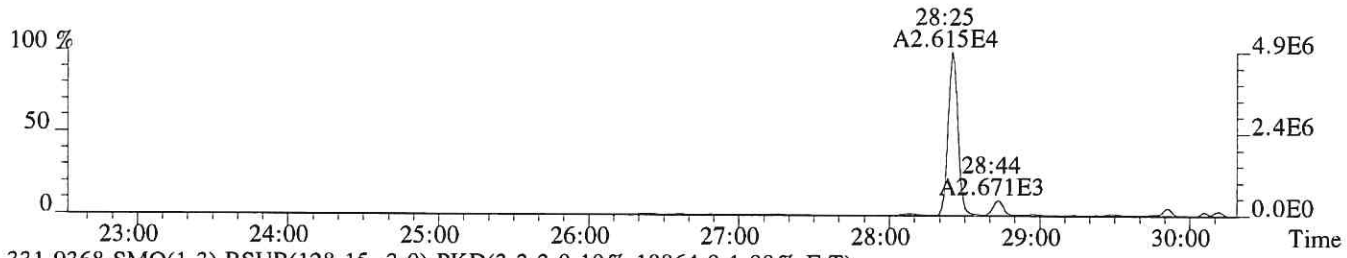
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



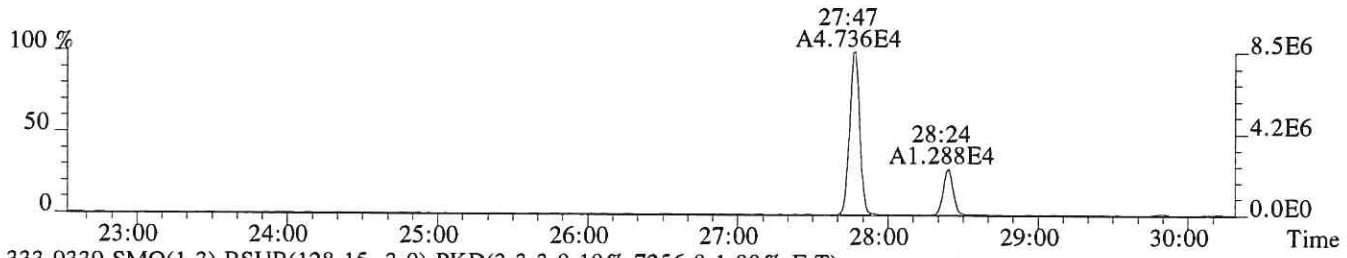
File:P615977 #1-552 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6124.0,1.00%,F,T)



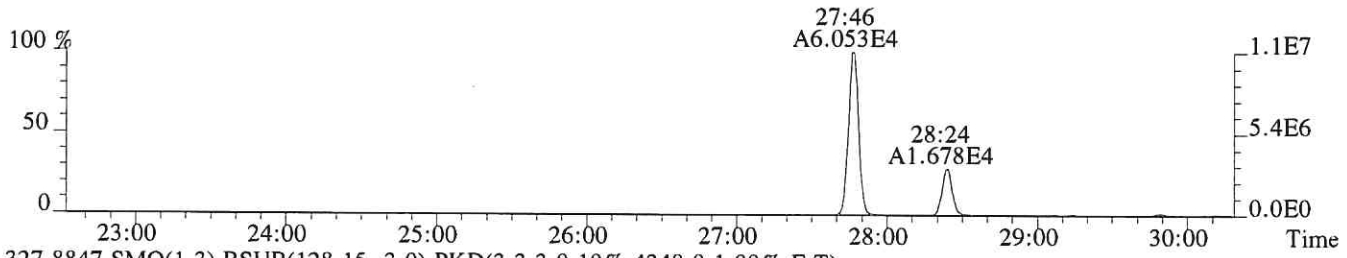
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



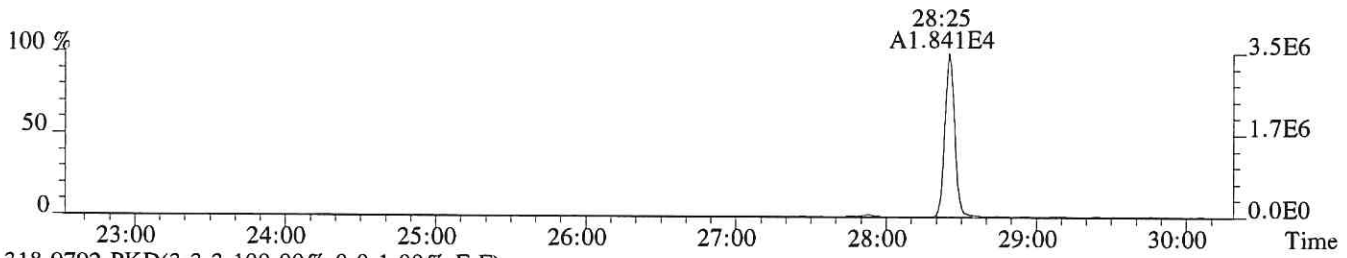
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18864.0,1.00%,F,T)



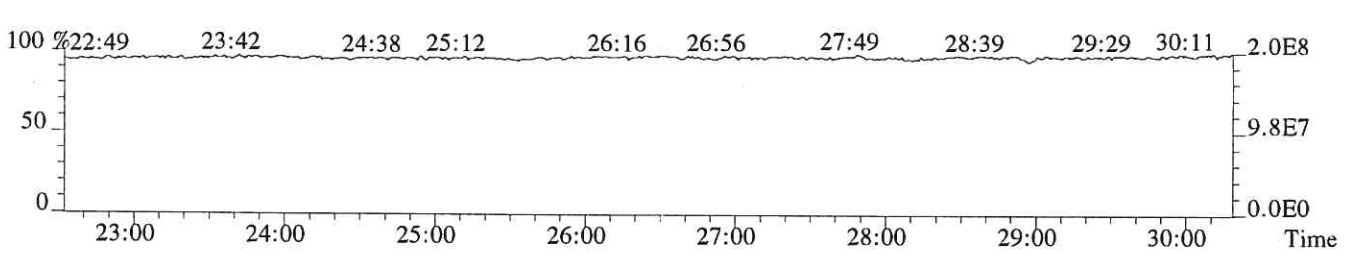
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7256.0,1.00%,F,T)



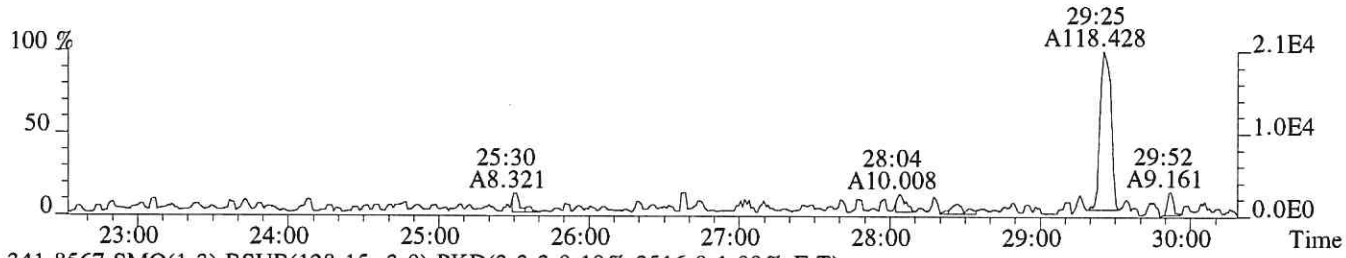
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



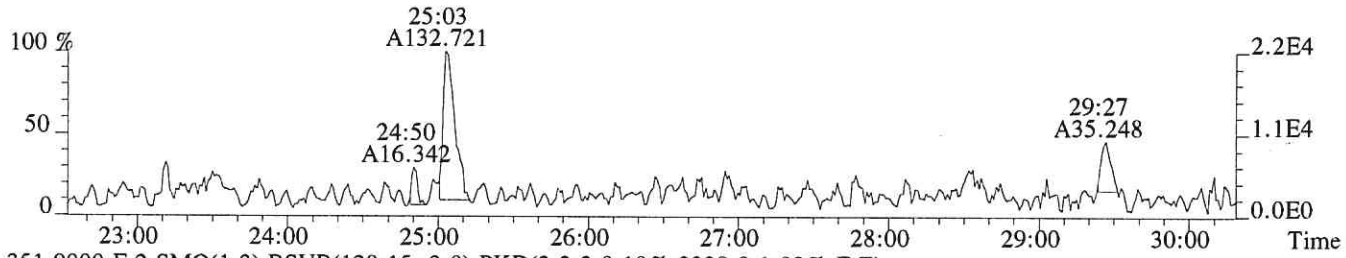
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



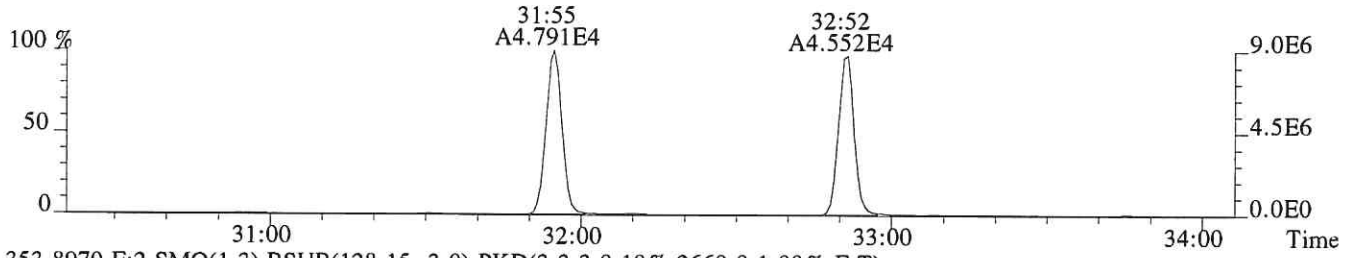
File:P615977 #1-552 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



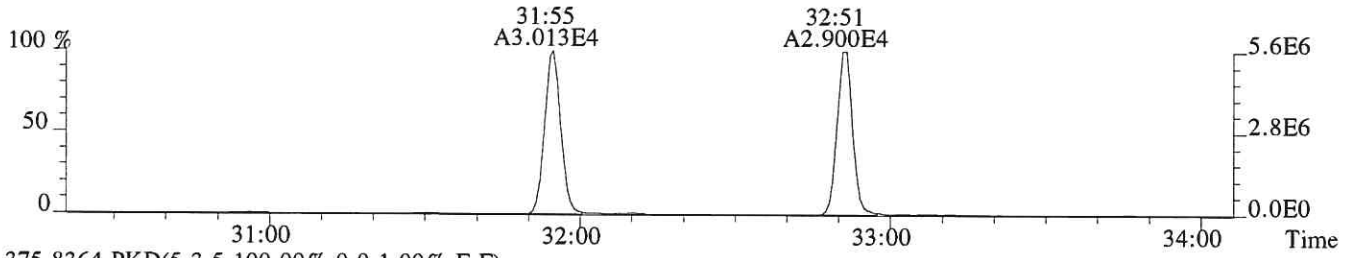
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3516.0,1.00%,F,T)



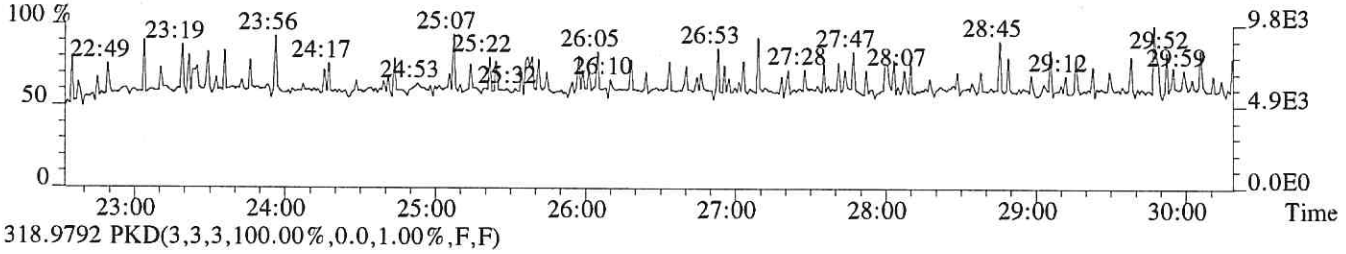
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3228.0,1.00%,F,T)



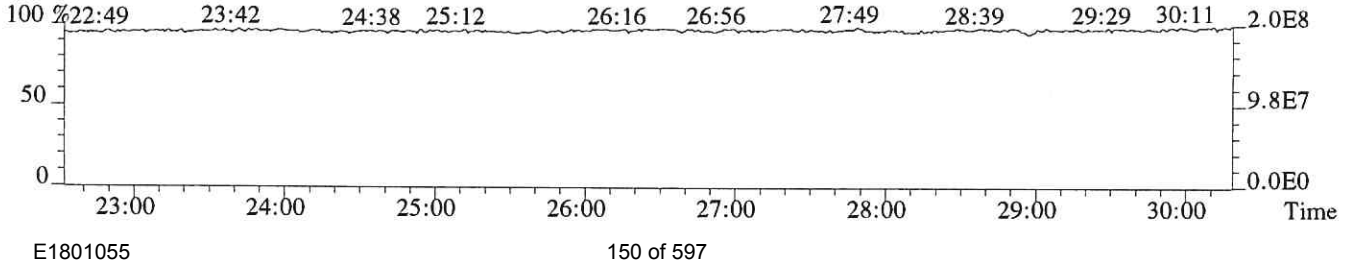
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2660.0,1.00%,F,T)



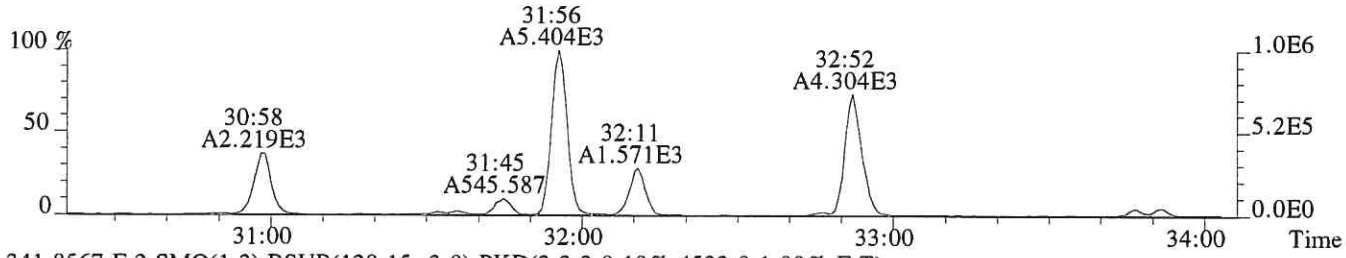
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



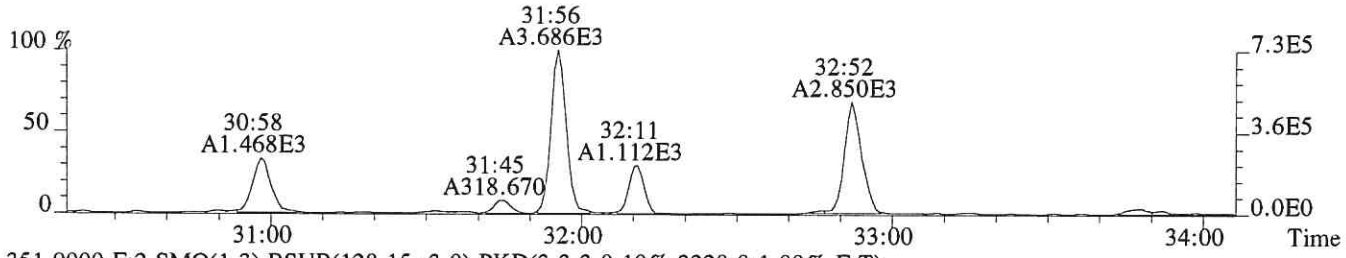
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



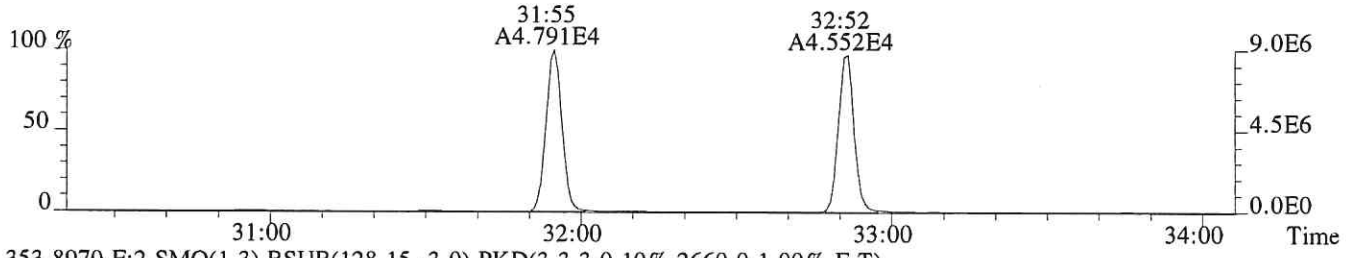
File:P615977 #1-339 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



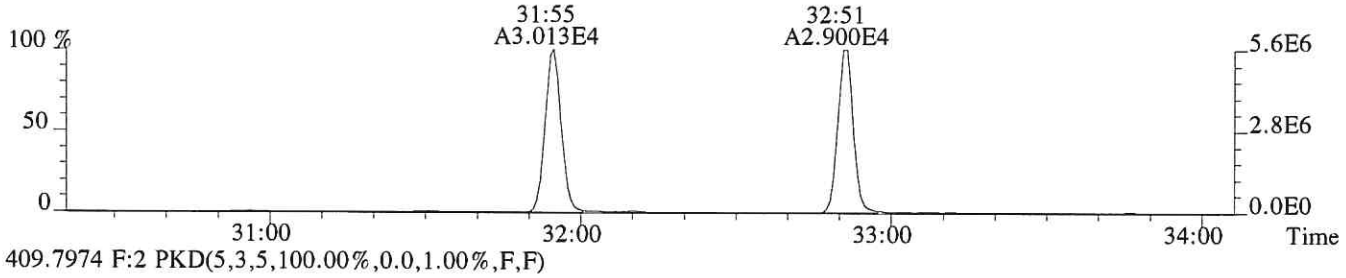
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4532.0,1.00%,F,T)



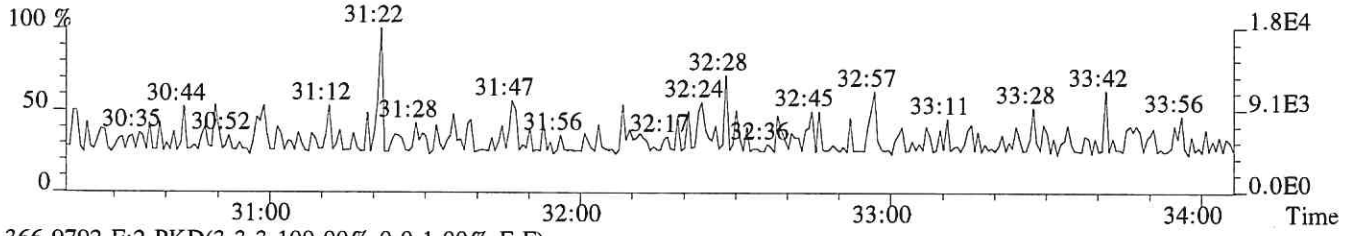
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3228.0,1.00%,F,T)



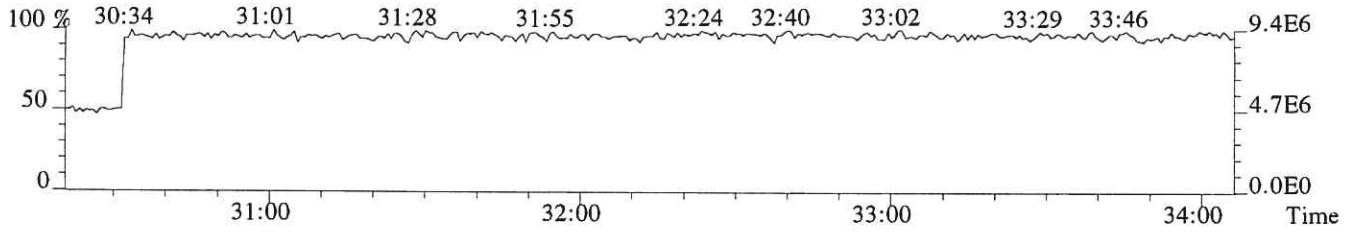
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2660.0,1.00%,F,T)



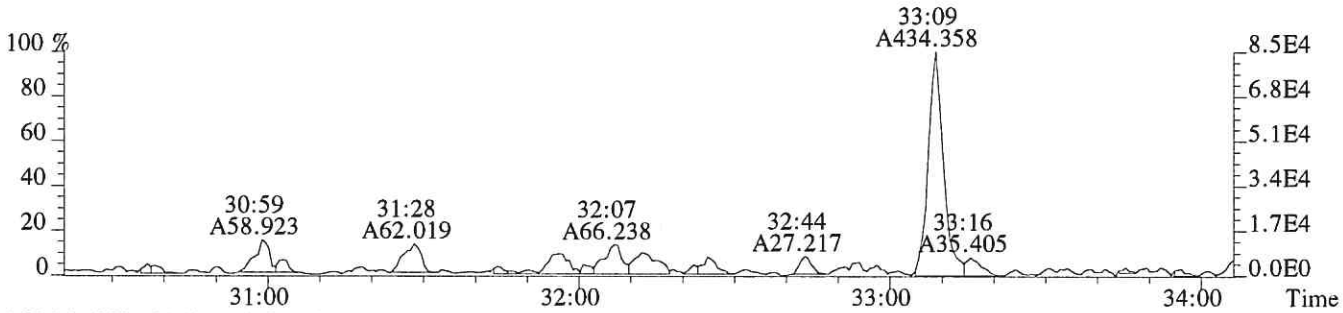
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



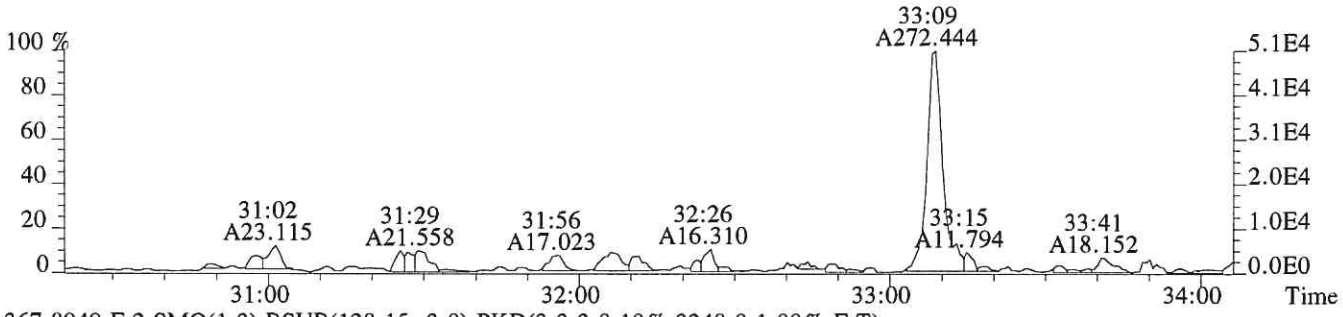
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



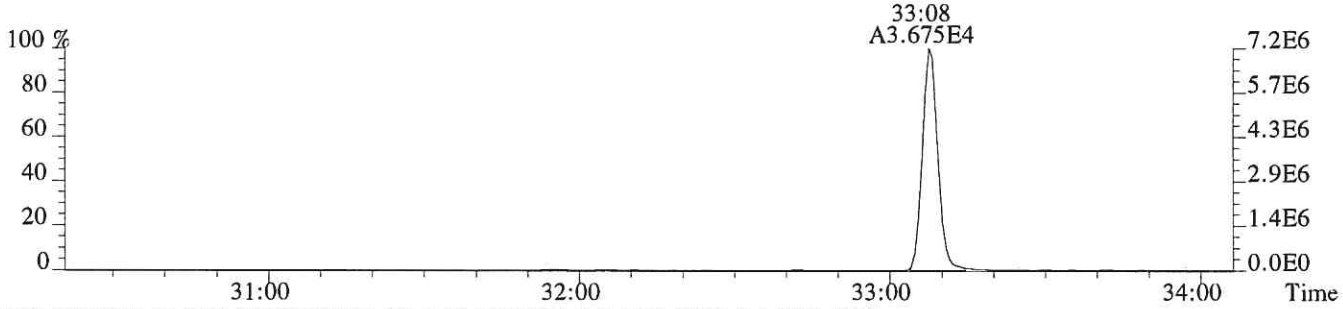
File:P615977 #1-339 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



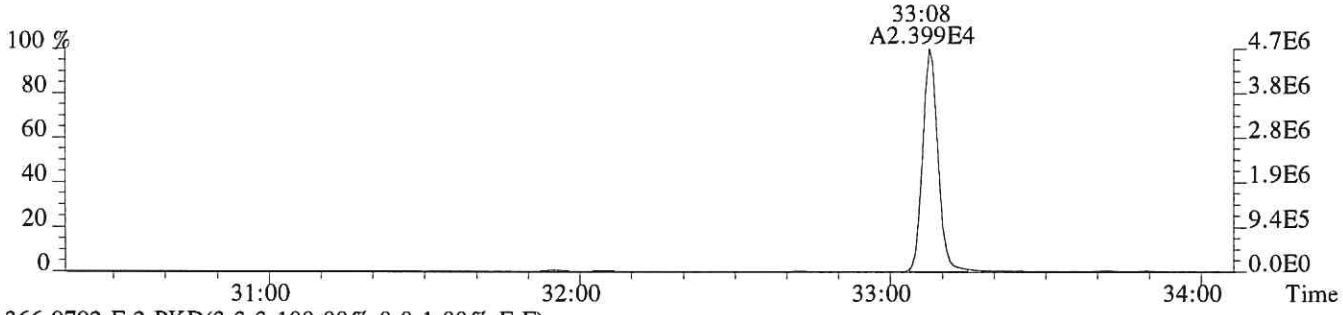
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



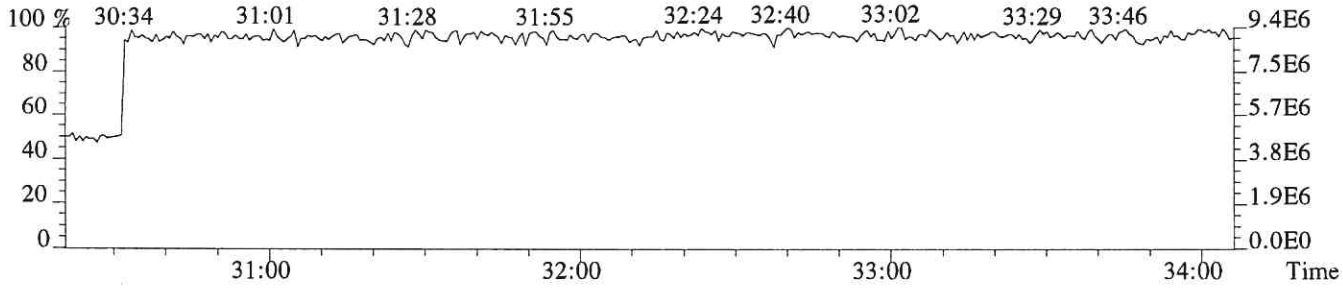
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3248.0,1.00%,F,T)



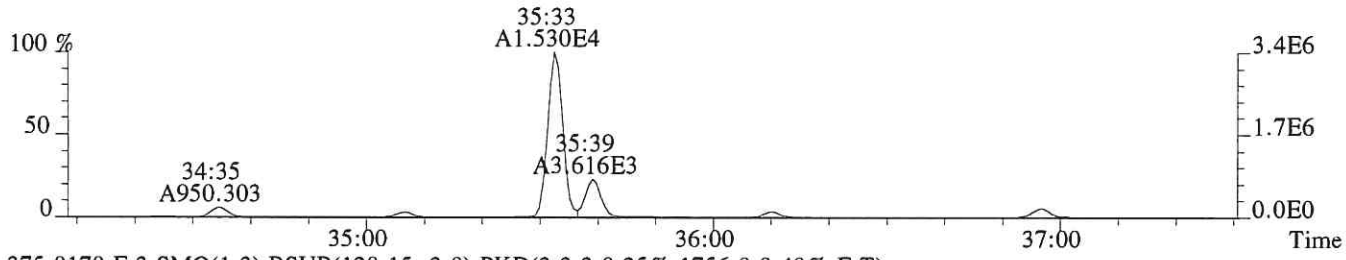
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2556.0,1.00%,F,T)



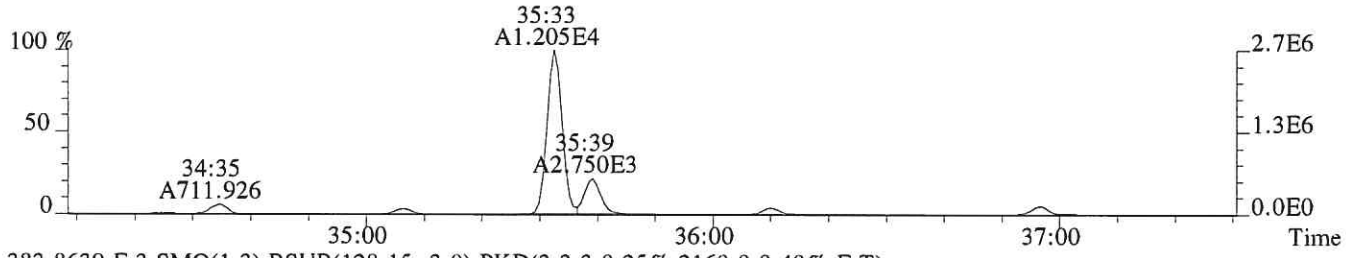
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



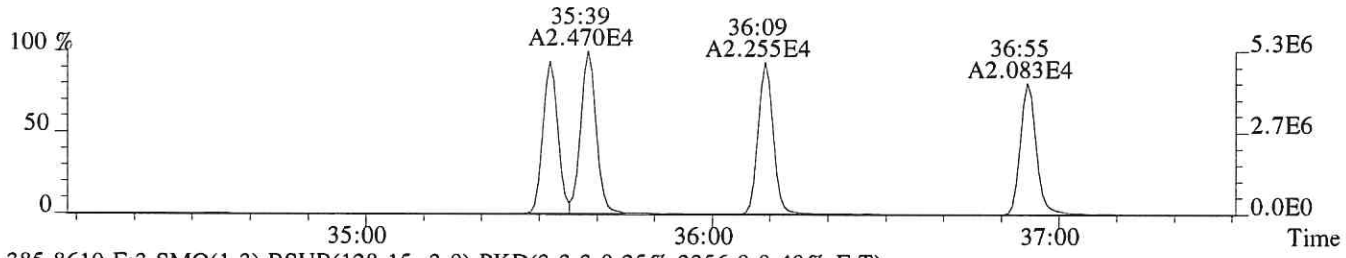
File:P615977 #1-304 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



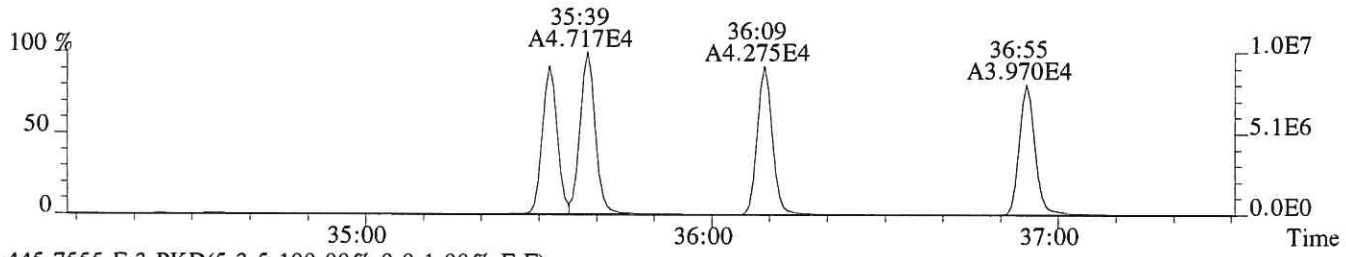
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.40%,F,T)



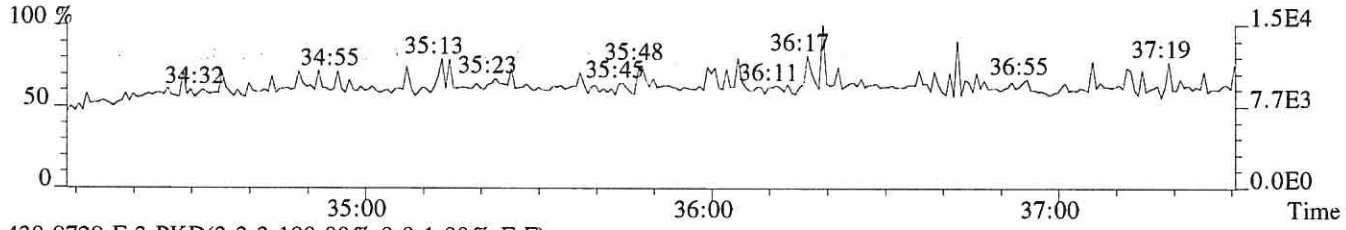
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2160.0,0.40%,F,T)



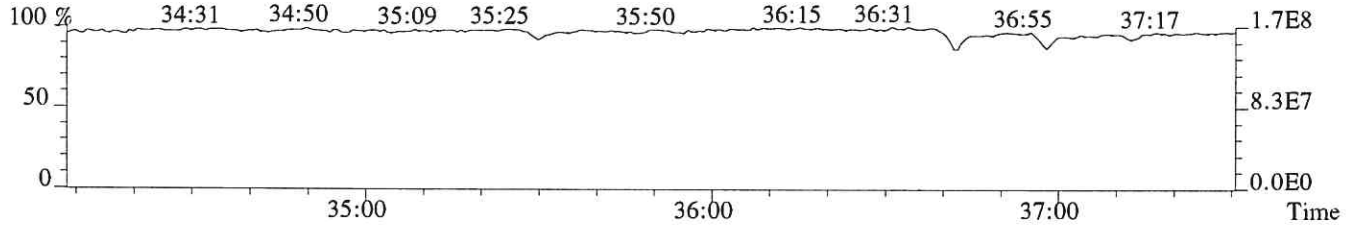
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2356.0,0.40%,F,T)



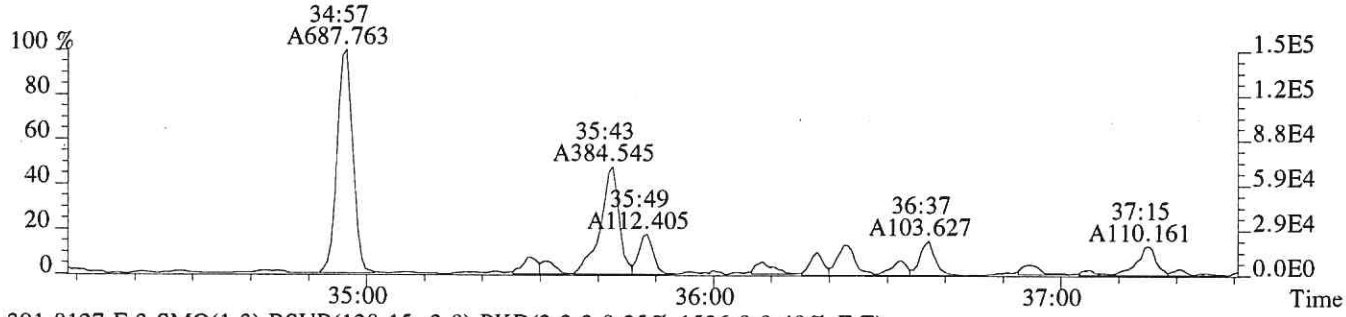
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



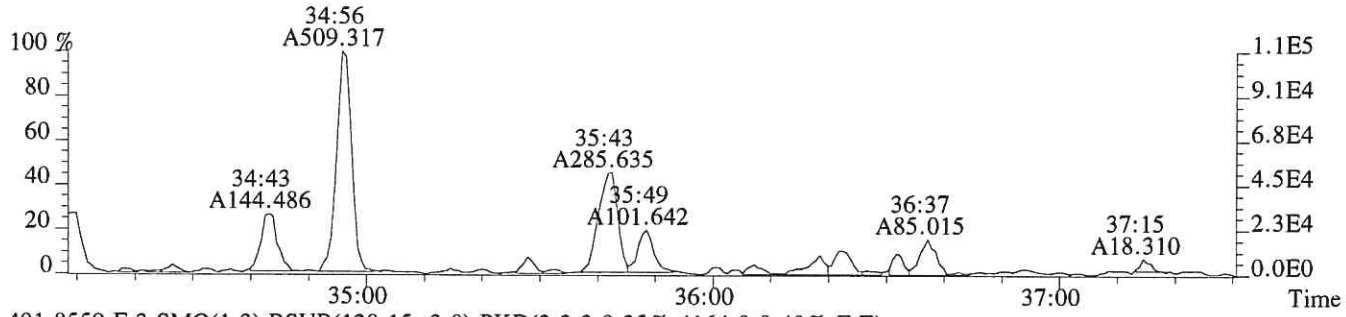
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



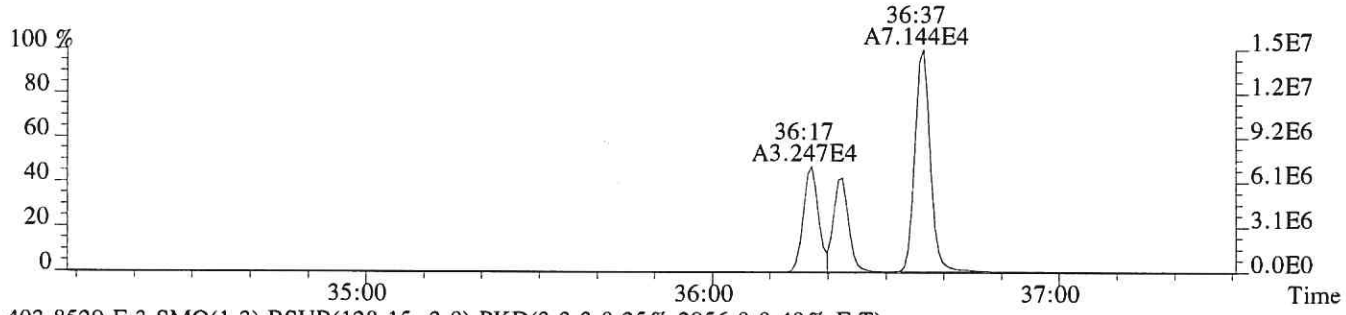
File:P615977 #1-304 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.40%,F,T)



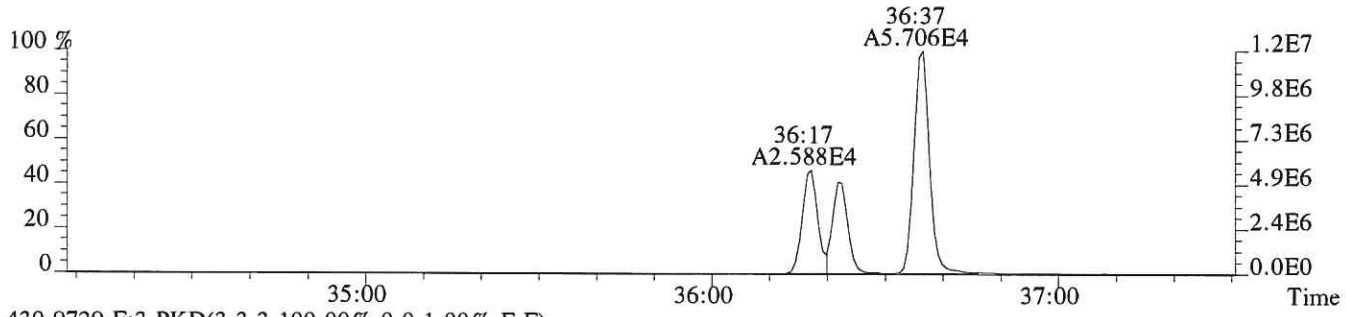
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



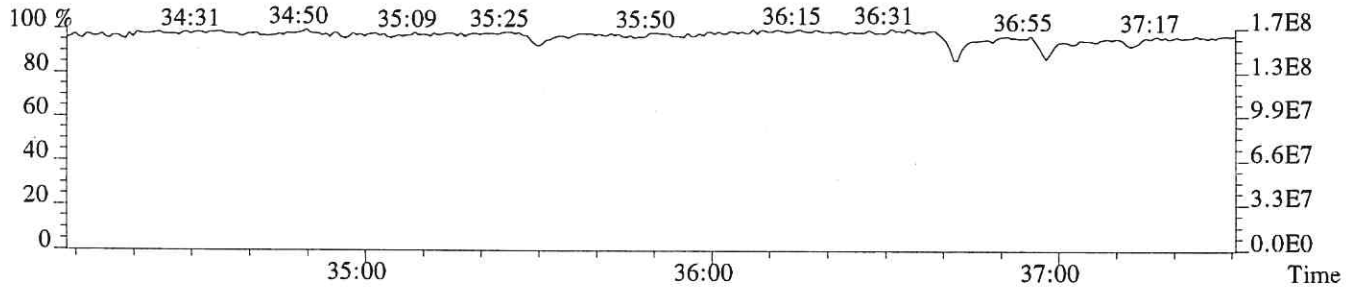
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4164.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2956.0,0.40%,F,T)

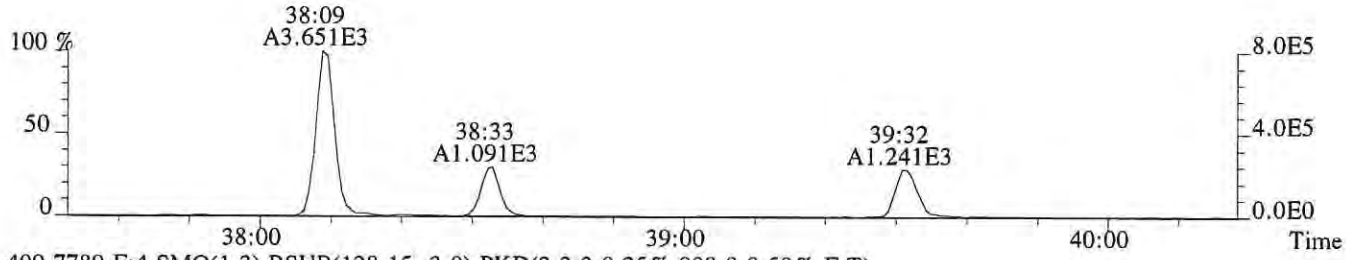


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

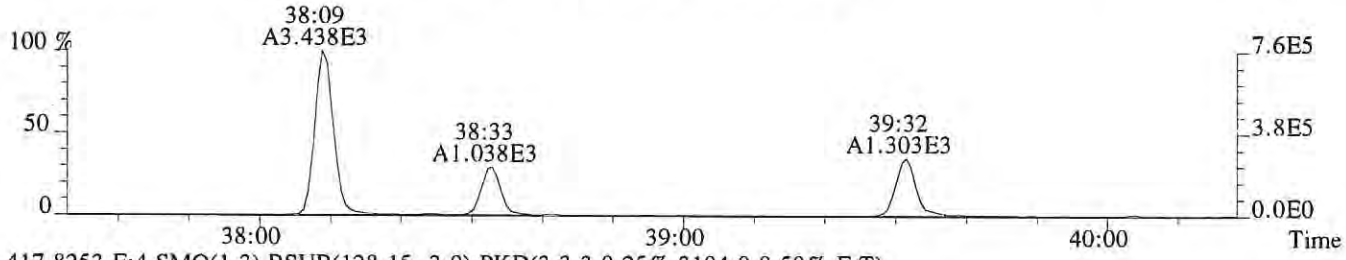


File:P615977 #1-249 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004

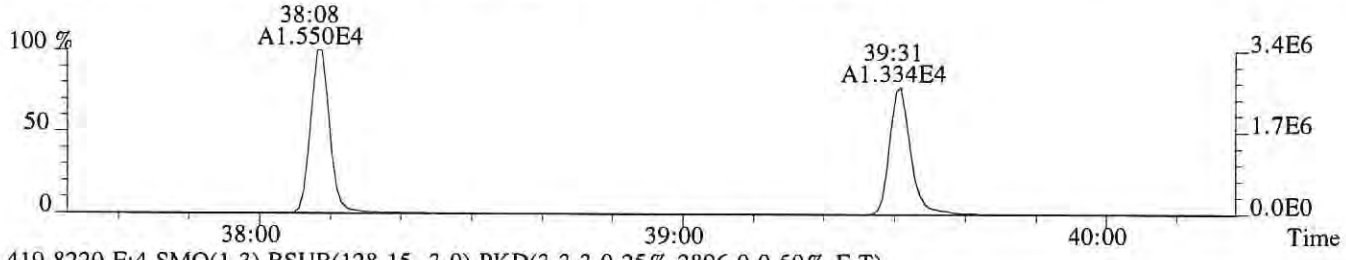
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.50%,F,T)



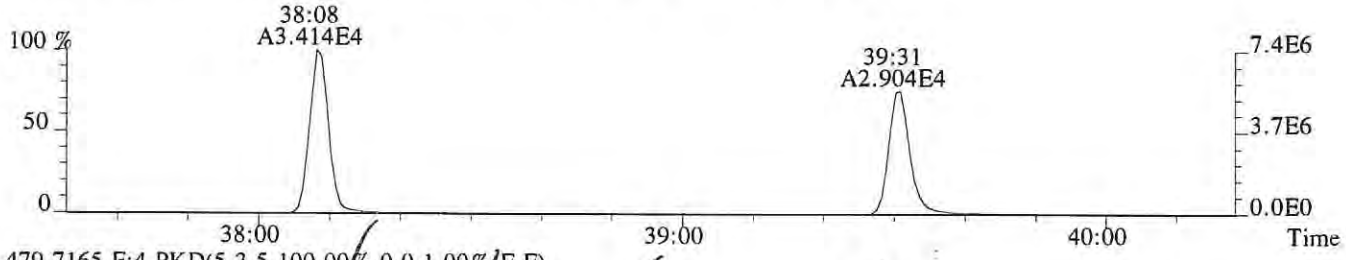
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.50%,F,T)



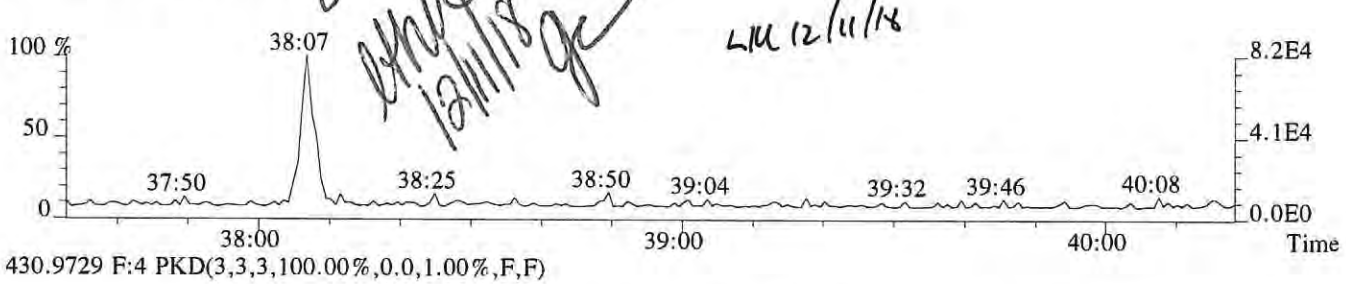
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3104.0,0.50%,F,T)



419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2896.0,0.50%,F,T)

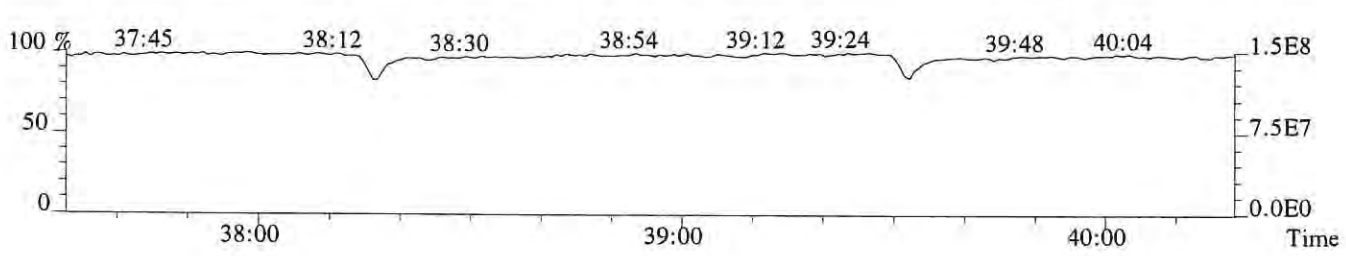


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

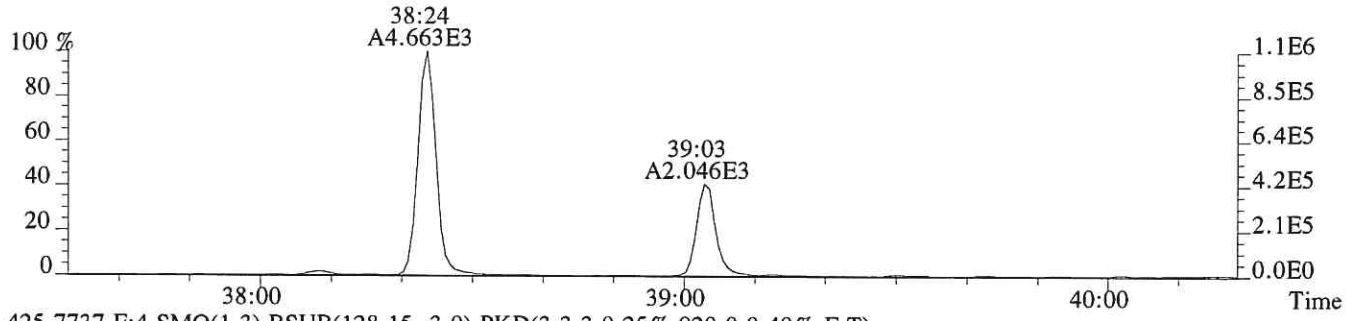


LM 12/11/18

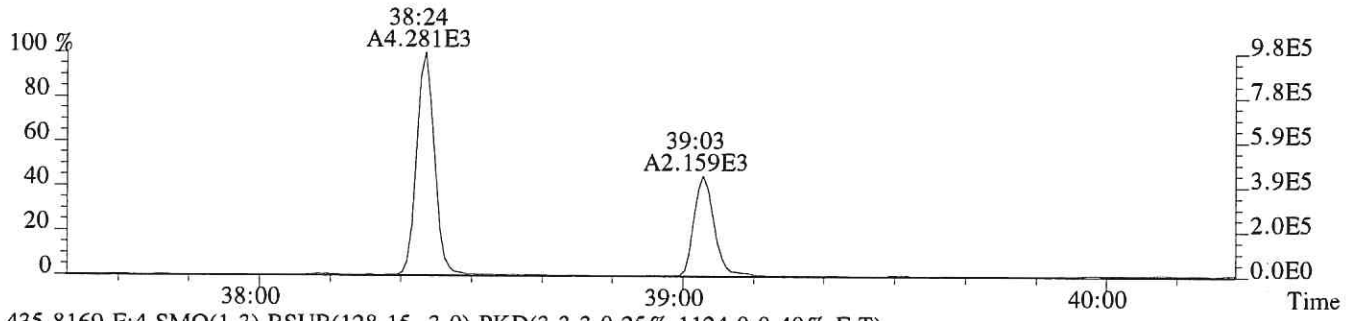
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



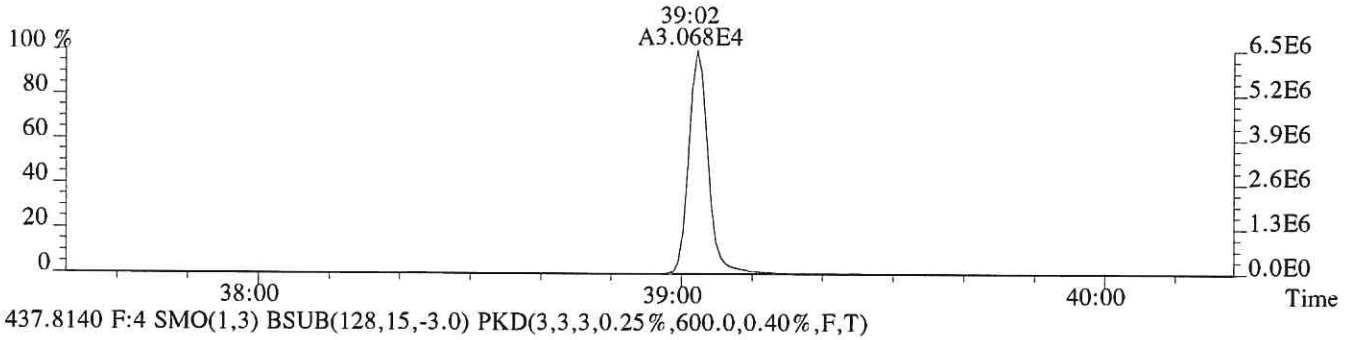
File:P615977 #1-249 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



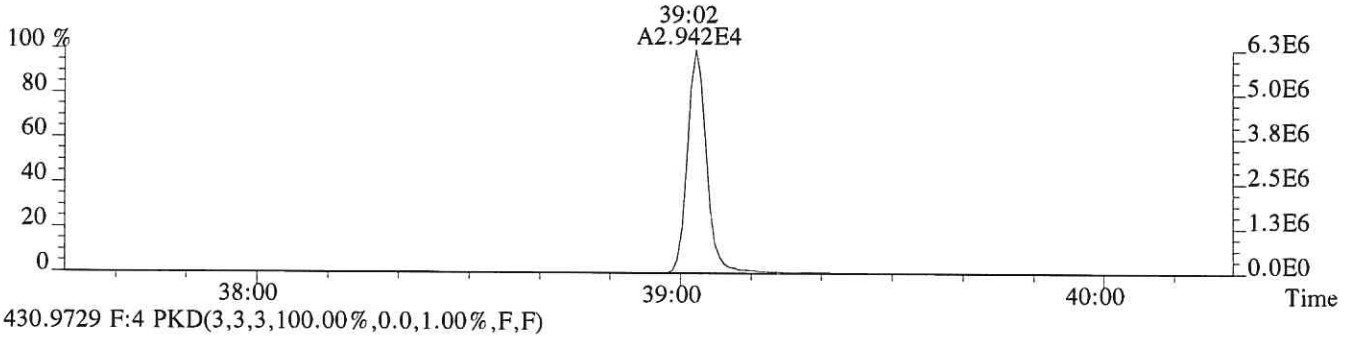
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



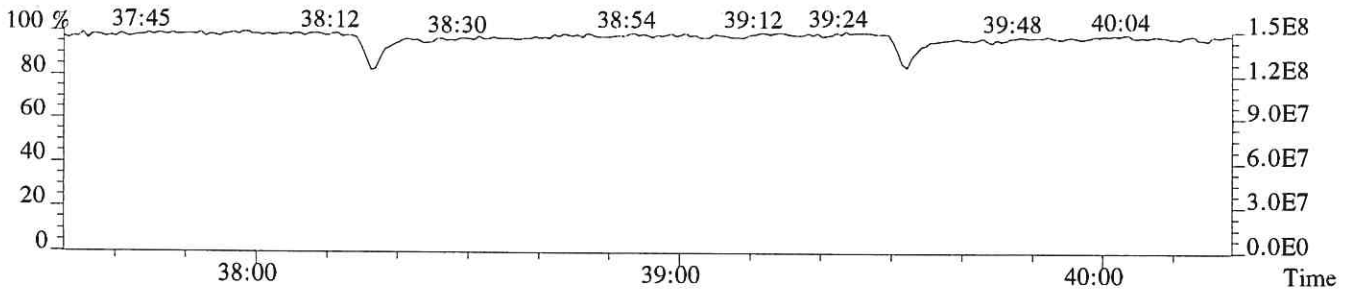
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



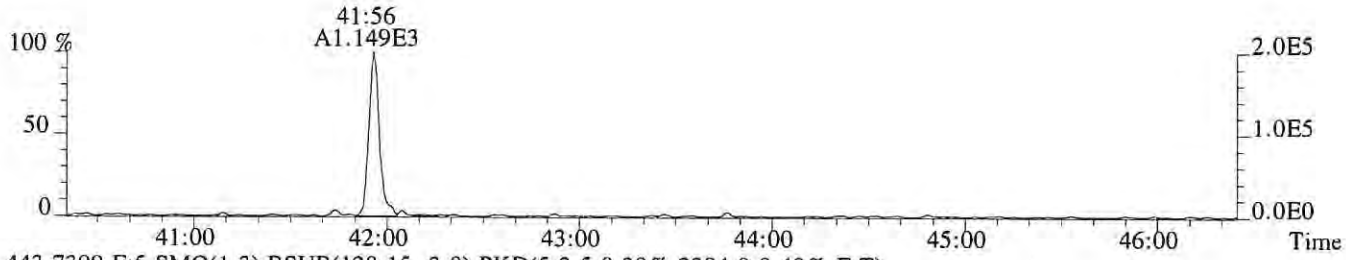
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



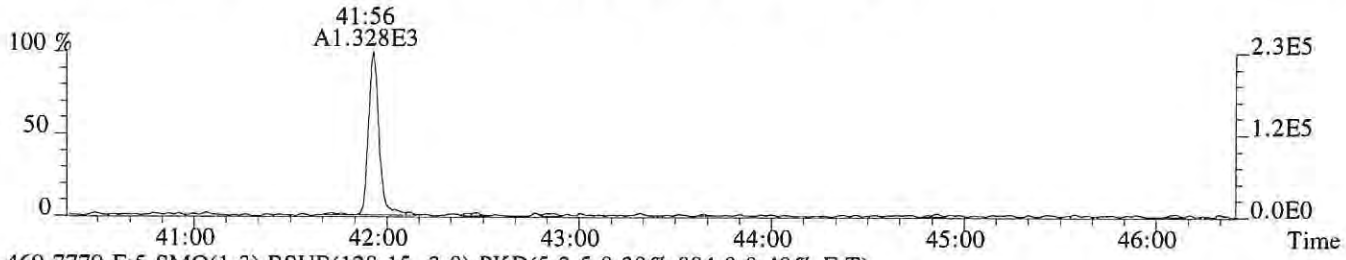
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



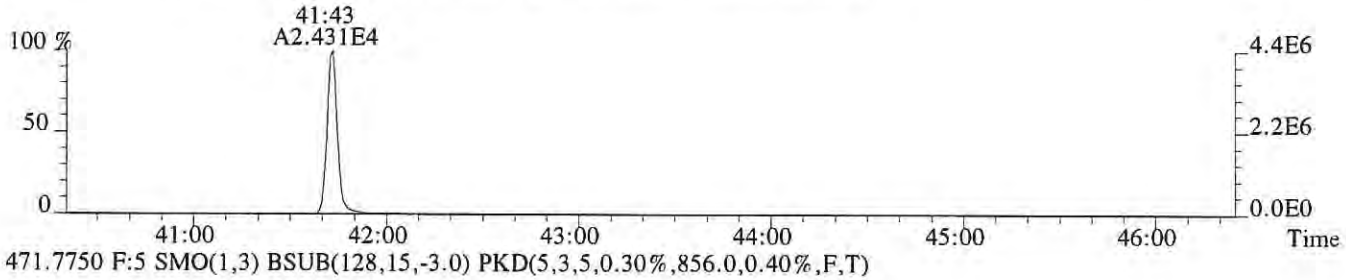
File:P615977 #1-547 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1316.0,0.40%,F,T)



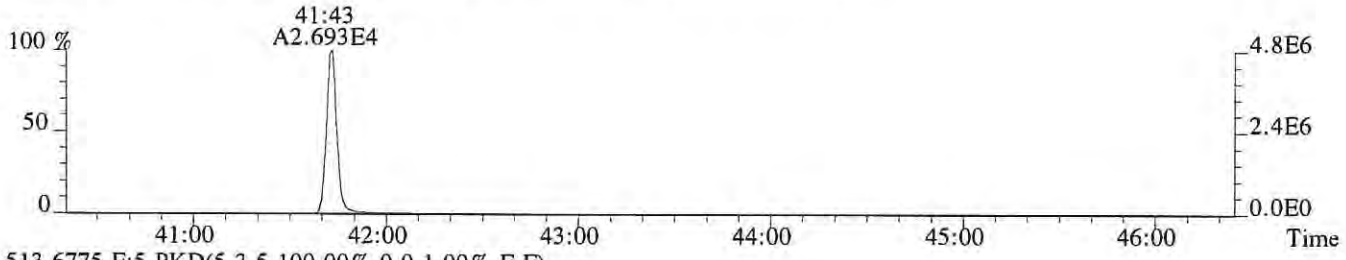
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2384.0,0.40%,F,T)



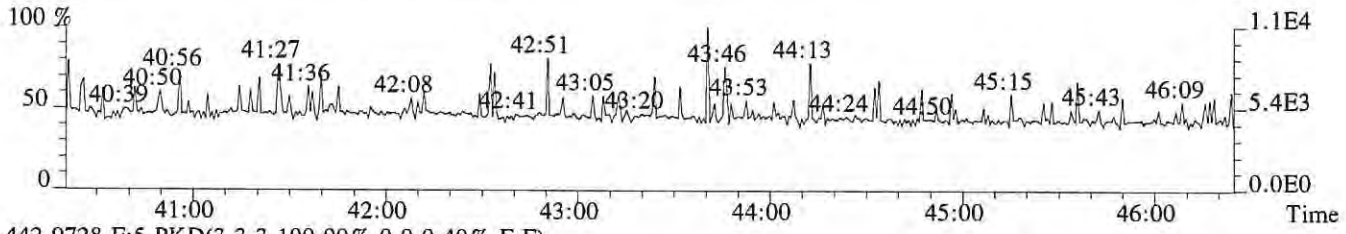
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,884.0,0.40%,F,T)



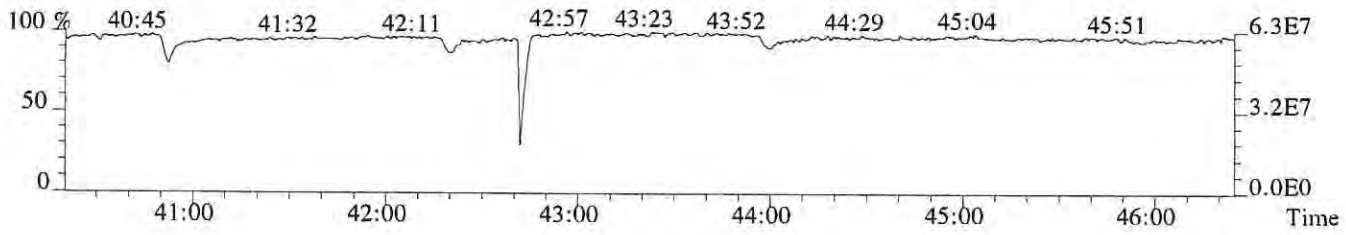
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



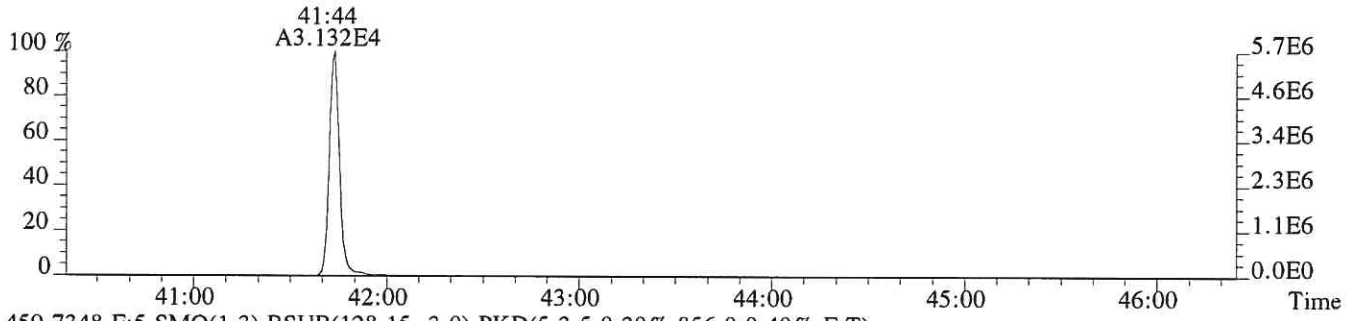
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



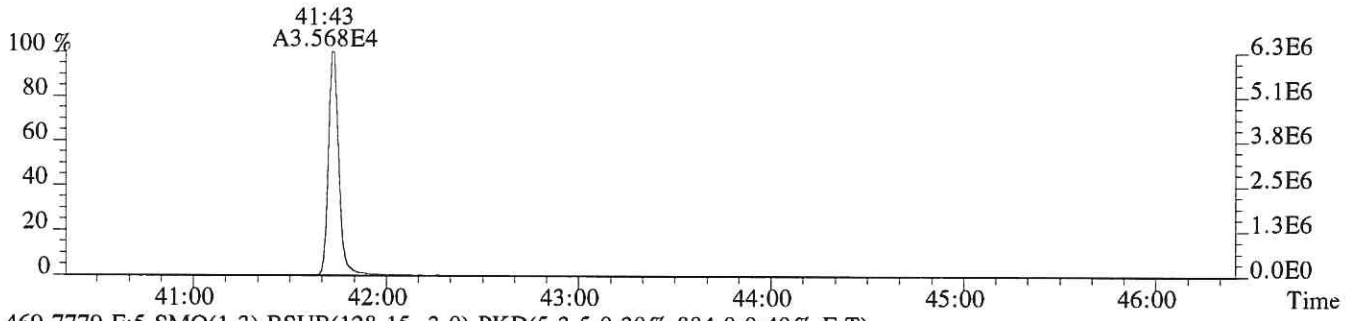
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



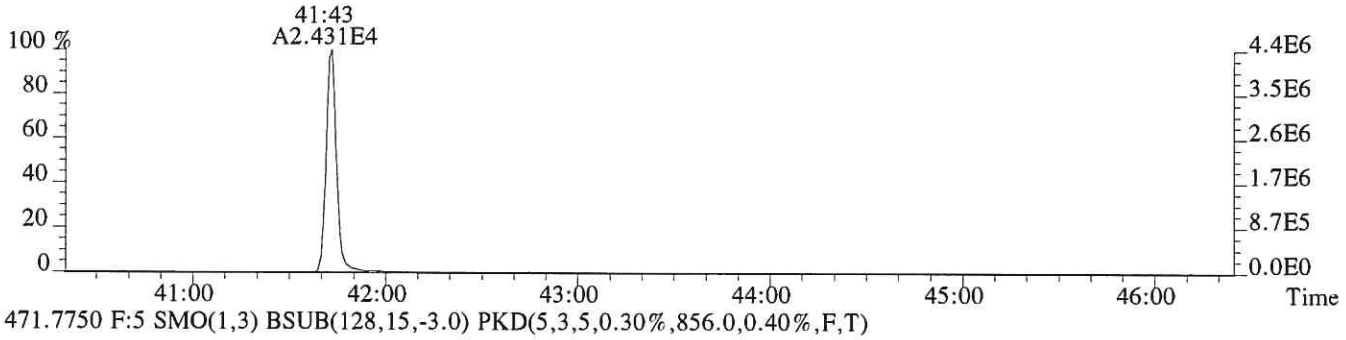
File:P615977 #1-547 Acq: 7-DEC-2018 18:02:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



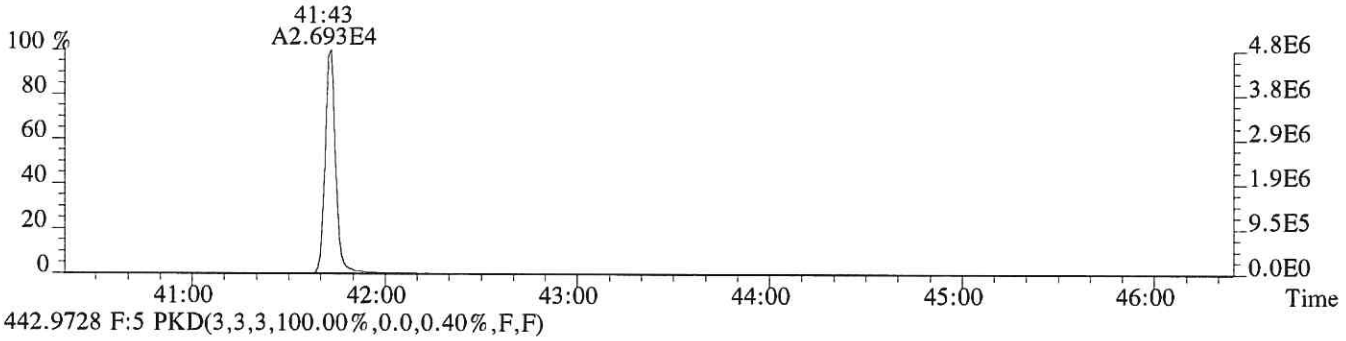
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



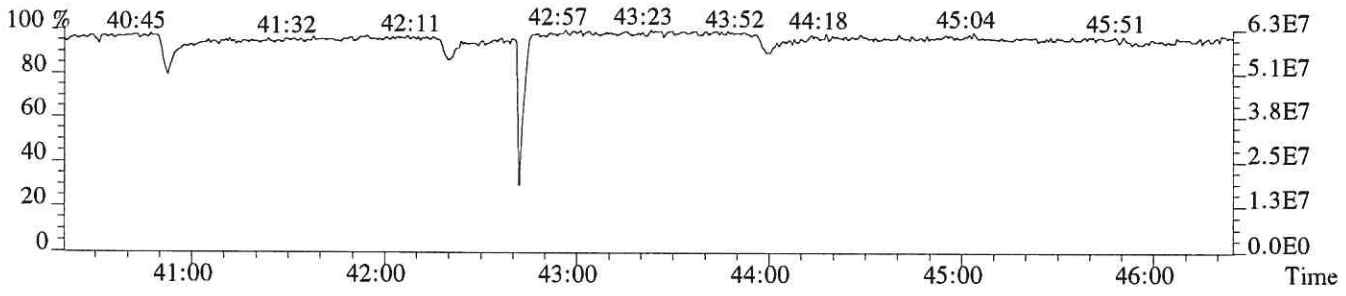
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,884.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0549

un #17 Filename P519360 Samp: 1 Inj: 1 Acquired: 11-DEC-18 18:41:50
rocessed: 12-DEC-18 09:58:30 Sample ID: E1801055-004DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	4.225e+03	5.775e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	2.565e+02	1.559e+02	1.64	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.888e+02	1.168e+02	1.62	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	5.801e+02	5.027e+02	1.15	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.123e+02	1.614e+02	1.32	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	1.898e+01	1.698e+01	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	4.976e+01	3.532e+01	1.41	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.726e+02	1.704e+02	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	8.096e+01	7.851e+01	1.03	yes	no	1.258
0	Unk	OCDF	42:40	7.820e+01	1.011e+02	0.77	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:34	9.438e+02	1.208e+03	0.78	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:20	2.529e+01	1.096e+01	2.31	no	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:41	6.629e+00	1.248e+00	5.31	no	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:55	3.556e+00	1.180e+01	0.30	no	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:30	1.070e+02	9.261e+01	1.15	yes	no	1.025
7	Unk	OCDD	42:28	2.046e+03	2.339e+03	0.87	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:43	1.373e+04	1.765e+04	0.78	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:06	2.273e+04	1.439e+04	1.58	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:01	2.145e+04	1.330e+04	1.61	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.686e+03	1.850e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.148e+04	2.225e+04	0.52	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.076e+04	2.075e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:12	9.537e+03	1.846e+04	0.52	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	8.570e+03	1.948e+04	0.44	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	7.457e+03	1.703e+04	0.44	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:33	6.881e+03	8.366e+03	0.82	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:19	1.594e+04	1.004e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.357e+04	1.051e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.398e+04	1.087e+04	1.29	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	1.559e+04	1.487e+04	1.05	yes	no	0.858
2	IS	13C-OCDD	42:28	1.740e+04	1.935e+04	0.90	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	27:58	1.152e+04	1.441e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	1.745e+04	1.326e+04	1.32	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:34	9.180e+02				no	1.014

$$\text{OCDD} = \frac{(2.046e+03 + 2.339e+03) \times 4000 \text{ pg} \times 10}{(1.740e+04 + 1.935e+04) \times 10.473 \text{ g} \times 79.2/100 \times 1.118 \times 0.30} = 1715.5 \text{ ng/kg}$$

LW 12/12/18

LS ENVIRONMENTAL -- HOUSTON HRMS
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louston, TX 77099
)ffice(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0549

un #17 Filename P519360 Samp: 1 Inj: 1 Acquired: 11-DEC-18 18:41:50
rocessed: 12-DEC-18 09:58:30 LAB. ID: E1801055-004DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.75e+05	2.84e+02	2.4e+03	9.34e+05	1.56e+03	6.0e+02
	1,2,3,7,8-PeCDF	5.07e+04	4.72e+02	1.1e+02	2.82e+04	2.02e+03	1.4e+01
	2,3,4,7,8-PeCDF	3.07e+04	4.72e+02	6.5e+01	1.71e+04	2.02e+03	8.5e+00
	1,2,3,4,7,8-HxCDF	1.18e+05	5.96e+02	2.0e+02	1.05e+05	4.64e+02	2.3e+02
	1,2,3,6,7,8-HxCDF	3.88e+04	5.96e+02	6.5e+01	2.73e+04	4.64e+02	5.9e+01
	2,3,4,6,7,8-HxCDF	3.49e+03	5.96e+02	5.9e+00	3.81e+03	4.64e+02	8.2e+00
	1,2,3,7,8,9-HxCDF	1.00e+04	5.96e+02	1.7e+01	8.01e+03	4.64e+02	1.7e+01
	1,2,3,4,6,7,8-HpCDF	3.14e+04	3.48e+02	9.0e+01	3.37e+04	2.52e+02	1.3e+02
	1,2,3,4,7,8,9-HpCDF	1.52e+04	3.48e+02	4.4e+01	1.15e+04	2.52e+02	4.6e+01
0	OCDF	1.09e+04	3.60e+02	3.0e+01	1.12e+04	1.08e+03	1.0e+01
1	2,3,7,8-TCDD	1.82e+05	2.23e+03	8.2e+01	2.29e+05	8.48e+02	2.7e+02
2	1,2,3,7,8-PeCDD	5.44e+03	7.72e+02	7.0e+00	2.06e+03	2.08e+02	9.9e+00
3	1,2,3,4,7,8-HxCDD	*	5.56e+02	*	*	2.88e+02	*
4	1,2,3,6,7,8-HxCDD	1.76e+03	5.56e+02	3.2e+00	5.15e+02	2.88e+02	1.8e+00
5	1,2,3,7,8,9-HxCDD	1.15e+03	5.56e+02	2.1e+00	1.51e+03	2.88e+02	5.3e+00
6	1,2,3,4,6,7,8-HpCDD	1.74e+04	3.40e+02	5.1e+01	1.80e+04	3.88e+02	4.6e+01
7	OCDD	2.42e+05	2.96e+02	8.2e+02	2.79e+05	6.40e+02	4.4e+02
8	13C-2,3,7,8-TCDF	2.42e+06	7.90e+03	3.1e+02	3.12e+06	4.83e+03	6.5e+02
9	13C-1,2,3,7,8-PeCDF	4.07e+06	9.88e+02	4.1e+03	2.53e+06	3.92e+02	6.4e+03
0	13C-2,3,4,7,8-PeCDF	4.04e+06	9.88e+02	4.1e+03	2.57e+06	3.92e+02	6.6e+03
1	13C-1,2,3,4,7,8-HxCDF	2.05e+06	9.12e+02	2.2e+03	3.87e+06	1.08e+03	3.6e+03
2	13C-1,2,3,6,7,8-HxCDF	2.24e+06	9.12e+02	2.5e+03	4.25e+06	1.08e+03	3.9e+03
3	13C-2,3,4,6,7,8-HxCDF	2.21e+06	9.12e+02	2.4e+03	4.14e+06	1.08e+03	3.8e+03
4	13C-1,2,3,7,8,9-HxCDF	1.75e+06	9.12e+02	1.9e+03	3.34e+06	1.08e+03	3.1e+03
5	13C-1,2,3,4,6,7,8-HpCDF	1.63e+06	3.02e+03	5.4e+02	3.73e+06	2.57e+03	1.5e+03
6	13C-1,2,3,4,7,8,9-HpCDF	1.15e+06	3.02e+03	3.8e+02	2.64e+06	2.57e+03	1.0e+03
7	13C-2,3,7,8-TCDD	1.28e+06	7.29e+03	1.8e+02	1.52e+06	2.18e+03	7.0e+02
8	13C-1,2,3,7,8-PeCDD	3.05e+06	1.02e+03	3.0e+03	1.93e+06	1.12e+03	1.7e+03
9	13C-1,2,3,4,7,8-HxCDD	2.92e+06	1.43e+03	2.0e+03	2.26e+06	7.92e+02	2.9e+03
0	13C-1,2,3,6,7,8-HxCDD	2.70e+06	1.43e+03	1.9e+03	2.09e+06	7.92e+02	2.6e+03
1	13C-1,2,3,4,6,7,8-HpCDD	2.58e+06	7.36e+02	3.5e+03	2.42e+06	5.96e+02	4.1e+03
2	13C-OCDD	2.03e+06	6.12e+02	3.3e+03	2.23e+06	4.48e+02	5.0e+03
3	13C-1,2,3,4-TCDD	2.18e+06	7.29e+03	3.0e+02	2.69e+06	2.18e+03	1.2e+03
4	13C-1,2,3,7,8,9-HxCDD	3.29e+06	1.43e+03	2.3e+03	2.49e+06	7.92e+02	3.1e+03
5	37Cl-2,3,7,8-TCDD	1.68e+05	8.08e+02	2.1e+02			

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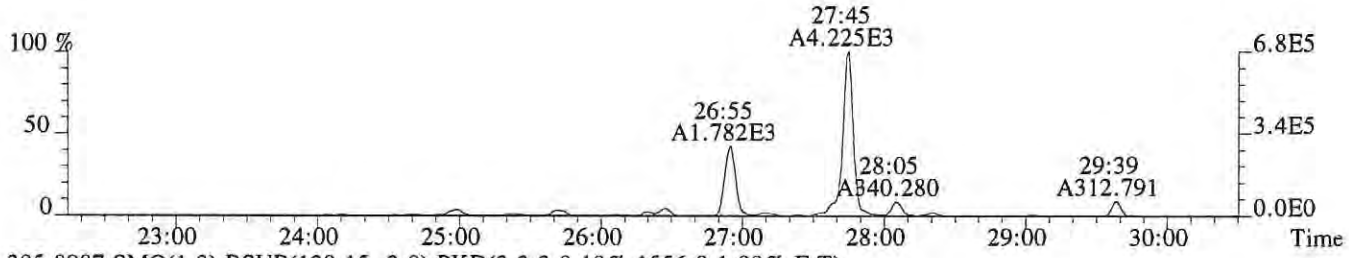
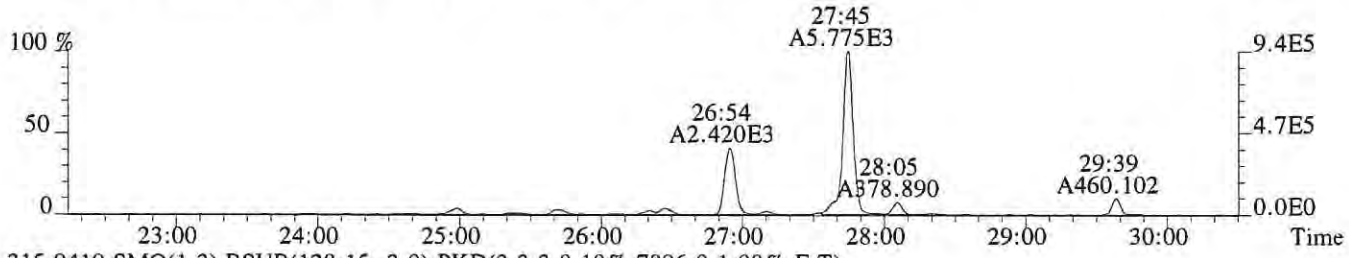
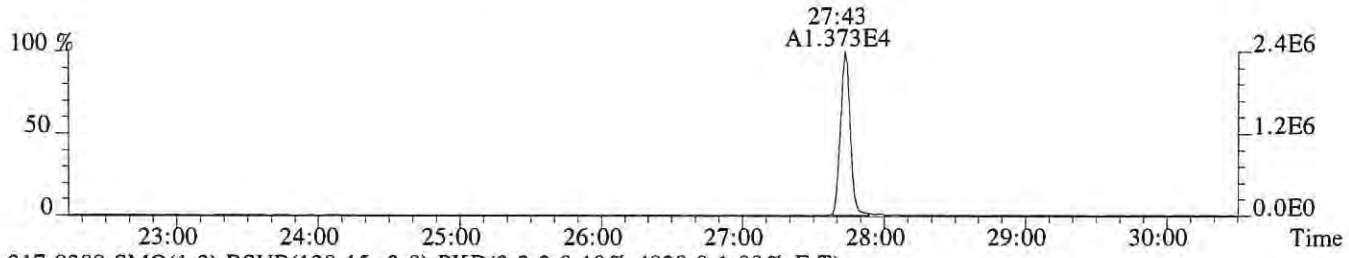
File:P519360 #1-587 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



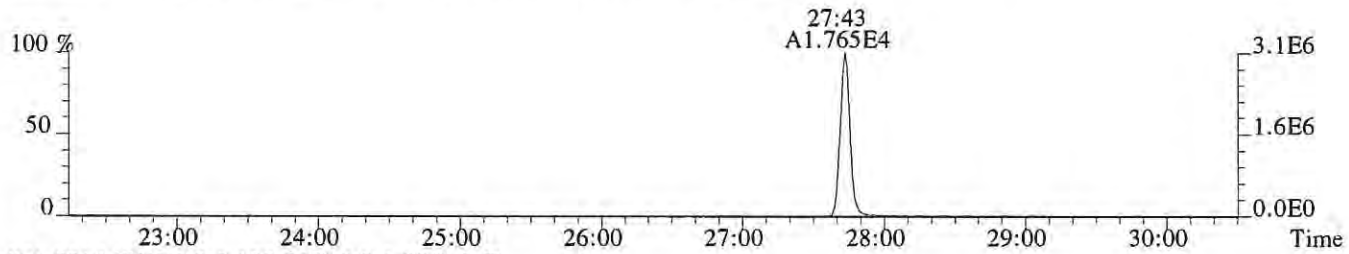
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



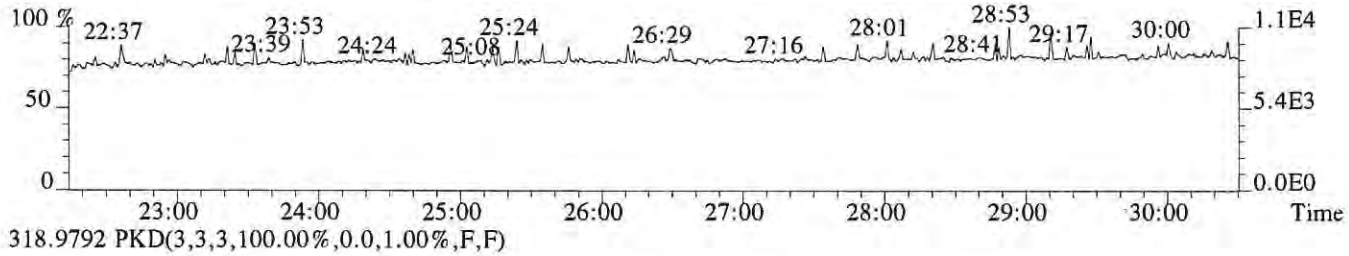
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7896.0,1.00%,F,T)



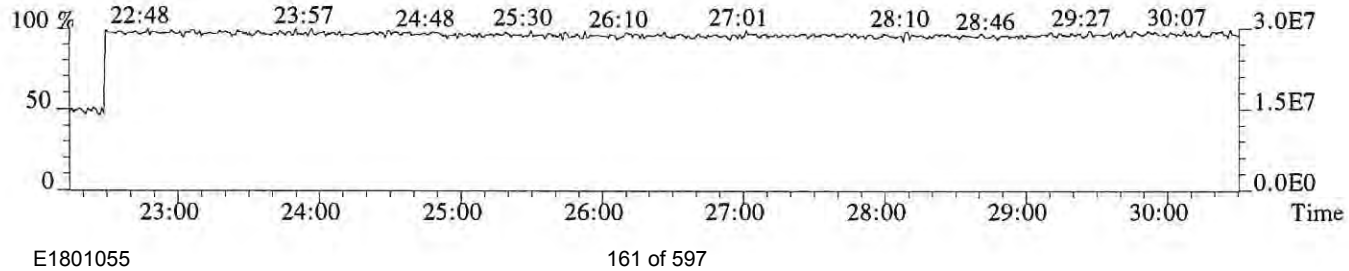
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4828.0,1.00%,F,T)



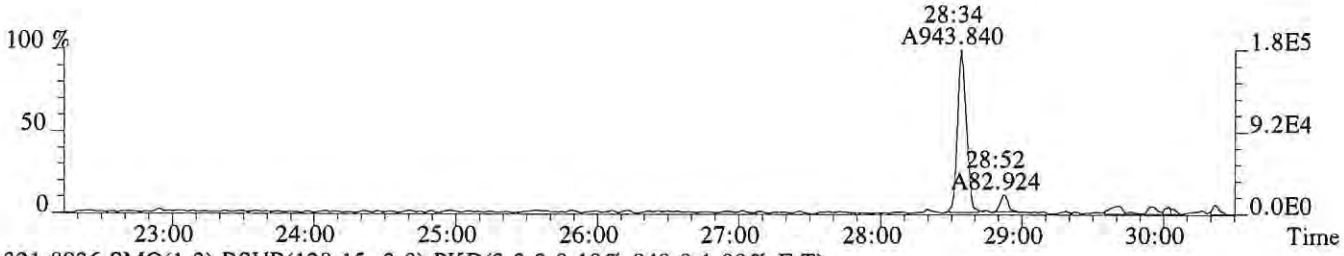
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



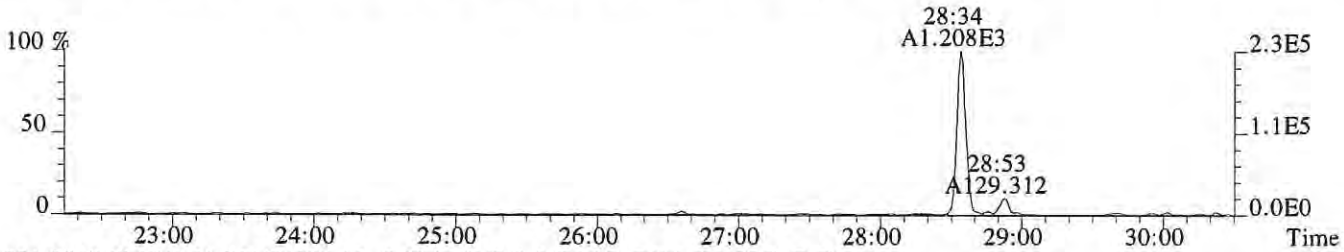
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



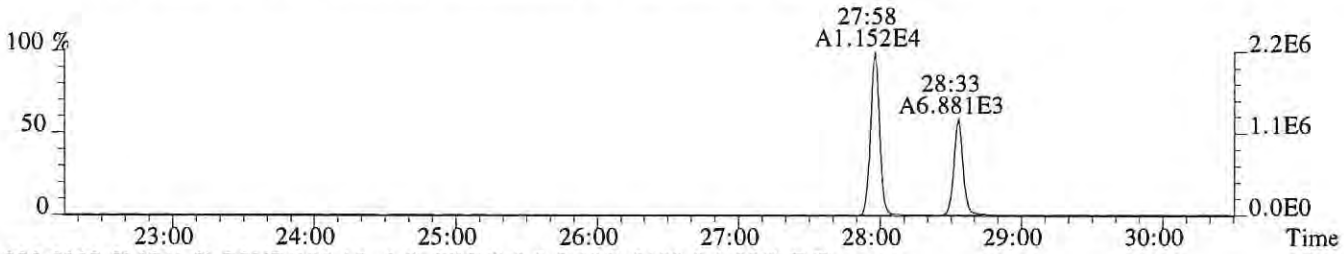
File:P519360 #1-587 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



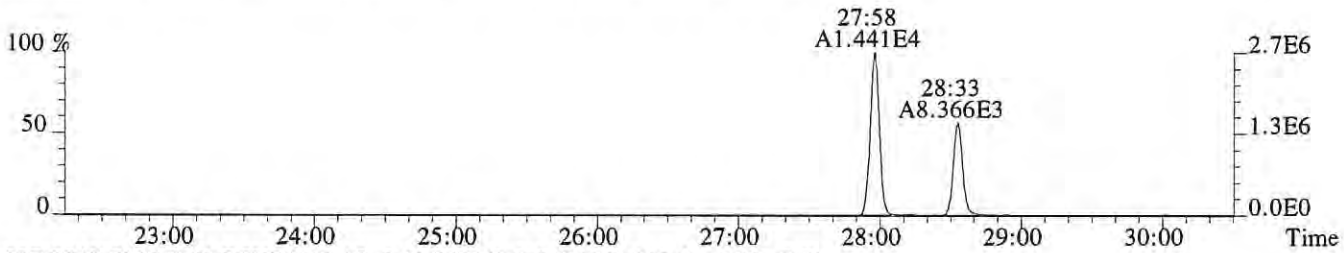
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



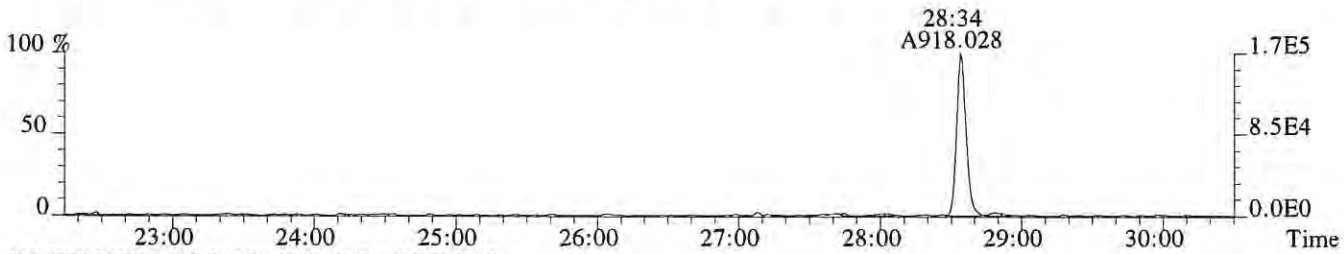
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7292.0,1.00%,F,T)



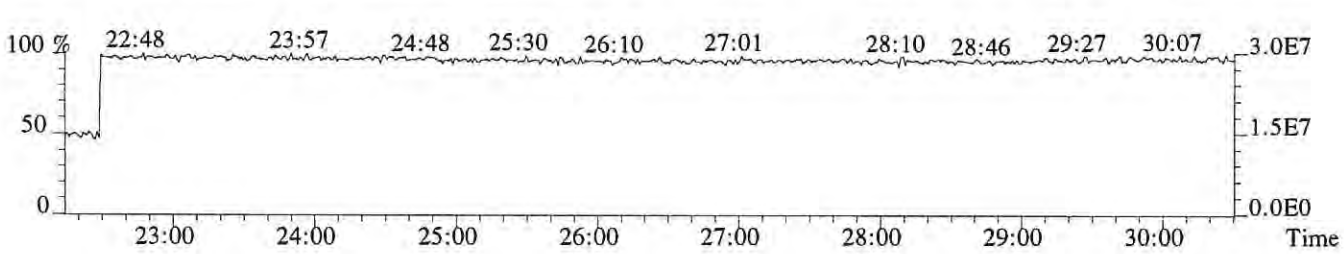
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



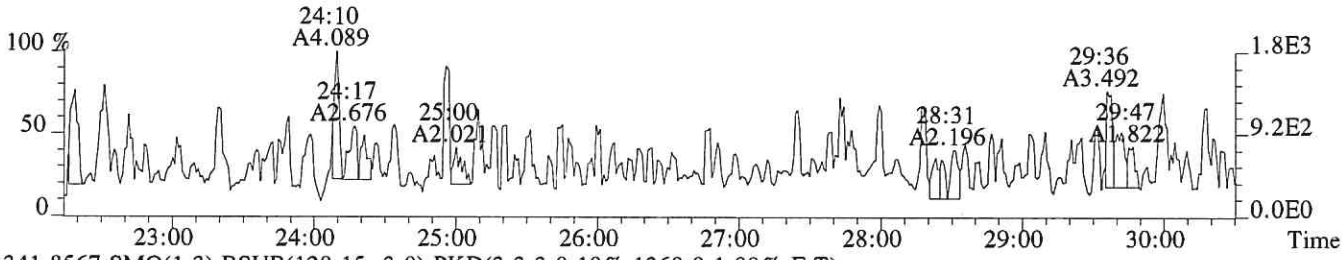
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



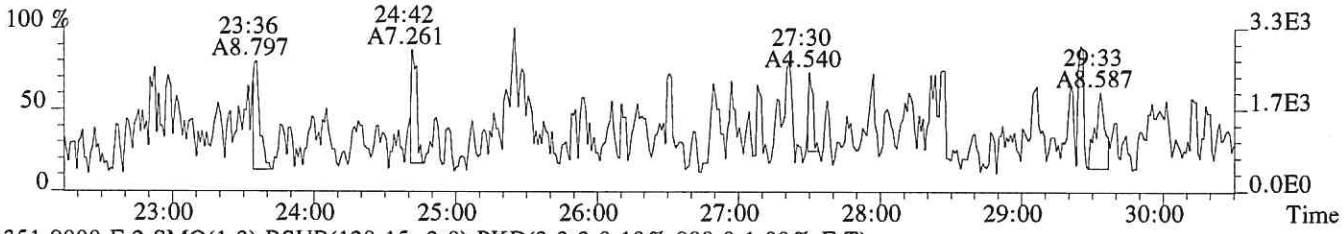
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



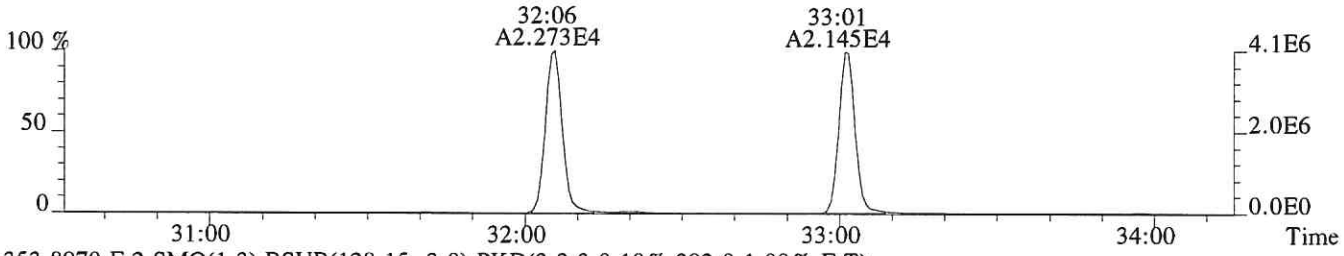
File:P519360 #1-587 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



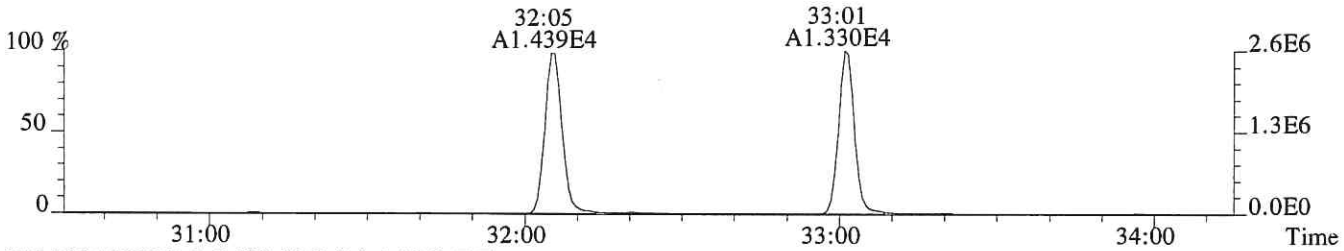
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



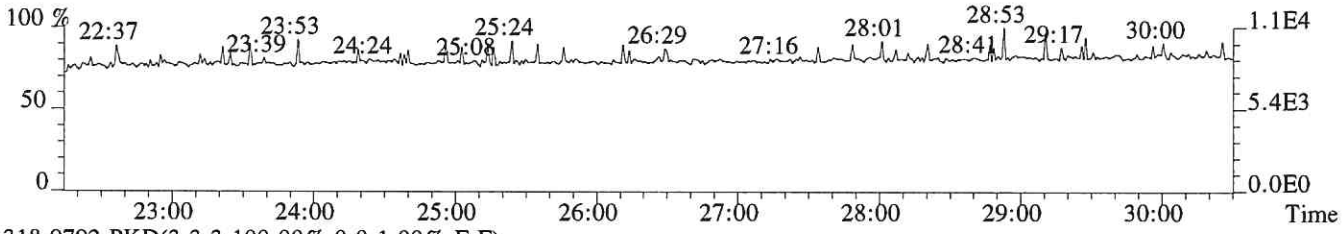
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



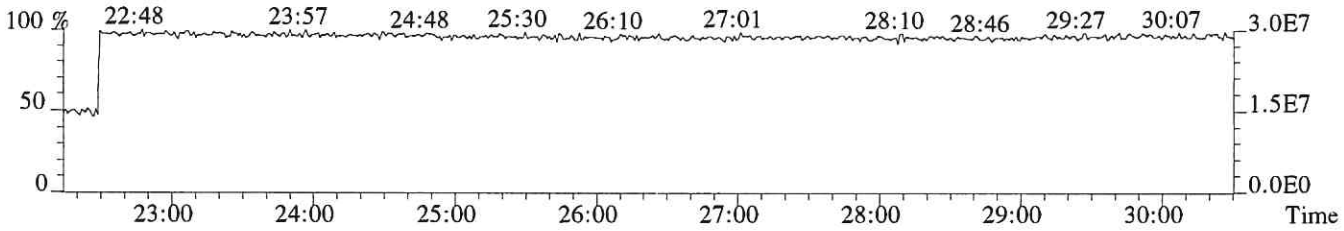
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



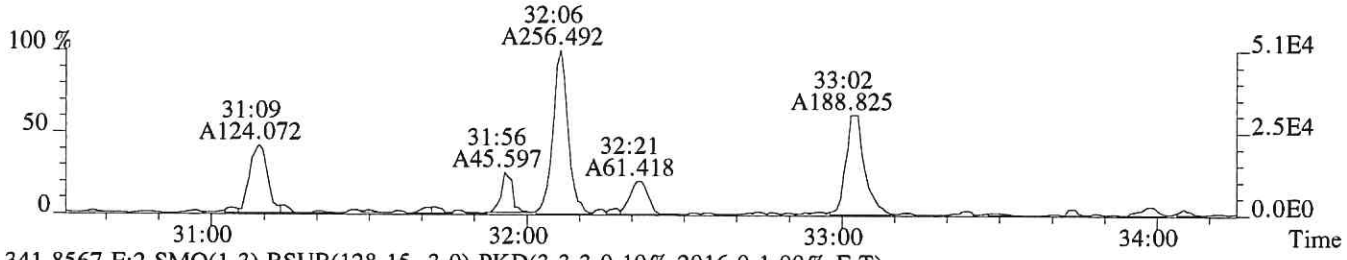
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



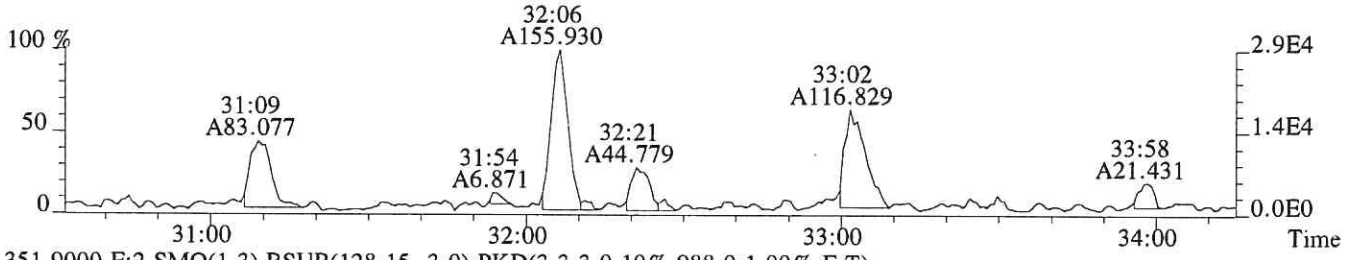
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



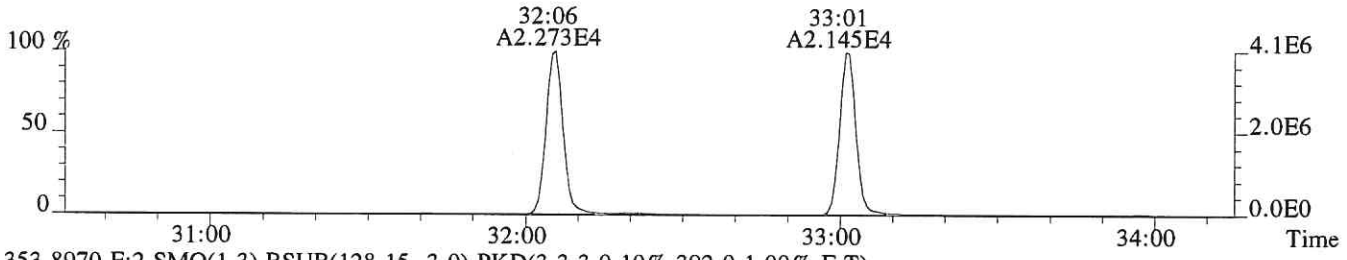
File:P519360 #1-335 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



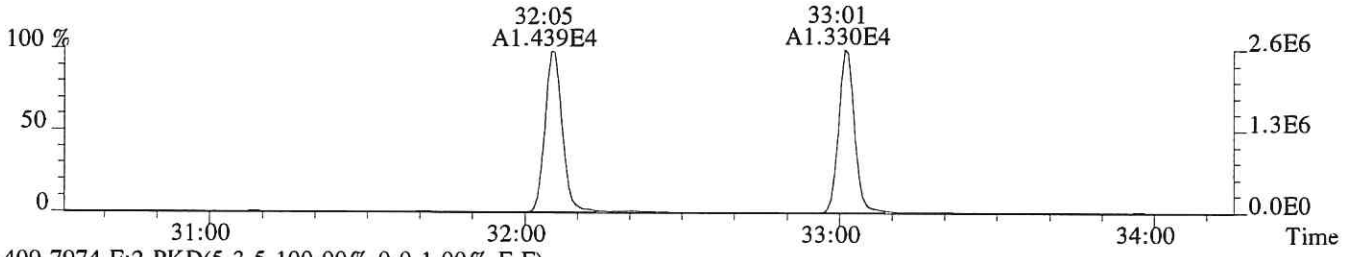
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



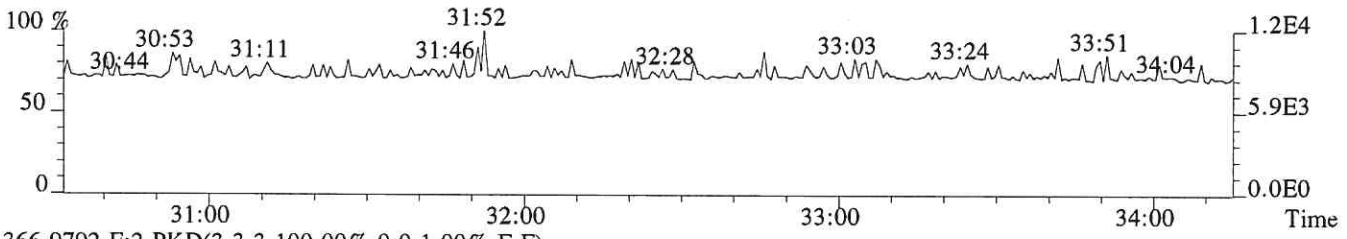
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



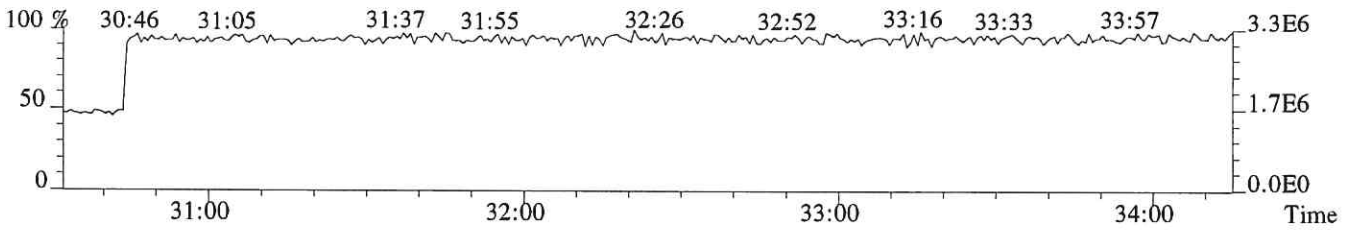
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



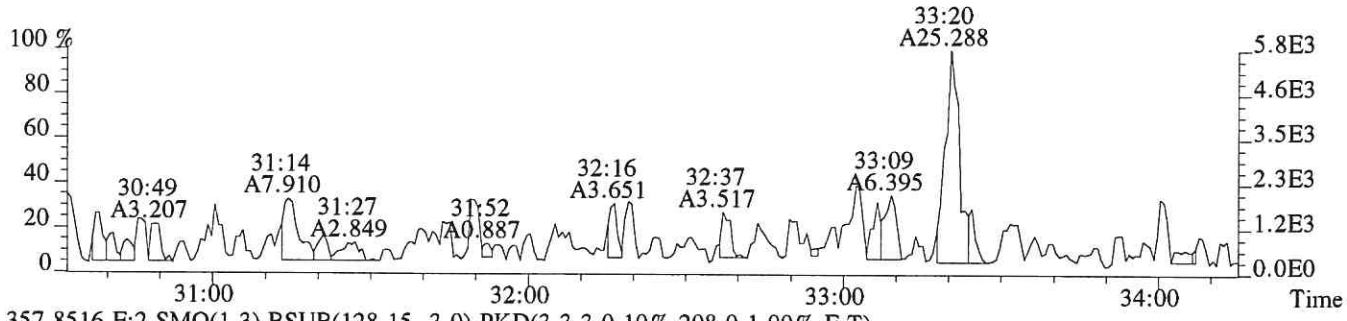
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



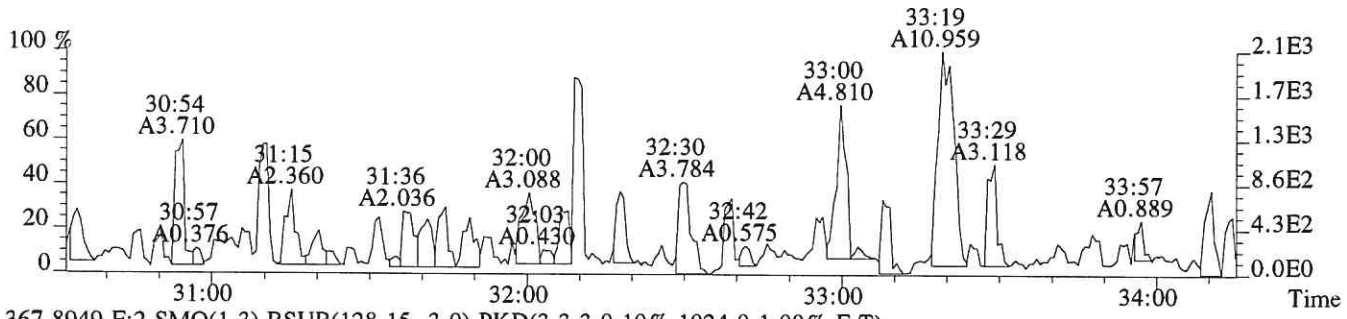
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



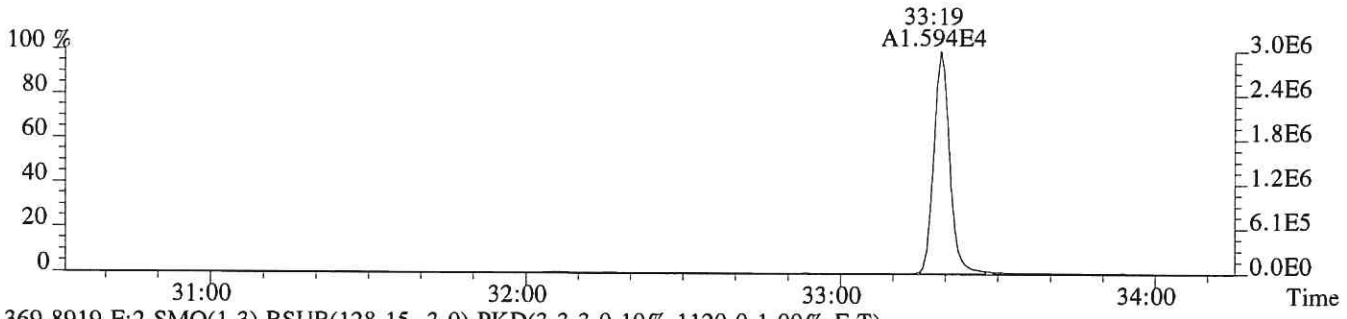
File:P519360 #1-335 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



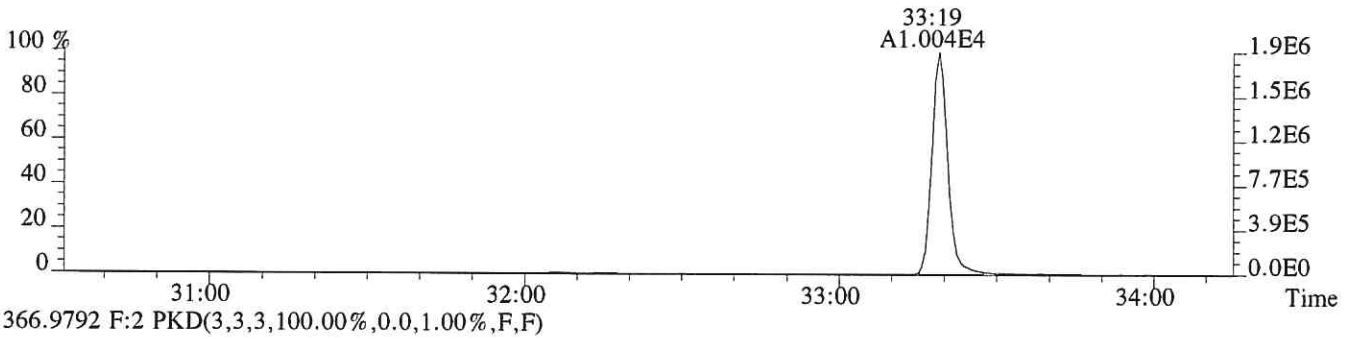
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



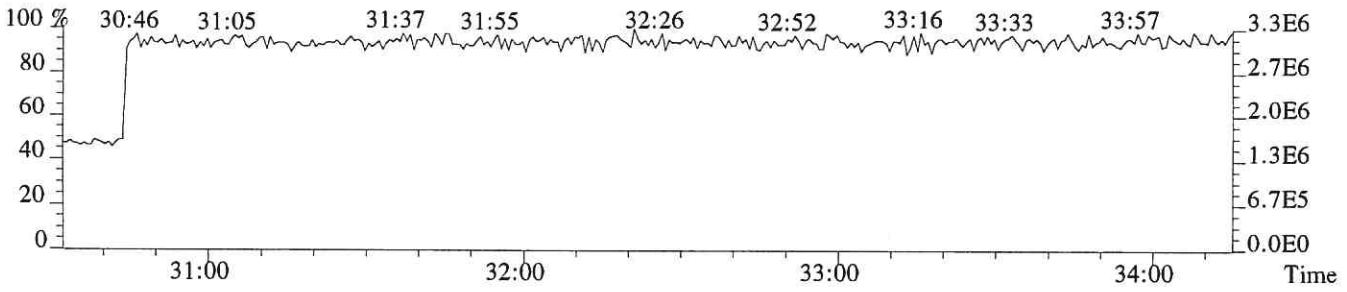
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



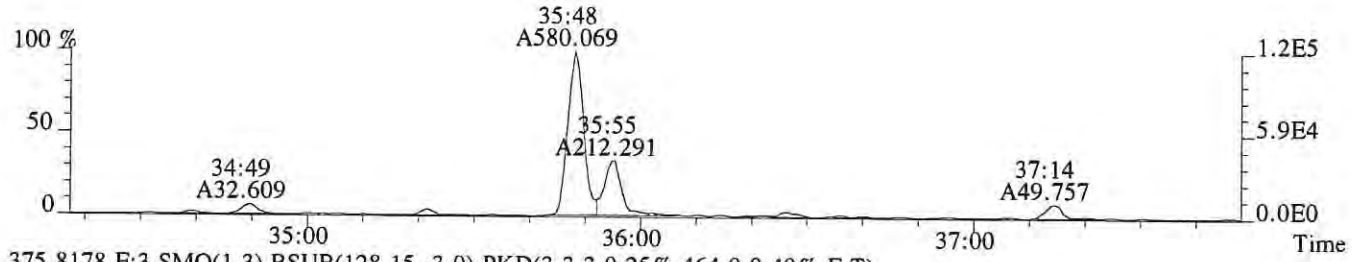
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



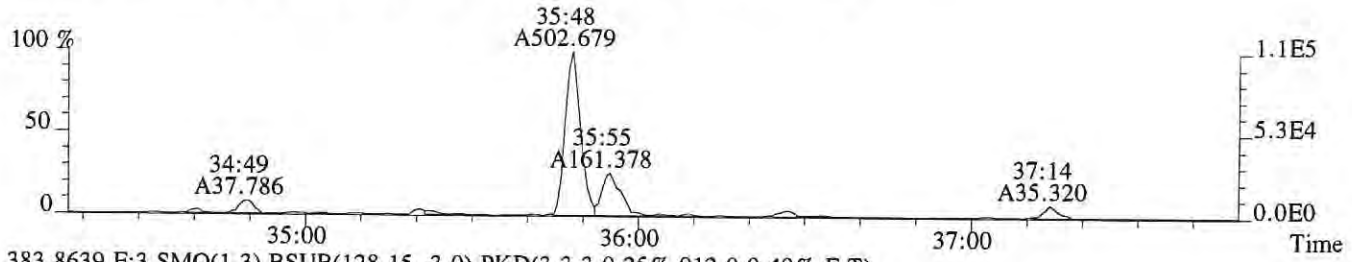
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



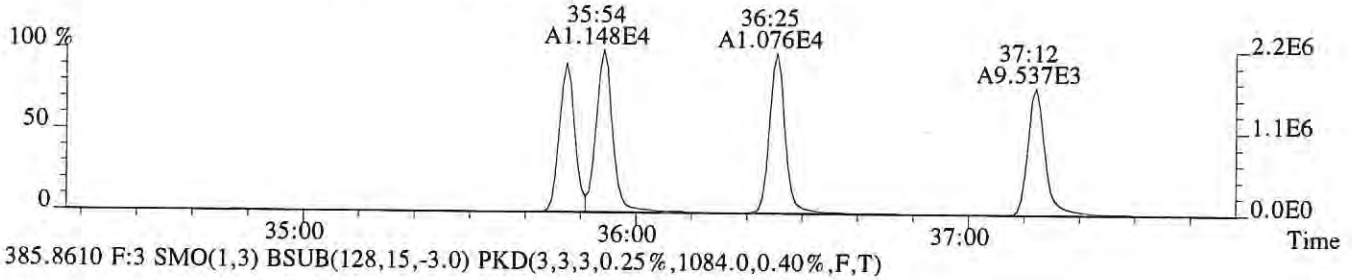
File:P519360 #1-317 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



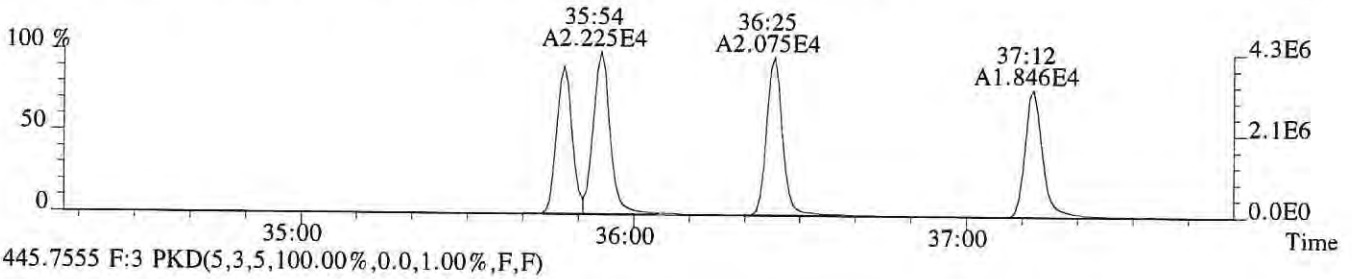
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



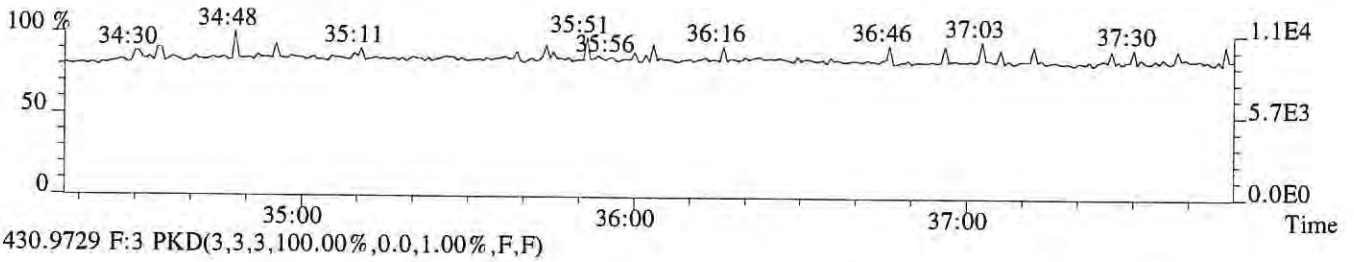
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



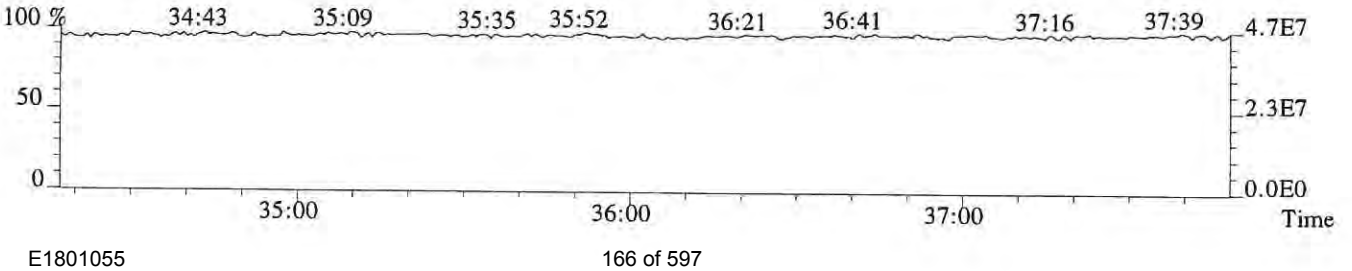
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



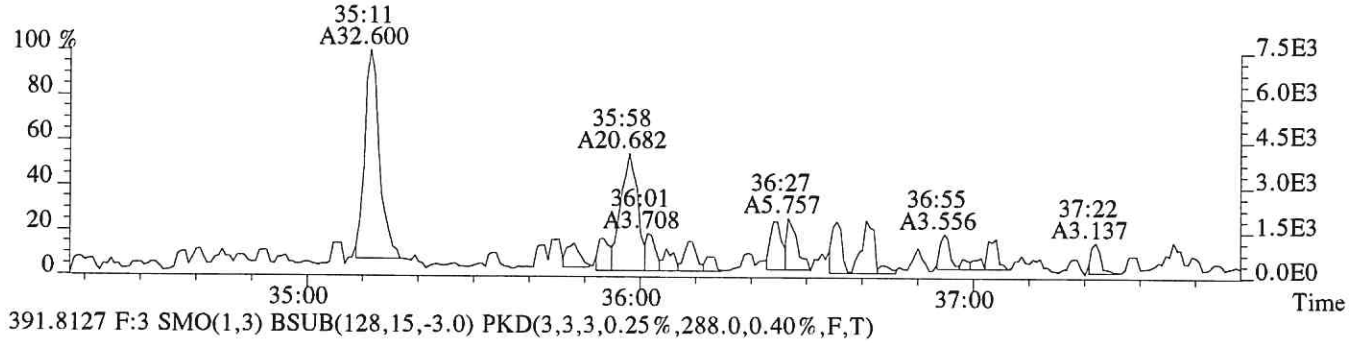
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



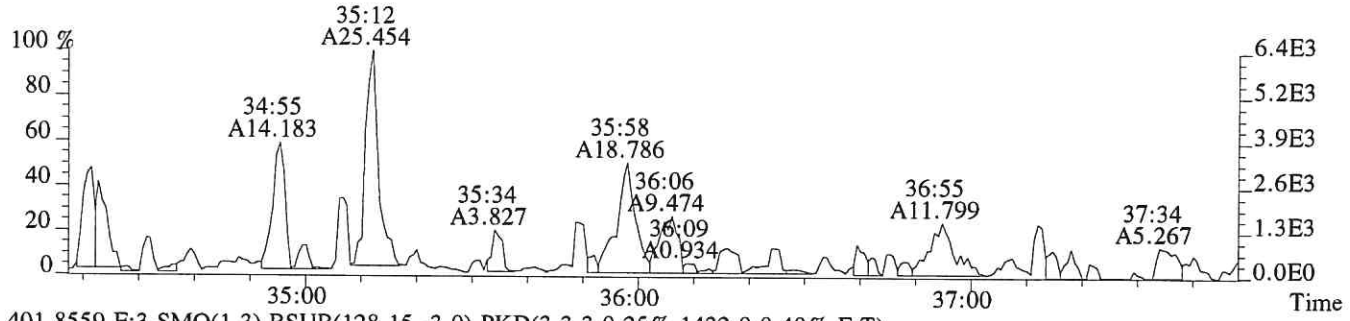
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



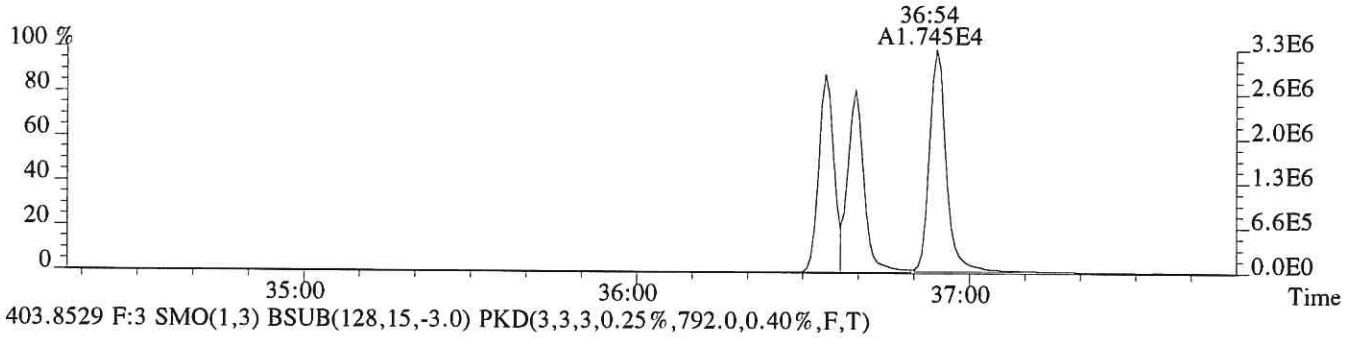
File:P519360 #1-317 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



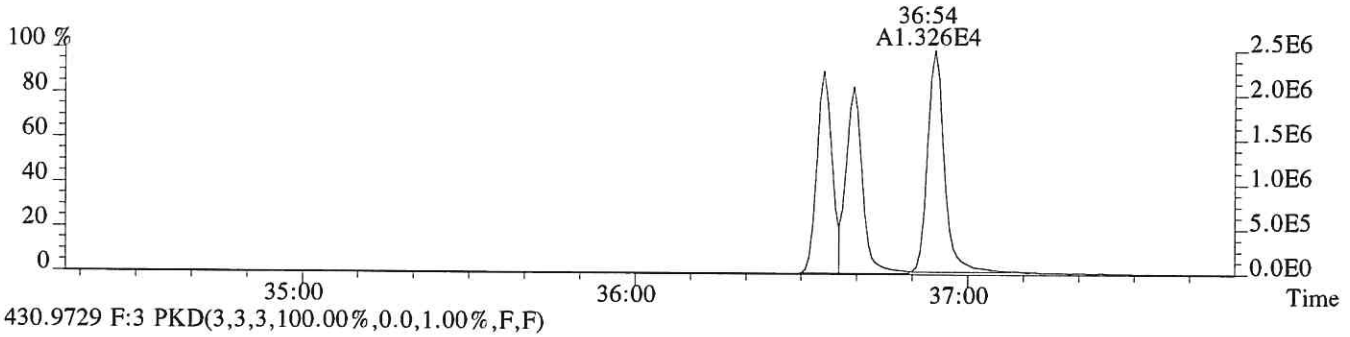
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



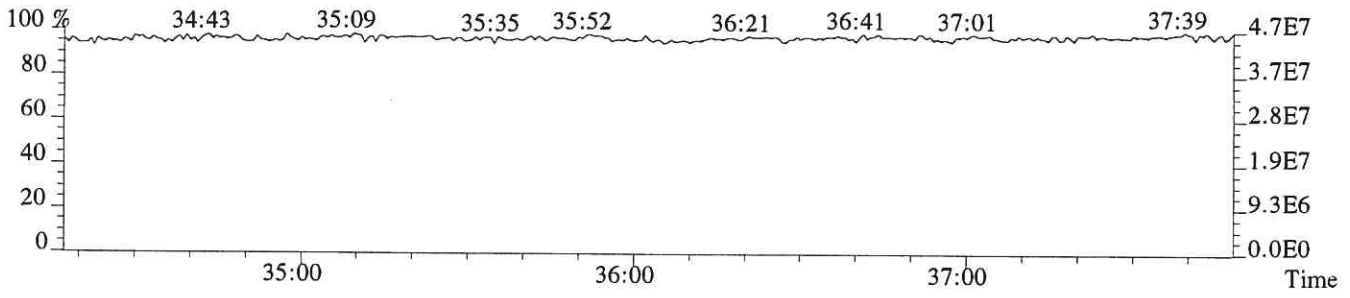
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



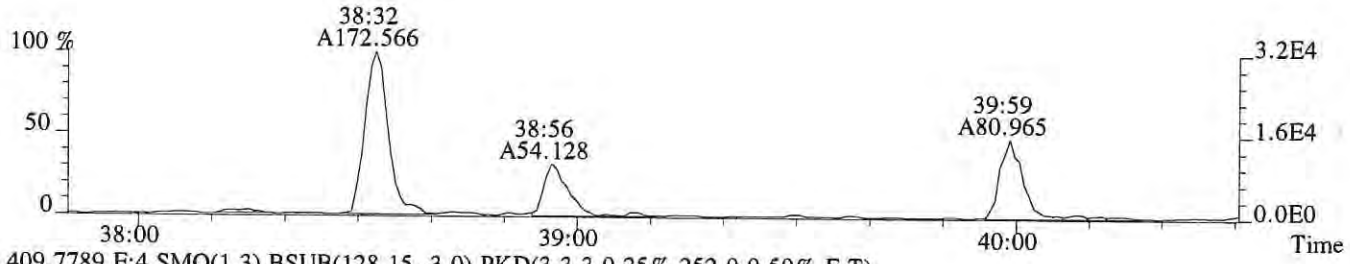
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



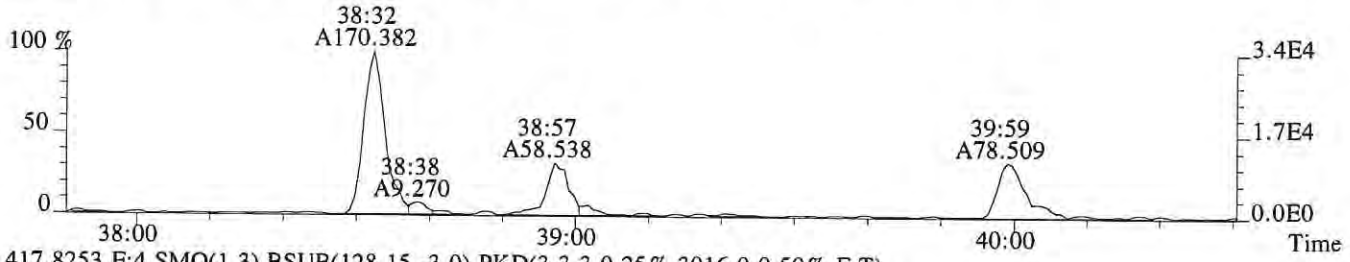
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



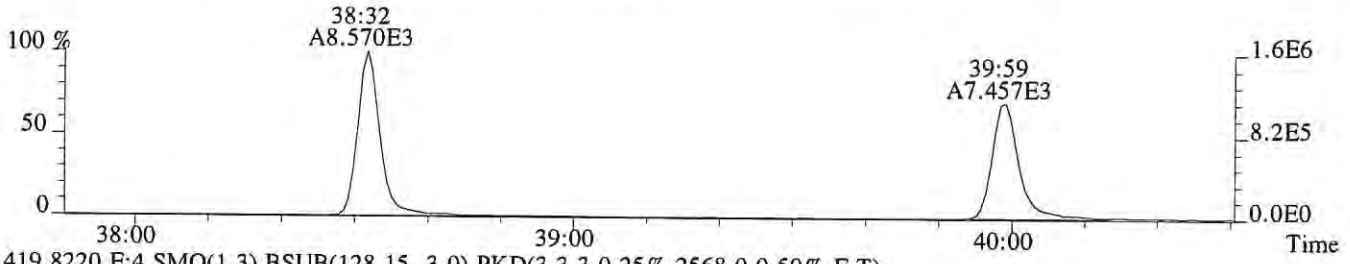
File:P519360 #1-241 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.50%,F,T)



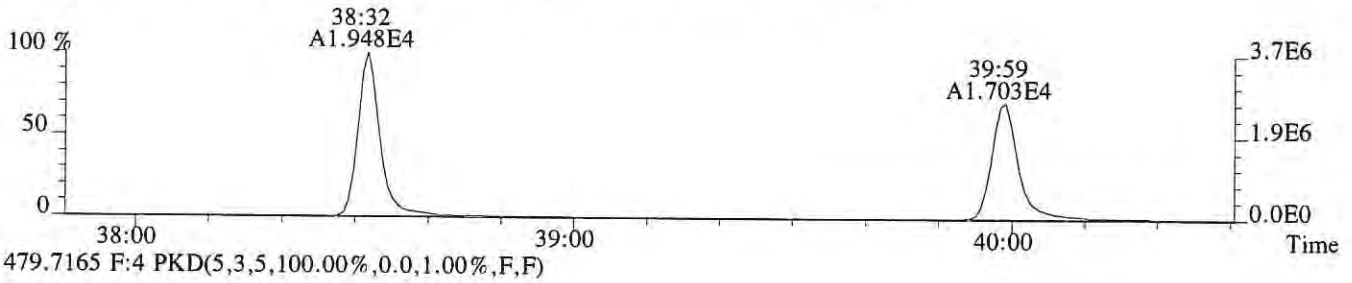
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.50%,F,T)



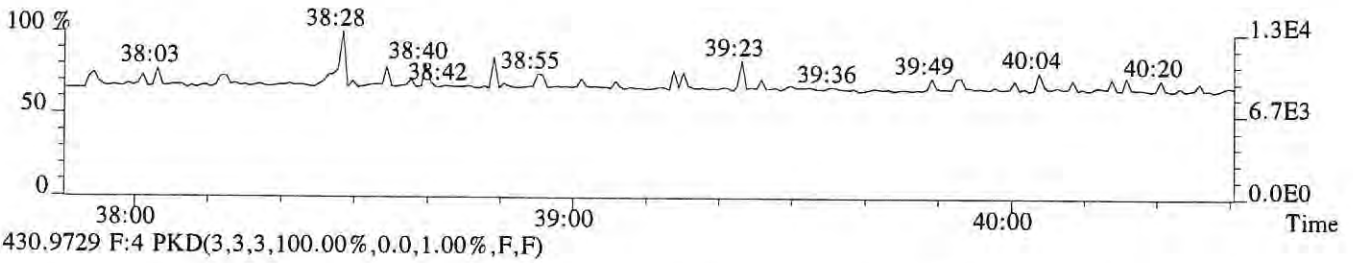
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3016.0,0.50%,F,T)



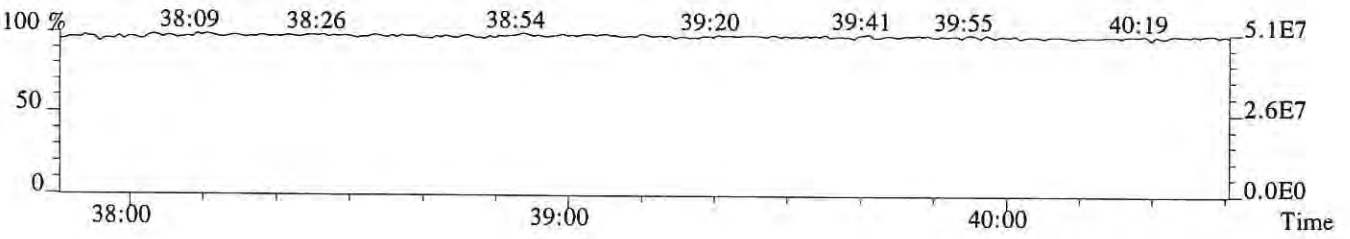
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2568.0,0.50%,F,T)



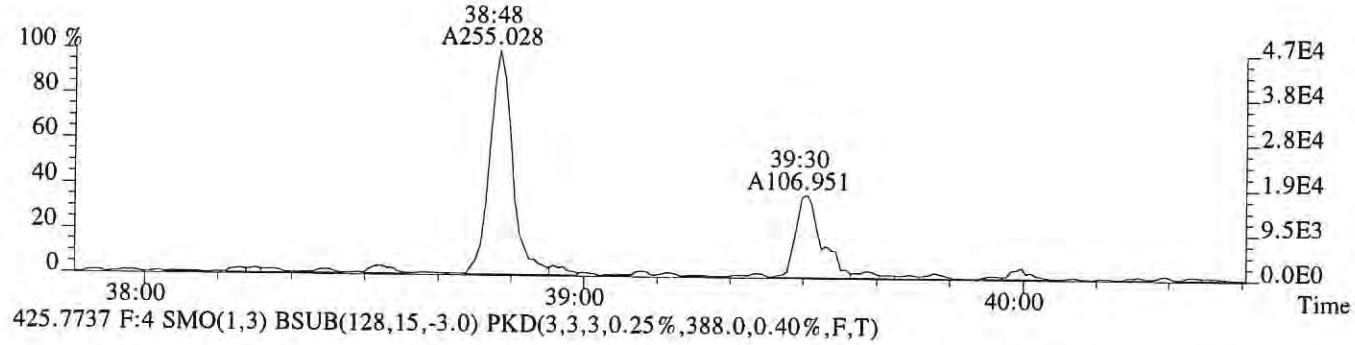
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



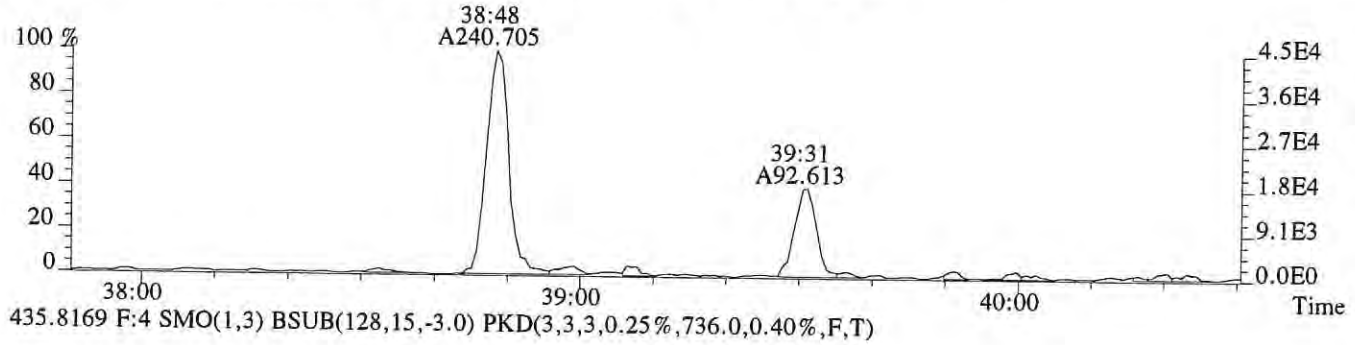
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



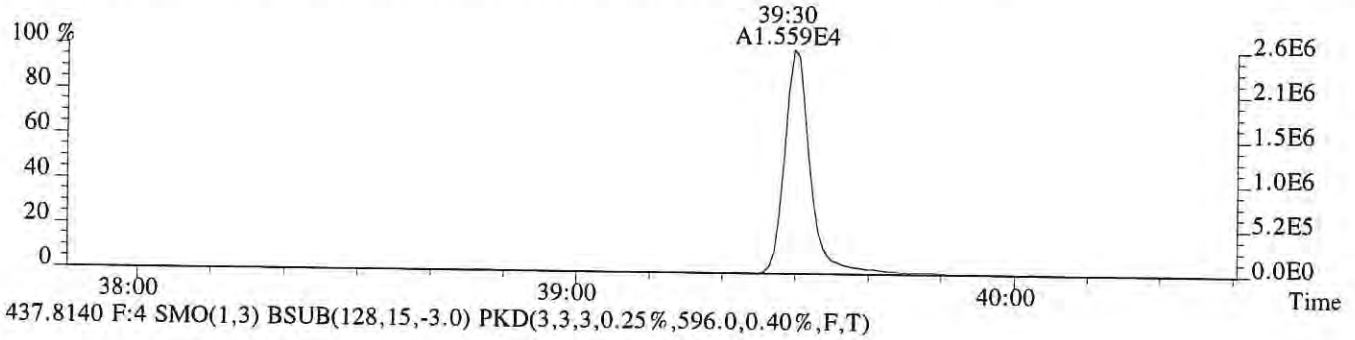
File:P519360 #1-241 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



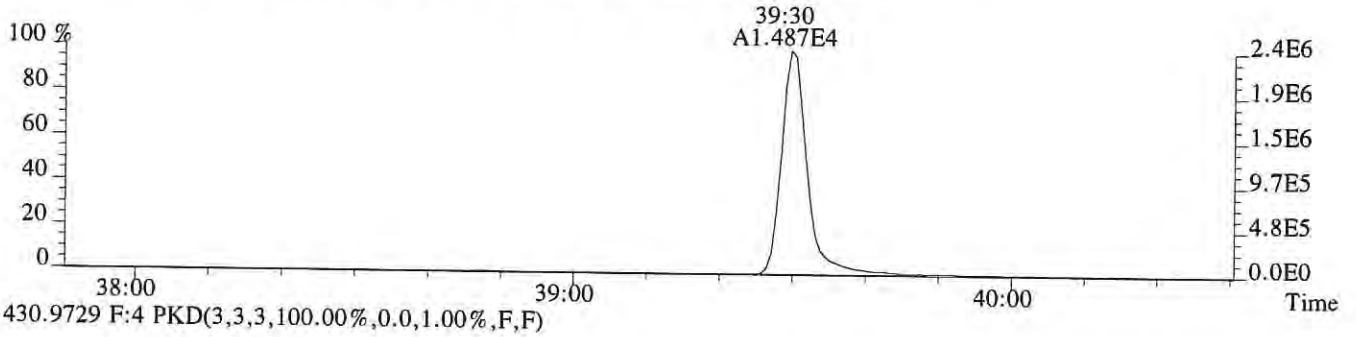
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



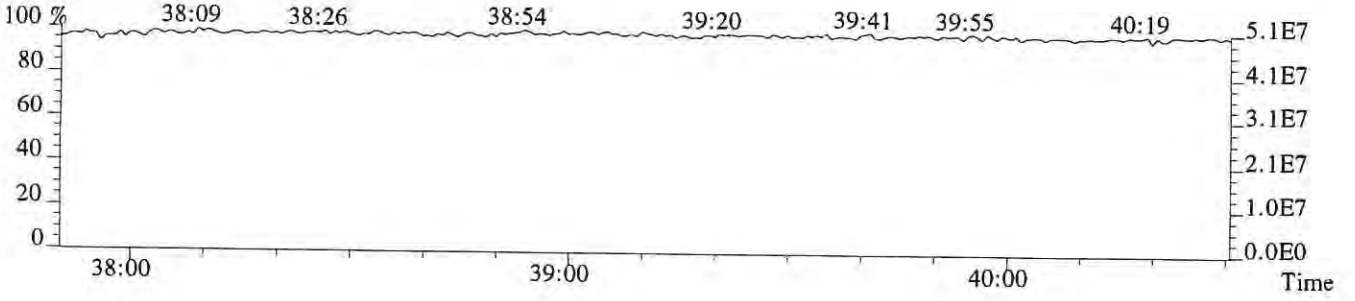
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



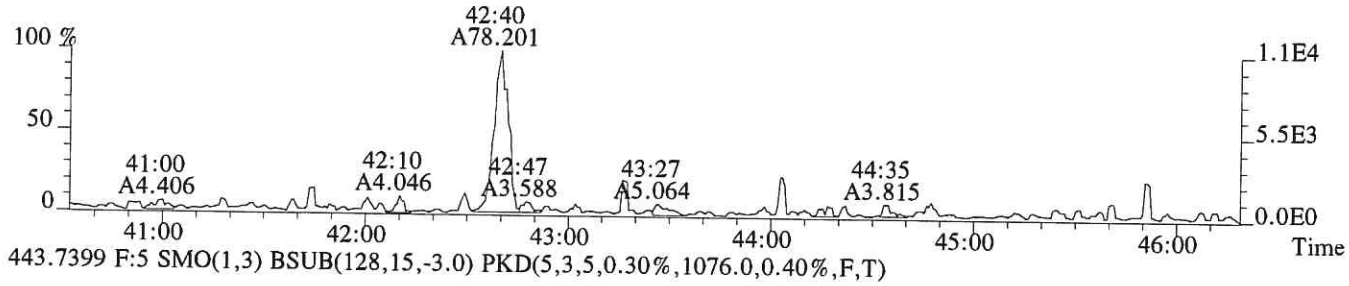
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



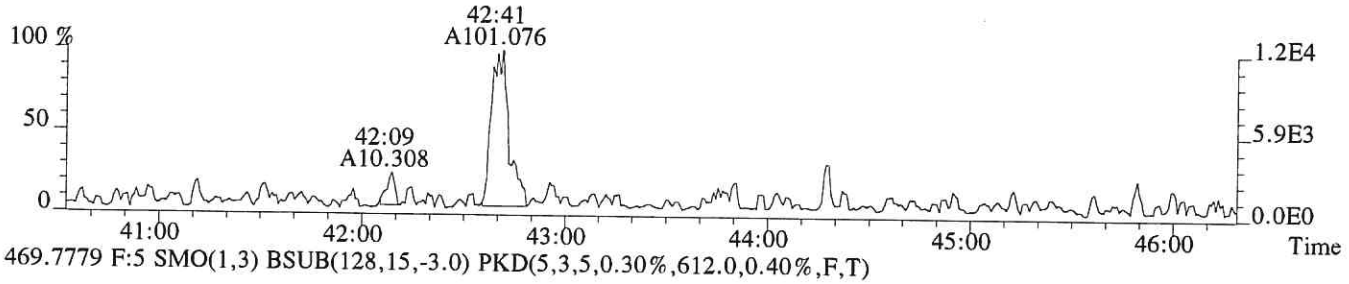
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



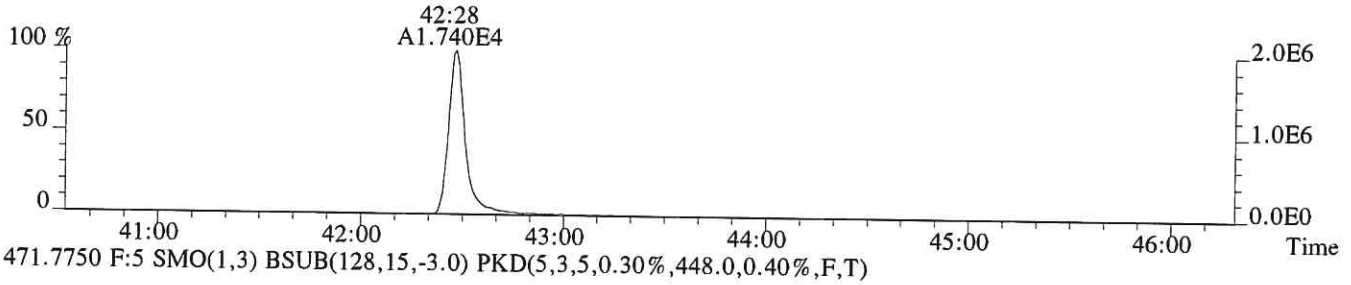
File:P519360 #1-520 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



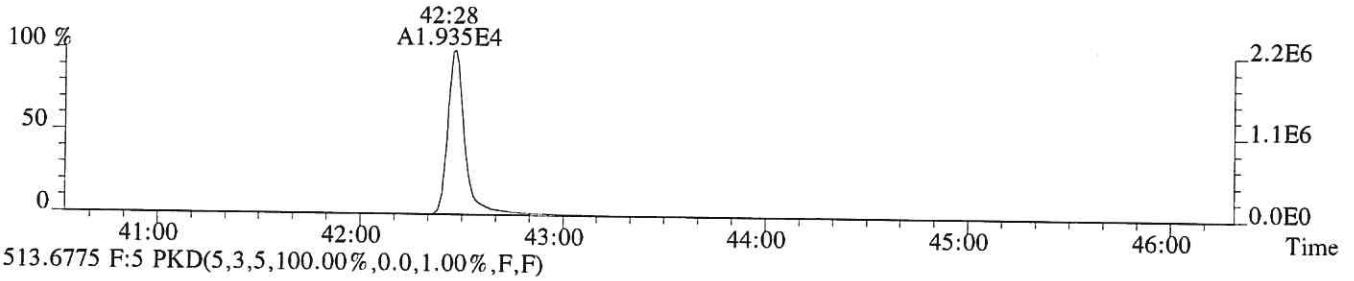
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



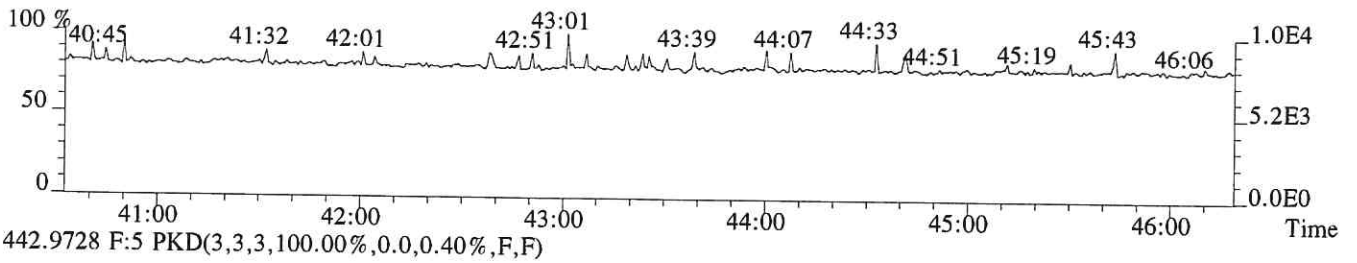
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



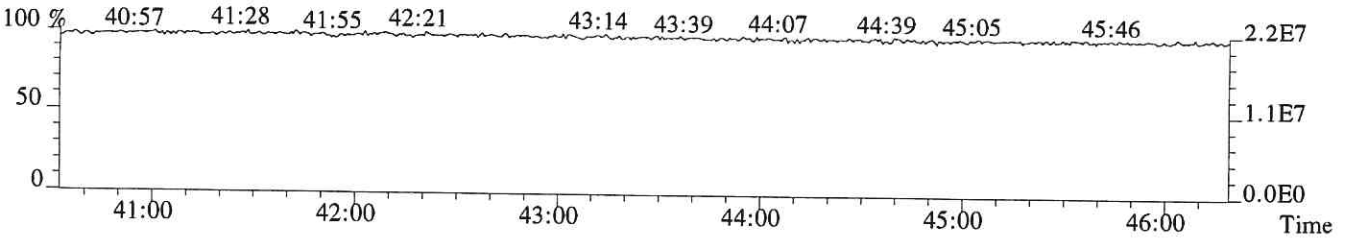
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



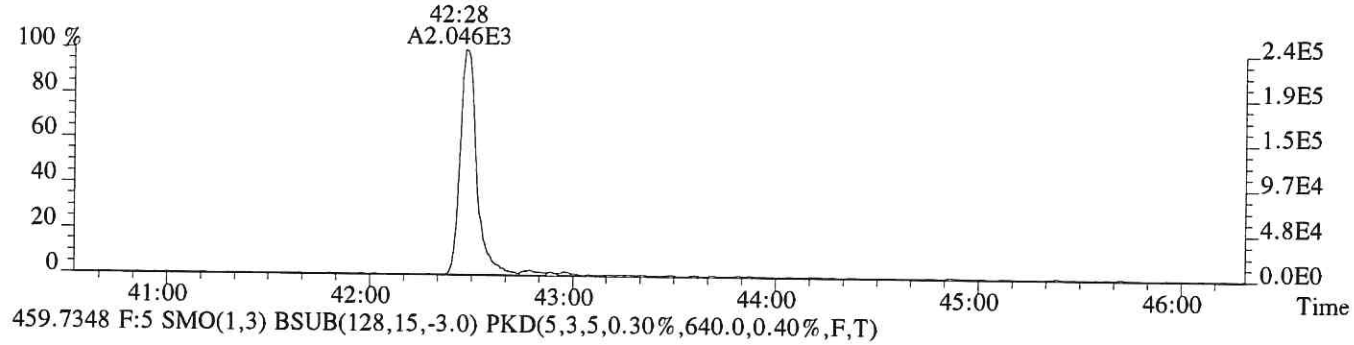
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



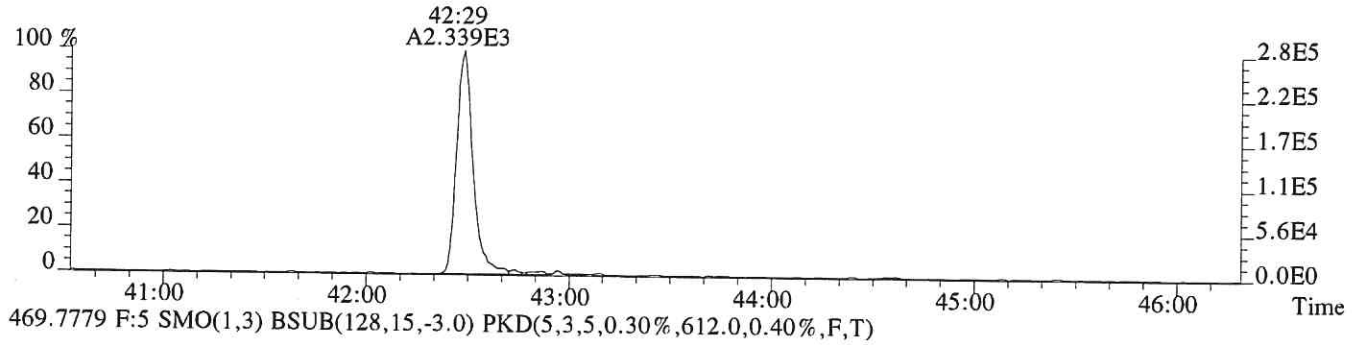
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



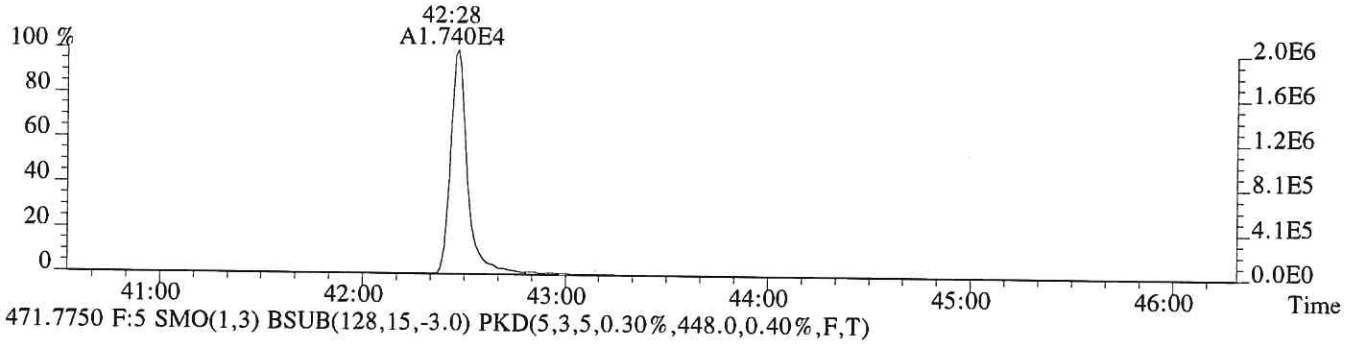
File:P519360 #1-520 Acq:11-DEC-2018 18:41:50 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-004DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



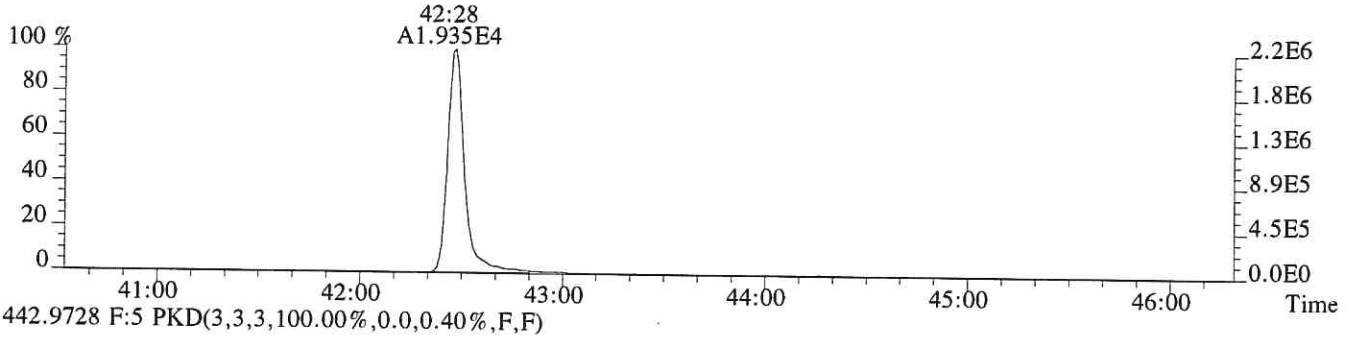
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



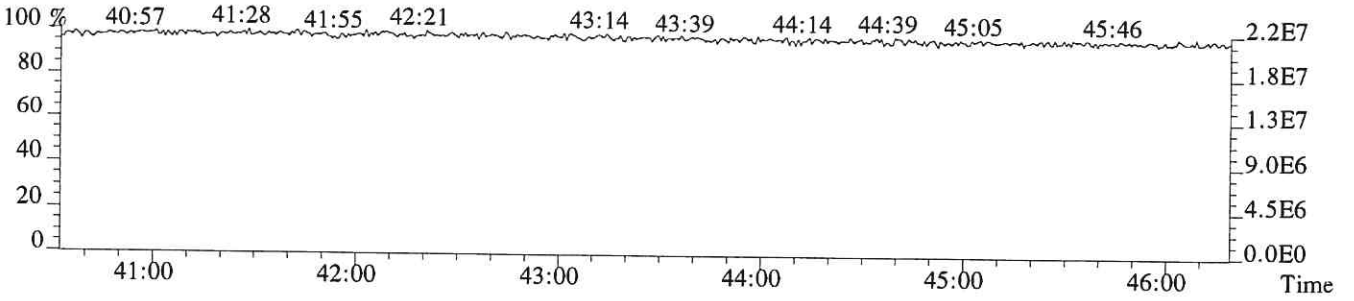
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0550

Run #18 Filename P615978 Samp: 1 Inj: 1 Acquired: 7-DEC-18 18:51:58
Processed: 10-DEC-18 16:28:23 Sample ID: E1801055-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:38	5.486e+02	7.011e+02	0.78	yes	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	4.623e+01	4.039e+01	1.14	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	8.832e+01	7.439e+01	1.19	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:41	3.444e+01	1.984e+01	1.74	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	1.175e+02	1.057e+02	1.11	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.463
10	Unk	OCDF	41:56	7.797e+01	9.631e+01	0.81	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	1.297e+02	1.964e+02	0.66	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	5.604e+01	3.972e+01	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	5.204e+01	5.717e+01	0.91	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	9.934e+02	8.640e+02	1.15	yes	no	1.112
17	Unk	OCDD	41:45	1.187e+04	1.300e+04	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	3.439e+04	4.421e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	6.807e+04	4.371e+04	1.56	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	6.296e+04	4.009e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	3.047e+04	5.863e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.455e+04	6.558e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	3.189e+04	6.041e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.734e+04	5.201e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.232e+04	4.882e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.866e+04	4.137e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.844e+04	2.350e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	5.128e+04	3.285e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.349e+04	3.437e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	4.374e+04	3.442e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.308e+04	4.046e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:44	3.249e+04	3.625e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.640e+04	7.090e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	7.327e+04	5.820e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	2.723e+04				no	1.086

$$\text{OCDD} = \frac{(1.187e+04 + 1.300e+04) \times 4000\ \text{pg} \times 1}{(3.249e+04 + 3.625e+04) \times 10.292\ \text{g} \times 74.6 / 100 \times 1.157} = 163\ \text{ng/kg}$$

HH 12/12/18

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Signal/Noise Height Ratio Summary

CLIENT ID.
SL0550

Run #18 Filename P615978 Samp: 1 Inj: 1 Acquired: 7-DEC-18 18:51:58
Processed: 10-DEC-18 16:28:23 LAB. ID: E1801055-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.42e+04	2.43e+03	3.5e+01	1.03e+05	5.43e+03	1.9e+01
2	1,2,3,7,8-PeCDF	*	1.05e+03	*	*	2.83e+03	*
3	2,3,4,7,8-PeCDF	8.67e+03	1.05e+03	8.3e+00	7.59e+03	2.83e+03	2.7e+00
4	1,2,3,4,7,8-HxCDF	1.49e+04	2.11e+03	7.1e+00	1.55e+04	1.24e+03	1.2e+01
5	1,2,3,6,7,8-HxCDF	6.86e+03	2.11e+03	3.3e+00	4.52e+03	1.24e+03	3.6e+00
6	2,3,4,6,7,8-HxCDF	*	2.11e+03	*	*	1.24e+03	*
7	1,2,3,7,8,9-HxCDF	*	2.11e+03	*	*	1.24e+03	*
8	1,2,3,4,6,7,8-HpCDF	2.16e+04	9.48e+02	2.3e+01	2.09e+04	9.20e+02	2.3e+01
9	1,2,3,4,7,8,9-HpCDF	*	9.48e+02	*	*	9.20e+02	*
10	OCDF	1.26e+04	8.68e+02	1.4e+01	1.59e+04	3.32e+03	4.8e+00
11	2,3,7,8-TCDD	2.79e+04	4.90e+03	5.7e+00	3.88e+04	2.62e+03	1.5e+01
12	1,2,3,7,8-PeCDD	*	1.59e+03	*	*	6.36e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.77e+03	*	*	2.23e+03	*
14	1,2,3,6,7,8-HxCDD	1.21e+04	1.77e+03	6.8e+00	7.92e+03	2.23e+03	3.5e+00
15	1,2,3,7,8,9-HxCDD	8.08e+03	1.77e+03	4.6e+00	1.32e+04	2.23e+03	5.9e+00
16	1,2,3,4,6,7,8-HpCDD	2.12e+05	1.42e+03	1.5e+02	1.78e+05	1.57e+03	1.1e+02
17	OCDD	2.09e+06	6.00e+02	3.5e+03	2.25e+06	1.09e+03	2.1e+03
18	13C-2,3,7,8-TCDF	5.42e+06	1.42e+04	3.8e+02	6.90e+06	9.08e+03	7.6e+02
19	13C-1,2,3,7,8-PeCDF	1.20e+07	1.77e+03	6.8e+03	7.65e+06	2.51e+03	3.0e+03
20	13C-2,3,4,7,8-PeCDF	1.15e+07	1.77e+03	6.5e+03	7.42e+06	2.51e+03	3.0e+03
21	13C-1,2,3,4,7,8-HxCDF	6.52e+06	2.73e+03	2.4e+03	1.23e+07	2.30e+03	5.4e+03
22	13C-1,2,3,6,7,8-HxCDF	7.02e+06	2.73e+03	2.6e+03	1.31e+07	2.30e+03	5.7e+03
23	13C-2,3,4,6,7,8-HxCDF	6.64e+06	2.73e+03	2.4e+03	1.25e+07	2.30e+03	5.4e+03
24	13C-1,2,3,7,8,9-HxCDF	5.52e+06	2.73e+03	2.0e+03	1.06e+07	2.30e+03	4.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.86e+06	3.78e+03	1.3e+03	1.07e+07	2.79e+03	3.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.59e+06	3.78e+03	9.5e+02	7.99e+06	2.79e+03	2.9e+03
27	13C-2,3,7,8-TCDD	3.18e+06	1.99e+04	1.6e+02	4.06e+06	5.77e+03	7.0e+02
28	13C-1,2,3,7,8-PeCDD	9.50e+06	2.91e+03	3.3e+03	6.10e+06	2.52e+03	2.4e+03
29	13C-1,2,3,4,7,8-HxCDD	9.64e+06	4.36e+03	2.2e+03	7.64e+06	2.19e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	8.91e+06	4.36e+03	2.0e+03	7.03e+06	2.19e+03	3.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.83e+06	1.68e+03	5.3e+03	8.39e+06	6.12e+02	1.4e+04
32	13C-OCDD	5.69e+06	1.16e+03	4.9e+03	6.37e+06	1.13e+03	5.6e+03
33	13C-1,2,3,4-TCDD	9.80e+06	1.99e+04	4.9e+02	1.22e+07	5.77e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.53e+07	4.36e+03	3.5e+03	1.22e+07	2.19e+03	5.6e+03
35	37Cl-2,3,7,8-TCDD	4.62e+06	2.60e+03	1.8e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P615978 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 18:51:58 Processed: 10-DEC-18 16:28:23

Mass: 303.9020 305.8990 Tot Response: 1.25e+03 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:38	5.49e+02	7.01e+02 0.78	yes	1.25e+03	2,3,7,8-TCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P615978 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 18:51:58 Processed: 10-DEC-18 16:28:23

Mass: 319.8970 321.8940 Tot Response: 5.24e+02 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:24	8.28e+01	1.15e+02 0.72	yes	1.98e+02		n	n
2	28:26	1.30e+02	1.96e+02 0.66	yes	3.26e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P615978 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 18:51:58 Processed: 10-DEC-18 16:28:23

Mass: 355.8550 357.8520 Tot Response: 3.78e+01 RRF: 0.9288

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:07	2.21e+01	1.57e+01 1.41	yes	3.78e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P615978 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 18:51:58 Processed: 10-DEC-18 16:28:23

Mass: 373.8210 375.8180 Tot Response: 2.50e+02 RRF: 1.324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:33	8.83e+01	7.44e+01 1.19	yes	1.63e+02	1,2,3,4,7,8-HxCDF	n	n
2	36:01	5.07e+01	3.67e+01 1.38	yes	8.74e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P615978 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 18:51:58 Processed: 10-DEC-18 16:28:23

Mass: 389.8160 391.8130 Tot Response: 1.02e+03 RRF: 1.092

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:57	5.14e+02	4.07e+02	1.26	yes	9.21e+02		n	n
2	36:24	5.60e+01	3.97e+01	1.41	yes	9.58e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P615978 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 18:51:58 Processed: 10-DEC-18 16:28:23

Mass: 407.7820 409.7790 Tot Response: 3.83e+02 RRF: 1.495

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:09	1.17e+02	1.06e+02 1.11	yes	2.23e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:34	6.35e+01	7.01e+01 0.91	yes	1.34e+02		n	n
3	38:43	1.32e+01	1.35e+01 0.97	yes	2.67e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P615978 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 18:51:58 Processed: 10-DEC-18 16:28:23

Mass: 423.7770 425.7740 Tot Response: 6.18e+03 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:24	2.18e+03	2.15e+03	1.01	yes	4.33e+03		n	n
2	39:04	9.93e+02	8.64e+02	1.15	yes	1.86e+03	1,2,3,4,6,7,8-HpCDD	n	n

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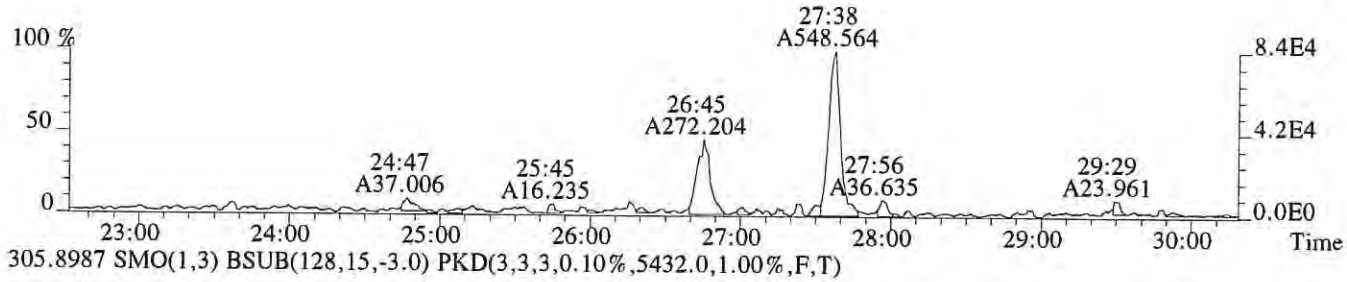
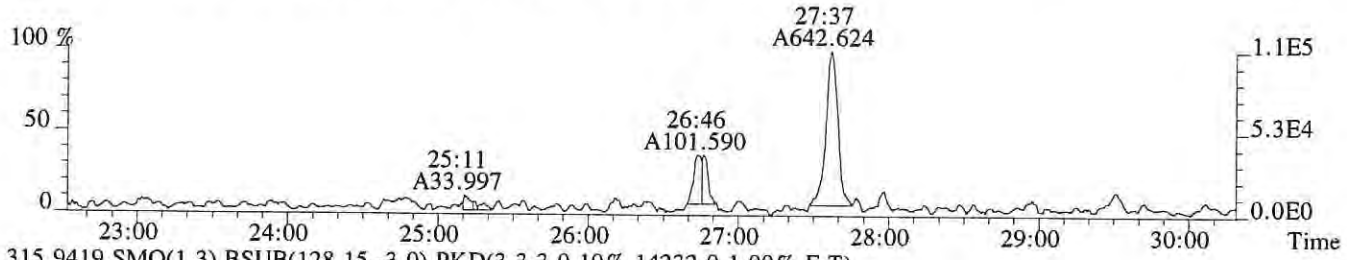
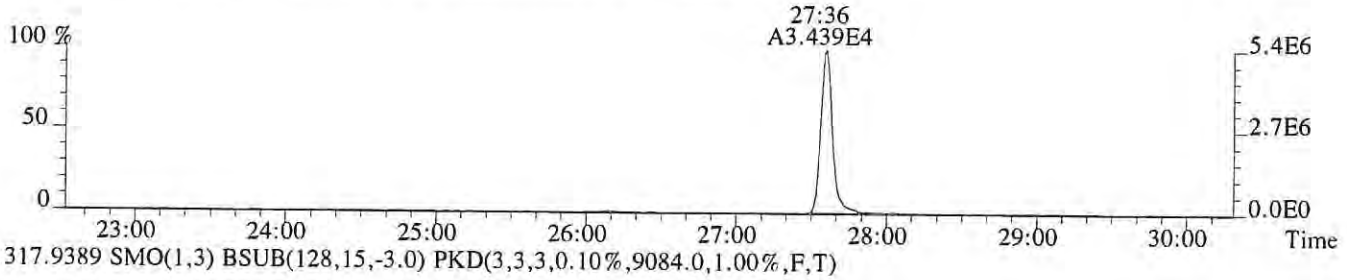
File:P615978 #1-552 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



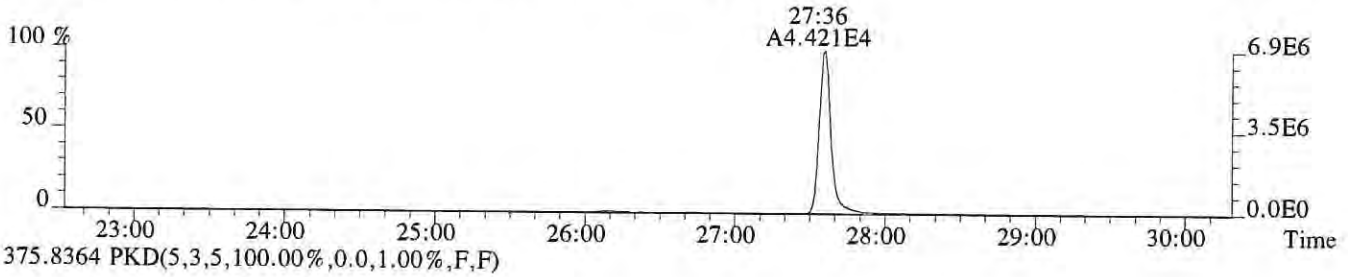
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5432.0,1.00%,F,T)



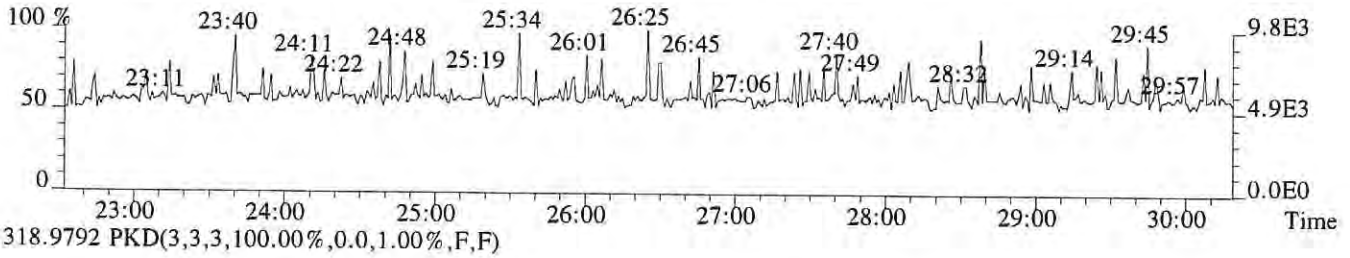
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14232.0,1.00%,F,T)



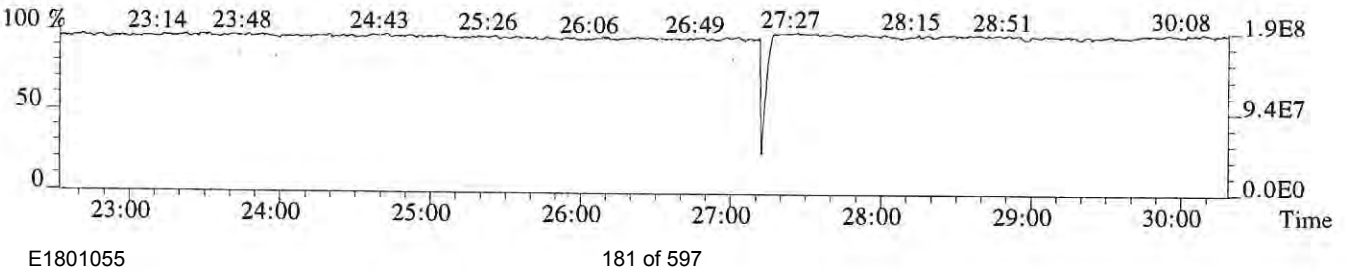
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9084.0,1.00%,F,T)



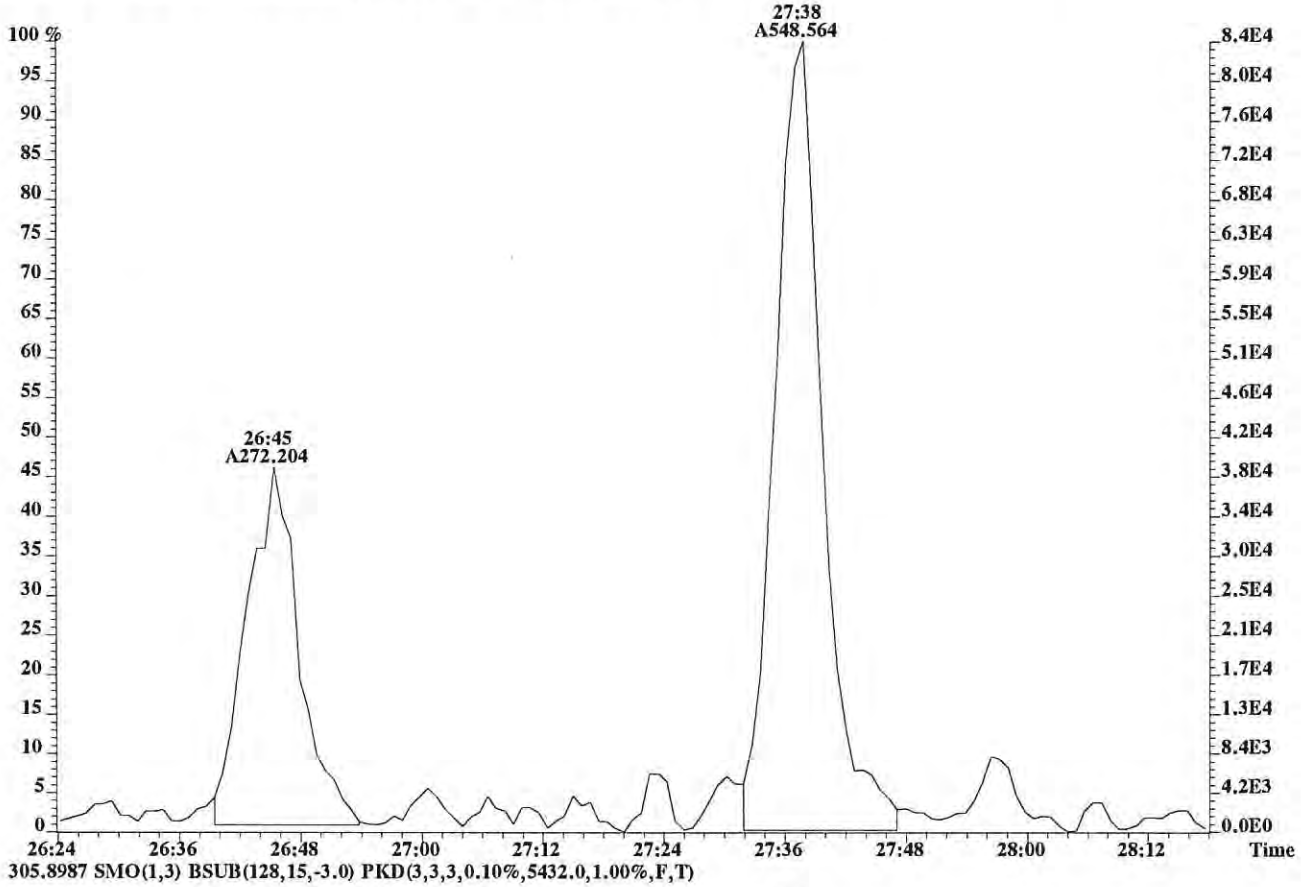
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



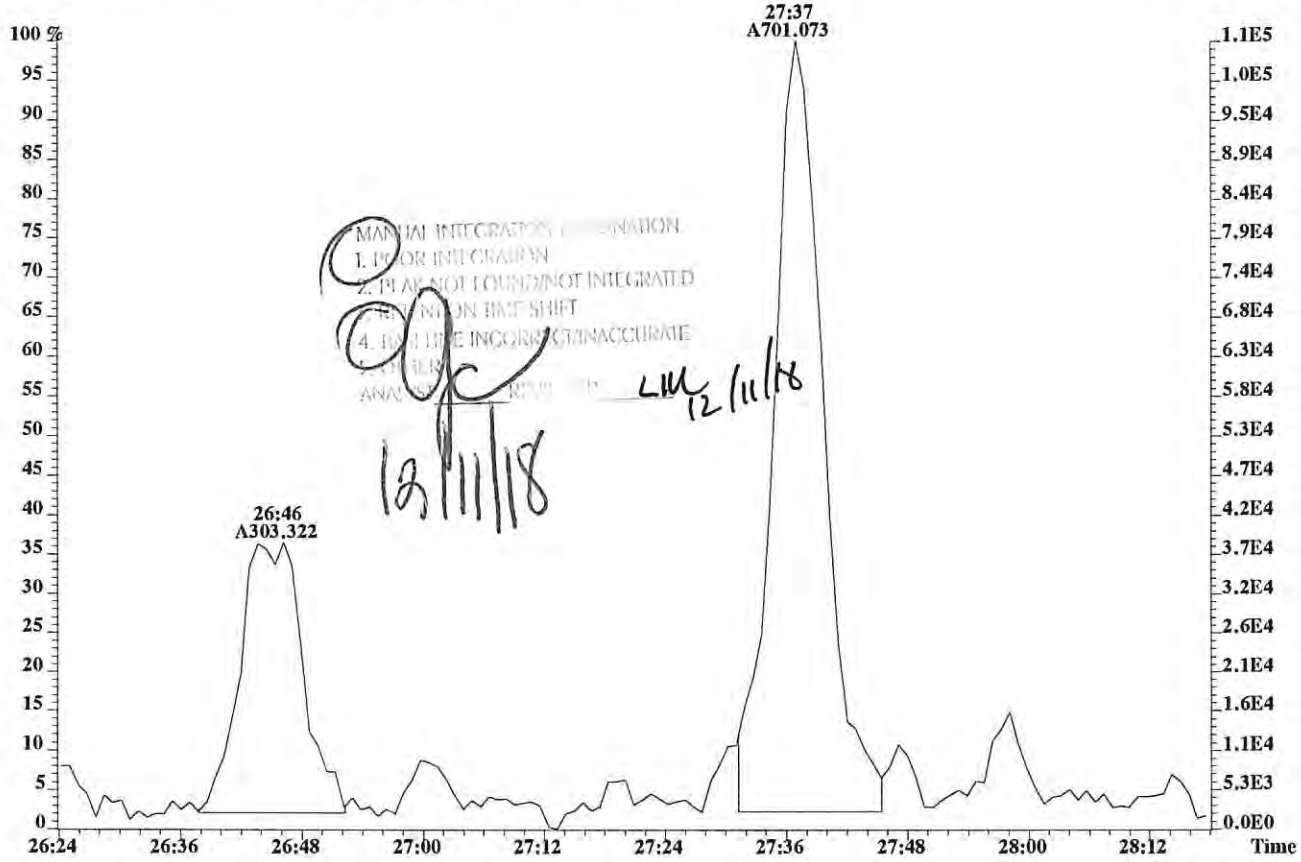
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615978 #1-552 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:E1801055-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)

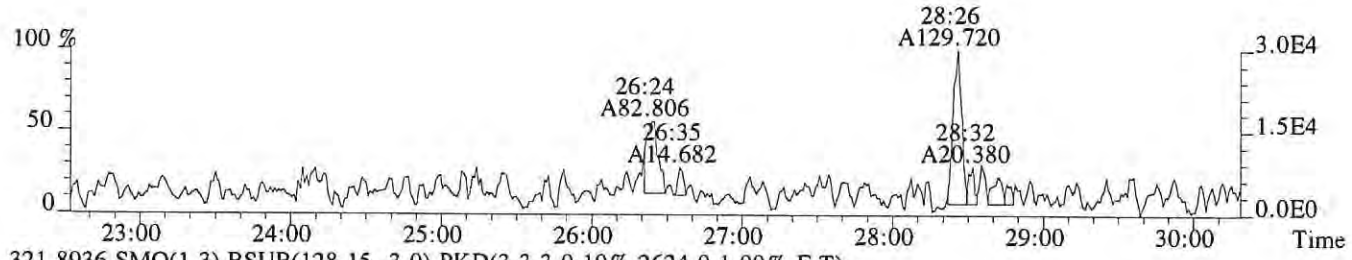


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5432.0,1.00%,F,T)

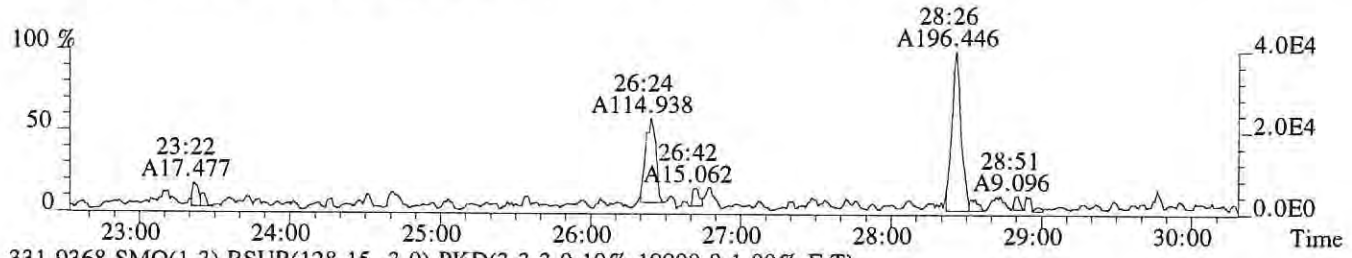


MANUAL INTEGRATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
ANALYST REVIEW
12/11/18
12/11/18

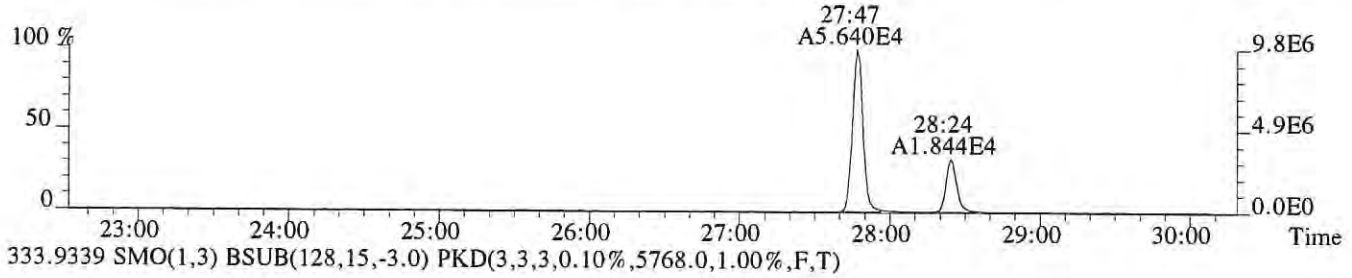
File:P615978 #1-552 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4904.0,1.00%,F,T)



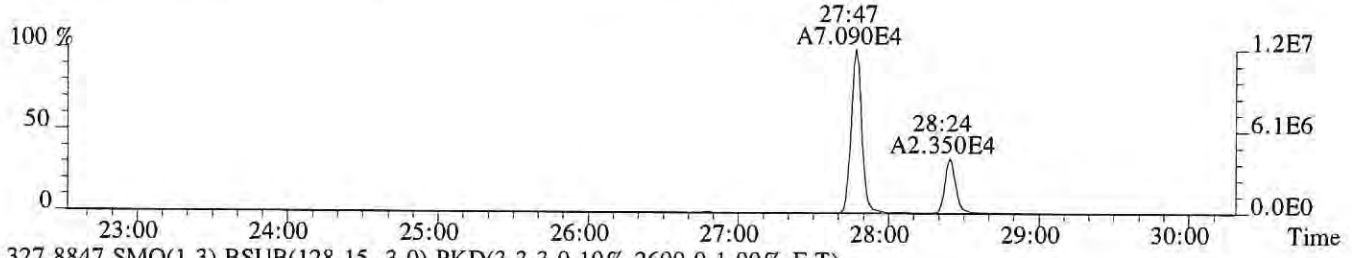
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2624.0,1.00%,F,T)



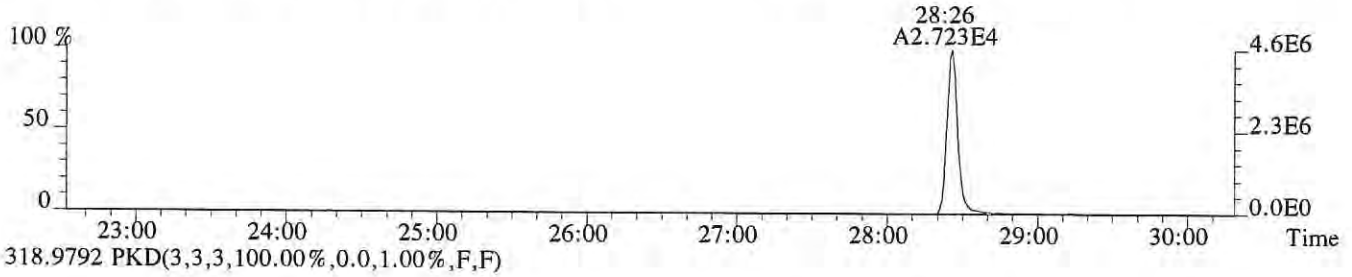
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19900.0,1.00%,F,T)



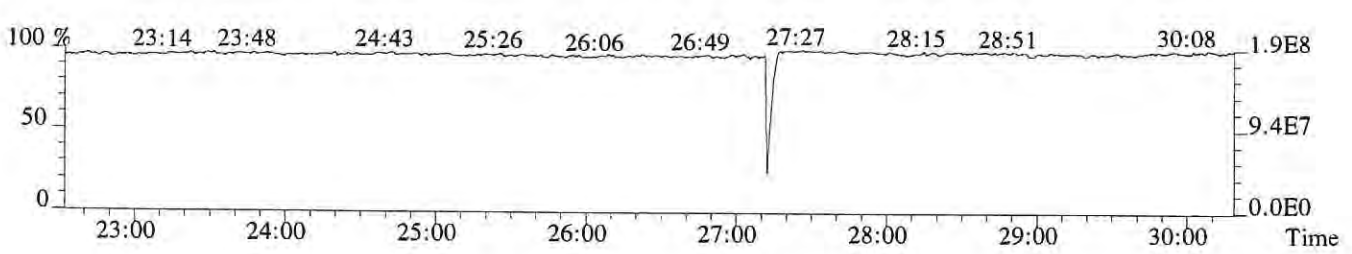
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5768.0,1.00%,F,T)



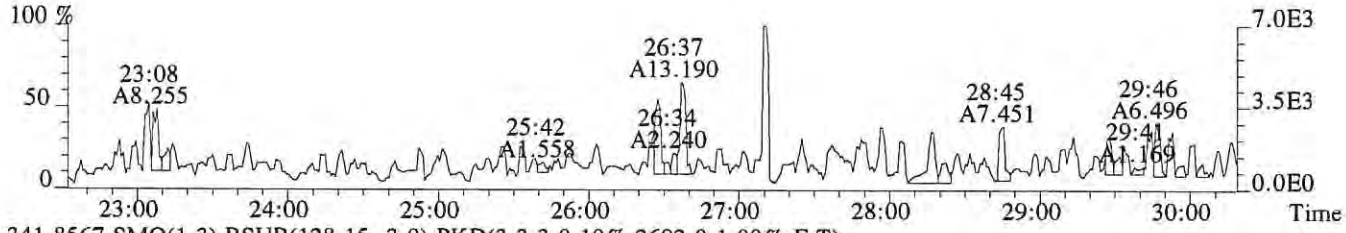
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2600.0,1.00%,F,T)



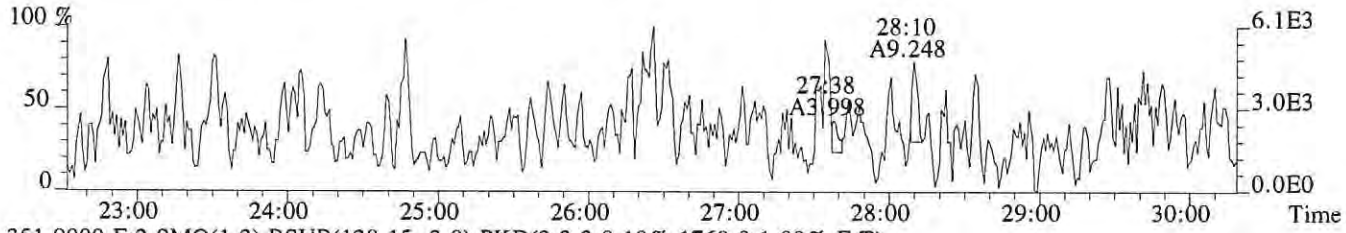
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



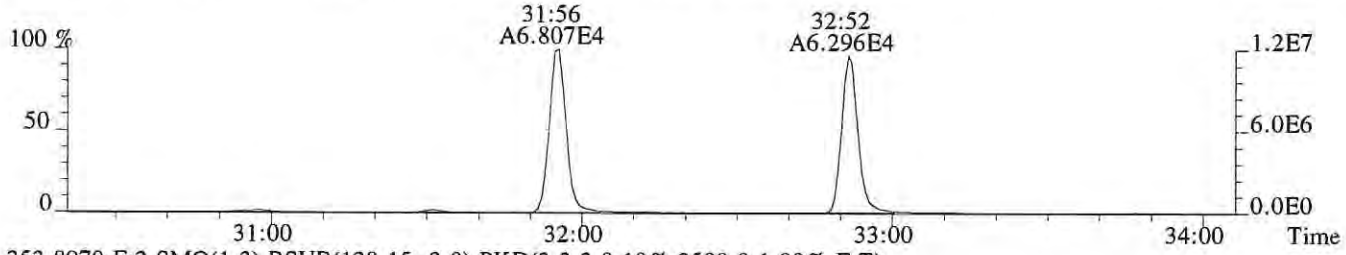
File:P615978 #1-552 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



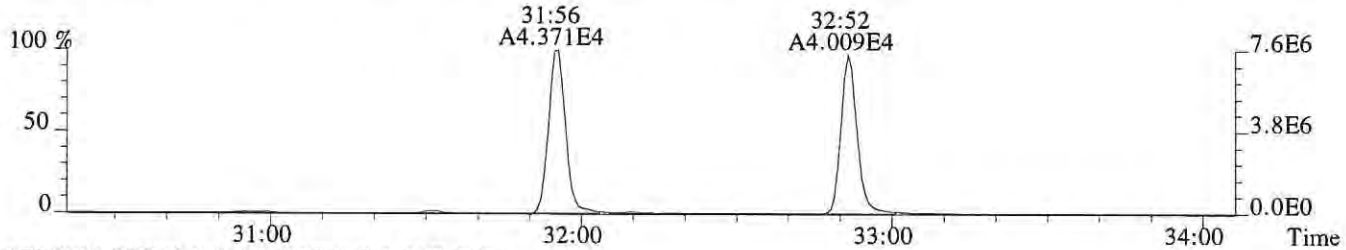
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2692.0,1.00%,F,T)



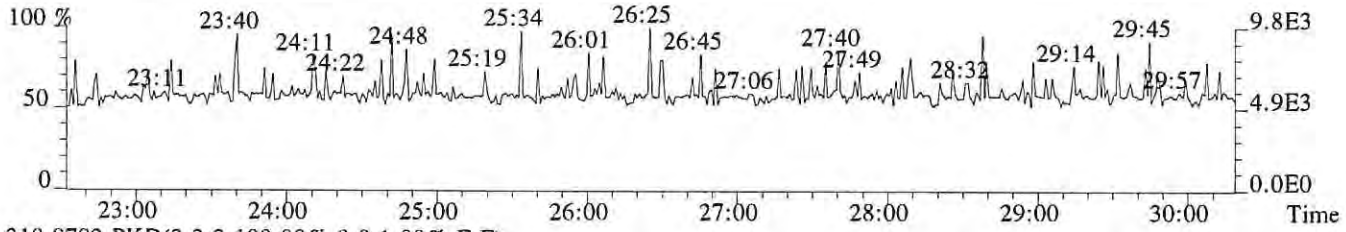
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



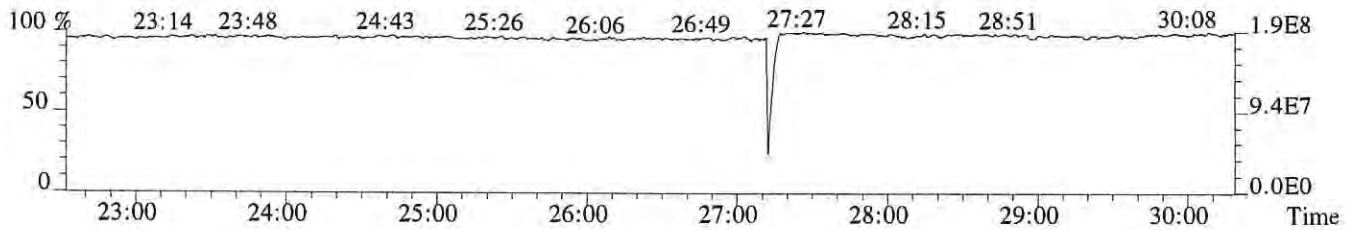
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



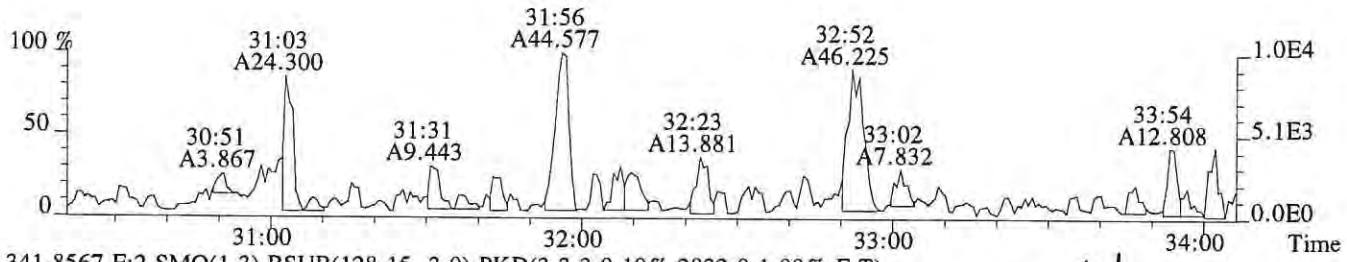
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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

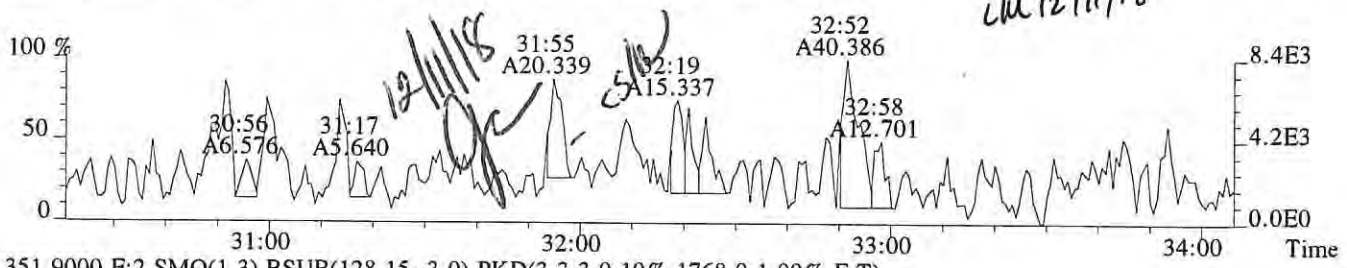


File:P615978 #1-339 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)

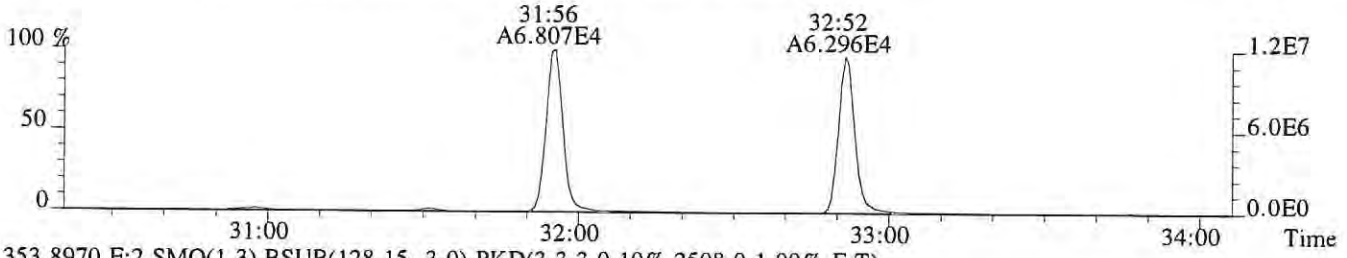


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2832.0,1.00%,F,T)

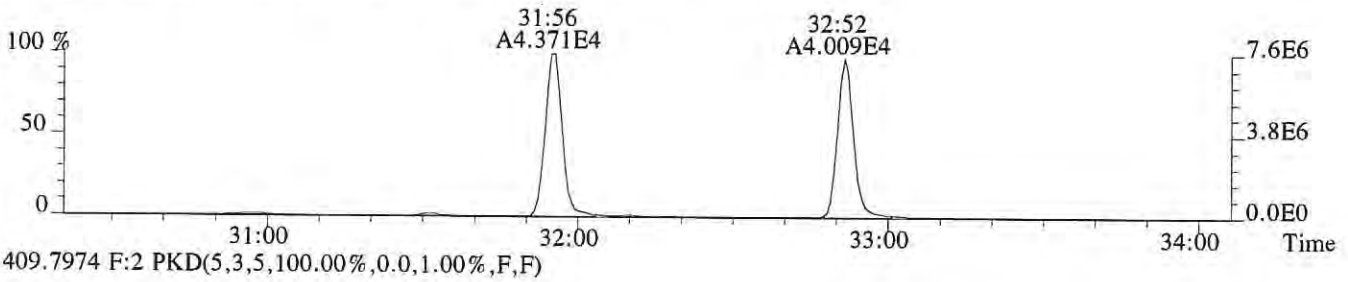
CW 12/11/18



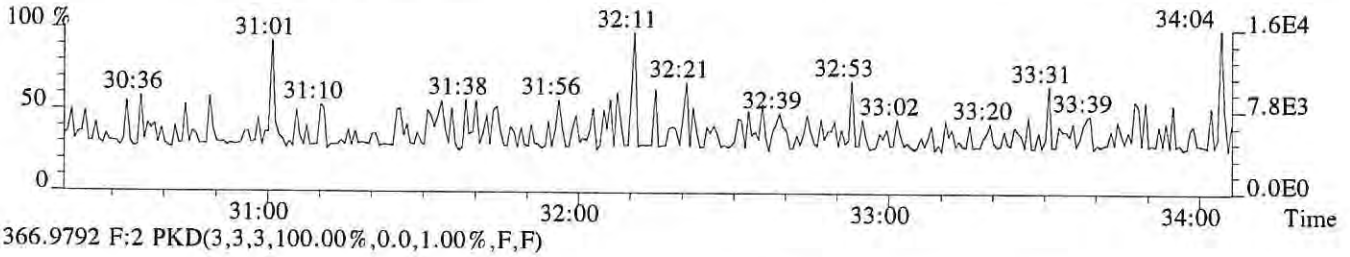
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



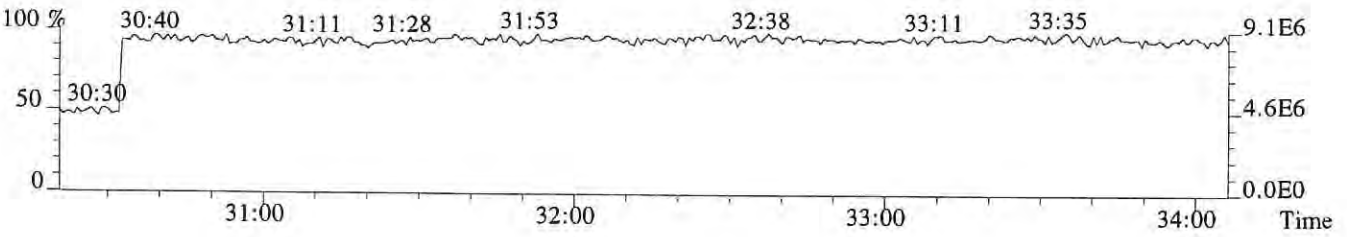
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



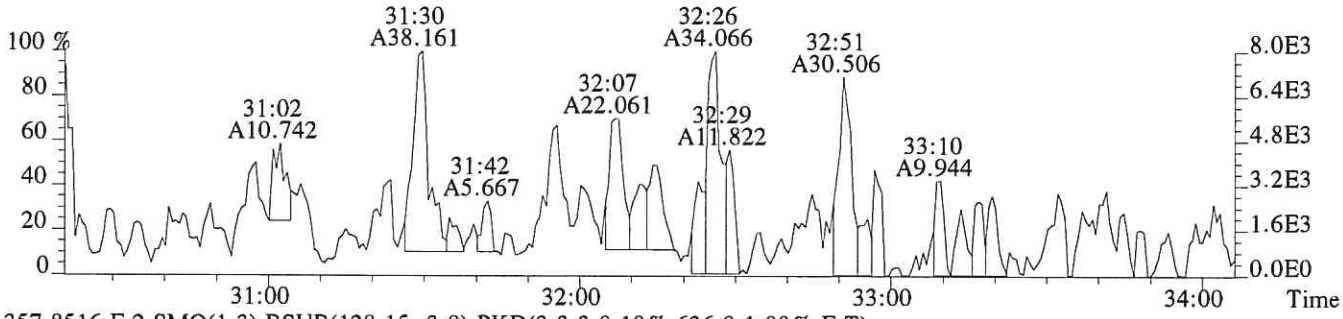
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



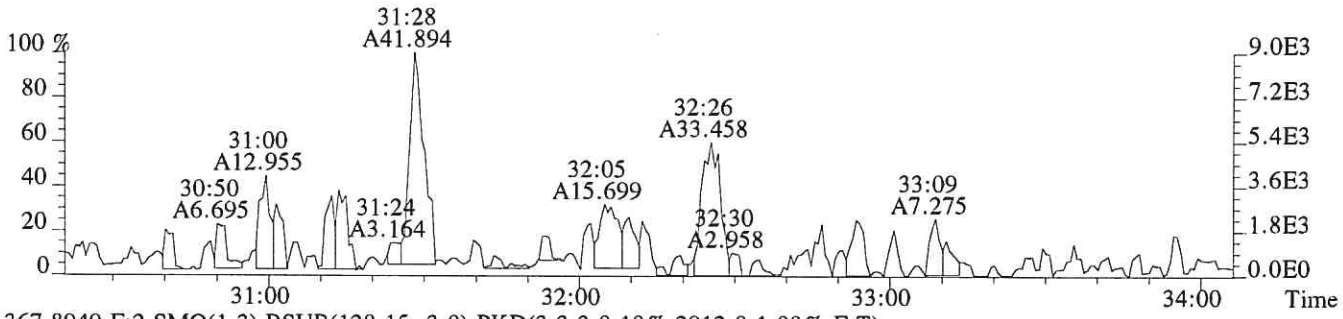
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



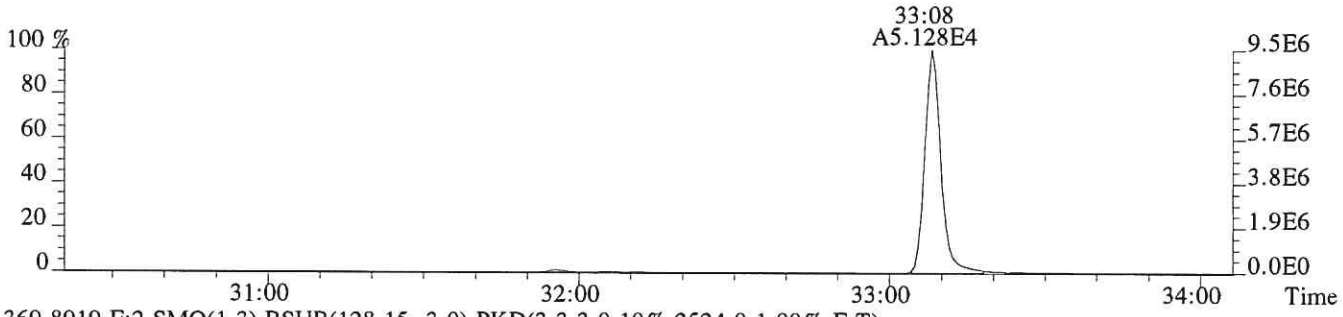
File:P615978 #1-339 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



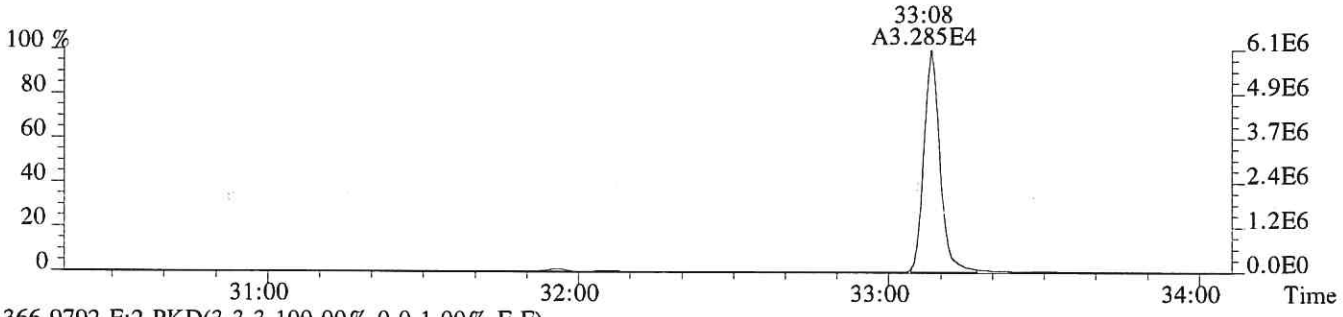
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



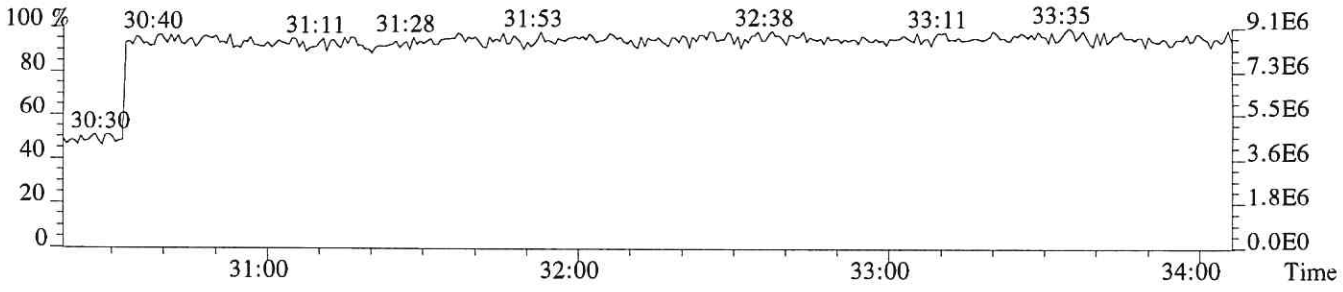
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2912.0,1.00%,F,T)



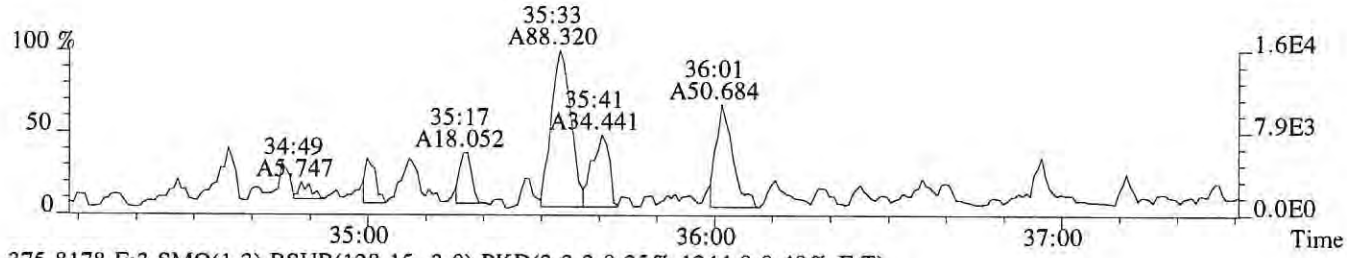
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



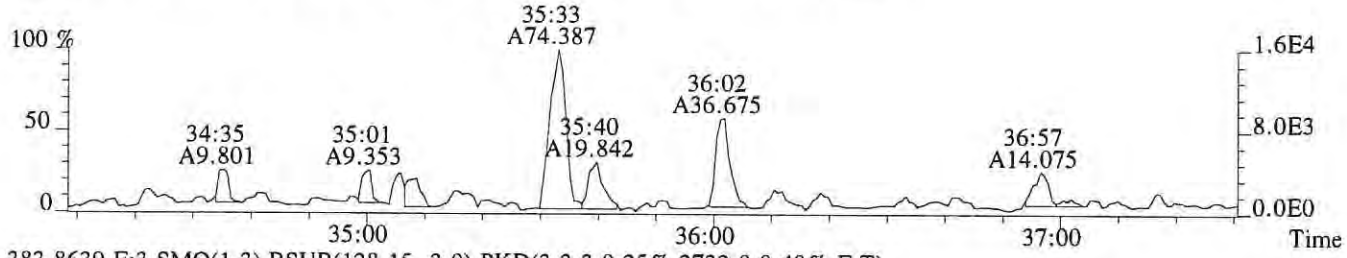
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



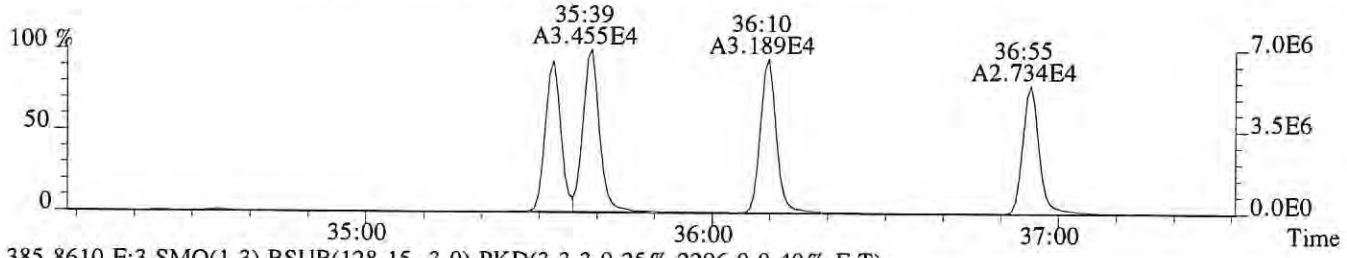
File:P615978 #1-304 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2108.0,0.40%,F,T)



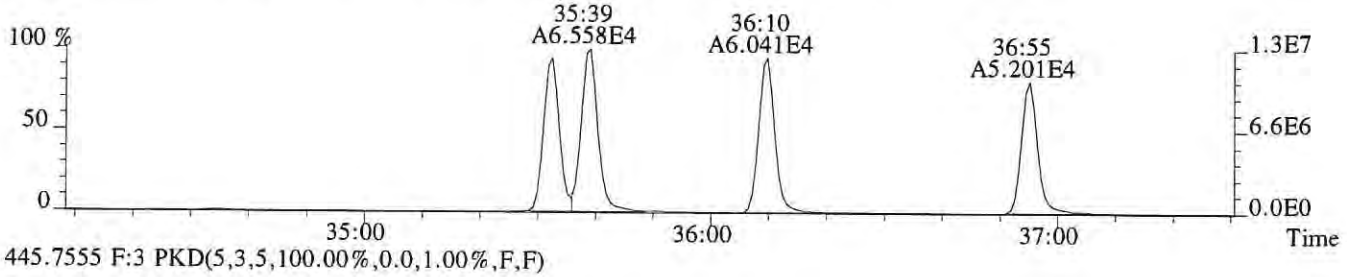
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



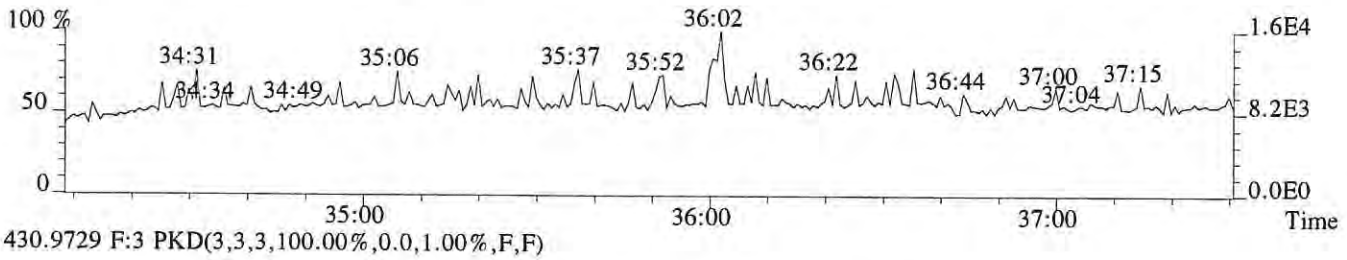
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2732.0,0.40%,F,T)



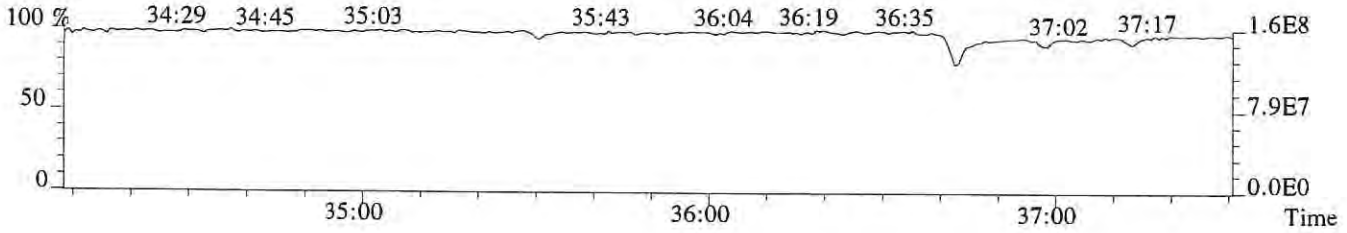
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2296.0,0.40%,F,T)



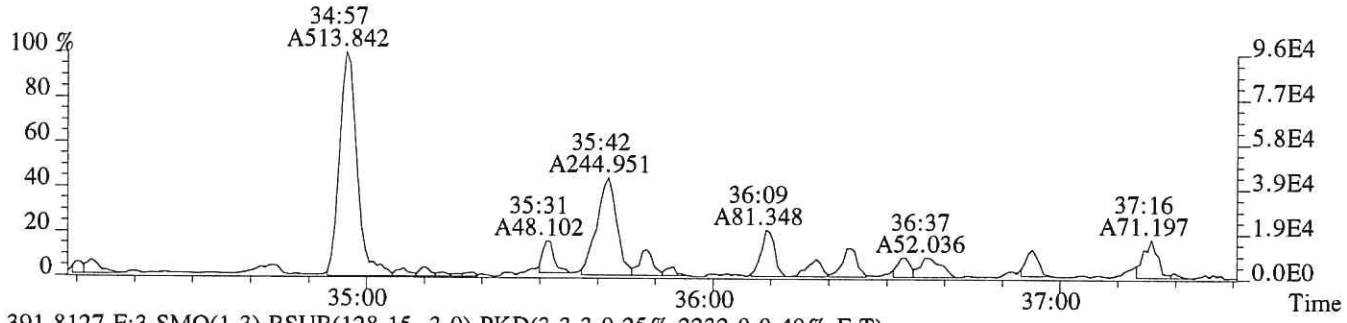
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



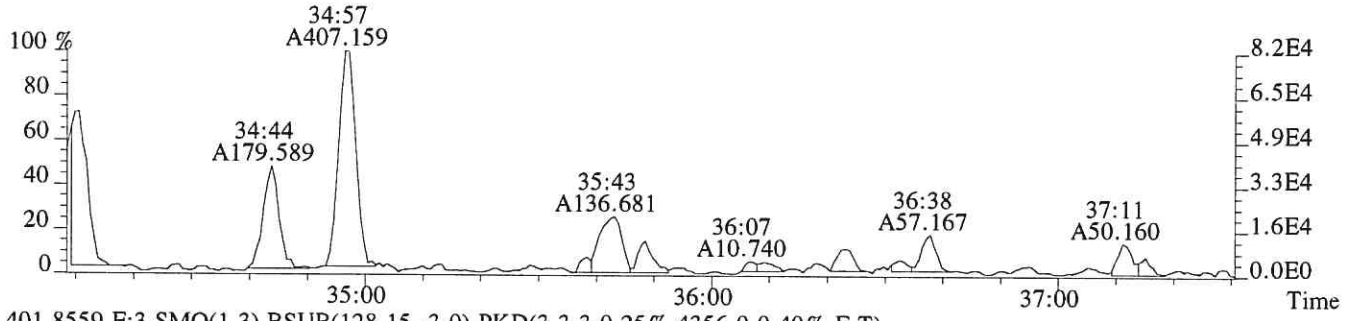
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



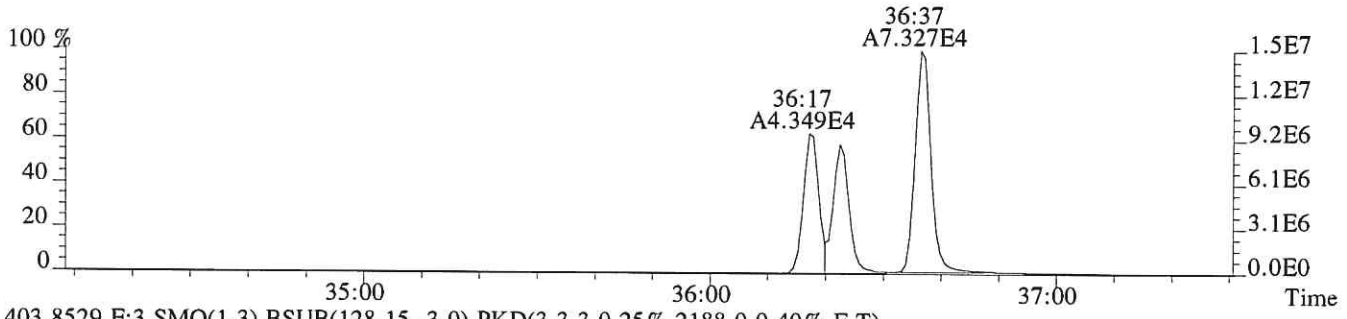
File:P615978 #1-304 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



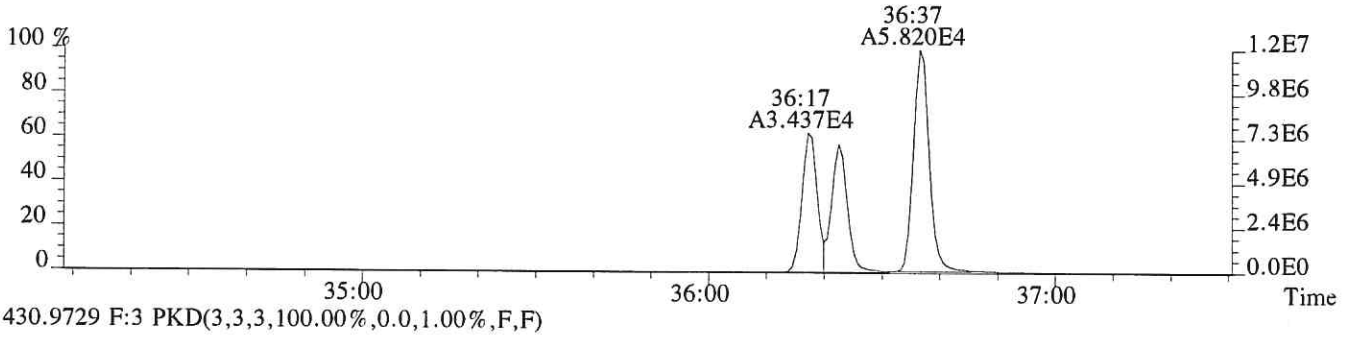
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2232.0,0.40%,F,T)



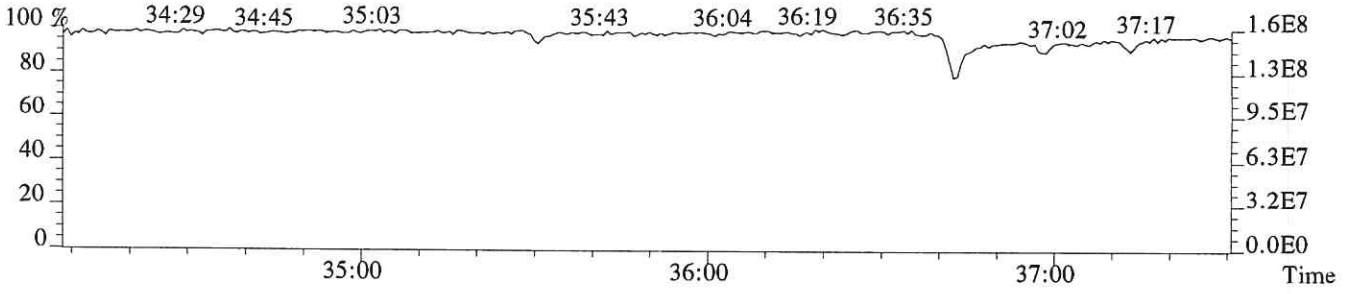
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4356.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.40%,F,T)

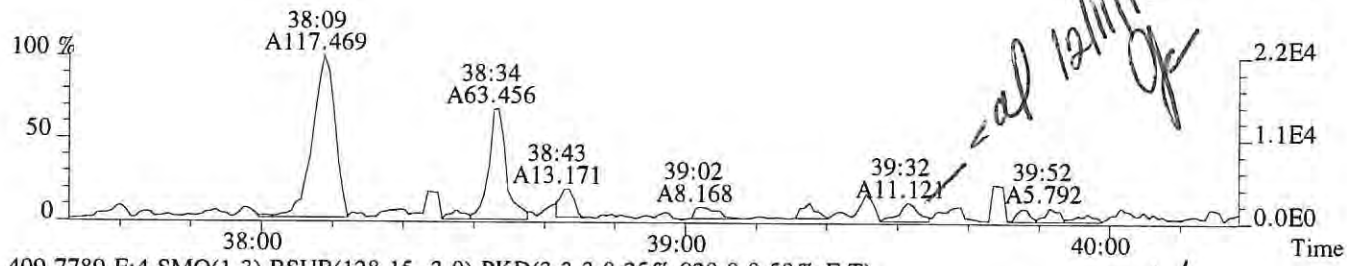


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

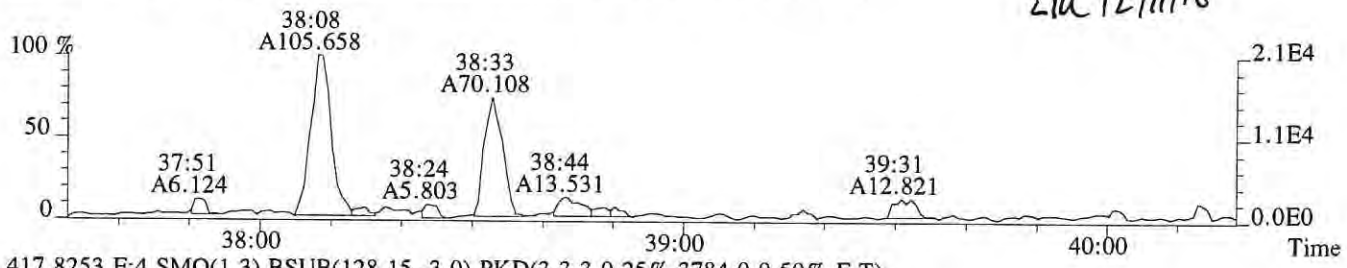


File:P615978 #1-249 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005

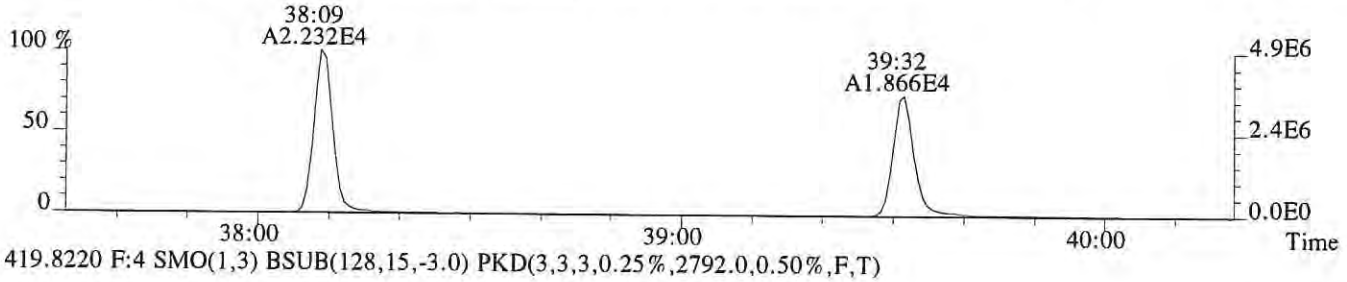
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.50%,F,T)



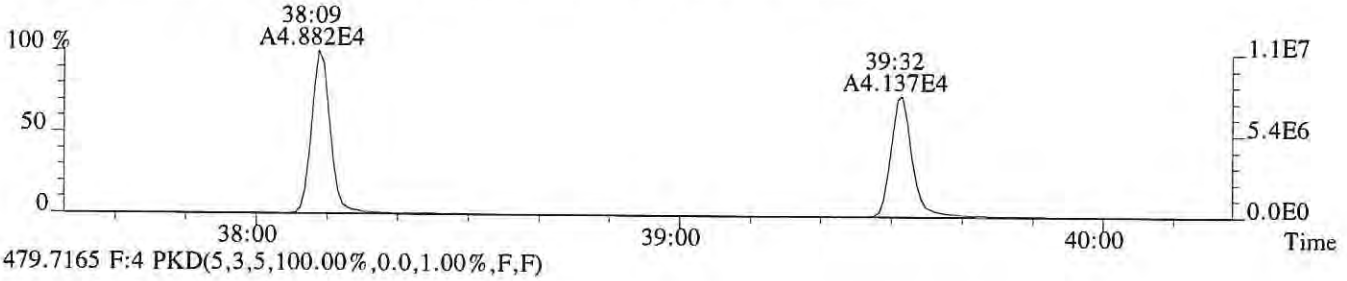
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.50%,F,T)



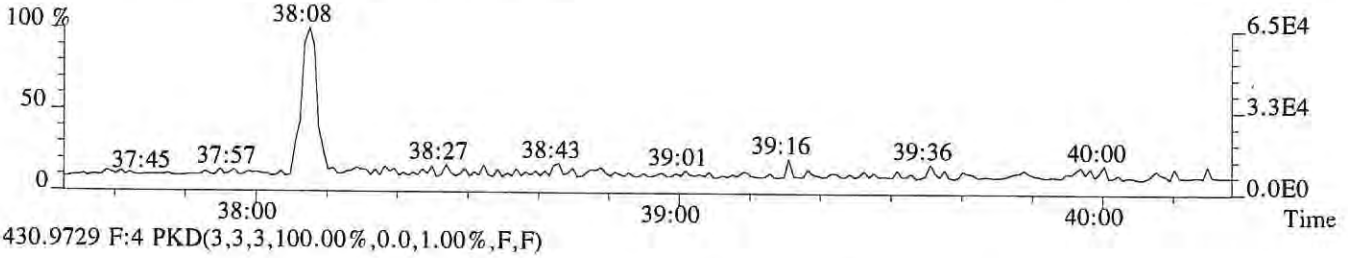
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3784.0,0.50%,F,T)



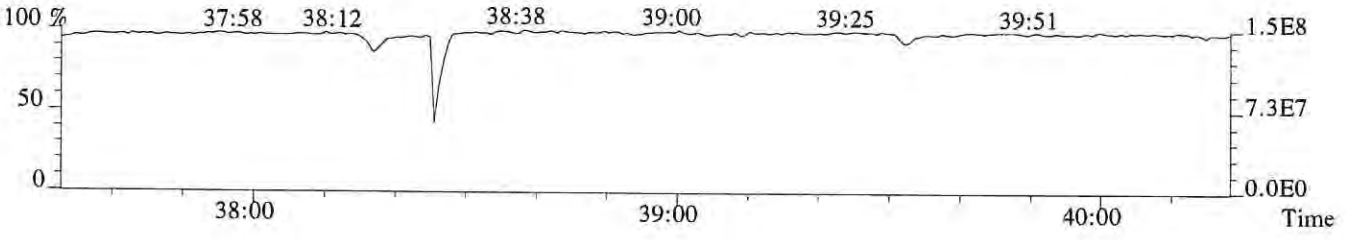
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2792.0,0.50%,F,T)



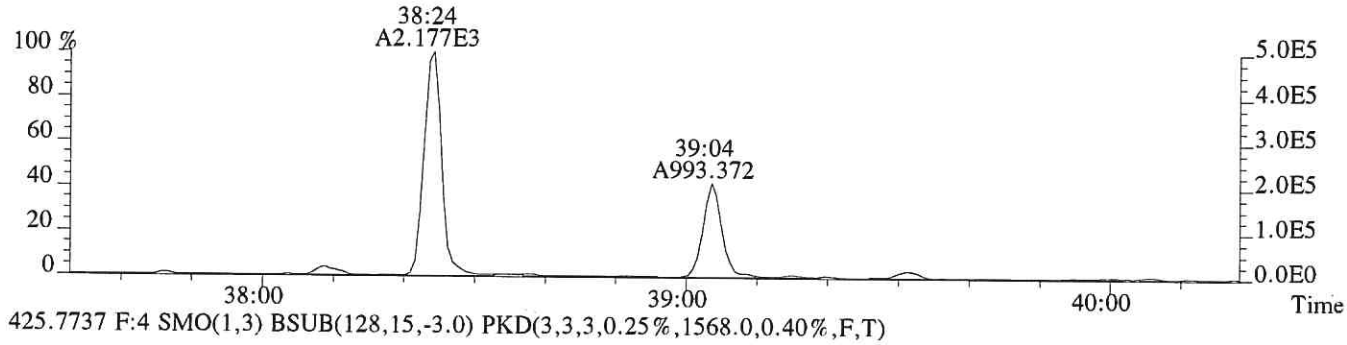
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



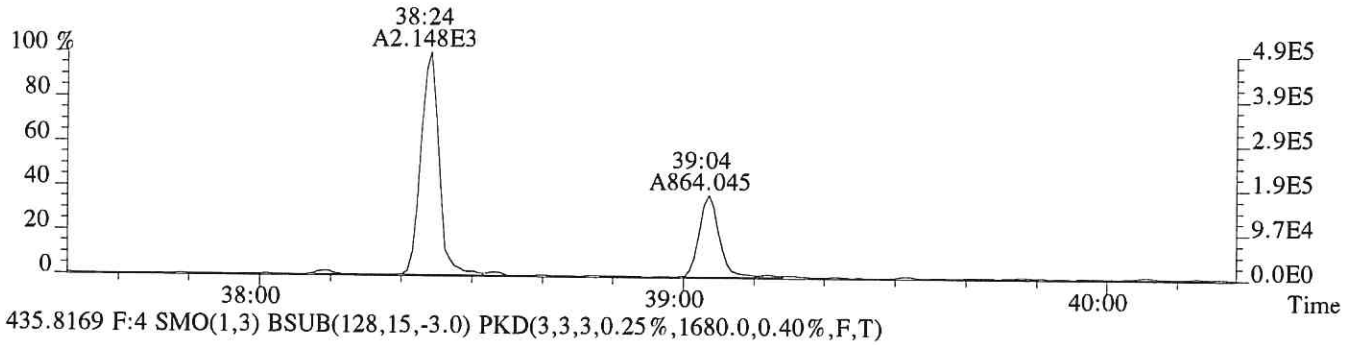
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



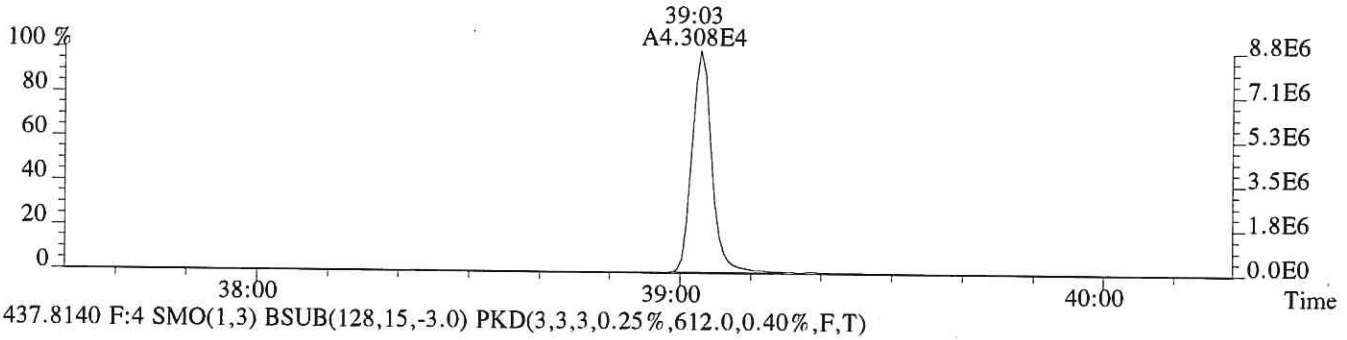
File:P615978 #1-249 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



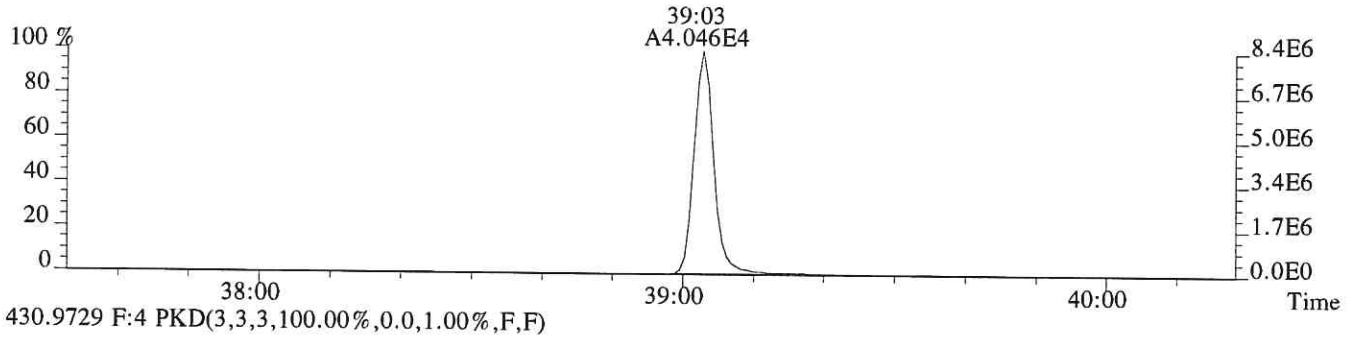
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



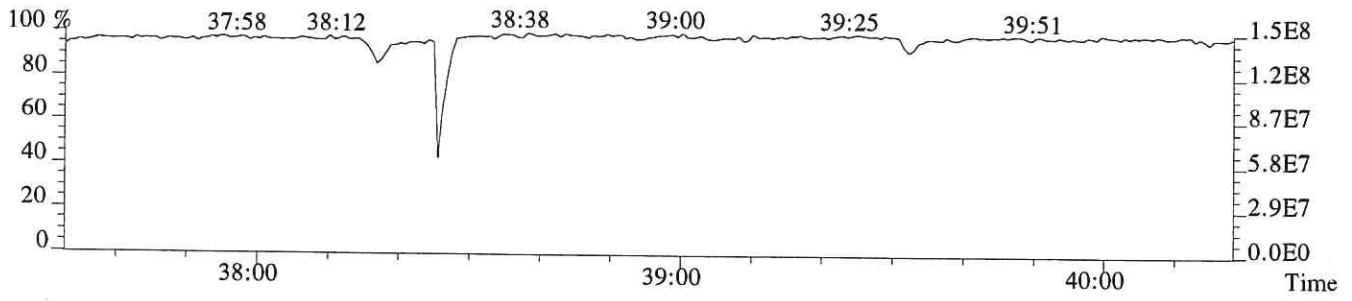
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



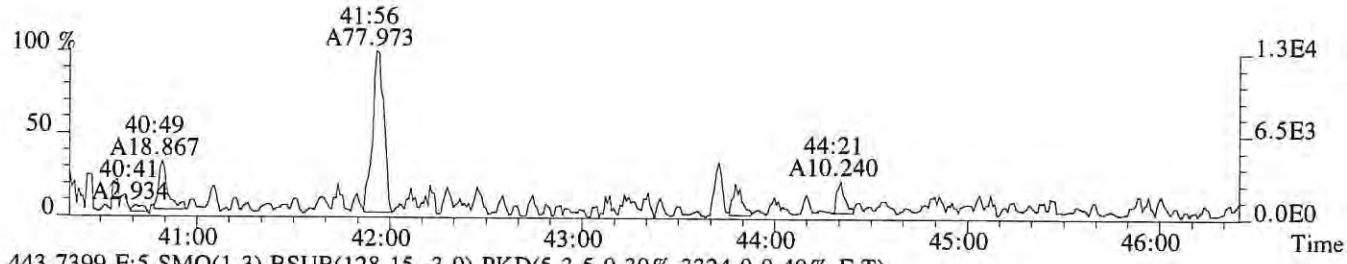
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



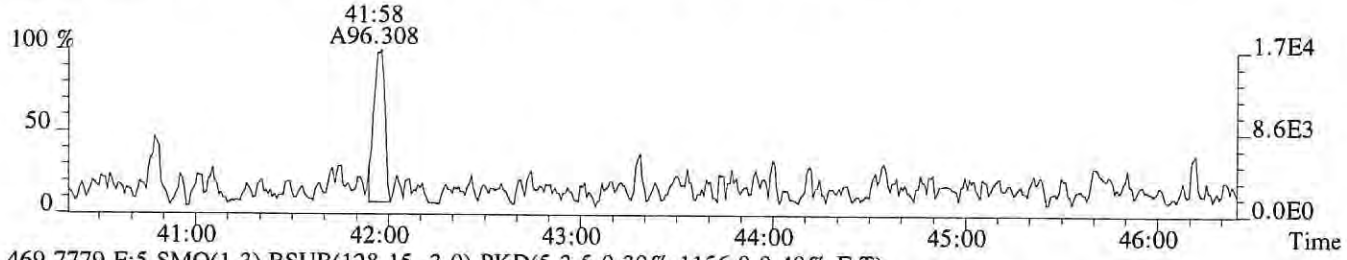
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



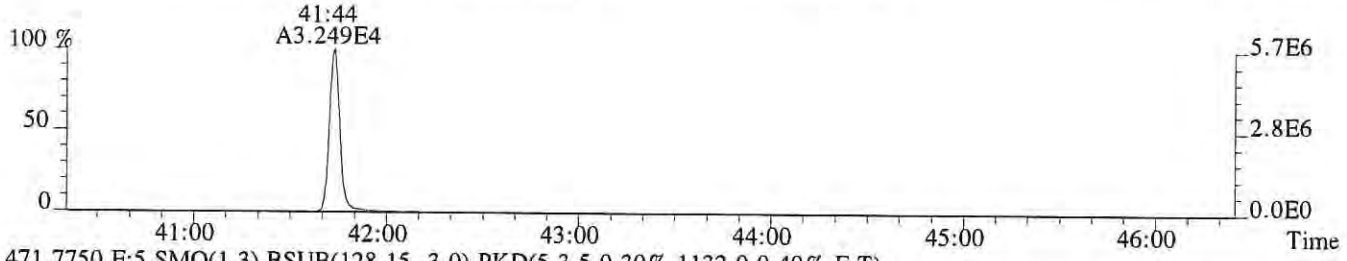
File:P615978 #1-547 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,868.0,0.40%,F,T)



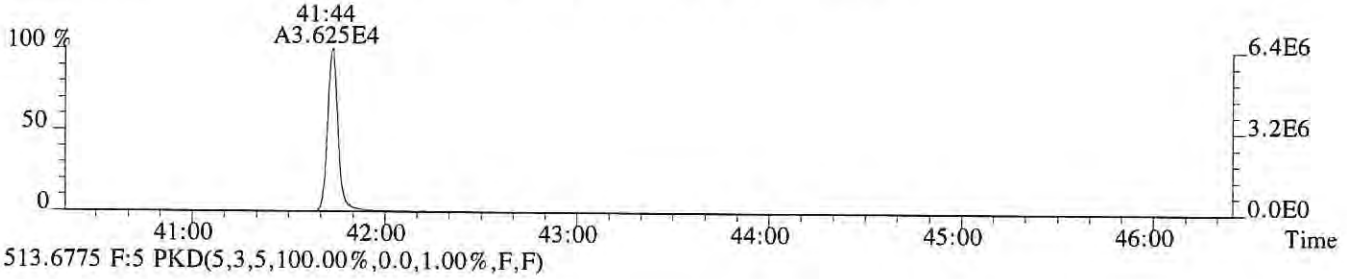
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3324.0,0.40%,F,T)



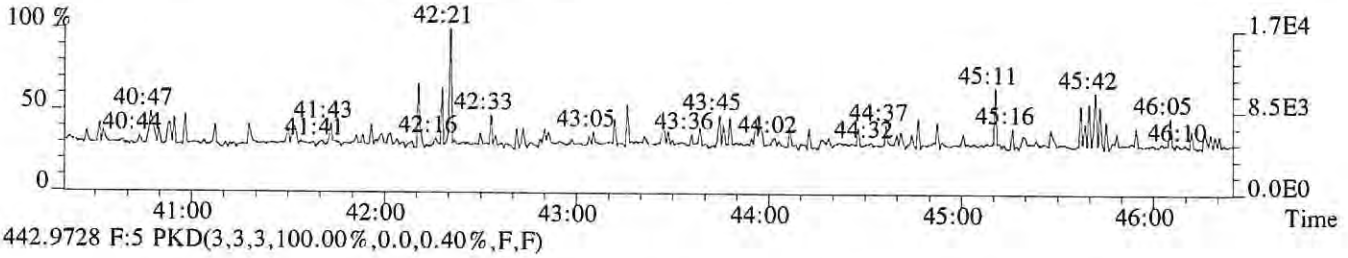
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1156.0,0.40%,F,T)



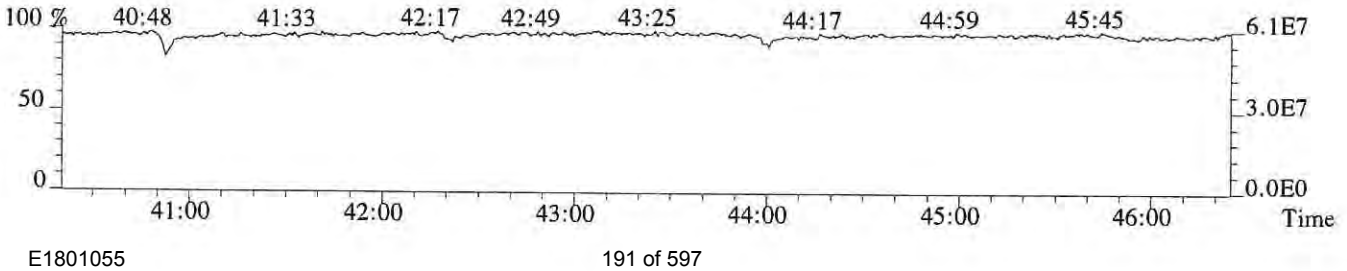
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1132.0,0.40%,F,T)



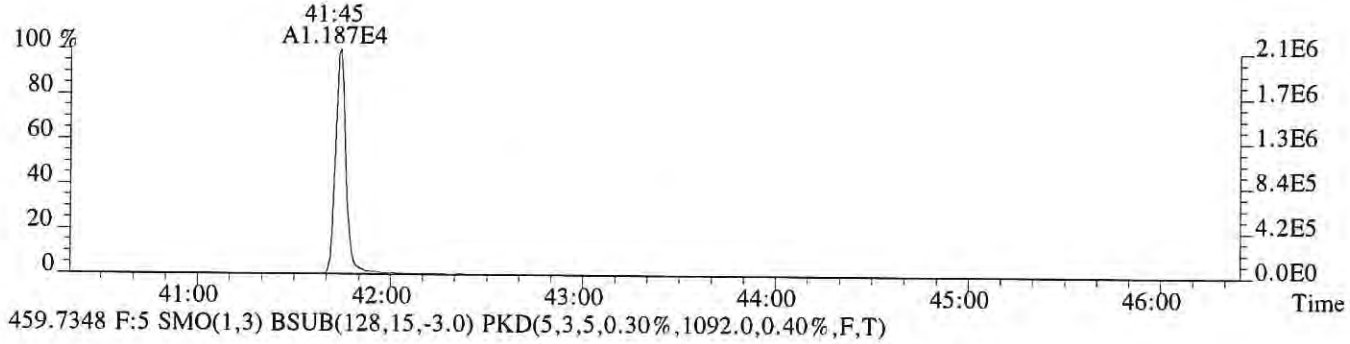
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



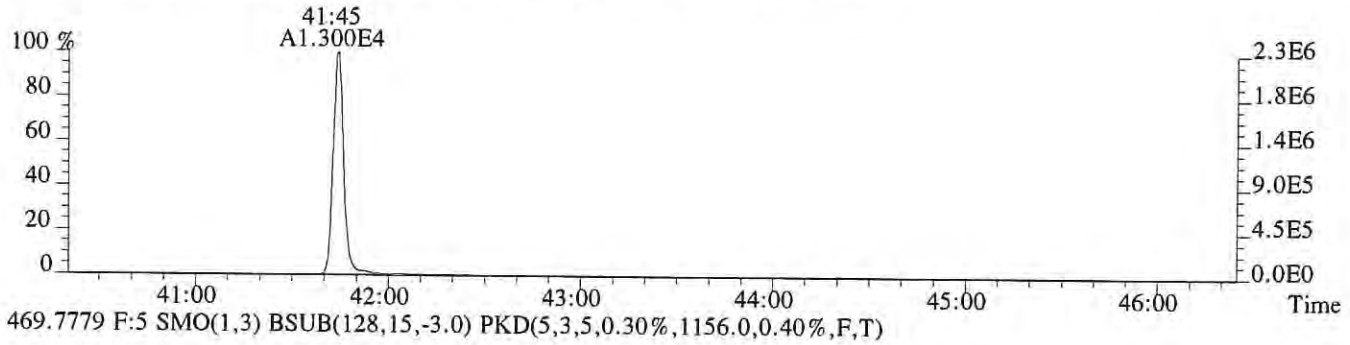
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



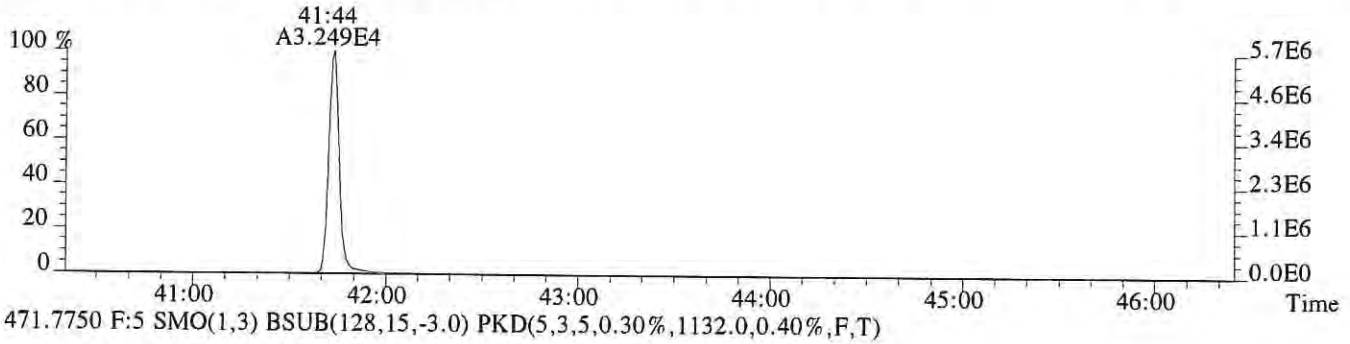
File:P615978 #1-547 Acq: 7-DEC-2018 18:51:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



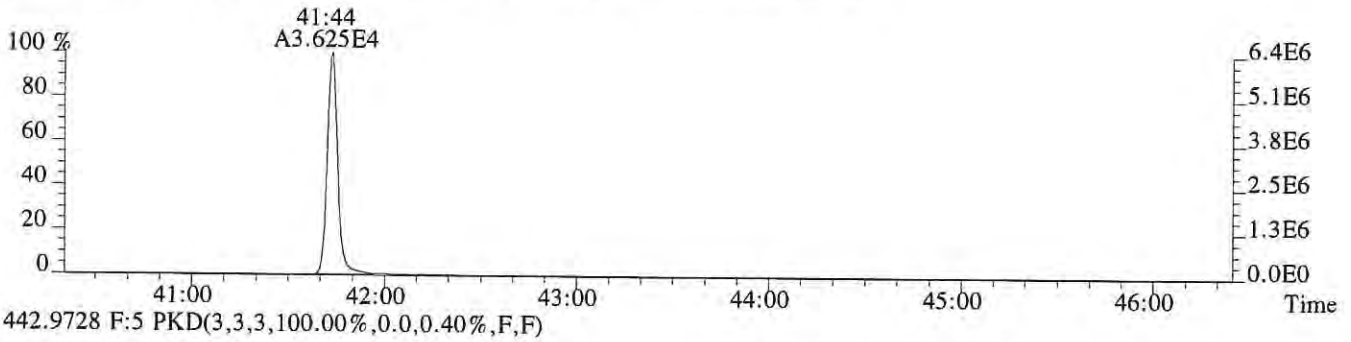
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



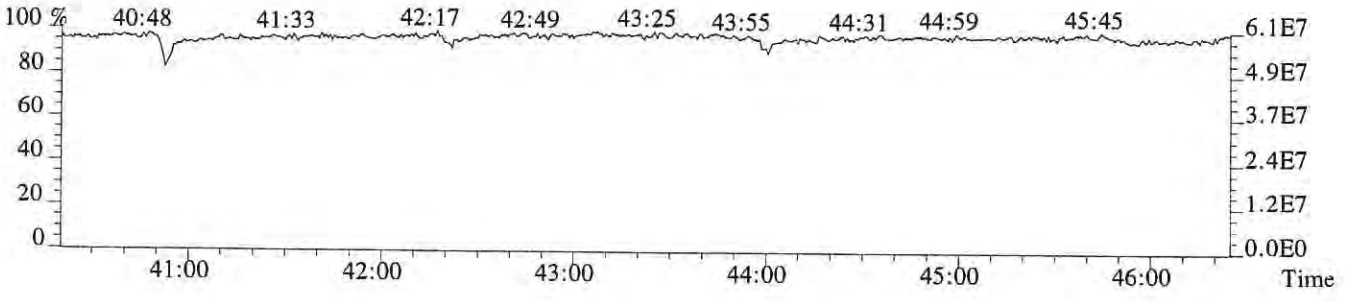
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1156.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1132.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0551

Run #19 Filename P615979 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:41:01
Processed: 10-DEC-18 16:28:25 Sample ID: E1801055-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:36	2.157e+03	2.878e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	1.155e+02	6.335e+01	1.82	no	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	32:52	6.248e+01	7.360e+01	0.85	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:32	1.646e+02	1.783e+02	0.92	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:39	6.505e+01	5.663e+01	1.15	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:10	2.952e+01	1.409e+01	2.09	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:09	1.151e+02	7.560e+01	1.52	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	41:56	6.871e+01	8.377e+01	0.82	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:25	4.792e+02	6.529e+02	0.73	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	6.844e+01	3.237e+01	2.11	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:03	9.589e+02	9.286e+02	1.03	yes	no	1.112
17	Unk	OCDD	41:43	1.052e+04	1.186e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	2.345e+04	3.030e+04	0.77	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	4.628e+04	2.954e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:51	4.367e+04	2.787e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	2.242e+04	4.331e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	2.604e+04	4.891e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	2.304e+04	4.463e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.059e+04	3.978e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	1.702e+04	3.774e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:30	1.382e+04	3.126e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.266e+04	1.589e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	3.553e+04	2.275e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	3.232e+04	2.541e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:22	3.385e+04	2.641e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	3.363e+04	3.236e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:43	2.872e+04	3.208e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:46	3.788e+04	4.754e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:36	5.620e+04	4.501e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	1.942e+04				no	1.086

$$\text{OCDD} = \frac{(1.052e+04 + 1.186e+04) \times 4000\ \text{pg} \times 1}{(2.872e+04 + 3.208e+04) \times 10.954\ \text{g} \times 75.8 / 100 \times 1.157} = 153\ \text{ng/kg}$$

LLW 12/12/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0551

Run #19 Filename P615979 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:41:01
Processed: 10-DEC-18 16:28:25 LAB. ID: E1801055-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.00e+05	1.83e+03	1.6e+02	4.17e+05	5.28e+03	7.9e+01
2	1,2,3,7,8-PeCDF	2.04e+04	1.46e+03	1.4e+01	1.46e+04	3.42e+03	4.3e+00
3	2,3,4,7,8-PeCDF	1.23e+04	1.46e+03	8.4e+00	1.51e+04	3.42e+03	4.4e+00
4	1,2,3,4,7,8-HxCDF	3.82e+04	1.88e+03	2.0e+01	3.88e+04	6.56e+02	5.9e+01
5	1,2,3,6,7,8-HxCDF	1.30e+04	1.88e+03	6.9e+00	9.77e+03	6.56e+02	1.5e+01
6	2,3,4,6,7,8-HxCDF	6.32e+03	1.88e+03	3.4e+00	2.83e+03	6.56e+02	4.3e+00
7	1,2,3,7,8,9-HxCDF	*	1.88e+03	*	*	6.56e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.94e+04	6.64e+02	2.9e+01	1.37e+04	5.00e+02	2.7e+01
9	1,2,3,4,7,8,9-HpCDF	*	6.64e+02	*	*	5.00e+02	*
10	OCDF	1.44e+04	7.40e+02	1.9e+01	1.56e+04	2.95e+03	5.3e+00
11	2,3,7,8-TCDD	8.49e+04	4.36e+03	1.9e+01	1.13e+05	1.74e+03	6.5e+01
12	1,2,3,7,8-PeCDD	*	1.64e+03	*	*	6.20e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.96e+02	*	*	1.86e+03	*
14	1,2,3,6,7,8-HxCDD	*	9.96e+02	*	*	1.86e+03	*
15	1,2,3,7,8,9-HxCDD	1.31e+04	9.96e+02	1.3e+01	7.75e+03	1.86e+03	4.2e+00
16	1,2,3,4,6,7,8-HpCDD	2.01e+05	1.88e+03	1.1e+02	2.00e+05	1.65e+03	1.2e+02
17	OCDD	1.86e+06	4.00e+02	4.7e+03	2.08e+06	4.56e+02	4.6e+03
18	13C-2,3,7,8-TCDF	3.62e+06	2.36e+04	1.5e+02	4.69e+06	1.47e+04	3.2e+02
19	13C-1,2,3,7,8-PeCDF	8.00e+06	1.20e+03	6.7e+03	5.13e+06	7.80e+02	6.6e+03
20	13C-2,3,4,7,8-PeCDF	7.87e+06	1.20e+03	6.6e+03	5.04e+06	7.80e+02	6.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.82e+06	1.96e+03	2.5e+03	9.38e+06	1.91e+03	4.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.22e+06	1.96e+03	2.7e+03	9.82e+06	1.91e+03	5.1e+03
23	13C-2,3,4,6,7,8-HxCDF	4.77e+06	1.96e+03	2.4e+03	9.14e+06	1.91e+03	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	4.12e+06	1.96e+03	2.1e+03	7.76e+06	1.91e+03	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.70e+06	4.19e+03	8.8e+02	8.30e+06	4.43e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.63e+06	4.19e+03	6.3e+02	6.01e+06	4.43e+03	1.4e+03
27	13C-2,3,7,8-TCDD	2.13e+06	2.63e+04	8.1e+01	2.61e+06	6.12e+03	4.3e+02
28	13C-1,2,3,7,8-PeCDD	6.44e+06	2.65e+03	2.4e+03	4.18e+06	2.46e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	7.11e+06	2.79e+03	2.5e+03	5.58e+06	2.86e+03	2.0e+03
30	13C-1,2,3,6,7,8-HxCDD	6.64e+06	2.79e+03	2.4e+03	5.26e+06	2.86e+03	1.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.92e+06	1.30e+03	5.3e+03	6.60e+06	6.20e+02	1.1e+04
32	13C-OCDD	5.02e+06	1.48e+03	3.4e+03	5.74e+06	4.72e+02	1.2e+04
33	13C-1,2,3,4-TCDD	6.45e+06	2.63e+04	2.4e+02	8.23e+06	6.12e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.14e+07	2.79e+03	4.1e+03	9.14e+06	2.86e+03	3.2e+03
35	37Cl-2,3,7,8-TCDD	3.20e+06	4.14e+03	7.7e+02			

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Peak List Summary

CLIENT ID.
SL0551

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P615979 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 19:41:01 Processed: 10-DEC-18 16:28:25

Mass: 303.9020 305.8990 Tot Response: 8.33e+03 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:44	9.19e+01	1.28e+02	0.72	yes	2.20e+02		n	n
2	26:44	9.51e+02	1.26e+03	0.75	yes	2.21e+03		n	n
3	27:36	2.16e+03	2.88e+03	0.75	yes	5.03e+03	2,3,7,8-TCDF	n	n
4	27:57	1.57e+02	2.19e+02	0.72	yes	3.76e+02		n	n
5	29:31	2.26e+02	2.57e+02	0.88	yes	4.83e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0551

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P615979 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 19:41:01 Processed: 10-DEC-18 16:28:25

Mass: 319.8970 321.8940 Tot Response: 1.13e+03 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:25	4.79e+02	6.53e+02 0.73	yes	1.13e+03	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0551

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P615979 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 19:41:01 Processed: 10-DEC-18 16:28:25

Mass: 373.8210 375.8180 Tot Response: 1.85e+02 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:39	6.51e+01	5.66e+01	1.15	yes	1.22e+02	1,2,3,6,7,8-HxCDF	n	n
2	36:01	3.40e+01	2.89e+01	1.18	yes	6.29e+01		n	n

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Peak List Summary

CLIENT ID.
SL0551

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P615979 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 19:41:01 Processed: 10-DEC-18 16:28:25

Mass: 389.8160 391.8130 Tot Response: 4.57e+02 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:41	2.59e+02	1.98e+02 1.30	yes	4.57e+02		n	n

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Peak List Summary

CLIENT ID.
SL0551

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P615979 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 19:41:01 Processed: 10-DEC-18 16:28:25

Mass: 407.7820 409.7790 Tot Response: 1.28e+02 RRF: 1.495

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:33	6.69e+01	6.06e+01 1.10	yes	1.28e+02		n	n

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Peak List Summary

CLIENT ID.
SL0551

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P615979 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 19:41:01 Processed: 10-DEC-18 16:28:25

Mass: 423.7770 425.7740 Tot Response: 5.35e+03 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:23	1.80e+03	1.67e+03 1.08	yes	3.46e+03		n	n
2	39:03	9.59e+02	9.29e+02 1.03	yes	1.89e+03	1,2,3,4,6,7,8-HpCDD	n	n

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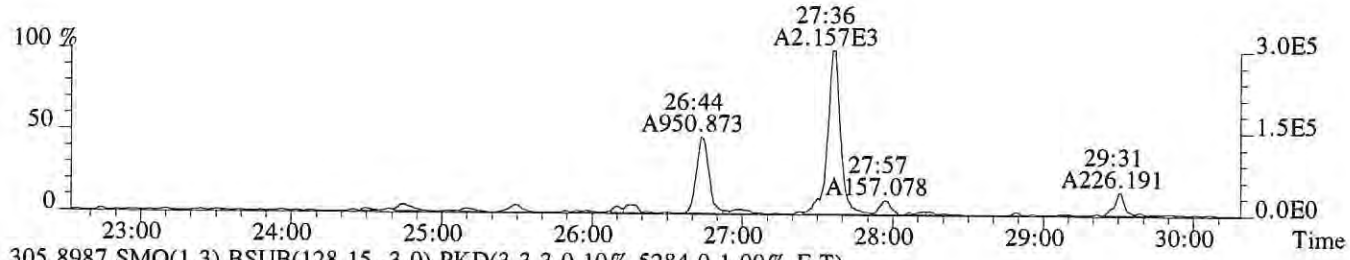
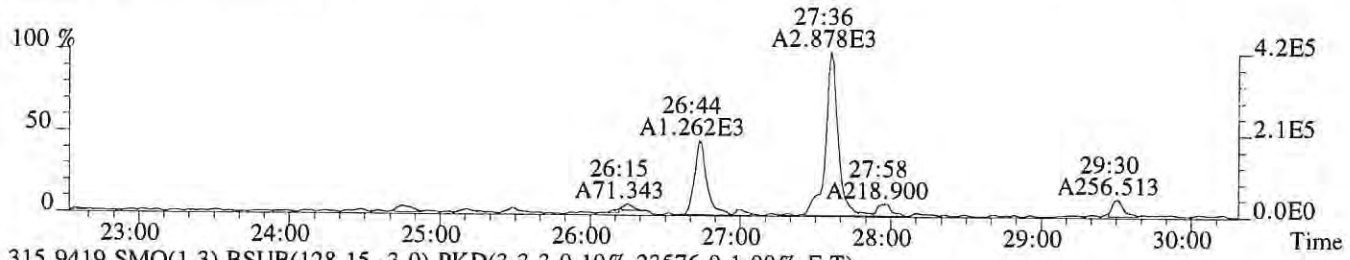
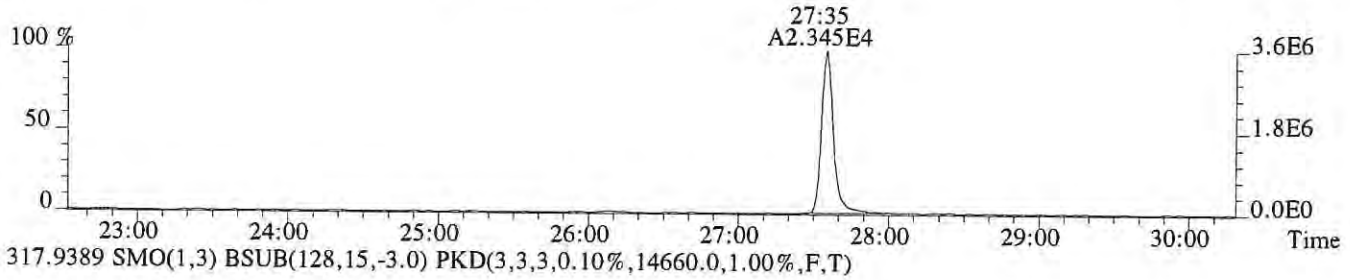
File:P615979 #1-552 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



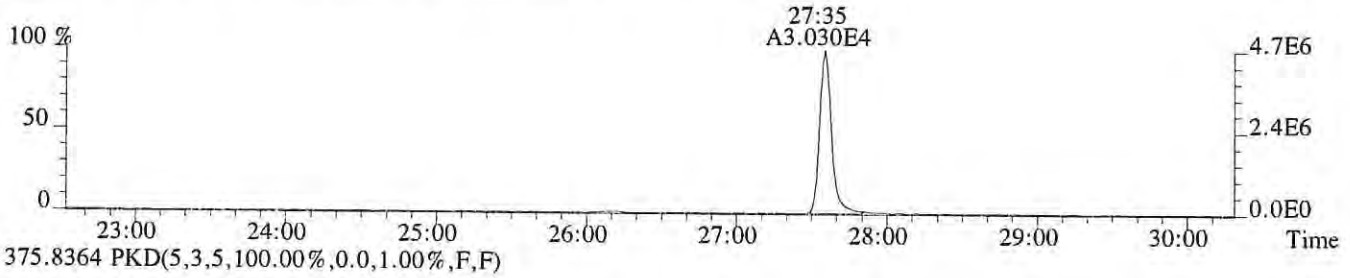
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5284.0,1.00%,F,T)



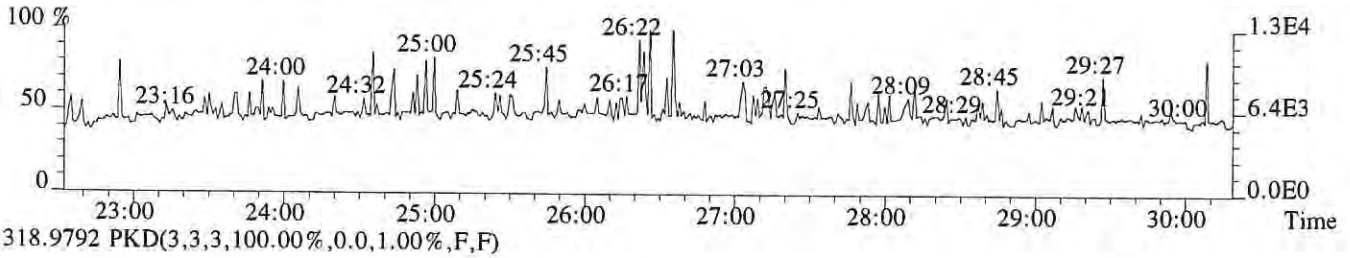
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,23576.0,1.00%,F,T)



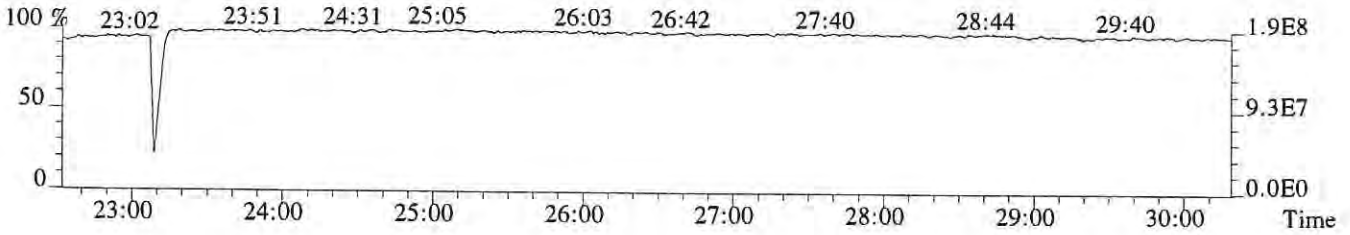
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14660.0,1.00%,F,T)



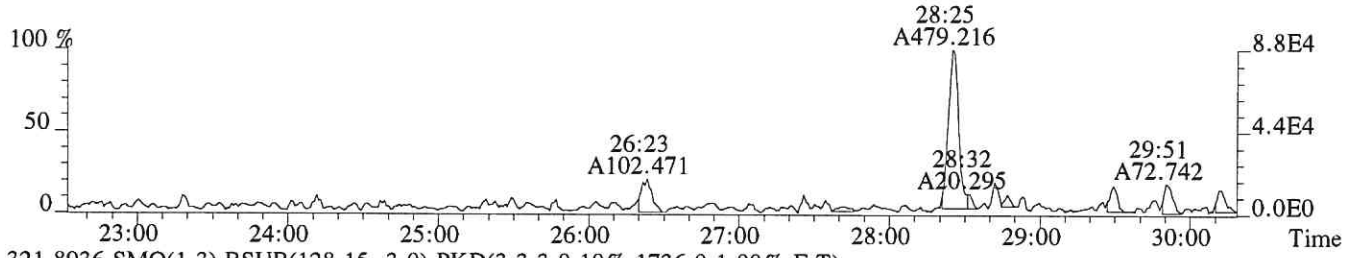
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



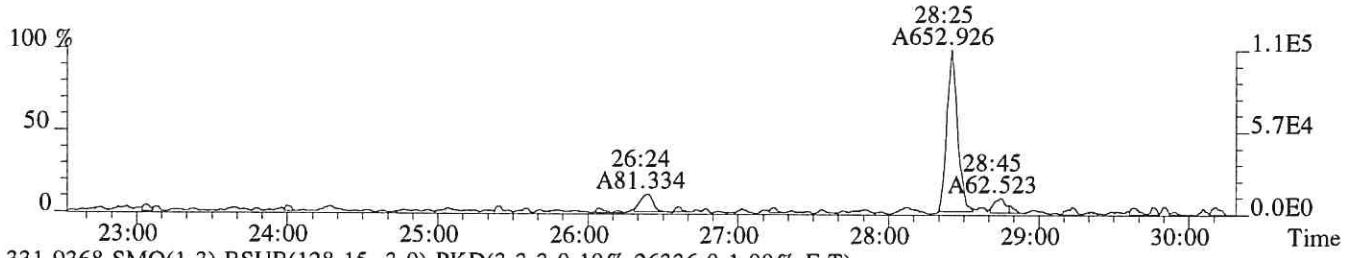
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



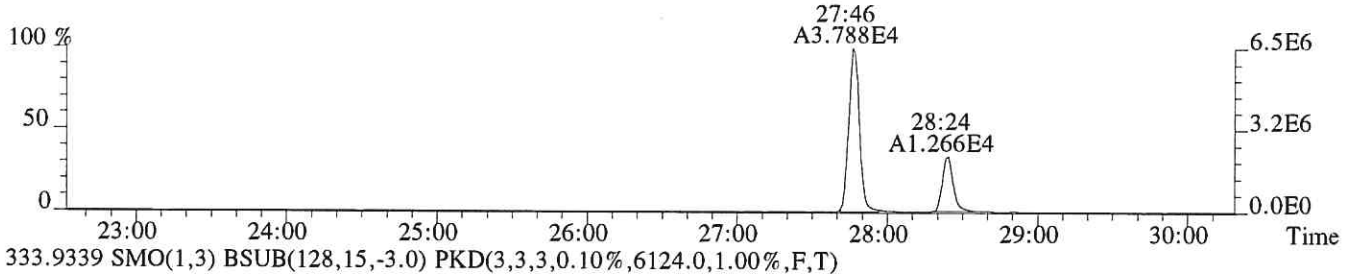
File:P615979 #1-552 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



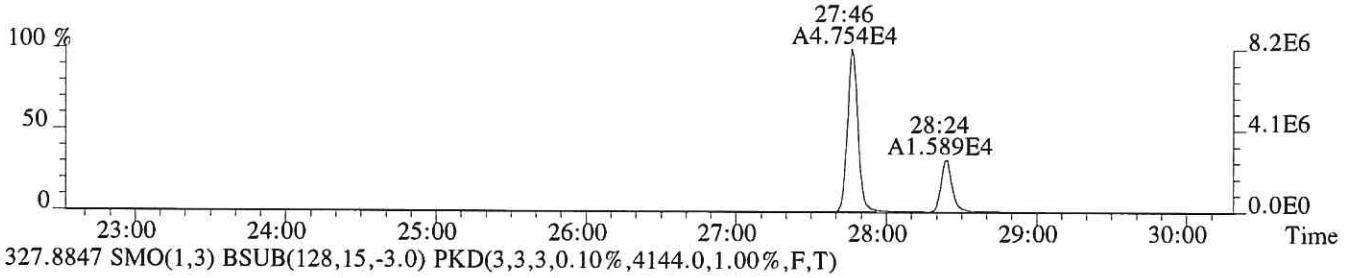
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



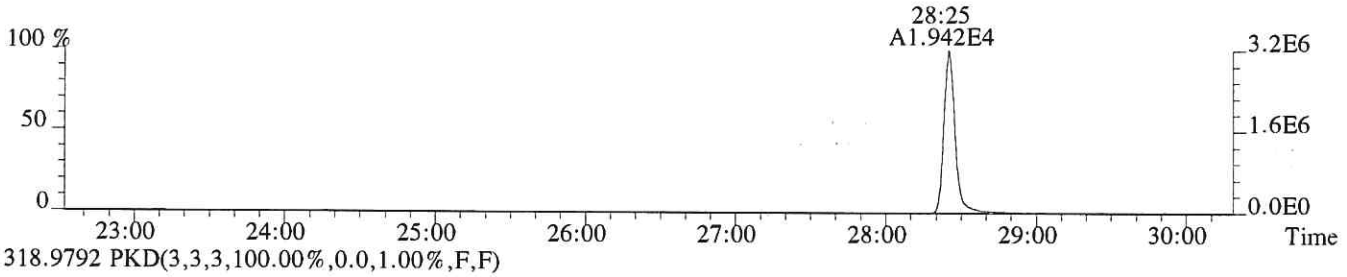
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,26336.0,1.00%,F,T)



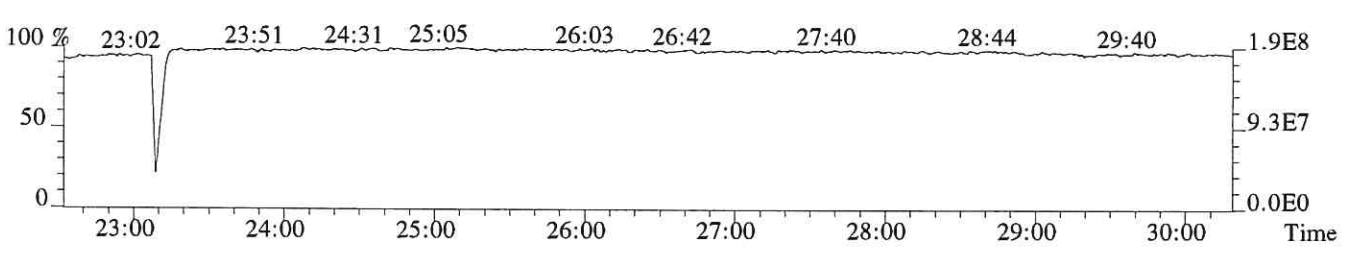
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6124.0,1.00%,F,T)



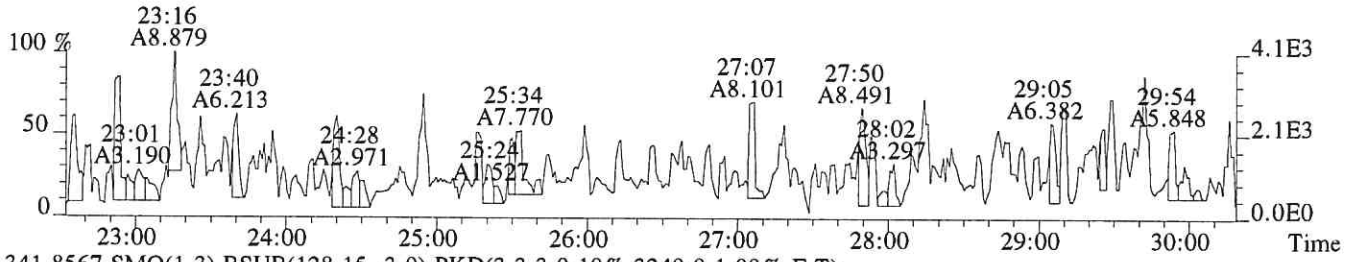
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4144.0,1.00%,F,T)



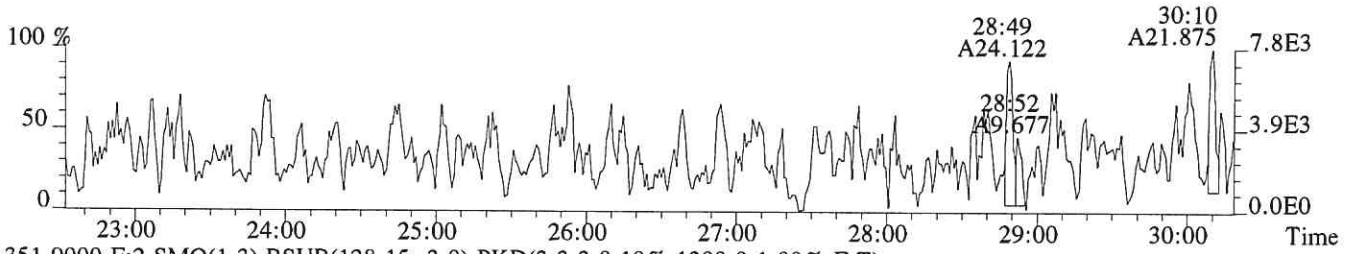
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



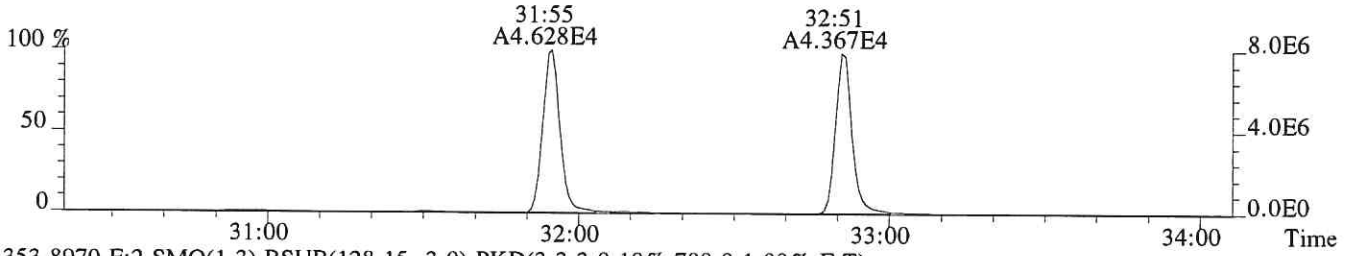
File:P615979 #1-552 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



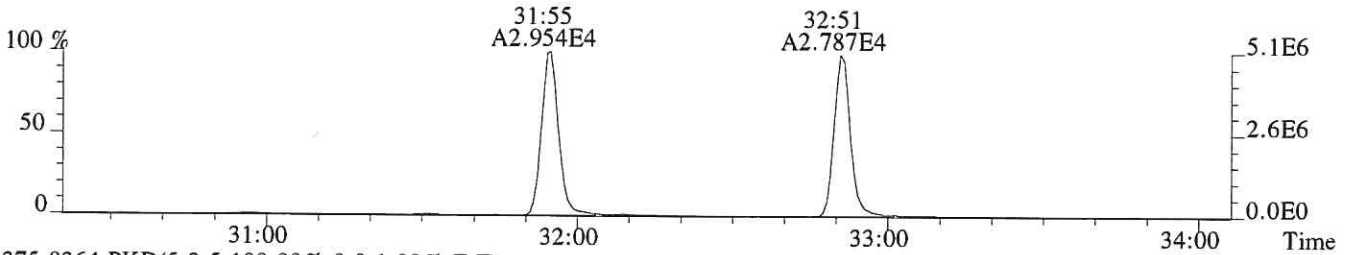
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



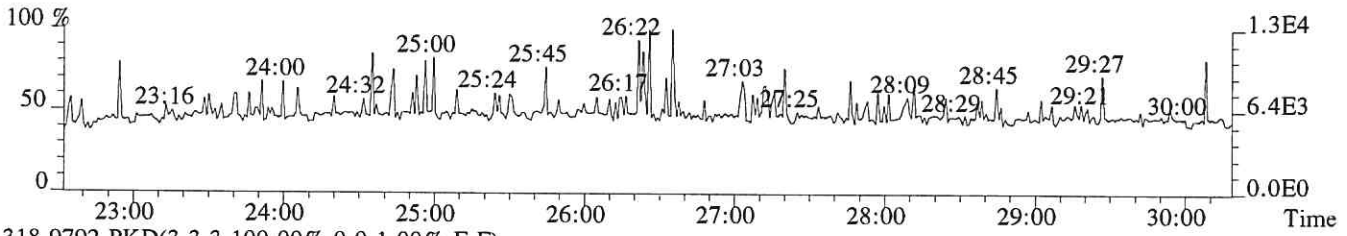
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



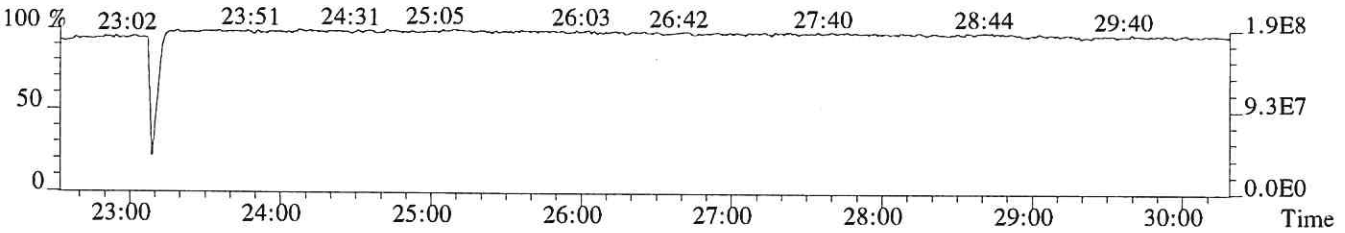
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



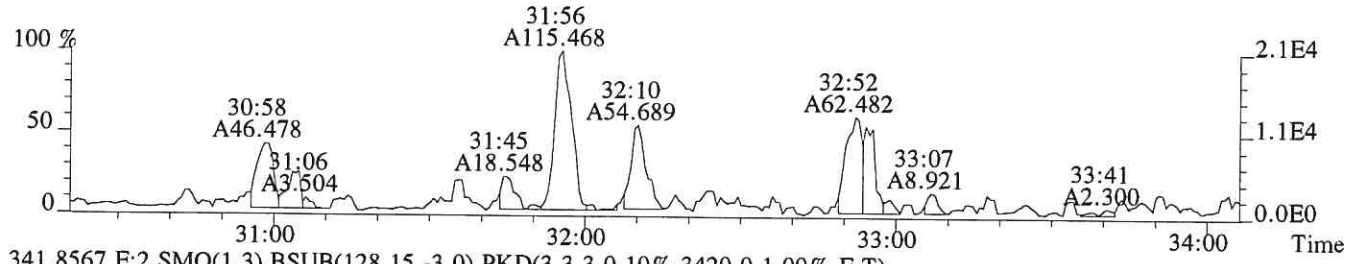
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



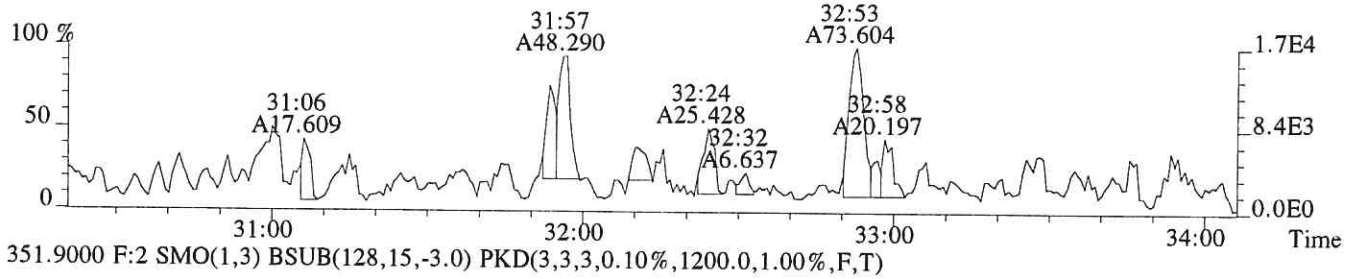
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



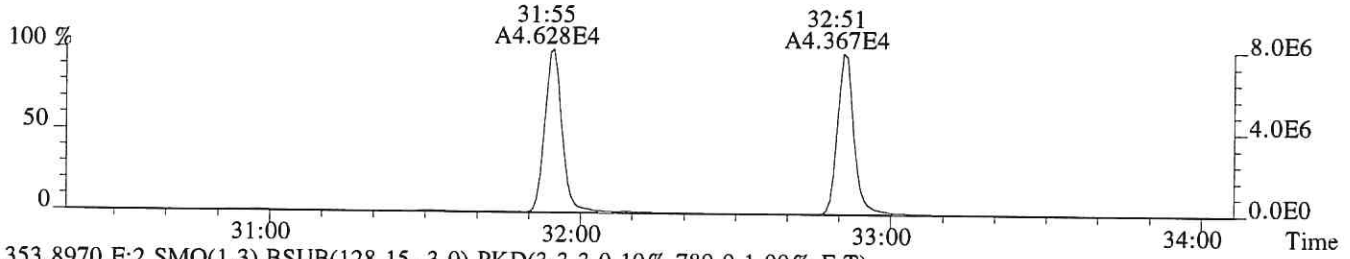
File:P615979 #1-339 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



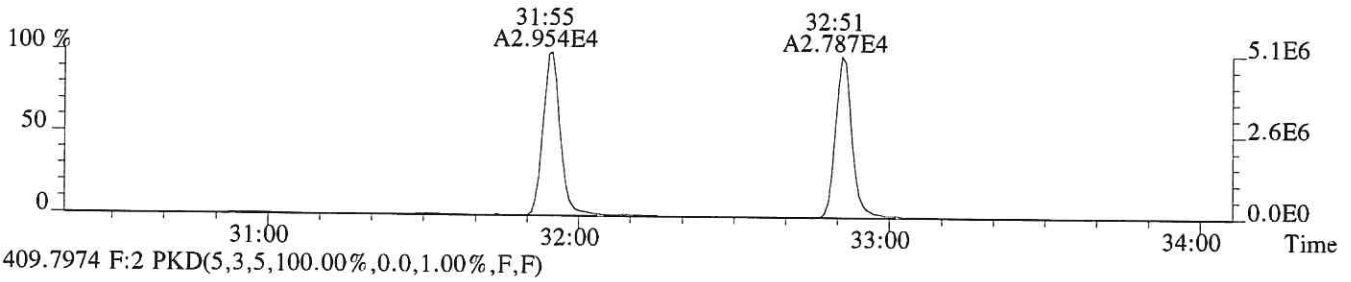
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3420.0,1.00%,F,T)



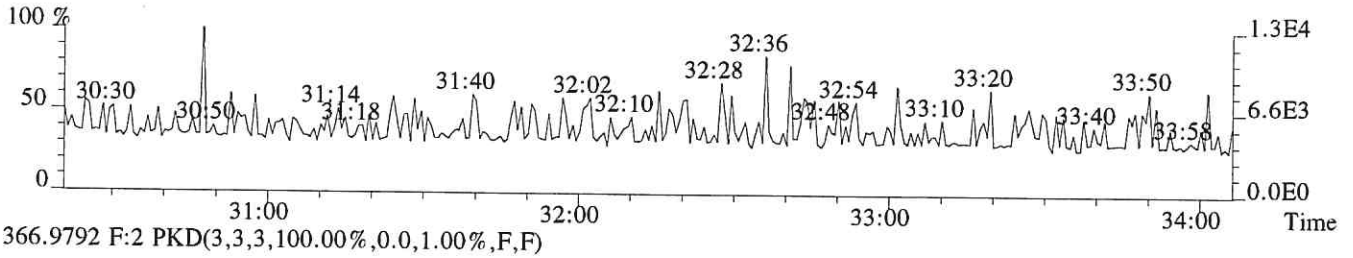
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



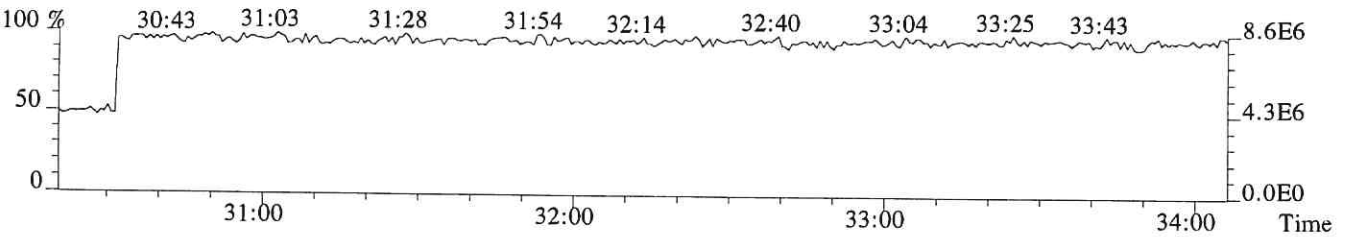
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



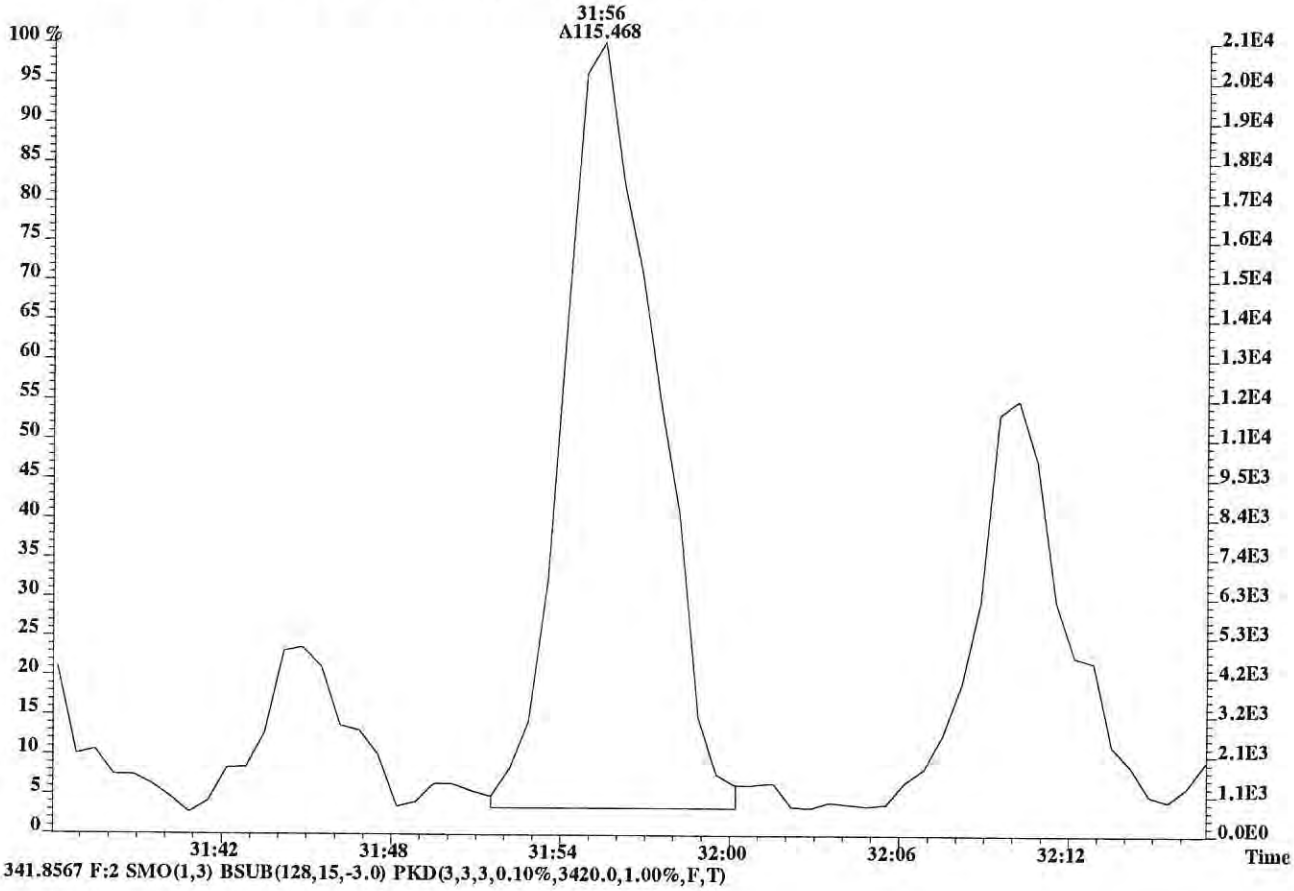
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



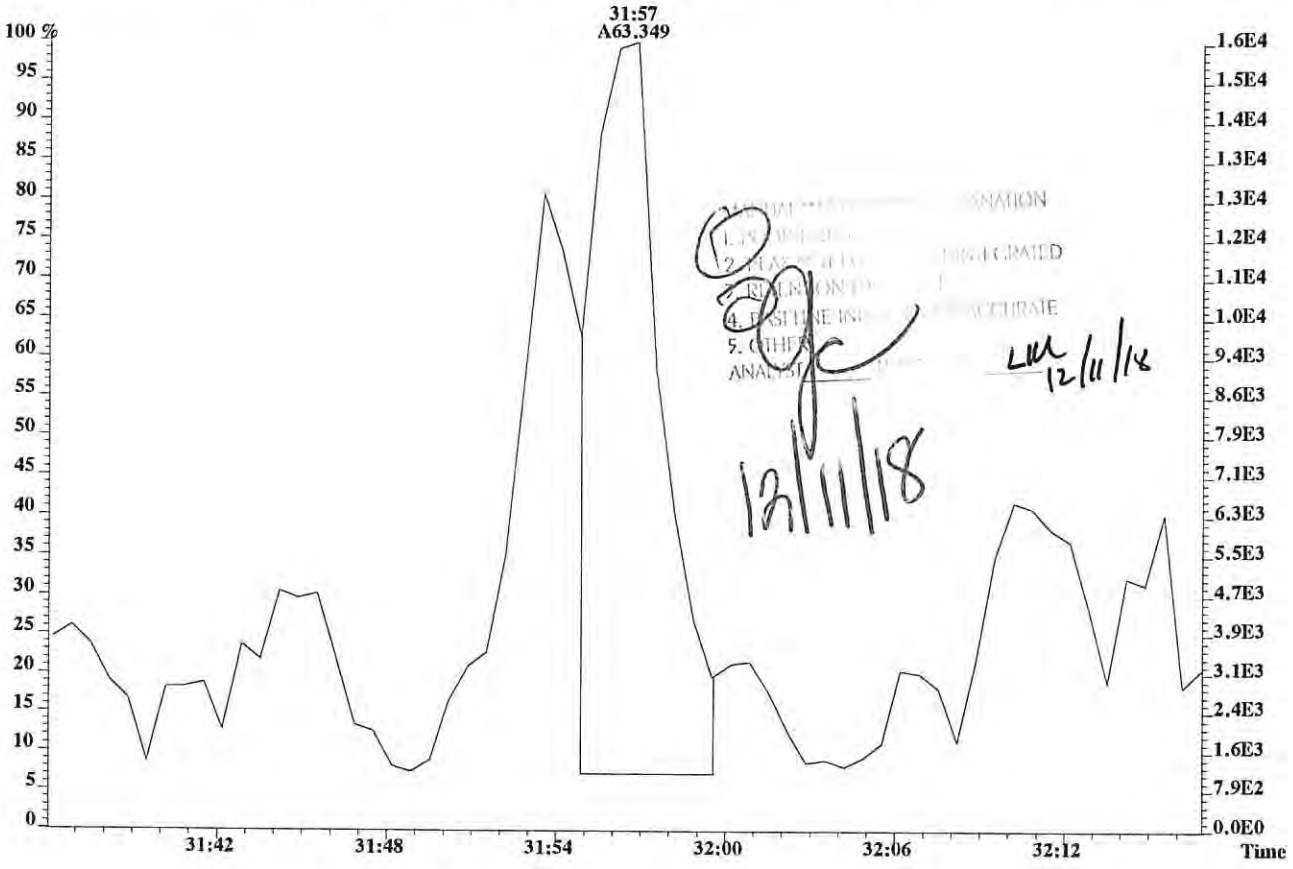
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



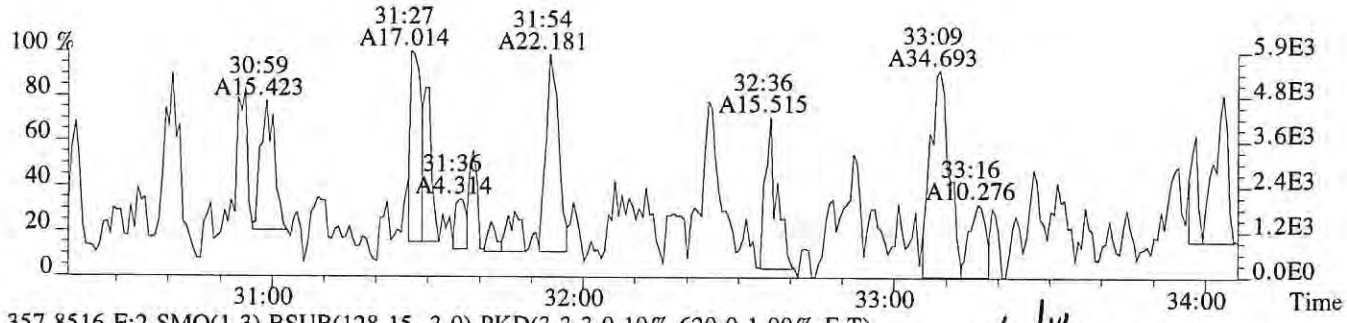
File:P615979 #1-339 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:E1801055-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3420.0,1.00%,F,T)

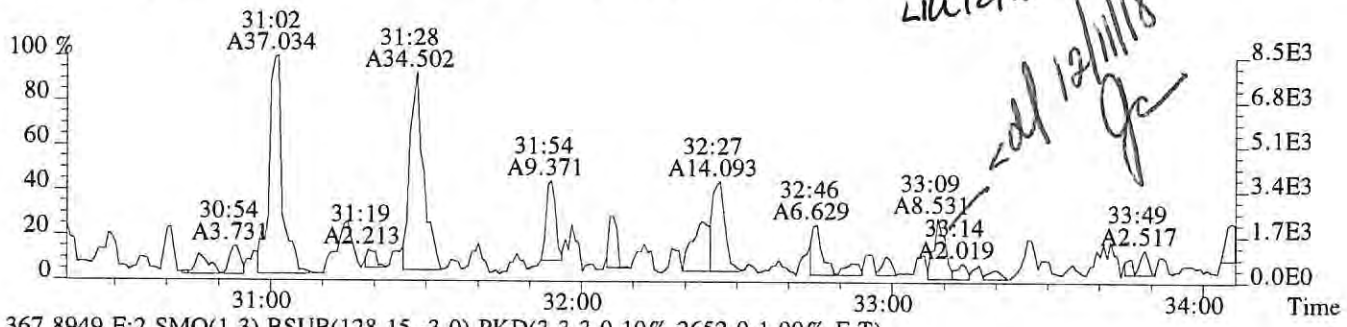


File:P615979 #1-339 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1640.0,1.00%,F,T)



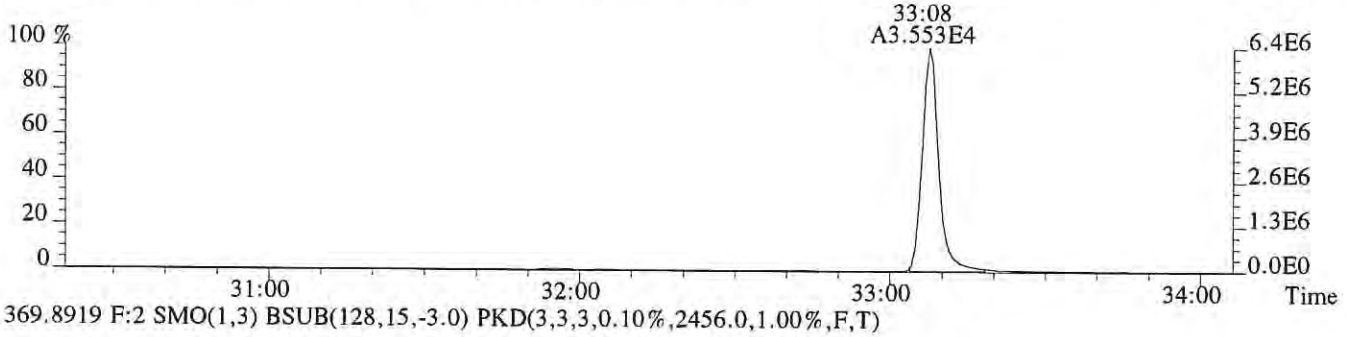
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)

LIU 12/11/18

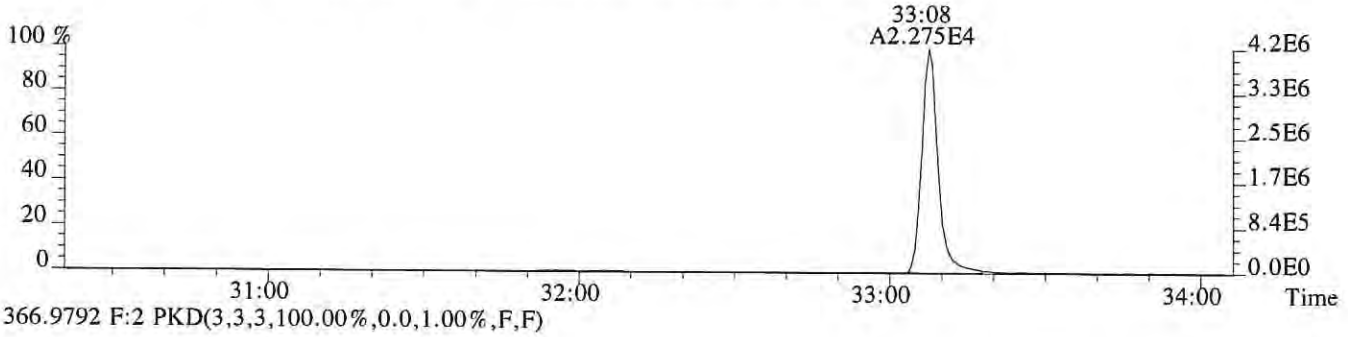


<dl 12/11/18 Jc

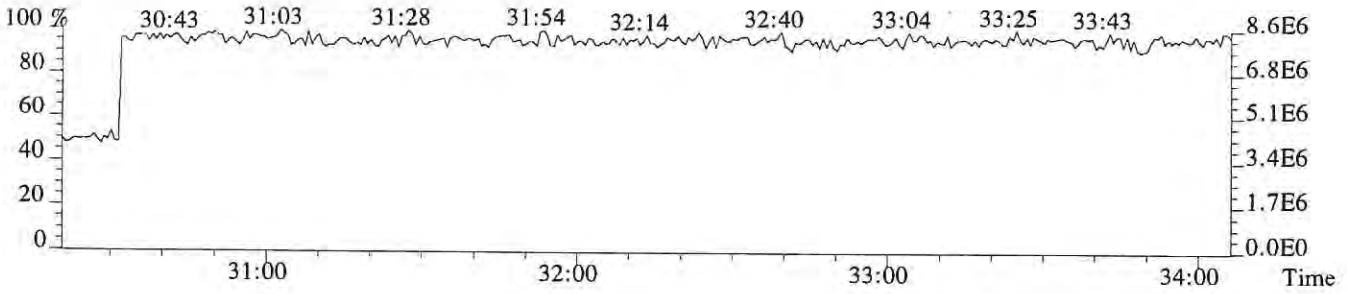
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2652.0,1.00%,F,T)



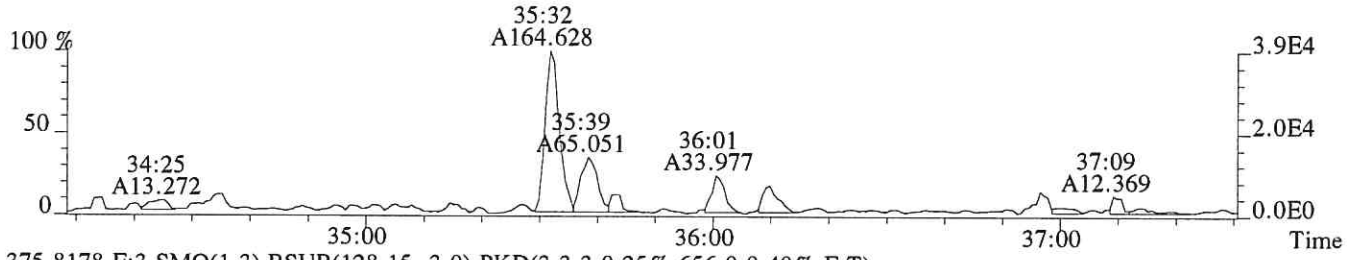
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



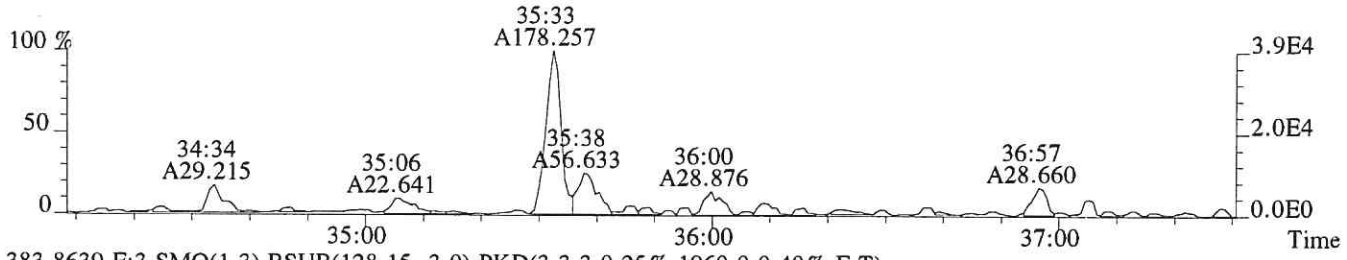
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



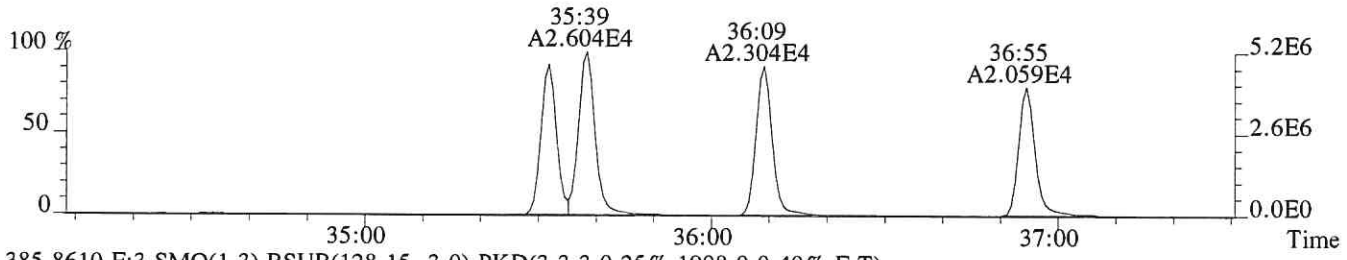
File:P615979 #1-304 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



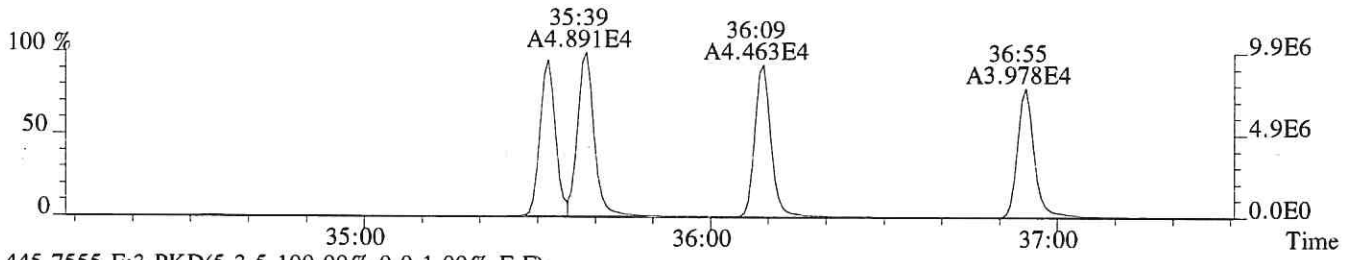
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



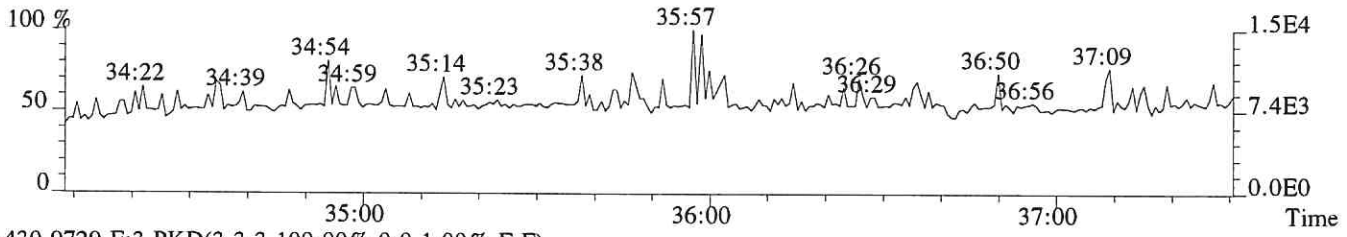
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.40%,F,T)



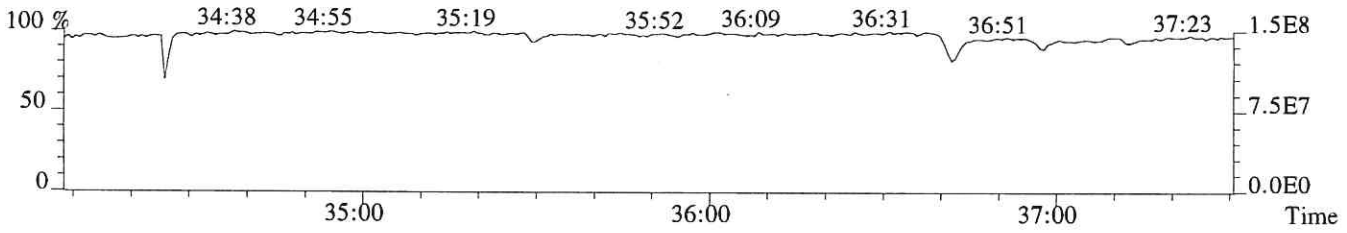
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1908.0,0.40%,F,T)



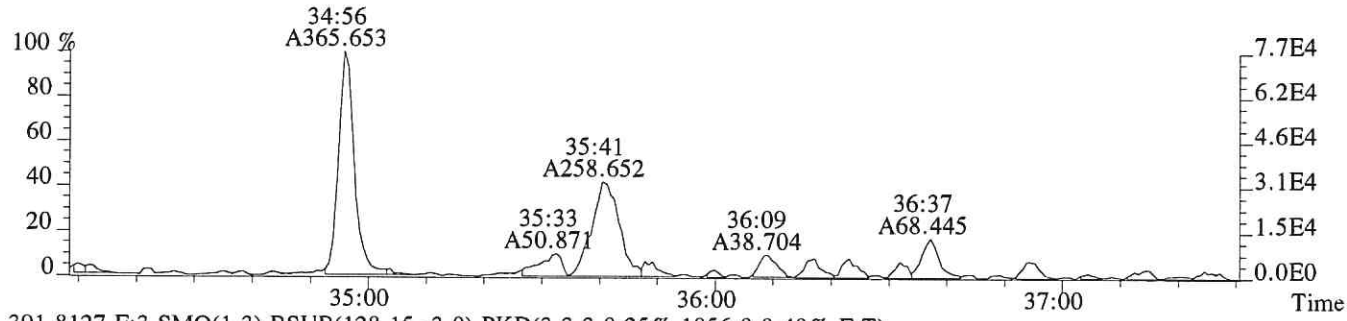
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



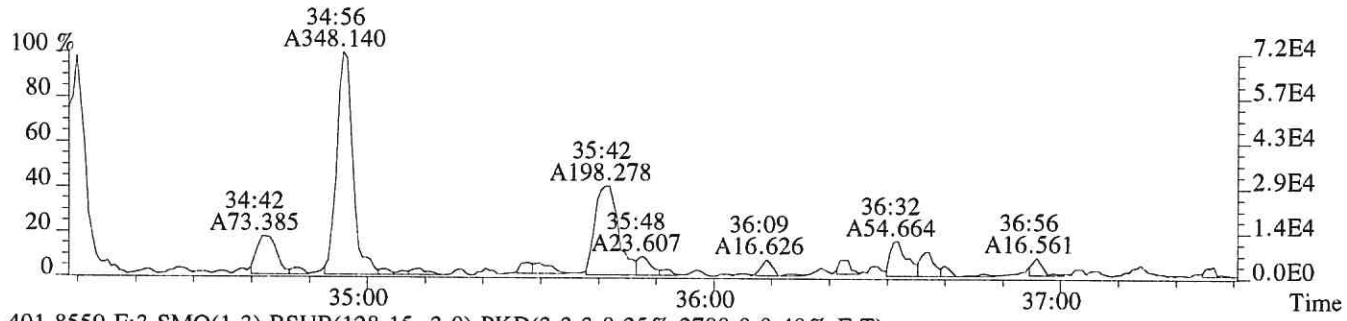
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



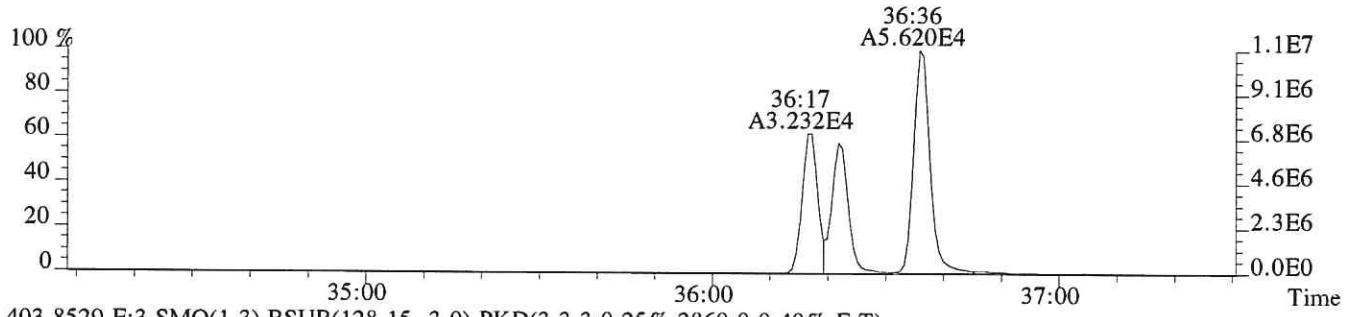
File:P615979 #1-304 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



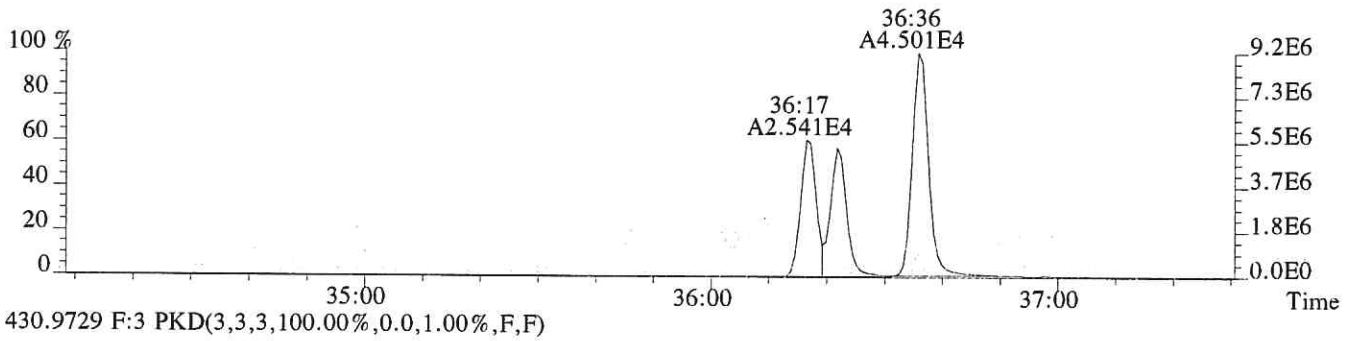
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



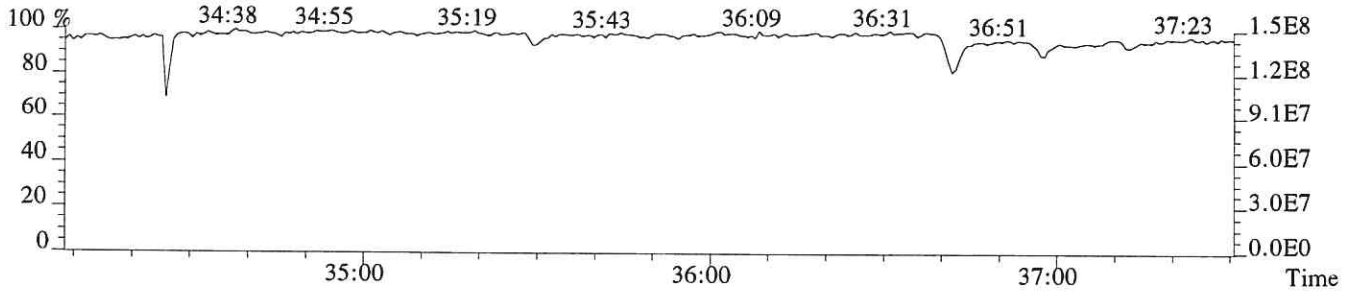
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2788.0,0.40%,F,T)



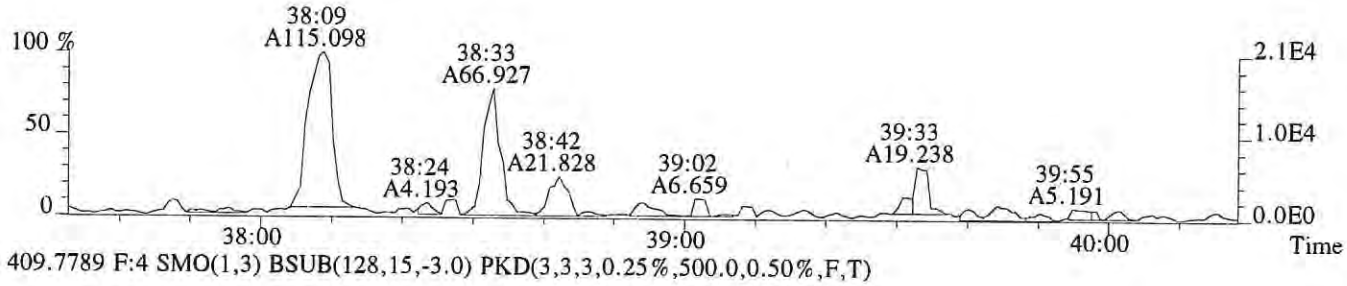
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2860.0,0.40%,F,T)



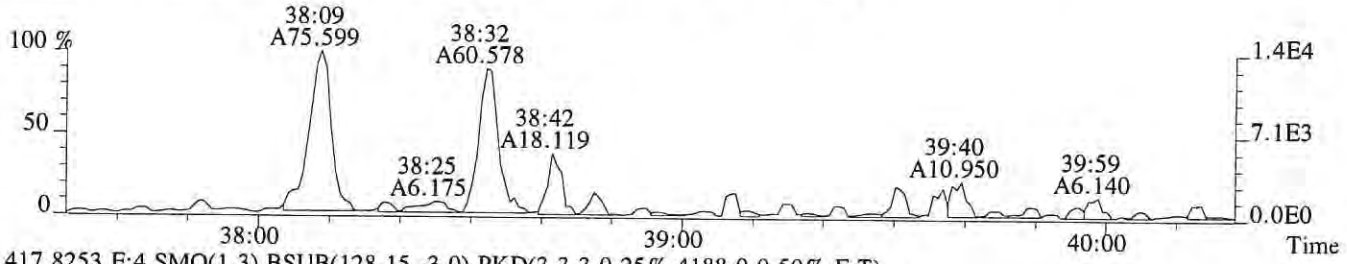
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



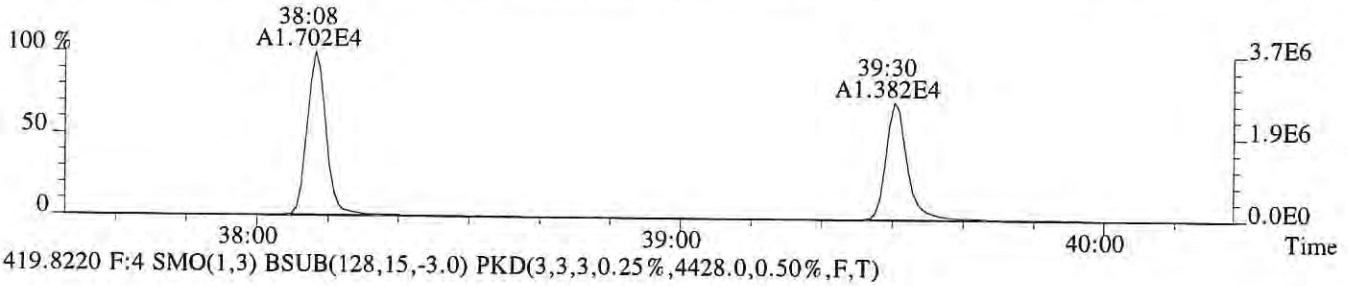
File:P615979 #1-249 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.50%,F,T)



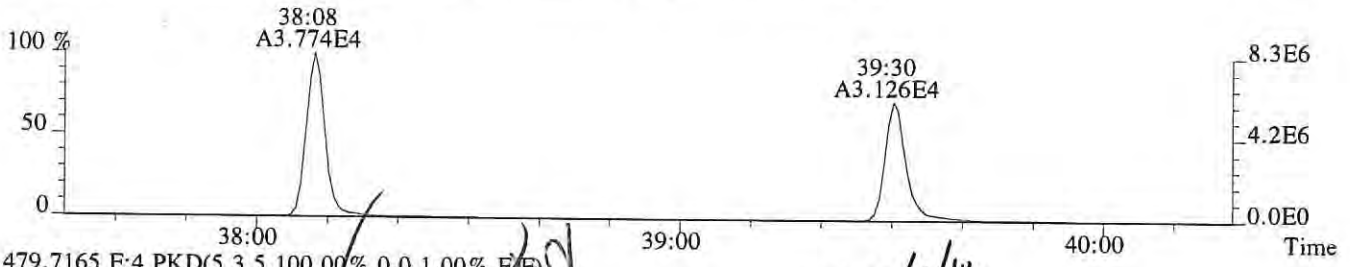
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.50%,F,T)



417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4188.0,0.50%,F,T)

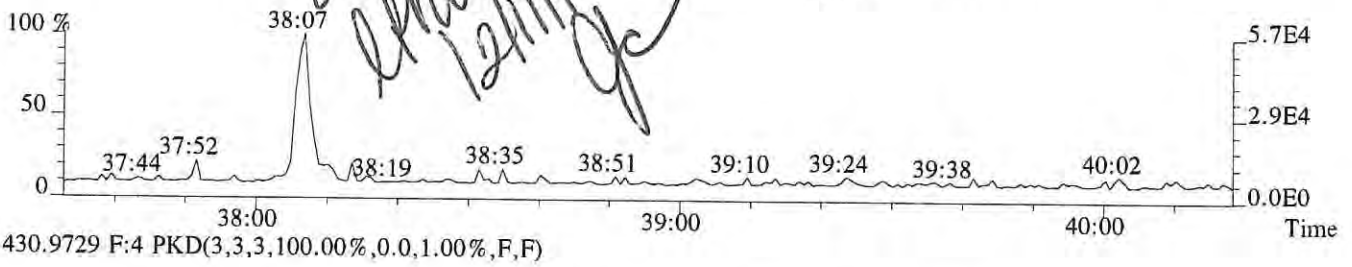


419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4428.0,0.50%,F,T)

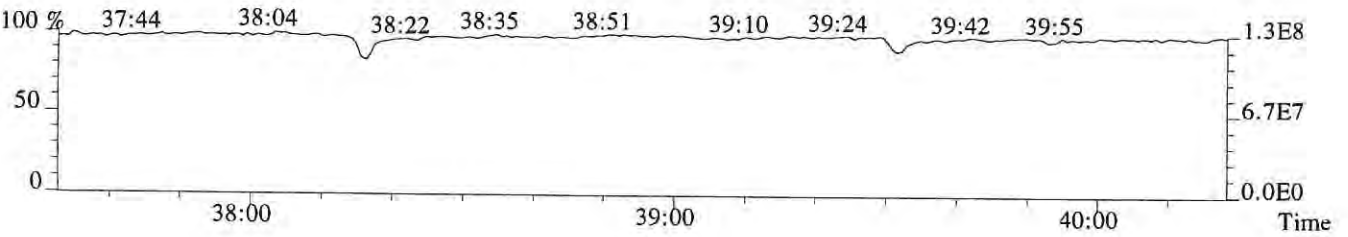


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

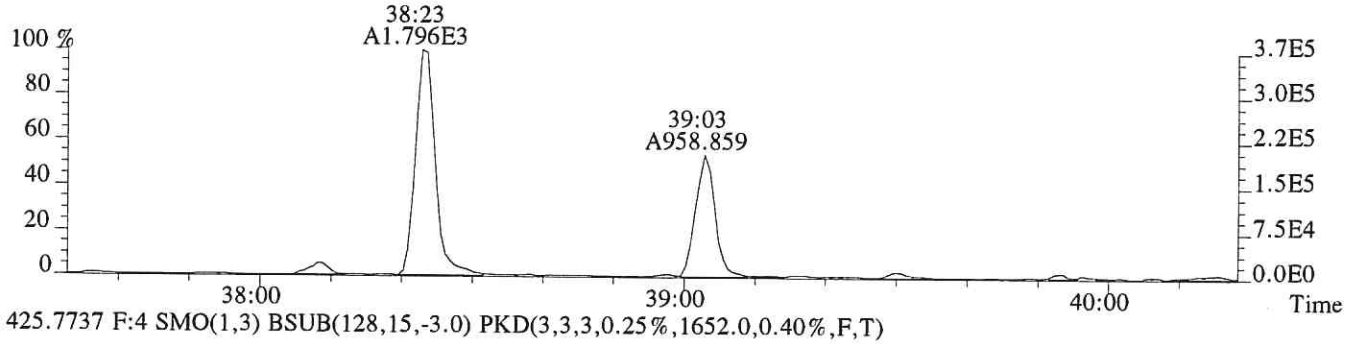
LM 12/11/18



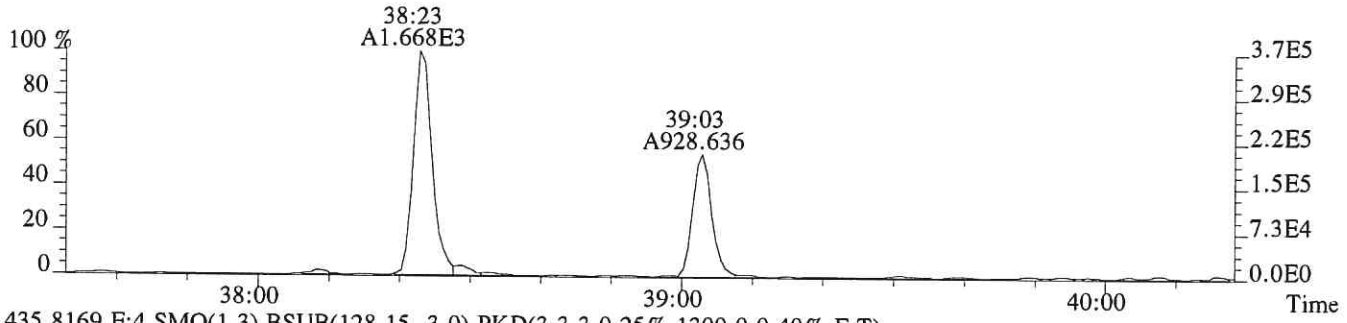
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



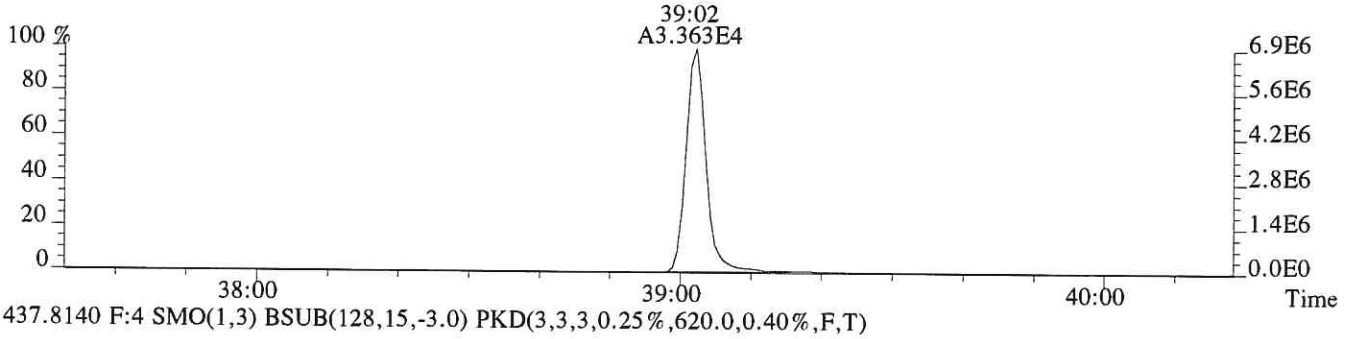
File:P615979 #1-249 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



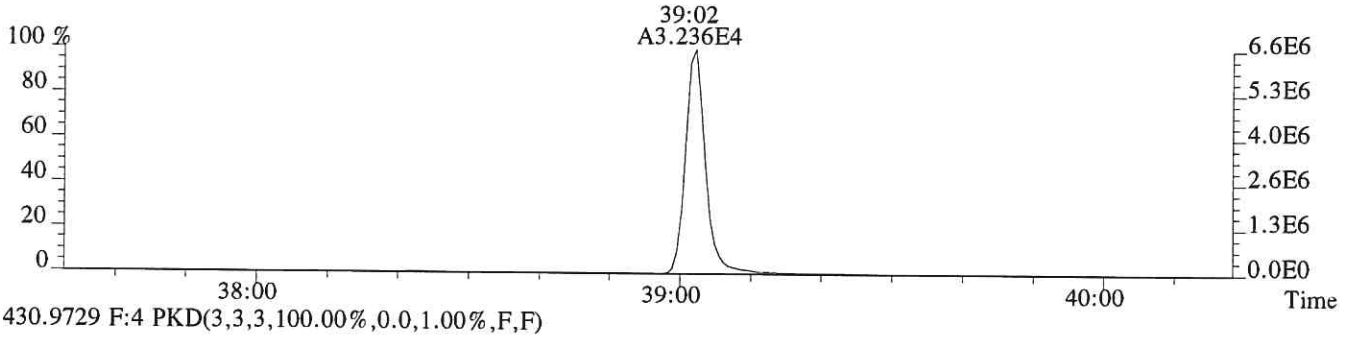
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.40%,F,T)



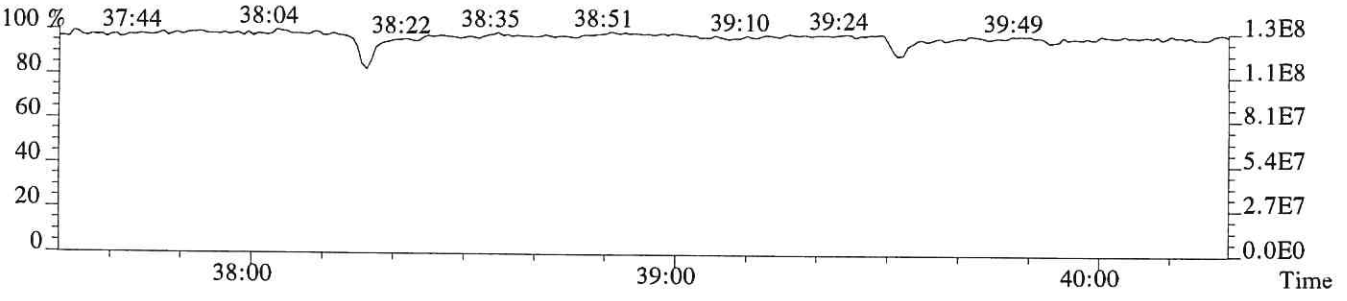
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



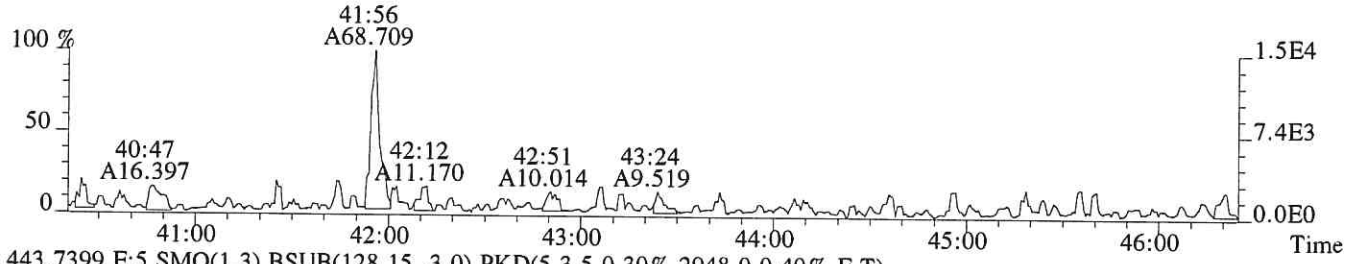
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



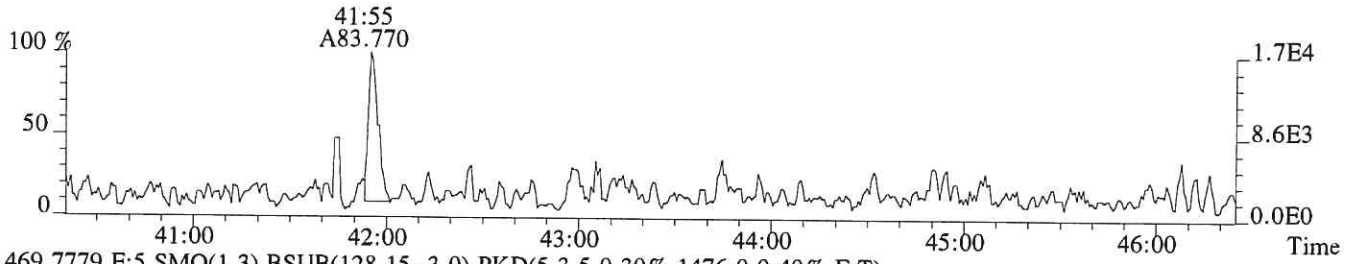
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



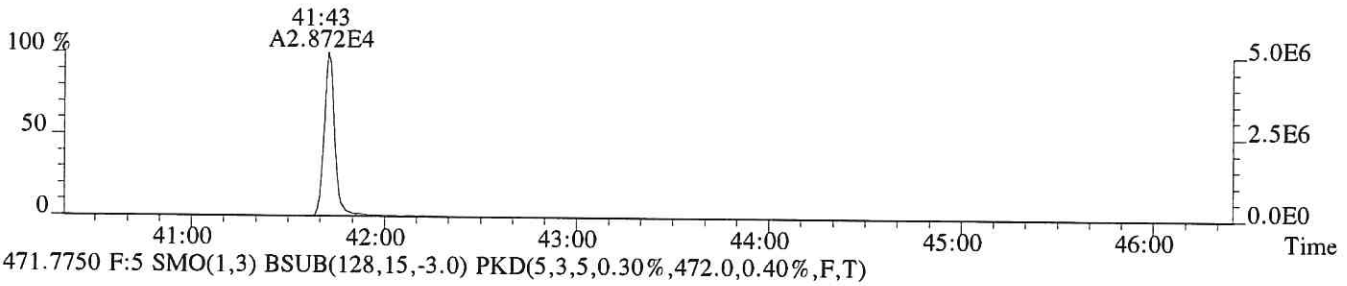
File:P615979 #1-547 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



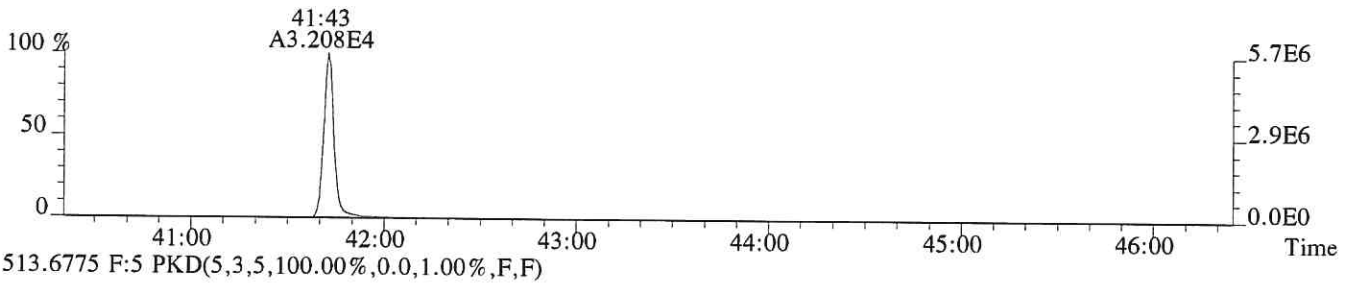
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2948.0,0.40%,F,T)



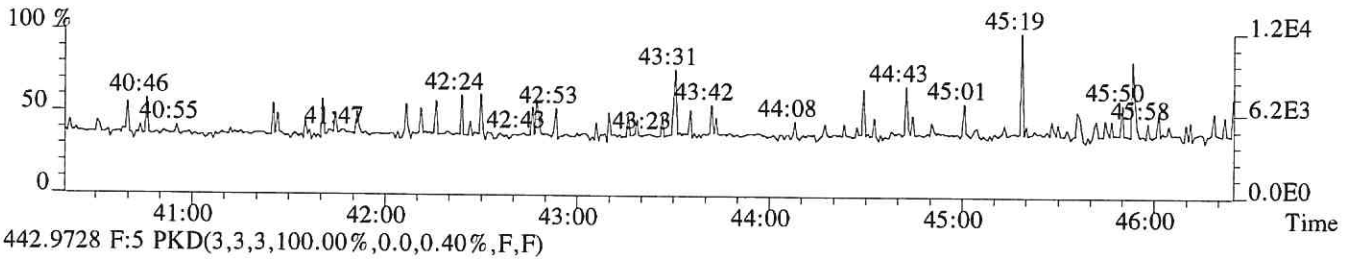
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1476.0,0.40%,F,T)



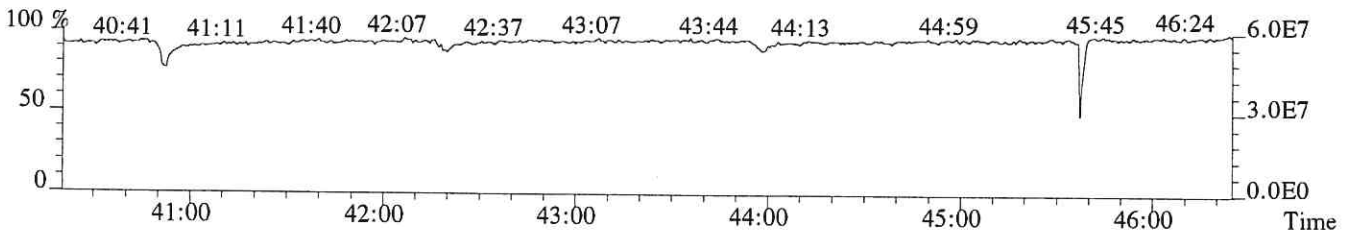
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



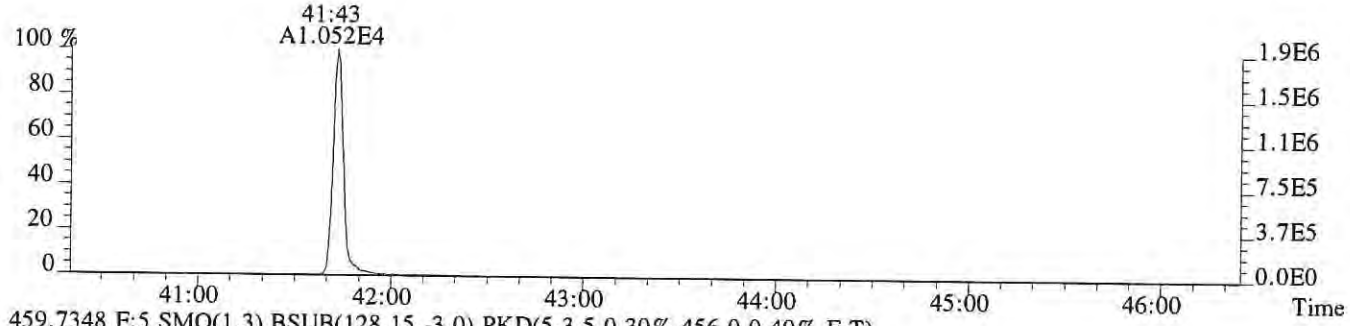
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



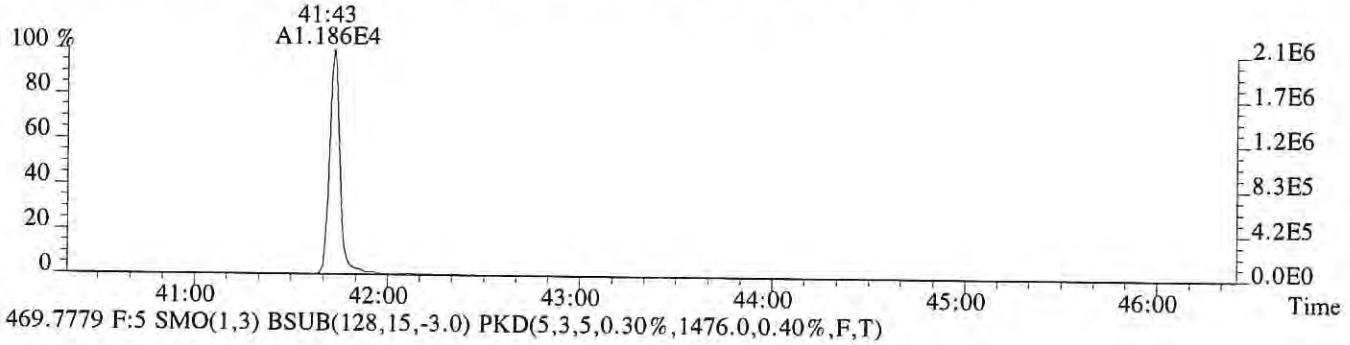
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



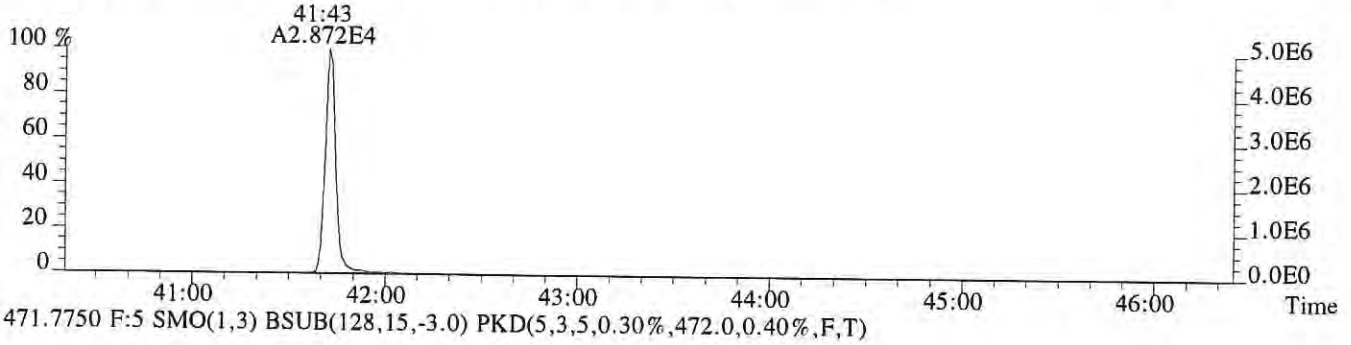
File:P615979 #1-547 Acq: 7-DEC-2018 19:41:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



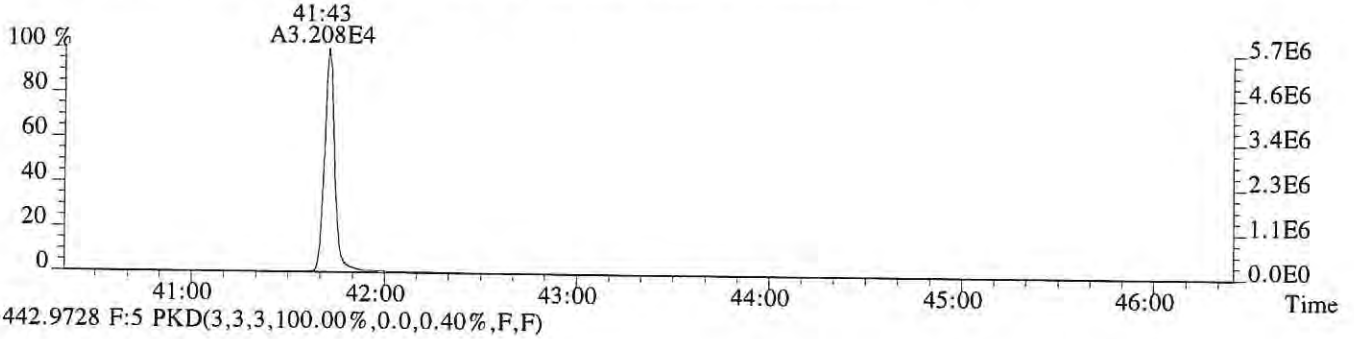
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



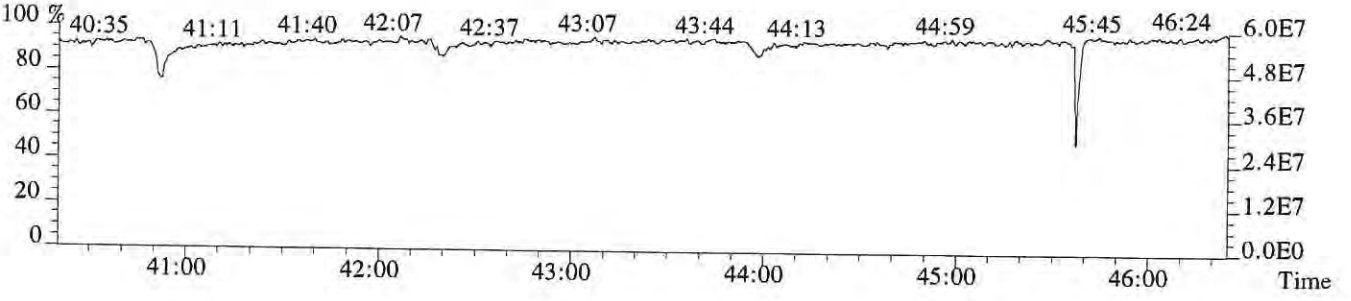
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1476.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0552

Run #15 Filename P519295 Samp: 1 Inj: 1 Acquired: 8-DEC-18 01:36:30
Processed: 10-DEC-18 09:24:37 Sample ID: E1801055-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:50	5.220e+01	7.829e+01	0.67	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	32:13	7.728e+00	7.381e+00	1.05	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:35	2.908e+01	2.109e+01	1.38	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:47	6.948e+01	7.204e+01	0.96	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	33:26	9.256e+00	4.161e+00	2.22	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	8.766e+00	1.623e+01	0.54	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	1.610e+01	8.974e+00	1.79	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:00	2.245e+01	2.404e+01	0.93	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	7.002e+02	6.662e+02	1.05	yes	no	1.025
17	Unk	OCDD	42:35	2.774e+04	3.056e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	1.022e+04	1.278e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	1.949e+04	1.240e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.780e+04	1.111e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	8.586e+03	1.692e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.102e+04	2.111e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	8.966e+03	1.723e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	9.153e+03	1.740e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	6.984e+03	1.598e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	6.155e+03	1.414e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	4.759e+03	5.832e+03	0.82	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.325e+04	8.355e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.222e+04	9.749e+03	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.216e+04	9.301e+03	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	1.459e+04	1.324e+04	1.10	yes	no	0.858
32	IS	13C-OCDD	42:34	1.387e+04	1.531e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.346e+04	1.672e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.047e+04	1.684e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.965e+03				no	1.014

$$\text{OCDD} = \frac{(2.774e+04 + 3.056e+04) \times 4000\ \text{pg} \times 1}{(1.387e+04 + 1.531e+04) \times 10.682\text{g} \times 73.7 / 100 \times 1.118} = 799.5\ \text{ng/kg}$$

LM 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0552

Run #15 Filename P519295 Samp: 1 Inj: 1 Acquired: 8-DEC-18 01:36:30
Processed: 10-DEC-18 09:24:37 LAB. ID: E1801055-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.72e+03	3.32e+02	2.3e+01	1.22e+04	8.24e+02	1.5e+01
2	1,2,3,7,8-PeCDF	2.22e+03	2.68e+02	8.3e+00	1.18e+03	3.08e+02	3.8e+00
3	2,3,4,7,8-PeCDF	*	2.68e+02	*	*	3.08e+02	*
4	1,2,3,4,7,8-HxCDF	*	3.48e+02	*	*	2.44e+02	*
5	1,2,3,6,7,8-HxCDF	*	3.48e+02	*	*	2.44e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.48e+02	*	*	2.44e+02	*
7	1,2,3,7,8,9-HxCDF	*	3.48e+02	*	*	2.44e+02	*
8	1,2,3,4,6,7,8-HpCDF	4.39e+03	2.32e+02	1.9e+01	3.90e+03	1.76e+02	2.2e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.32e+02	*	*	1.76e+02	*
10	OCDF	9.68e+03	2.80e+02	3.5e+01	1.13e+04	8.88e+02	1.3e+01
11	2,3,7,8-TCDD	*	1.37e+03	*	*	6.20e+02	*
12	1,2,3,7,8-PeCDD	2.37e+03	4.00e+02	5.9e+00	1.26e+03	3.20e+02	3.9e+00
13	1,2,3,4,7,8-HxCDD	2.66e+03	2.28e+02	1.2e+01	3.47e+03	2.68e+02	1.3e+01
14	1,2,3,6,7,8-HxCDD	3.74e+03	2.28e+02	1.6e+01	2.24e+03	2.68e+02	8.4e+00
15	1,2,3,7,8,9-HxCDD	5.34e+03	2.28e+02	2.3e+01	5.07e+03	2.68e+02	1.9e+01
16	1,2,3,4,6,7,8-HpCDD	1.27e+05	8.32e+02	1.5e+02	1.16e+05	2.44e+02	4.8e+02
17	OCDD	3.20e+06	2.20e+02	1.5e+04	3.58e+06	2.80e+02	1.3e+04
18	13C-2,3,7,8-TCDF	1.79e+06	5.11e+03	3.5e+02	2.25e+06	3.50e+03	6.4e+02
19	13C-1,2,3,7,8-PeCDF	3.54e+06	4.28e+02	8.3e+03	2.24e+06	6.64e+02	3.4e+03
20	13C-2,3,4,7,8-PeCDF	3.35e+06	4.28e+02	7.8e+03	2.11e+06	6.64e+02	3.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.76e+06	3.20e+02	5.5e+03	3.45e+06	2.72e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.13e+06	3.20e+02	6.6e+03	4.00e+06	2.72e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.79e+06	3.20e+02	5.6e+03	3.48e+06	2.72e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.59e+06	3.20e+02	5.0e+03	3.08e+06	2.72e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+06	1.59e+03	8.3e+02	3.03e+06	2.18e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.84e+05	1.59e+03	6.2e+02	2.23e+06	2.18e+03	1.0e+03
27	13C-2,3,7,8-TCDD	8.90e+05	3.78e+03	2.4e+02	1.07e+06	1.28e+03	8.4e+02
28	13C-1,2,3,7,8-PeCDD	2.52e+06	3.12e+02	8.1e+03	1.59e+06	9.40e+02	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.49e+06	4.28e+02	5.8e+03	1.98e+06	3.28e+02	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.30e+06	4.28e+02	5.4e+03	1.73e+06	3.28e+02	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.46e+06	3.84e+02	6.4e+03	2.22e+06	4.12e+02	5.4e+03
32	13C-OCDD	1.61e+06	2.48e+02	6.5e+03	1.83e+06	2.92e+02	6.3e+03
33	13C-1,2,3,4-TCDD	2.50e+06	3.78e+03	6.6e+02	3.17e+06	1.28e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.64e+06	4.28e+02	8.5e+03	2.96e+06	3.28e+02	9.0e+03
35	37Cl-2,3,7,8-TCDD	1.33e+06	5.08e+02	2.6e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0552

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519295 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 01:36:30 Processed: 10-DEC-18 09:24:37

Mass: 303.9020 305.8990 Tot Response: 1.82e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:02	2.24e+01	2.92e+01	0.77	yes	5.16e+01		n	n
2	27:50	5.22e+01	7.83e+01	0.67	yes	1.30e+02	2,3,7,8-TCDF	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0552

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519295 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 01:36:30 Processed: 10-DEC-18 09:24:37

Mass: 355.8550 357.8520 Tot Response: 1.59e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:44	9.44e+00	6.46e+00 1.46	yes	1.59e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0552

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519295 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 01:36:30 Processed: 10-DEC-18 09:24:37

Mass: 389.8160 391.8130 Tot Response: 3.34e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	1.65e+02	1.54e+02 1.07	yes	3.18e+02		n	n
2	36:55	8.09e+00	7.48e+00 1.08	yes	1.56e+01		n	n

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Peak List Summary

CLIENT ID.
SL0552

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519295 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 01:36:30 Processed: 10-DEC-18 09:24:37

Mass: 407.7820 409.7790 Tot Response: 2.19e+01 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
.	39:02	1.17e+01	1.01e+01	1.16	yes	2.19e+01		y	y

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Peak List Summary

CLIENT ID.
SL0552

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519295 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 01:36:30 Processed: 10-DEC-18 09:24:37

Mass: 423.7770 425.7740 Tot Response: 4.15e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	1.46e+03	1.33e+03	1.10	yes	2.78e+03		n	n
2	39:36	7.00e+02	6.66e+02	1.05	yes	1.37e+03	1,2,3,4,6,7,8-HpCDD	n	n

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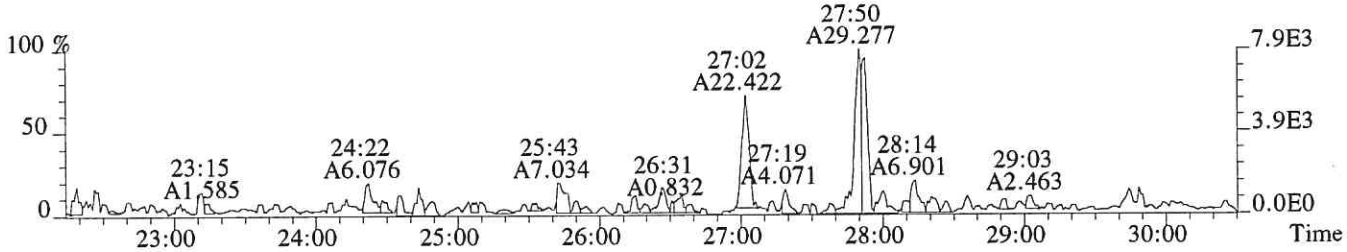
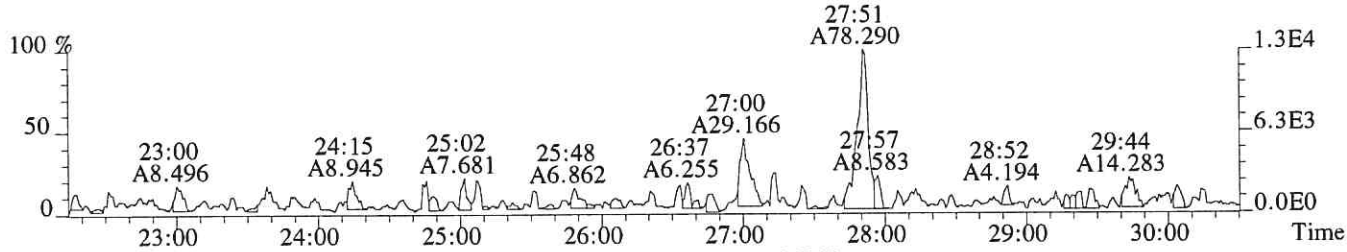
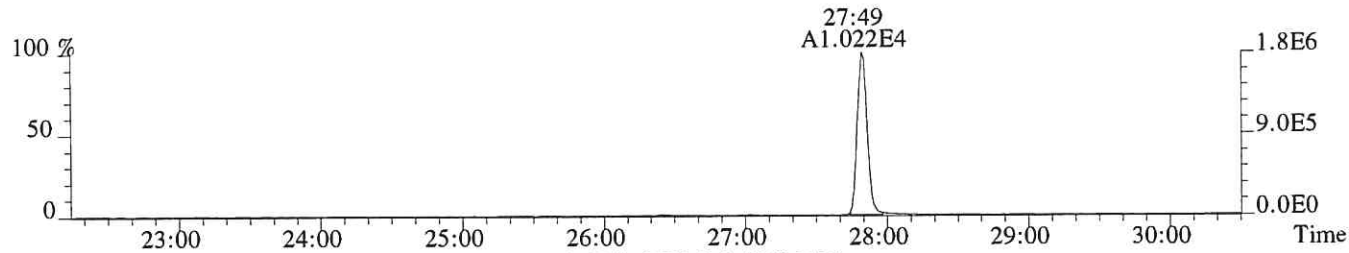
File:P519295 #1-587 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



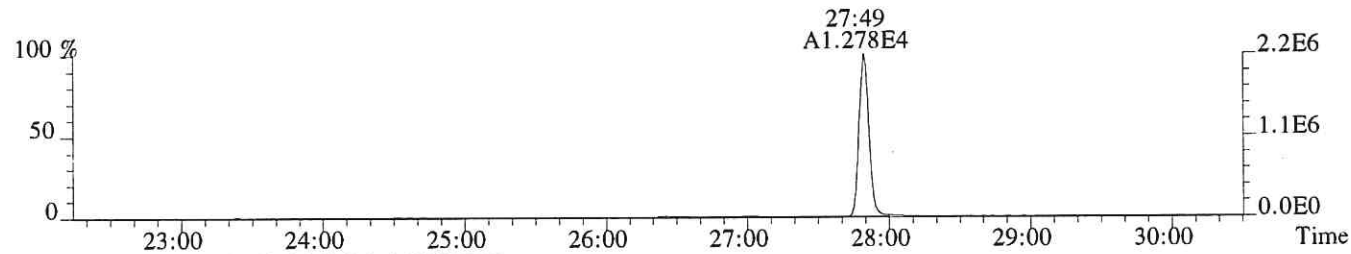
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



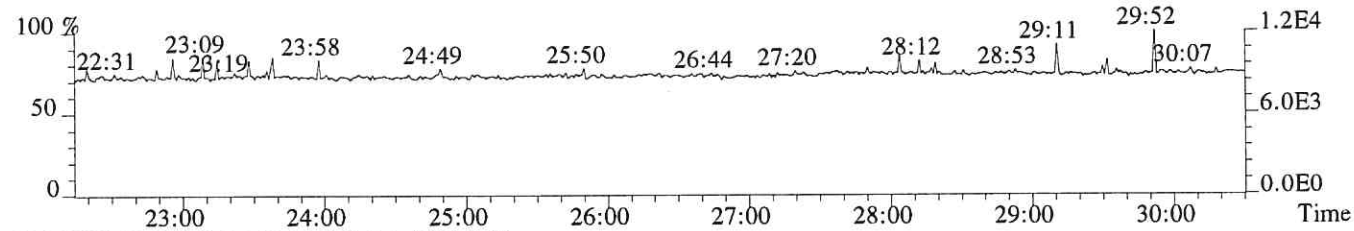
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5108.0,1.00%,F,T)



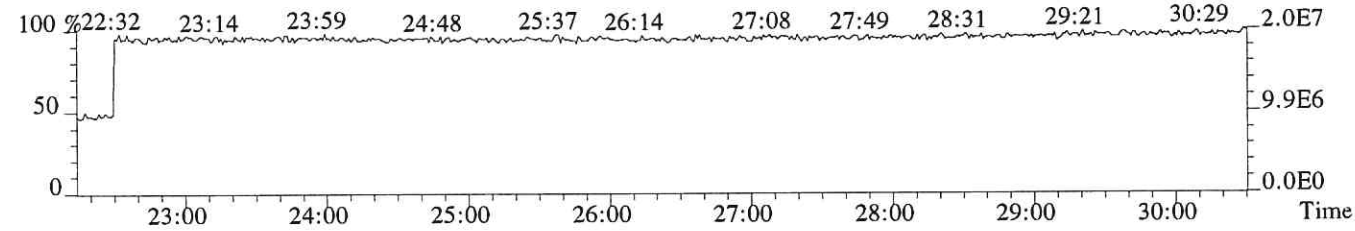
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



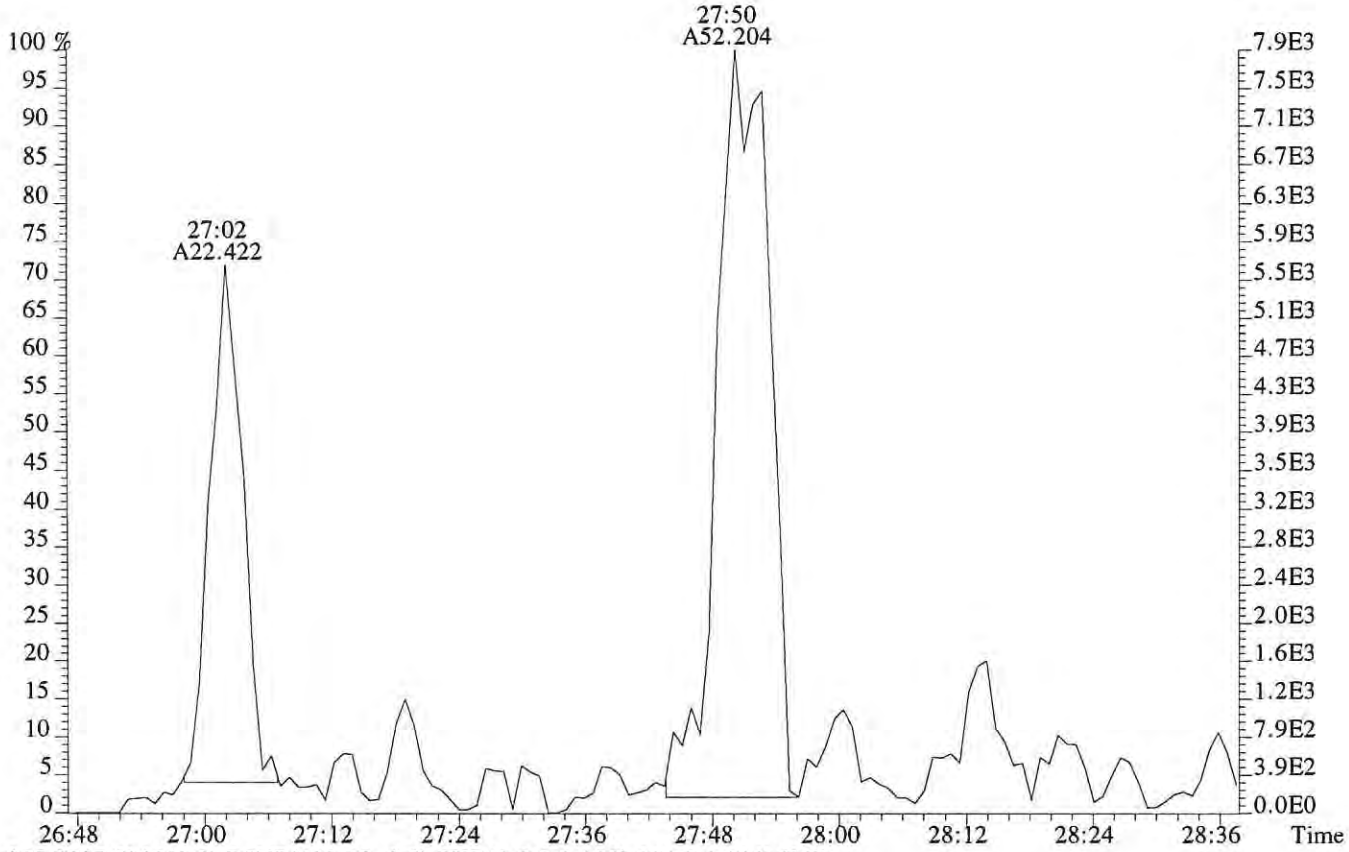
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



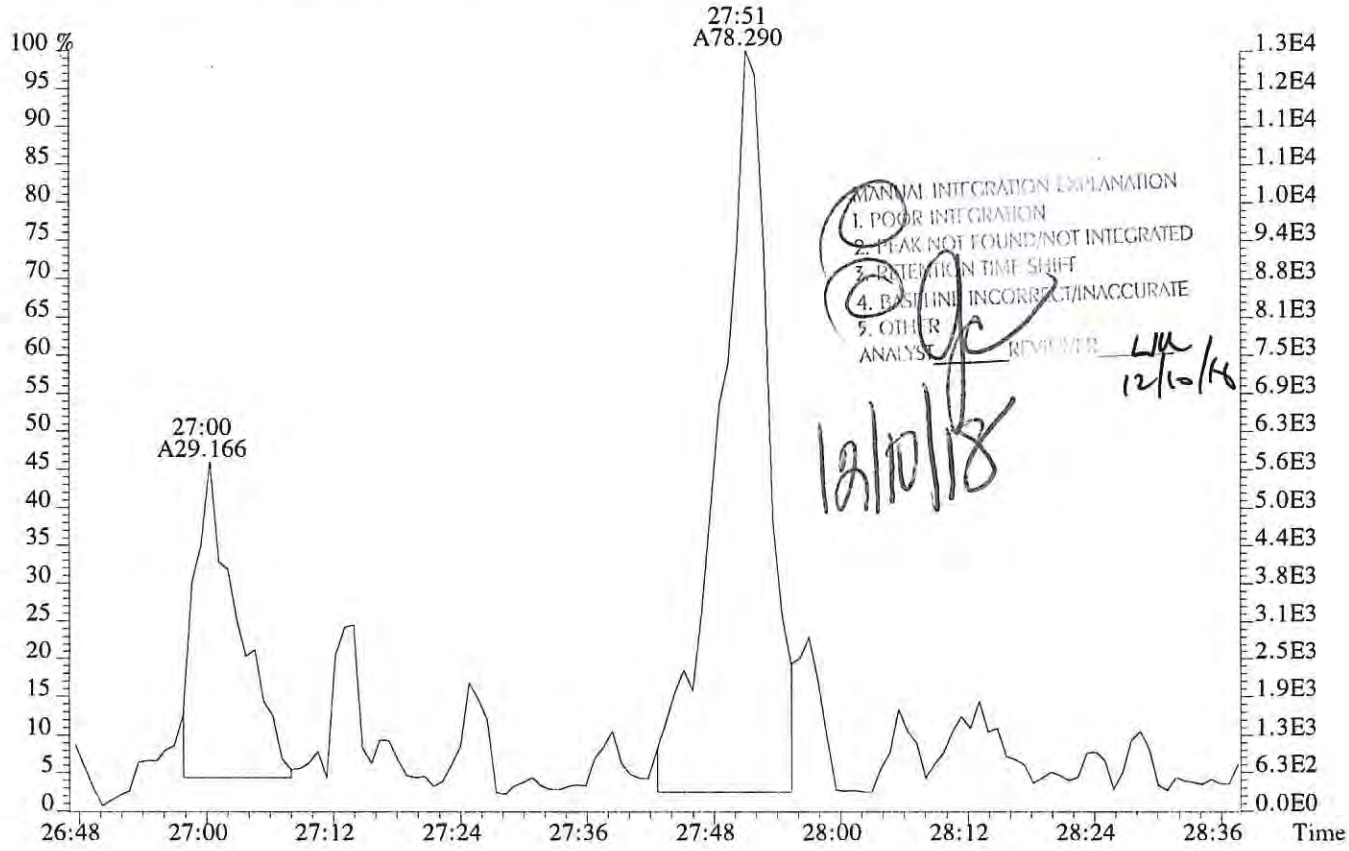
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519295 #1-587 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



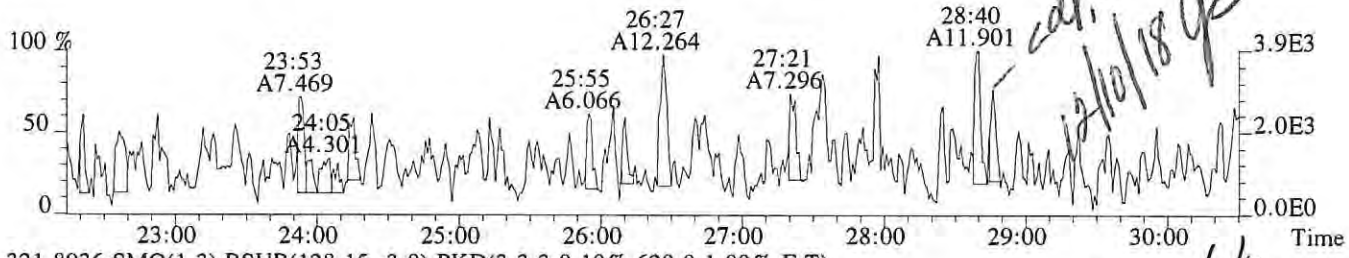
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER
12/10/18
12/10/18

File:P519295 #1-587 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008

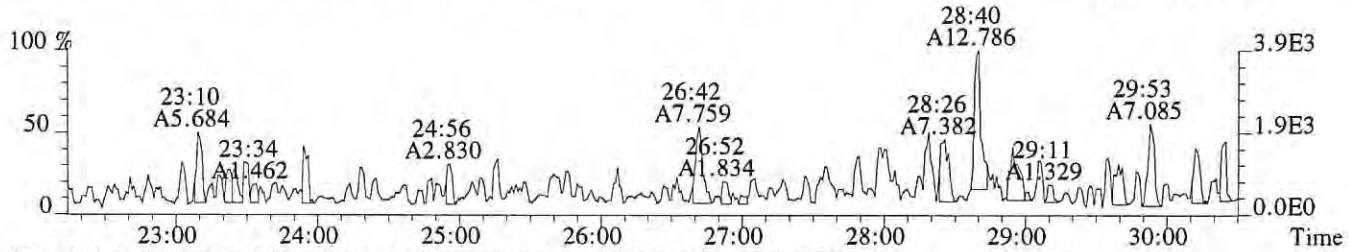
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



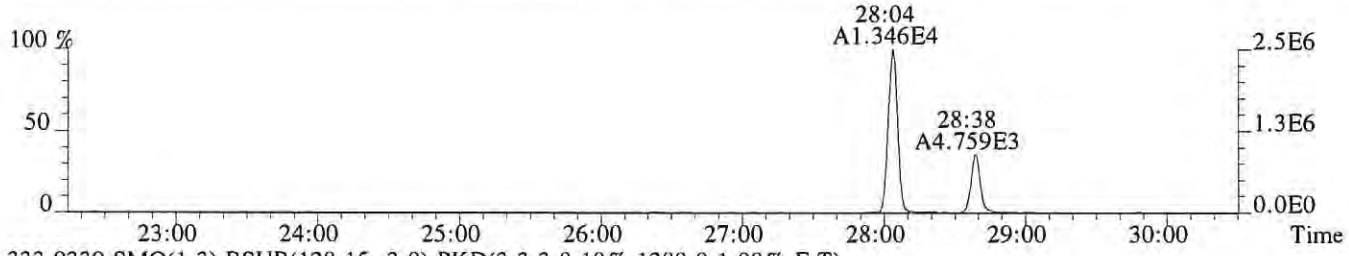
cdl, CSIV 12/10/18 GC

321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)

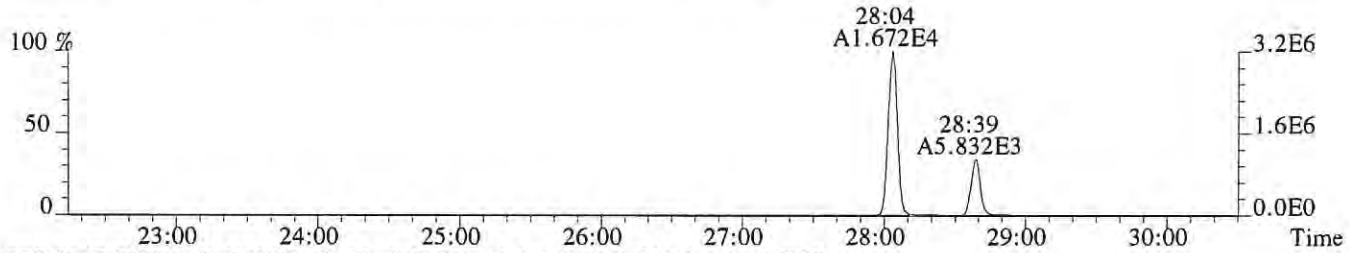
LM 12/10/18



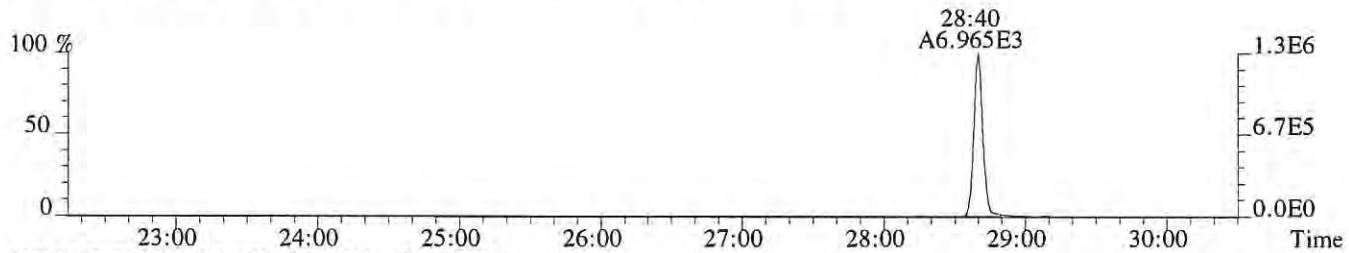
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



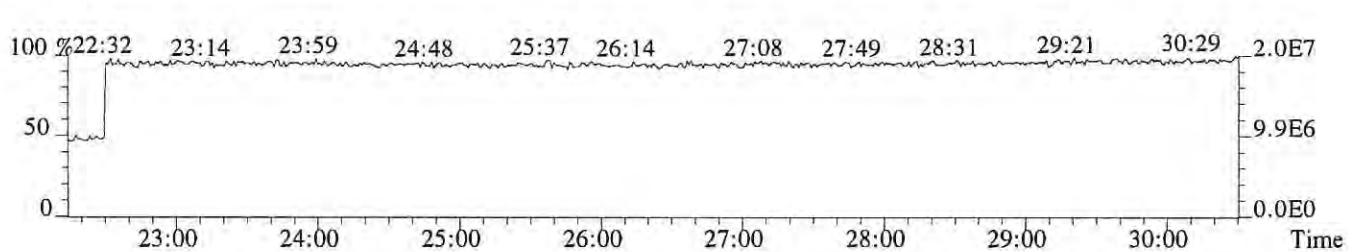
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



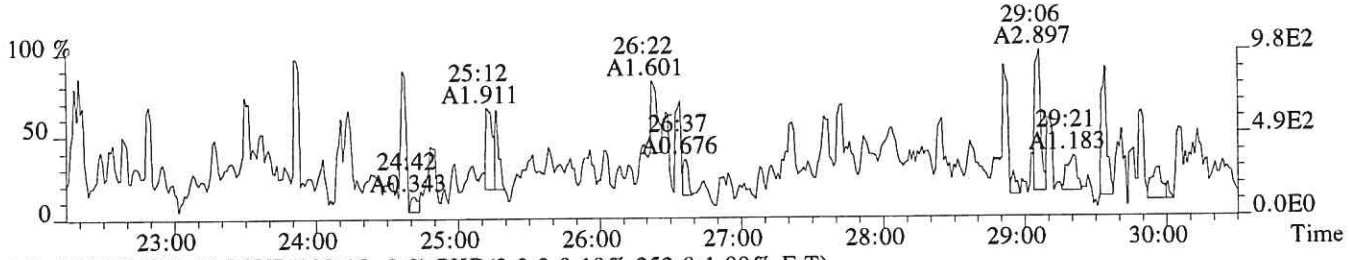
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



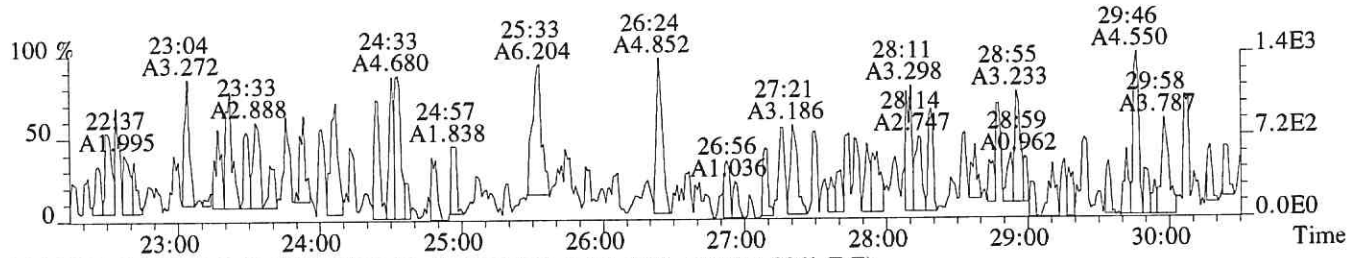
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



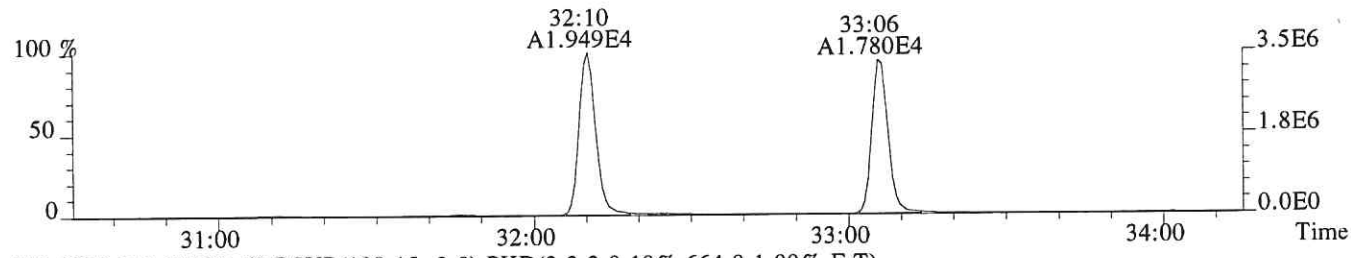
File:P519295 #1-587 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



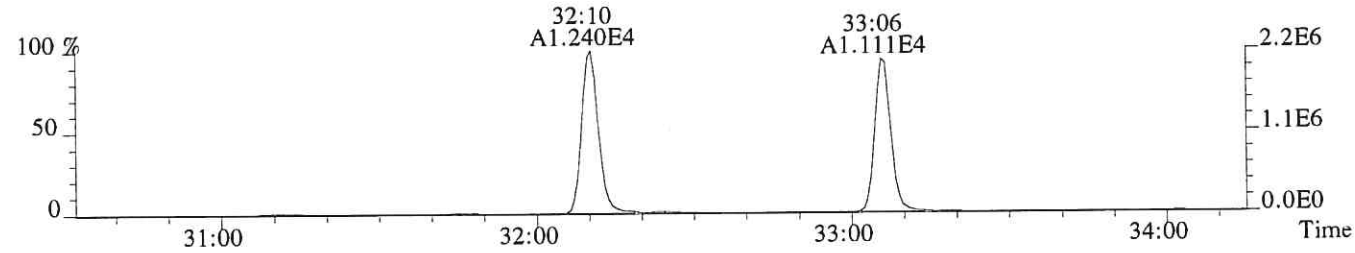
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



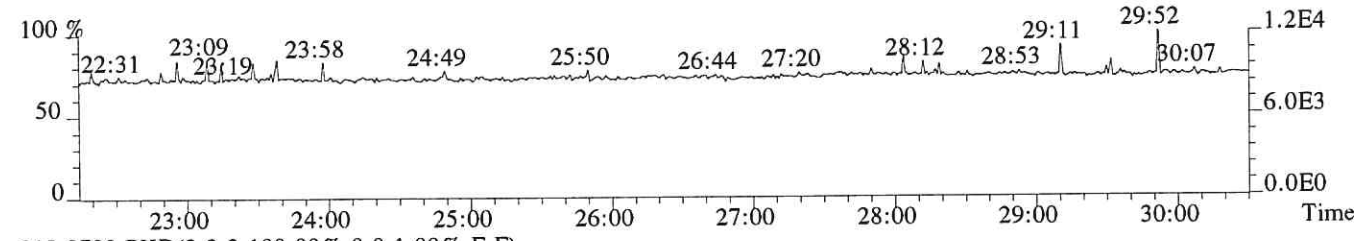
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



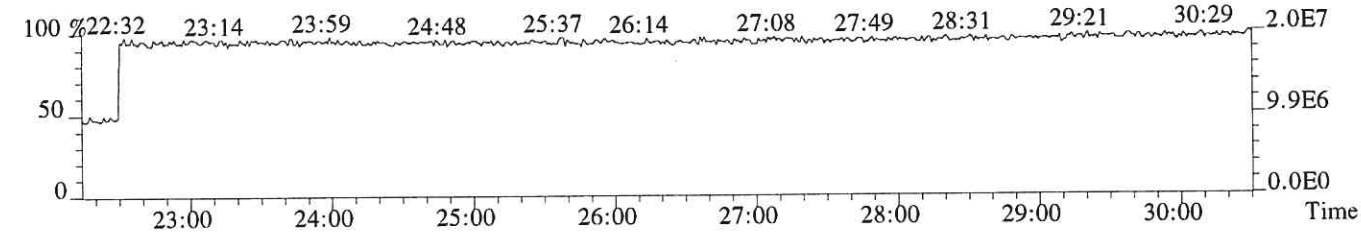
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



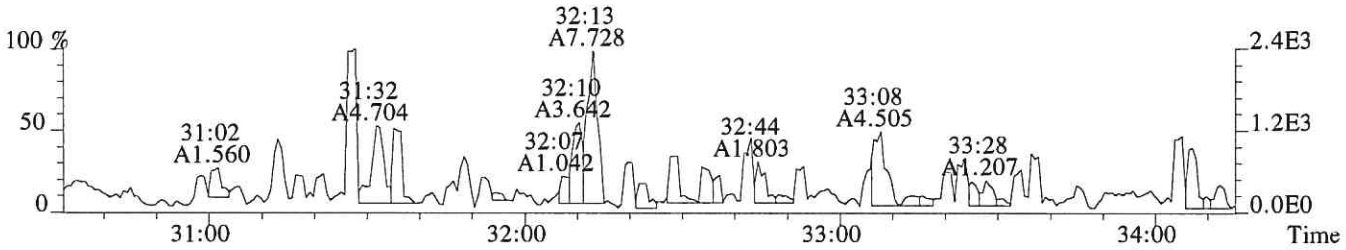
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



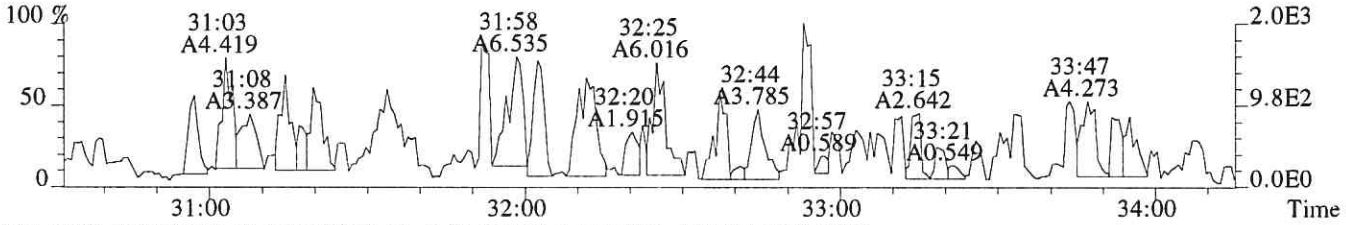
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



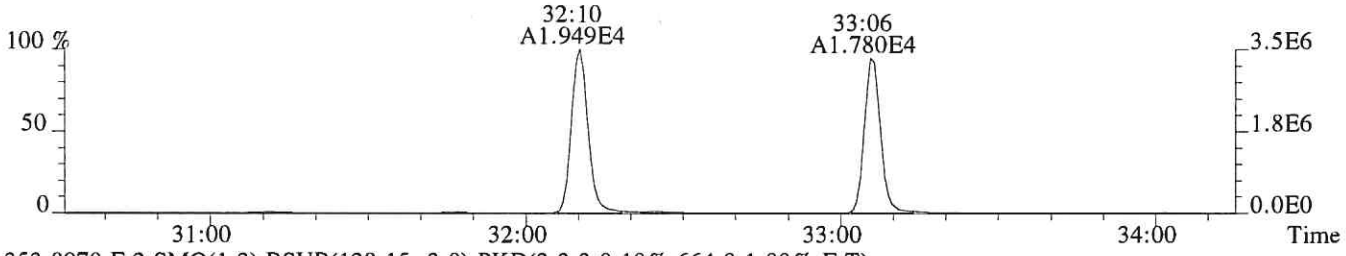
File:P519295 #1-335 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



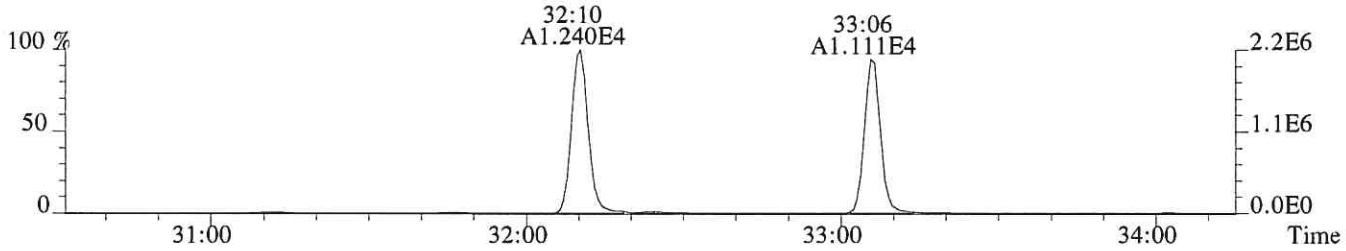
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



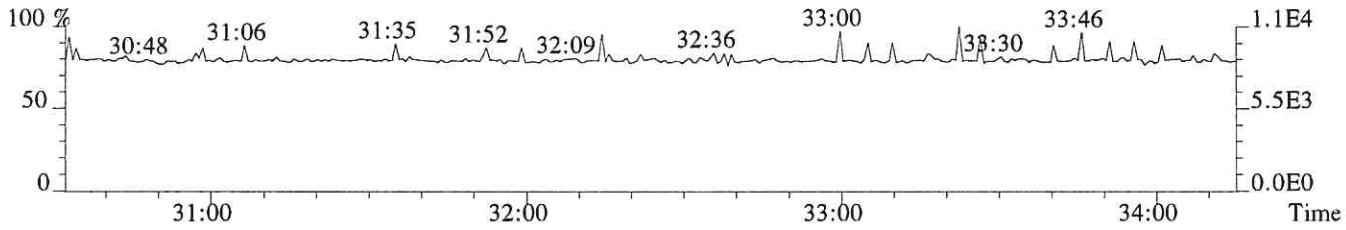
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



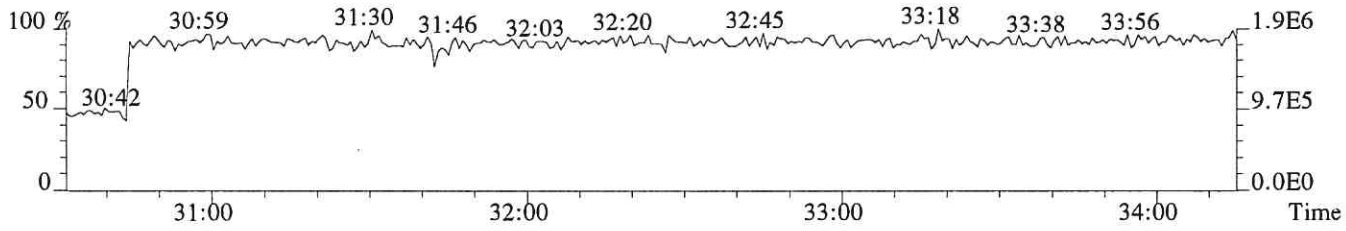
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



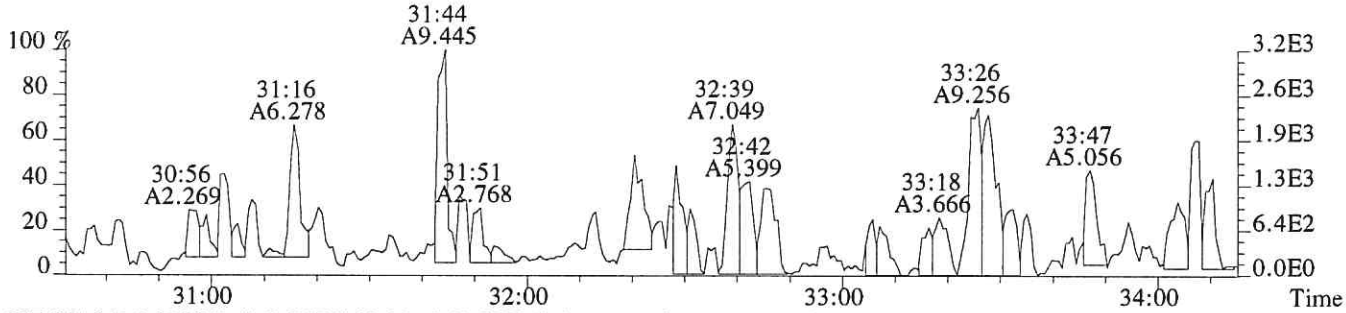
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



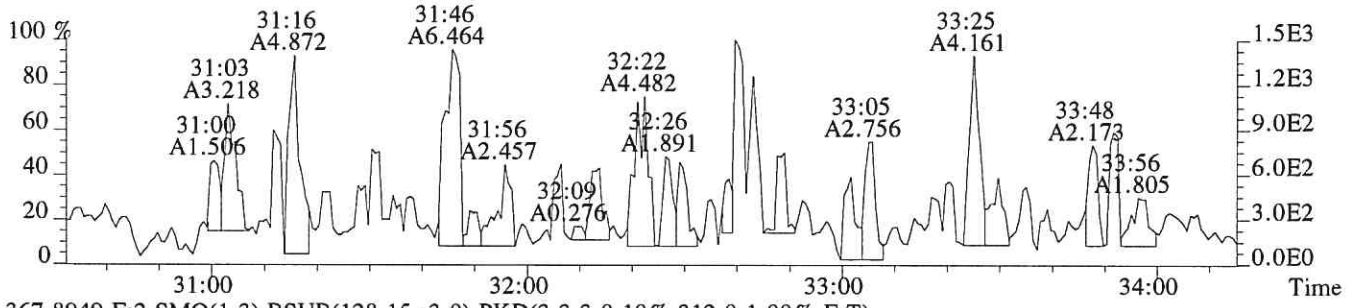
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



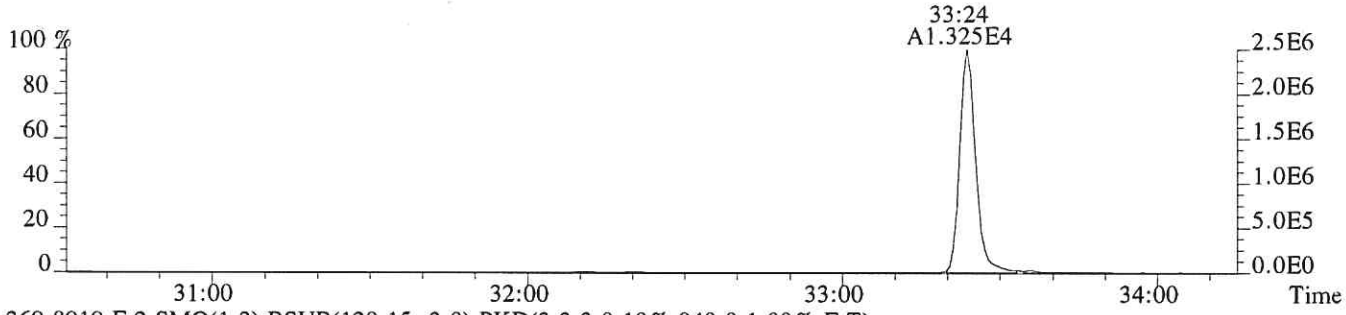
File:P519295 #1-335 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



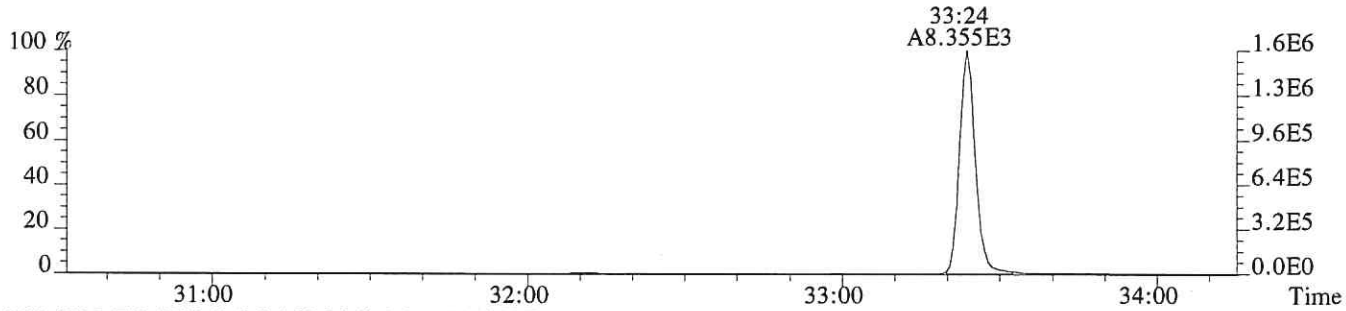
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



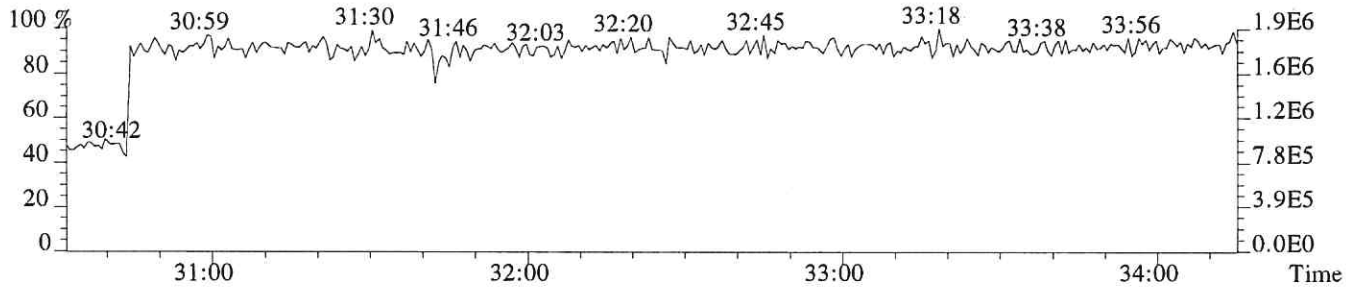
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



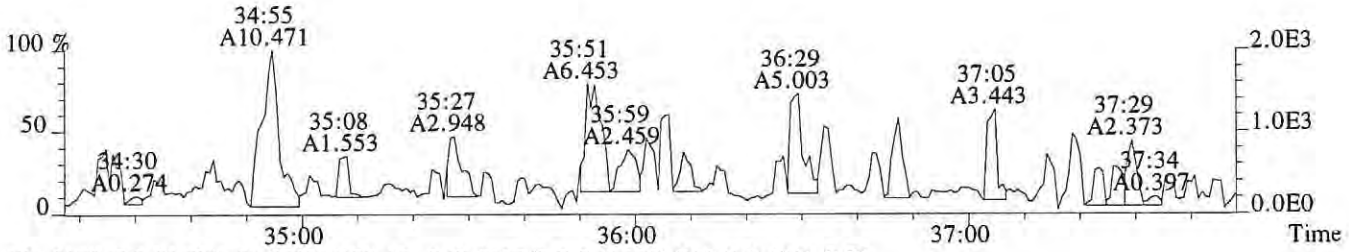
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



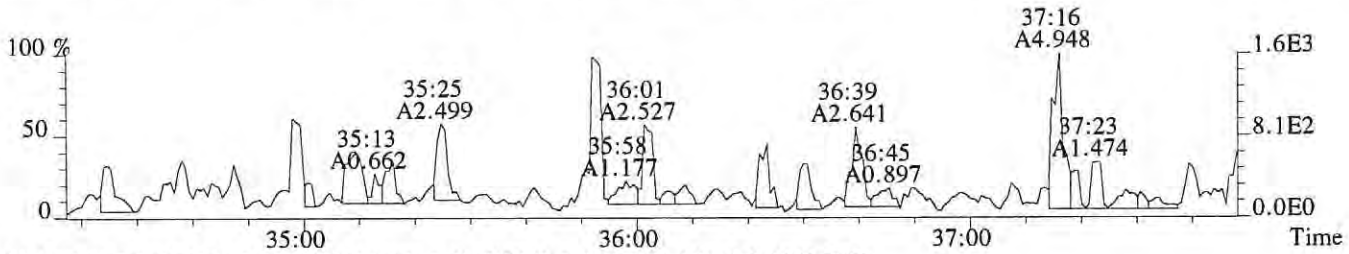
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



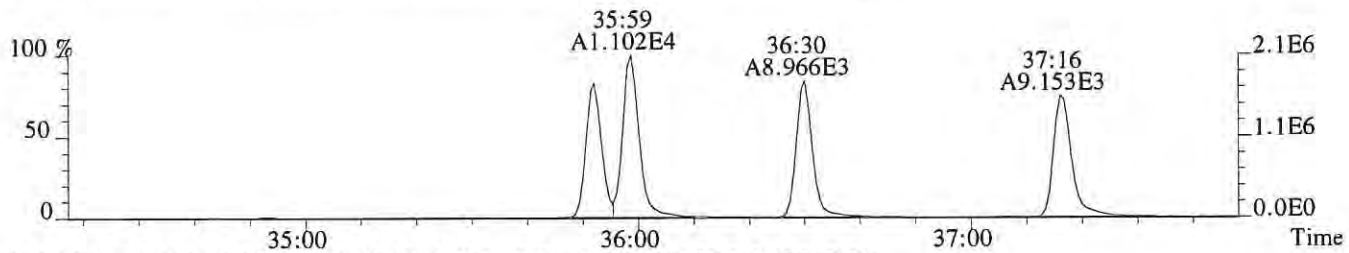
File:P519295 #1-317 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



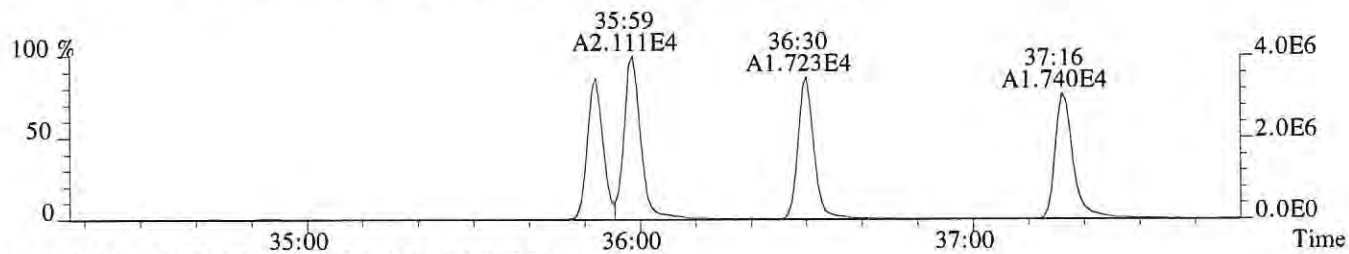
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



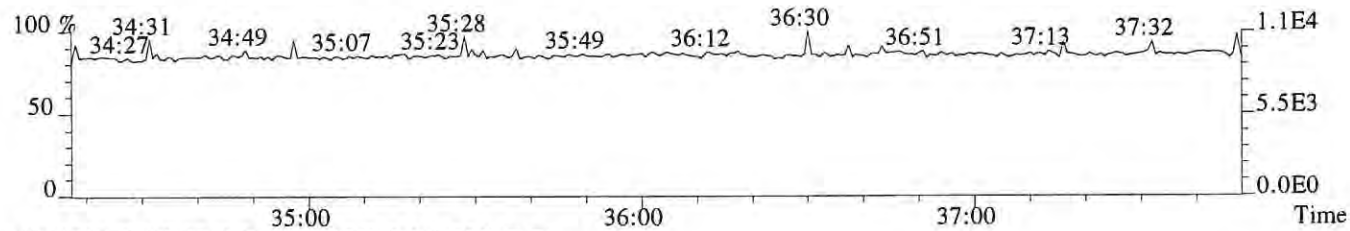
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



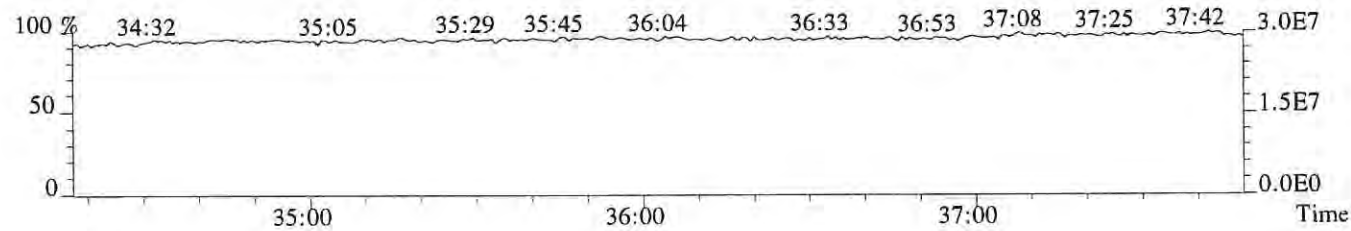
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



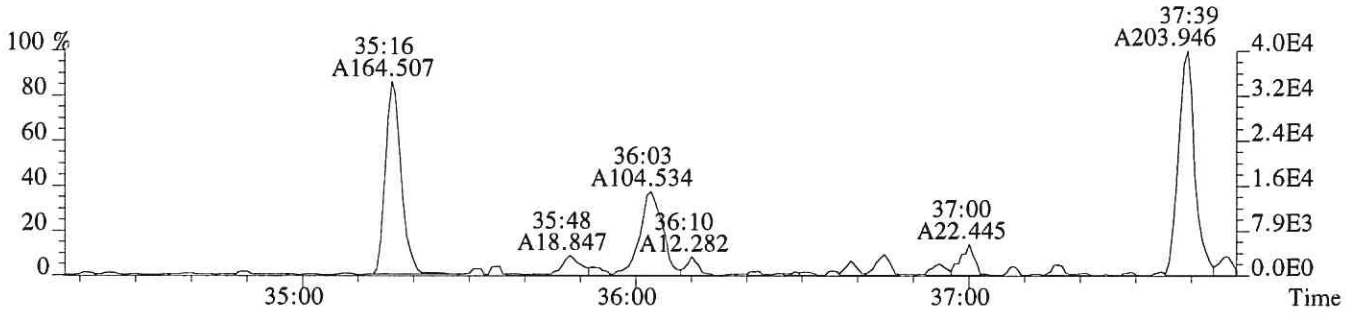
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



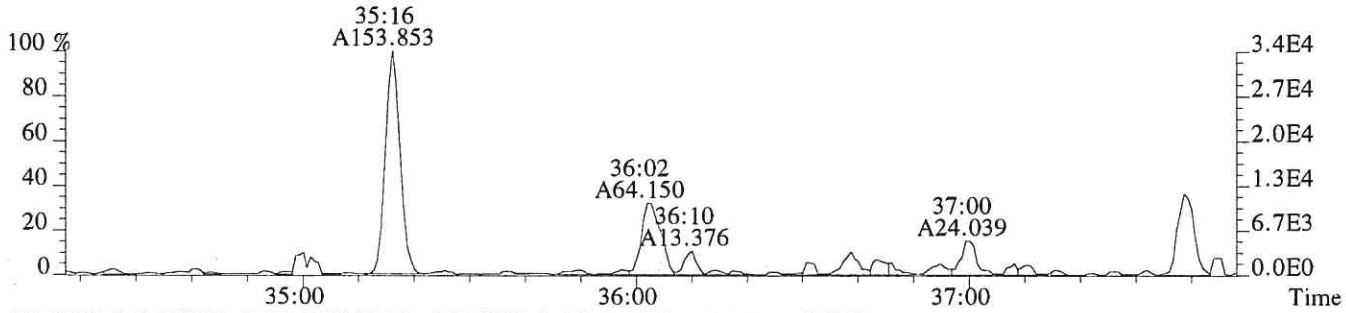
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



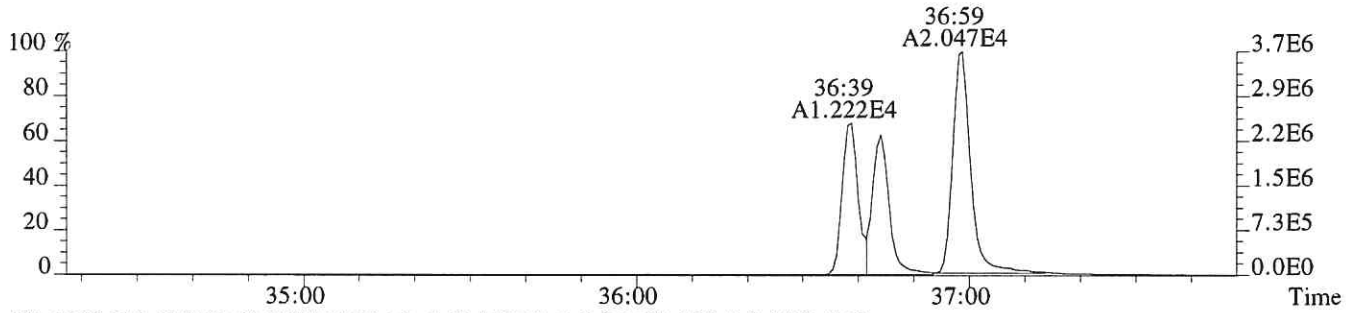
File:P519295 #1-317 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



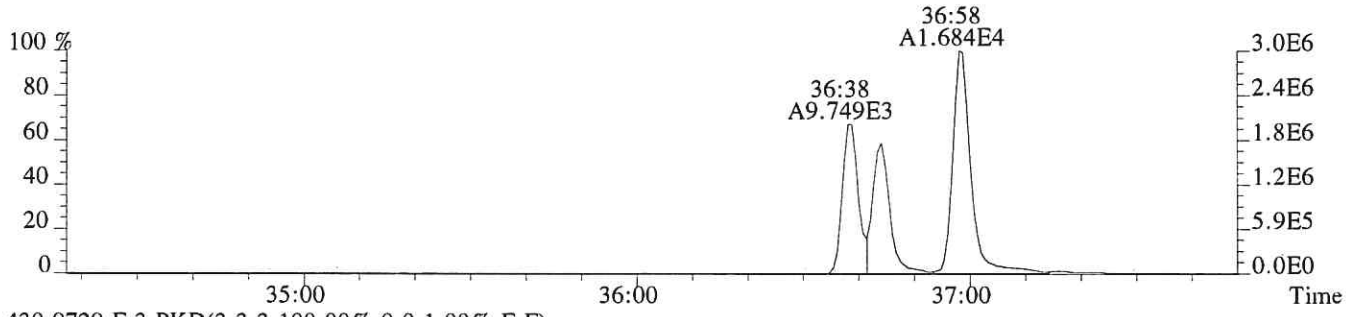
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



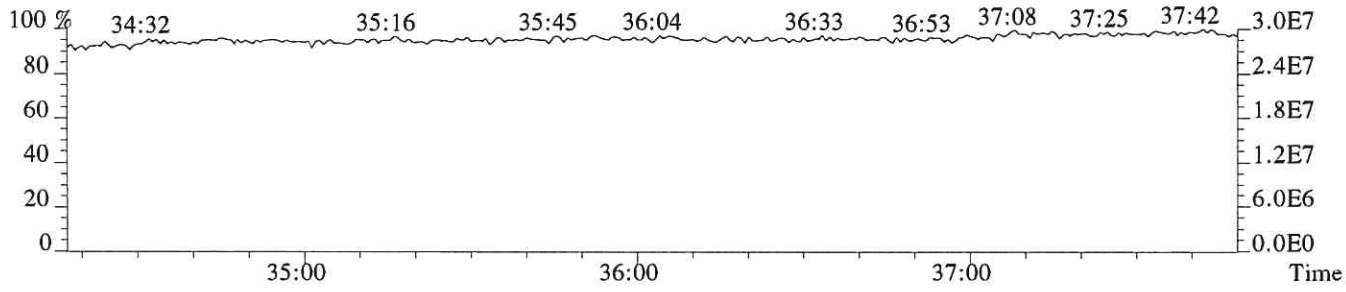
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



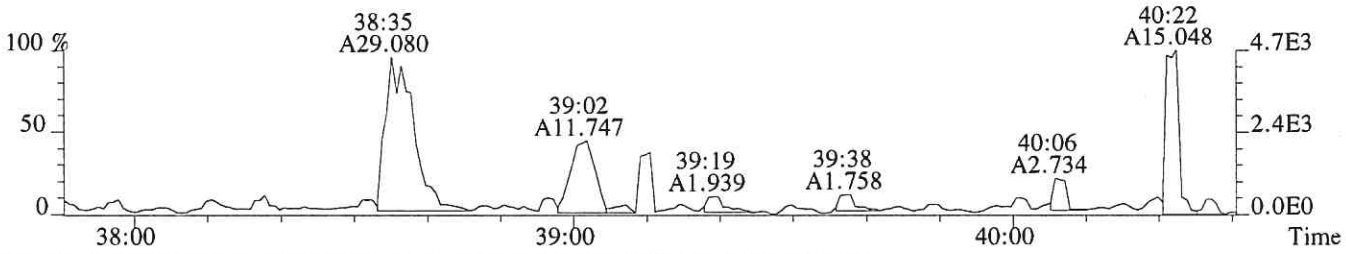
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



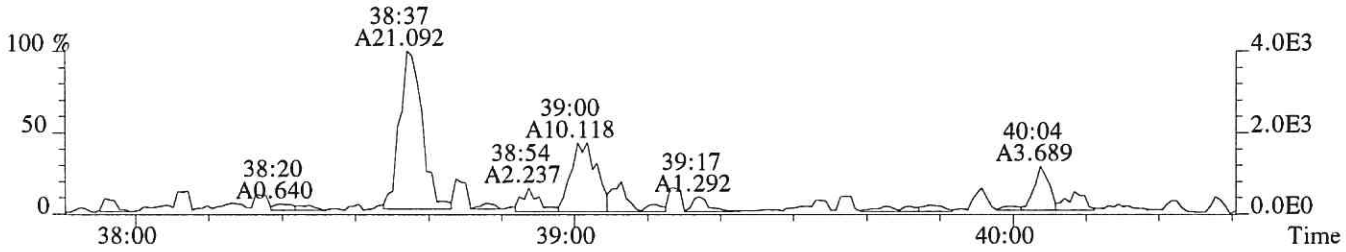
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



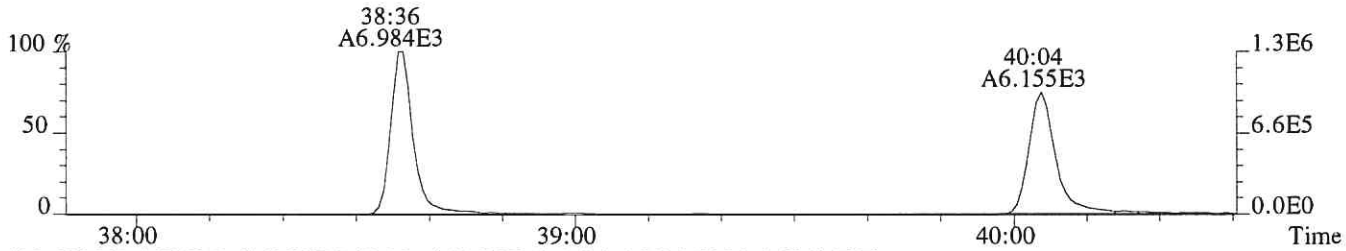
File:P519295 #1-241 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



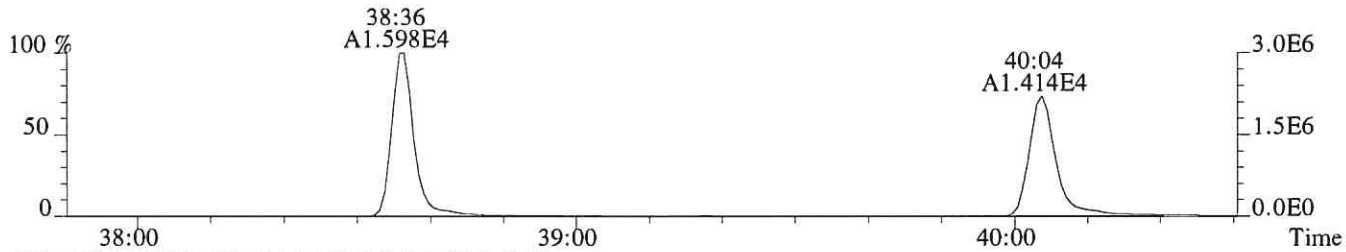
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.50%,F,T)



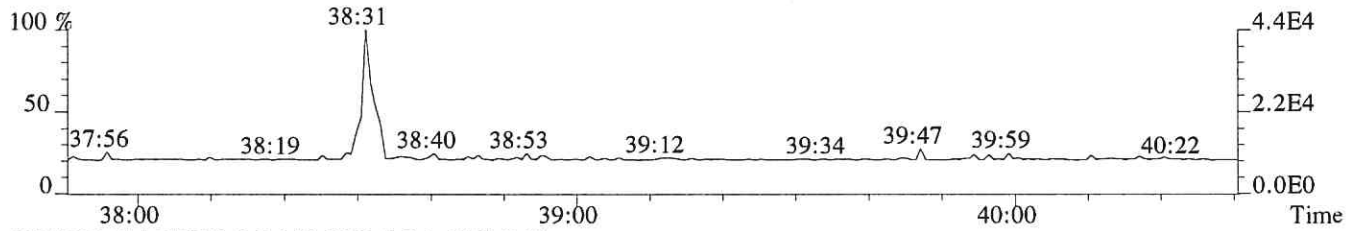
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1592.0,0.50%,F,T)



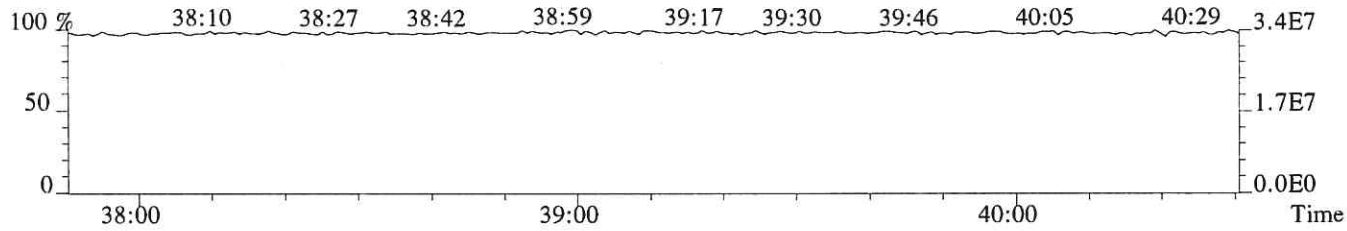
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2176.0,0.50%,F,T)



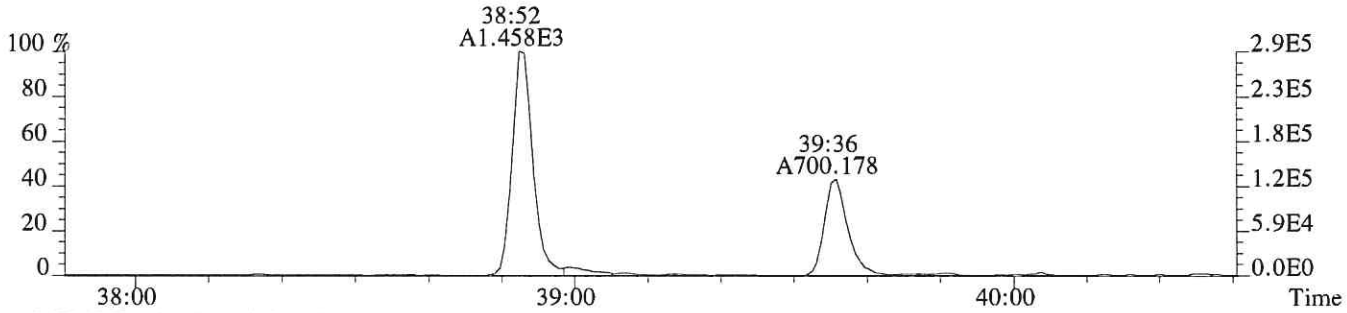
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



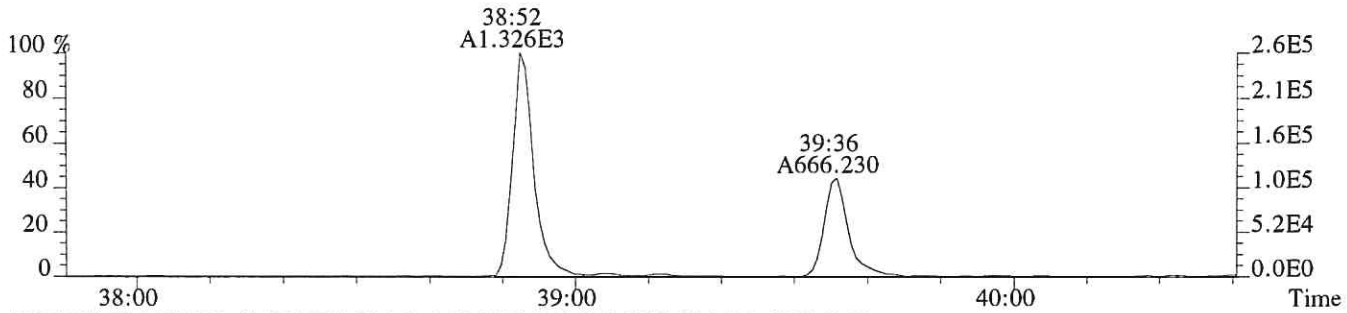
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



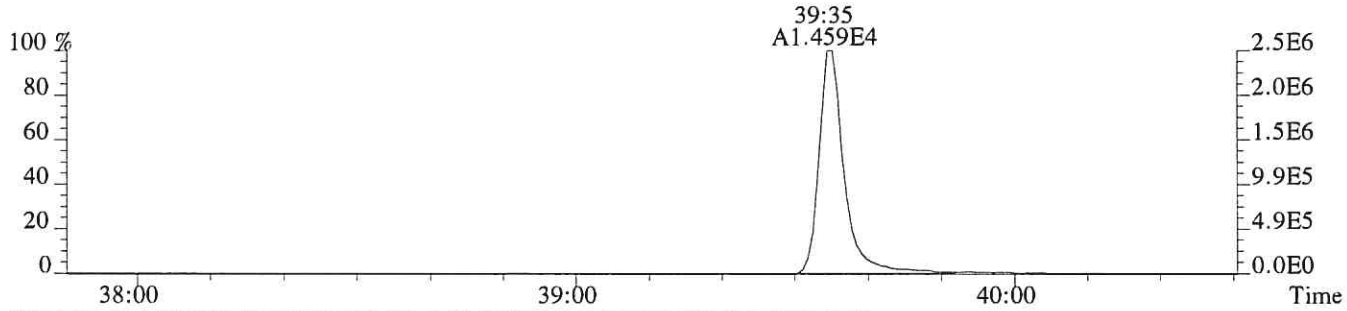
File:P519295 #1-241 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



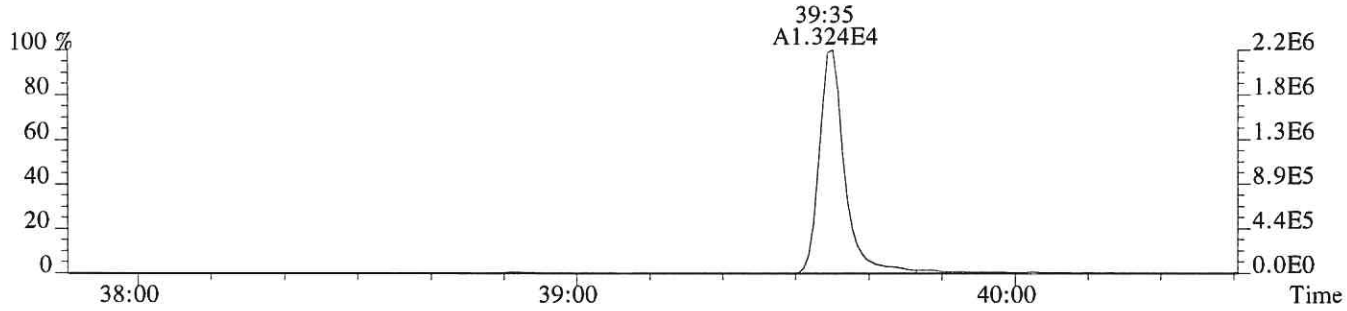
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



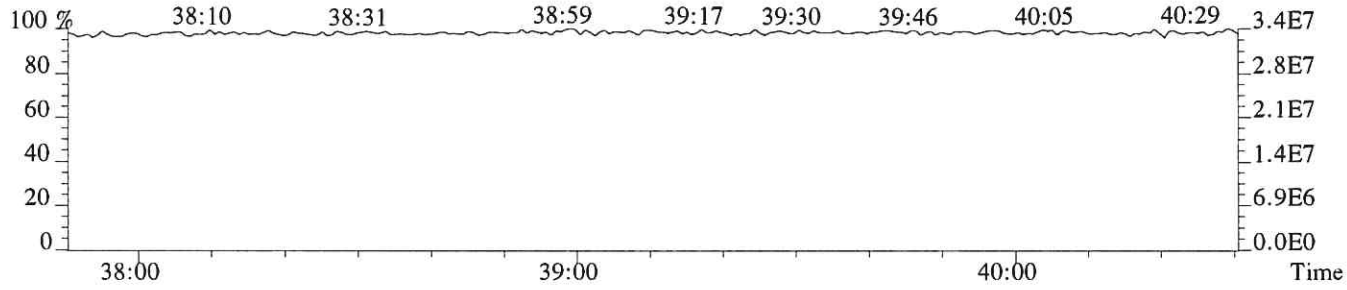
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



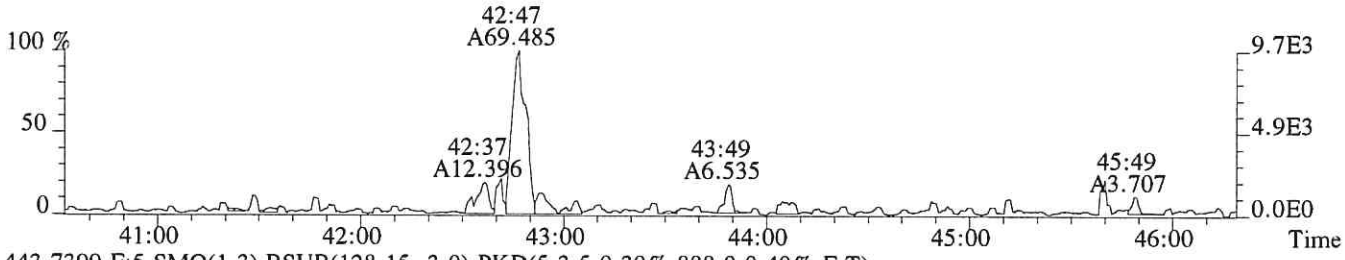
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



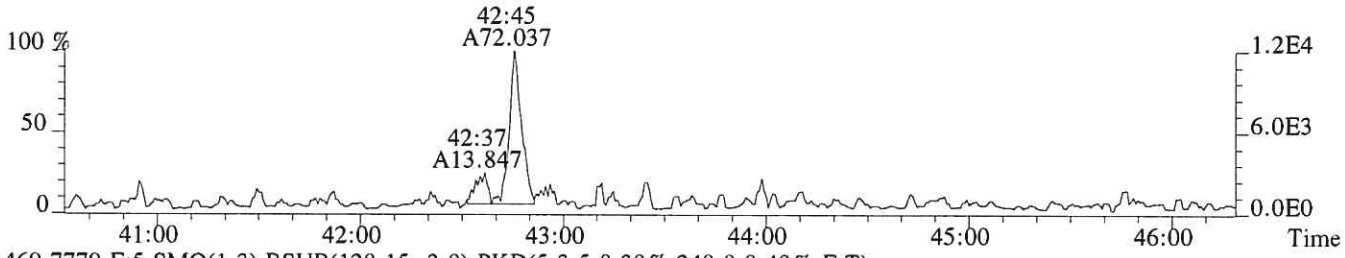
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



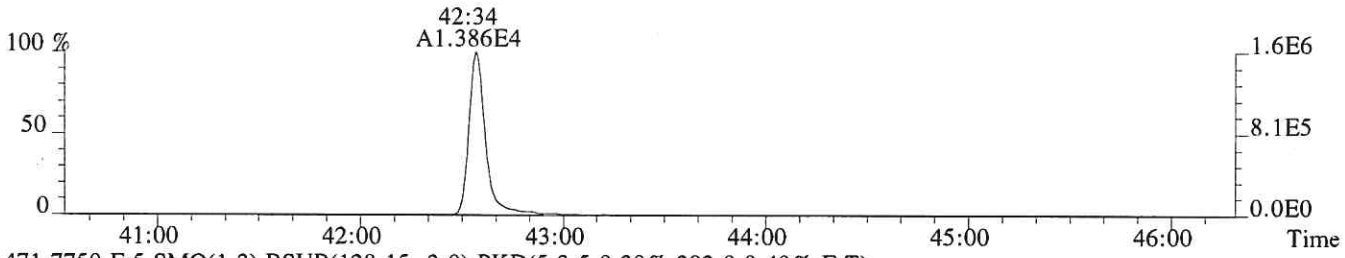
File:P519295 #1-520 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



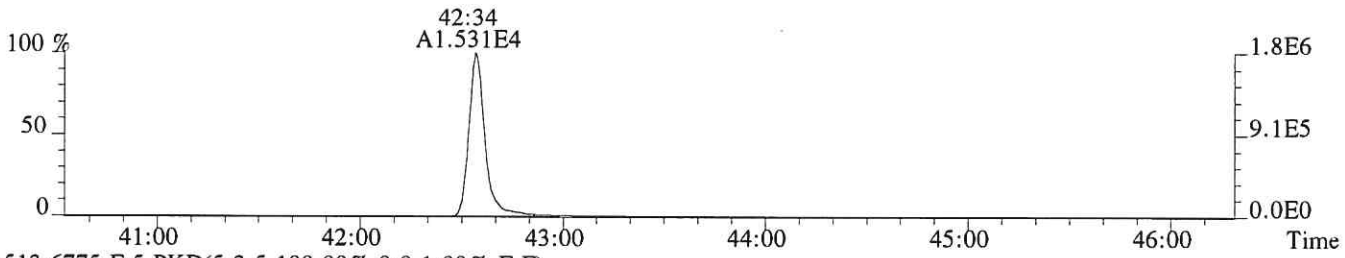
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,888.0,0.40%,F,T)



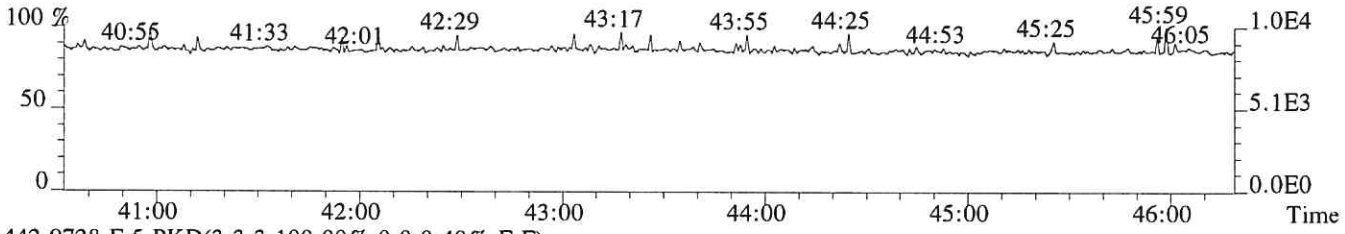
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



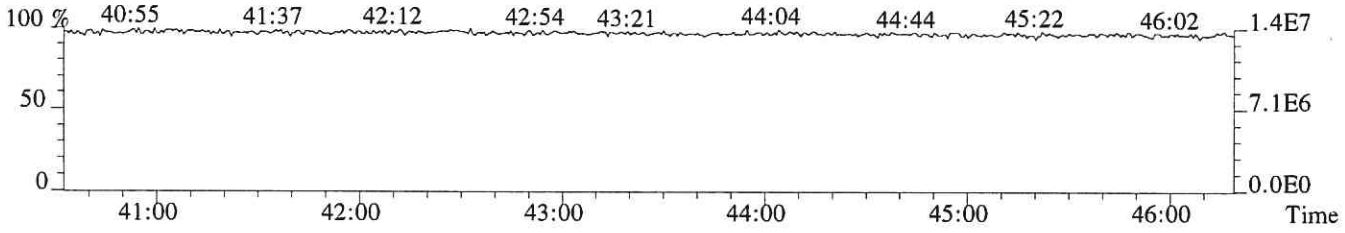
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



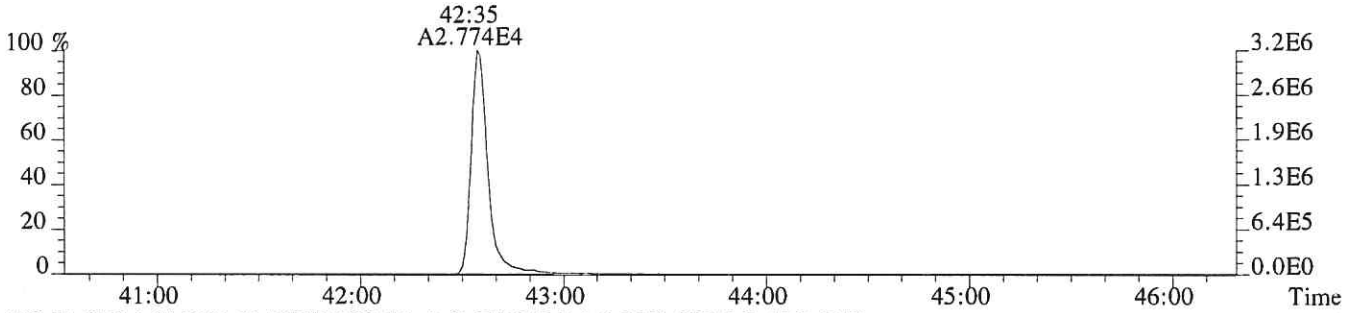
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



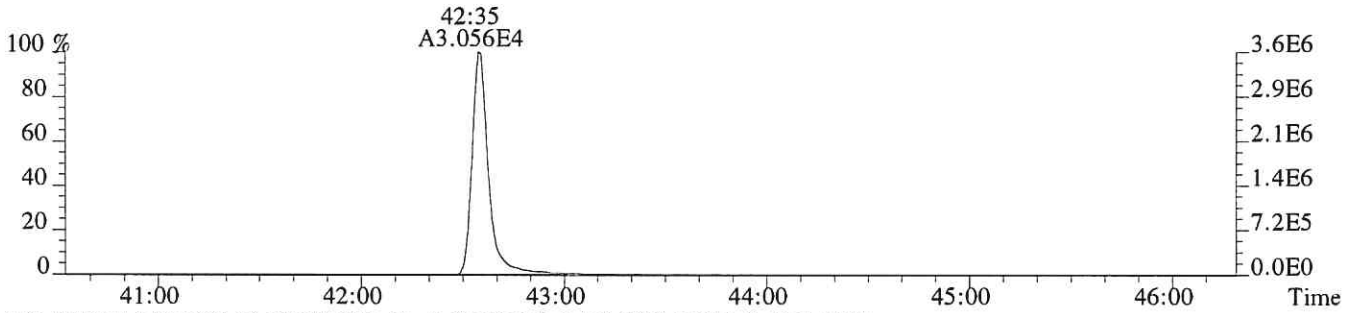
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



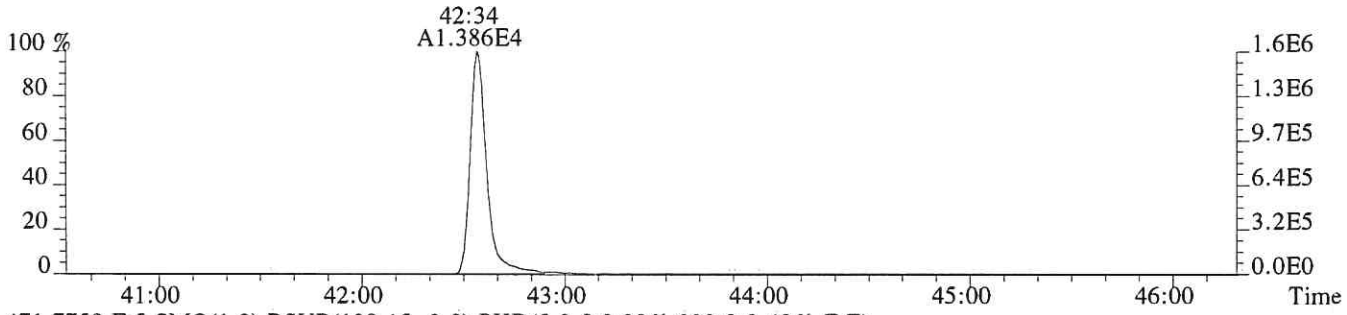
File:P519295 #1-520 Acq: 8-DEC-2018 01:36:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801055-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



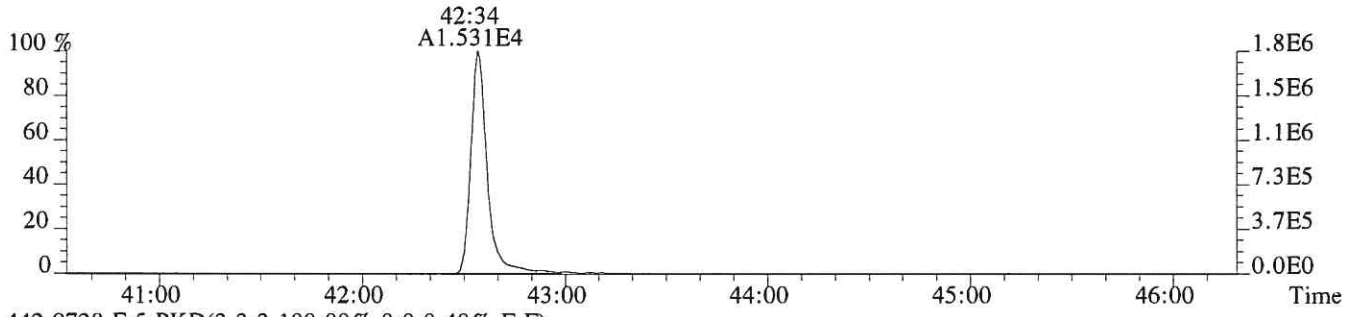
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



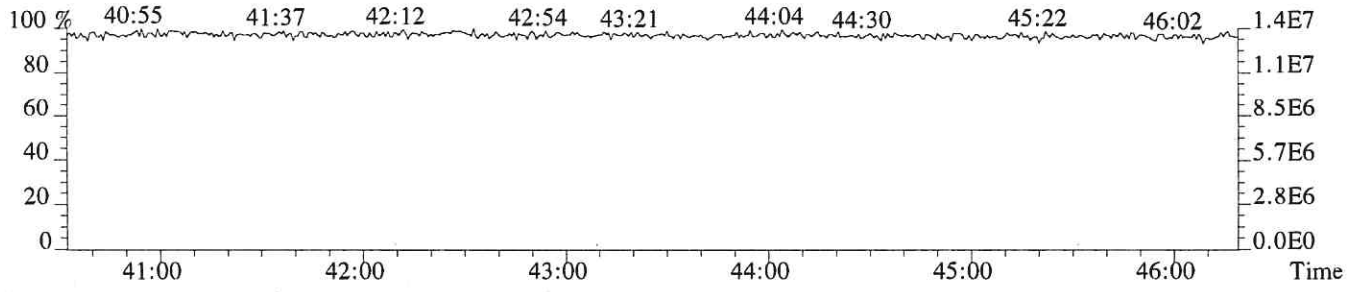
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P615971 Samp: 1 Inj: 1 Acquired: 7-DEC-18 13:07:22
Processed: 10-DEC-18 16:28:10 Sample ID: EQ1800494-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	4.553e+01	6.763e+01	0.67	yes	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	1.107e+01	9.412e+00	1.18	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	1.793e+01	1.384e+01	1.30	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.919e+01	2.173e+01	0.88	no	no	1.112
17	Unk	OCDD	41:43	8.721e+01	1.235e+02	0.71	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	4.833e+04	6.116e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	8.433e+04	5.327e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	7.514e+04	4.772e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	3.465e+04	6.571e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.976e+04	7.666e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	3.532e+04	6.719e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	3.190e+04	6.140e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.473e+04	5.548e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.204e+04	4.745e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	2.506e+04	3.218e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	6.004e+04	3.832e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.919e+04	3.904e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	4.719e+04	3.821e+04	1.23	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.844e+04	4.618e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	3.880e+04	4.299e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	7.709e+04	9.815e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	9.710e+04	7.903e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	3.408e+04				no	1.086

$$\text{OCDD} = \frac{(8.721e+01 + 1.235e+02) \times 4000\ \text{pg} \times 1}{(3.880e+04 + 4.299e+04) \times \text{g} \times / 100 \times 1.157}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P615971 Samp: 1 Inj: 1 Acquired: 7-DEC-18 13:07:22
Processed: 10-DEC-18 16:28:10 LAB. ID: EQ1800494-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.29e+03	1.16e+03	8.0e+00	1.32e+04	2.65e+03	5.0e+00
2	1,2,3,7,8-PeCDF	*	1.22e+03	*	*	2.52e+03	*
3	2,3,4,7,8-PeCDF	*	1.22e+03	*	*	2.52e+03	*
4	1,2,3,4,7,8-HxCDF	3.23e+03	9.36e+02	3.5e+00	2.33e+03	4.48e+02	5.2e+00
5	1,2,3,6,7,8-HxCDF	*	9.36e+02	*	*	4.48e+02	*
6	2,3,4,6,7,8-HxCDF	*	9.36e+02	*	*	4.48e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.36e+02	*	*	4.48e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.19e+03	5.04e+02	6.3e+00	3.64e+03	4.76e+02	7.7e+00
9	1,2,3,4,7,8,9-HpCDF	*	5.04e+02	*	*	4.76e+02	*
10	OCDF	*	6.68e+02	*	*	2.44e+03	*
11	2,3,7,8-TCDD	*	3.50e+03	*	*	1.80e+03	*
12	1,2,3,7,8-PeCDD	*	1.13e+03	*	*	8.40e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.48e+02	*	*	1.32e+03	*
14	1,2,3,6,7,8-HxCDD	*	3.48e+02	*	*	1.32e+03	*
15	1,2,3,7,8,9-HxCDD	*	3.48e+02	*	*	1.32e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.95e+03	5.16e+02	7.7e+00	6.24e+03	4.48e+02	1.4e+01
17	OCDD	1.57e+04	5.76e+02	2.7e+01	2.22e+04	8.60e+02	2.6e+01
18	13C-2,3,7,8-TCDF	7.38e+06	1.00e+04	7.4e+02	9.25e+06	5.16e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	1.48e+07	8.72e+02	1.7e+04	9.52e+06	2.29e+03	4.2e+03
20	13C-2,3,4,7,8-PeCDF	1.38e+07	8.72e+02	1.6e+04	8.64e+06	2.29e+03	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	7.29e+06	1.19e+03	6.1e+03	1.42e+07	2.37e+03	6.0e+03
22	13C-1,2,3,6,7,8-HxCDF	8.02e+06	1.19e+03	6.7e+03	1.51e+07	2.37e+03	6.4e+03
23	13C-2,3,4,6,7,8-HxCDF	7.39e+06	1.19e+03	6.2e+03	1.39e+07	2.37e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	6.11e+06	1.19e+03	5.1e+03	1.18e+07	2.37e+03	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.47e+06	3.26e+03	1.7e+03	1.21e+07	2.63e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.26e+06	3.26e+03	1.3e+03	9.26e+06	2.63e+03	3.5e+03
27	13C-2,3,7,8-TCDD	4.22e+06	1.55e+04	2.7e+02	5.32e+06	6.76e+03	7.9e+02
28	13C-1,2,3,7,8-PeCDD	1.09e+07	1.50e+03	7.3e+03	6.88e+06	1.84e+03	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.10e+07	2.78e+03	4.0e+03	8.67e+06	1.57e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.94e+06	2.78e+03	3.6e+03	8.06e+06	1.57e+03	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.56e+06	1.07e+03	9.0e+03	9.25e+06	7.96e+02	1.2e+04
32	13C-OCDD	6.74e+06	1.24e+03	5.5e+03	7.46e+06	4.12e+02	1.8e+04
33	13C-1,2,3,4-TCDD	1.30e+07	1.55e+04	8.4e+02	1.64e+07	6.76e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.06e+07	2.78e+03	7.4e+03	1.64e+07	1.57e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	5.62e+06	2.82e+03	2.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P615971 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 13:07:22 Processed: 10-DEC-18 16:28:10

Mass: 303.9020 305.8990 Tot Response: 1.13e+02 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:37	4.55e+01	6.76e+01 0.67	yes	1.13e+02	2,3,7,8-TCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P615971 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 13:07:22 Processed: 10-DEC-18 16:28:10

Mass: 373.8210 375.8180 Tot Response: 2.05e+01 RRF: 1.324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:33	1.11e+01	9.41e+00 1.18	yes	2.05e+01	1,2,3,4,7,8-HxCDF	n	n

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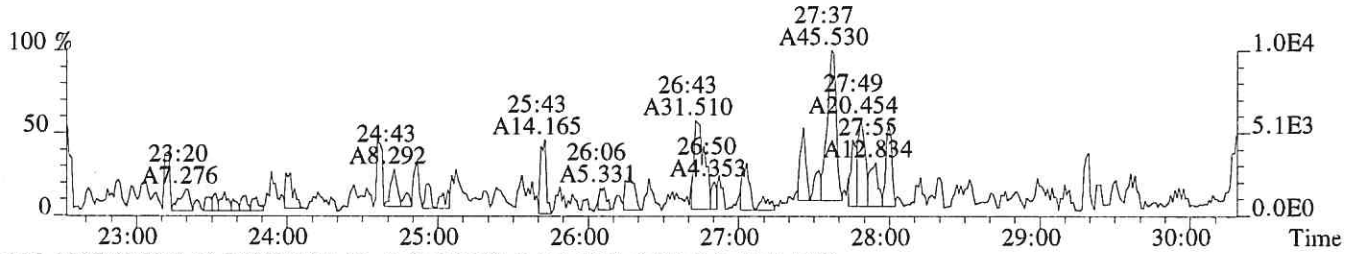
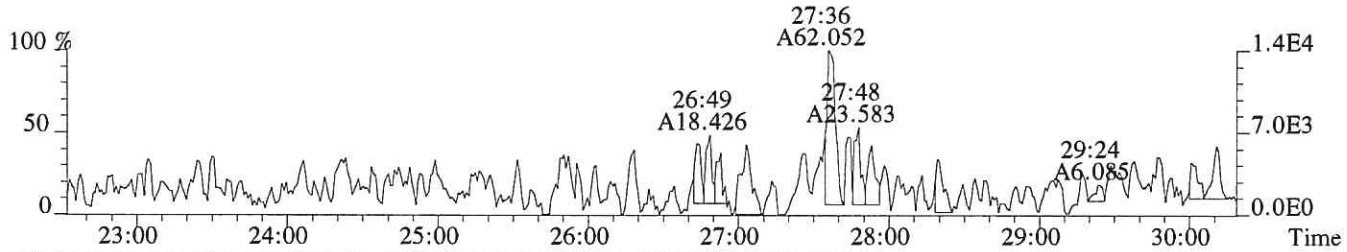
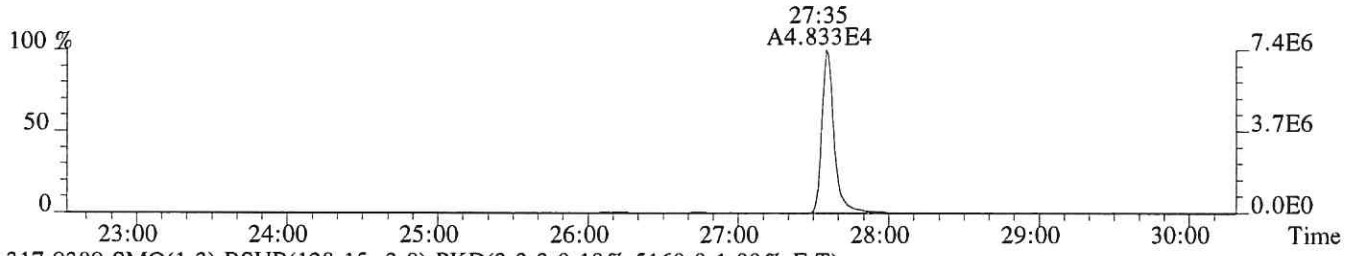
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



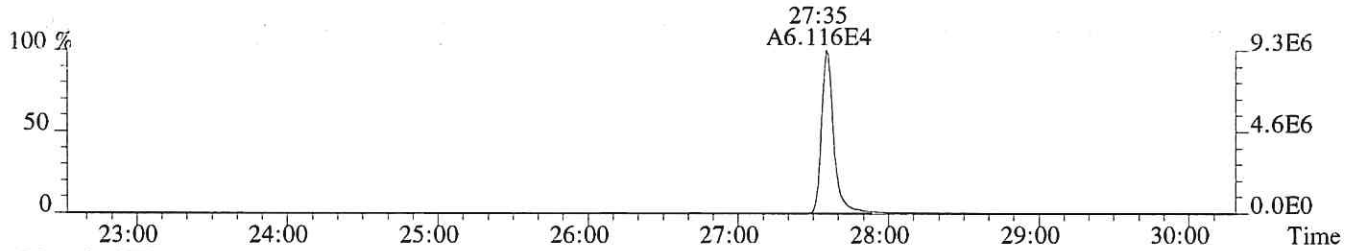
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



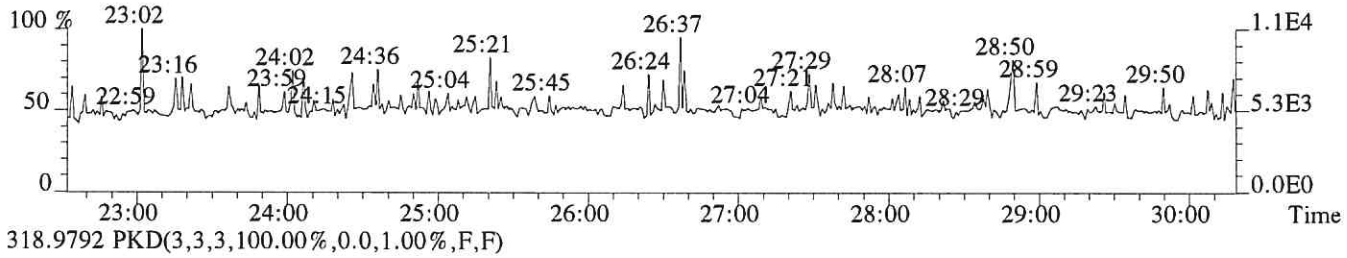
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10004.0,1.00%,F,T)



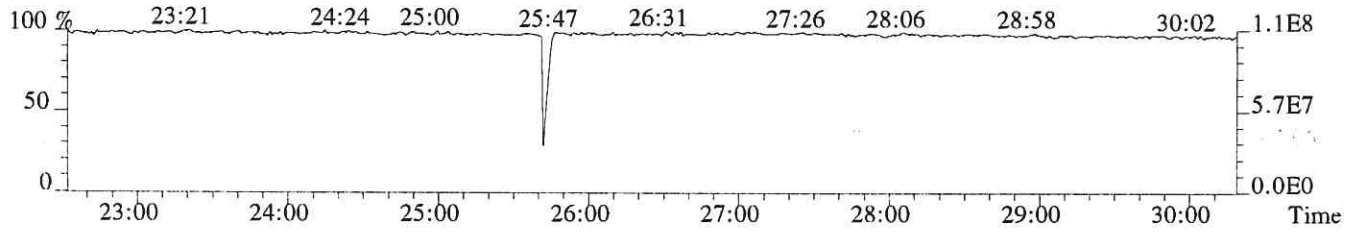
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5160.0,1.00%,F,T)



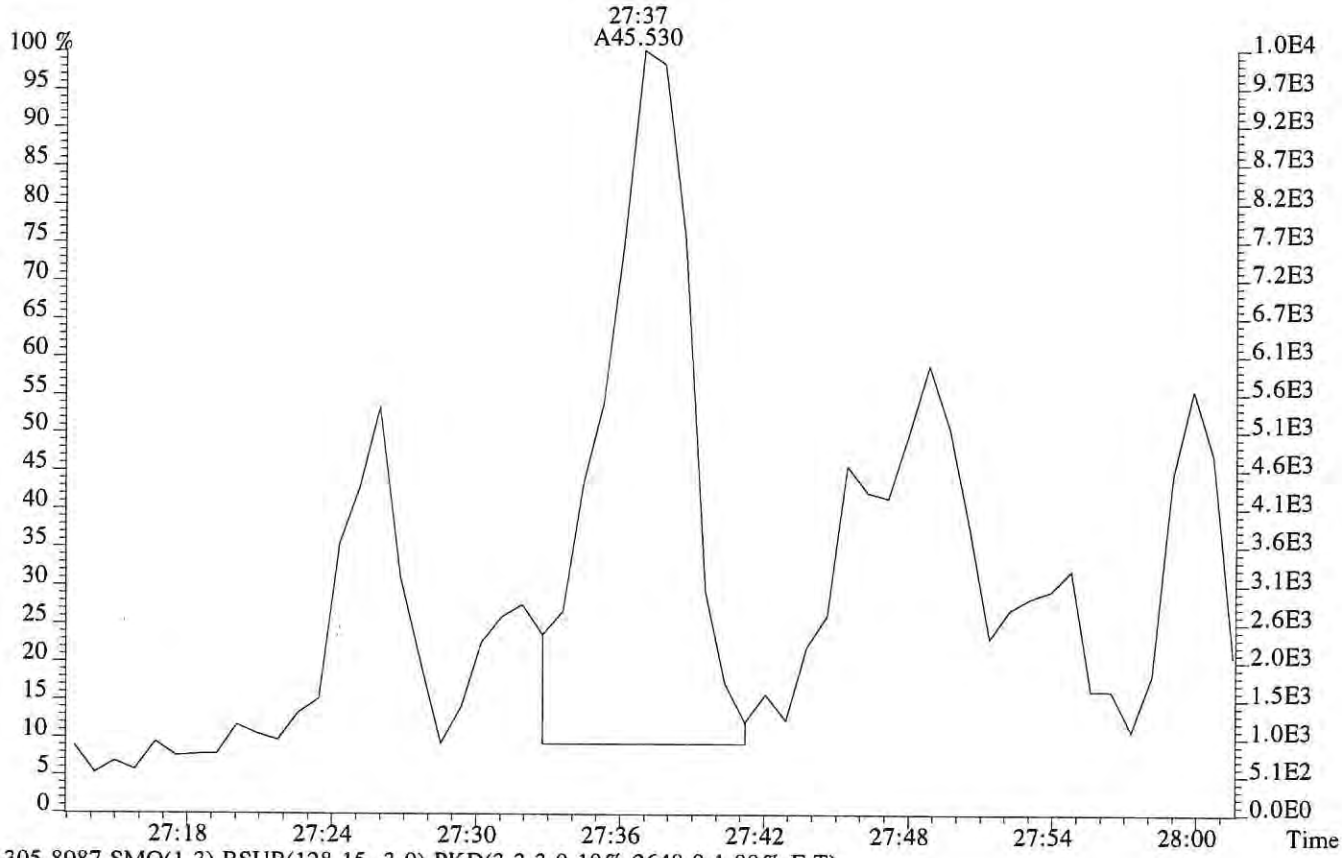
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



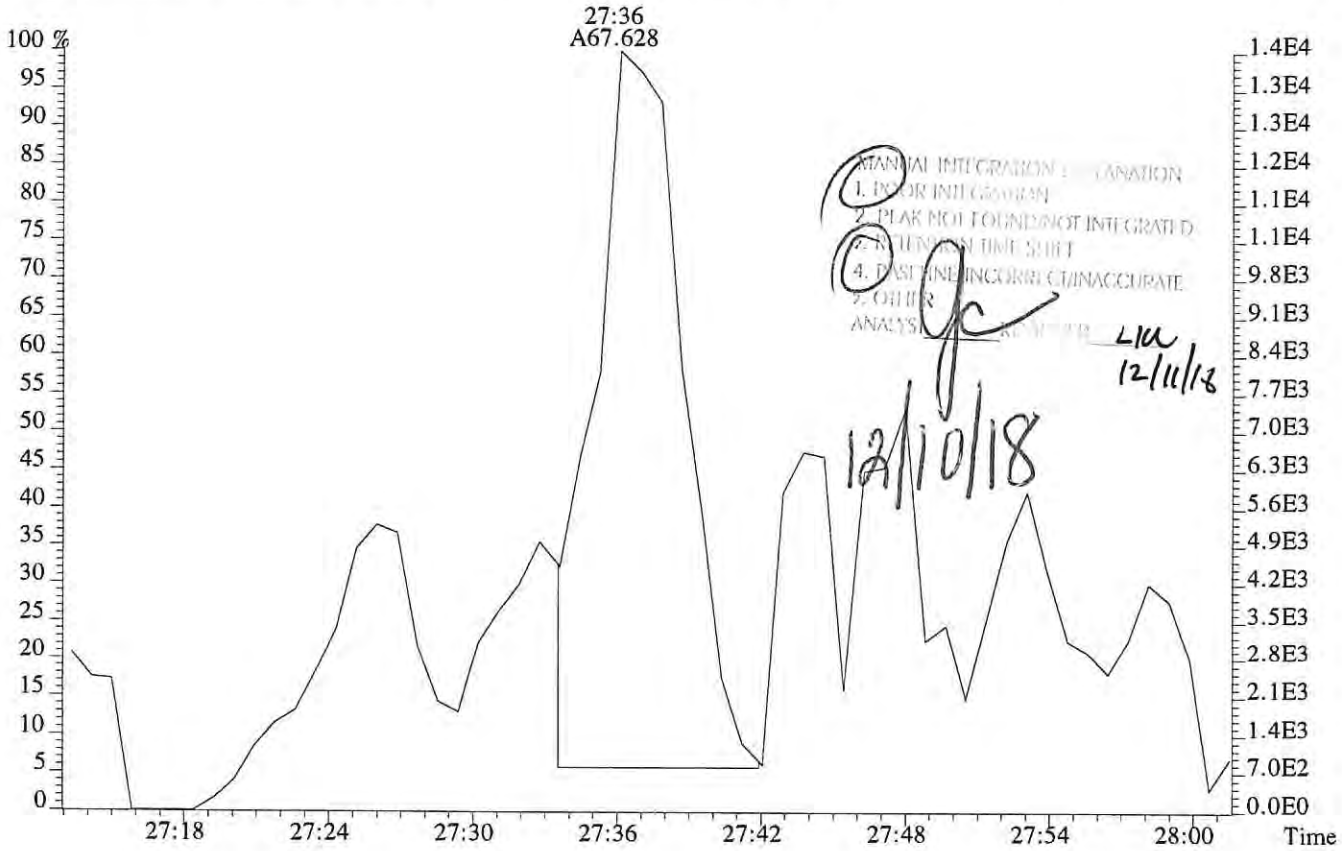
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



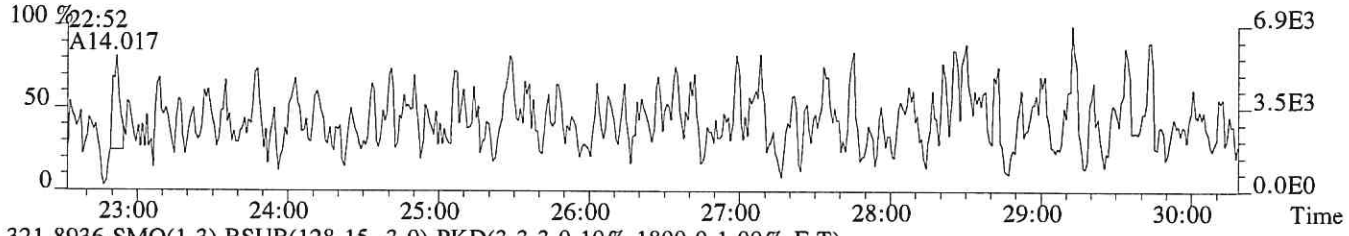
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



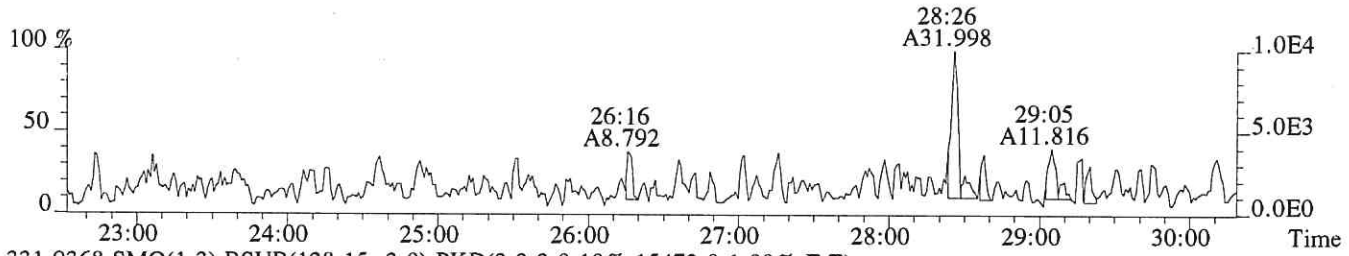
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER

LW 12/11/18
12/10/18

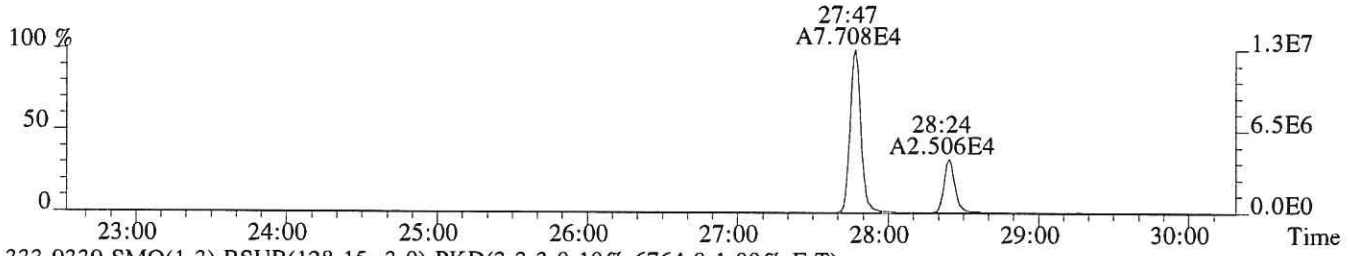
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



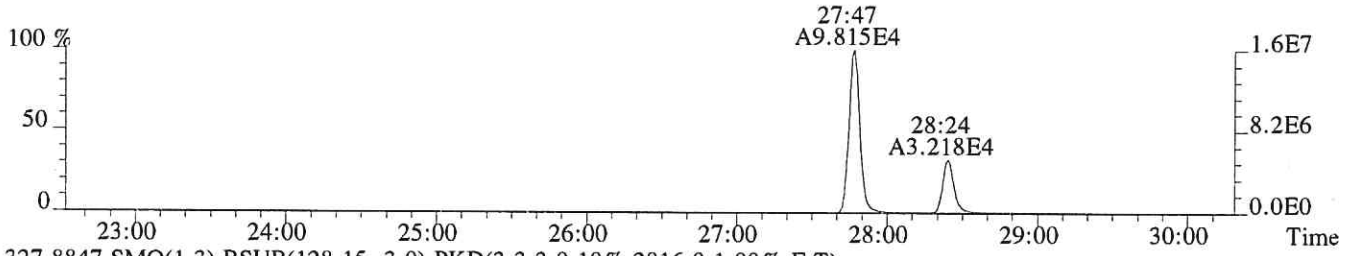
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



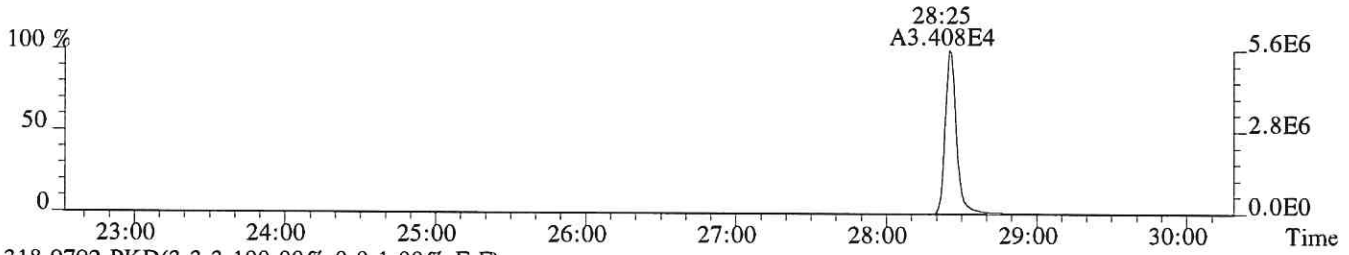
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15472.0,1.00%,F,T)



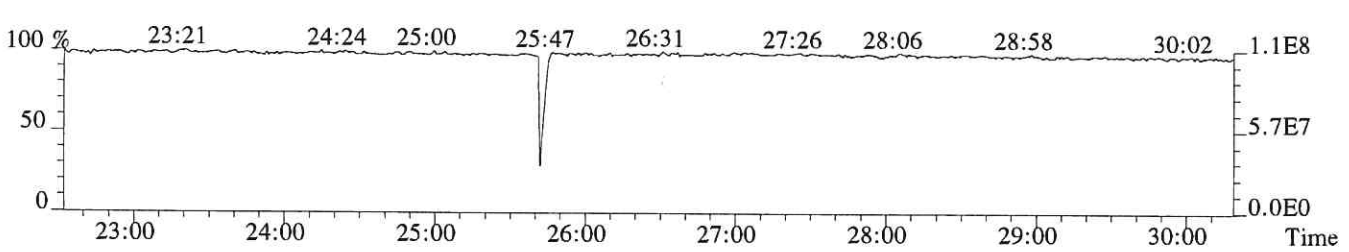
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6764.0,1.00%,F,T)



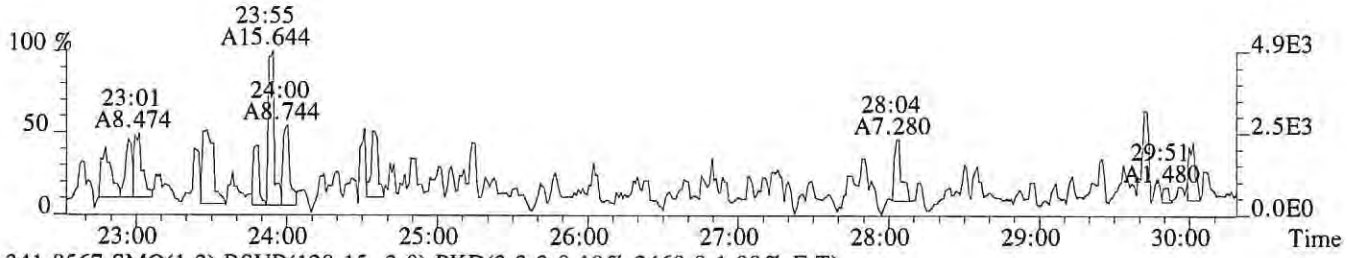
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2816.0,1.00%,F,T)



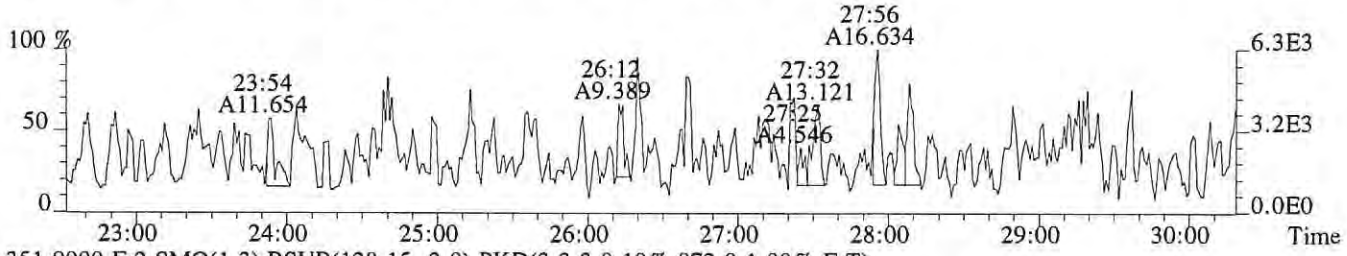
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



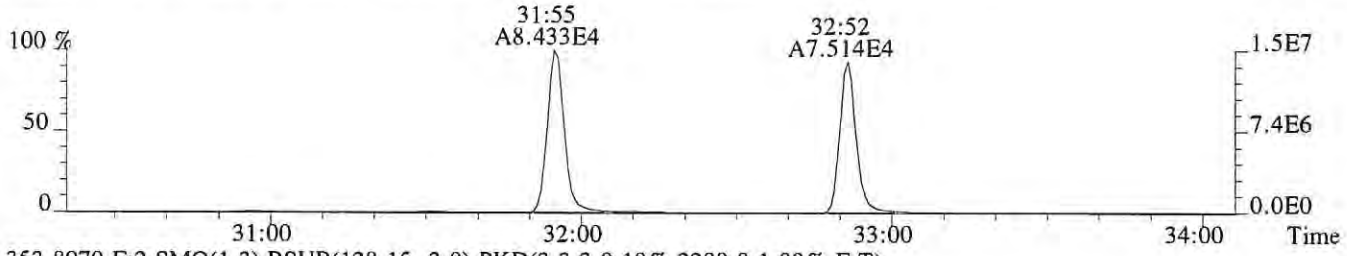
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



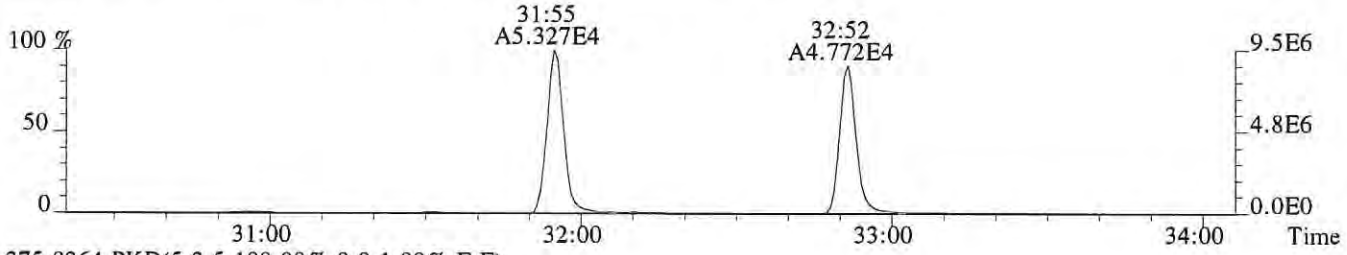
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



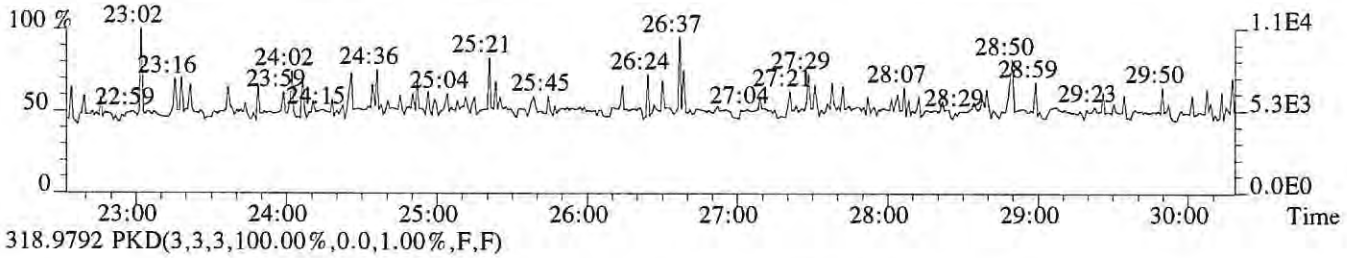
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



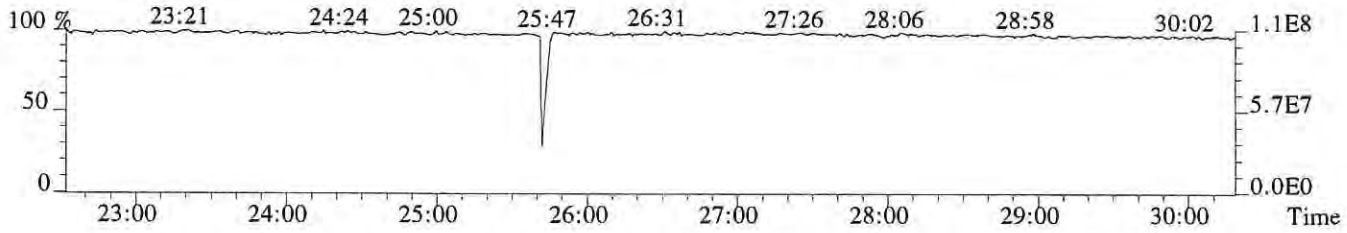
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



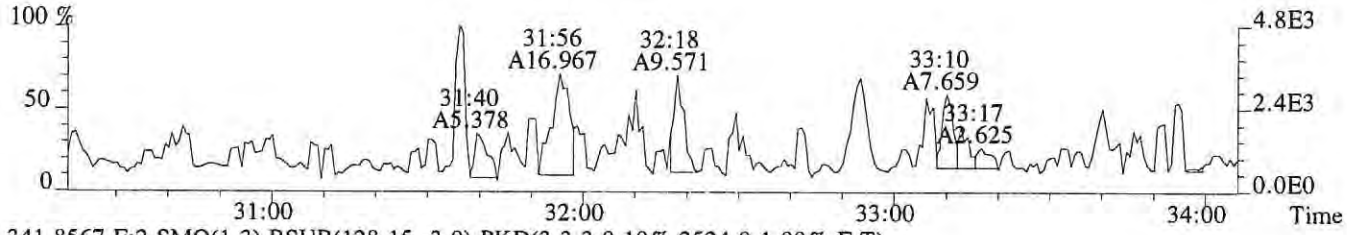
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



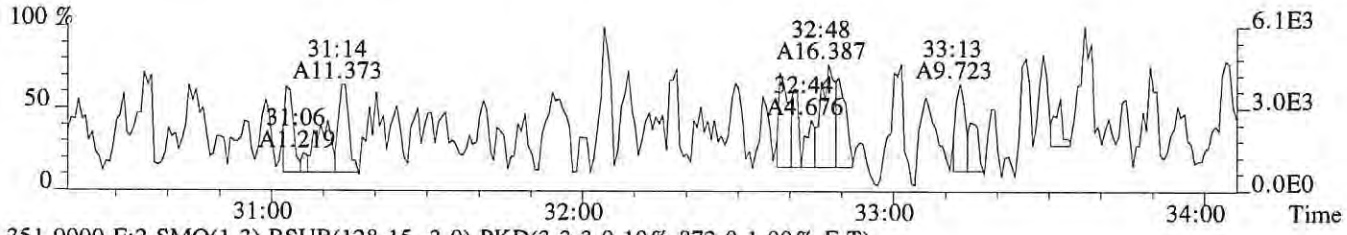
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



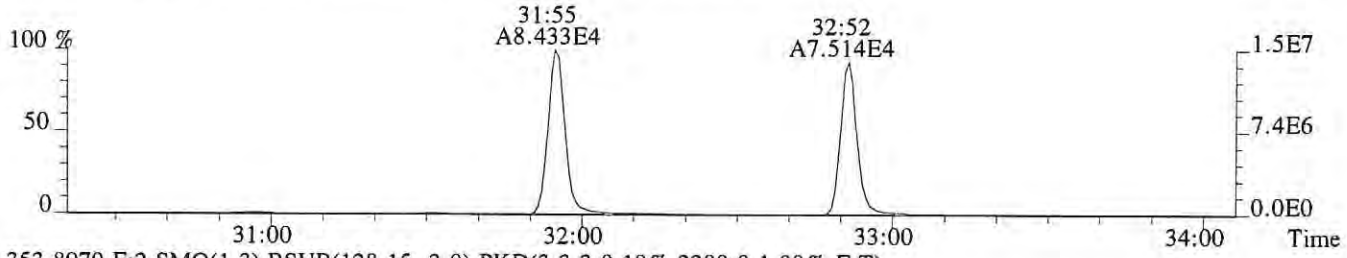
File:P615971 #1-339 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



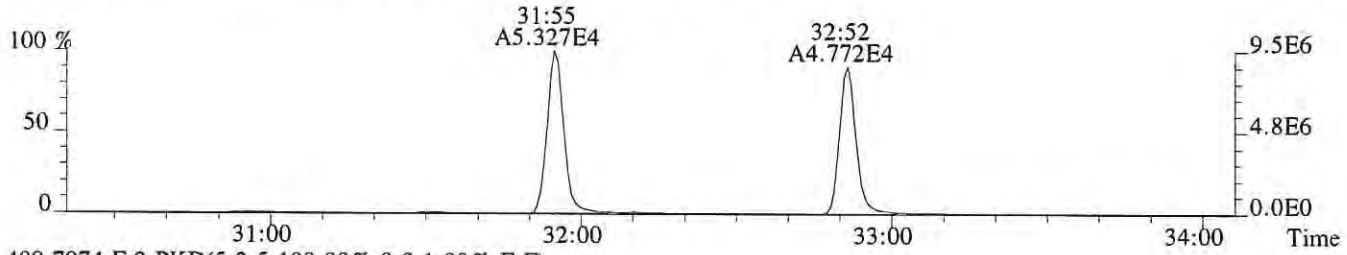
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



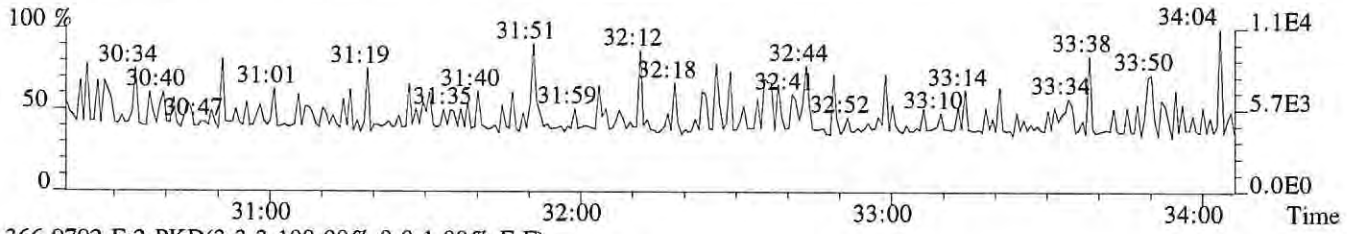
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



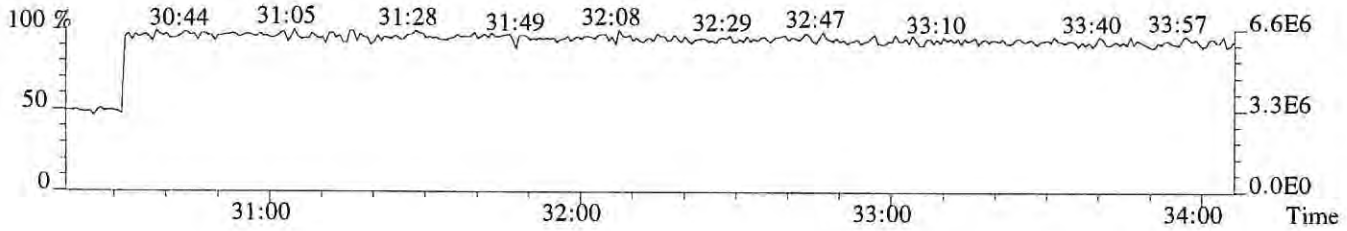
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



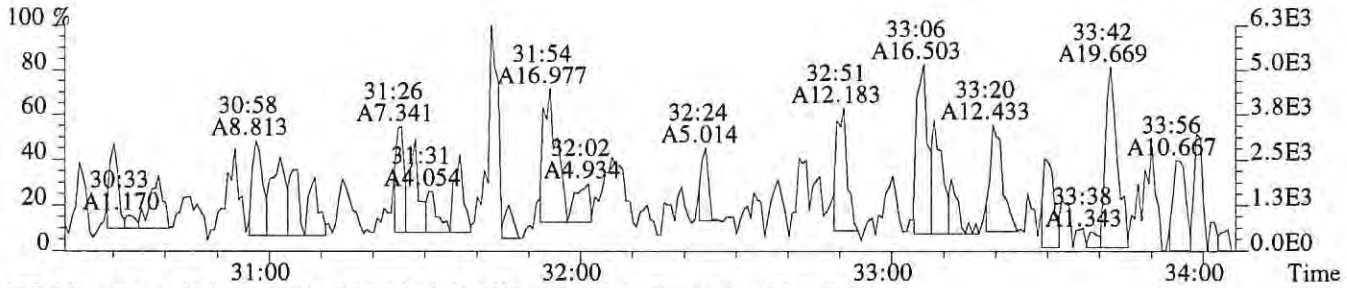
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



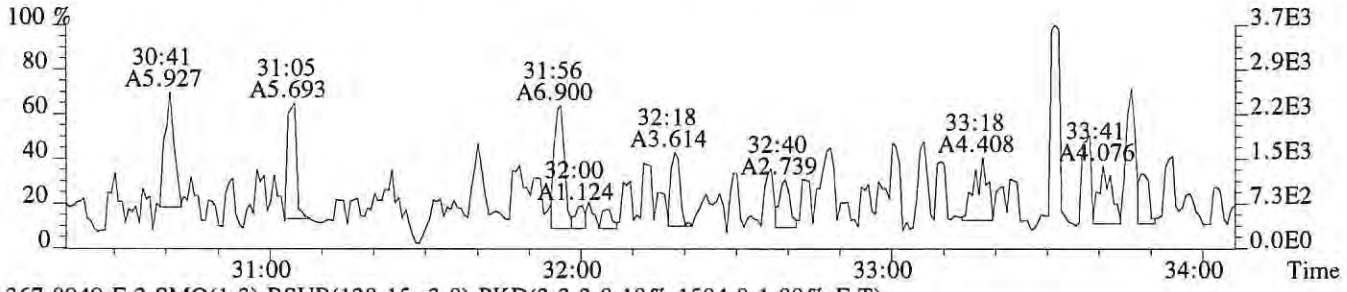
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



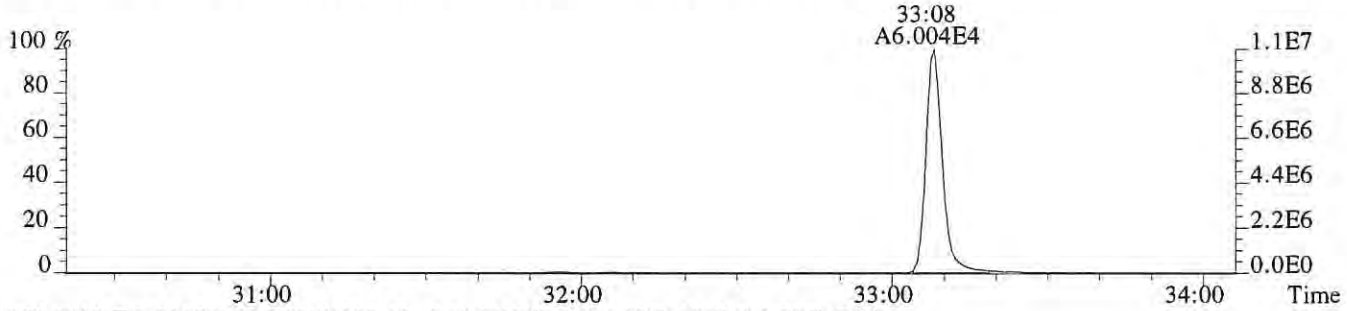
File:P615971 #1-339 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



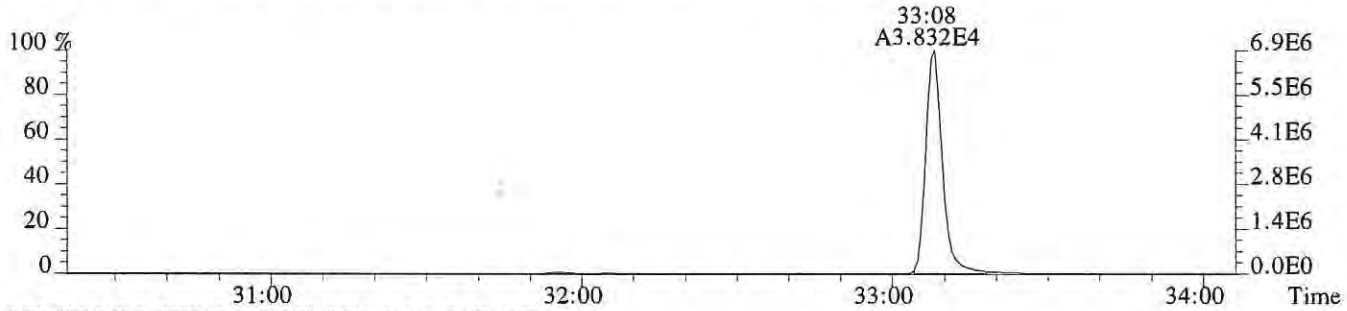
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



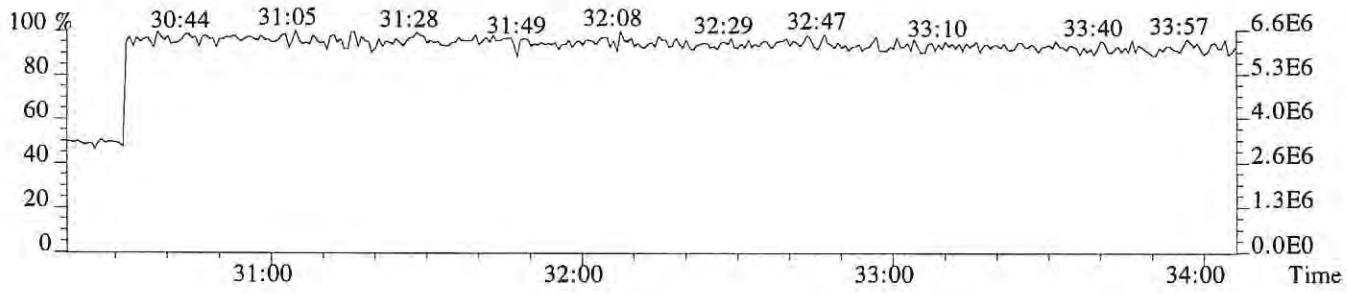
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



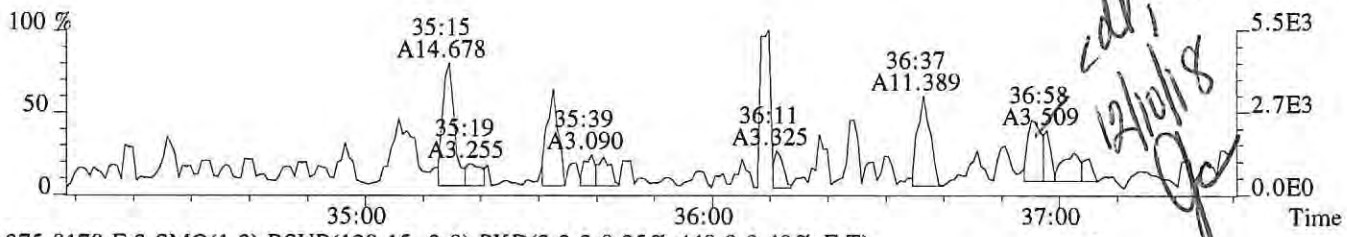
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)



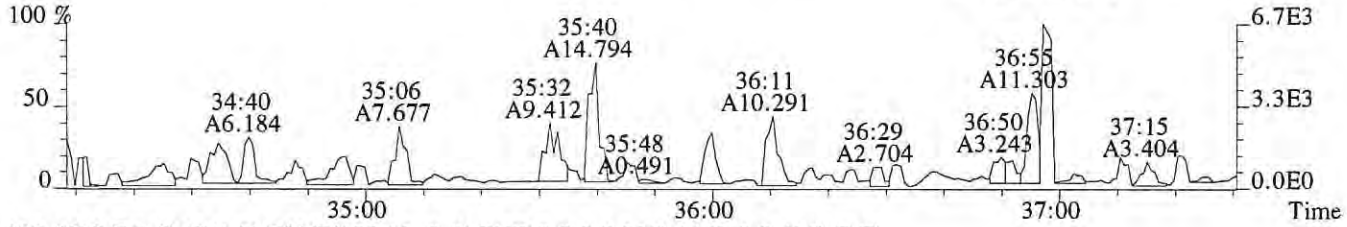
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



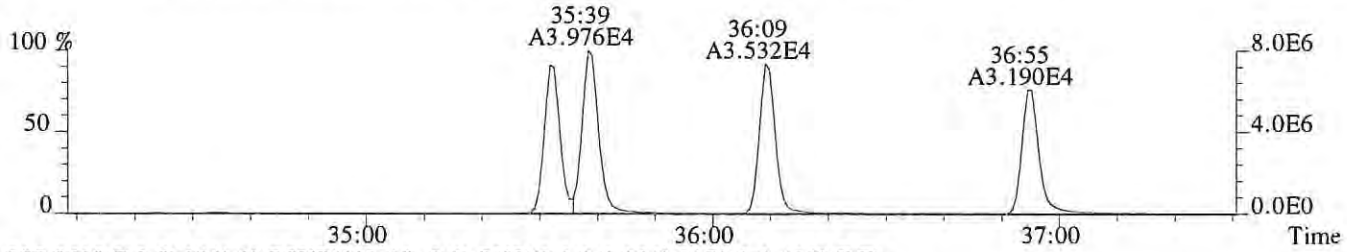
File:P615971 #1-304 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



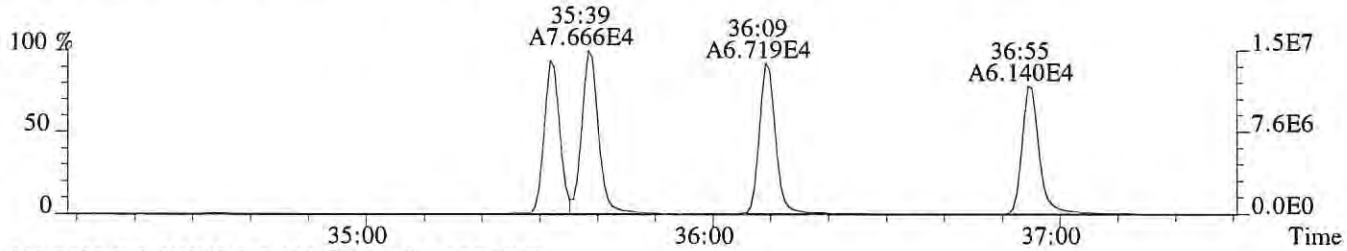
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



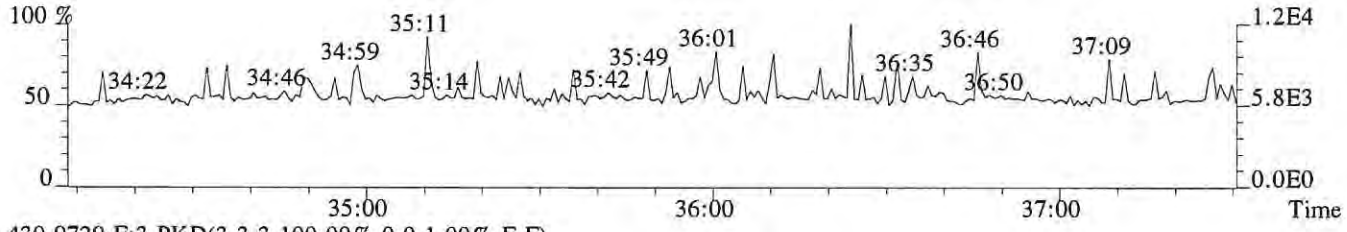
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



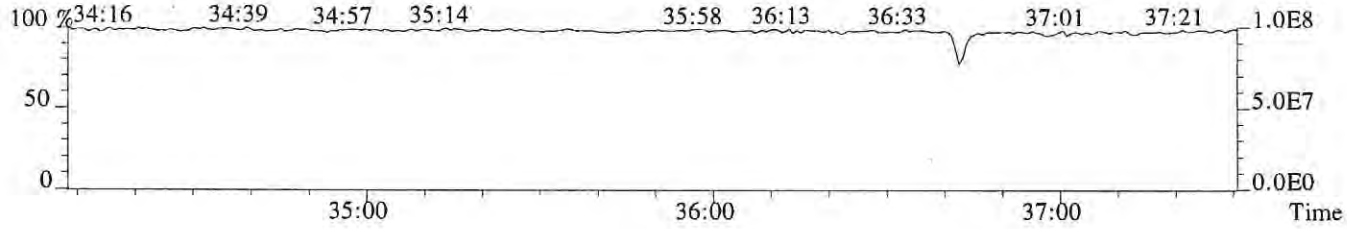
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2372.0,0.40%,F,T)



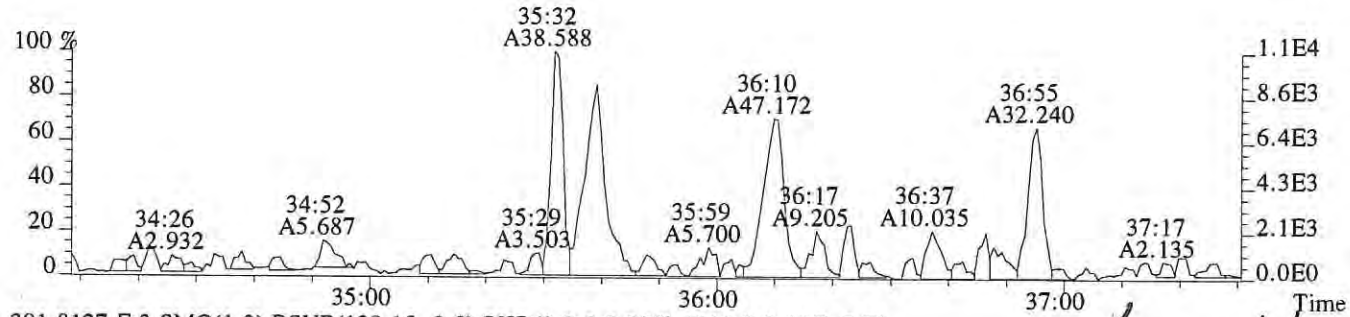
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



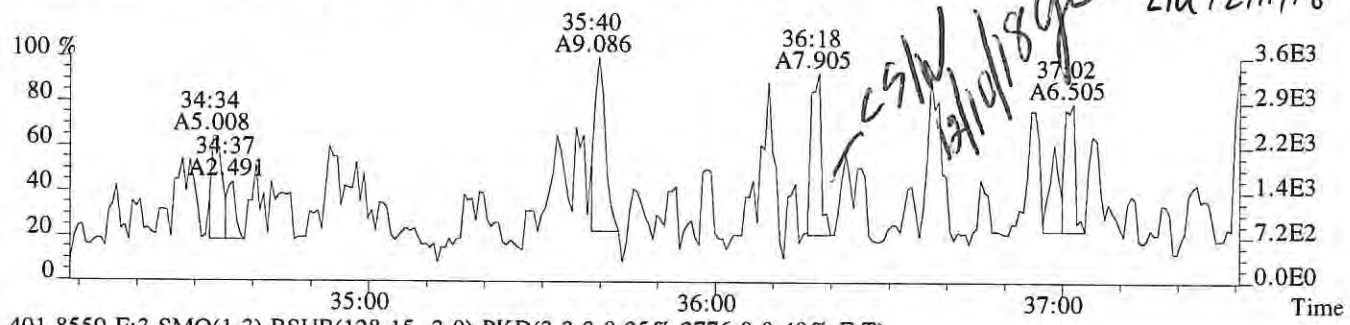
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



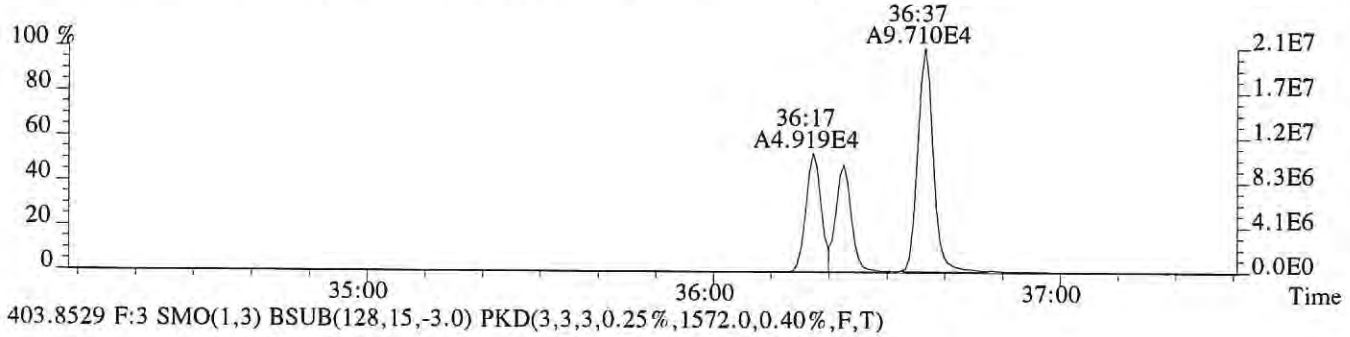
File:P615971 #1-304 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



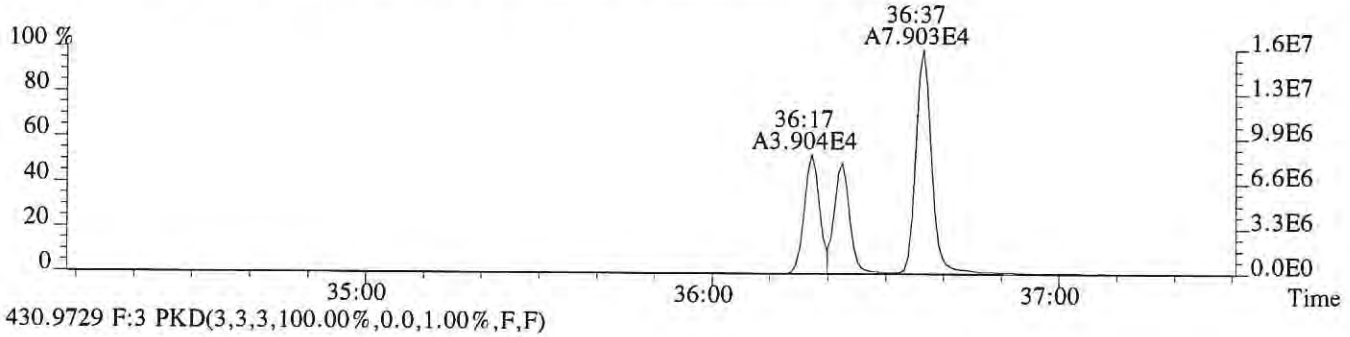
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



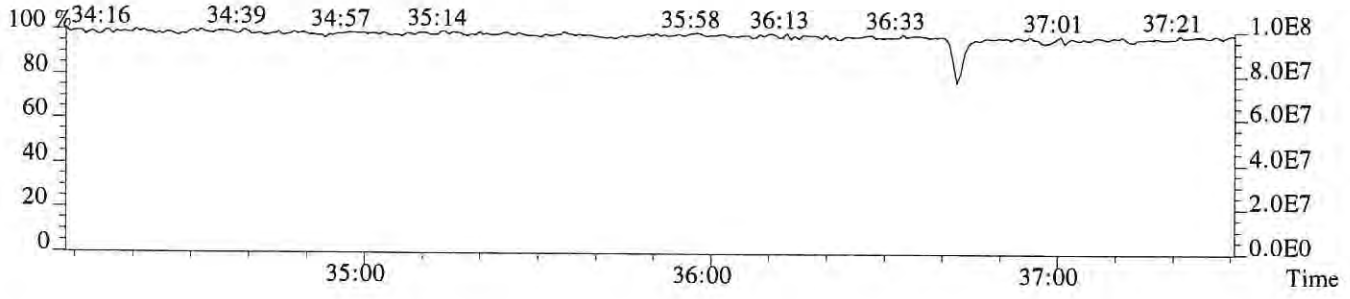
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2776.0,0.40%,F,T)



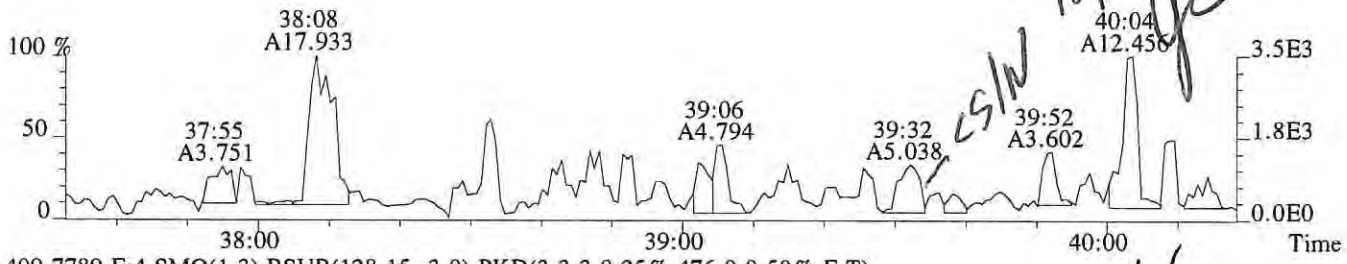
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



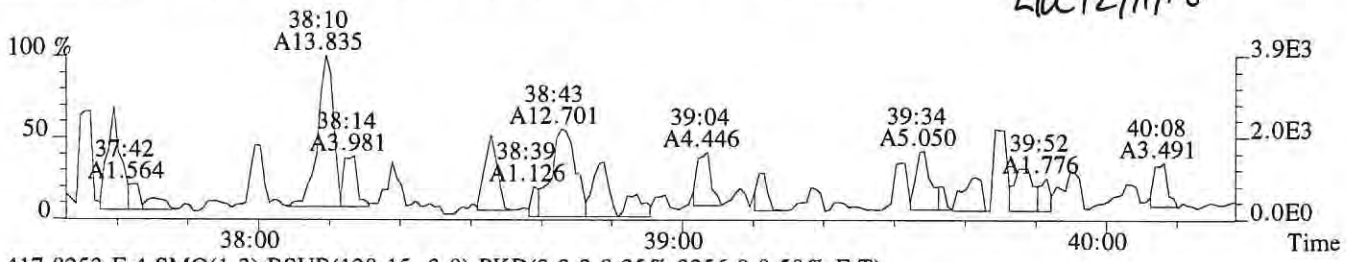
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



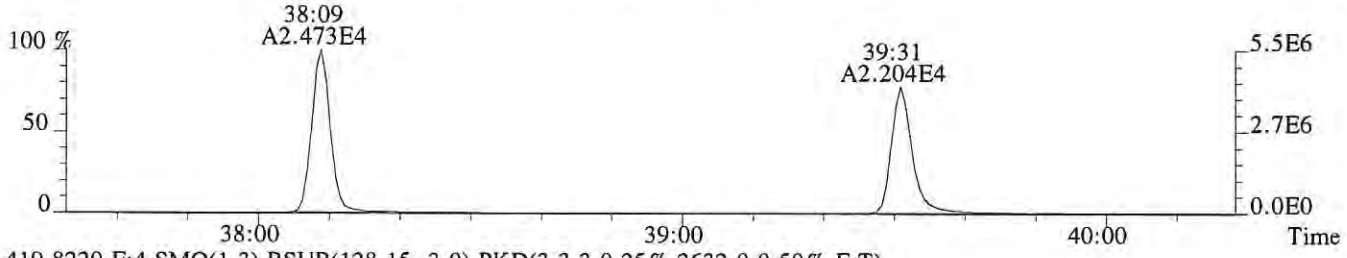
File:P615971 #1-249 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.50%,F,T)



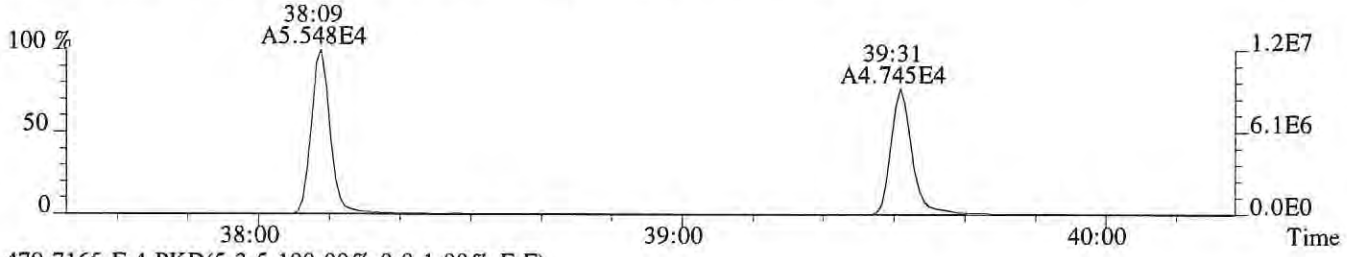
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.50%,F,T)



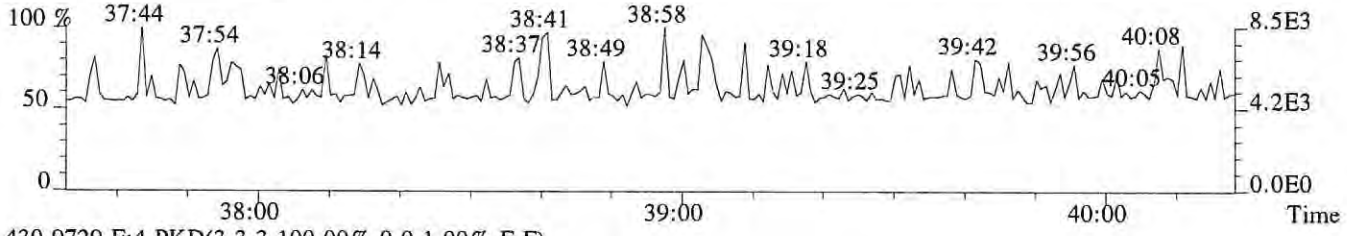
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3256.0,0.50%,F,T)



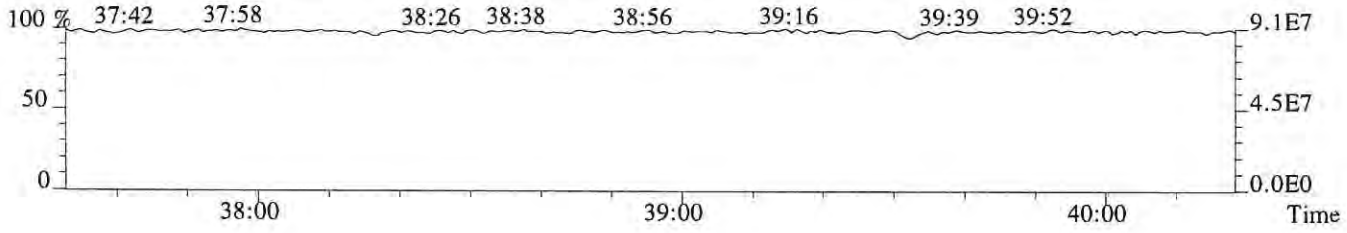
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.50%,F,T)



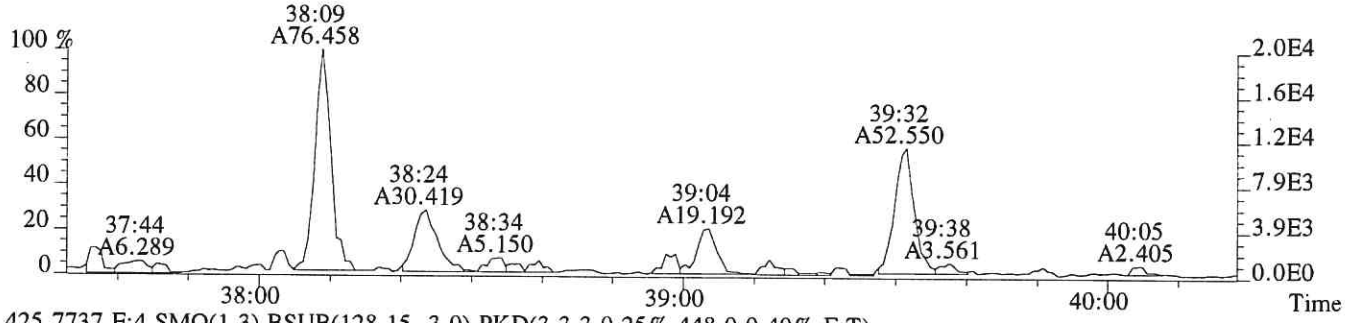
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



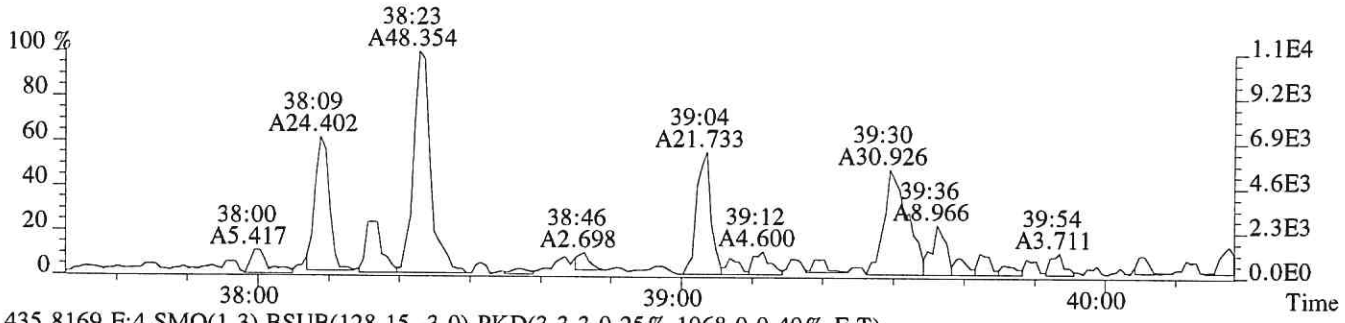
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



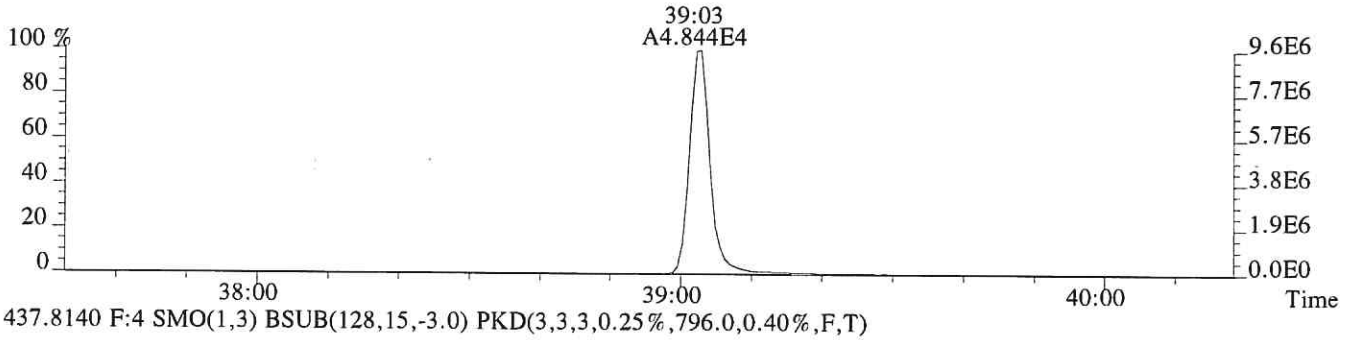
File:P615971 #1-249 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



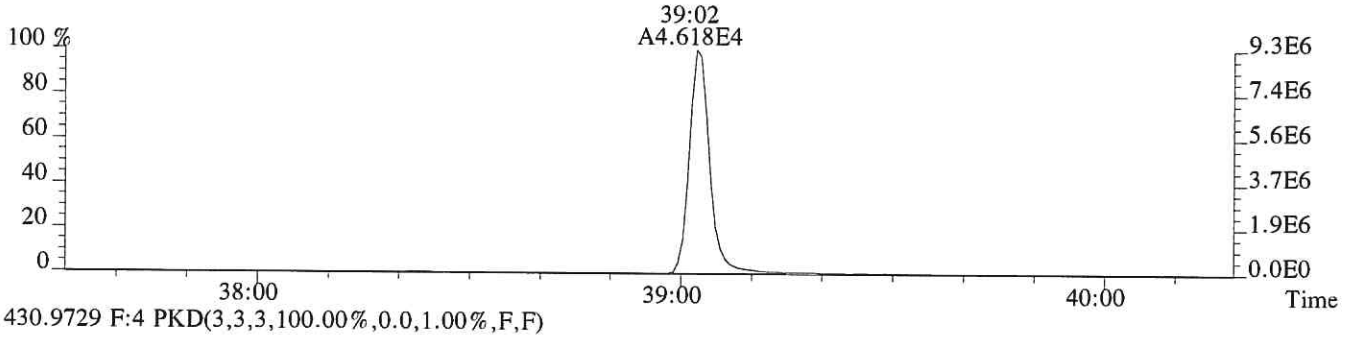
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



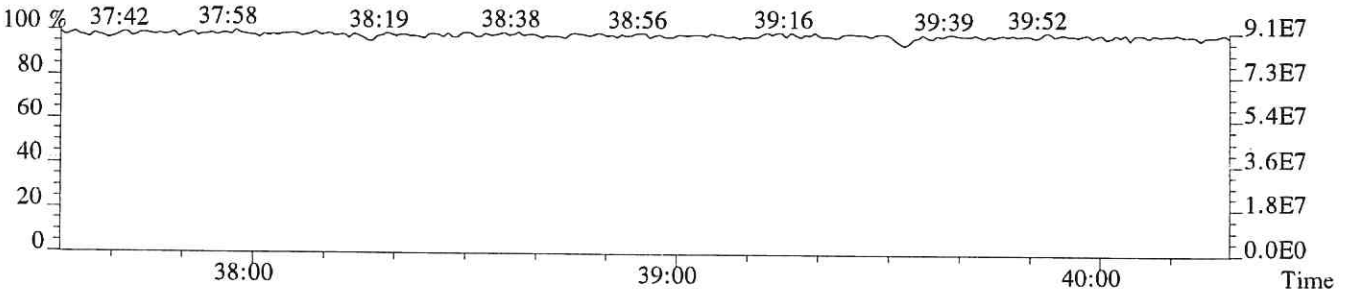
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



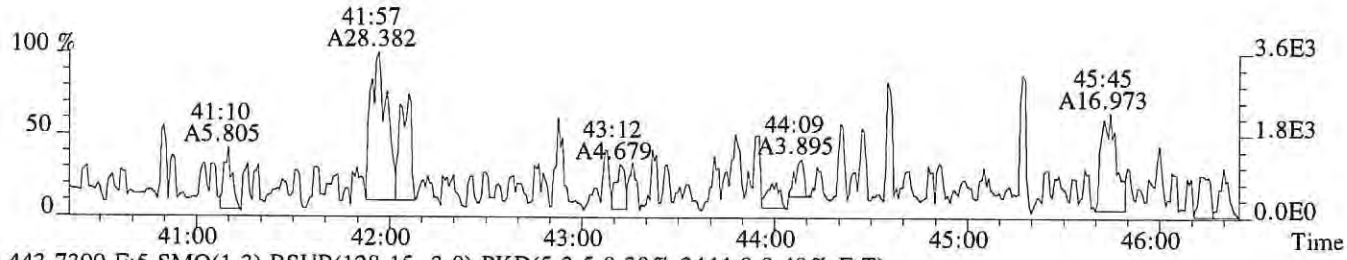
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



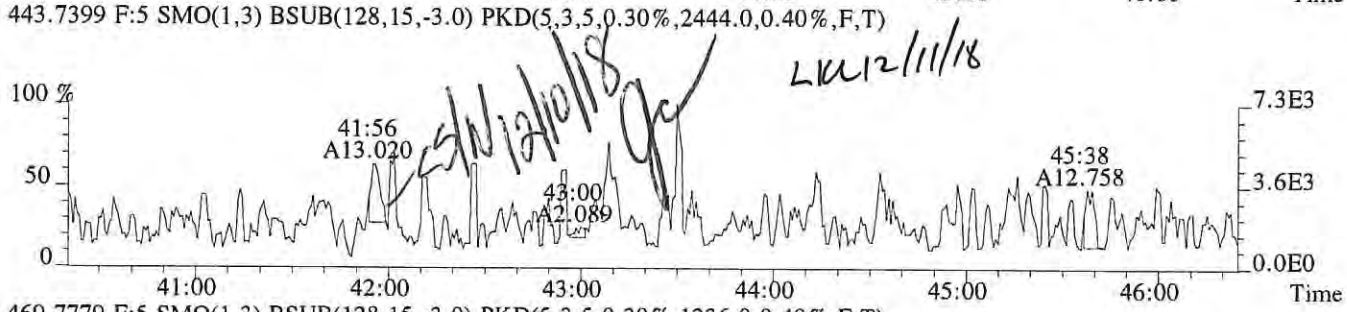
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



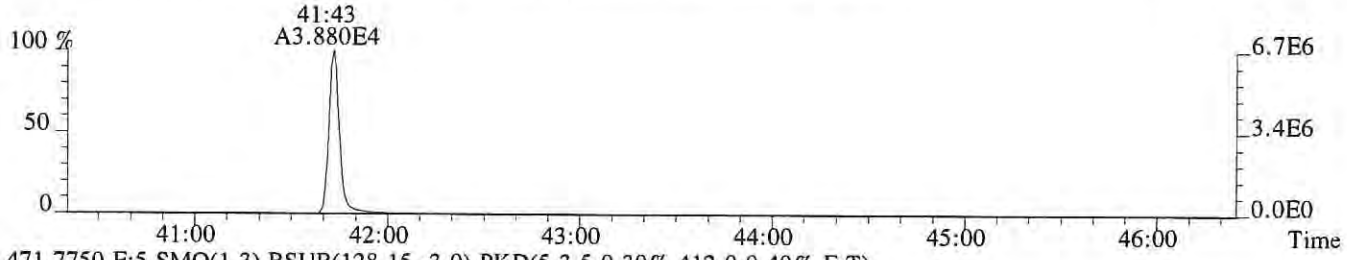
File:P615971 #1-547 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



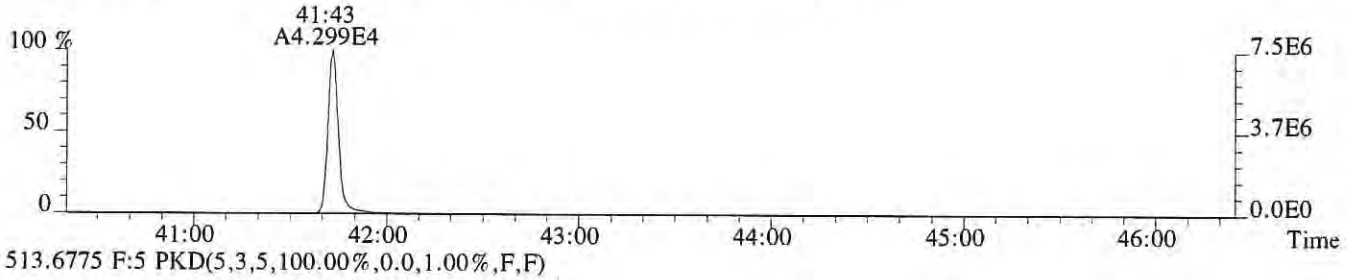
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)



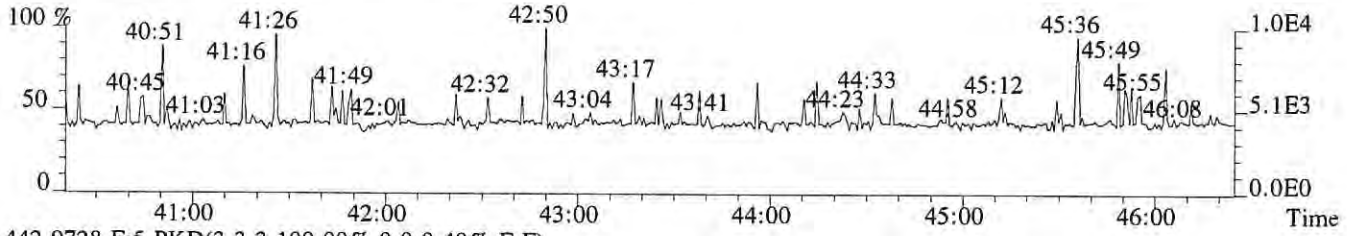
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



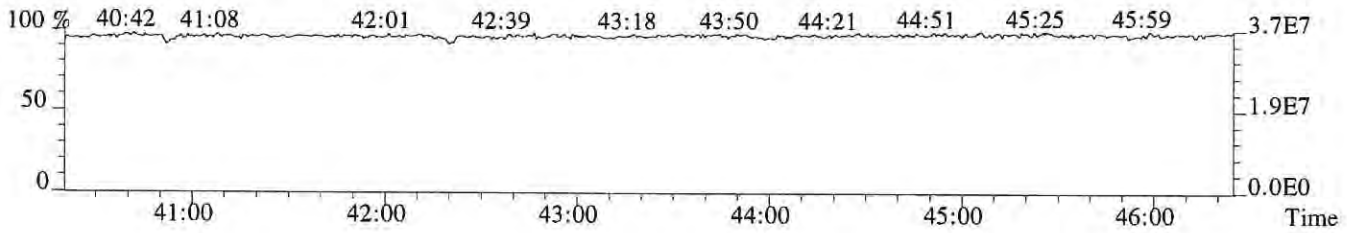
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



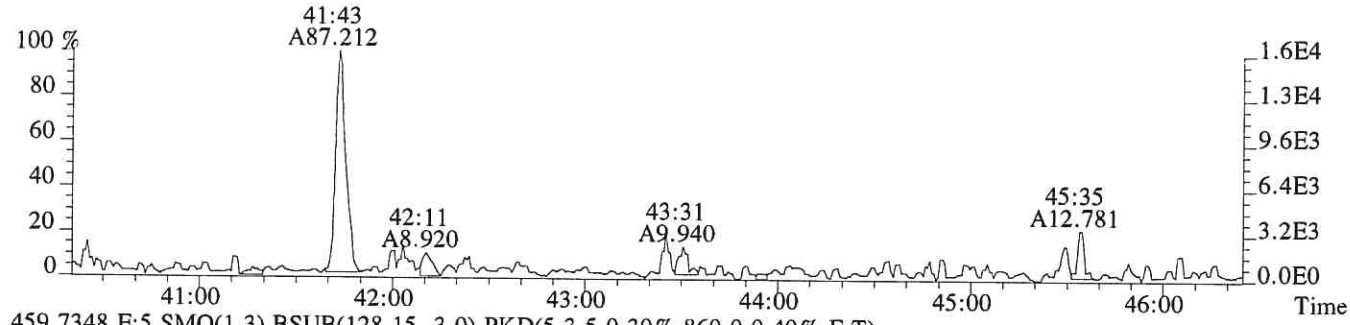
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



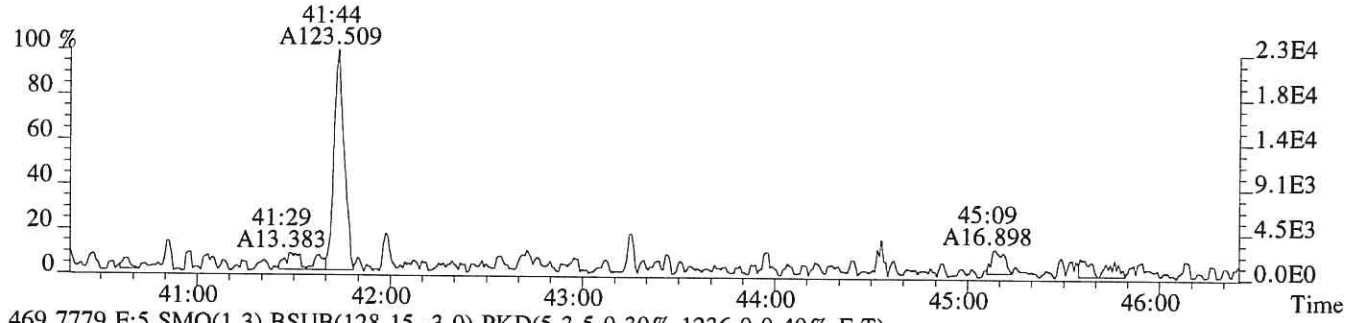
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



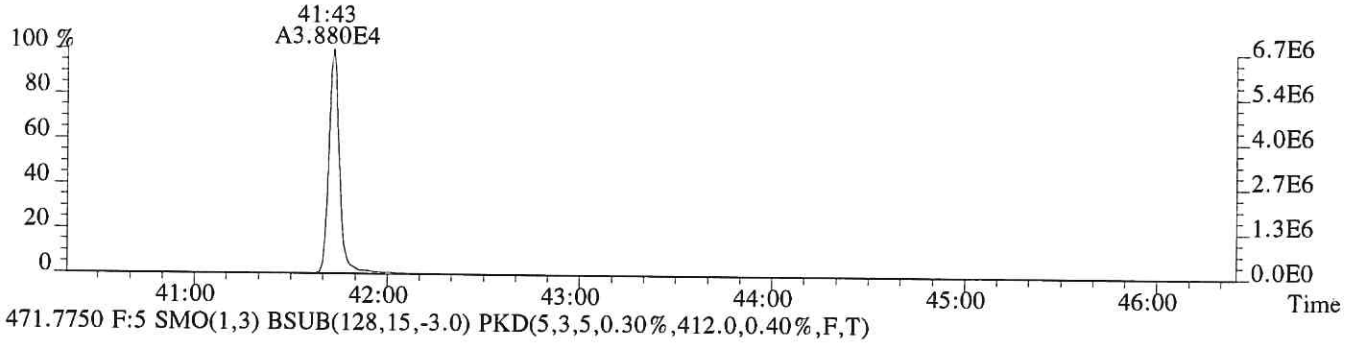
File:P615971 #1-547 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



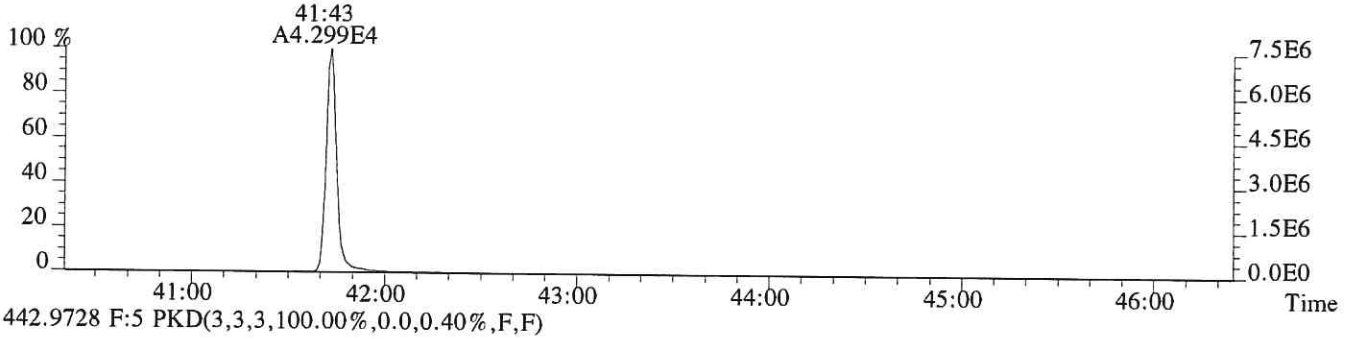
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



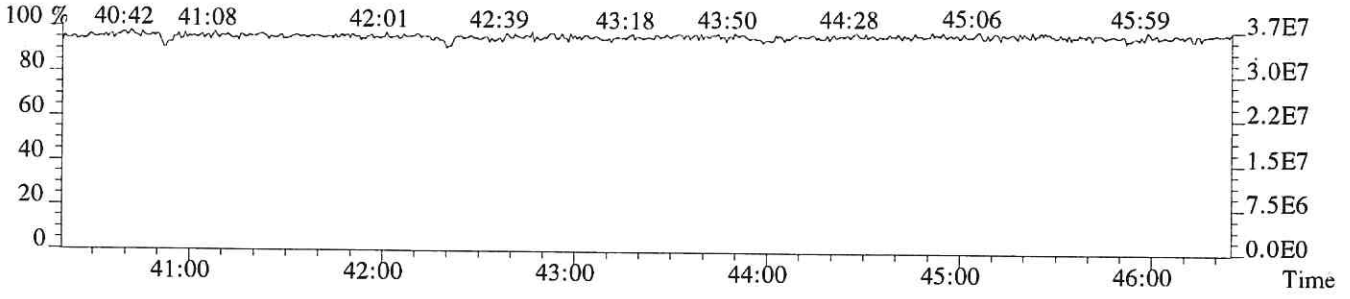
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P615980 Samp: 1 Inj: 1 Acquired: 7-DEC-18 20:30:09
Processed: 10-DEC-18 16:28:27 Sample ID: EQ1800494-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	1.956e+03	2.499e+03	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	2.583e+04	1.652e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	2.492e+04	1.621e+04	1.54	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	2.645e+04	2.104e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	2.847e+04	2.283e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.637e+04	2.113e+04	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	2.511e+04	1.981e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	2.361e+04	2.260e+04	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	1.910e+04	1.829e+04	1.04	yes	no	1.463
10	Unk	OCDF	41:57	2.453e+04	2.760e+04	0.89	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	1.660e+03	2.192e+03	0.76	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	1.961e+04	1.281e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:19	1.901e+04	1.548e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	2.006e+04	1.571e+04	1.28	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:38	2.075e+04	1.665e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.571e+04	1.521e+04	1.03	yes	no	1.112
17	Unk	OCDD	41:45	1.965e+04	2.164e+04	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	2.010e+04	2.525e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	5.335e+04	3.388e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.025e+04	3.177e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	2.606e+04	4.958e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.020e+04	5.764e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	2.773e+04	5.287e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.655e+04	5.006e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.074e+04	4.557e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.740e+04	3.931e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.145e+04	1.460e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	4.234e+04	2.700e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:18	4.082e+04	3.209e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	3.829e+04	3.015e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.095e+04	3.885e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:44	3.423e+04	3.781e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.965e+04	7.474e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	7.543e+04	6.043e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	1.709e+04				no	1.086

$$\text{OCDD} = \frac{(1.965e+04 + 2.164e+04) \times 4000\ \text{pg} \times 1}{(3.423e+04 + 3.781e+04) \times \quad \text{g} \times \quad / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P615980 Samp: 1 Inj: 1 Acquired: 7-DEC-18 20:30:09
Processed: 10-DEC-18 16:28:27 LAB. ID: EQ1800494-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.20e+05	2.29e+03	1.4e+02	3.79e+05	4.02e+03	9.4e+01
2	1,2,3,7,8-PeCDF	4.64e+06	1.27e+03	3.7e+03	2.92e+06	3.16e+03	9.2e+02
3	2,3,4,7,8-PeCDF	4.60e+06	1.27e+03	3.6e+03	2.92e+06	3.16e+03	9.2e+02
4	1,2,3,4,7,8-HxCDF	5.73e+06	1.58e+03	3.6e+03	4.47e+06	1.66e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	5.74e+06	1.58e+03	3.6e+03	4.63e+06	1.66e+03	2.8e+03
6	2,3,4,6,7,8-HxCDF	5.50e+06	1.58e+03	3.5e+03	4.41e+06	1.66e+03	2.7e+03
7	1,2,3,7,8,9-HxCDF	5.04e+06	1.58e+03	3.2e+03	3.95e+06	1.66e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	5.07e+06	2.50e+03	2.0e+03	4.93e+06	4.10e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	3.64e+06	2.50e+03	1.5e+03	3.56e+06	4.10e+03	8.7e+02
10	OCDF	4.30e+06	7.60e+02	5.7e+03	4.76e+06	2.88e+03	1.7e+03
11	2,3,7,8-TCDD	2.87e+05	5.42e+03	5.3e+01	3.68e+05	2.08e+03	1.8e+02
12	1,2,3,7,8-PeCDD	3.61e+06	1.61e+03	2.2e+03	2.33e+06	6.04e+02	3.9e+03
13	1,2,3,4,7,8-HxCDD	4.21e+06	1.10e+03	3.8e+03	3.42e+06	1.86e+03	1.8e+03
14	1,2,3,6,7,8-HxCDD	4.16e+06	1.10e+03	3.8e+03	3.25e+06	1.86e+03	1.8e+03
15	1,2,3,7,8,9-HxCDD	4.40e+06	1.10e+03	4.0e+03	3.40e+06	1.86e+03	1.8e+03
16	1,2,3,4,6,7,8-HpCDD	3.23e+06	9.04e+02	3.6e+03	3.13e+06	1.22e+03	2.6e+03
17	OCDD	3.41e+06	3.04e+02	1.1e+04	3.85e+06	1.04e+03	3.7e+03
18	13C-2,3,7,8-TCDF	2.94e+06	8.12e+03	3.6e+02	3.81e+06	9.54e+03	4.0e+02
19	13C-1,2,3,7,8-PeCDF	9.40e+06	1.30e+03	7.3e+03	5.90e+06	3.31e+03	1.8e+03
20	13C-2,3,4,7,8-PeCDF	8.95e+06	1.30e+03	6.9e+03	5.64e+06	3.31e+03	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	5.62e+06	1.81e+03	3.1e+03	1.06e+07	3.34e+03	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	6.16e+06	1.81e+03	3.4e+03	1.17e+07	3.34e+03	3.5e+03
23	13C-2,3,4,6,7,8-HxCDF	5.81e+06	1.81e+03	3.2e+03	1.10e+07	3.34e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.27e+06	1.81e+03	2.9e+03	9.94e+06	3.34e+03	3.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.44e+06	3.94e+03	1.1e+03	9.84e+06	3.48e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.41e+06	3.94e+03	8.7e+02	7.69e+06	3.48e+03	2.2e+03
27	13C-2,3,7,8-TCDD	1.86e+06	1.54e+04	1.2e+02	2.38e+06	6.33e+03	3.8e+02
28	13C-1,2,3,7,8-PeCDD	7.64e+06	3.03e+03	2.5e+03	4.89e+06	2.11e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.01e+06	2.33e+03	3.9e+03	6.97e+06	2.04e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	7.96e+06	2.33e+03	3.4e+03	6.21e+06	2.04e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.42e+06	1.58e+03	5.3e+03	7.98e+06	1.54e+03	5.2e+03
32	13C-OCDD	6.01e+06	1.60e+03	3.8e+03	6.62e+06	9.08e+02	7.3e+03
33	13C-1,2,3,4-TCDD	1.01e+07	1.54e+04	6.6e+02	1.26e+07	6.33e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.60e+07	2.33e+03	6.9e+03	1.26e+07	2.04e+03	6.2e+03
35	37Cl-2,3,7,8-TCDD	2.79e+06	4.09e+03	6.8e+02			

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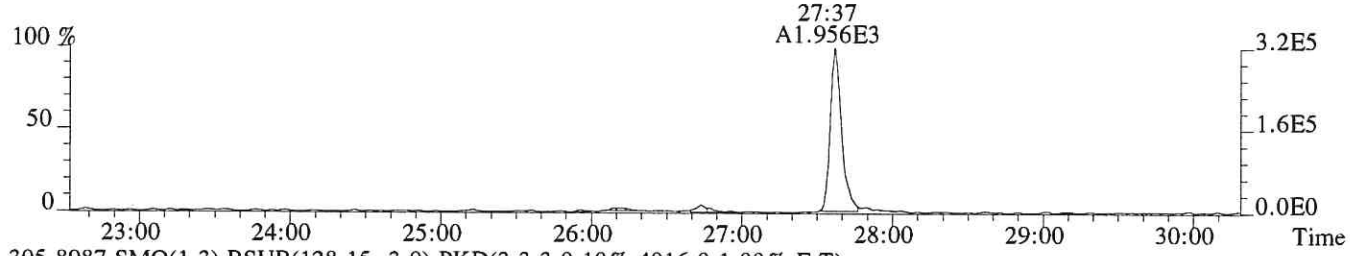
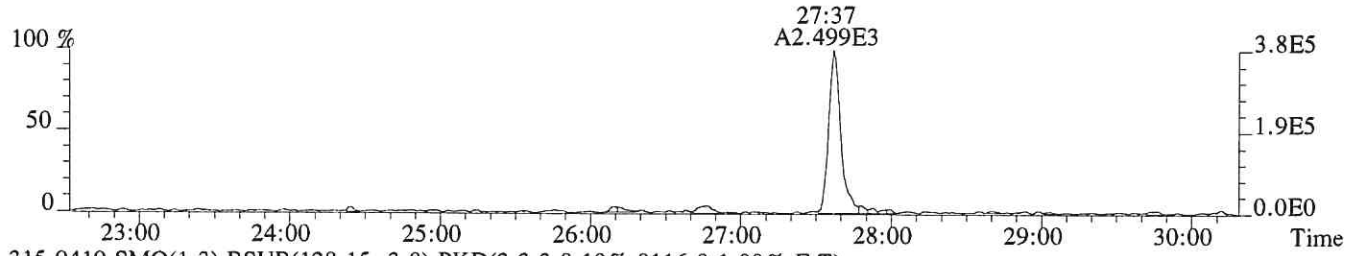
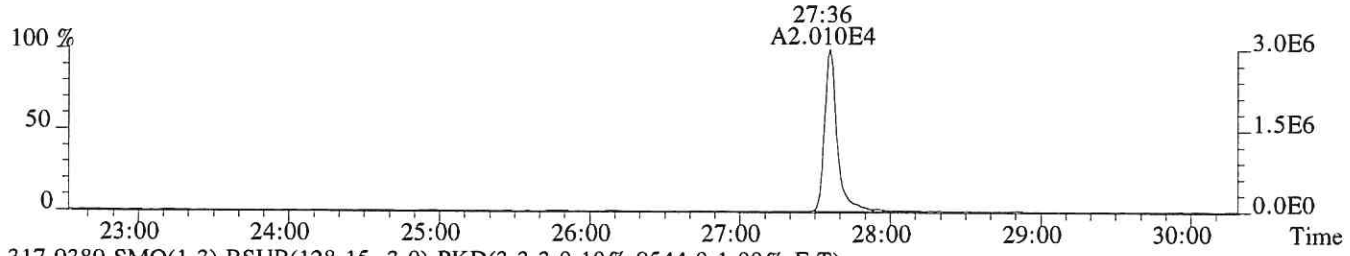
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



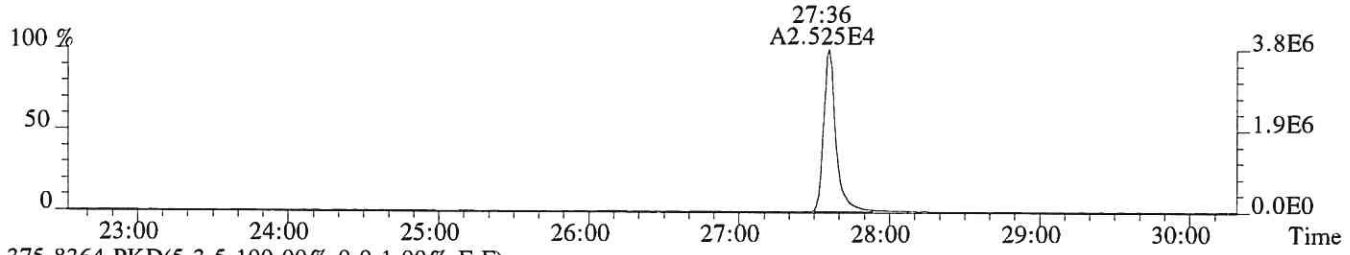
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4016.0,1.00%,F,T)



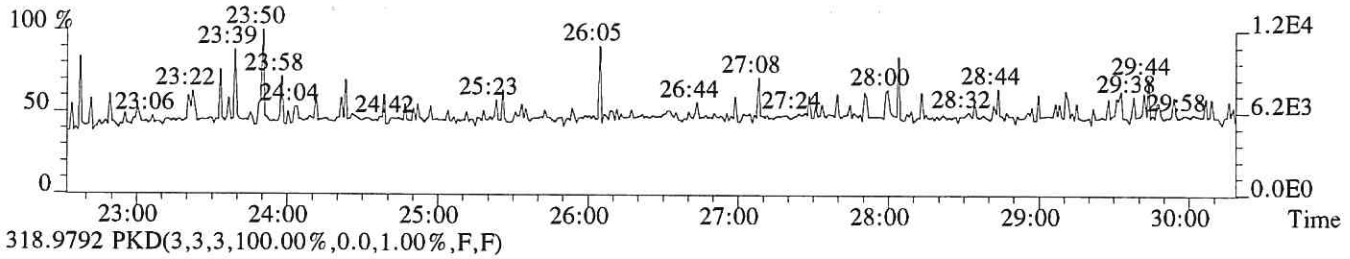
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8116.0,1.00%,F,T)



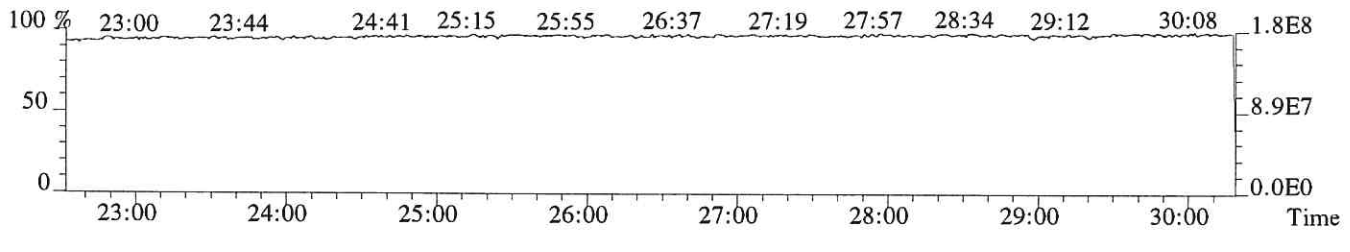
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9544.0,1.00%,F,T)



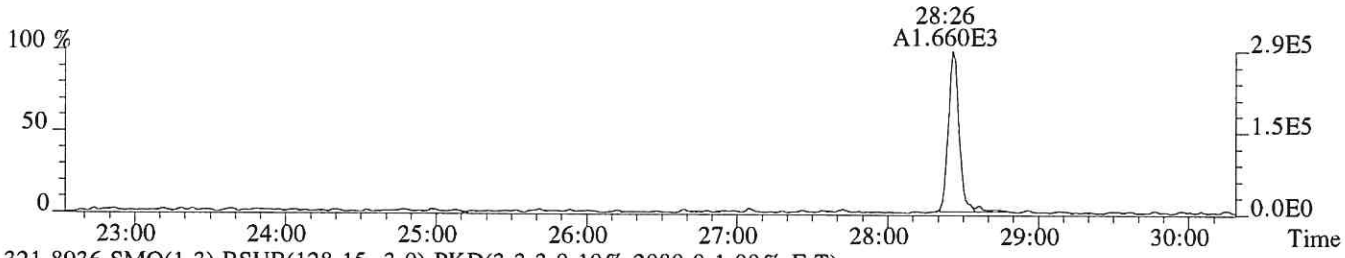
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



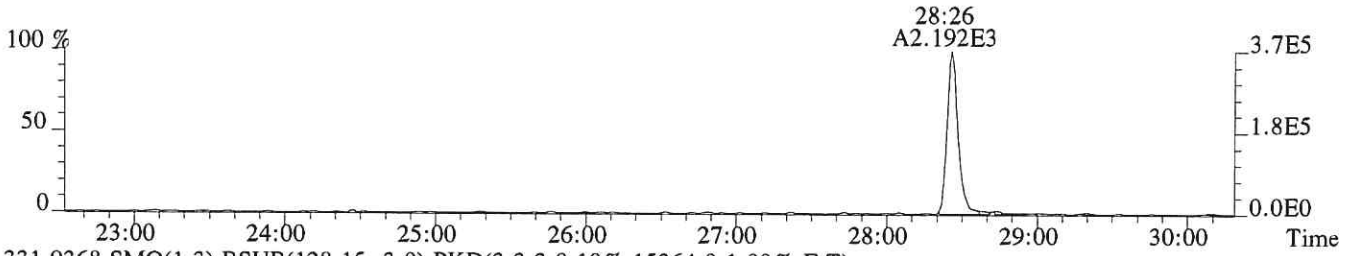
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



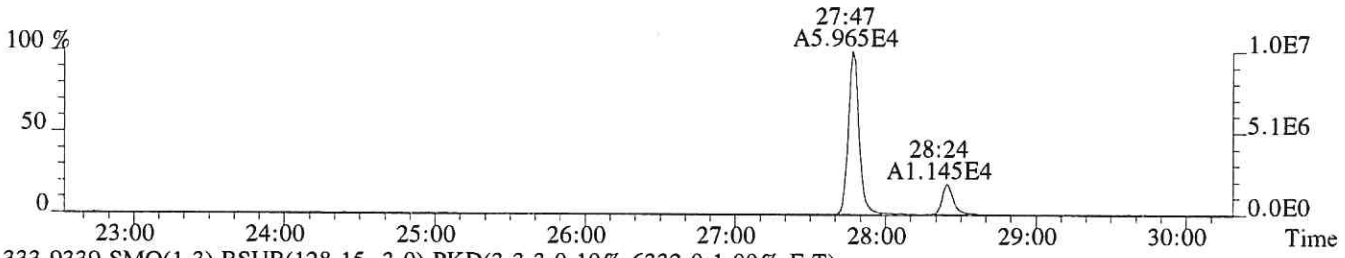
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



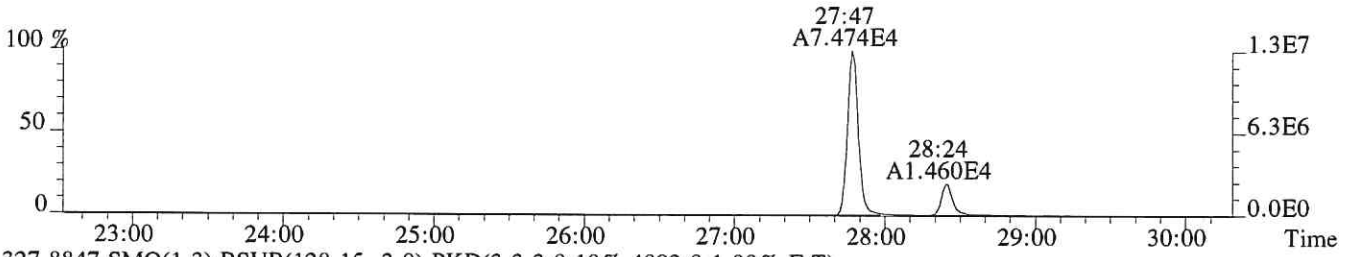
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



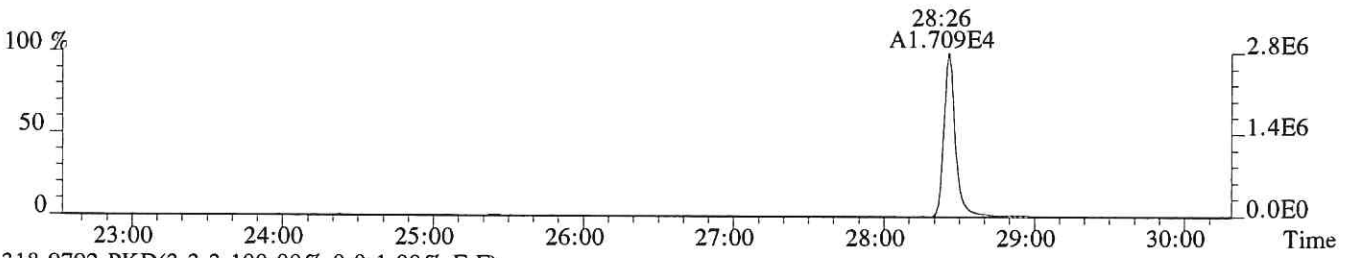
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15364.0,1.00%,F,T)



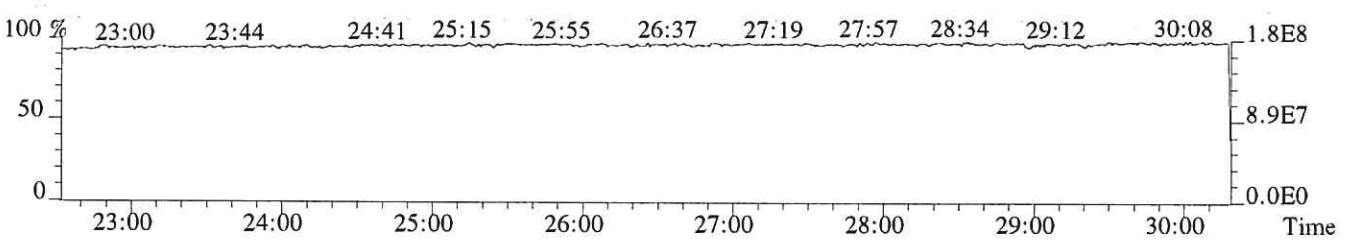
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6332.0,1.00%,F,T)



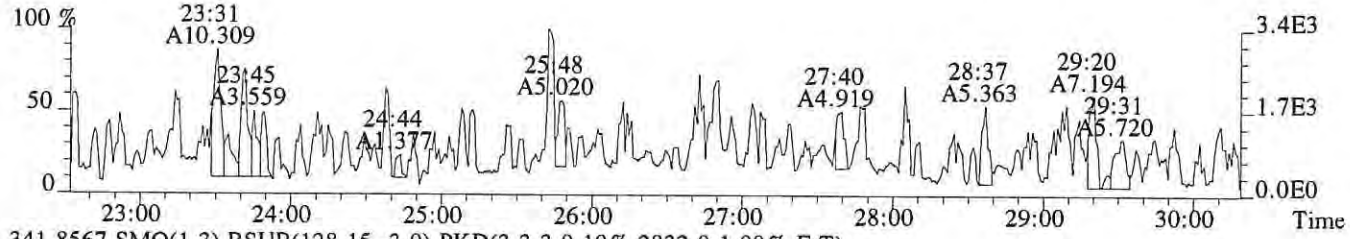
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4092.0,1.00%,F,T)



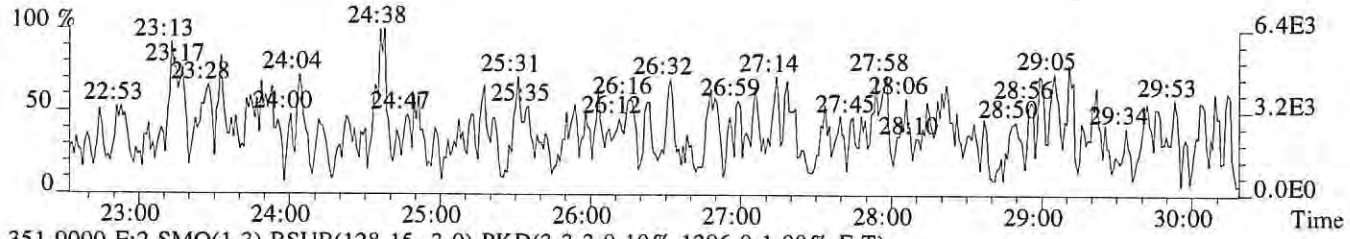
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



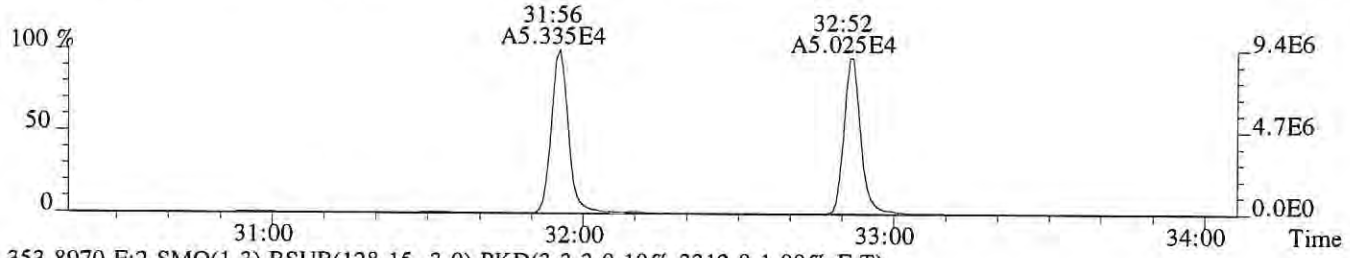
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



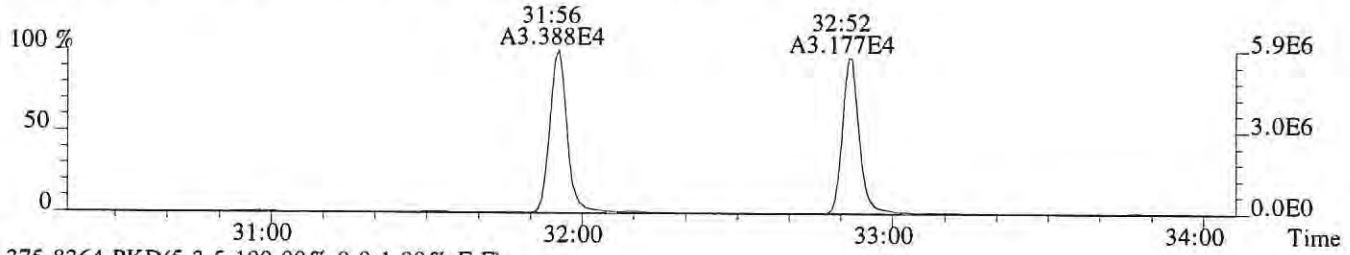
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2832.0,1.00%,F,T)



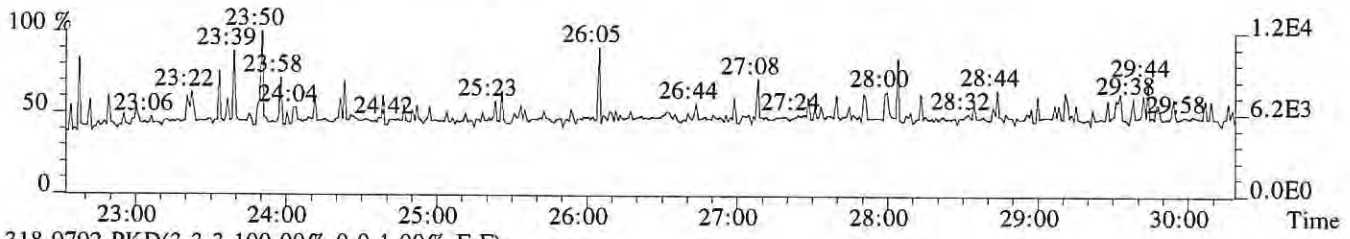
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



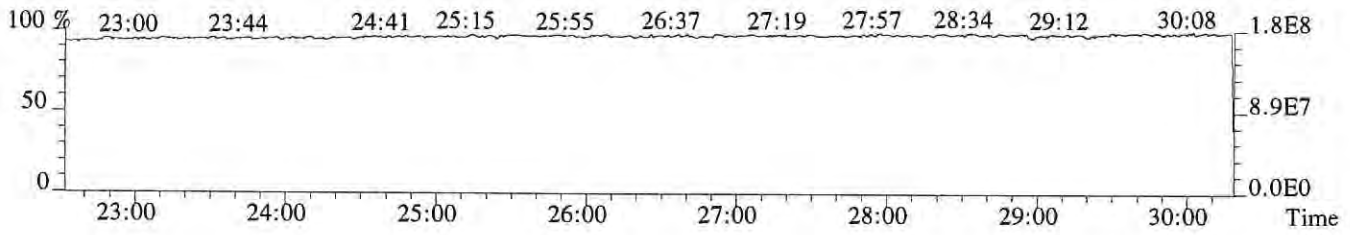
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



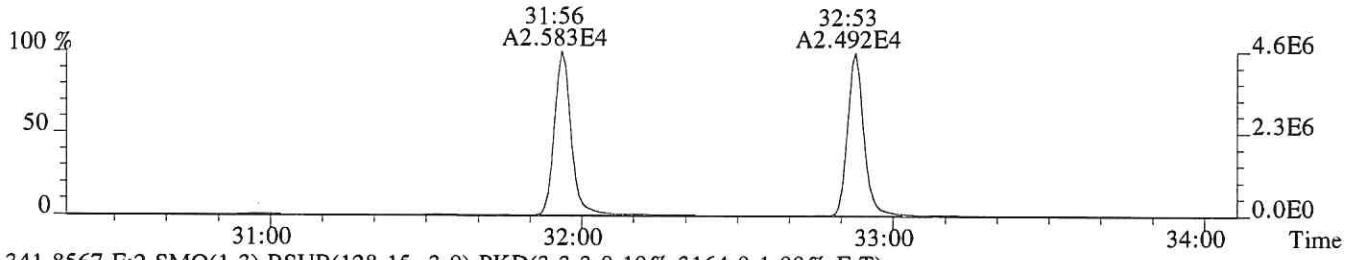
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



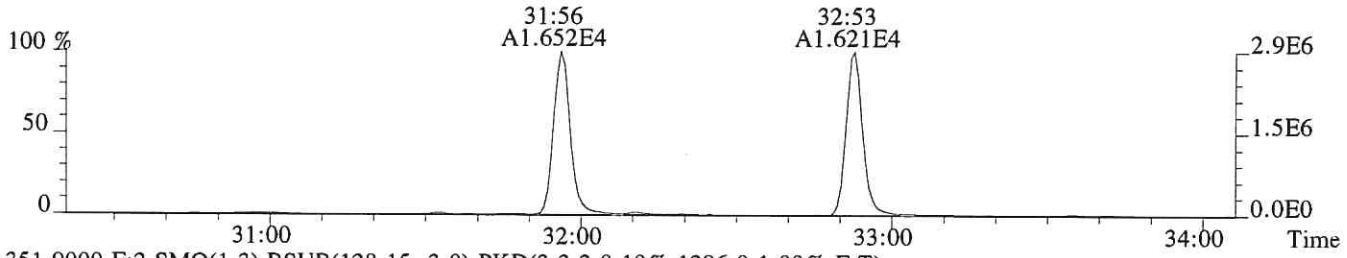
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



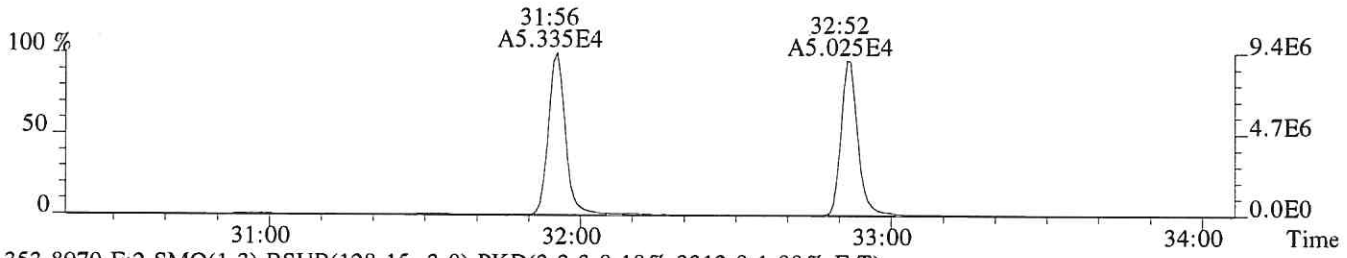
File:P615980 #1-339 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



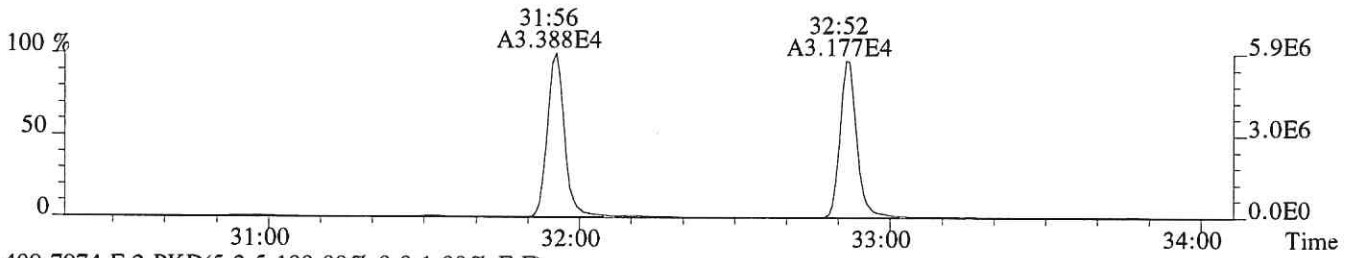
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3164.0,1.00%,F,T)



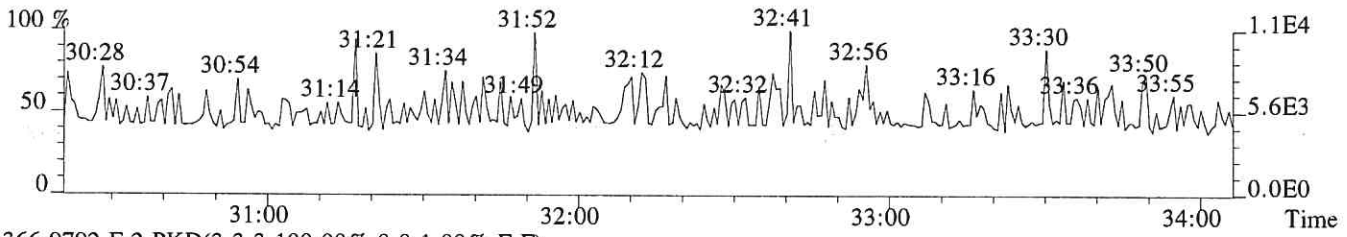
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



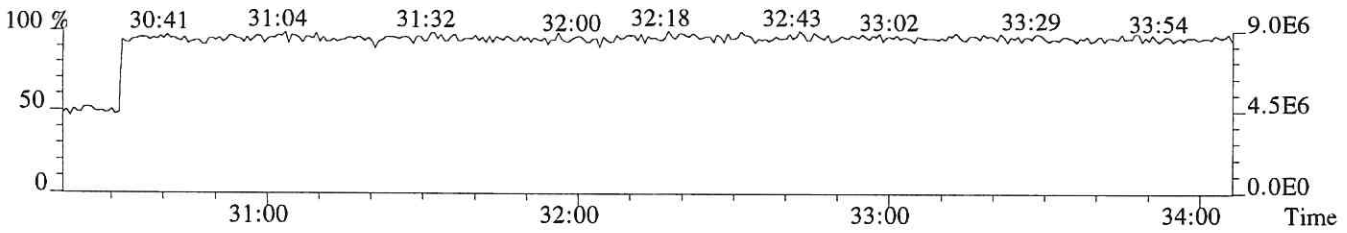
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



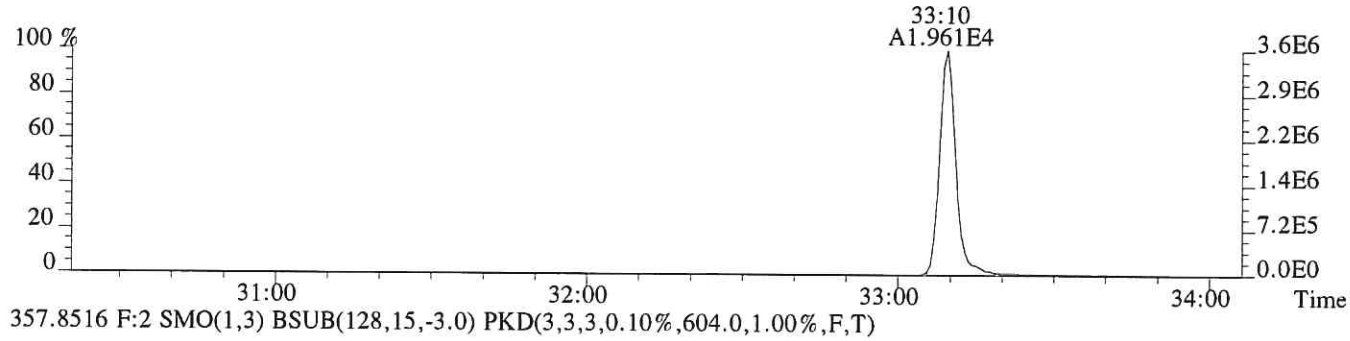
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



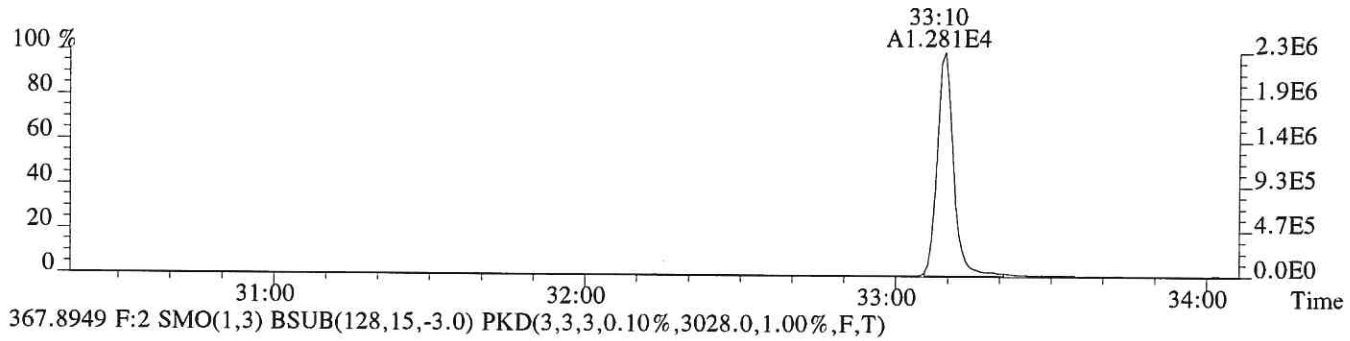
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



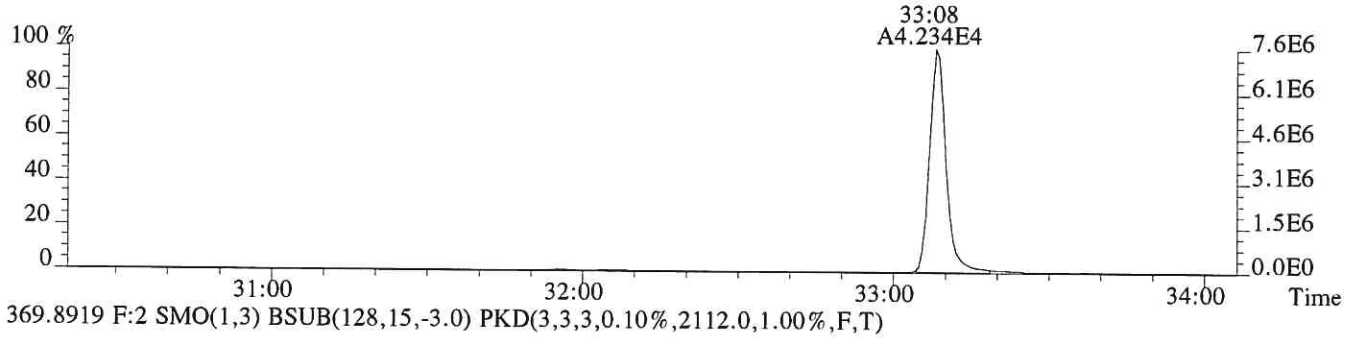
File:P615980 #1-339 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



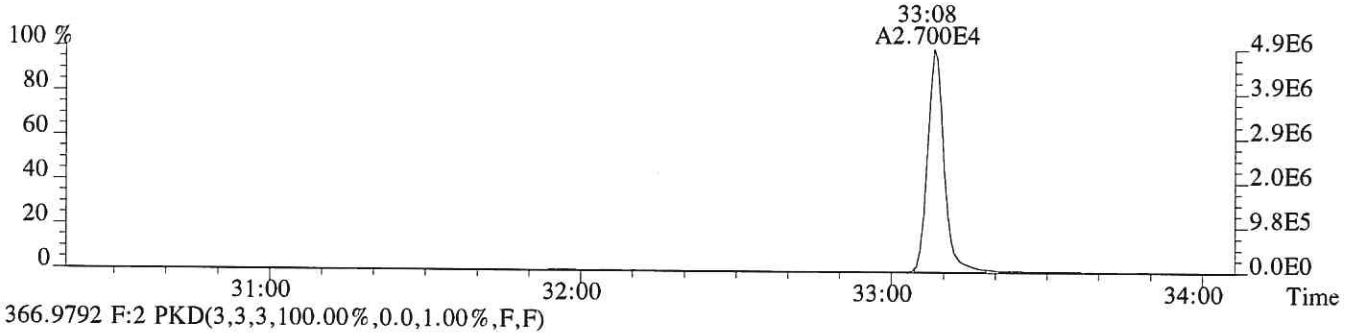
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



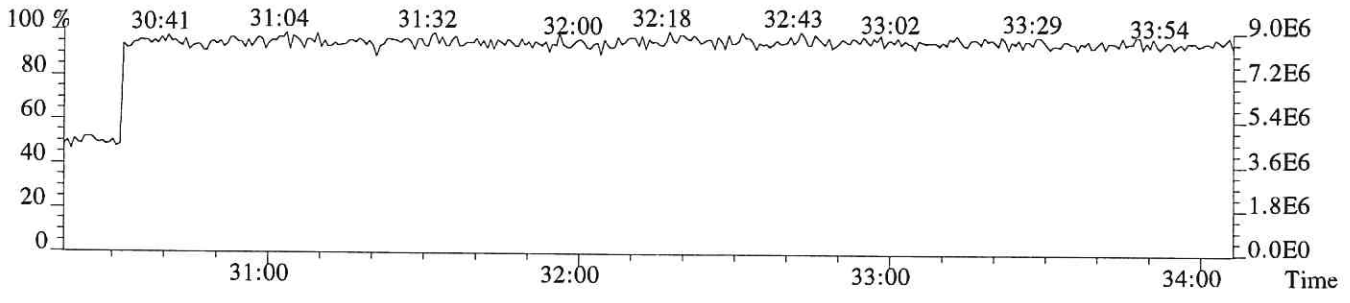
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3028.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2112.0,1.00%,F,T)

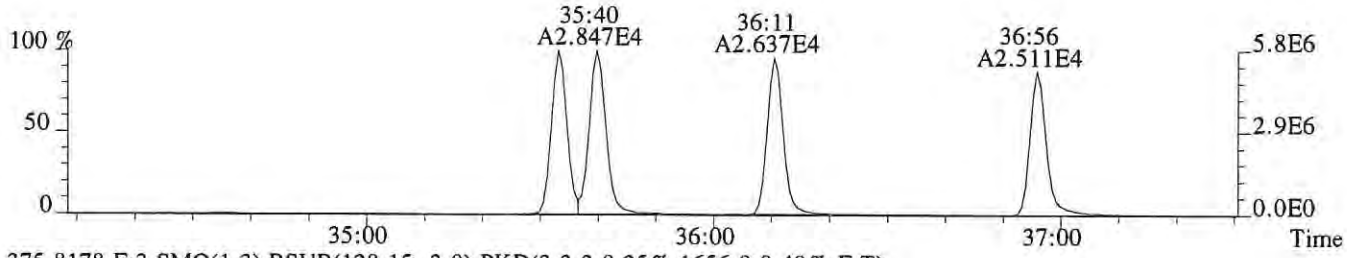


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

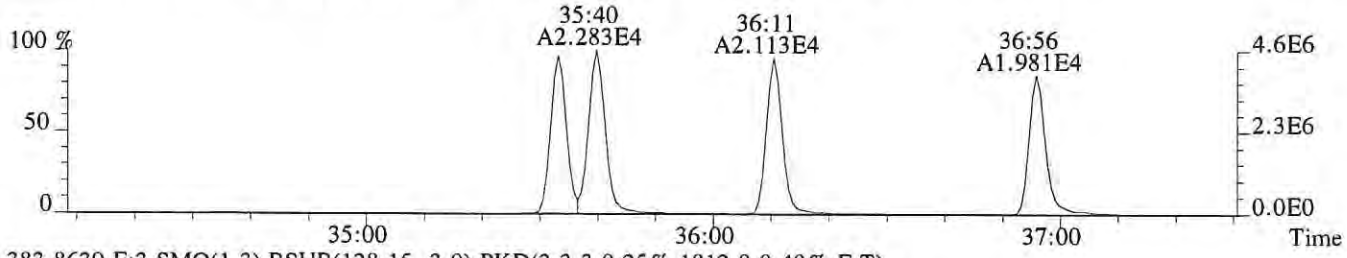


File:P615980 #1-304 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

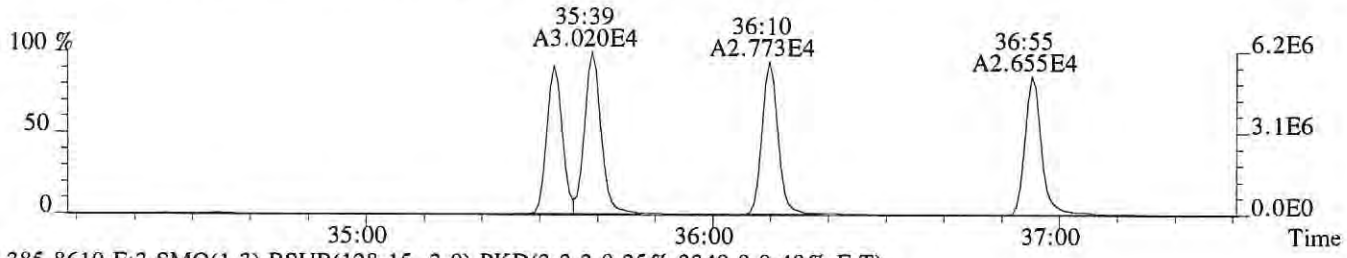
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



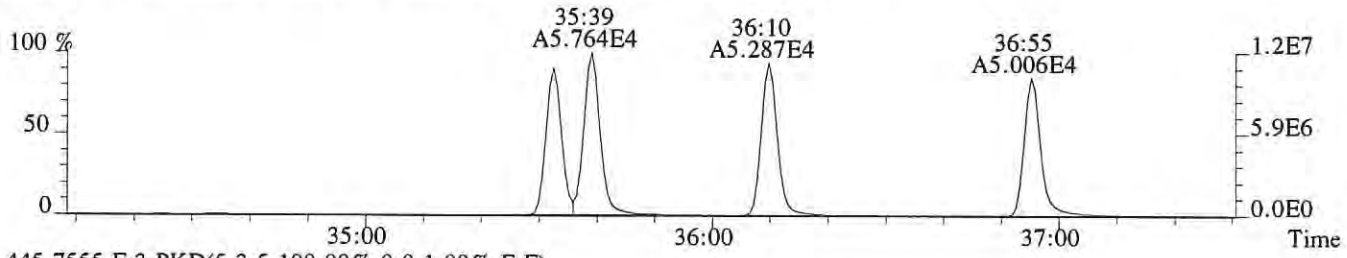
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.40%,F,T)



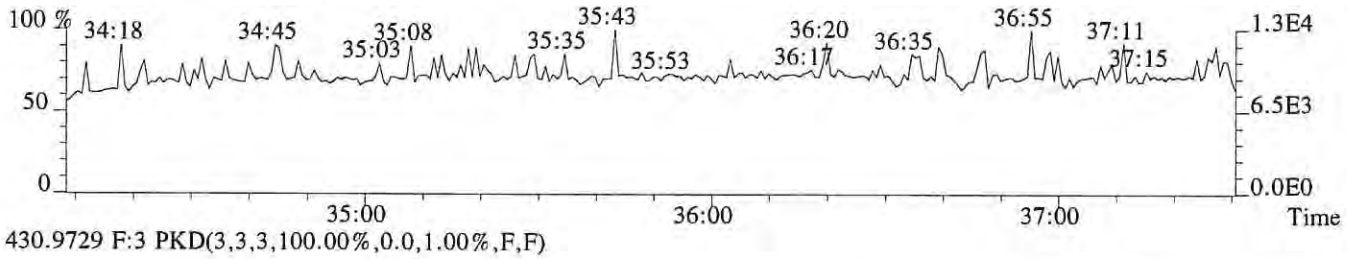
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.40%,F,T)



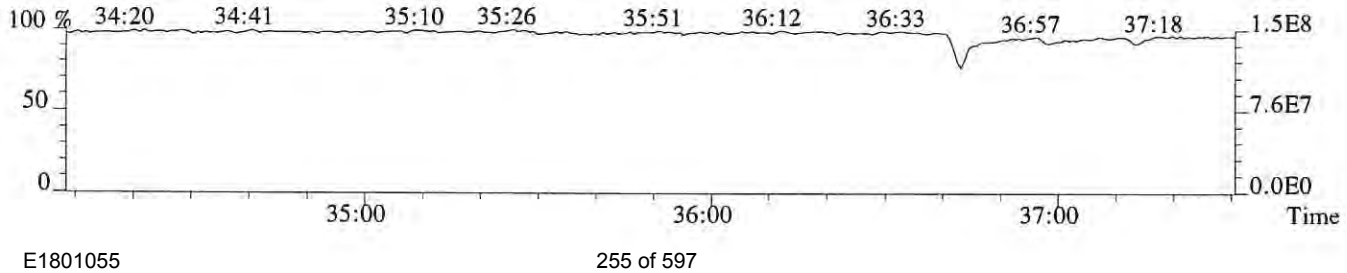
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3340.0,0.40%,F,T)



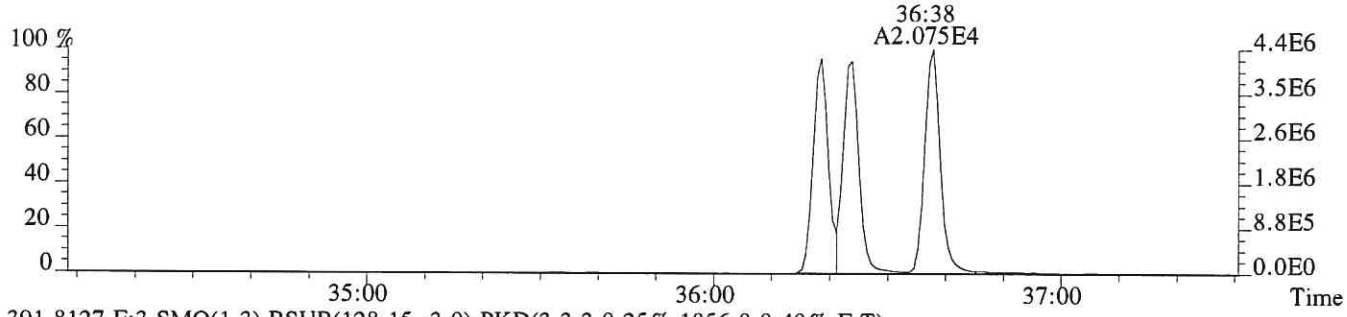
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



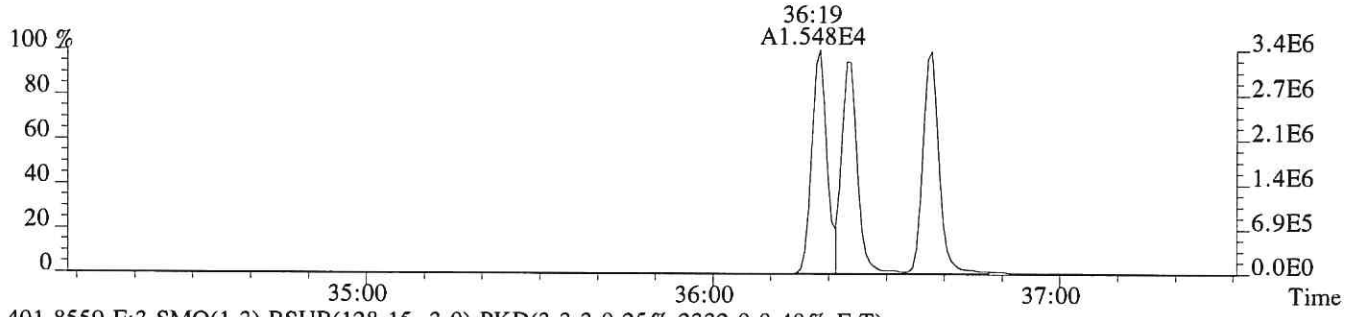
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



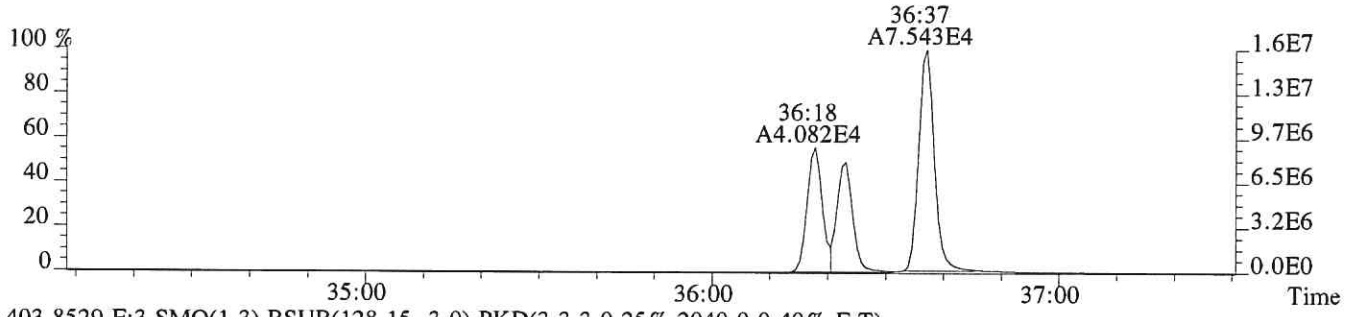
File:P615980 #1-304 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



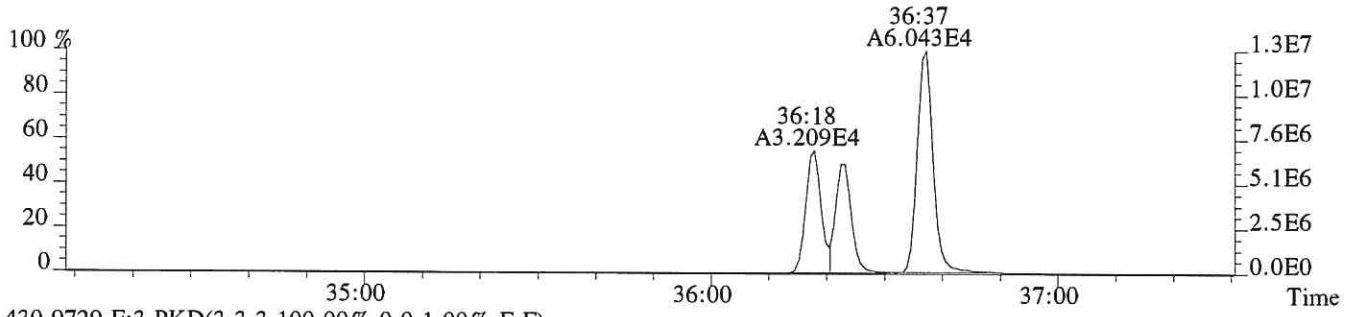
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



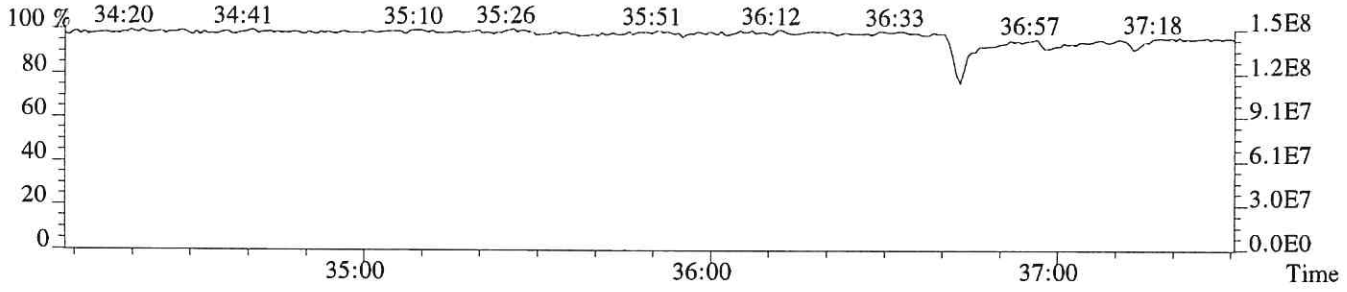
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)

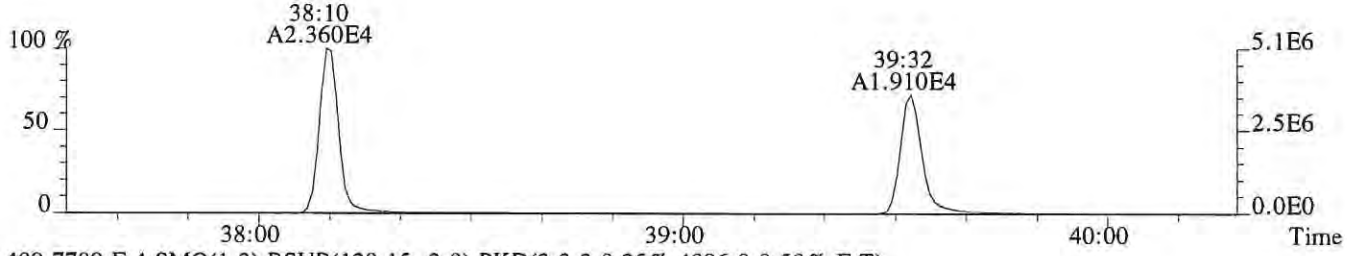


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

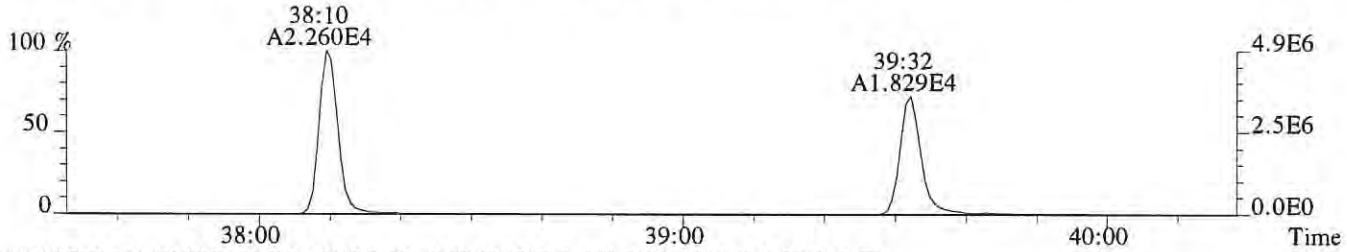


File:P615980 #1-249 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

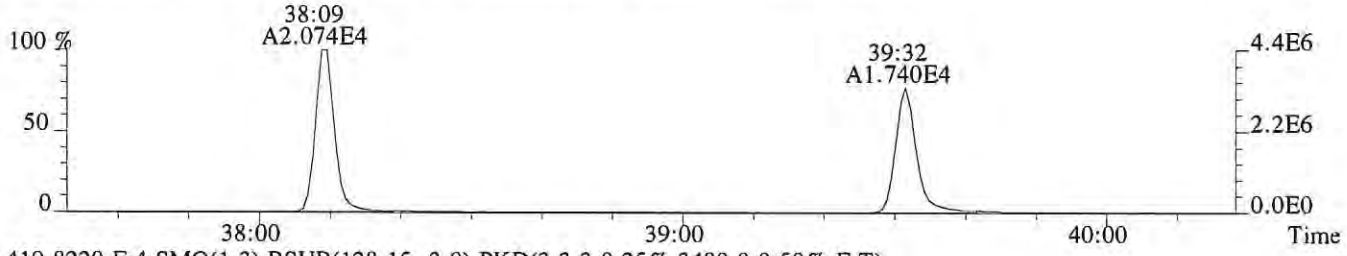
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2504.0,0.50%,F,T)



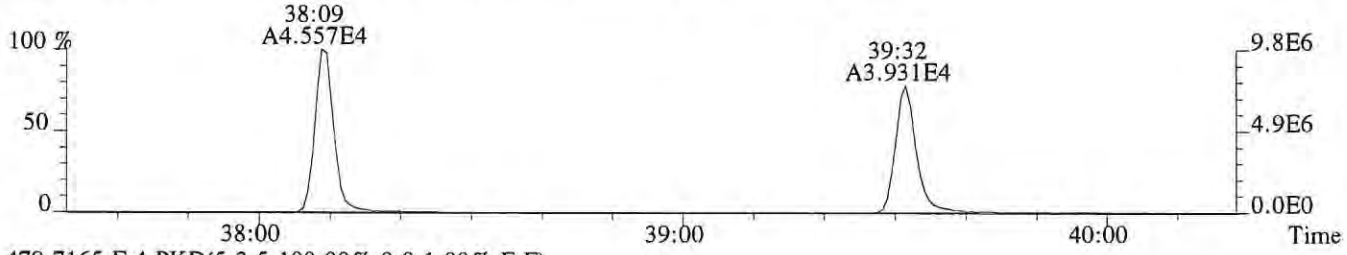
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4096.0,0.50%,F,T)



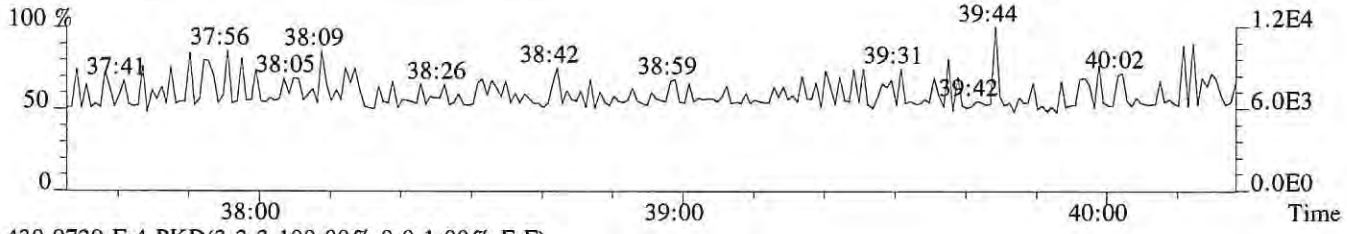
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.50%,F,T)



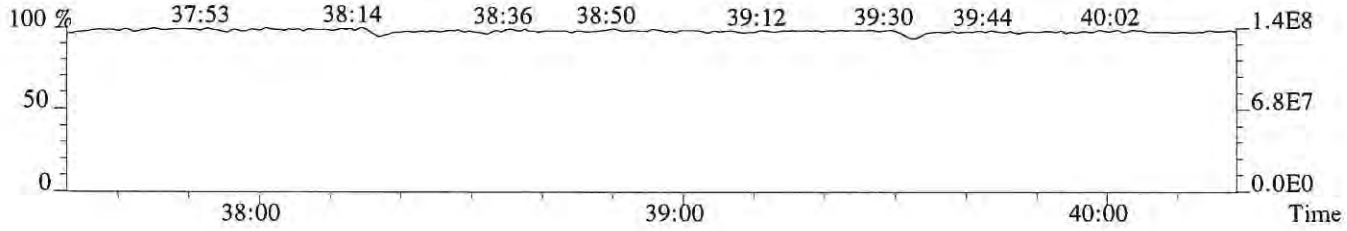
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3480.0,0.50%,F,T)



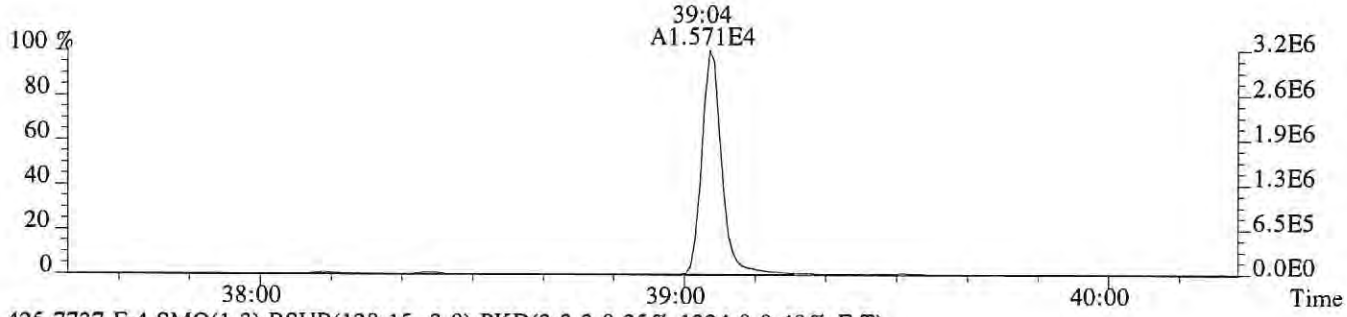
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



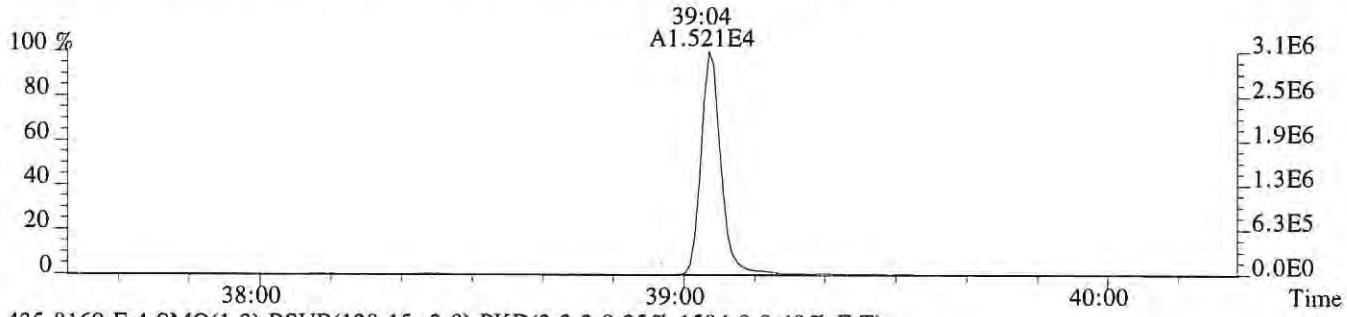
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



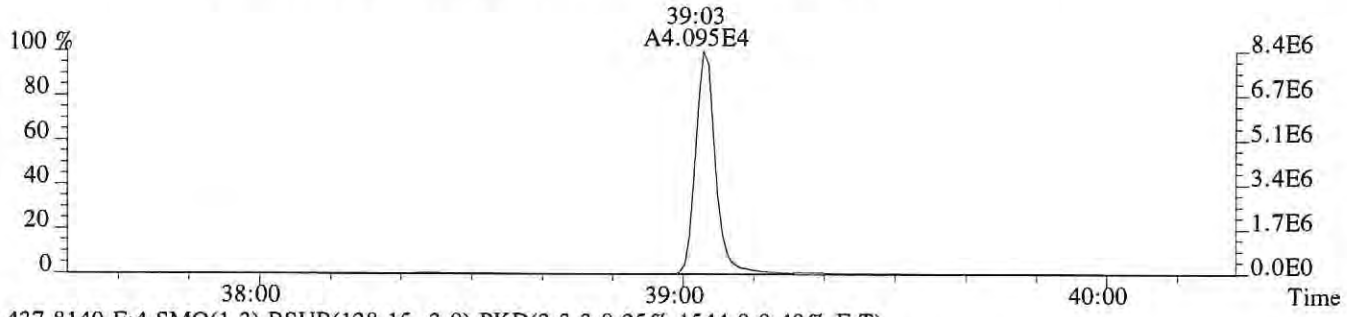
File:P615980 #1-249 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



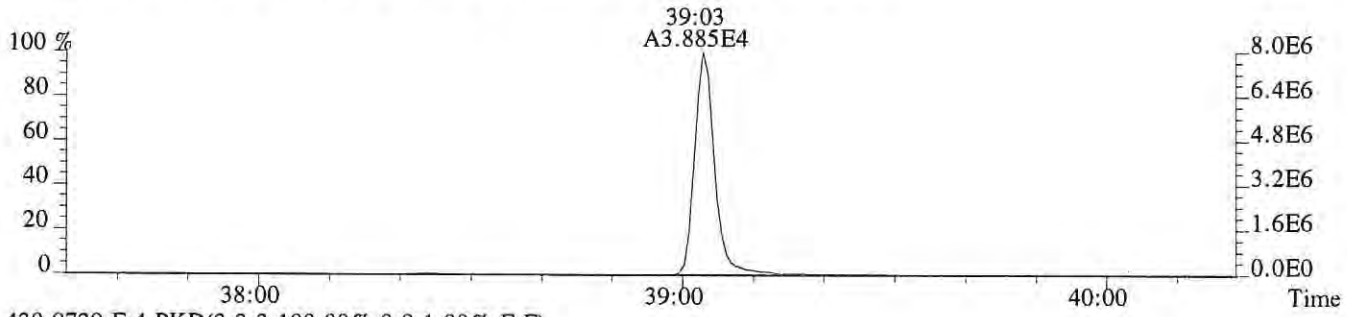
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



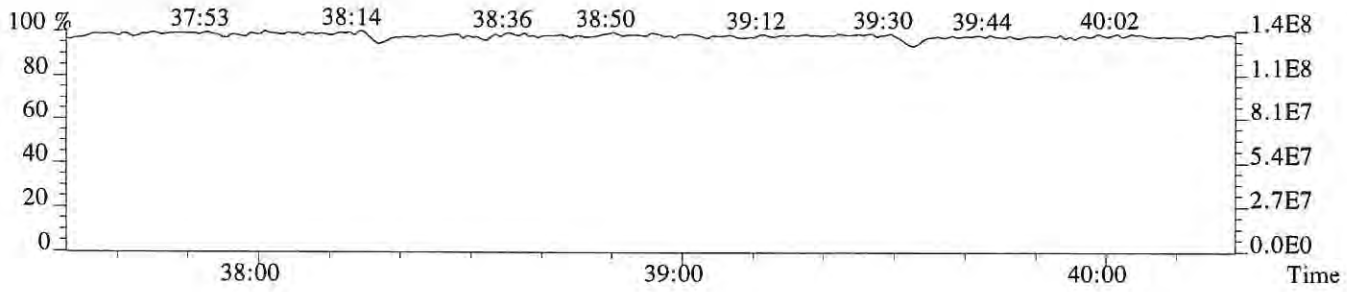
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



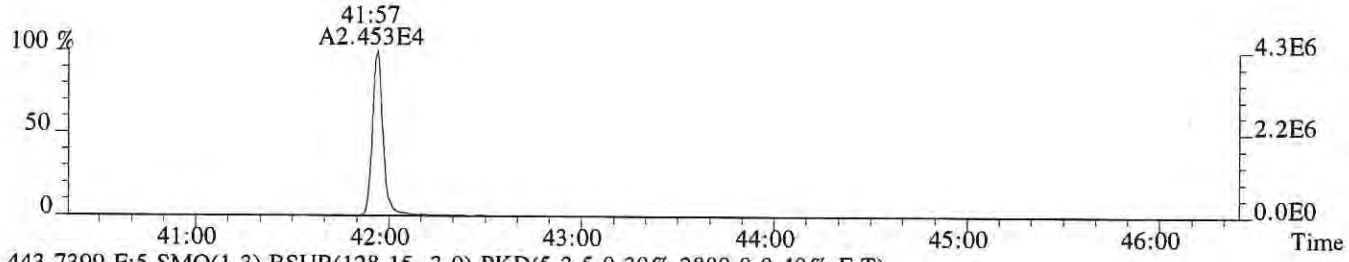
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



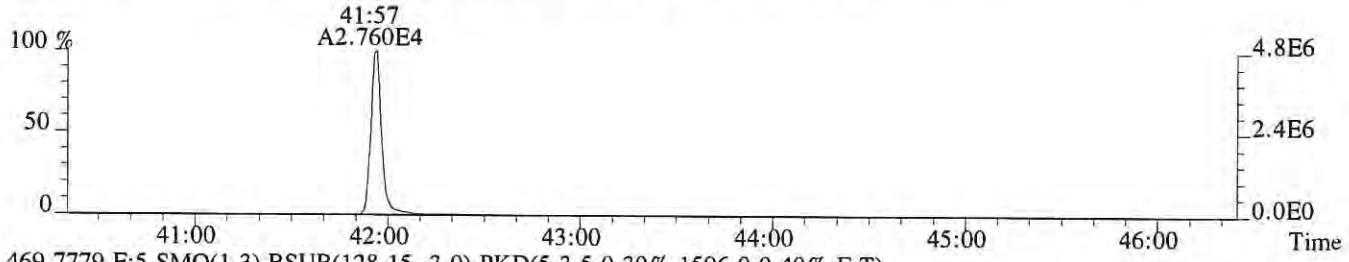
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



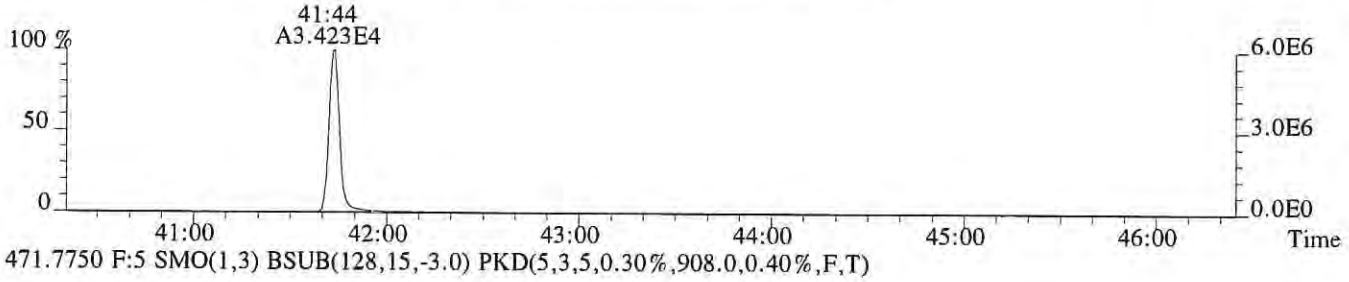
File:P615980 #1-547 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



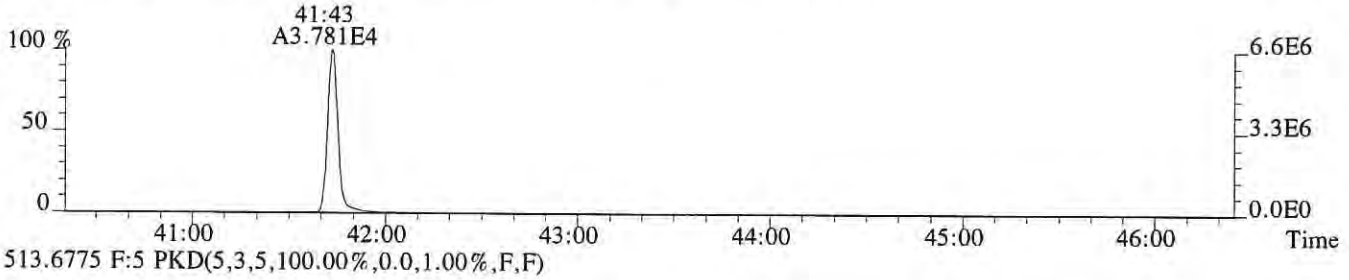
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2880.0,0.40%,F,T)



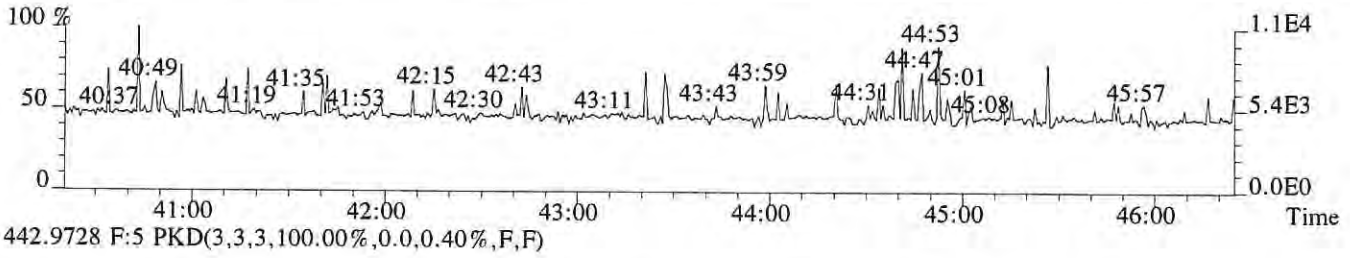
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1596.0,0.40%,F,T)



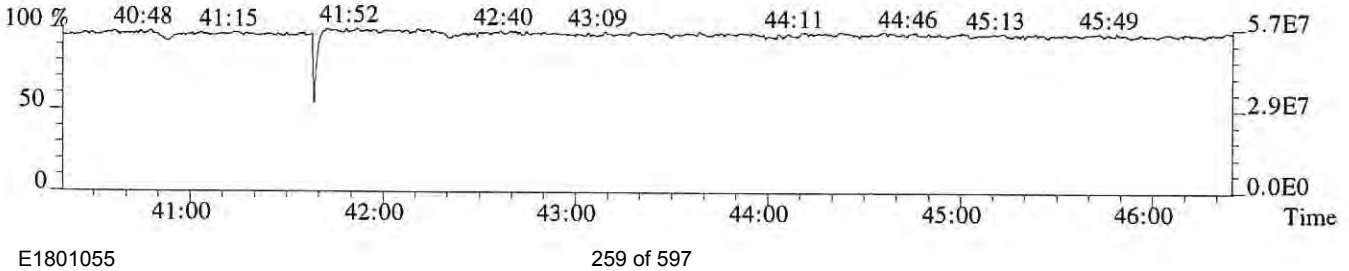
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



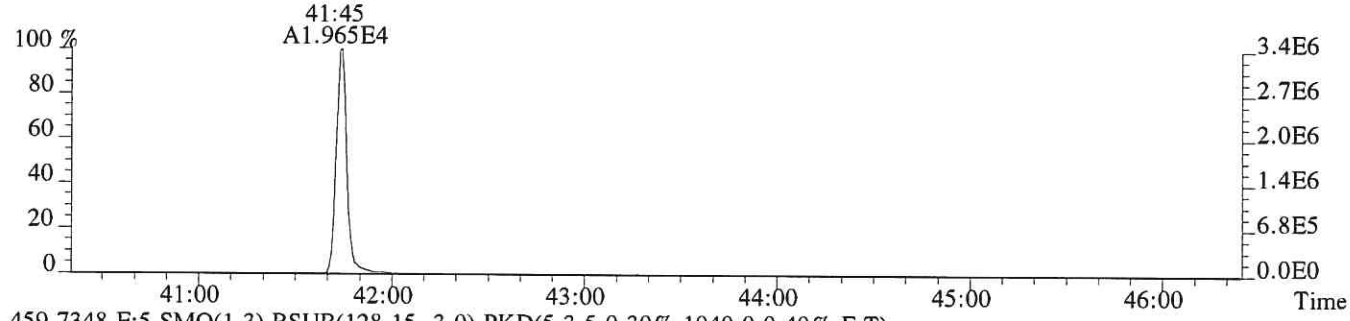
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



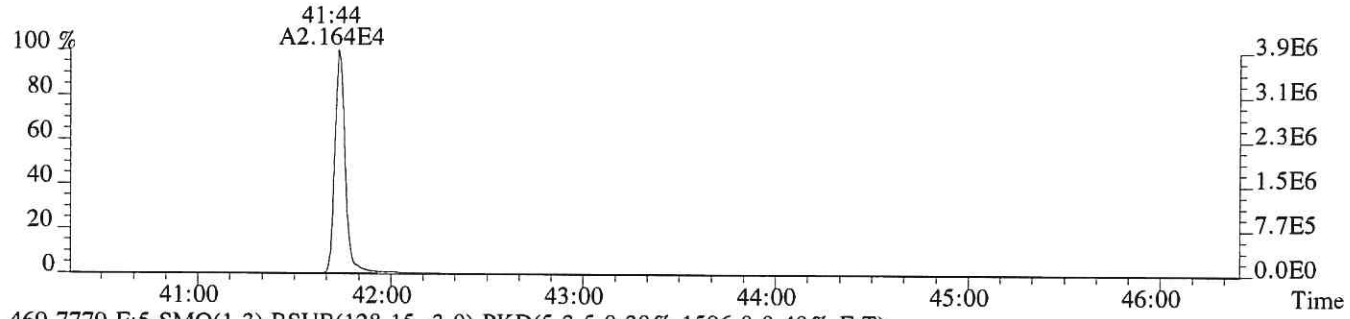
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



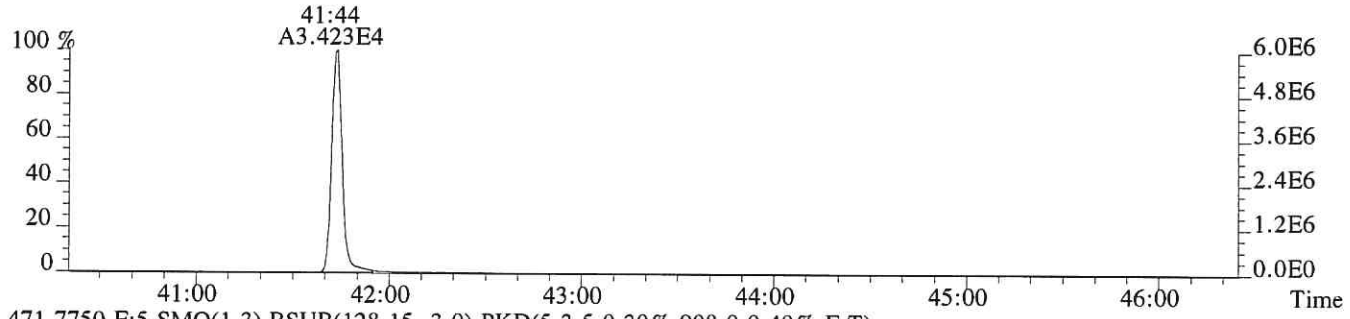
File:P615980 #1-547 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



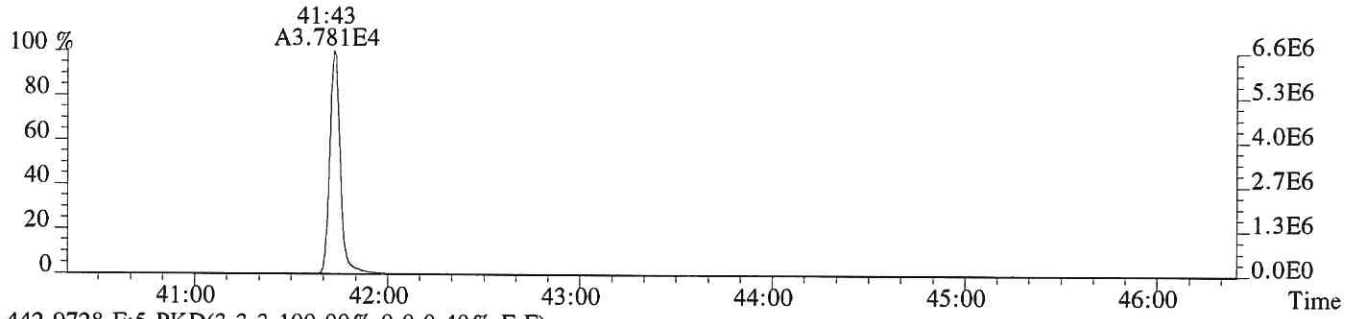
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1040.0,0.40%,F,T)



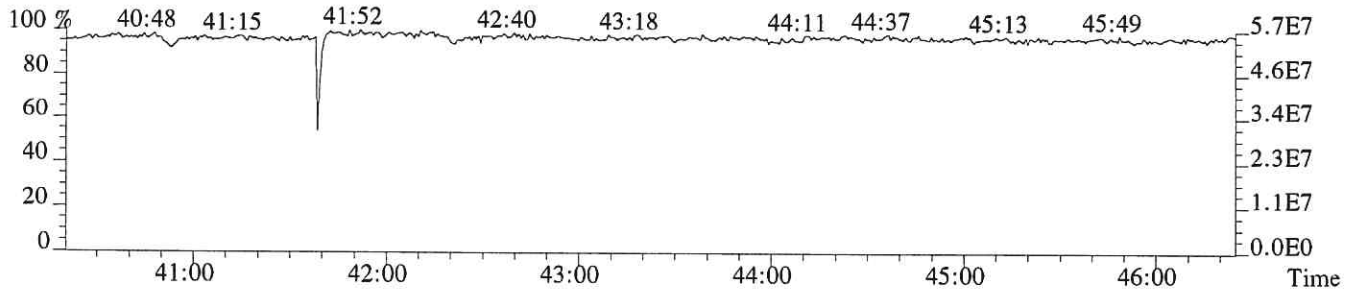
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1596.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P615981 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:19:19
Processed: 10-DEC-18 16:28:28 Sample ID: EQ1800494-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	2.884e+03	3.848e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	3.053e+04	1.965e+04	1.55	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	2.906e+04	1.919e+04	1.51	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	2.978e+04	2.333e+04	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	3.228e+04	2.555e+04	1.26	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.905e+04	2.362e+04	1.23	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	2.708e+04	2.181e+04	1.24	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	2.487e+04	2.414e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	2.017e+04	1.963e+04	1.03	yes	no	1.463
10	Unk	OCDF	41:57	2.475e+04	2.776e+04	0.89	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	2.716e+03	3.228e+03	0.84	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	2.377e+04	1.498e+04	1.59	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	2.050e+04	1.715e+04	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	2.232e+04	1.783e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	2.345e+04	1.861e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.716e+04	1.612e+04	1.06	yes	no	1.112
17	Unk	OCDD	41:44	1.826e+04	2.042e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	2.774e+04	3.555e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	6.495e+04	4.037e+04	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.977e+04	3.777e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	2.992e+04	5.754e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.402e+04	6.491e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	3.137e+04	5.863e+04	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.890e+04	5.478e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.188e+04	4.927e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.857e+04	4.181e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.704e+04	2.132e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	5.169e+04	3.304e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.378e+04	3.487e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	4.264e+04	3.347e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.287e+04	4.085e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	3.314e+04	3.672e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	6.842e+04	8.502e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	8.497e+04	6.680e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	2.416e+04				no	1.086

$$\text{OCDD} = \frac{(1.826e+04 + 2.042e+04) \times 4000\ \text{pg} \times 1}{(3.314e+04 + 3.672e+04) \times \text{g} \times / 100 \times 1.157} =$$

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P615981 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:19:19
Processed: 10-DEC-18 16:28:28 LAB. ID: EQ1800494-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.71e+05	1.78e+03	2.7e+02	6.30e+05	3.40e+03	1.9e+02
2	1,2,3,7,8-PeCDF	5.49e+06	1.42e+03	3.9e+03	3.51e+06	2.54e+03	1.4e+03
3	2,3,4,7,8-PeCDF	5.45e+06	1.42e+03	3.8e+03	3.52e+06	2.54e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	6.39e+06	2.16e+03	3.0e+03	4.94e+06	8.72e+02	5.7e+03
5	1,2,3,6,7,8-HxCDF	6.62e+06	2.16e+03	3.1e+03	5.20e+06	8.72e+02	6.0e+03
6	2,3,4,6,7,8-HxCDF	6.19e+06	2.16e+03	2.9e+03	4.94e+06	8.72e+02	5.7e+03
7	1,2,3,7,8,9-HxCDF	5.47e+06	2.16e+03	2.5e+03	4.38e+06	8.72e+02	5.0e+03
8	1,2,3,4,6,7,8-HpCDF	5.60e+06	1.90e+03	2.9e+03	5.38e+06	5.03e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.90e+06	1.90e+03	2.0e+03	3.84e+06	5.03e+03	7.6e+02
10	OCDF	4.45e+06	6.88e+02	6.5e+03	4.88e+06	3.00e+03	1.6e+03
11	2,3,7,8-TCDD	4.62e+05	4.40e+03	1.0e+02	5.60e+05	1.82e+03	3.1e+02
12	1,2,3,7,8-PeCDD	4.30e+06	1.81e+03	2.4e+03	2.67e+06	5.28e+02	5.1e+03
13	1,2,3,4,7,8-HxCDD	4.58e+06	1.02e+03	4.5e+03	3.90e+06	9.84e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	4.62e+06	1.02e+03	4.5e+03	3.70e+06	9.84e+02	3.8e+03
15	1,2,3,7,8,9-HxCDD	4.85e+06	1.02e+03	4.8e+03	3.88e+06	9.84e+02	3.9e+03
16	1,2,3,4,6,7,8-HpCDD	3.61e+06	5.04e+02	7.2e+03	3.36e+06	9.32e+02	3.6e+03
17	OCDD	3.24e+06	7.12e+02	4.5e+03	3.68e+06	8.72e+02	4.2e+03
18	13C-2,3,7,8-TCDF	4.50e+06	1.07e+04	4.2e+02	5.73e+06	1.06e+04	5.4e+02
19	13C-1,2,3,7,8-PeCDF	1.14e+07	2.17e+03	5.3e+03	7.16e+06	1.98e+03	3.6e+03
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.17e+03	5.1e+03	7.10e+06	1.98e+03	3.6e+03
21	13C-1,2,3,4,7,8-HxCDF	6.40e+06	1.69e+03	3.8e+03	1.22e+07	1.84e+03	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	7.02e+06	1.69e+03	4.2e+03	1.32e+07	1.84e+03	7.2e+03
23	13C-2,3,4,6,7,8-HxCDF	6.70e+06	1.69e+03	4.0e+03	1.23e+07	1.84e+03	6.7e+03
24	13C-1,2,3,7,8,9-HxCDF	5.72e+06	1.69e+03	3.4e+03	1.10e+07	1.84e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.87e+06	2.42e+03	2.0e+03	1.11e+07	2.98e+03	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.56e+06	2.42e+03	1.5e+03	8.07e+06	2.98e+03	2.7e+03
27	13C-2,3,7,8-TCDD	2.79e+06	1.38e+04	2.0e+02	3.63e+06	7.26e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	9.67e+06	2.25e+03	4.3e+03	6.13e+06	2.38e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	9.91e+06	3.85e+03	2.6e+03	7.93e+06	2.06e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	8.84e+06	3.85e+03	2.3e+03	6.98e+06	2.06e+03	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.96e+06	1.31e+03	6.8e+03	8.39e+06	5.08e+02	1.7e+04
32	13C-OCDD	5.94e+06	1.66e+03	3.6e+03	6.61e+06	1.16e+03	5.7e+03
33	13C-1,2,3,4-TCDD	1.21e+07	1.38e+04	8.7e+02	1.50e+07	7.26e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.80e+07	3.85e+03	4.7e+03	1.41e+07	2.06e+03	6.8e+03
35	37Cl-2,3,7,8-TCDD	4.13e+06	2.77e+03	1.5e+03			

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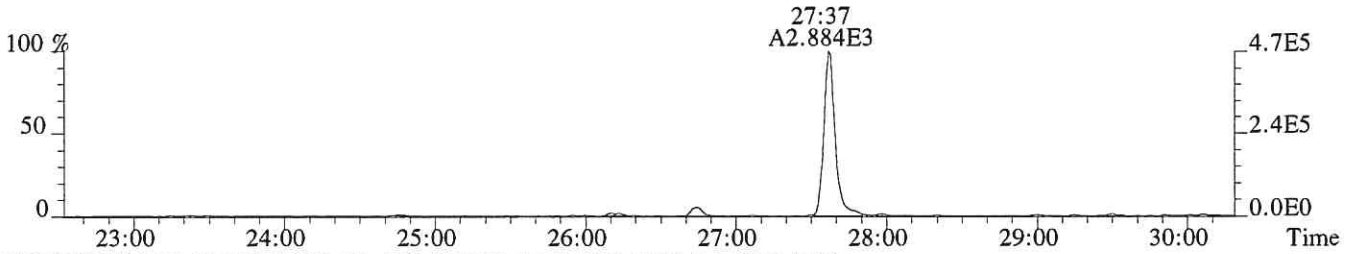
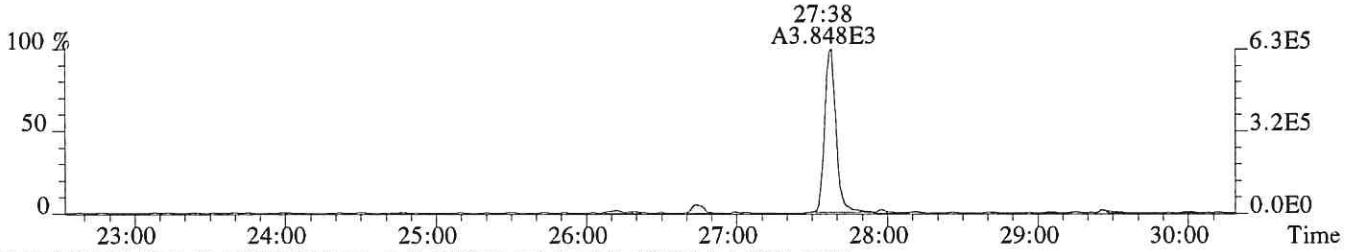
www.alsglobal.com

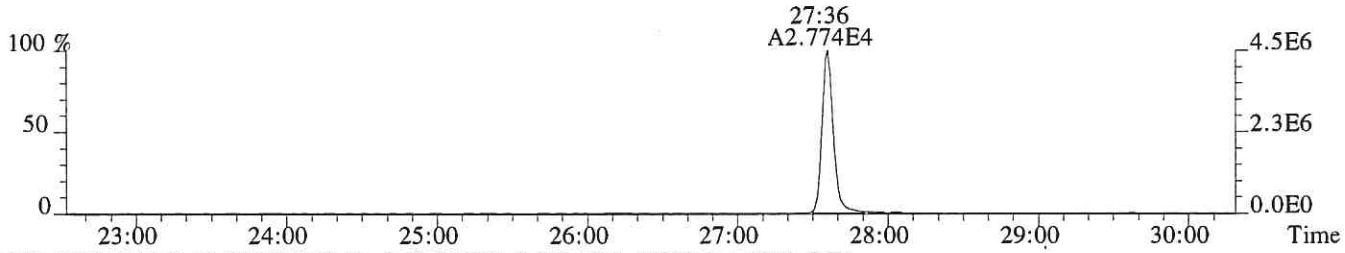
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



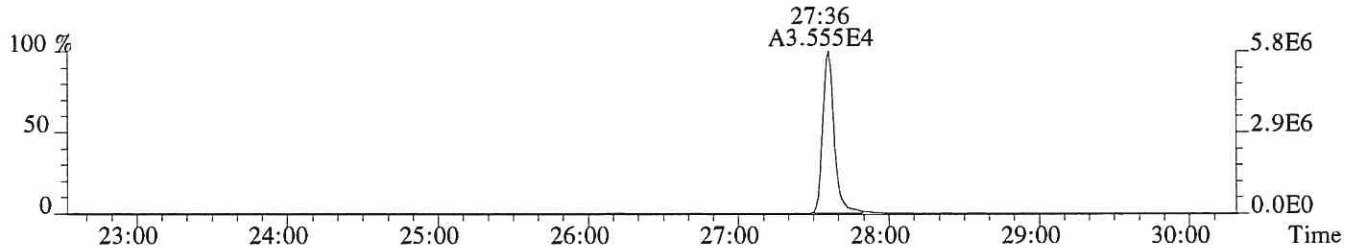
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



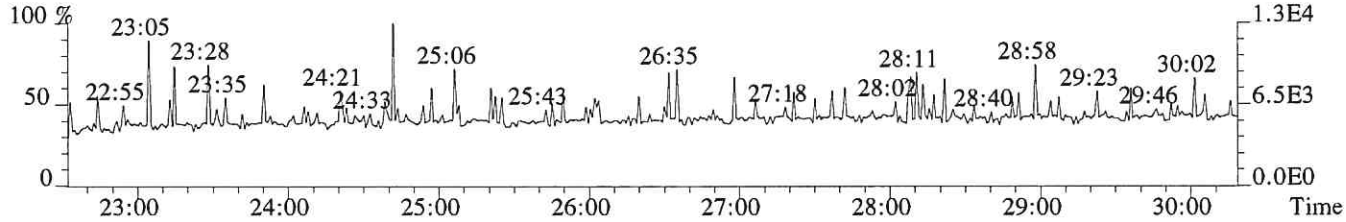
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10684.0,1.00%,F,T)



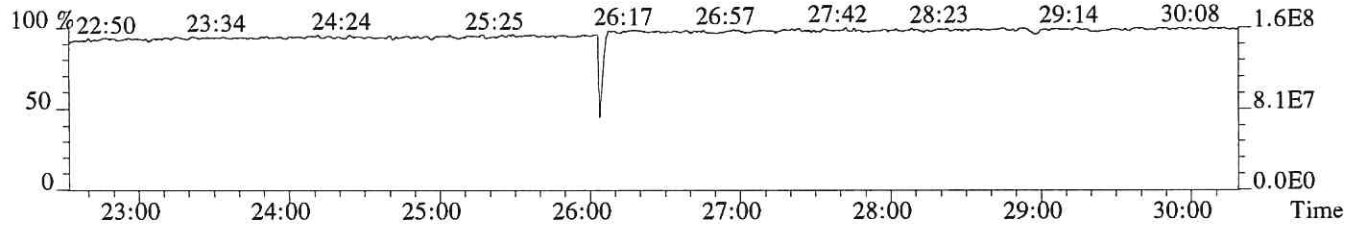
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



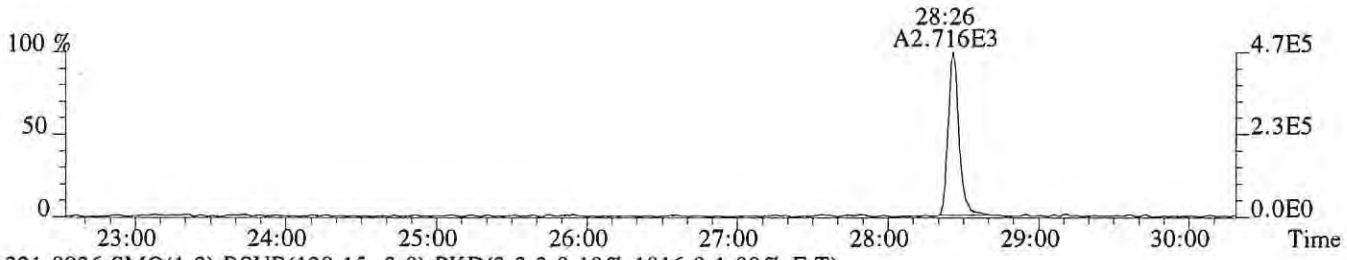
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



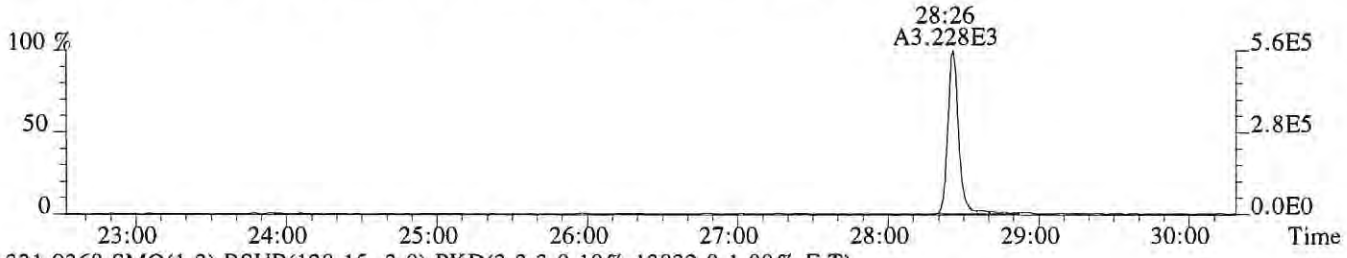
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



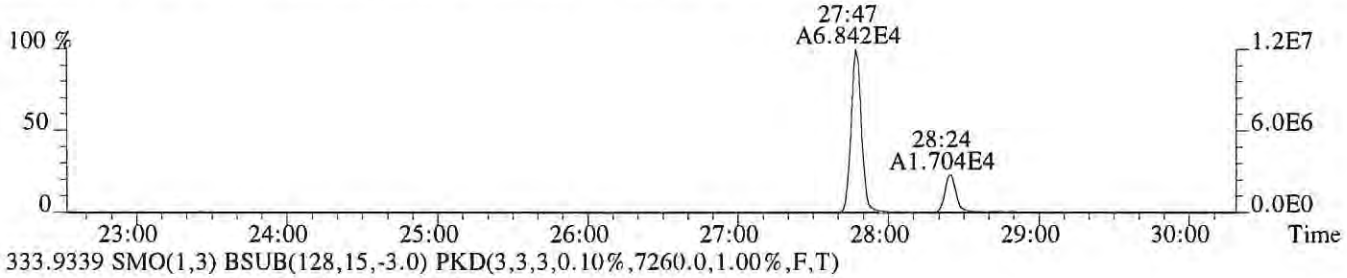
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4400.0,1.00%,F,T)



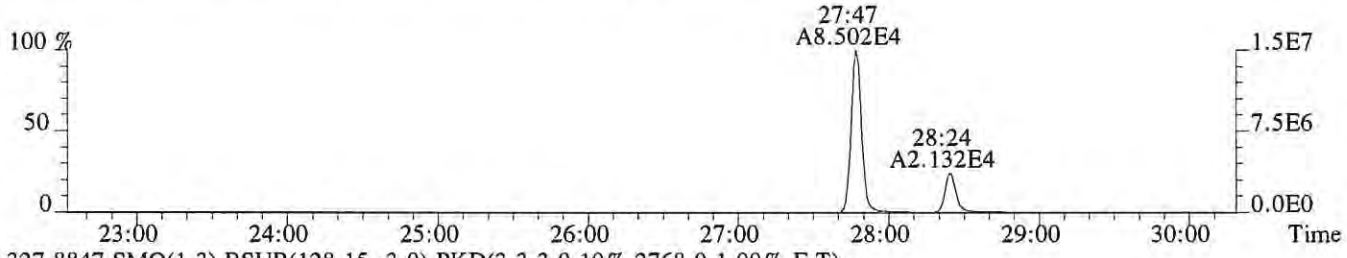
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



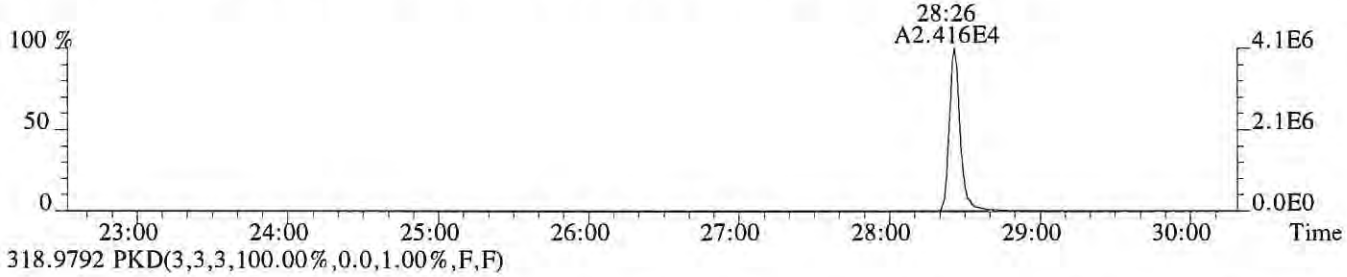
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13832.0,1.00%,F,T)



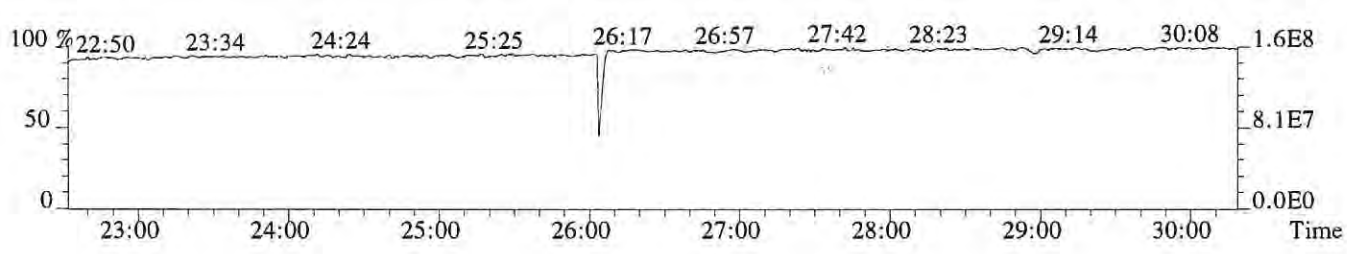
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7260.0,1.00%,F,T)



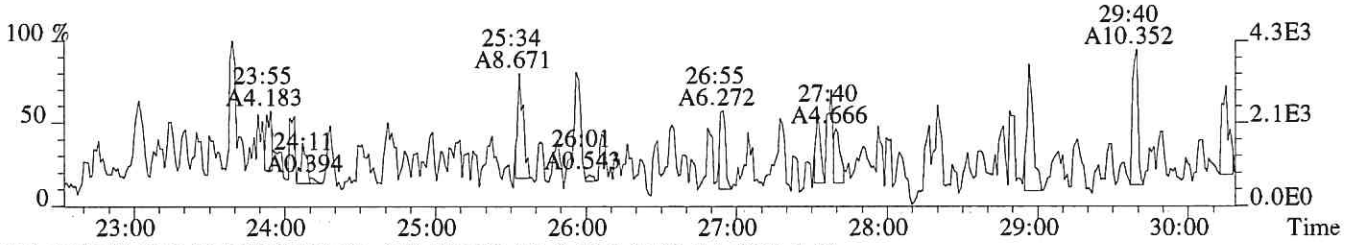
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



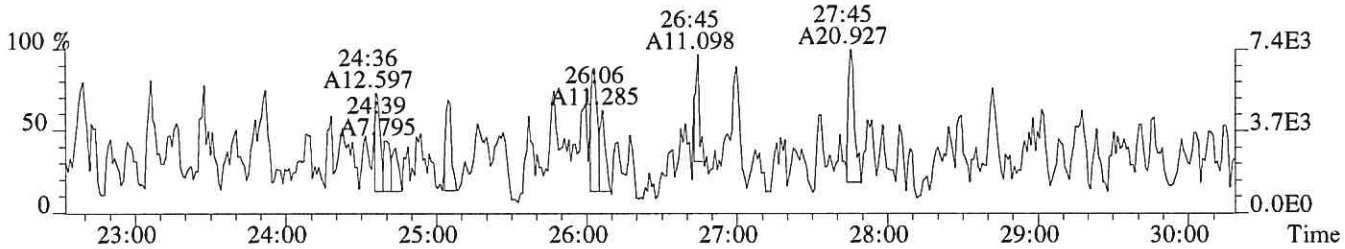
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



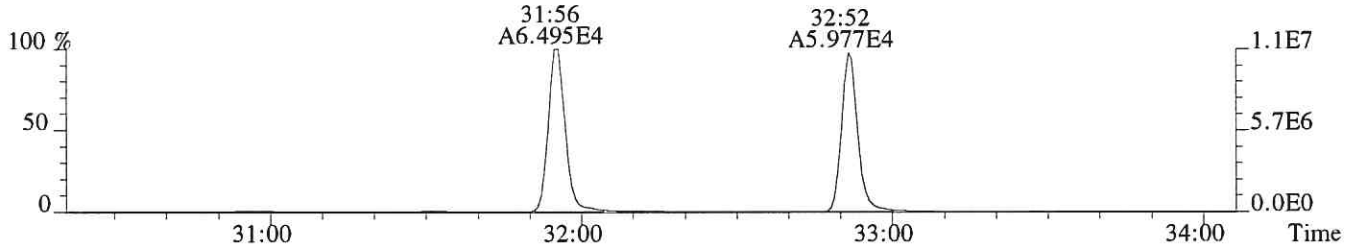
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



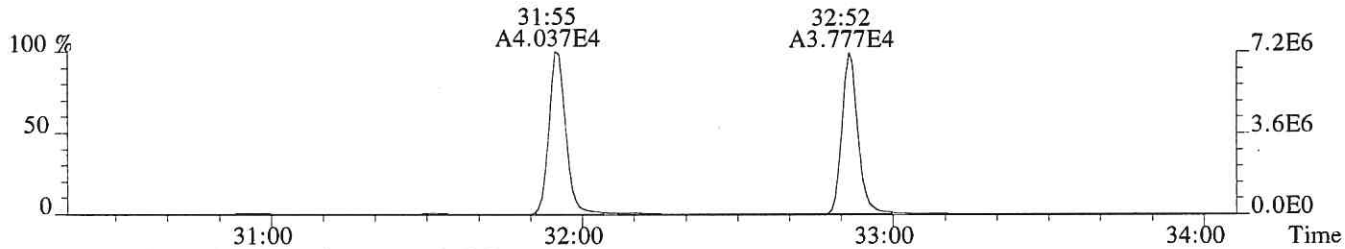
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3120.0,1.00%,F,T)



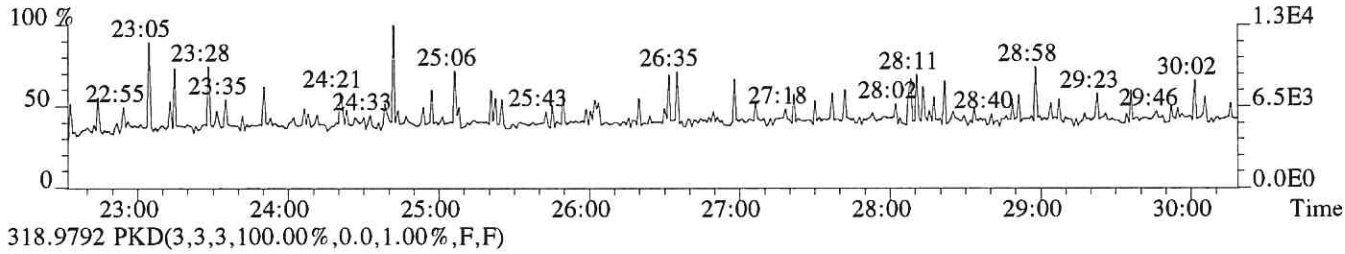
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



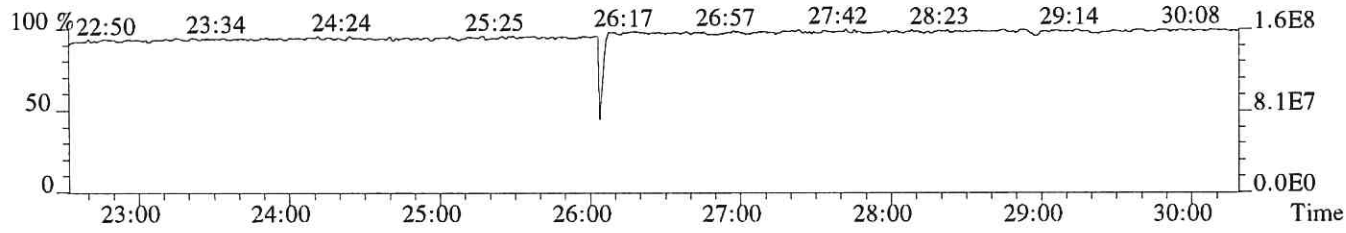
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



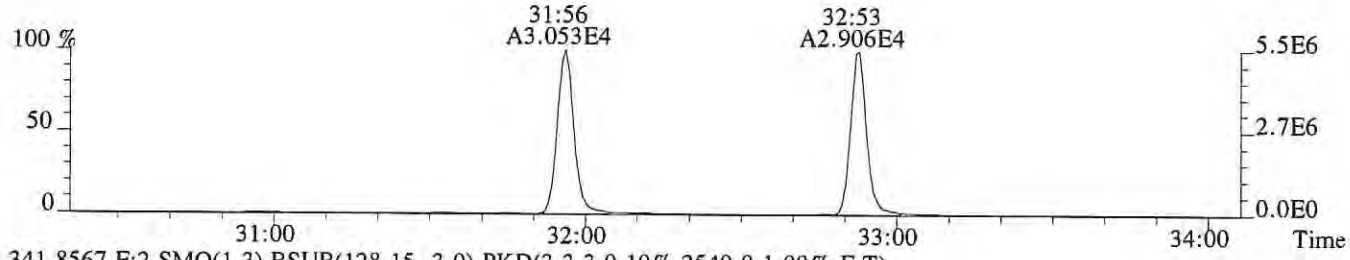
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



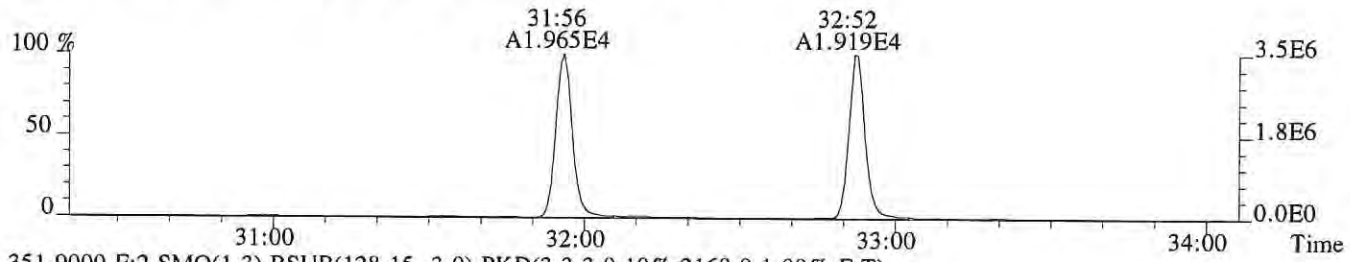
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



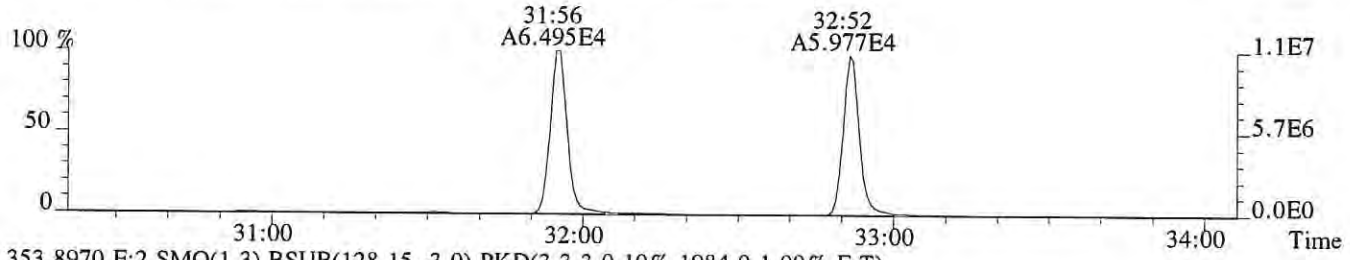
File:P615981 #1-339 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



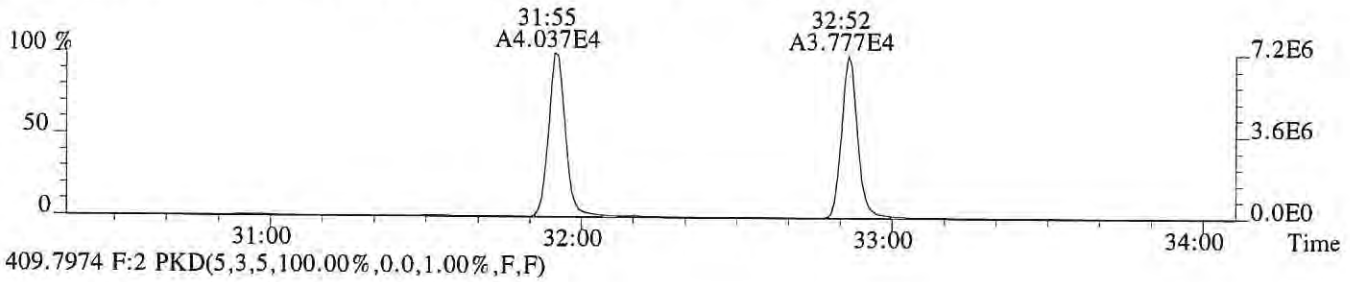
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)



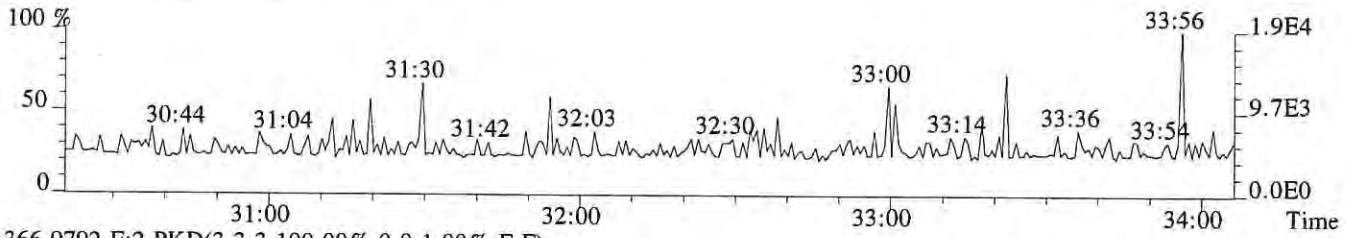
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



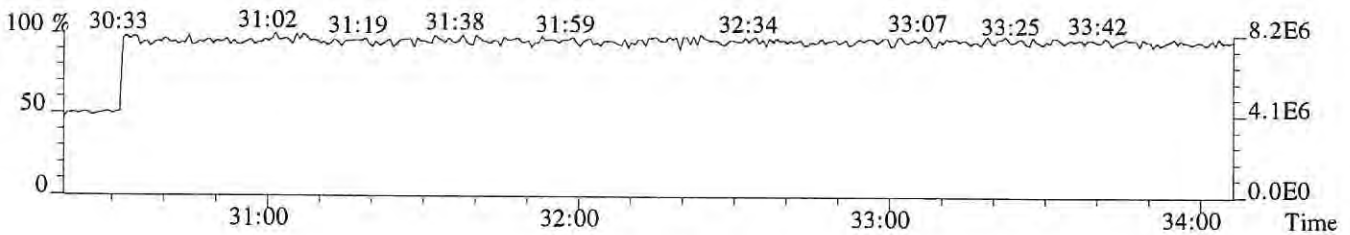
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



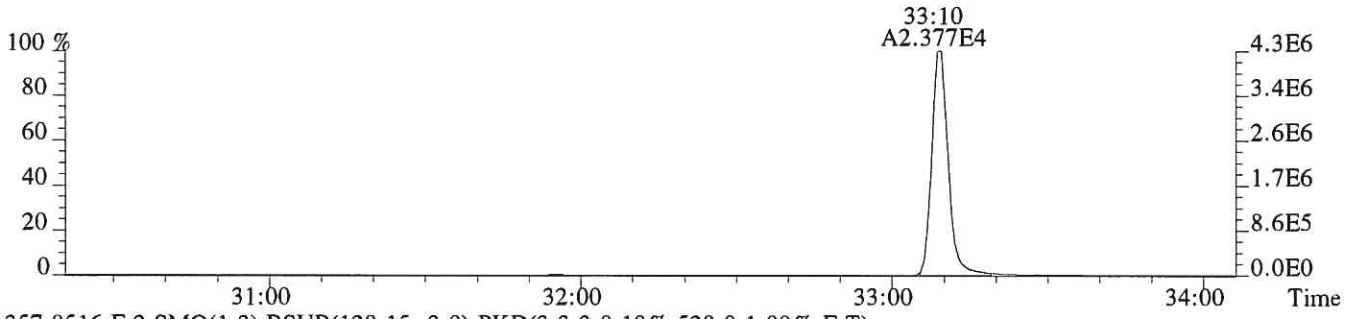
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



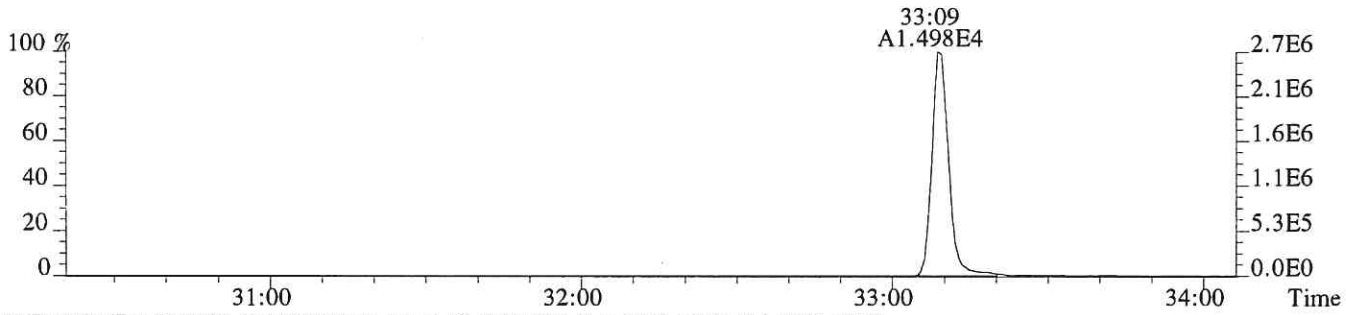
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



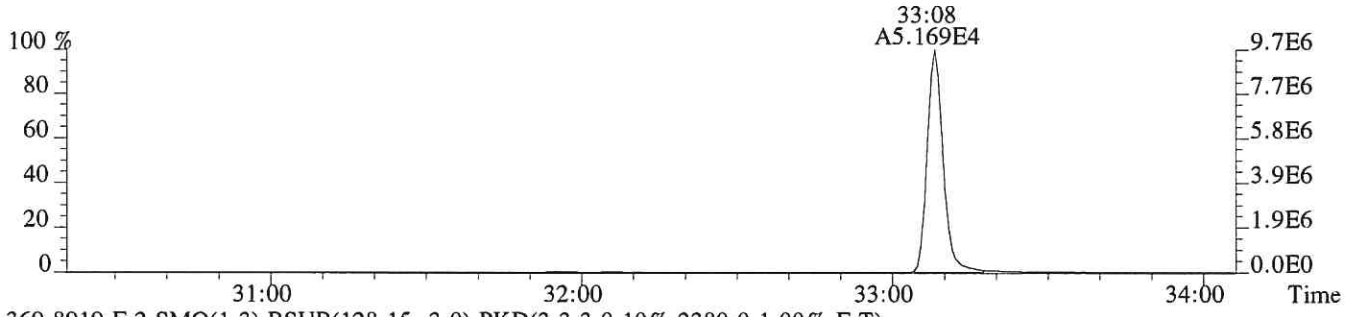
File:P615981 #1-339 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



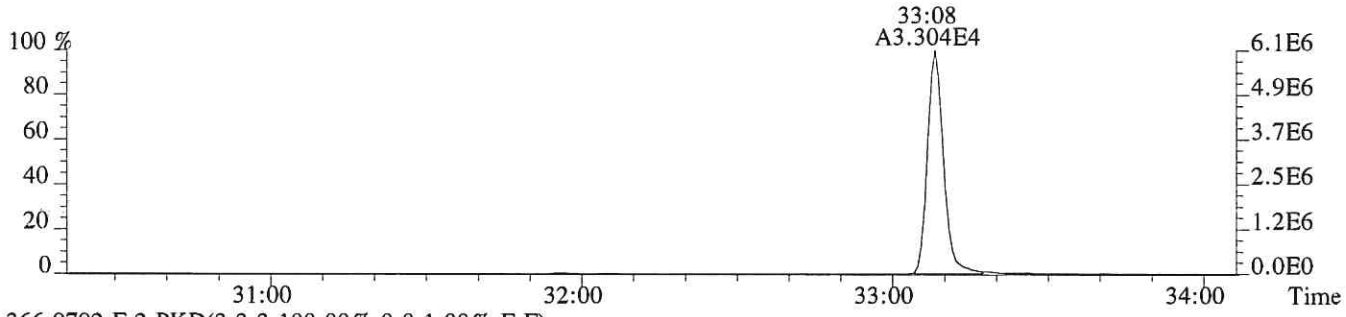
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



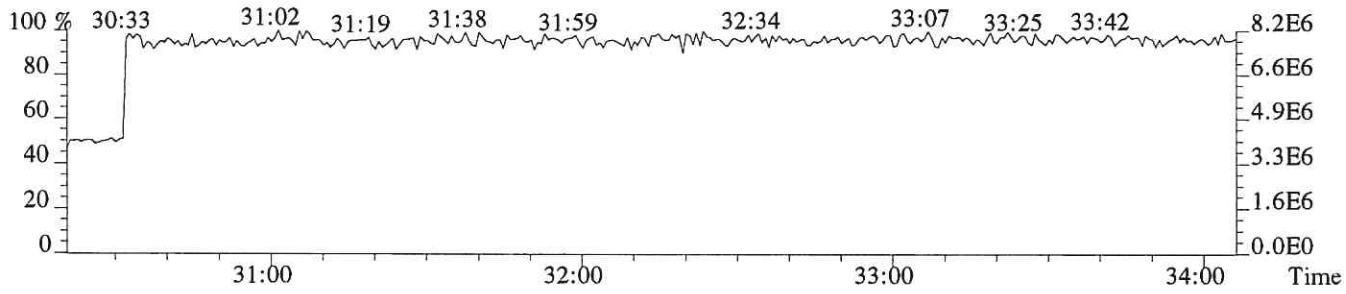
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



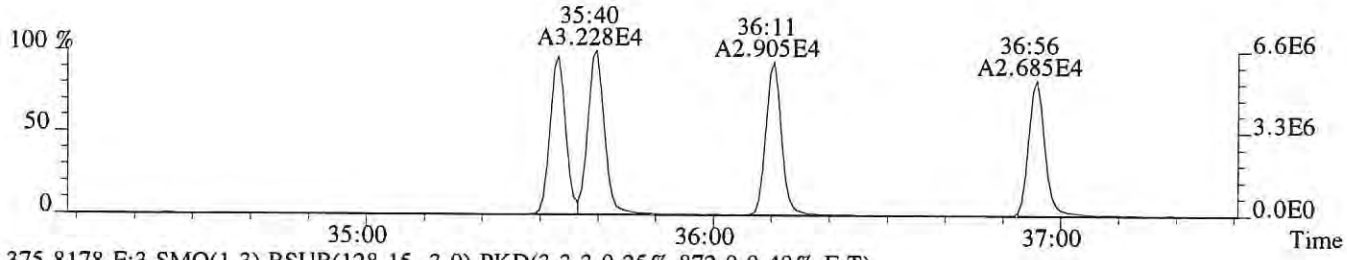
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



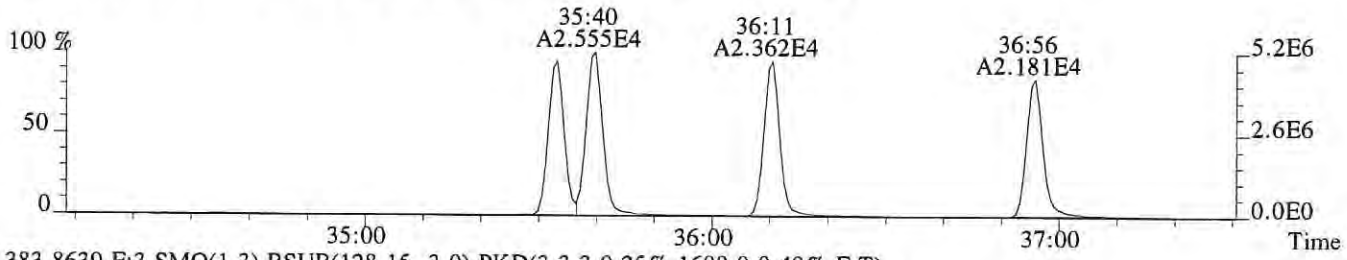
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



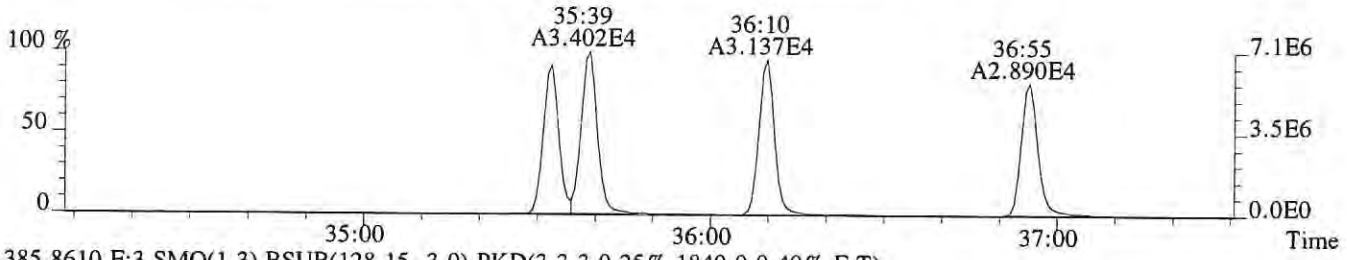
File:P615981 #1-304 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.40%,F,T)



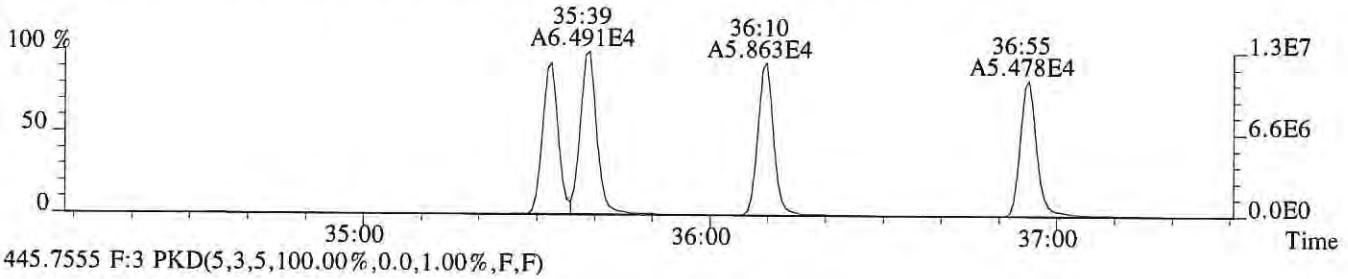
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



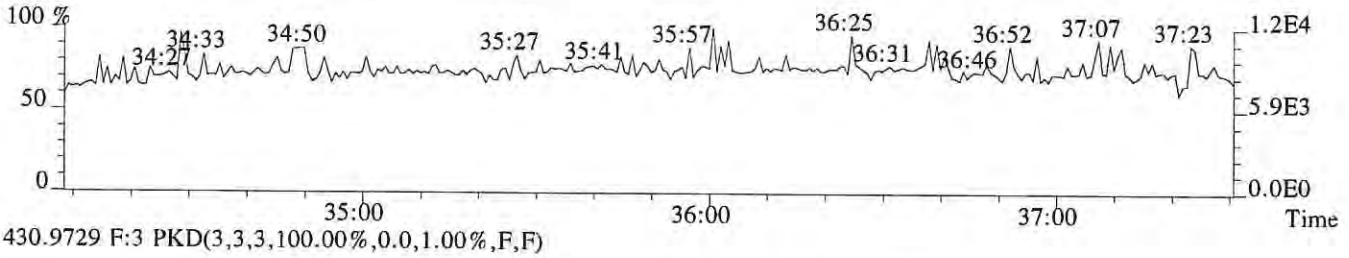
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



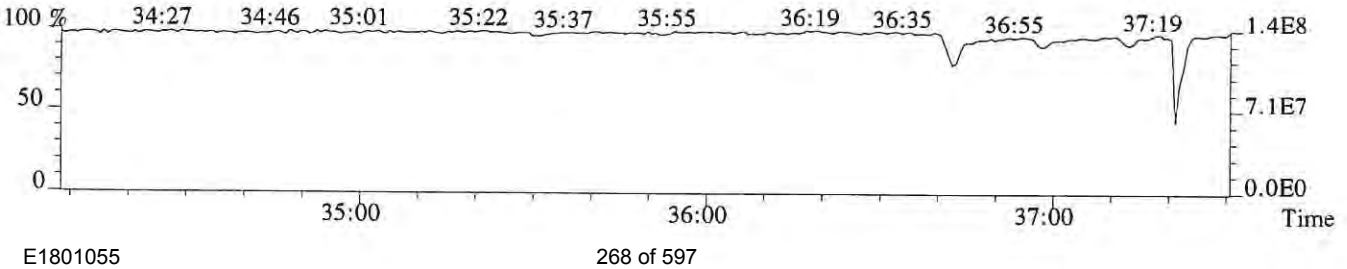
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



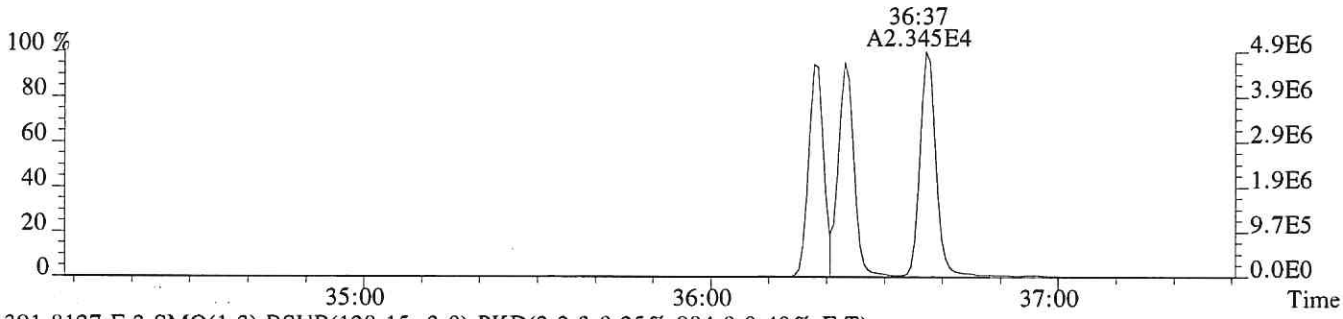
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



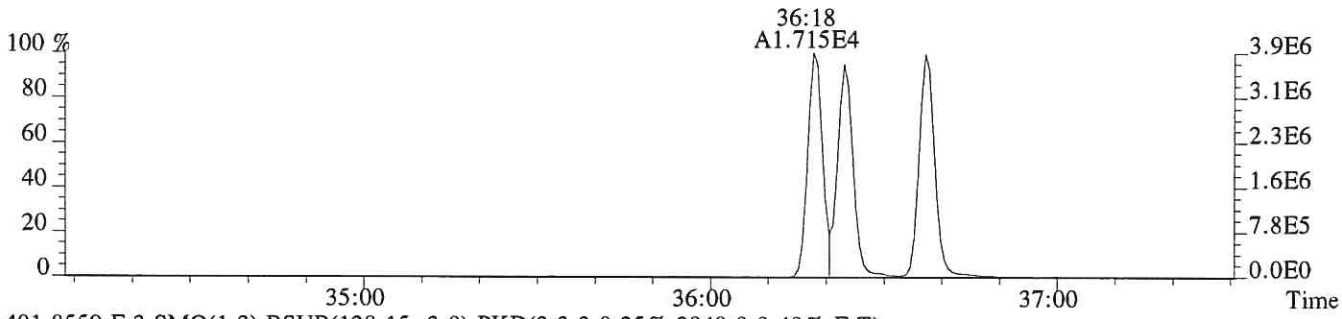
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



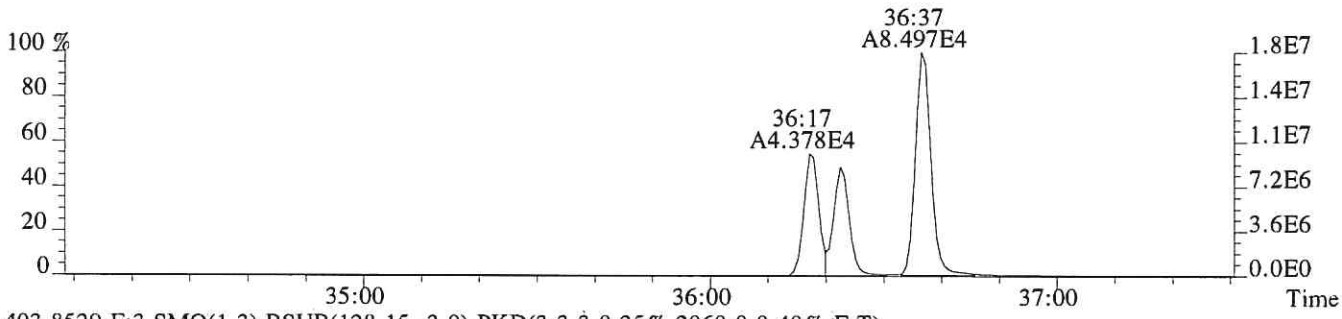
File:P615981 #1-304 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



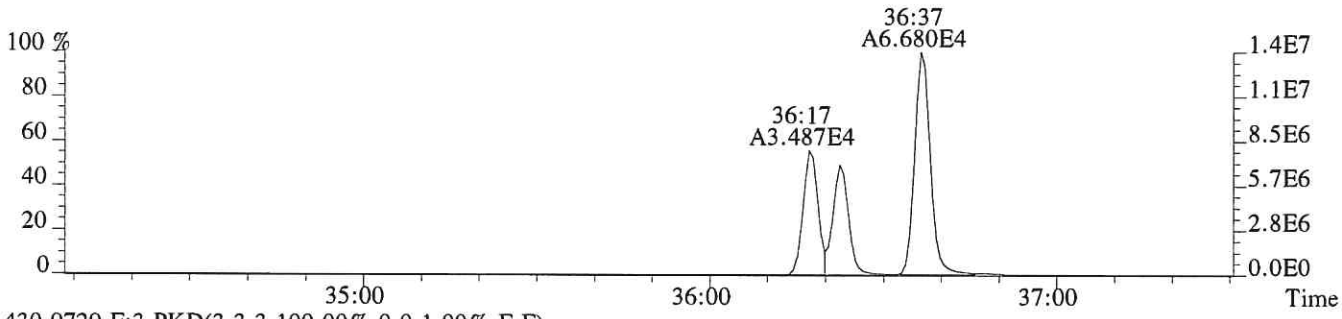
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



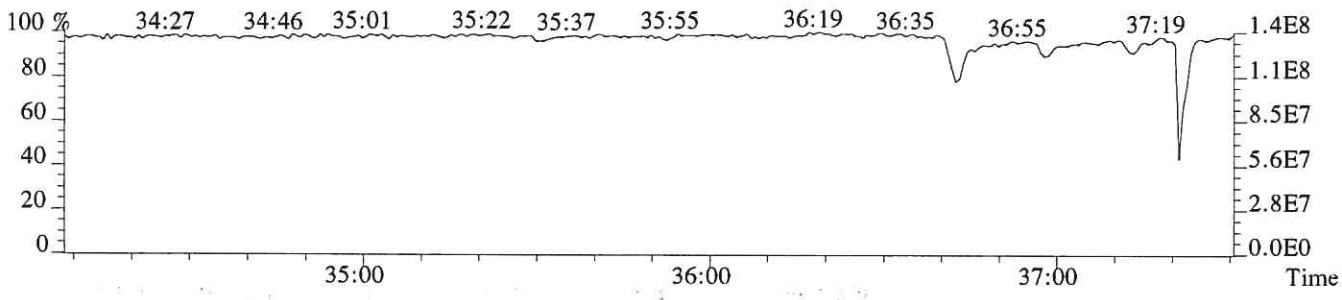
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3848.0,0.40%,F,T)



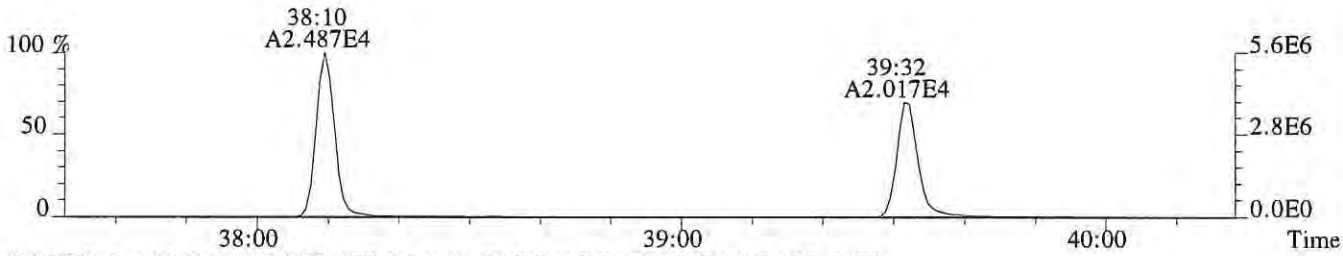
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.40%,F,T)



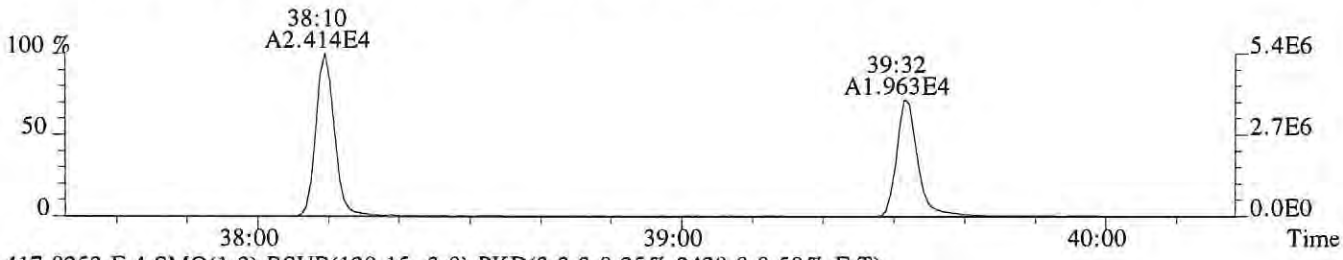
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



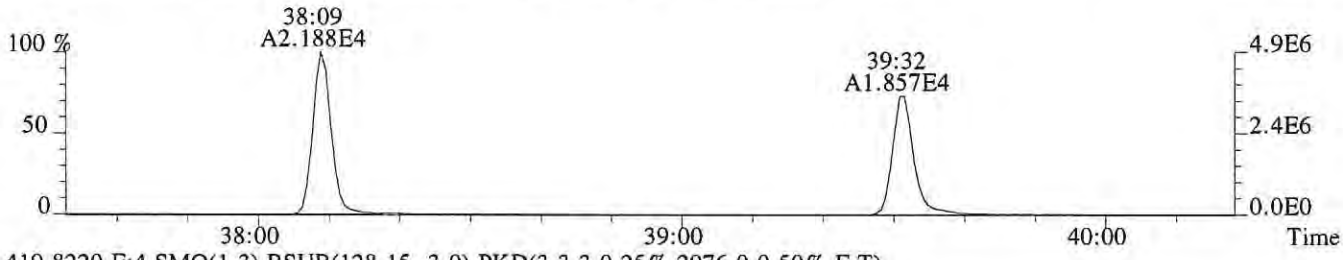
File:P615981 #1-249 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.50%,F,T)



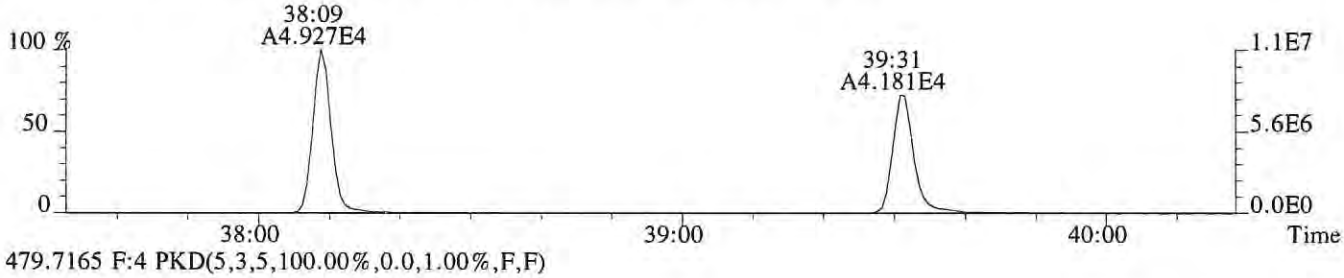
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5028.0,0.50%,F,T)



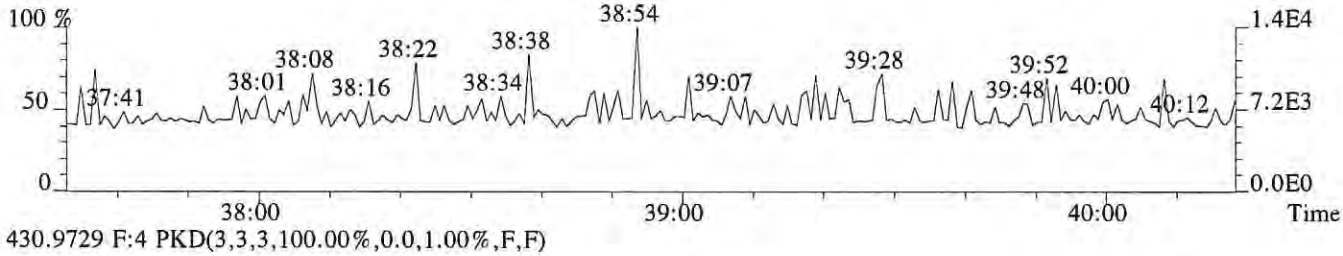
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.50%,F,T)



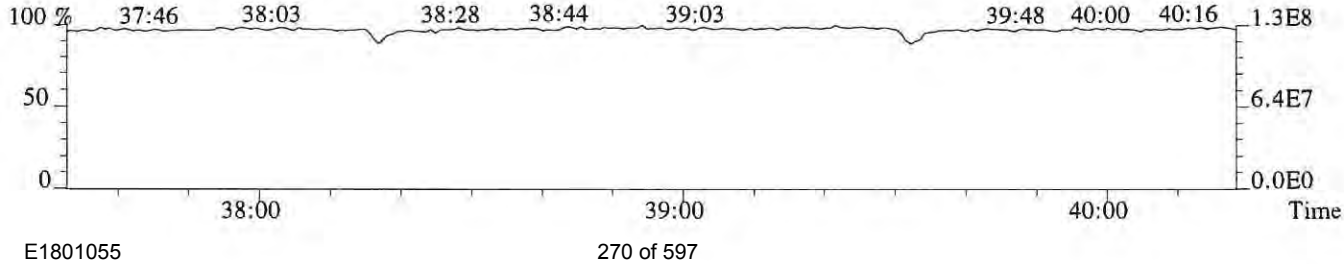
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2976.0,0.50%,F,T)



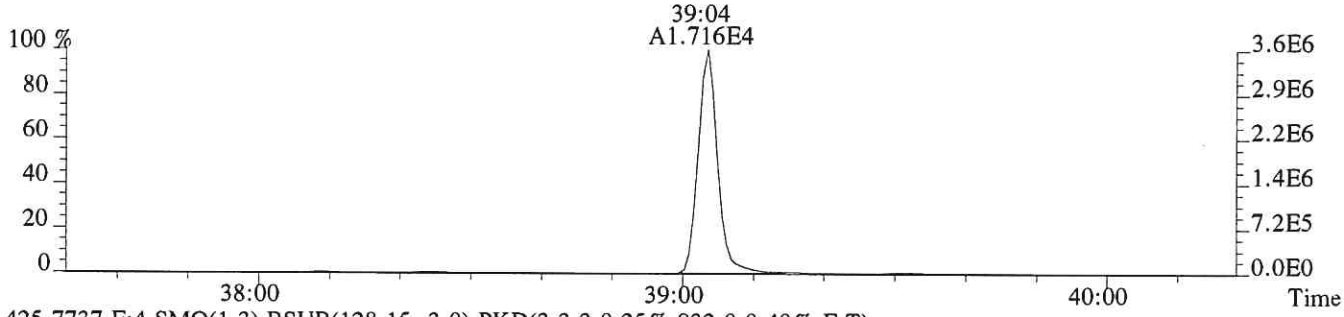
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



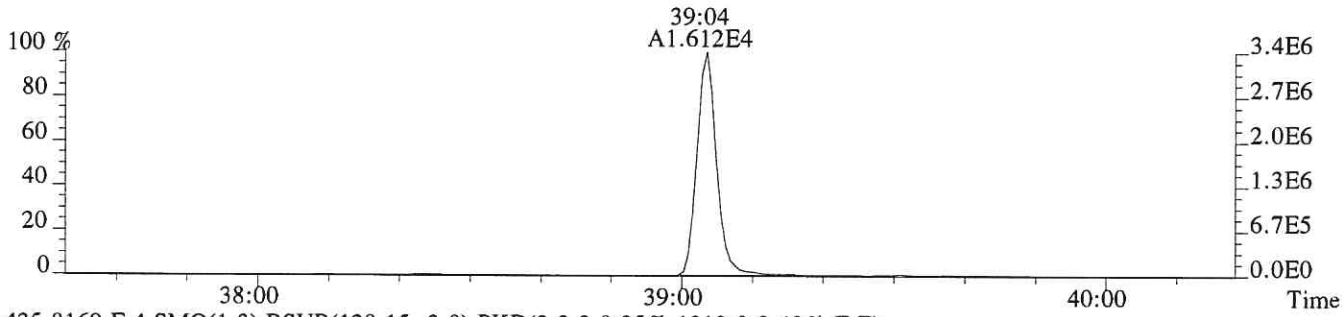
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



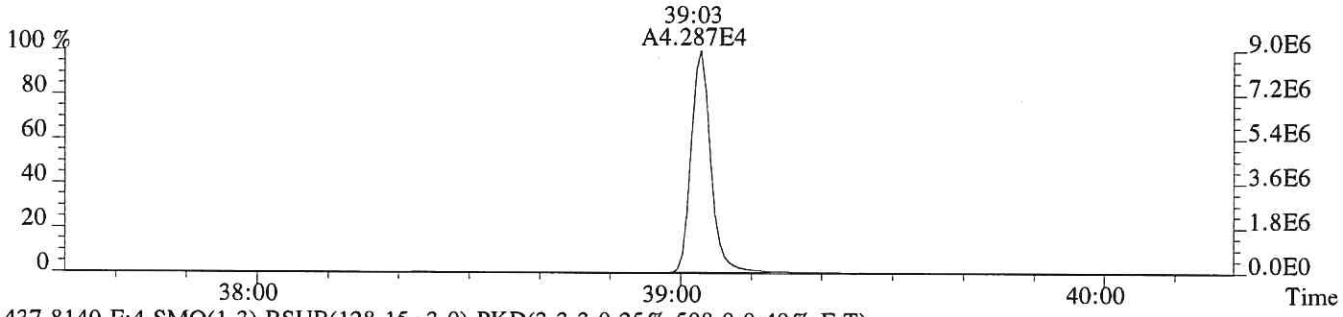
File:P615981 #1-249 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



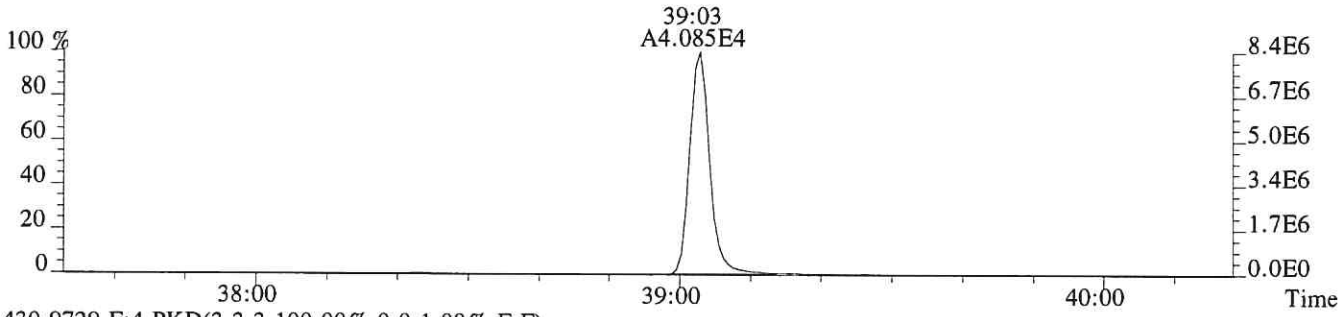
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



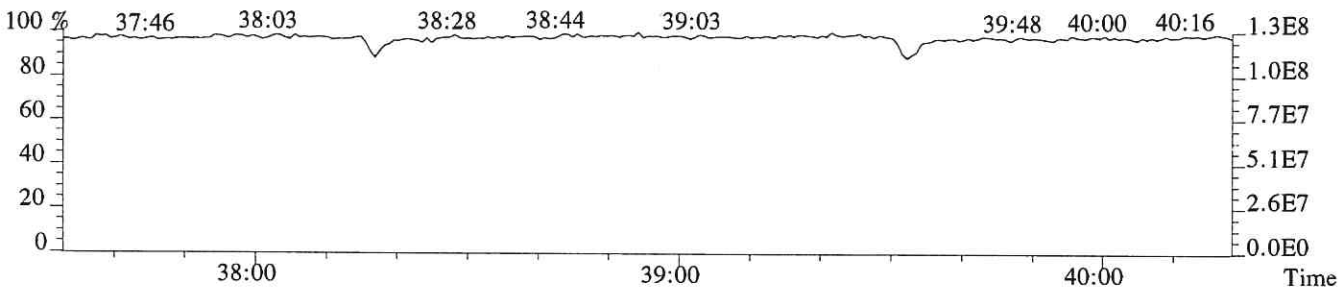
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



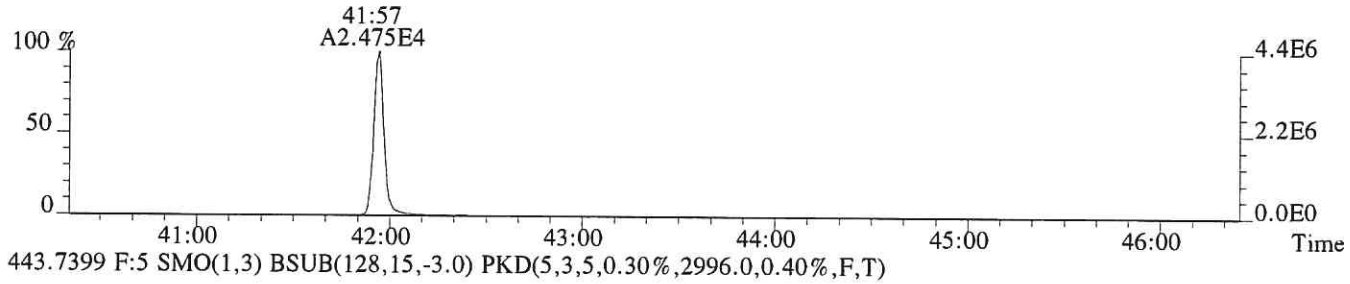
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



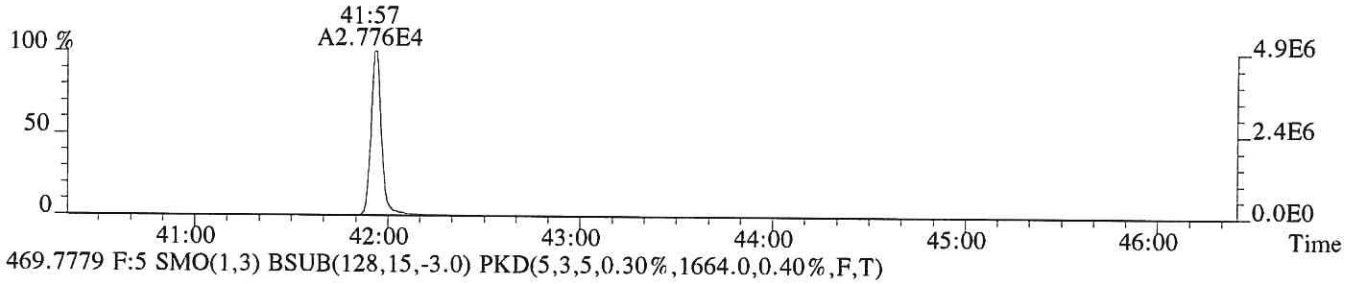
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



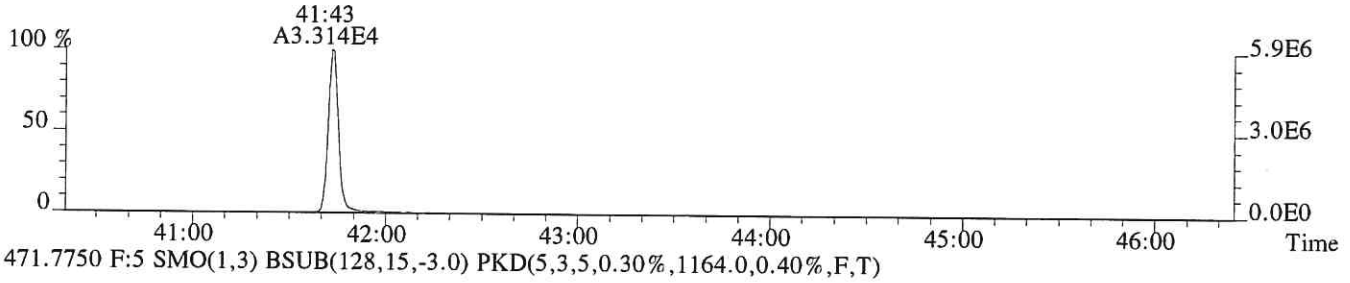
File:P615981 #1-547 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



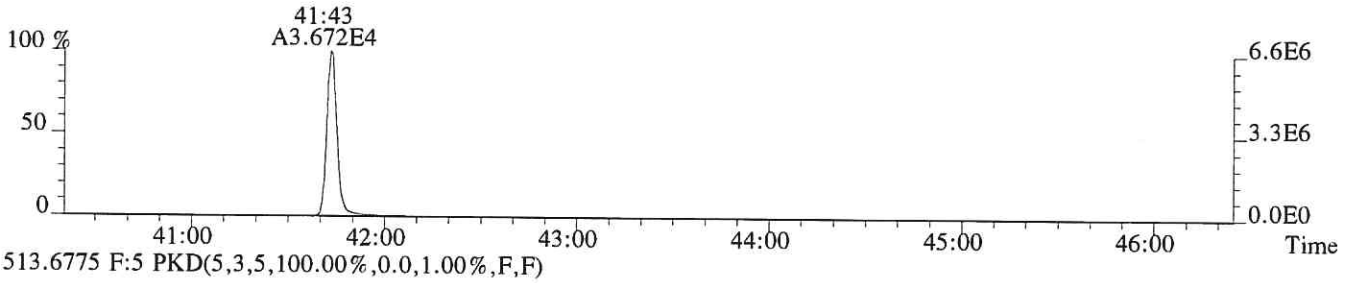
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



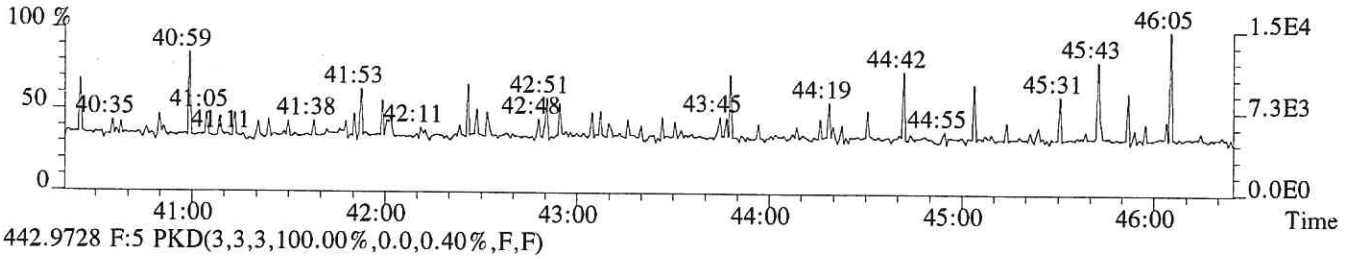
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1664.0,0.40%,F,T)



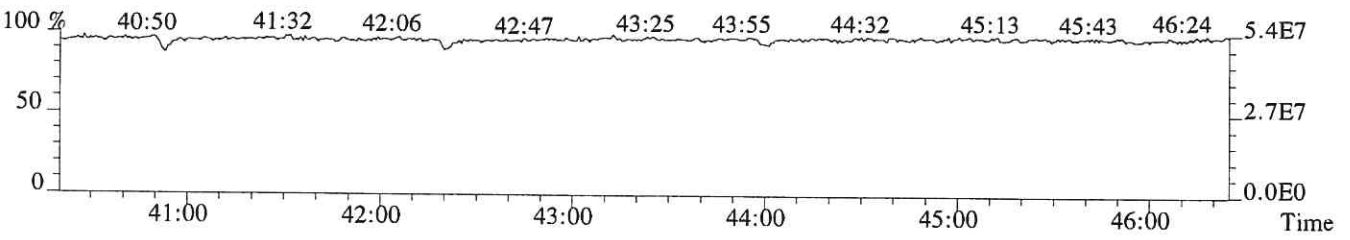
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



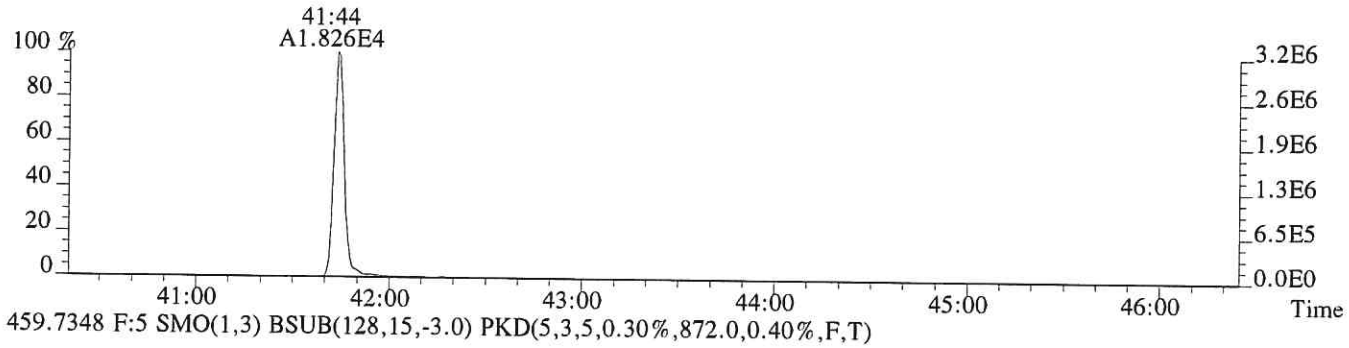
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



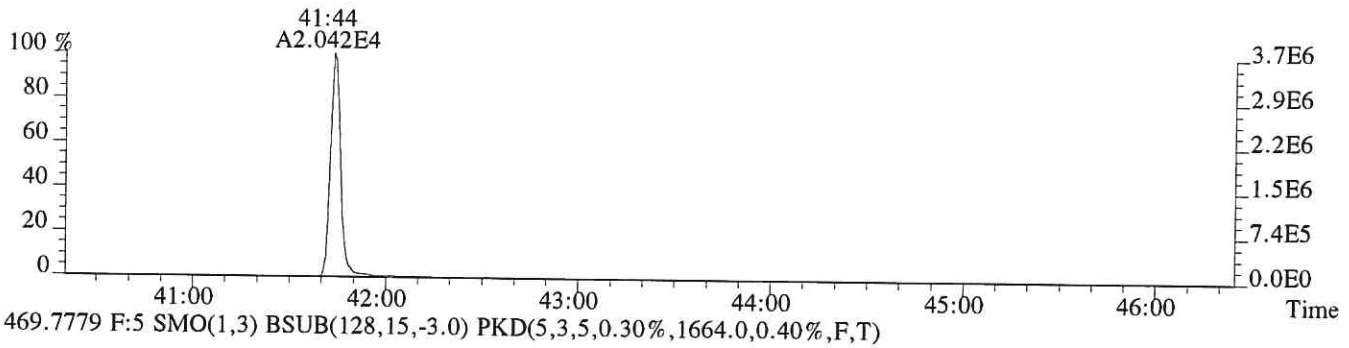
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



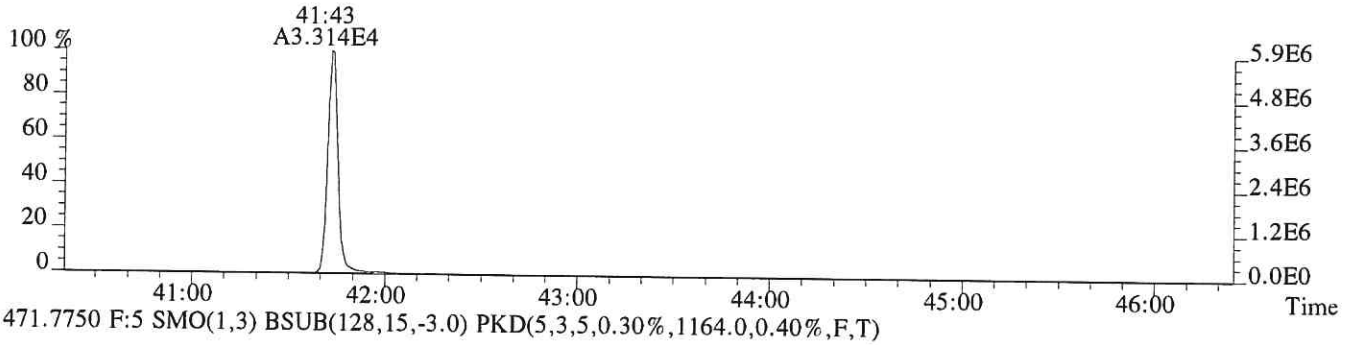
File:P615981 #1-547 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



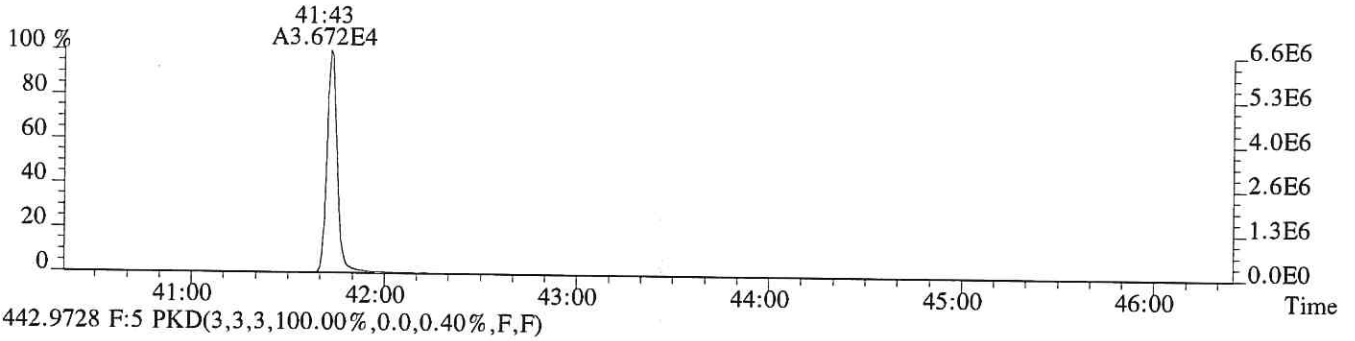
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



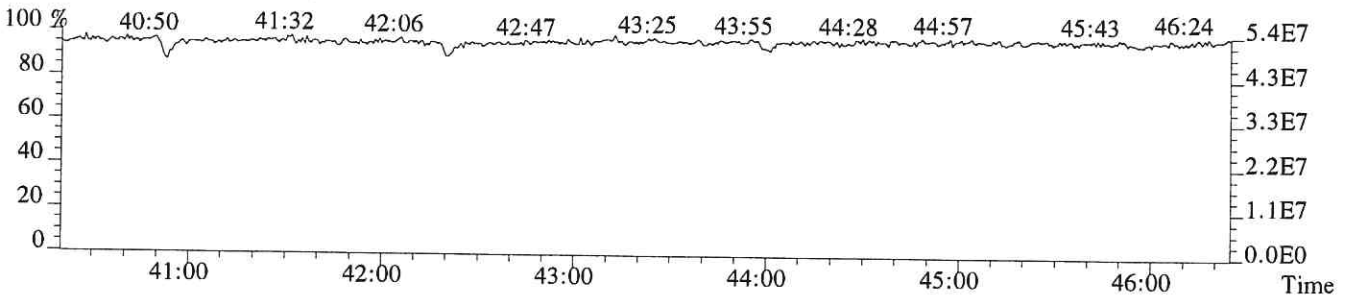
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1664.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



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



Continuing Calibration

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

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519287

Date: 12/07/18-12/08/18 (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: qc

Second QC: LKL

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519287	7-DEC-18	19:08:16
192977	WINDOW DEFINE	P519288	7-DEC-18	19:56:03
METHOD BLANK	EQ1800469-01	P519289	7-DEC-18	20:44:48
METHOD BLANK	EQ1800488-01	P519290	7-DEC-18	21:33:23
SL0539	E1801046-001DL	P519291	7-DEC-18	22:22:00
SL0540	E1801046-002DL	P519292	7-DEC-18	23:10:38
SL0541	E1801046-003DL	P519293	7-DEC-18	23:59:16
SL0542	E1801046-004DL	P519294	8-DEC-18	00:47:53
SL0552	E1801055-008	P519295	8-DEC-18	01:36:30
SL0558	E1801057-006	P519296	8-DEC-18	02:25:08
SL0559	E1801057-007	P519297	8-DEC-18	03:13:44
SL0560	E1801057-008	P519298	8-DEC-18	04:02:22
SL0580	E1801065-001	P519299	8-DEC-18	04:50:59
SL0581	E1801065-002	P519300	8-DEC-18	05:39:44
SL0582	E1801065-003	P519301	8-DEC-18	06:28:20

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207B.SPL
Last Modified: Monday, December 10, 2018 07:32:15 Central Standard Time
Printed: Monday, December 10, 2018 07:32:17 Central Standard Time

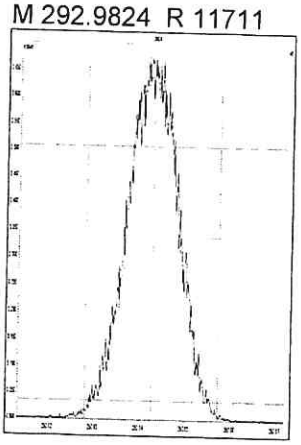
Page Position (1, 1)

OPR54: P519287res

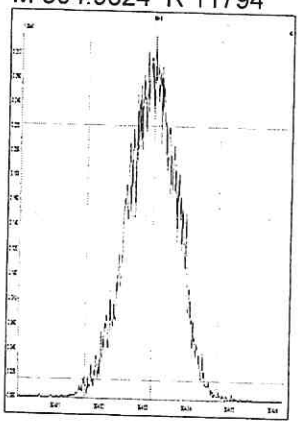
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	19:08	P519287	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 19:08
2		19:56	P519288	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		20:44	P519289	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		21:32	P519290	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		22:22	P519291	E1801046-001DL	E1801046-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		23:10	P519292	E1801046-002DL	E1801046-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		23:59	P519293	E1801046-003DL	E1801046-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8	12/8/18	00:47	P519294	E1801046-004DL	E1801046-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		01:36	P519295	E1801055-008	E1801055-008	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		02:25	P519296	E1801057-006	E1801057-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		03:13	P519297	E1801057-007	E1801057-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		04:02	P519298	E1801057-008	E1801057-008	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		04:50	P519299	E1801065-001	E1801065-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		05:39	P519300	E1801065-002	E1801065-002	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		06:28	P519301	E1801065-003	E1801065-003	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		07:25	P519302	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 07:25
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/10/18

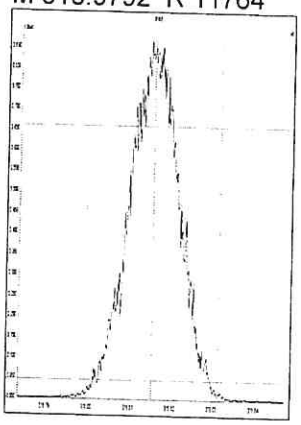
M 292.9824 R 11711



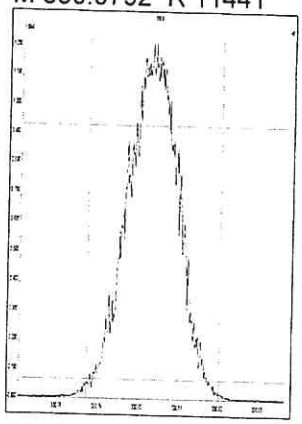
M 304.9824 R 11794



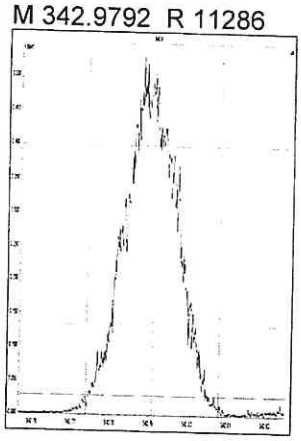
M 318.9792 R 11764



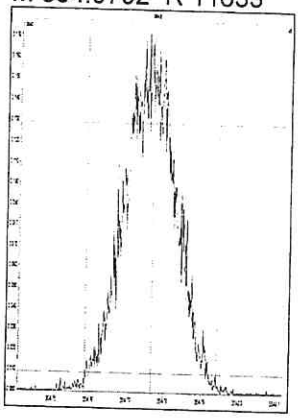
M 330.9792 R 11441



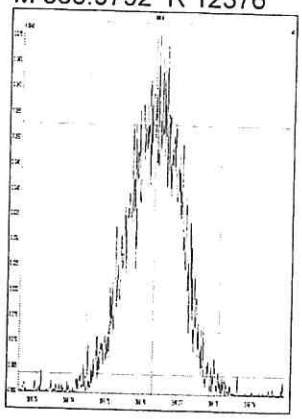
M 342.9792 R 11286



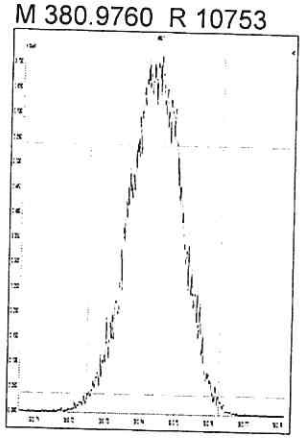
M 354.9792 R 11633



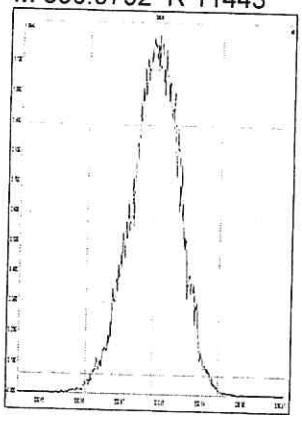
M 366.9792 R 12376



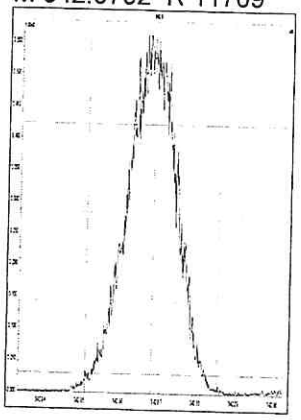
M 380.9760 R 10753



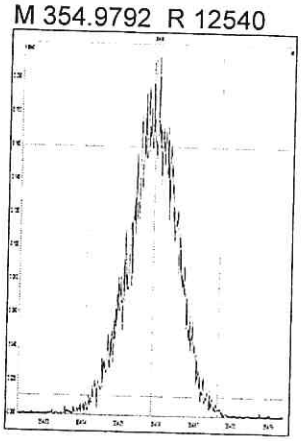
M 330.9792 R 11443



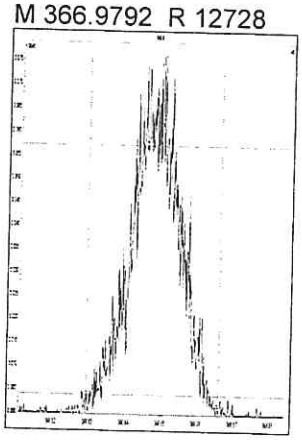
M 342.9792 R 11709



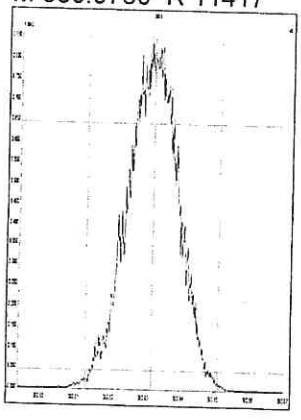
M 354.9792 R 12540



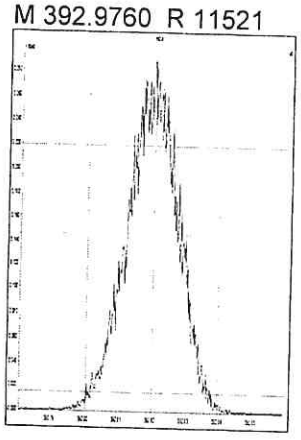
M 366.9792 R 12728



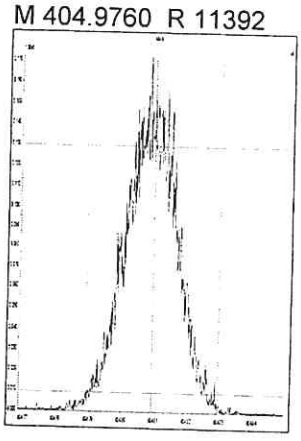
M 380.9760 R 11417



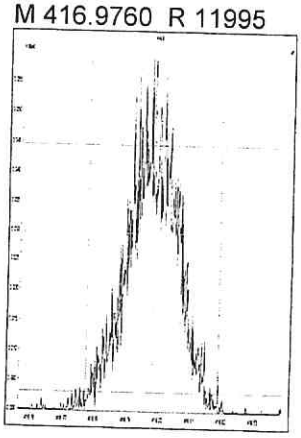
M 392.9760 R 11521



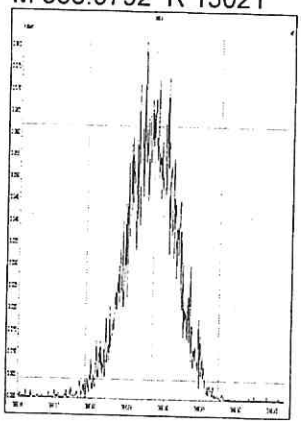
M 404.9760 R 11392



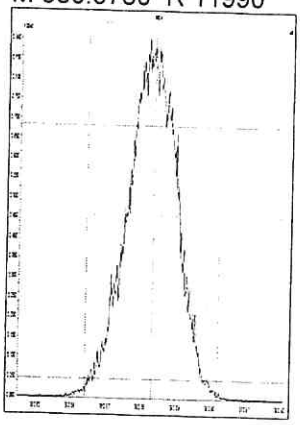
M 416.9760 R 11995



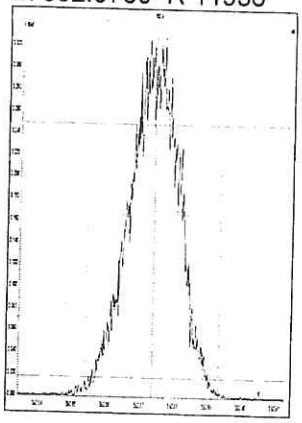
M 366.9792 R 13021



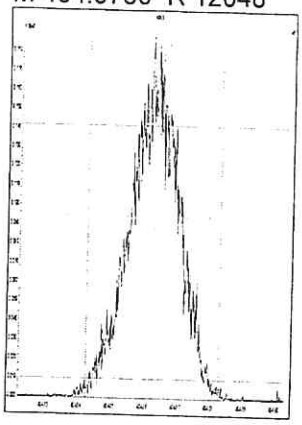
M 380.9760 R 11990



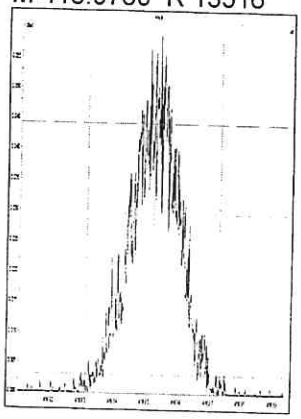
M 392.9760 R 11936



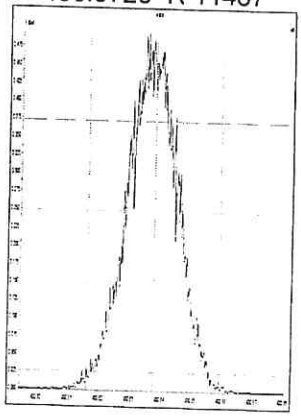
M 404.9760 R 12048



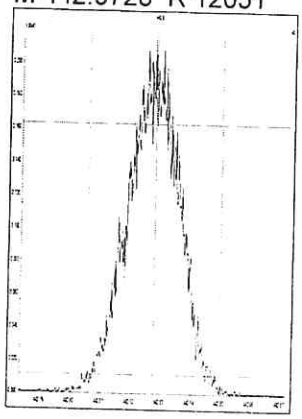
M 416.9760 R 13516



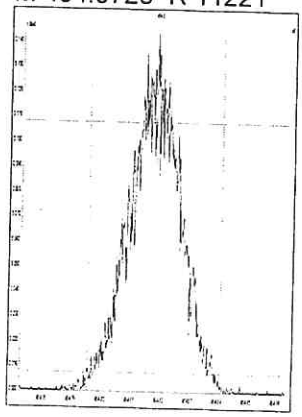
M 430.9728 R 11467



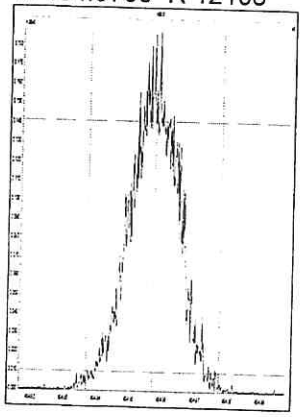
M 442.9728 R 12051



M 454.9728 R 11221



M 404.9760 R 12106



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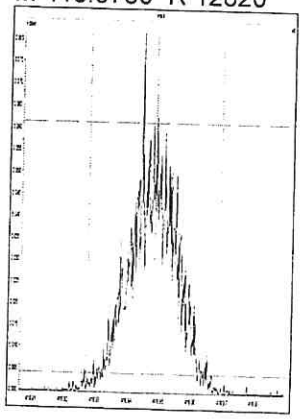

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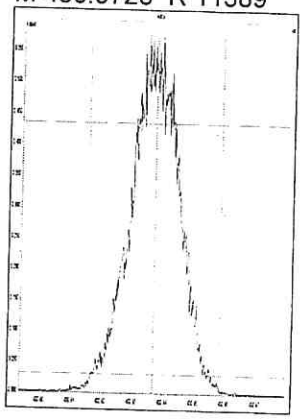

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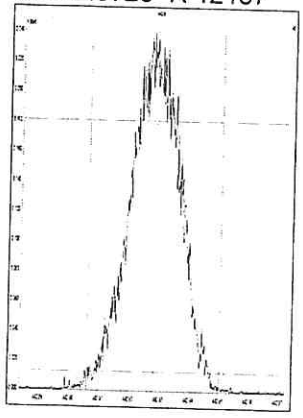

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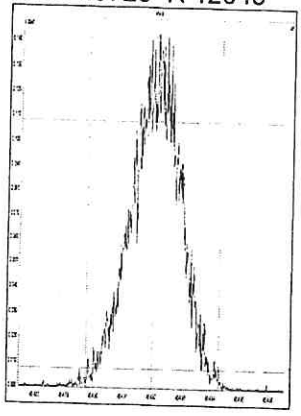

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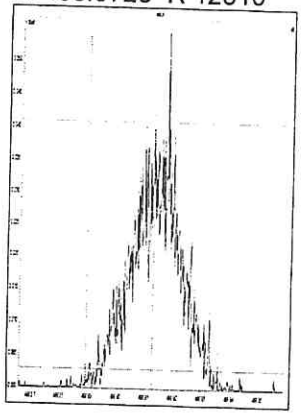

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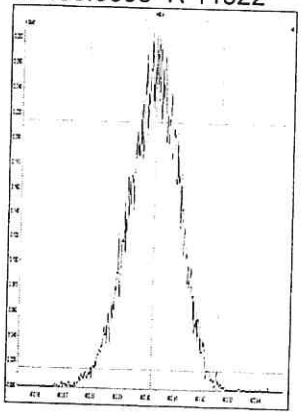
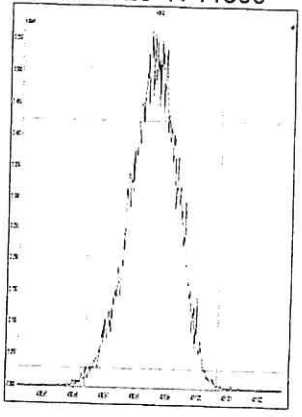


M 430.9728 R 11600



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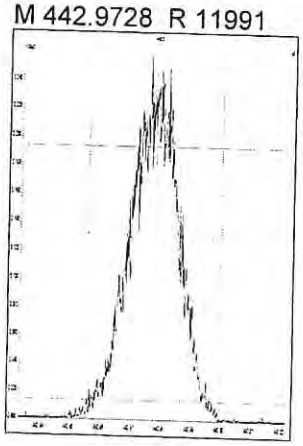

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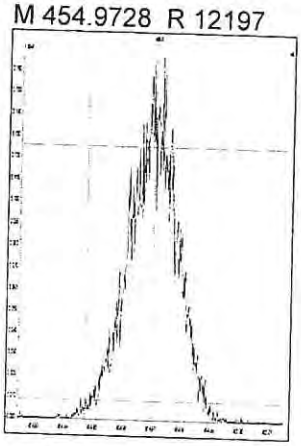

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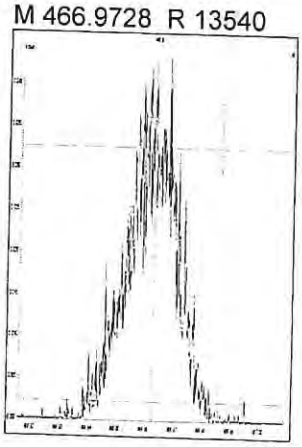

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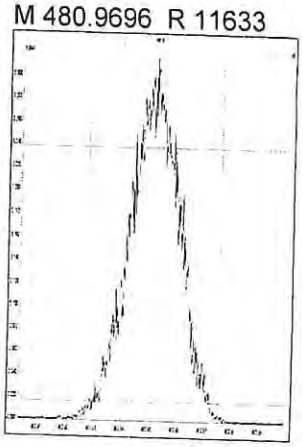
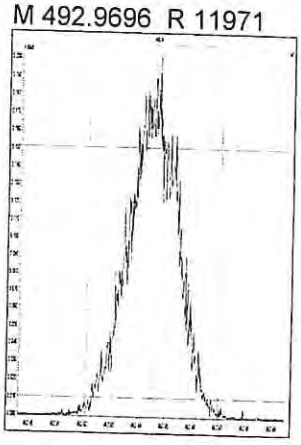


M 492.9696 R 11971



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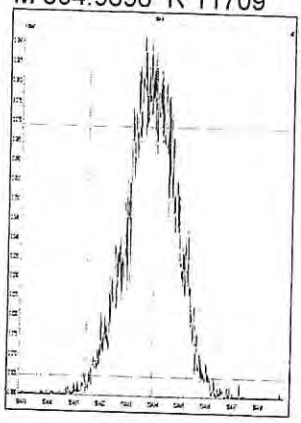
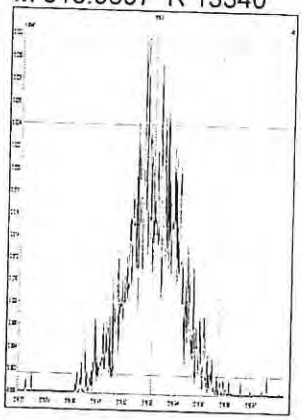


M 516.9697 R 13340



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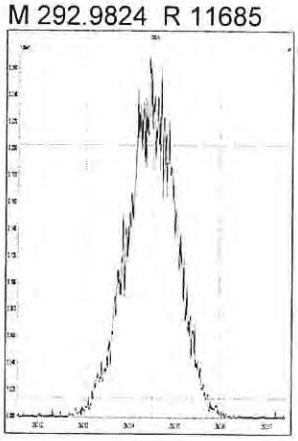

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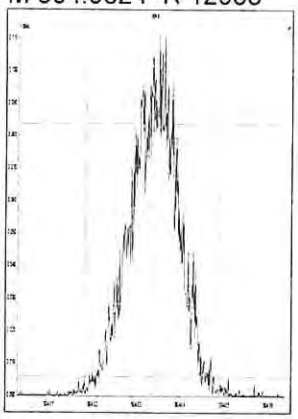

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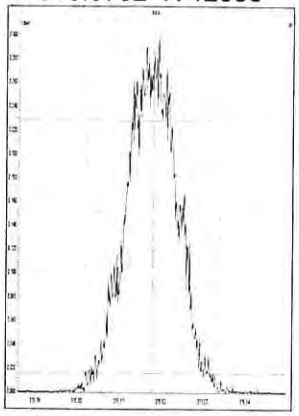

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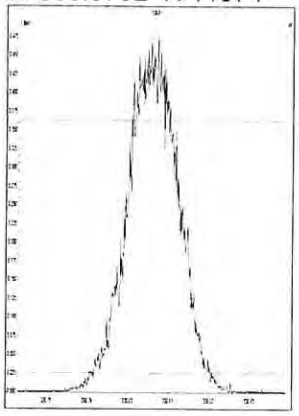

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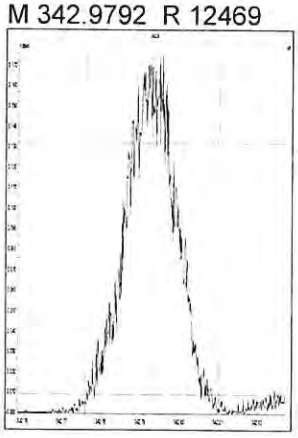

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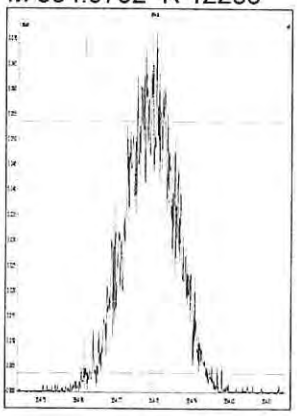

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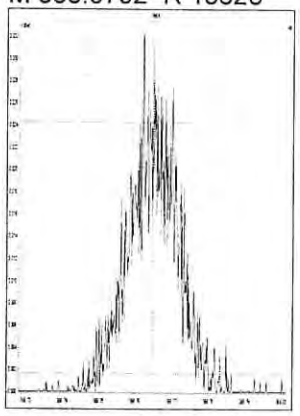

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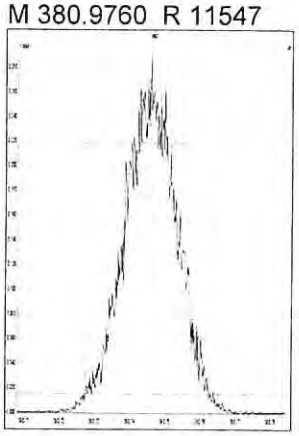

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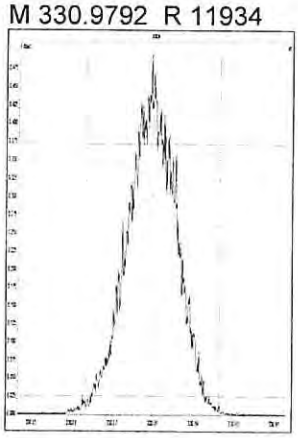

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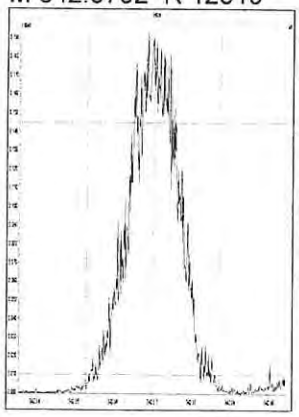

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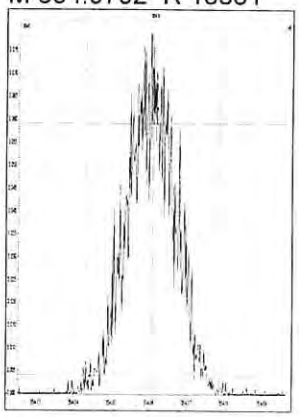

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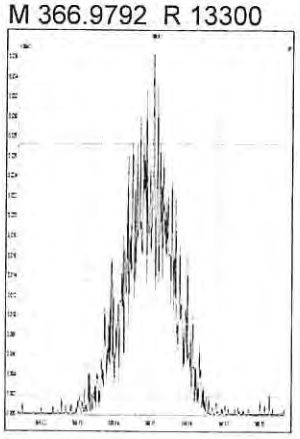

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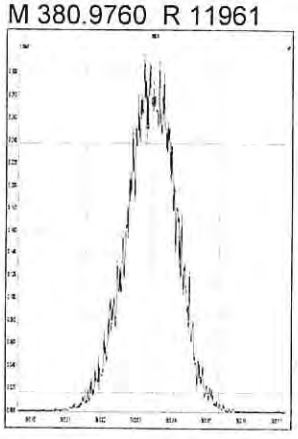

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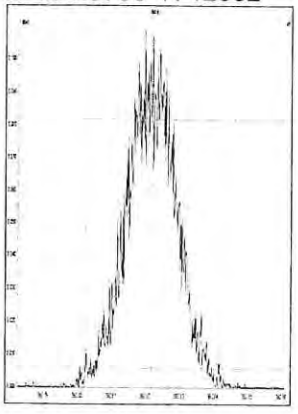

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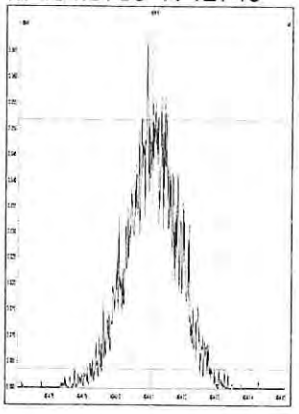

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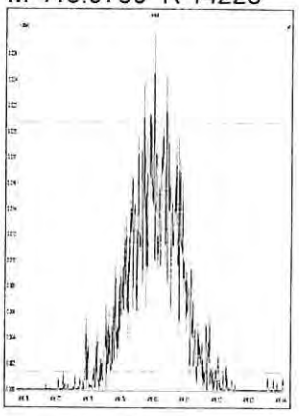
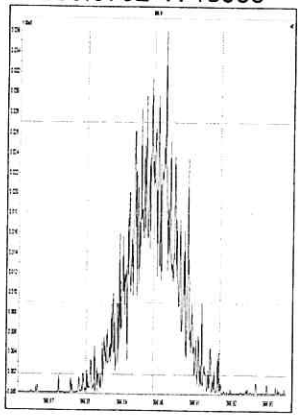


M 366.9792 R 13585



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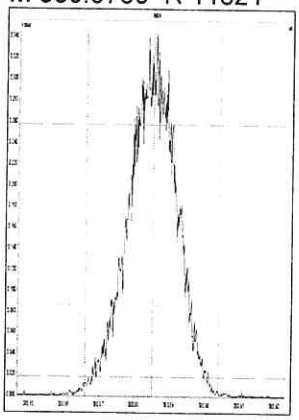

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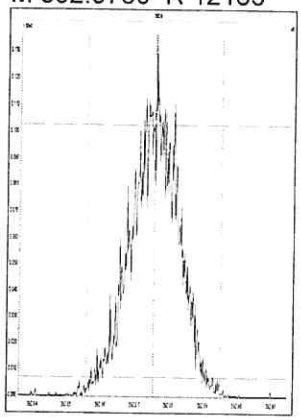

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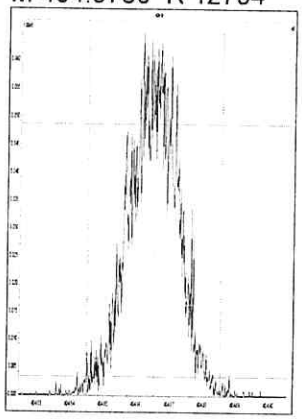

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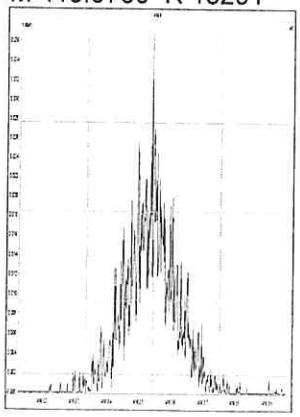
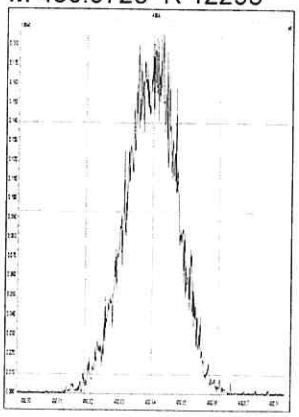


M 430.9728 R 12293



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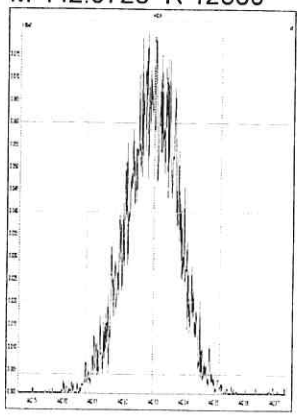

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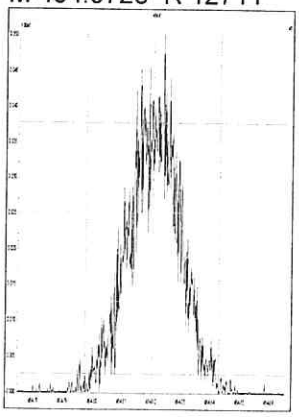

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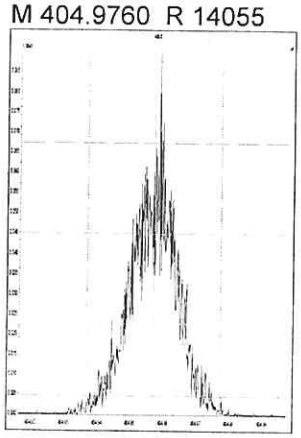

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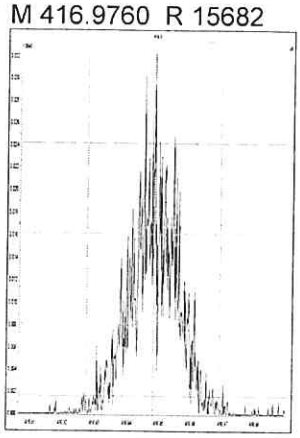

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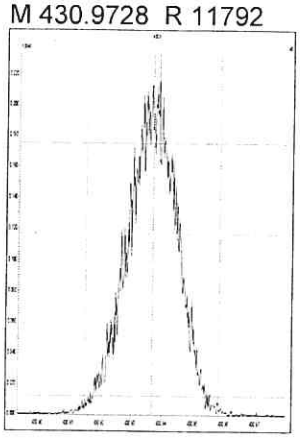

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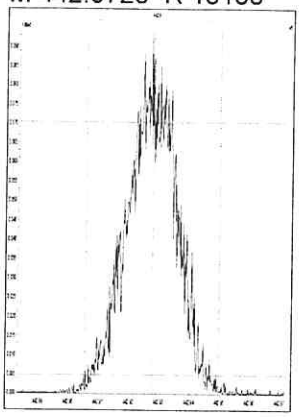

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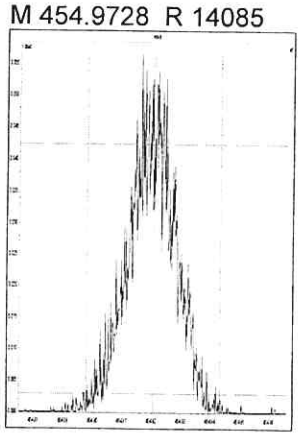
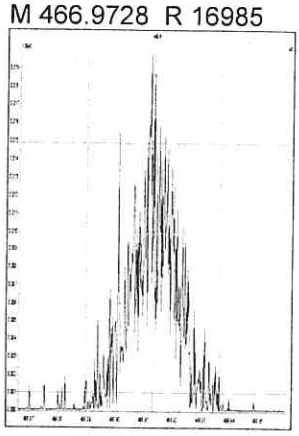
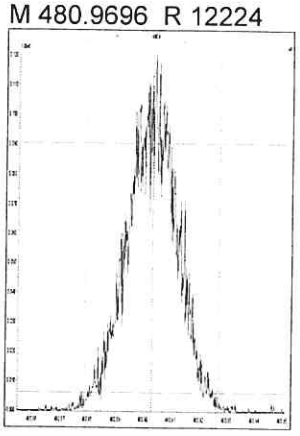


M 466.9728 R 16985



M 480.9696 R 12224



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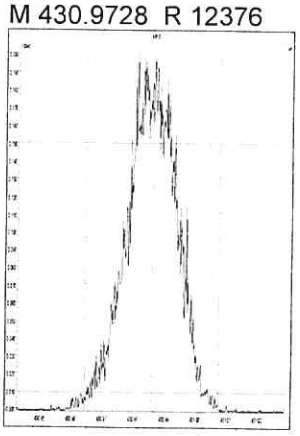
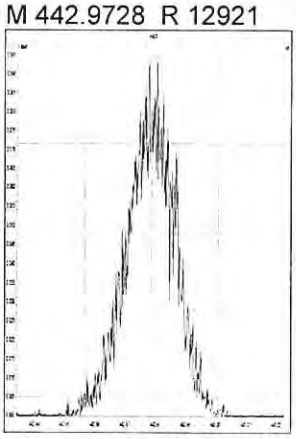


M 442.9728 R 12921



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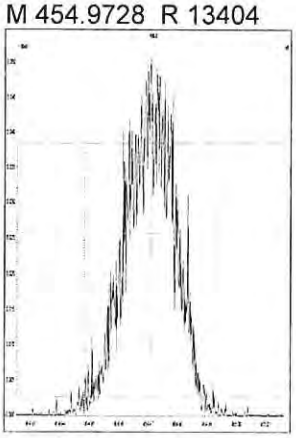

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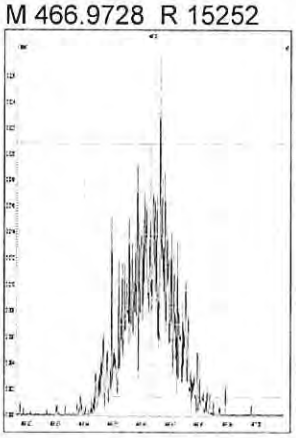

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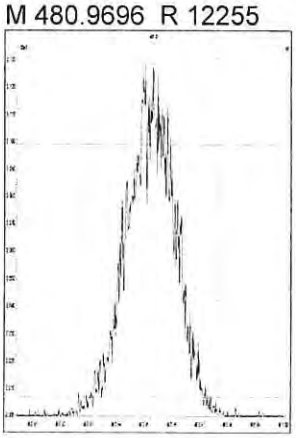

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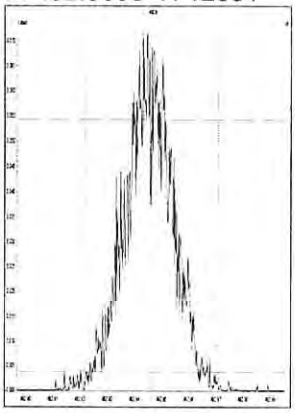

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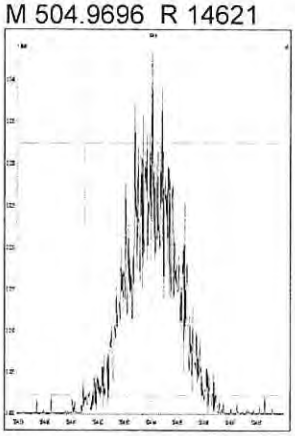
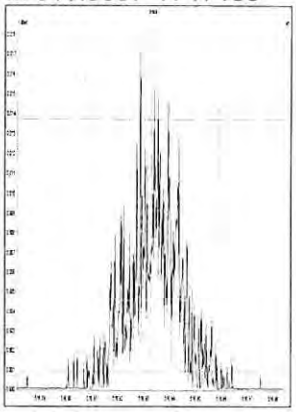


M 516.9697 R 17130



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

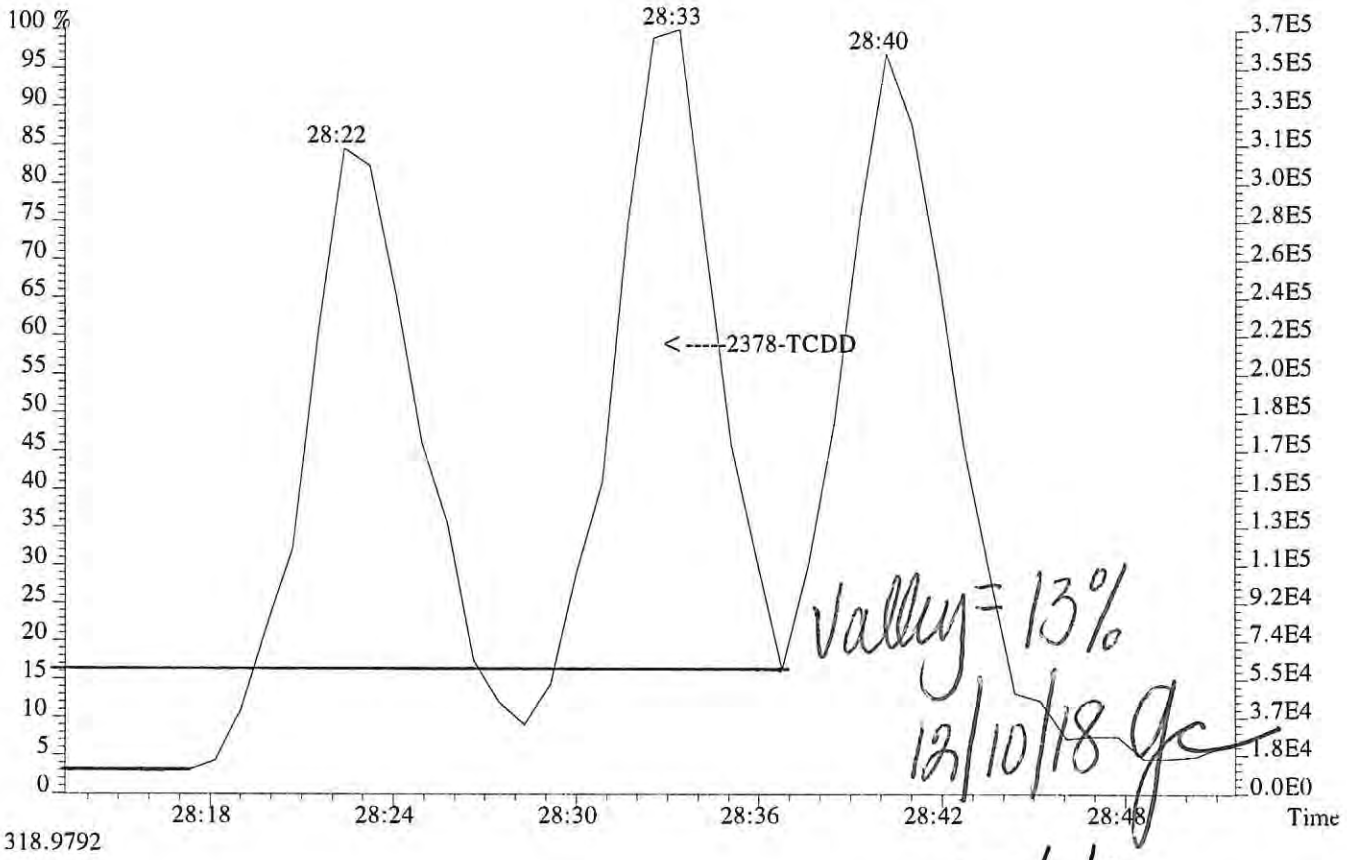
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P519288
Date Analyzed: 7-DEC-2018
Time Analyzed: 19:56:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:17	29:44
TCDD	25:06	29:34
PeCDF	29:42	34:03
PeCDD	31:17	33:48
HxCDF	34:44	37:19
HxCDD	35:16	36:54
HpCDF	38:36	40:04
HpCDD	38:52	39:34

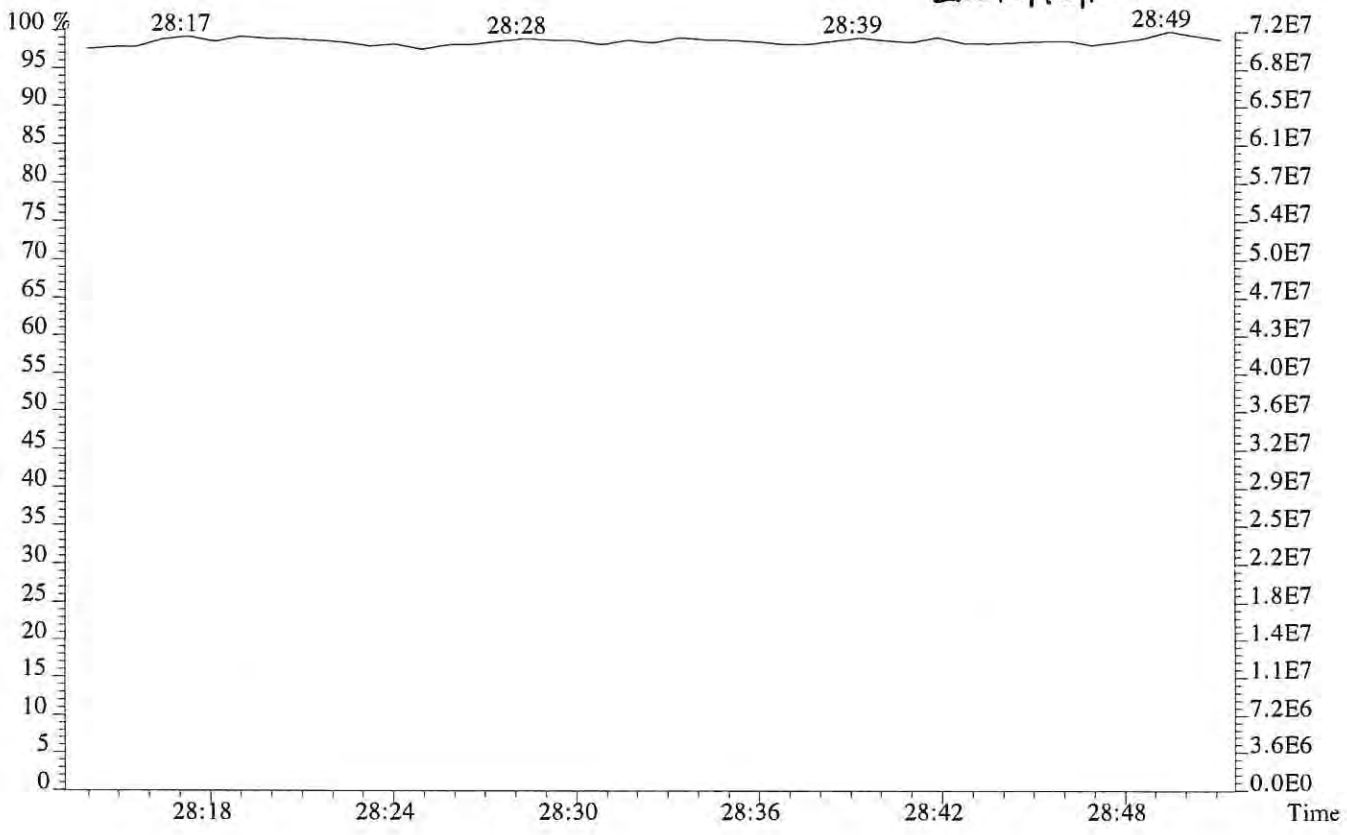
% Valley 2378-TCDD: 13 %

File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LIK 12/10/18



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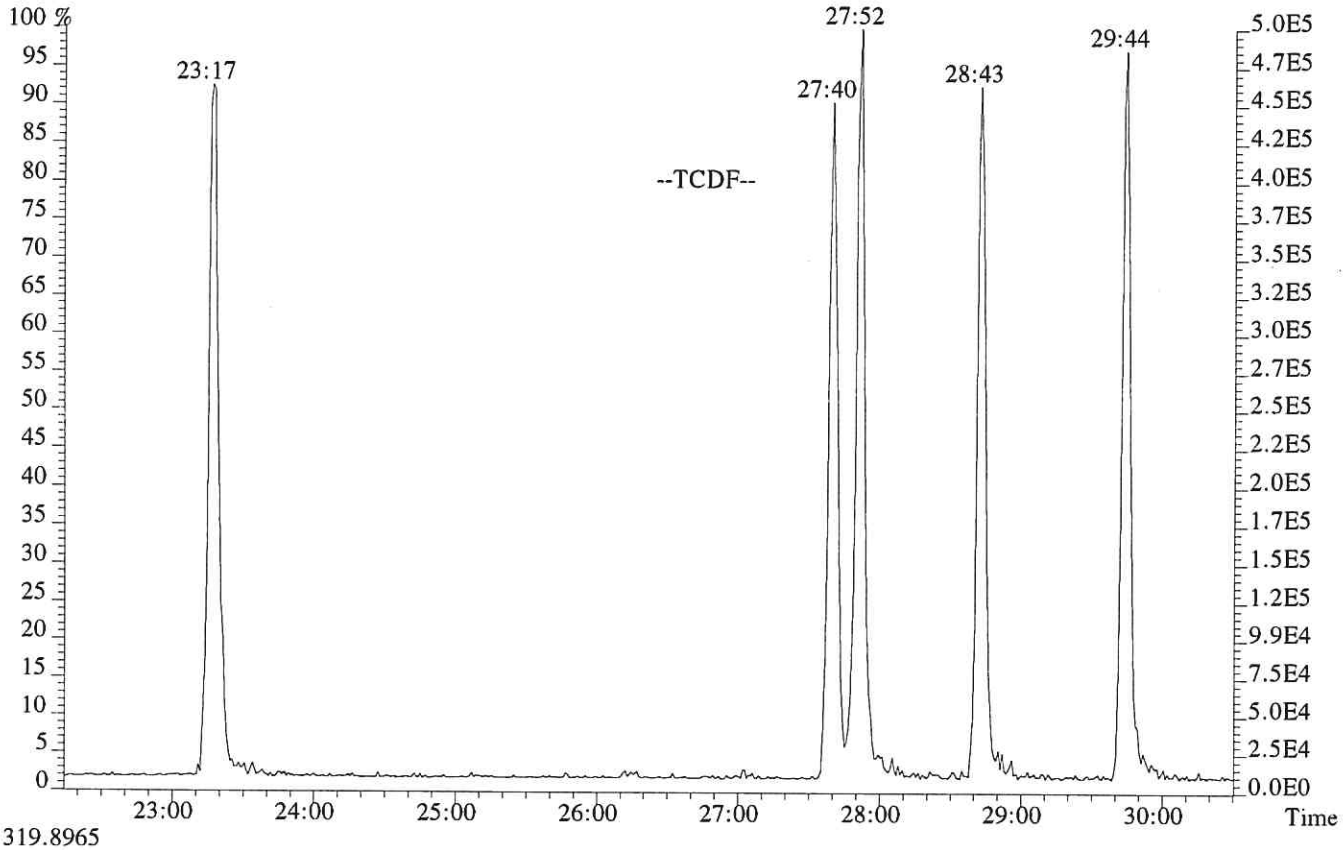
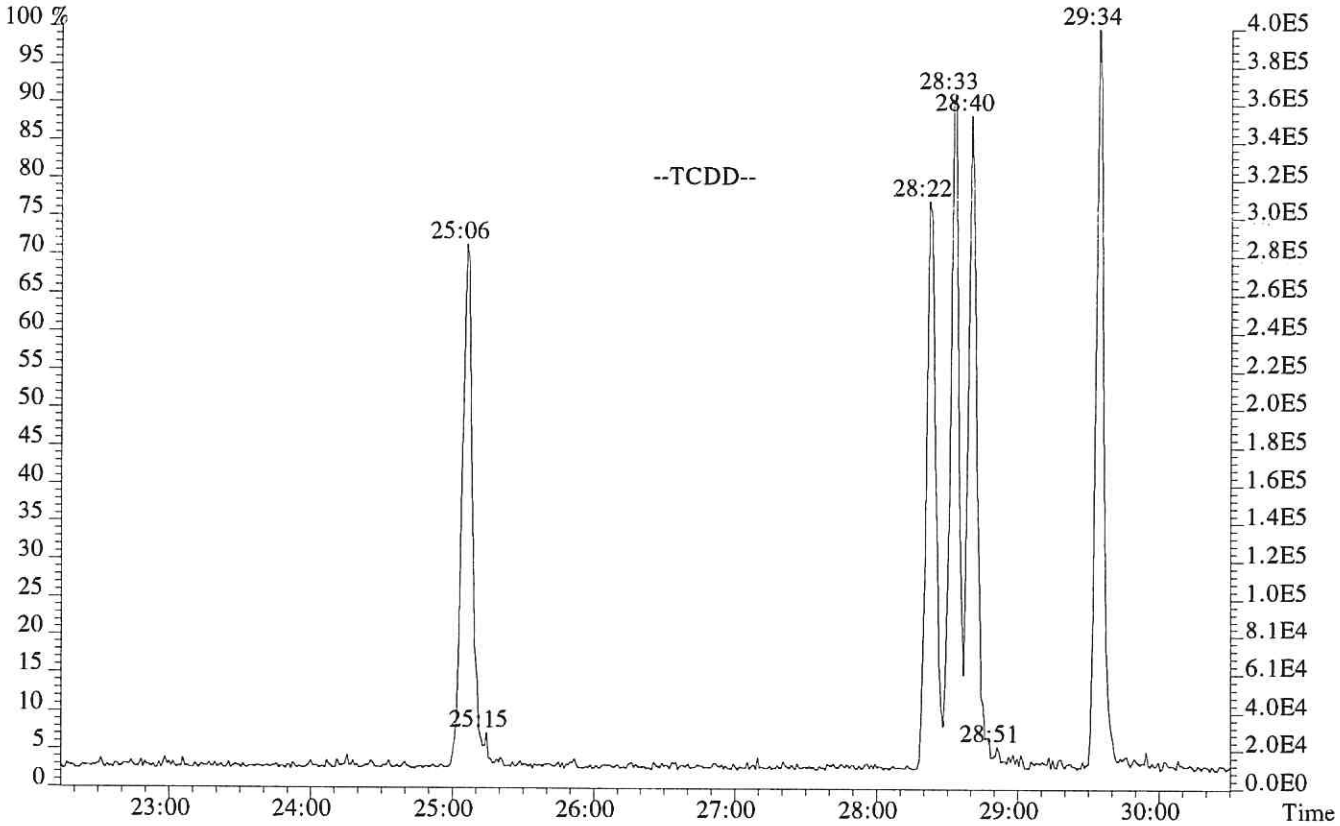
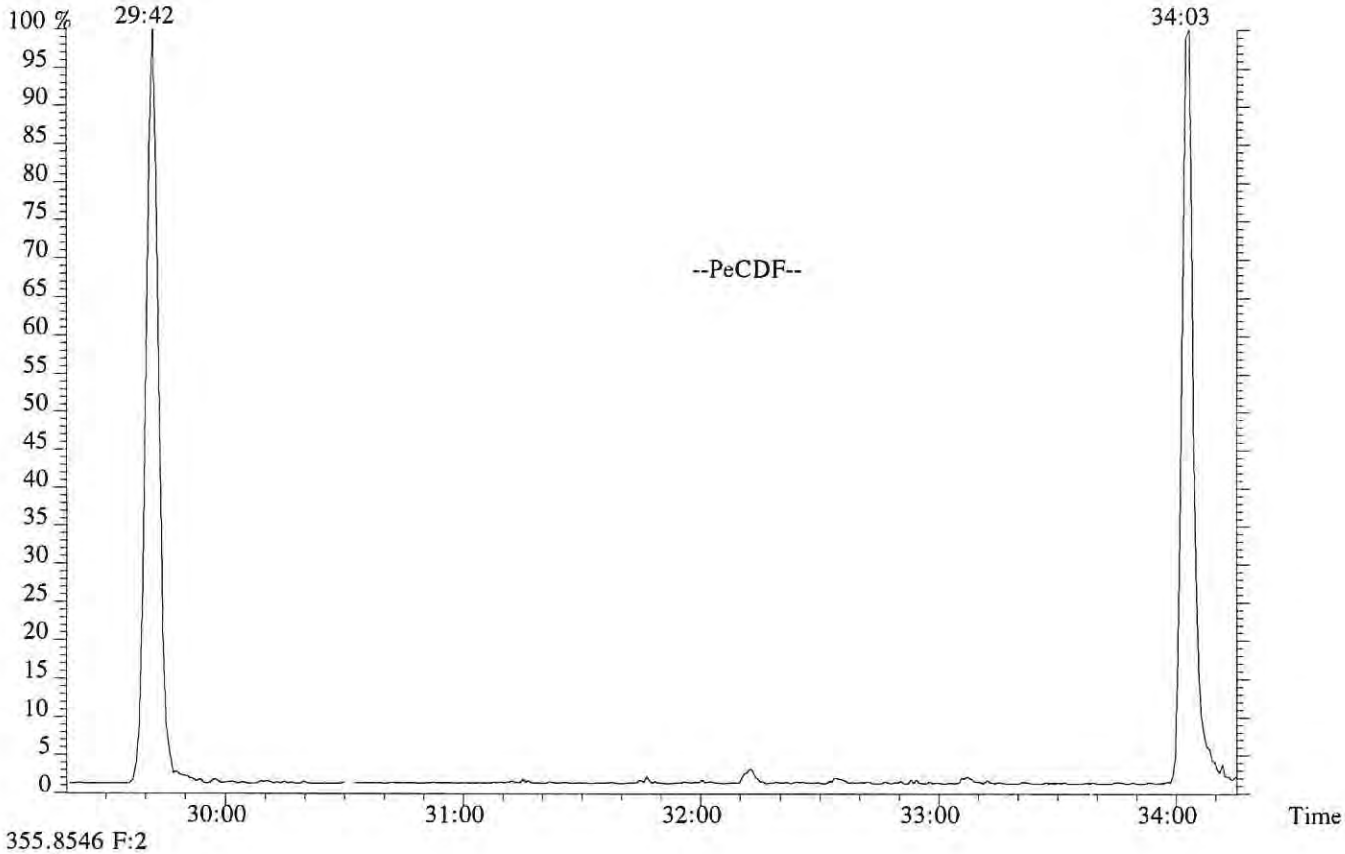
303.9016



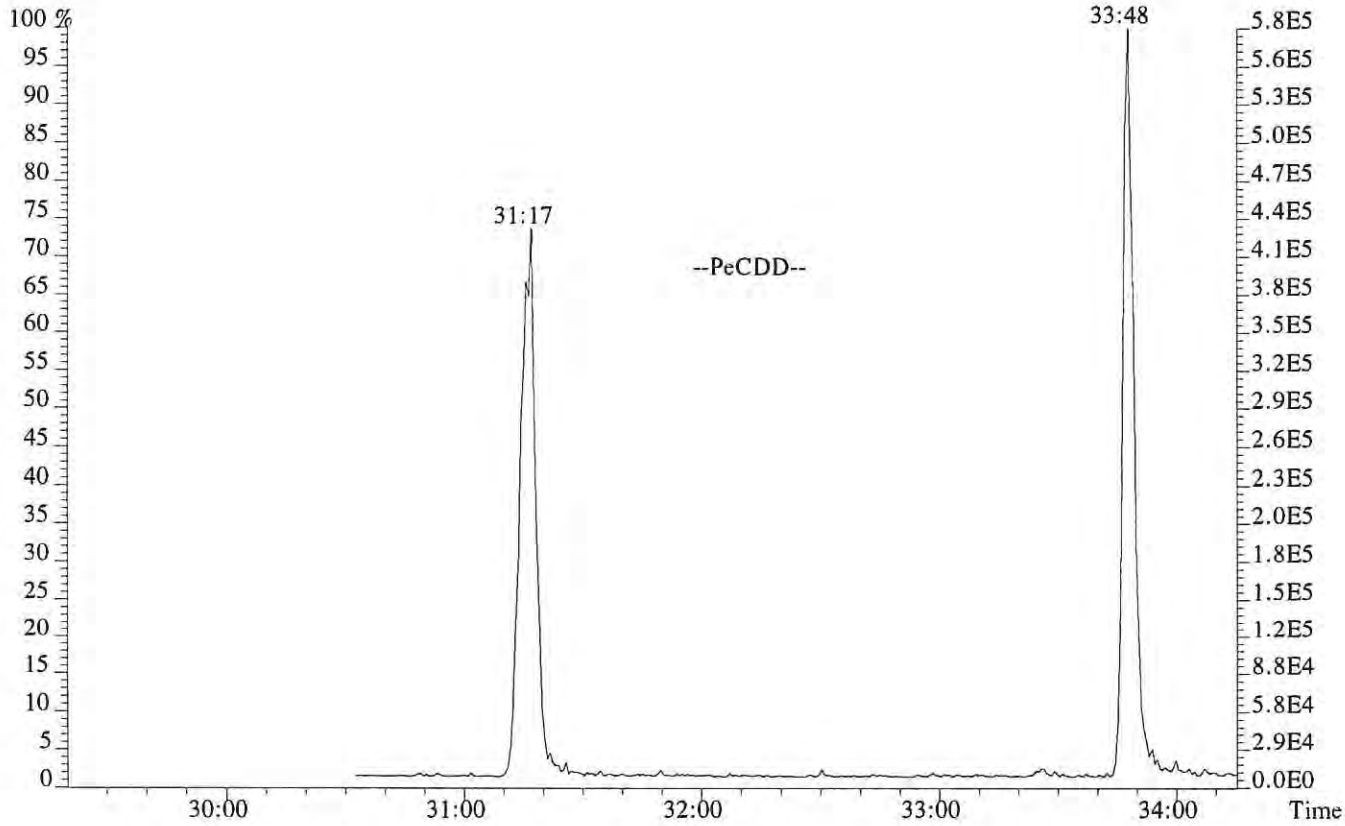
319.8965



File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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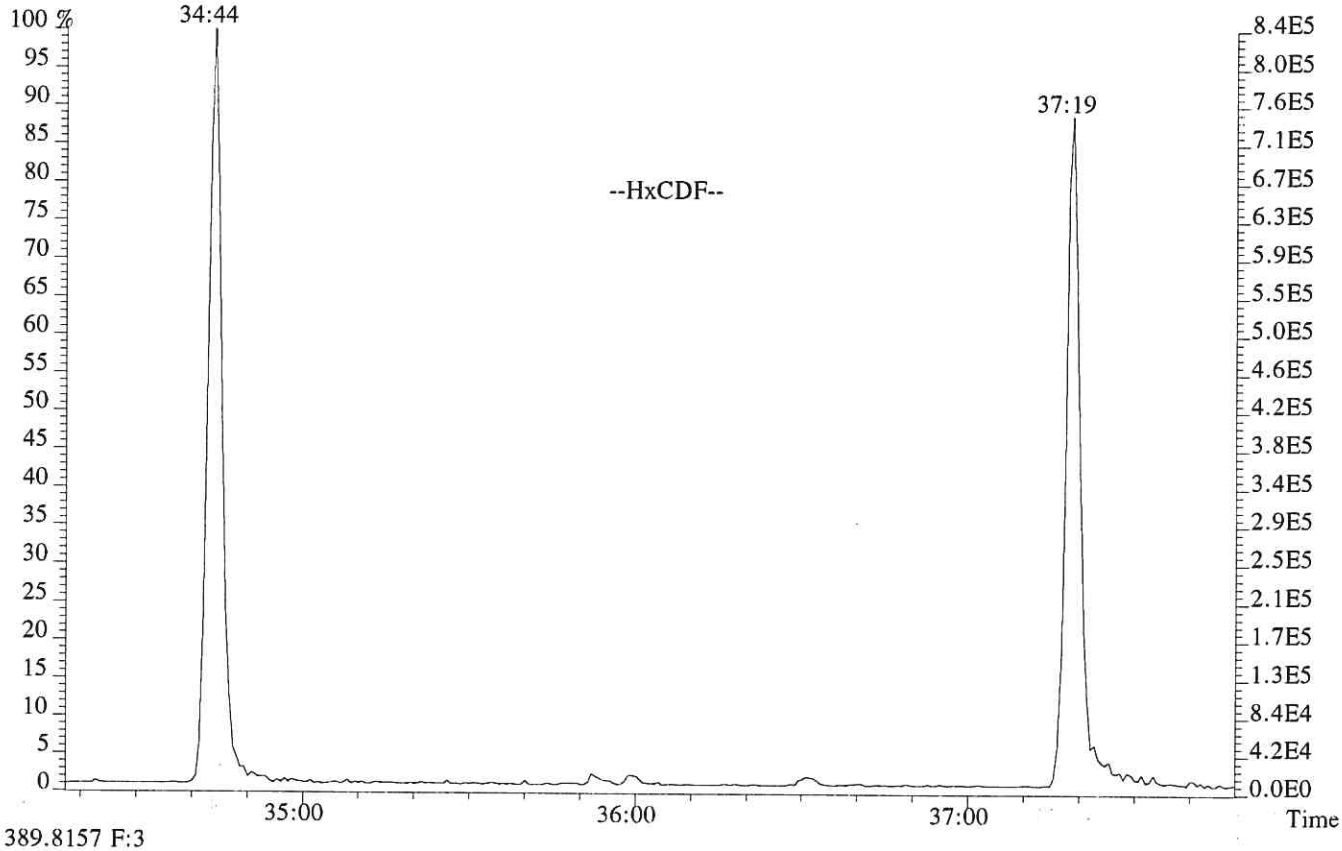
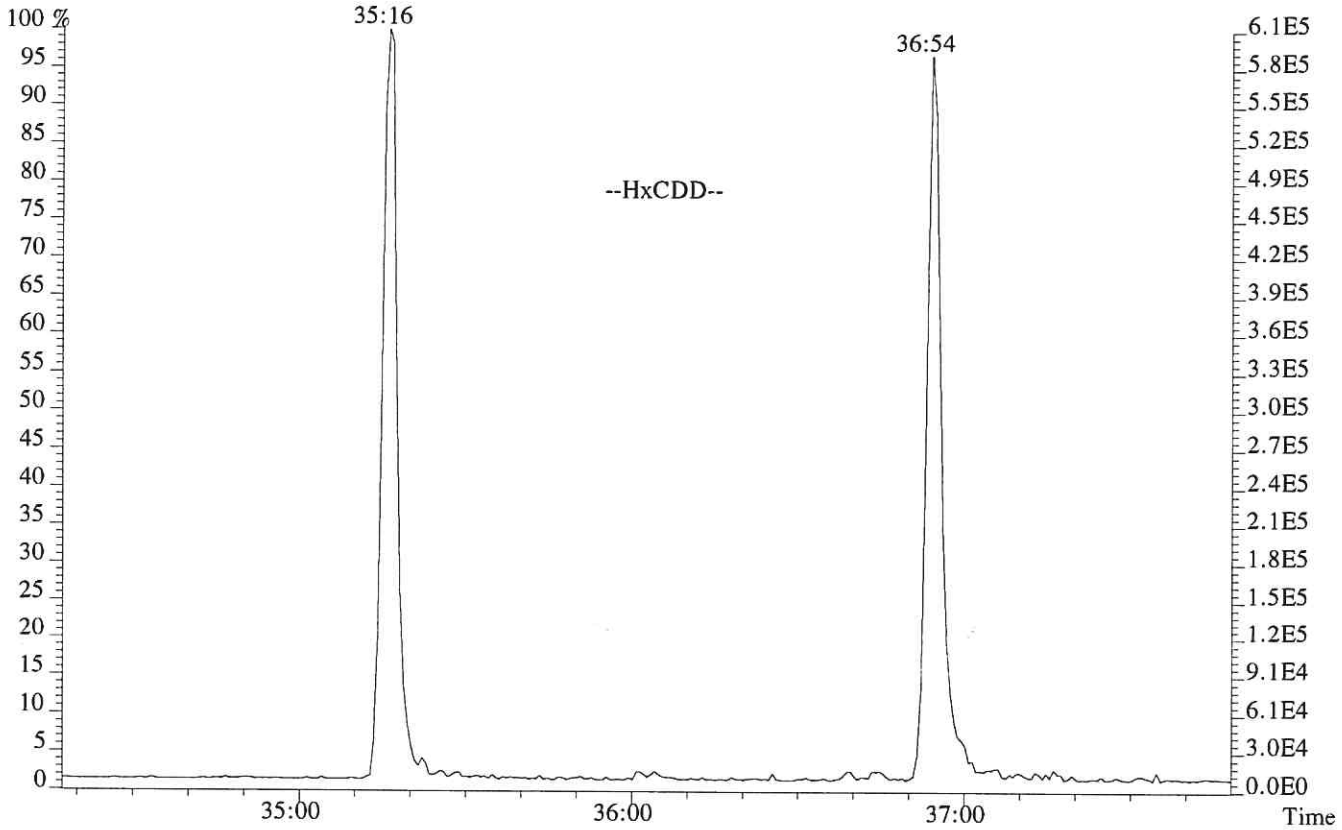
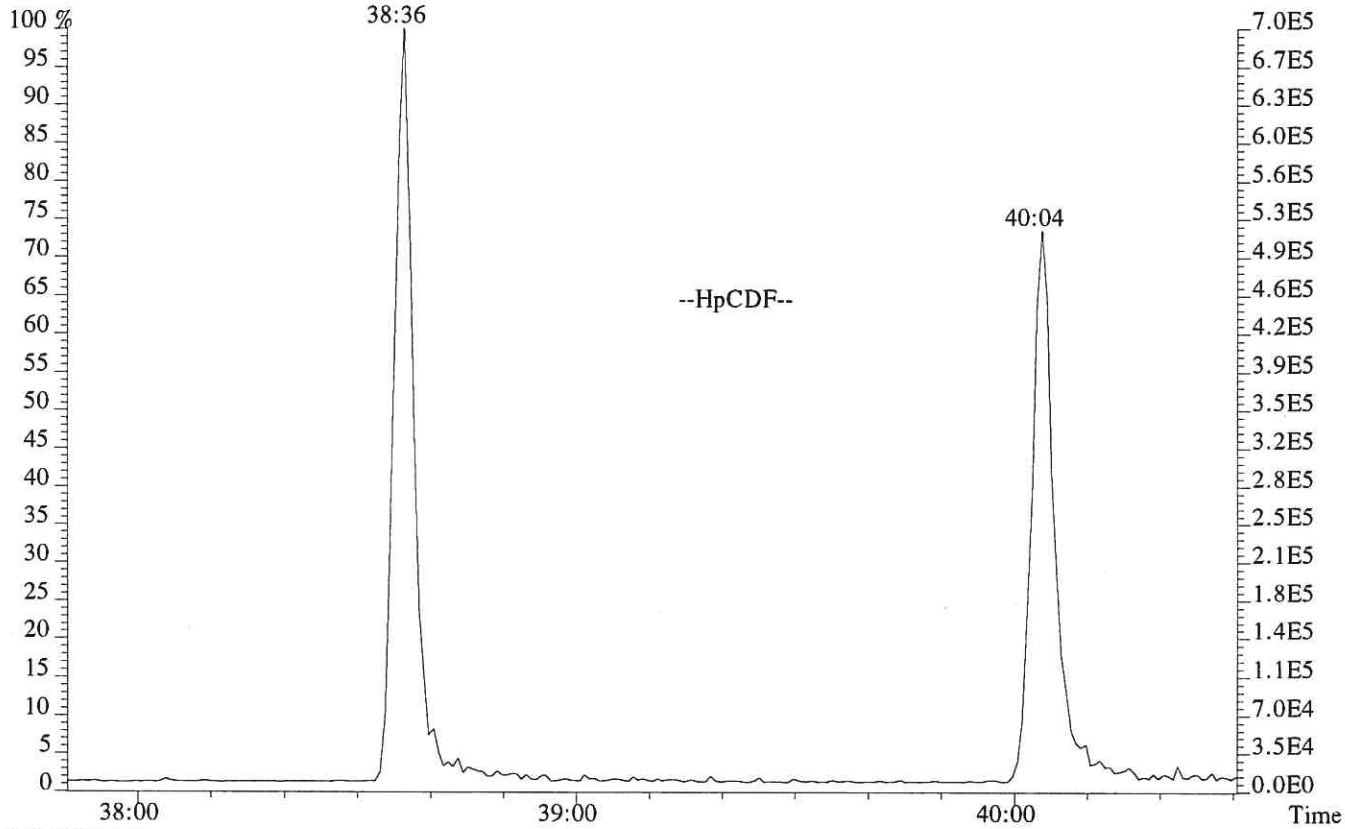
Sample#1 Exp:192977
373.8208 F:3



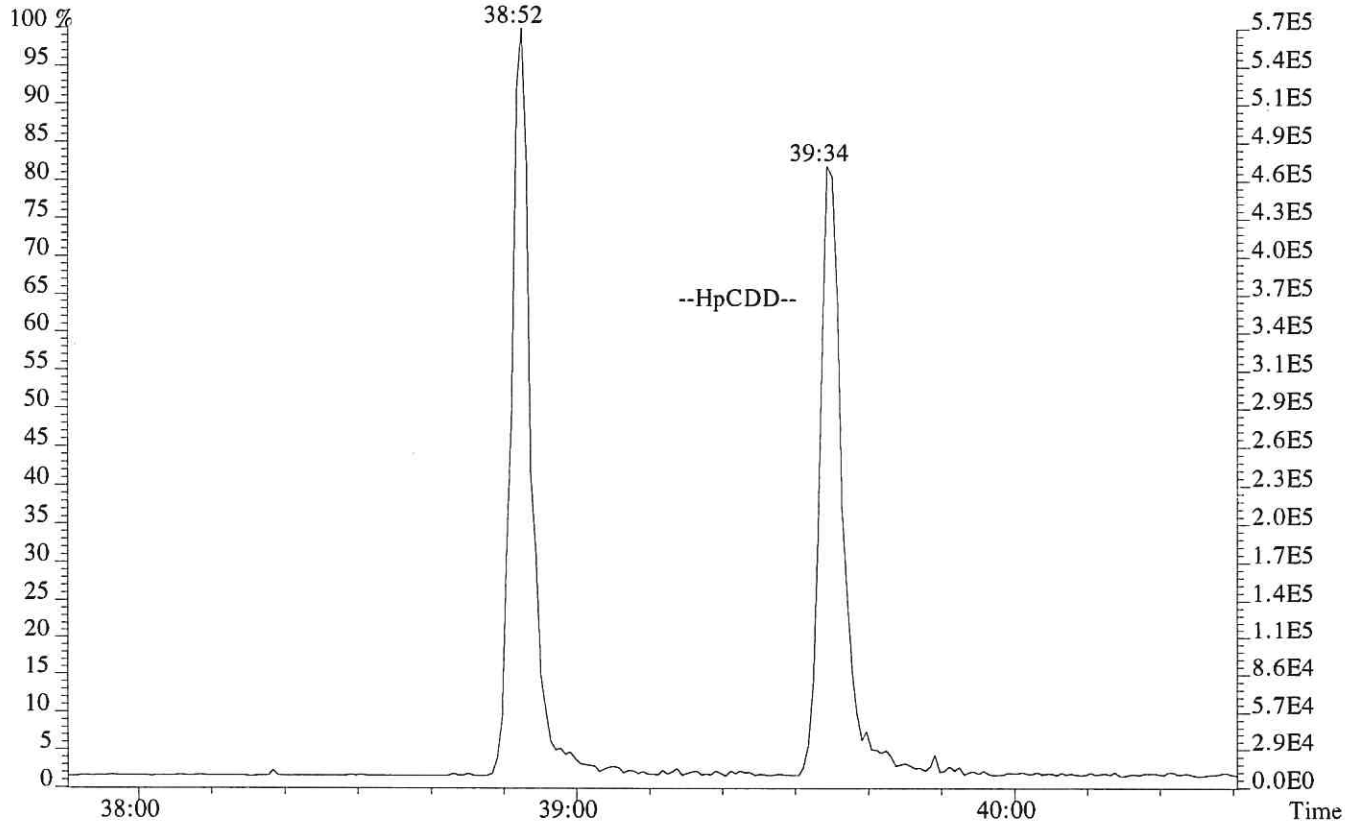
389.8157 F:3



File:P519288 #1-241 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	52	39 - 65	3.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	51	39 - 64	2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	4.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.9
OCDF	M+2/M+4	0.88	0.76-1.02	101	63 - 159	1.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	104	82 - 121	3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	117	62 - 160	16.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	94	85 - 117	-5.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	93	85 - 118	-6.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	109	72 - 138	8.6
13C-OCDD	M+2/M+4	0.89	0.76-1.02	260	96 - 415	29.8
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	115	76 - 130	15.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	116	77 - 130	15.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	111	77 - 129	11.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	1.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.651e+03	4.952e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	3.206e+04	2.107e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.080e+04	1.981e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.691e+04	2.245e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.028e+04	2.509e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.724e+04	2.254e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.554e+04	2.123e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	2.572e+04	2.571e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.196e+04	2.194e+04	1.00	yes	no	1.258
0	Unk	OCDF	42:45	3.662e+04	4.163e+04	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:41	2.761e+03	3.479e+03	0.79	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:24	2.121e+04	1.333e+04	1.59	yes	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	36:39	1.971e+04	1.514e+04	1.30	yes	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:44	2.027e+04	1.584e+04	1.28	yes	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:59	2.150e+04	1.714e+04	1.25	yes	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.894e+04	1.774e+04	1.07	yes	no	1.025
7	Unk	OCDD	42:33	3.068e+04	3.415e+04	0.90	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:50	4.040e+04	5.052e+04	0.80	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:10	6.382e+04	4.020e+04	1.59	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:06	6.314e+04	3.999e+04	1.58	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:51	2.765e+04	5.368e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:58	3.358e+04	6.345e+04	0.53	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:29	3.020e+04	5.826e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:16	2.797e+04	5.320e+04	0.53	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	2.344e+04	5.212e+04	0.45	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	2.114e+04	4.735e+04	0.45	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:39	2.623e+04	3.259e+04	0.80	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:24	4.289e+04	2.696e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:38	3.687e+04	2.852e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.742e+04	2.911e+04	1.29	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.637e+04	3.368e+04	1.08	yes	no	0.858
2	IS	13C-OCDD	42:33	5.342e+04	6.023e+04	0.89	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	28:05	2.717e+04	3.412e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	4.200e+04	3.318e+04	1.27	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.279e+03				no	1.014

LS ENVIRONMENTAL
0450 Stancliff Rd, Suite 115
ouston, TX 77099
ffice(713)266-1599. Fax(713)266-0130

ww.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.34e+05	5.32e+02	1.2e+03	8.78e+05	1.42e+03	6.2e+02
	1,2,3,7,8-PeCDF	5.87e+06	4.76e+02	1.2e+04	3.87e+06	1.20e+03	3.2e+03
	2,3,4,7,8-PeCDF	6.08e+06	4.76e+02	1.3e+04	3.82e+06	1.20e+03	3.2e+03
	1,2,3,4,7,8-HxCDF	5.87e+06	7.00e+02	8.4e+03	4.99e+06	6.00e+02	8.3e+03
	1,2,3,6,7,8-HxCDF	6.14e+06	7.00e+02	8.8e+03	5.11e+06	6.00e+02	8.5e+03
	2,3,4,6,7,8-HxCDF	5.95e+06	7.00e+02	8.5e+03	4.93e+06	6.00e+02	8.2e+03
	1,2,3,7,8,9-HxCDF	4.77e+06	7.00e+02	6.8e+03	3.97e+06	6.00e+02	6.6e+03
	1,2,3,4,6,7,8-HpCDF	5.16e+06	2.04e+02	2.5e+04	5.11e+06	1.60e+02	3.2e+04
	1,2,3,4,7,8,9-HpCDF	3.49e+06	2.04e+02	1.7e+04	3.55e+06	1.60e+02	2.2e+04
0	OCDF	4.67e+06	2.52e+02	1.9e+04	5.34e+06	1.02e+03	5.2e+03
1	2,3,7,8-TCDD	5.32e+05	2.04e+03	2.6e+02	6.56e+05	1.17e+03	5.6e+02
2	1,2,3,7,8-PeCDD	4.13e+06	7.76e+02	5.3e+03	2.61e+06	2.92e+02	8.9e+03
3	1,2,3,4,7,8-HxCDD	4.25e+06	3.72e+02	1.1e+04	3.20e+06	6.84e+02	4.7e+03
4	1,2,3,6,7,8-HxCDD	3.99e+06	3.72e+02	1.1e+04	3.10e+06	6.84e+02	4.5e+03
5	1,2,3,7,8,9-HxCDD	4.16e+06	3.72e+02	1.1e+04	3.22e+06	6.84e+02	4.7e+03
6	1,2,3,4,6,7,8-HpCDD	3.45e+06	4.48e+02	7.7e+03	3.25e+06	4.96e+02	6.6e+03
7	OCDD	3.99e+06	2.52e+02	1.6e+04	4.42e+06	3.00e+02	1.5e+04
8	13C-2,3,7,8-TCDF	7.22e+06	6.64e+03	1.1e+03	9.07e+06	6.70e+03	1.4e+03
9	13C-1,2,3,7,8-PeCDF	1.17e+07	8.12e+02	1.4e+04	7.35e+06	5.40e+02	1.4e+04
0	13C-2,3,4,7,8-PeCDF	1.23e+07	8.12e+02	1.5e+04	7.92e+06	5.40e+02	1.5e+04
1	13C-1,2,3,4,7,8-HxCDF	6.00e+06	9.16e+02	6.6e+03	1.18e+07	8.96e+02	1.3e+04
2	13C-1,2,3,6,7,8-HxCDF	6.90e+06	9.16e+02	7.5e+03	1.30e+07	8.96e+02	1.5e+04
3	13C-2,3,4,6,7,8-HxCDF	6.46e+06	9.16e+02	7.1e+03	1.24e+07	8.96e+02	1.4e+04
4	13C-1,2,3,7,8,9-HxCDF	5.21e+06	9.16e+02	5.7e+03	9.73e+06	8.96e+02	1.1e+04
5	13C-1,2,3,4,6,7,8-HpCDF	4.61e+06	2.22e+03	2.1e+03	1.02e+07	1.12e+03	9.2e+03
6	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	2.22e+03	1.5e+03	7.57e+06	1.12e+03	6.8e+03
7	13C-2,3,7,8-TCDD	4.99e+06	4.20e+03	1.2e+03	6.26e+06	1.75e+03	3.6e+03
8	13C-1,2,3,7,8-PeCDD	8.63e+06	1.40e+03	6.2e+03	5.45e+06	1.18e+03	4.6e+03
9	13C-1,2,3,4,7,8-HxCDD	7.82e+06	7.08e+02	1.1e+04	5.99e+06	7.16e+02	8.4e+03
0	13C-1,2,3,6,7,8-HxCDD	7.35e+06	7.08e+02	1.0e+04	5.72e+06	7.16e+02	8.0e+03
1	13C-1,2,3,4,6,7,8-HpCDD	6.49e+06	6.00e+02	1.1e+04	6.06e+06	5.16e+02	1.2e+04
2	13C-OCDD	6.87e+06	4.92e+02	1.4e+04	7.75e+06	2.76e+02	2.8e+04
3	13C-1,2,3,4-TCDD	5.19e+06	4.20e+03	1.2e+03	6.52e+06	1.75e+03	3.7e+03
4	13C-1,2,3,7,8,9-HxCDD	7.95e+06	7.08e+02	1.1e+04	6.19e+06	7.16e+02	8.6e+03
5	37Cl-2,3,7,8-TCDD	1.17e+06	1.10e+03	1.1e+03			

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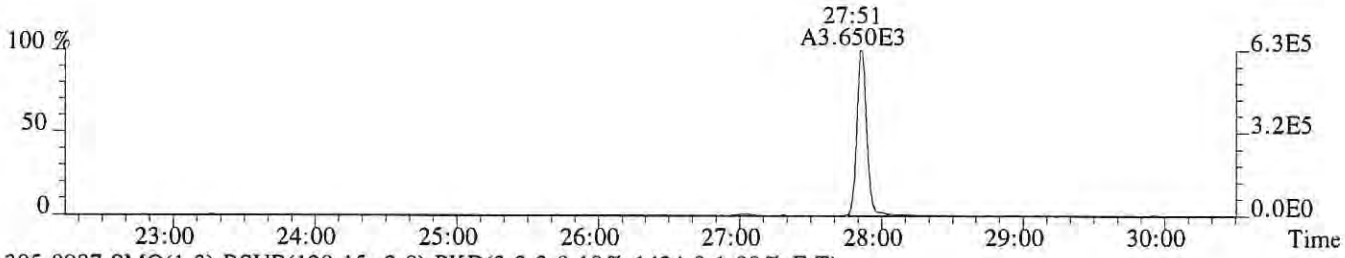
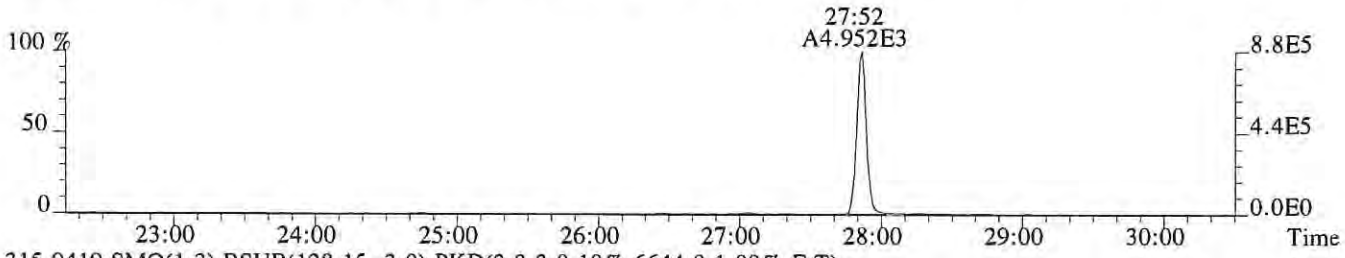
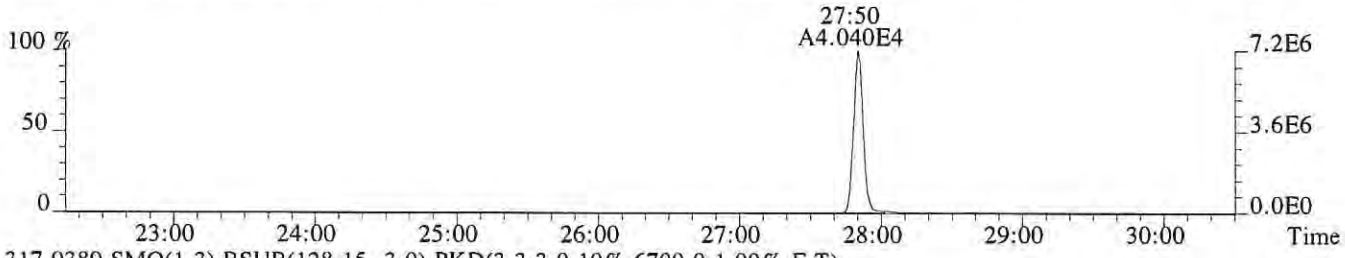
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



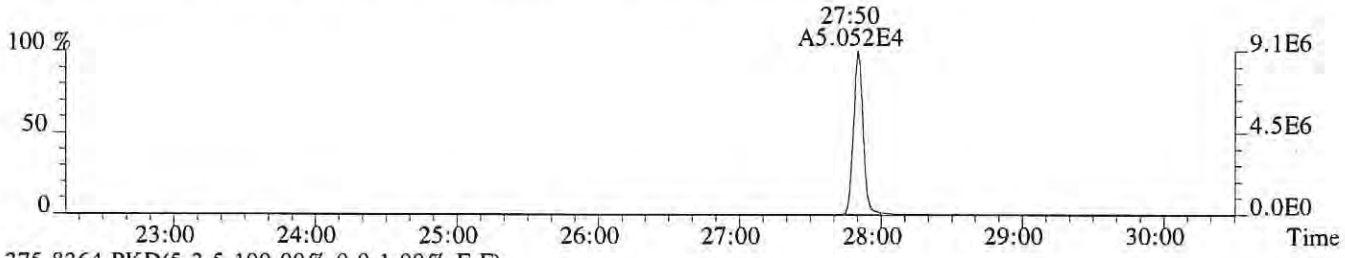
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



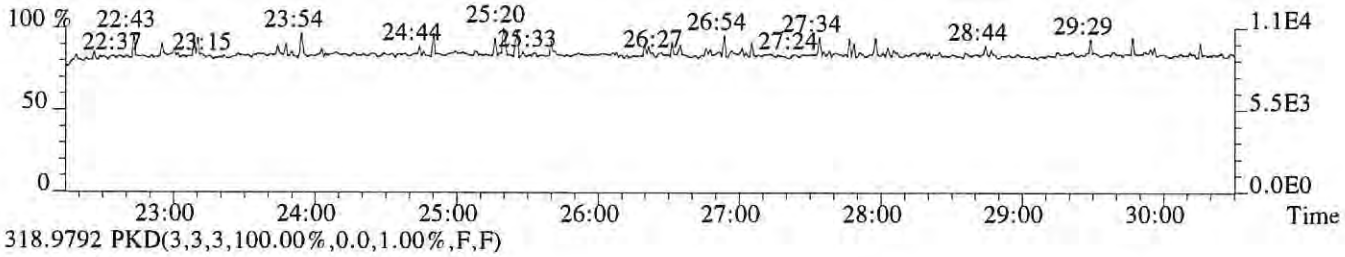
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



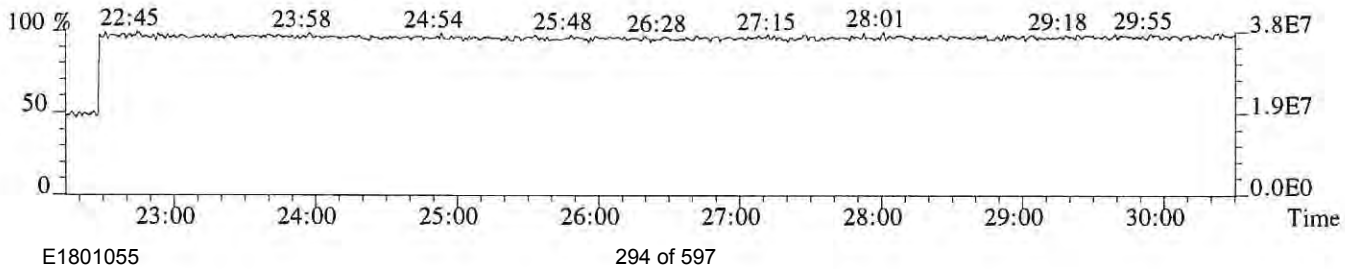
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6700.0,1.00%,F,T)



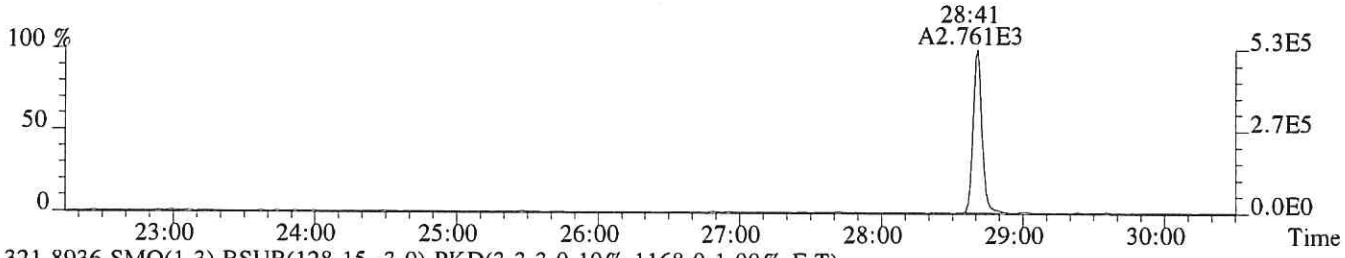
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



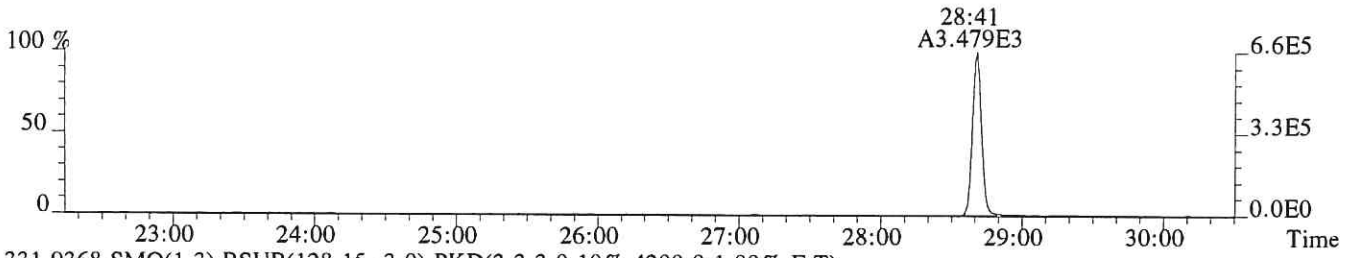
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



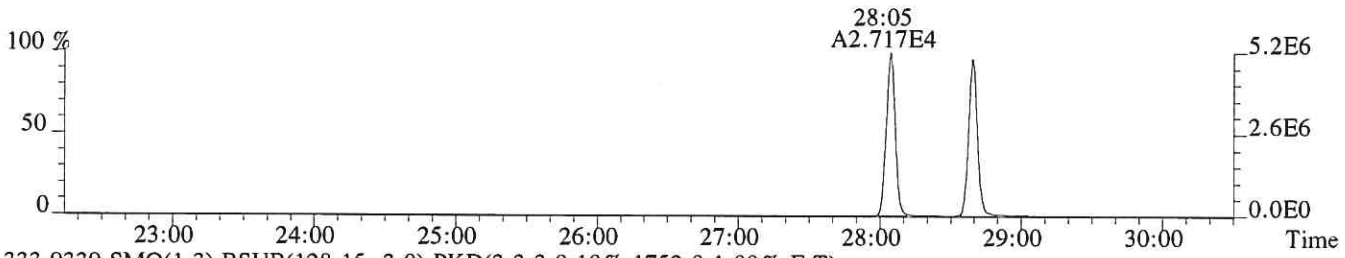
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



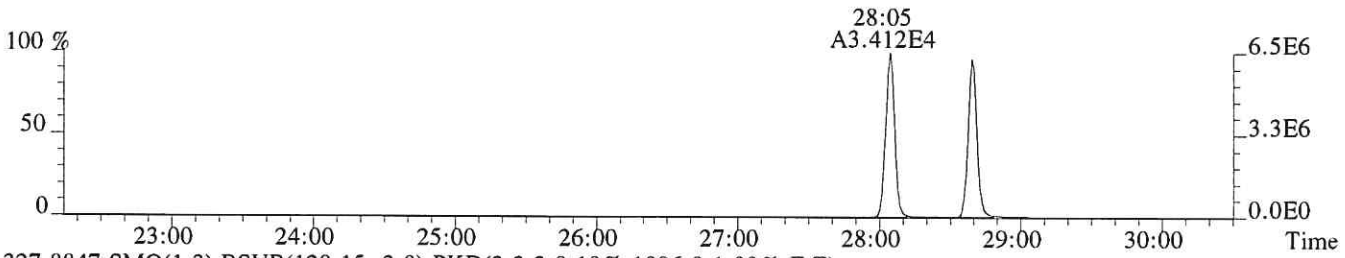
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



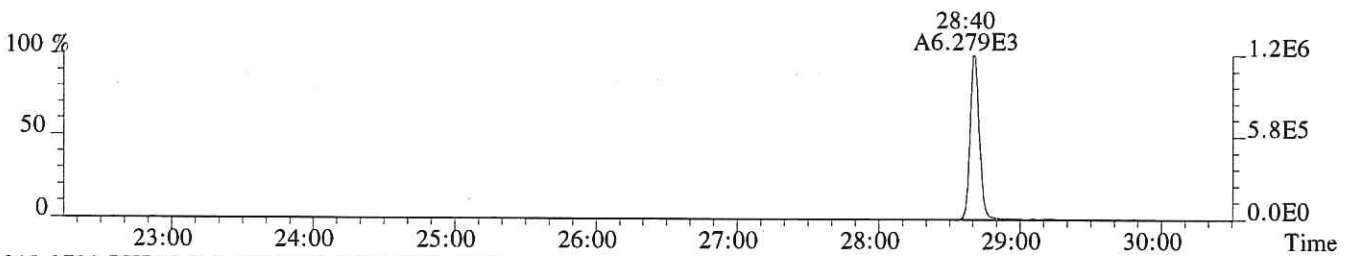
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4200.0,1.00%,F,T)



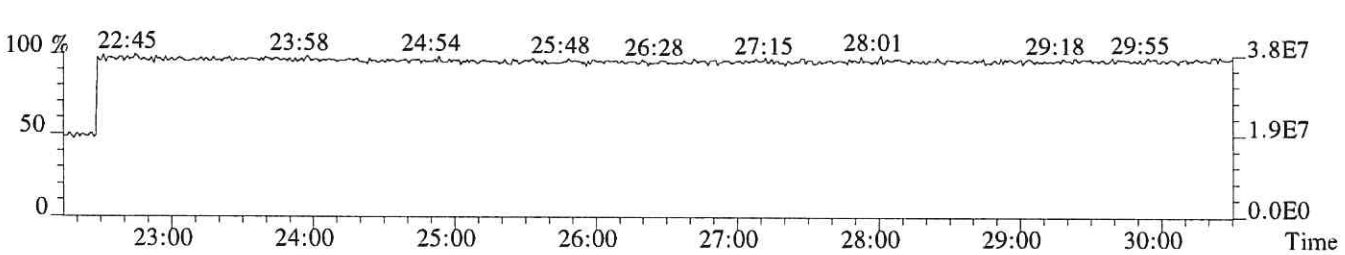
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



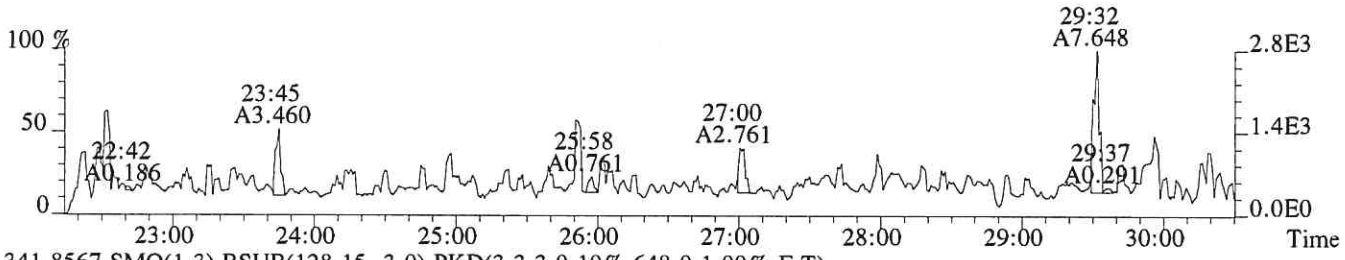
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



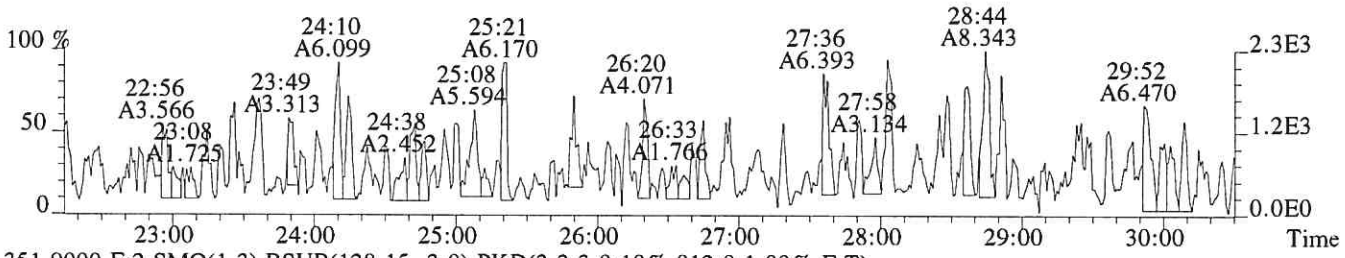
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



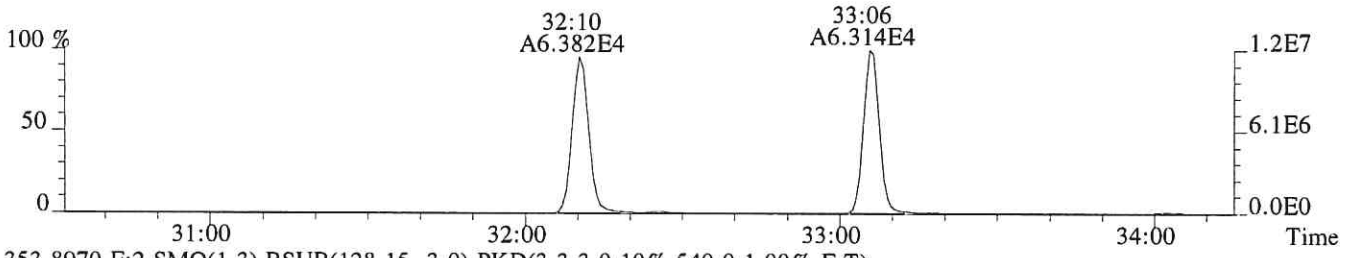
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



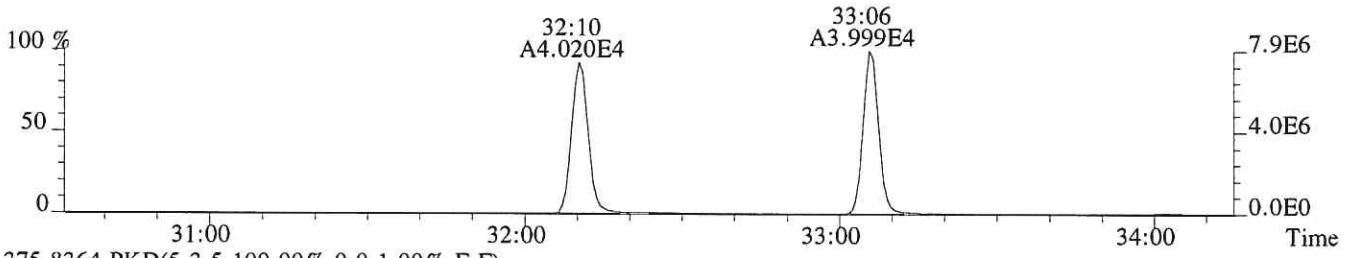
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



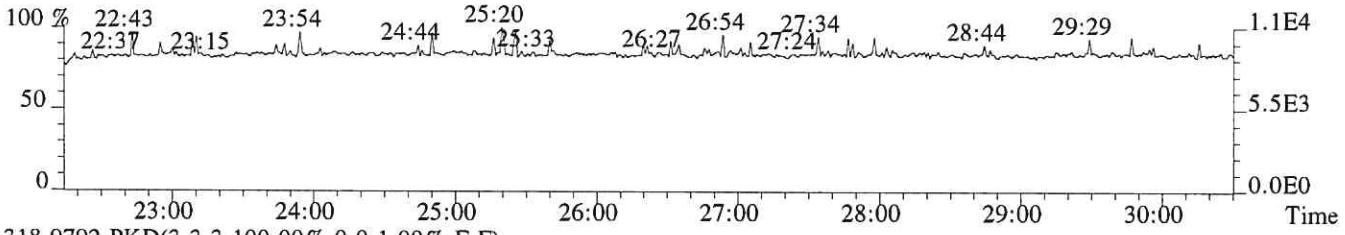
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



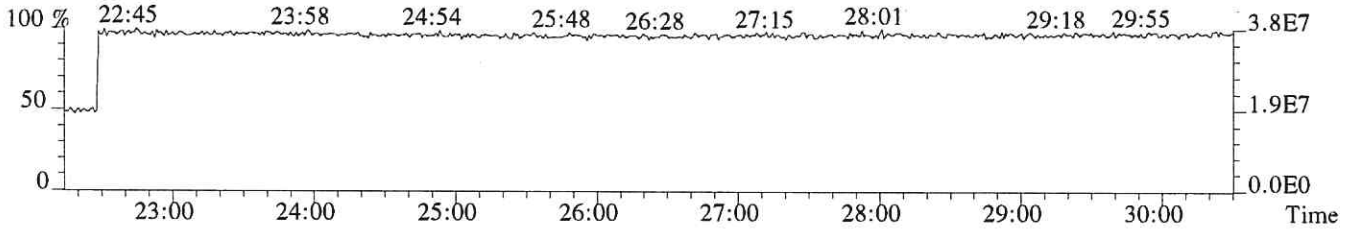
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



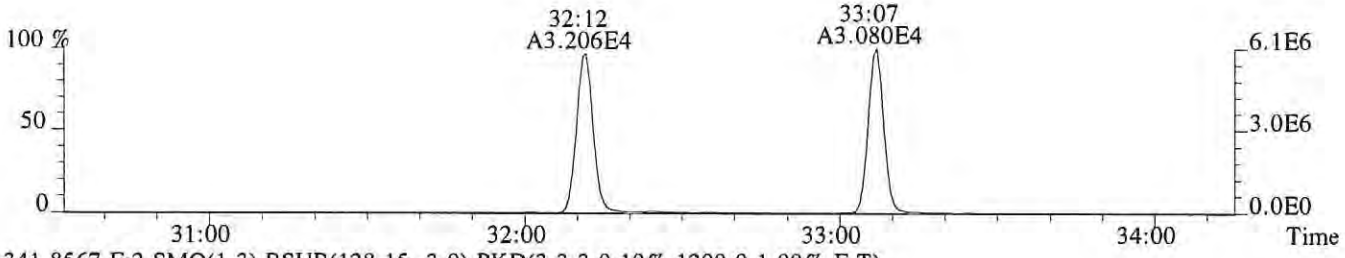
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



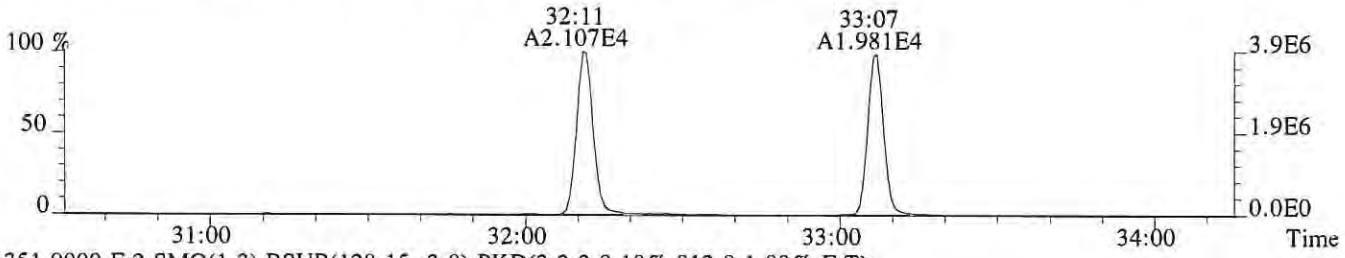
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



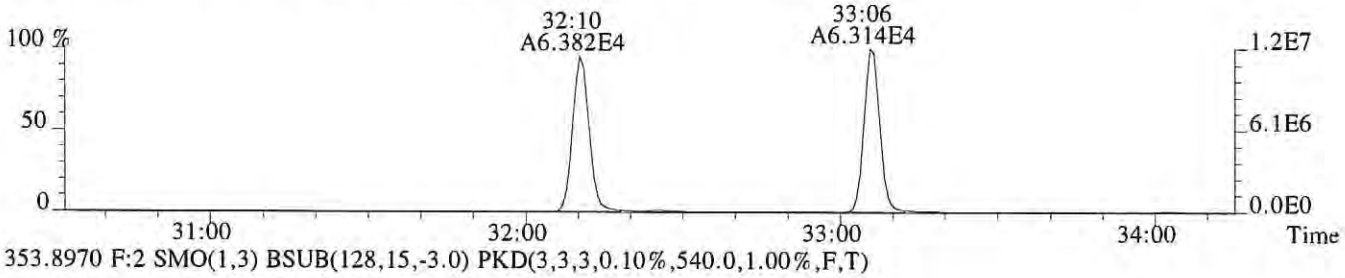
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



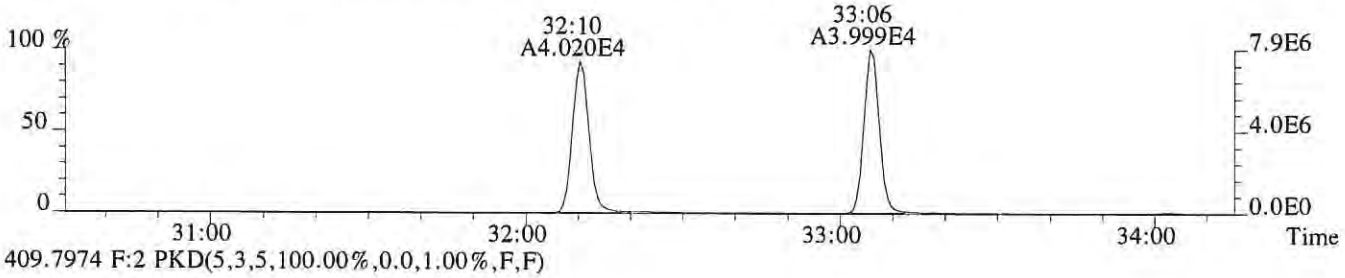
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



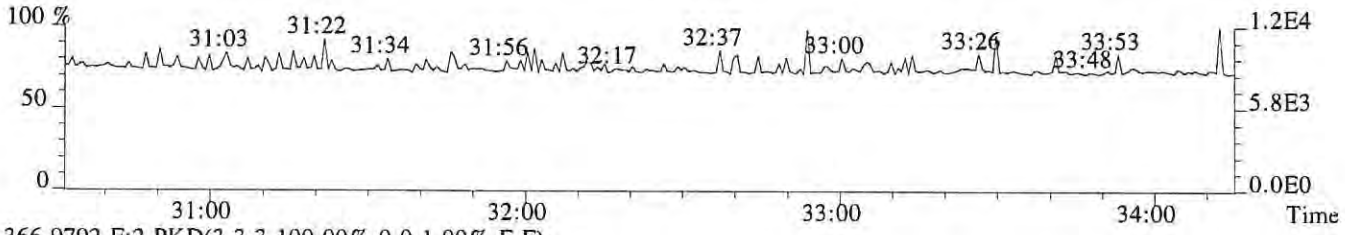
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



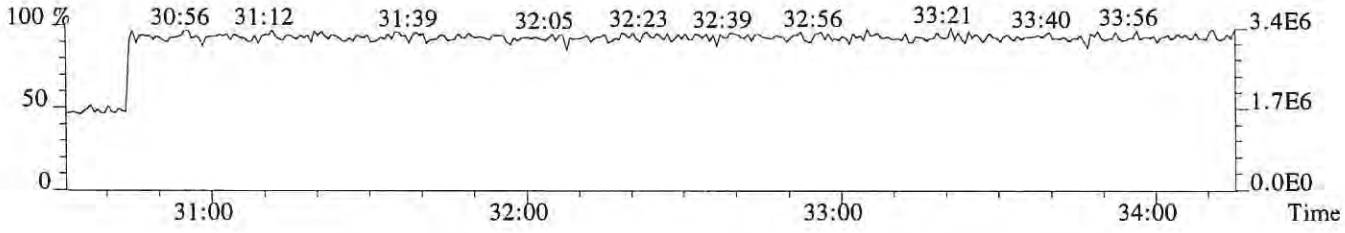
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



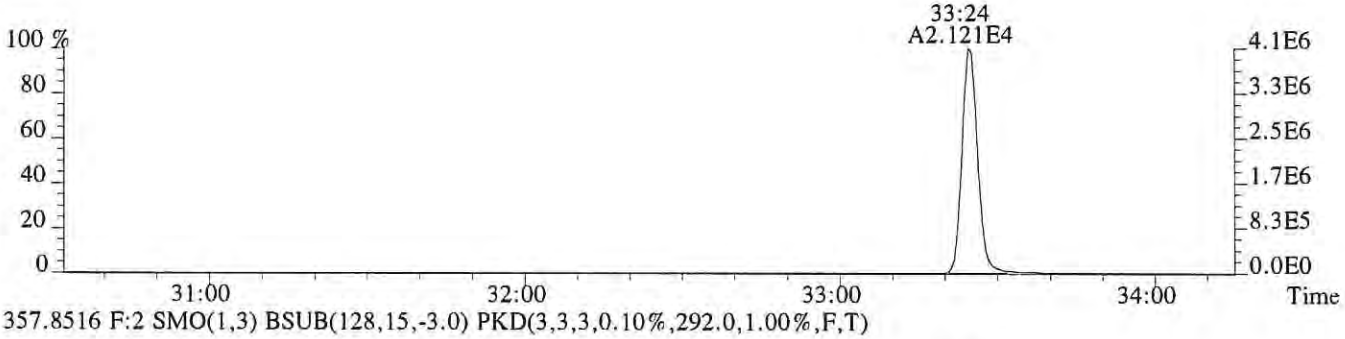
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



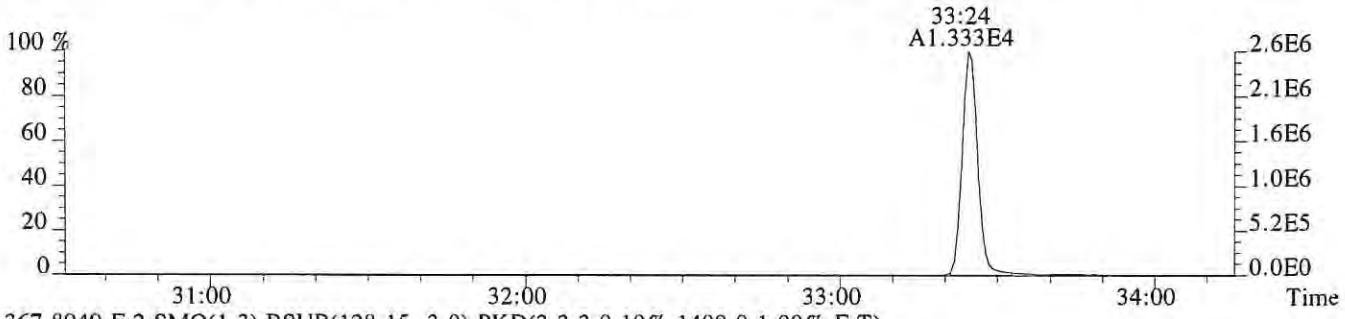
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



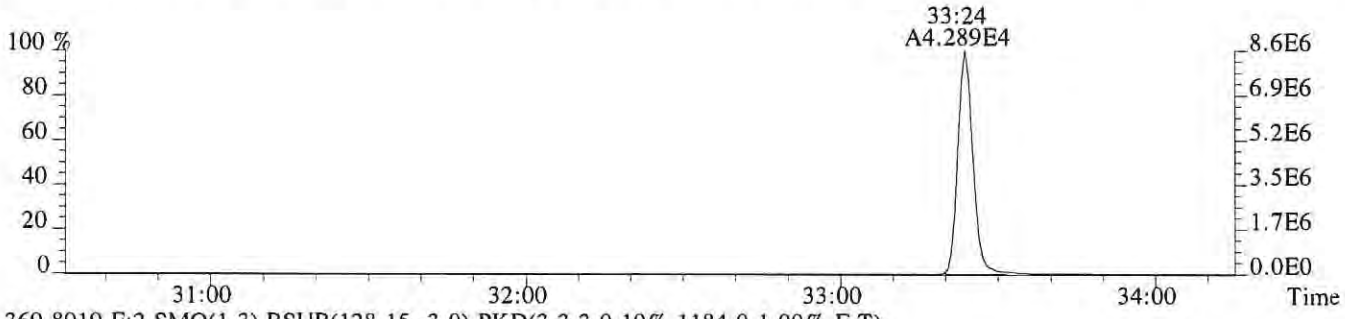
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



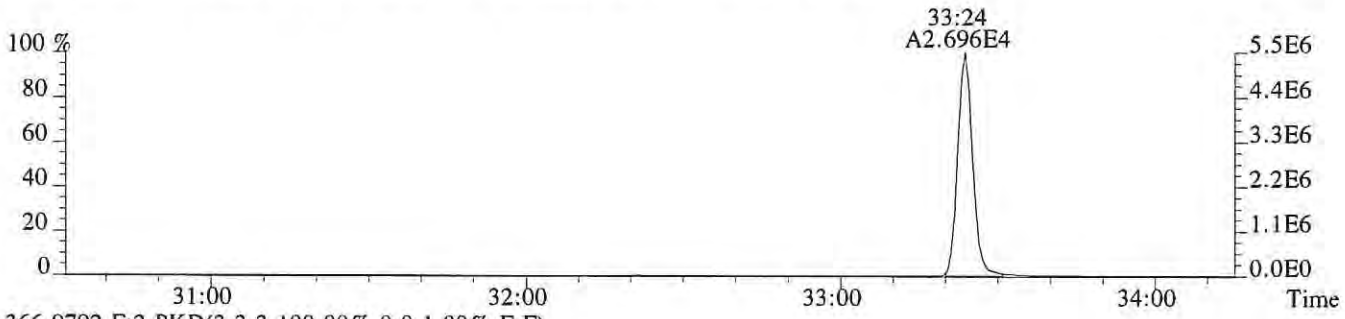
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



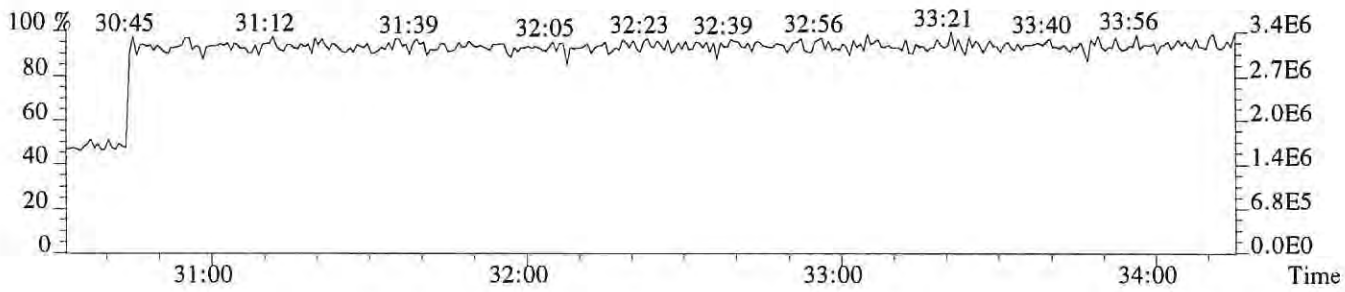
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



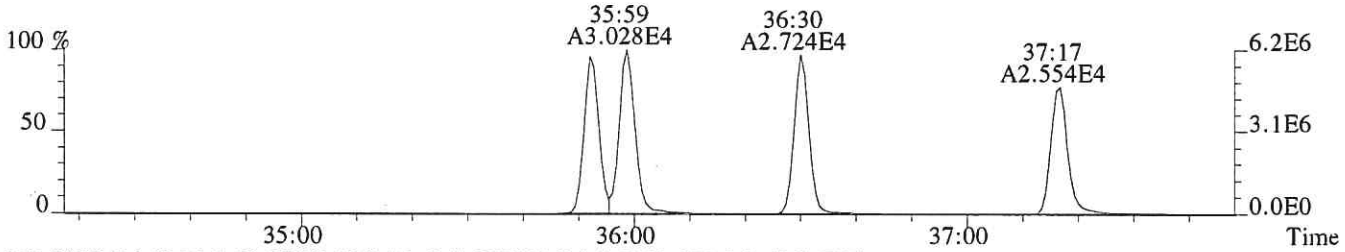
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



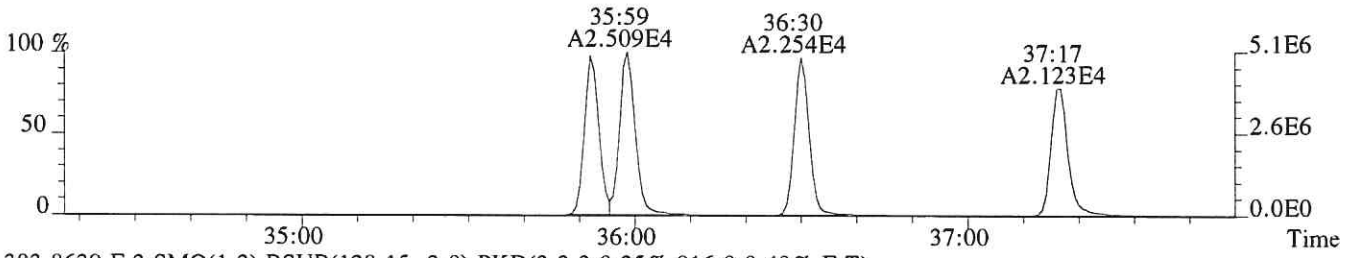
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



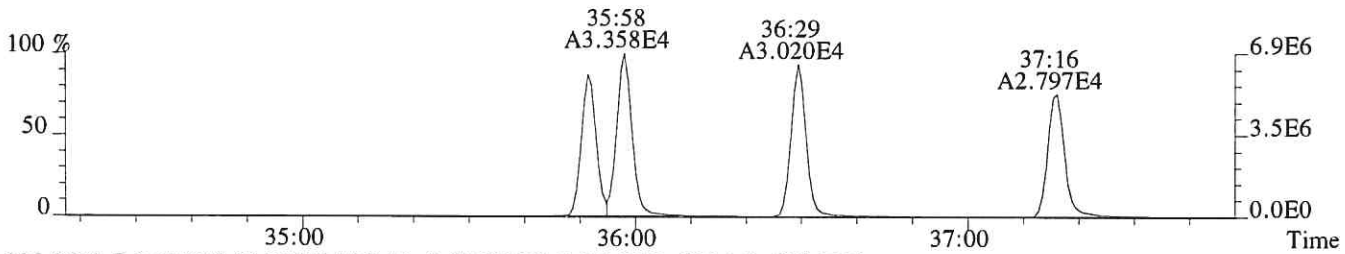
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



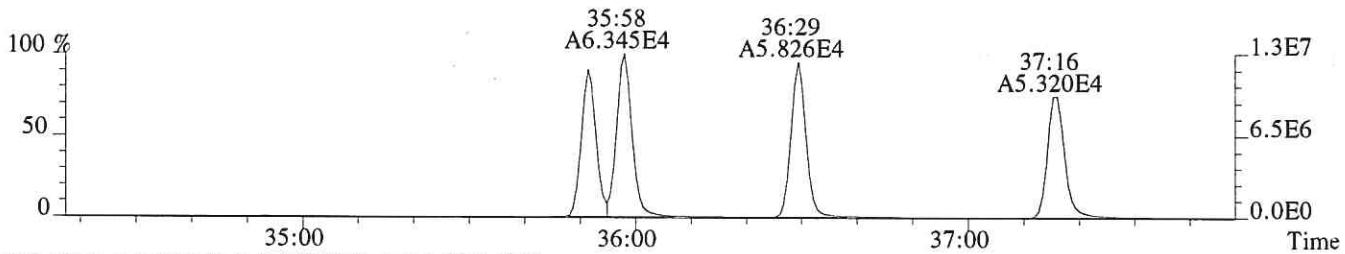
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



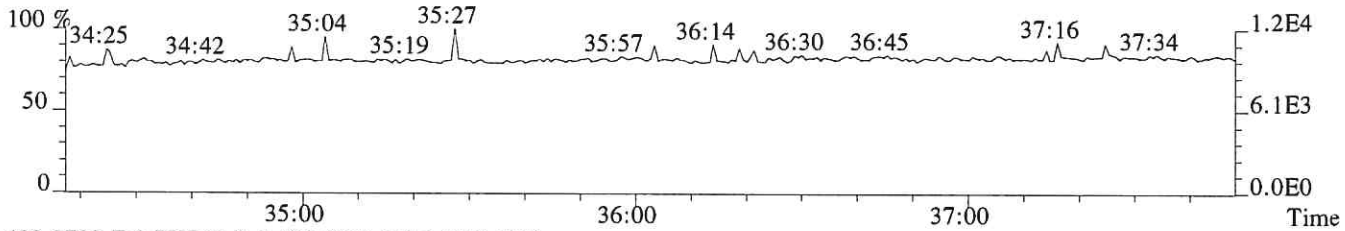
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



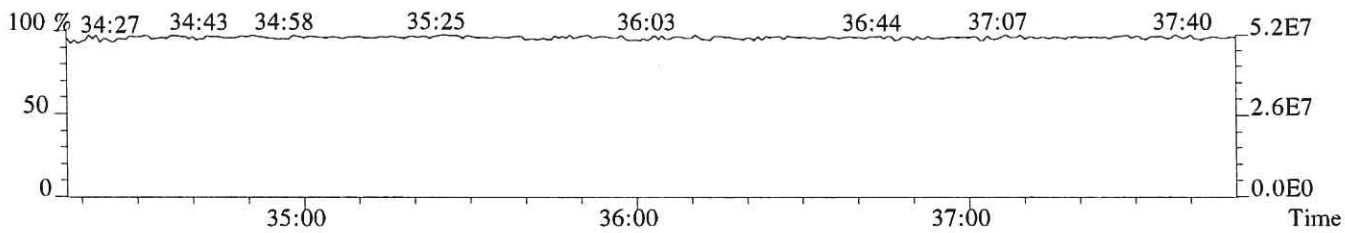
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



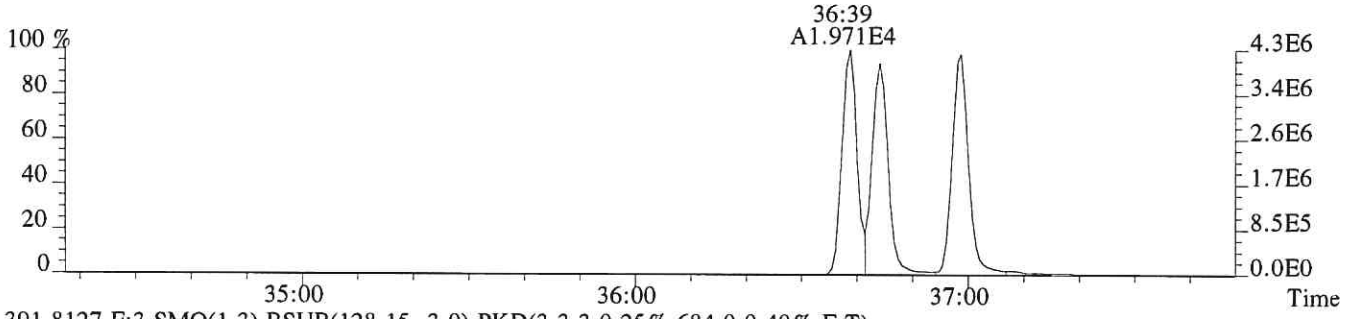
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



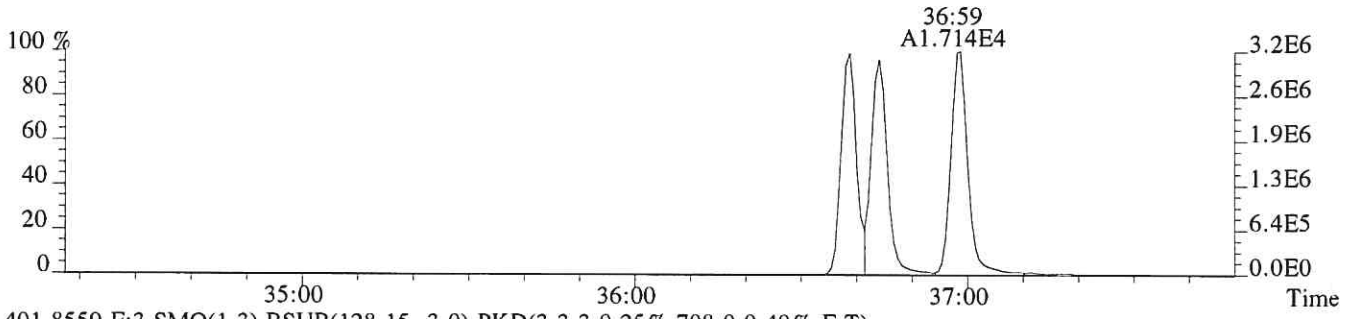
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



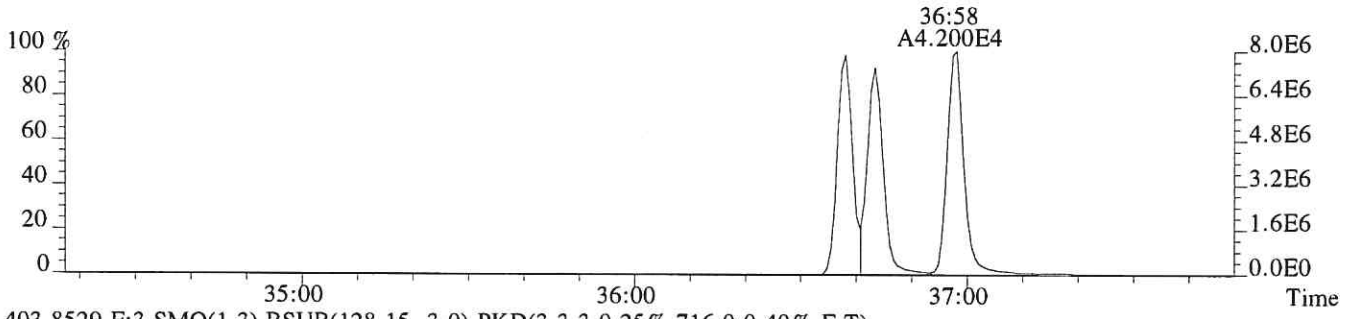
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



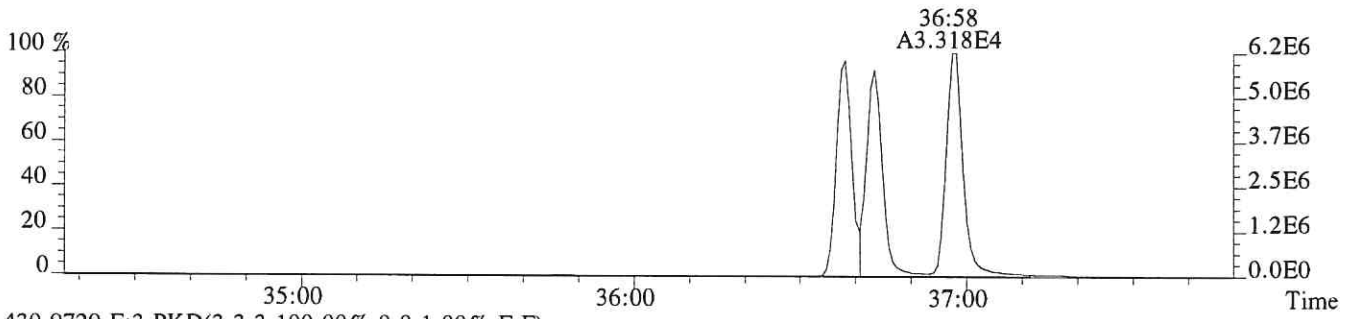
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



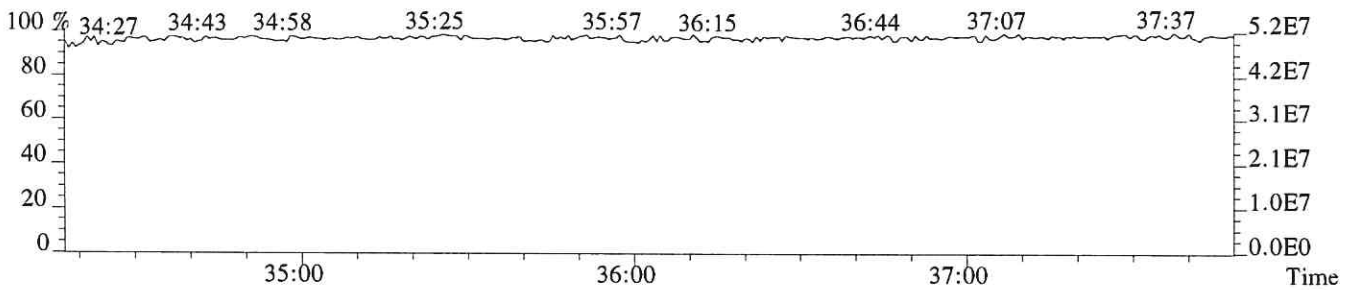
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



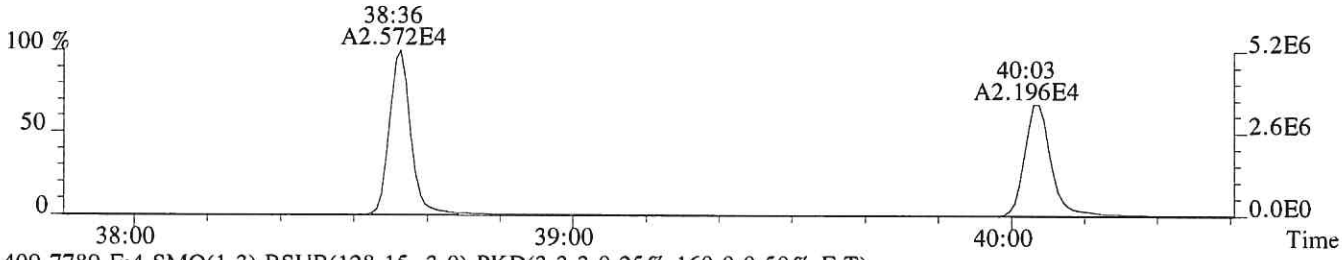
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



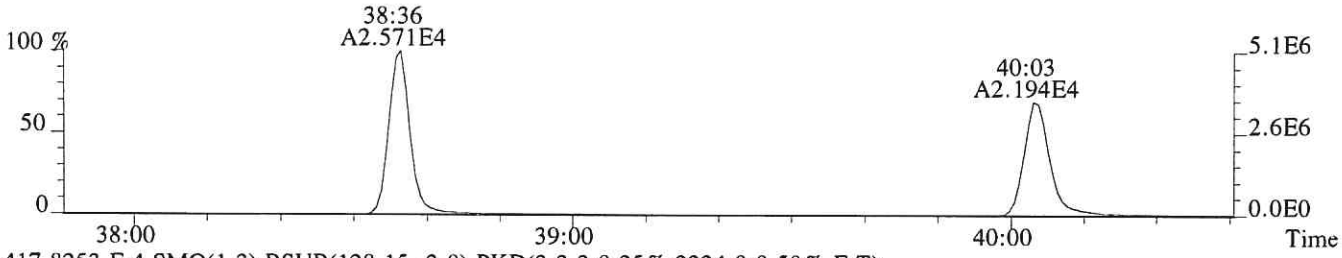
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



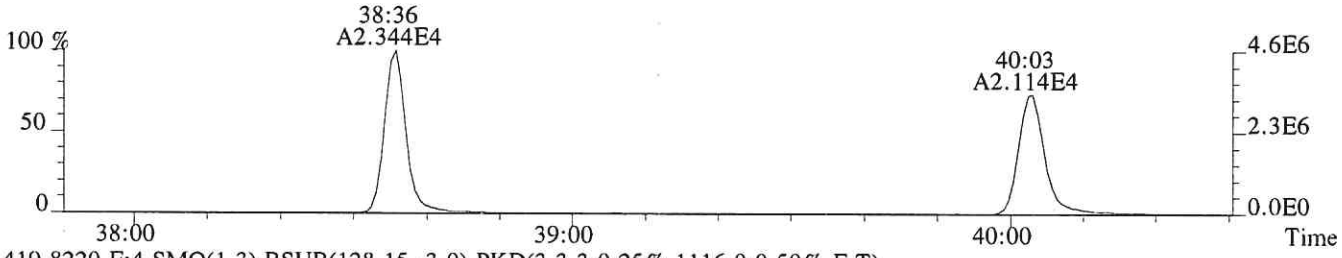
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.50%,F,T)



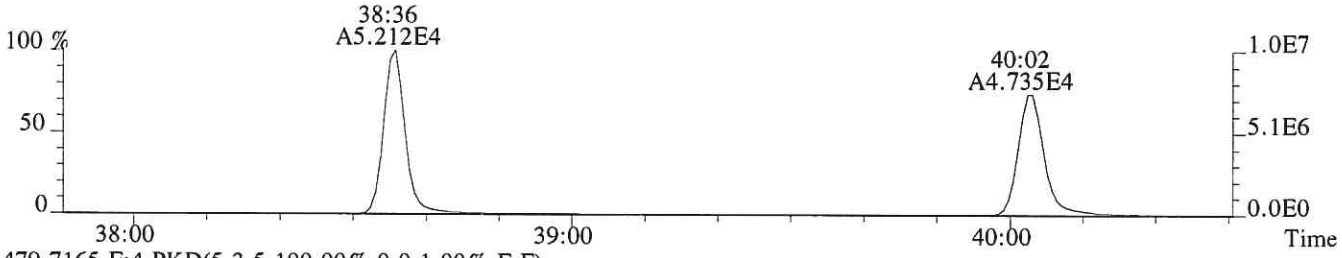
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



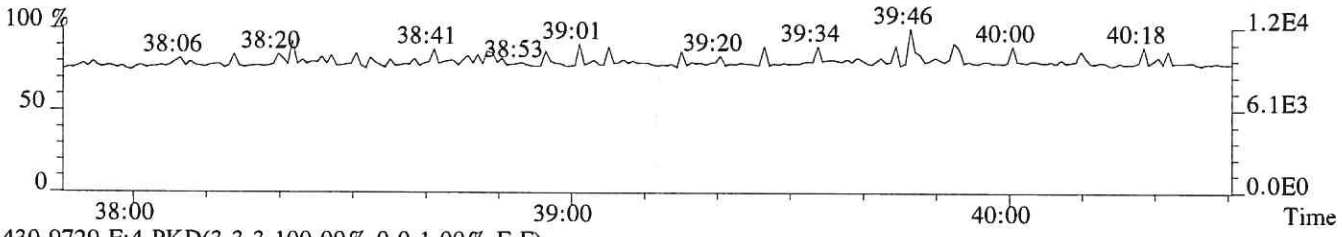
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



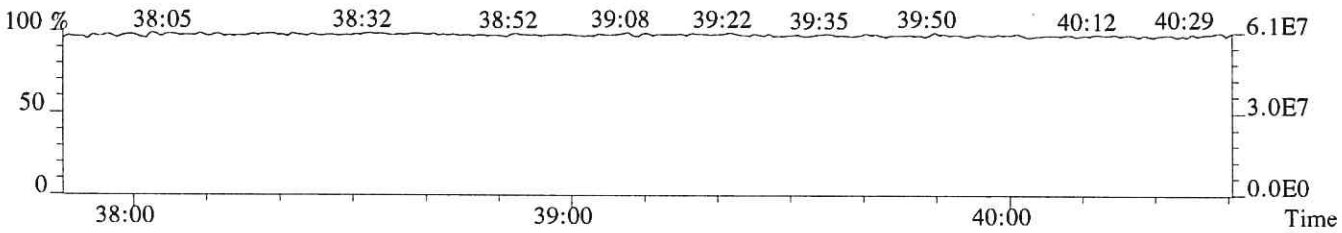
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.50%,F,T)



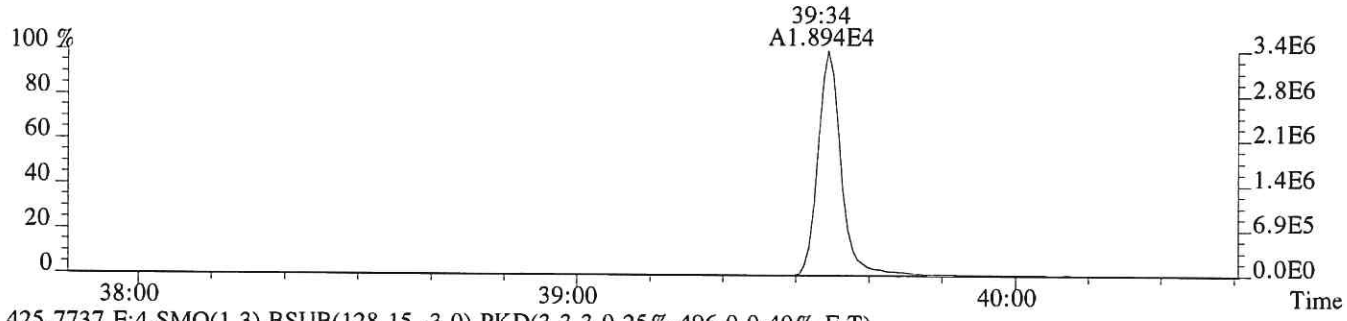
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



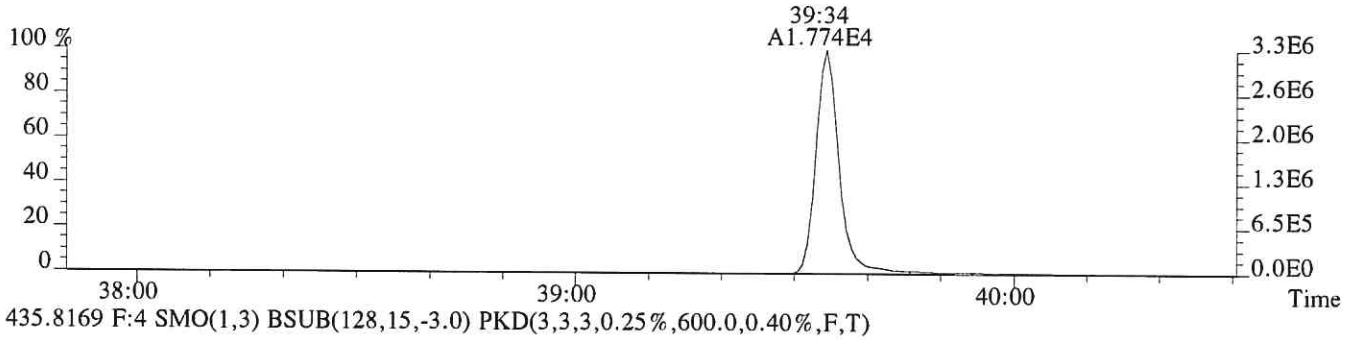
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



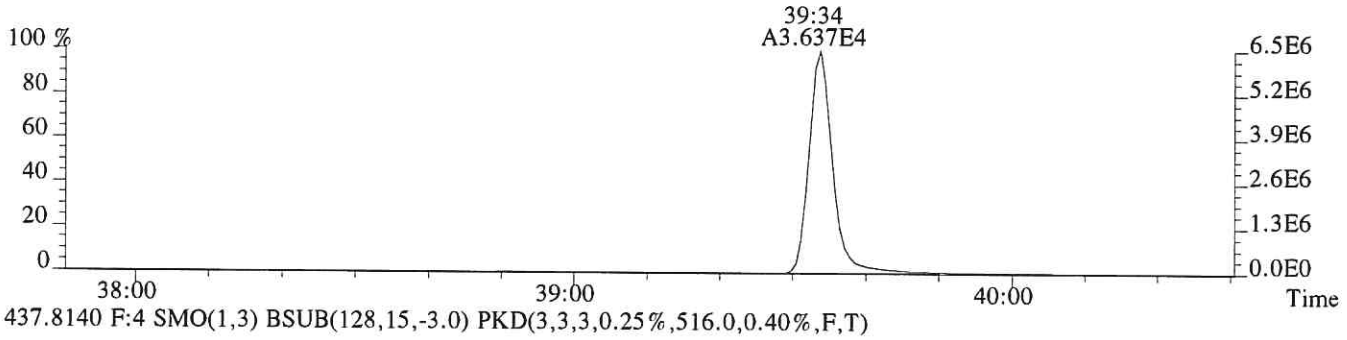
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



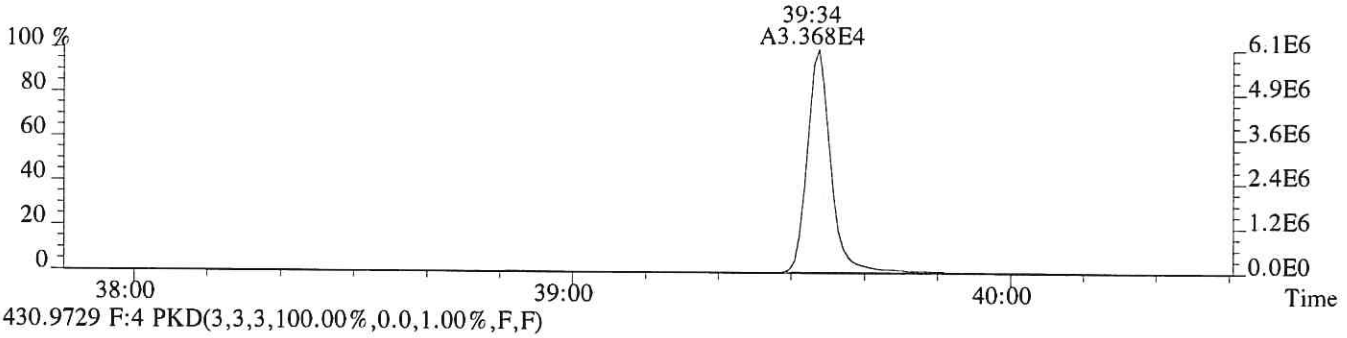
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



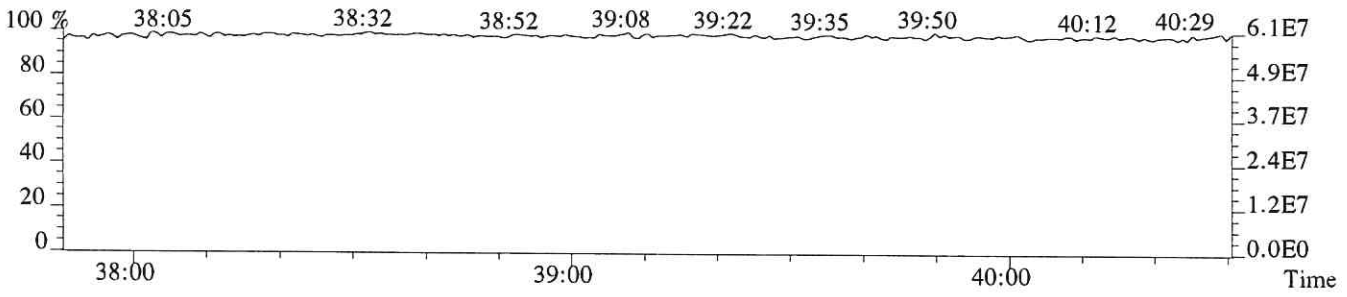
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



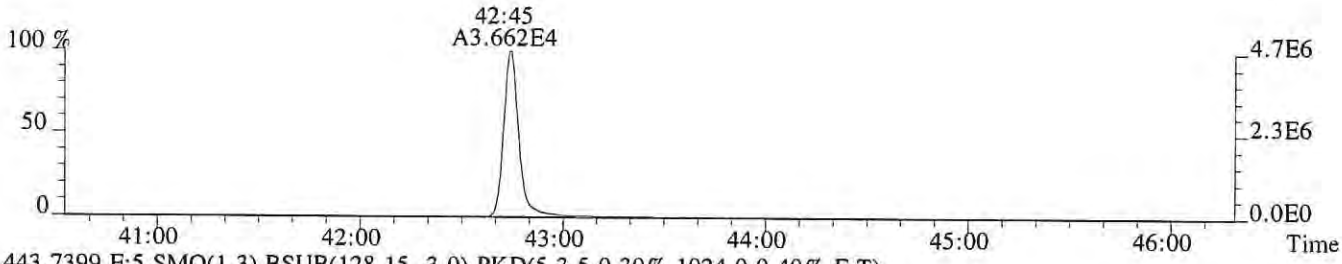
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



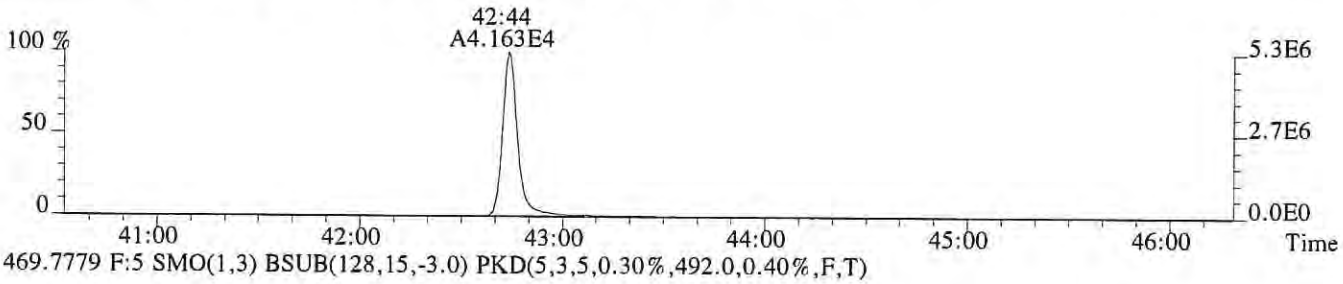
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



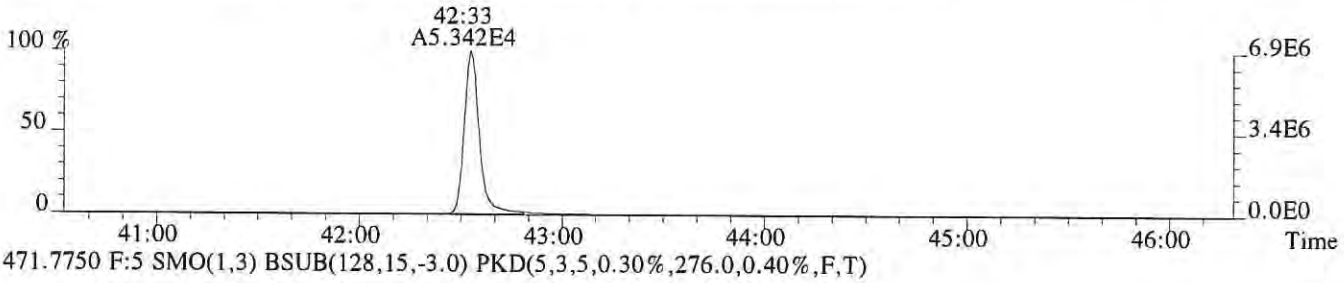
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



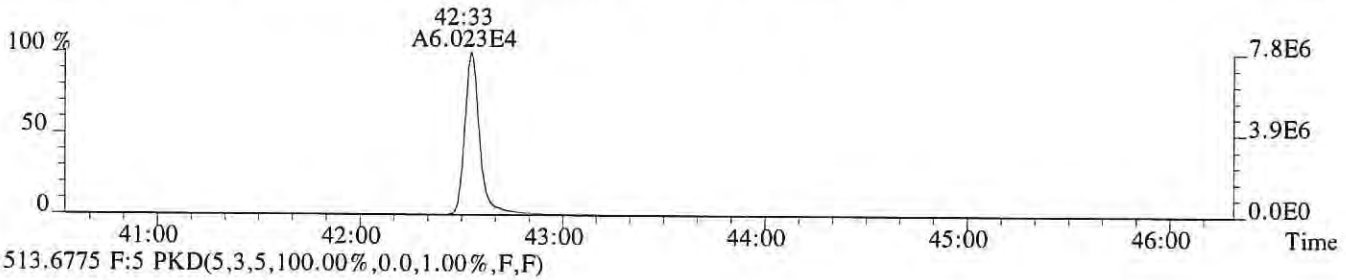
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



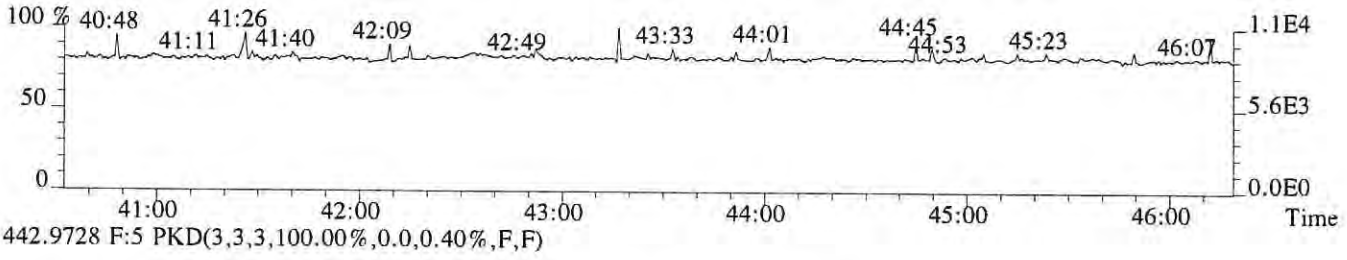
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



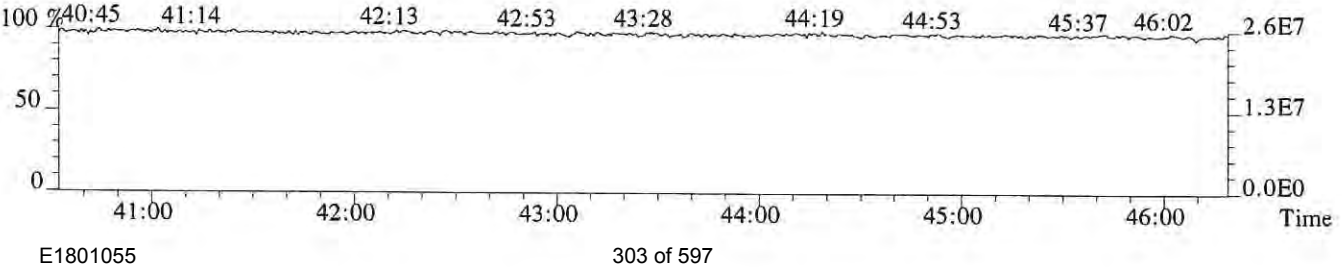
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



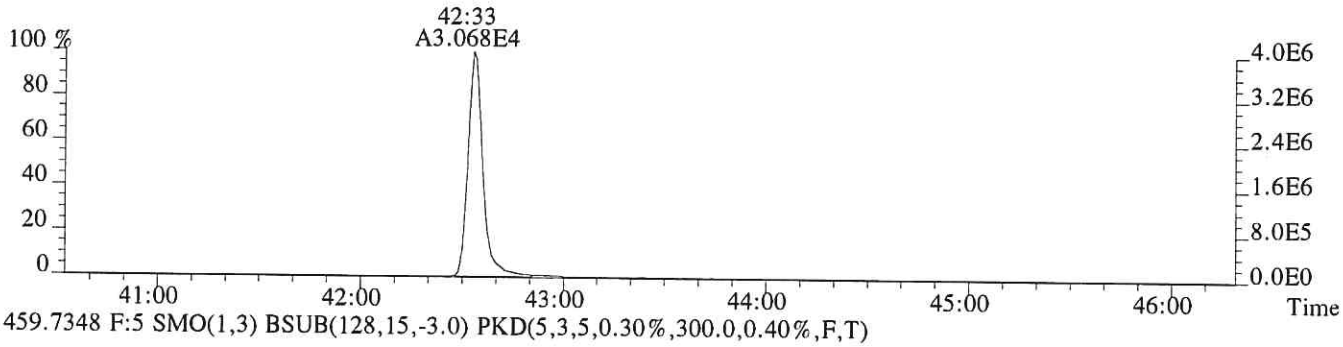
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



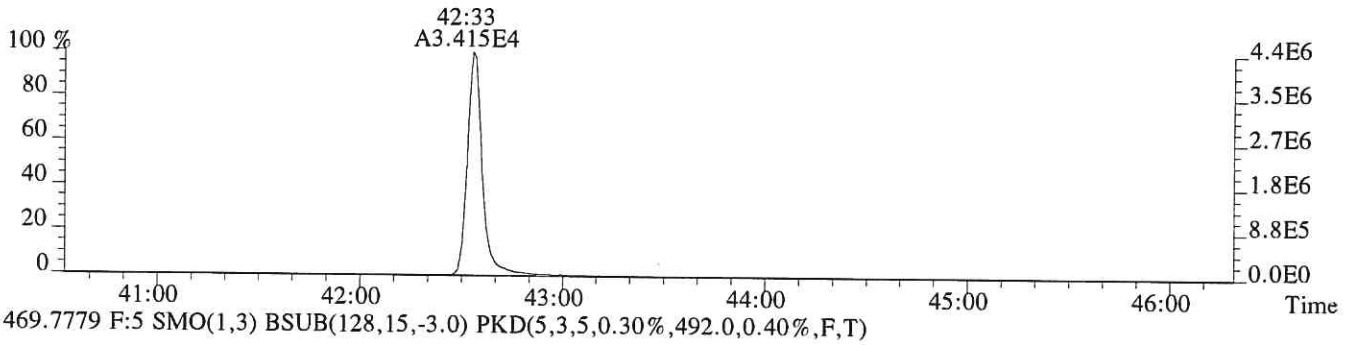
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



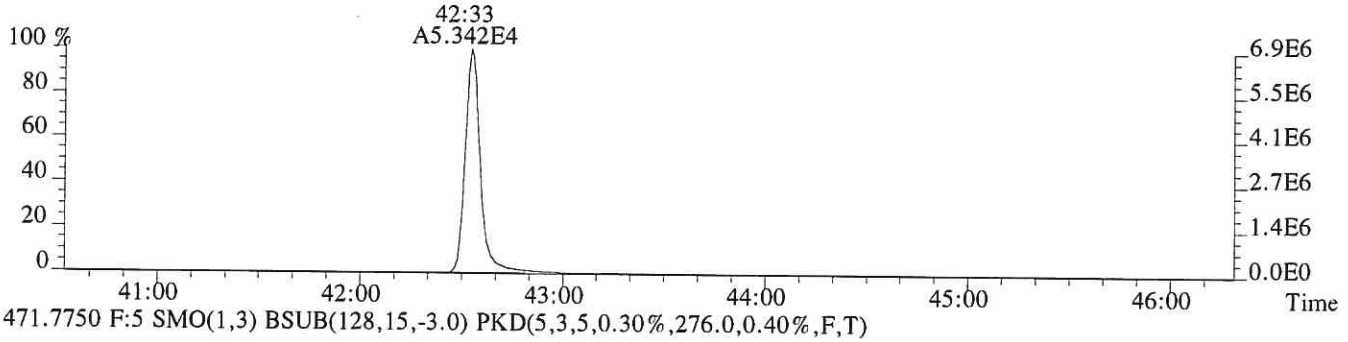
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



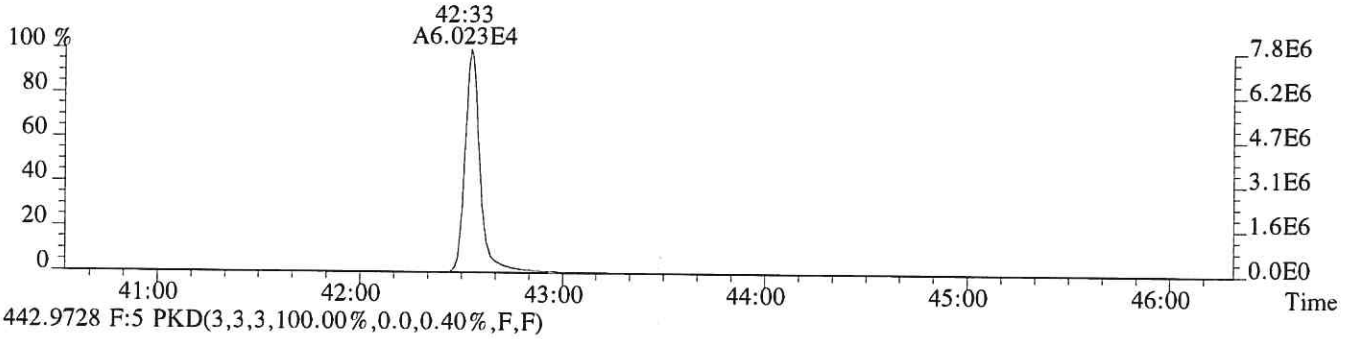
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



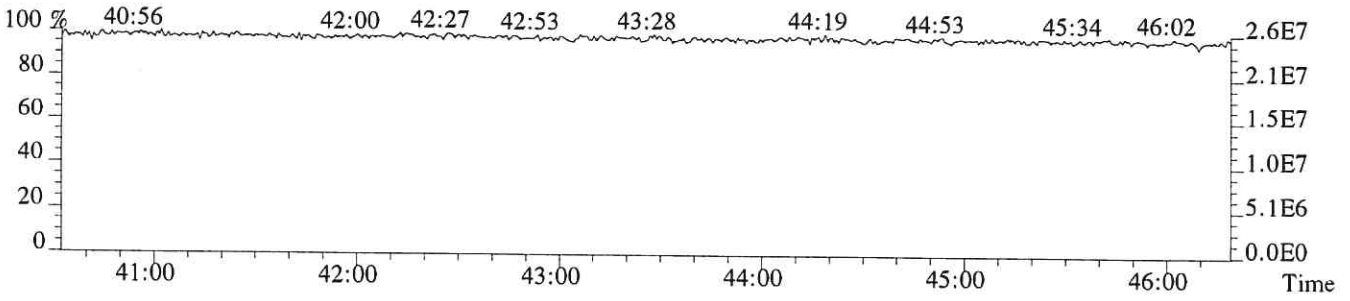
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



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



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519350

Date: 12/11/18

Circle one: (Beginning) / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519350	11-DEC-18	10:22:01
192977	WINDOW DEFINE	P519351	11-DEC-18	11:14:28
METHOD BLANK	EQ1800485-01	P519352	11-DEC-18	12:02:18
METHOD BLANK	EQ1800494-01	P519353	11-DEC-18	12:50:51
UU03601	K1811038-003	P519354	11-DEC-18	13:48:39
SL0572	E1801065-022	P519355	11-DEC-18	14:36:26
ASH 1 SPLP	E1801064-015	P519356	11-DEC-18	15:25:04
INFLUENT DIOXIN	E1801086-004	P519357	11-DEC-18	16:15:17
EFFLUENT DIOXIN	E1801086-005	P519358	11-DEC-18	17:05:24
3003147001	E1801087-001	P519359	11-DEC-18	17:53:12
SL0549	E1801055-004DL	P519360	11-DEC-18	18:41:50
FW0051	E1801046-007	P519361	11-DEC-18	19:30:28
FW008	E1801058-030	P519362	11-DEC-18	20:19:13
LCS	EQ1800488-02	P519363	11-DEC-18	21:07:51
DLCS	EQ1800488-03	P519364	11-DEC-18	21:56:19

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:00:37 Central Standard Time
Printed: Wednesday, December 12, 2018 07:00:39 Central Standard Time

OPUS4: P519350res

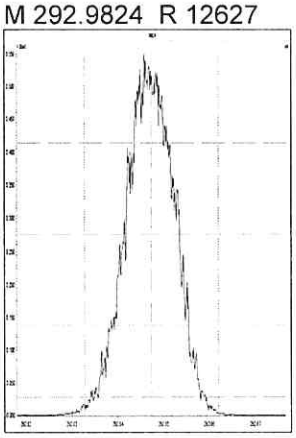
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	10:22	P519350	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	H2RSCheck 10:15
2	"	11:14	P519351	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1	"	"
3	"	12:02	P519352	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3	"	"
4	"	12:50	P519353	MB	EQ1800494-01	EPA1613_ALS	Dioxin_ALS	Tray1:4	"	"
5	"	13:48	P519354	K1811038-003	K1811038-003	EPA1613_ALS	Dioxin_ALS	Tray1:5	"	"
6	"	14:36	P519355	E1801065-022	E1801065-022	EPA1613_ALS	Dioxin_ALS	Tray1:6	"	"
7	"	15:25	P519356	E1801064-015	E1801064-015	EPA1613_ALS	Dioxin_ALS	Tray1:7	"	"
8	"	16:15	P519357	E1801086-004	E1801086-004	EPA1613_ALS	Dioxin_ALS	Tray1:8	"	"
9	"	17:05	P519358	E1801086-005	E1801086-005	EPA1613_ALS	Dioxin_ALS	Tray1:9	"	"
10	"	17:53	P519359	E1801087-001	E1801087-001	EPA1613_ALS	Dioxin_ALS	Tray1:10	"	"
11	"	18:41	P519360	E1801055-004DL	E1801055-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11	"	"
12	"	19:30	P519361	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:12	"	"
13	"	20:19	P519362	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:13	"	"
14	"	21:07	P519363	LCS	EQ1800488-02	EPA1613_ALS	Dioxin_ALS	Tray1:14	"	"
15	"	21:56	P519364	DLCS	EQ1800488-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	"	"
16	"	22:53	P519365	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	"	H2RS check 22:53
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/12/18

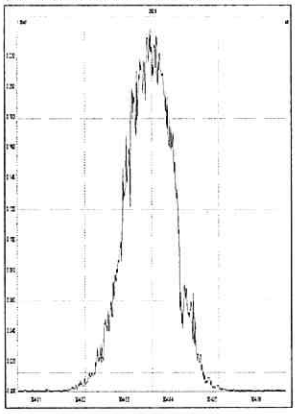
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:15:52 Central Standard Time

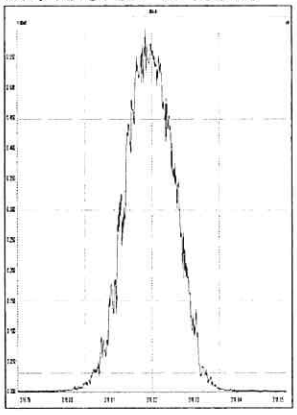
M 292.9824 R 12627



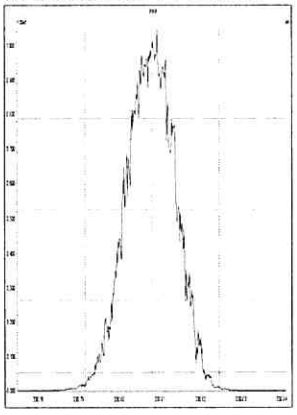
M 304.9824 R 12381



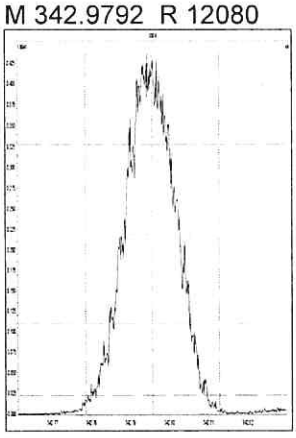
M 318.9792 R 13300



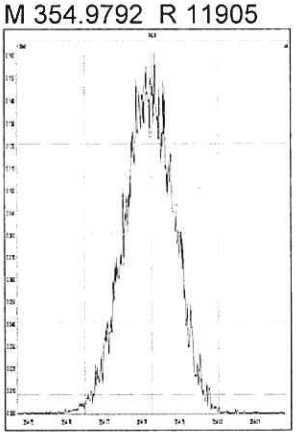
M 330.9792 R 12135



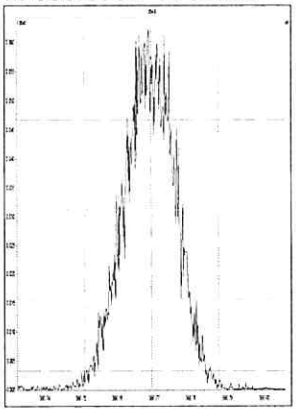
M 342.9792 R 12080



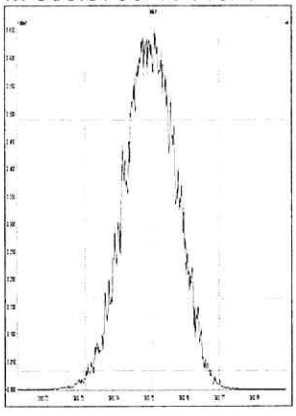
M 354.9792 R 11905



M 366.9792 R 12080



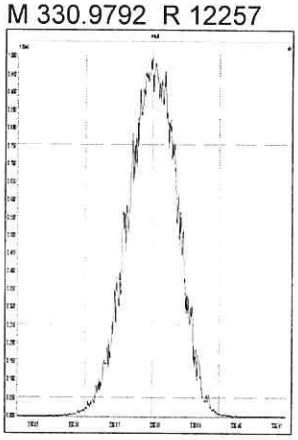
M 380.9760 R 11629



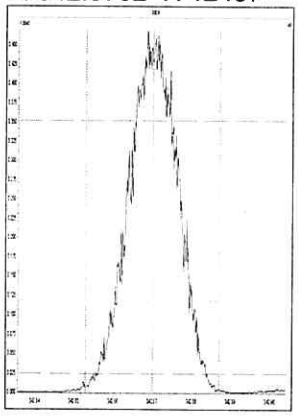
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:16:35 Central Standard Time

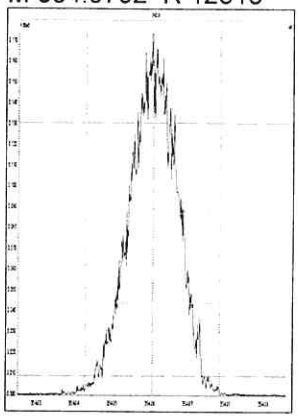
M 330.9792 R 12257



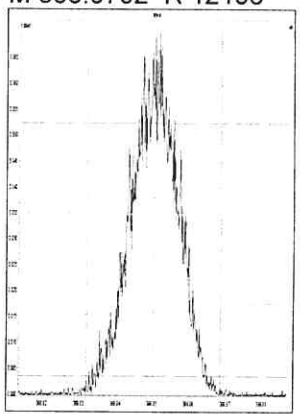
M 342.9792 R 12437



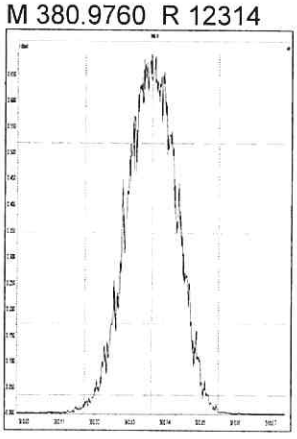
M 354.9792 R 12318



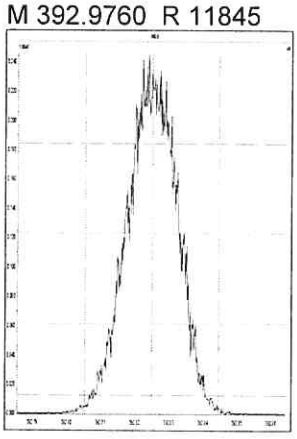
M 366.9792 R 12196



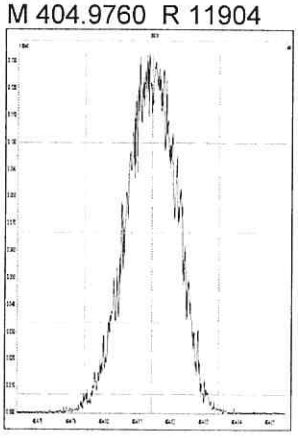
M 380.9760 R 12314



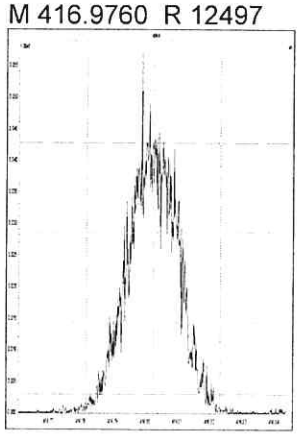
M 392.9760 R 11845



M 404.9760 R 11904



M 416.9760 R 12497



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

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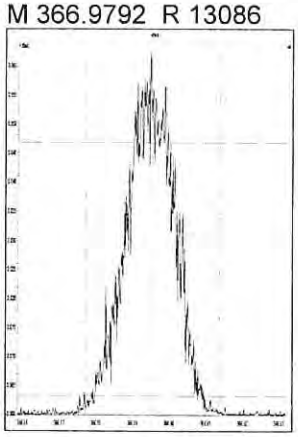
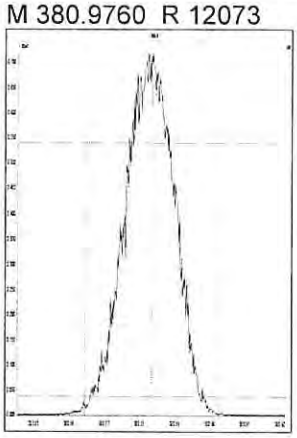
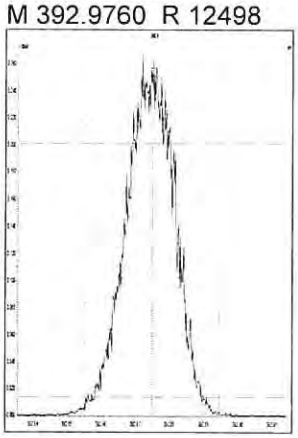
M 366.9792 R 13086



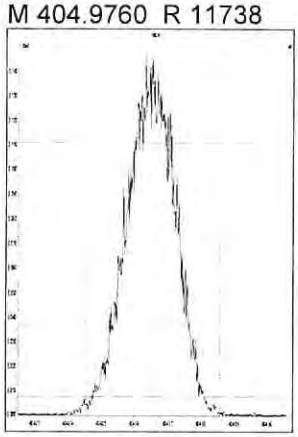
M 380.9760 R 12073



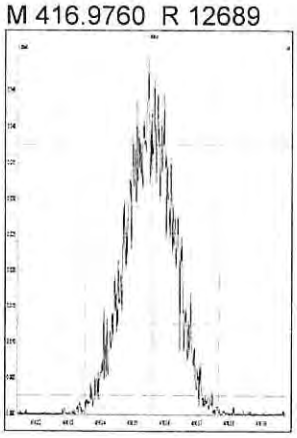
M 392.9760 R 12498



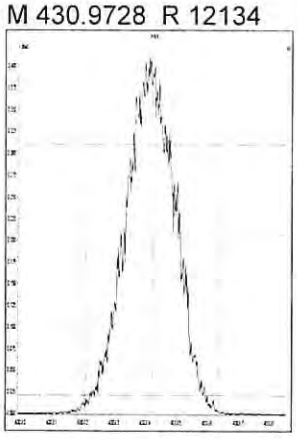
M 404.9760 R 11738



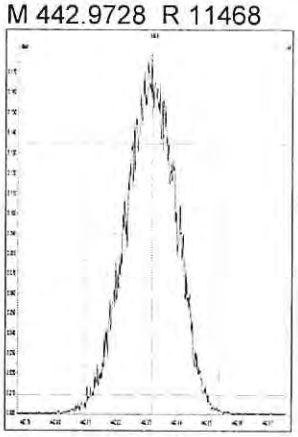
M 416.9760 R 12689



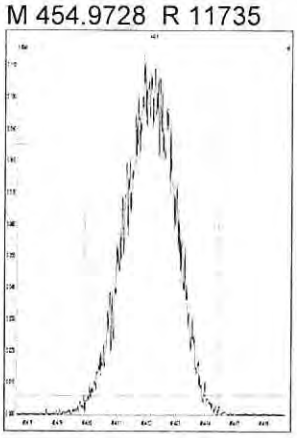
M 430.9728 R 12134



M 442.9728 R 11468



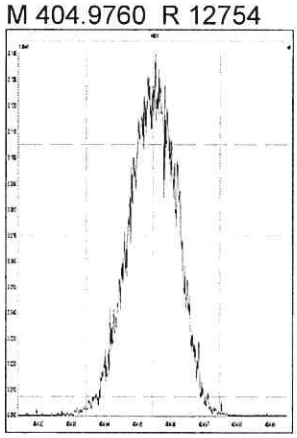
M 454.9728 R 11735



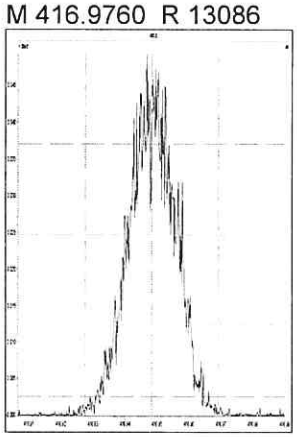
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:58 Central Standard Time

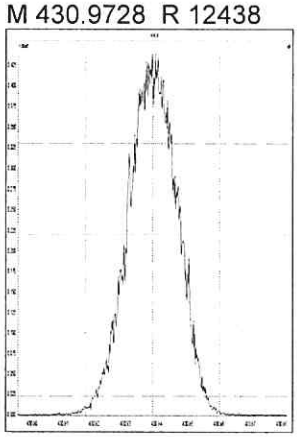
M 404.9760 R 12754



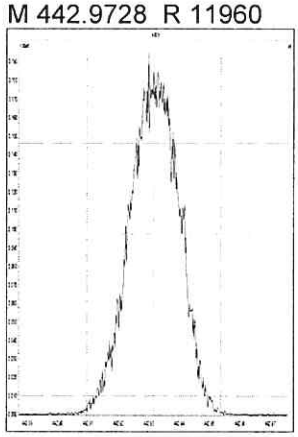
M 416.9760 R 13086



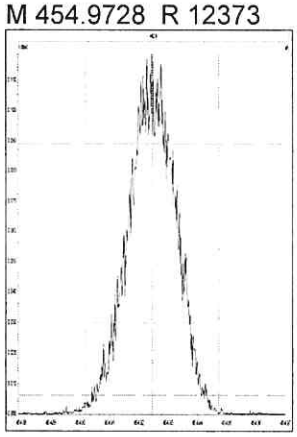
M 430.9728 R 12438



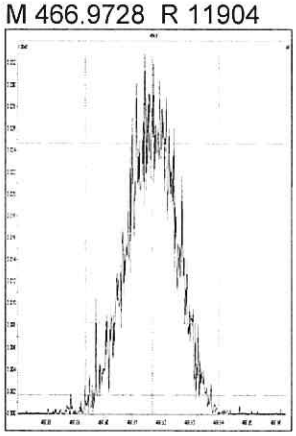
M 442.9728 R 11960



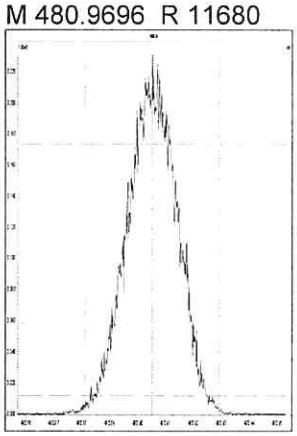
M 454.9728 R 12373



M 466.9728 R 11904



M 480.9696 R 11680



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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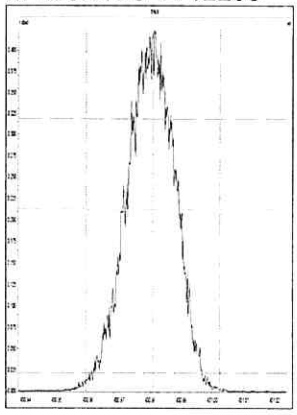
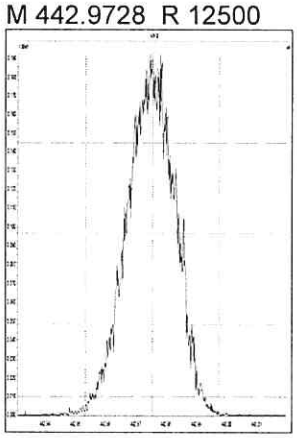
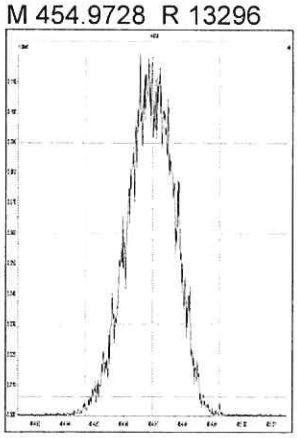
M 430.9728 R 12256



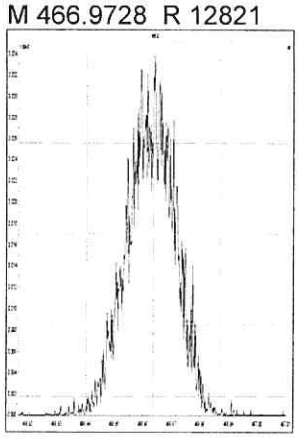
M 442.9728 R 12500



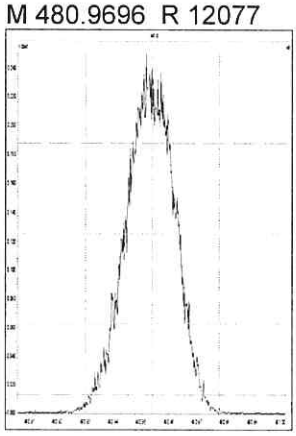
M 454.9728 R 13296



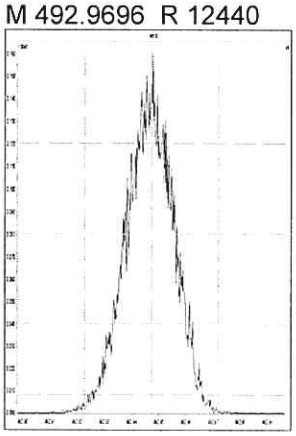
M 466.9728 R 12821



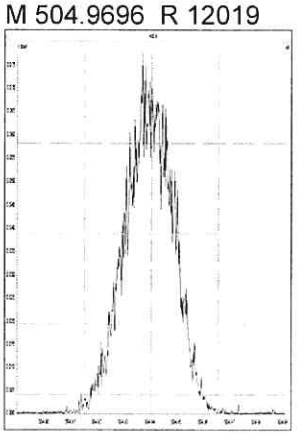
M 480.9696 R 12077



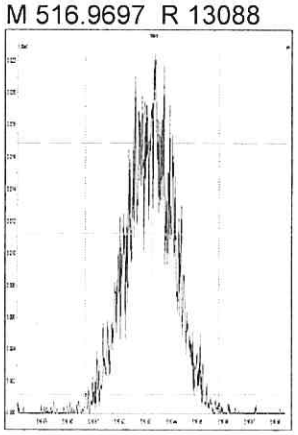
M 492.9696 R 12440



M 504.9696 R 12019



M 516.9697 R 13088



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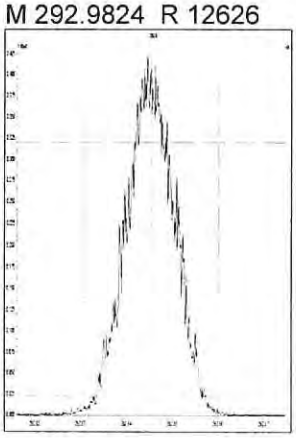
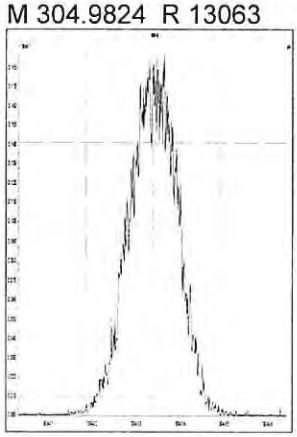
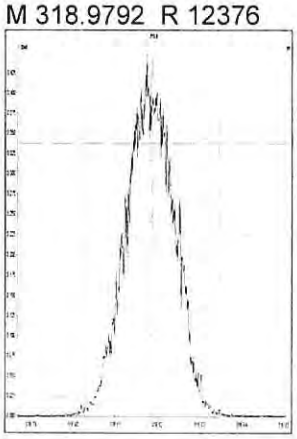
M 292.9824 R 12626



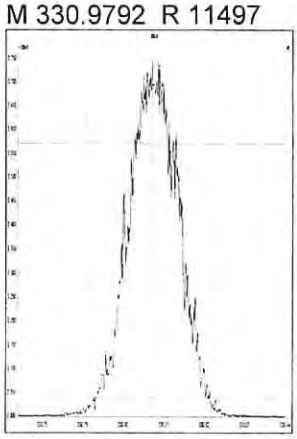
M 304.9824 R 13063



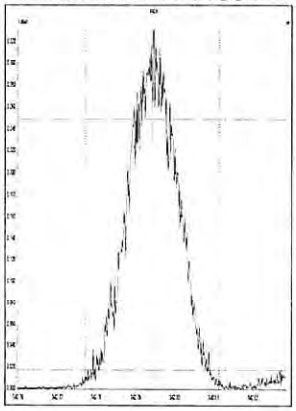
M 318.9792 R 12376



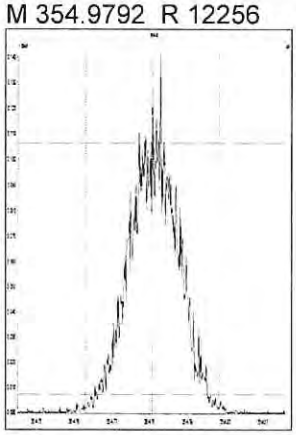
M 330.9792 R 11497



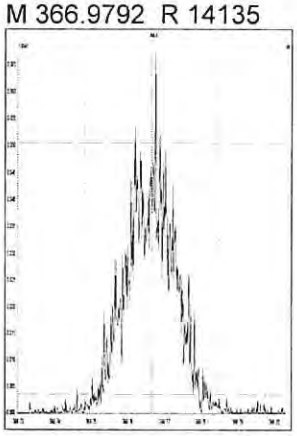
M 342.9792 R 11934



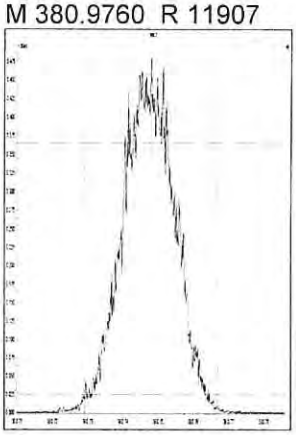
M 354.9792 R 12256



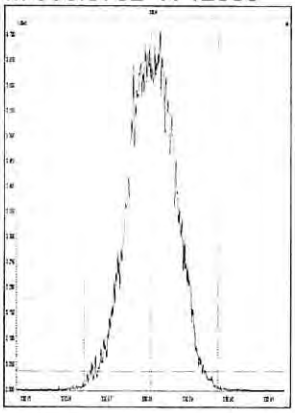
M 366.9792 R 14135



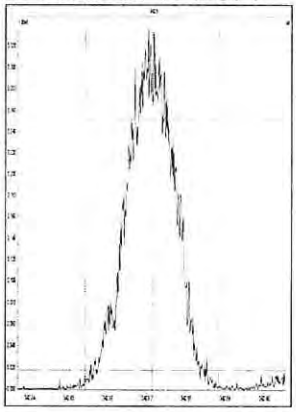
M 380.9760 R 11907



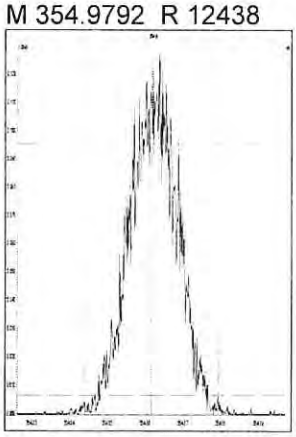
M 330.9792 R 12535



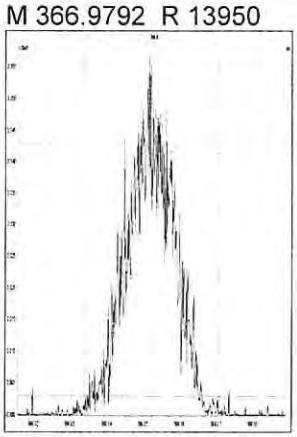
M 342.9792 R 12574



M 354.9792 R 12438



M 366.9792 R 13950



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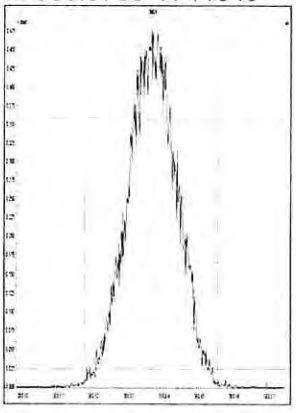
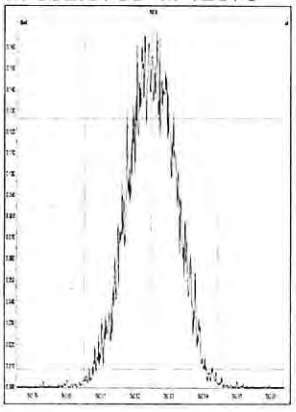
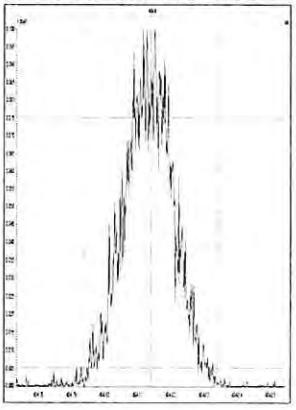


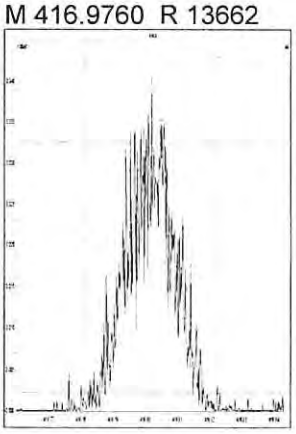
M 392.9760 R 12079



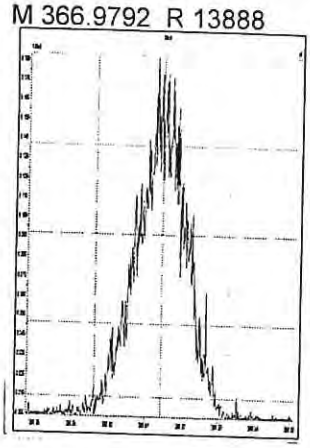
M 404.9760 R 84258



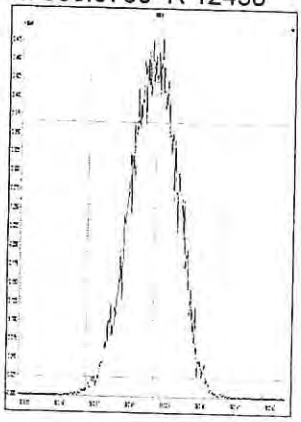
M 416.9760 R 13662



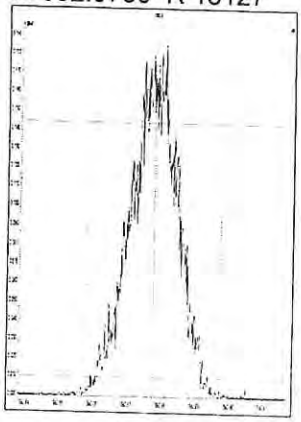
M 366.9792 R 13888



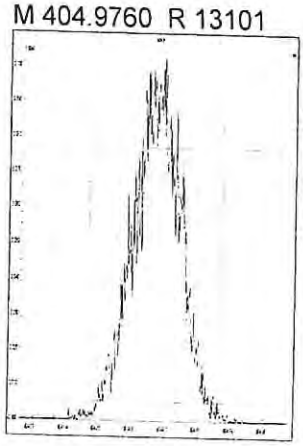
M 380.9760 R 12438



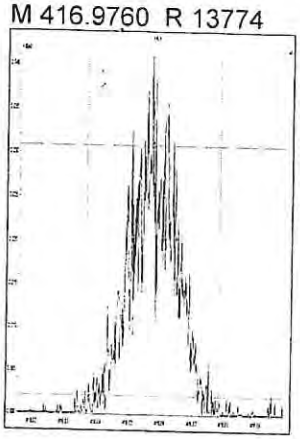
M 392.9760 R 13127



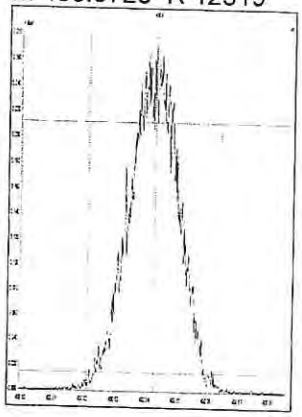
M 404.9760 R 13101



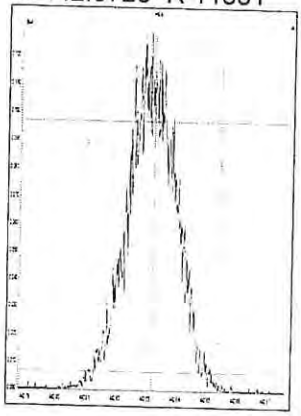
M 416.9760 R 13774



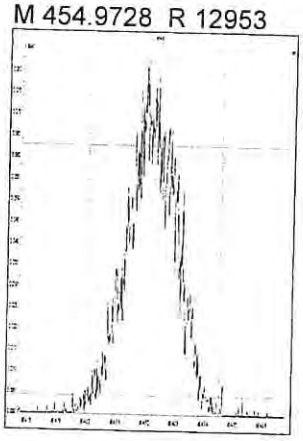
M 430.9728 R 12319



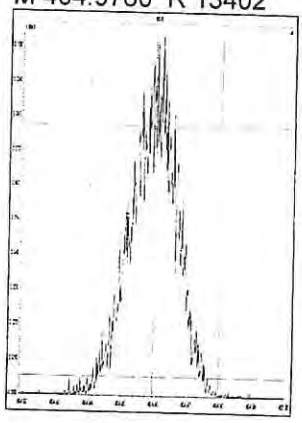
M 442.9728 R 11881



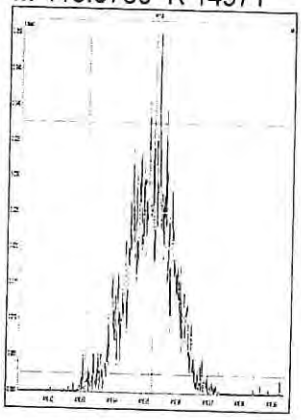
M 454.9728 R 12953



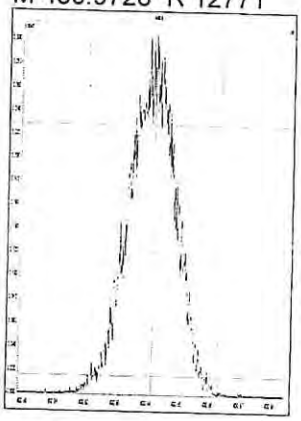
M 404.9760 R 13402



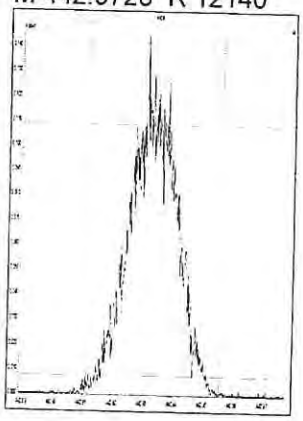
M 416.9760 R 14971



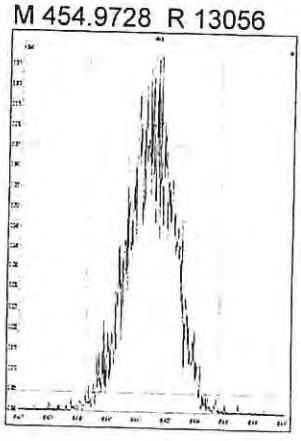
M 430.9728 R 12771



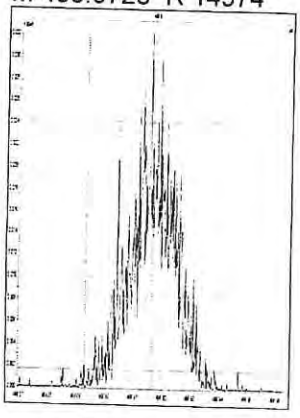
M 442.9728 R 12140



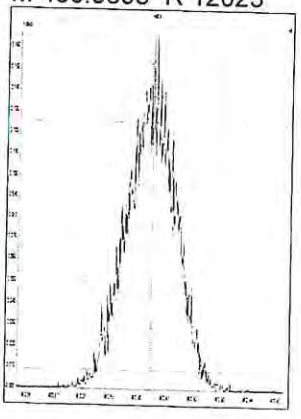
M 454.9728 R 13056



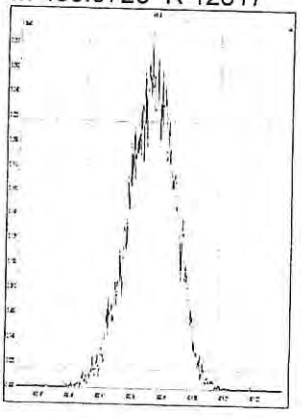
M 466.9728 R 14974



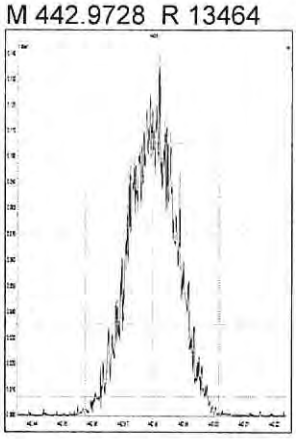
M 480.9696 R 12023



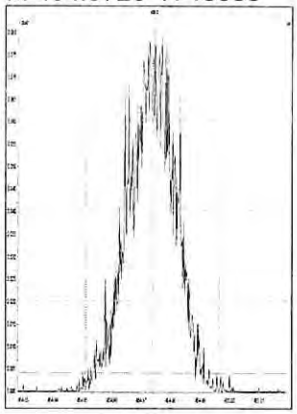
M 430.9728 R 12617



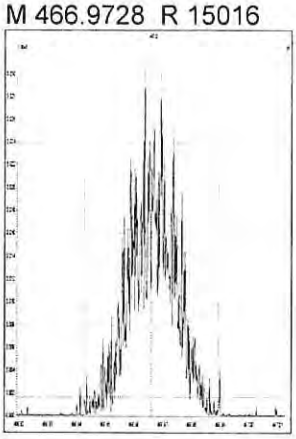
M 442.9728 R 13464



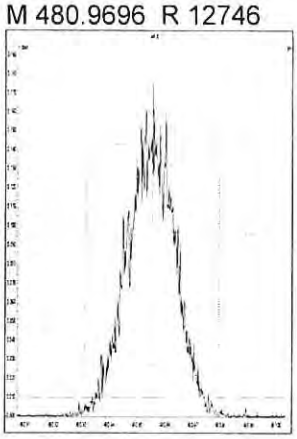
M 454.9728 R 13335



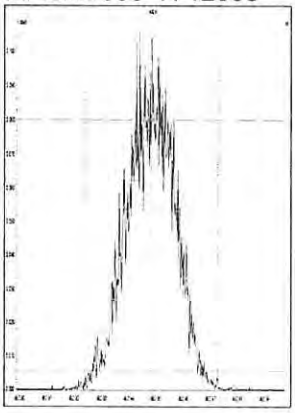
M 466.9728 R 15016



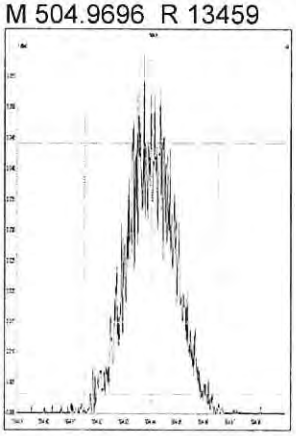
M 480.9696 R 12746



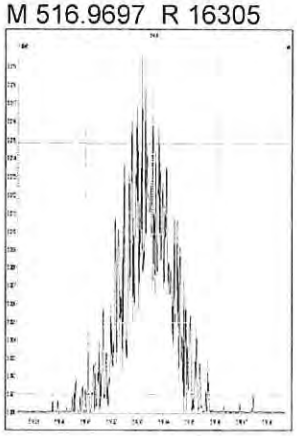
M 492.9696 R 12853



M 504.9696 R 13459



M 516.9697 R 16305



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

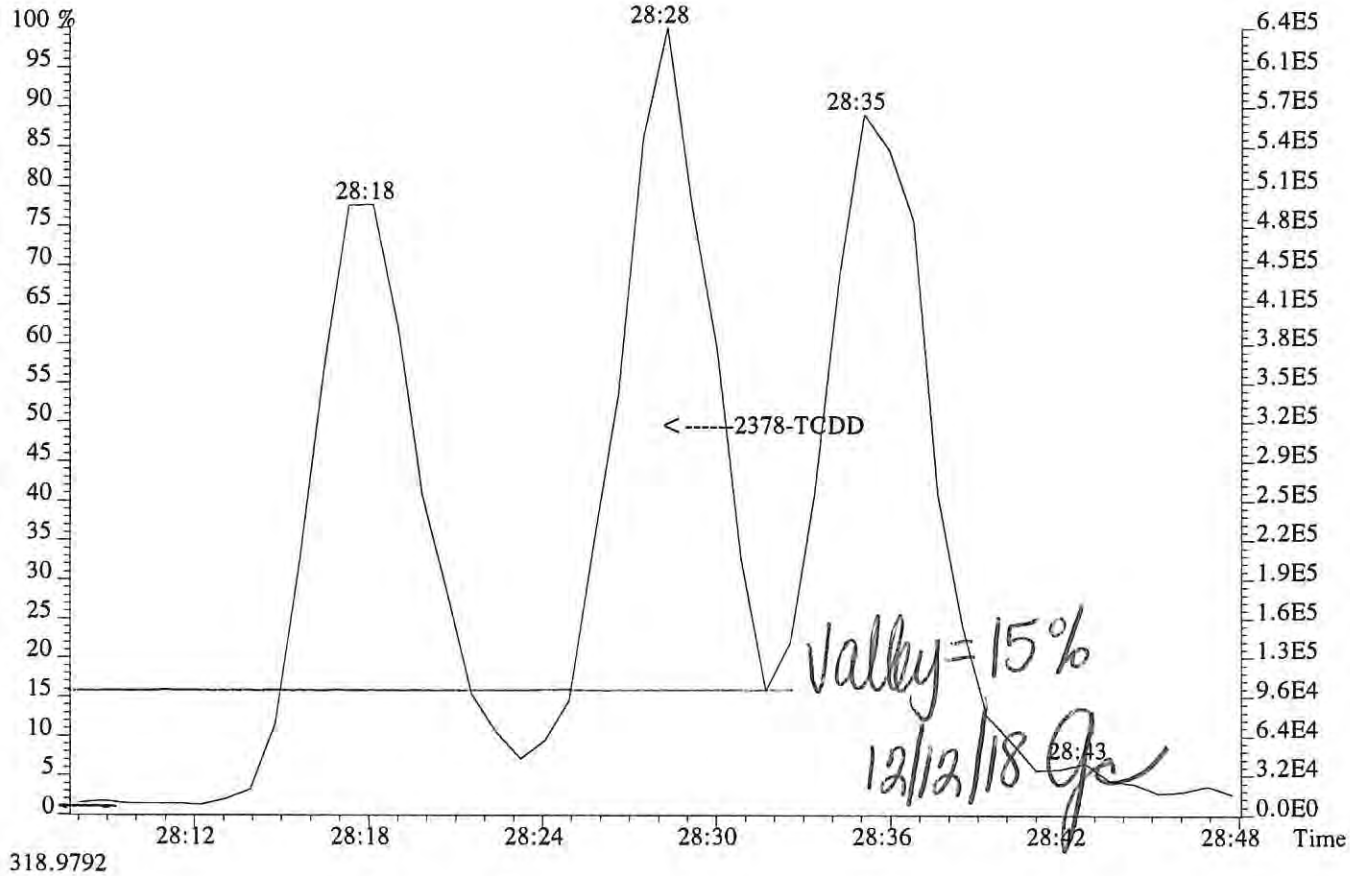
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P519351
Date Analyzed: 11-DEC-2018
Time Analyzed: 11:14:28

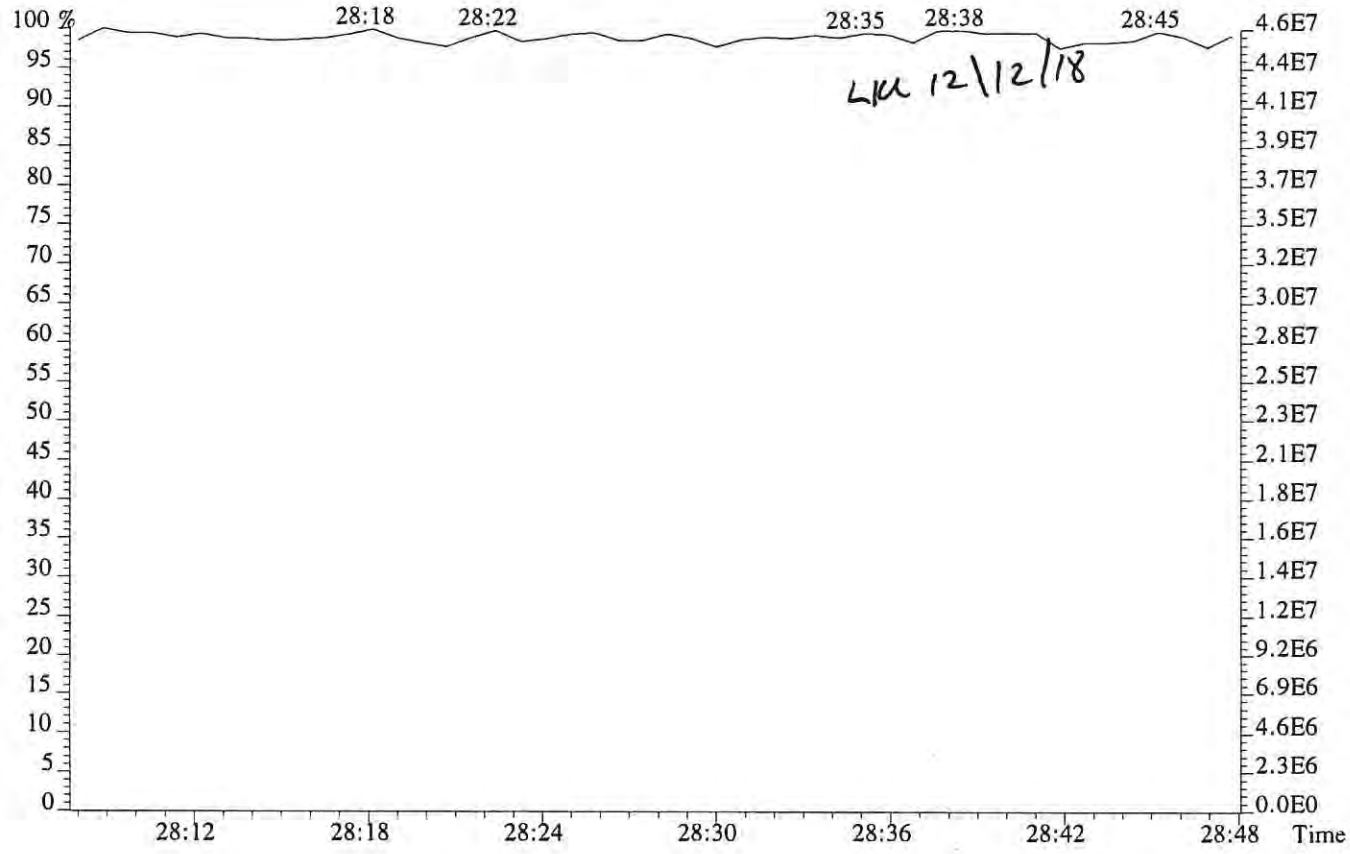
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:11	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:59
PeCDD	31:12	33:44
HxCDF	34:41	37:15
HxCDD	35:13	36:50
HpCDF	38:32	40:00
HpCDD	38:48	39:31

% Valley 2378-TCDD: 15 %

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



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Sample#1 Exp:192977
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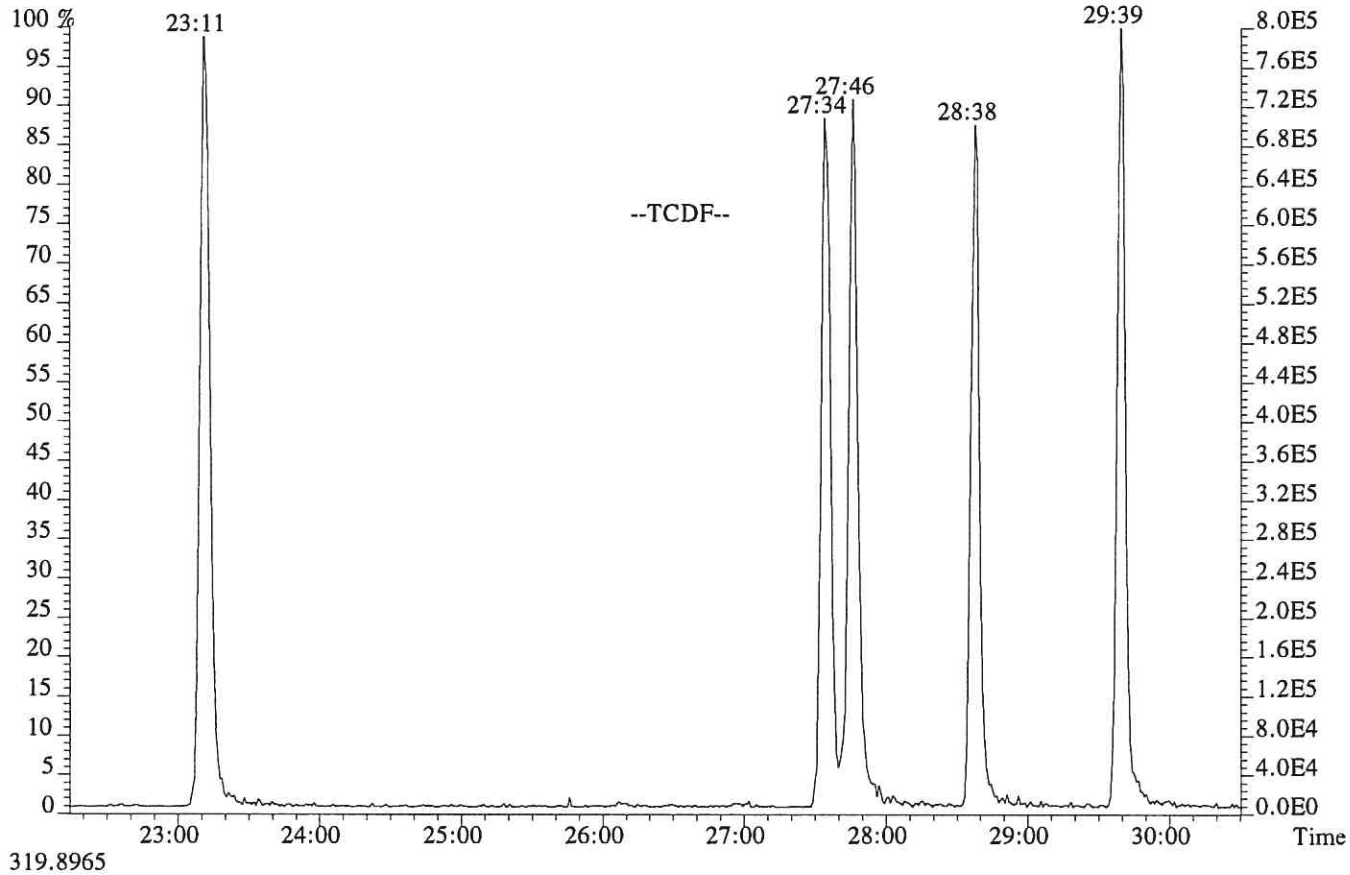
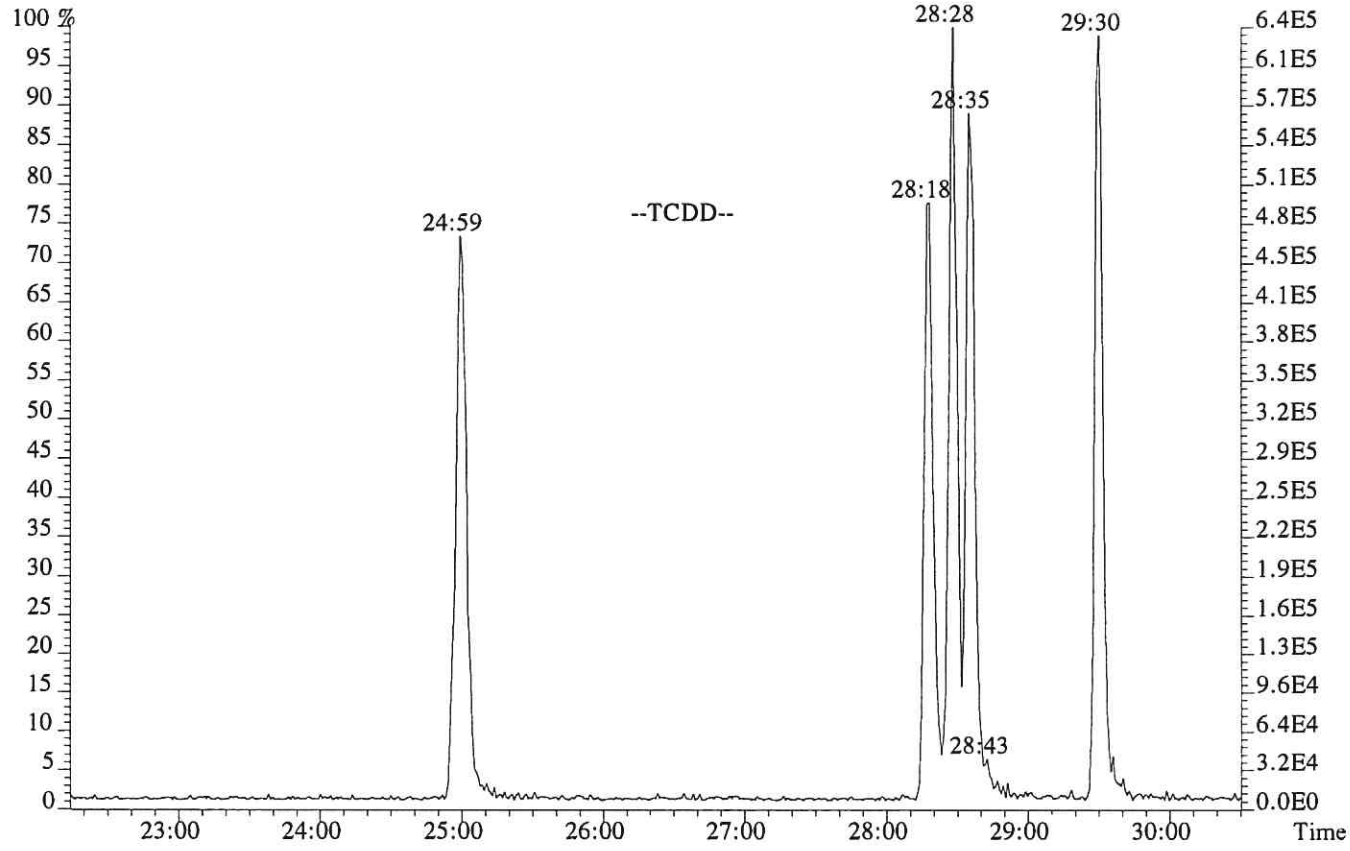
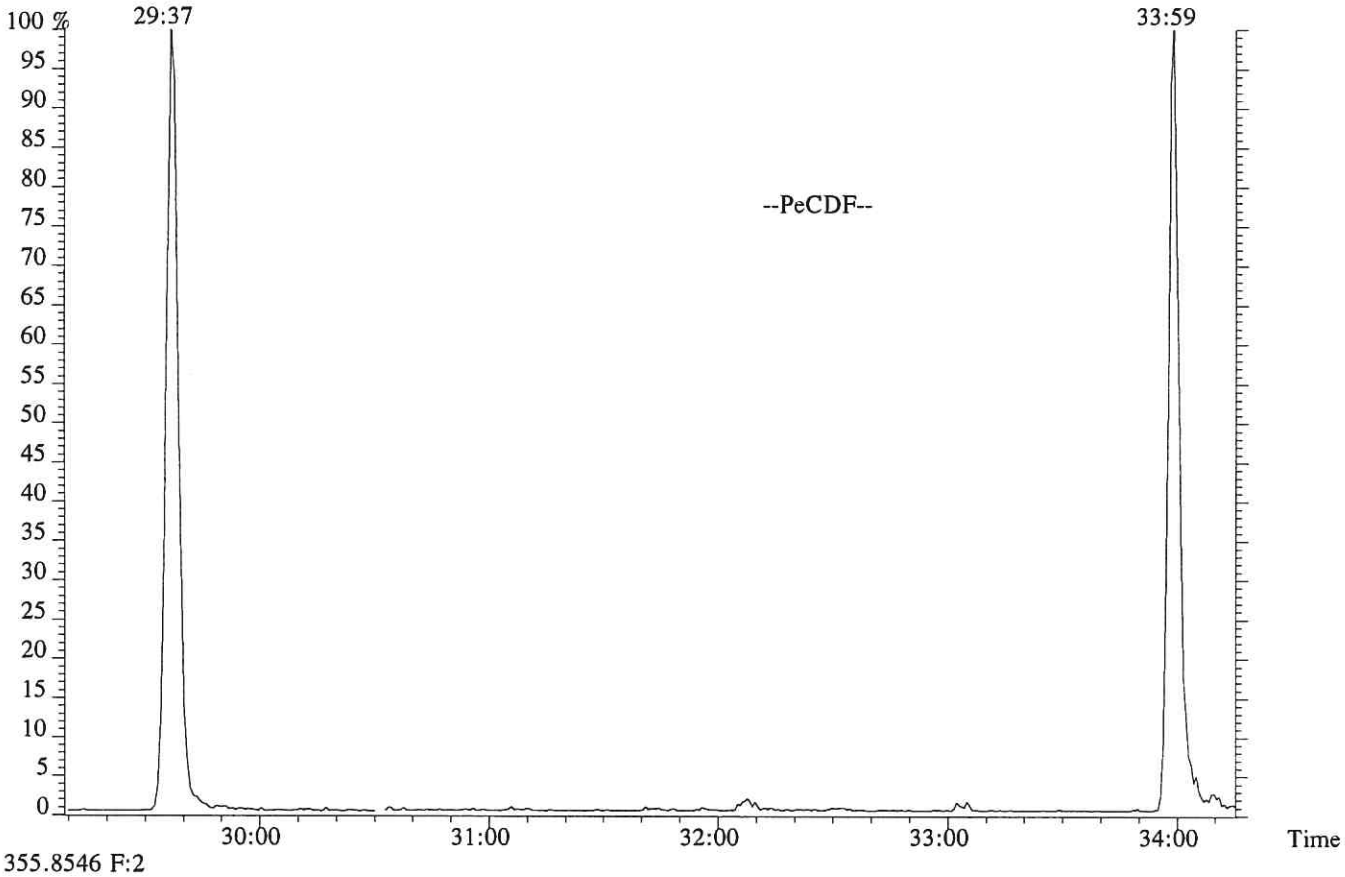


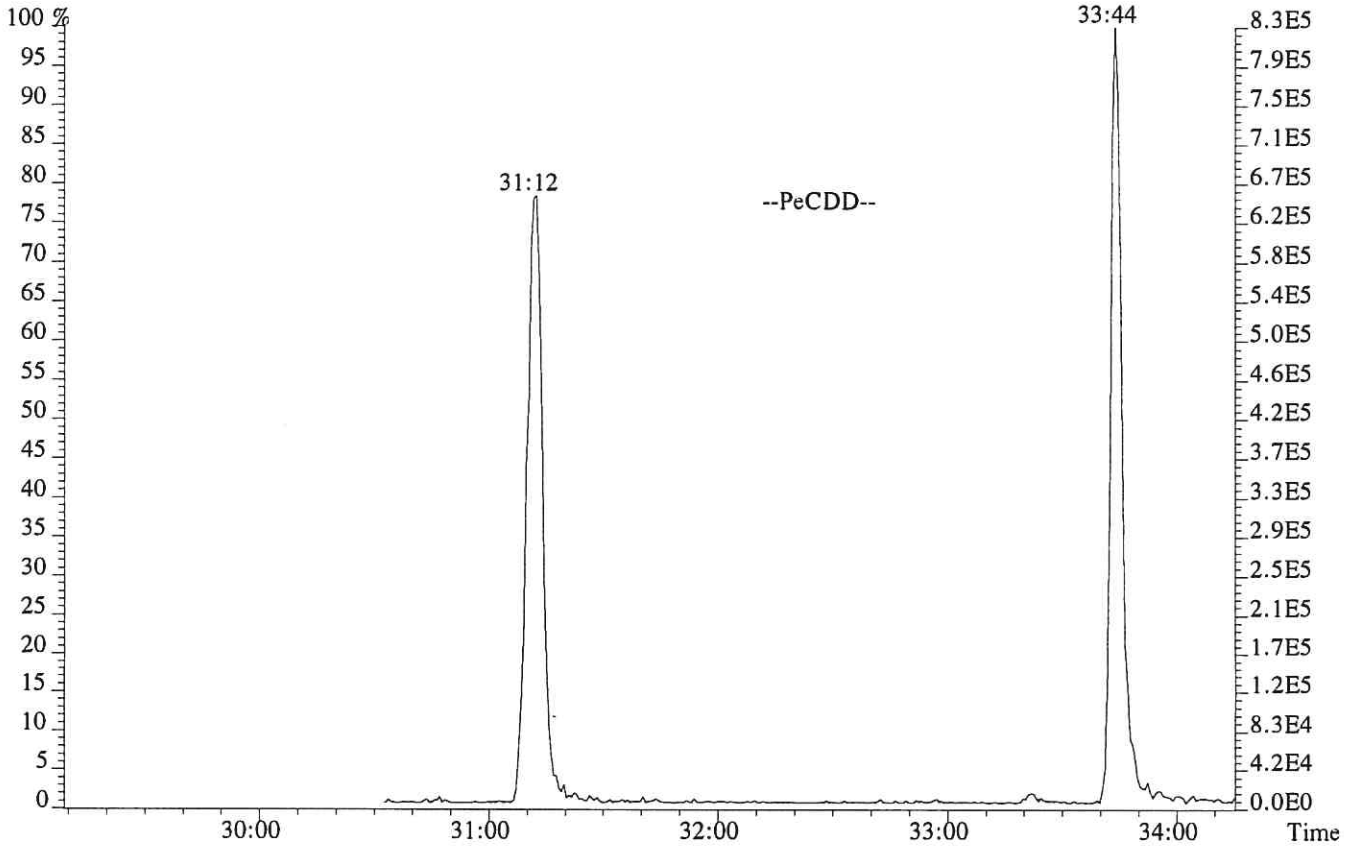
319.8965



File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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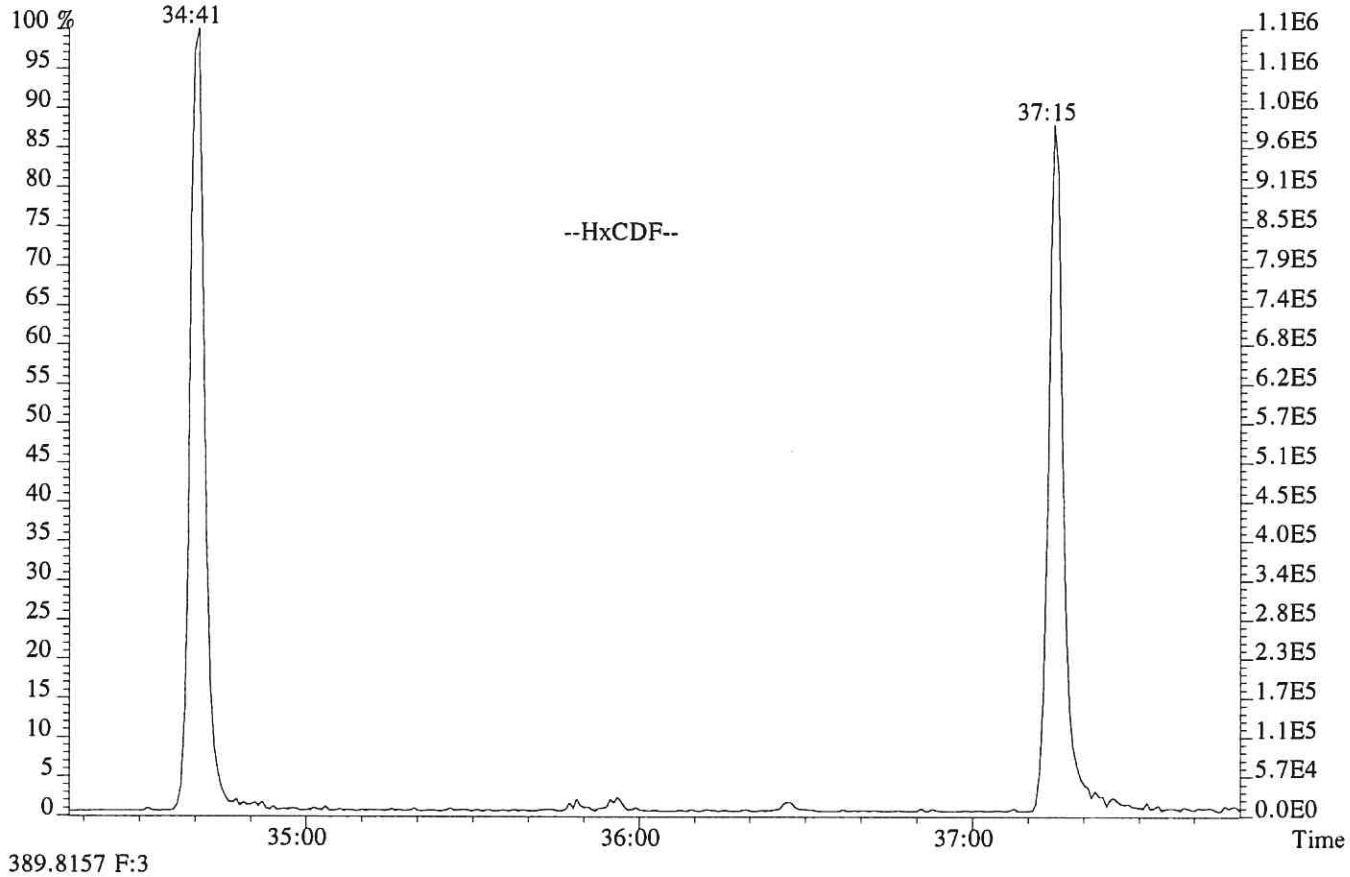
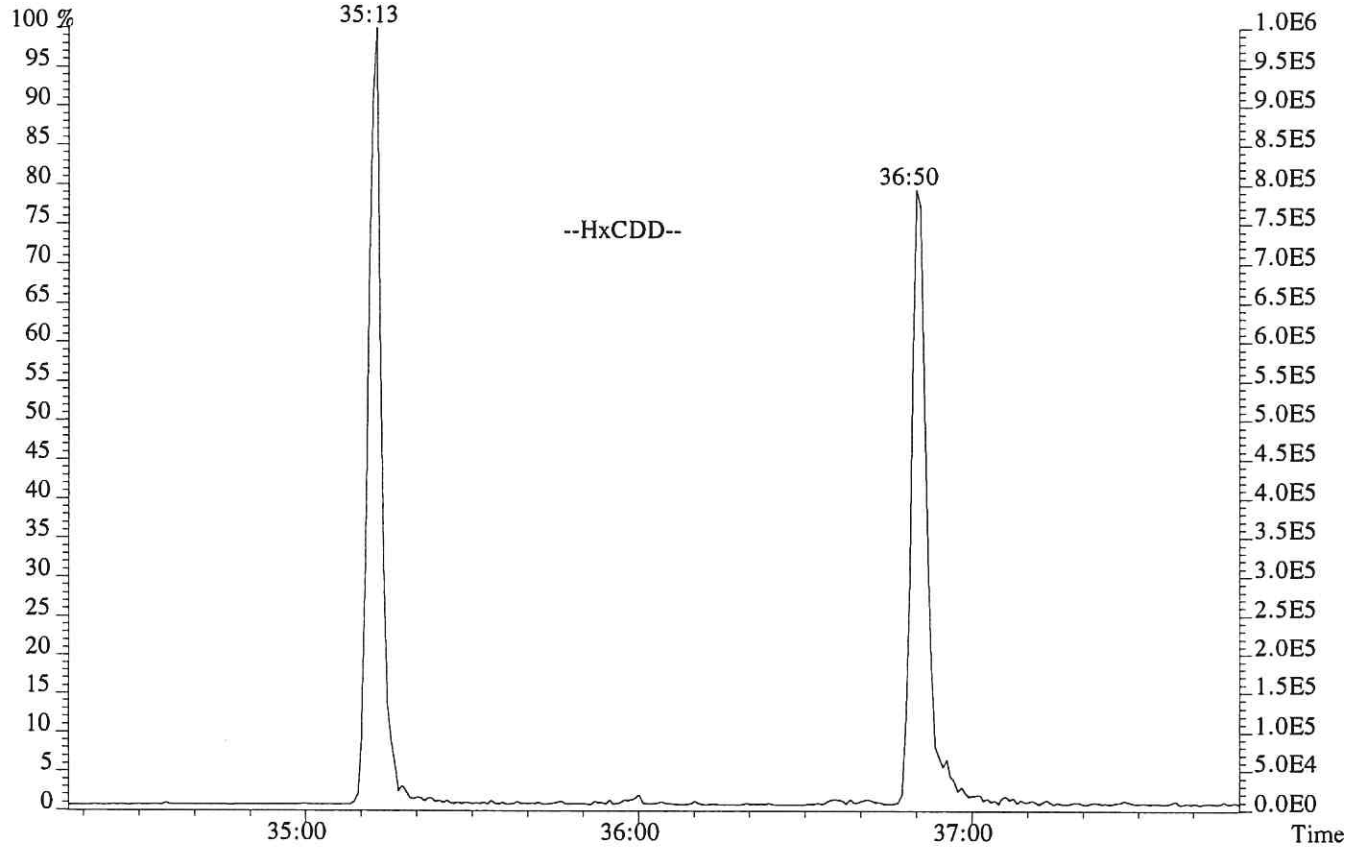
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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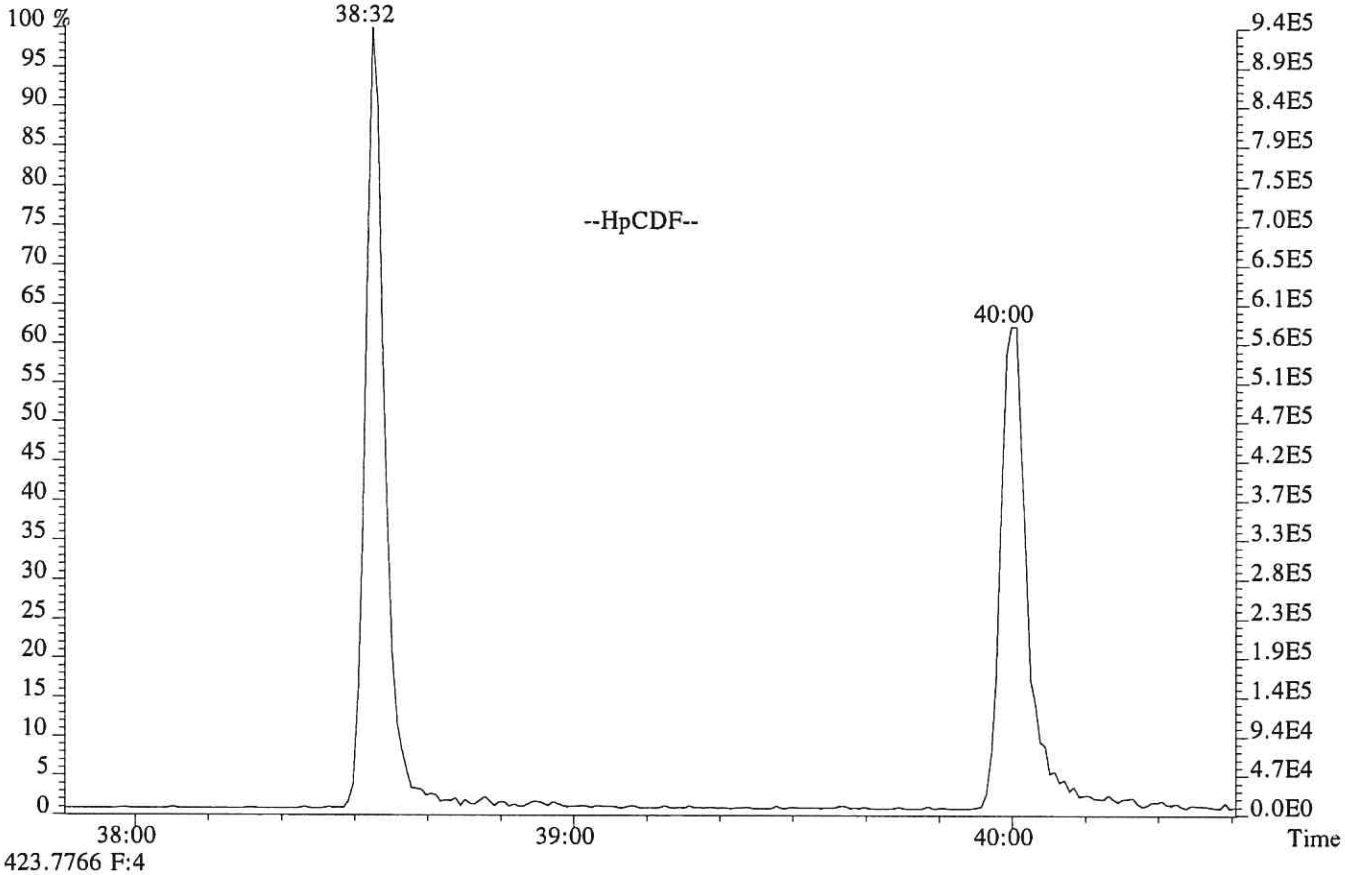
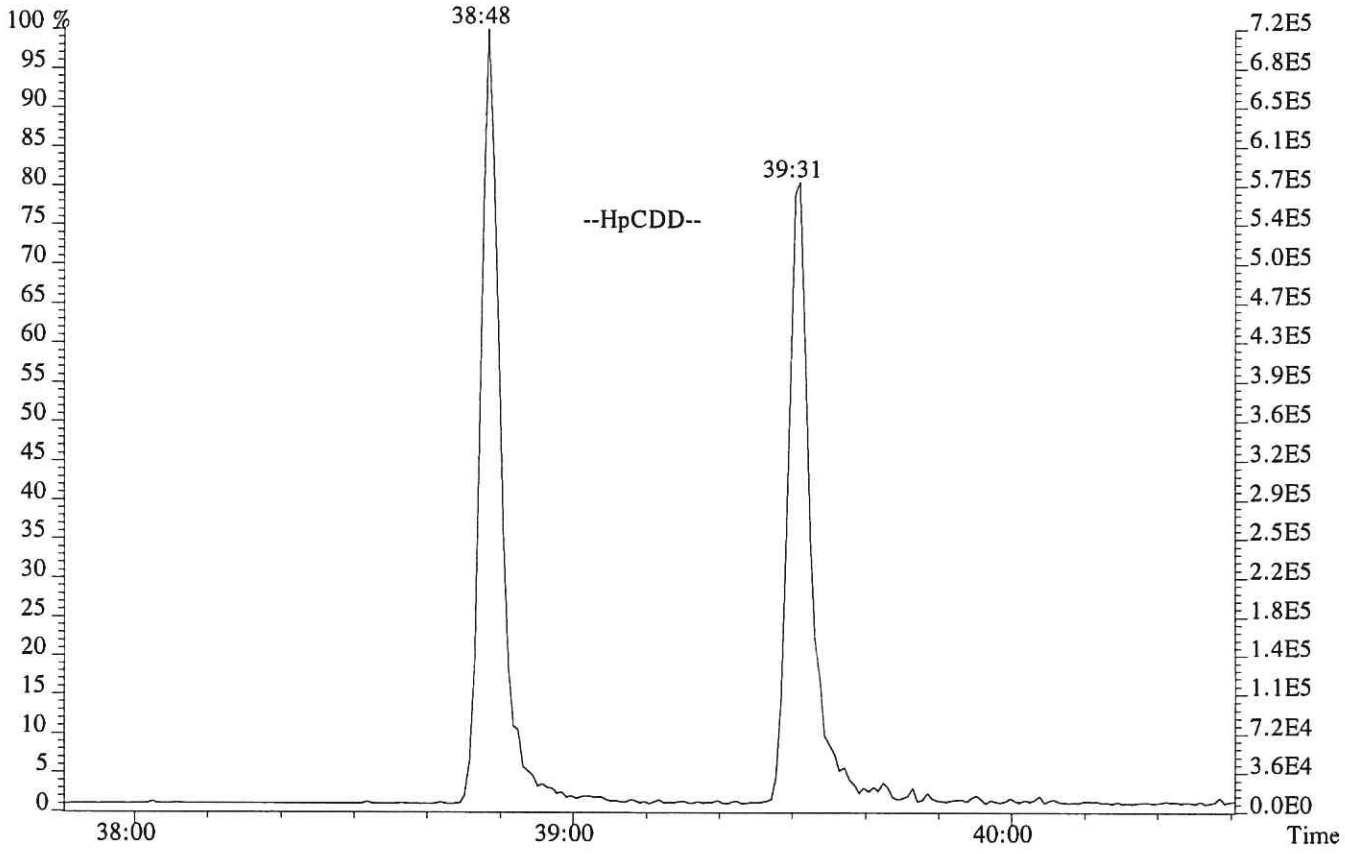
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-5.5
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	0.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	8.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	0.9
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.8	8.4 - 12.0	-1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-1.3
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 61	-1.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	50	43 - 58	0.3
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	5.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	113	62 - 160	12.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 117	-6.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	95	85 - 118	-5.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	107	72 - 138	6.8
13C-OCDD	M+2/M+4	0.89	0.76-1.02	233	96 - 415	16.7
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-1.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	112	76 - 130	12.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	113	77 - 130	12.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	87	76 - 131	-12.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	70 - 143	-6.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-1.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-4.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	107	77 - 129	6.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	2.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	5.308e+03	7.001e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	4.406e+04	2.904e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.136e+04	2.740e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.543e+04	2.949e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.963e+04	3.312e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.593e+04	2.996e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.331e+04	2.736e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	3.483e+04	3.414e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	2.697e+04	2.740e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:42	4.159e+04	4.700e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.844e+03	5.065e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.852e+04	1.810e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.467e+04	1.982e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	2.629e+04	2.095e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.782e+04	2.213e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.401e+04	2.264e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:31	3.511e+04	3.992e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	5.910e+04	7.387e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	9.023e+04	5.608e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	8.955e+04	5.616e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.605e+04	7.021e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.469e+04	8.464e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	4.040e+04	7.823e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	3.652e+04	6.908e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	3.151e+04	7.056e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.613e+04	6.006e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.848e+04	4.842e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	5.991e+04	3.752e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	4.768e+04	3.726e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	4.968e+04	3.871e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	4.639e+04	4.383e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:30	6.314e+04	7.068e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.953e+04	4.928e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	5.488e+04	4.359e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	9.184e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.33e+05	5.80e+02	1.6e+03	1.26e+06	1.14e+03	1.1e+03
2	1,2,3,7,8-PeCDF	8.13e+06	4.40e+02	1.8e+04	5.42e+06	9.84e+02	5.5e+03
3	2,3,4,7,8-PeCDF	8.16e+06	4.40e+02	1.9e+04	5.36e+06	9.84e+02	5.4e+03
4	1,2,3,4,7,8-HxCDF	7.30e+06	3.56e+02	2.1e+04	5.92e+06	3.92e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	7.85e+06	3.56e+02	2.2e+04	6.68e+06	3.92e+02	1.7e+04
6	2,3,4,6,7,8-HxCDF	7.22e+06	3.56e+02	2.0e+04	6.04e+06	3.92e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	5.99e+06	3.56e+02	1.7e+04	4.98e+06	3.92e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	6.57e+06	5.59e+03	1.2e+03	6.39e+06	2.82e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	4.32e+06	5.59e+03	7.7e+02	4.36e+06	2.82e+03	1.5e+03
10	OCDF	4.91e+06	3.52e+02	1.4e+04	5.52e+06	5.44e+02	1.0e+04
11	2,3,7,8-TCDD	7.22e+05	1.69e+03	4.3e+02	9.34e+05	1.03e+03	9.1e+02
12	1,2,3,7,8-PeCDD	5.29e+06	4.88e+02	1.1e+04	3.37e+06	2.48e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	5.00e+06	3.28e+02	1.5e+04	3.94e+06	4.28e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	5.26e+06	3.28e+02	1.6e+04	4.13e+06	4.28e+02	9.7e+03
15	1,2,3,7,8,9-HxCDD	5.12e+06	3.28e+02	1.6e+04	4.05e+06	4.28e+02	9.5e+03
16	1,2,3,4,6,7,8-HpCDD	4.10e+06	6.36e+02	6.4e+03	3.84e+06	1.96e+02	2.0e+04
17	OCDD	4.01e+06	1.76e+02	2.3e+04	4.56e+06	3.08e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.04e+07	4.63e+03	2.2e+03	1.31e+07	4.45e+03	2.9e+03
19	13C-1,2,3,7,8-PeCDF	1.64e+07	1.20e+03	1.4e+04	1.02e+07	1.35e+03	7.6e+03
20	13C-2,3,4,7,8-PeCDF	1.70e+07	1.20e+03	1.4e+04	1.07e+07	1.35e+03	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.25e+06	6.72e+02	1.1e+04	1.40e+07	5.60e+02	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	8.79e+06	6.72e+02	1.3e+04	1.67e+07	5.60e+02	3.0e+04
23	13C-2,3,4,6,7,8-HxCDF	8.01e+06	6.72e+02	1.2e+04	1.55e+07	5.60e+02	2.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.47e+06	6.72e+02	9.6e+03	1.24e+07	5.60e+02	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.84e+06	1.65e+03	3.5e+03	1.32e+07	2.66e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.25e+06	1.65e+03	2.6e+03	9.43e+06	2.66e+03	3.5e+03
27	13C-2,3,7,8-TCDD	7.12e+06	4.84e+03	1.5e+03	8.94e+06	1.87e+03	4.8e+03
28	13C-1,2,3,7,8-PeCDD	1.14e+07	8.56e+02	1.3e+04	7.20e+06	9.88e+02	7.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.50e+06	1.08e+03	8.8e+03	7.34e+06	4.88e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	9.67e+06	1.08e+03	9.0e+03	7.57e+06	4.88e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.85e+06	6.60e+02	1.2e+04	7.47e+06	6.88e+02	1.1e+04
32	13C-OCDD	7.14e+06	9.36e+02	7.6e+03	7.97e+06	3.52e+02	2.3e+04
33	13C-1,2,3,4-TCDD	7.30e+06	4.84e+03	1.5e+03	9.12e+06	1.87e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.08e+03	9.3e+03	7.85e+06	4.88e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.71e+06	6.16e+02	2.8e+03			

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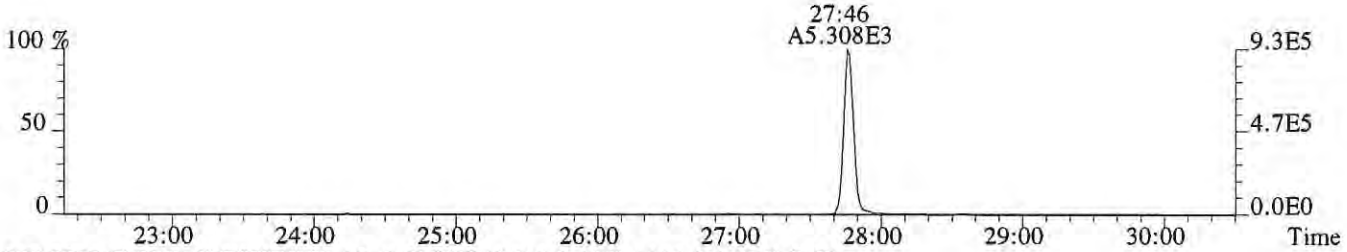
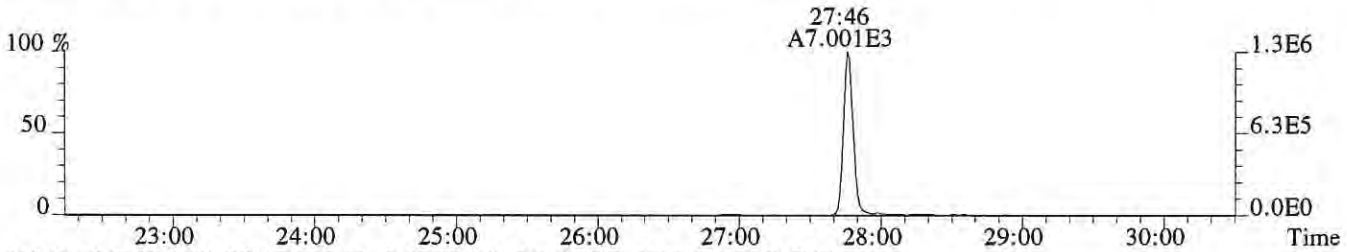
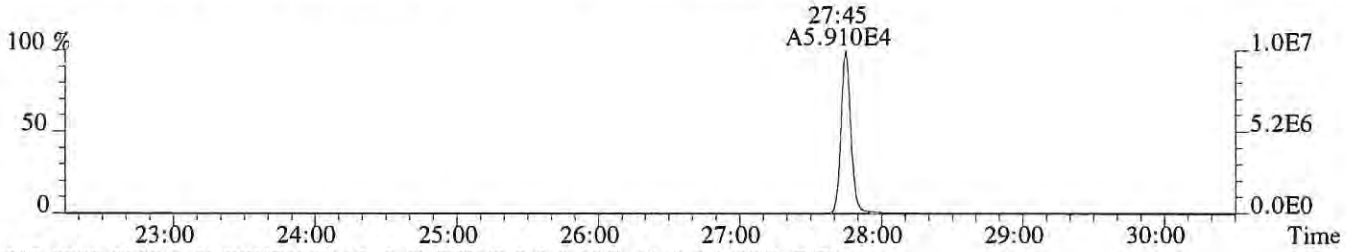
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



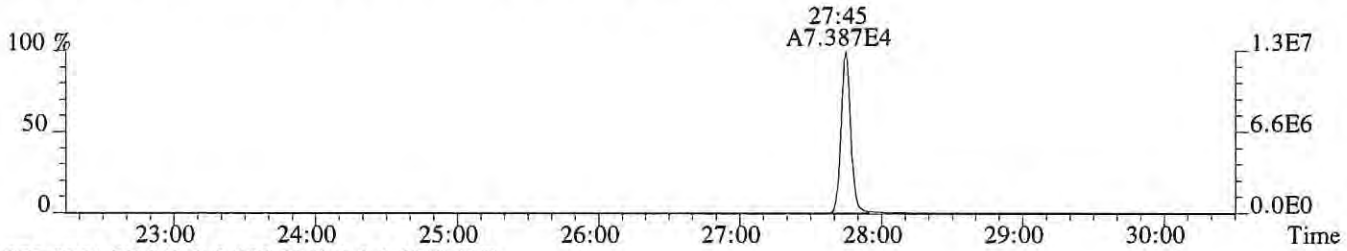
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



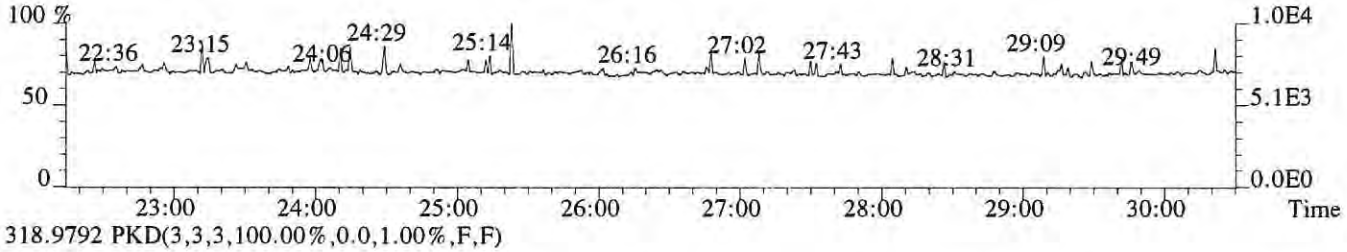
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4628.0,1.00%,F,T)



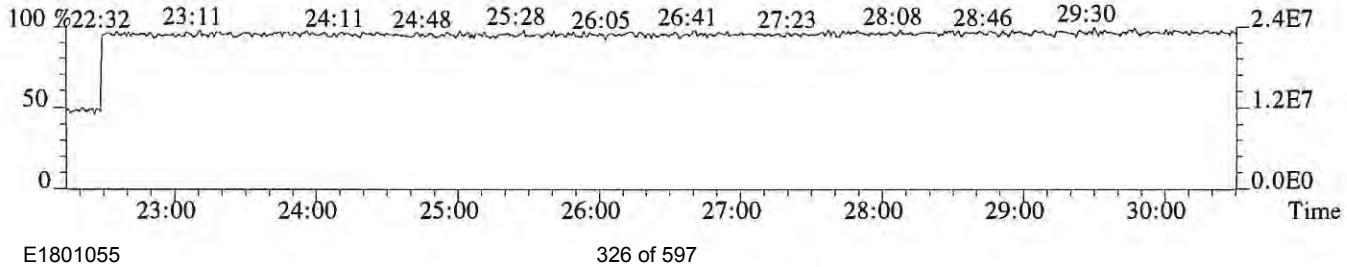
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



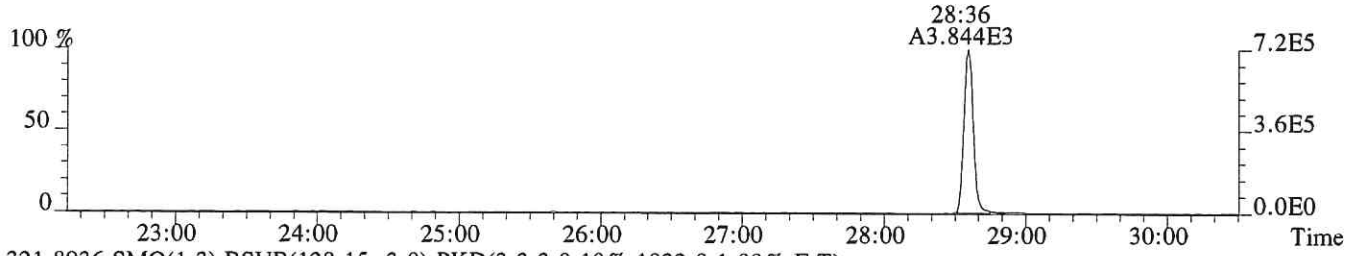
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



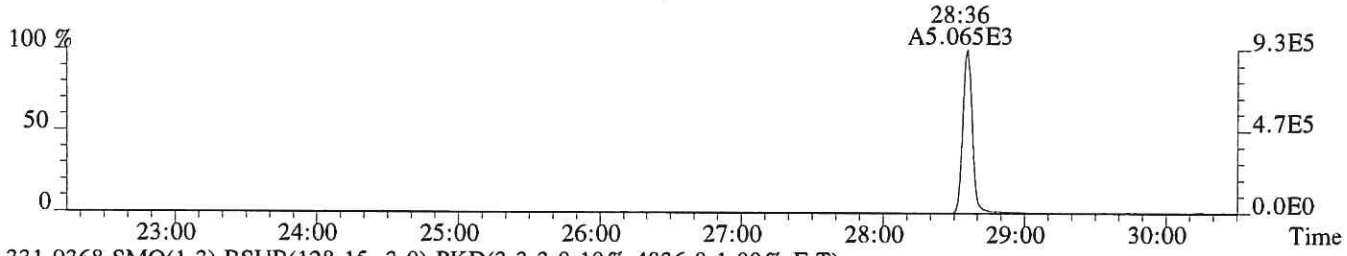
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



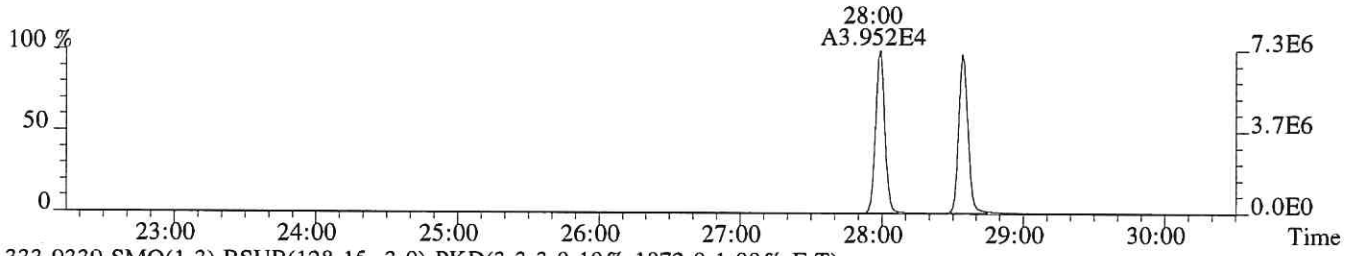
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



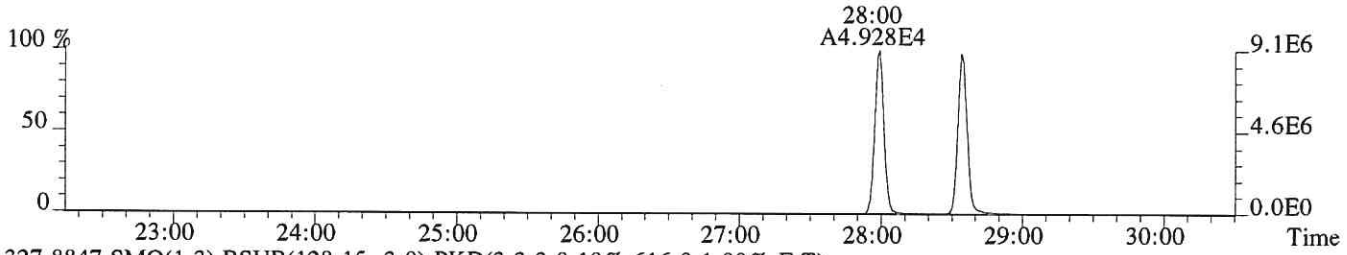
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



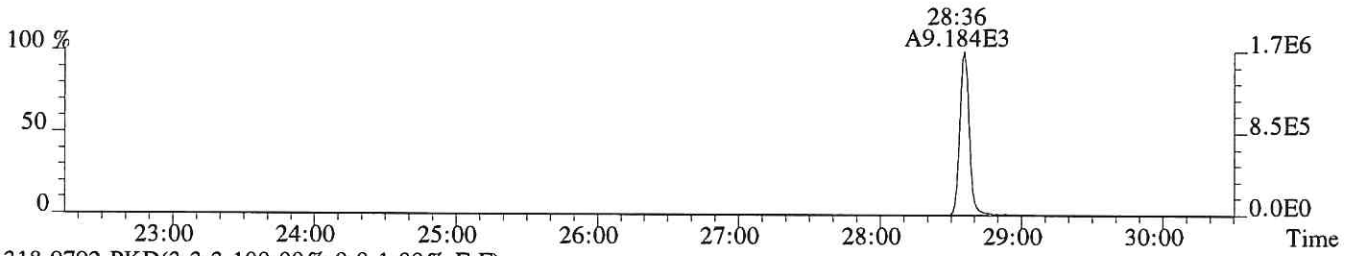
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4836.0,1.00%,F,T)



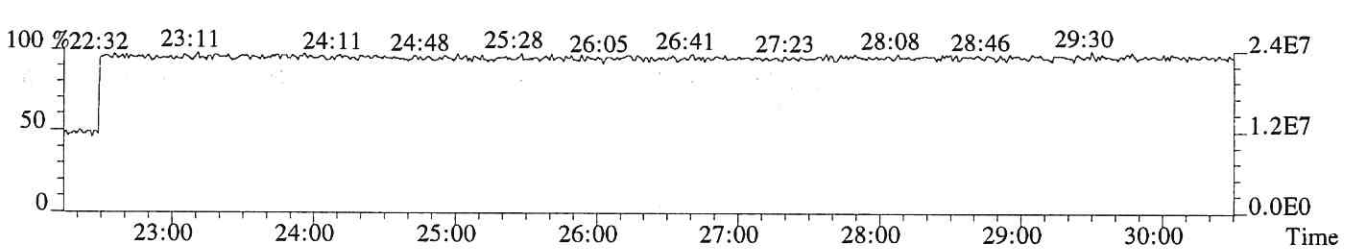
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



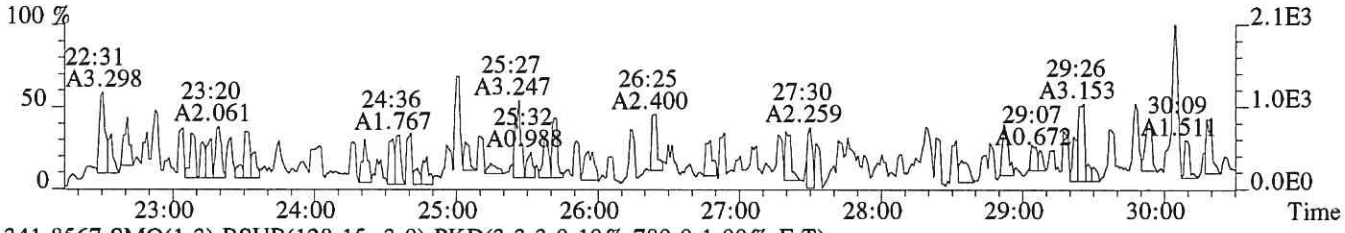
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



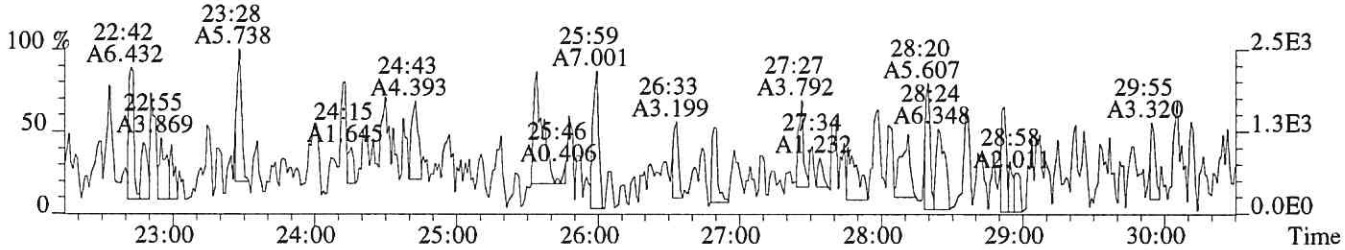
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



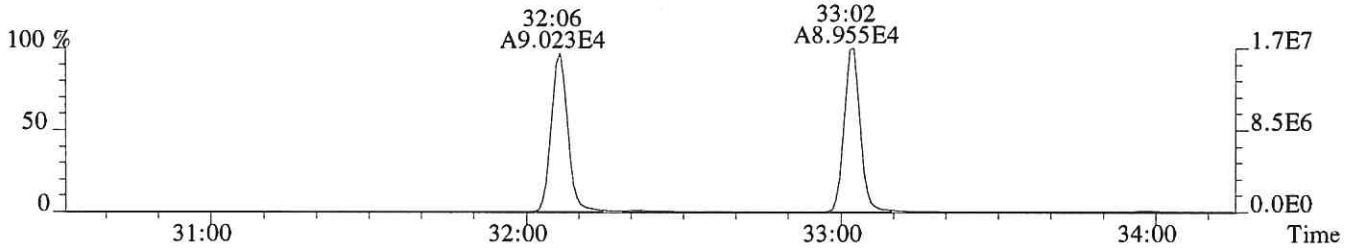
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



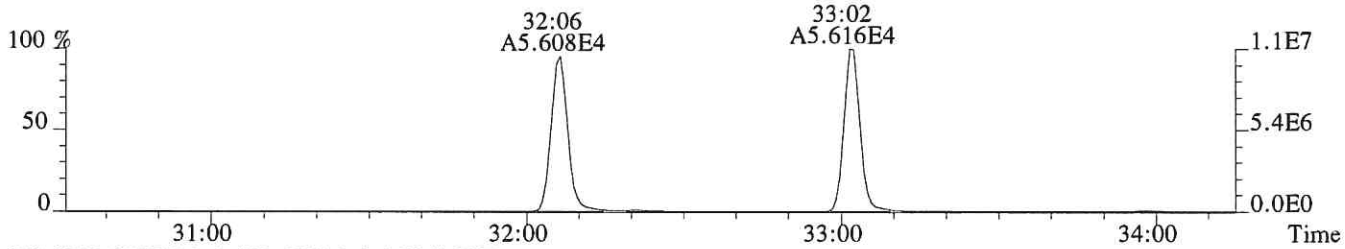
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



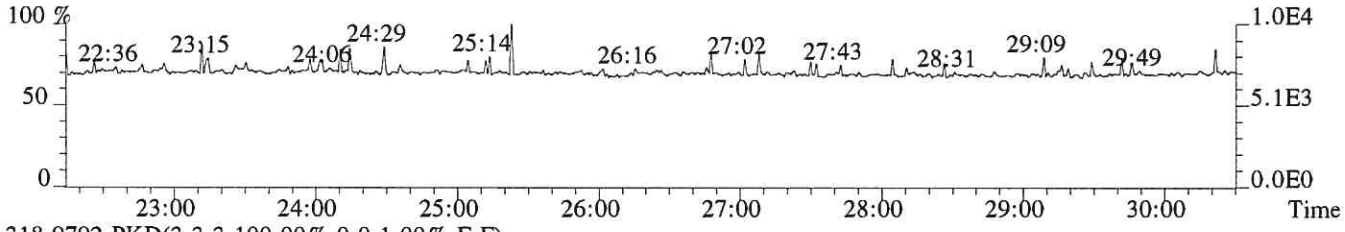
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



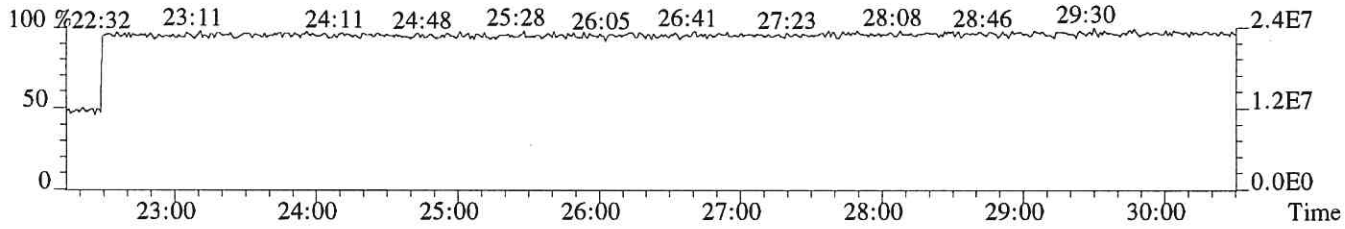
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



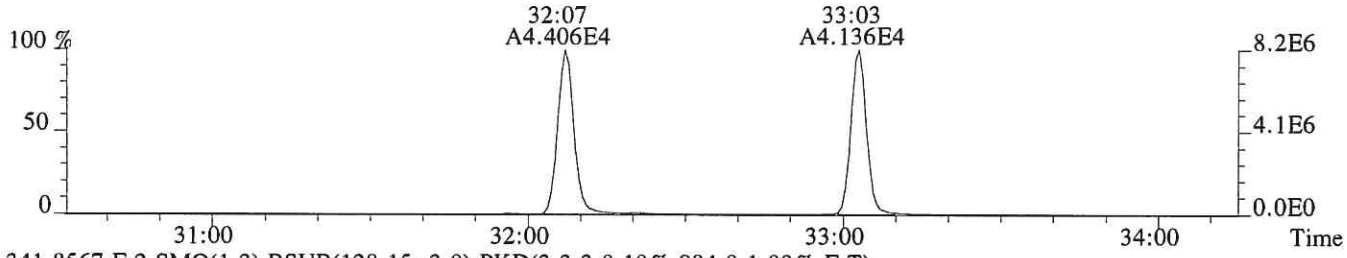
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



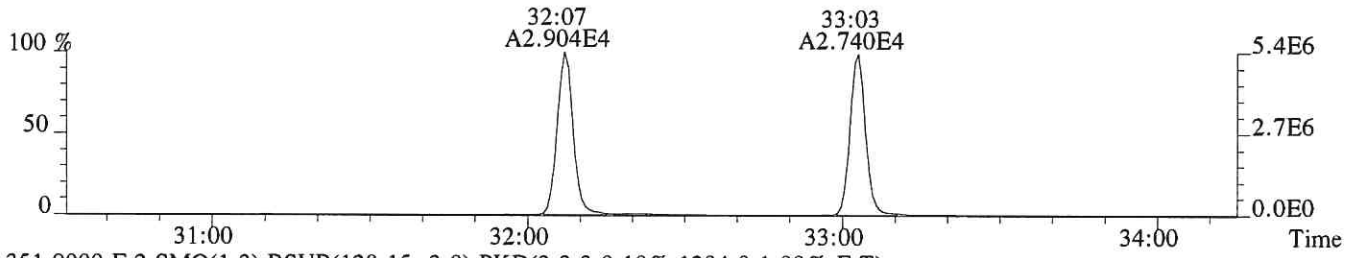
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



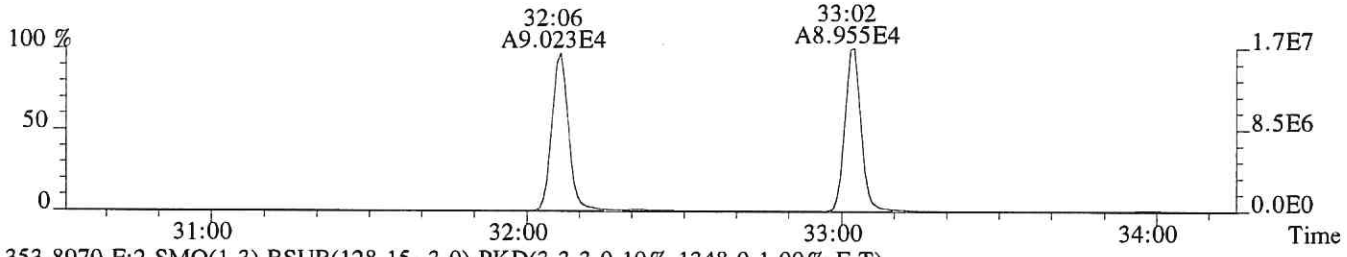
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



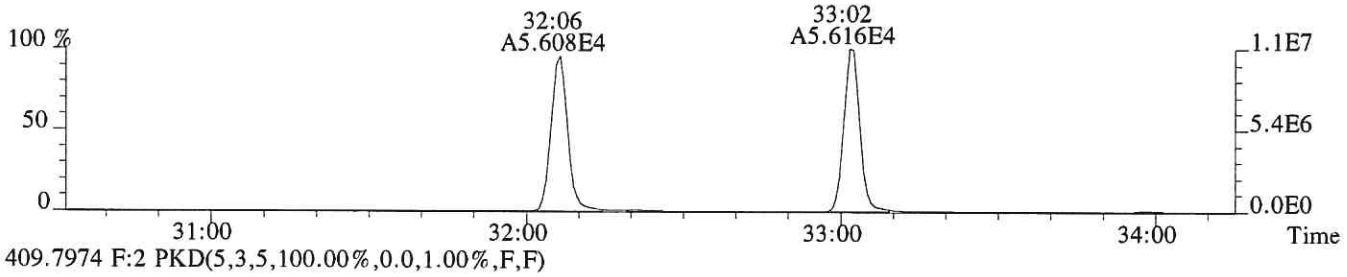
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



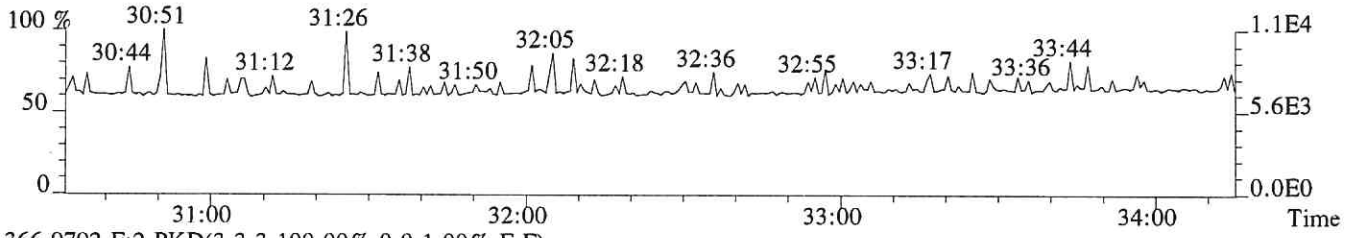
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



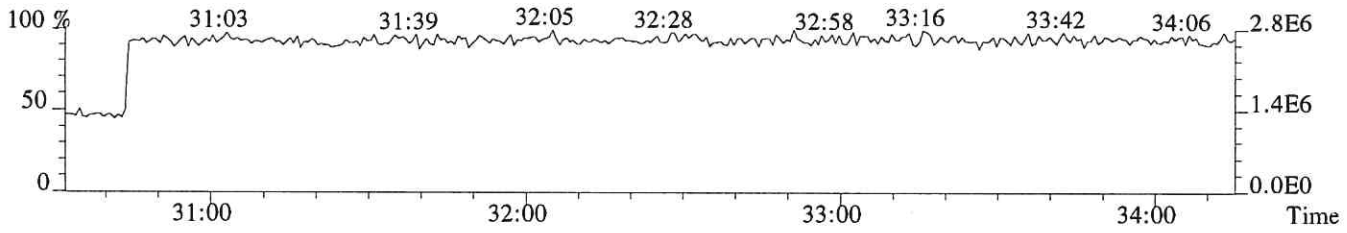
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



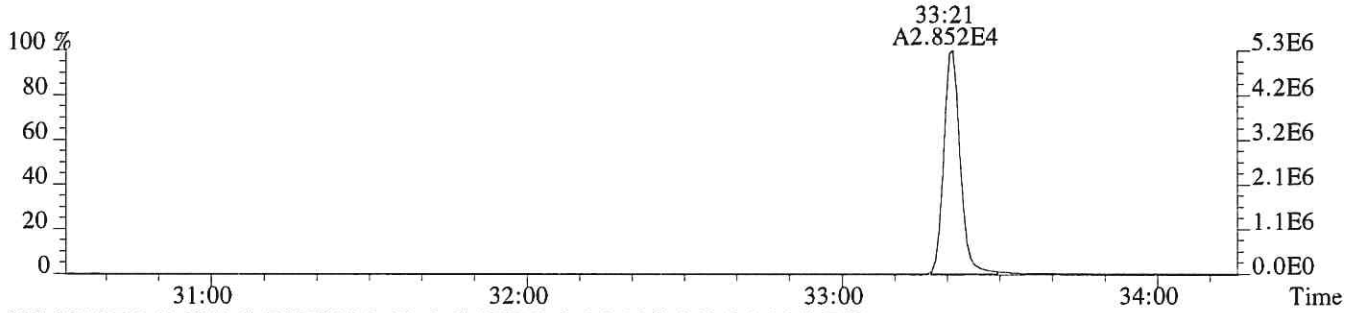
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



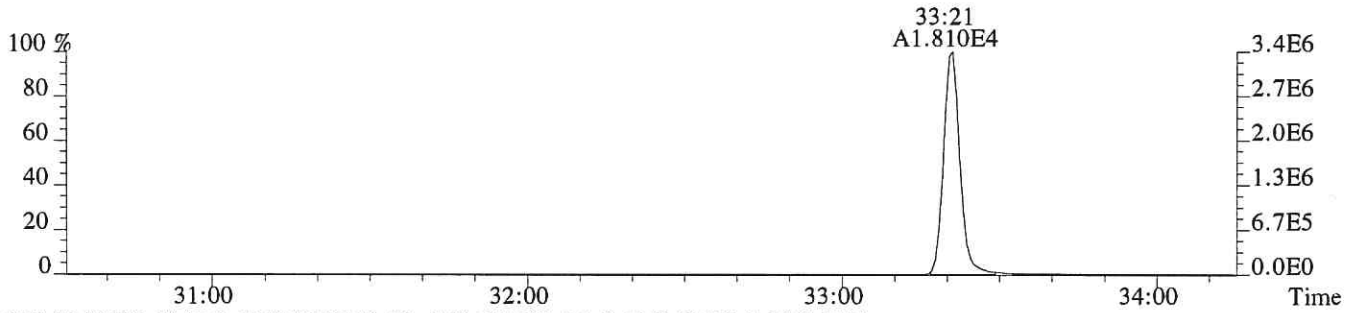
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



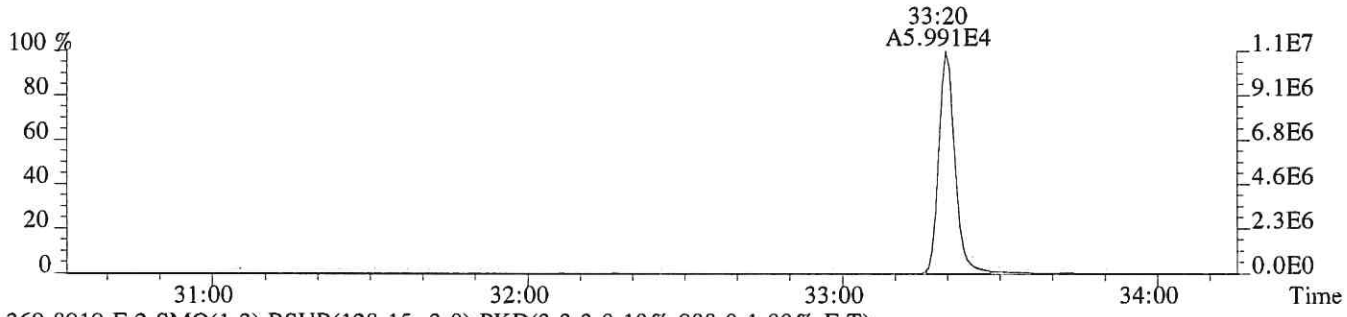
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



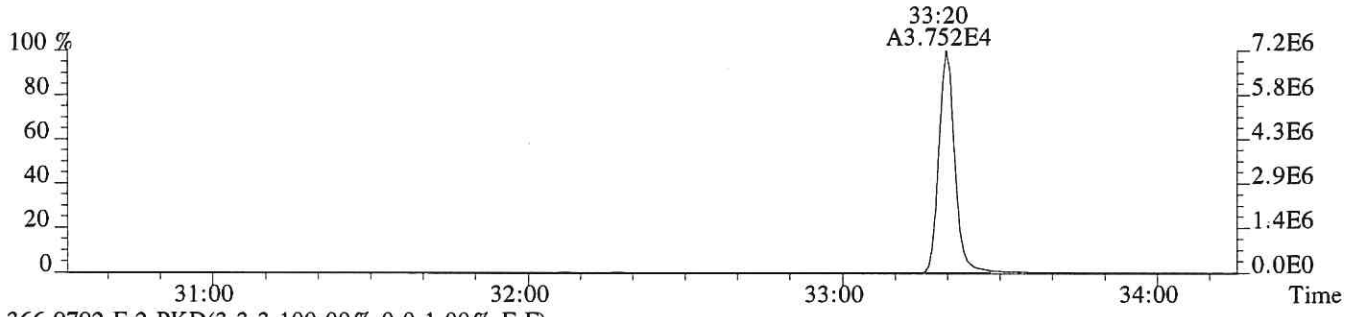
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



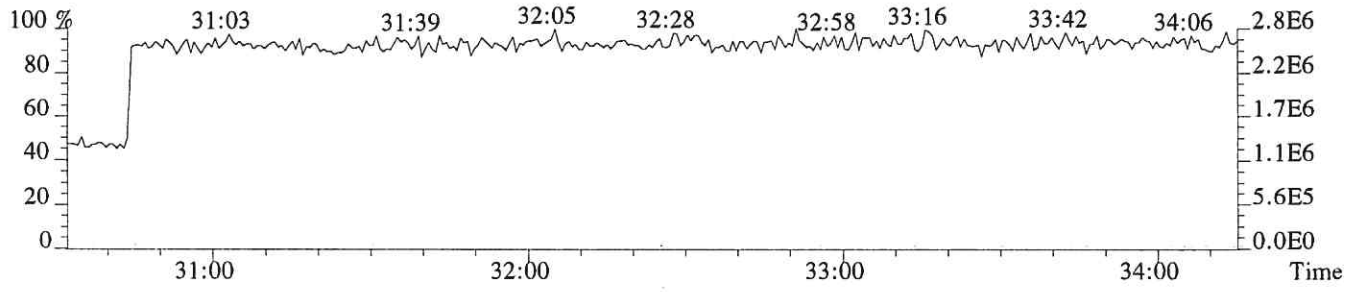
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



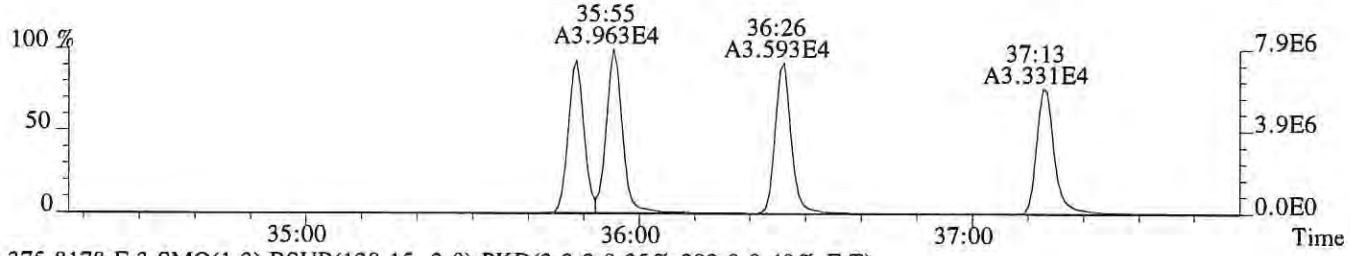
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



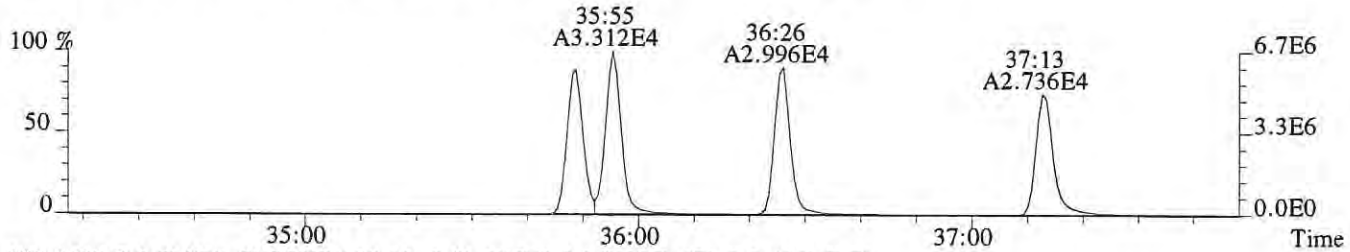
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



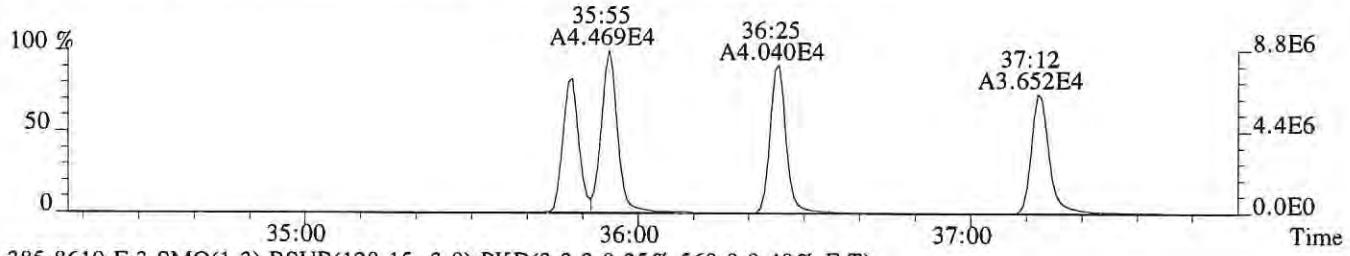
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



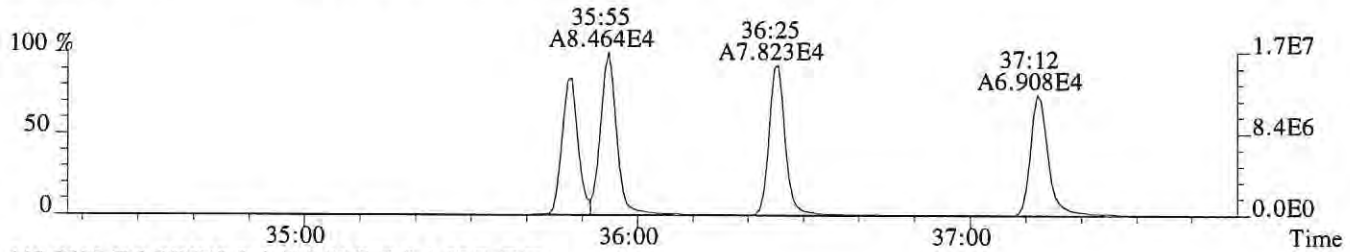
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



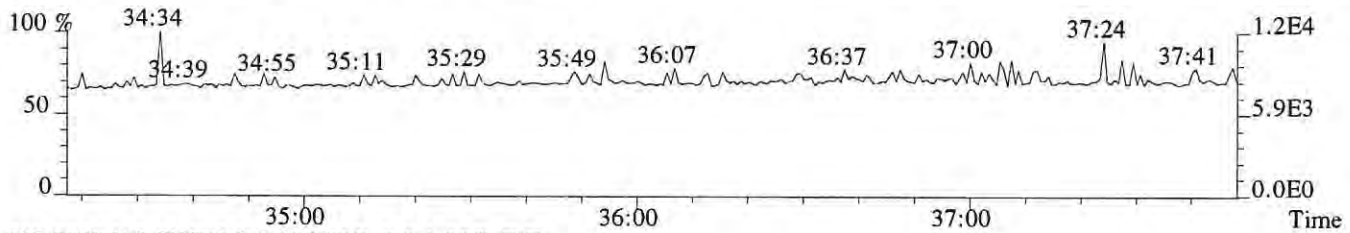
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



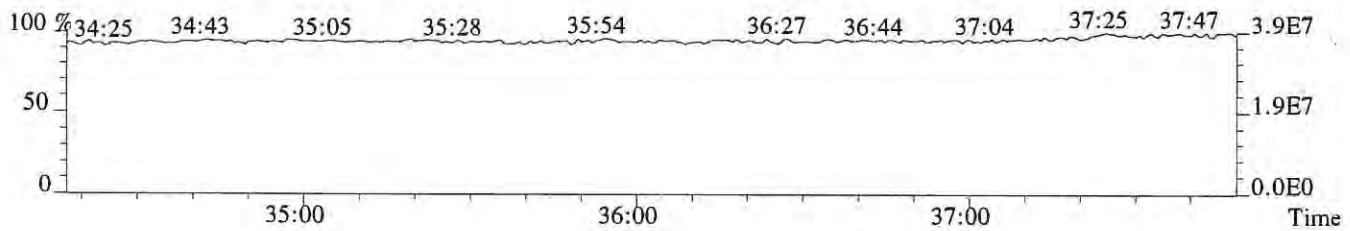
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



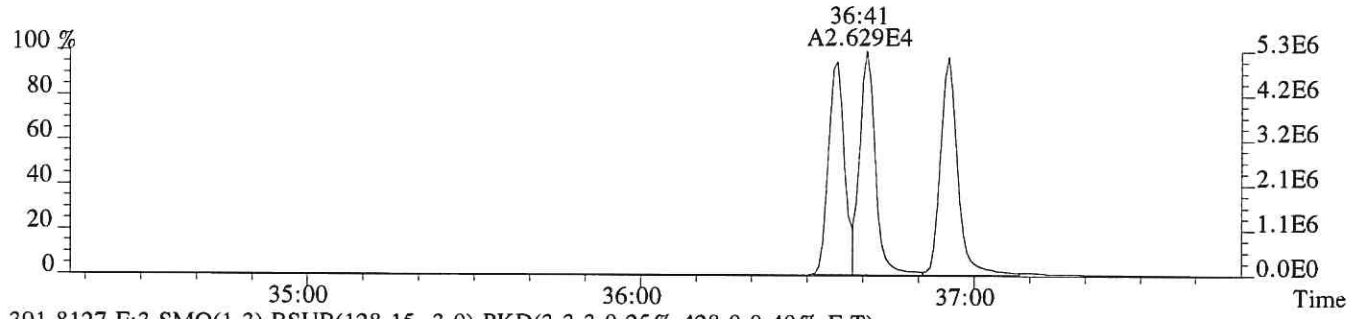
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



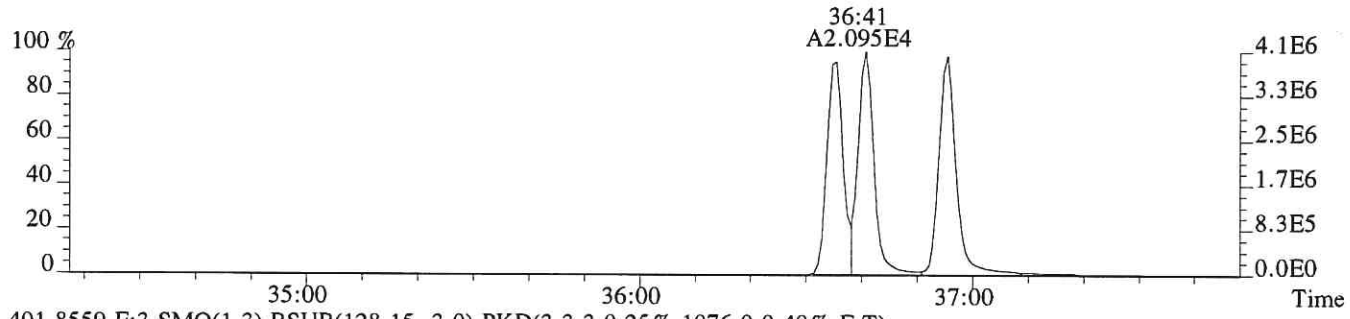
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



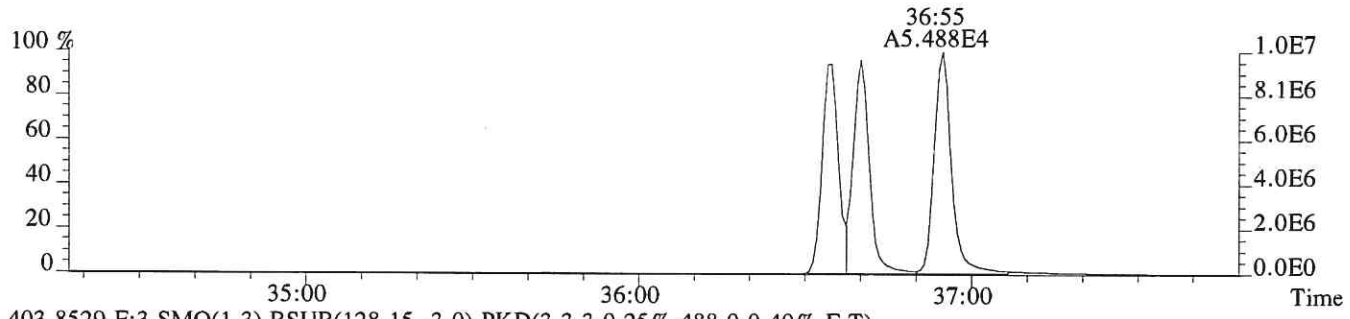
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



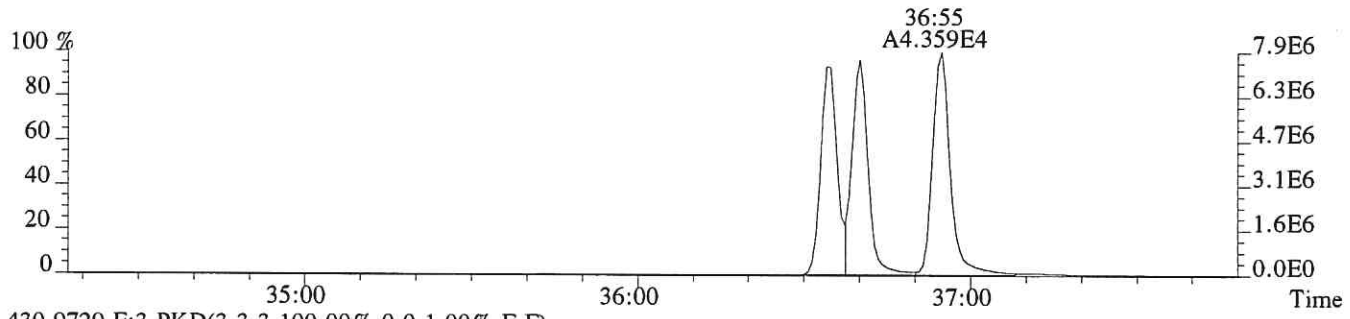
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



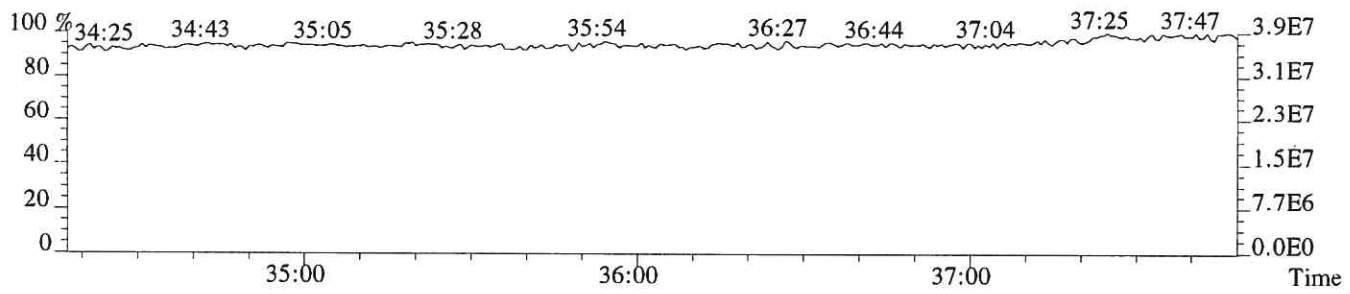
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



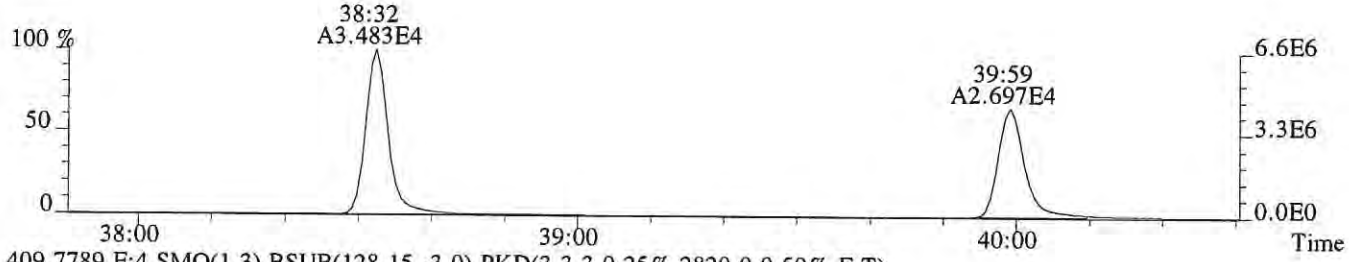
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



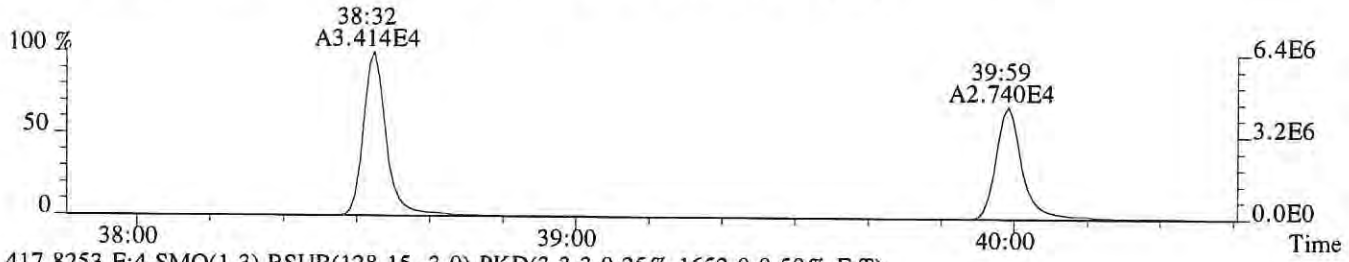
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



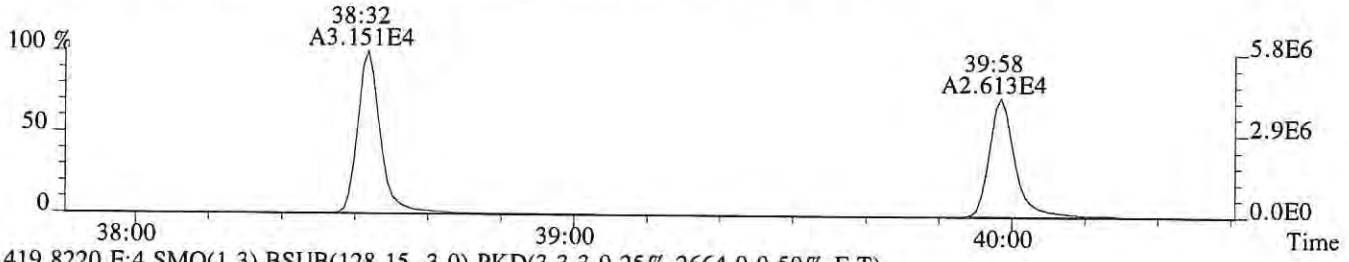
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5592.0,0.50%,F,T)



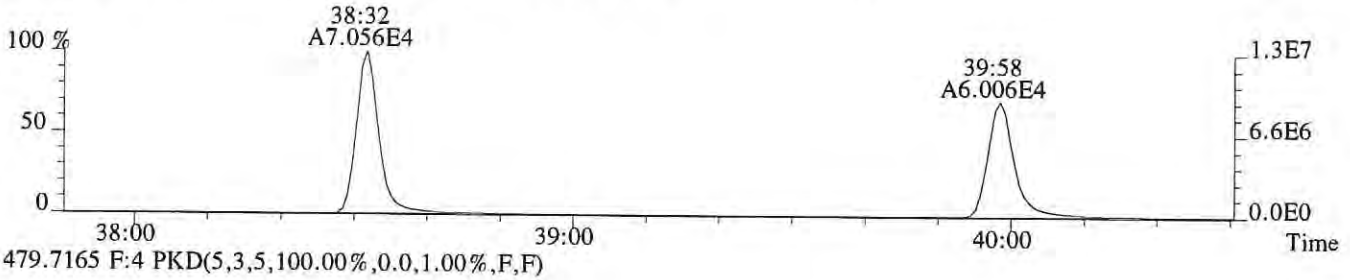
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.50%,F,T)



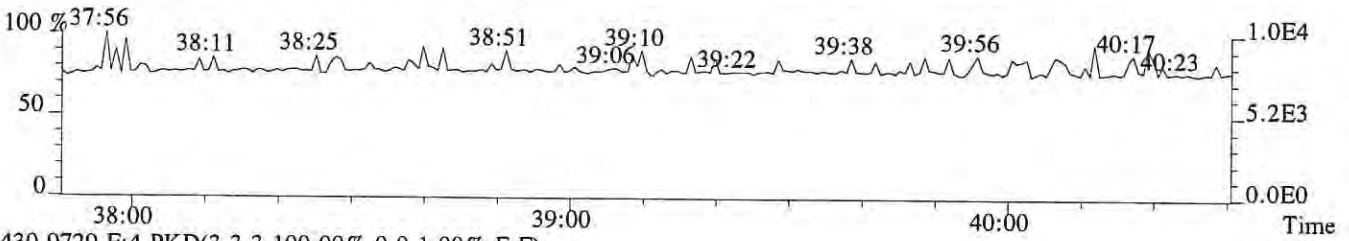
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



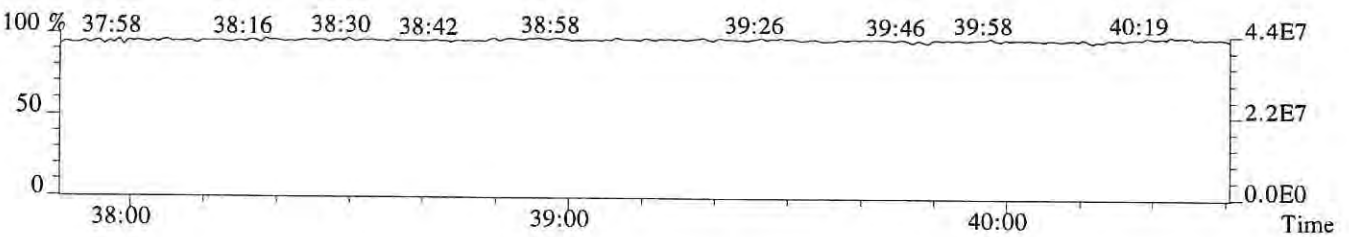
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2664.0,0.50%,F,T)



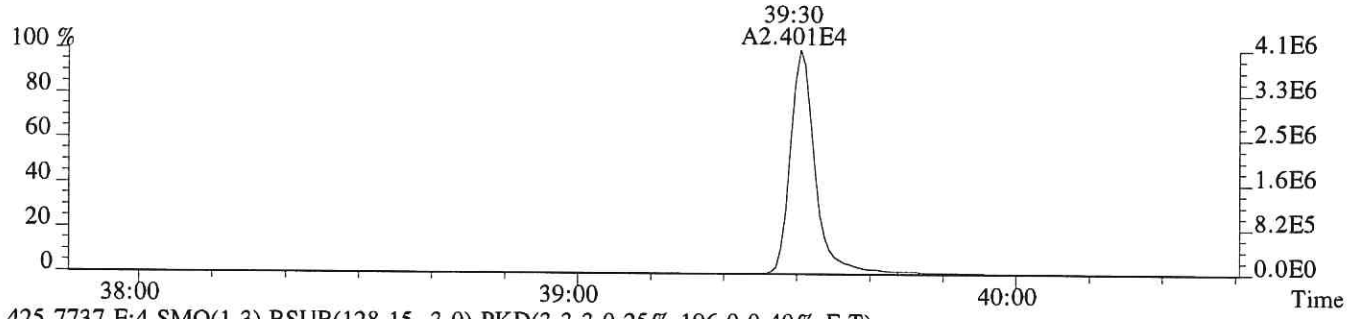
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



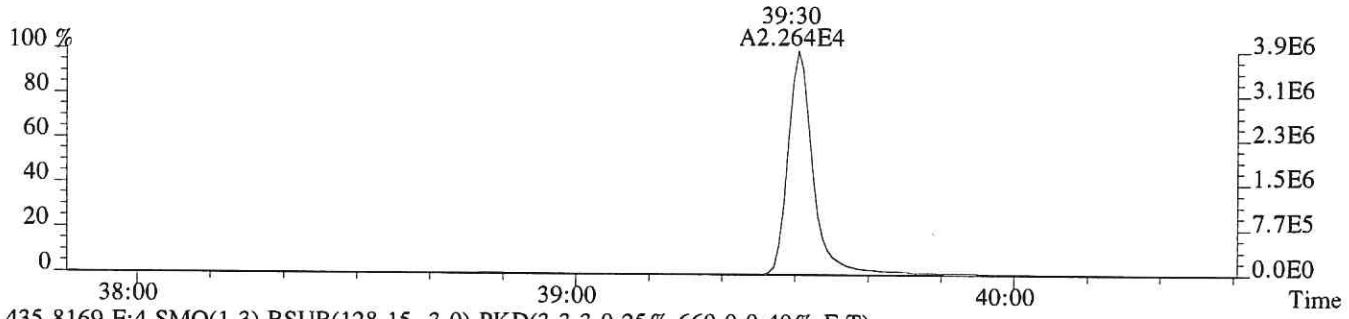
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



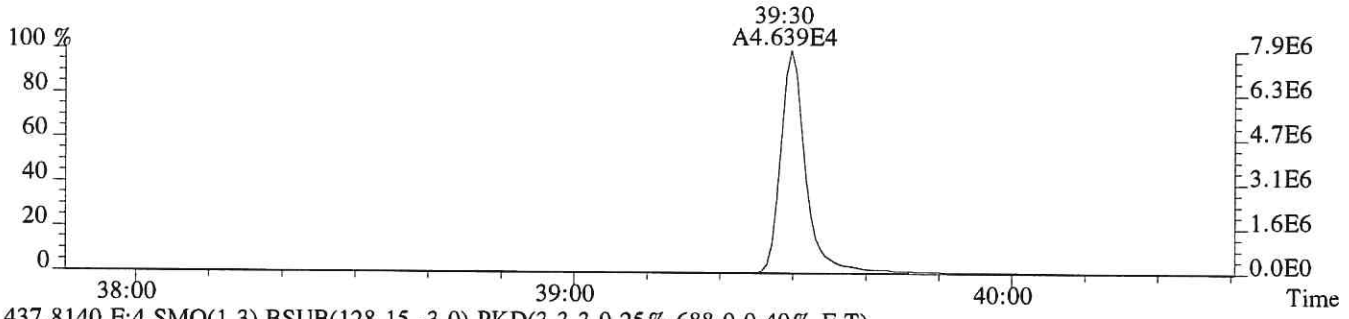
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



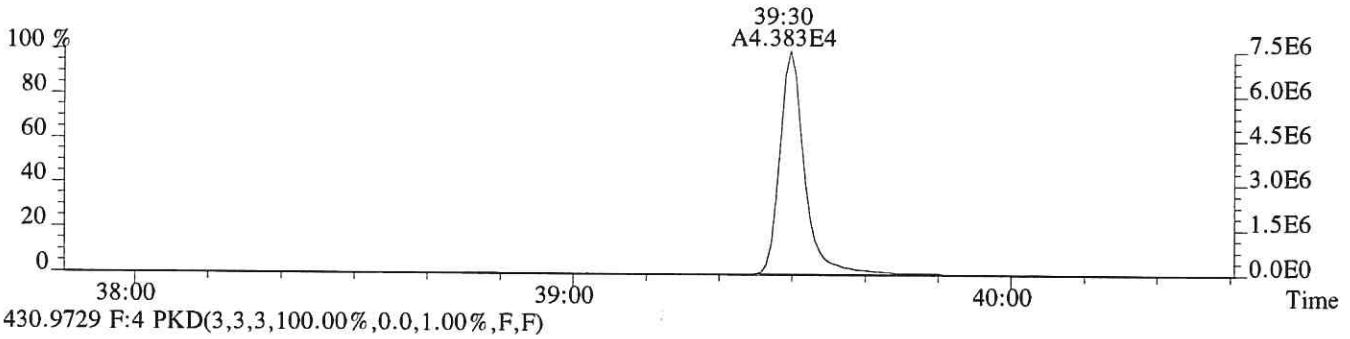
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



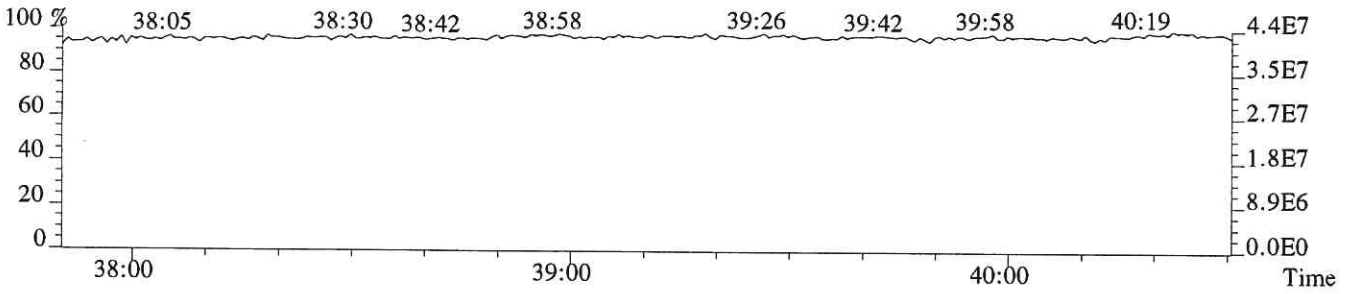
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



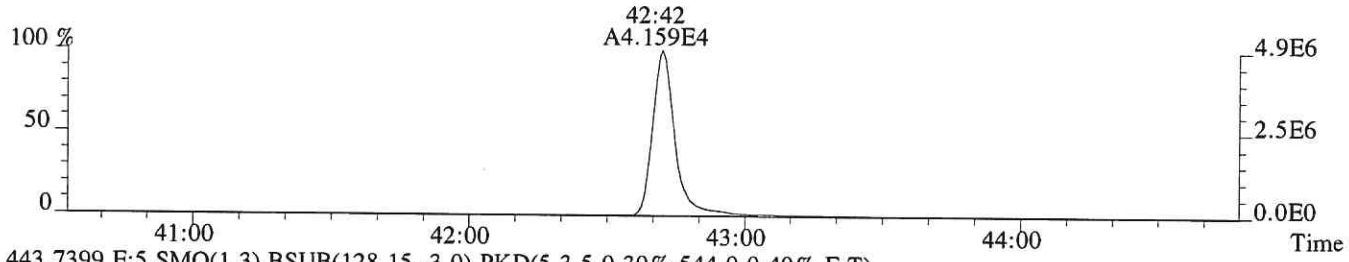
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



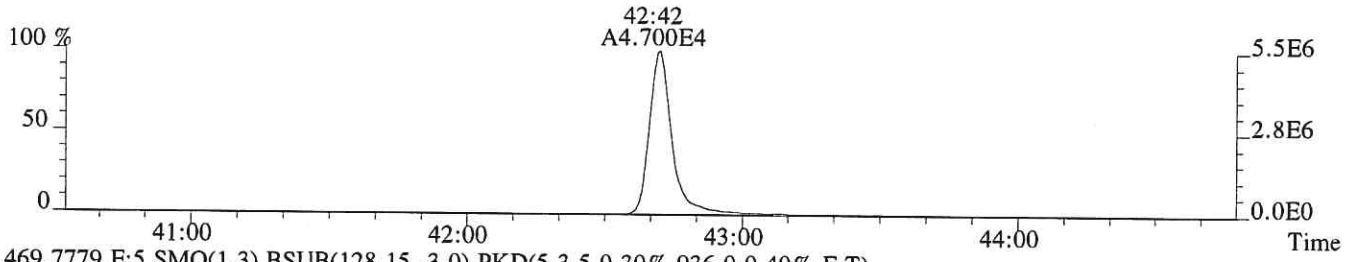
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



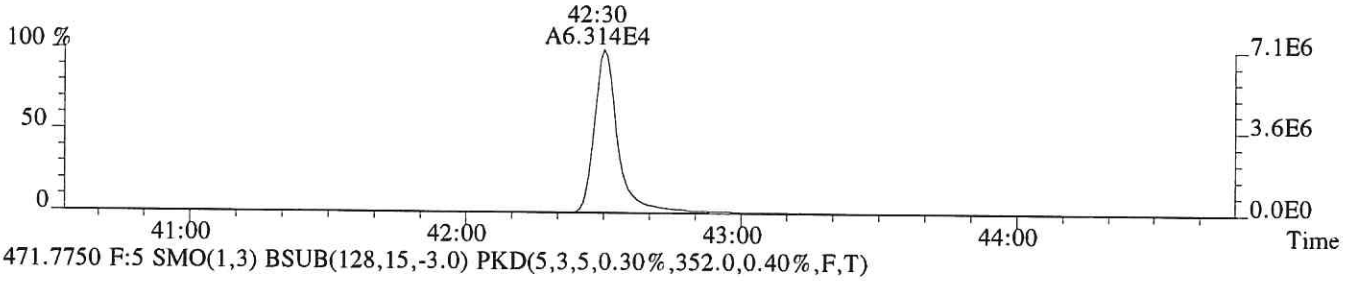
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



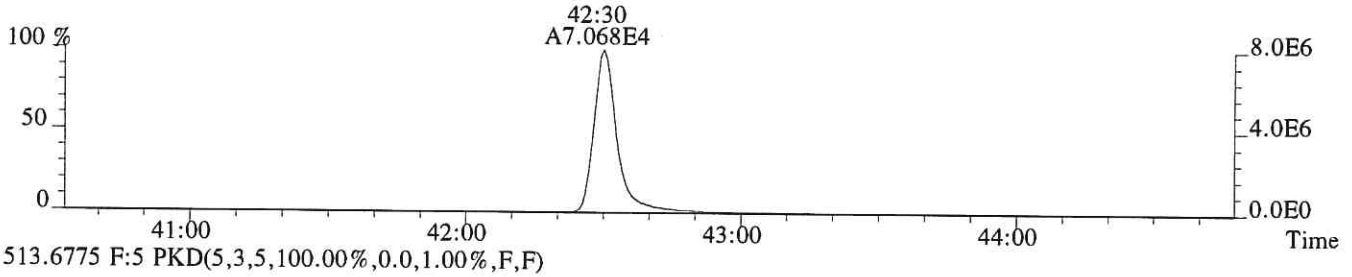
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



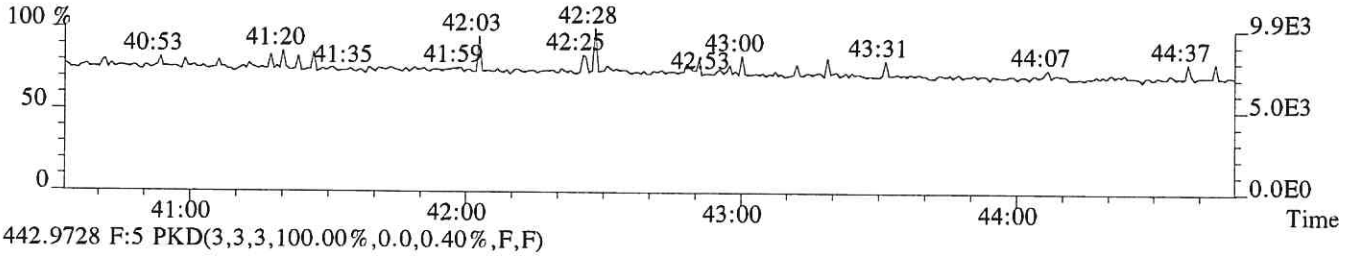
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



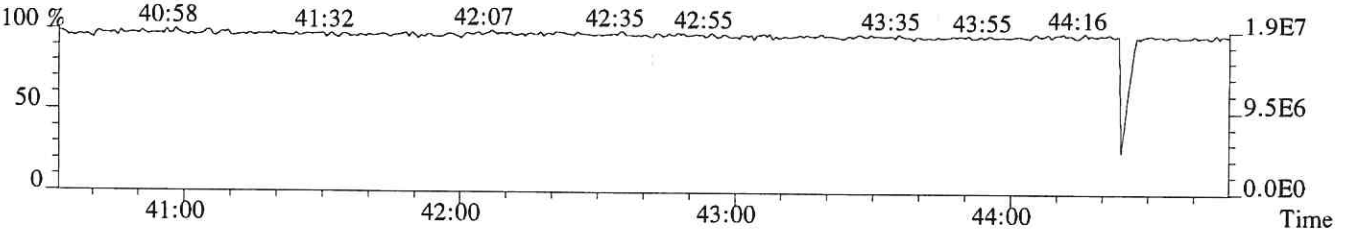
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



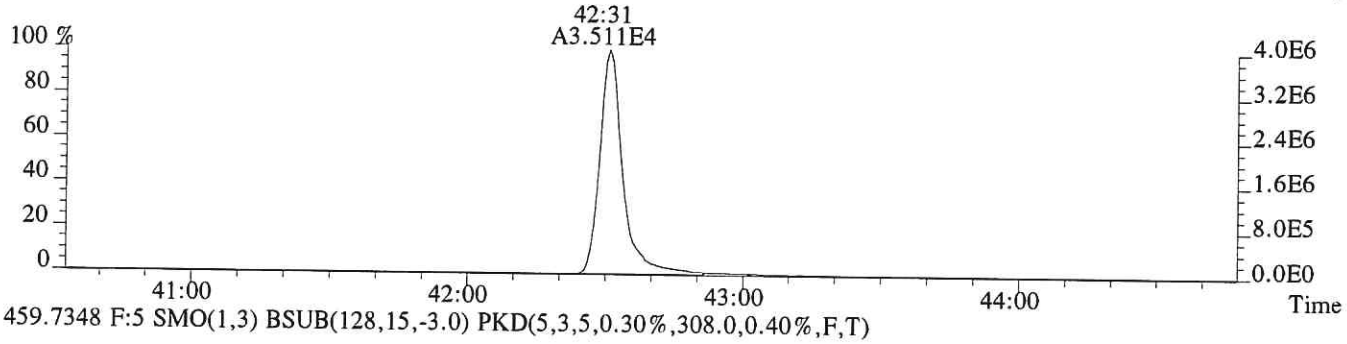
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



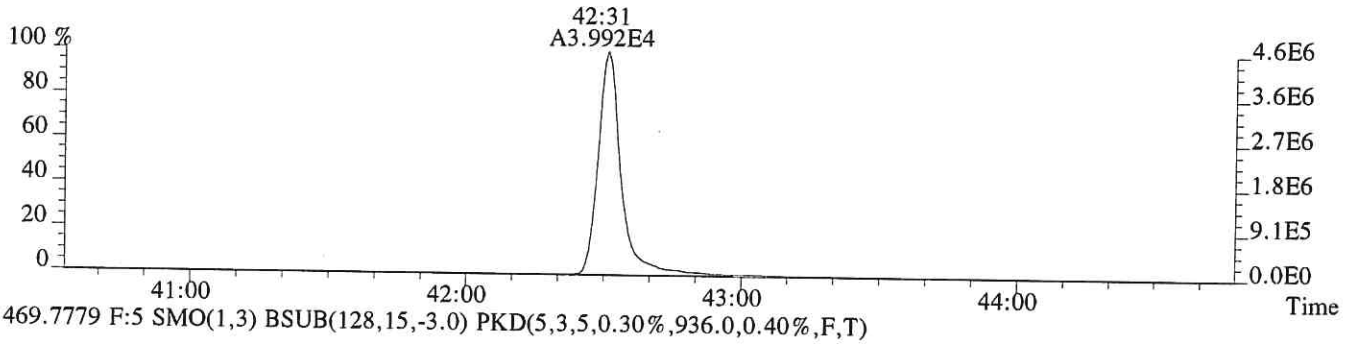
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



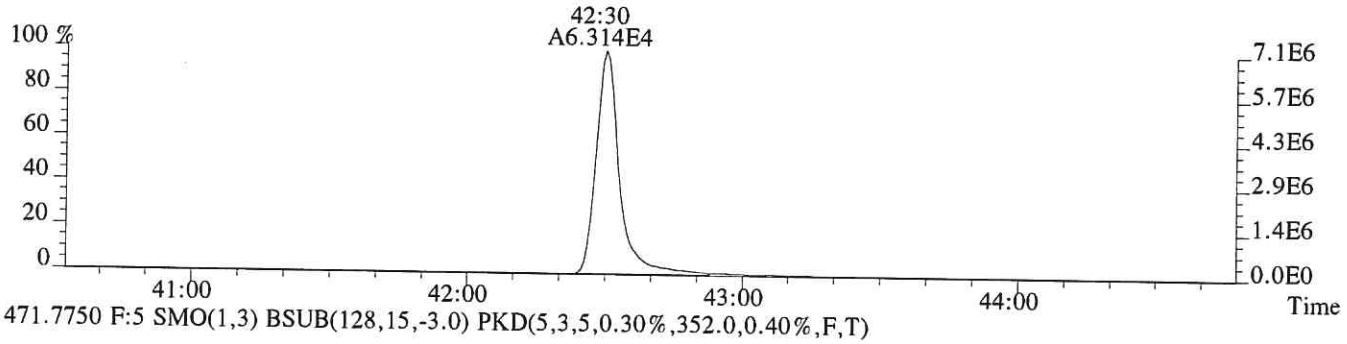
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



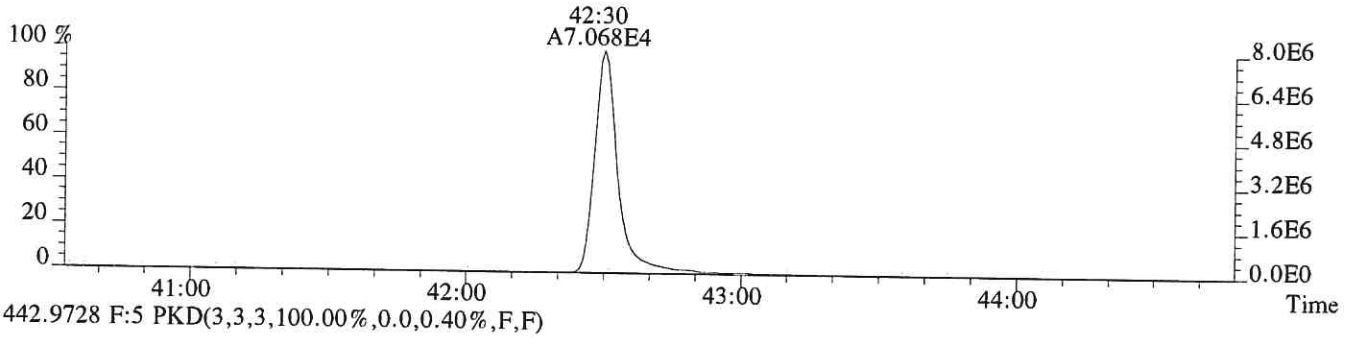
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



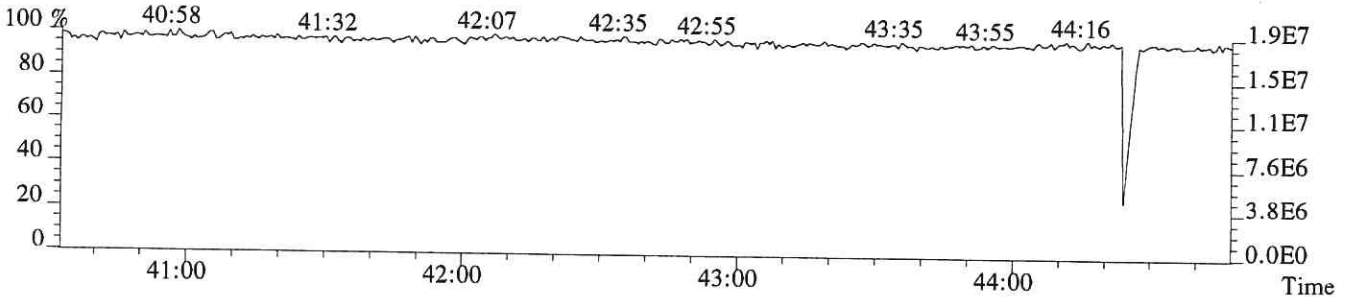
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



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



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P0159067

Date: 12/07/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P615967	7-DEC-18	09:44:40
192977	WINDOW DEFINE	P615968	7-DEC-18	10:37:36
METHOD BLANK	EQ1800482-01	P615969	7-DEC-18	11:29:51
METHOD BLANK	EQ1800487-01	P615970	7-DEC-18	12:18:15
METHOD BLANK	EQ1800494-01	P615971	7-DEC-18	13:07:22
METHOD BLANK	EQ1800491-01	P615972	7-DEC-18	13:56:34
110669-3	E1801081-003	P615973	7-DEC-18	14:47:00
SL0538	E1801055-001	P615974	7-DEC-18	15:35:19
SL0545	E1801055-002	P615975	7-DEC-18	16:24:30
SL0546	E1801055-003	P615976	7-DEC-18	17:13:40
SL0549	E1801055-004	P615977	7-DEC-18	18:02:47
SL0550	E1801055-005	P615978	7-DEC-18	18:51:58
SL0551	E1801055-006	P615979	7-DEC-18	19:41:01
LCS	EQ1800494-02	P615980	7-DEC-18	20:30:09
DLCS	EQ1800494-03	P615981	7-DEC-18	21:19:19

E1801055

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181207A.SPL
Last Modified: Monday, December 10, 2018 07:08:26 Central Standard Time
Printed: Monday, December 10, 2018 07:08:28 Central Standard Time

Page Position (1, 1)

Opus4: P615967res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	09:44	P615967	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 09:41
2		12:37	P615968	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		11:29	P615969	EQ1800482-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		12:18	P615970	EQ1800487-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		13:07	P615971	EQ1800494-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:56	P615972	EQ1800491-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:47	P615973	E1801081-003	E1801081-003	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:35	P615974	E1801055-001	E1801055-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:24	P615975	E1801055-002	E1801055-002	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:13	P615976	E1801055-003	E1801055-003	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:02	P615977	E1801055-004	E1801055-004	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:51	P615978	E1801055-005	E1801055-005	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:41	P615979	E1801055-006	E1801055-006	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:30	P615980	EQ1800494-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:19	P615981	EQ1800494-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		22:16	P615982	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 22:16
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

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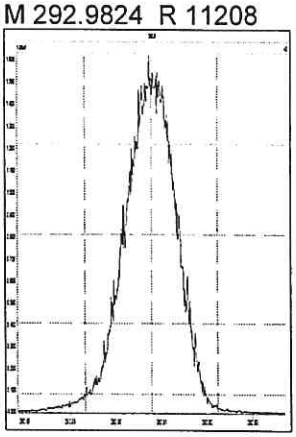
QA 12/11/18

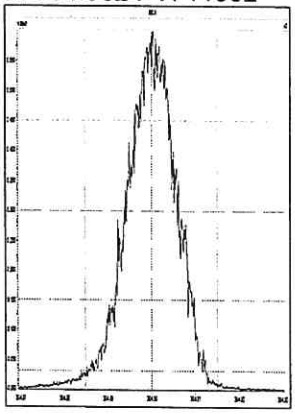
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:41:36 Central Standard Time

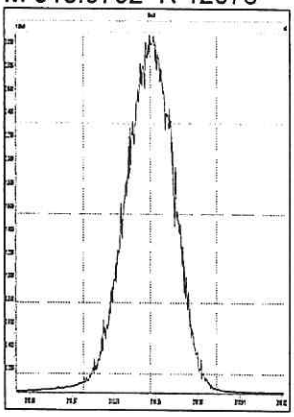
M 292.9824 R 11208



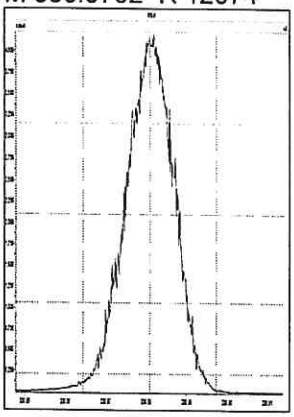
M 304.9824 R 11962



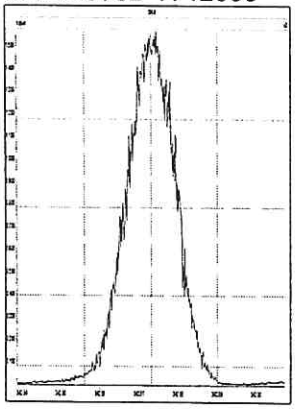
M 318.9792 R 12076



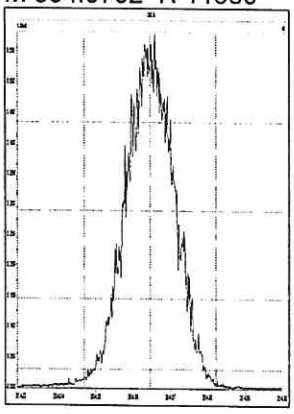
M 330.9792 R 12074



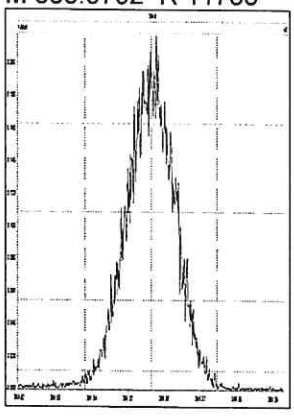
M 342.9792 R 12563



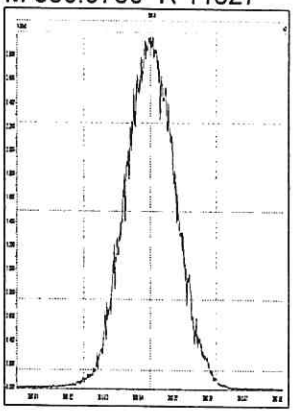
M 354.9792 R 11680



M 366.9792 R 11733



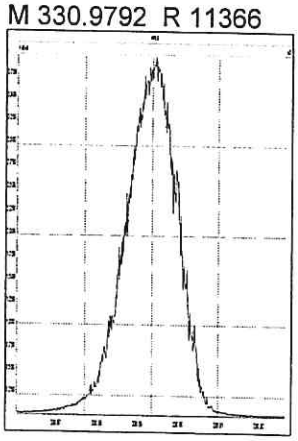
M 380.9760 R 11627



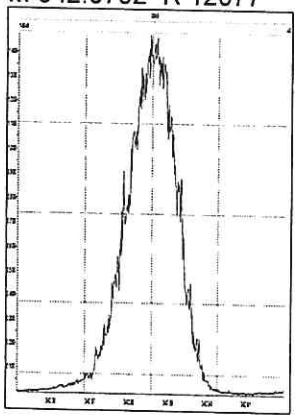
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:42:11 Central Standard Time

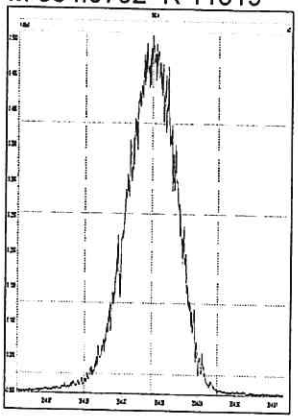
M 330.9792 R 11366



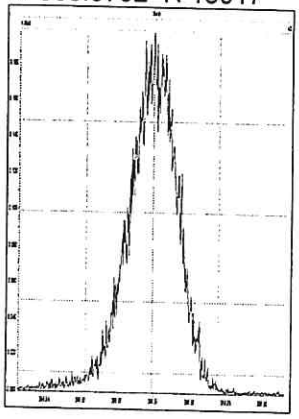
M 342.9792 R 12077



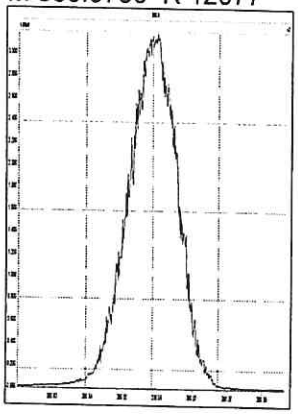
M 354.9792 R 11519



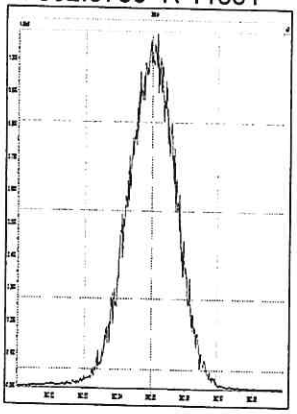
M 366.9792 R 13017



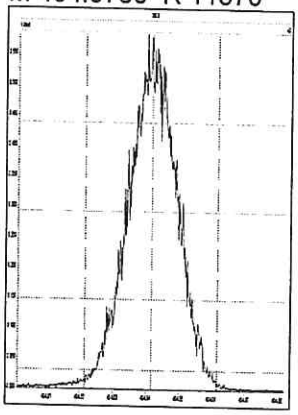
M 380.9760 R 12077



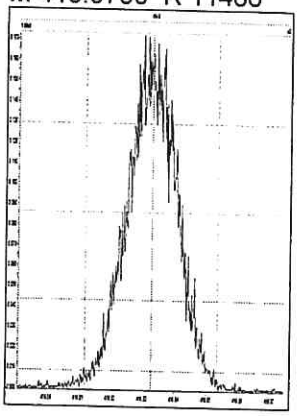
M 392.9760 R 11851



M 404.9760 R 11570



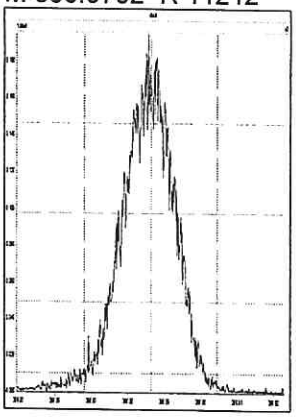
M 416.9760 R 11466



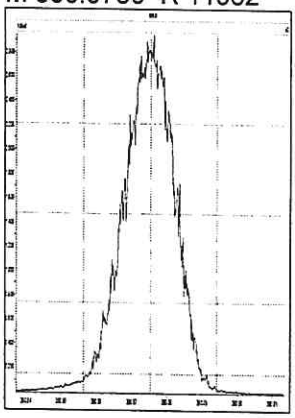
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:42:42 Central Standard Time

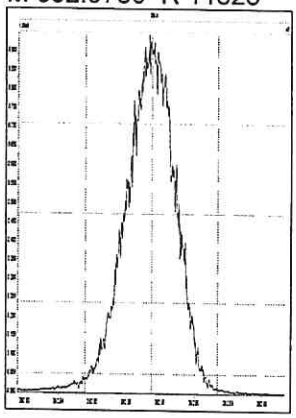
M 366.9792 R 11212



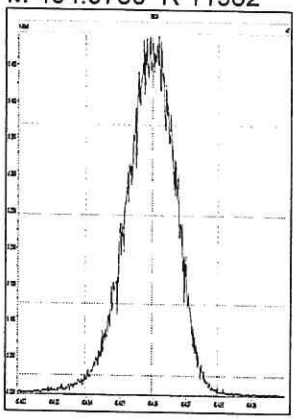
M 380.9760 R 11962



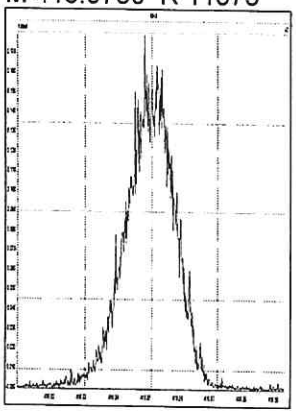
M 392.9760 R 11626



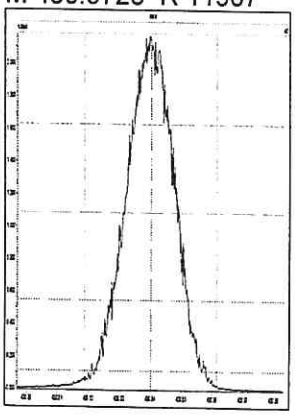
M 404.9760 R 11962



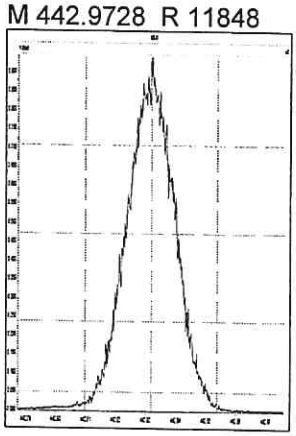
M 416.9760 R 11573



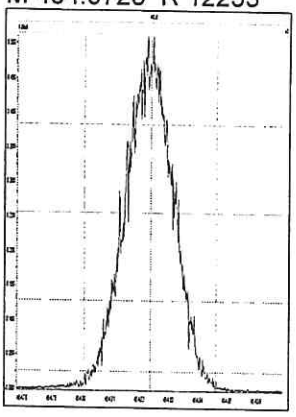
M 430.9728 R 11907



M 442.9728 R 11848



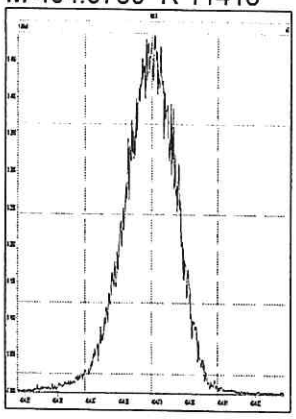
M 454.9728 R 12253



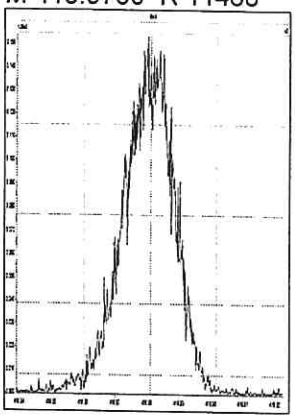
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:43:14 Central Standard Time

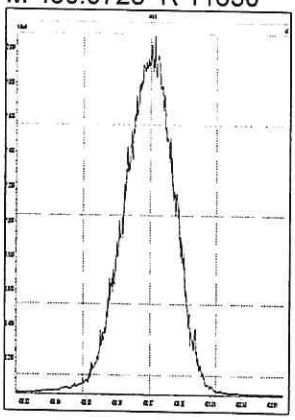
M 404.9760 R 11413



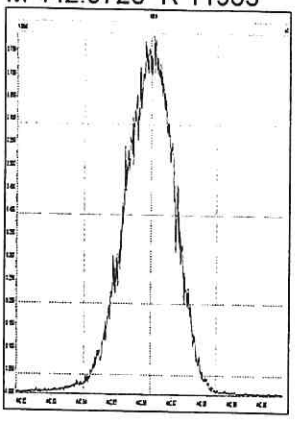
M 416.9760 R 11468



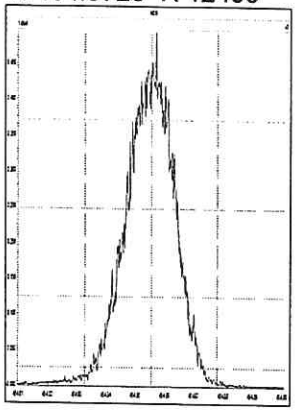
M 430.9728 R 11630



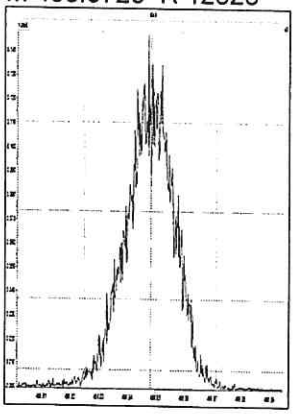
M 442.9728 R 11963



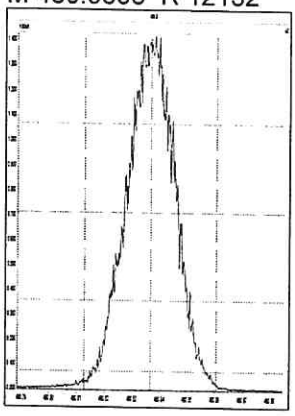
M 454.9728 R 12499



M 466.9728 R 12628



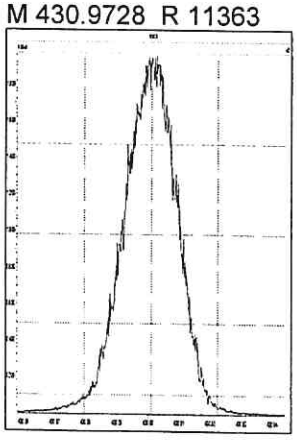
M 480.9696 R 12132



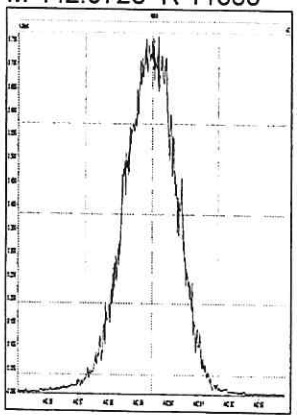
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:44:05 Central Standard Time

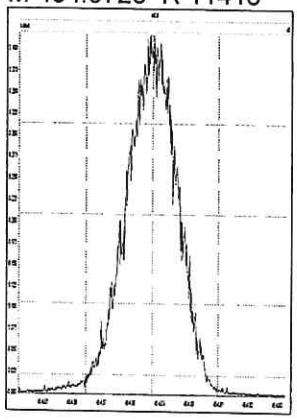
M 430.9728 R 11363



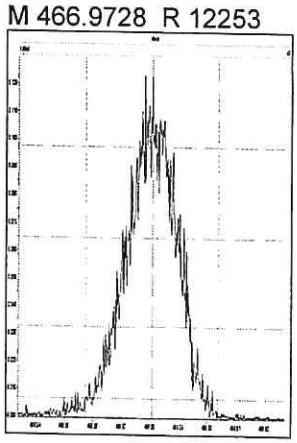
M 442.9728 R 11365



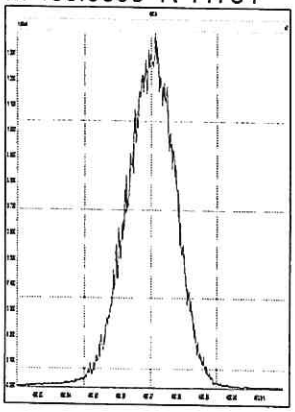
M 454.9728 R 11416



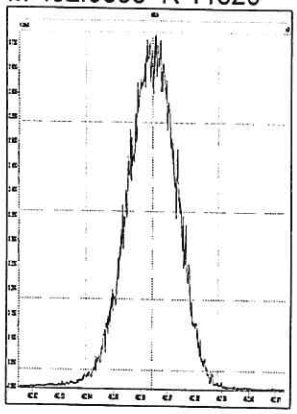
M 466.9728 R 12253



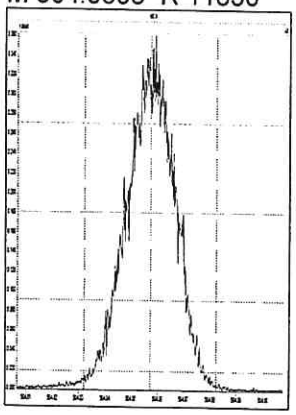
M 480.9696 R 11734



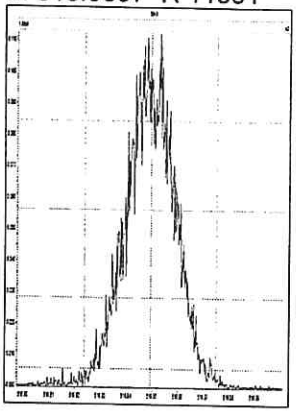
M 492.9696 R 11520



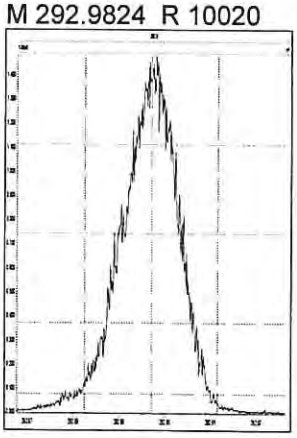
M 504.9696 R 11850



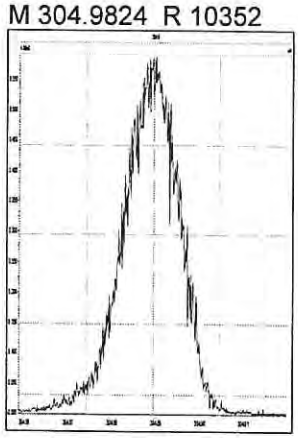
M 516.9697 R 11361



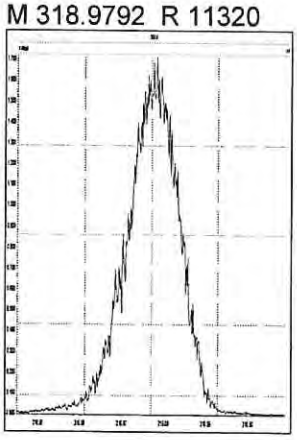
M 292.9824 R 10020



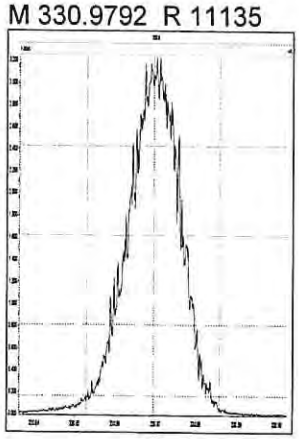
M 304.9824 R 10352



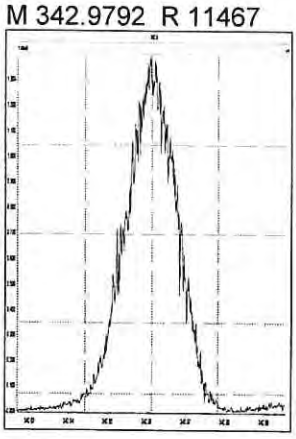
M 318.9792 R 11320



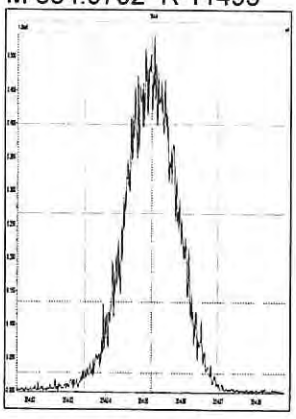
M 330.9792 R 11135



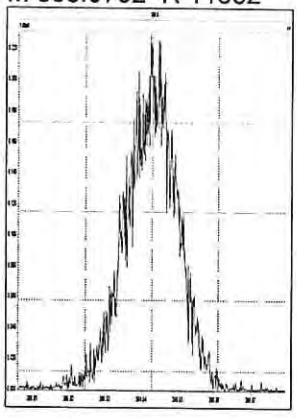
M 342.9792 R 11467



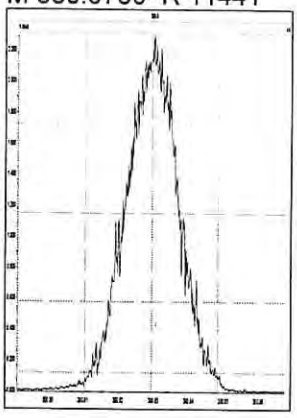
M 354.9792 R 11493



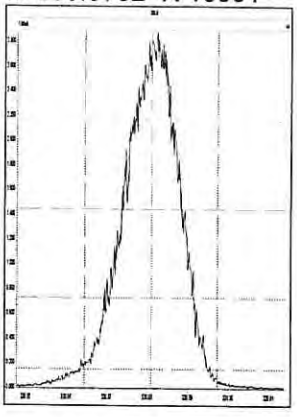
M 366.9792 R 11682



M 380.9760 R 11441



M 330.9792 R 10661



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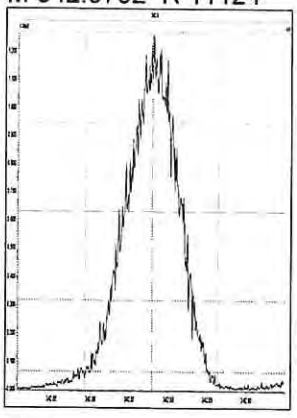

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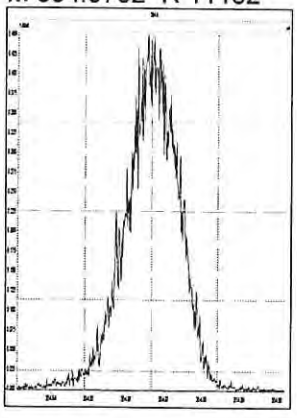

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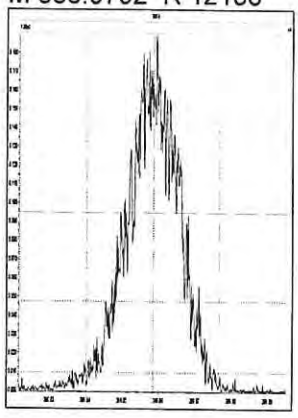

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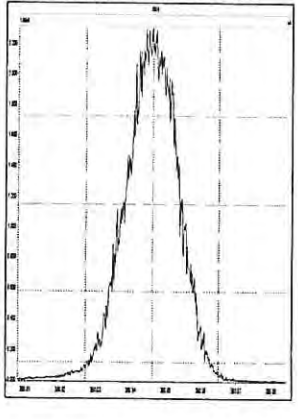

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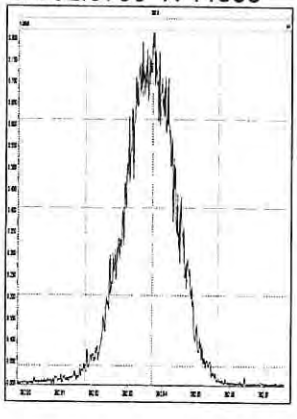

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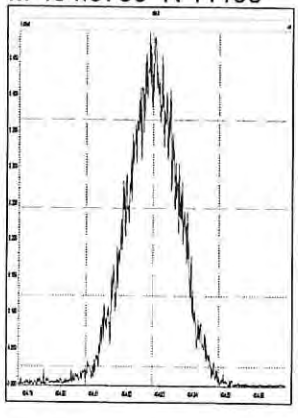

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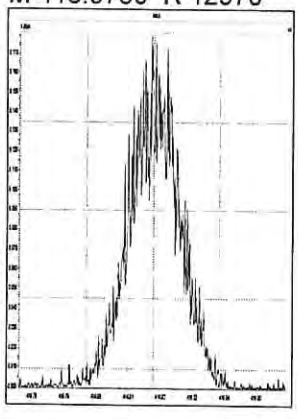

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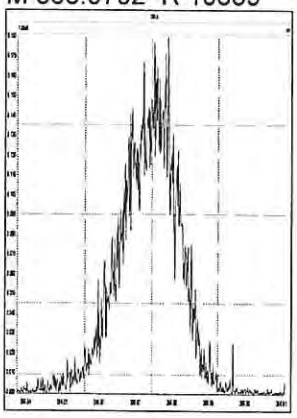

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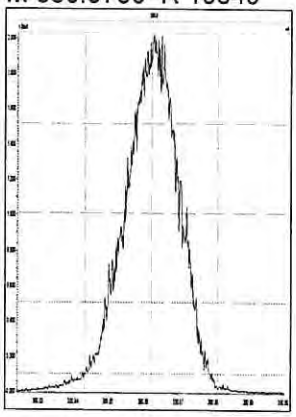

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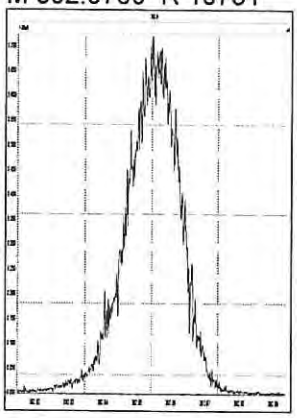

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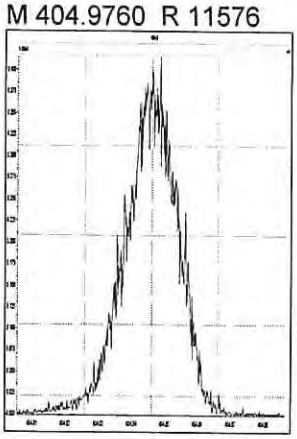

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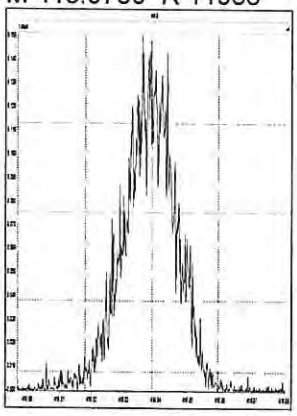

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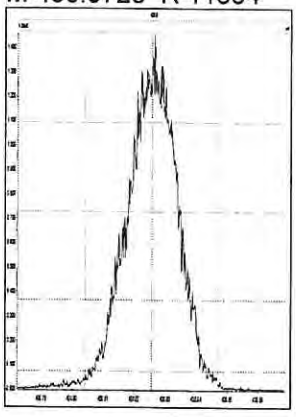
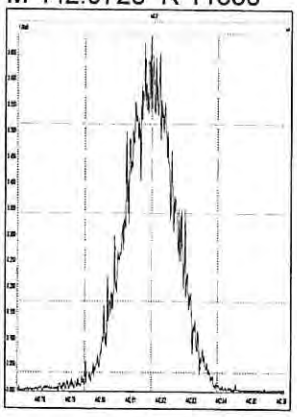
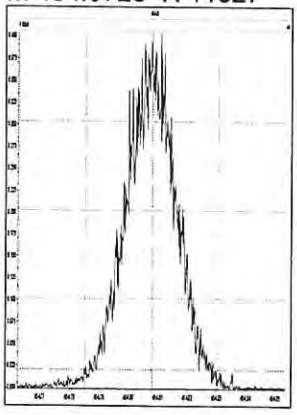


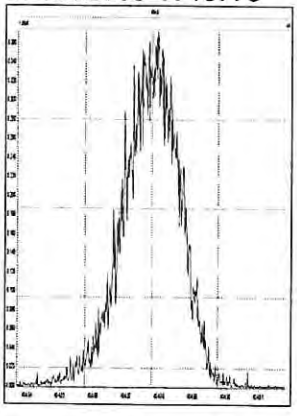
M 442.9728 R 11338



M 454.9728 R 11327



M 404.9760 R 10778



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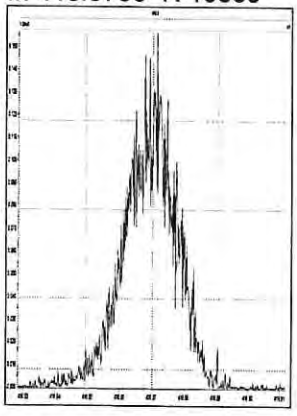

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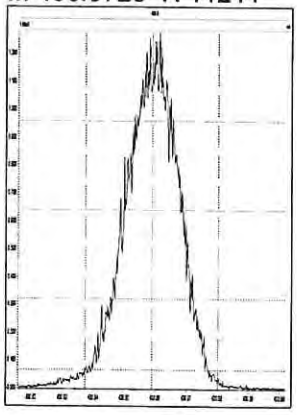

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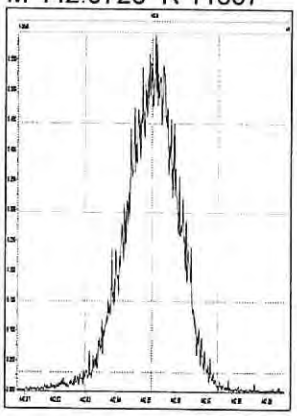

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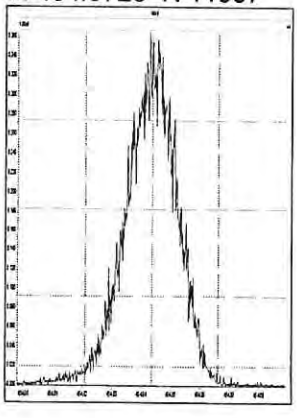

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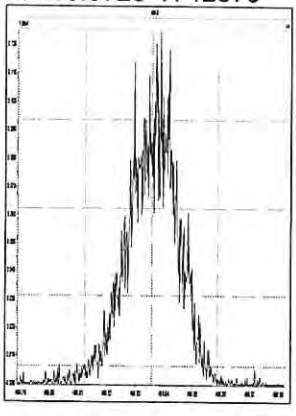

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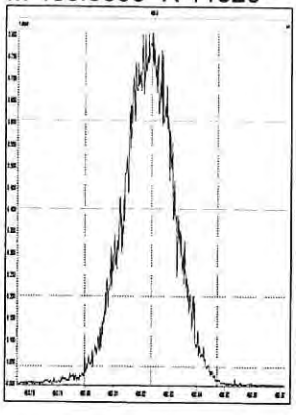
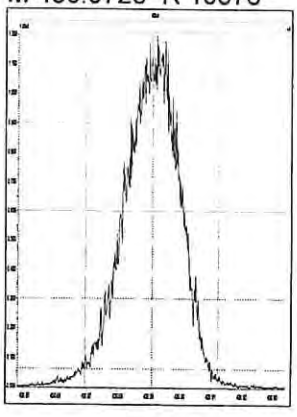


M 430.9728 R 10576



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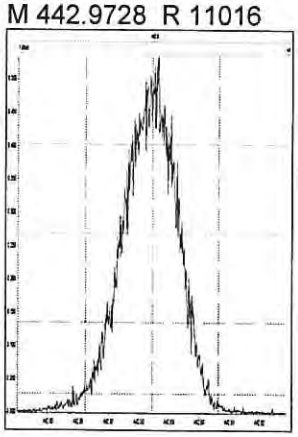
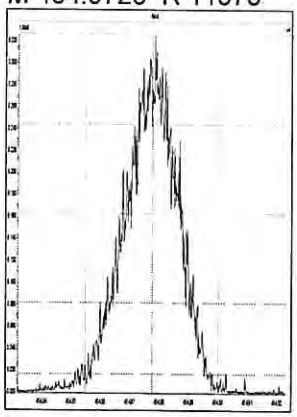
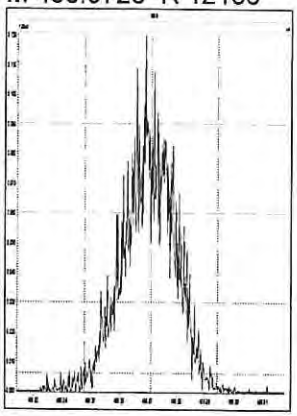


M 454.9728 R 11573



M 466.9728 R 12136



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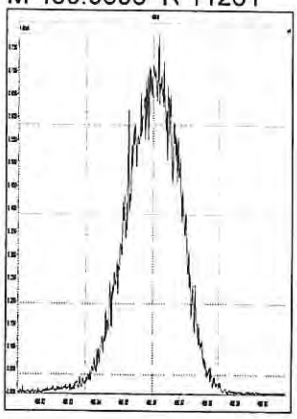

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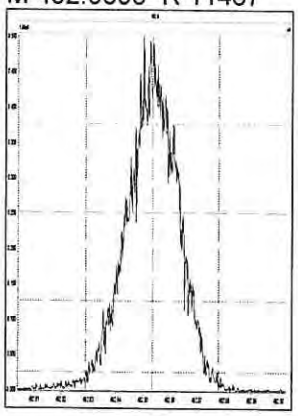

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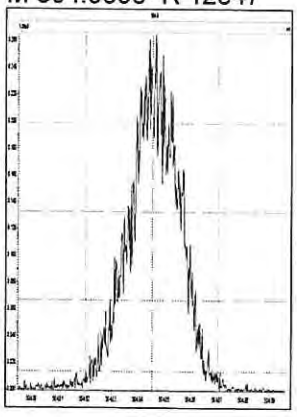

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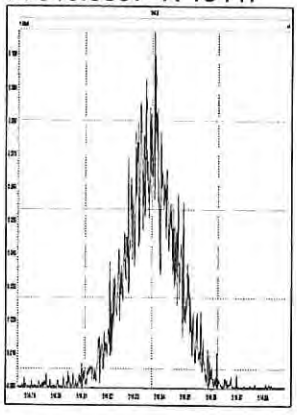


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

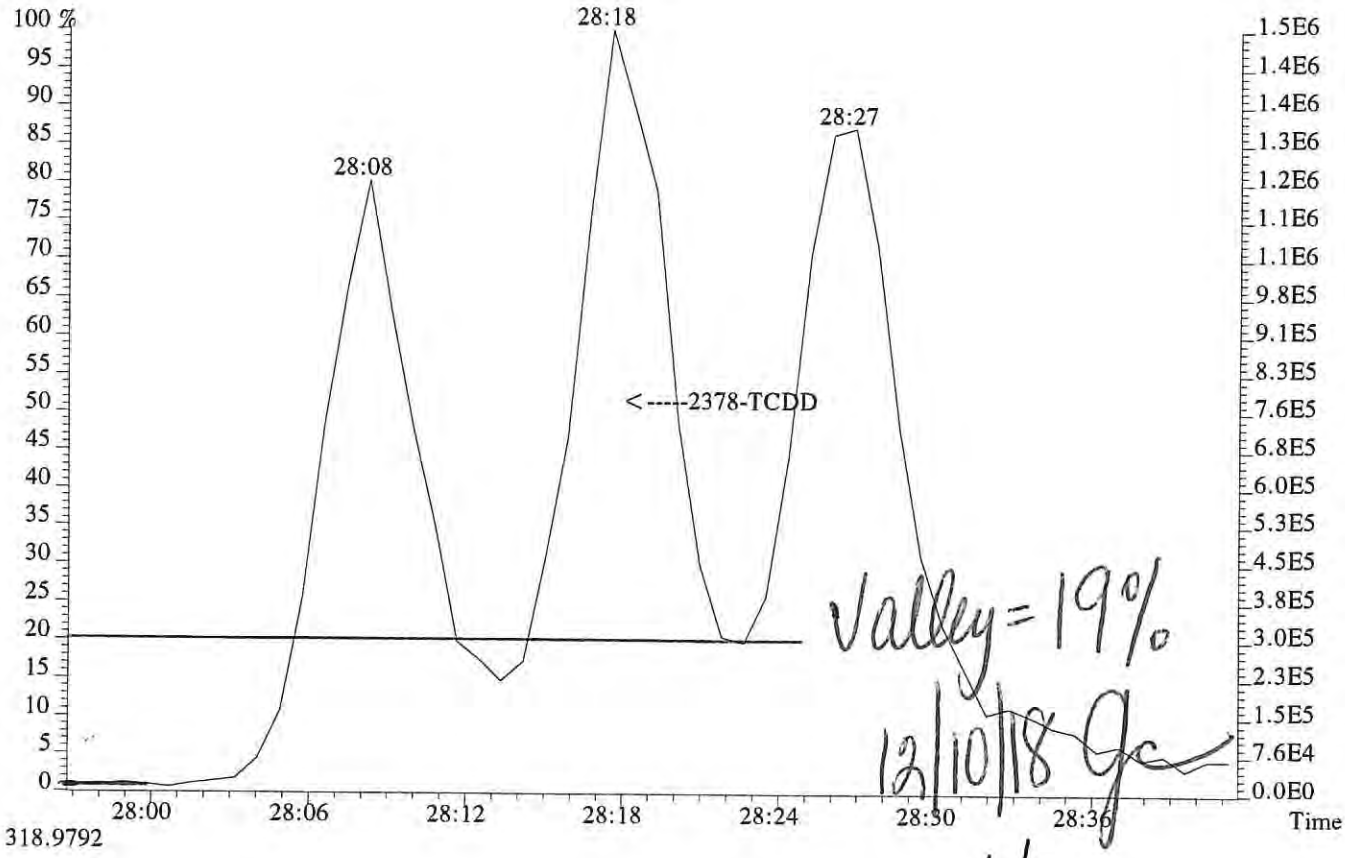
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P615968
Date Analyzed: 7-DEC-18
Time Analyzed: 10:37:36

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:59	29:31
TCDD	24:45	29:20
PeCDF	29:26	33:48
PeCDD	31:02	33:32
HxCDF	34:26	36:58
HxCDD	34:57	36:33
HpCDF	38:10	39:32
HpCDD	38:24	39:04

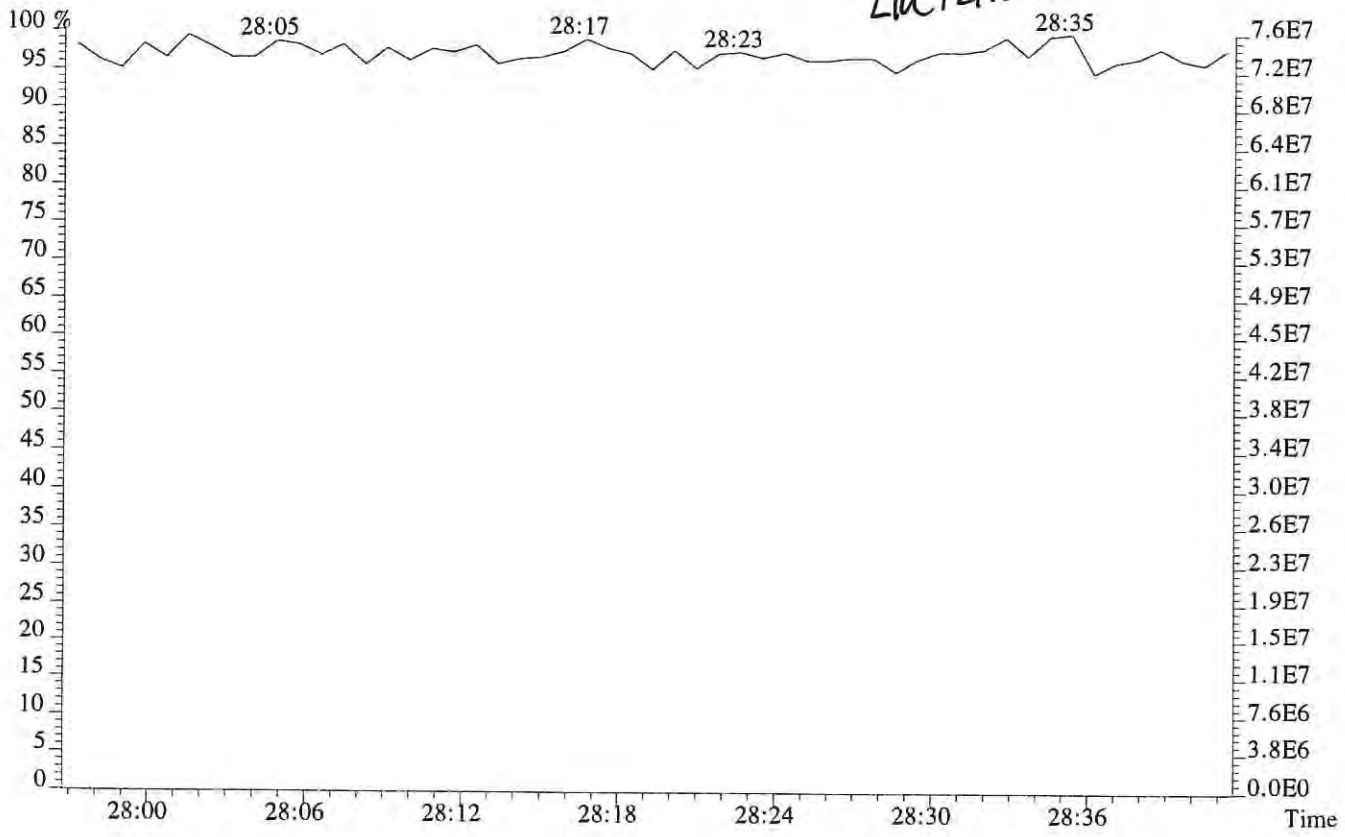
% Valley 2378-TCDD: 19 %

File:P615968 #1-552 Acq: 7-DEC-2018 10:37:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792

LM 12/11/18



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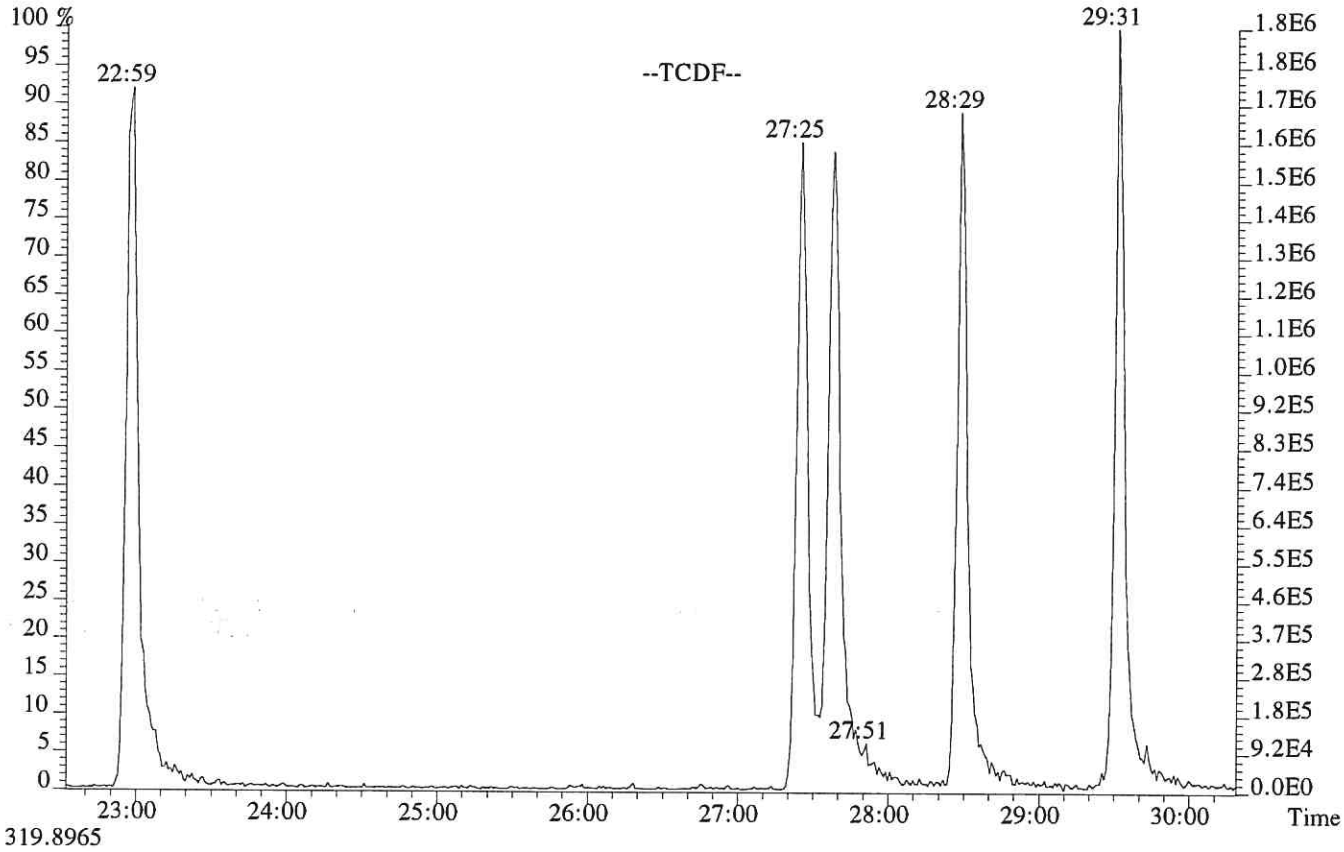
Sample#1 Exp:WINDOW DEFINE
303.9016



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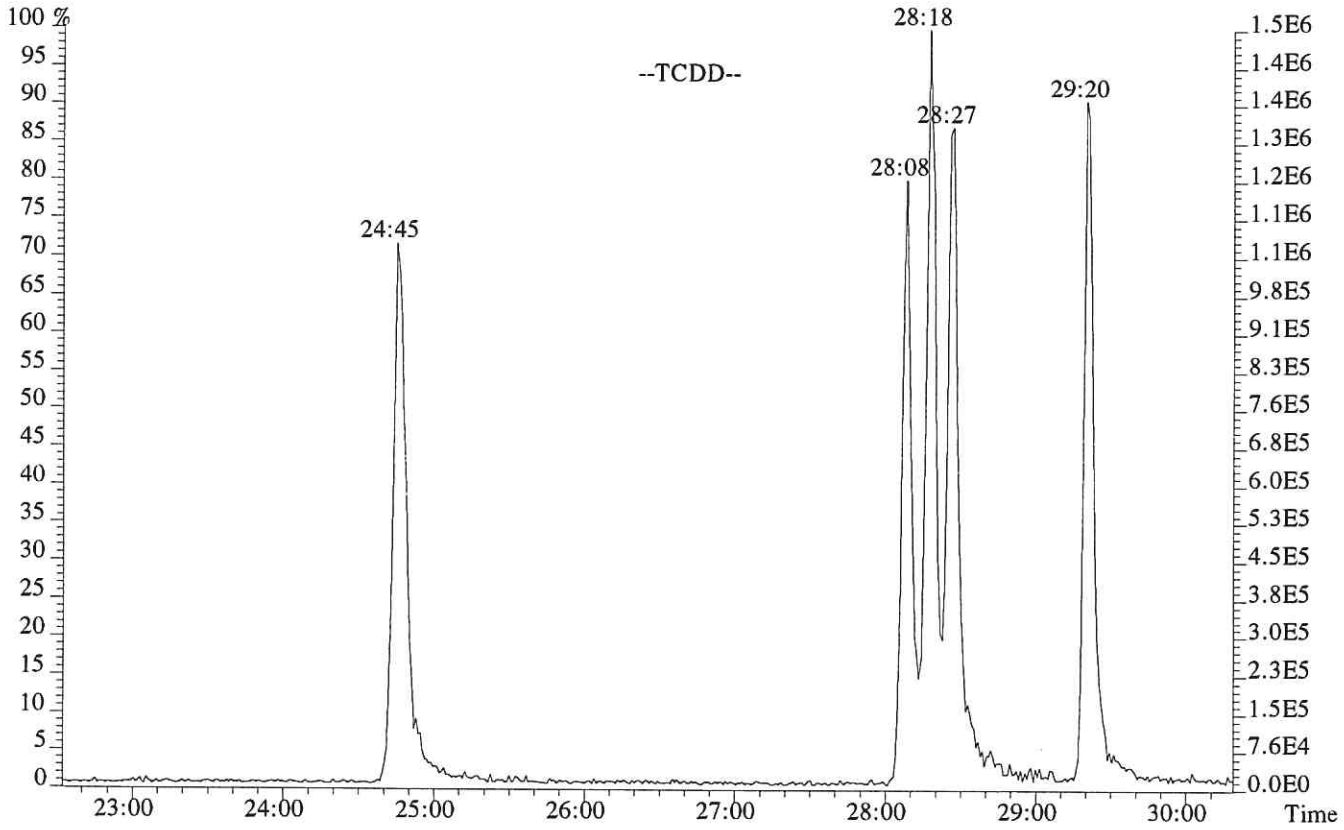
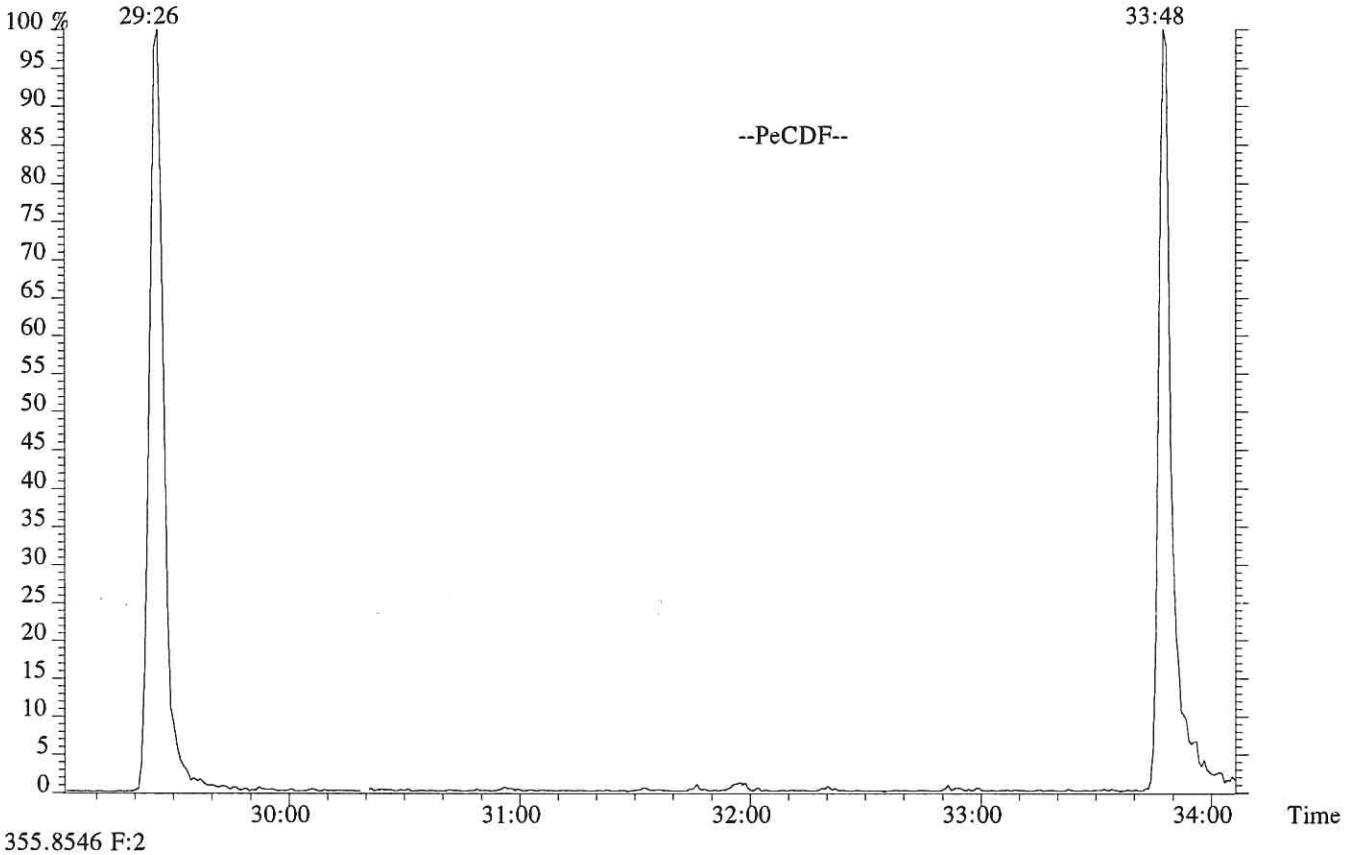
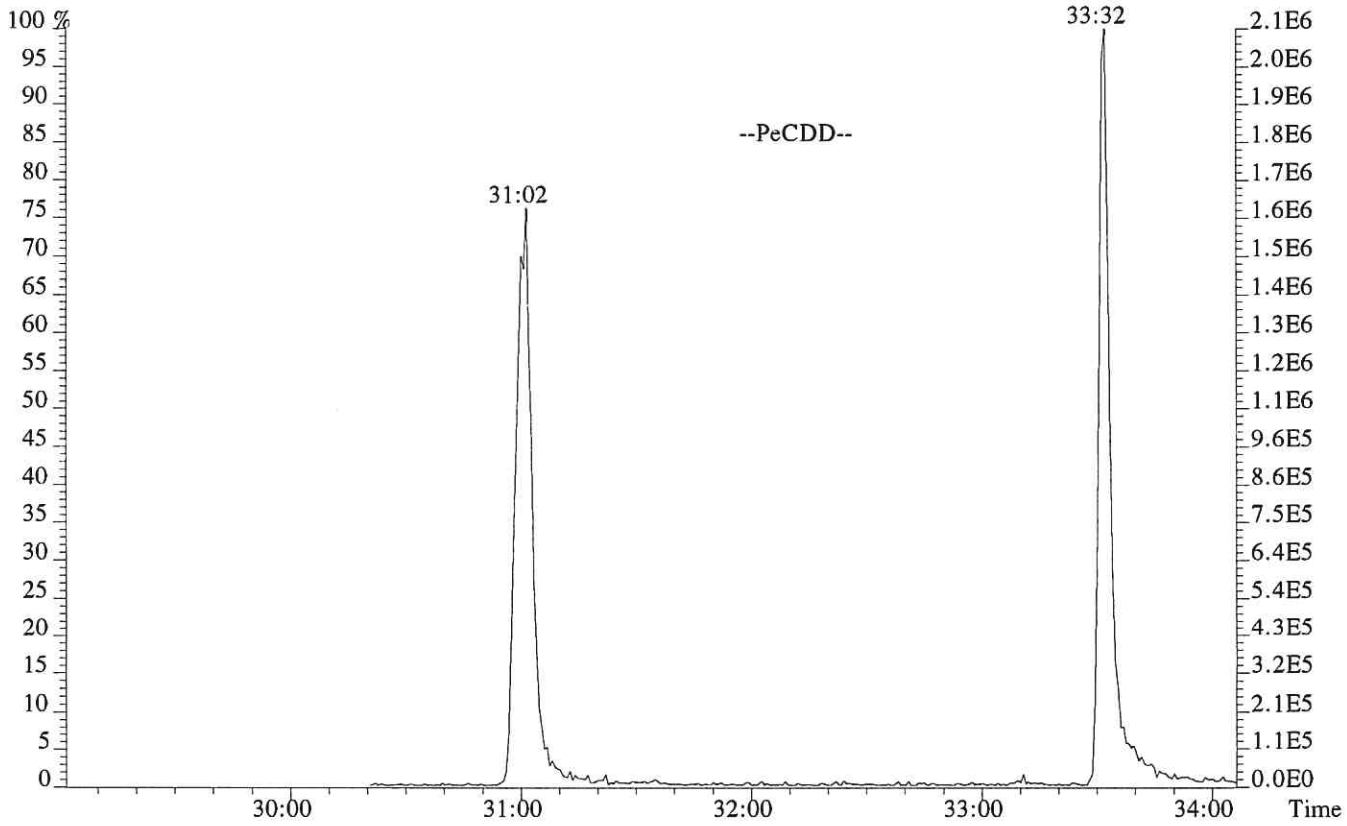


File:P615968 #1-552 Acq: 7-DEC-2018 10:37:36 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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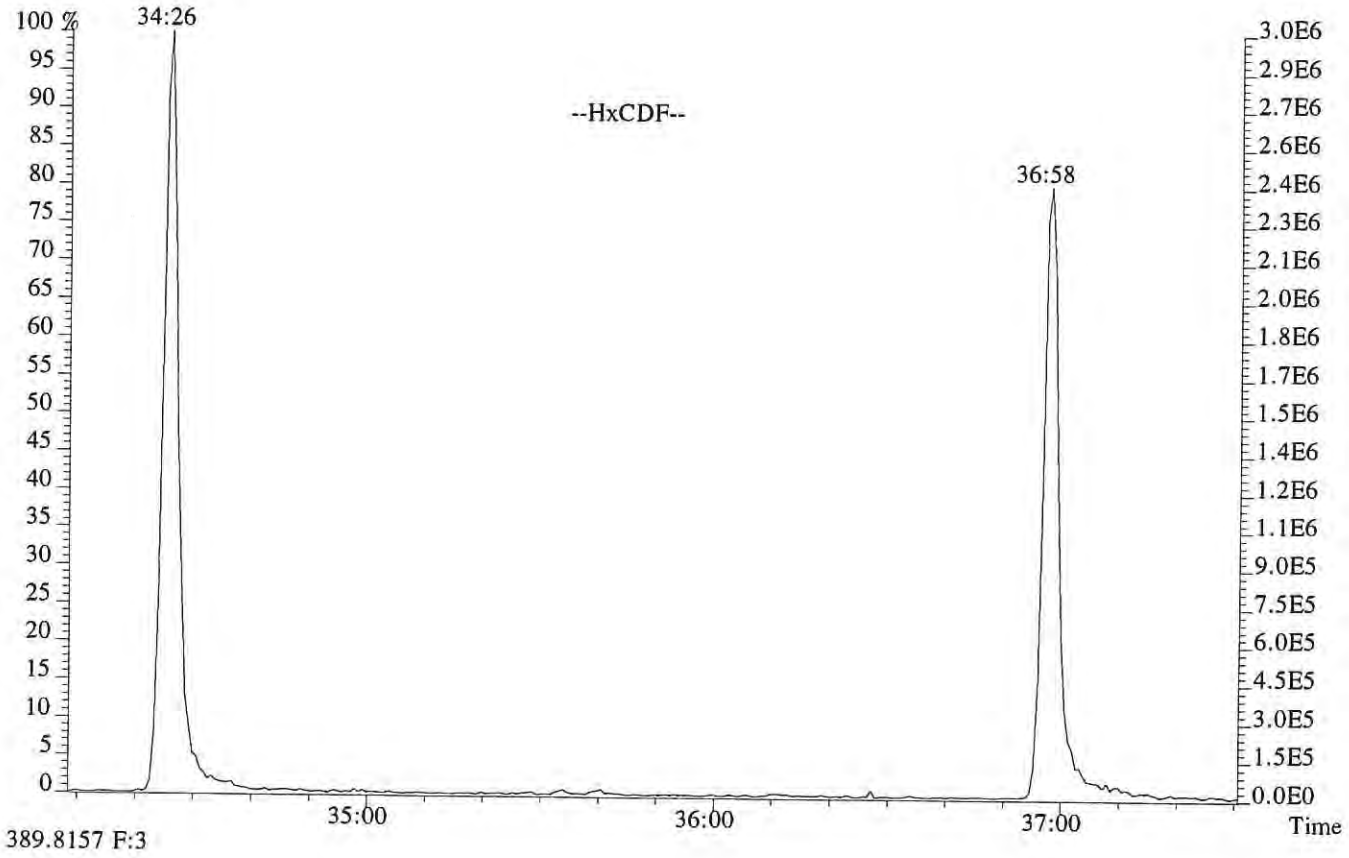
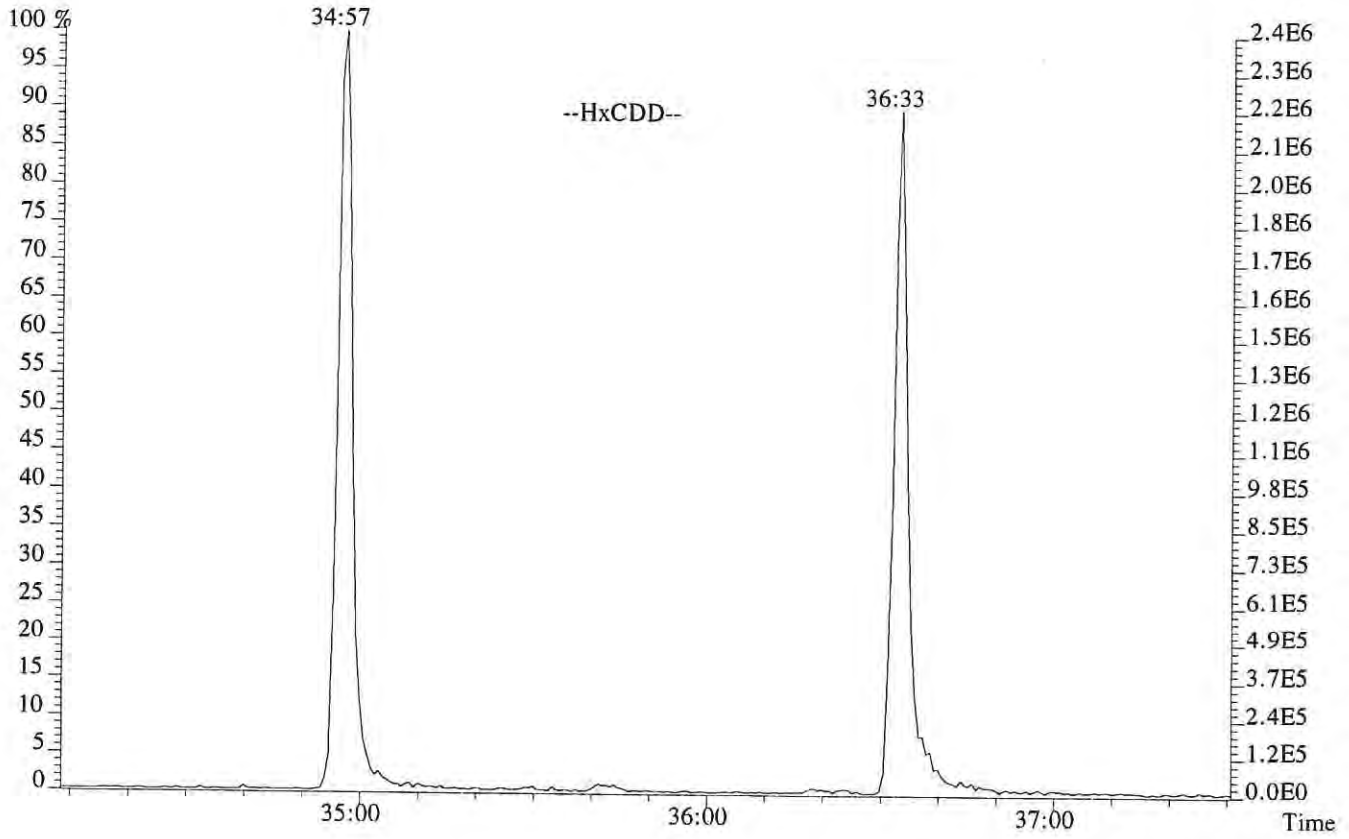
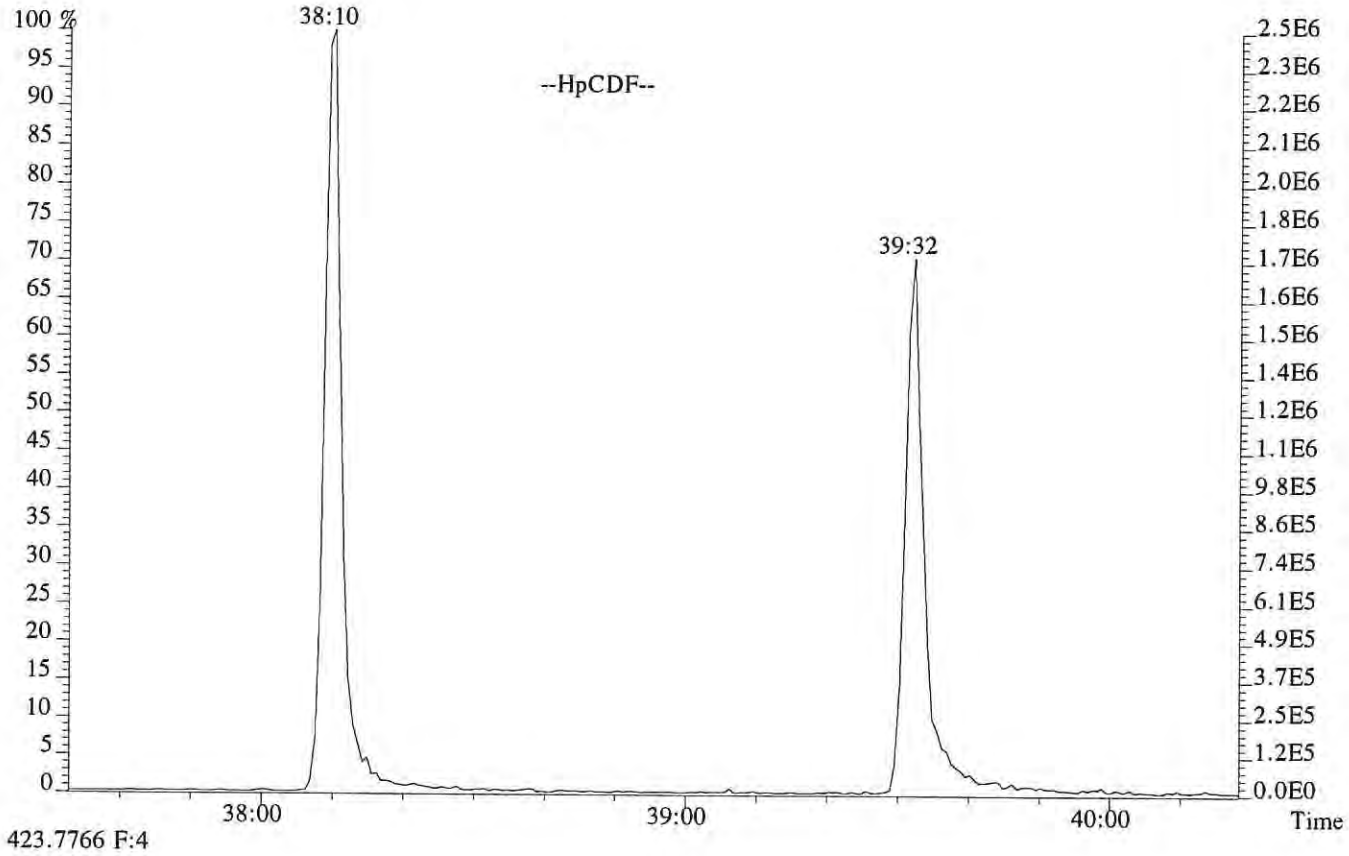
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



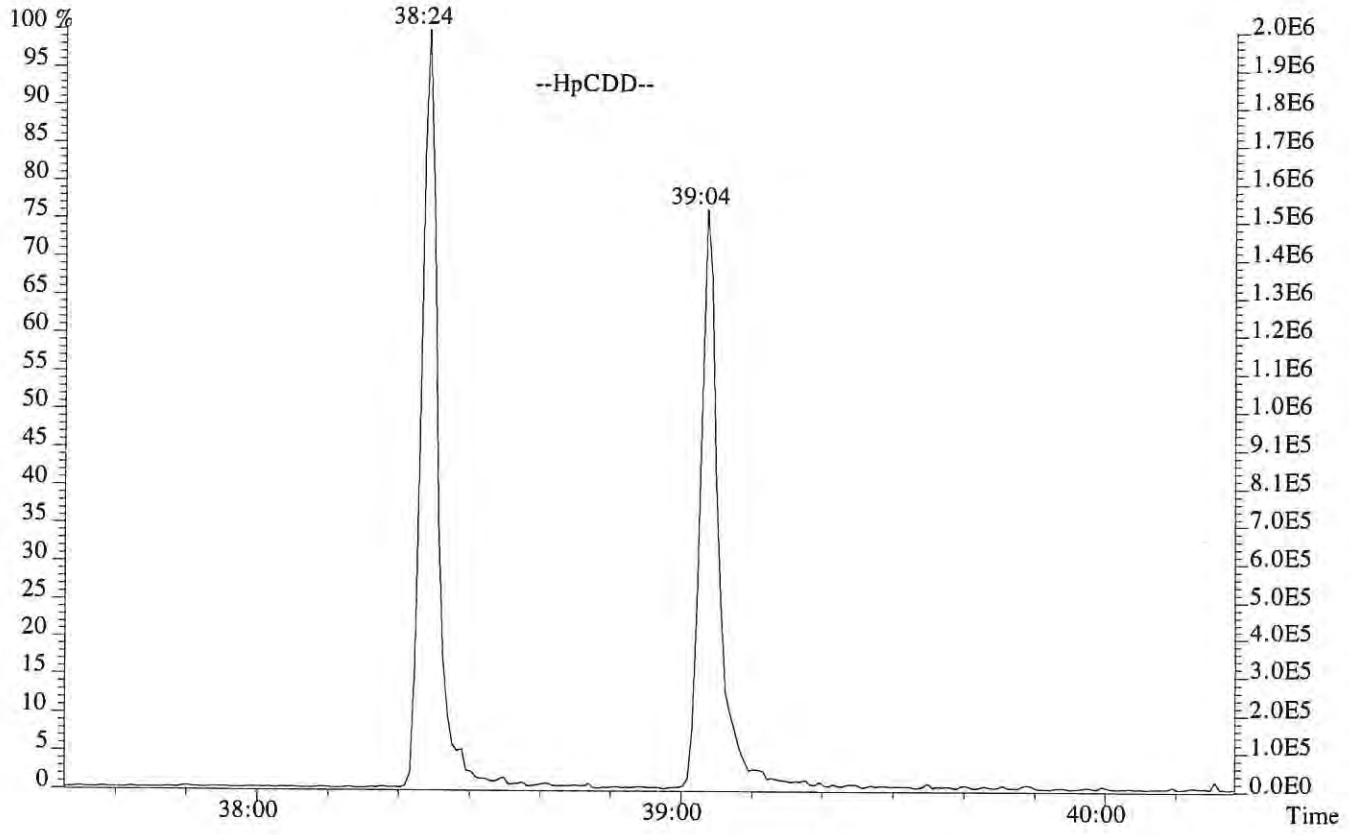
389.8157 F:3



File:P615968 #1-249 Acq: 7-DEC-2018 10:37:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615967 Analysis Date: 7-DEC-18 Time: 09:44:40

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.8	7.8 - 12.9	-1.6
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-3.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.20	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	48	43 - 58	-4.4
OCDD	M+2/M+4	0.90	0.76-1.02	96	79 - 126	-4.0
2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	9.0	8.4 - 12.0	-10.2
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	46	41 - 60	-8.2
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	46	41 - 61	-8.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	46	45 - 56	-8.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	46	44 - 57	-7.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	46	45 - 56	-8.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	47	44 - 57	-6.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	46	45 - 55	-7.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	46	43 - 58	-8.6
OCDF	M+2/M+4	0.91	0.76-1.02	88	63 - 159	-12.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615967 Analysis Date: 7-DEC-18 Time: 09:44:40

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	102	82 - 121	2.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	93	62 - 160	-7.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 117	-1.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	98	85 - 118	-2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	91	72 - 138	-9.0
13C-OCDD	M+2/M+4	0.90	0.76-1.02	159	96 - 415	-20.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	99	71 - 140	-1.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	95	76 - 130	-5.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	93	77 - 130	-6.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	76 - 131	-5.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	70 - 143	-4.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	93	74 - 135	-7.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	73 - 137	-4.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	89	78 - 129	-10.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	83	77 - 129	-16.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-2.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615967 Samp: 1 Inj: 1 Acquired: 7-DEC-18 09:44:40
Processed: 10-DEC-18 16:28:03 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:38	1.175e+04	1.471e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:57	9.446e+04	6.167e+04	1.53	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	8.769e+04	5.641e+04	1.55	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	7.636e+04	6.054e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	8.110e+04	6.500e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	7.564e+04	6.079e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	6.800e+04	5.374e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	6.311e+04	6.185e+04	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	4.971e+04	4.737e+04	1.05	yes	no	1.463
10	Unk	OCDF	41:57	6.633e+04	7.249e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:27	8.683e+03	1.147e+04	0.76	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	5.703e+04	3.709e+04	1.54	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:19	4.949e+04	3.926e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	4.951e+04	3.930e+04	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:38	5.211e+04	4.353e+04	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	4.061e+04	3.907e+04	1.04	yes	no	1.112
17	Unk	OCDD	41:45	5.292e+04	5.882e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:37	1.202e+05	1.525e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	1.805e+05	1.136e+05	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	1.749e+05	1.100e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	7.273e+04	1.390e+05	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	8.478e+04	1.597e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	7.878e+04	1.499e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	6.996e+04	1.319e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	5.530e+04	1.215e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	4.531e+04	9.986e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:25	8.607e+04	1.090e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:09	1.233e+05	7.932e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:18	9.575e+04	7.504e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	9.495e+04	7.470e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	7.729e+04	7.262e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:44	9.551e+04	1.056e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:48	8.584e+04	1.086e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	1.071e+05	8.509e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:27	2.068e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615967 Samp: 1 Inj: 1 Acquired: 7-DEC-18 09:44:40
Processed: 10-DEC-18 16:28:03 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.80e+06	1.78e+03	1.0e+03	2.21e+06	4.00e+03	5.5e+02
2	1,2,3,7,8-PeCDF	1.65e+07	7.76e+02	2.1e+04	1.06e+07	2.87e+03	3.7e+03
3	2,3,4,7,8-PeCDF	1.67e+07	7.76e+02	2.1e+04	1.07e+07	2.87e+03	3.7e+03
4	1,2,3,4,7,8-HxCDF	1.66e+07	1.60e+03	1.0e+04	1.32e+07	7.28e+02	1.8e+04
5	1,2,3,6,7,8-HxCDF	1.67e+07	1.60e+03	1.0e+04	1.35e+07	7.28e+02	1.9e+04
6	2,3,4,6,7,8-HxCDF	1.65e+07	1.60e+03	1.0e+04	1.32e+07	7.28e+02	1.8e+04
7	1,2,3,7,8,9-HxCDF	1.39e+07	1.60e+03	8.7e+03	1.10e+07	7.28e+02	1.5e+04
8	1,2,3,4,6,7,8-HpCDF	1.39e+07	7.22e+03	1.9e+03	1.37e+07	2.15e+03	6.4e+03
9	1,2,3,4,7,8,9-HpCDF	9.56e+06	7.22e+03	1.3e+03	9.17e+06	2.15e+03	4.3e+03
10	OCDF	1.18e+07	7.88e+02	1.5e+04	1.27e+07	1.92e+03	6.6e+03
11	2,3,7,8-TCDD	1.48e+06	5.02e+03	3.0e+02	1.90e+06	2.54e+03	7.5e+02
12	1,2,3,7,8-PeCDD	1.07e+07	1.37e+03	7.8e+03	6.91e+06	4.84e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	1.11e+07	5.64e+02	2.0e+04	8.74e+06	8.88e+02	9.8e+03
14	1,2,3,6,7,8-HxCDD	1.06e+07	5.64e+02	1.9e+04	8.33e+06	8.88e+02	9.4e+03
15	1,2,3,7,8,9-HxCDD	1.12e+07	5.64e+02	2.0e+04	9.03e+06	8.88e+02	1.0e+04
16	1,2,3,4,6,7,8-HpCDD	8.66e+06	1.26e+03	6.9e+03	8.34e+06	1.45e+03	5.7e+03
17	OCDD	9.55e+06	7.36e+02	1.3e+04	1.07e+07	6.96e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.82e+07	9.18e+03	2.0e+03	2.30e+07	6.64e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.05e+07	1.97e+03	1.5e+04	1.95e+07	1.63e+03	1.2e+04
20	13C-2,3,4,7,8-PeCDF	3.32e+07	1.97e+03	1.7e+04	2.08e+07	1.63e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.59e+07	2.23e+03	7.1e+03	3.03e+07	2.29e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.76e+07	2.23e+03	7.9e+03	3.31e+07	2.29e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.70e+07	2.23e+03	7.6e+03	3.26e+07	2.29e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.44e+07	2.23e+03	6.5e+03	2.72e+07	2.29e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.22e+07	3.22e+03	3.8e+03	2.69e+07	6.65e+03	4.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.66e+06	3.22e+03	2.7e+03	1.92e+07	6.65e+03	2.9e+03
27	13C-2,3,7,8-TCDD	1.44e+07	1.66e+04	8.7e+02	1.83e+07	8.46e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	2.26e+07	1.45e+03	1.6e+04	1.44e+07	1.68e+03	8.6e+03
29	13C-1,2,3,4,7,8-HxCDD	2.14e+07	2.61e+03	8.2e+03	1.65e+07	1.37e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.98e+07	2.61e+03	7.6e+03	1.56e+07	1.37e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.65e+07	1.76e+03	9.4e+03	1.53e+07	5.04e+02	3.0e+04
32	13C-OCDD	1.72e+07	1.45e+03	1.2e+04	1.92e+07	3.00e+02	6.4e+04
33	13C-1,2,3,4-TCDD	1.44e+07	1.66e+04	8.7e+02	1.82e+07	8.46e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.23e+07	2.61e+03	8.5e+03	1.77e+07	1.37e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.40e+06	2.43e+03	1.4e+03			

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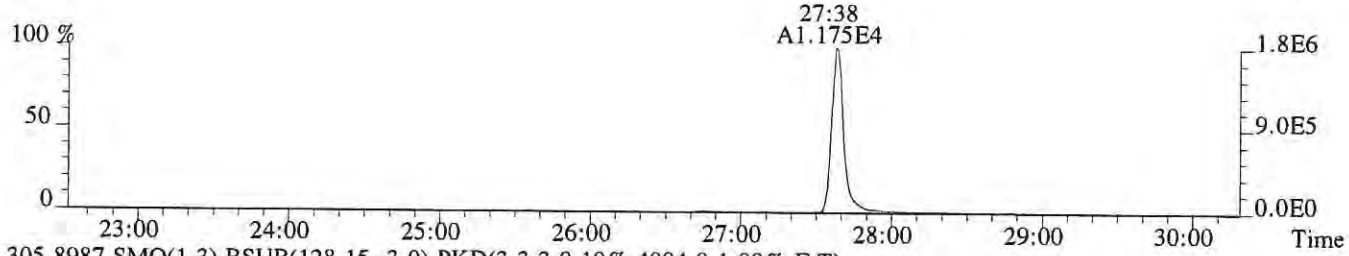
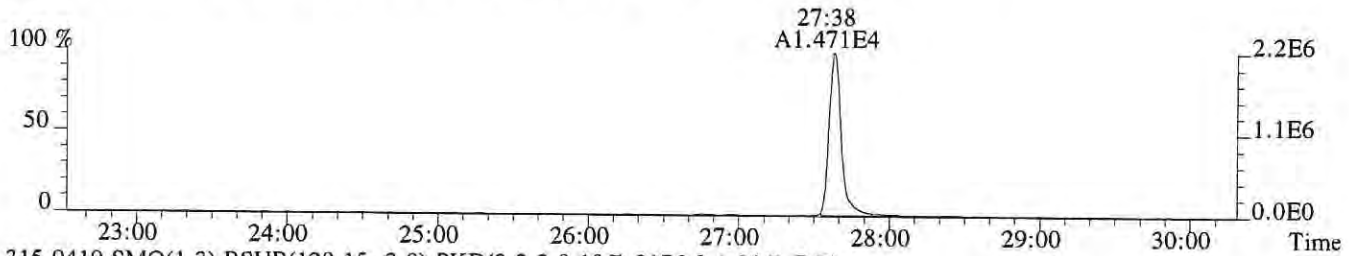
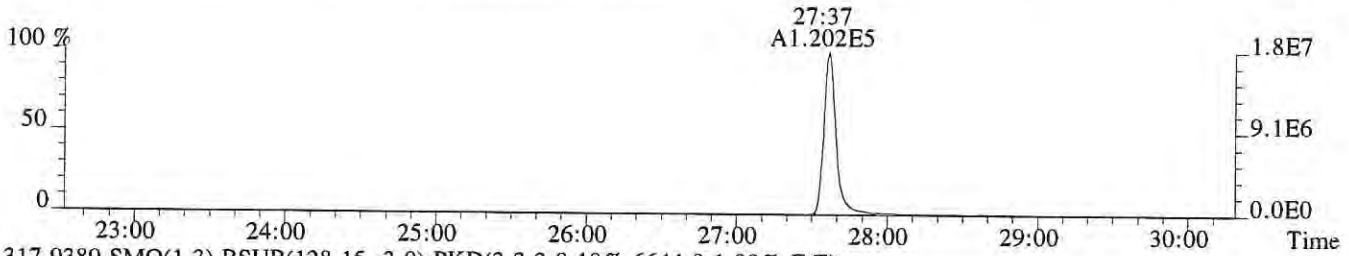
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



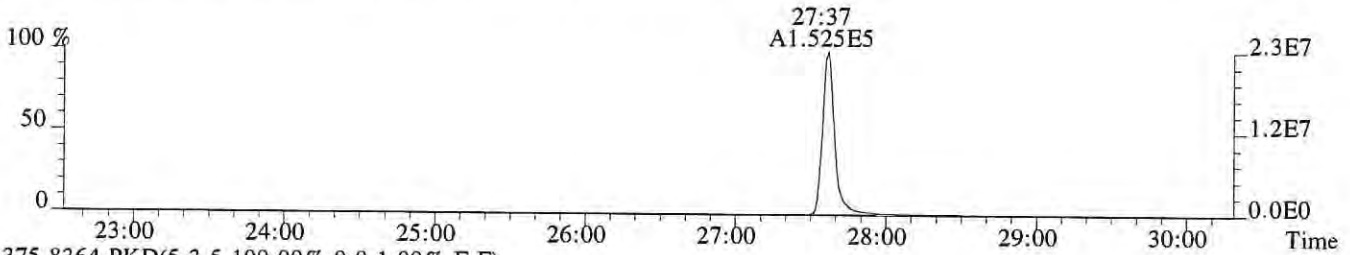
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4004.0,1.00%,F,T)



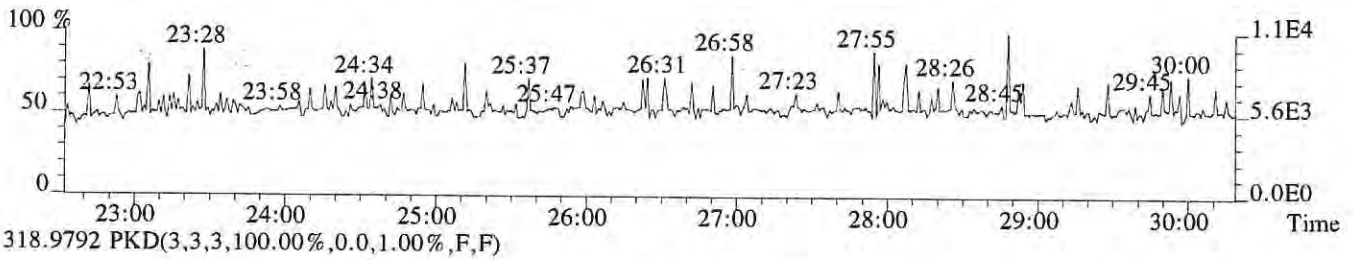
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9176.0,1.00%,F,T)



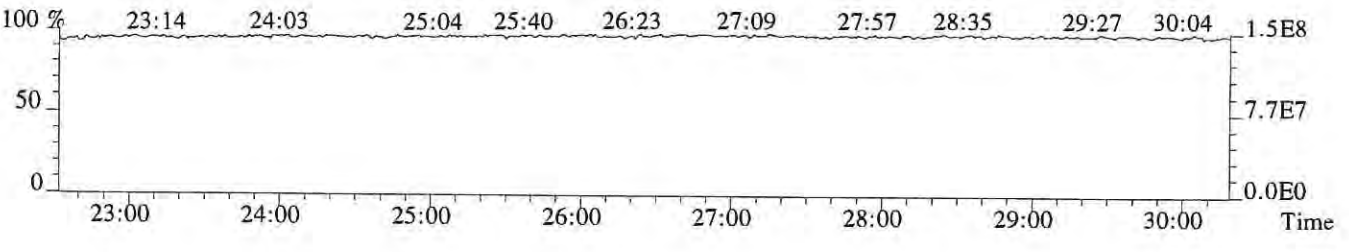
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



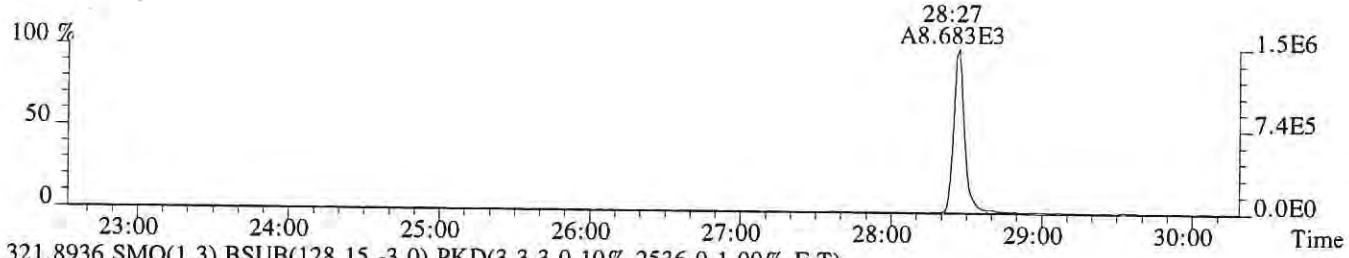
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



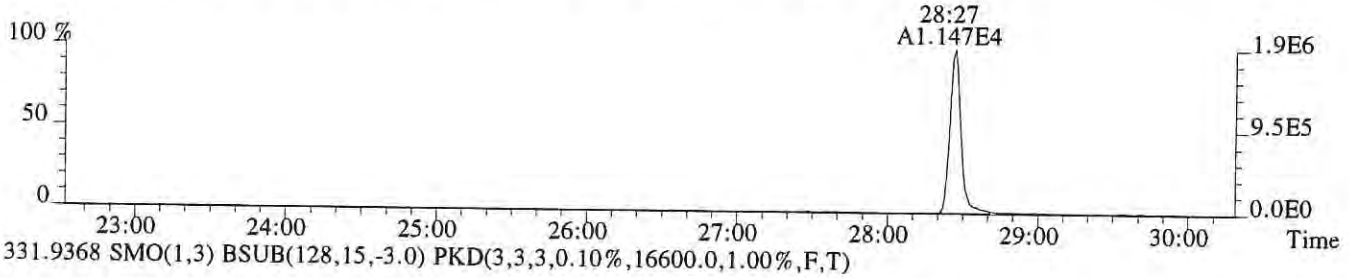
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



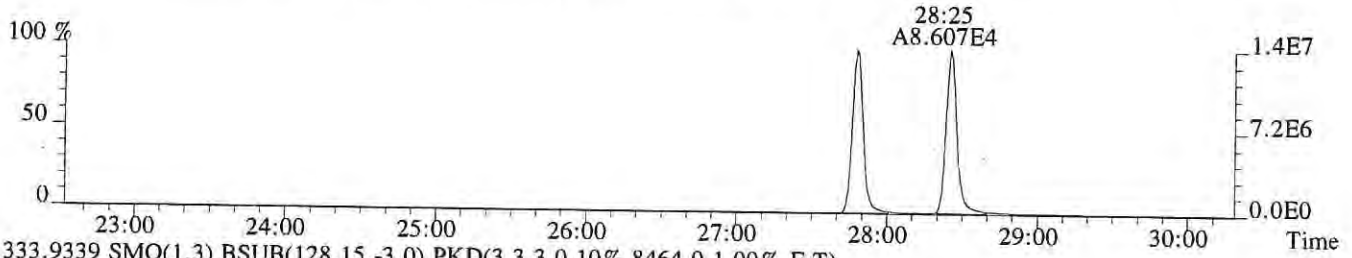
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5020.0,1.00%,F,T)



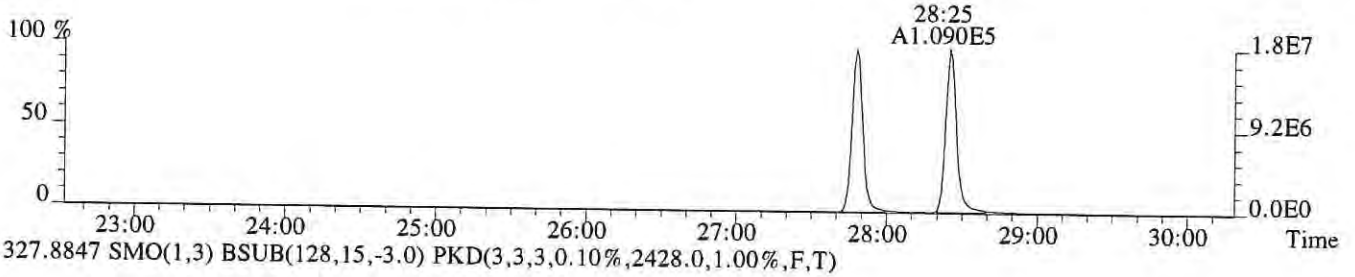
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



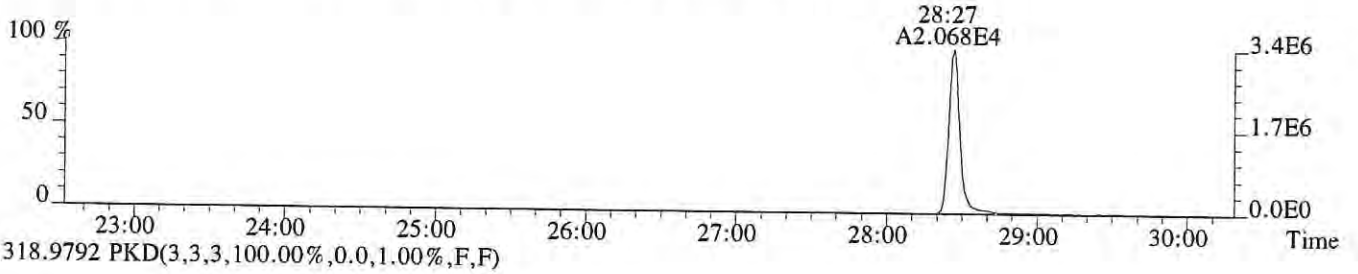
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16600.0,1.00%,F,T)



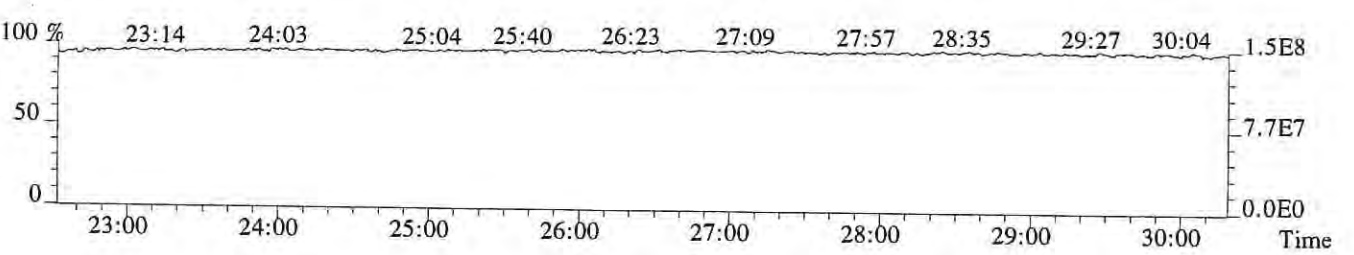
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8464.0,1.00%,F,T)



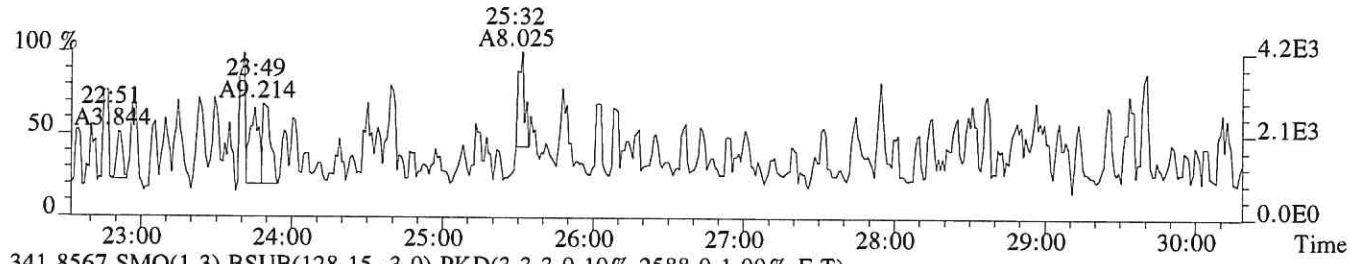
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



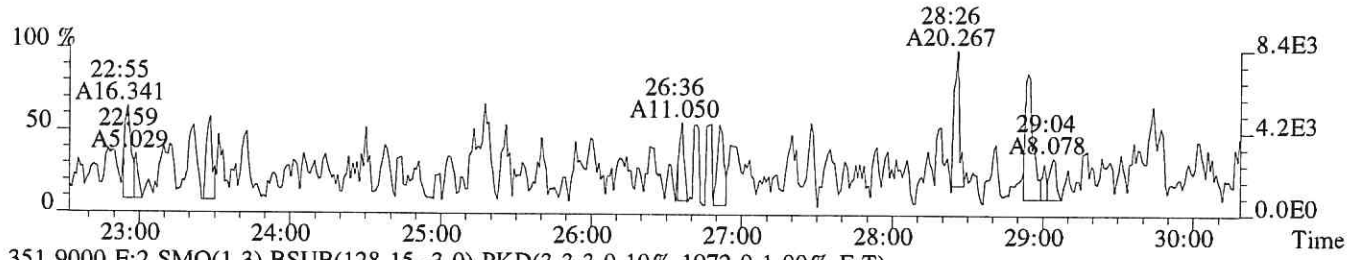
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



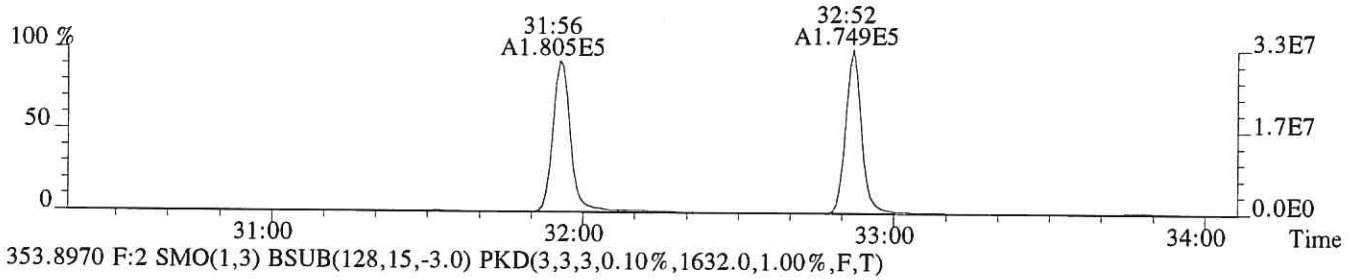
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



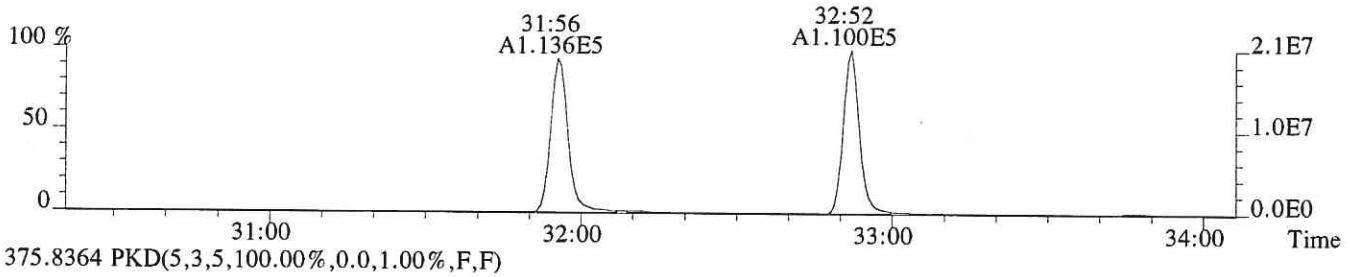
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



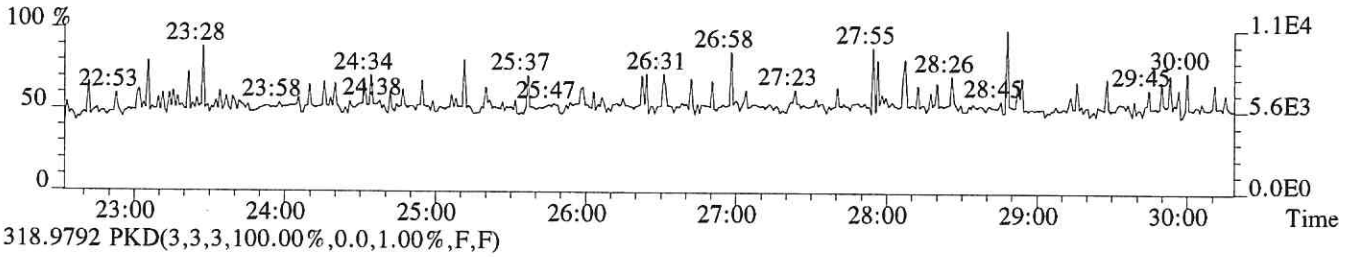
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



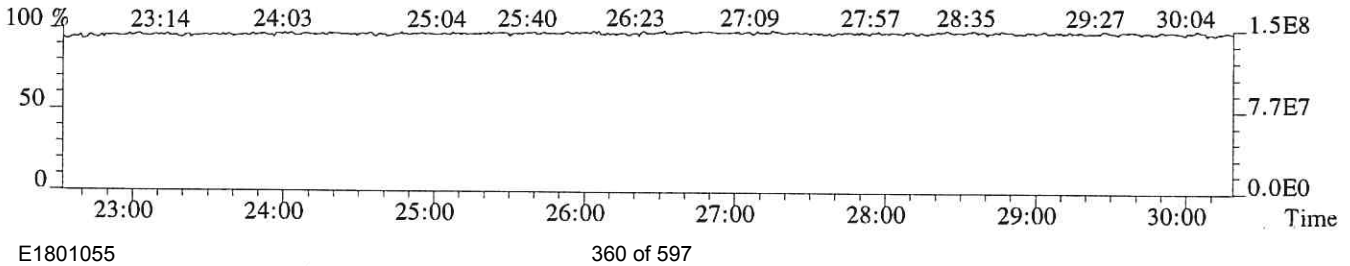
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



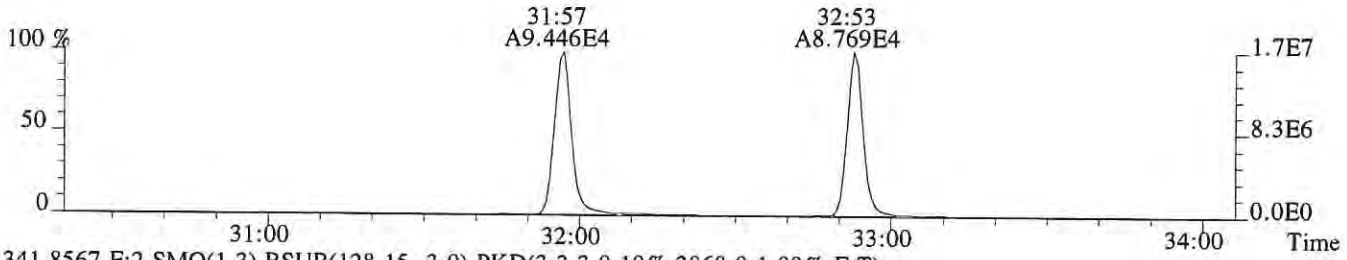
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



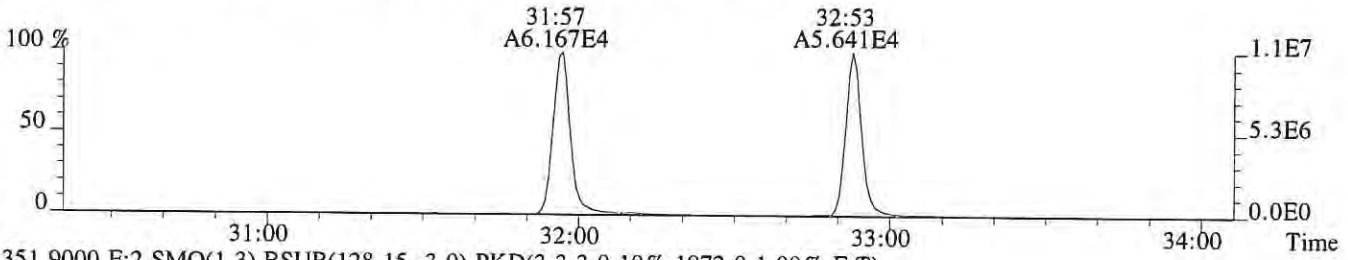
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



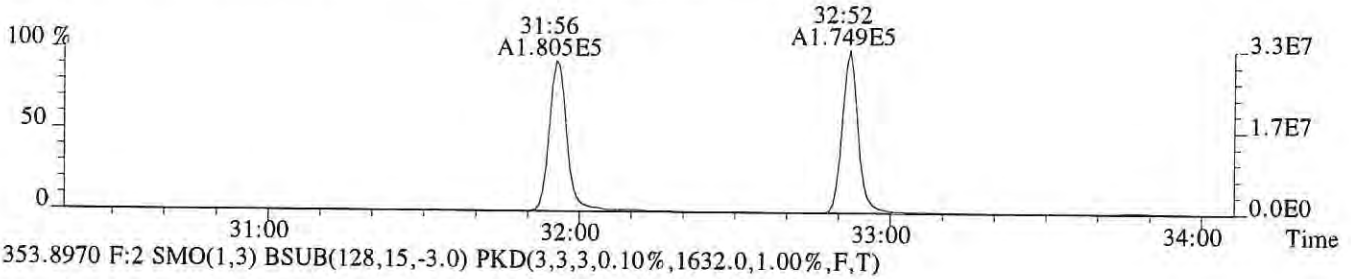
File:P615967 #1-339 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



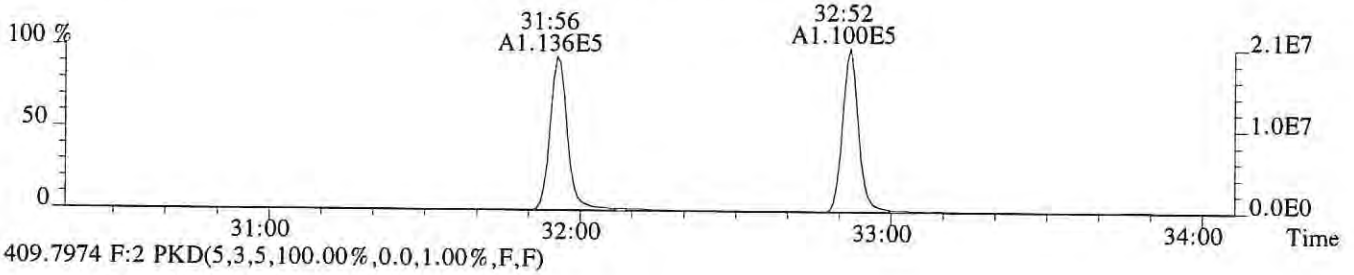
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)



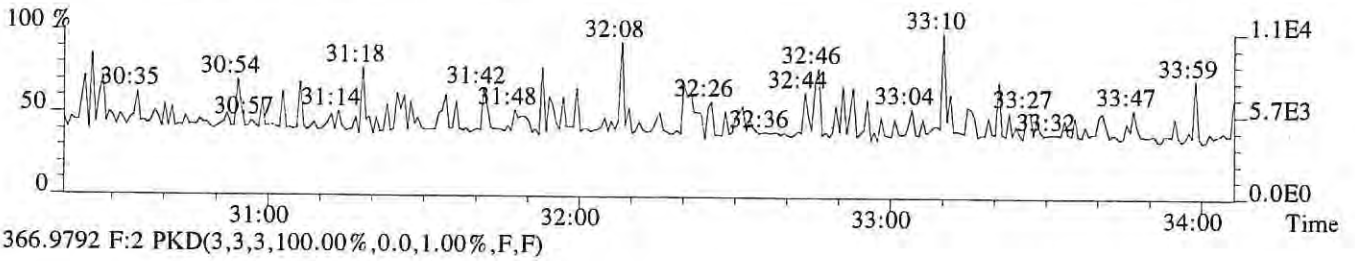
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



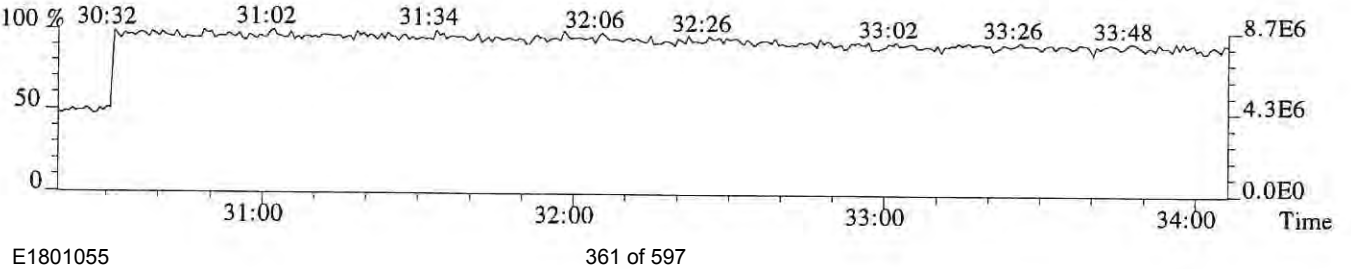
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



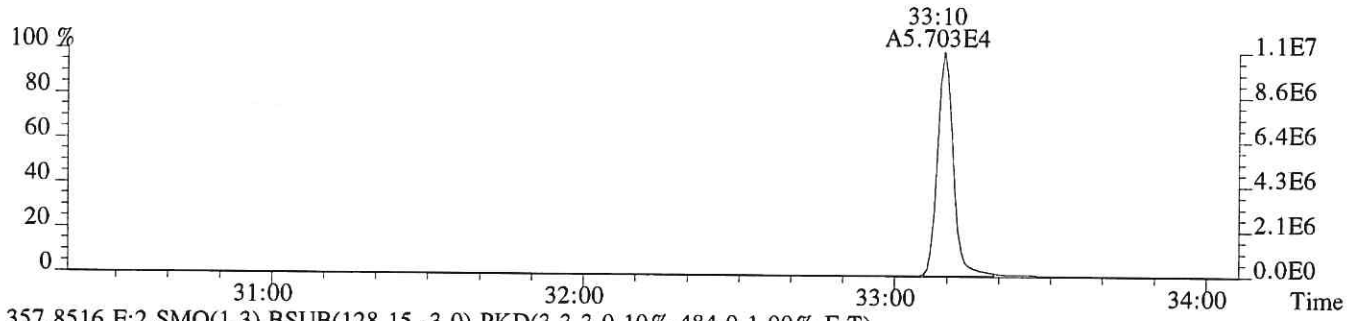
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



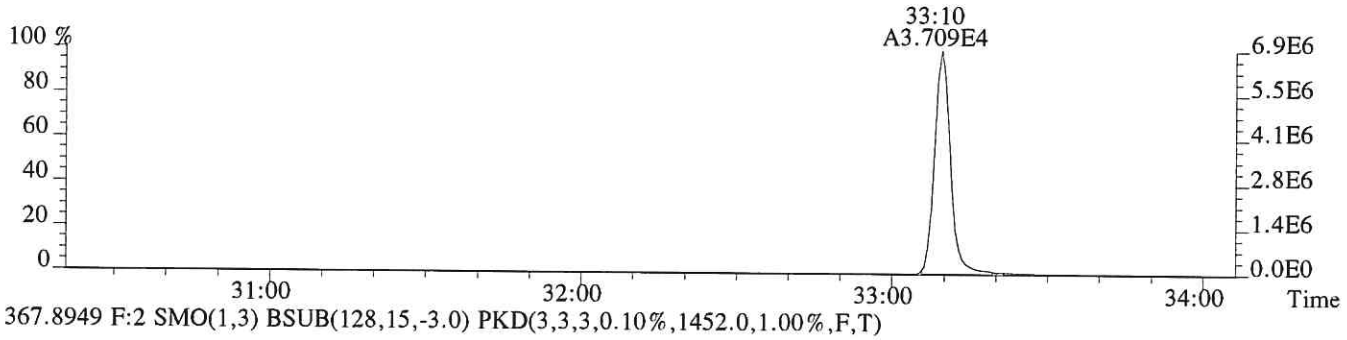
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



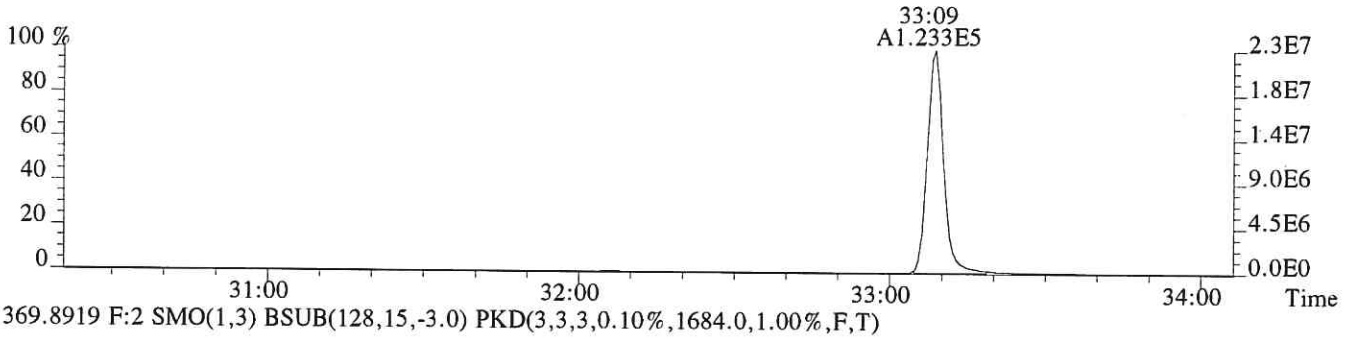
File:P615967 #1-339 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



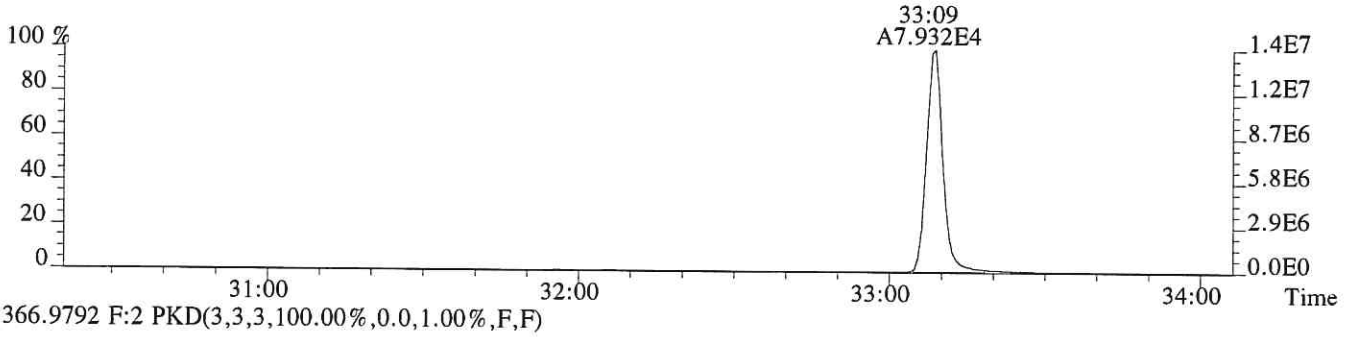
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



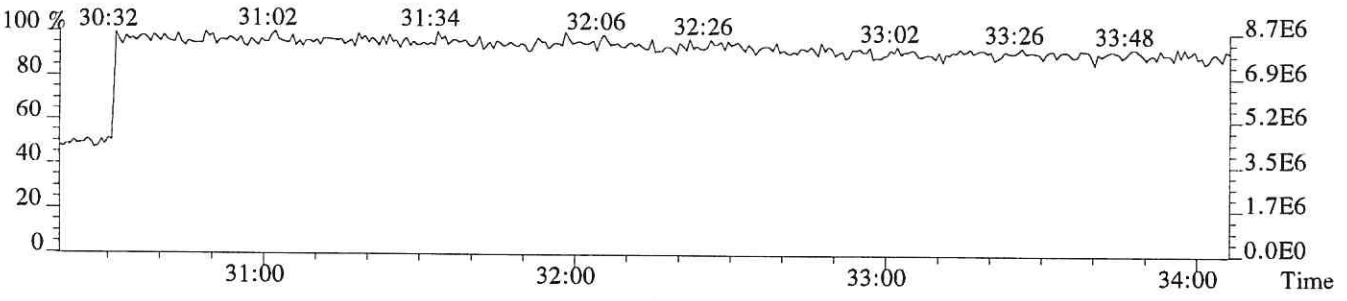
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



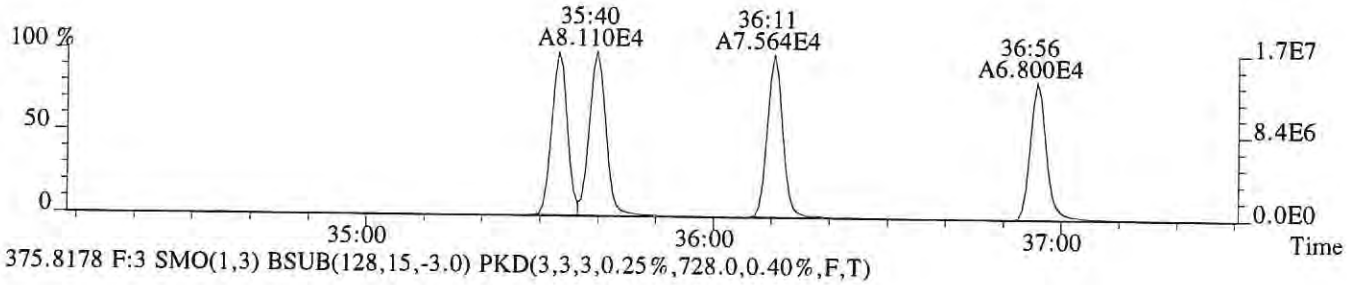
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



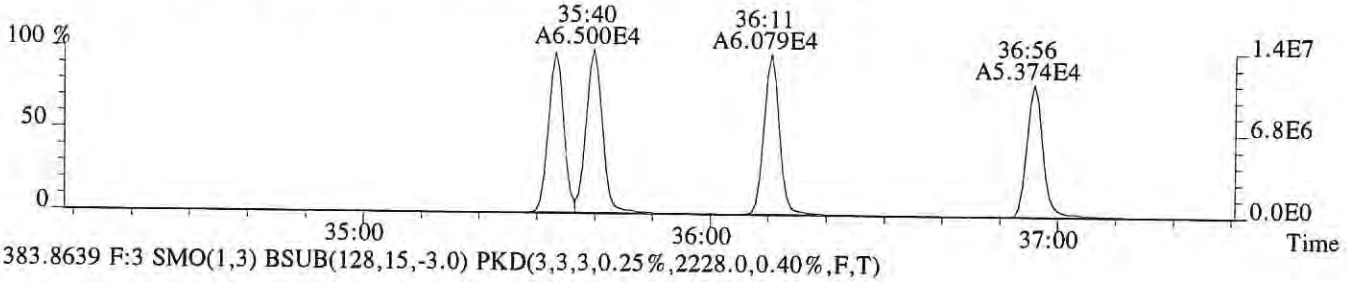
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



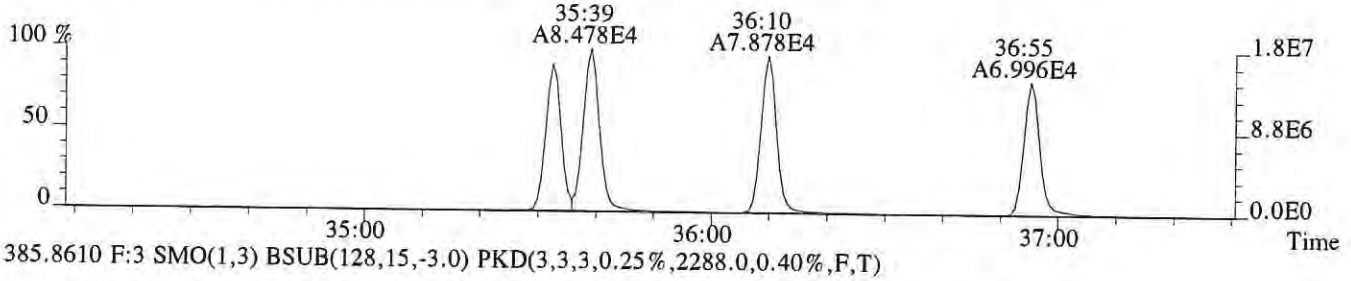
File:P615967 #1-304 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



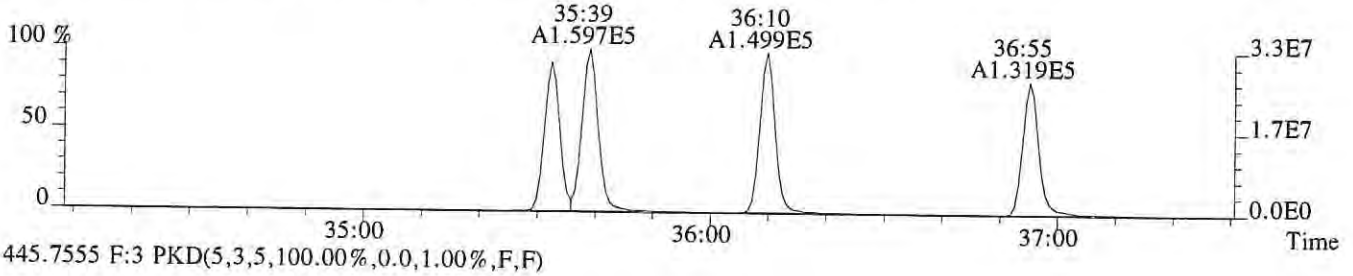
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



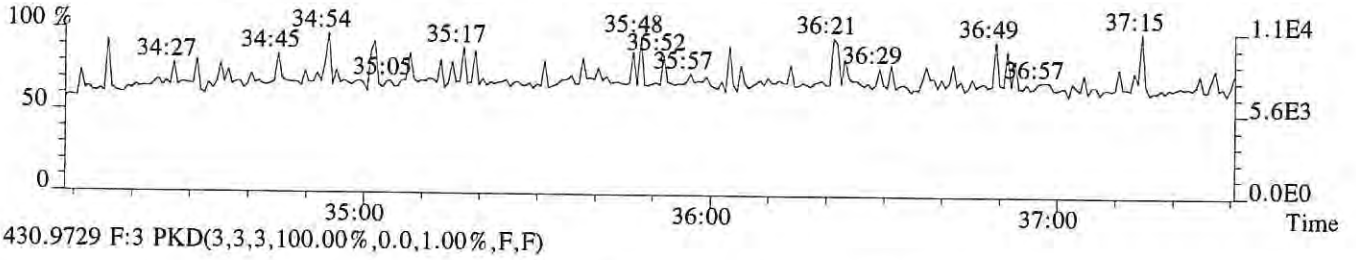
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2228.0,0.40%,F,T)



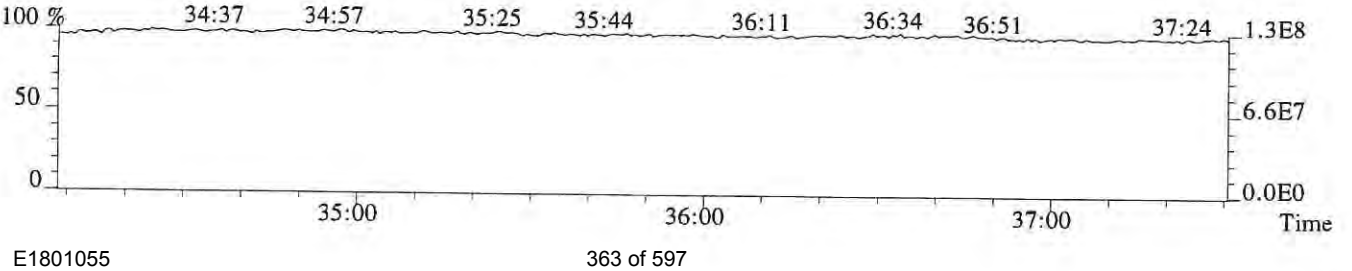
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2288.0,0.40%,F,T)



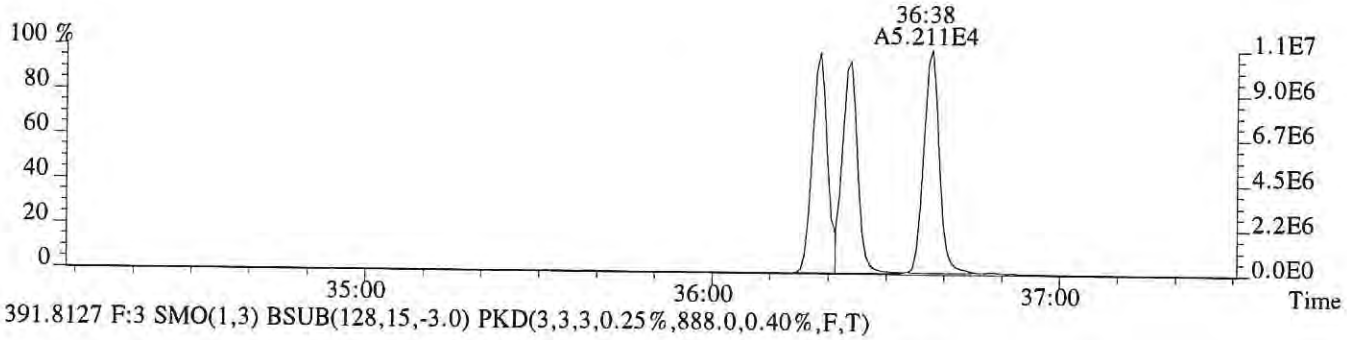
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



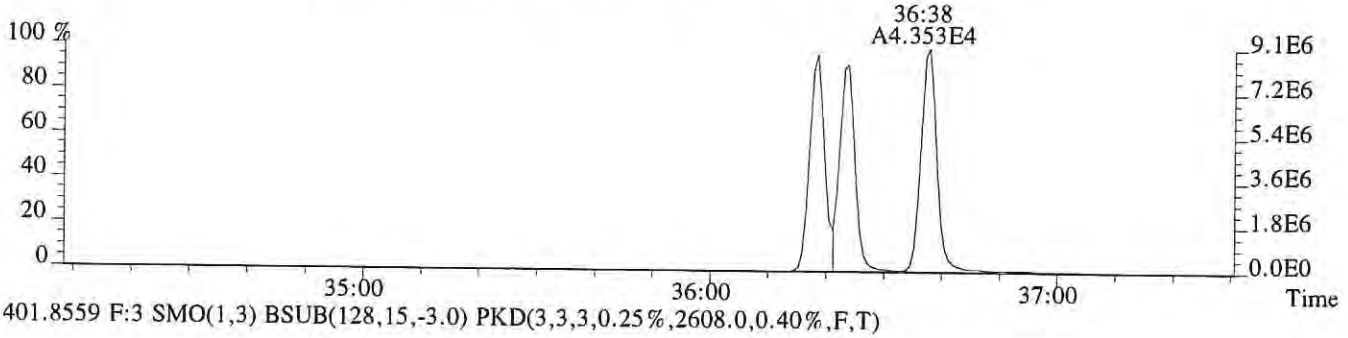
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



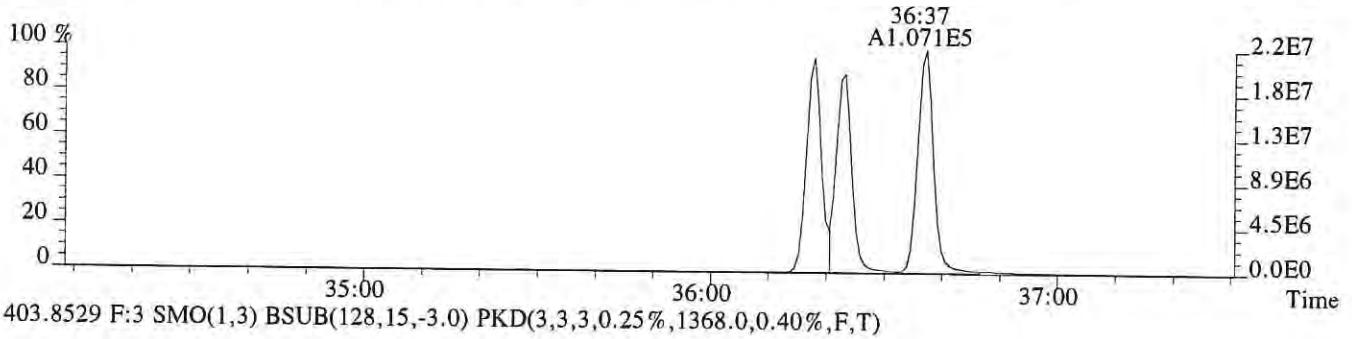
File:P615967 #1-304 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



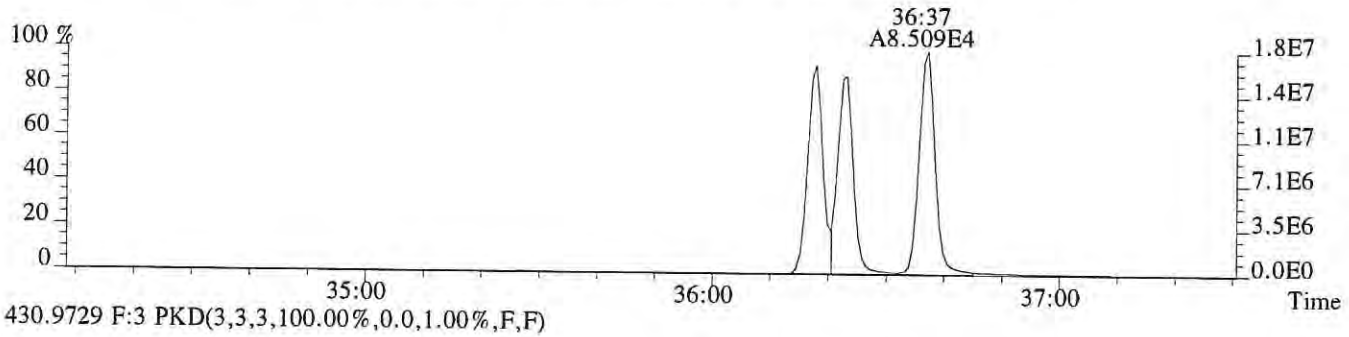
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



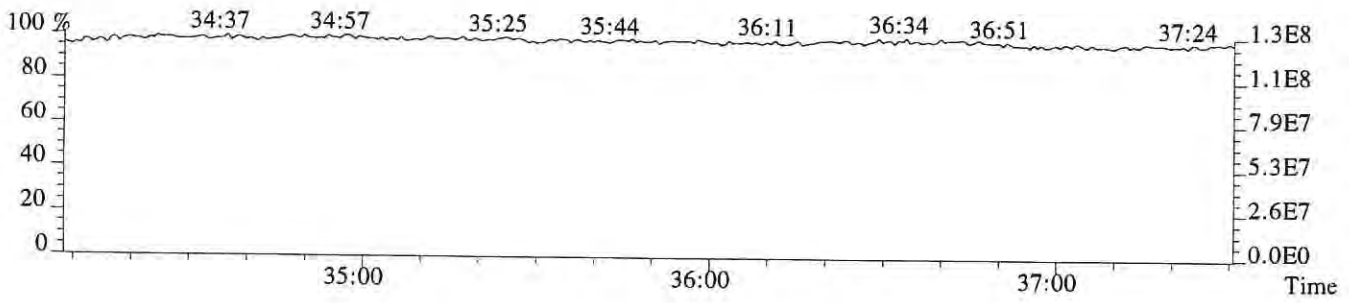
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



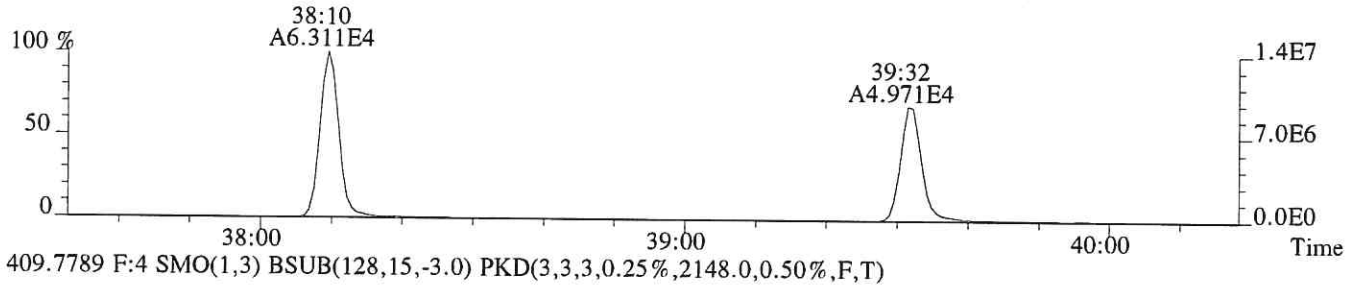
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



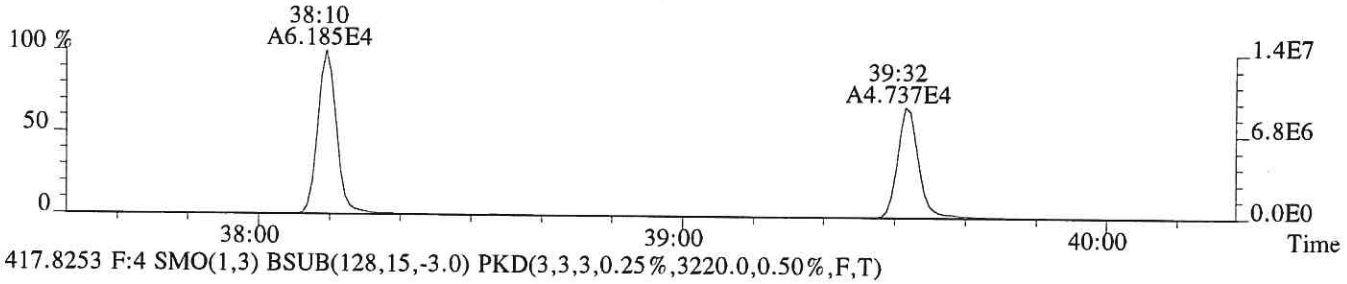
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



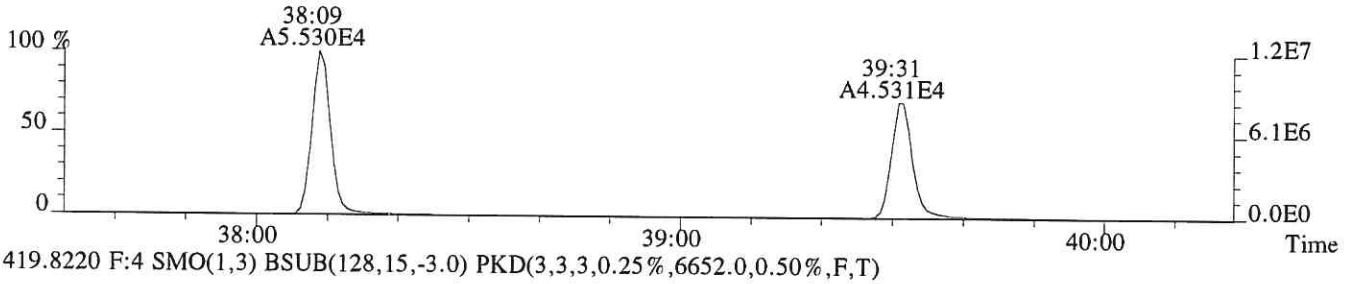
File:P615967 #1-249 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7216.0,0.50%,F,T)



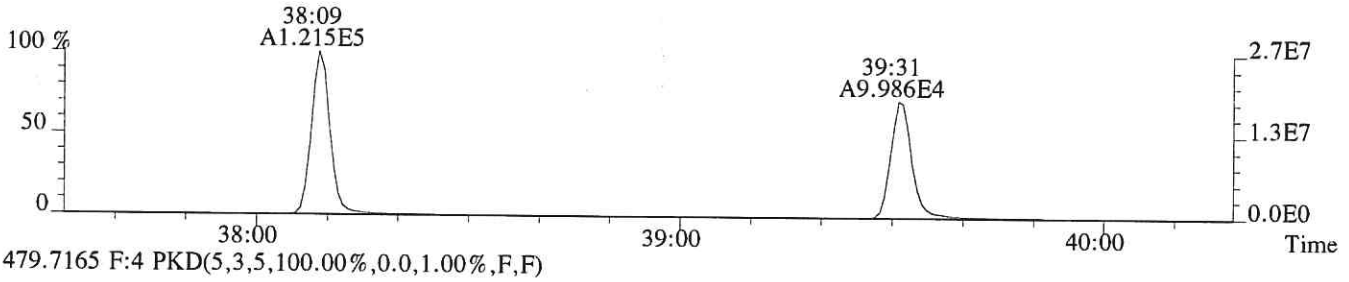
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.50%,F,T)



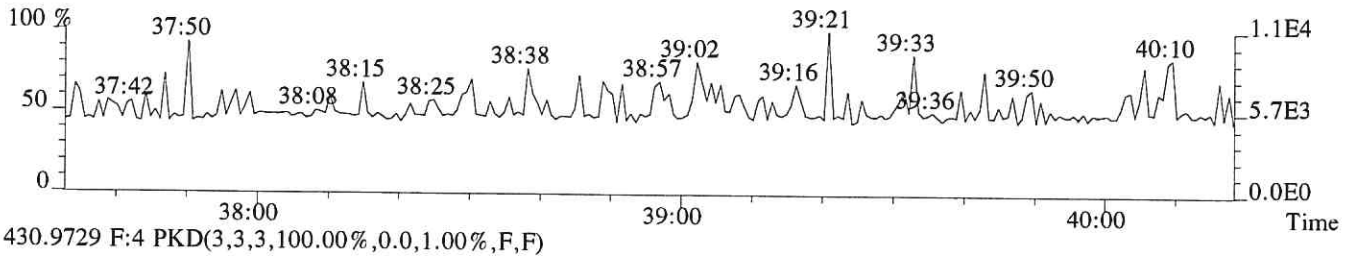
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3220.0,0.50%,F,T)



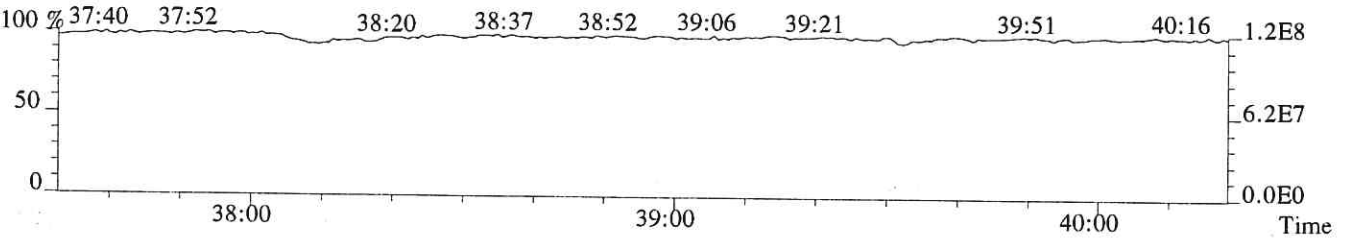
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6652.0,0.50%,F,T)



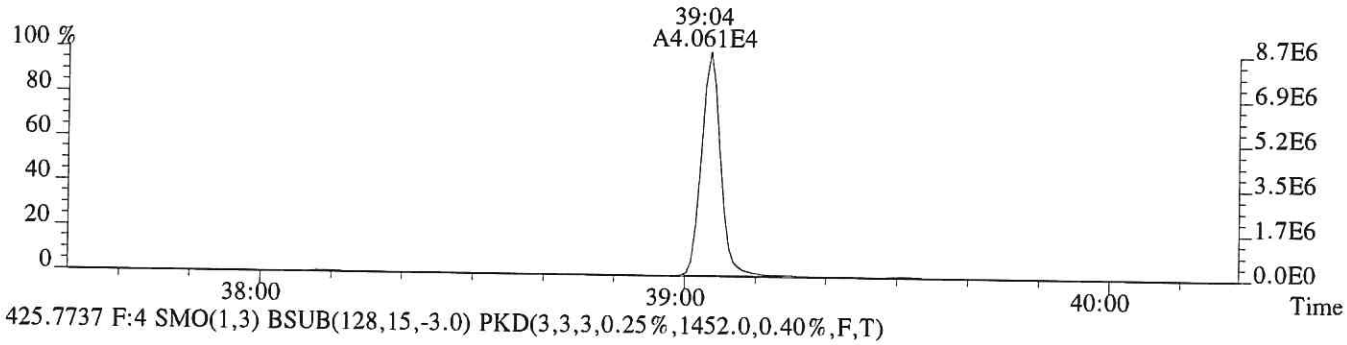
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



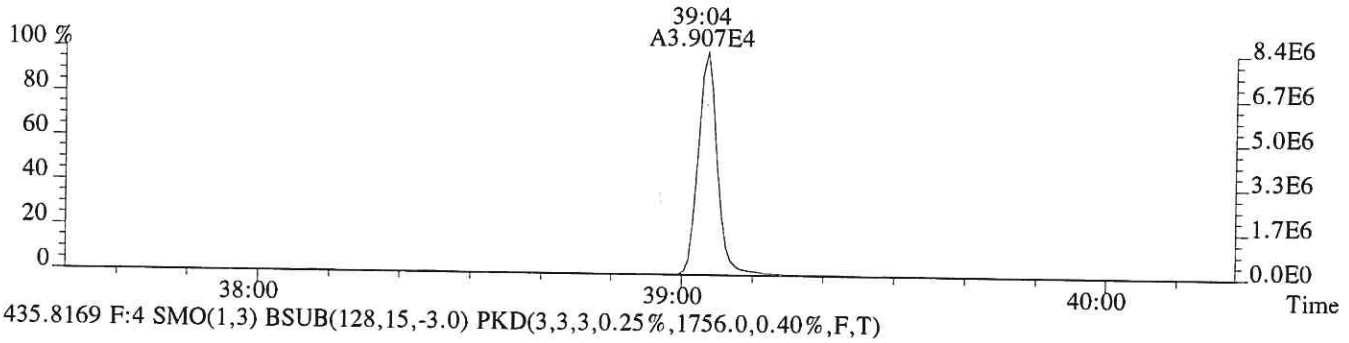
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



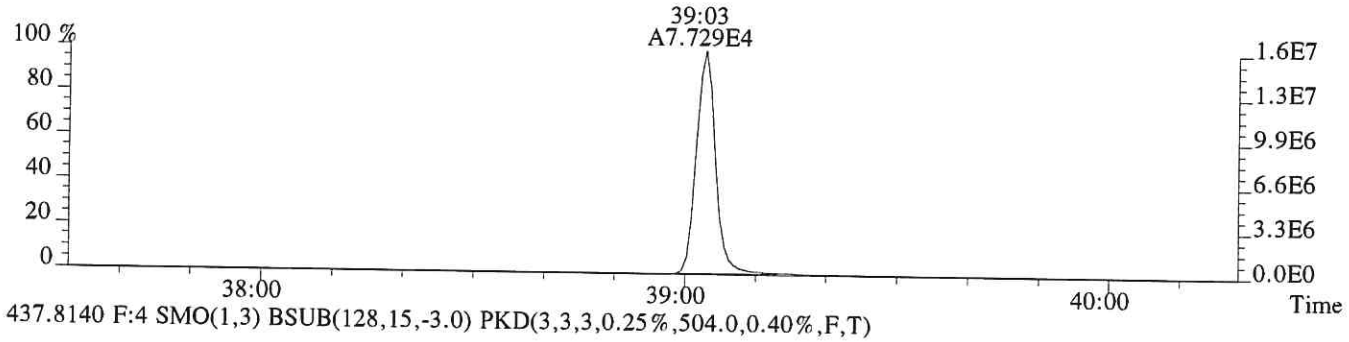
File:P615967 #1-249 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



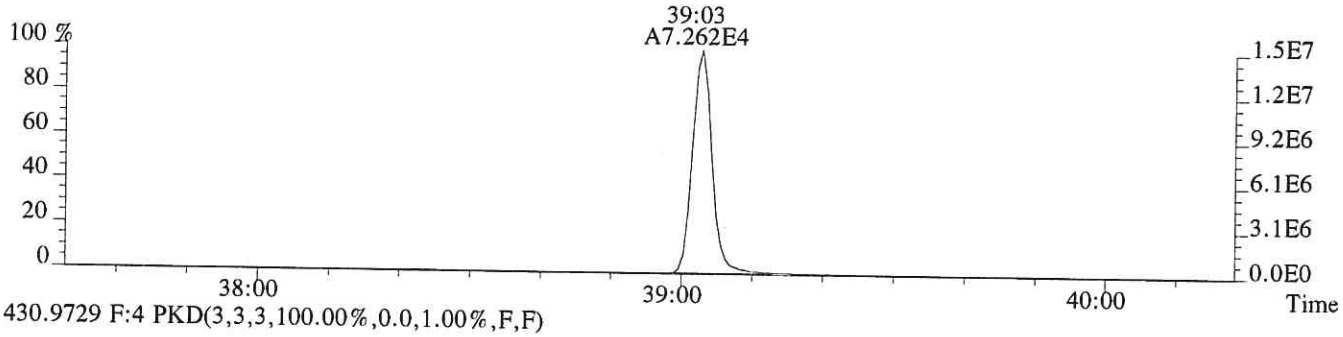
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.40%,F,T)



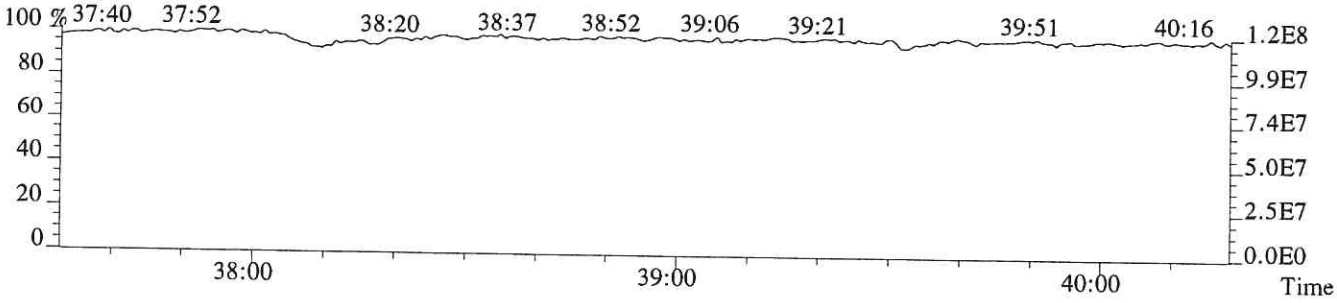
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.40%,F,T)



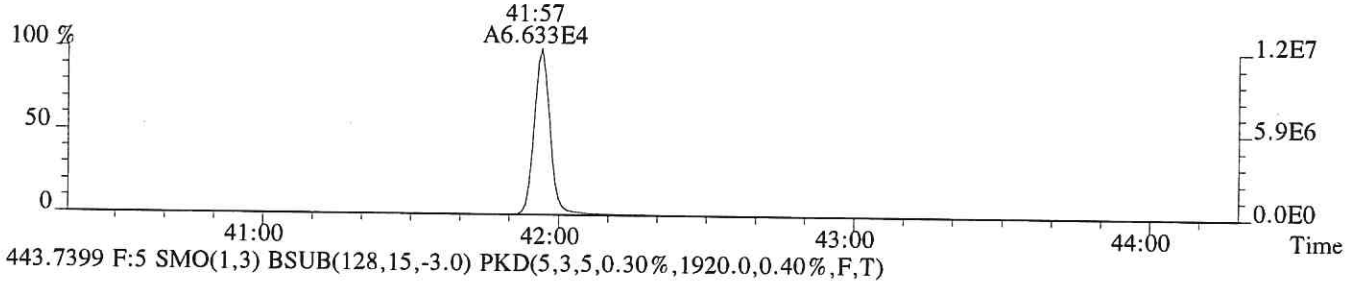
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



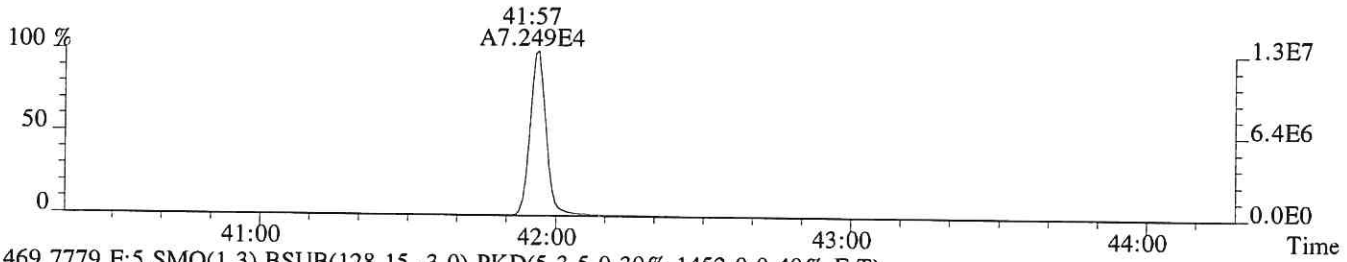
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



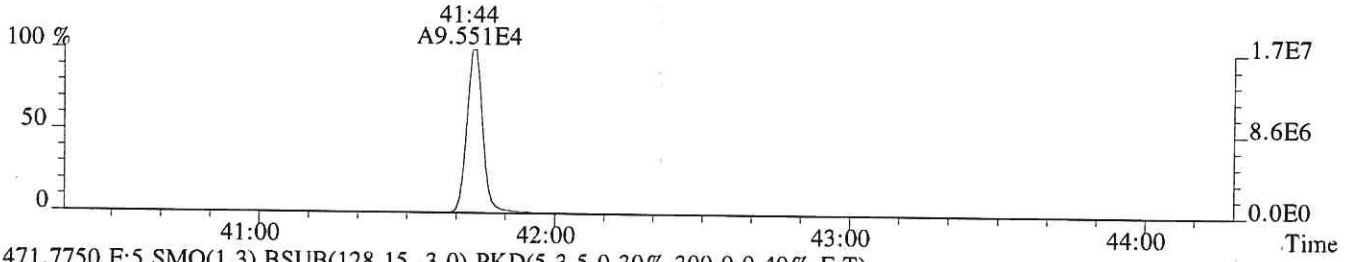
File:P615967 #1-357 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



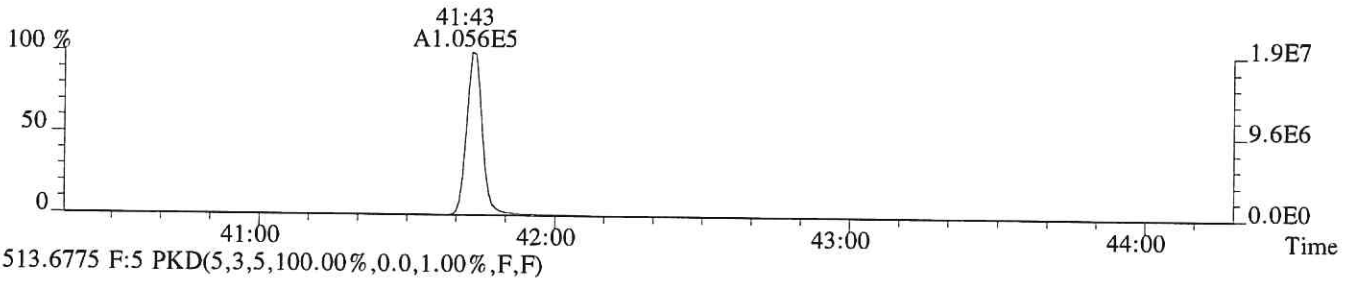
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1920.0,0.40%,F,T)



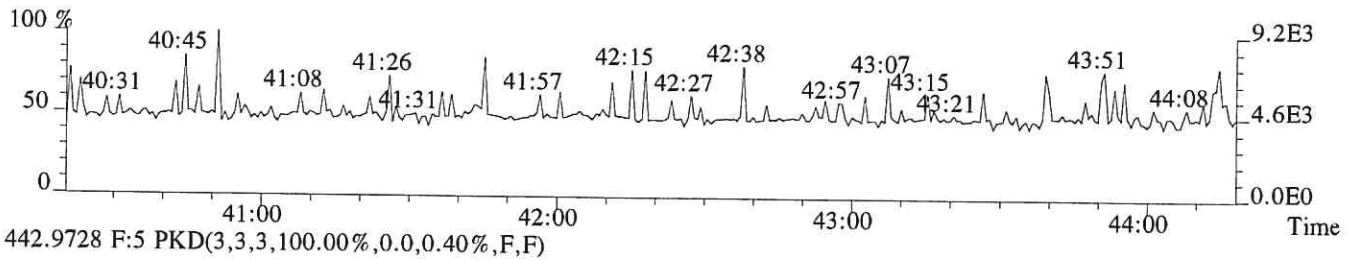
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1452.0,0.40%,F,T)



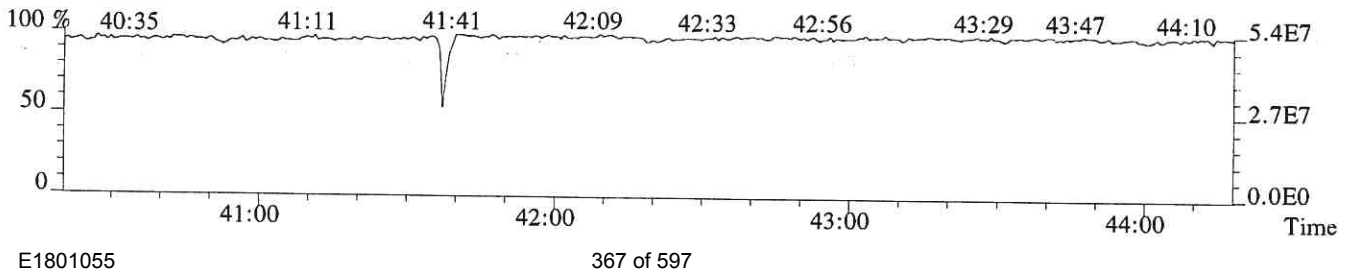
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



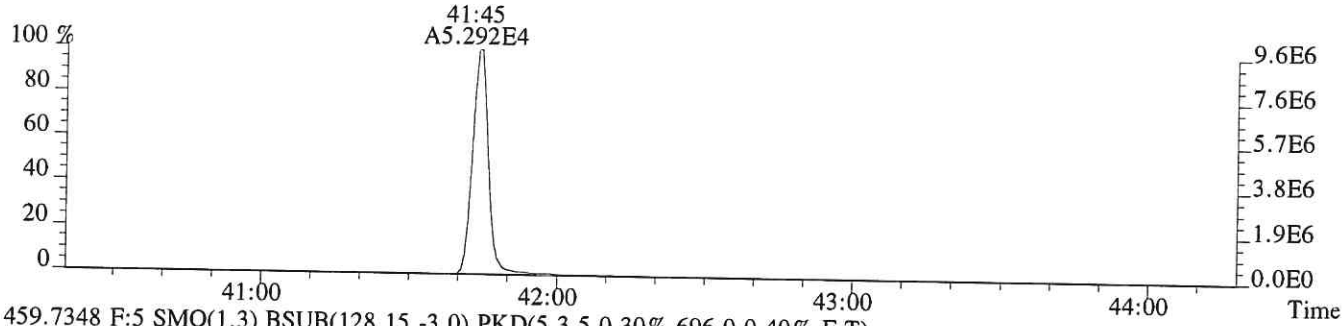
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



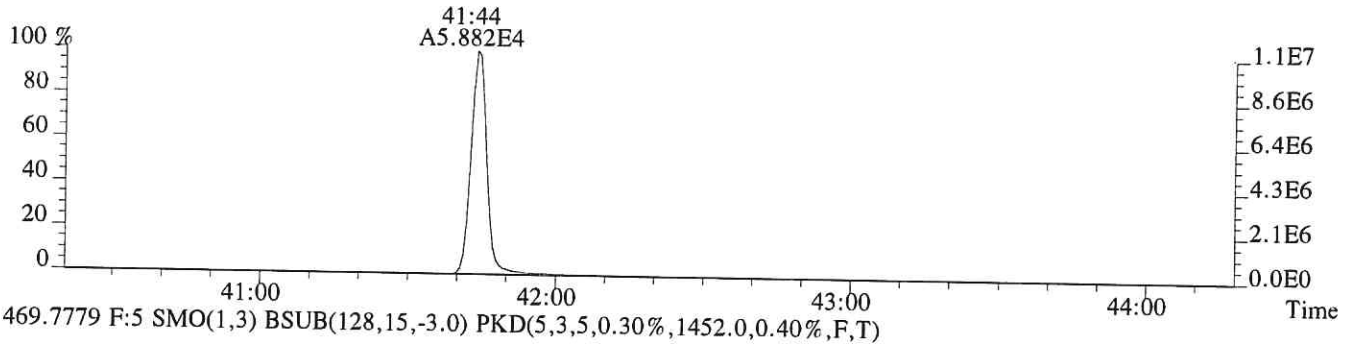
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



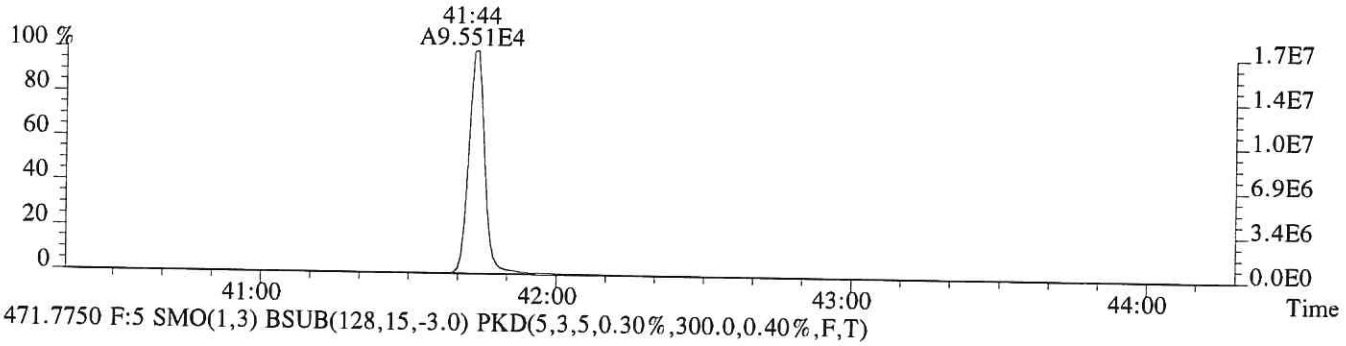
File:P615967 #1-357 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



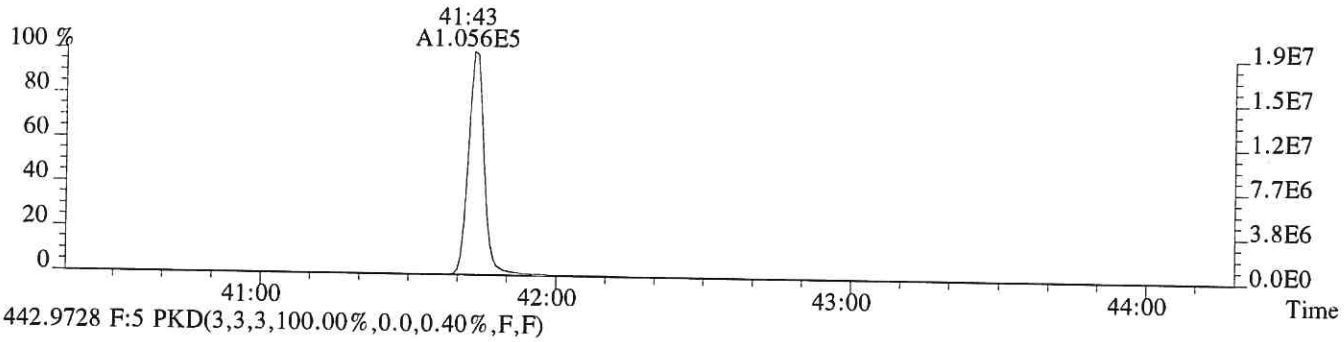
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



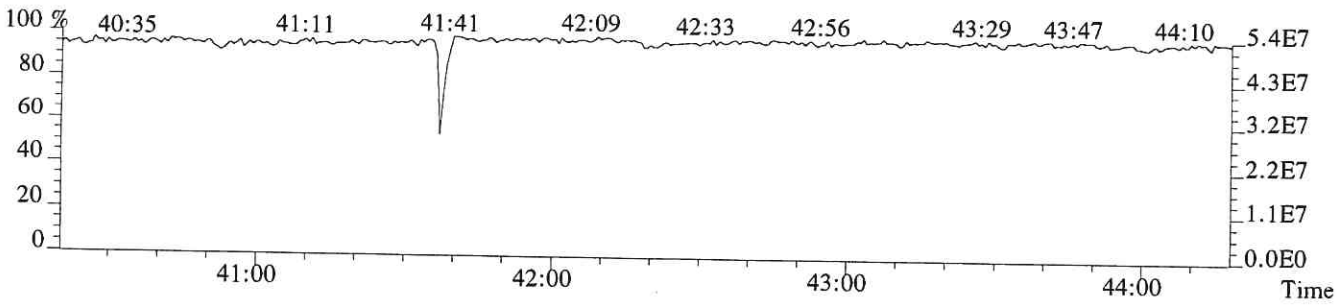
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1452.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



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



Initial Calibration

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

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:38	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	LS	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ LD 1/24/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

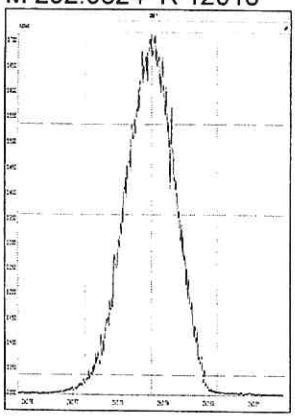
gc 01/25/18

* gc 01/25/18

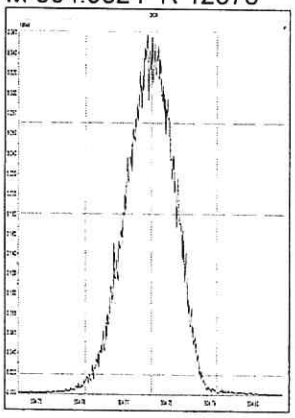
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

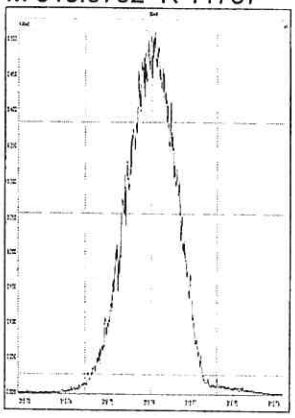
M 292.9824 R 12018



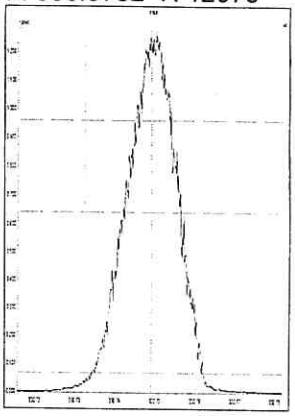
M 304.9824 R 12378



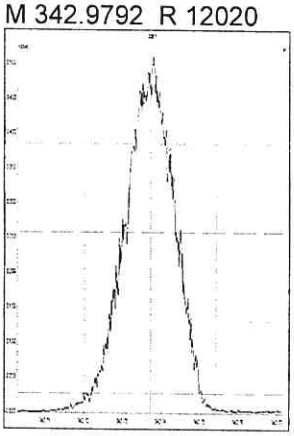
M 318.9792 R 11737



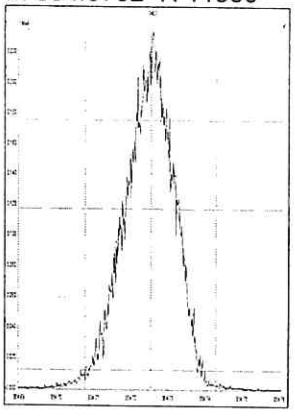
M 330.9792 R 12075



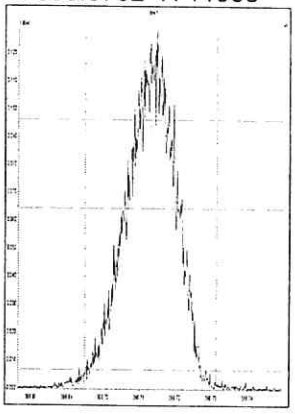
M 342.9792 R 12020



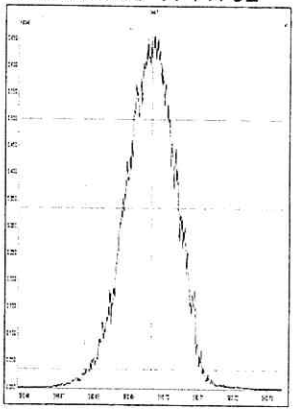
M 354.9792 R 11680



M 366.9792 R 11963



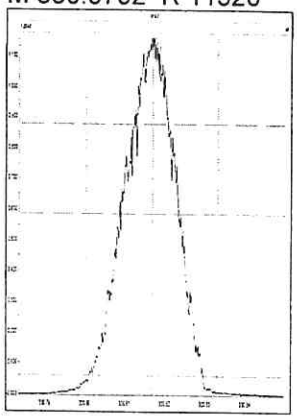
M 380.9760 R 11792



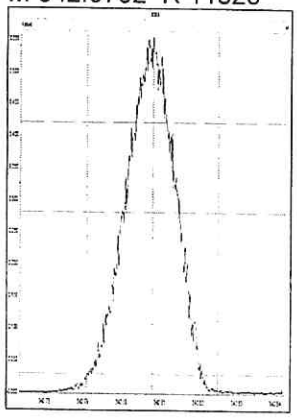
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

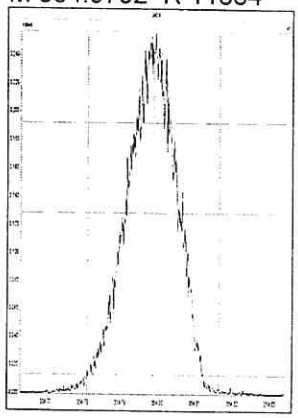
M 330.9792 R 11520



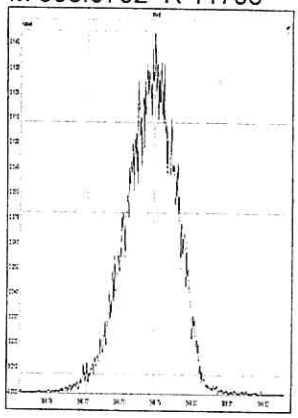
M 342.9792 R 11625



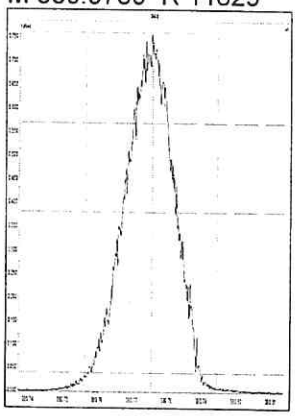
M 354.9792 R 11364



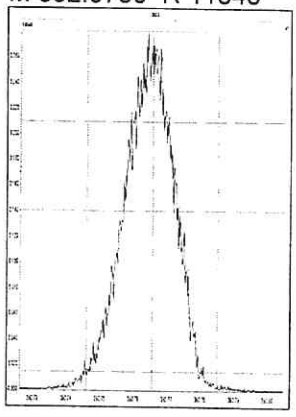
M 366.9792 R 11796



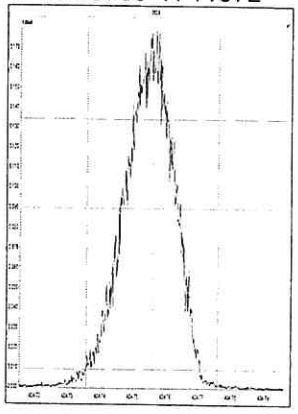
M 380.9760 R 11629



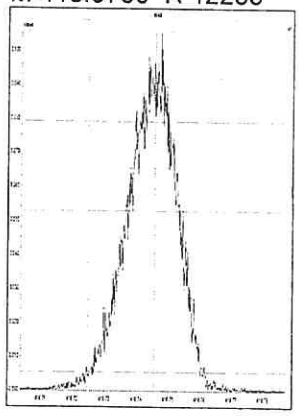
M 392.9760 R 11848



M 404.9760 R 11572



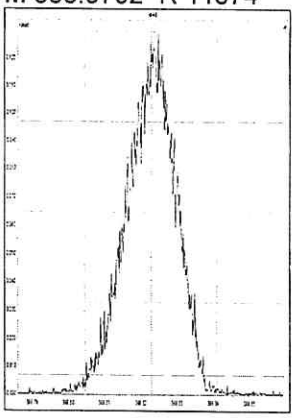
M 416.9760 R 12255



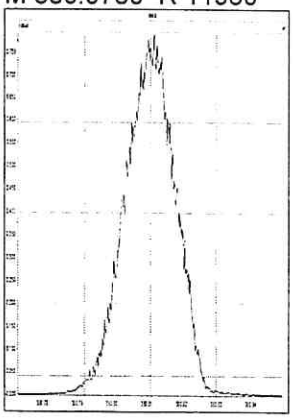
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

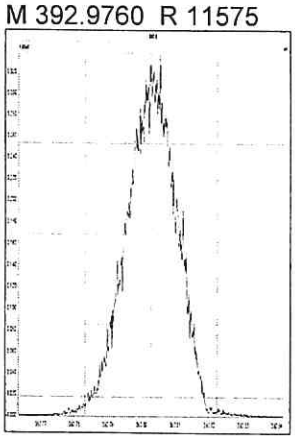
M 366.9792 R 11574



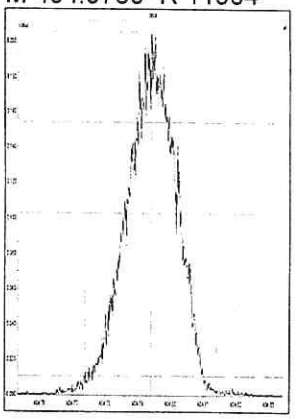
M 380.9760 R 11960



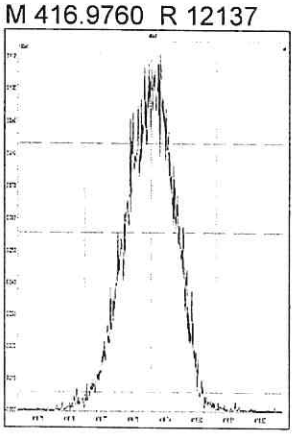
M 392.9760 R 11575



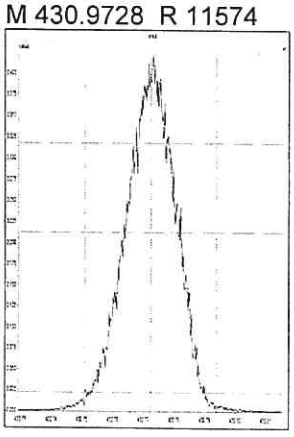
M 404.9760 R 11904



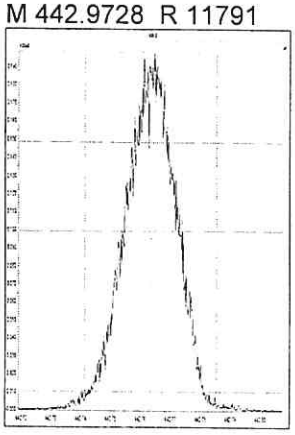
M 416.9760 R 12137



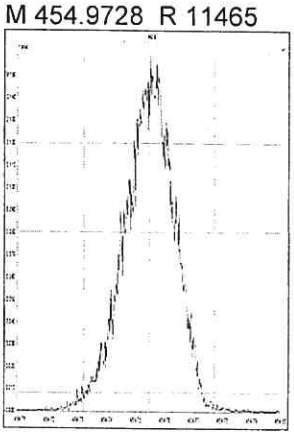
M 430.9728 R 11574



M 442.9728 R 11791



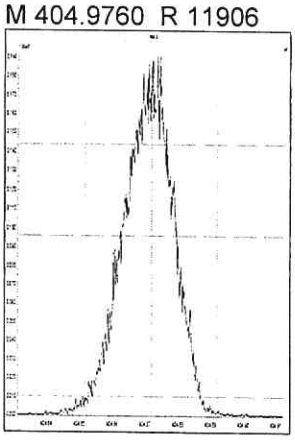
M 454.9728 R 11465



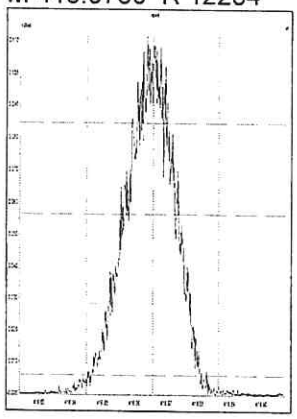
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

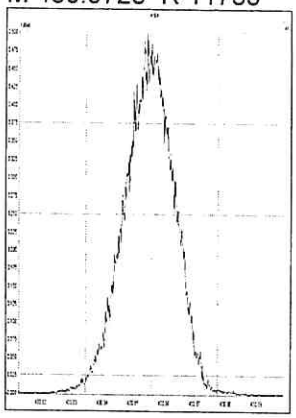
M 404.9760 R 11906



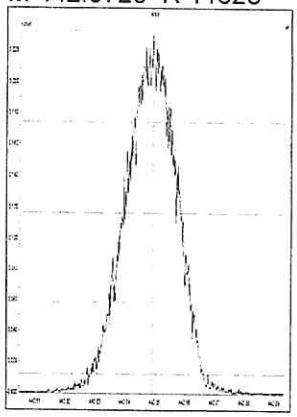
M 416.9760 R 12254



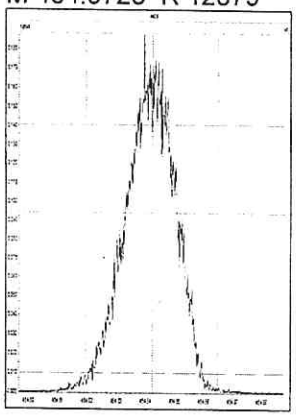
M 430.9728 R 11735



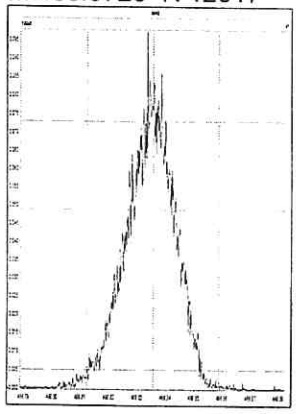
M 442.9728 R 11628



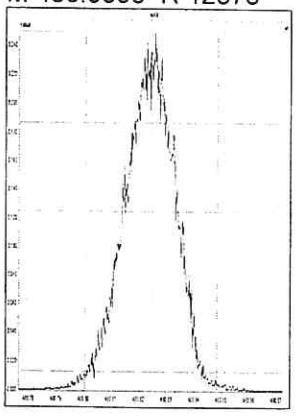
M 454.9728 R 12379



M 466.9728 R 12017



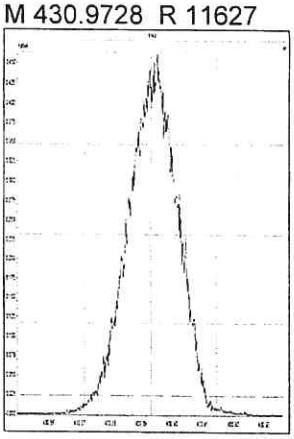
M 480.9696 R 12376



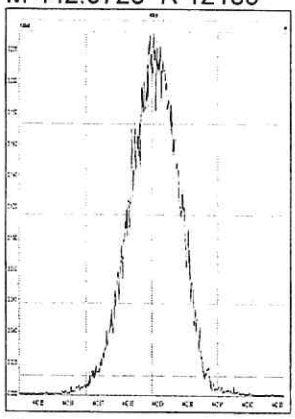
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

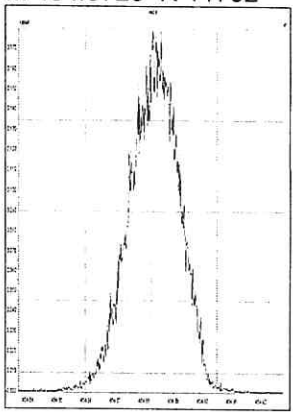
M 430.9728 R 11627



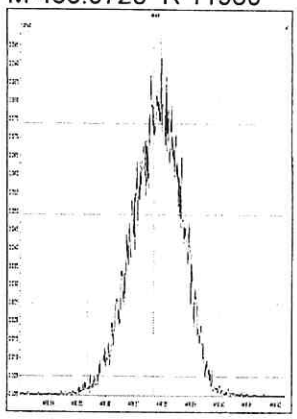
M 442.9728 R 12133



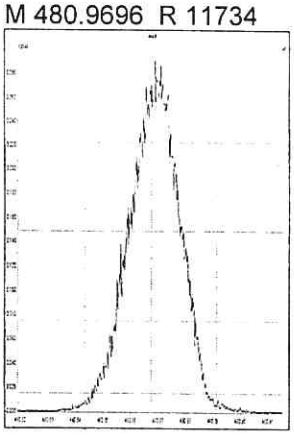
M 454.9728 R 11792



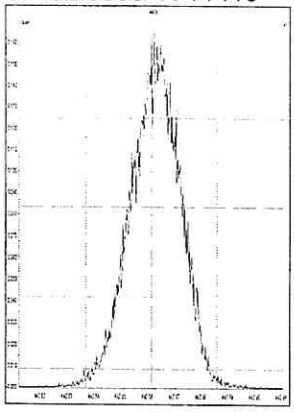
M 466.9728 R 11960



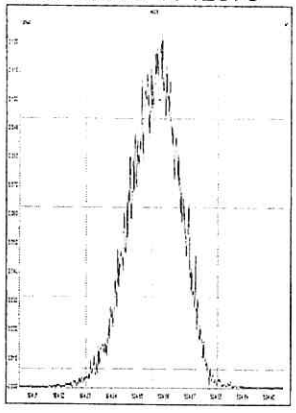
M 480.9696 R 11734



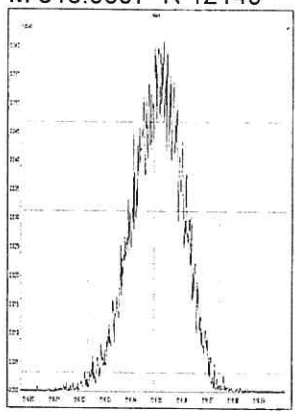
M 492.9696 R 11415



M 504.9696 R 12075



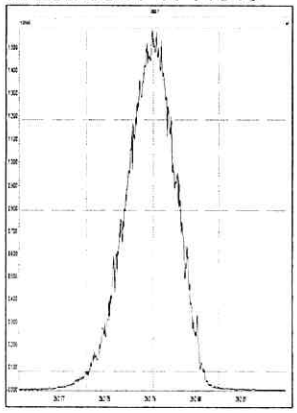
M 516.9697 R 12140



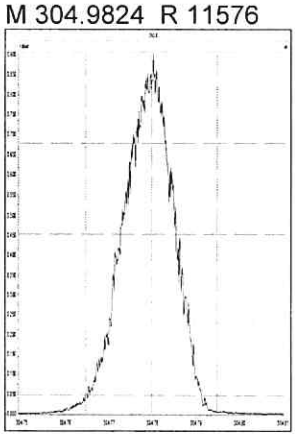
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

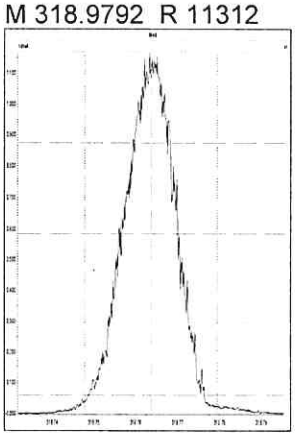
M 292.9824 R 11519



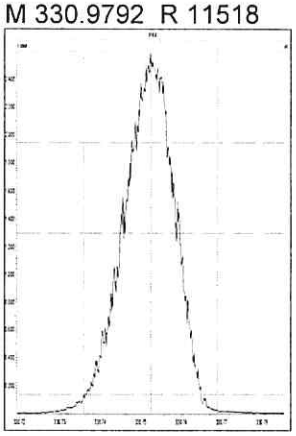
M 304.9824 R 11576



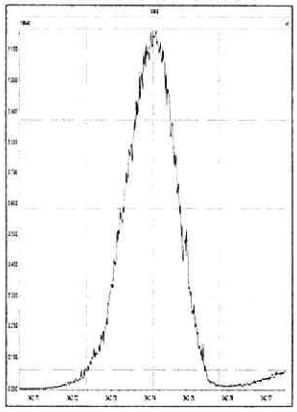
M 318.9792 R 11312



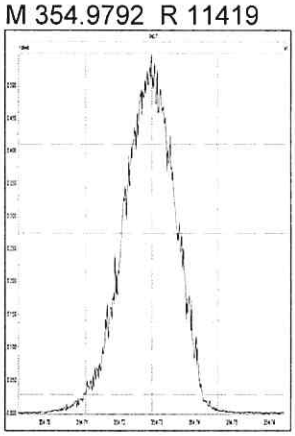
M 330.9792 R 11518



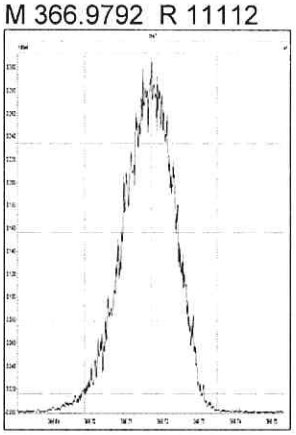
M 342.9792 R 11161



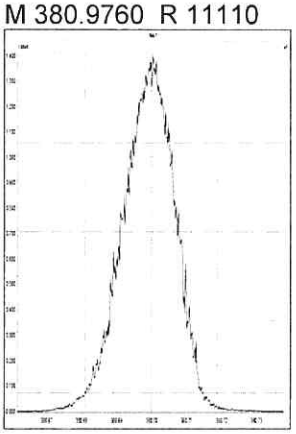
M 354.9792 R 11419



M 366.9792 R 11112



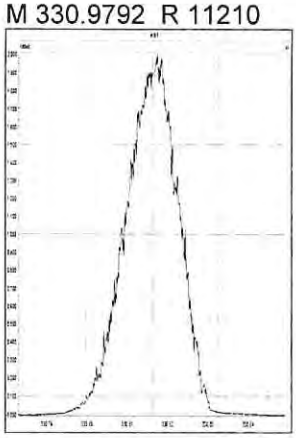
M 380.9760 R 11110



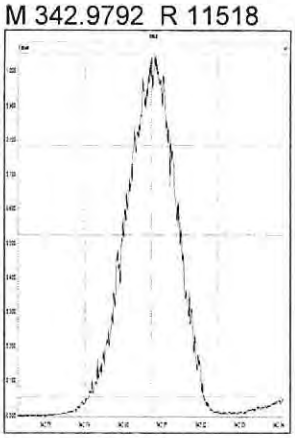
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

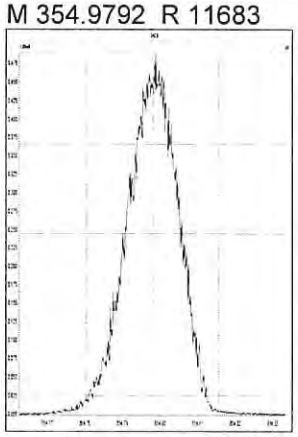
M 330.9792 R 11210



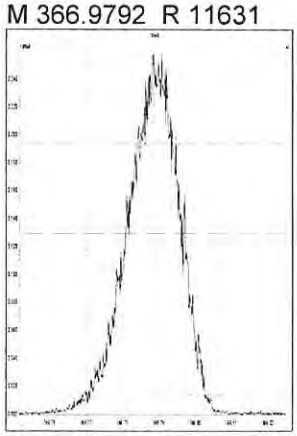
M 342.9792 R 11518



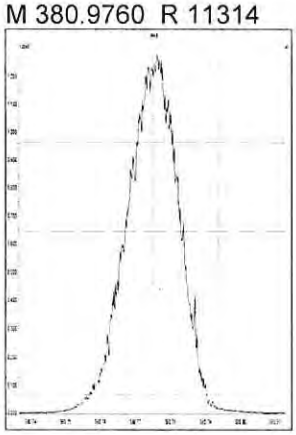
M 354.9792 R 11683



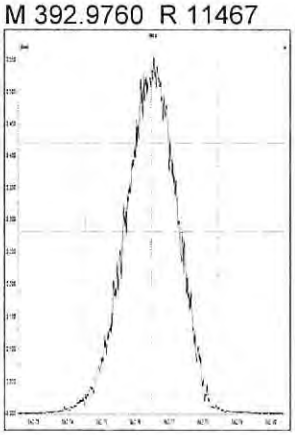
M 366.9792 R 11631



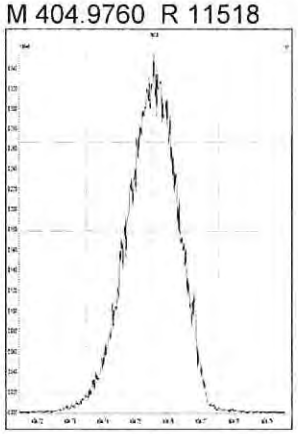
M 380.9760 R 11314



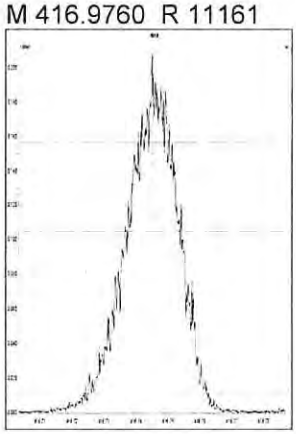
M 392.9760 R 11467



M 404.9760 R 11518



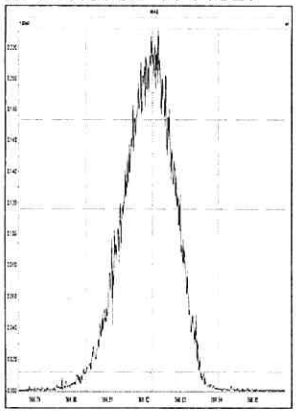
M 416.9760 R 11161



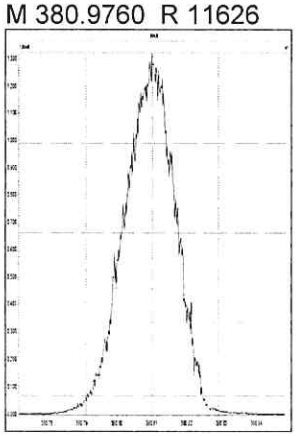
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

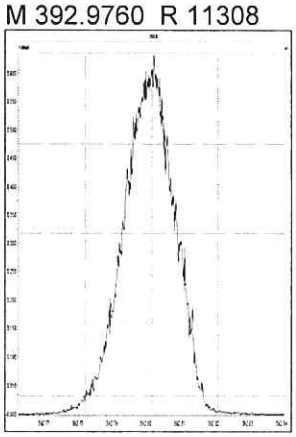
M 366.9792 R 11627



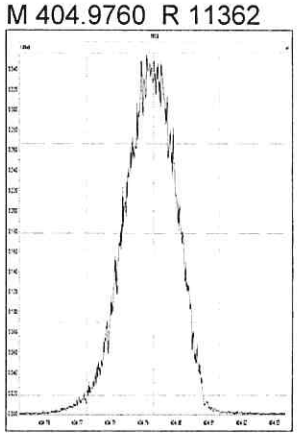
M 380.9760 R 11626



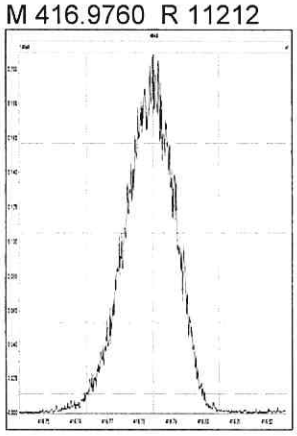
M 392.9760 R 11308



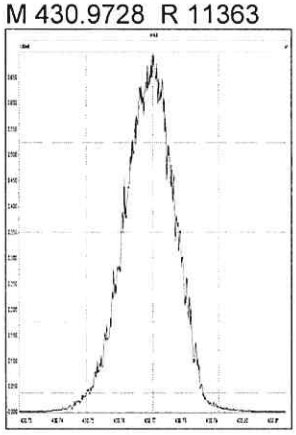
M 404.9760 R 11362



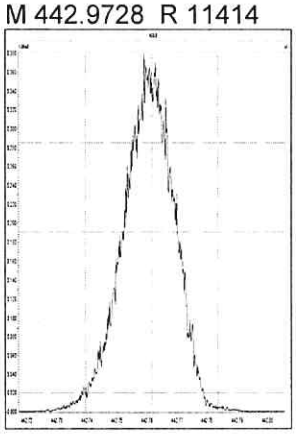
M 416.9760 R 11212



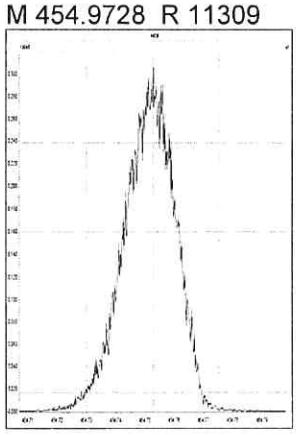
M 430.9728 R 11363



M 442.9728 R 11414



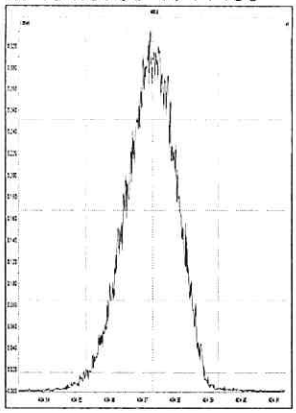
M 454.9728 R 11309



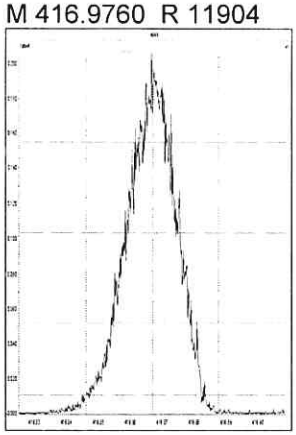
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

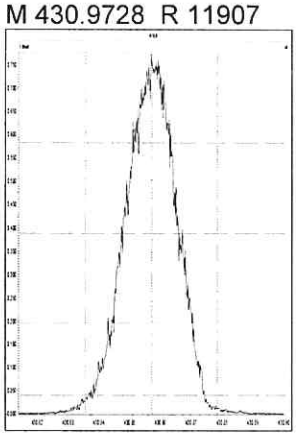
M 404.9760 R 11465



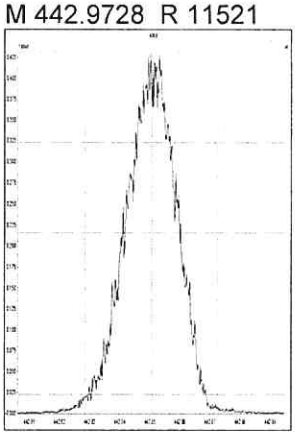
M 416.9760 R 11904



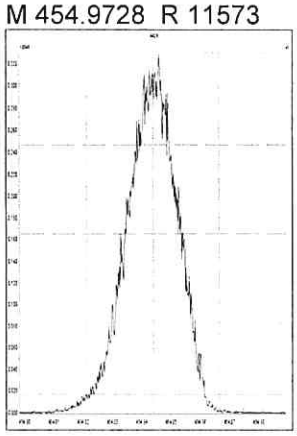
M 430.9728 R 11907



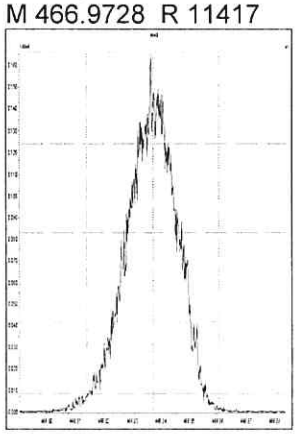
M 442.9728 R 11521



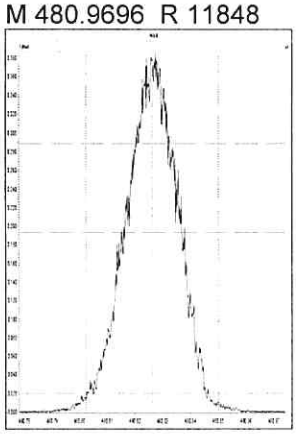
M 454.9728 R 11573



M 466.9728 R 11417



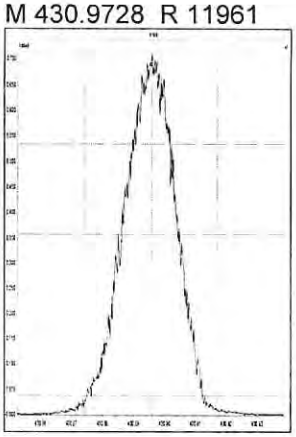
M 480.9696 R 11848



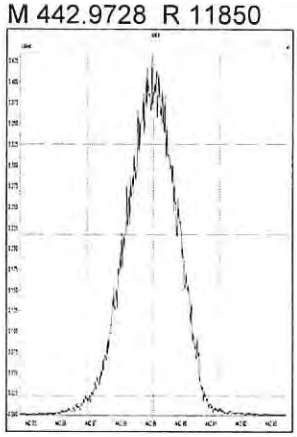
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

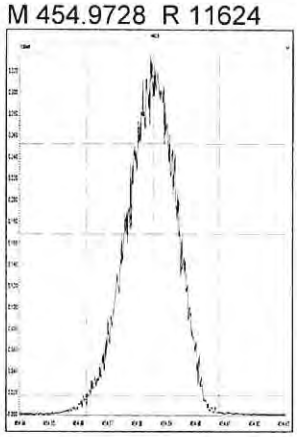
M 430.9728 R 11961



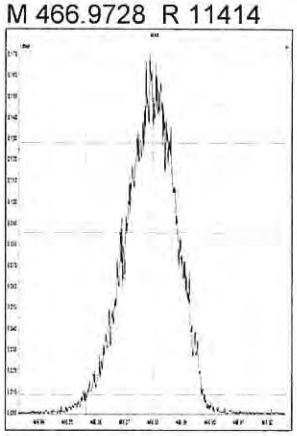
M 442.9728 R 11850



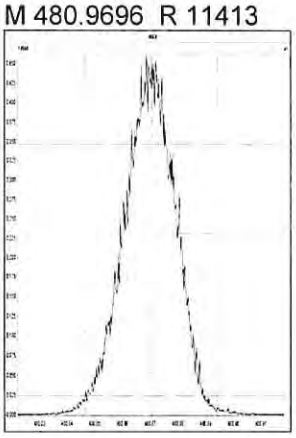
M 454.9728 R 11624



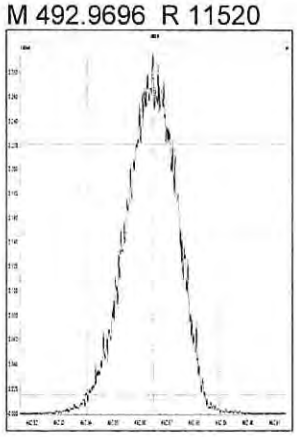
M 466.9728 R 11414



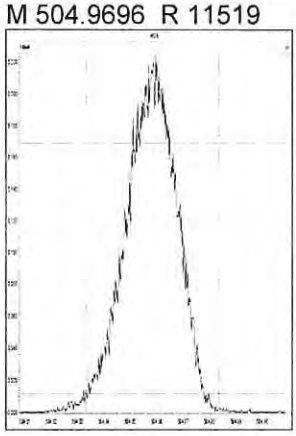
M 480.9696 R 11413



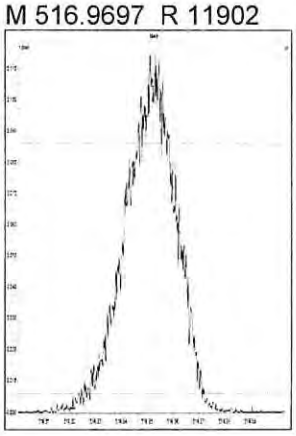
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

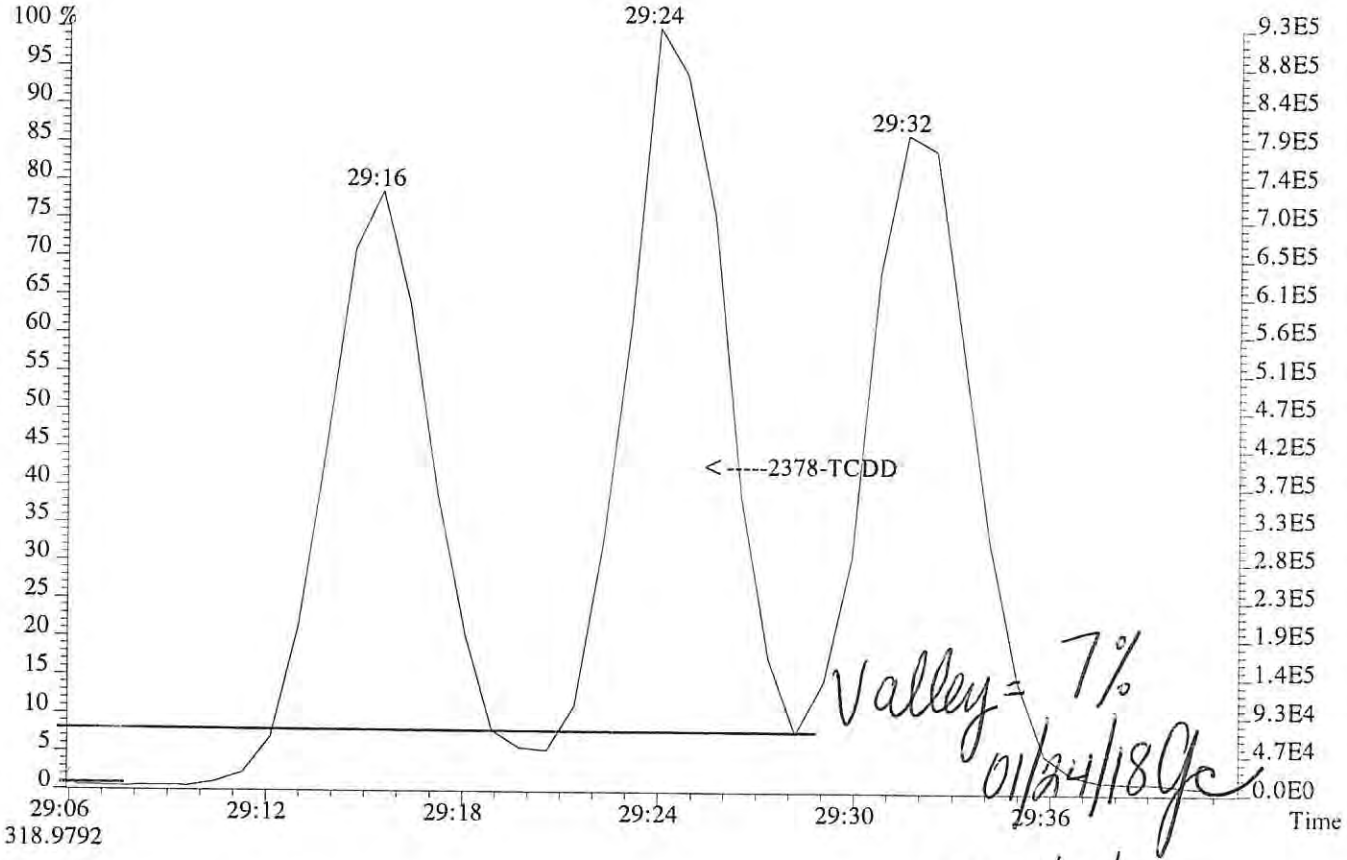
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

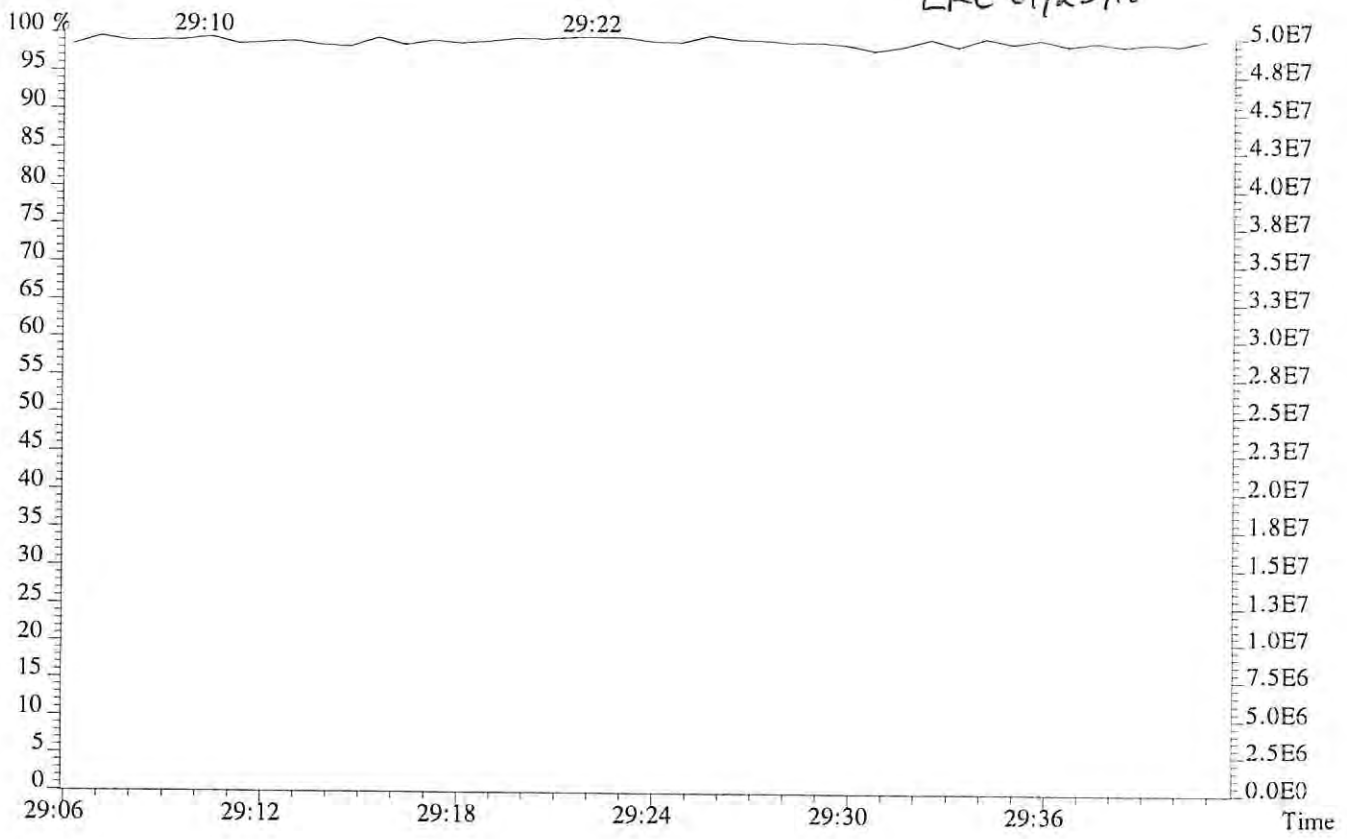
% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965

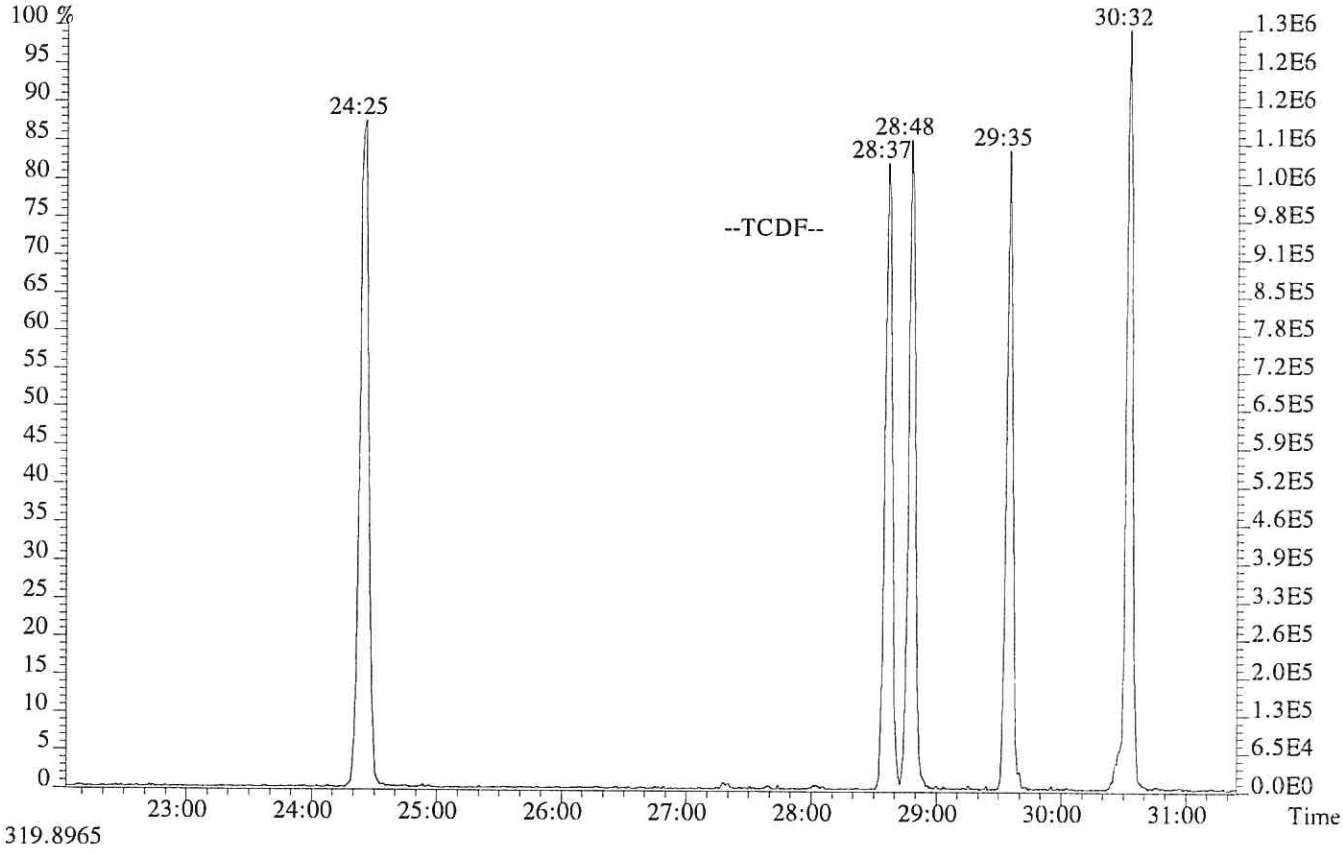


318.9792

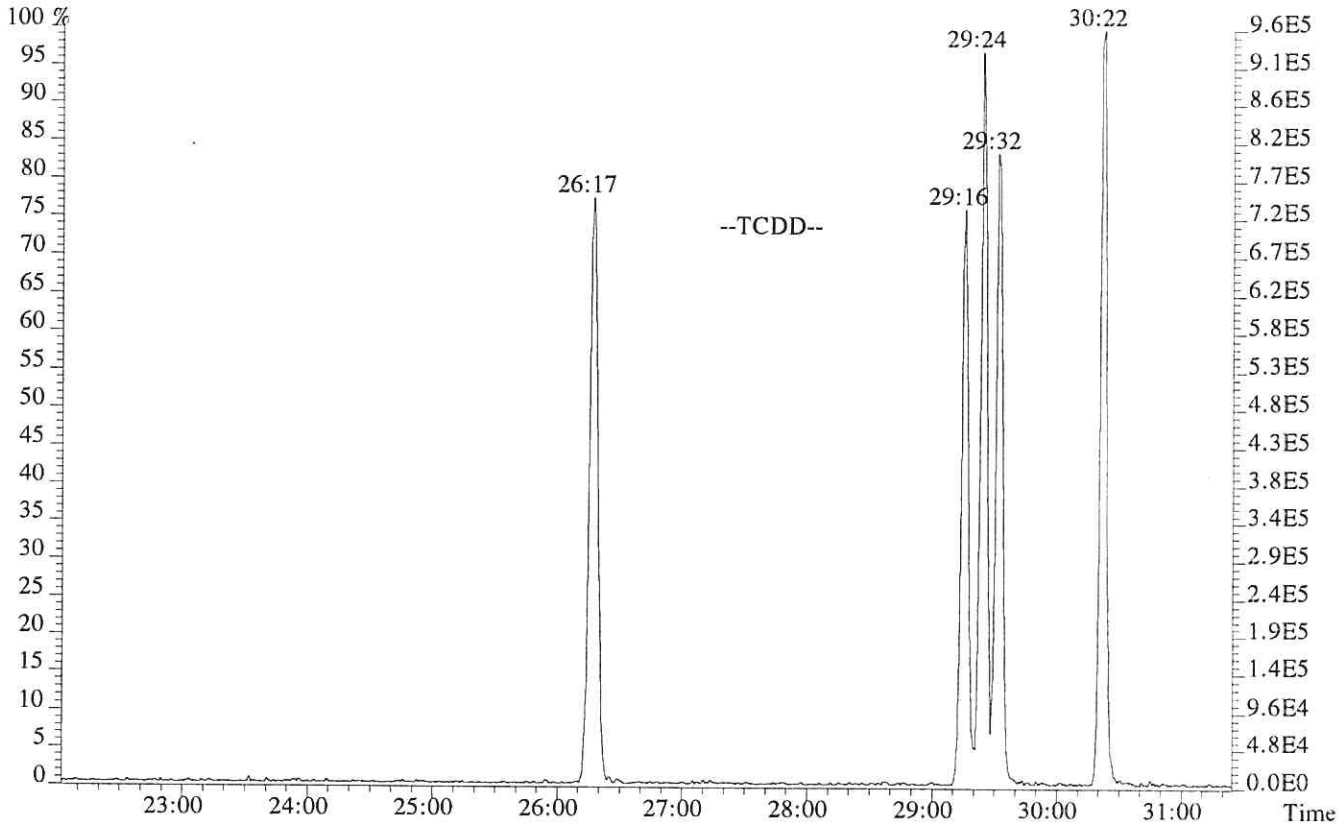
LKL 01/25/18



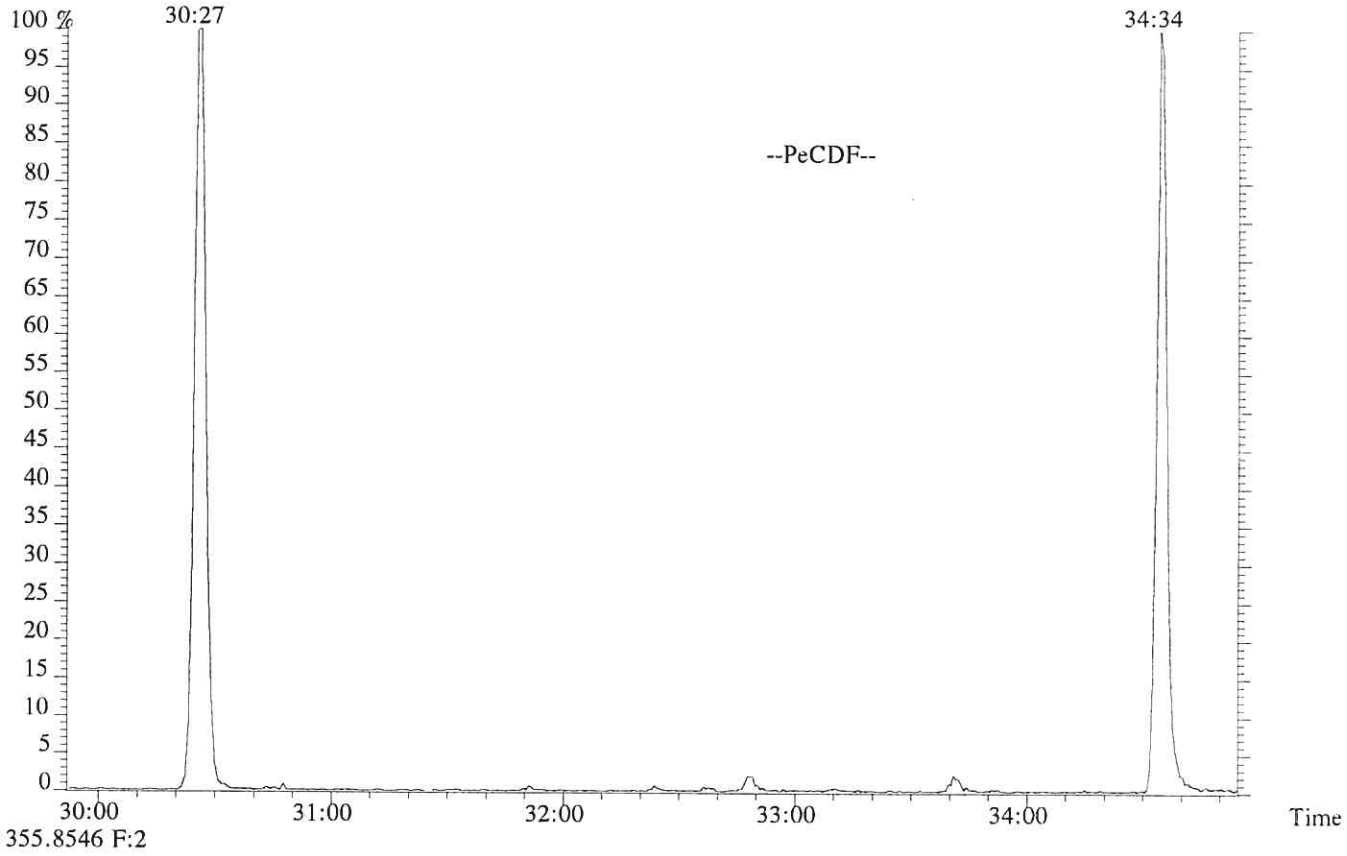
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
303.9016



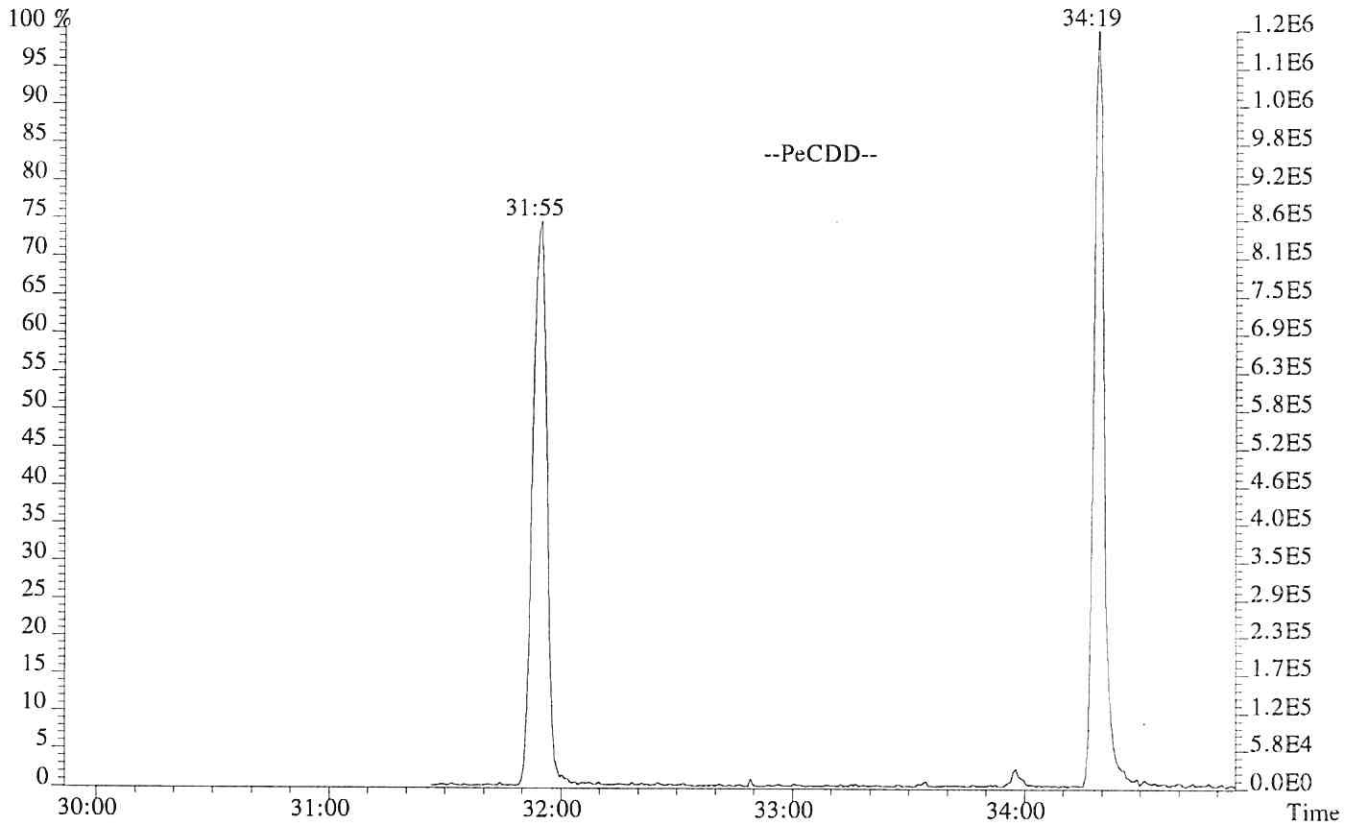
319.8965



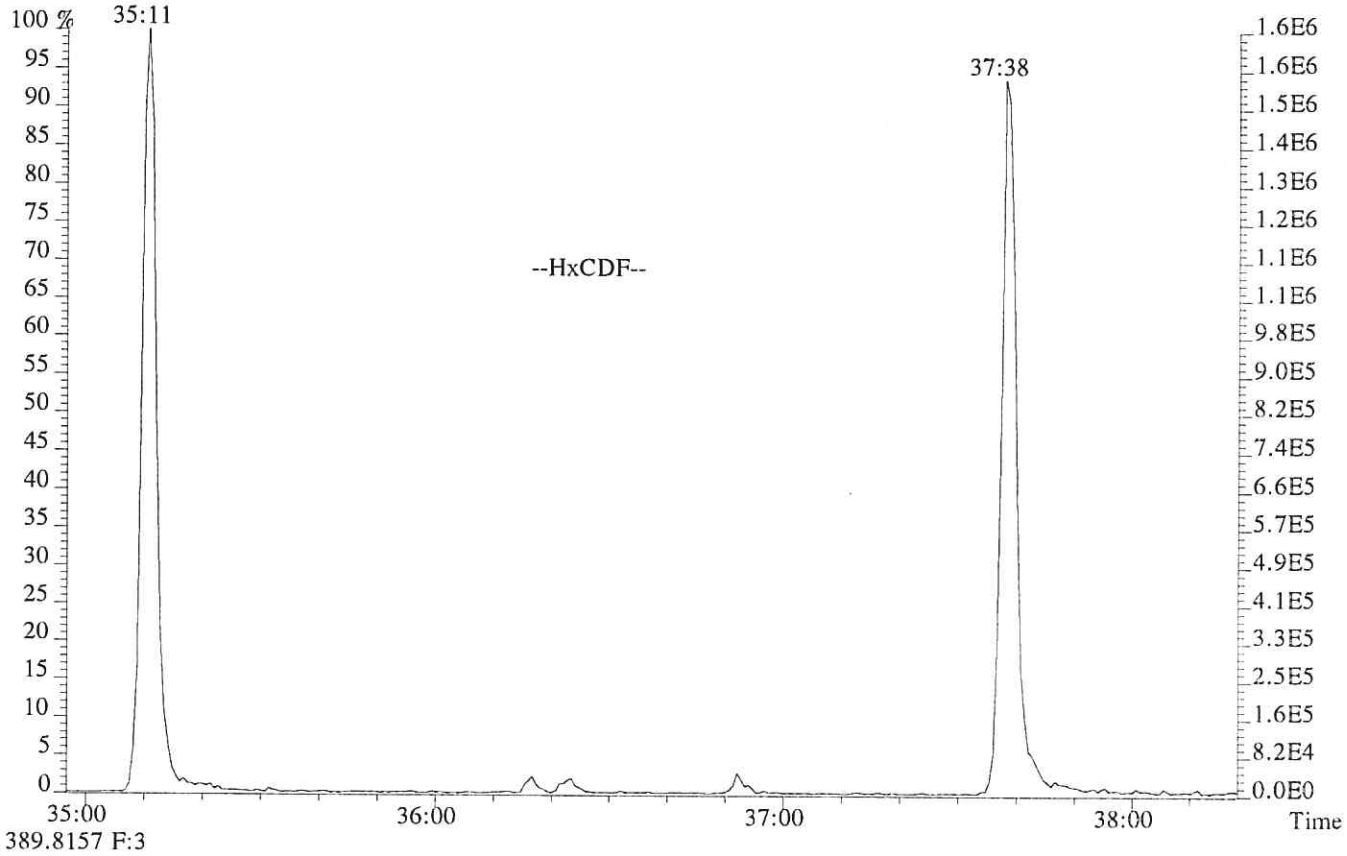
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



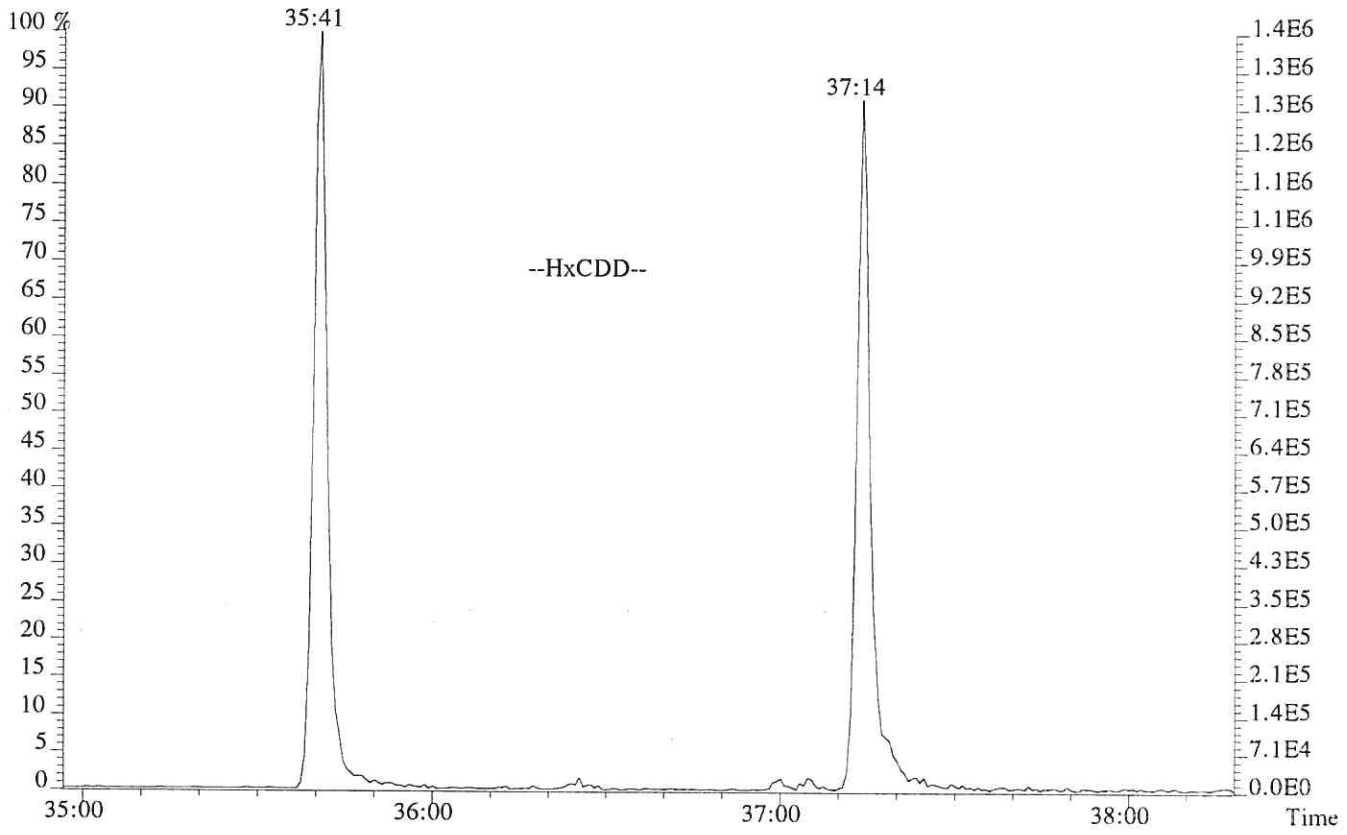
355.8546 F:2



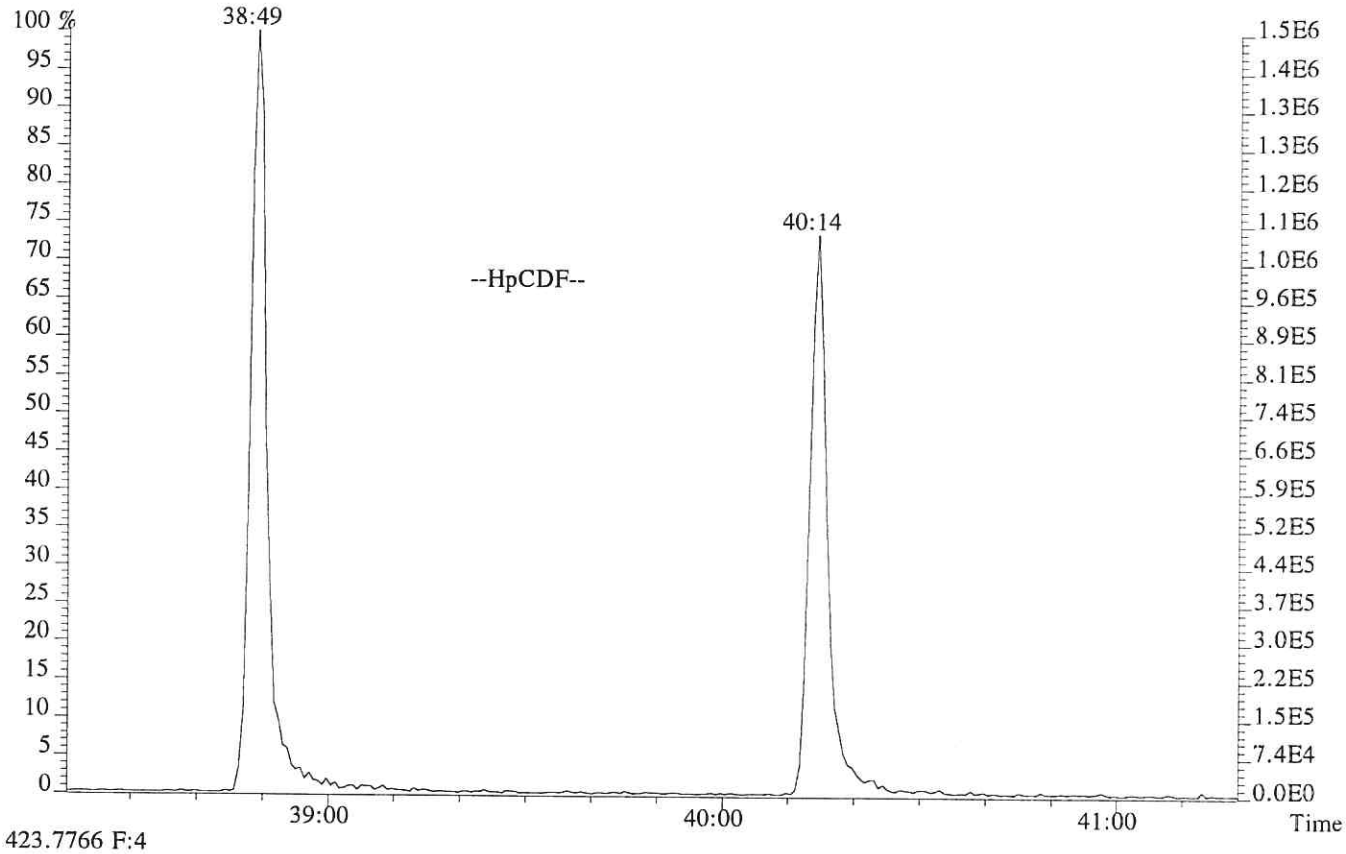
File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3



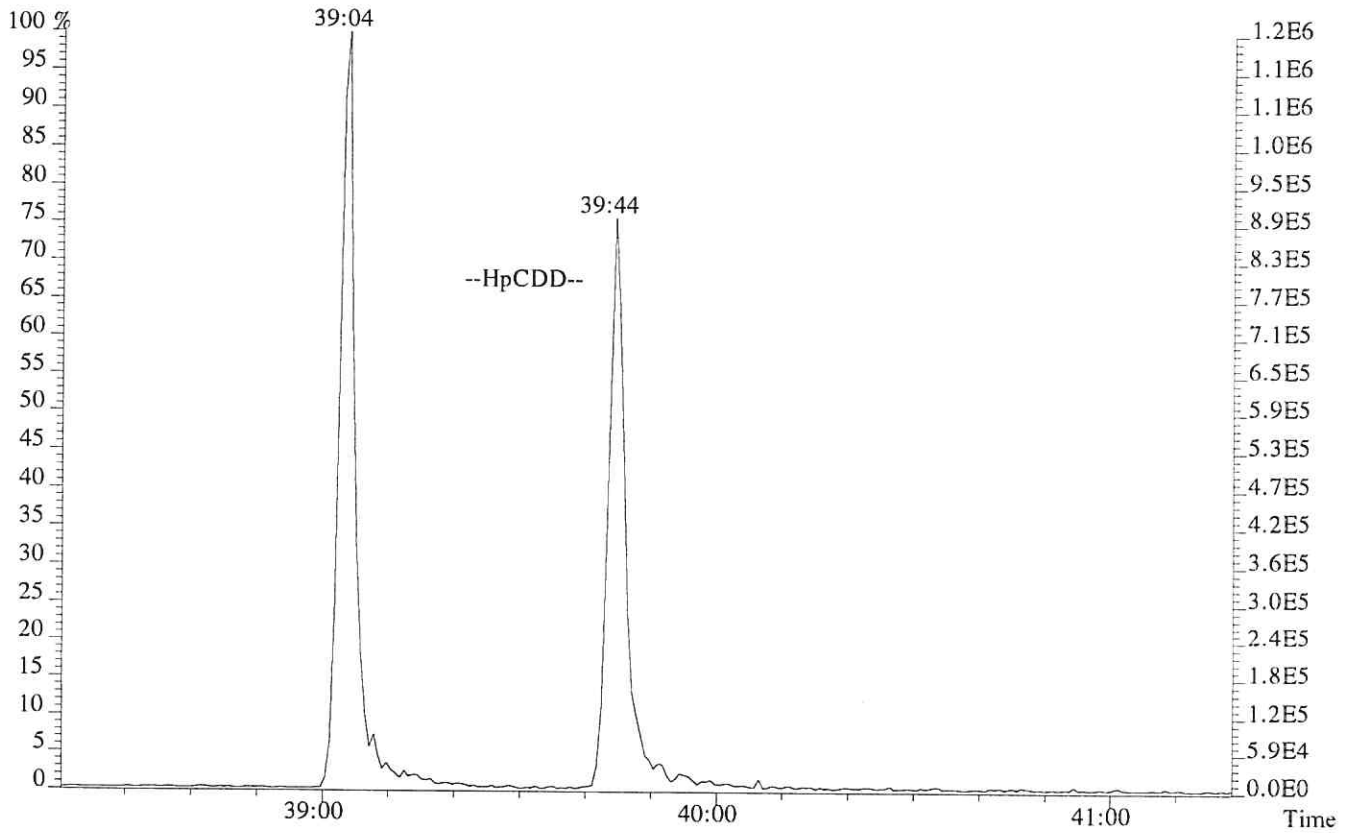
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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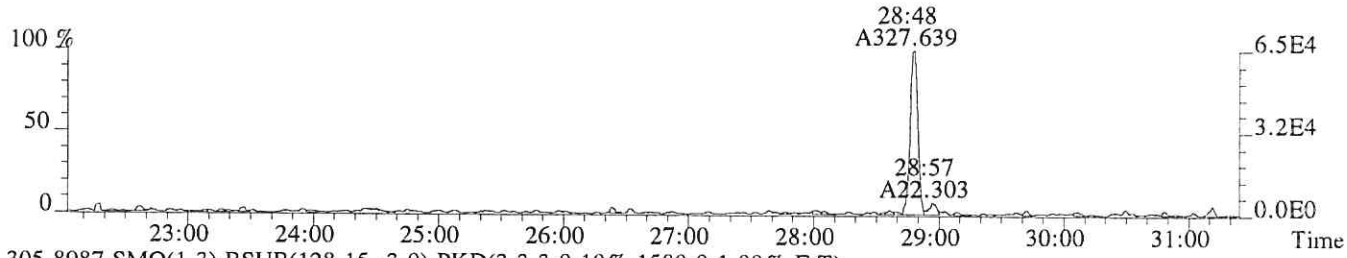
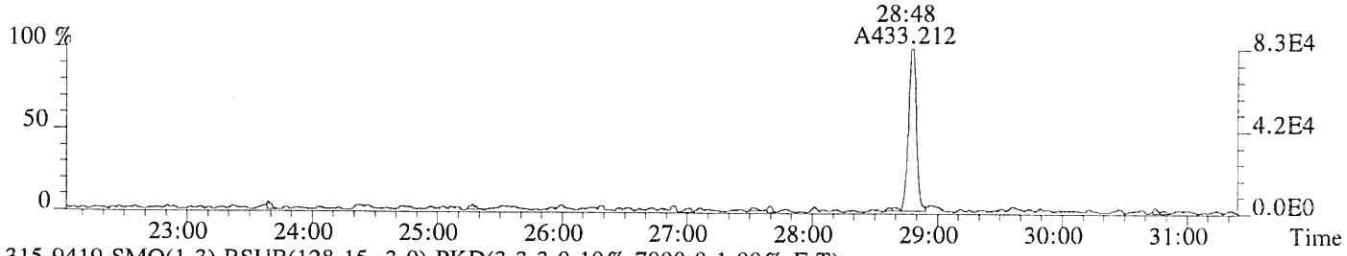
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

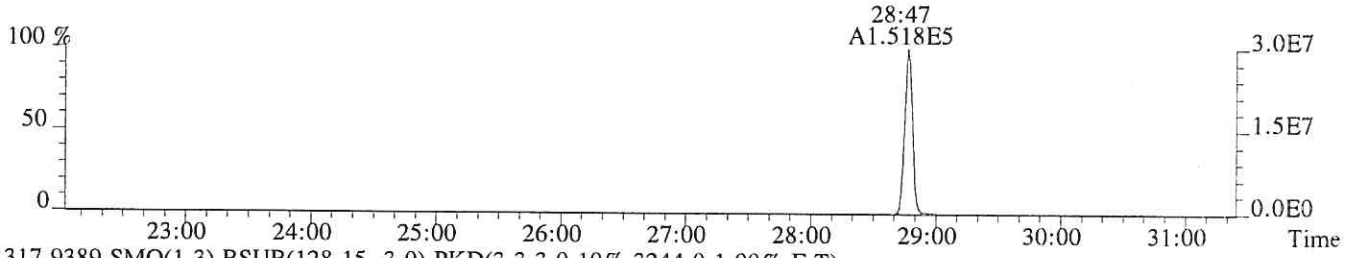
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



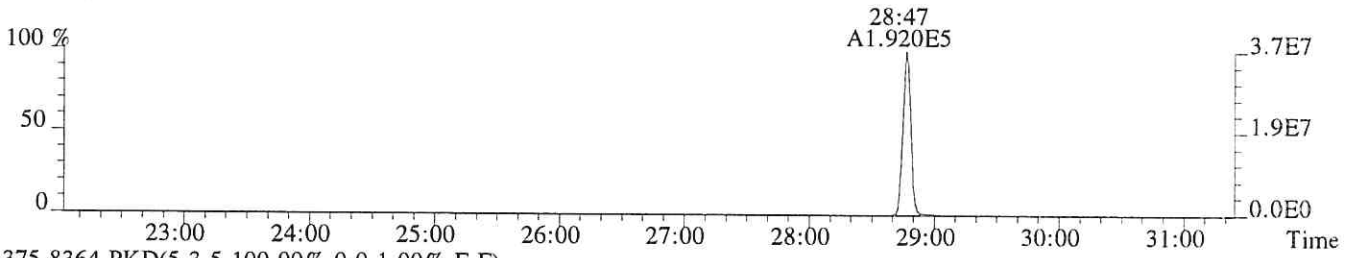
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



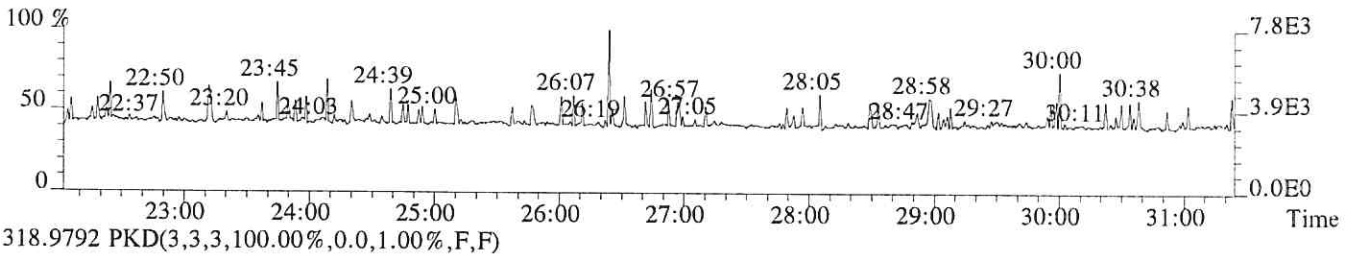
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



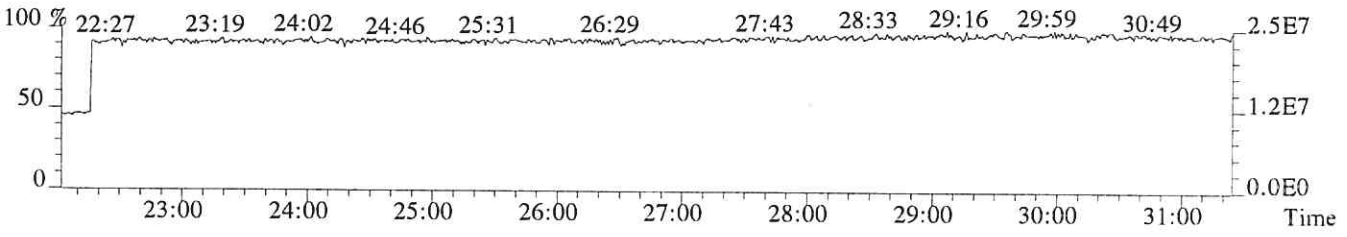
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



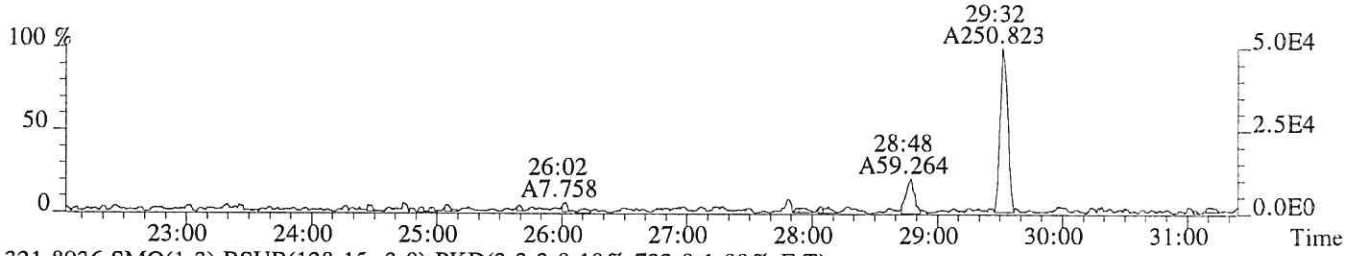
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



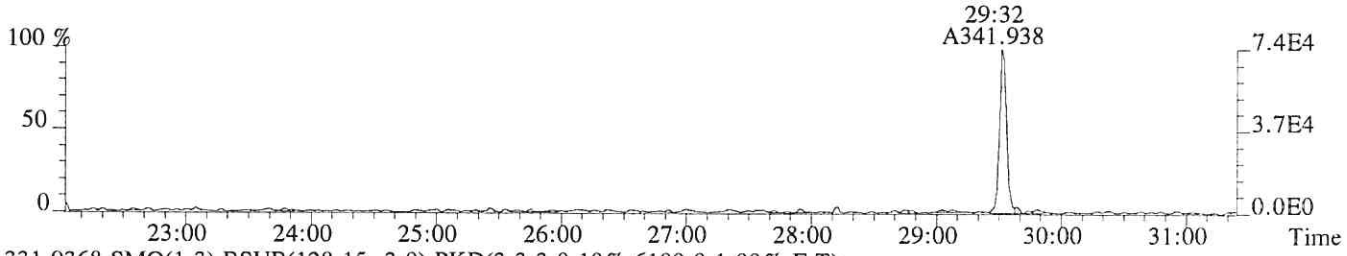
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



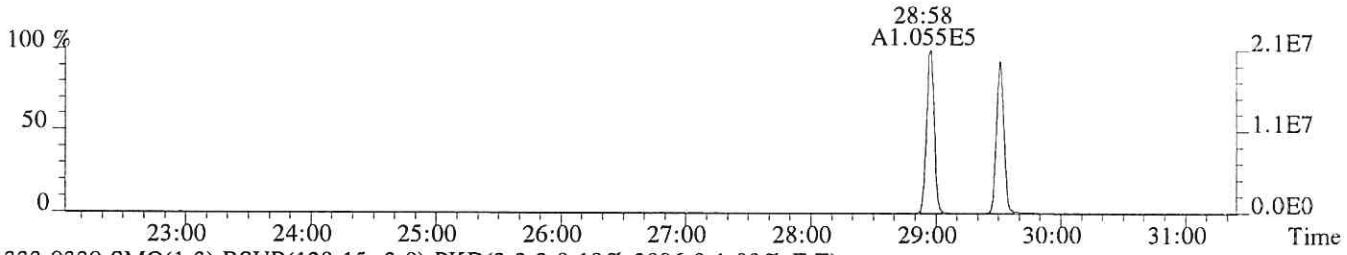
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



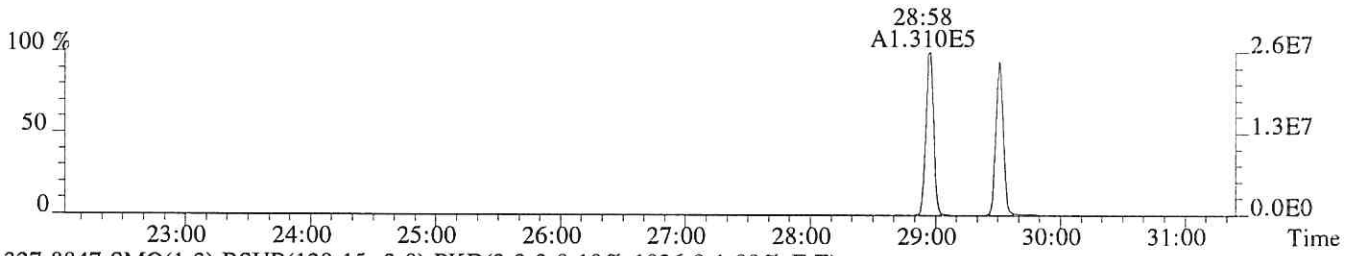
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



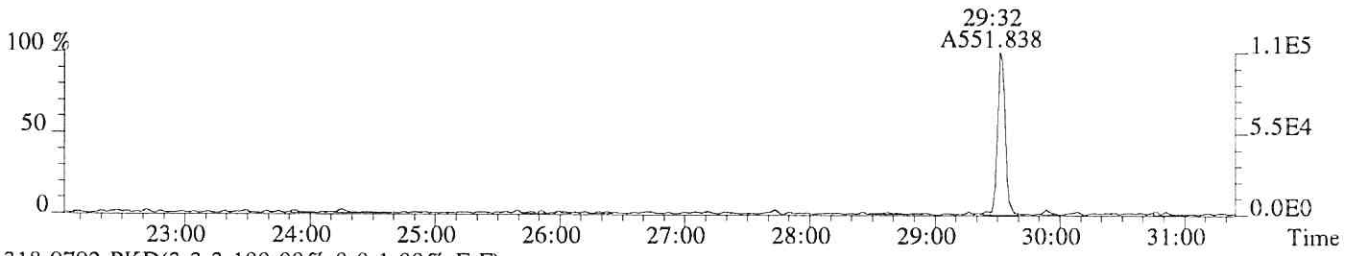
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



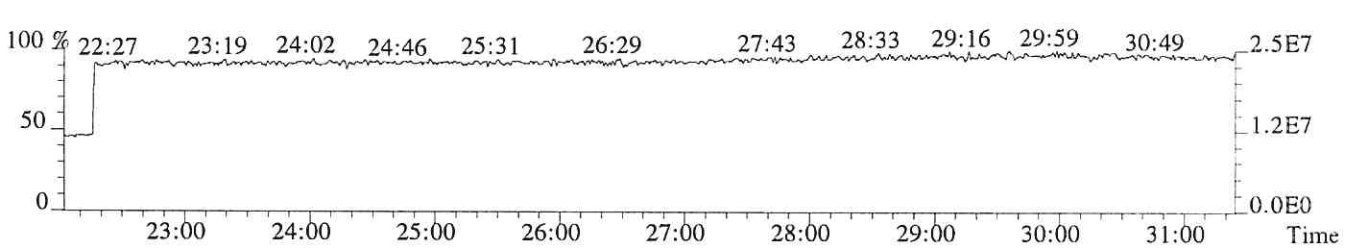
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



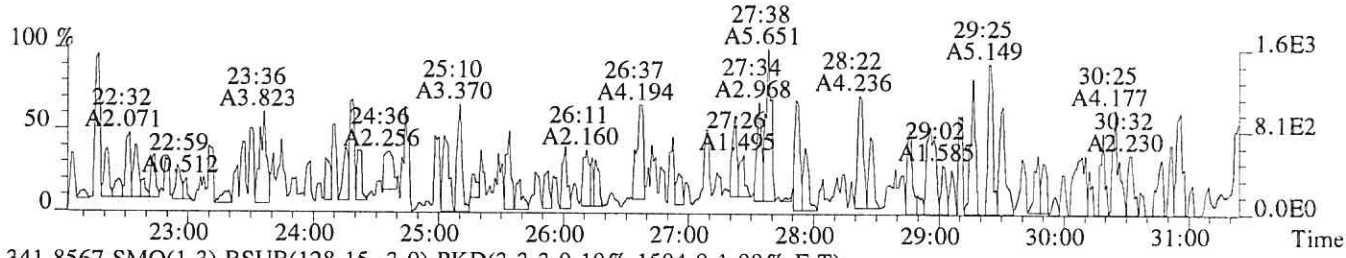
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



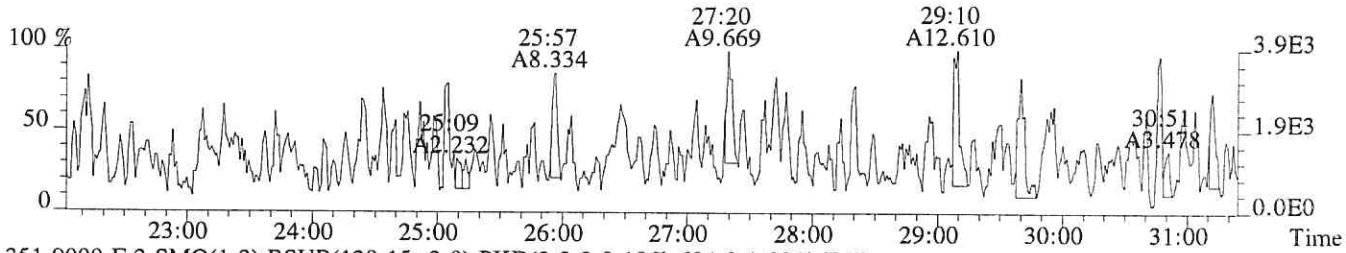
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



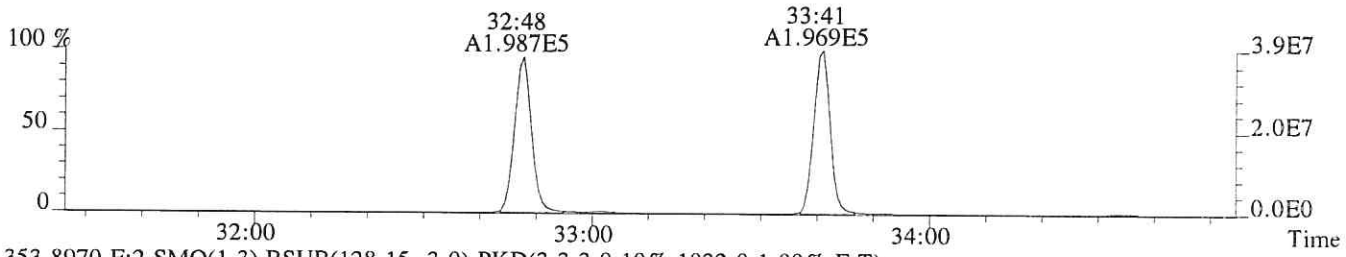
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



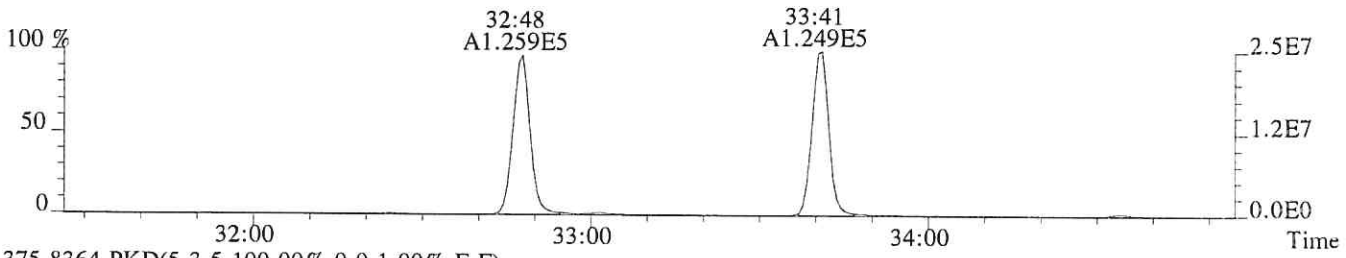
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



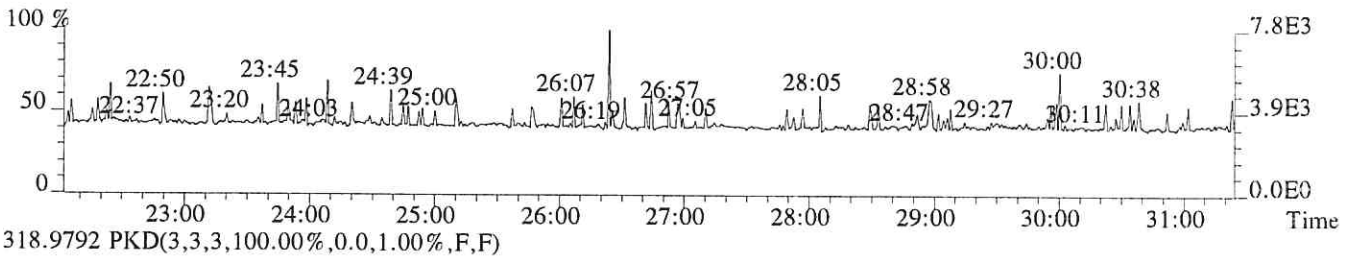
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



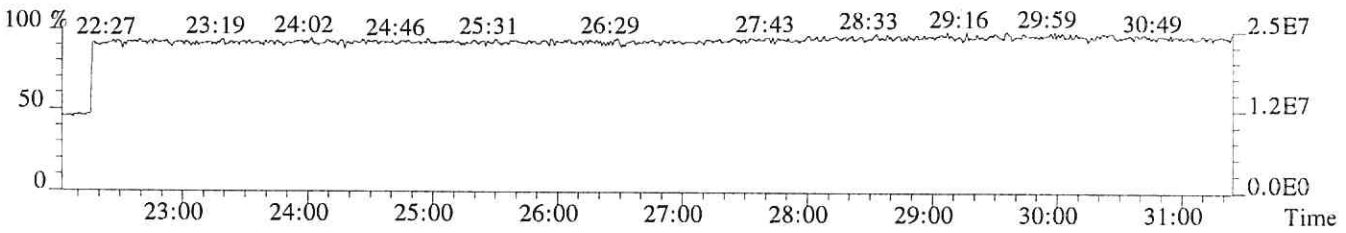
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



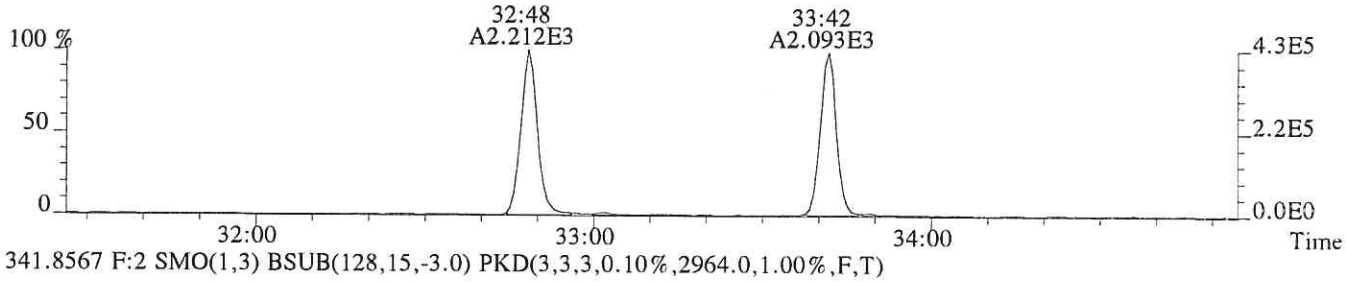
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



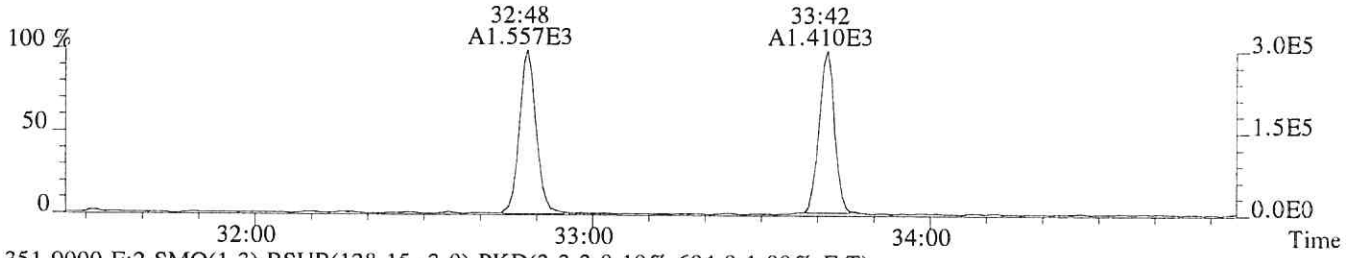
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



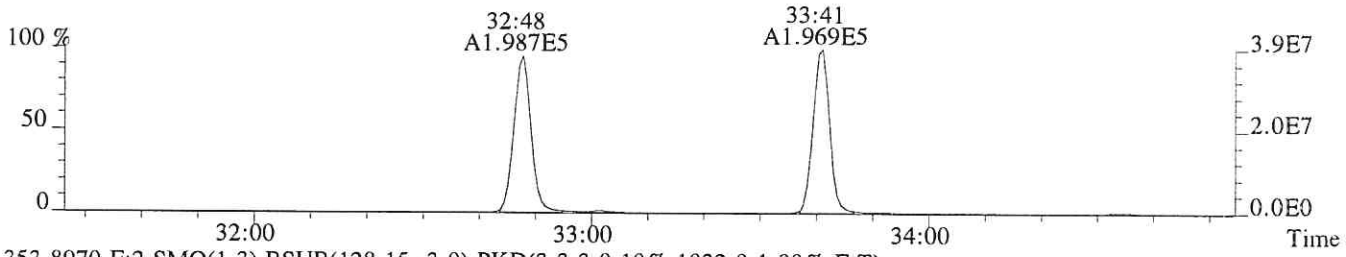
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



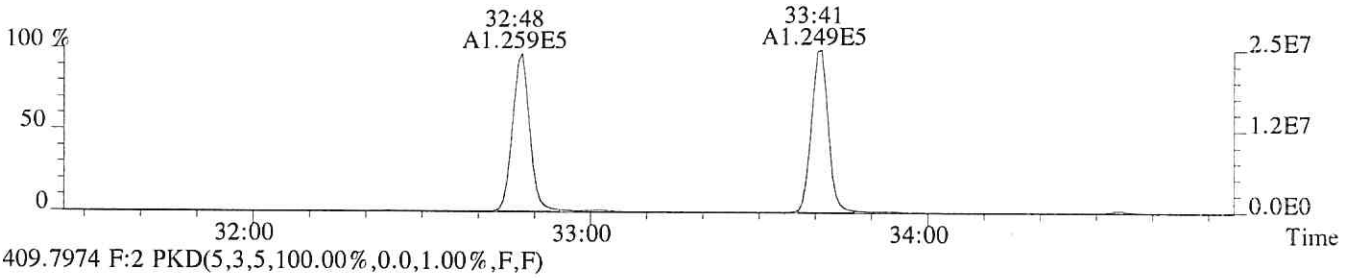
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



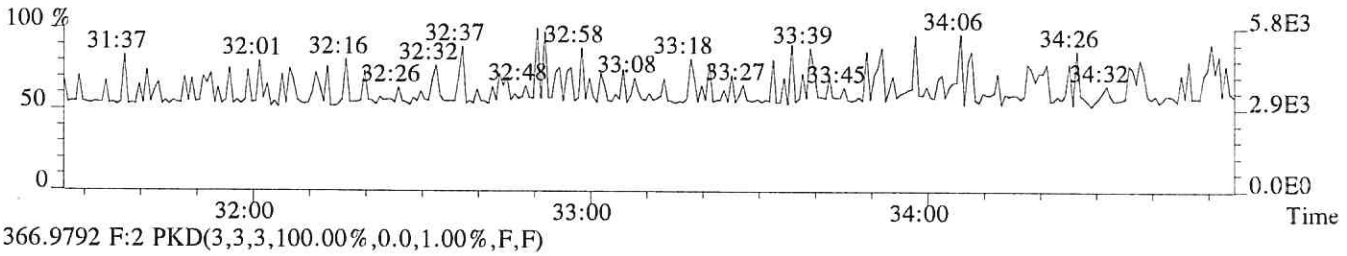
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



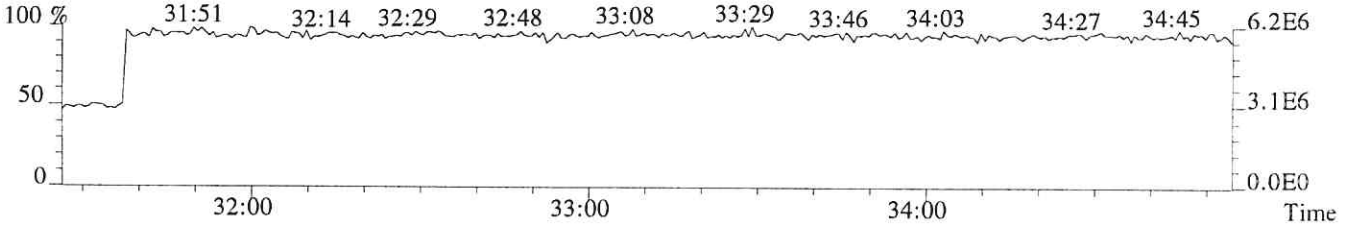
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



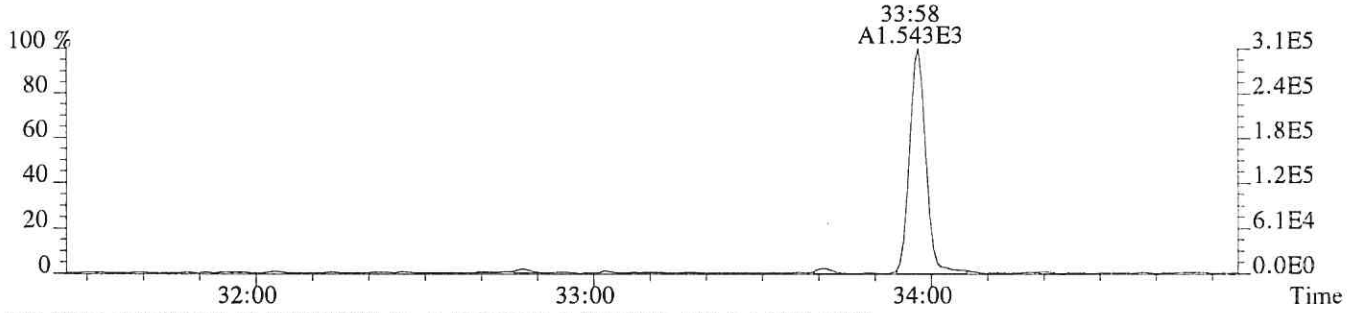
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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



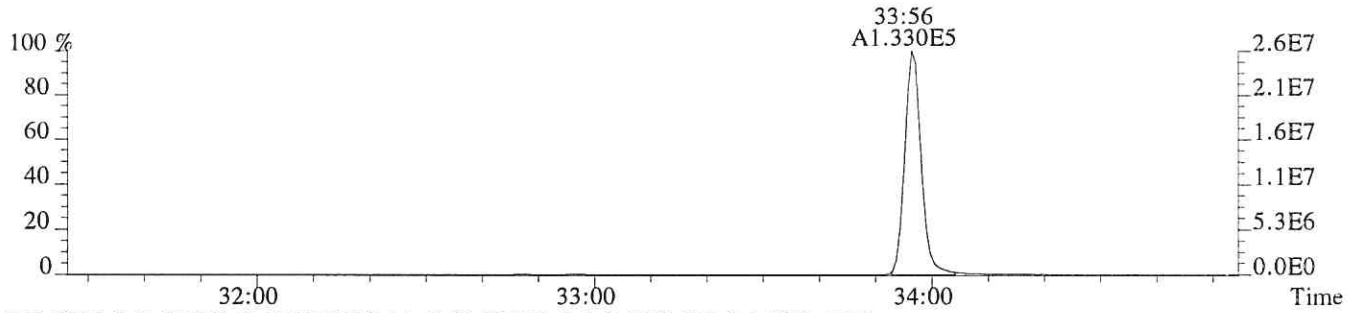
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



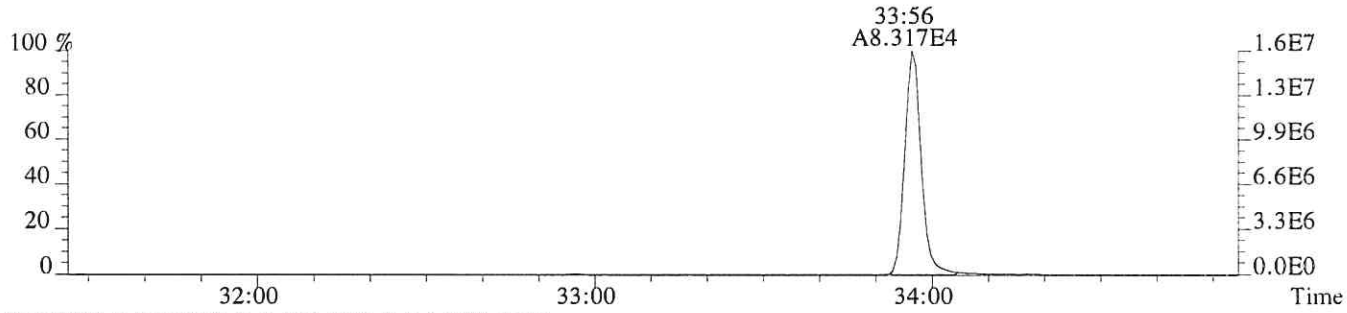
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



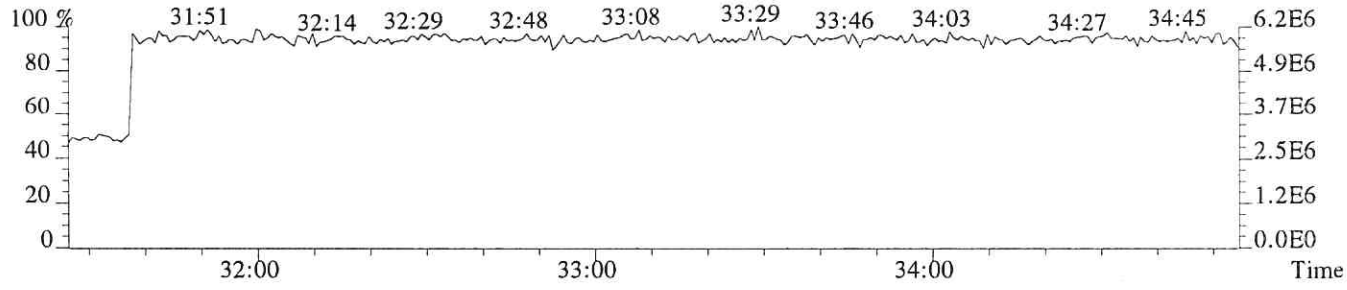
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



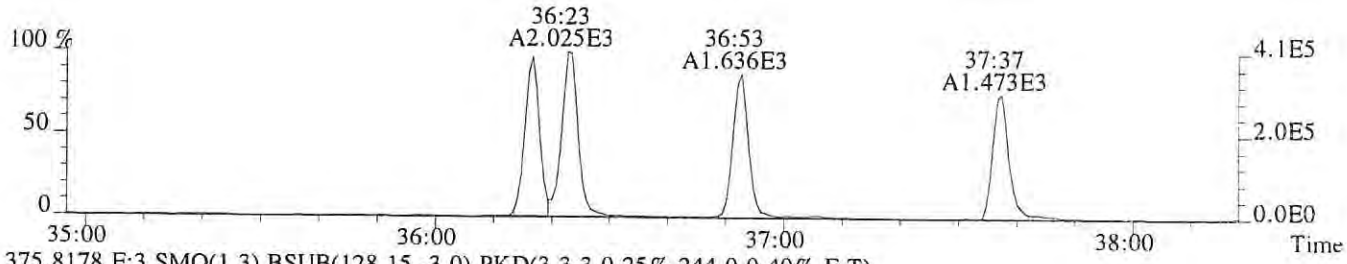
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



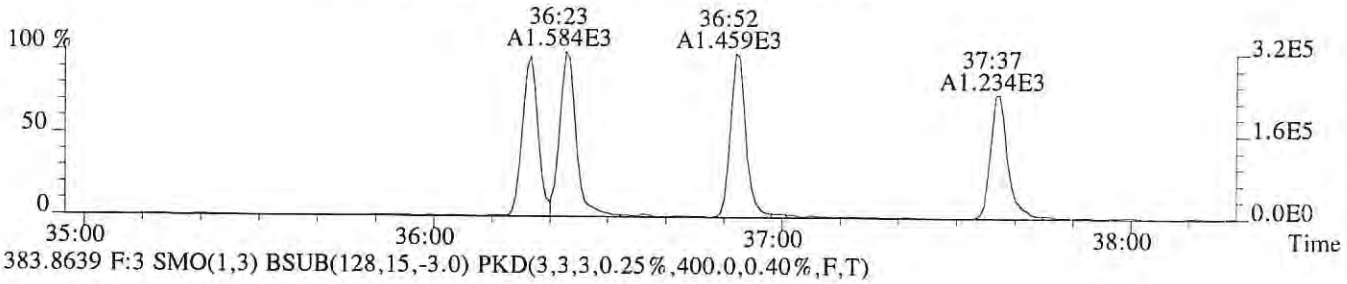
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



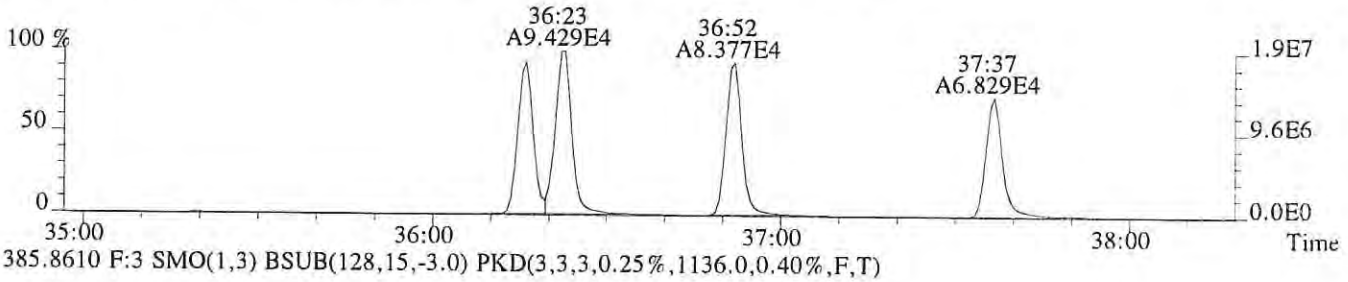
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



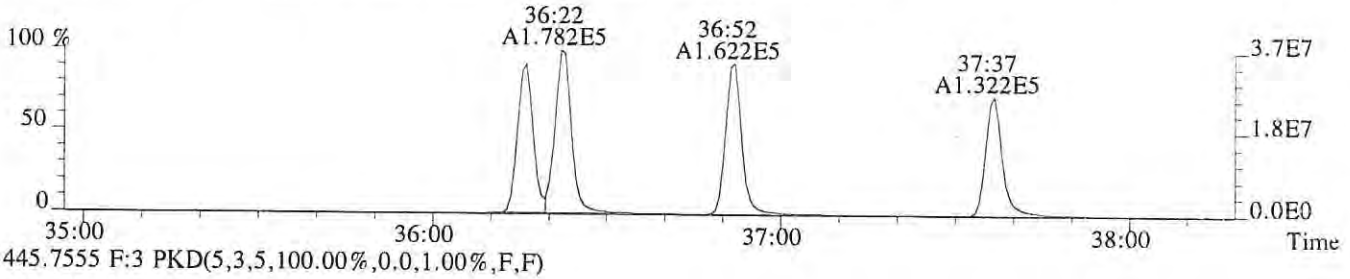
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



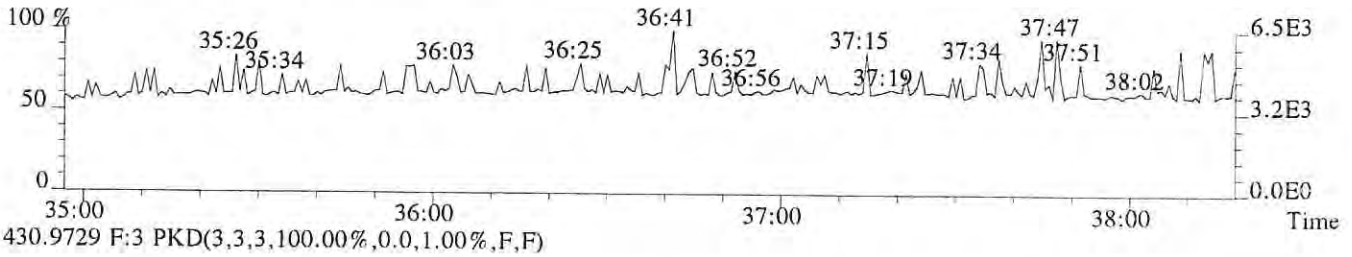
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



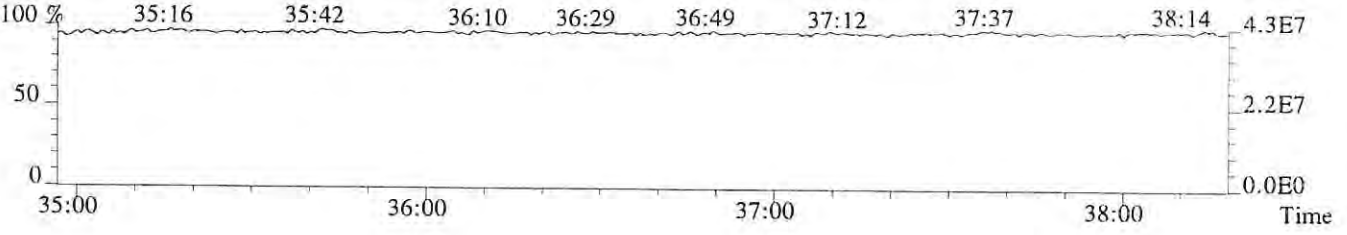
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



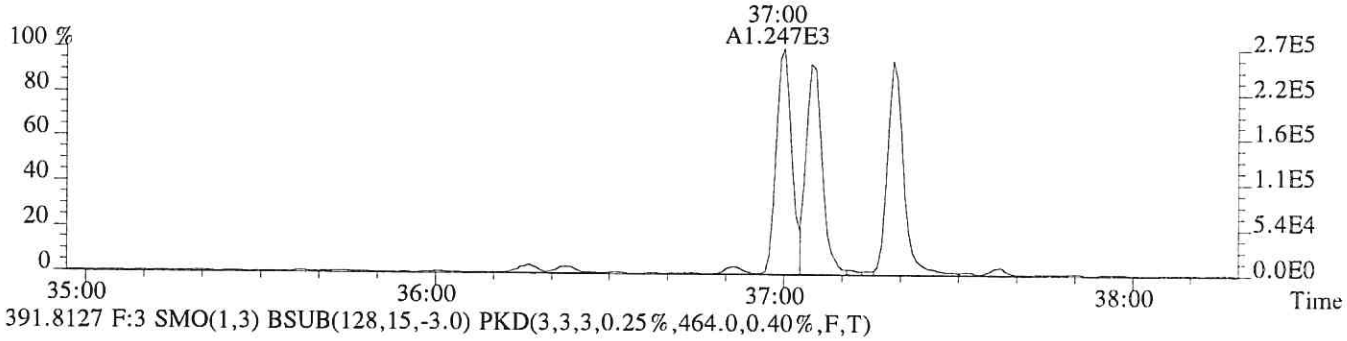
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



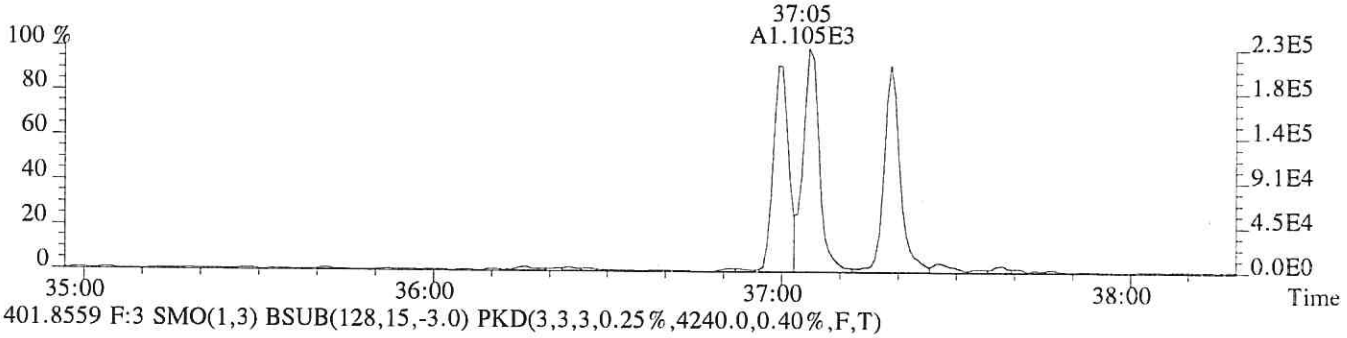
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



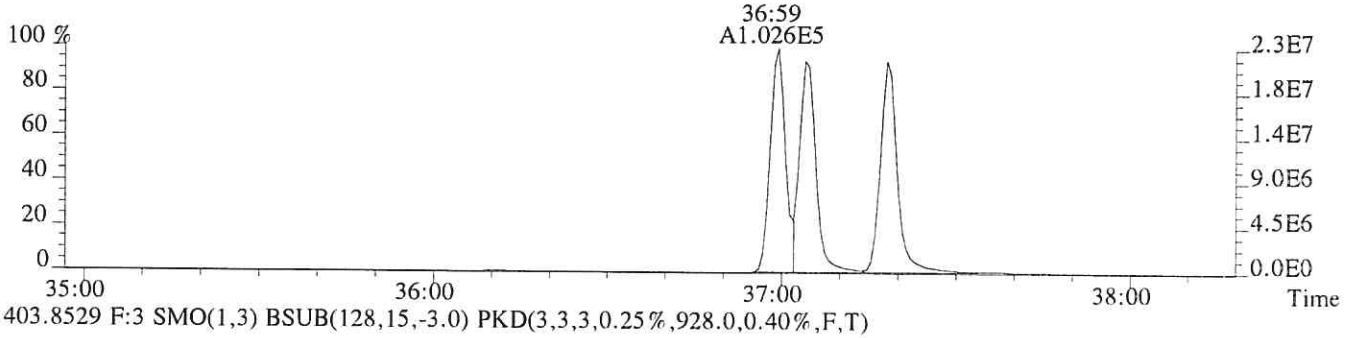
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



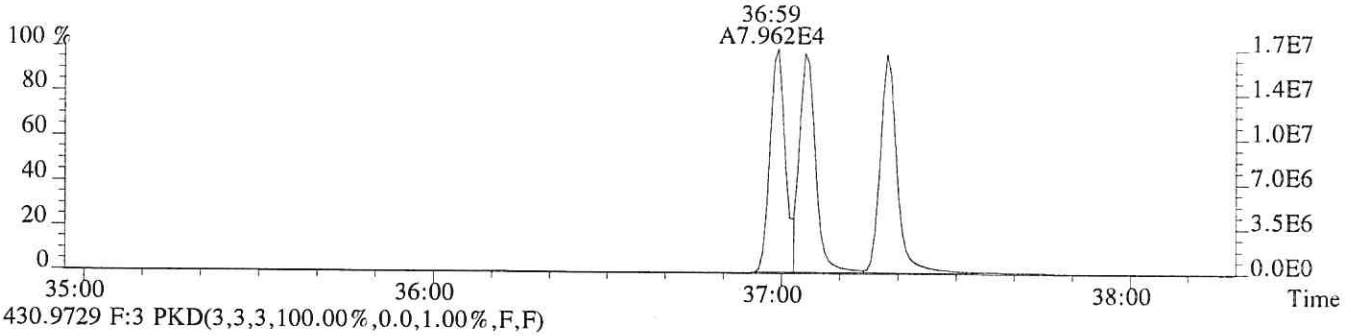
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



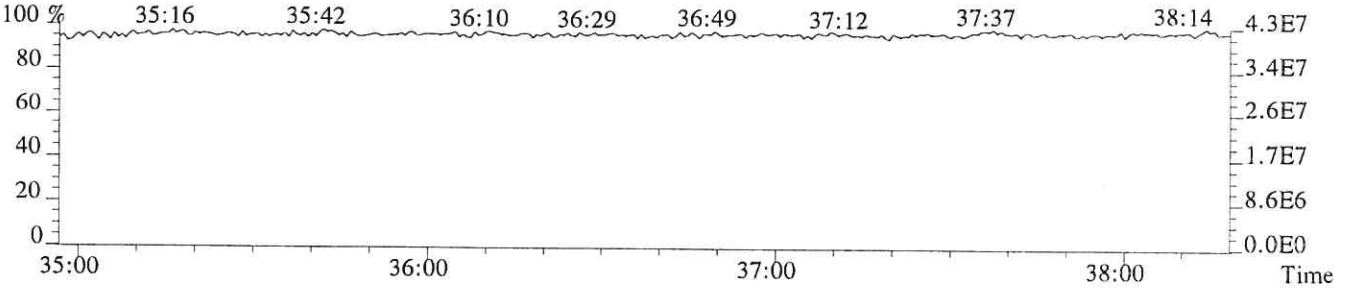
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



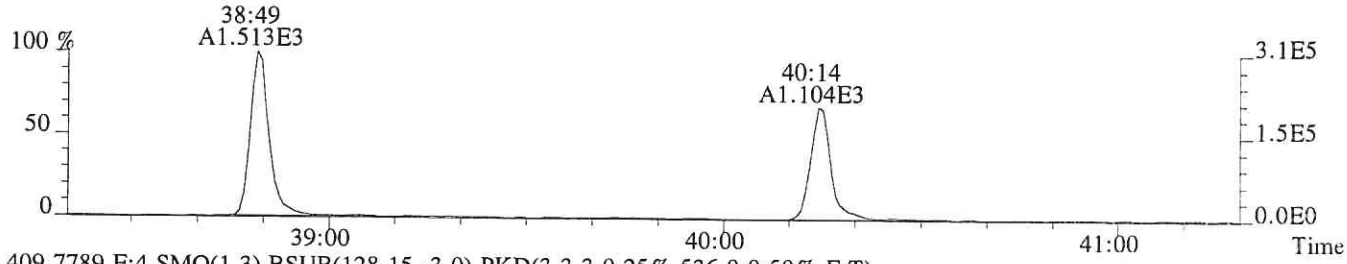
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



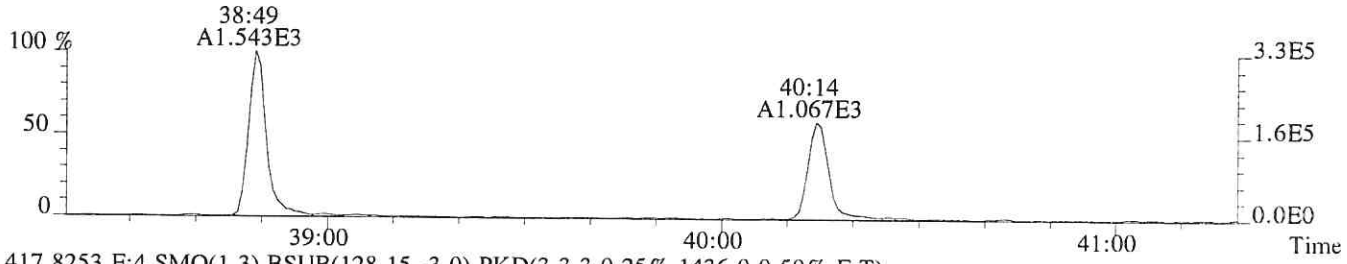
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



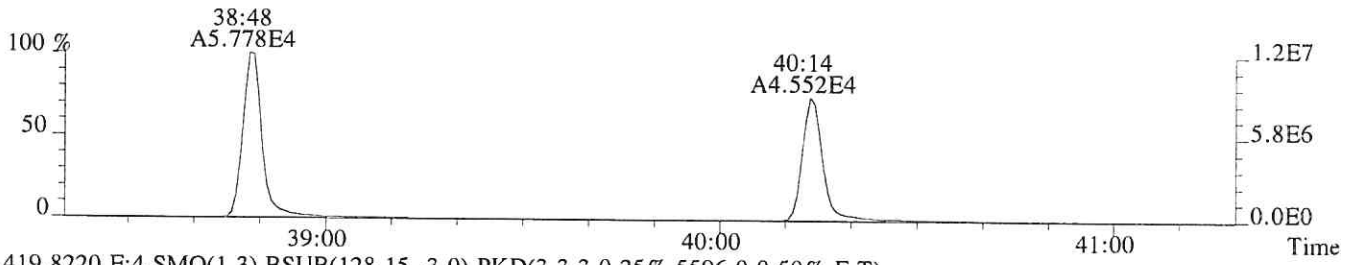
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



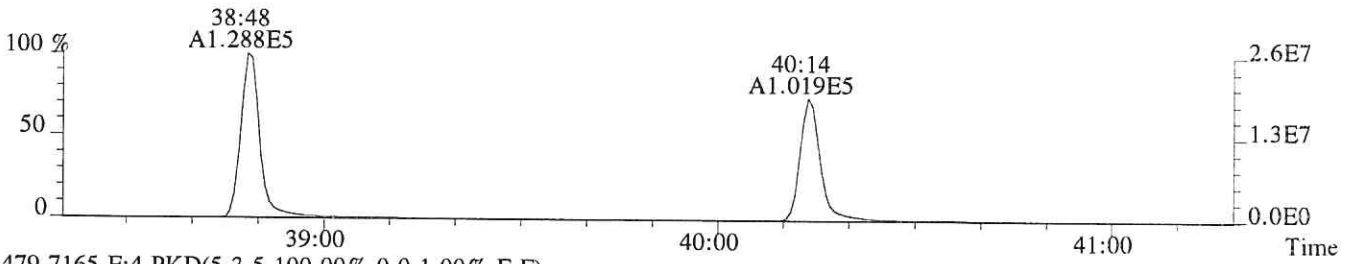
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



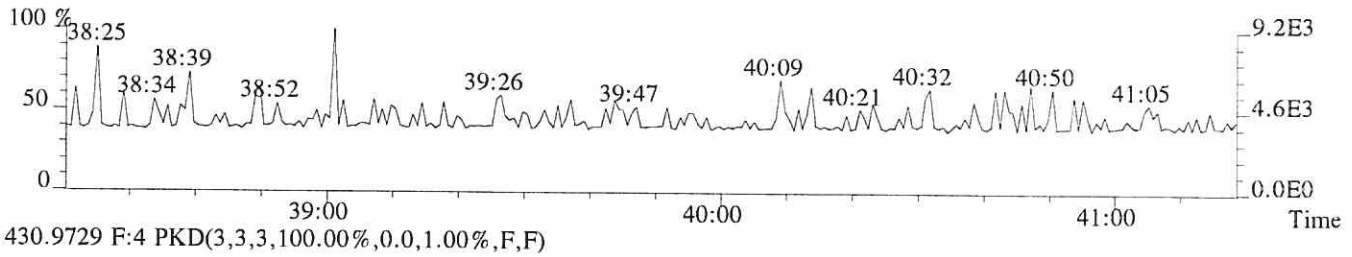
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



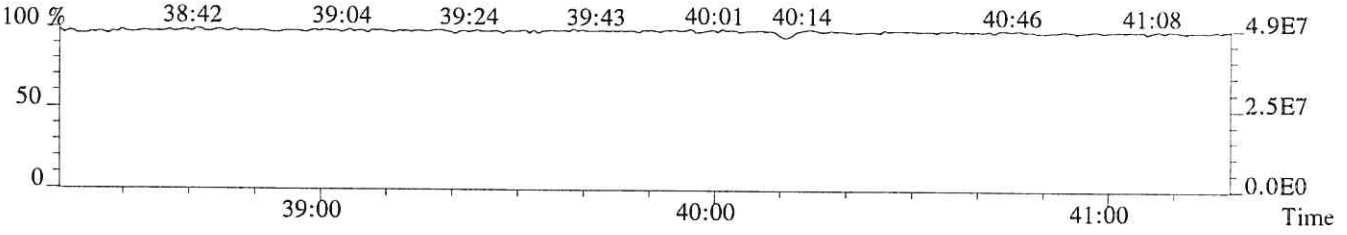
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



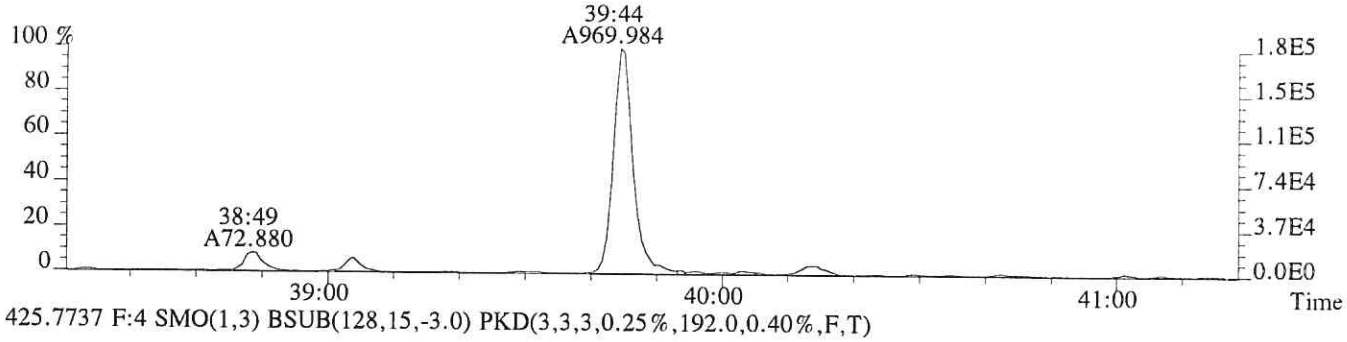
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



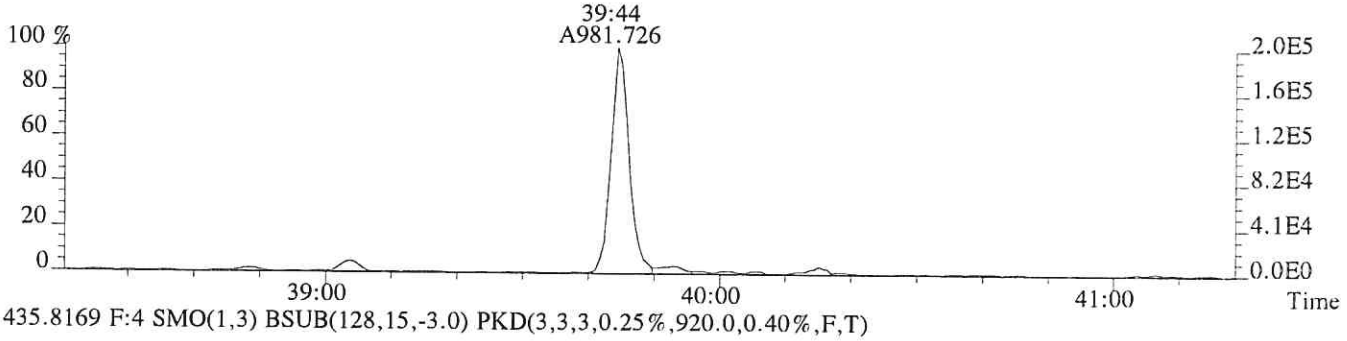
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



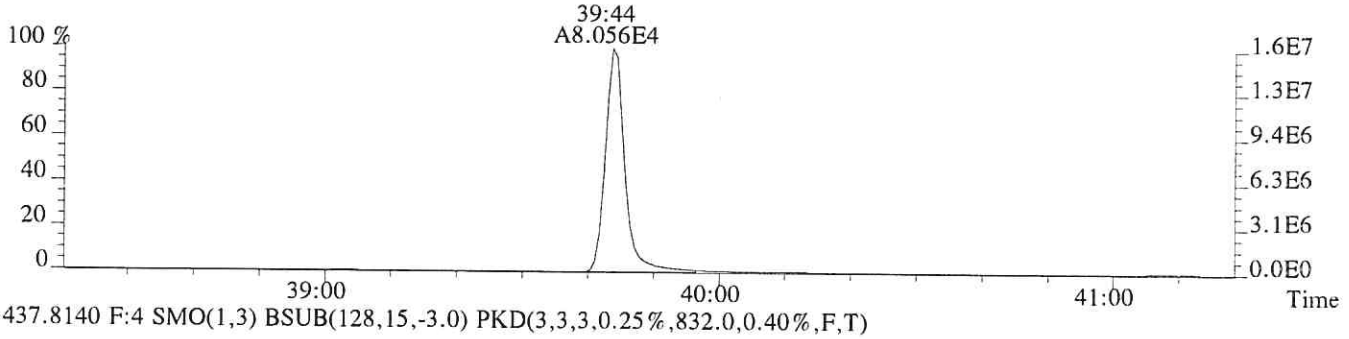
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



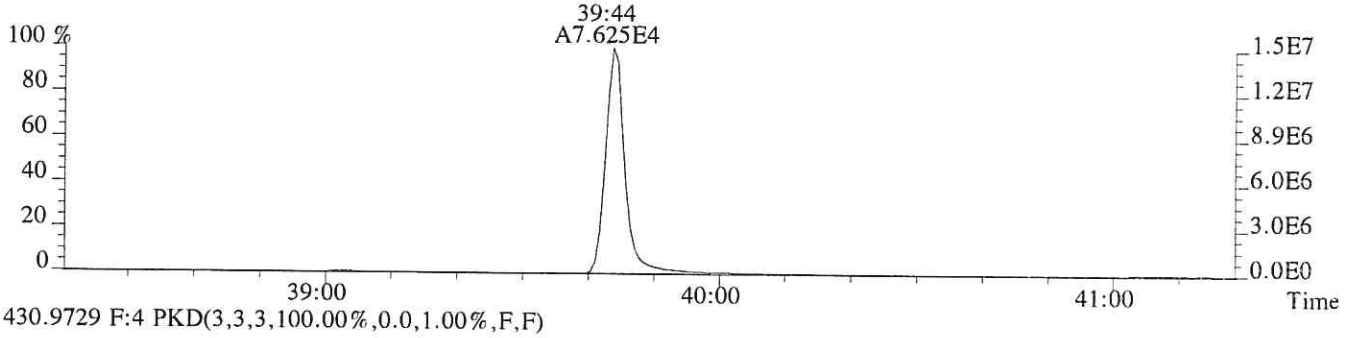
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



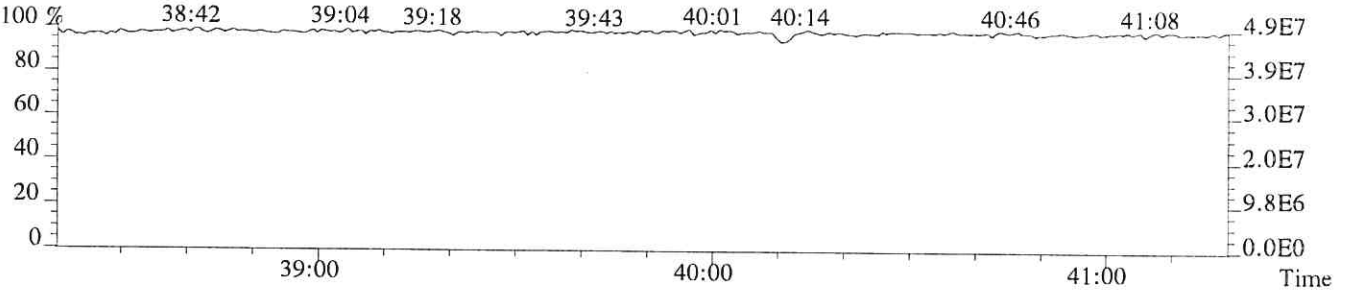
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



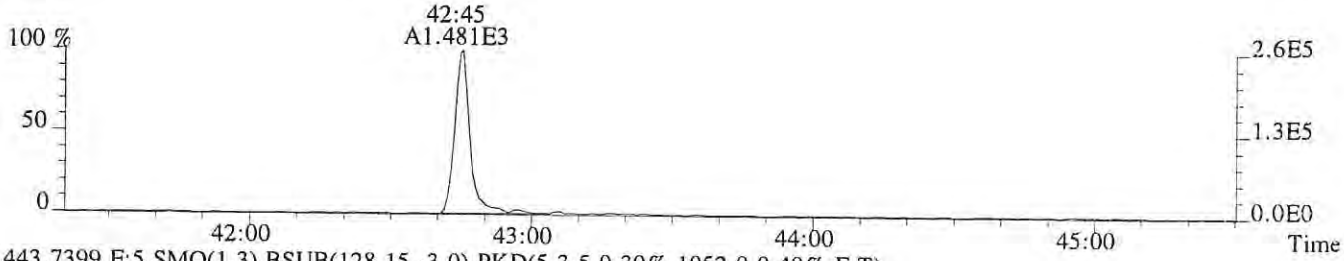
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



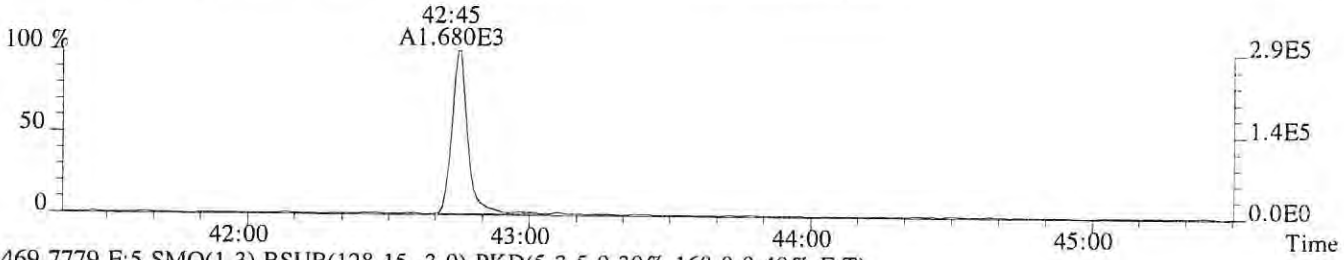
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



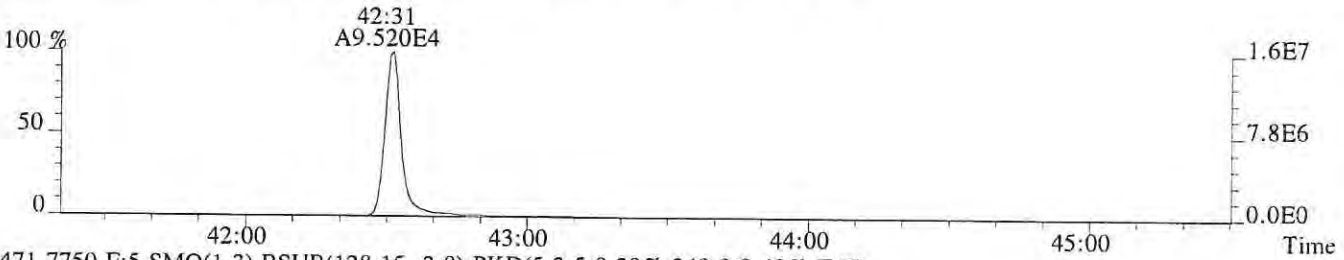
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



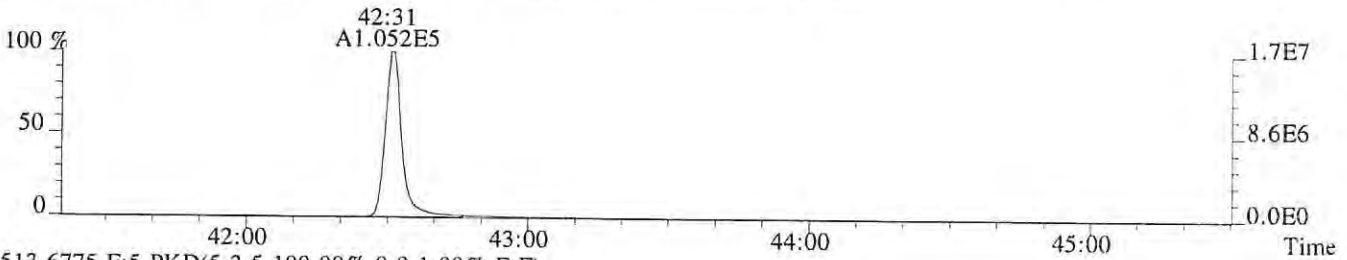
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



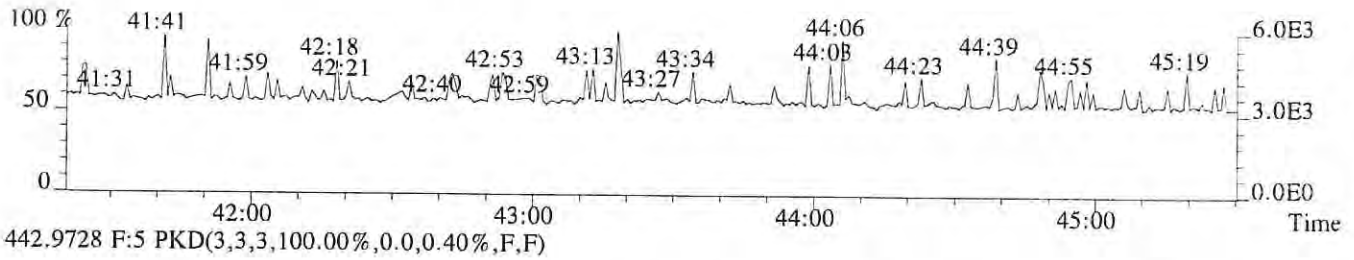
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



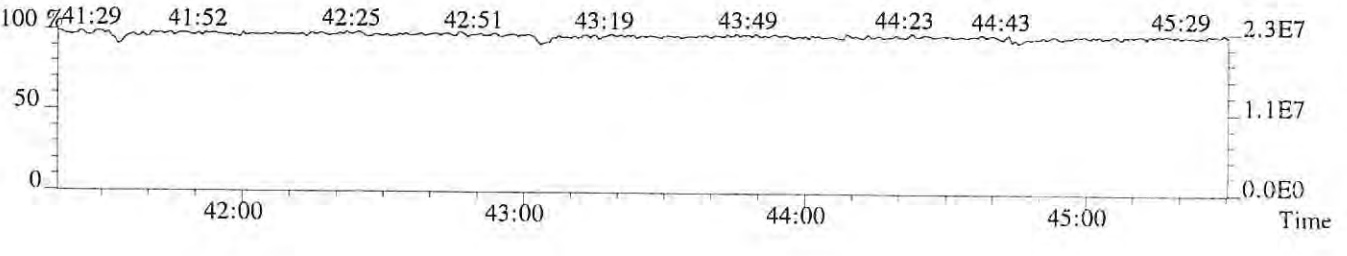
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



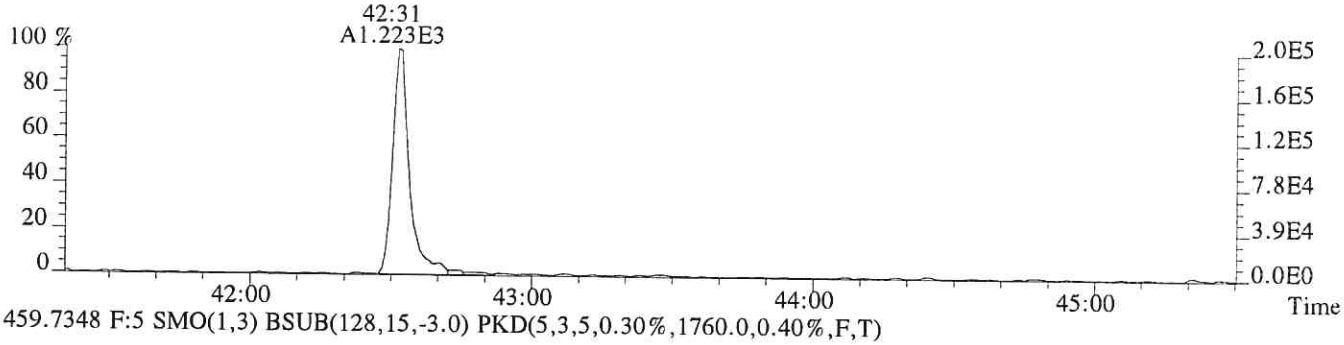
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



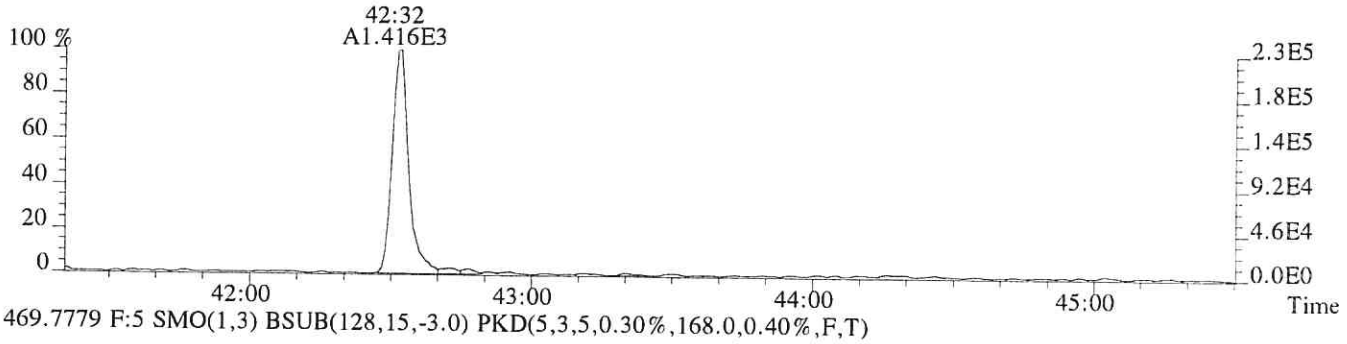
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



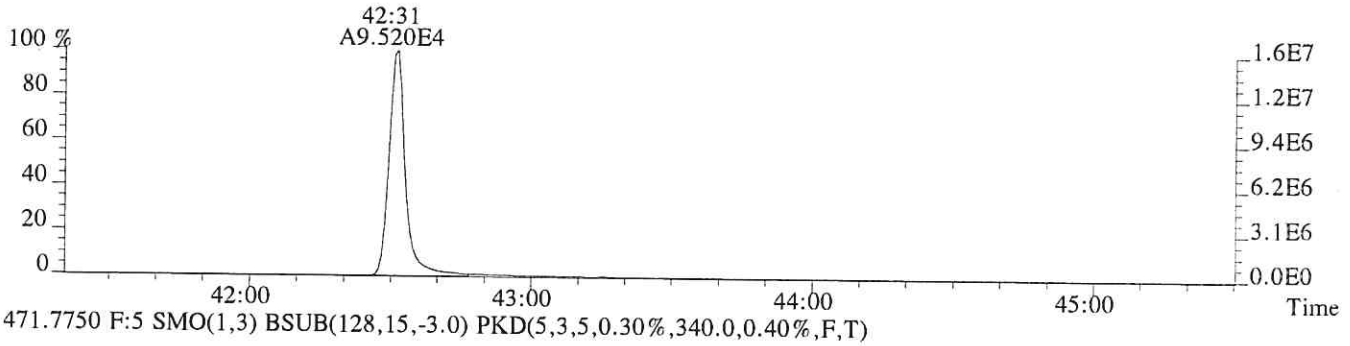
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



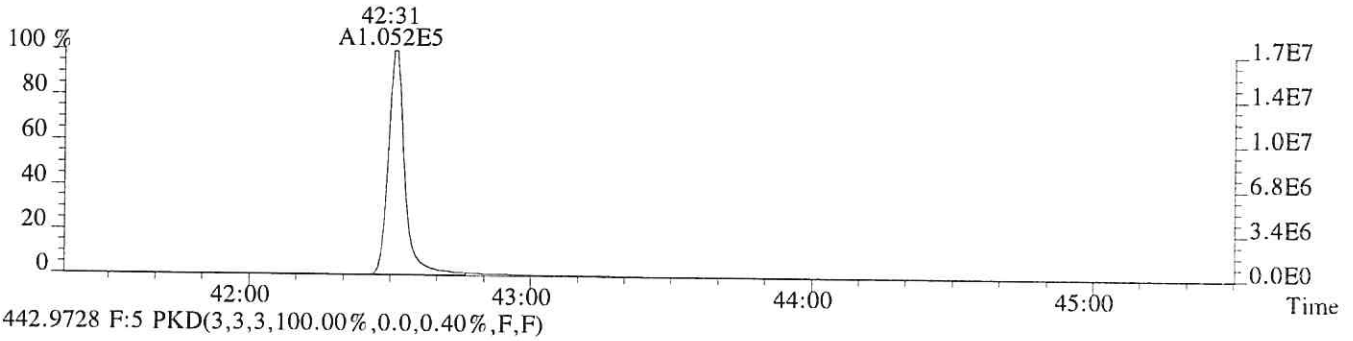
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



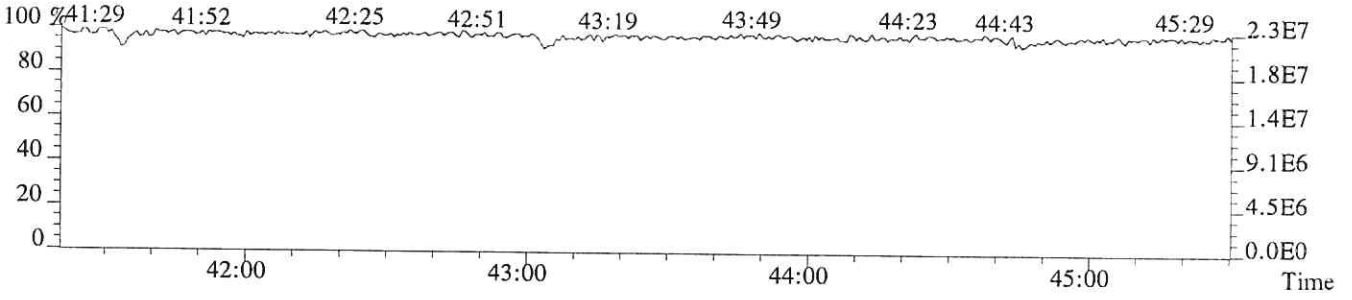
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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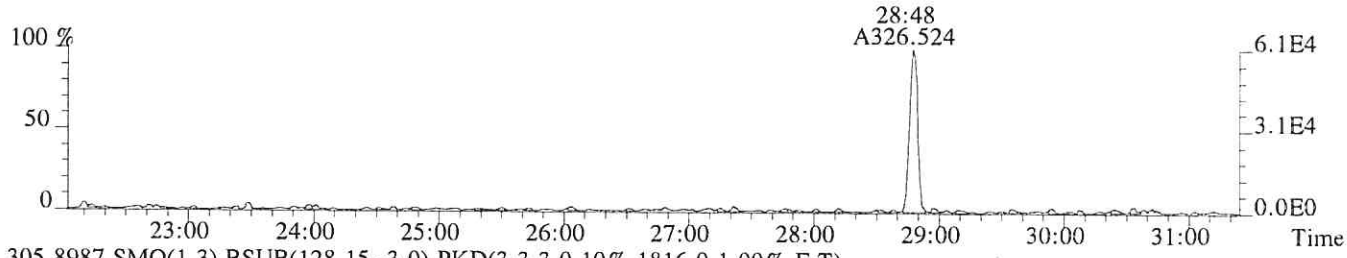
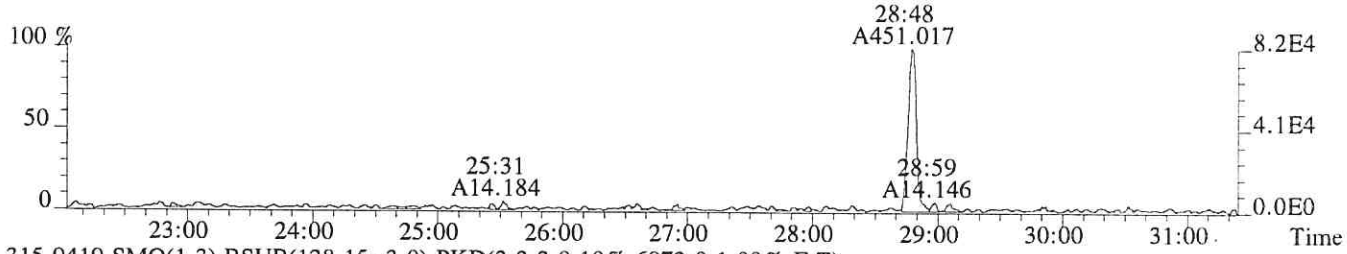
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

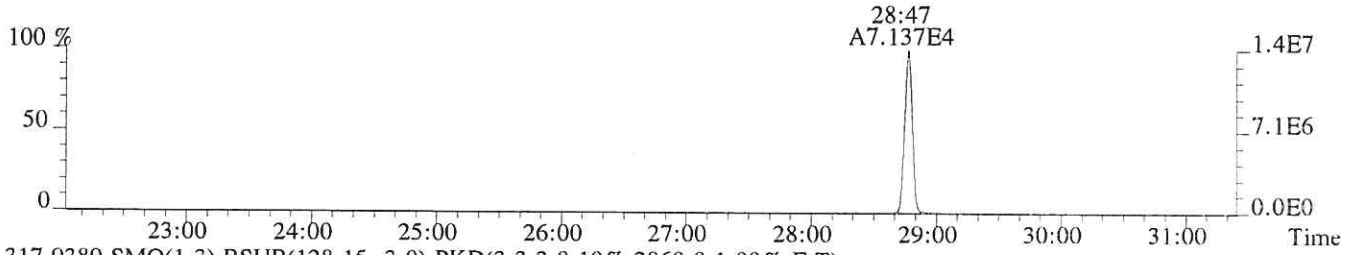
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



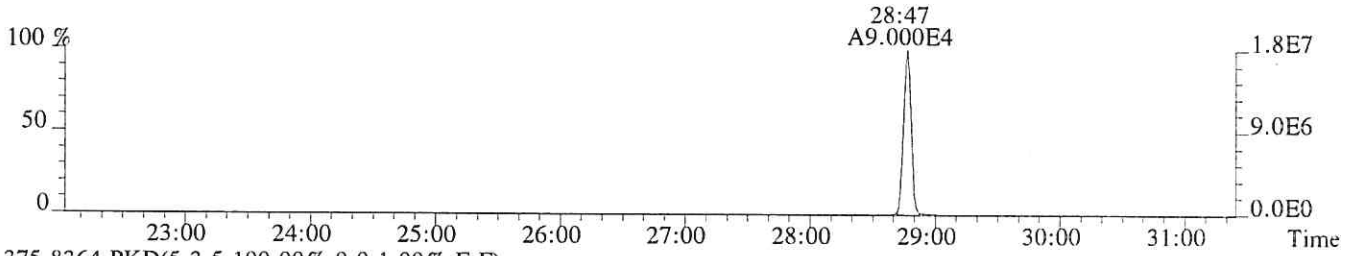
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



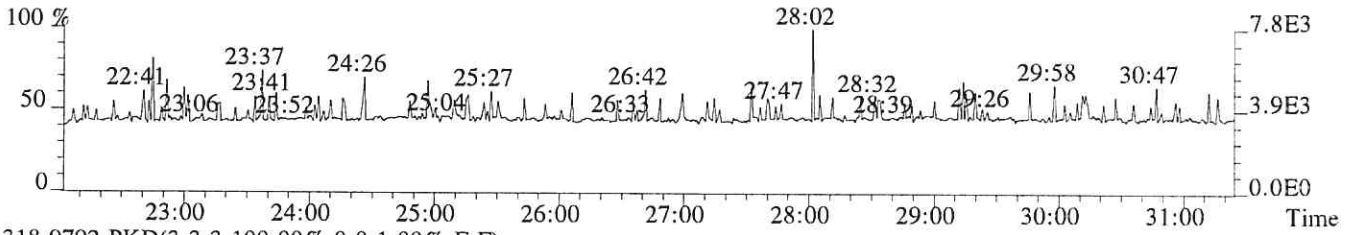
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



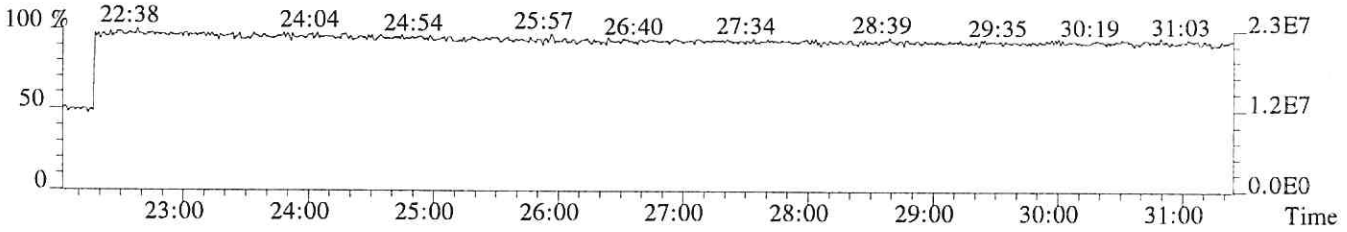
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



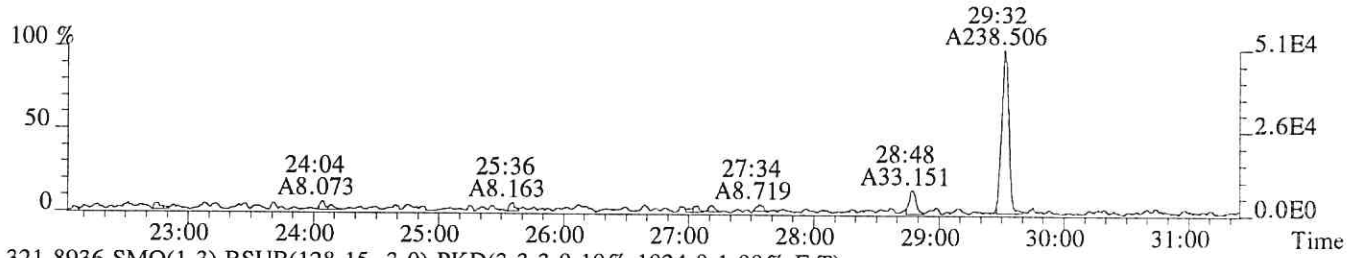
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



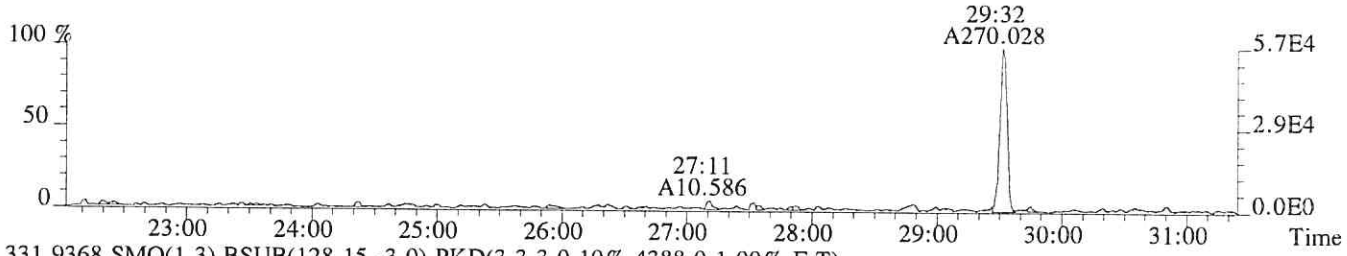
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



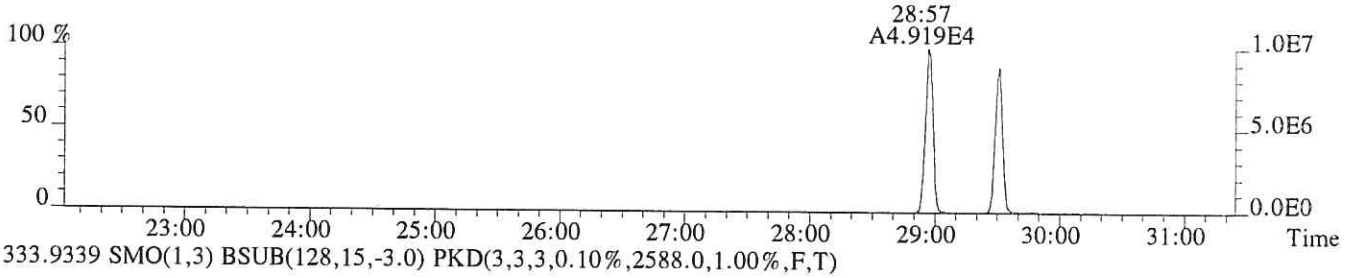
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



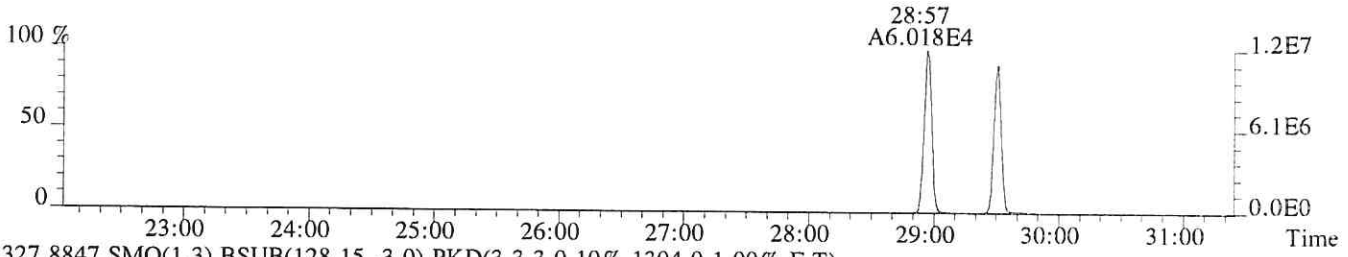
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



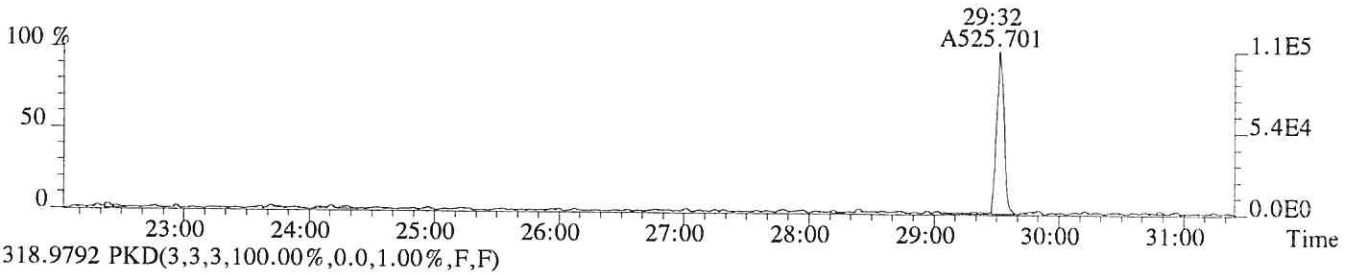
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



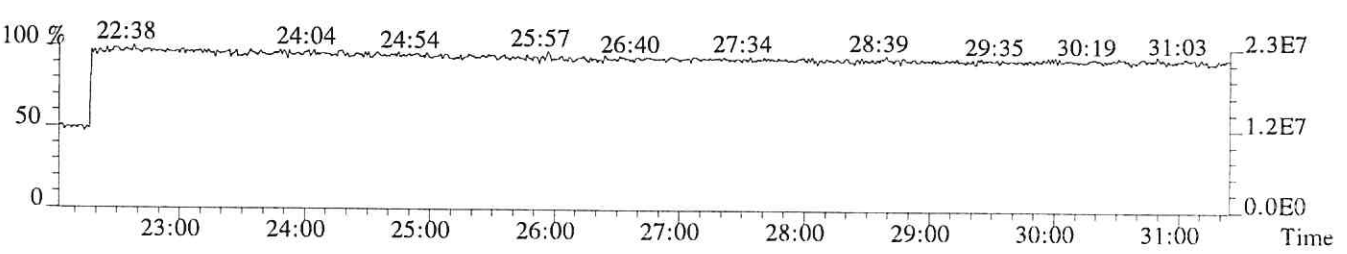
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



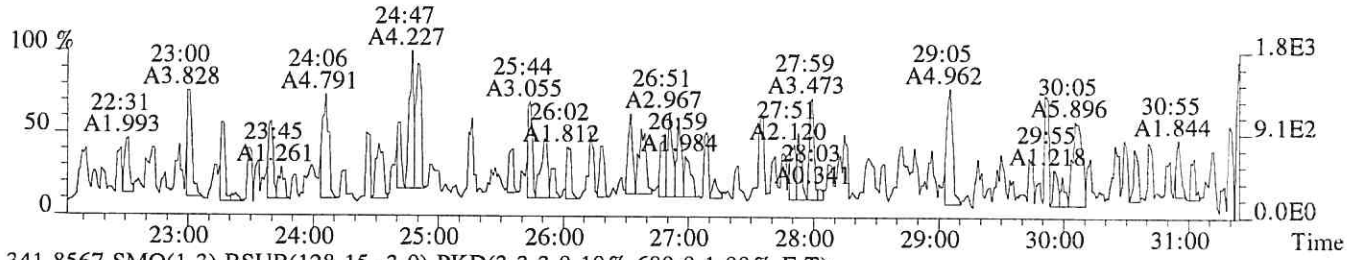
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



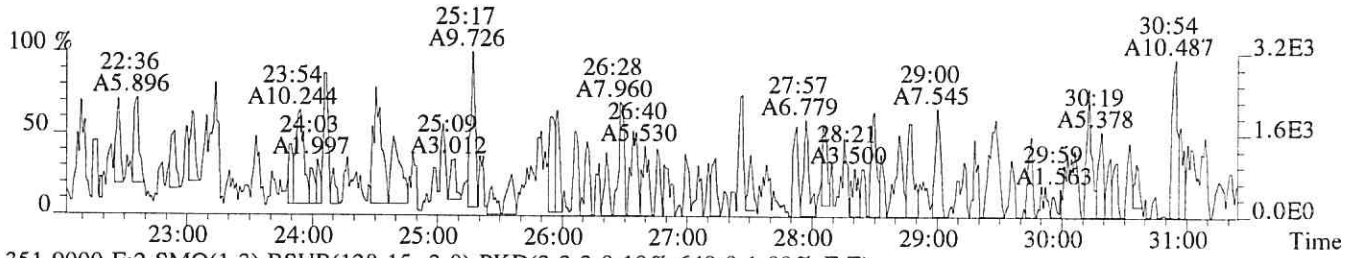
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



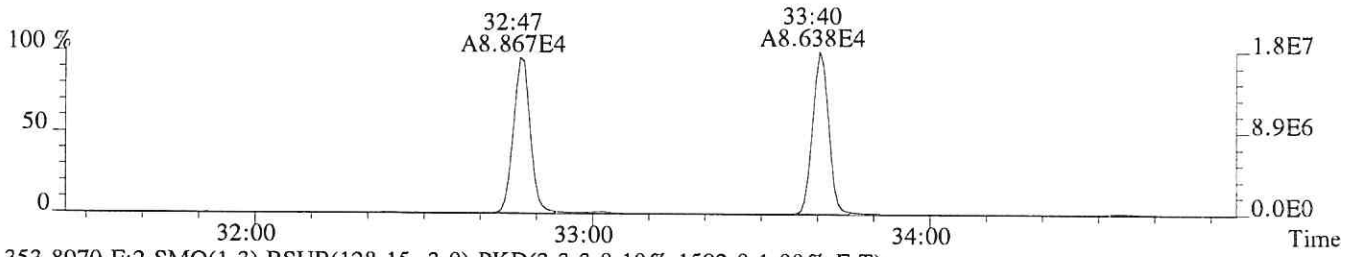
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



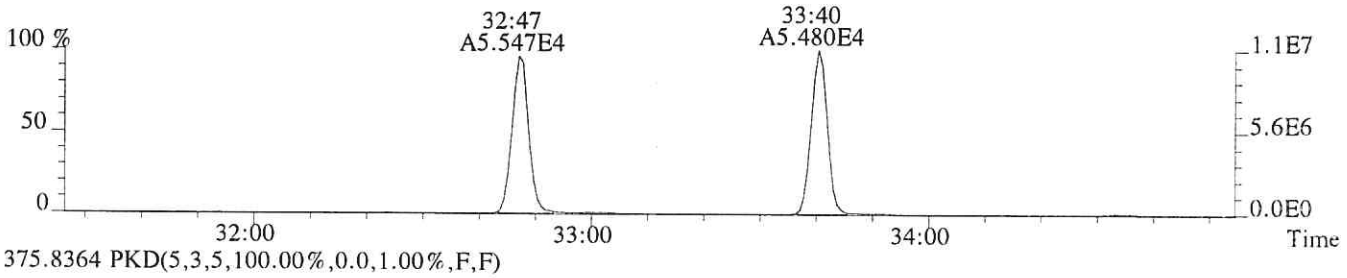
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



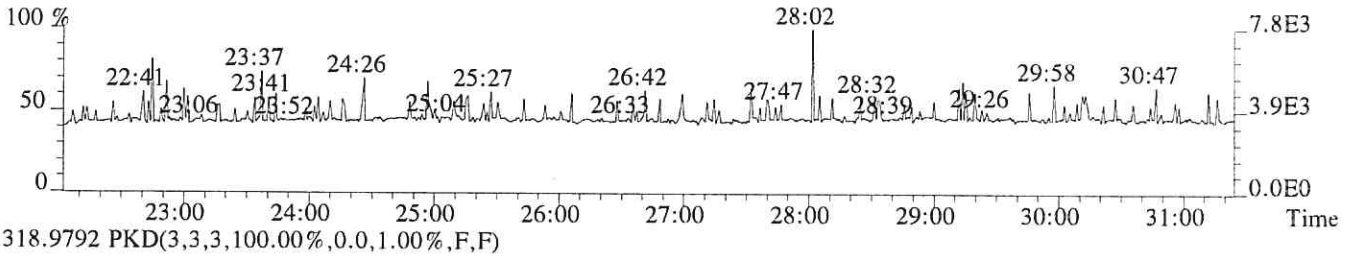
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



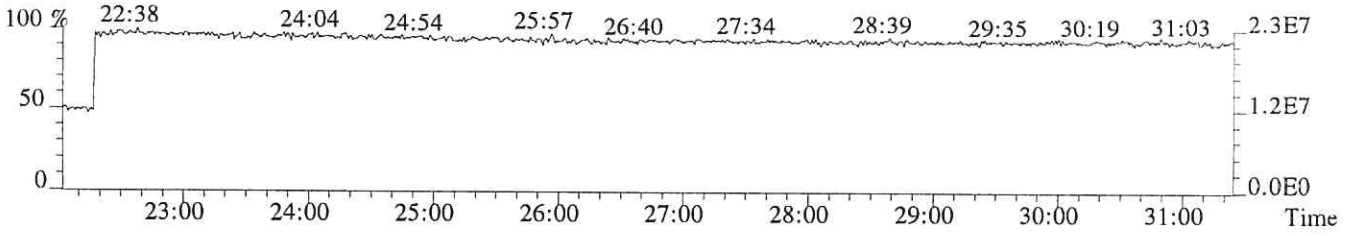
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



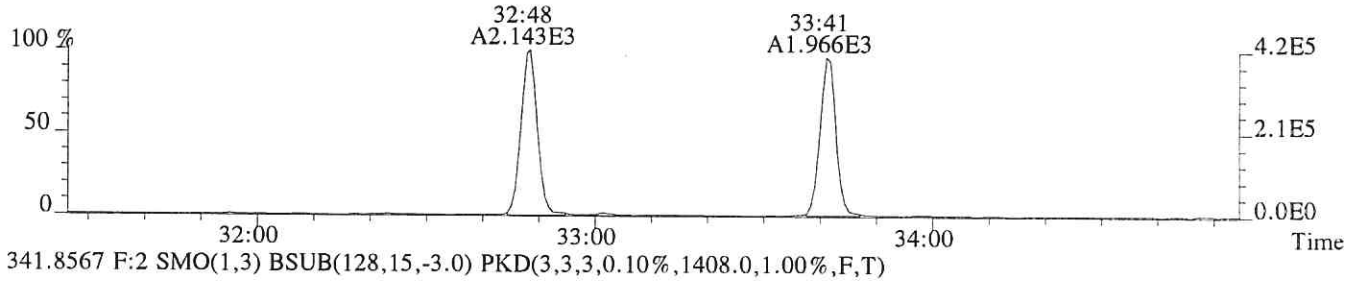
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



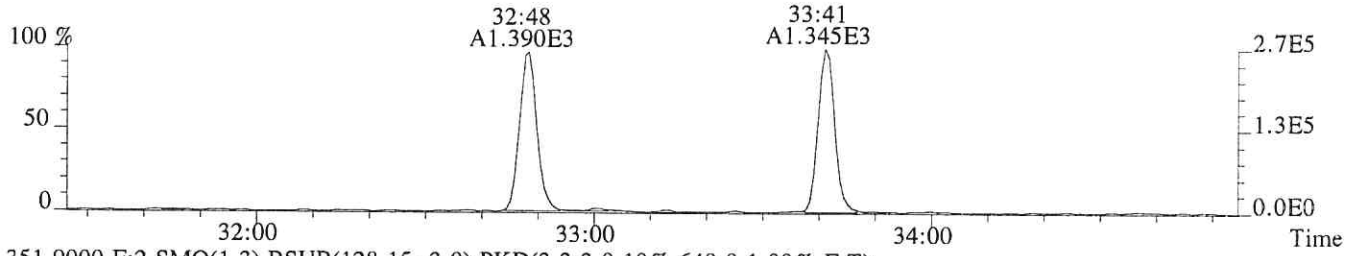
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



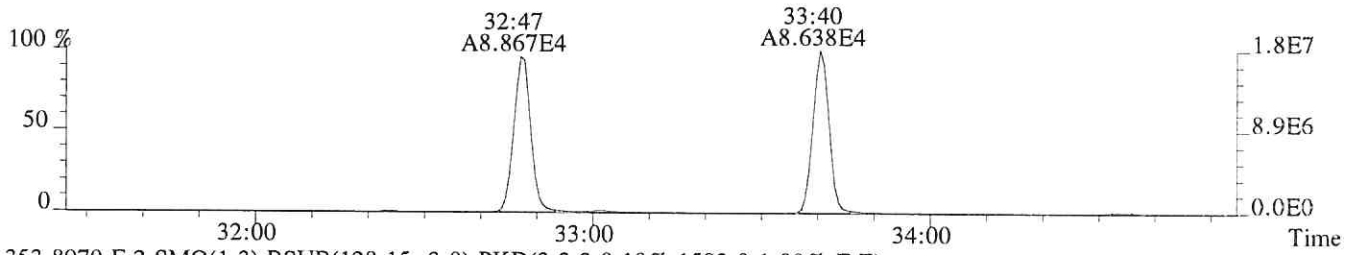
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



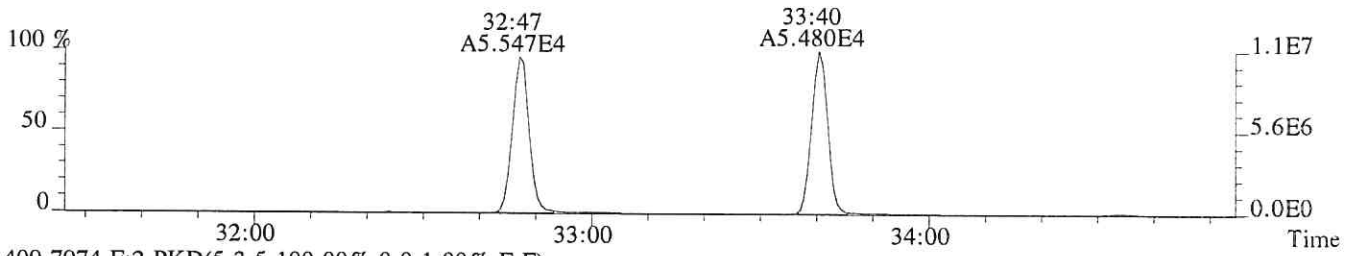
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



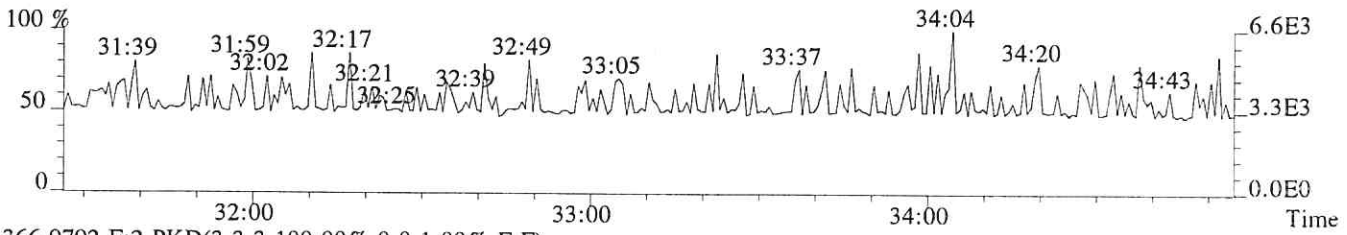
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



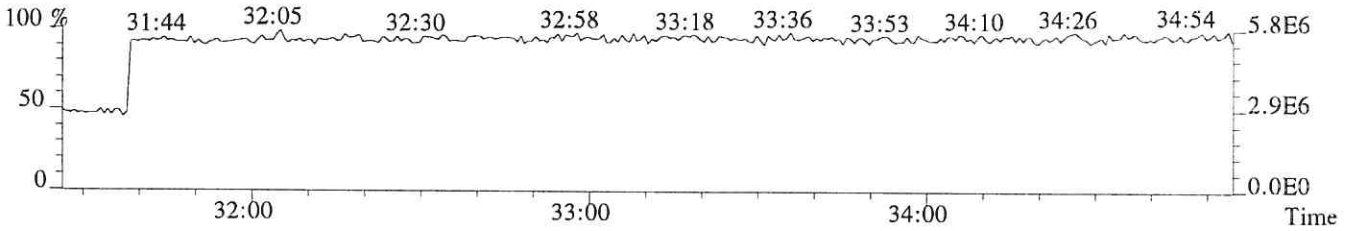
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



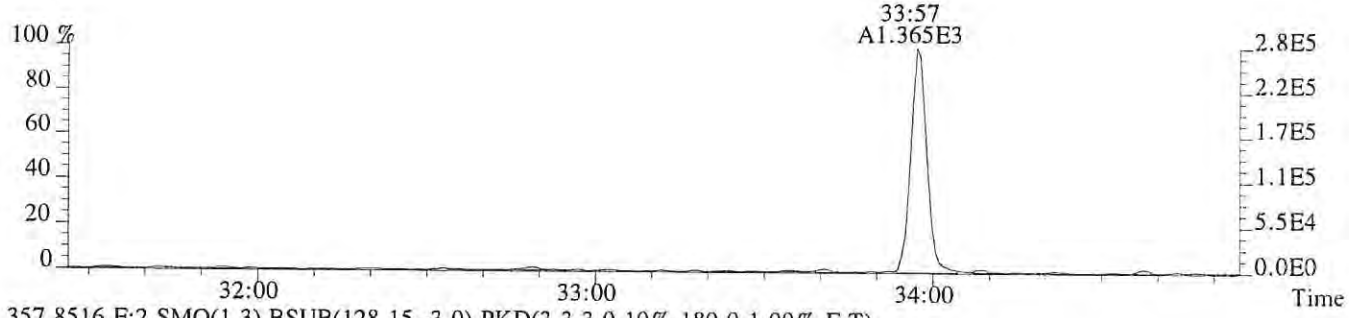
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



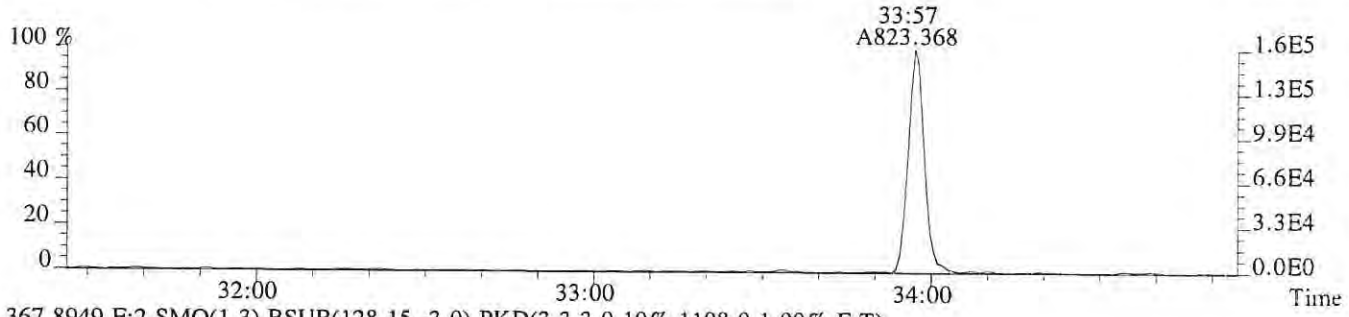
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



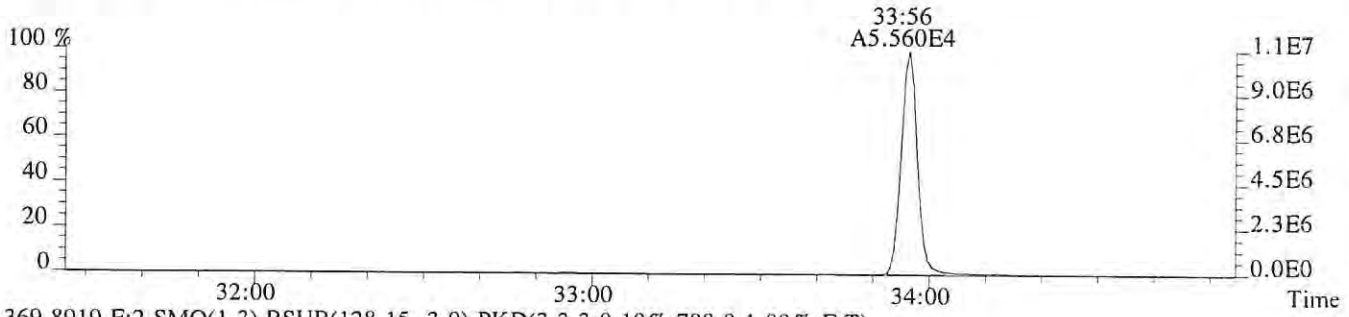
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



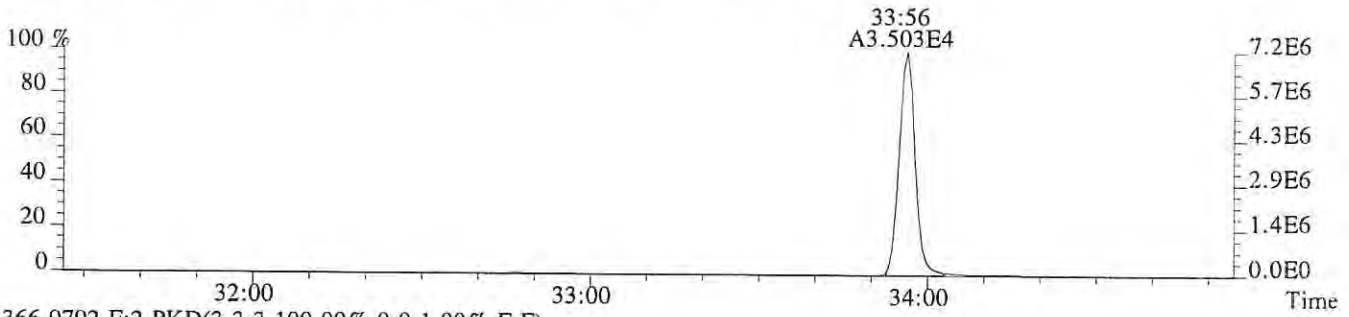
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



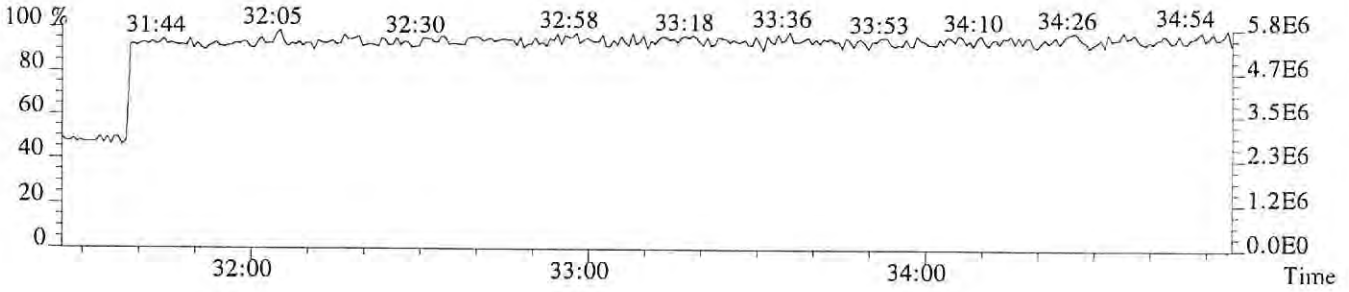
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



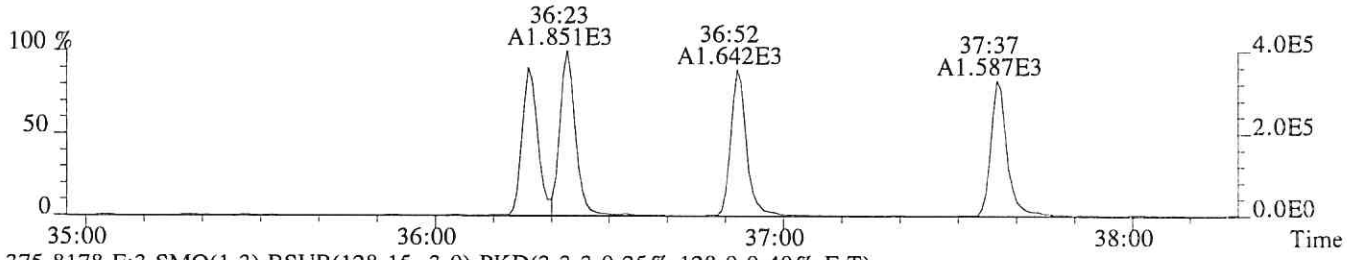
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



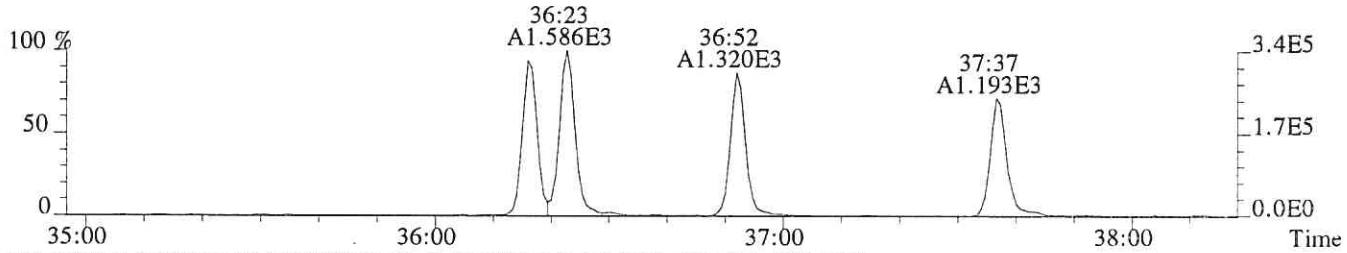
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



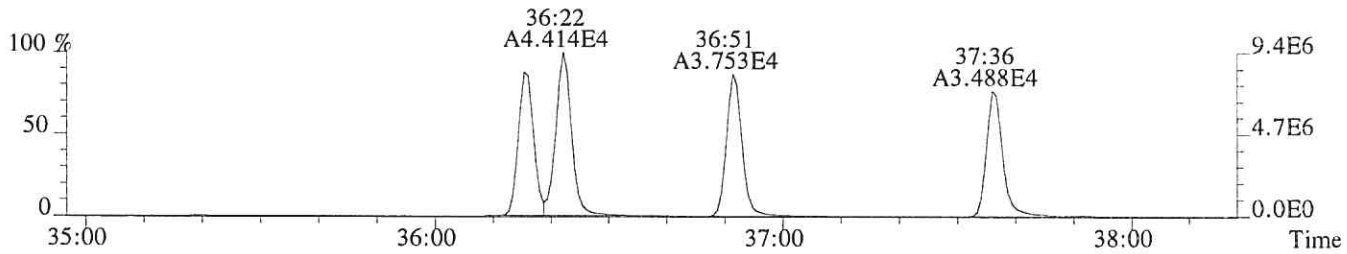
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



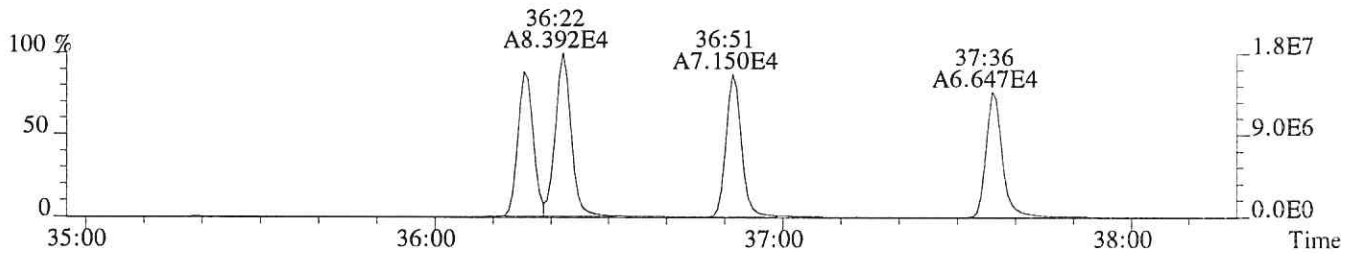
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



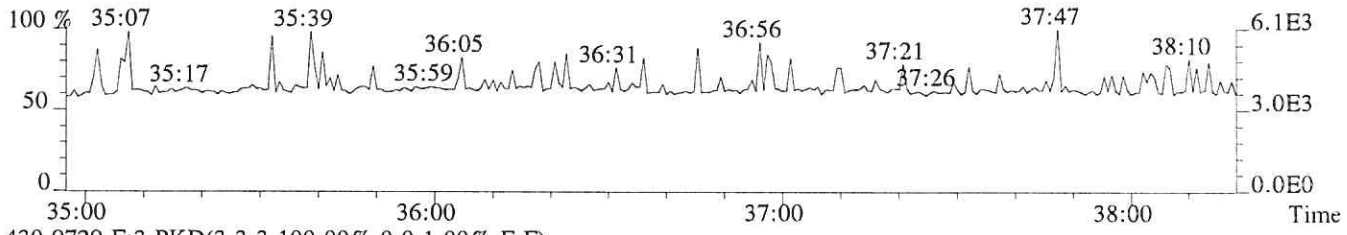
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



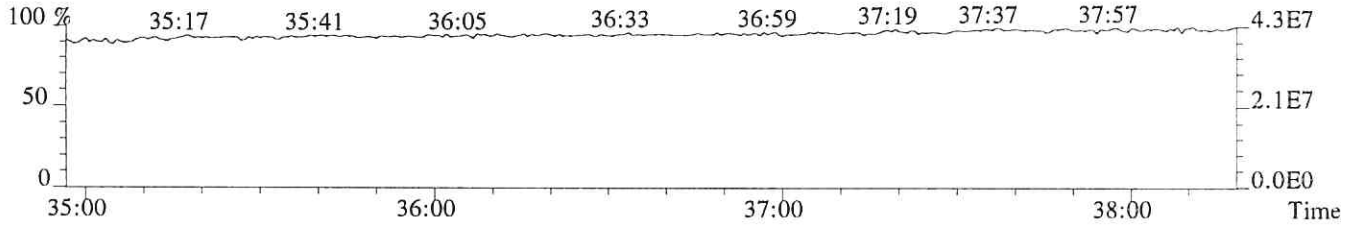
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



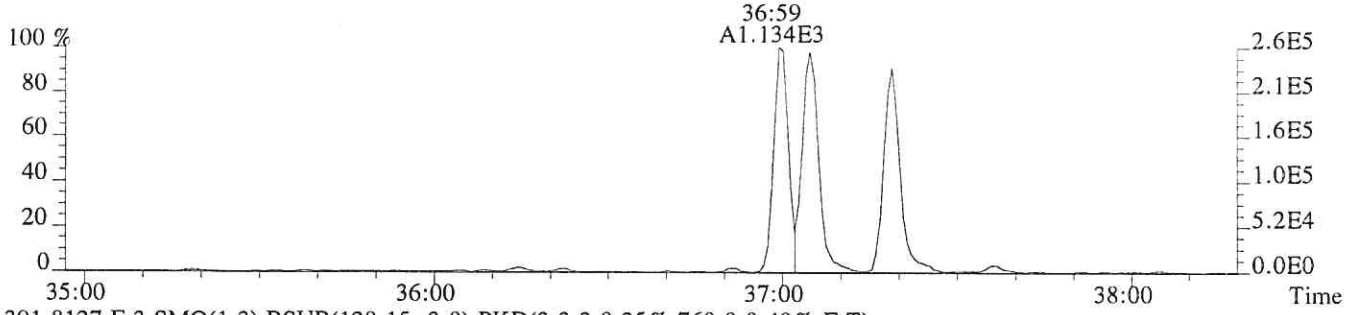
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



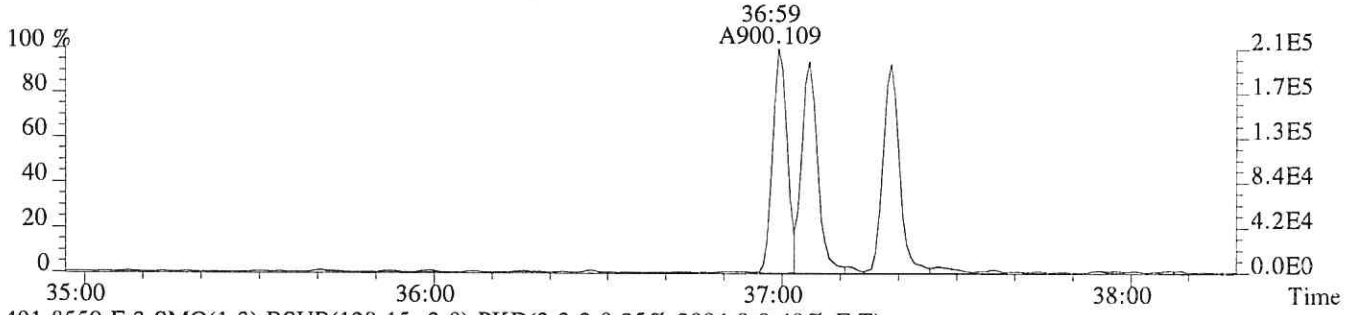
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



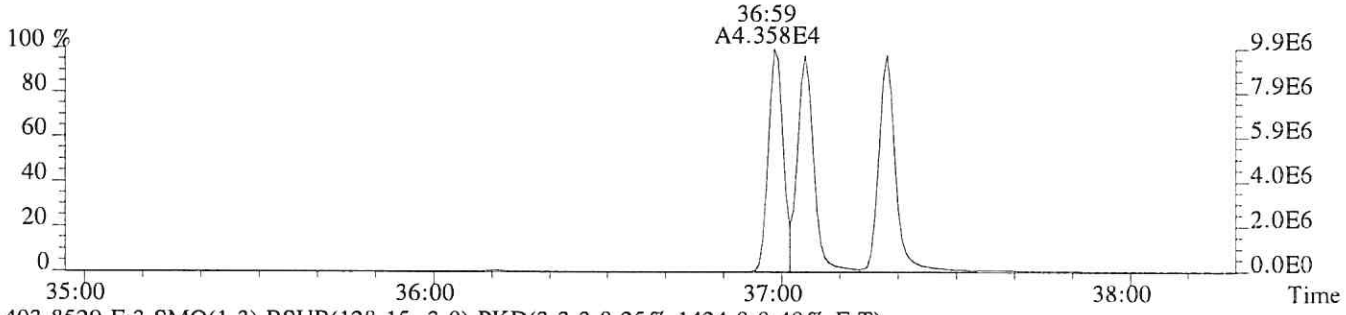
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



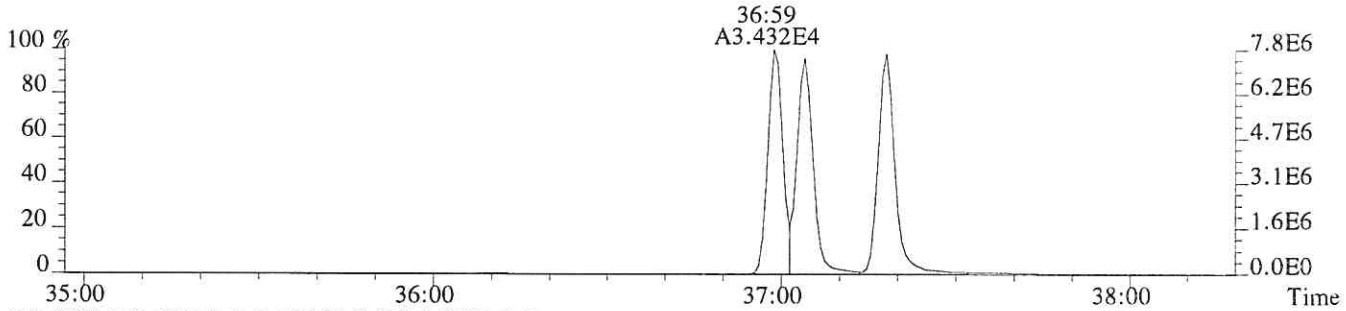
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



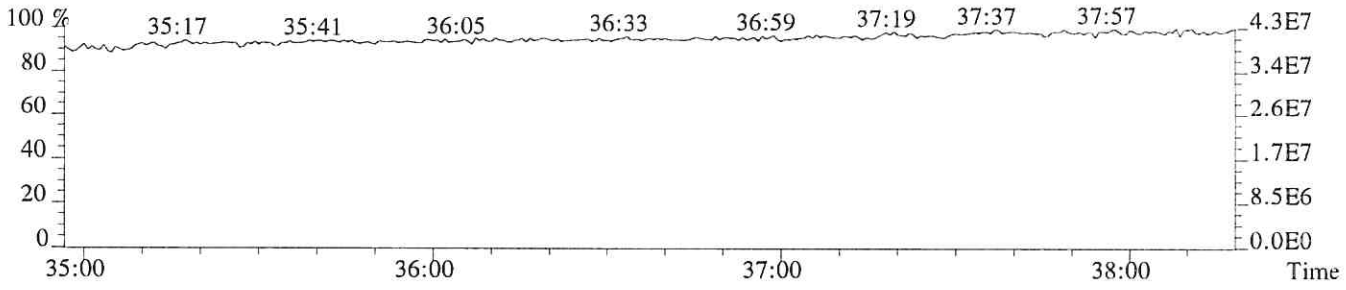
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



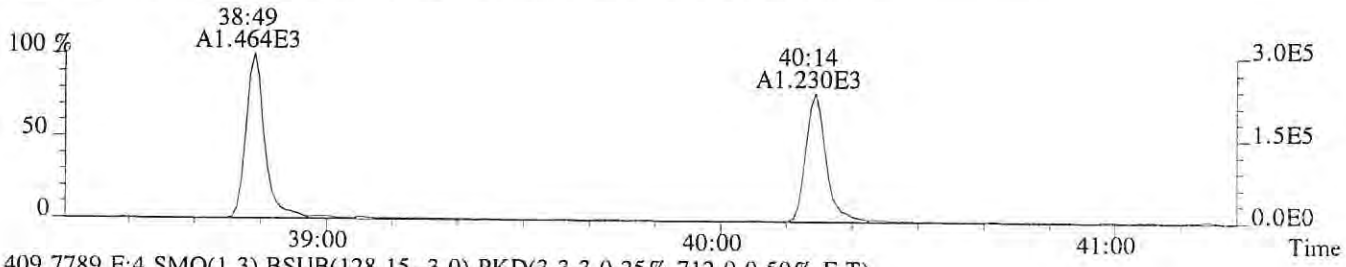
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



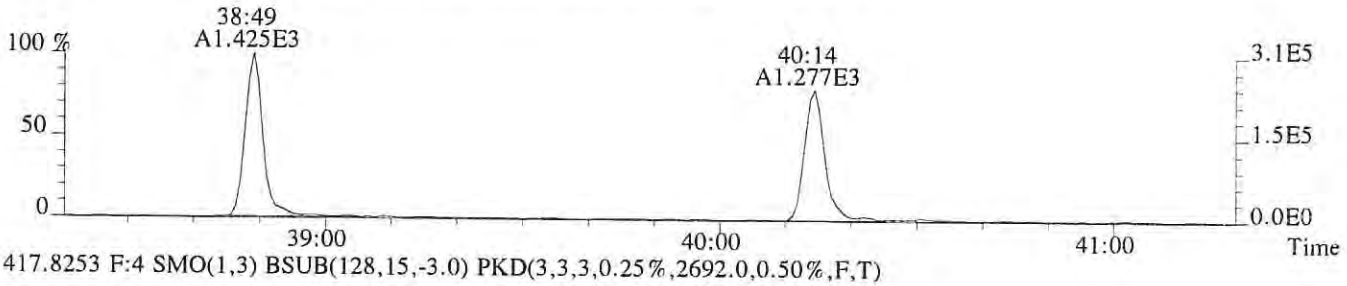
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



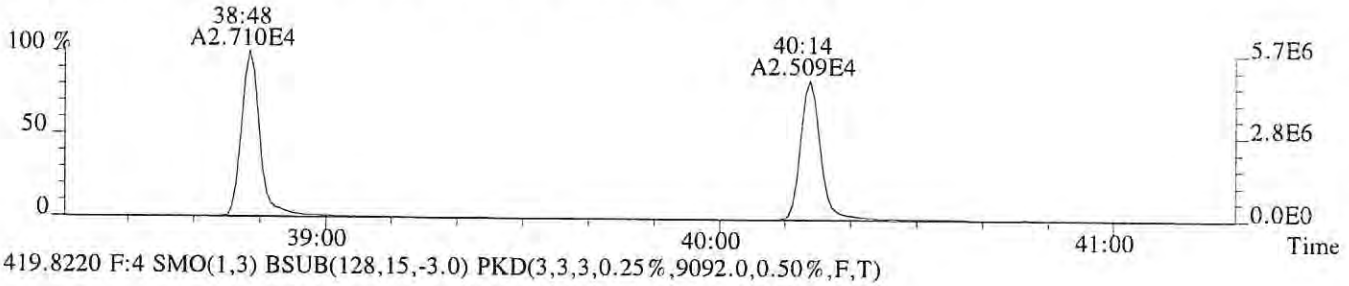
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



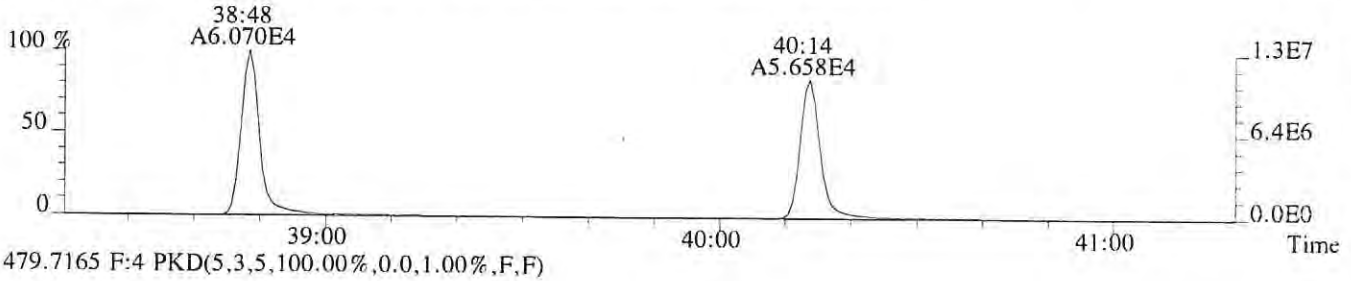
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



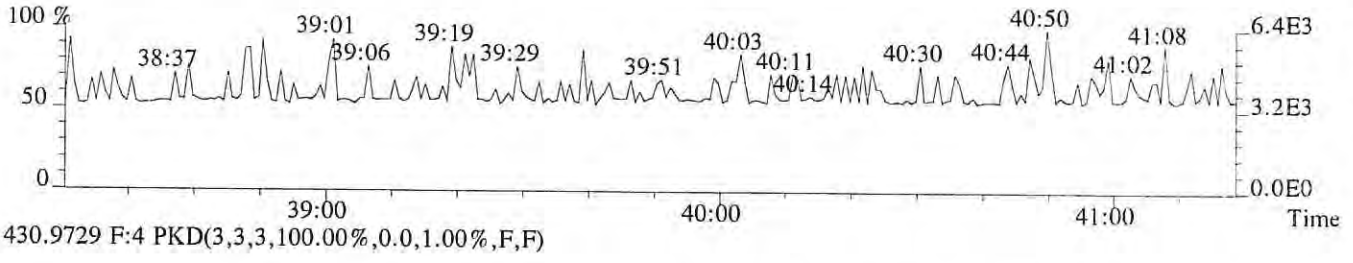
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



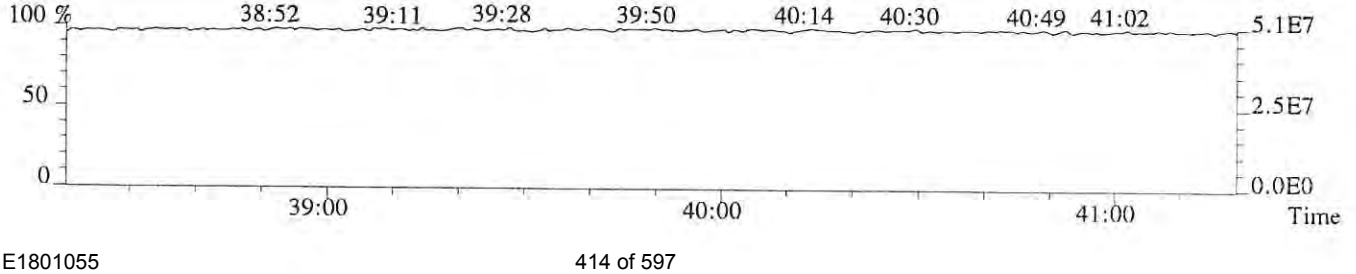
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



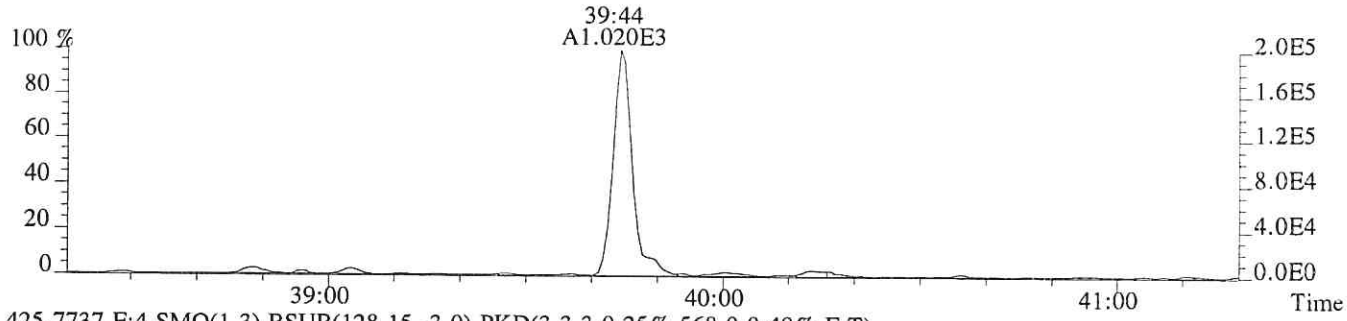
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



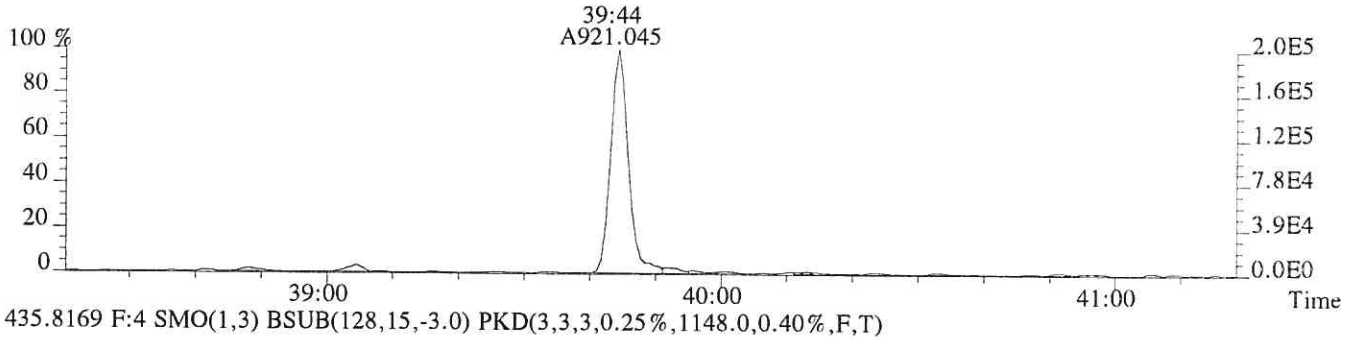
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



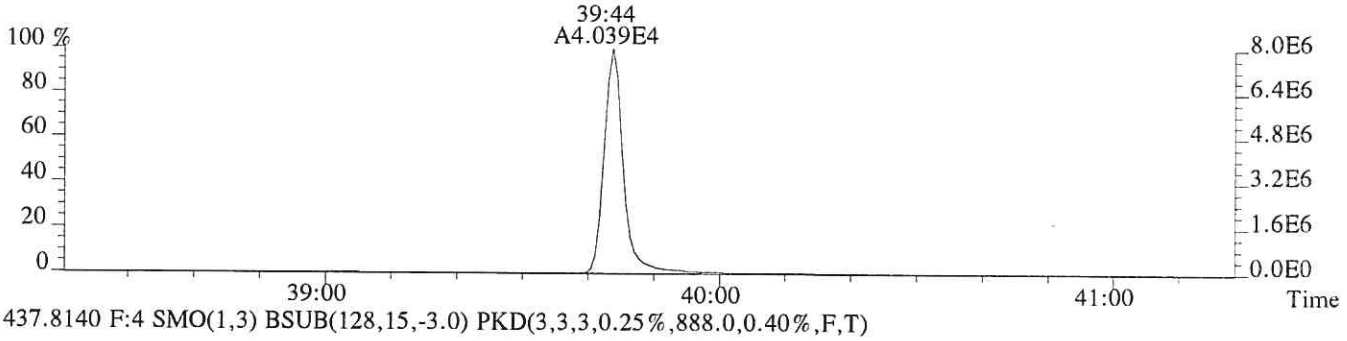
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



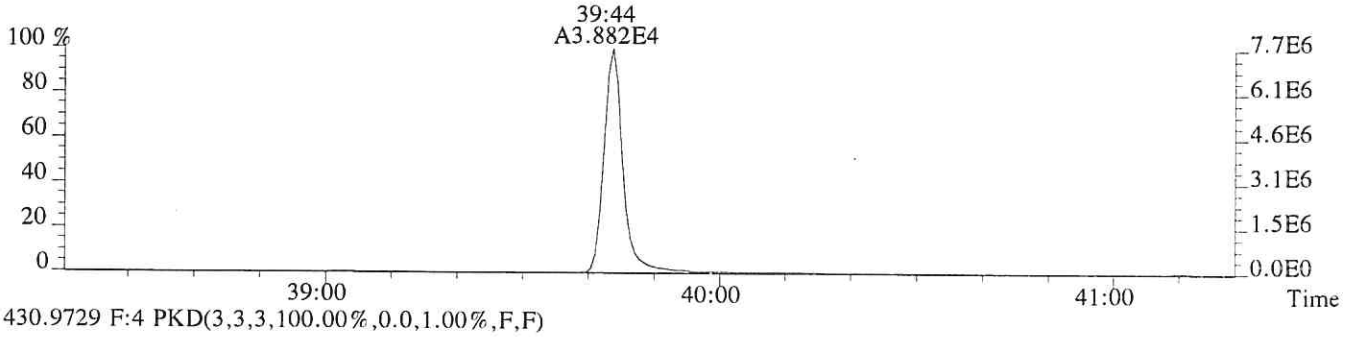
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



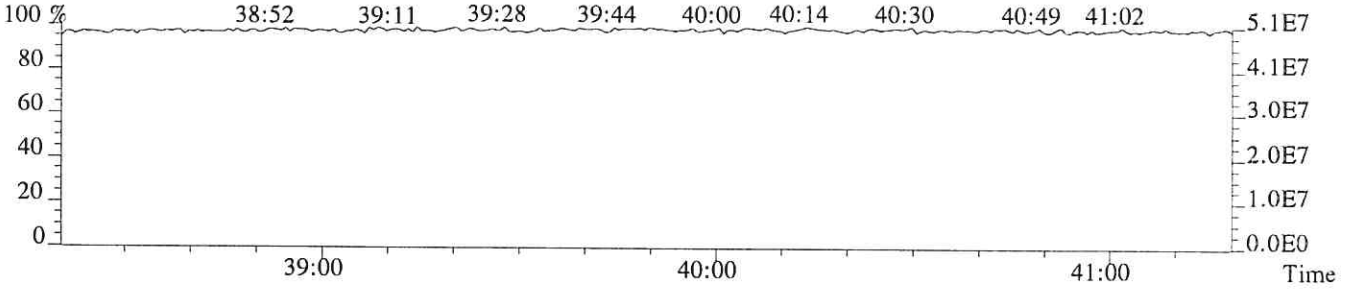
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



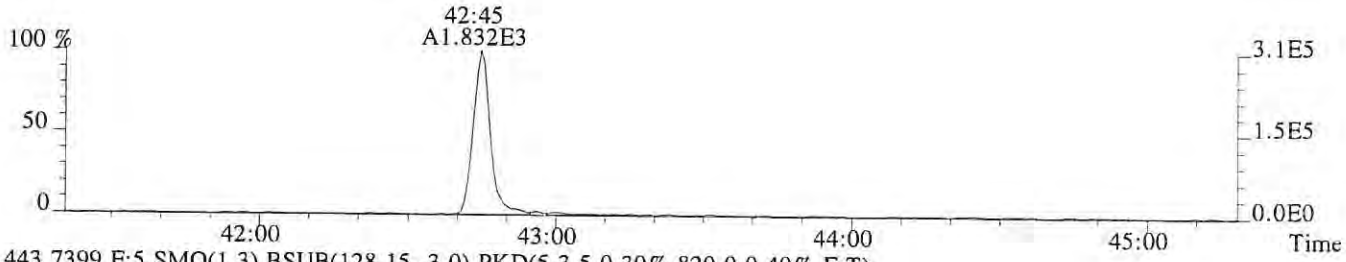
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



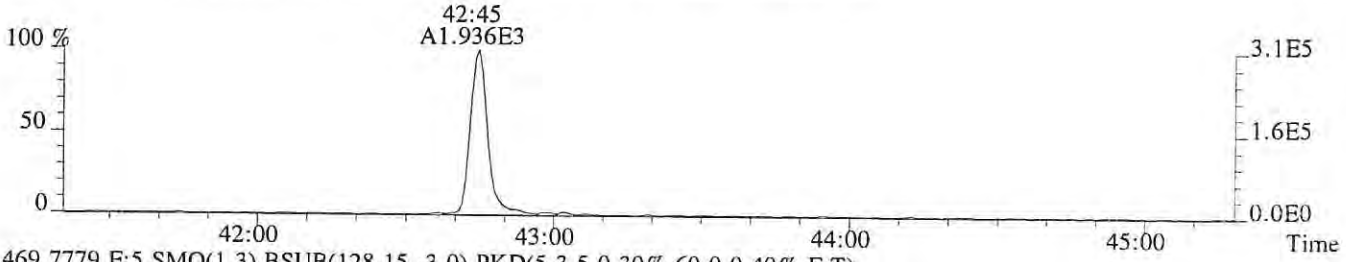
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



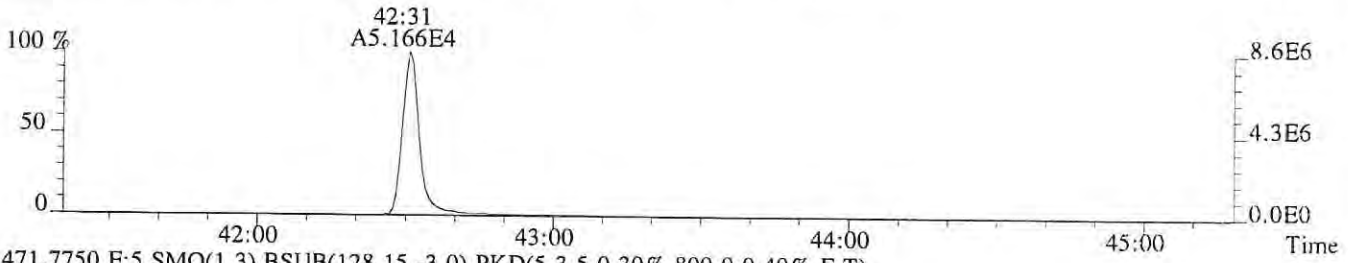
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



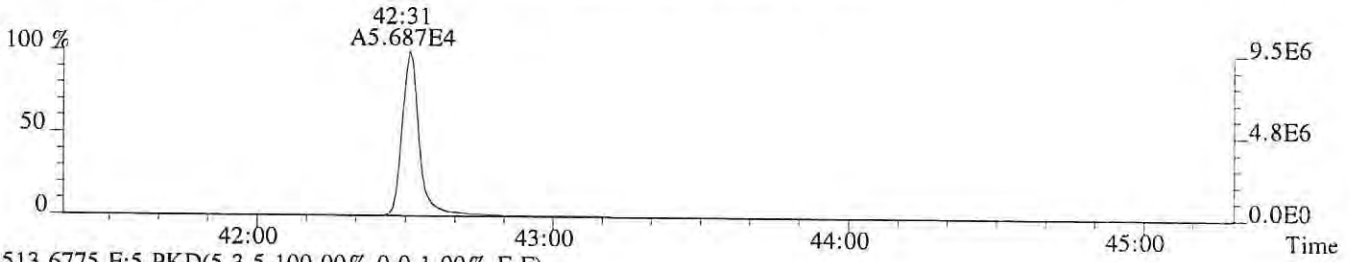
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



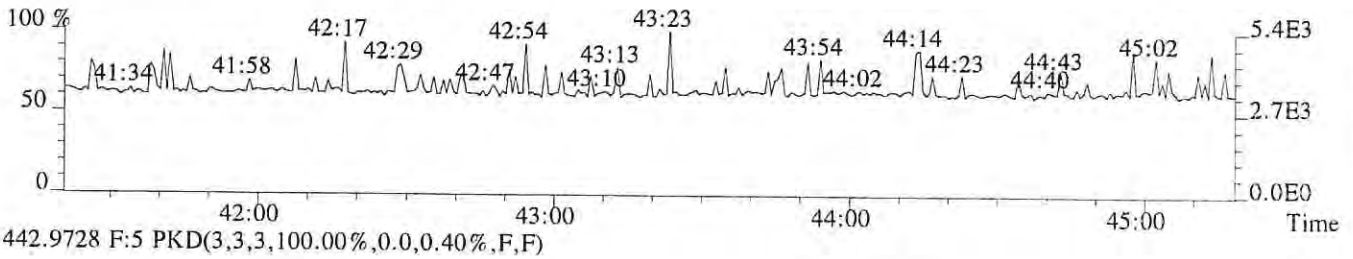
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



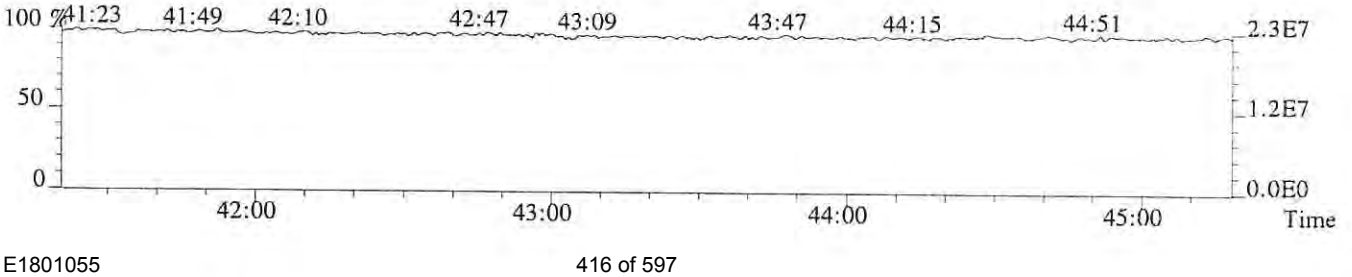
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



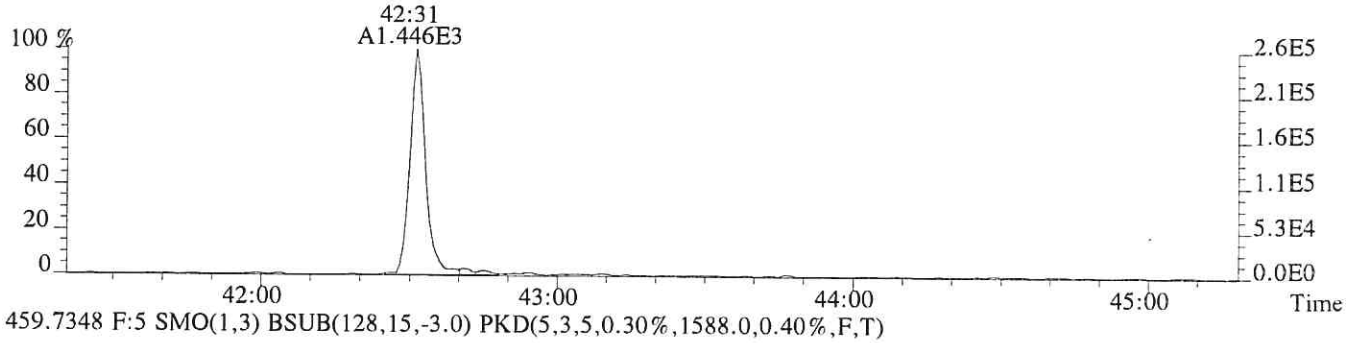
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



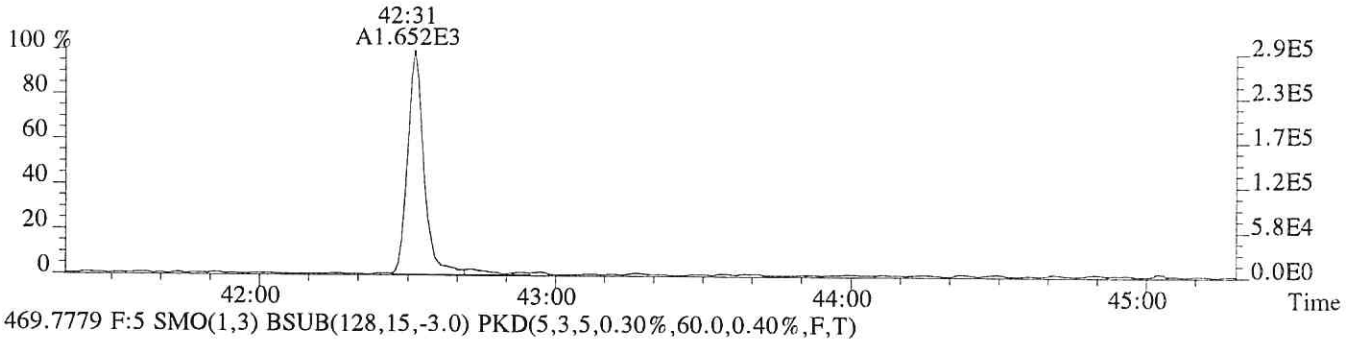
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



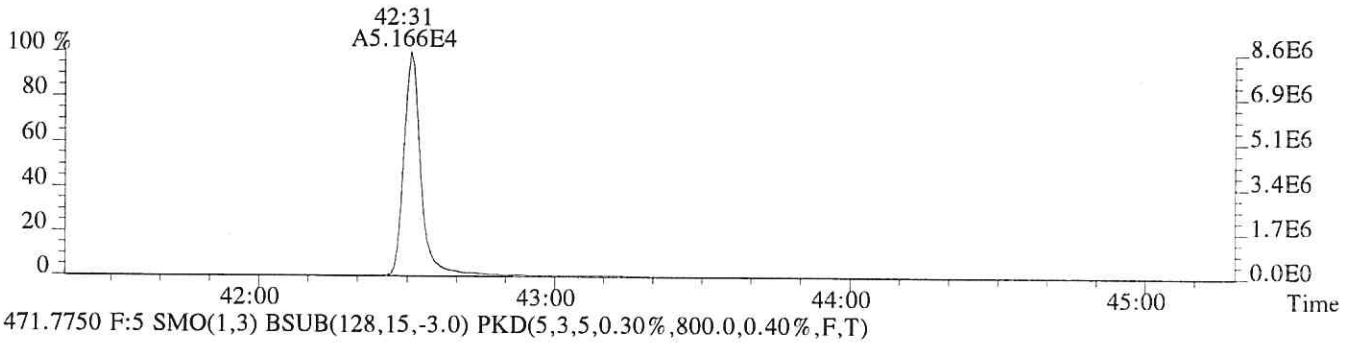
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



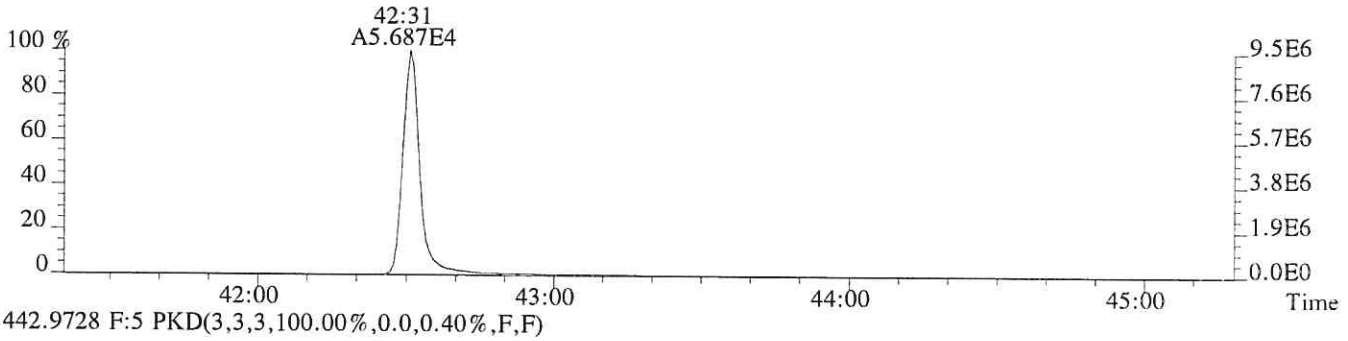
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



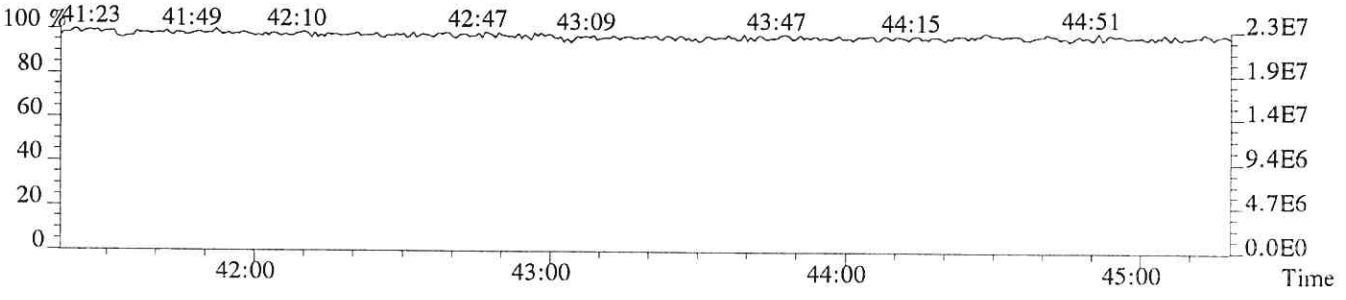
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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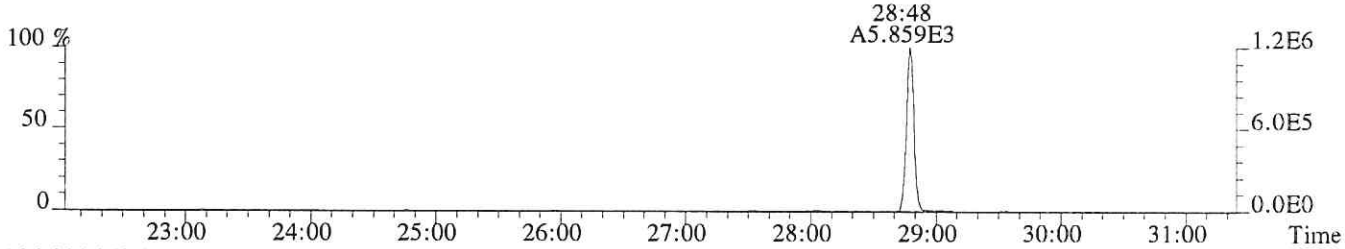
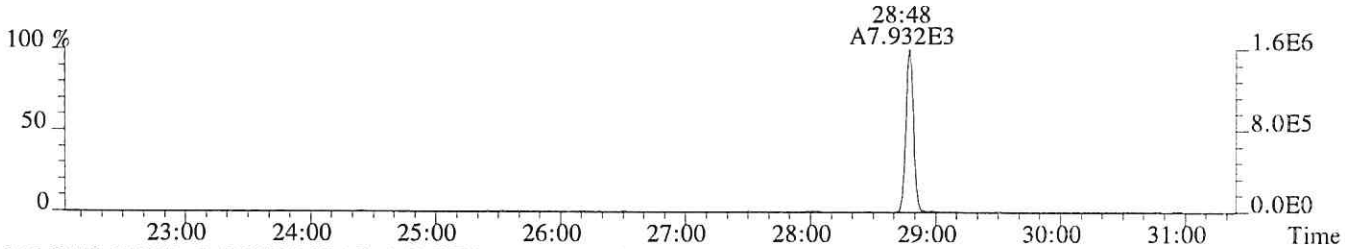
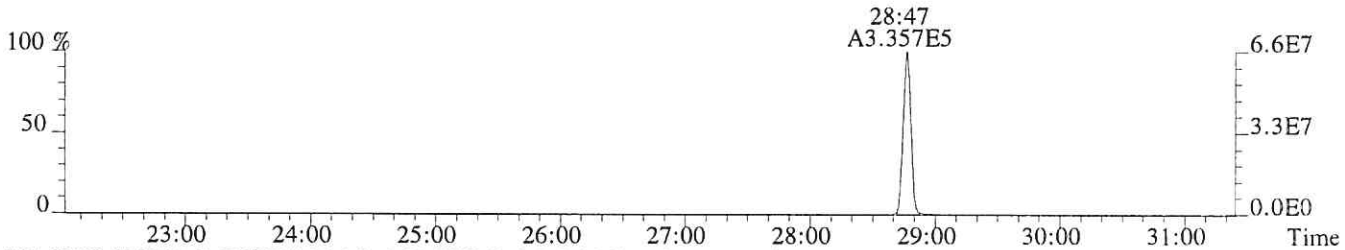
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



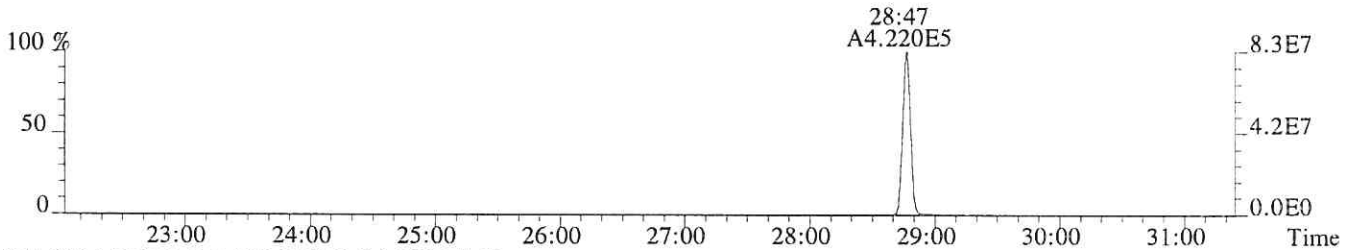
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



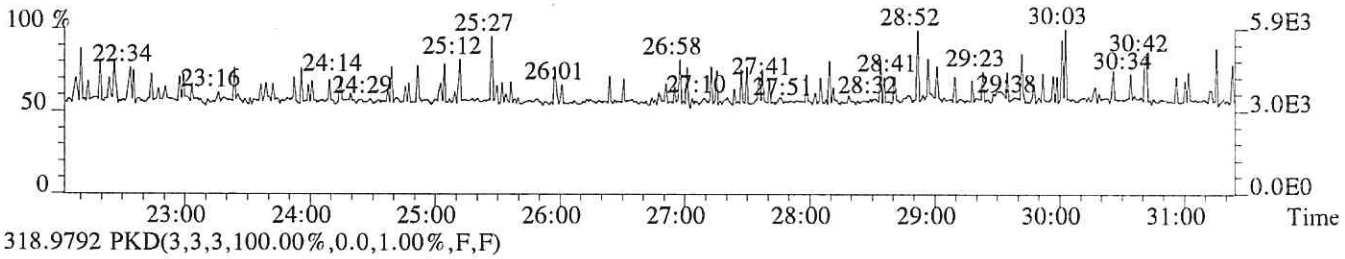
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



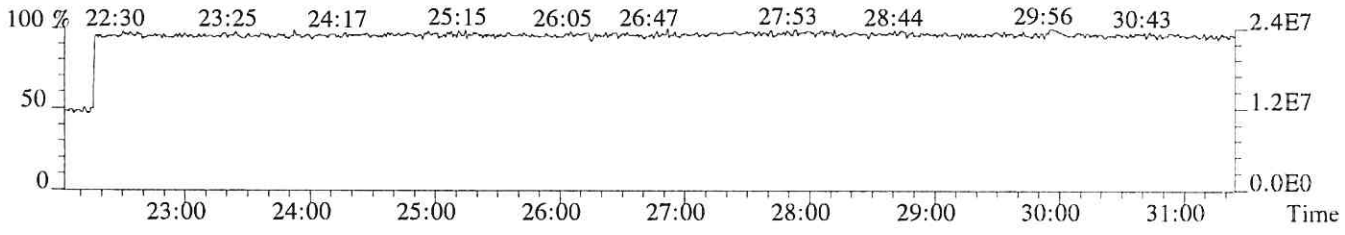
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



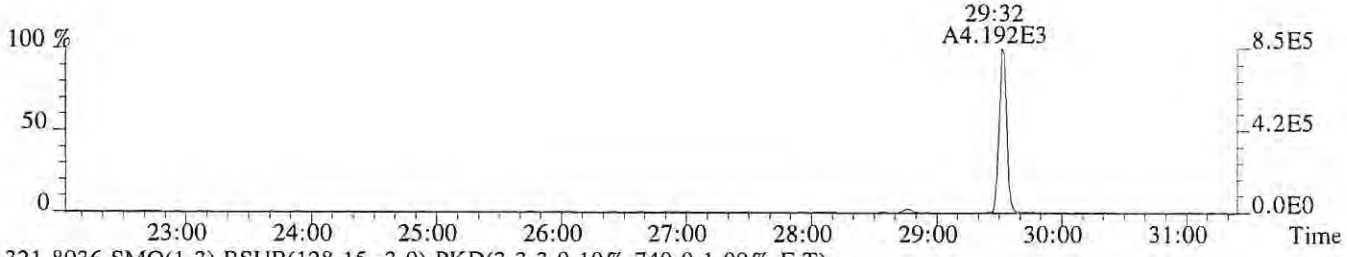
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



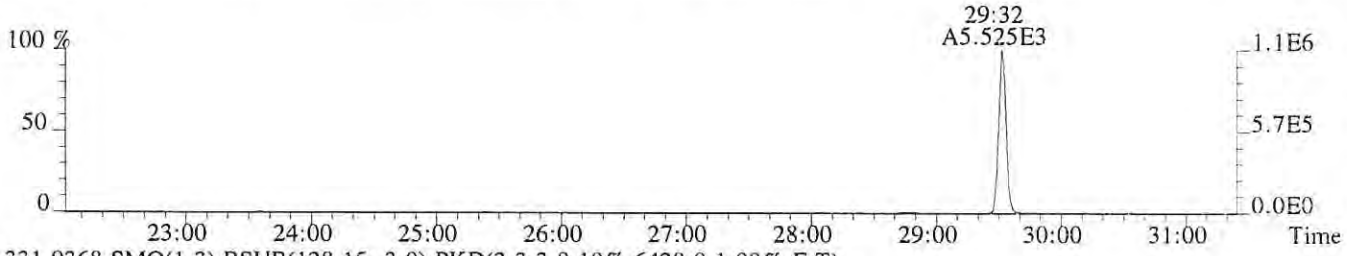
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



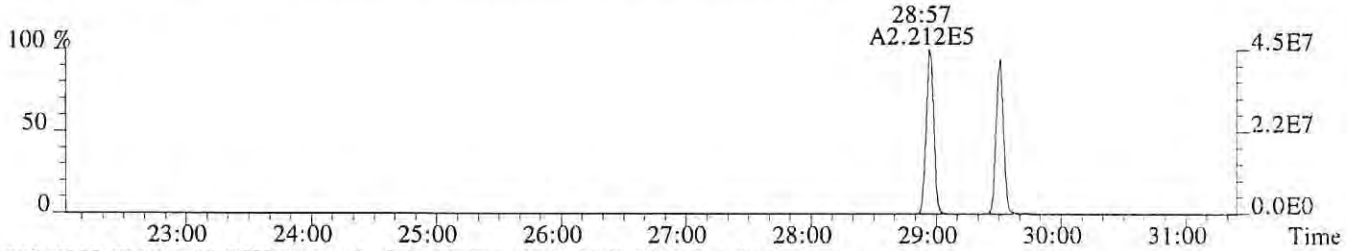
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



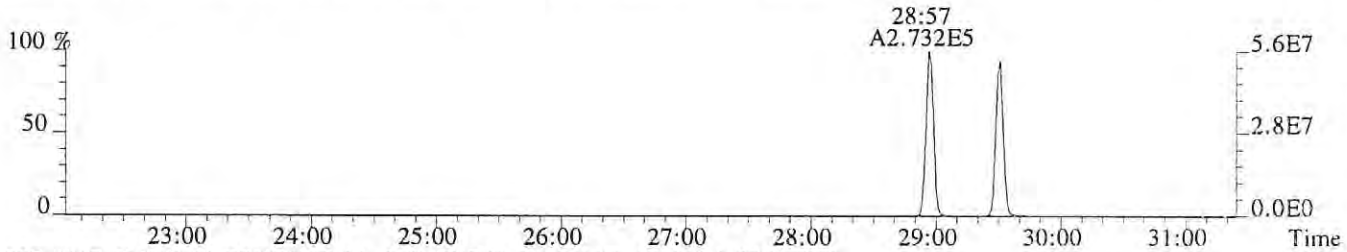
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



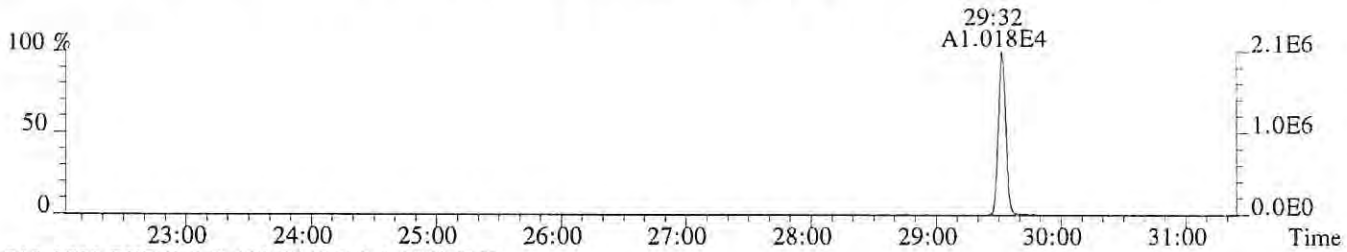
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



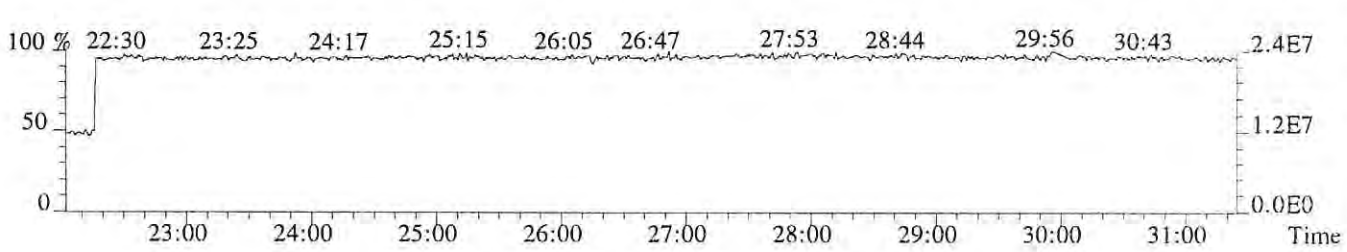
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

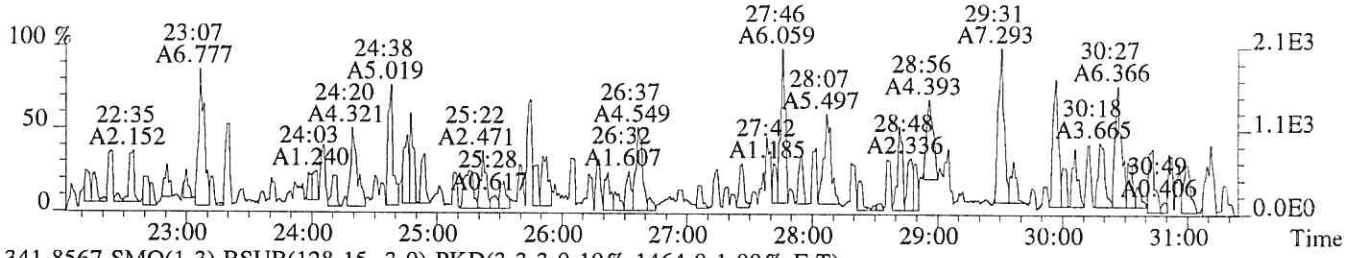


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

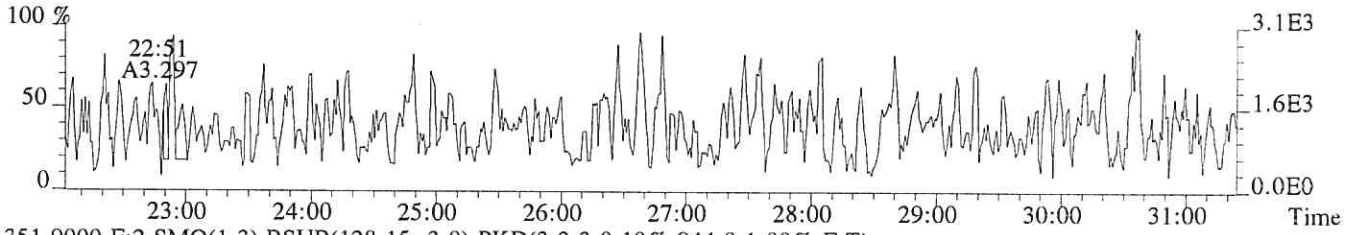


File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

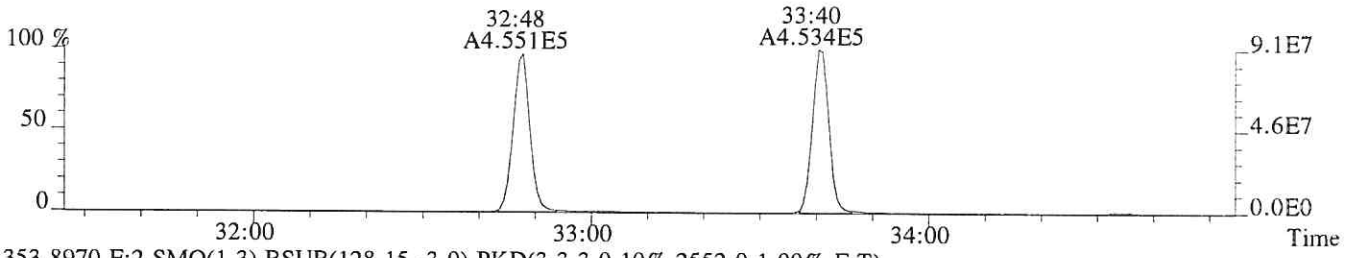
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



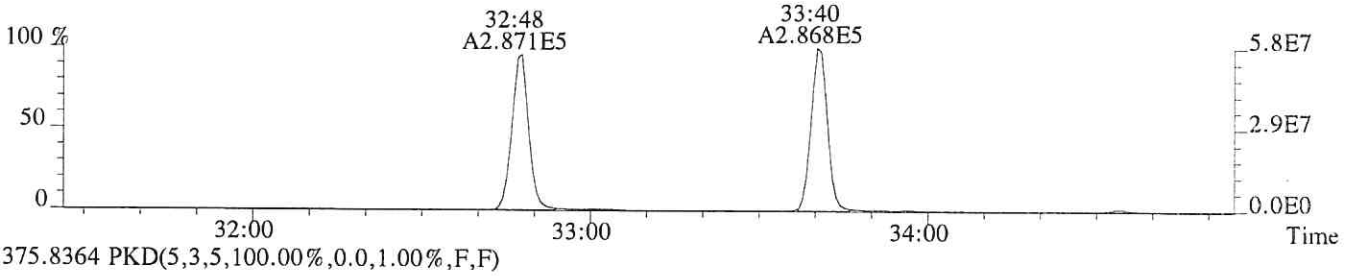
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



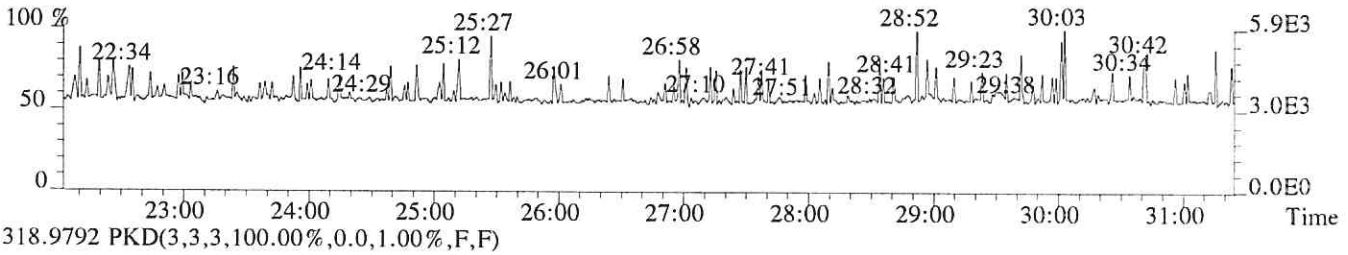
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



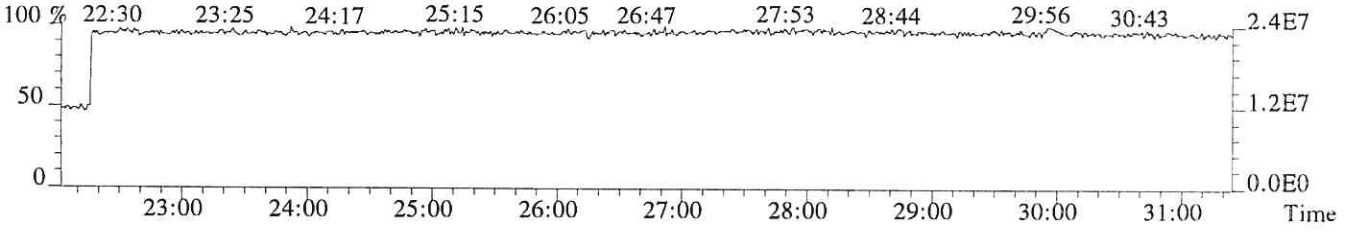
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



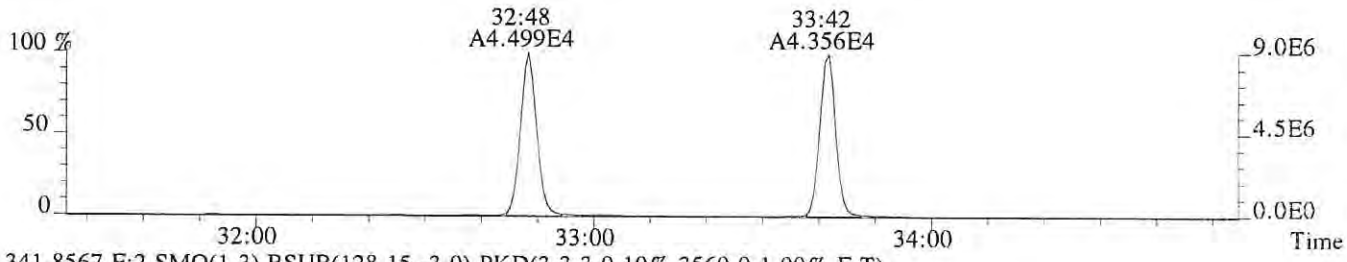
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



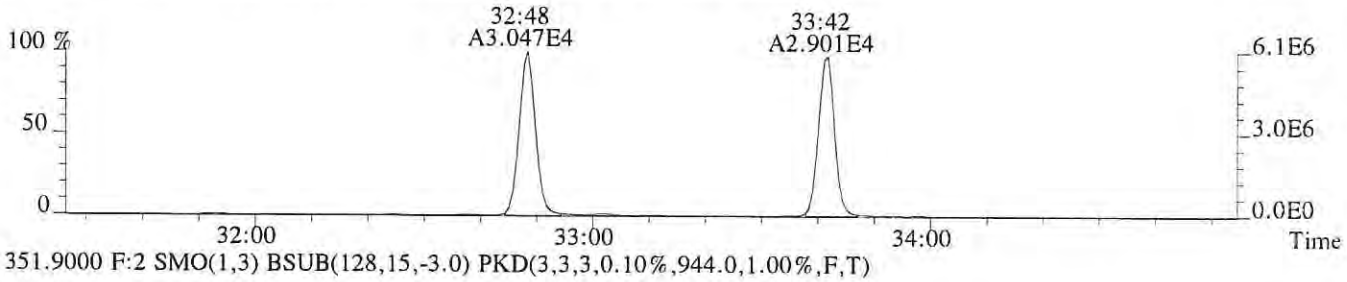
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



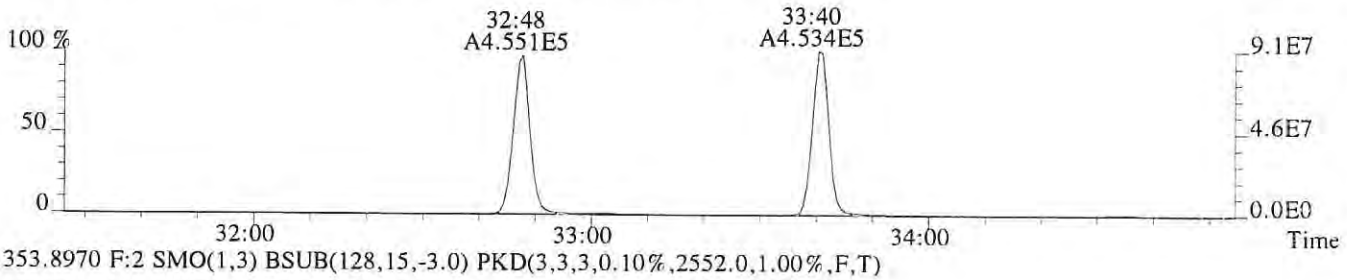
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



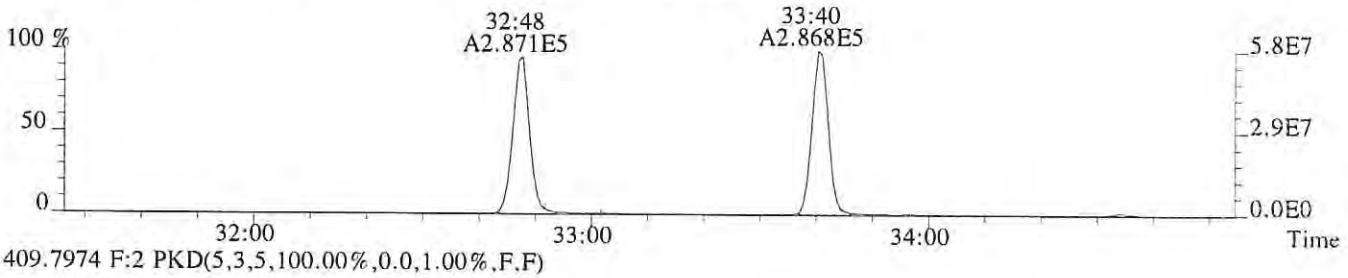
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



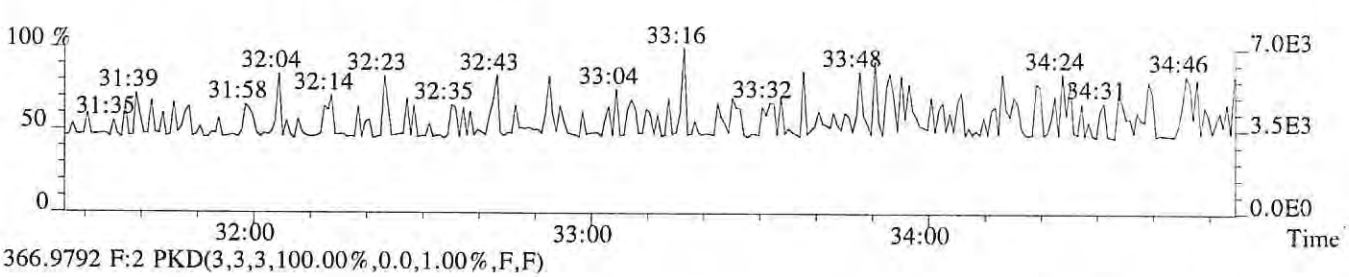
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



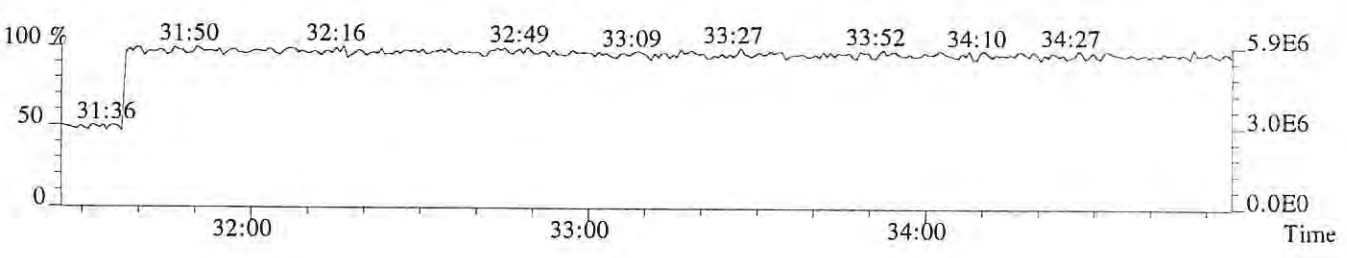
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



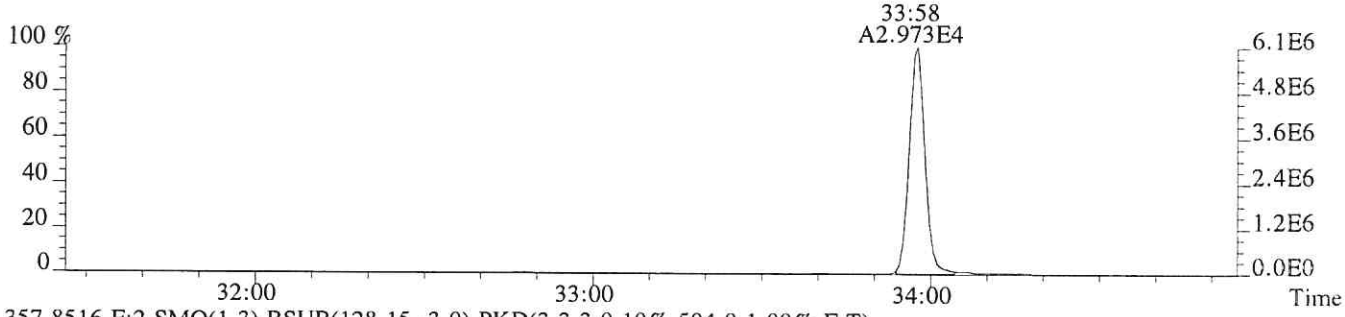
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



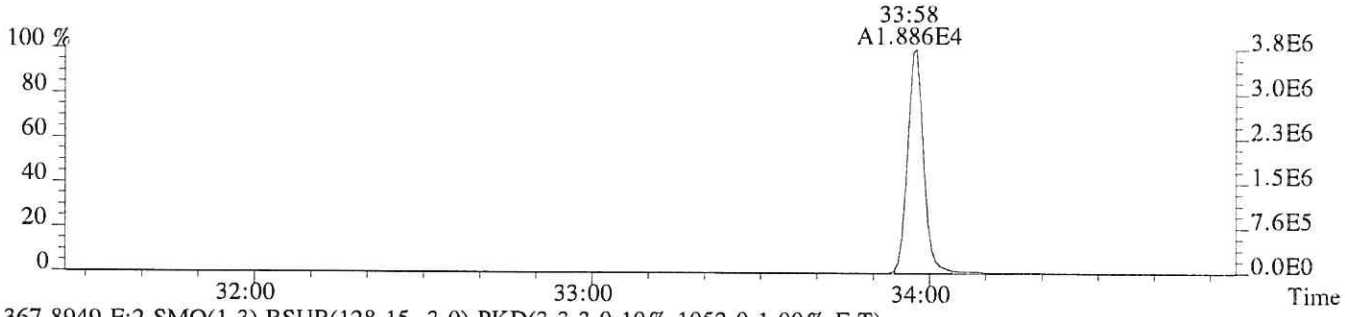
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



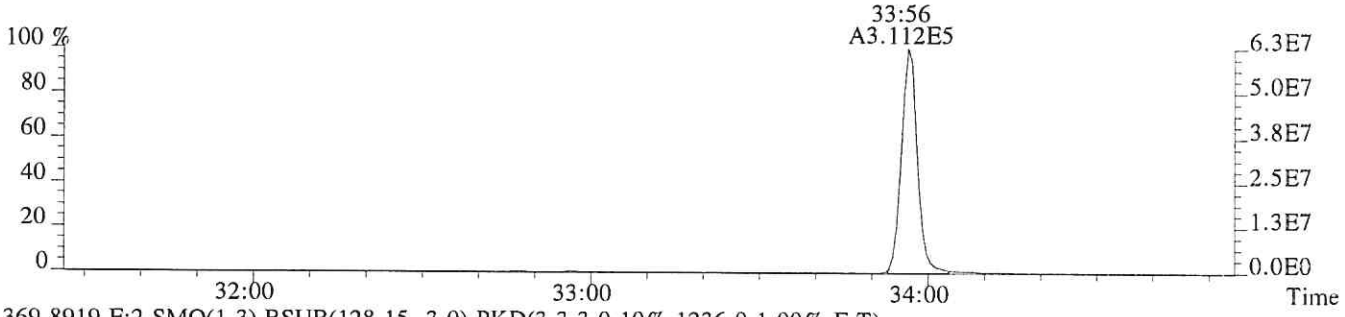
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



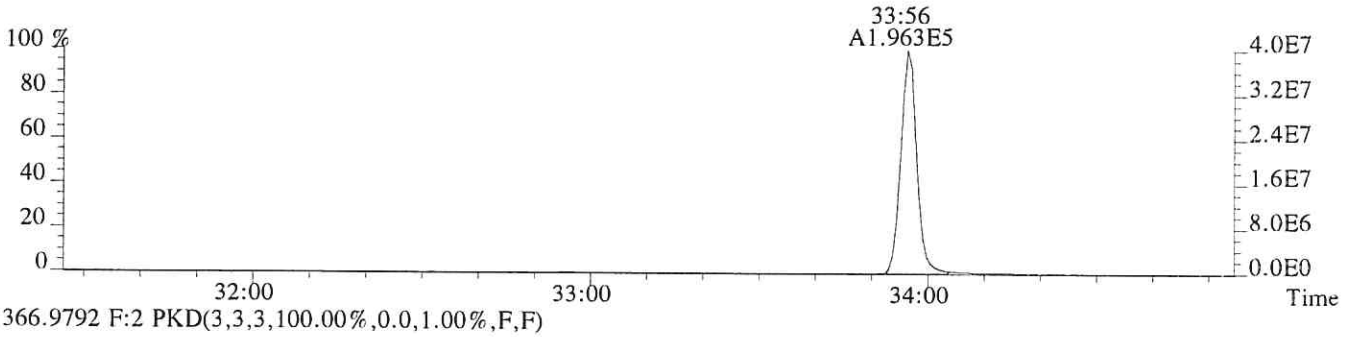
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



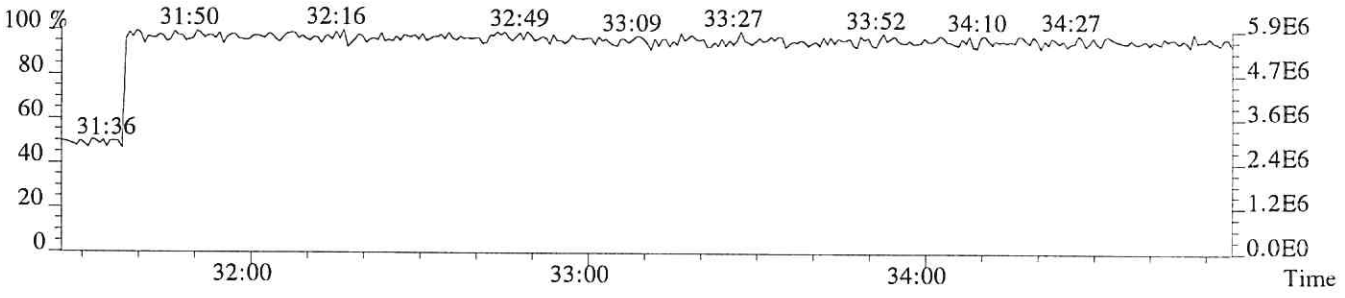
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



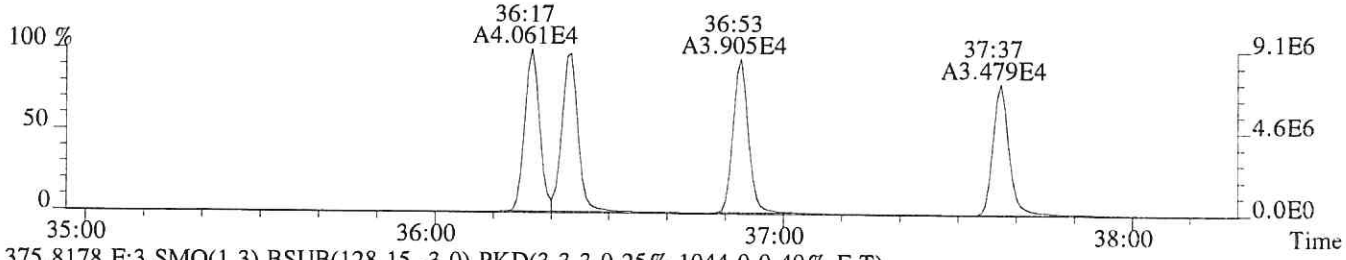
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



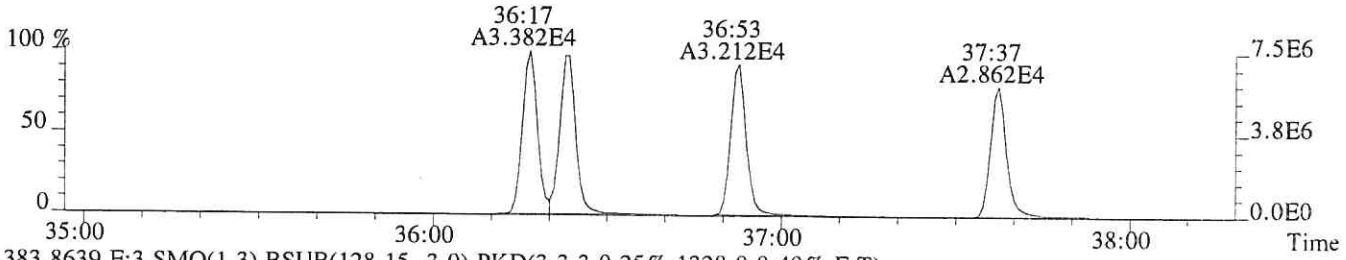
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



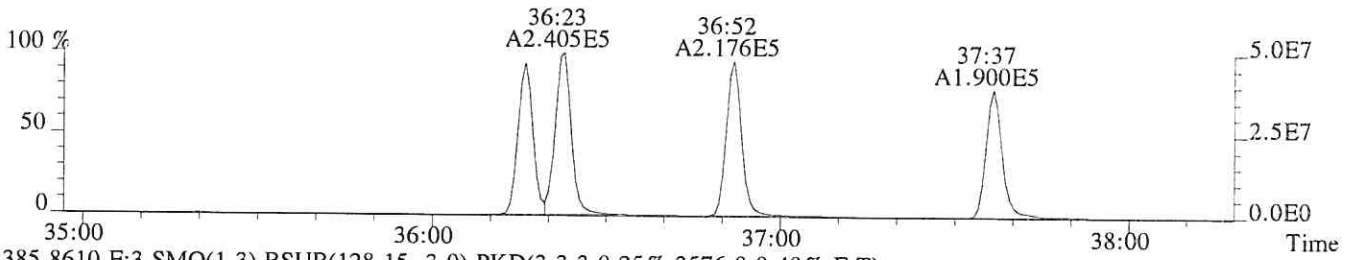
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



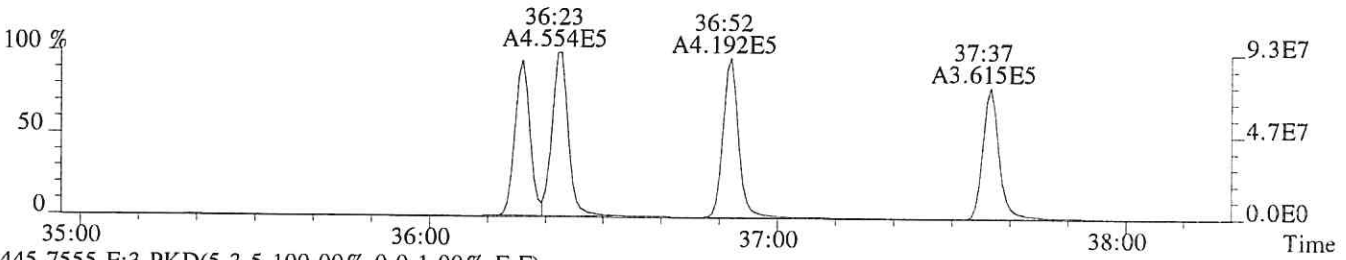
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



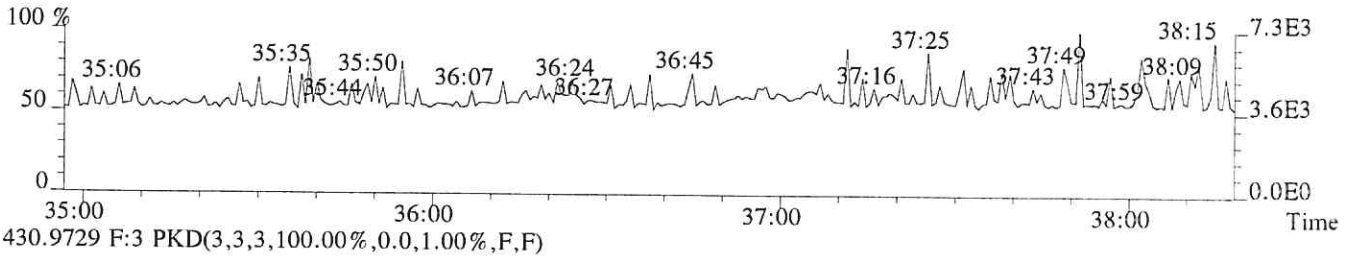
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



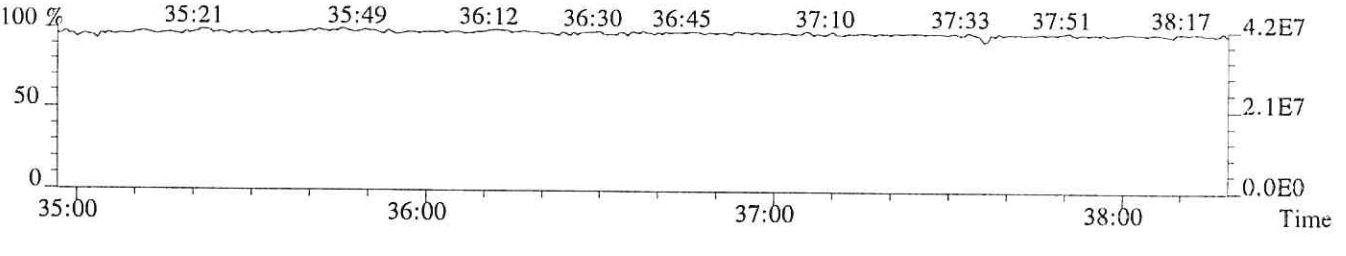
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



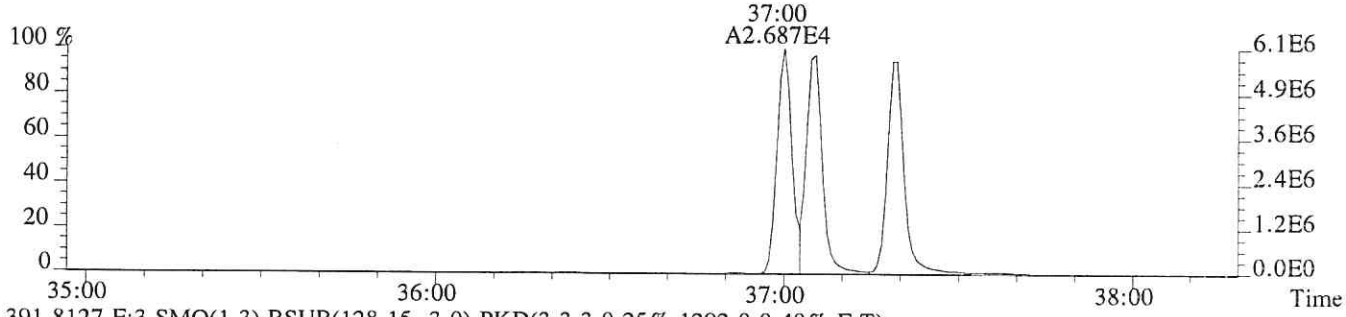
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



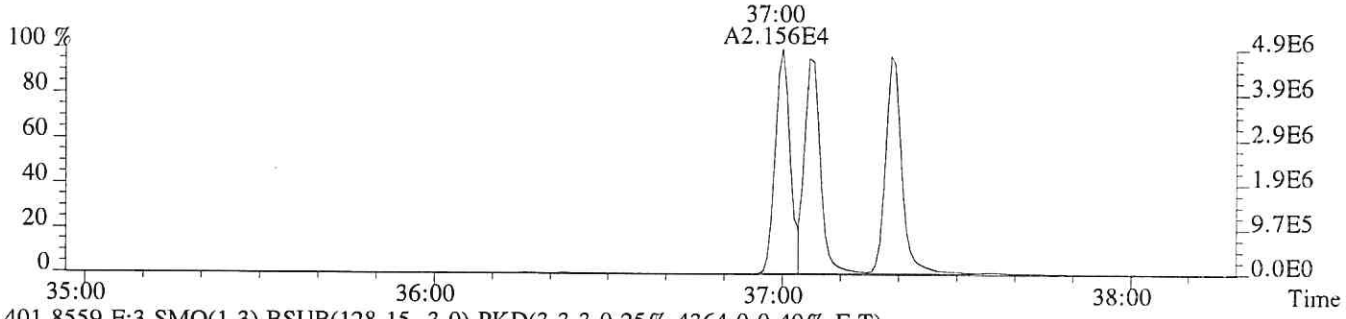
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



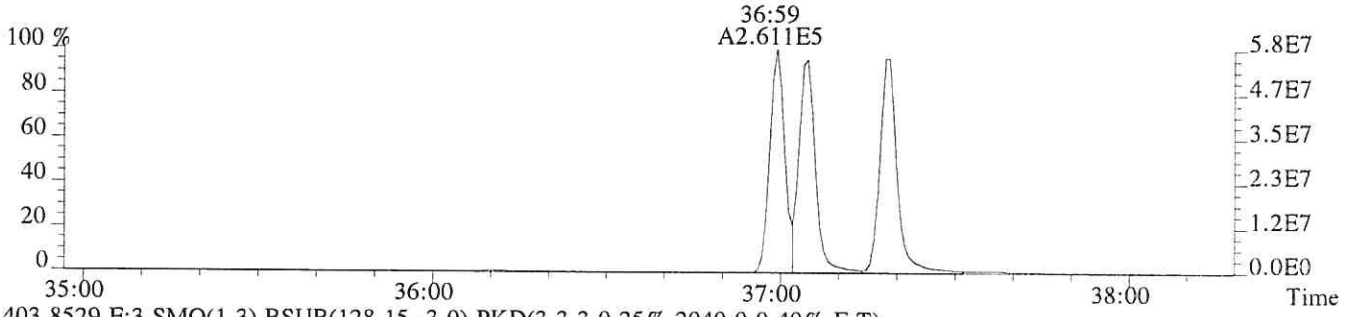
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



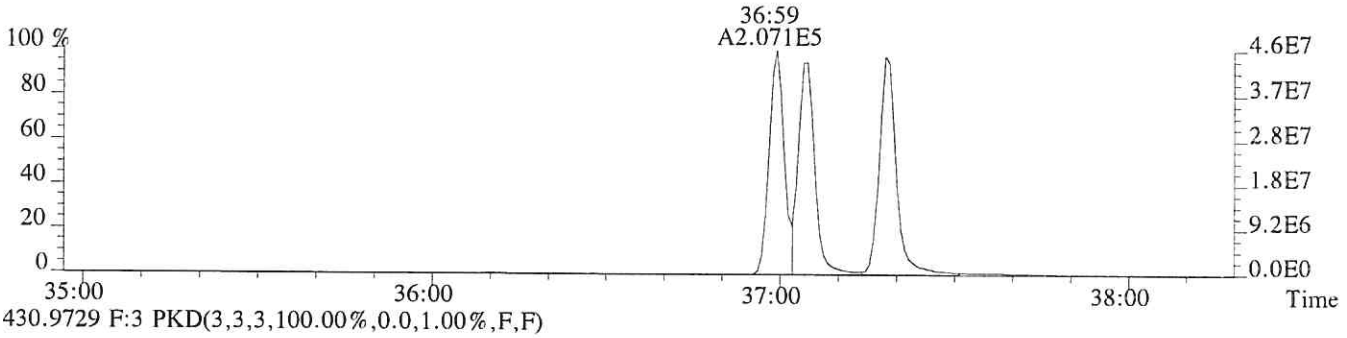
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



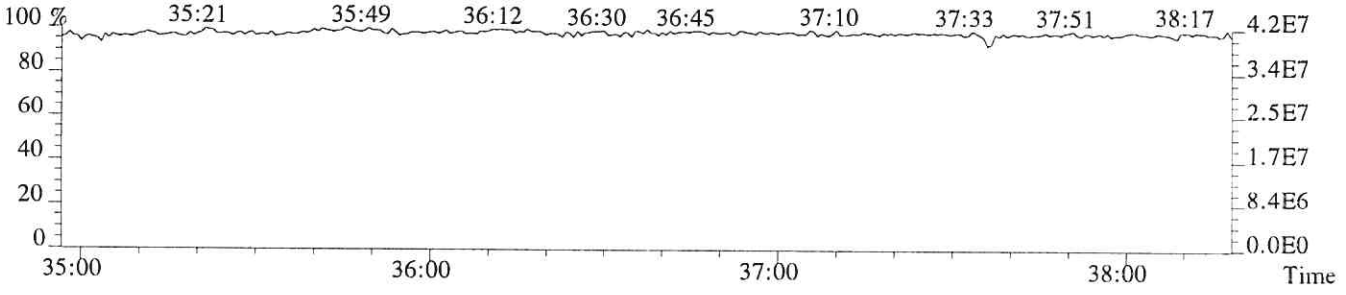
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



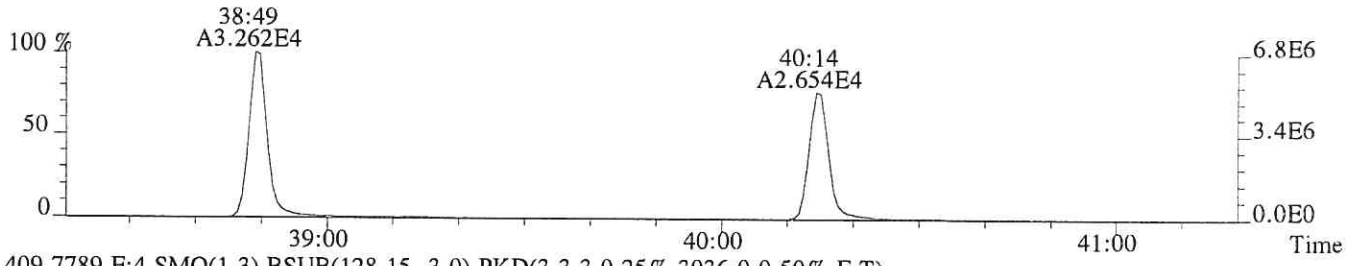
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



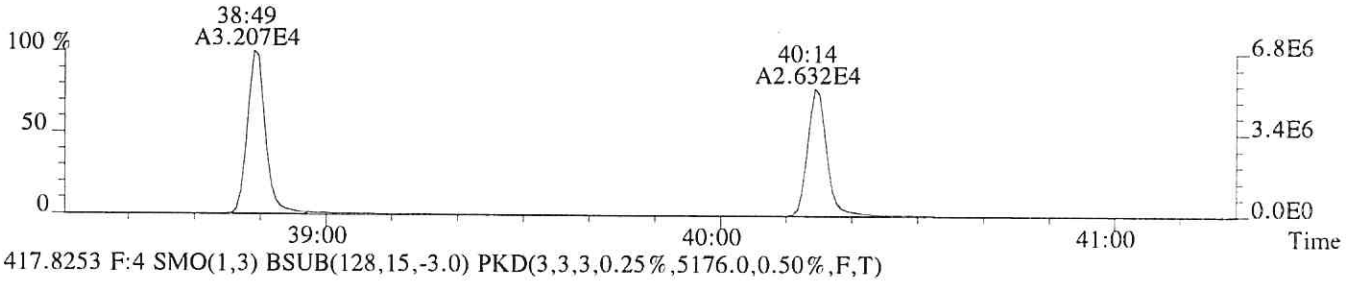
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



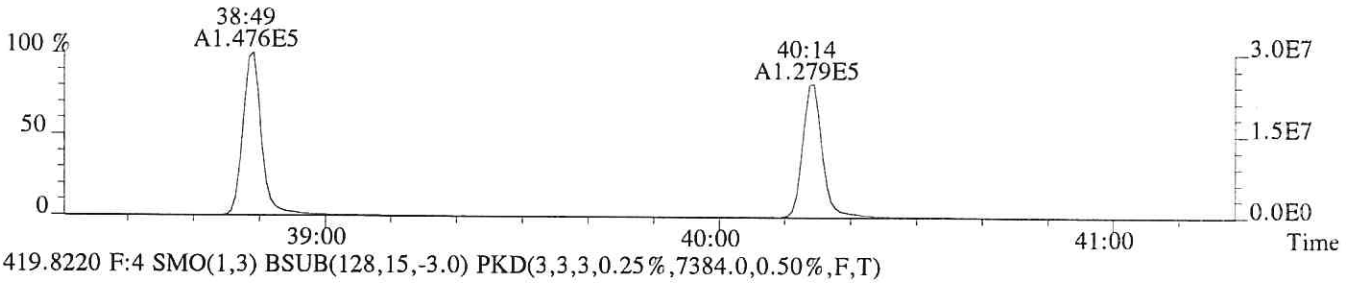
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



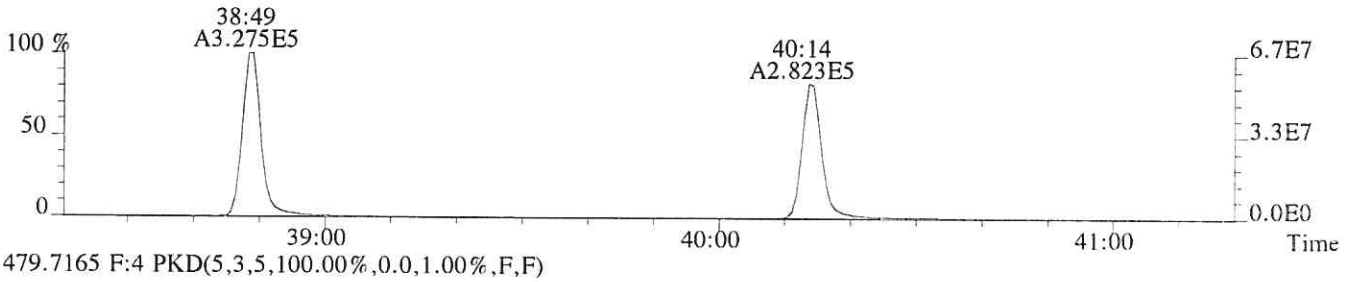
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



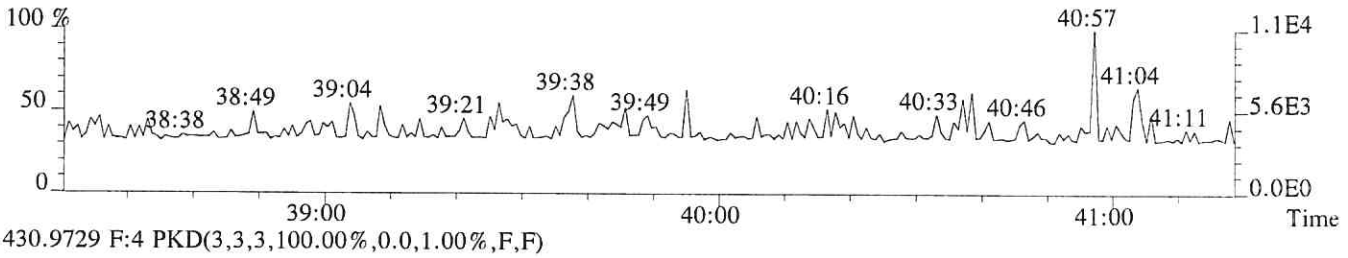
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



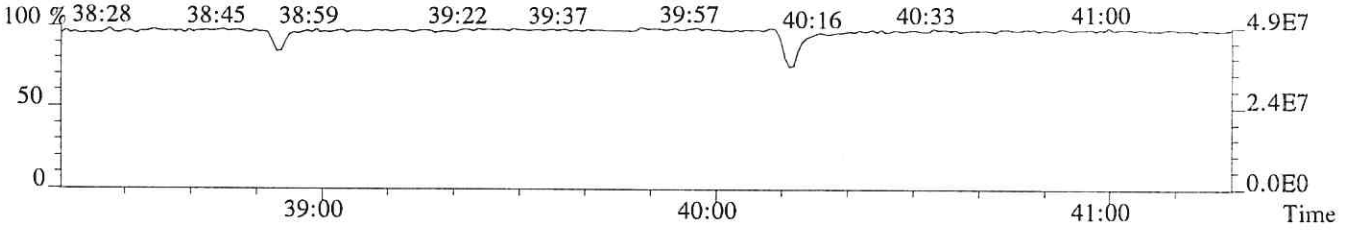
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



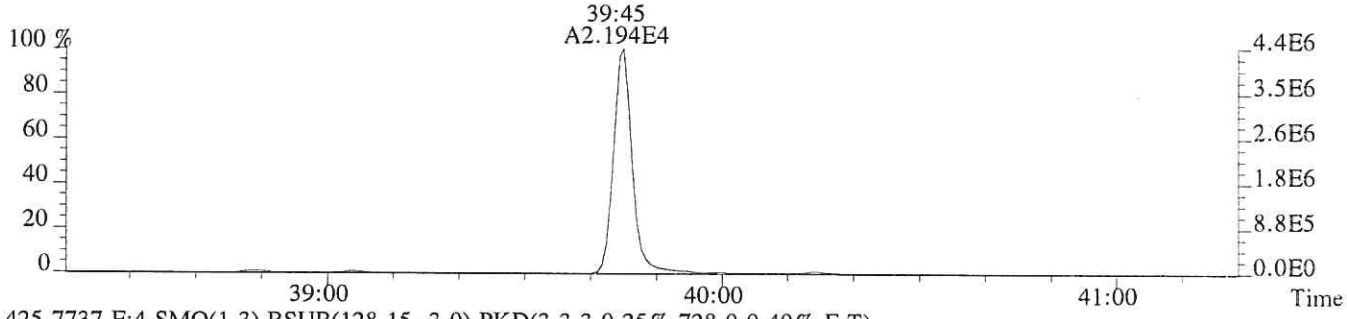
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



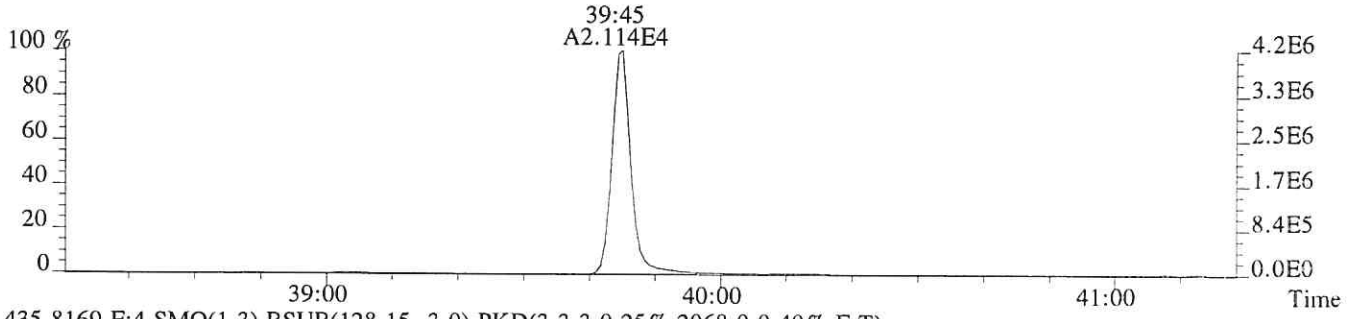
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



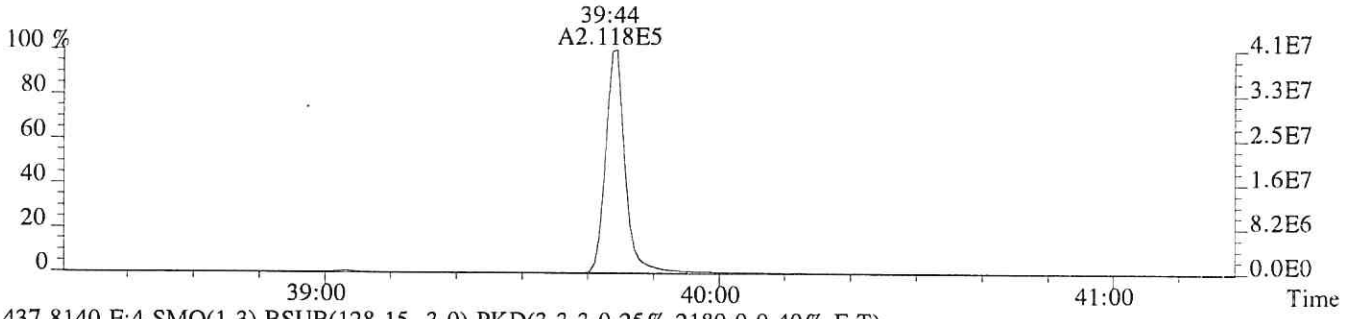
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



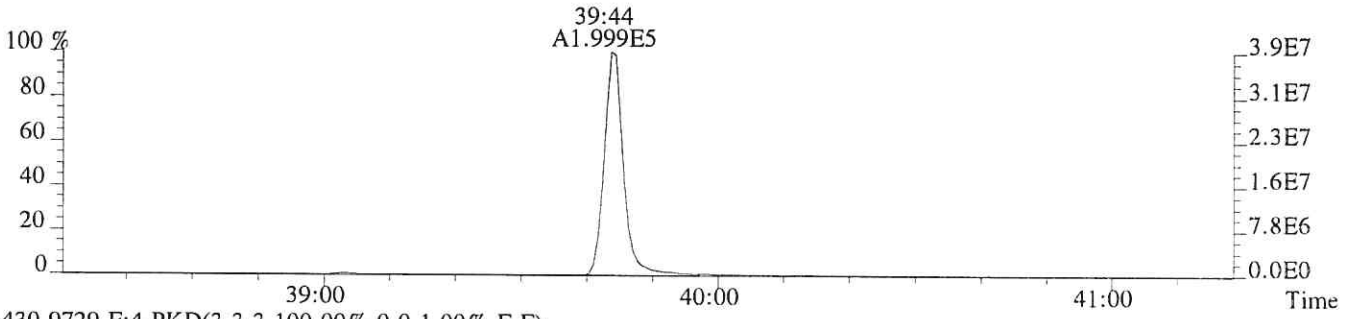
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



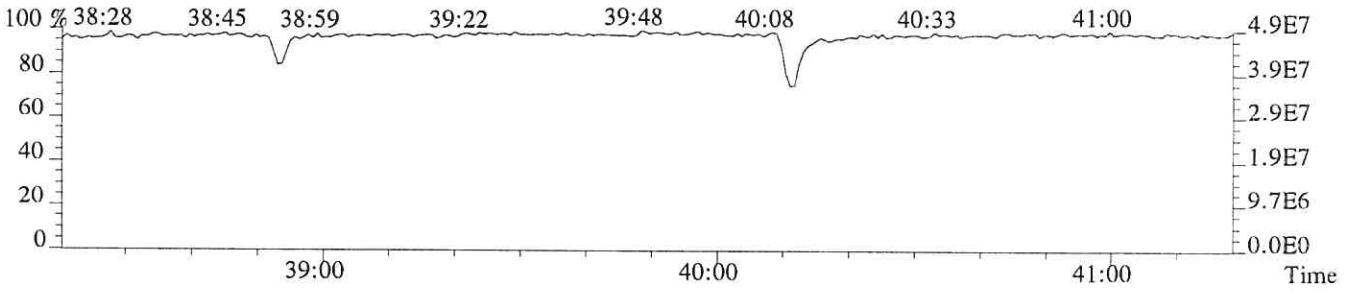
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



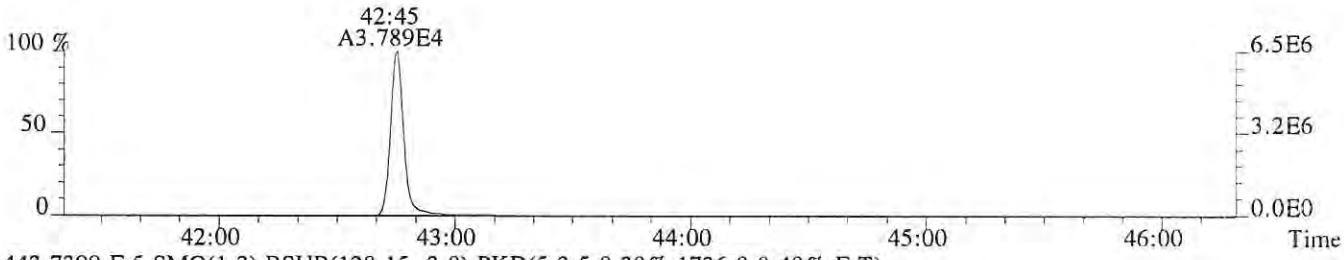
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



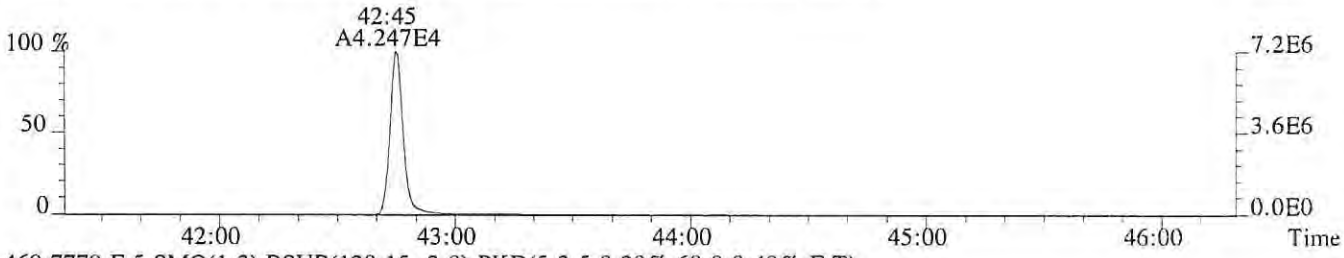
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



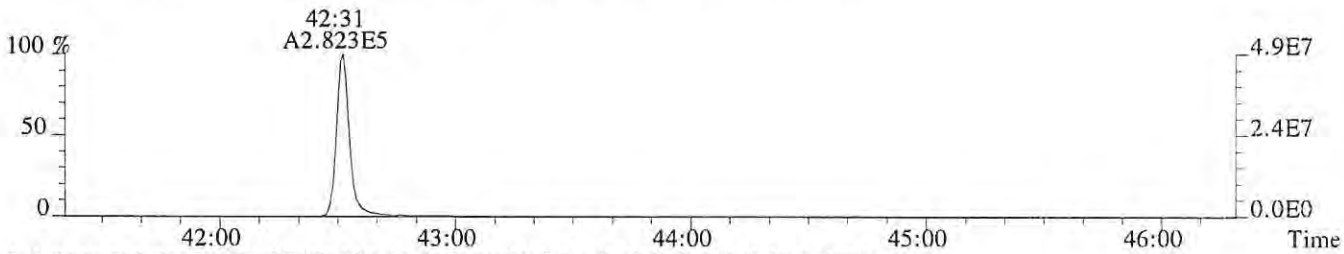
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



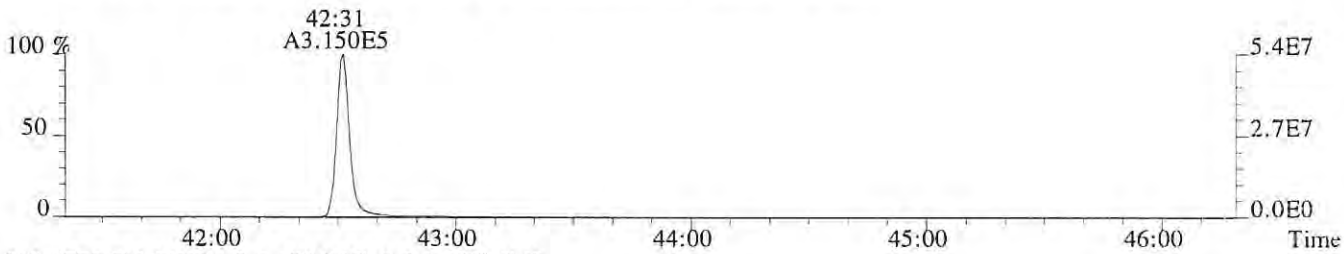
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



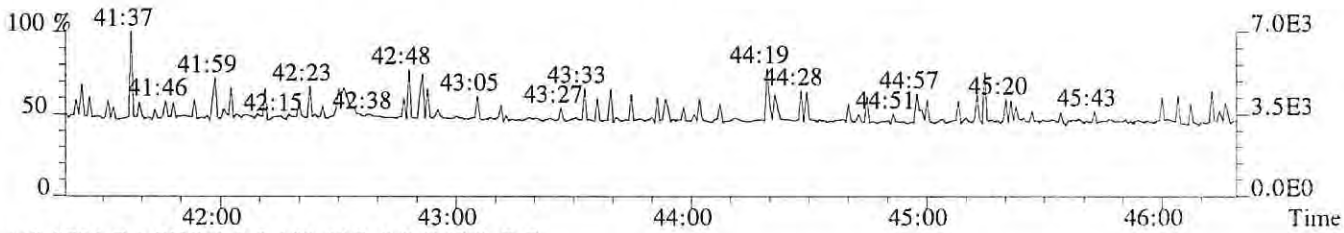
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



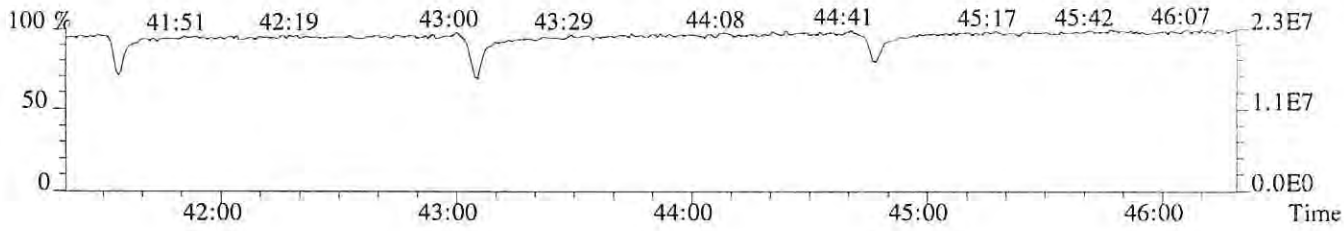
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



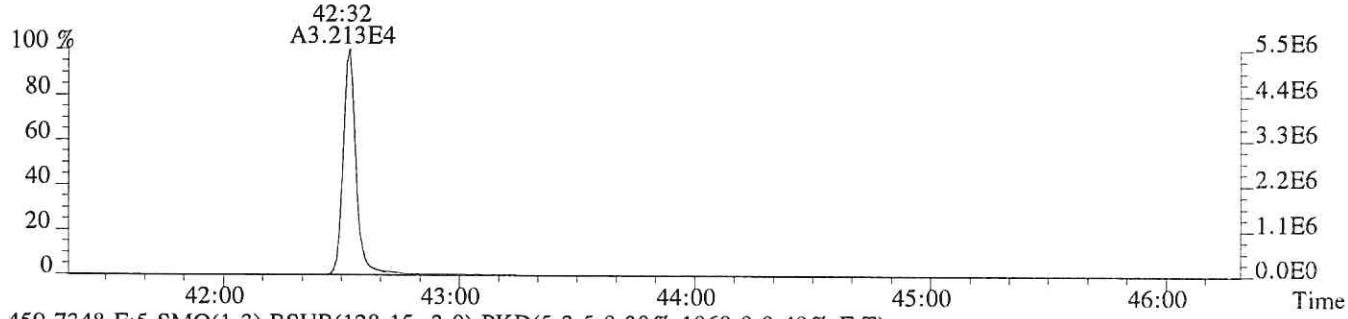
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



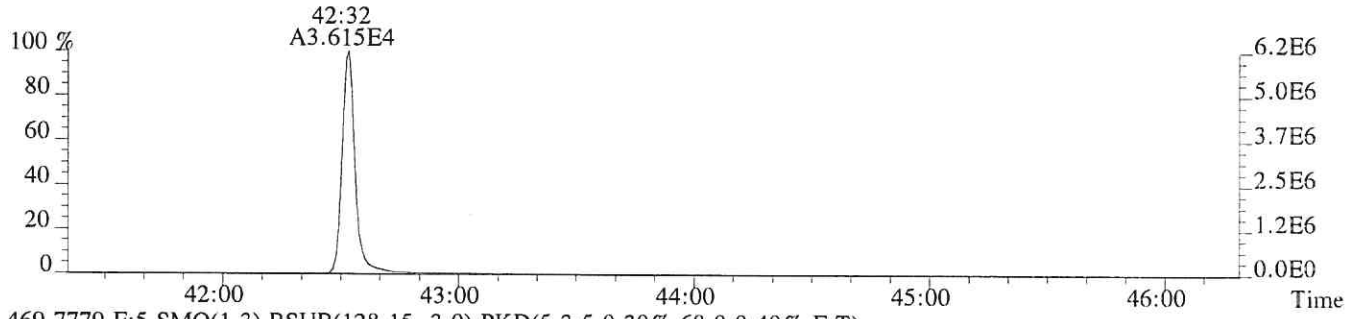
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



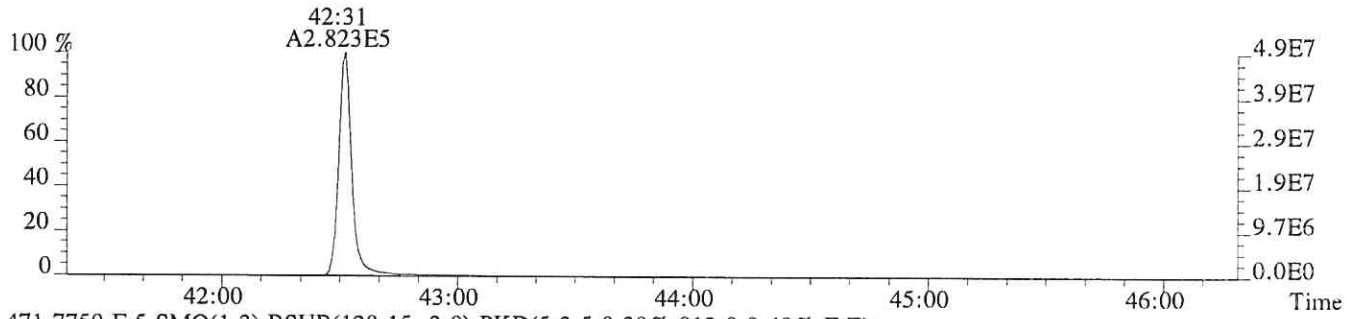
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



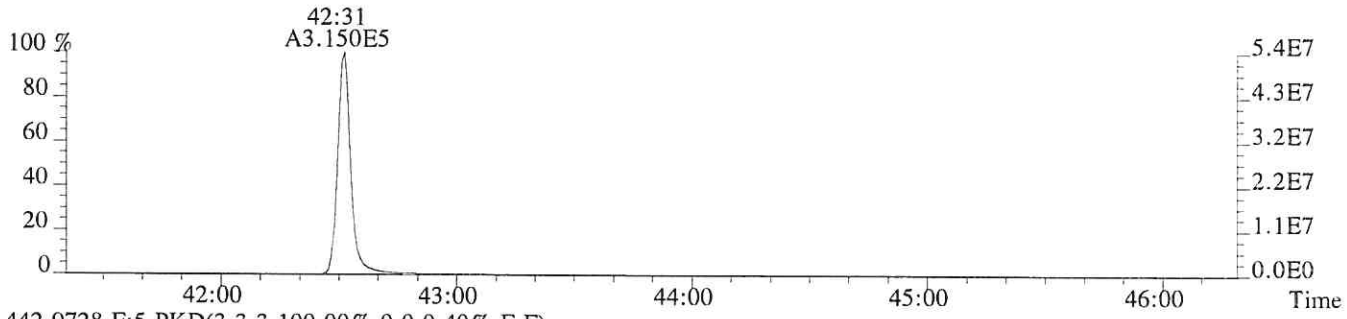
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



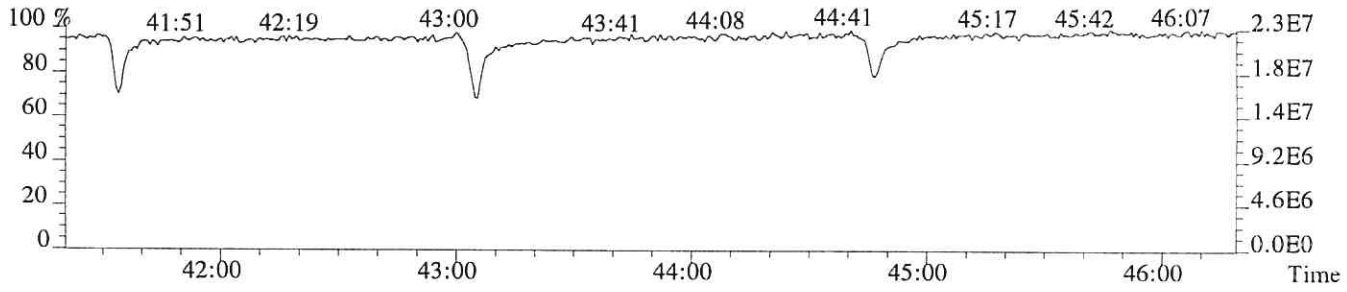
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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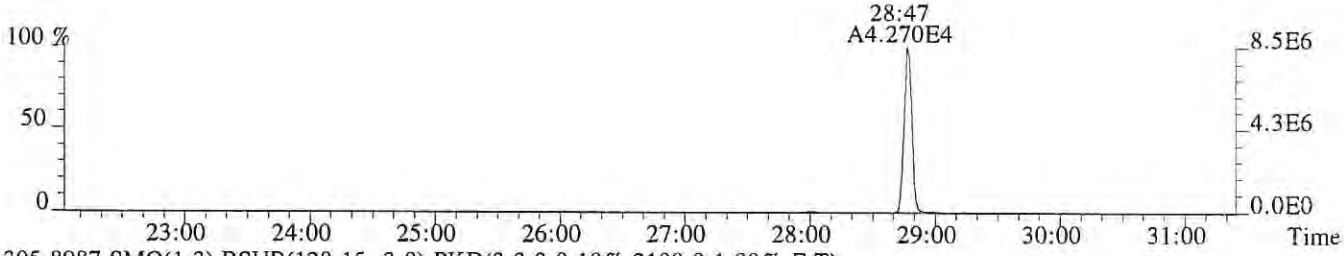
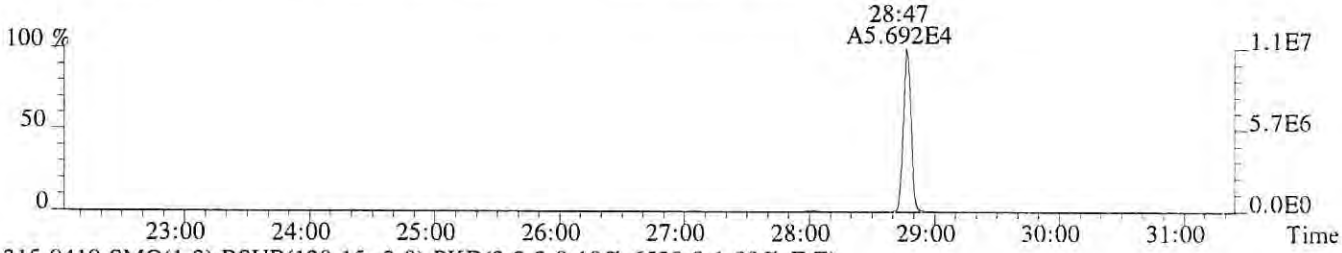
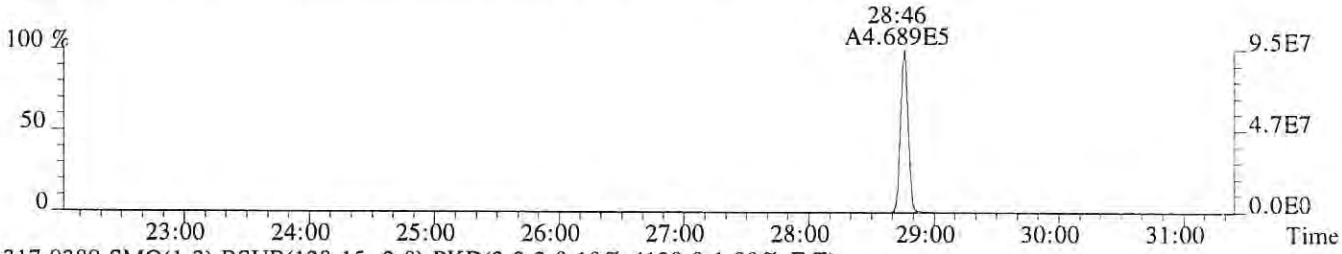
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



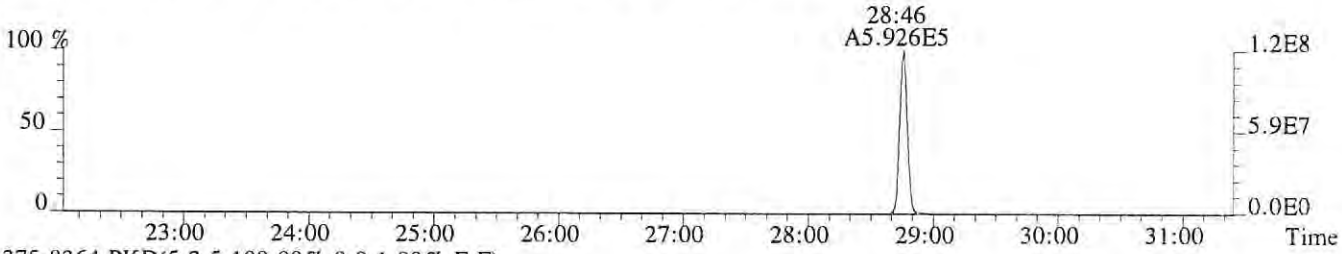
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



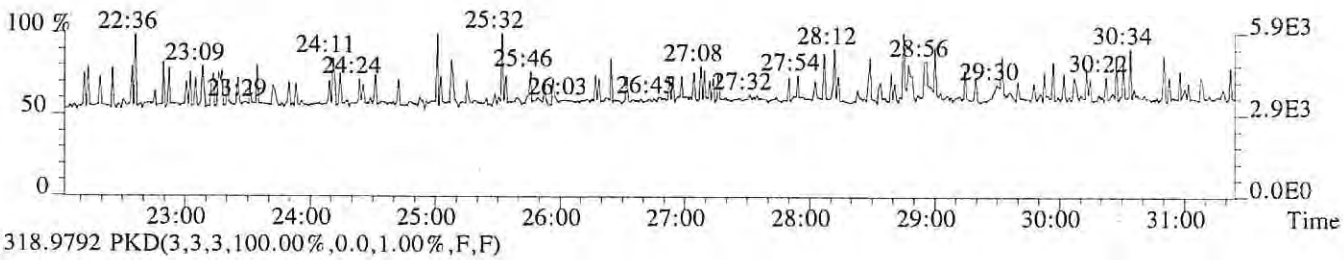
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



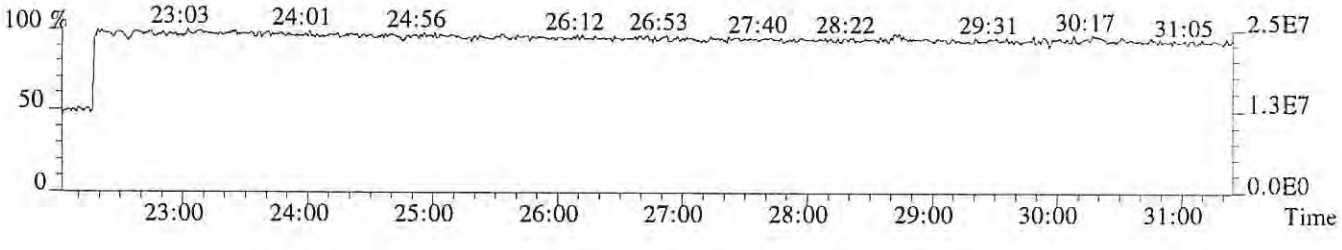
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



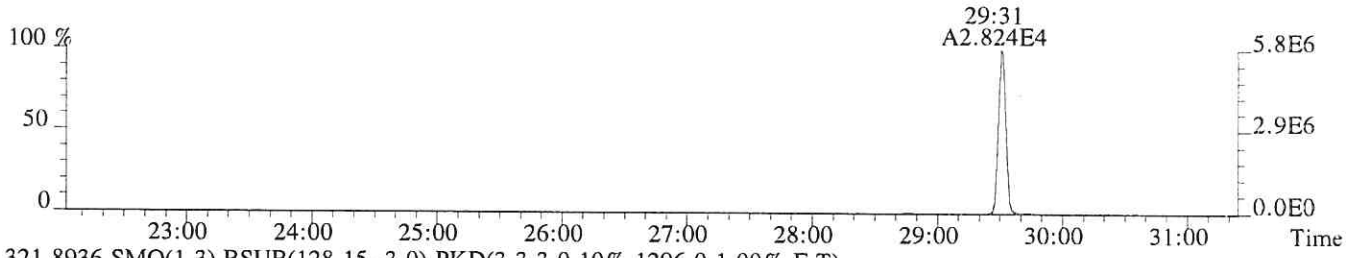
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



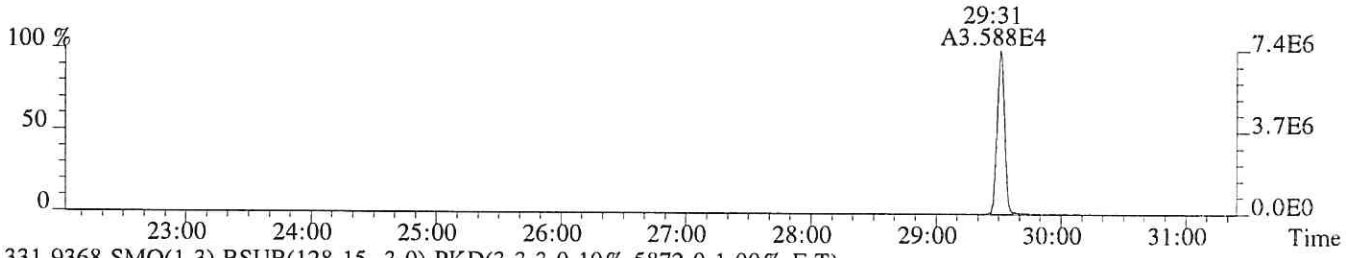
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



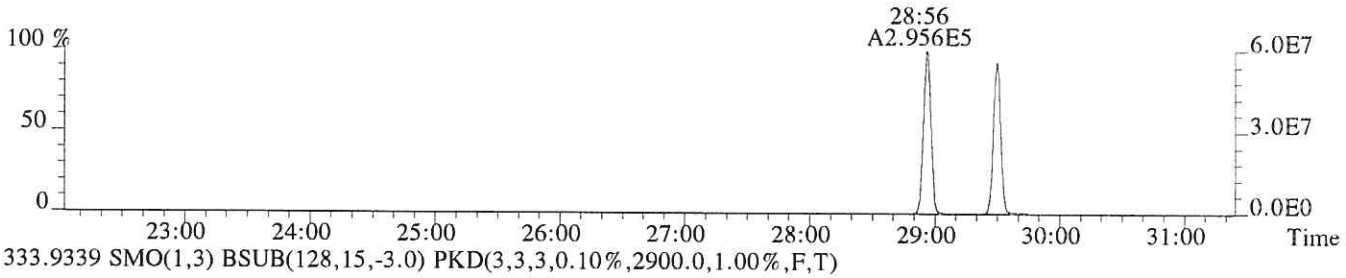
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



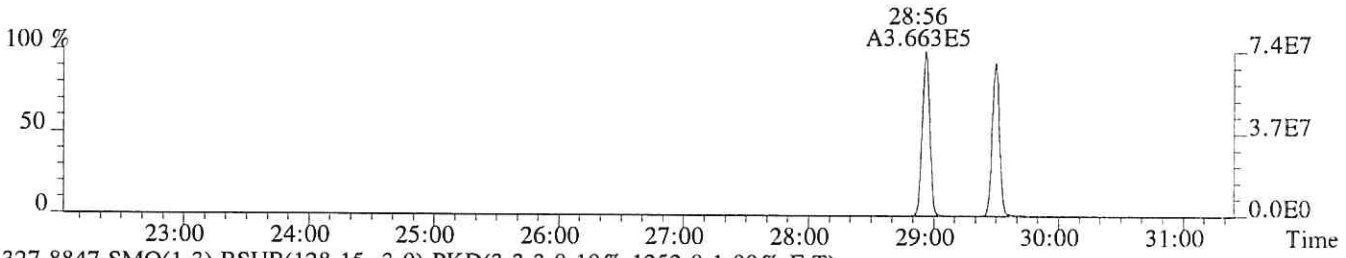
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



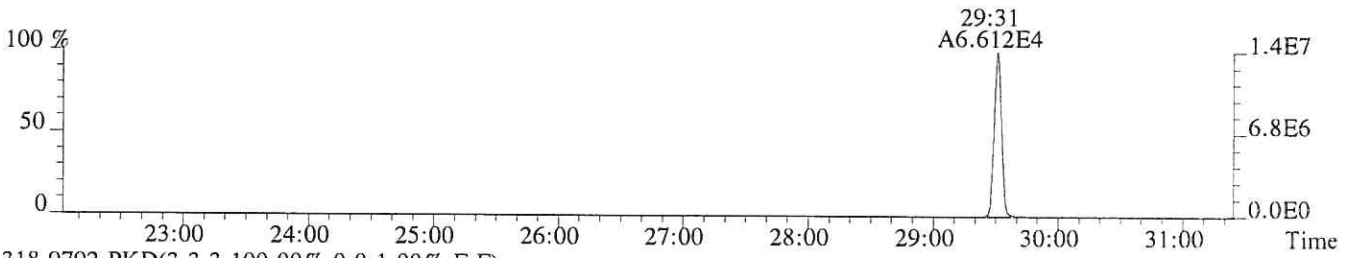
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



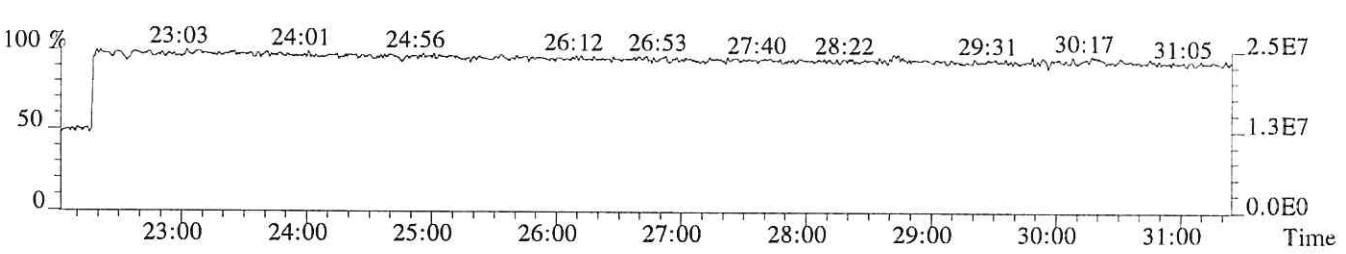
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



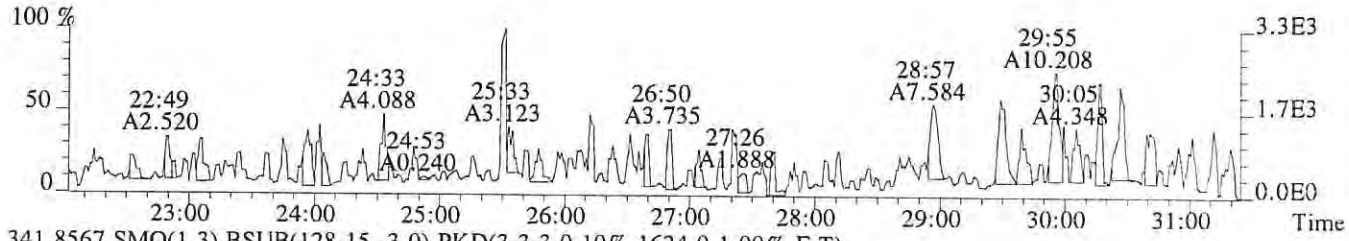
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



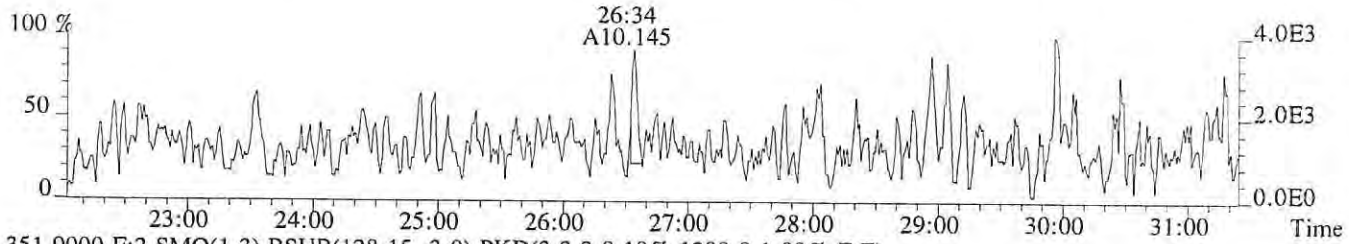
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



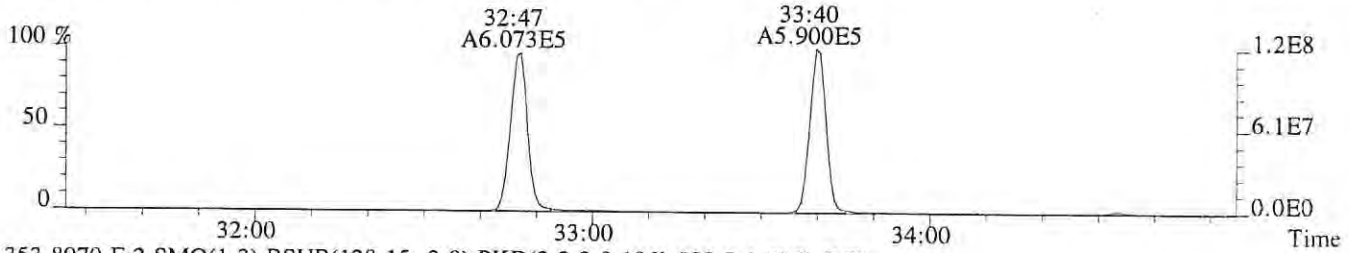
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



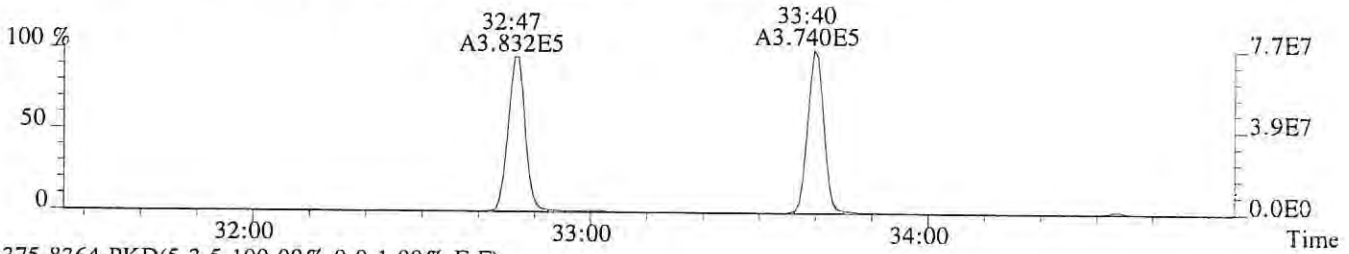
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



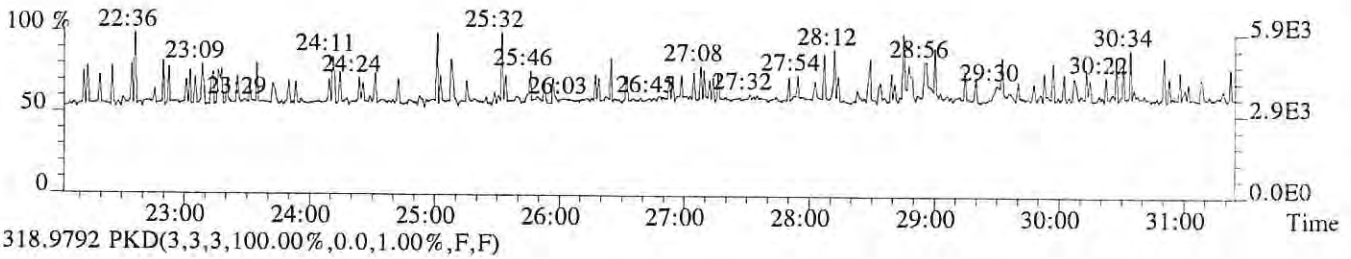
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



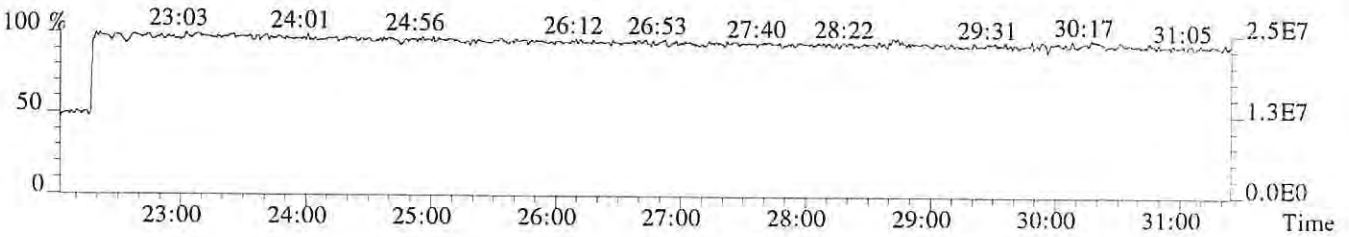
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



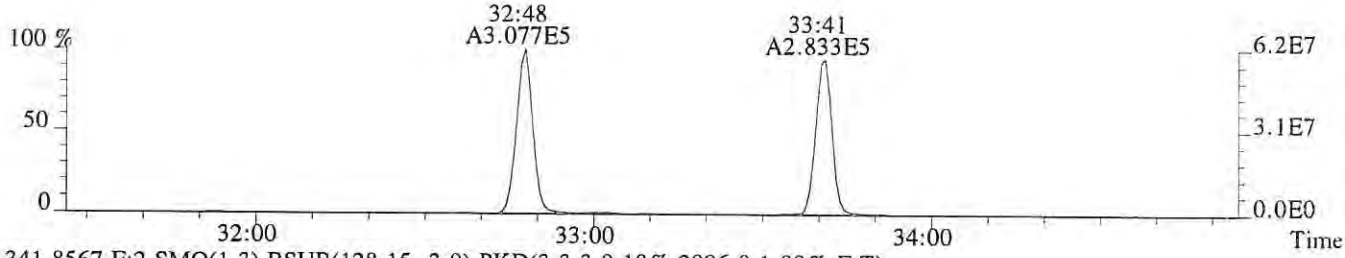
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



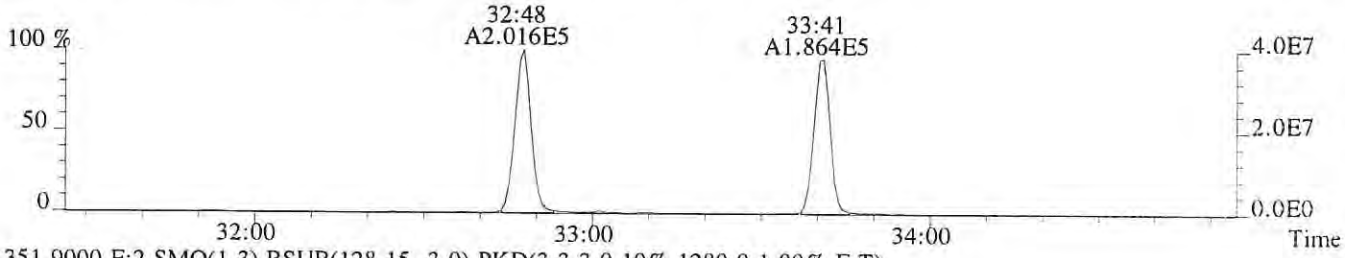
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



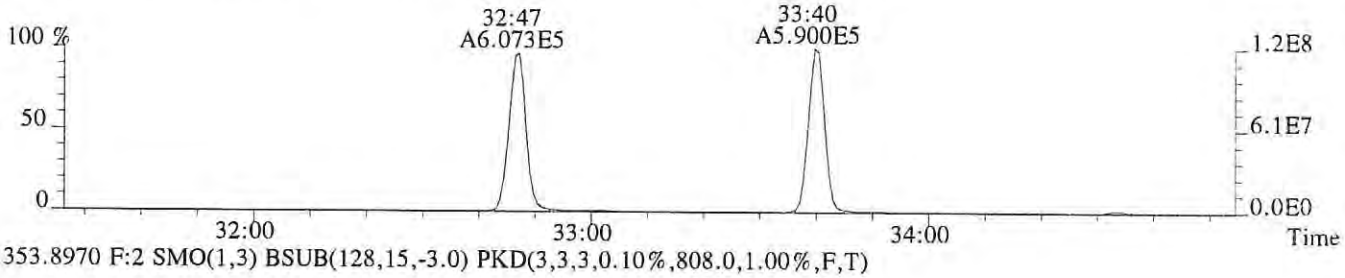
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



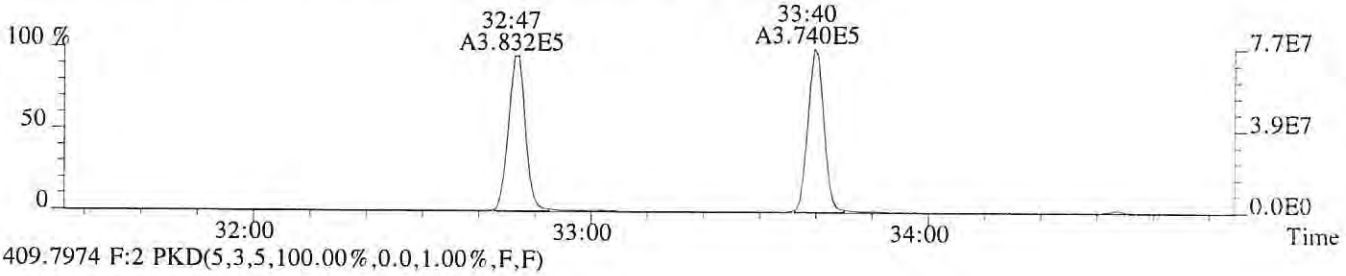
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



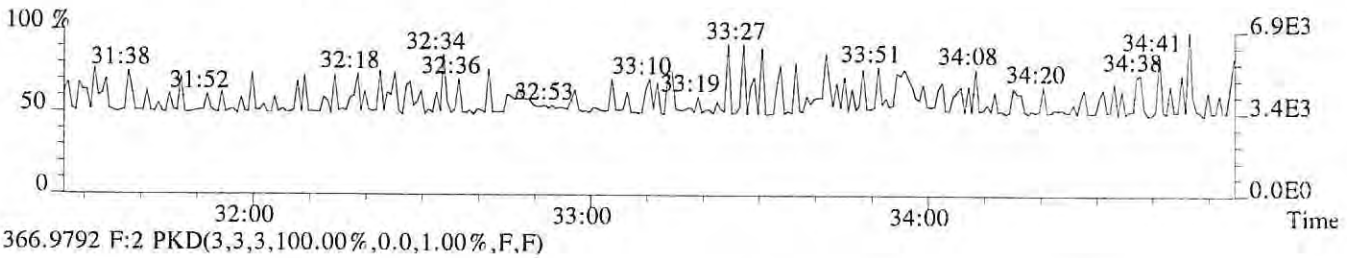
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



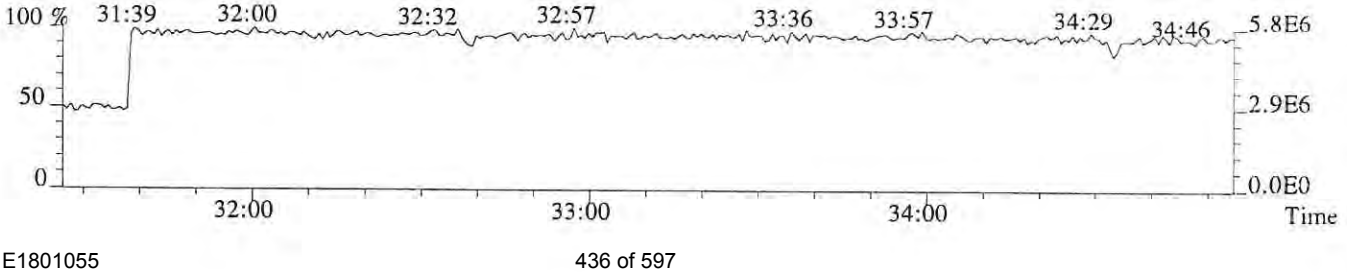
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



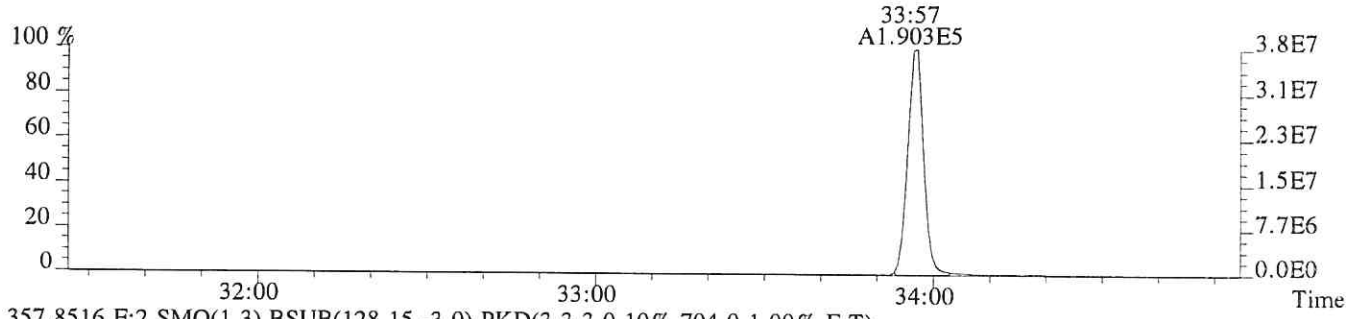
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



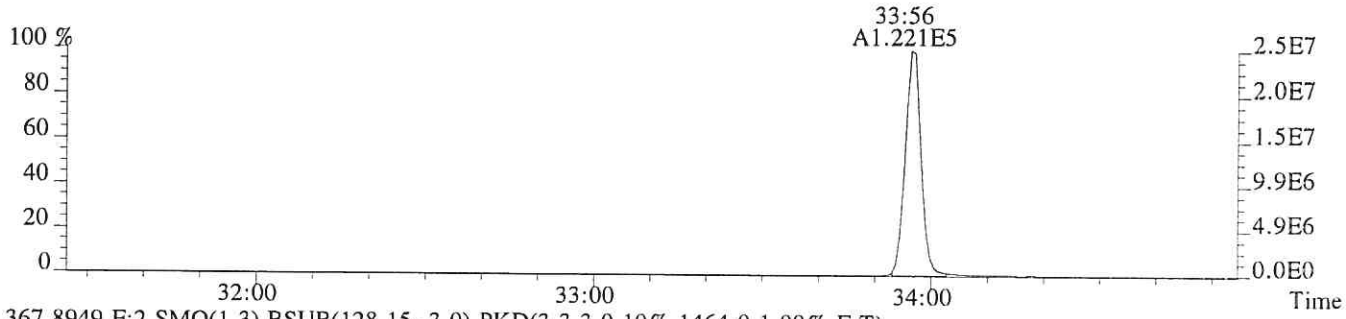
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



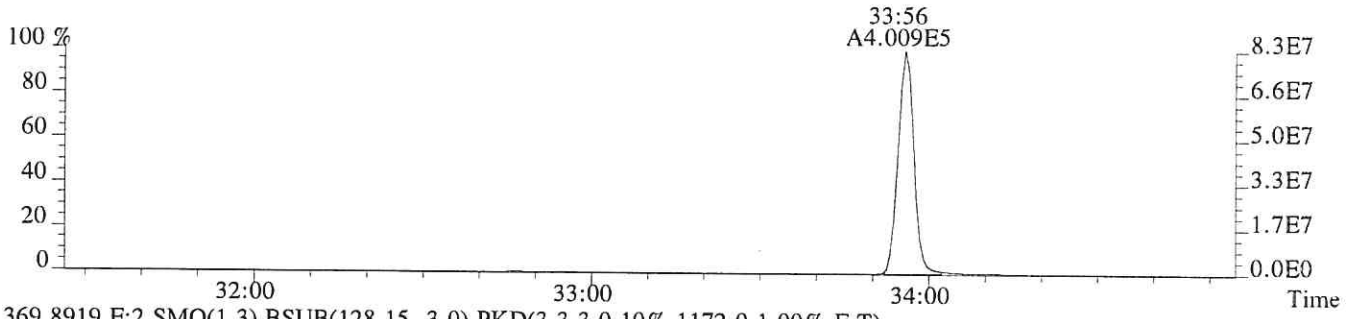
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



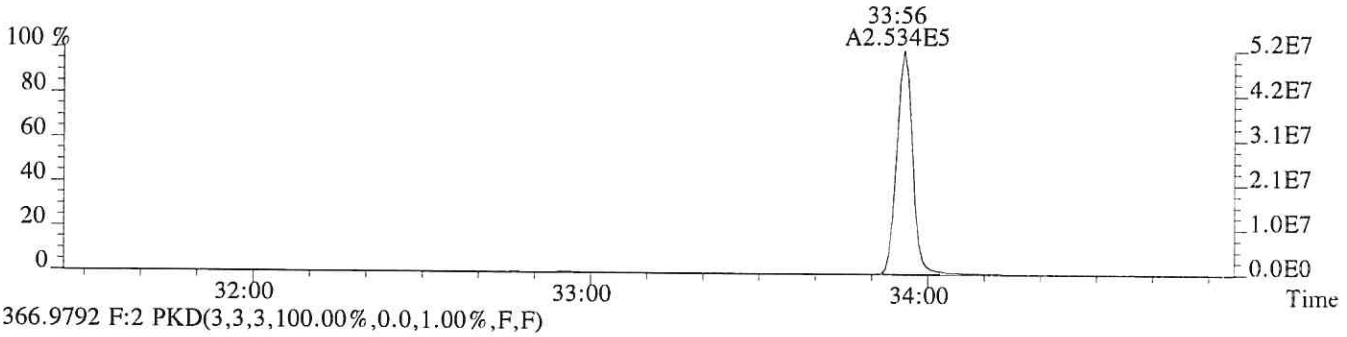
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



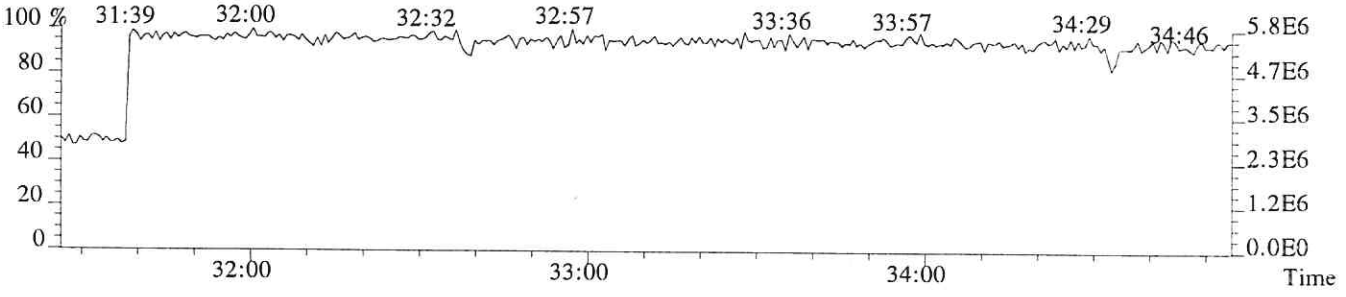
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



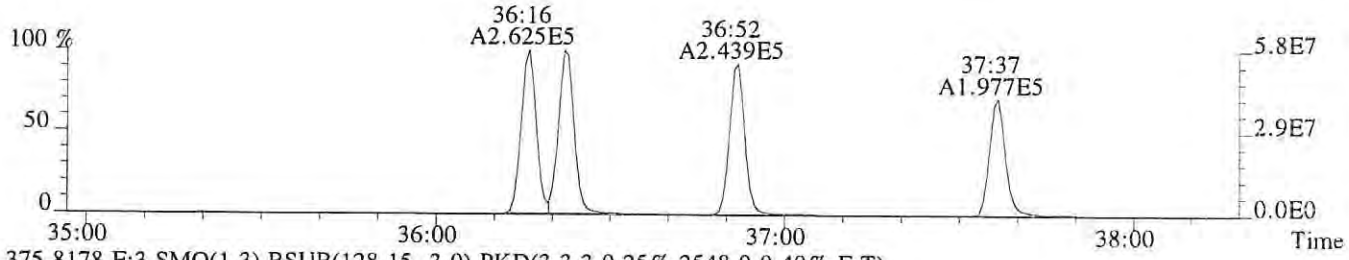
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



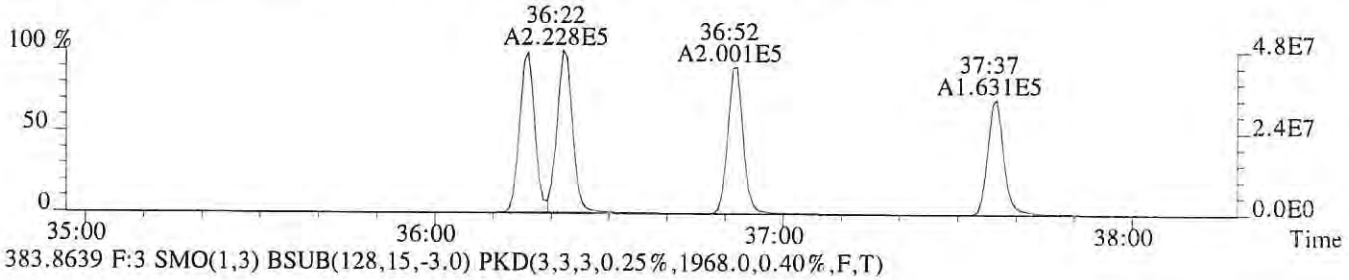
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



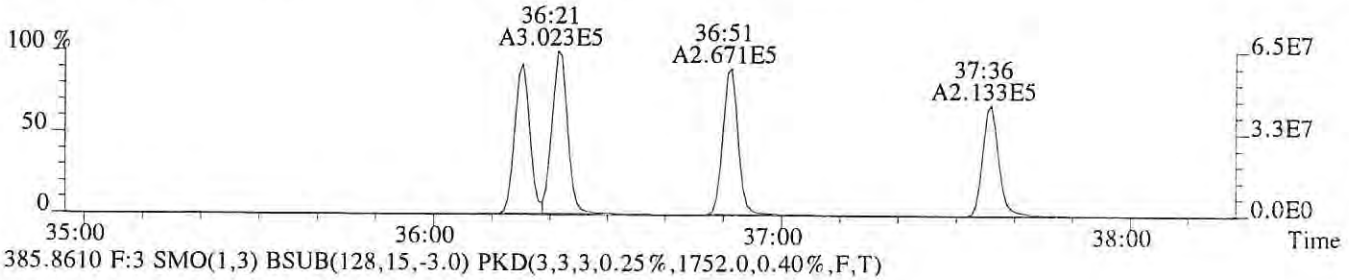
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



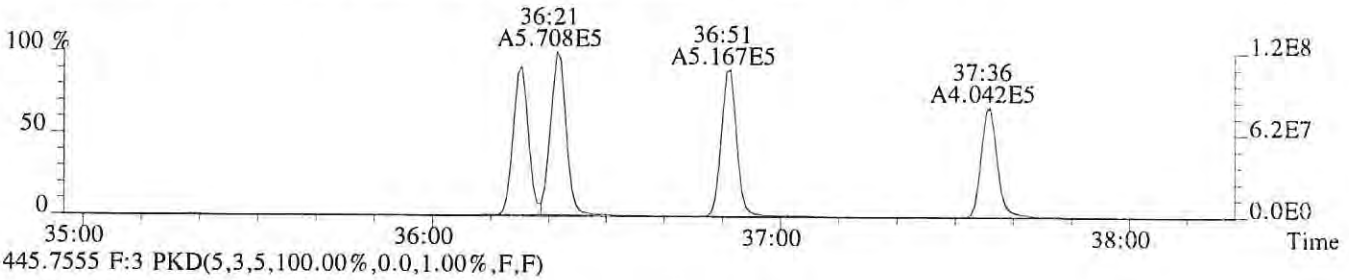
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



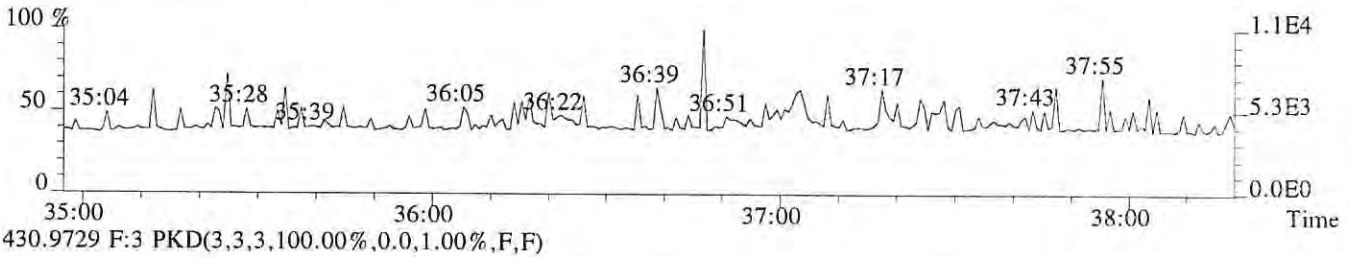
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



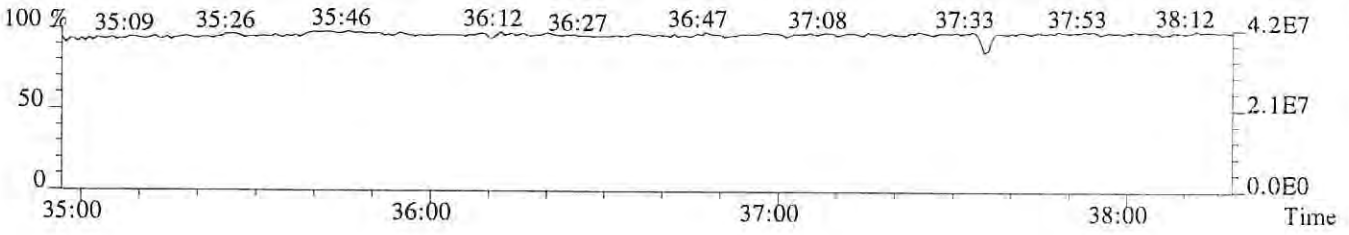
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



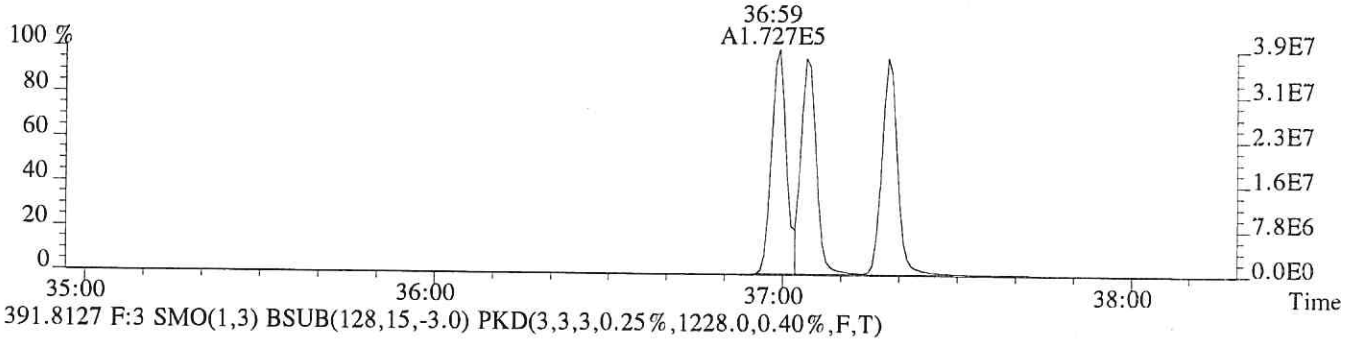
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



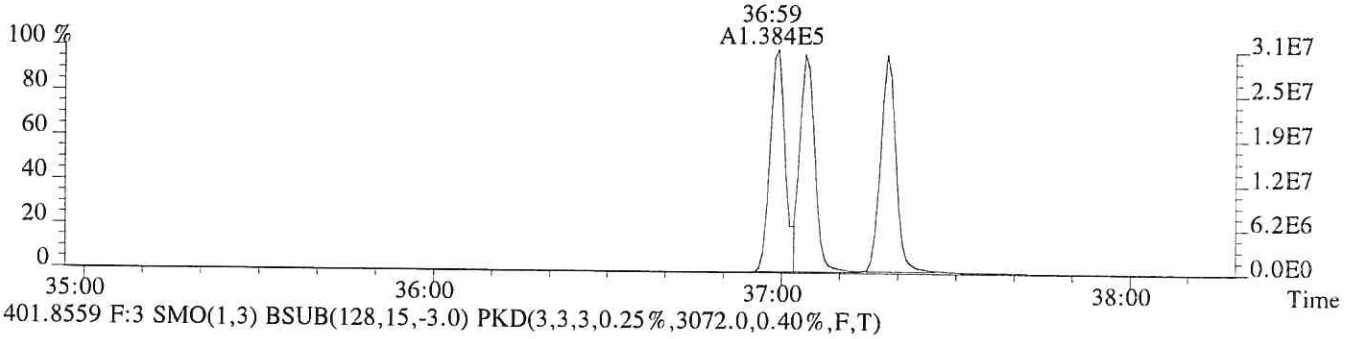
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



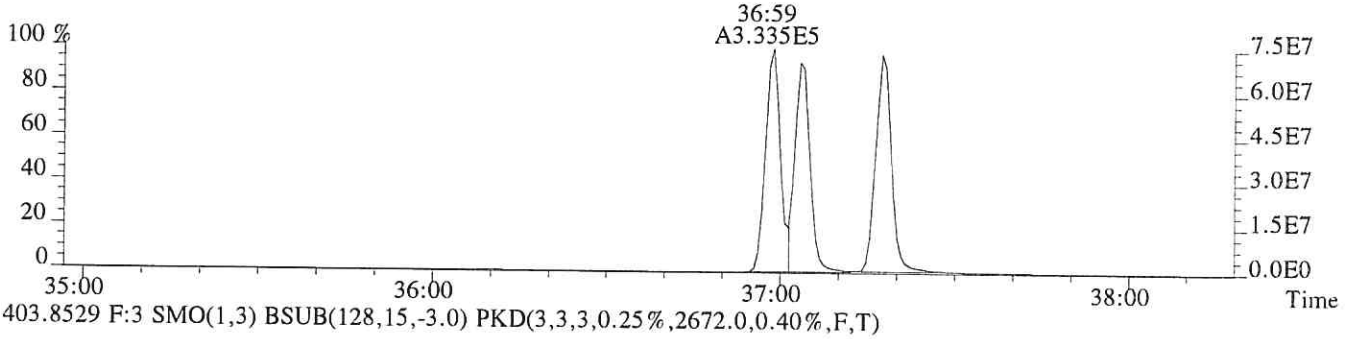
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



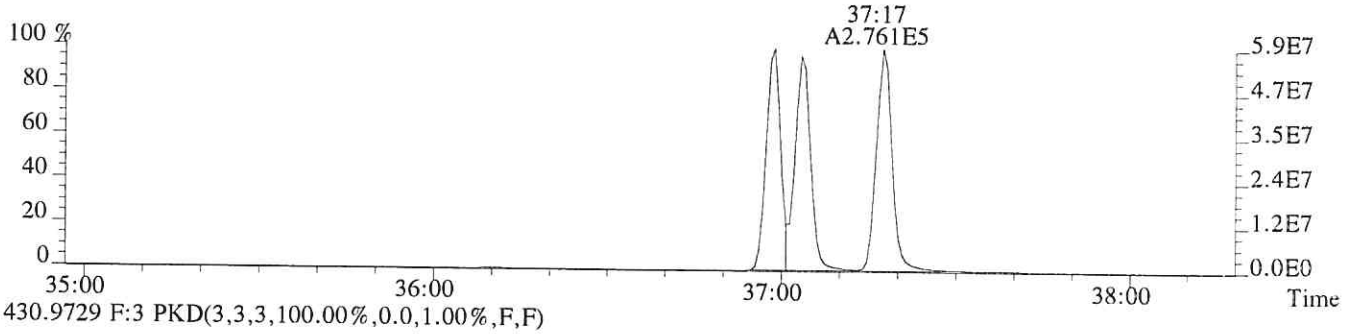
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



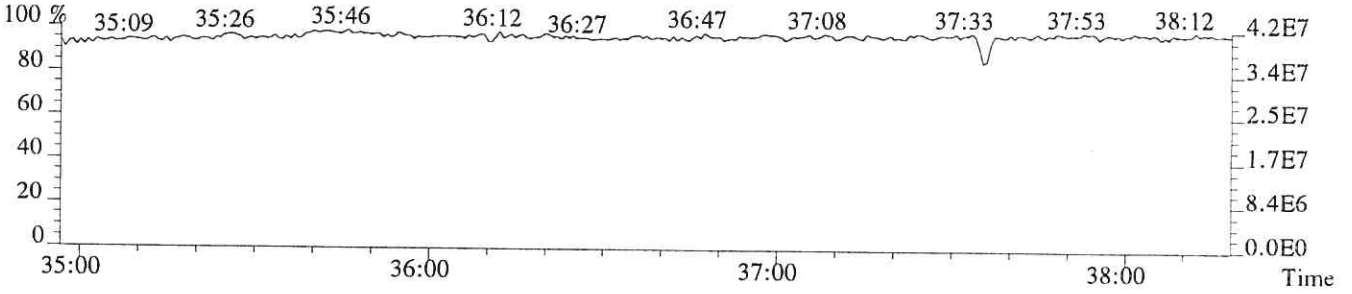
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



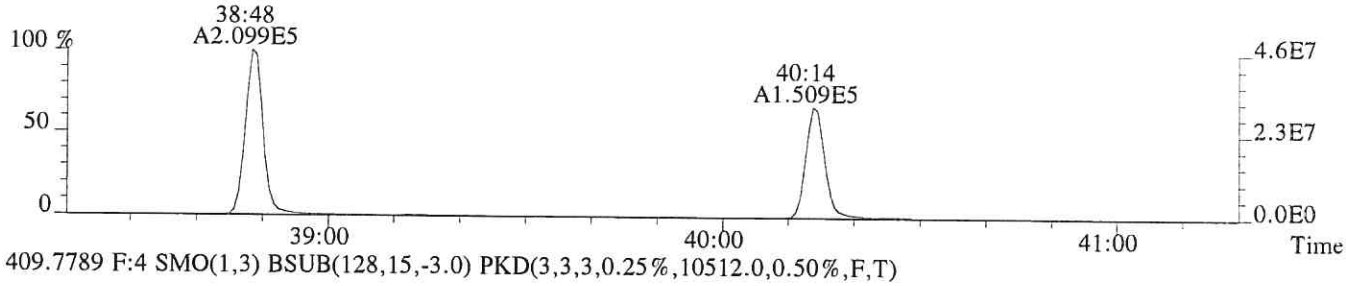
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)



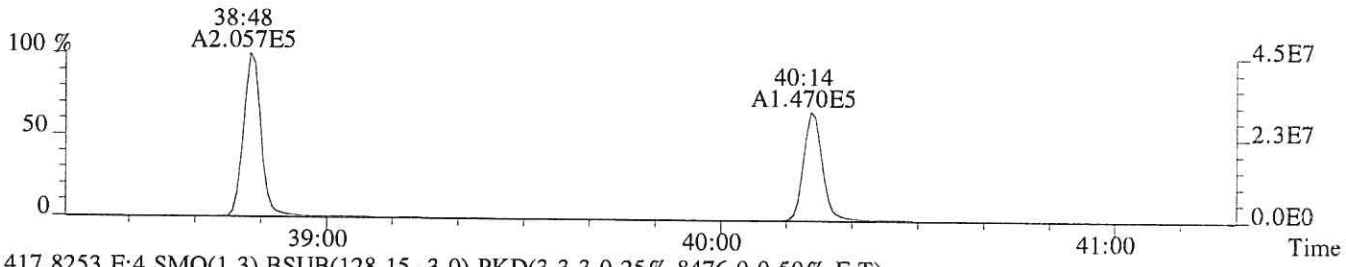
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



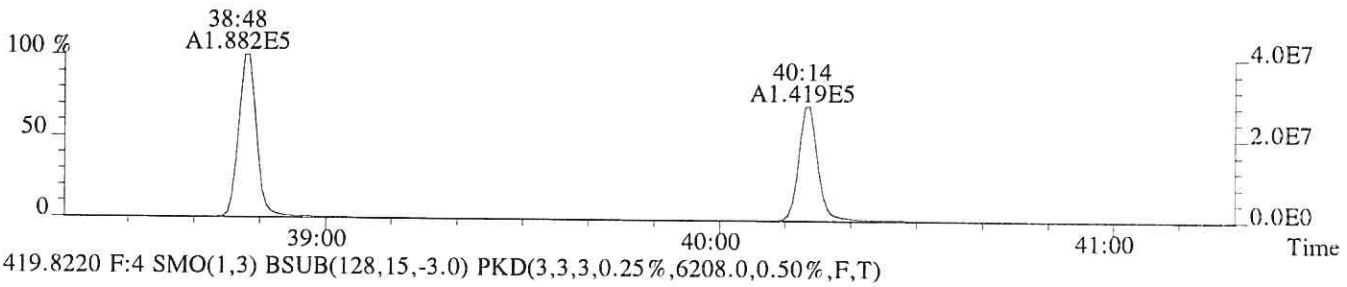
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



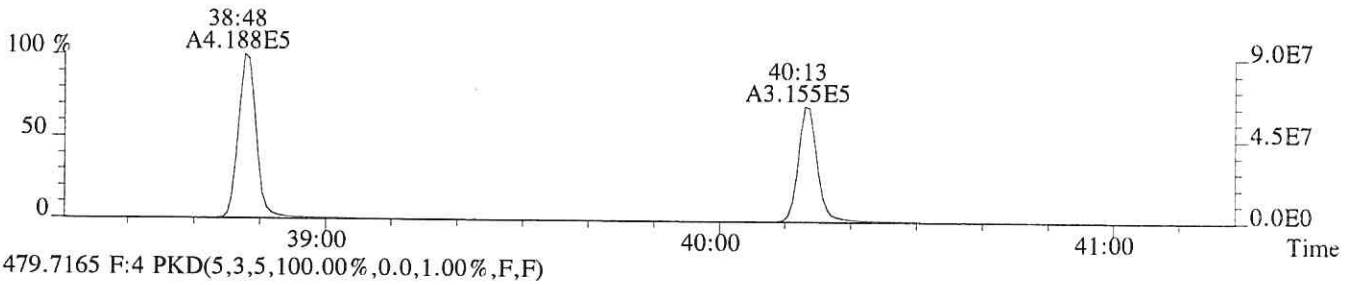
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



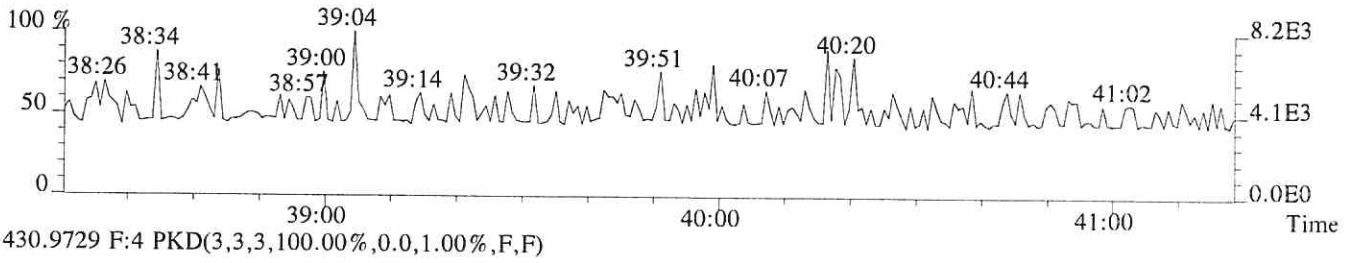
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



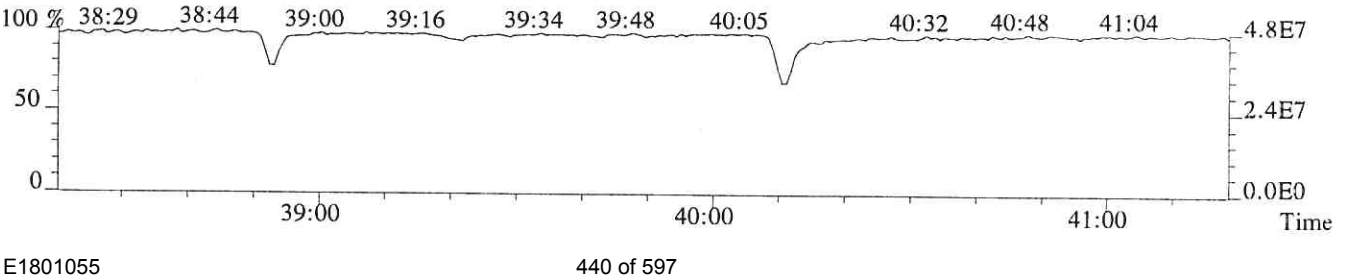
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



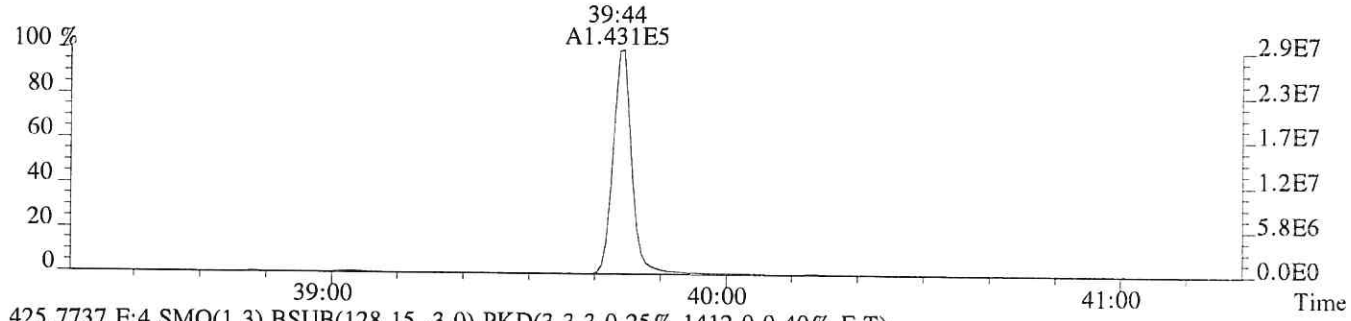
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



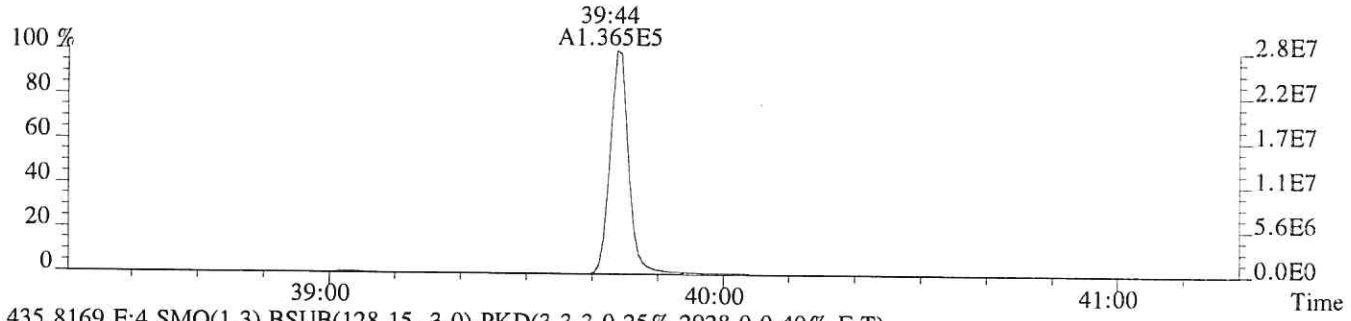
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



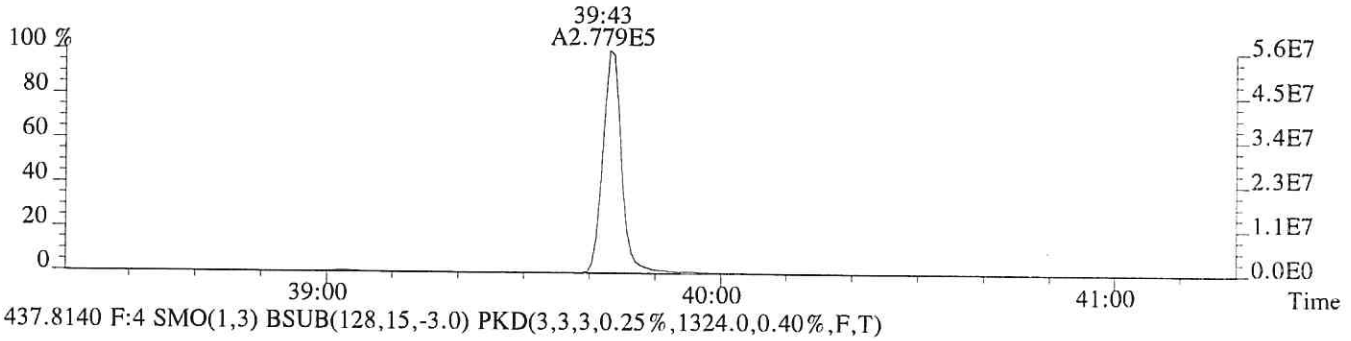
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



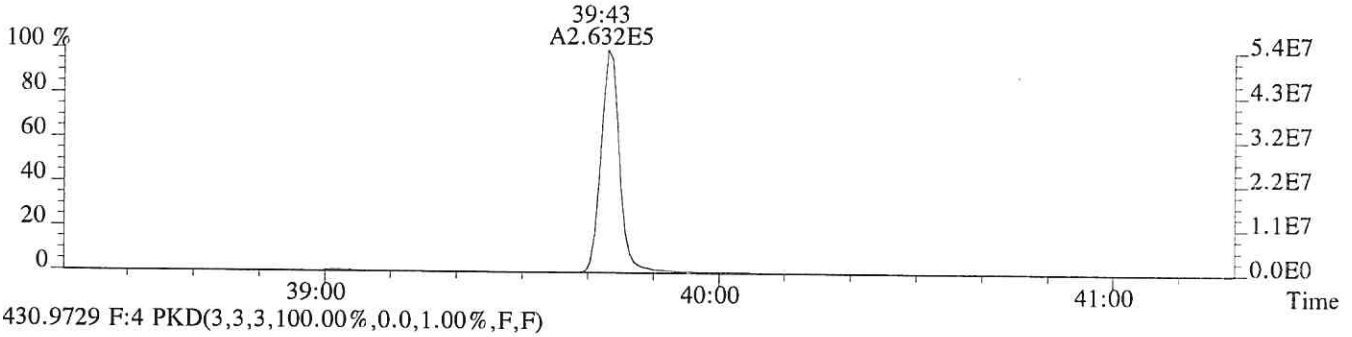
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



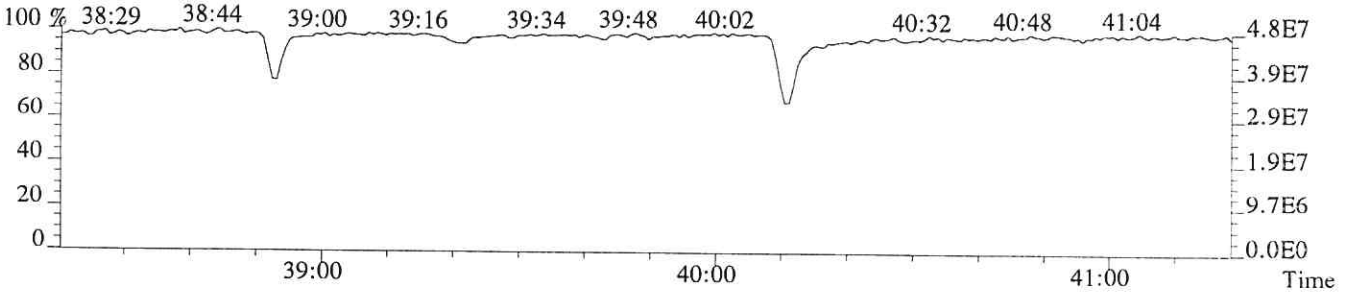
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



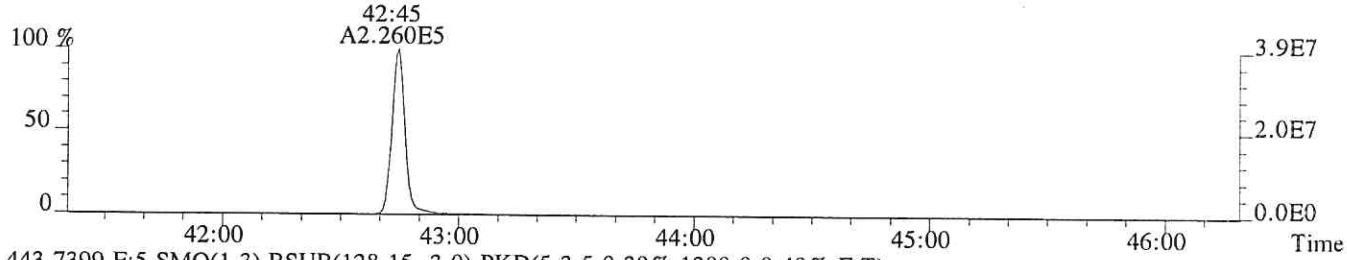
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



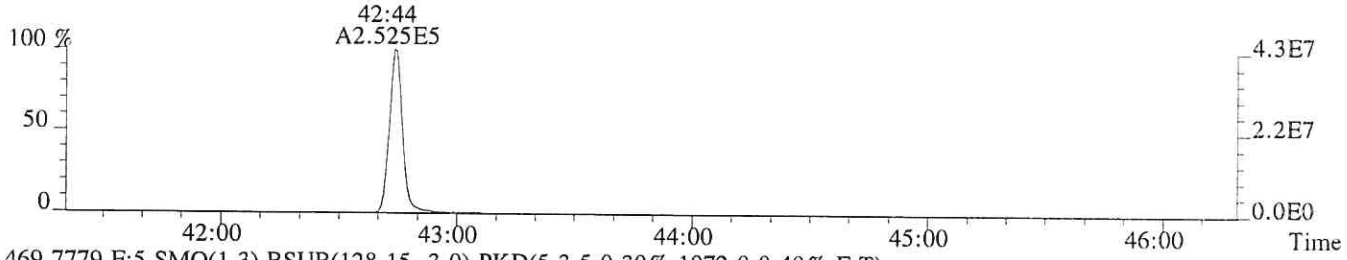
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



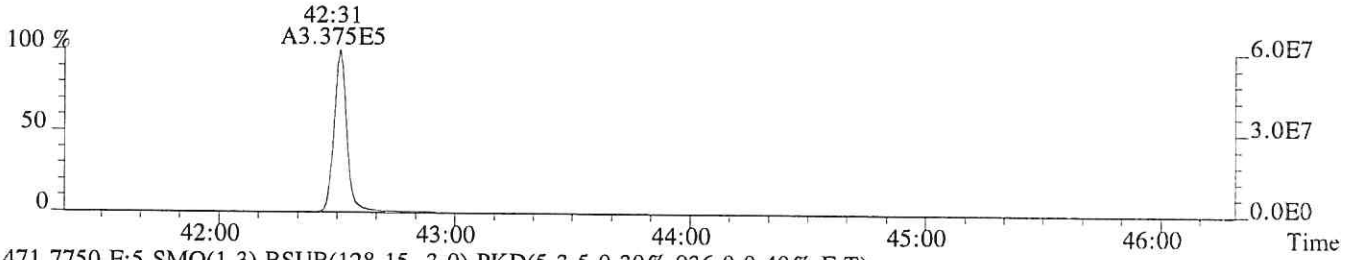
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



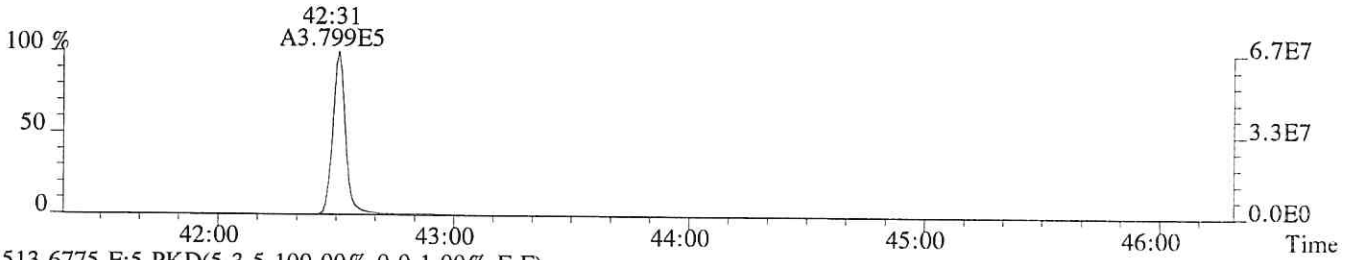
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



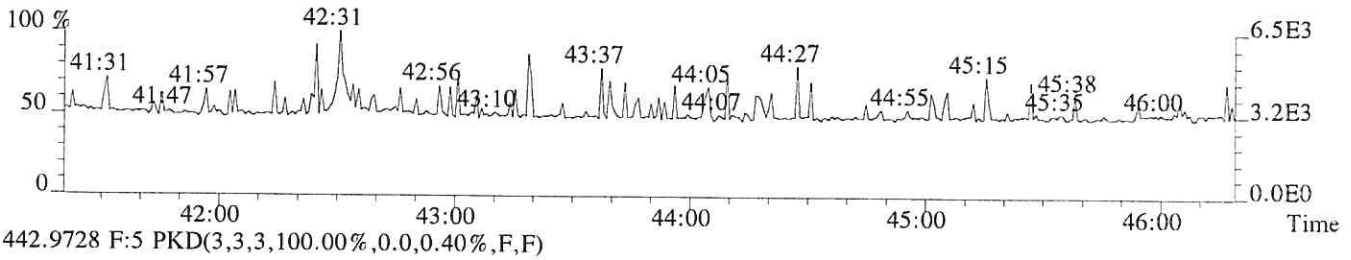
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



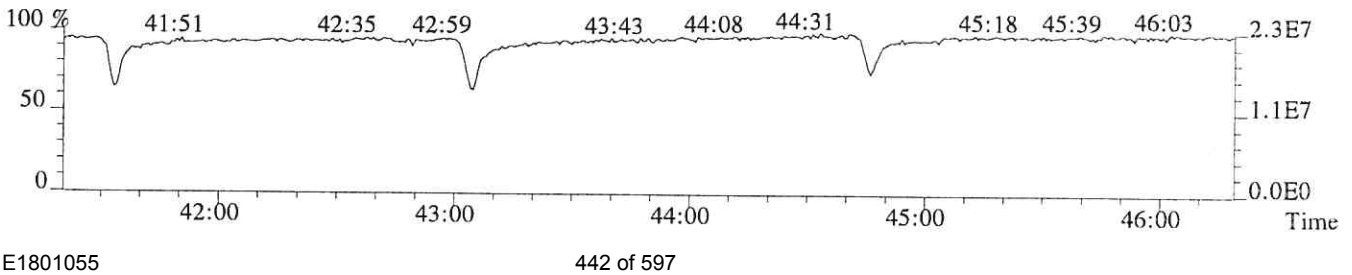
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



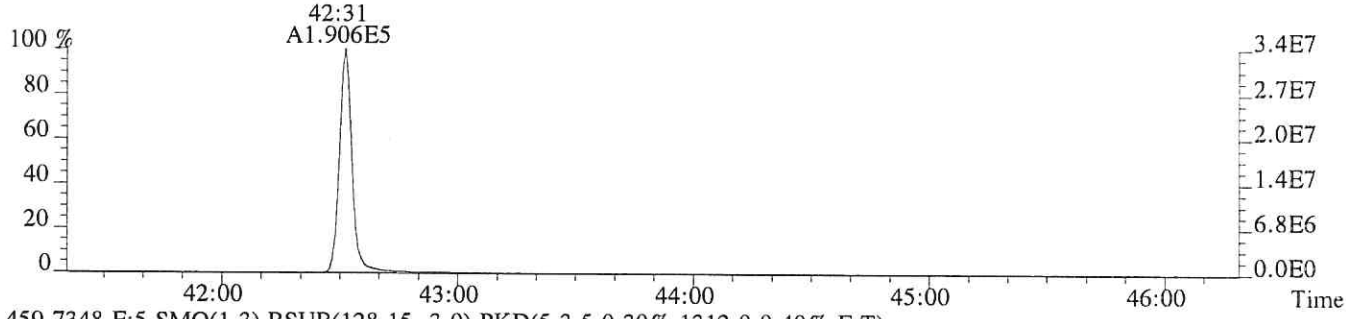
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



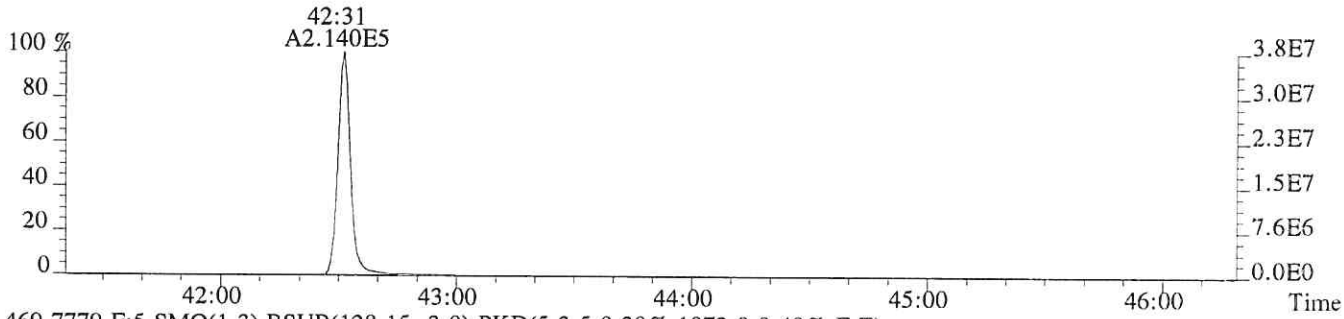
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



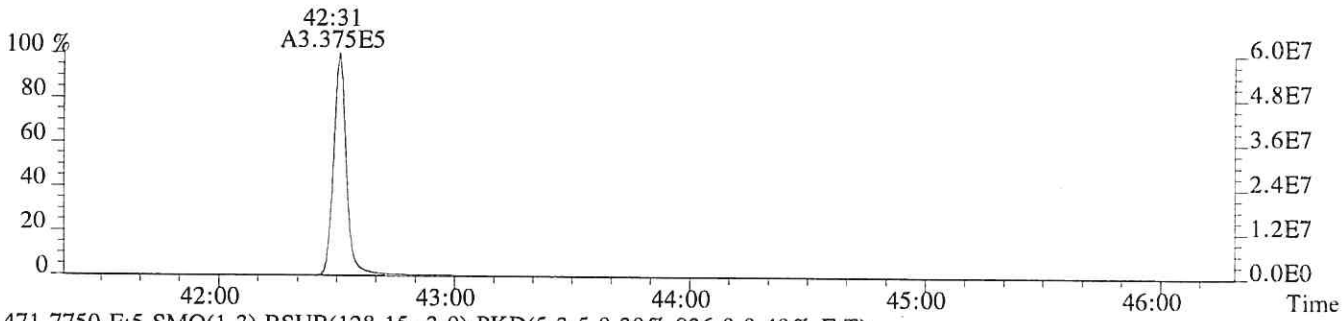
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



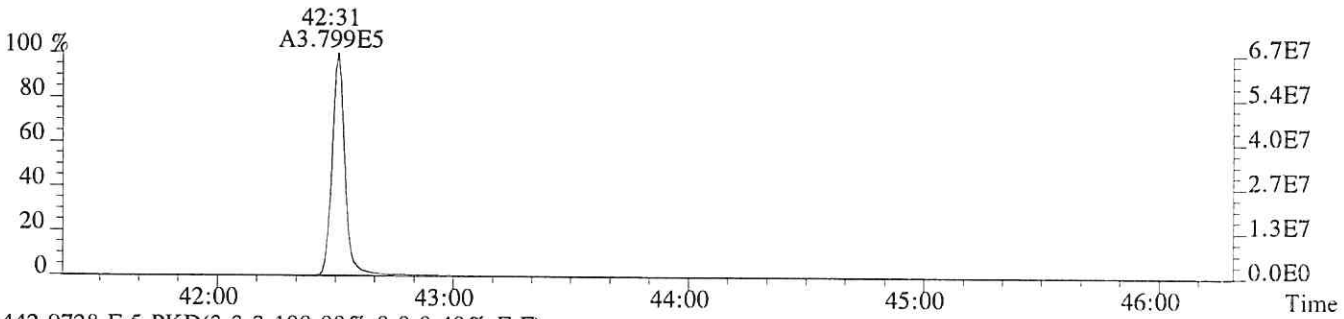
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



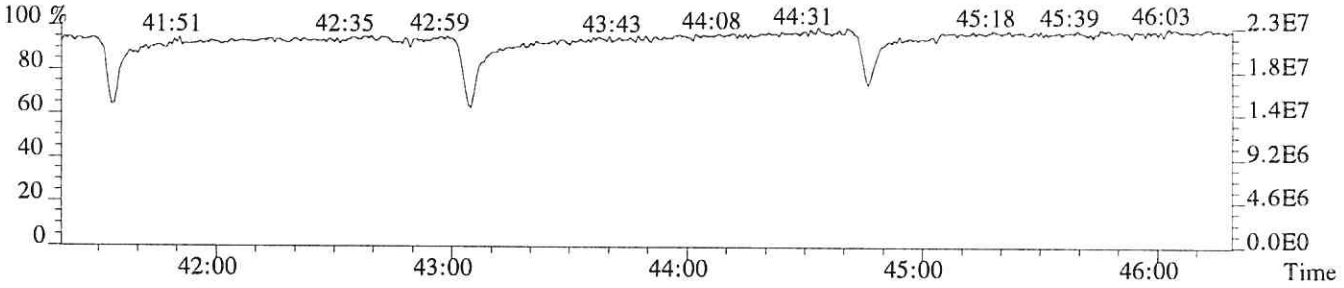
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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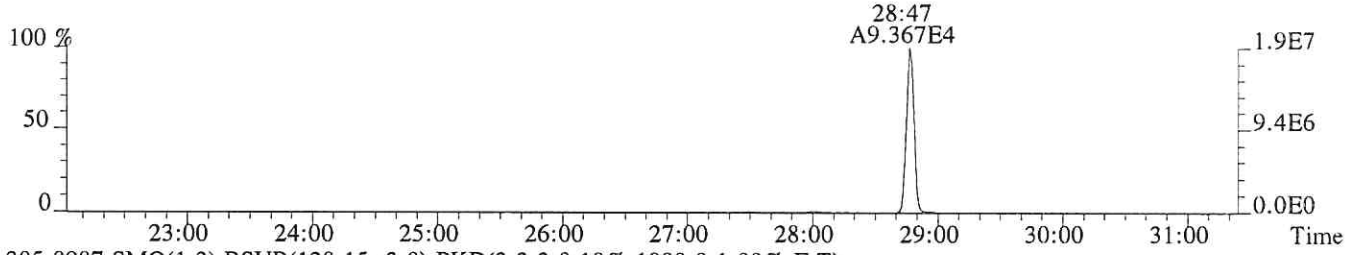
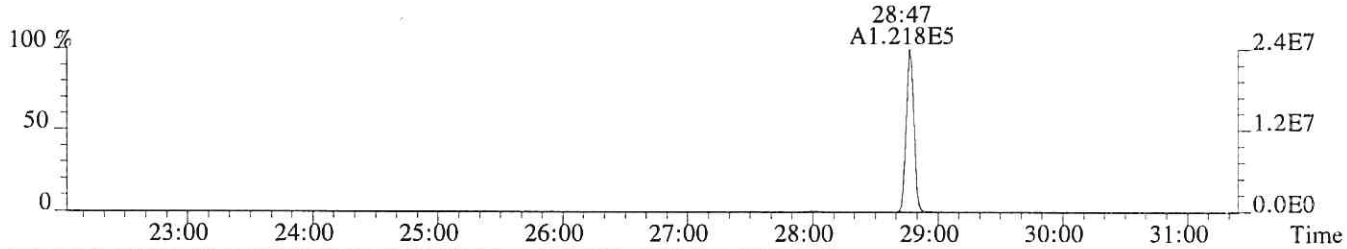
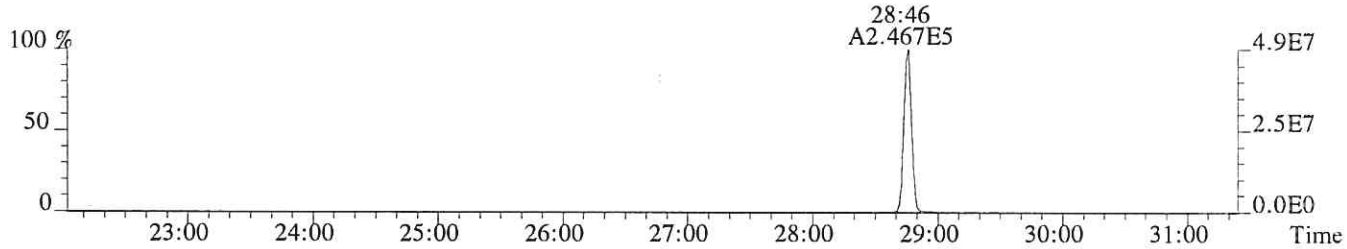
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



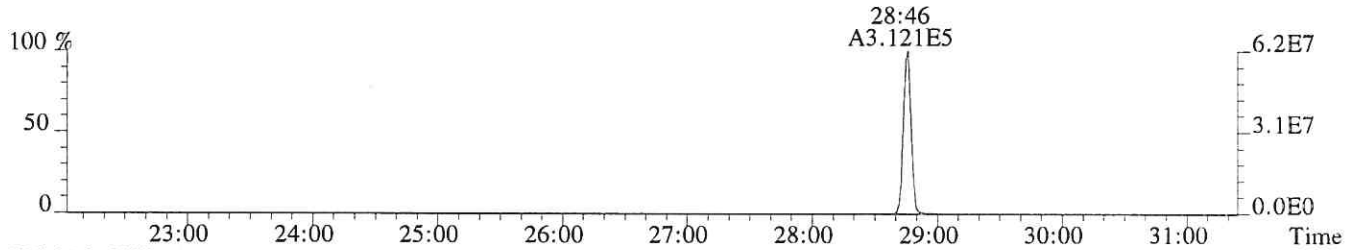
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



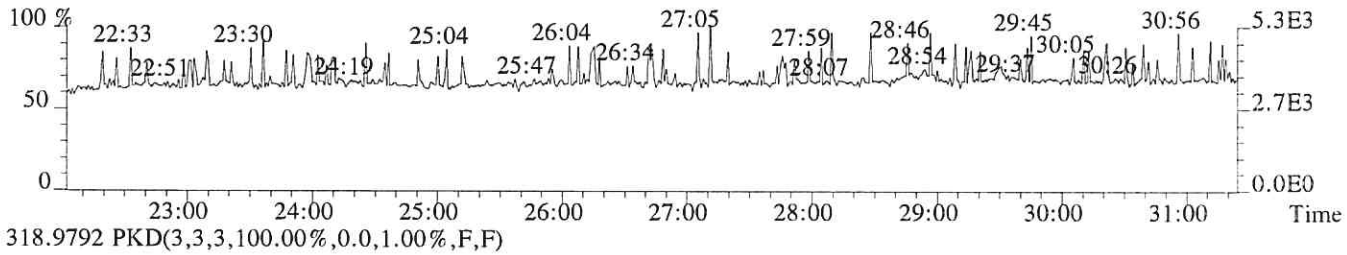
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



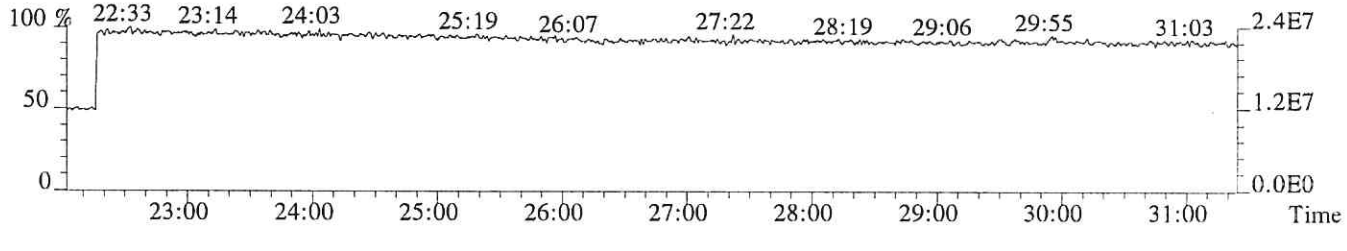
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



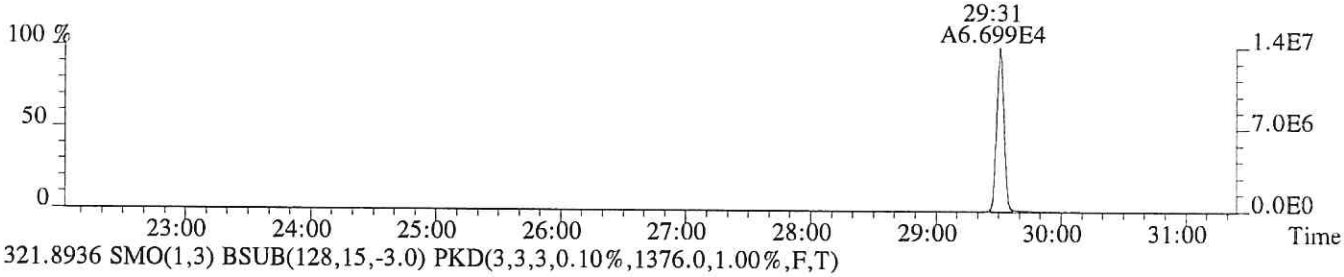
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



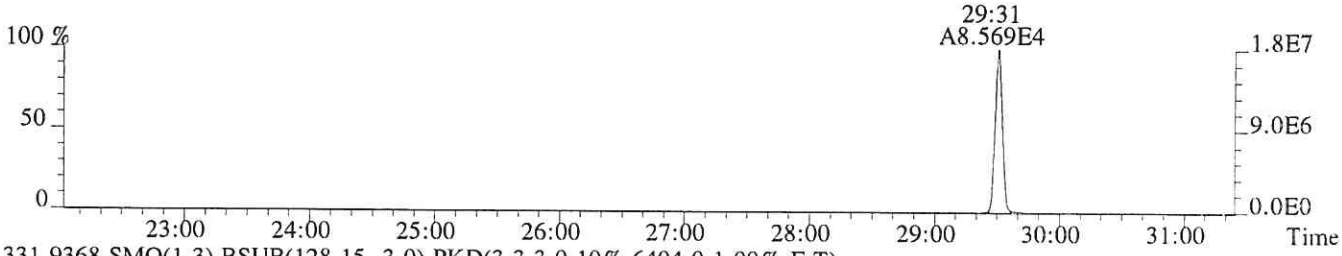
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



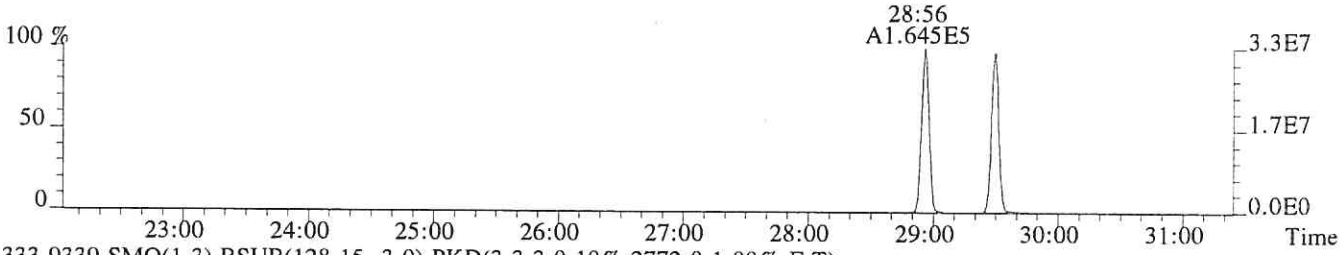
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



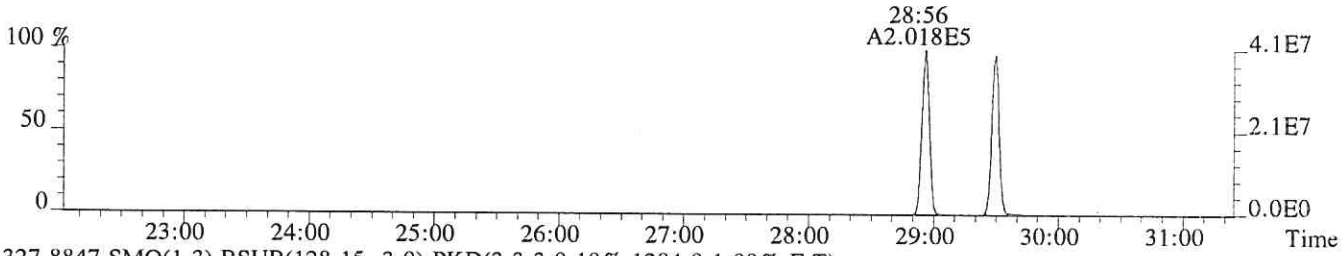
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



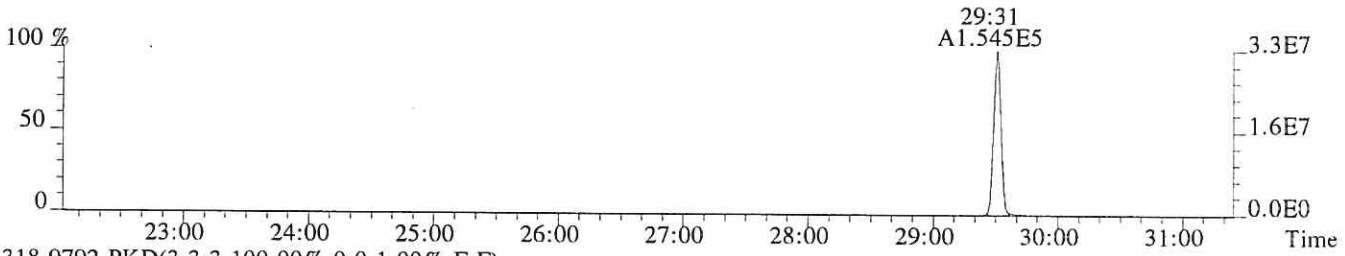
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



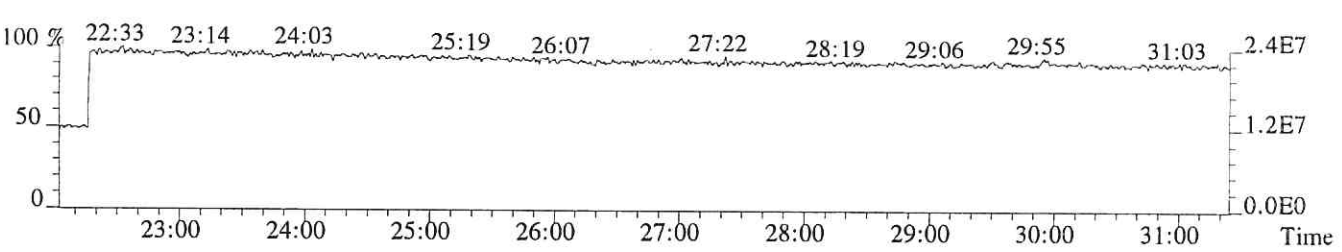
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



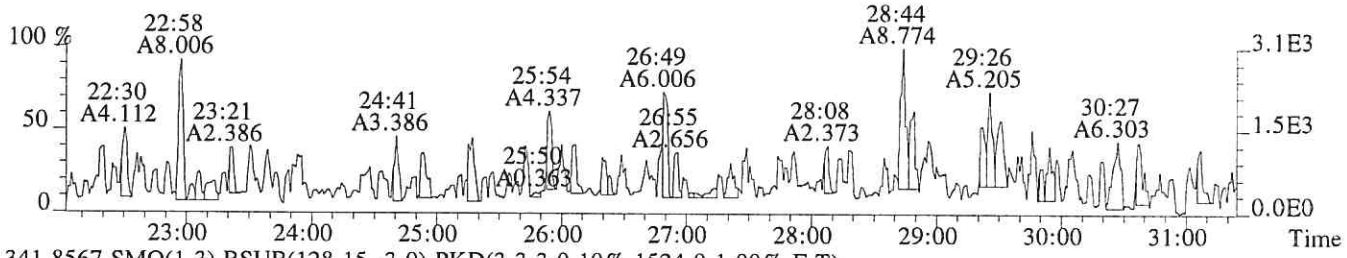
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



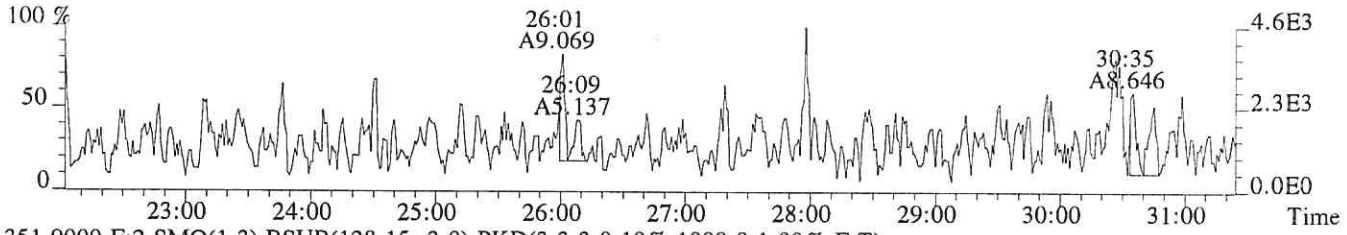
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



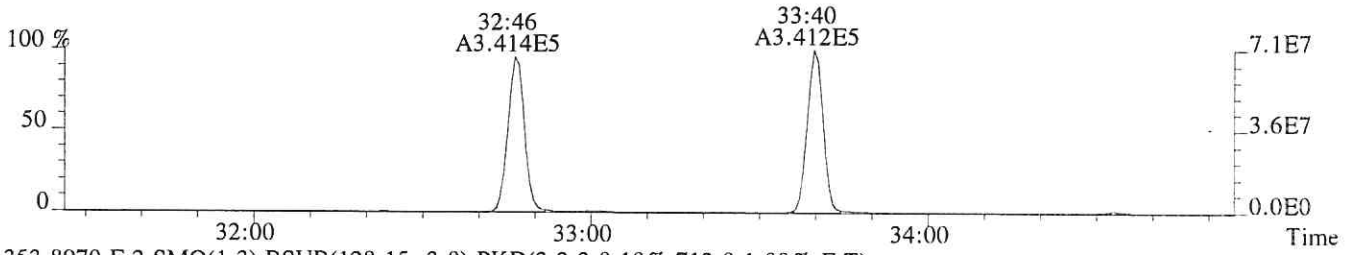
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



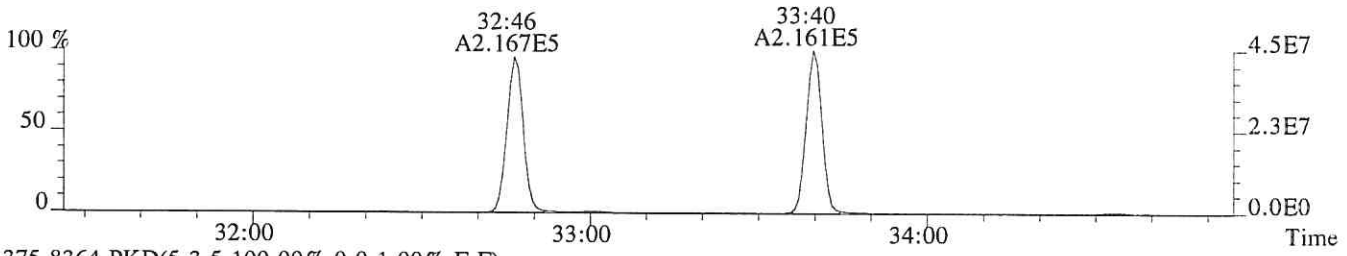
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



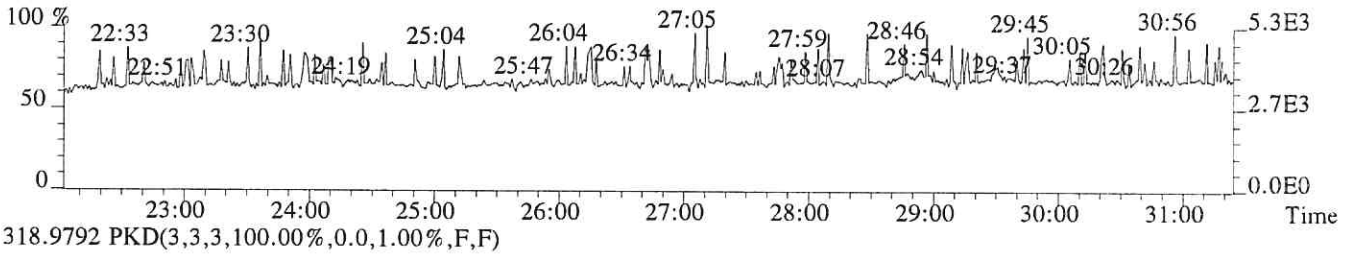
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



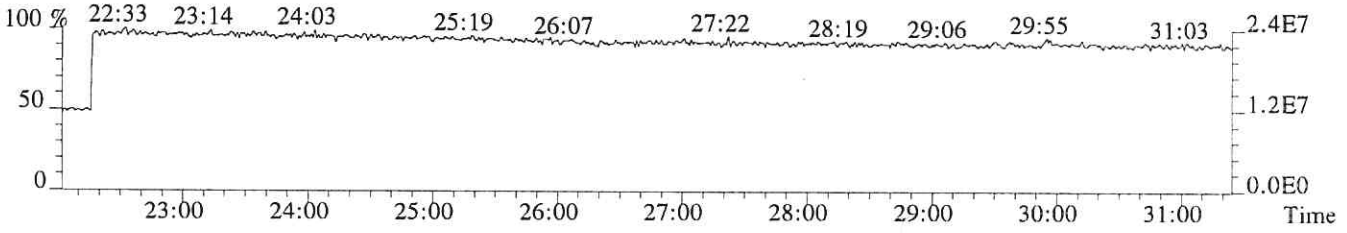
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



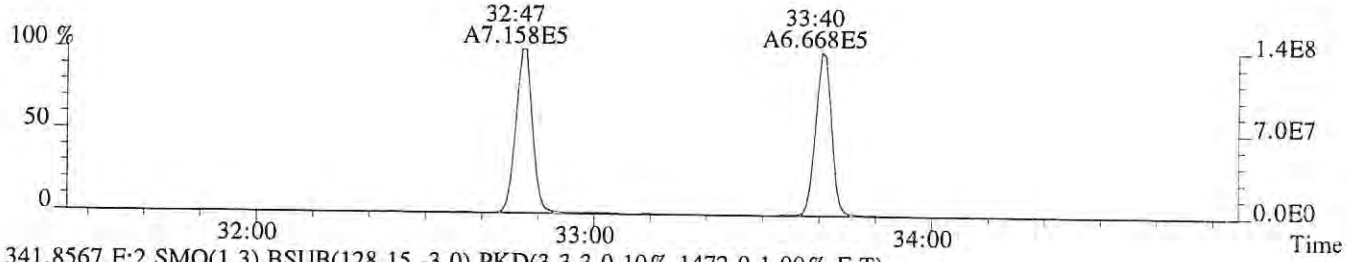
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



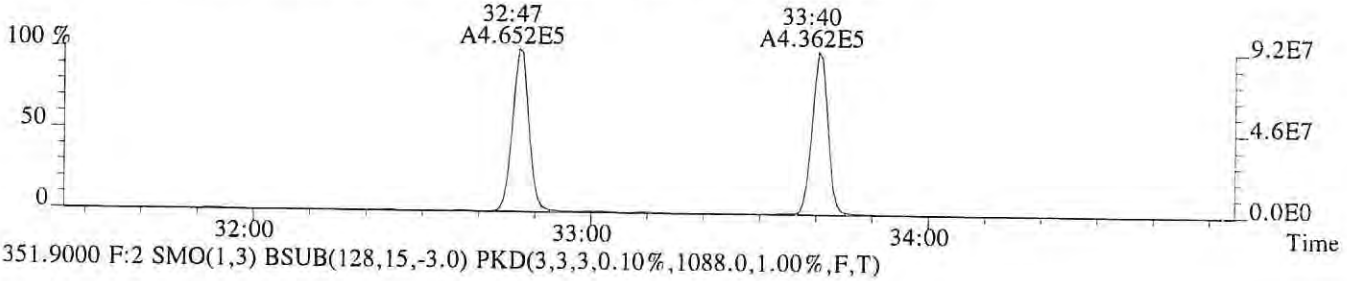
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



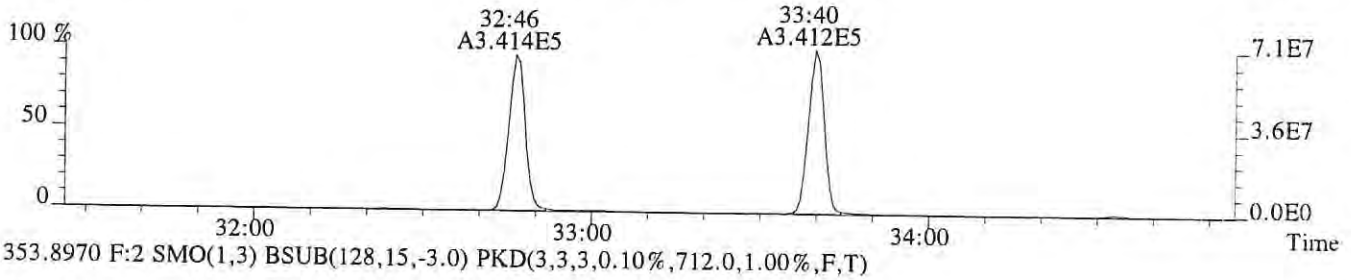
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



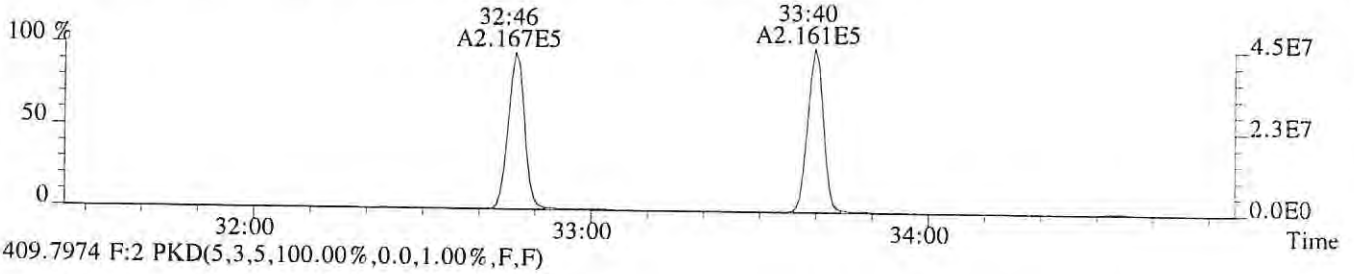
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



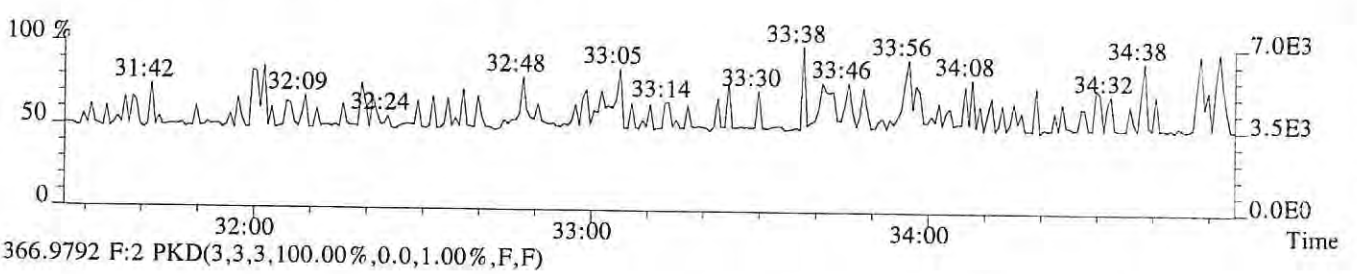
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



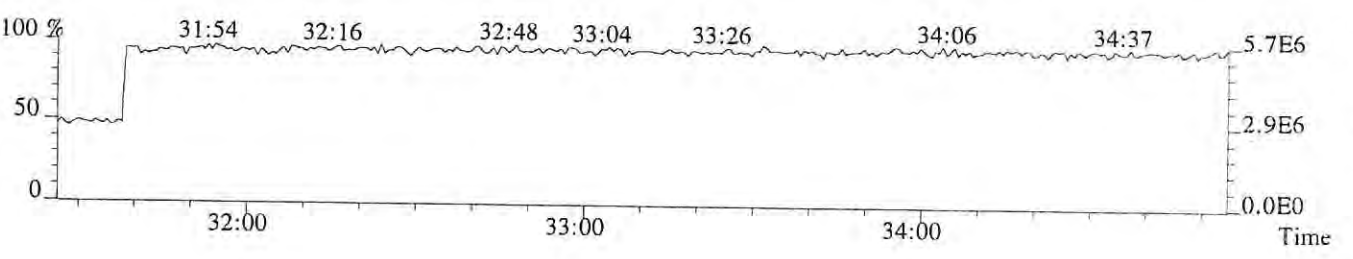
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



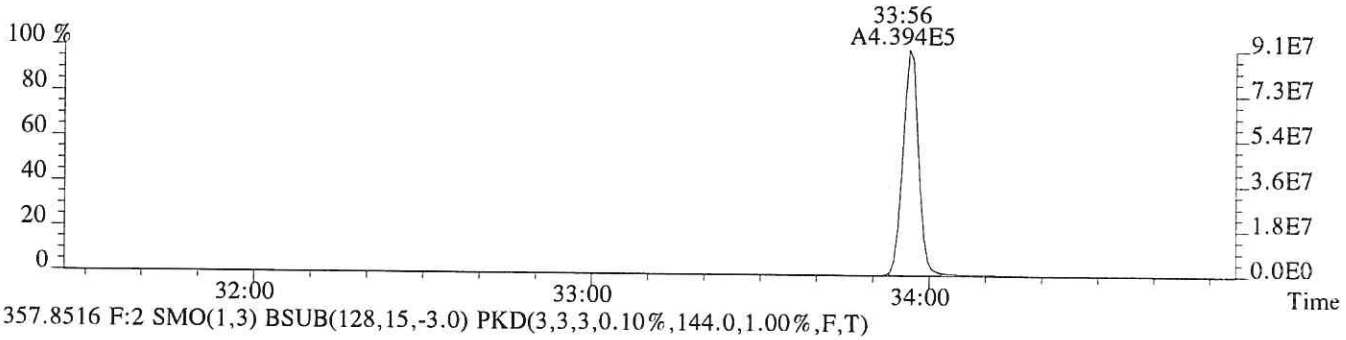
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



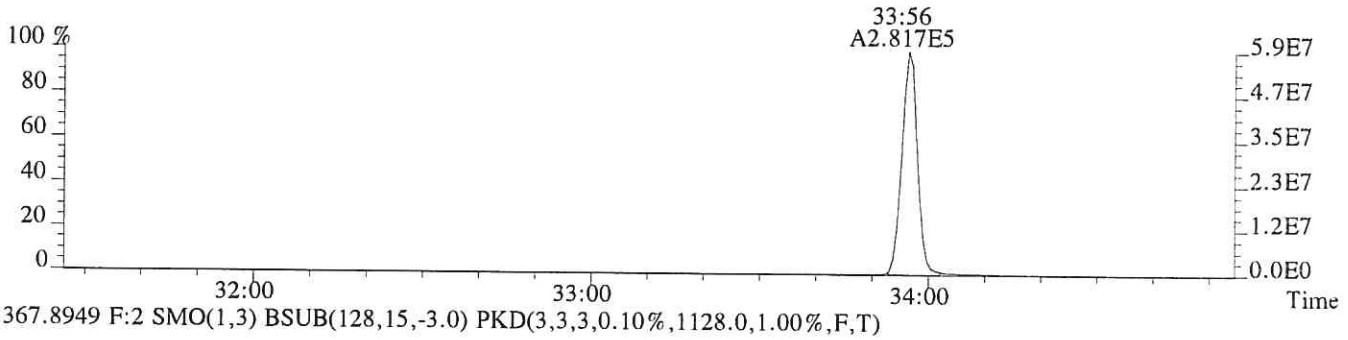
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



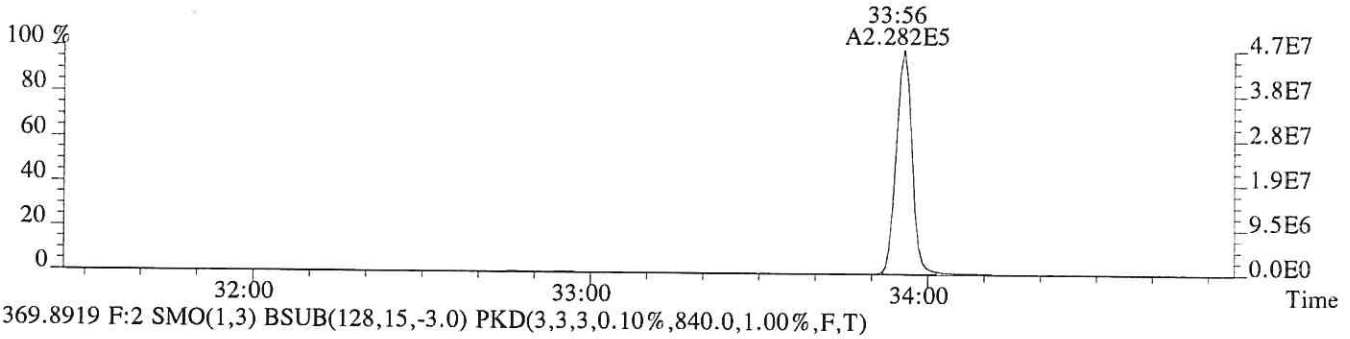
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



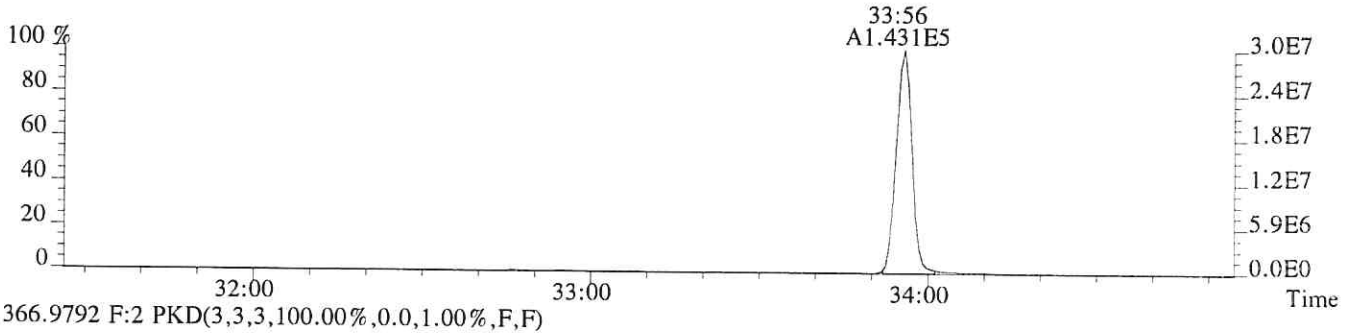
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



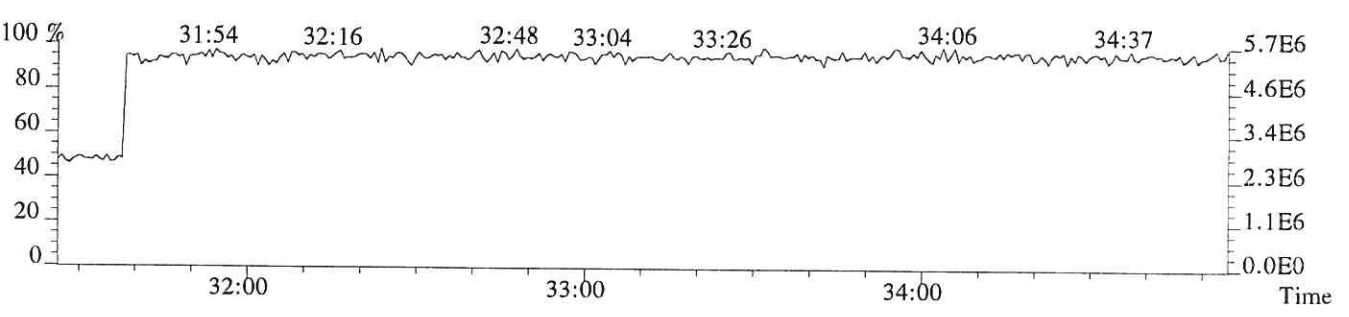
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



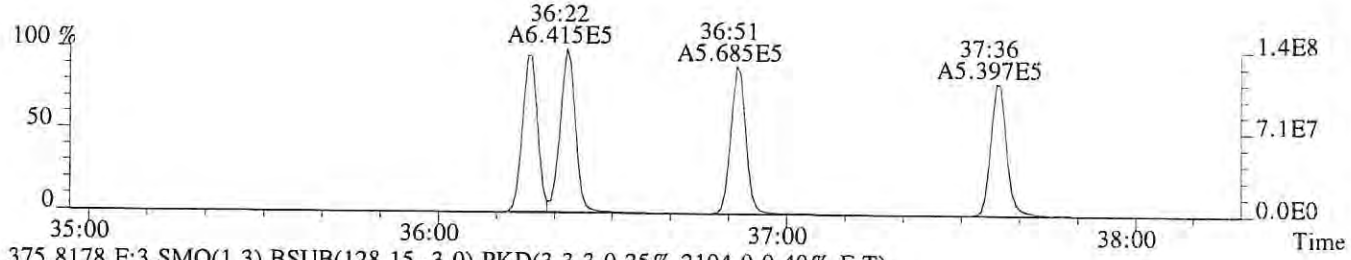
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



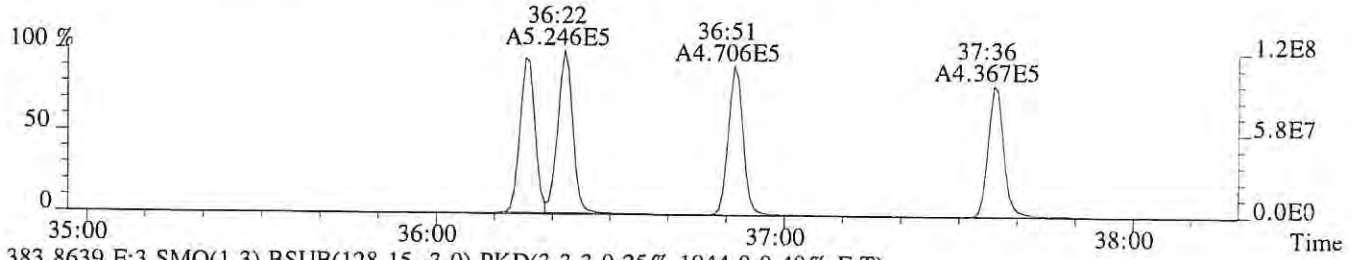
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



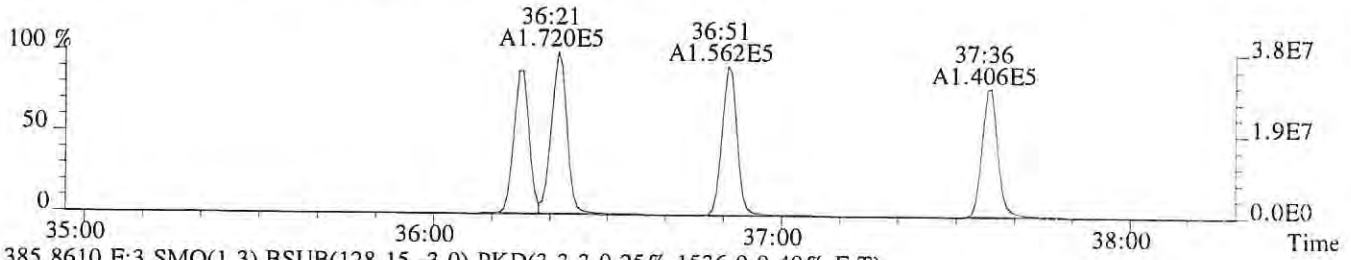
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



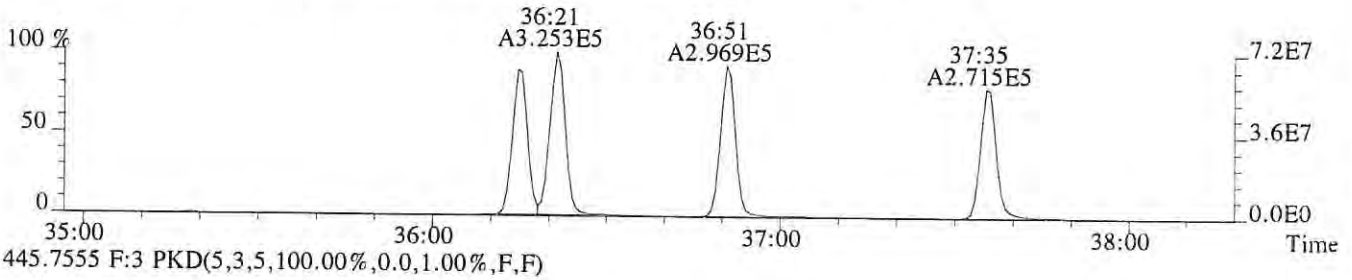
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



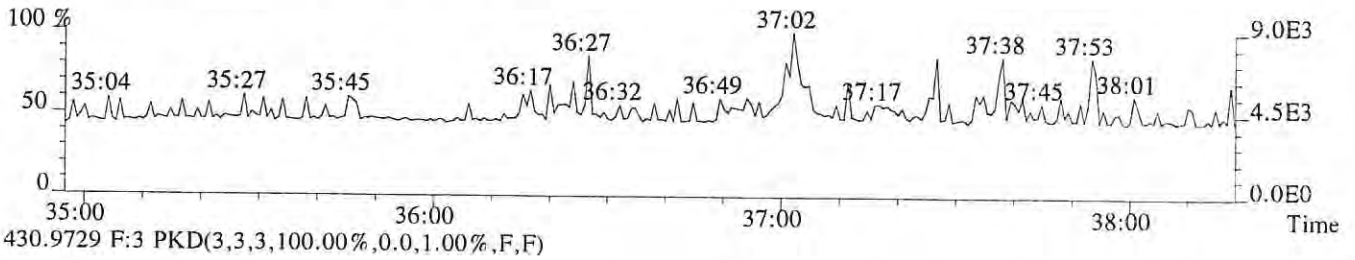
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



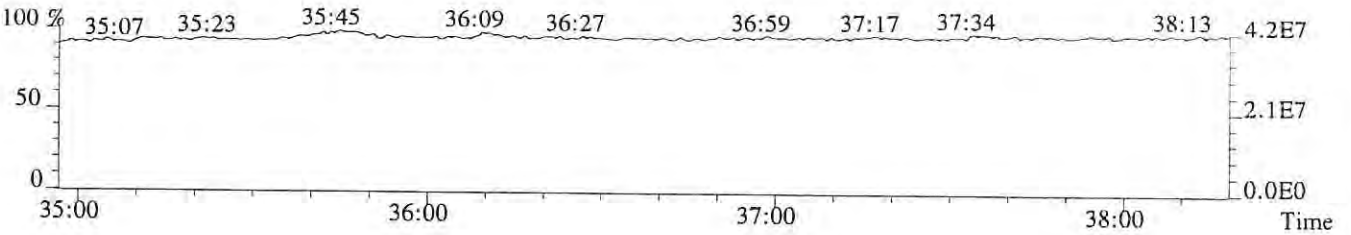
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



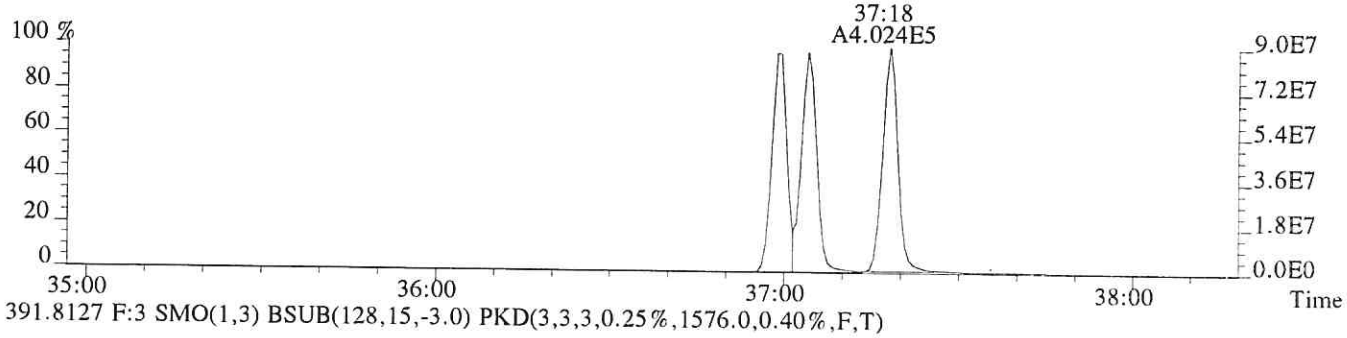
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



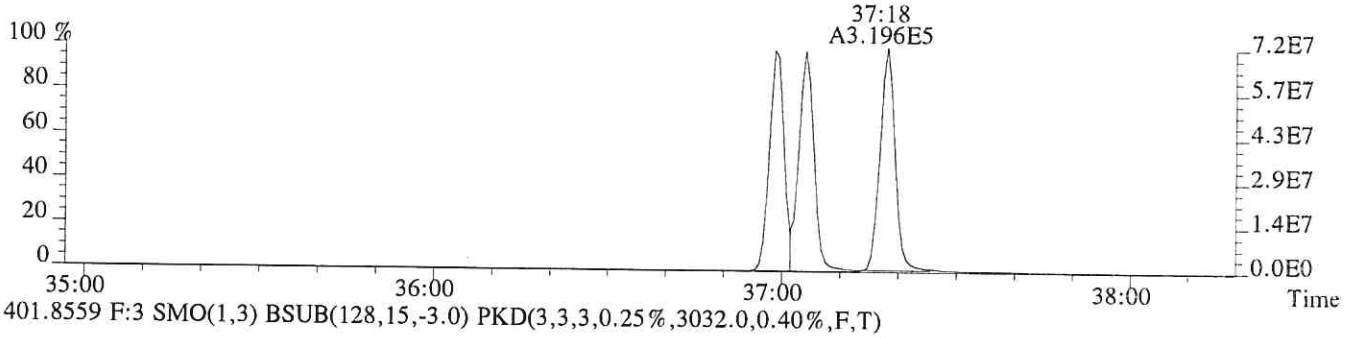
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



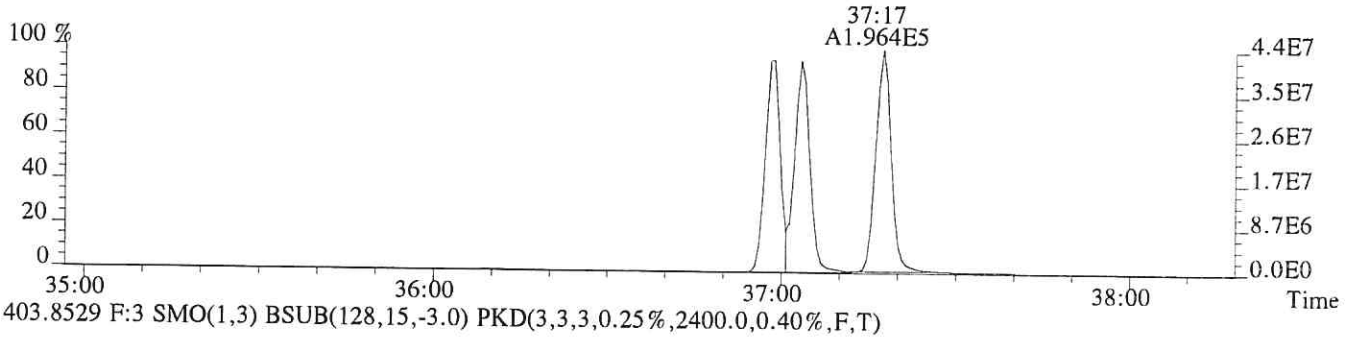
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



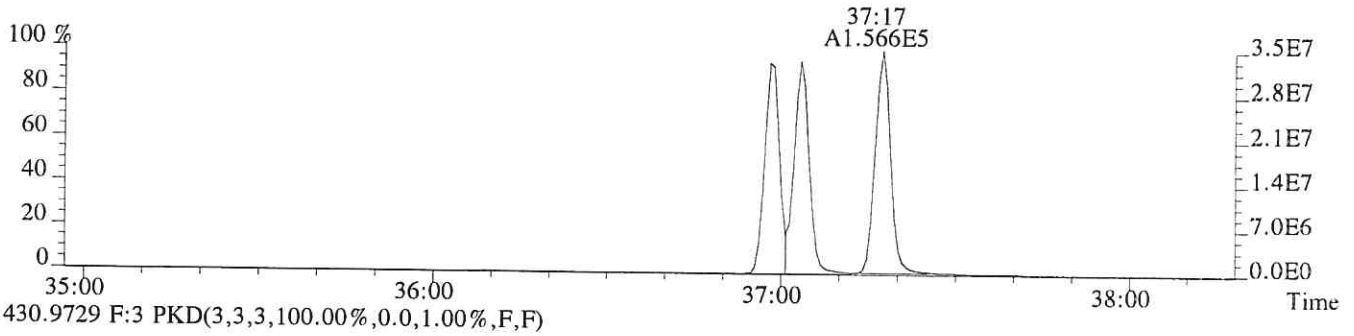
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



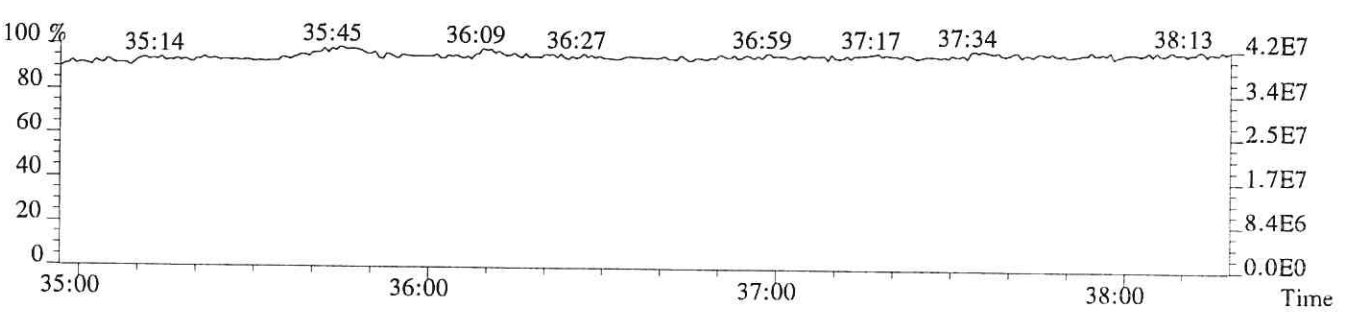
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



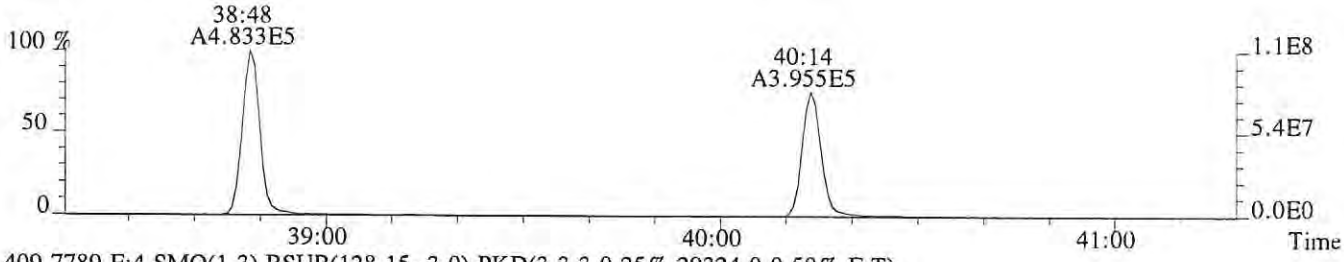
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



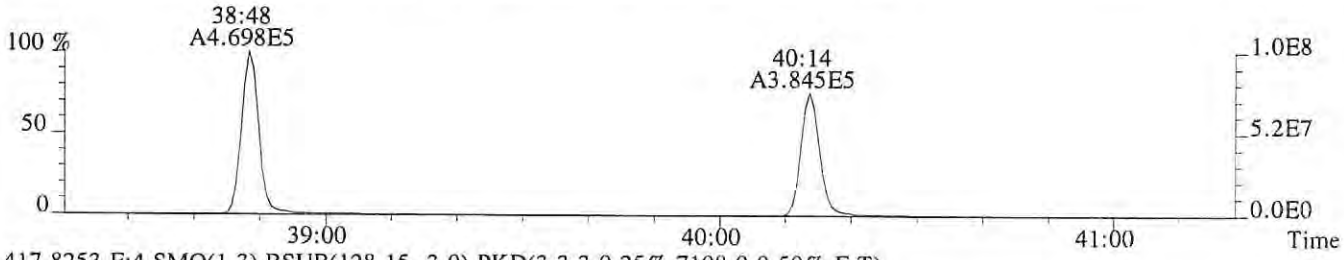
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



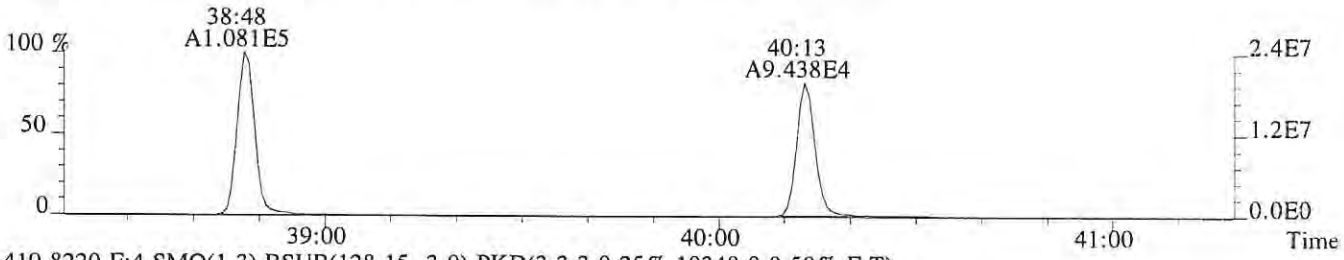
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



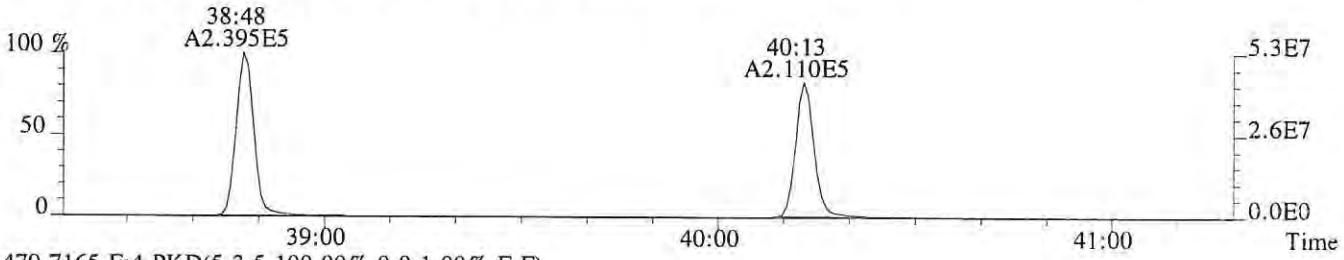
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



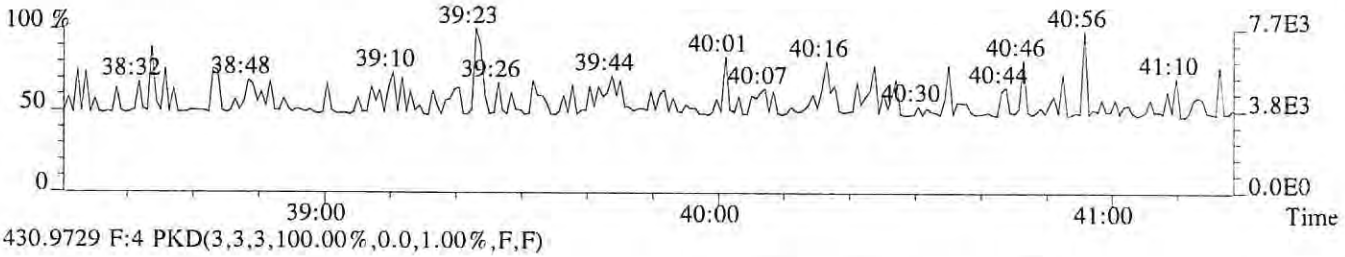
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



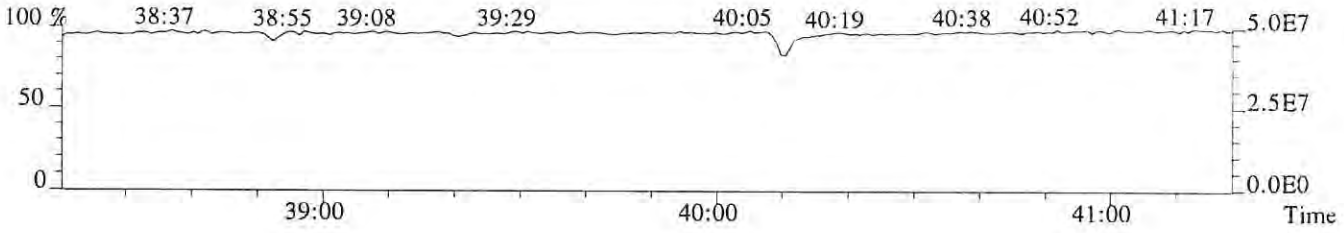
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



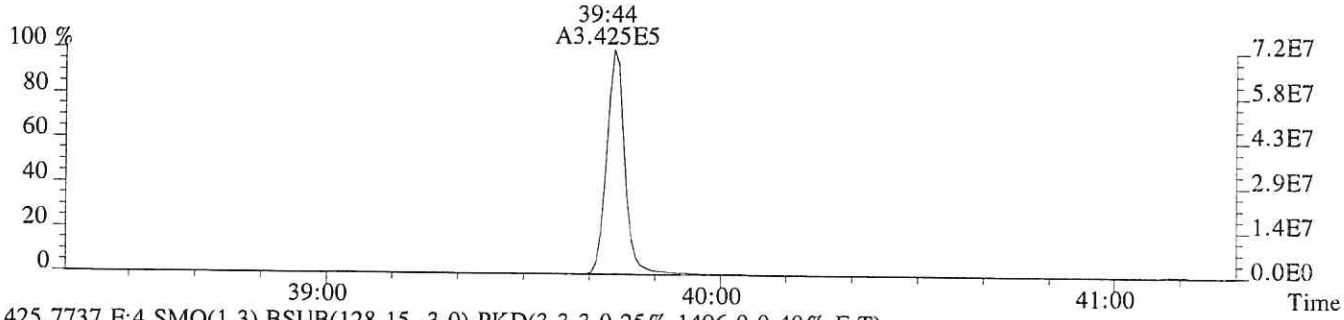
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



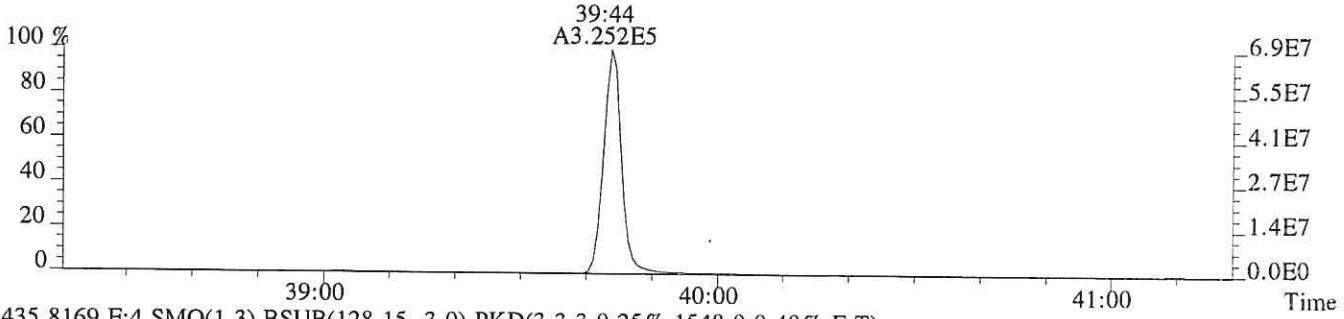
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



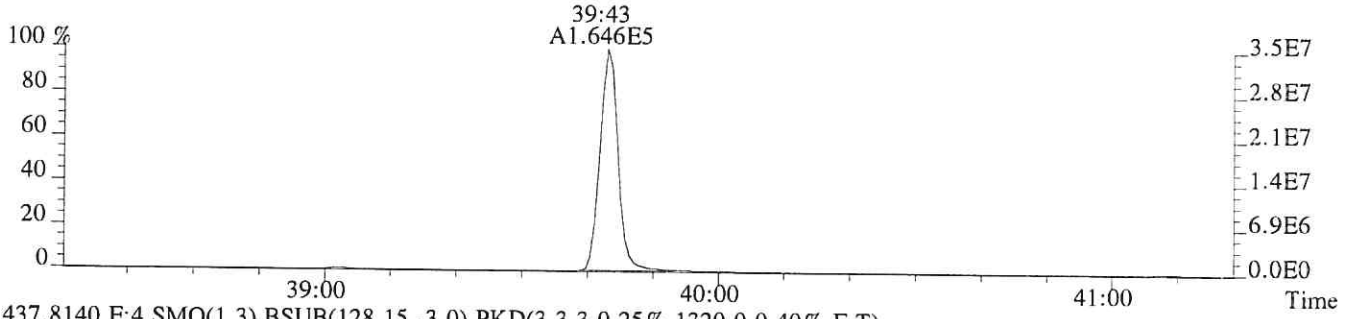
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



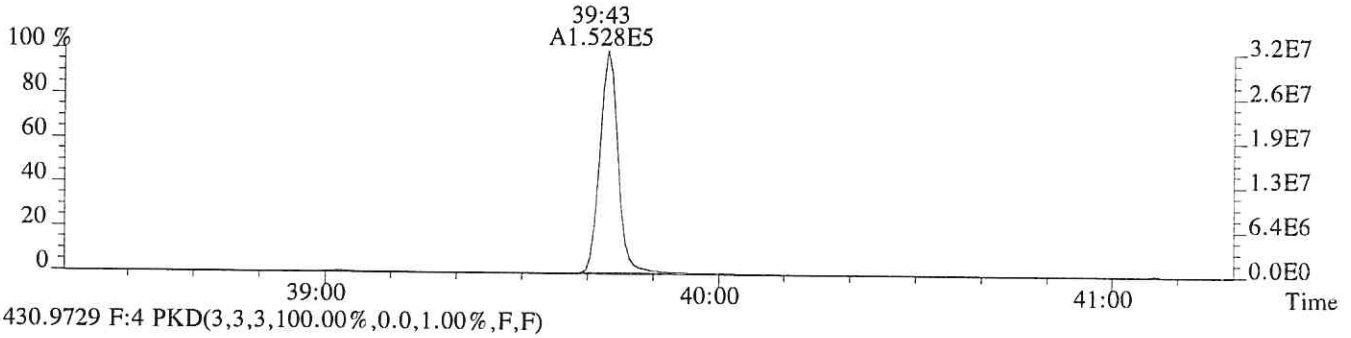
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



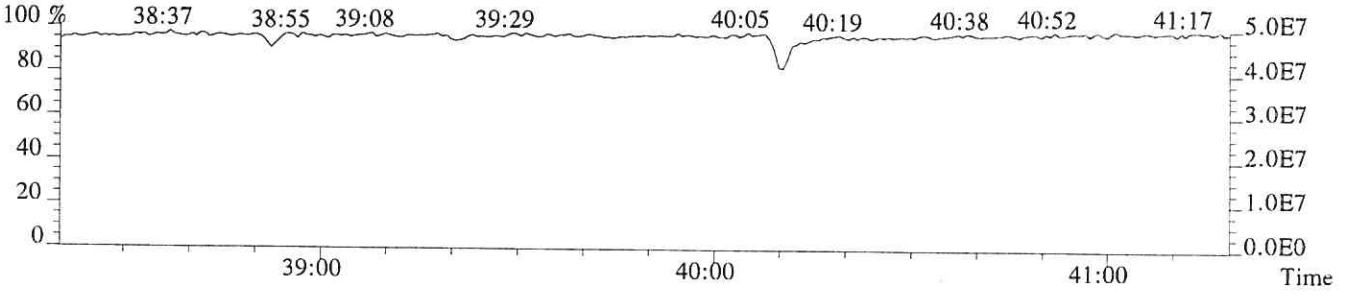
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



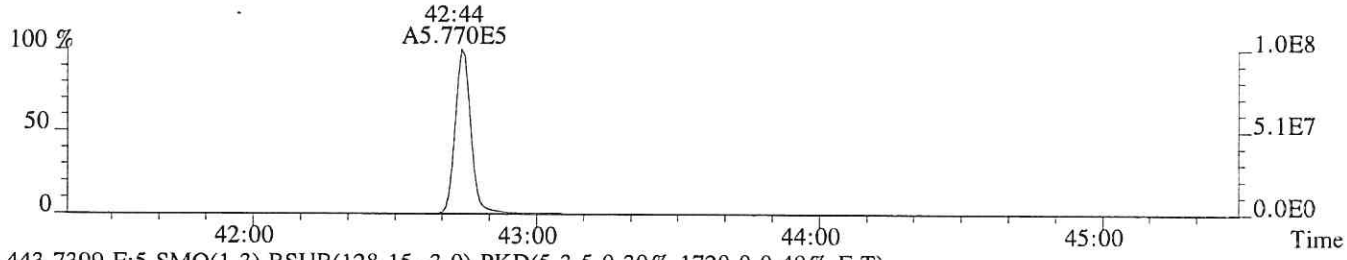
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



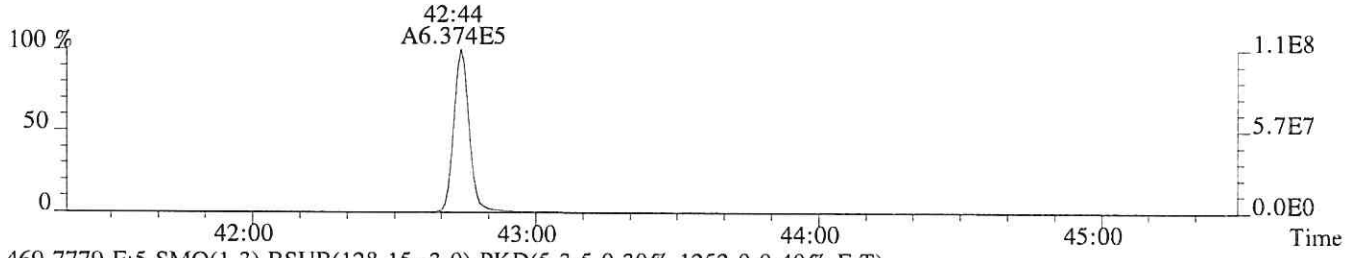
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



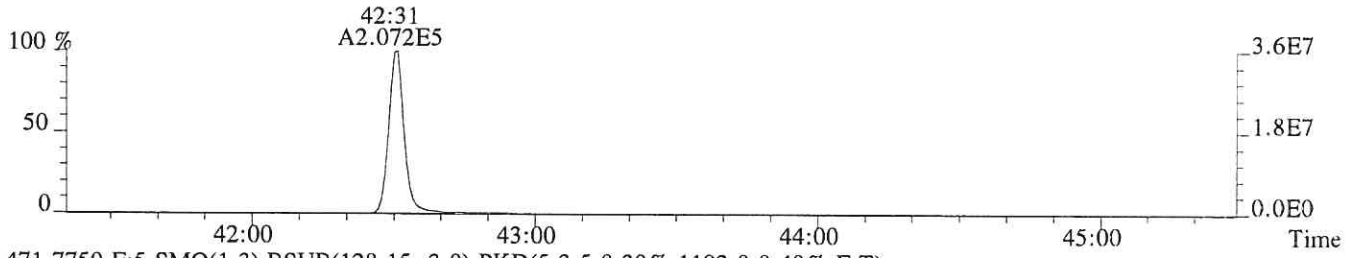
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



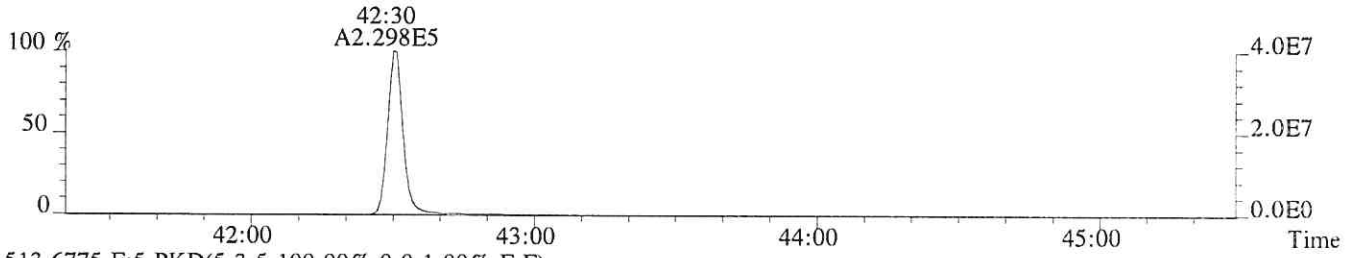
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



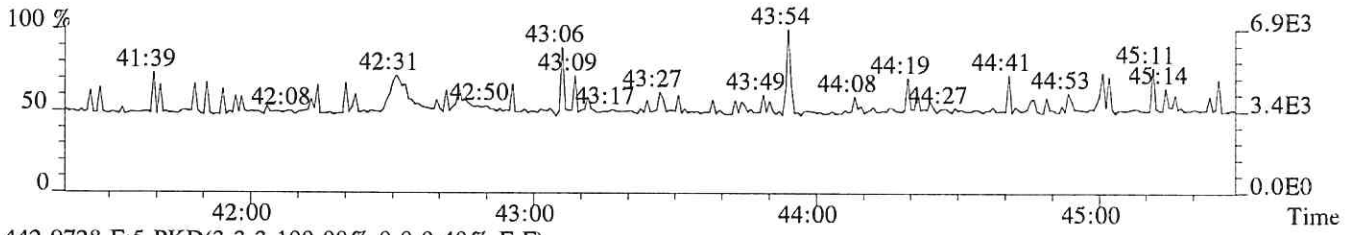
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



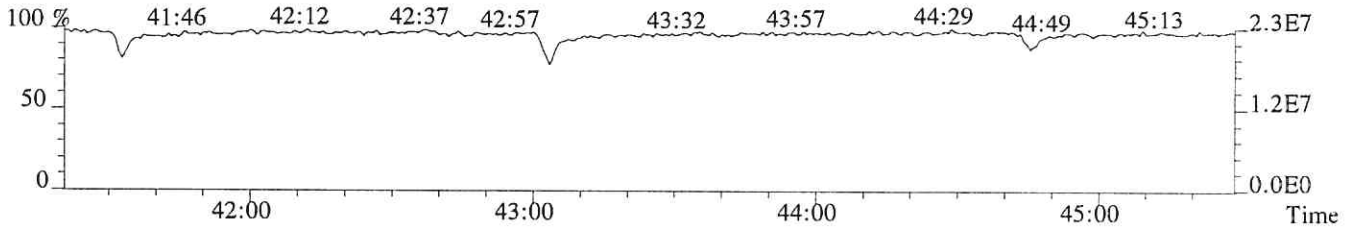
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



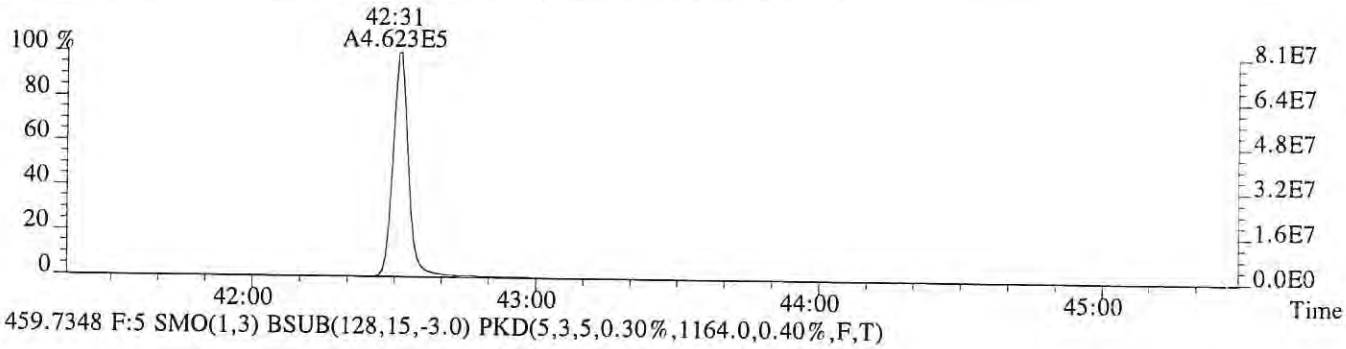
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



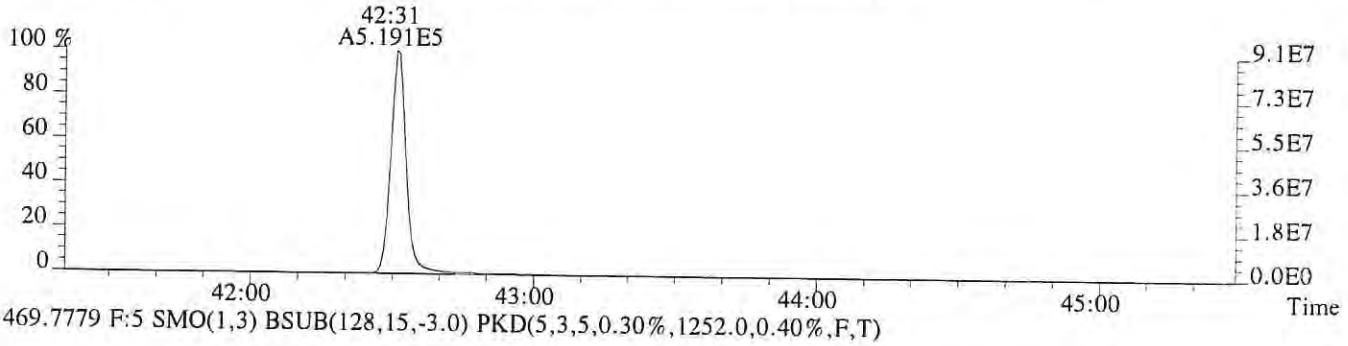
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



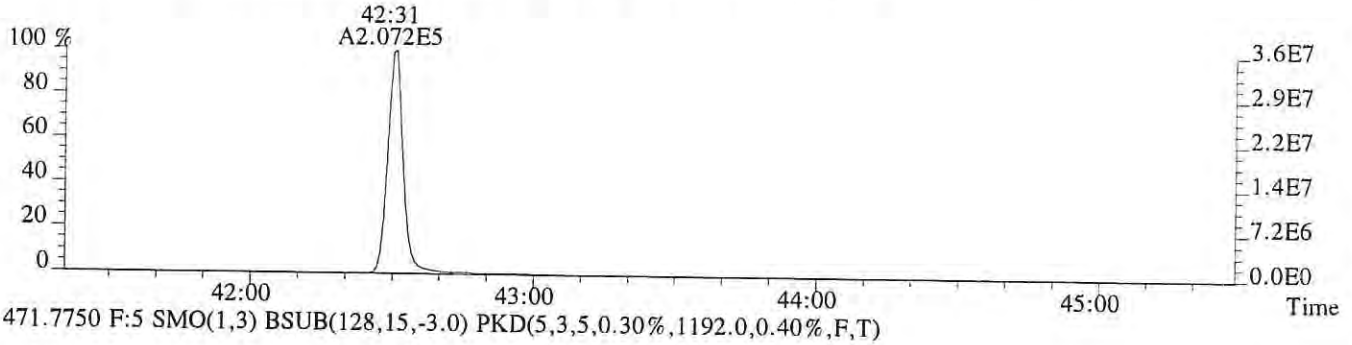
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



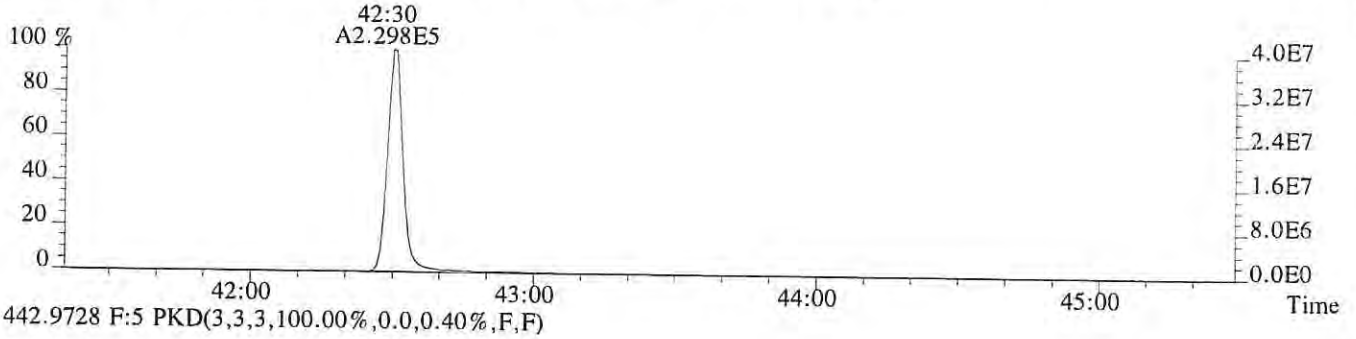
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



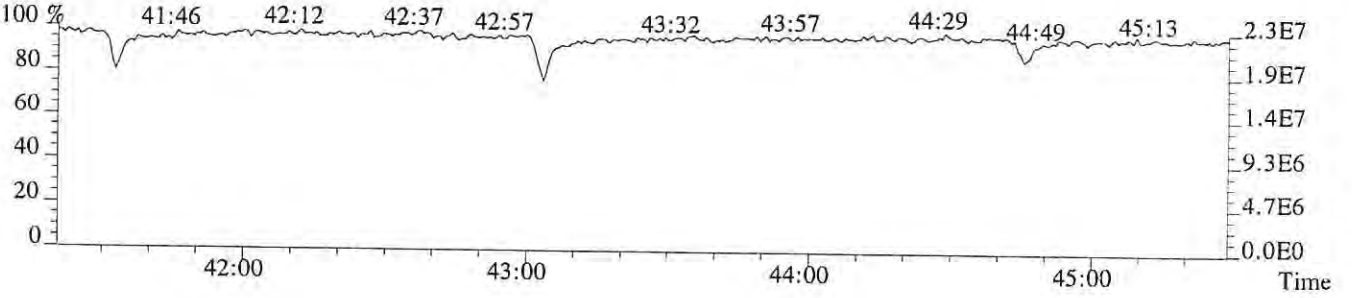
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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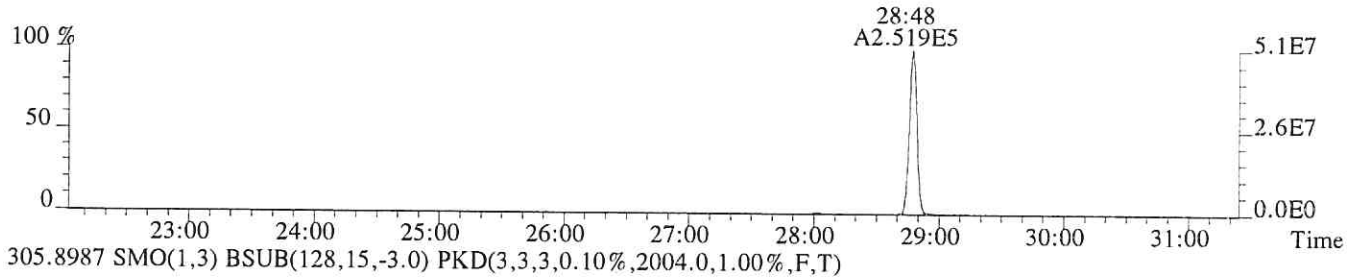
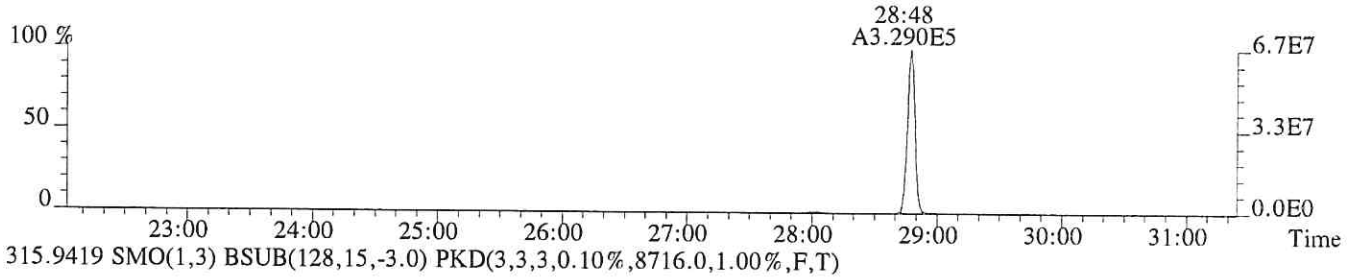
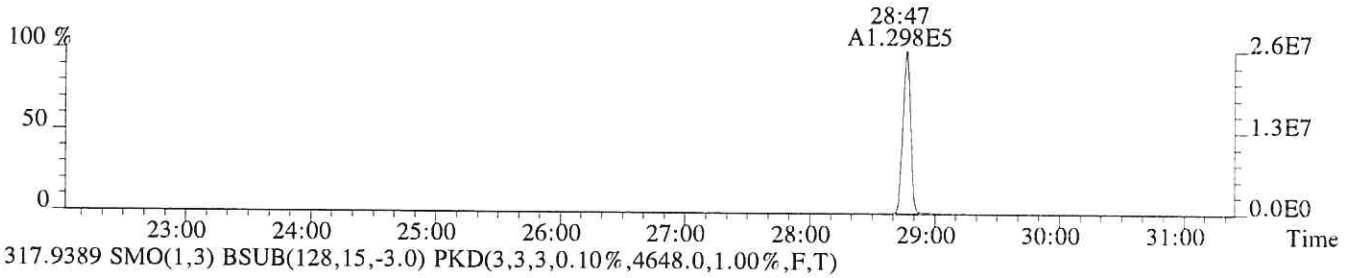
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



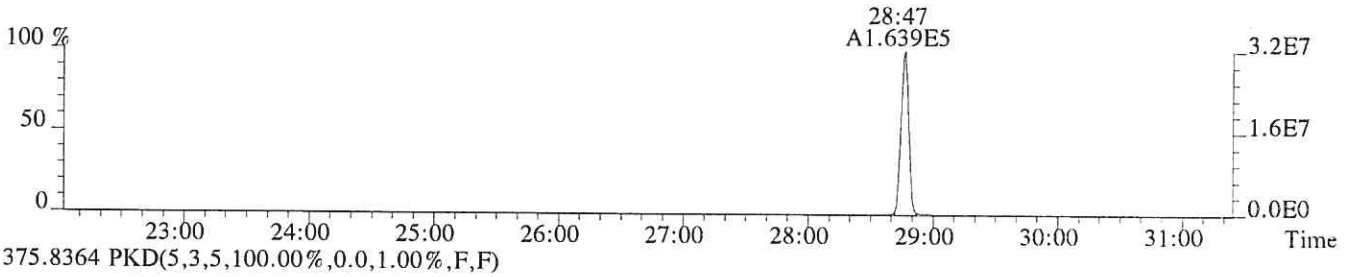
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



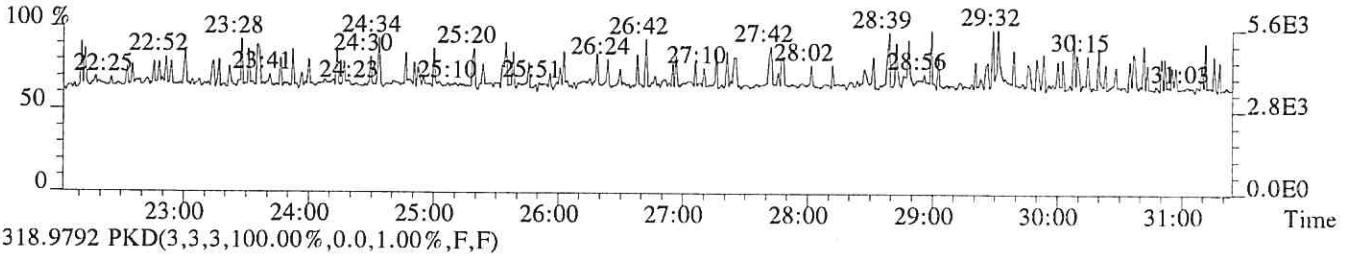
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



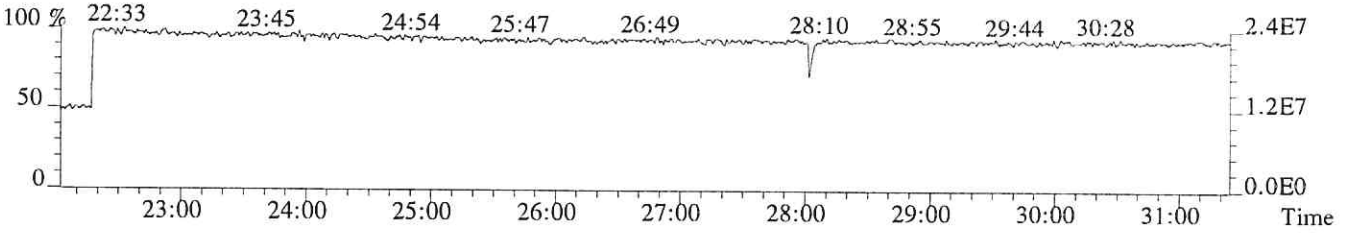
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



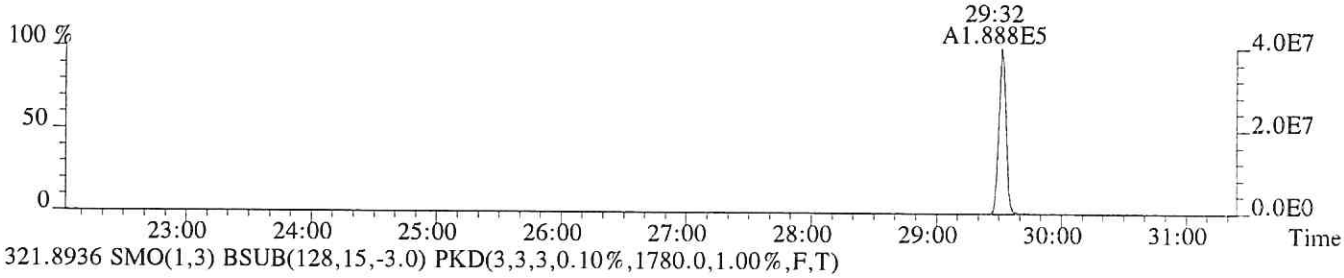
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



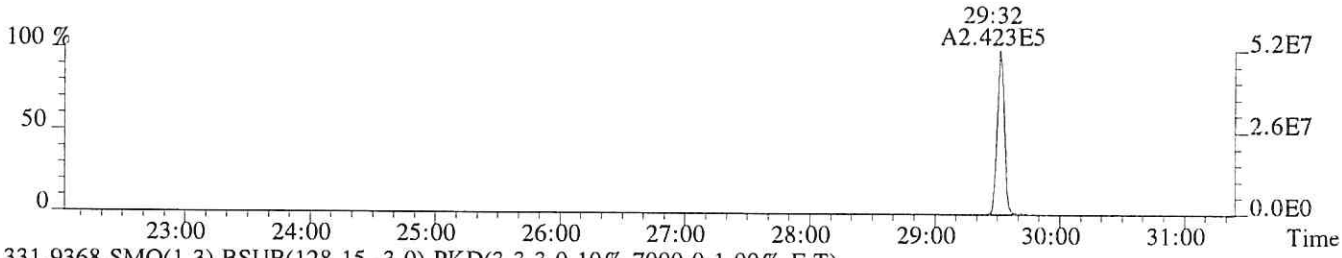
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



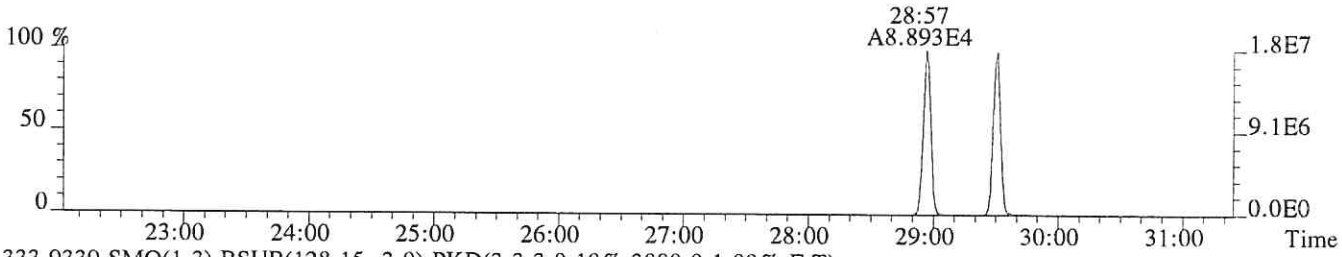
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



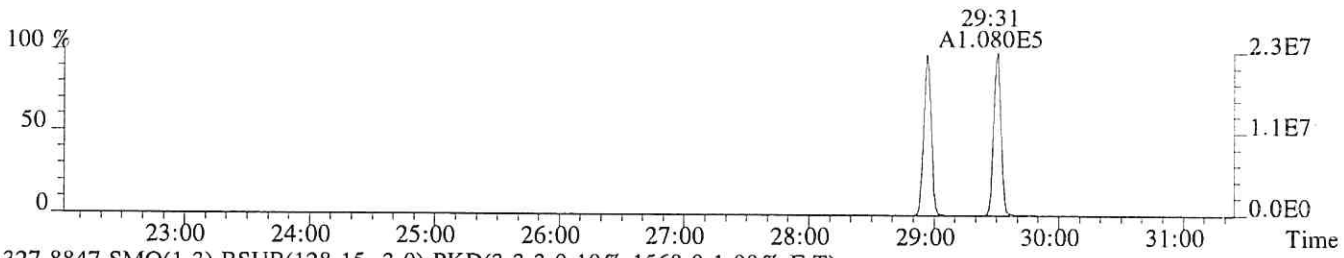
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



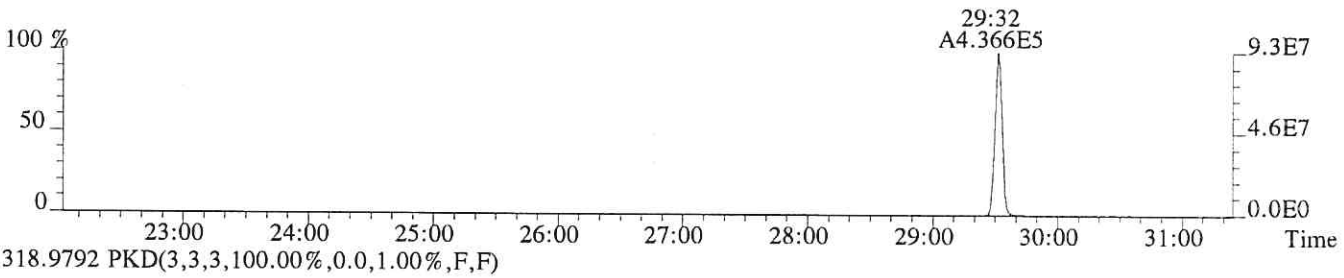
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



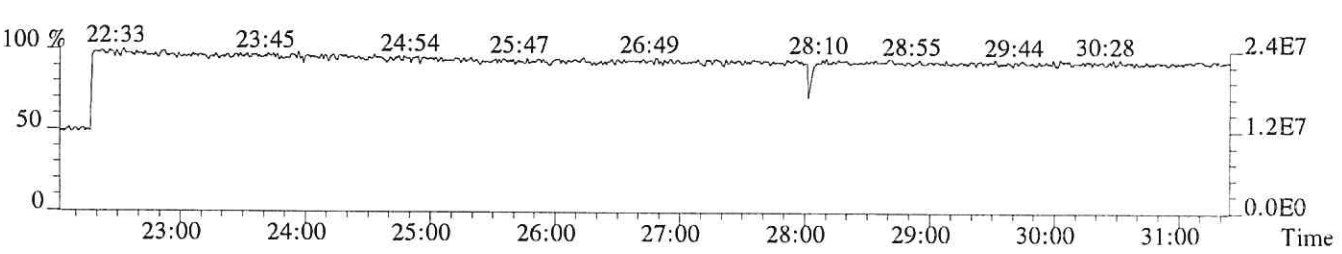
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



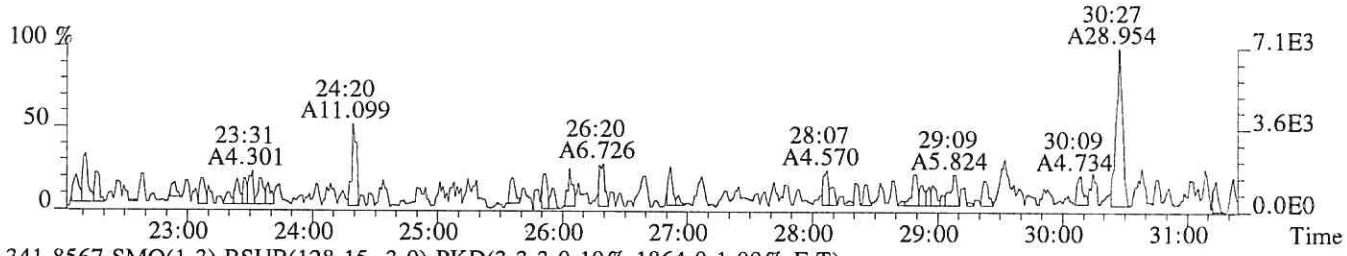
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



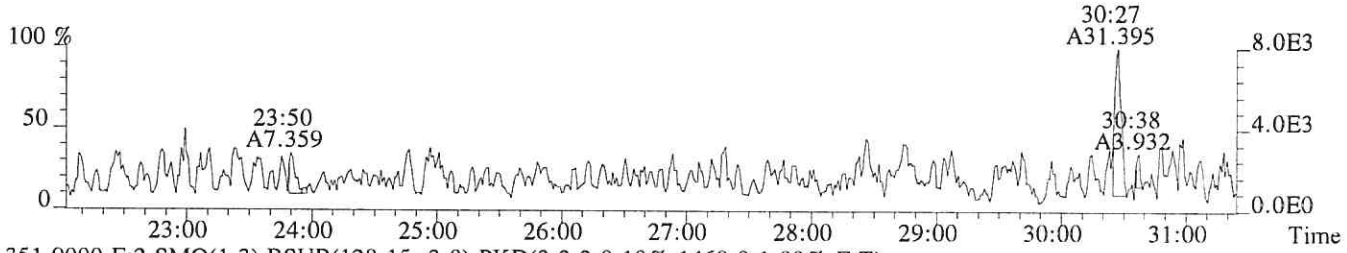
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



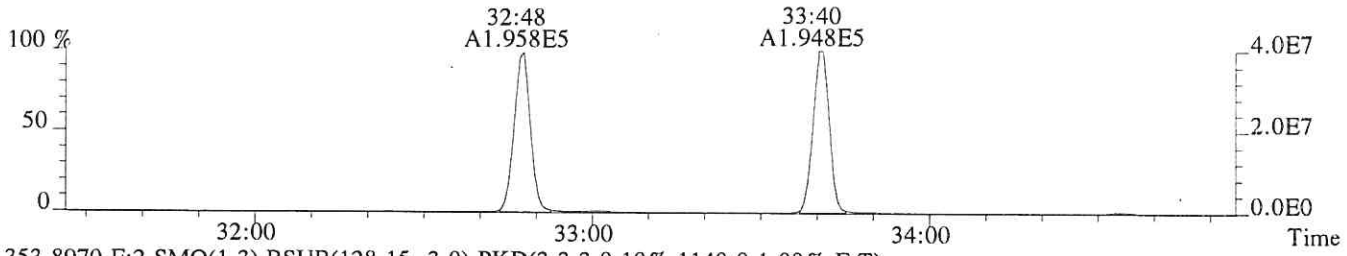
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



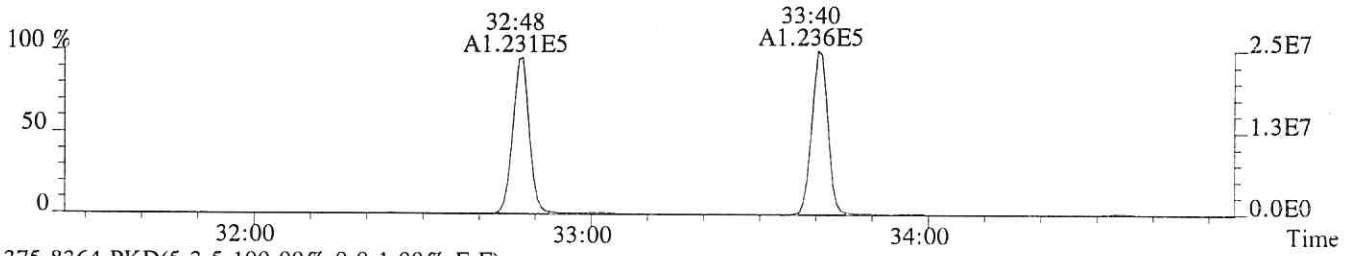
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



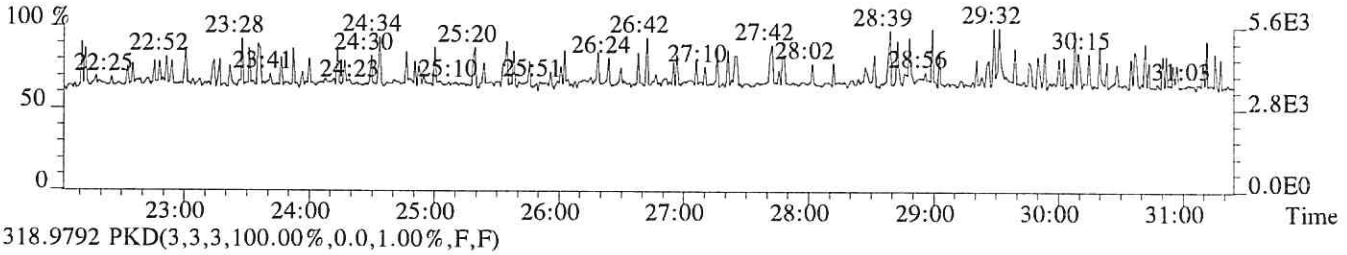
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



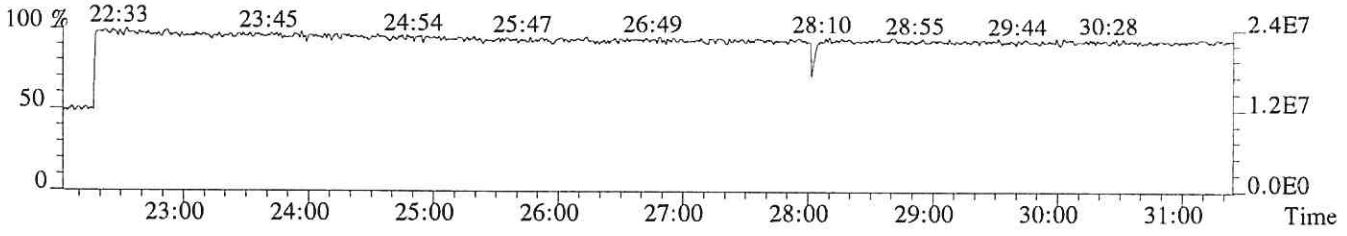
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



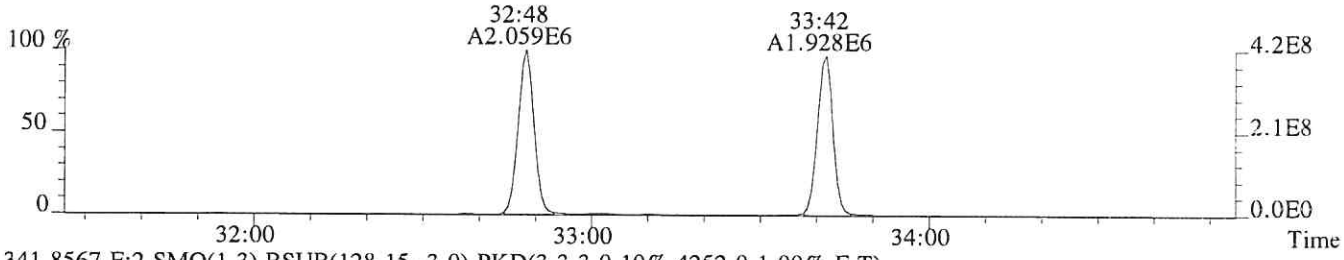
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



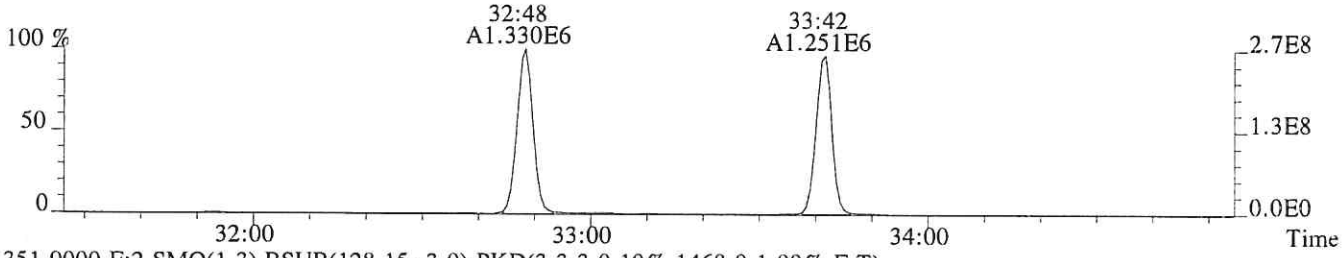
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



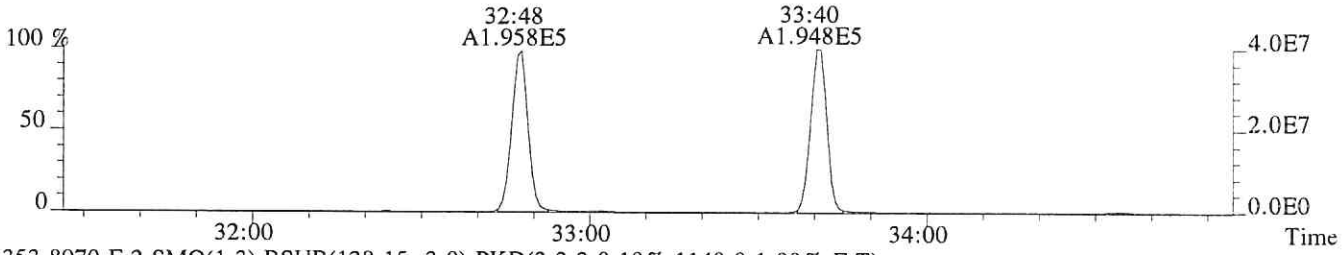
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



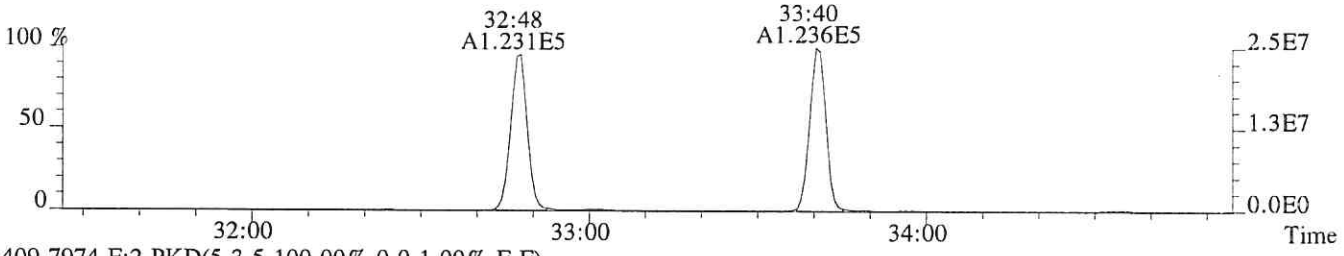
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



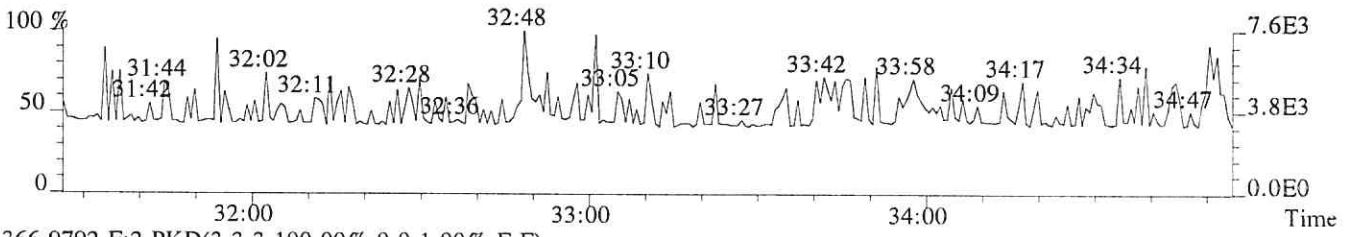
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



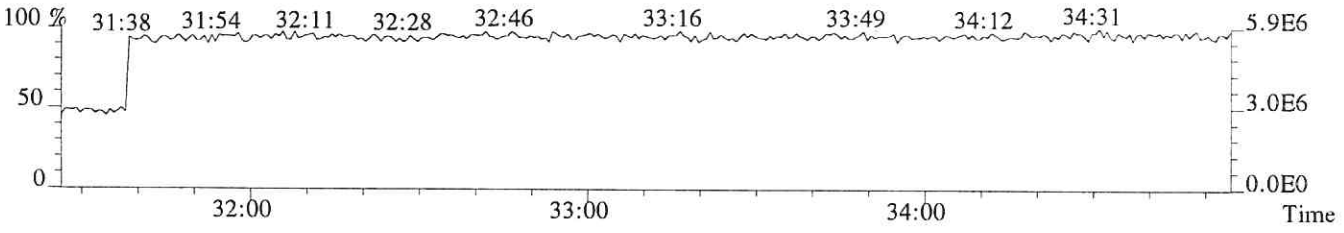
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



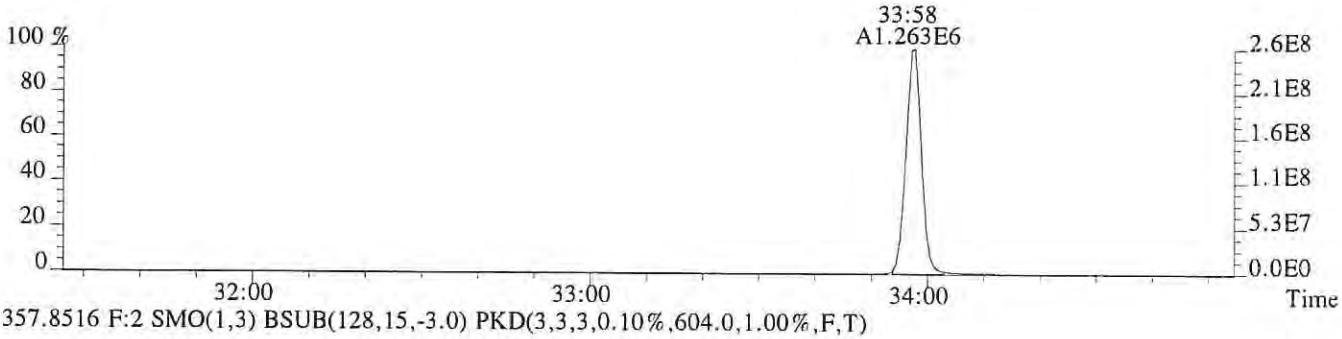
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



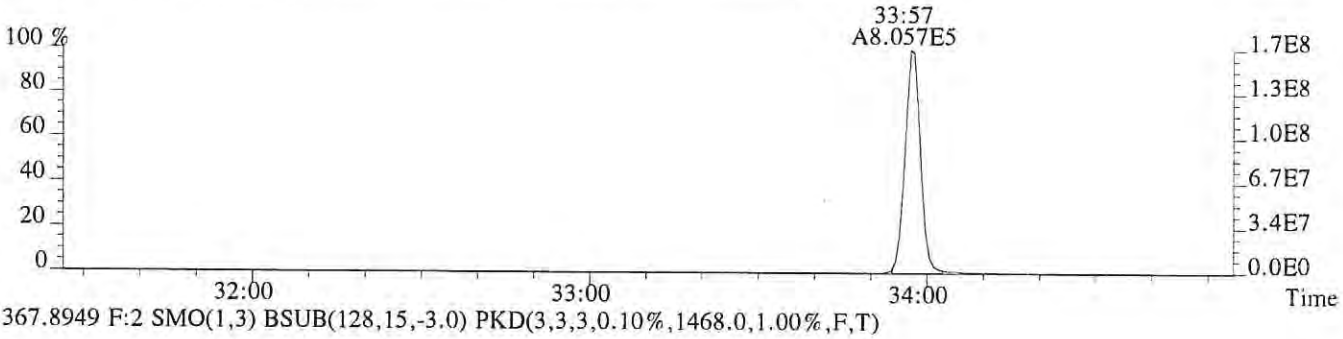
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



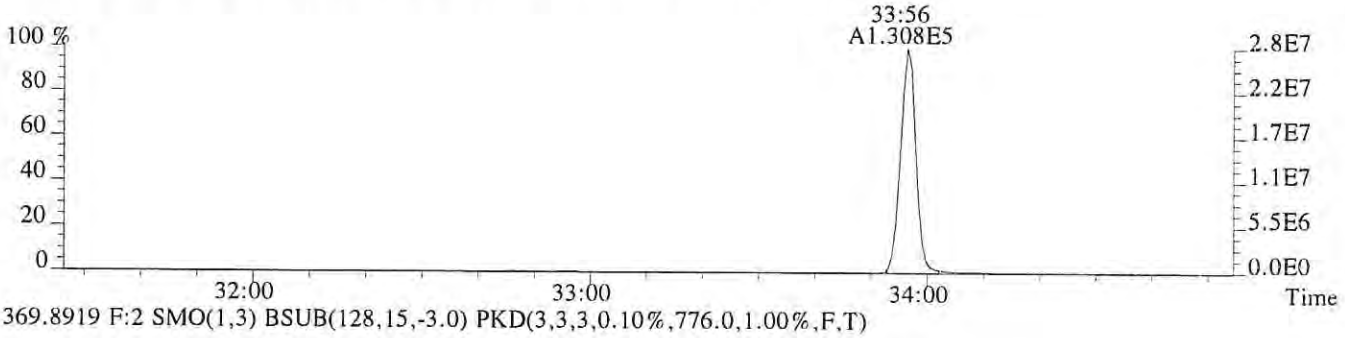
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



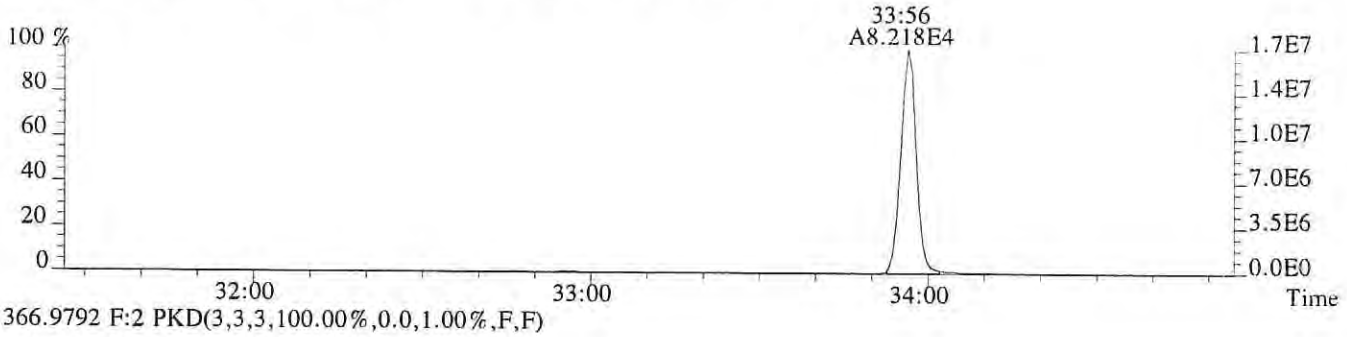
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



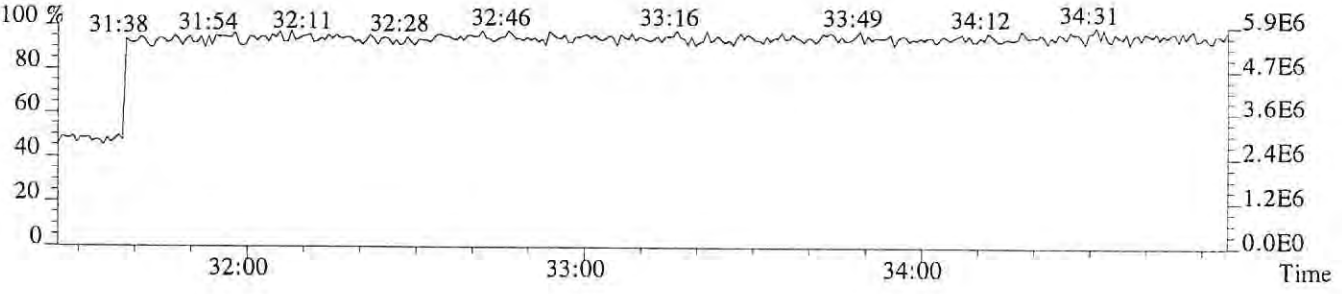
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



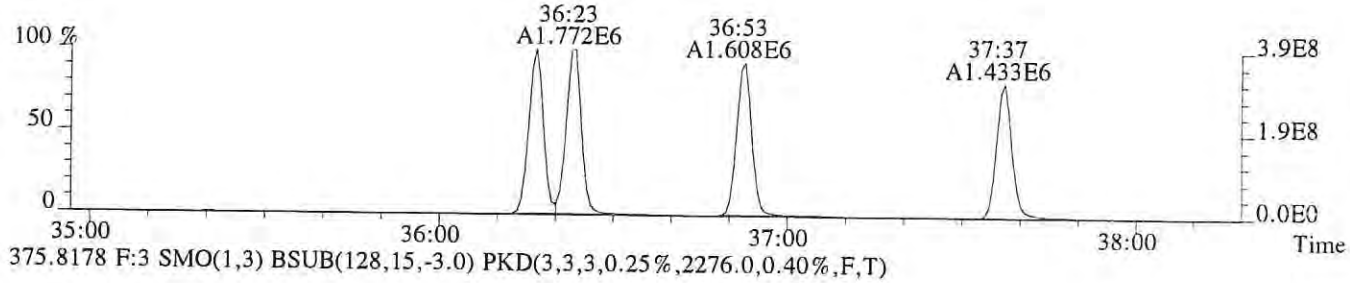
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



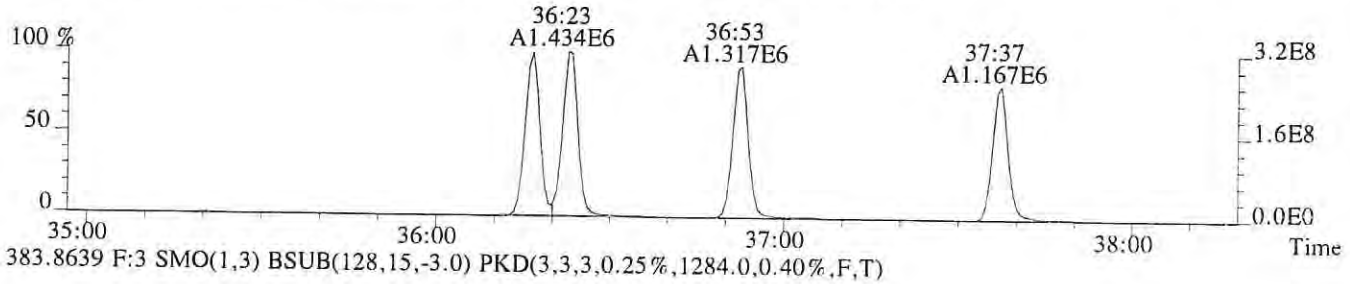
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



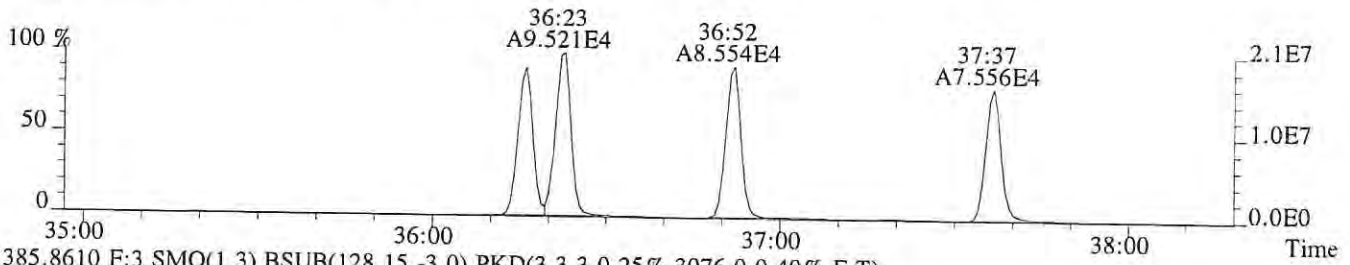
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



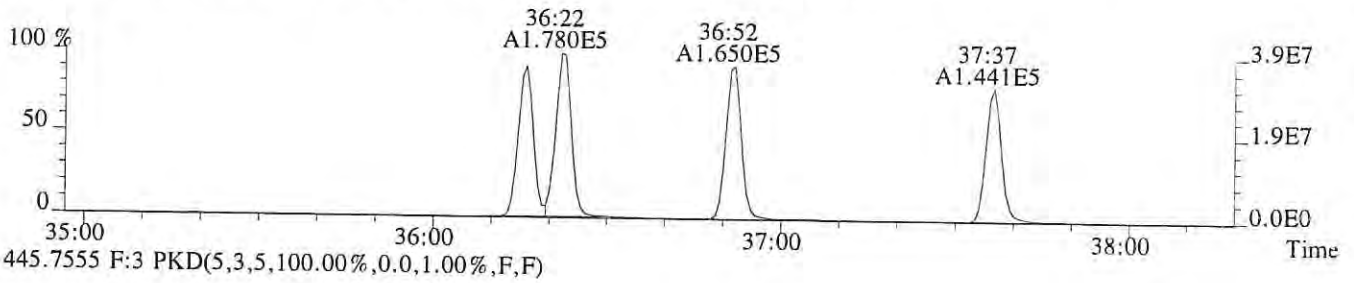
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



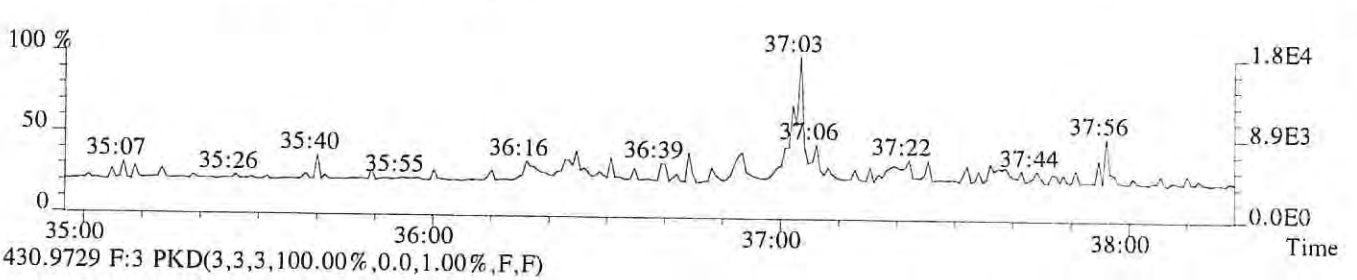
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



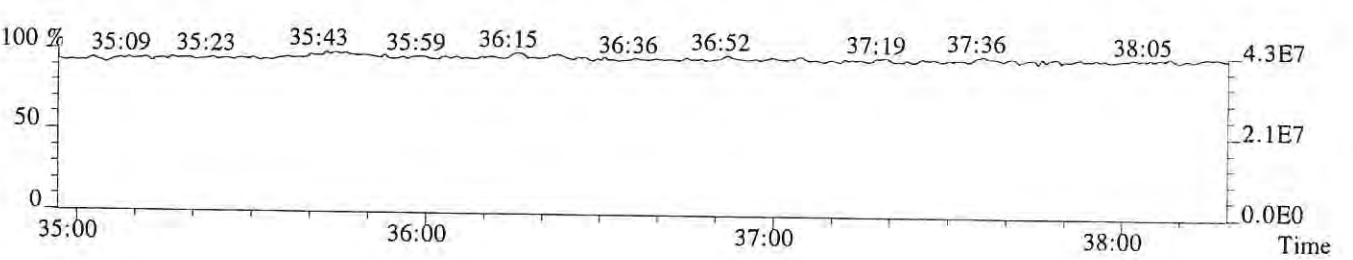
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



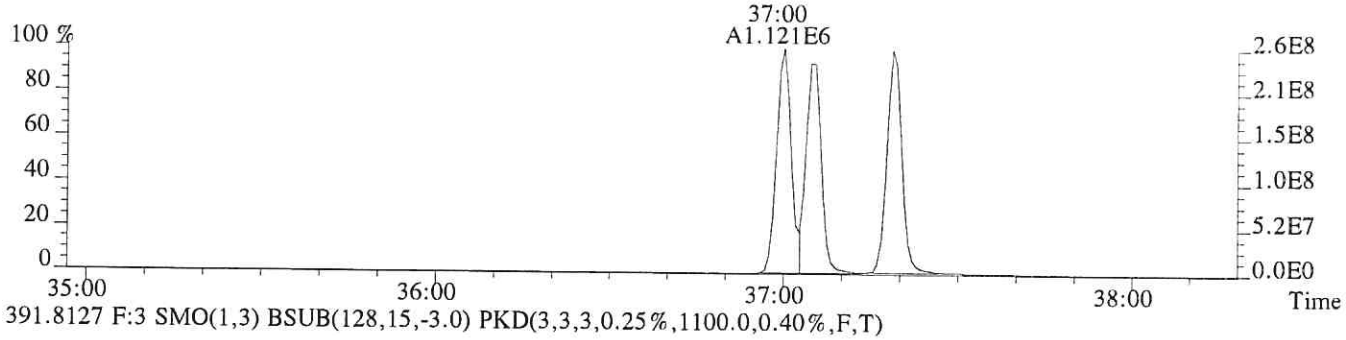
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



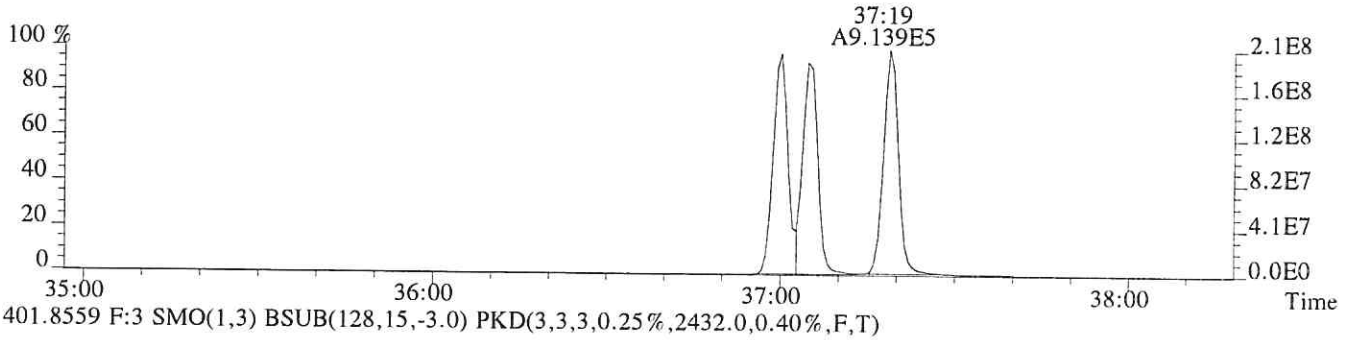
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



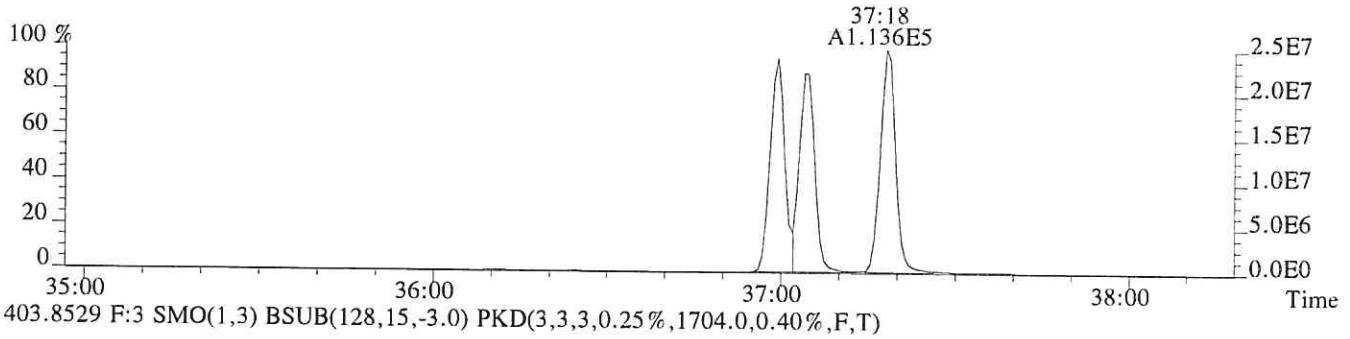
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



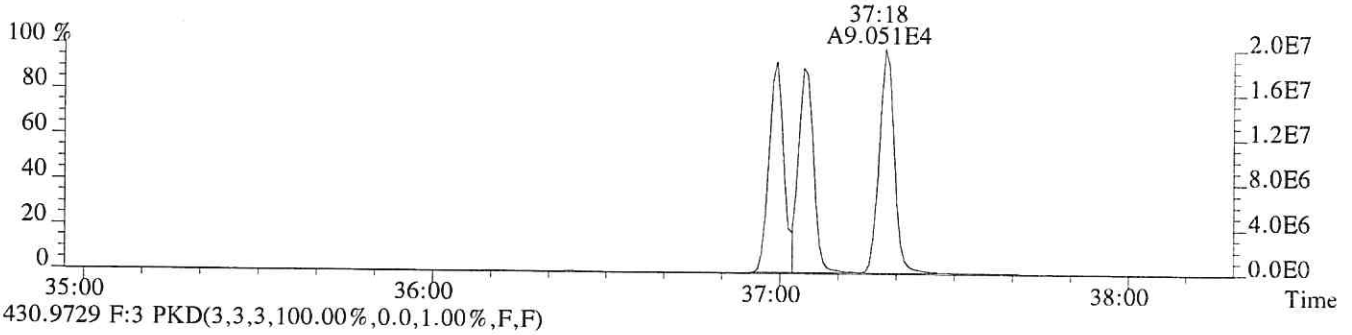
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



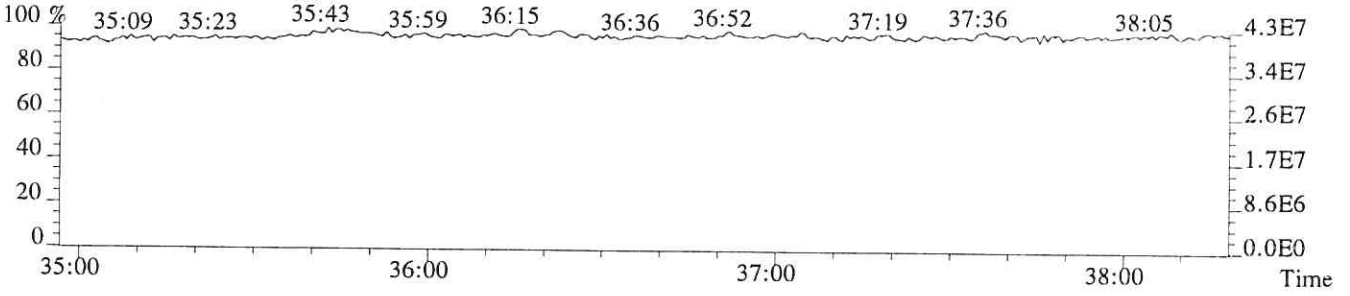
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



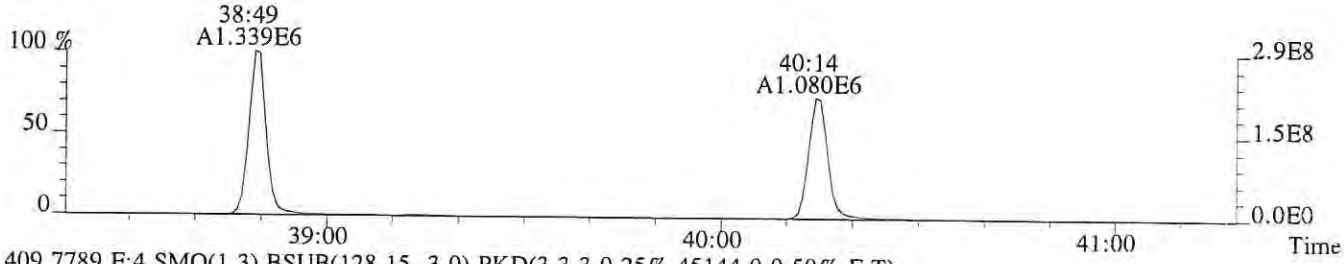
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



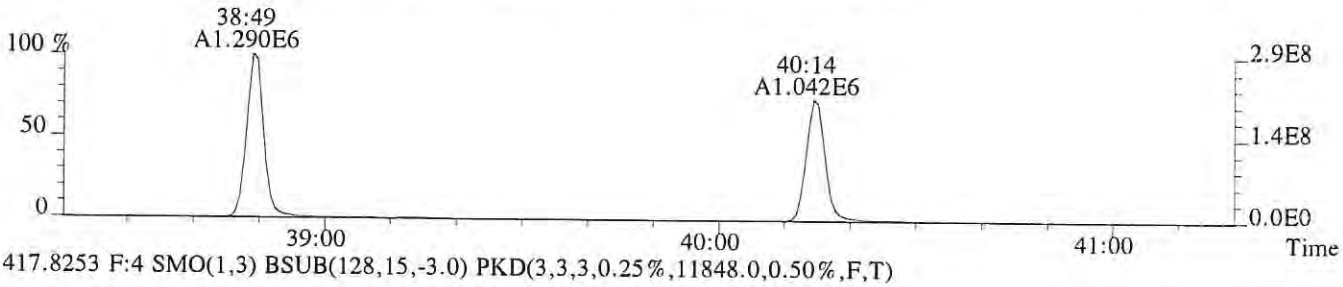
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



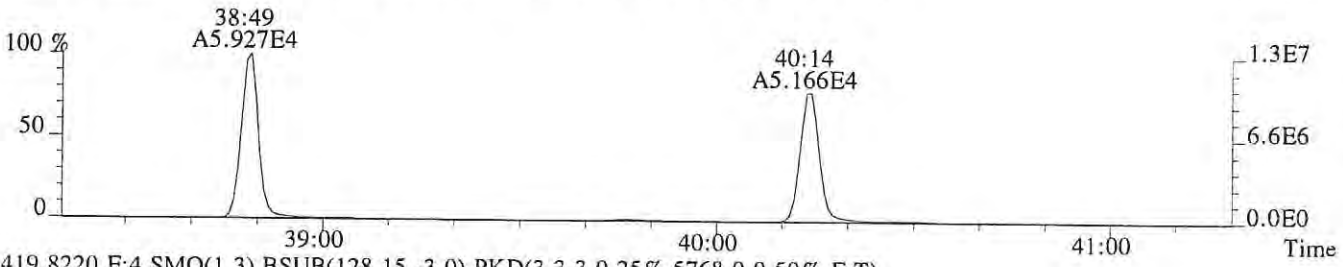
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



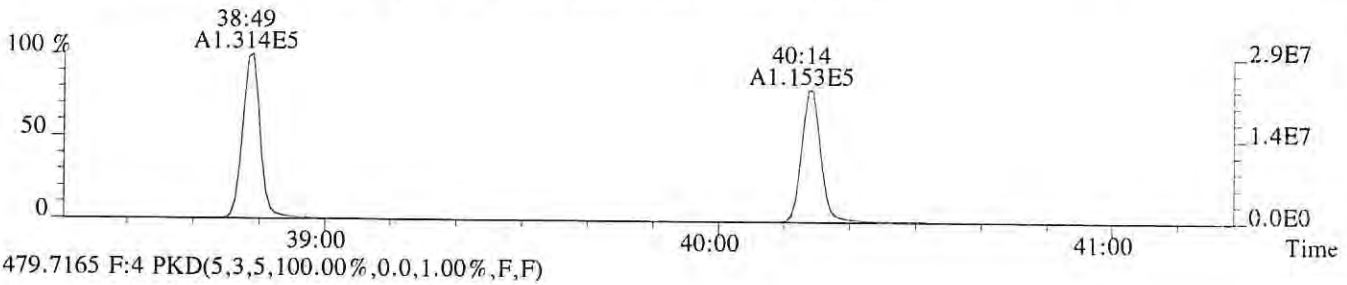
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



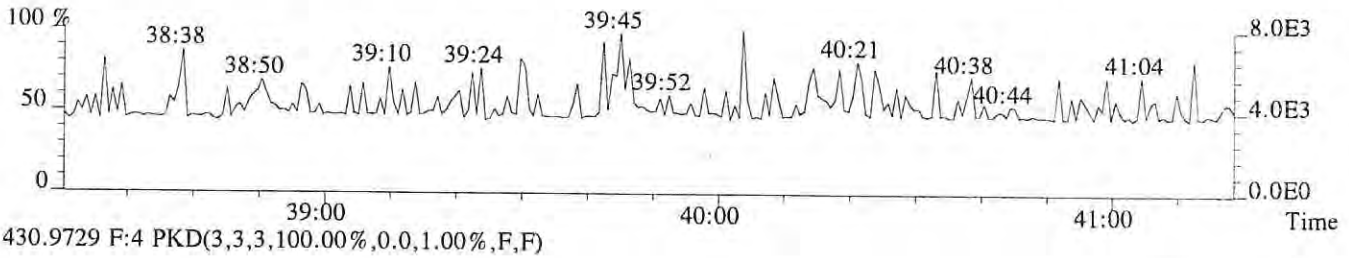
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



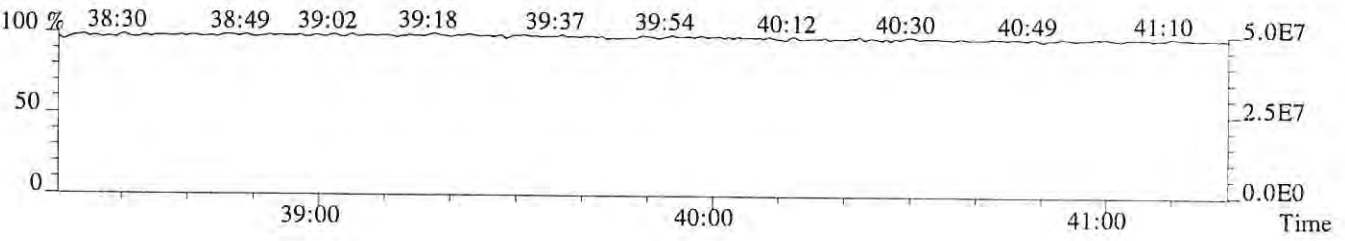
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



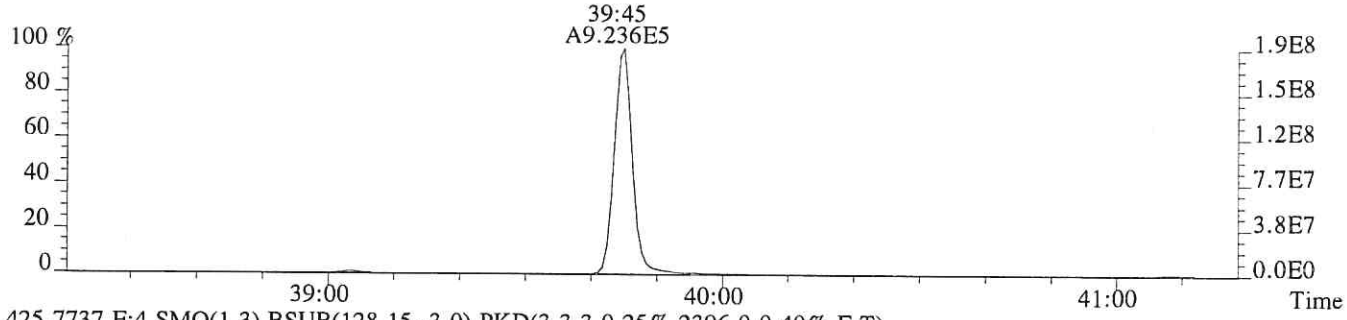
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



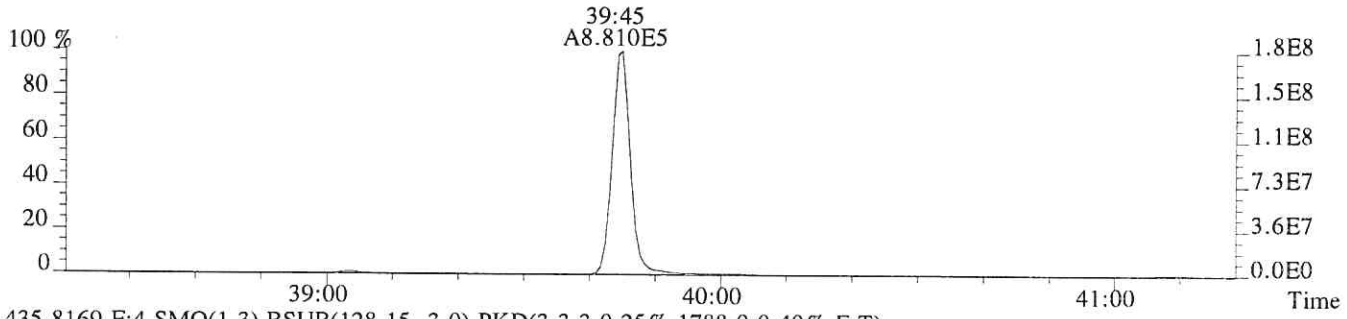
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



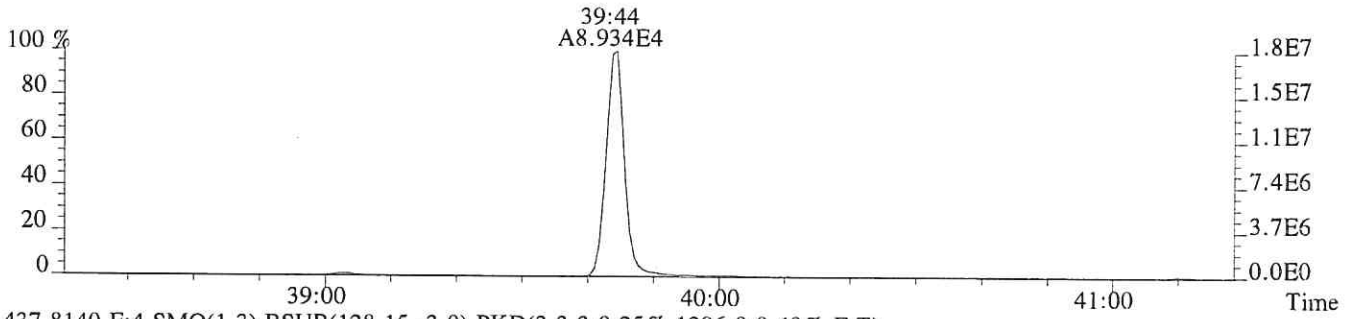
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



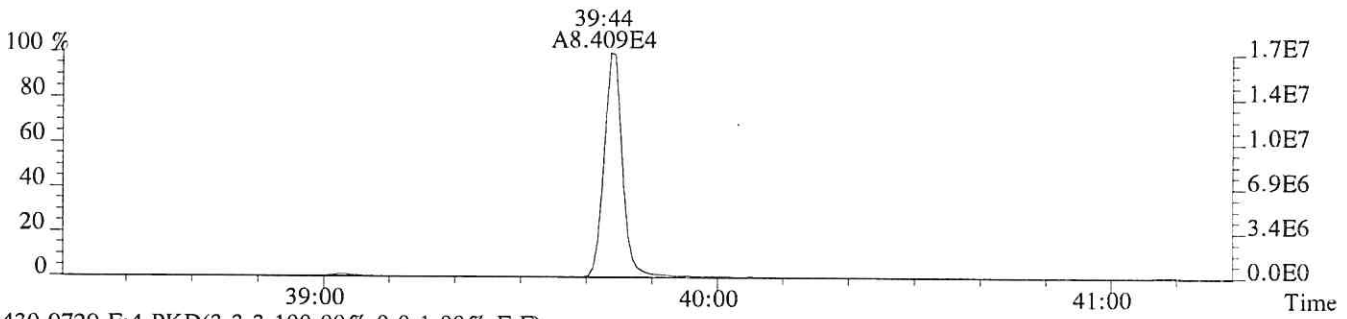
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



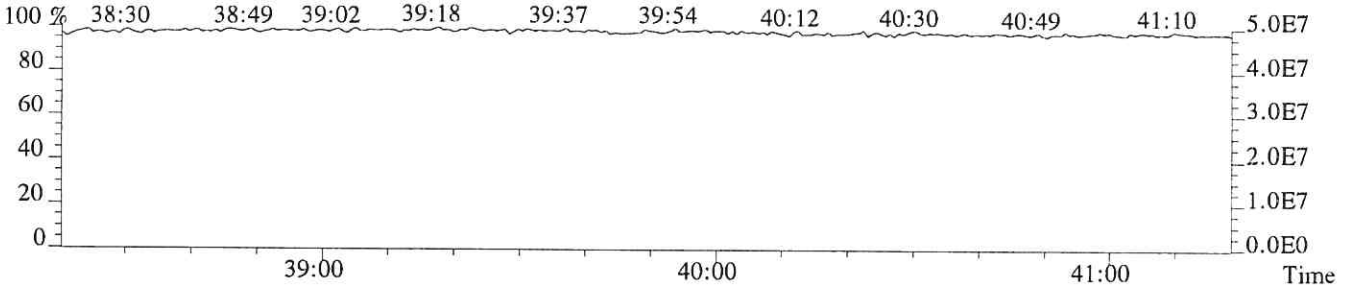
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



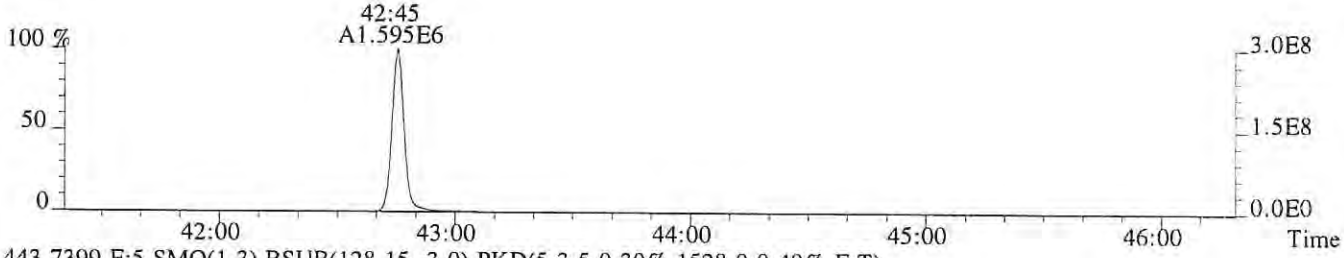
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



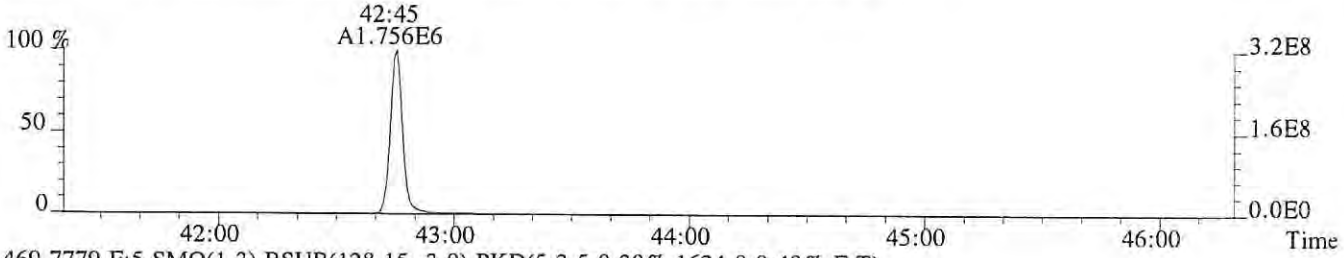
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



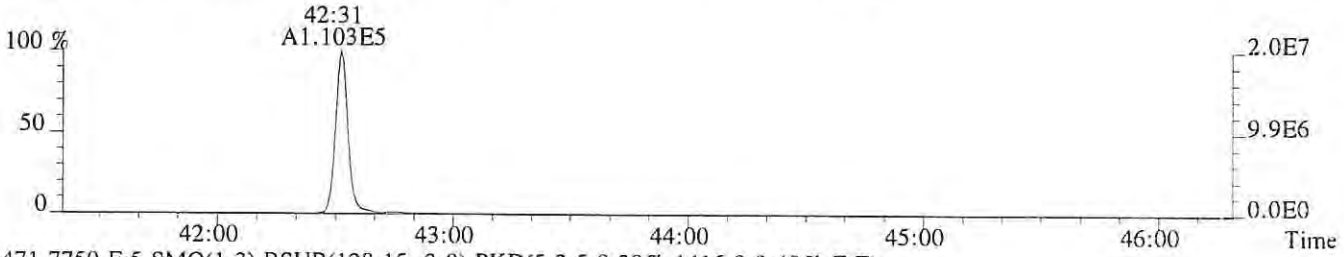
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



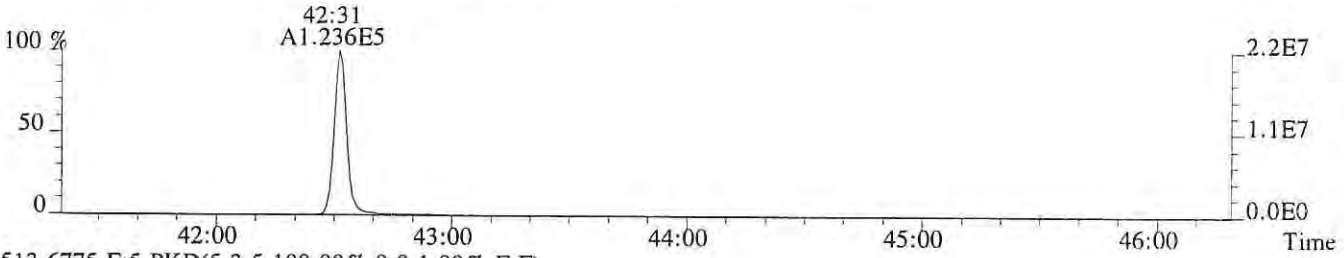
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



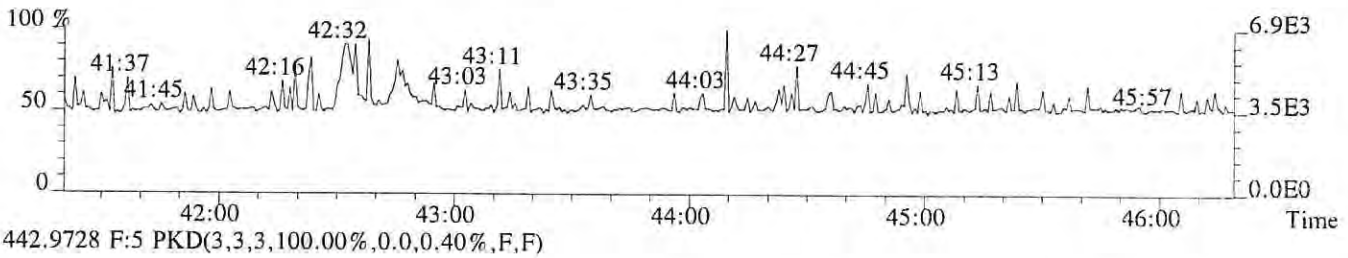
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



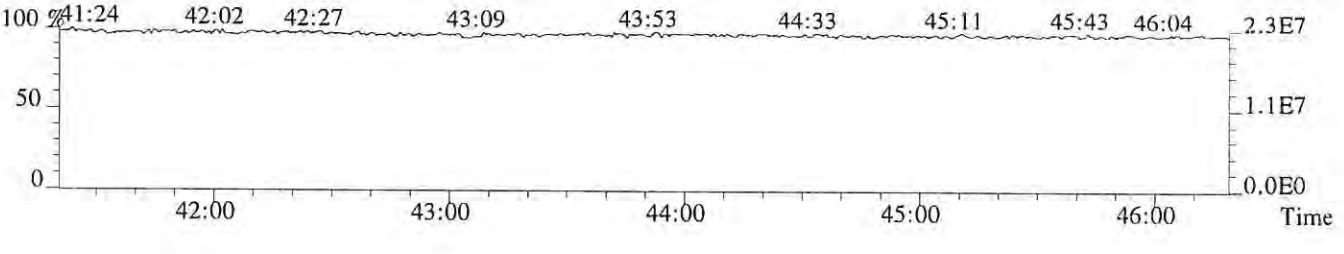
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



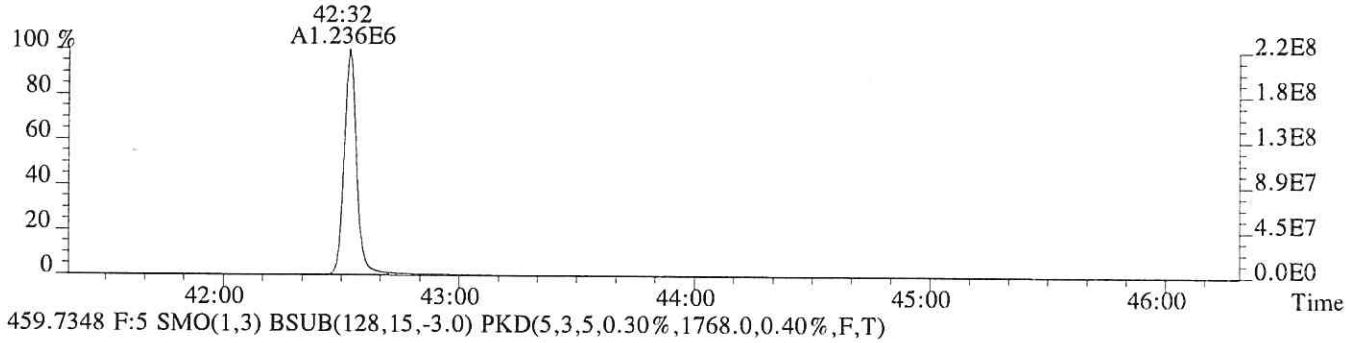
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



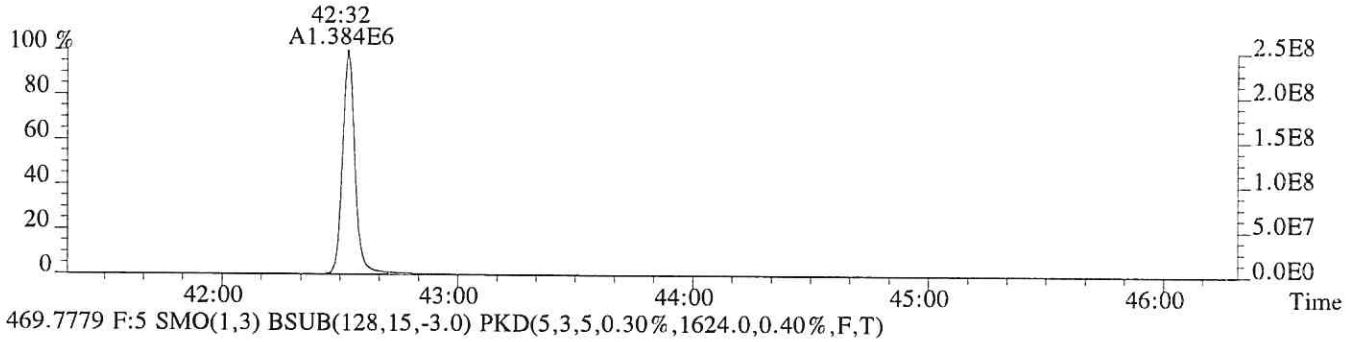
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



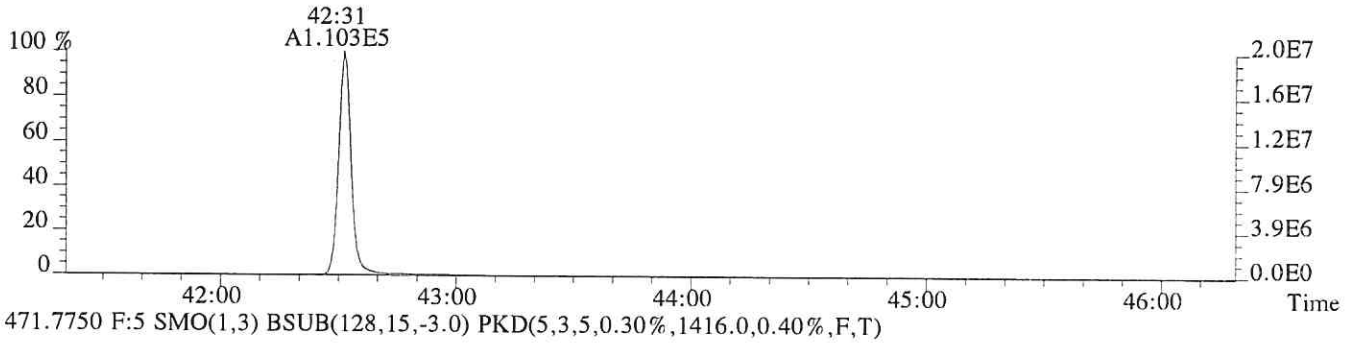
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



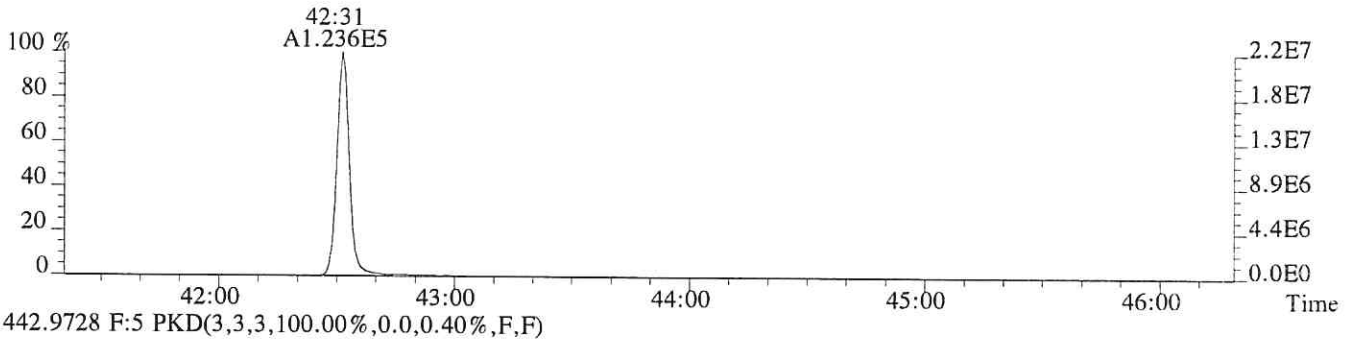
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



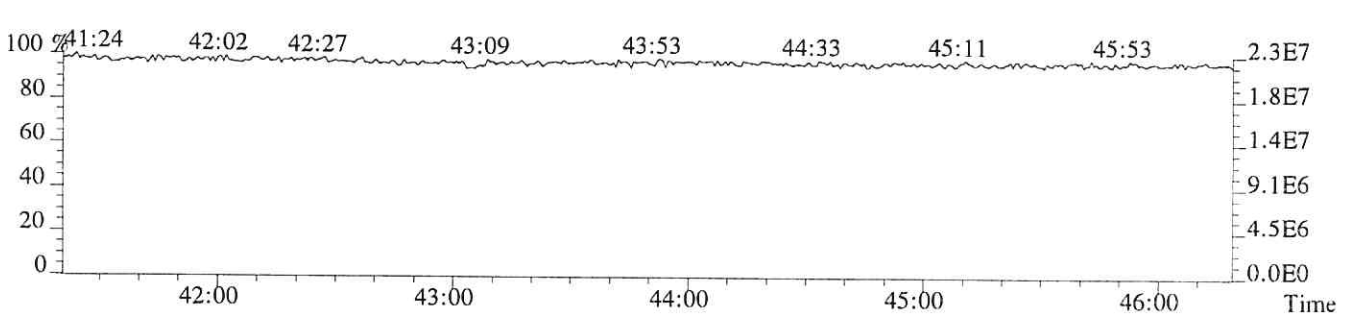
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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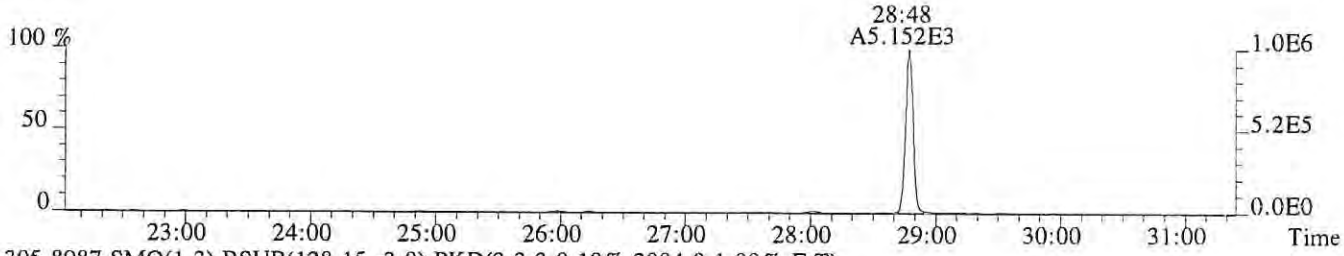
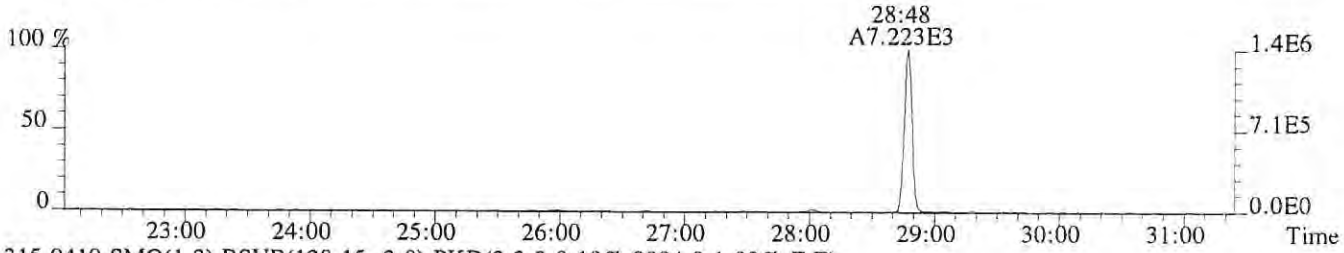
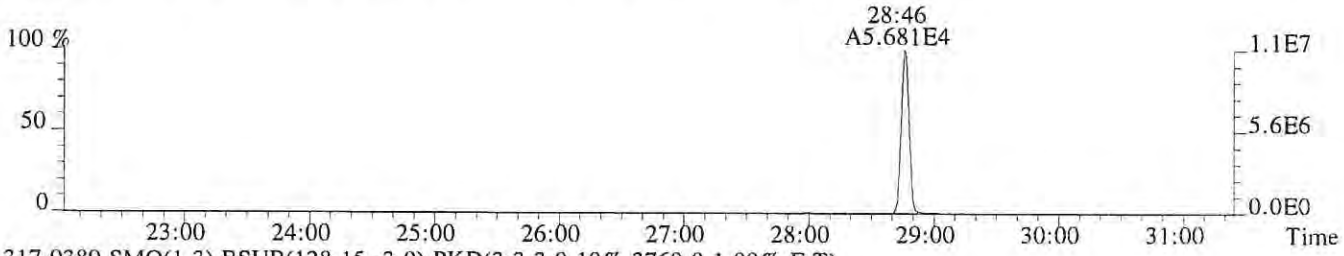
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



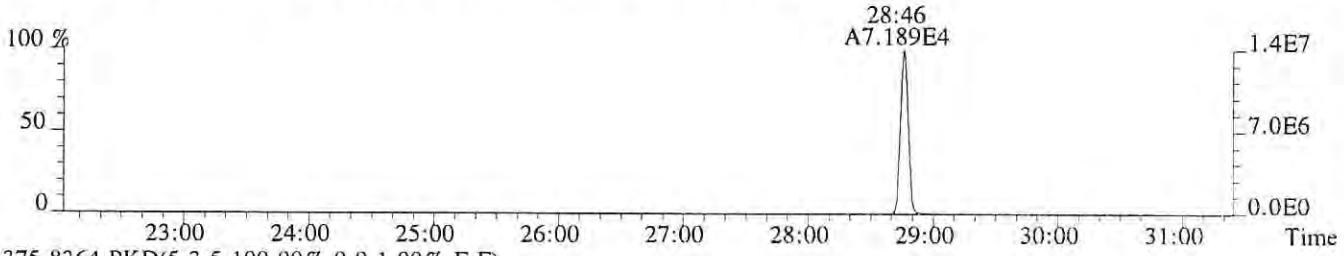
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



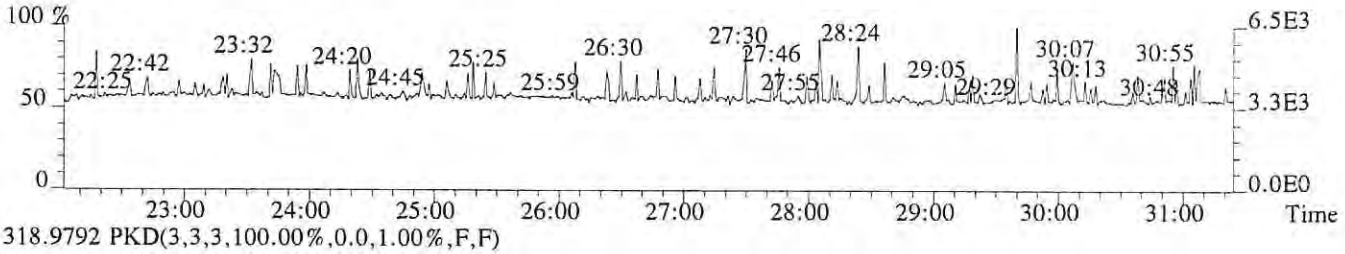
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



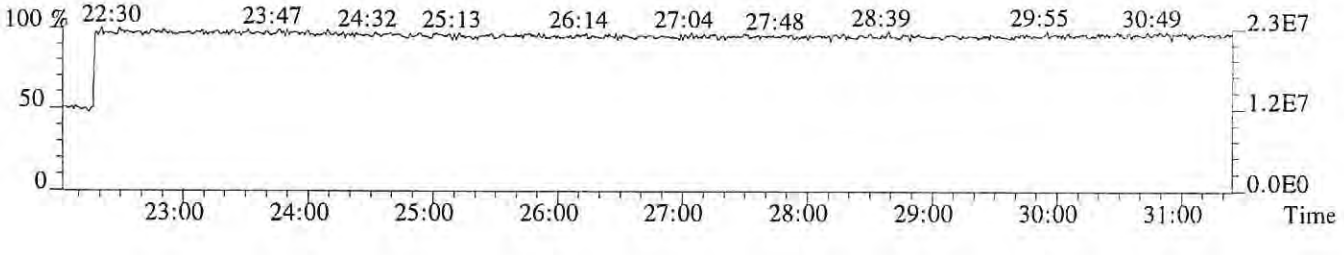
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



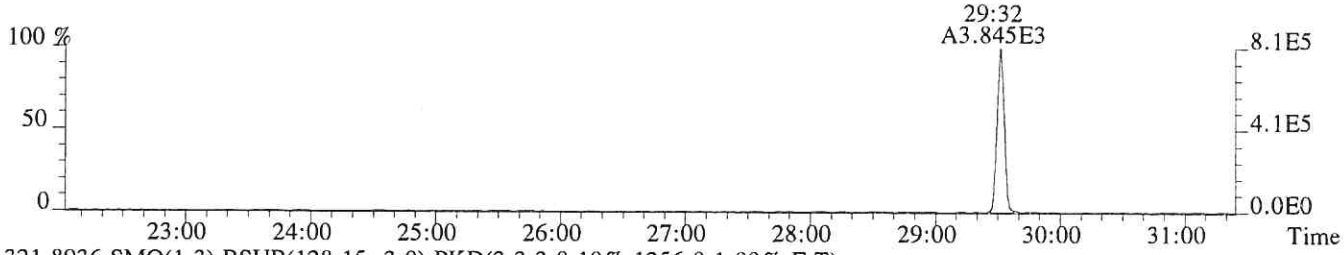
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



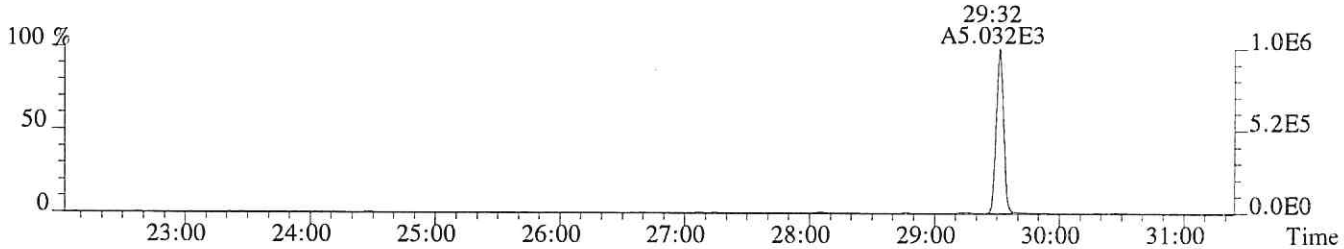
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



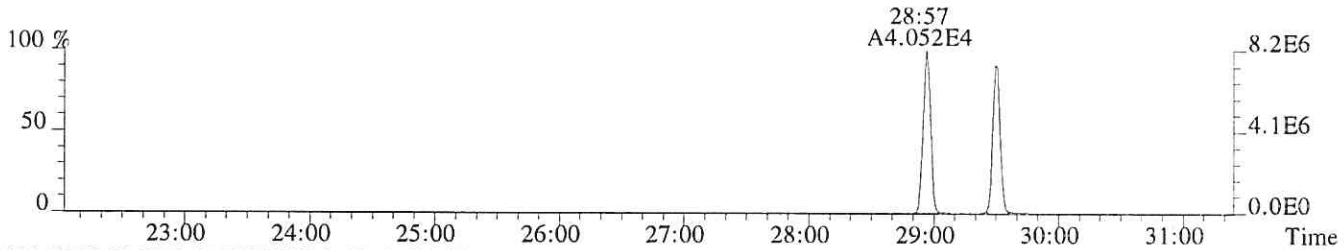
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



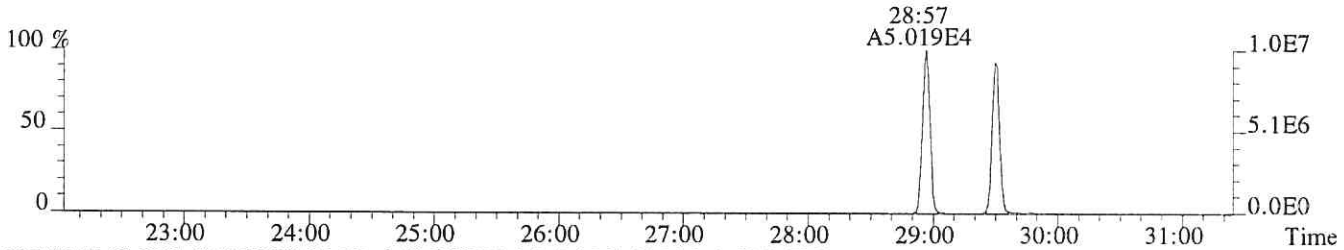
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



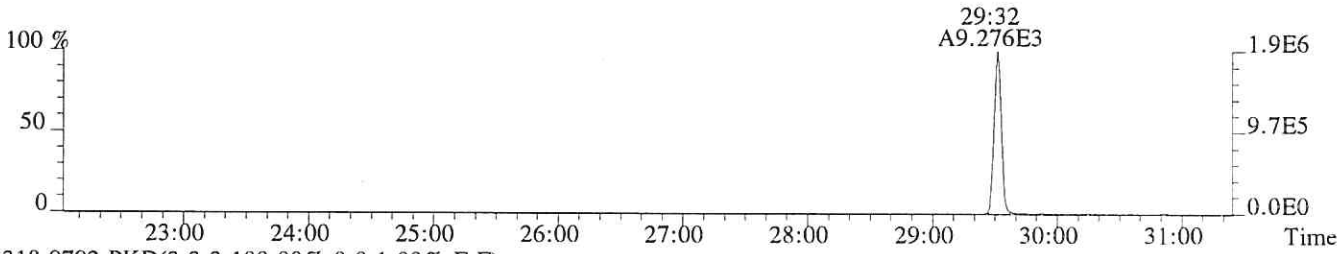
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



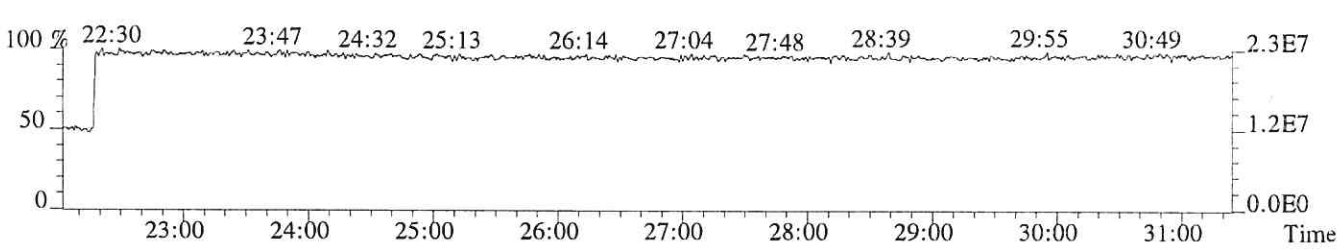
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



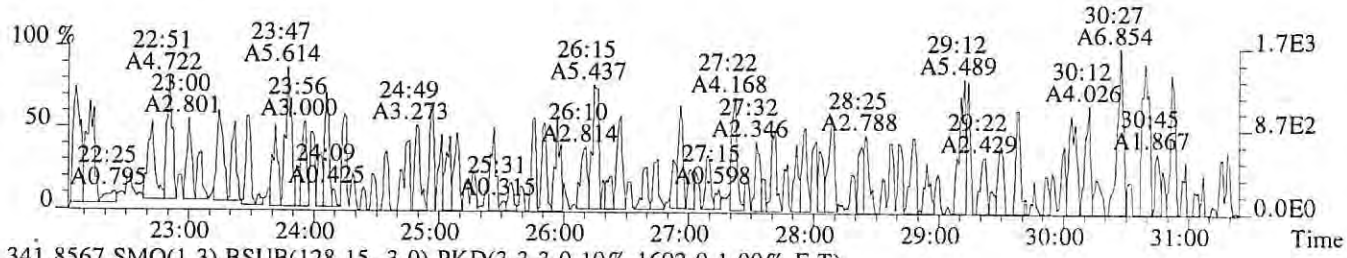
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



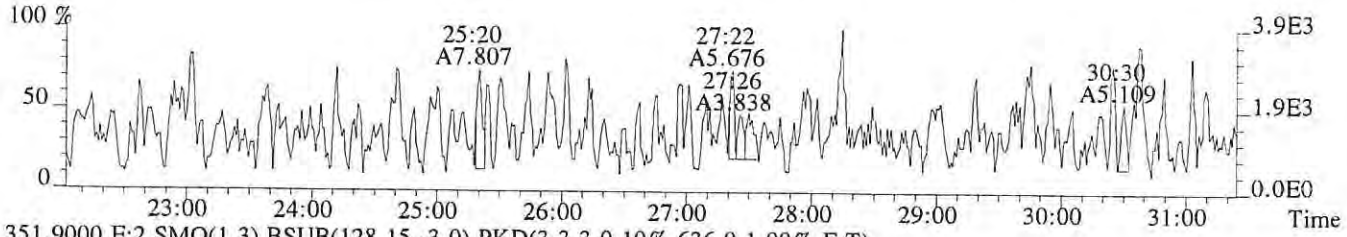
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



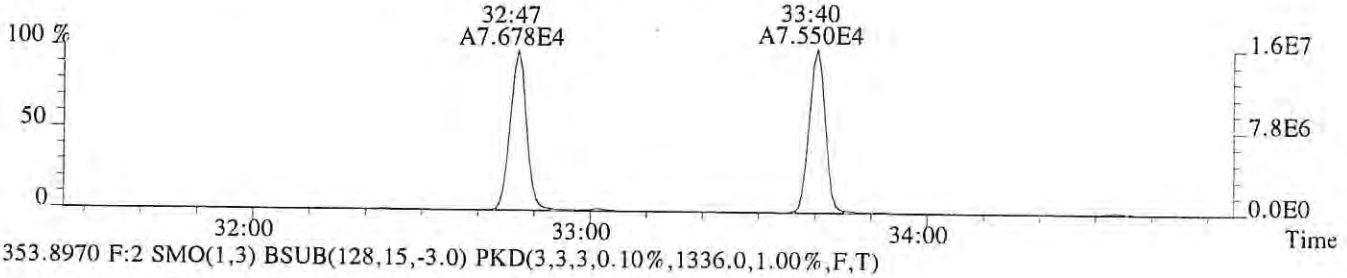
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



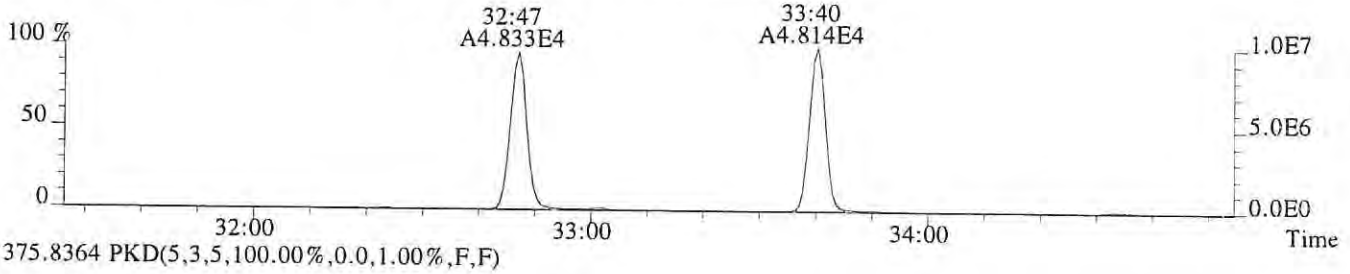
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



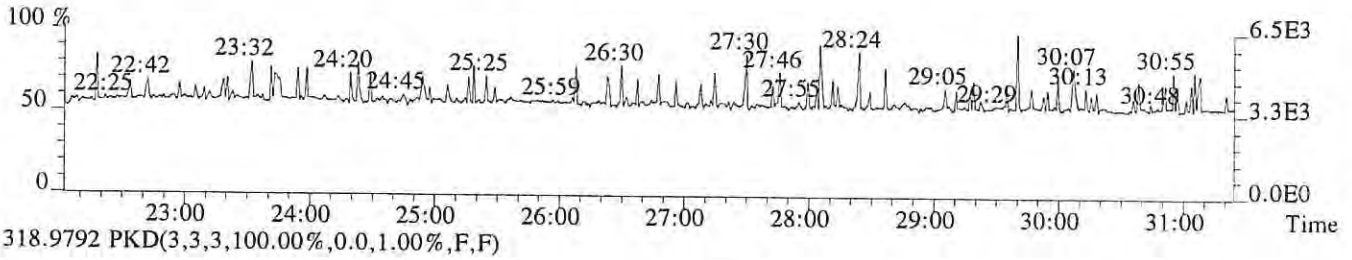
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



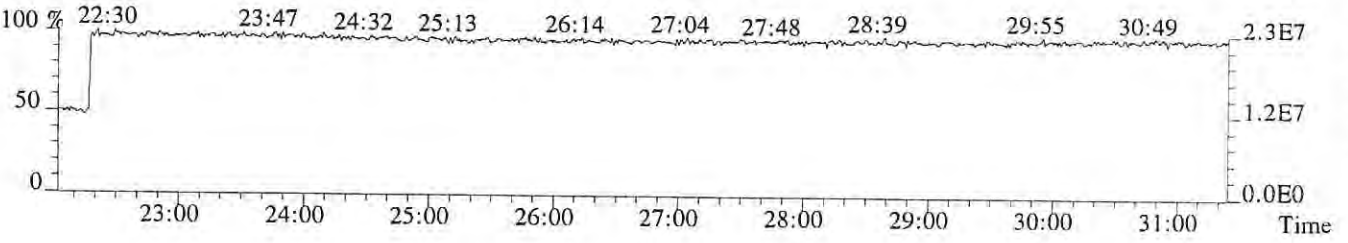
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



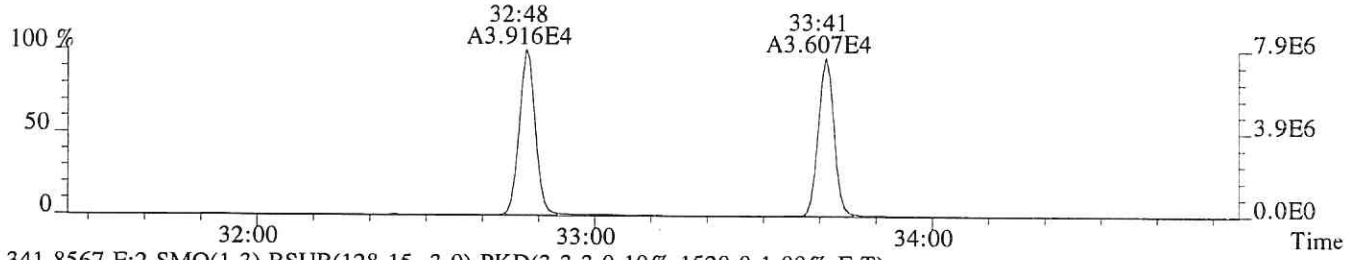
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



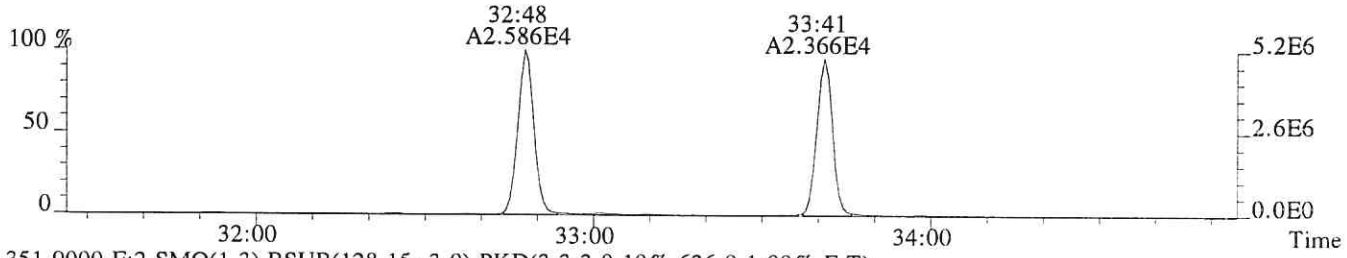
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



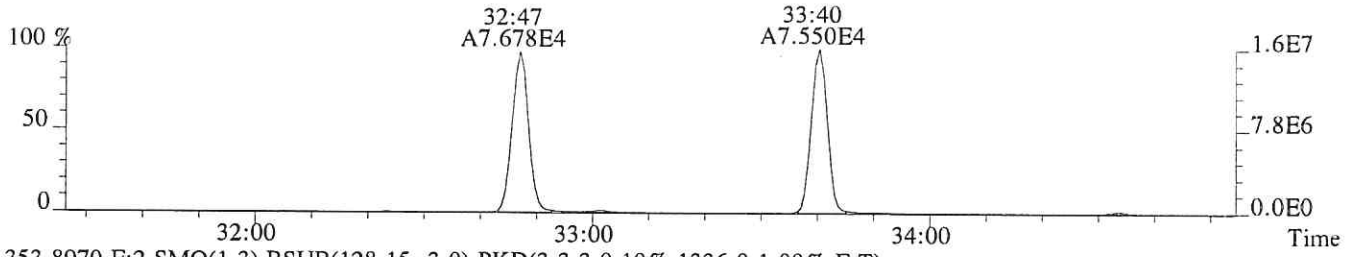
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



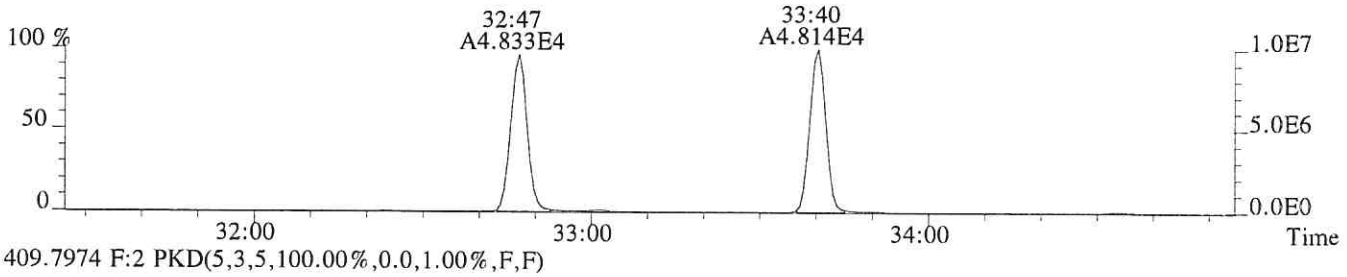
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



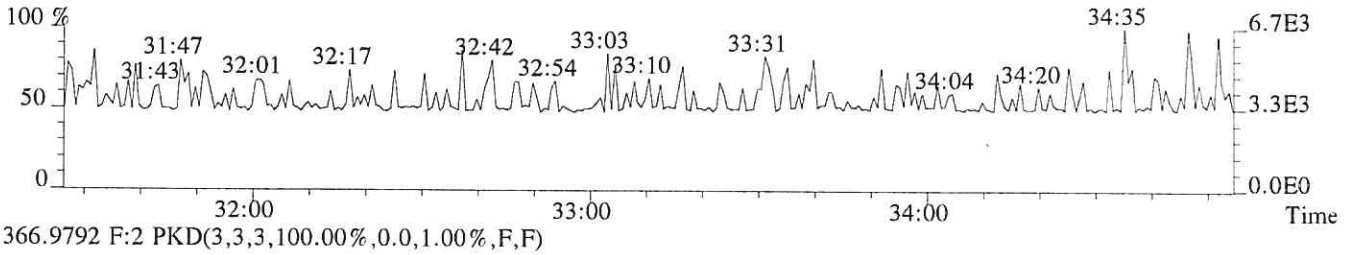
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



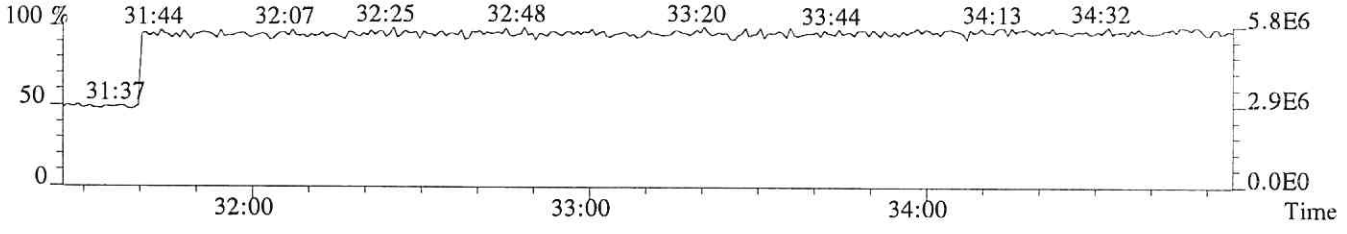
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



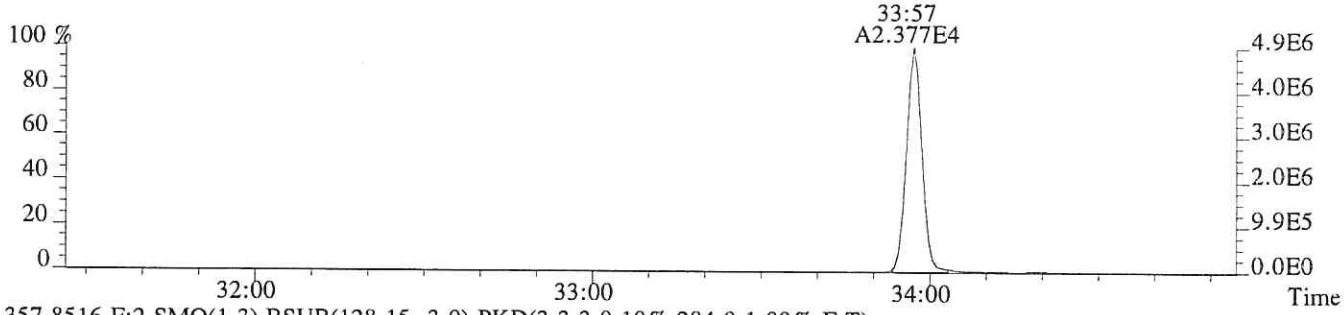
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



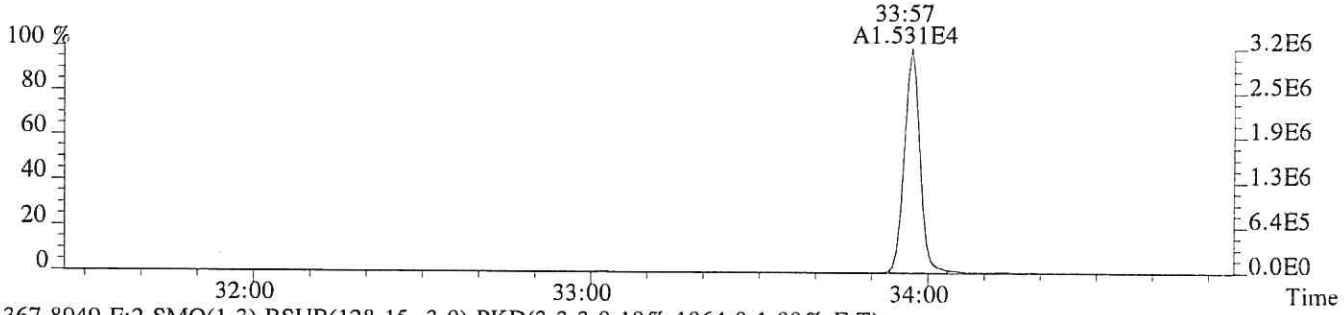
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



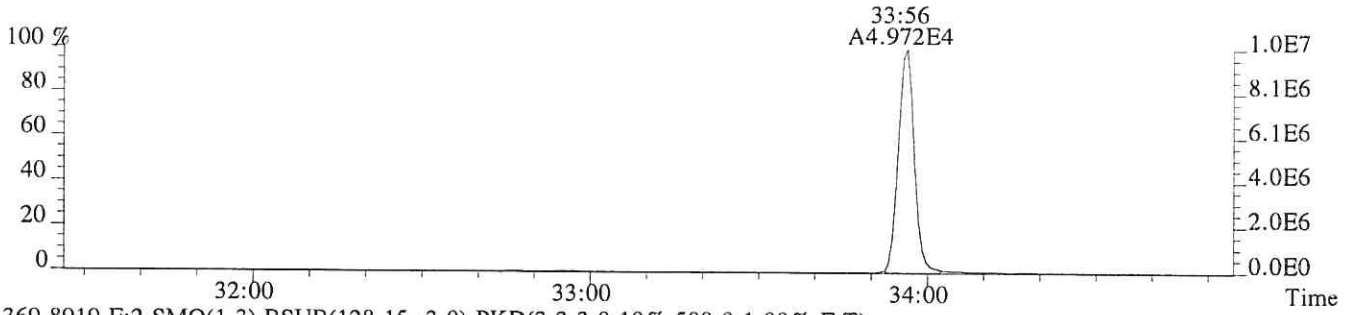
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



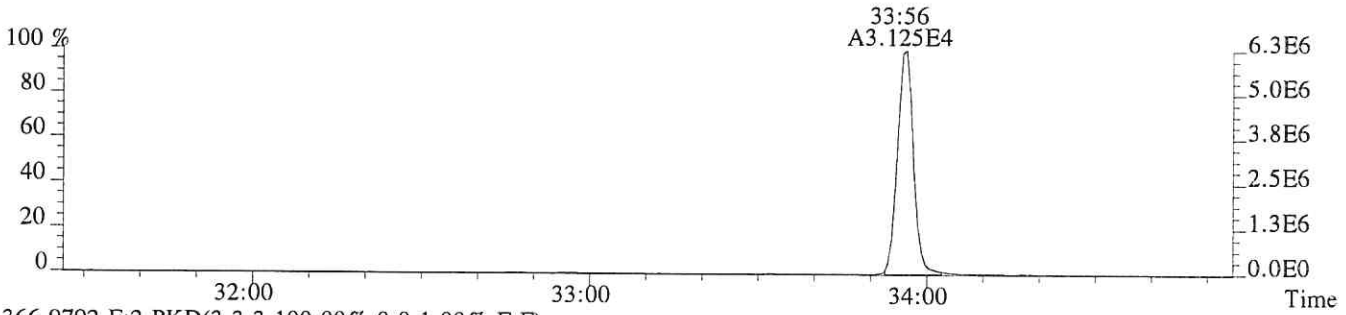
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



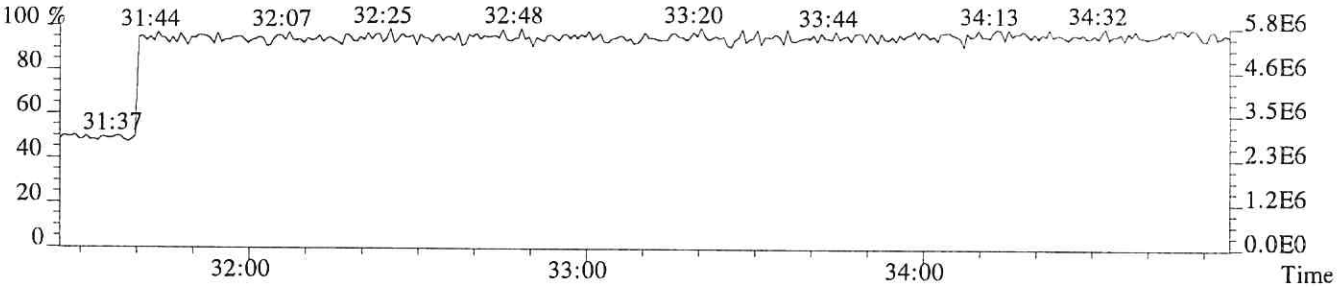
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



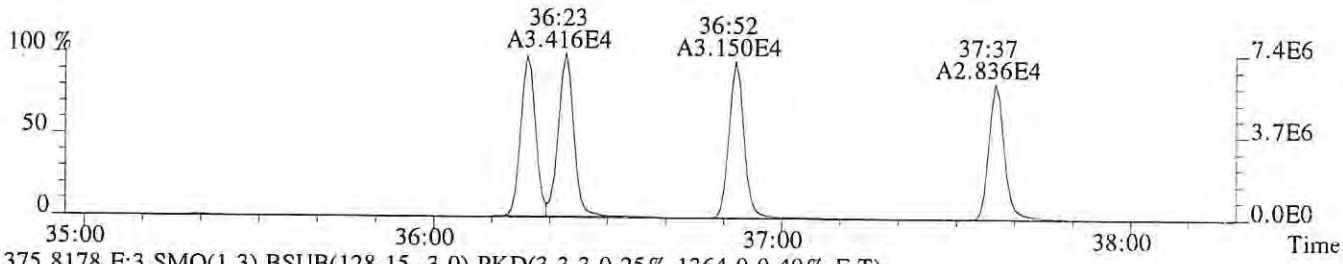
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



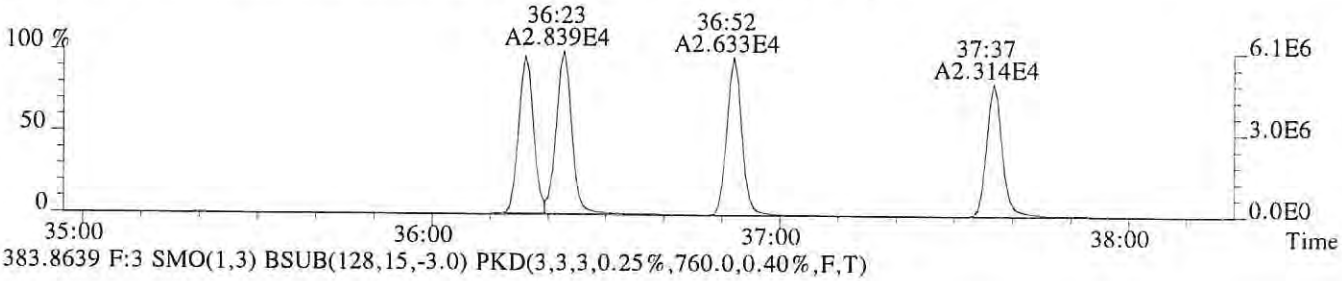
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



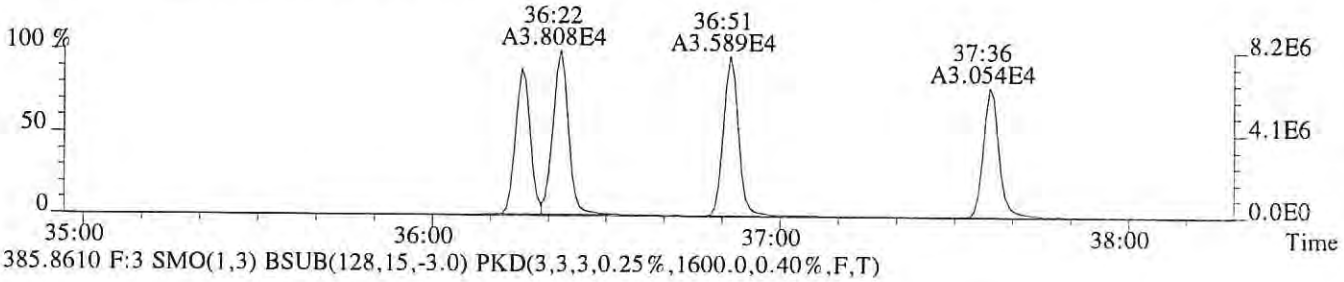
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



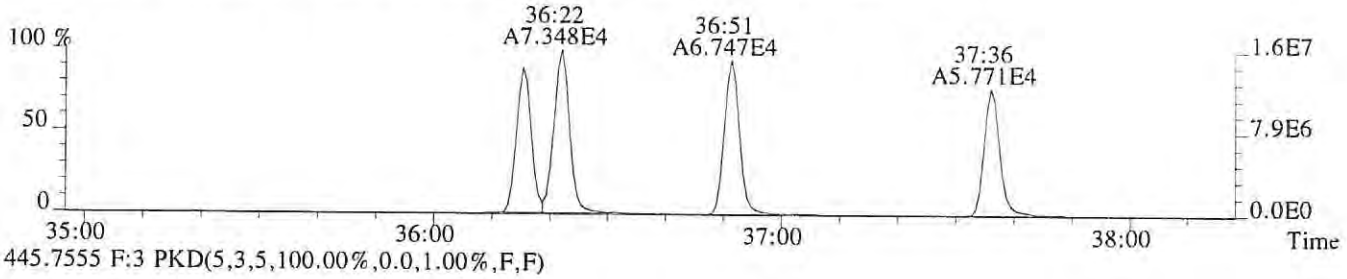
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



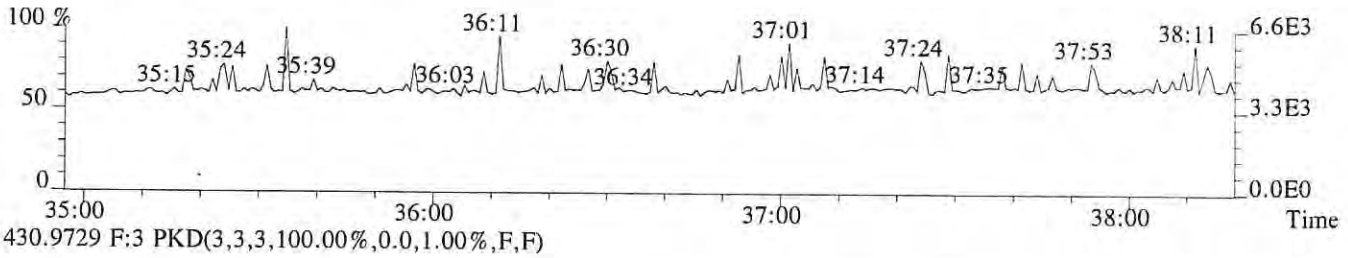
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



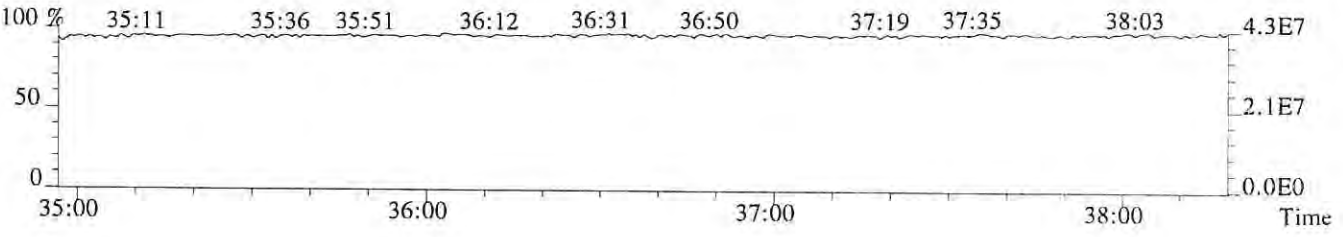
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



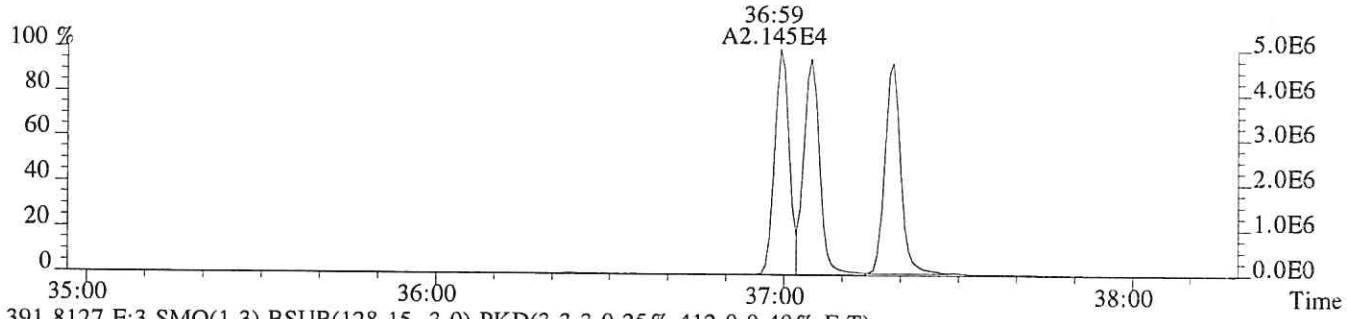
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



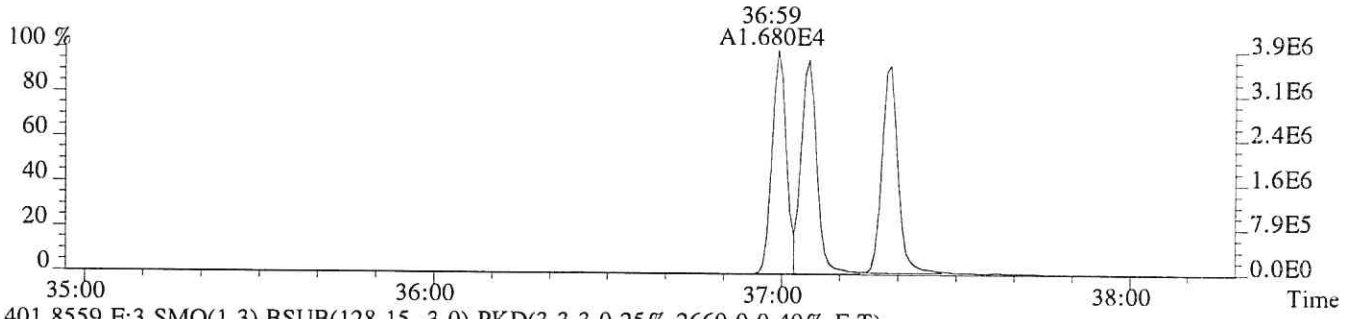
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



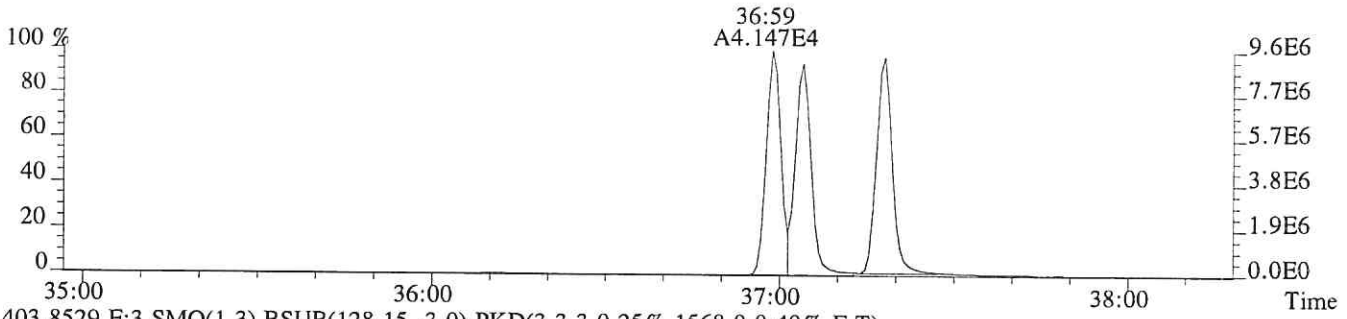
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



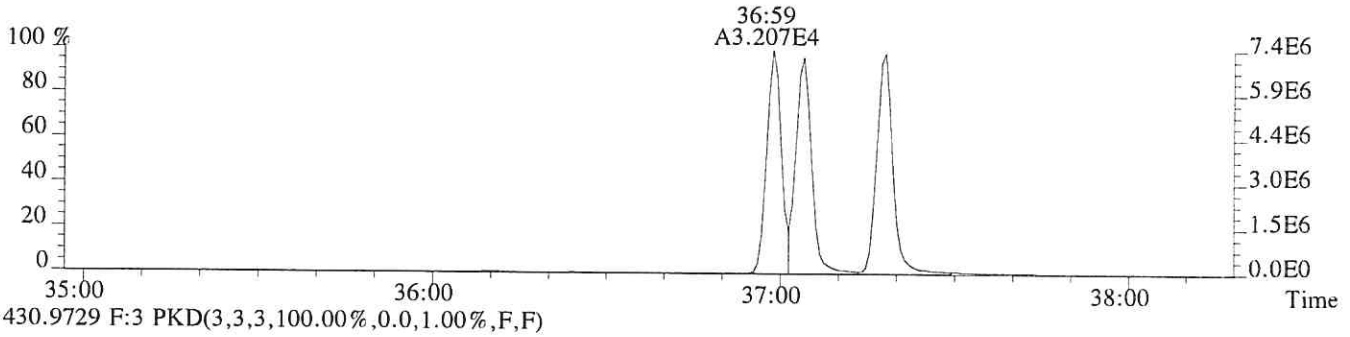
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



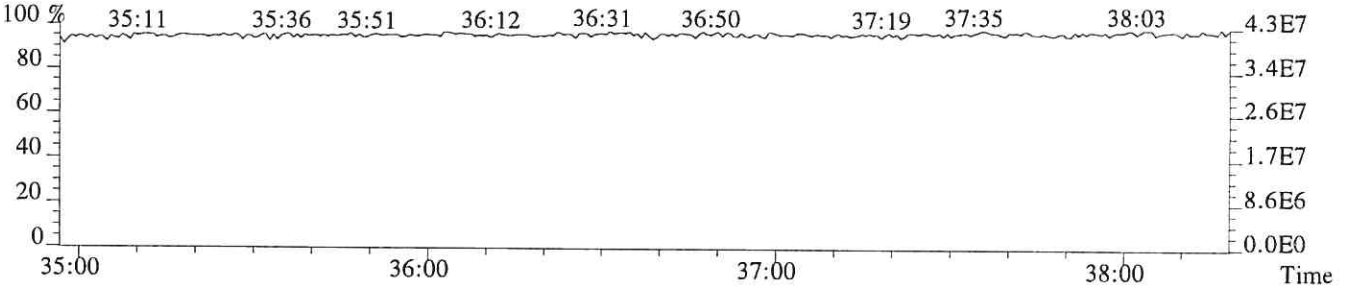
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



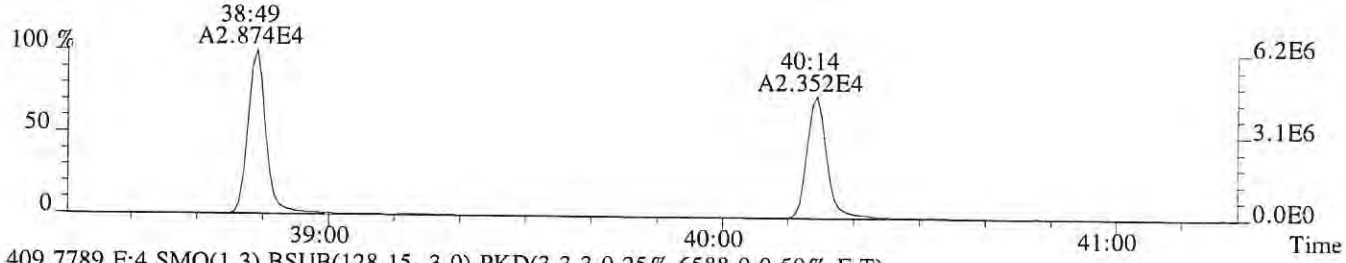
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



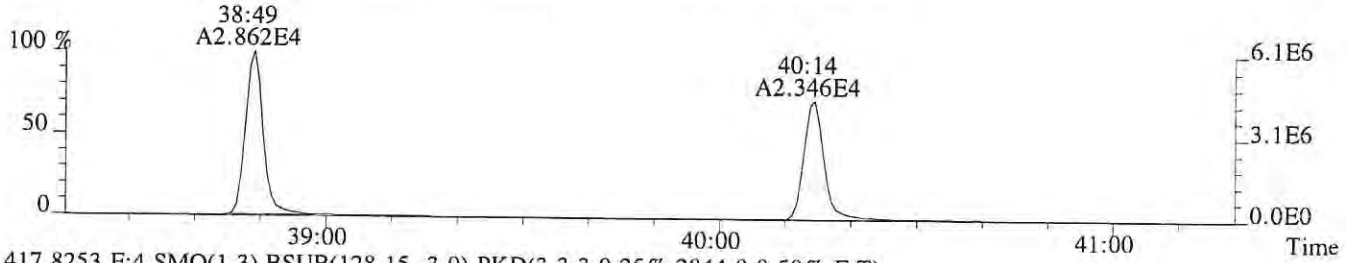
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



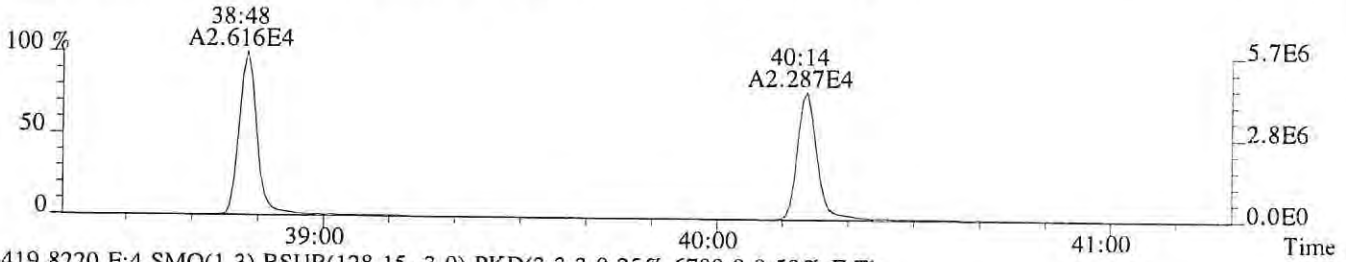
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



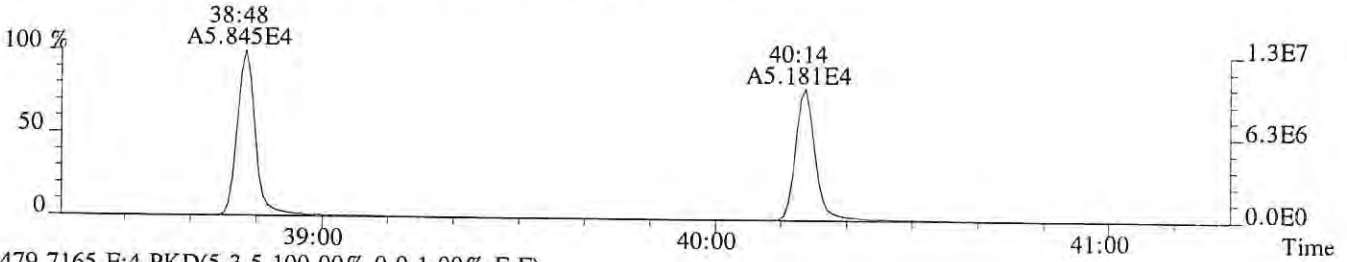
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



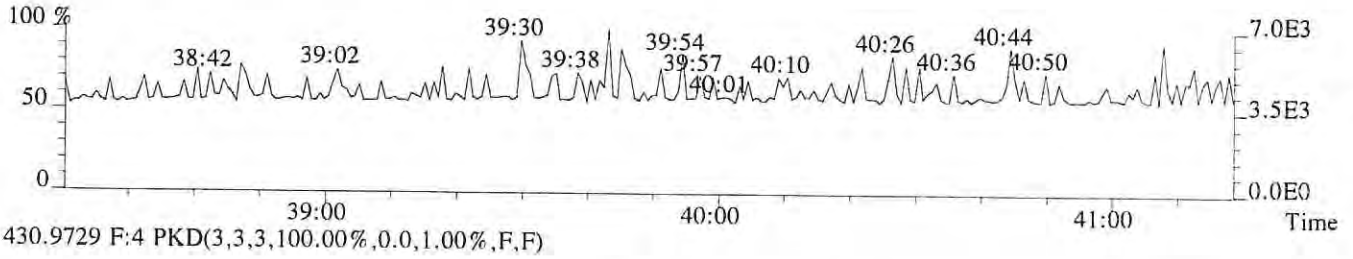
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



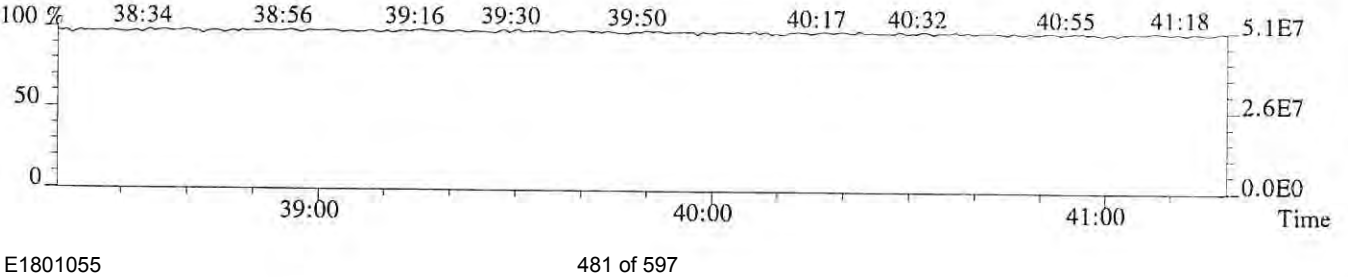
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



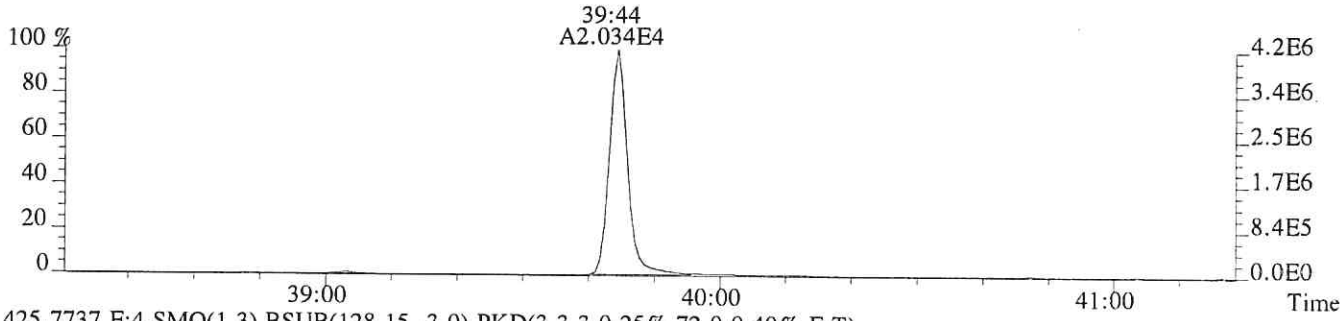
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



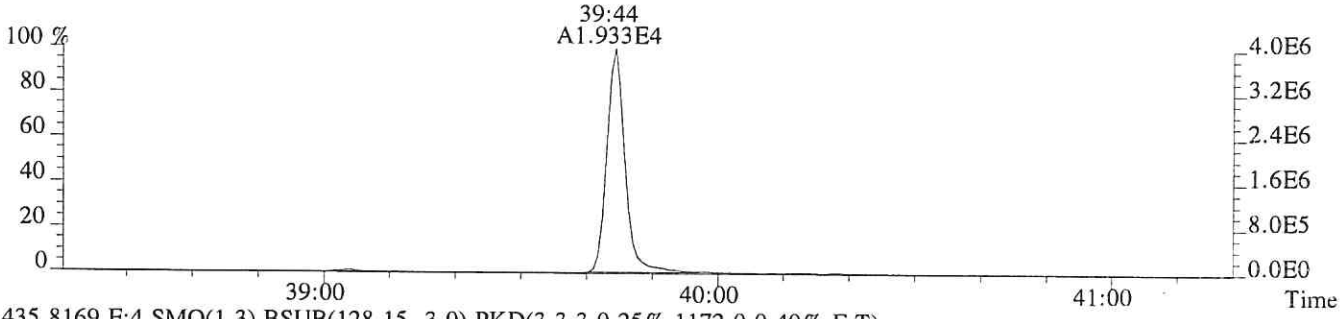
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



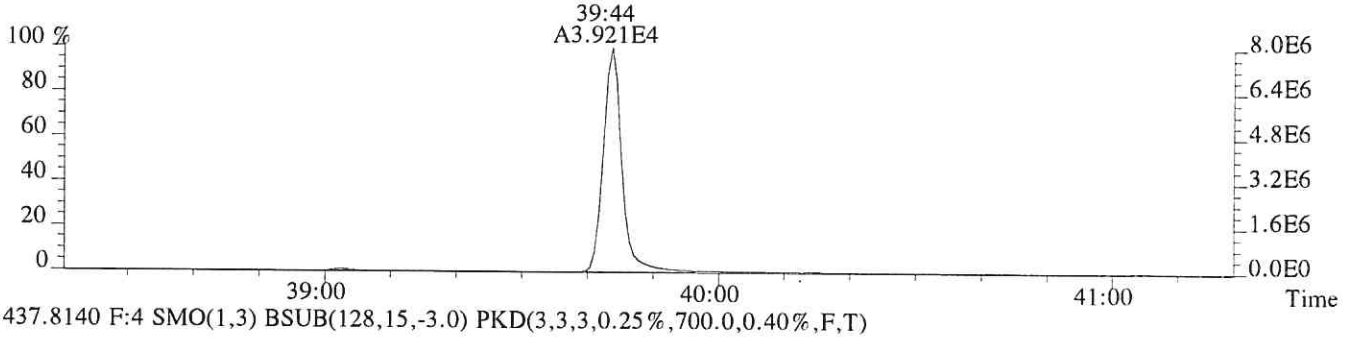
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



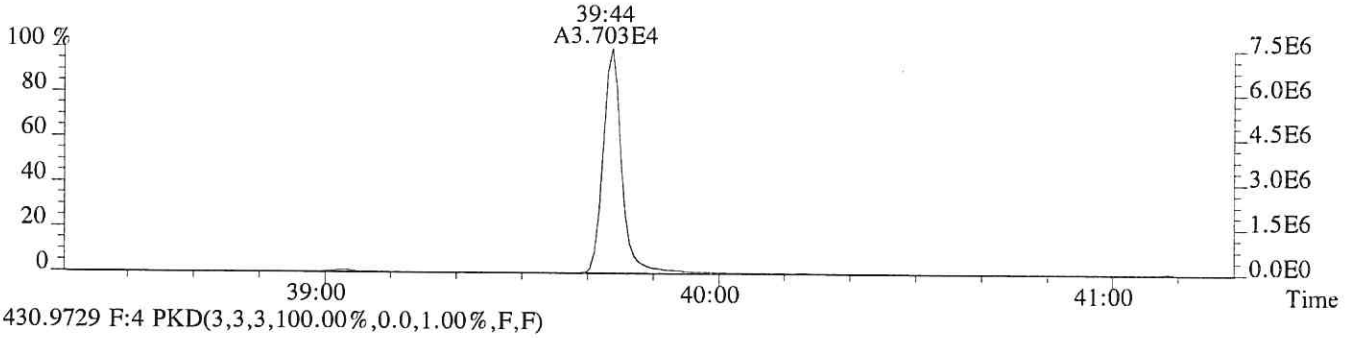
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



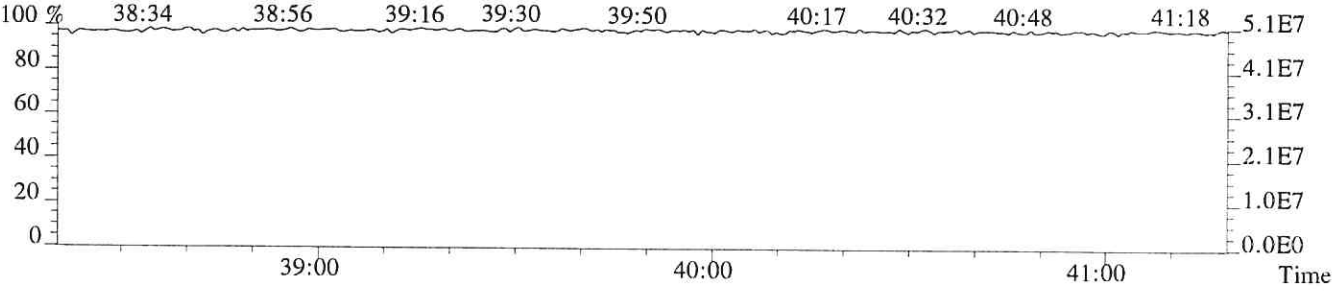
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



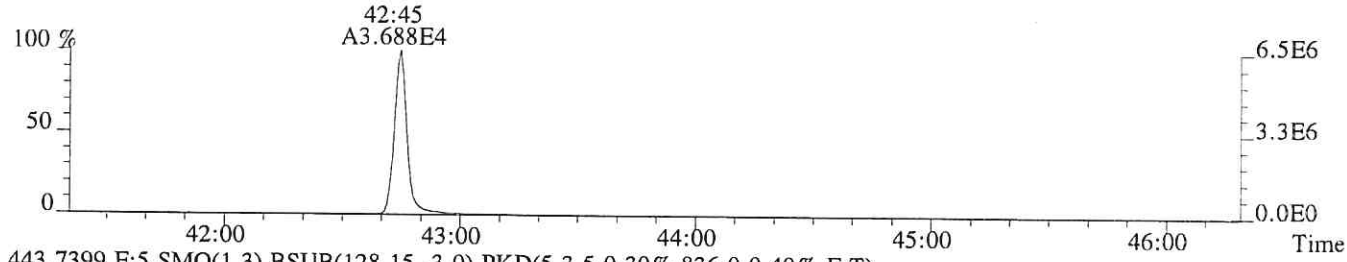
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



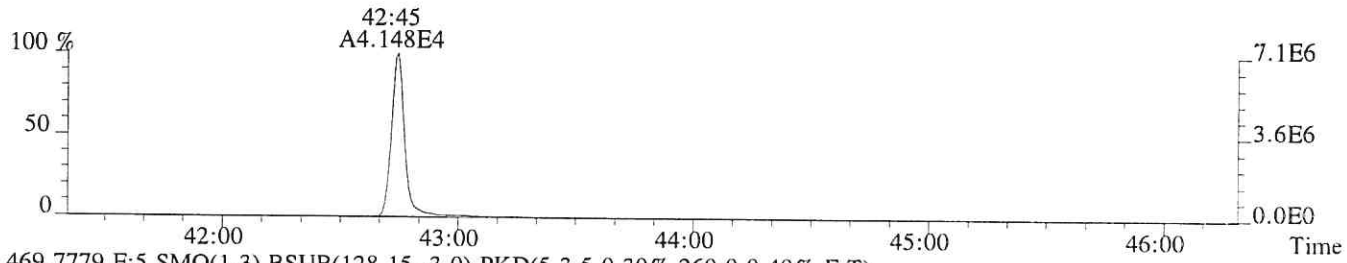
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



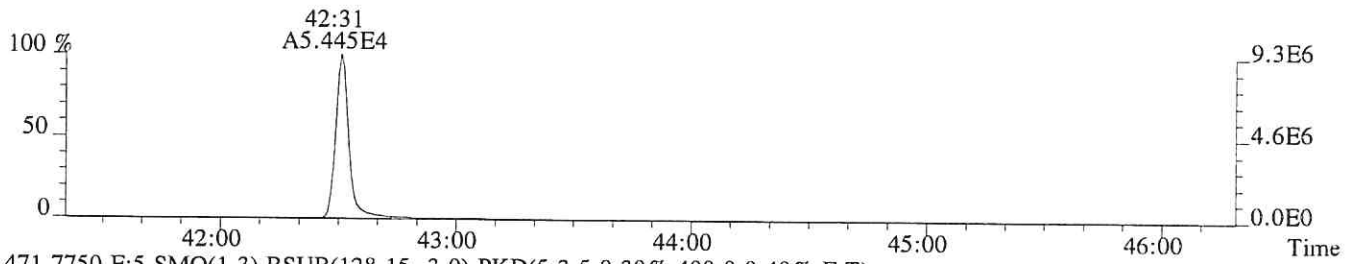
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



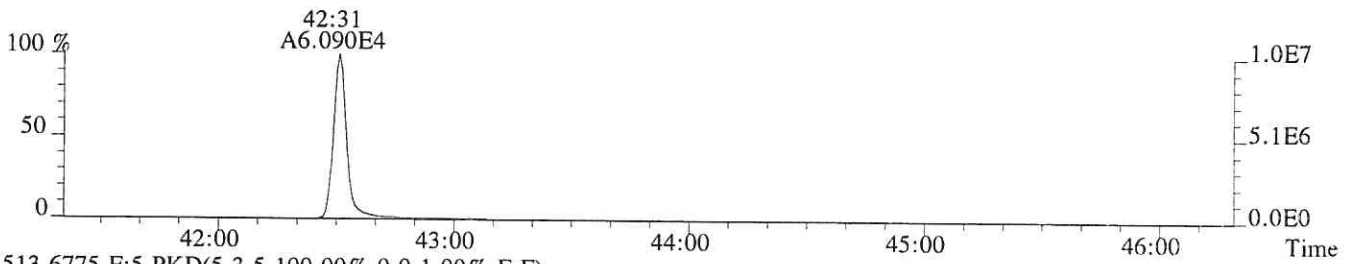
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



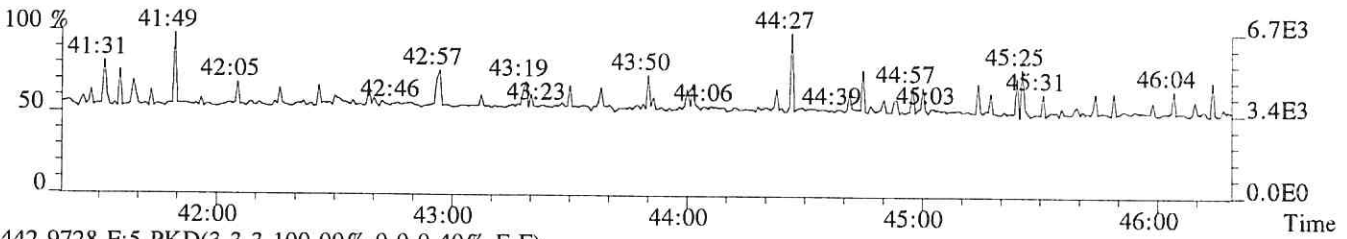
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



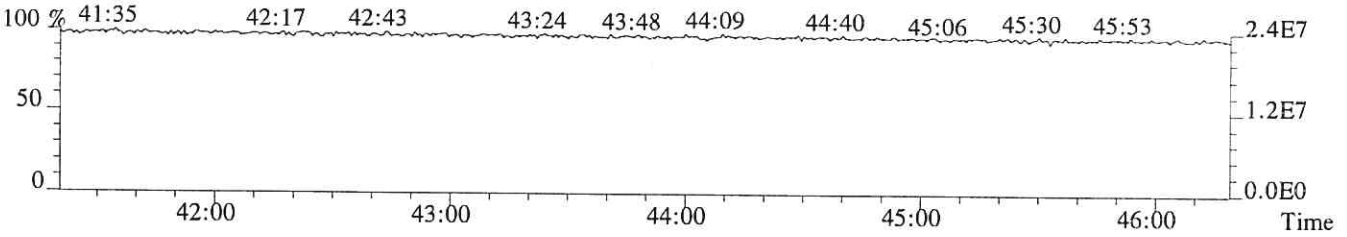
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



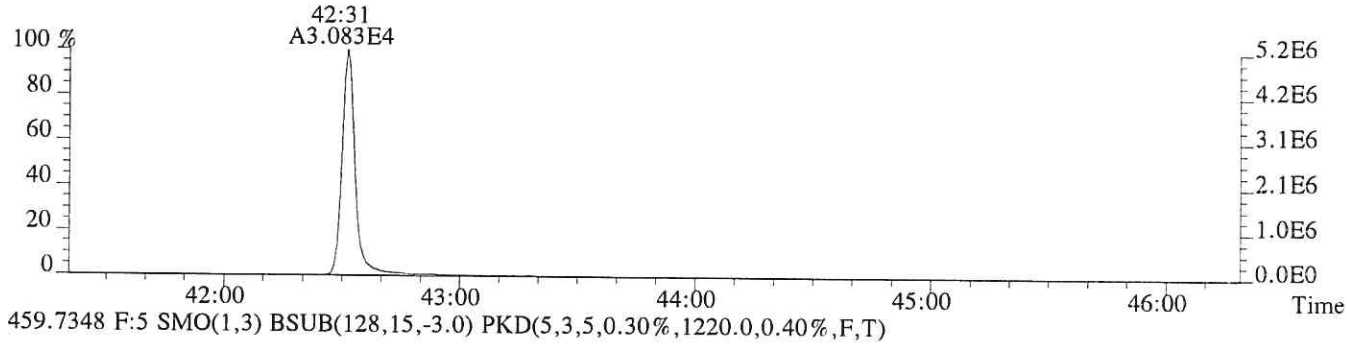
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



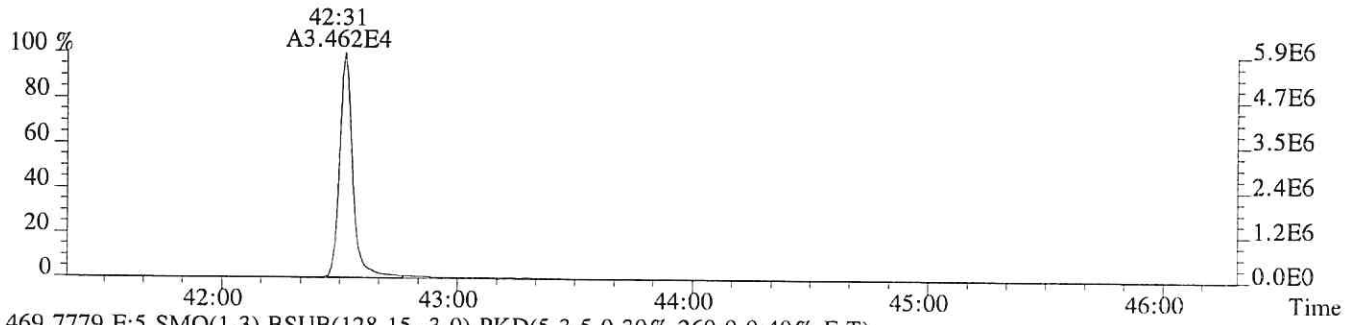
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



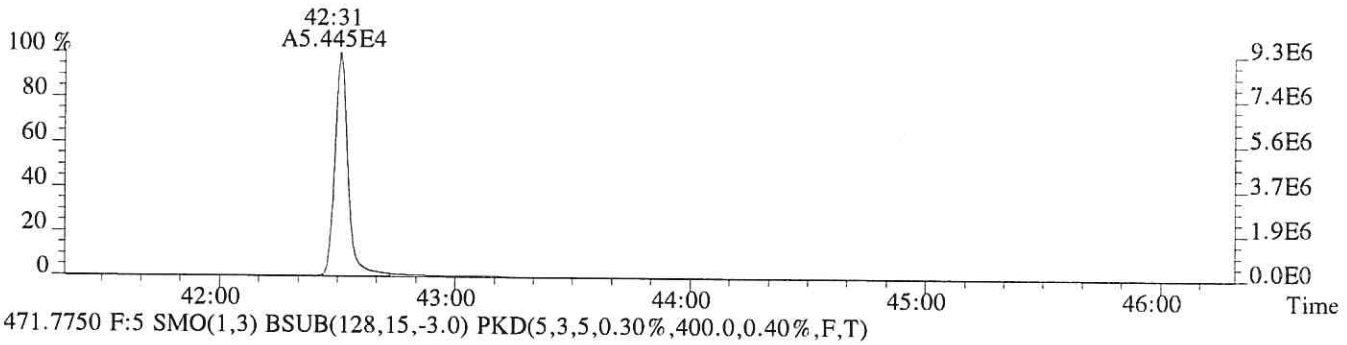
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



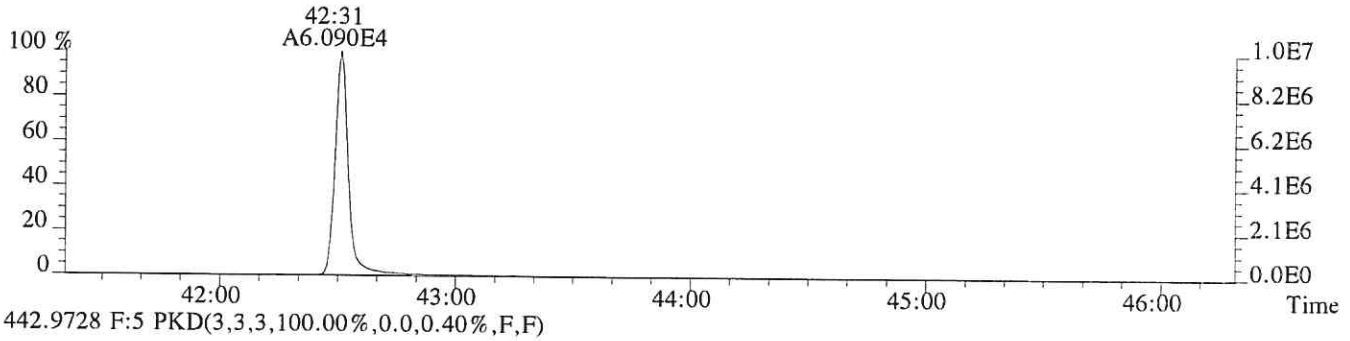
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



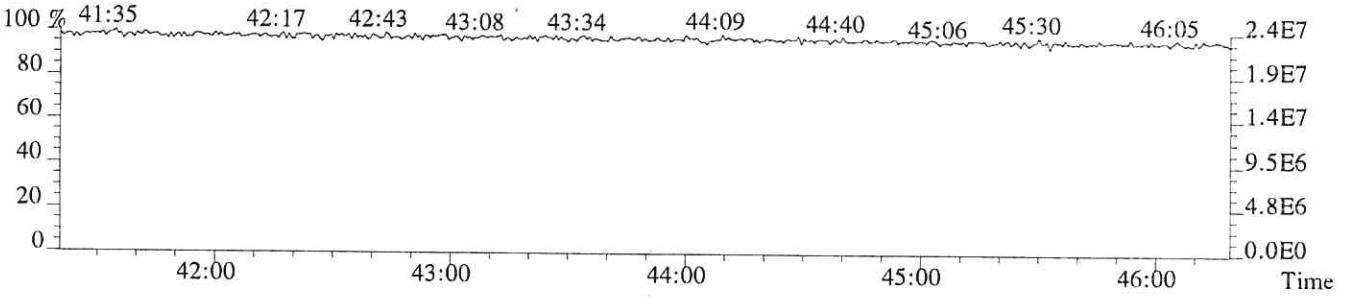
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



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



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Analytical Sequence						
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?		√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?		√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?		√				
Were all calibration standards analyzed only once?		√				
Was the ICV analyzed after the ICAL, before analyzing samples?		√				
Mass Resolution Check						
Are beginning and ending resolution checks provided and legible?		√				
Were all target masses >10,000 resolving power at the beginning of the sequence?		√				
Were all target masses >10,000 resolving power at the end of the sequence?		√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?				√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?				√		
Window Define/209						
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?		√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?		√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?		√				
Were all first and last eluters adequately resolved in each function?		√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?				√		
Was the retention time of PCB 209 >55 min?				√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182				√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?				√		
Calibration Standards						
Were there at least 5 calibration standards analyzed?		√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?				√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?		√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690RES

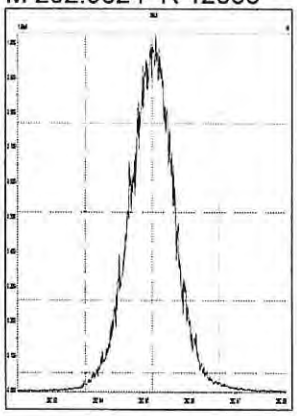
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use.
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:51	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 09/26/18

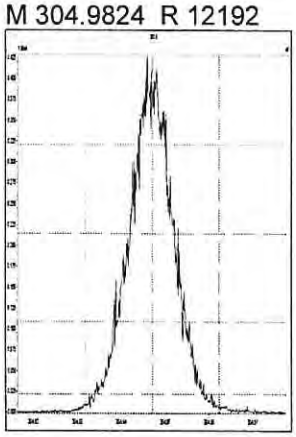
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

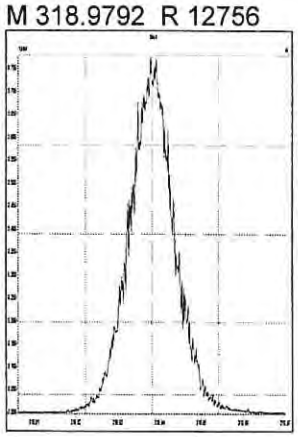
M 292.9824 R 12568



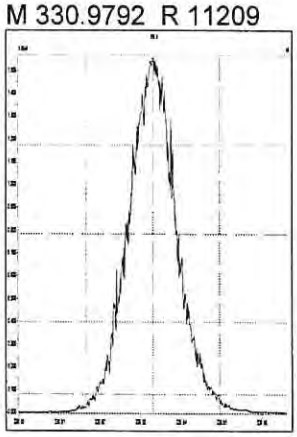
M 304.9824 R 12192



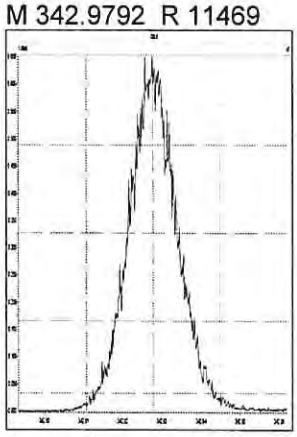
M 318.9792 R 12756



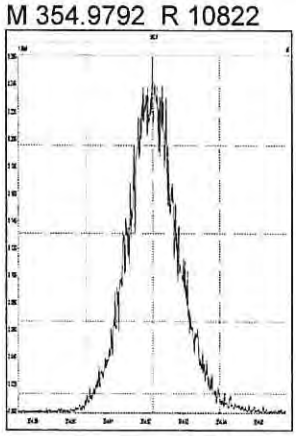
M 330.9792 R 11209



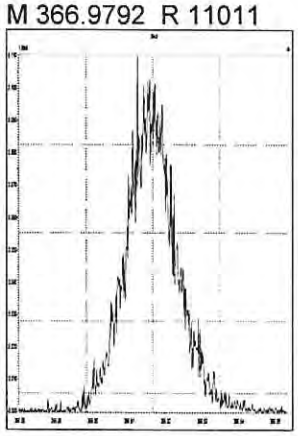
M 342.9792 R 11469



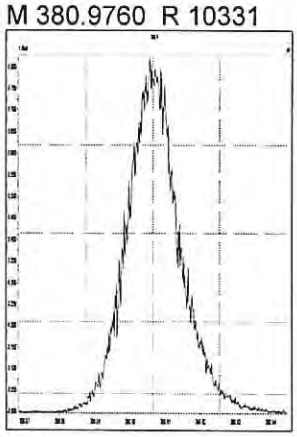
M 354.9792 R 10822



M 366.9792 R 11011



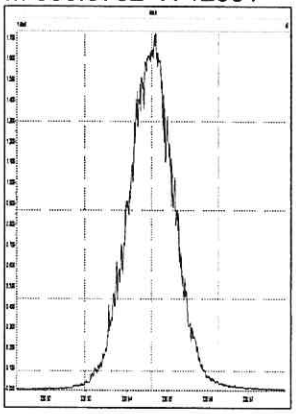
M 380.9760 R 10331



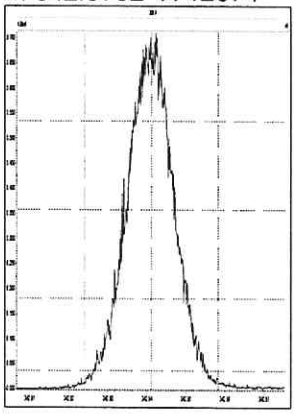
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

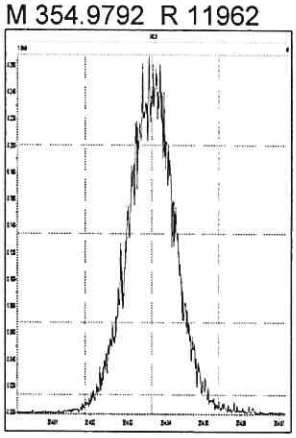
M 330.9792 R 12381



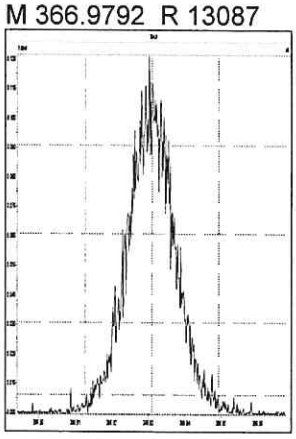
M 342.9792 R 12074



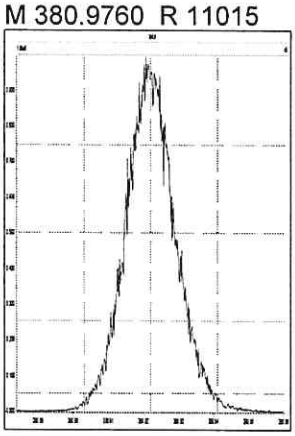
M 354.9792 R 11962



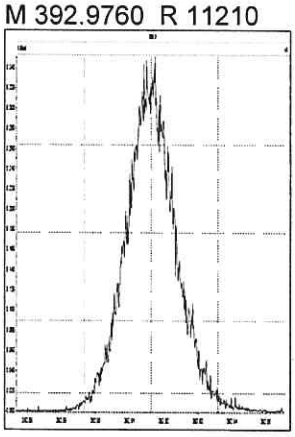
M 366.9792 R 13087



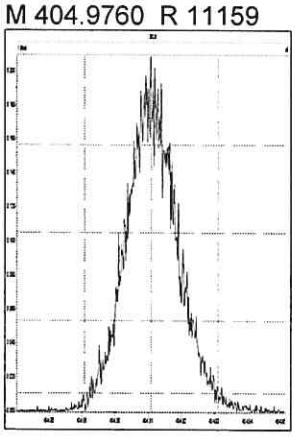
M 380.9760 R 11015



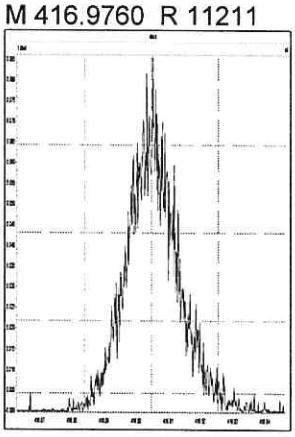
M 392.9760 R 11210



M 404.9760 R 11159



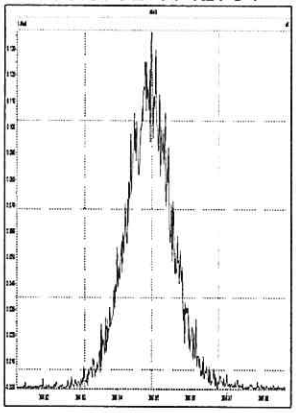
M 416.9760 R 11211



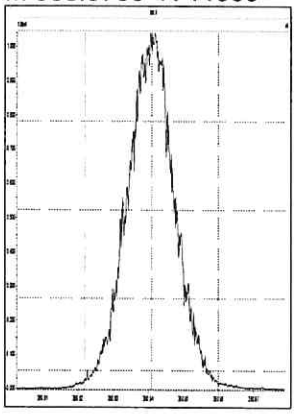
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

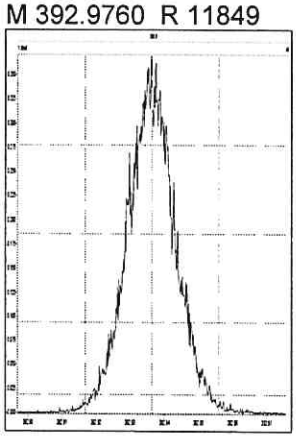
M 366.9792 R 12754



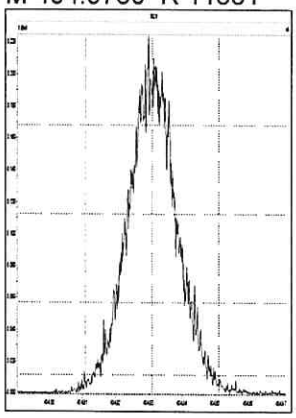
M 380.9760 R 11959



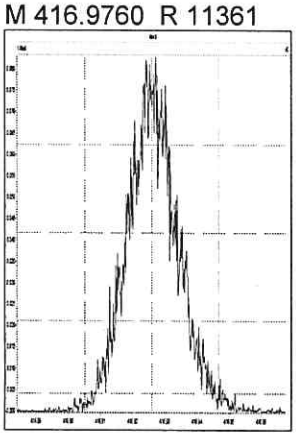
M 392.9760 R 11849



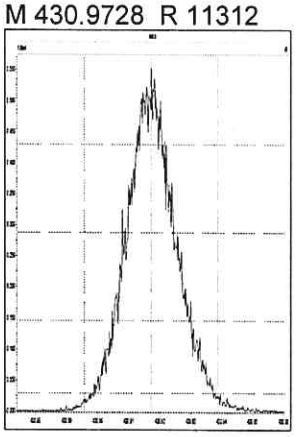
M 404.9760 R 11681



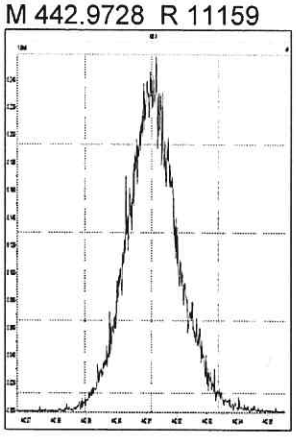
M 416.9760 R 11361



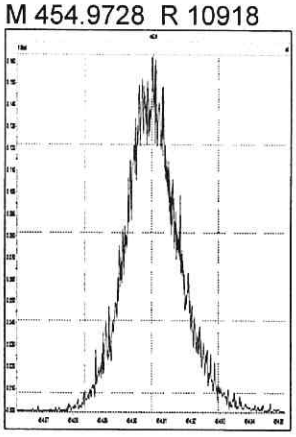
M 430.9728 R 11312



M 442.9728 R 11159



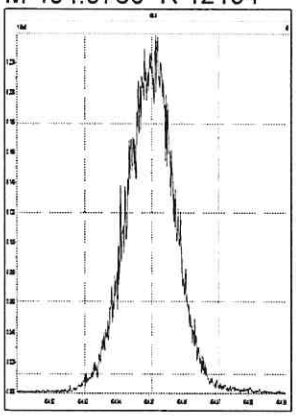
M 454.9728 R 10918



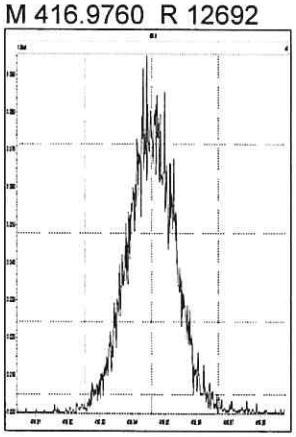
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

M 404.9760 R 12194



M 416.9760 R 12692



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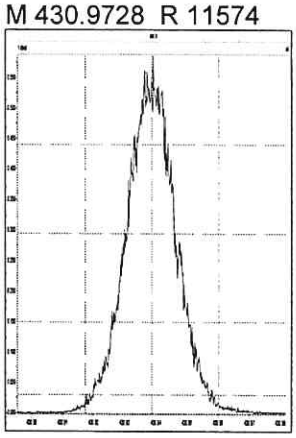

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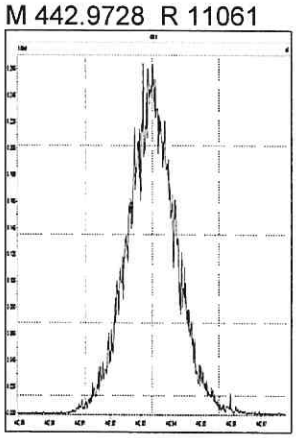

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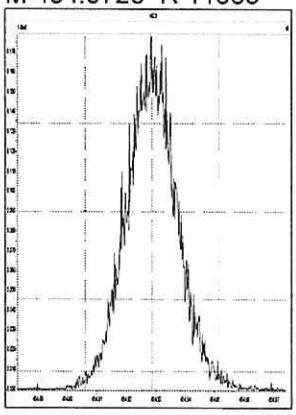

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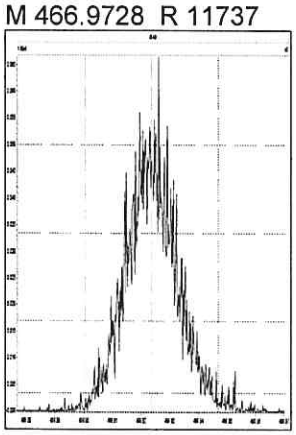

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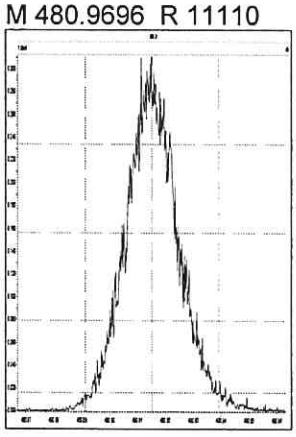

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Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

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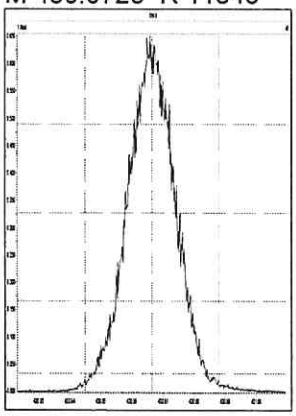

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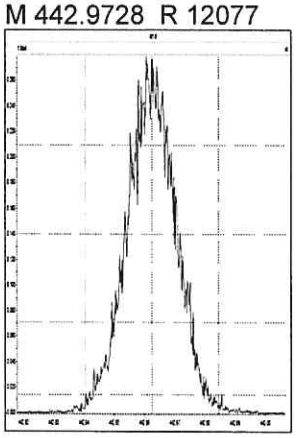

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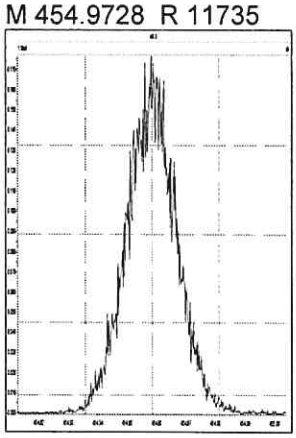

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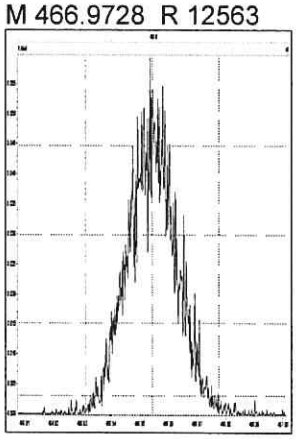

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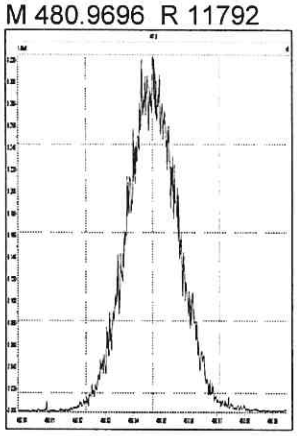

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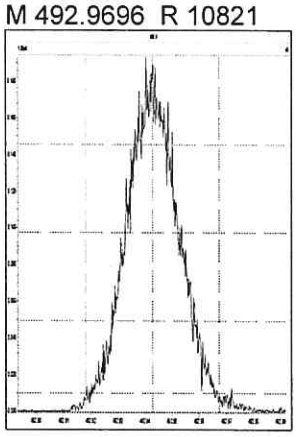

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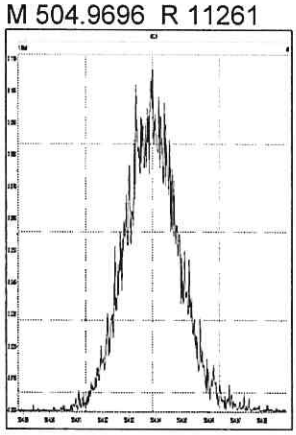

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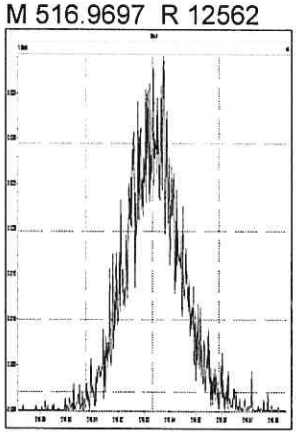

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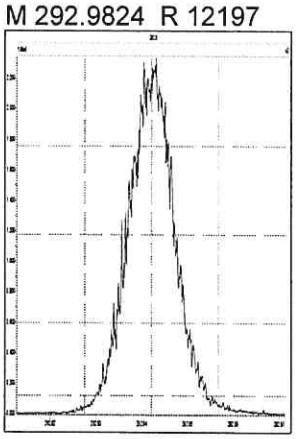

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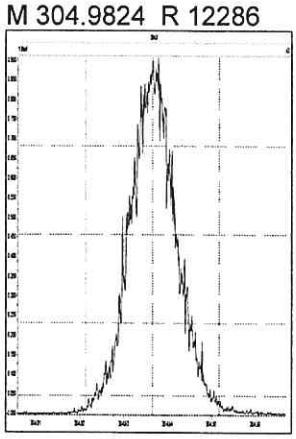

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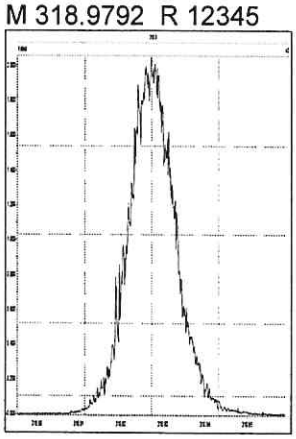

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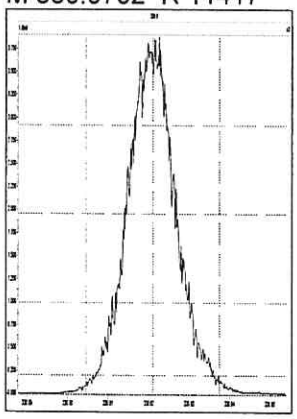

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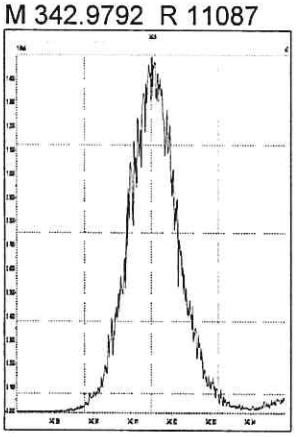

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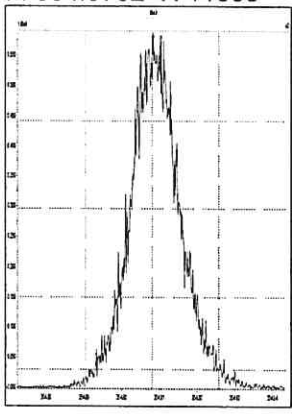

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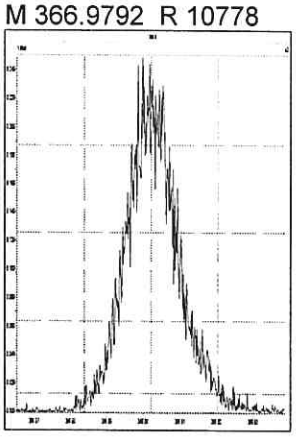

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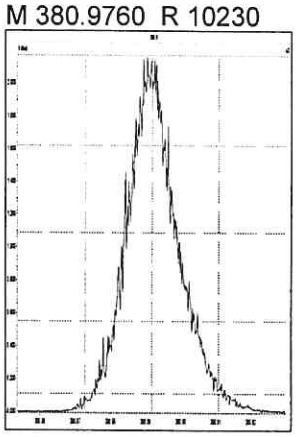

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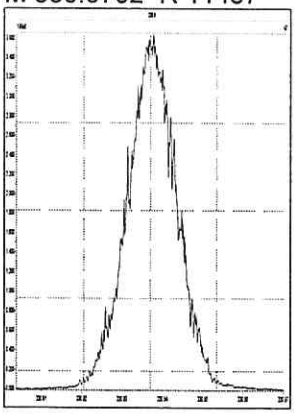

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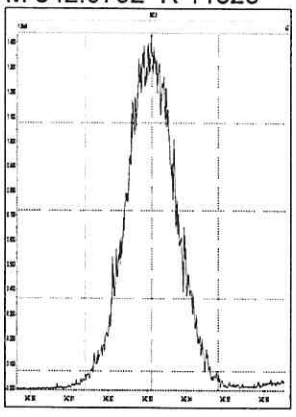

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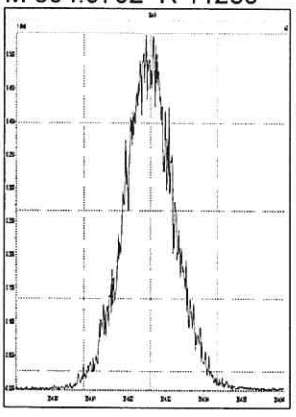

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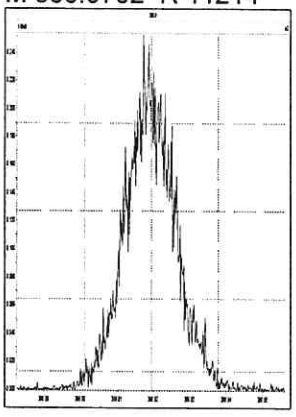

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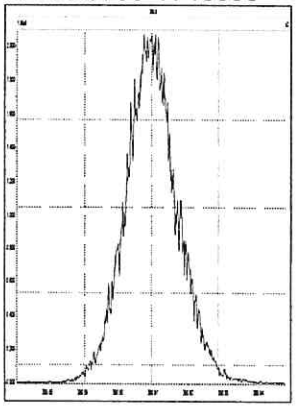

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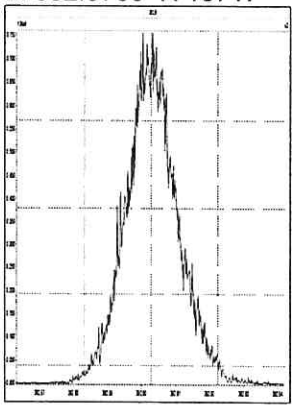

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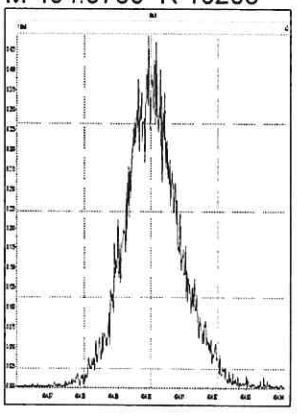

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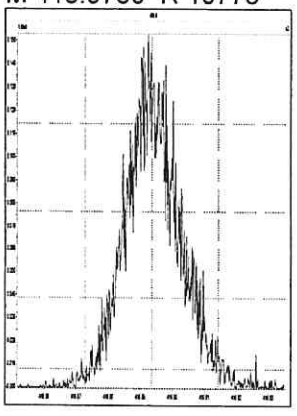

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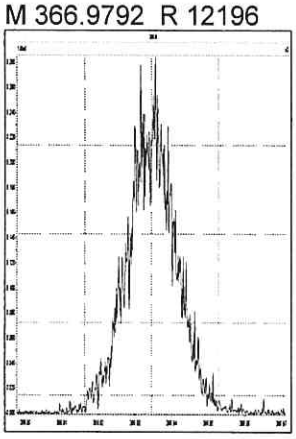

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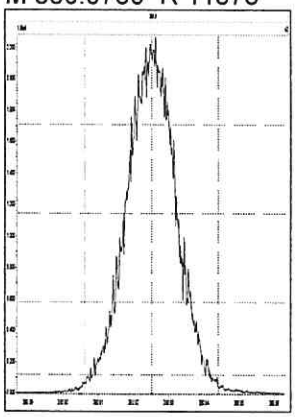

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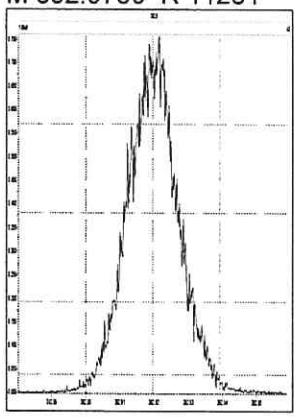

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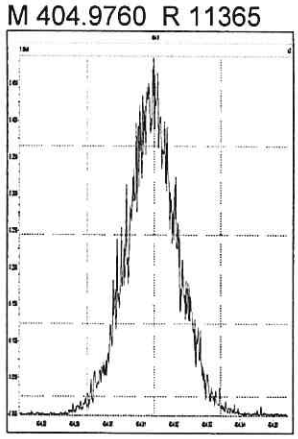

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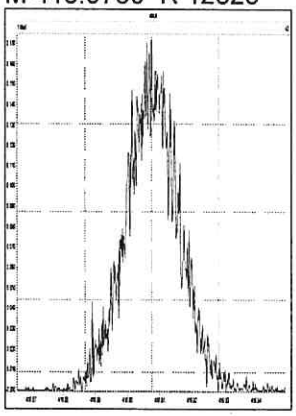

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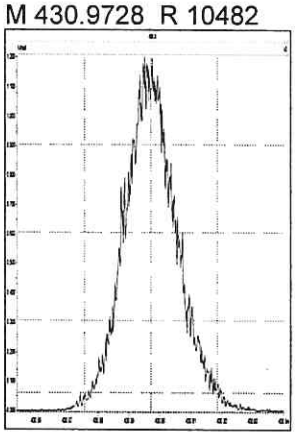

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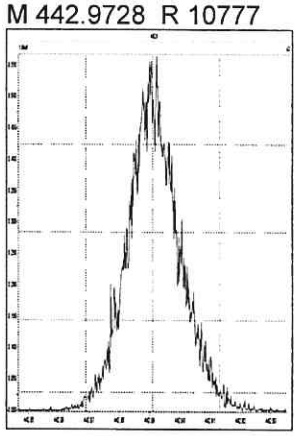

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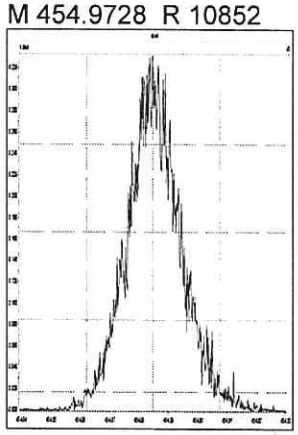

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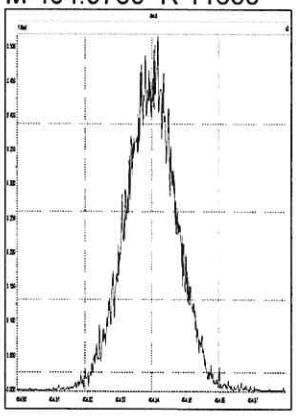

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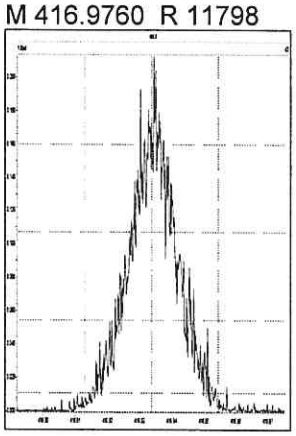

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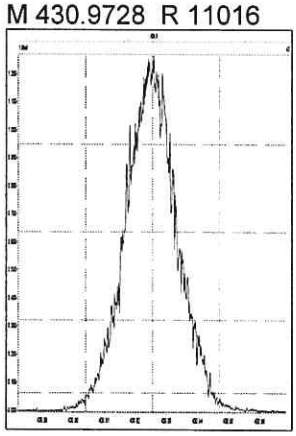

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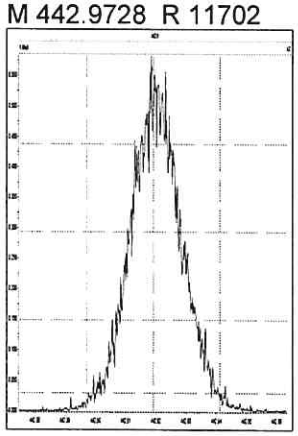

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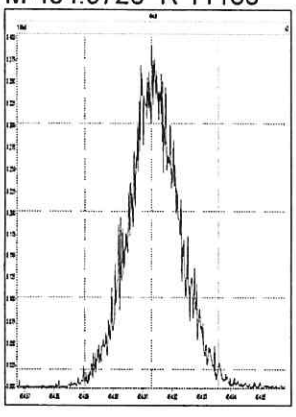

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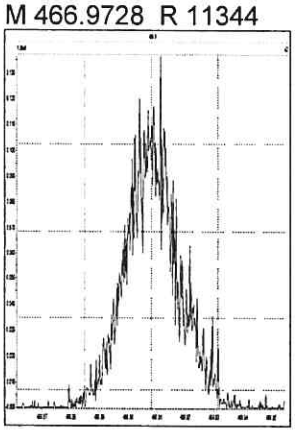

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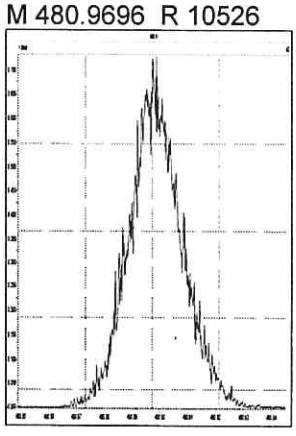

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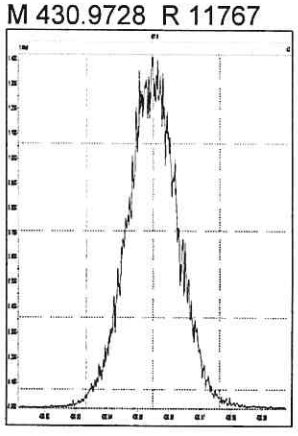

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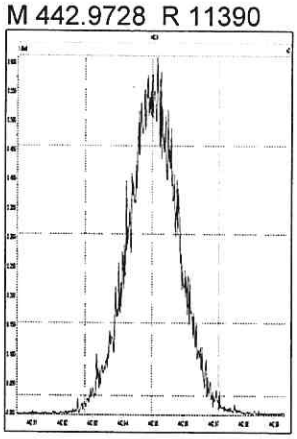

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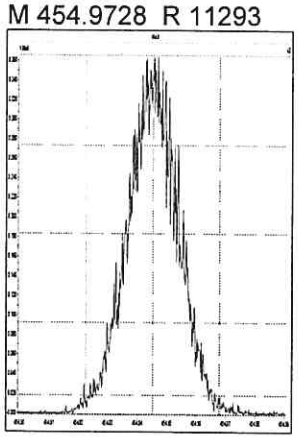

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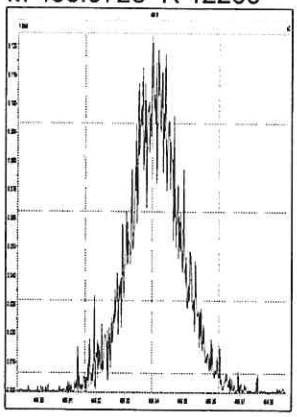

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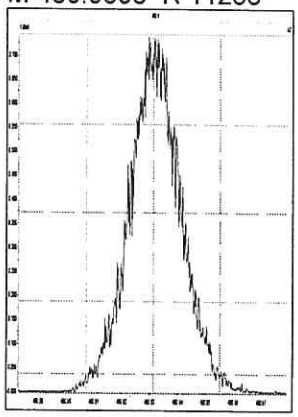

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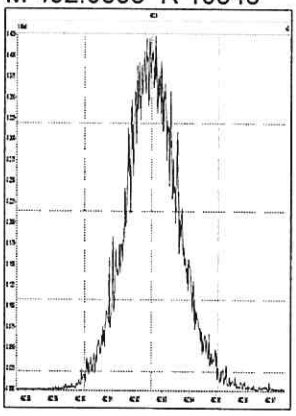

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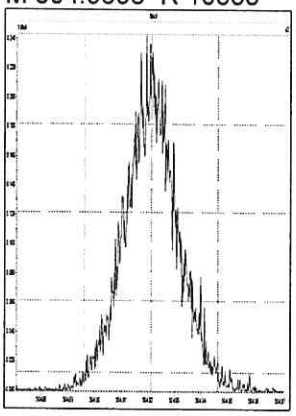

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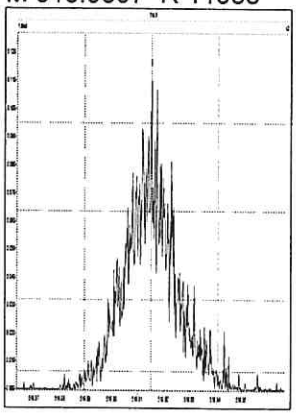


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

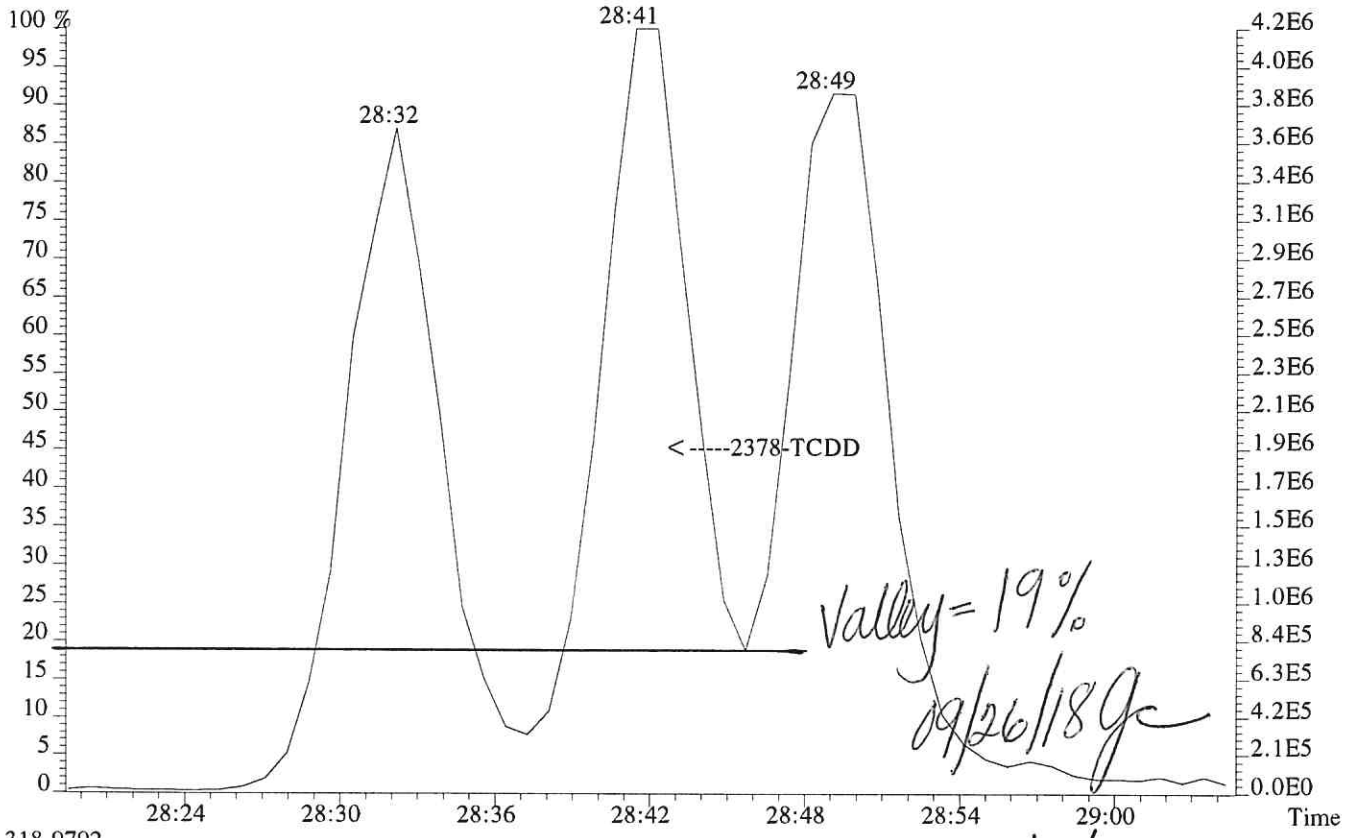
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

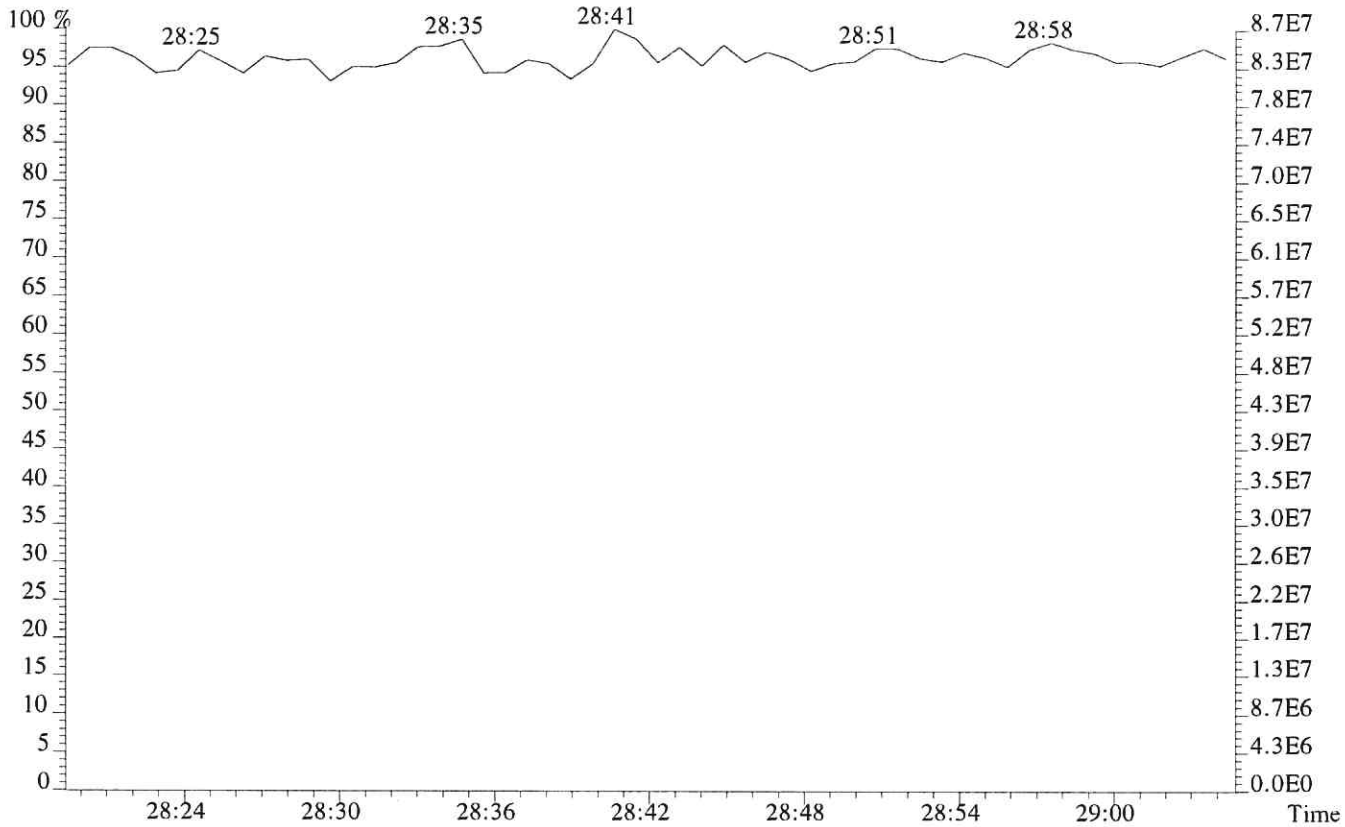
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792

LKL 09/26/18



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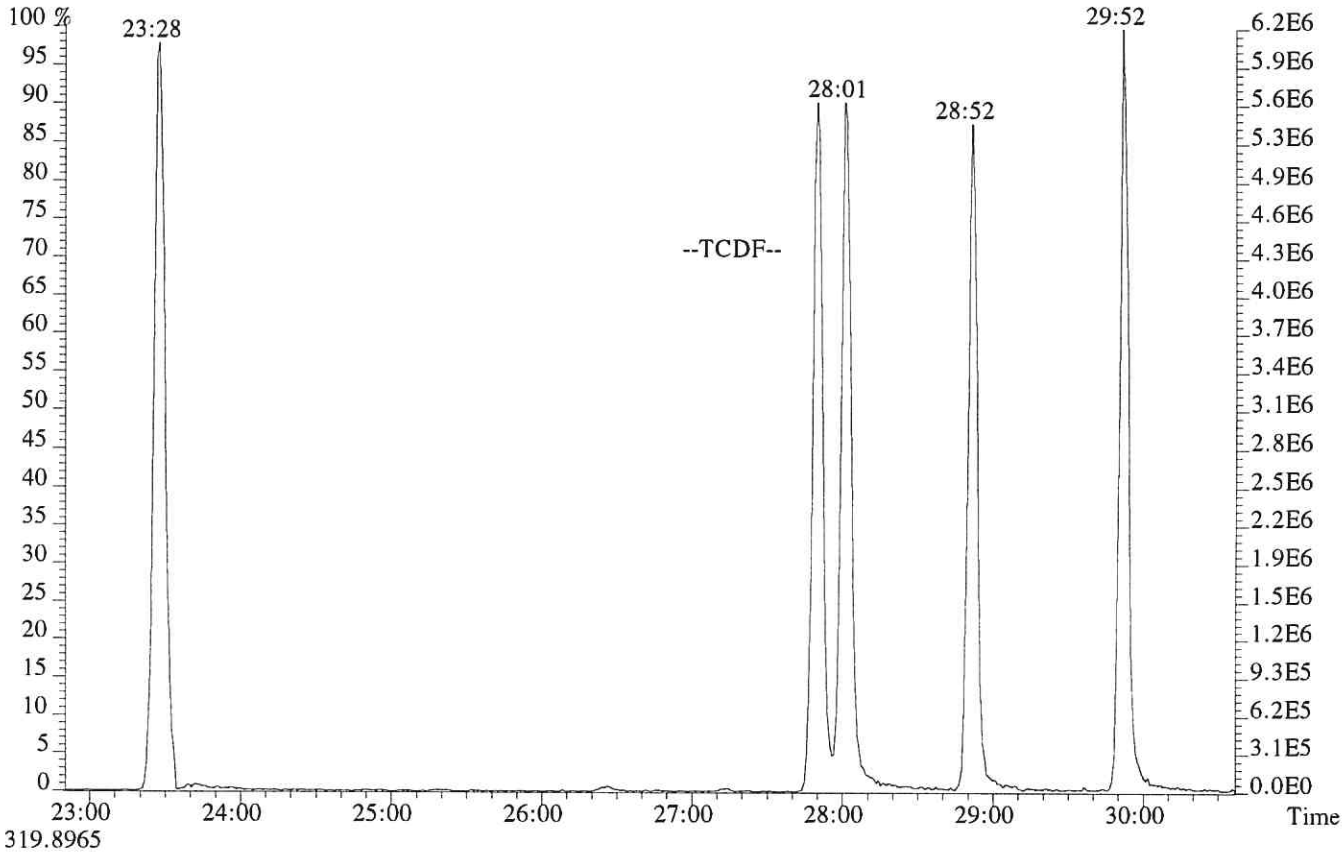
Sample#1 Exp:WINDOW DEFINE
303.9016



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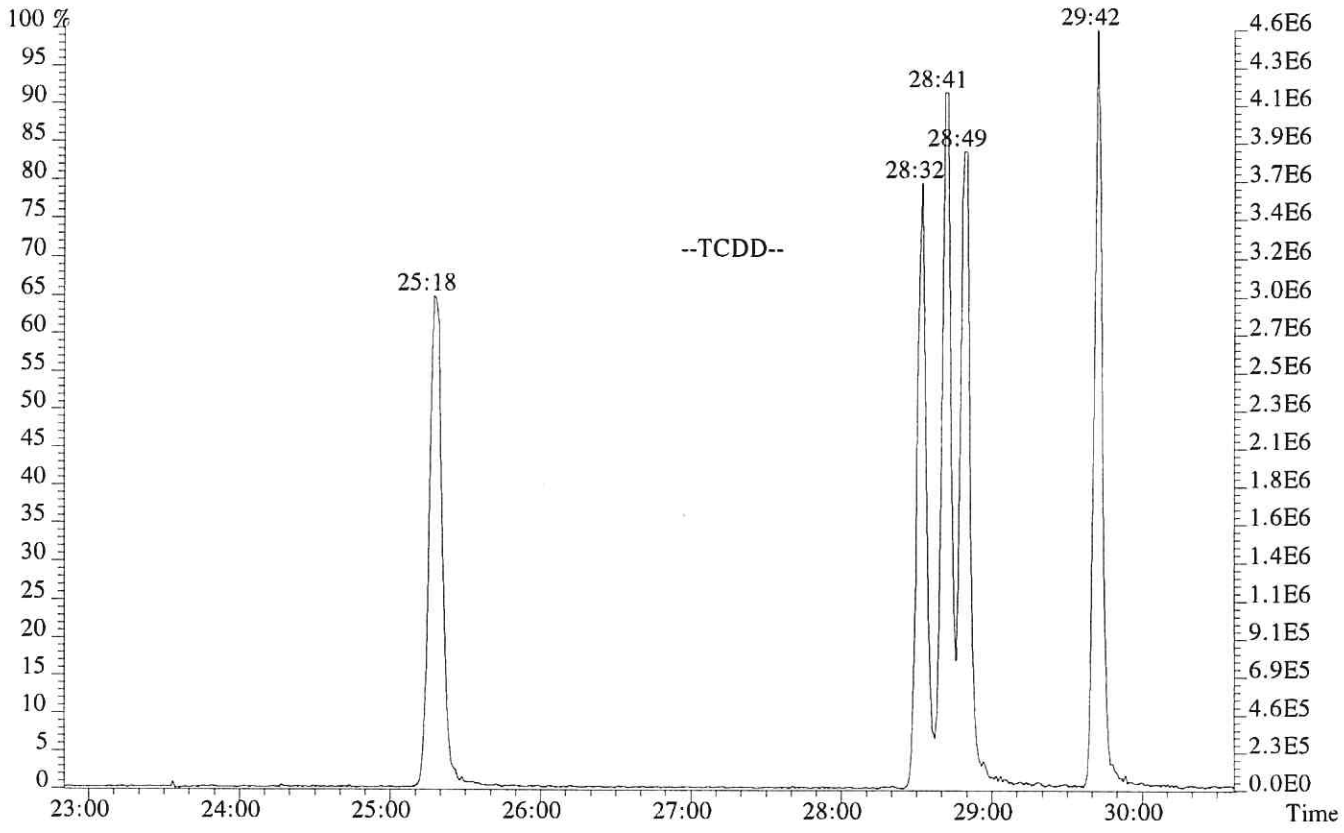
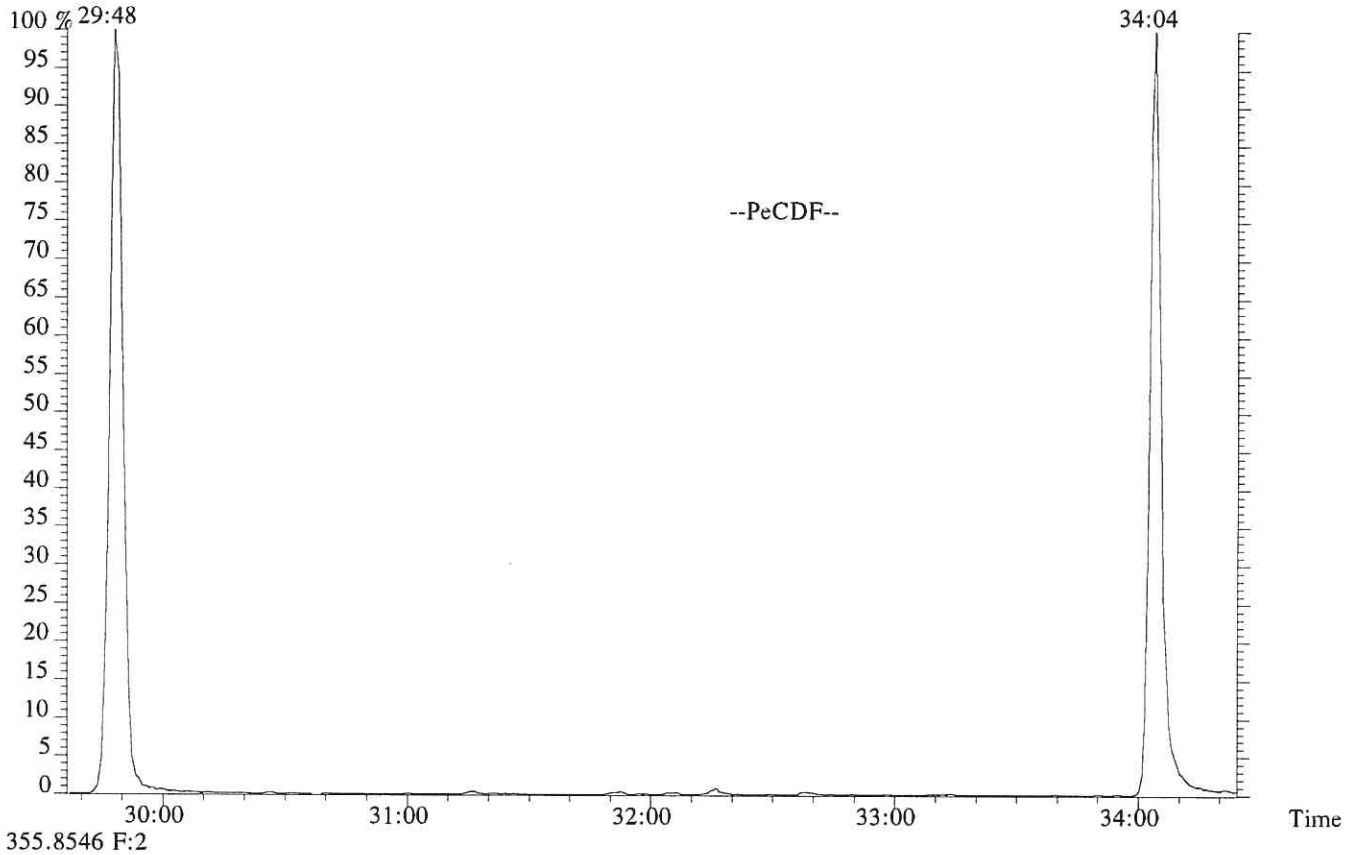
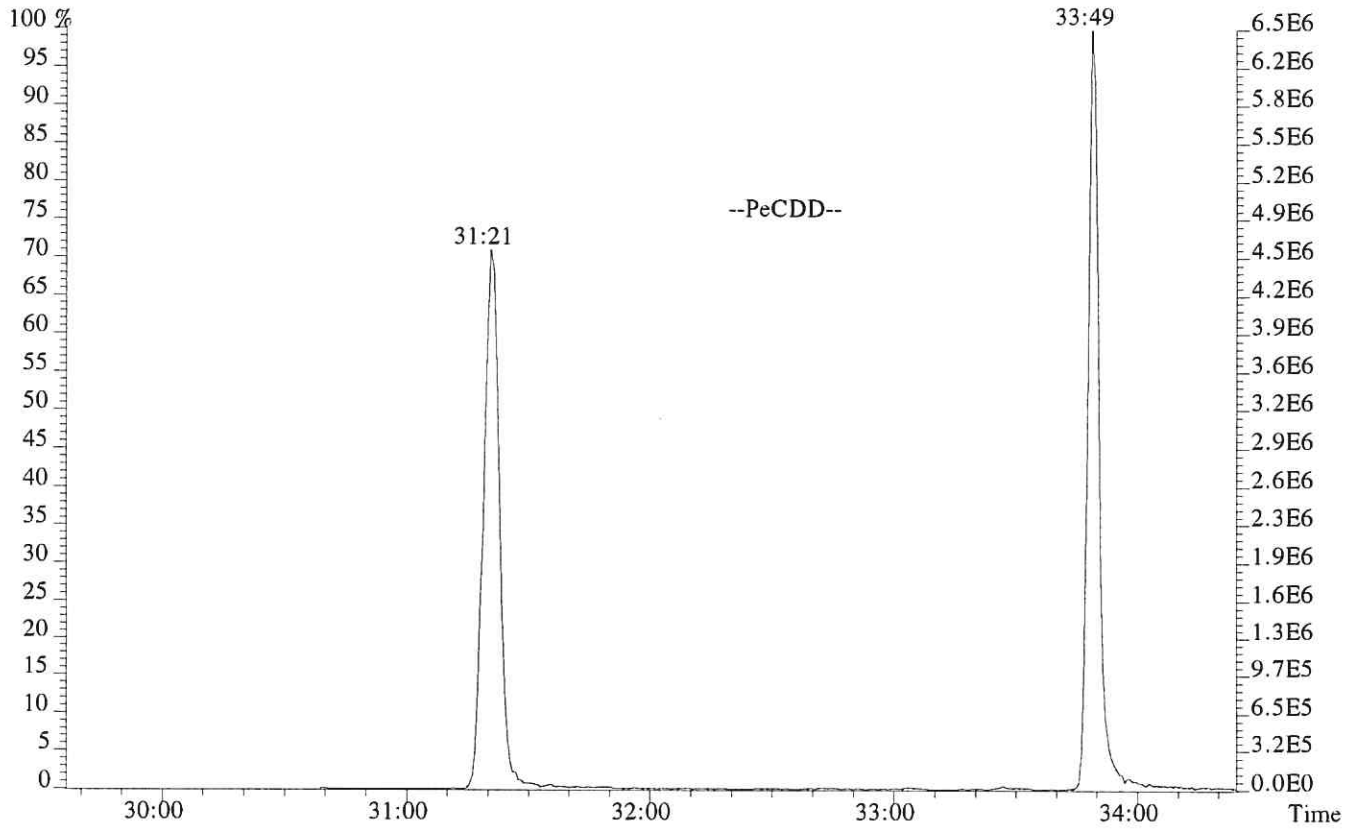


File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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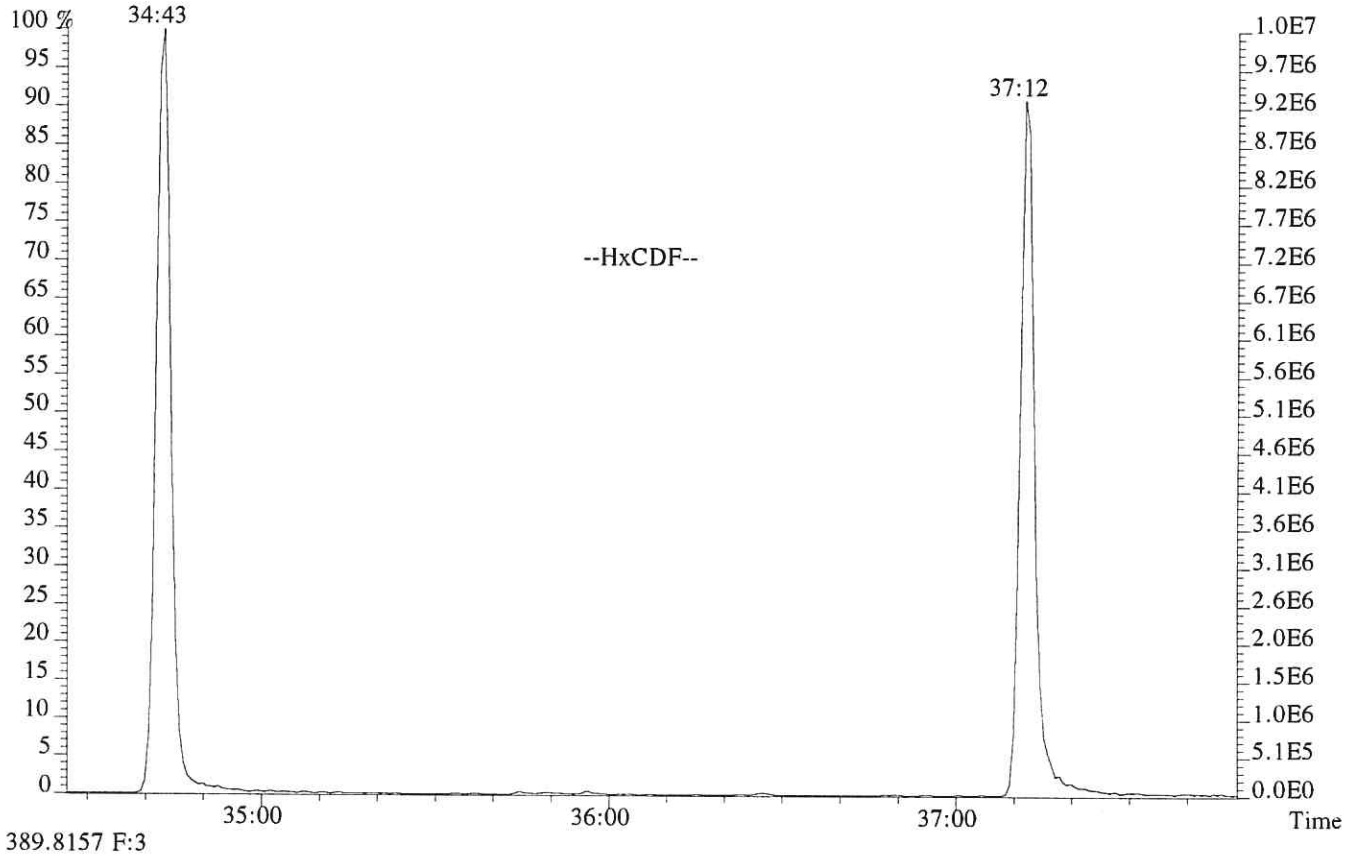
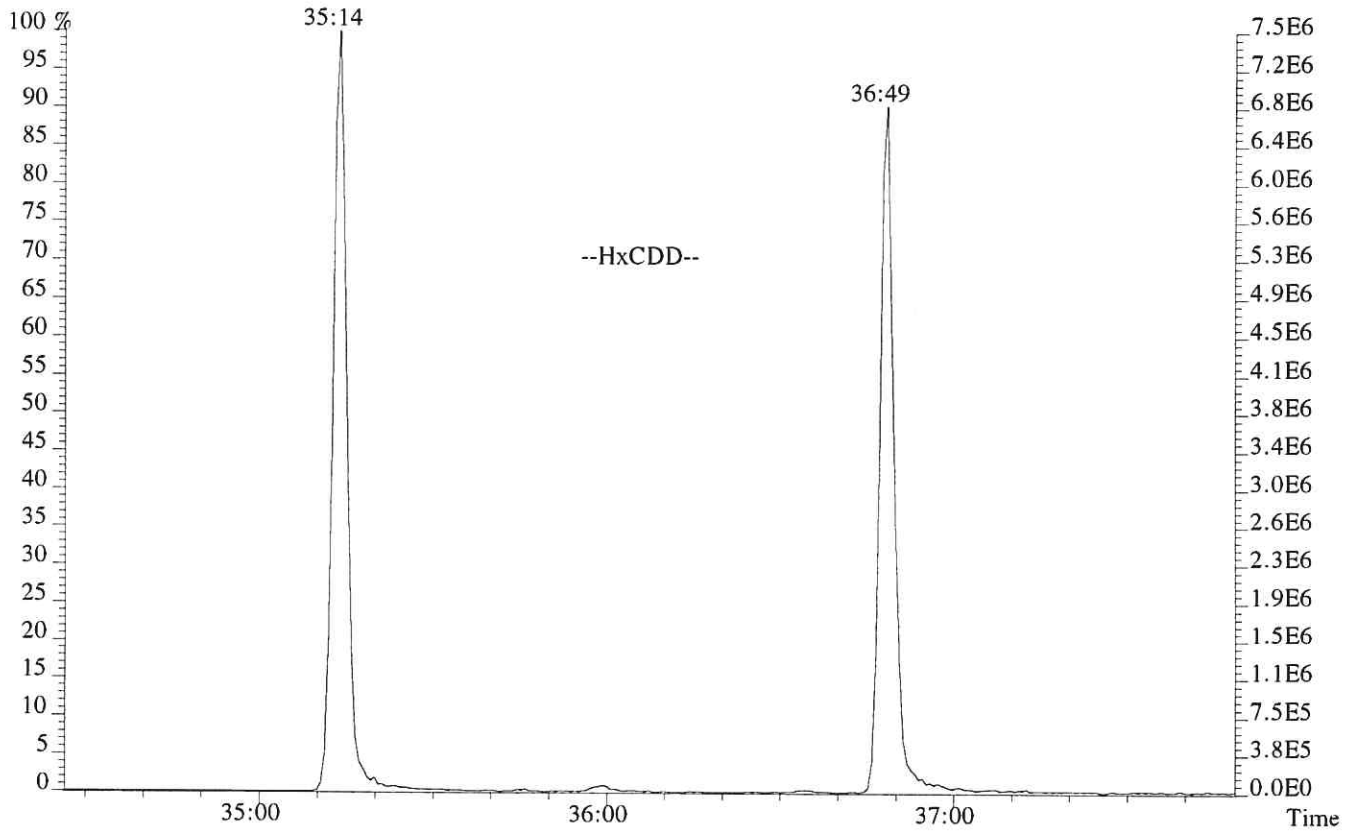
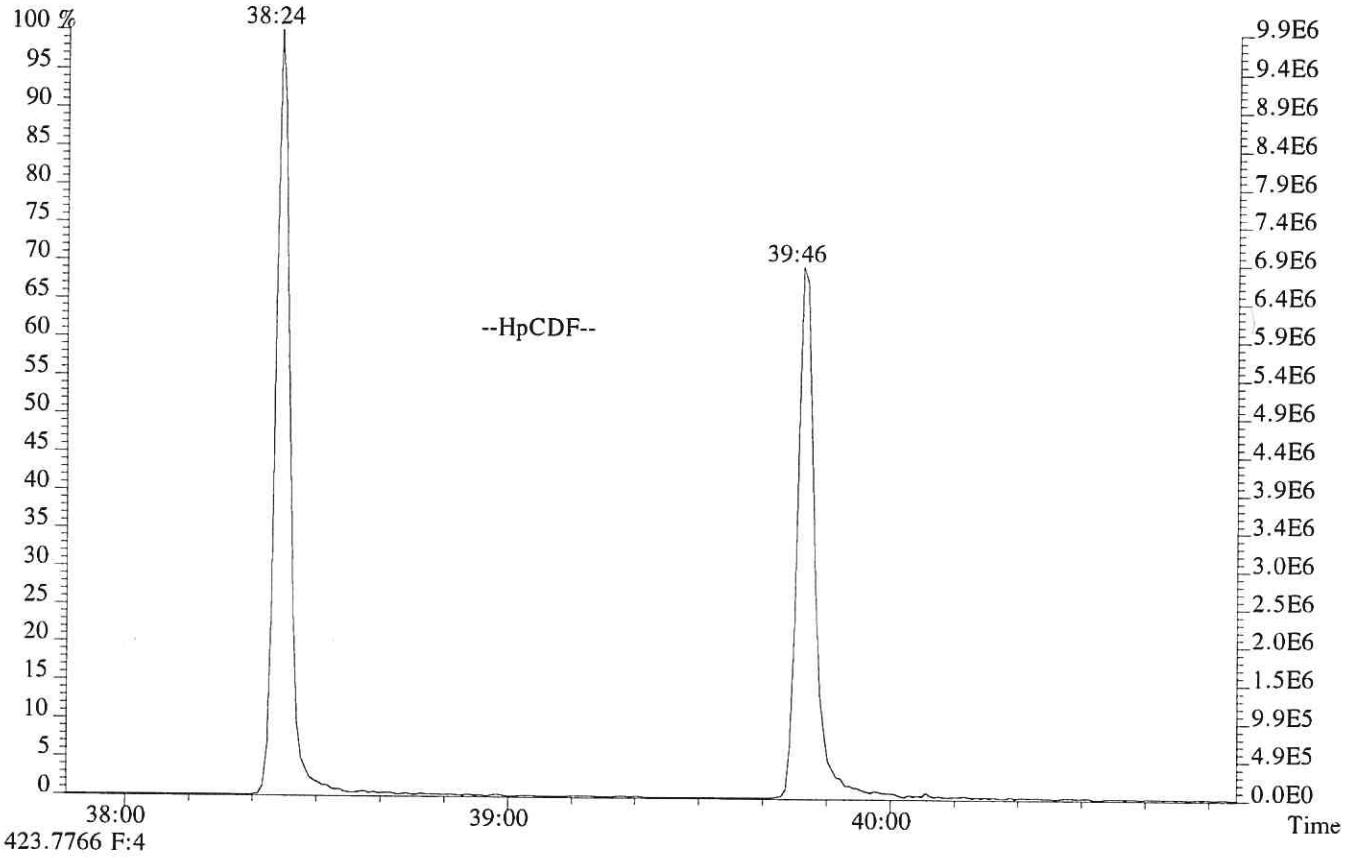
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



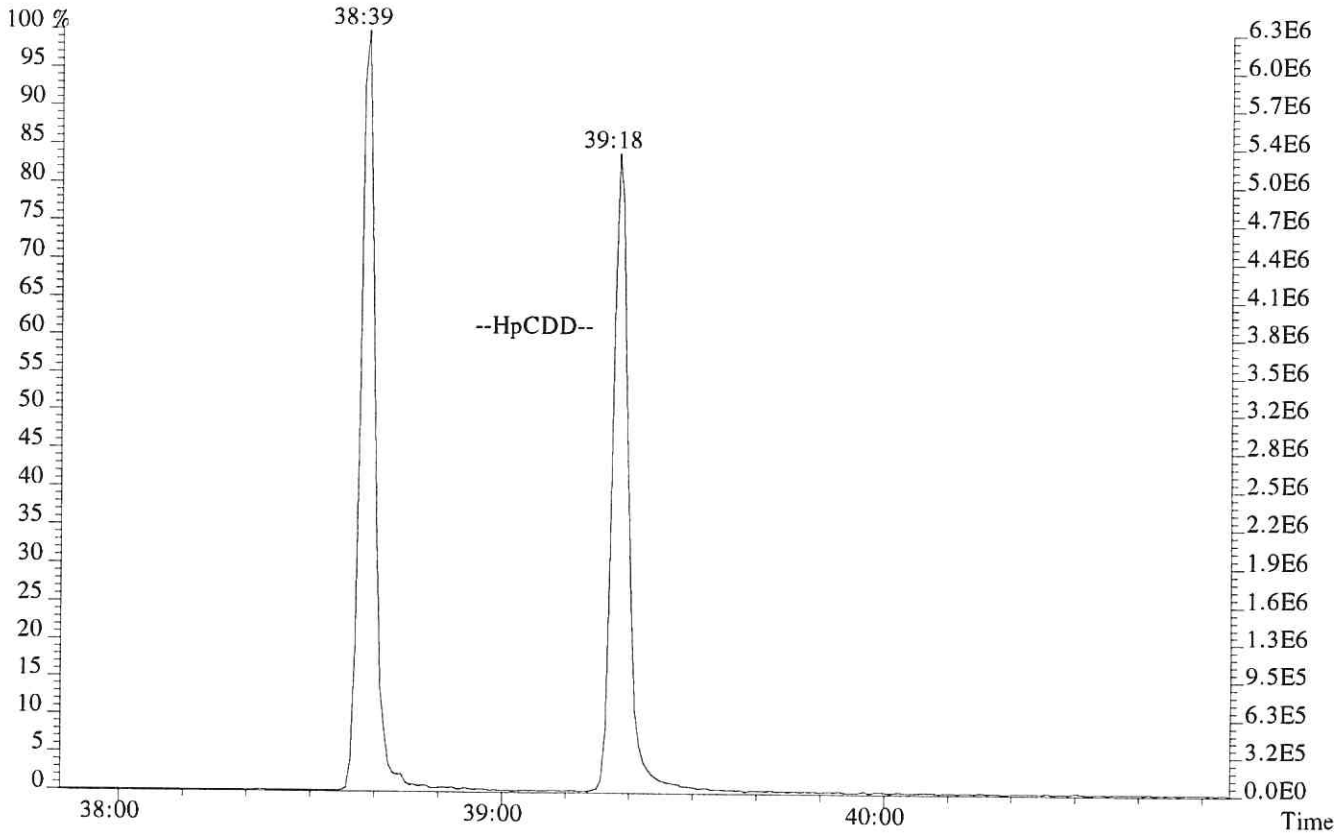
389.8157 F:3



File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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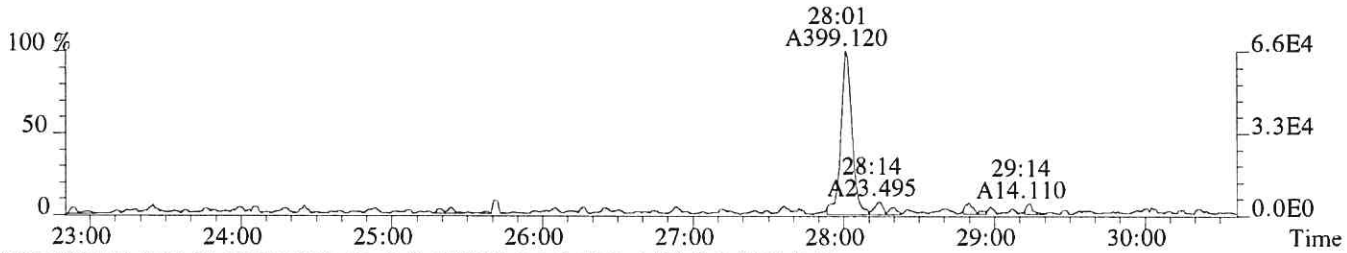
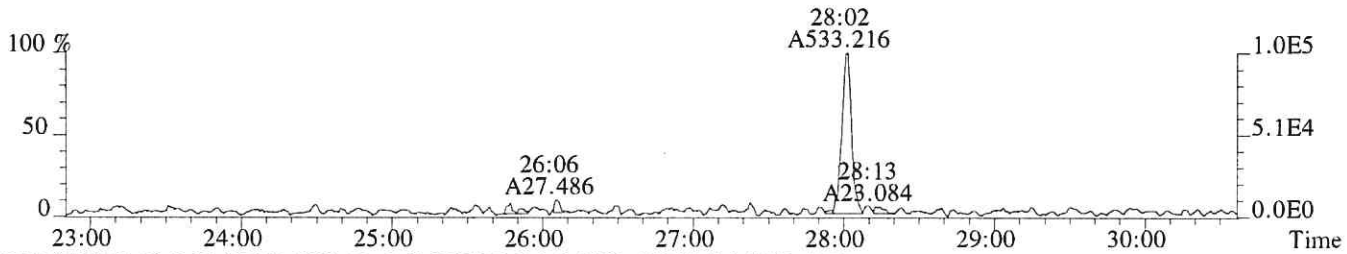
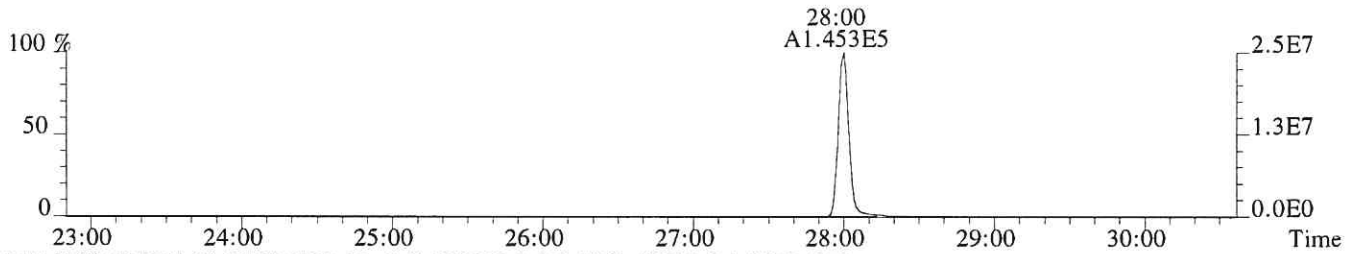
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



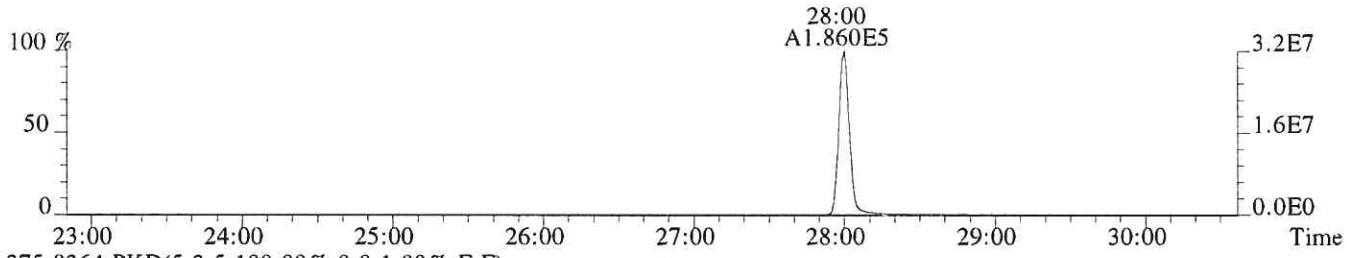
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



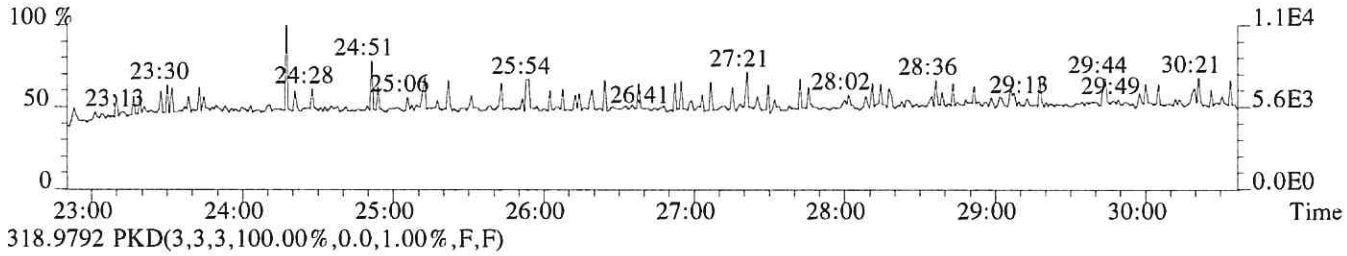
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



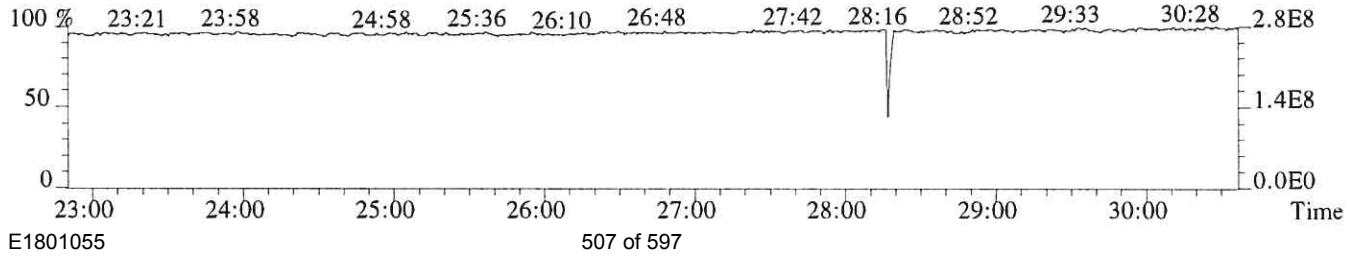
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



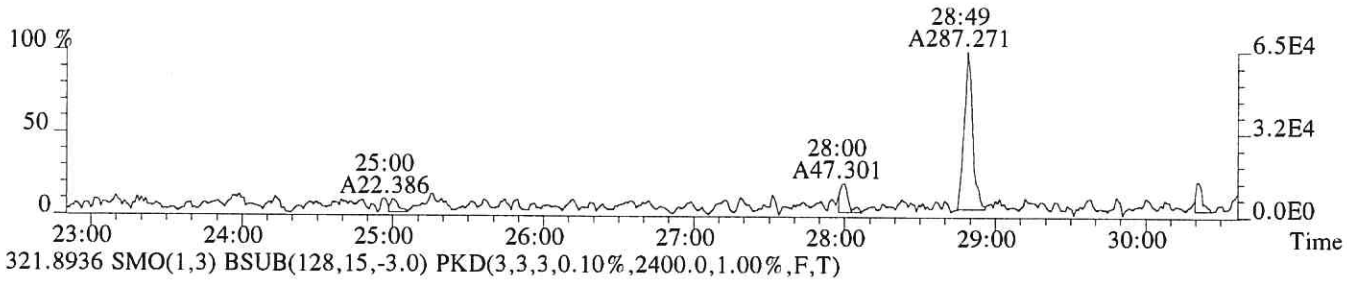
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



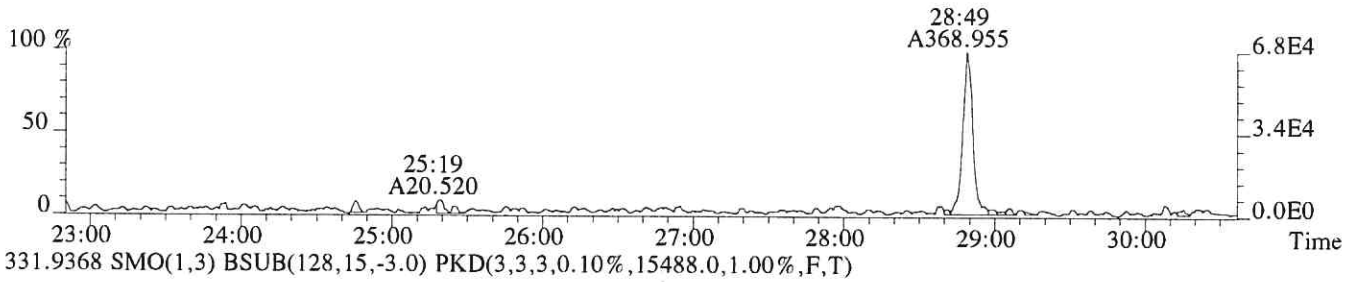
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



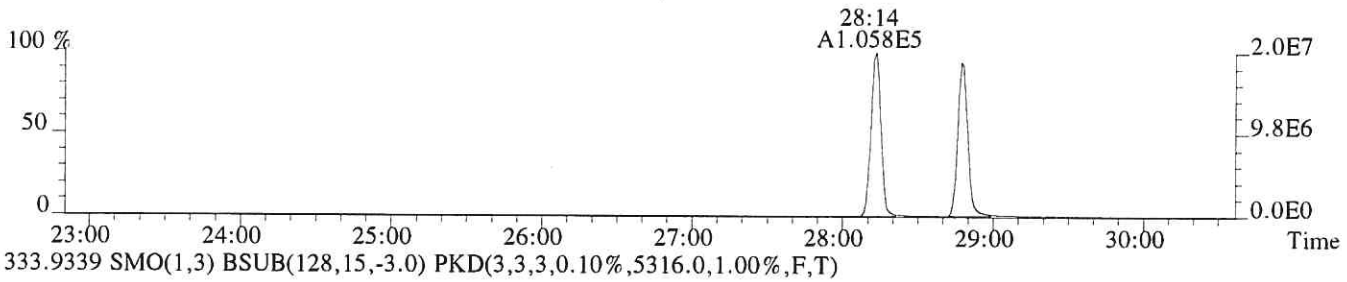
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



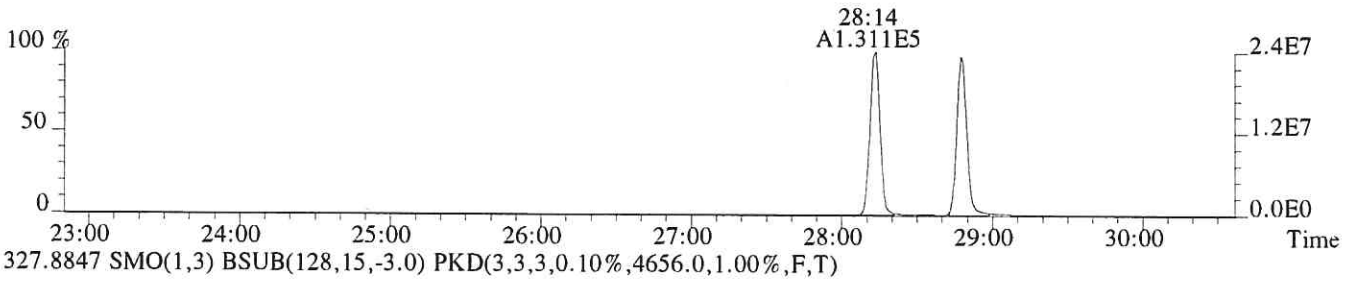
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



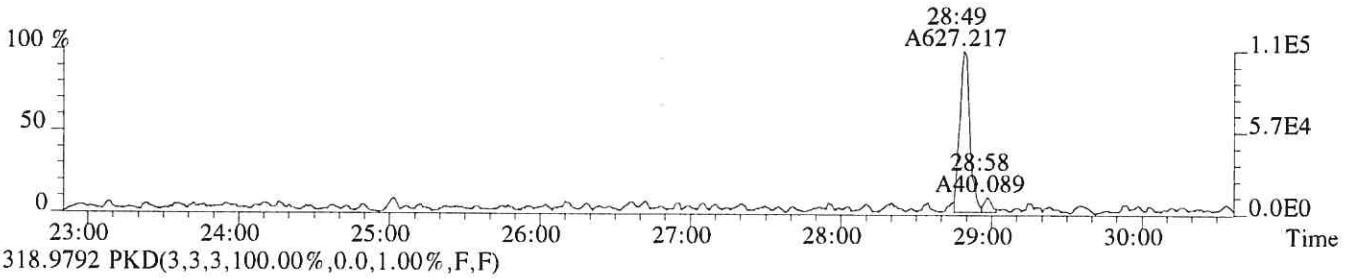
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



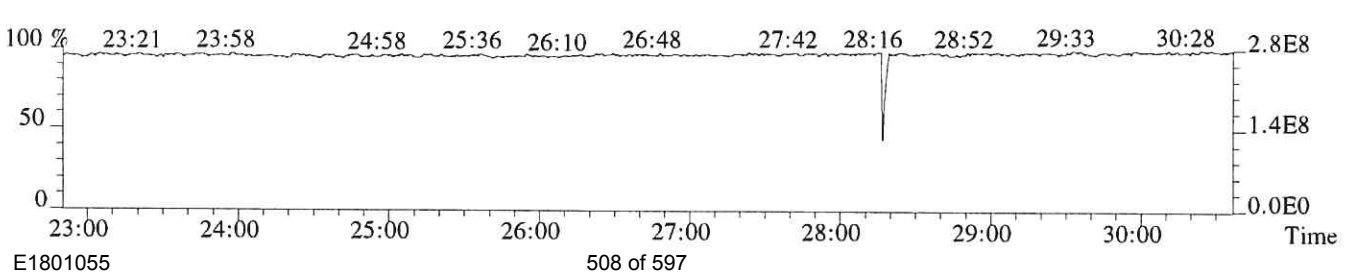
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



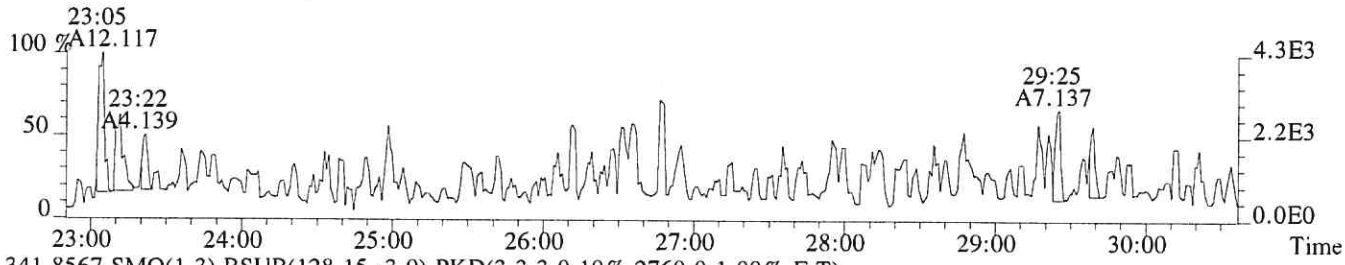
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



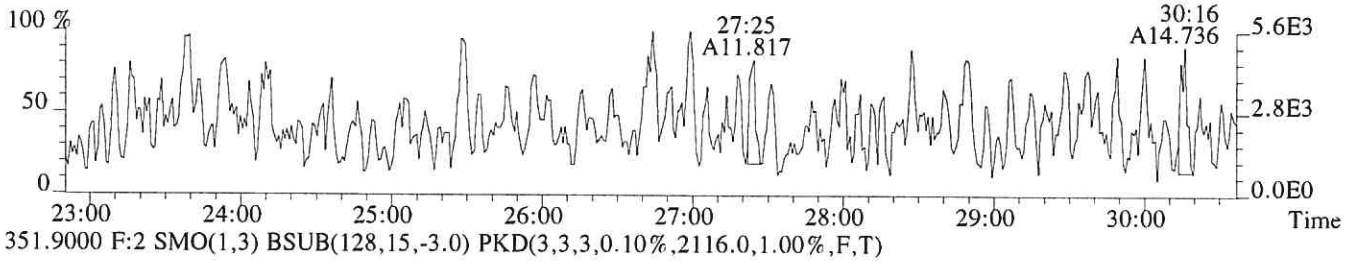
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



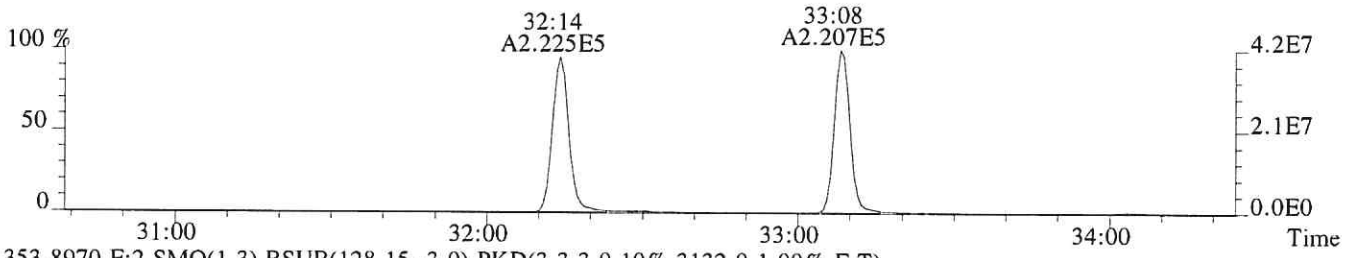
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



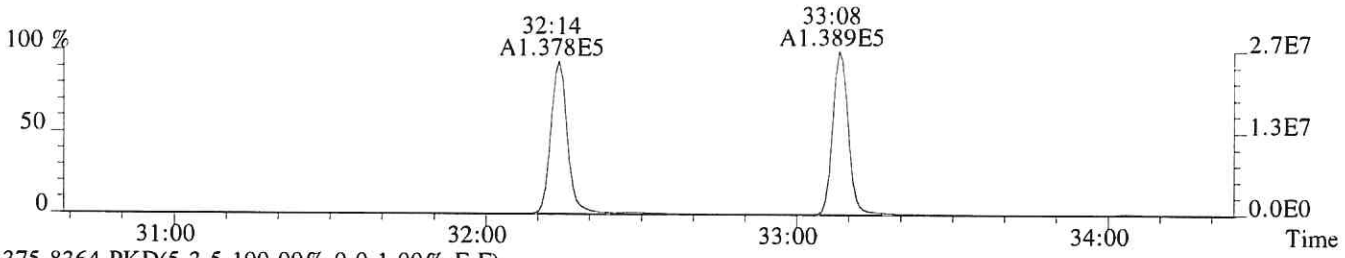
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



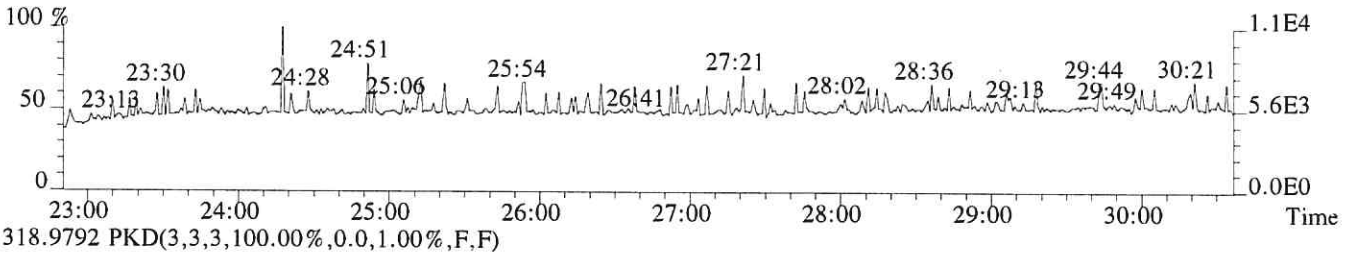
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



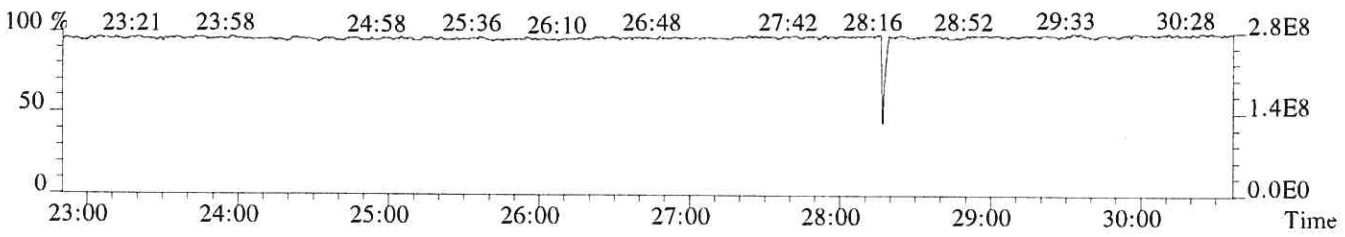
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



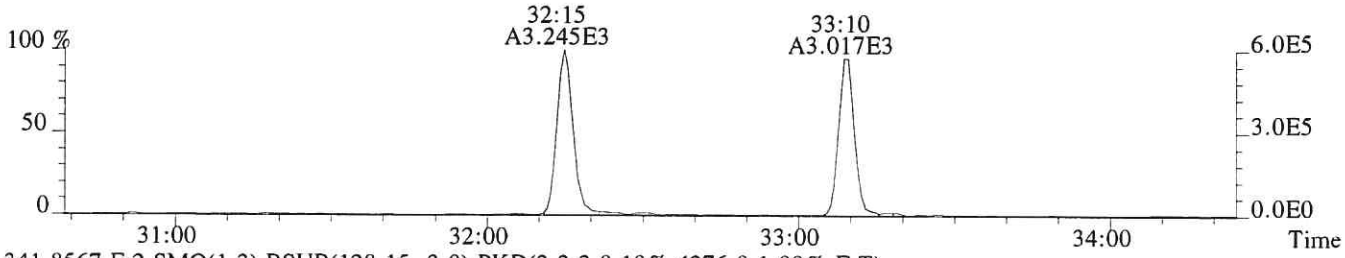
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



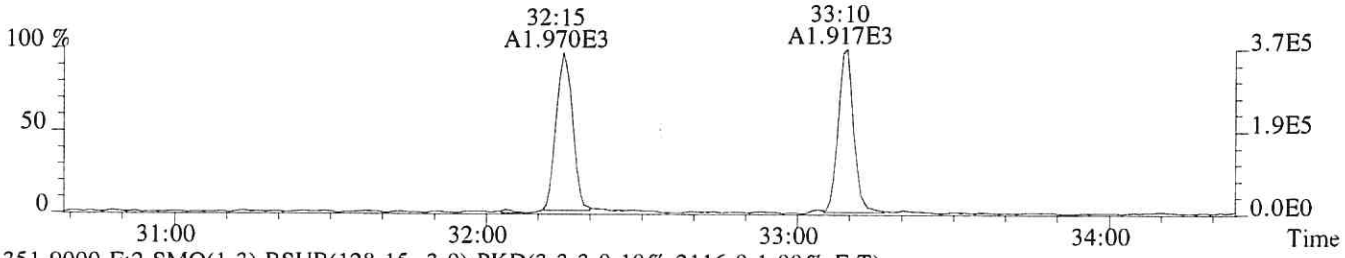
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



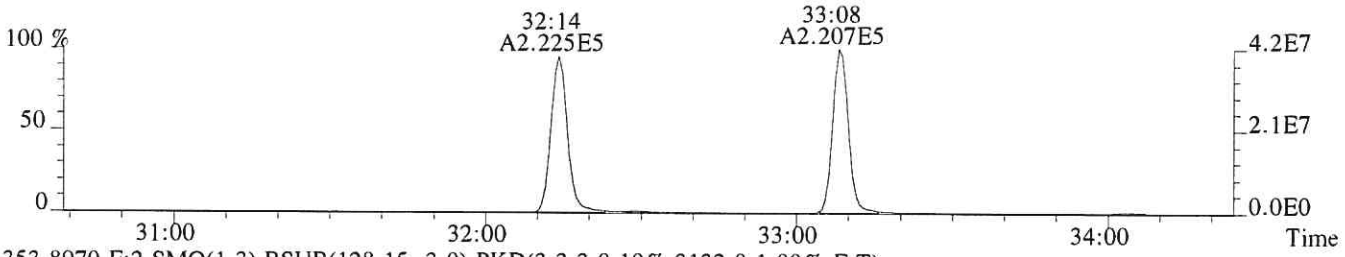
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



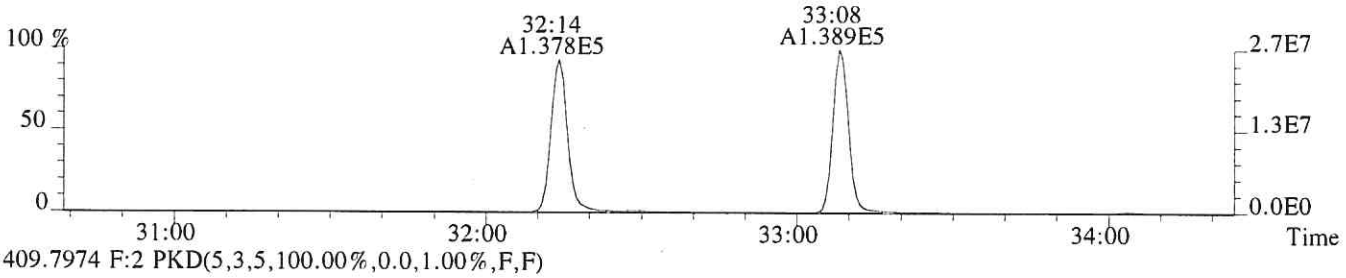
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



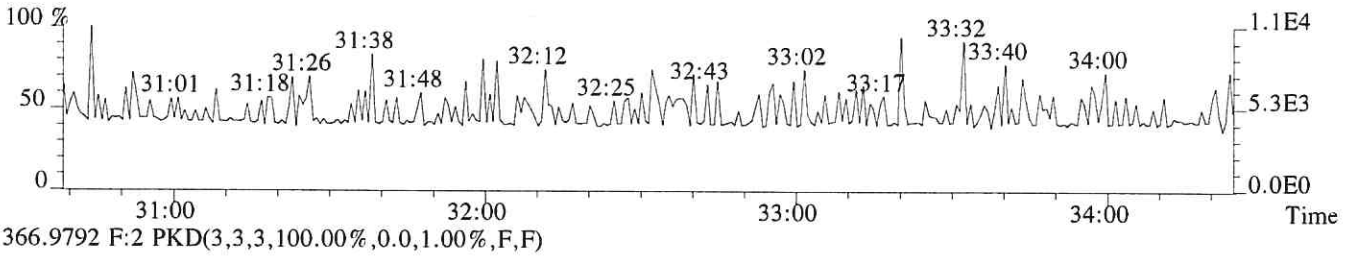
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



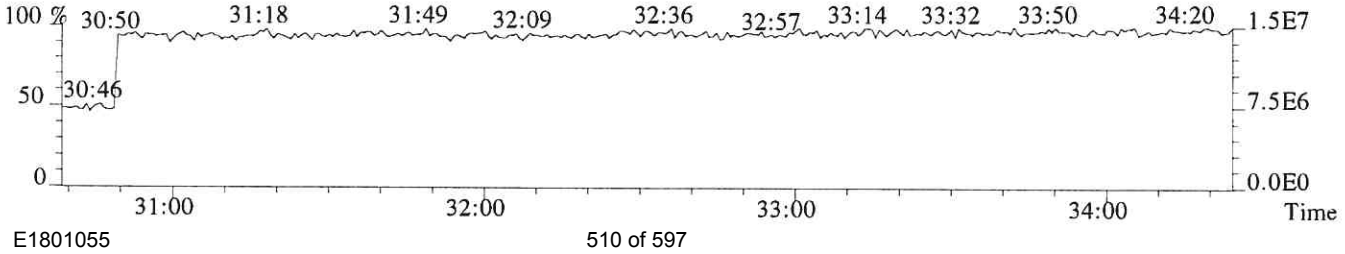
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



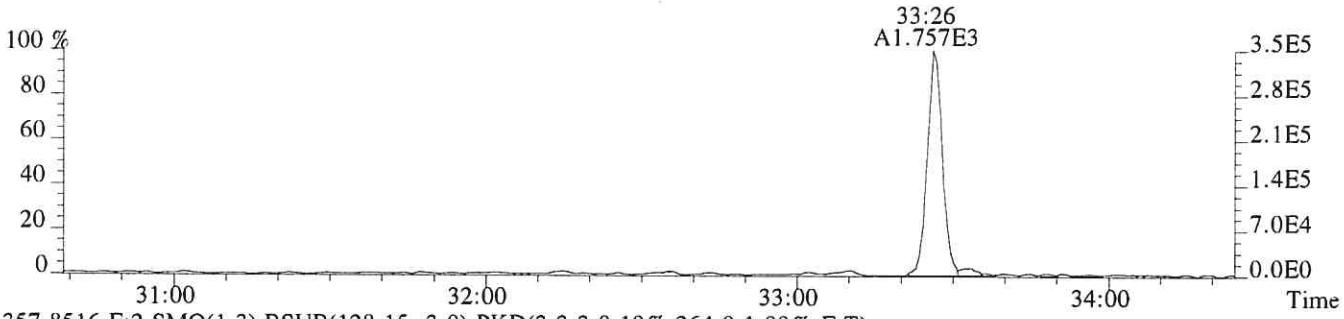
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



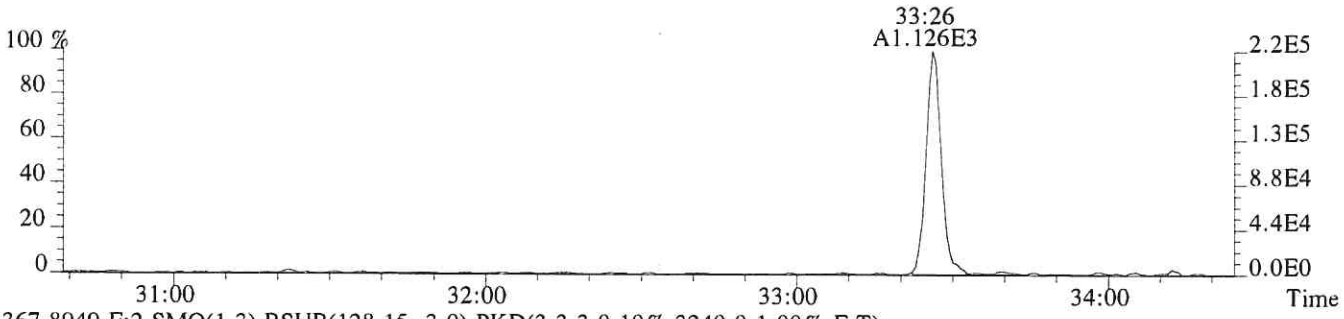
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



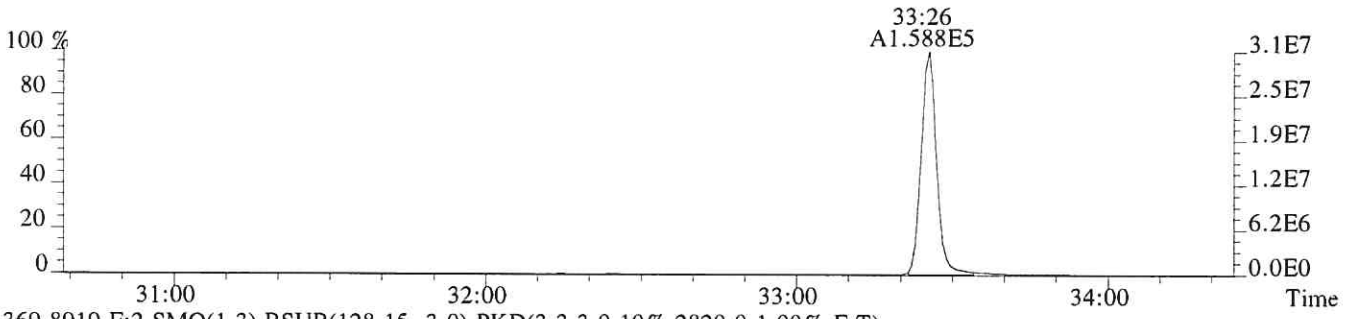
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



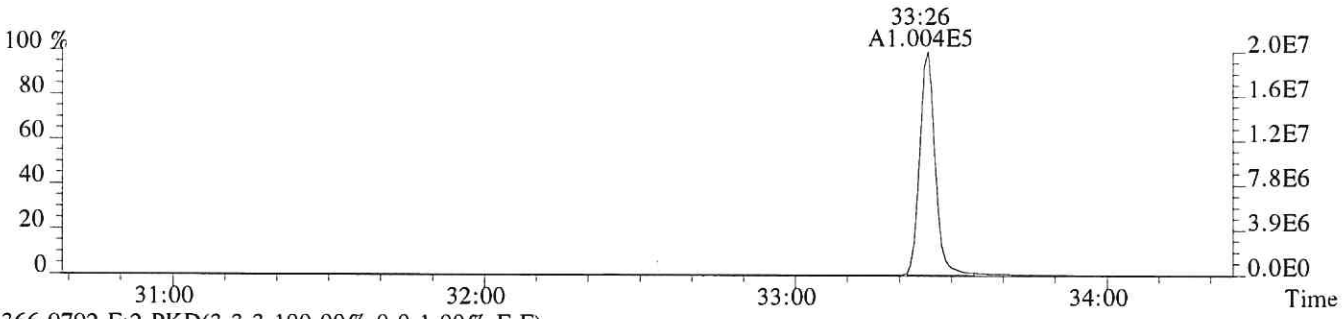
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



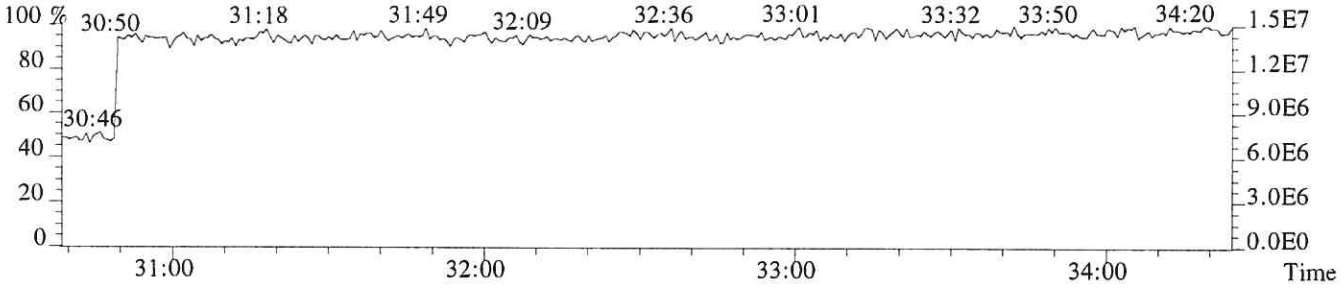
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



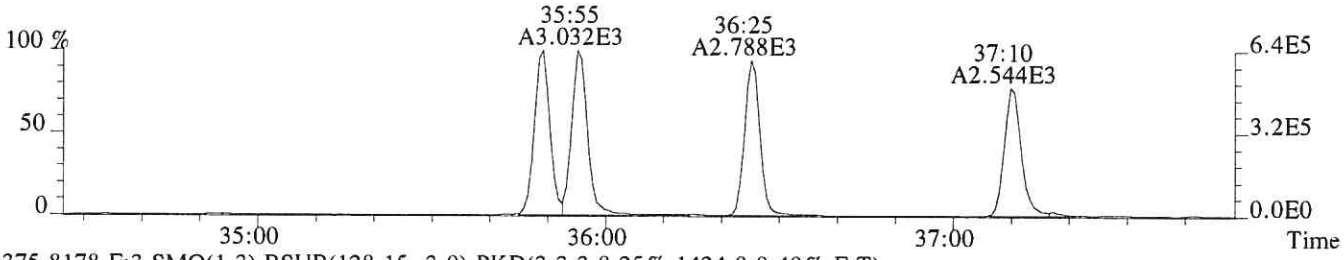
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



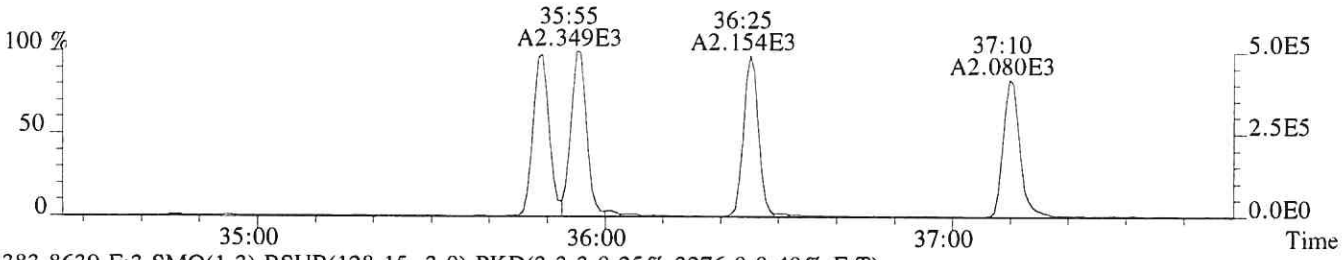
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



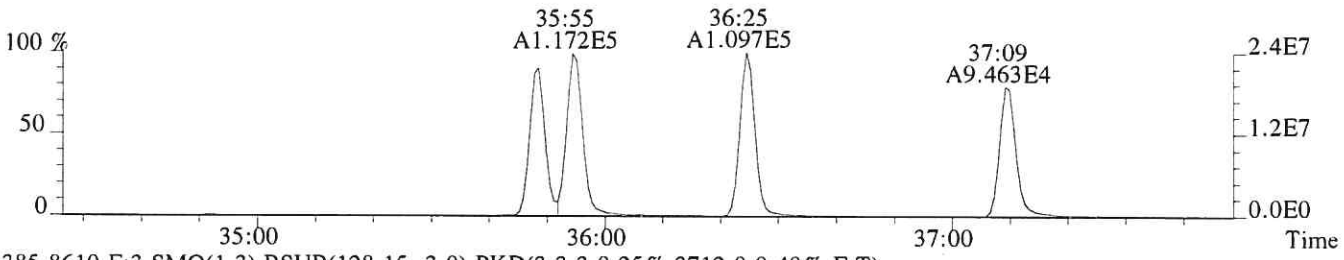
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



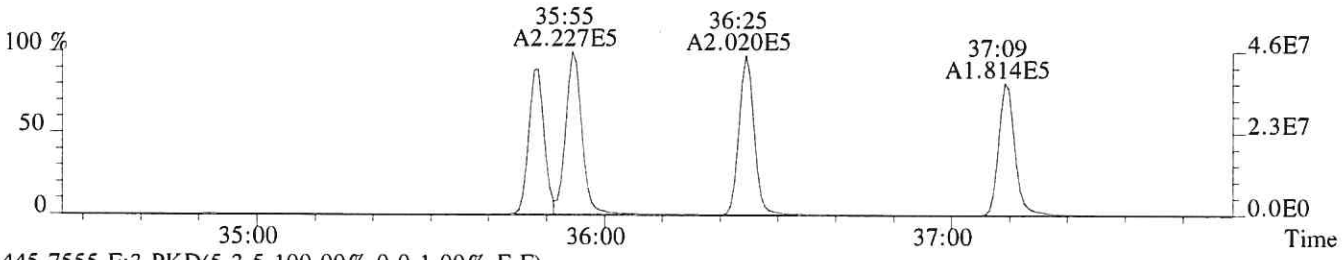
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



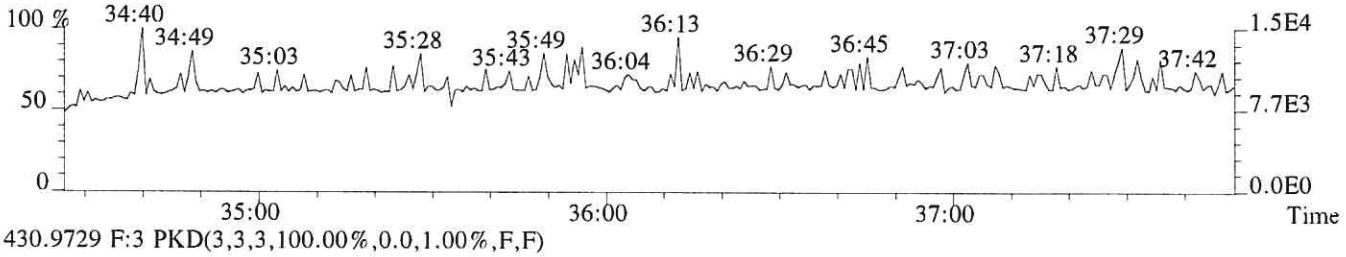
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



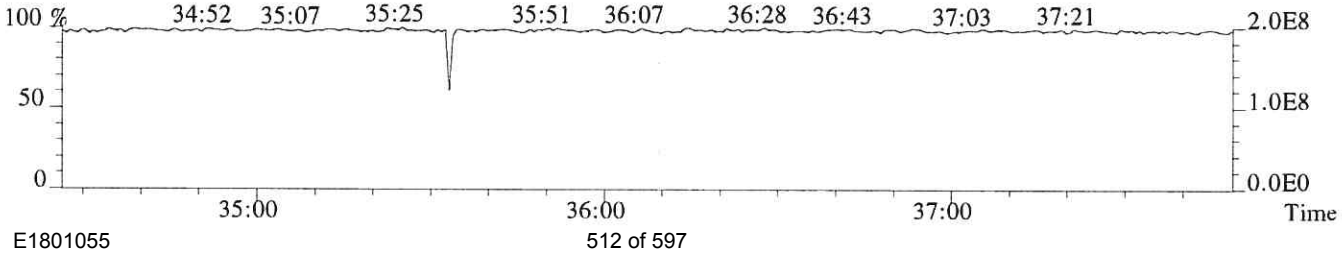
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



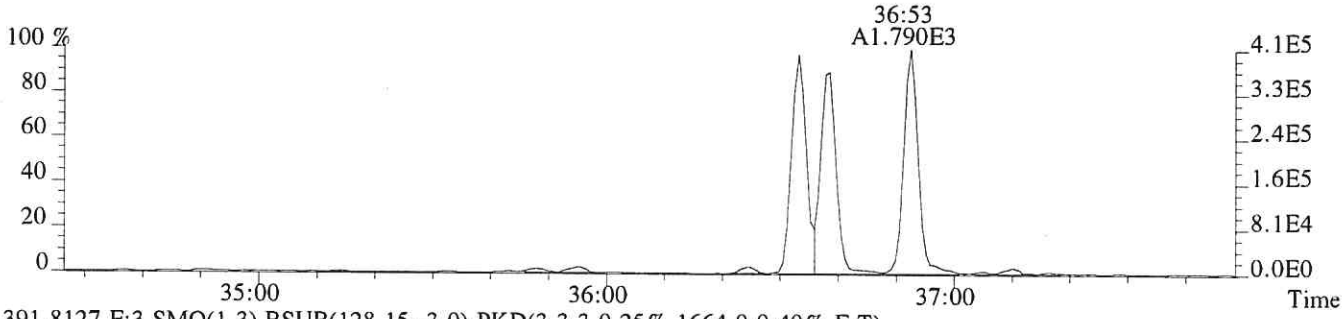
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



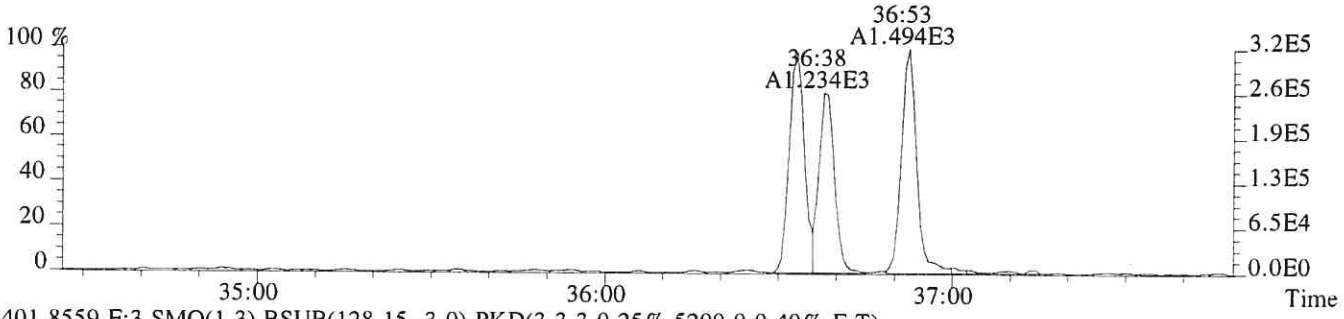
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



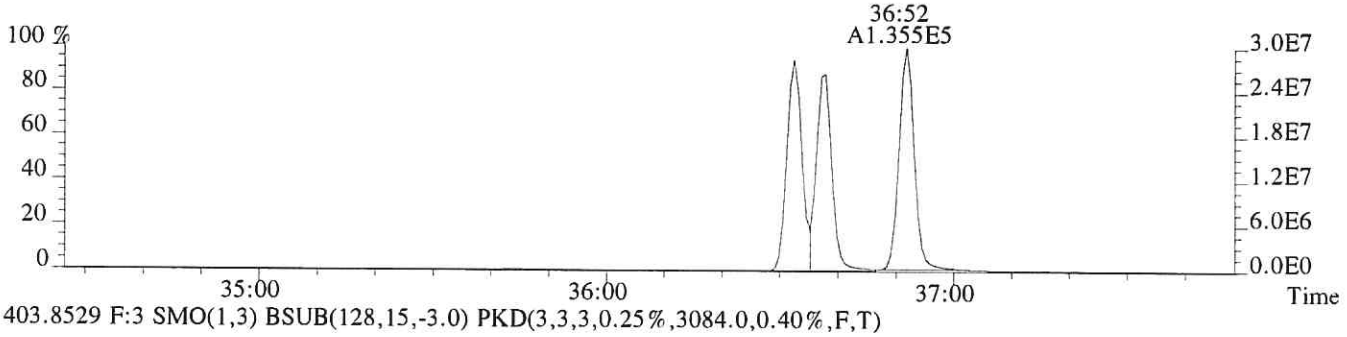
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



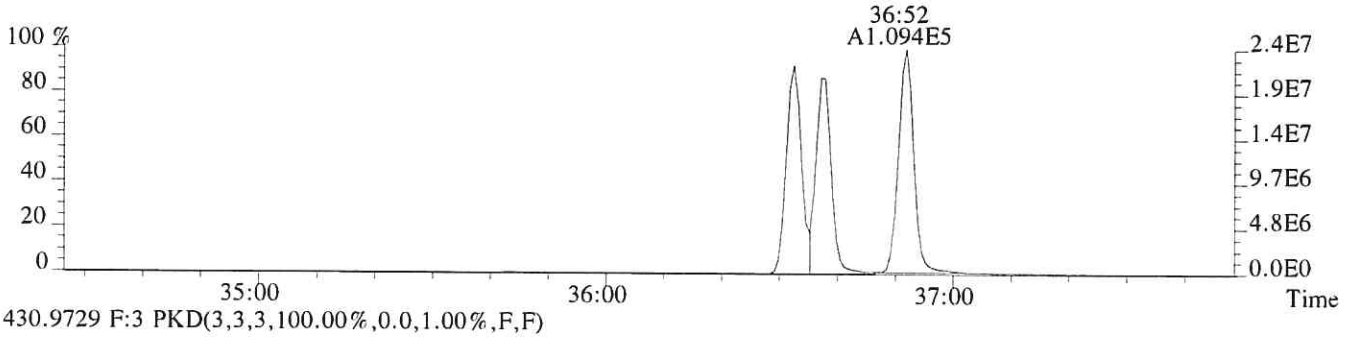
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



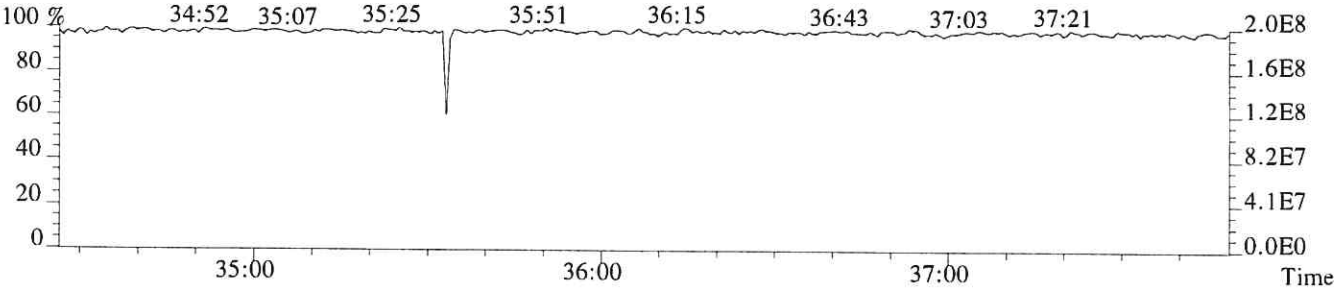
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



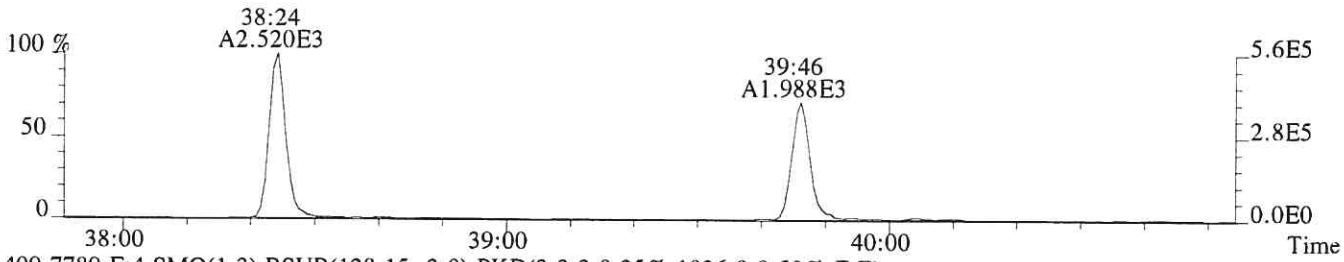
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



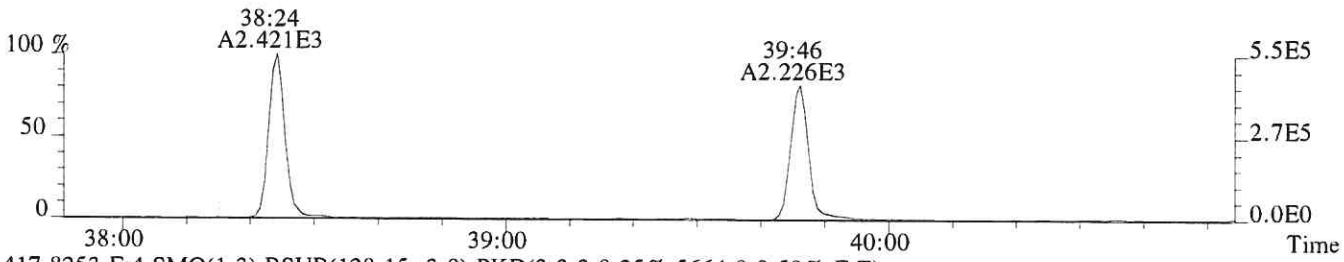
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



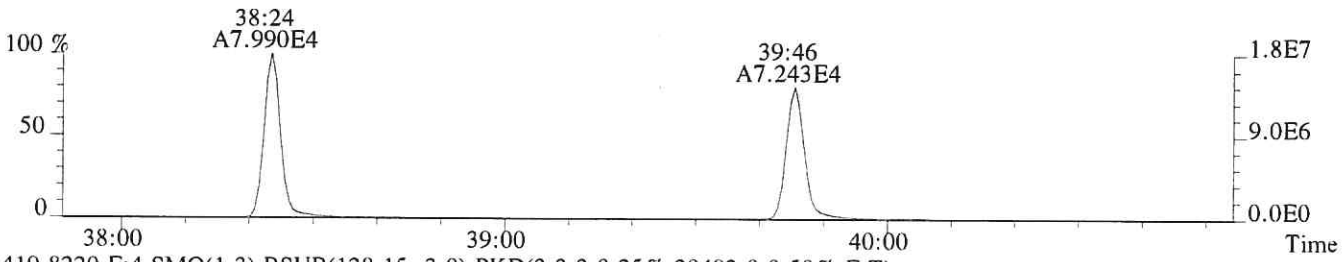
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



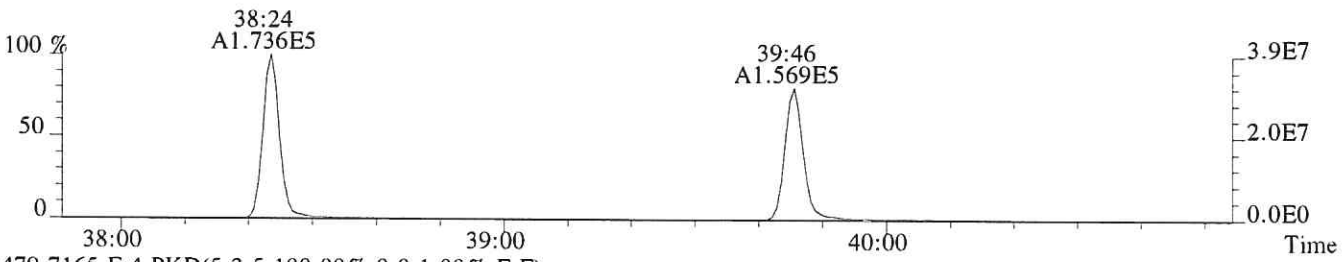
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



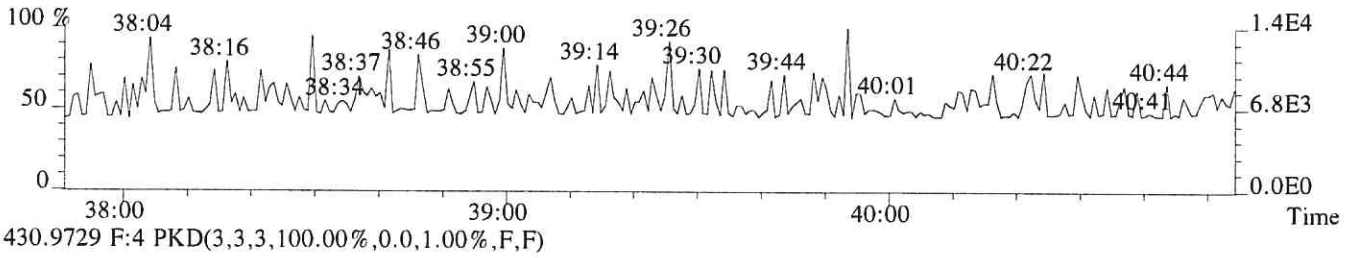
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



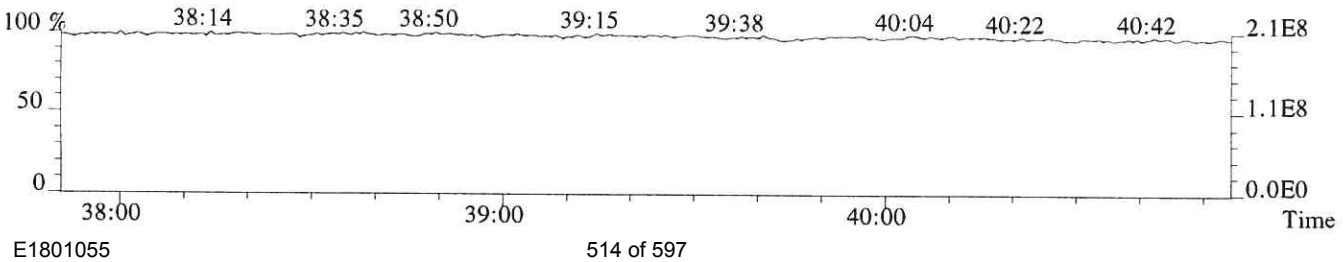
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



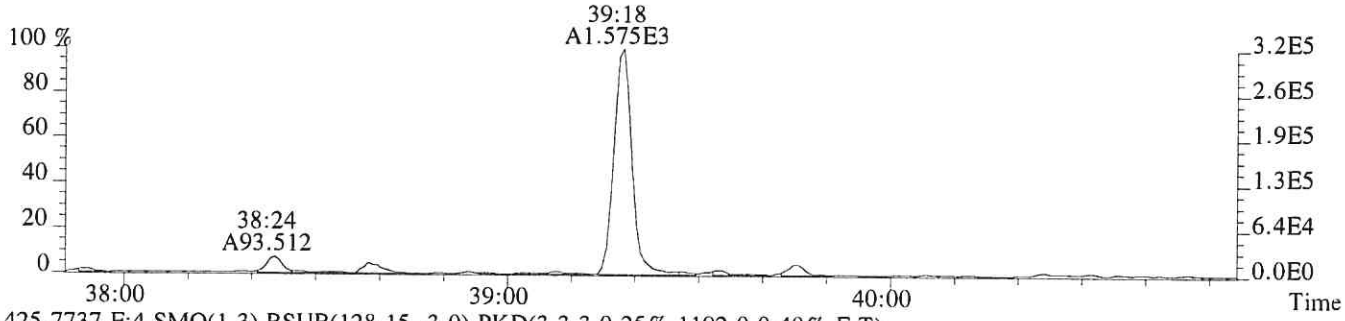
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



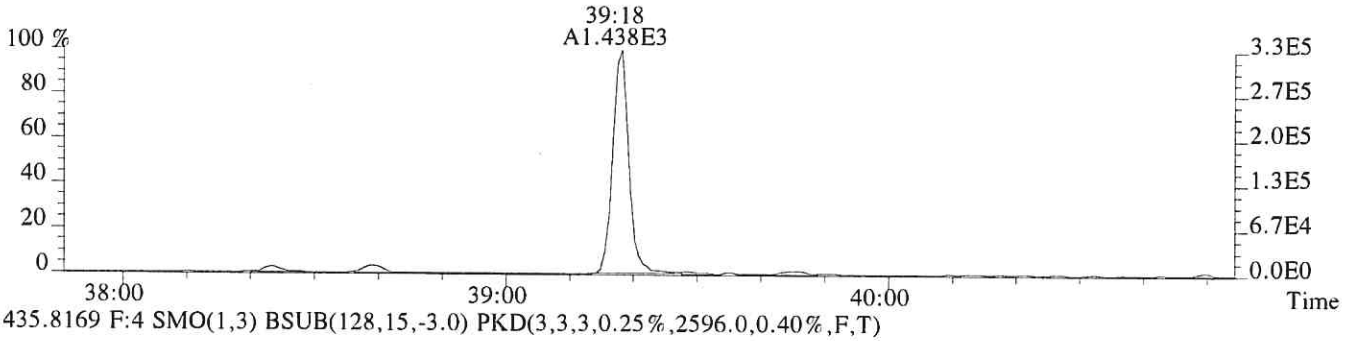
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



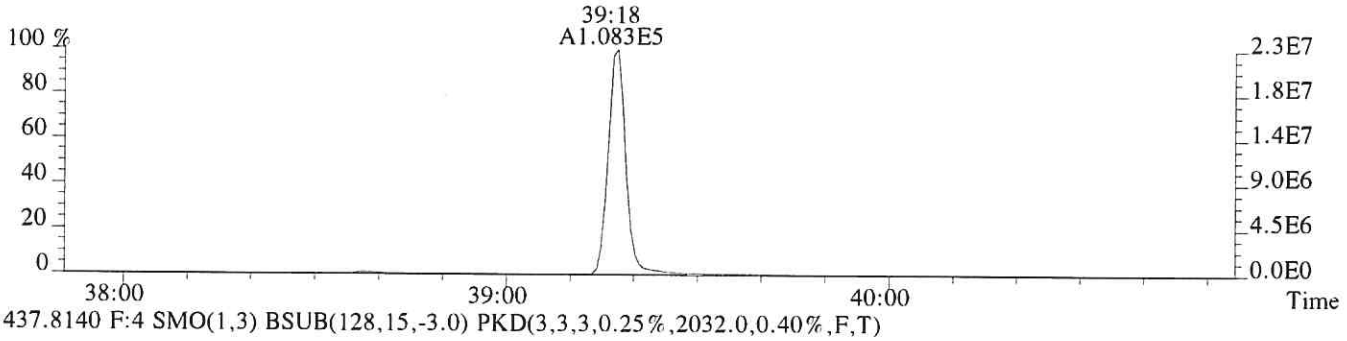
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



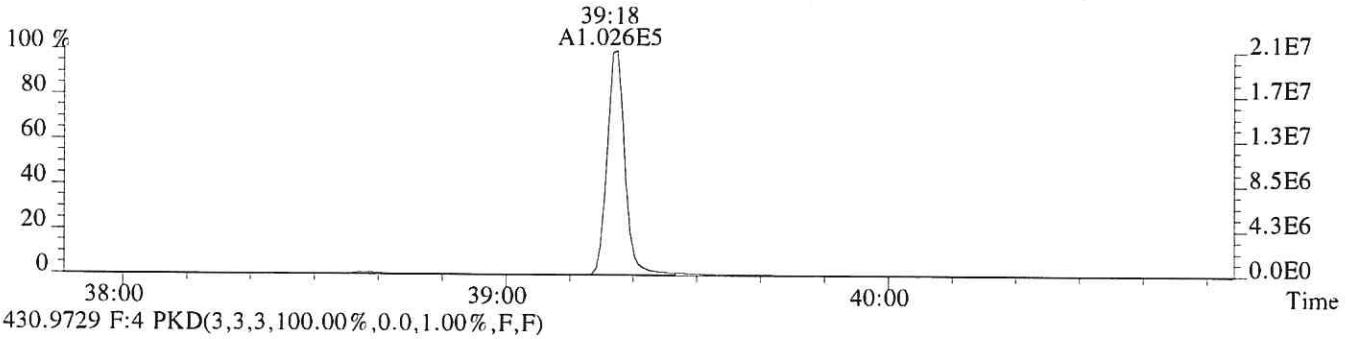
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



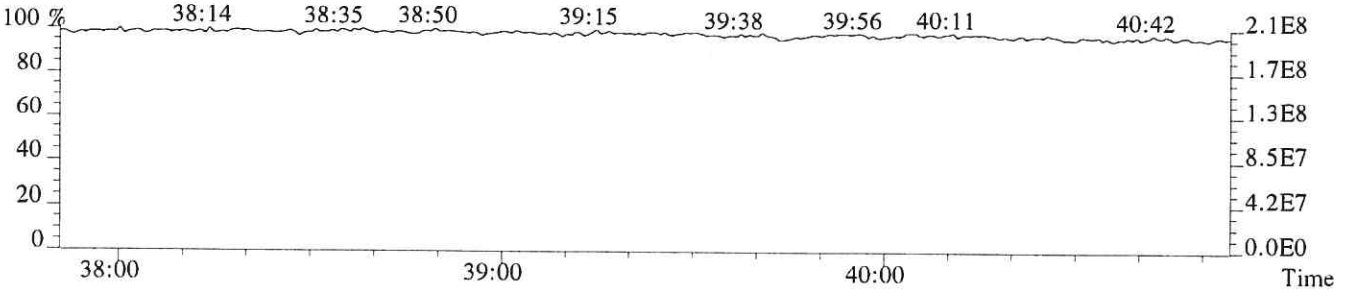
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



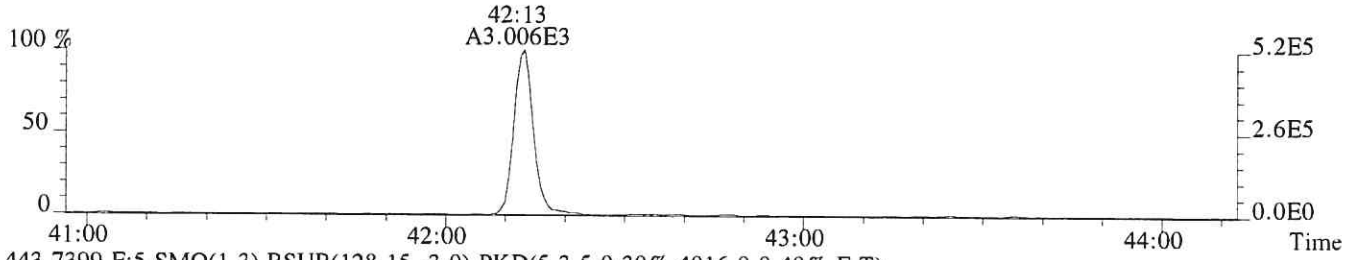
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



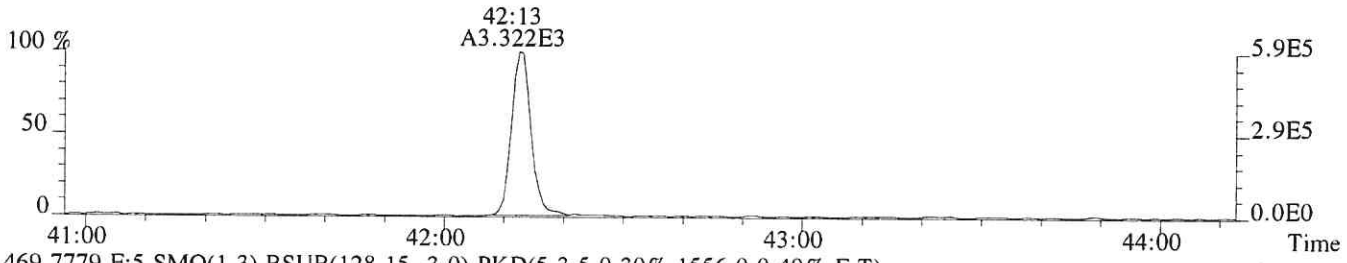
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



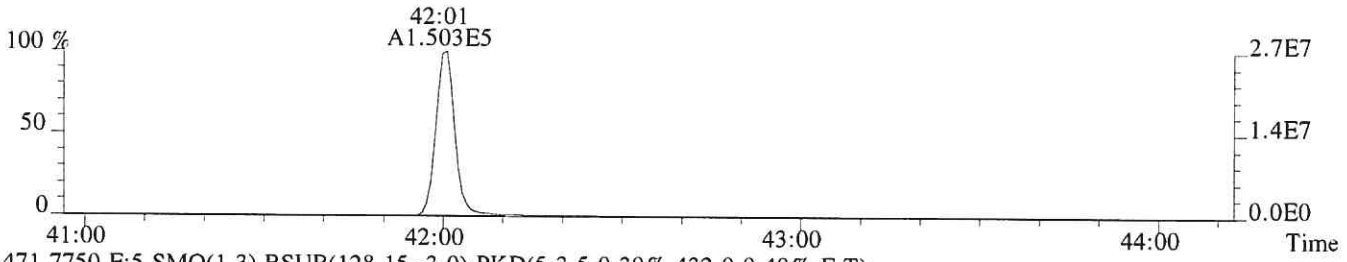
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



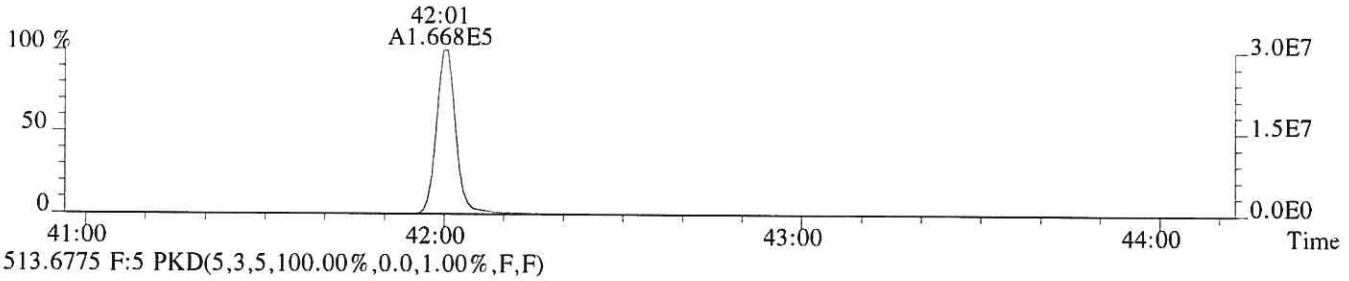
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



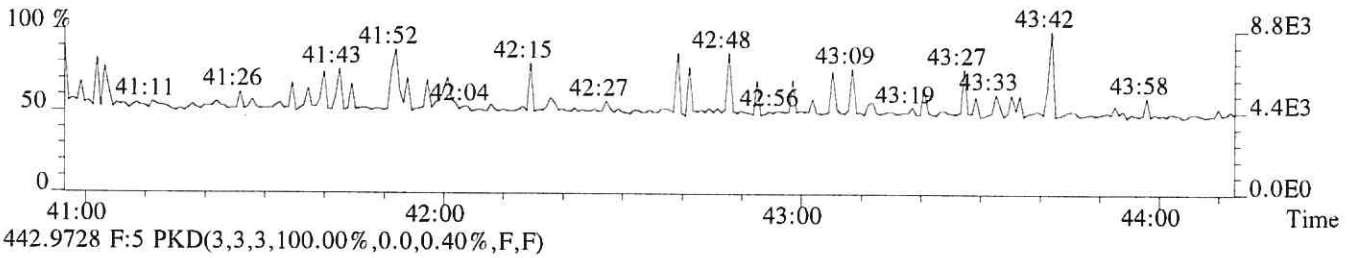
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



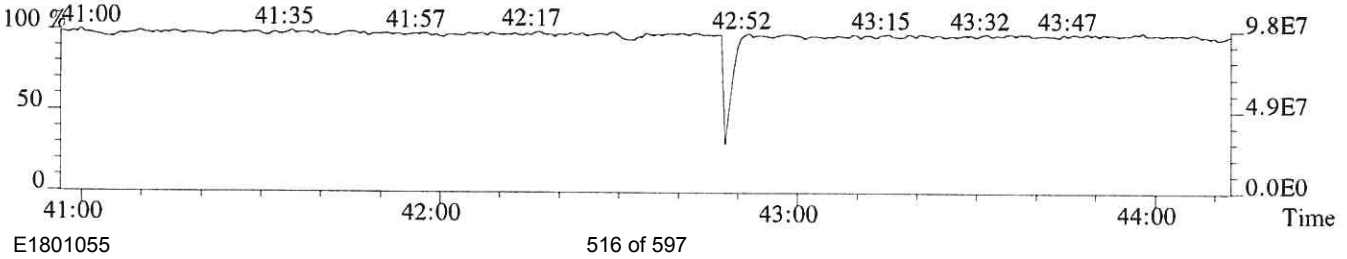
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



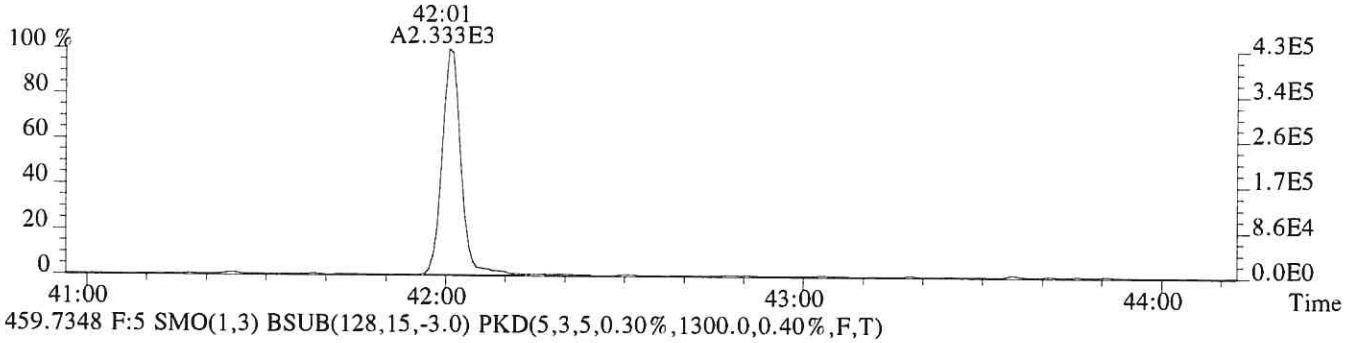
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



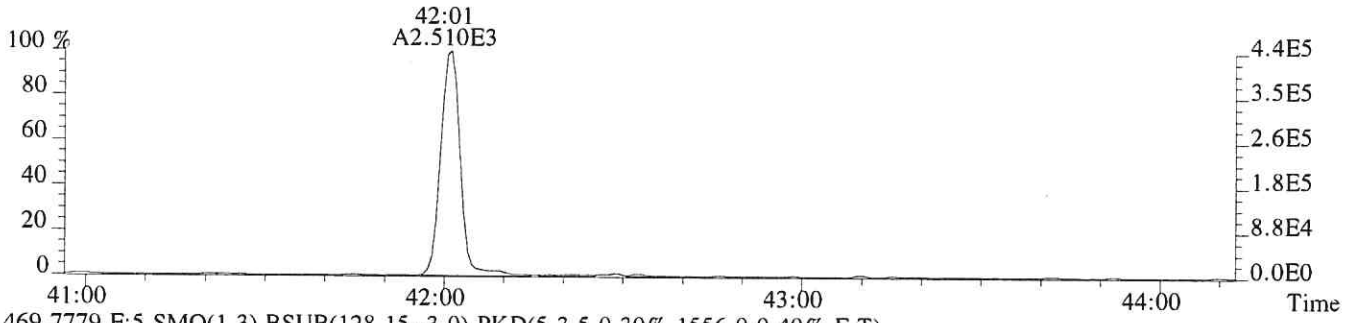
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



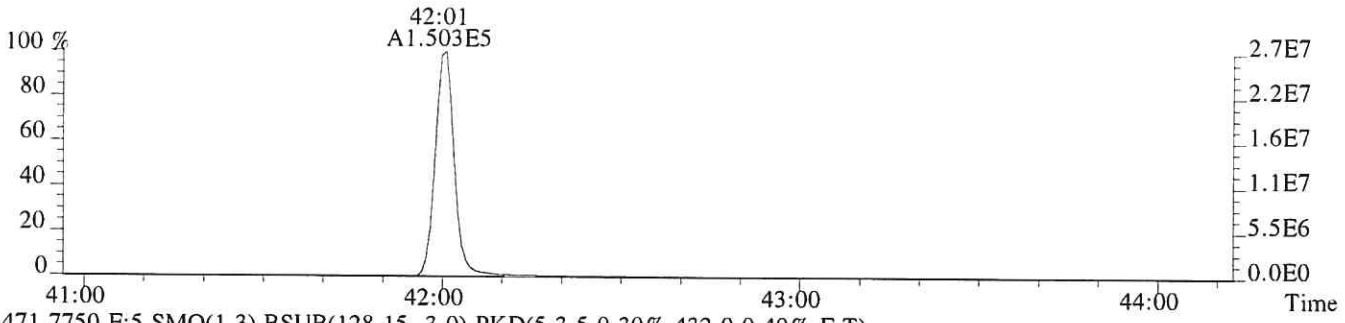
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



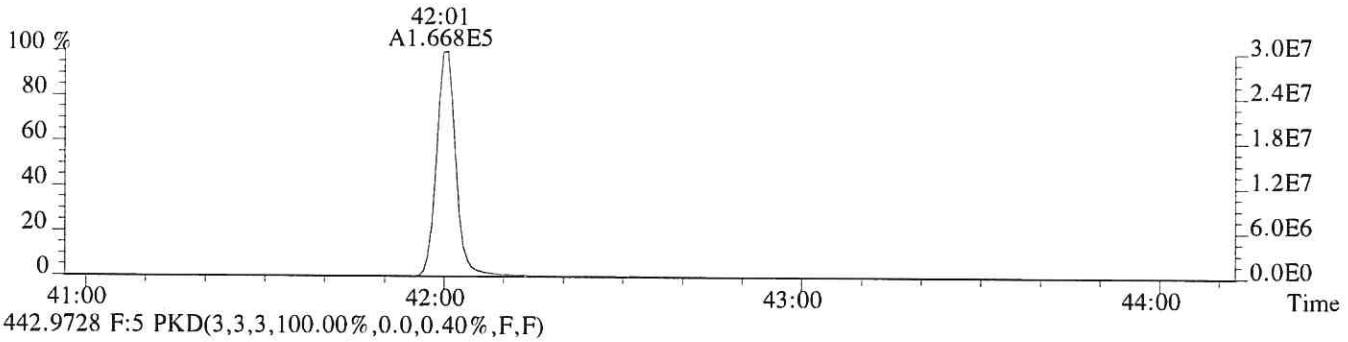
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



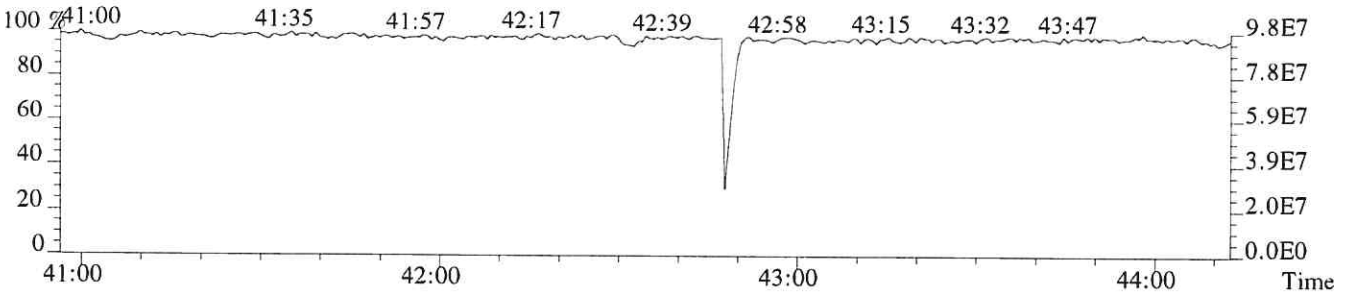
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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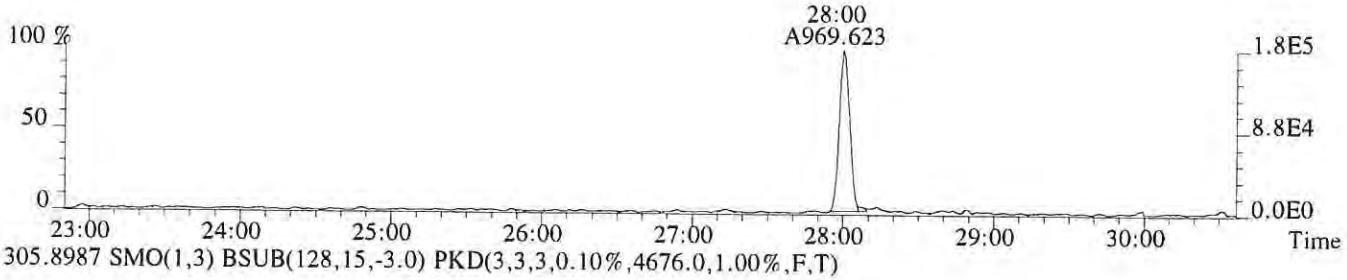
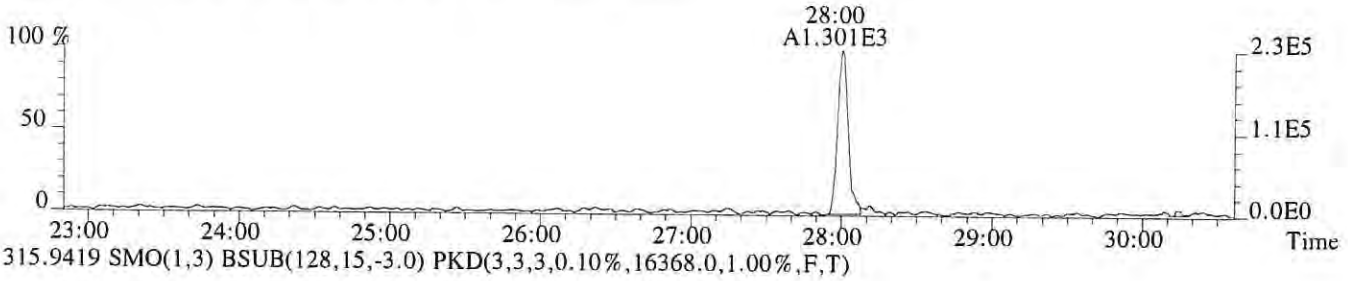
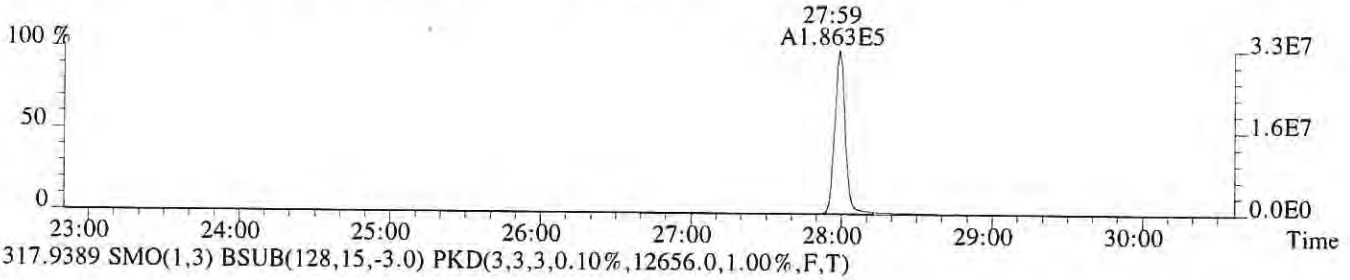
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



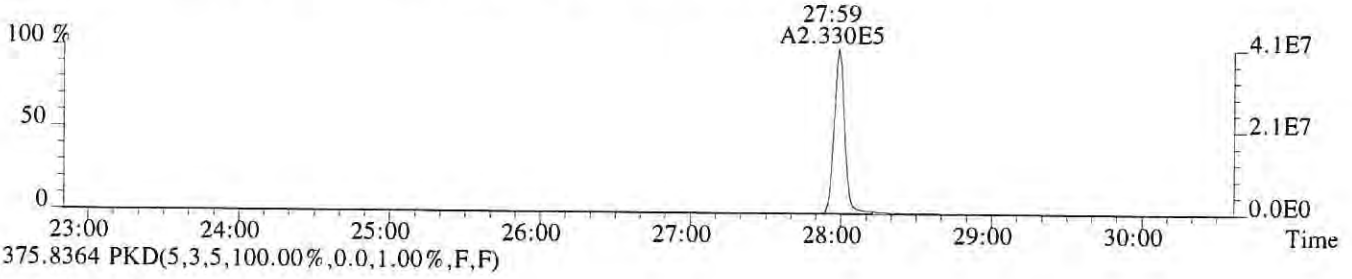
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



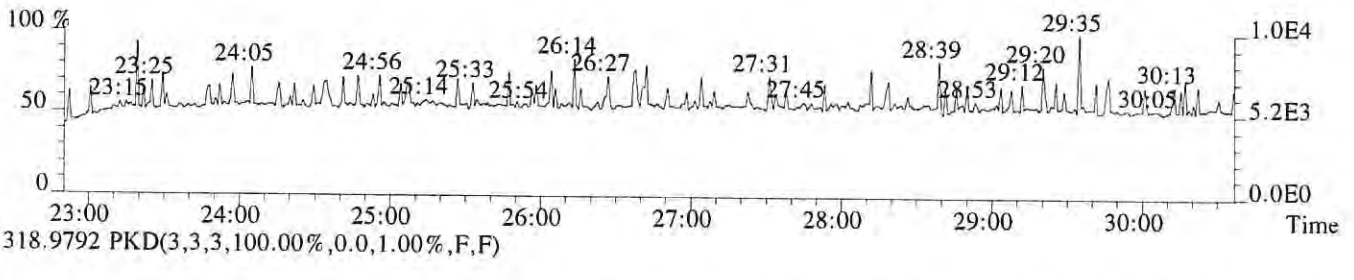
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



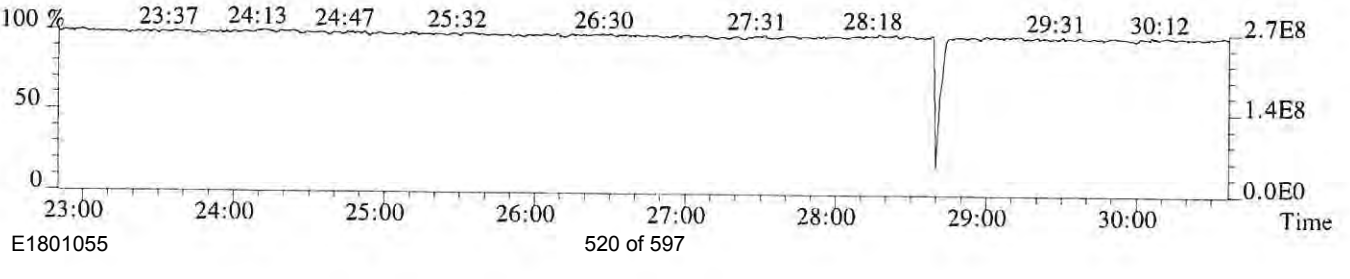
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



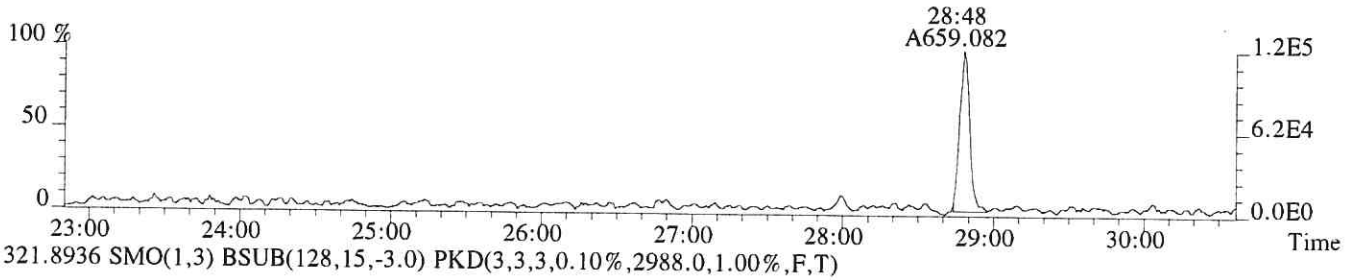
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



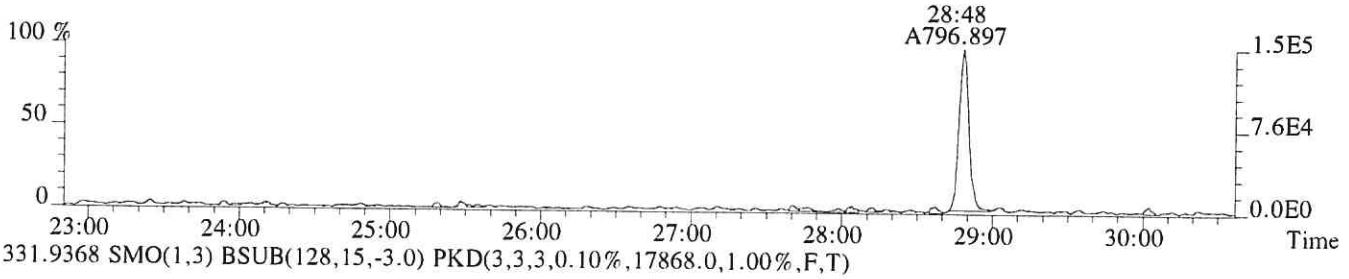
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



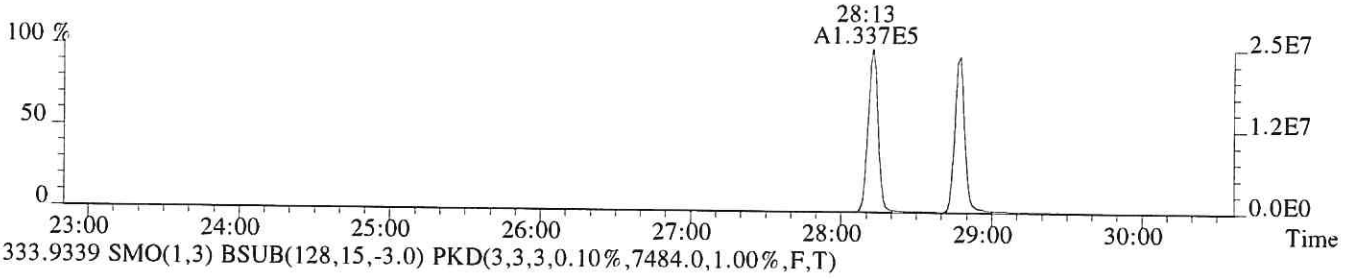
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



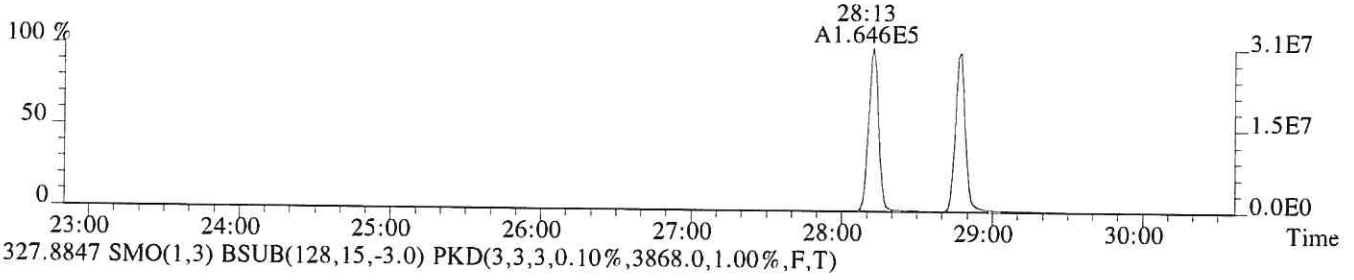
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



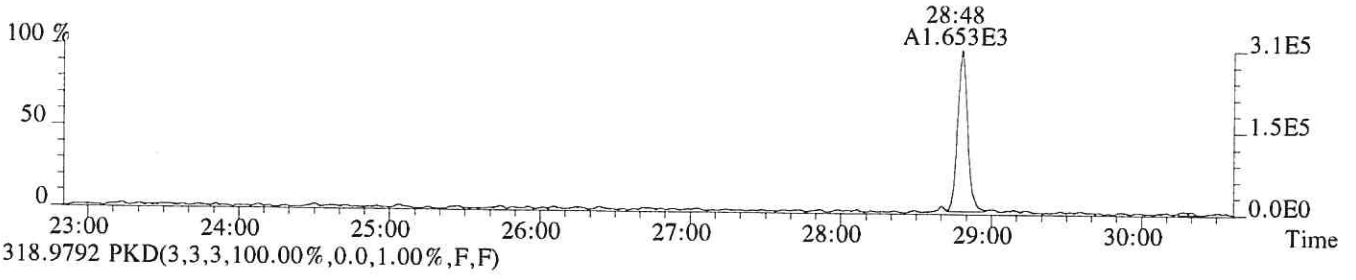
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



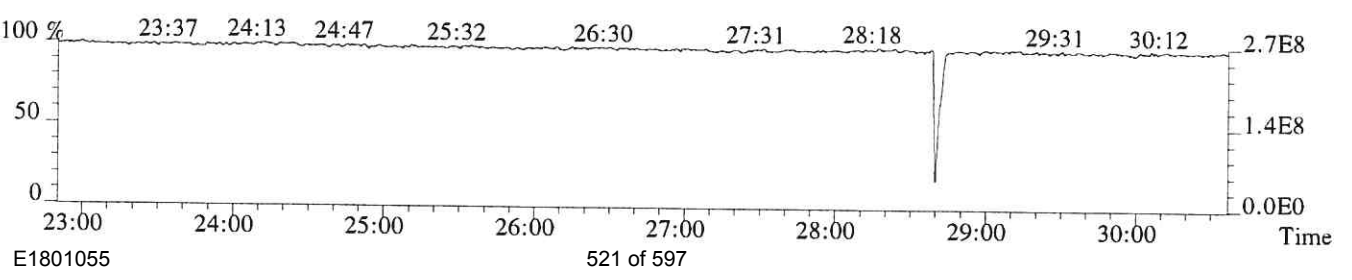
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



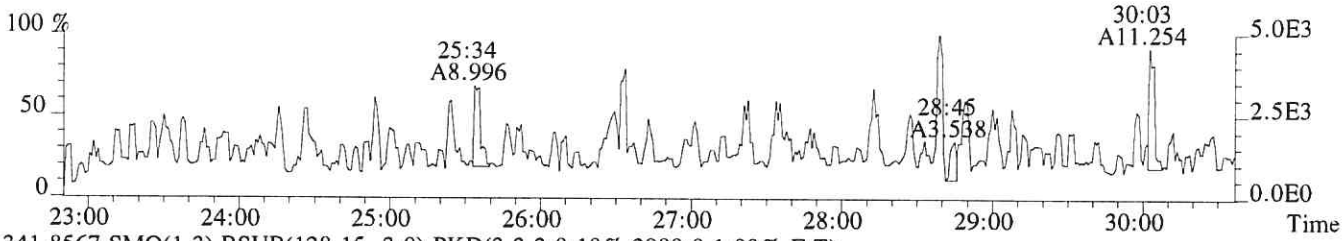
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



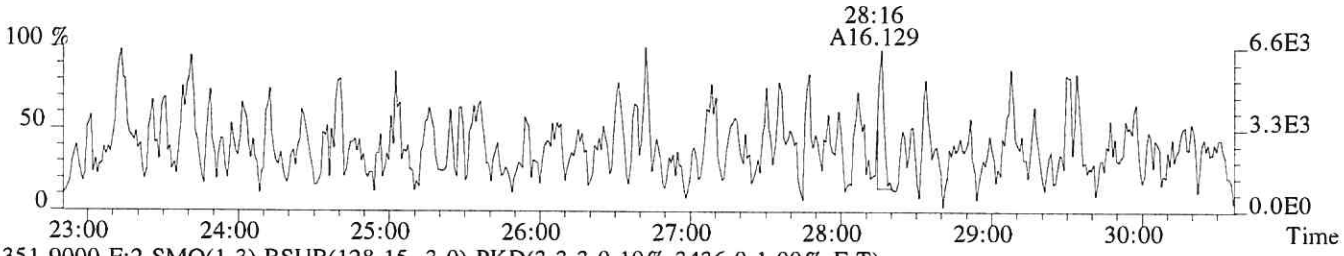
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



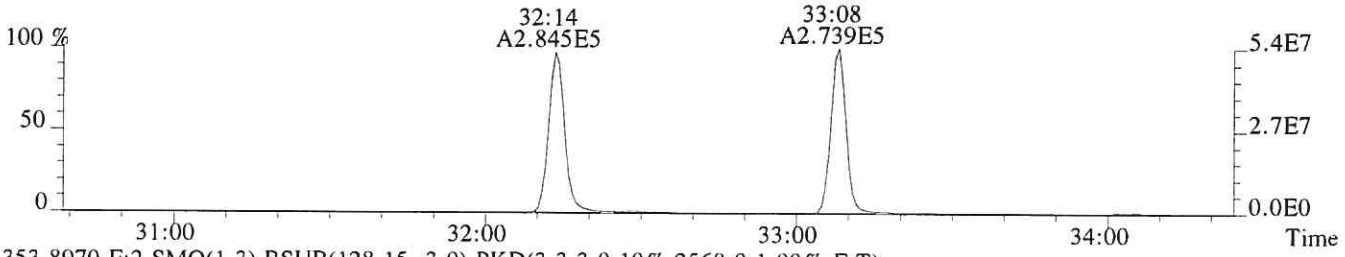
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



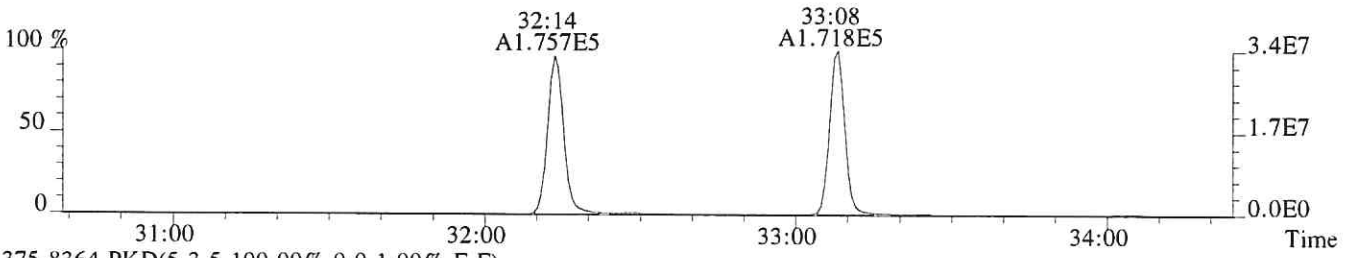
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



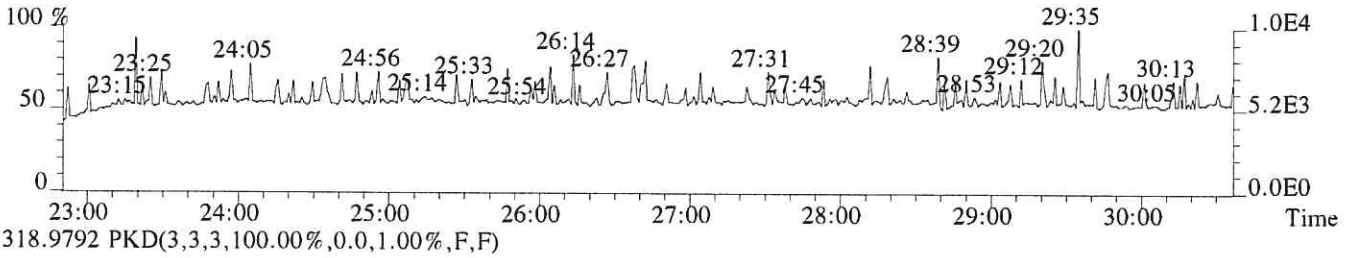
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



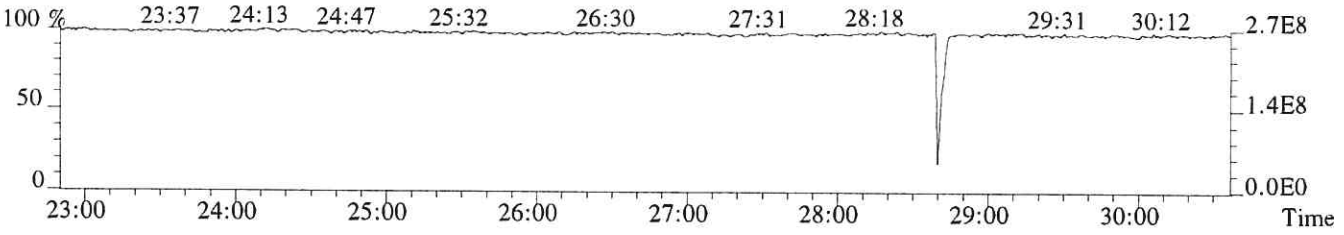
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



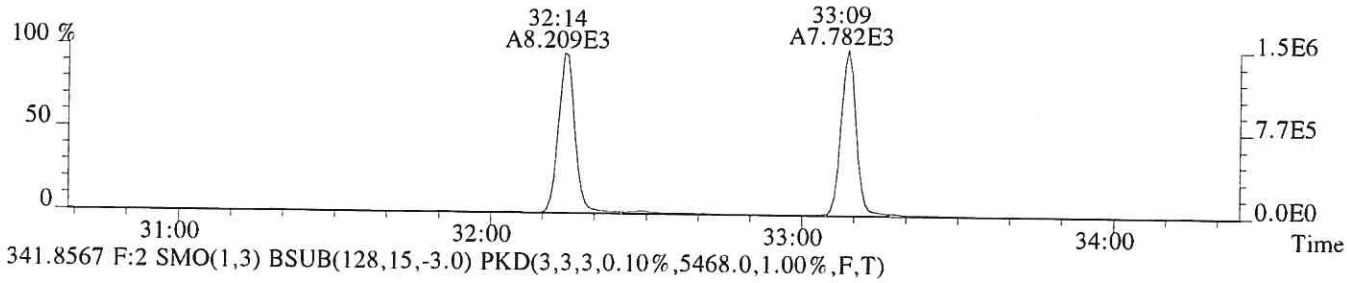
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



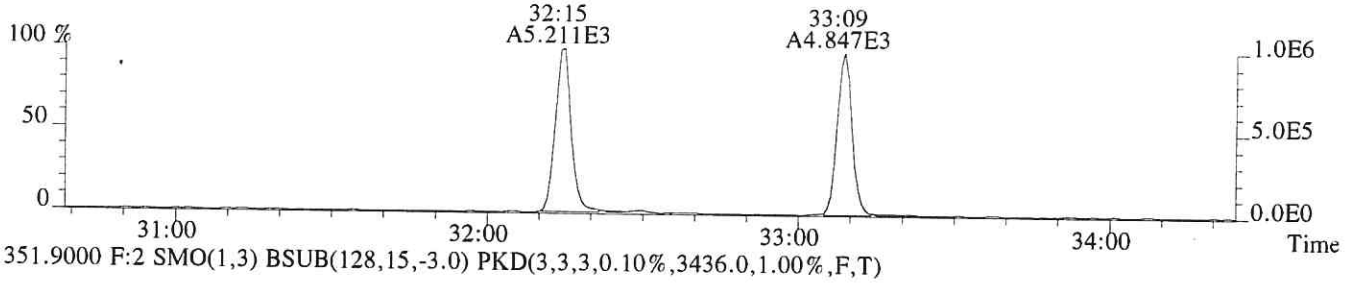
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



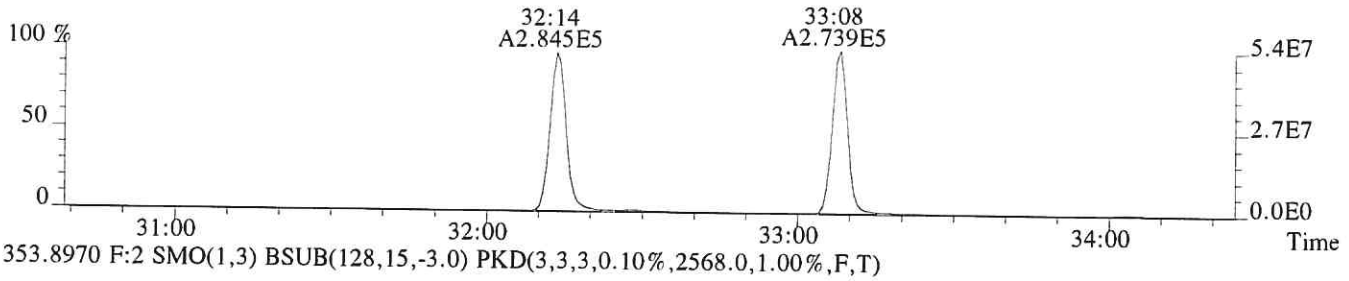
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



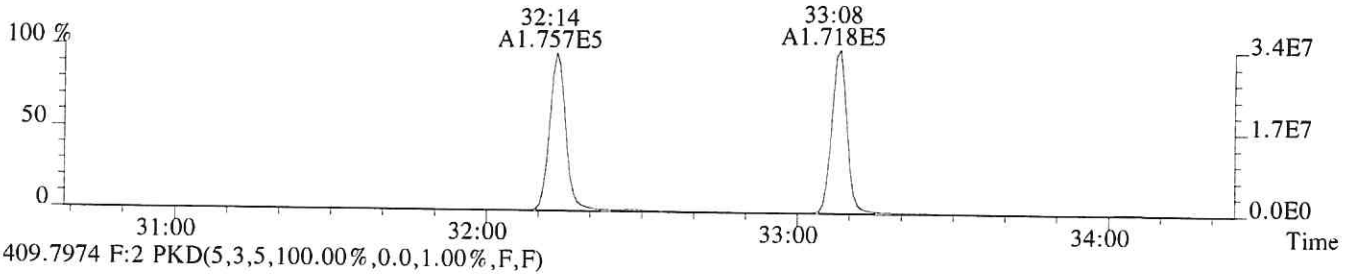
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



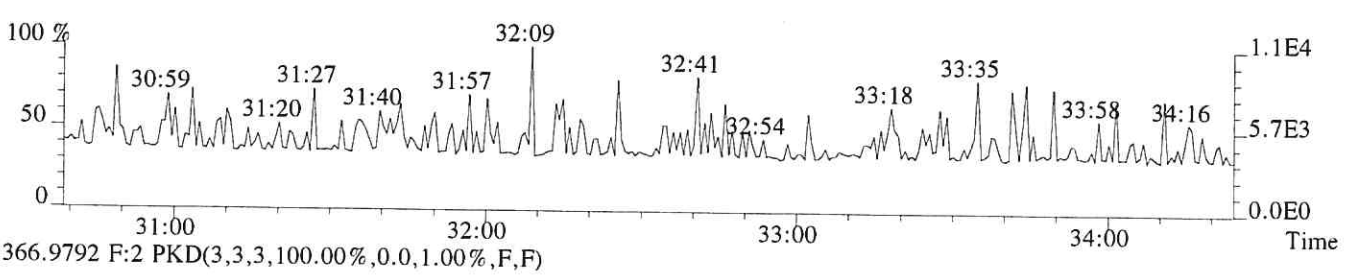
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



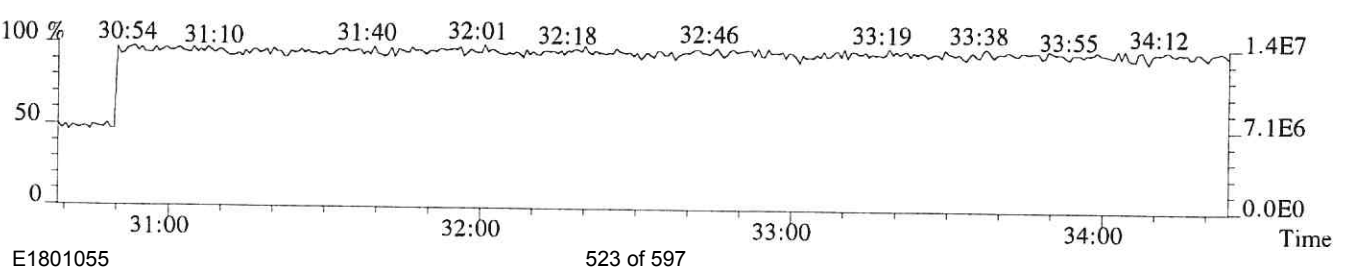
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



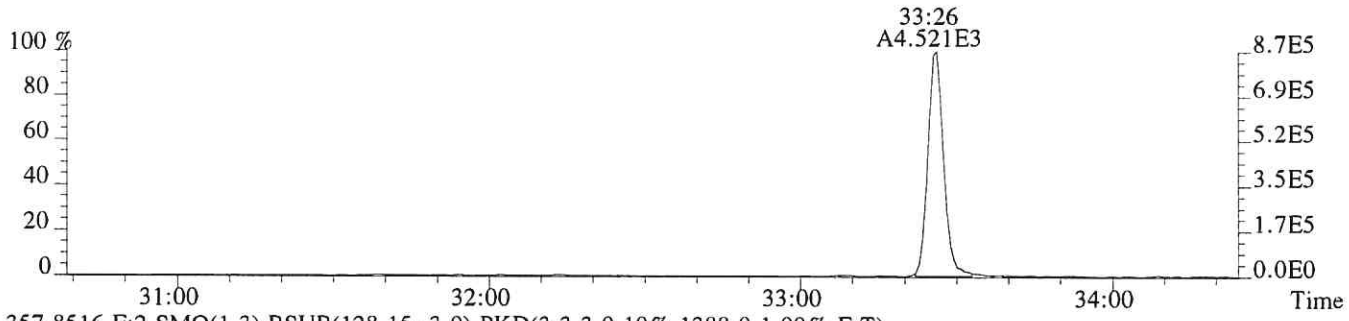
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



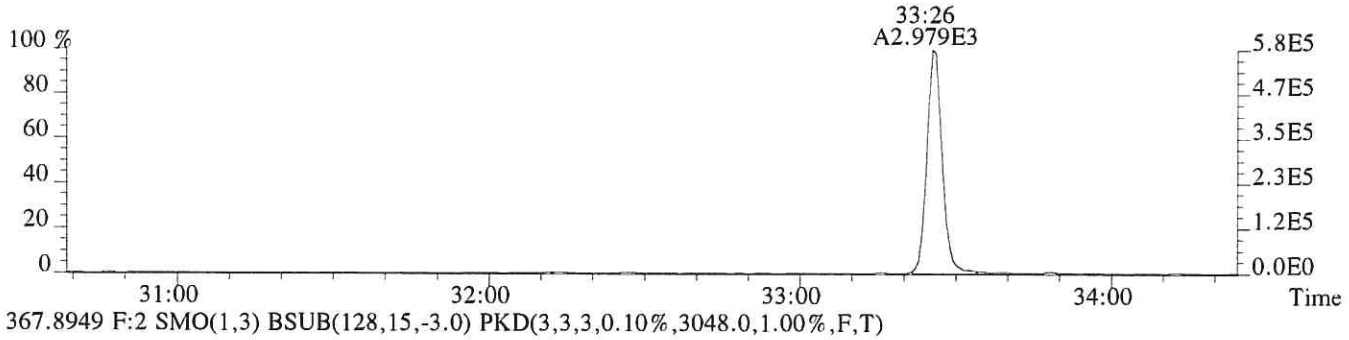
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



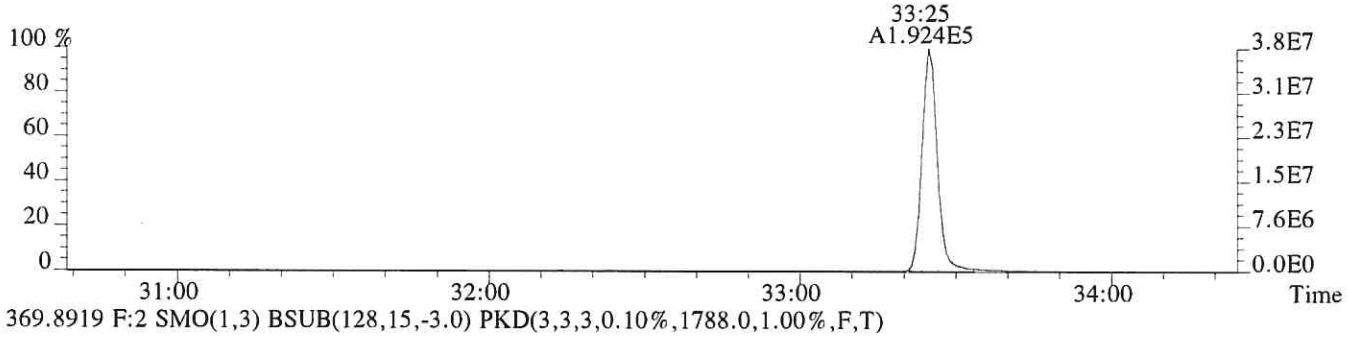
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



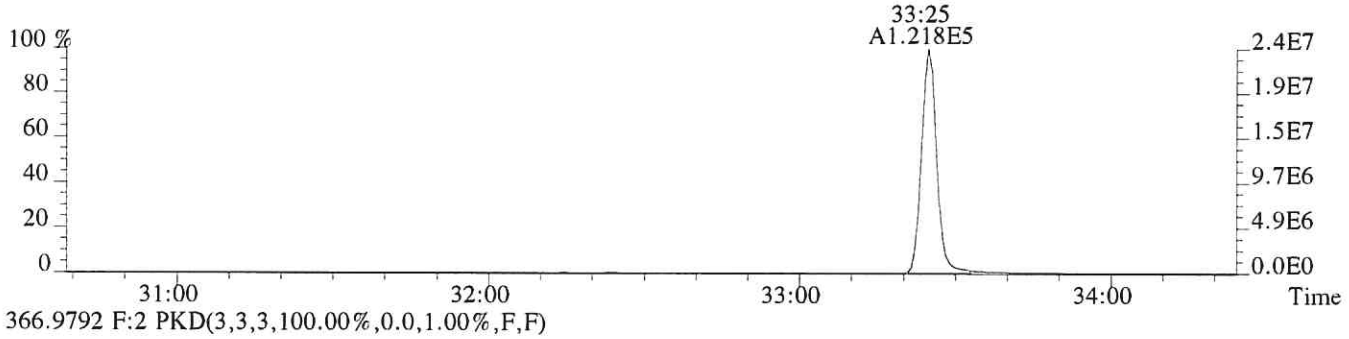
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



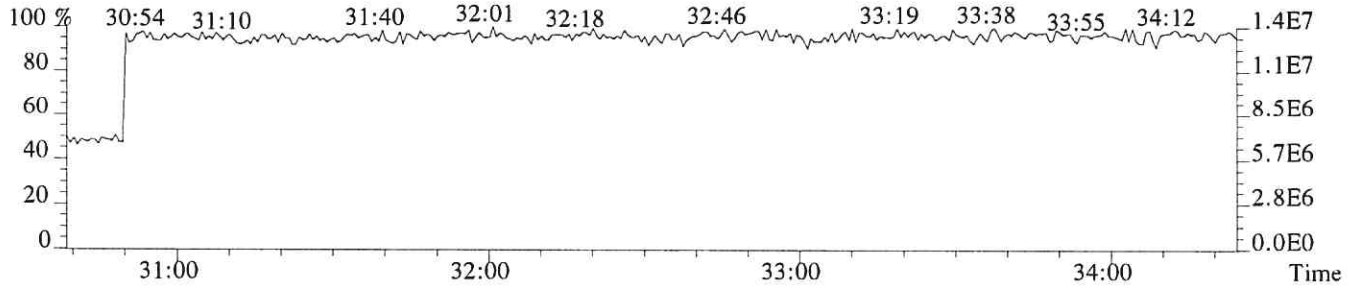
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



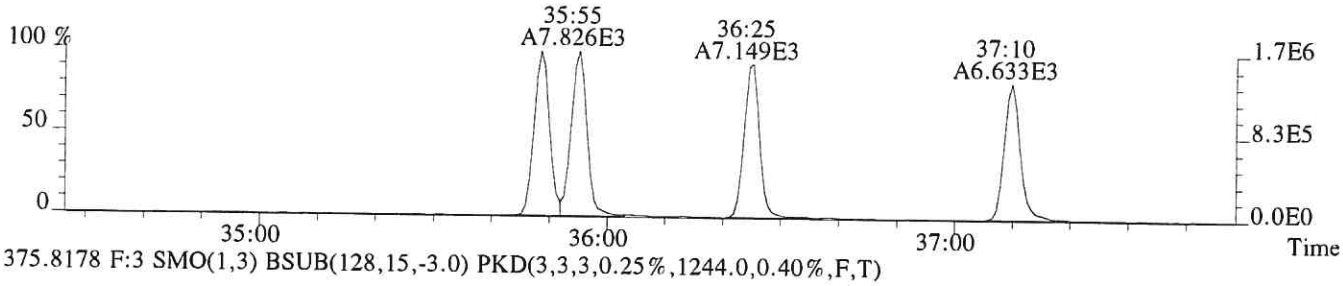
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



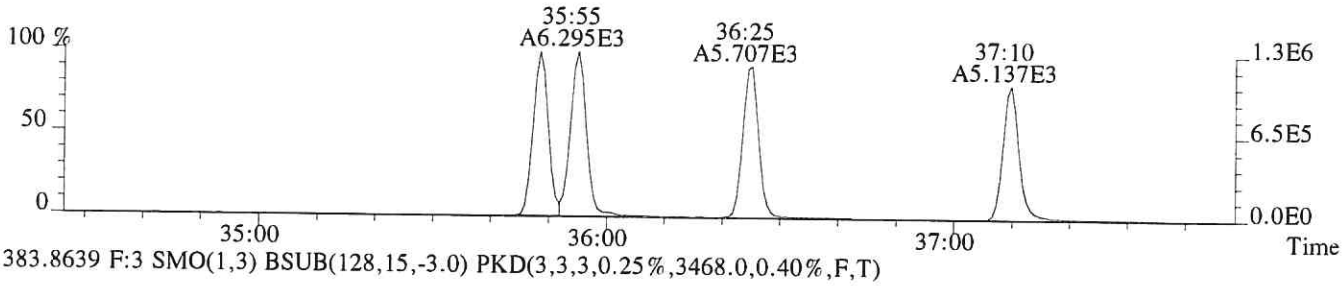
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



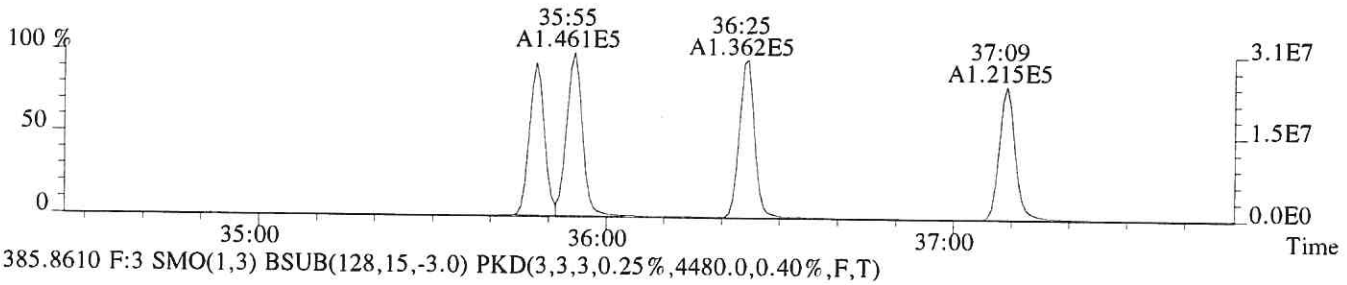
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



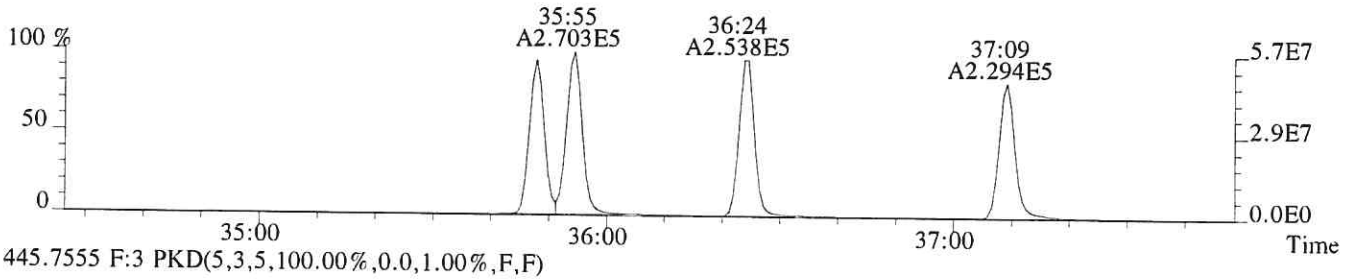
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



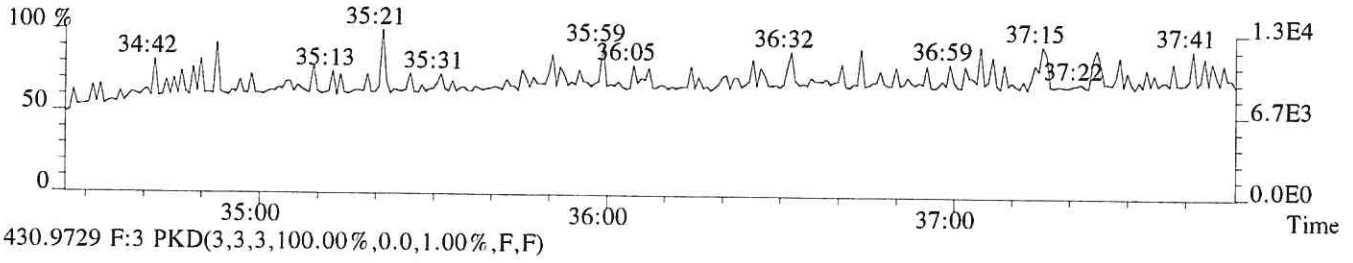
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



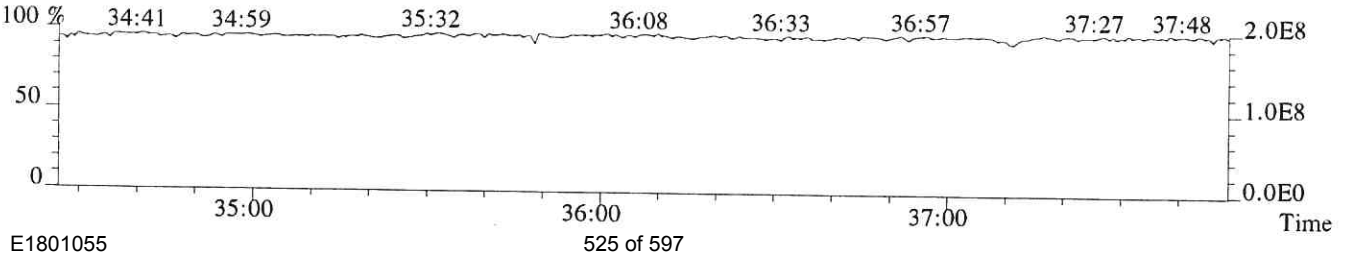
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



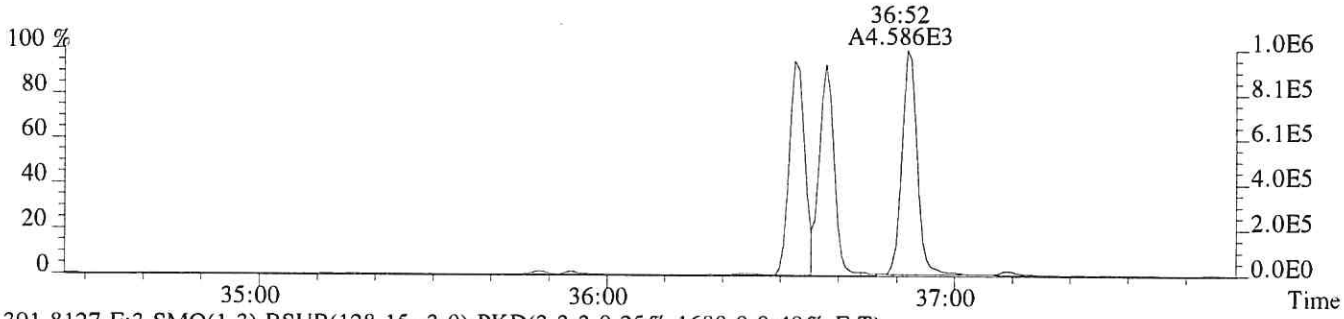
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



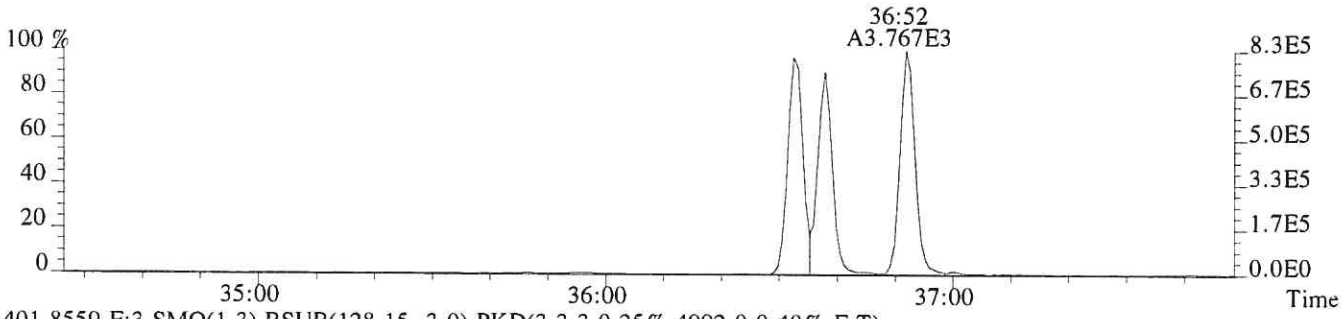
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



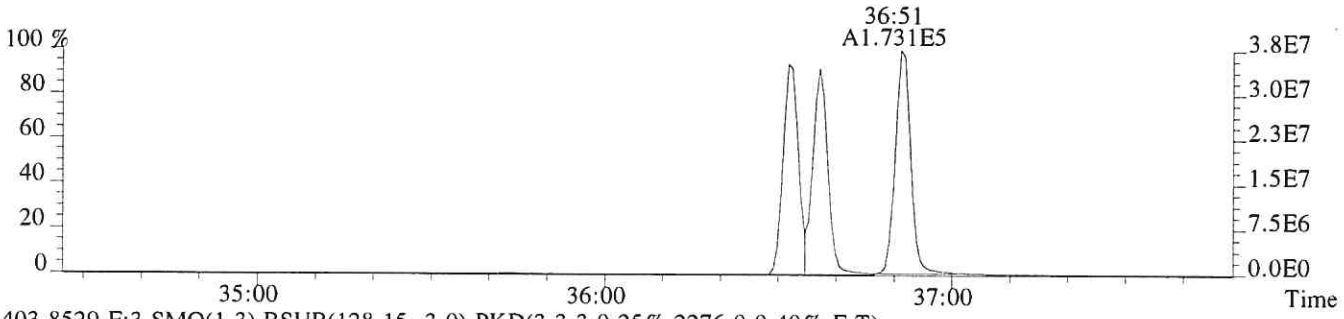
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



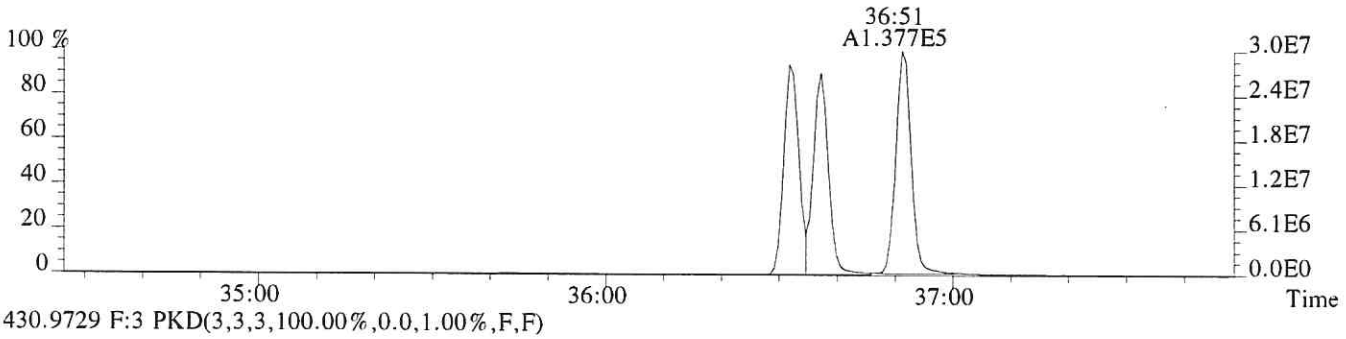
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



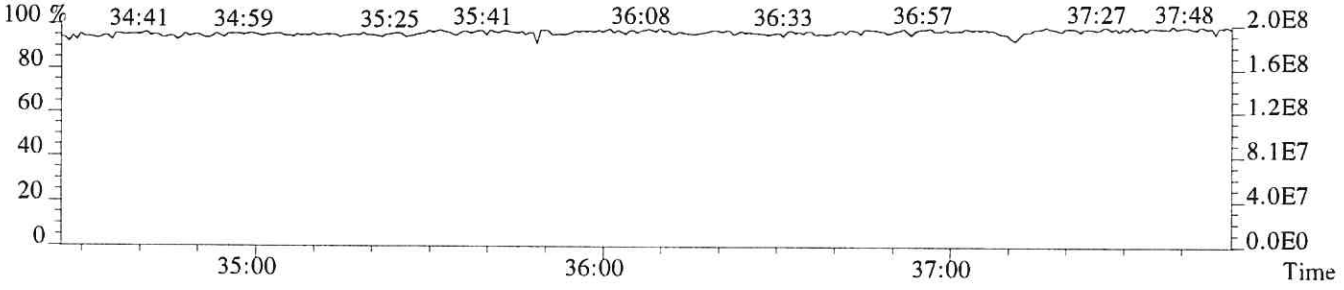
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



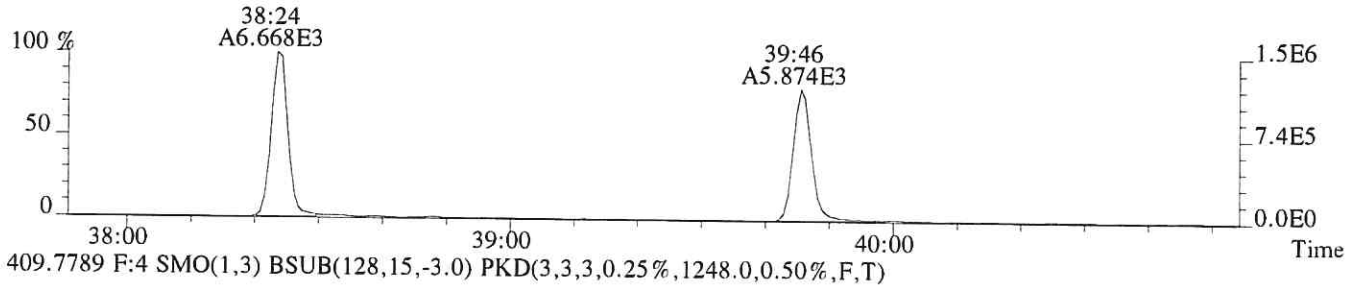
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



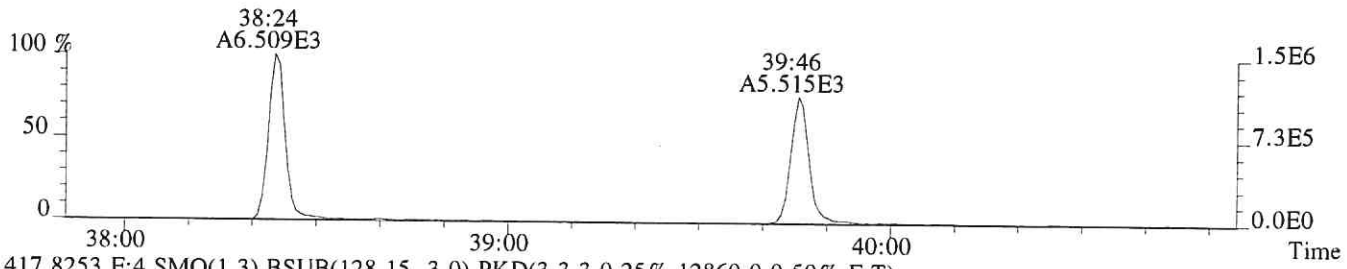
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



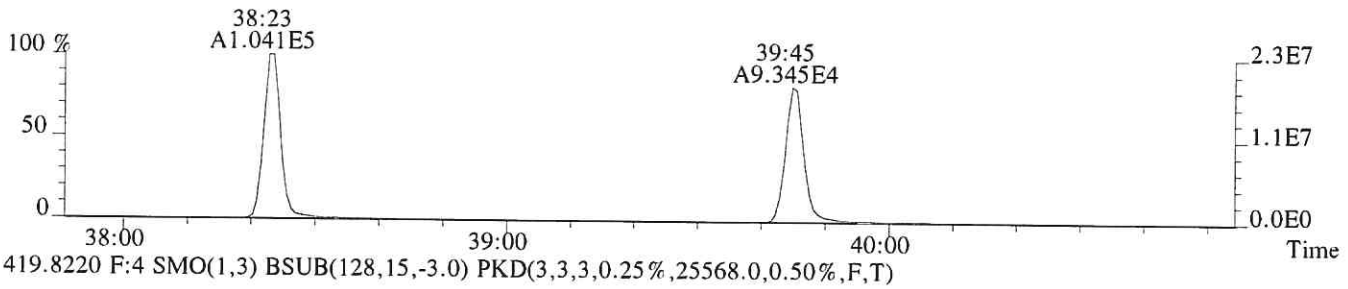
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



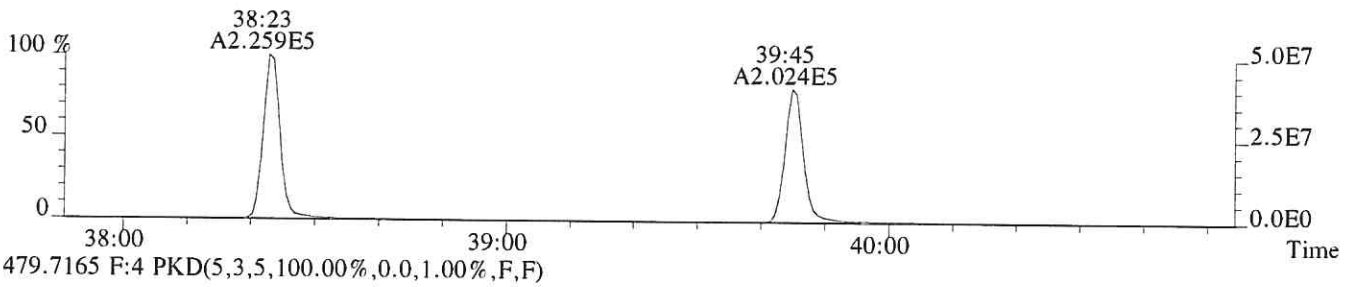
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



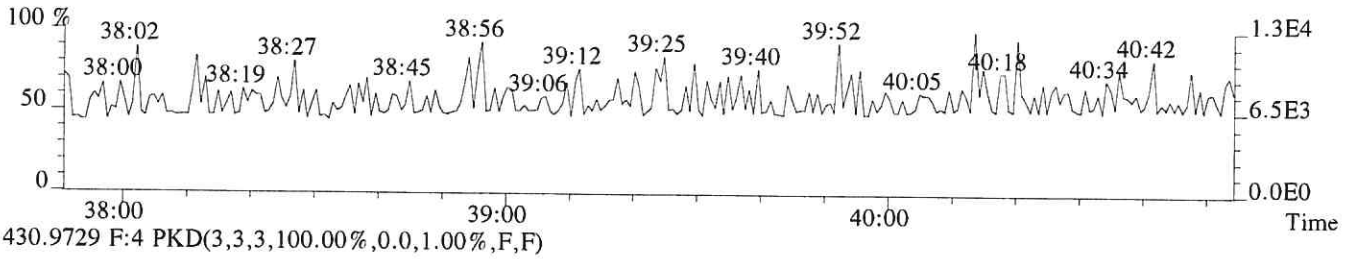
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



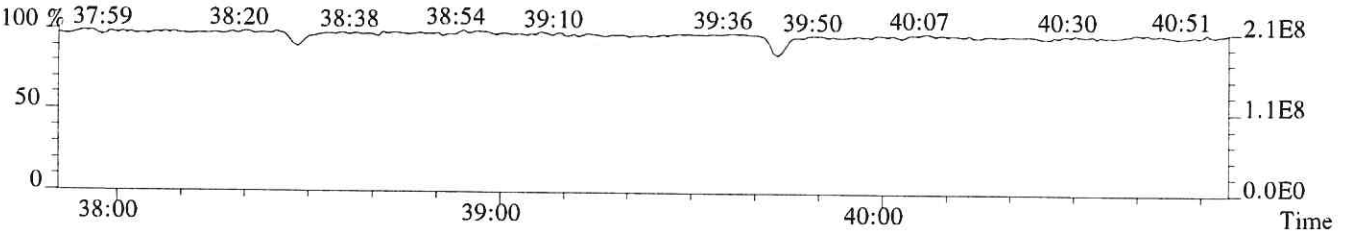
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



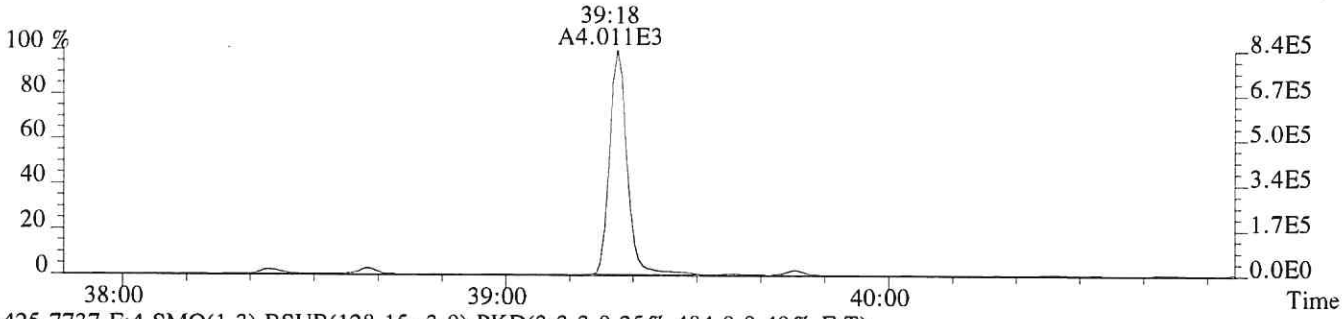
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



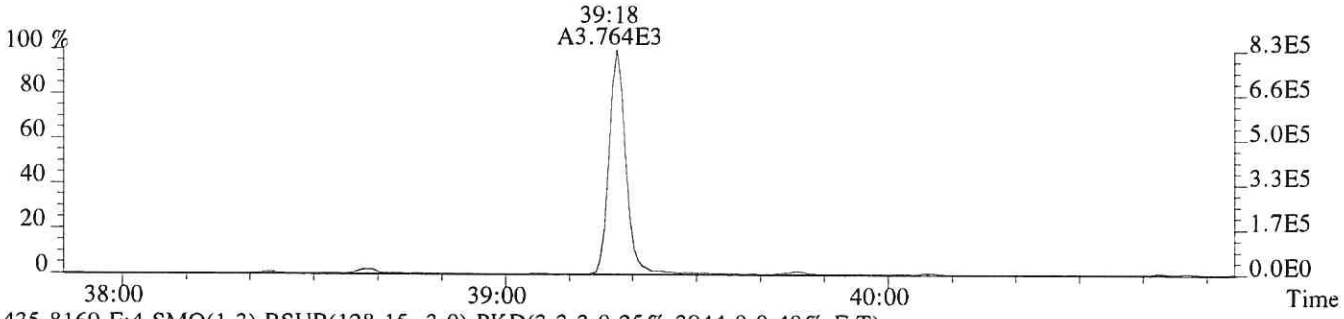
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



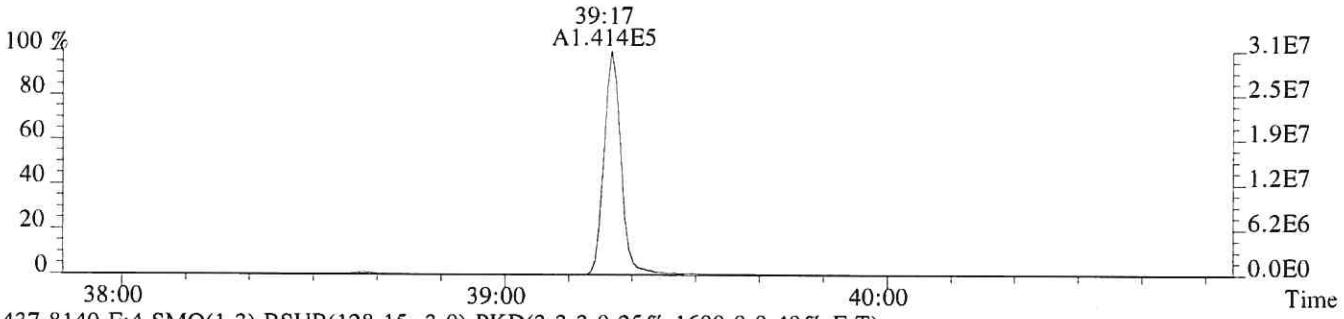
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



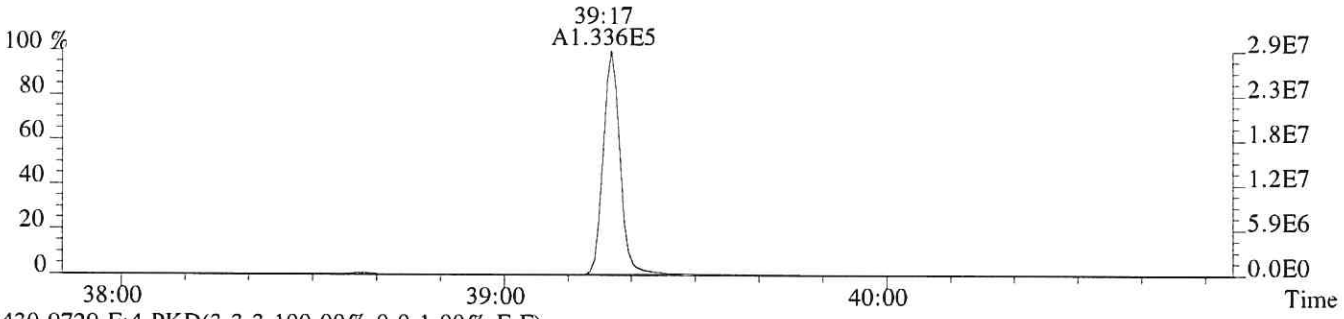
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



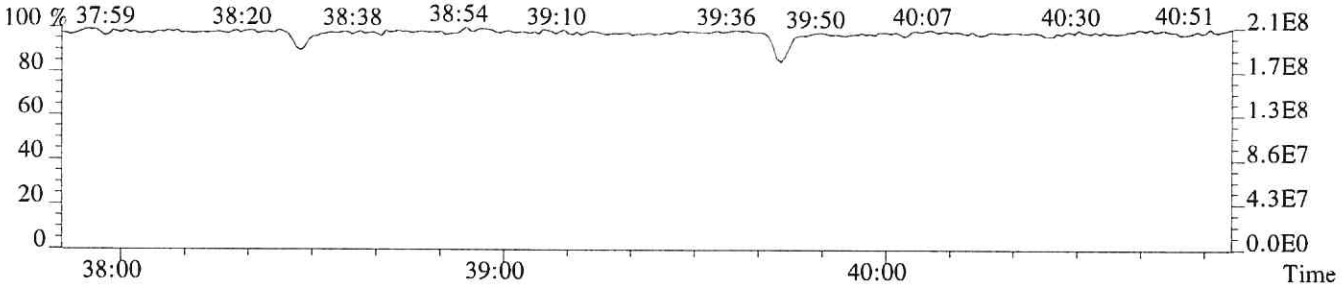
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



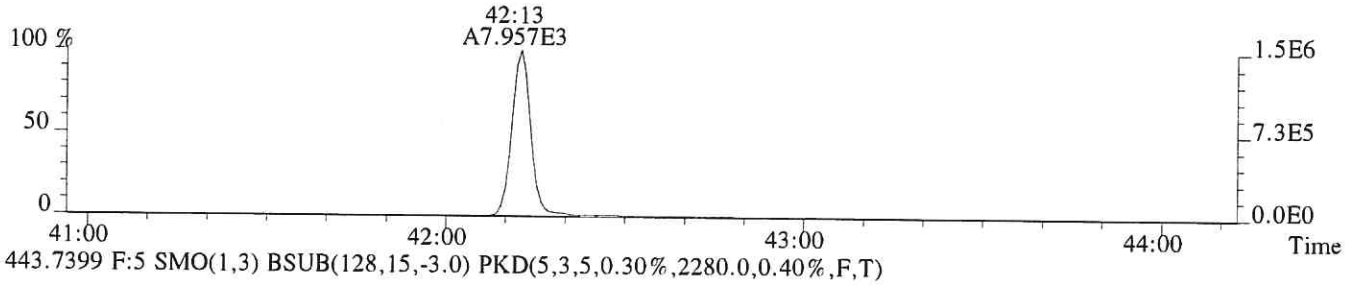
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



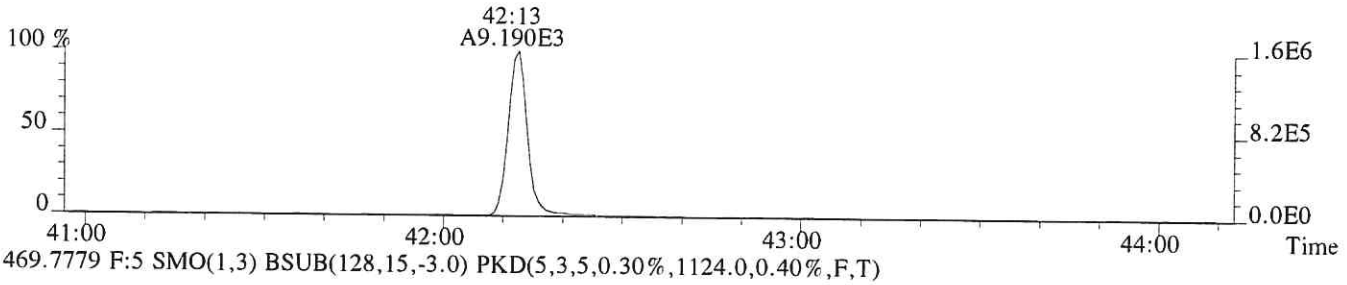
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



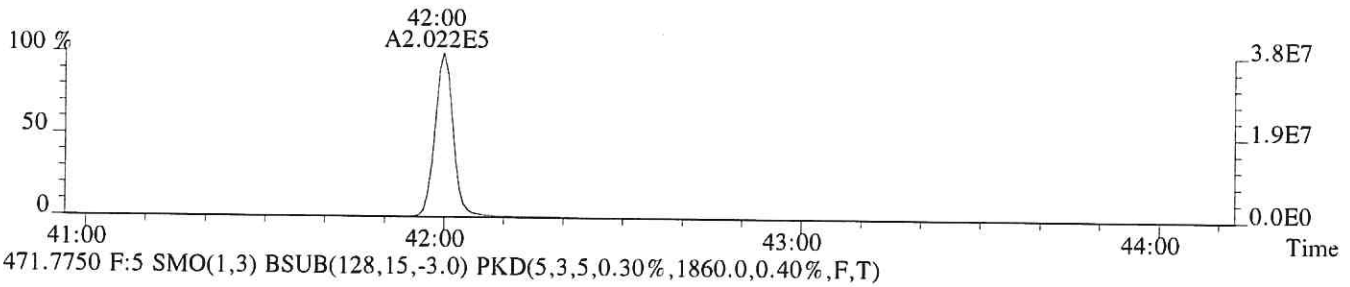
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



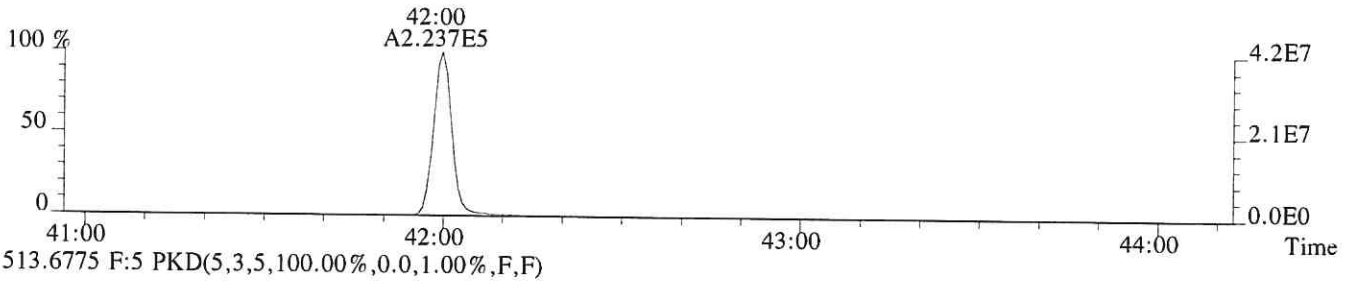
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



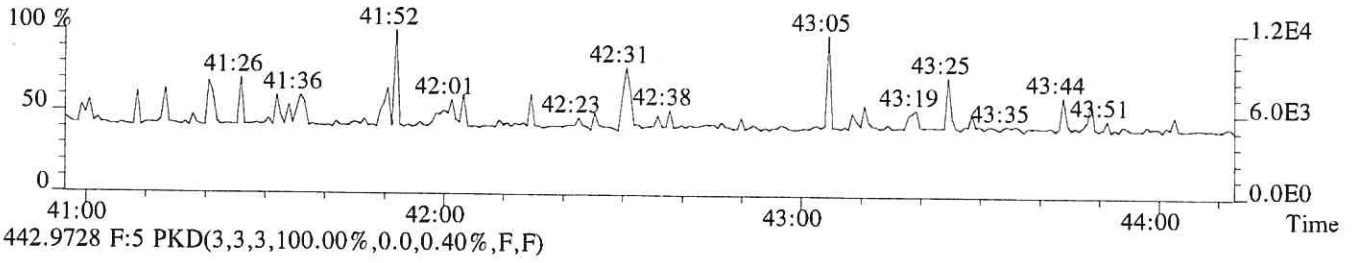
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



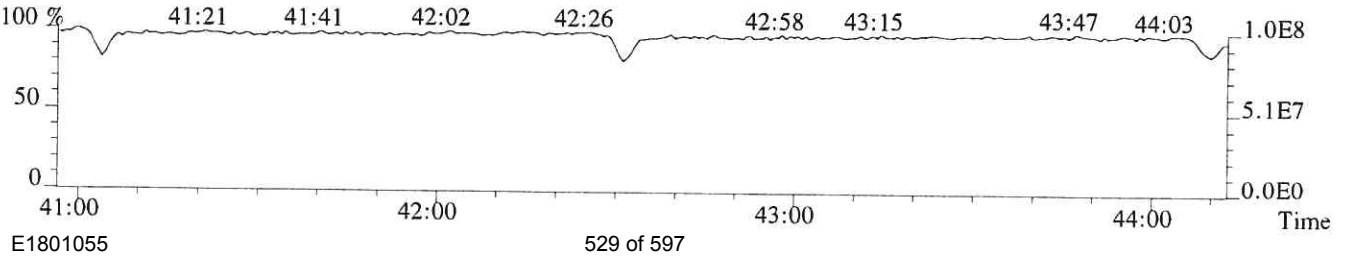
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



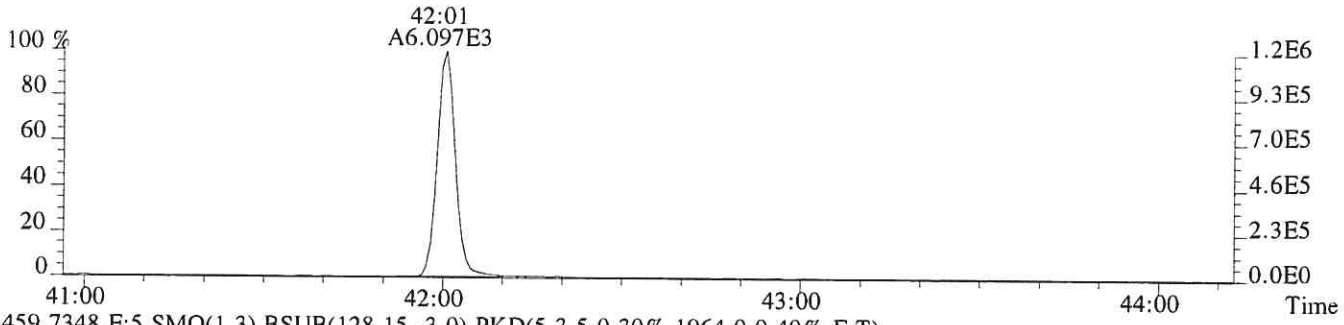
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



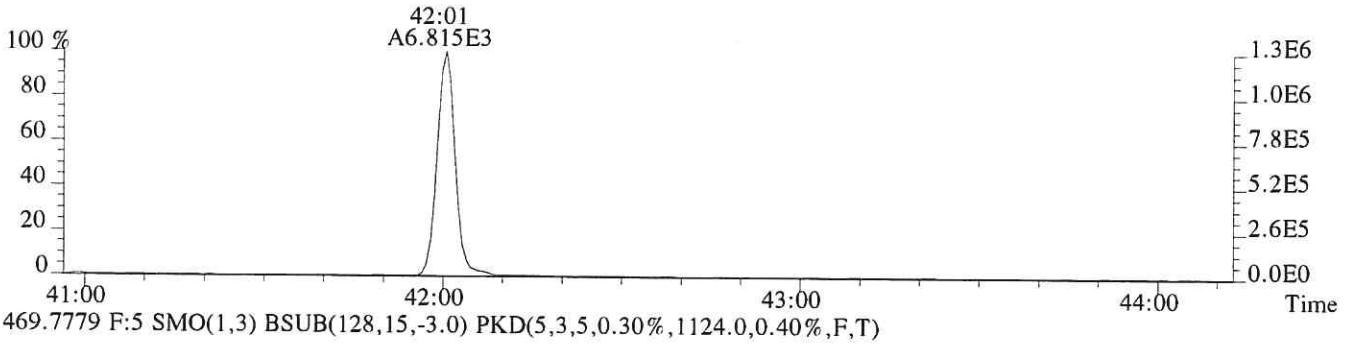
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



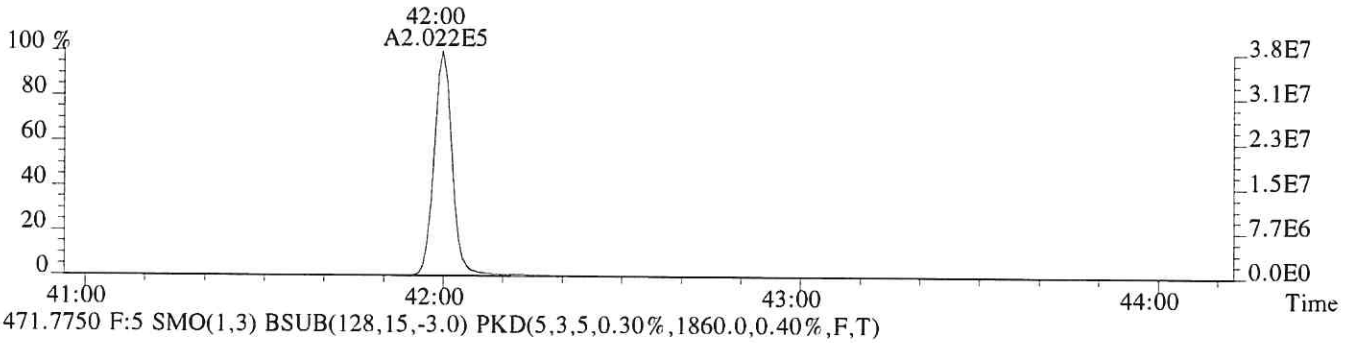
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



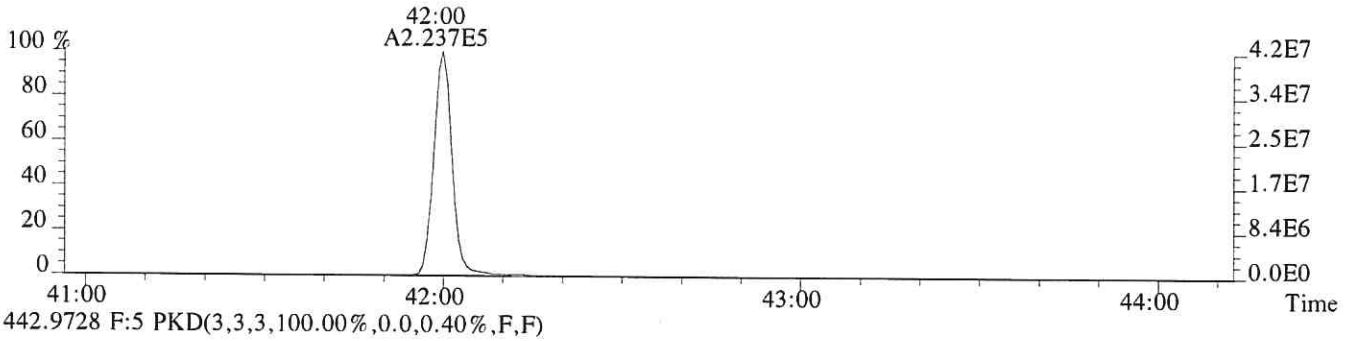
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



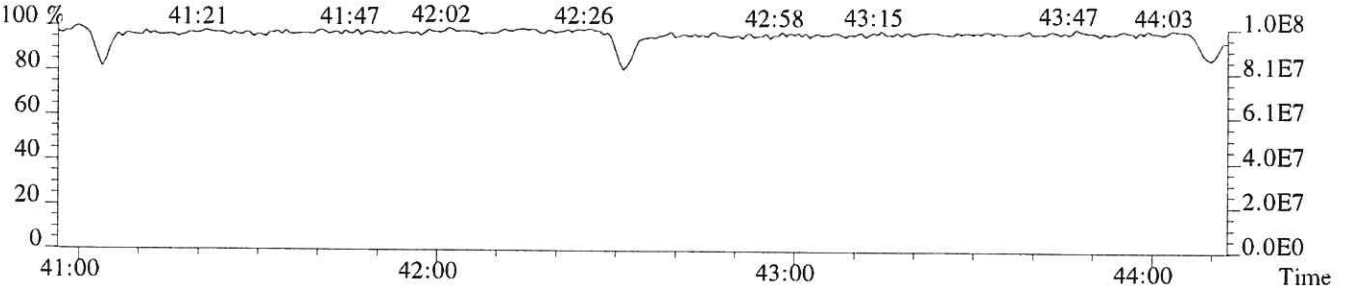
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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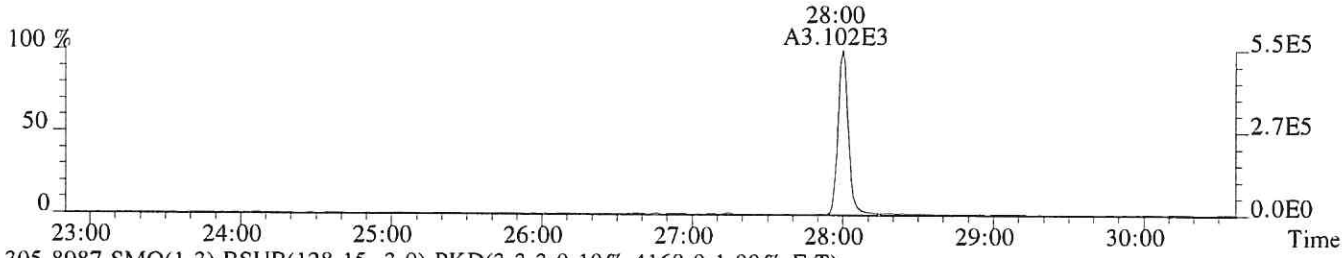
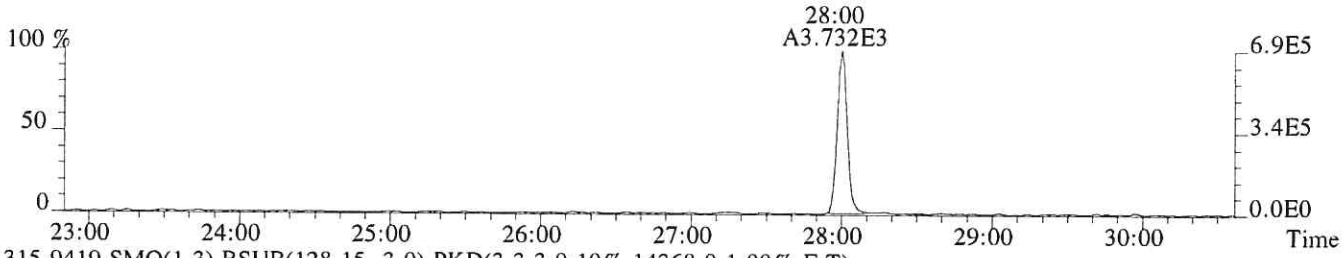
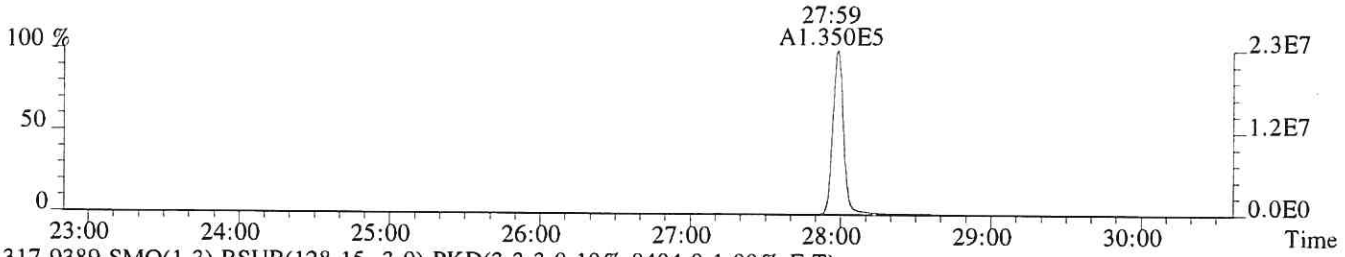
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



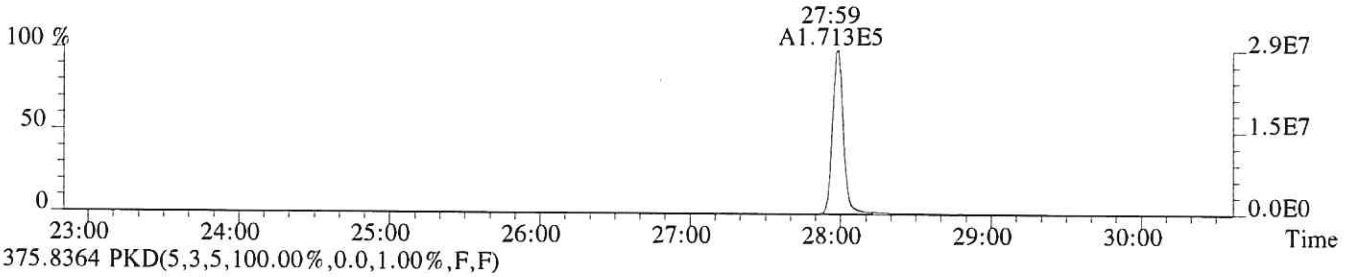
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



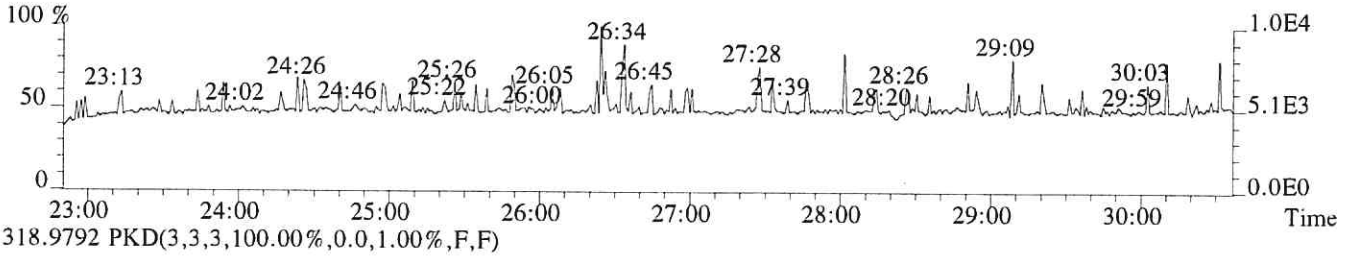
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



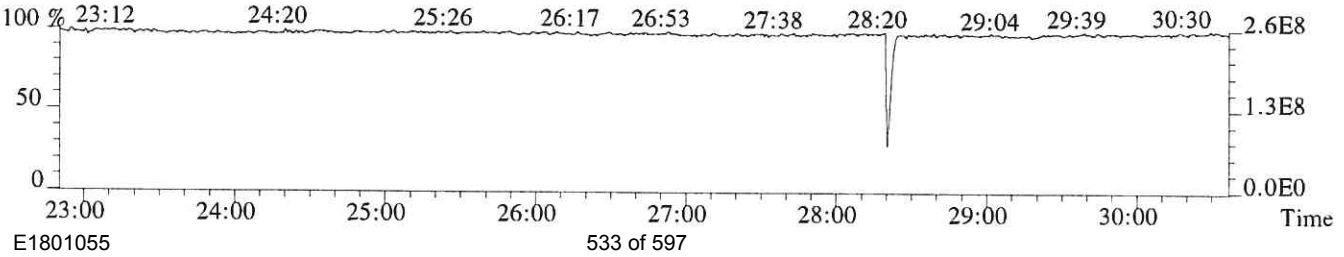
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



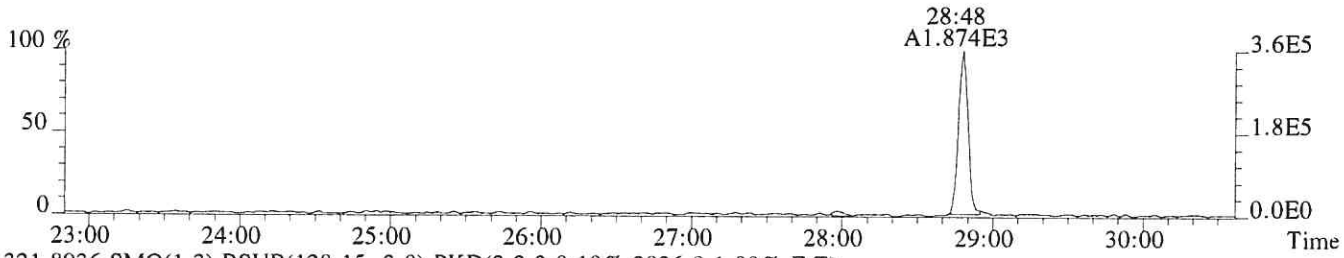
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



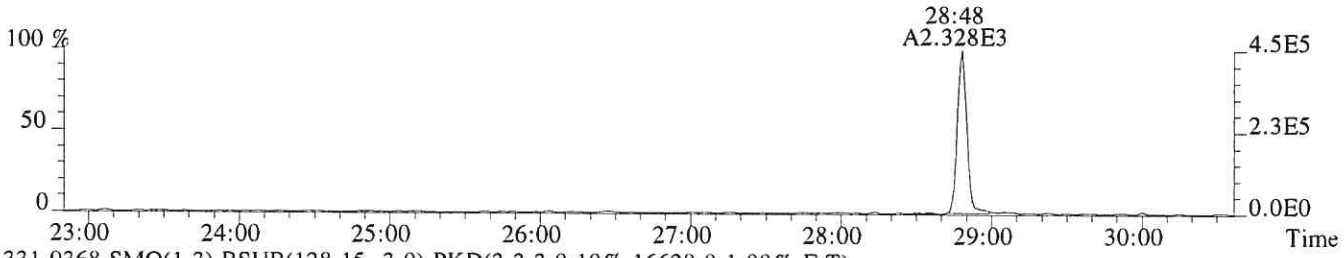
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



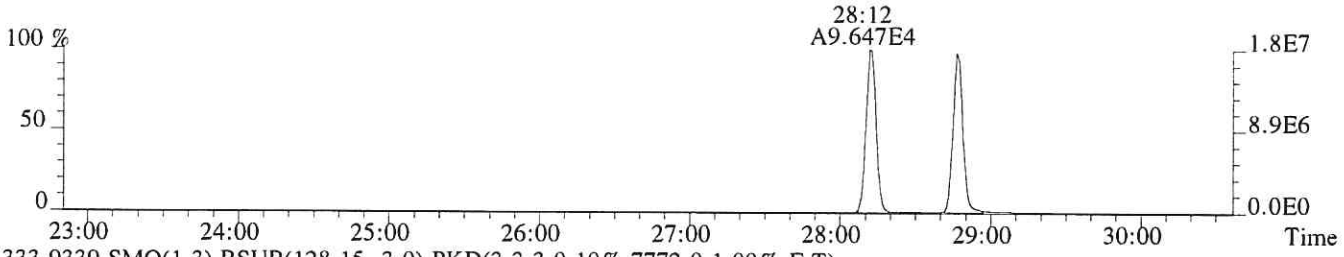
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



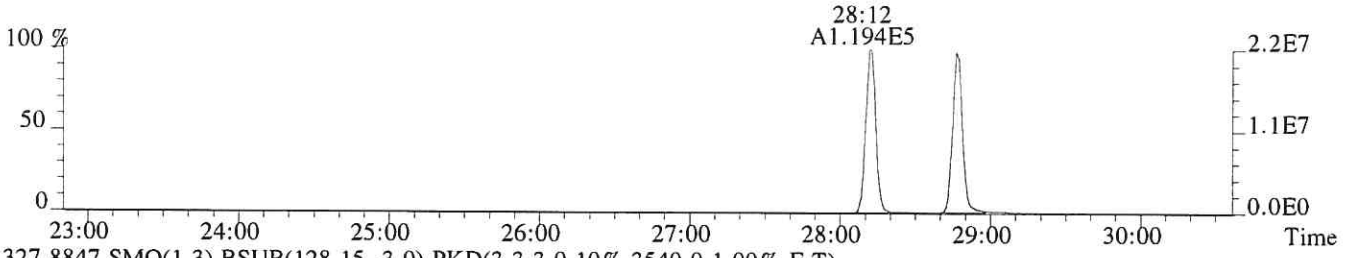
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



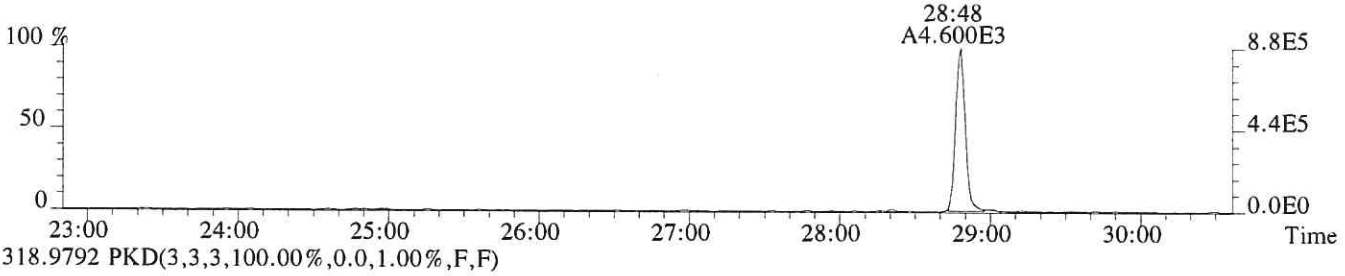
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



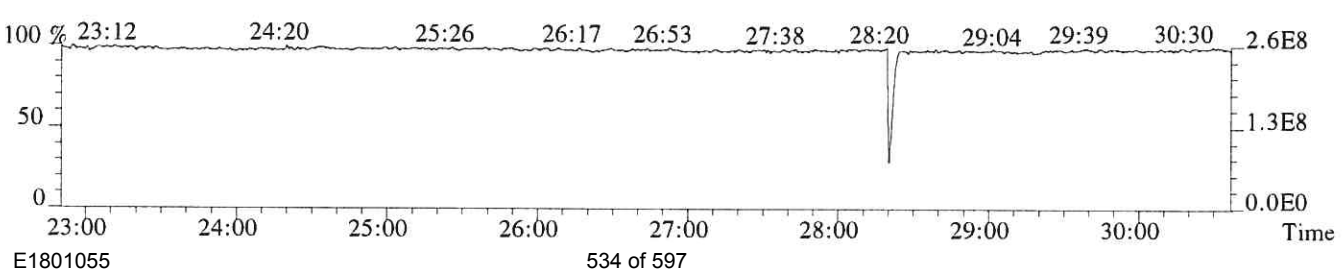
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



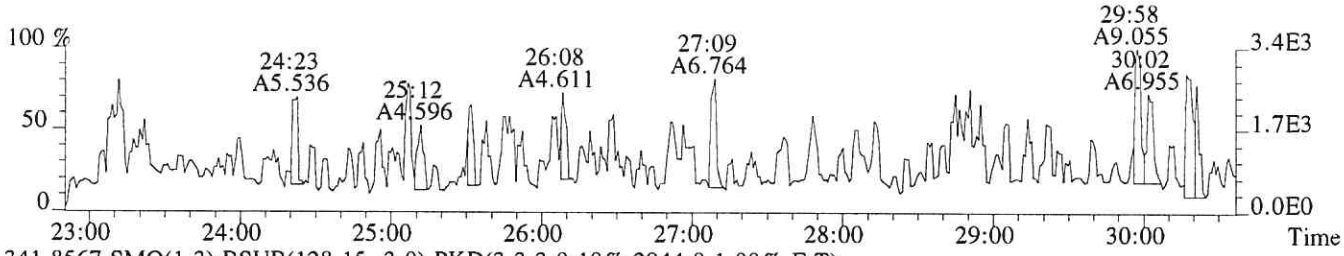
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



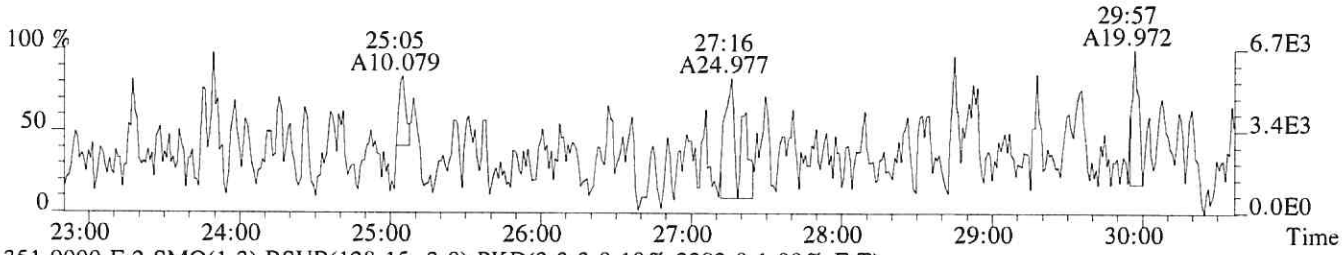
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



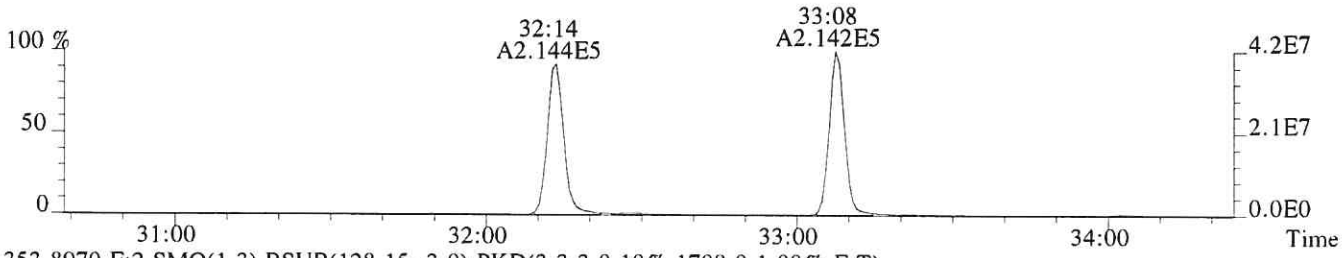
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



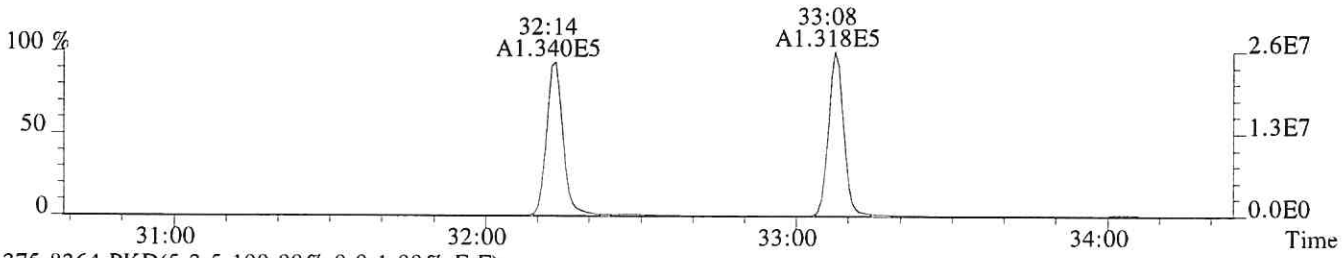
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



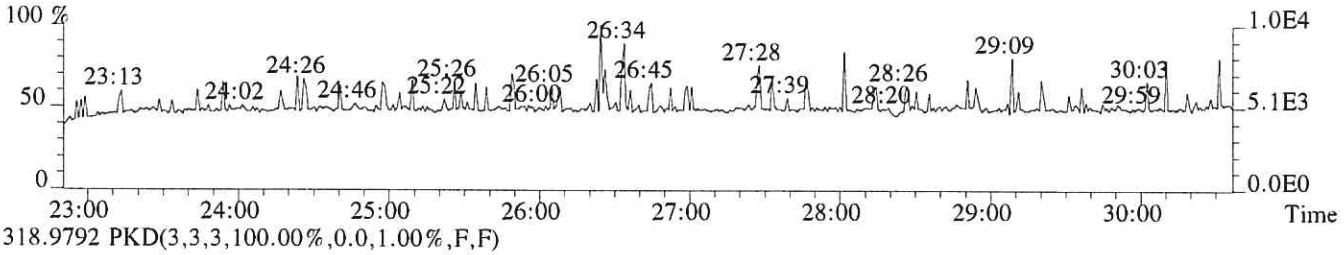
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



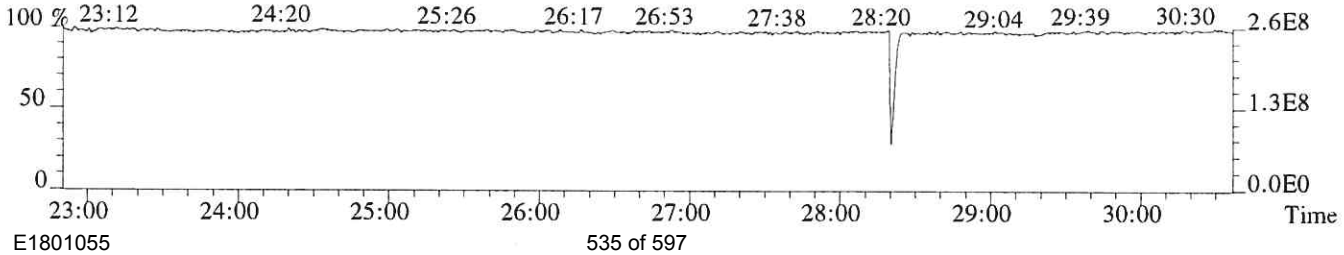
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



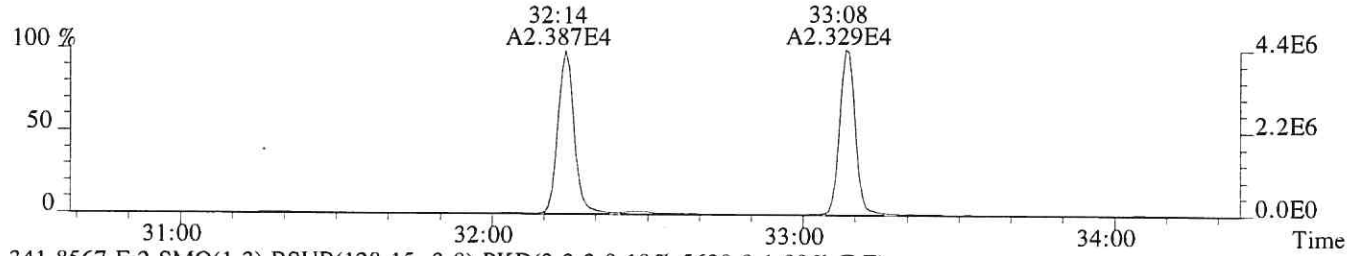
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



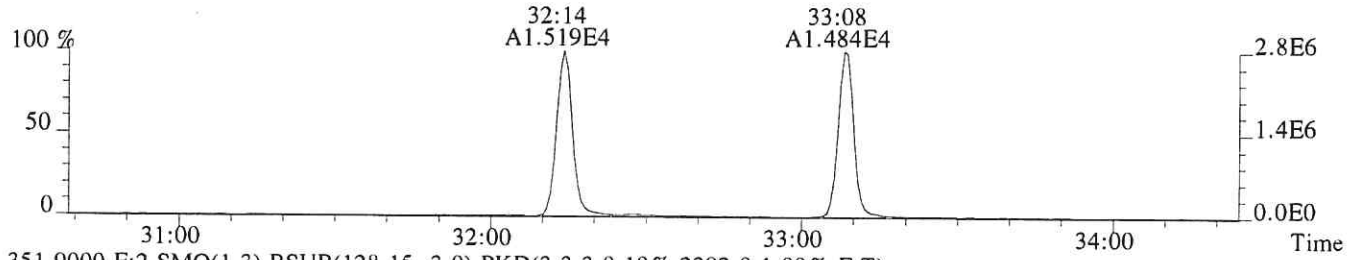
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



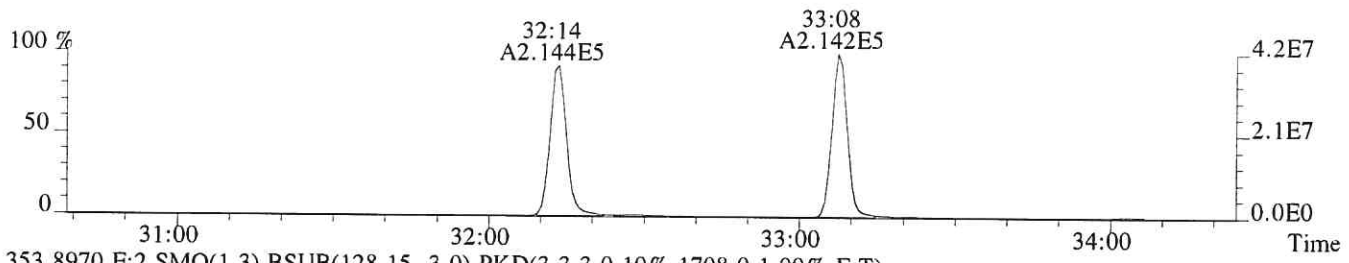
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



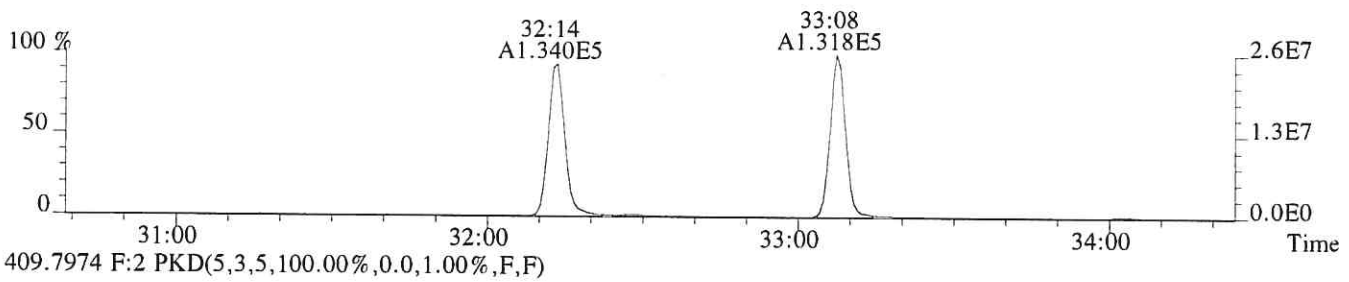
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



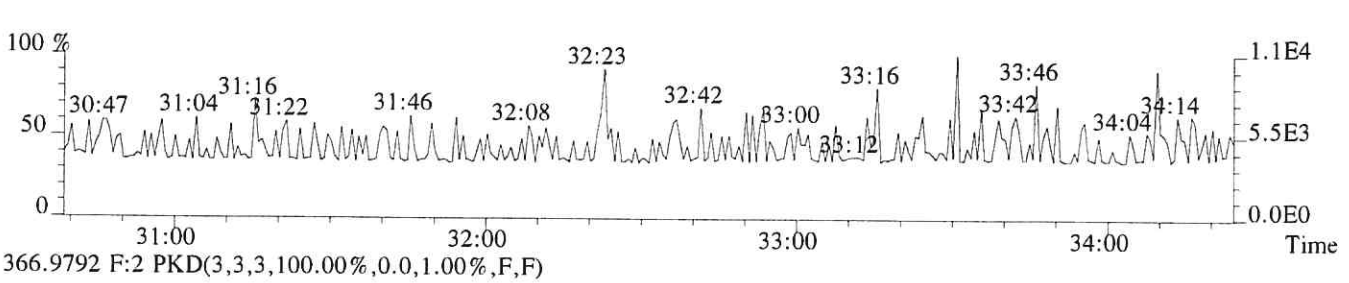
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



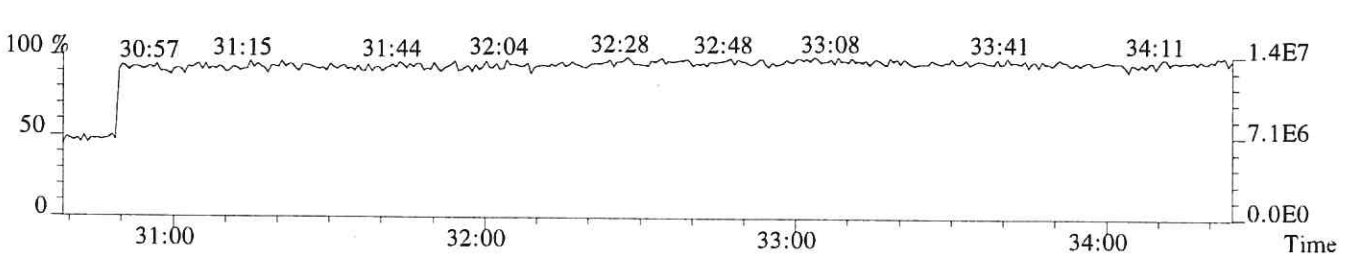
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



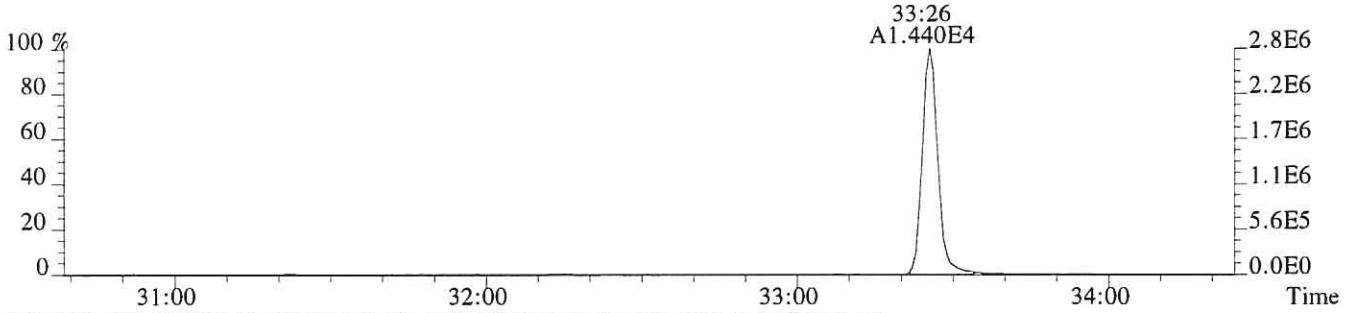
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



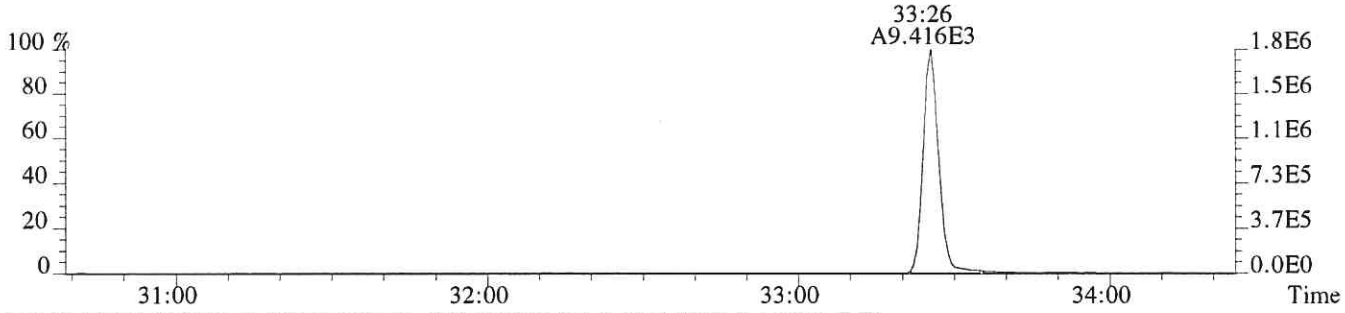
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



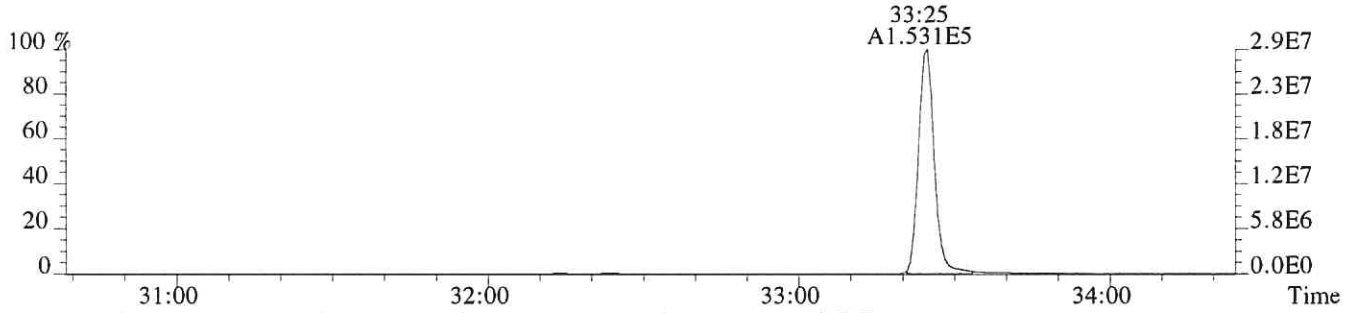
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



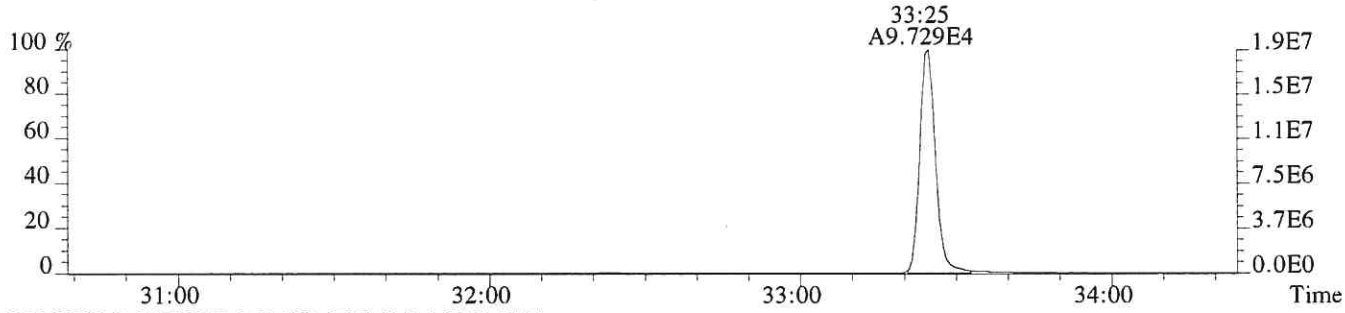
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



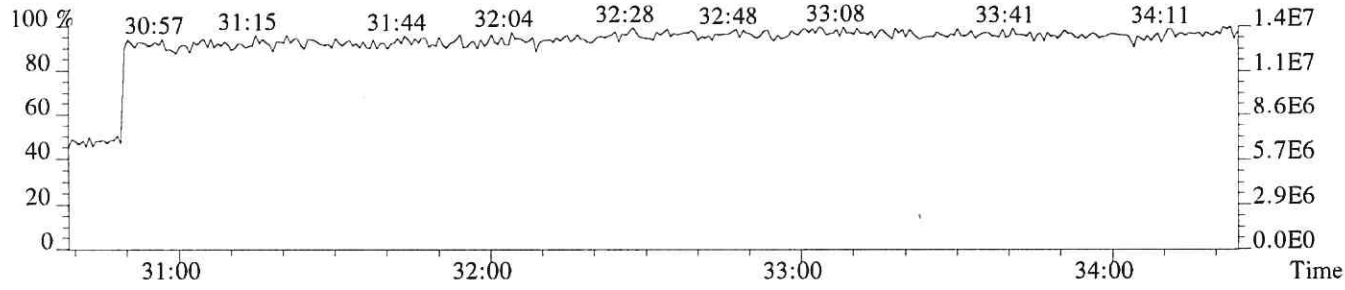
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



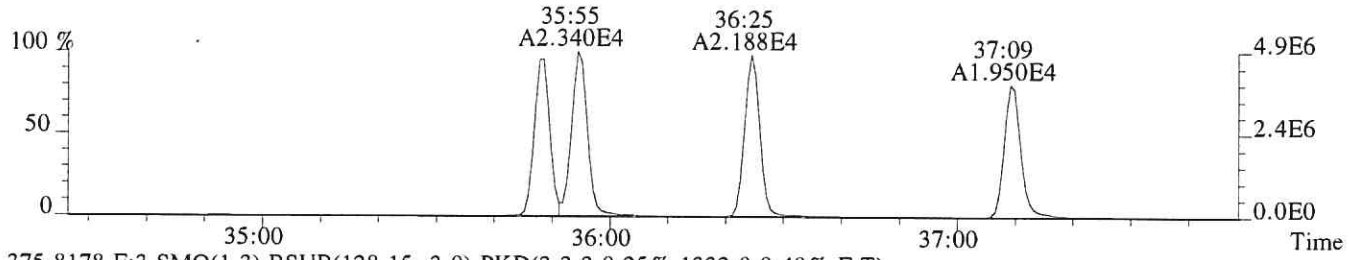
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



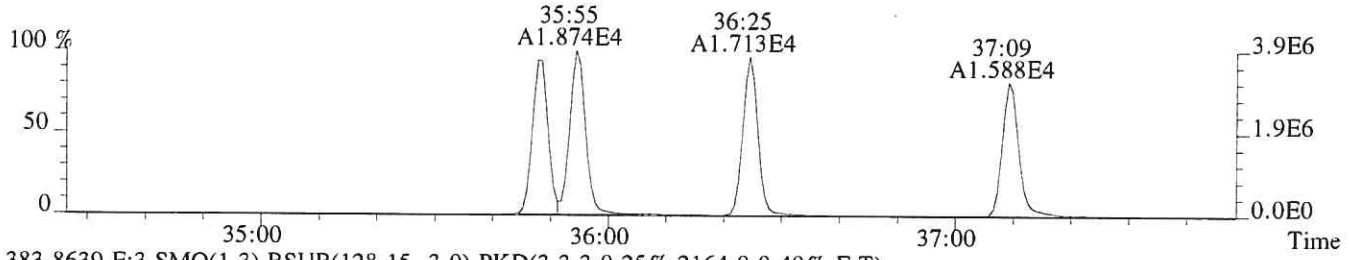
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



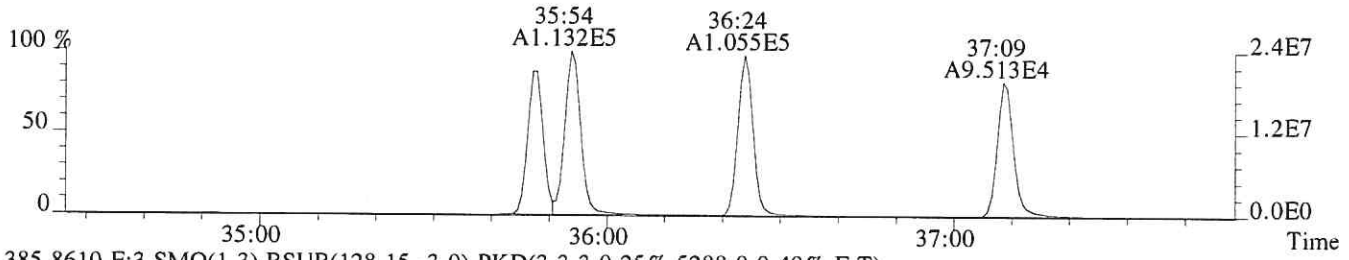
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



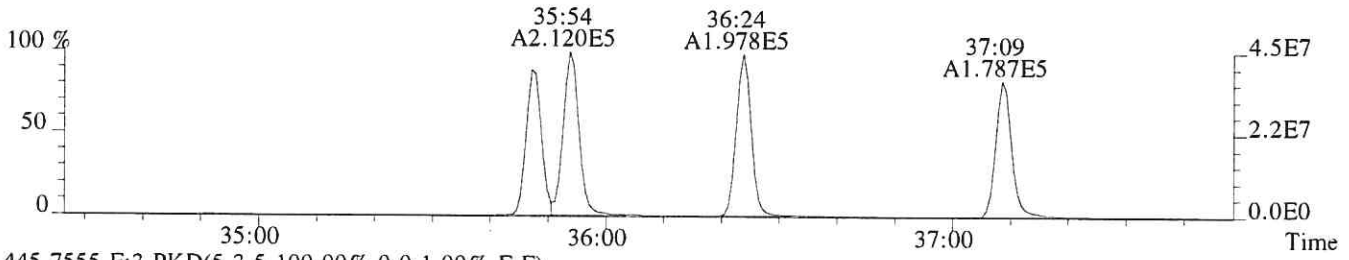
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



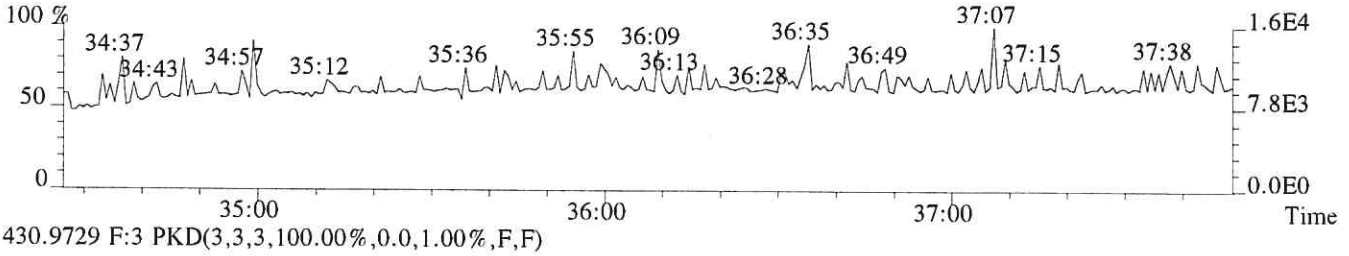
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



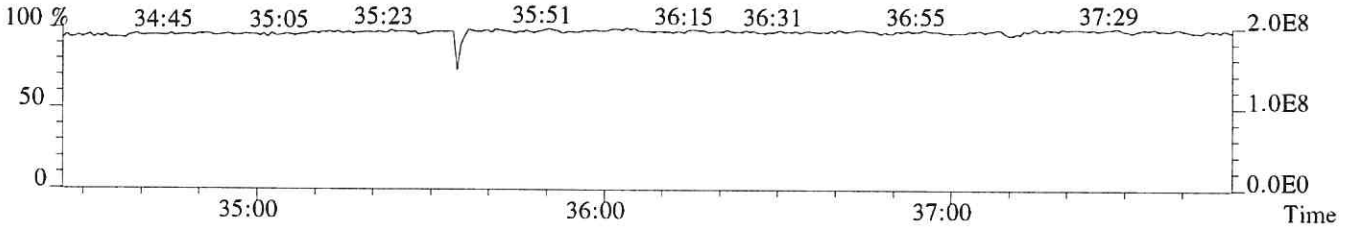
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



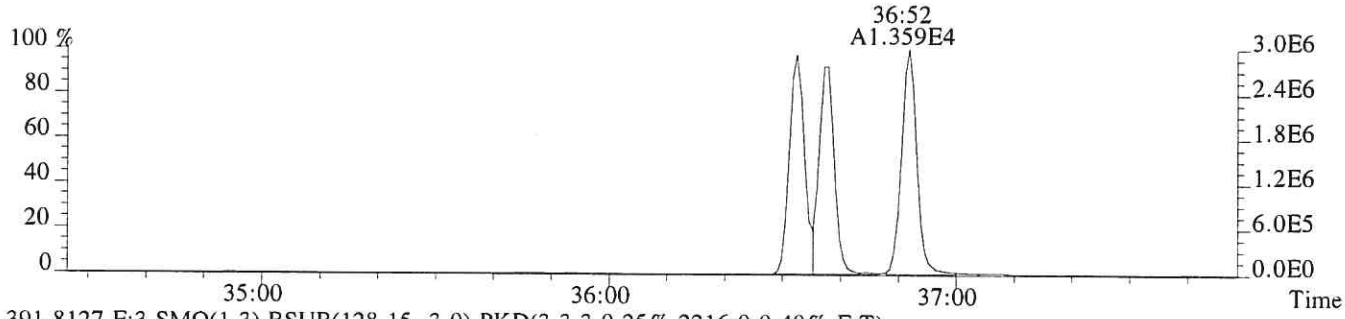
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



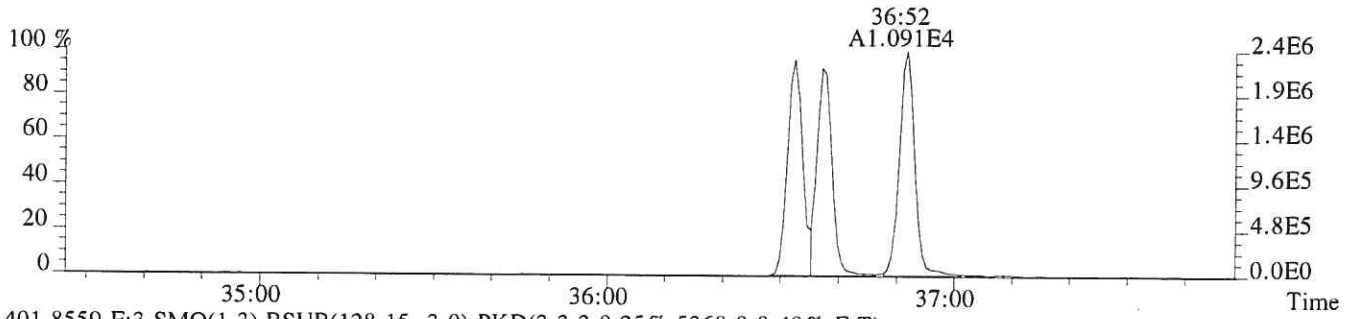
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



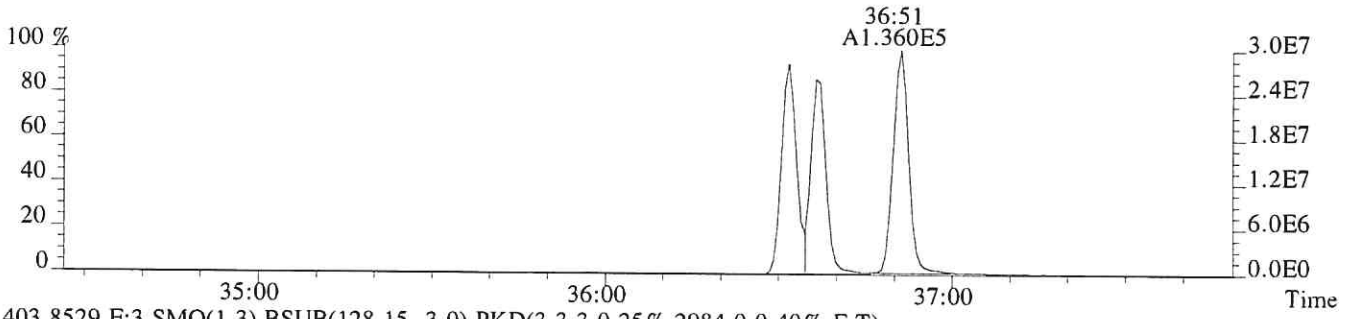
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



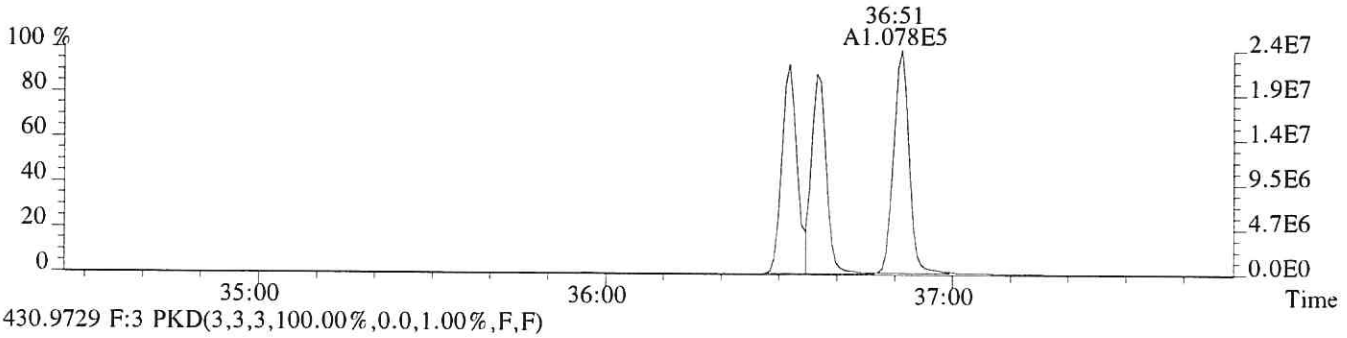
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



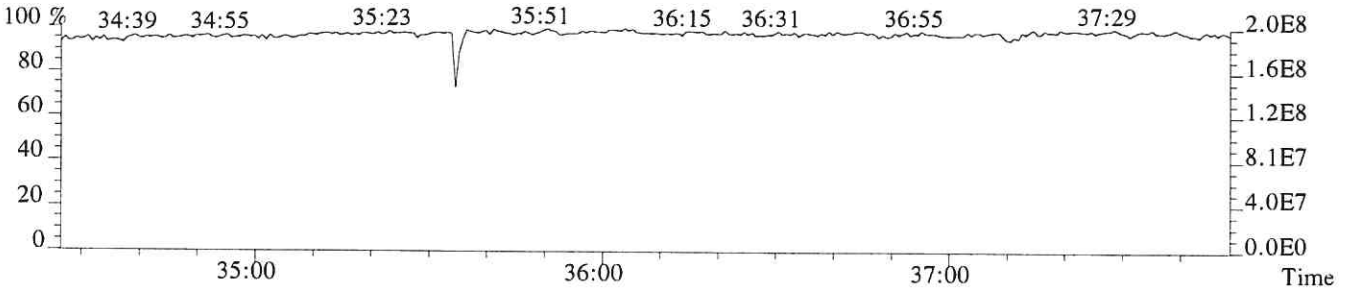
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



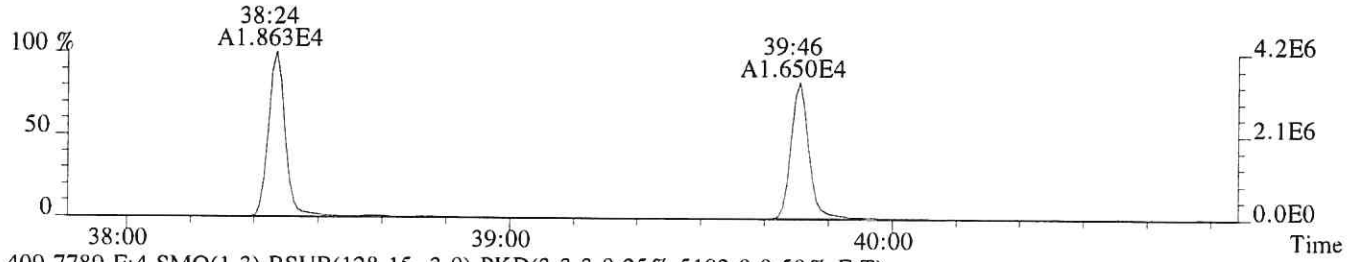
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



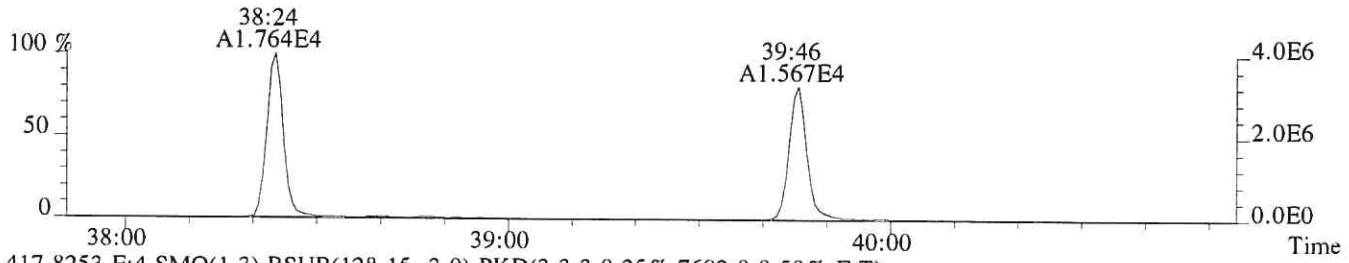
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



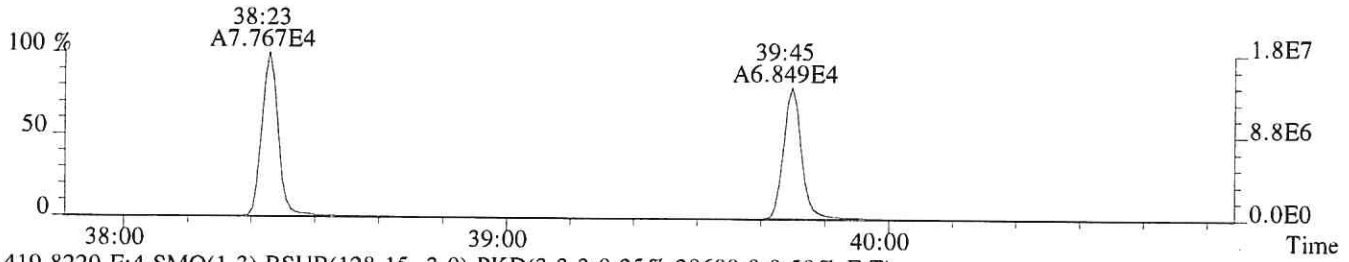
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



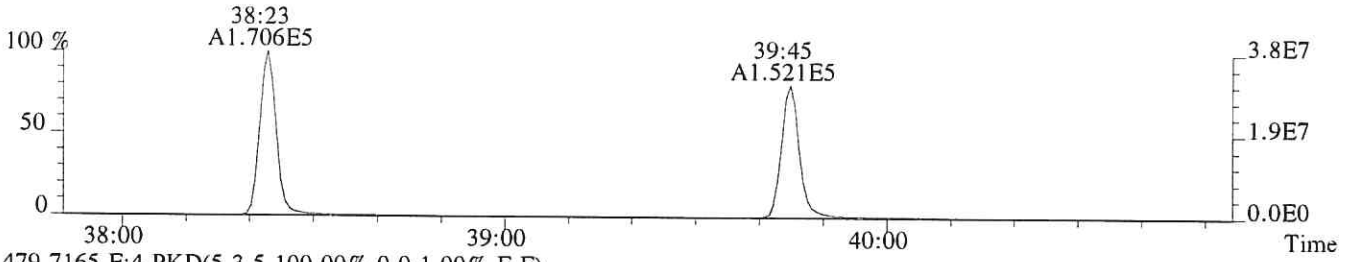
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



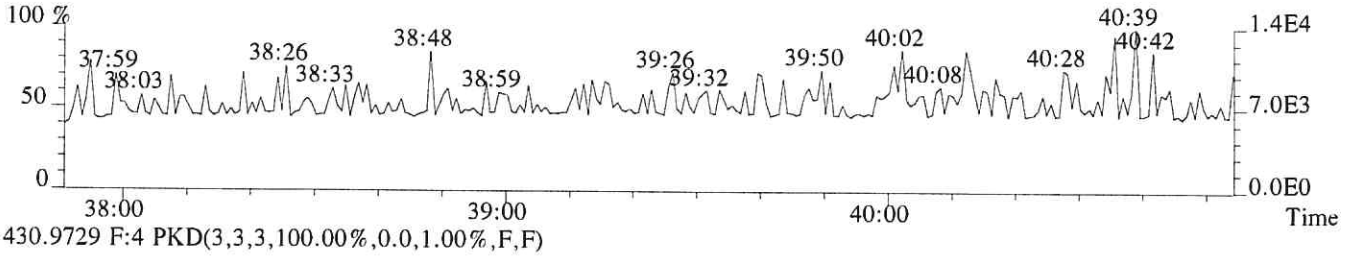
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



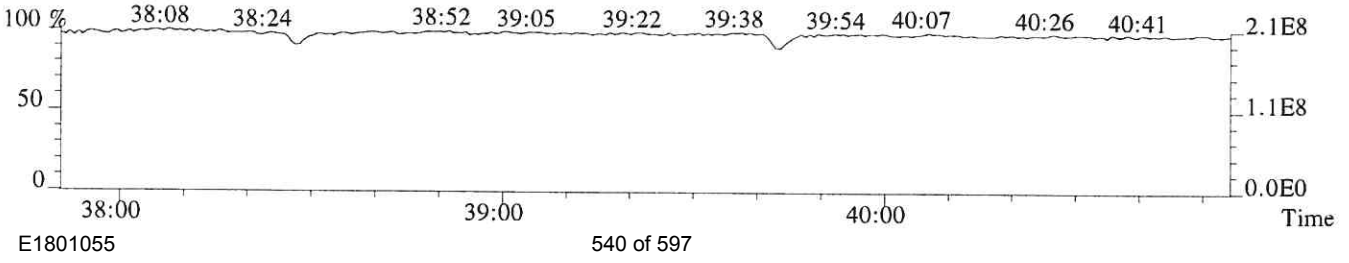
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



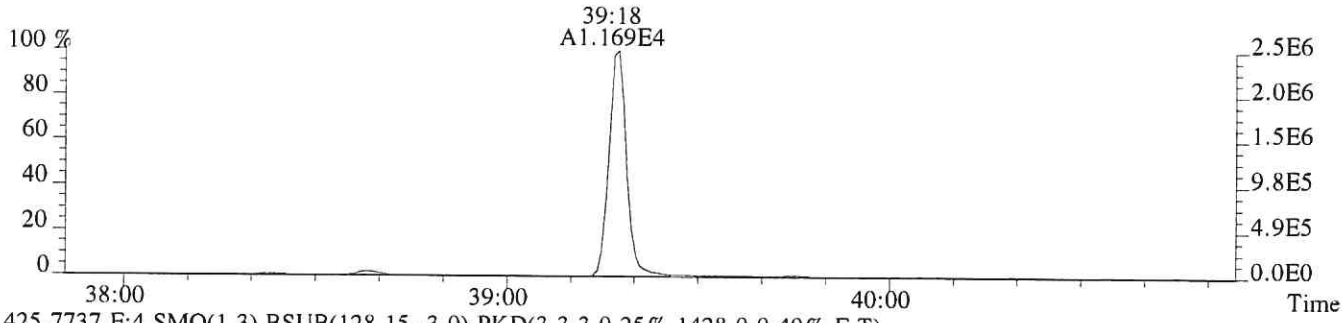
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



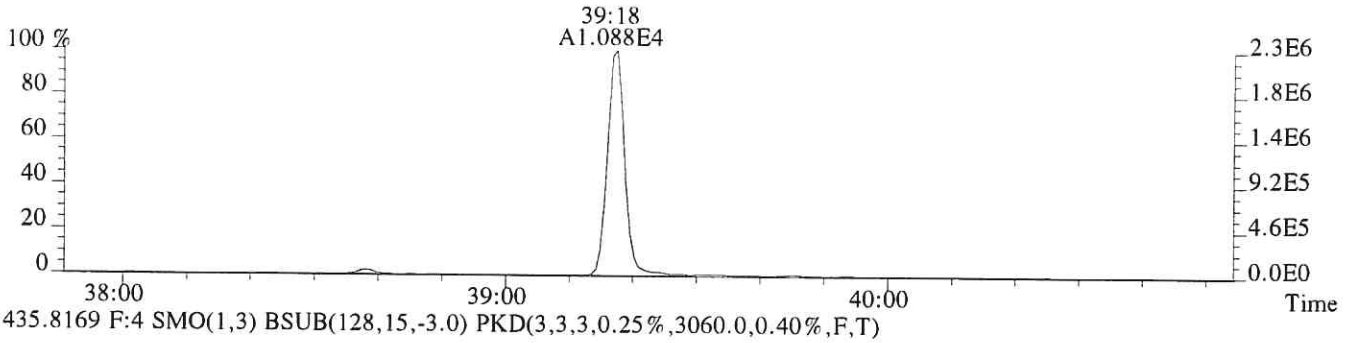
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



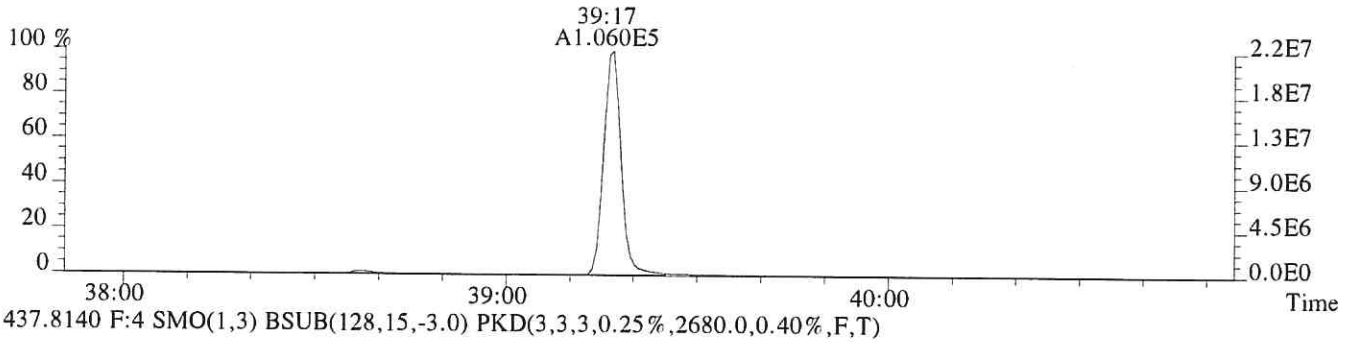
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



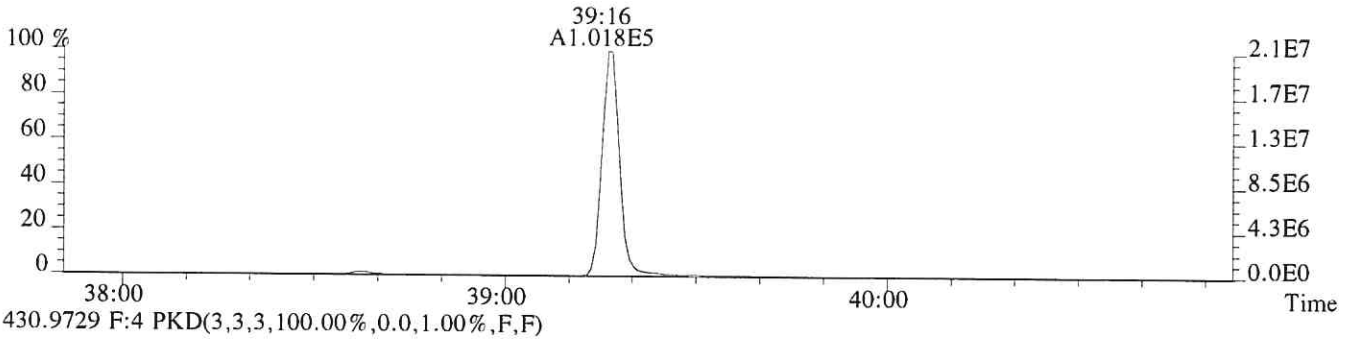
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



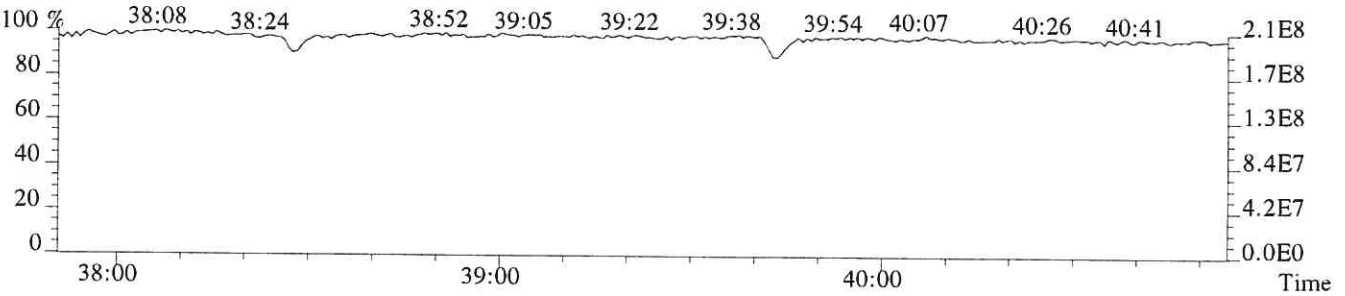
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



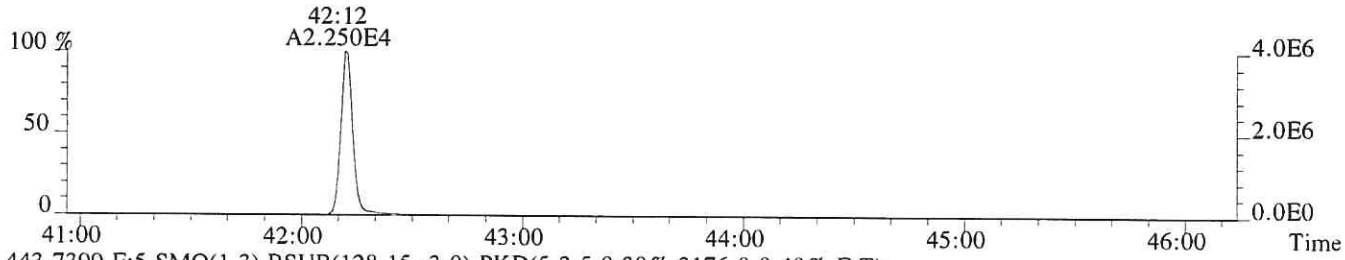
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



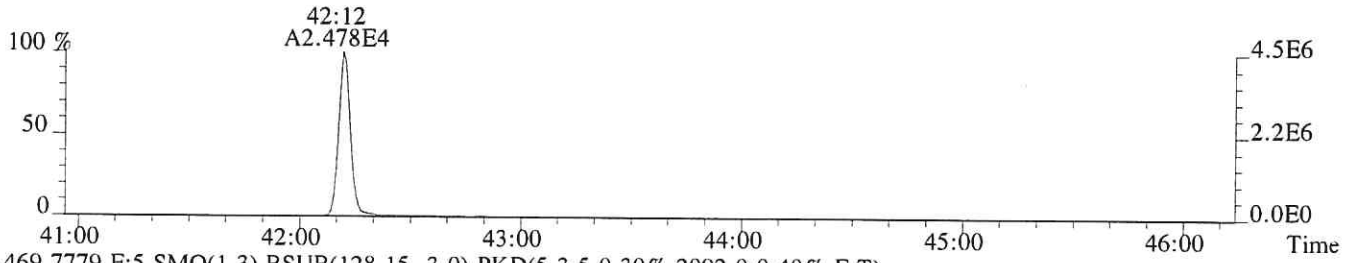
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



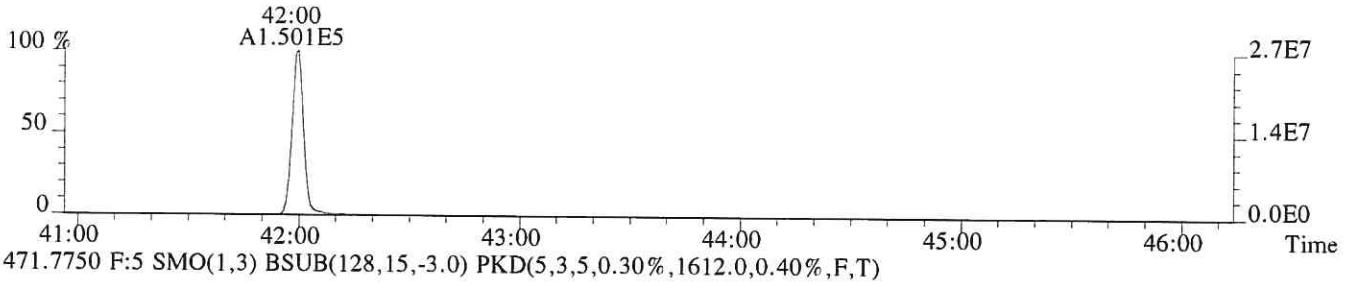
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



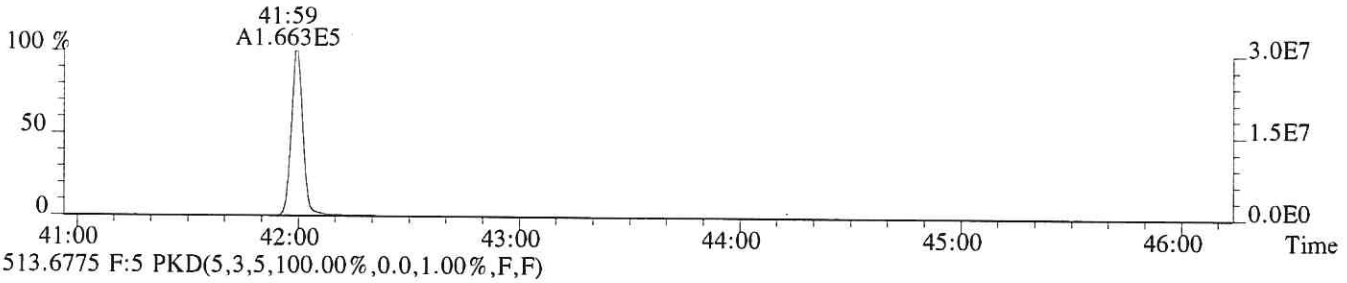
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



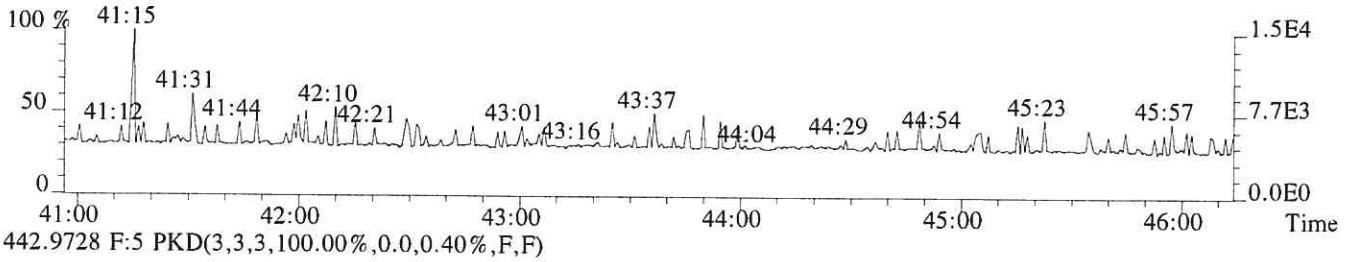
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



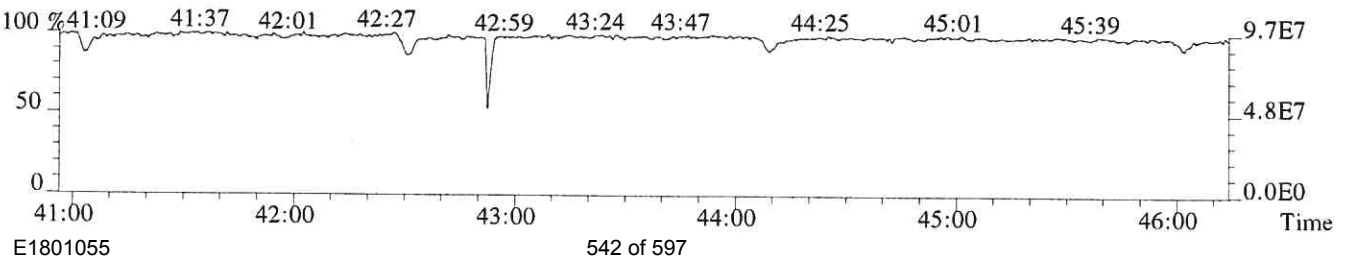
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



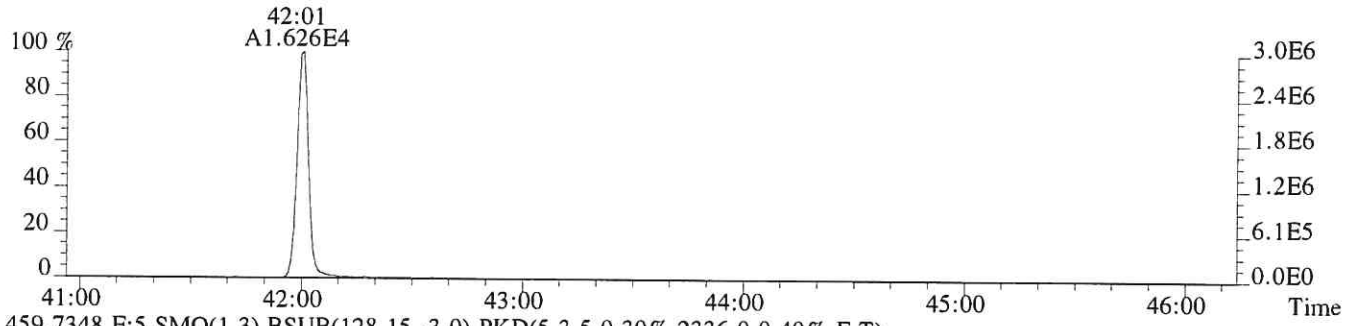
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



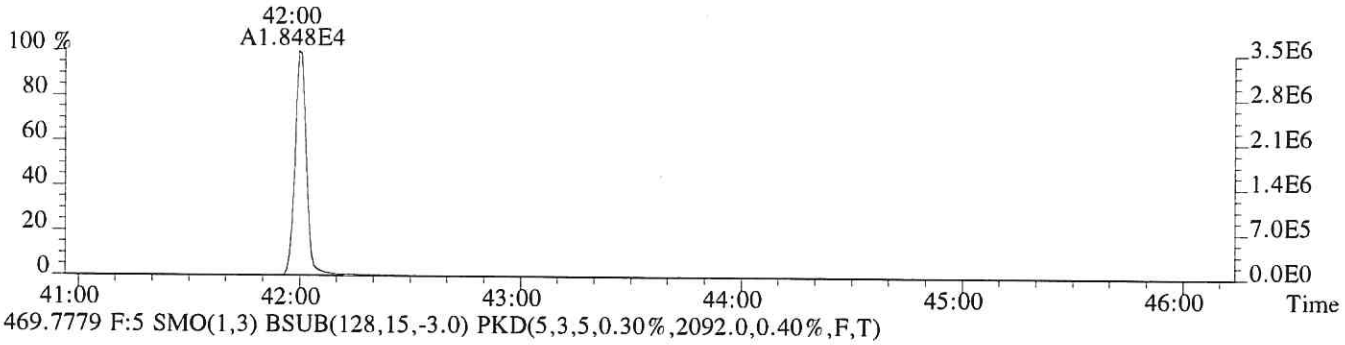
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



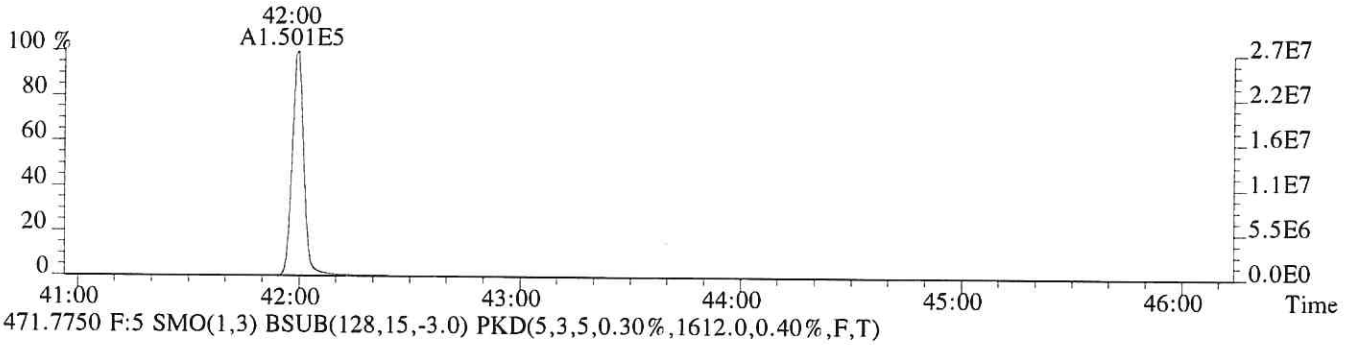
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



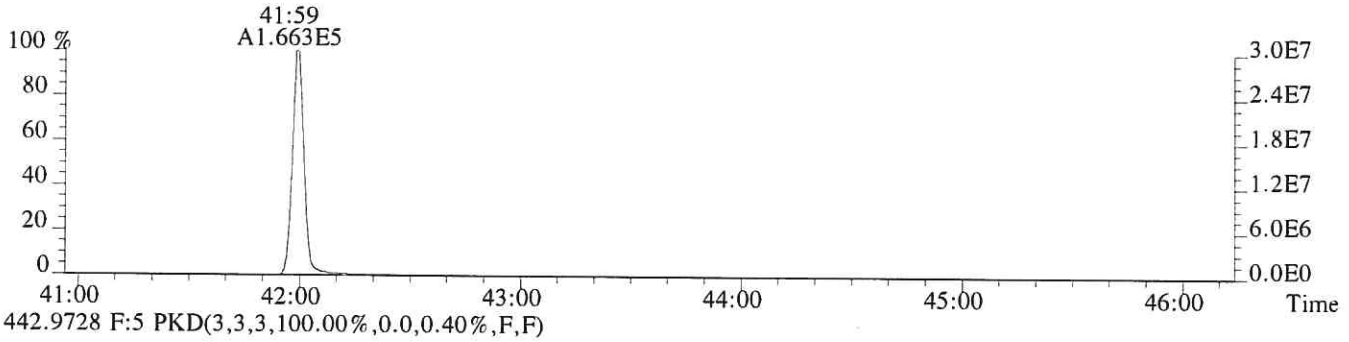
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



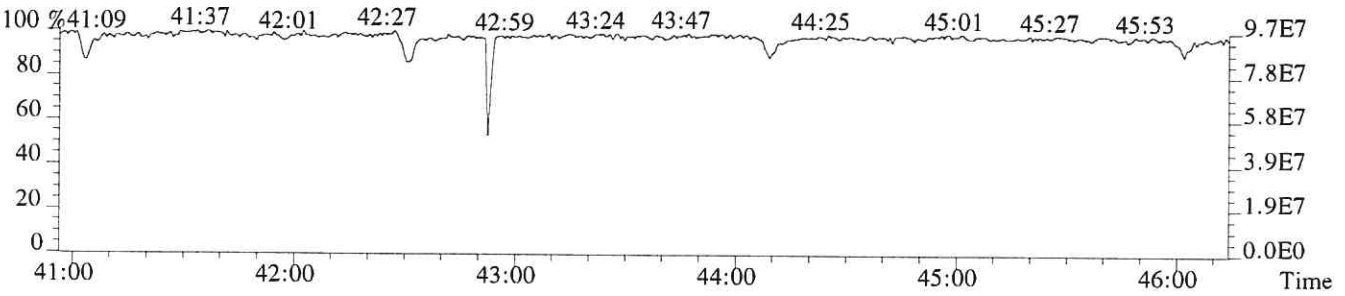
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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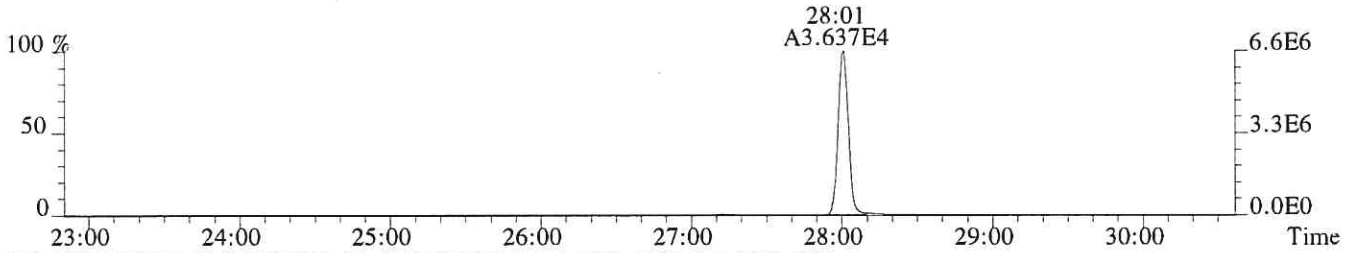
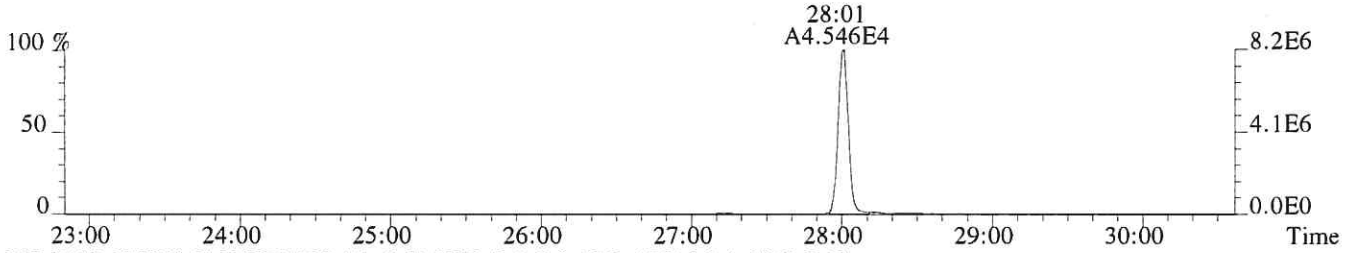
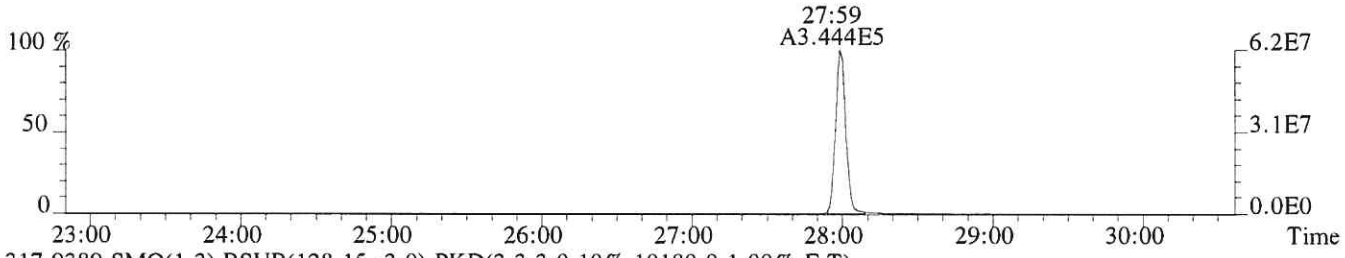
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



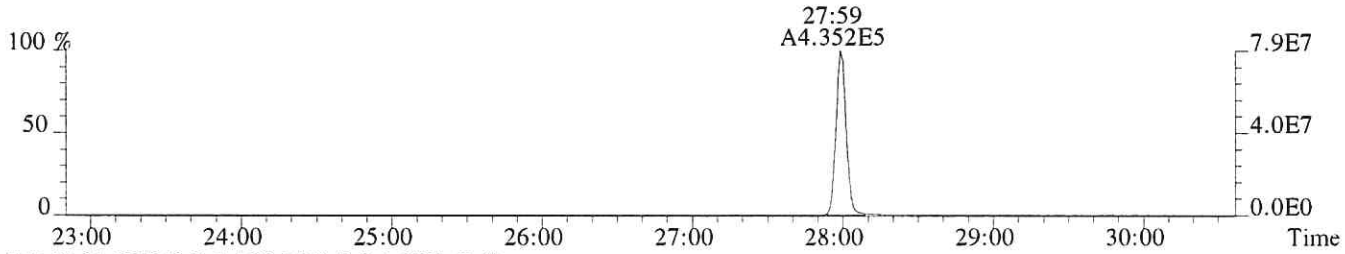
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



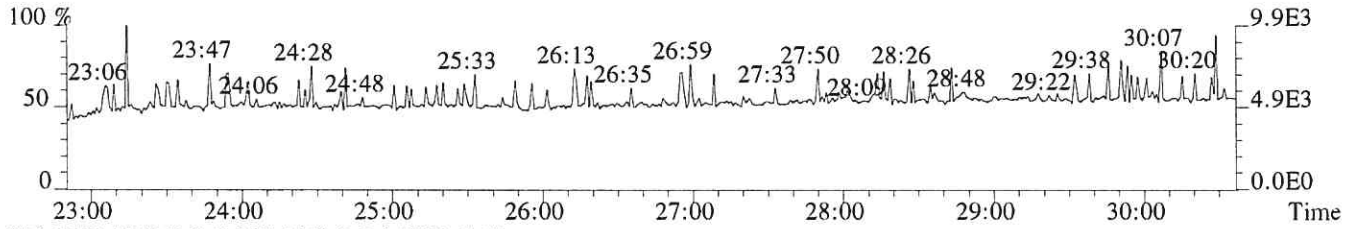
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



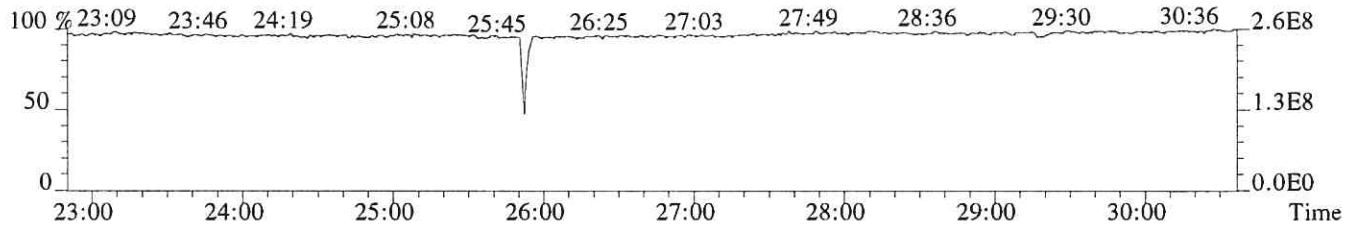
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



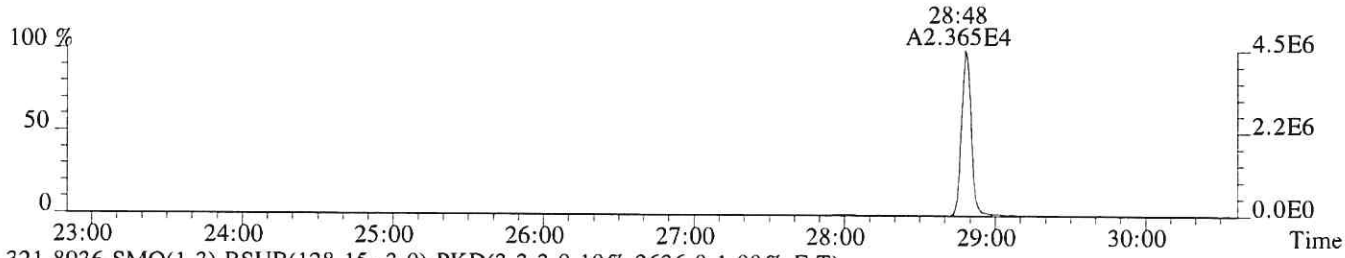
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



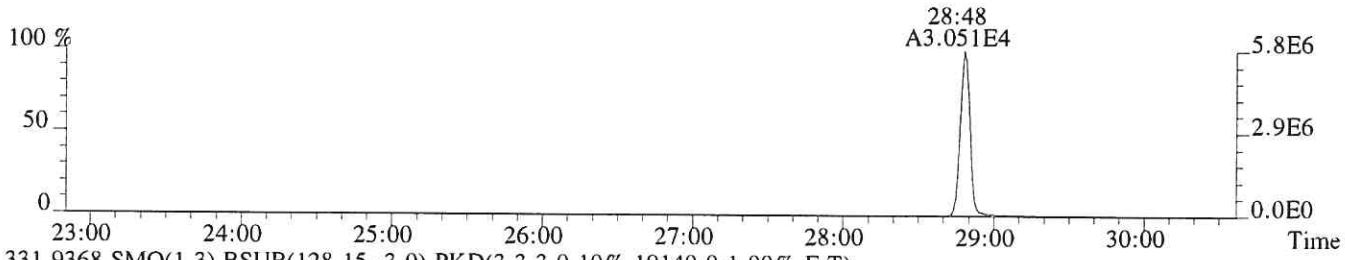
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



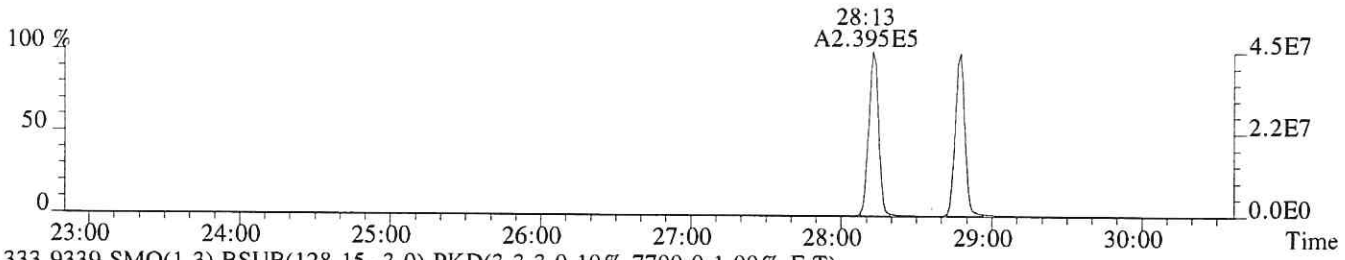
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



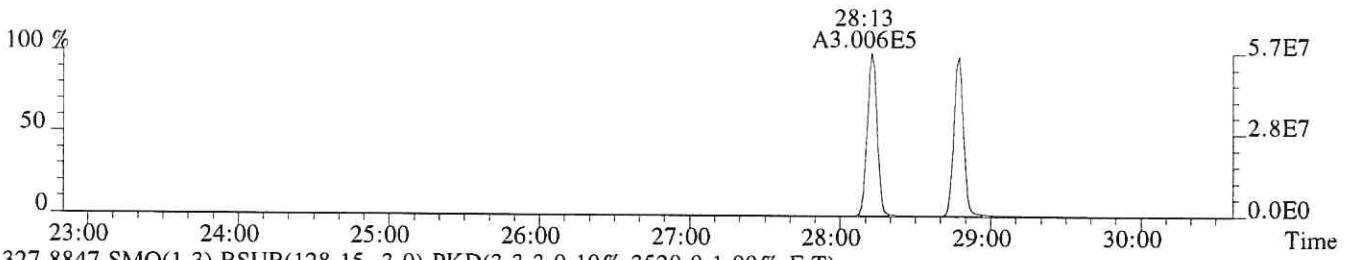
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



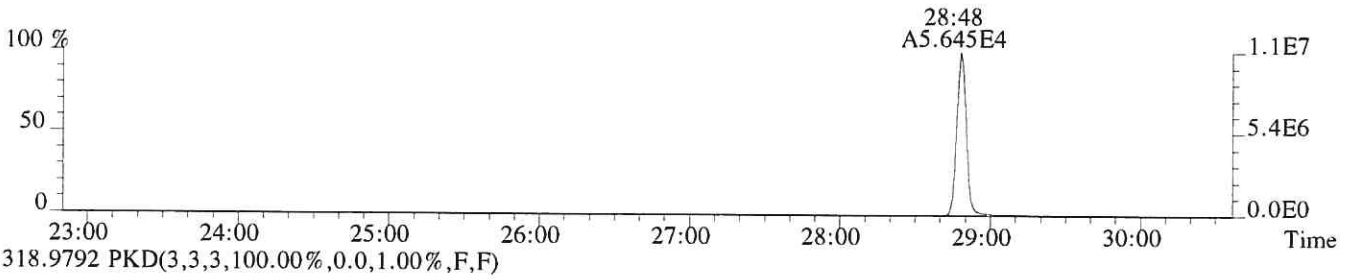
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



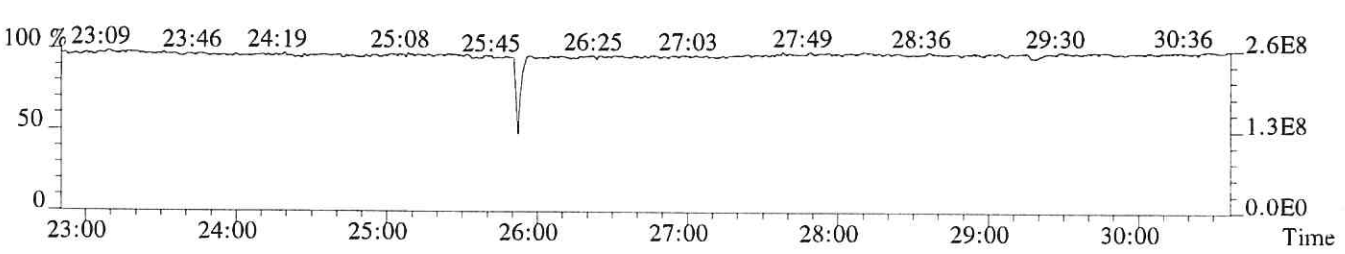
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



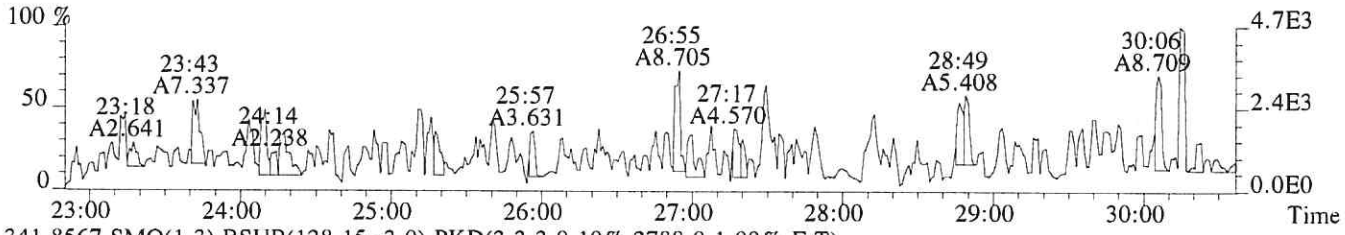
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)



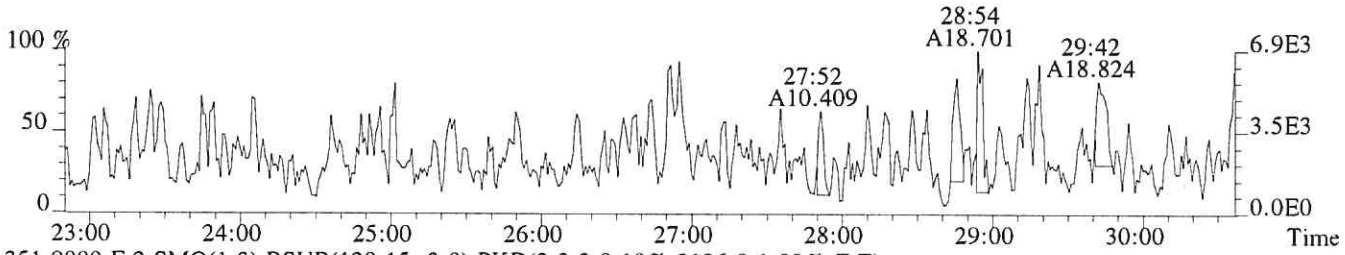
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



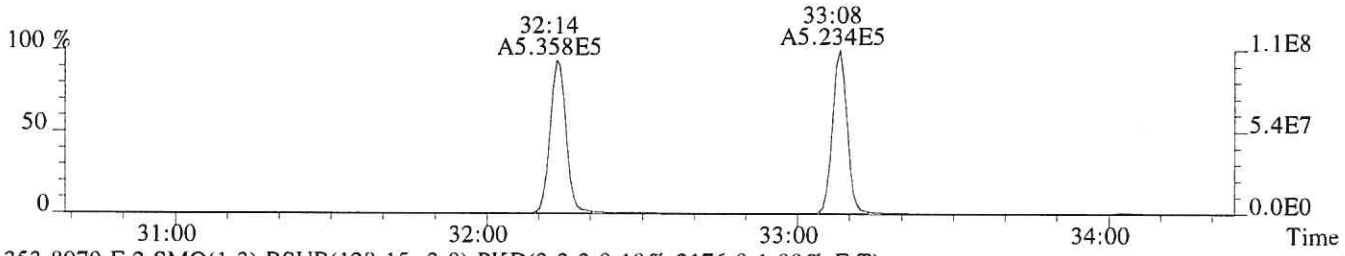
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



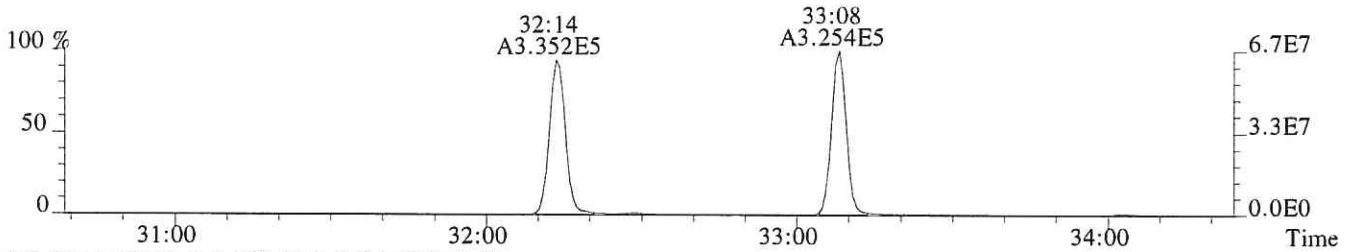
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



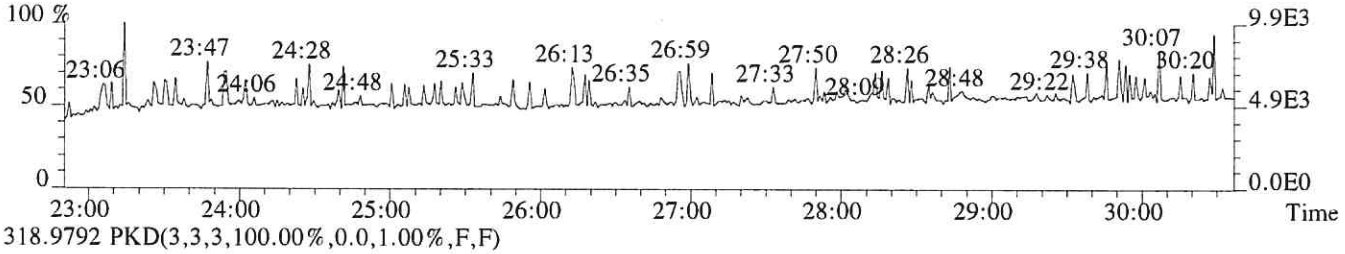
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



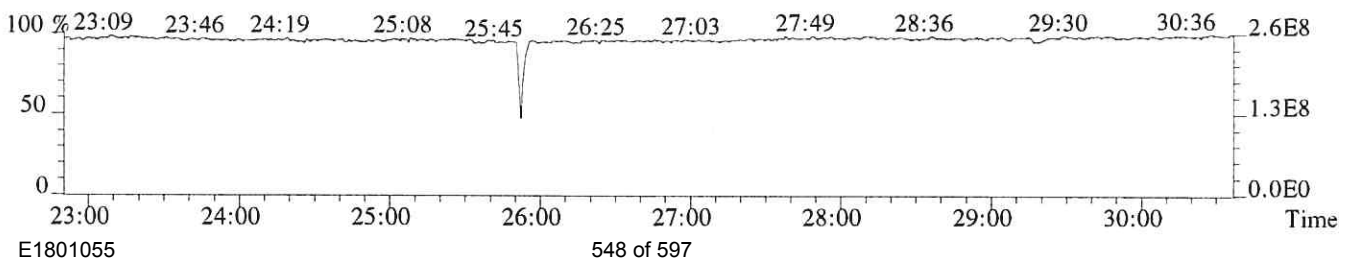
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



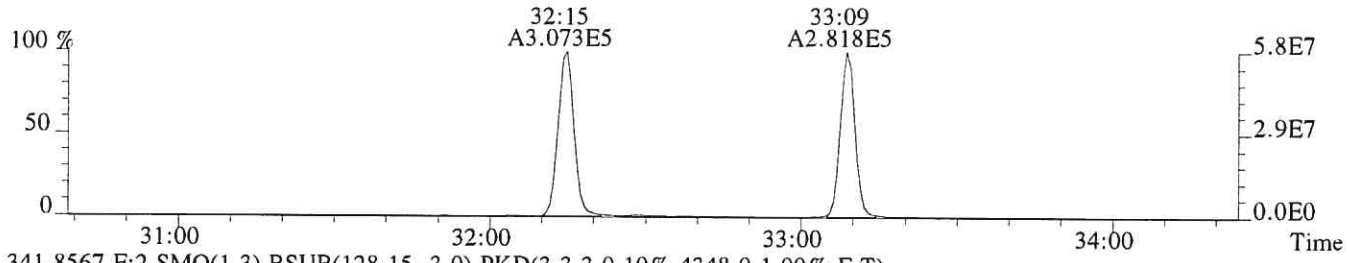
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



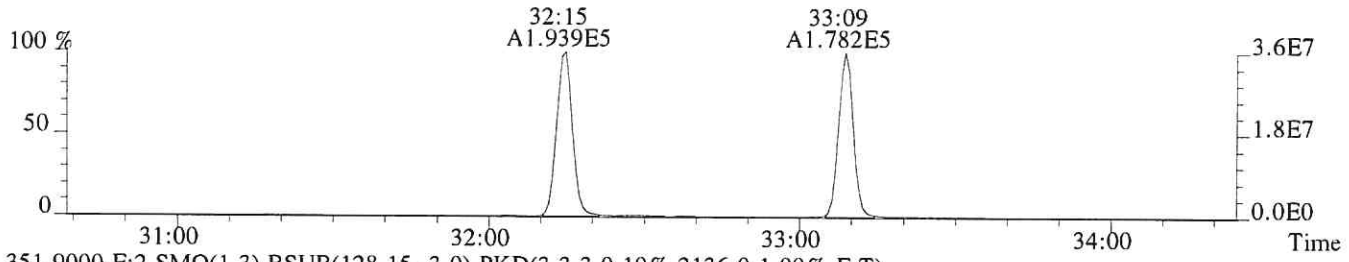
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



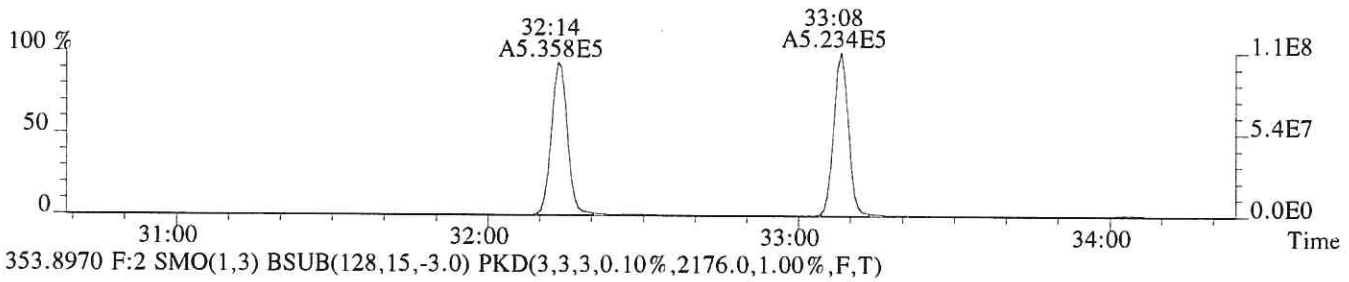
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



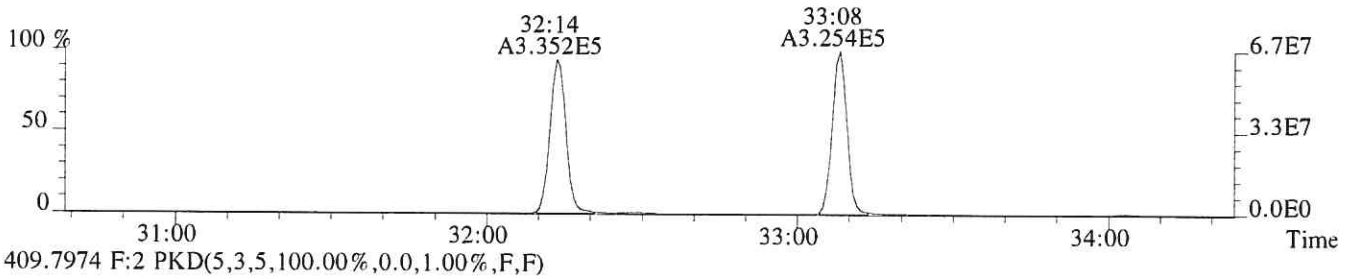
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



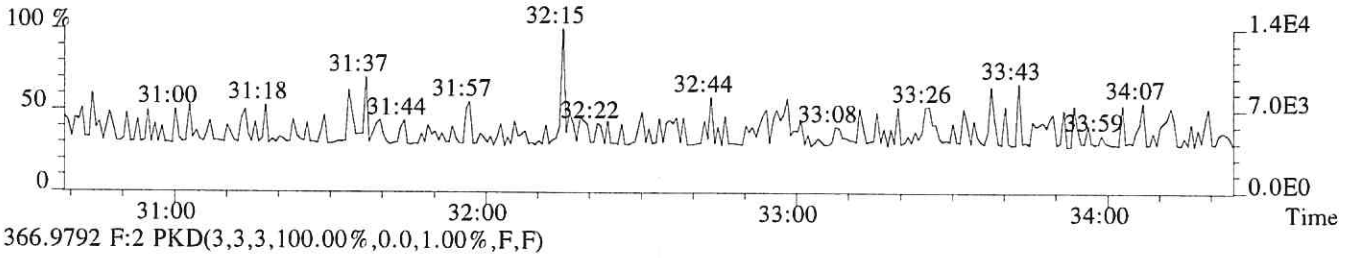
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



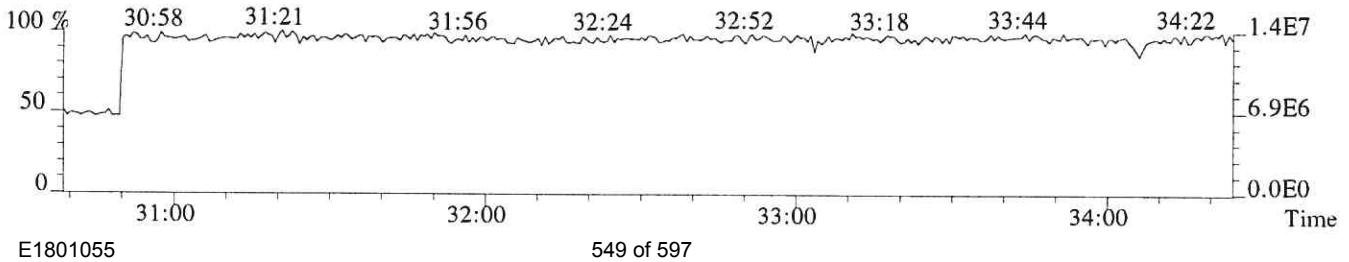
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



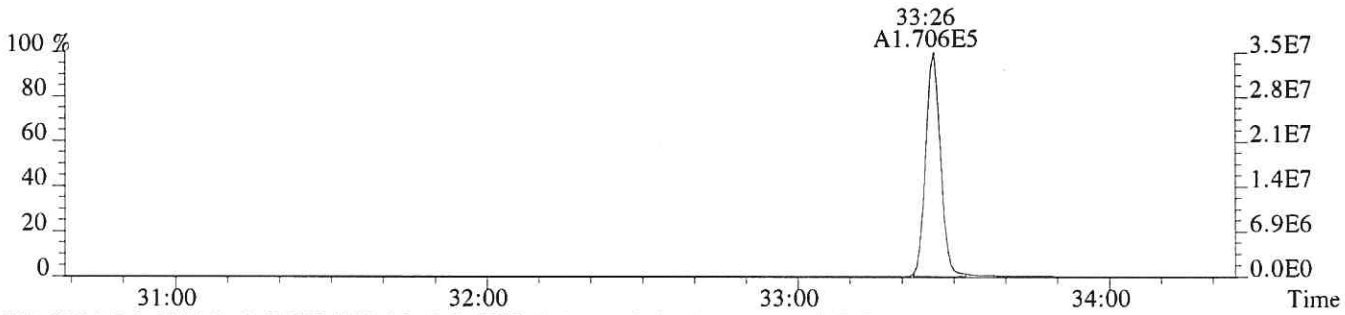
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



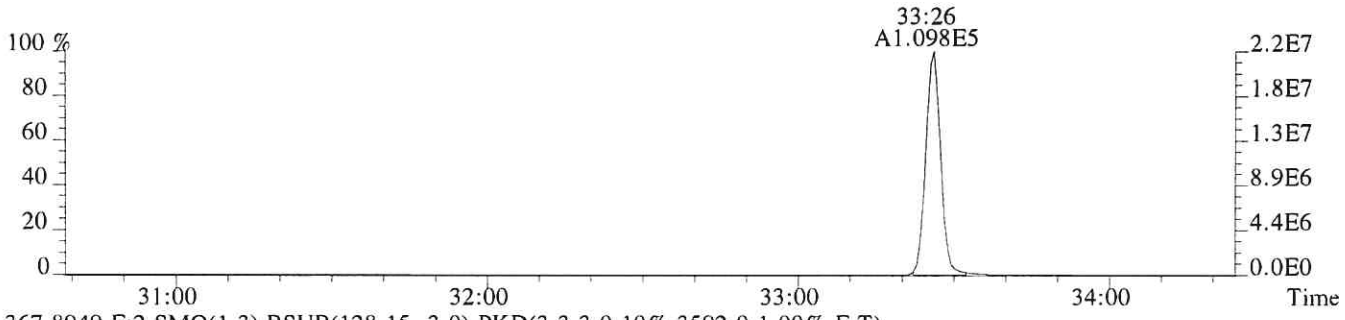
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



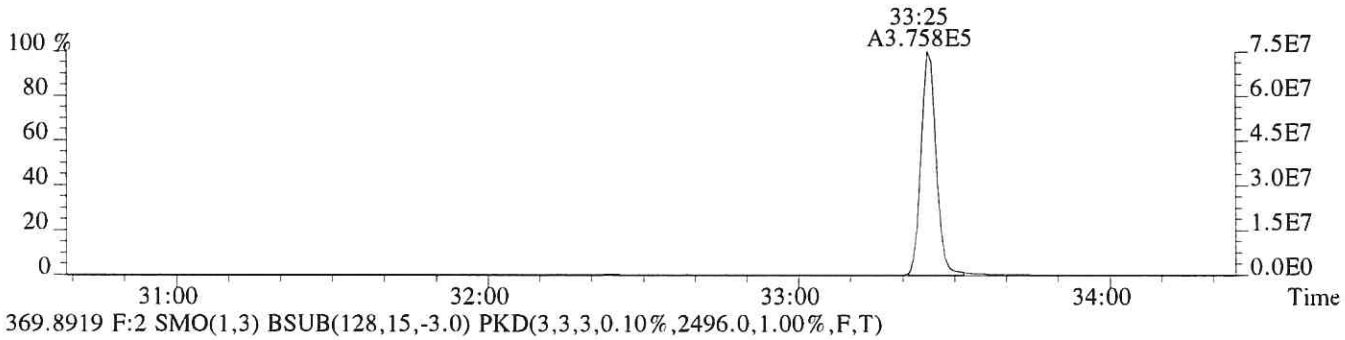
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



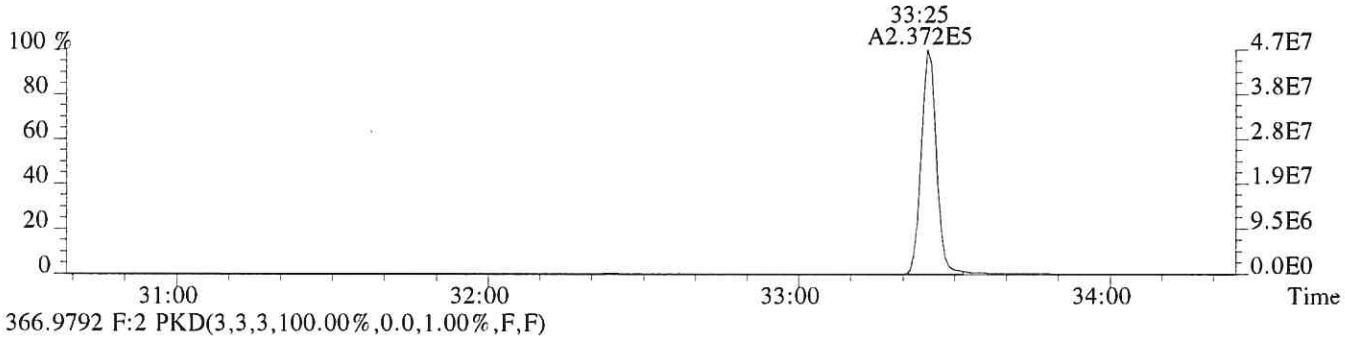
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



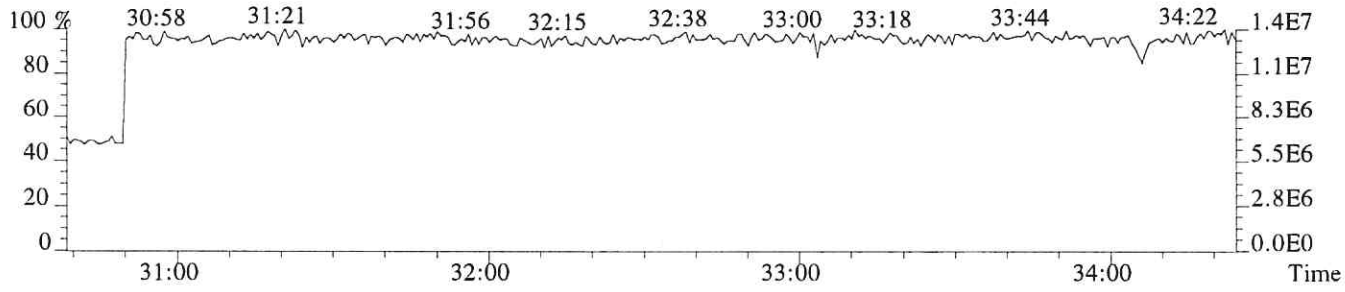
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



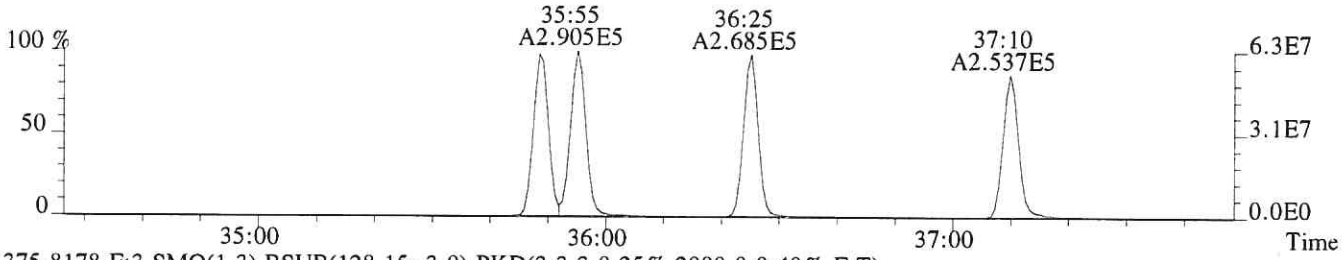
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



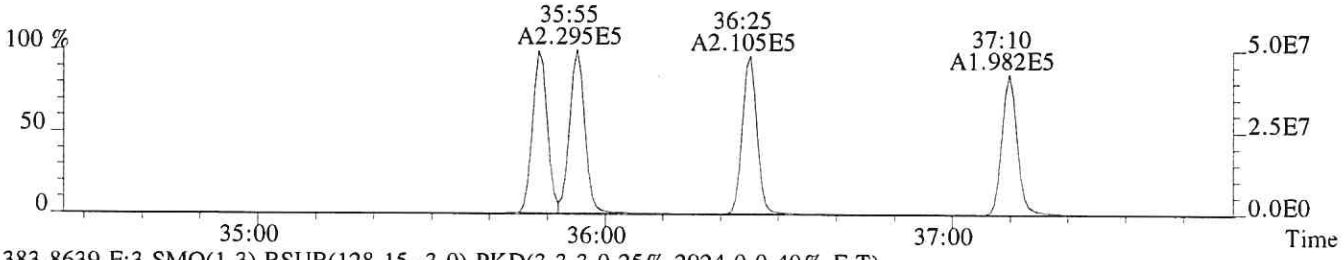
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



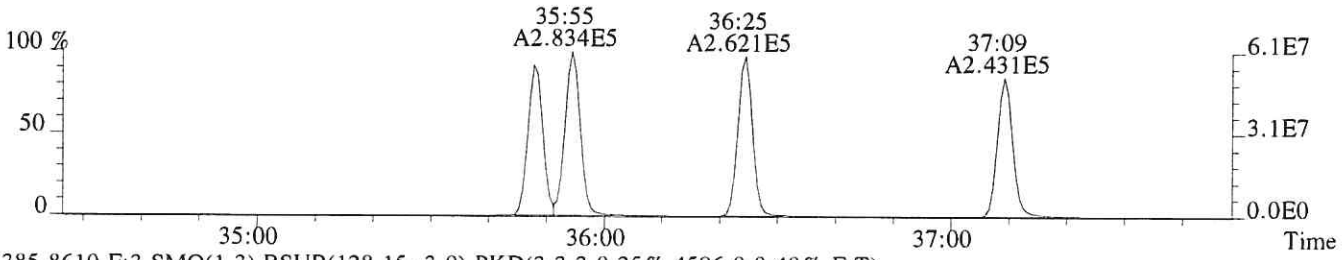
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



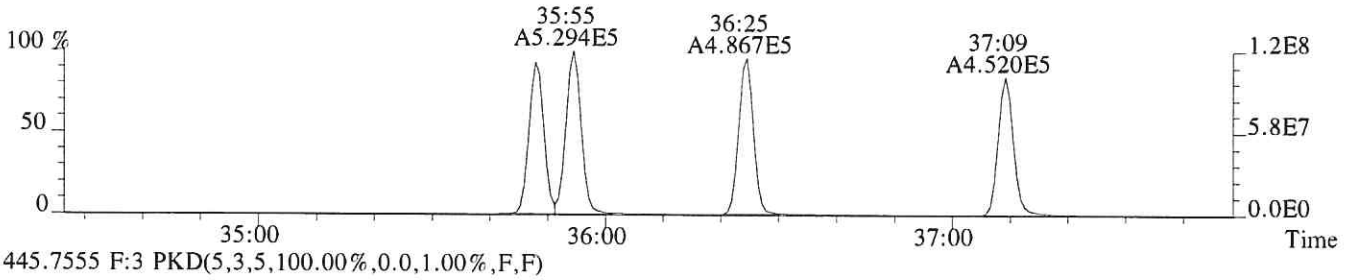
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



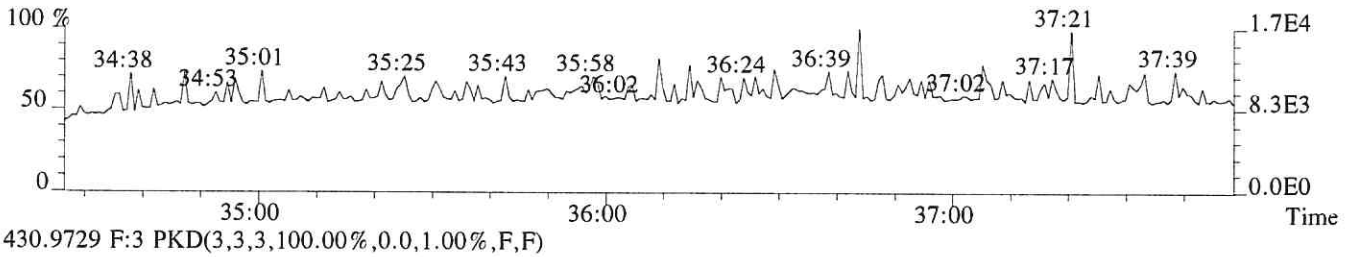
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



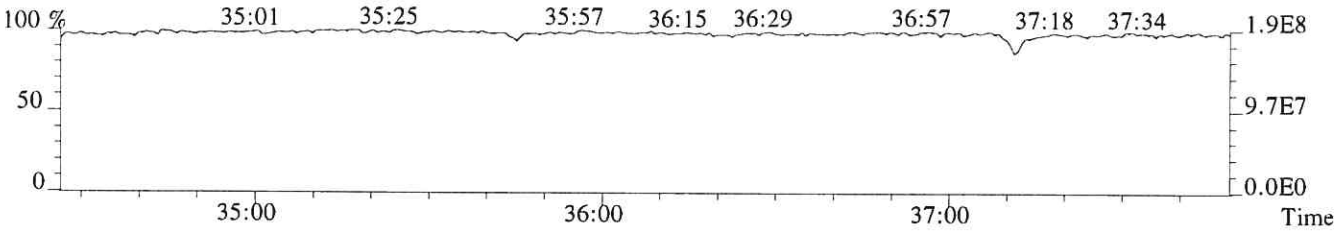
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



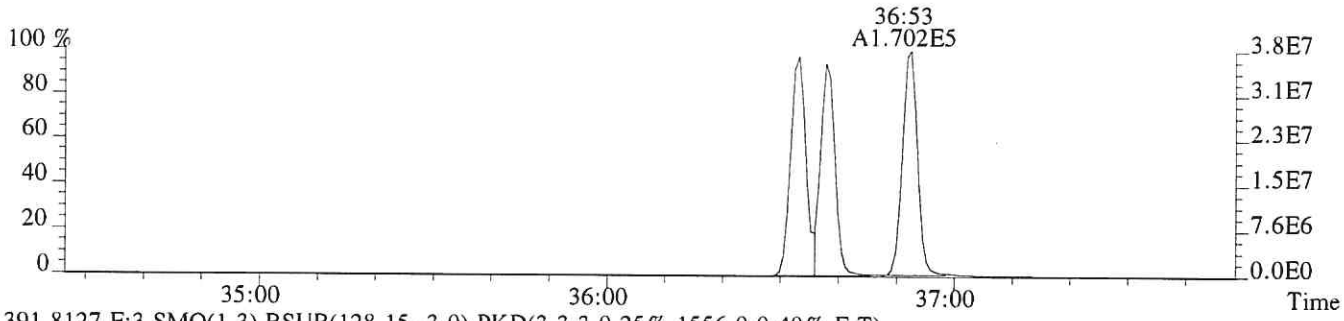
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



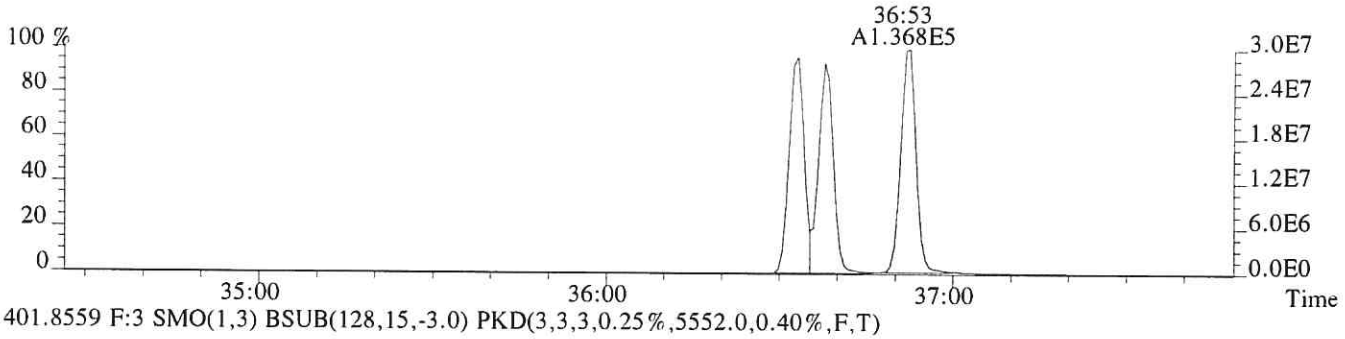
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



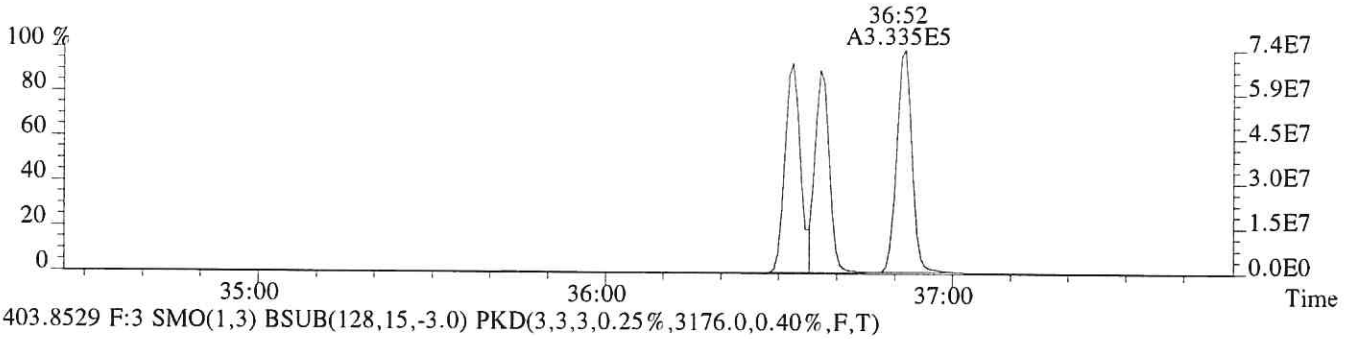
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



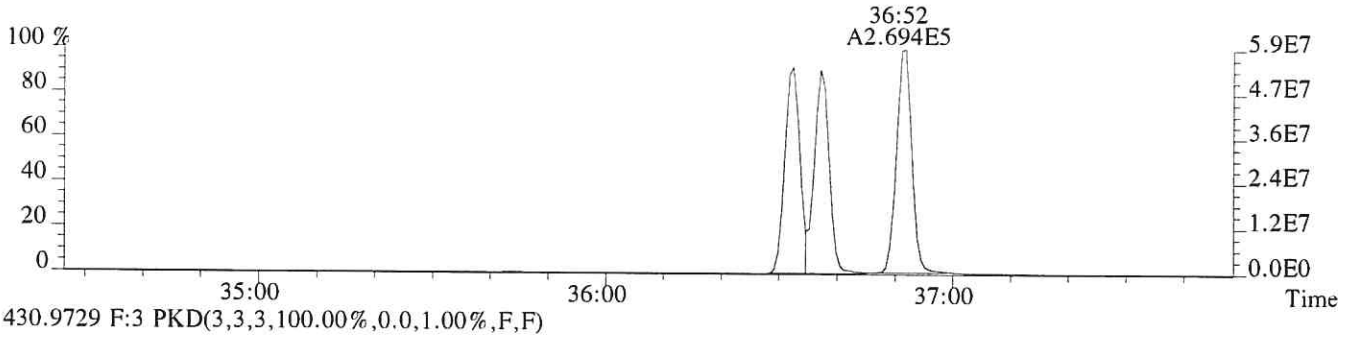
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



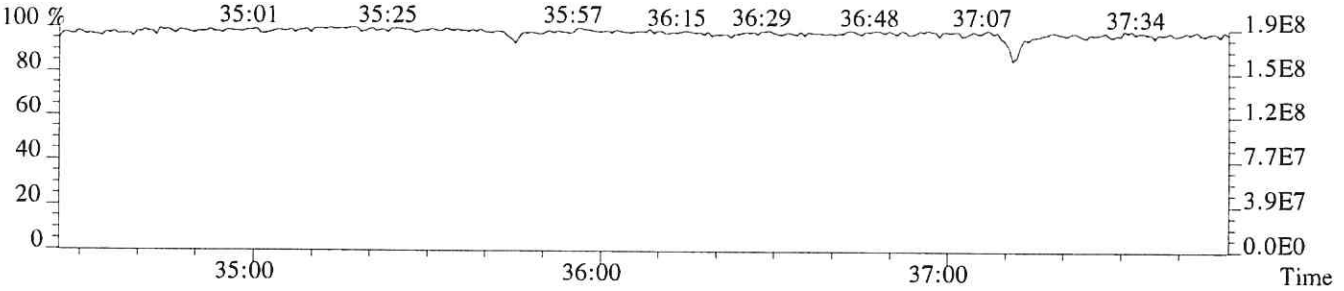
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



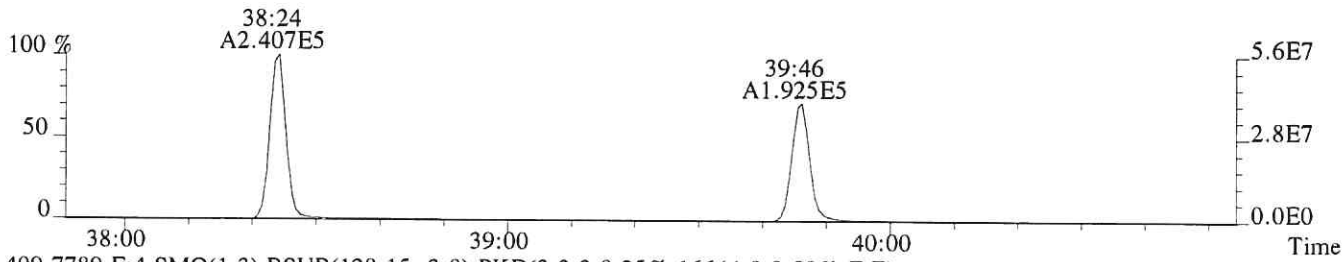
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



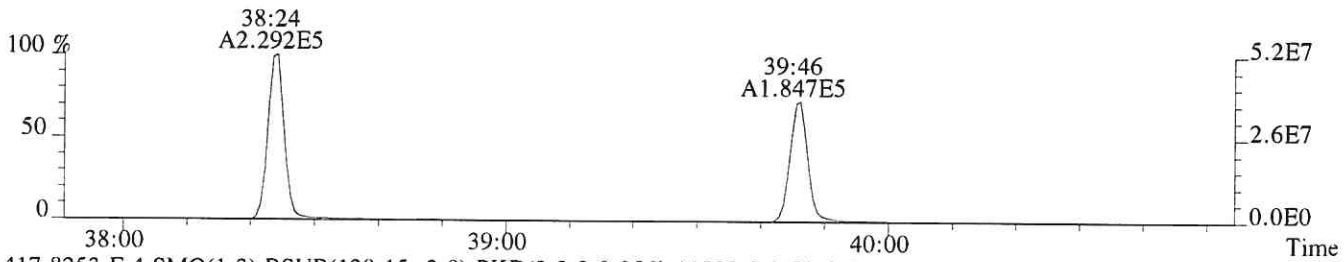
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



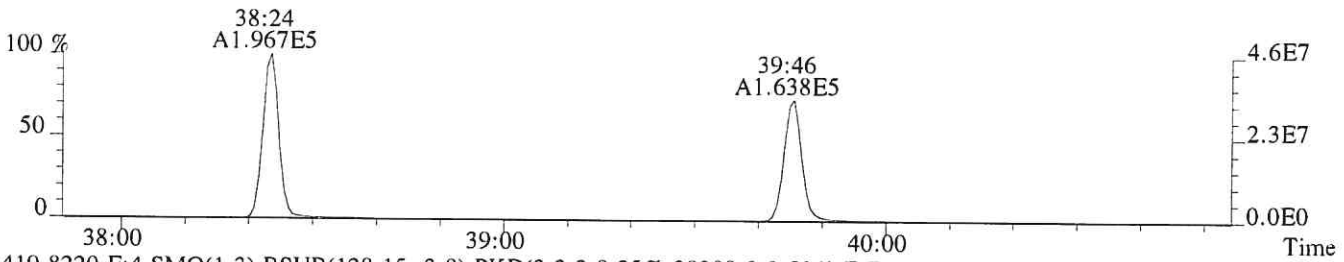
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



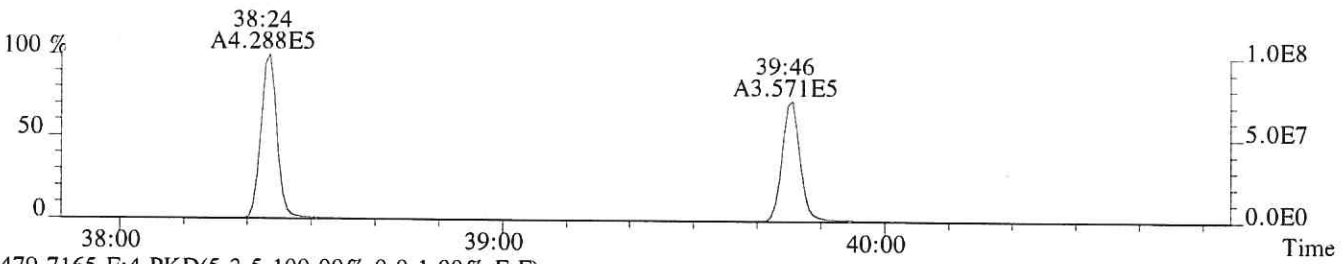
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



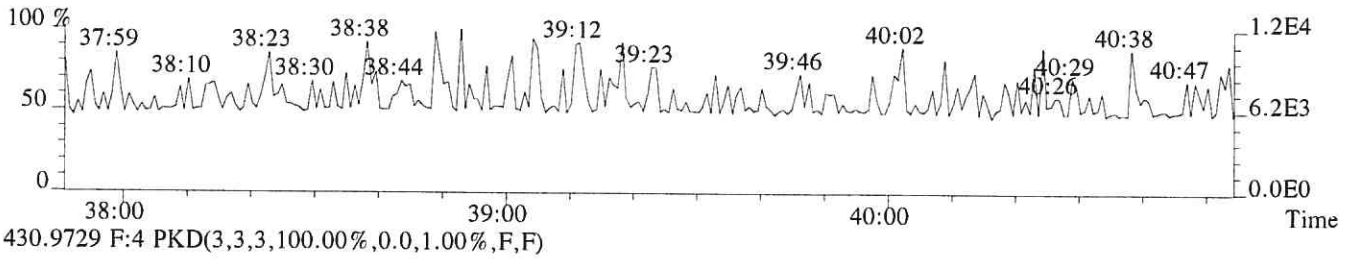
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



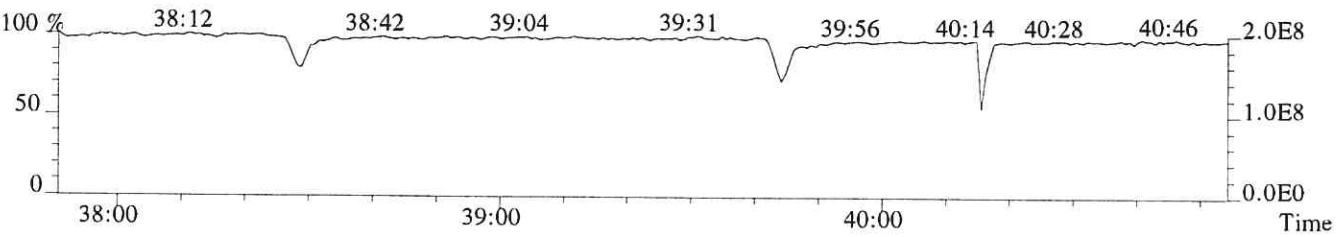
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



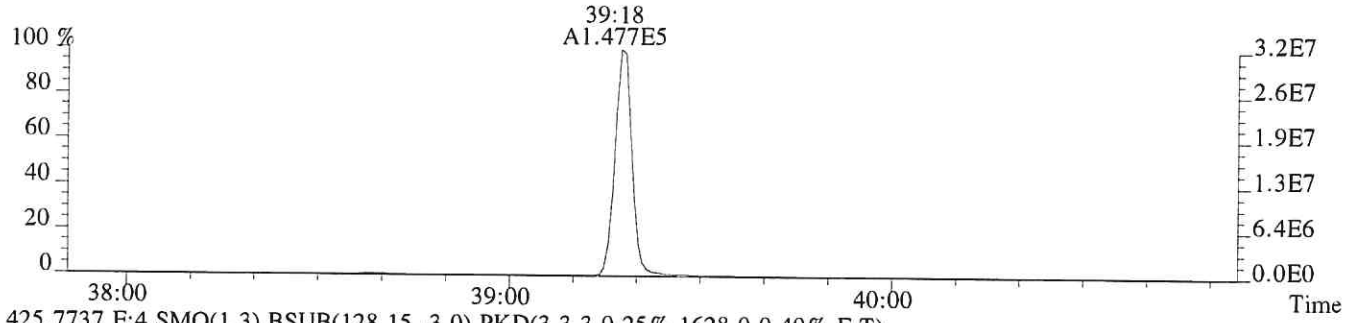
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



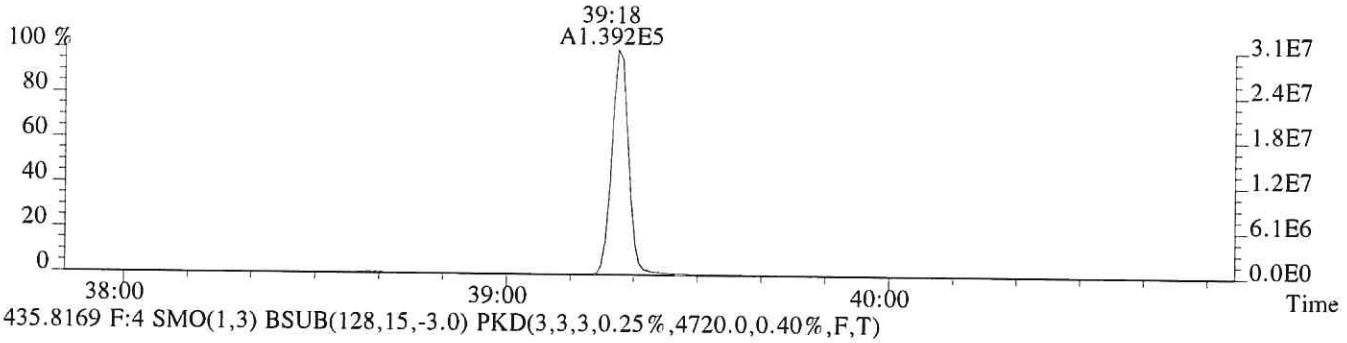
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



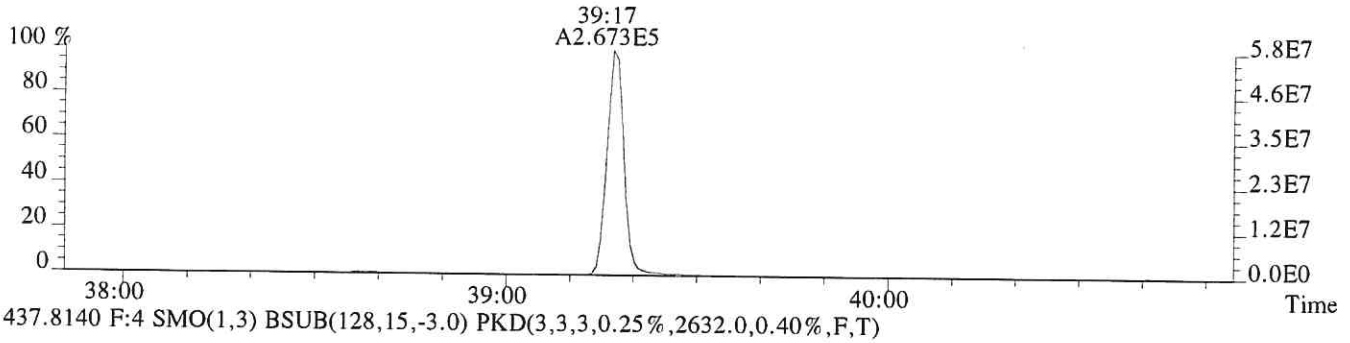
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



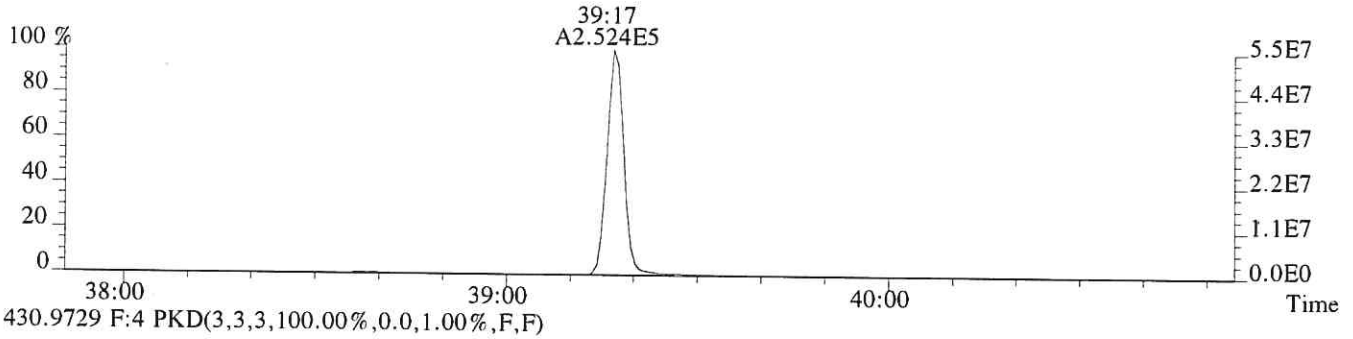
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



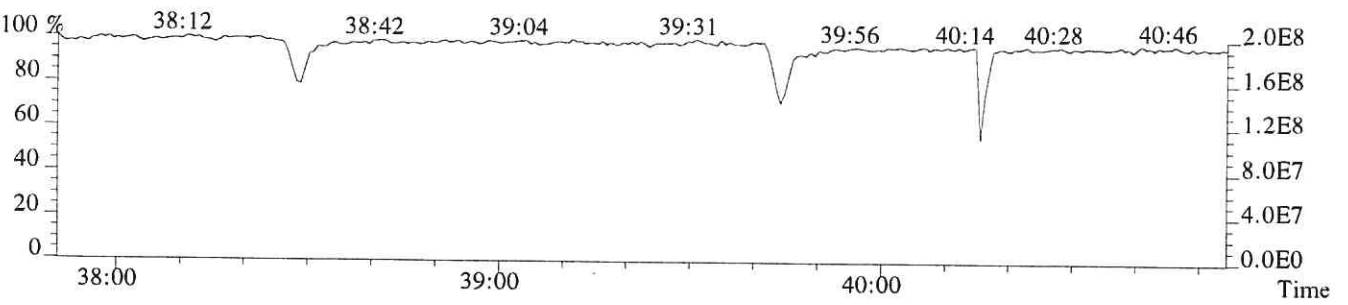
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



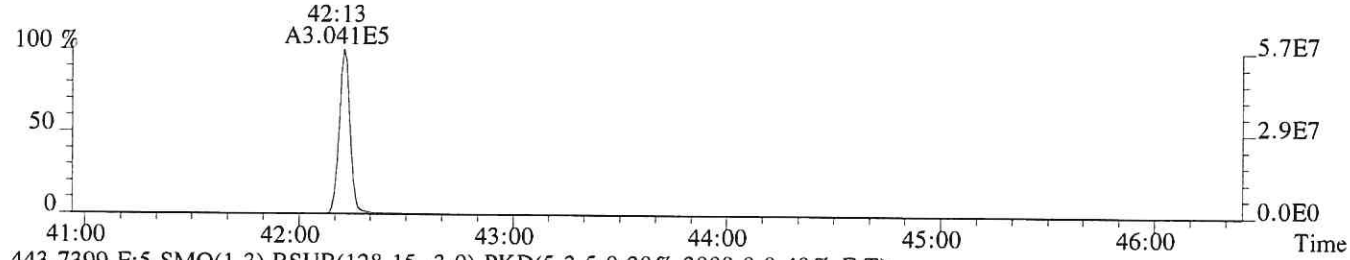
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



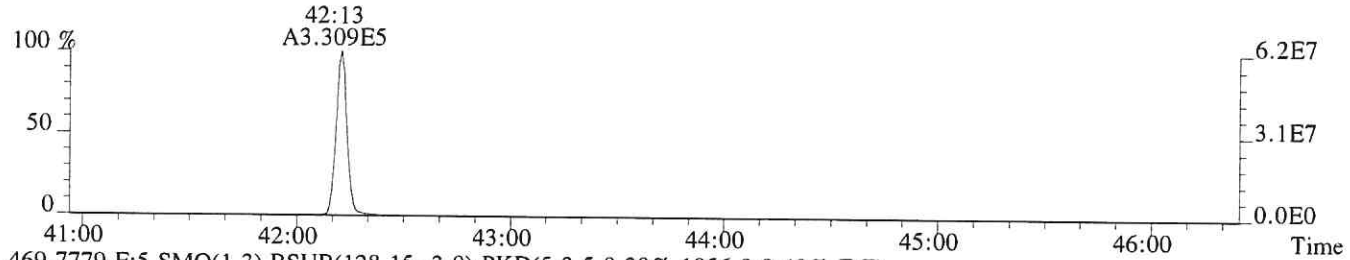
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



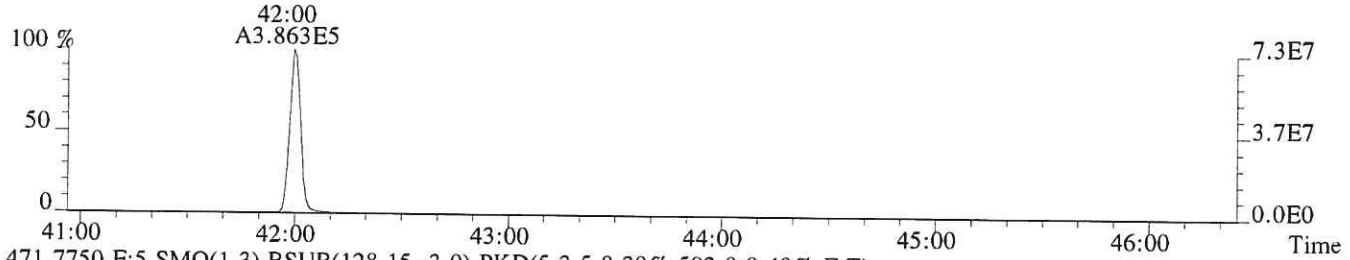
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



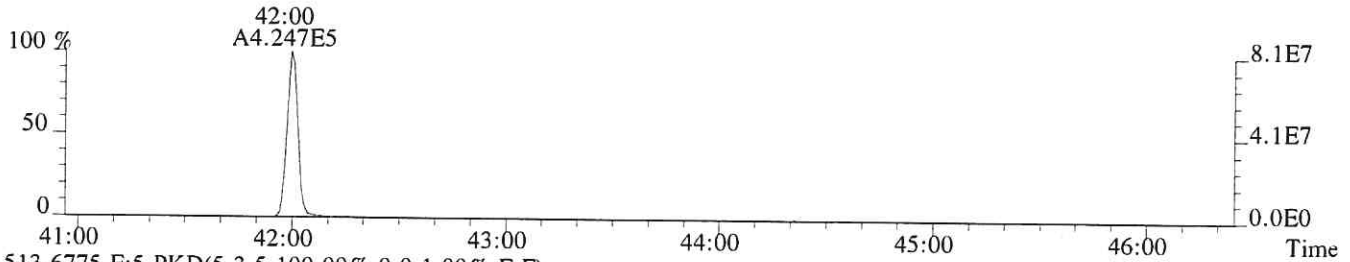
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



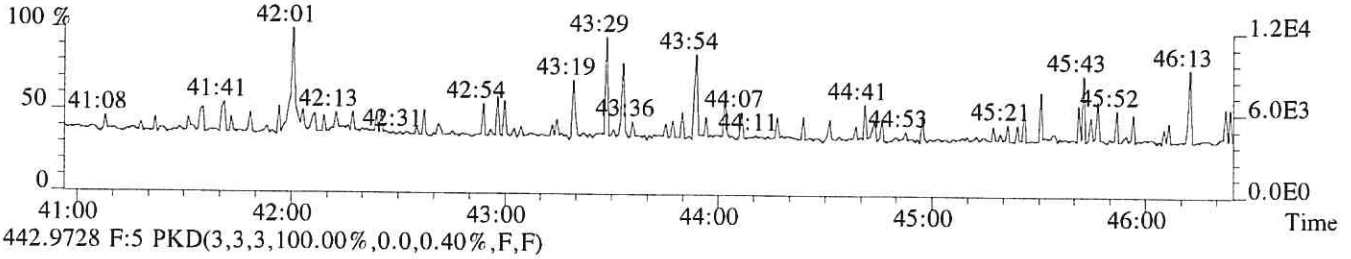
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



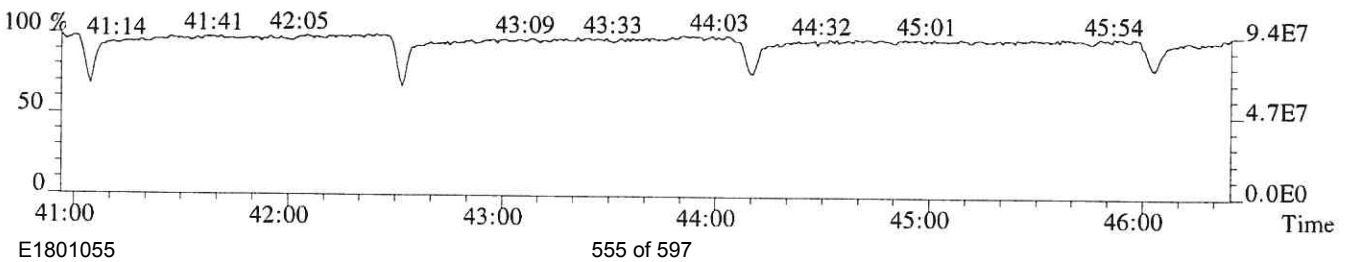
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



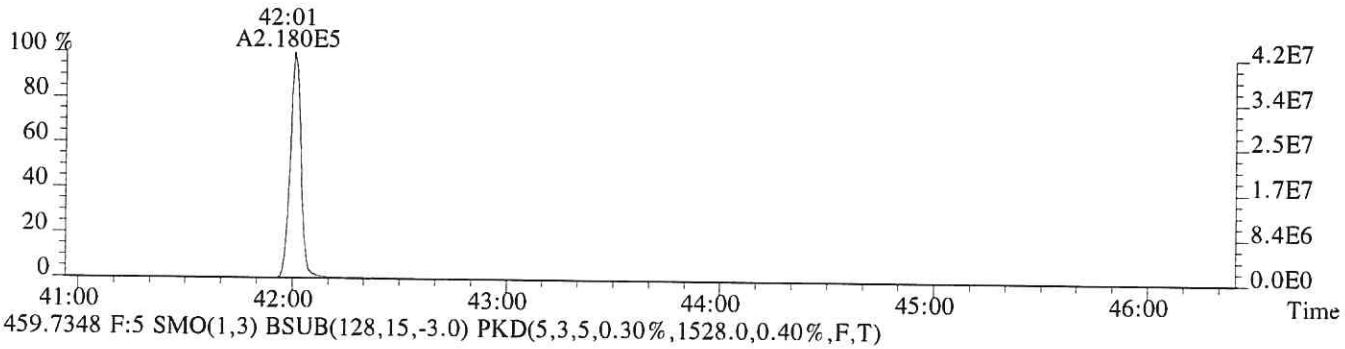
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



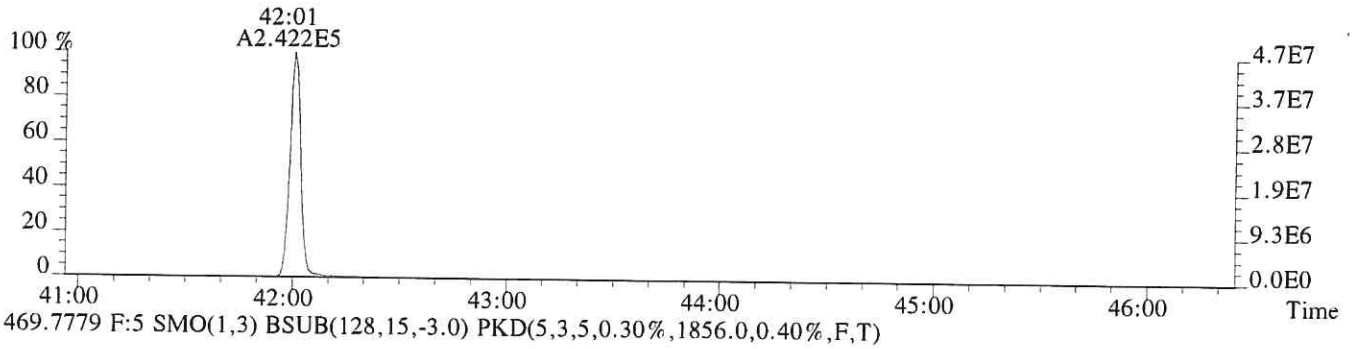
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



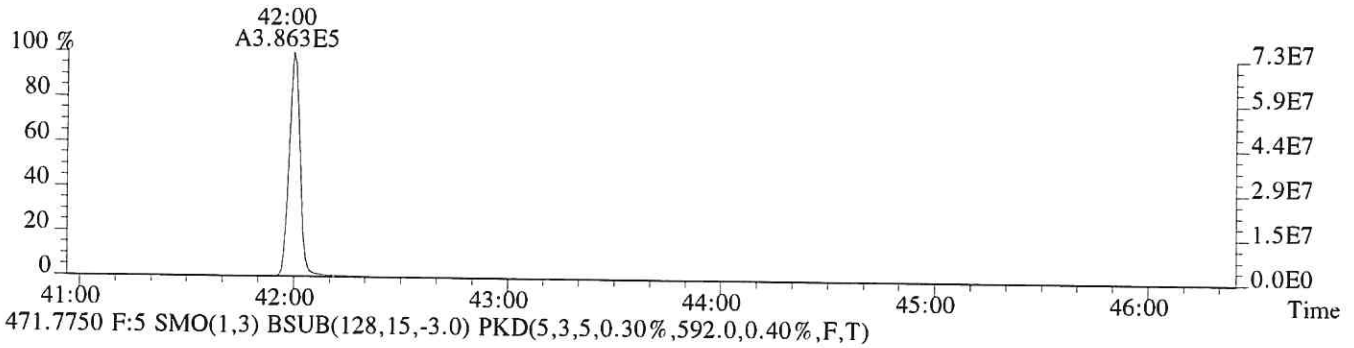
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



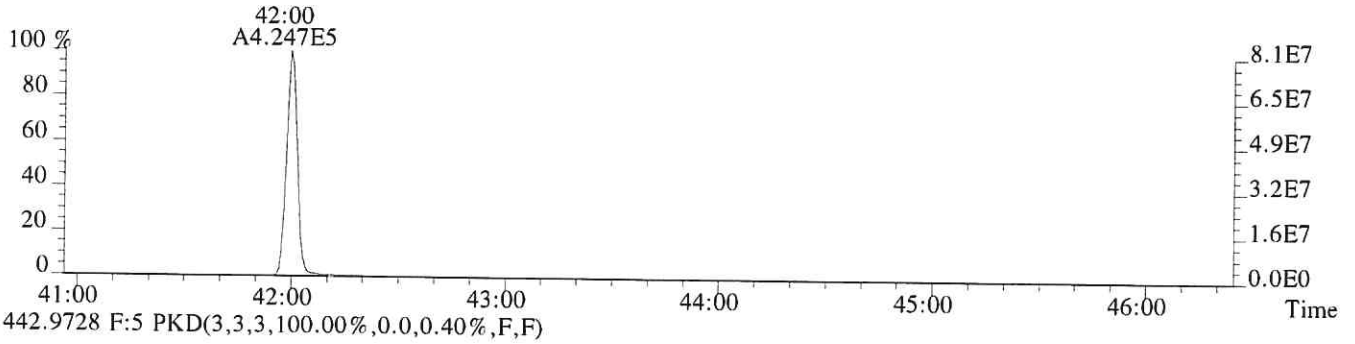
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



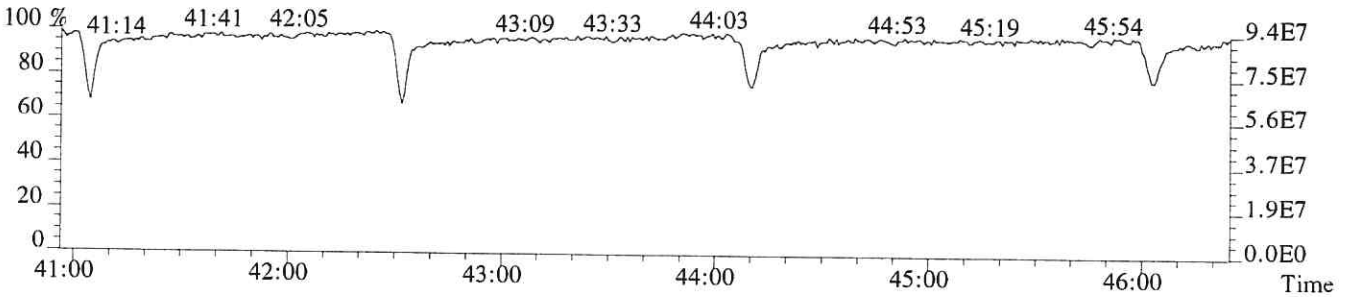
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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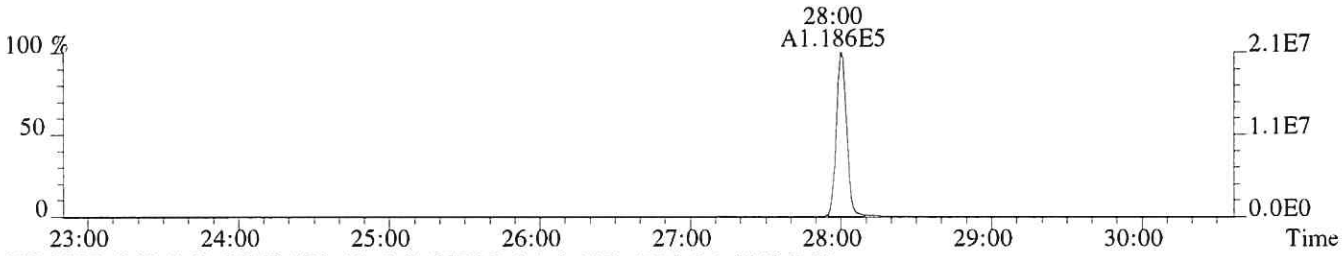
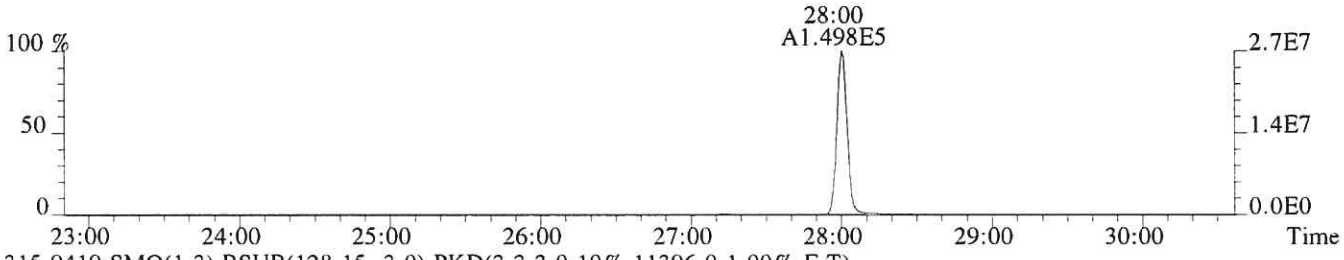
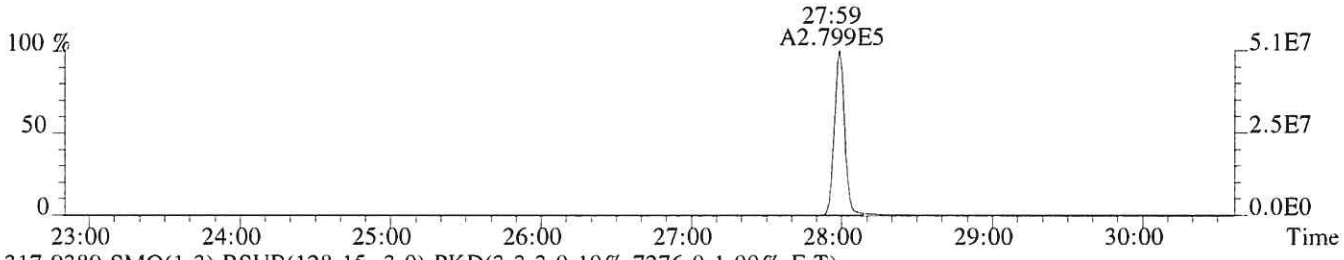
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



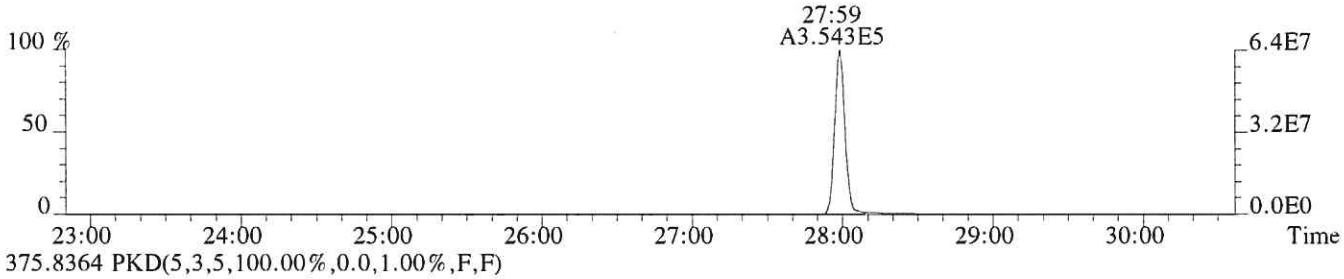
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



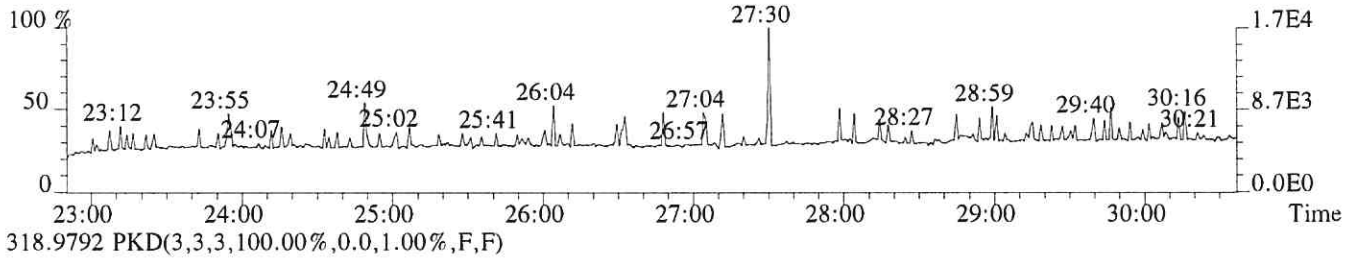
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



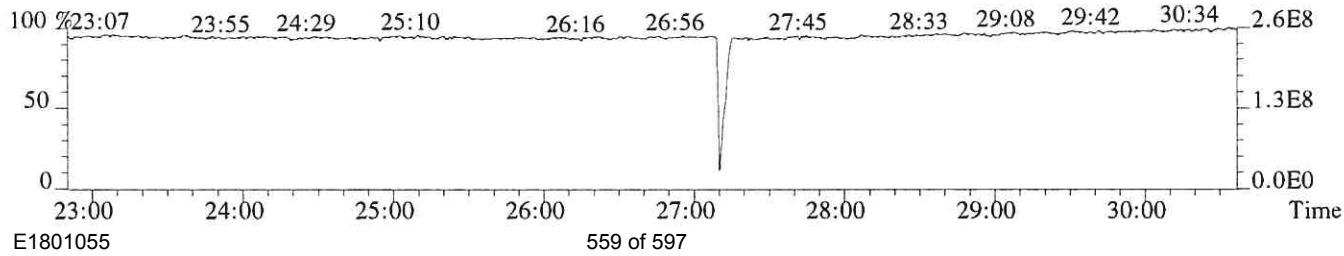
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



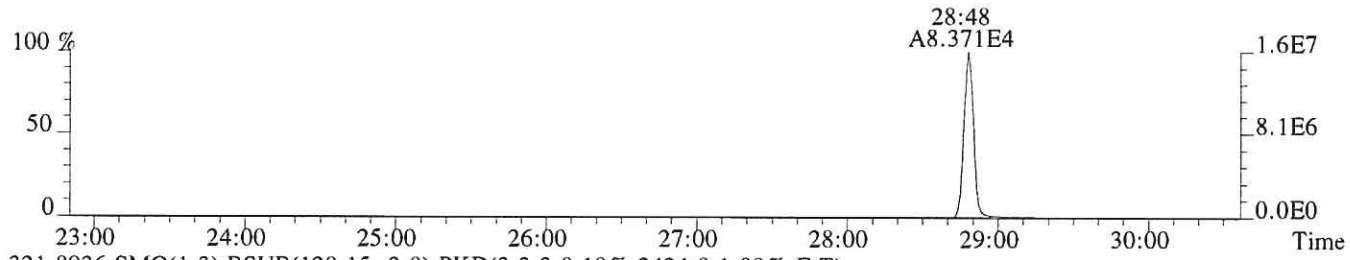
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



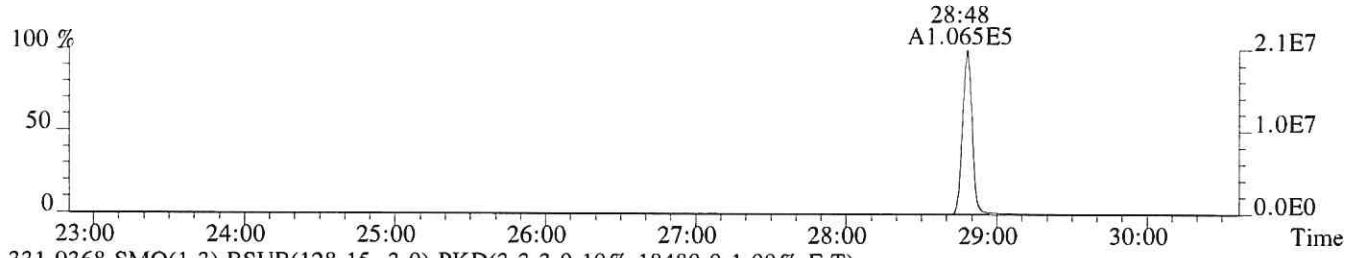
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



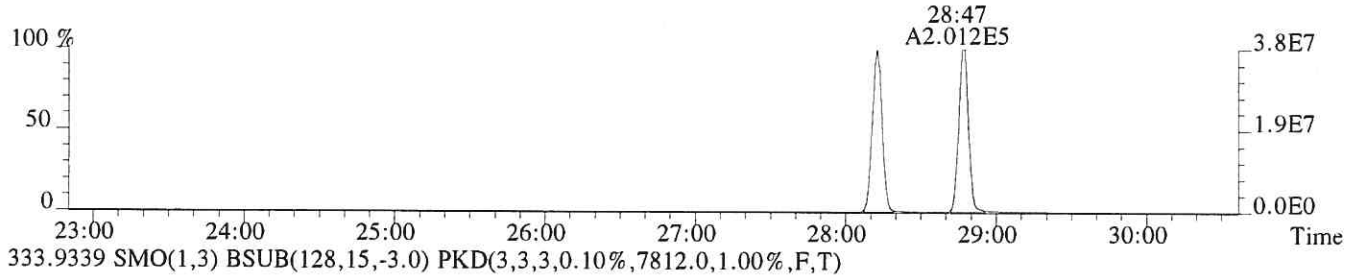
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



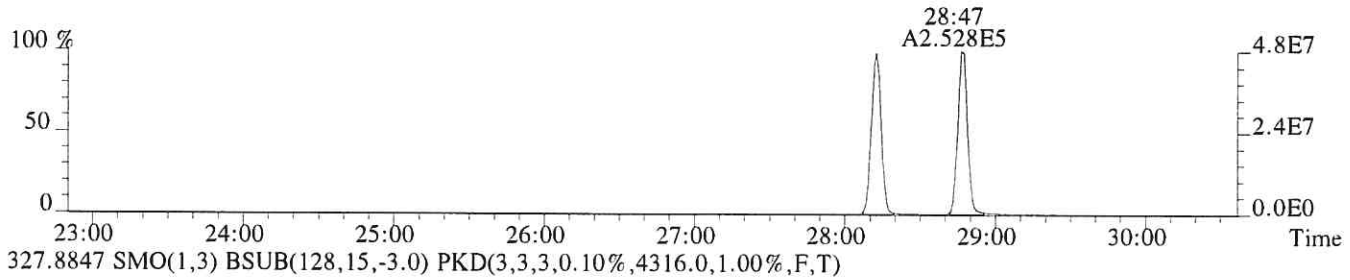
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



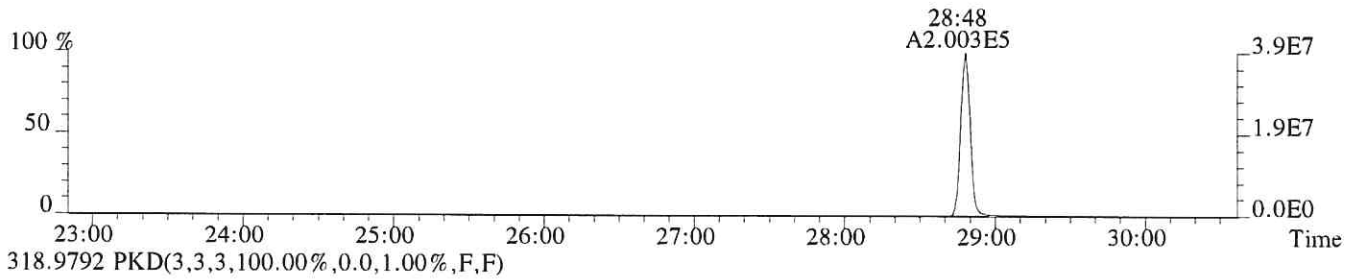
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



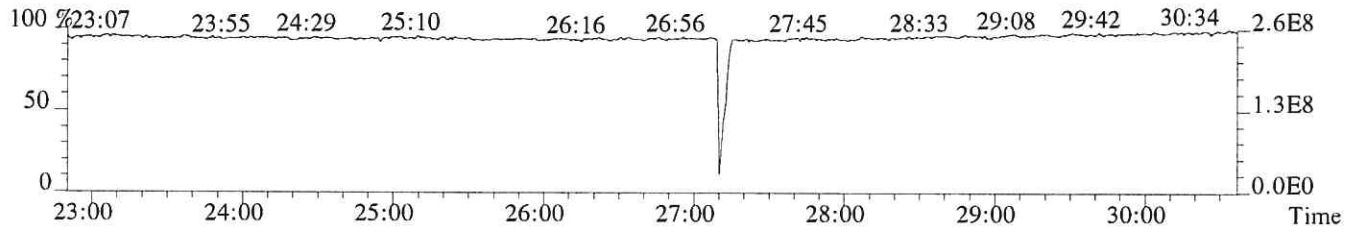
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



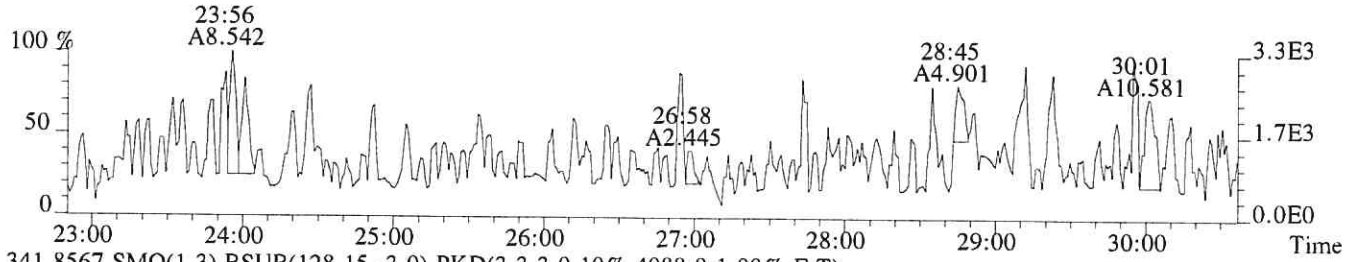
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



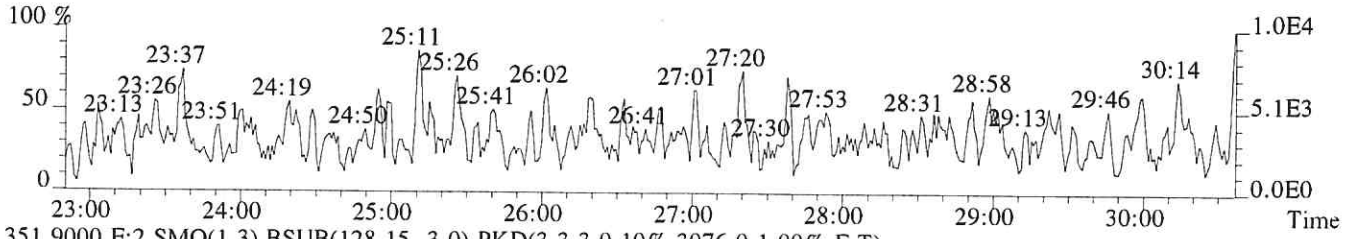
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



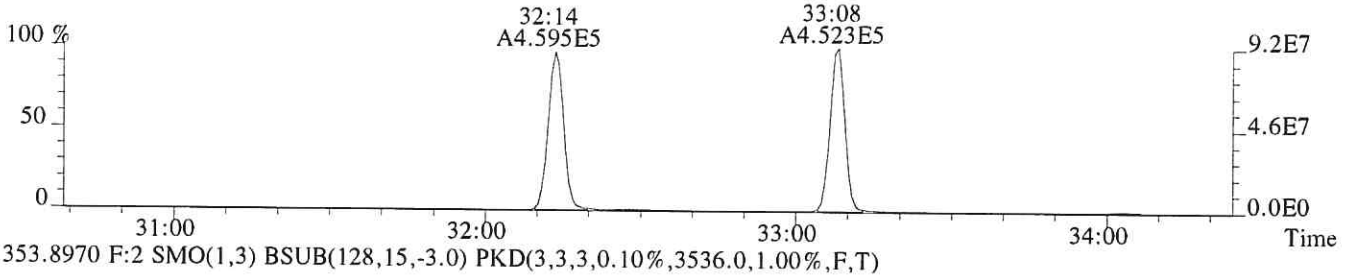
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



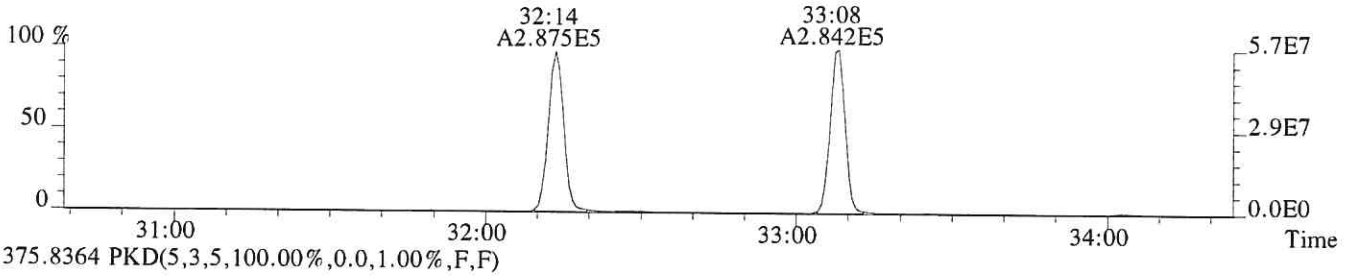
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



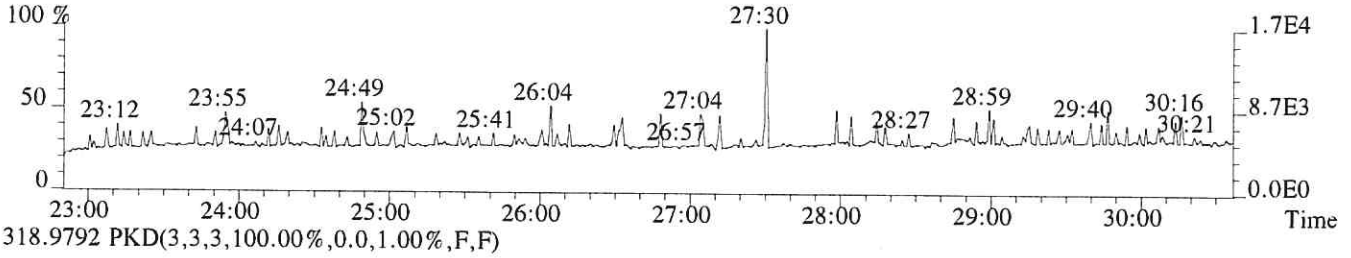
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



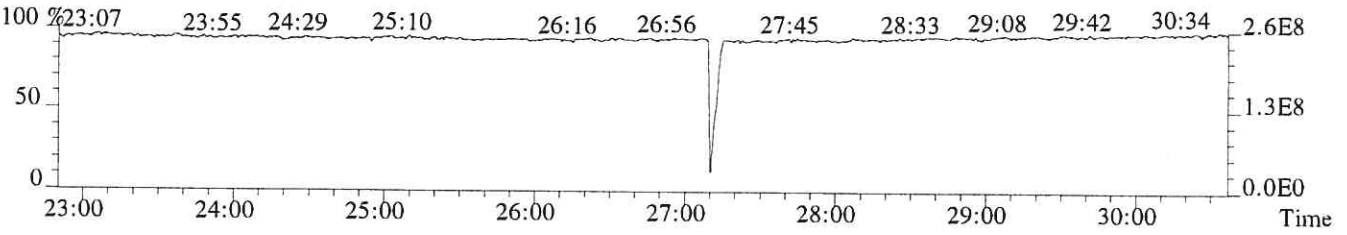
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



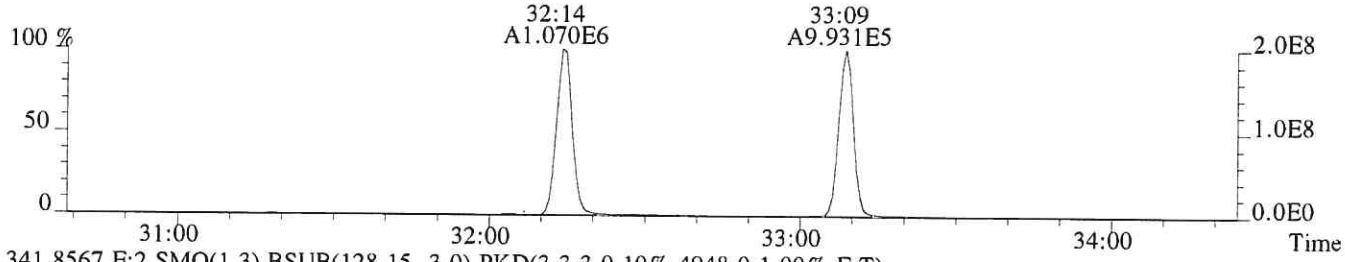
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



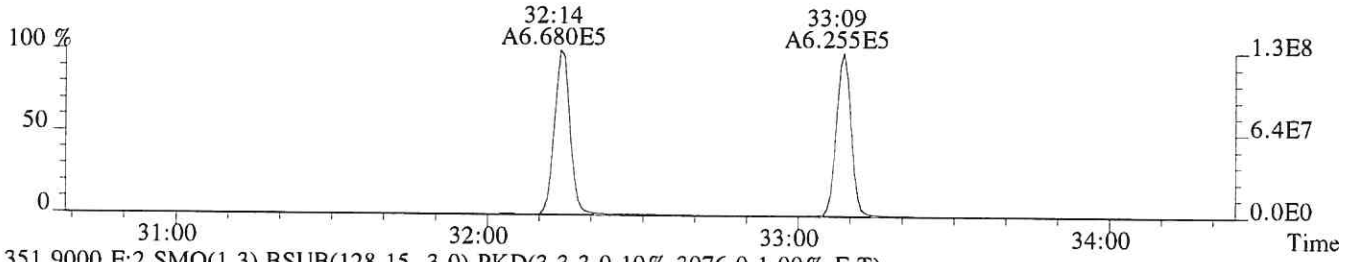
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



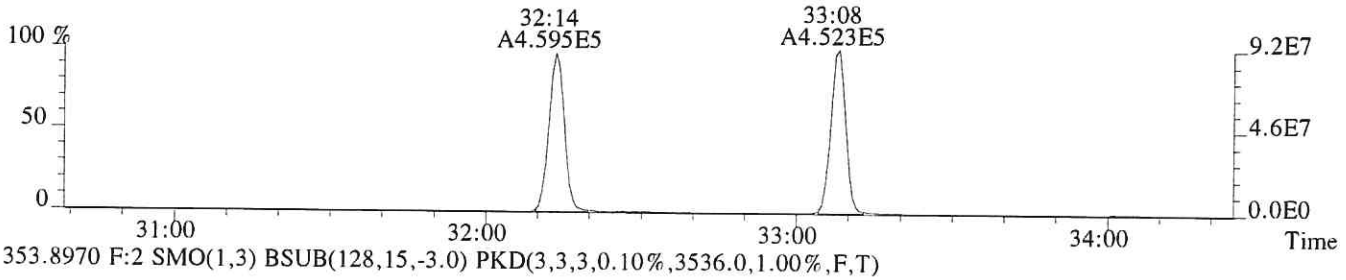
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



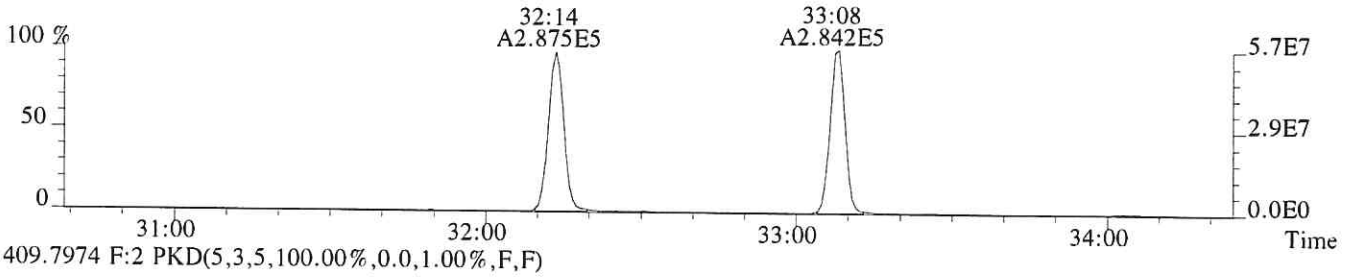
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



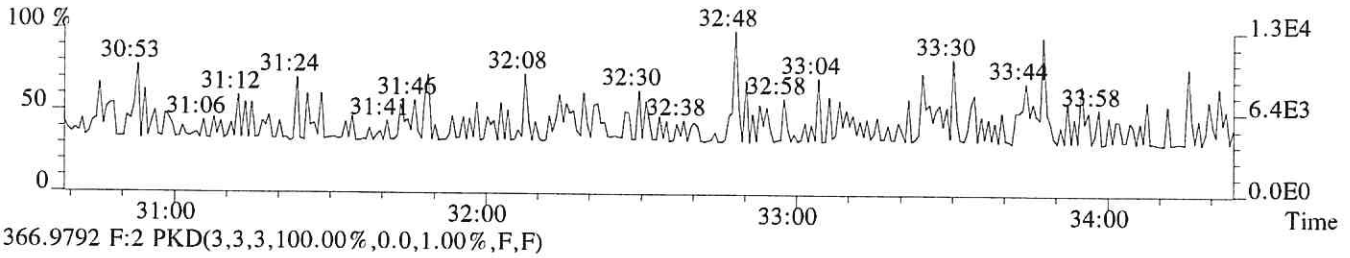
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



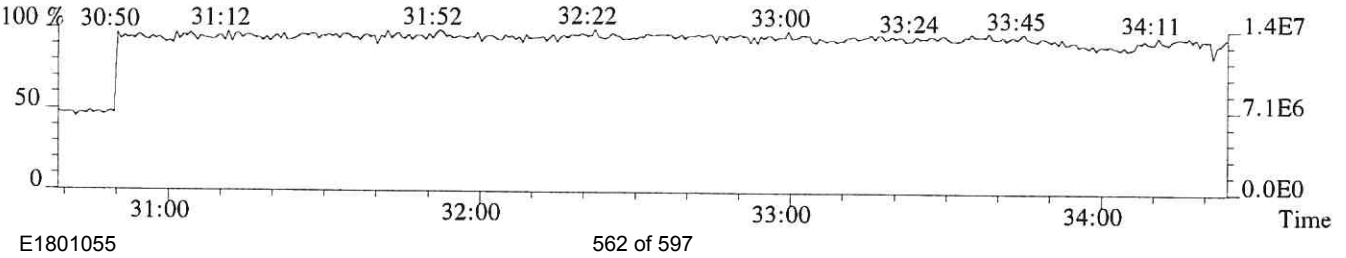
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



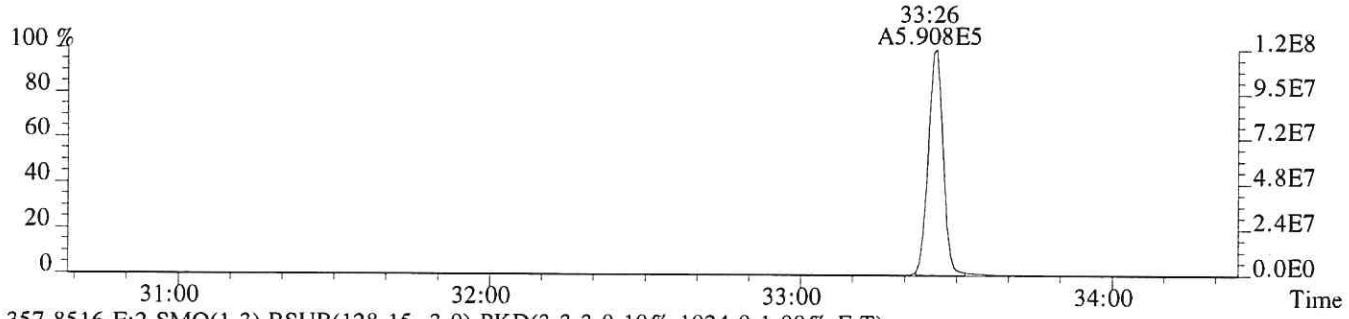
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



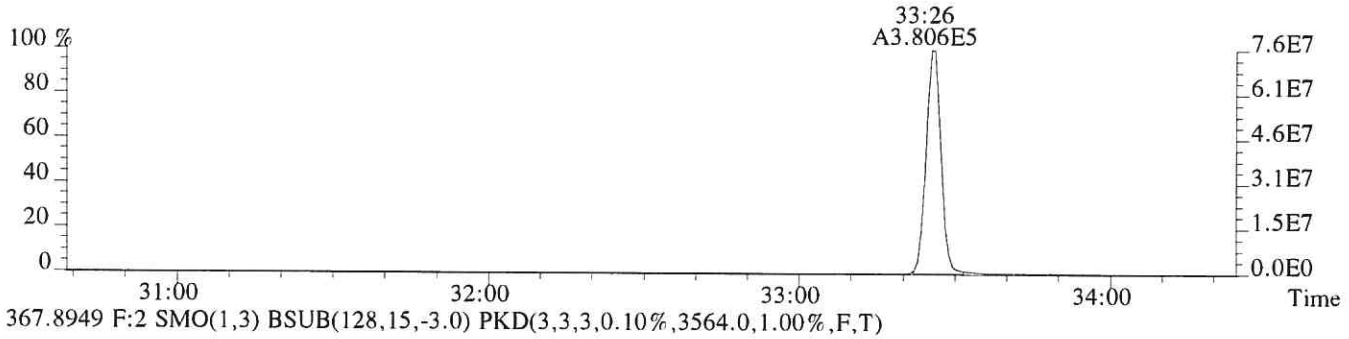
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



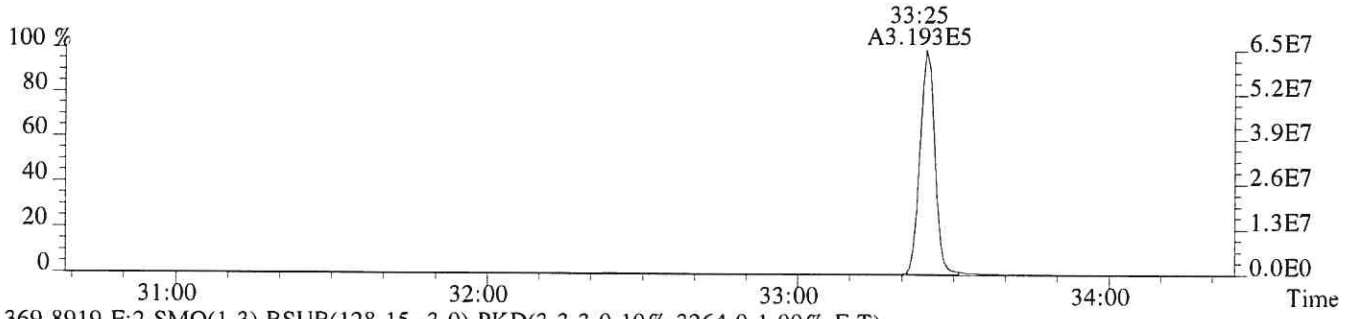
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



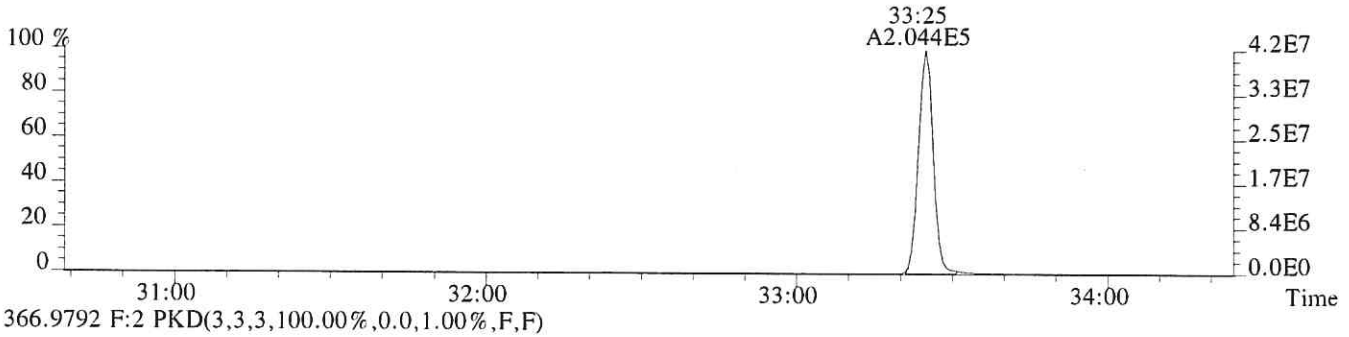
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



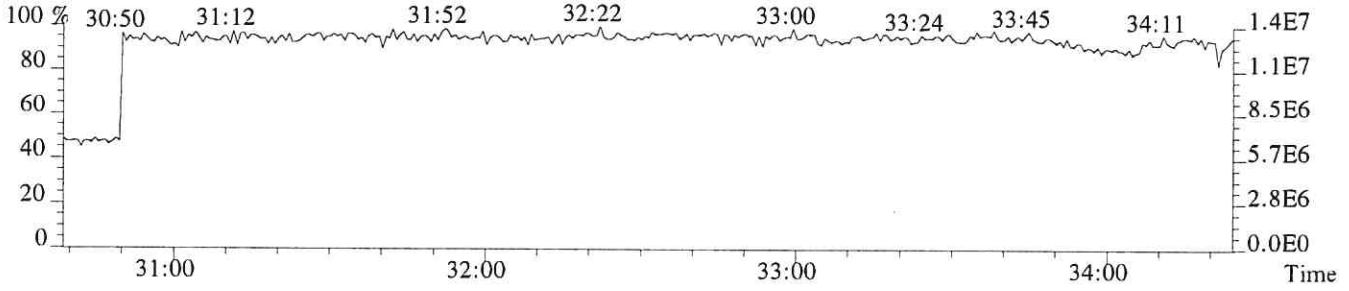
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



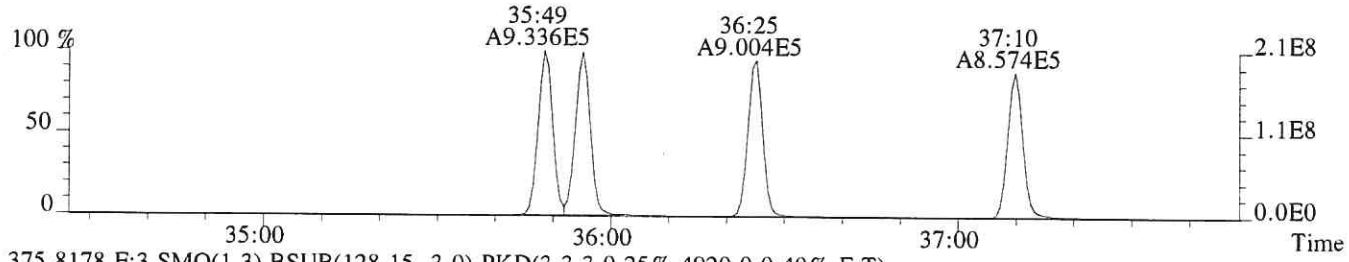
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



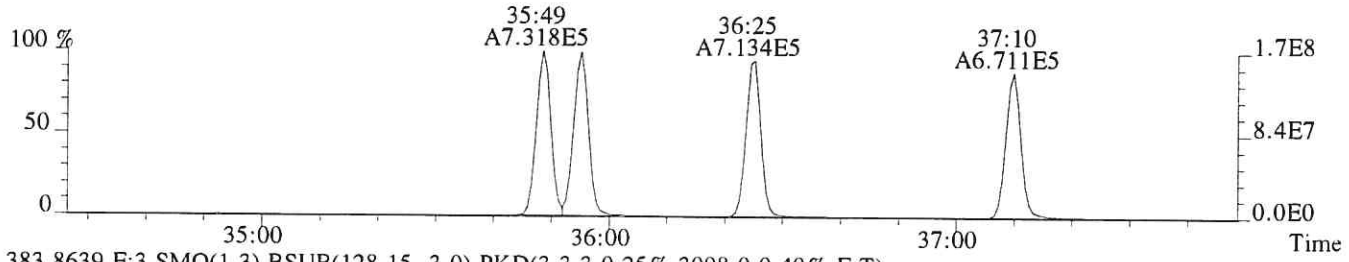
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



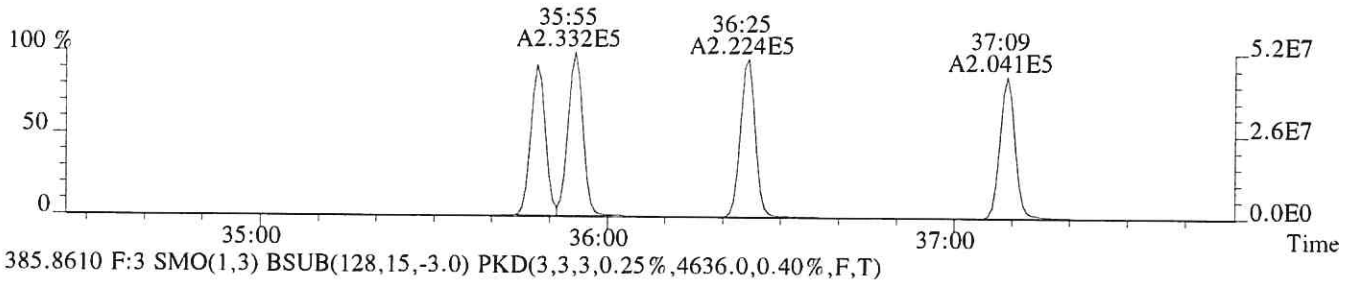
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



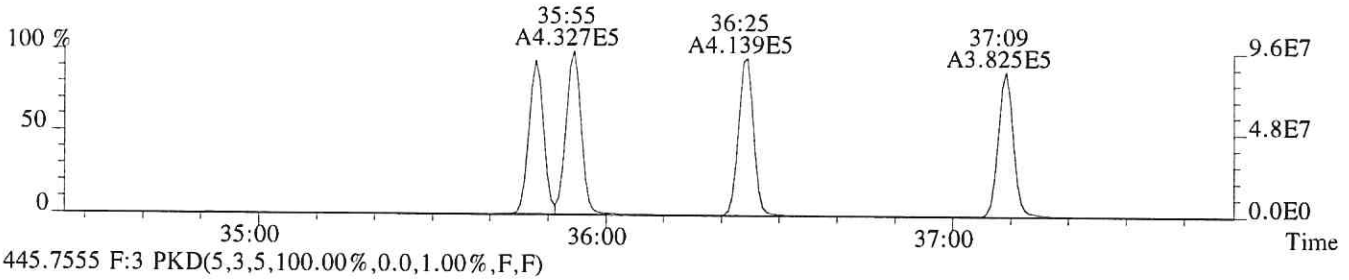
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



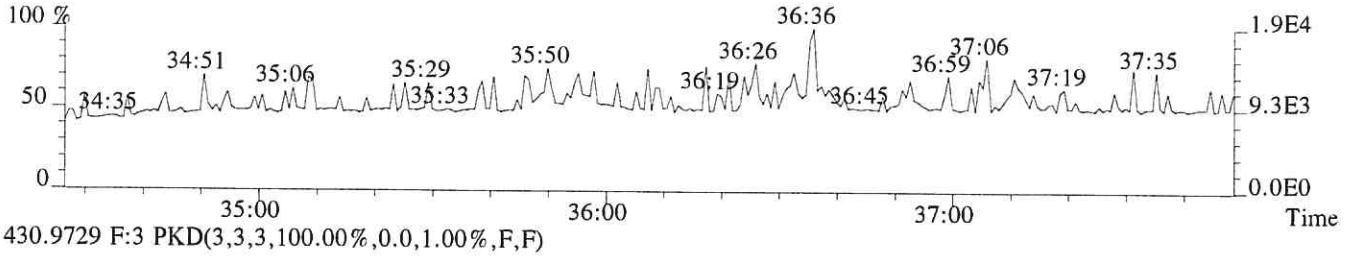
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



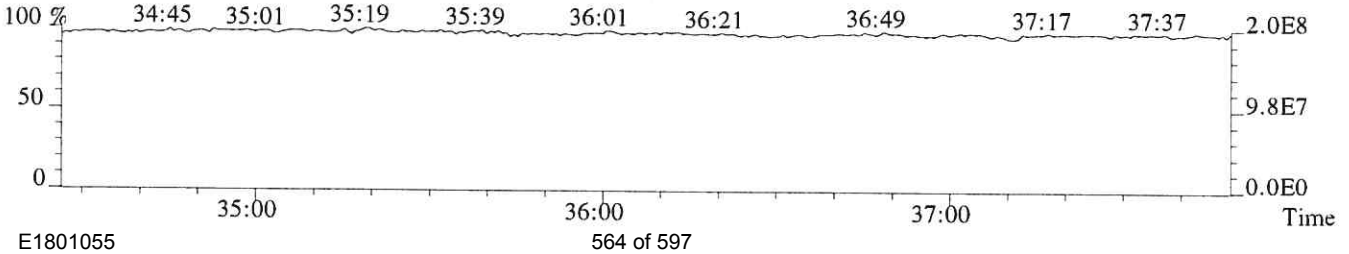
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



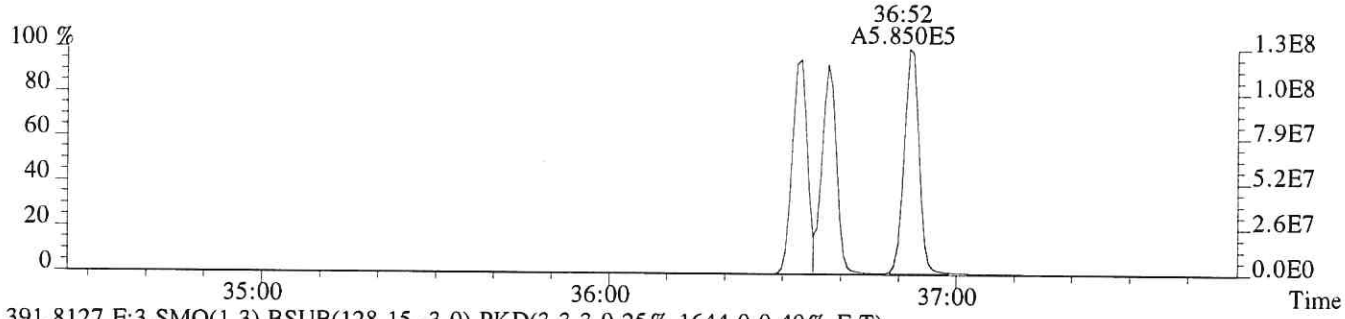
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



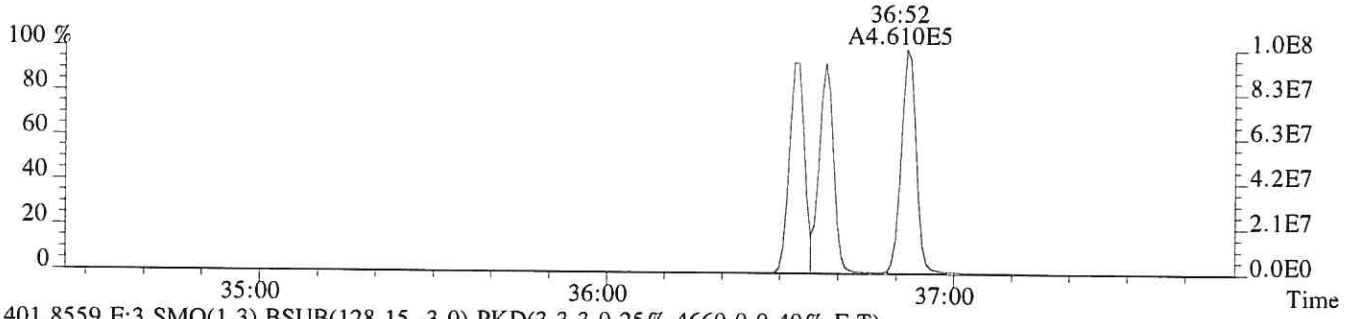
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



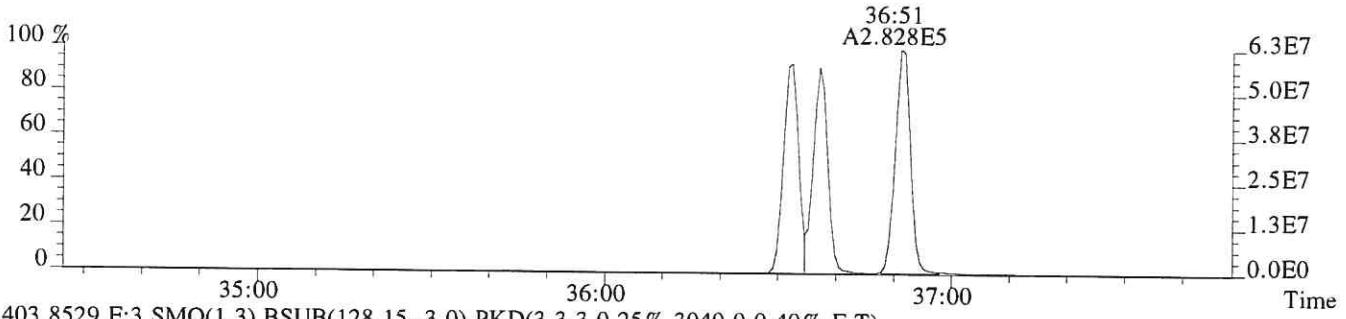
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



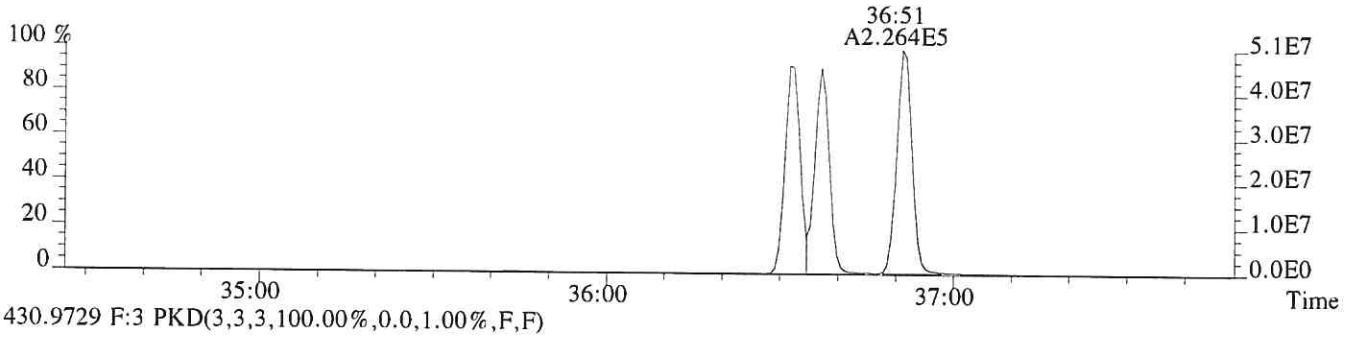
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



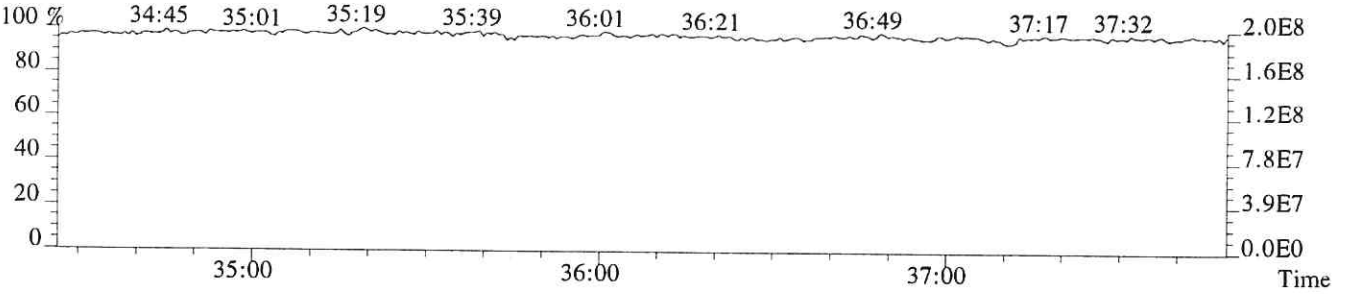
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



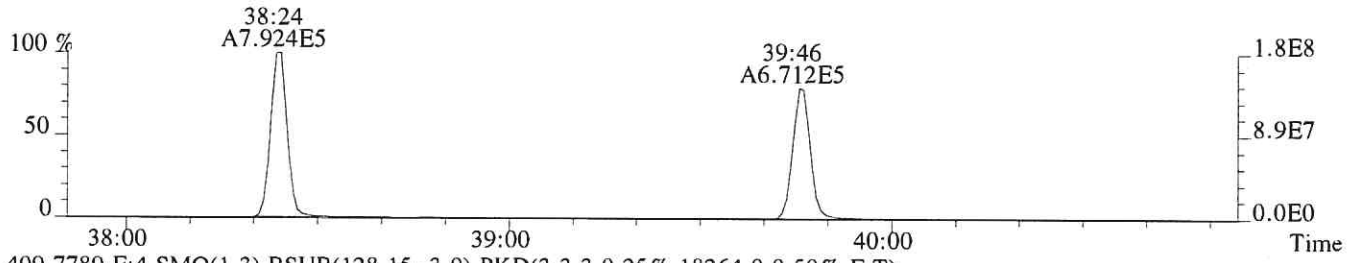
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



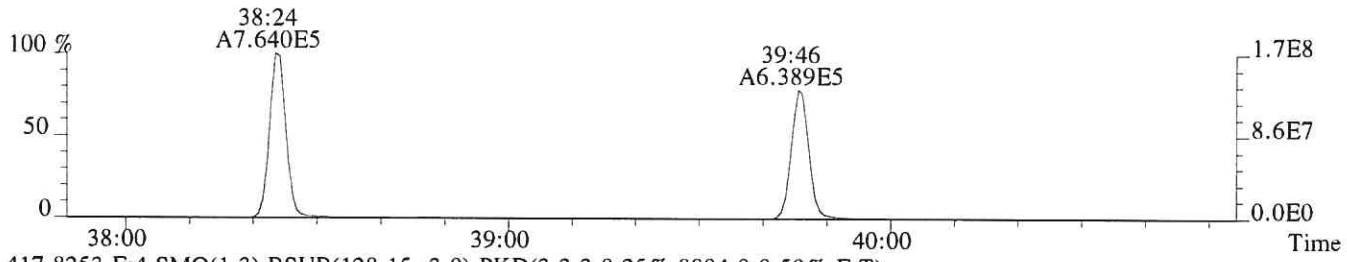
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



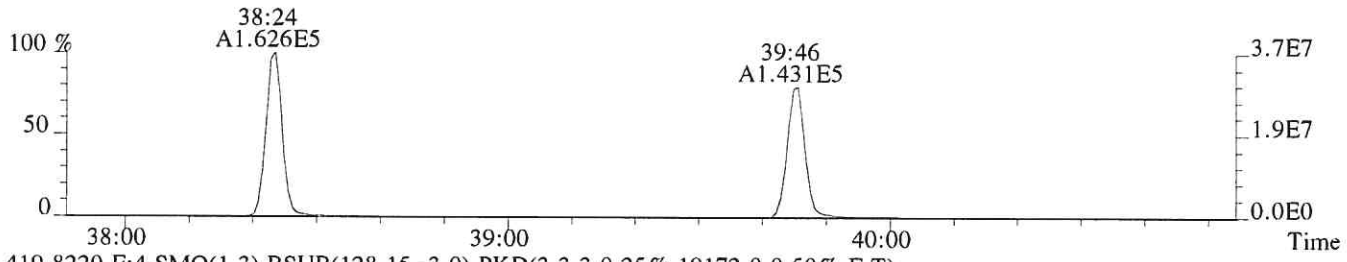
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



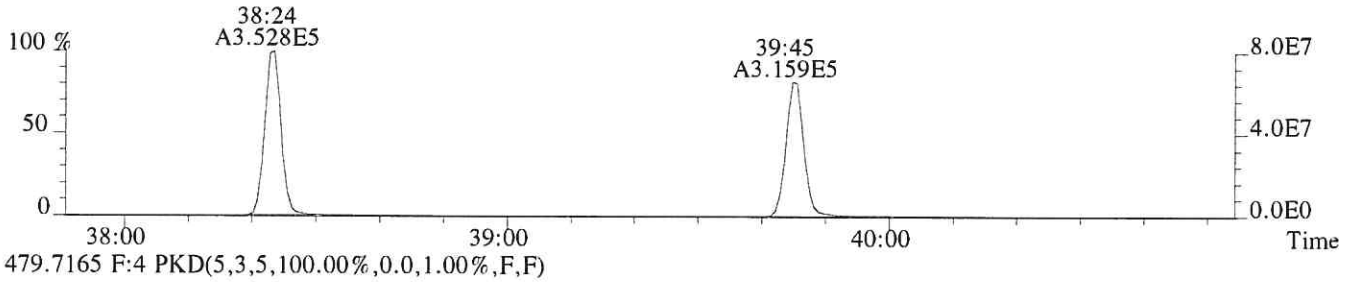
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



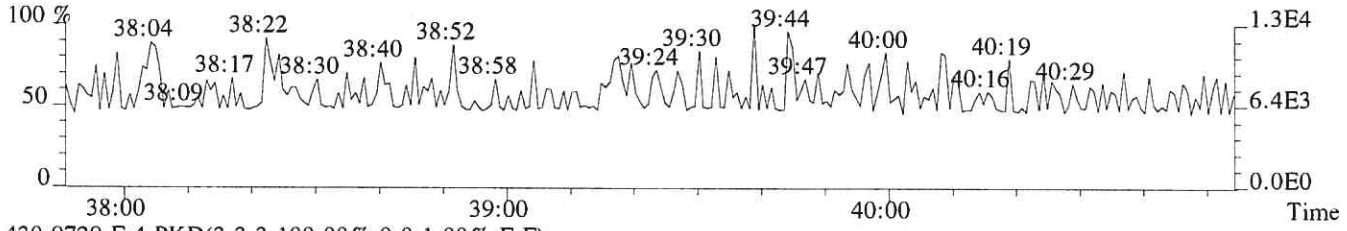
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



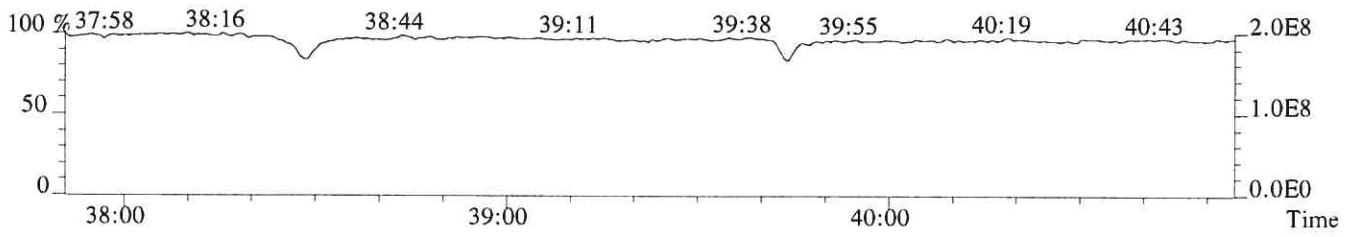
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



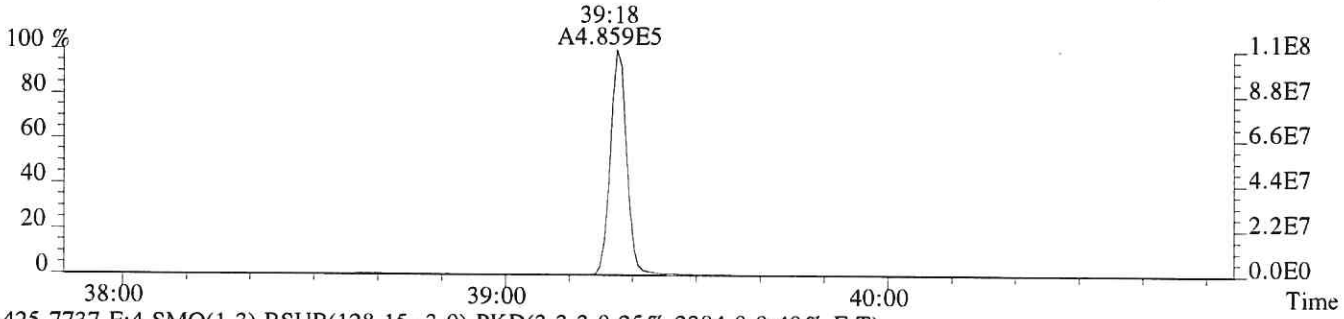
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



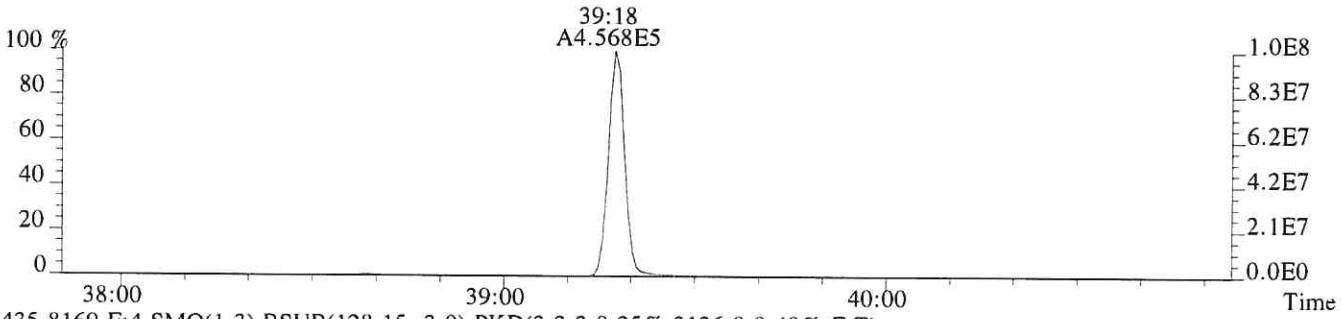
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



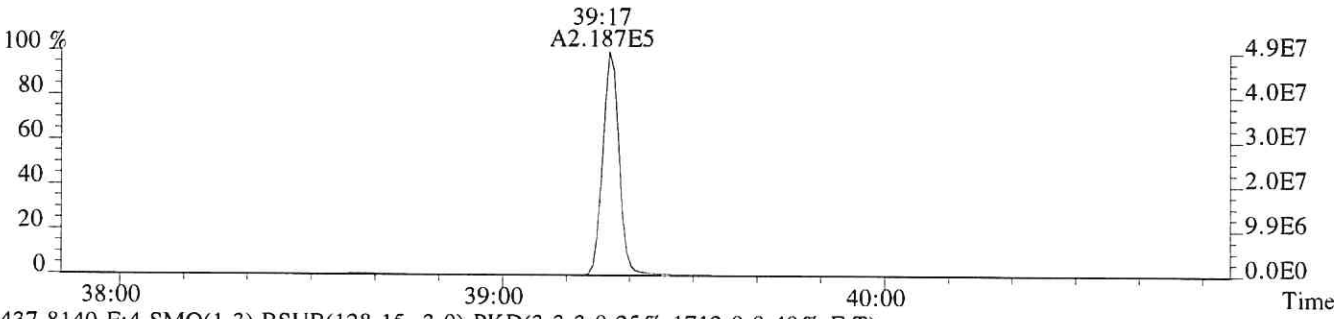
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



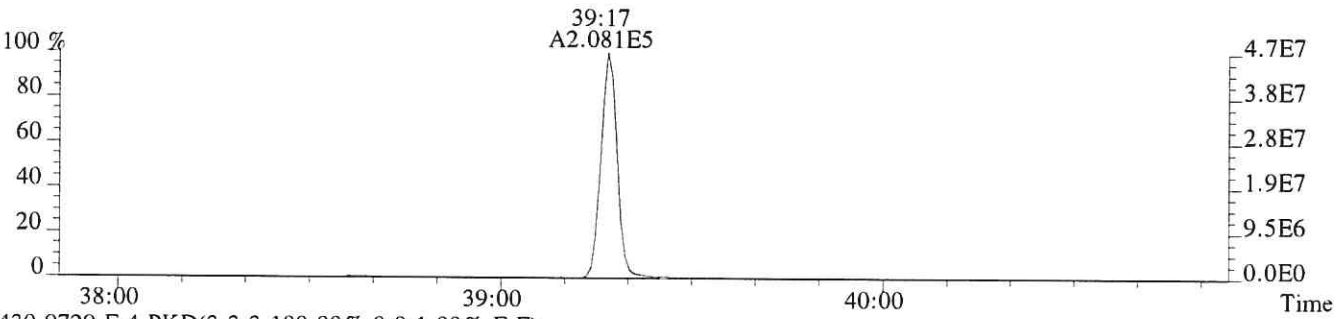
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



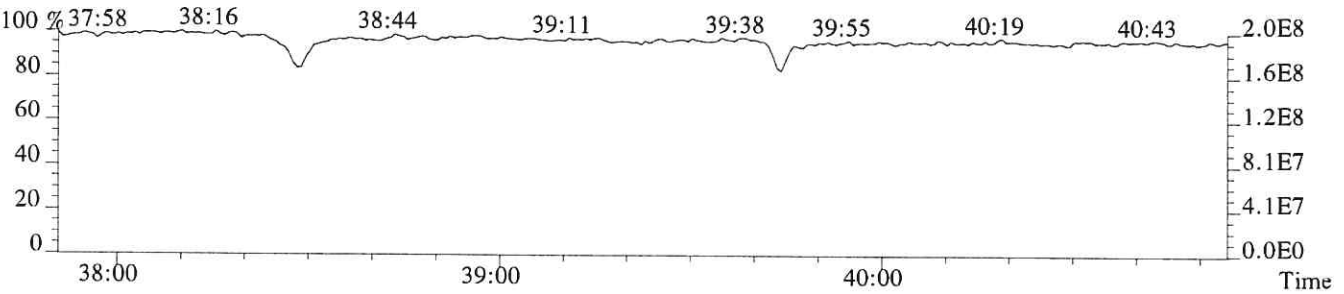
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



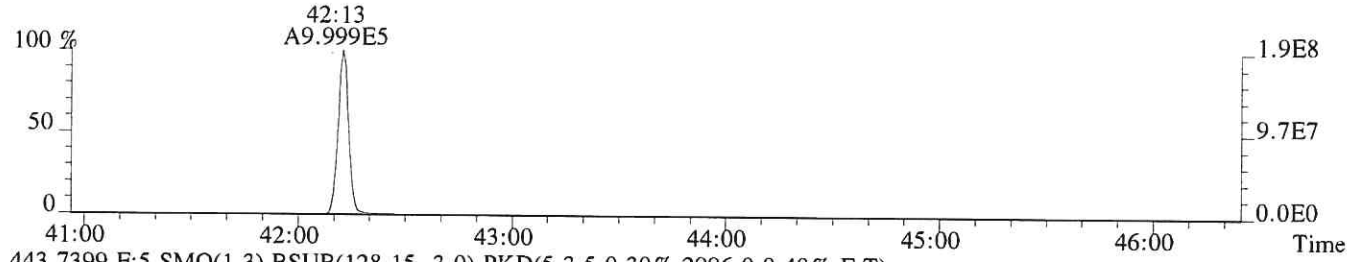
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



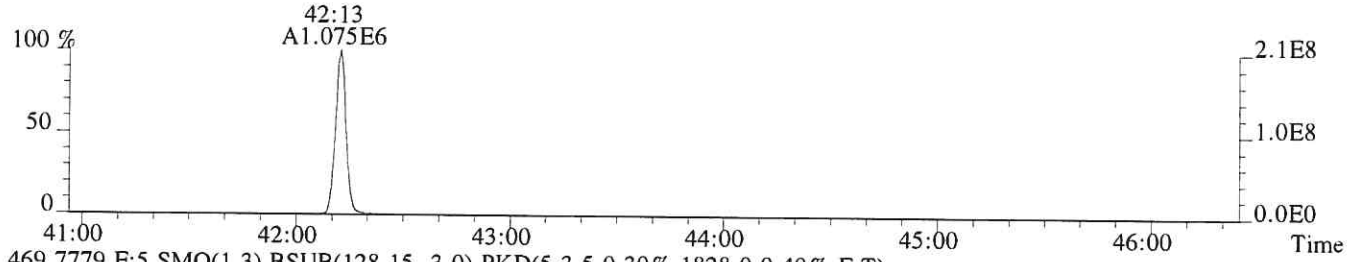
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



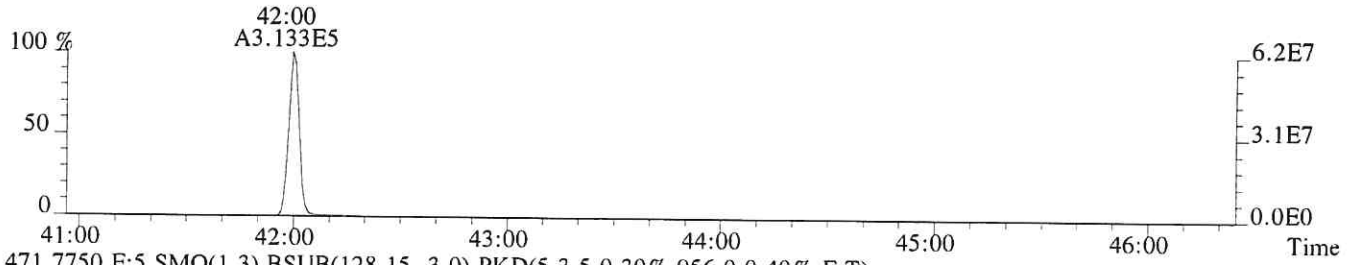
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



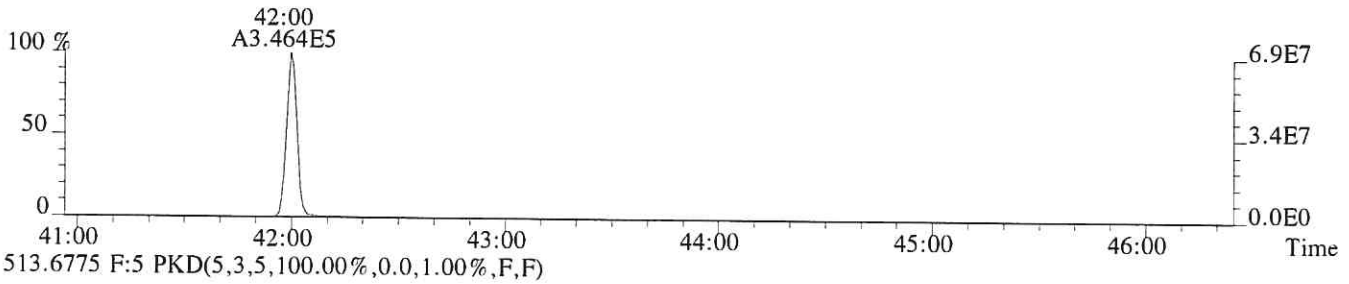
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



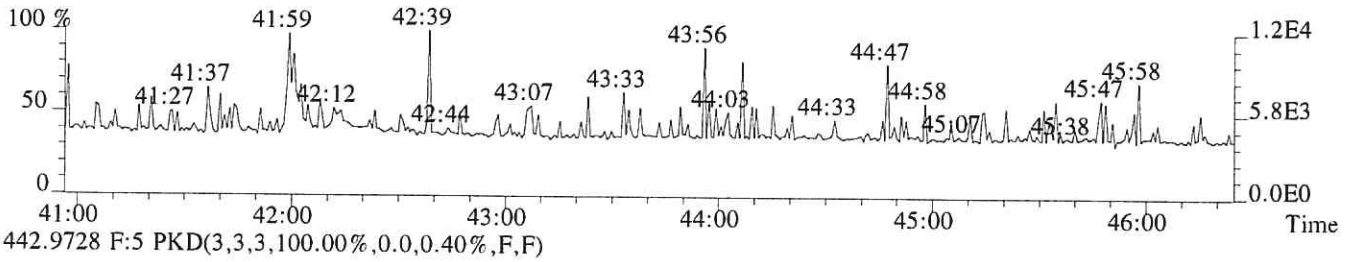
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



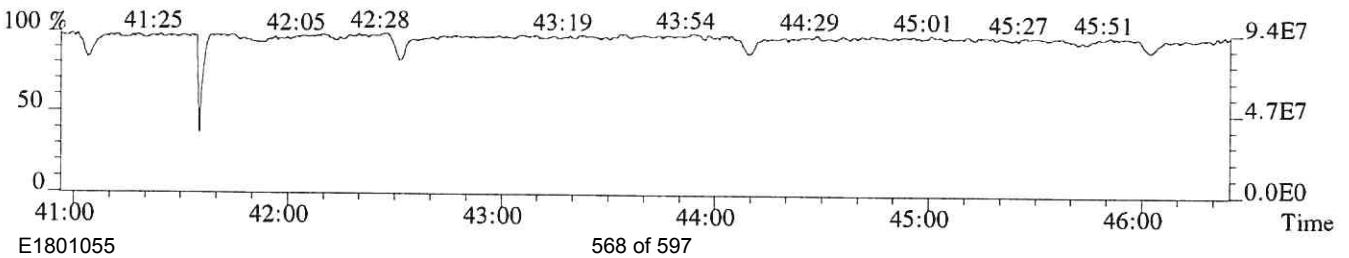
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



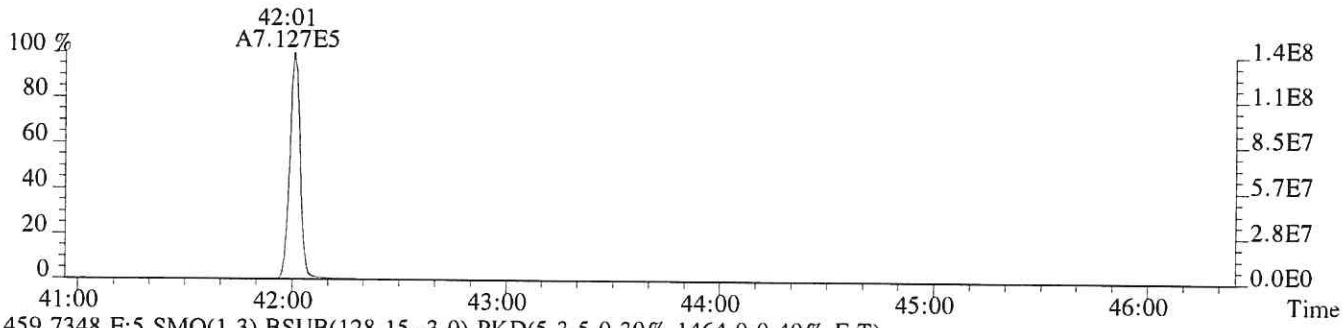
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



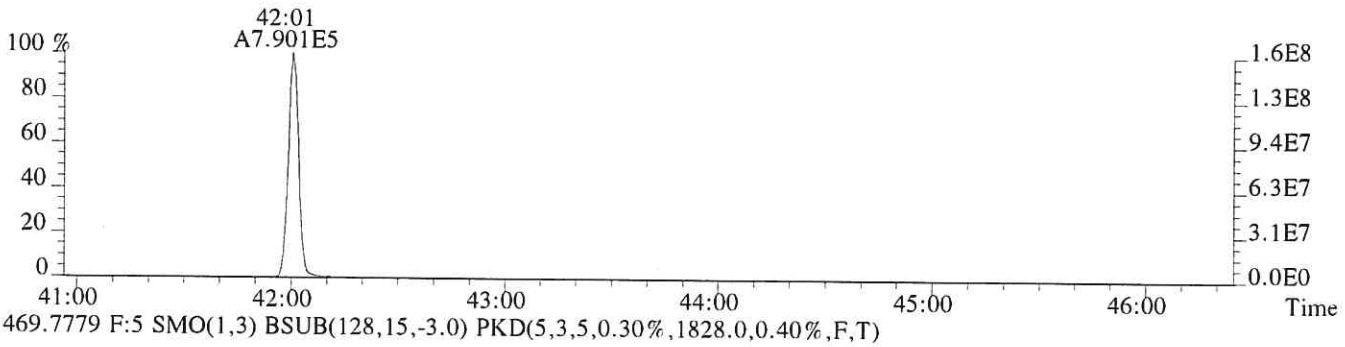
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



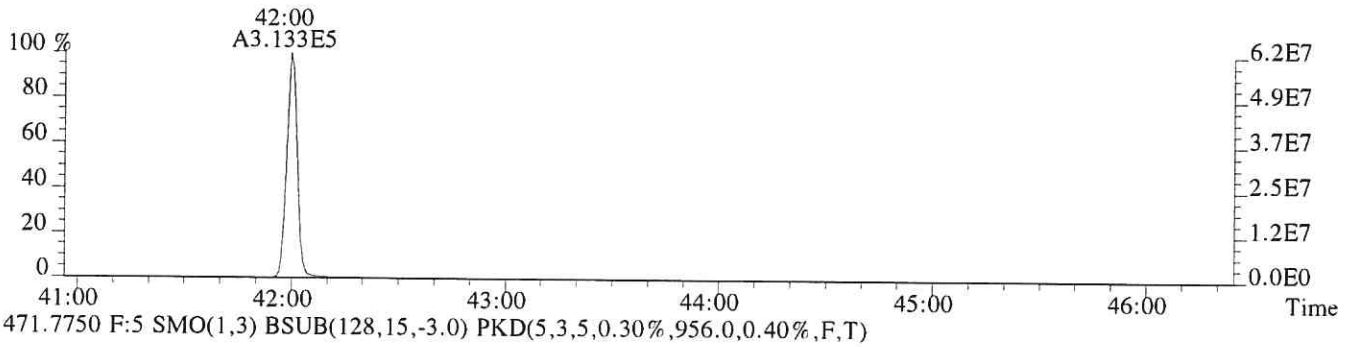
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



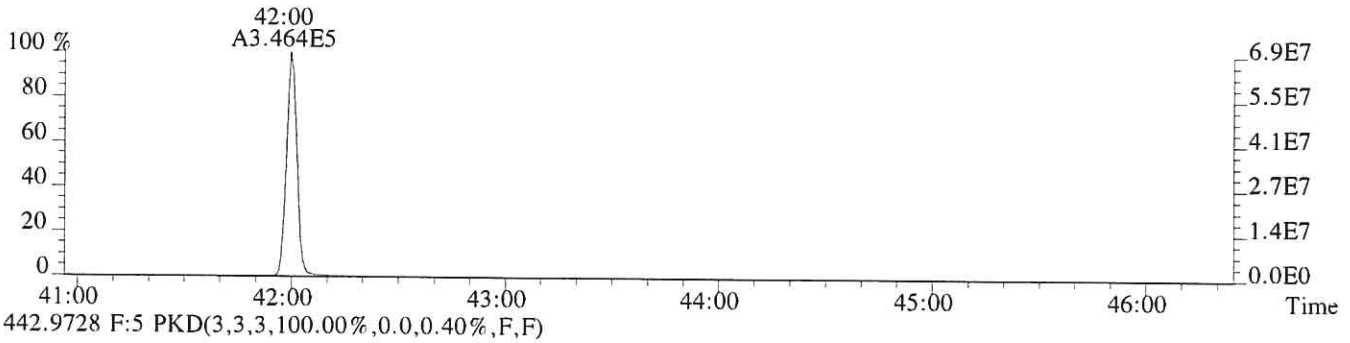
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



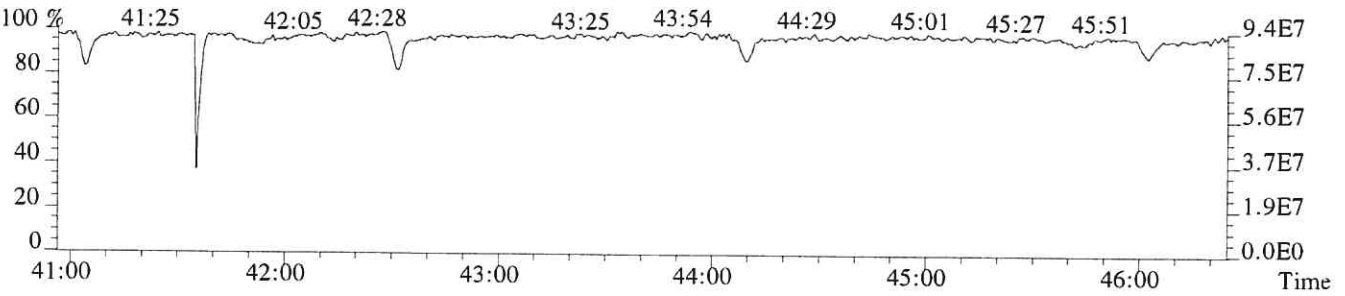
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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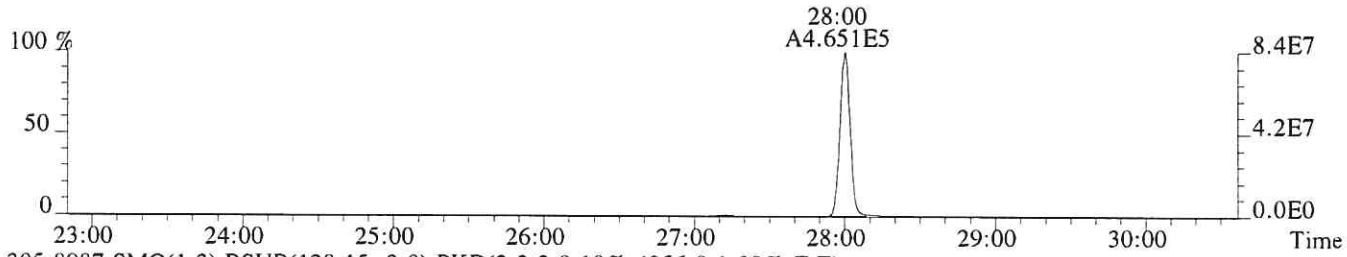
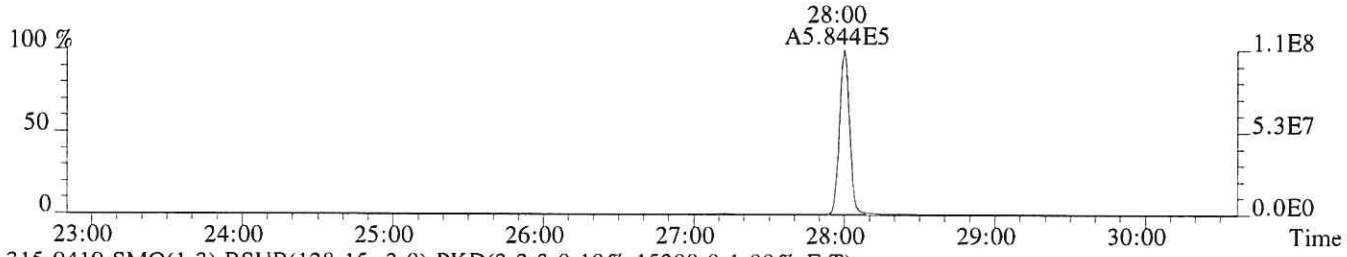
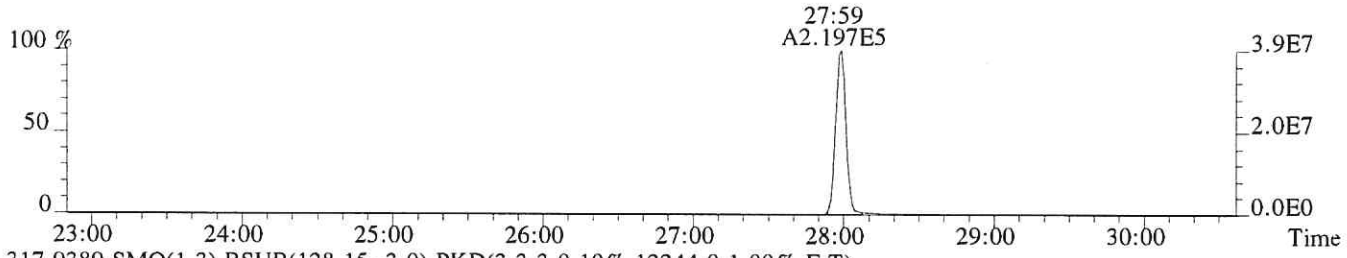
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



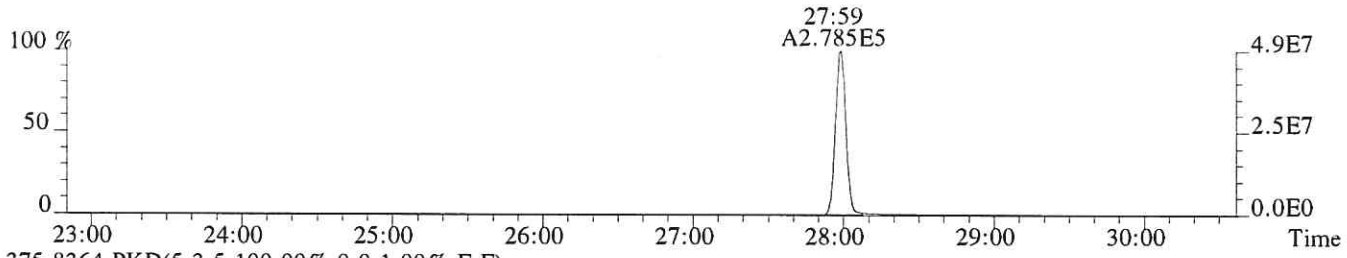
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



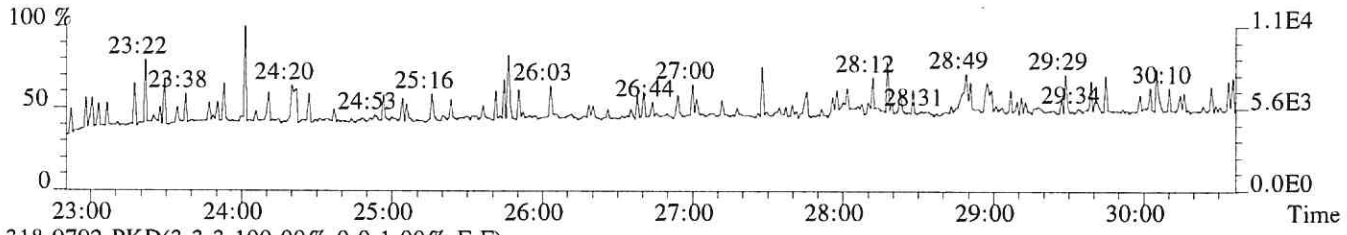
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



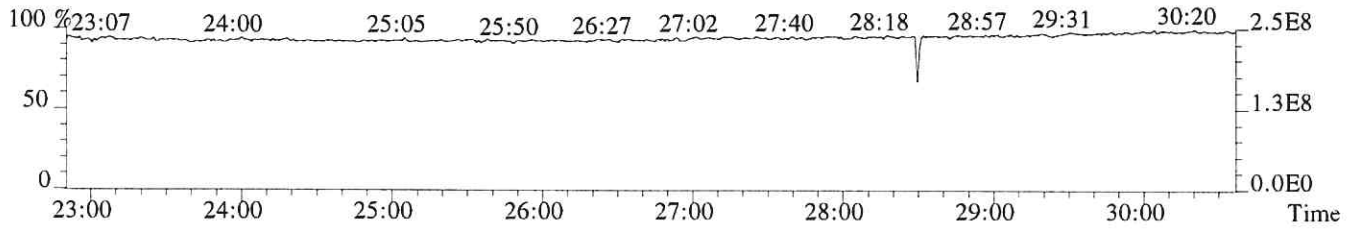
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



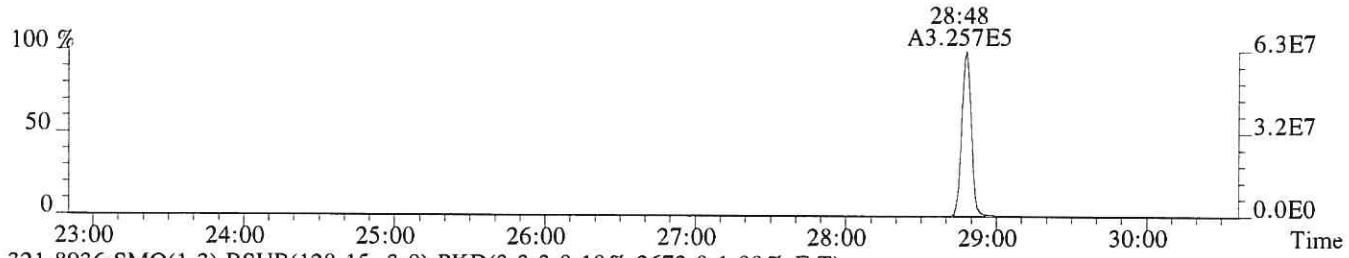
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



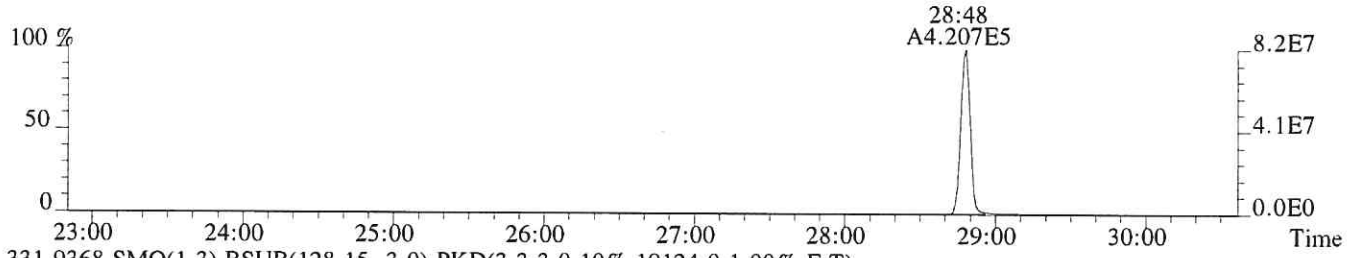
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



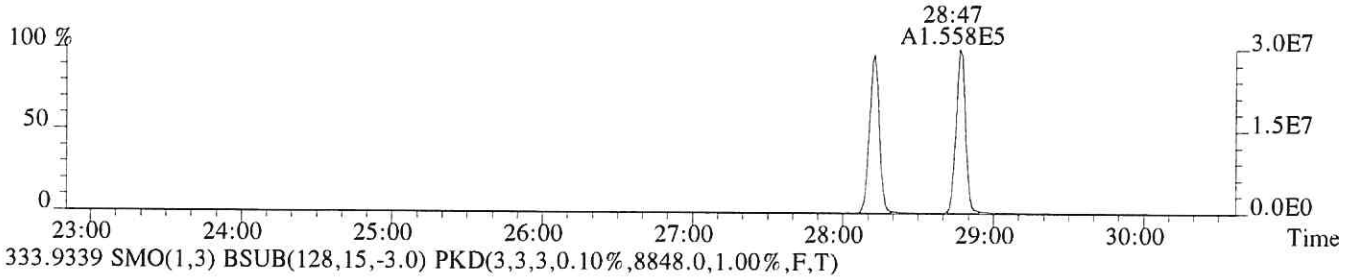
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



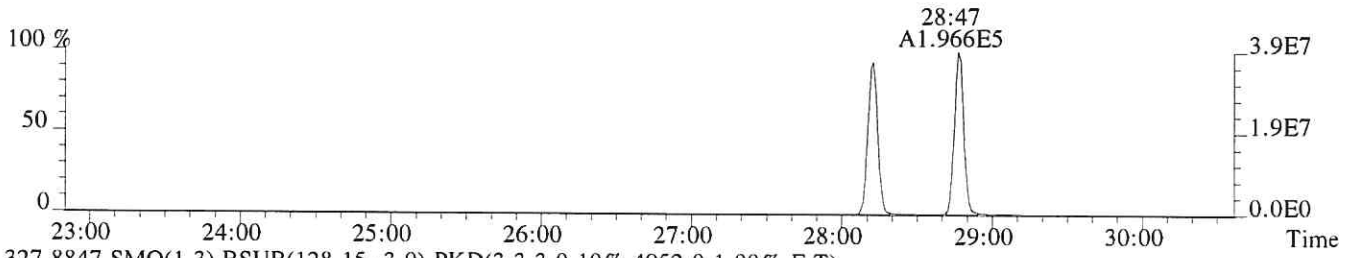
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



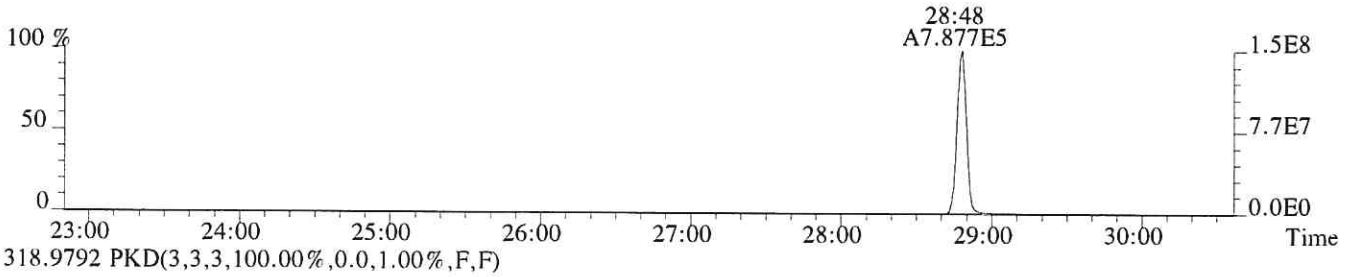
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



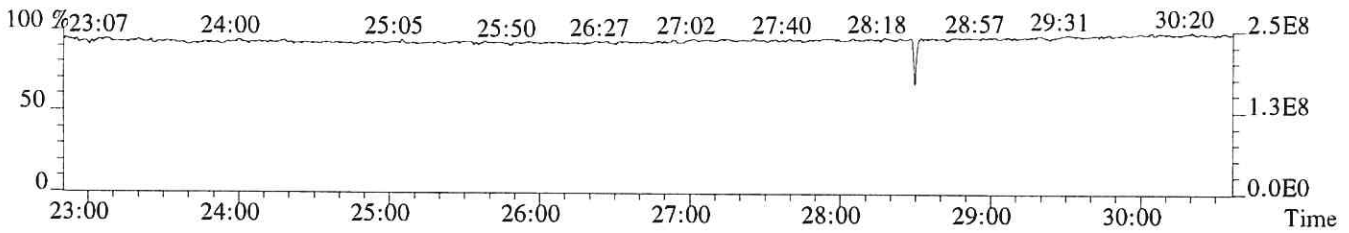
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



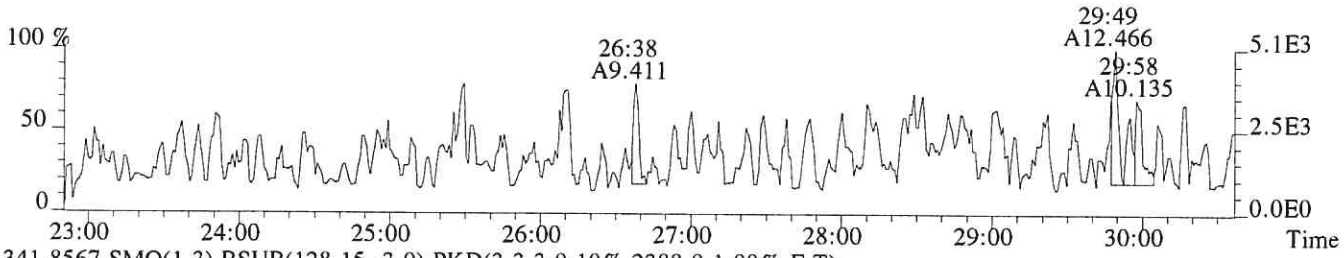
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)



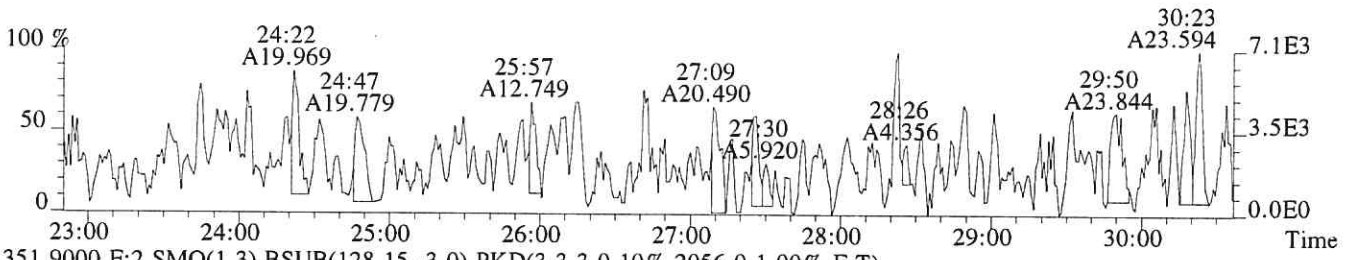
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



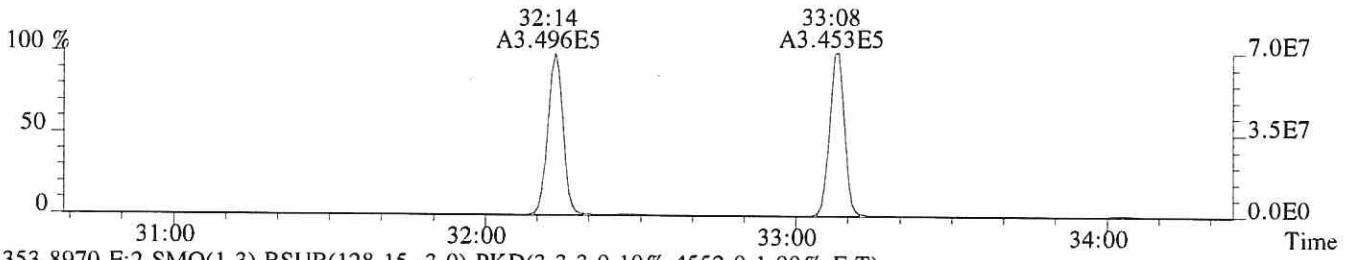
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



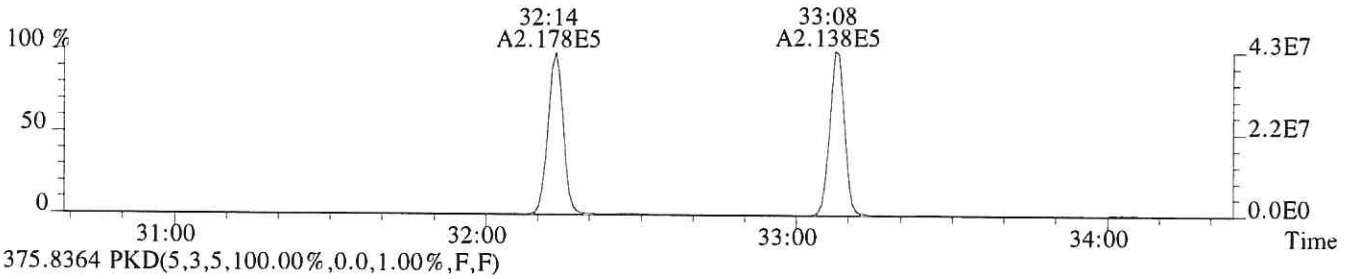
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



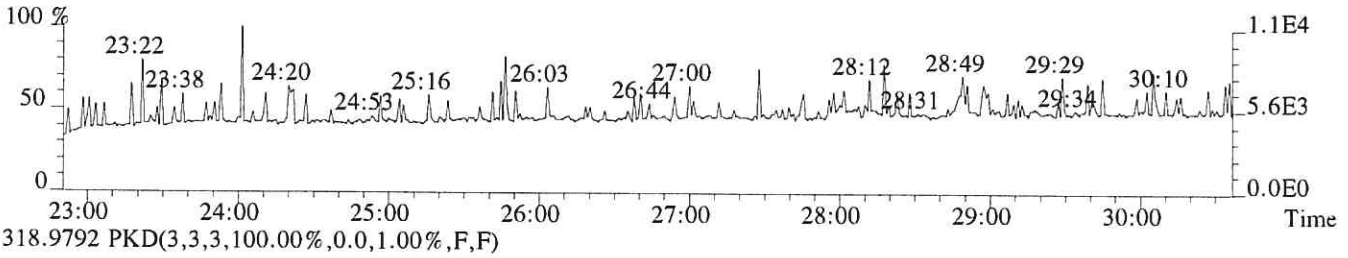
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



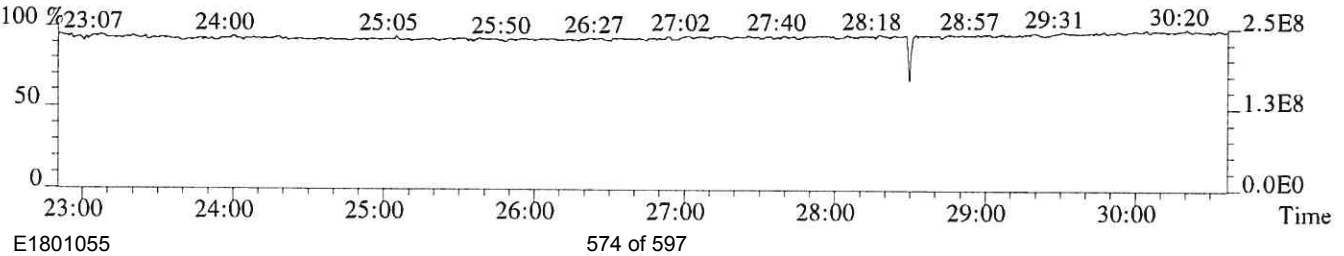
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



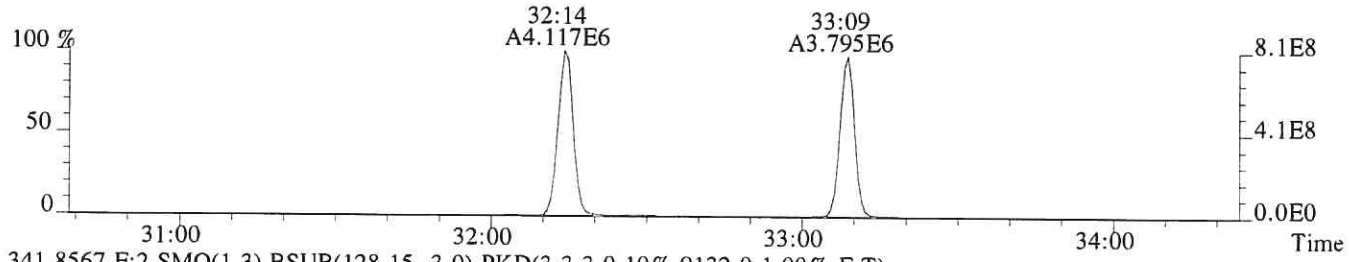
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



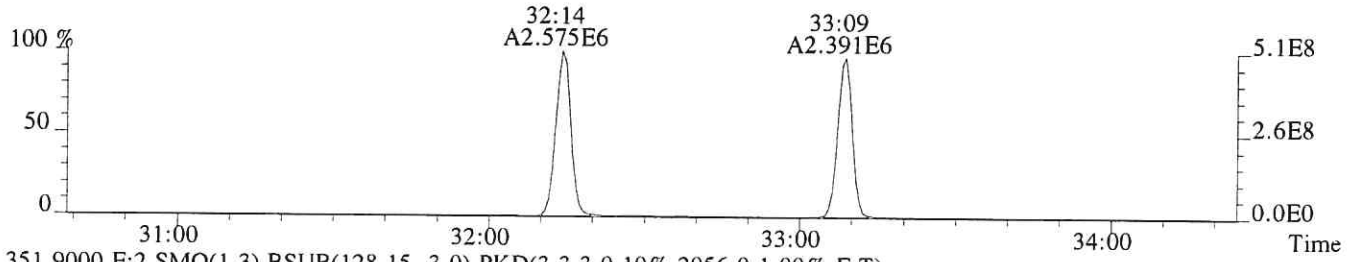
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



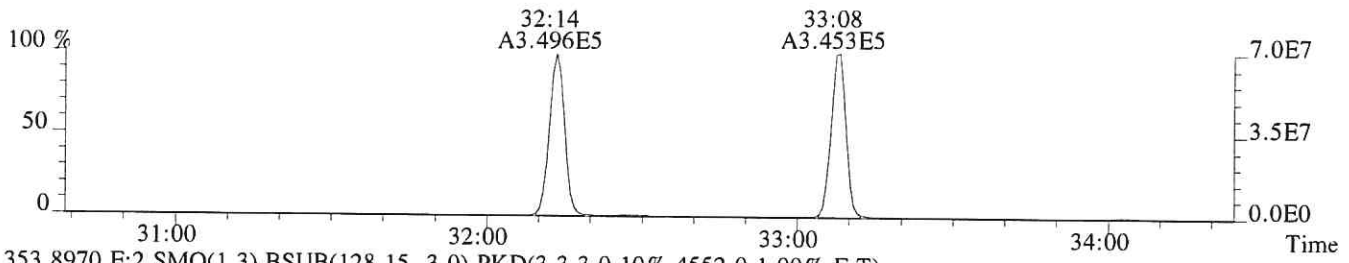
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



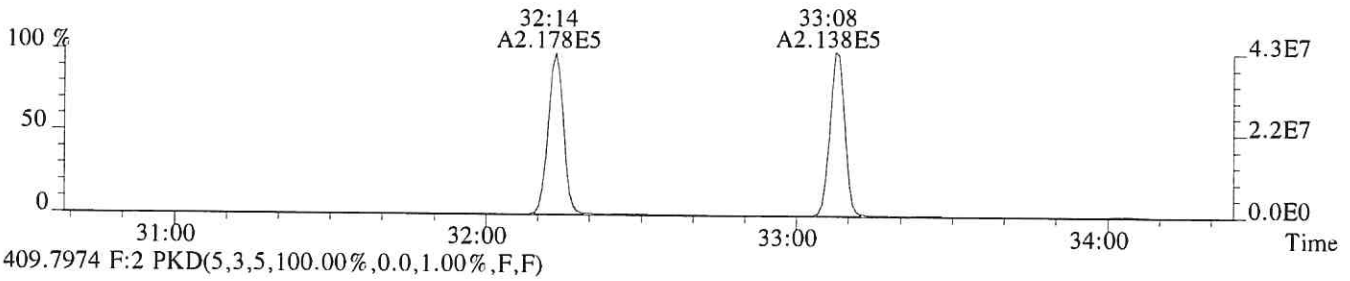
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



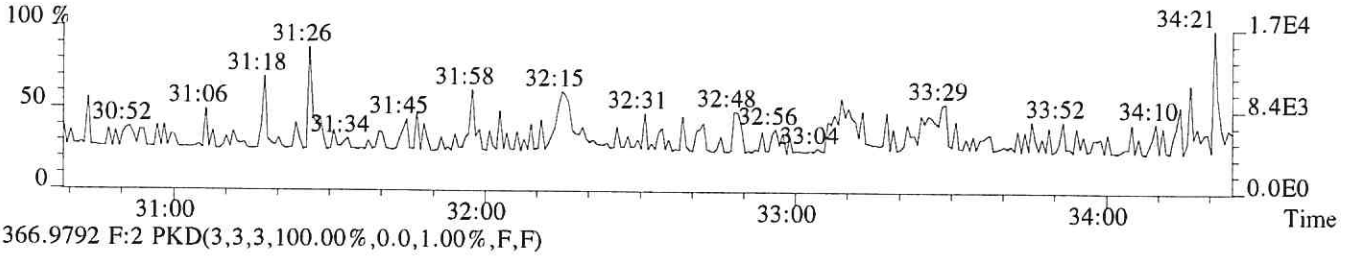
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



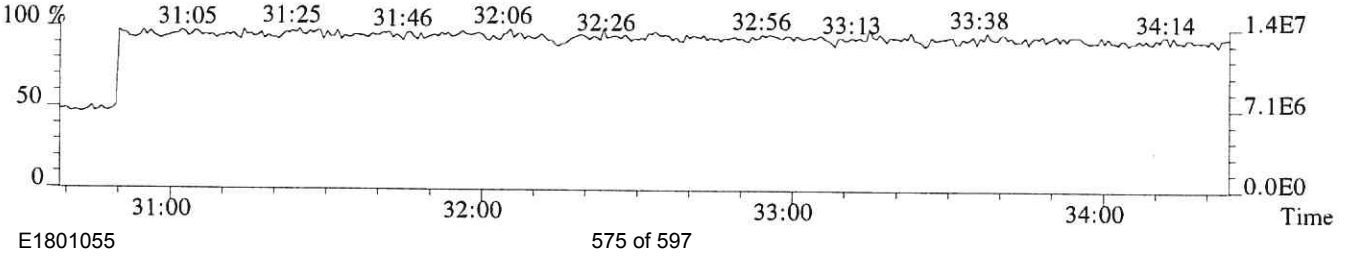
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



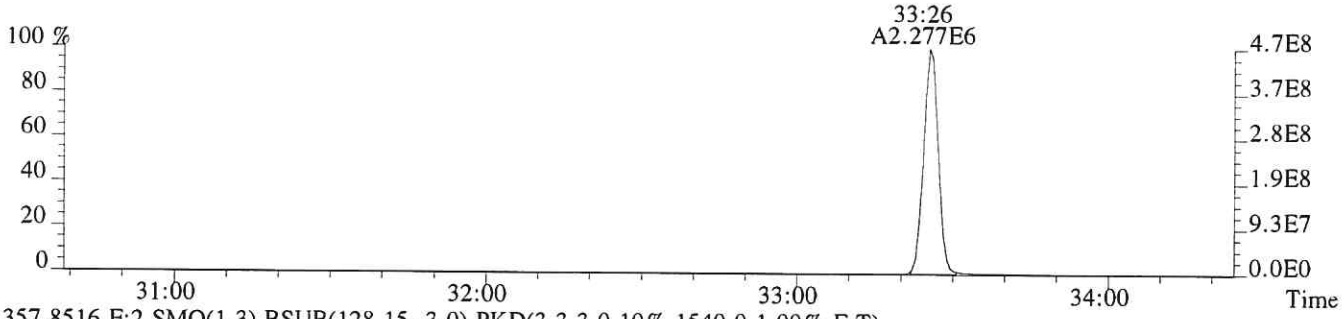
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



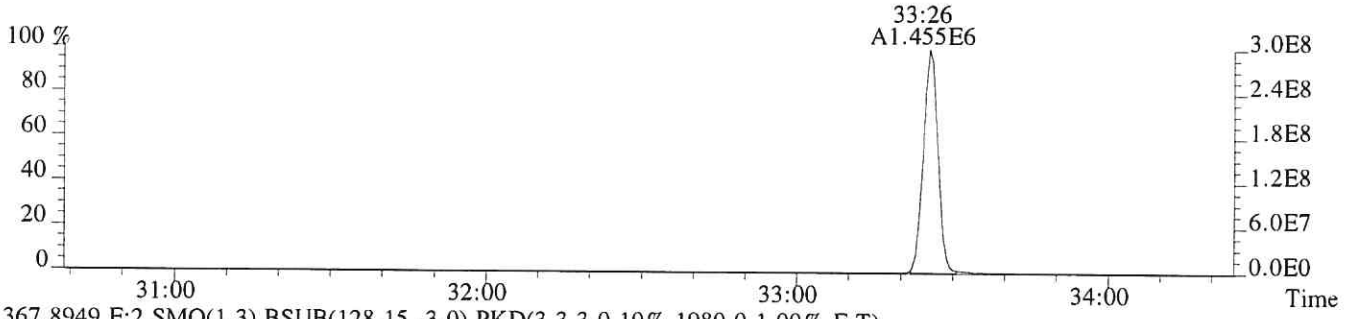
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



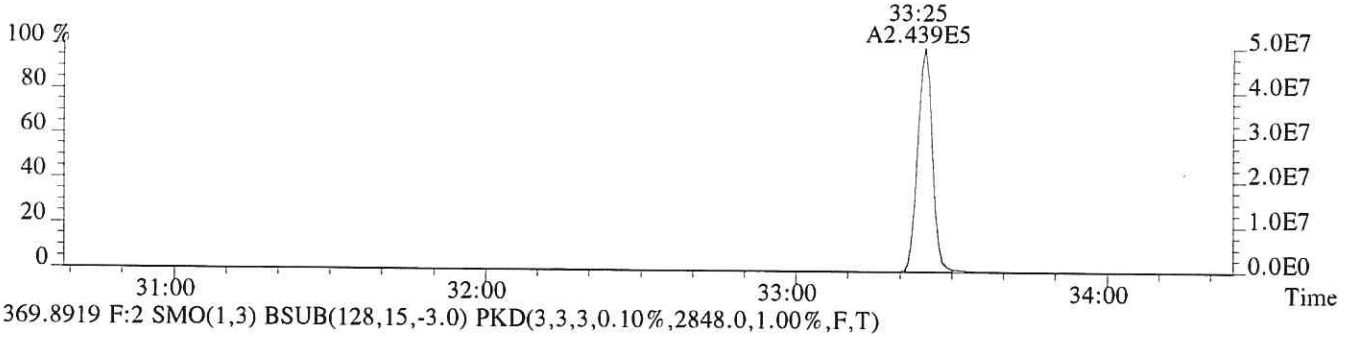
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



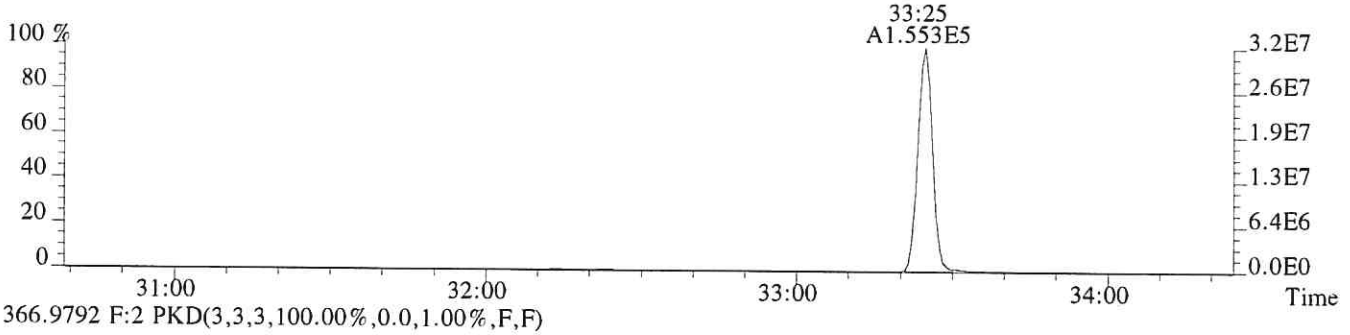
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



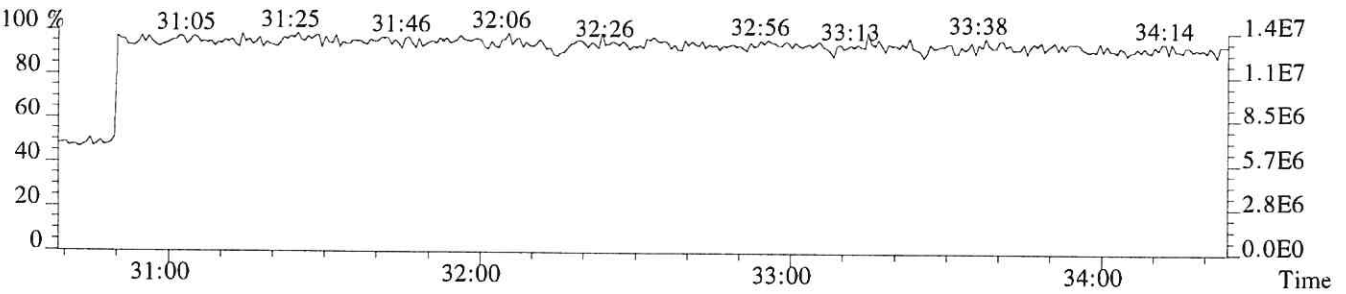
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



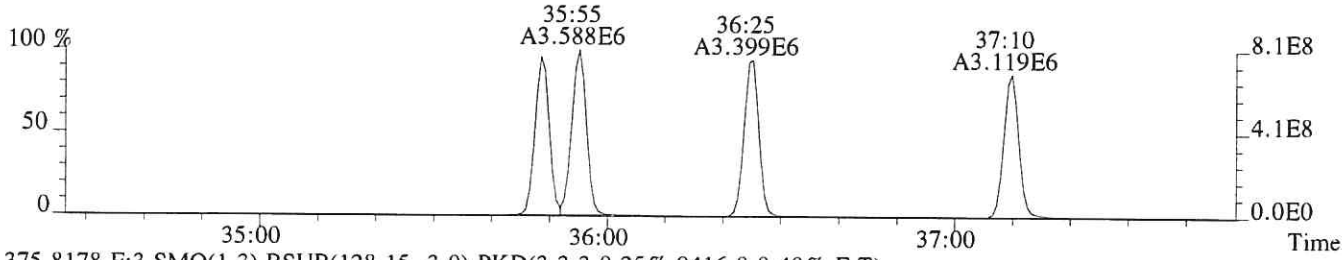
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



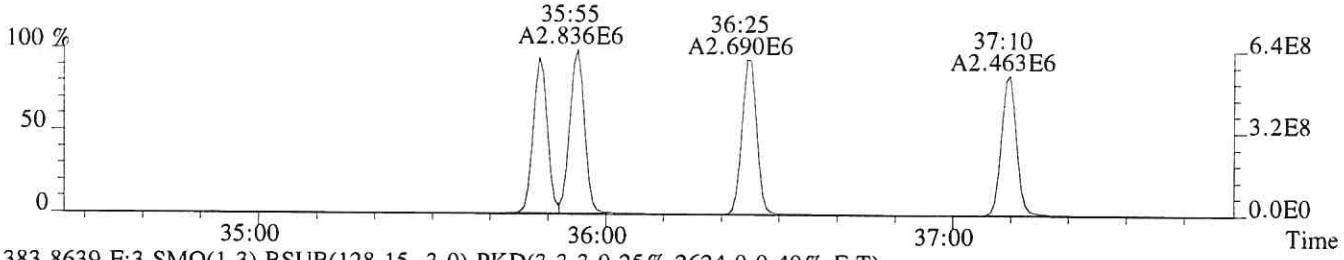
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



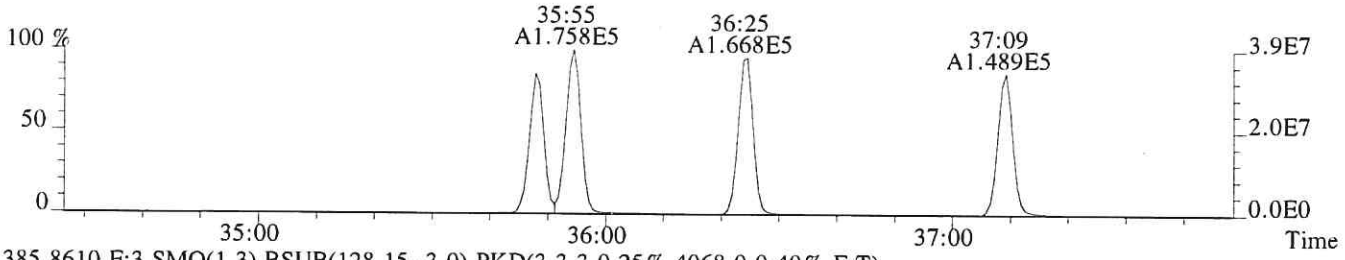
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



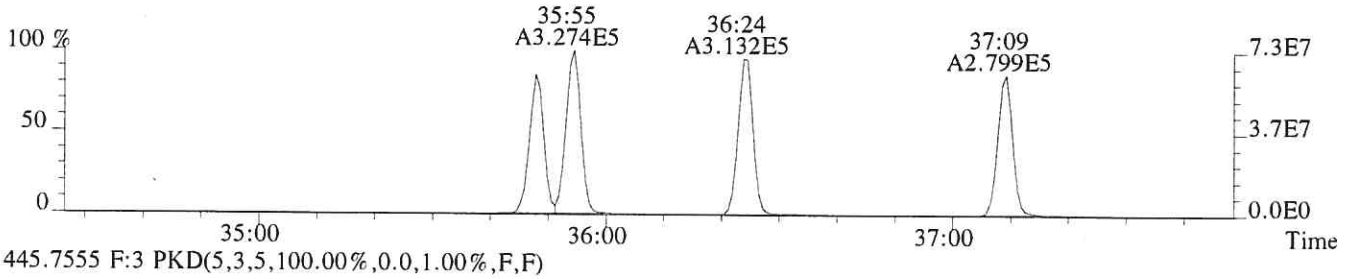
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



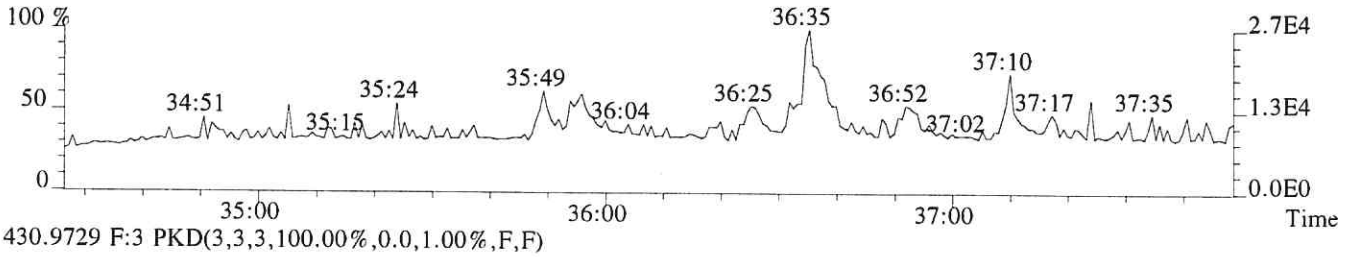
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



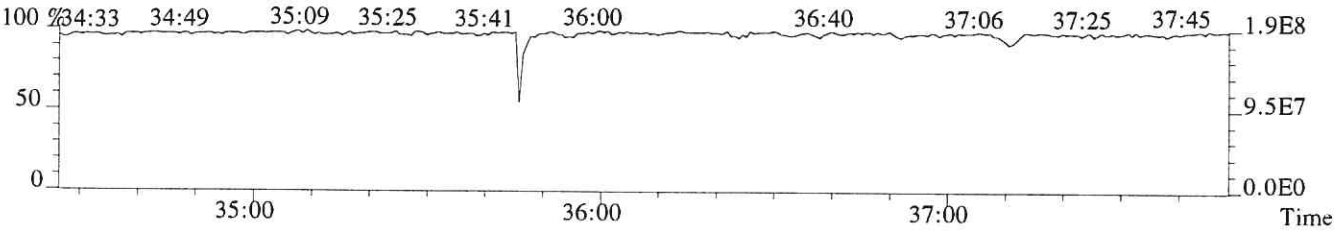
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



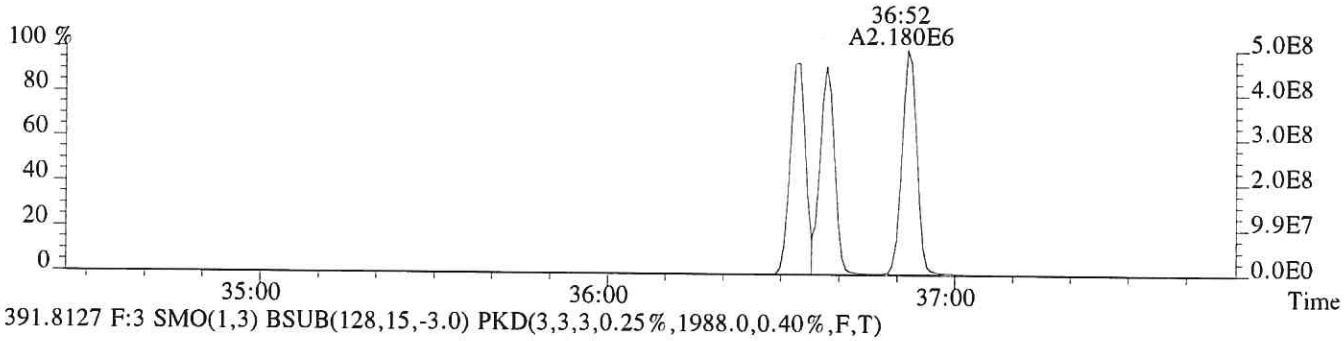
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



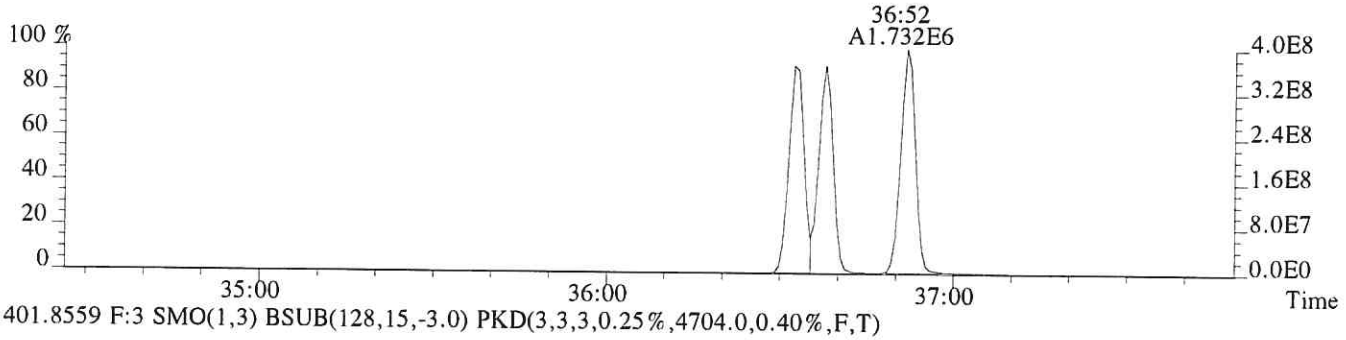
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



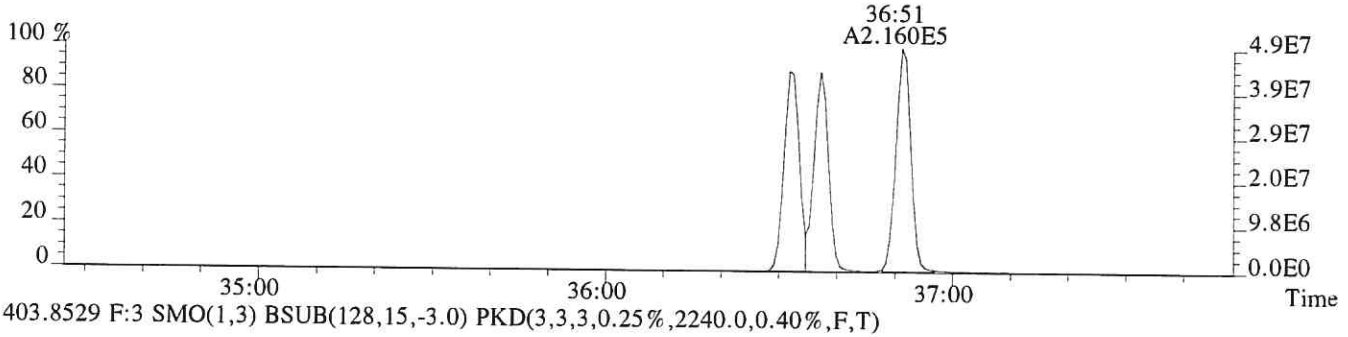
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



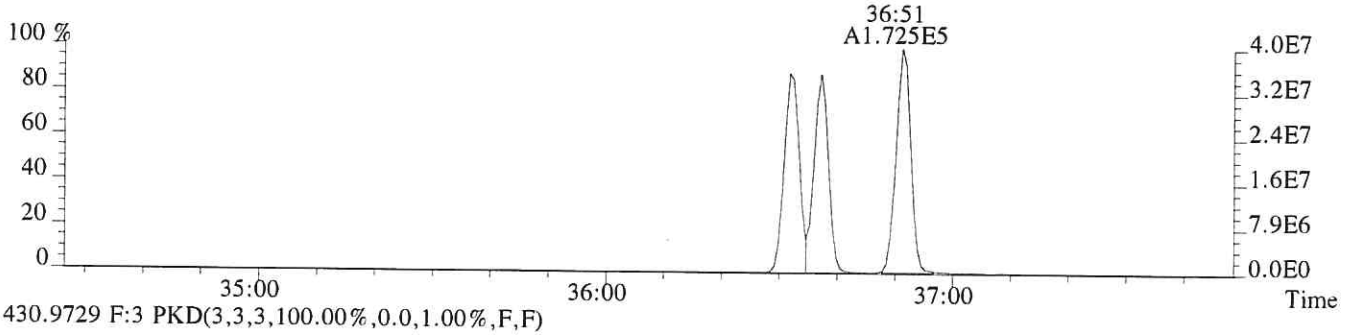
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



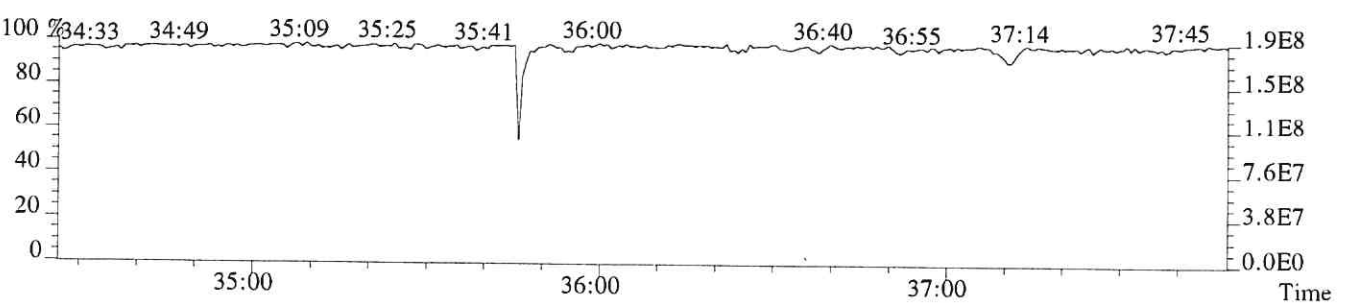
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



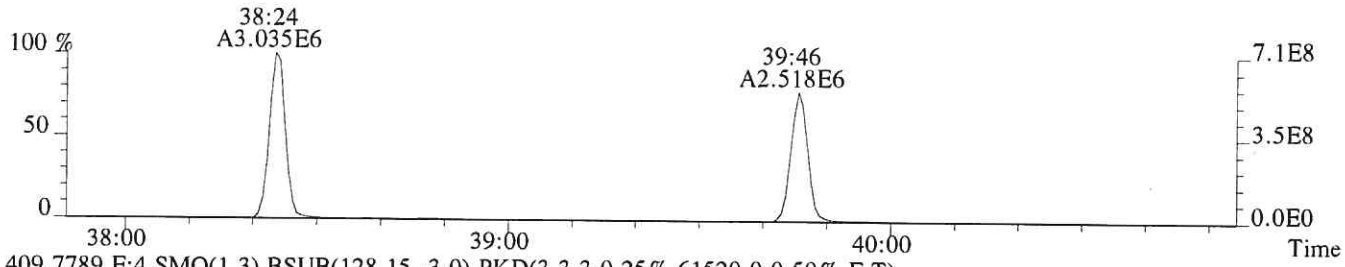
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)



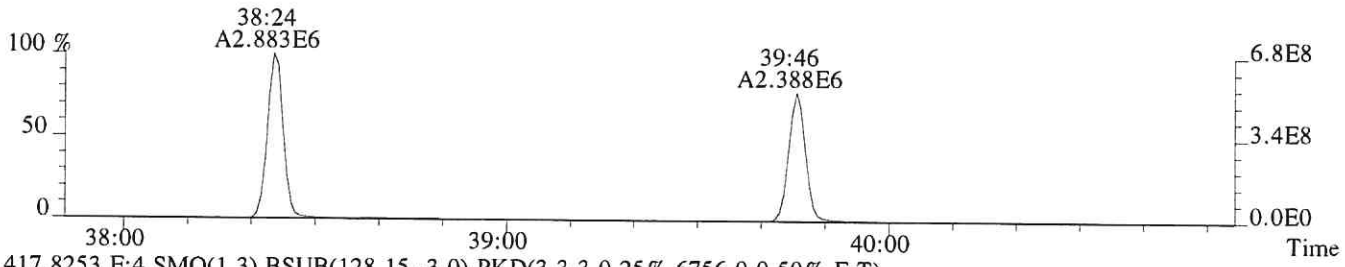
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



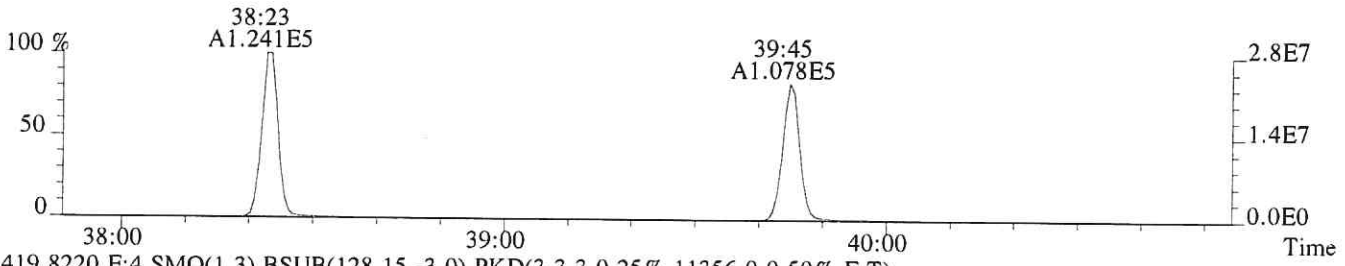
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



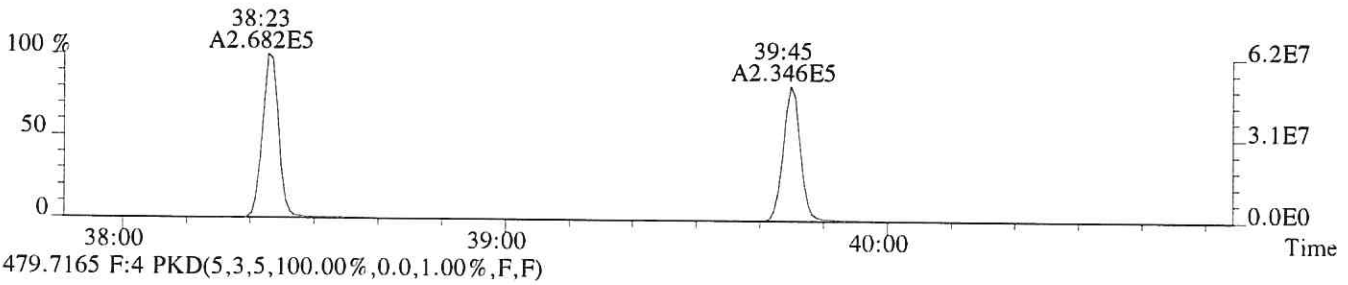
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



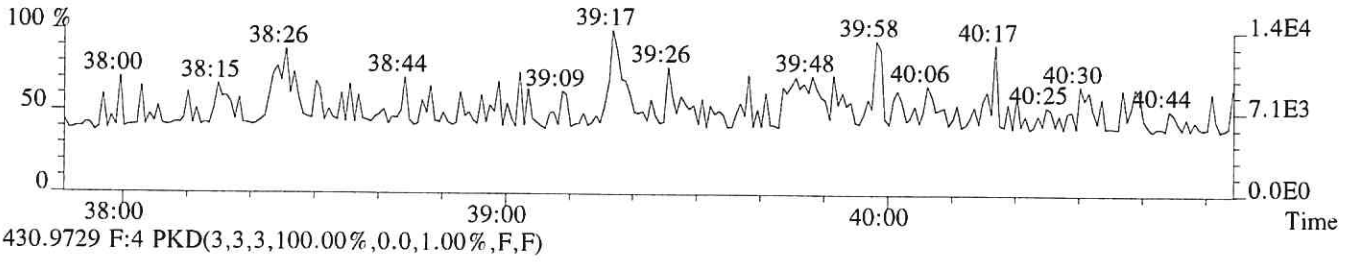
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



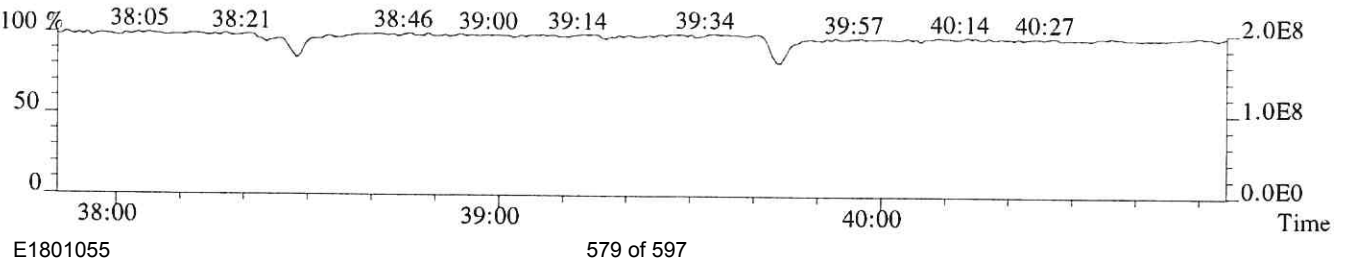
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



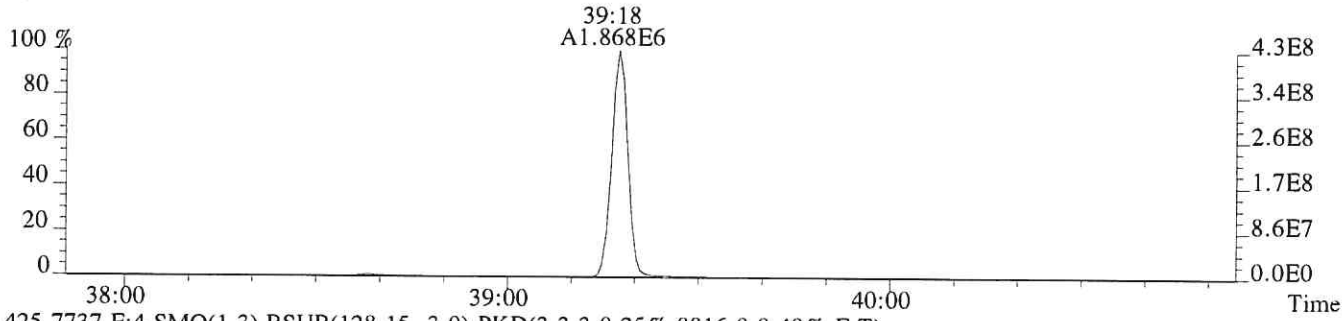
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



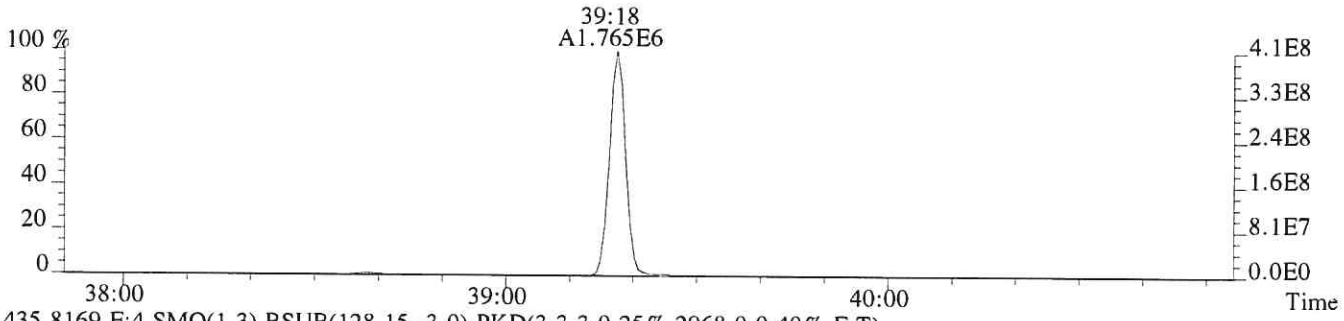
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



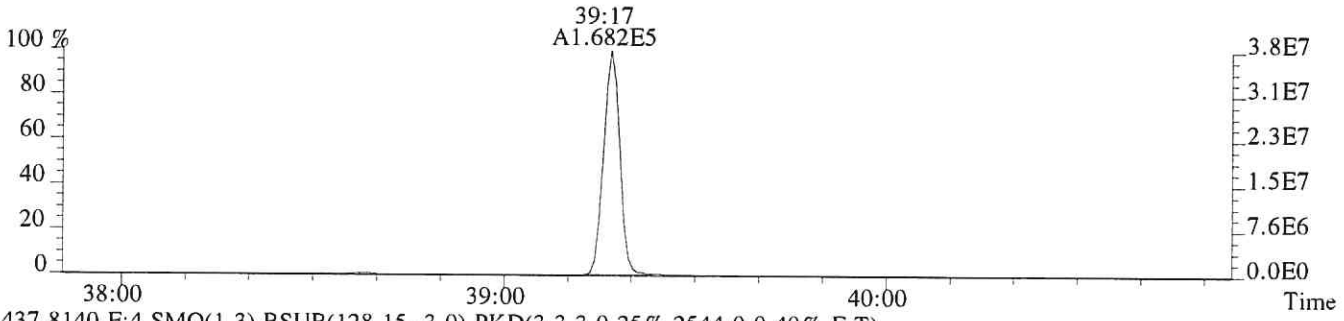
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



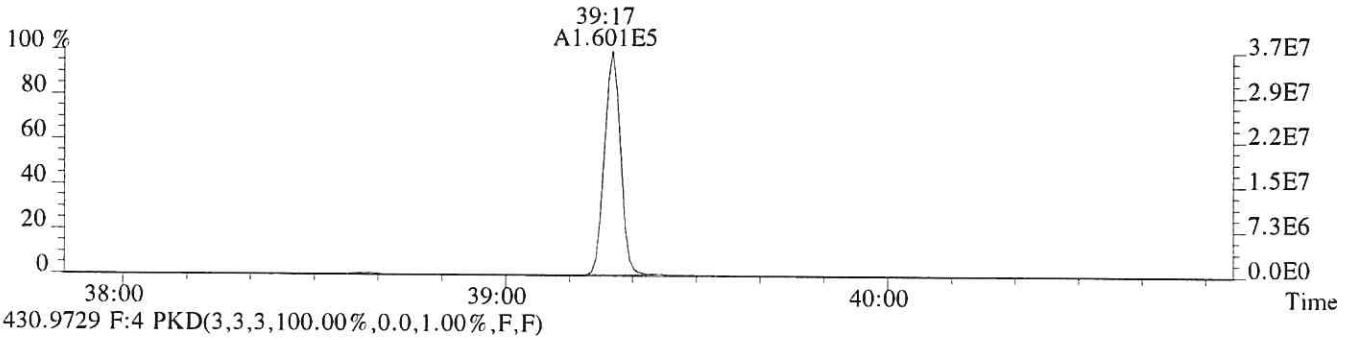
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



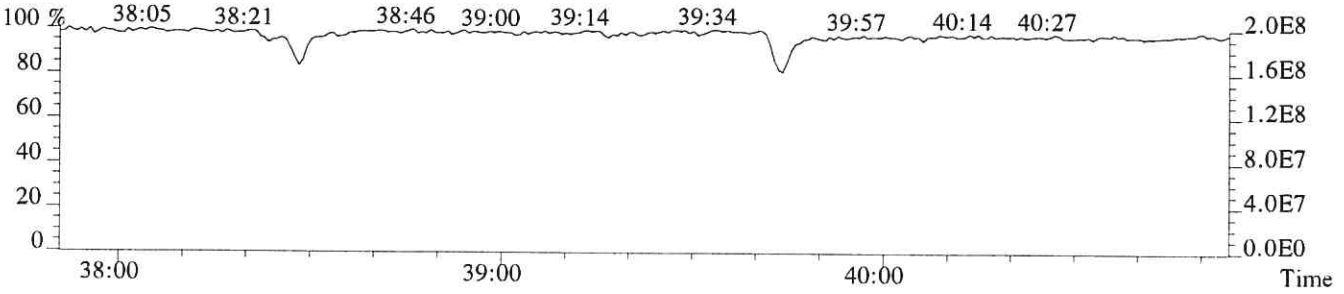
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



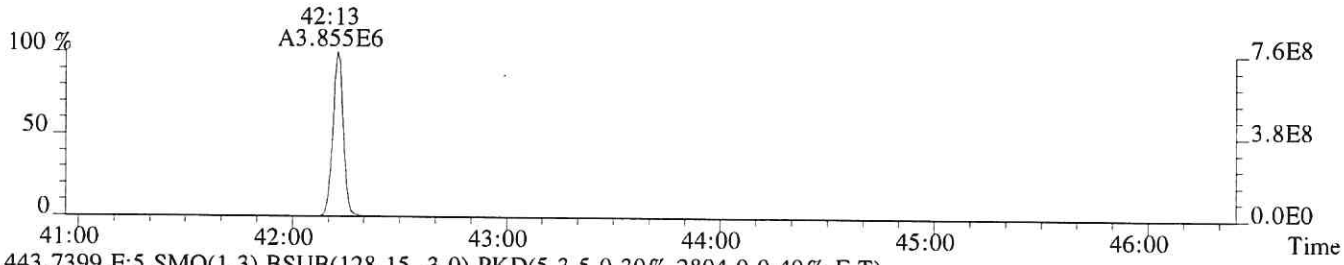
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



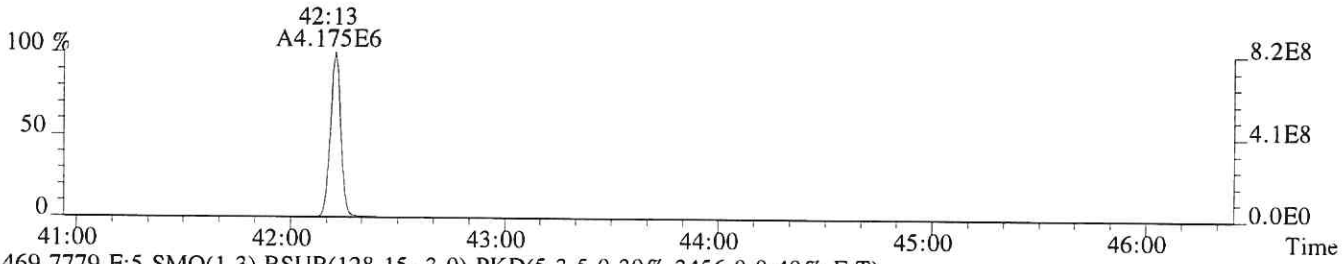
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



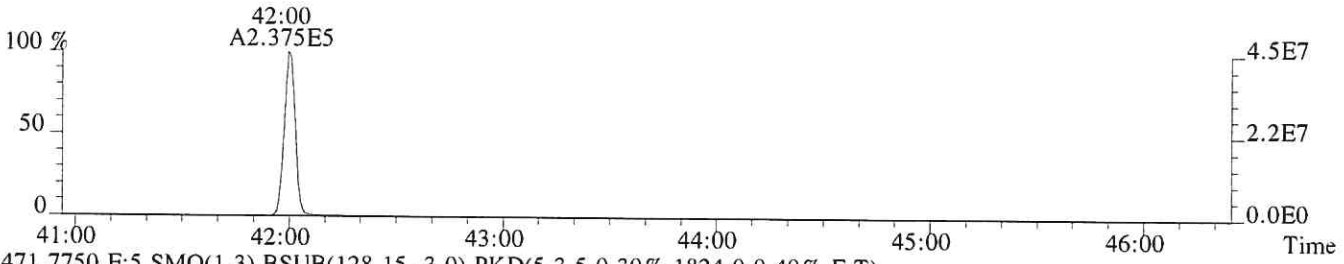
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



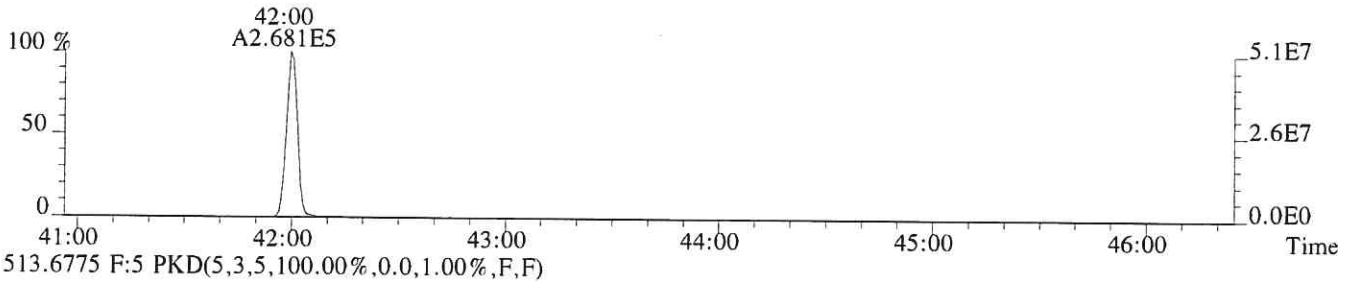
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



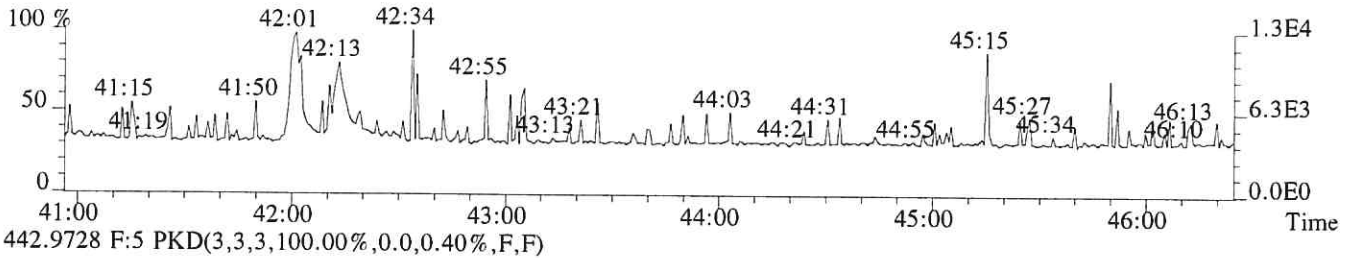
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



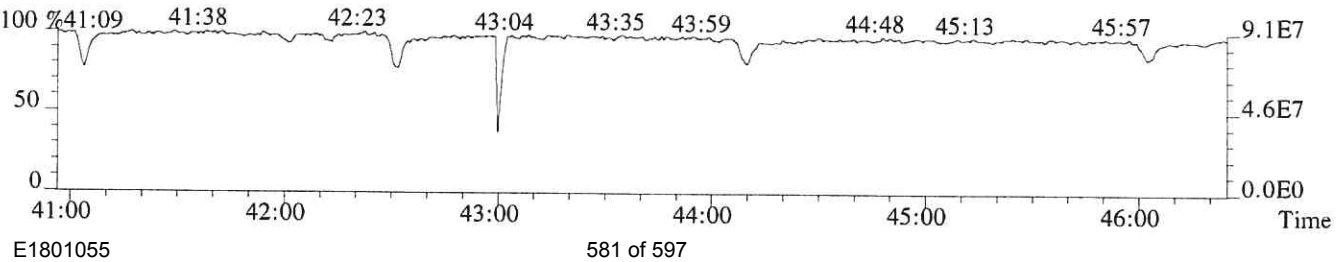
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



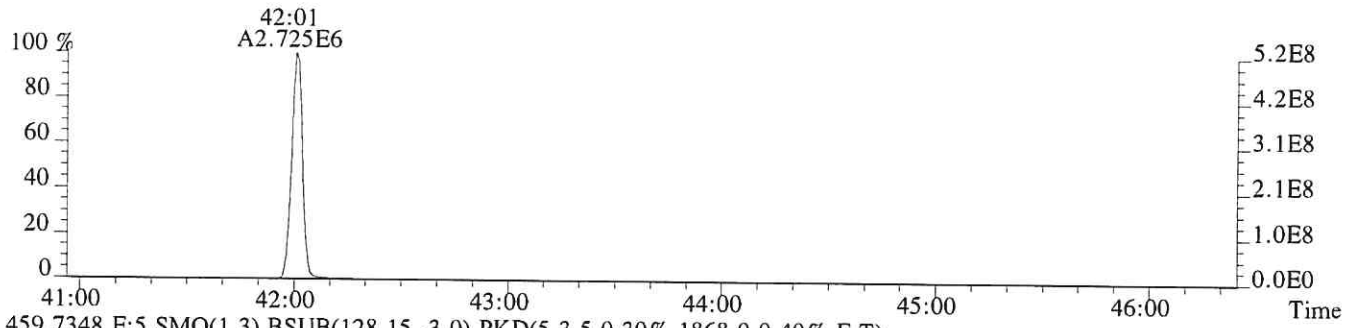
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



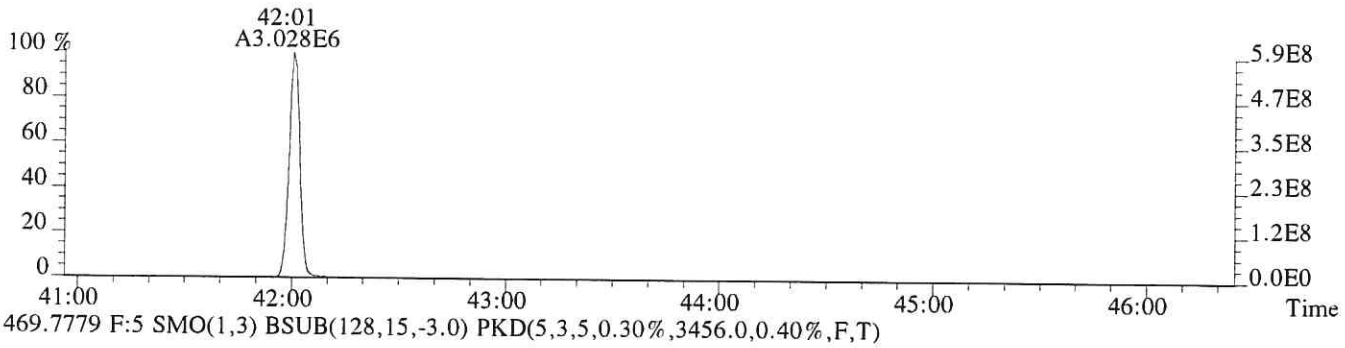
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



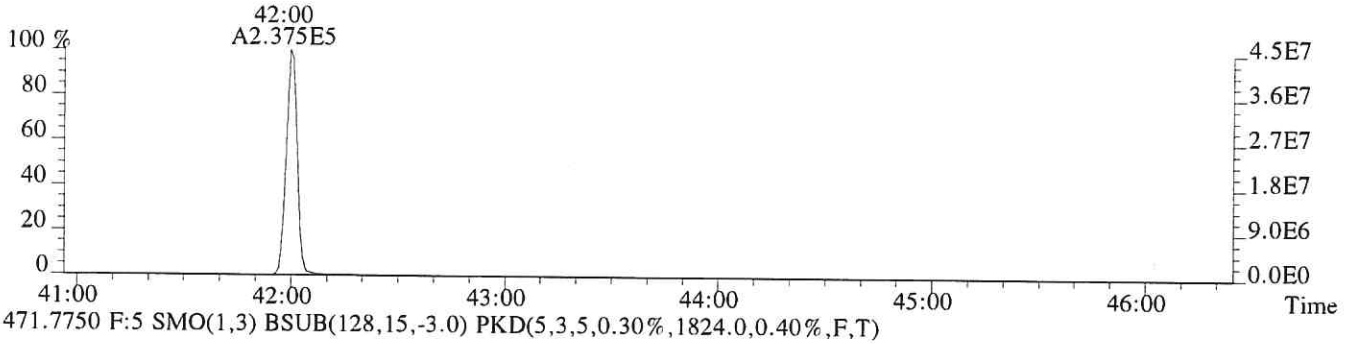
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



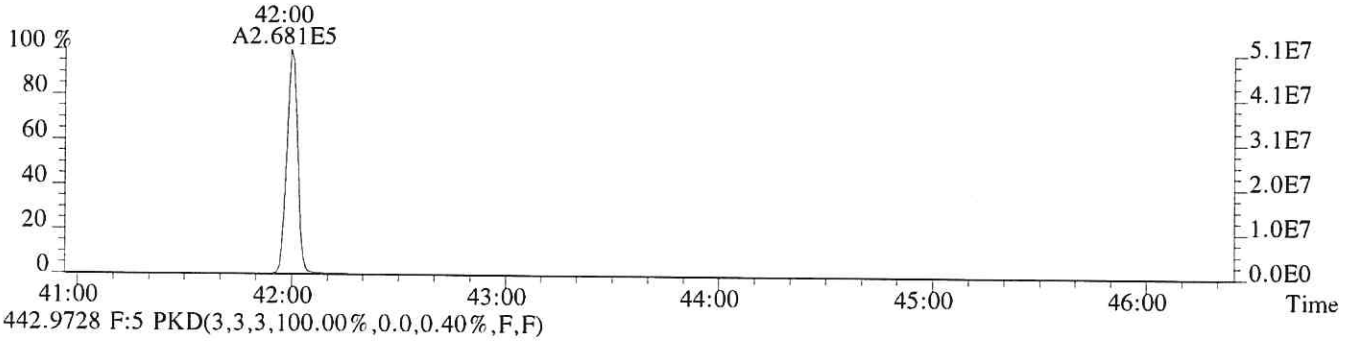
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



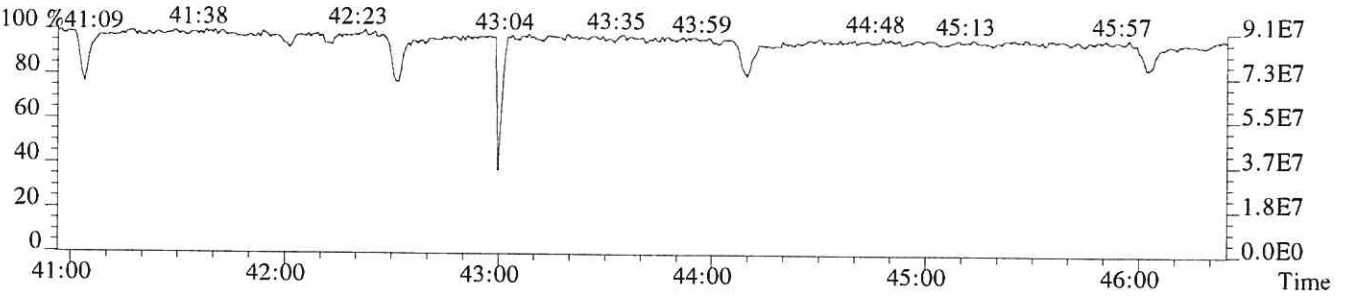
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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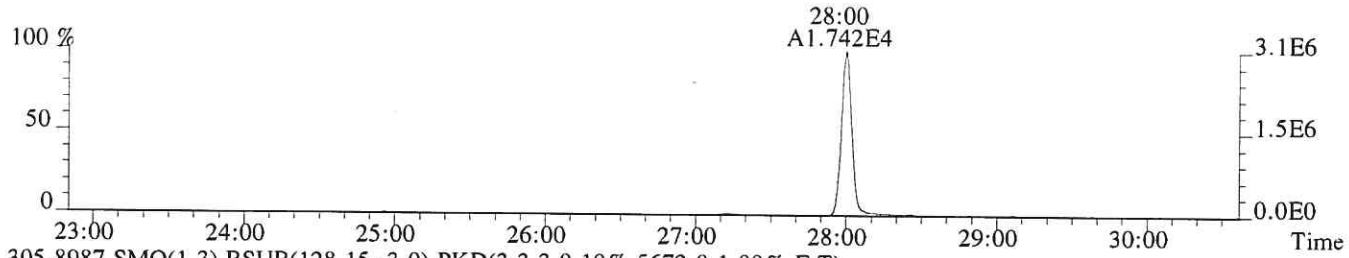
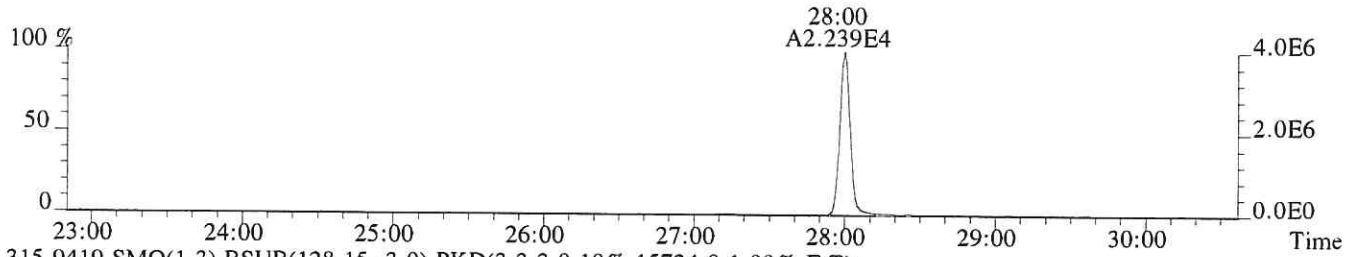
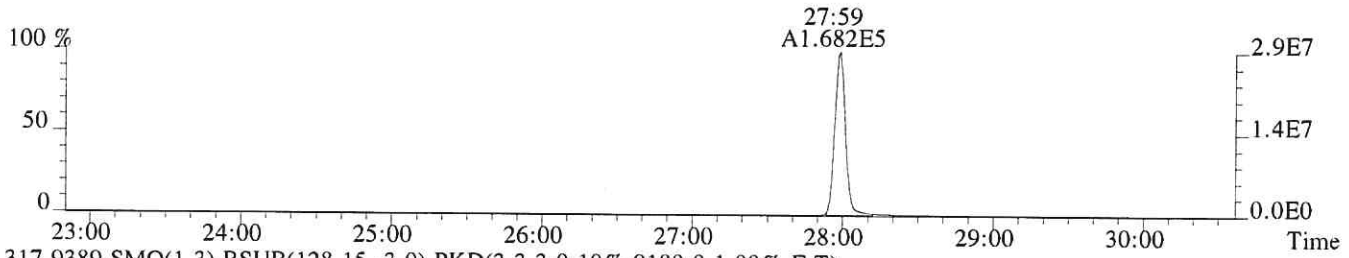
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



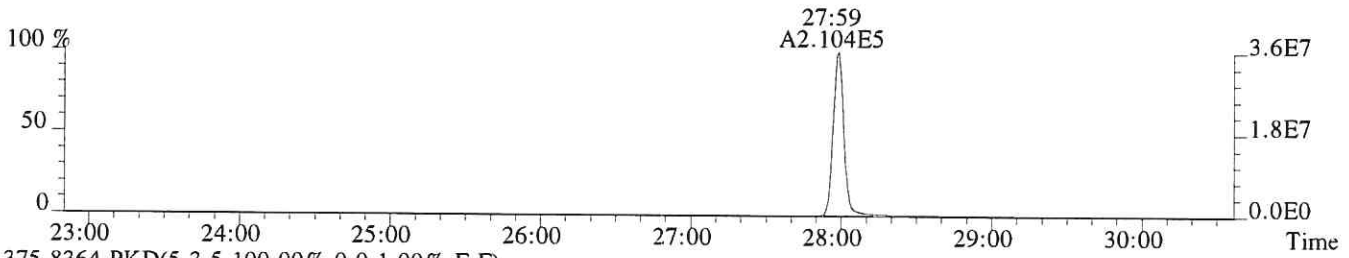
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



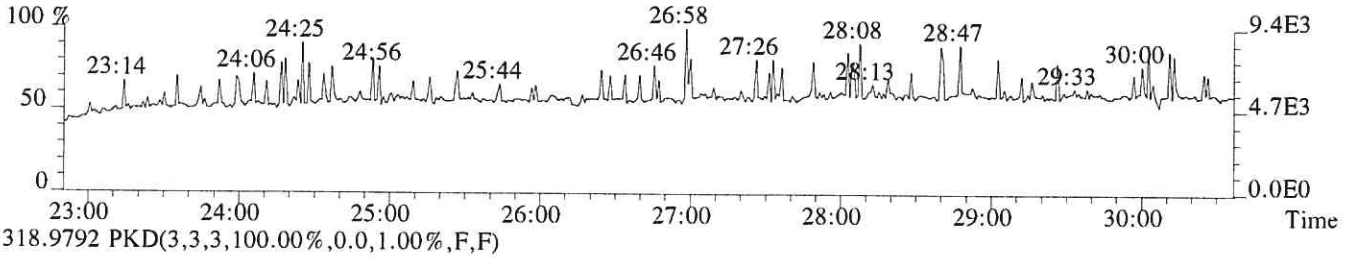
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



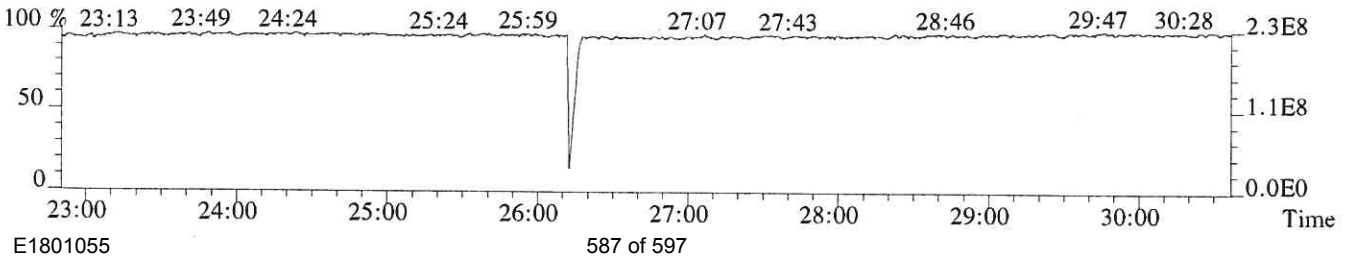
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



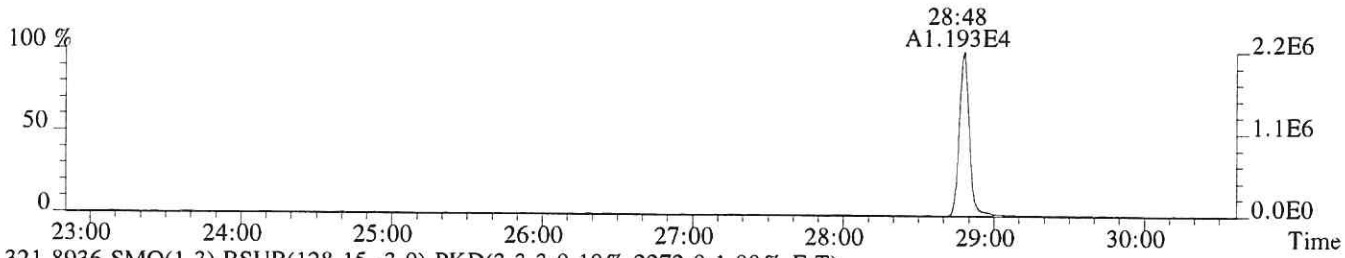
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



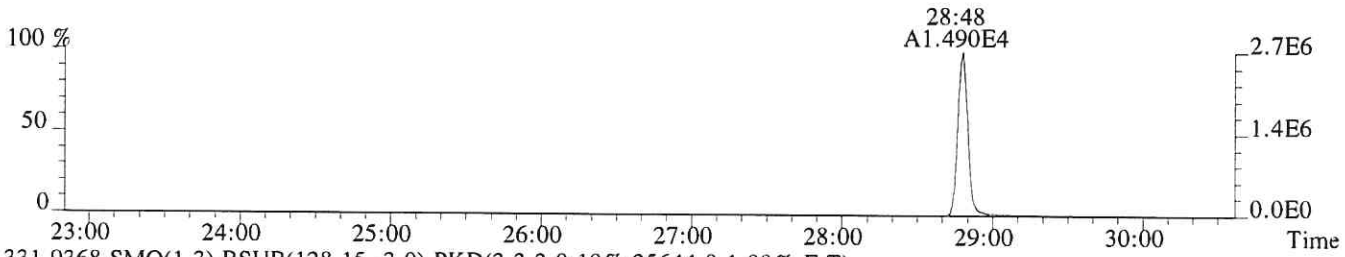
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



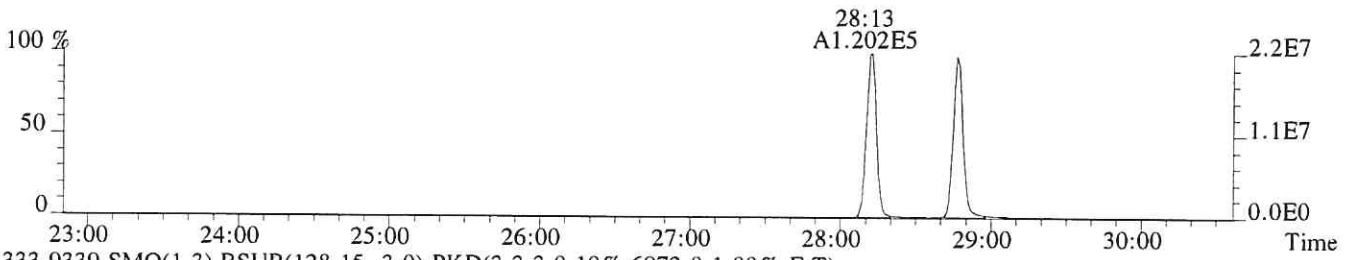
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



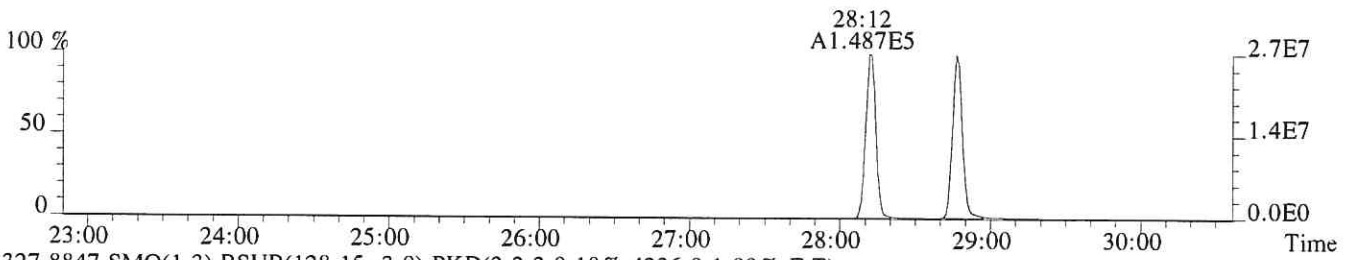
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



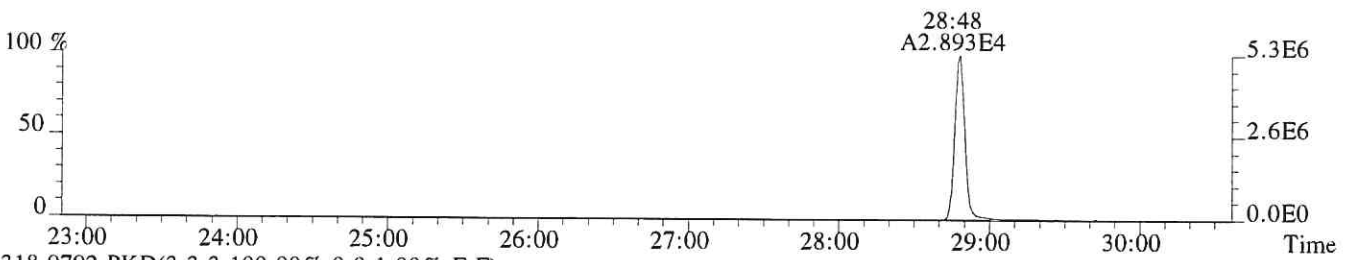
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



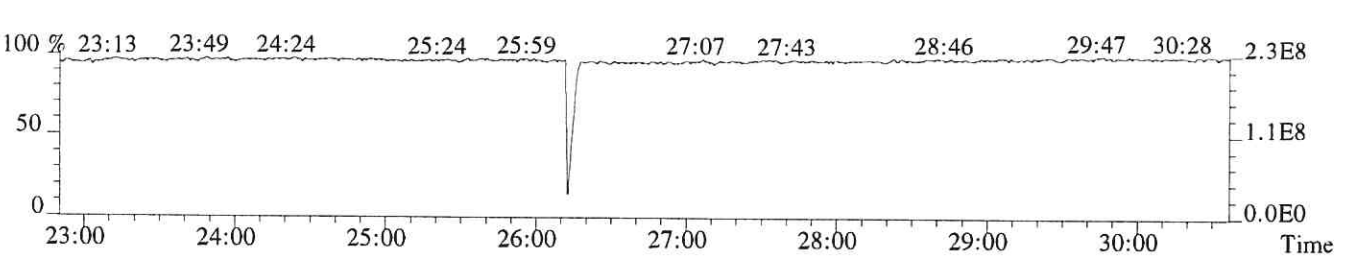
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



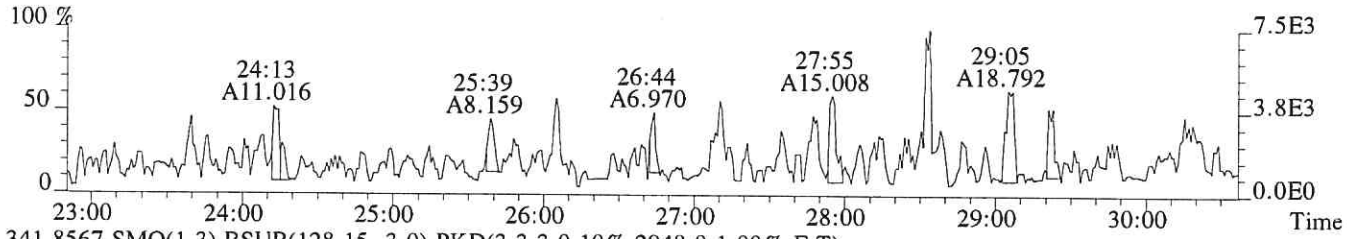
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)



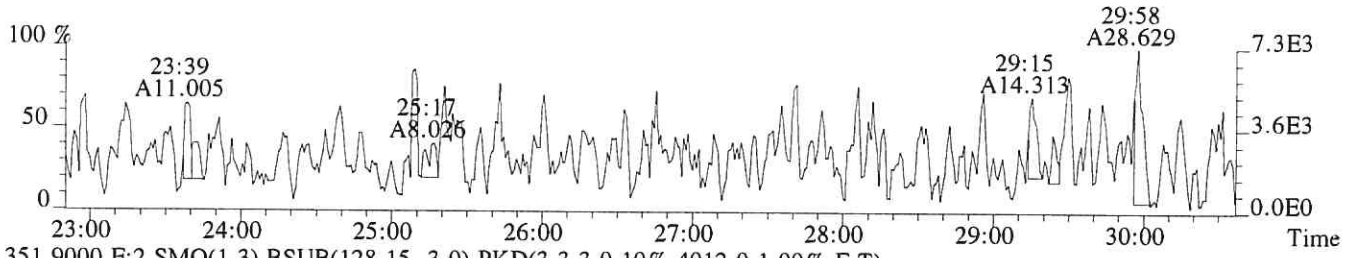
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



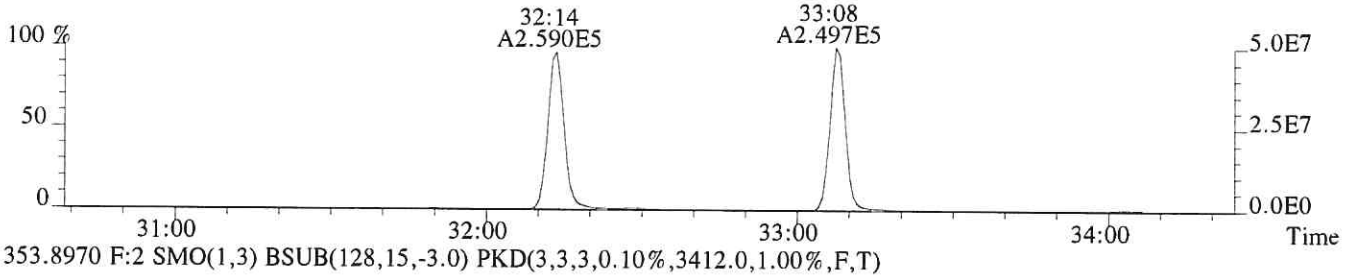
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



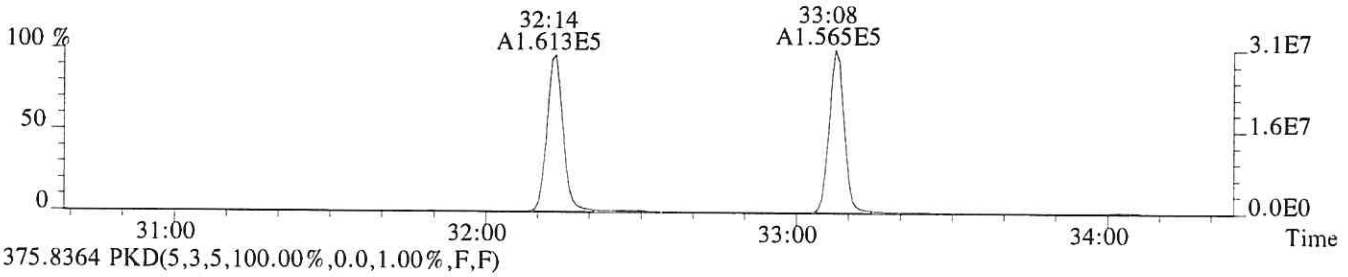
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



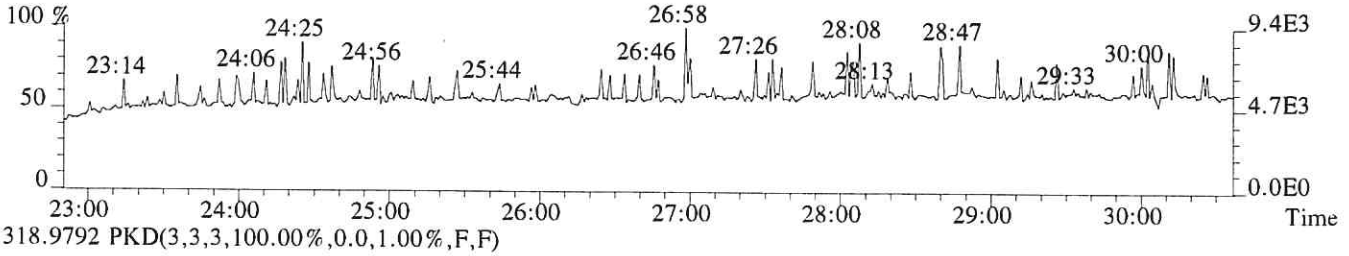
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



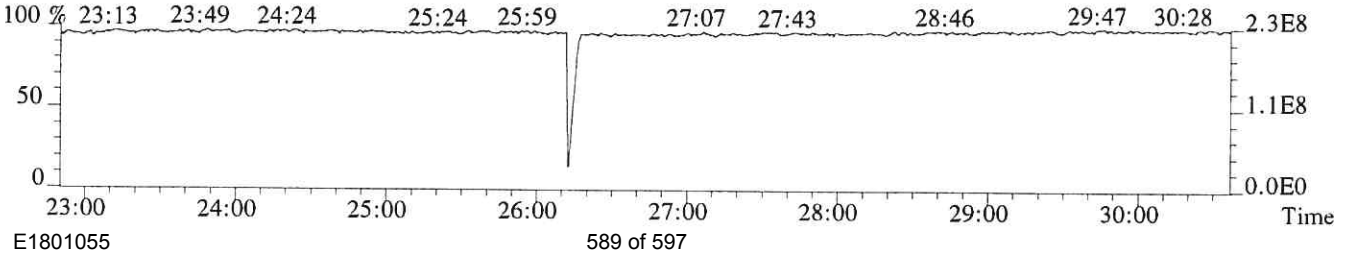
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



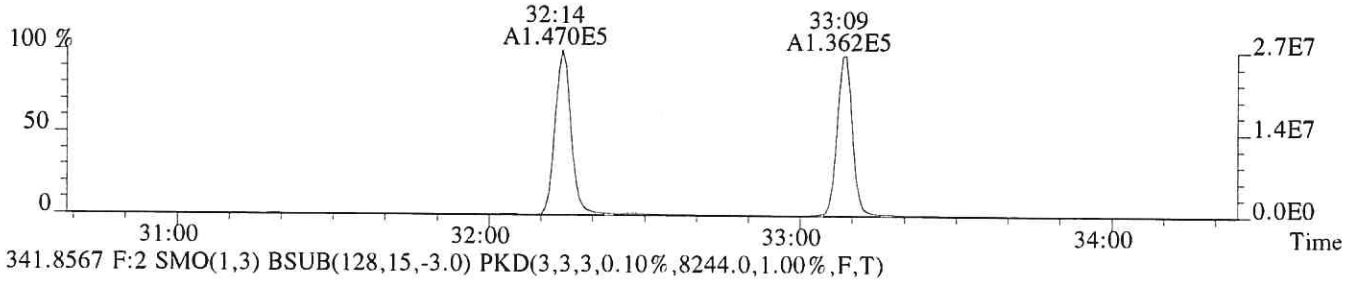
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



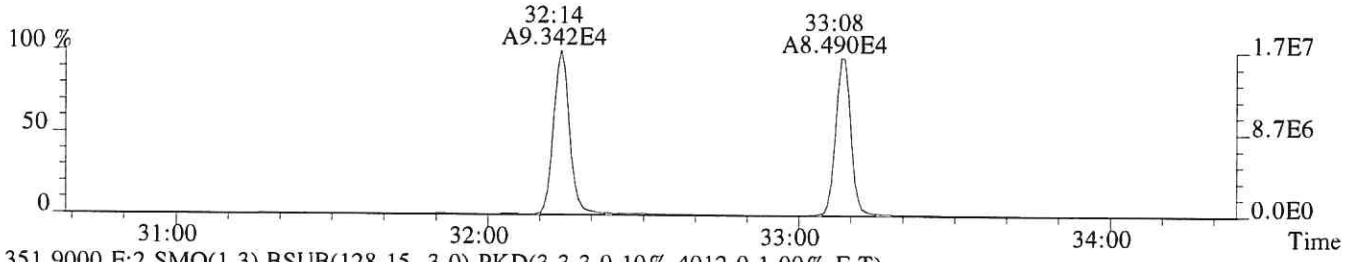
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



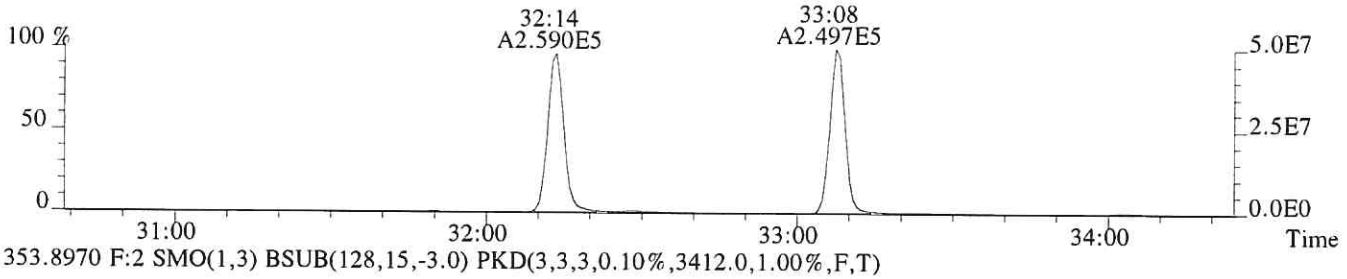
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



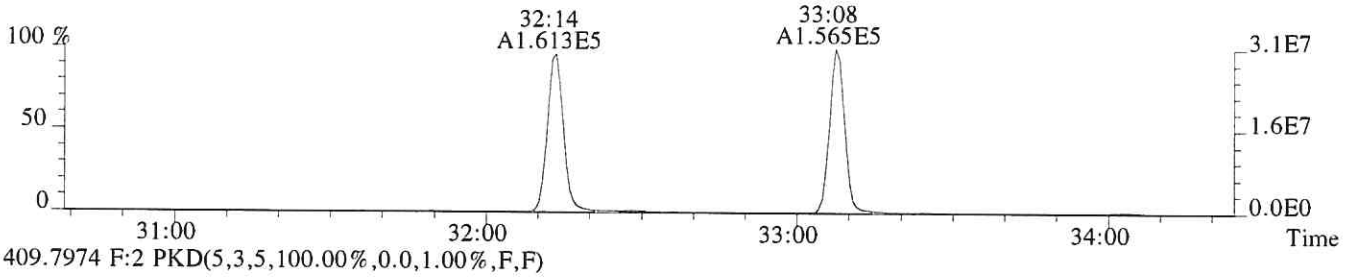
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



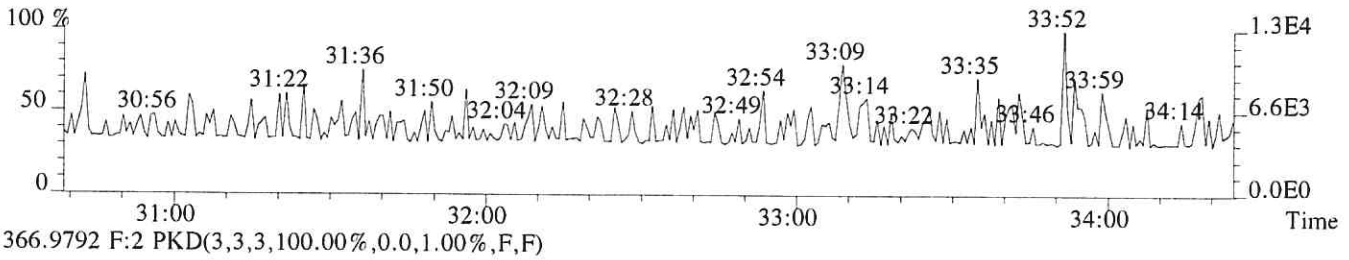
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



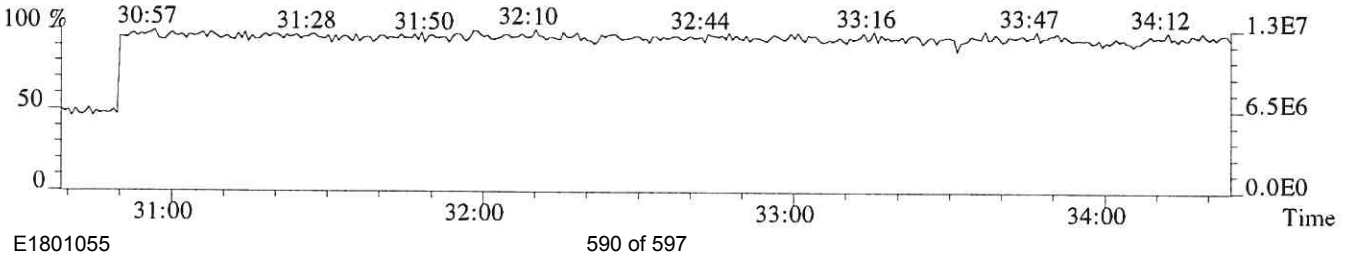
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



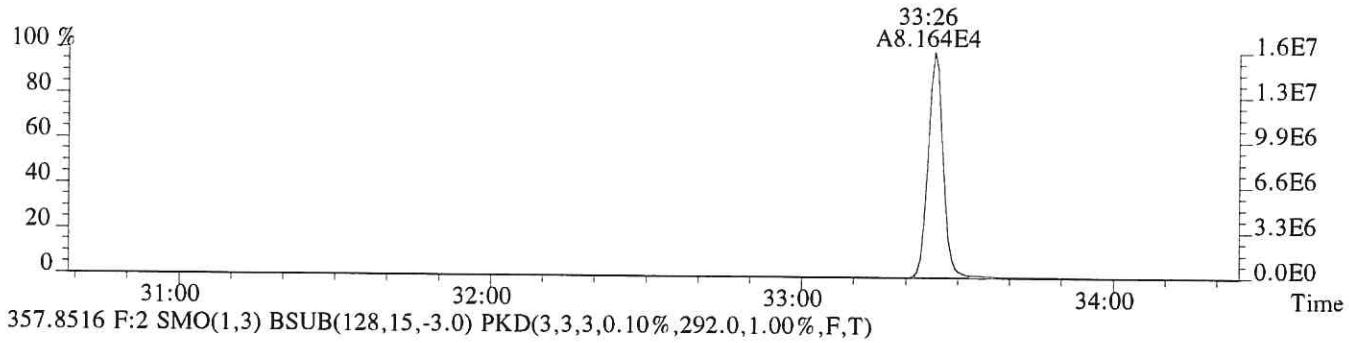
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



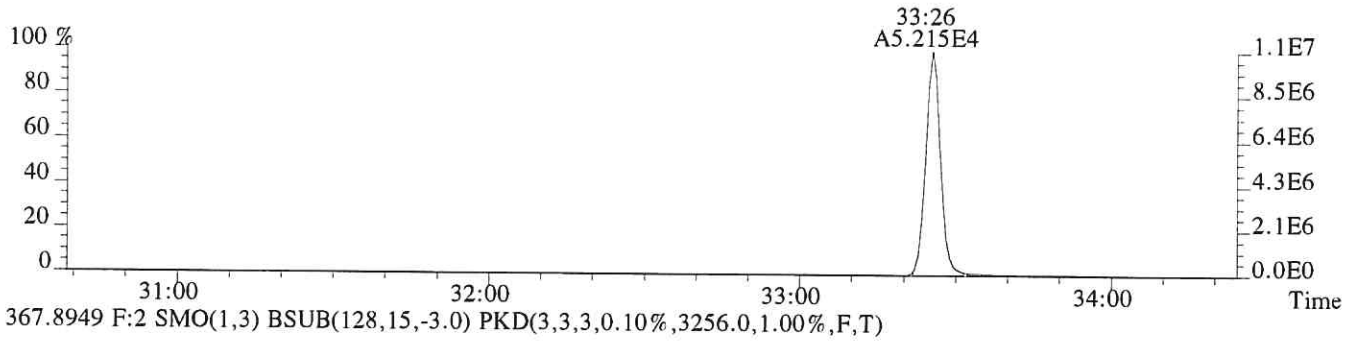
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



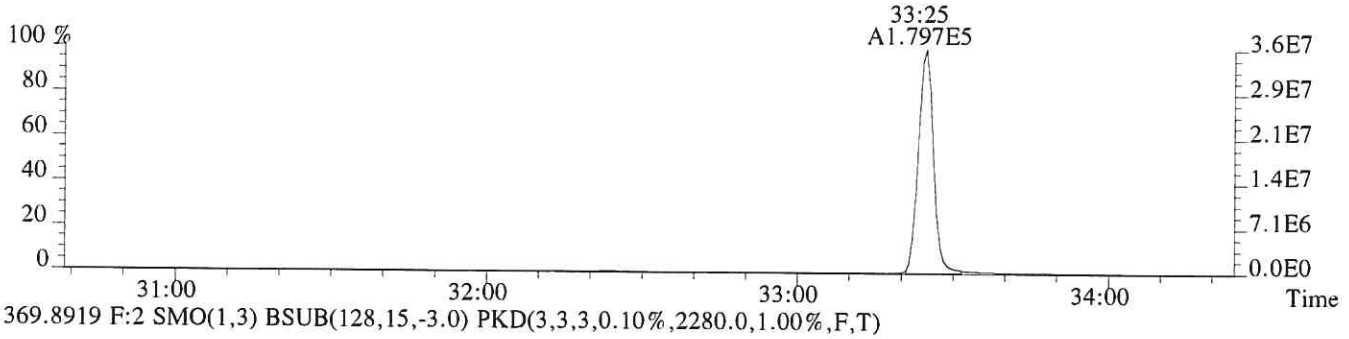
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



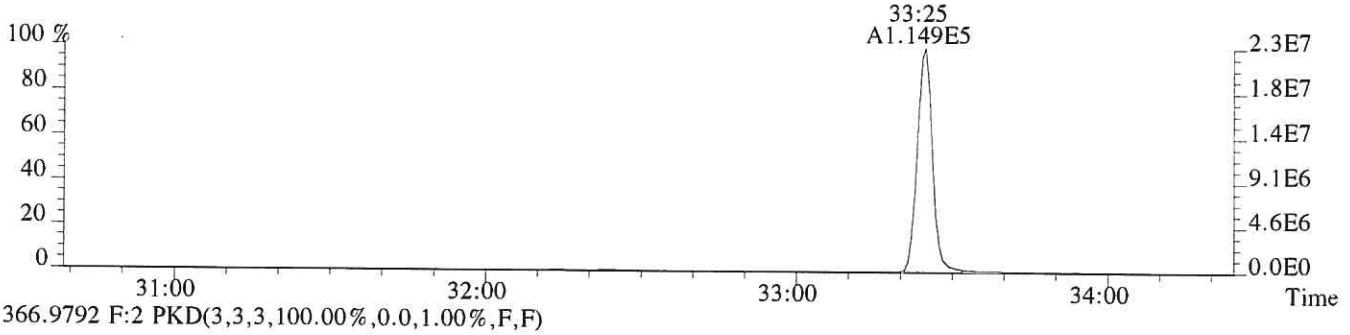
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



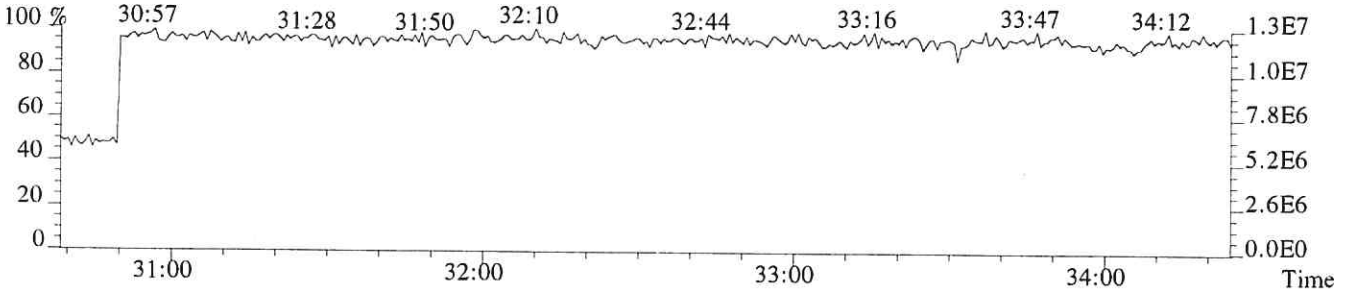
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



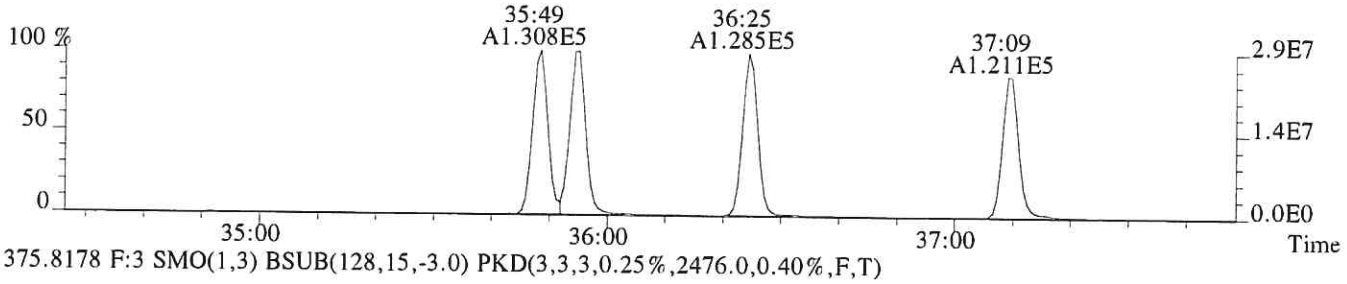
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



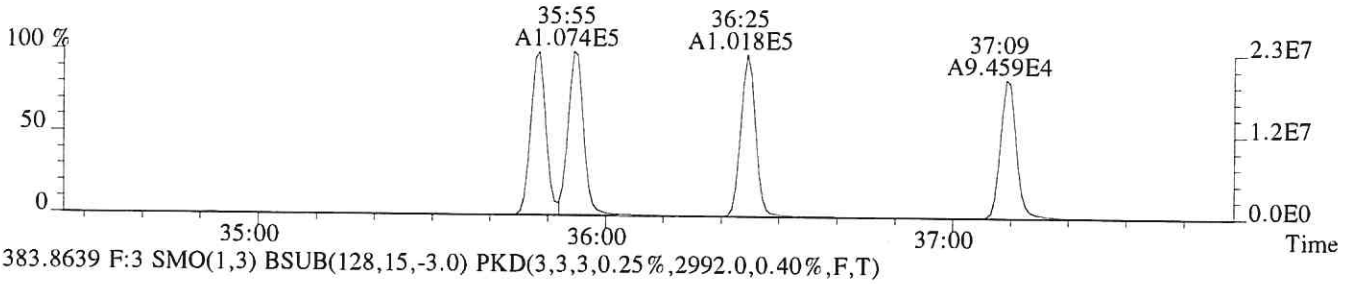
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



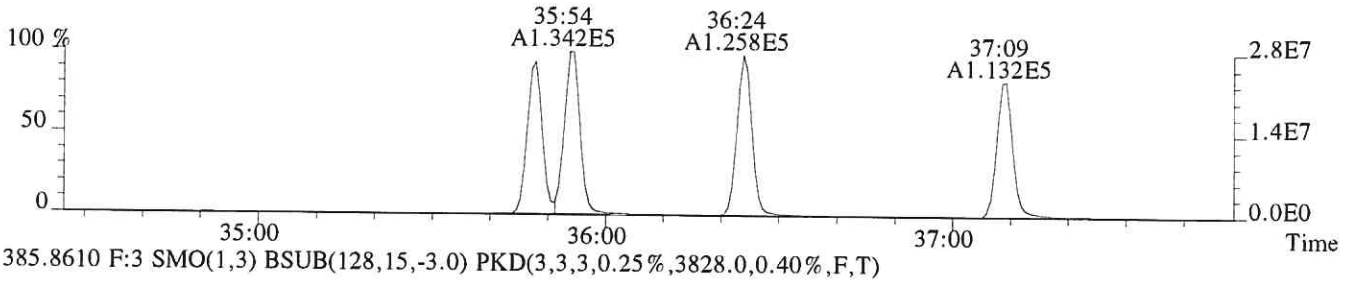
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



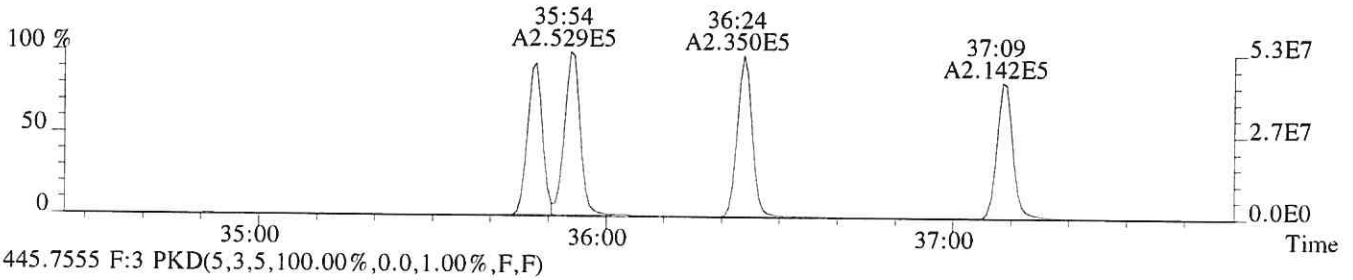
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



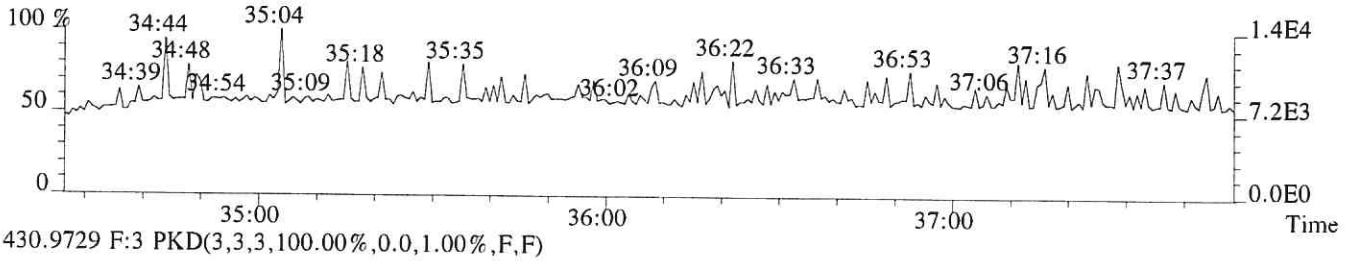
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



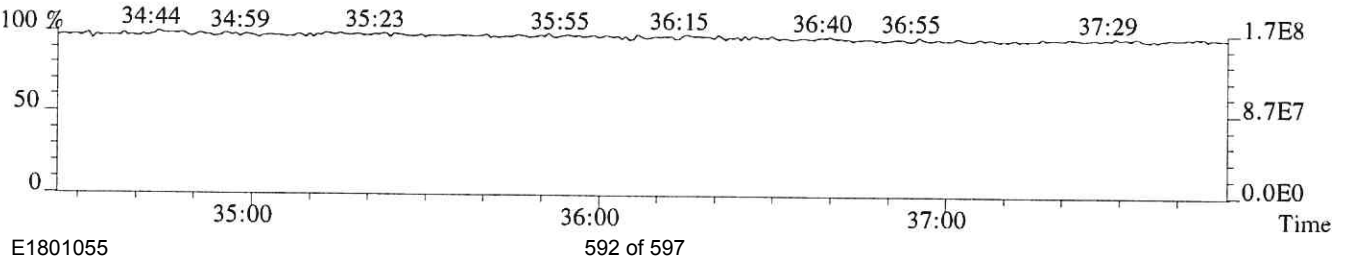
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



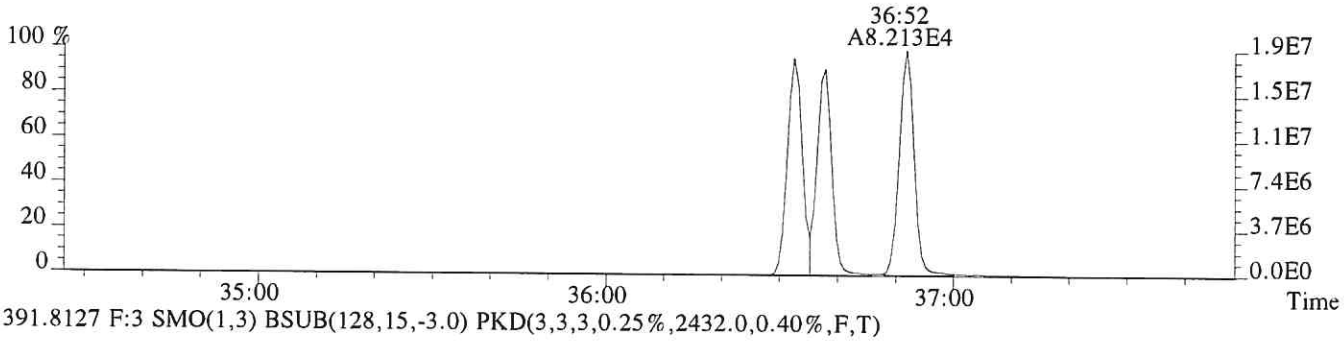
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



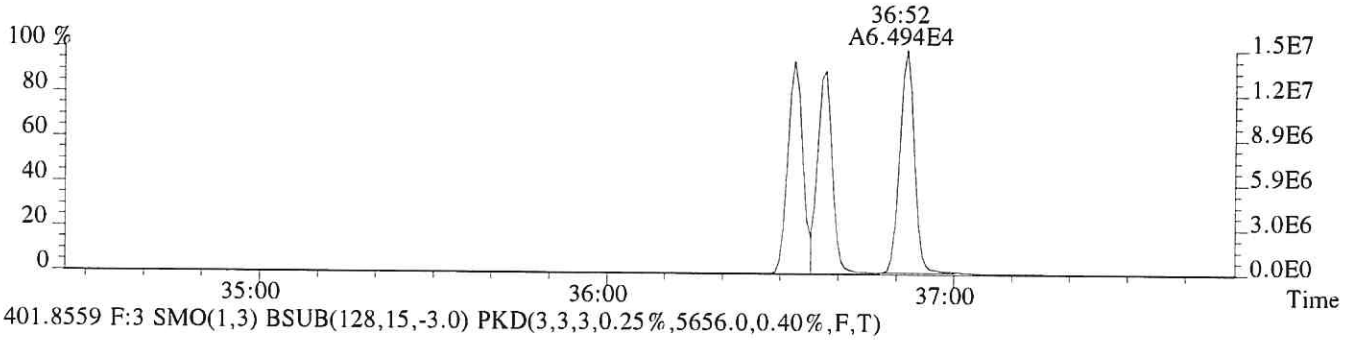
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



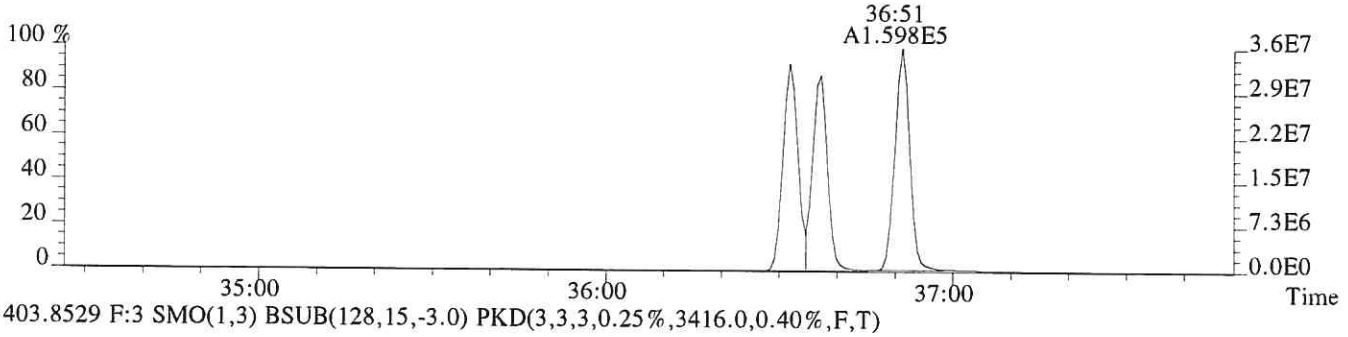
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



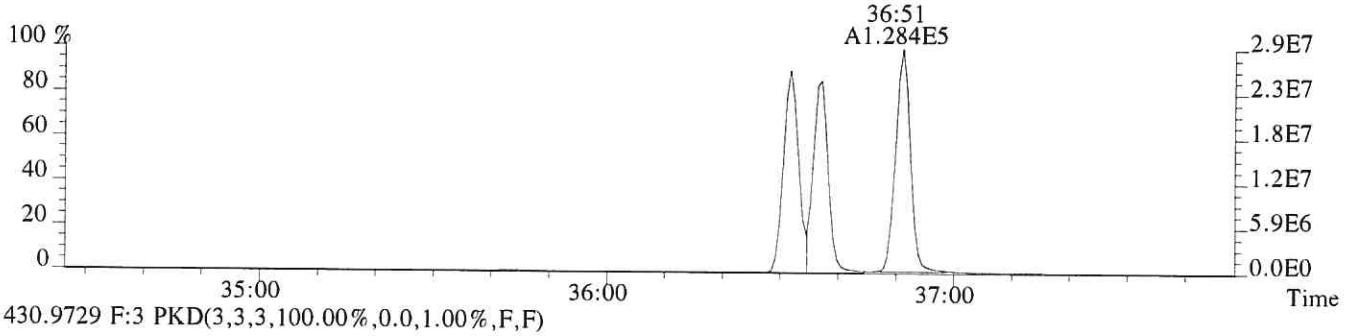
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



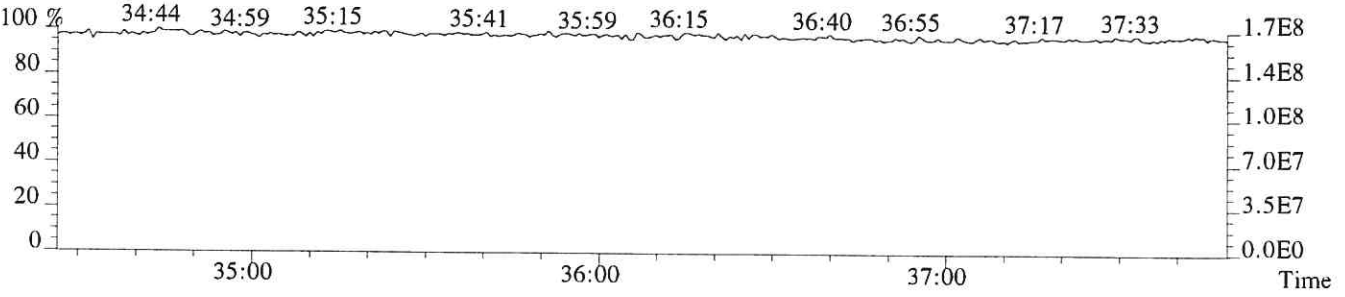
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



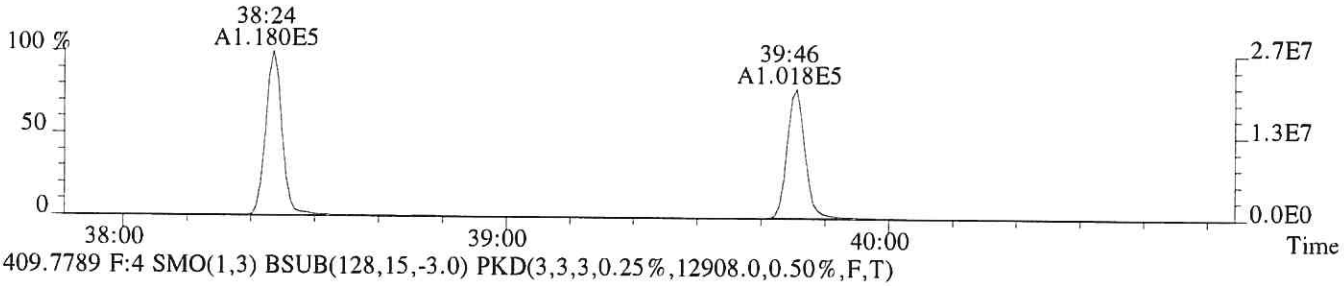
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



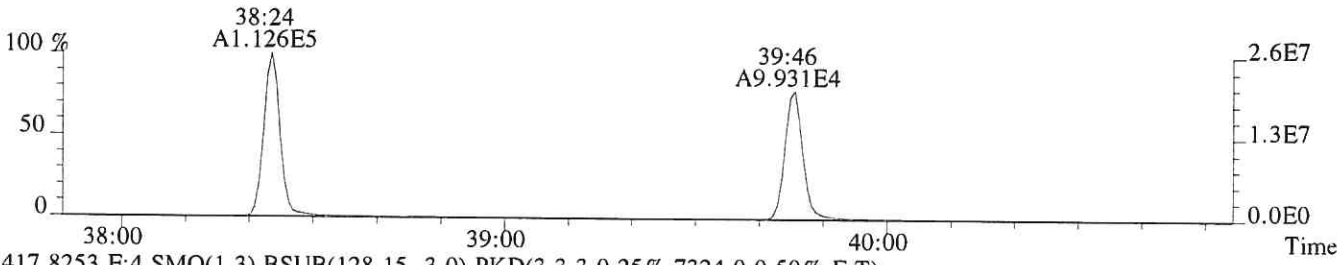
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



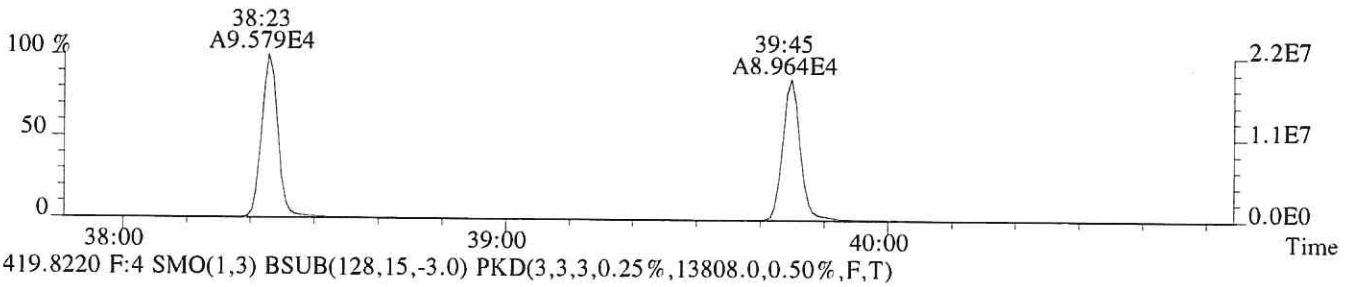
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



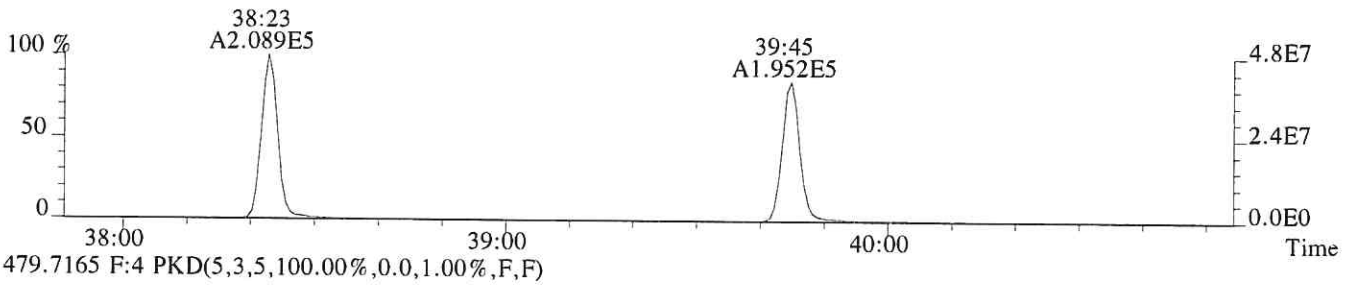
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



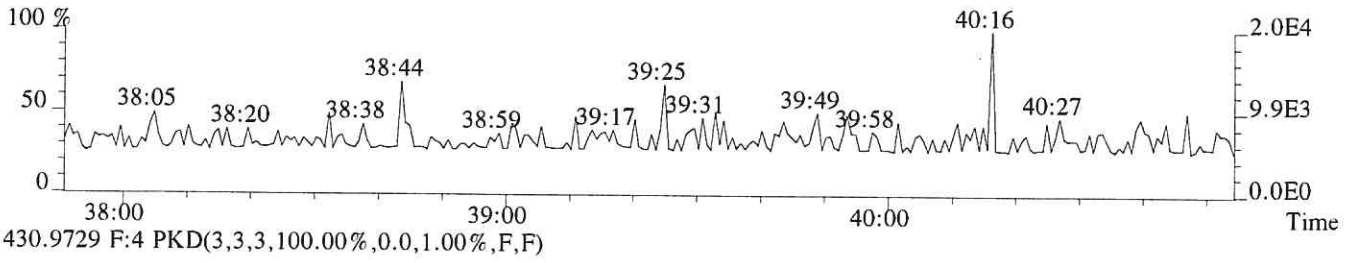
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



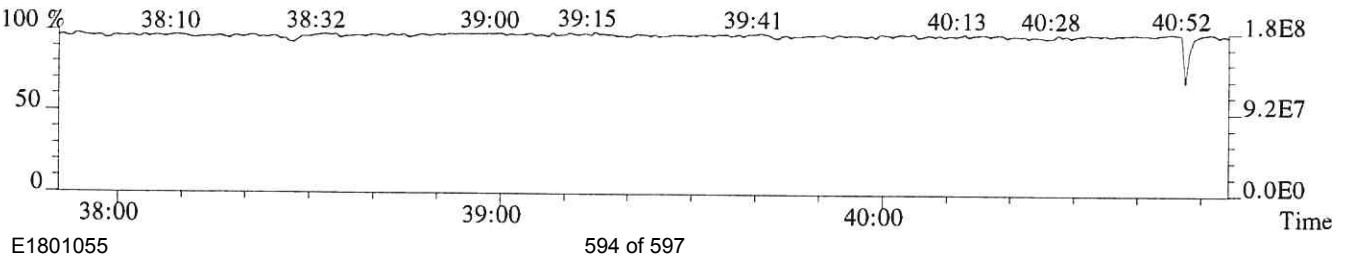
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



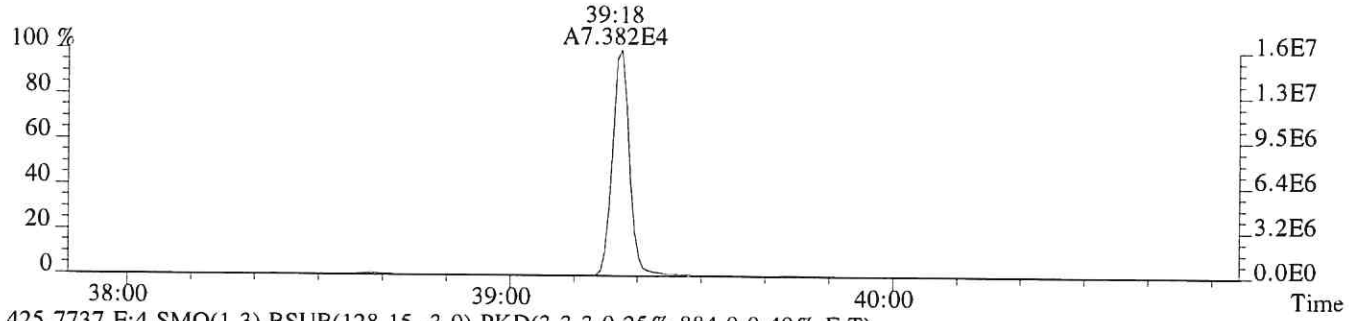
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



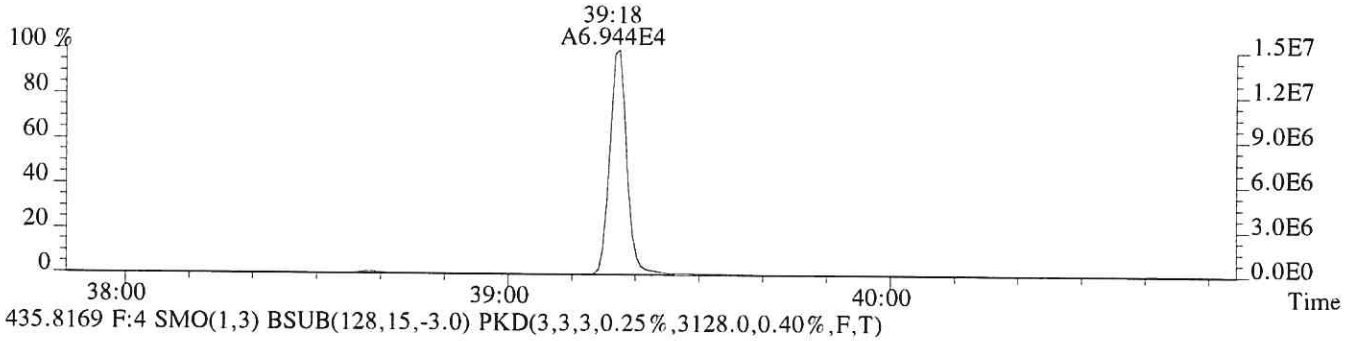
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



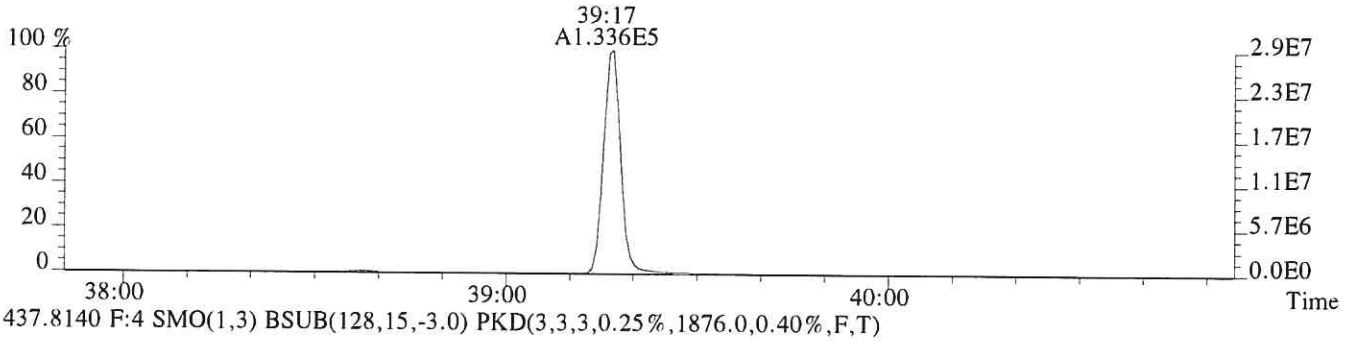
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



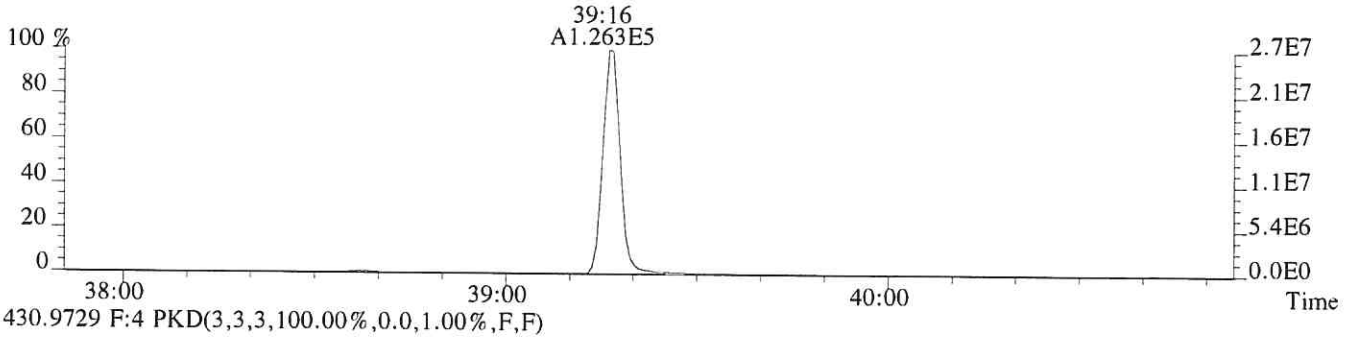
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



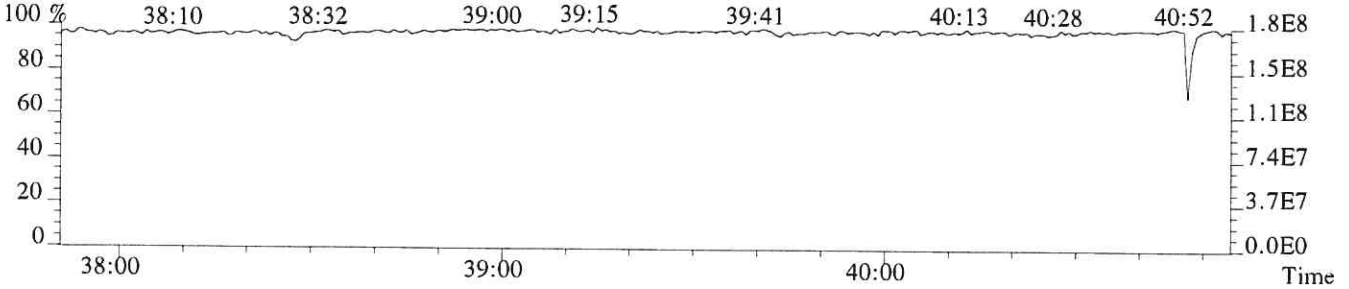
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



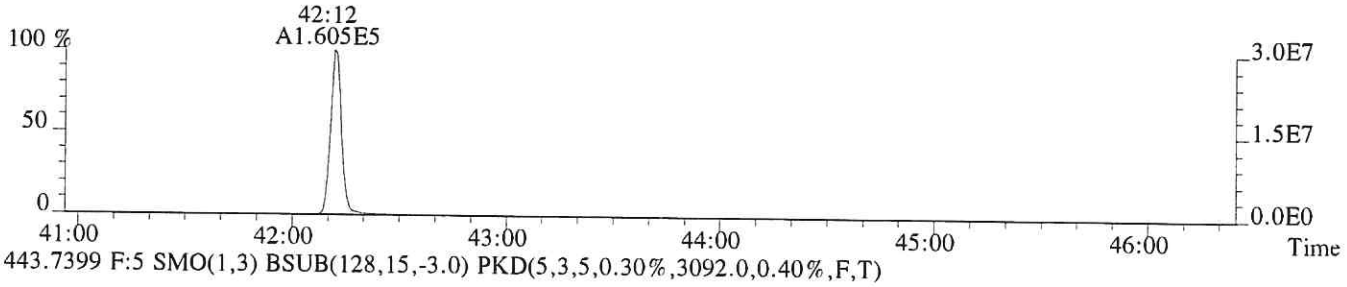
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



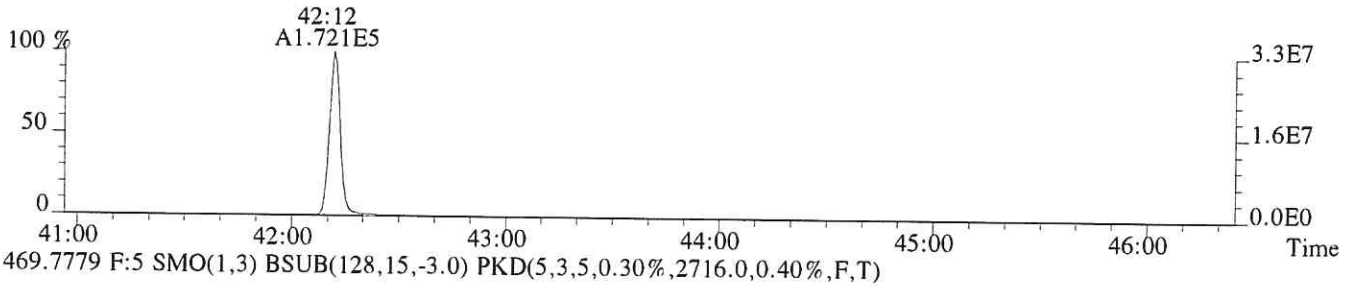
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



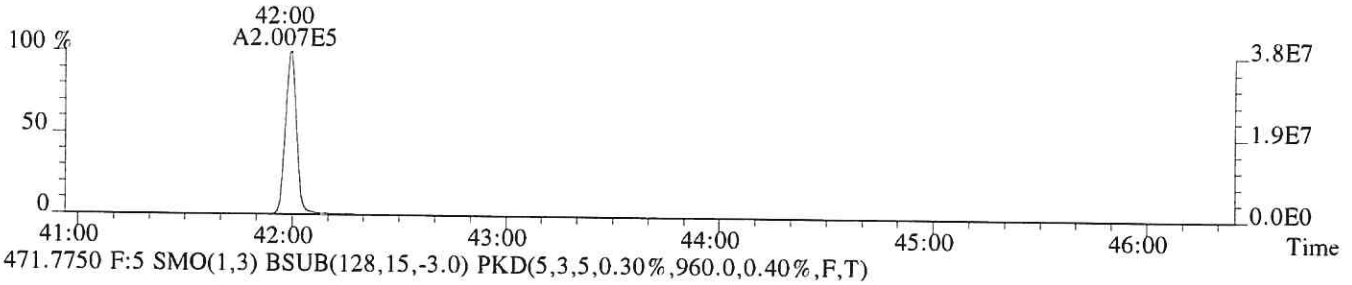
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



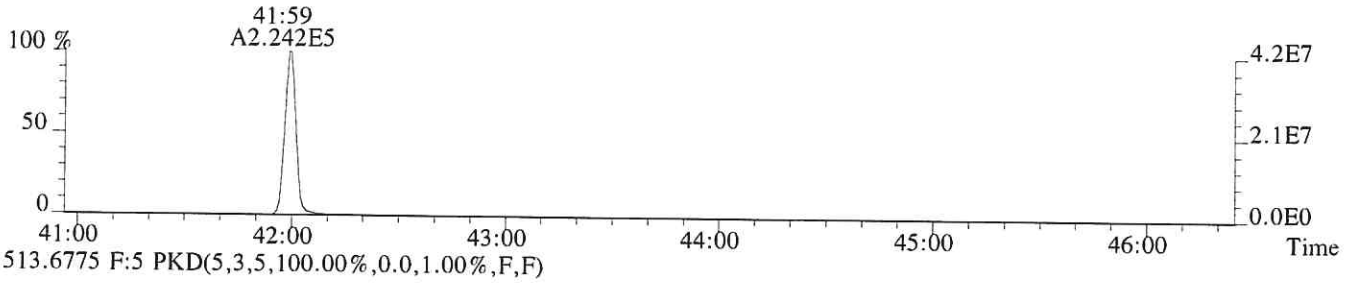
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



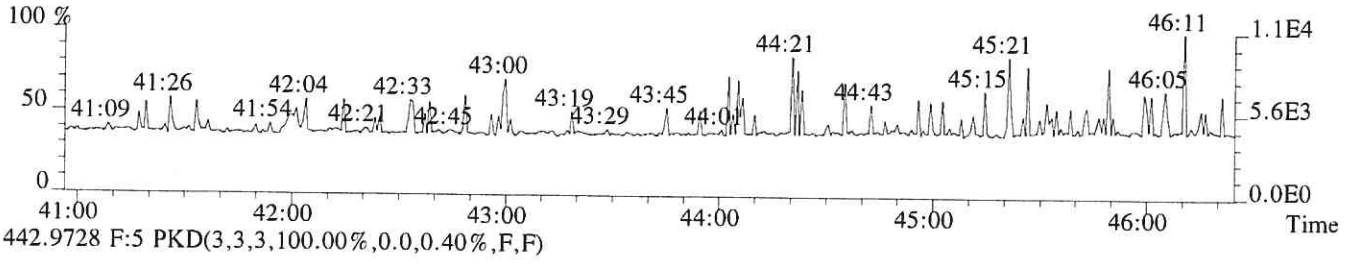
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



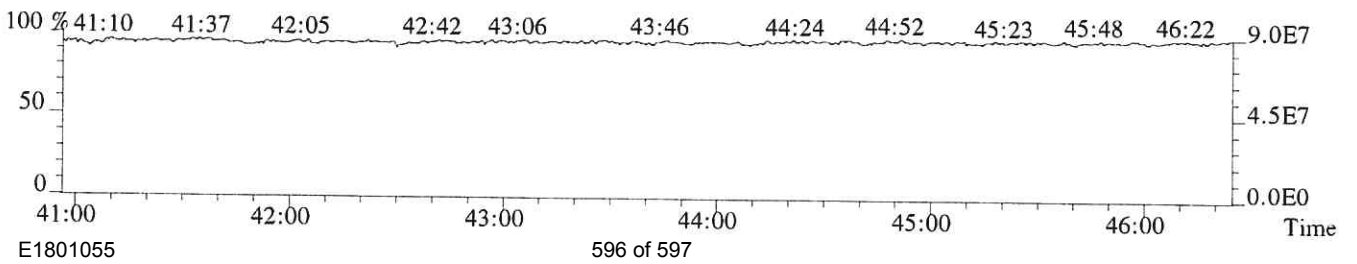
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



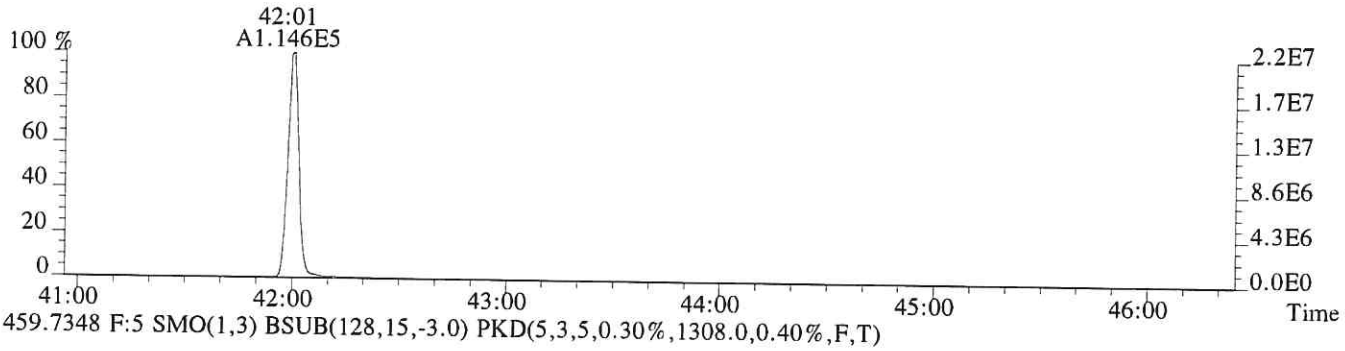
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



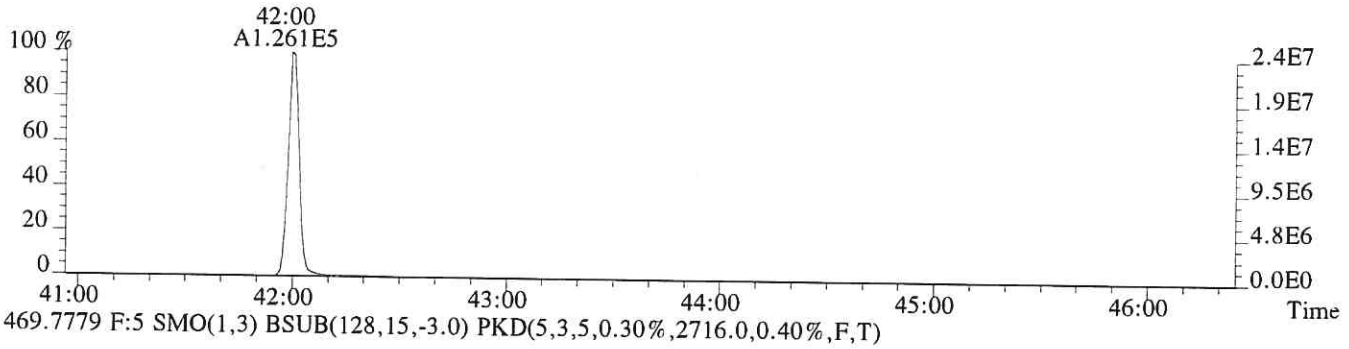
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



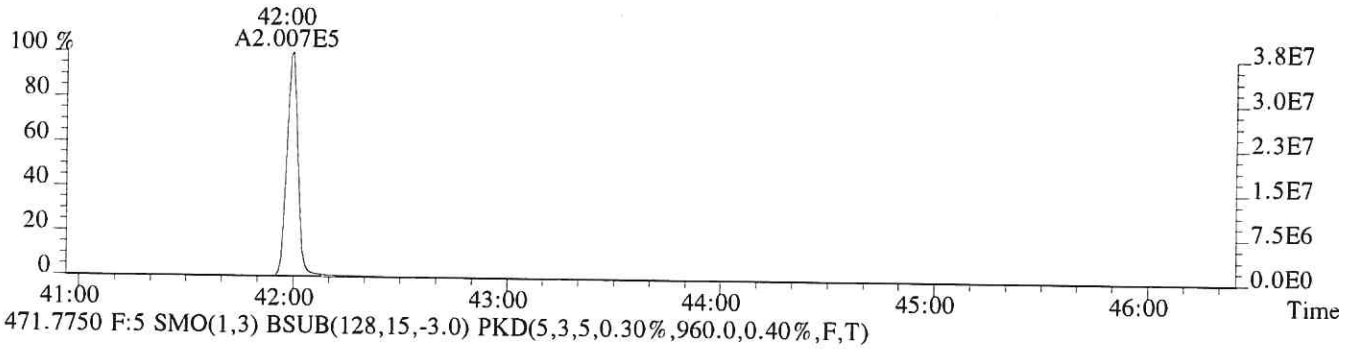
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



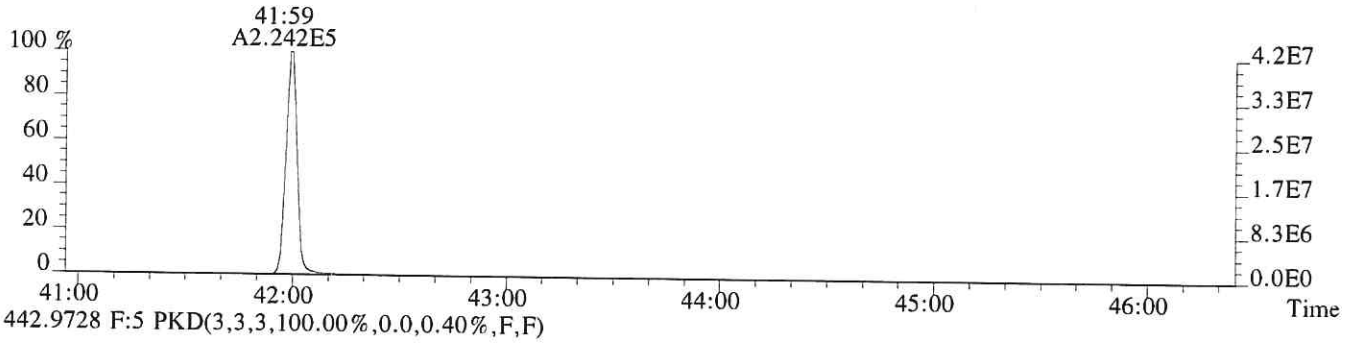
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



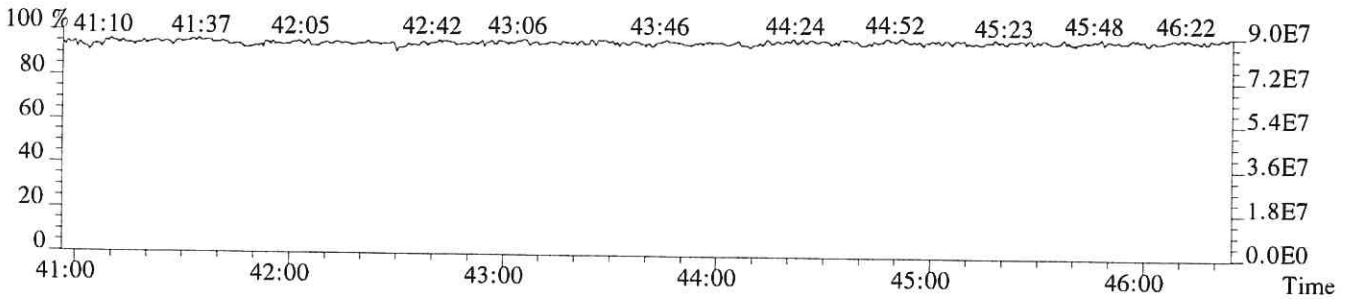
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



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



December 14, 2018 Service Request No:E1801057

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

Laboratory Results for:C1844-0501 North Impoundment

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 17, 2018
For your reference, these analyses have been assigned our service request number **E1801057.**

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

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

Certificate of Analysis

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

ALS Environmental

Client:	Integral Consulting, Inc.	**Service Request No.:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Received:**	11/17/18
Sample Matrix:	Soil		

CASE NARRATIVE

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

Sample Receipt

Eight samples were received for analysis at ALS Environmental in Houston on 11/17/18.

The samples were received at 0.6°C, 1.9°C, and 1.4 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1800494-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1800494: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

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

K flags

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

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the

noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

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

Manual Integrations

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

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

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

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

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

Client: Integral Consulting, Incorporated **Service Request:**E1801057

Project: C1844-0501 North Impoundment

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801057-001	SL0553	11/16/2018	1120
E1801057-002	SL0554	11/16/2018	1650
E1801057-003	SL0555	11/16/2018	1445
E1801057-004	SL0556	11/16/2018	1655
E1801057-005	SL0557	11/16/2018	1700
E1801057-006	SL0558	11/16/2018	1705
E1801057-007	SL0559	11/16/2018	1710
E1801057-008	SL0560	11/16/2018	1715

Service Request Summary

Folder #: **E1801057**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 North Impoundment
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/17/18
Internal Due Date: 12/10/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

6 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
2 -N/A N/A
Location: EHRMS-WIC 2E
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801057-001	SL0553	Sediment	11/16/18 1120	**IV**	**IV**
E1801057-004	SL0556	Sediment	11/16/18 1655	**IV**	**IV**
E1801057-005	SL0557	Sediment	11/16/18 1700	**IV**	**IV**
E1801057-006	SL0558	Sediment	11/16/18 1705	**IV**	**IV**
E1801057-007	SL0559	Sediment	11/16/18 1710	**IV**	**IV**
E1801057-008	SL0560	Sediment	11/16/18 1715	**IV**	**IV**

Service Request Summary

Folder #: **E1801057**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 North Impoundment
Project Number:

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

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 11/17/18
Internal Due Date: 12/10/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

6 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
2 -N/A N/A
Location: EHRMS-WIC 2E
Pressure Gas:

Superset Summary

Service Request: E1801057 **SuperSet Reference:** 18-0000490844 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519328	P519319	P615971	E1801057-001
P519283	P519271	P615971	E1801057-001.R01
P519284	P519271	P615971	E1801057-004.R01
P519329	P519319	P615971	E1801057-004
P519338	P519335	P615971	E1801057-005
P519296	P519287	P615971	E1801057-006
P519330	P519319	P615971	E1801057-007
P519297	P519287	P615971	E1801057-007.R01
P519298	P519287	P615971	E1801057-008.R01
P519331	P519319	P615971	E1801057-008

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P615971	P615967	P615971	EQ1800494-01
P615980	P615967	P615971	EQ1800494-02
P615981	P615967	P615971	EQ1800494-03

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.

E Estimated value. The reported concentration is above the calibration range of the instrument.

H Sample extracted and/or analyzed out of suggested holding time.

J Estimated value. The reported concentration is below the MRL.

K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.

P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.

Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.

S Signal saturated detector. Result reported from dilution.

U Compound was analyzed for, but was not detected (ND).

X See Case Narrative.

Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.

i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

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

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

SR# Unique ID: E1801057 | DB-5MSUI | SPB-Octyl

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

Date:	Analyst:	Samples:
12/10/18	LKL	001, 004

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

Date:	Analyst:	Samples:
12/10/18	LG	001, 004

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

SR# Unique ID: E1801057 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
12/12/18	JC	005

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

Date:	Analyst:	Samples:
12/13/18	LKL	005

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

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

SR# Unique ID: E181057 | DB-5MSUI | SPB-Octyl

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

Date:	Analyst:	Samples:
12/10/18	JC	006-008

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

Date:	Analyst:	Samples:
12/10/18	LKL	006 - 008

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

SR# Unique ID: E1801057 (DB-5MSUI) SPB-Octyl

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

Date:	Analyst:	Samples:
12/11/18	JC	001DL, 004DL, 007DL, 008DL

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

Date:	Analyst:	Samples:
12/11/18	LKL	001DL, 004DL, 007DL, 008DL

Chain of Custody

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

E1801057 5

Integral Consulting, Inc.
C1844-0501 North Impoundmnet

CHAIN OF CUSTODY FORM

Page 1 of 1

Project: C1844 - 0501 North Impoundment

Samplers: O. Hargrave

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

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

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	ANALYSES REQUESTED: PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides	Extra Container	Archive	Comments
SL0553	0563	11/16/18	1120	SL	X	~~X~~	~~X~~	~~X~~			
SL0554	see comment	11/16/18	1650	SL		X	X	X			0098, 0104, 0105, 0098
SL0555	0599	11/16/18	1445	SL						X	Homogenize before sampling
SL0556	0039	11/16/18	1655	SL	X						
SL0557	0040	11/16/18	1700	SL	X						
SL0558	0041	11/16/18	1705	SL	X						
SL0559	0042	11/16/18	1710	SL	X						
SL0560	0043	11/16/18	1715	SL	X						

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

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

Shipped by: **Shipping Tracking No.**

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

Relinquished by: _____ (signature) **Date/Time:** 11/17/18 0952 **Received by:** _____ (signature) **Date/Time:** 11/17/18 0952

Relinquished by: _____ (signature) **Date/Time:** _____ **Received by:** _____ (signature) **Date/Time:** _____

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

3197 0.6
blue 2.8
C/E
IR11 +0.4
Redbucket 15.2
blue 2.3

Cooler Receipt Form

ALS Environmental

Project Chemist HRS

Client/Project INTEGRAL

Thermometer ID SM04

Date/Time Received: 11/2/18 Initials: CG Date/Time Logged in: 11/4/18 Initials CG

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

2. Samples received in: ☒ Cooler ○ Box ○ Envelope ○ Other

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

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

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

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
-		11/2/18		PG	0.6 / 1.0	☑
-		↓		↓	1.9 / 2.3	☑
-					1.4 / 1.8	☑
						☐

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

Notes, Discrepancies, & Resolutions:

Service request Label: E1801057 5
Integral Consulting, Inc.
C1844-0501 North Impoundmnet

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

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

Prep Run#: 327468 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/3/18 09:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801055-001	SL0538	.01	1613B/Dioxins Furans			Sediment	10.859g	Brown Dirt + Rocks
2	E1801055-002	SL0545	.01	1613B/Dioxins Furans			Sediment	10.580g	Moist Brown Sand
3	E1801055-003	SL0546	.01	1613B/Dioxins Furans			Sediment	10.346g	Moist Brown Sand
4	E1801055-004	SL0549	.01	1613B/Dioxins Furans			Sediment	10.473g	Brown Mud
5	E1801055-005	SL0550	.01	1613B/Dioxins Furans			Sediment	10.292g	Brown Mud
6	E1801055-006	SL0551	.01	1613B/Dioxins Furans			Sediment	10.954g	Brown Mud
7	E1801055-008	SL0552	.01	1613B/Dioxins Furans			Sediment	10.682g	Brown Mud
8	E1801057-001	SL0553	.01	1613B/Dioxins Furans			Sediment	10.092g	Brown Mud
9	E1801057-004	SL0556	.01	1613B/Dioxins Furans			Sediment	10.631g	Brown Mud
10	E1801057-005	SL0557	.01	1613B/Dioxins Furans			Sediment	10.877g	Brown Mud + Sand
11	E1801057-006	SL0558	.01	1613B/Dioxins Furans			Sediment	10.132g	Brown Mud
12	E1801057-007	SL0559	.01	1613B/Dioxins Furans			Sediment	10.687g	Brown Mud
13	E1801057-008	SL0560	.01	1613B/Dioxins Furans			Sediment	10.695g	Brown Mud
14	E1801065-001	SL0580	.01	1613B/Dioxins Furans			Sediment	10.480g	Brown Mud
15	E1801065-002	SL0581	.01	1613B/Dioxins Furans			Sediment	10.622g	Brown Mud
16	E1801065-003	SL0582	.01	1613B/Dioxins Furans			Sediment	10.494g	Brown Mud
17	E1801065-004	SL0583	.01	1613B/Dioxins Furans			Sediment	10.829g	Brown Mud
18	E1801065-005	SL0584	.01	1613B/Dioxins Furans			Sediment	10.444g	Brown Mud
19	E1801065-006	SL0585	.01	1613B/Dioxins Furans			Sediment	10.320g	Brown Mud
20	E1801065-007	SL0586	.01	1613B/Dioxins Furans			Sediment	10.597g	Brown Mud
21	EQ1800494-01	MB		1613B/Dioxins Furans			Solid	10.300g	
22	EQ1800494-02	LCS		1613B/Dioxins Furans			Solid	10.142g	
23	EQ1800494-03	DLCS		1613B/Dioxins Furans			Solid	10.111g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800494-02 100.00µL EQ1800494-03 100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801055-001	100.00µL	E1801055-002	100.00µL	E1801055-003	100.00µL	E1801055-004	100.00µL	E1801055-005	100.00µL	E1801055-006	100.00µL
E1801055-008	100.00µL	E1801057-001	100.00µL	E1801057-004	100.00µL	E1801057-005	100.00µL	E1801057-006	100.00µL	E1801057-007	100.00µL
E1801057-008	100.00µL	E1801065-001	100.00µL	E1801065-002	100.00µL	E1801065-003	100.00µL	E1801065-004	100.00µL	E1801065-005	100.00µL
E1801065-006	100.00µL	E1801065-007	100.00µL	EQ1800494-01	100.00µL	EQ1800494-02	100.00µL	EQ1800494-03	100.00µL		

Preparation Information Benchsheet

Prep Run#: 327468 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/3/18 09:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	195330	Logbook Ref:	195330 AL 12/3/18 2-4 ng/mL	Expires On:	01/31/2019

E1801055-001	1,000.00µL	E1801055-002	1,000.00µL	E1801055-003	1,000.00µL	E1801055-004	1,000.00µL	E1801055-005	1,000.00µL	E1801055-006	1,000.00µL
E1801055-008	1,000.00µL	E1801057-001	1,000.00µL	E1801057-004	1,000.00µL	E1801057-005	1,000.00µL	E1801057-006	1,000.00µL	E1801057-007	1,000.00µL
E1801057-008	1,000.00µL	E1801065-001	1,000.00µL	E1801065-002	1,000.00µL	E1801065-003	1,000.00µL	E1801065-004	1,000.00µL	E1801065-005	1,000.00µL
E1801065-006	1,000.00µL	E1801065-007	1,000.00µL	EQ1800494-01	1,000.00µL	EQ1800494-02	1,000.00µL	EQ1800494-03	1,000.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195003)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/3/18 09:00	Started:	12/4/18 09:00	Started:	12/4/18 11:00	Started:	12/6/18 09:00
Finished:	12/4/18 07:30	Finished:	12/4/18 10:00	Finished:	12/4/18 14:00	Finished:	12/6/18 12:00
By:	JGUIN	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 11:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0553	**Units:**	ng/Kg
Lab Code:	E1801057-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 16:05
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.092g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519328	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	35000		282	282	0.80	1.001	100
1,2,3,7,8-PeCDD	118		0.258	4.59	1.65	1.001	1
1,2,3,4,7,8-HxCDD	2.12	**JK**	0.237	4.59	1.46	1.000	1
1,2,3,6,7,8-HxCDD	11.2		0.260	4.59	1.22	1.000	1
1,2,3,7,8,9-HxCDD	4.82		0.242	4.59	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	182		0.170	4.59	1.03	1.000	1
OCDD	5550		0.468	9.17	0.89	1.000	1
2,3,7,8-TCDF	45500		71.0	91.7	0.74	1.001	100
1,2,3,7,8-PeCDF	1430		2.65	4.59	1.53	1.000	1
2,3,4,7,8-PeCDF	1130		2.74	4.59	1.52	1.000	1
1,2,3,4,7,8-HxCDF	2580		1.08	4.59	1.21	1.000	1
1,2,3,6,7,8-HxCDF	628		1.09	4.59	1.23	1.000	1
1,2,3,7,8,9-HxCDF	184		1.23	4.59	1.23	1.001	1
2,3,4,6,7,8-HxCDF	120		1.25	4.59	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	741		0.663	4.59	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	265		0.933	4.59	1.01	1.000	1
OCDF	384		0.485	9.17	0.82	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 11:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0553	**Units:**	ng/Kg
Lab Code:	E1801057-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 16:05
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.092g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519328	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	21900		1.56	1.56	0.83		1
Total Penta-Dioxins	131		0.258	4.59	1.33		1
Total Hexa-Dioxins	79.5		0.246	4.59	1.27		1
Total Hepta-Dioxins	438		0.170	4.59	1.03		1
Total Tetra-Furans	75800		0.859	0.917	0.76		1
Total Penta-Furans	3760		2.69	4.59	1.45		1
Total Hexa-Furans	3780		1.16	4.59	1.23		1
Total Hepta-Furans	1250		0.784	4.59	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 11:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0553	**Units:**	Percent
Lab Code:	E1801057-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 15:38
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.092g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519283	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519271

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	751.553	38		25-164	0.83	1.020
13C-1,2,3,7,8-PeCDD	2000	1778.587	89		25-181	1.64	1.184
13C-1,2,3,4,7,8-HxCDD	2000	1318.955	66		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1187.934	59		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1627.484	81		23-140	1.08	1.069
13C-OCDD	4000	2041.845	51		17-157	0.92	1.150
13C-2,3,7,8-TCDF	2000	1365.907	68		24-169	0.81	0.990
13C-1,2,3,7,8-PeCDF	2000	1676.568	84		24-185	1.61	1.143
13C-2,3,4,7,8-PeCDF	2000	1539.422	77		21-178	1.60	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1165.610	58		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1154.928	58		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1306.923	65		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1147.349	57		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1254.226	63		28-143	0.45	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1300.330	65		26-138	0.44	1.082
37Cl-2,3,7,8-TCDD	800	628.497	79		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 11:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0553	**Units:**	ng/Kg
Lab Code:	E1801057-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**35000**	282	282	100	1	35000
1,2,3,7,8-PeCDD	**118**	0.258	4.59	1	1	118
1,2,3,4,7,8-HxCDD	**2.12**	0.237	4.59	1	0.1	0.212
1,2,3,6,7,8-HxCDD	**11.2**	0.260	4.59	1	0.1	1.12
1,2,3,7,8,9-HxCDD	**4.82**	0.242	4.59	1	0.1	0.482
1,2,3,4,6,7,8-HpCDD	**182**	0.170	4.59	1	0.01	1.82
OCDD	**5550**	0.468	9.17	1	0.0003	1.67
2,3,7,8-TCDF	**45500**	71.0	91.7	100	0.1	4550
1,2,3,7,8-PeCDF	**1430**	2.65	4.59	1	0.03	42.9
2,3,4,7,8-PeCDF	**1130**	2.74	4.59	1	0.3	339
1,2,3,4,7,8-HxCDF	**2580**	1.08	4.59	1	0.1	258
1,2,3,6,7,8-HxCDF	**628**	1.09	4.59	1	0.1	62.8
1,2,3,7,8,9-HxCDF	**184**	1.23	4.59	1	0.1	18.4
2,3,4,6,7,8-HxCDF	**120**	1.25	4.59	1	0.1	12.0
1,2,3,4,6,7,8-HpCDF	**741**	0.663	4.59	1	0.01	7.41
1,2,3,4,7,8,9-HpCDF	**265**	0.933	4.59	1	0.01	2.65
OCDF	**384**	0.485	9.17	1	0.0003	0.115
		Total TEQ				40400

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 11:20
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0553	**Units:**	Percent
Lab Code:	E1801057-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	6.143g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	54.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 16:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0556	**Units:**	ng/Kg
Lab Code:	E1801057-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 16:26
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.631g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519284	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519271

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	376		0.747	0.747	0.81	1.001	1
1,2,3,7,8-PeCDD	2.57**J**		0.154	2.97	1.75	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.192	2.97			1
1,2,3,6,7,8-HxCDD	0.494**JK**		0.221	2.97	0.91	1.000	1
1,2,3,7,8,9-HxCDD	0.476**J**		0.202	2.97	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	11.1		0.158	2.97	1.12	1.000	1
OCDD	433		0.255	5.93	0.93	1.000	1
2,3,7,8-TCDF	1240		7.96	7.96	0.79	1.001	10
1,2,3,7,8-PeCDF	25.8		0.255	2.97	1.60	1.001	1
2,3,4,7,8-PeCDF	22.8		0.277	2.97	1.43	1.001	1
1,2,3,4,7,8-HxCDF	57.2		0.136	2.97	1.20	1.000	1
1,2,3,6,7,8-HxCDF	14.1		0.128	2.97	1.17	1.000	1
1,2,3,7,8,9-HxCDF	4.05		0.149	2.97	1.07	1.001	1
2,3,4,6,7,8-HxCDF	2.38**J**		0.146	2.97	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	22.2		0.221	2.97	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	8.56		0.315	2.97	0.98	1.000	1
OCDF	14.0		0.339	5.93	0.91	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 16:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0556	**Units:**	ng/Kg
Lab Code:	E1801057-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 16:26
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.631g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519284	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519271

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	416		0.747	0.747	0.67		1
Total Penta-Dioxins	3.06		0.154	2.97	1.54		1
Total Hexa-Dioxins	5.18		0.205	2.97	1.14		1
Total Hepta-Dioxins	36.2		0.158	2.97	1.08		1
Total Tetra-Furans	1570		0.453	0.593	0.73		1
Total Penta-Furans	72.7		0.265	2.97	1.41		1
Total Hexa-Furans	83.1		0.139	2.97	1.39		1
Total Hepta-Furans	36.6		0.264	2.97	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 16:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0556	**Units:**	Percent
Lab Code:	E1801057-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 16:26
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.631g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519284	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519271

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	797.574	40		25-164	0.81	1.020
13C-1,2,3,7,8-PeCDD	2000	1530.467	77		25-181	1.64	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1205.879	60		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1205.552	60		28-130	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1637.433	82		23-140	1.10	1.070
13C-OCDD	4000	2240.197	56		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	1048.299	52		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1457.085	73		24-185	1.62	1.145
13C-2,3,4,7,8-PeCDF	2000	1406.715	70		21-178	1.61	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1067.724	53		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1124.524	56		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1215.213	61		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1082.982	54		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1212.594	61		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1322.566	66		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	486.457	61		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 16:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0556	**Units:**	ng/Kg
Lab Code:	E1801057-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**376**	0.747	0.747	1	1	376
1,2,3,7,8-PeCDD	**2.57**	0.154	2.97	1	1	2.57
1,2,3,4,7,8-HxCDD	ND	0.192	2.97	1	0.1	
1,2,3,6,7,8-HxCDD	**0.494**	0.221	2.97	1	0.1	0.0494
1,2,3,7,8,9-HxCDD	**0.476**	0.202	2.97	1	0.1	0.0476
1,2,3,4,6,7,8-HpCDD	**11.1**	0.158	2.97	1	0.01	0.111
OCDD	**433**	0.255	5.93	1	0.0003	0.130
2,3,7,8-TCDF	**1240**	7.96	7.96	10	0.1	124
1,2,3,7,8-PeCDF	**25.8**	0.255	2.97	1	0.03	0.774
2,3,4,7,8-PeCDF	**22.8**	0.277	2.97	1	0.3	6.84
1,2,3,4,7,8-HxCDF	**57.2**	0.136	2.97	1	0.1	5.72
1,2,3,6,7,8-HxCDF	**14.1**	0.128	2.97	1	0.1	1.41
1,2,3,7,8,9-HxCDF	**4.05**	0.149	2.97	1	0.1	0.405
2,3,4,6,7,8-HxCDF	**2.38**	0.146	2.97	1	0.1	0.238
1,2,3,4,6,7,8-HpCDF	**22.2**	0.221	2.97	1	0.01	0.222
1,2,3,4,7,8,9-HpCDF	**8.56**	0.315	2.97	1	0.01	0.0856
OCDF	**14.0**	0.339	5.93	1	0.0003	0.00420
		Total TEQ				519

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 16:55
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0556	**Units:**	Percent
Lab Code:	E1801057-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	6.409g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0557	**Units:**	ng/Kg
Lab Code:	E1801057-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 00:25
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.877g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519338	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	14.8		0.276	0.554	0.80	1.001	1
1,2,3,7,8-PeCDD	0.273	**J**	0.0449	2.77	1.62	1.000	1
1,2,3,4,7,8-HxCDD	0.104	**JK**	0.0605	2.77	1.57	1.000	1
1,2,3,6,7,8-HxCDD	0.0997	**JK**	0.0650	2.77	0.69	1.000	1
1,2,3,7,8,9-HxCDD	0.141	**JK**	0.0613	2.77	0.73	1.007	1
1,2,3,4,6,7,8-HpCDD	2.20	**J**	0.0249	2.77	1.04	1.000	1
OCDD	86.3		0.0600	5.54	0.87	1.000	1
2,3,7,8-TCDF	33.2		0.0944	0.554	0.74	1.001	1
1,2,3,7,8-PeCDF	1.22	**J**	0.0758	2.77	1.45	1.001	1
2,3,4,7,8-PeCDF	0.793	**J**	0.0833	2.77	1.38	1.001	1
1,2,3,4,7,8-HxCDF	2.16	**J**	0.0297	2.77	1.41	1.000	1
1,2,3,6,7,8-HxCDF	0.428	**JK**	0.0274	2.77	1.55	1.000	1
1,2,3,7,8,9-HxCDF	0.123	**JK**	0.0308	2.77	0.87	1.001	1
2,3,4,6,7,8-HxCDF	0.139	**JK**	0.0288	2.77	1.48	1.000	1
1,2,3,4,6,7,8-HpCDF	0.551	**JK**	0.0204	2.77	0.76	1.000	1
1,2,3,4,7,8,9-HpCDF	0.244	**JK**	0.0292	2.77	0.82	1.000	1
OCDF	0.403	**J**	0.0522	5.54	0.84	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0557	**Units:**	ng/Kg
Lab Code:	E1801057-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 00:25
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.877g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519338	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.1		0.276	0.554	0.70		1
Total Penta-Dioxins	0.716**J**		0.0449	2.77	1.33		1
Total Hexa-Dioxins	4.15		0.0623	2.77	1.15		1
Total Hepta-Dioxins	10.3		0.0249	2.77	0.98		1
Total Tetra-Furans	58.2		0.0944	0.554	0.72		1
Total Penta-Furans	2.52**J**		0.0794	2.77	1.67		1
Total Hexa-Furans	2.16**J**		0.0292	2.77	1.41		1
Total Hepta-Furans	ND	U	0.0244	2.77			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0557	**Units:**	Percent
Lab Code:	E1801057-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 00:25
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.877g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519338	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	747.827	37		25-164	0.80	1.021
13C-1,2,3,7,8-PeCDD	2000	1575.756	79		25-181	1.63	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1460.878	73		32-141	1.39	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1455.724	73		28-130	1.22	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2011.252	101		23-140	1.06	1.070
13C-OCDD	4000	2993.058	75		17-157	0.88	1.151
13C-2,3,7,8-TCDF	2000	979.558	49		24-169	0.81	0.991
13C-1,2,3,7,8-PeCDF	2000	1540.990	77		24-185	1.57	1.147
13C-2,3,4,7,8-PeCDF	2000	1394.856	70		21-178	1.60	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1236.055	62		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1381.230	69		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1602.311	80		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1346.458	67		28-136	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1438.940	72		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1550.452	78		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	417.866	52		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0557	**Units:**	ng/Kg
Lab Code:	E1801057-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**14.8**	0.276	0.554	1	1	14.8
1,2,3,7,8-PeCDD	**0.273**	0.0449	2.77	1	1	0.273
1,2,3,4,7,8-HxCDD	**0.104**	0.0605	2.77	1	0.1	0.0104
1,2,3,6,7,8-HxCDD	**0.0997**	0.0650	2.77	1	0.1	0.00997
1,2,3,7,8,9-HxCDD	**0.141**	0.0613	2.77	1	0.1	0.0141
1,2,3,4,6,7,8-HpCDD	**2.20**	0.0249	2.77	1	0.01	0.0220
OCDD	**86.3**	0.0600	5.54	1	0.0003	0.0259
2,3,7,8-TCDF	**33.2**	0.0944	0.554	1	0.1	3.32
1,2,3,7,8-PeCDF	**1.22**	0.0758	2.77	1	0.03	0.0366
2,3,4,7,8-PeCDF	**0.793**	0.0833	2.77	1	0.3	0.238
1,2,3,4,7,8-HxCDF	**2.16**	0.0297	2.77	1	0.1	0.216
1,2,3,6,7,8-HxCDF	**0.428**	0.0274	2.77	1	0.1	0.0428
1,2,3,7,8,9-HxCDF	**0.123**	0.0308	2.77	1	0.1	0.0123
2,3,4,6,7,8-HxCDF	**0.139**	0.0288	2.77	1	0.1	0.0139
1,2,3,4,6,7,8-HpCDF	**0.551**	0.0204	2.77	1	0.01	0.00551
1,2,3,4,7,8,9-HpCDF	**0.244**	0.0292	2.77	1	0.01	0.00244
OCDF	**0.403**	0.0522	5.54	1	0.0003	0.000121
		Total TEQ				19.0

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:00
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0557	**Units:**	Percent
Lab Code:	E1801057-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	8.604g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:05
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0558	**Units:**	ng/Kg
Lab Code:	E1801057-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 02:25
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.132g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519296	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	146		0.610	0.625	0.76	1.001	1
1,2,3,7,8-PeCDD	1.28	**J**	0.112	3.13	1.36	1.000	1
1,2,3,4,7,8-HxCDD	0.196	**J**	0.0645	3.13	1.13	1.000	1
1,2,3,6,7,8-HxCDD	0.288	**JK**	0.0697	3.13	0.67	1.000	1
1,2,3,7,8,9-HxCDD	0.403	**J**	0.0655	3.13	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	5.54		0.0941	3.13	1.20	1.001	1
OCDD	221		0.182	6.25	0.92	1.000	1
2,3,7,8-TCDF	358		0.197	0.625	0.79	1.001	1
1,2,3,7,8-PeCDF	10.5		0.106	3.13	1.46	1.001	1
2,3,4,7,8-PeCDF	9.83		0.118	3.13	1.56	1.001	1
1,2,3,4,7,8-HxCDF	17.3		0.0517	3.13	1.15	1.000	1
1,2,3,6,7,8-HxCDF	3.97	**K**	0.0468	3.13	1.04	1.000	1
1,2,3,7,8,9-HxCDF	1.18	**J**	0.0558	3.13	1.09	1.001	1
2,3,4,6,7,8-HxCDF	0.683	**JK**	0.0532	3.13	0.97	1.000	1
1,2,3,4,6,7,8-HpCDF	4.51		0.0792	3.13	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	1.45	**JK**	0.104	3.13	1.31	1.000	1
OCDF	2.90	**J**	0.191	6.25	0.76	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:05
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0558	**Units:**	ng/Kg
Lab Code:	E1801057-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 02:25
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.132g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519296	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	164		0.610	0.625	0.75		1
Total Penta-Dioxins	1.28**J**		0.112	3.13	1.36		1
Total Hexa-Dioxins	5.93		0.0666	3.13	1.17		1
Total Hepta-Dioxins	14.1		0.0941	3.13	0.97		1
Total Tetra-Furans	638		0.197	0.625	0.68		1
Total Penta-Furans	25.3		0.112	3.13	1.59		1
Total Hexa-Furans	18.5		0.0516	3.13	1.15		1
Total Hepta-Furans	6.31		0.0902	3.13	0.99		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:05
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0558	**Units:**	Percent
Lab Code:	E1801057-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 02:25
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.132g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519296	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	718.154	36		25-164	0.82	1.021
13C-1,2,3,7,8-PeCDD	2000	1468.598	73		25-181	1.62	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1291.290	65		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1314.490	66		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1807.867	90		23-140	1.05	1.070
13C-OCDD	4000	2753.488	69		17-157	0.89	1.151
13C-2,3,7,8-TCDF	2000	954.483	48		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1441.059	72		24-185	1.58	1.146
13C-2,3,4,7,8-PeCDF	2000	1345.953	67		21-178	1.62	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1138.650	57		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1276.836	64		26-123	0.50	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1352.741	68		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1194.544	60		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1289.765	64		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1429.645	71		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	433.043	54		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:05
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0558	**Units:**	ng/Kg
Lab Code:	E1801057-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**146**	0.610	0.625	1	1	146
1,2,3,7,8-PeCDD	**1.28**	0.112	3.13	1	1	1.28
1,2,3,4,7,8-HxCDD	**0.196**	0.0645	3.13	1	0.1	0.0196
1,2,3,6,7,8-HxCDD	**0.288**	0.0697	3.13	1	0.1	0.0288
1,2,3,7,8,9-HxCDD	**0.403**	0.0655	3.13	1	0.1	0.0403
1,2,3,4,6,7,8-HpCDD	**5.54**	0.0941	3.13	1	0.01	0.0554
OCDD	**221**	0.182	6.25	1	0.0003	0.0663
2,3,7,8-TCDF	**358**	0.197	0.625	1	0.1	35.8
1,2,3,7,8-PeCDF	**10.5**	0.106	3.13	1	0.03	0.315
2,3,4,7,8-PeCDF	**9.83**	0.118	3.13	1	0.3	2.95
1,2,3,4,7,8-HxCDF	**17.3**	0.0517	3.13	1	0.1	1.73
1,2,3,6,7,8-HxCDF	**3.97**	0.0468	3.13	1	0.1	0.397
1,2,3,7,8,9-HxCDF	**1.18**	0.0558	3.13	1	0.1	0.118
2,3,4,6,7,8-HxCDF	**0.683**	0.0532	3.13	1	0.1	0.0683
1,2,3,4,6,7,8-HpCDF	**4.51**	0.0792	3.13	1	0.01	0.0451
1,2,3,4,7,8,9-HpCDF	**1.45**	0.104	3.13	1	0.01	0.0145
OCDF	**2.90**	0.191	6.25	1	0.0003	0.000870
		Total TEQ				189

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:05
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0558	**Units:**	Percent
Lab Code:	E1801057-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	5.284g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	78.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:10
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0559	**Units:**	ng/Kg
Lab Code:	E1801057-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 17:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.687g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519330	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	43400		172	172	0.77	1.001	100
1,2,3,7,8-PeCDD	129		0.340	3.98	1.56	1.001	1
1,2,3,4,7,8-HxCDD	1.97	**J**	0.243	3.98	1.20	1.000	1
1,2,3,6,7,8-HxCDD	12.1		0.249	3.98	1.23	1.000	1
1,2,3,7,8,9-HxCDD	3.91	**J**	0.241	3.98	1.33	1.007	1
1,2,3,4,6,7,8-HpCDD	188		0.0452	3.98	1.02	1.000	1
OCDD	5460		0.260	7.96	0.89	1.000	1
2,3,7,8-TCDF	62400		60.9	79.6	0.75	1.001	100
1,2,3,7,8-PeCDF	1510		1.18	3.98	1.53	1.000	1
2,3,4,7,8-PeCDF	1240		1.17	3.98	1.53	1.000	1
1,2,3,4,7,8-HxCDF	2540		1.36	3.98	1.23	1.000	1
1,2,3,6,7,8-HxCDF	596		1.36	3.98	1.23	1.000	1
1,2,3,7,8,9-HxCDF	195		1.62	3.98	1.20	1.001	1
2,3,4,6,7,8-HxCDF	112		1.56	3.98	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	654		0.923	3.98	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	240		1.36	3.98	1.03	1.000	1
OCDF	369		0.296	7.96	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:10
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0559	**Units:**	ng/Kg
Lab Code:	E1801057-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 17:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.687g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519330	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	22900		0.682	0.796	0.84		1
Total Penta-Dioxins	142		0.340	3.98	1.66		1
Total Hexa-Dioxins	55.4		0.244	3.98	1.21		1
Total Hepta-Dioxins	467		0.0452	3.98	1.04		1
Total Tetra-Furans	80400		0.659	0.796	0.76		1
Total Penta-Furans	4080		1.17	3.98	1.49		1
Total Hexa-Furans	3740		1.47	3.98	1.27		1
Total Hepta-Furans	1180		1.12	3.98	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:10
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0559	**Units:**	Percent
Lab Code:	E1801057-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 03:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.687g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519297	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	727.650	36		25-164	0.80	1.021
13C-1,2,3,7,8-PeCDD	2000	1566.243	78		25-181	1.59	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1244.206	62		32-141	1.32	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1253.896	63		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1280.175	64		23-140	1.06	1.070
13C-OCDD	4000	1440.995	36		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	1287.995	64		24-169	0.81	0.991
13C-1,2,3,7,8-PeCDF	2000	1510.623	76		24-185	1.57	1.143
13C-2,3,4,7,8-PeCDF	2000	1459.053	73		21-178	1.60	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1143.191	57		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1072.232	54		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1253.799	63		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1139.794	57		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1006.578	50		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1005.849	50		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	655.057	82		35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:10
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0559	**Units:**	ng/Kg
Lab Code:	E1801057-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**43400**	172	172	100	1	43400
1,2,3,7,8-PeCDD	**129**	0.340	3.98	1	1	129
1,2,3,4,7,8-HxCDD	**1.97**	0.243	3.98	1	0.1	0.197
1,2,3,6,7,8-HxCDD	**12.1**	0.249	3.98	1	0.1	1.21
1,2,3,7,8,9-HxCDD	**3.91**	0.241	3.98	1	0.1	0.391
1,2,3,4,6,7,8-HpCDD	**188**	0.0452	3.98	1	0.01	1.88
OCDD	**5460**	0.260	7.96	1	0.0003	1.64
2,3,7,8-TCDF	**62400**	60.9	79.6	100	0.1	6240
1,2,3,7,8-PeCDF	**1510**	1.18	3.98	1	0.03	45.3
2,3,4,7,8-PeCDF	**1240**	1.17	3.98	1	0.3	372
1,2,3,4,7,8-HxCDF	**2540**	1.36	3.98	1	0.1	254
1,2,3,6,7,8-HxCDF	**596**	1.36	3.98	1	0.1	59.6
1,2,3,7,8,9-HxCDF	**195**	1.62	3.98	1	0.1	19.5
2,3,4,6,7,8-HxCDF	**112**	1.56	3.98	1	0.1	11.2
1,2,3,4,6,7,8-HpCDF	**654**	0.923	3.98	1	0.01	6.54
1,2,3,4,7,8,9-HpCDF	**240**	1.36	3.98	1	0.01	2.40
OCDF	**369**	0.296	7.96	1	0.0003	0.111
		Total TEQ				50500

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:10
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0559	**Units:**	Percent
Lab Code:	E1801057-007	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	5.682g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	58.8		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:15
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0560	**Units:**	ng/Kg
Lab Code:	E1801057-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 04:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.695g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519298	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	207		0.374	0.581	0.79	1.001	1
1,2,3,7,8-PeCDD	1.60	**J**	0.134	2.90	1.55	1.000	1
1,2,3,4,7,8-HxCDD	0.135	**JK**	0.109	2.90	0.66	1.000	1
1,2,3,6,7,8-HxCDD	0.408	**J**	0.117	2.90	1.34	1.000	1
1,2,3,7,8,9-HxCDD	0.442	**JK**	0.110	2.90	1.04	1.006	1
1,2,3,4,6,7,8-HpCDD	8.23		0.204	2.90	1.01	1.000	1
OCDD	357		0.217	5.81	0.88	1.000	1
2,3,7,8-TCDF	591		3.66	5.81	0.75	1.001	10
1,2,3,7,8-PeCDF	14.2		0.138	2.90	1.44	1.001	1
2,3,4,7,8-PeCDF	12.5		0.149	2.90	1.44	1.001	1
1,2,3,4,7,8-HxCDF	29.7		0.0917	2.90	1.22	1.000	1
1,2,3,6,7,8-HxCDF	7.44		0.0826	2.90	1.17	1.000	1
1,2,3,7,8,9-HxCDF	2.62	**J**	0.103	2.90	1.26	1.001	1
2,3,4,6,7,8-HxCDF	1.19	**JK**	0.0951	2.90	0.98	1.000	1
1,2,3,4,6,7,8-HpCDF	9.65		0.214	2.90	0.94	1.000	1
1,2,3,4,7,8,9-HpCDF	3.05	**K**	0.303	2.90	0.79	1.000	1
OCDF	18.4		0.235	5.81	0.83	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:15
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0560	**Units:**	ng/Kg
Lab Code:	E1801057-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 04:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.695g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519298	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	230		0.374	0.581	0.88		1
Total Penta-Dioxins	1.91**J**		0.134	2.90	1.41		1
Total Hexa-Dioxins	4.77		0.112	2.90	1.08		1
Total Hepta-Dioxins	27.6		0.204	2.90	0.99		1
Total Tetra-Furans	837		0.253	0.581	0.71		1
Total Penta-Furans	40.0		0.143	2.90	1.65		1
Total Hexa-Furans	42.3		0.0925	2.90	1.28		1
Total Hepta-Furans	13.6		0.254	2.90	0.94		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:15
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0560	**Units:**	Percent
Lab Code:	E1801057-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 04:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.695g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519298	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	883.625	44		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1529.970	76		25-181	1.58	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1240.895	62		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1215.937	61		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1691.123	85		23-140	1.06	1.071
13C-OCDD	4000	2191.314	55		17-157	0.91	1.152
13C-2,3,7,8-TCDF	2000	1198.242	60		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1513.208	76		24-185	1.57	1.146
13C-2,3,4,7,8-PeCDF	2000	1444.594	72		21-178	1.61	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1095.714	55		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1197.046	60		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1280.951	64		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1134.148	57		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1227.191	61		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1291.623	65		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	552.594	69		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:15
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0560	**Units:**	ng/Kg
Lab Code:	E1801057-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**207**	0.374	0.581	1	1	207
1,2,3,7,8-PeCDD	**1.60**	0.134	2.90	1	1	1.60
1,2,3,4,7,8-HxCDD	**0.135**	0.109	2.90	1	0.1	0.0135
1,2,3,6,7,8-HxCDD	**0.408**	0.117	2.90	1	0.1	0.0408
1,2,3,7,8,9-HxCDD	**0.442**	0.110	2.90	1	0.1	0.0442
1,2,3,4,6,7,8-HpCDD	**8.23**	0.204	2.90	1	0.01	0.0823
OCDD	**357**	0.217	5.81	1	0.0003	0.107
2,3,7,8-TCDF	**591**	3.66	5.81	10	0.1	59.1
1,2,3,7,8-PeCDF	**14.2**	0.138	2.90	1	0.03	0.426
2,3,4,7,8-PeCDF	**12.5**	0.149	2.90	1	0.3	3.75
1,2,3,4,7,8-HxCDF	**29.7**	0.0917	2.90	1	0.1	2.97
1,2,3,6,7,8-HxCDF	**7.44**	0.0826	2.90	1	0.1	0.744
1,2,3,7,8,9-HxCDF	**2.62**	0.103	2.90	1	0.1	0.262
2,3,4,6,7,8-HxCDF	**1.19**	0.0951	2.90	1	0.1	0.119
1,2,3,4,6,7,8-HpCDF	**9.65**	0.214	2.90	1	0.01	0.0965
1,2,3,4,7,8,9-HpCDF	**3.05**	0.303	2.90	1	0.01	0.0305
OCDF	**18.4**	0.235	5.81	1	0.0003	0.00552
		Total TEQ				276

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	11/16/18 17:15
Sample Matrix:	Sediment	**Date Received:**	11/17/18 09:52
Sample Name:	SL0560	**Units:**	Percent
Lab Code:	E1801057-008	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	5.071g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.256	0.485			1
1,2,3,7,8-PeCDD	ND	U	0.0576	2.43			1
1,2,3,4,7,8-HxCDD	ND	U	0.0383	2.43			1
1,2,3,6,7,8-HxCDD	ND	U	0.0422	2.43			1
1,2,3,7,8,9-HxCDD	ND	U	0.0374	2.43			1
1,2,3,4,6,7,8-HpCDD	0.0694**J**		0.0223	2.43	0.88	1.000	1
OCDD	0.760**JK**		0.0845	4.85	0.71	1.000	1
2,3,7,8-TCDF	0.186**J**		0.103	0.485	0.67	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0642	2.43			1
2,3,4,7,8-PeCDF	ND	U	0.0734	2.43			1
1,2,3,4,7,8-HxCDF	0.0280**J**		0.0222	2.43	1.18	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0223	2.43			1
1,2,3,7,8,9-HxCDF	ND	U	0.0285	2.43			1
2,3,4,6,7,8-HxCDF	ND	U	0.0245	2.43			1
1,2,3,4,6,7,8-HpCDF	0.0449**JK**		0.0177	2.43	1.30	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0240	2.43			1
OCDF	ND	U	0.135	4.85			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.256	0.485			1
Total Penta-Dioxins	ND	U	0.0576	2.43			1
Total Hexa-Dioxins	ND	U	0.0393	2.43			1
Total Hepta-Dioxins	ND	U	0.0223	2.43			1
Total Tetra-Furans	0.186**J**		0.103	0.485	0.67		1
Total Penta-Furans	ND	U	0.0685	2.43			1
Total Hexa-Furans	0.0280**J**		0.0242	2.43	1.18		1
Total Hepta-Furans	ND	U	0.0206	2.43			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	664.870	33		25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	998.062	50		25-181	1.57	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1109.592	55		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1073.693	54		28-130	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1253.124	63		23-140	1.05	1.066
13C-OCDD	4000	1409.965	35		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	881.985	44		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	984.157	49		24-185	1.58	1.149
13C-2,3,4,7,8-PeCDF	2000	892.732	45		21-178	1.57	1.183
13C-1,2,3,4,7,8-HxCDF	2000	982.621	49		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	989.792	49		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	936.430	47		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	931.386	47		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	885.084	44		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	870.209	44		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	358.073	45		35-197	NA	1.023

Accuracy & Precision

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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Analyzed:**	12/07/18
Sample Matrix:	Sediment	**Date Extracted:**	12/03/18

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

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618435

	Lab Control Sample EQ1800494-02			Duplicate Lab Control Sample EQ1800494-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	68.7	98.6	70	70.7	98.9	71	70-140	3	50
1,2,3,4,7,8-HxCDD	87.1	98.6	88	88.4	98.9	89	70-164	1	50
1,2,3,6,7,8-HxCDD	97.3	98.6	99	98.5	98.9	100	76-134	1	50
1,2,3,7,8,9-HxCDD	91.1	98.6	92	93.9	98.9	95	64-162	3	50
1,2,3,7,8-PeCDD	99.3	98.6	101	97.4	98.9	98	70-142	2	50
2,3,7,8-TCDD	27.8	19.7	141	29.2	19.8	148	67-158	5	50
OCDD	195	197	99	189	198	96	78-144	3	50
1,2,3,4,6,7,8-HpCDF	90.2	98.6	91	89.5	98.9	90	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	88.9	98.6	90	89.2	98.9	90	78-138	<1	50
1,2,3,4,7,8-HxCDF	87.4	98.6	89	84.8	98.9	86	72-134	3	50
1,2,3,6,7,8-HxCDF	89.1	98.6	90	89.5	98.9	90	84-130	<1	50
1,2,3,7,8,9-HxCDF	88.0	98.6	89	88.0	98.9	89	78-130	<1	50
1,2,3,7,8-PeCDF	82.8	98.6	84	81.5	98.9	82	80-134	2	50
2,3,4,6,7,8-HxCDF	90.7	98.6	92	90.3	98.9	91	70-156	<1	50
2,3,4,7,8-PeCDF	89.6	98.6	91	88.7	98.9	90	68-160	1	50
2,3,7,8-TCDF	17.9	19.7	91	19.5	19.8	98	75-158	8	50
OCDF	182	197	92	189	198	96	63-170	4	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Analyzed:**	12/07/18
Sample Matrix:	Sediment	**Date Extracted:**	12/03/18

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

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618435

EQ1800494-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	68.7	98.6	70	70-140
1,2,3,4,7,8-HxCDD	87.1	98.6	88	70-164
1,2,3,6,7,8-HxCDD	97.3	98.6	99	76-134
1,2,3,7,8,9-HxCDD	91.1	98.6	92	64-162
1,2,3,7,8-PeCDD	99.3	98.6	101	70-142
2,3,7,8-TCDD	27.8	19.7	141	67-158
OCDD	195	197	99	78-144
1,2,3,4,6,7,8-HpCDF	90.2	98.6	91	82-122
1,2,3,4,7,8,9-HpCDF	88.9	98.6	90	78-138
1,2,3,4,7,8-HxCDF	87.4	98.6	89	72-134
1,2,3,6,7,8-HxCDF	89.1	98.6	90	84-130
1,2,3,7,8,9-HxCDF	88.0	98.6	89	78-130
1,2,3,7,8-PeCDF	82.8	98.6	84	80-134
2,3,4,6,7,8-HxCDF	90.7	98.6	92	70-156
2,3,4,7,8-PeCDF	89.6	98.6	91	68-160
2,3,7,8-TCDF	17.9	19.7	91	75-158
OCDF	182	197	92	63-170

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	27.8		0.828	0.828	0.76	1.001	1
1,2,3,7,8-PeCDD	99.3		0.0934	2.46	1.53	1.001	1
1,2,3,4,7,8-HxCDD	87.1		0.0848	2.46	1.23	1.000	1
1,2,3,6,7,8-HxCDD	97.3		0.0967	2.46	1.28	1.000	1
1,2,3,7,8,9-HxCDD	91.1		0.0843	2.46	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	68.7		0.0573	2.46	1.03	1.000	1
OCDD	195		0.0904	4.93	0.91	1.000	1
2,3,7,8-TCDF	17.9		0.425	0.493	0.78	1.001	1
1,2,3,7,8-PeCDF	82.8		0.124	2.46	1.56	1.000	1
2,3,4,7,8-PeCDF	89.6		0.136	2.46	1.54	1.001	1
1,2,3,4,7,8-HxCDF	87.4		0.0692	2.46	1.26	1.000	1
1,2,3,6,7,8-HxCDF	89.1		0.0688	2.46	1.25	1.000	1
1,2,3,7,8,9-HxCDF	88.0		0.0795	2.46	1.27	1.000	1
2,3,4,6,7,8-HxCDF	90.7		0.0738	2.46	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	90.2		0.150	2.46	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	88.9		0.200	2.46	1.04	1.000	1
OCDF	182		0.181	4.93	0.89	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	27.8		0.828	0.828	0.76		1
Total Penta-Dioxins	99.3		0.0934	2.46	1.53		1
Total Hexa-Dioxins	276		0.0884	2.46	1.23		1
Total Hepta-Dioxins	69.1		0.0573	2.46	1.00		1
Total Tetra-Furans	18.3		0.425	0.493	0.76		1
Total Penta-Furans	175		0.129	2.46	1.47		1
Total Hexa-Furans	356		0.0726	2.46	1.26		1
Total Hepta-Furans	179		0.172	2.46	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	394.500	20	**Y**	25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	917.495	46		25-181	1.57	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1188.788	59		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1115.480	56		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1370.222	69		23-140	1.05	1.066
13C-OCDD	4000	1609.789	40		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	476.338	24		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	813.478	41		24-185	1.57	1.149
13C-2,3,4,7,8-PeCDF	2000	777.175	39		21-178	1.58	1.183
13C-1,2,3,4,7,8-HxCDF	2000	960.114	48		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	968.174	48		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	996.811	50		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	949.338	47		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	948.543	47		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	920.814	46		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	234.117	29	**Y**	35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	29.2		0.456	0.495	0.84	1.001	1
1,2,3,7,8-PeCDD	97.4		0.0786	2.47	1.59	1.001	1
1,2,3,4,7,8-HxCDD	88.4		0.0517	2.47	1.20	1.000	1
1,2,3,6,7,8-HxCDD	98.5		0.0589	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	93.9		0.0514	2.47	1.26	1.006	1
1,2,3,4,6,7,8-HpCDD	70.7		0.0367	2.47	1.06	1.000	1
OCDD	189		0.108	4.95	0.89	1.000	1
2,3,7,8-TCDF	19.5		0.231	0.495	0.75	1.001	1
1,2,3,7,8-PeCDF	81.5		0.0908	2.47	1.55	1.000	1
2,3,4,7,8-PeCDF	88.7		0.0969	2.47	1.51	1.001	1
1,2,3,4,7,8-HxCDF	84.8		0.0565	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDF	89.5		0.0570	2.47	1.26	1.000	1
1,2,3,7,8,9-HxCDF	88.0		0.0681	2.47	1.24	1.000	1
2,3,4,6,7,8-HxCDF	90.3		0.0611	2.47	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	89.5		0.141	2.47	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	89.2		0.201	2.47	1.03	1.000	1
OCDF	189		0.184	4.95	0.89	1.006	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	29.2		0.456	0.495	0.84		1
Total Penta-Dioxins	98.0		0.0786	2.47	1.59		1
Total Hexa-Dioxins	281		0.0539	2.47	1.20		1
Total Hepta-Dioxins	70.7		0.0367	2.47	1.06		1
Total Tetra-Furans	20.7		0.231	0.495	0.76		1
Total Penta-Furans	171		0.0937	2.47	1.62		1
Total Hexa-Furans	353		0.0605	2.47	1.28		1
Total Hepta-Furans	179		0.168	2.47	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801057
Project:	C1844-0501 North Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	508.753	25		25-164	0.80	1.022
13C-1,2,3,7,8-PeCDD	2000	981.801	49		25-181	1.56	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1147.936	57		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1110.349	56		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1286.687	64		23-140	1.05	1.066
13C-OCDD	4000	1397.362	35		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	582.151	29		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	860.239	43		24-185	1.61	1.149
13C-2,3,4,7,8-PeCDF	2000	809.386	40		21-178	1.58	1.183
13C-1,2,3,4,7,8-HxCDF	2000	993.807	50		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	976.142	49		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	974.655	49		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	948.957	47		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	911.119	46		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	877.518	44		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	289.847	36		35-197	NA	1.023

Chromatograms and Selected Ion Monitoring

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Sample Response Summary

CLIENT ID.
SL0553

Run #18 Filename P519283 Samp: 1 Inj: 1 Acquired: 7-DEC-18 15:38:11
Processed: 10-DEC-18 11:48:40 Sample ID: E1801057-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.741e+06	2.234e+06	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:18	1.068e+05	6.980e+04	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:12	7.233e+04	4.760e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:56	1.694e+05	1.405e+05	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:03	4.408e+04	3.590e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:33	7.393e+03	6.102e+03	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:20	1.161e+04	9.410e+03	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	4.282e+04	4.242e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:05	1.254e+04	1.246e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	9.852e+03	1.195e+04	0.82	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:51	3.164e+05	3.960e+05	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:30	6.001e+03	3.638e+03	1.65	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:41	1.229e+02	8.429e+01	1.46	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:47	5.065e+02	4.138e+02	1.22	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:02	2.322e+02	1.903e+02	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	9.287e+03	8.995e+03	1.03	yes	no	1.025
17	Unk	OCDD	42:35	1.219e+05	1.373e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	1.677e+04	2.068e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:18	2.758e+04	1.711e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:12	2.503e+04	1.560e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:55	1.261e+04	2.447e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:02	1.422e+04	2.743e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:33	1.280e+04	2.437e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:18	1.266e+04	2.392e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	9.743e+03	2.150e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	8.371e+03	1.912e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:50	5.703e+03	6.878e+03	0.83	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	1.954e+04	1.189e+04	1.64	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:41	1.765e+04	1.379e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:47	1.632e+04	1.274e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	1.865e+04	1.734e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:34	1.470e+04	1.596e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:16	1.596e+04	2.028e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:01	2.836e+04	2.320e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:51	1.155e+04				no	1.014

$$\text{OCDD} = \frac{(1.219e+05 + 1.373e+05) \times 4000\ \text{pg} \times 1}{(1.470e+04 + 1.596e+04) \times 10.092\ \text{g} \times 54 / 100 \times 1.118} = 5550.279\ \text{ng/kg}$$

LG 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0553

Run #18 Filename P519283 Samp: 1 Inj: 1 Acquired: 7-DEC-18 15:38:11
Processed: 10-DEC-18 11:48:40 LAB. ID: E1801057-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.45e+08	1.79e+03	1.4e+05	3.14e+08	3.23e+03	9.7e+04
2	1,2,3,7,8-PeCDF	1.93e+07	1.92e+04	1.0e+03	1.26e+07	4.45e+03	2.8e+03
3	2,3,4,7,8-PeCDF	1.16e+07	1.92e+04	6.0e+02	7.66e+06	4.45e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	3.64e+07	5.16e+03	7.1e+03	2.99e+07	5.92e+03	5.0e+03
5	1,2,3,6,7,8-HxCDF	8.68e+06	5.16e+03	1.7e+03	7.04e+06	5.92e+03	1.2e+03
6	2,3,4,6,7,8-HxCDF	1.57e+06	5.16e+03	3.0e+02	1.27e+06	5.92e+03	2.2e+02
7	1,2,3,7,8,9-HxCDF	2.14e+06	5.16e+03	4.1e+02	1.80e+06	5.92e+03	3.0e+02
8	1,2,3,4,6,7,8-HpCDF	7.96e+06	1.39e+03	5.7e+03	7.87e+06	4.30e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	2.06e+06	1.39e+03	1.5e+03	2.04e+06	4.30e+03	4.7e+02
10	OCDF	1.21e+06	5.40e+02	2.2e+03	1.42e+06	8.40e+02	1.7e+03
11	2,3,7,8-TCDD	7.00e+07	3.09e+03	2.3e+04	8.86e+07	1.58e+03	5.6e+04
12	1,2,3,7,8-PeCDD	1.04e+06	5.12e+02	2.0e+03	6.40e+05	1.08e+03	6.0e+02
13	1,2,3,4,7,8-HxCDD	2.76e+04	7.16e+02	3.9e+01	1.93e+04	1.05e+03	1.8e+01
14	1,2,3,6,7,8-HxCDD	1.01e+05	7.16e+02	1.4e+02	8.58e+04	1.05e+03	8.2e+01
15	1,2,3,7,8,9-HxCDD	4.38e+04	7.16e+02	6.1e+01	3.91e+04	1.05e+03	3.7e+01
16	1,2,3,4,6,7,8-HpCDD	1.61e+06	5.84e+02	2.8e+03	1.58e+06	6.28e+02	2.5e+03
17	OCDD	1.53e+07	4.44e+02	3.4e+04	1.71e+07	6.52e+02	2.6e+04
18	13C-2,3,7,8-TCDF	2.58e+06	2.11e+04	1.2e+02	3.10e+06	1.88e+04	1.6e+02
19	13C-1,2,3,7,8-PeCDF	4.98e+06	2.73e+03	1.8e+03	3.07e+06	4.94e+03	6.2e+02
20	13C-2,3,4,7,8-PeCDF	5.12e+06	2.73e+03	1.9e+03	3.13e+06	4.94e+03	6.3e+02
21	13C-1,2,3,4,7,8-HxCDF	2.70e+06	2.51e+03	1.1e+03	5.16e+06	1.52e+03	3.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.82e+06	2.51e+03	1.1e+03	5.45e+06	1.52e+03	3.6e+03
23	13C-2,3,4,6,7,8-HxCDF	2.50e+06	2.51e+03	9.9e+02	4.81e+06	1.52e+03	3.2e+03
24	13C-1,2,3,7,8,9-HxCDF	2.51e+06	2.51e+03	1.0e+03	4.72e+06	1.52e+03	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.79e+06	1.36e+03	1.3e+03	4.05e+06	2.72e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.37e+06	1.36e+03	1.0e+03	3.05e+06	2.72e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.13e+06	8.56e+03	1.3e+02	1.41e+06	2.47e+03	5.7e+02
28	13C-1,2,3,7,8-PeCDD	3.65e+06	1.58e+03	2.3e+03	2.24e+06	1.88e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	3.70e+06	1.35e+03	2.7e+03	2.87e+06	1.03e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.33e+06	1.35e+03	2.5e+03	2.64e+06	1.03e+03	2.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.28e+06	1.12e+03	2.9e+03	3.11e+06	6.20e+02	5.0e+03
32	13C-OCDD	1.82e+06	9.76e+02	1.9e+03	2.01e+06	3.52e+02	5.7e+03
33	13C-1,2,3,4-TCDD	2.37e+06	8.56e+03	2.8e+02	3.03e+06	2.47e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.44e+06	1.35e+03	4.0e+03	4.31e+06	1.03e+03	4.2e+03
35	37Cl-2,3,7,8-TCDD	2.62e+06	3.46e+03	7.6e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.092e{+}03 + 1.584e{+}03) \times 2000}{(1.130e{+}06 + 1.411e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0553

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519283 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 15:38:11 Processed: 10-DEC-18 11:48:40

Mass: 303.9020 305.8990 Tot Response: 7.29e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:59	1.27e+04	1.67e+04	0.76	yes	2.94e+04		n	n
2	25:19	7.36e+04	9.64e+04	0.76	yes	1.70e+05		n	n
3	25:43	2.32e+04	3.11e+04	0.74	yes	5.43e+04		n	n
4	26:02	6.34e+04	8.44e+04	0.75	yes	1.48e+05		n	n
5	26:25	1.54e+04	2.10e+04	0.73	yes	3.65e+04		n	n
6	26:37	4.56e+04	6.20e+04	0.74	yes	1.08e+05		n	n
7	26:44	8.30e+04	1.09e+05	0.76	yes	1.92e+05		n	n
8	27:10	8.36e+05	1.09e+06	0.77	yes	1.92e+06		n	n
9	27:26	3.80e+04	5.20e+04	0.73	yes	9.00e+04		n	n
10	28:00	1.74e+06	2.23e+06	0.78	yes	3.98e+06	2,3,7,8-TCDF	n	n
11	28:22	9.80e+04	1.28e+05	0.77	yes	2.26e+05		n	n
12	28:37	1.71e+04	2.29e+04	0.74	yes	4.00e+04		n	n
13	29:53	1.30e+05	1.67e+05	0.78	yes	2.98e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0553

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519283 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 15:38:11 Processed: 10-DEC-18 11:48:40

Mass: 319.8970 321.8940 Tot Response: 8.13e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:34	4.72e+03	5.66e+03	0.83	yes	1.04e+04		n	n
2	28:51	3.16e+05	3.96e+05	0.80	yes	7.12e+05	2,3,7,8-TCDD	n	n
3	29:06	4.04e+04	5.01e+04	0.81	yes	9.05e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0553

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P519283 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 15:38:11 Processed: 10-DEC-18 11:48:40

Mass: 339.8600 341.8570 Tot Response: 4.34e+05 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	7.46e+02	5.14e+02	1.45	yes	1.26e+03		n	n
2	31:22	4.22e+04	2.78e+04	1.52	yes	7.00e+04		n	n
3	31:40	3.07e+02	2.23e+02	1.38	yes	5.30e+02		n	n
4	31:54	1.45e+03	1.03e+03	1.40	yes	2.48e+03		n	n
5	32:08	9.08e+03	6.28e+03	1.45	yes	1.54e+04		n	n
6	32:18	1.07e+05	6.98e+04	1.53	yes	1.77e+05	1,2,3,7,8-PeCDF	n	n
7	32:34	2.46e+04	1.65e+04	1.49	yes	4.11e+04		n	n
8	33:12	7.23e+04	4.76e+04	1.52	yes	1.20e+05	2,3,4,7,8-PeCDF	n	n
9	34:07	4.04e+03	2.71e+03	1.49	yes	6.75e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0553

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P519283 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 15:38:11 Processed: 10-DEC-18 11:48:40

Mass: 355.8550 357.8520 Tot Response: 1.07e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:24	1.96e+02	1.47e+02	1.33	yes	3.44e+02		n	n
2	32:29	2.63e+02	1.50e+02	1.76	yes	4.13e+02		n	n
3	33:30	6.00e+03	3.64e+03	1.65	yes	9.64e+03	1,2,3,7,8-PeCDD	n	n
4	33:38	1.57e+02	1.17e+02	1.34	yes	2.74e+02		n	n
5	33:48	2.30e+01	1.39e+01	1.65	yes	3.69e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0553

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519283 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 15:38:11 Processed: 10-DEC-18 11:48:40

Mass: 373.8210 375.8180 Tot Response: 4.57e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:49	9.74e+02	7.94e+02	1.23	yes	1.77e+03		n	n
2	34:59	1.11e+04	9.29e+03	1.20	yes	2.04e+04		n	n
3	35:30	5.49e+03	4.62e+03	1.19	yes	1.01e+04		n	n
4	35:56	1.69e+05	1.40e+05	1.21	yes	3.10e+05	1,2,3,4,7,8-HxCDF	n	n
5	36:03	4.41e+04	3.59e+04	1.23	yes	8.00e+04	1,2,3,6,7,8-HxCDF	n	n
6	36:33	7.39e+03	6.10e+03	1.21	yes	1.35e+04	2,3,4,6,7,8-HxCDF	n	n
7	37:20	1.16e+04	9.41e+03	1.23	yes	2.10e+04	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0553

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519283 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 15:38:11 Processed: 10-DEC-18 11:48:40

Mass: 389.8160 391.8130 Tot Response: 6.82e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:20	1.39e+03	1.09e+03 1.27	yes	2.48e+03		n	n
2	35:52	1.57e+02	1.27e+02 1.23	yes	2.84e+02		n	n
3	36:06	1.46e+03	1.17e+03 1.25	yes	2.62e+03		n	n
4	36:47	5.07e+02	4.14e+02 1.22	yes	9.20e+02	1,2,3,6,7,8-HxCDD	n	n
5	36:57	5.05e+01	3.78e+01 1.34	yes	8.83e+01		n	n
6	37:02	2.32e+02	1.90e+02 1.22	yes	4.23e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0553

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519283 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 15:38:11 Processed: 10-DEC-18 11:48:40

Mass: 407.7820 409.7790 Tot Response: 1.36e+05 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	4.28e+04	4.24e+04	1.01	yes	8.52e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:54	3.10e+02	3.09e+02	1.00	yes	6.19e+02		n	n
3	39:03	1.25e+04	1.23e+04	1.01	yes	2.48e+04		n	n
4	40:05	1.25e+04	1.25e+04	1.01	yes	2.50e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0553

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519283 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 15:38:11 Processed: 10-DEC-18 11:48:40

Mass: 423.7770 425.7740 Tot Response: 4.40e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.31e+04	1.03	yes	2.57e+04		n	n
2	39:36	9.29e+03	1.03	yes	1.83e+04	1,2,3,4,6,7,8-HpCDD	n	n

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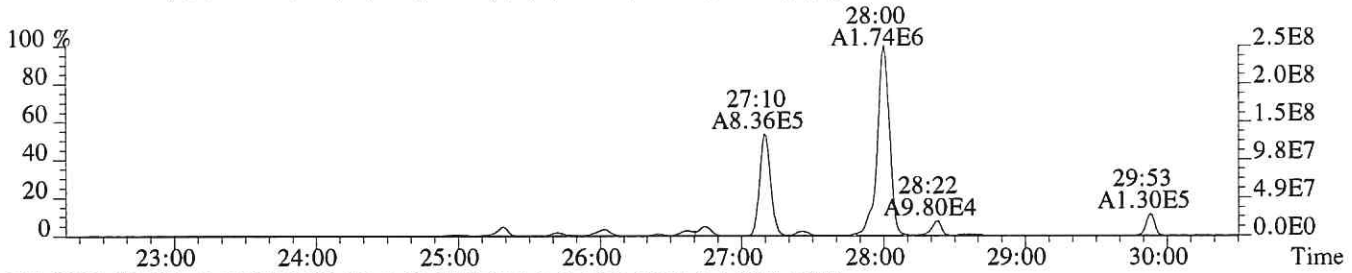
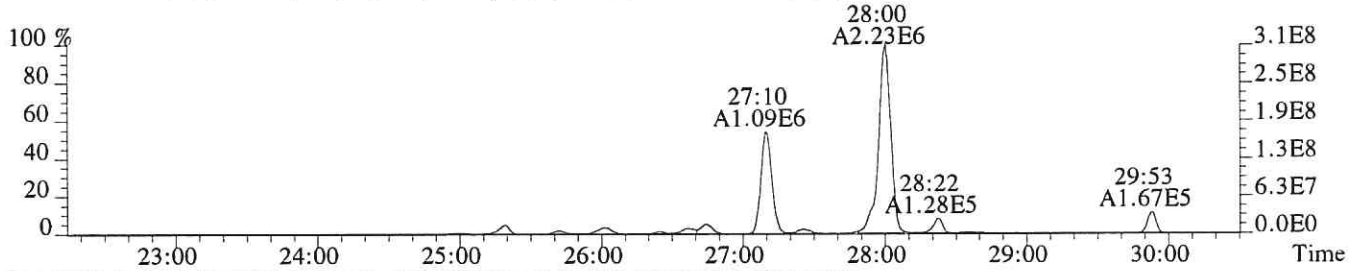
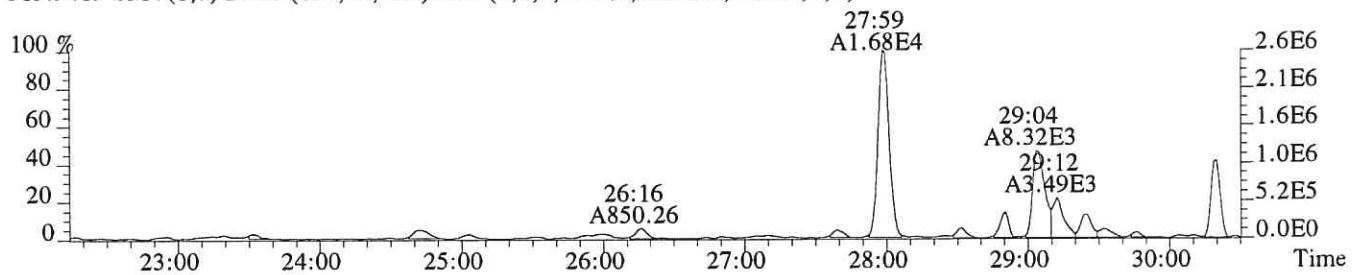
File:P519283 #1-587 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



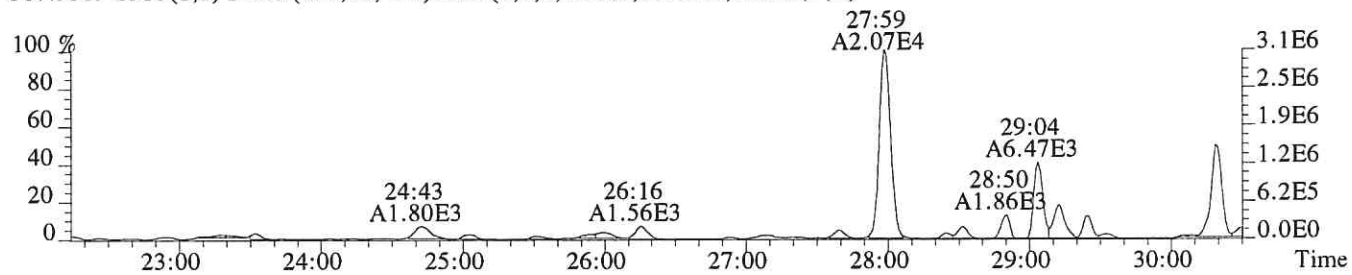
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3232.0,1.00%,F,T)



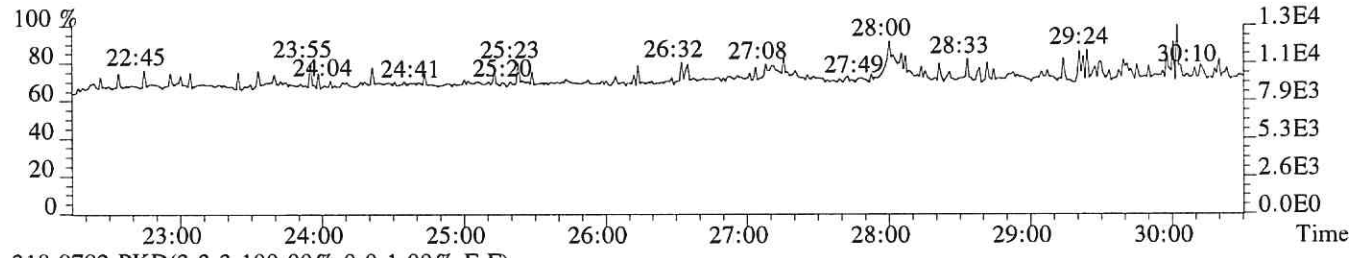
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,21096.0,1.00%,F,T)



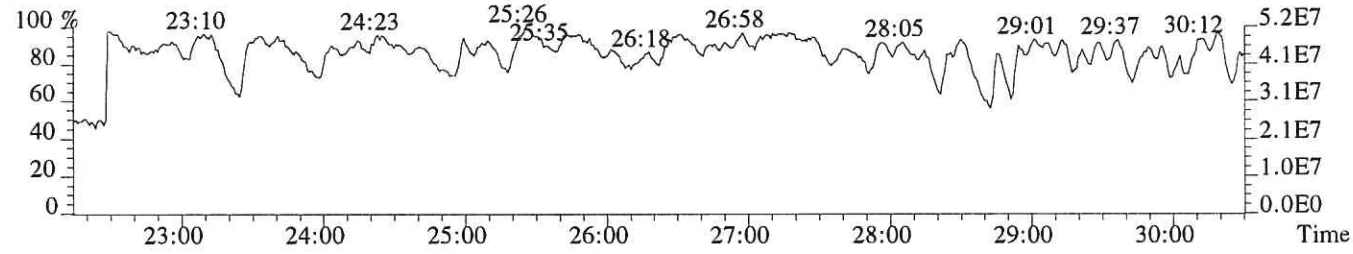
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18792.0,1.00%,F,T)



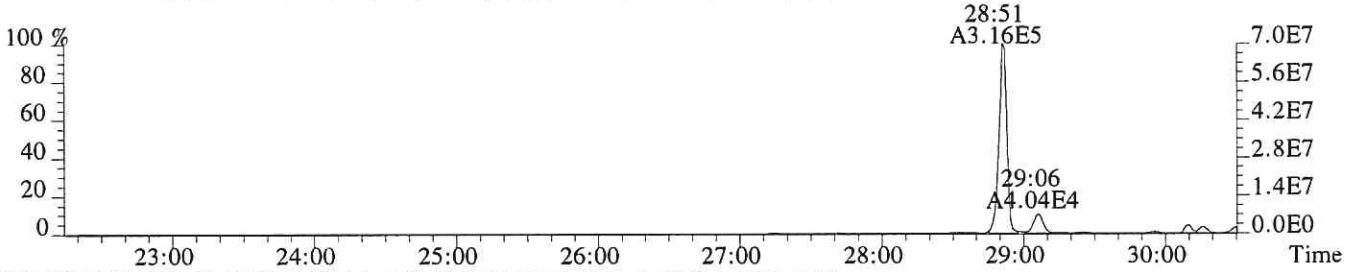
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



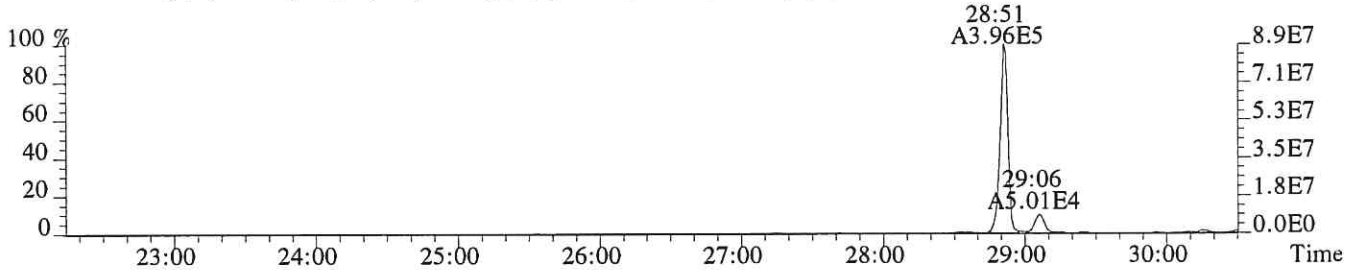
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



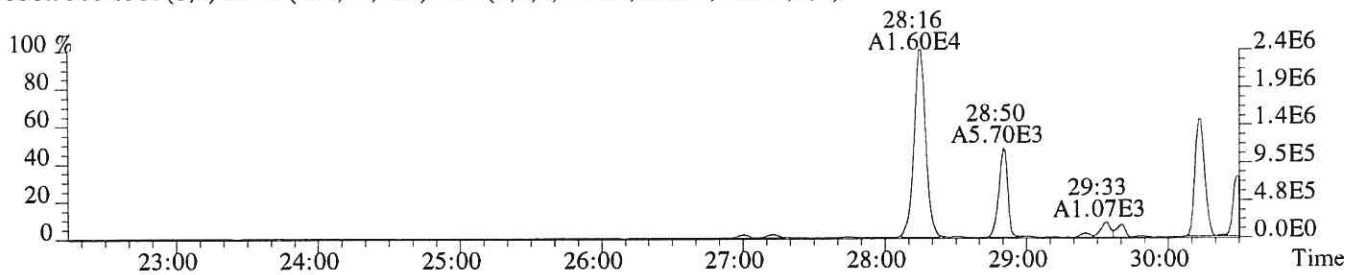
File:P519283 #1-587 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3092.0,1.00%,F,T)



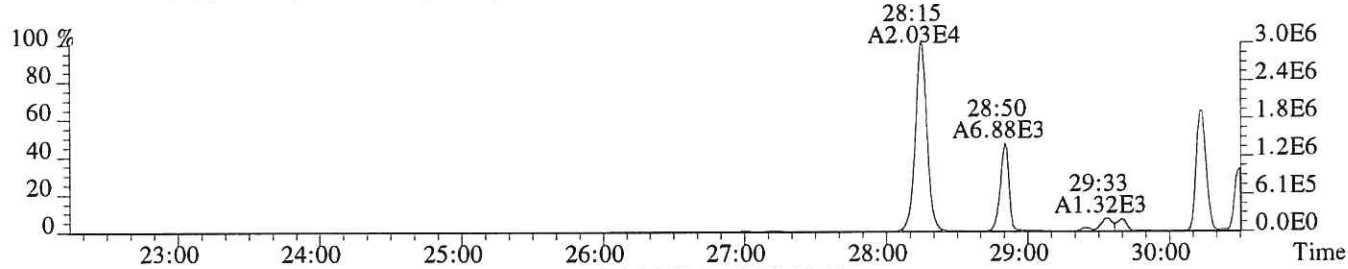
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1584.0,1.00%,F,T)



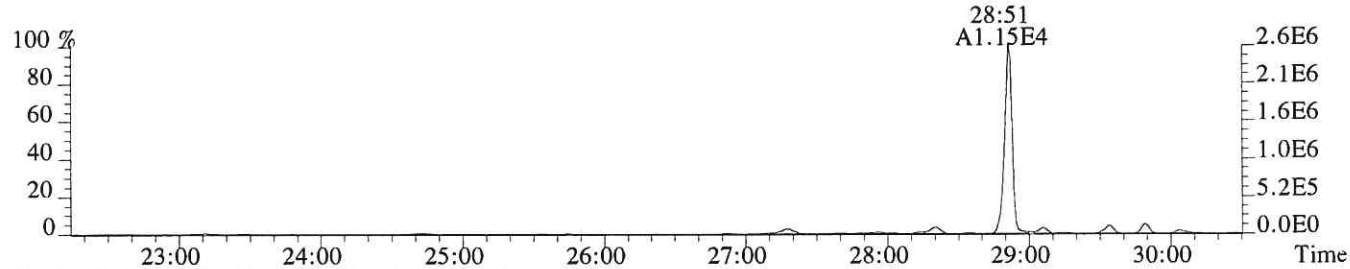
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8560.0,1.00%,F,T)



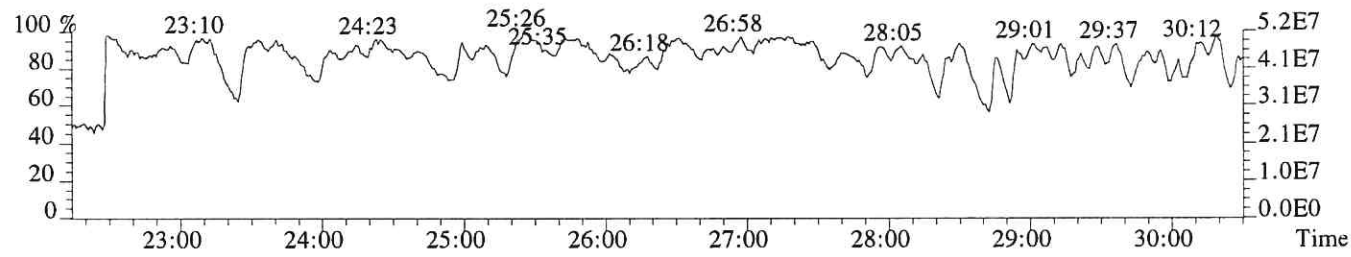
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



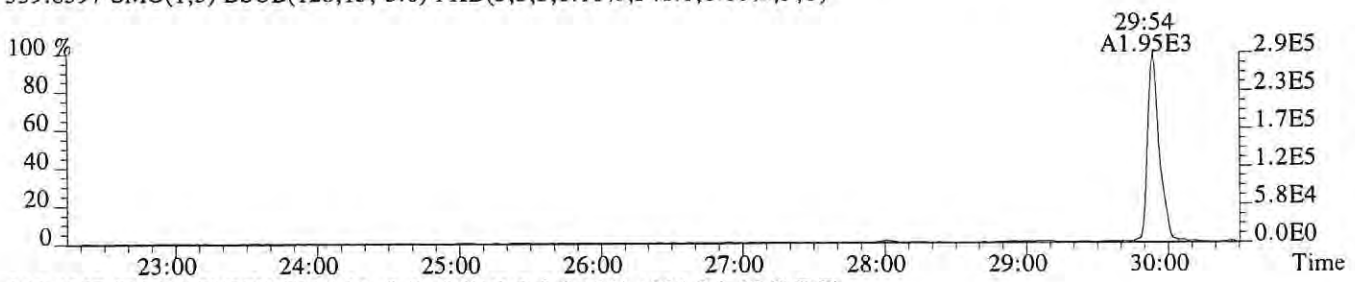
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3460.0,1.00%,F,T)



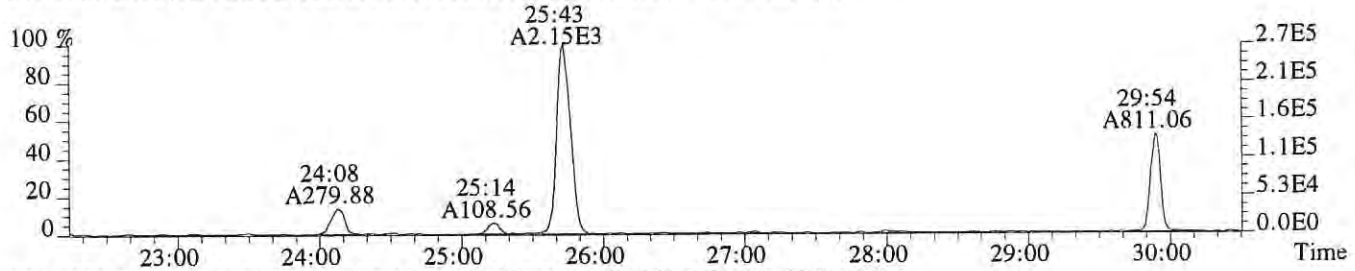
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



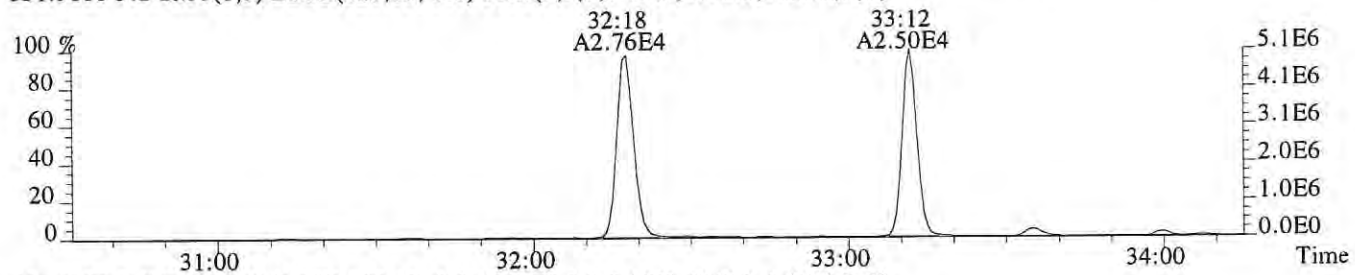
File:P519283 #1-587 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



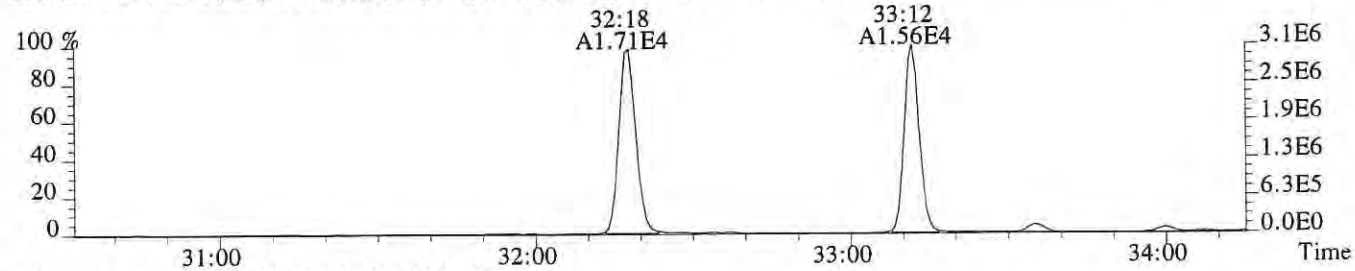
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



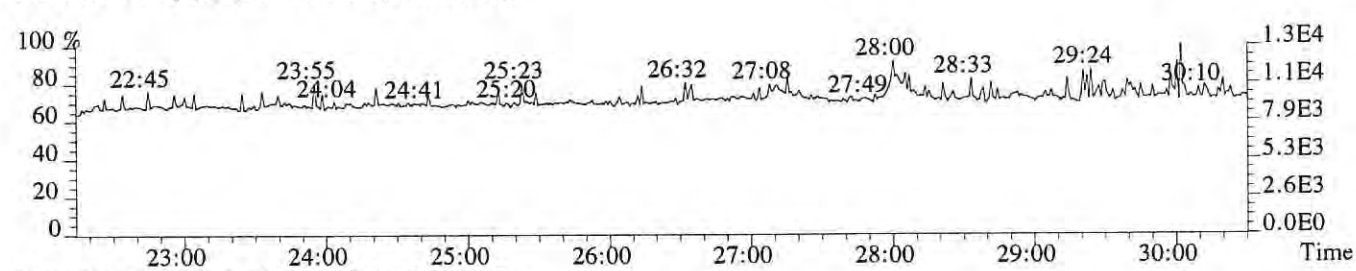
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2732.0,1.00%,F,T)



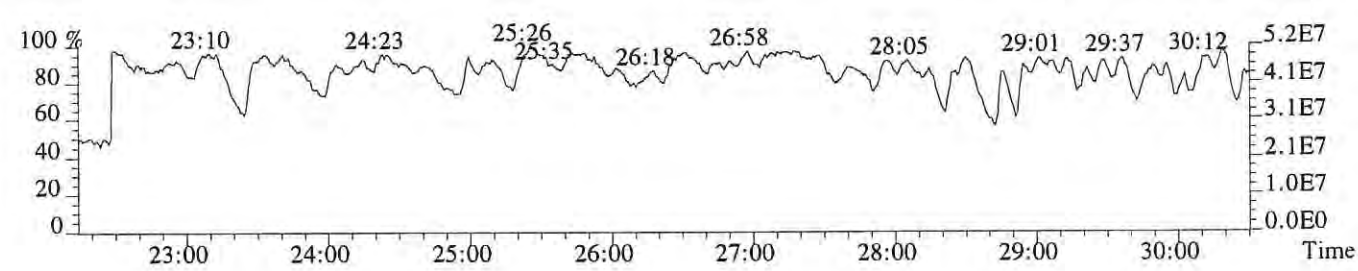
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4940.0,1.00%,F,T)



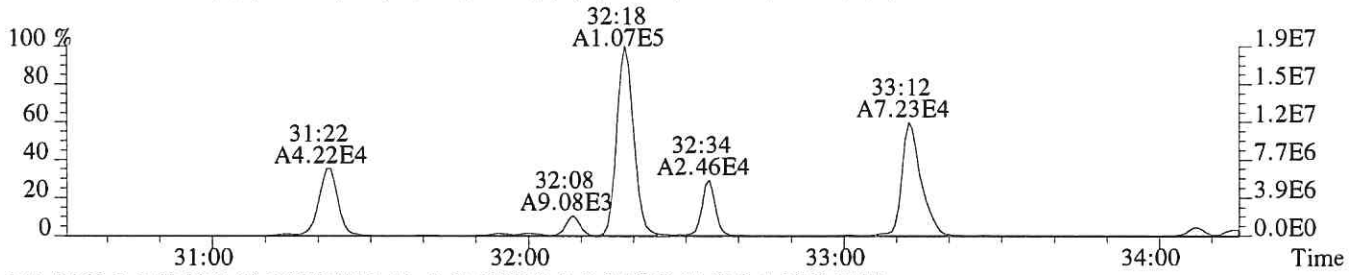
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



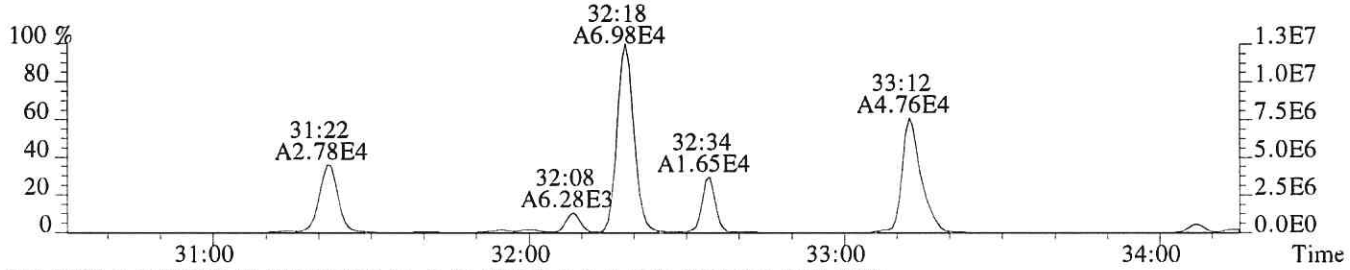
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



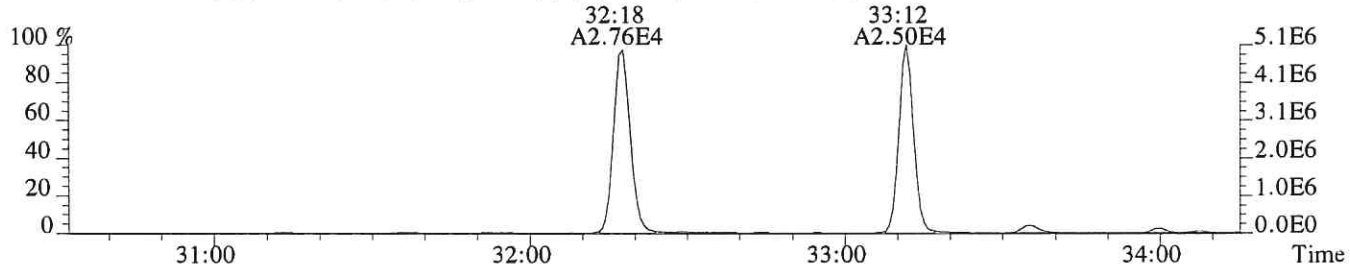
File:P519283 #1-335 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19152.0,1.00%,F,T)



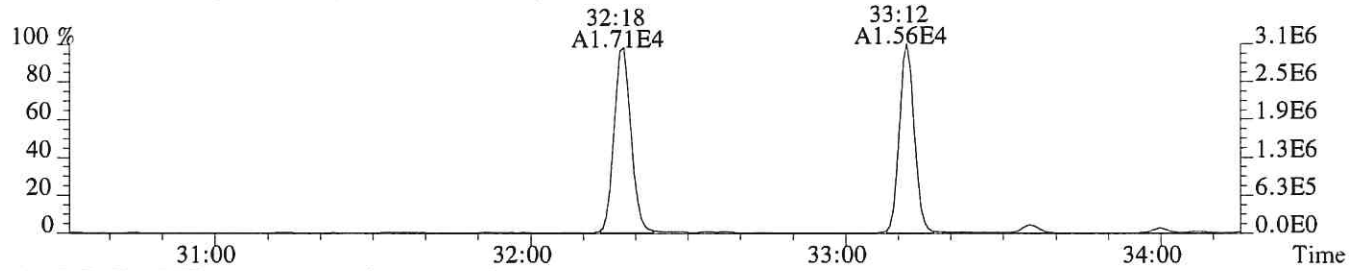
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



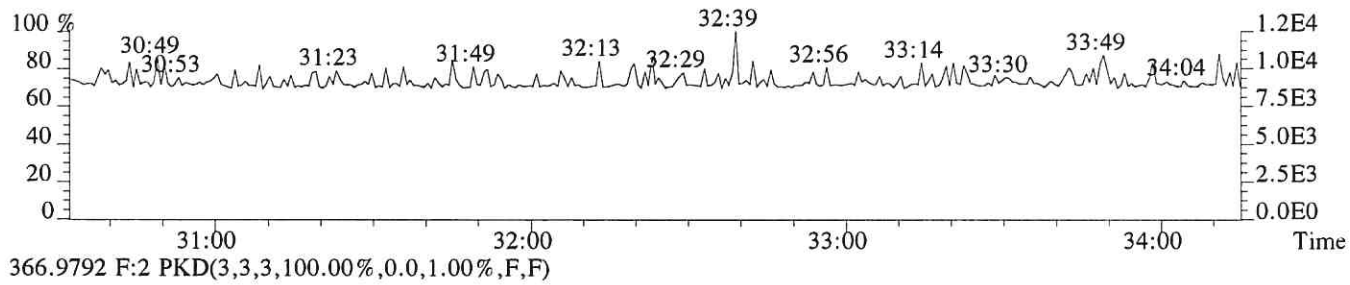
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2732.0,1.00%,F,T)



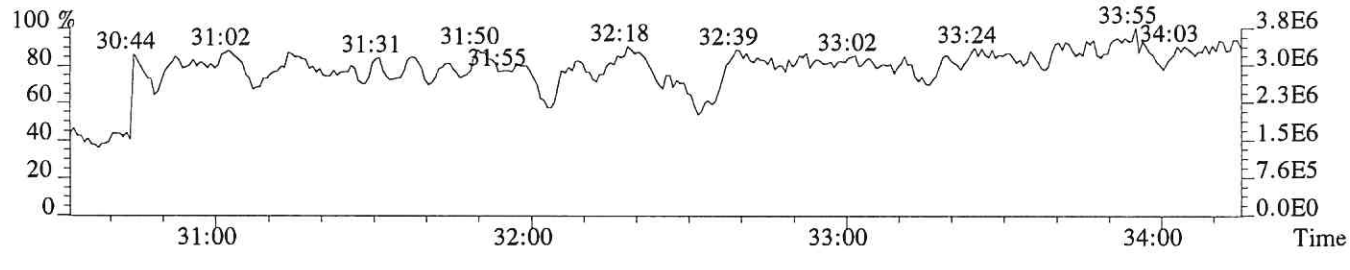
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4940.0,1.00%,F,T)



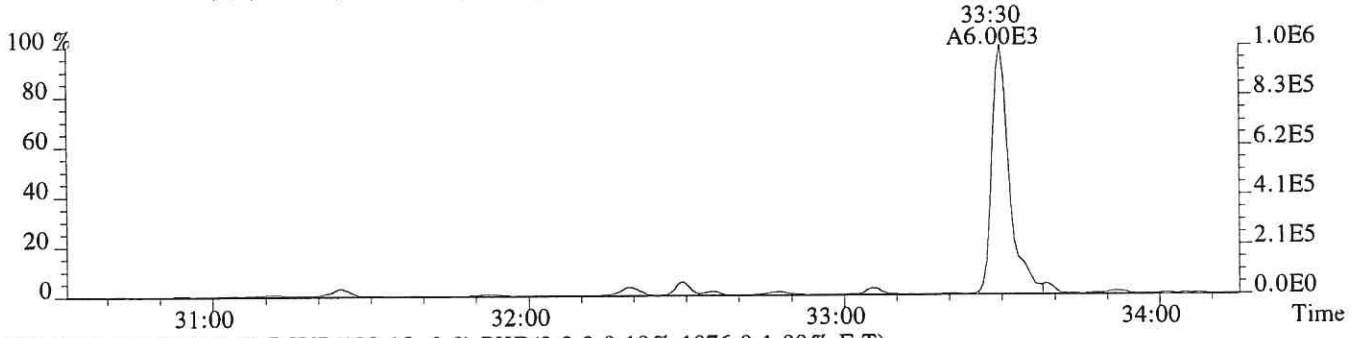
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



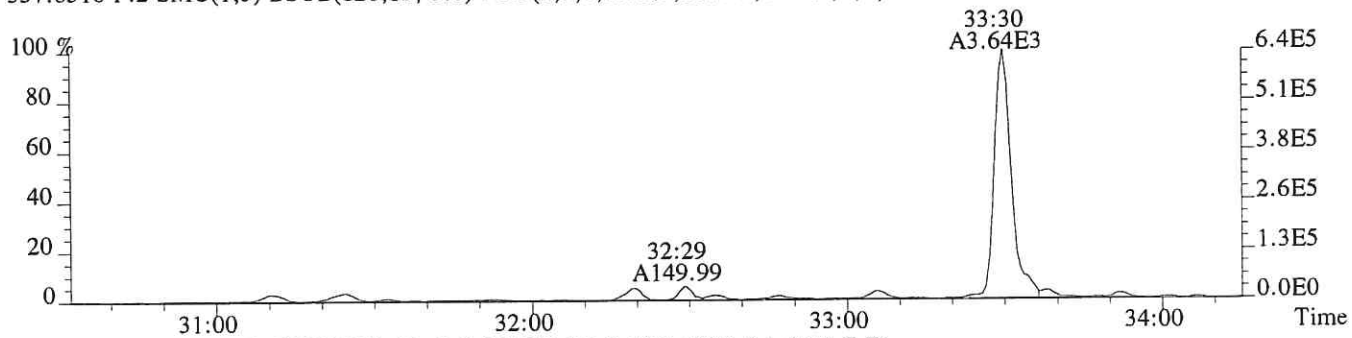
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



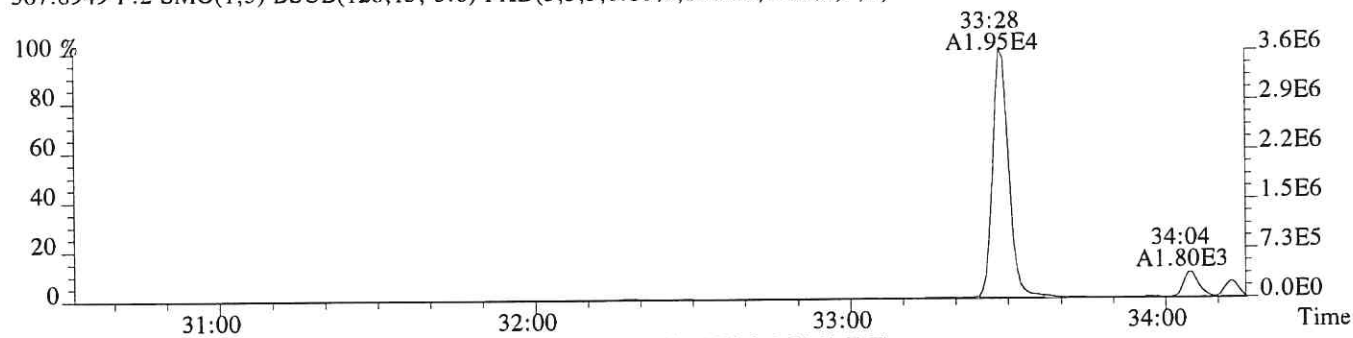
File:P519283 #1-335 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



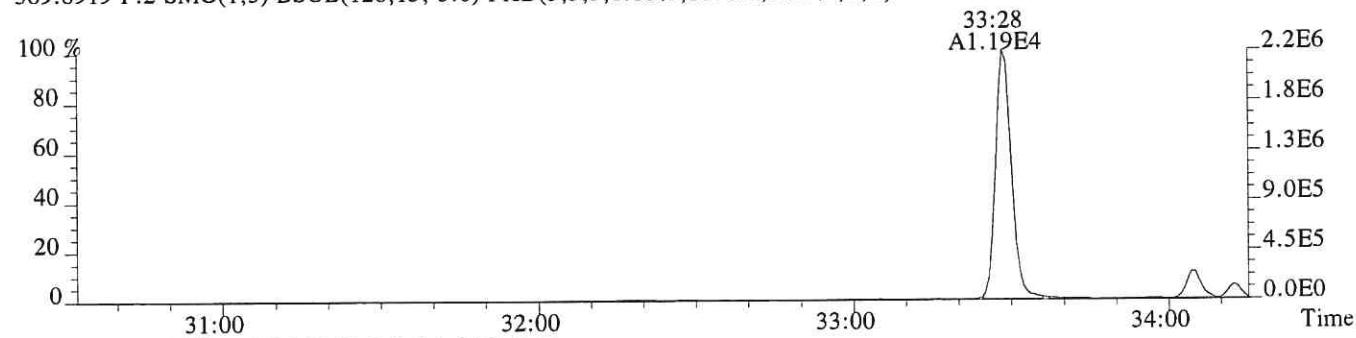
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



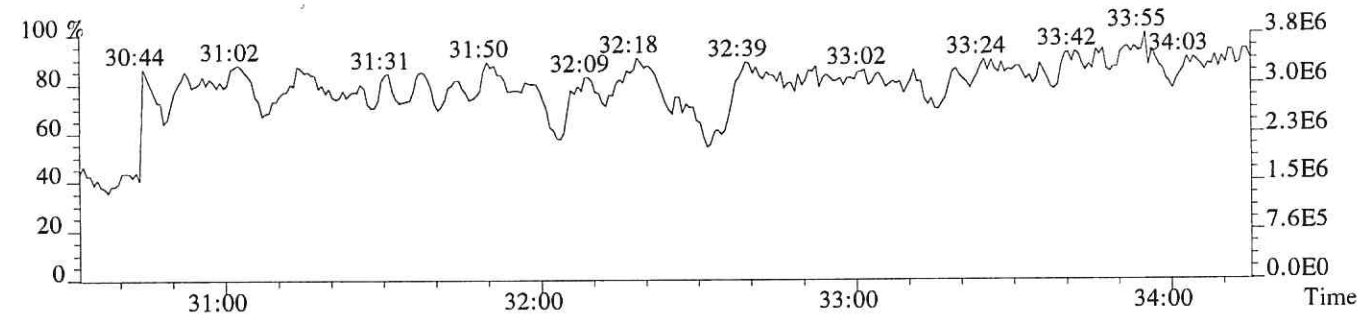
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



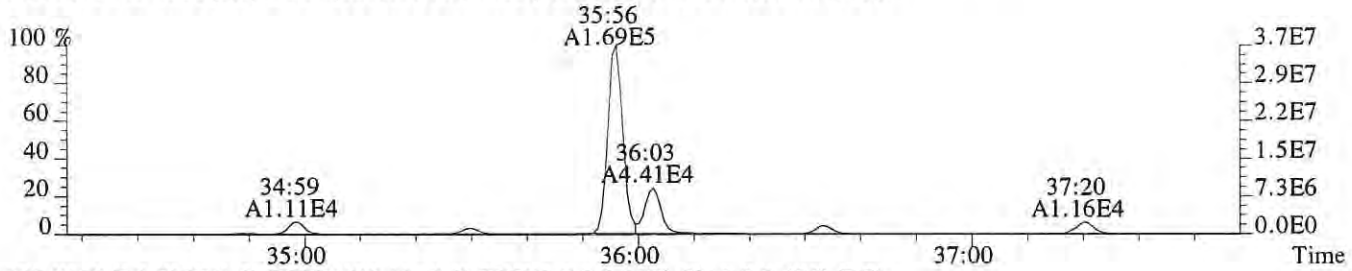
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



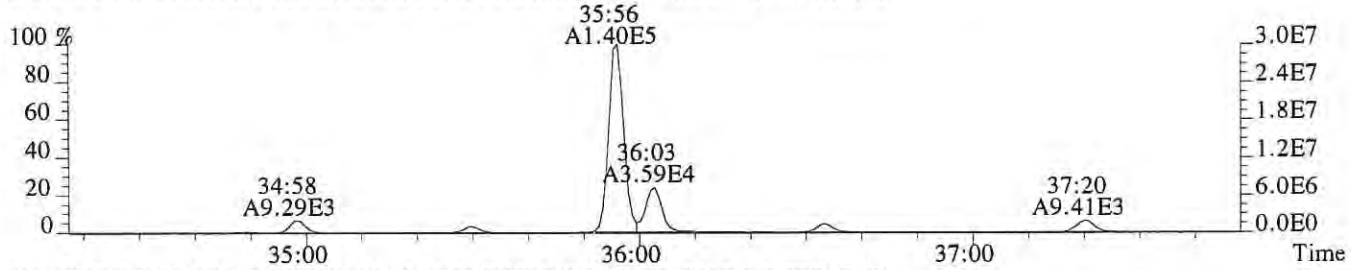
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



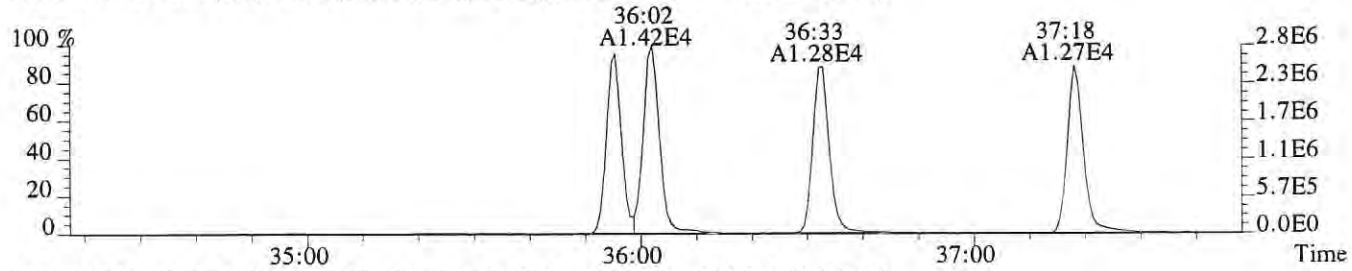
File:P519283 #1-317 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5156.0,0.40%,F,T)



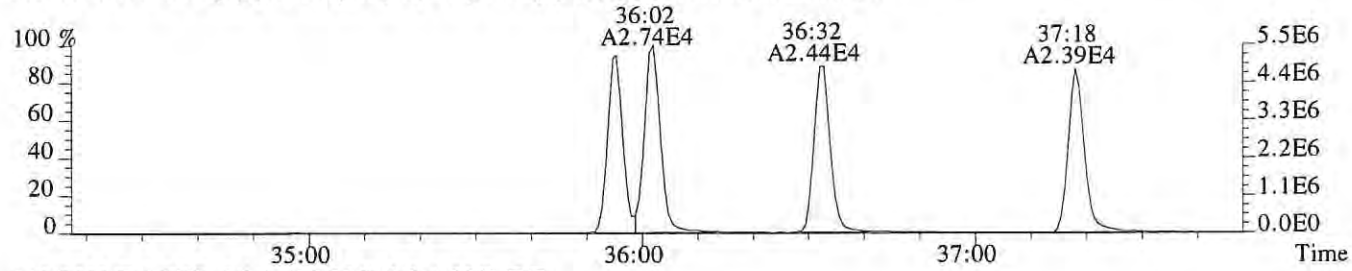
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5916.0,0.40%,F,T)



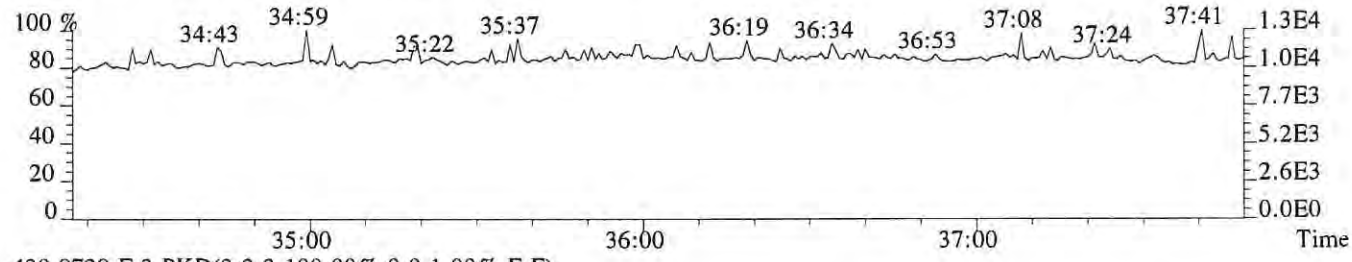
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.40%,F,T)



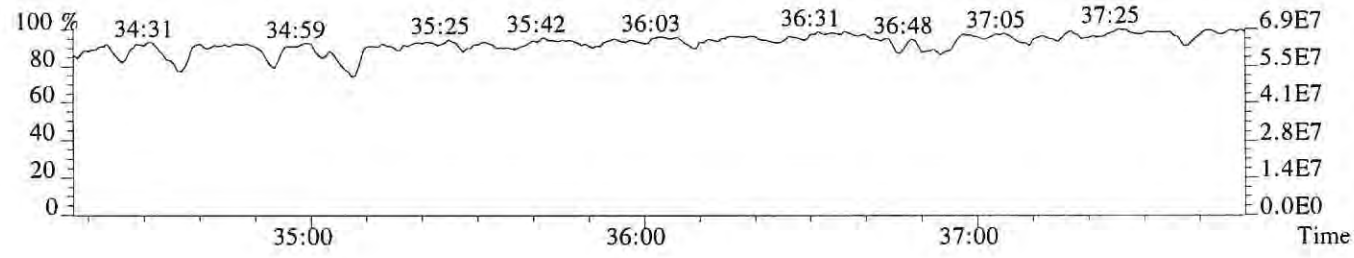
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



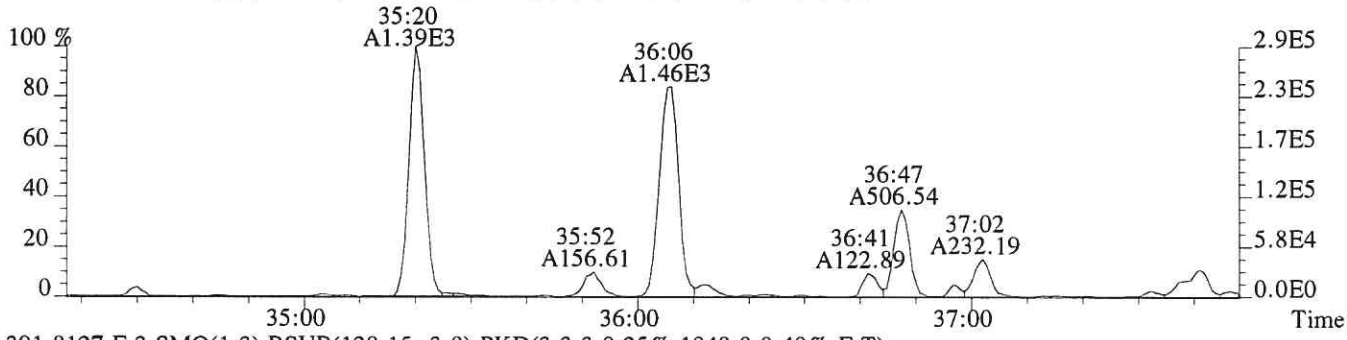
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



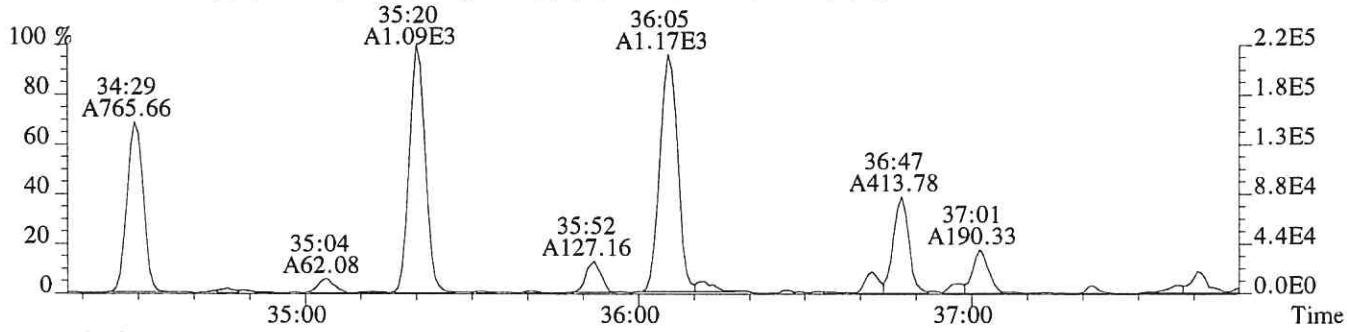
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



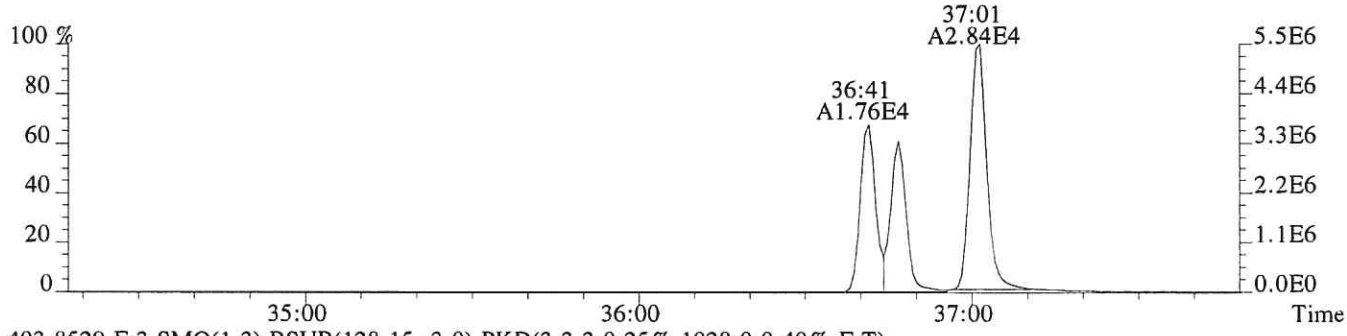
File:P519283 #1-317 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



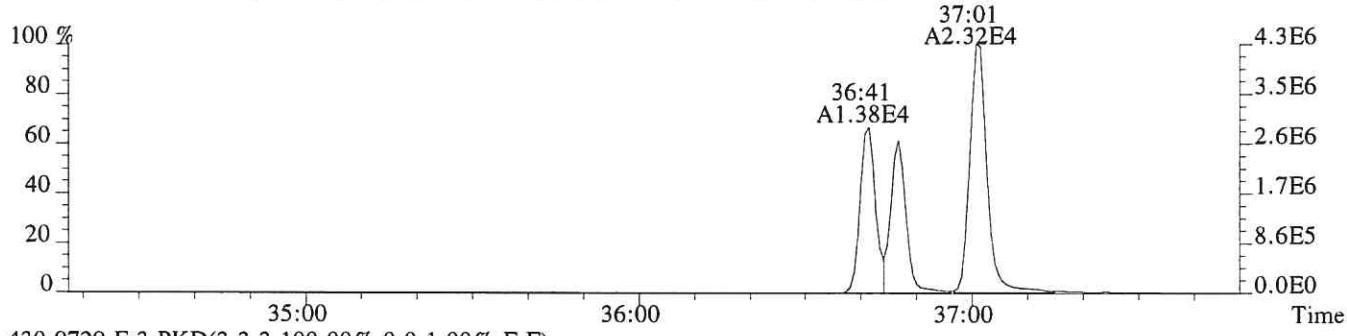
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



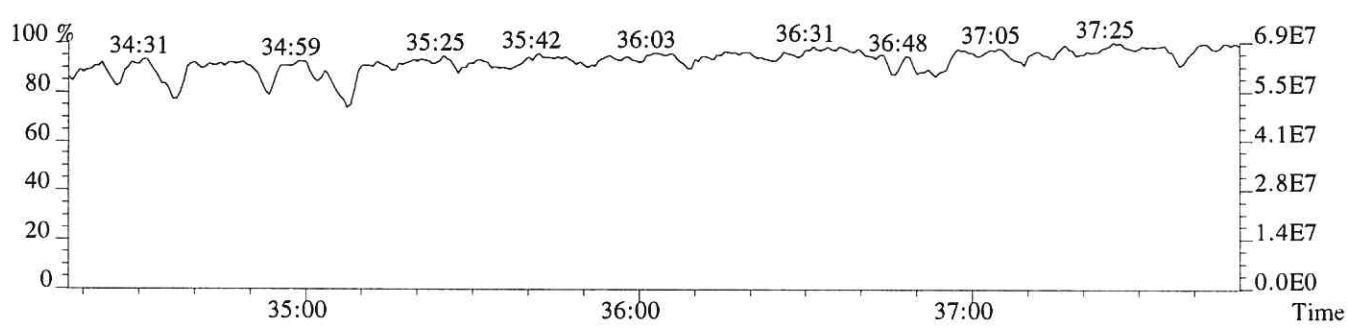
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



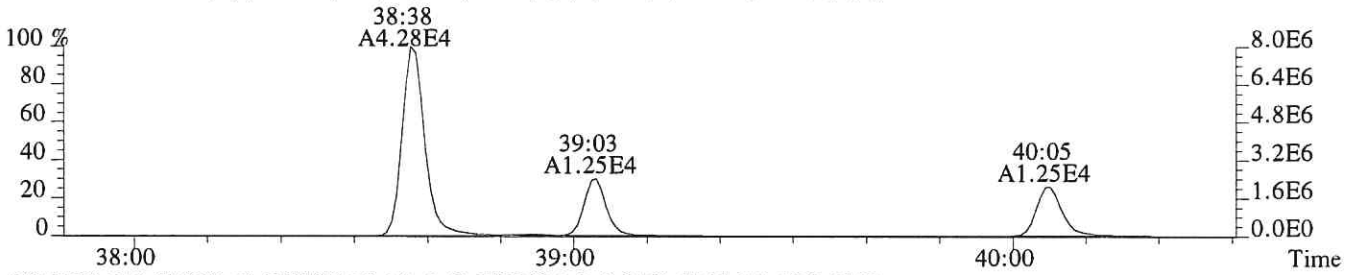
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.40%,F,T)



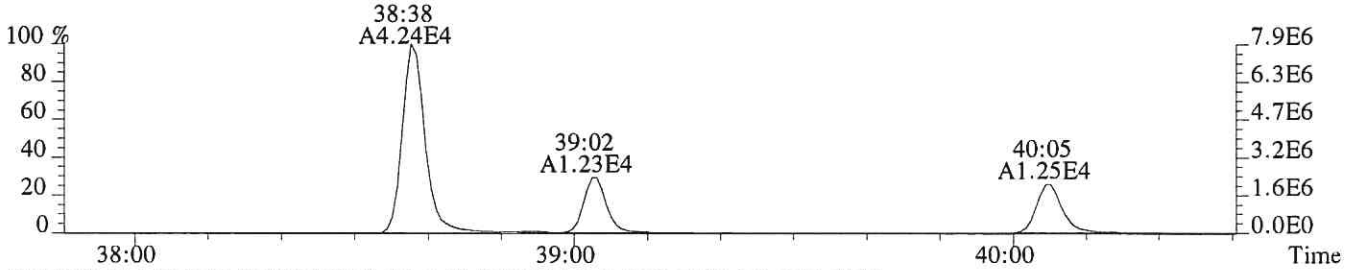
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



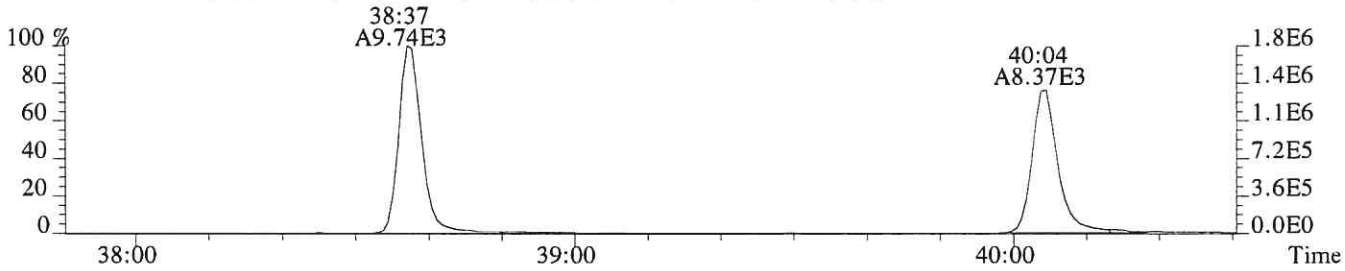
File:P519283 #1-241 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.50%,F,T)



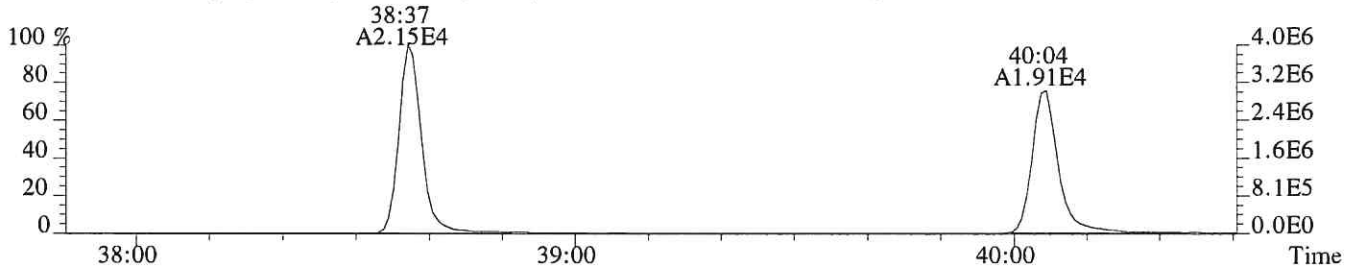
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4304.0,0.50%,F,T)



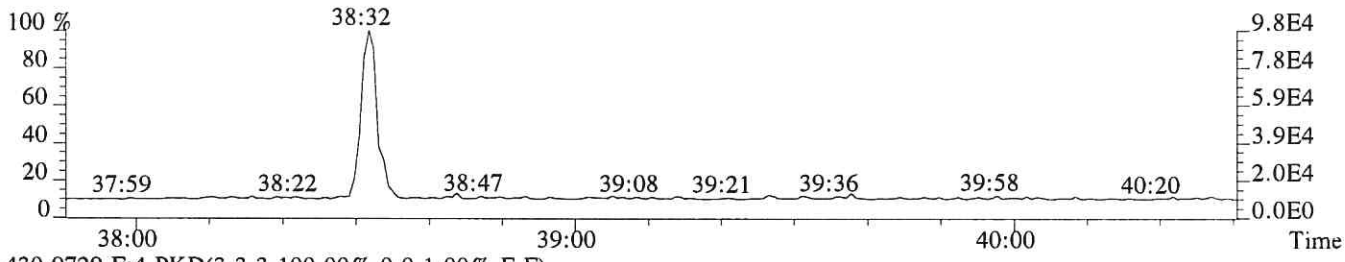
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.50%,F,T)



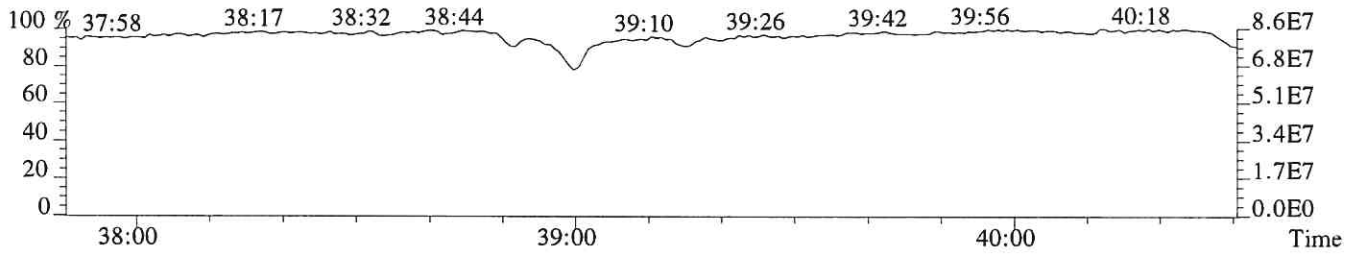
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2720.0,0.50%,F,T)



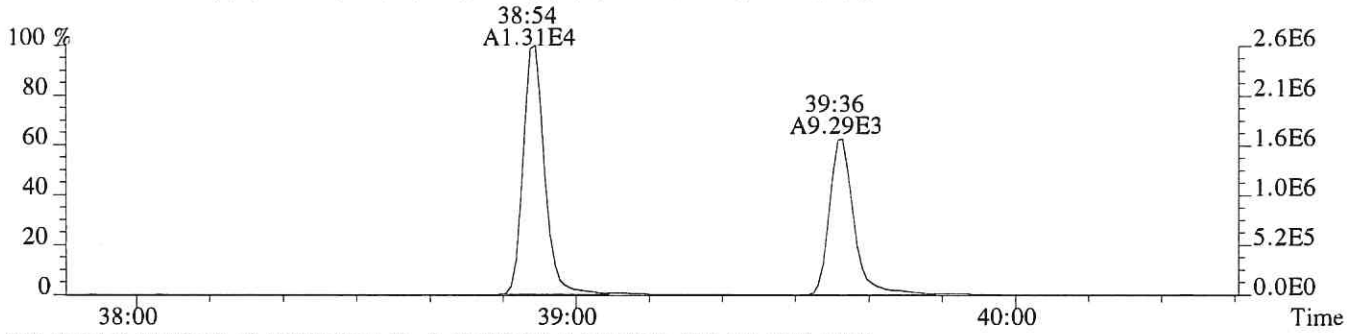
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



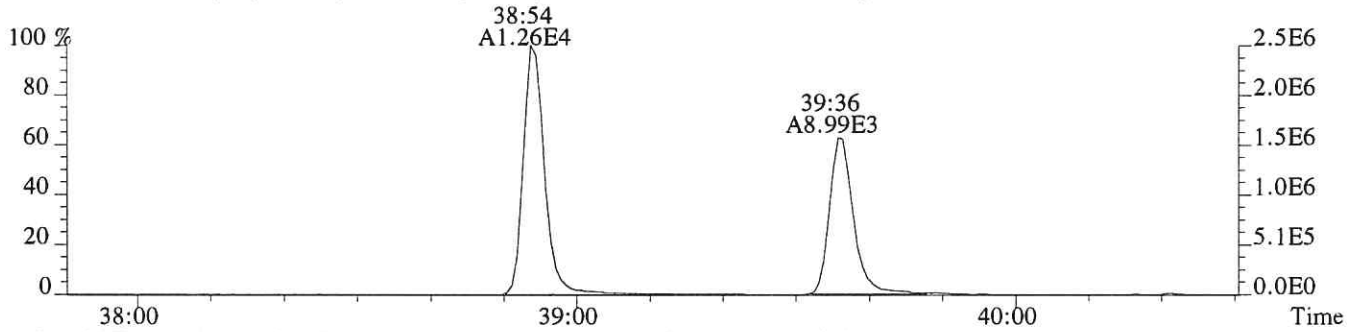
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



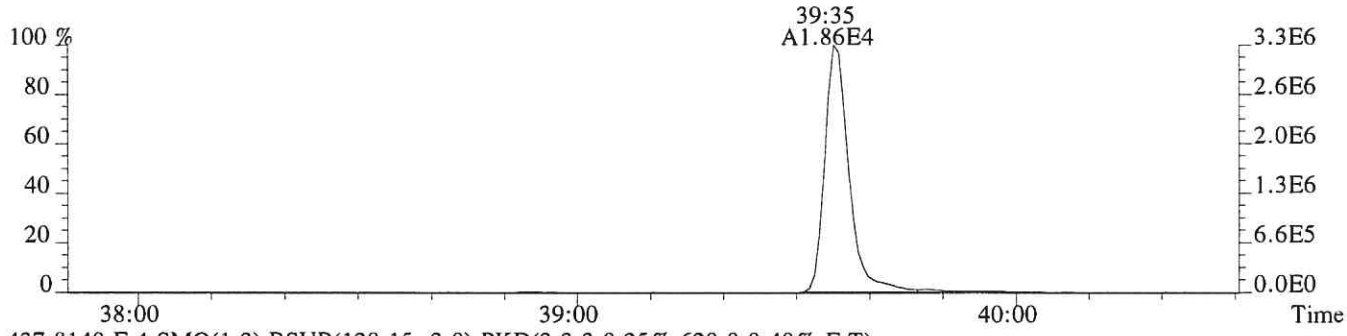
File:P519283 #1-241 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



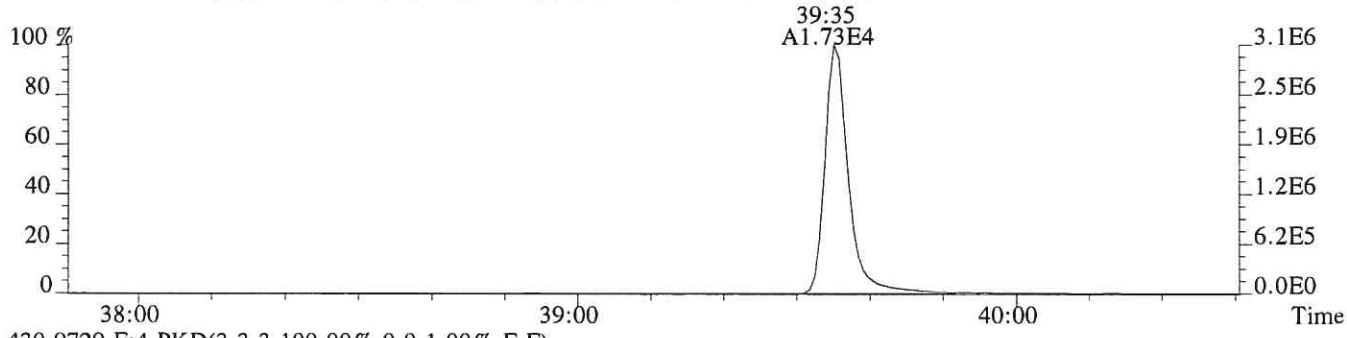
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



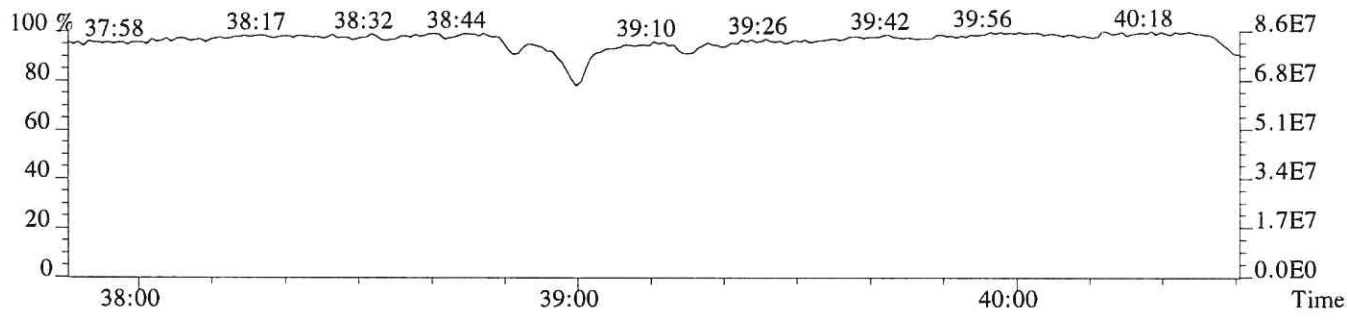
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



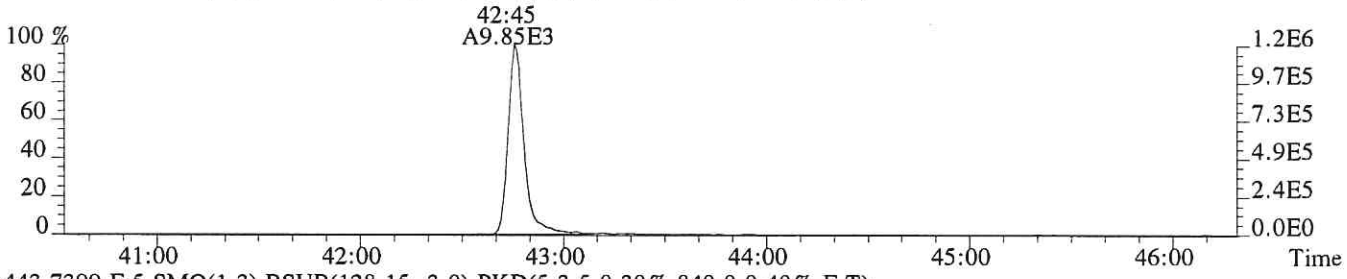
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



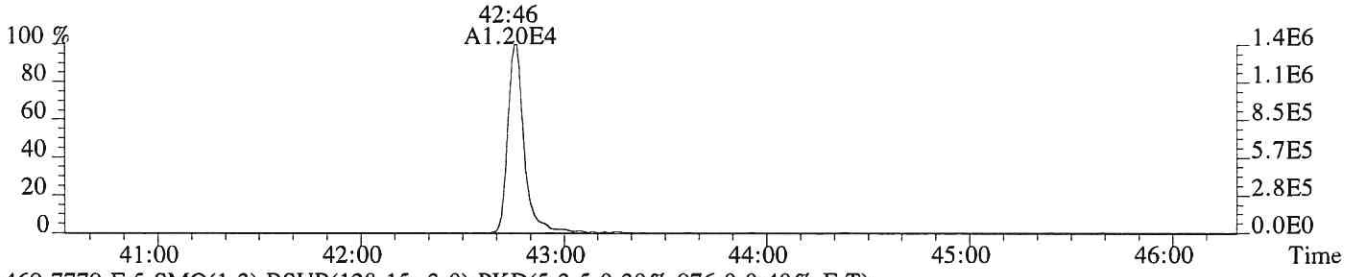
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



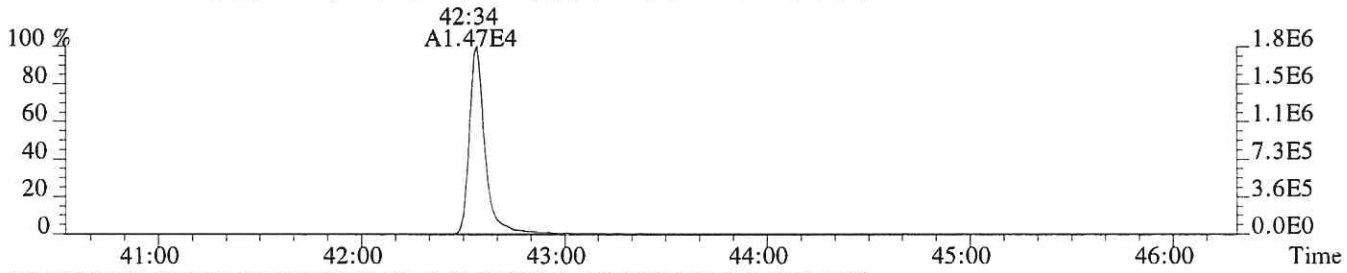
File:P519283 #1-520 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



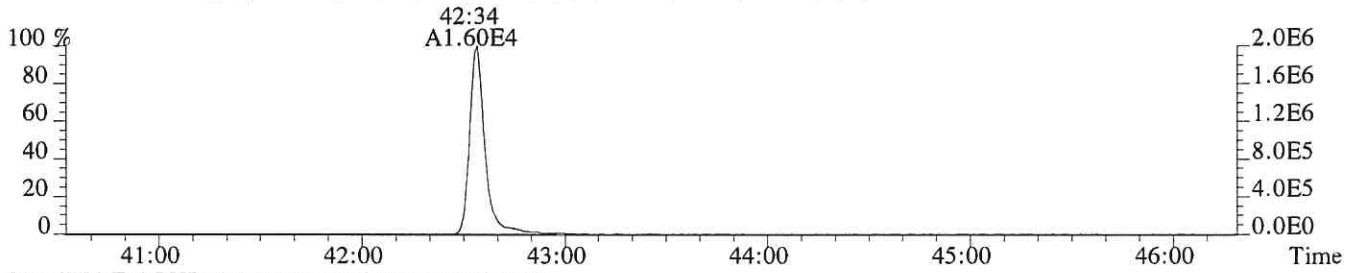
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



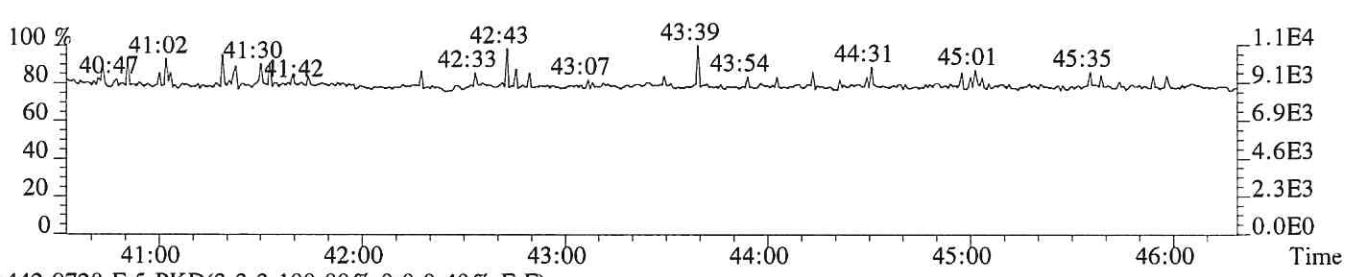
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



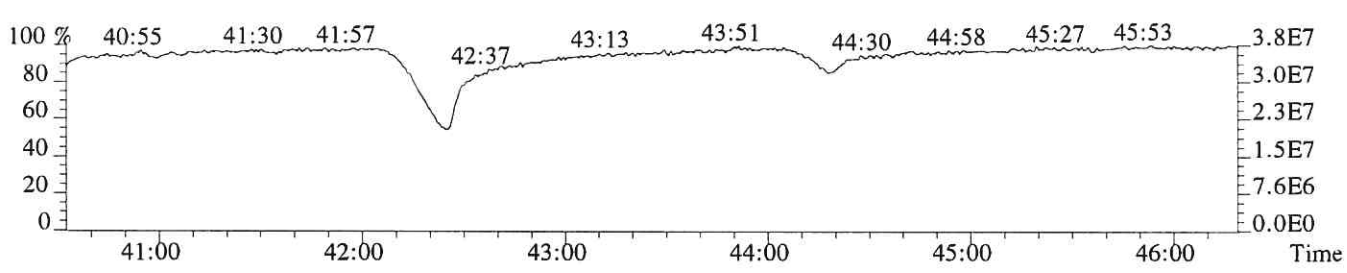
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



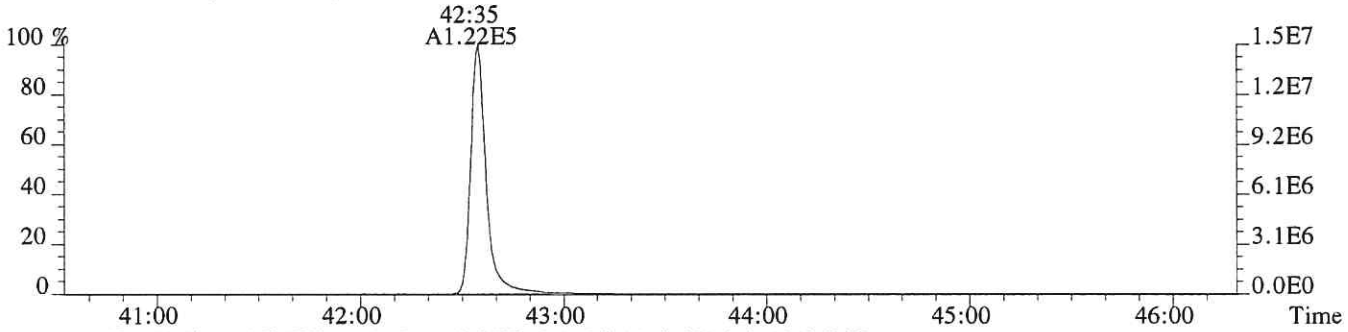
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



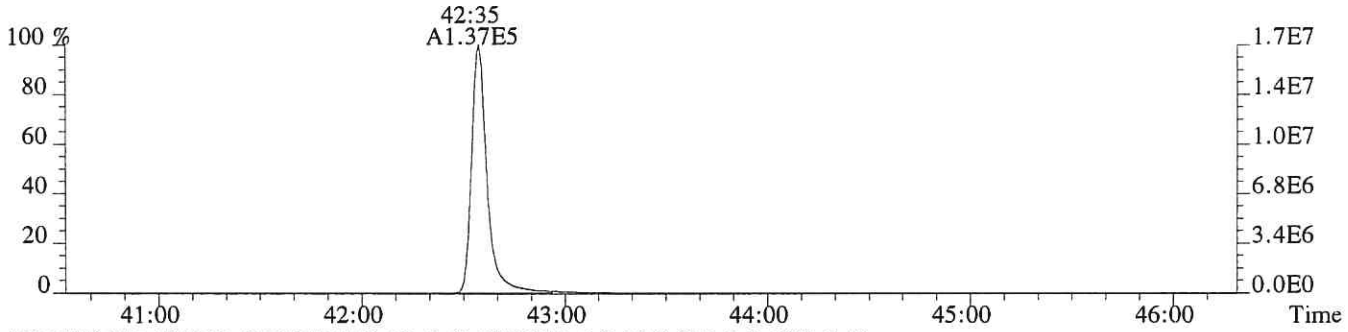
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



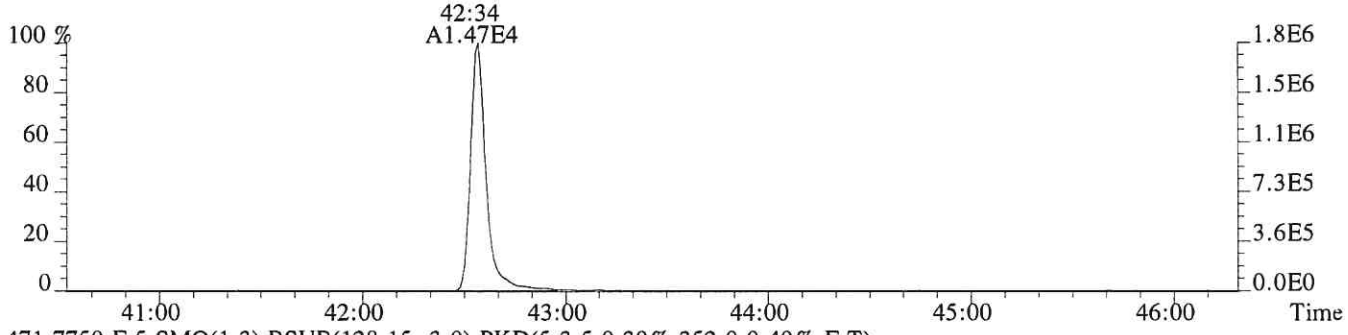
File:P519283 #1-520 Acq: 7-DEC-2018 15:38:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



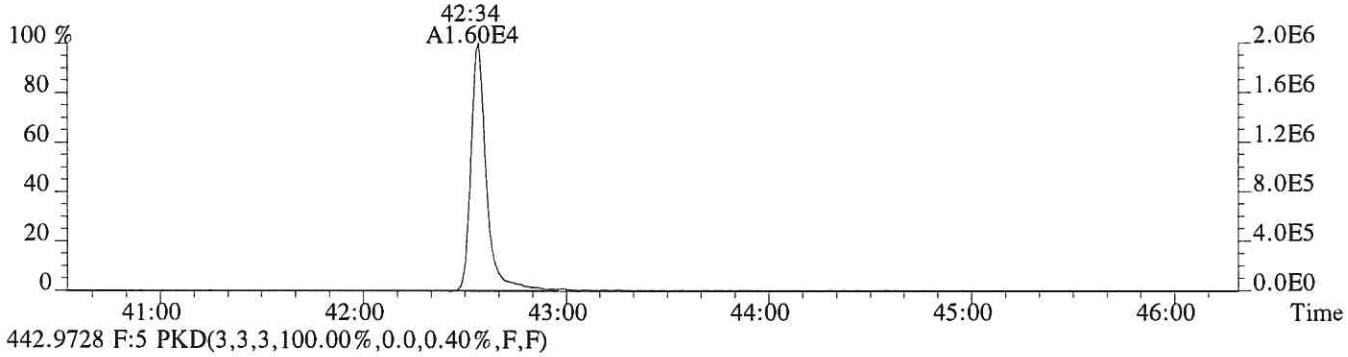
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



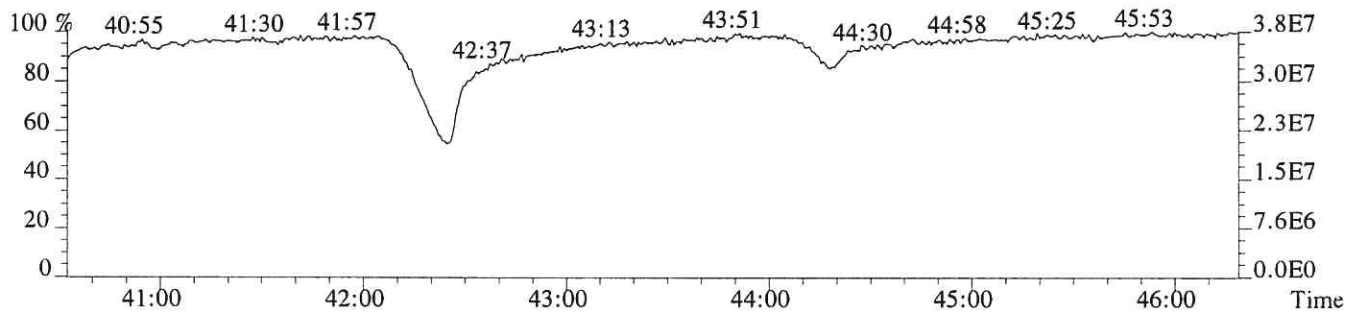
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0553

Run #16 Filename P519328 Samp: 1 Inj: 1 Acquired: 10-DEC-18 16:05:14
Processed: 11-DEC-18 15:18:38 Sample ID: E1801057-001DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	1.195e+04	1.625e+04	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	6.962e+02	4.380e+02	1.59	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.926e+02	3.293e+02	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	9.702e+02	8.070e+02	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.879e+02	2.306e+02	1.25	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	4.852e+01	3.854e+01	1.26	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	6.640e+01	5.904e+01	1.12	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	2.450e+02	2.321e+02	1.06	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	6.477e+01	5.268e+01	1.23	no	no	1.258
10	Unk	OCDF	42:37	8.427e+01	9.392e+01	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.004e+03	3.735e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	4.906e+01	1.181e+01	4.15	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	5.670e+01	5.276e+01	1.07	yes	no	1.025
17	Unk	OCDD	42:25	8.898e+02	9.750e+02	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	1.563e+04	1.989e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.471e+04	1.530e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.312e+04	1.458e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.899e+03	1.859e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.217e+04	2.277e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.072e+04	2.074e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	9.233e+03	1.796e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	7.970e+03	1.859e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	6.789e+03	1.590e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	7.637e+03	9.493e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.673e+04	1.068e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.313e+04	1.036e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.424e+04	1.090e+04	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.473e+04	1.362e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:25	1.695e+04	1.821e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	1.155e+04	1.439e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	1.533e+04	1.181e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	1.440e+02				no	1.014

$$\text{OCDD} = \frac{(8.898e+02 + 9.750e+02) \times 4000 \text{ pg} \times 100}{(1.695e+04 + 1.821e+04) \times 10.092 \text{ g} \times 54.0 / 100 \times 1.118 \times 0.51} = 6827 \text{ ng/kg}$$

LMM 12/11/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0553

Run #16 Filename P519328 Samp: 1 Inj: 1 Acquired: 10-DEC-18 16:05:14
Processed: 11-DEC-18 15:18:38 LAB. ID: E1801057-001DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.99e+06	8.36e+02	2.4e+03	2.64e+06	2.31e+03	1.1e+03
2	1,2,3,7,8-PeCDF	1.31e+05	7.96e+02	1.6e+02	8.28e+04	1.44e+03	5.7e+01
3	2,3,4,7,8-PeCDF	7.27e+04	7.96e+02	9.1e+01	5.14e+04	1.44e+03	3.6e+01
4	1,2,3,4,7,8-HxCDF	2.00e+05	9.28e+02	2.2e+02	1.62e+05	5.04e+02	3.2e+02
5	1,2,3,6,7,8-HxCDF	5.16e+04	9.28e+02	5.6e+01	4.07e+04	5.04e+02	8.1e+01
6	2,3,4,6,7,8-HxCDF	1.05e+04	9.28e+02	1.1e+01	9.41e+03	5.04e+02	1.9e+01
7	1,2,3,7,8,9-HxCDF	1.49e+04	9.28e+02	1.6e+01	8.12e+03	5.04e+02	1.6e+01
8	1,2,3,4,6,7,8-HpCDF	4.77e+04	5.48e+02	8.7e+01	4.37e+04	4.00e+02	1.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.05e+04	5.48e+02	1.9e+01	1.04e+04	4.00e+02	2.6e+01
10	OCDF	1.03e+04	2.48e+02	4.2e+01	1.20e+04	9.64e+02	1.2e+01
11	2,3,7,8-TCDD	5.63e+05	3.00e+03	1.9e+02	6.93e+05	1.12e+03	6.2e+02
12	1,2,3,7,8-PeCDD	7.37e+03	6.96e+02	1.1e+01	3.07e+03	1.92e+02	1.6e+01
13	1,2,3,4,7,8-HxCDD	*	5.60e+02	*	*	4.52e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.60e+02	*	*	4.52e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.60e+02	*	*	4.52e+02	*
16	1,2,3,4,6,7,8-HpCDD	8.31e+03	4.80e+02	1.7e+01	9.72e+03	4.68e+02	2.1e+01
17	OCDD	1.19e+05	2.48e+02	4.8e+02	1.24e+05	2.72e+02	4.5e+02
18	13C-2,3,7,8-TCDF	2.78e+06	1.15e+04	2.4e+02	3.53e+06	8.10e+03	4.4e+02
19	13C-1,2,3,7,8-PeCDF	4.45e+06	4.40e+02	1.0e+04	2.78e+06	7.32e+02	3.8e+03
20	13C-2,3,4,7,8-PeCDF	4.42e+06	4.40e+02	1.0e+04	2.80e+06	7.32e+02	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	2.06e+06	9.32e+02	2.2e+03	3.88e+06	8.68e+02	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.28e+06	9.32e+02	2.4e+03	4.33e+06	8.68e+02	5.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.14e+06	9.32e+02	2.3e+03	4.17e+06	8.68e+02	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.70e+06	9.32e+02	1.8e+03	3.28e+06	8.68e+02	3.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.55e+06	2.28e+03	6.8e+02	3.59e+06	1.74e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.14e+06	2.28e+03	5.0e+02	2.58e+06	1.74e+03	1.5e+03
27	13C-2,3,7,8-TCDD	1.44e+06	8.48e+03	1.7e+02	1.80e+06	2.50e+03	7.2e+02
28	13C-1,2,3,7,8-PeCDD	3.17e+06	1.38e+03	2.3e+03	2.00e+06	1.16e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+06	8.84e+02	3.2e+03	2.25e+06	6.00e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.71e+06	8.84e+02	3.1e+03	2.11e+06	6.00e+02	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.47e+06	4.72e+02	5.2e+03	2.39e+06	3.96e+02	6.0e+03
32	13C-OCDD	2.11e+06	1.88e+02	1.1e+04	2.26e+06	1.80e+02	1.3e+04
33	13C-1,2,3,4-TCDD	2.13e+06	8.48e+03	2.5e+02	2.68e+06	2.50e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.81e+06	8.84e+02	3.2e+03	2.16e+06	6.00e+02	3.6e+03
35	37Cl-2,3,7,8-TCDD	2.66e+04	1.51e+03	1.8e+01			

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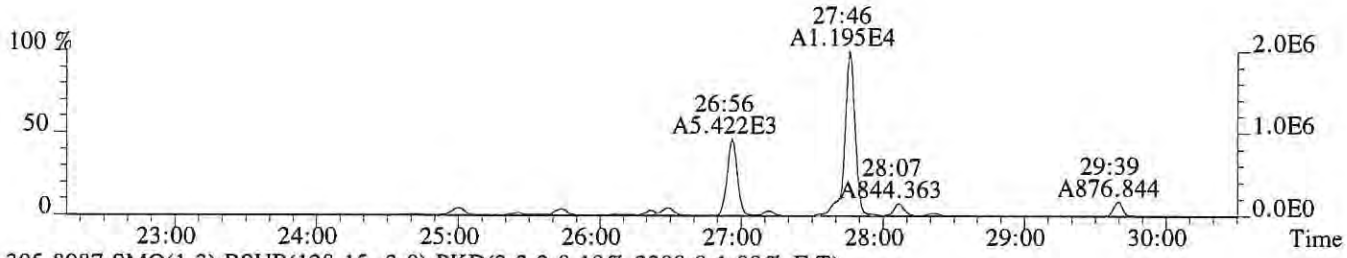
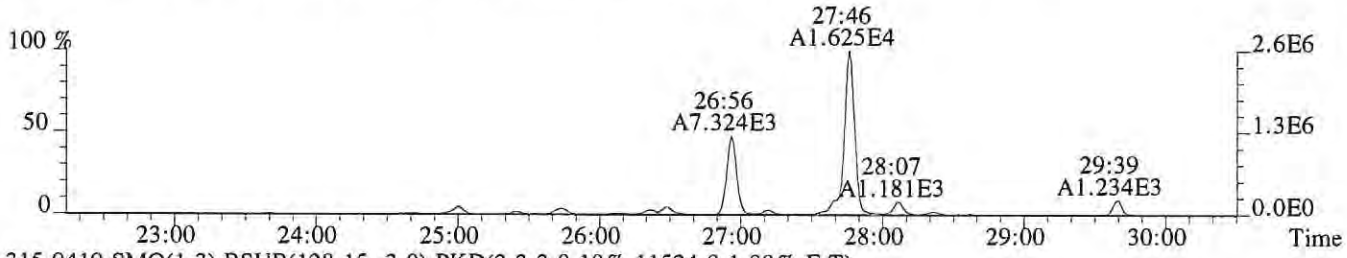
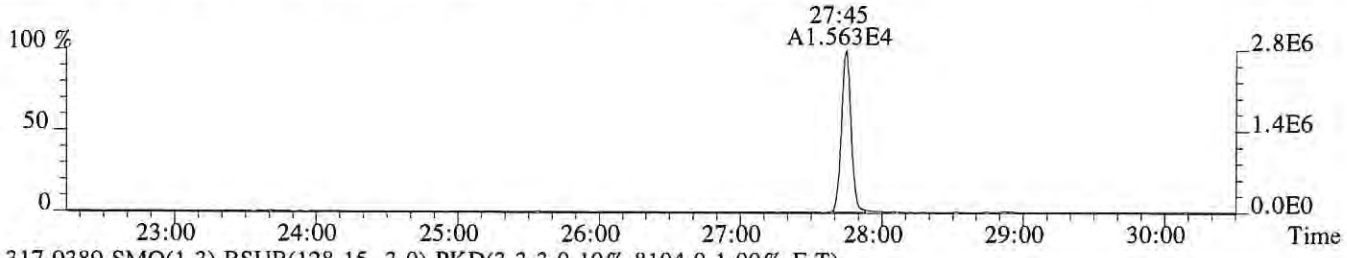
File:P519328 #1-587 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



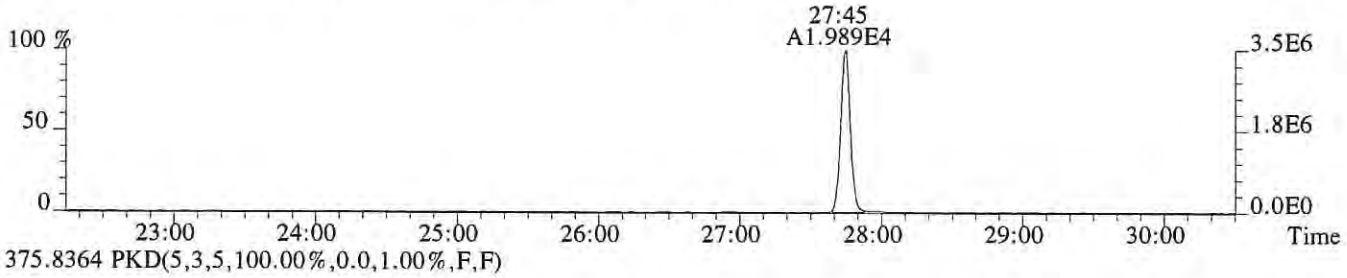
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2308.0,1.00%,F,T)



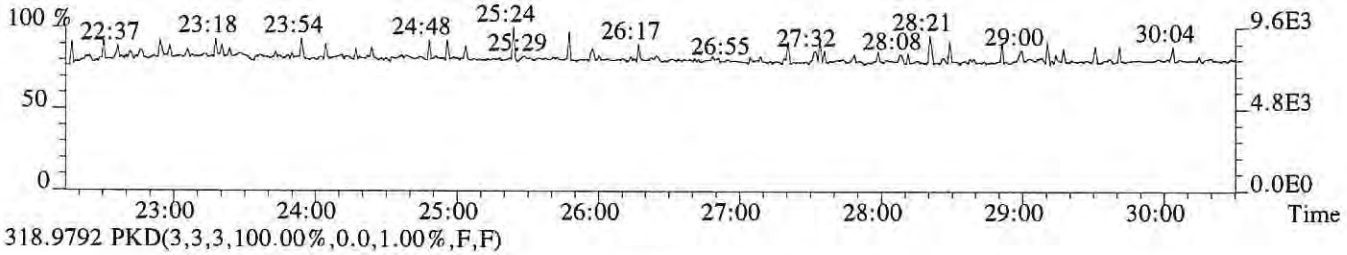
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11524.0,1.00%,F,T)



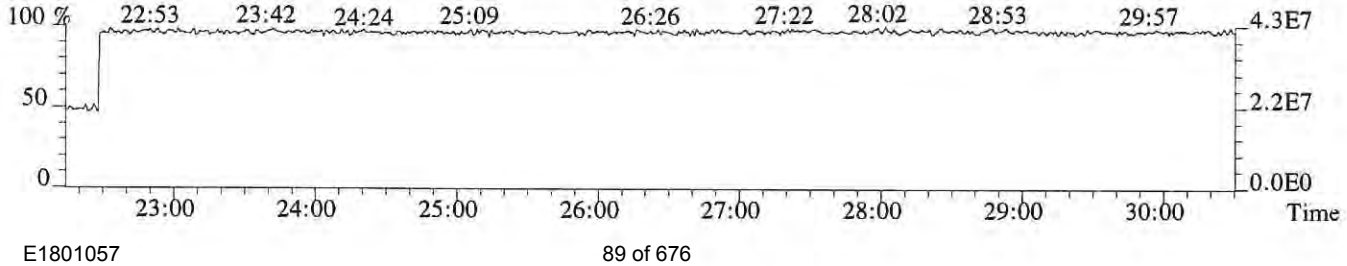
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8104.0,1.00%,F,T)



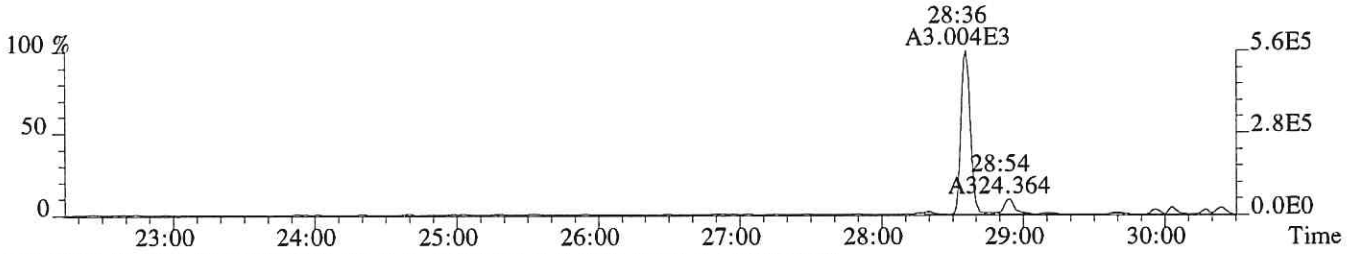
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



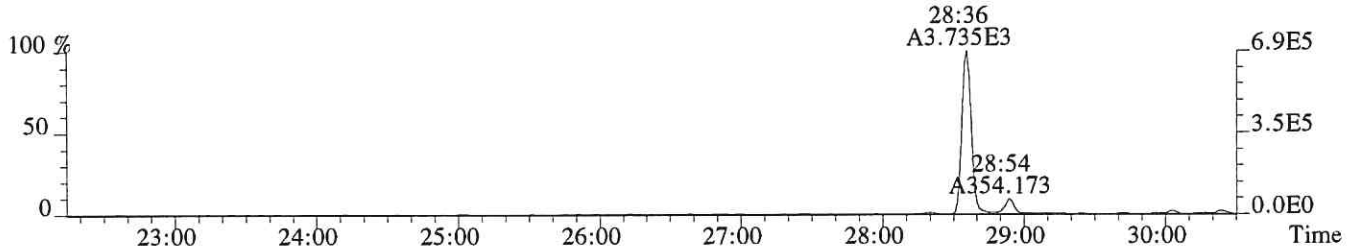
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



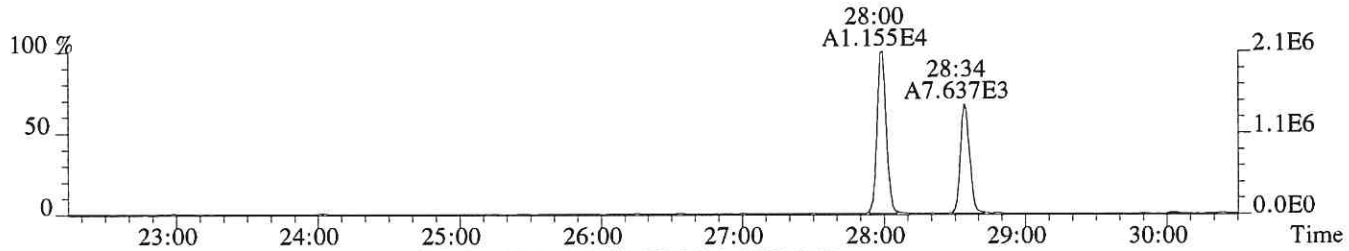
File:P519328 #1-587 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3004.0,1.00%,F,T)



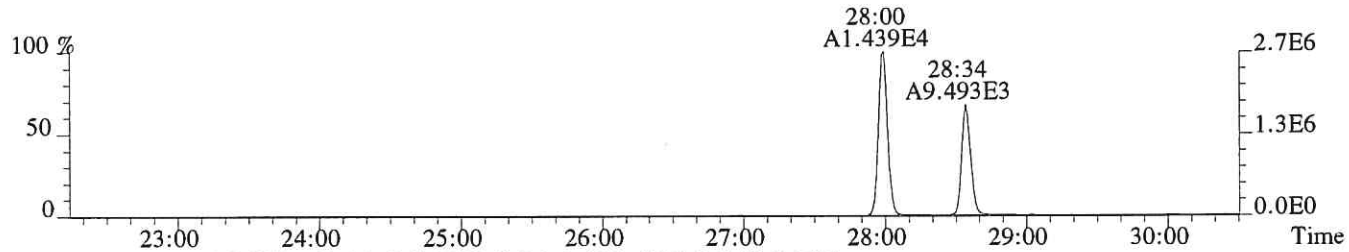
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



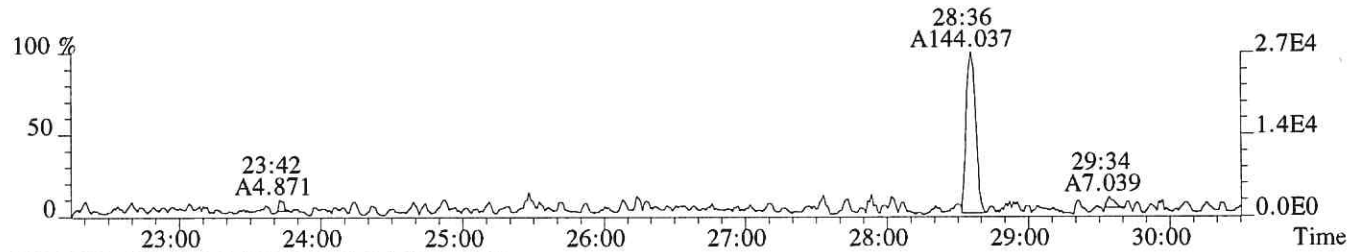
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8484.0,1.00%,F,T)



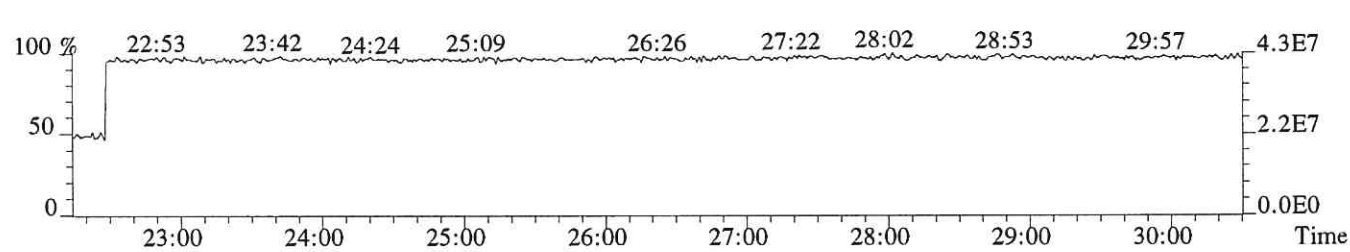
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2500.0,1.00%,F,T)



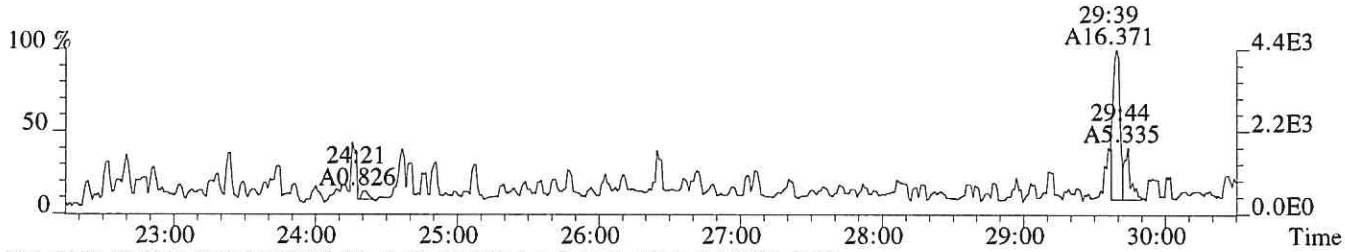
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



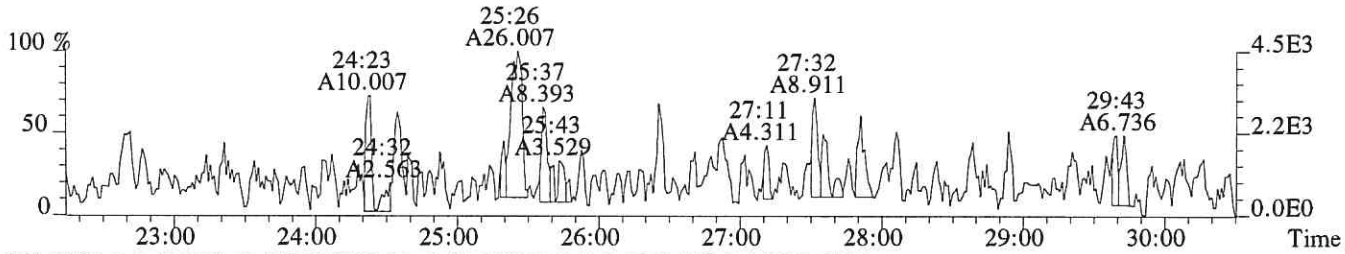
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



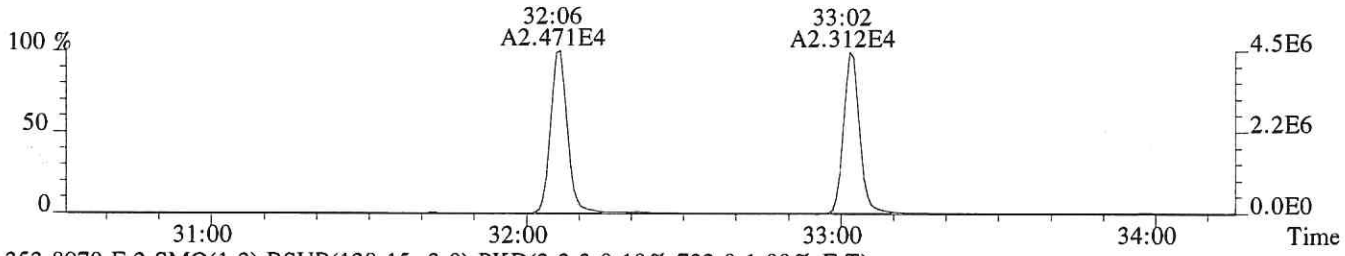
File:P519328 #1-587 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



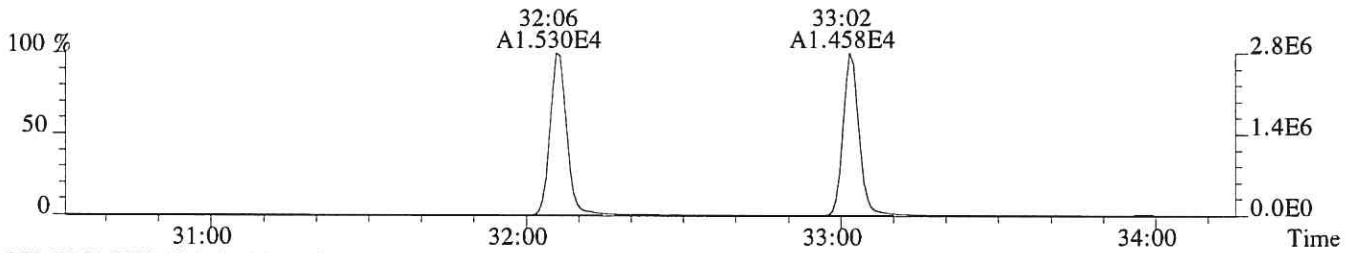
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



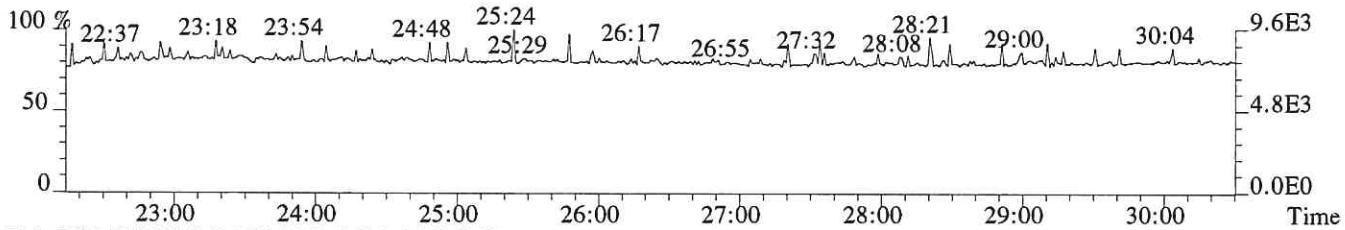
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



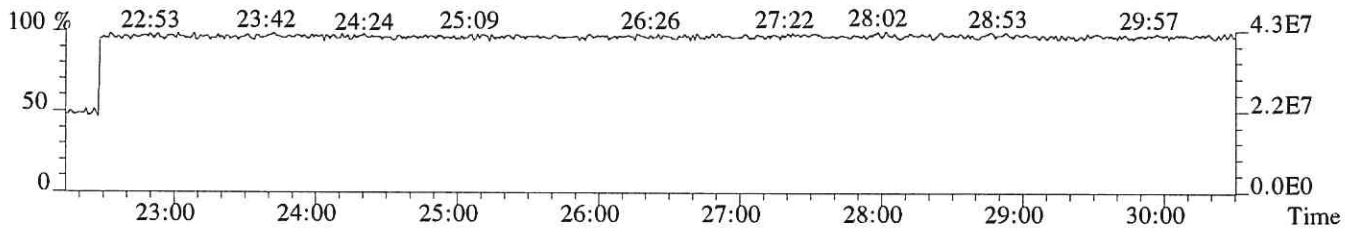
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



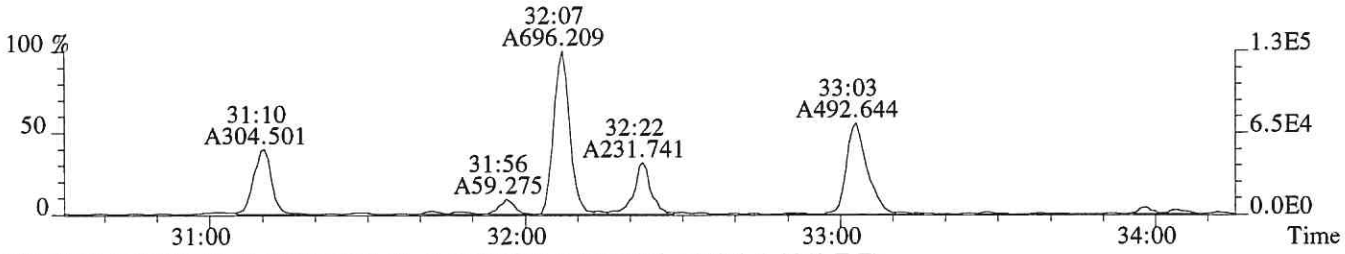
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



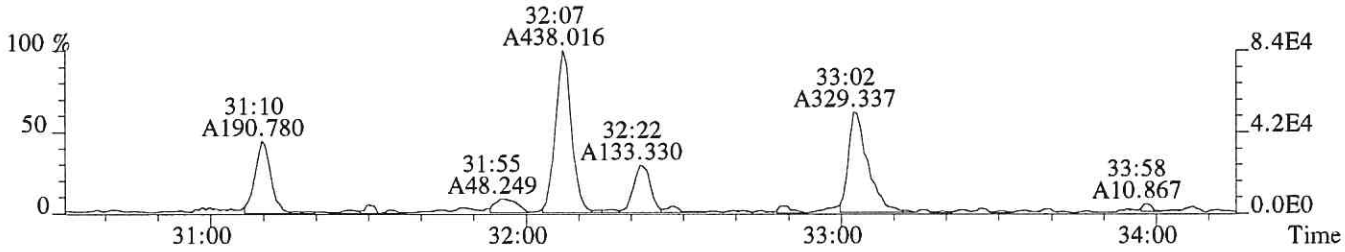
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



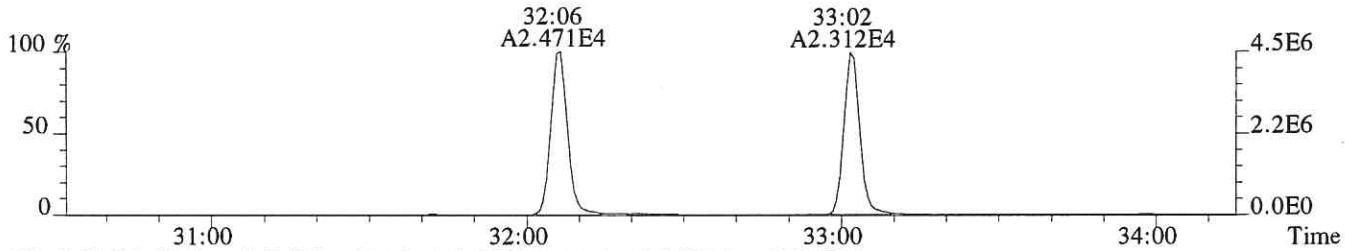
File:P519328 #1-335 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



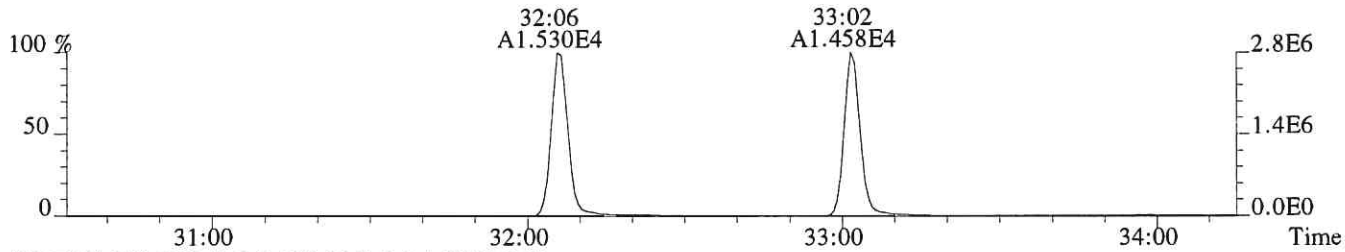
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



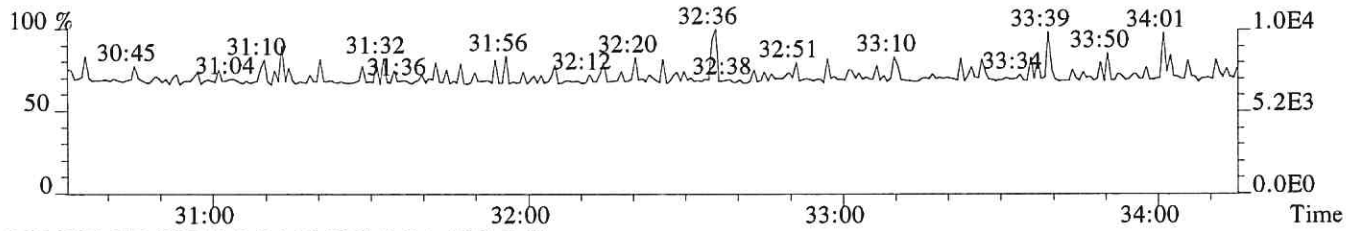
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



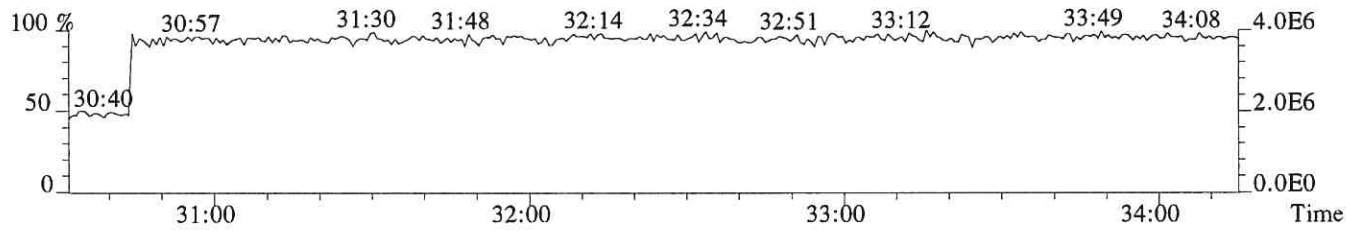
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



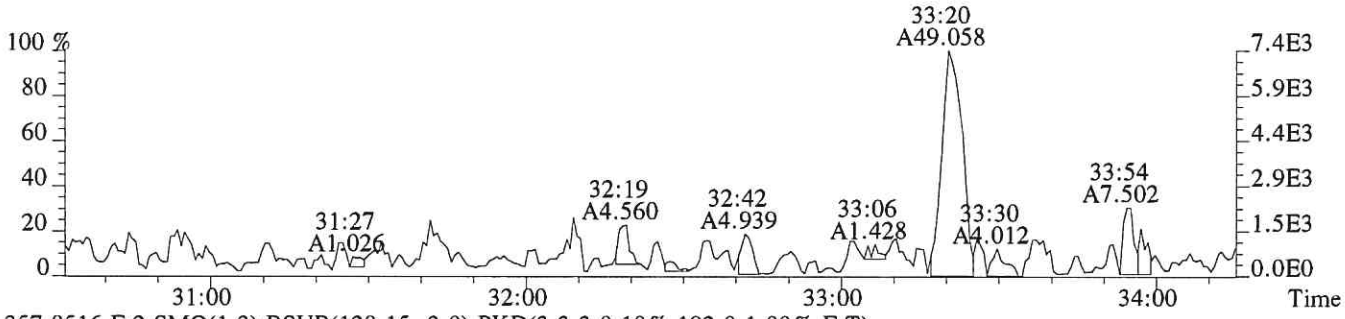
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



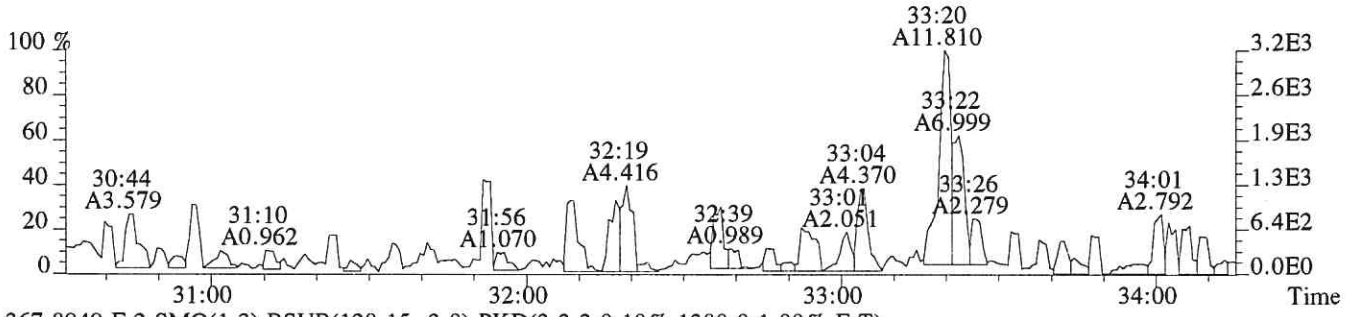
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



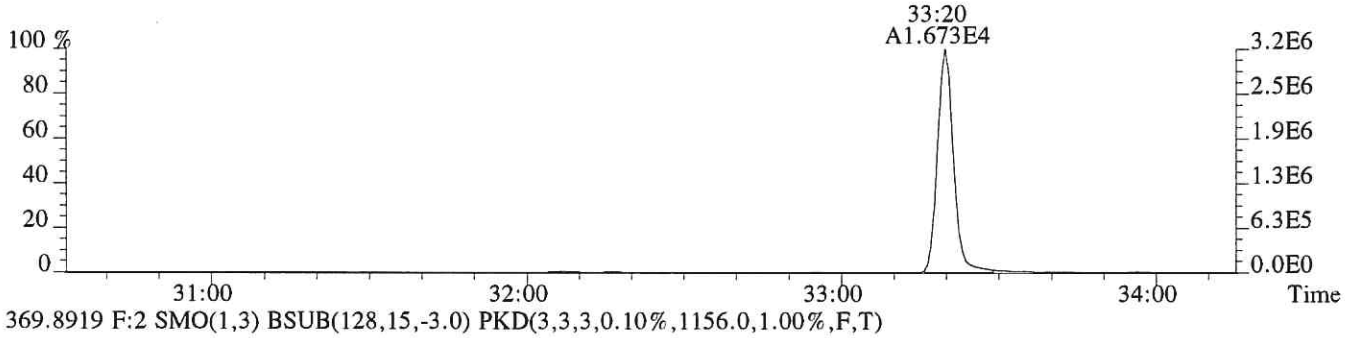
File:P519328 #1-335 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



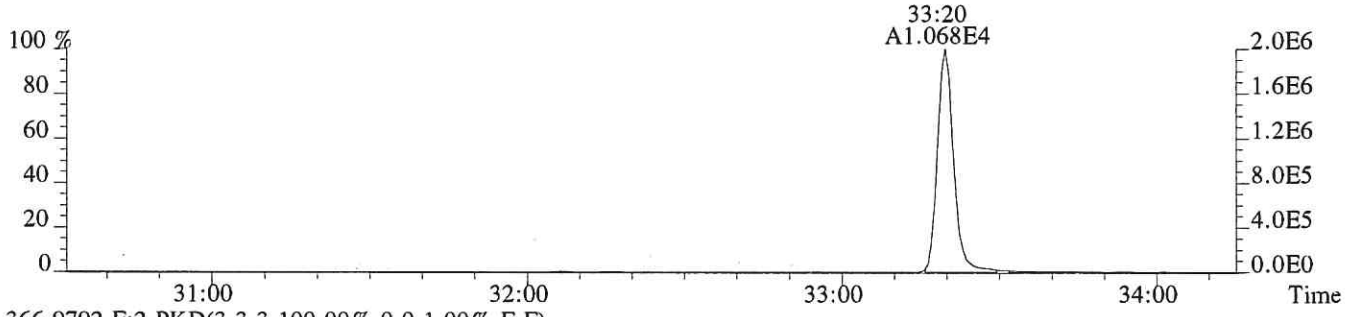
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



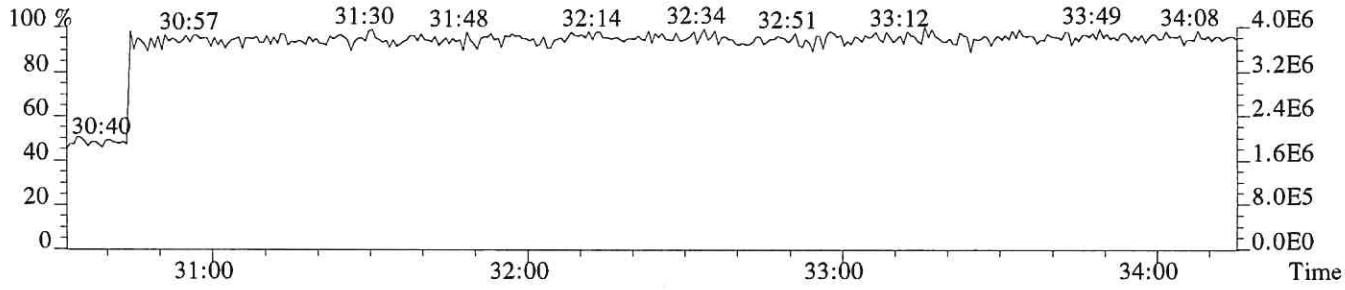
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



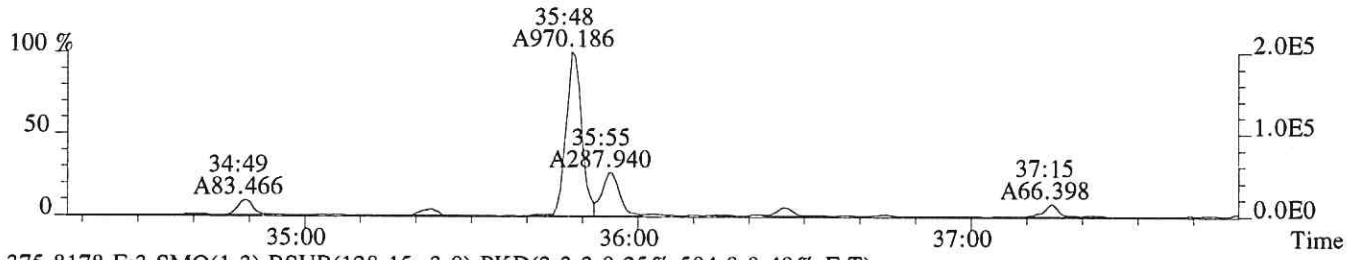
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



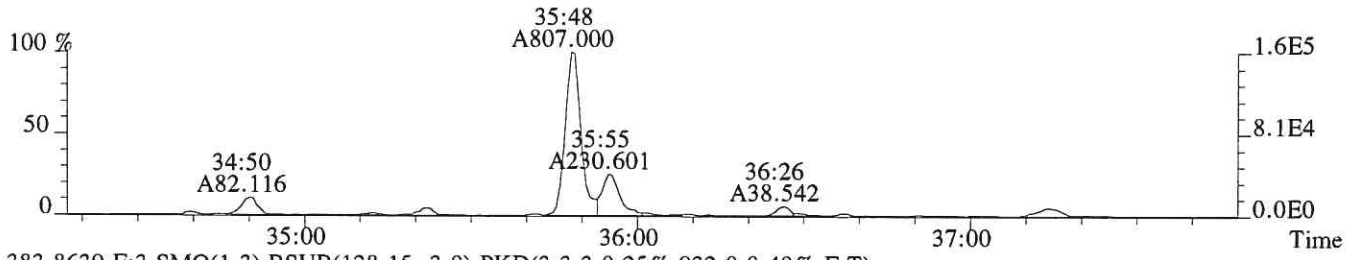
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



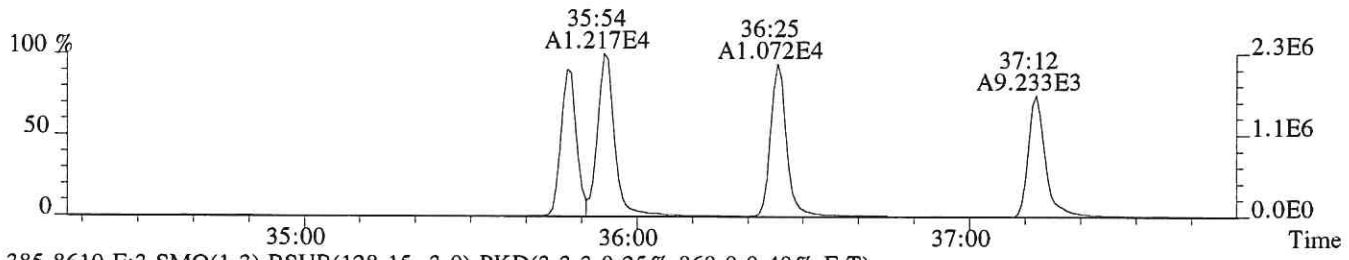
File:P519328 #1-317 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



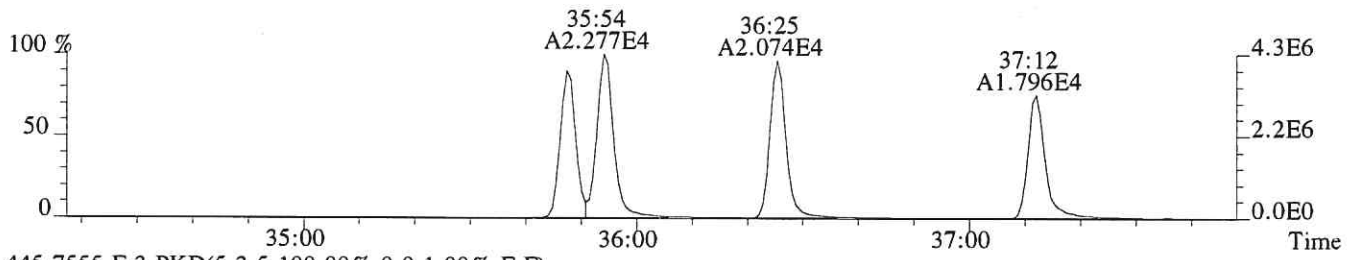
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



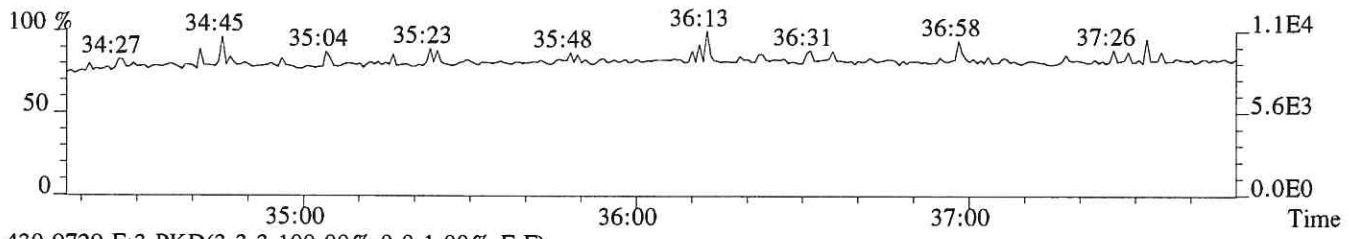
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



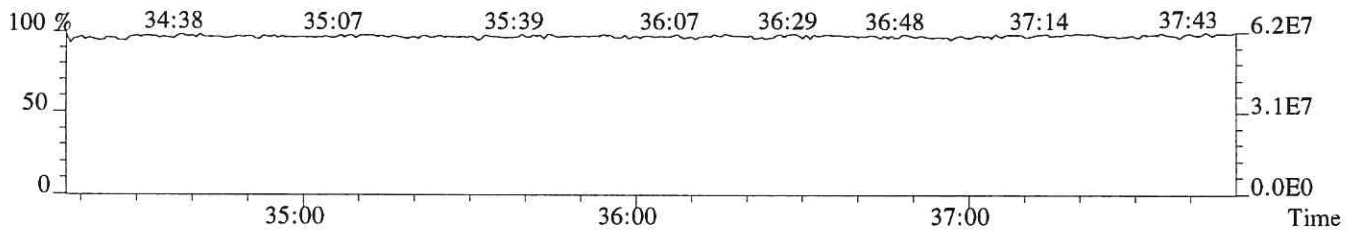
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



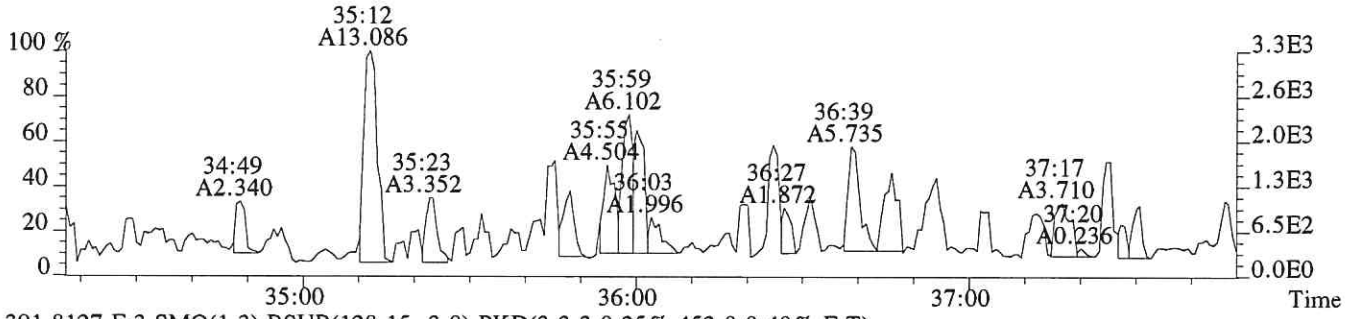
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



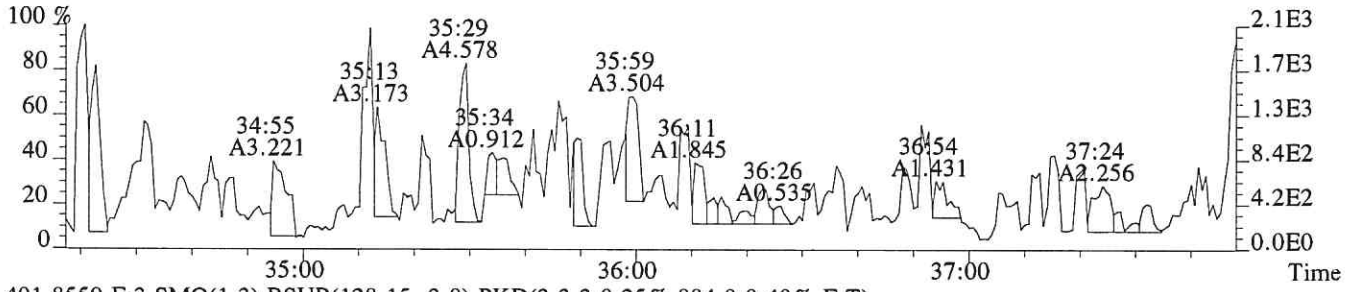
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



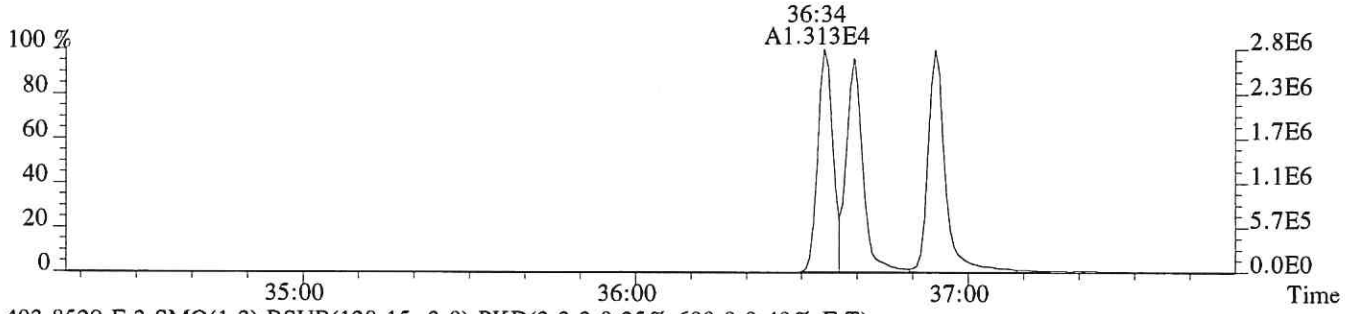
File:P519328 #1-317 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



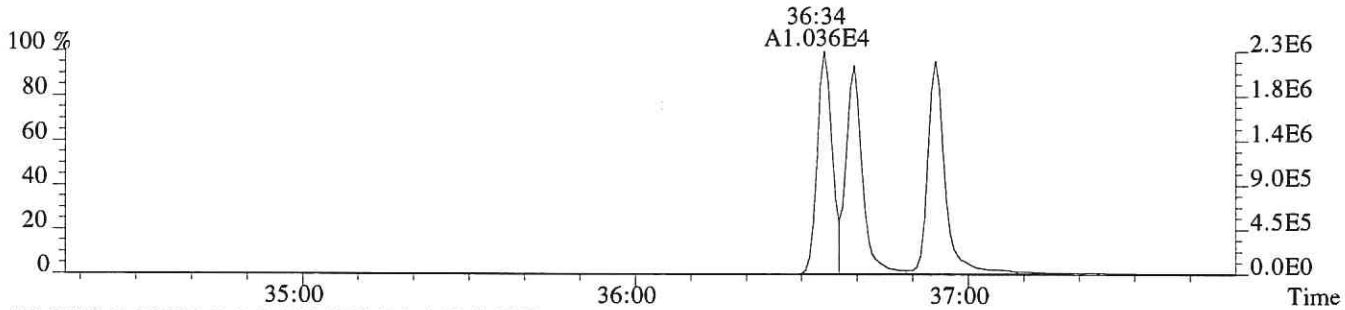
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



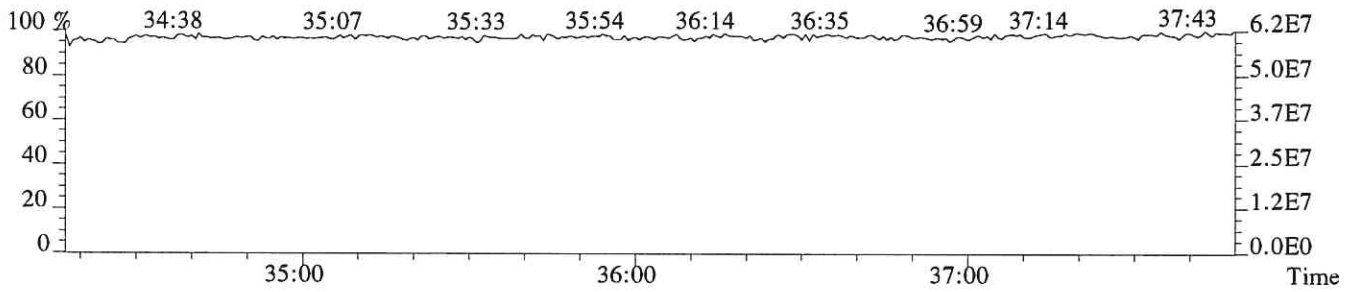
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



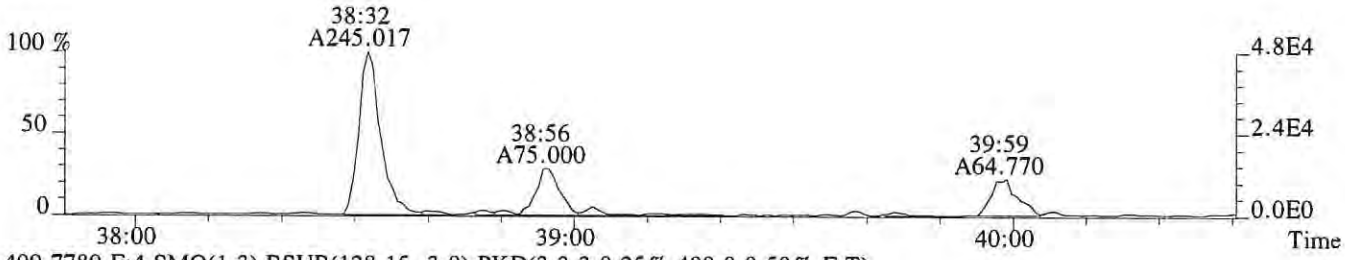
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



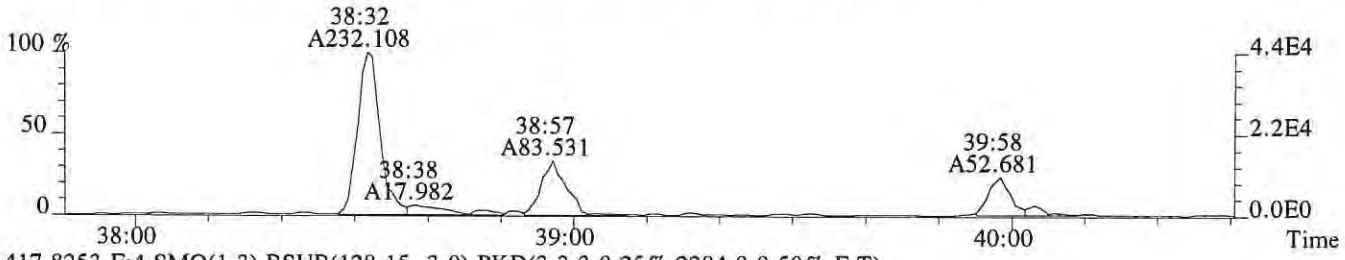
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



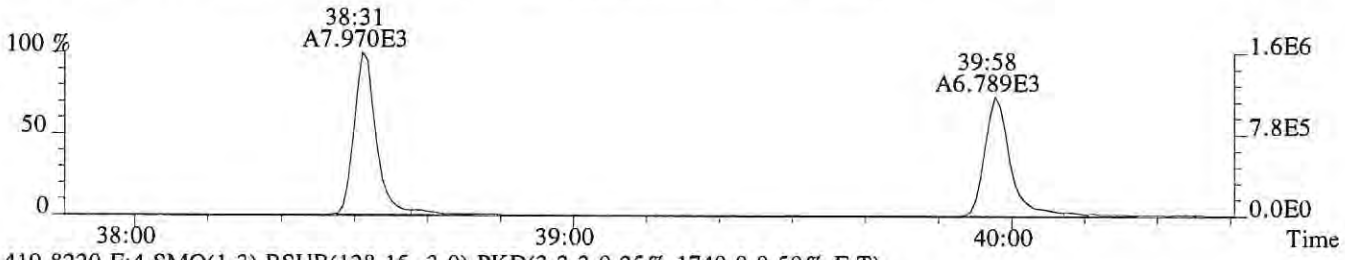
File:P519328 #1-241 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.50%,F,T)



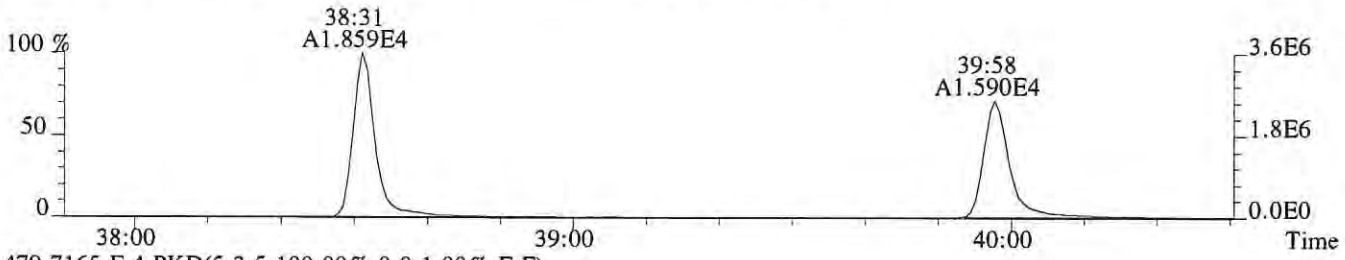
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.50%,F,T)



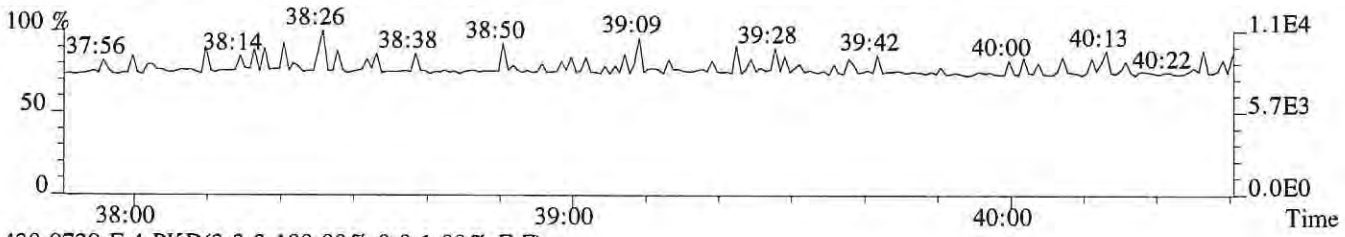
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.50%,F,T)



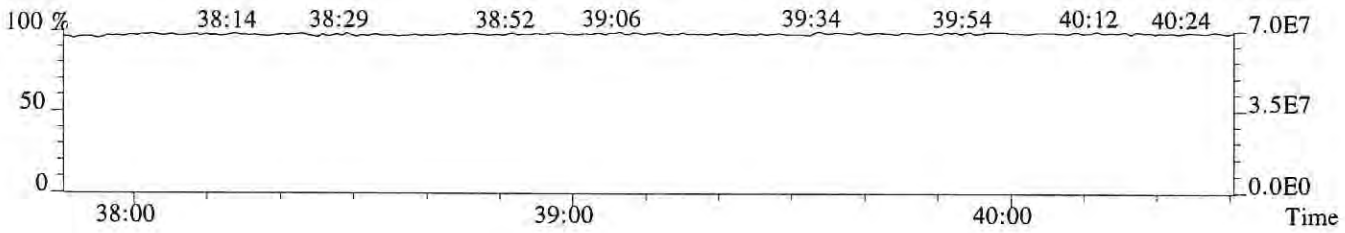
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.50%,F,T)



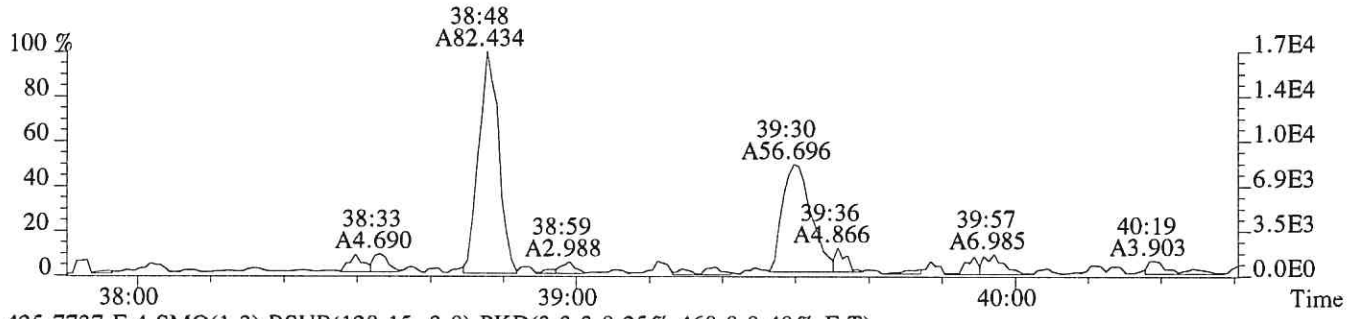
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



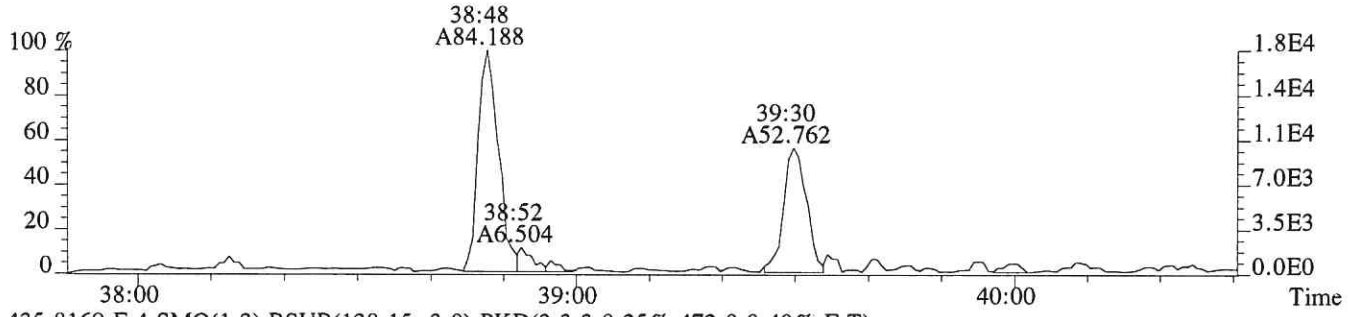
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



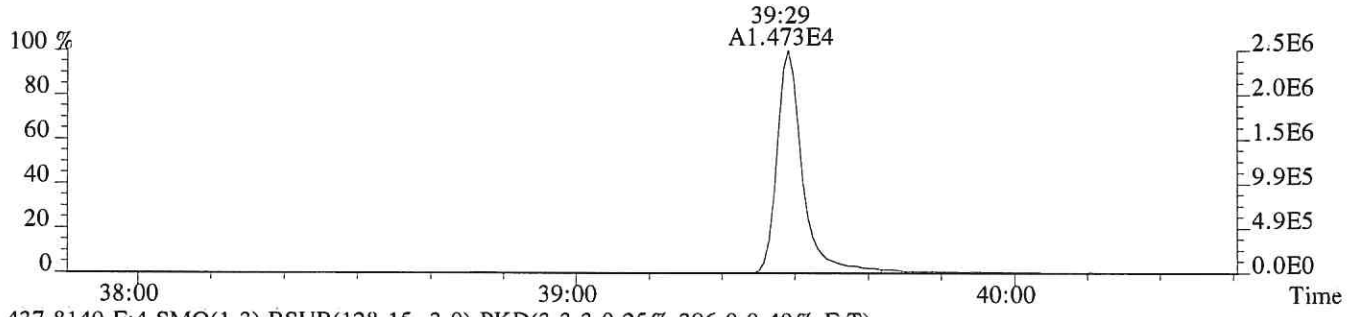
File:P519328 #1-241 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



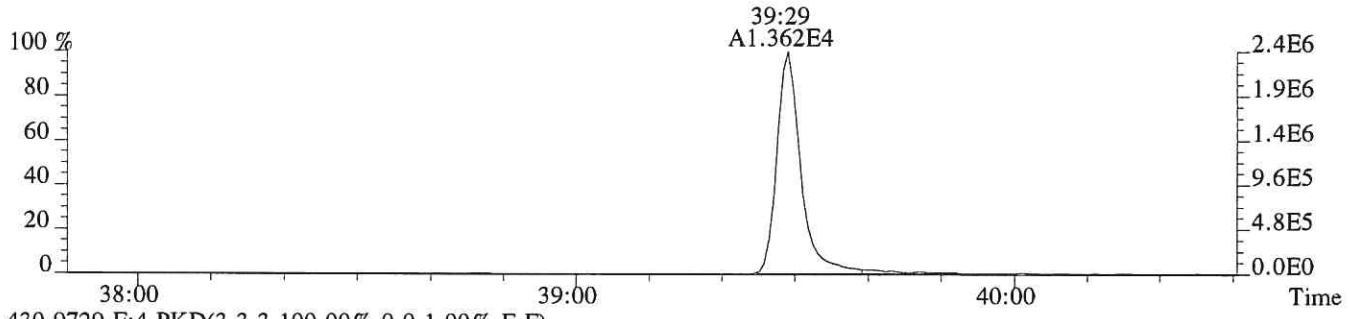
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



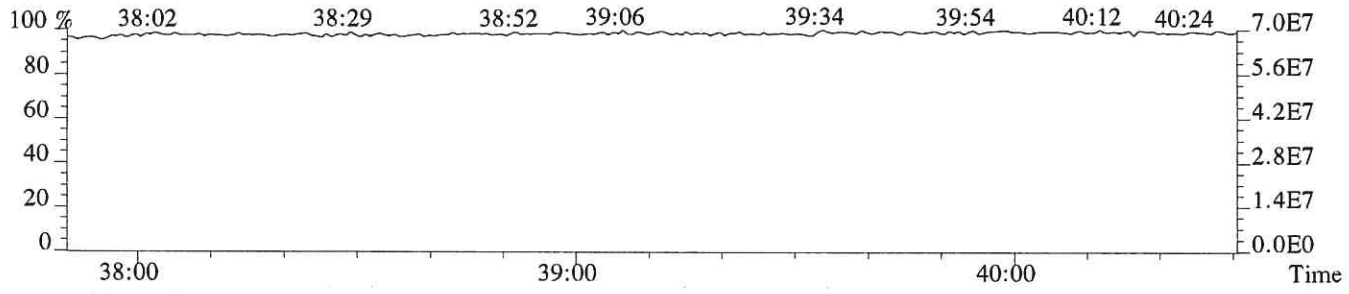
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



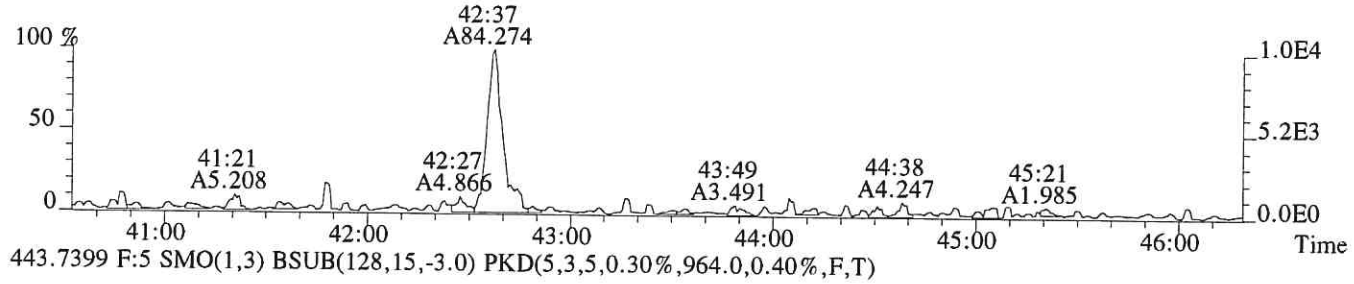
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



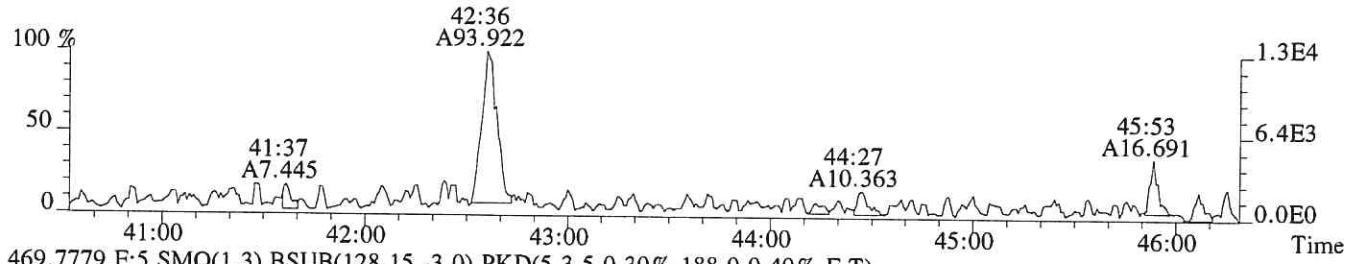
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



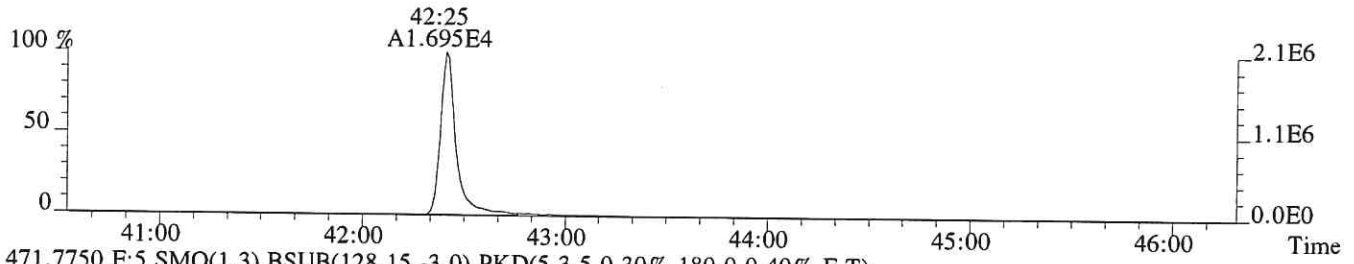
File:P519328 #1-520 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



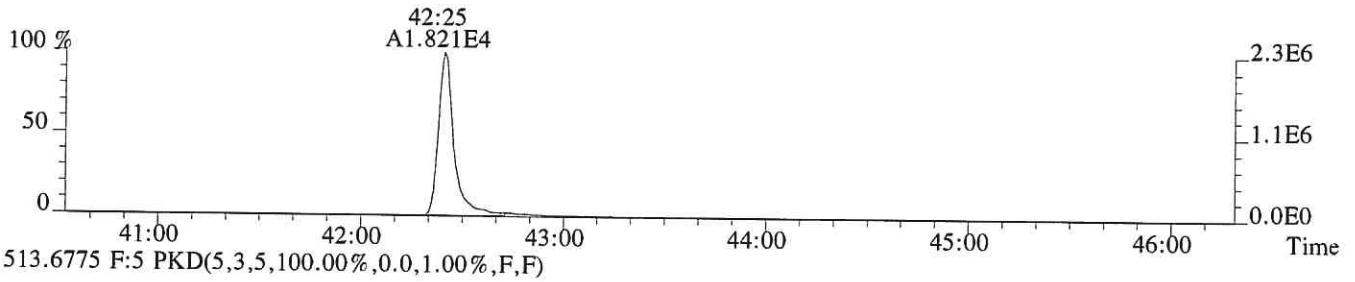
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,964.0,0.40%,F,T)



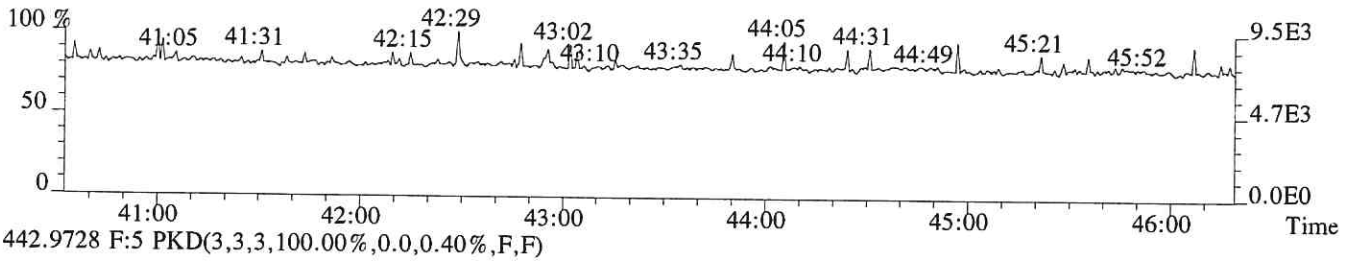
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



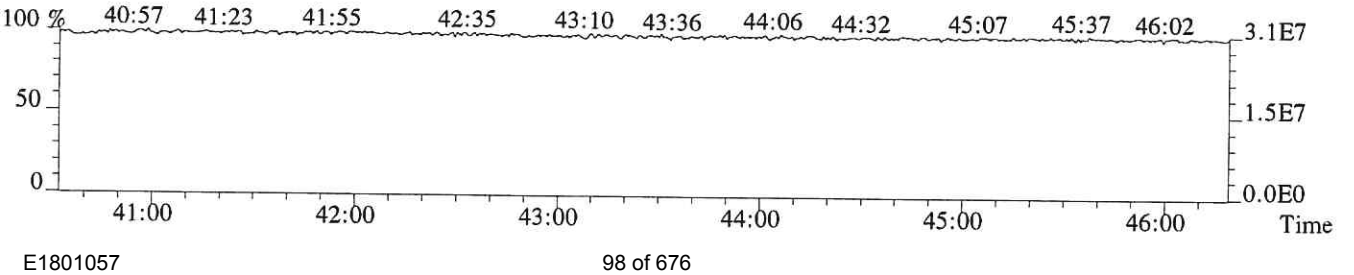
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



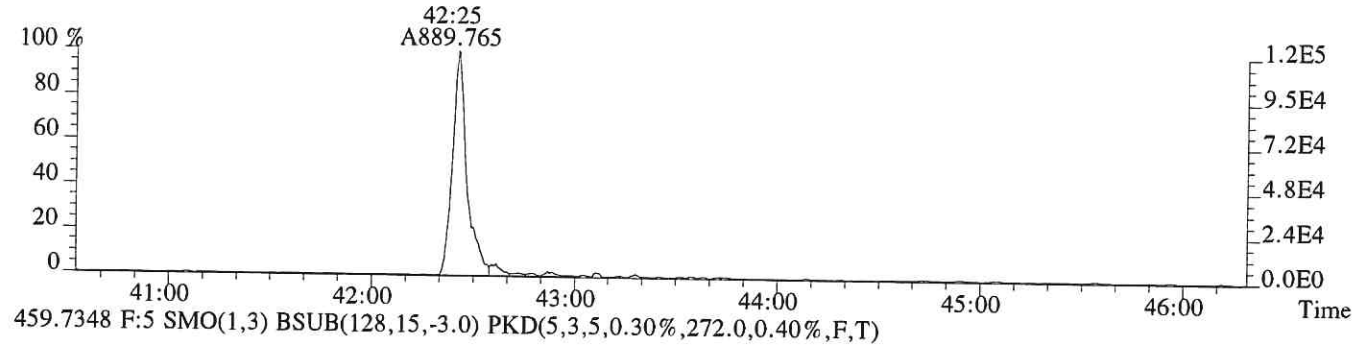
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



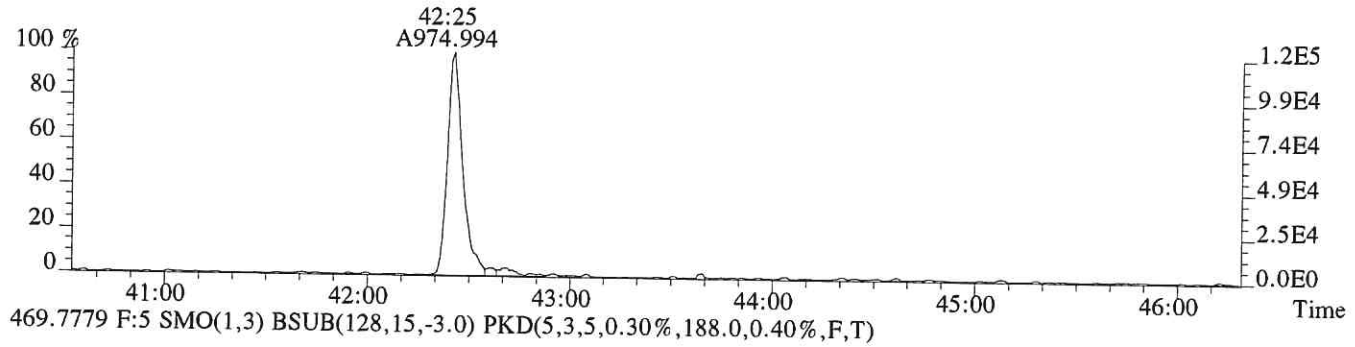
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



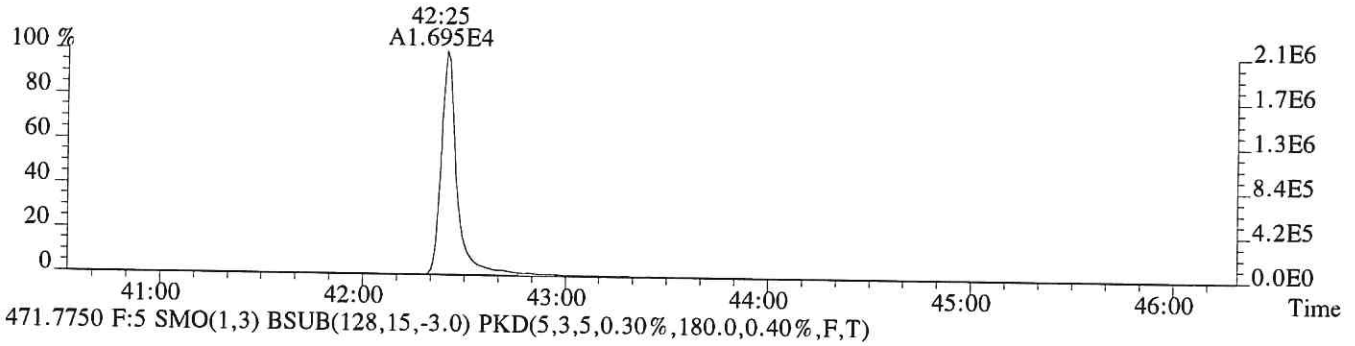
File:P519328 #1-520 Acq:10-DEC-2018 16:05:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-001DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



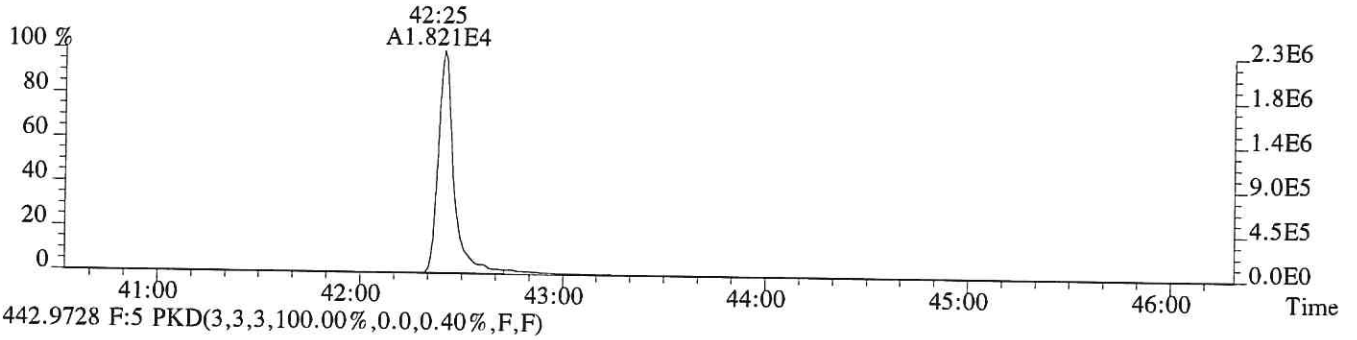
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



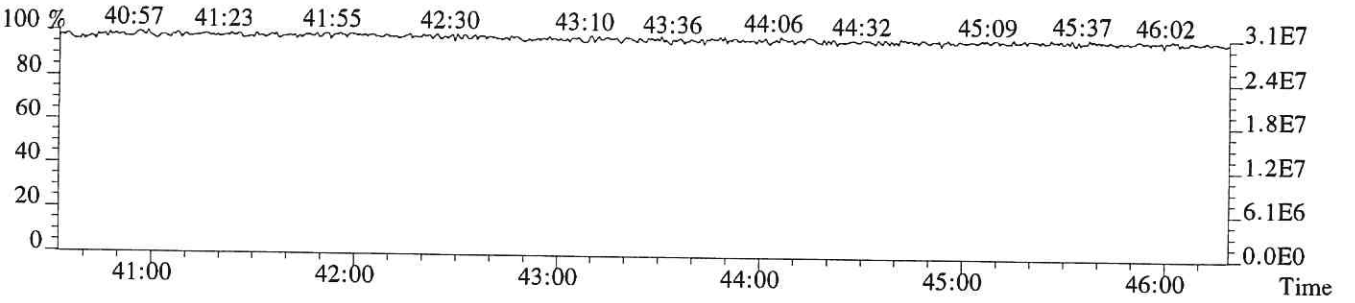
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0556

Run #19 Filename P519284 Samp: 1 Inj: 1 Acquired: 7-DEC-18 16:26:51
Processed: 10-DEC-18 11:50:47 Sample ID: E1801057-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:52	4.694e+04	6.135e+04	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	2.807e+03	1.749e+03	1.60	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	2.140e+03	1.498e+03	1.43	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	5.189e+03	4.317e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.424e+03	1.218e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	2.066e+02	1.739e+02	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	3.345e+02	3.133e+02	1.07	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	1.888e+03	1.843e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	6.131e+02	6.236e+02	0.98	yes	no	1.258
10	Unk	OCDF	42:45	6.253e+02	6.847e+02	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	1.096e+04	1.354e+04	0.81	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	1.903e+02	1.088e+02	1.75	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:44	3.439e+01	3.763e+01	0.91	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	3.330e+01	2.732e+01	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	8.950e+02	7.981e+02	1.12	yes	no	1.025
17	Unk	OCDD	42:34	1.608e+04	1.738e+04	0.93	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.358e+04	1.705e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.560e+04	1.579e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.437e+04	1.518e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.148e+04	2.163e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.341e+04	2.612e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	1.166e+04	2.254e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:16	1.141e+04	2.174e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	8.893e+03	2.055e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	8.373e+03	1.889e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	6.376e+03	7.849e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.791e+04	1.090e+04	1.64	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:38	1.585e+04	1.217e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	1.618e+04	1.257e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.850e+04	1.679e+04	1.10	yes	no	0.858
32	IS	13C-OCDD	42:33	1.559e+04	1.720e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.727e+04	2.134e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	2.812e+04	2.214e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	9.521e+03				no	1.014

$$\text{OCDD} = \frac{(1.608e+04 + 1.738e+04) \times 4000\ \text{pg} \times 1}{(1.559e+04 + 1.720e+04) \times 10.631\ \text{g} \times 79.3/100 \times 1.118} = 433.0673\ \text{ng/kg}$$

LG 12/11/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0556

Run #19 Filename P519284 Samp: 1 Inj: 1 Acquired: 7-DEC-18 16:26:51
Processed: 10-DEC-18 11:50:47 LAB. ID: E1801057-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.84e+06	1.33e+03	5.9e+03	1.02e+07	2.73e+03	3.7e+03
2	1,2,3,7,8-PeCDF	4.92e+05	9.00e+02	5.5e+02	3.11e+05	2.48e+03	1.3e+02
3	2,3,4,7,8-PeCDF	3.54e+05	9.00e+02	3.9e+02	2.52e+05	2.48e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	1.08e+06	1.02e+03	1.1e+03	8.83e+05	8.40e+02	1.1e+03
5	1,2,3,6,7,8-HxCDF	2.52e+05	1.02e+03	2.5e+02	2.22e+05	8.40e+02	2.6e+02
6	2,3,4,6,7,8-HxCDF	4.51e+04	1.02e+03	4.4e+01	3.32e+04	8.40e+02	4.0e+01
7	1,2,3,7,8,9-HxCDF	5.21e+04	1.02e+03	5.1e+01	5.56e+04	8.40e+02	6.6e+01
8	1,2,3,4,6,7,8-HpCDF	3.85e+05	2.48e+03	1.6e+02	3.63e+05	4.84e+02	7.5e+02
9	1,2,3,4,7,8,9-HpCDF	1.01e+05	2.48e+03	4.1e+01	1.05e+05	4.84e+02	2.2e+02
10	OCDF	8.54e+04	3.52e+02	2.4e+02	9.67e+04	1.21e+03	8.0e+01
11	2,3,7,8-TCDD	2.10e+06	2.70e+03	7.8e+02	2.58e+06	1.10e+03	2.3e+03
12	1,2,3,7,8-PeCDD	3.09e+04	1.05e+03	2.9e+01	2.05e+04	3.20e+02	6.4e+01
13	1,2,3,4,7,8-HxCDD	*	8.64e+02	*	*	1.20e+03	*
14	1,2,3,6,7,8-HxCDD	7.02e+03	8.64e+02	8.1e+00	7.46e+03	1.20e+03	6.2e+00
15	1,2,3,7,8,9-HxCDD	7.25e+03	8.64e+02	8.4e+00	5.77e+03	1.20e+03	4.8e+00
16	1,2,3,4,6,7,8-HpCDD	1.59e+05	5.36e+02	3.0e+02	1.43e+05	1.12e+03	1.3e+02
17	OCDD	1.97e+06	3.76e+02	5.3e+03	2.13e+06	5.88e+02	3.6e+03
18	13C-2,3,7,8-TCDF	2.51e+06	1.21e+04	2.1e+02	3.12e+06	8.22e+03	3.8e+02
19	13C-1,2,3,7,8-PeCDF	4.78e+06	1.01e+03	4.7e+03	2.98e+06	8.56e+02	3.5e+03
20	13C-2,3,4,7,8-PeCDF	4.64e+06	1.01e+03	4.6e+03	2.88e+06	8.56e+02	3.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.35e+06	1.01e+03	2.3e+03	4.46e+06	1.88e+03	2.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.59e+06	1.01e+03	2.6e+03	5.13e+06	1.88e+03	2.7e+03
23	13C-2,3,4,6,7,8-HxCDF	2.33e+06	1.01e+03	2.3e+03	4.49e+06	1.88e+03	2.4e+03
24	13C-1,2,3,7,8,9-HxCDF	2.21e+06	1.01e+03	2.2e+03	4.25e+06	1.88e+03	2.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.78e+06	2.51e+03	7.1e+02	4.06e+06	3.66e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.36e+06	2.51e+03	5.4e+02	3.06e+06	3.66e+03	8.4e+02
27	13C-2,3,7,8-TCDD	1.24e+06	8.81e+03	1.4e+02	1.53e+06	4.49e+03	3.4e+02
28	13C-1,2,3,7,8-PeCDD	3.48e+06	2.17e+03	1.6e+03	2.06e+06	1.76e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	3.44e+06	1.41e+03	2.4e+03	2.67e+06	6.68e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.97e+06	1.41e+03	2.1e+03	2.34e+06	6.68e+02	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.14e+06	4.24e+02	7.4e+03	2.91e+06	7.56e+02	3.9e+03
32	13C-OCDD	1.89e+06	6.20e+02	3.1e+03	2.12e+06	5.88e+02	3.6e+03
33	13C-1,2,3,4-TCDD	3.29e+06	8.81e+03	3.7e+02	4.06e+06	4.49e+03	9.0e+02
34	13C-1,2,3,7,8,9-HxCDD	5.35e+06	1.41e+03	3.8e+03	4.22e+06	6.68e+02	6.3e+03
35	37Cl-2,3,7,8-TCDD	1.82e+06	1.54e+03	1.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.700e{+}03 + 1.100e{+}03\ ) \times 2000}{(1.242e{+}06 + 1.529e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0556

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P519284 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 303.9020 305.8990 Tot Response: 1.91e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:47	3.51e+02	4.80e+02	0.73	yes	8.31e+02		n	n
2	25:07	2.03e+03	2.66e+03	0.76	yes	4.69e+03		n	n
3	25:31	5.10e+02	7.66e+02	0.67	yes	1.28e+03		n	n
4	25:50	1.63e+03	2.20e+03	0.74	yes	3.83e+03		n	n
5	26:14	3.16e+02	4.17e+02	0.76	yes	7.34e+02		n	n
6	26:28	1.14e+03	1.63e+03	0.70	yes	2.77e+03		n	n
7	26:35	2.12e+03	2.80e+03	0.76	yes	4.93e+03		n	n
8	27:02	1.93e+04	2.50e+04	0.77	yes	4.43e+04		n	n
9	27:17	9.15e+02	1.17e+03	0.78	yes	2.09e+03		n	n
10	27:52	4.69e+04	6.14e+04	0.77	yes	1.08e+05	2,3,7,8-TCDF	n	n
11	28:12	3.31e+03	4.36e+03	0.76	yes	7.67e+03		n	n
12	28:27	6.30e+02	8.50e+02	0.74	yes	1.48e+03		n	n
13	29:44	3.68e+03	4.68e+03	0.79	yes	8.35e+03		n	n

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Peak List Summary

CLIENT ID.
SL0556

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P519284 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 319.8970 321.8940 Tot Response: 2.70e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:24	1.41e+02	1.63e+02	0.87	yes	3.04e+02		n	n
2	28:41	1.10e+04	1.35e+04	0.81	yes	2.45e+04	2,3,7,8-TCDD	n	n
3	28:59	1.00e+03	1.23e+03	0.82	yes	2.23e+03		n	n

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Peak List Summary

CLIENT ID.
SL0556

Entry: 38 Totals Name: Total Penta-Furans1

Run: 19 File: P519284 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 339.8600 341.8570 Tot Response: 1.06e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:44	6.72e+01	3.89e+01	1.73	yes	1.06e+02	n	n

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Peak List Summary

CLIENT ID.
SL0556

Entry: 39 Totals Name: Total Penta-Furans2

Run: 19 File: P519284 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 339.8600 341.8570 Tot Response: 1.22e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	1.17e+03	8.33e+02	1.41	yes	2.01e+03		n	n
2	32:01	2.80e+02	1.70e+02	1.65	yes	4.50e+02		n	n
3	32:11	2.81e+03	1.75e+03	1.60	yes	4.56e+03	1,2,3,7,8-PeCDF	n	n
4	32:26	8.77e+02	6.23e+02	1.41	yes	1.50e+03		n	n
5	33:07	2.14e+03	1.50e+03	1.43	yes	3.64e+03	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0556

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P519284 Sample:1 Injection:1 Function:2

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 355.8550 357.8520 Tot Response: 3.56e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	1.11e+01	7.23e+00	1.54	yes	1.84e+01		n	n
2	32:21	2.43e+01	1.42e+01	1.72	yes	3.85e+01		n	n
3	33:24	1.90e+02	1.09e+02	1.75	yes	2.99e+02	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0556

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P519284 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 373.8210 375.8180 Tot Response: 1.41e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:53	3.54e+02	2.54e+02	1.39	yes	6.08e+02		n	n
2	35:26	1.65e+02	1.31e+02	1.26	yes	2.96e+02		n	n
3	35:53	5.19e+03	4.32e+03	1.20	yes	9.51e+03	1,2,3,4,7,8-HxCDF	n	n
4	35:59	1.42e+03	1.22e+03	1.17	yes	2.64e+03	1,2,3,6,7,8-HxCDF	n	n
5	36:31	2.07e+02	1.74e+02	1.19	yes	3.80e+02	2,3,4,6,7,8-HxCDF	n	n
6	37:19	3.34e+02	3.13e+02	1.07	yes	6.48e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0556

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P519284 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 389.8160 391.8130 Tot Response: 6.49e+02 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	2.87e+02	2.52e+02	1.14	yes	5.39e+02		n	n
2	35:51	2.82e+01	2.16e+01	1.31	yes	4.98e+01		n	n
3	36:59	3.33e+01	2.73e+01	1.22	yes	6.06e+01	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0556

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P519284 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 407.7820 409.7790 Tot Response: 5.87e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	1.89e+03	1.84e+03	1.02	yes	3.73e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:01	4.58e+02	4.48e+02	1.02	yes	9.07e+02		n	n
3	40:03	6.13e+02	6.24e+02	0.98	yes	1.24e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0556

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P519284 Sample:1 Injection:1 Function:4

Acquired: 7-DEC-18 16:26:51 Processed: 10-DEC-18 11:50:47

Mass: 423.7770 425.7740 Tot Response: 5.53e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	1.99e+03	1.84e+03	1.08	yes	3.83e+03		n	n
2	39:34	8.95e+02	7.98e+02	1.12	yes	1.69e+03	1,2,3,4,6,7,8-HpCDD	n	n

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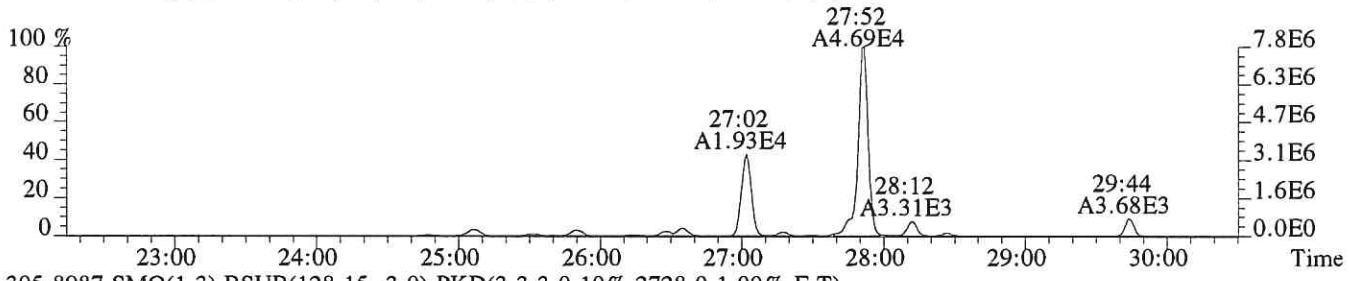
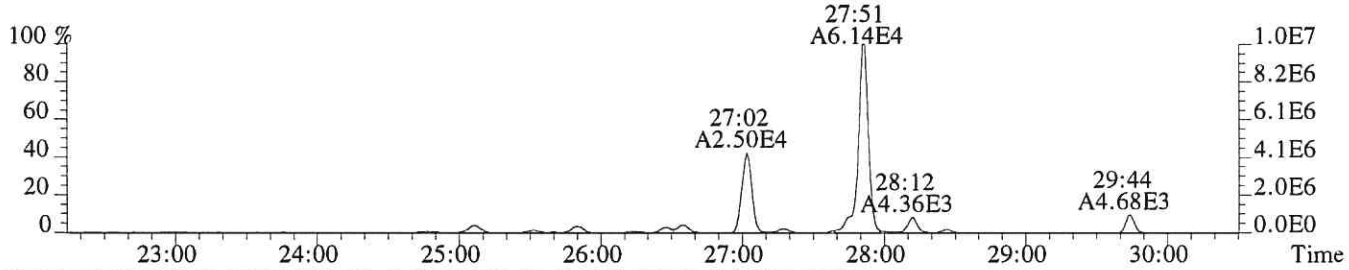
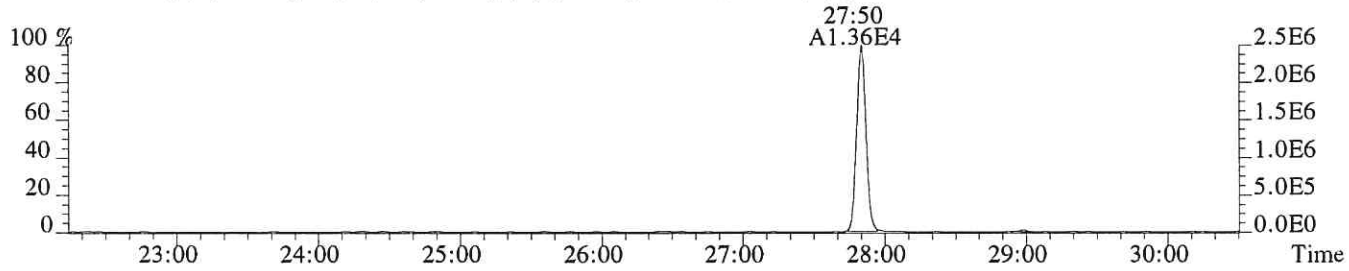
File:P519284 #1-587 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



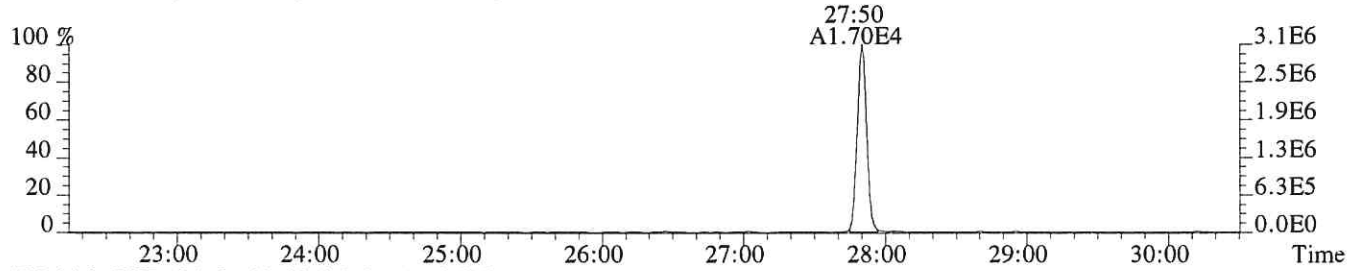
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2728.0,1.00%,F,T)



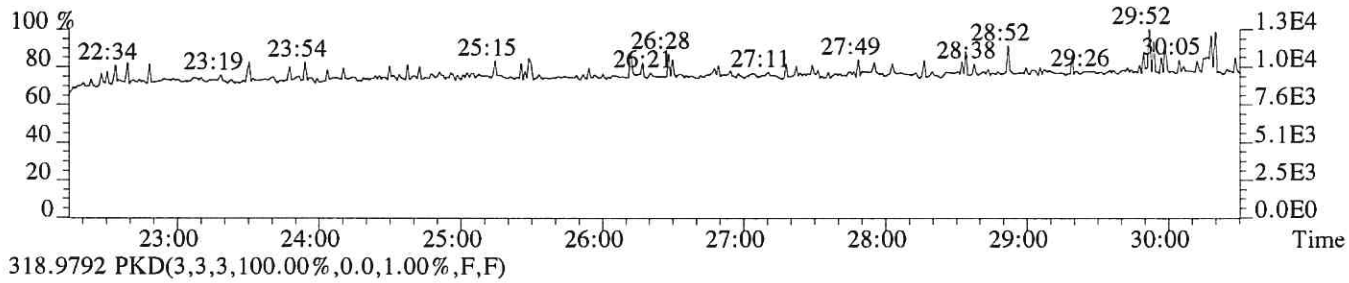
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12064.0,1.00%,F,T)



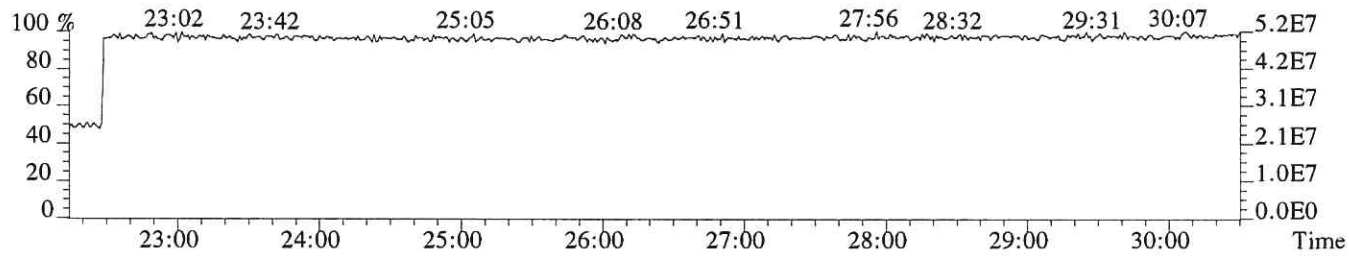
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8220.0,1.00%,F,T)



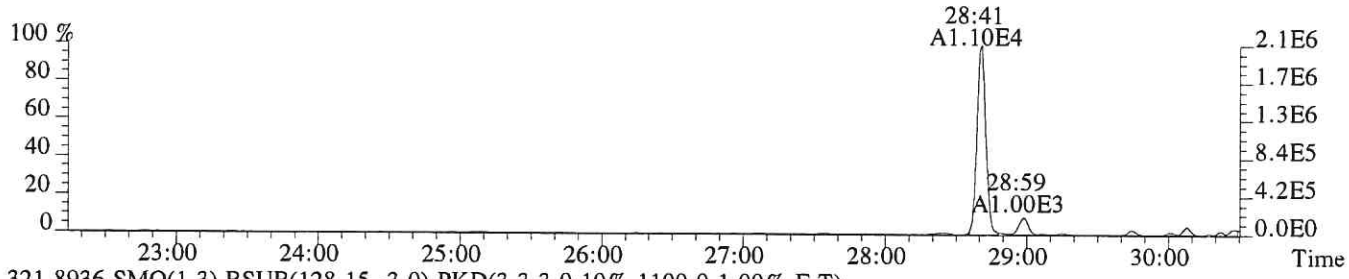
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



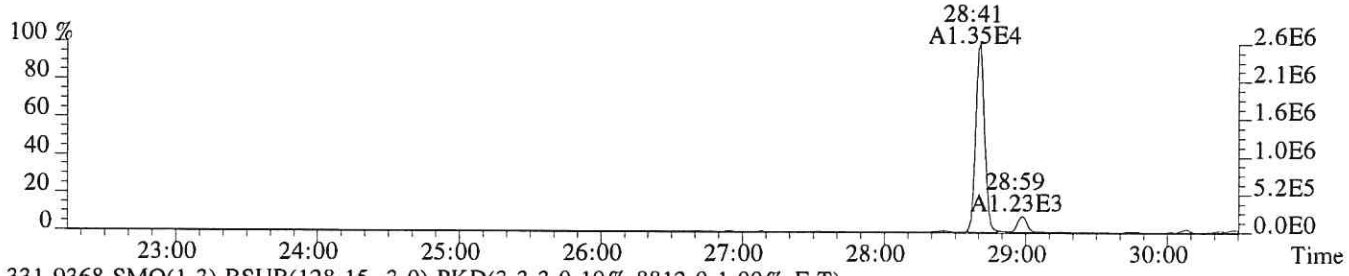
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



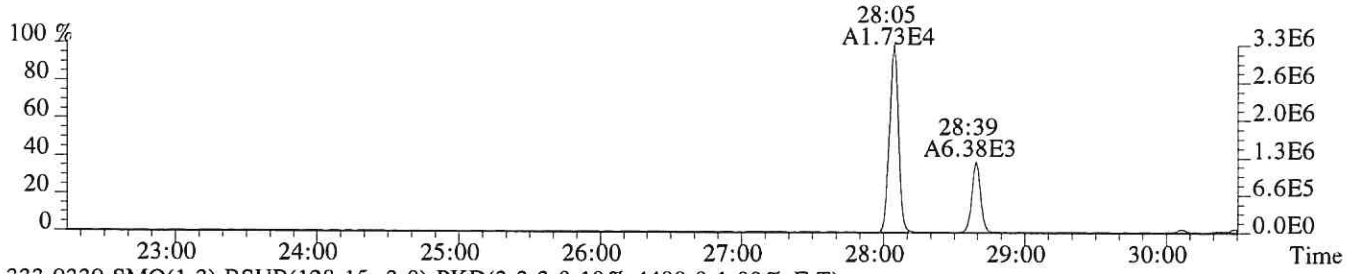
File:P519284 #1-587 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2700.0,1.00%,F,T)



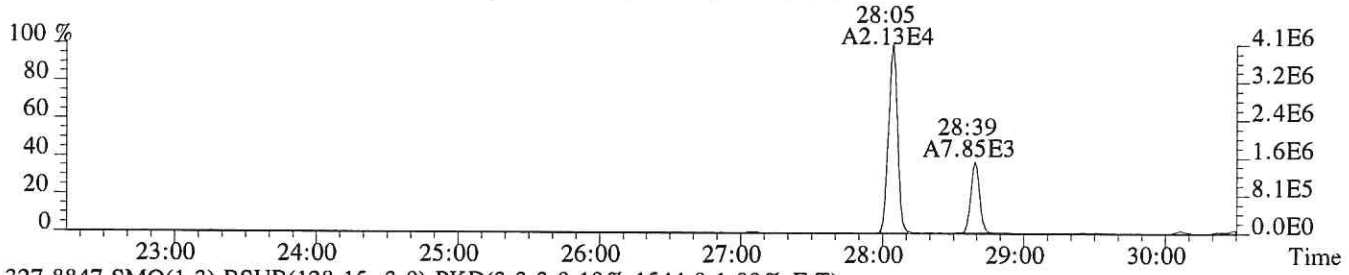
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



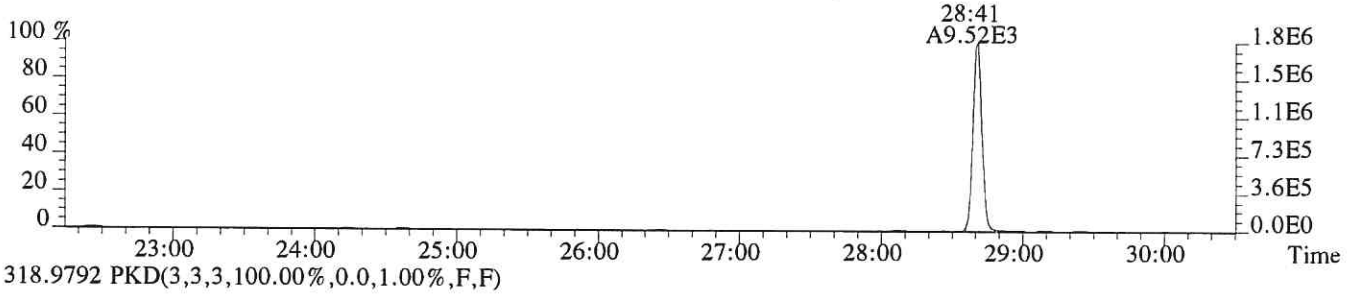
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8812.0,1.00%,F,T)



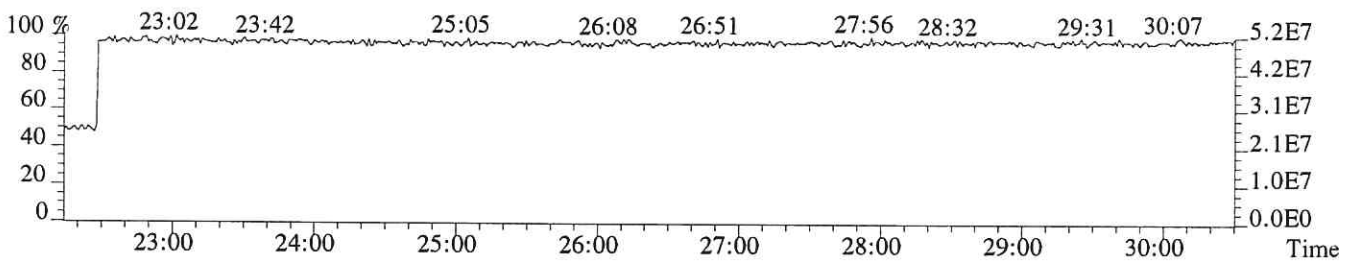
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4488.0,1.00%,F,T)



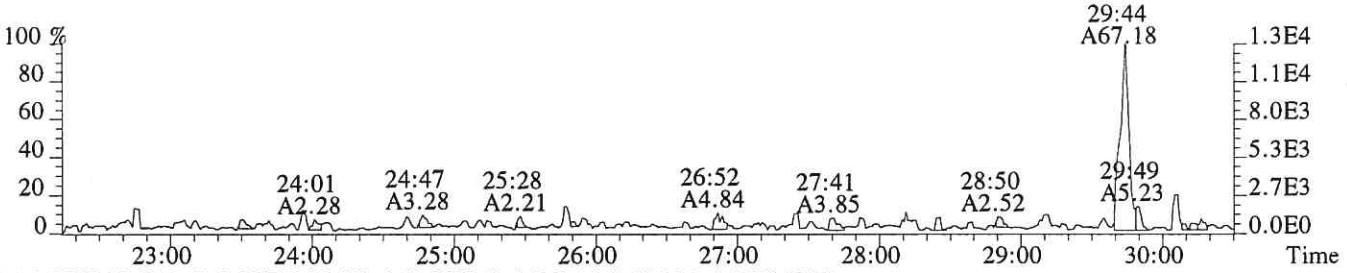
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



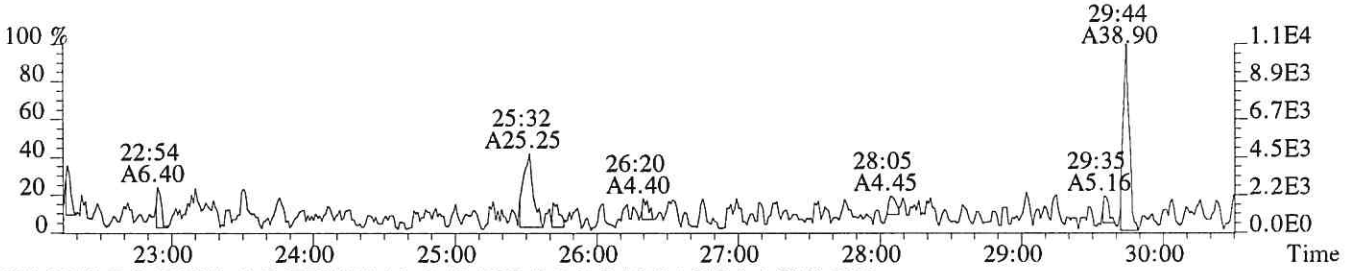
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



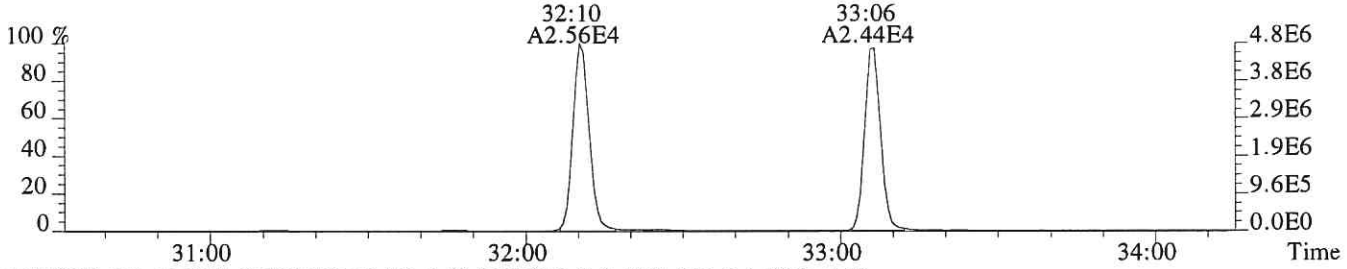
File:P519284 #1-587 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



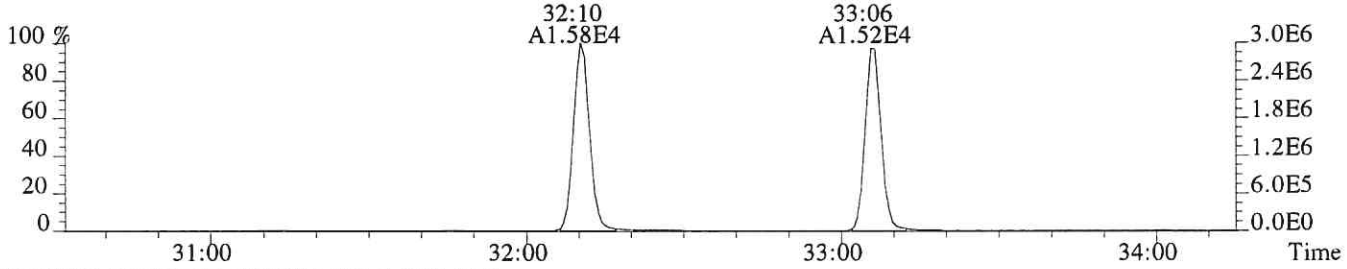
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



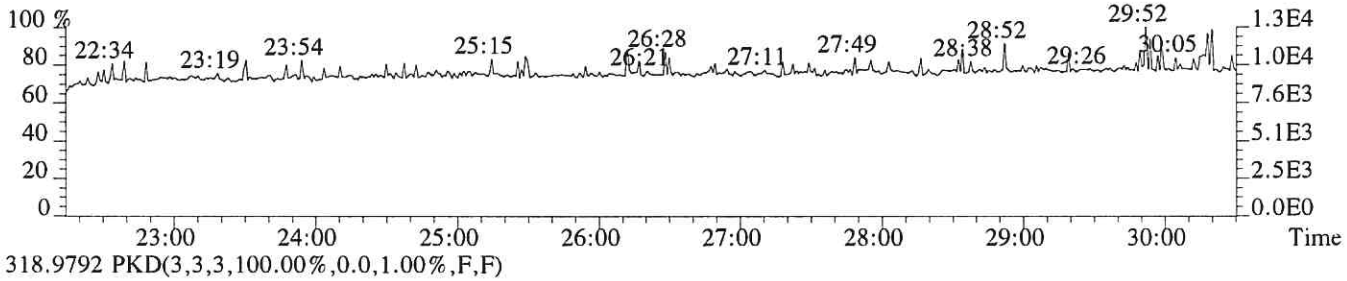
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



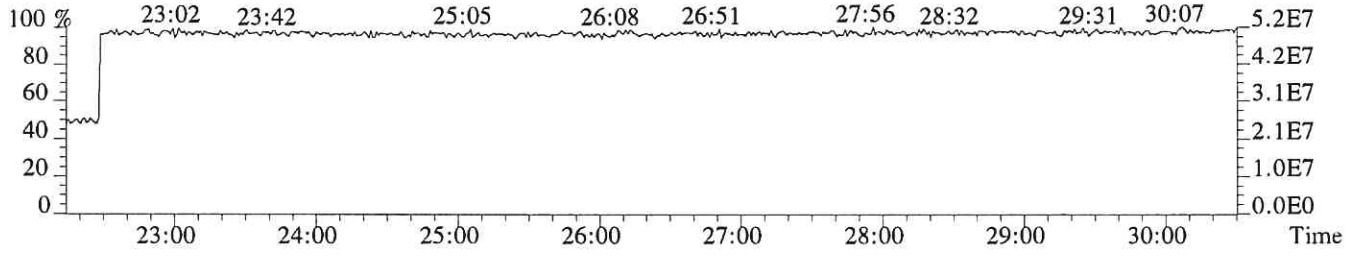
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



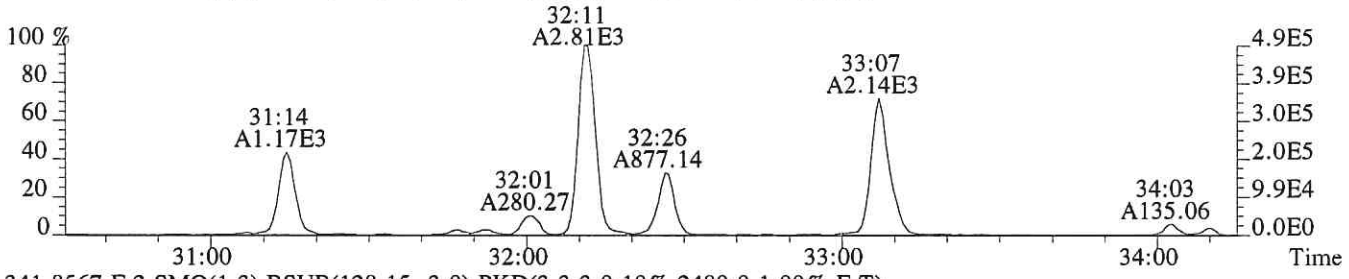
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



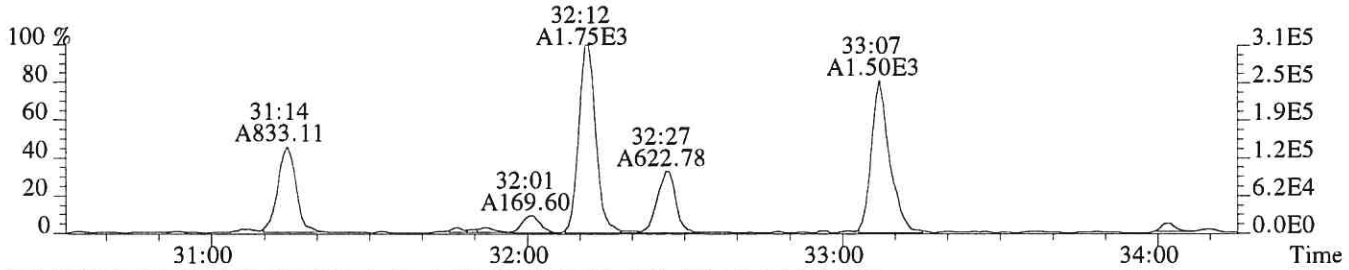
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



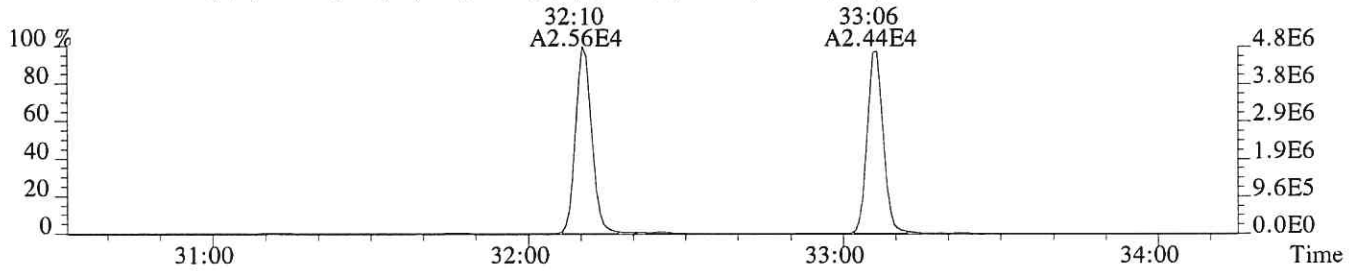
File:P519284 #1-335 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



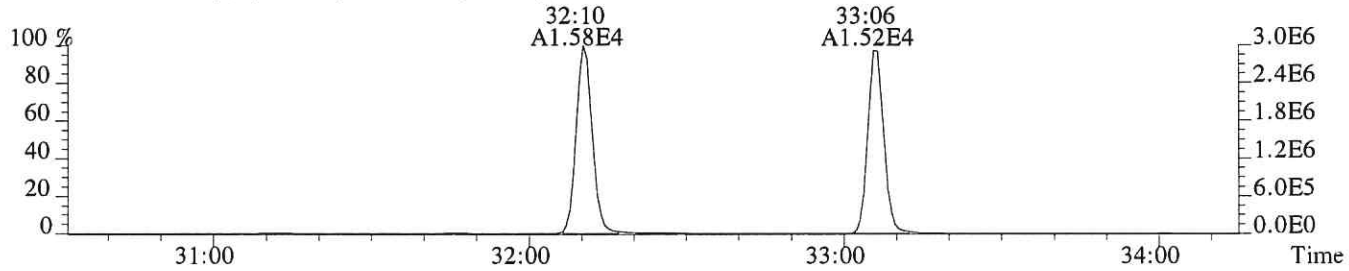
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



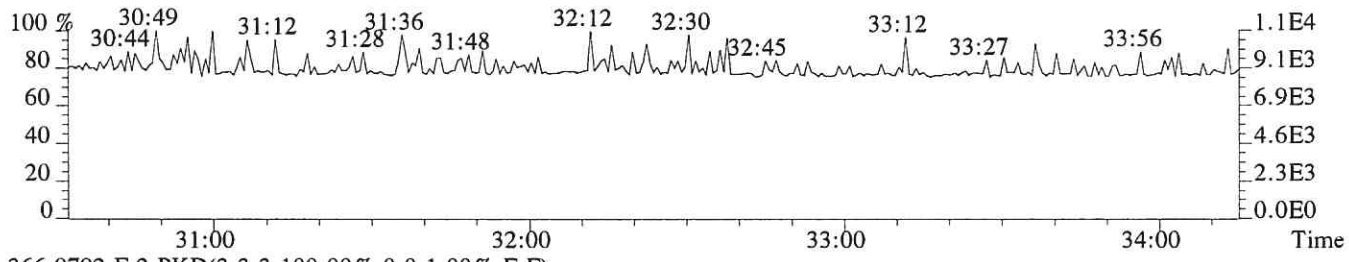
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



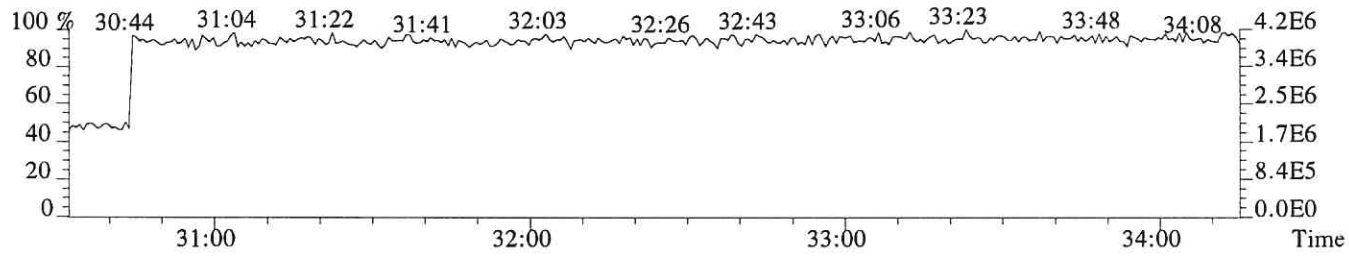
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



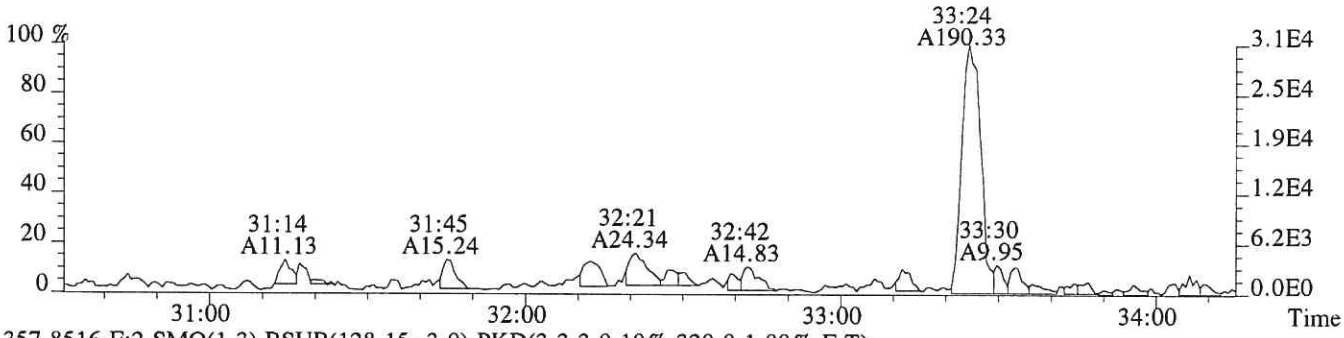
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



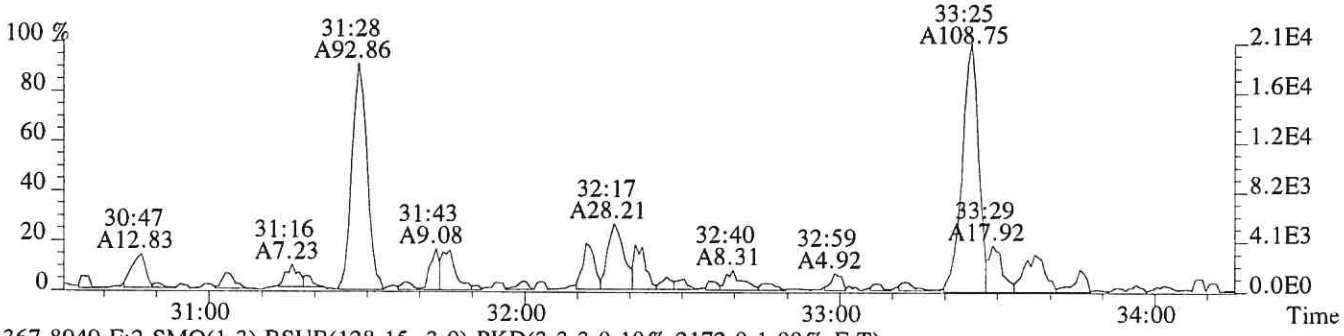
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



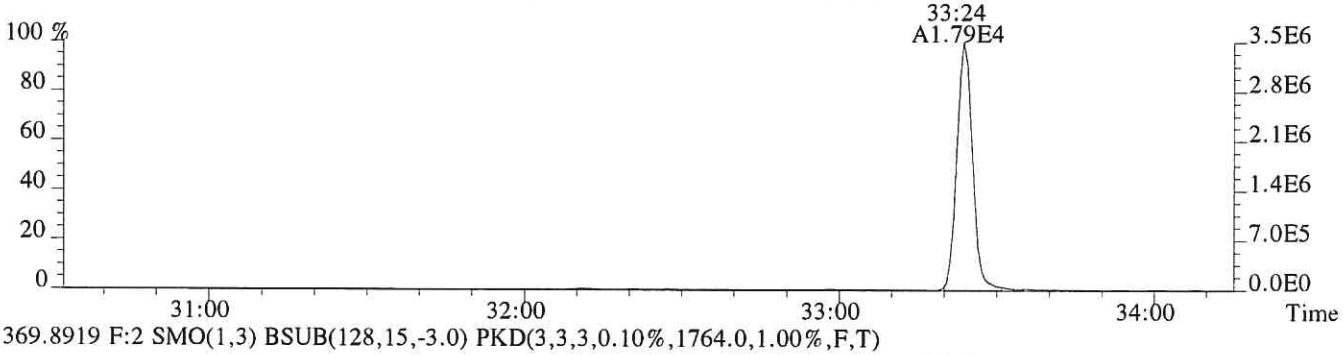
File:P519284 #1-335 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



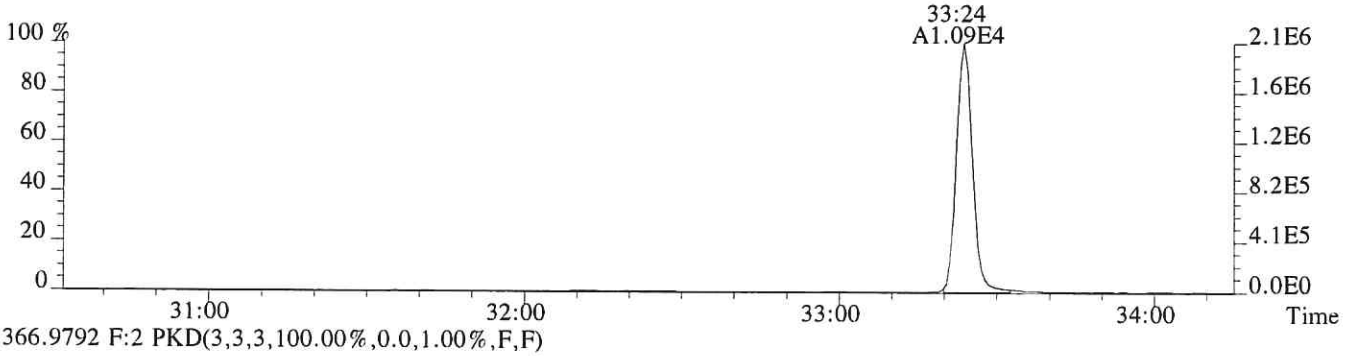
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



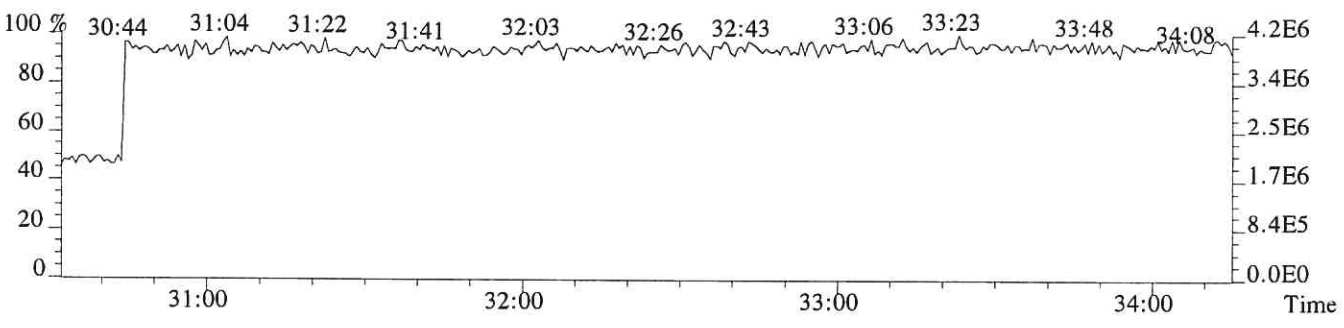
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2172.0,1.00%,F,T)



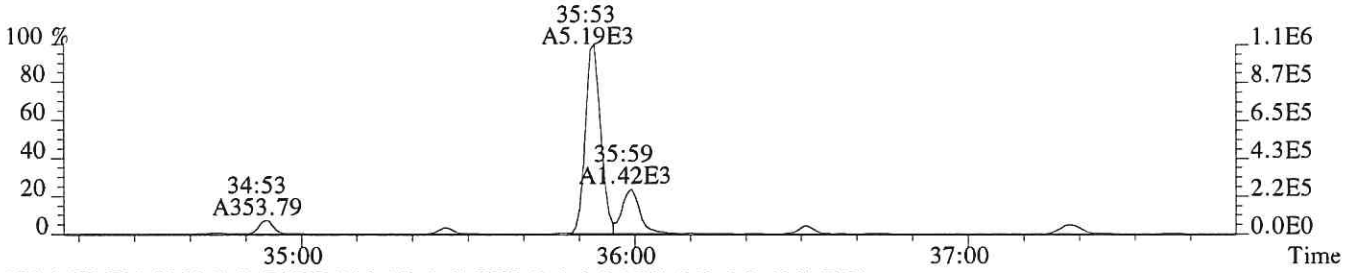
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



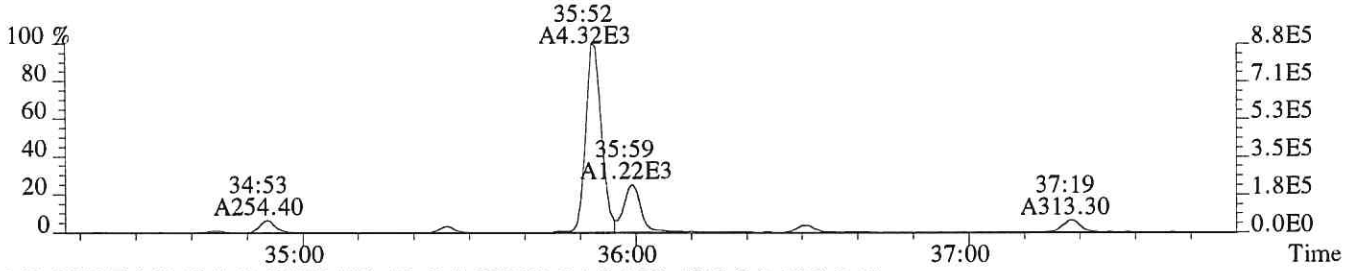
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



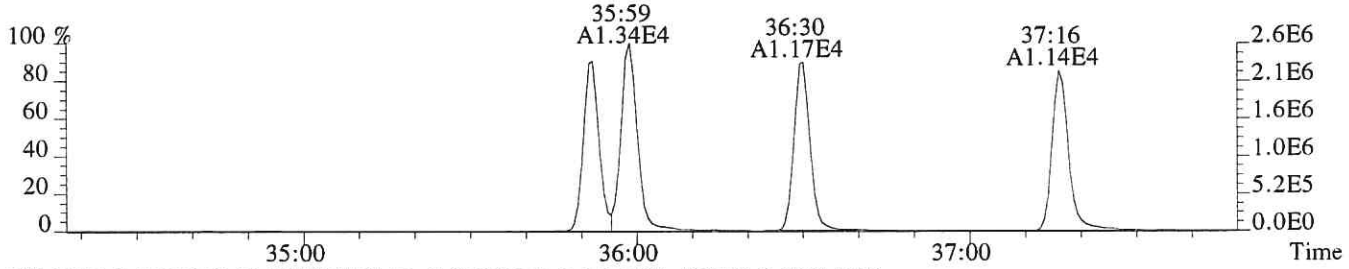
File:P519284 #1-317 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



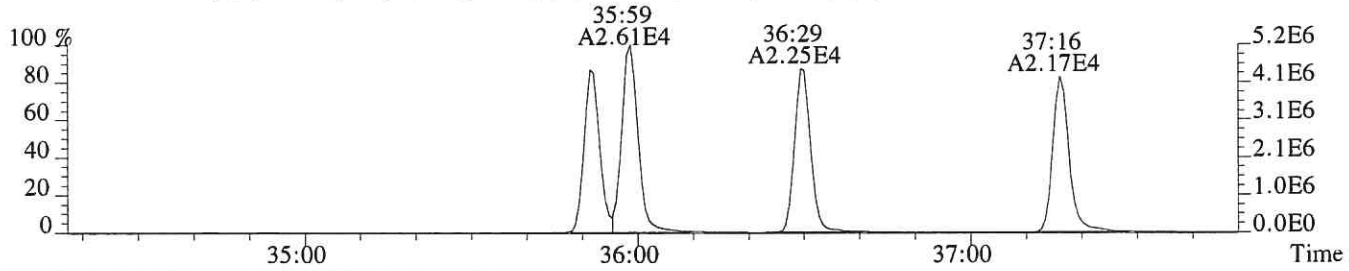
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



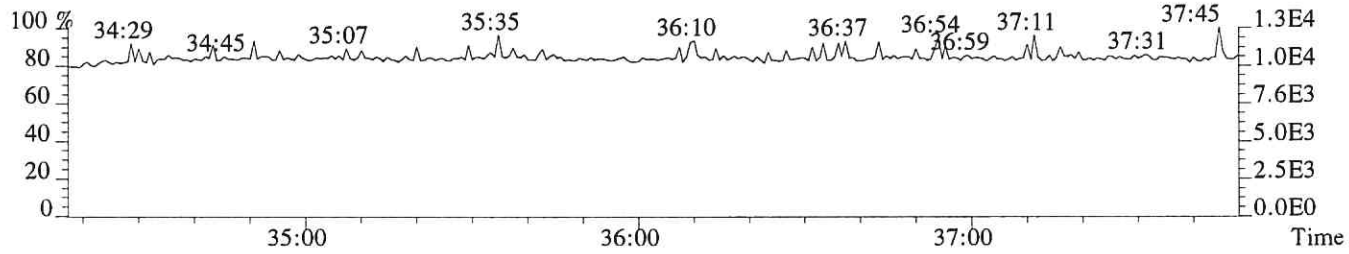
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



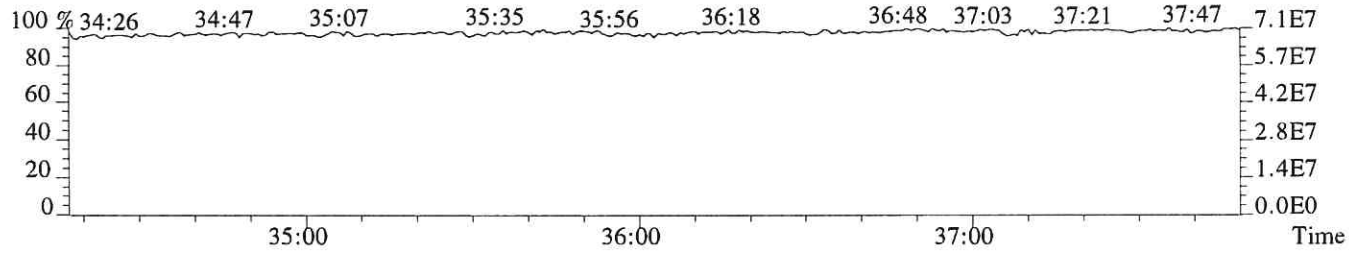
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1880.0,0.40%,F,T)



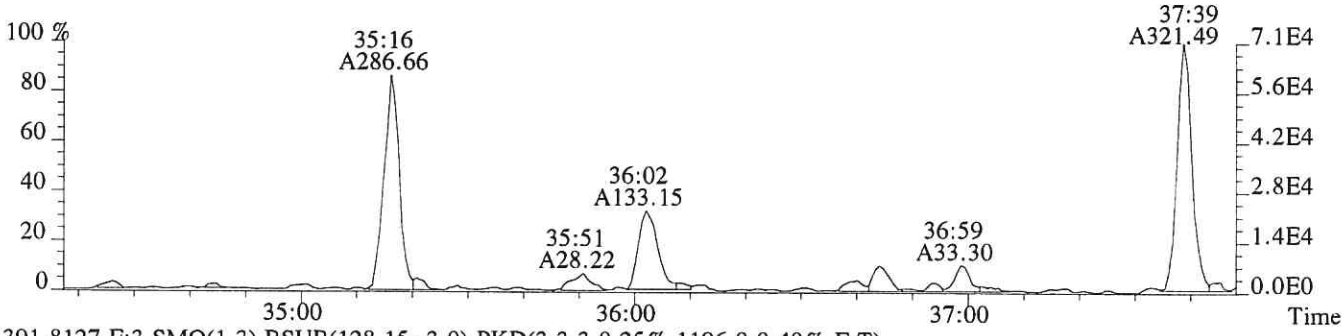
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



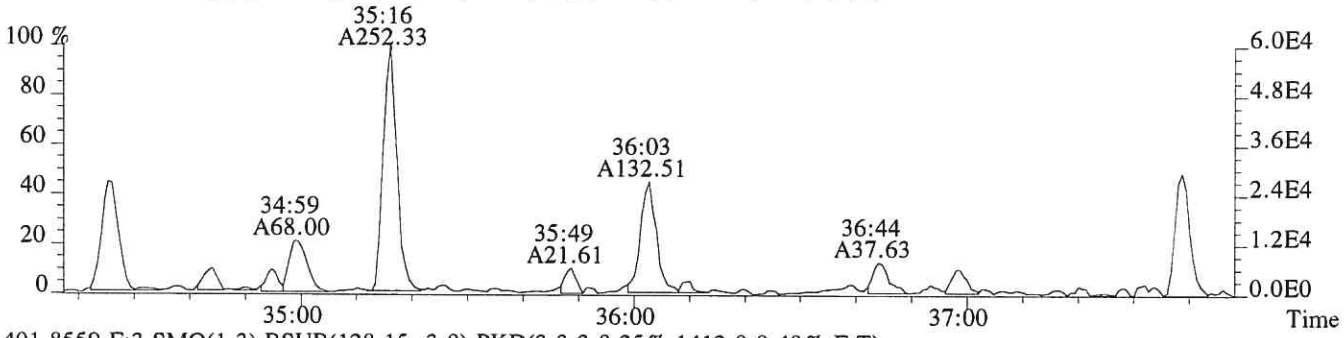
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



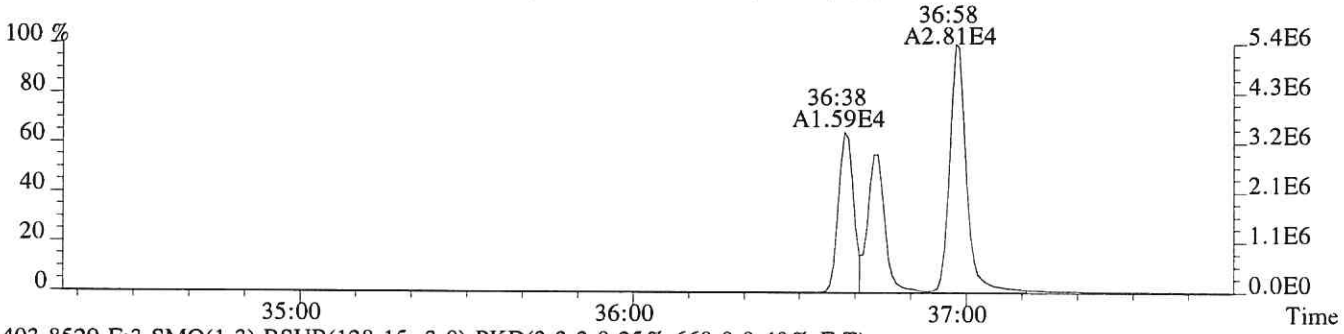
File:P519284 #1-317 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



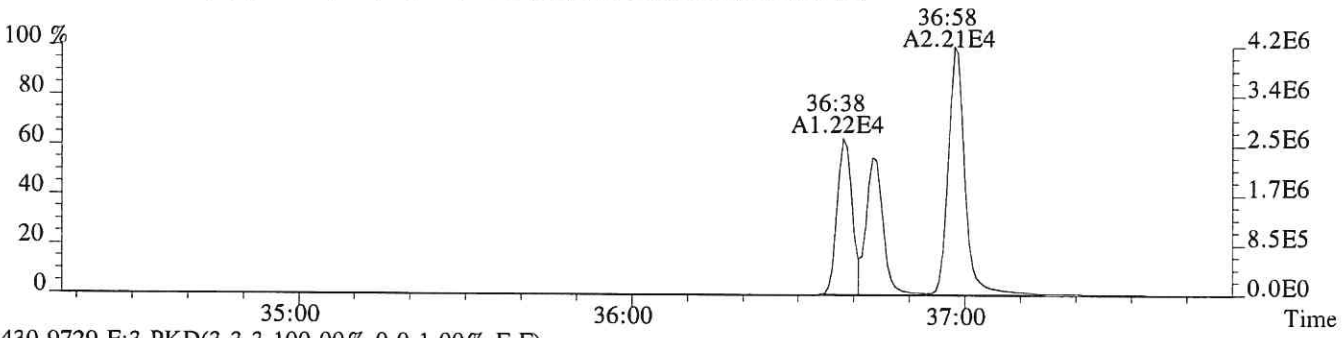
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



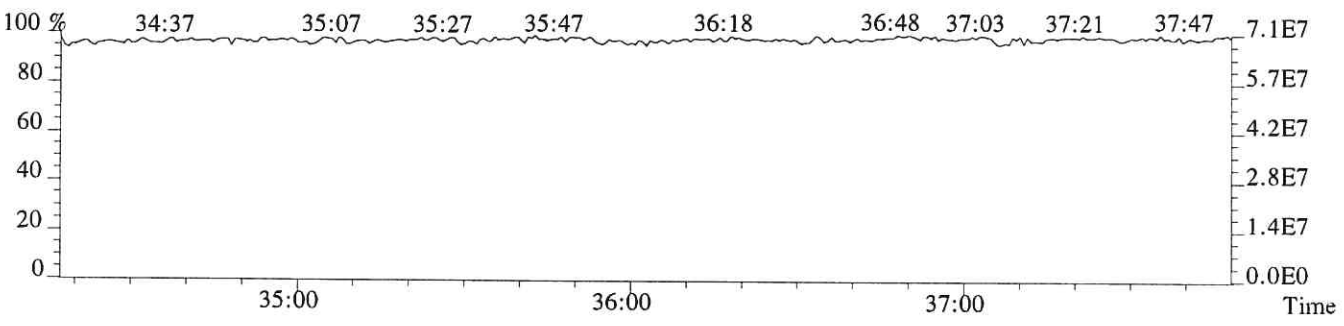
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)

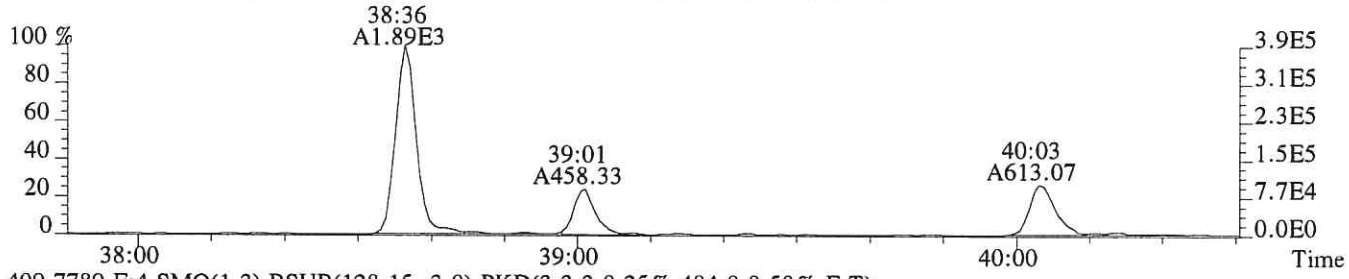


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

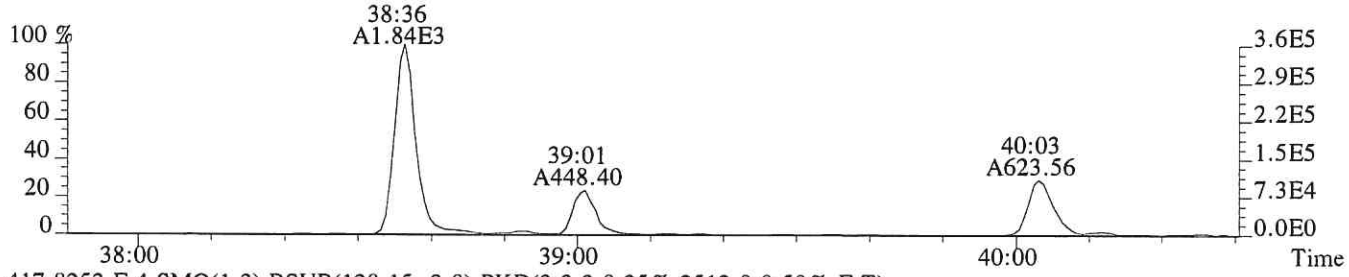


File:P519284 #1-241 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004

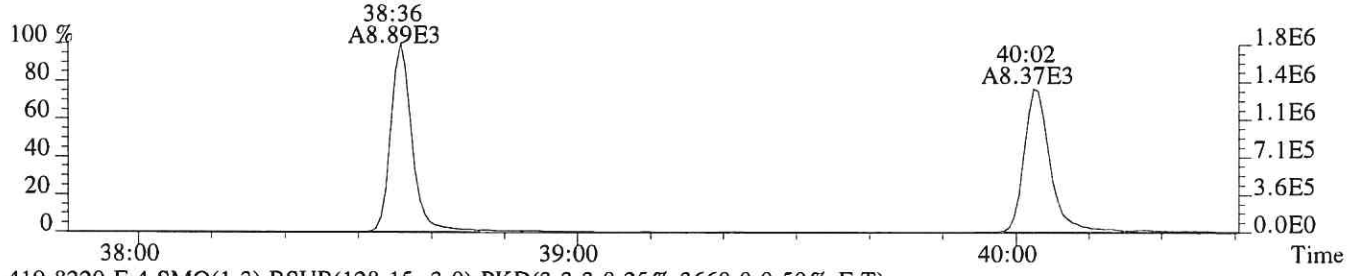
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.50%,F,T)



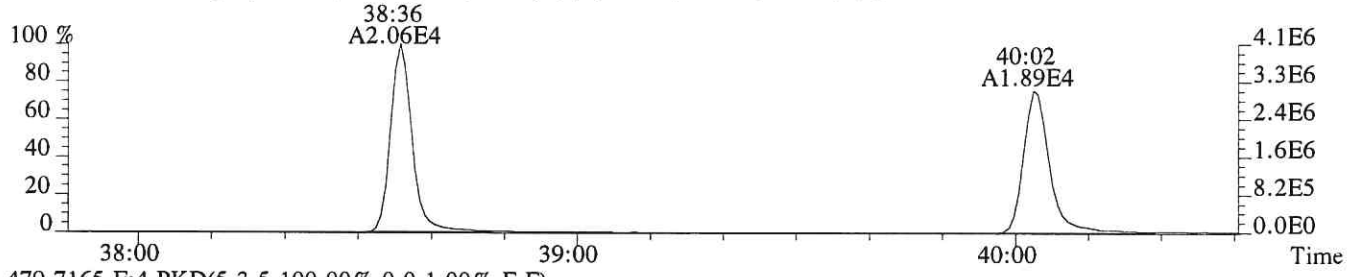
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.50%,F,T)



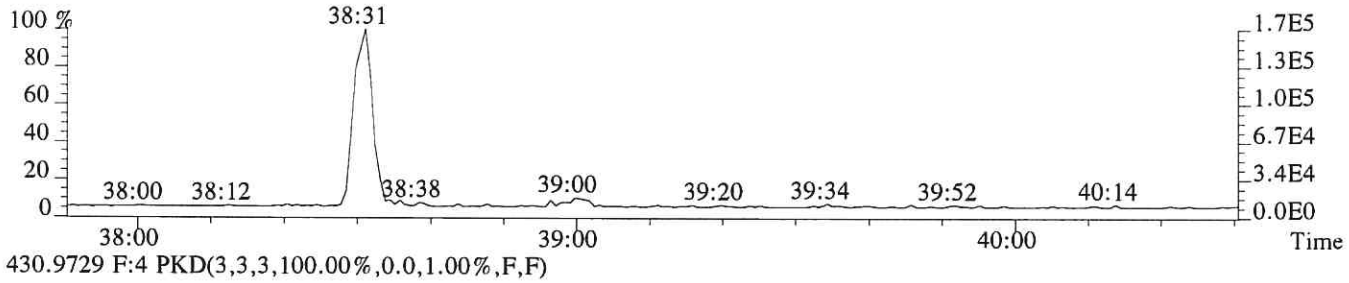
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.50%,F,T)



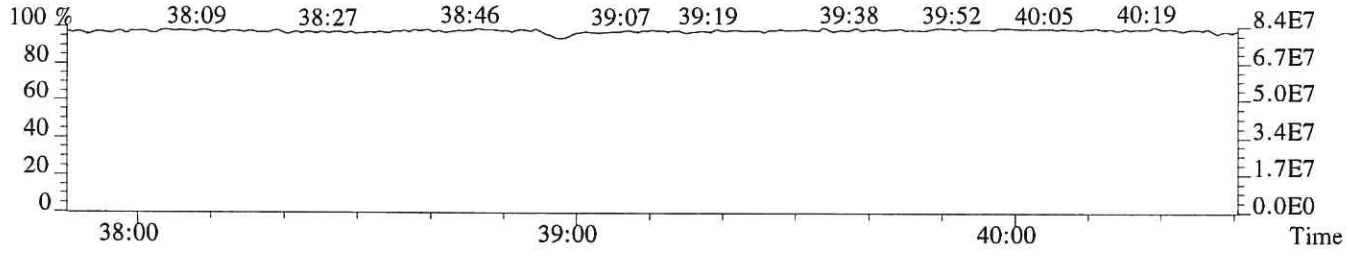
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3660.0,0.50%,F,T)



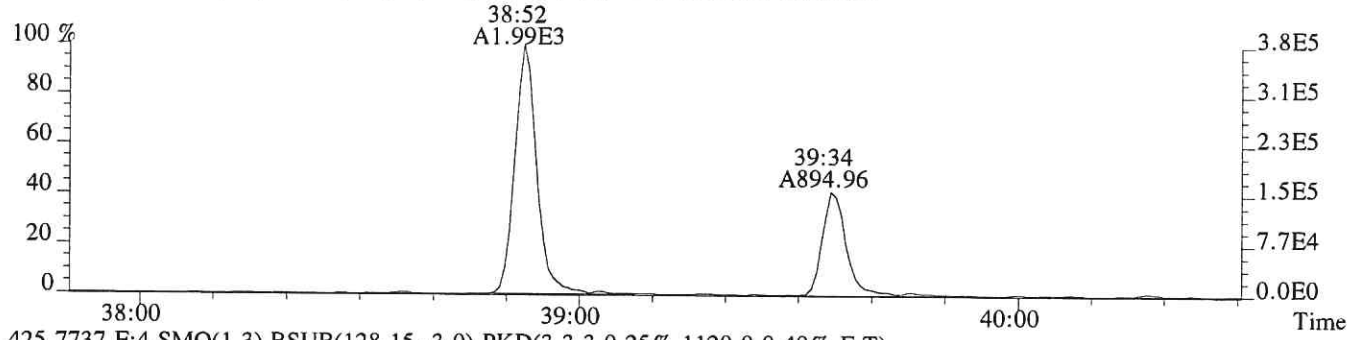
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



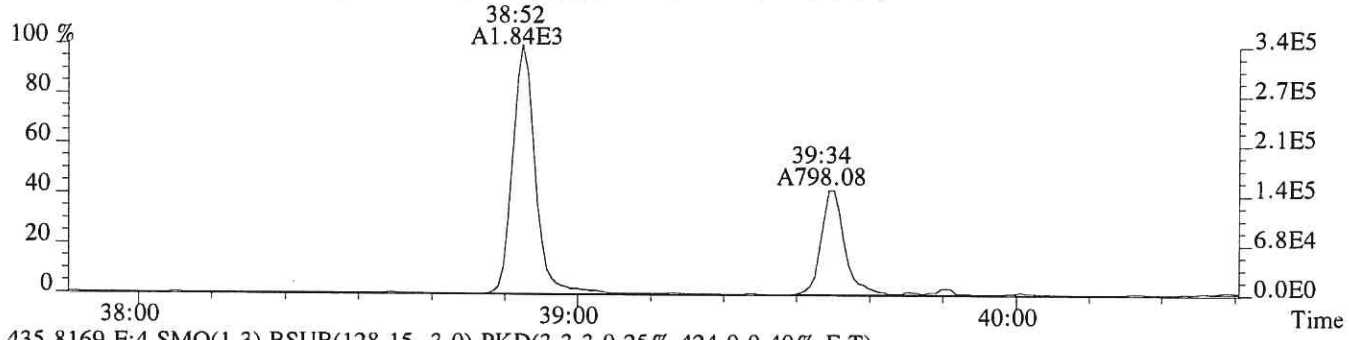
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



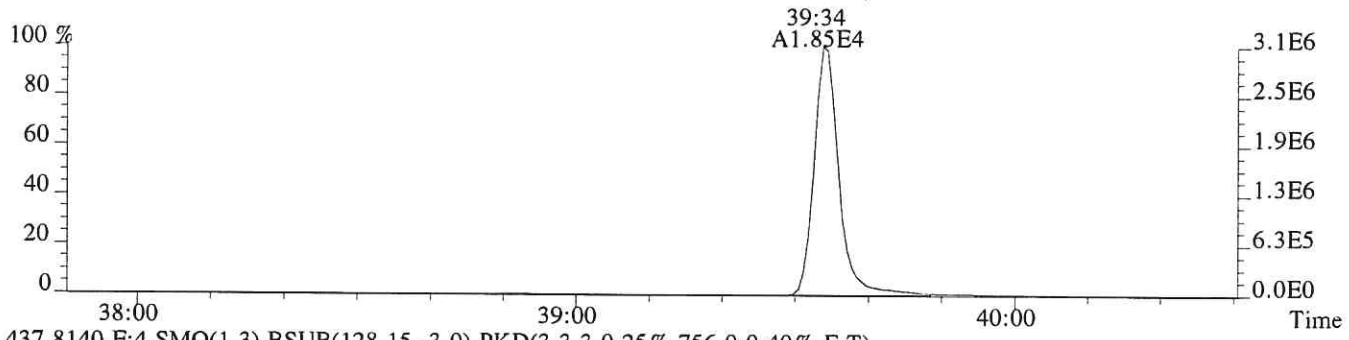
File:P519284 #1-241 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



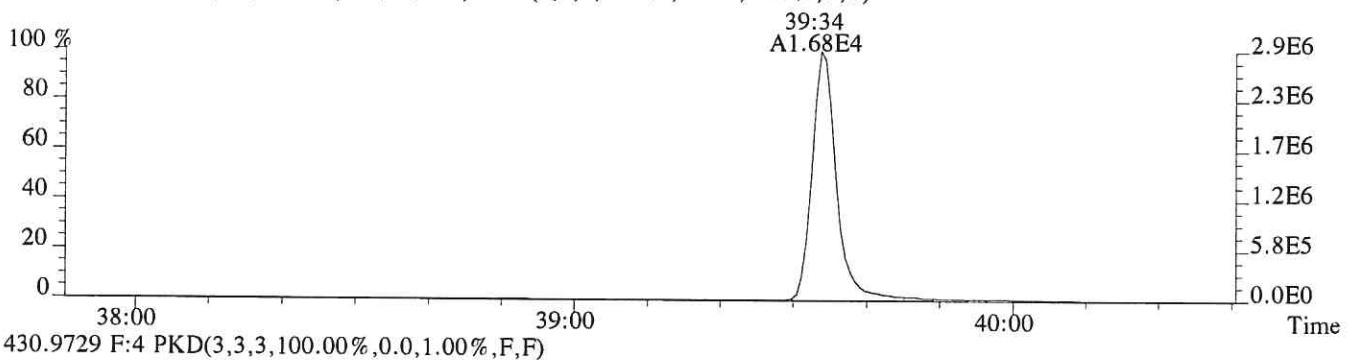
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



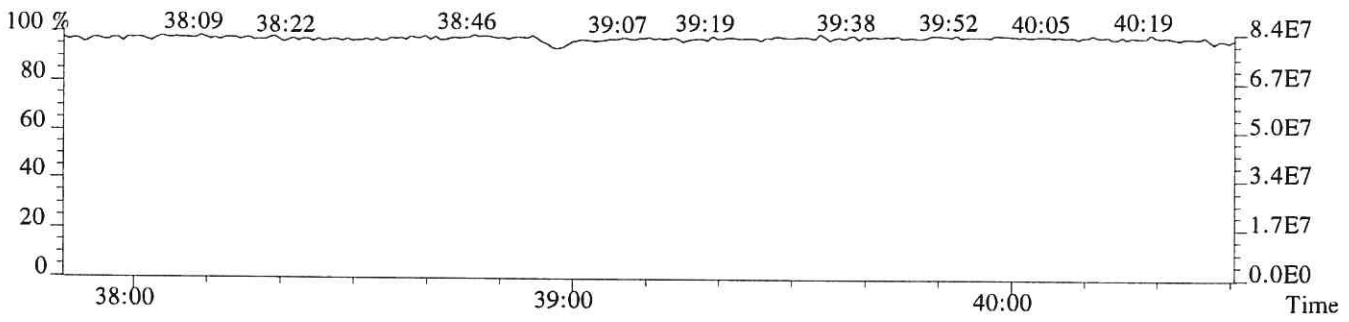
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)

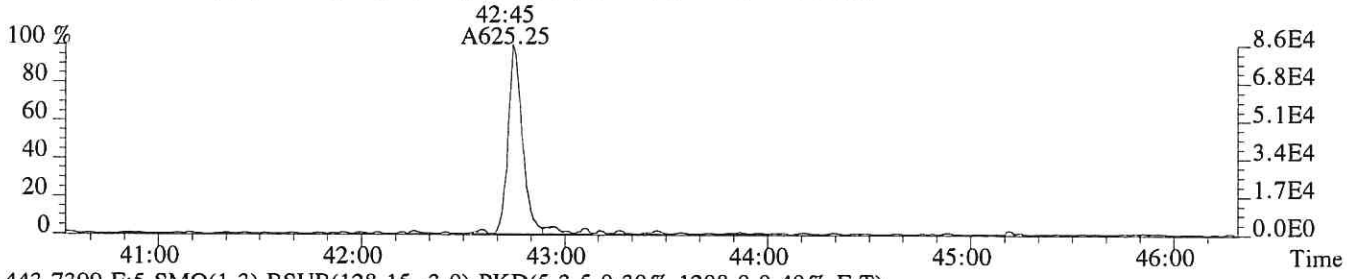


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

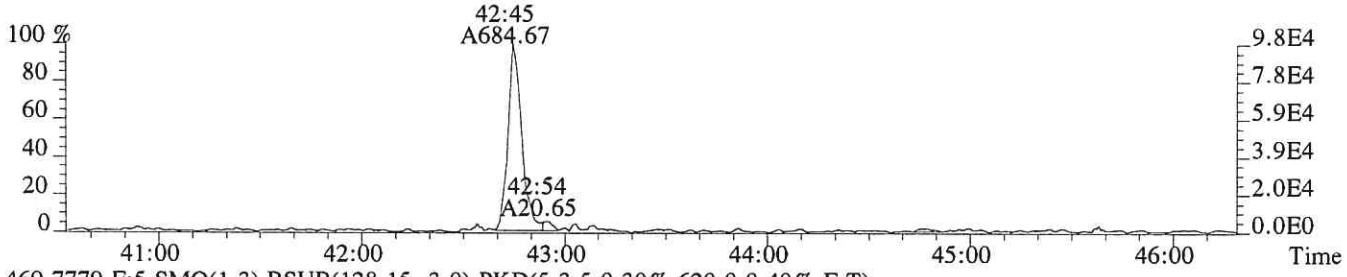


File:P519284 #1-520 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004

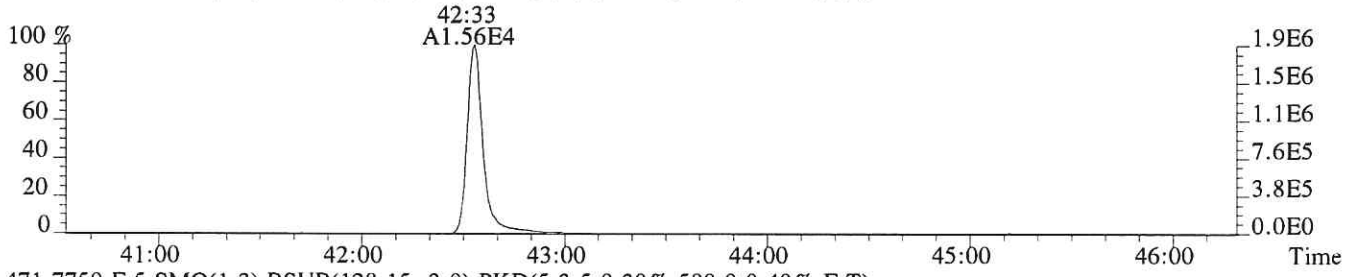
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



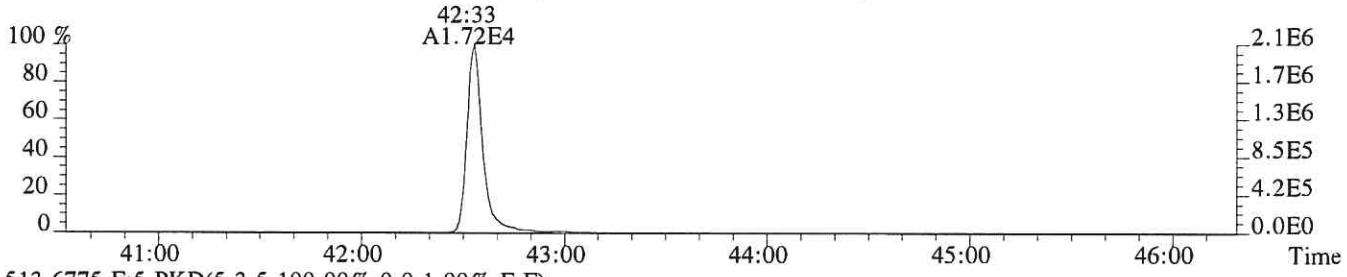
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1208.0,0.40%,F,T)



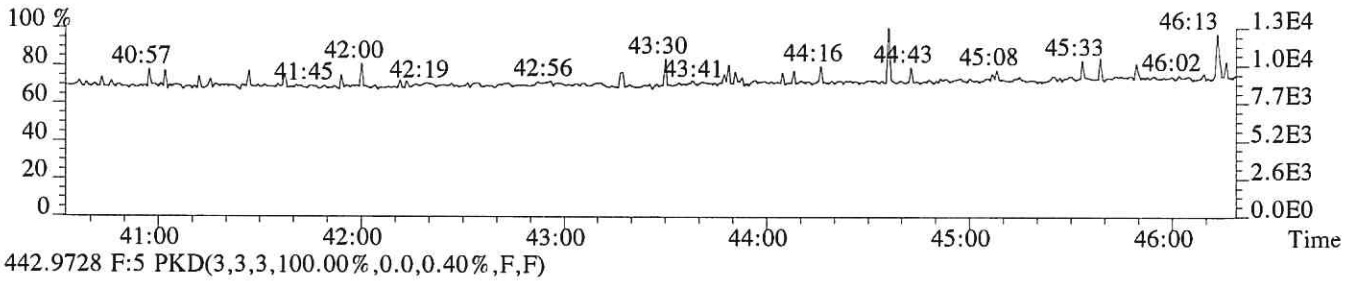
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



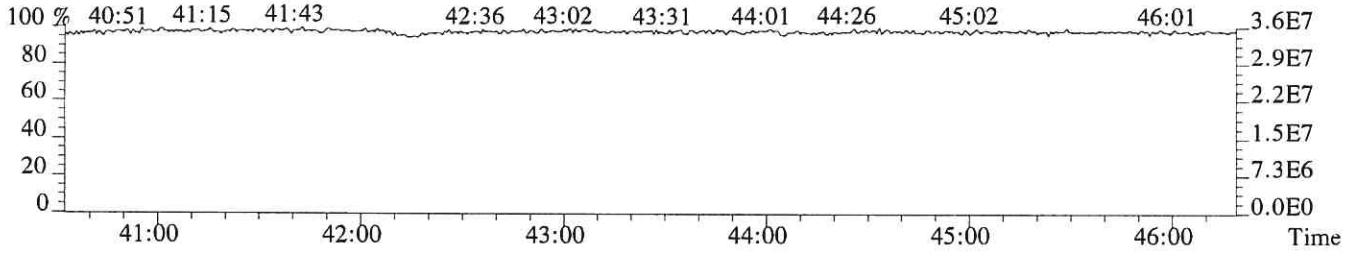
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



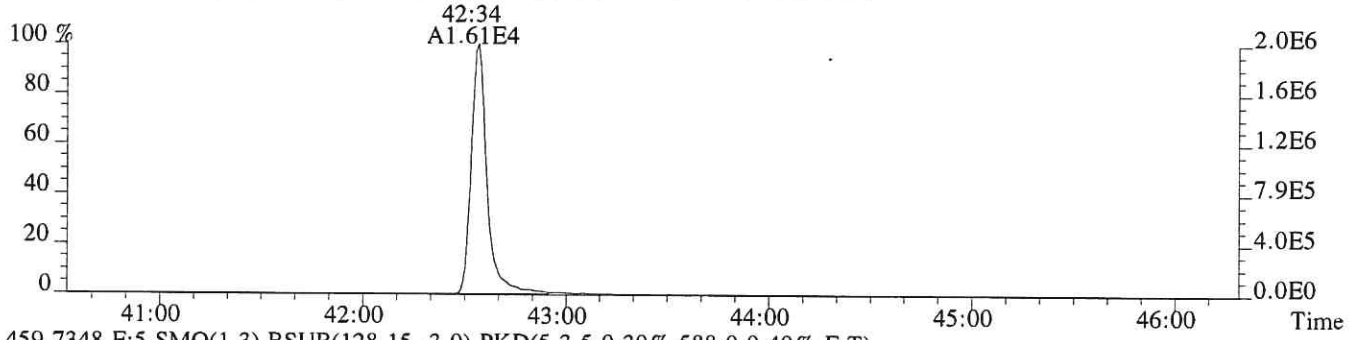
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



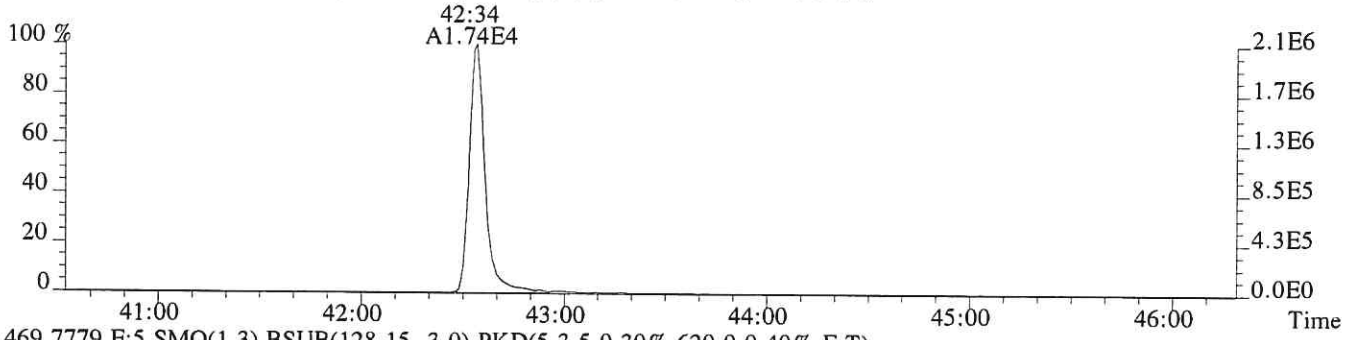
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



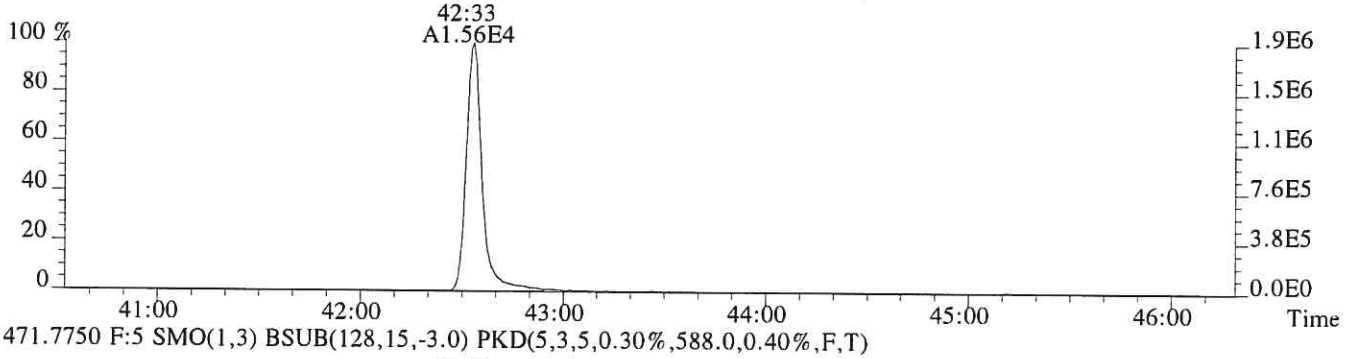
File:P519284 #1-520 Acq: 7-DEC-2018 16:26:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



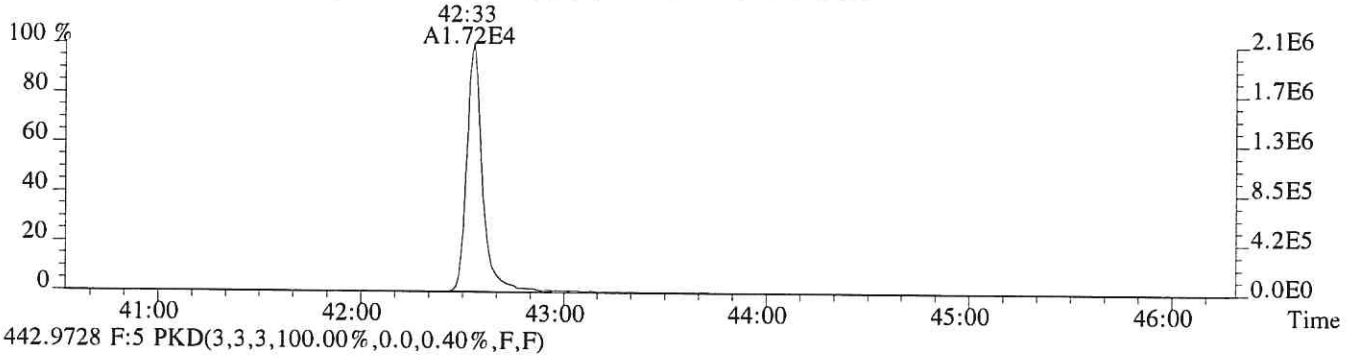
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



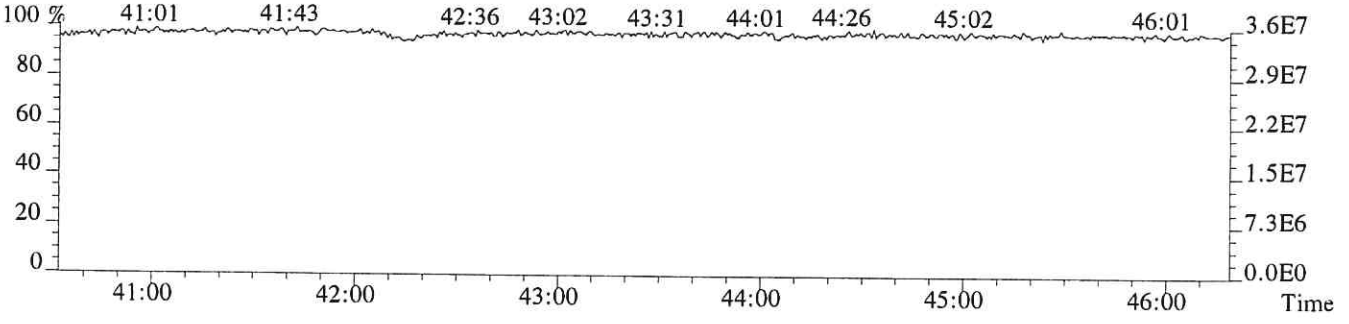
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0556

Run #17 Filename P519329 Samp: 1 Inj: 1 Acquired: 10-DEC-18 16:53:18
Processed: 11-DEC-18 15:18:39 Sample ID: E1801057-004DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	2.714e+03	3.450e+03	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.953e+02	1.093e+02	1.79	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.391e+02	9.663e+01	1.44	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	3.168e+02	2.582e+02	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:54	9.790e+01	6.564e+01	1.49	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.248e+01	8.760e+00	1.42	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	2.241e+01	7.244e+00	3.09	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.050e+02	1.231e+02	0.85	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	2.937e+01	4.733e+01	0.62	no	no	1.258
10	Unk	OCDF	42:41	3.692e+01	3.463e+01	1.07	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	6.091e+02	8.144e+02	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	4.163e+00	6.226e+00	0.67	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	5.683e+01	5.843e+01	0.97	yes	no	1.025
17	Unk	OCDD	42:27	9.303e+02	1.034e+03	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.068e+04	1.348e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	1.744e+04	1.099e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	1.661e+04	1.043e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	7.220e+03	1.413e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	8.944e+03	1.754e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	8.247e+03	1.582e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	6.938e+03	1.354e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	6.308e+03	1.449e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	5.452e+03	1.229e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	5.010e+03	6.382e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.215e+04	7.474e+03	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.023e+04	8.165e+03	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.048e+04	8.025e+03	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.165e+04	1.087e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:27	1.343e+04	1.503e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	9.707e+03	1.216e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	1.395e+04	1.119e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	5.862e+02				no	1.014

$$OCDD = \frac{(9.303e+02 + 1.034e+03) \times 4000\ pg \times 10}{(1.343e+04 + 1.503e+04) \times 10.631\ g \times 79.3 / 100 \times 1.118 \times 0.56} = 523\ ng/kg$$

LMH 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0556

Run #17 Filename P519329 Samp: 1 Inj: 1 Acquired: 10-DEC-18 16:53:18
Processed: 11-DEC-18 15:18:39 LAB. ID: E1801057-004DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.47e+05	9.52e+02	4.7e+02	5.93e+05	1.84e+03	3.2e+02
2	1,2,3,7,8-PeCDF	3.14e+04	6.12e+02	5.1e+01	1.88e+04	1.45e+03	1.3e+01
3	2,3,4,7,8-PeCDF	2.36e+04	6.12e+02	3.9e+01	1.57e+04	1.45e+03	1.1e+01
4	1,2,3,4,7,8-HxCDF	6.55e+04	5.40e+02	1.2e+02	4.79e+04	5.52e+02	8.7e+01
5	1,2,3,6,7,8-HxCDF	1.52e+04	5.40e+02	2.8e+01	1.27e+04	5.52e+02	2.3e+01
6	2,3,4,6,7,8-HxCDF	3.16e+03	5.40e+02	5.9e+00	2.08e+03	5.52e+02	3.8e+00
7	1,2,3,7,8,9-HxCDF	3.89e+03	5.40e+02	7.2e+00	2.47e+03	5.52e+02	4.5e+00
8	1,2,3,4,6,7,8-HpCDF	1.79e+04	3.84e+02	4.7e+01	2.49e+04	4.08e+02	6.1e+01
9	1,2,3,4,7,8,9-HpCDF	6.10e+03	3.84e+02	1.6e+01	7.81e+03	4.08e+02	1.9e+01
10	OCDF	4.29e+03	3.28e+02	1.3e+01	5.99e+03	1.04e+03	5.7e+00
11	2,3,7,8-TCDD	1.13e+05	2.95e+03	3.8e+01	1.50e+05	1.47e+03	1.0e+02
12	1,2,3,7,8-PeCDD	1.42e+03	1.11e+03	1.3e+00	1.13e+03	3.28e+02	3.4e+00
13	1,2,3,4,7,8-HxCDD	*	3.36e+02	*	*	1.10e+03	*
14	1,2,3,6,7,8-HxCDD	*	3.36e+02	*	*	1.10e+03	*
15	1,2,3,7,8,9-HxCDD	*	3.36e+02	*	*	1.10e+03	*
16	1,2,3,4,6,7,8-HpCDD	9.42e+03	2.28e+02	4.1e+01	1.36e+04	3.88e+02	3.5e+01
17	OCDD	1.08e+05	3.40e+02	3.2e+02	1.30e+05	3.64e+02	3.6e+02
18	13C-2,3,7,8-TCDF	1.89e+06	1.02e+04	1.8e+02	2.35e+06	7.22e+03	3.3e+02
19	13C-1,2,3,7,8-PeCDF	3.16e+06	6.08e+02	5.2e+03	1.96e+06	7.04e+02	2.8e+03
20	13C-2,3,4,7,8-PeCDF	3.16e+06	6.08e+02	5.2e+03	2.02e+06	7.04e+02	2.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.48e+06	8.16e+02	1.8e+03	2.89e+06	1.12e+03	2.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.66e+06	8.16e+02	2.0e+03	3.28e+06	1.12e+03	2.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.60e+06	8.16e+02	2.0e+03	3.11e+06	1.12e+03	2.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.24e+06	8.16e+02	1.5e+03	2.46e+06	1.12e+03	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.18e+06	1.37e+03	8.6e+02	2.61e+06	3.79e+03	6.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	8.46e+05	1.37e+03	6.2e+02	1.92e+06	3.79e+03	5.1e+02
27	13C-2,3,7,8-TCDD	9.16e+05	6.74e+03	1.4e+02	1.16e+06	1.85e+03	6.2e+02
28	13C-1,2,3,7,8-PeCDD	2.25e+06	8.24e+02	2.7e+03	1.38e+06	1.03e+03	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.07e+06	1.08e+03	1.9e+03	1.64e+06	8.60e+02	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.97e+06	1.08e+03	1.8e+03	1.55e+06	8.60e+02	1.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.95e+06	6.28e+02	3.1e+03	1.79e+06	2.76e+02	6.5e+03
32	13C-OCDD	1.59e+06	4.24e+02	3.7e+03	1.76e+06	2.48e+02	7.1e+03
33	13C-1,2,3,4-TCDD	1.79e+06	6.74e+03	2.7e+02	2.25e+06	1.85e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.49e+06	1.08e+03	2.3e+03	2.03e+06	8.60e+02	2.4e+03
35	37Cl-2,3,7,8-TCDD	1.14e+05	1.21e+03	9.4e+01			

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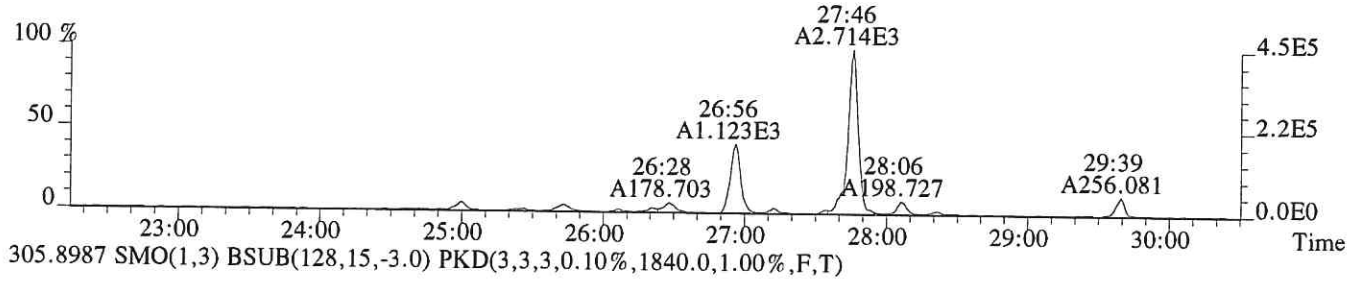
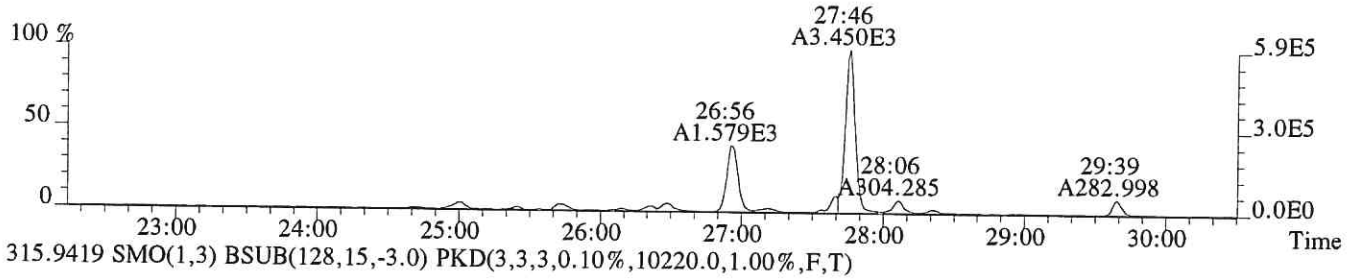
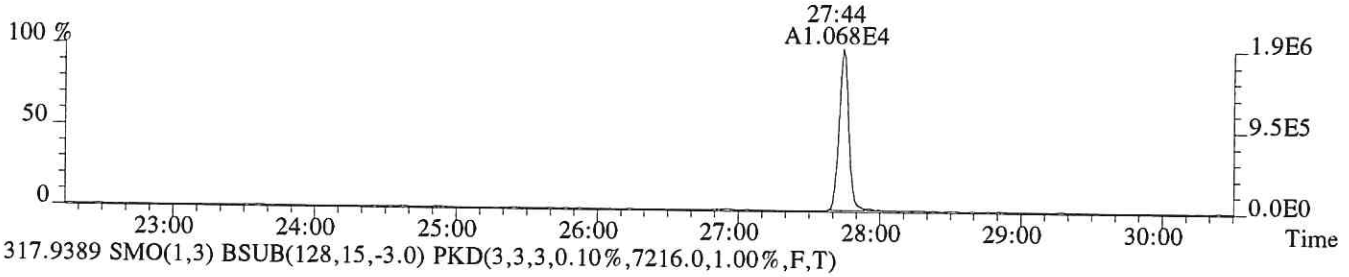
File:P519329 #1-587 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



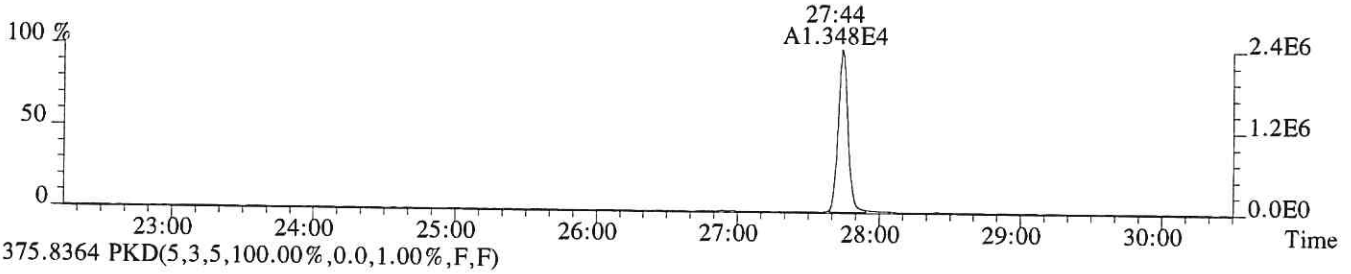
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1840.0,1.00%,F,T)



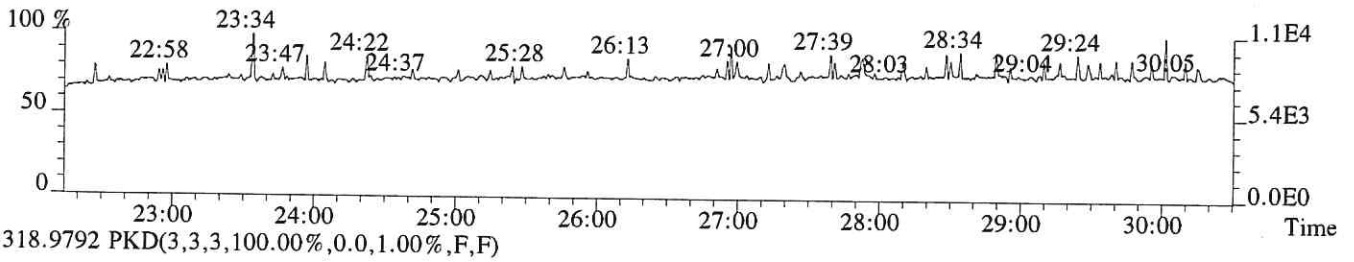
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10220.0,1.00%,F,T)



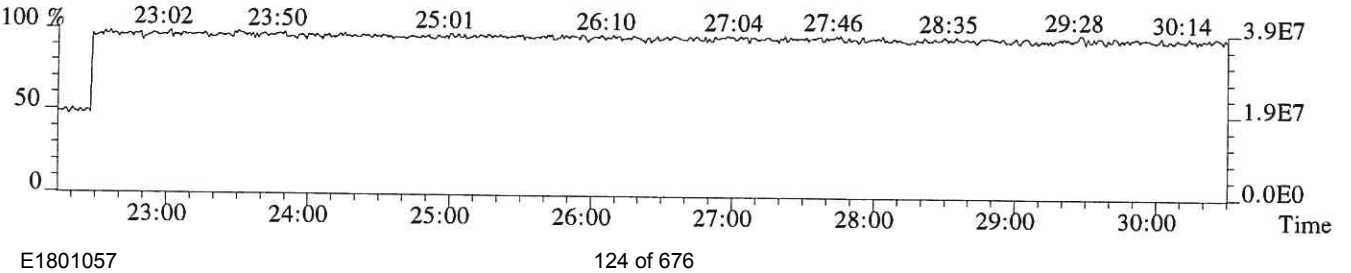
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7216.0,1.00%,F,T)



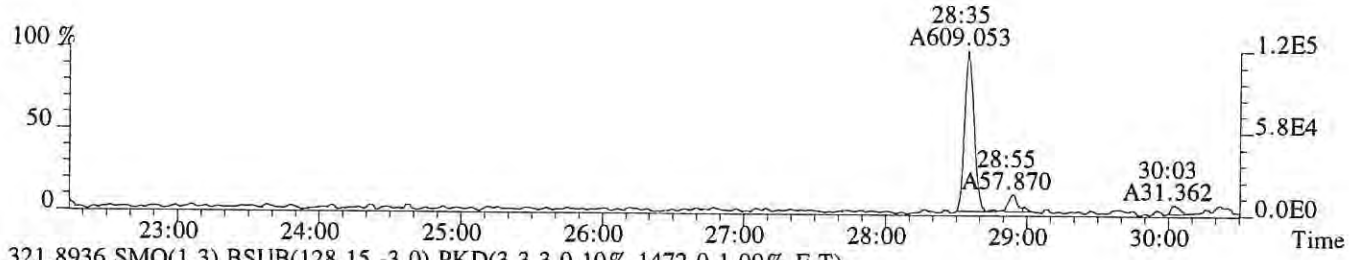
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



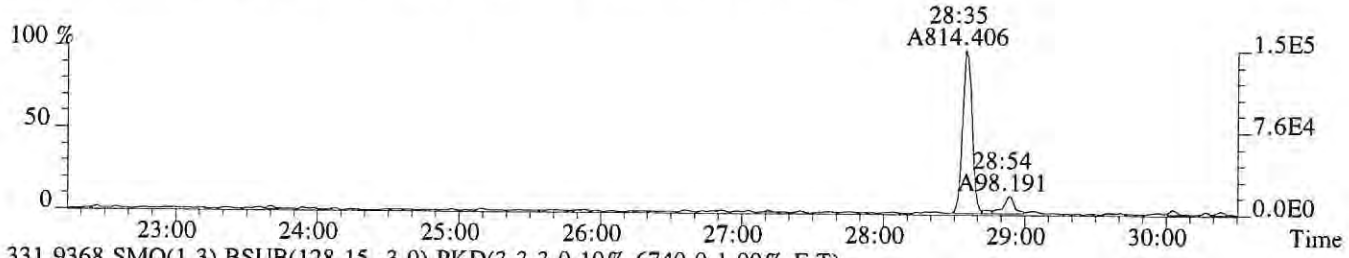
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



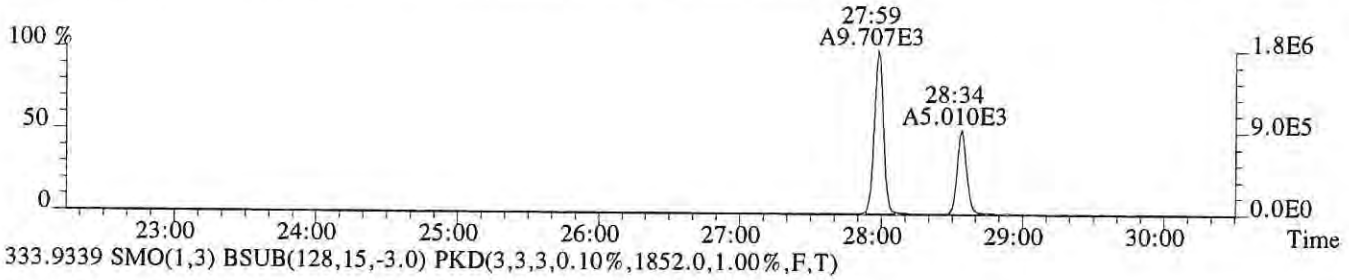
File:P519329 #1-587 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2952.0,1.00%,F,T)



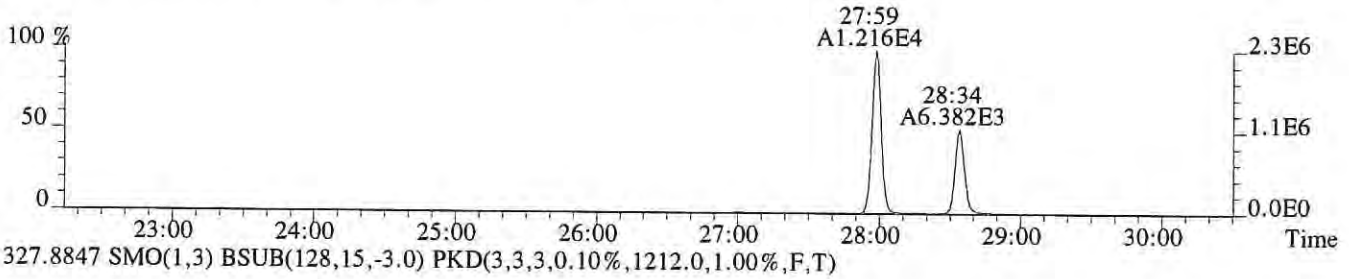
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



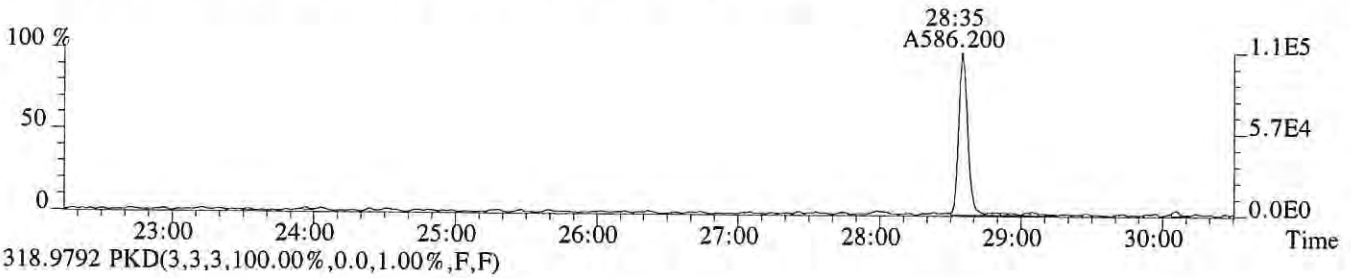
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6740.0,1.00%,F,T)



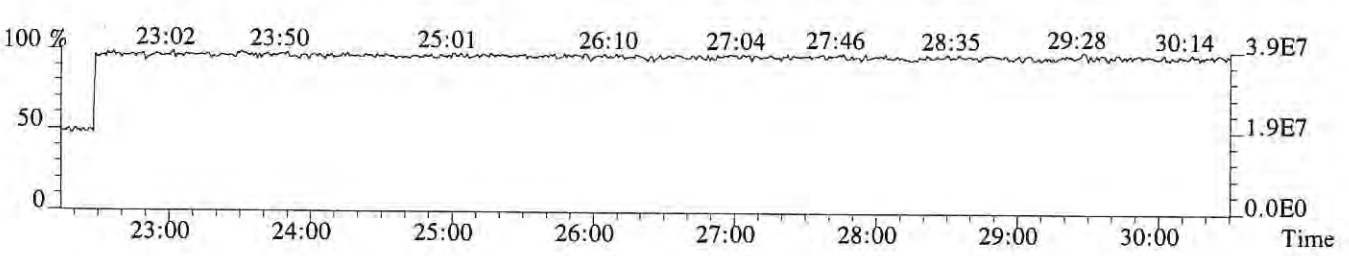
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)



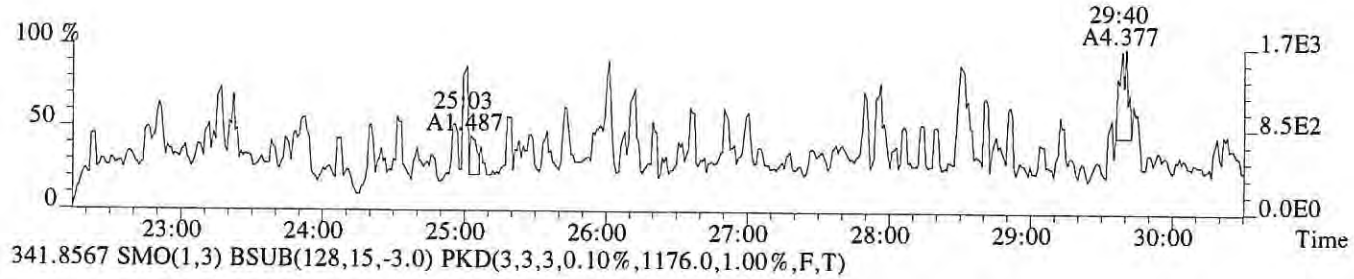
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



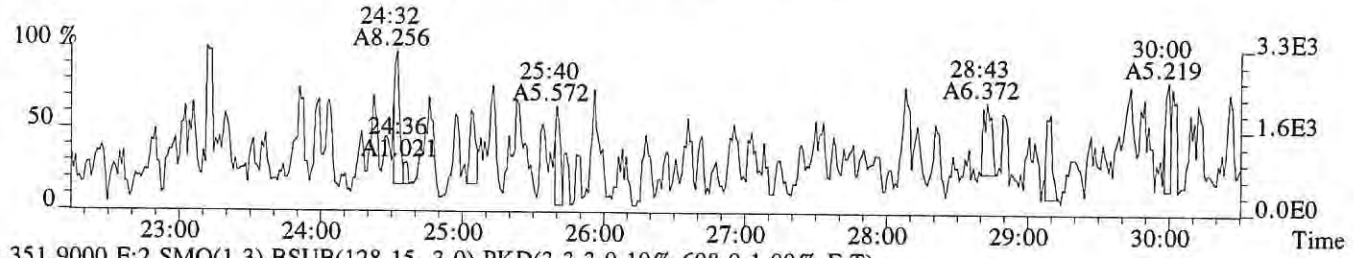
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



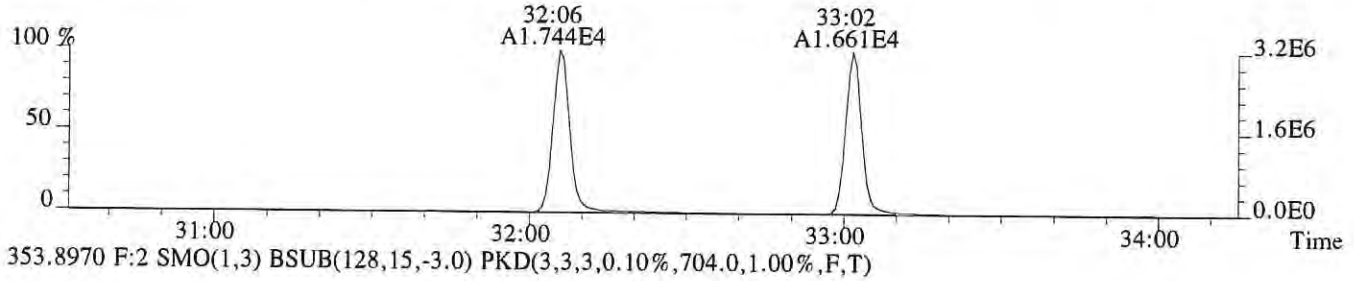
File:P519329 #1-587 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



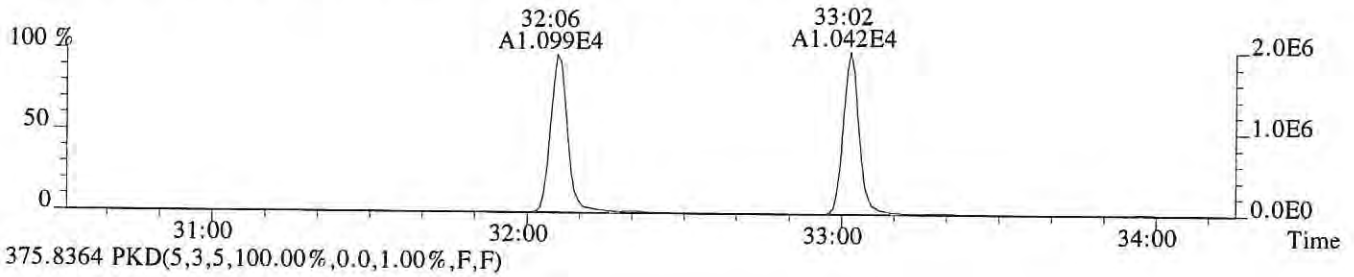
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



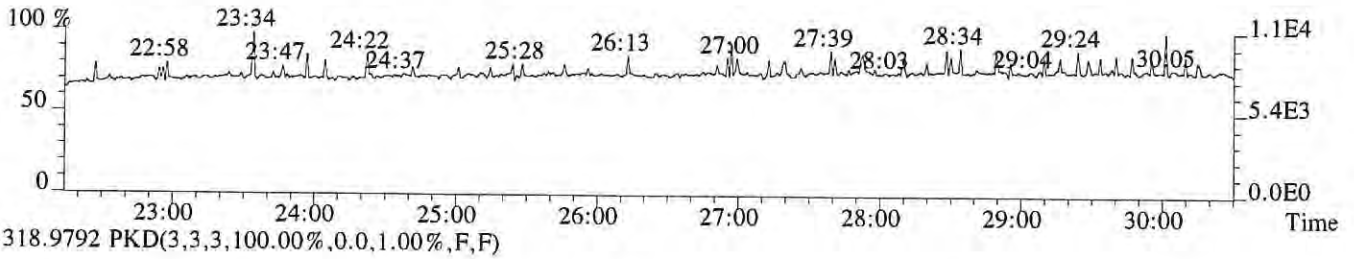
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



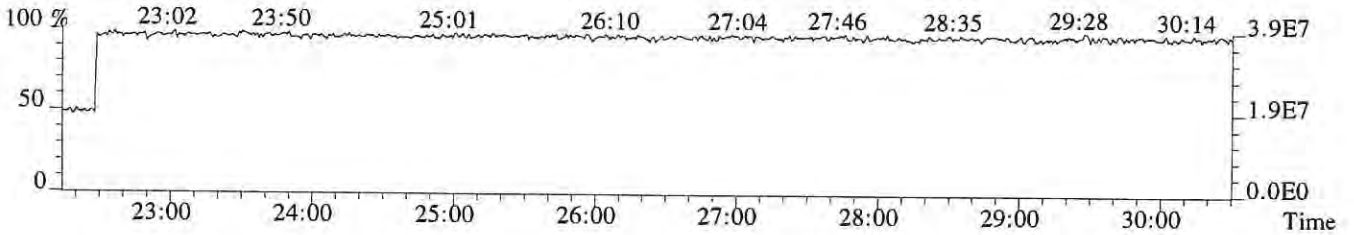
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



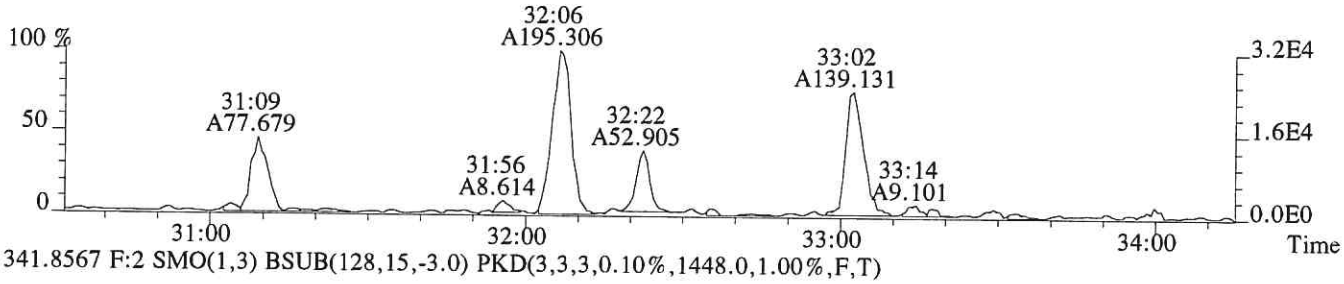
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



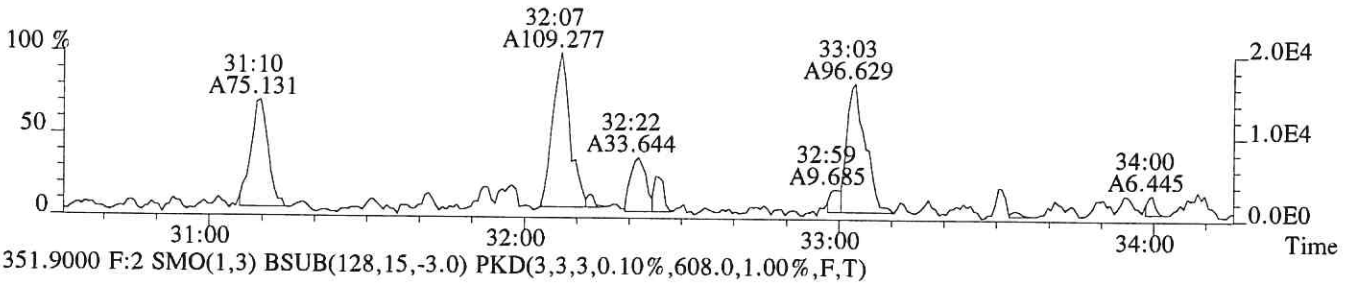
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



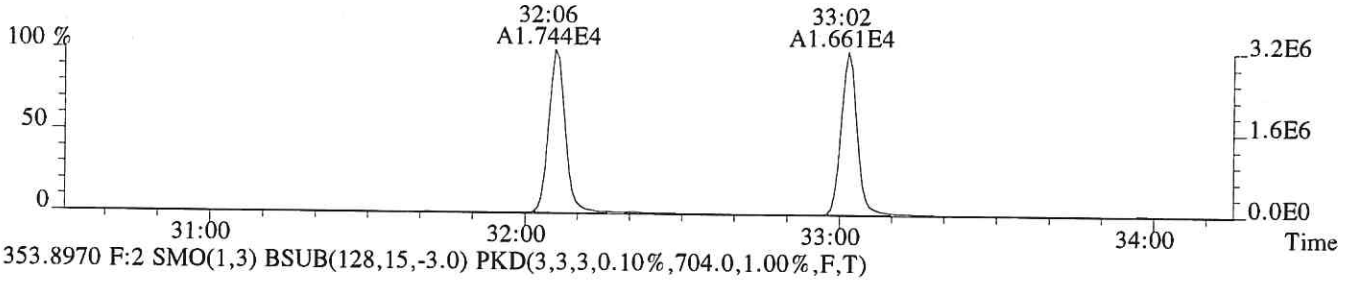
File:P519329 #1-335 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



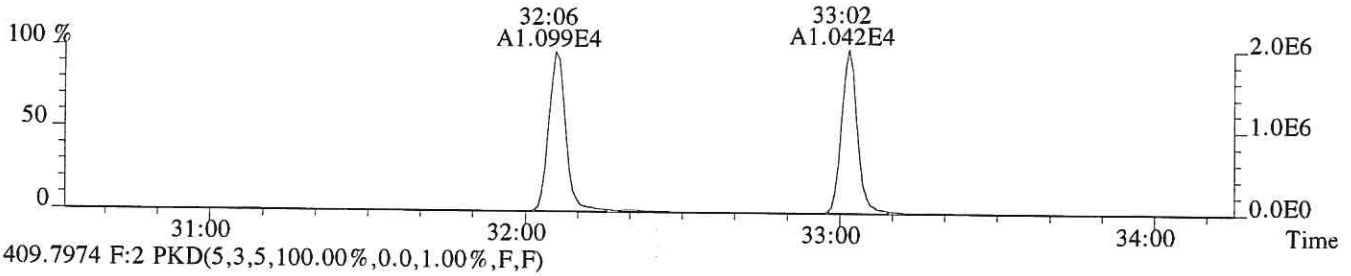
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



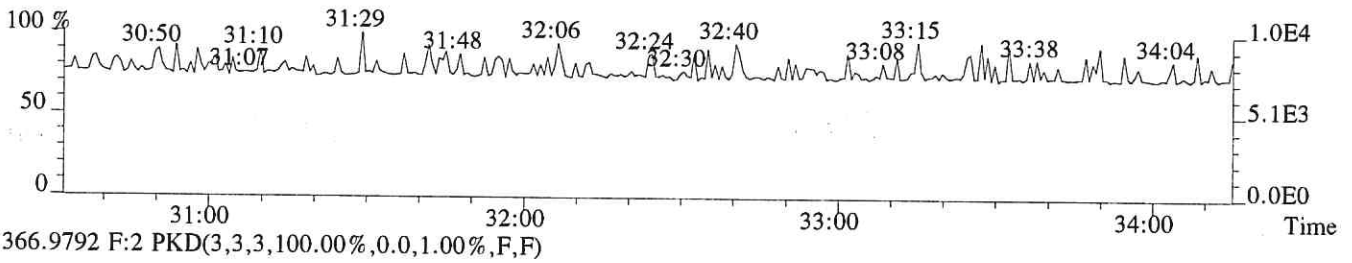
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



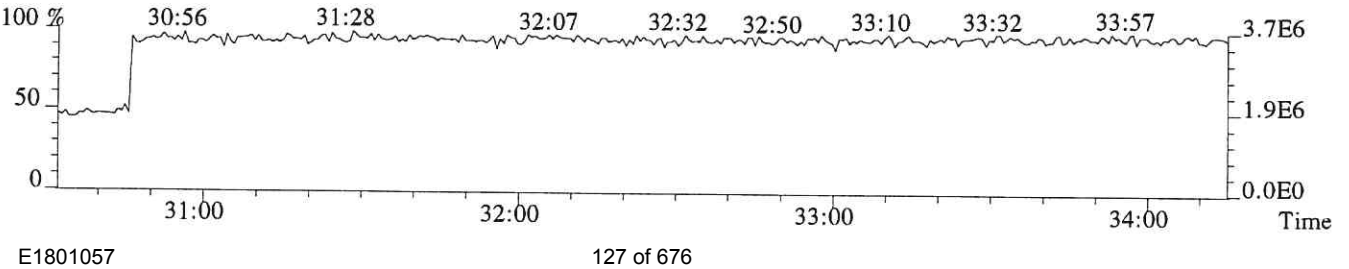
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



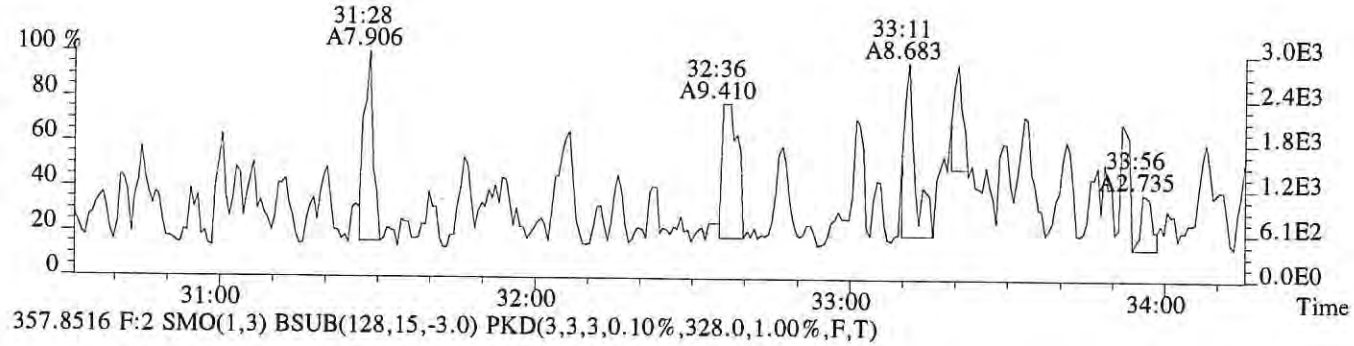
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



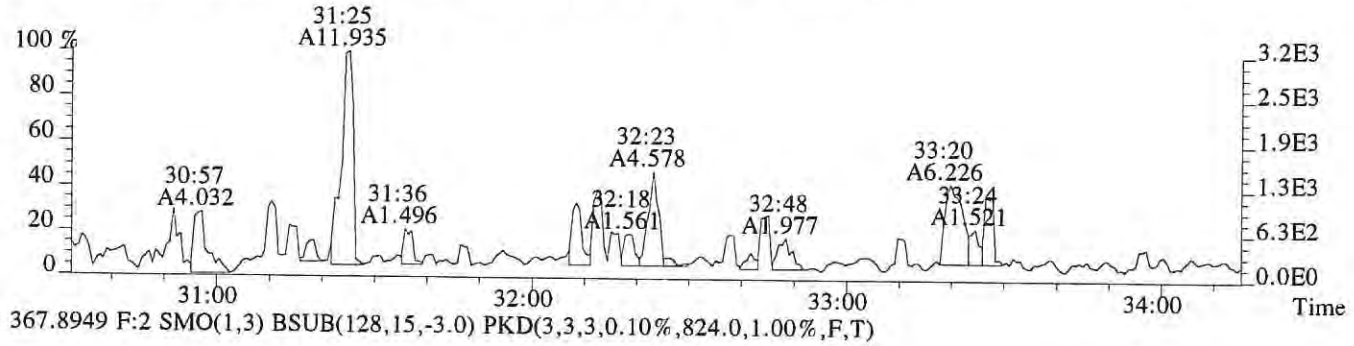
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



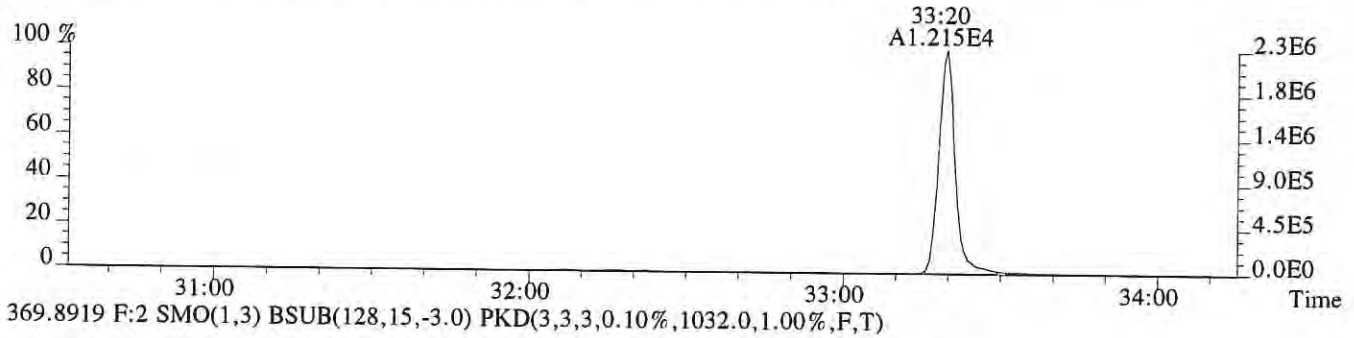
File:P519329 #1-335 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801057-004DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



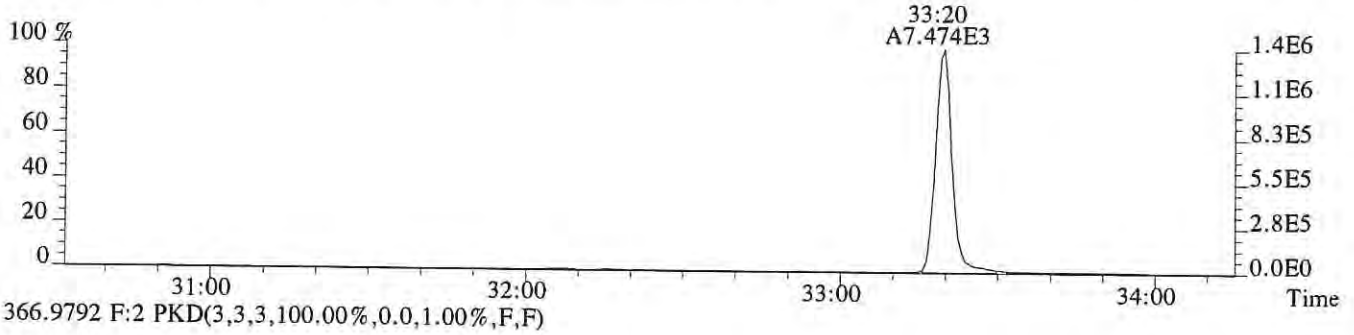
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



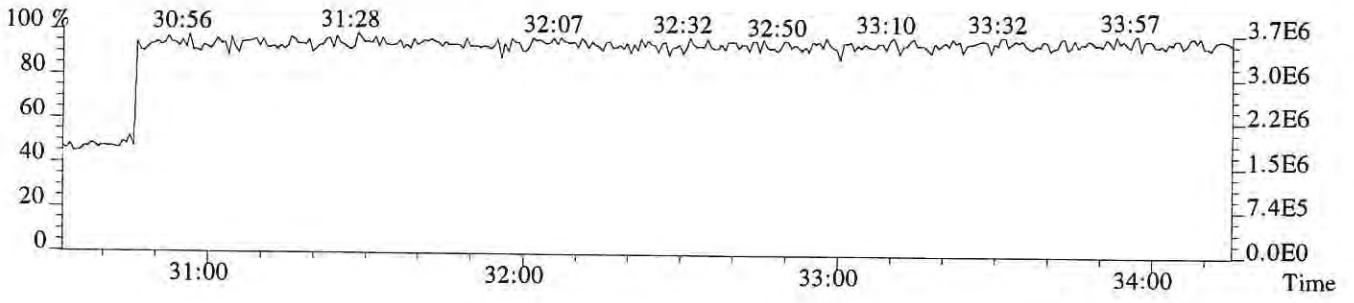
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



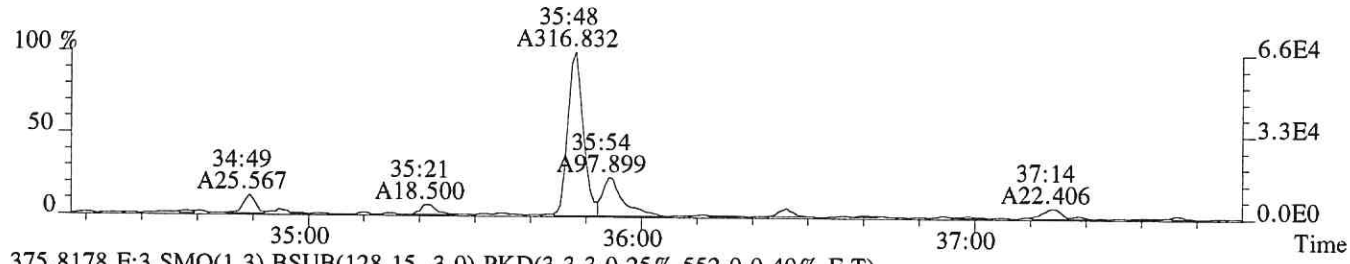
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



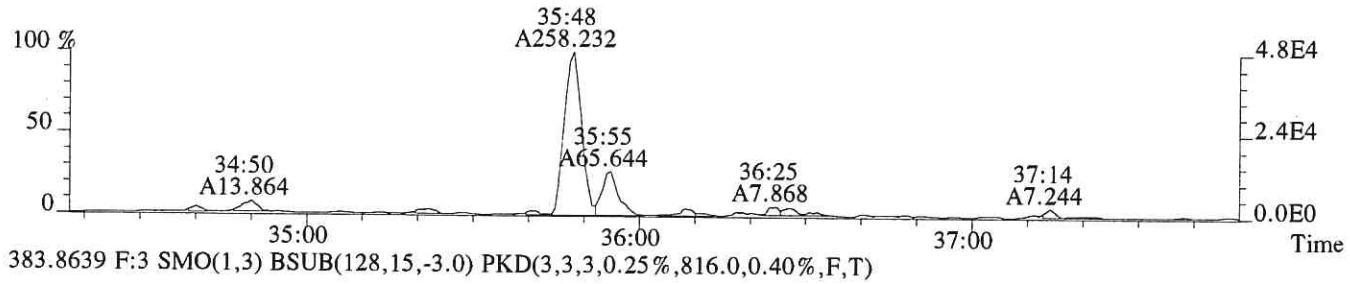
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



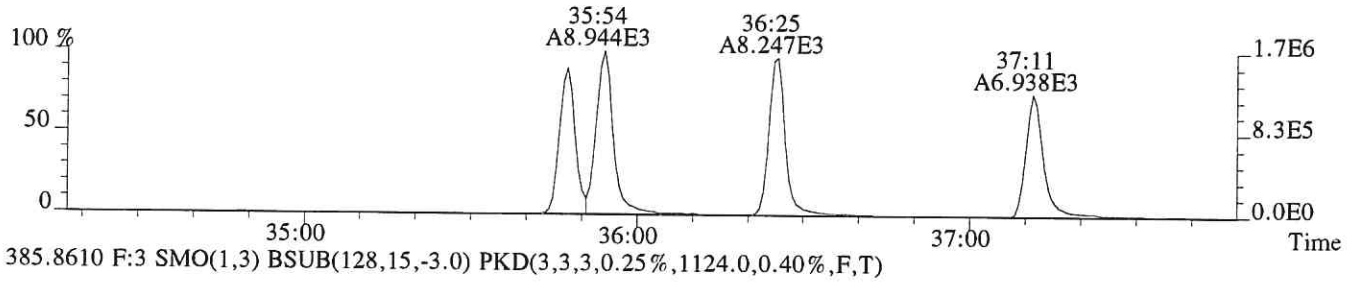
File:P519329 #1-317 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



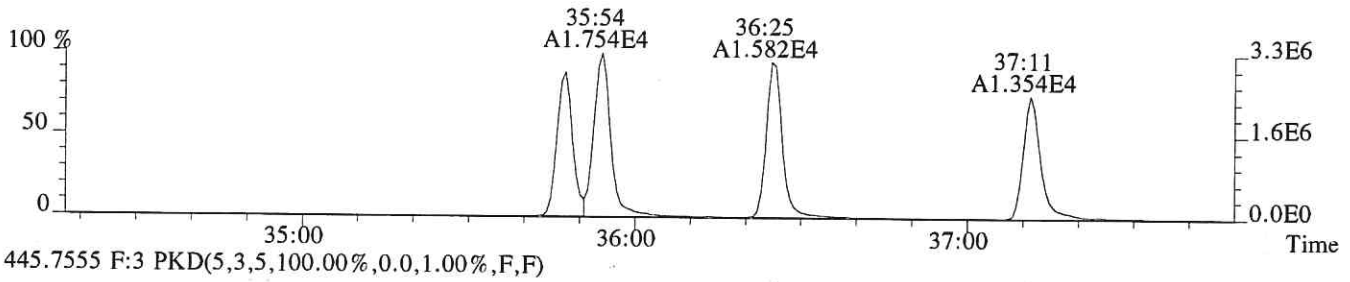
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



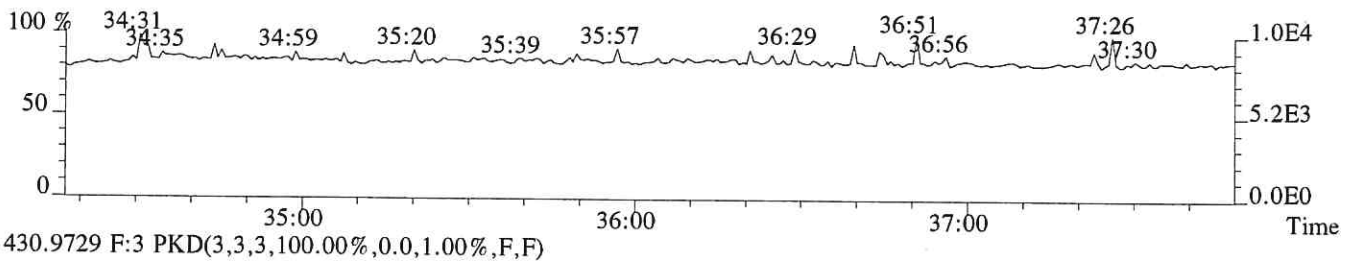
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



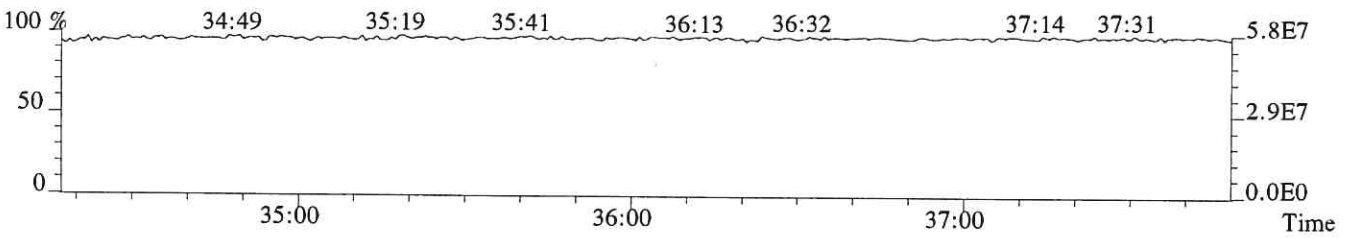
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



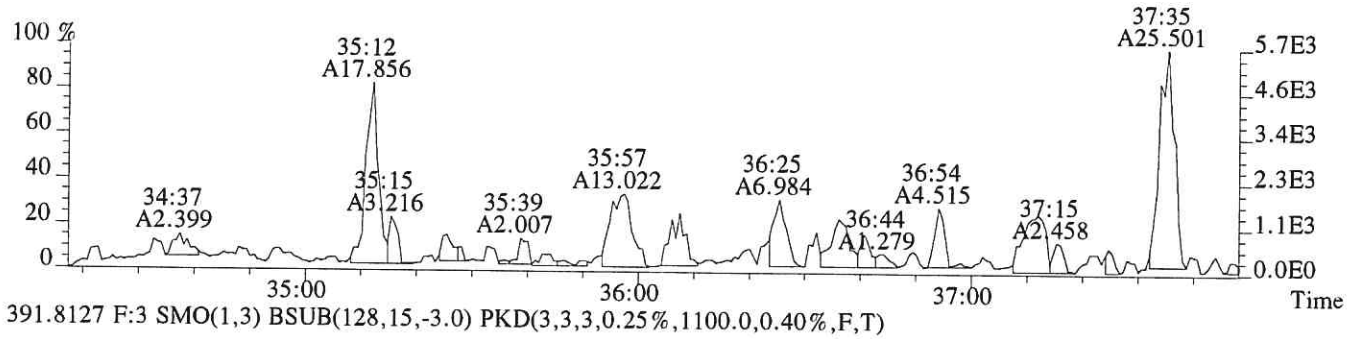
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



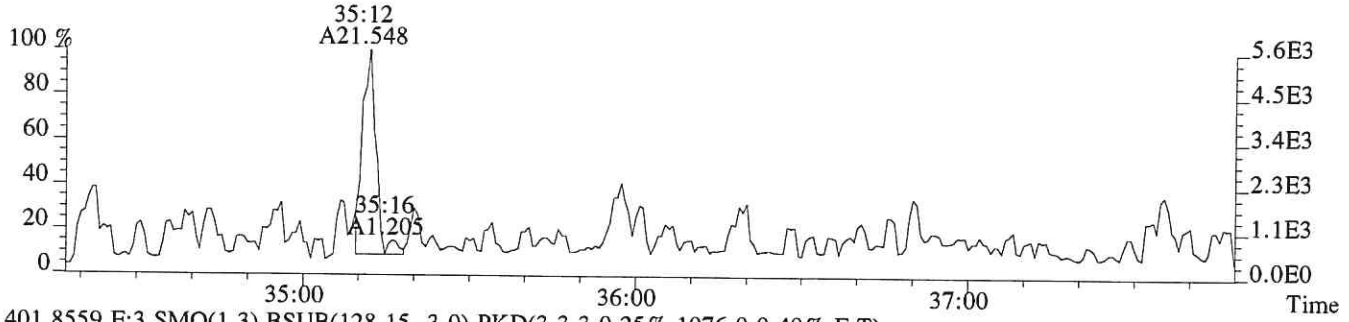
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



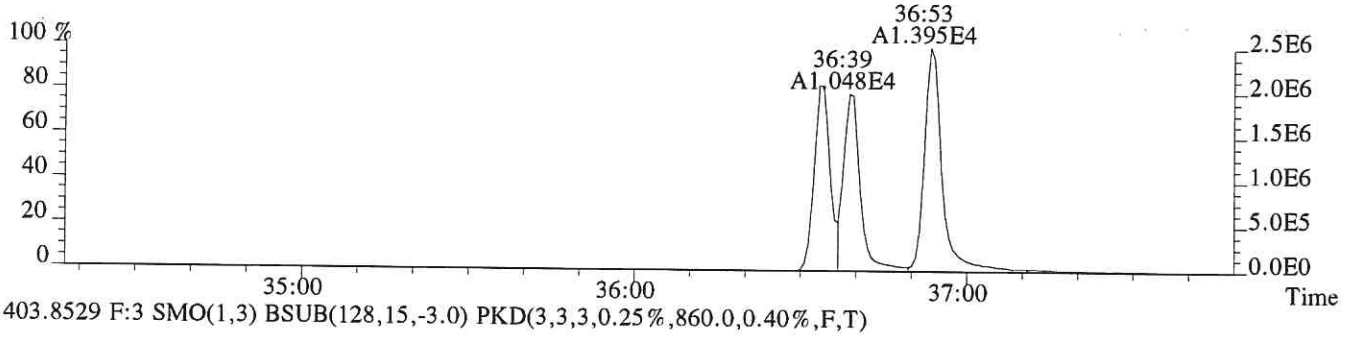
File:P519329 #1-317 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



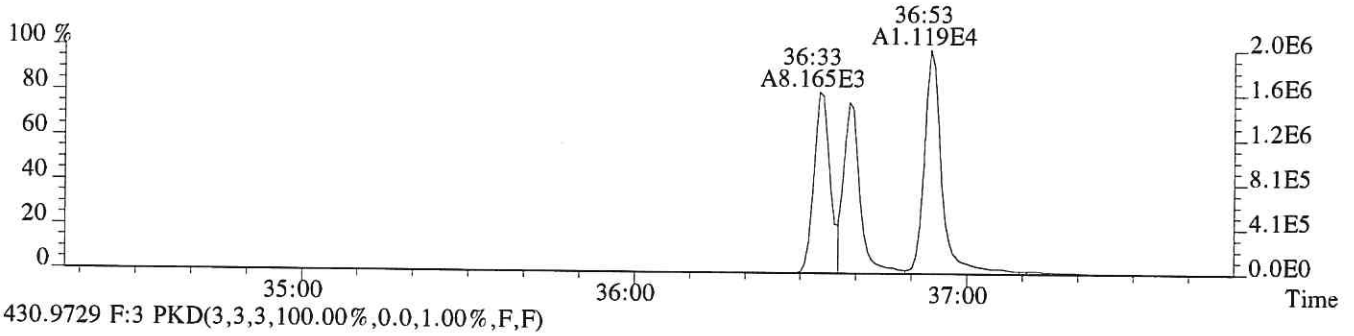
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



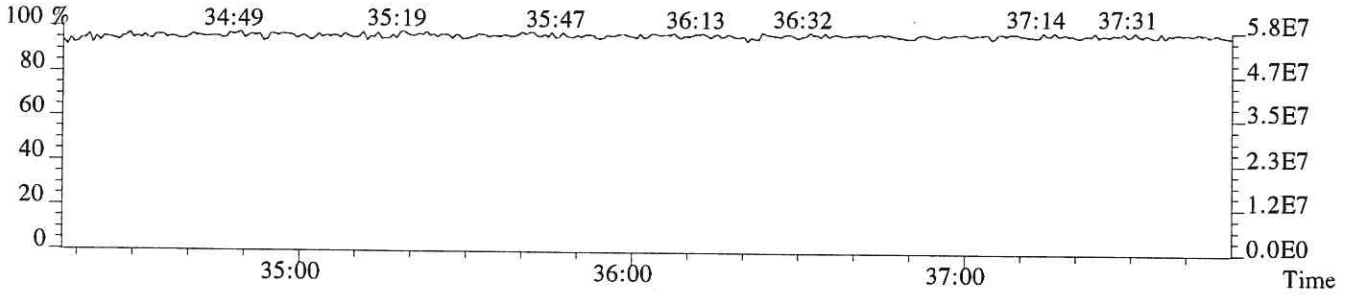
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



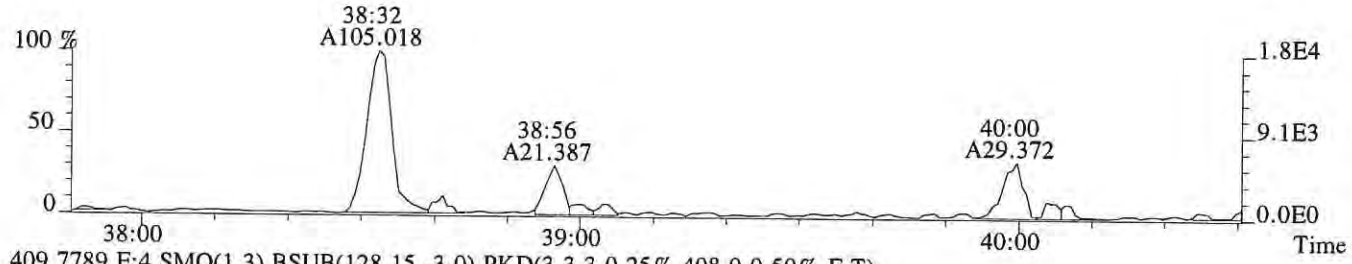
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



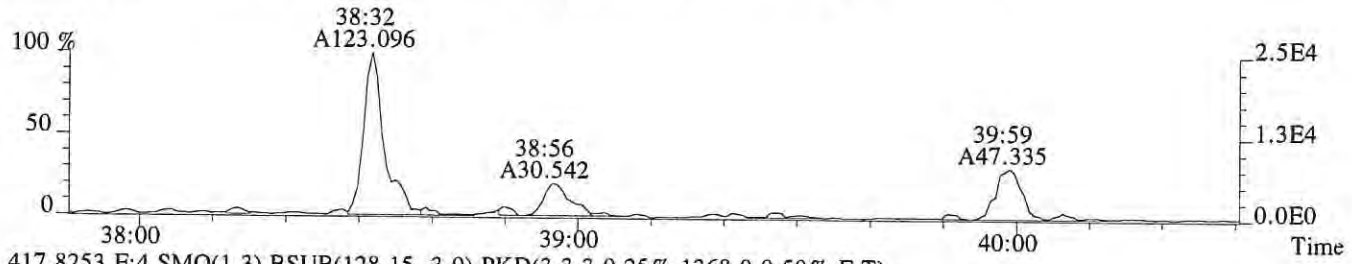
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



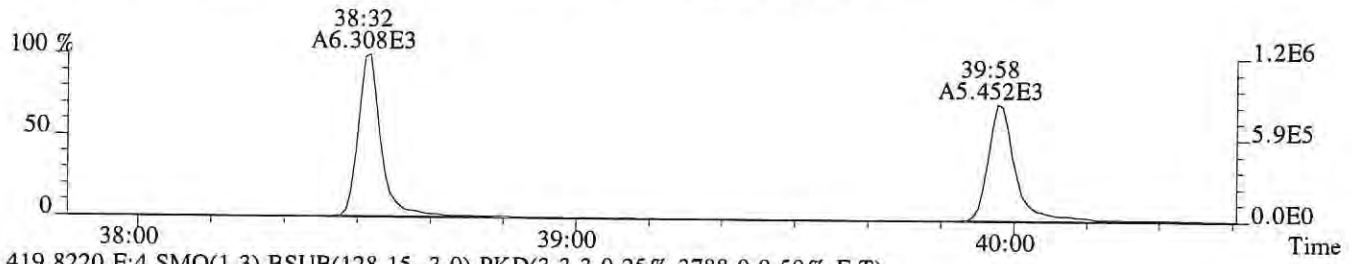
File:P519329 #1-241 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.50%,F,T)



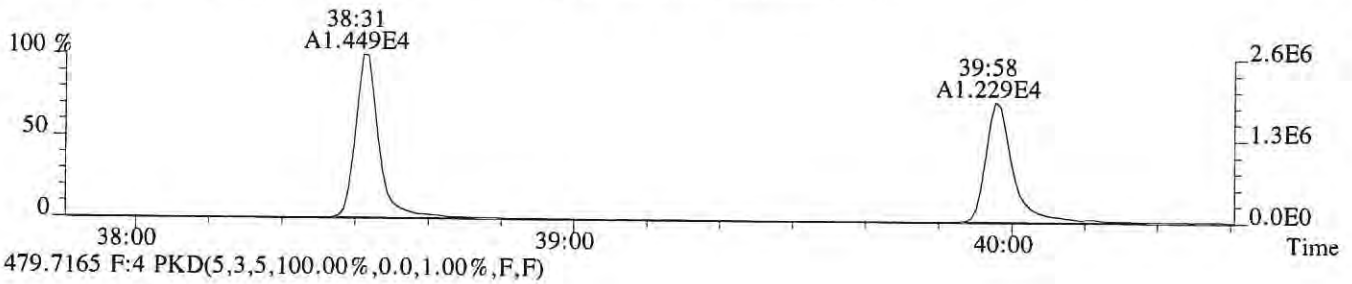
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.50%,F,T)



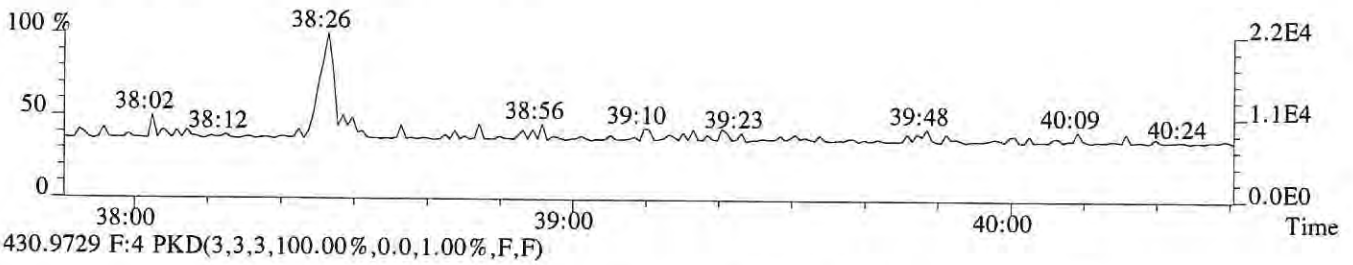
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.50%,F,T)



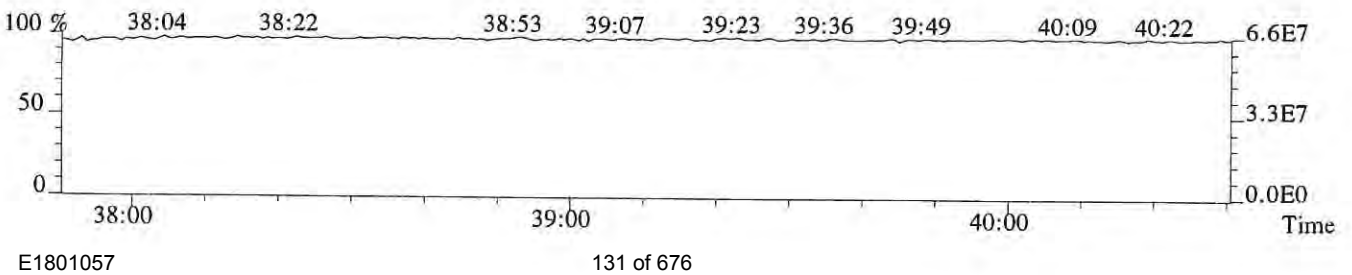
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3788.0,0.50%,F,T)



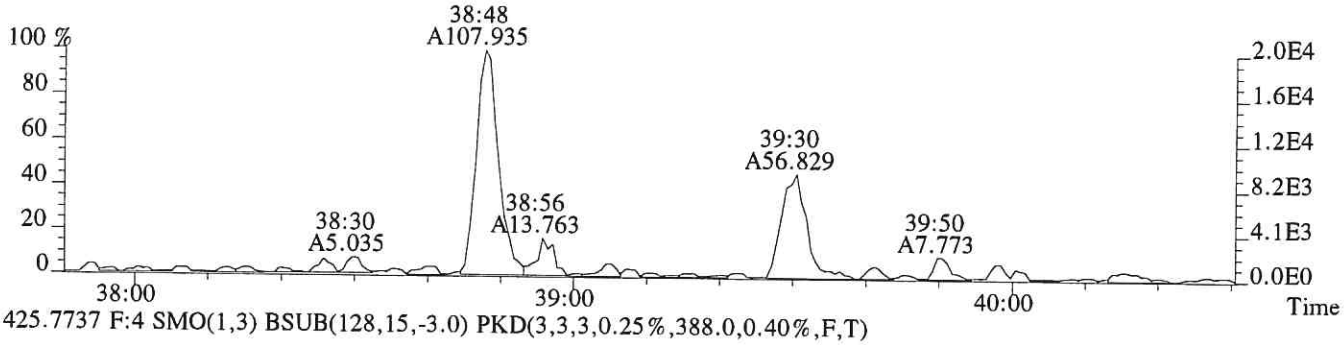
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



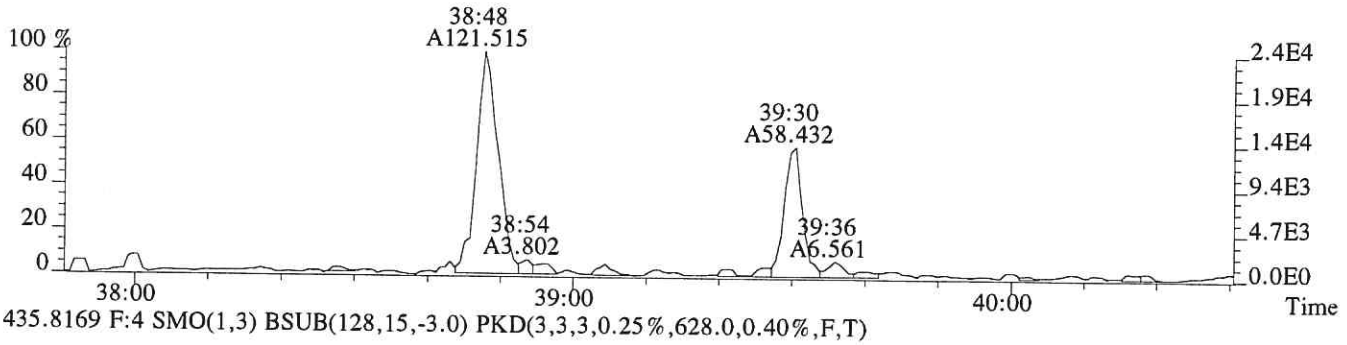
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



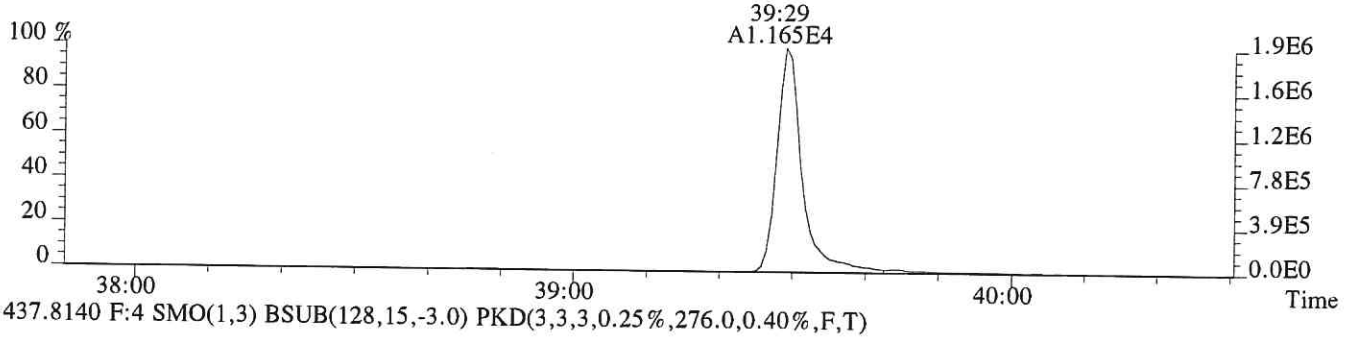
File:P519329 #1-241 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



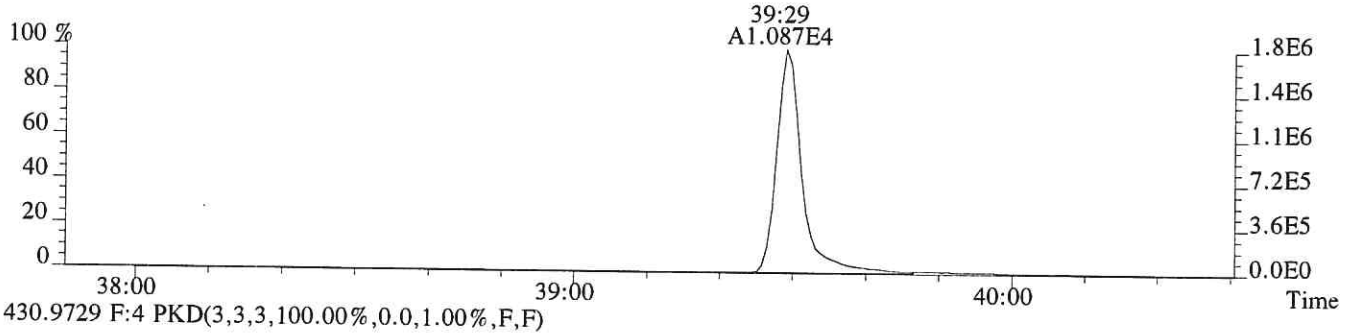
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



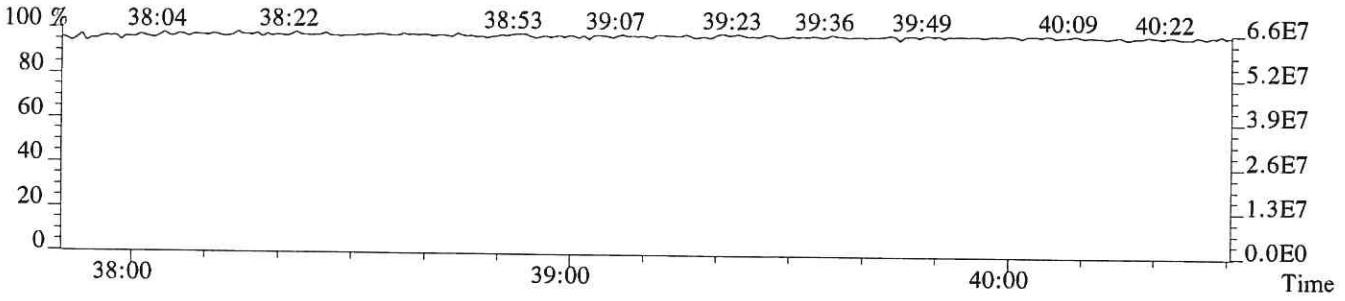
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



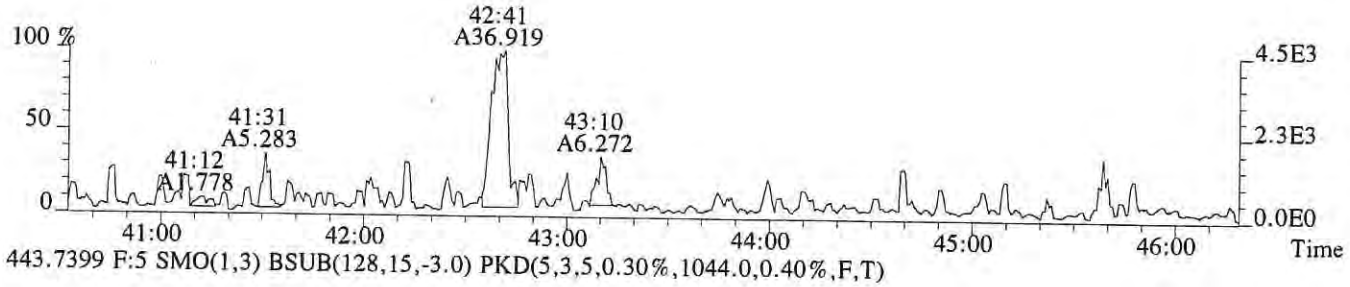
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



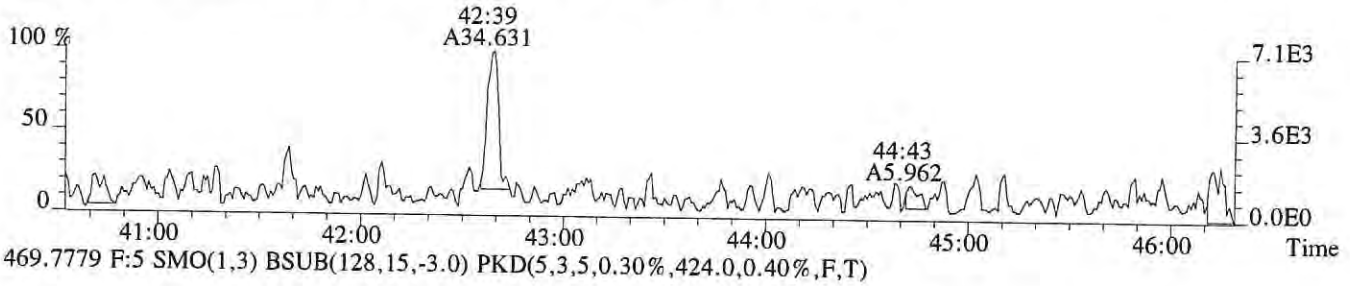
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



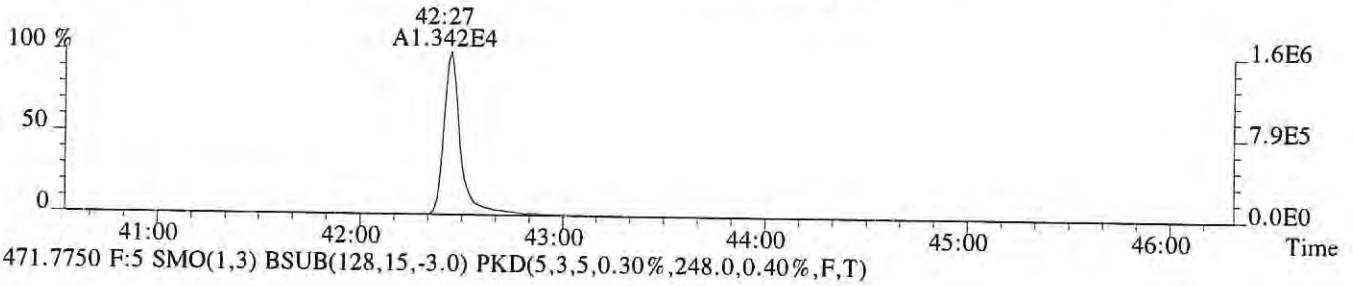
File:P519329 #1-520 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



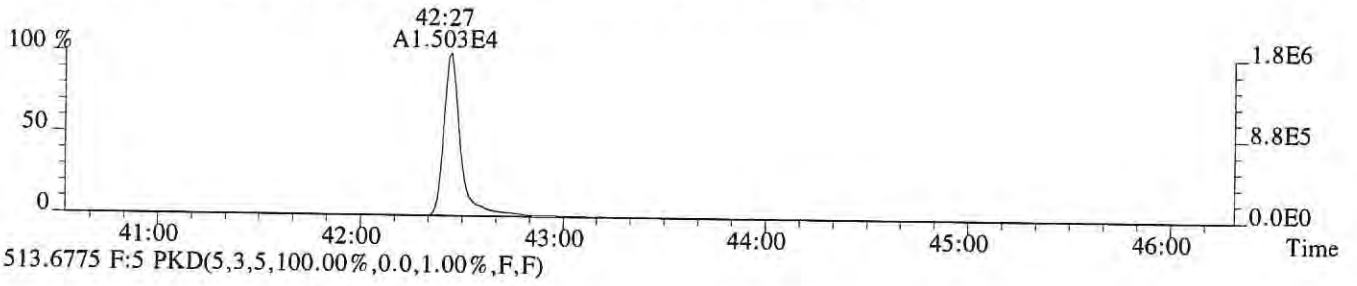
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1044.0,0.40%,F,T)



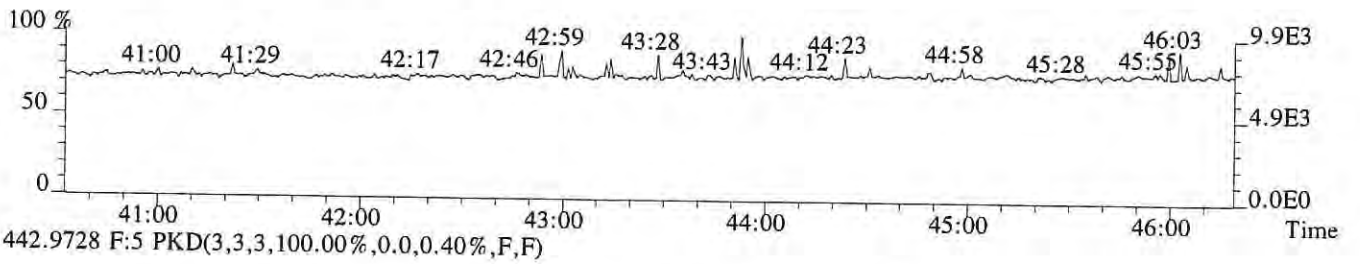
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



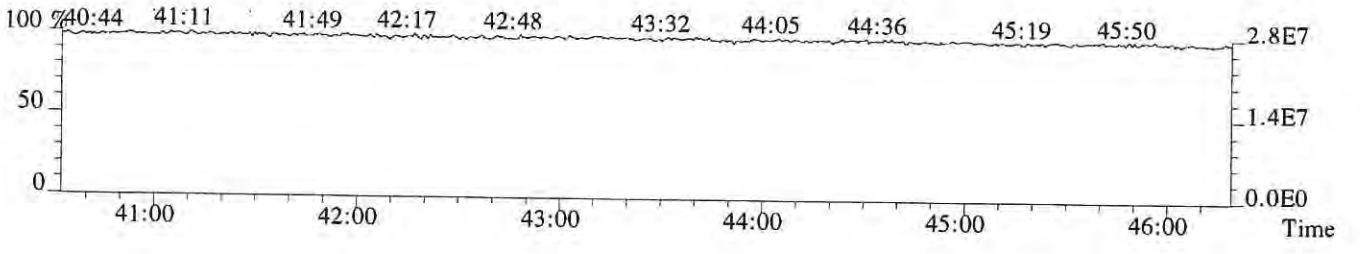
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



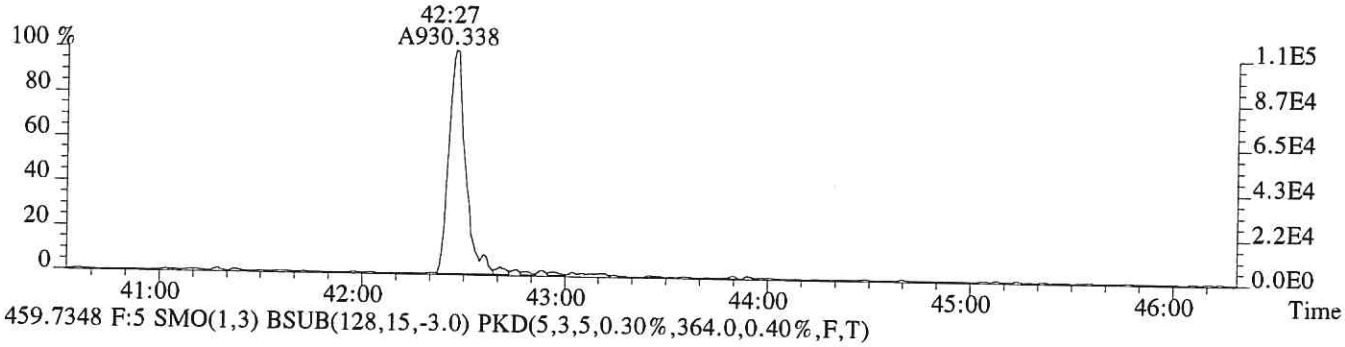
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



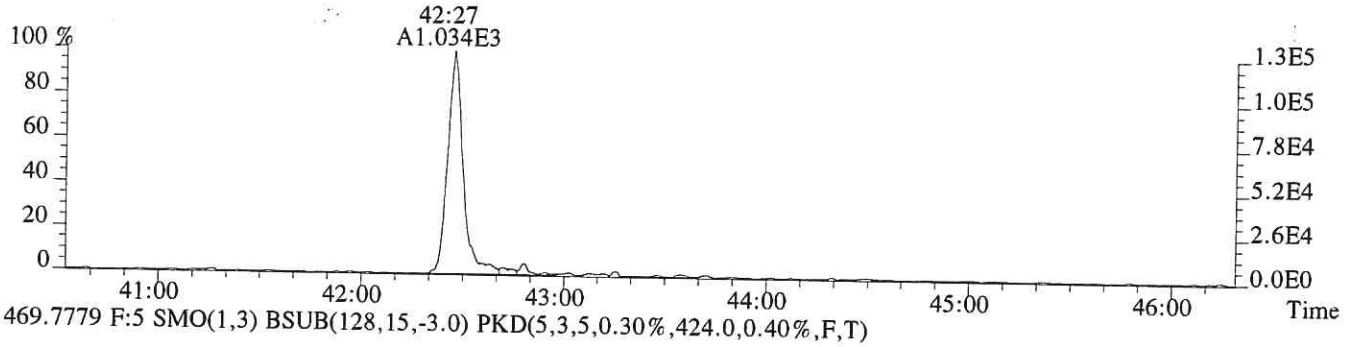
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



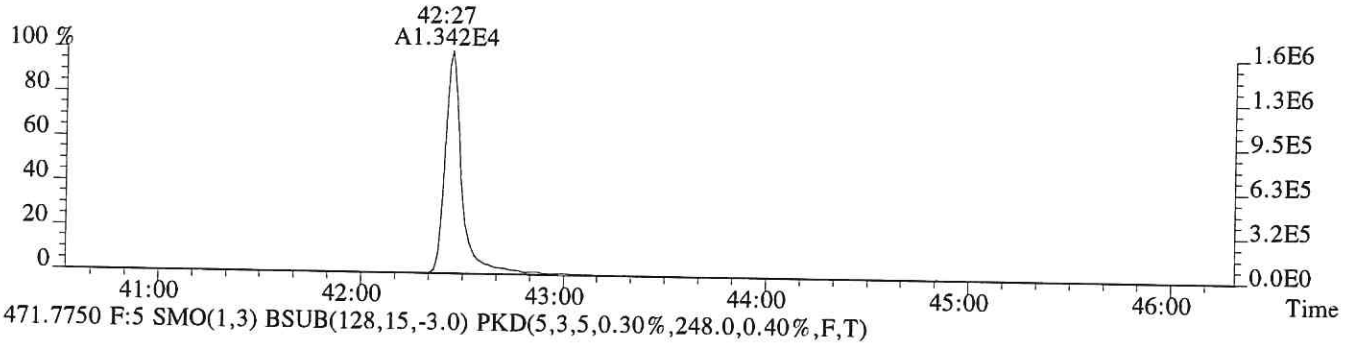
File:P519329 #1-520 Acq:10-DEC-2018 16:53:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-004DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



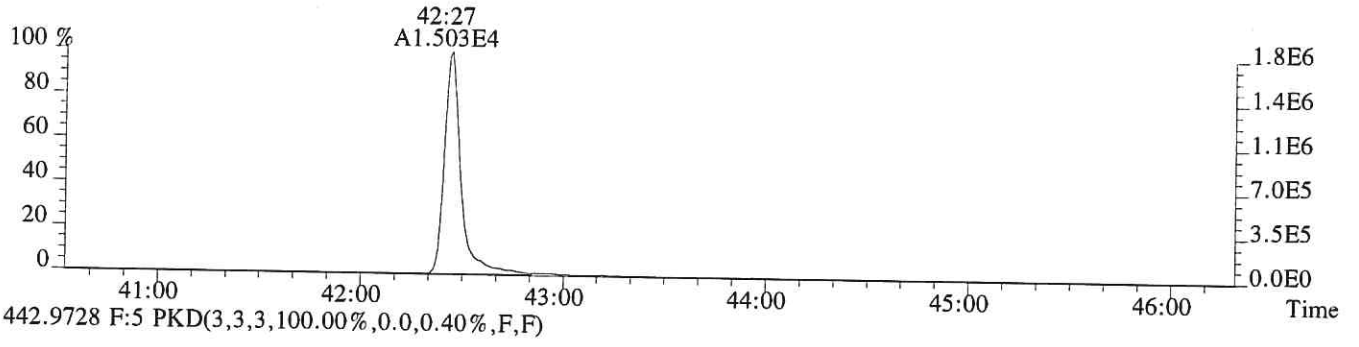
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



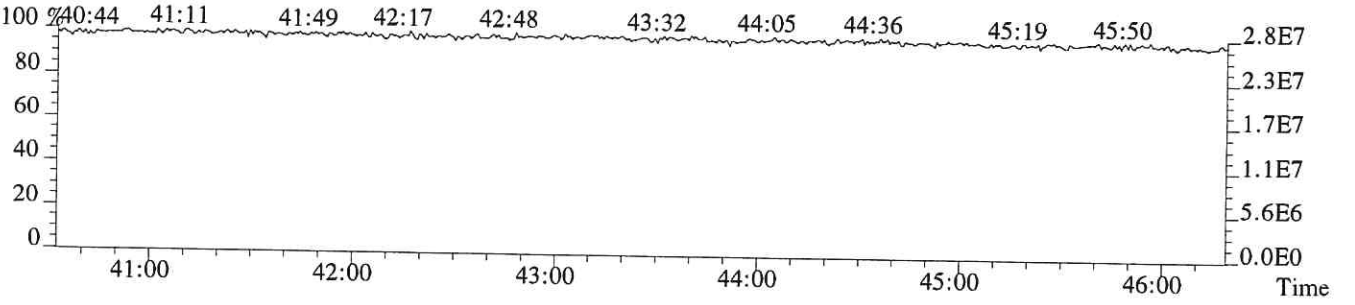
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0550

Run #10 Filename P519338 Samp: 1 Inj: 1 Acquired: 11-DEC-18 00:25:45
Processed: 12-DEC-18 13:50:54 Sample ID: E1801057-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	2.657e+03	3.607e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	2.236e+02	1.541e+02	1.45	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.212e+02	8.777e+01	1.38	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:47	3.488e+02	2.474e+02	1.41	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.794e+01	6.314e+01	1.55	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	2.626e+01	1.777e+01	1.48	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	2.064e+01	2.383e+01	0.87	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	8.029e+01	1.060e+02	0.76	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	3.028e+01	3.686e+01	0.82	no	no	1.258
10	Unk	OCDF	42:39	3.321e+01	3.944e+01	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	6.630e+02	8.321e+02	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	3.355e+01	2.076e+01	1.62	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:34	1.563e+01	9.941e+00	1.57	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	1.205e+01	1.745e+01	0.69	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	1.723e+01	2.356e+01	0.73	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	3.014e+02	2.900e+02	1.04	yes	no	1.025
17	Unk	OCDD	42:27	5.965e+03	6.837e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.989e+04	2.451e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	4.152e+04	2.638e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	3.740e+04	2.345e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.786e+04	3.358e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	2.209e+04	4.305e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.902e+04	3.803e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.965e+04	3.902e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.422e+04	3.266e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.310e+04	2.977e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.200e+03	1.149e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.849e+04	1.753e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.645e+04	1.909e+04	1.39	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.562e+04	2.096e+04	1.22	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	2.999e+04	2.817e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:27	2.751e+04	3.127e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.656e+04	3.335e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	3.808e+04	2.935e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.269e+04				no	1.014

$$\text{OCDD} = \frac{(5.965e+03 + 6.837e+03) \times 4000\ \text{pg} \times 1}{(2.751e+04 + 3.127e+04) \times 10.877\ \text{g} \times 83.0 / 100 \times 1.118} = 86.3\ \text{ng/kg}$$

LM 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0550

Run #10 Filename P519338 Samp: 1 Inj: 1 Acquired: 11-DEC-18 00:25:45
Processed: 12-DEC-18 13:50:54 LAB. ID: E1801057-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.32e+05	2.32e+02	1.9e+03	5.93e+05	1.02e+03	5.8e+02
2	1,2,3,7,8-PeCDF	4.01e+04	5.92e+02	6.8e+01	2.44e+04	1.12e+03	2.2e+01
3	2,3,4,7,8-PeCDF	2.06e+04	5.92e+02	3.5e+01	1.32e+04	1.12e+03	1.2e+01
4	1,2,3,4,7,8-HxCDF	6.98e+04	3.48e+02	2.0e+02	5.08e+04	3.16e+02	1.6e+02
5	1,2,3,6,7,8-HxCDF	1.59e+04	3.48e+02	4.6e+01	1.04e+04	3.16e+02	3.3e+01
6	2,3,4,6,7,8-HxCDF	6.38e+03	3.48e+02	1.8e+01	5.31e+03	3.16e+02	1.7e+01
7	1,2,3,7,8,9-HxCDF	2.44e+03	3.48e+02	7.0e+00	3.37e+03	3.16e+02	1.1e+01
8	1,2,3,4,6,7,8-HpCDF	1.66e+04	2.72e+02	6.1e+01	2.00e+04	1.60e+02	1.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.36e+03	2.72e+02	1.6e+01	7.21e+03	1.60e+02	4.5e+01
10	OCDF	5.40e+03	2.08e+02	2.6e+01	5.04e+03	2.32e+02	2.2e+01
11	2,3,7,8-TCDD	1.22e+05	1.46e+03	8.4e+01	1.55e+05	6.32e+02	2.5e+02
12	1,2,3,7,8-PeCDD	7.38e+03	4.68e+02	1.6e+01	3.89e+03	2.08e+02	1.9e+01
13	1,2,3,4,7,8-HxCDD	3.61e+03	3.72e+02	9.7e+00	2.31e+03	7.04e+02	3.3e+00
14	1,2,3,6,7,8-HxCDD	2.81e+03	3.72e+02	7.6e+00	3.95e+03	7.04e+02	5.6e+00
15	1,2,3,7,8,9-HxCDD	4.46e+03	3.72e+02	1.2e+01	3.75e+03	7.04e+02	5.3e+00
16	1,2,3,4,6,7,8-HpCDD	4.98e+04	1.72e+02	2.9e+02	4.97e+04	2.60e+02	1.9e+02
17	OCDD	7.06e+05	2.08e+02	3.4e+03	8.09e+05	2.08e+02	3.9e+03
18	13C-2,3,7,8-TCDF	3.50e+06	5.09e+03	6.9e+02	4.29e+06	3.22e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	7.52e+06	4.20e+02	1.8e+04	4.82e+06	3.80e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	7.21e+06	4.20e+02	1.7e+04	4.62e+06	3.80e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	3.53e+06	5.08e+02	7.0e+03	6.89e+06	9.12e+02	7.6e+03
22	13C-1,2,3,6,7,8-HxCDF	4.08e+06	5.08e+02	8.0e+03	7.79e+06	9.12e+02	8.5e+03
23	13C-2,3,4,6,7,8-HxCDF	3.82e+06	5.08e+02	7.5e+03	7.65e+06	9.12e+02	8.4e+03
24	13C-1,2,3,7,8,9-HxCDF	3.52e+06	5.08e+02	6.9e+03	6.85e+06	9.12e+02	7.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.63e+06	2.94e+03	8.9e+02	6.00e+06	2.58e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.98e+06	2.94e+03	6.7e+02	4.54e+06	2.58e+03	1.8e+03
27	13C-2,3,7,8-TCDD	1.70e+06	3.97e+03	4.3e+02	2.15e+06	1.34e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	5.43e+06	6.28e+02	8.6e+03	3.28e+06	8.64e+02	3.8e+03
29	13C-1,2,3,4,7,8-HxCDD	5.31e+06	9.68e+02	5.5e+03	4.10e+06	2.96e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.92e+06	9.68e+02	5.1e+03	3.91e+06	2.96e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.82e+06	2.56e+02	1.9e+04	4.54e+06	2.04e+02	2.2e+04
32	13C-OCDD	3.20e+06	3.04e+02	1.1e+04	3.66e+06	2.24e+02	1.6e+04
33	13C-1,2,3,4-TCDD	4.85e+06	3.97e+03	1.2e+03	6.10e+06	1.34e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	6.55e+06	9.68e+02	6.8e+03	5.11e+06	2.96e+02	1.7e+04
35	37Cl-2,3,7,8-TCDD	2.31e+06	3.92e+02	5.9e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P519338 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 00:25:45 Processed: 12-DEC-18 13:50:54

Mass: 303.9020 305.8990 Tot Response: 1.10e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:59	1.17e+02	1.62e+02	0.72	yes	2.78e+02		n	n
2	25:42	9.60e+01	1.41e+02	0.68	yes	2.37e+02		n	n
3	26:27	1.43e+02	1.88e+02	0.76	yes	3.31e+02		n	n
4	26:55	1.16e+03	1.54e+03	0.75	yes	2.70e+03		n	n
5	27:45	2.66e+03	3.61e+03	0.74	yes	6.26e+03	2,3,7,8-TCDF	n	n
6	28:05	2.11e+02	2.49e+02	0.85	yes	4.60e+02		n	n
7	28:20	4.26e+01	5.79e+01	0.74	yes	1.00e+02		n	n
8	29:39	2.46e+02	3.71e+02	0.66	yes	6.17e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P519338 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 00:25:45 Processed: 12-DEC-18 13:50:54

Mass: 319.8970 321.8940 Tot Response: 1.83e+03 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:36	1.40e+02	2.00e+02 0.70	yes	3.39e+02		n	n
2	28:35	6.63e+02	8.32e+02 0.80	yes	1.50e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 39 Totals Name: Total Penta-Furans2

Run: 10 File: P519338 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 00:25:45 Processed: 12-DEC-18 13:50:54

Mass: 339.8600 341.8570 Tot Response: 7.31e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:09	8.55e+01	5.12e+01 1.67	yes	1.37e+02		n	n
2	32:06	2.24e+02	1.54e+02 1.45	yes	3.78e+02	1,2,3,7,8-PeCDF	n	n
3	32:16	4.72e+00	3.01e+00 1.57	yes	7.73e+00		n	n
4	33:02	1.21e+02	8.78e+01 1.38	yes	2.09e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P519338 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 00:25:45 Processed: 12-DEC-18 13:50:54

Mass: 355.8550 357.8520 Tot Response: 1.42e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:39	4.12e+01	3.09e+01	1.33	yes	7.20e+01		n	n
2	32:38	9.85e+00	5.98e+00	1.65	yes	1.58e+01		n	n
3	33:20	3.36e+01	2.08e+01	1.62	yes	5.43e+01	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519338 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 00:25:45 Processed: 12-DEC-18 13:50:54

Mass: 373.8210 375.8180 Tot Response: 5.96e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:47	3.49e+02	2.47e+02 1.41	yes	5.96e+02	1,2,3,4,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P519338 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 00:25:45 Processed: 12-DEC-18 13:50:54

Mass: 389.8160 391.8130 Tot Response: 9.03e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:11	3.54e+02	3.09e+02 1.15	yes	6.63e+02		n	n
2	35:57	7.86e+01	5.77e+01 1.36	yes	1.36e+02		n	n
3	36:04	5.55e+01	4.84e+01 1.15	yes	1.04e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0550

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P519338 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 00:25:45 Processed: 12-DEC-18 13:50:54

Mass: 423.7770 425.7740 Tot Response: 2.78e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	1.09e+03	1.10e+03	0.98	yes	2.19e+03		n	n
2	39:30	3.01e+02	2.90e+02	1.04	yes	5.91e+02	1,2,3,4,6,7,8-HpCDD	n	n

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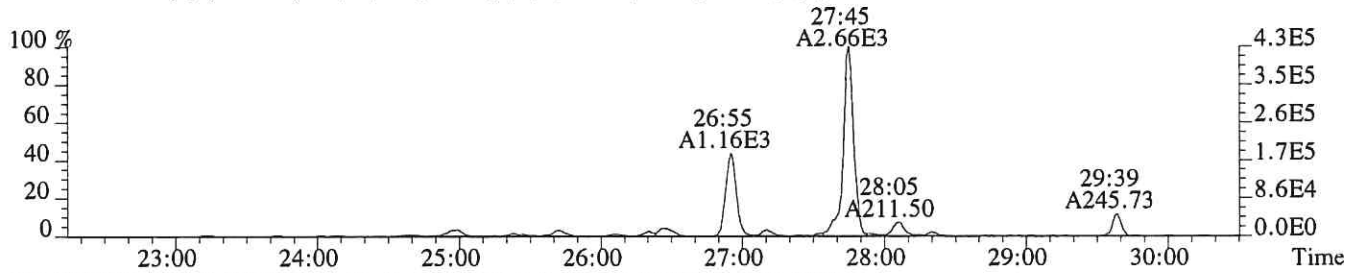
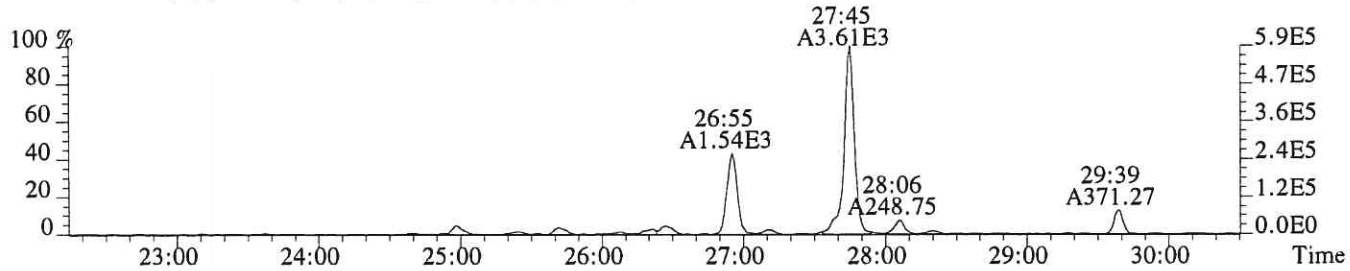
File:P519338 #1-587 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005

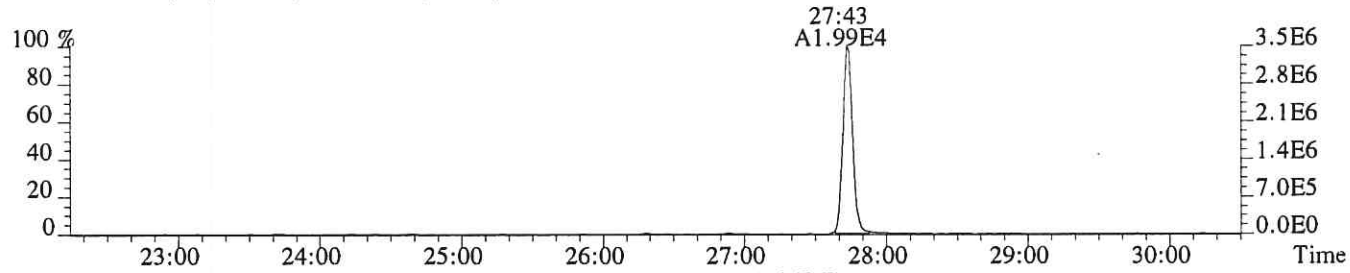
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



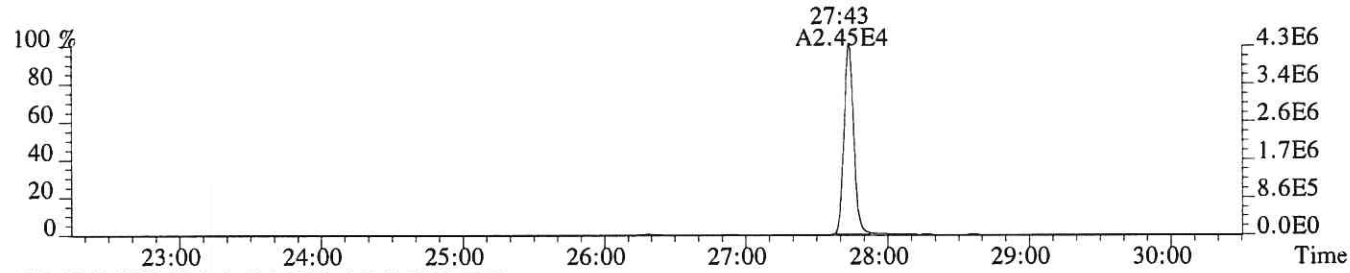
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



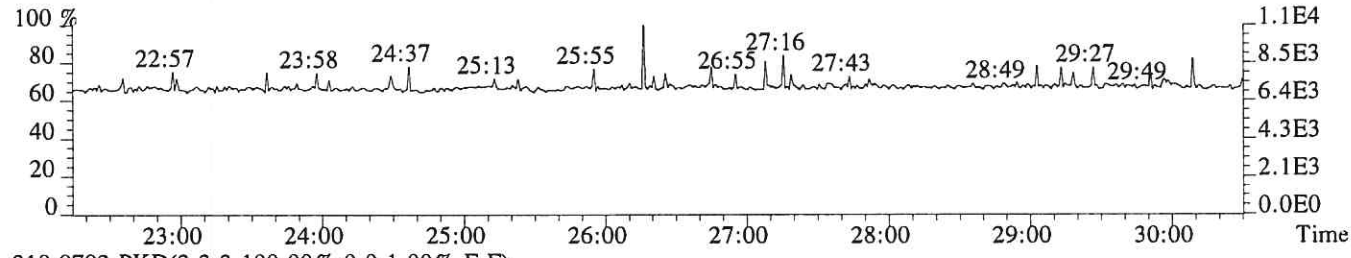
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5092.0,1.00%,F,T)



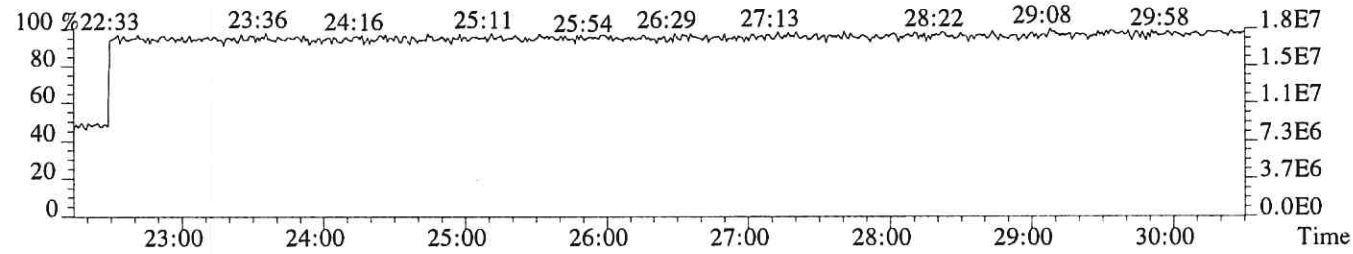
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



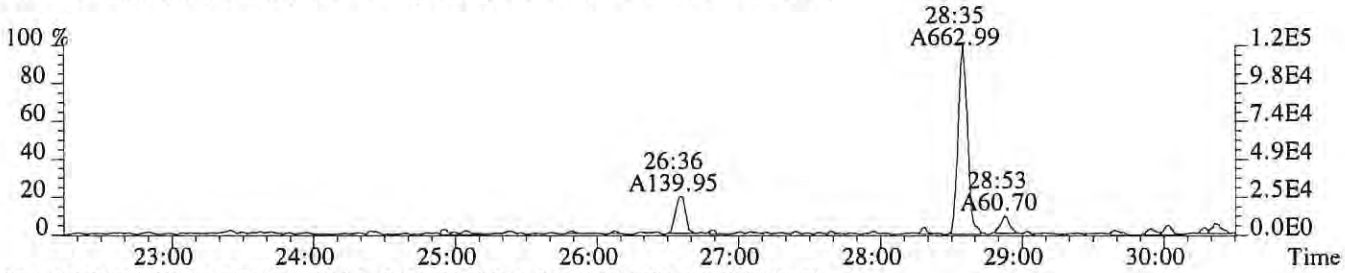
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



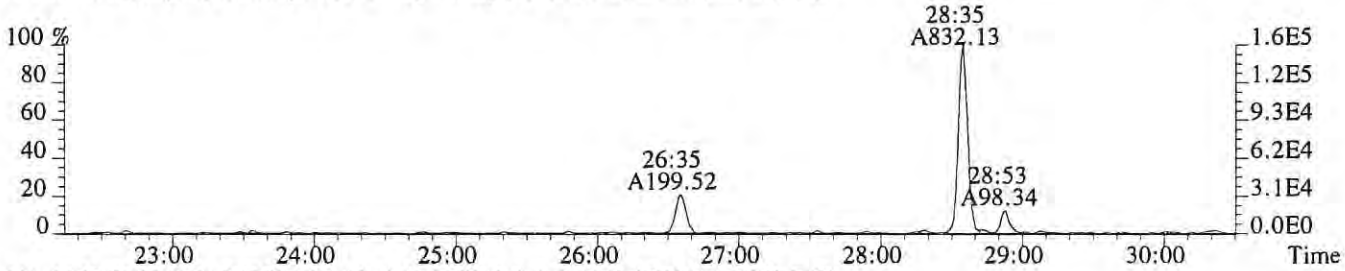
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



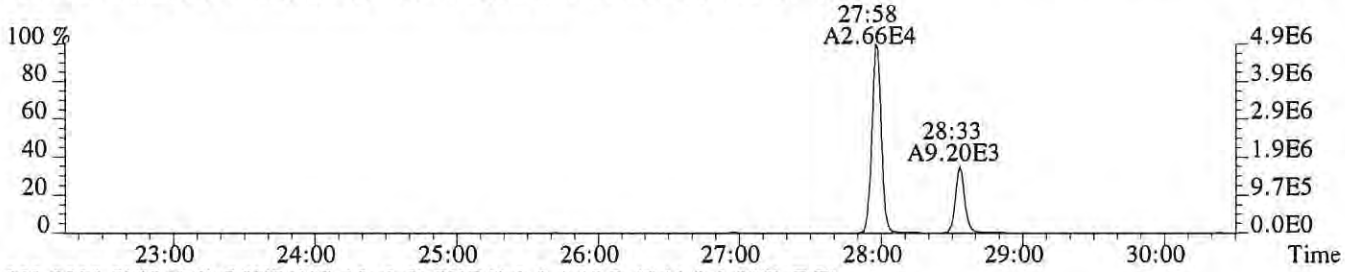
File:P519338 #1-587 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



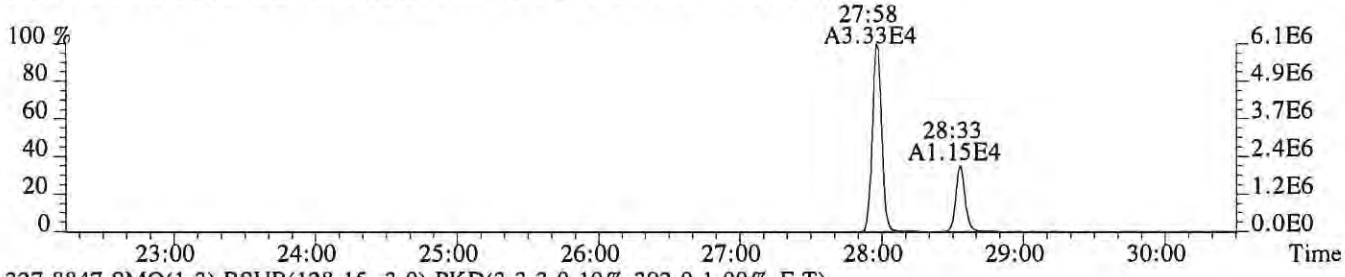
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



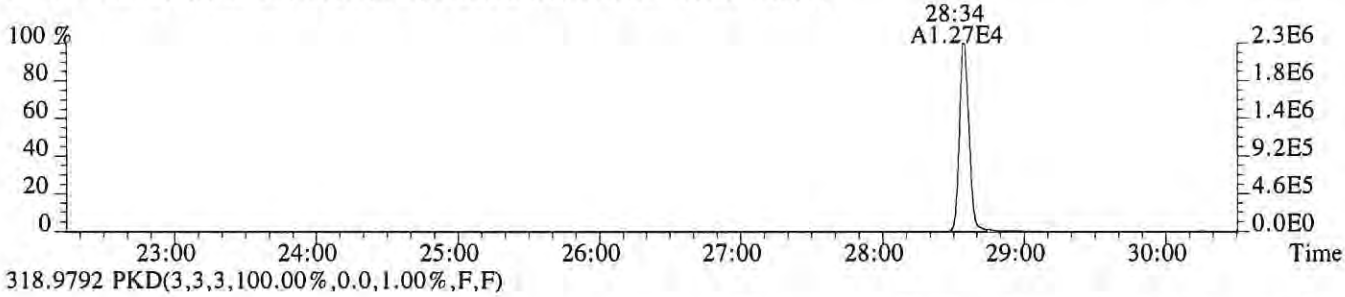
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3972.0,1.00%,F,T)



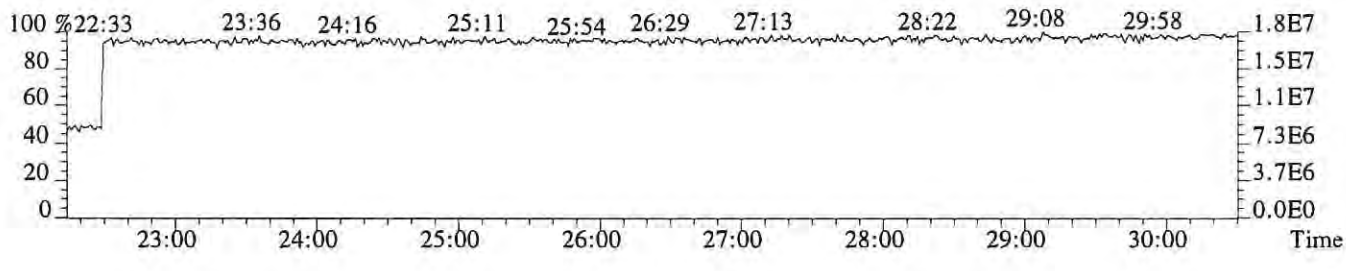
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1344.0,1.00%,F,T)



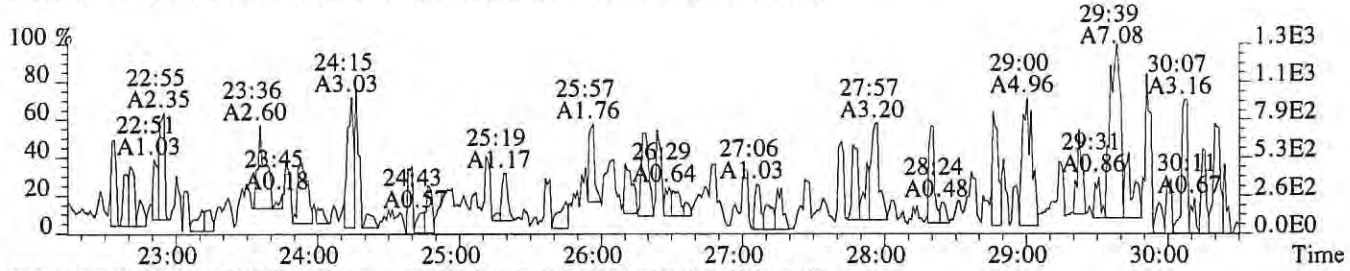
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



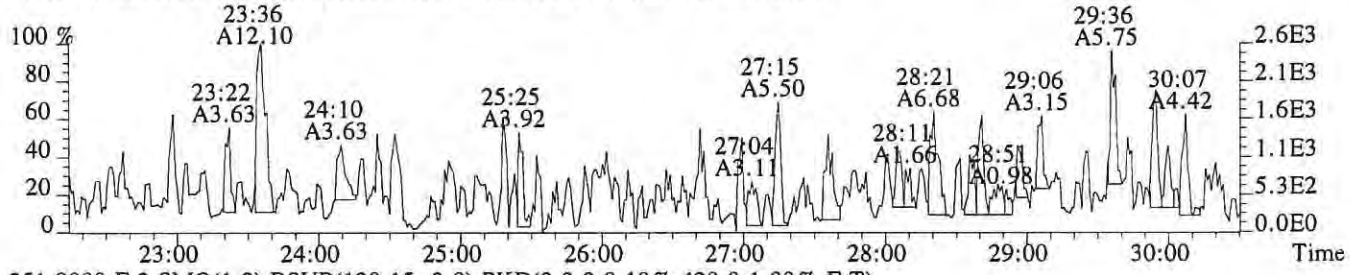
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



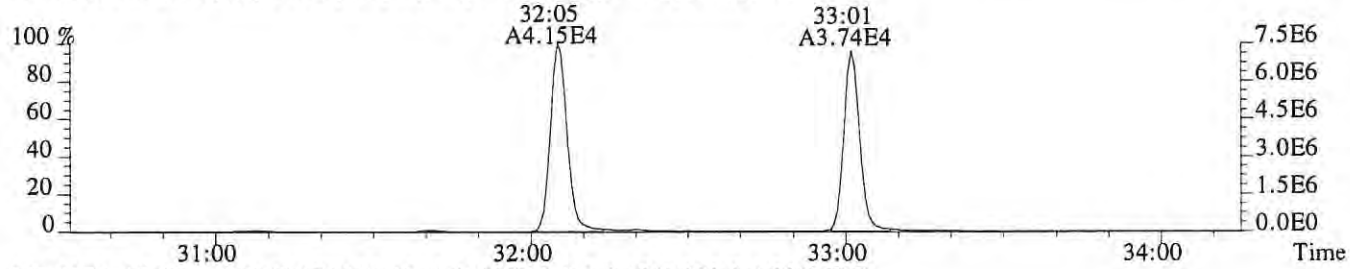
File:P519338 #1-587 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



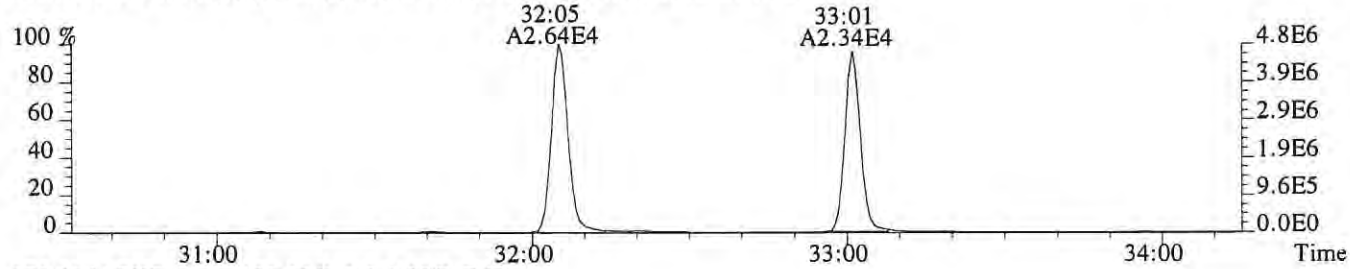
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



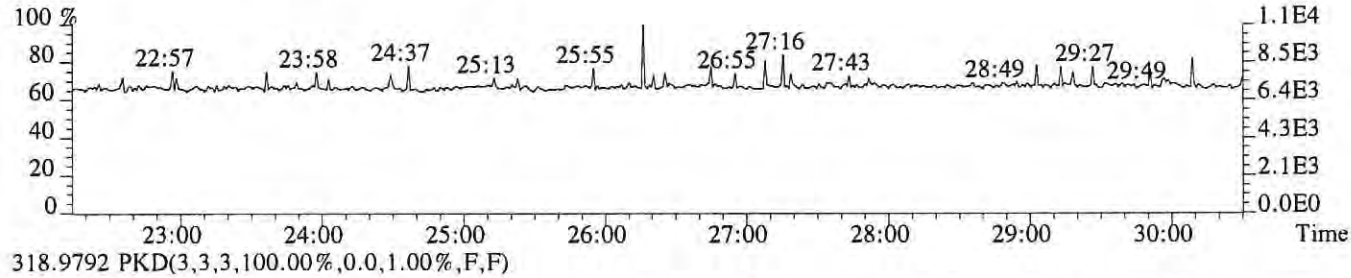
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



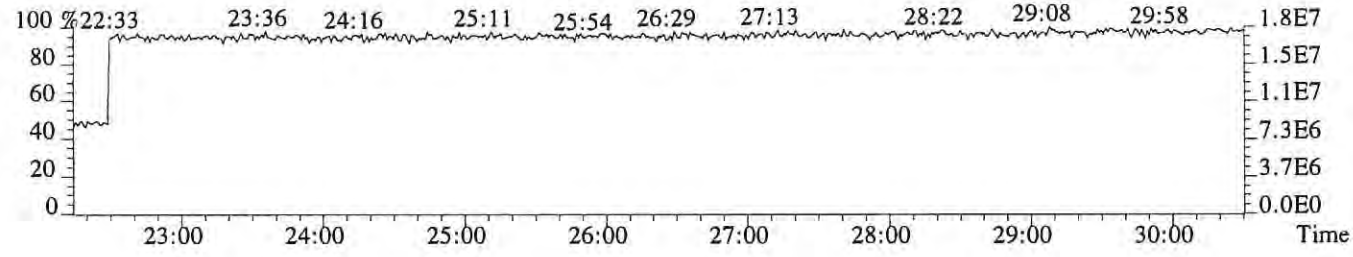
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



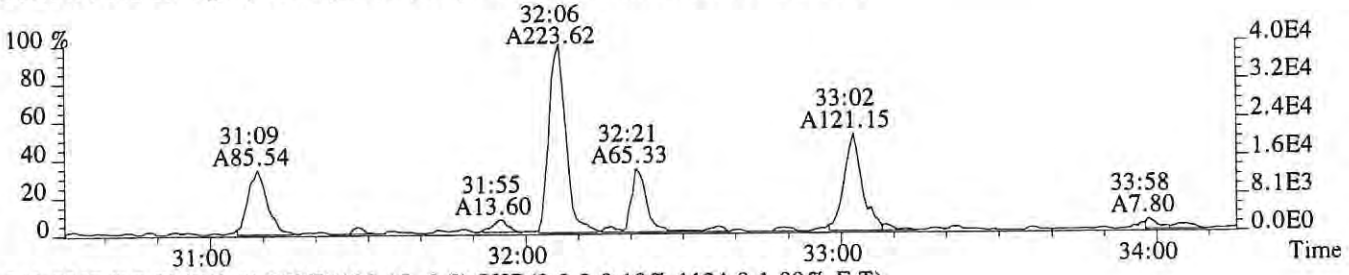
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



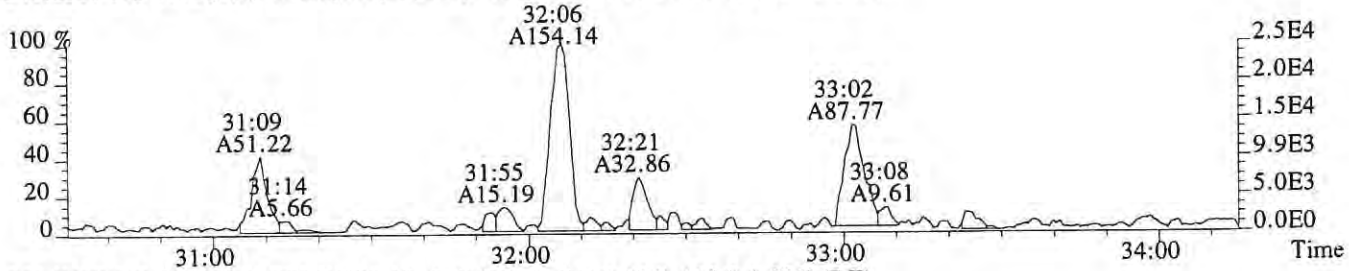
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



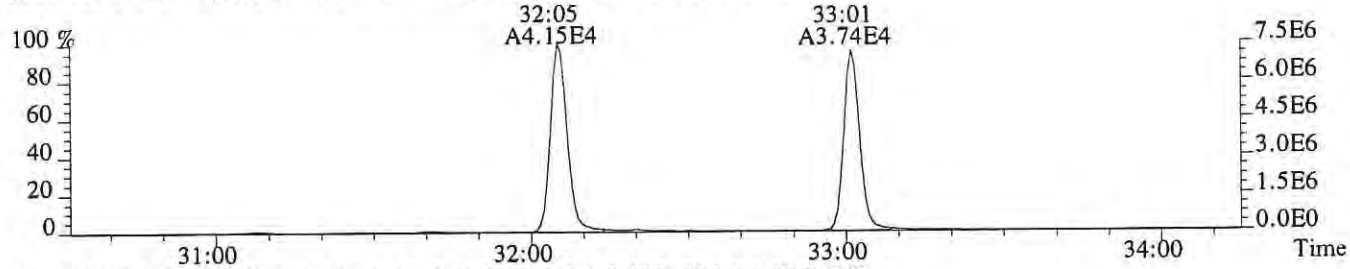
File:P519338 #1-335 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



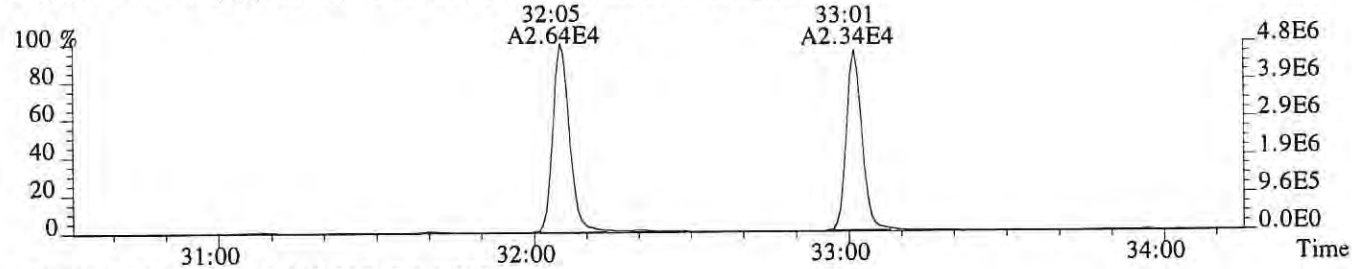
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



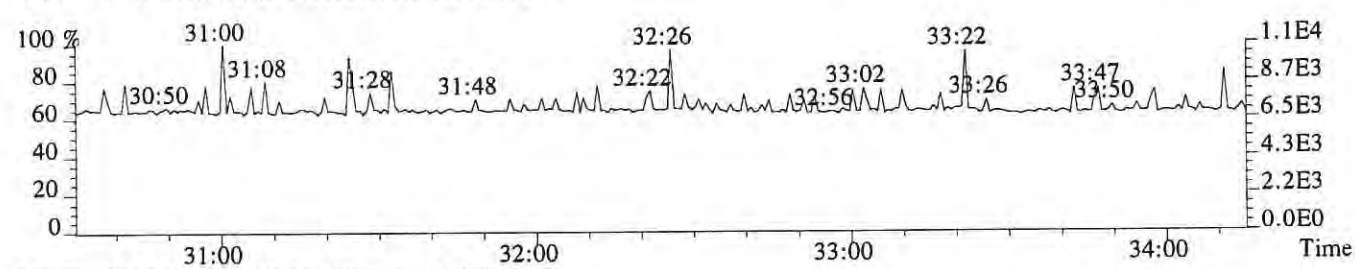
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



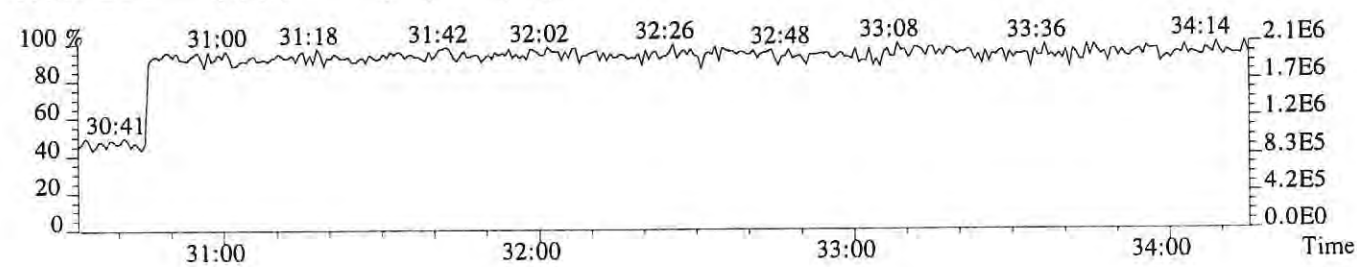
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



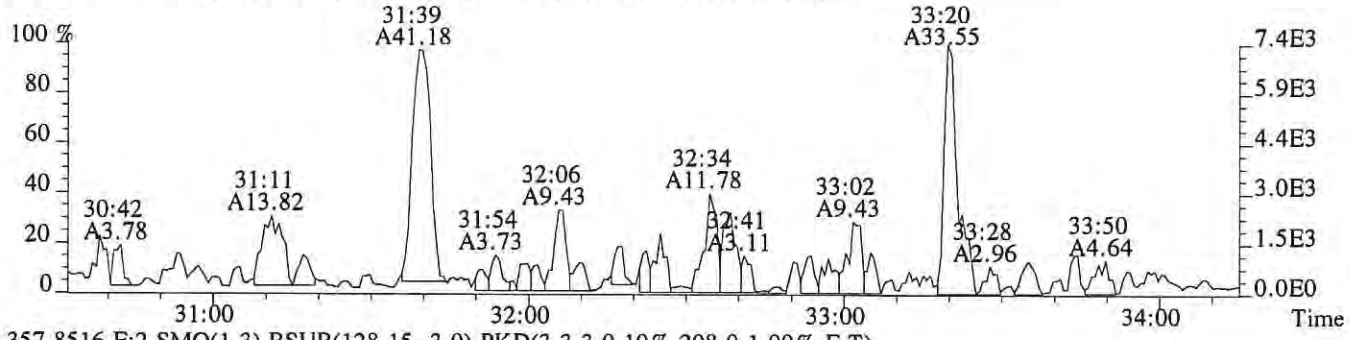
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



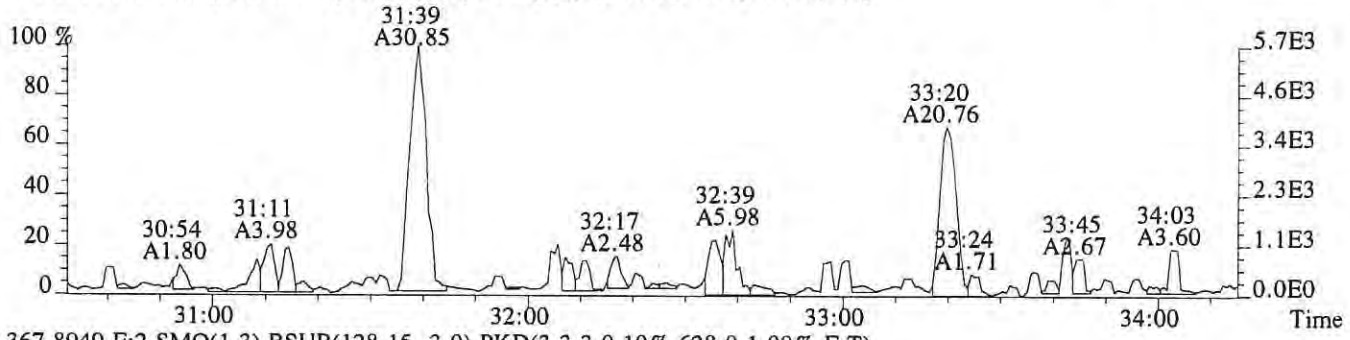
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



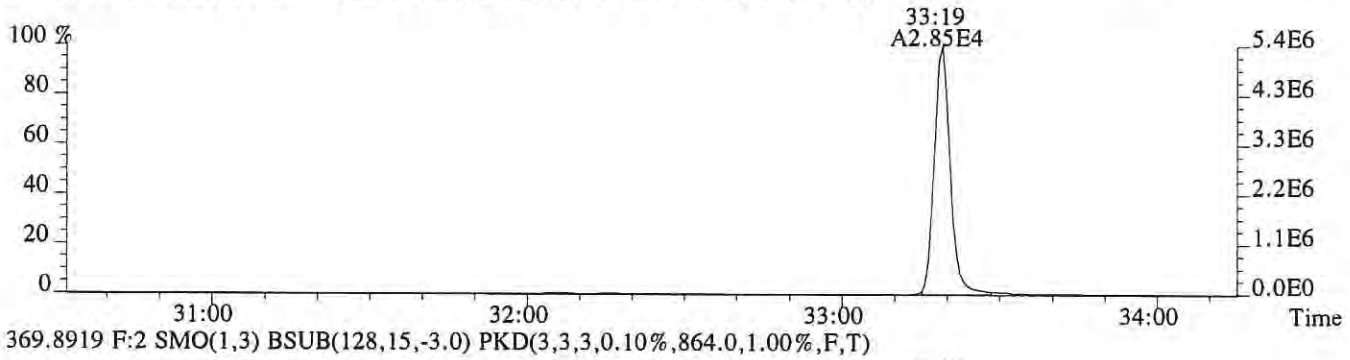
File:P519338 #1-335 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801057-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



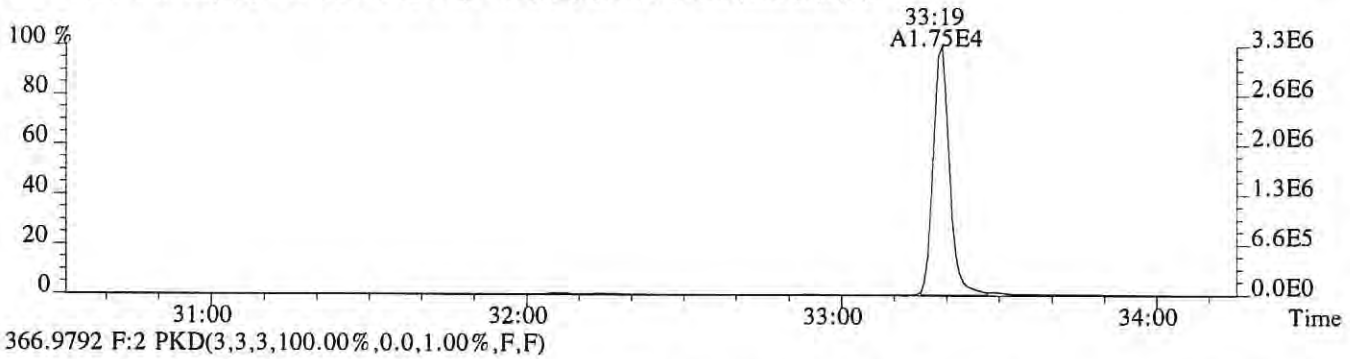
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



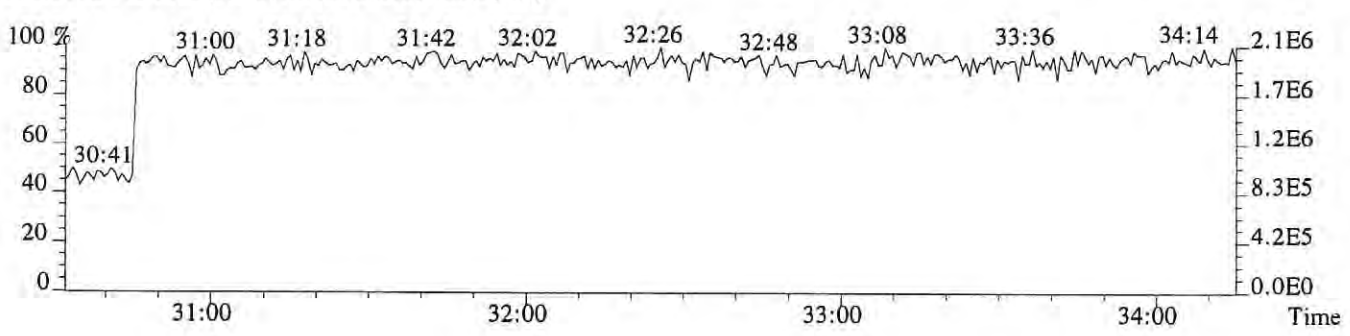
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)

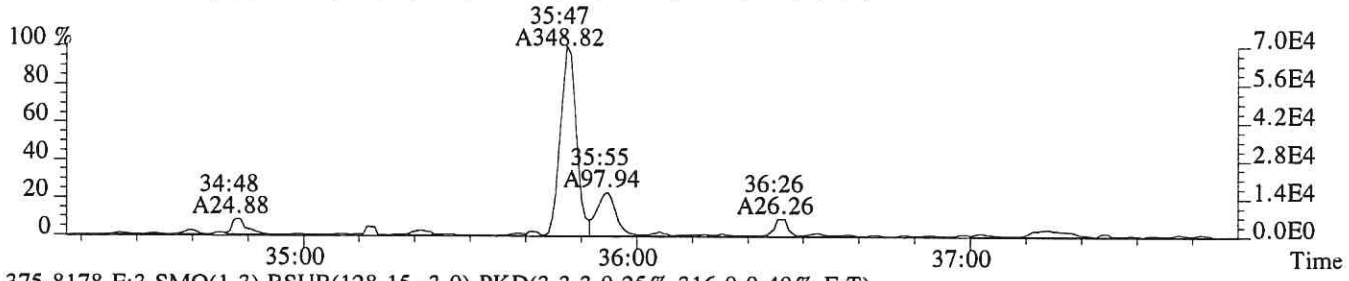


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

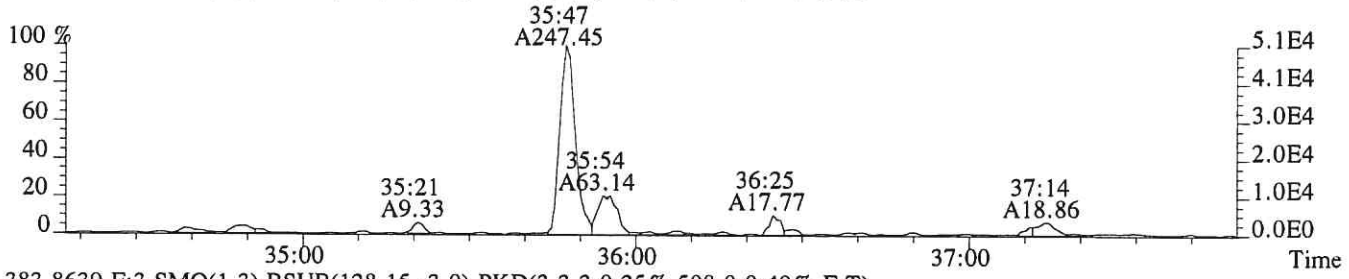


File:P519338 #1-317 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005

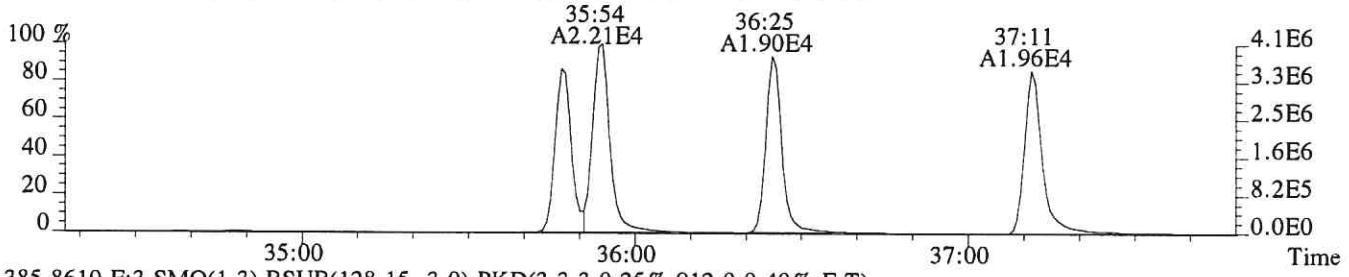
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



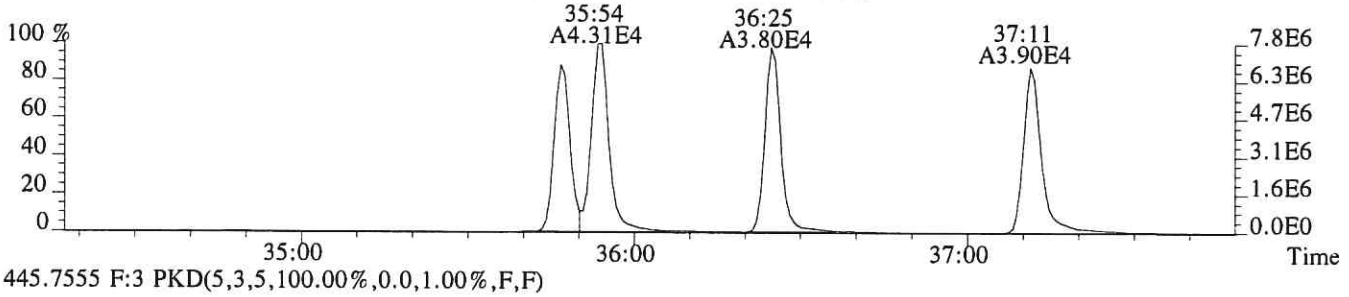
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



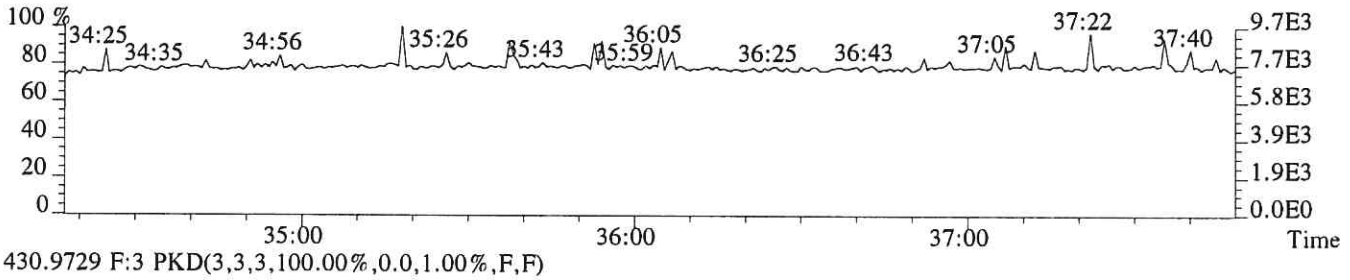
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



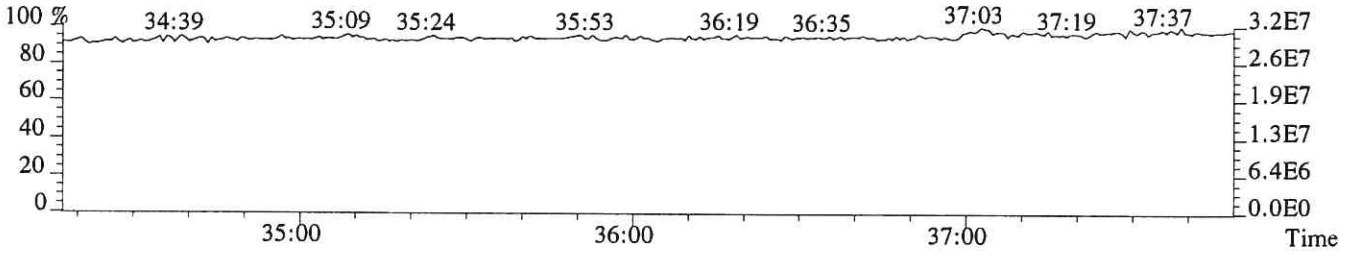
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



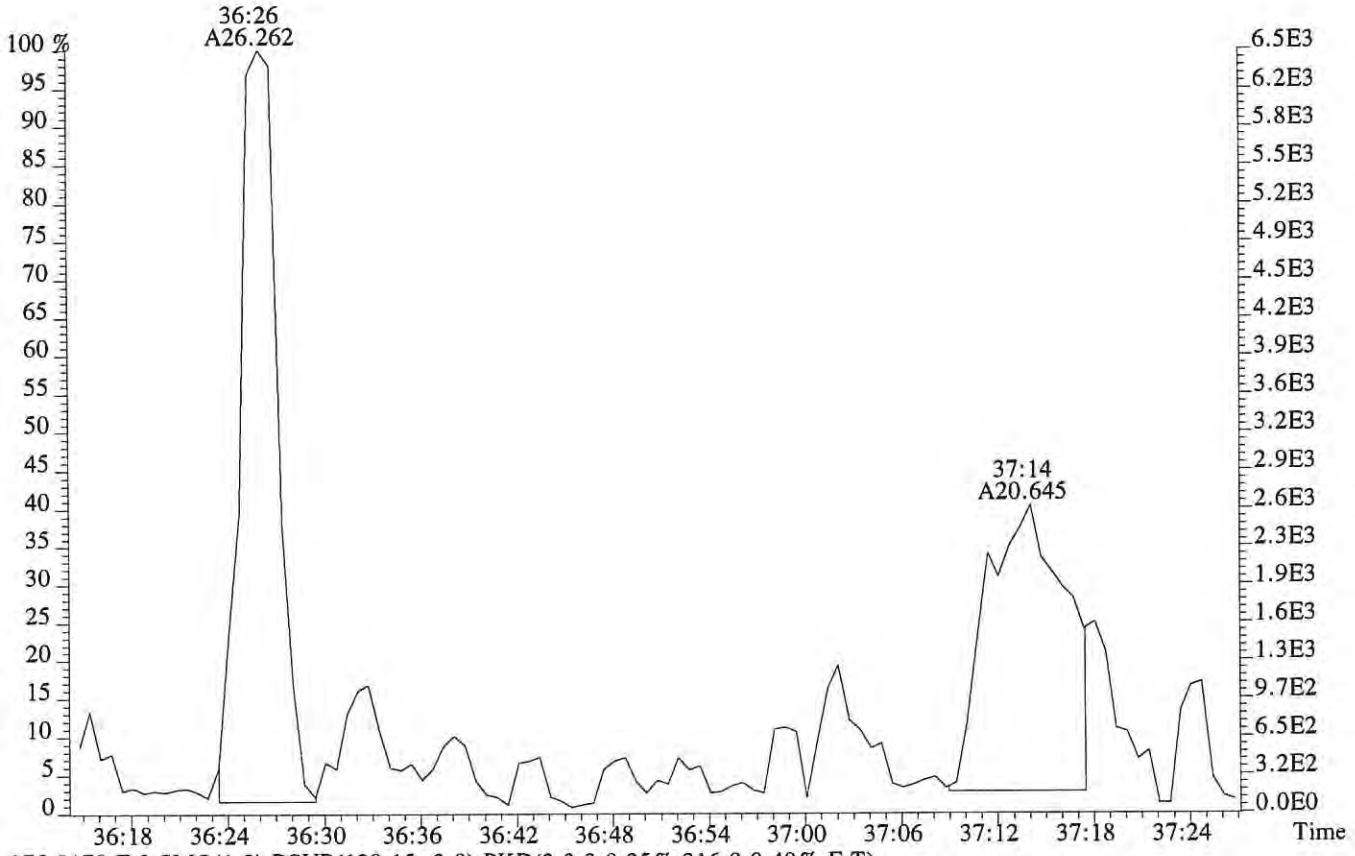
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



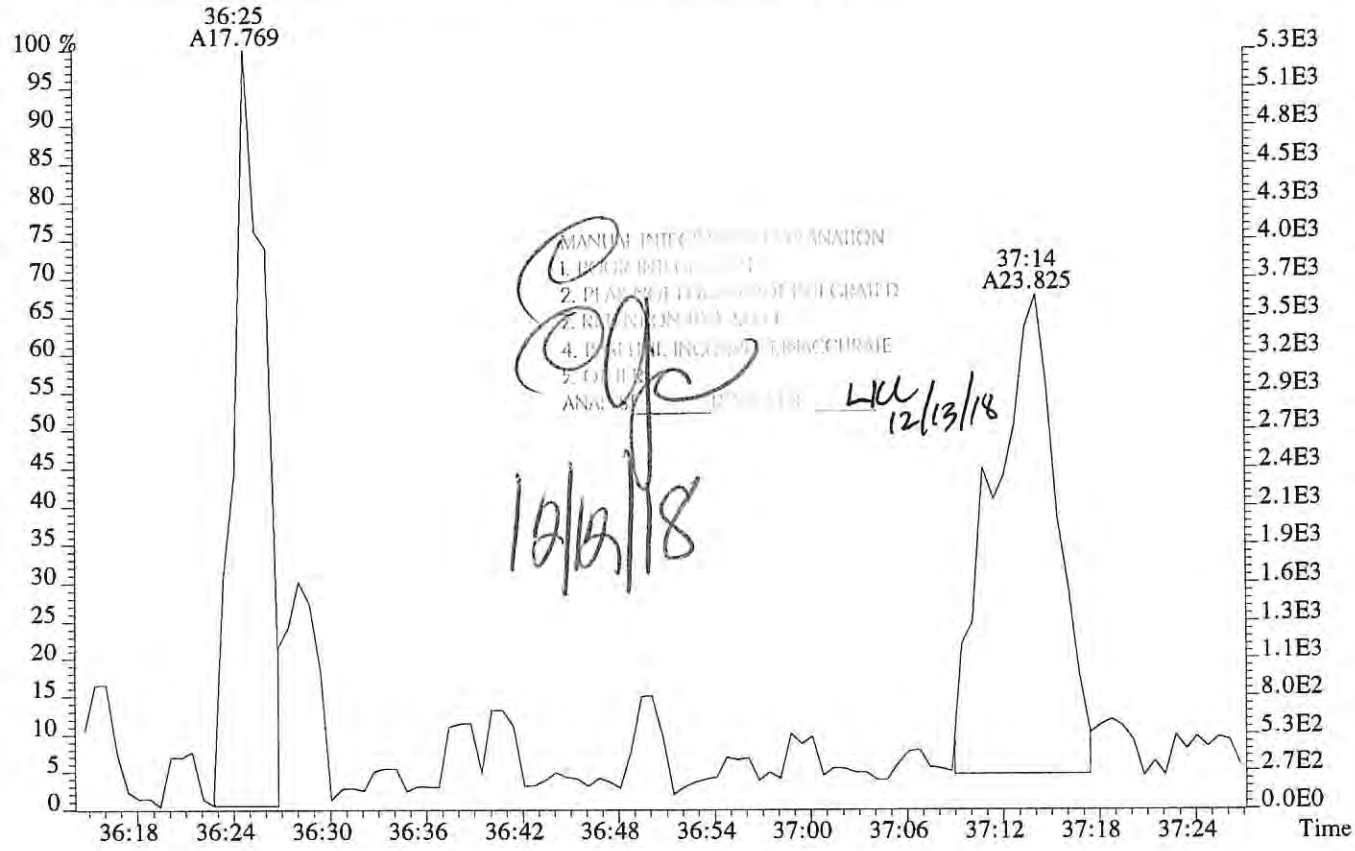
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



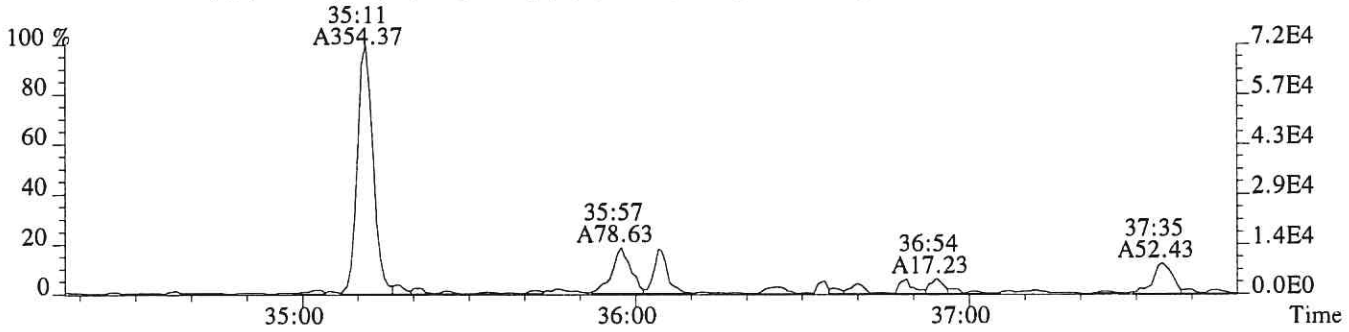
File:P519338 #1-317 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



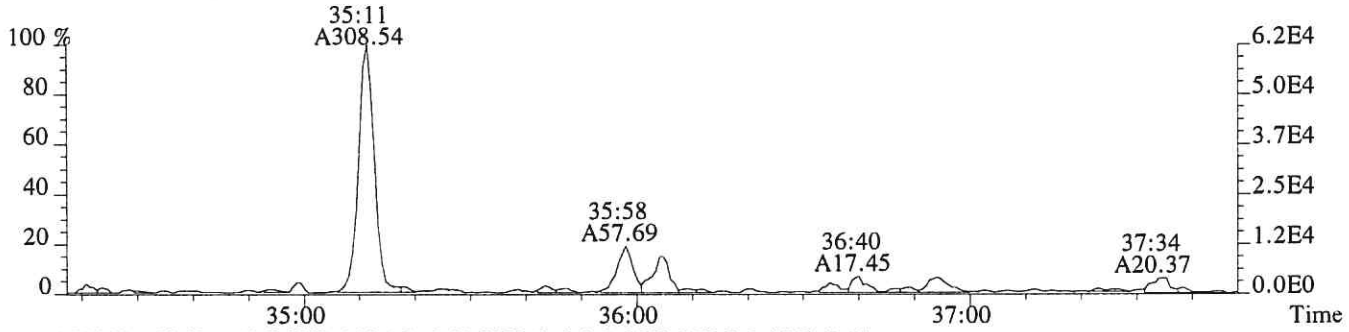
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



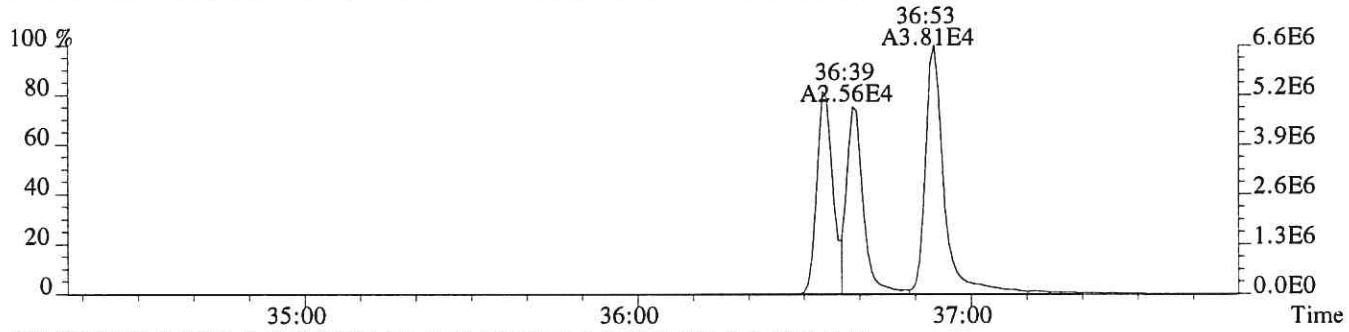
File:P519338 #1-317 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



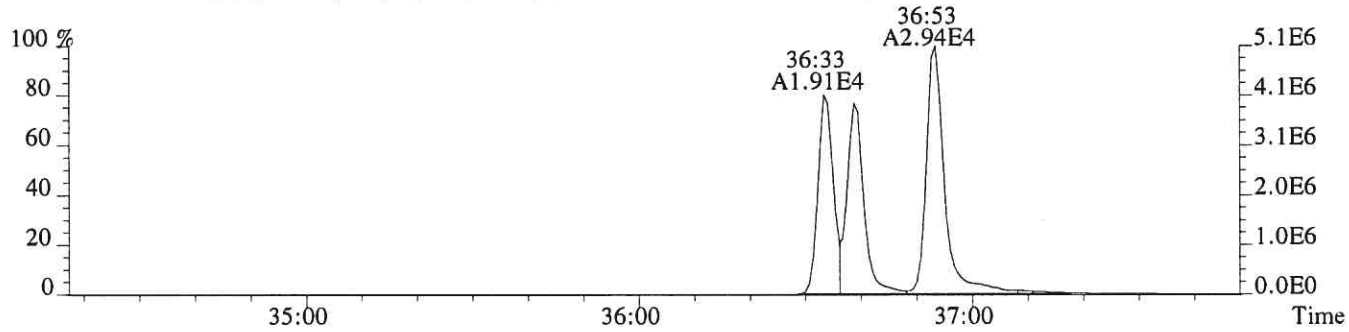
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



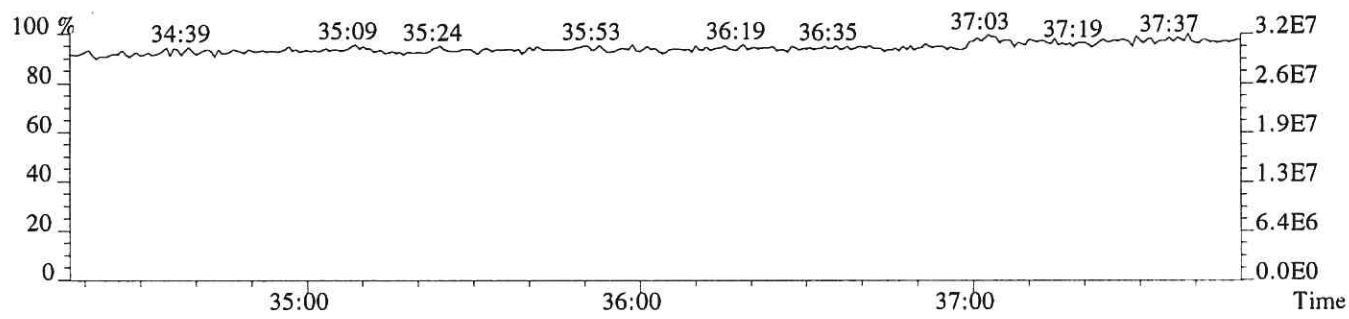
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



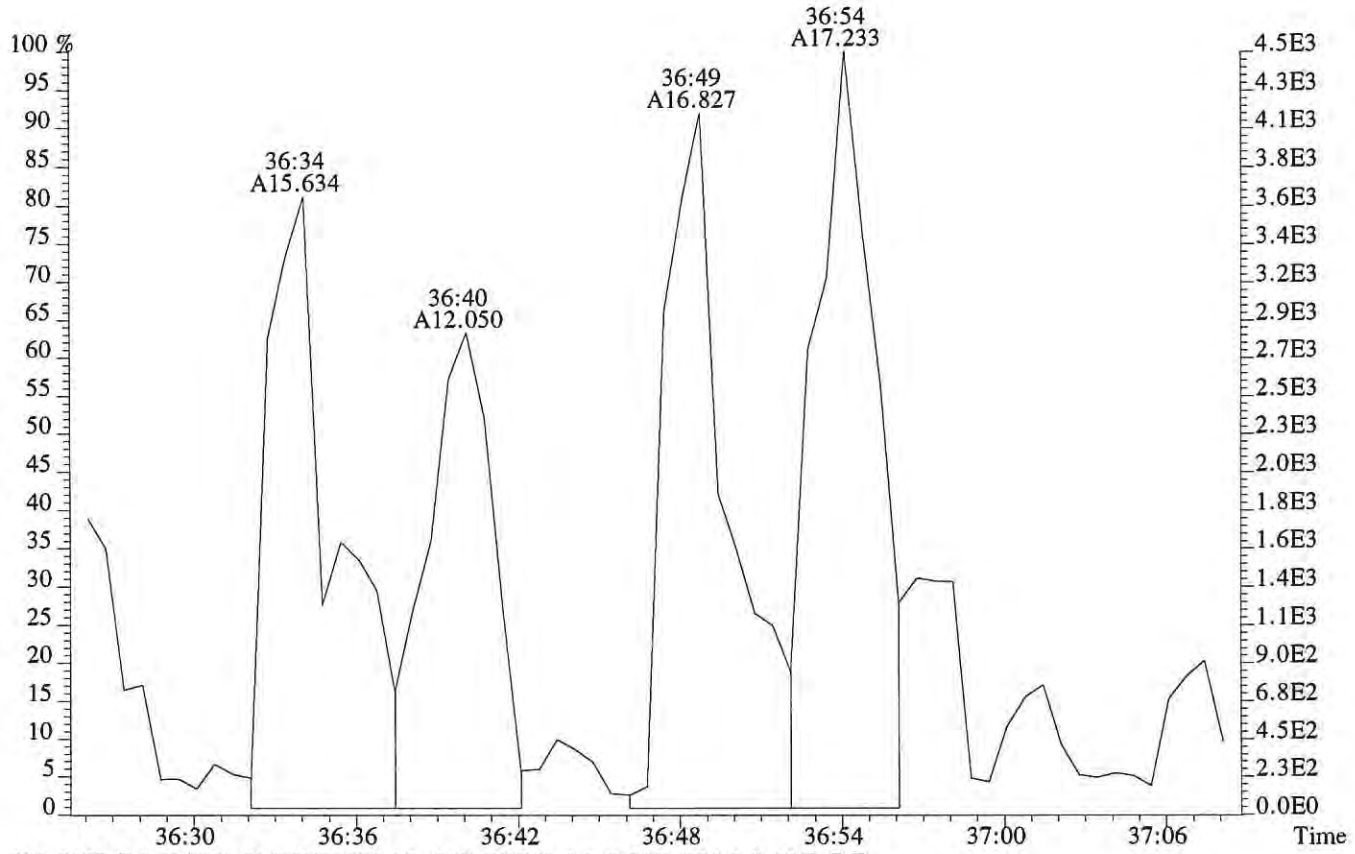
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



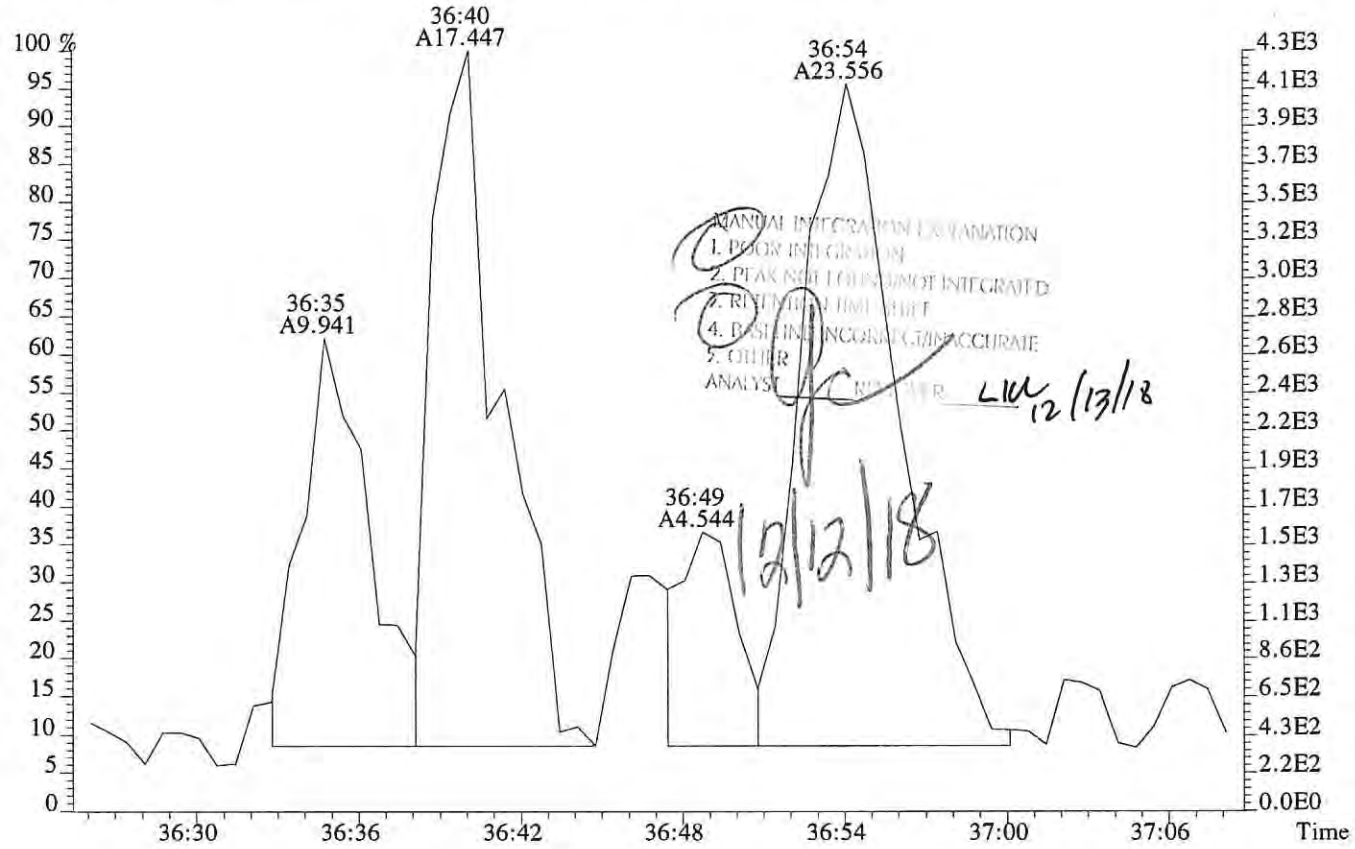
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519338 #1-317 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)

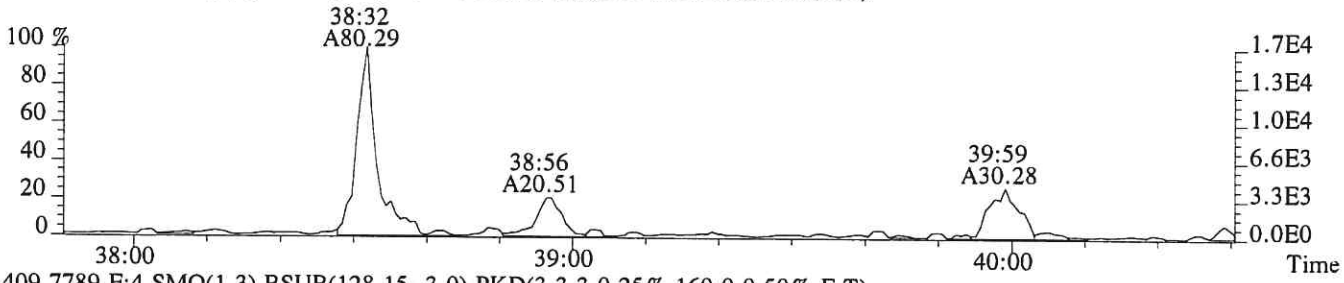


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LKU 12/13/18

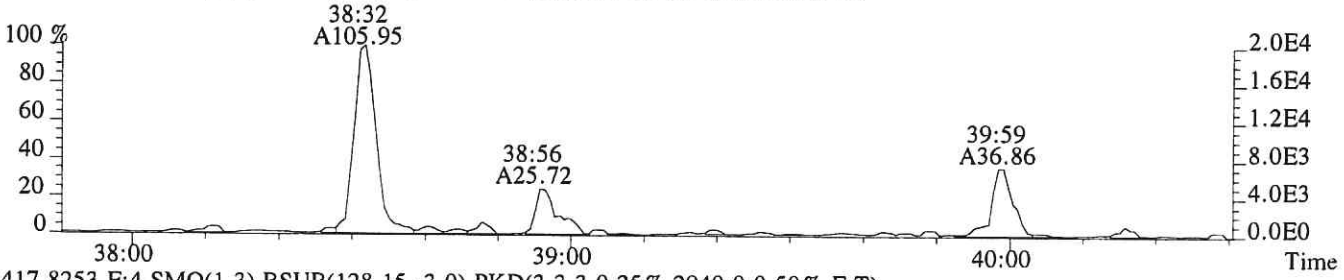
12/12/18

File:P519338 #1-241 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005

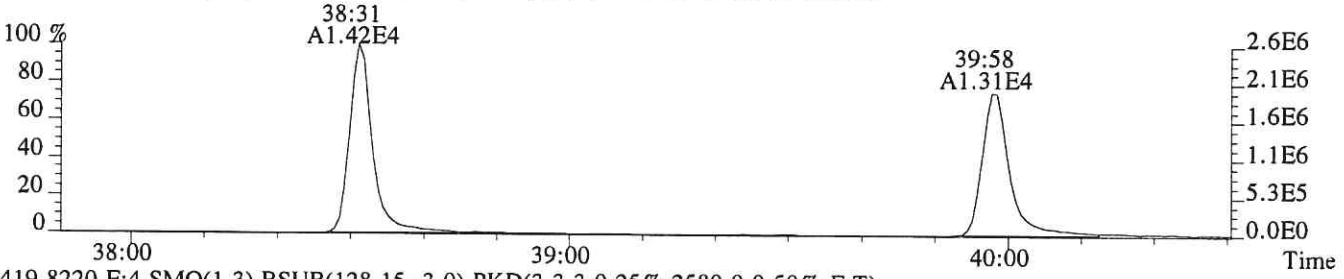
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.50%,F,T)



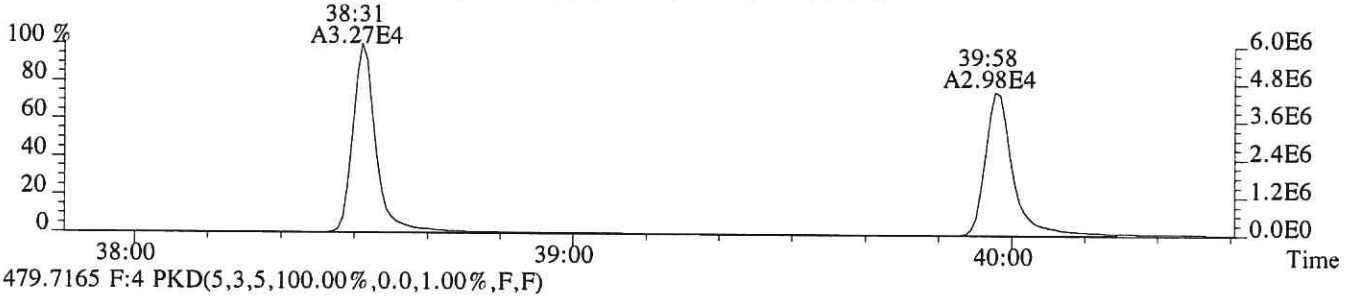
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



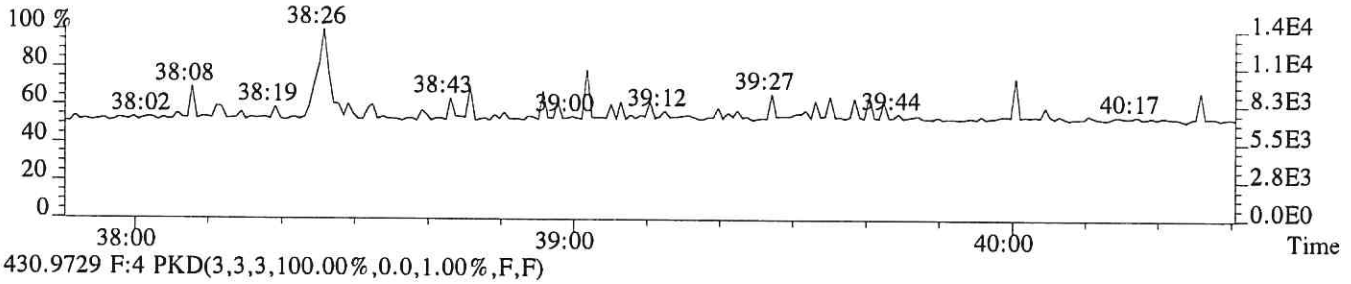
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2940.0,0.50%,F,T)



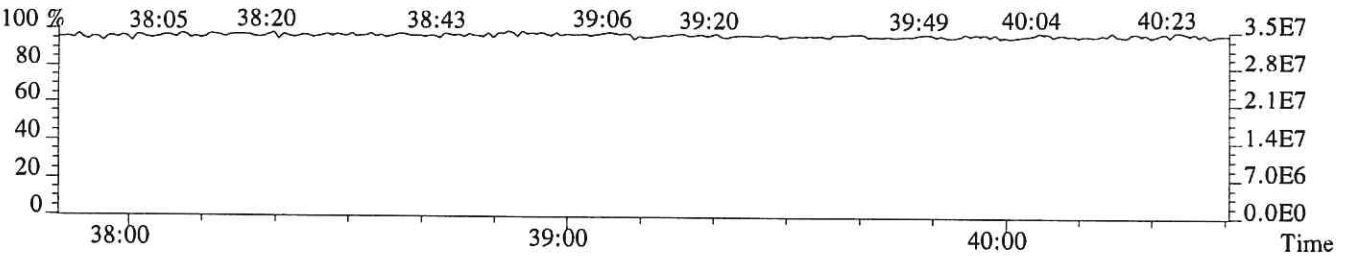
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2580.0,0.50%,F,T)



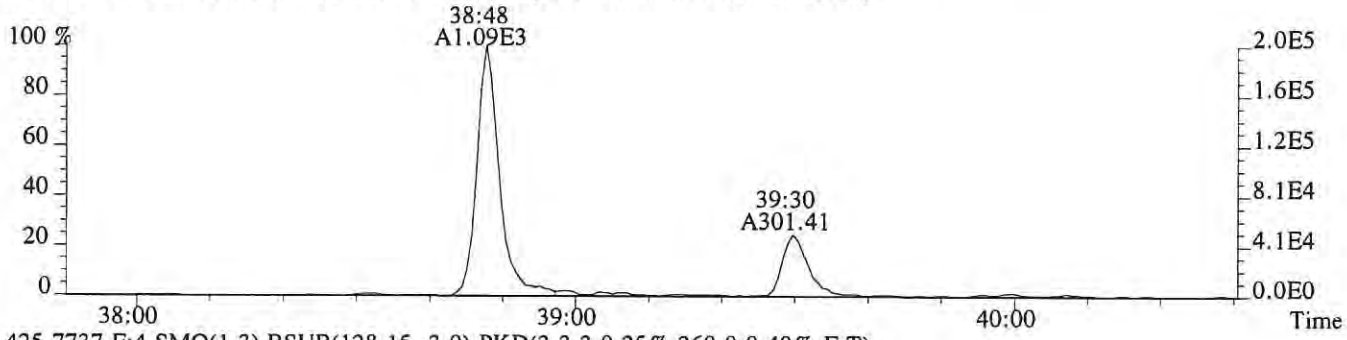
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



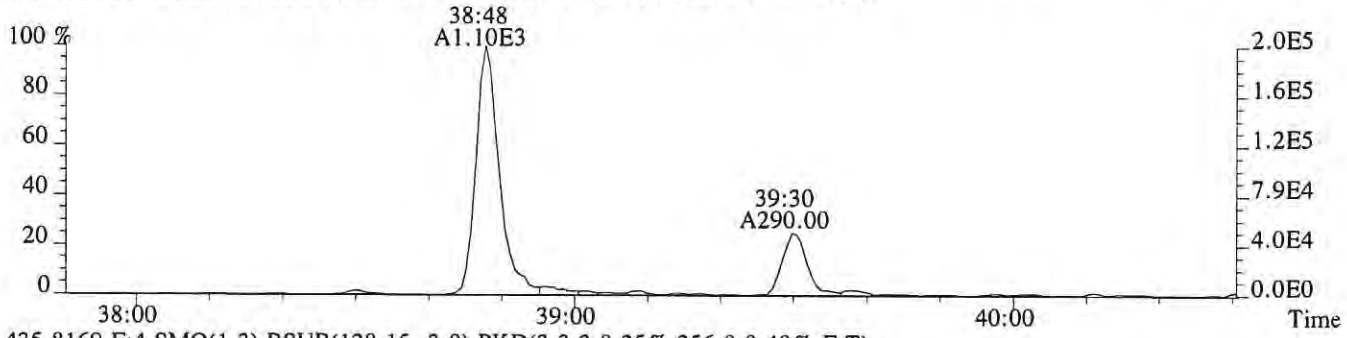
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



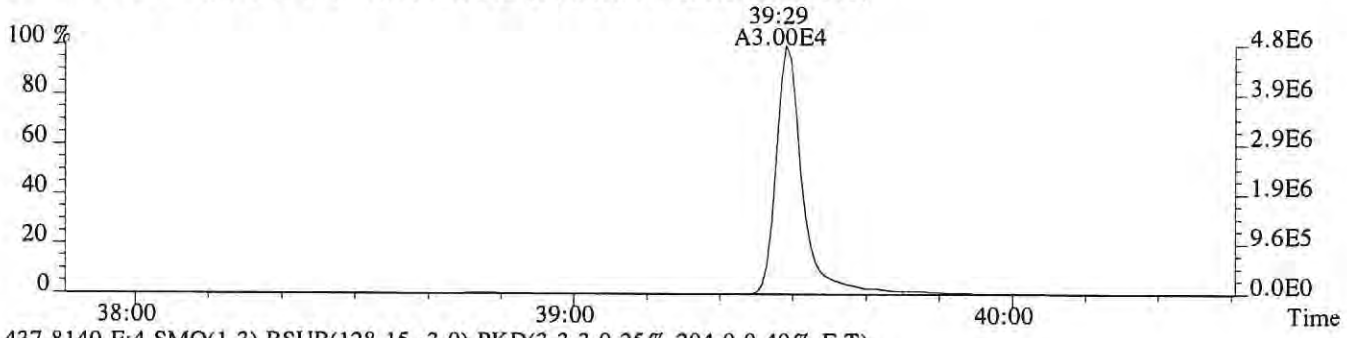
File:P519338 #1-241 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



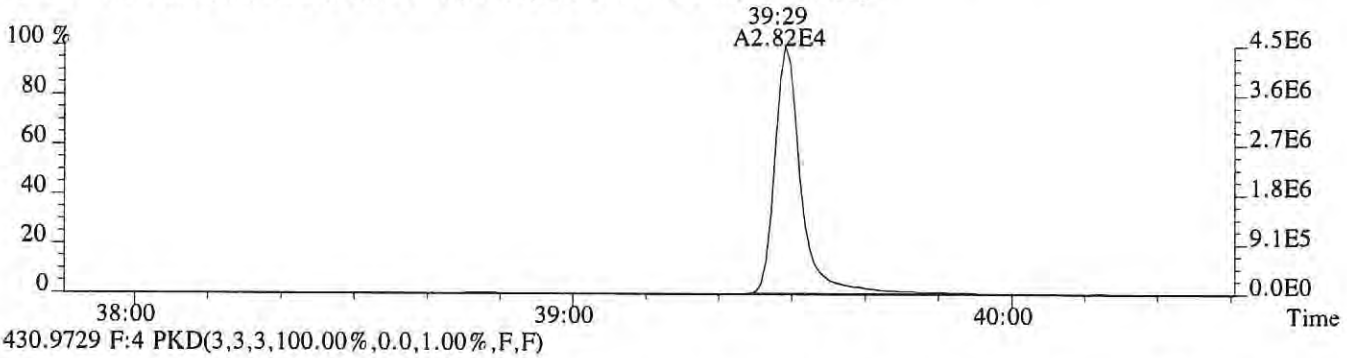
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



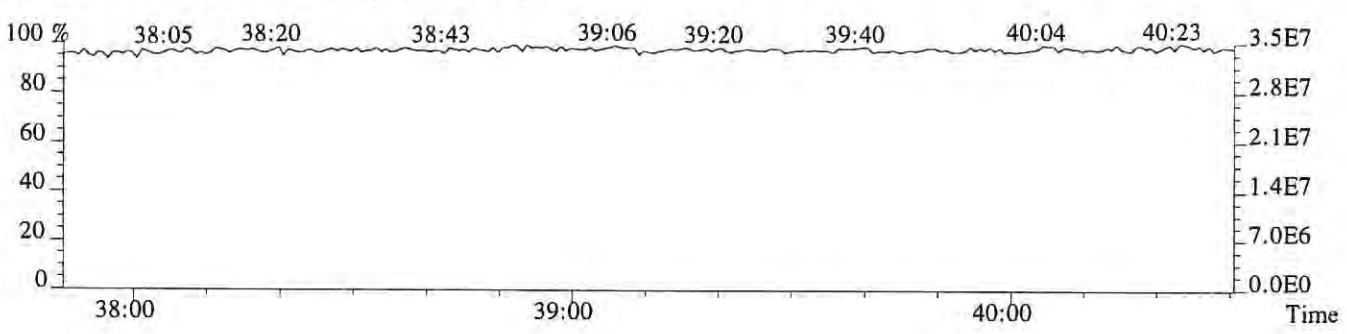
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



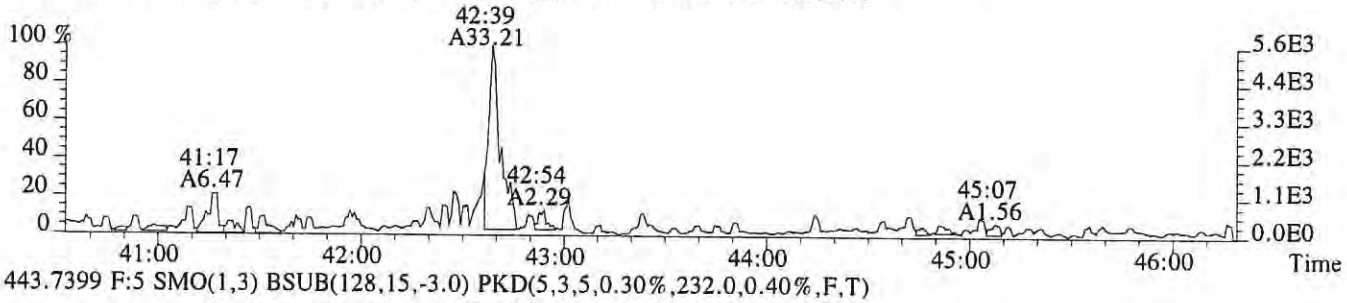
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



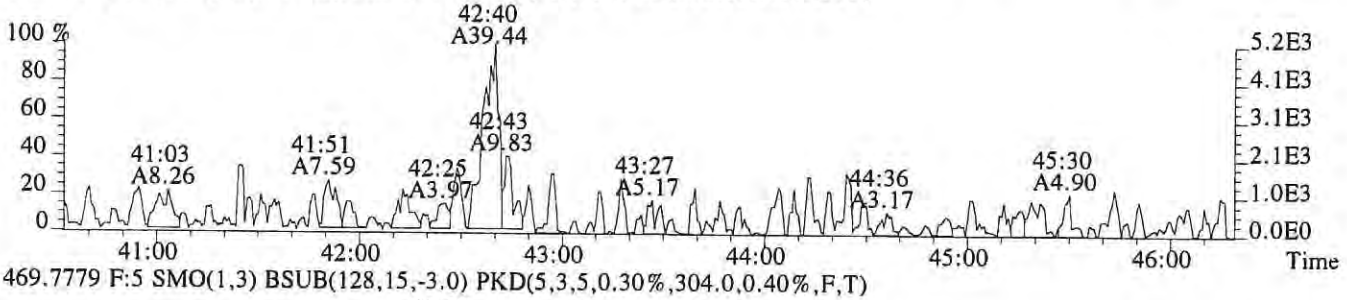
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



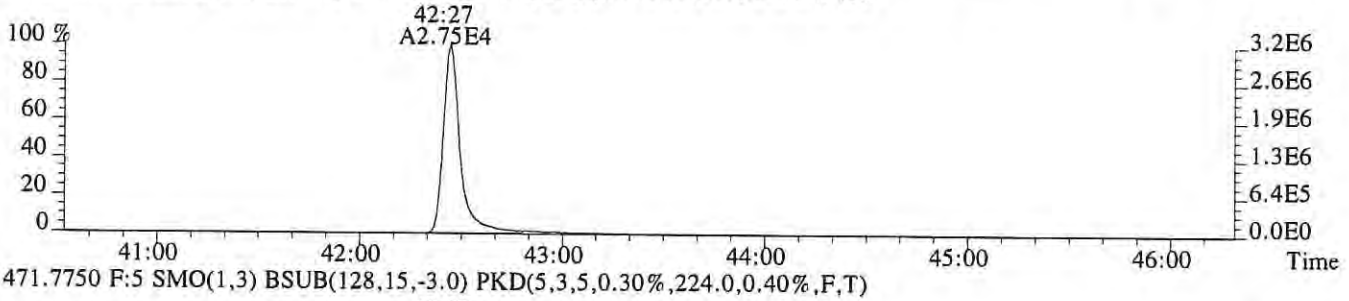
File:P519338 #1-520 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



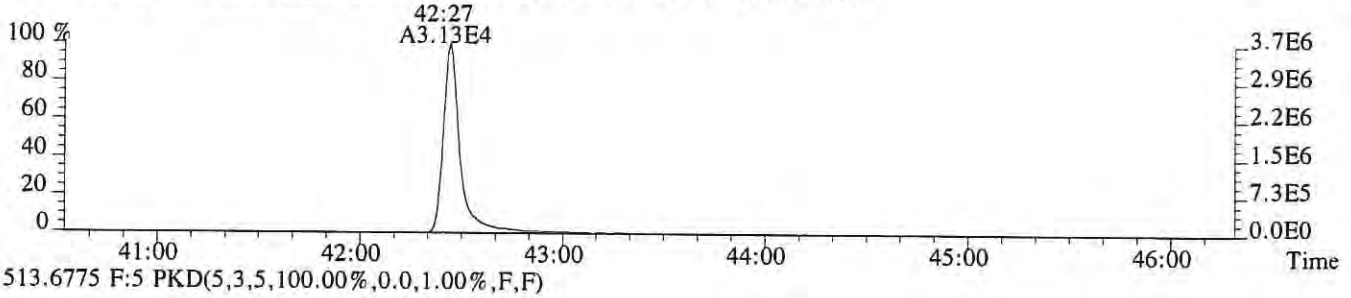
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



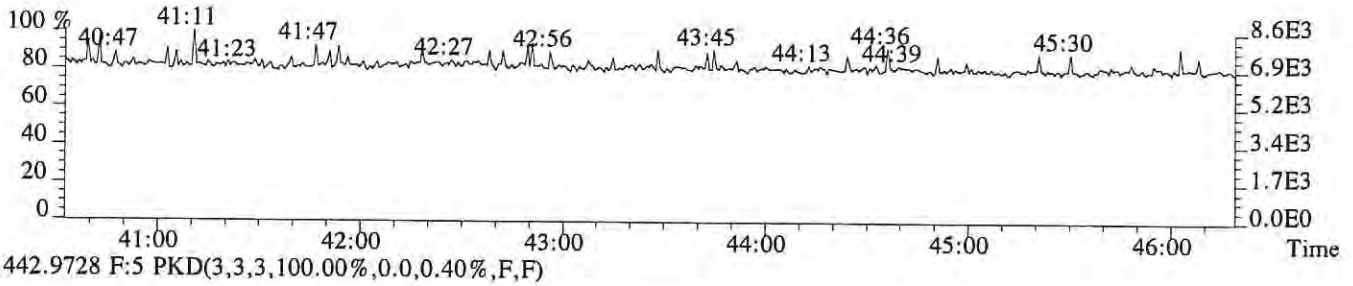
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



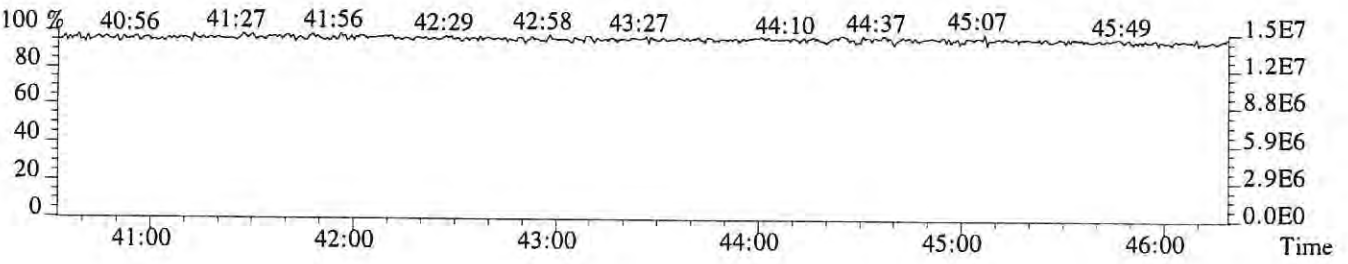
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



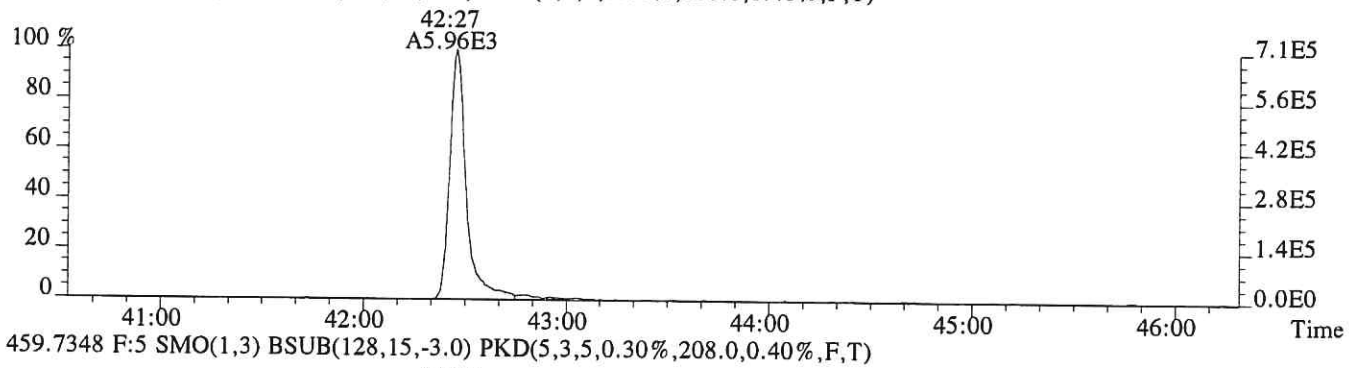
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



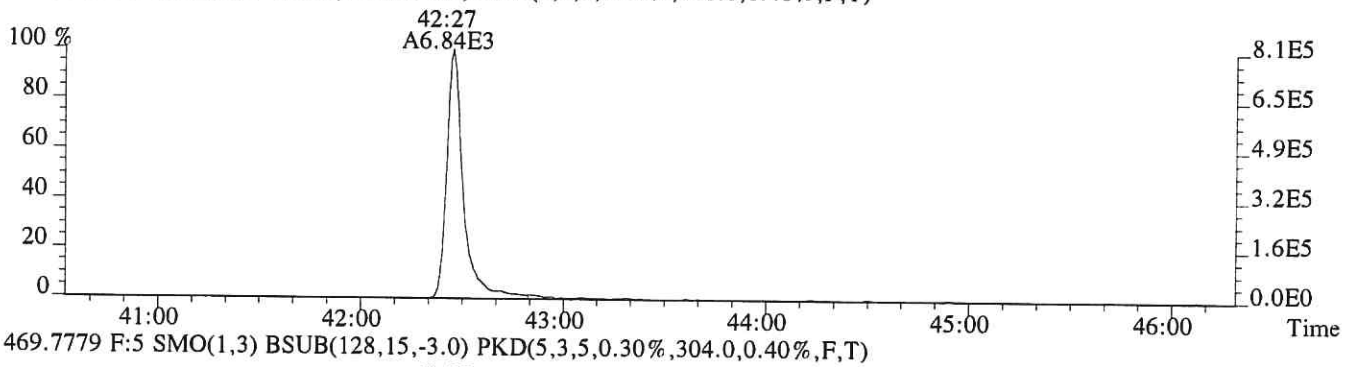
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



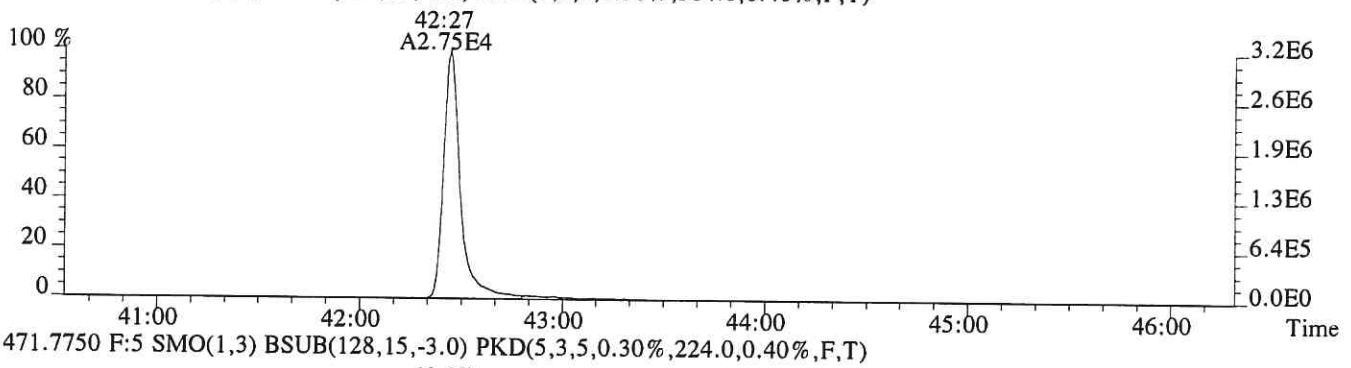
File:P519338 #1-520 Acq:11-DEC-2018 00:25:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



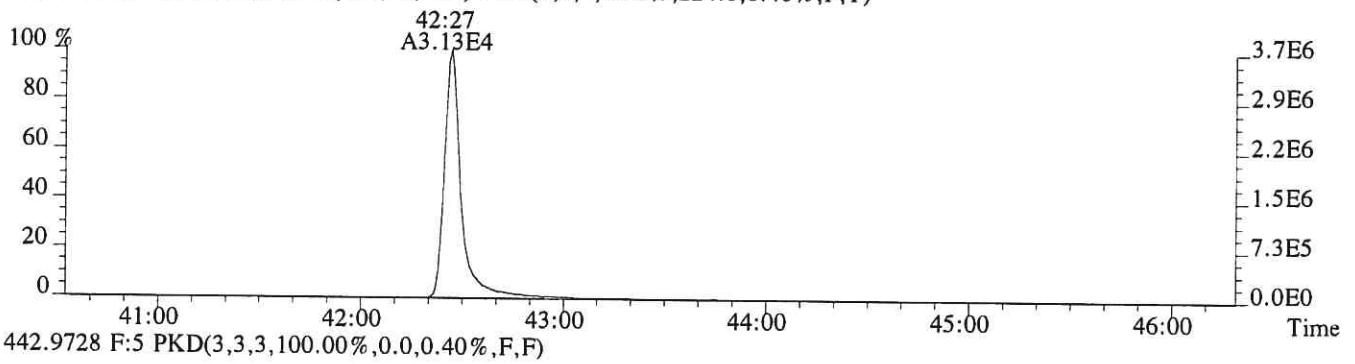
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



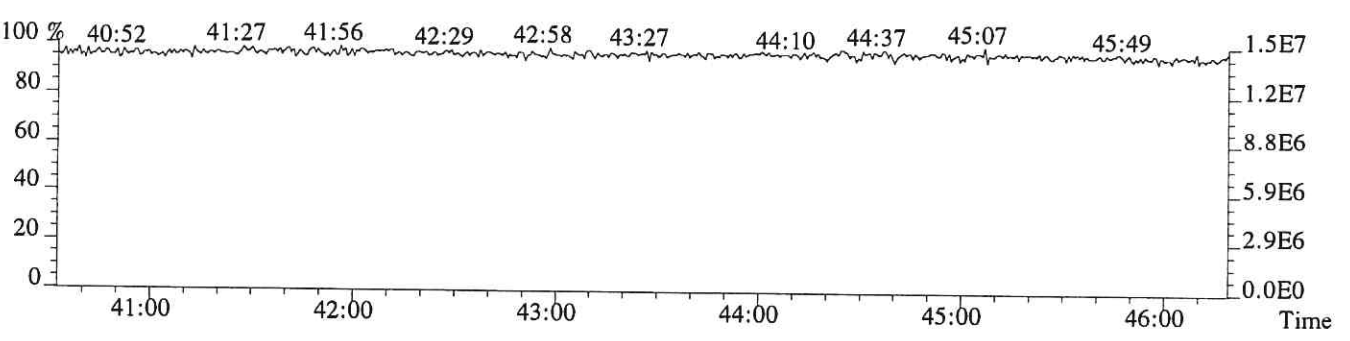
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0558

Run #16 Filename P519296 Samp: 1 Inj: 1 Acquired: 8-DEC-18 02:25:08
Processed: 10-DEC-18 09:24:38 Sample ID: E1801057-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	1.353e+04	1.717e+04	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	8.463e+02	5.816e+02	1.46	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	7.092e+02	4.560e+02	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	1.184e+03	1.028e+03	1.15	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.359e+02	3.215e+02	1.04	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	4.805e+01	4.930e+01	0.97	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	7.860e+01	7.199e+01	1.09	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:37	2.885e+02	2.910e+02	0.99	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	1.045e+02	7.979e+01	1.31	no	no	1.258
10	Unk	OCDF	42:44	1.041e+02	1.368e+02	0.76	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	2.861e+03	3.788e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	6.395e+01	4.707e+01	1.36	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	9.845e+00	8.722e+00	1.13	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	1.575e+01	2.344e+01	0.67	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	2.241e+01	1.745e+01	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	3.938e+02	3.291e+02	1.20	no	no	1.025
17	Unk	OCDD	42:33	7.222e+03	7.867e+03	0.92	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	1.013e+04	1.267e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.052e+04	1.295e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.913e+04	1.182e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	9.151e+03	1.766e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.143e+04	2.265e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	9.731e+03	1.891e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	9.518e+03	1.850e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	7.389e+03	1.639e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	6.866e+03	1.550e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	4.715e+03	5.758e+03	0.82	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.397e+04	8.640e+03	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.288e+04	9.893e+03	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.332e+04	1.048e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.515e+04	1.443e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:33	1.438e+04	1.622e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.393e+04	1.765e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.164e+04	1.651e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.931e+03				no	1.014

$$\text{OCDD} = \frac{(7.222e+03 + 7.867e+03) \times 4000\ \text{pg} \times 1}{(1.438e+04 + 1.622e+04) \times 10.132\ \text{g} \times 78.9 / 100 \times 1.118} = 220.6\ \text{ng/kg}$$

LM 12/11/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0558

Run #16 Filename P519296 Samp: 1 Inj: 1 Acquired: 8-DEC-18 02:25:08
Processed: 10-DEC-18 09:24:38 LAB. ID: E1801057-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.23e+06	4.88e+02	4.6e+03	2.81e+06	7.20e+02	3.9e+03
2	1,2,3,7,8-PeCDF	1.54e+05	6.00e+02	2.6e+02	1.01e+05	4.80e+02	2.1e+02
3	2,3,4,7,8-PeCDF	1.15e+05	6.00e+02	1.9e+02	7.20e+04	4.80e+02	1.5e+02
4	1,2,3,4,7,8-HxCDF	2.29e+05	3.36e+02	6.8e+02	2.01e+05	2.20e+02	9.1e+02
5	1,2,3,6,7,8-HxCDF	6.01e+04	3.36e+02	1.8e+02	6.60e+04	2.20e+02	3.0e+02
6	2,3,4,6,7,8-HxCDF	1.15e+04	3.36e+02	3.4e+01	1.16e+04	2.20e+02	5.3e+01
7	1,2,3,7,8,9-HxCDF	1.52e+04	3.36e+02	4.5e+01	1.26e+04	2.20e+02	5.7e+01
8	1,2,3,4,6,7,8-HpCDF	5.64e+04	6.08e+02	9.3e+01	5.50e+04	1.76e+02	3.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.97e+04	6.08e+02	3.2e+01	1.42e+04	1.76e+02	8.1e+01
10	OCDF	1.13e+04	2.20e+02	5.1e+01	1.57e+04	5.56e+02	2.8e+01
11	2,3,7,8-TCDD	5.42e+05	1.46e+03	3.7e+02	7.21e+05	6.28e+02	1.1e+03
12	1,2,3,7,8-PeCDD	9.34e+03	4.44e+02	2.1e+01	9.50e+03	2.84e+02	3.3e+01
13	1,2,3,4,7,8-HxCDD	3.04e+03	3.12e+02	9.7e+00	2.65e+03	2.12e+02	1.3e+01
14	1,2,3,6,7,8-HxCDD	3.13e+03	3.12e+02	1.0e+01	5.22e+03	2.12e+02	2.5e+01
15	1,2,3,7,8,9-HxCDD	4.31e+03	3.12e+02	1.4e+01	3.58e+03	2.12e+02	1.7e+01
16	1,2,3,4,6,7,8-HpCDD	6.83e+04	3.92e+02	1.7e+02	5.29e+04	3.72e+02	1.4e+02
17	OCDD	8.91e+05	2.96e+02	3.0e+03	9.83e+05	3.12e+02	3.1e+03
18	13C-2,3,7,8-TCDF	1.81e+06	5.52e+03	3.3e+02	2.27e+06	3.20e+03	7.1e+02
19	13C-1,2,3,7,8-PeCDF	3.83e+06	5.40e+02	7.1e+03	2.43e+06	5.00e+02	4.9e+03
20	13C-2,3,4,7,8-PeCDF	3.72e+06	5.40e+02	6.9e+03	2.27e+06	5.00e+02	4.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.93e+06	4.28e+02	4.5e+03	3.68e+06	2.00e+02	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	2.20e+06	4.28e+02	5.1e+03	4.40e+06	2.00e+02	2.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.00e+06	4.28e+02	4.7e+03	3.87e+06	2.00e+02	1.9e+04
24	13C-1,2,3,7,8,9-HxCDF	1.86e+06	4.28e+02	4.3e+03	3.57e+06	2.00e+02	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.40e+06	8.60e+02	1.6e+03	3.20e+06	1.93e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.15e+06	8.60e+02	1.3e+03	2.61e+06	1.93e+03	1.4e+03
27	13C-2,3,7,8-TCDD	8.77e+05	3.98e+03	2.2e+02	1.10e+06	1.14e+03	9.6e+02
28	13C-1,2,3,7,8-PeCDD	2.64e+06	6.24e+02	4.2e+03	1.63e+06	7.00e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.76e+06	4.96e+02	5.6e+03	2.12e+06	2.60e+02	8.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.51e+06	4.96e+02	5.1e+03	2.01e+06	2.60e+02	7.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.53e+06	2.88e+02	8.8e+03	2.41e+06	2.76e+02	8.7e+03
32	13C-OCDD	1.78e+06	2.64e+02	6.7e+03	1.95e+06	2.12e+02	9.2e+03
33	13C-1,2,3,4-TCDD	2.59e+06	3.98e+03	6.5e+02	3.37e+06	1.14e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.98e+06	4.96e+02	8.0e+03	3.23e+06	2.60e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.37e+06	8.08e+02	1.7e+03			

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Peak List Summary

CLIENT ID.
SL0558

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519296 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 02:25:08 Processed: 10-DEC-18 09:24:38

Mass: 303.9020 305.8990 Tot Response: 5.48e+04 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:06	5.68e+02	8.29e+02	0.68	yes	1.40e+03		n	n
2	25:49	5.08e+02	6.76e+02	0.75	yes	1.18e+03		n	n
3	26:27	3.20e+02	4.49e+02	0.71	yes	7.69e+02		n	n
4	26:34	5.84e+02	8.16e+02	0.72	yes	1.40e+03		n	n
5	27:01	5.68e+03	7.55e+03	0.75	yes	1.32e+04		n	n
6	27:17	2.88e+02	3.53e+02	0.82	yes	6.42e+02		n	n
7	27:51	1.35e+04	1.72e+04	0.79	yes	3.07e+04	2,3,7,8-TCDF	n	n
8	28:11	1.01e+03	1.29e+03	0.78	yes	2.30e+03		n	n
9	28:27	2.03e+02	2.52e+02	0.80	yes	4.55e+02		n	n
10	29:44	1.16e+03	1.53e+03	0.76	yes	2.68e+03		n	n

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Peak List Summary

CLIENT ID.
SL0558

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P519296 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 02:25:08 Processed: 10-DEC-18 09:24:38

Mass: 319.8970 321.8940 Tot Response: 7.45e+03 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:25	4.36e+01	5.81e+01	0.75	yes	1.02e+02		n	n
2	28:40	2.86e+03	3.79e+03	0.76	yes	6.65e+03	2,3,7,8-TCDD	n	n
3	28:58	3.25e+02	3.76e+02	0.86	yes	7.01e+02		n	n

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Peak List Summary

CLIENT ID.
SL0558

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P519296 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 02:25:08 Processed: 10-DEC-18 09:24:38

Mass: 339.8600 341.8570 Tot Response: 3.22e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	3.87e+02	2.43e+02	1.59	yes	6.30e+02		n	n
2	32:11	8.46e+02	5.82e+02	1.46	yes	1.43e+03	1,2,3,7,8-PeCDF	n	n
3	33:07	7.09e+02	4.56e+02	1.56	yes	1.17e+03	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0558

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519296 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 02:25:08 Processed: 10-DEC-18 09:24:38

Mass: 355.8550 357.8520 Tot Response: 1.11e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:24	6.40e+01	4.71e+01 1.36	yes	1.11e+02	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0558

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519296 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 02:25:08 Processed: 10-DEC-18 09:24:38

Mass: 373.8210 375.8180 Tot Response: 2.36e+03 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:53	1.18e+03	1.03e+03 1.15	yes	2.21e+03	1,2,3,4,7,8-HxCDF	n	n
2	37:19	7.86e+01	7.20e+01 1.09	yes	1.51e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0558

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519296 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 02:25:08 Processed: 10-DEC-18 09:24:38

Mass: 389.8160 391.8130 Tot Response: 5.77e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	2.04e+02	1.74e+02 1.17	yes	3.78e+02		n	n
2	36:02	8.06e+01	6.00e+01 1.34	yes	1.41e+02		n	n
3	36:39	9.85e+00	8.72e+00 1.13	yes	1.86e+01	1,2,3,4,7,8-HxCDD	n	n
4	36:59	2.24e+01	1.74e+01 1.28	yes	3.99e+01	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0558

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519296 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 02:25:08 Processed: 10-DEC-18 09:24:38

Mass: 407.7820 409.7790 Tot Response: 7.96e+02 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:37	2.89e+02	2.91e+02	0.99	yes	5.80e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:02	1.07e+02	1.09e+02	0.98	yes	2.17e+02		n	n

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Peak List Summary

CLIENT ID.
SL0558

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519296 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 02:25:08 Processed: 10-DEC-18 09:24:38

Mass: 423.7770 425.7740 Tot Response: 1.71e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	8.40e+02	8.66e+02 0.97	yes	1.71e+03		n	n

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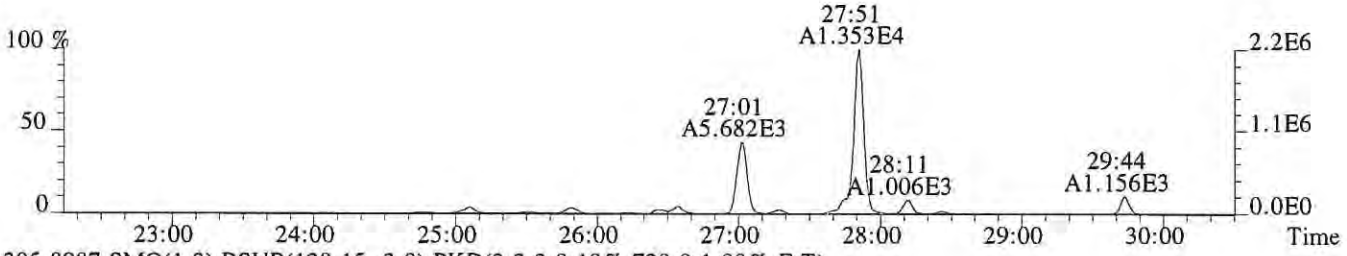
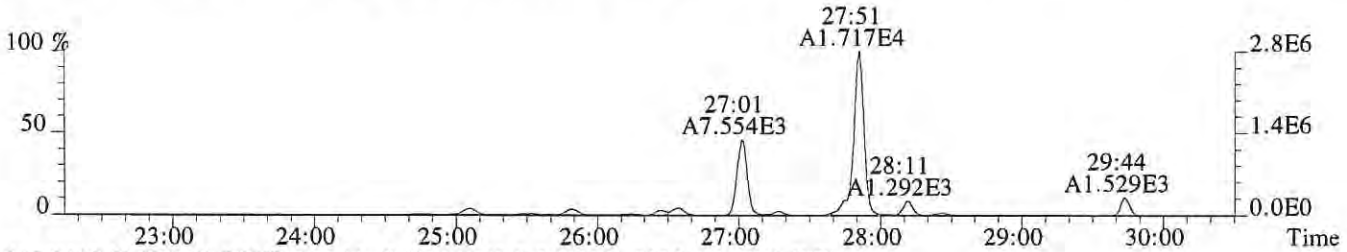
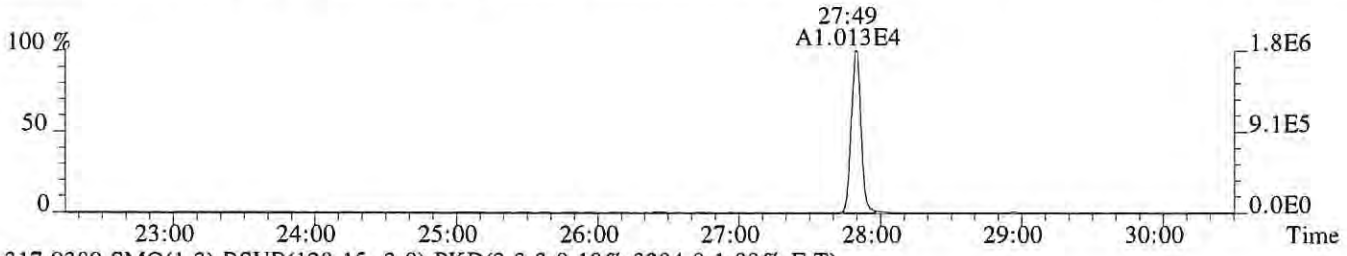
File:P519296 #1-587 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



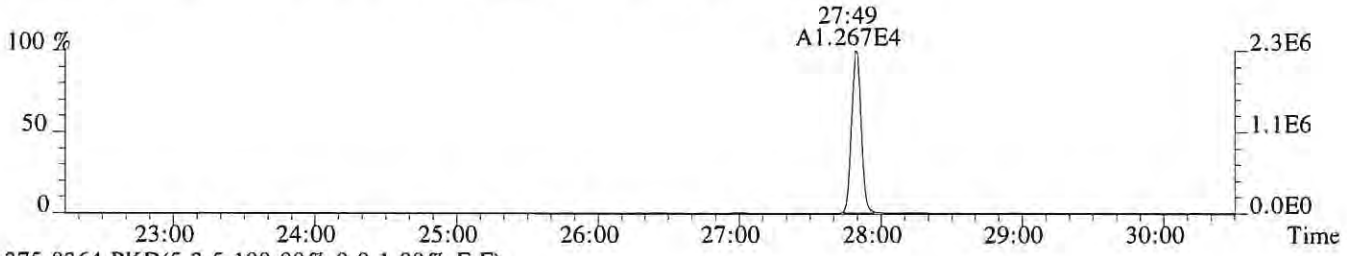
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



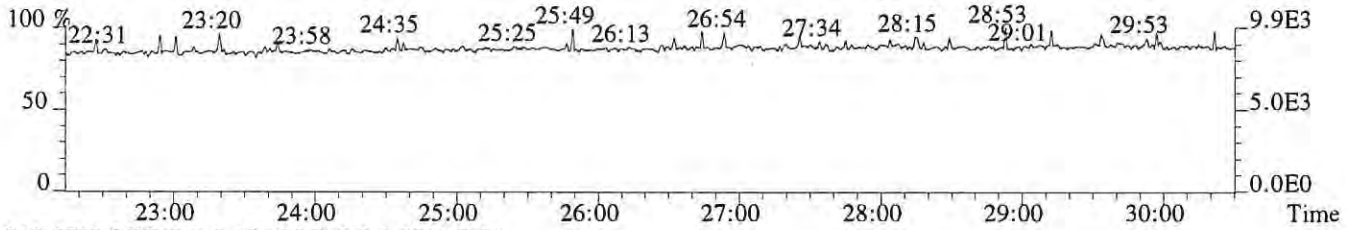
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5516.0,1.00%,F,T)



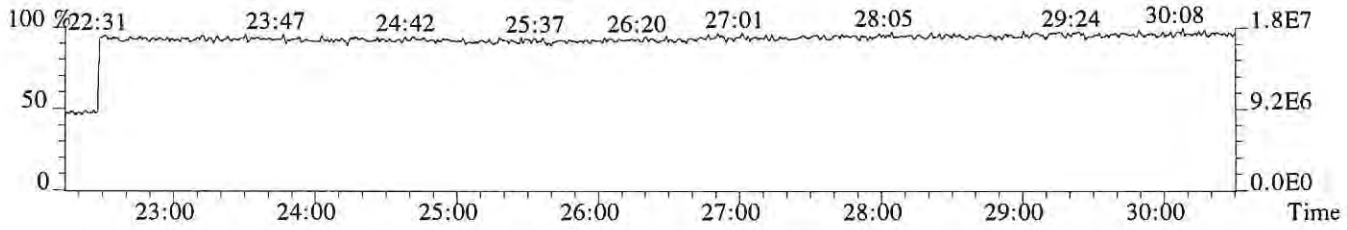
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3204.0,1.00%,F,T)



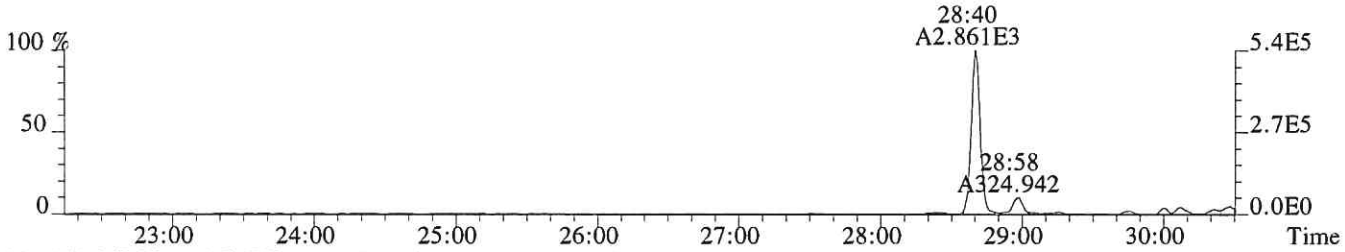
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



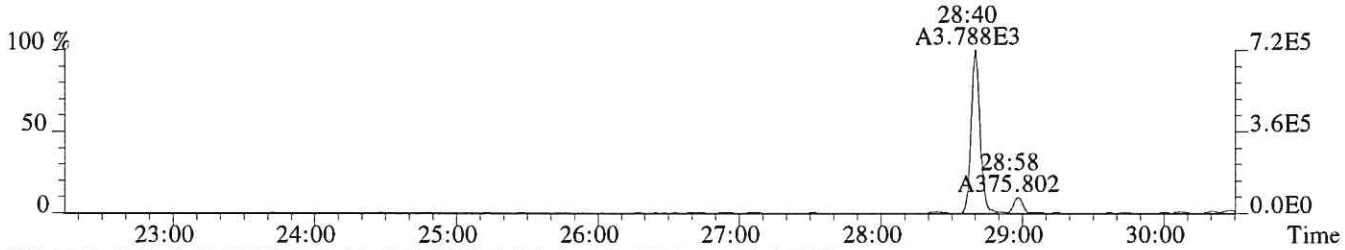
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



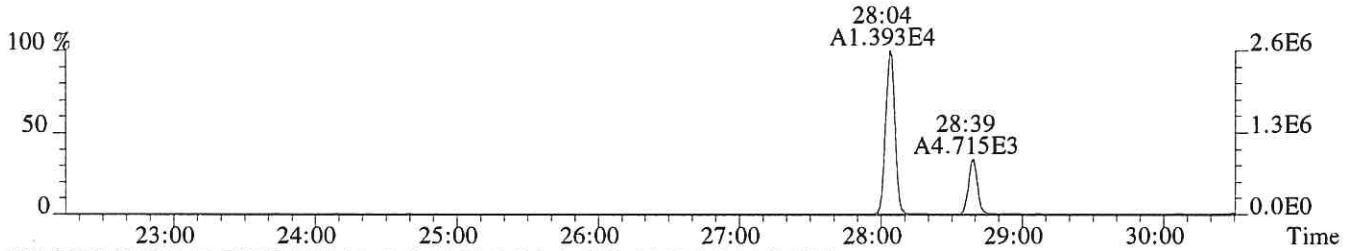
File:P519296 #1-587 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



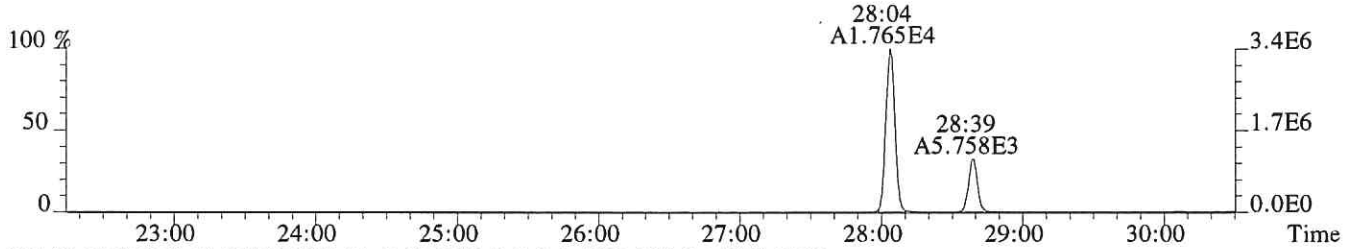
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



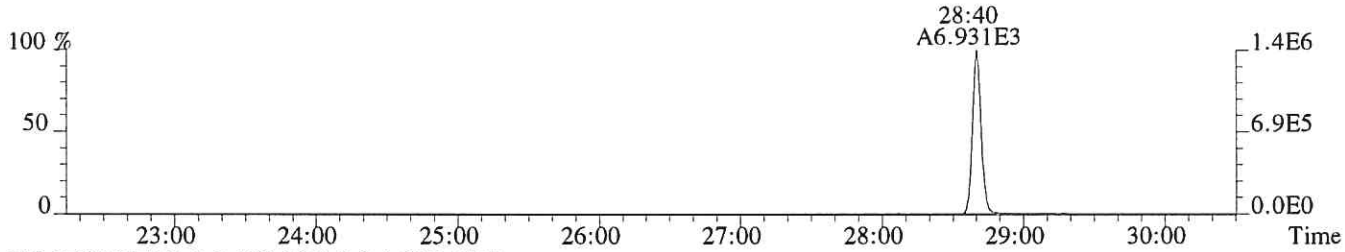
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3980.0,1.00%,F,T)



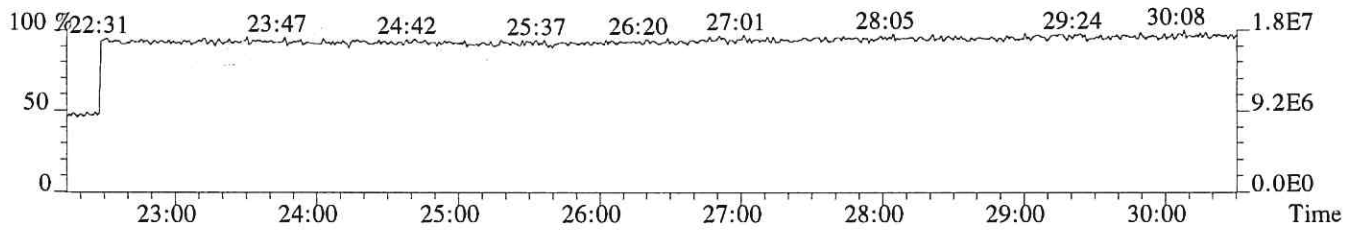
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



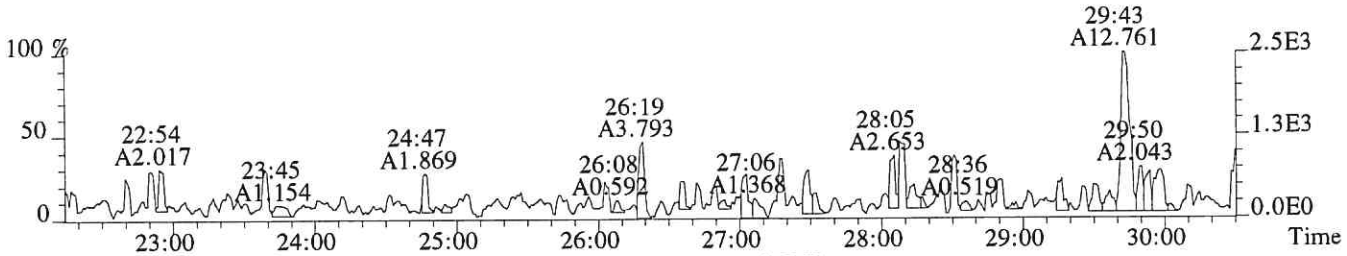
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



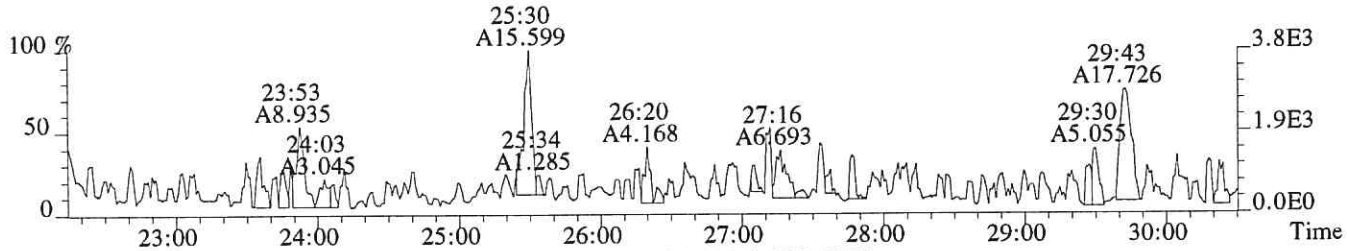
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



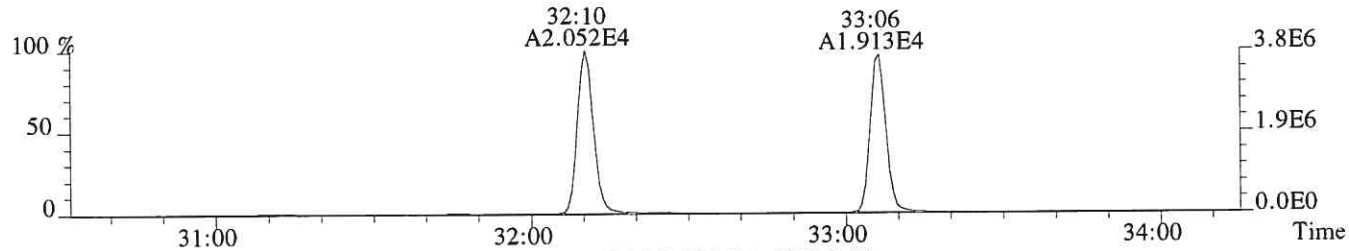
File:P519296 #1-587 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



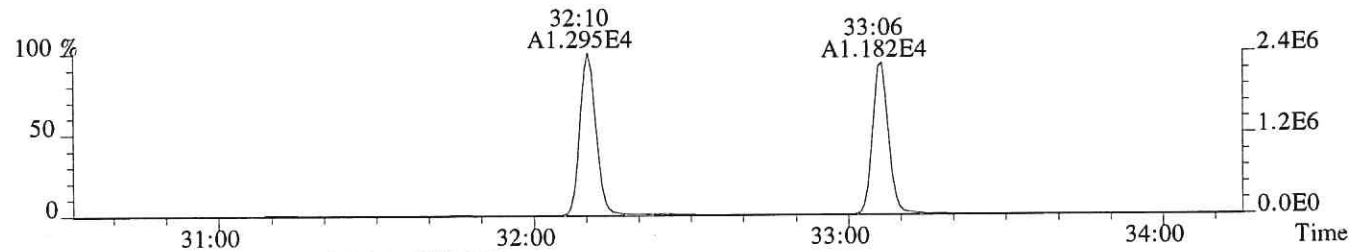
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



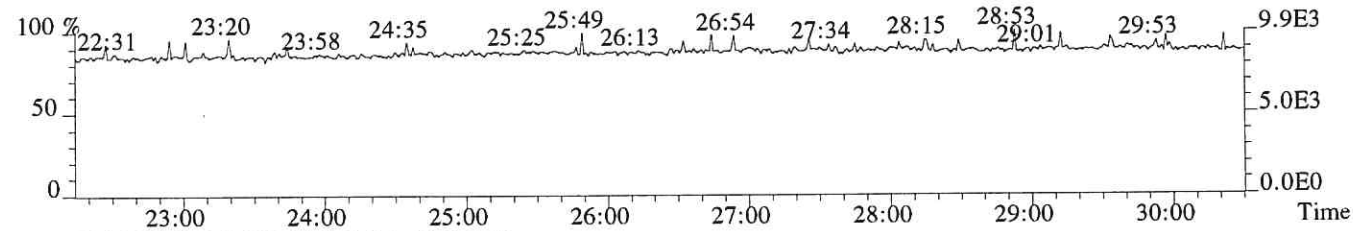
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



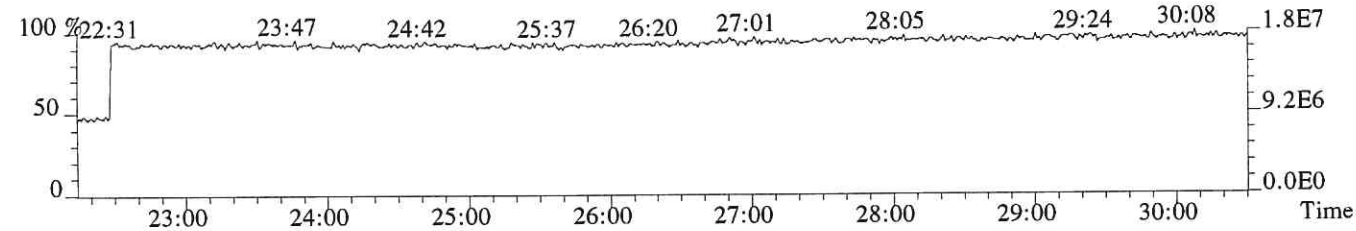
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



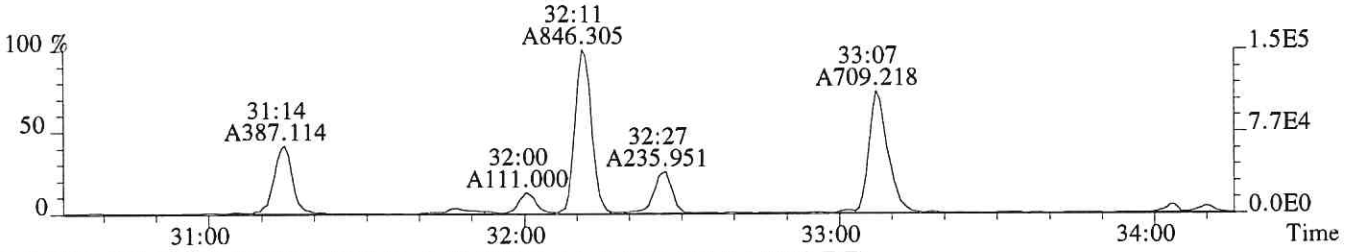
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



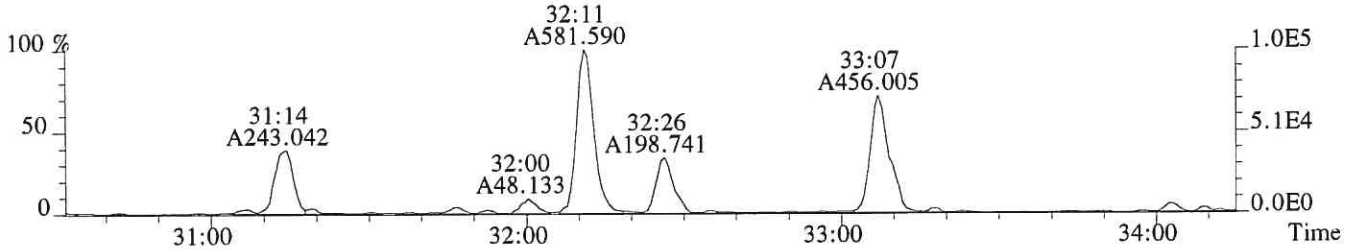
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



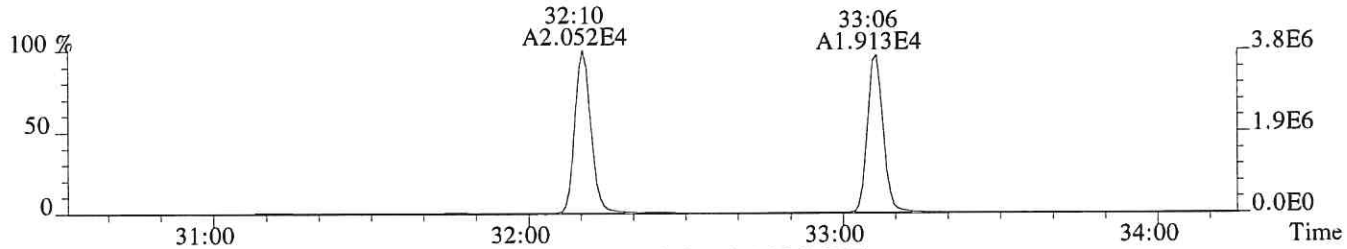
File:P519296 #1-335 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



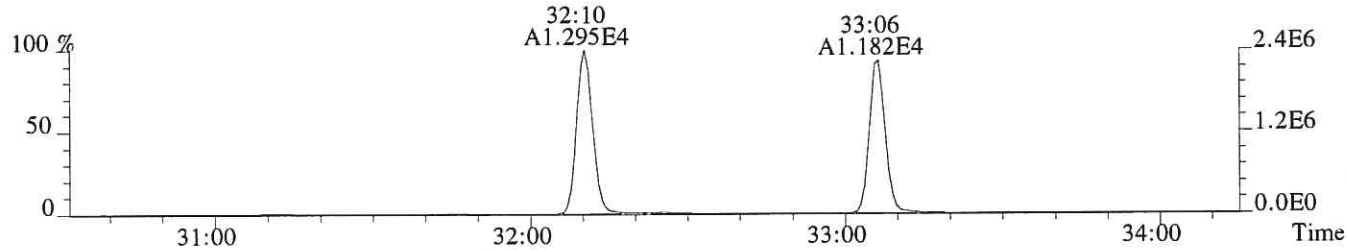
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



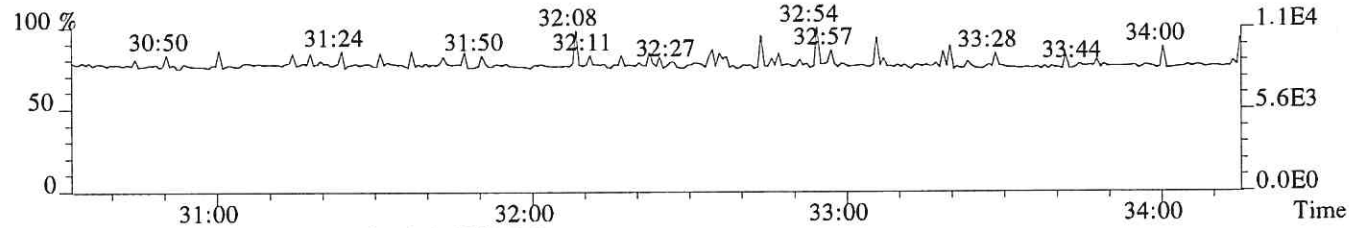
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



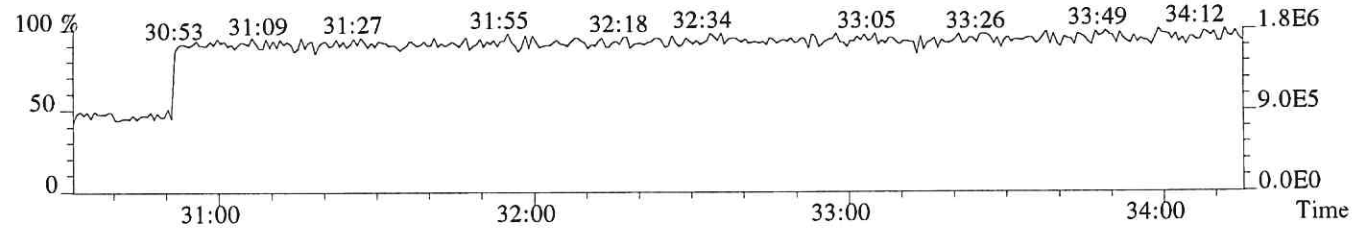
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



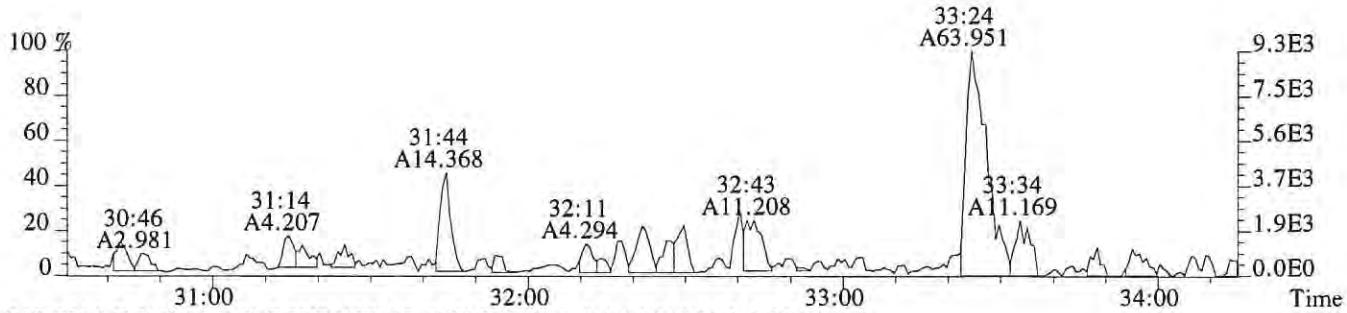
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



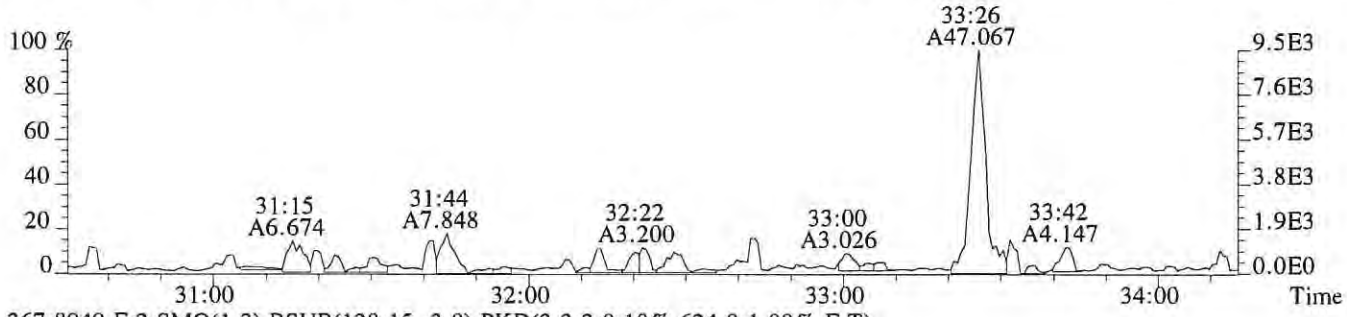
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



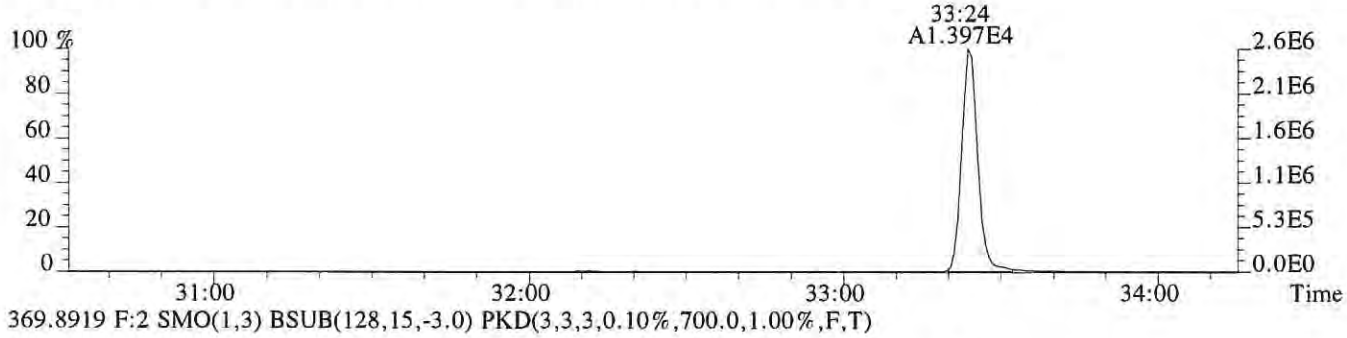
File:P519296 #1-335 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



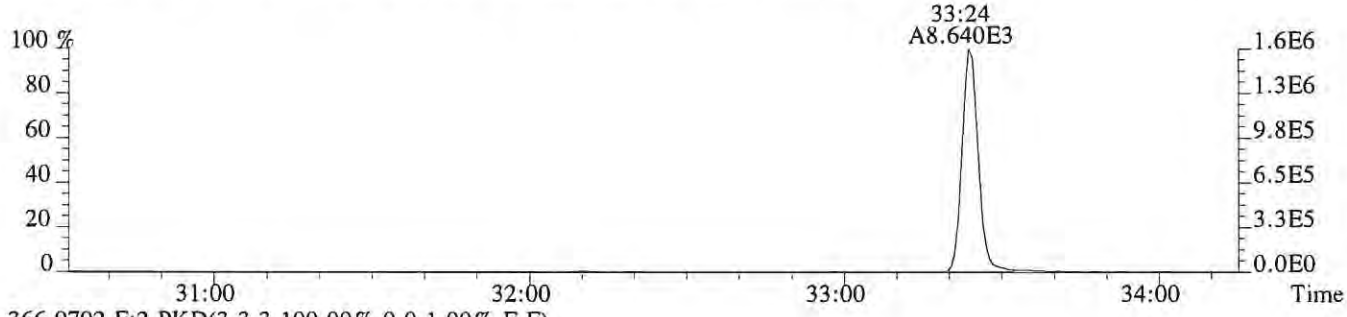
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



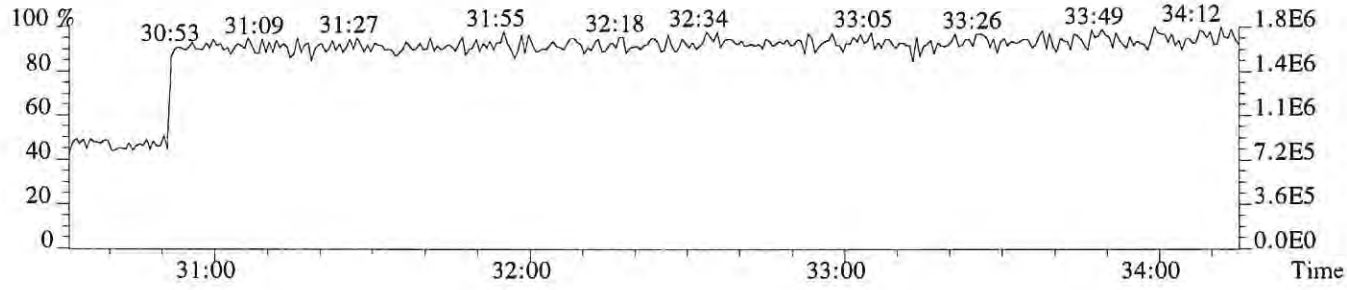
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



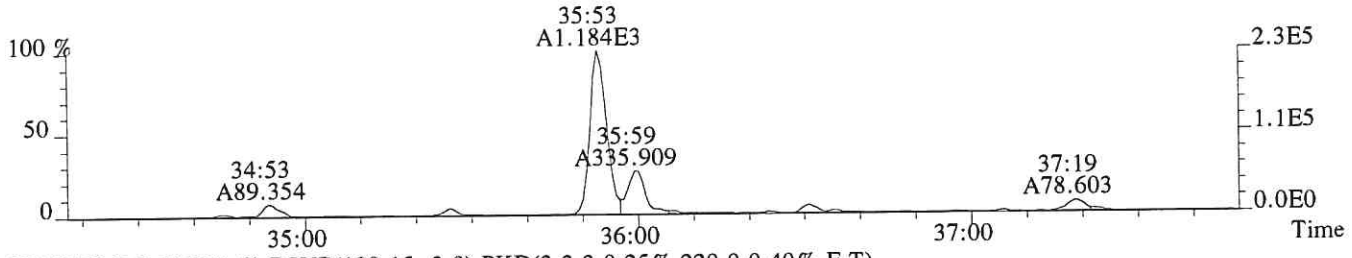
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



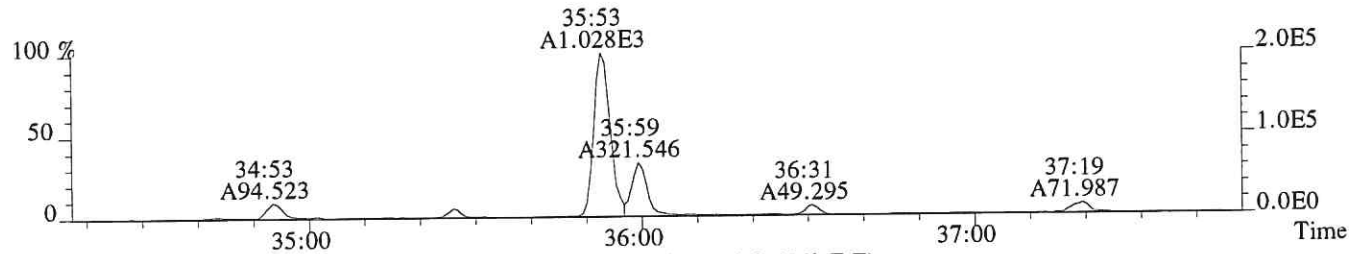
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



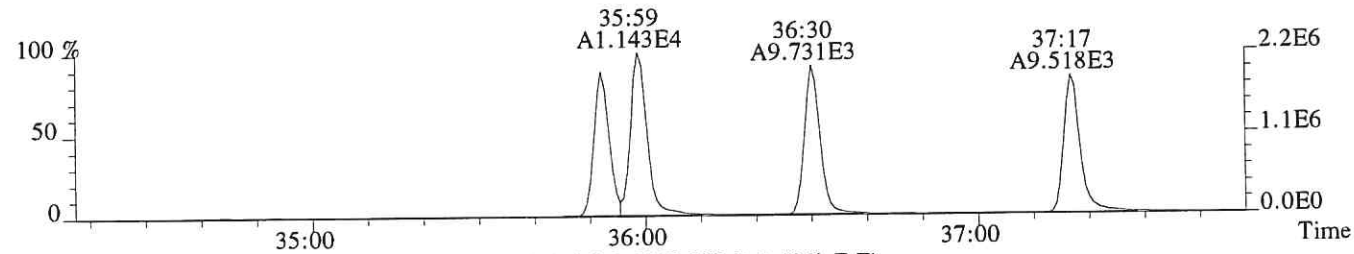
File:P519296 #1-317 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



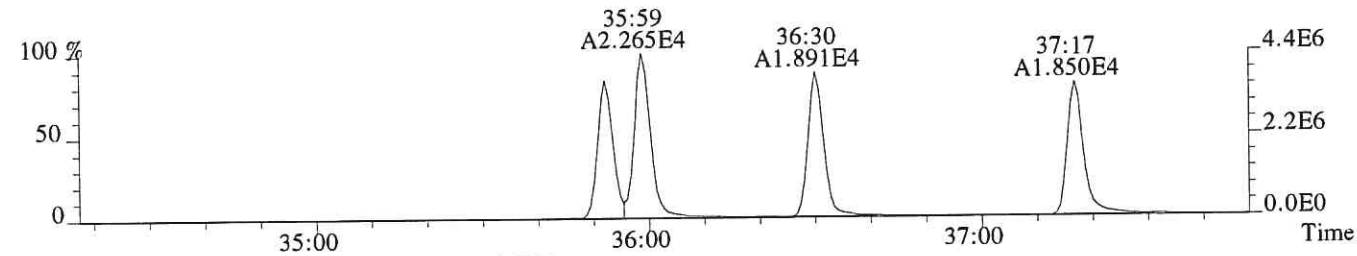
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



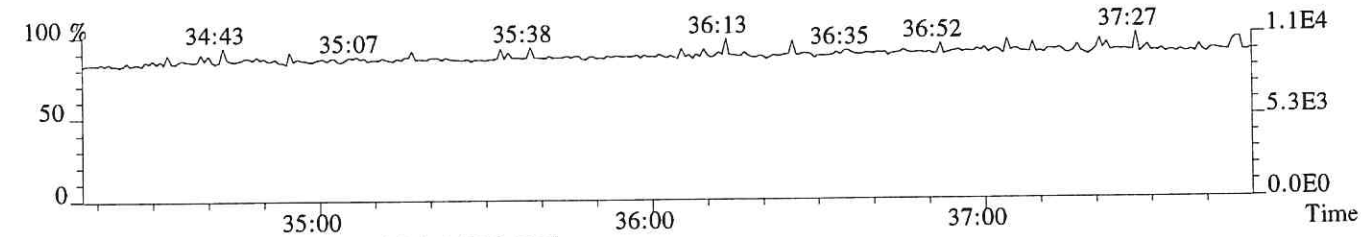
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



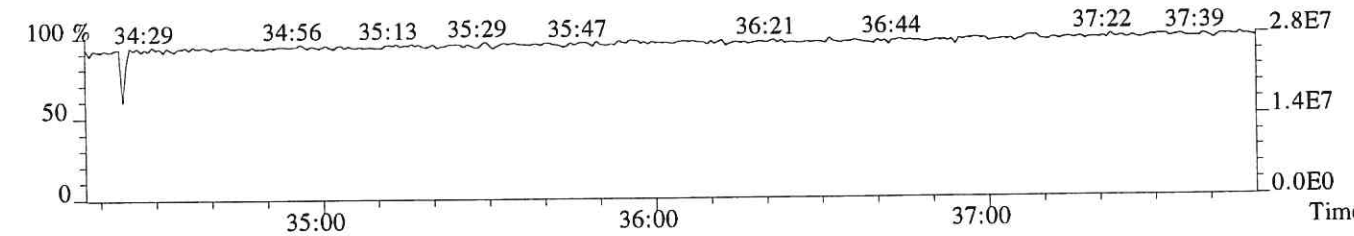
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



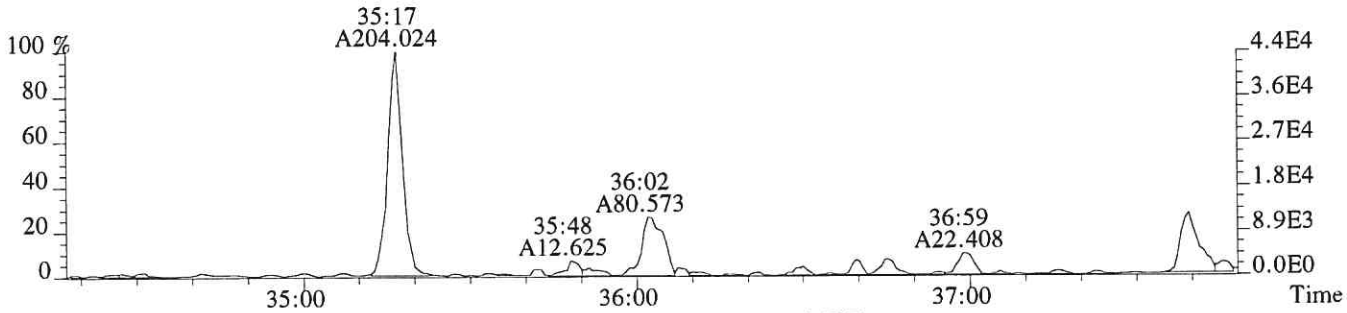
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



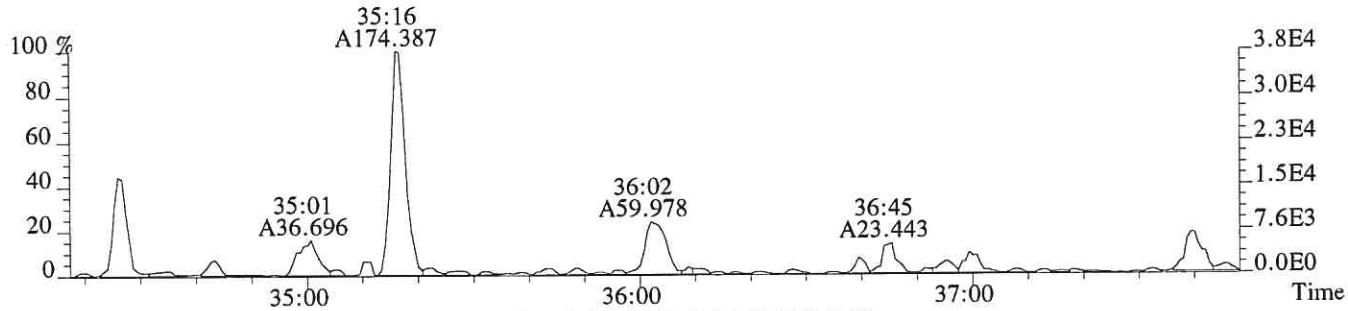
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



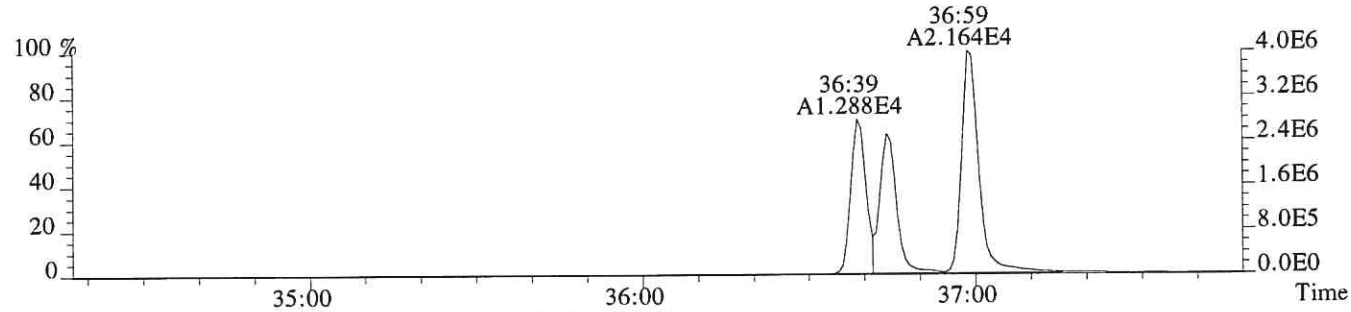
File:P519296 #1-317 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



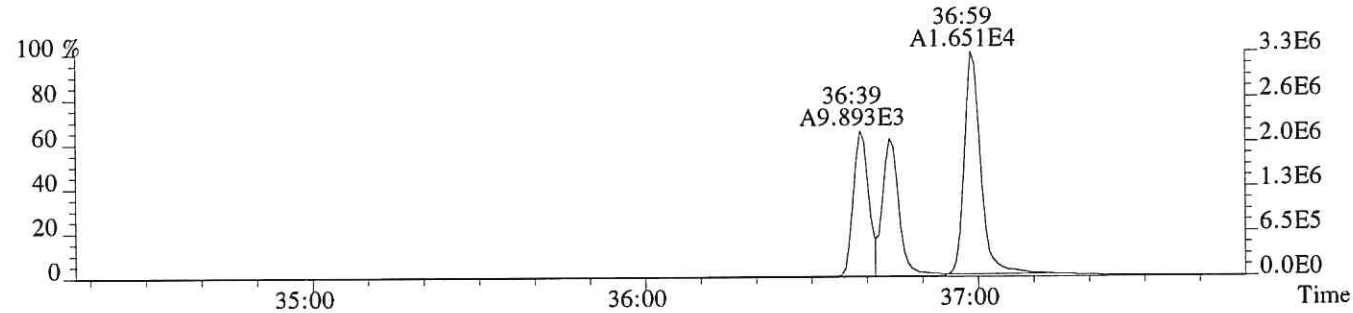
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



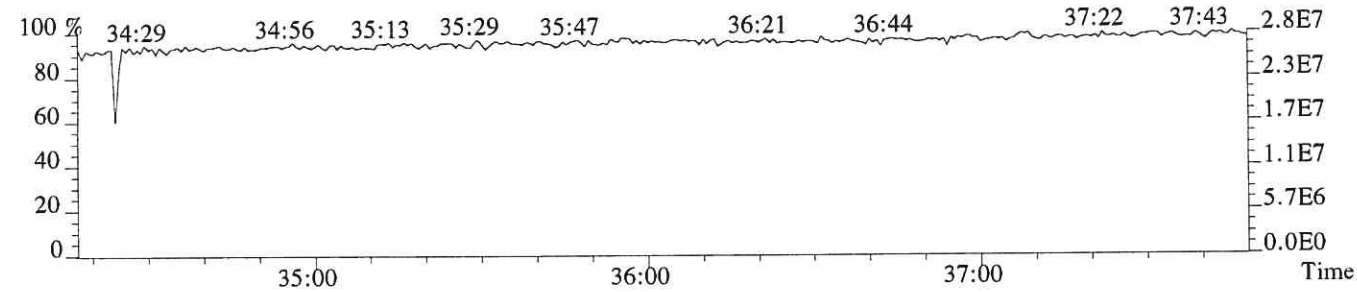
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



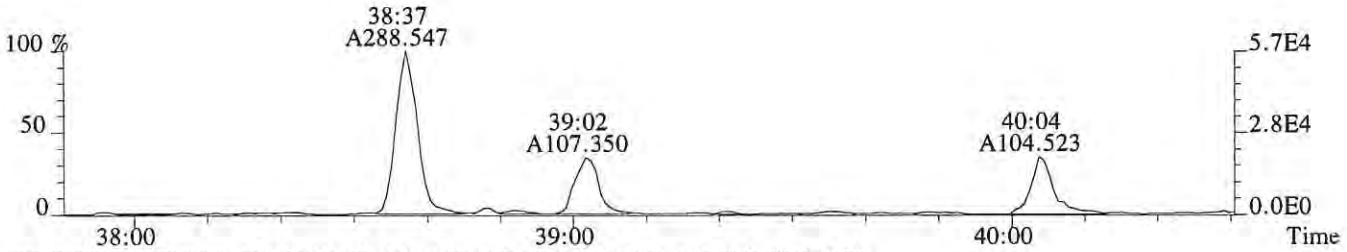
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



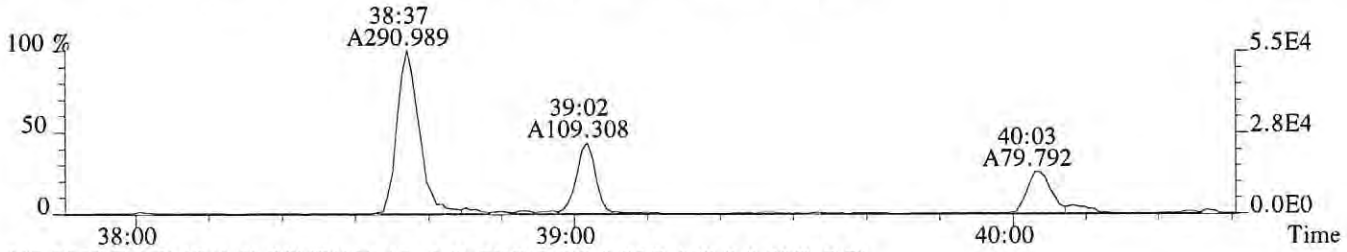
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



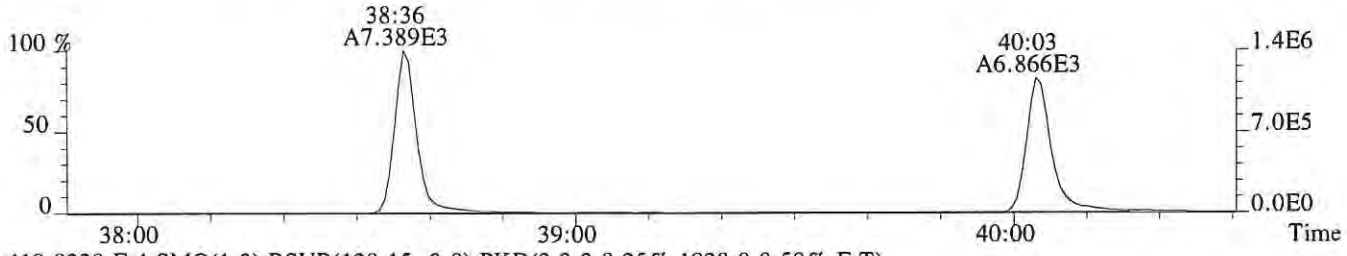
File:P519296 #1-241 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.50%,F,T)



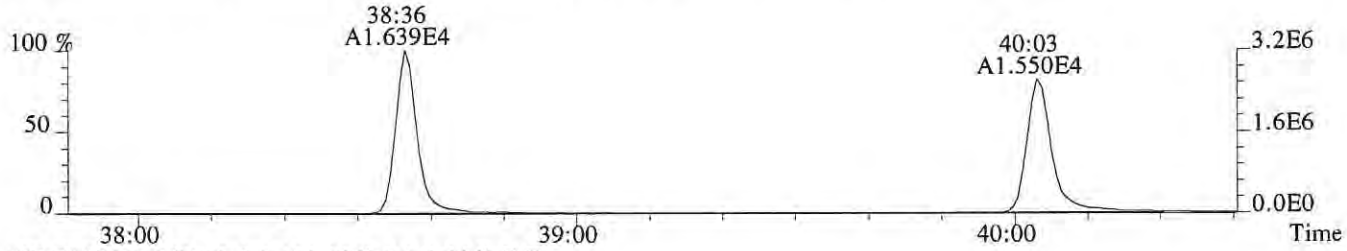
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.50%,F,T)



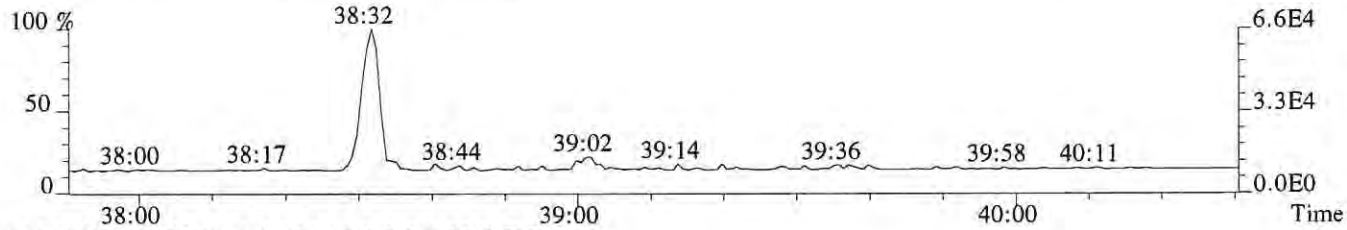
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



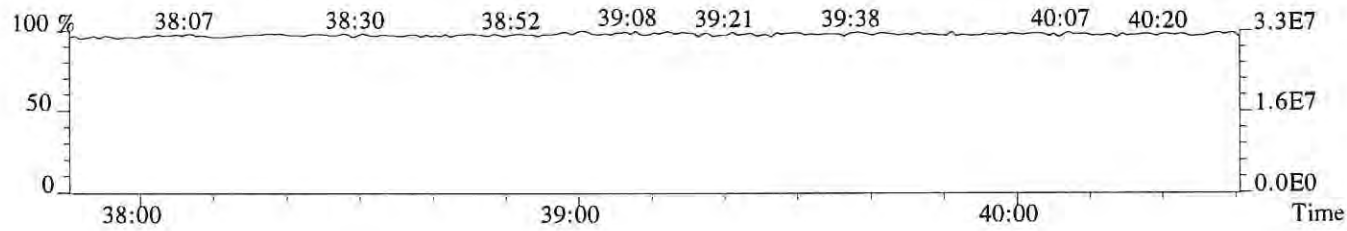
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.50%,F,T)



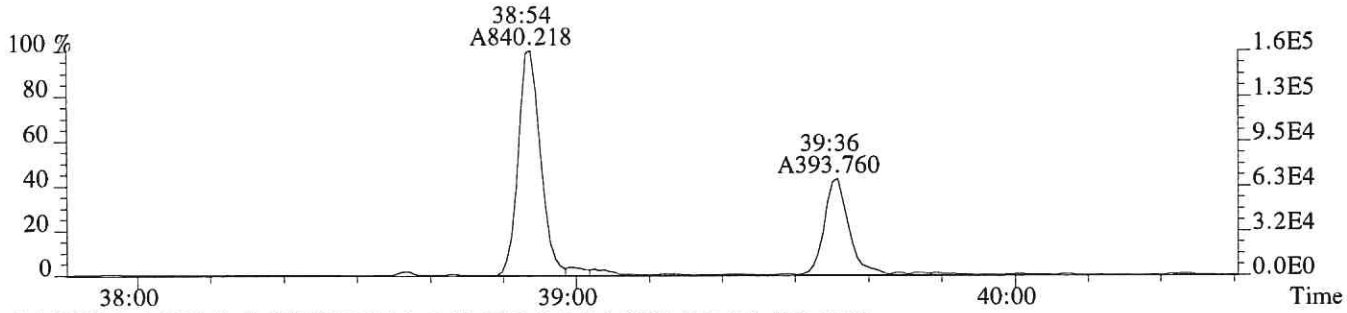
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



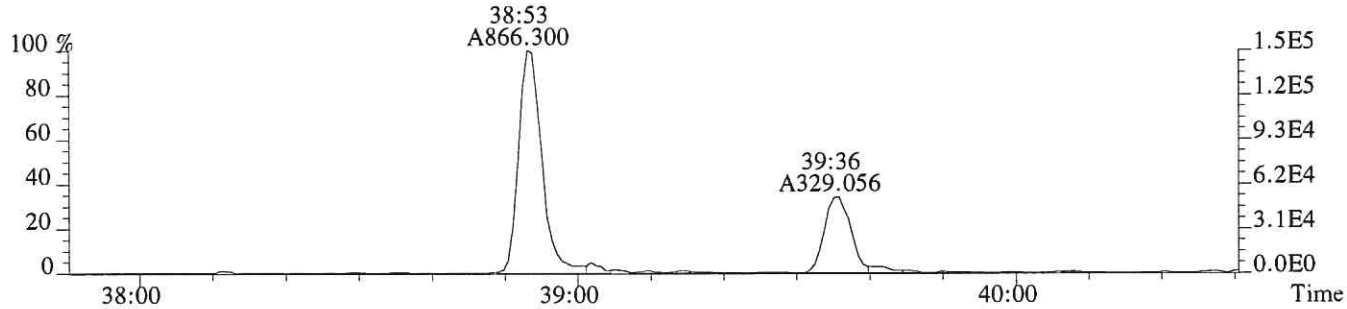
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



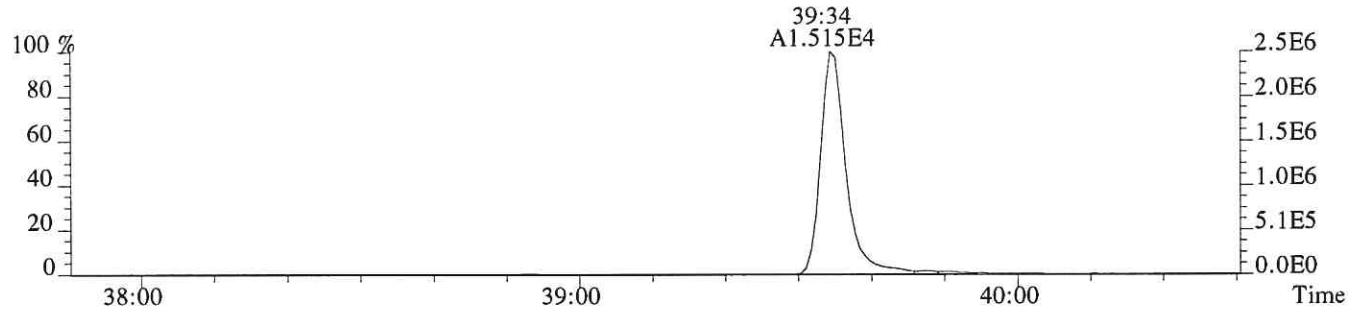
File:P519296 #1-241 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



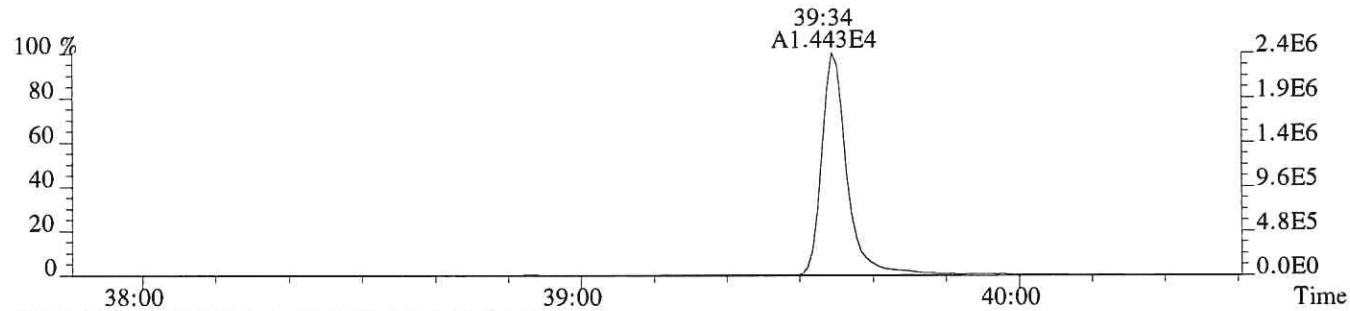
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



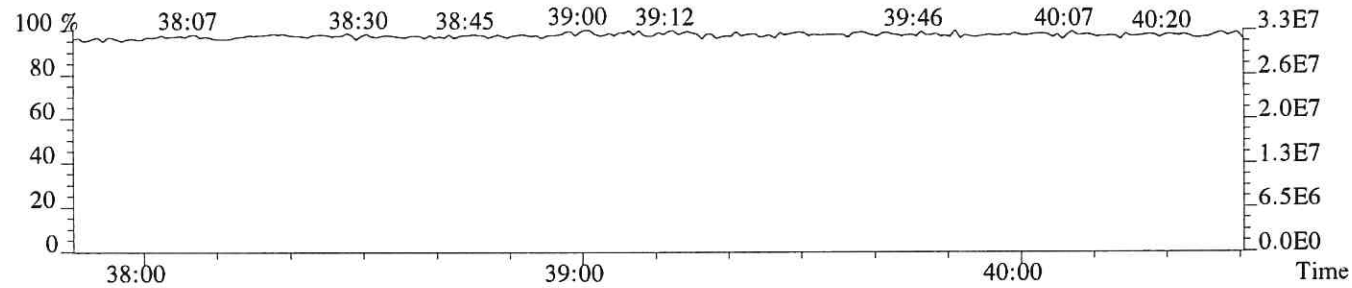
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



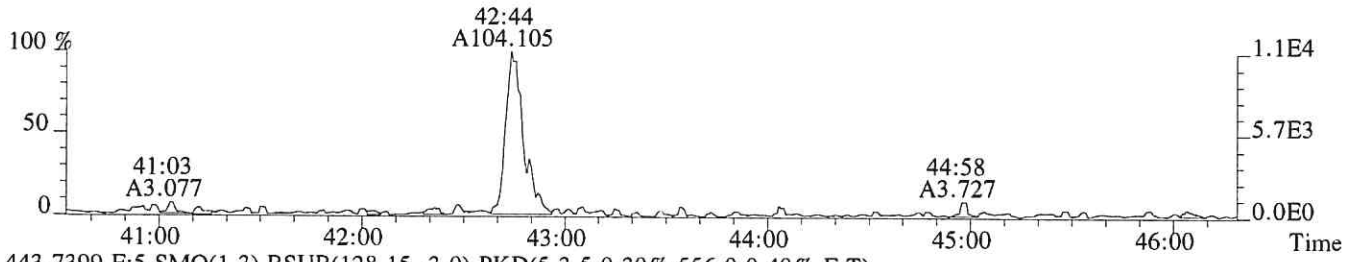
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



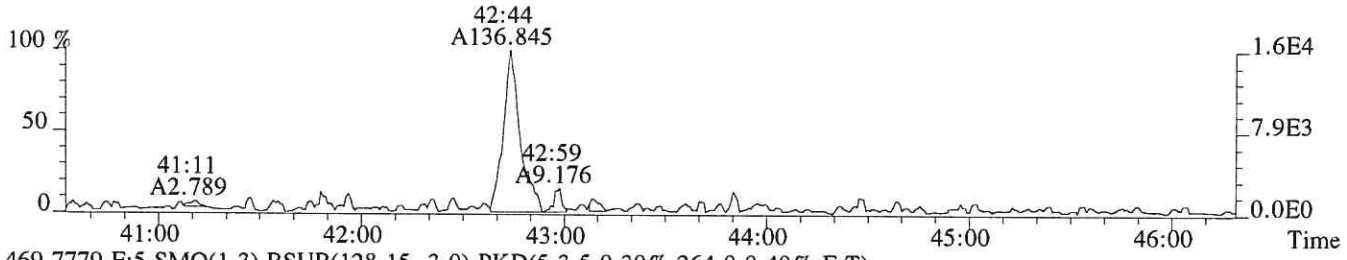
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



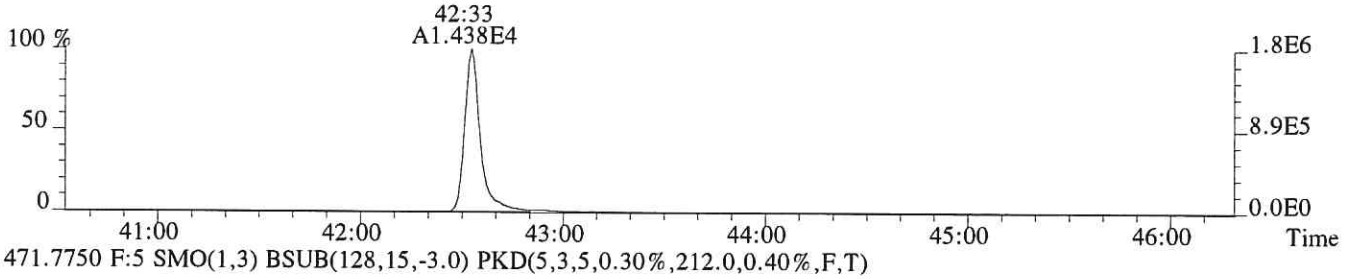
File:P519296 #1-520 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



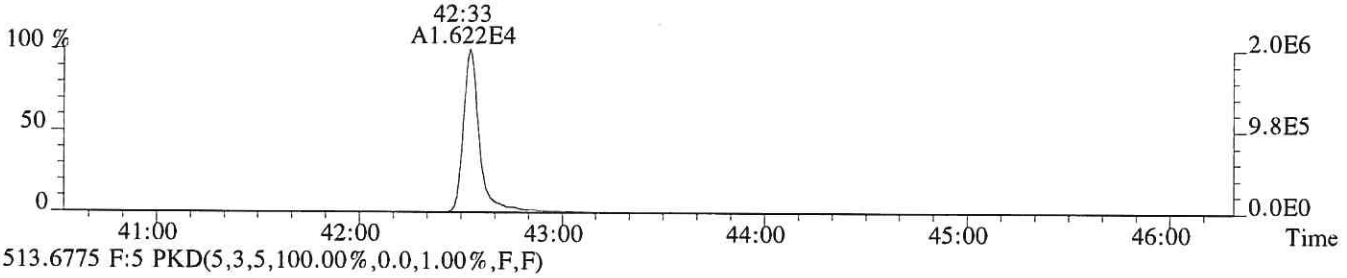
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



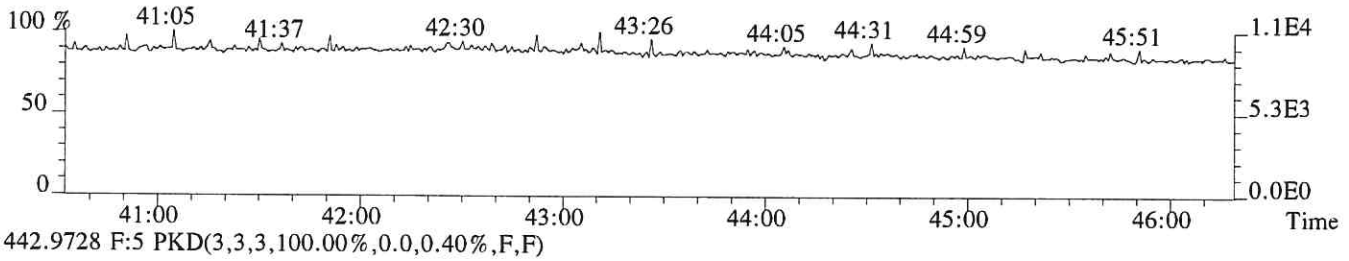
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



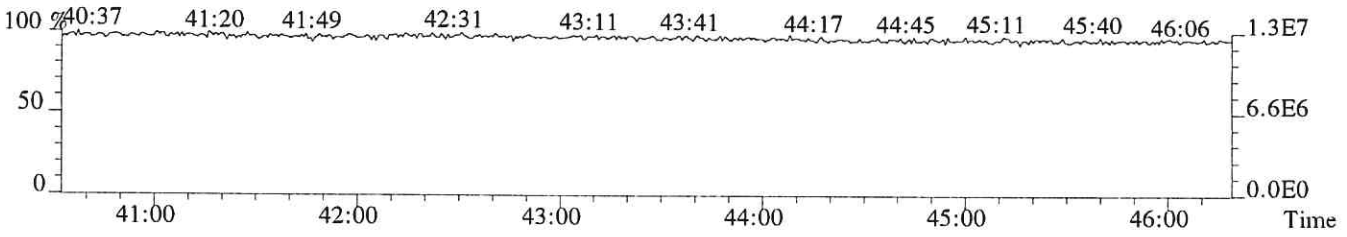
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



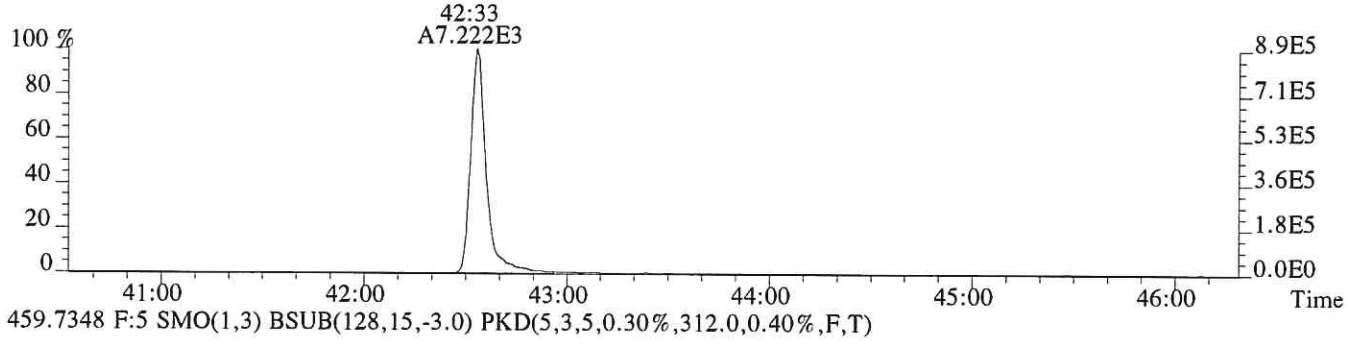
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



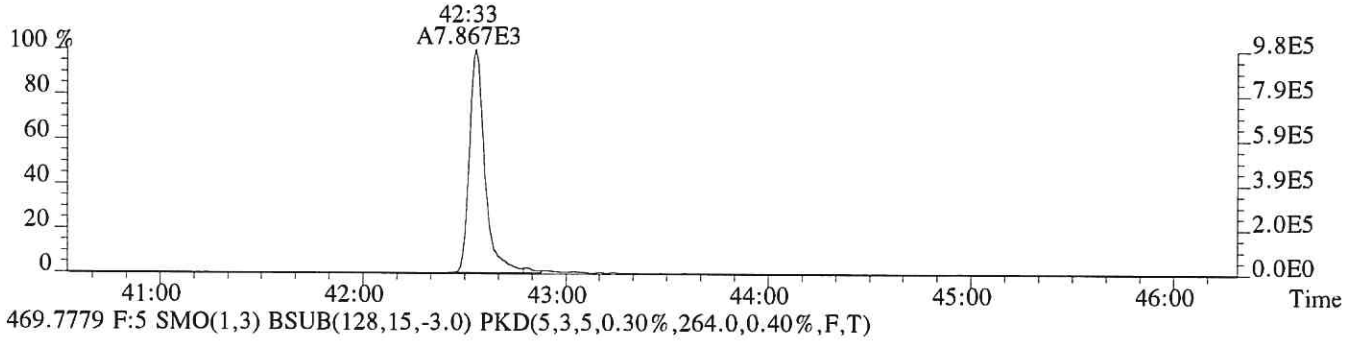
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



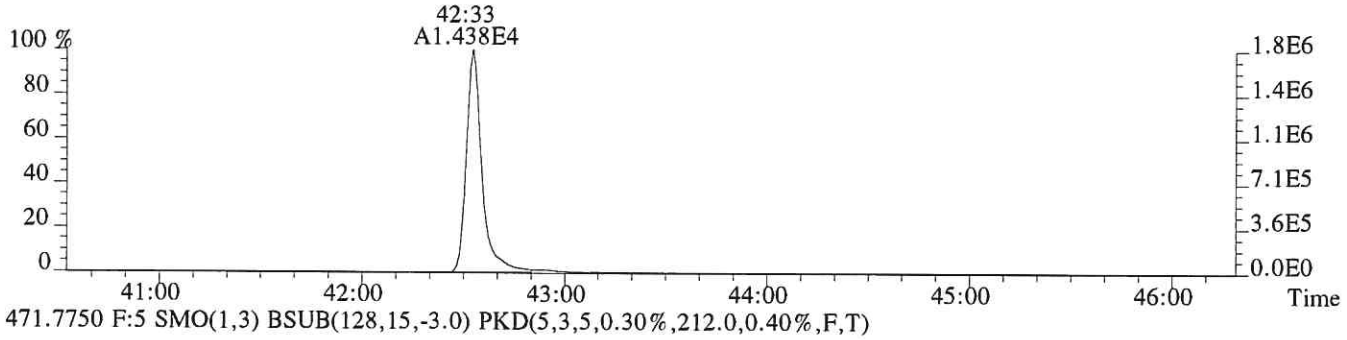
File:P519296 #1-520 Acq: 8-DEC-2018 02:25:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



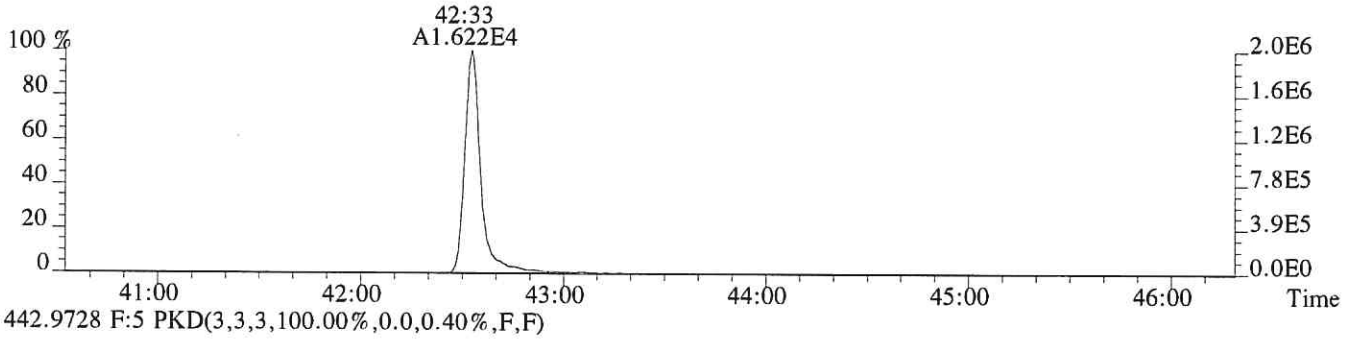
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



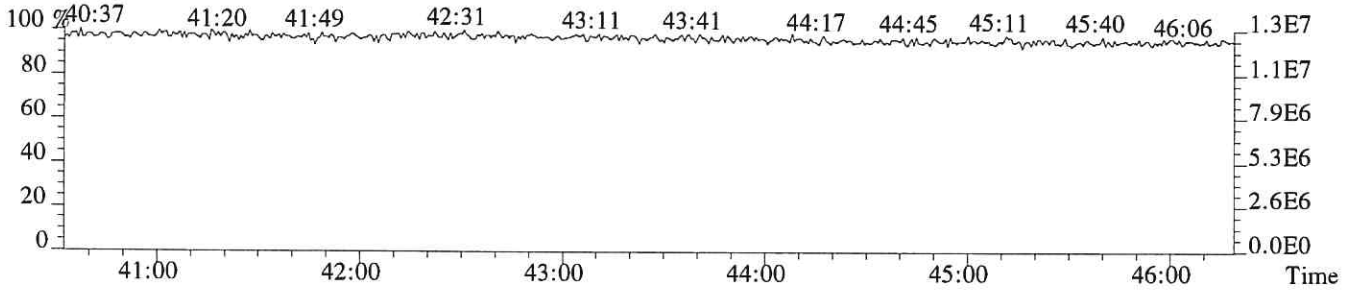
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



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



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0559

Run #17 Filename P519297 Samp: 1 Inj: 1 Acquired: 8-DEC-18 03:13:44
Processed: 10-DEC-18 09:24:39 Sample ID: E1801057-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	2.870e+06	3.672e+06	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:18	1.610e+05	1.053e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:12	1.202e+05	7.865e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:56	2.084e+05	1.696e+05	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:03	4.900e+04	3.987e+04	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:33	8.613e+03	7.221e+03	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:21	1.465e+04	1.220e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	3.832e+04	3.783e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.117e+04	1.086e+04	1.03	yes	no	1.258
10	Unk	OCDF	42:48	8.629e+03	1.001e+04	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:52	5.064e+05	6.382e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:30	9.005e+03	5.775e+03	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:42	1.138e+02	9.488e+01	1.20	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:47	7.310e+02	5.957e+02	1.23	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:02	2.458e+02	1.849e+02	1.33	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	9.488e+03	9.274e+03	1.02	yes	no	1.025
17	Unk	OCDD	42:37	1.070e+05	1.200e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:59	2.175e+04	2.699e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:18	3.398e+04	2.161e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:12	3.275e+04	2.041e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:55	1.345e+04	2.633e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:02	1.441e+04	2.786e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:33	1.383e+04	2.654e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:19	1.329e+04	2.509e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	8.464e+03	1.896e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	6.987e+03	1.627e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:51	7.474e+03	9.339e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:28	2.347e+04	1.473e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:41	1.844e+04	1.399e+04	1.32	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:47	1.877e+04	1.478e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	1.591e+04	1.504e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:36	1.126e+04	1.240e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:15	2.226e+04	2.776e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:01	3.175e+04	2.463e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:52	1.661e+04				no	1.014

$$\text{OCDD} = \frac{(1.070e+05 + 1.200e+05) \times 4000 \text{ pg} \times 1}{(1.126e+04 + 1.240e+04) \times 10.687 \text{ g} \times 58.8 / 100 \times 1.118} = 5462 \text{ ng/kg}$$

UM 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0559

Run #17 Filename P519297 Samp: 1 Inj: 1 Acquired: 8-DEC-18 03:13:44
Processed: 10-DEC-18 09:24:39 LAB. ID: E1801057-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.06e+08	2.62e+03	1.6e+05	5.15e+08	3.24e+03	1.6e+05
2	1,2,3,7,8-PeCDF	2.81e+07	1.14e+04	2.5e+03	1.86e+07	3.40e+03	5.5e+03
3	2,3,4,7,8-PeCDF	1.90e+07	1.14e+04	1.7e+03	1.24e+07	3.40e+03	3.7e+03
4	1,2,3,4,7,8-HxCDF	4.39e+07	7.48e+03	5.9e+03	3.58e+07	9.62e+03	3.7e+03
5	1,2,3,6,7,8-HxCDF	1.02e+07	7.48e+03	1.4e+03	8.40e+06	9.62e+03	8.7e+02
6	2,3,4,6,7,8-HxCDF	1.83e+06	7.48e+03	2.4e+02	1.52e+06	9.62e+03	1.6e+02
7	1,2,3,7,8,9-HxCDF	2.79e+06	7.48e+03	3.7e+02	2.33e+06	9.62e+03	2.4e+02
8	1,2,3,4,6,7,8-HpCDF	7.16e+06	7.06e+03	1.0e+03	7.13e+06	8.52e+02	8.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.81e+06	7.06e+03	2.6e+02	1.74e+06	8.52e+02	2.0e+03
10	OCDF	9.99e+05	2.88e+02	3.5e+03	1.22e+06	4.08e+02	3.0e+03
11	2,3,7,8-TCDD	1.11e+08	2.12e+03	5.3e+04	1.40e+08	8.36e+02	1.7e+05
12	1,2,3,7,8-PeCDD	1.53e+06	9.16e+02	1.7e+03	9.99e+05	2.04e+03	4.9e+02
13	1,2,3,4,7,8-HxCDD	2.43e+04	1.19e+03	2.0e+01	2.35e+04	9.92e+02	2.4e+01
14	1,2,3,6,7,8-HxCDD	1.53e+05	1.19e+03	1.3e+02	1.26e+05	9.92e+02	1.3e+02
15	1,2,3,7,8,9-HxCDD	4.62e+04	1.19e+03	3.9e+01	3.66e+04	9.92e+02	3.7e+01
16	1,2,3,4,6,7,8-HpCDD	1.61e+06	1.08e+02	1.5e+04	1.57e+06	1.96e+02	8.0e+03
17	OCDD	1.24e+07	2.72e+02	4.6e+04	1.37e+07	2.32e+02	5.9e+04
18	13C-2,3,7,8-TCDF	3.34e+06	1.19e+04	2.8e+02	4.14e+06	1.02e+04	4.1e+02
19	13C-1,2,3,7,8-PeCDF	6.04e+06	4.02e+03	1.5e+03	3.84e+06	3.43e+03	1.1e+03
20	13C-2,3,4,7,8-PeCDF	6.49e+06	4.02e+03	1.6e+03	4.00e+06	3.43e+03	1.2e+03
21	13C-1,2,3,4,7,8-HxCDF	2.84e+06	4.50e+03	6.3e+02	5.57e+06	3.35e+03	1.7e+03
22	13C-1,2,3,6,7,8-HxCDF	3.01e+06	4.50e+03	6.7e+02	5.91e+06	3.35e+03	1.8e+03
23	13C-2,3,4,6,7,8-HxCDF	2.68e+06	4.50e+03	6.0e+02	5.16e+06	3.35e+03	1.5e+03
24	13C-1,2,3,7,8,9-HxCDF	2.52e+06	4.50e+03	5.6e+02	4.85e+06	3.35e+03	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.55e+06	1.54e+03	1.0e+03	3.48e+06	4.23e+03	8.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.09e+06	1.54e+03	7.0e+02	2.61e+06	4.23e+03	6.2e+02
27	13C-2,3,7,8-TCDD	1.41e+06	4.64e+03	3.0e+02	1.75e+06	1.14e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	4.43e+06	8.56e+02	5.2e+03	2.79e+06	1.02e+03	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.91e+06	8.04e+02	4.9e+03	2.94e+06	7.64e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.76e+06	8.04e+02	4.7e+03	2.94e+06	7.64e+02	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.68e+06	4.44e+02	6.0e+03	2.53e+06	2.88e+02	8.8e+03
32	13C-OCDD	1.30e+06	5.92e+02	2.2e+03	1.46e+06	3.64e+02	4.0e+03
33	13C-1,2,3,4-TCDD	3.27e+06	4.64e+03	7.0e+02	4.06e+06	1.14e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.02e+06	8.04e+02	7.5e+03	4.69e+06	7.64e+02	6.1e+03
35	37Cl-2,3,7,8-TCDD	3.64e+06	1.70e+03	2.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0559

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519297 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 03:13:44 Processed: 10-DEC-18 09:24:39

Mass: 303.9020 305.8990 Tot Response: 1.16e+07 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:59	1.98e+04	2.60e+04	0.76	yes	4.58e+04		n	n
2	25:19	1.18e+05	1.55e+05	0.76	yes	2.73e+05		n	n
3	26:01	1.01e+05	1.34e+05	0.76	yes	2.35e+05		n	n
4	26:25	2.57e+04	3.25e+04	0.79	yes	5.81e+04		n	n
5	26:37	7.10e+04	9.27e+04	0.77	yes	1.64e+05		n	n
6	26:44	1.29e+05	1.68e+05	0.77	yes	2.97e+05		n	n
7	27:10	1.24e+06	1.60e+06	0.78	yes	2.84e+06		n	n
8	27:25	6.02e+04	7.74e+04	0.78	yes	1.38e+05		n	n
9	28:00	2.87e+06	3.67e+06	0.78	yes	6.54e+06	2,3,7,8-TCDF	n	n
10	28:22	1.83e+05	2.30e+05	0.79	yes	4.13e+05		n	n
11	28:36	2.89e+04	3.75e+04	0.77	yes	6.64e+04		n	n
12	29:53	2.26e+05	2.92e+05	0.77	yes	5.19e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0559

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519297 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 03:13:44 Processed: 10-DEC-18 09:24:39

Mass: 319.8970 321.8940 Tot Response: 1.31e+06 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:33	7.45e+03	8.89e+03	0.84	yes	1.63e+04		n	n
2	28:52	5.06e+05	6.38e+05	0.79	yes	1.14e+06	2,3,7,8-TCDD	n	n
3	29:06	6.75e+04	8.43e+04	0.80	yes	1.52e+05		n	n

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Peak List Summary

CLIENT ID.
SL0559

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519297 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 03:13:44 Processed: 10-DEC-18 09:24:39

Mass: 339.8600 341.8570 Tot Response: 6.89e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	1.23e+03	8.21e+02	1.49	yes	2.05e+03		n	n
2	31:22	6.96e+04	4.54e+04	1.53	yes	1.15e+05		n	n
3	31:54	2.13e+03	1.37e+03	1.56	yes	3.50e+03		n	n
4	32:08	1.48e+04	9.50e+03	1.55	yes	2.43e+04		n	n
5	32:18	1.61e+05	1.05e+05	1.53	yes	2.66e+05	1,2,3,7,8-PeCDF	n	n
6	32:34	4.15e+04	2.77e+04	1.50	yes	6.93e+04		n	n
7	33:12	1.20e+05	7.87e+04	1.53	yes	1.99e+05	2,3,4,7,8-PeCDF	n	n
8	34:07	6.01e+03	4.06e+03	1.48	yes	1.01e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0559

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P519297 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 03:13:44 Processed: 10-DEC-18 09:24:39

Mass: 355.8550 357.8520 Tot Response: 1.63e+04 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:23	2.99e+02	1.80e+02	1.66	yes	4.79e+02		n	n
2	32:29	4.51e+02	2.72e+02	1.66	yes	7.23e+02		n	n
3	32:34	1.32e+02	8.54e+01	1.55	yes	2.18e+02		n	n
4	33:30	9.00e+03	5.78e+03	1.56	yes	1.48e+04	1,2,3,7,8-PeCDD	n	n
5	33:48	5.88e+01	3.94e+01	1.49	yes	9.81e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0559

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519297 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 03:13:44 Processed: 10-DEC-18 09:24:39

Mass: 373.8210 375.8180 Tot Response: 5.53e+05 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:49	1.43e+03	1.13e+03	1.27	yes	2.56e+03		n n
2	34:59	1.43e+04	1.19e+04	1.20	yes	2.62e+04		n n
3	35:30	7.68e+03	6.56e+03	1.17	yes	1.42e+04		n n
4	35:56	2.08e+05	1.70e+05	1.23	yes	3.78e+05	1,2,3,4,7,8-HxCDF	n n
5	36:03	4.90e+04	3.99e+04	1.23	yes	8.89e+04	1,2,3,6,7,8-HxCDF	n n
6	36:33	8.61e+03	7.22e+03	1.19	yes	1.58e+04	2,3,4,6,7,8-HxCDF	n n
7	37:21	1.46e+04	1.22e+04	1.20	yes	2.68e+04	1,2,3,7,8,9-HxCDF	n n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0559

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519297 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 03:13:44 Processed: 10-DEC-18 09:24:39

Mass: 389.8160 391.8130 Tot Response: 6.02e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:20	1.38e+03	1.14e+03	1.21	yes	2.52e+03		n	n
2	35:52	2.10e+02	1.78e+02	1.18	yes	3.88e+02		n	n
3	36:03	3.41e+02	2.69e+02	1.27	yes	6.11e+02		n	n
4	36:07	2.85e+02	2.54e+02	1.12	yes	5.39e+02		n	n
5	36:42	1.14e+02	9.49e+01	1.20	yes	2.09e+02	1,2,3,4,7,8-HxCDD	n	n
6	36:47	7.31e+02	5.96e+02	1.23	yes	1.33e+03	1,2,3,6,7,8-HxCDD	n	n
7	37:02	2.46e+02	1.85e+02	1.33	yes	4.31e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0559

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519297 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 03:13:44 Processed: 10-DEC-18 09:24:39

Mass: 407.7820 409.7790 Tot Response: 1.28e+05 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	3.83e+04	3.78e+04 1.01	yes	7.61e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:03	1.50e+04	1.46e+04 1.03	yes	2.96e+04		n	n
3	40:06	1.12e+04	1.09e+04 1.03	yes	2.20e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0559

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519297 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 03:13:44 Processed: 10-DEC-18 09:24:39

Mass: 423.7770 425.7740 Tot Response: 4.65e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:55	1.42e+04	1.36e+04	1.04	yes	2.78e+04		n	n
2	39:37	9.49e+03	9.27e+03	1.02	yes	1.88e+04	1,2,3,4,6,7,8-HpCDD	n	n

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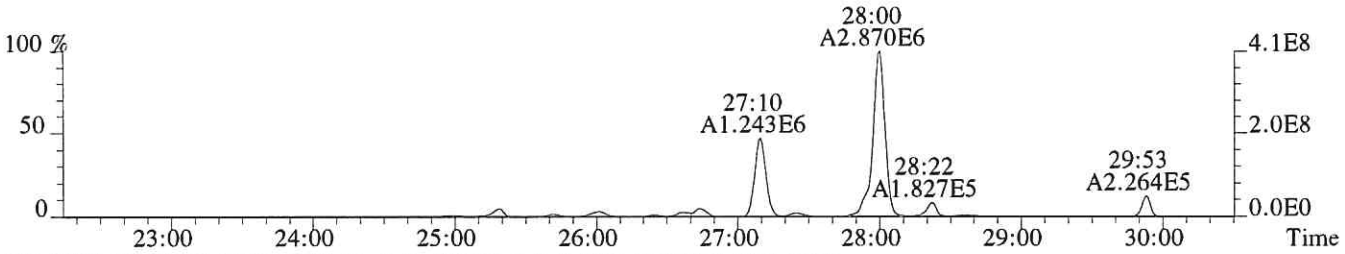
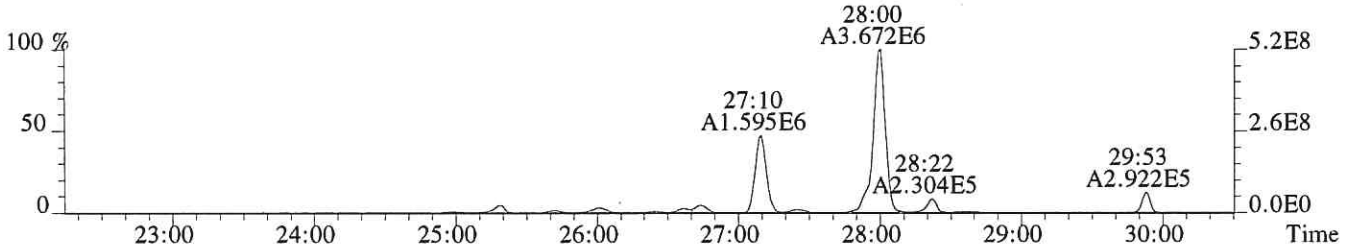
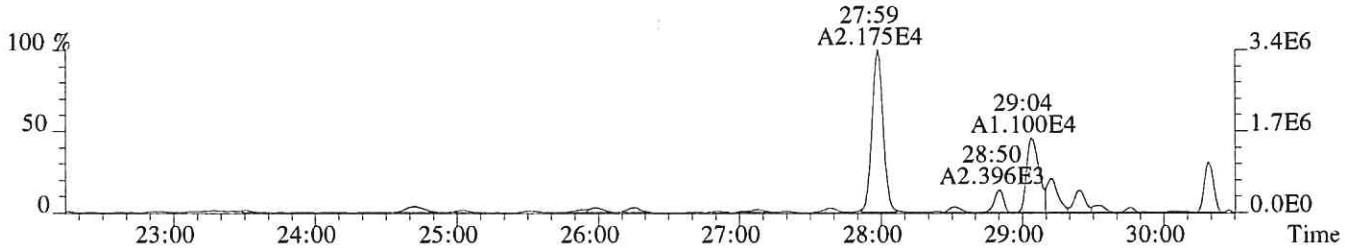
File:P519297 #1-587 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2616.0,1.00%,F,T)



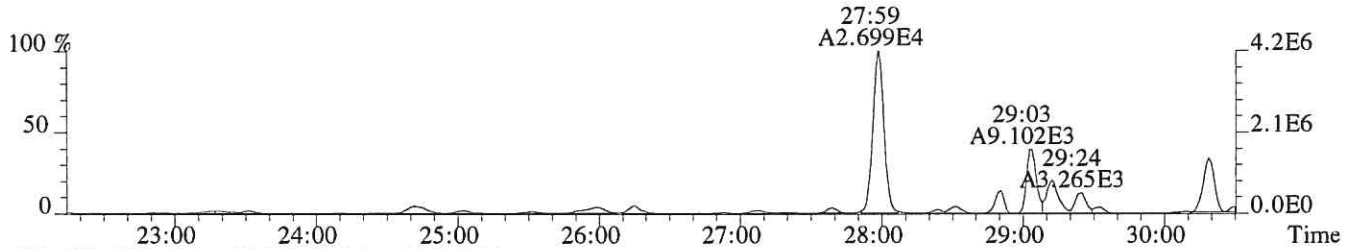
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



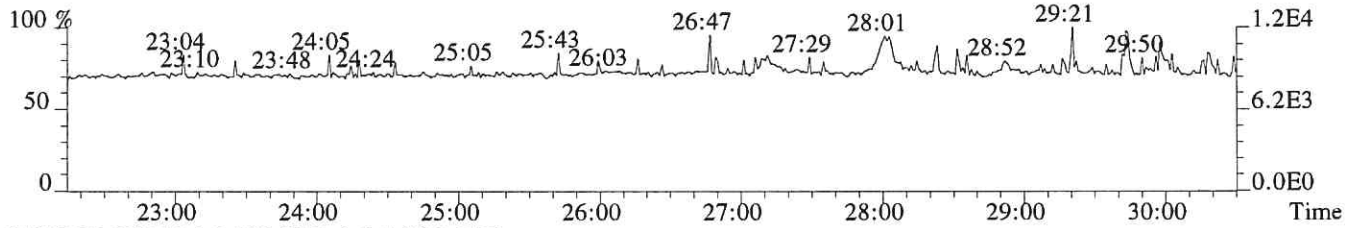
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11860.0,1.00%,F,T)



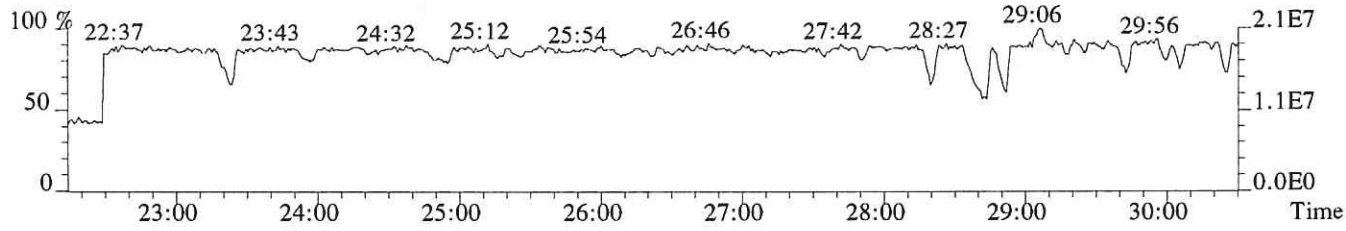
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10156.0,1.00%,F,T)



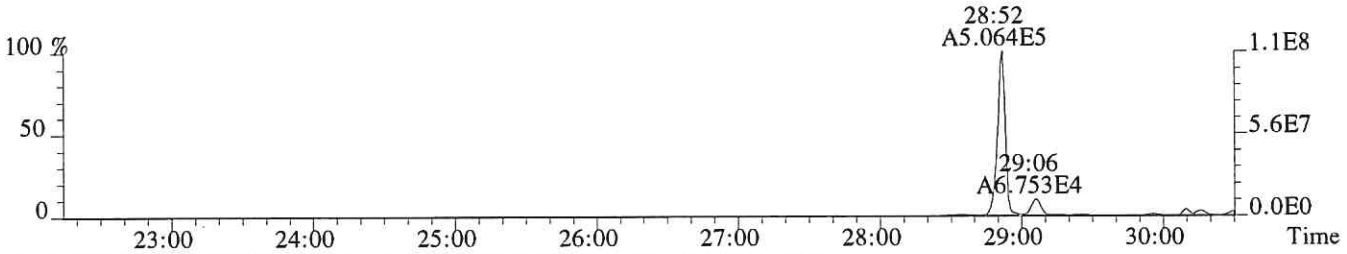
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



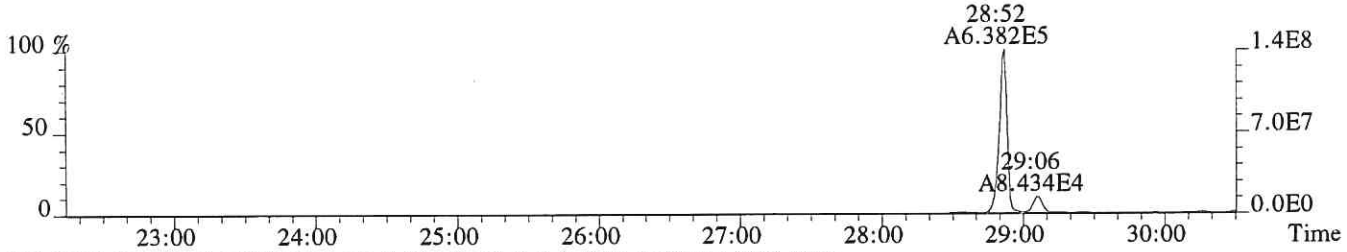
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



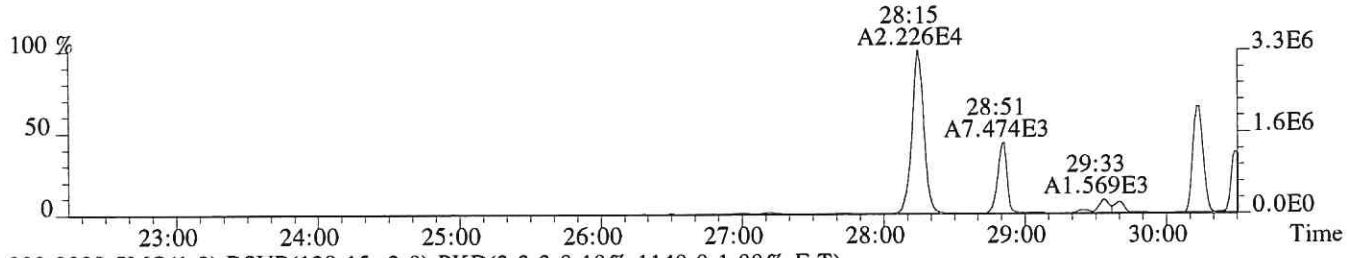
File:P519297 #1-587 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2120.0,1.00%,F,T)



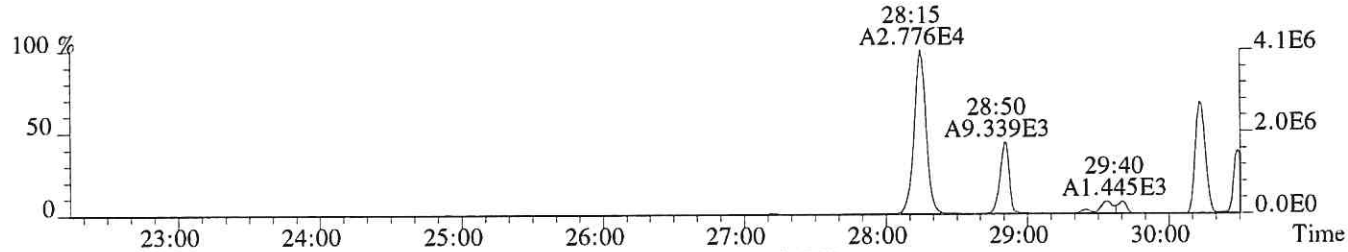
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



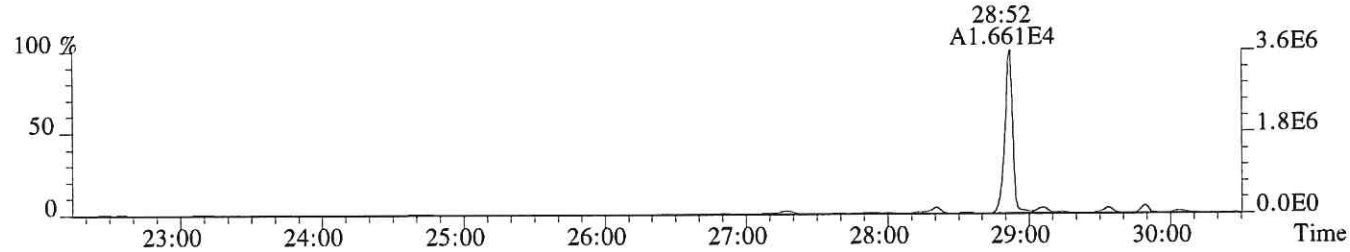
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4640.0,1.00%,F,T)



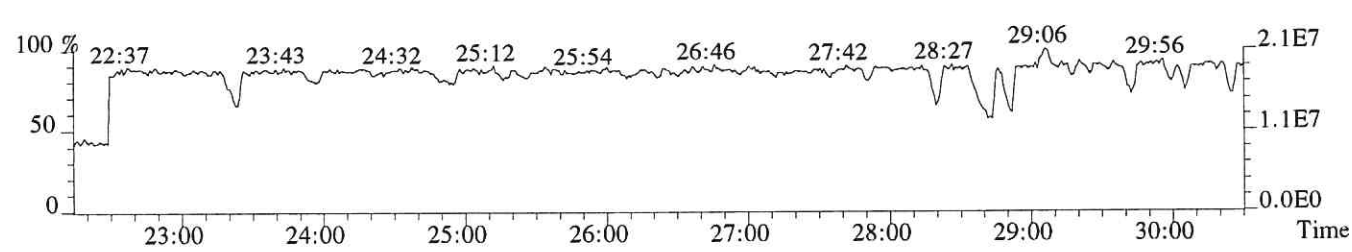
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



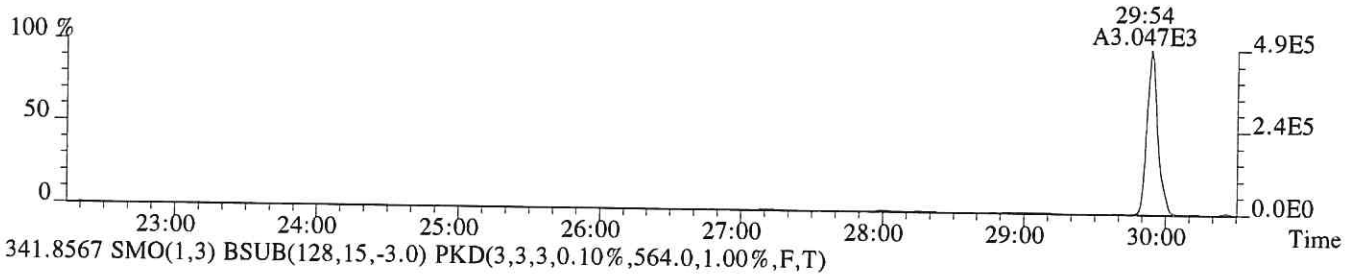
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



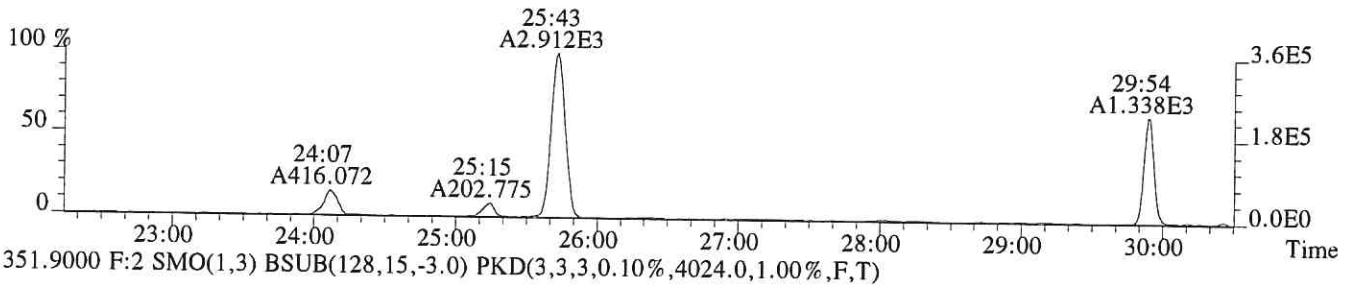
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



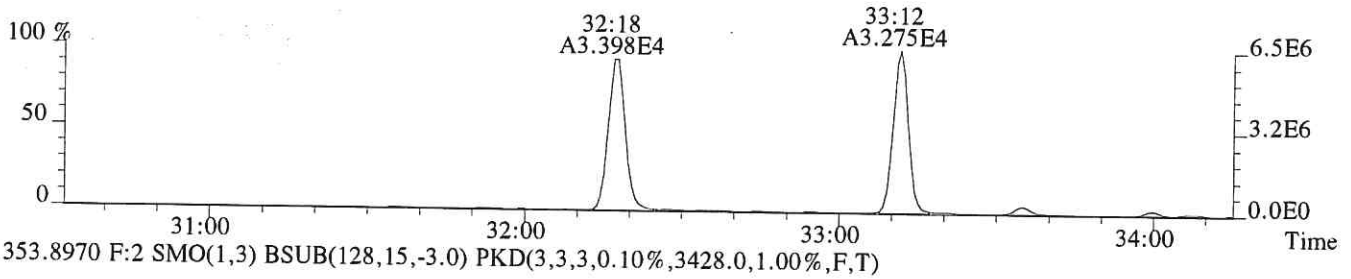
File:P519297 #1-587 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



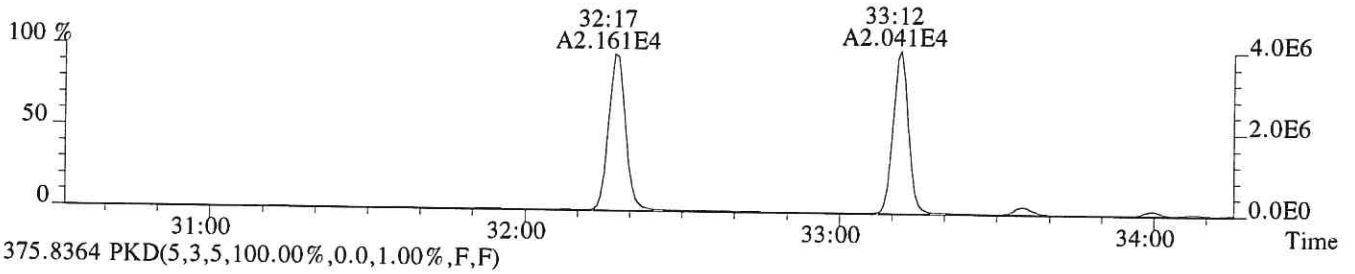
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



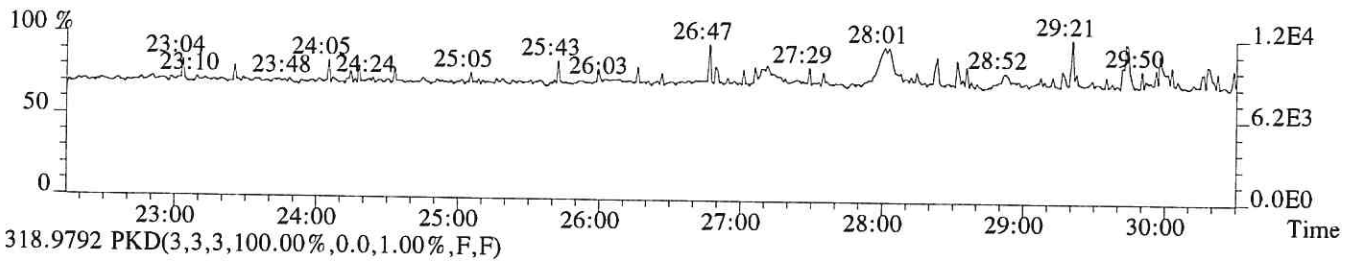
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4024.0,1.00%,F,T)



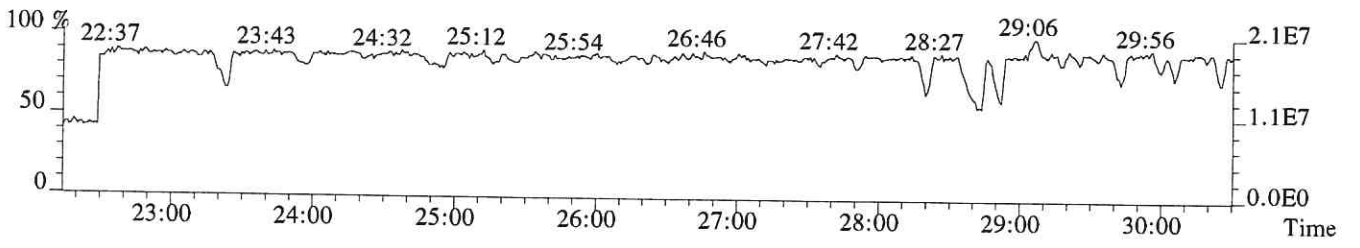
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3428.0,1.00%,F,T)



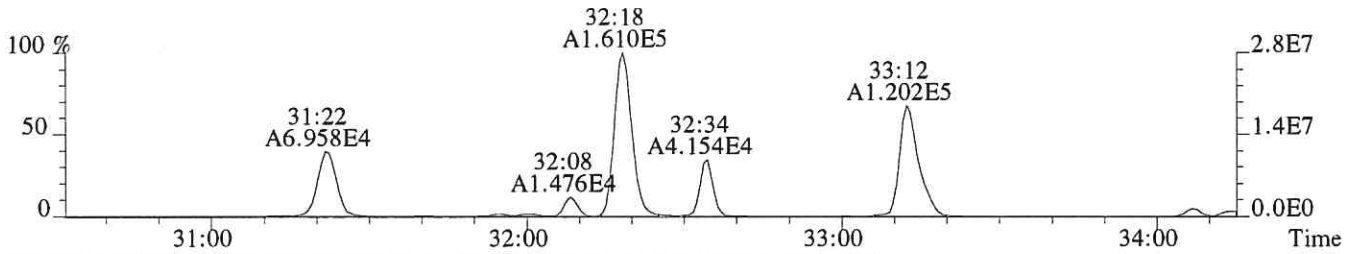
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



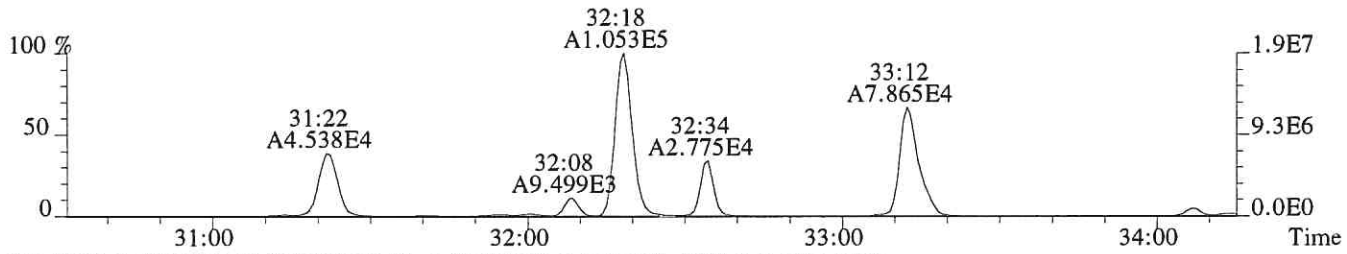
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



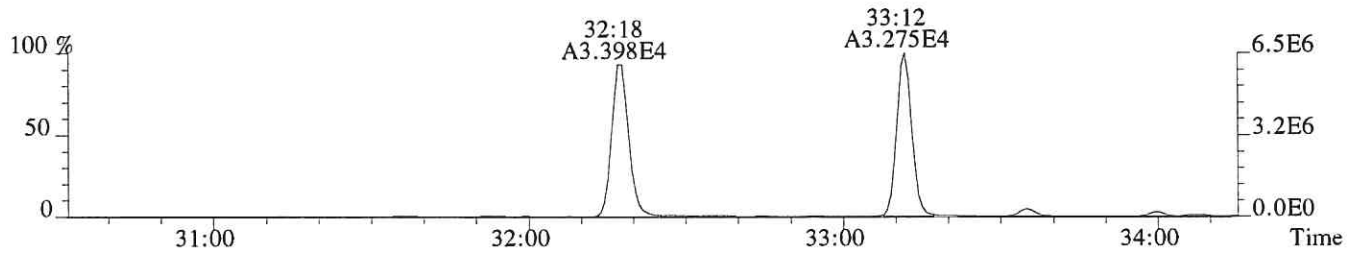
File:P519297 #1-335 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



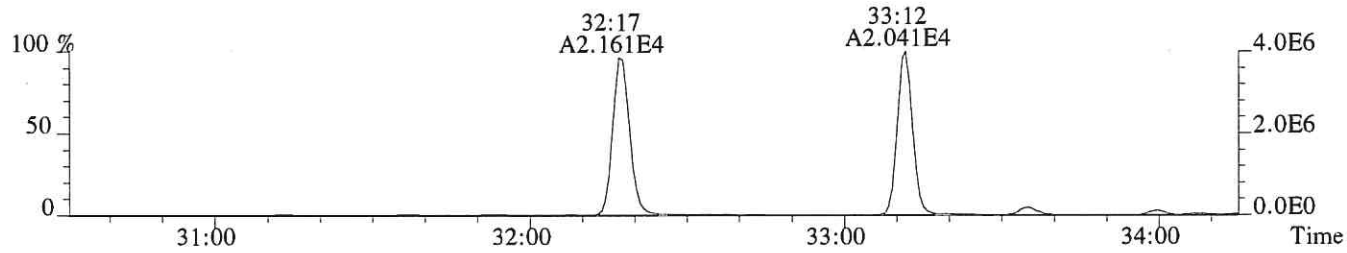
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



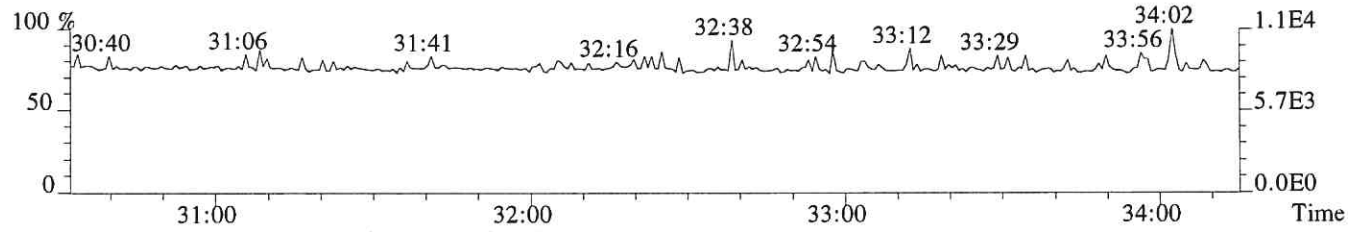
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4024.0,1.00%,F,T)



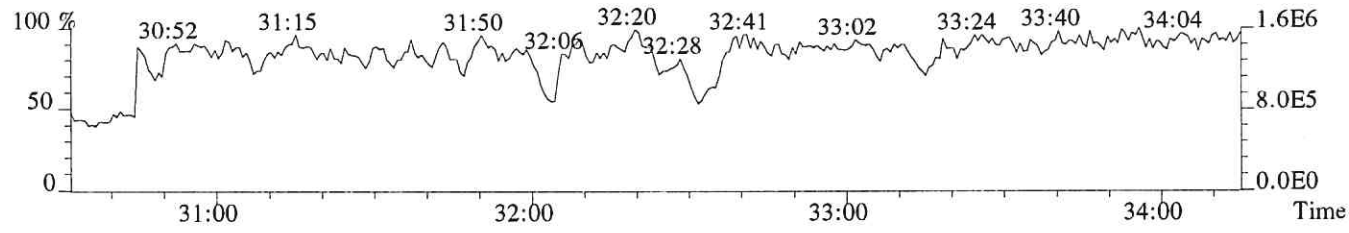
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3428.0,1.00%,F,T)



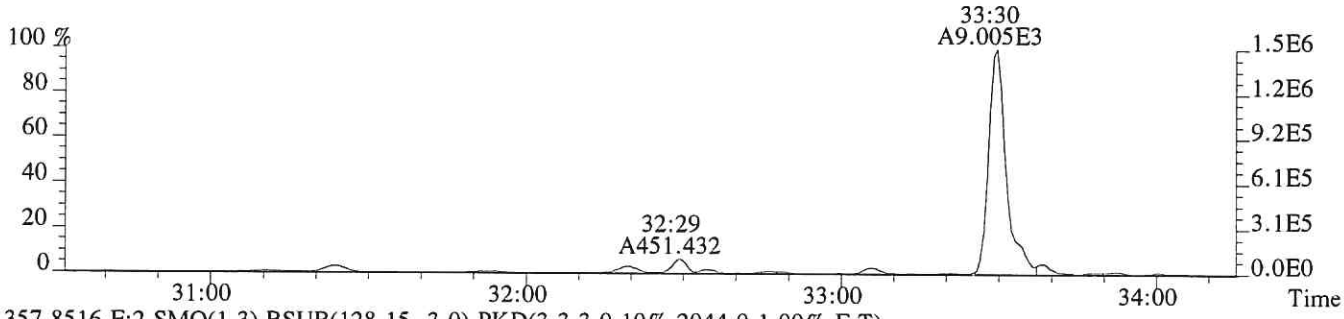
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



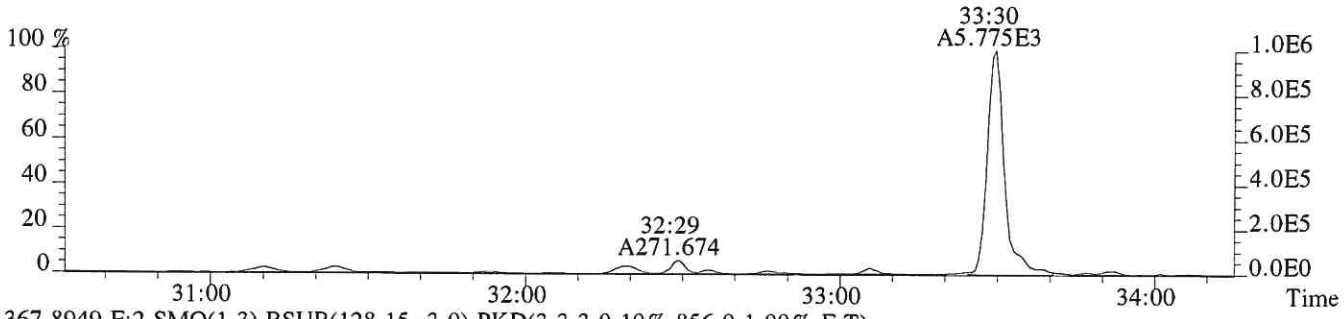
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



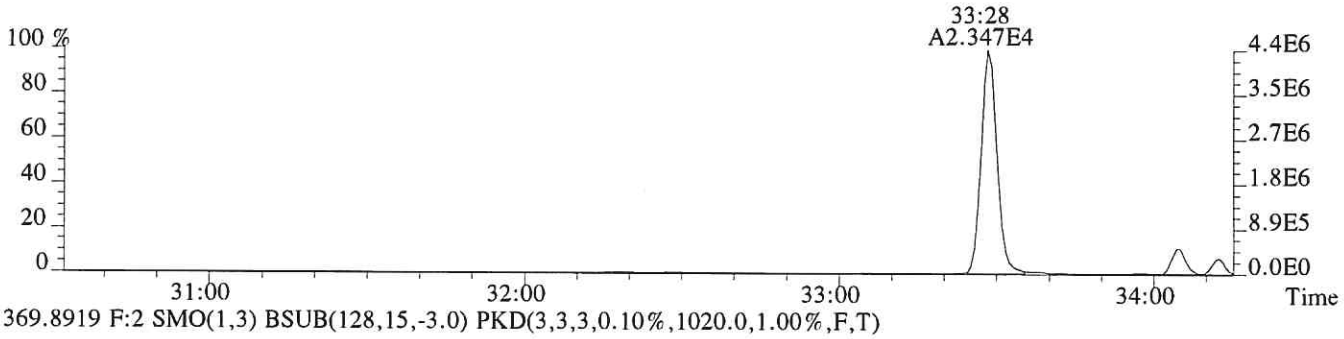
File:P519297 #1-335 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



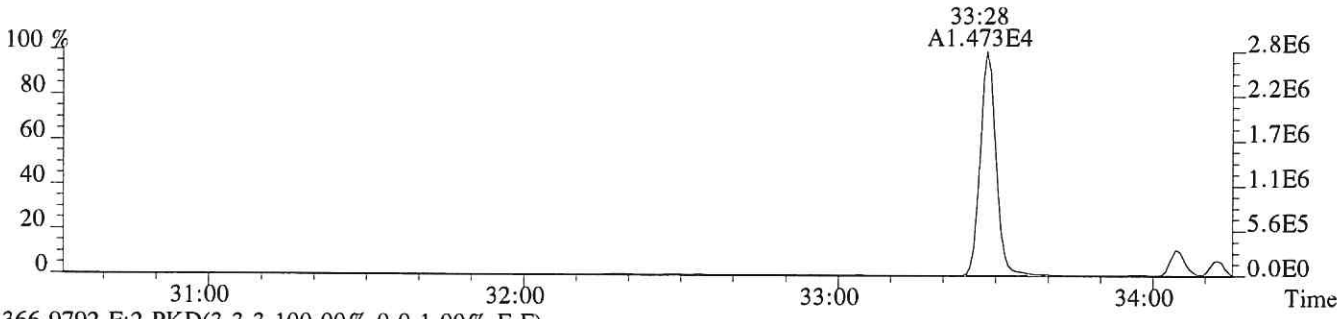
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



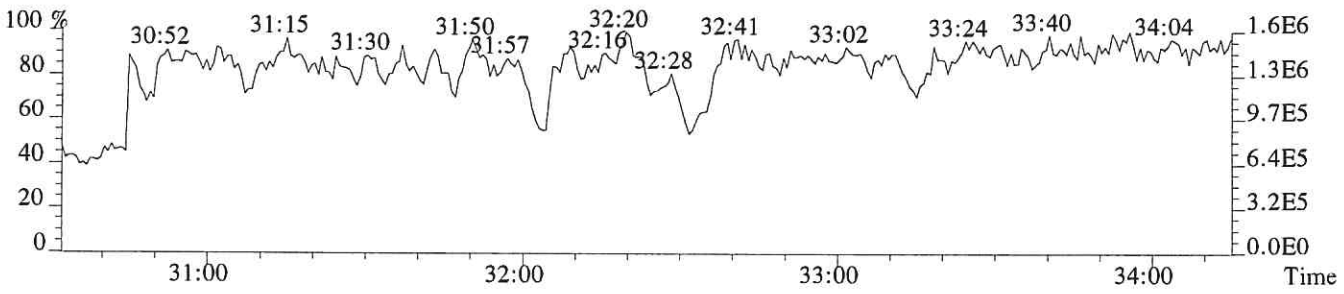
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



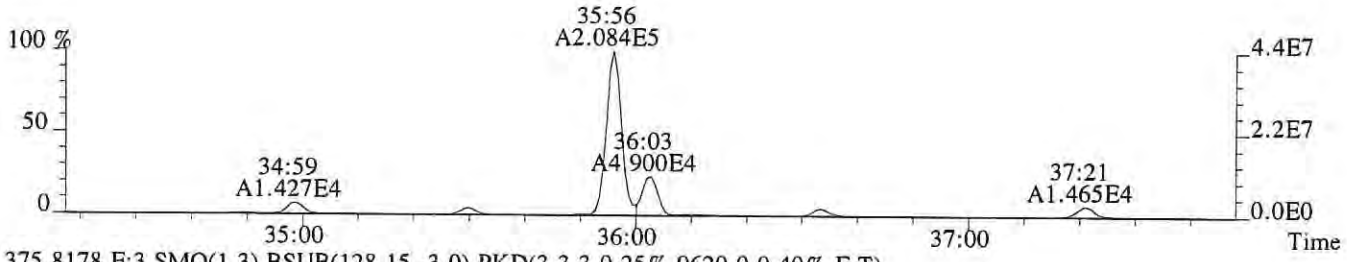
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



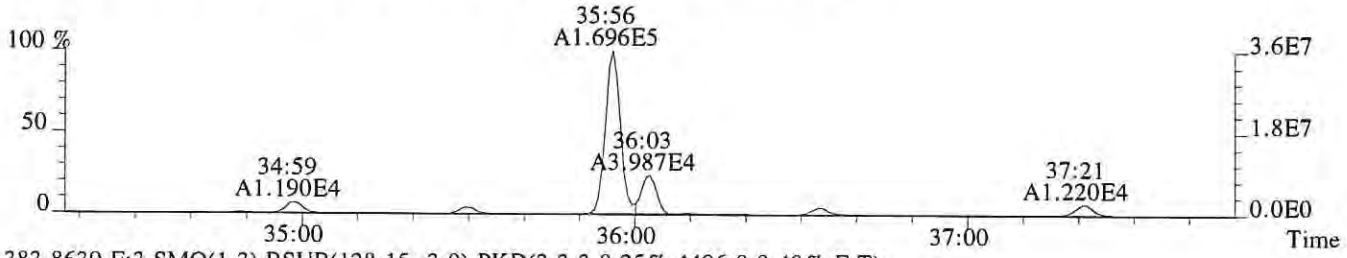
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



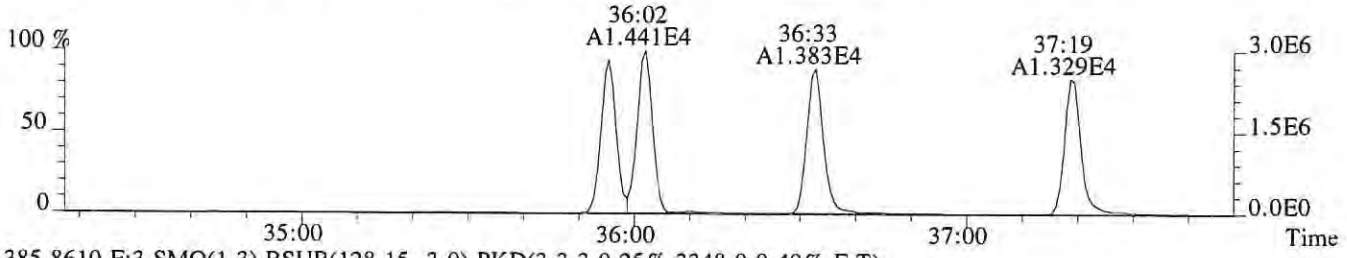
File:P519297 #1-317 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7480.0,0.40%,F,T)



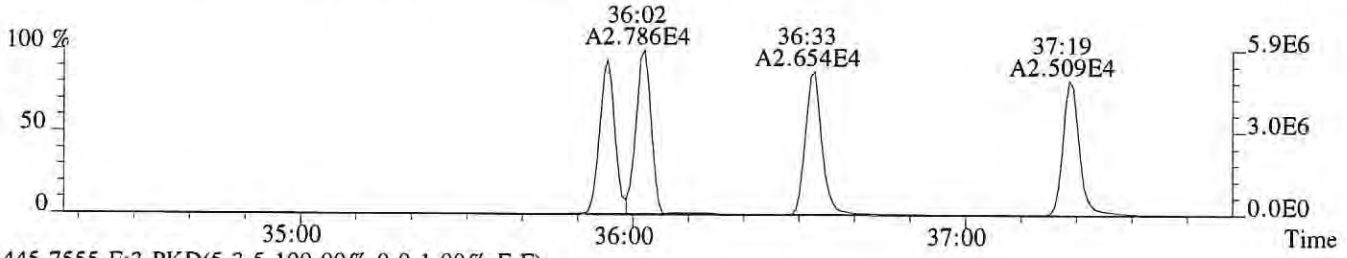
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9620.0,0.40%,F,T)



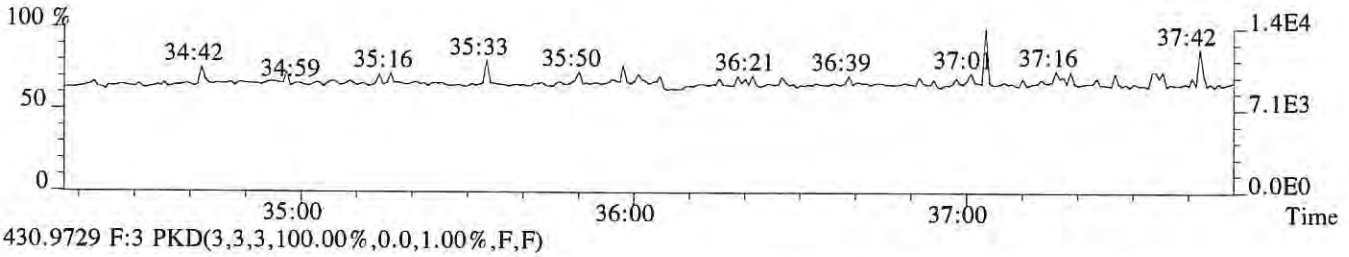
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4496.0,0.40%,F,T)



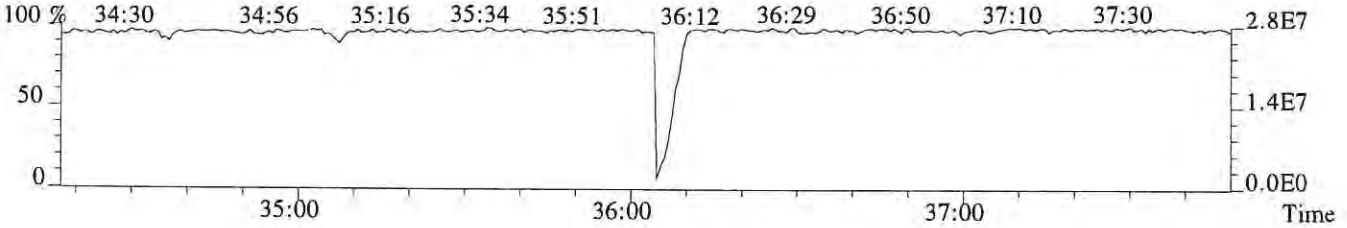
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3348.0,0.40%,F,T)



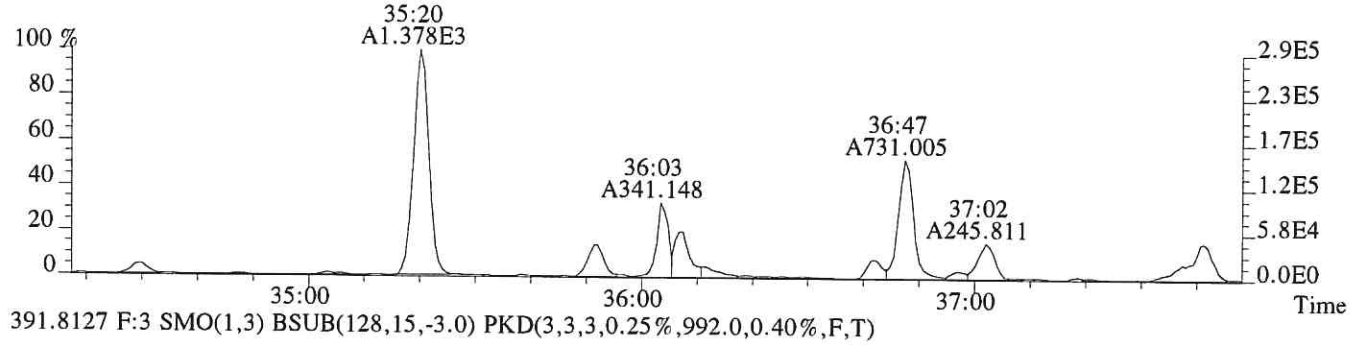
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



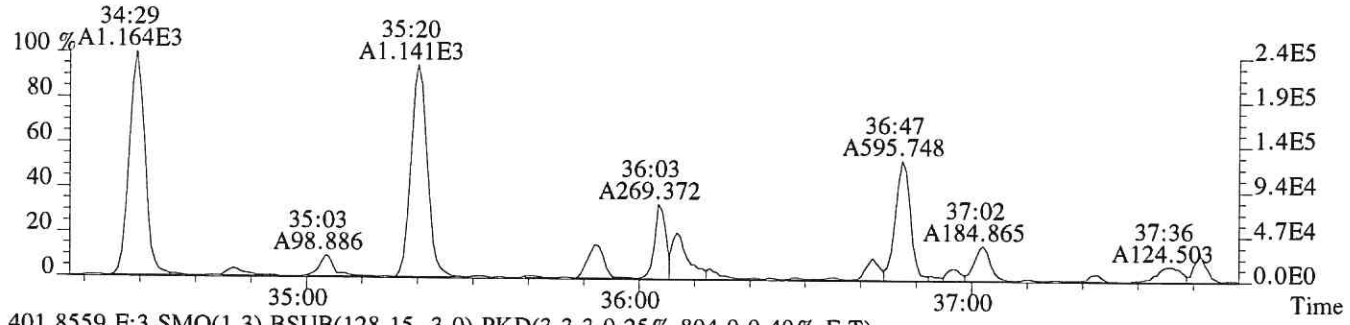
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



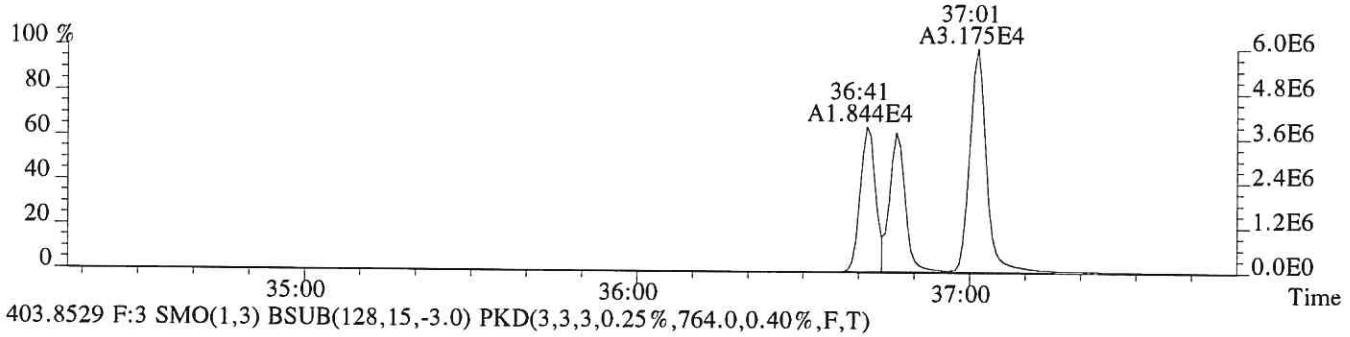
File:P519297 #1-317 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



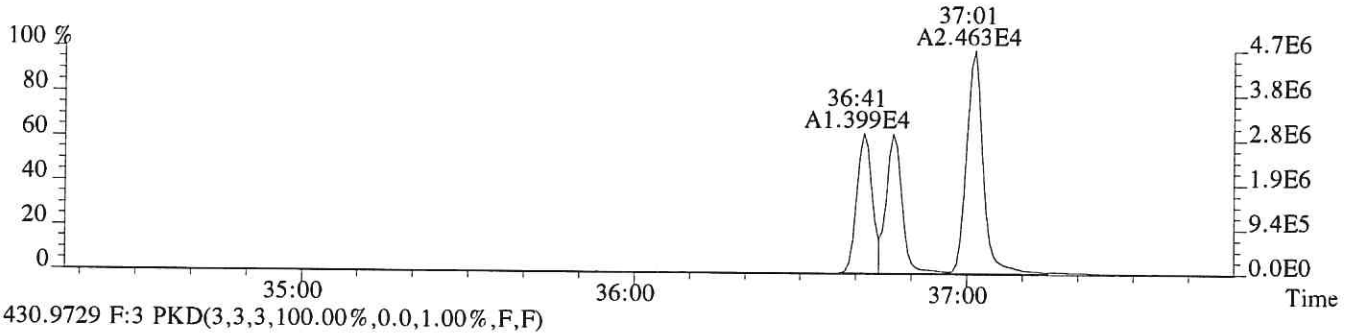
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



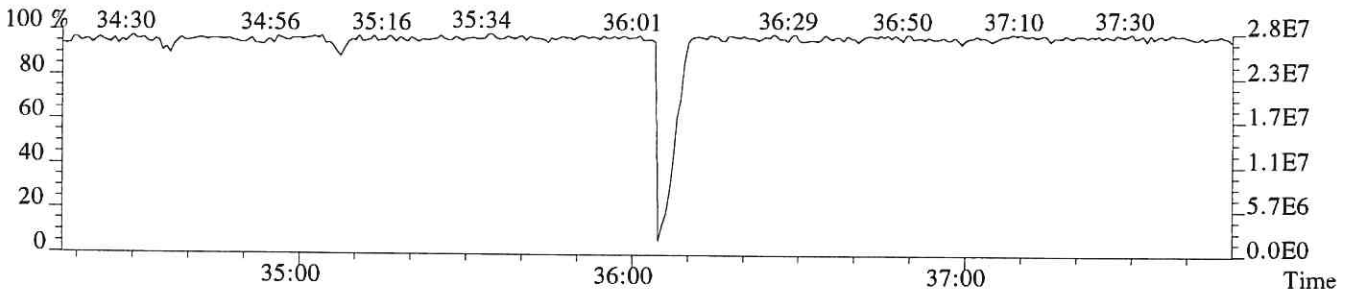
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



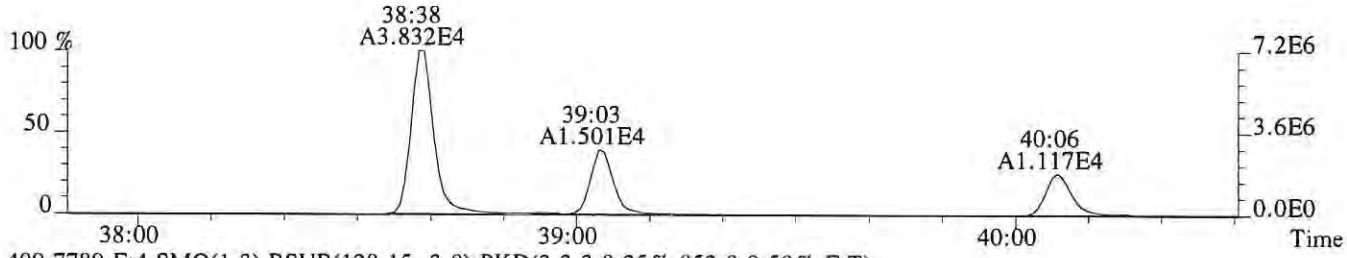
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



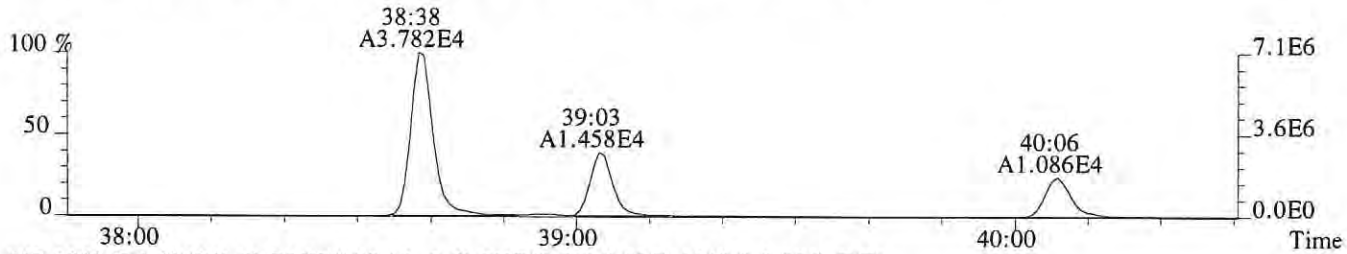
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



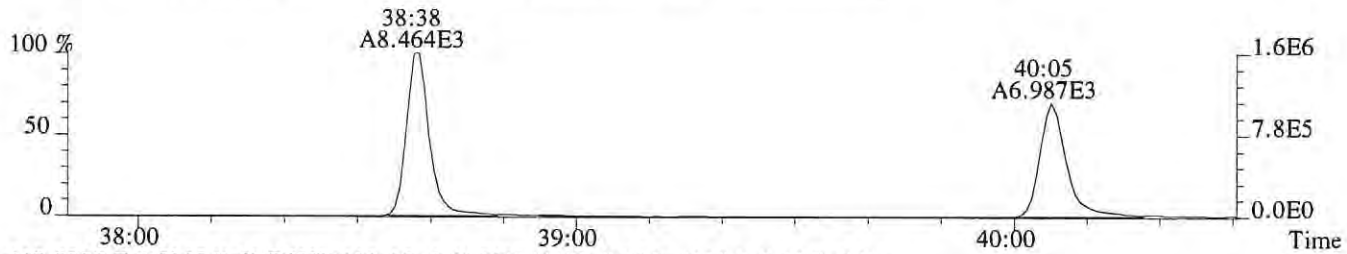
File:P519297 #1-241 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801057-007
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7056.0,0.50%,F,T)



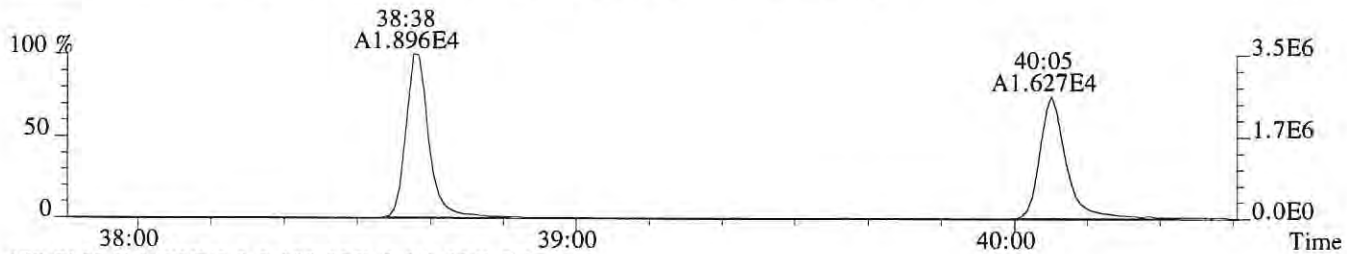
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.50%,F,T)



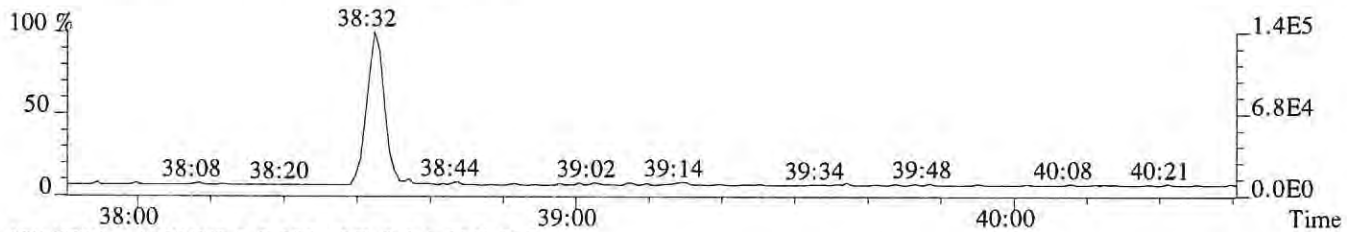
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.50%,F,T)



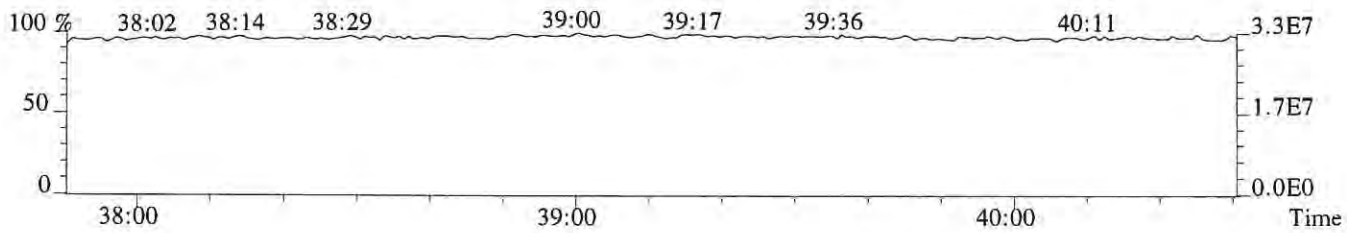
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4228.0,0.50%,F,T)



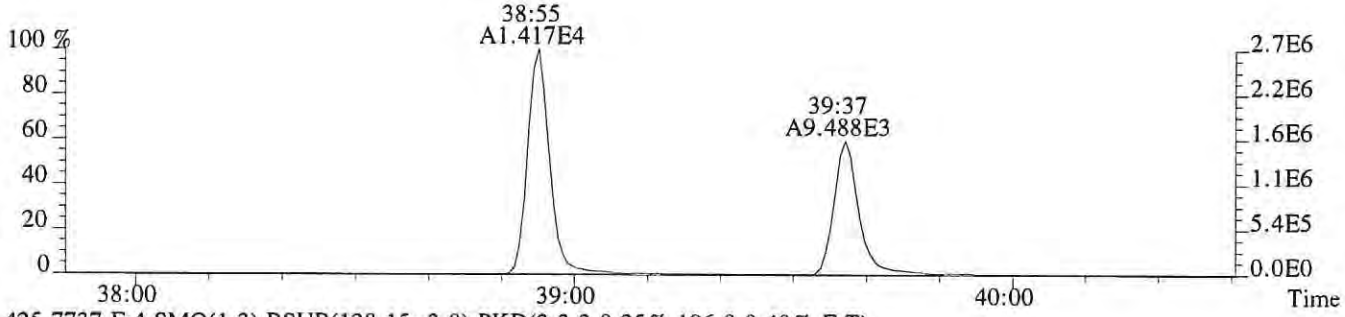
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



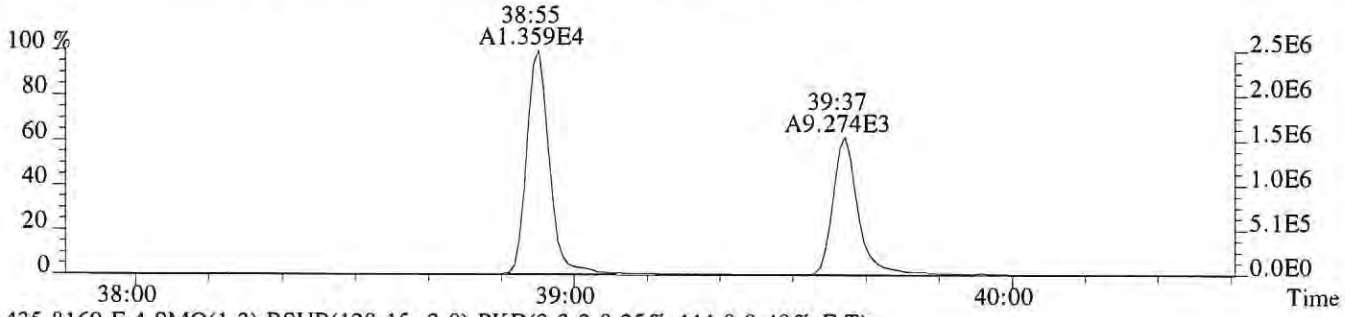
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



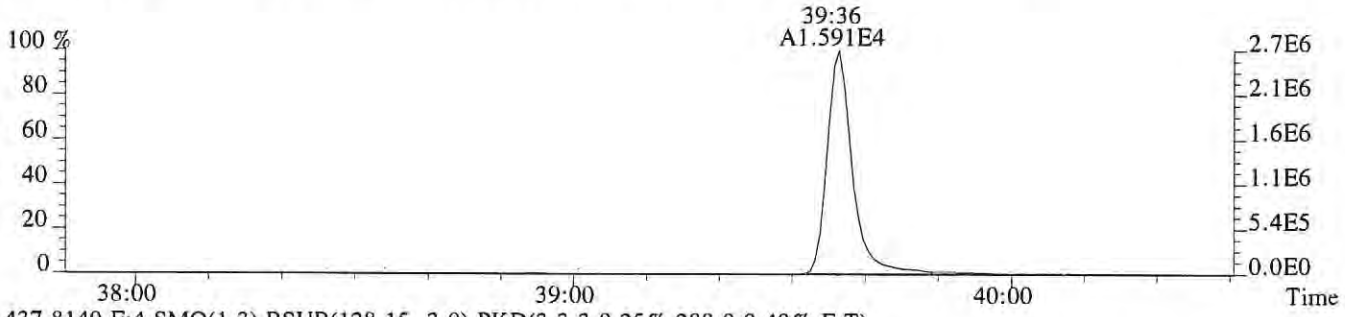
File:P519297 #1-241 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)



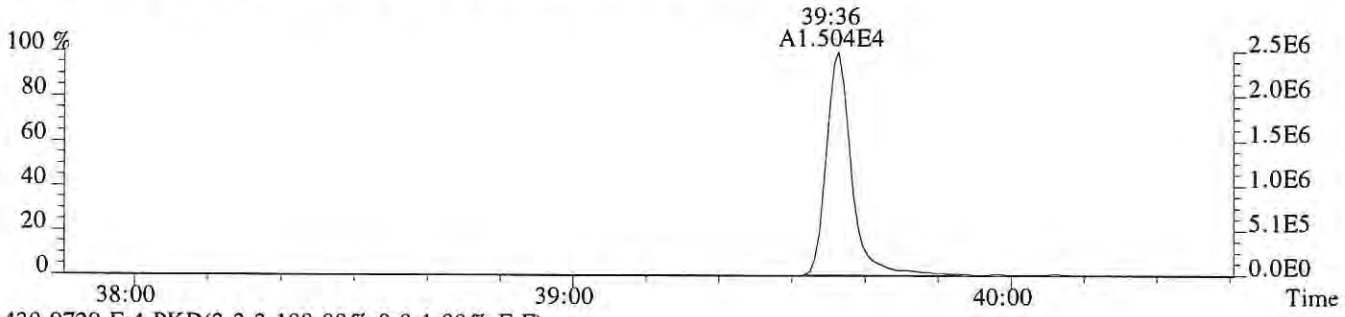
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



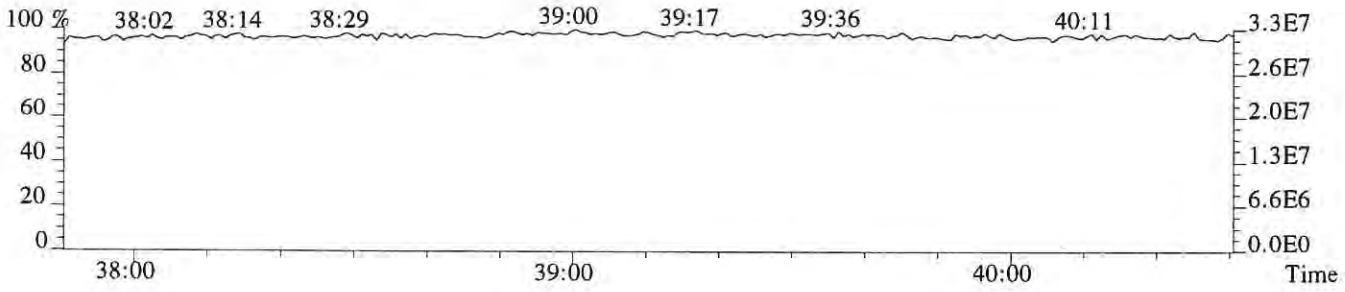
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



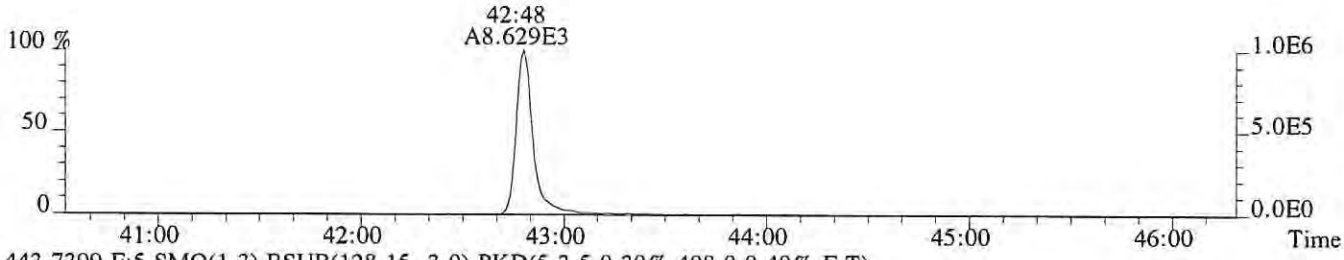
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



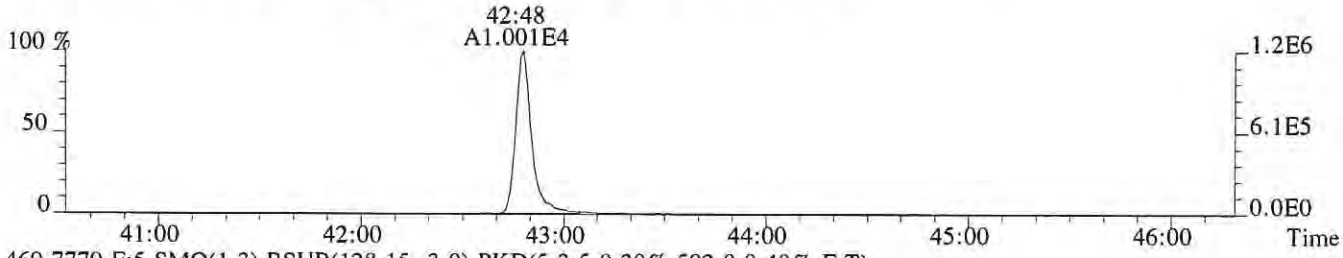
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



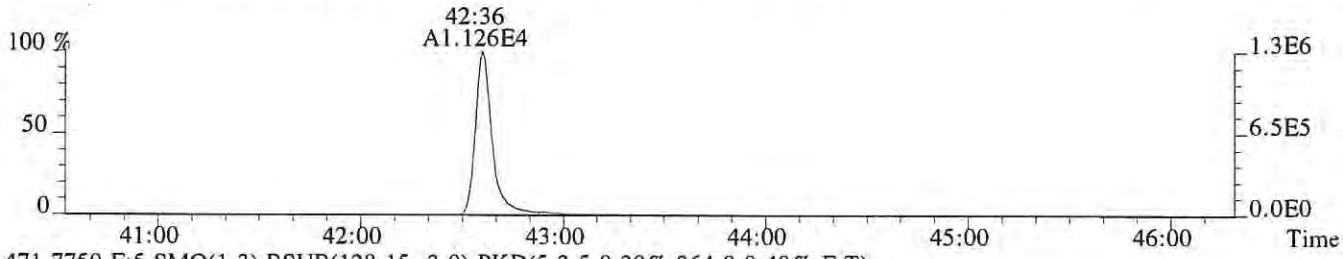
File:P519297 #1-520 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



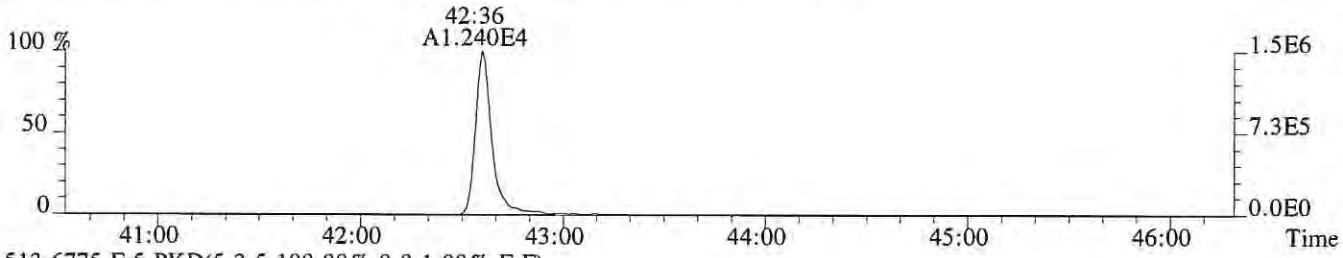
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



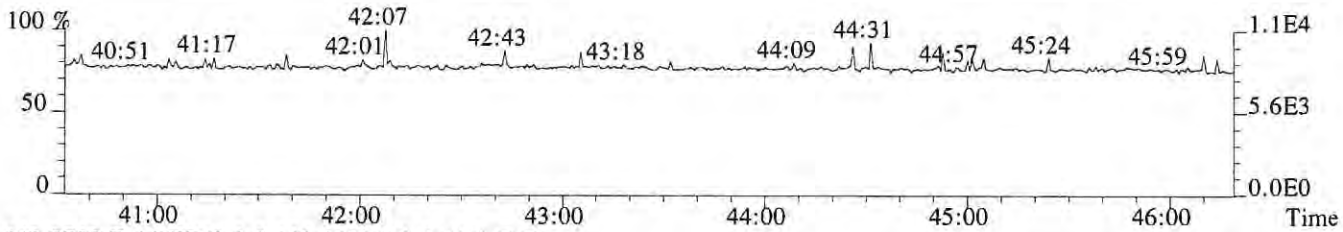
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



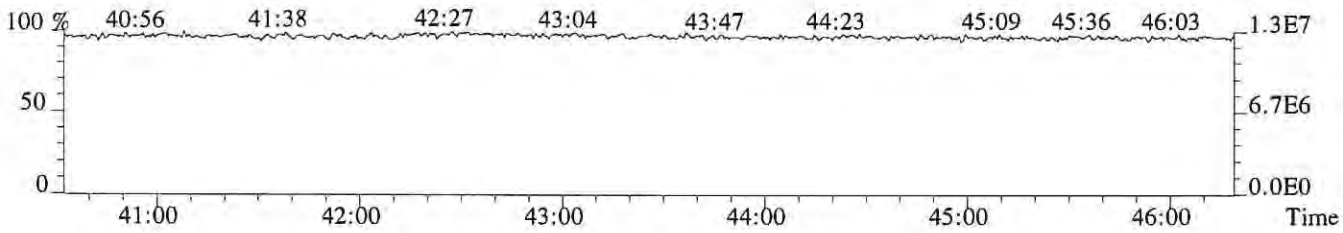
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



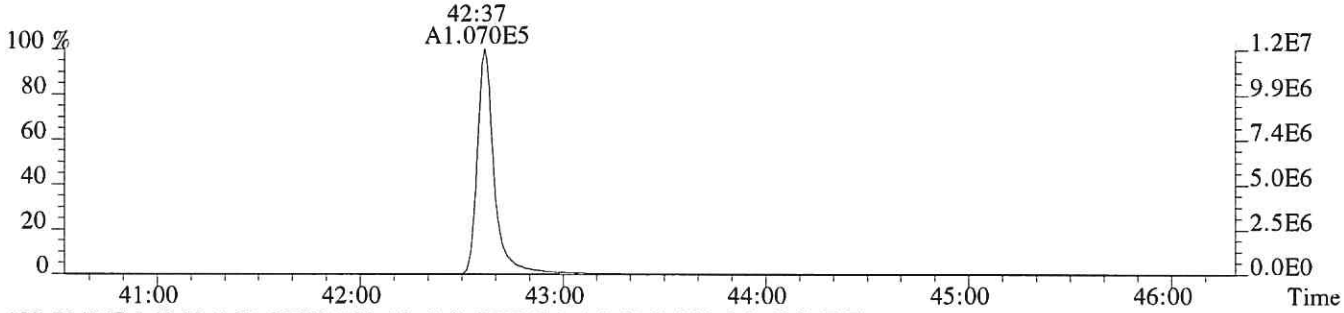
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



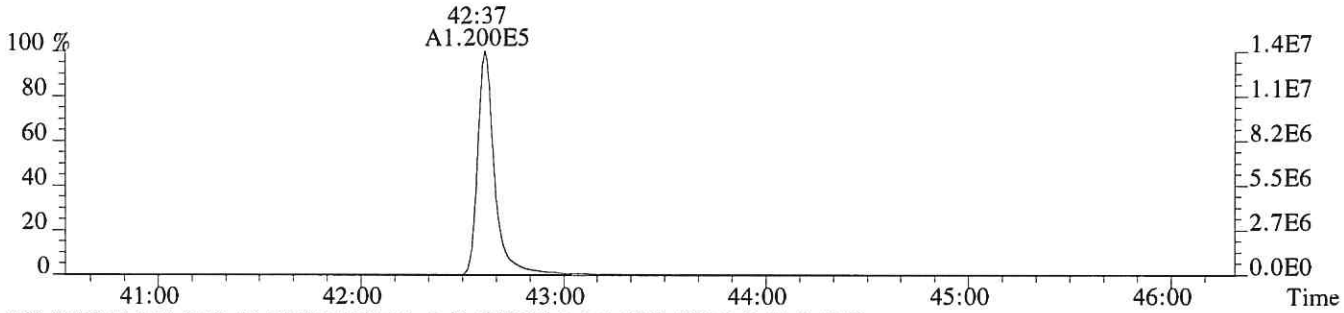
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



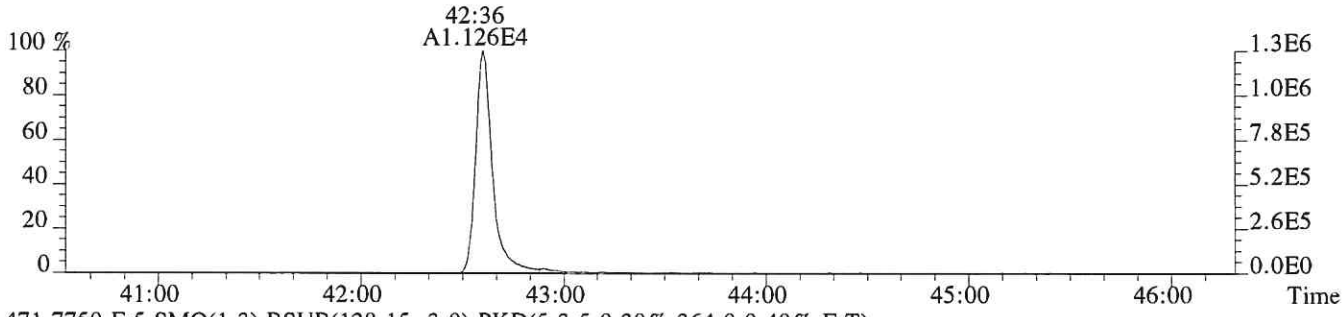
File:P519297 #1-520 Acq: 8-DEC-2018 03:13:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



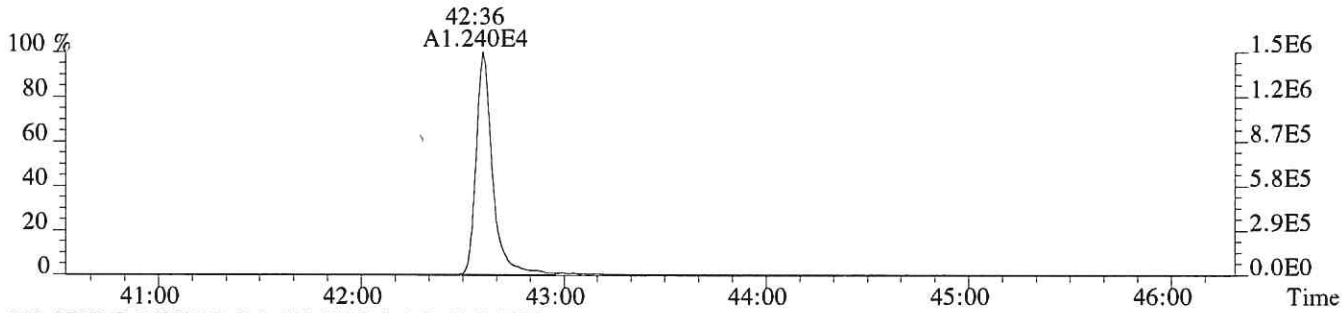
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



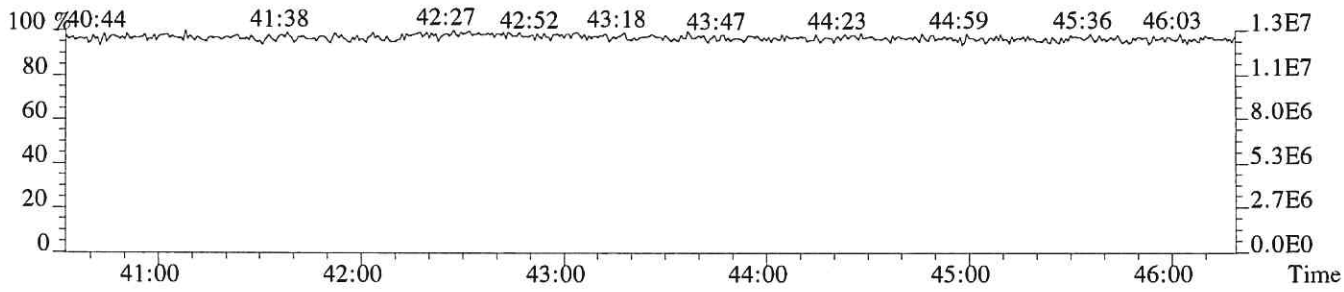
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0559

Run #18 Filename P519330 Samp: 1 Inj: 1 Acquired: 10-DEC-18 17:41:56
Processed: 11-DEC-18 15:18:40 Sample ID: E1801057-007DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.782e+04	2.373e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	9.549e+02	6.674e+02	1.43	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	7.346e+02	4.724e+02	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	1.170e+03	9.483e+02	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.601e+02	3.112e+02	1.16	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	5.587e+01	5.286e+01	1.06	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	9.373e+01	6.277e+01	1.49	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	2.504e+02	2.372e+02	1.06	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	8.441e+01	1.075e+02	0.79	no	no	1.258
10	Unk	OCDF	42:37	8.377e+01	9.106e+01	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	4.007e+03	5.174e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	5.867e+01	3.581e+01	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	6.405e+01	5.557e+01	1.15	yes	no	1.025
17	Unk	OCDD	42:26	9.043e+02	1.118e+03	0.81	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.573e+04	1.945e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.470e+04	1.502e+04	1.64	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.293e+04	1.411e+04	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.546e+03	1.842e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.101e+04	2.218e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.044e+04	2.020e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	8.814e+03	1.719e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	7.822e+03	1.811e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	6.441e+03	1.464e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	7.694e+03	9.524e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.631e+04	9.855e+03	1.65	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.218e+04	9.650e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.356e+04	1.063e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.392e+04	1.302e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:25	1.588e+04	1.735e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	1.088e+04	1.353e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	1.415e+04	1.084e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	1.271e+02				no	1.014

$$\text{OCDD} = \frac{(9.043e+02 + 1.118e+03) \times 4000 \text{ pg} \times 100}{(1.588e+04 + 1.735e+04) \times 10.687 \text{ g} \times 58.8 / 100 \times 1.118 \times 0.36} = 9624 \text{ ng/Kg}$$

LM 12/11/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0559

Run #18 Filename P519330 Samp: 1 Inj: 1 Acquired: 10-DEC-18 17:41:56
Processed: 11-DEC-18 15:18:40 LAB. ID: E1801057-007DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.89e+06	7.04e+02	4.1e+03	3.82e+06	2.22e+03	1.7e+03
2	1,2,3,7,8-PeCDF	1.69e+05	1.27e+03	1.3e+02	1.18e+05	1.55e+03	7.6e+01
3	2,3,4,7,8-PeCDF	1.11e+05	1.27e+03	8.8e+01	7.37e+04	1.55e+03	4.8e+01
4	1,2,3,4,7,8-HxCDF	2.48e+05	8.68e+02	2.9e+02	1.94e+05	3.84e+02	5.1e+02
5	1,2,3,6,7,8-HxCDF	6.35e+04	8.68e+02	7.3e+01	4.90e+04	3.84e+02	1.3e+02
6	2,3,4,6,7,8-HxCDF	1.00e+04	8.68e+02	1.2e+01	9.96e+03	3.84e+02	2.6e+01
7	1,2,3,7,8,9-HxCDF	1.44e+04	8.68e+02	1.7e+01	9.77e+03	3.84e+02	2.5e+01
8	1,2,3,4,6,7,8-HpCDF	4.76e+04	6.00e+02	7.9e+01	4.51e+04	3.28e+02	1.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.49e+04	6.00e+02	2.5e+01	1.61e+04	3.28e+02	4.9e+01
10	OCDF	1.09e+04	3.00e+02	3.6e+01	1.28e+04	8.00e+02	1.6e+01
11	2,3,7,8-TCDD	7.44e+05	1.94e+03	3.8e+02	9.62e+05	7.36e+02	1.3e+03
12	1,2,3,7,8-PeCDD	1.10e+04	6.40e+02	1.7e+01	7.16e+03	2.52e+02	2.8e+01
13	1,2,3,4,7,8-HxCDD	*	3.92e+02	*	*	5.84e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.92e+02	*	*	5.84e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.92e+02	*	*	5.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.19e+04	5.28e+02	2.3e+01	1.00e+04	3.96e+02	2.5e+01
17	OCDD	1.16e+05	3.24e+02	3.6e+02	1.31e+05	2.04e+02	6.4e+02
18	13C-2,3,7,8-TCDF	2.82e+06	8.67e+03	3.2e+02	3.50e+06	6.56e+03	5.3e+02
19	13C-1,2,3,7,8-PeCDF	4.42e+06	4.60e+02	9.6e+03	2.72e+06	6.48e+02	4.2e+03
20	13C-2,3,4,7,8-PeCDF	4.38e+06	4.60e+02	9.5e+03	2.68e+06	6.48e+02	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.05e+06	6.68e+02	3.1e+03	3.87e+06	8.96e+02	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	2.09e+06	6.68e+02	3.1e+03	4.17e+06	8.96e+02	4.7e+03
23	13C-2,3,4,6,7,8-HxCDF	2.01e+06	6.68e+02	3.0e+03	3.96e+06	8.96e+02	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.61e+06	6.68e+02	2.4e+03	3.11e+06	8.96e+02	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.49e+06	2.34e+03	6.3e+02	3.36e+06	4.22e+03	8.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.01e+06	2.34e+03	4.3e+02	2.25e+06	4.22e+03	5.3e+02
27	13C-2,3,7,8-TCDD	1.42e+06	7.05e+03	2.0e+02	1.74e+06	2.07e+03	8.4e+02
28	13C-1,2,3,7,8-PeCDD	3.06e+06	1.03e+03	3.0e+03	1.83e+06	1.10e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.64e+06	9.92e+02	2.7e+03	2.09e+06	7.32e+02	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	2.44e+06	9.92e+02	2.5e+03	1.96e+06	7.32e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.29e+06	6.64e+02	3.4e+03	2.15e+06	4.32e+02	5.0e+03
32	13C-OCDD	1.85e+06	3.44e+02	5.4e+03	2.11e+06	2.60e+02	8.1e+03
33	13C-1,2,3,4-TCDD	2.08e+06	7.05e+03	2.9e+02	2.56e+06	2.07e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.53e+06	9.92e+02	2.6e+03	1.98e+06	7.32e+02	2.7e+03
35	37Cl-2,3,7,8-TCDD	2.30e+04	1.13e+03	2.0e+01			

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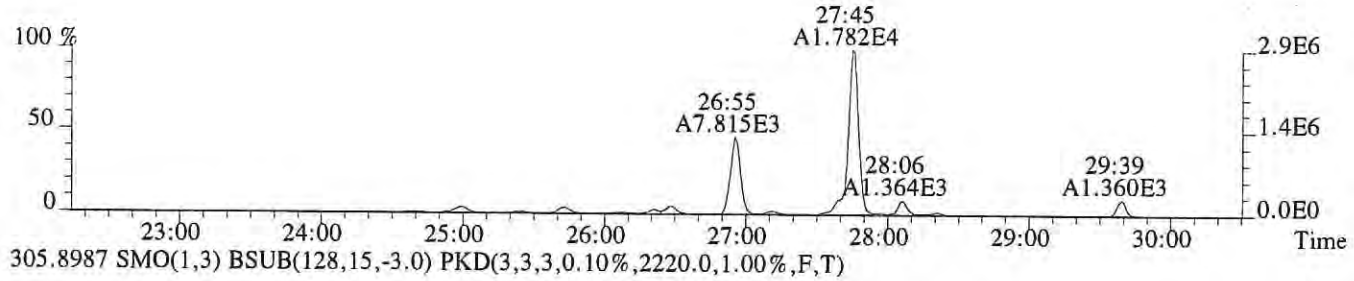
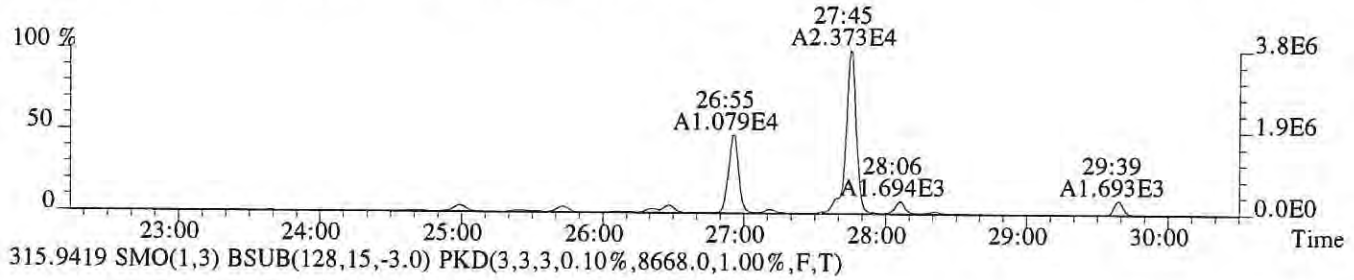
www.alsglobal.com

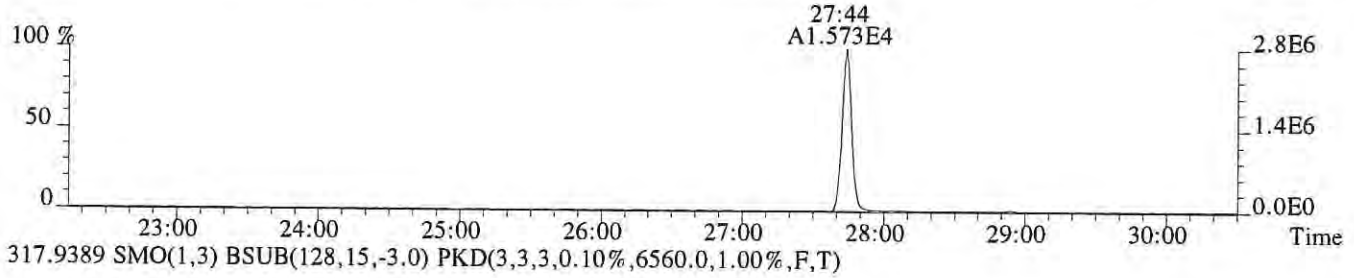
File:P519330 #1-587 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



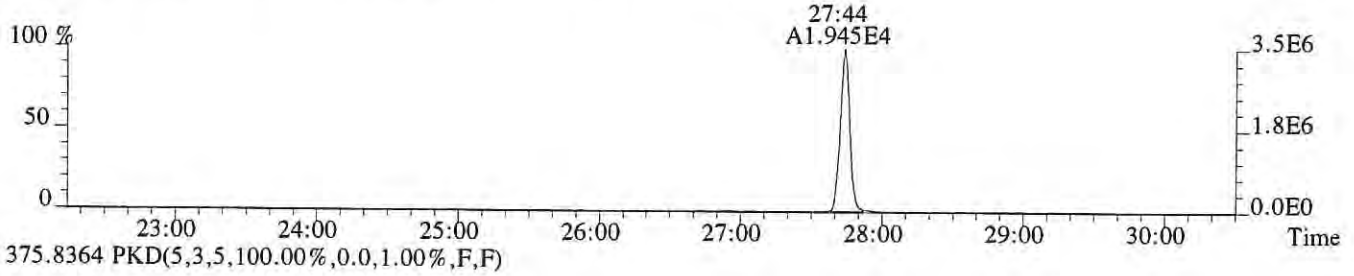
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2220.0,1.00%,F,T)



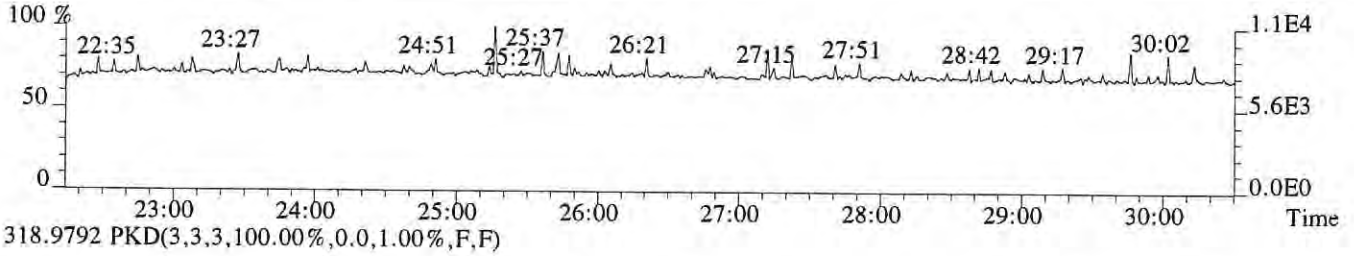
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8668.0,1.00%,F,T)



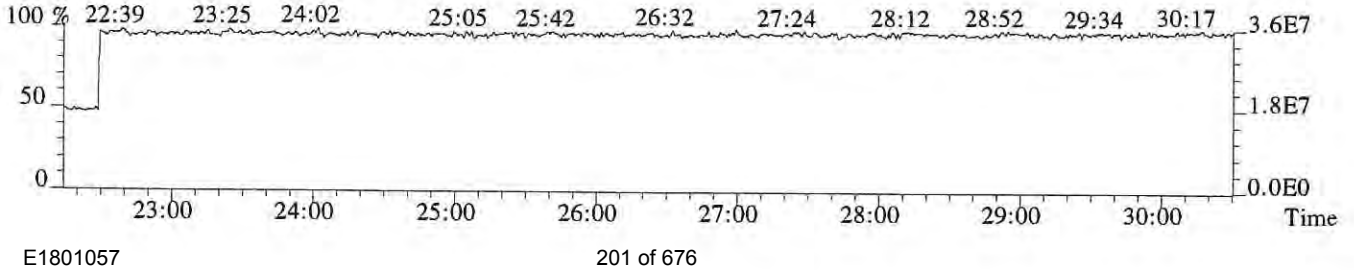
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6560.0,1.00%,F,T)



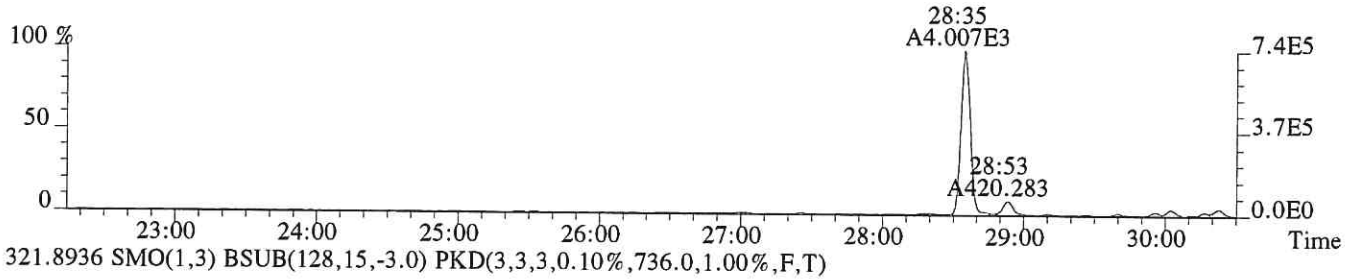
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



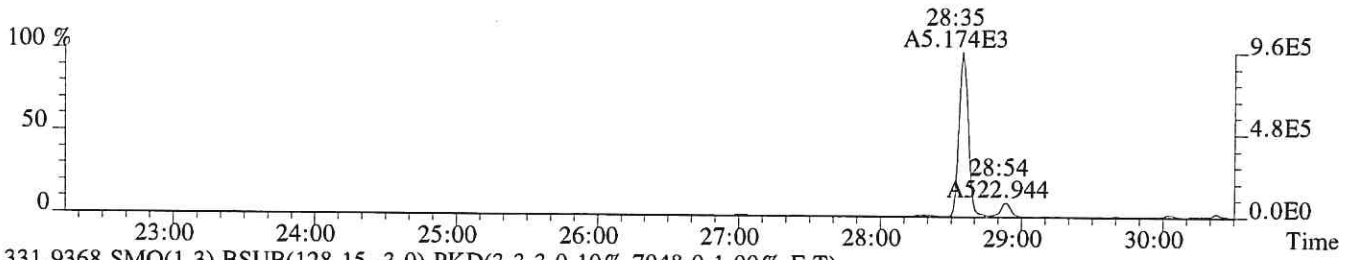
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



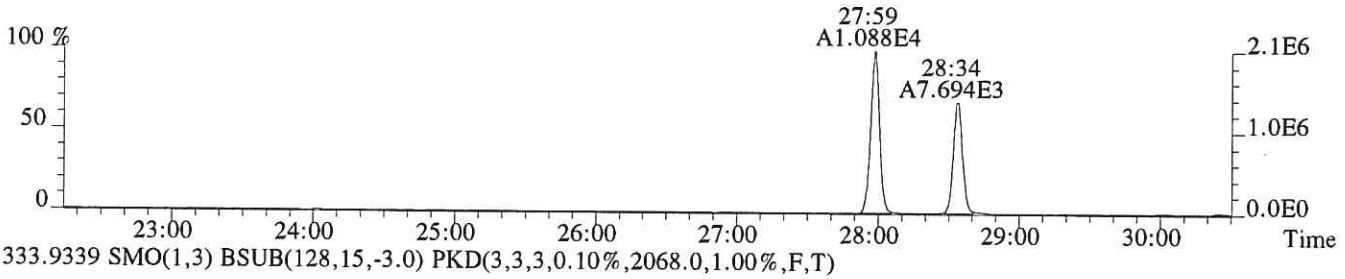
File:P519330 #1-587 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



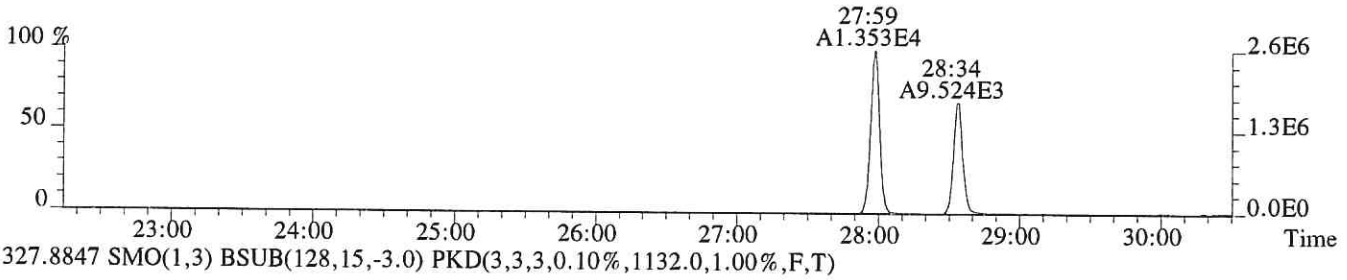
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



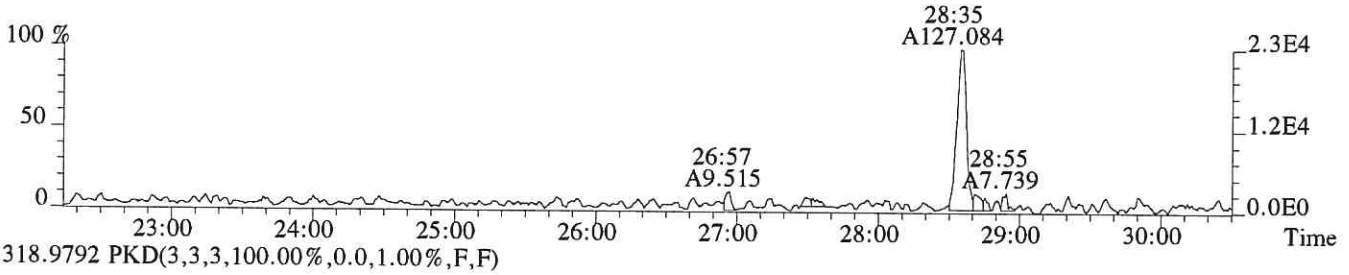
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7048.0,1.00%,F,T)



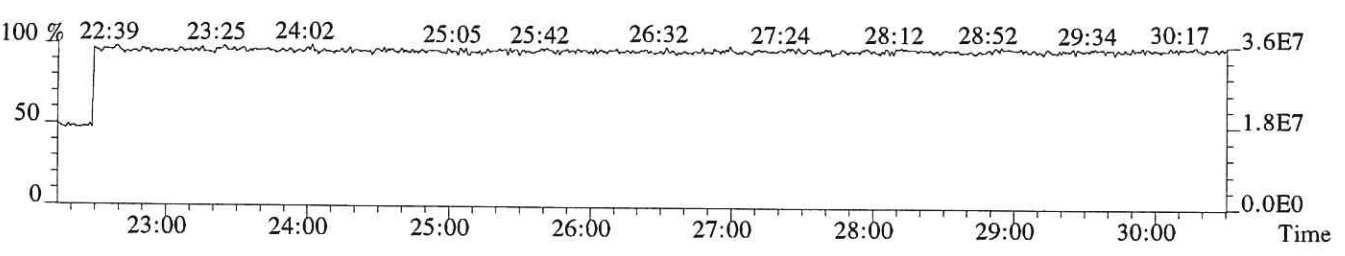
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



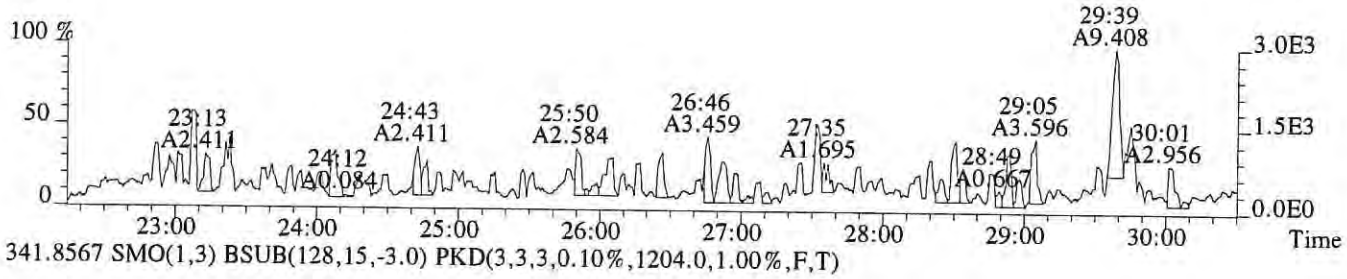
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



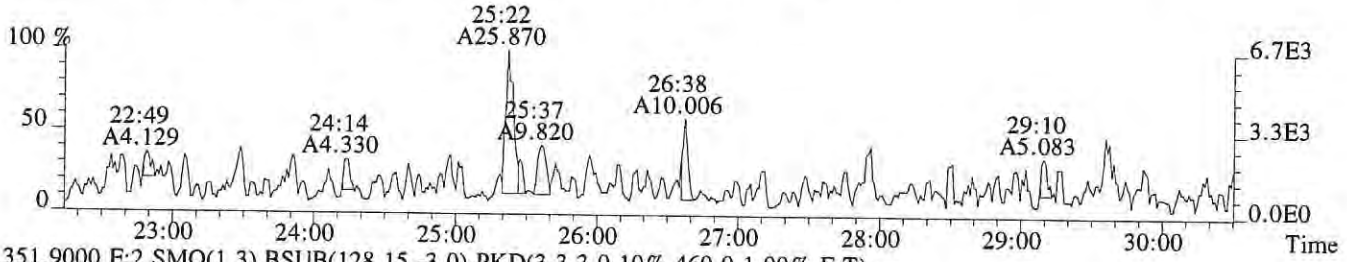
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



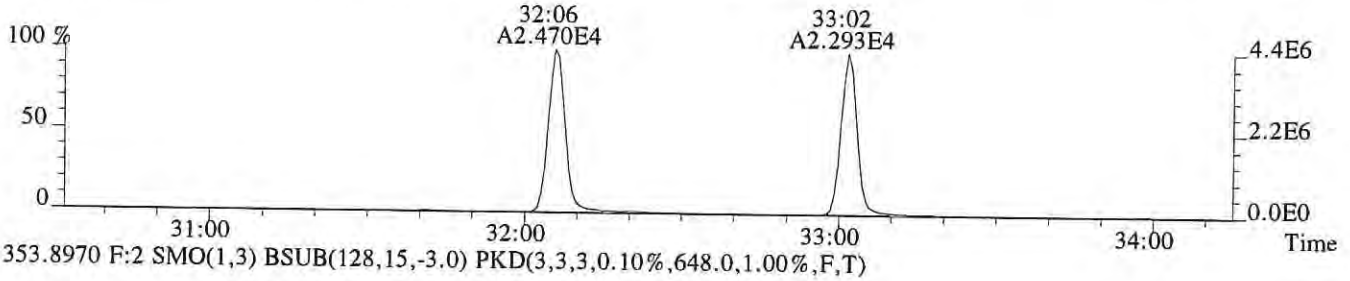
File:P519330 #1-587 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



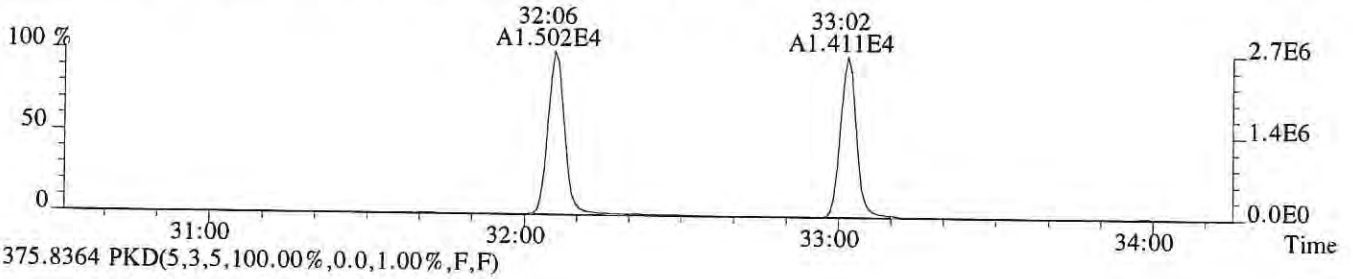
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



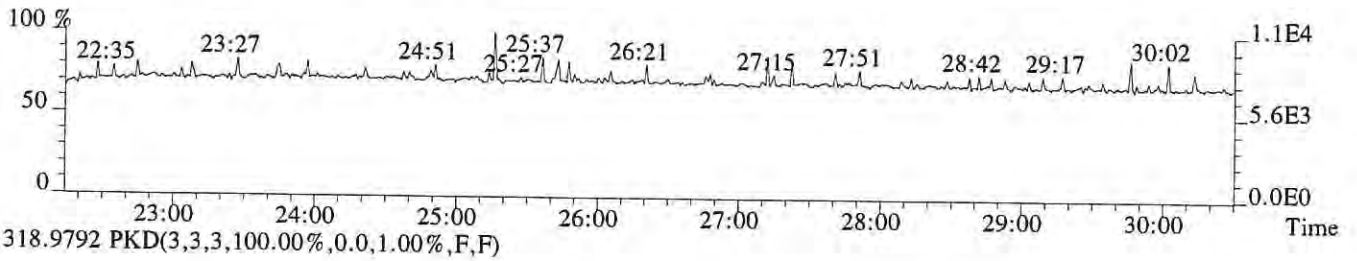
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



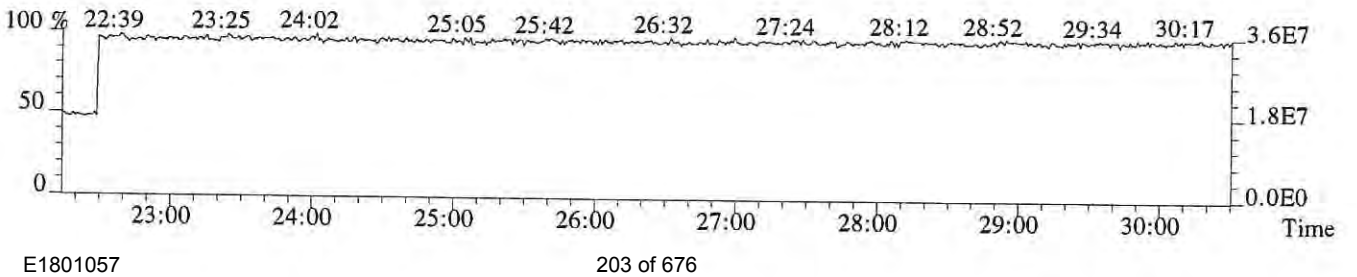
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



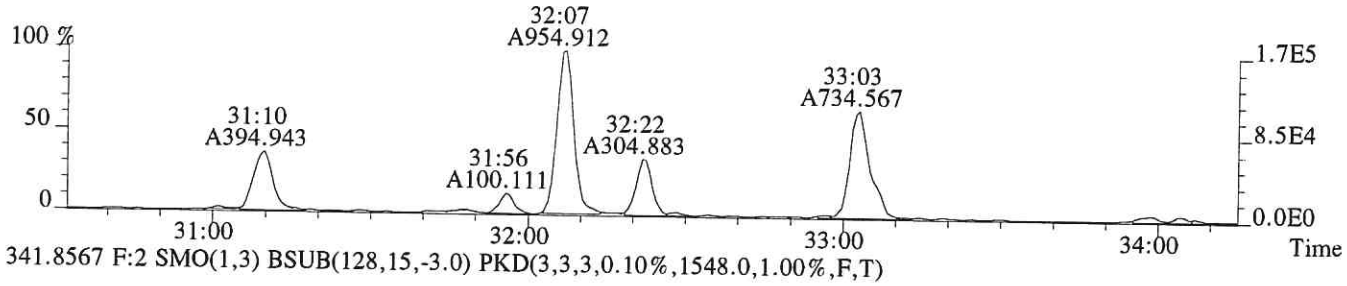
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



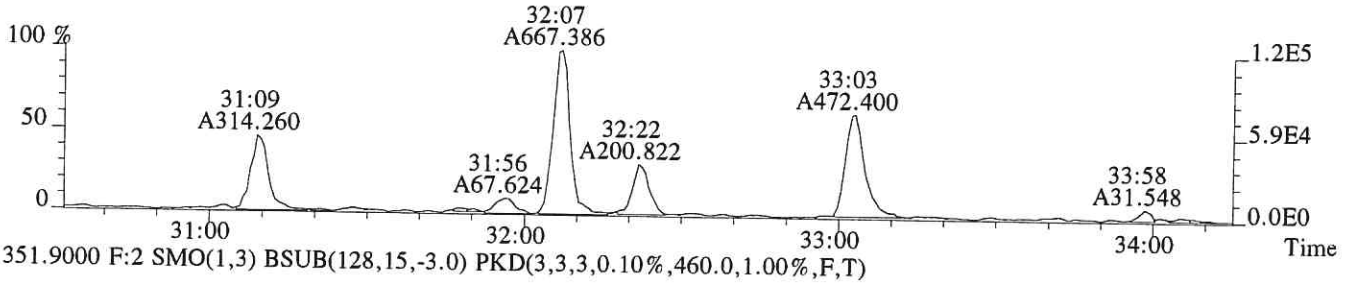
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



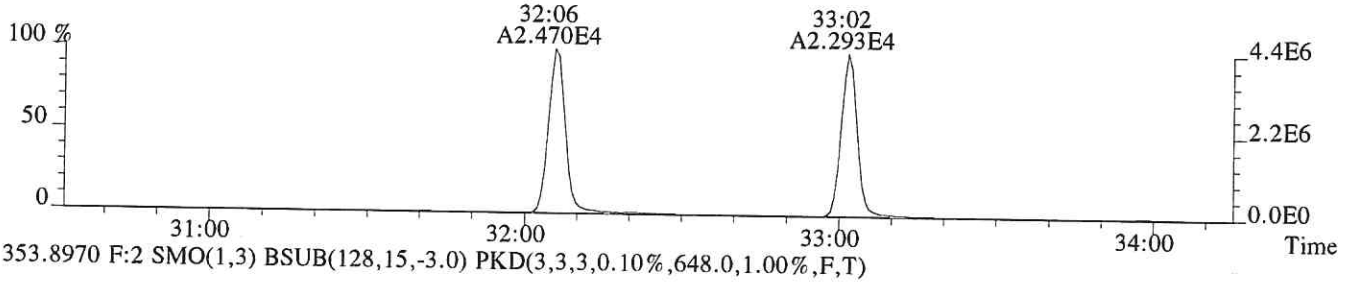
File:P519330 #1-335 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



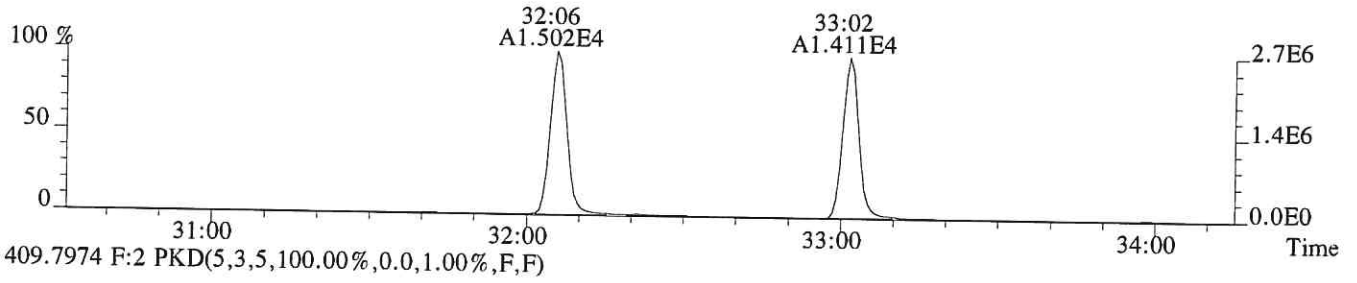
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



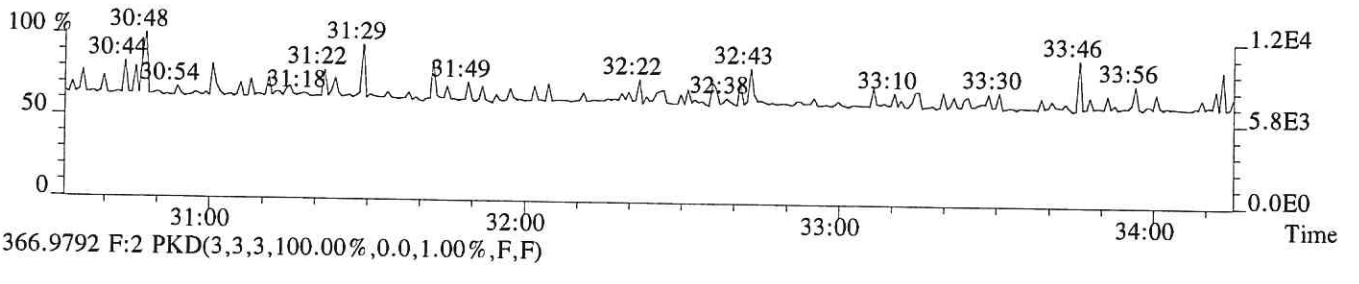
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



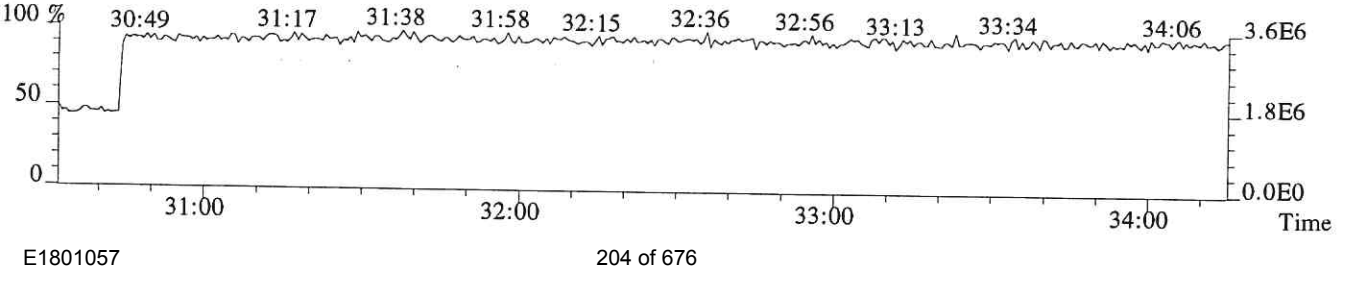
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



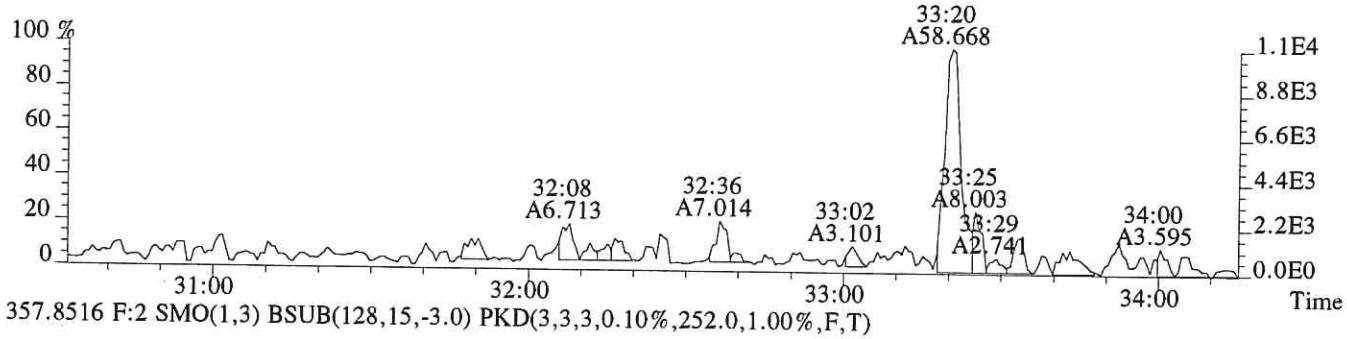
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



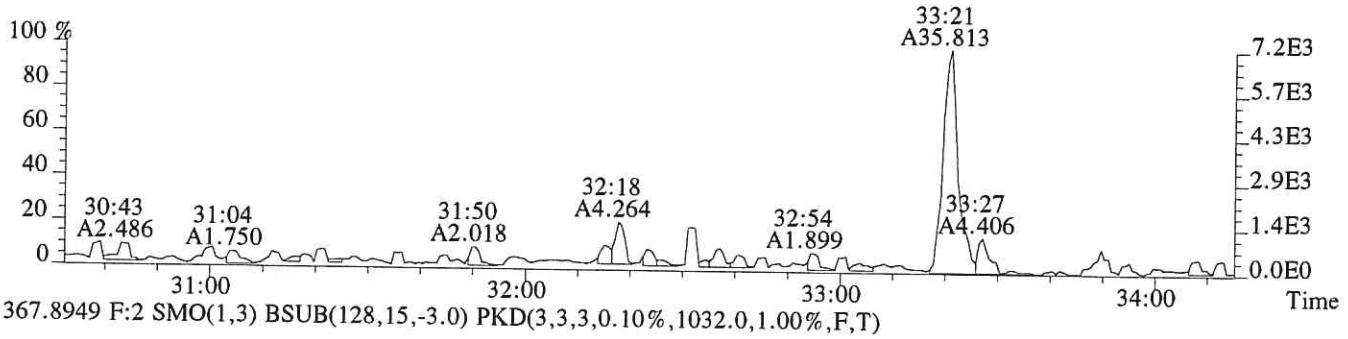
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



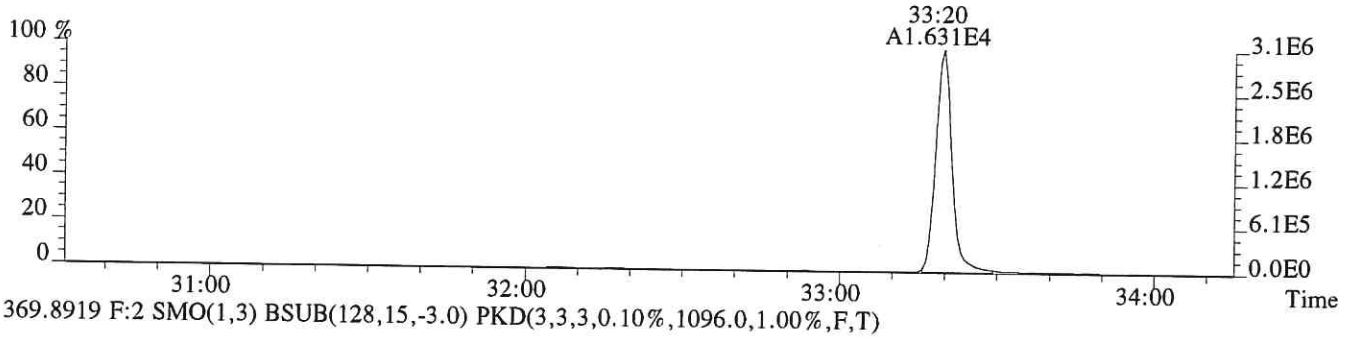
File:P519330 #1-335 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



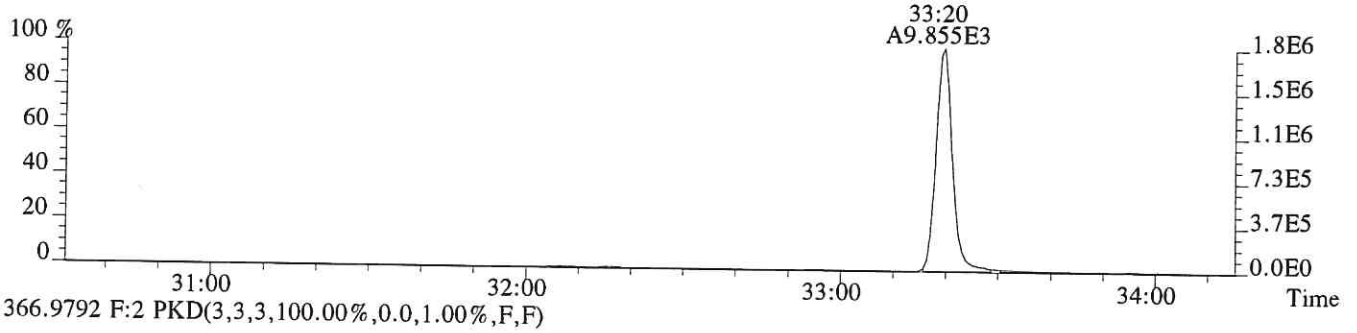
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



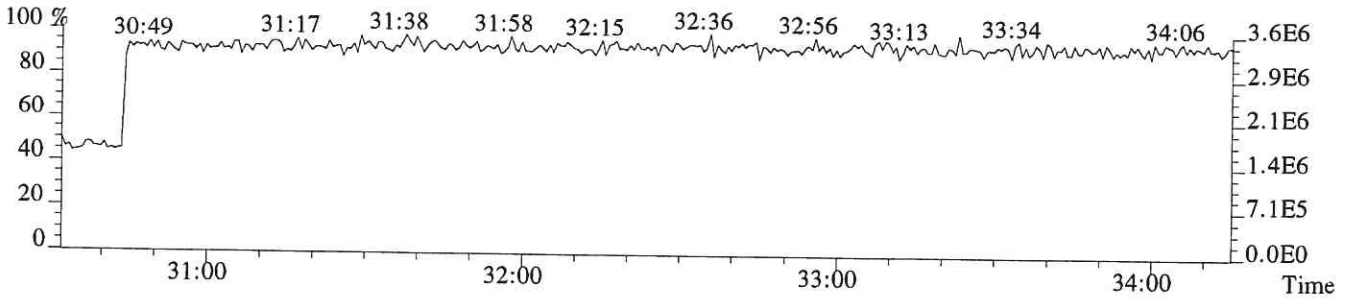
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



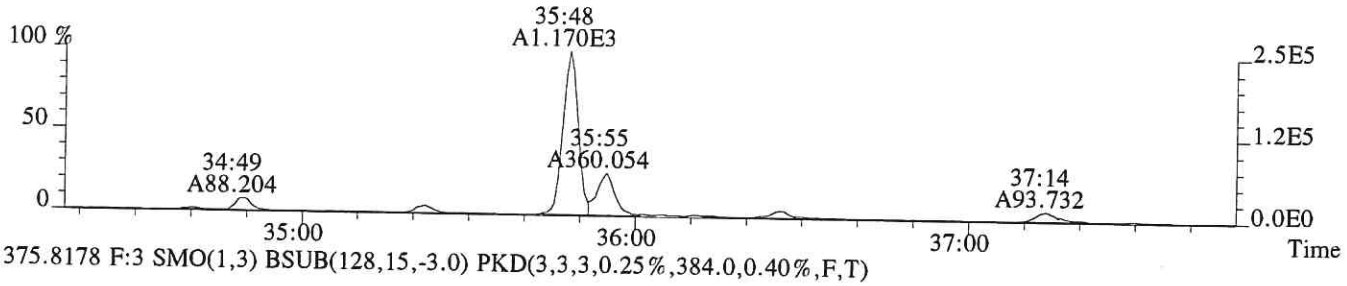
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



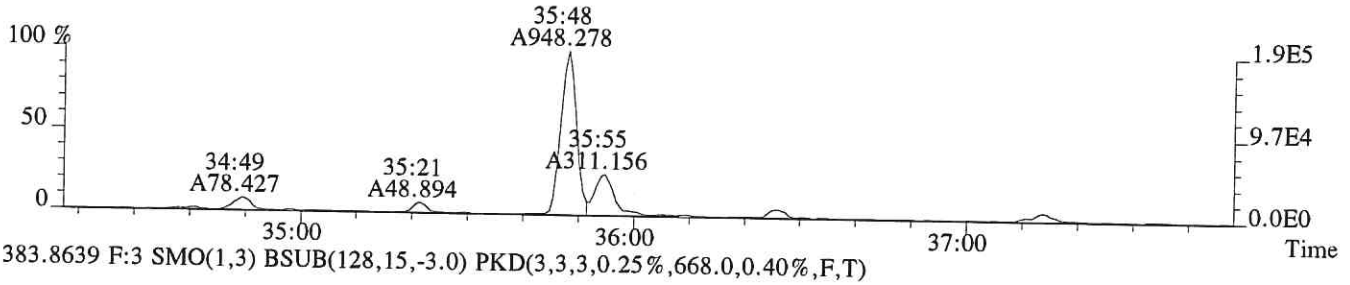
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



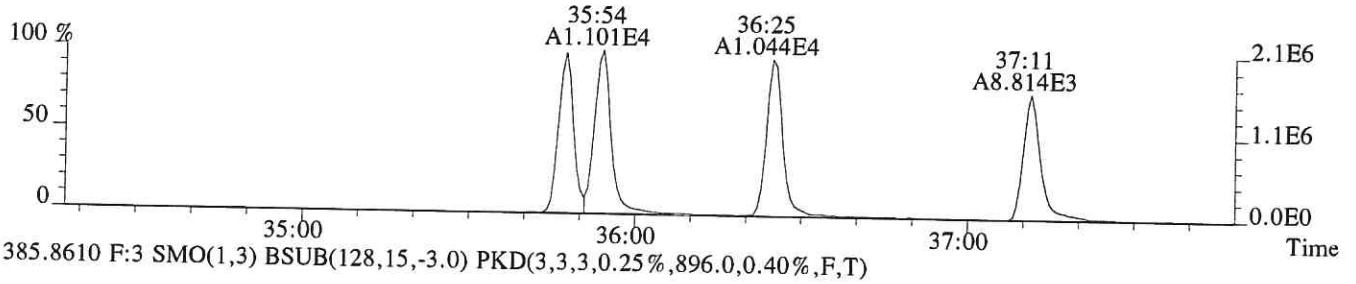
File:P519330 #1-317 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



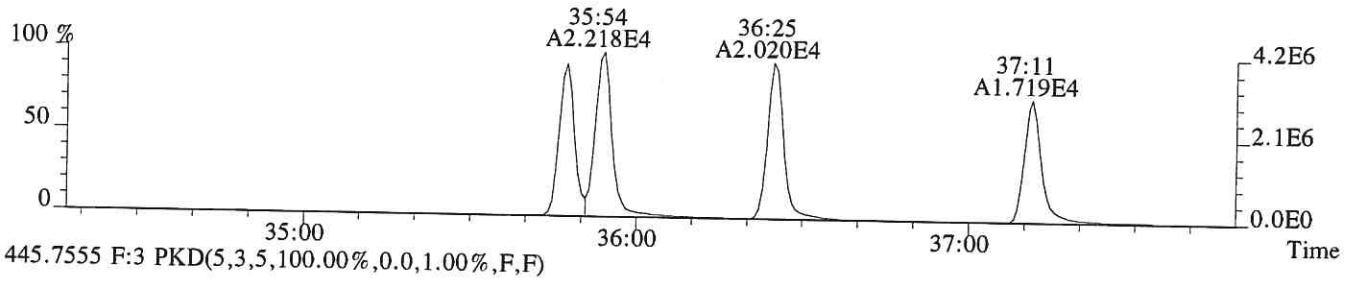
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



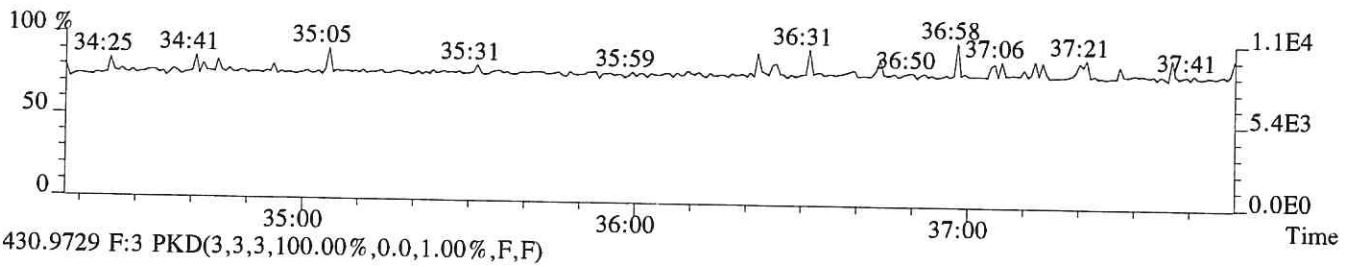
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



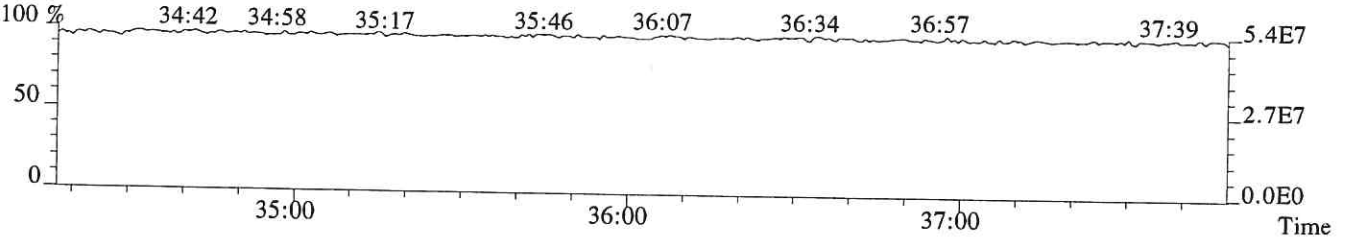
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



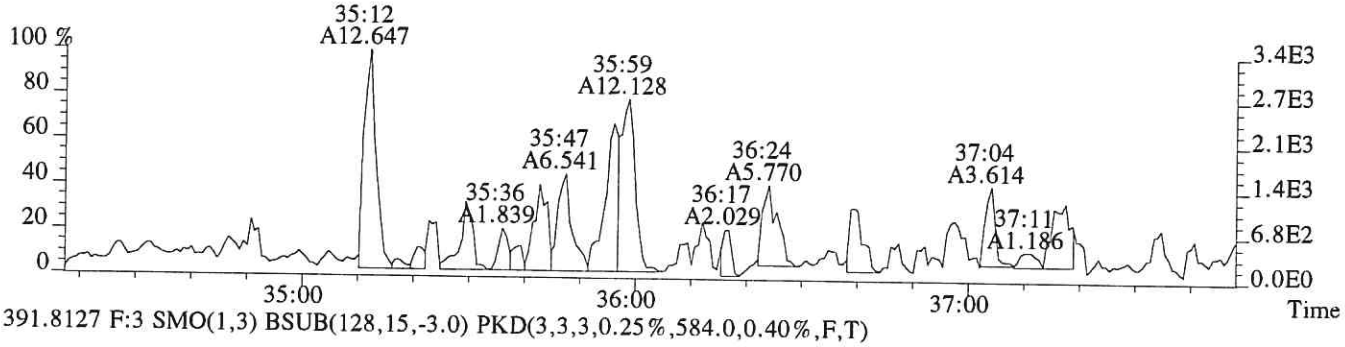
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



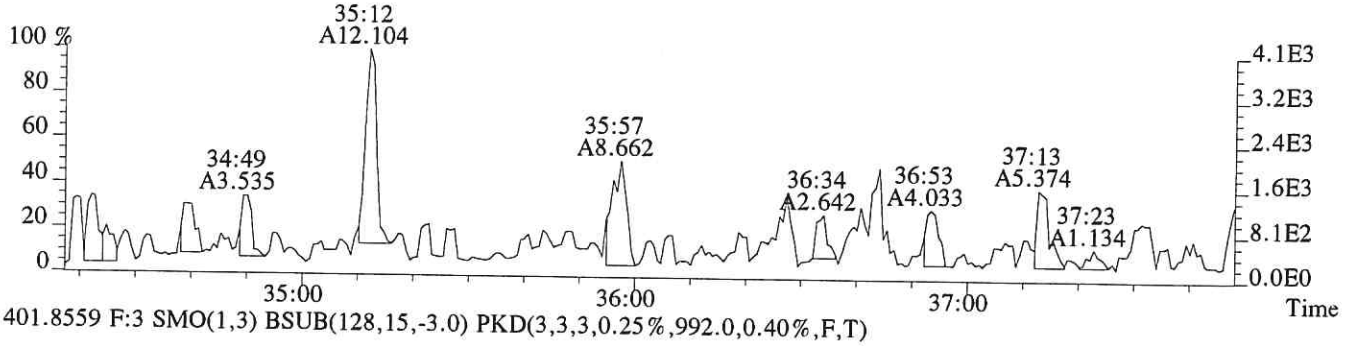
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



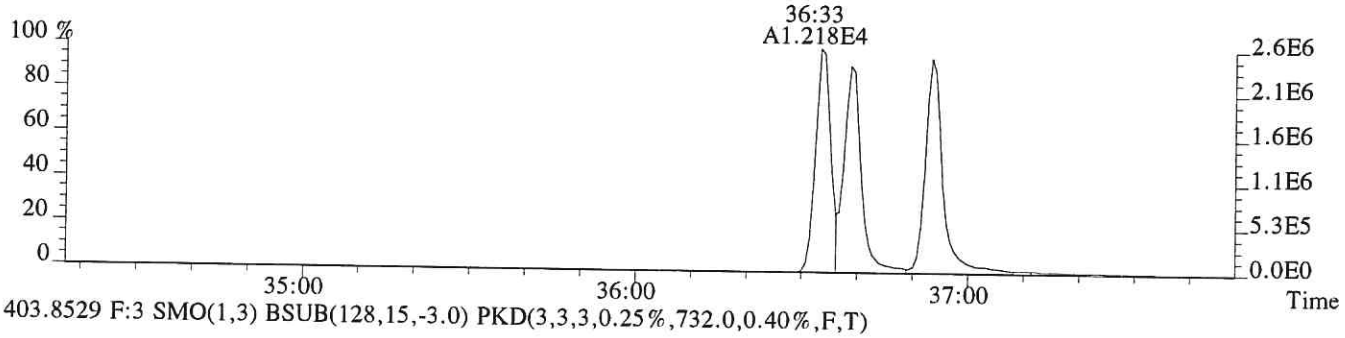
File:P519330 #1-317 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



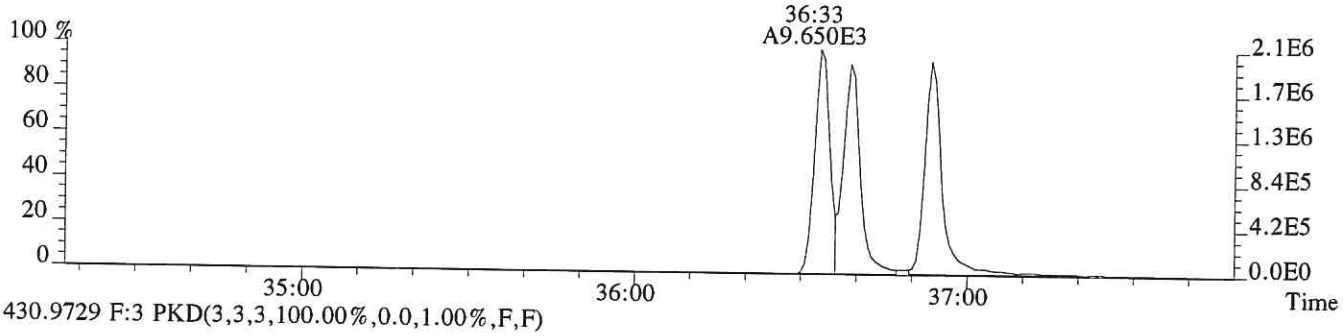
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



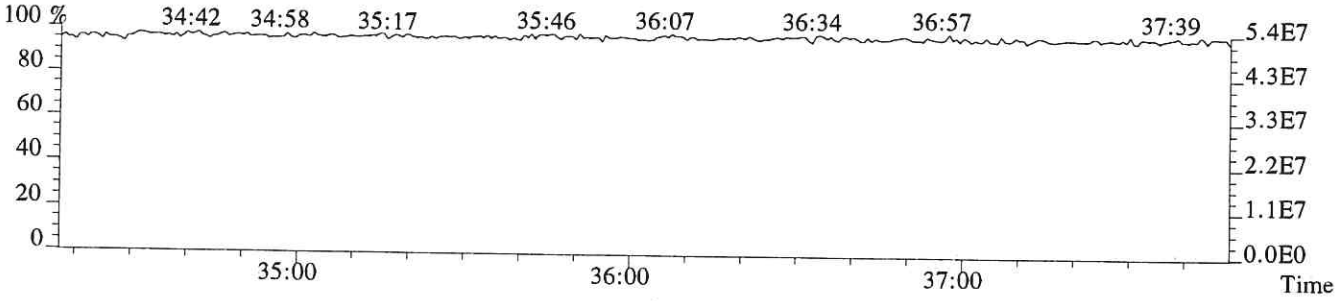
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



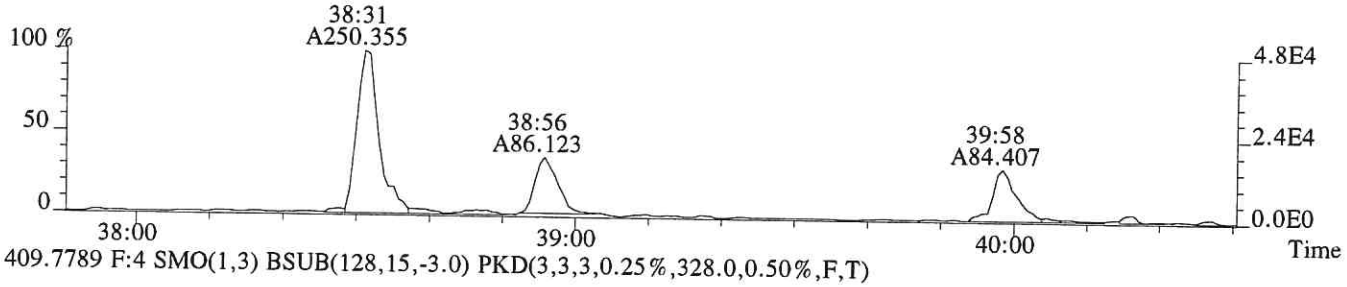
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



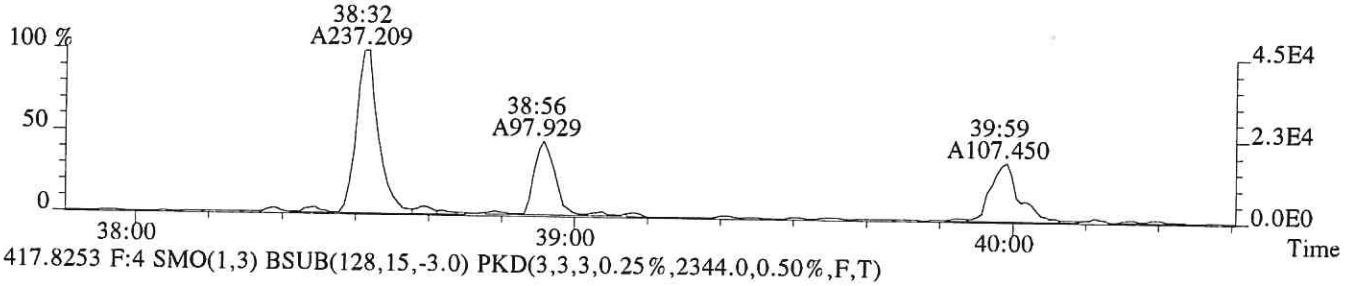
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



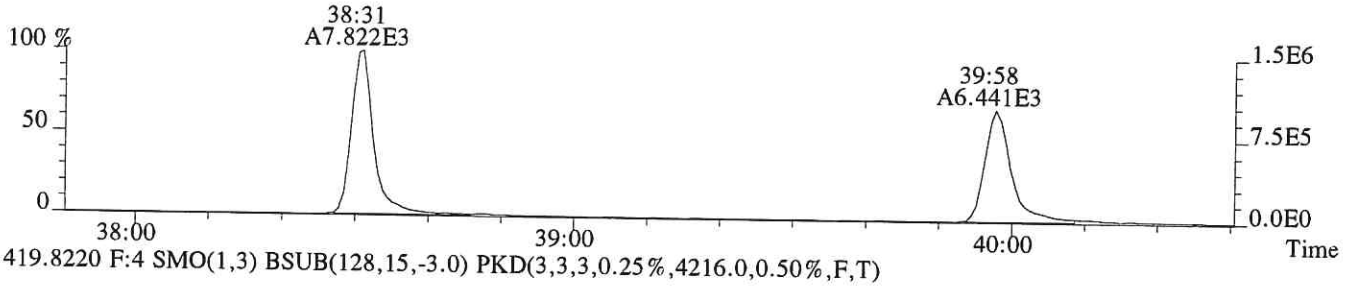
File:P519330 #1-241 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.50%,F,T)



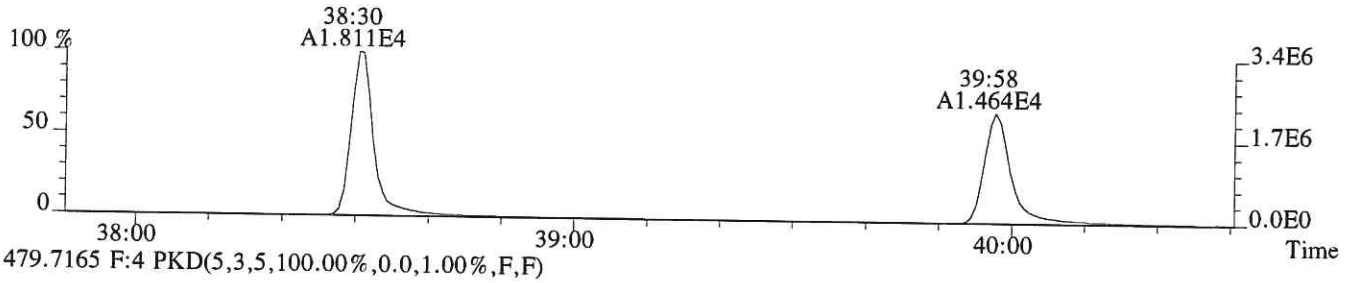
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.50%,F,T)



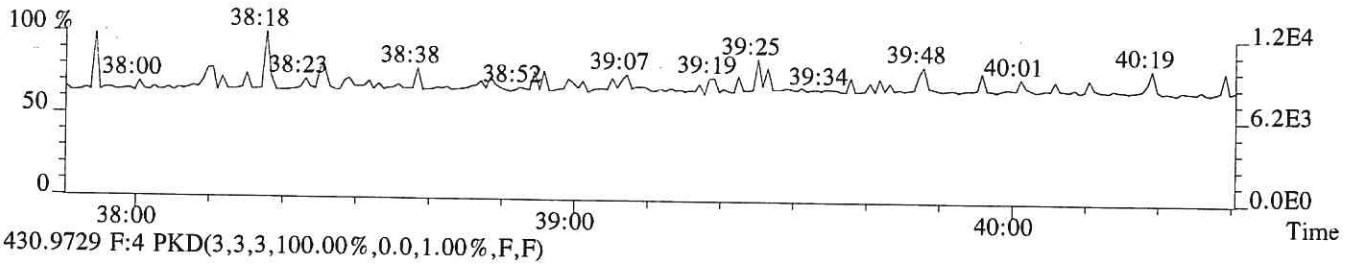
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2344.0,0.50%,F,T)



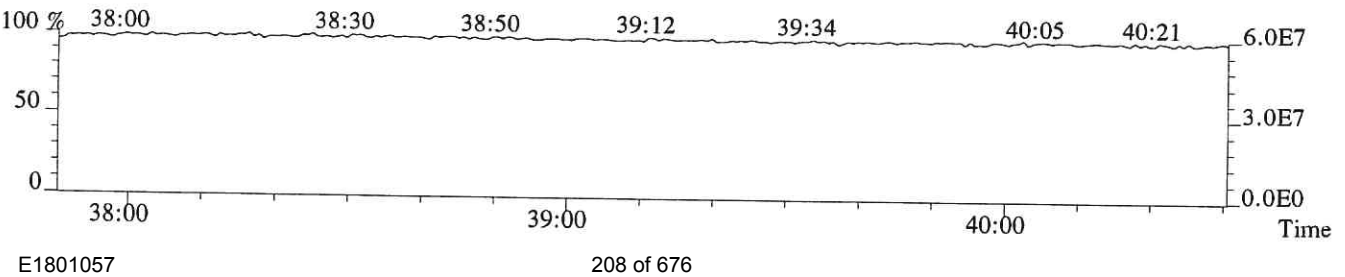
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4216.0,0.50%,F,T)



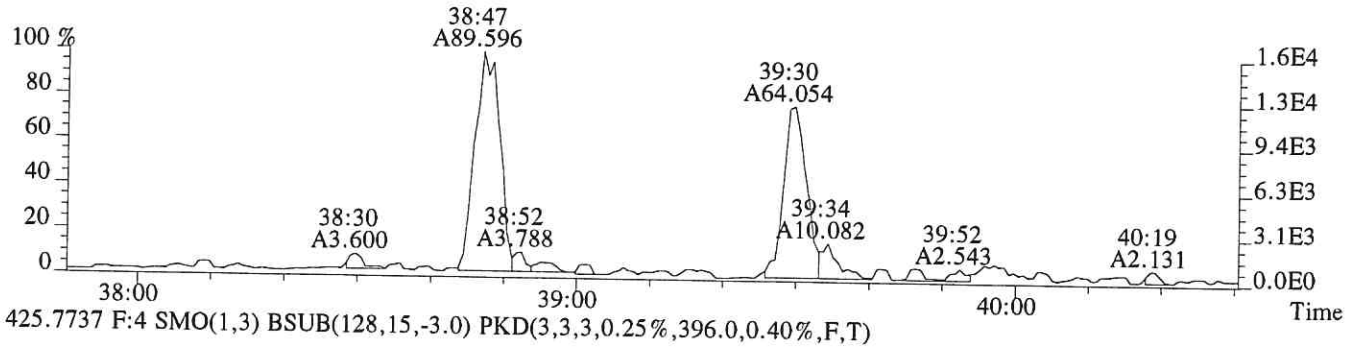
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



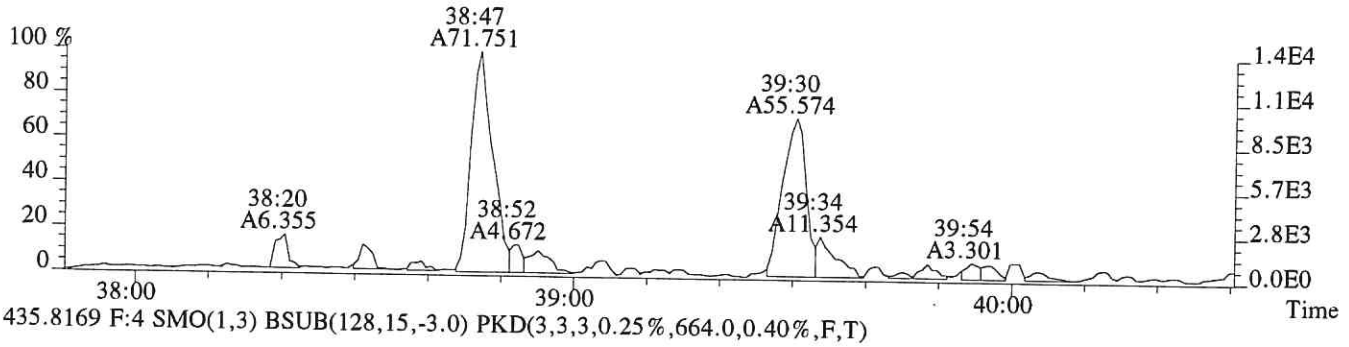
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



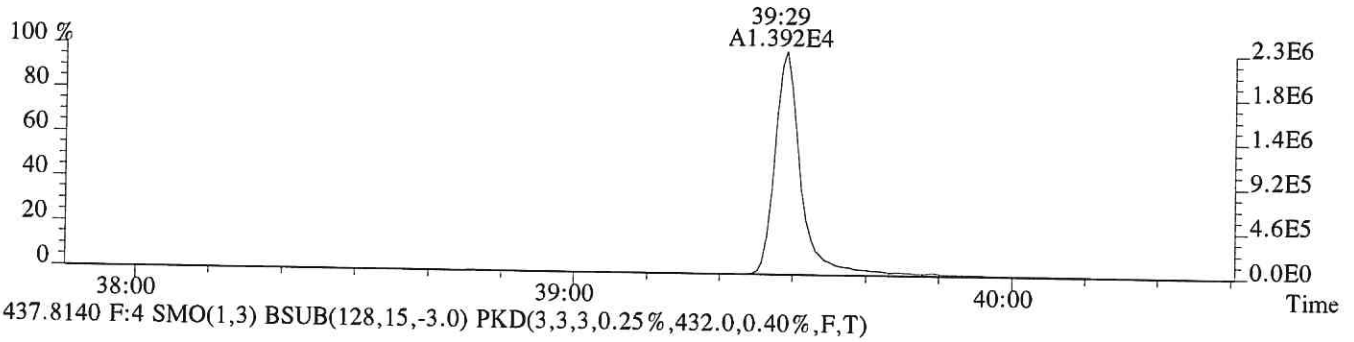
File:P519330 #1-241 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



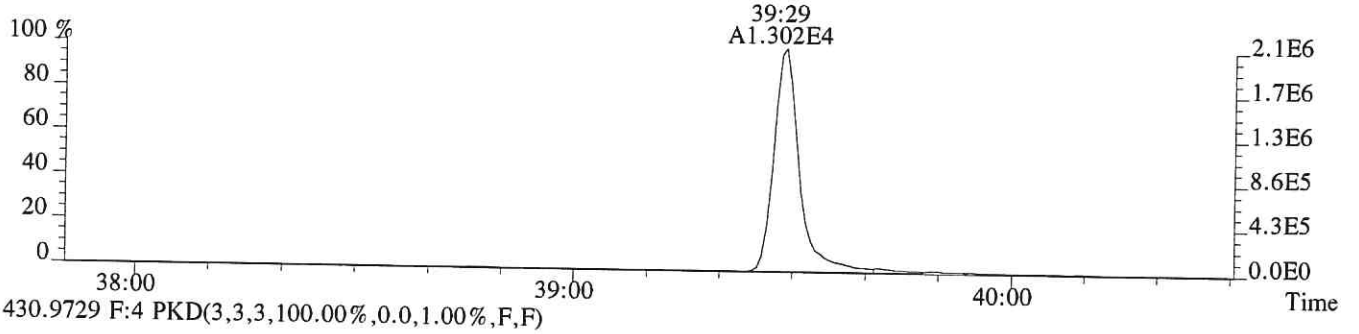
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



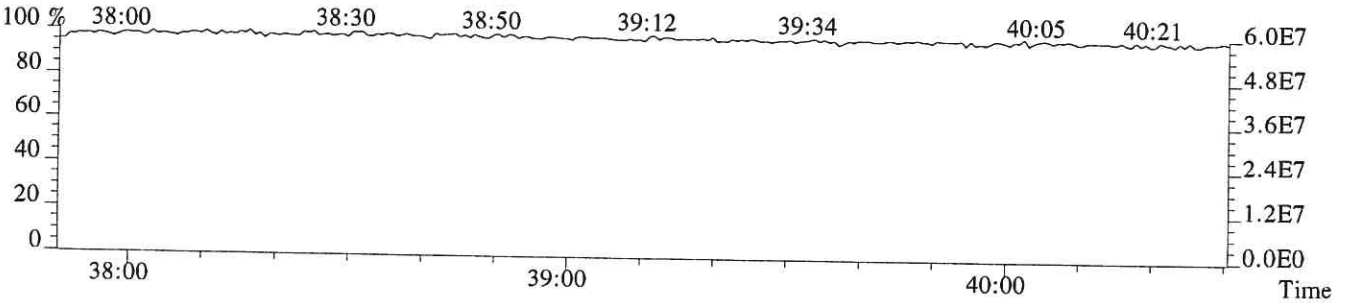
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



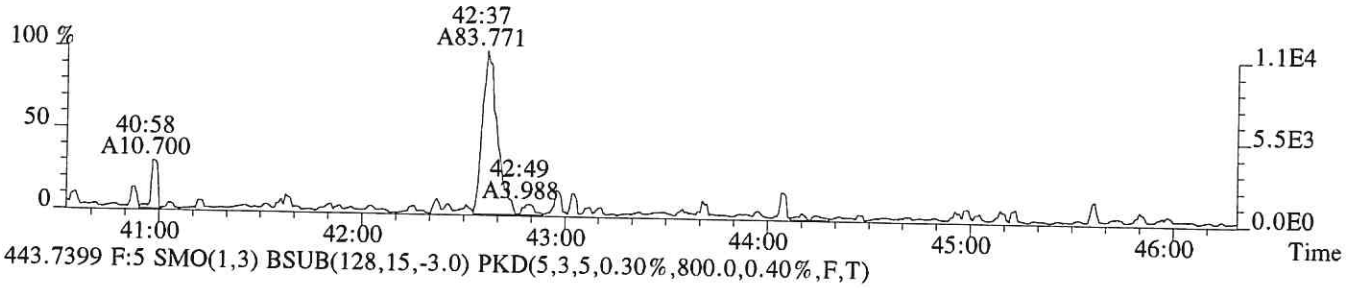
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



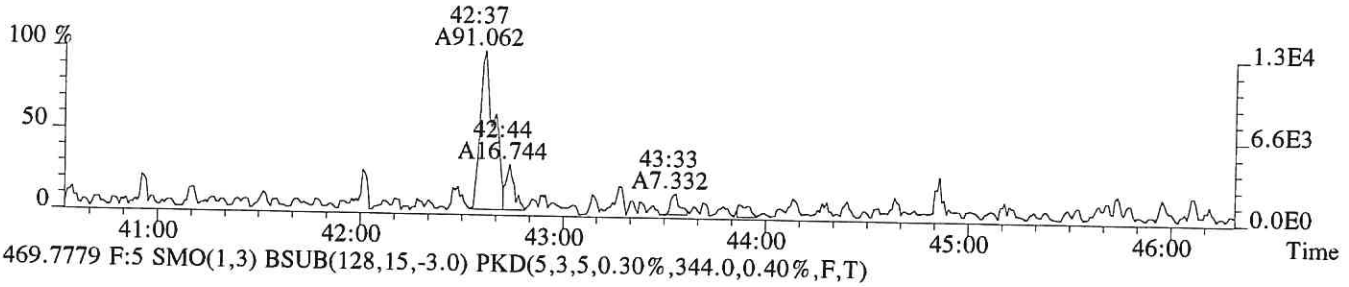
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



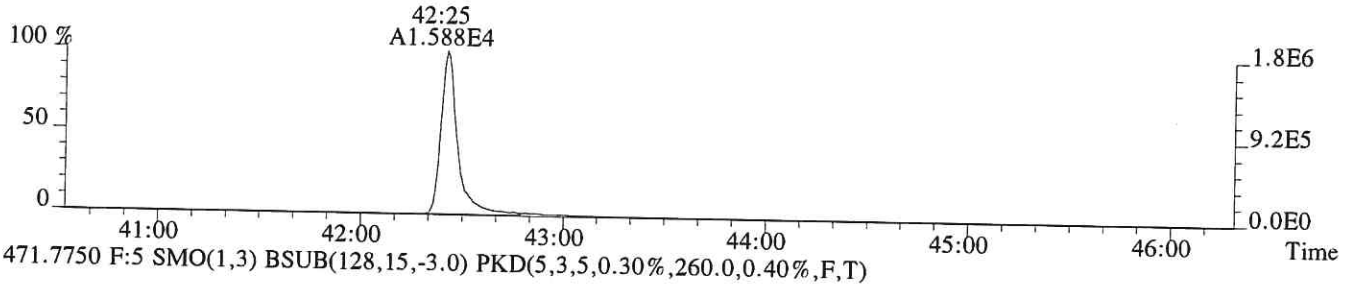
File:P519330 #1-520 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



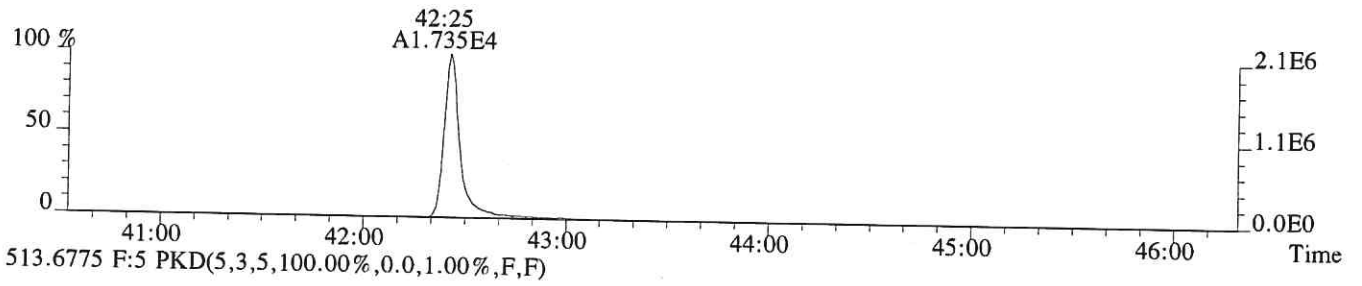
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



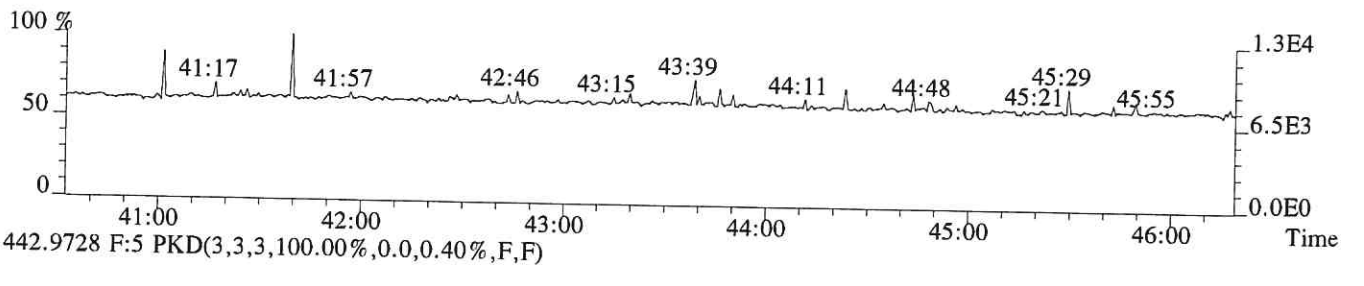
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



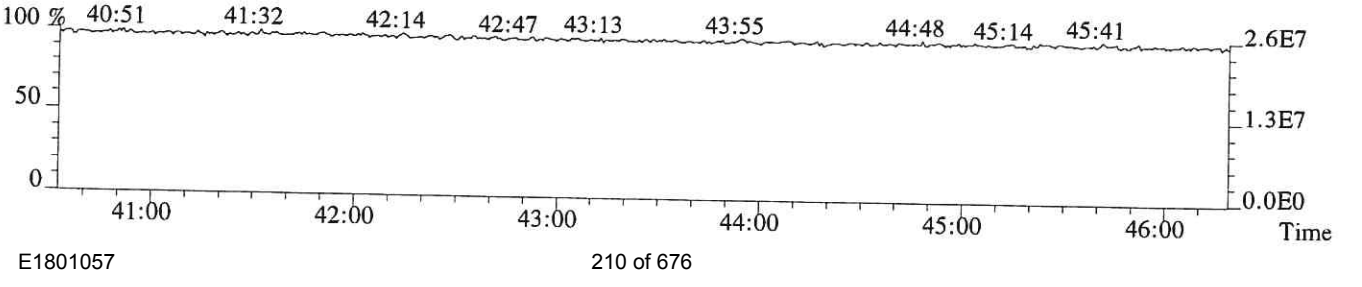
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



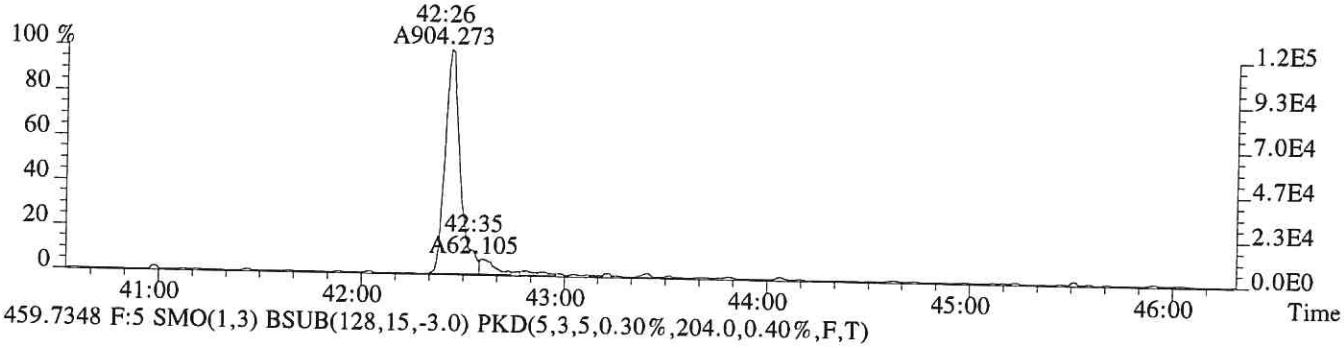
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



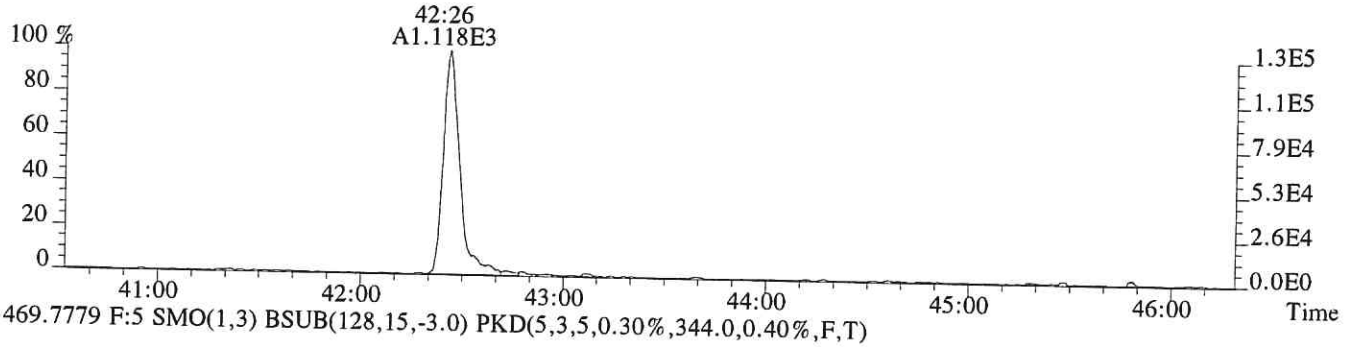
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



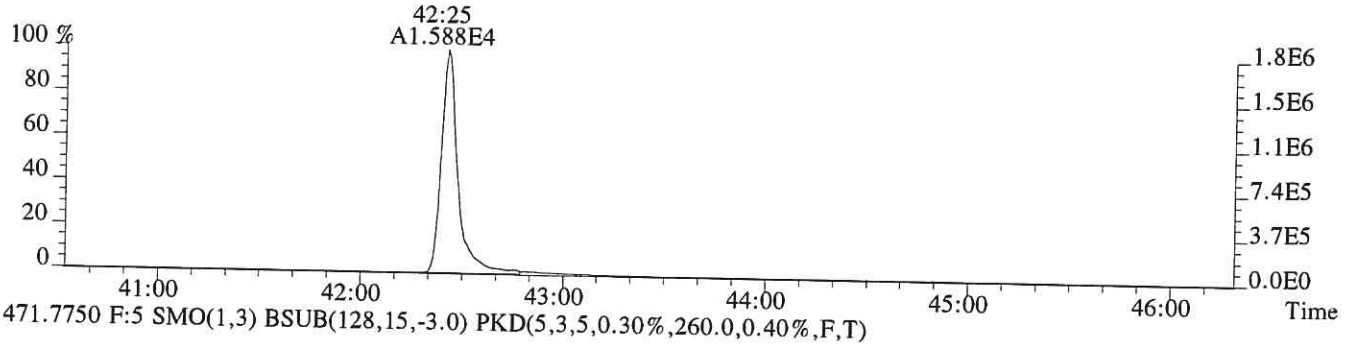
File:P519330 #1-520 Acq:10-DEC-2018 17:41:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-007DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



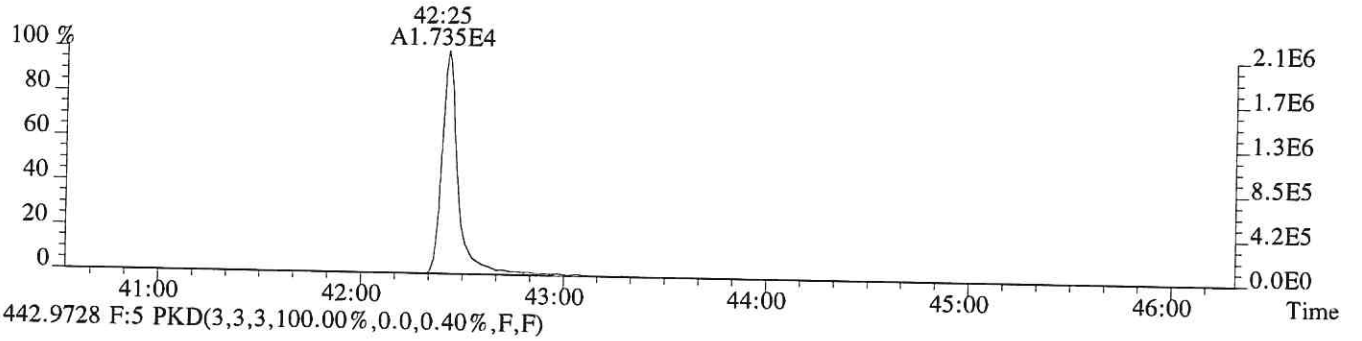
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



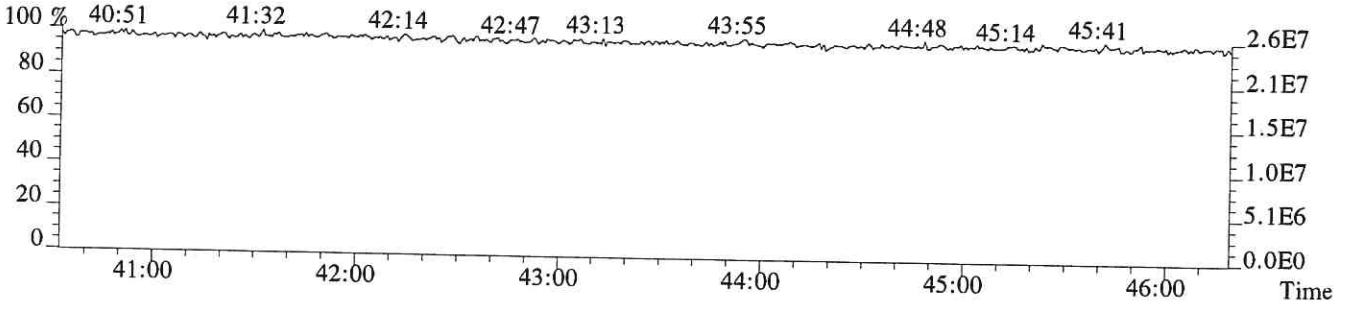
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



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



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0560

Run #18 Filename P519298 Samp: 1 Inj: 1 Acquired: 8-DEC-18 04:02:22
Processed: 10-DEC-18 09:24:39 Sample ID: E1801057-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.711e+04	3.539e+04	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	1.464e+03	1.015e+03	1.44	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	1.158e+03	8.064e+02	1.44	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.481e+03	2.031e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	7.114e+02	6.080e+02	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	9.841e+01	1.009e+02	0.98	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:20	2.197e+02	1.742e+02	1.26	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	7.077e+02	7.511e+02	0.94	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.952e+02	2.456e+02	0.79	no	no	1.258
10	Unk	OCDF	42:49	6.810e+02	8.228e+02	0.83	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	6.279e+03	7.956e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	1.075e+02	6.941e+01	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	8.414e+00	1.277e+01	0.66	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:46	2.634e+01	1.972e+01	1.34	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	2.825e+01	2.705e+01	1.04	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	5.796e+02	5.745e+02	1.01	yes	no	1.025
17	Unk	OCDD	42:37	1.126e+04	1.275e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.453e+04	1.815e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:11	2.454e+04	1.559e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.339e+04	1.454e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	9.996e+03	1.963e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.235e+04	2.433e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	1.072e+04	2.050e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.024e+04	2.023e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	7.983e+03	1.800e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	7.066e+03	1.615e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	6.538e+03	8.176e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.649e+04	1.040e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.409e+04	1.105e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.405e+04	1.123e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	1.636e+04	1.541e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:36	1.328e+04	1.468e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.626e+04	1.979e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.477e+04	1.905e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	1.010e+04				no	1.014

$$\text{OCDD} = \frac{(1.126e+04 + 1.275e+04) \times 4000\ \text{pg} \times 1}{(1.328e+04 + 1.468e+04) \times 10.695\ \text{g} \times 80.5 / 100 \times 1.118} = 356.8\ \text{ng/kg}$$

HH 12/11/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0560

Run #18 Filename P519298 Samp: 1 Inj: 1 Acquired: 8-DEC-18 04:02:22
Processed: 10-DEC-18 09:24:39 LAB. ID: E1801057-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.44e+06	1.46e+03	3.0e+03	5.80e+06	1.02e+03	5.7e+03
2	1,2,3,7,8-PeCDF	2.87e+05	7.92e+02	3.6e+02	1.87e+05	1.02e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.93e+05	7.92e+02	2.4e+02	1.22e+05	1.02e+03	1.2e+02
4	1,2,3,4,7,8-HxCDF	5.21e+05	5.72e+02	9.1e+02	4.15e+05	5.88e+02	7.1e+02
5	1,2,3,6,7,8-HxCDF	1.29e+05	5.72e+02	2.3e+02	1.17e+05	5.88e+02	2.0e+02
6	2,3,4,6,7,8-HxCDF	2.15e+04	5.72e+02	3.8e+01	1.95e+04	5.88e+02	3.3e+01
7	1,2,3,7,8,9-HxCDF	3.86e+04	5.72e+02	6.7e+01	2.97e+04	5.88e+02	5.1e+01
8	1,2,3,4,6,7,8-HpCDF	1.32e+05	1.58e+03	8.3e+01	1.37e+05	7.96e+02	1.7e+02
9	1,2,3,4,7,8,9-HpCDF	2.96e+04	1.58e+03	1.9e+01	3.84e+04	7.96e+02	4.8e+01
10	OCDF	8.50e+04	2.88e+02	3.0e+02	1.03e+05	5.76e+02	1.8e+02
11	2,3,7,8-TCDD	1.21e+06	1.28e+03	9.4e+02	1.51e+06	7.08e+02	2.1e+03
12	1,2,3,7,8-PeCDD	1.89e+04	5.88e+02	3.2e+01	1.22e+04	5.60e+02	2.2e+01
13	1,2,3,4,7,8-HxCDD	2.46e+03	4.88e+02	5.0e+00	3.53e+03	5.56e+02	6.3e+00
14	1,2,3,6,7,8-HxCDD	4.80e+03	4.88e+02	9.8e+00	5.49e+03	5.56e+02	9.9e+00
15	1,2,3,7,8,9-HxCDD	7.12e+03	4.88e+02	1.5e+01	4.34e+03	5.56e+02	7.8e+00
16	1,2,3,4,6,7,8-HpCDD	9.84e+04	1.15e+03	8.6e+01	9.61e+04	7.12e+02	1.4e+02
17	OCDD	1.28e+06	2.76e+02	4.6e+03	1.48e+06	3.80e+02	3.9e+03
18	13C-2,3,7,8-TCDF	2.67e+06	6.04e+03	4.4e+02	3.36e+06	3.87e+03	8.7e+02
19	13C-1,2,3,7,8-PeCDF	4.62e+06	2.68e+02	1.7e+04	2.89e+06	7.76e+02	3.7e+03
20	13C-2,3,4,7,8-PeCDF	4.53e+06	2.68e+02	1.7e+04	2.83e+06	7.76e+02	3.7e+03
21	13C-1,2,3,4,7,8-HxCDF	2.08e+06	5.00e+02	4.2e+03	4.07e+06	4.28e+02	9.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.46e+06	5.00e+02	4.9e+03	4.74e+06	4.28e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	2.20e+06	5.00e+02	4.4e+03	4.16e+06	4.28e+02	9.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.93e+06	5.00e+02	3.9e+03	3.78e+06	4.28e+02	8.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.46e+06	2.27e+03	6.5e+02	3.30e+06	1.49e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.10e+06	2.27e+03	4.8e+02	2.53e+06	1.49e+03	1.7e+03
27	13C-2,3,7,8-TCDD	1.27e+06	5.82e+03	2.2e+02	1.57e+06	2.58e+03	6.1e+02
28	13C-1,2,3,7,8-PeCDD	3.20e+06	1.15e+03	2.8e+03	2.02e+06	1.10e+03	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	3.02e+06	9.08e+02	3.3e+03	2.36e+06	4.44e+02	5.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.75e+06	9.08e+02	3.0e+03	2.23e+06	4.44e+02	5.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.66e+06	3.44e+02	7.7e+03	2.48e+06	6.40e+02	3.9e+03
32	13C-OCDD	1.50e+06	3.04e+02	4.9e+03	1.64e+06	2.76e+02	6.0e+03
33	13C-1,2,3,4-TCDD	3.13e+06	5.82e+03	5.4e+02	3.79e+06	2.58e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	4.77e+06	9.08e+02	5.3e+03	3.65e+06	4.44e+02	8.2e+03
35	37Cl-2,3,7,8-TCDD	1.95e+06	4.84e+02	4.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0560

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519298 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 04:02:22 Processed: 10-DEC-18 09:24:39

Mass: 303.9020 305.8990 Tot Response: 1.11e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:07	1.11e+03	1.55e+03	0.71	yes	2.66e+03		n	n
2	25:32	3.03e+02	4.19e+02	0.72	yes	7.22e+02		n	n
3	25:50	9.71e+02	1.27e+03	0.77	yes	2.24e+03		n	n
4	26:27	7.19e+02	9.02e+02	0.80	yes	1.62e+03		n	n
5	26:34	1.23e+03	1.62e+03	0.76	yes	2.84e+03		n	n
6	27:02	1.17e+04	1.54e+04	0.76	yes	2.71e+04		n	n
7	27:18	5.37e+02	6.87e+02	0.78	yes	1.22e+03		n	n
8	27:51	2.71e+04	3.54e+04	0.77	yes	6.25e+04	2,3,7,8-TCDF	n	n
9	28:12	1.95e+03	2.40e+03	0.81	yes	4.34e+03		n	n
10	28:27	3.80e+02	4.86e+02	0.78	yes	8.66e+02		n	n
11	29:44	2.10e+03	2.65e+03	0.79	yes	4.75e+03		n	n

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Peak List Summary

CLIENT ID.
SL0560

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519298 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 04:02:22 Processed: 10-DEC-18 09:24:39

Mass: 319.8970 321.8940 Tot Response: 1.58e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:25	1.05e+02	1.20e+02	0.88	yes	2.25e+02		n	n
2	28:41	6.28e+03	7.96e+03	0.79	yes	1.42e+04	2,3,7,8-TCDD	n	n
3	28:59	6.07e+02	7.30e+02	0.83	yes	1.34e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0560

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P519298 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 04:02:22 Processed: 10-DEC-18 09:24:39

Mass: 339.8600 341.8570 Tot Response: 6.64e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	7.25e+02	4.39e+02	1.65	yes	1.16e+03		n	n
2	31:53	2.58e+01	1.87e+01	1.38	yes	4.44e+01		n	n
3	32:01	1.40e+02	8.67e+01	1.62	yes	2.27e+02		n	n
4	32:12	1.46e+03	1.02e+03	1.44	yes	2.48e+03	1,2,3,7,8-PeCDF	n	n
5	32:27	4.75e+02	2.84e+02	1.67	yes	7.59e+02		n	n
6	33:08	1.16e+03	8.06e+02	1.44	yes	1.96e+03	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0560

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P519298 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 04:02:22 Processed: 10-DEC-18 09:24:39

Mass: 355.8550 357.8520 Tot Response: 2.11e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:18	2.02e+01	1.43e+01	1.41	yes	3.45e+01		n	n
2	33:25	1.07e+02	6.94e+01	1.55	yes	1.77e+02	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0560

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519298 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 04:02:22 Processed: 10-DEC-18 09:24:39

Mass: 373.8210 375.8180 Tot Response: 6.62e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:44	1.19e+01	9.25e+00	1.28	yes	2.11e+01		n	n
2	34:55	2.16e+02	1.60e+02	1.35	yes	3.76e+02		n	n
3	35:53	2.48e+03	2.03e+03	1.22	yes	4.51e+03	1,2,3,4,7,8-HxCDF	n	n
4	36:00	7.11e+02	6.08e+02	1.17	yes	1.32e+03	1,2,3,6,7,8-HxCDF	n	n
5	37:20	2.20e+02	1.74e+02	1.26	yes	3.94e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0560

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519298 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 04:02:22 Processed: 10-DEC-18 09:24:39

Mass: 389.8160 391.8130 Tot Response: 5.42e+02 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	2.58e+02	2.38e+02	1.08	yes	4.96e+02		n	n
2	36:46	2.63e+01	1.97e+01	1.34	yes	4.61e+01	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0560

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519298 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 04:02:22 Processed: 10-DEC-18 09:24:39

Mass: 407.7820 409.7790 Tot Response: 2.00e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	7.08e+02	7.51e+02	0.94	yes	1.46e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:02	2.75e+02	2.65e+02	1.04	yes	5.40e+02		n	n

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Peak List Summary

CLIENT ID.
SL0560

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519298 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 04:02:22 Processed: 10-DEC-18 09:24:39

Mass: 423.7770 425.7740 Tot Response: 3.86e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	1.35e+03	1.36e+03	0.99	yes	2.71e+03		n	n
2	39:37	5.80e+02	5.75e+02	1.01	yes	1.15e+03	1,2,3,4,6,7,8-HpCDD	n	n

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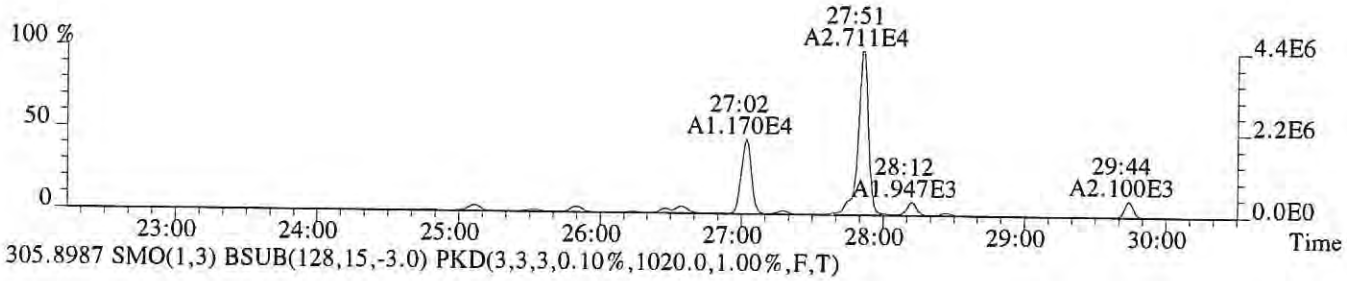
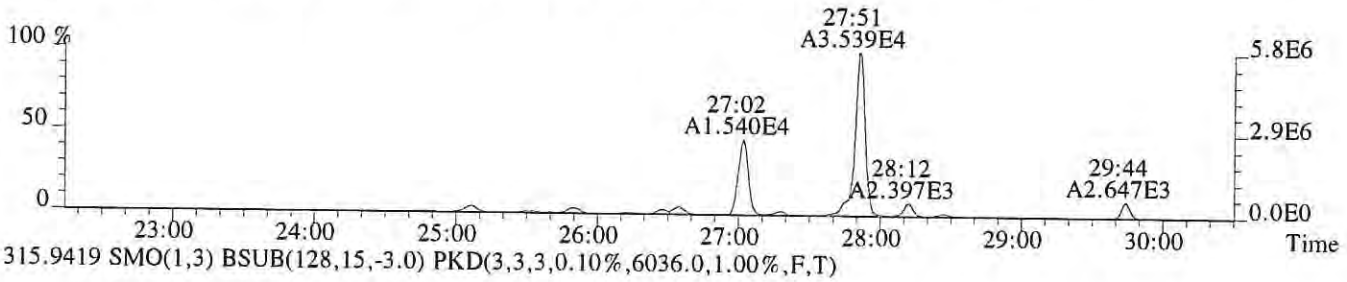
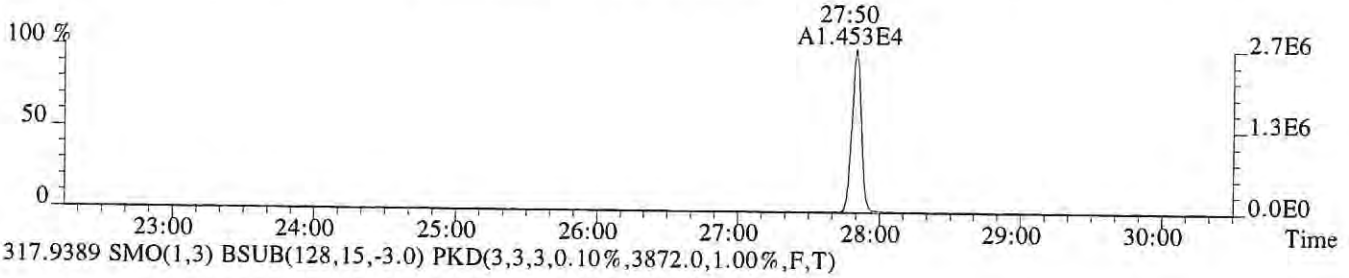
File:P519298 #1-587 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



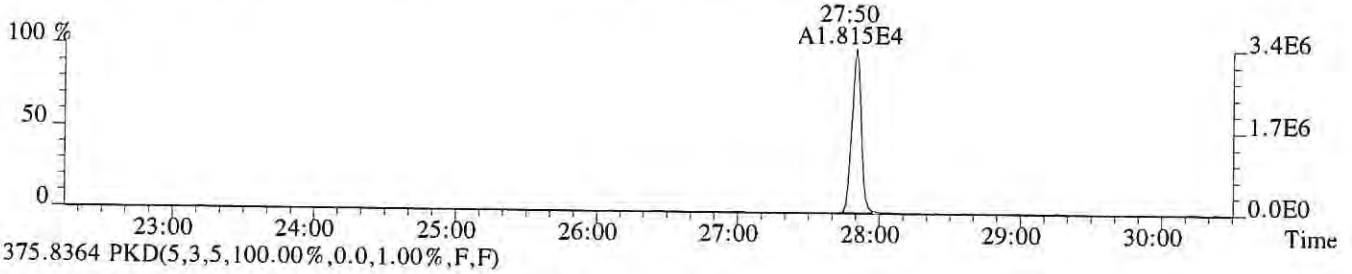
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



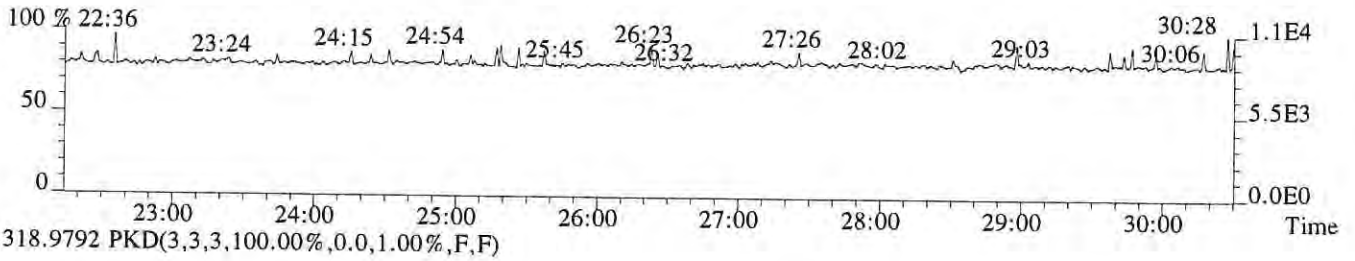
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6036.0,1.00%,F,T)



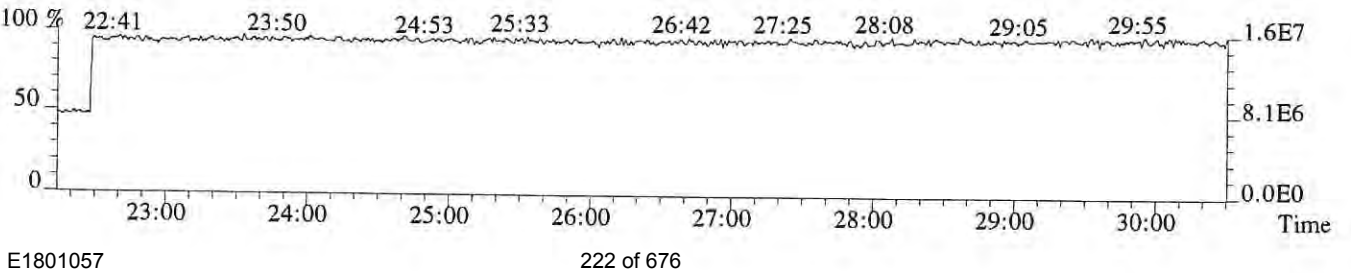
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3872.0,1.00%,F,T)



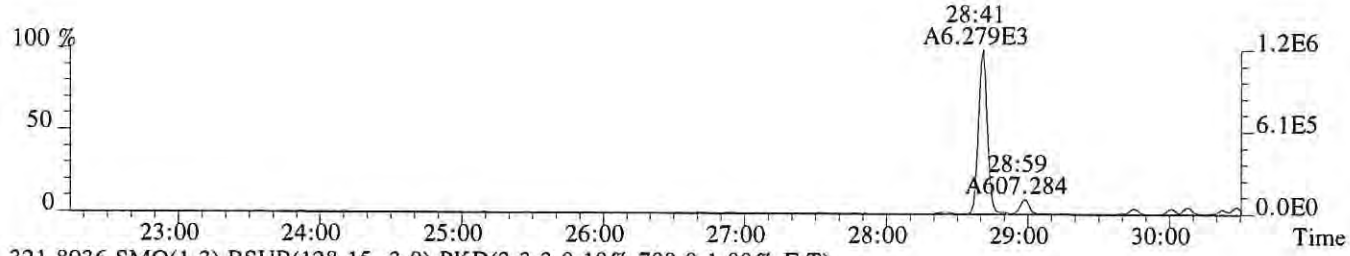
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



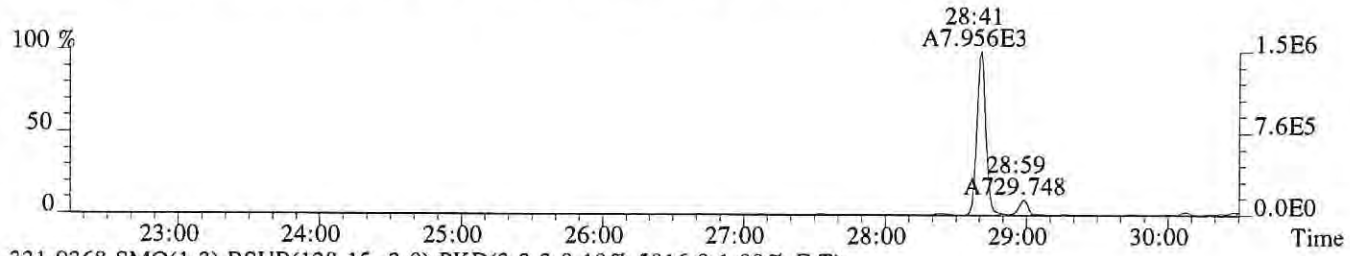
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



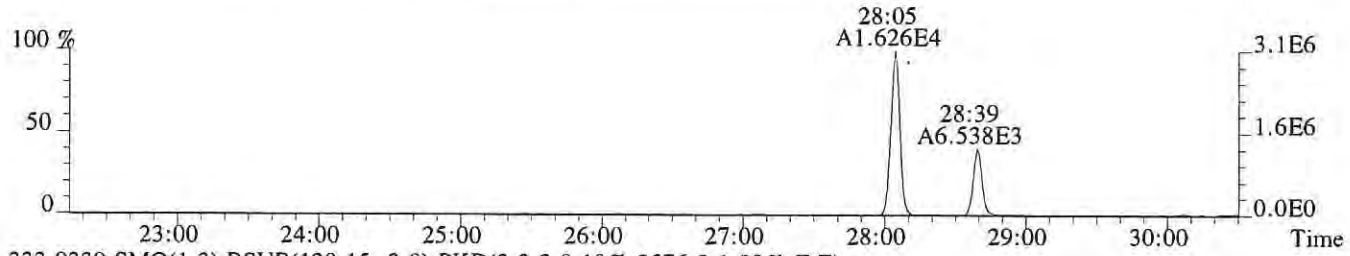
File:P519298 #1-587 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



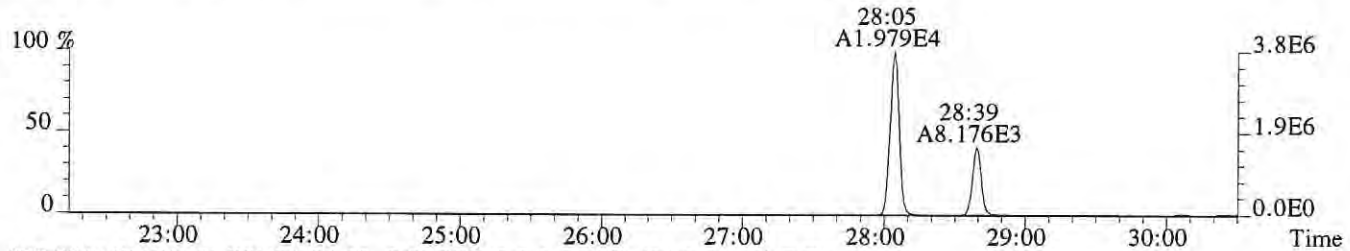
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



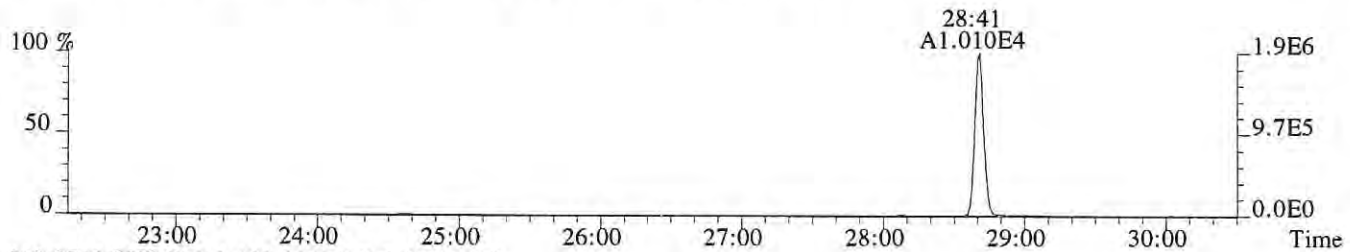
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5816.0,1.00%,F,T)



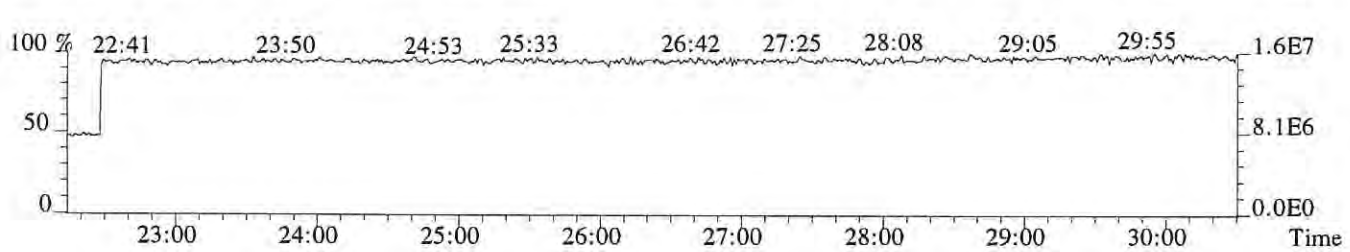
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2576.0,1.00%,F,T)



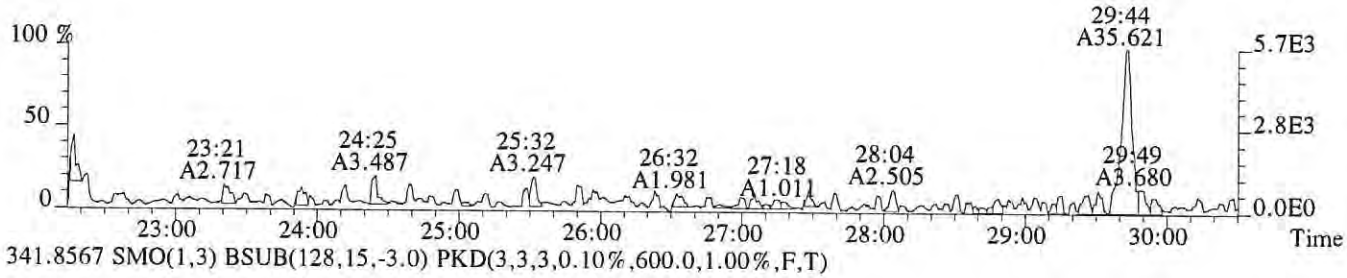
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



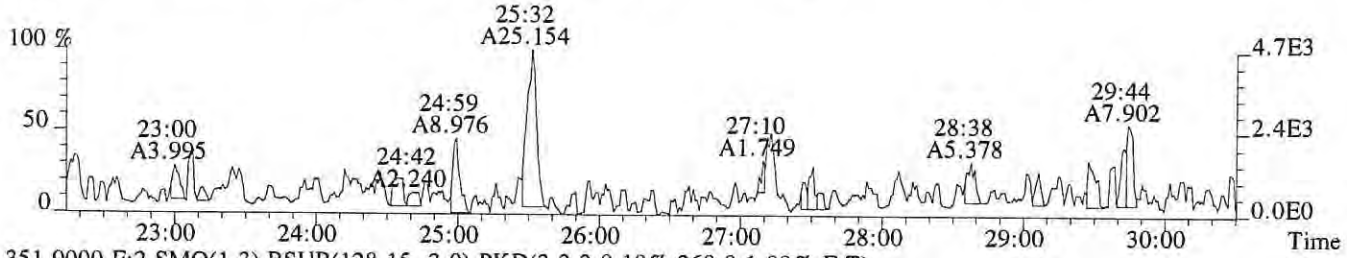
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



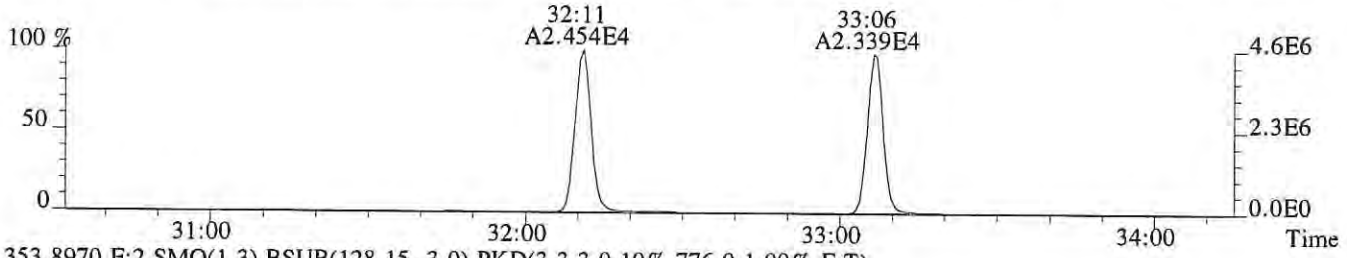
File:P519298 #1-587 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



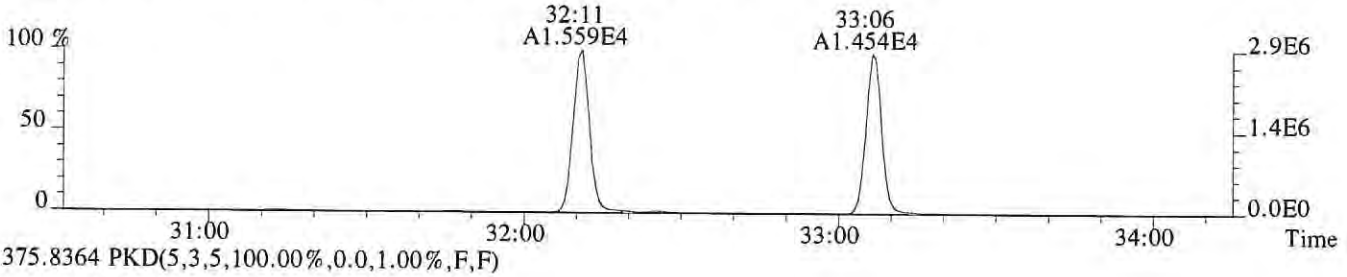
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



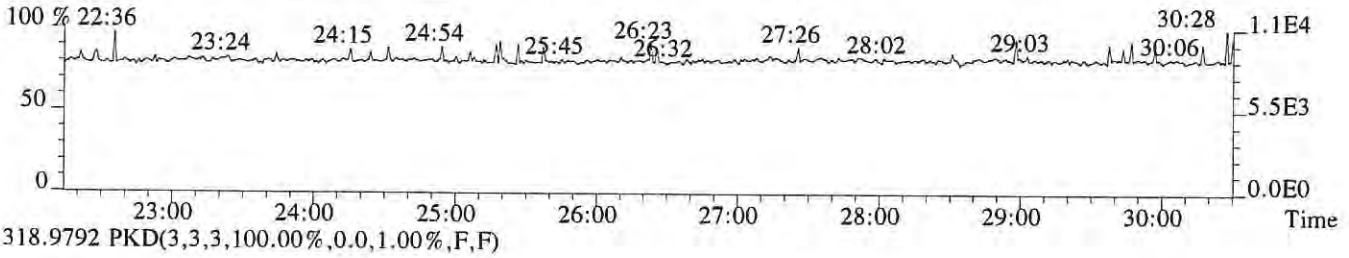
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



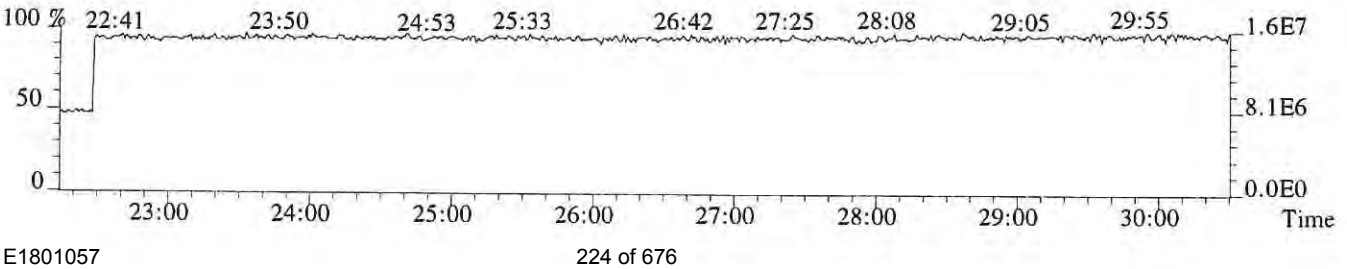
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



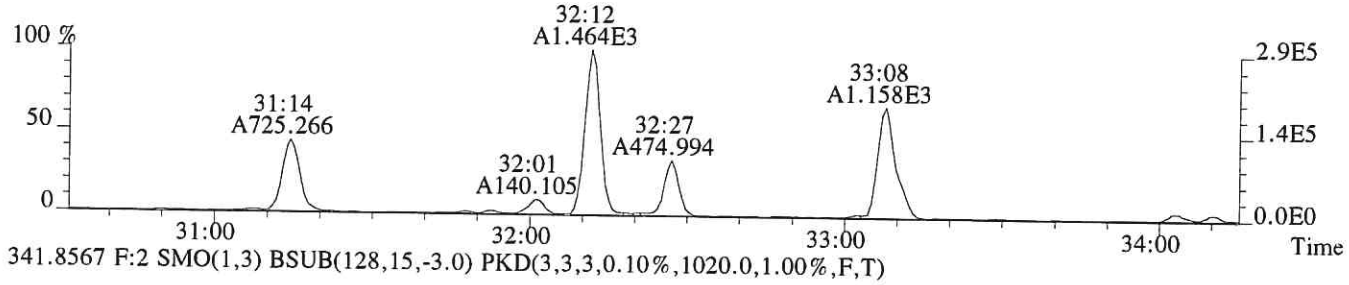
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



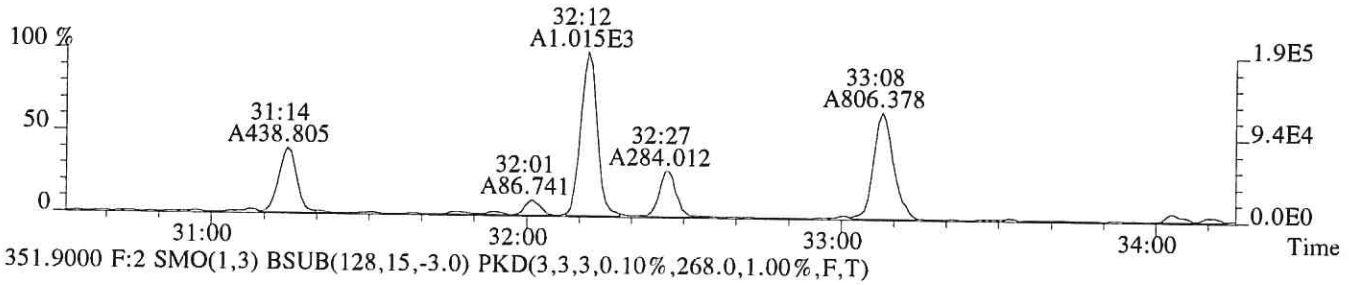
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



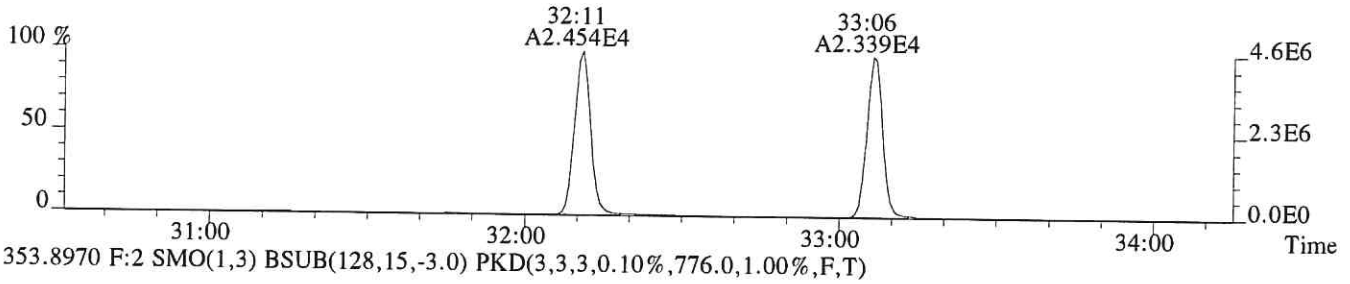
File:P519298 #1-335 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



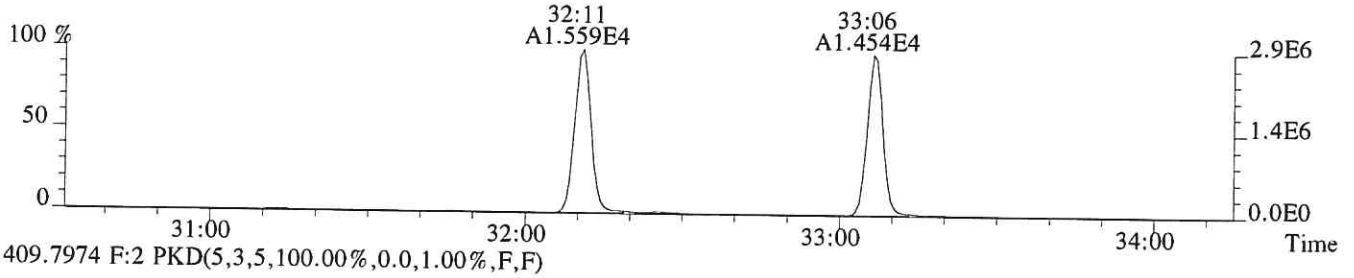
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



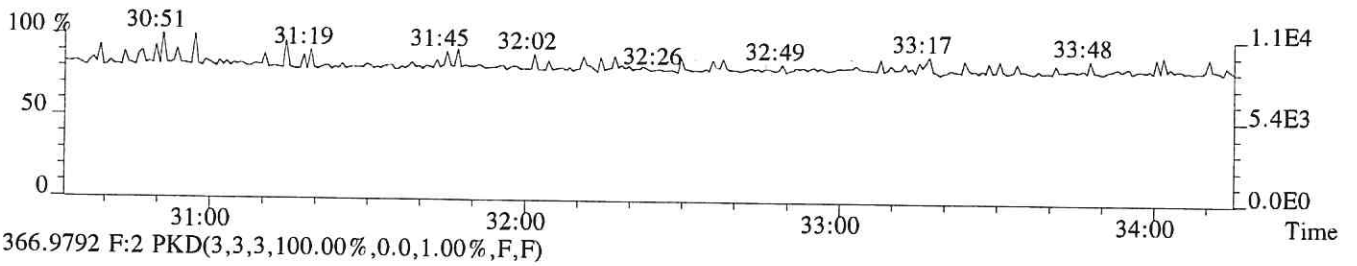
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



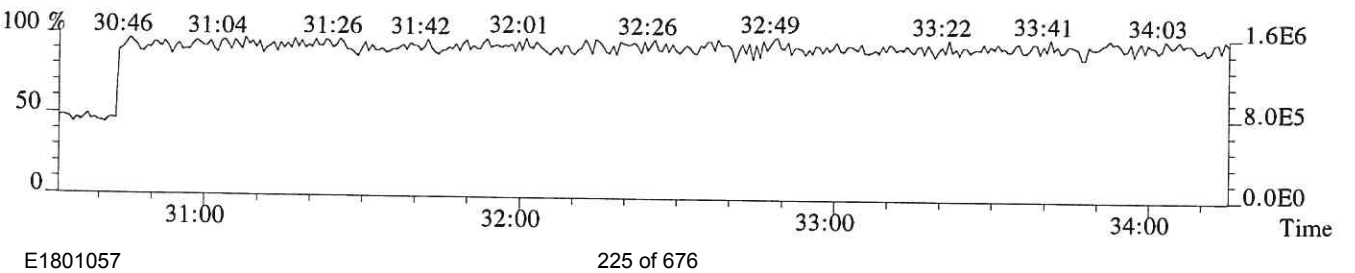
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



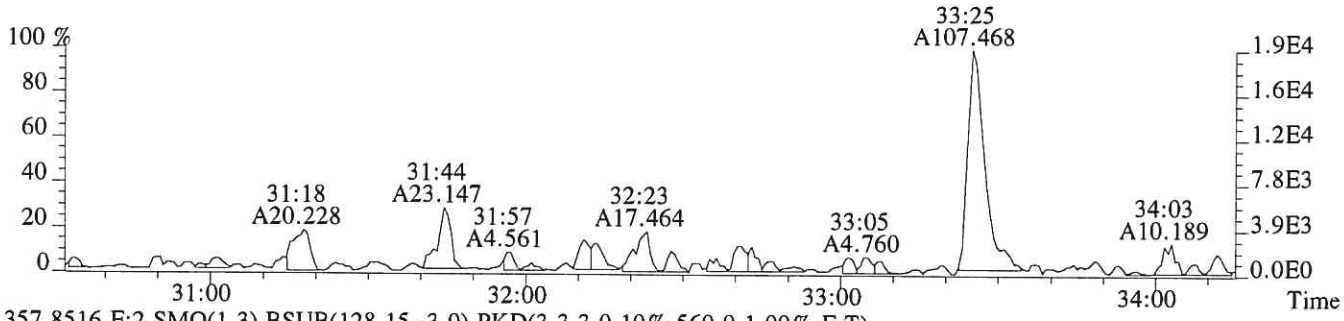
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



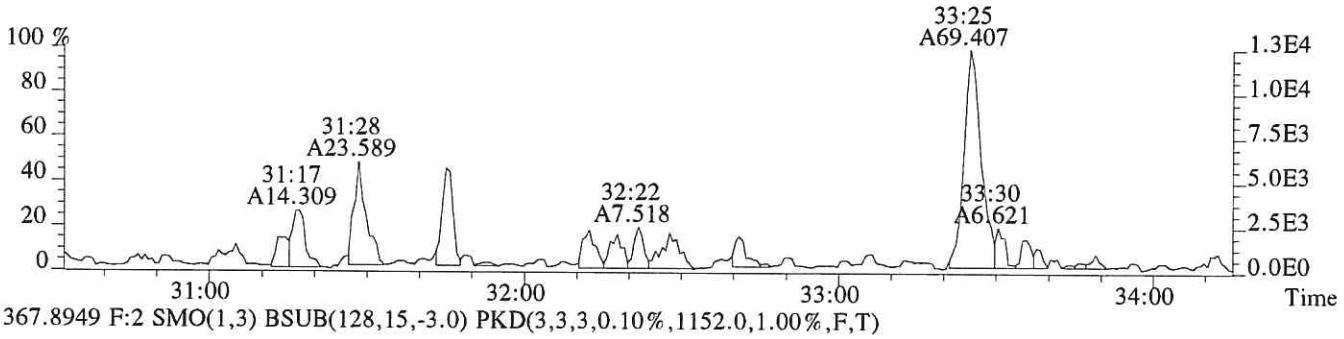
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



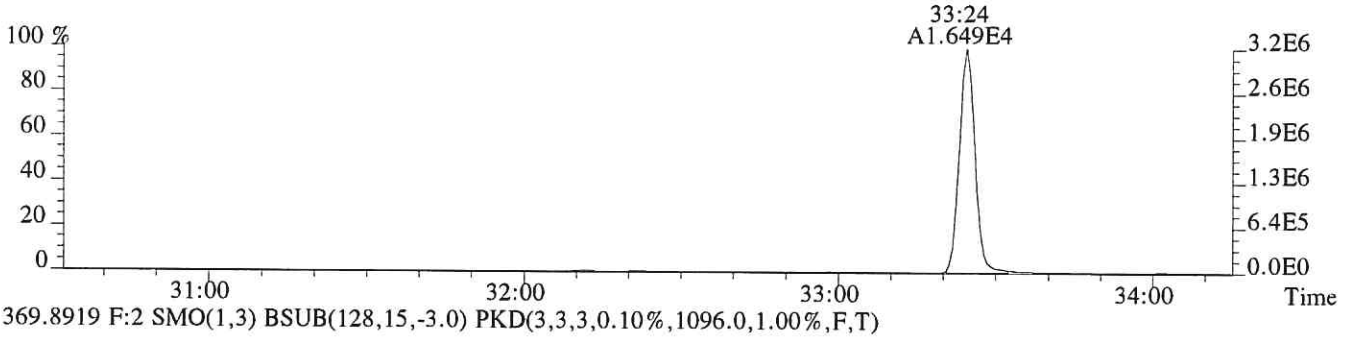
File:P519298 #1-335 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



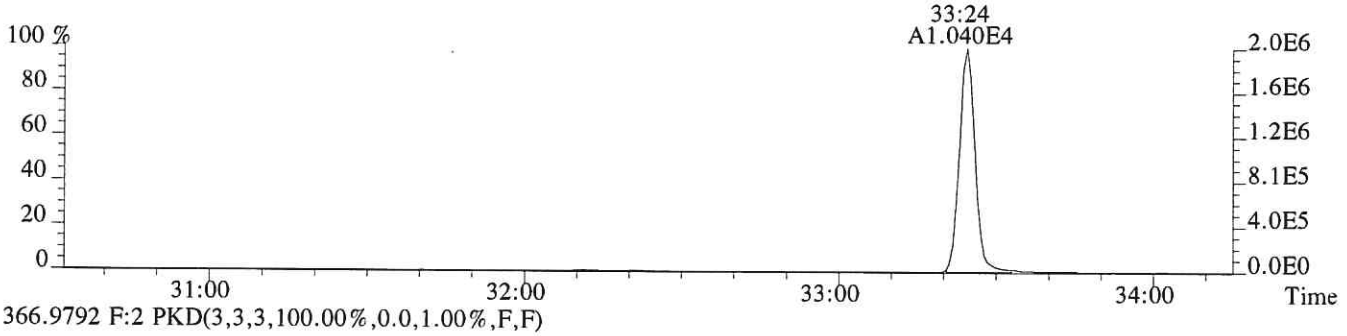
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



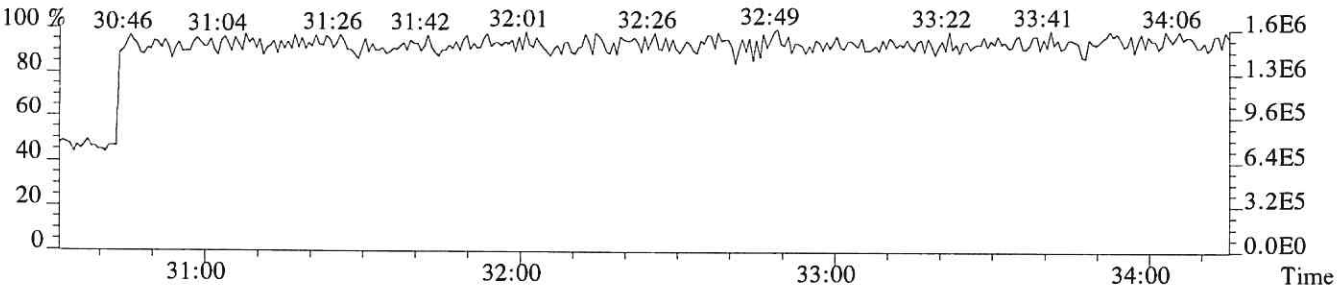
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



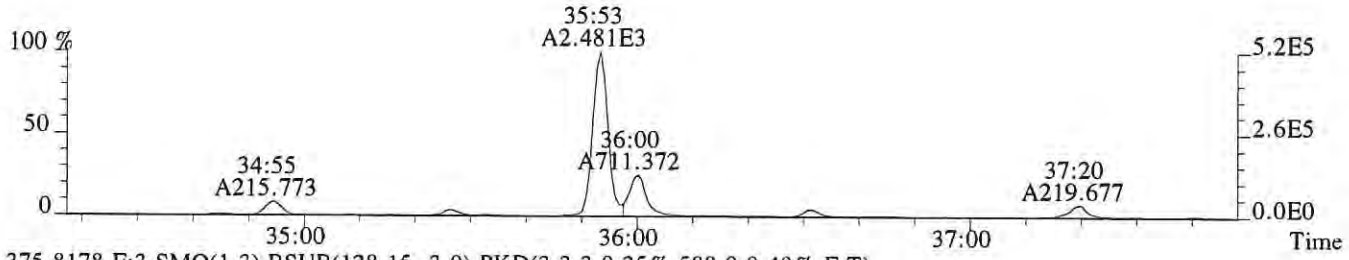
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



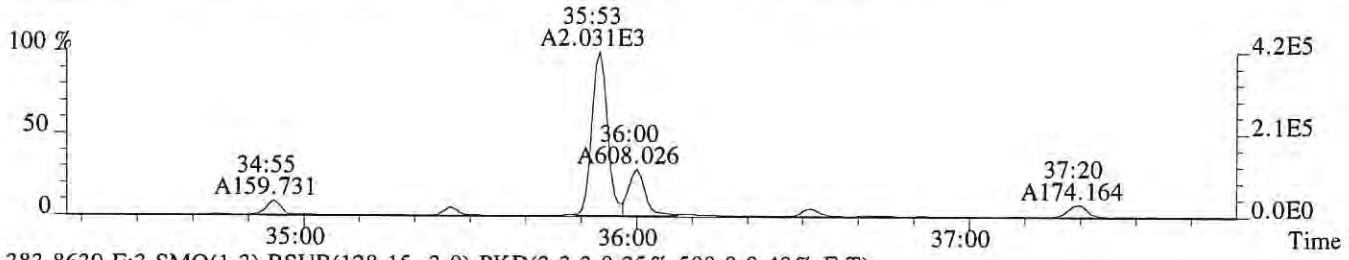
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



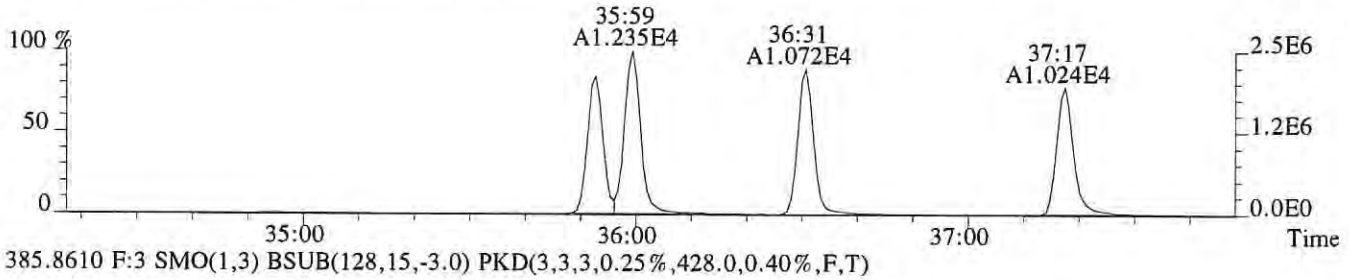
File:P519298 #1-317 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



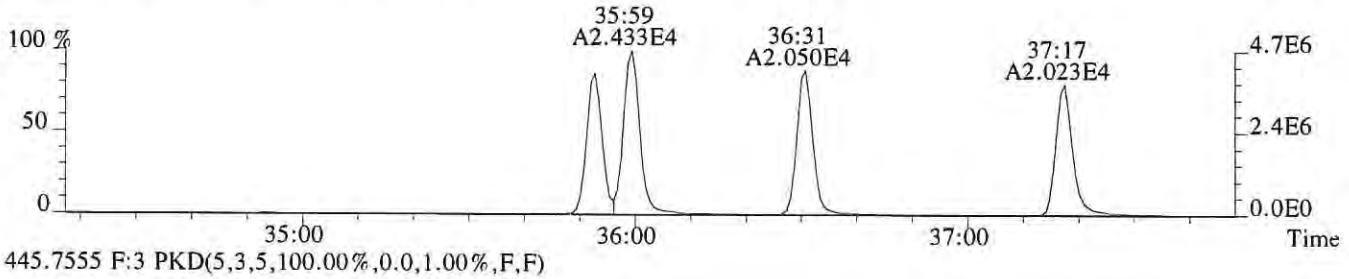
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



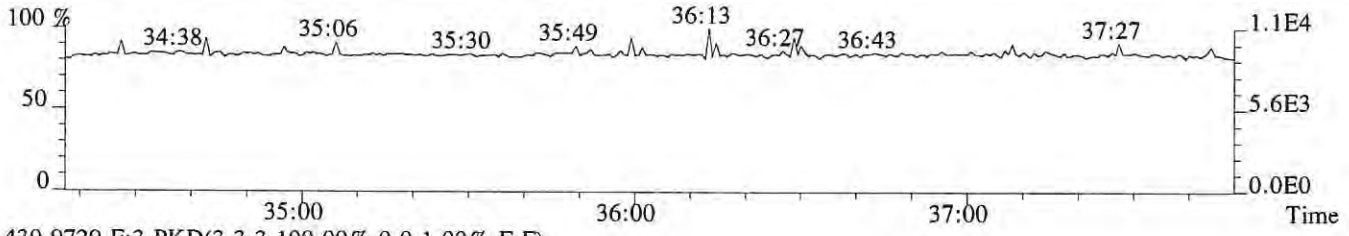
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



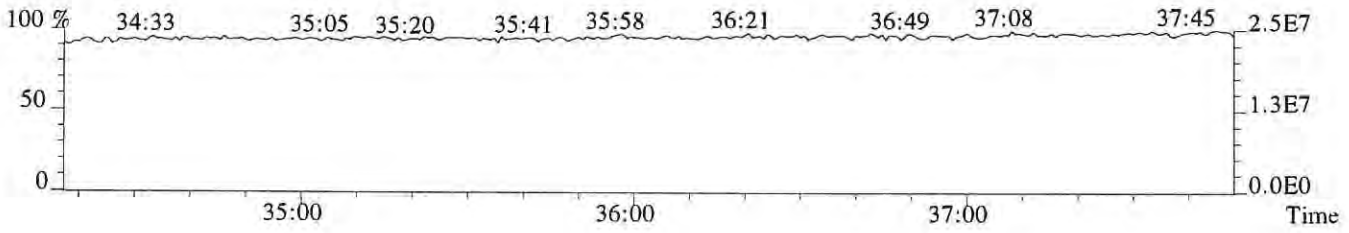
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



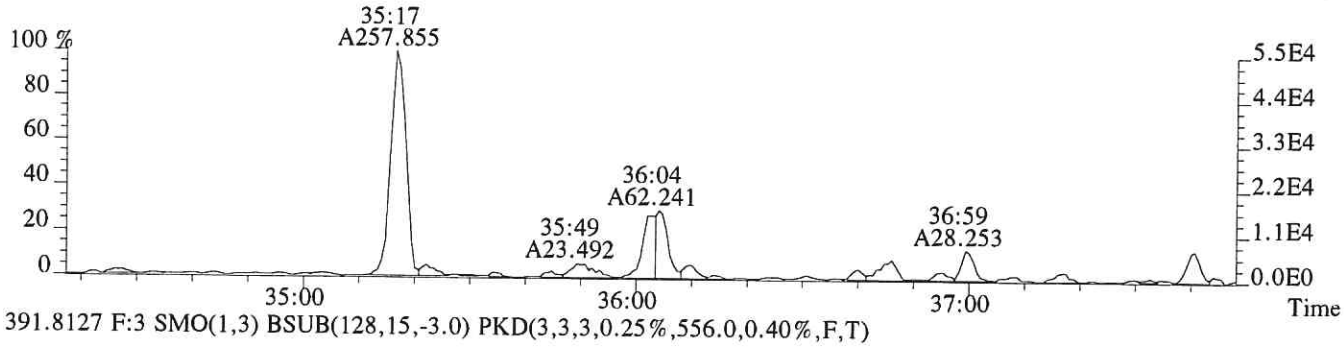
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



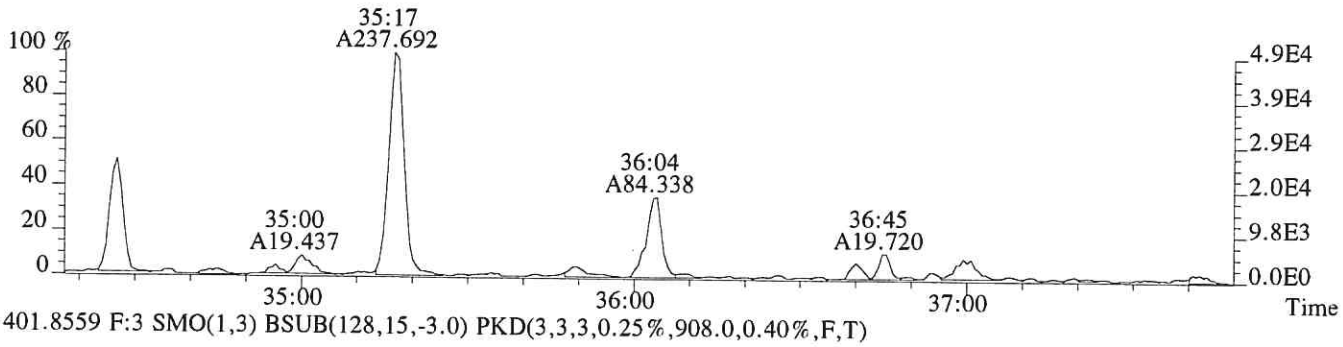
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



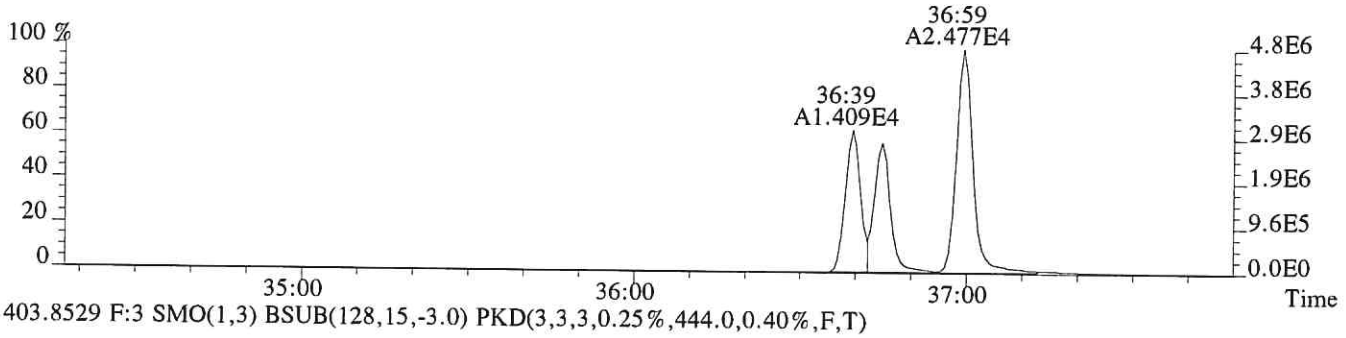
File:P519298 #1-317 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



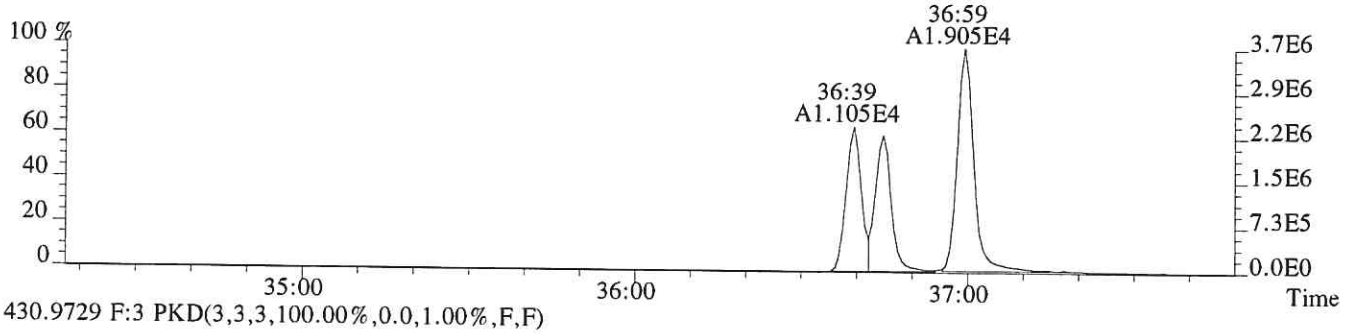
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



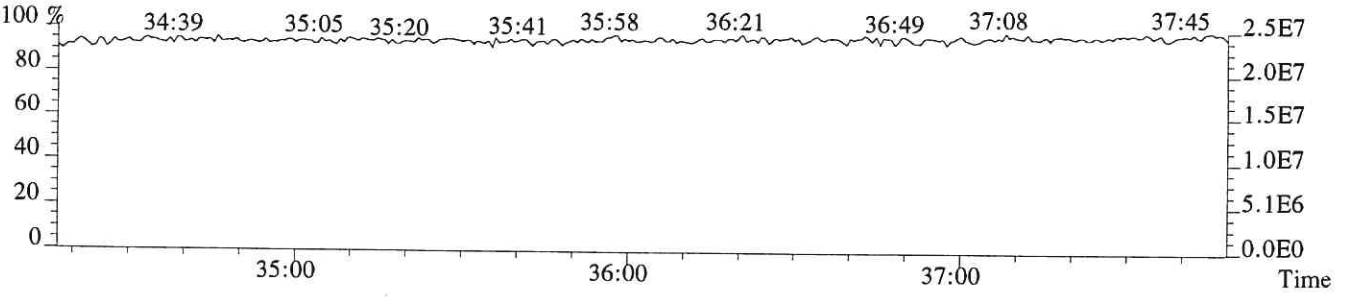
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



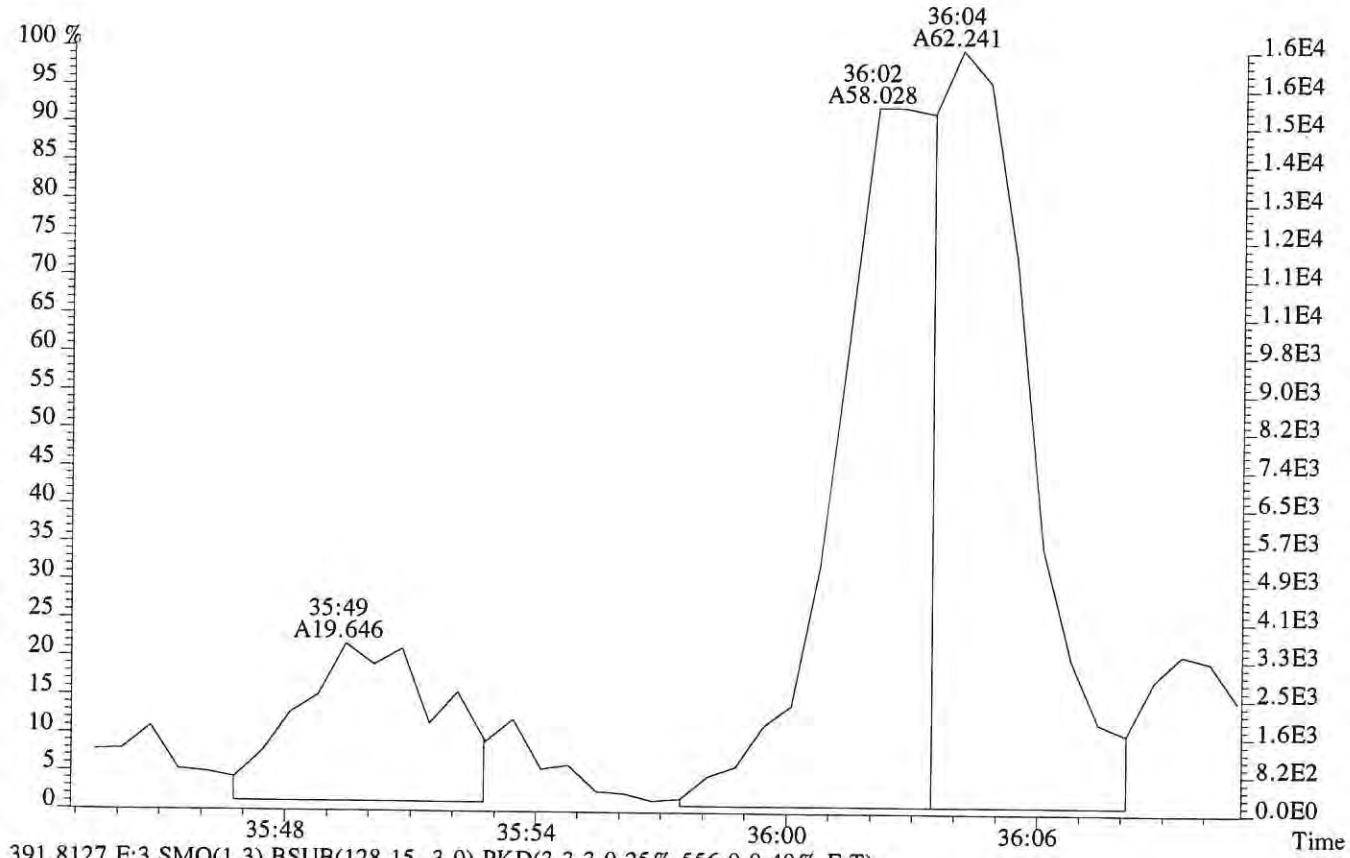
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



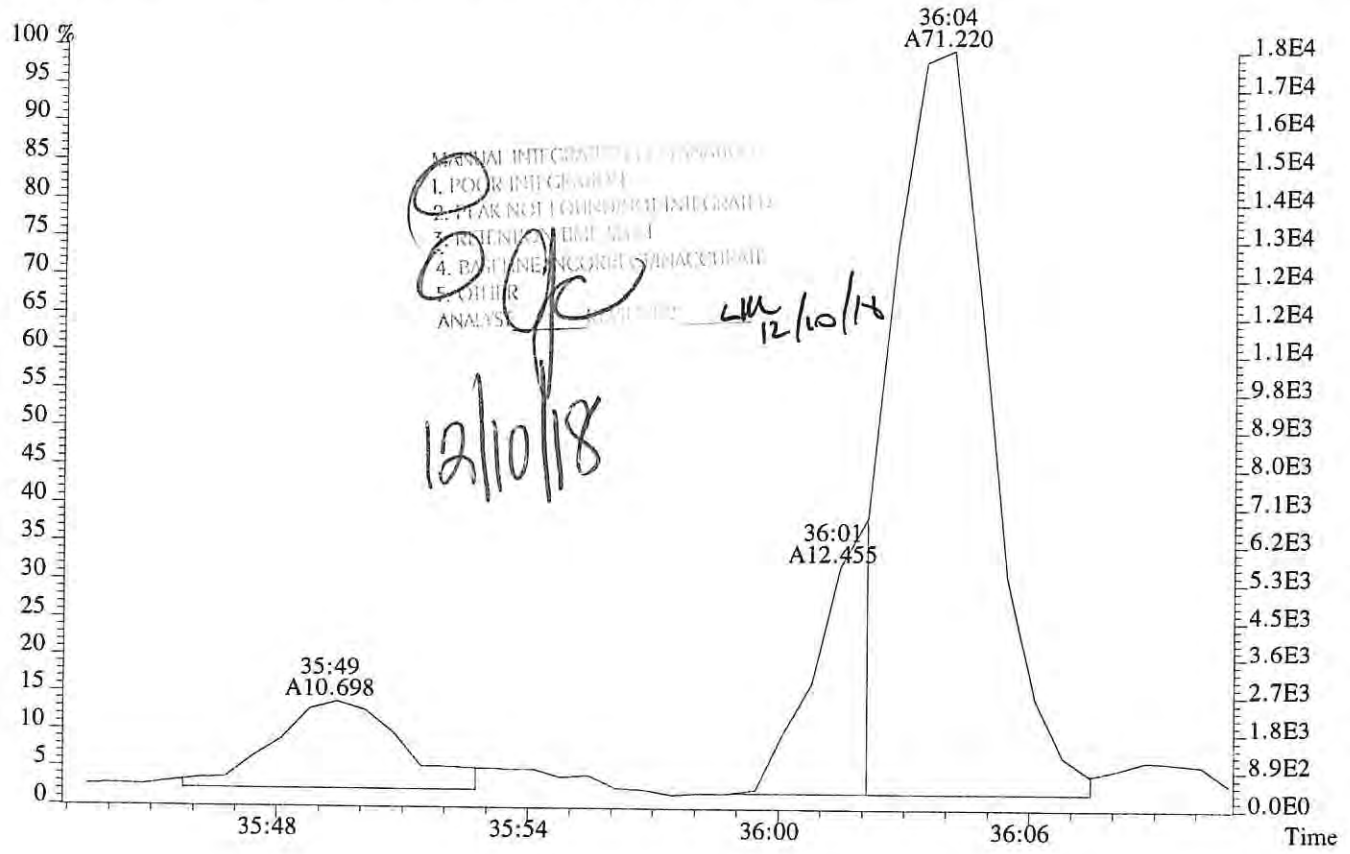
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519298 #1-317 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



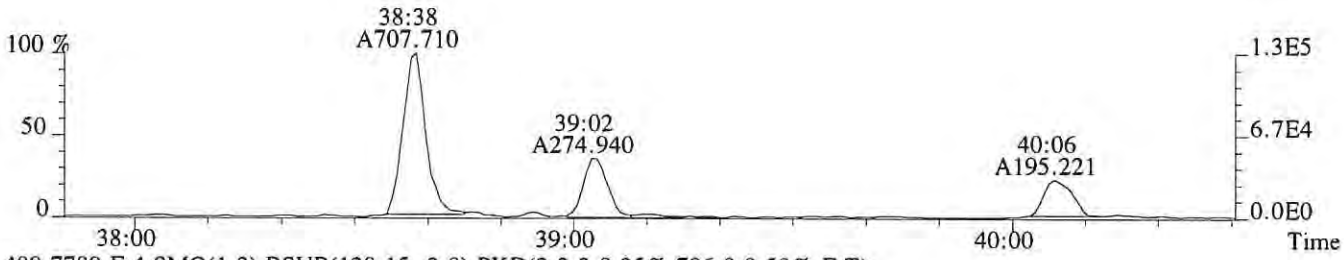
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



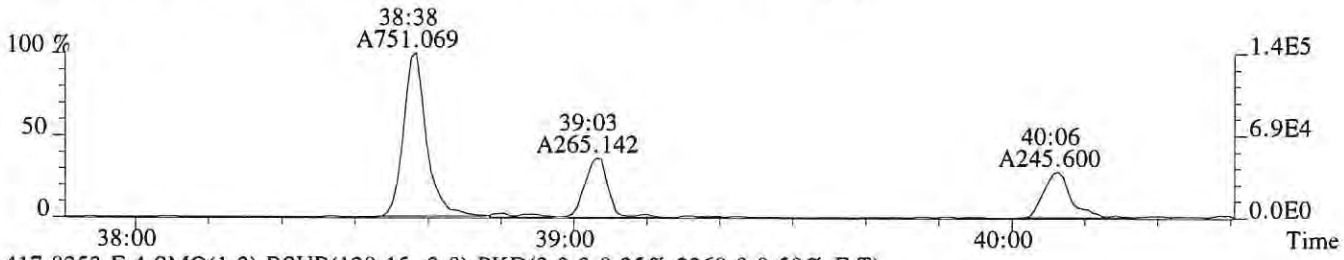
MANUAL INTEGRATION
1. POOR INTEGRATION
2. PEAK NOT CHROMATOGRAPHICALLY INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECTLY CHROMATOGRAPHED
5. OTHER
ANALYST

12/10/18
12/10/18

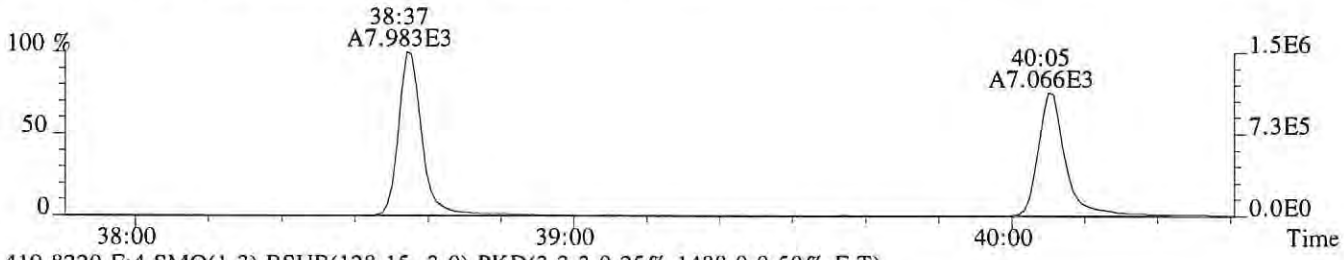
File:P519298 #1-241 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.50%,F,T)



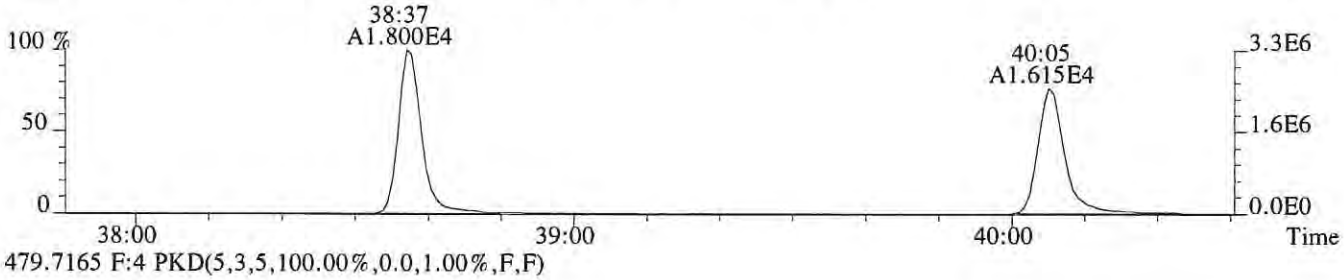
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.50%,F,T)



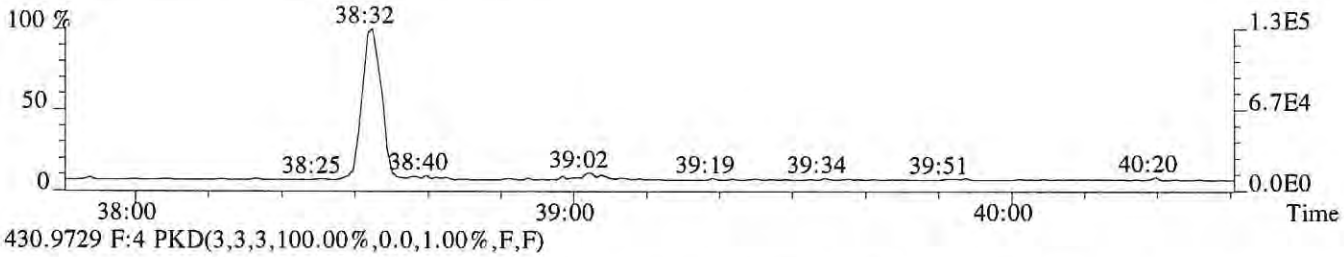
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2268.0,0.50%,F,T)



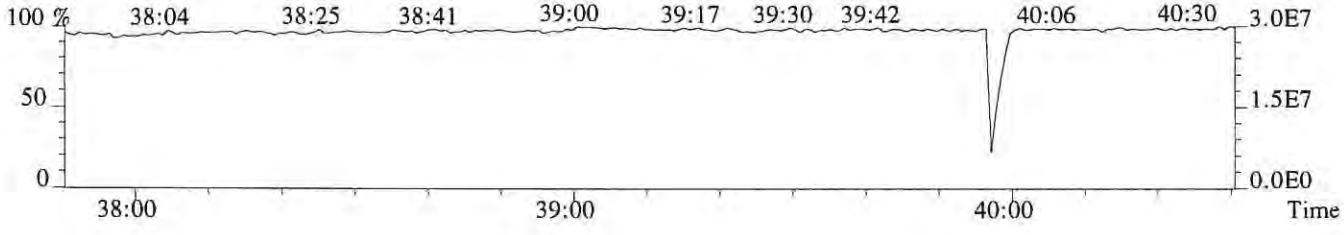
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.50%,F,T)



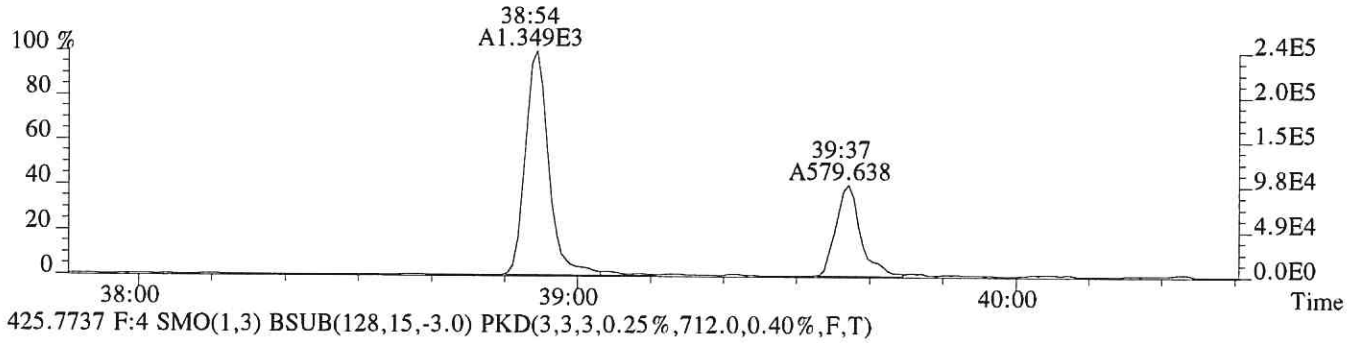
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



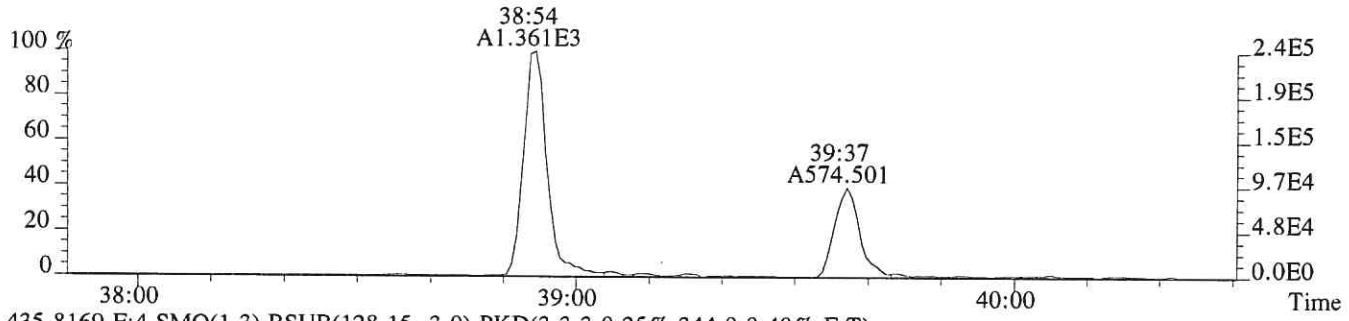
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



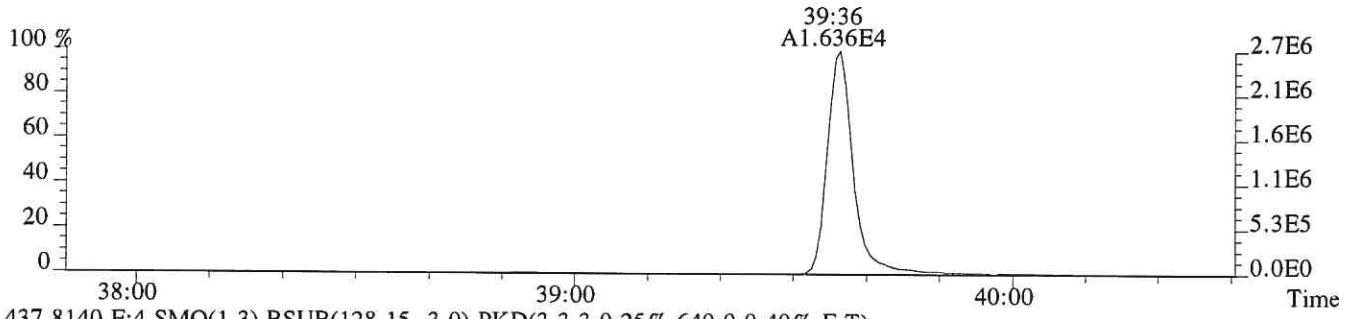
File:P519298 #1-241 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



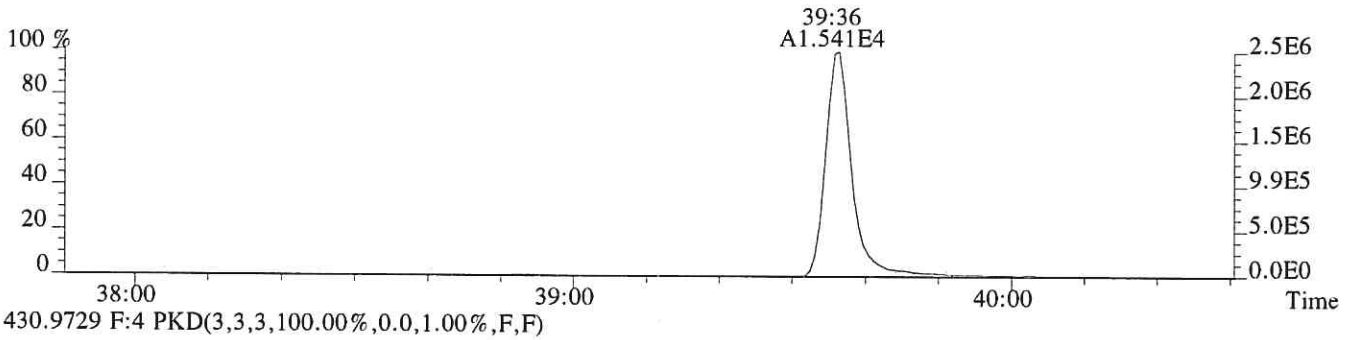
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



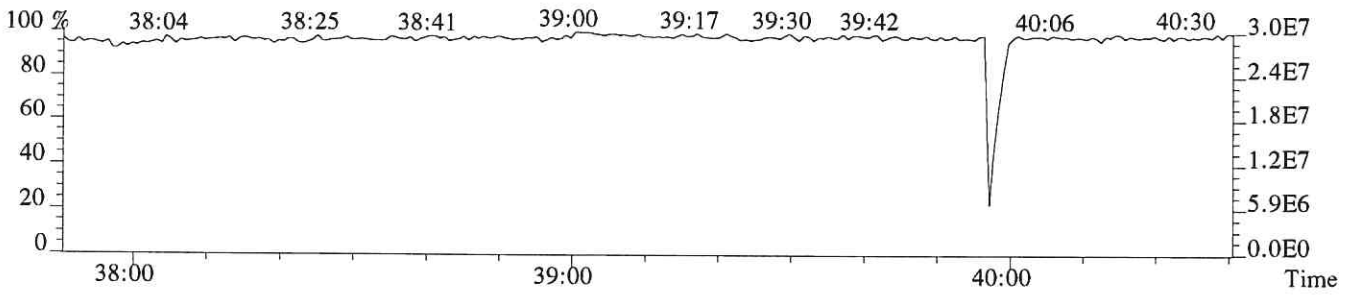
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



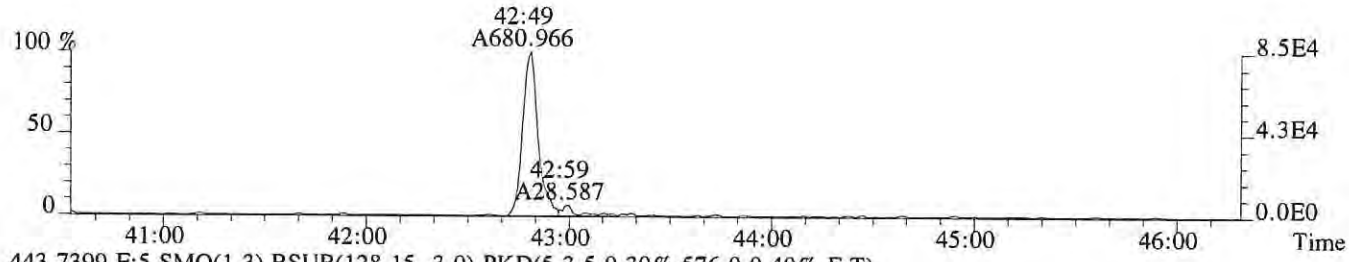
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



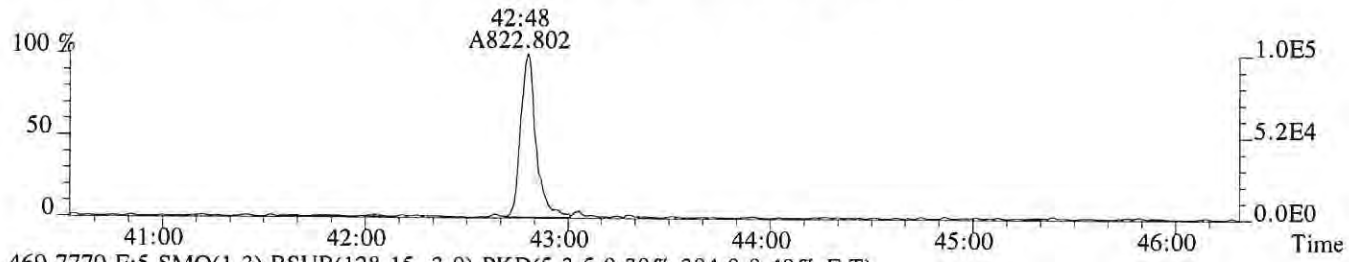
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



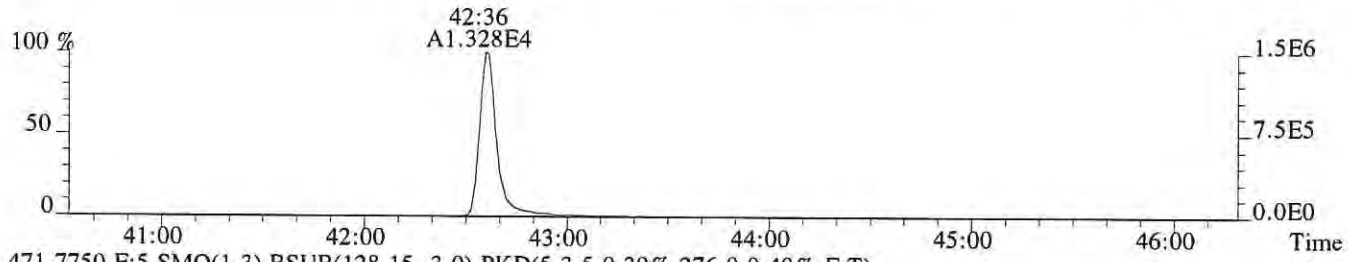
File:P519298 #1-520 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



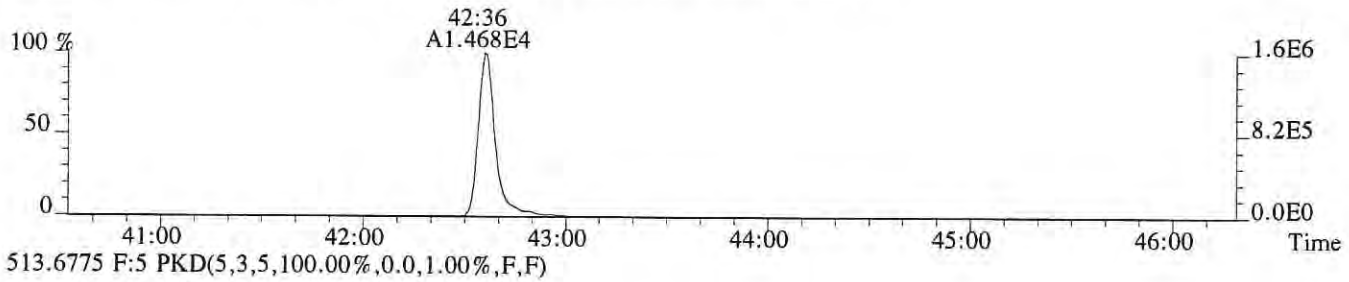
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



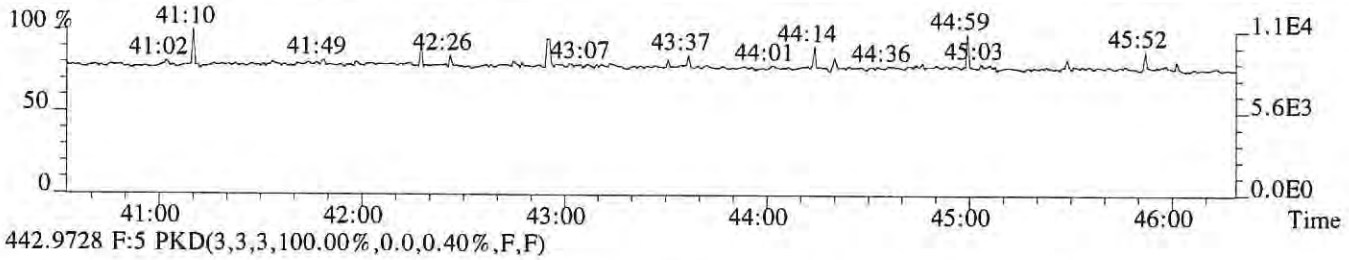
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



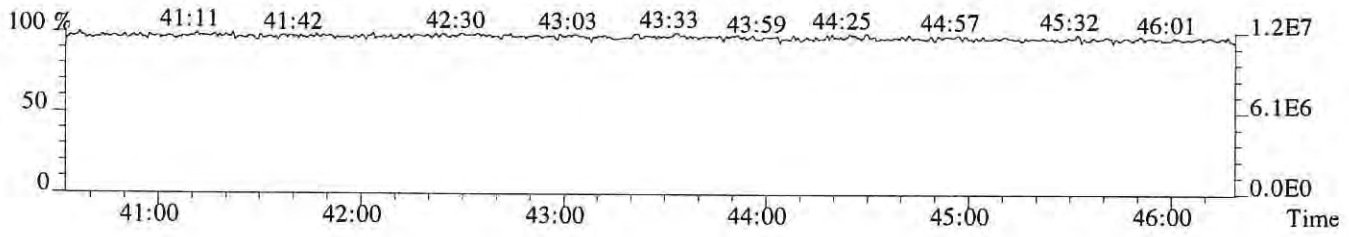
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



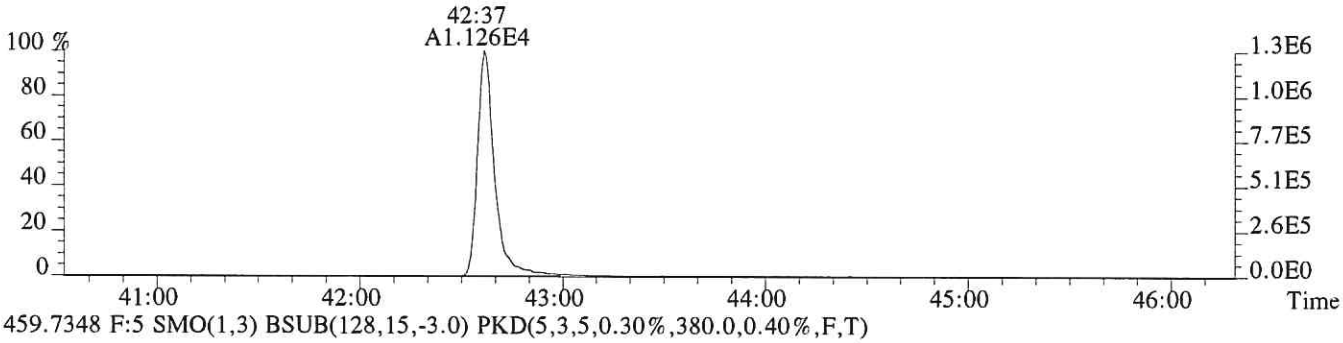
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



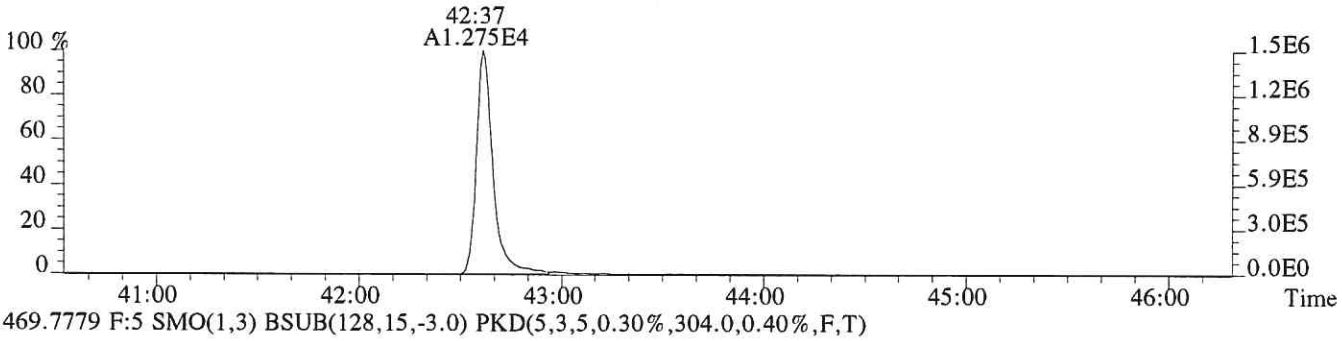
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



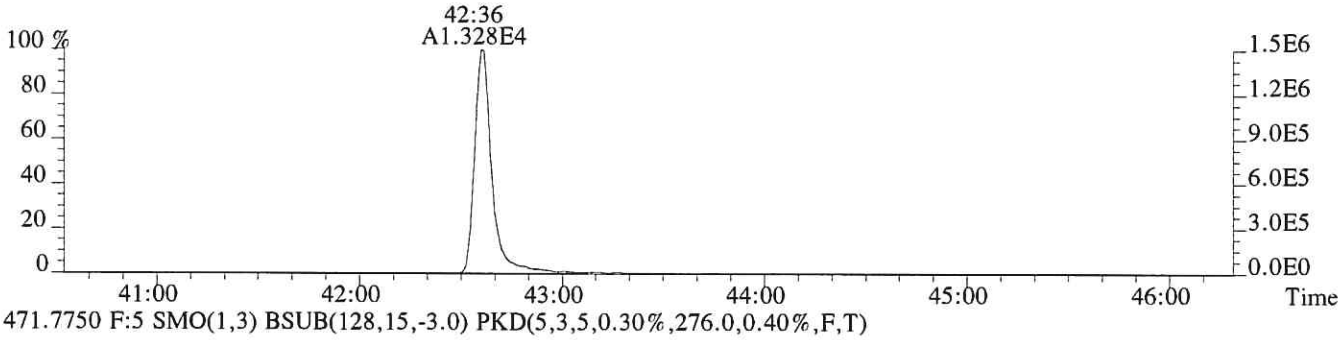
File:P519298 #1-520 Acq: 8-DEC-2018 04:02:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



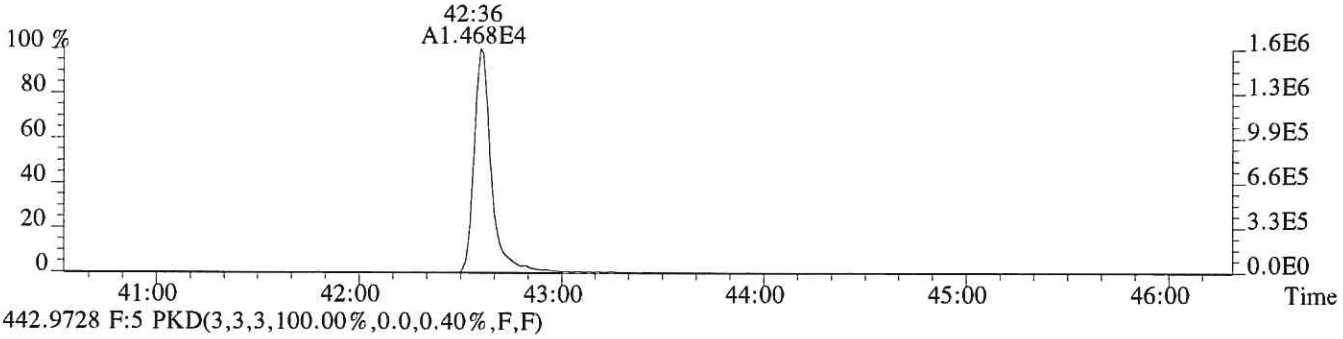
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



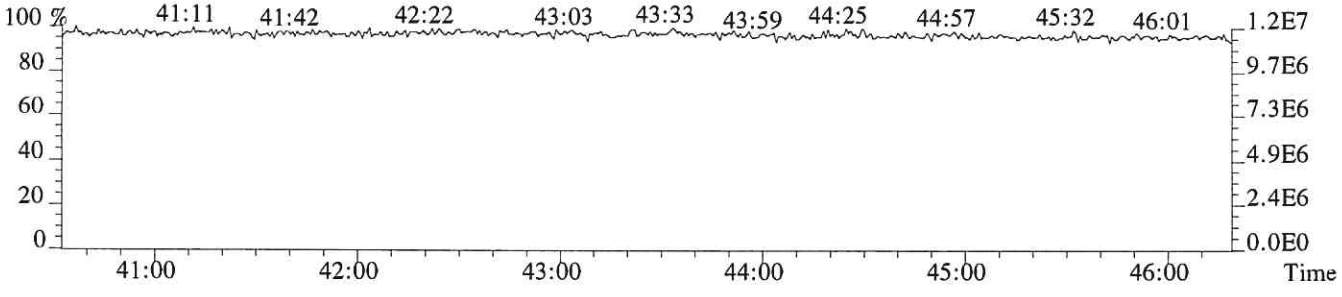
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0560

Run #19 Filename P519331 Samp: 1 Inj: 1 Acquired: 10-DEC-18 18:30:33
Processed: 11-DEC-18 15:18:41 Sample ID: E1801057-008DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	2.221e+03	2.944e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.326e+02	7.288e+01	1.82	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.047e+02	6.161e+01	1.70	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	1.970e+02	1.750e+02	1.13	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	5.620e+01	3.788e+01	1.48	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	5.961e+00	5.244e+00	1.14	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	1.663e+01	8.793e+00	1.89	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	6.225e+01	6.475e+01	0.96	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	1.689e+01	1.514e+01	1.12	yes	no	1.258
10	Unk	OCDF	42:38	6.756e+01	8.371e+01	0.81	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	4.880e+02	6.728e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.476e+01	6.001e+00	2.46	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	5.615e+01	3.760e+01	1.49	no	no	1.025
17	Unk	OCDD	42:27	9.434e+02	1.007e+03	0.94	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.602e+04	1.990e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.456e+04	1.565e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.307e+04	1.434e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.180e+03	1.810e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.157e+04	2.279e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.058e+04	2.061e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	9.120e+03	1.699e+04	0.54	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	8.004e+03	1.810e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	6.758e+03	1.558e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	7.221e+03	9.196e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.619e+04	1.005e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.262e+04	1.020e+04	1.24	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.381e+04	1.077e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.438e+04	1.376e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:27	1.594e+04	1.760e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	1.103e+04	1.369e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	1.468e+04	1.142e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	8.343e+02				no	1.014

$$\text{OCDD} = \frac{(9.434e+02 + 1.007e+03) \times 4000 \text{ pg} \times 10}{(1.594e+04 + 1.760e+04) \times 10.695 \text{ g} \times 80.5 / 100 \times 1.118 \times 0.55} = 439 \text{ ng/Kg}$$

LMK 12/11/18

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0560

Run #19 Filename P519331 Samp: 1 Inj: 1 Acquired: 10-DEC-18 18:30:33
Processed: 11-DEC-18 15:18:41 LAB. ID: E1801057-008DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.50e+05	5.88e+02	6.0e+02	4.70e+05	1.70e+03	2.8e+02
2	1,2,3,7,8-PeCDF	2.44e+04	3.20e+02	7.6e+01	1.35e+04	1.86e+03	7.3e+00
3	2,3,4,7,8-PeCDF	1.77e+04	3.20e+02	5.5e+01	1.00e+04	1.86e+03	5.4e+00
4	1,2,3,4,7,8-HxCDF	4.11e+04	3.52e+02	1.2e+02	3.57e+04	3.40e+02	1.0e+02
5	1,2,3,6,7,8-HxCDF	1.11e+04	3.52e+02	3.2e+01	6.83e+03	3.40e+02	2.0e+01
6	2,3,4,6,7,8-HxCDF	1.61e+03	3.52e+02	4.6e+00	1.23e+03	3.40e+02	3.6e+00
7	1,2,3,7,8,9-HxCDF	3.08e+03	3.52e+02	8.8e+00	2.23e+03	3.40e+02	6.6e+00
8	1,2,3,4,6,7,8-HpCDF	1.21e+04	3.56e+02	3.4e+01	1.32e+04	2.32e+02	5.7e+01
9	1,2,3,4,7,8,9-HpCDF	2.44e+03	3.56e+02	6.8e+00	3.25e+03	2.32e+02	1.4e+01
10	OCDF	7.64e+03	3.04e+02	2.5e+01	9.54e+03	6.56e+02	1.5e+01
11	2,3,7,8-TCDD	9.58e+04	2.06e+03	4.6e+01	1.24e+05	1.02e+03	1.2e+02
12	1,2,3,7,8-PeCDD	3.05e+03	7.24e+02	4.2e+00	1.59e+03	2.04e+02	7.8e+00
13	1,2,3,4,7,8-HxCDD	*	6.80e+02	*	*	2.72e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.80e+02	*	*	2.72e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.80e+02	*	*	2.72e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.05e+04	3.24e+02	3.2e+01	6.32e+03	2.52e+02	2.5e+01
17	OCDD	1.05e+05	2.52e+02	4.1e+02	1.19e+05	2.04e+02	5.8e+02
18	13C-2,3,7,8-TCDF	2.84e+06	1.09e+04	2.6e+02	3.56e+06	6.05e+03	5.9e+02
19	13C-1,2,3,7,8-PeCDF	4.38e+06	8.52e+02	5.1e+03	2.76e+06	3.00e+02	9.2e+03
20	13C-2,3,4,7,8-PeCDF	4.35e+06	8.52e+02	5.1e+03	2.71e+06	3.00e+02	9.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.91e+06	5.32e+02	3.6e+03	3.83e+06	7.92e+02	4.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.14e+06	5.32e+02	4.0e+03	4.25e+06	7.92e+02	5.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.08e+06	5.32e+02	3.9e+03	4.03e+06	7.92e+02	5.1e+03
24	13C-1,2,3,7,8,9-HxCDF	1.60e+06	5.32e+02	3.0e+03	3.05e+06	7.92e+02	3.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.48e+06	4.66e+03	3.2e+02	3.30e+06	1.92e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.05e+06	4.66e+03	2.3e+02	2.35e+06	1.92e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.32e+06	5.93e+03	2.2e+02	1.66e+06	1.54e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	2.99e+06	8.72e+02	3.4e+03	1.87e+06	7.96e+02	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	2.65e+06	1.32e+03	2.0e+03	2.19e+06	5.60e+02	3.9e+03
30	13C-1,2,3,6,7,8-HxCDD	2.57e+06	1.32e+03	2.0e+03	2.00e+06	5.60e+02	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.30e+06	3.12e+02	7.4e+03	2.23e+06	2.00e+02	1.1e+04
32	13C-OCDD	1.86e+06	1.68e+02	1.1e+04	2.05e+06	2.32e+02	8.8e+03
33	13C-1,2,3,4-TCDD	2.03e+06	5.93e+03	3.4e+02	2.58e+06	1.54e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	2.57e+06	1.32e+03	2.0e+03	2.01e+06	5.60e+02	3.6e+03
35	37Cl-2,3,7,8-TCDD	1.62e+05	8.80e+02	1.8e+02			

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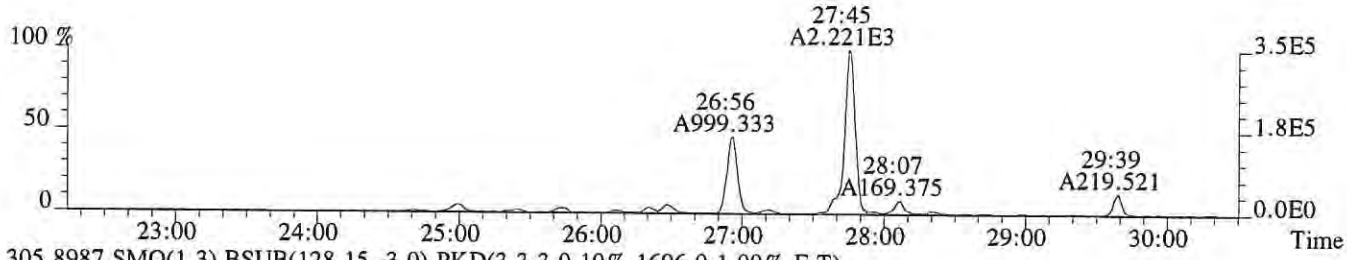
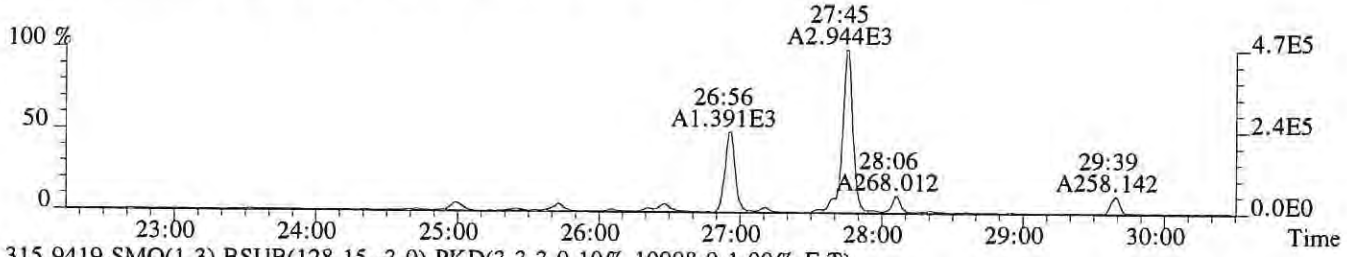
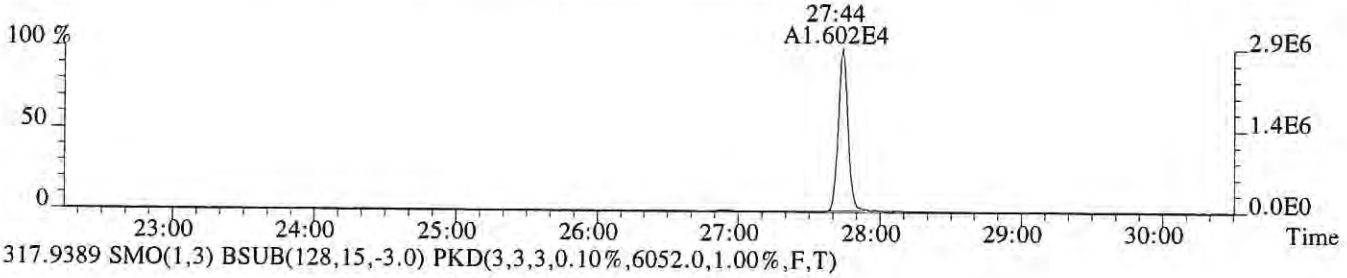
File:P519331 #1-587 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



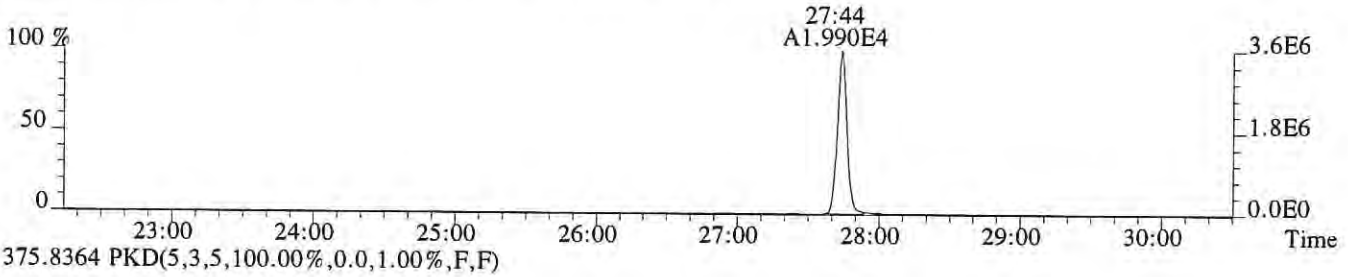
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



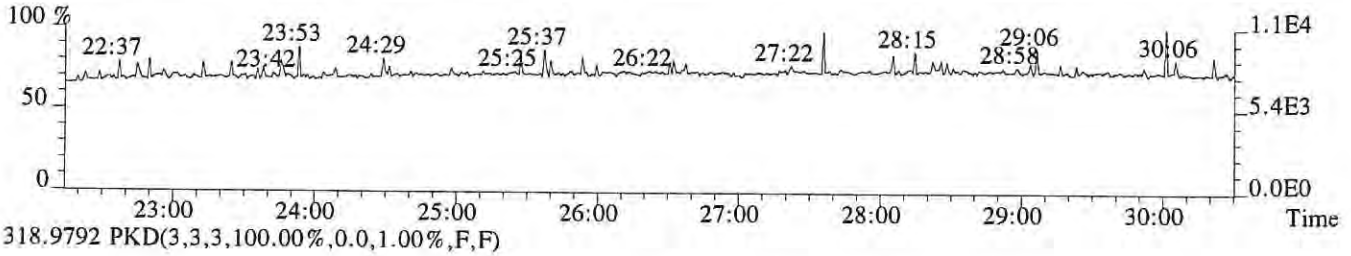
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10908.0,1.00%,F,T)



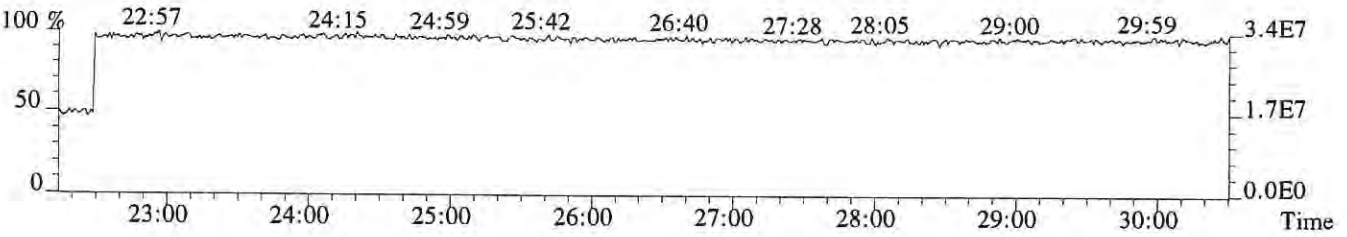
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6052.0,1.00%,F,T)



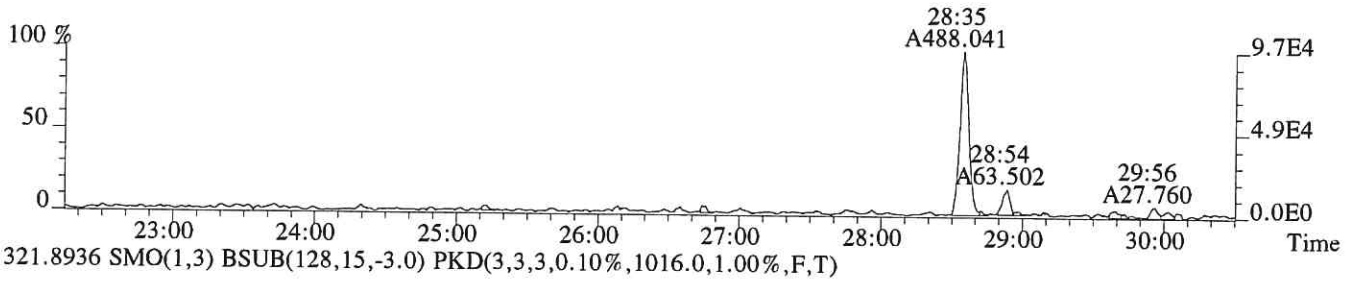
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



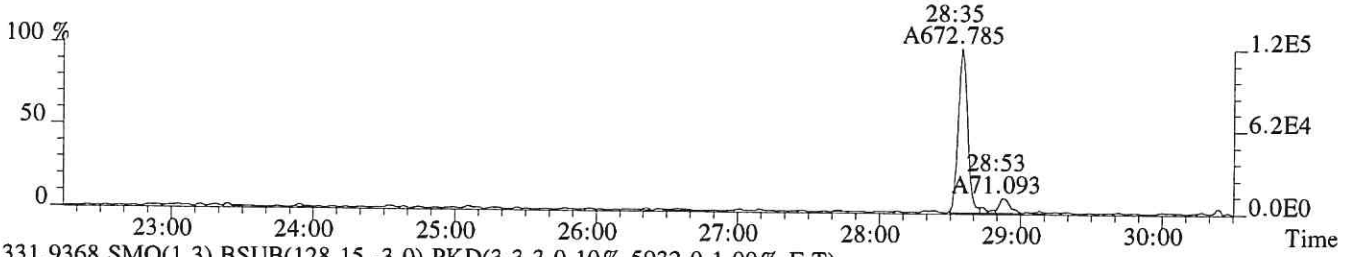
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



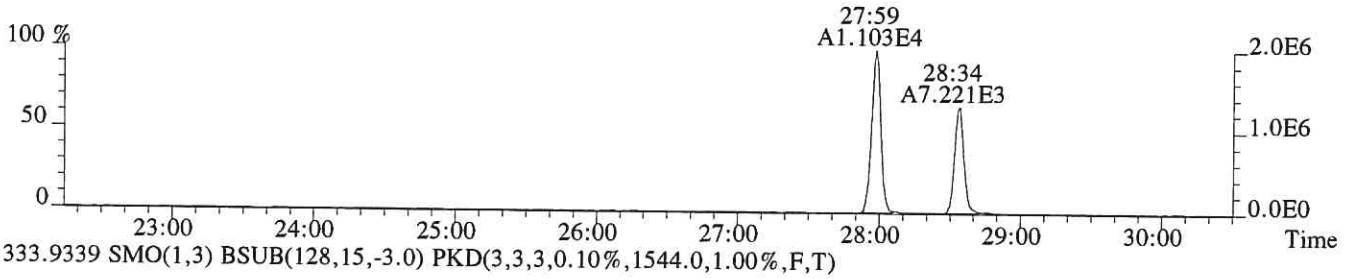
File:P519331 #1-587 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2064.0,1.00%,F,T)



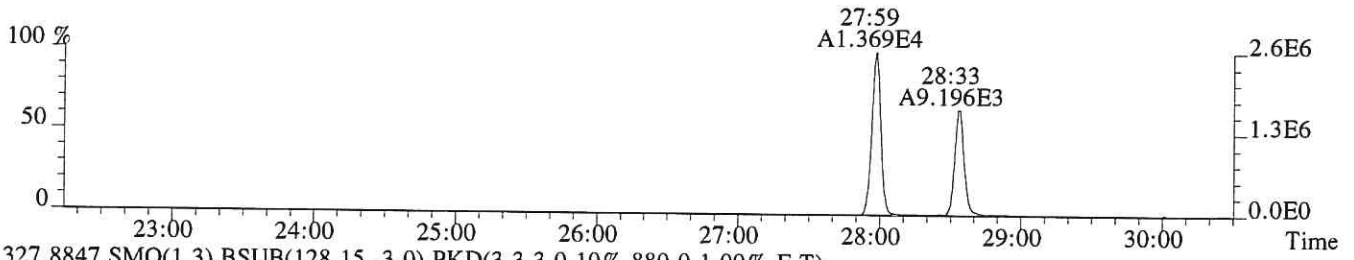
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



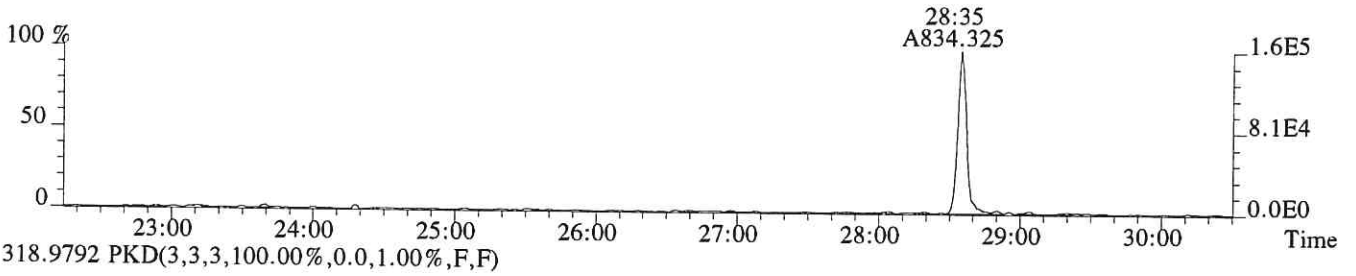
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5932.0,1.00%,F,T)



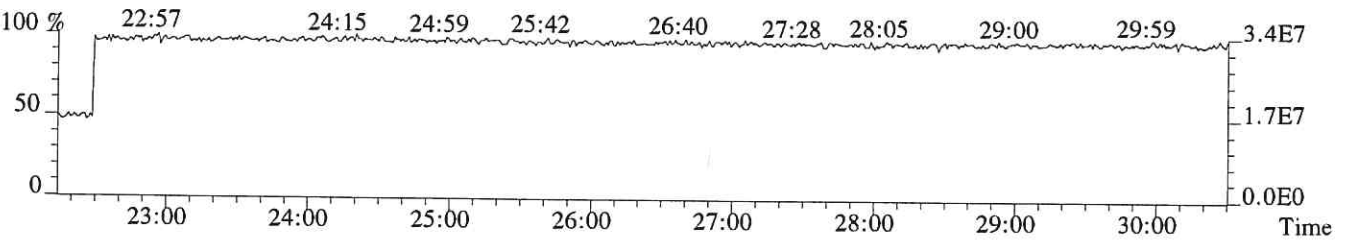
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



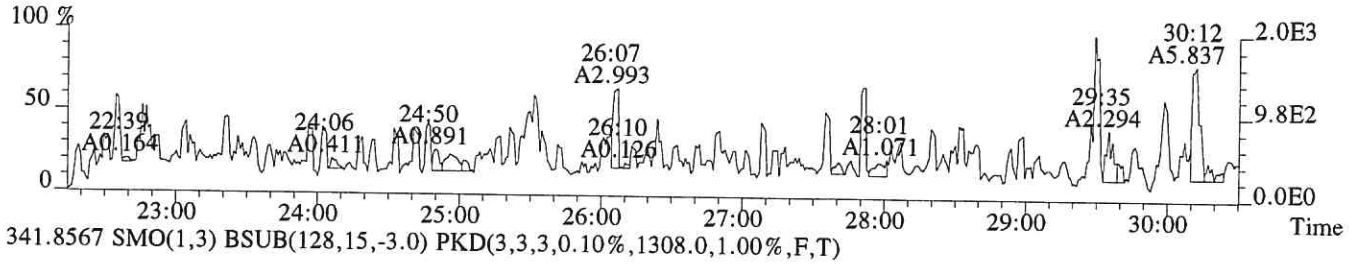
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



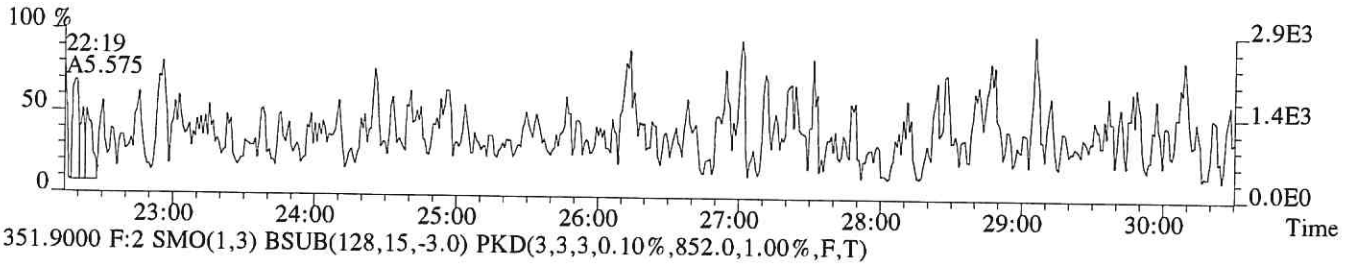
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



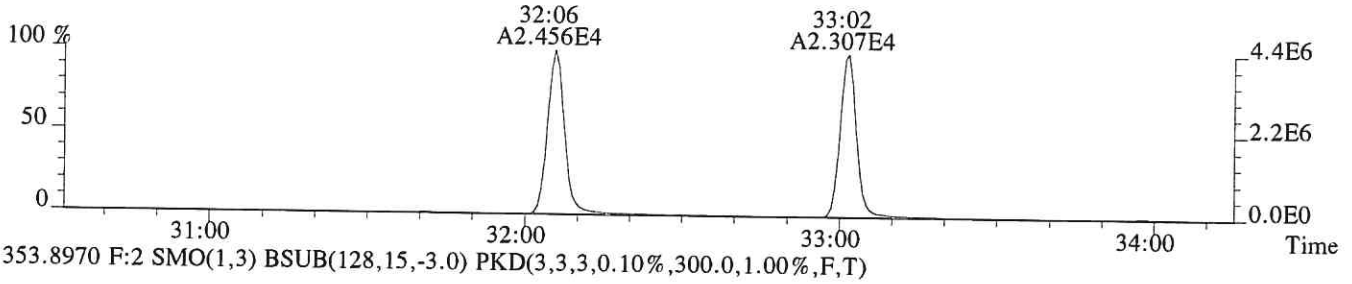
File:P519331 #1-587 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



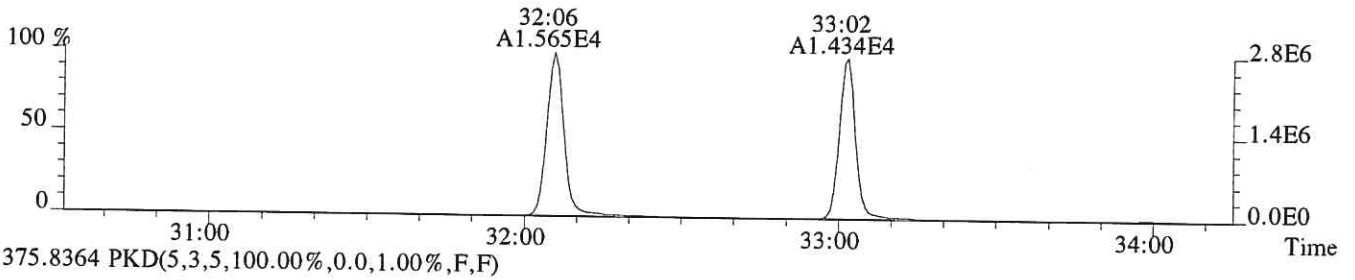
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



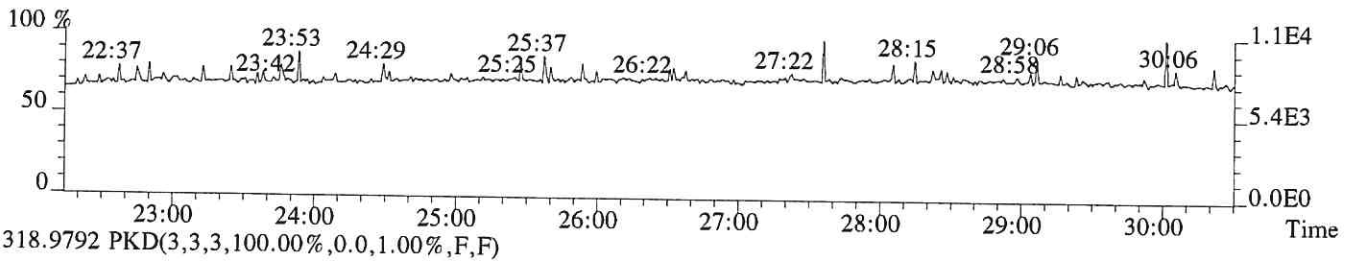
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



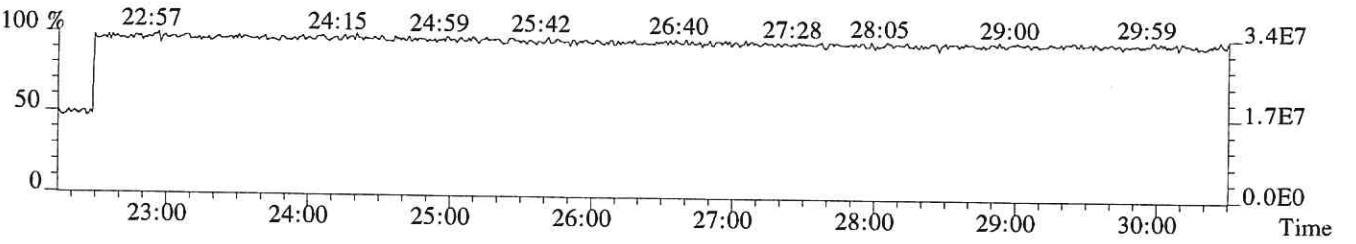
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



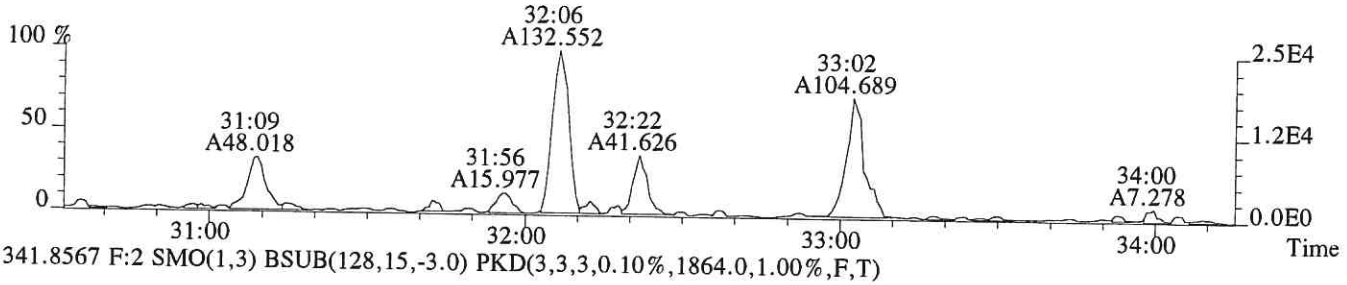
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



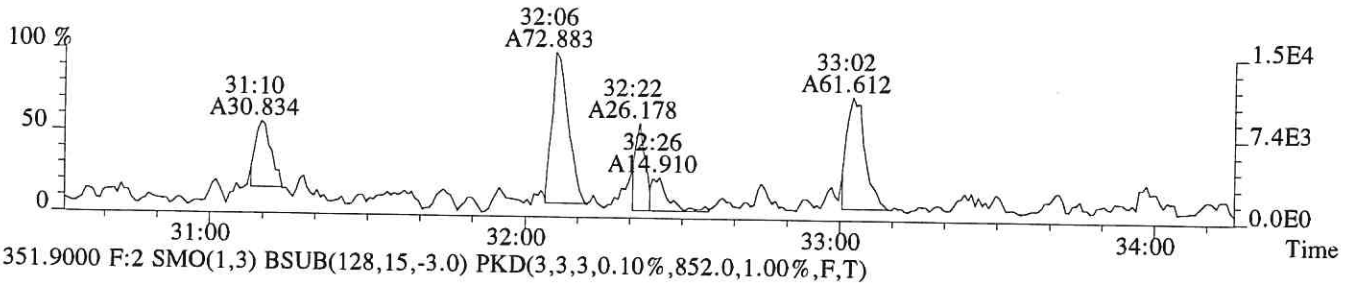
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



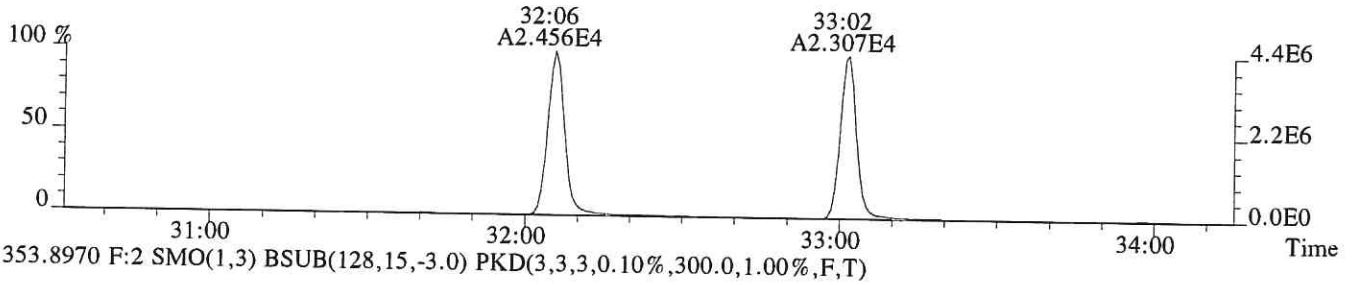
File:P519331 #1-335 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



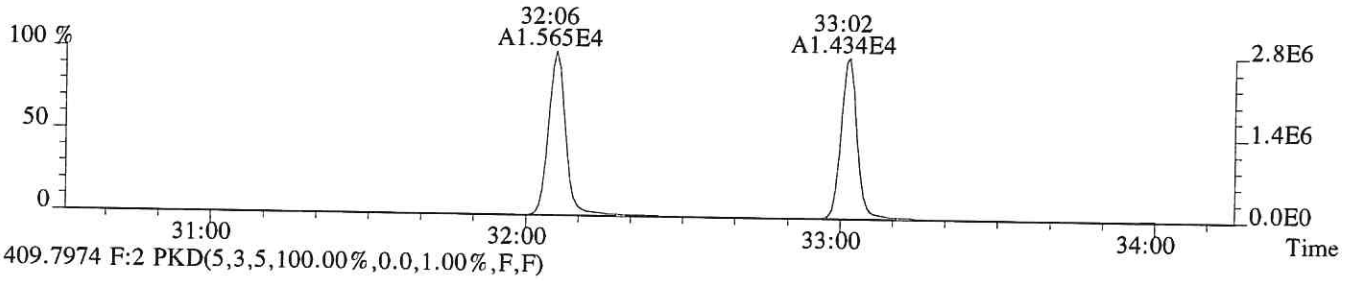
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



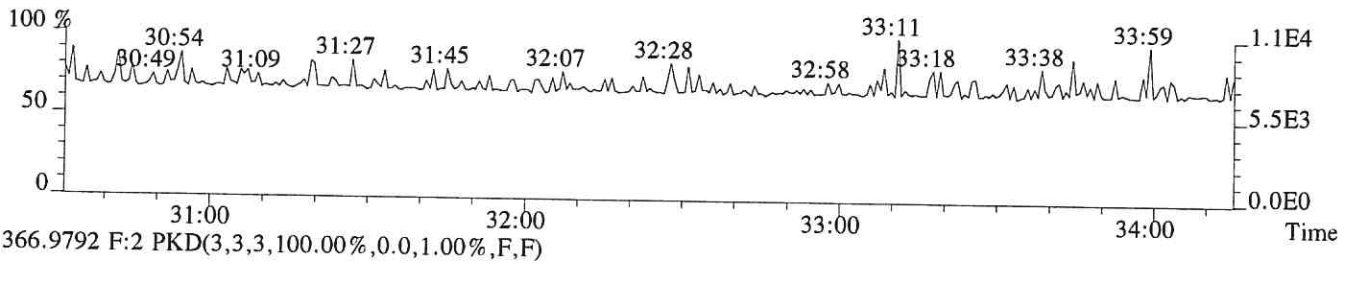
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



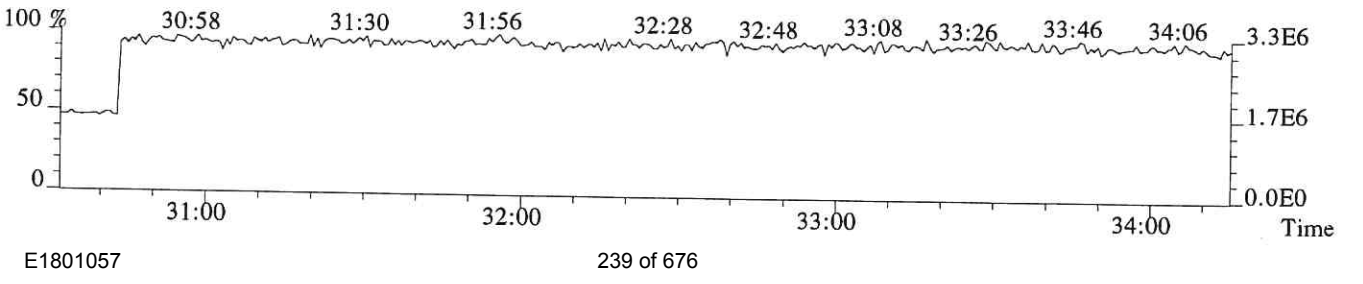
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



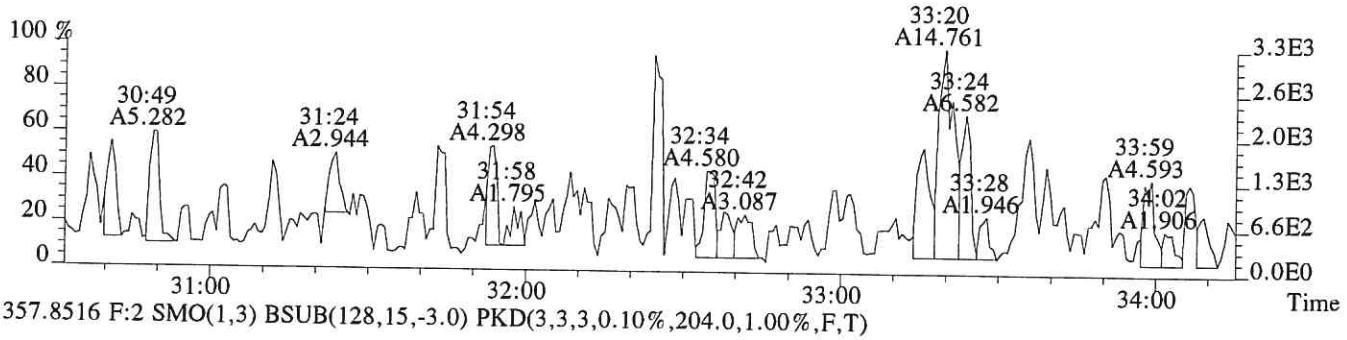
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



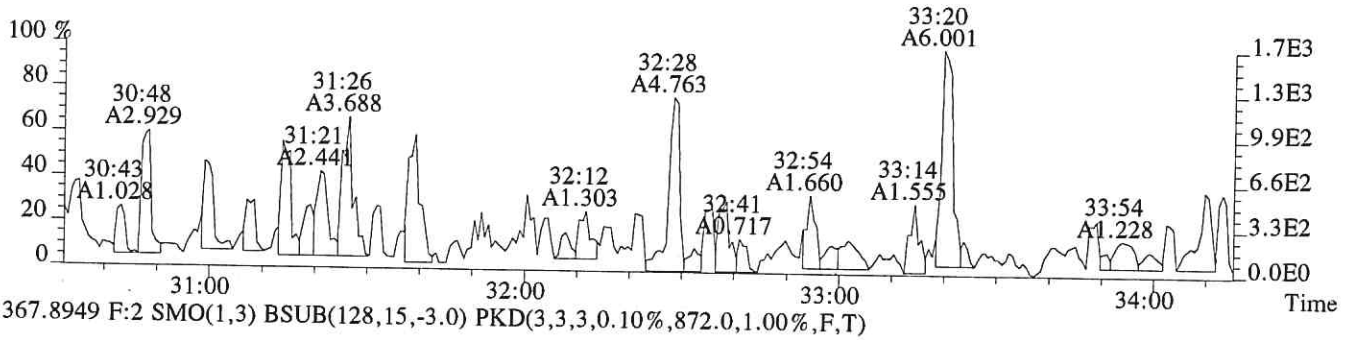
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



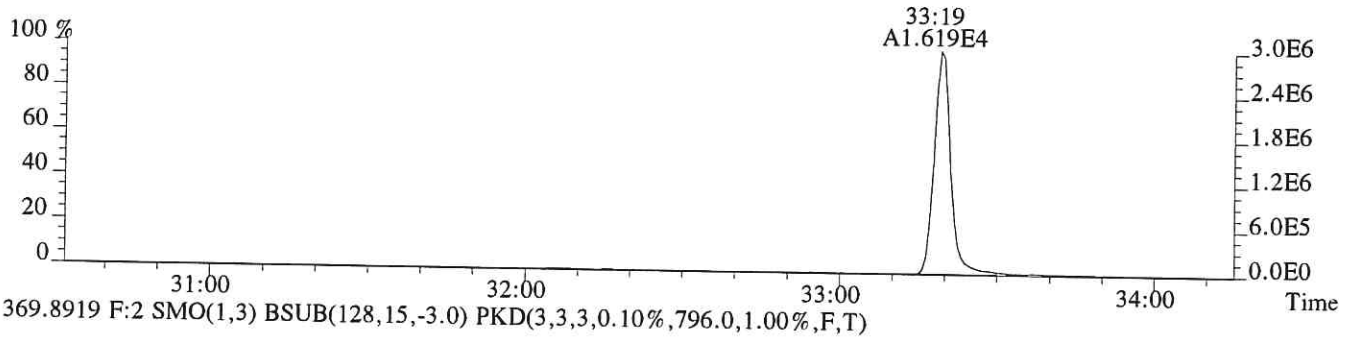
File:P519331 #1-335 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



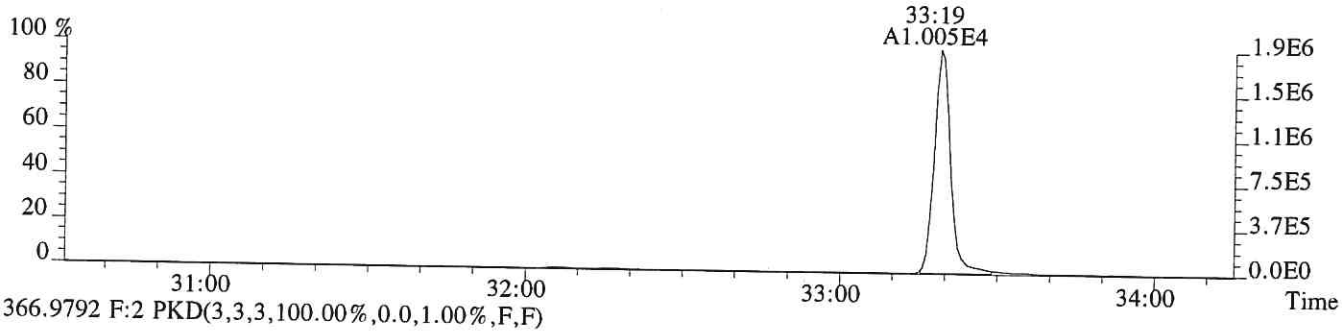
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



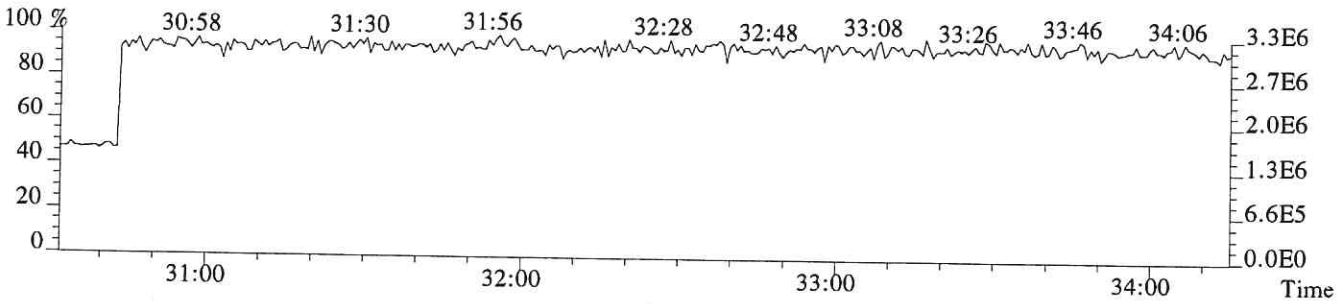
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



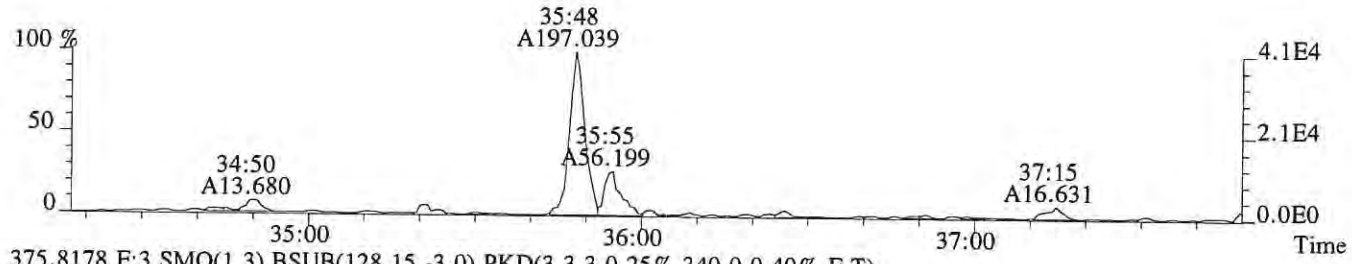
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



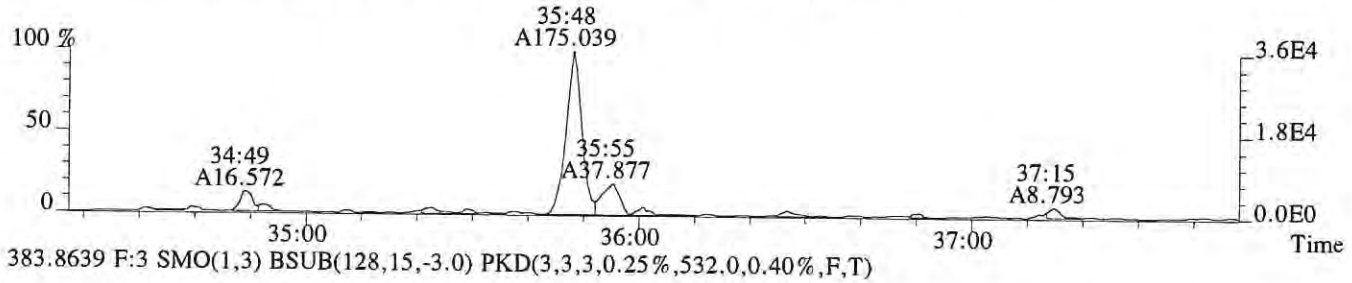
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



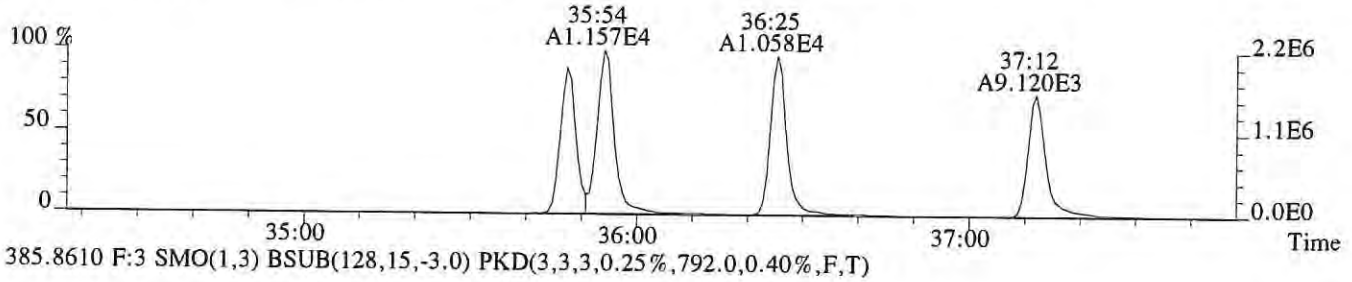
File:P519331 #1-317 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



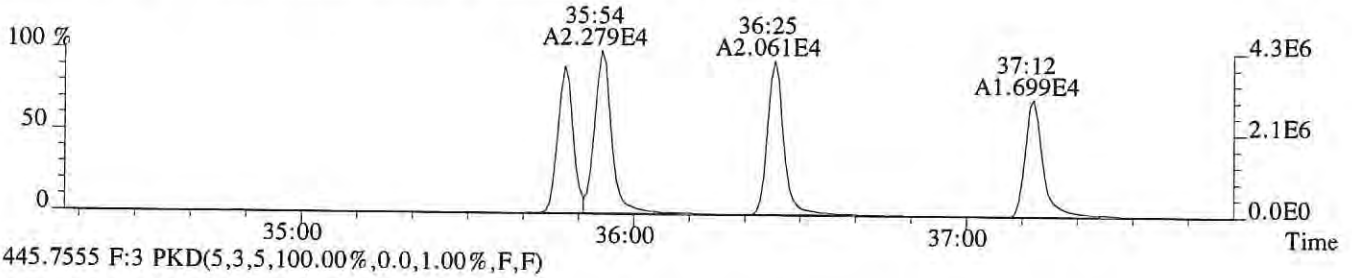
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



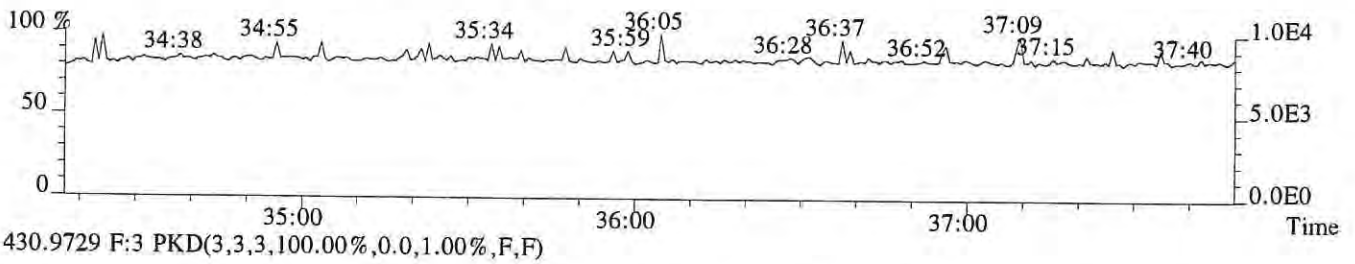
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



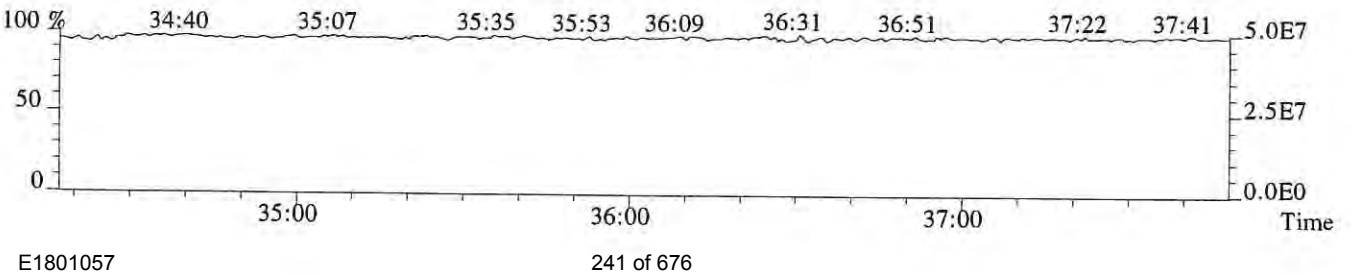
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



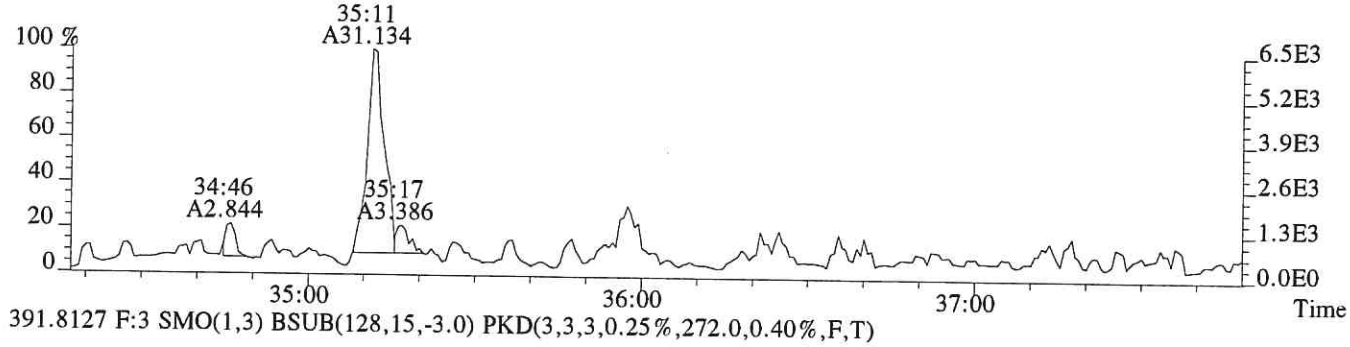
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



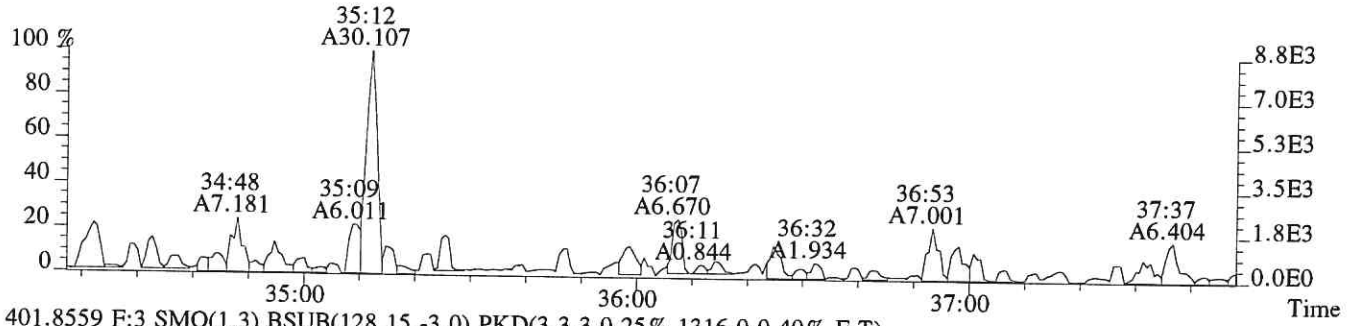
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



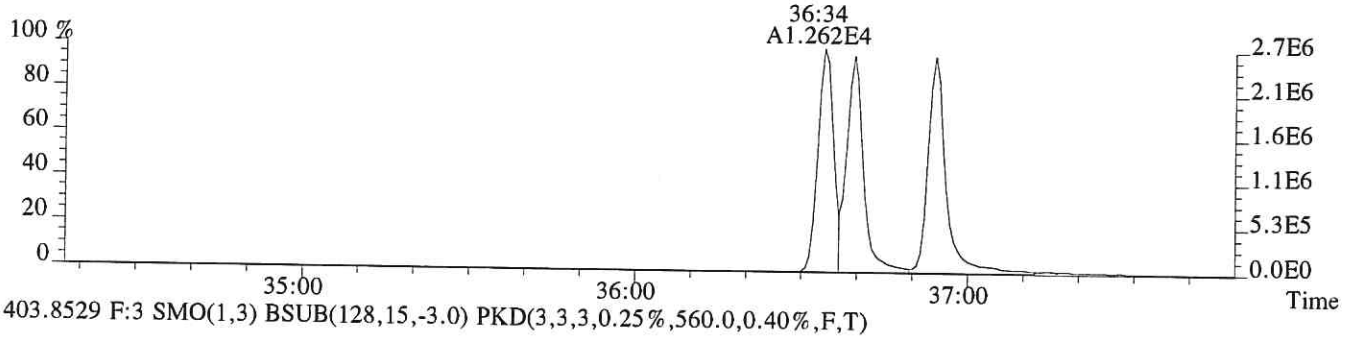
File:P519331 #1-317 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



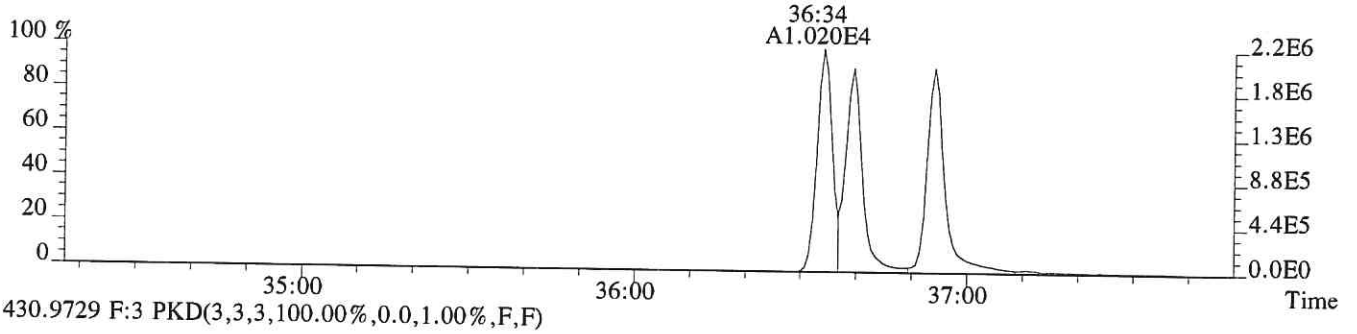
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



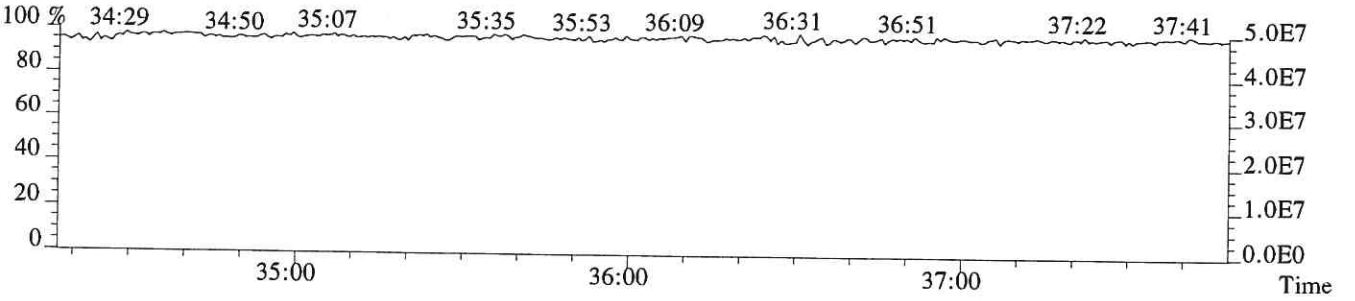
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



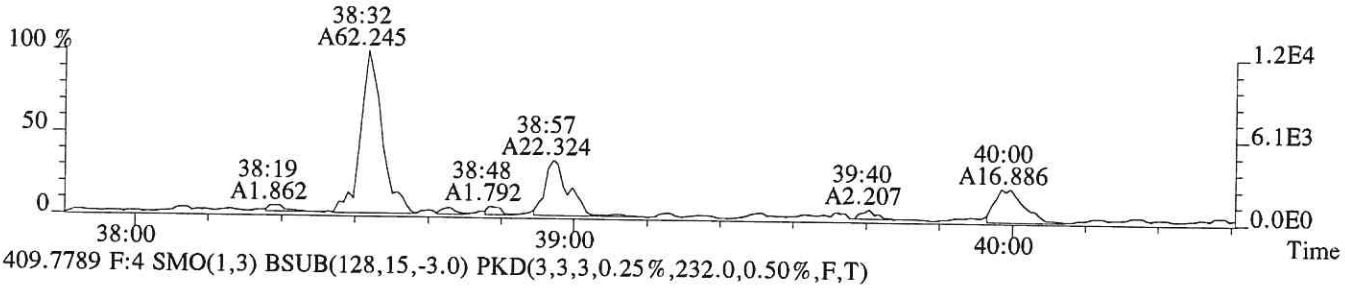
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



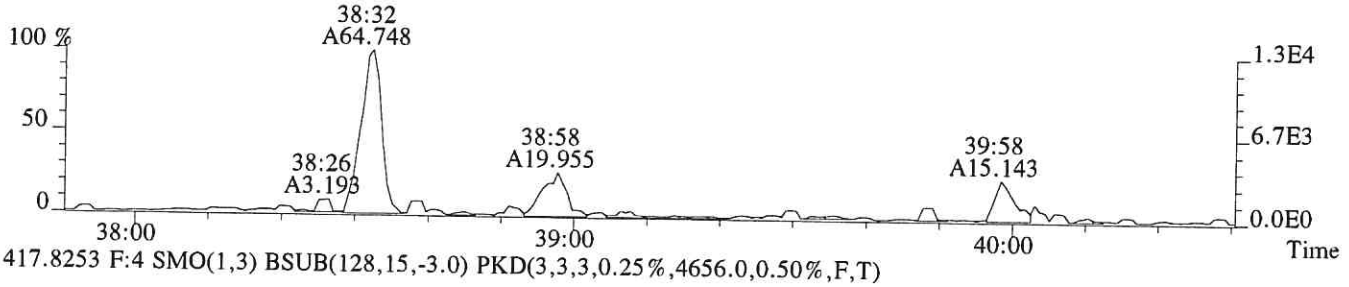
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



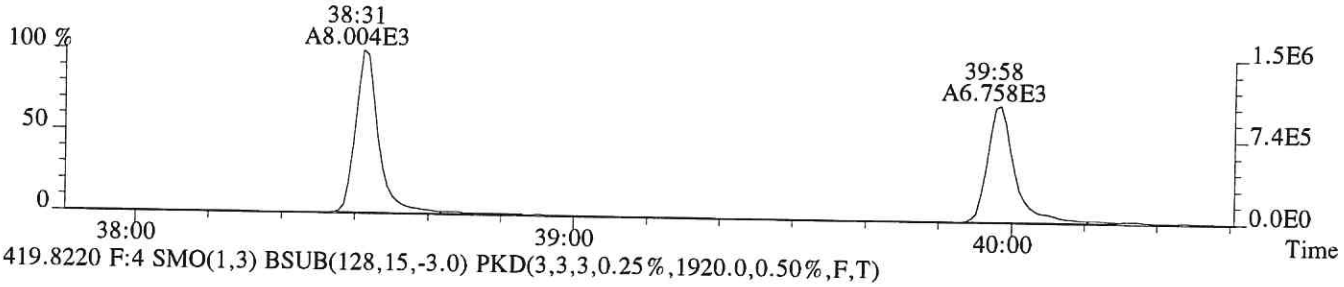
File:P519331 #1-241 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.50%,F,T)



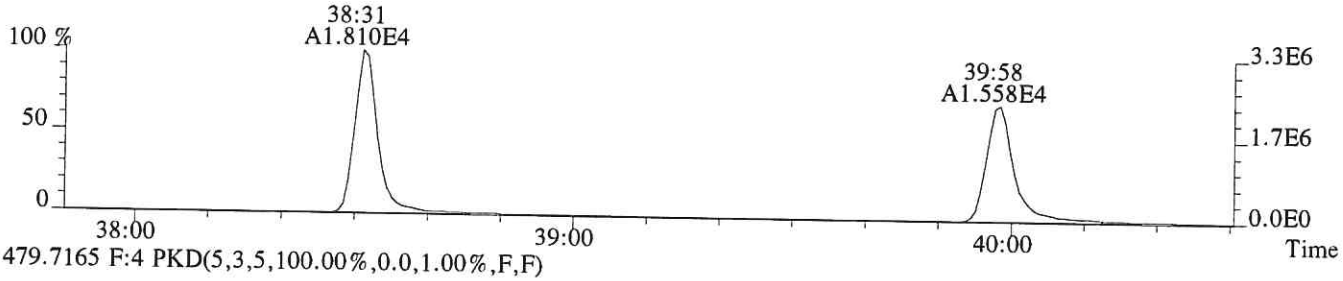
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



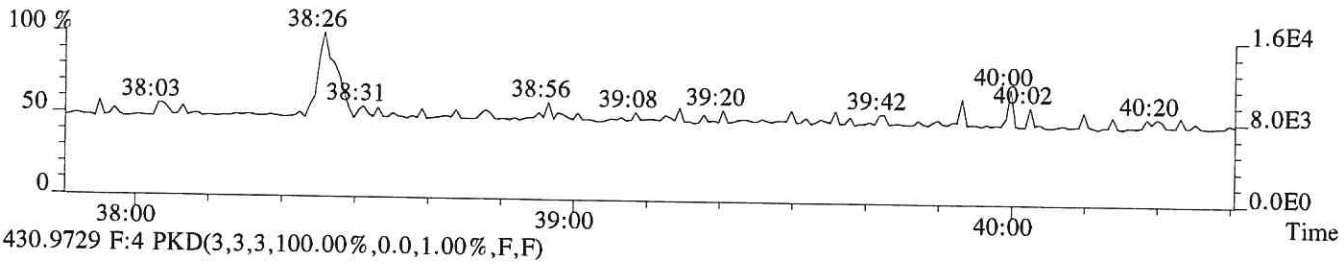
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4656.0,0.50%,F,T)



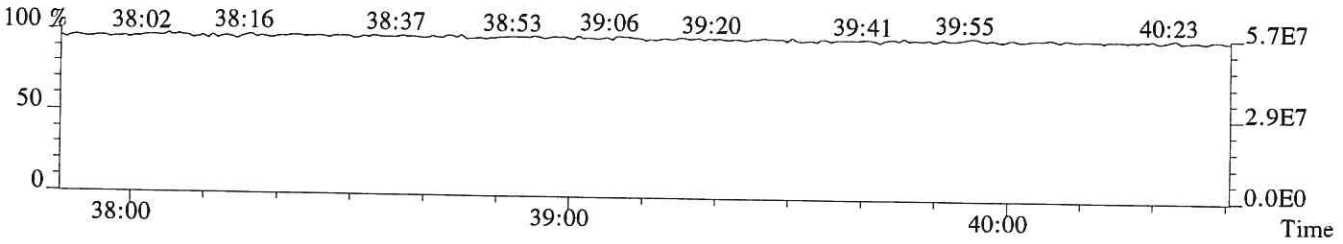
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.50%,F,T)



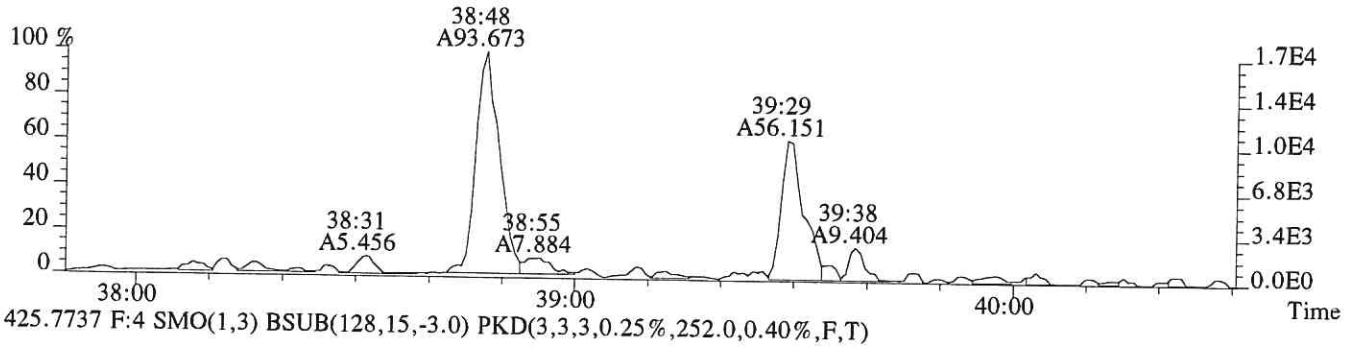
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



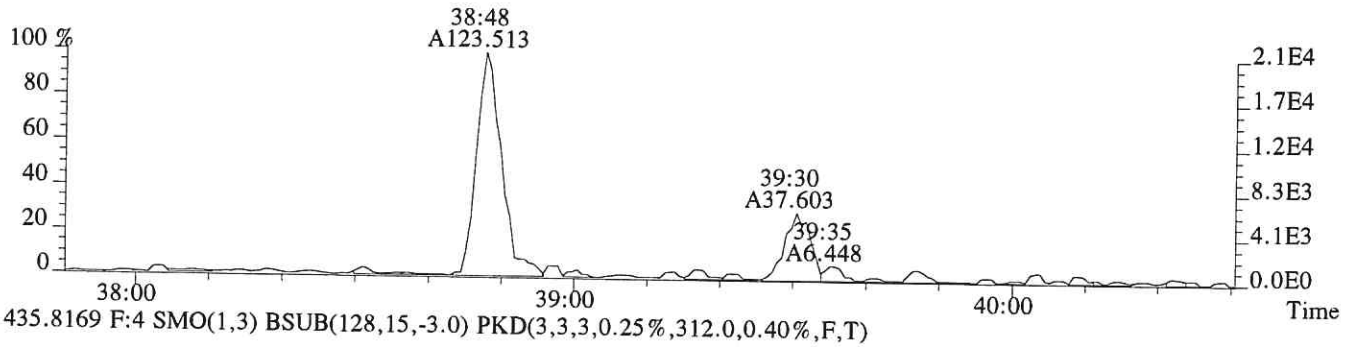
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



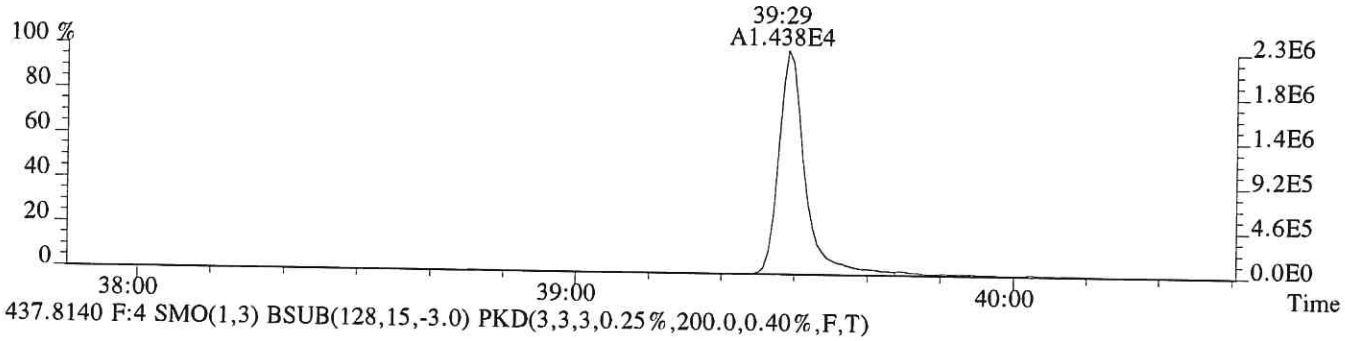
File:P519331 #1-241 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



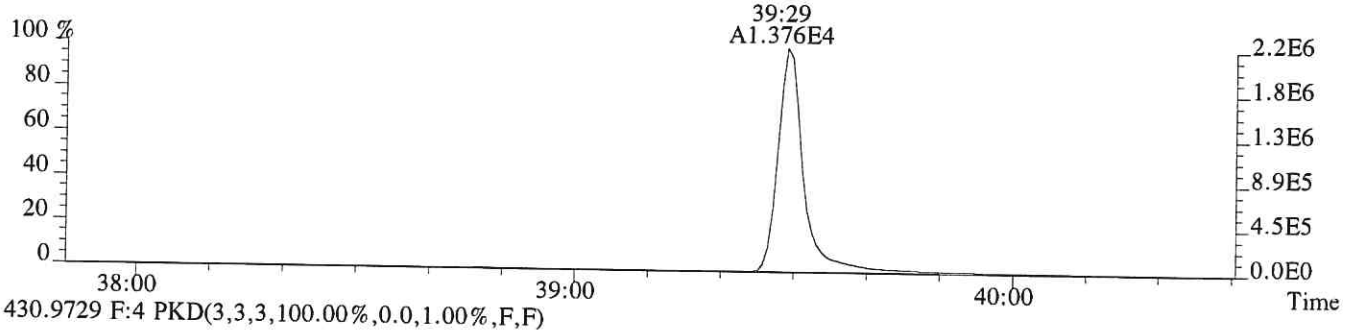
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



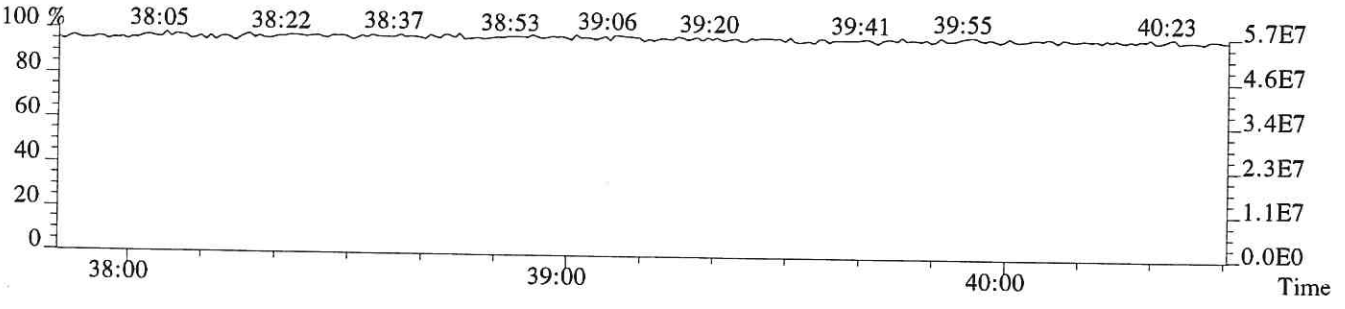
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



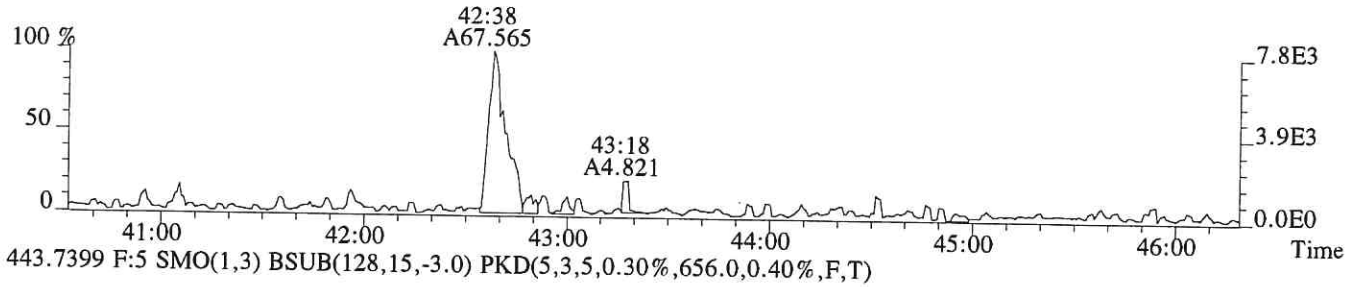
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



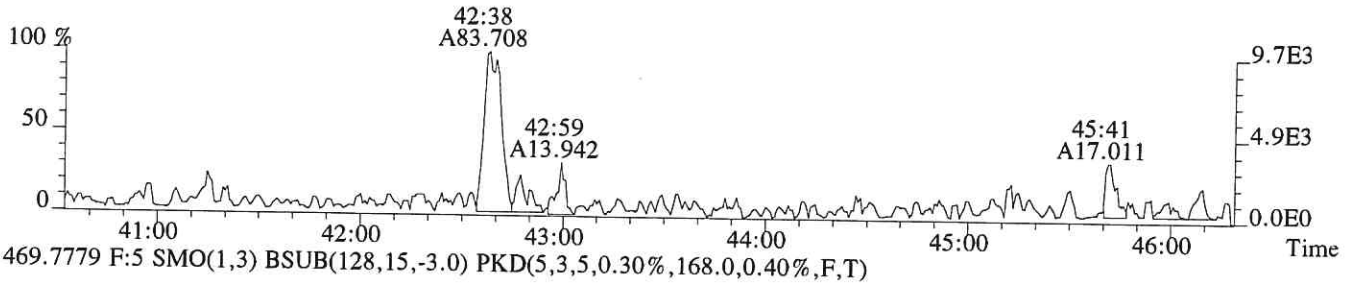
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



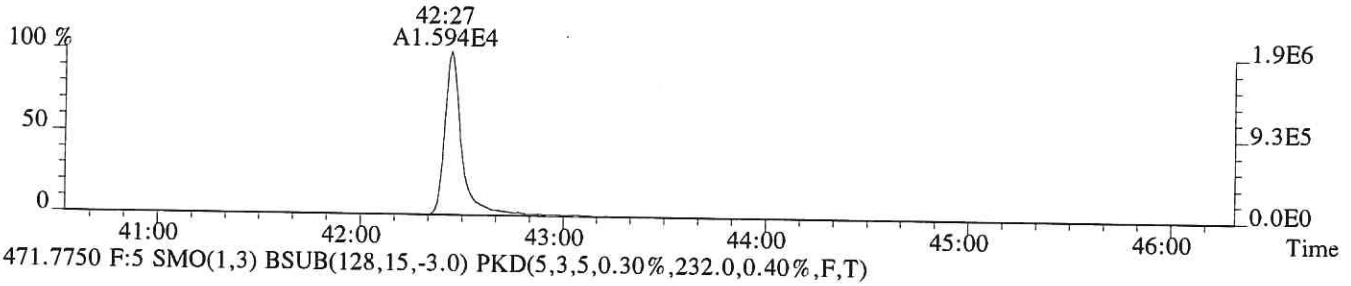
File:P519331 #1-520 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



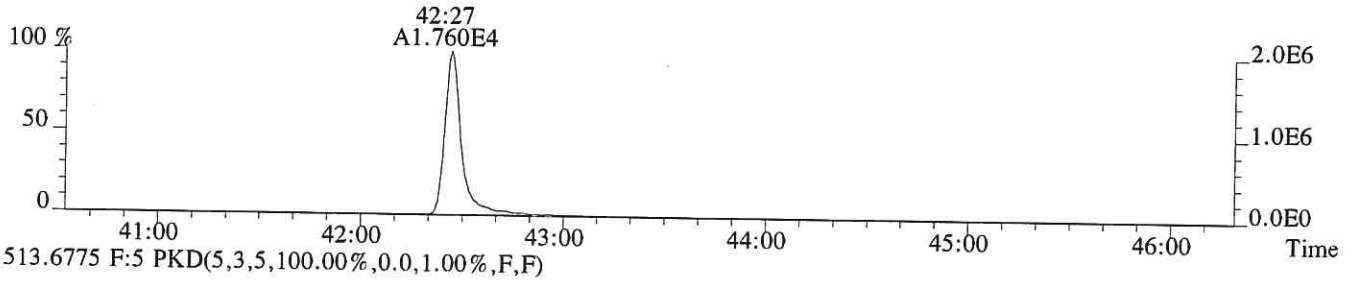
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



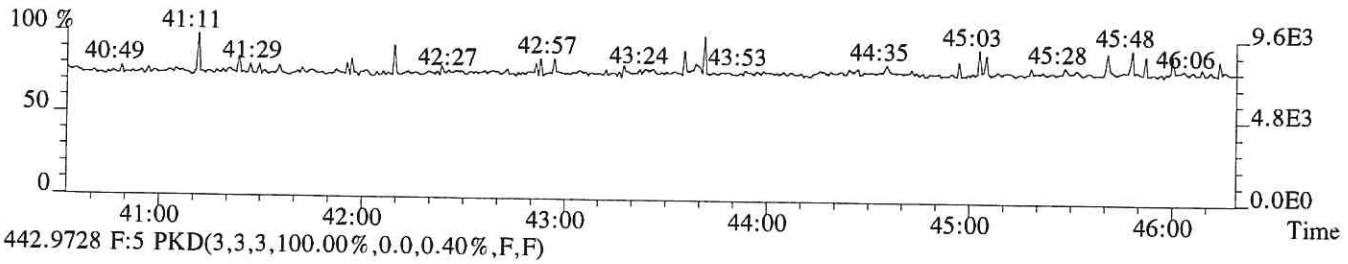
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



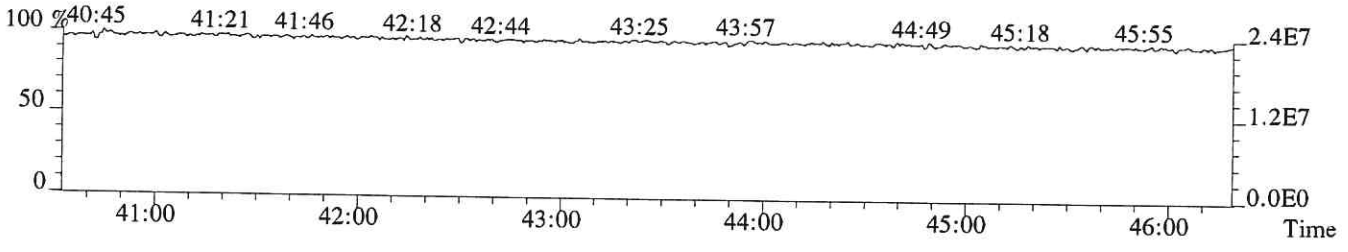
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



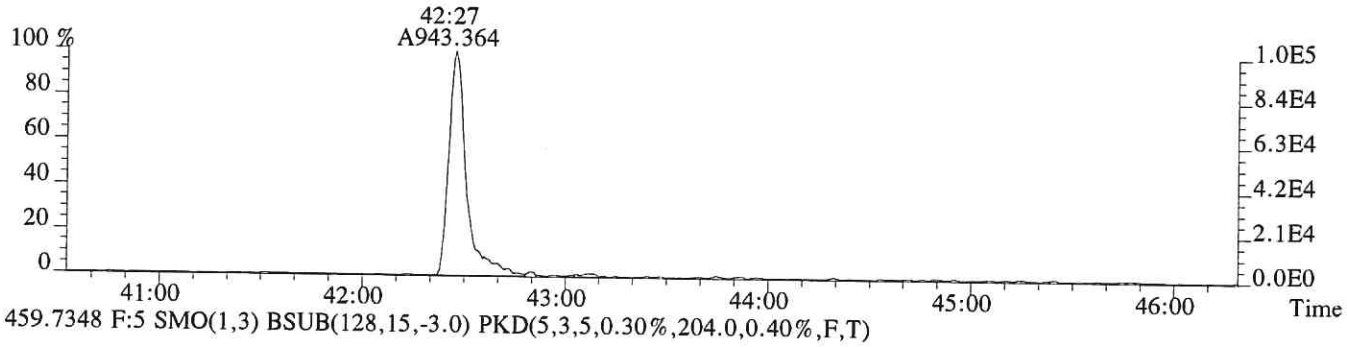
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



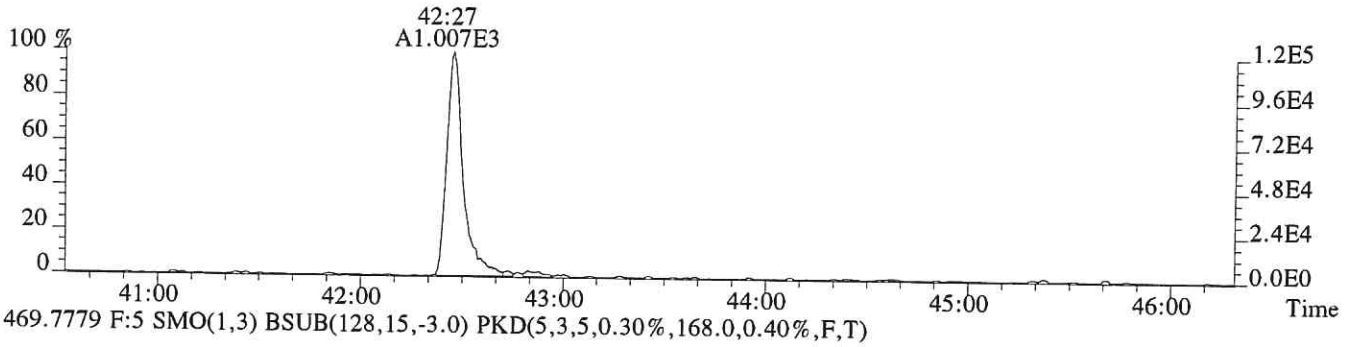
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



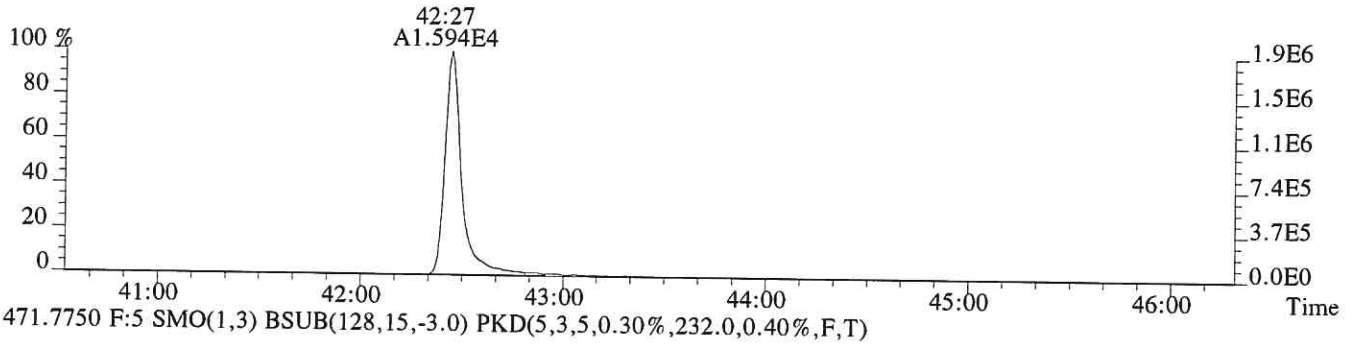
File:P519331 #1-520 Acq:10-DEC-2018 18:30:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801057-008DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



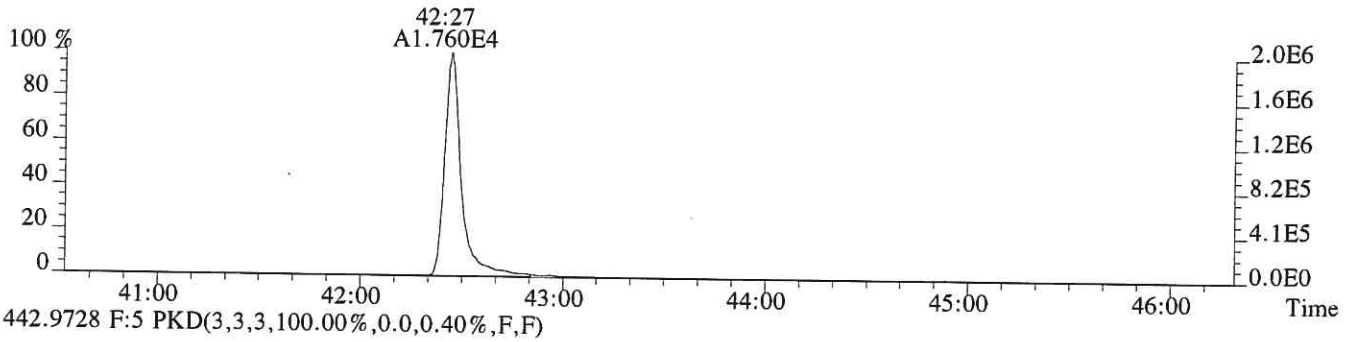
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



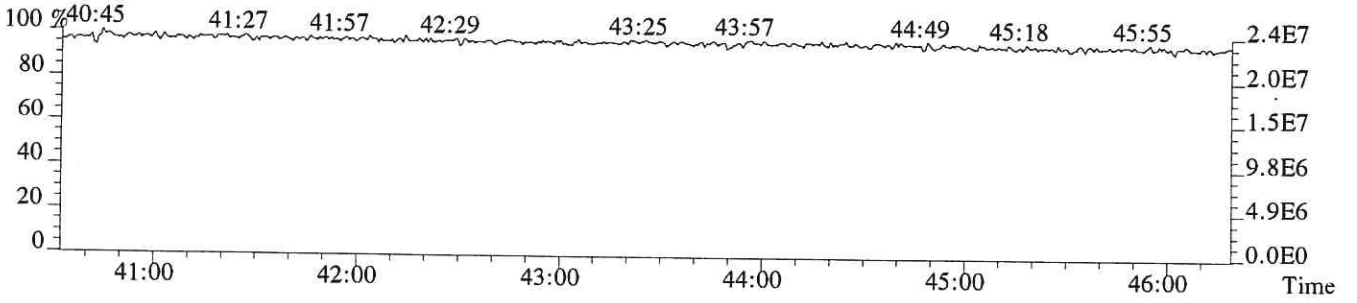
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P615971 Samp: 1 Inj: 1 Acquired: 7-DEC-18 13:07:22
Processed: 10-DEC-18 16:28:10 Sample ID: EQ1800494-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	4.553e+01	6.763e+01	0.67	yes	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	1.107e+01	9.412e+00	1.18	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	1.793e+01	1.384e+01	1.30	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.919e+01	2.173e+01	0.88	no	no	1.112
17	Unk	OCDD	41:43	8.721e+01	1.235e+02	0.71	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	4.833e+04	6.116e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	8.433e+04	5.327e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	7.514e+04	4.772e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	3.465e+04	6.571e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.976e+04	7.666e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	3.532e+04	6.719e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	3.190e+04	6.140e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.473e+04	5.548e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.204e+04	4.745e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	2.506e+04	3.218e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	6.004e+04	3.832e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.919e+04	3.904e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	4.719e+04	3.821e+04	1.23	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.844e+04	4.618e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	3.880e+04	4.299e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	7.709e+04	9.815e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	9.710e+04	7.903e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	3.408e+04				no	1.086

$$\text{OCDD} = \frac{(8.721e+01 + 1.235e+02) \times 4000\ \text{pg} \times 1}{(3.880e+04 + 4.299e+04) \times \text{g} \times / 100 \times 1.157}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P615971 Samp: 1 Inj: 1 Acquired: 7-DEC-18 13:07:22
Processed: 10-DEC-18 16:28:10 LAB. ID: EQ1800494-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.29e+03	1.16e+03	8.0e+00	1.32e+04	2.65e+03	5.0e+00
2	1,2,3,7,8-PeCDF	*	1.22e+03	*	*	2.52e+03	*
3	2,3,4,7,8-PeCDF	*	1.22e+03	*	*	2.52e+03	*
4	1,2,3,4,7,8-HxCDF	3.23e+03	9.36e+02	3.5e+00	2.33e+03	4.48e+02	5.2e+00
5	1,2,3,6,7,8-HxCDF	*	9.36e+02	*	*	4.48e+02	*
6	2,3,4,6,7,8-HxCDF	*	9.36e+02	*	*	4.48e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.36e+02	*	*	4.48e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.19e+03	5.04e+02	6.3e+00	3.64e+03	4.76e+02	7.7e+00
9	1,2,3,4,7,8,9-HpCDF	*	5.04e+02	*	*	4.76e+02	*
10	OCDF	*	6.68e+02	*	*	2.44e+03	*
11	2,3,7,8-TCDD	*	3.50e+03	*	*	1.80e+03	*
12	1,2,3,7,8-PeCDD	*	1.13e+03	*	*	8.40e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.48e+02	*	*	1.32e+03	*
14	1,2,3,6,7,8-HxCDD	*	3.48e+02	*	*	1.32e+03	*
15	1,2,3,7,8,9-HxCDD	*	3.48e+02	*	*	1.32e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.95e+03	5.16e+02	7.7e+00	6.24e+03	4.48e+02	1.4e+01
17	OCDD	1.57e+04	5.76e+02	2.7e+01	2.22e+04	8.60e+02	2.6e+01
18	13C-2,3,7,8-TCDF	7.38e+06	1.00e+04	7.4e+02	9.25e+06	5.16e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	1.48e+07	8.72e+02	1.7e+04	9.52e+06	2.29e+03	4.2e+03
20	13C-2,3,4,7,8-PeCDF	1.38e+07	8.72e+02	1.6e+04	8.64e+06	2.29e+03	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	7.29e+06	1.19e+03	6.1e+03	1.42e+07	2.37e+03	6.0e+03
22	13C-1,2,3,6,7,8-HxCDF	8.02e+06	1.19e+03	6.7e+03	1.51e+07	2.37e+03	6.4e+03
23	13C-2,3,4,6,7,8-HxCDF	7.39e+06	1.19e+03	6.2e+03	1.39e+07	2.37e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	6.11e+06	1.19e+03	5.1e+03	1.18e+07	2.37e+03	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.47e+06	3.26e+03	1.7e+03	1.21e+07	2.63e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.26e+06	3.26e+03	1.3e+03	9.26e+06	2.63e+03	3.5e+03
27	13C-2,3,7,8-TCDD	4.22e+06	1.55e+04	2.7e+02	5.32e+06	6.76e+03	7.9e+02
28	13C-1,2,3,7,8-PeCDD	1.09e+07	1.50e+03	7.3e+03	6.88e+06	1.84e+03	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.10e+07	2.78e+03	4.0e+03	8.67e+06	1.57e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.94e+06	2.78e+03	3.6e+03	8.06e+06	1.57e+03	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.56e+06	1.07e+03	9.0e+03	9.25e+06	7.96e+02	1.2e+04
32	13C-OCDD	6.74e+06	1.24e+03	5.5e+03	7.46e+06	4.12e+02	1.8e+04
33	13C-1,2,3,4-TCDD	1.30e+07	1.55e+04	8.4e+02	1.64e+07	6.76e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.06e+07	2.78e+03	7.4e+03	1.64e+07	1.57e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	5.62e+06	2.82e+03	2.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P615971 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 13:07:22 Processed: 10-DEC-18 16:28:10

Mass: 303.9020 305.8990 Tot Response: 1.13e+02 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:37	4.55e+01	6.76e+01	0.67	yes	1.13e+02	2,3,7,8-TCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P615971 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 13:07:22 Processed: 10-DEC-18 16:28:10

Mass: 373.8210 375.8180 Tot Response: 2.05e+01 RRF: 1.324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:33	1.11e+01	9.41e+00 1.18	yes	2.05e+01	1,2,3,4,7,8-HxCDF	n	n

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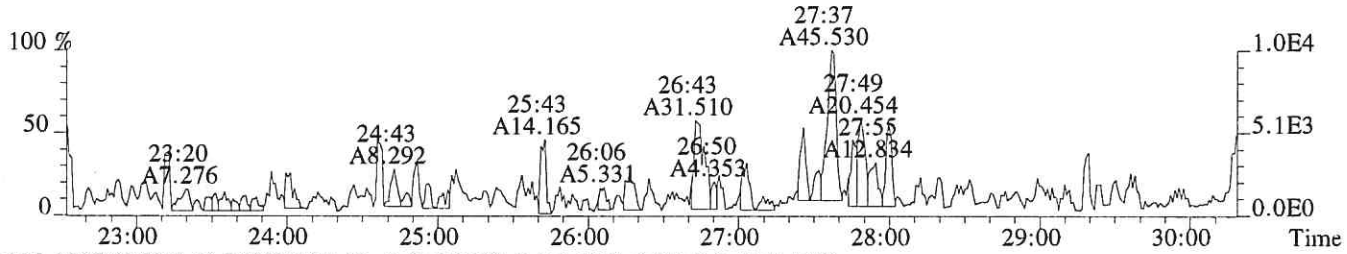
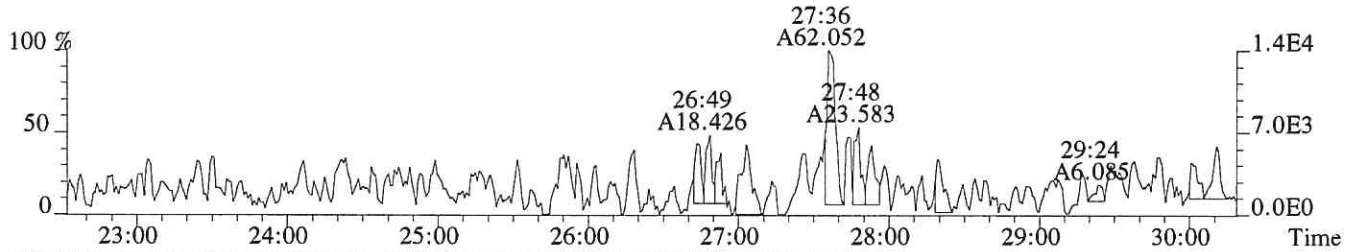
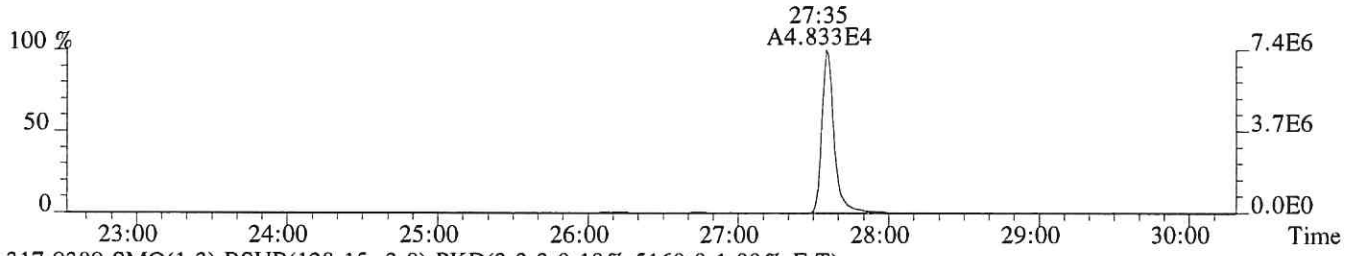
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



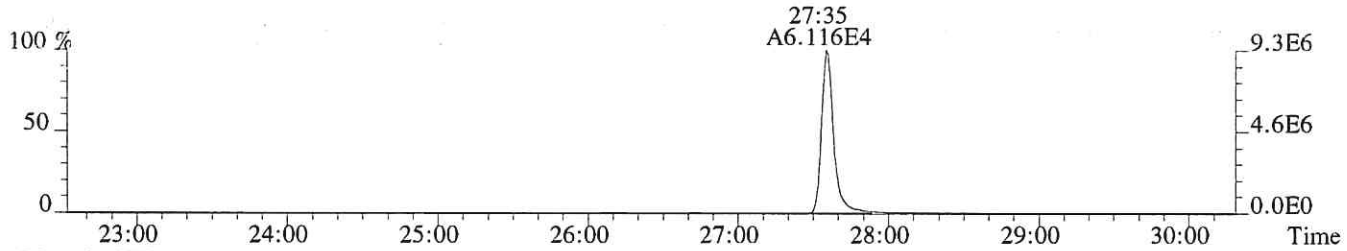
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



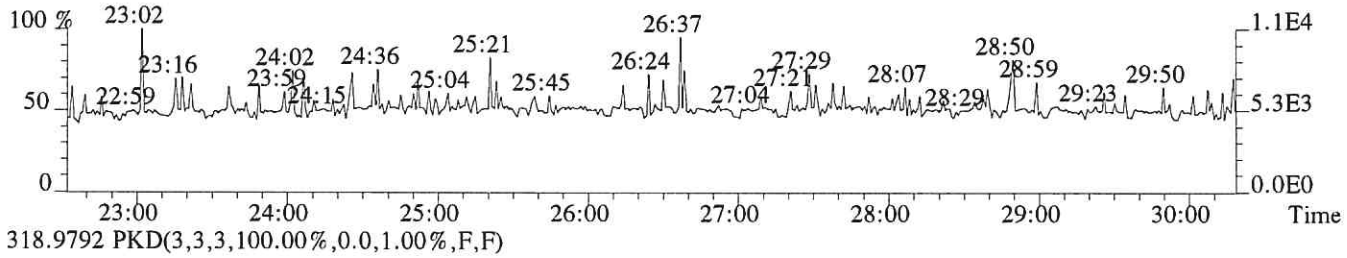
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10004.0,1.00%,F,T)



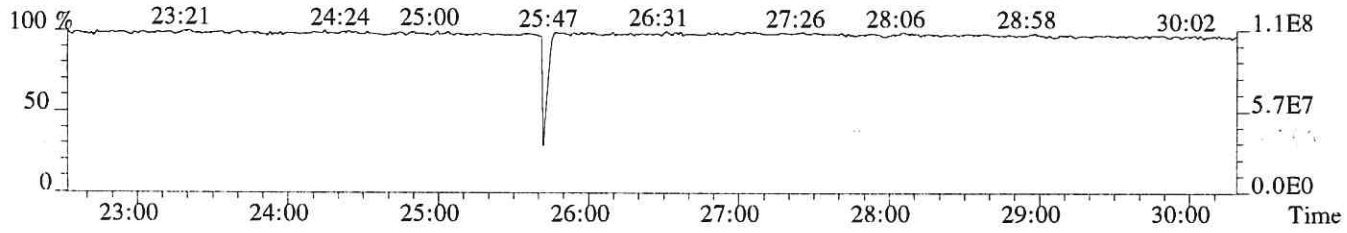
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5160.0,1.00%,F,T)



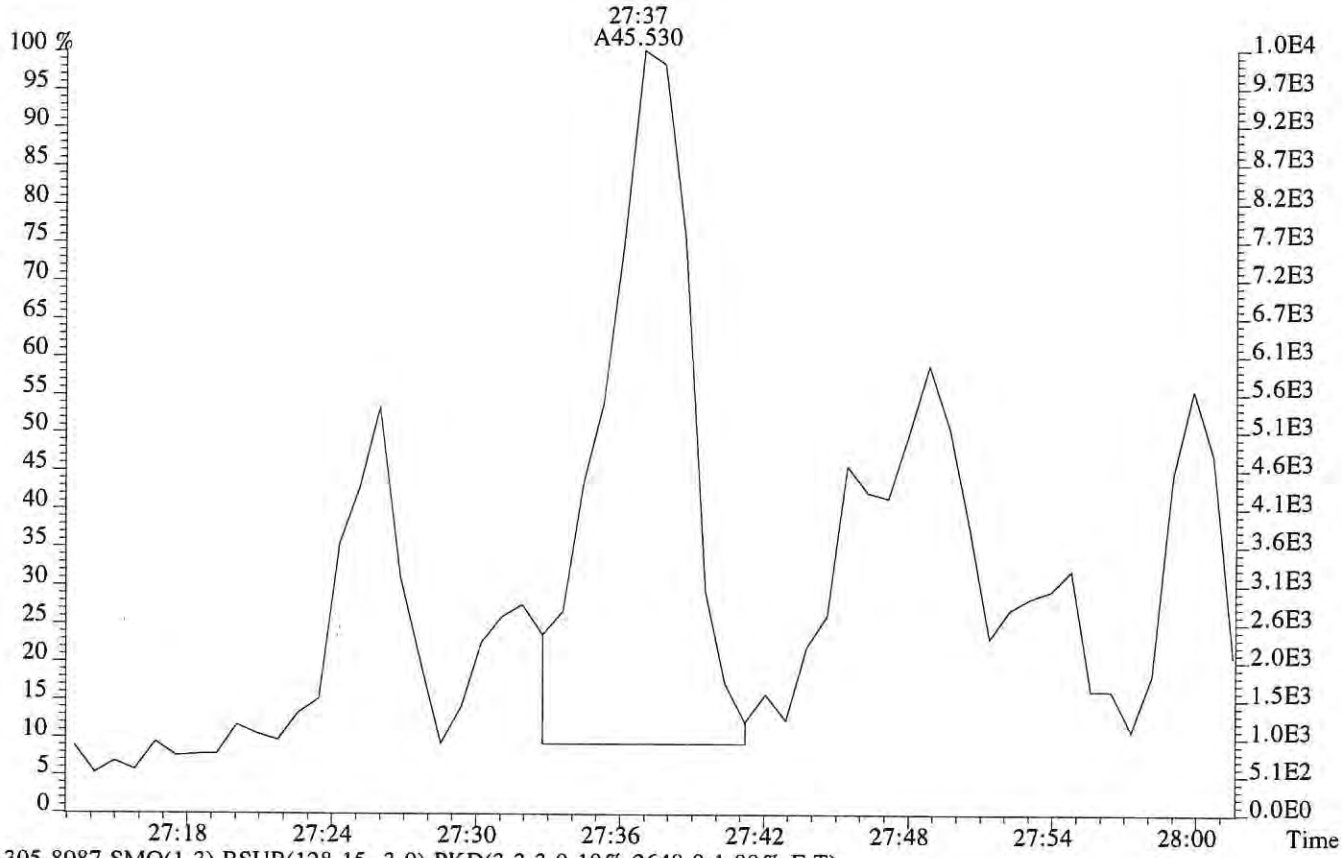
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



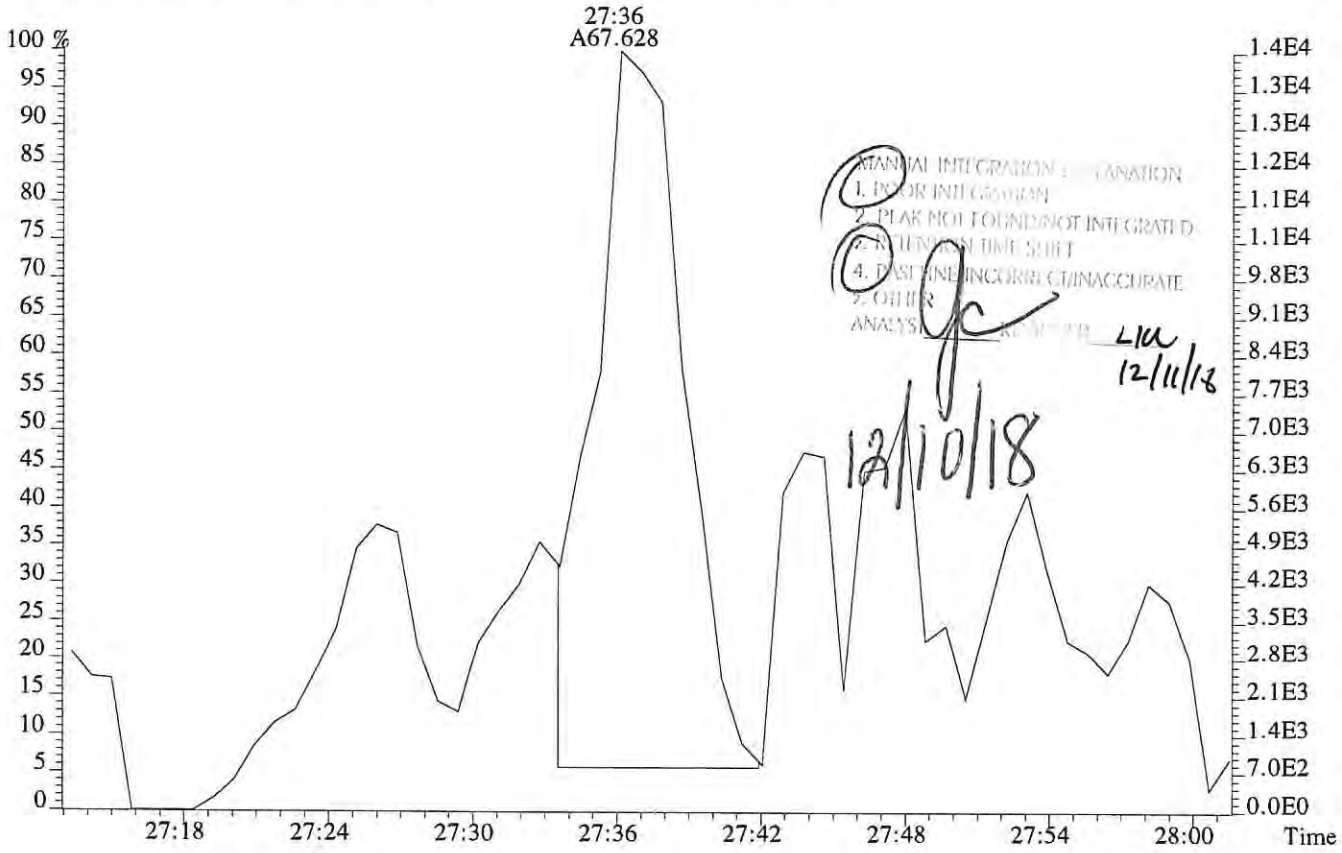
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



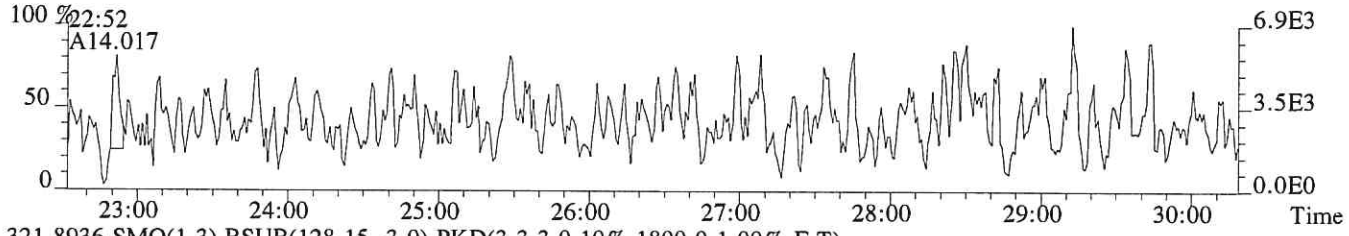
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



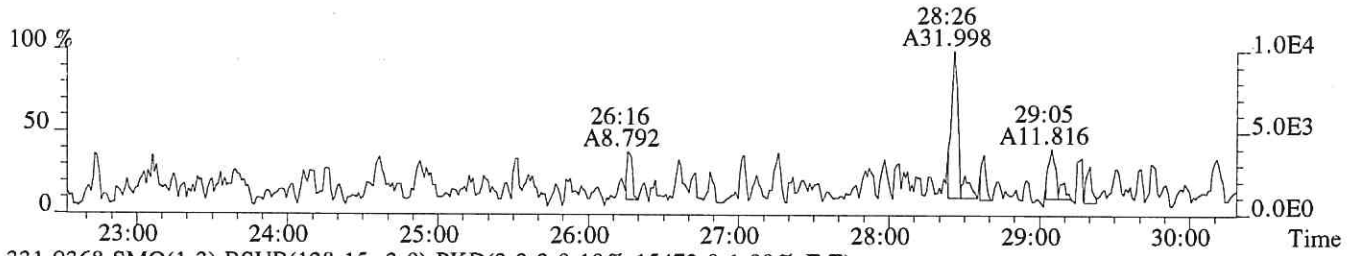
MANUAL INTEGRATION / EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER

LW 12/11/18
12/10/18

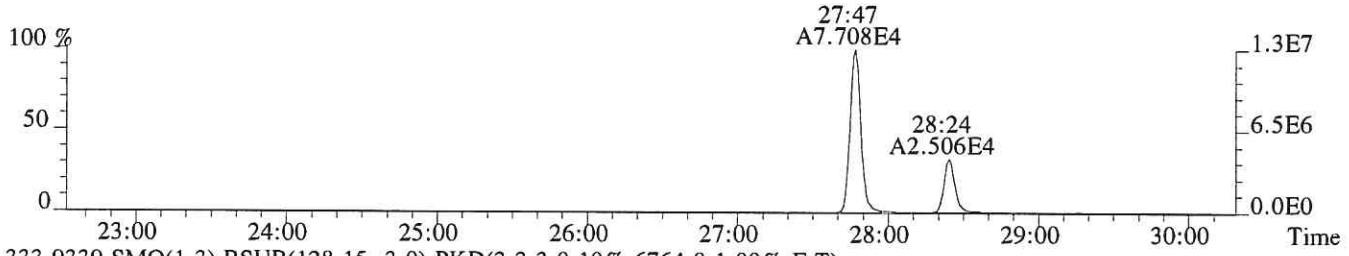
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



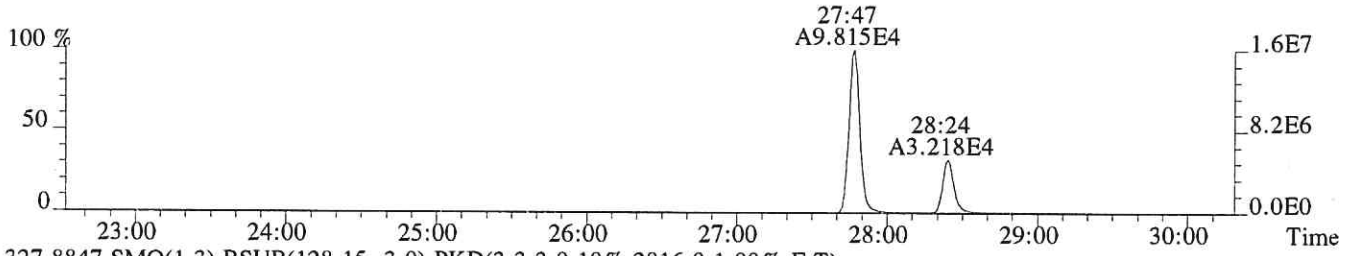
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



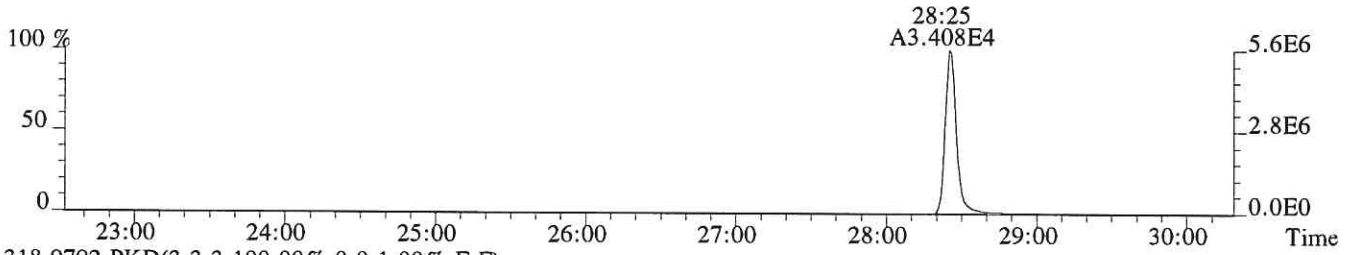
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15472.0,1.00%,F,T)



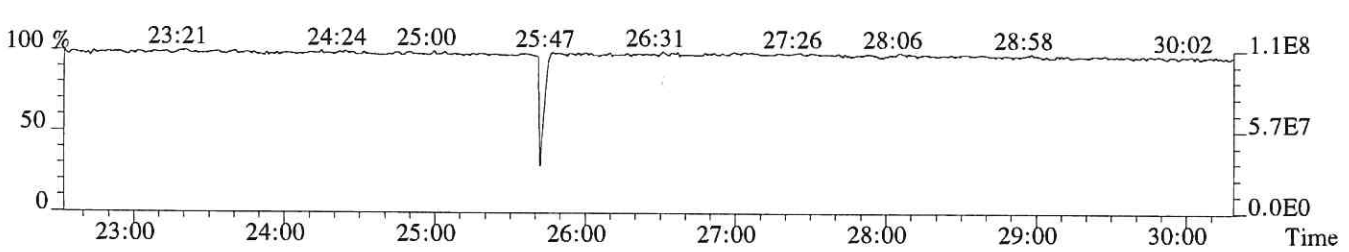
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6764.0,1.00%,F,T)



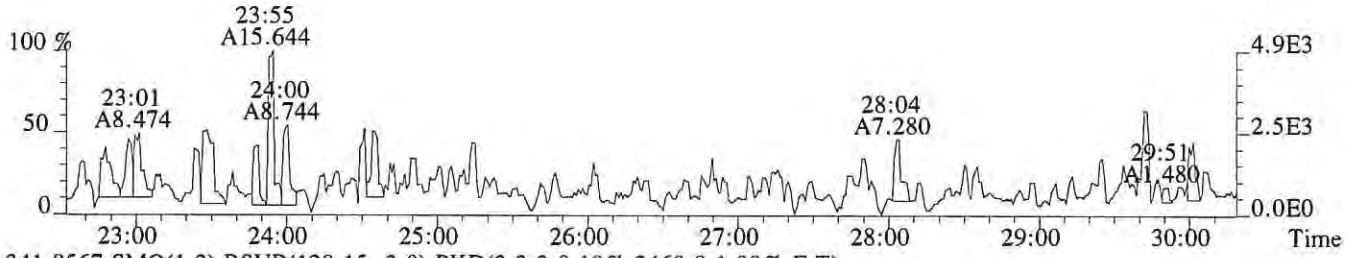
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2816.0,1.00%,F,T)



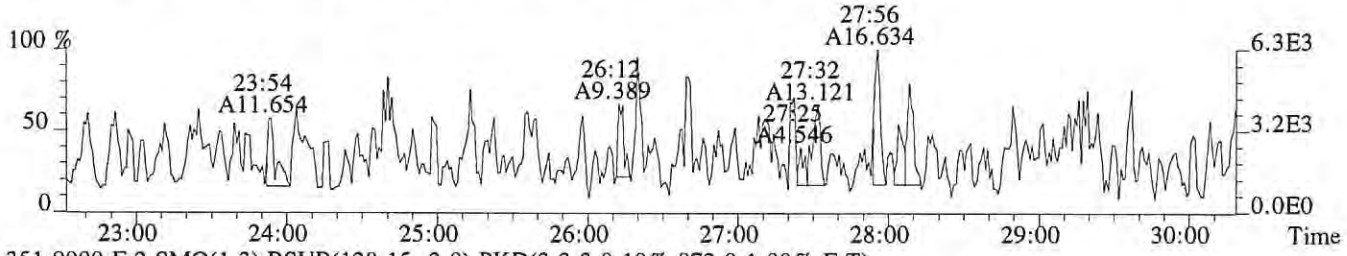
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



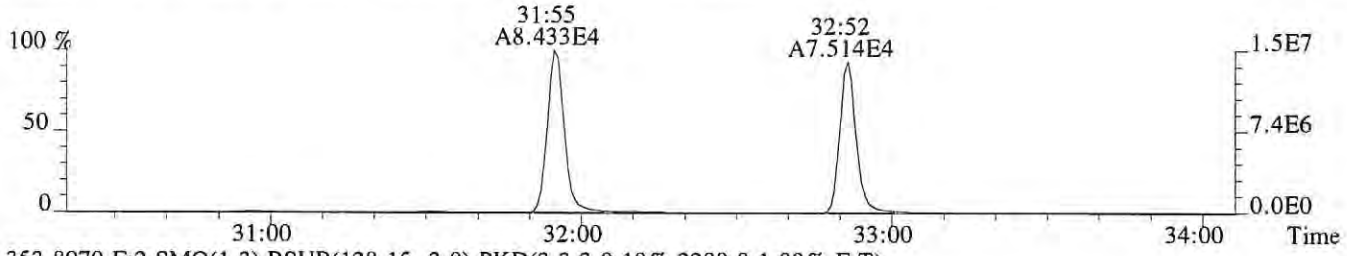
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



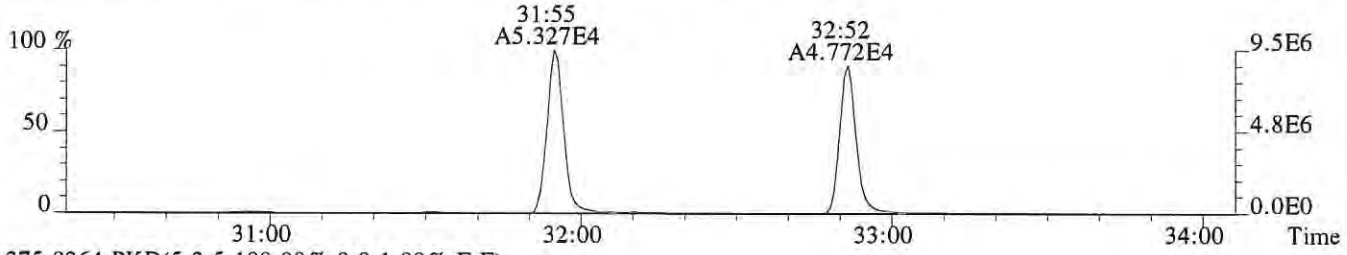
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



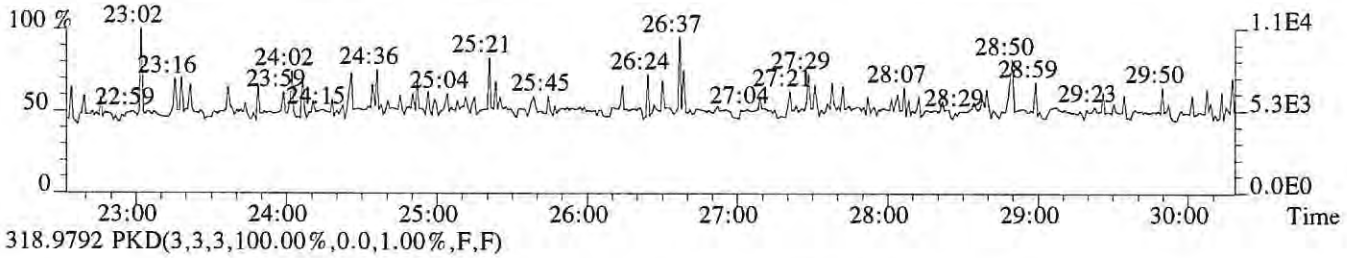
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



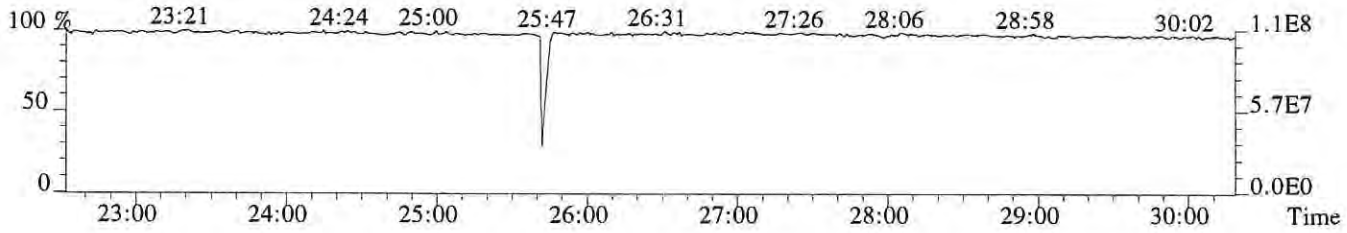
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



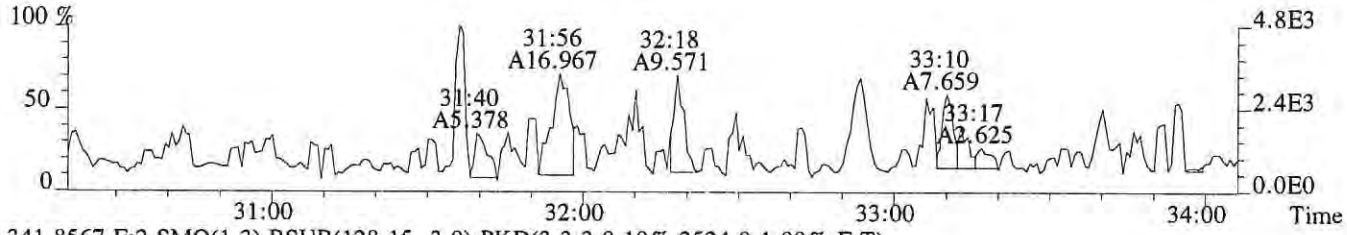
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



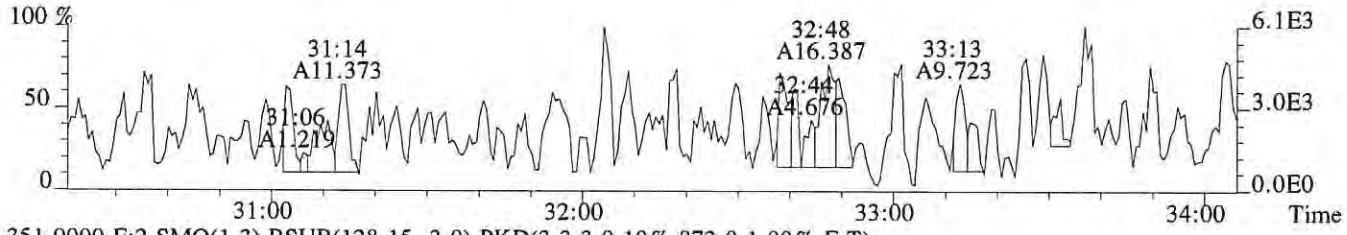
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



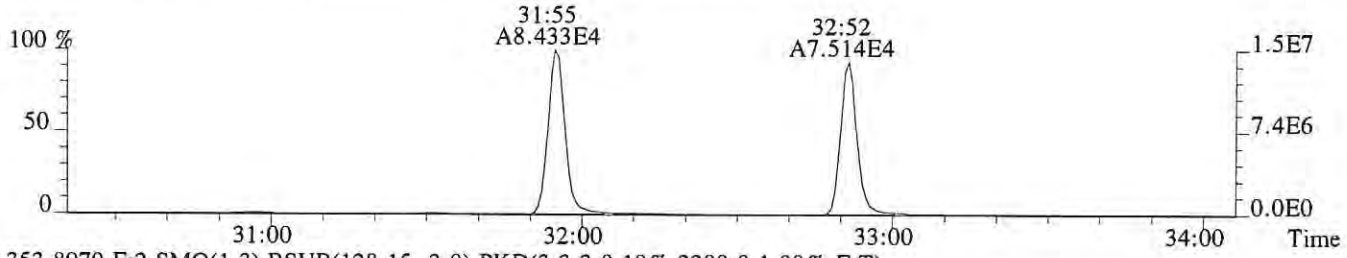
File:P615971 #1-339 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



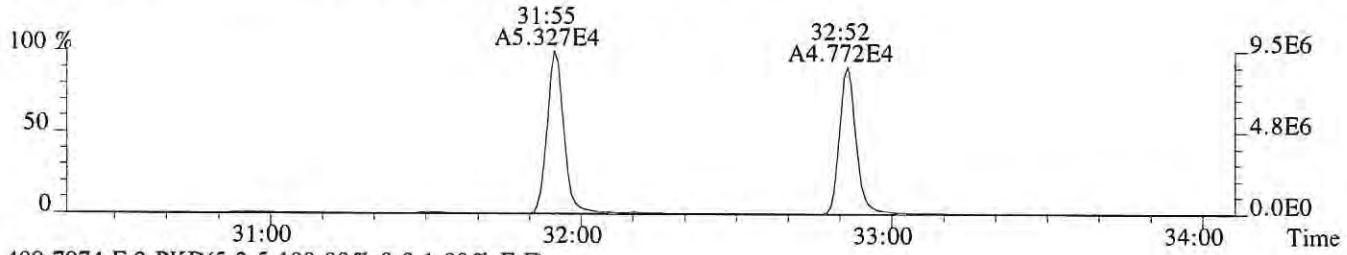
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



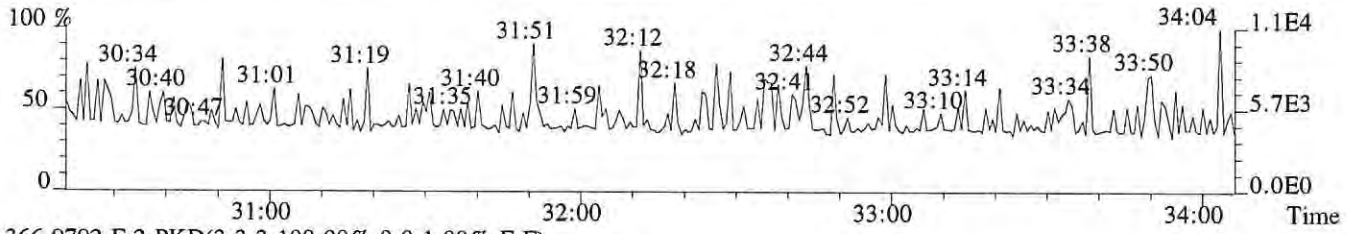
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



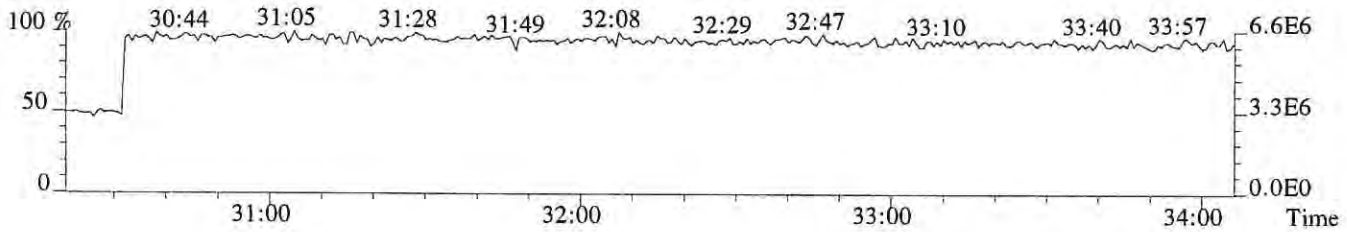
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



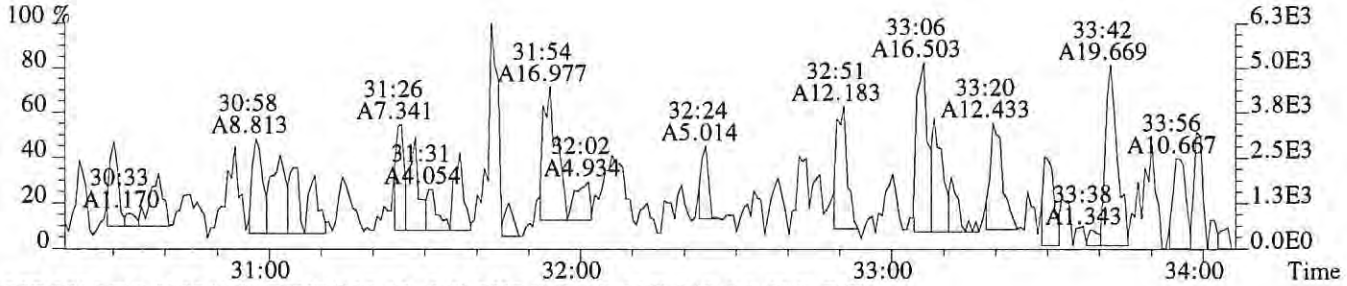
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



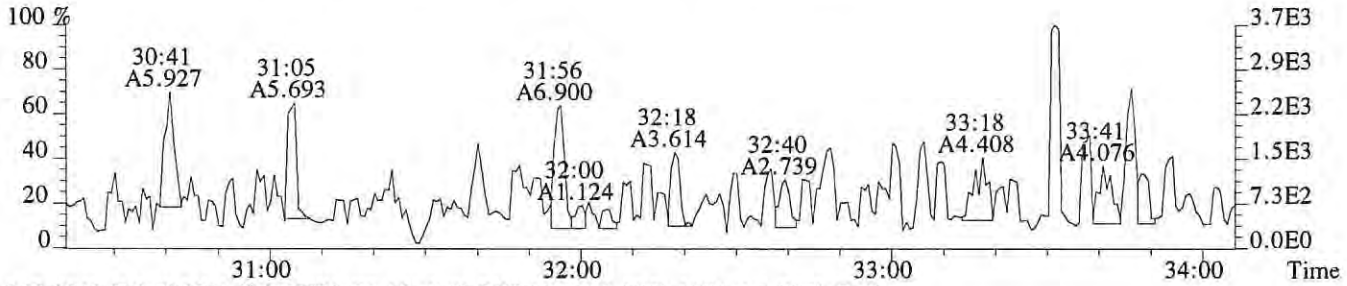
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



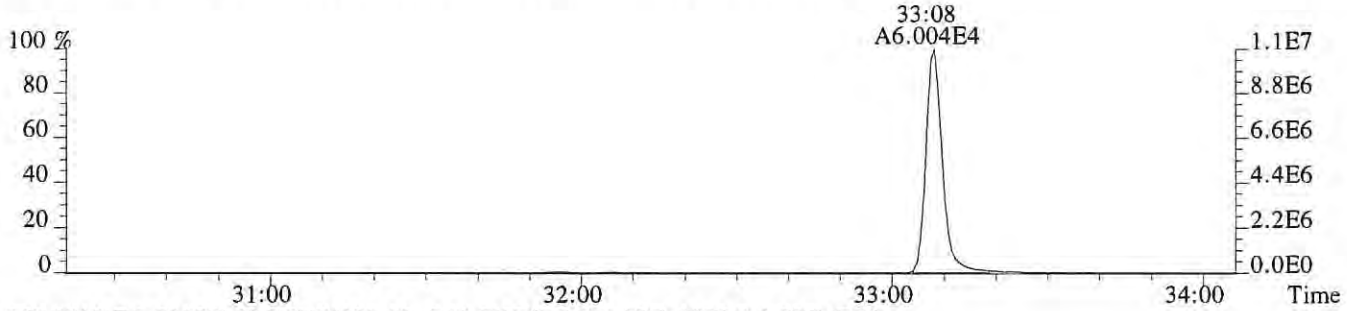
File:P615971 #1-339 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



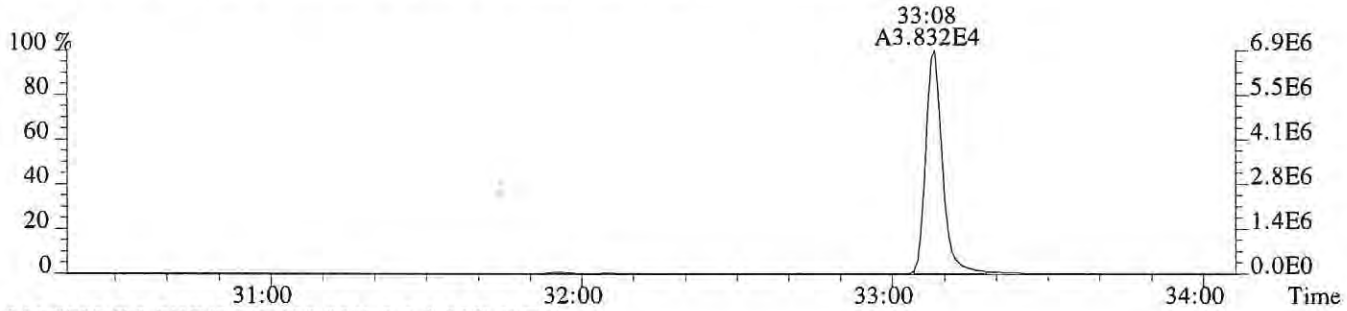
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



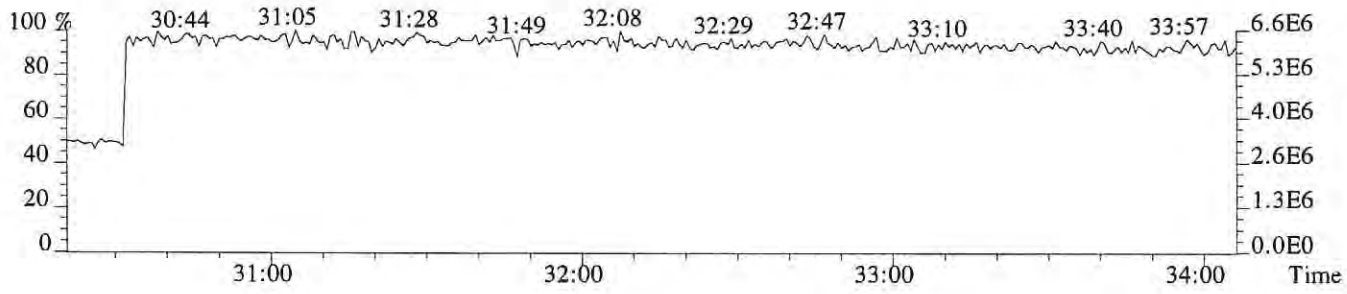
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



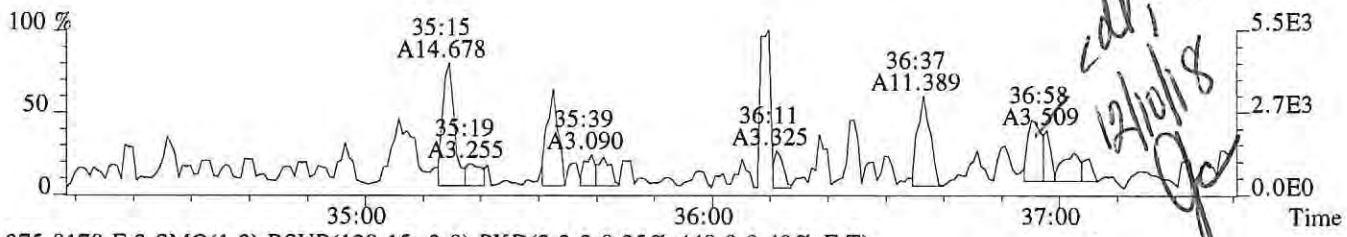
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)



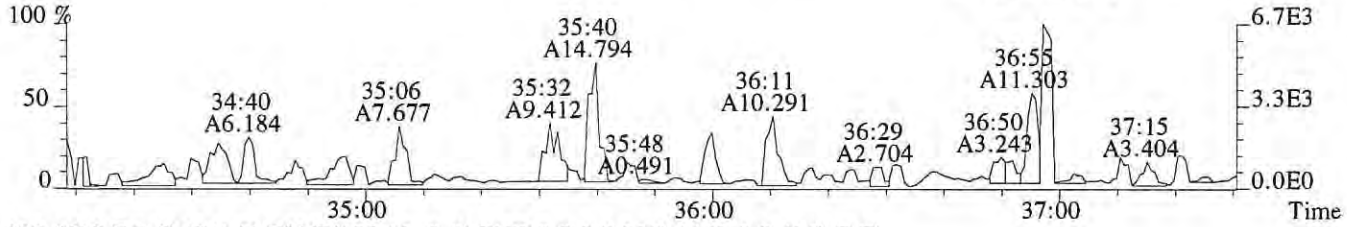
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



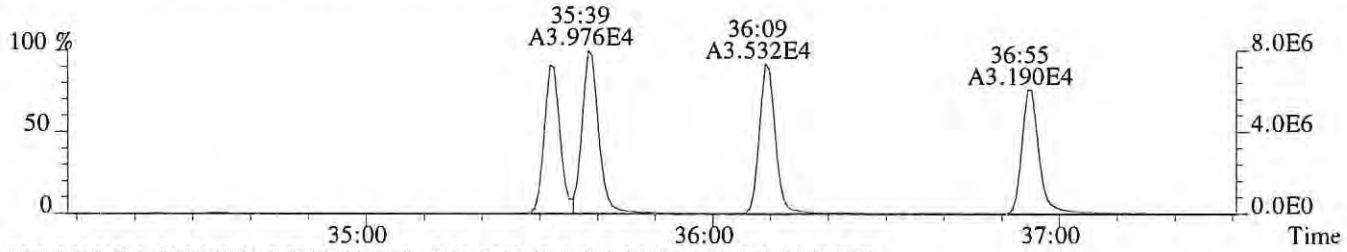
File:P615971 #1-304 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



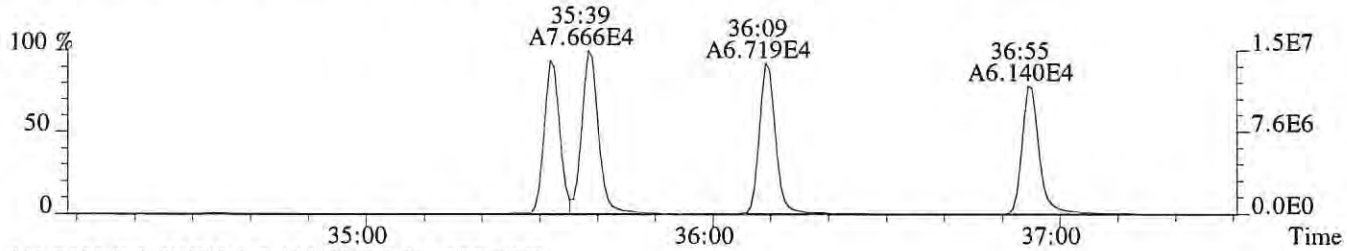
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



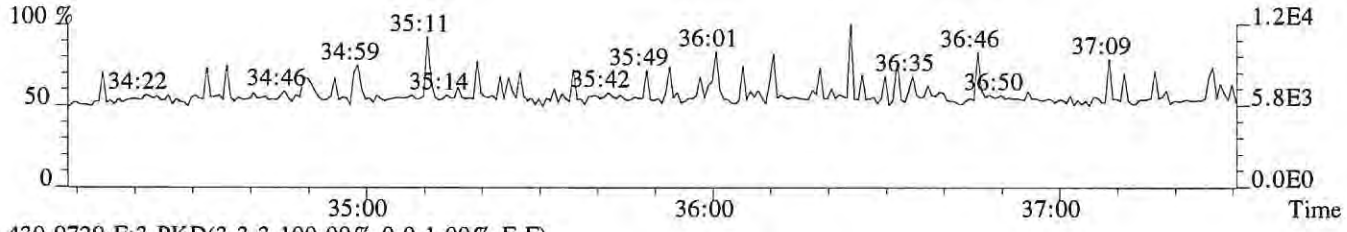
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



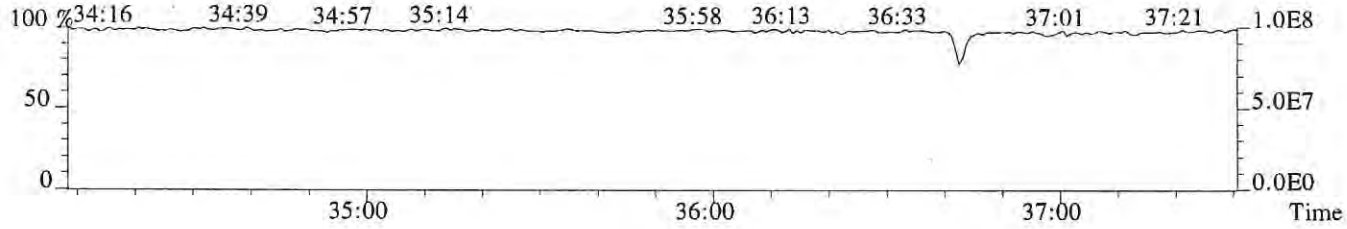
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2372.0,0.40%,F,T)



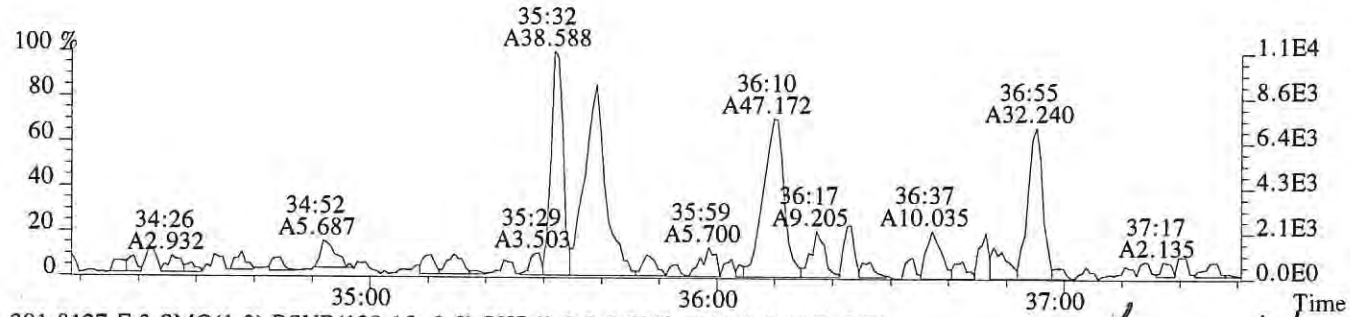
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



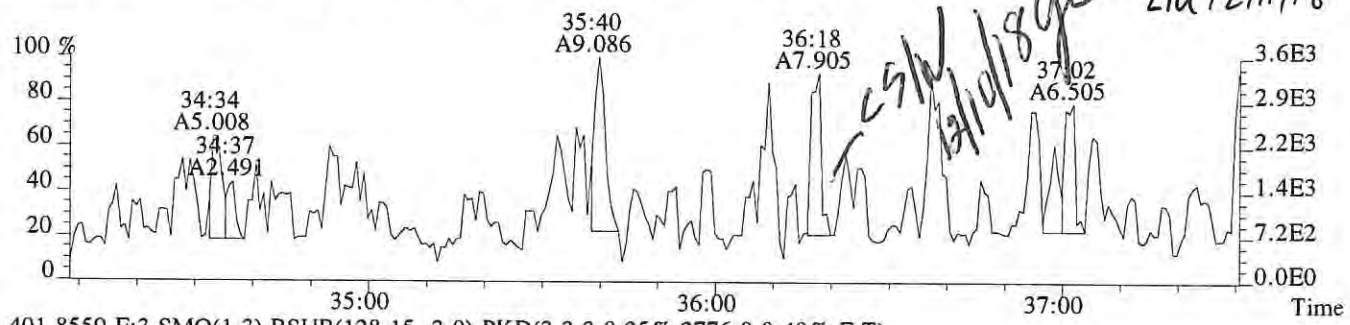
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



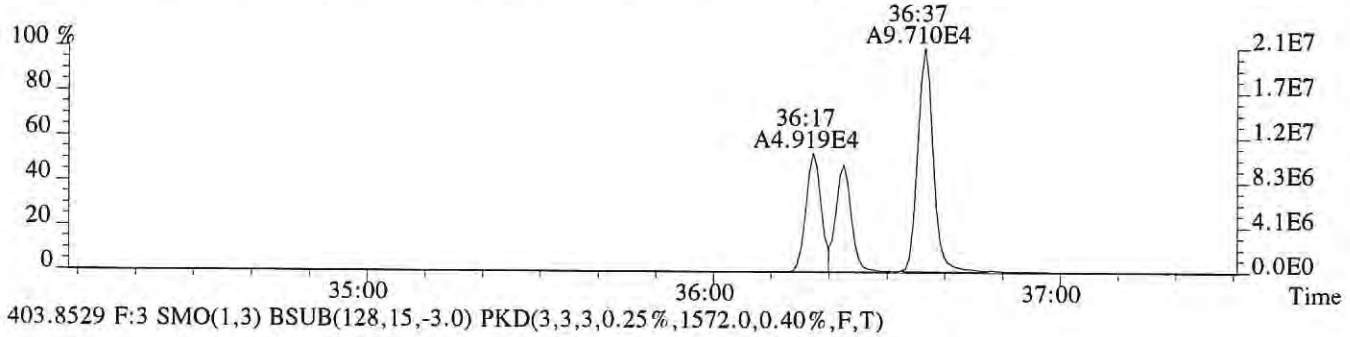
File:P615971 #1-304 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



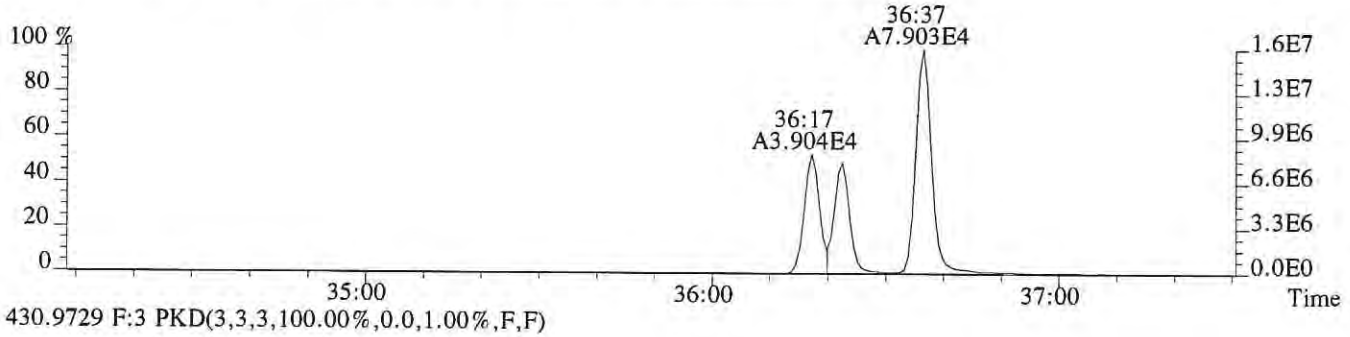
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



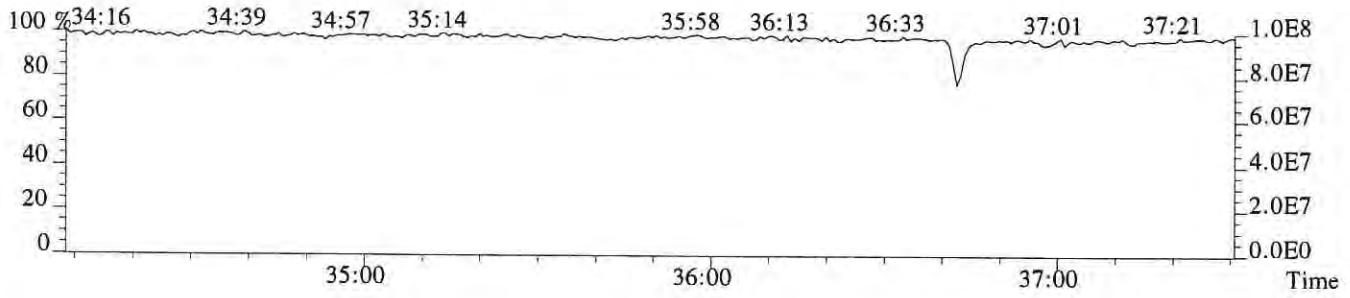
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2776.0,0.40%,F,T)



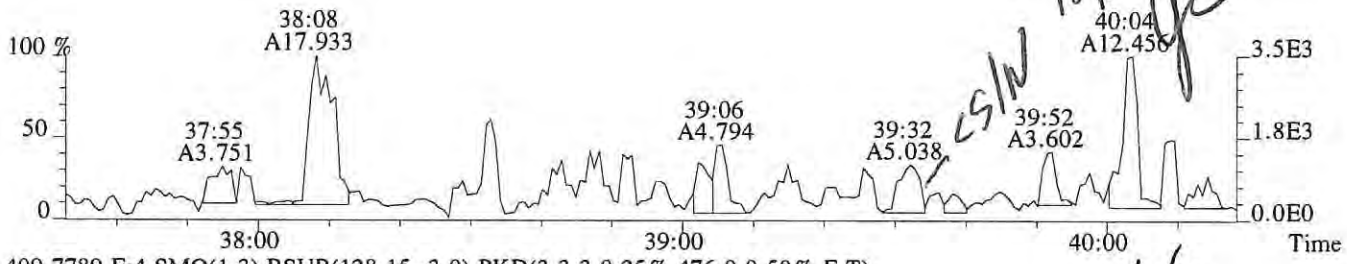
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



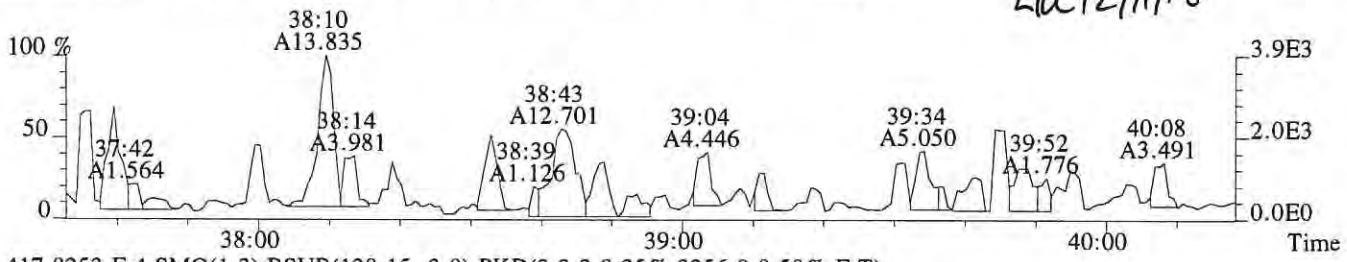
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



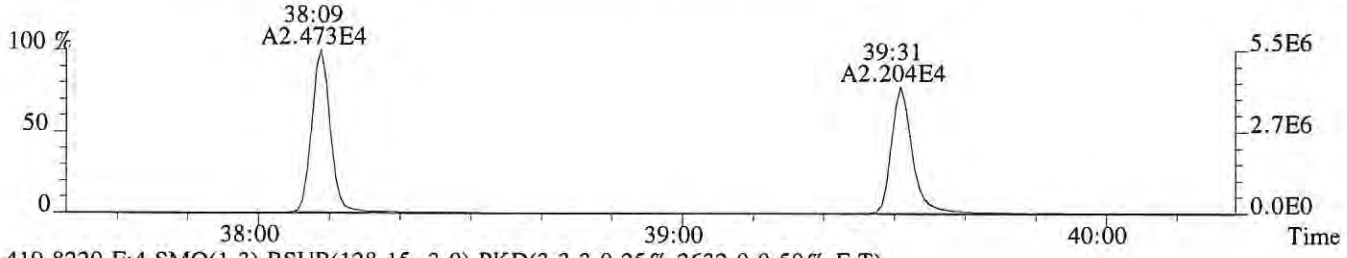
File:P615971 #1-249 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.50%,F,T)



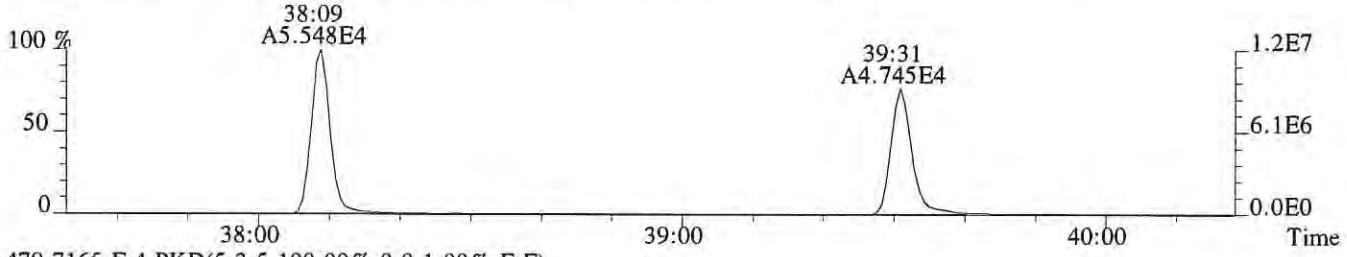
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.50%,F,T)



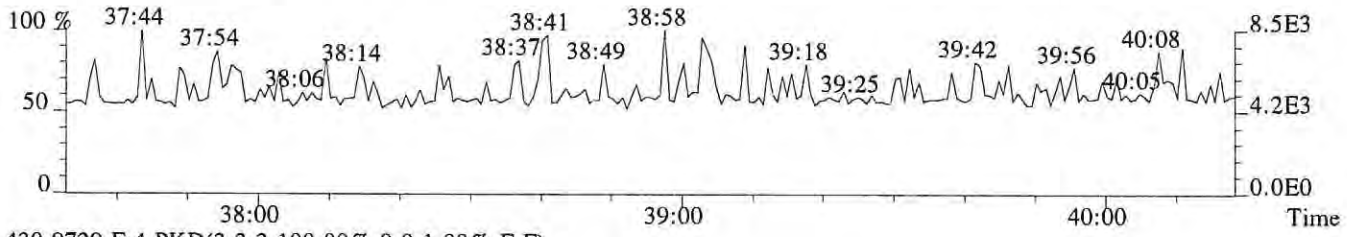
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3256.0,0.50%,F,T)



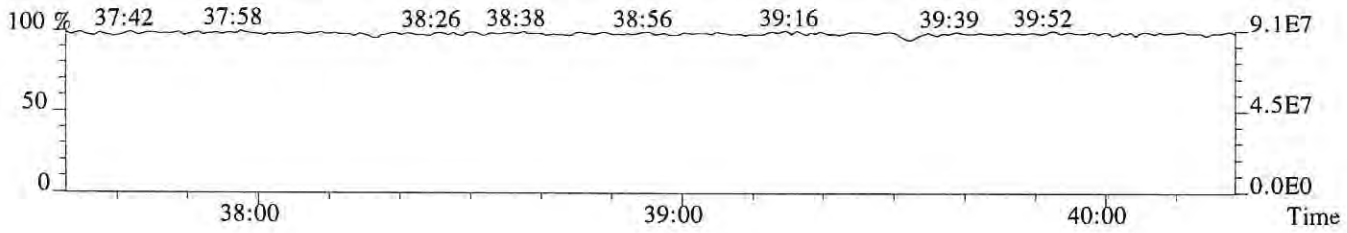
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.50%,F,T)



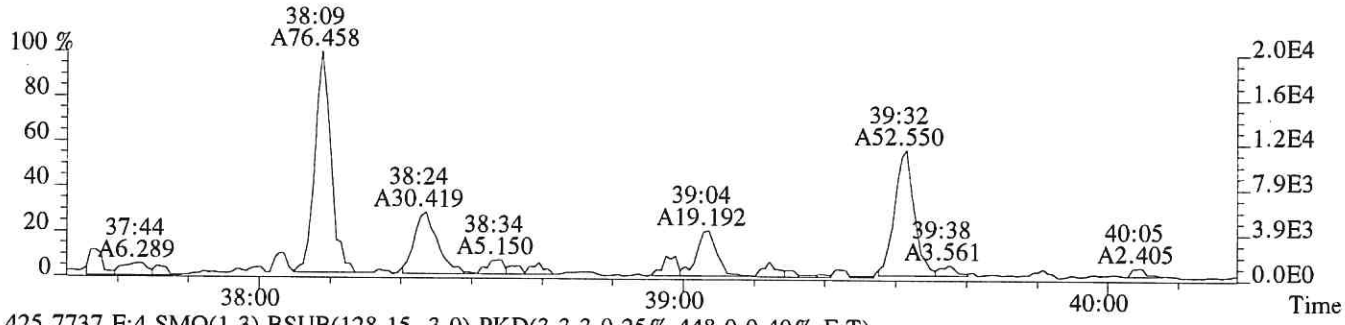
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



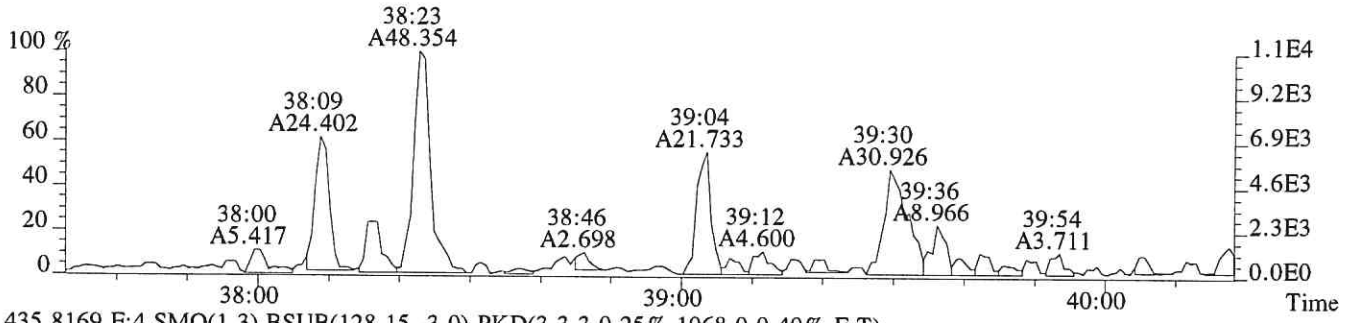
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



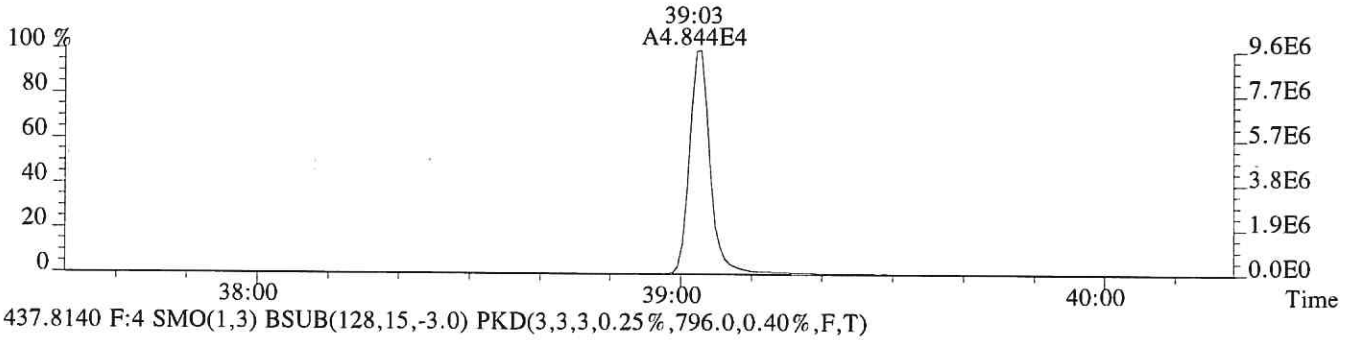
File:P615971 #1-249 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



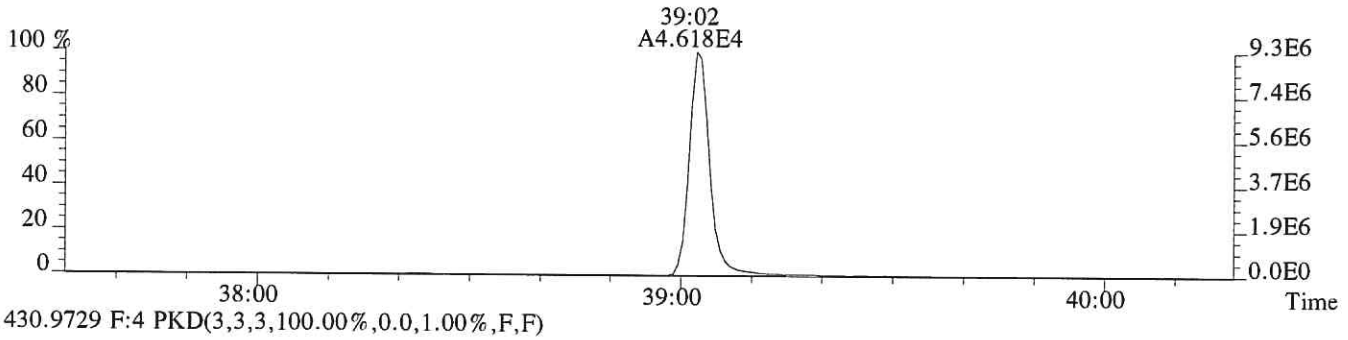
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



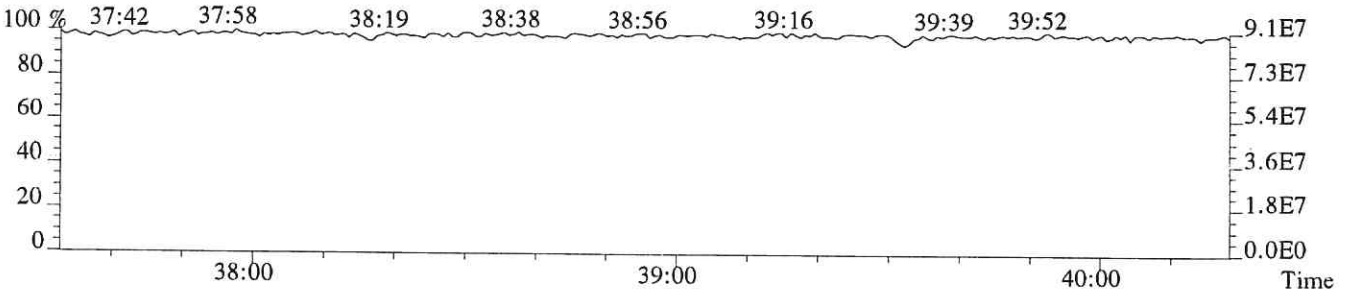
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



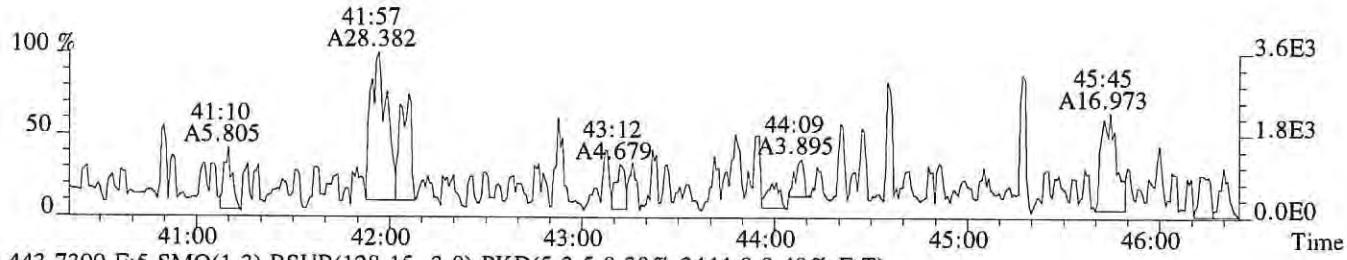
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



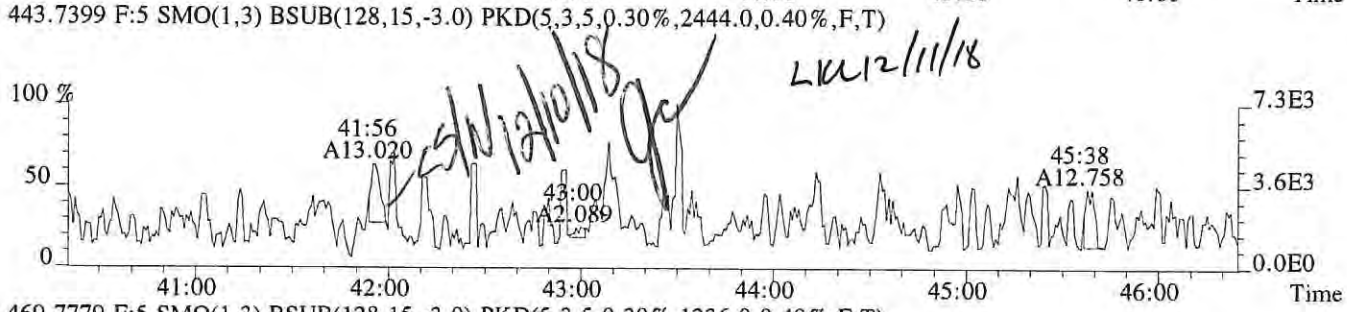
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



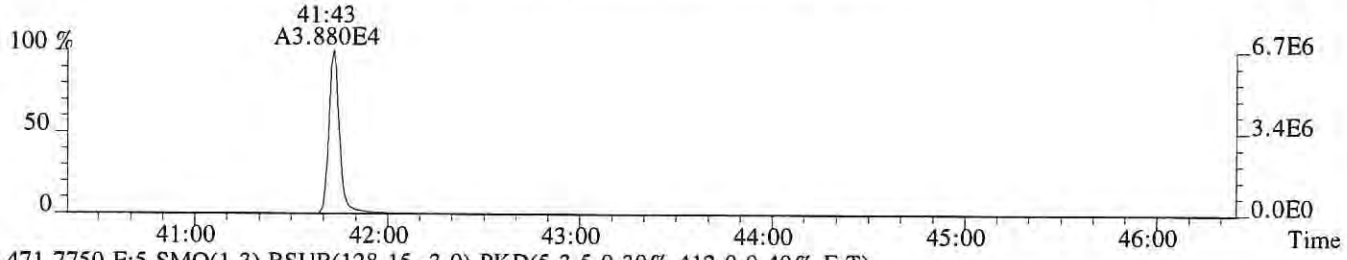
File:P615971 #1-547 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



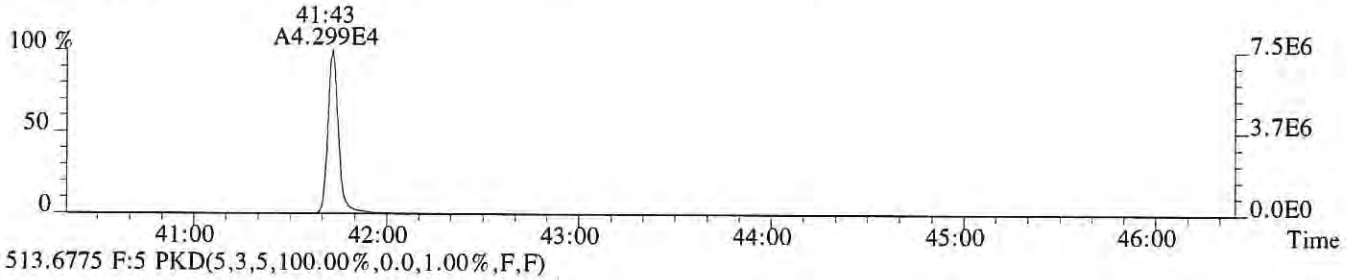
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)



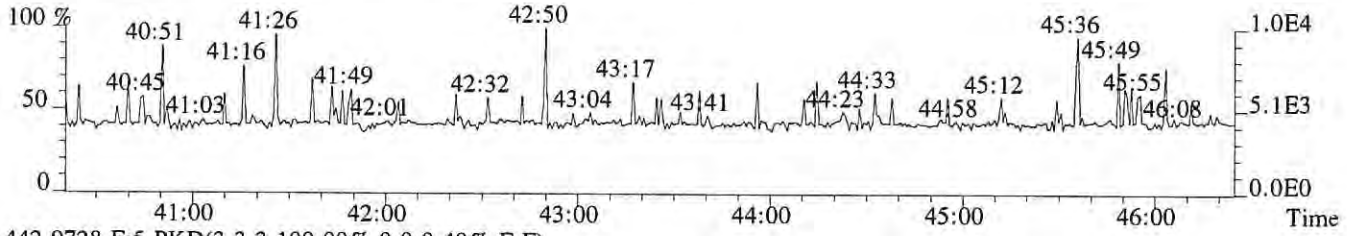
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



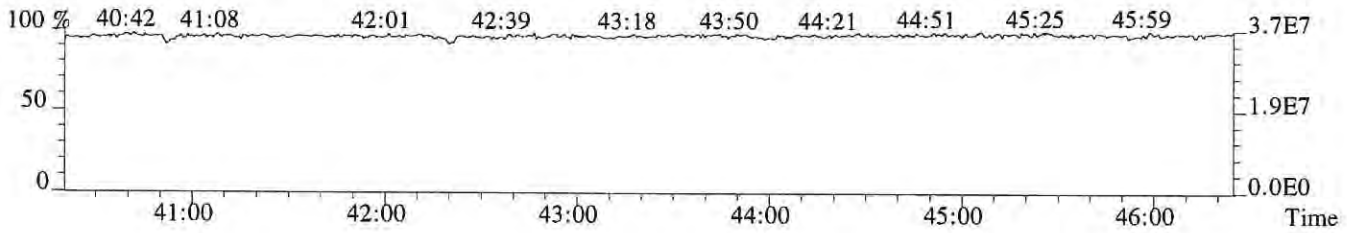
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



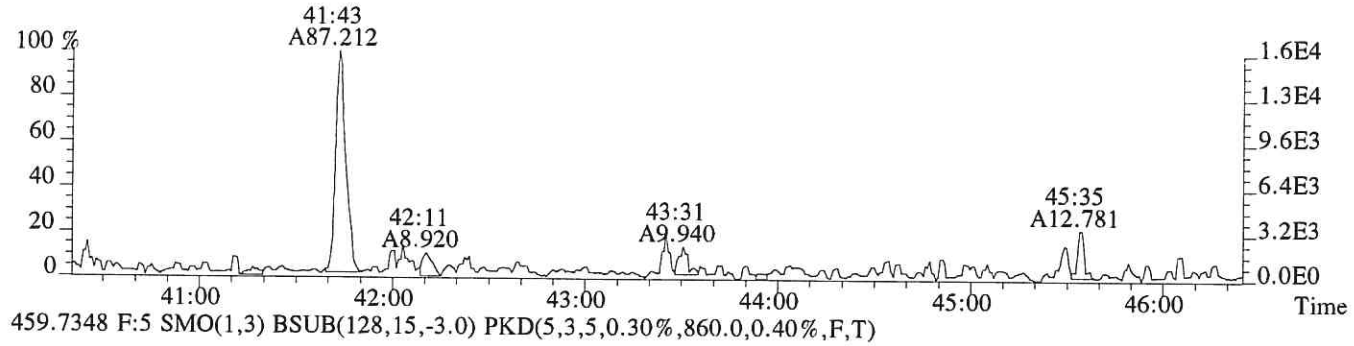
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



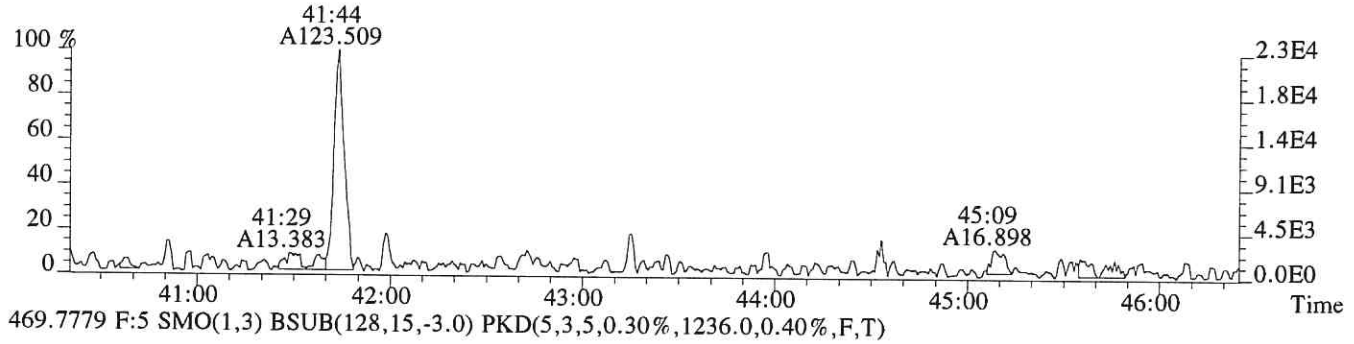
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



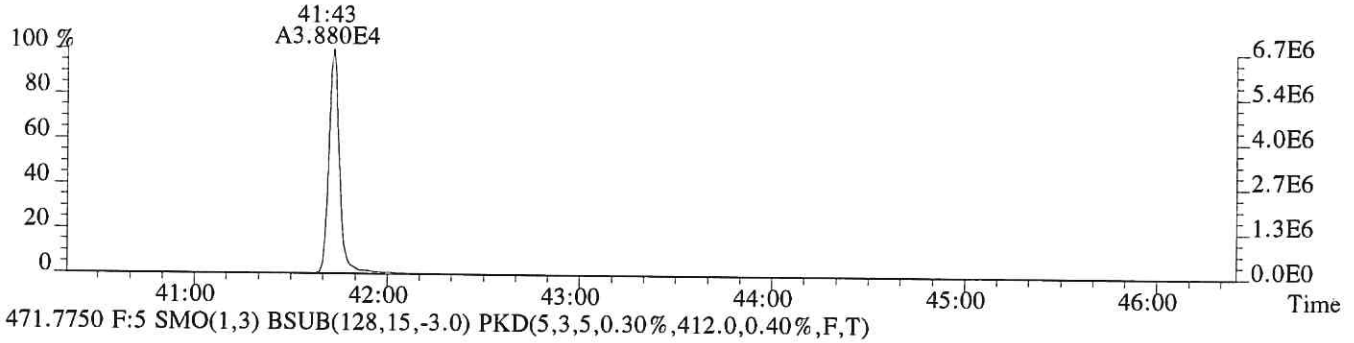
File:P615971 #1-547 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



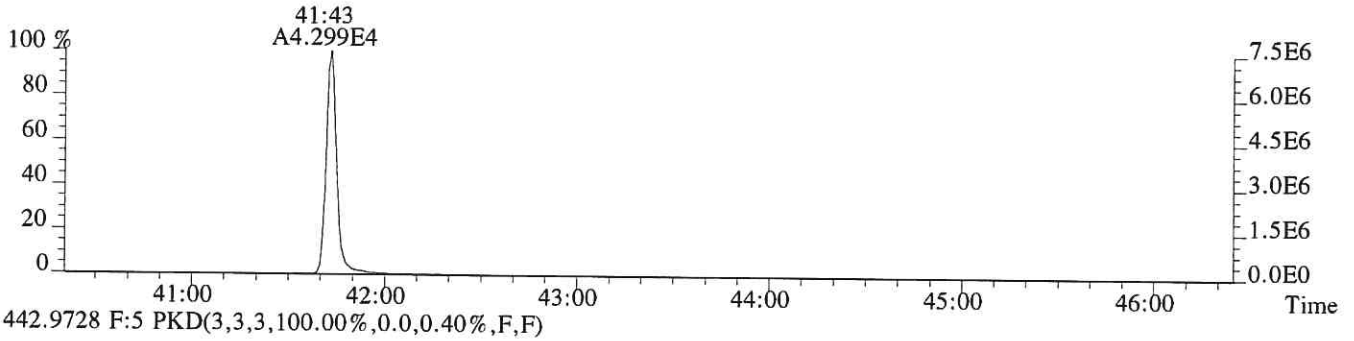
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



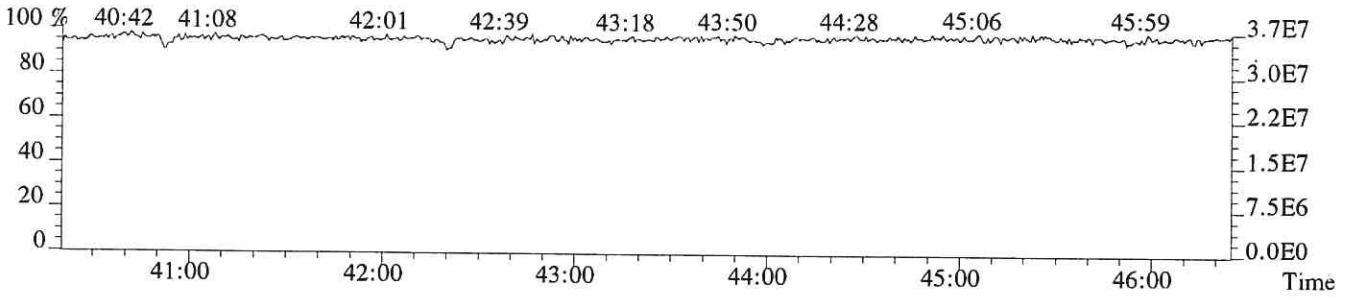
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P615980 Samp: 1 Inj: 1 Acquired: 7-DEC-18 20:30:09
Processed: 10-DEC-18 16:28:27 Sample ID: EQ1800494-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	1.956e+03	2.499e+03	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	2.583e+04	1.652e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	2.492e+04	1.621e+04	1.54	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	2.645e+04	2.104e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	2.847e+04	2.283e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.637e+04	2.113e+04	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	2.511e+04	1.981e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	2.361e+04	2.260e+04	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	1.910e+04	1.829e+04	1.04	yes	no	1.463
10	Unk	OCDF	41:57	2.453e+04	2.760e+04	0.89	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	1.660e+03	2.192e+03	0.76	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	1.961e+04	1.281e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:19	1.901e+04	1.548e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	2.006e+04	1.571e+04	1.28	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:38	2.075e+04	1.665e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.571e+04	1.521e+04	1.03	yes	no	1.112
17	Unk	OCDD	41:45	1.965e+04	2.164e+04	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	2.010e+04	2.525e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	5.335e+04	3.388e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.025e+04	3.177e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	2.606e+04	4.958e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.020e+04	5.764e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	2.773e+04	5.287e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.655e+04	5.006e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.074e+04	4.557e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.740e+04	3.931e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.145e+04	1.460e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	4.234e+04	2.700e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:18	4.082e+04	3.209e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	3.829e+04	3.015e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.095e+04	3.885e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:44	3.423e+04	3.781e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.965e+04	7.474e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	7.543e+04	6.043e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	1.709e+04				no	1.086

$$\text{OCDD} = \frac{(1.965e+04 + 2.164e+04) \times 4000\ \text{pg} \times 1}{(3.423e+04 + 3.781e+04) \times \quad \text{g} \times \quad / 100 \times 1.157}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P615980 Samp: 1 Inj: 1 Acquired: 7-DEC-18 20:30:09
Processed: 10-DEC-18 16:28:27 LAB. ID: EQ1800494-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.20e+05	2.29e+03	1.4e+02	3.79e+05	4.02e+03	9.4e+01
2	1,2,3,7,8-PeCDF	4.64e+06	1.27e+03	3.7e+03	2.92e+06	3.16e+03	9.2e+02
3	2,3,4,7,8-PeCDF	4.60e+06	1.27e+03	3.6e+03	2.92e+06	3.16e+03	9.2e+02
4	1,2,3,4,7,8-HxCDF	5.73e+06	1.58e+03	3.6e+03	4.47e+06	1.66e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	5.74e+06	1.58e+03	3.6e+03	4.63e+06	1.66e+03	2.8e+03
6	2,3,4,6,7,8-HxCDF	5.50e+06	1.58e+03	3.5e+03	4.41e+06	1.66e+03	2.7e+03
7	1,2,3,7,8,9-HxCDF	5.04e+06	1.58e+03	3.2e+03	3.95e+06	1.66e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	5.07e+06	2.50e+03	2.0e+03	4.93e+06	4.10e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	3.64e+06	2.50e+03	1.5e+03	3.56e+06	4.10e+03	8.7e+02
10	OCDF	4.30e+06	7.60e+02	5.7e+03	4.76e+06	2.88e+03	1.7e+03
11	2,3,7,8-TCDD	2.87e+05	5.42e+03	5.3e+01	3.68e+05	2.08e+03	1.8e+02
12	1,2,3,7,8-PeCDD	3.61e+06	1.61e+03	2.2e+03	2.33e+06	6.04e+02	3.9e+03
13	1,2,3,4,7,8-HxCDD	4.21e+06	1.10e+03	3.8e+03	3.42e+06	1.86e+03	1.8e+03
14	1,2,3,6,7,8-HxCDD	4.16e+06	1.10e+03	3.8e+03	3.25e+06	1.86e+03	1.8e+03
15	1,2,3,7,8,9-HxCDD	4.40e+06	1.10e+03	4.0e+03	3.40e+06	1.86e+03	1.8e+03
16	1,2,3,4,6,7,8-HpCDD	3.23e+06	9.04e+02	3.6e+03	3.13e+06	1.22e+03	2.6e+03
17	OCDD	3.41e+06	3.04e+02	1.1e+04	3.85e+06	1.04e+03	3.7e+03
18	13C-2,3,7,8-TCDF	2.94e+06	8.12e+03	3.6e+02	3.81e+06	9.54e+03	4.0e+02
19	13C-1,2,3,7,8-PeCDF	9.40e+06	1.30e+03	7.3e+03	5.90e+06	3.31e+03	1.8e+03
20	13C-2,3,4,7,8-PeCDF	8.95e+06	1.30e+03	6.9e+03	5.64e+06	3.31e+03	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	5.62e+06	1.81e+03	3.1e+03	1.06e+07	3.34e+03	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	6.16e+06	1.81e+03	3.4e+03	1.17e+07	3.34e+03	3.5e+03
23	13C-2,3,4,6,7,8-HxCDF	5.81e+06	1.81e+03	3.2e+03	1.10e+07	3.34e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.27e+06	1.81e+03	2.9e+03	9.94e+06	3.34e+03	3.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.44e+06	3.94e+03	1.1e+03	9.84e+06	3.48e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.41e+06	3.94e+03	8.7e+02	7.69e+06	3.48e+03	2.2e+03
27	13C-2,3,7,8-TCDD	1.86e+06	1.54e+04	1.2e+02	2.38e+06	6.33e+03	3.8e+02
28	13C-1,2,3,7,8-PeCDD	7.64e+06	3.03e+03	2.5e+03	4.89e+06	2.11e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.01e+06	2.33e+03	3.9e+03	6.97e+06	2.04e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	7.96e+06	2.33e+03	3.4e+03	6.21e+06	2.04e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.42e+06	1.58e+03	5.3e+03	7.98e+06	1.54e+03	5.2e+03
32	13C-OCDD	6.01e+06	1.60e+03	3.8e+03	6.62e+06	9.08e+02	7.3e+03
33	13C-1,2,3,4-TCDD	1.01e+07	1.54e+04	6.6e+02	1.26e+07	6.33e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.60e+07	2.33e+03	6.9e+03	1.26e+07	2.04e+03	6.2e+03
35	37Cl-2,3,7,8-TCDD	2.79e+06	4.09e+03	6.8e+02			

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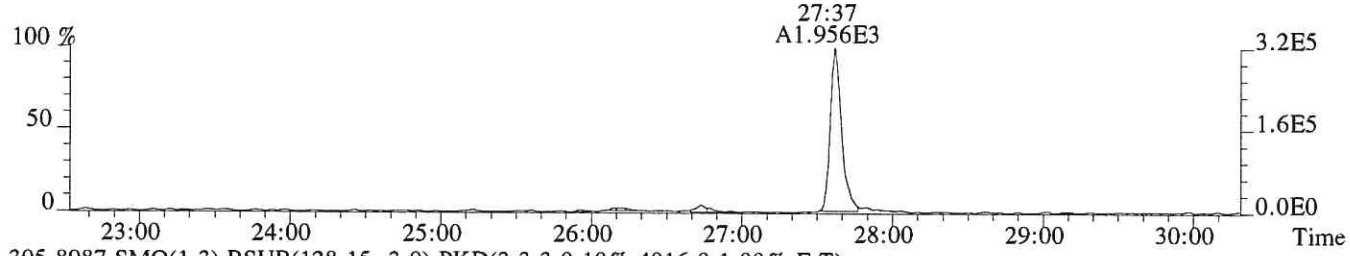
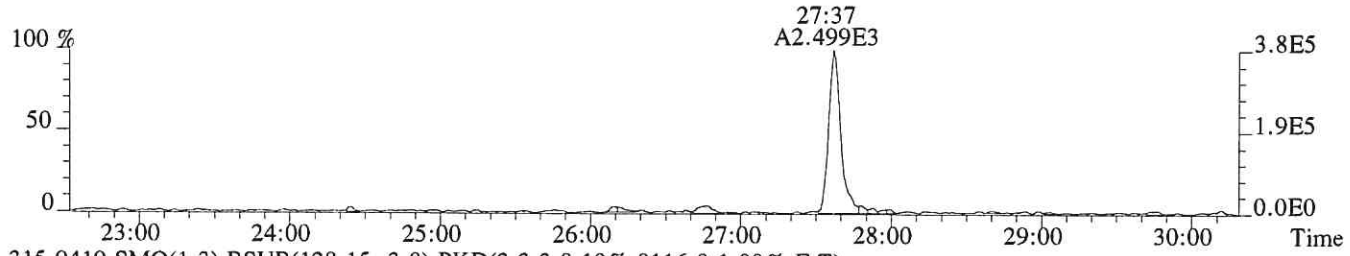
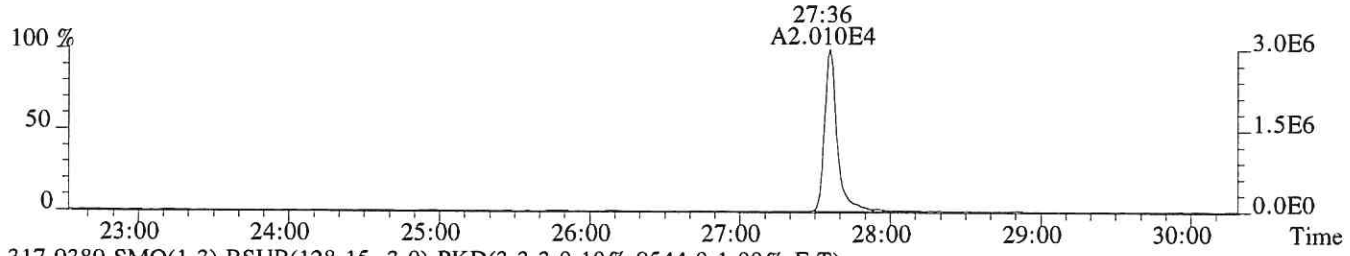
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



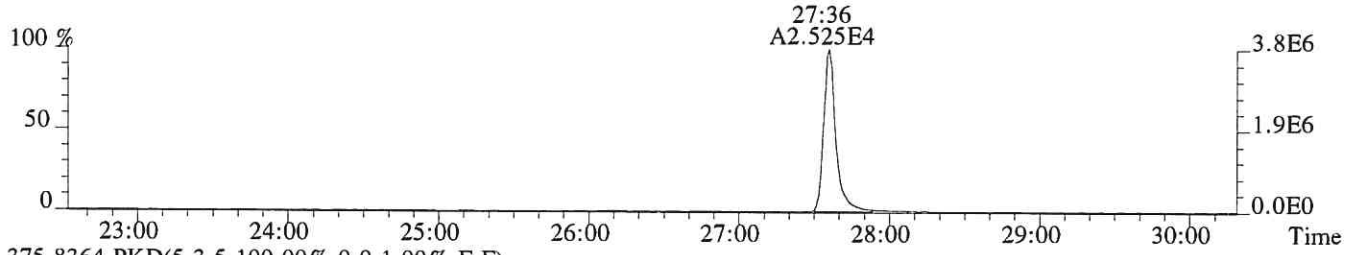
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4016.0,1.00%,F,T)



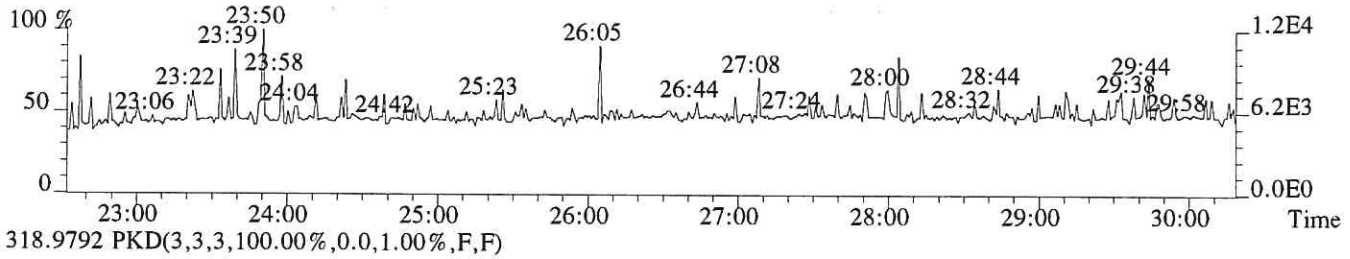
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8116.0,1.00%,F,T)



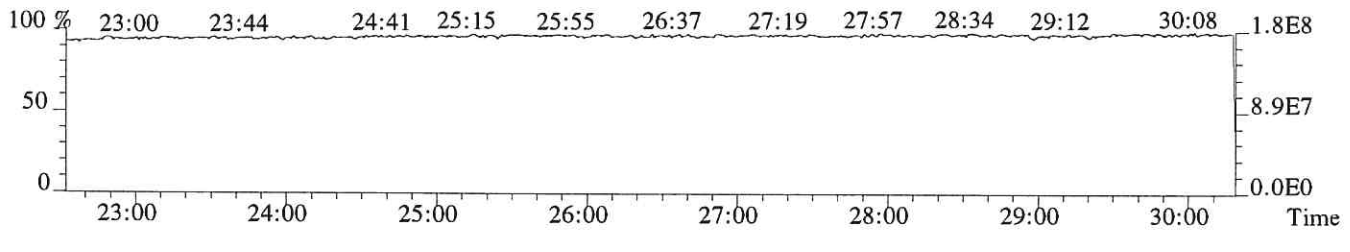
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9544.0,1.00%,F,T)



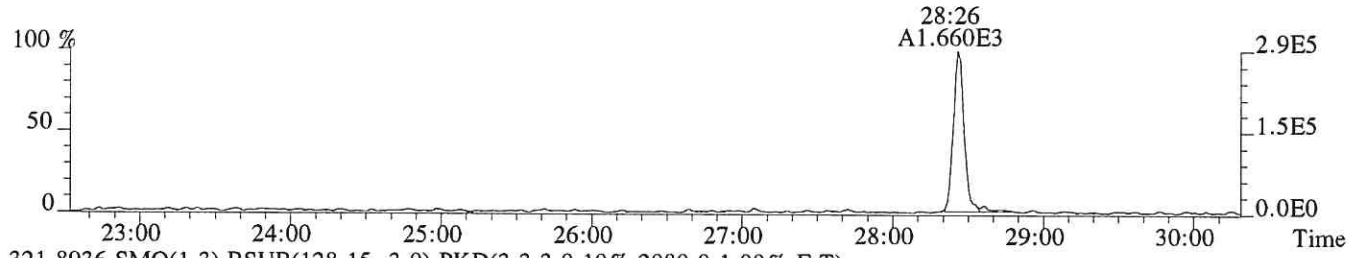
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



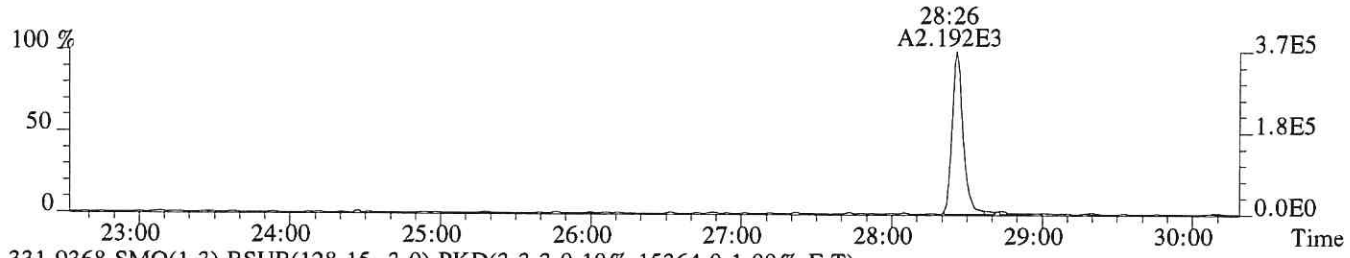
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



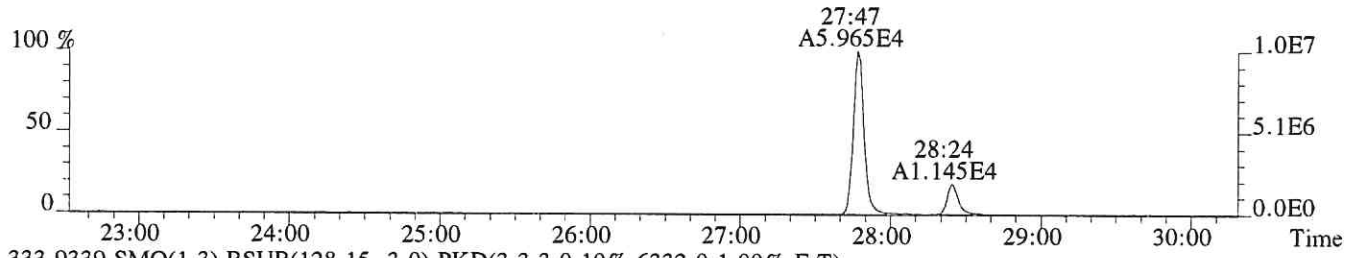
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



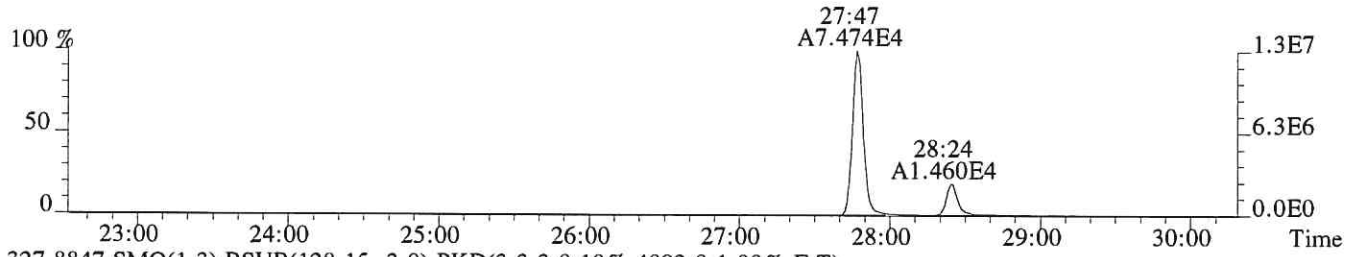
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



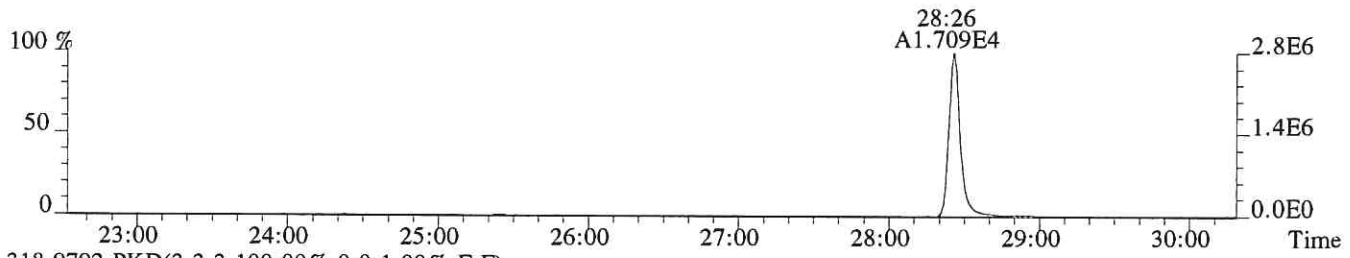
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15364.0,1.00%,F,T)



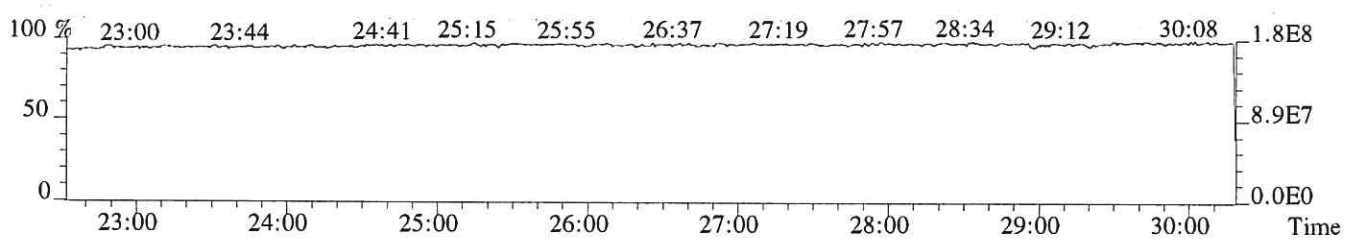
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6332.0,1.00%,F,T)



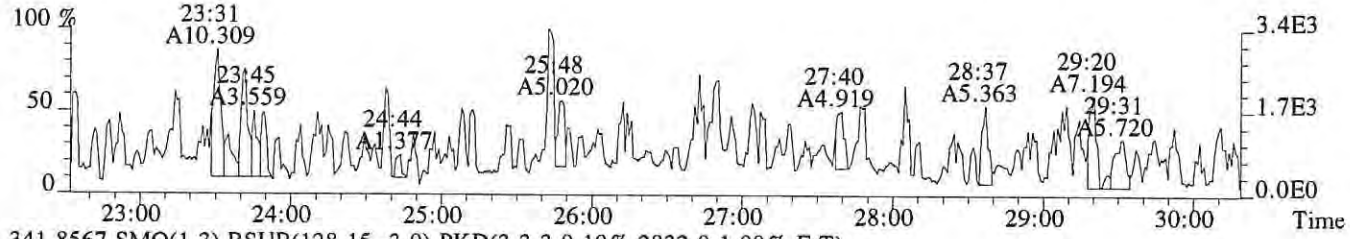
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4092.0,1.00%,F,T)



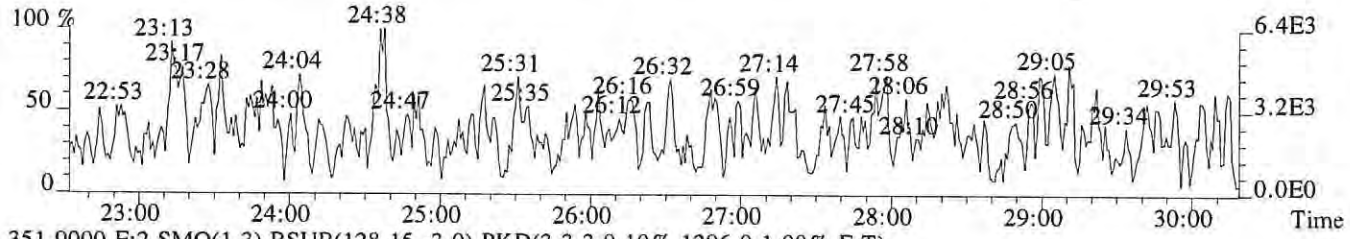
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



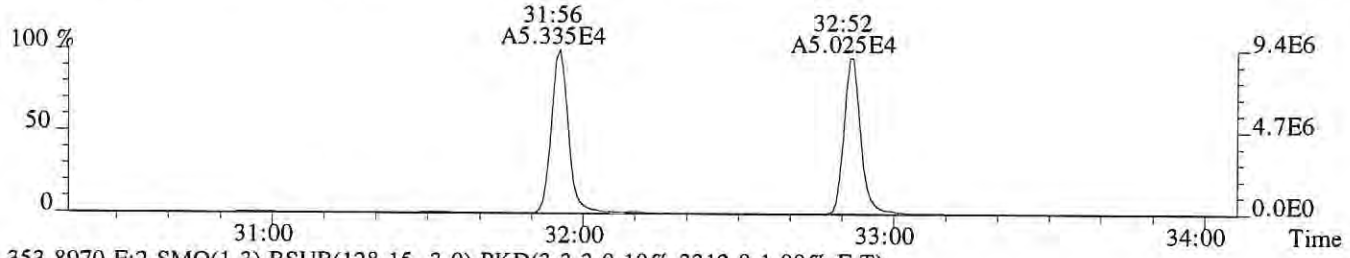
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



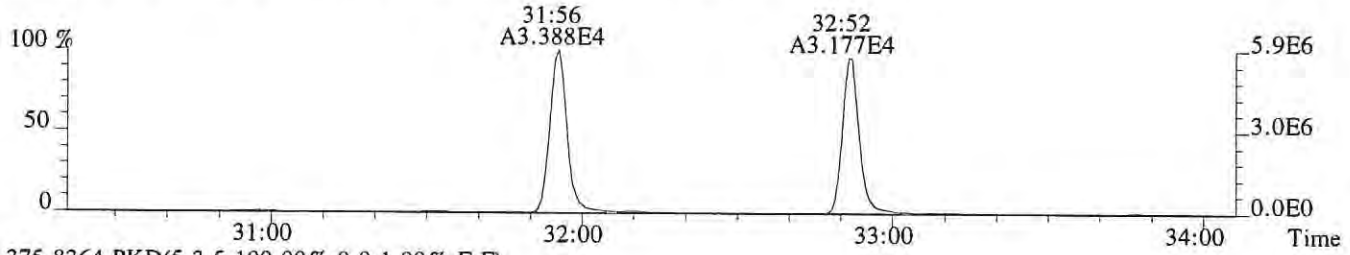
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2832.0,1.00%,F,T)



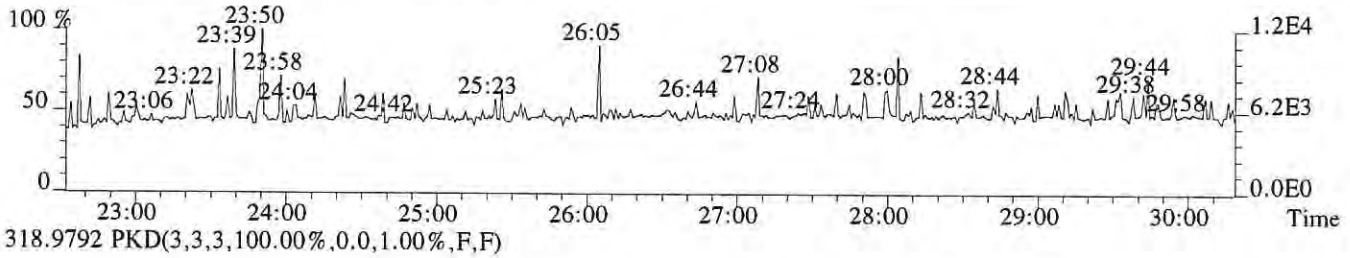
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



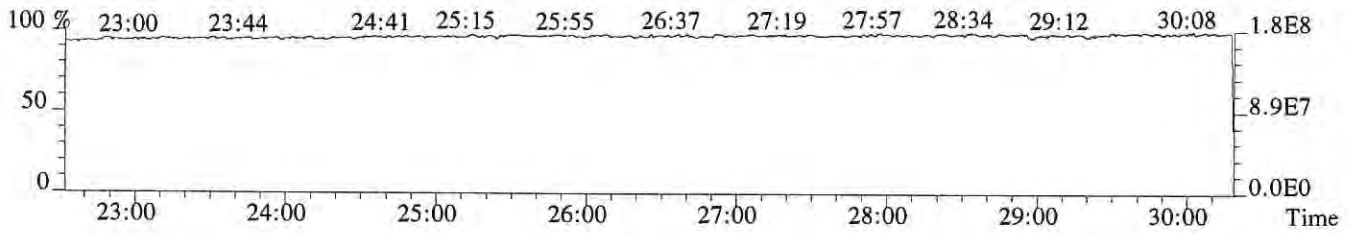
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



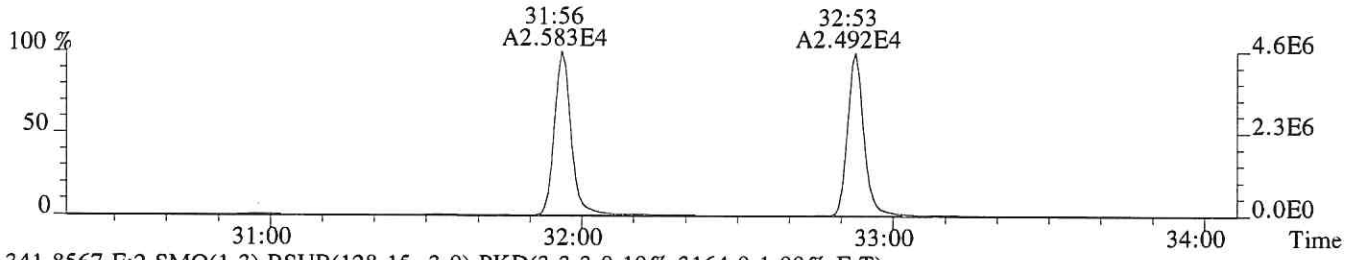
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



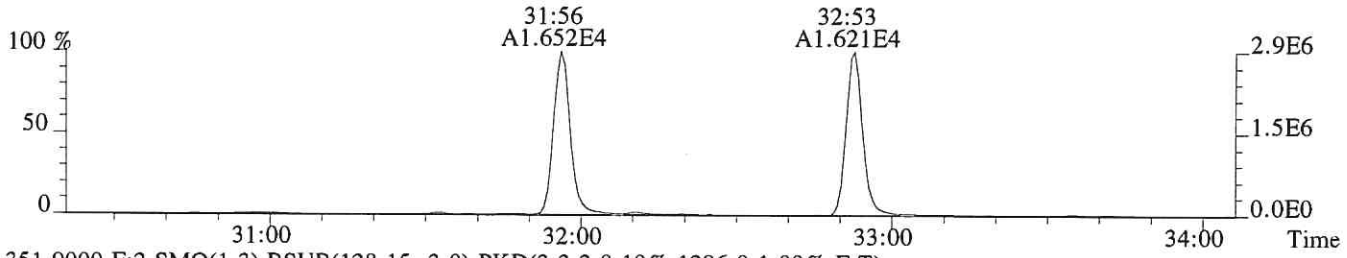
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



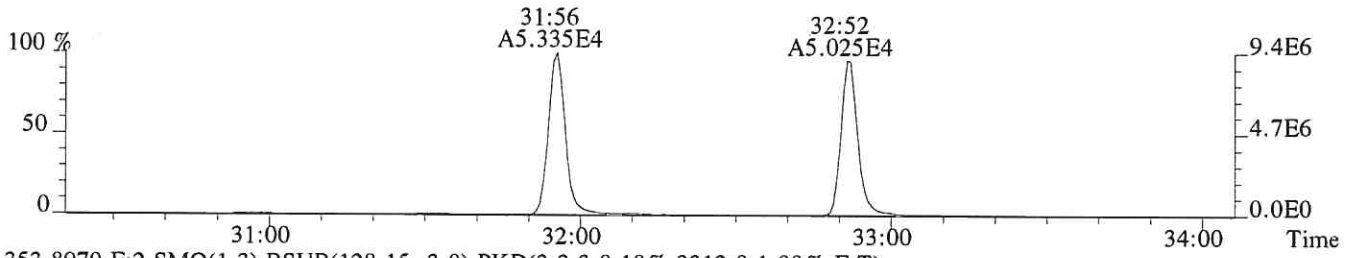
File:P615980 #1-339 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



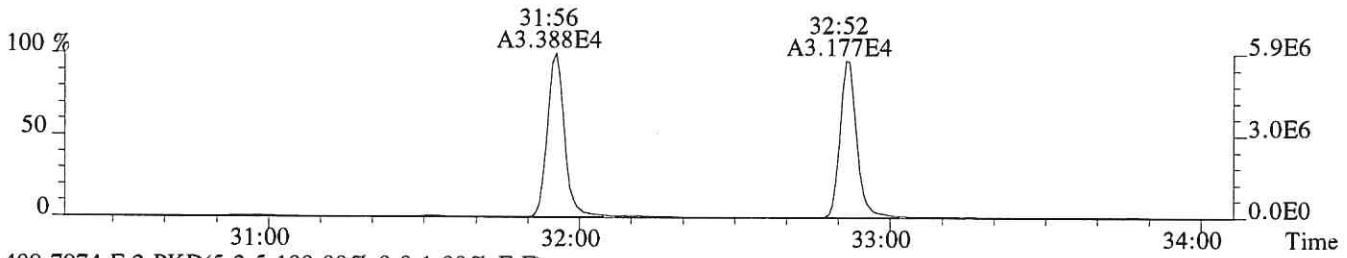
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3164.0,1.00%,F,T)



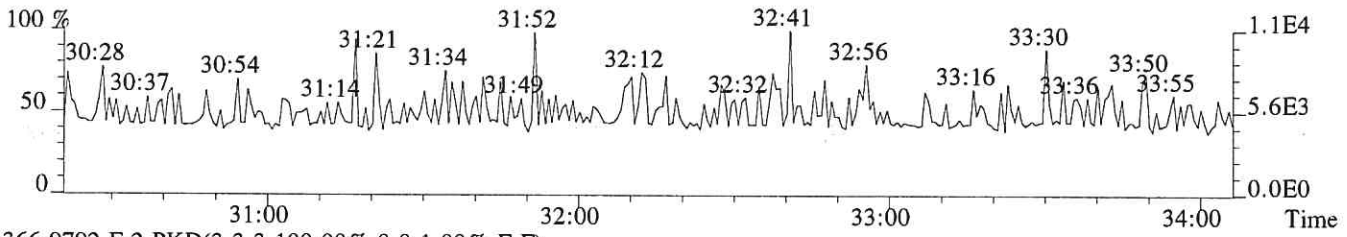
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



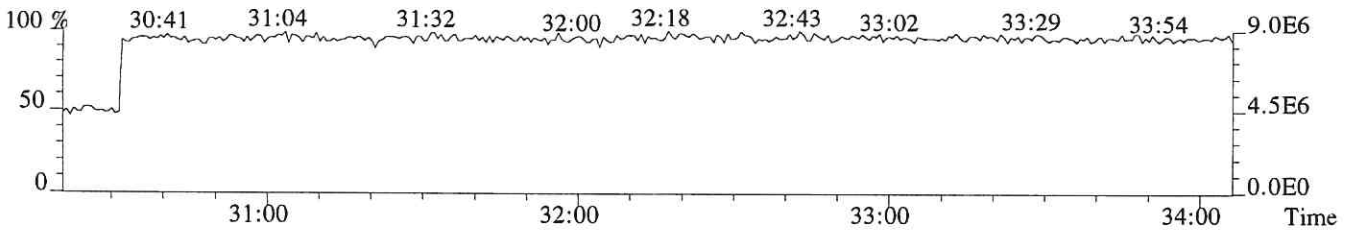
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



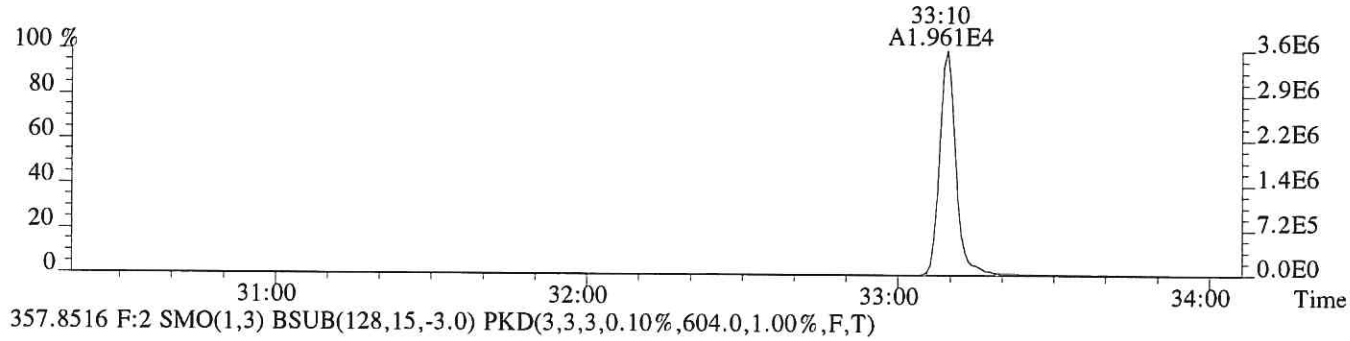
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



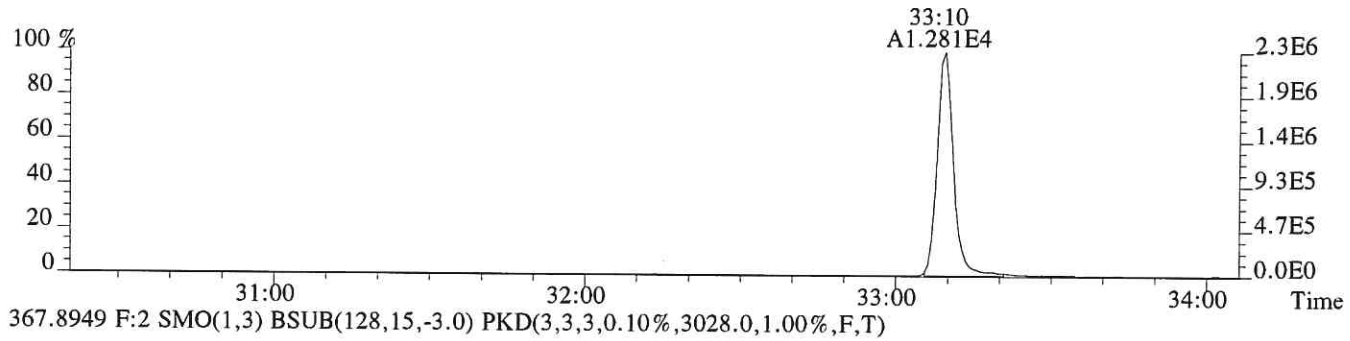
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



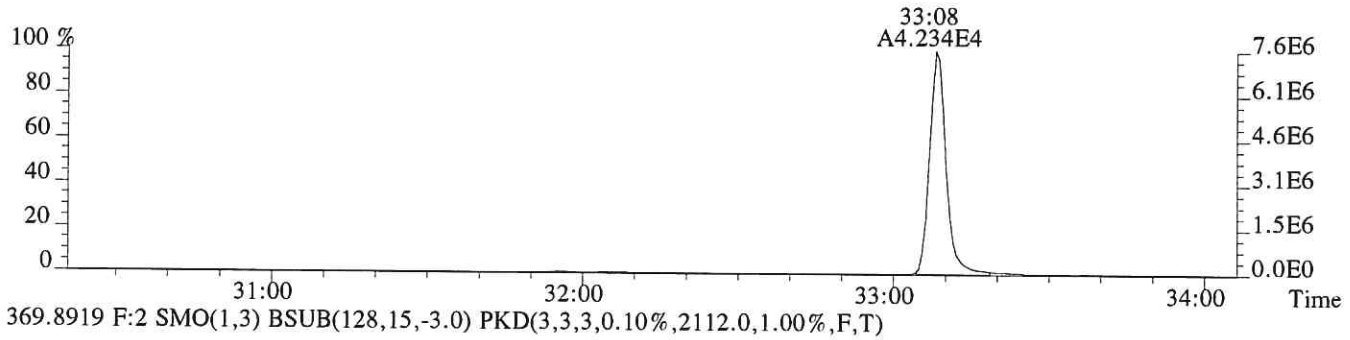
File:P615980 #1-339 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



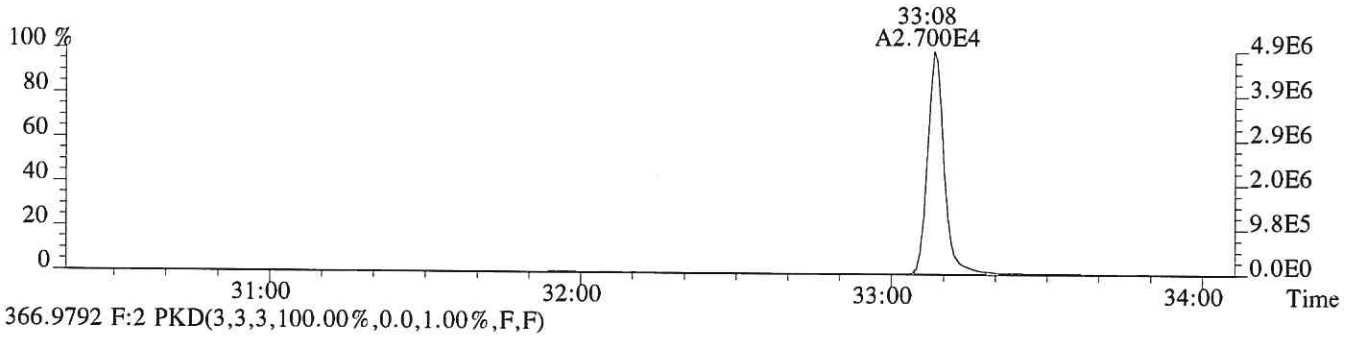
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



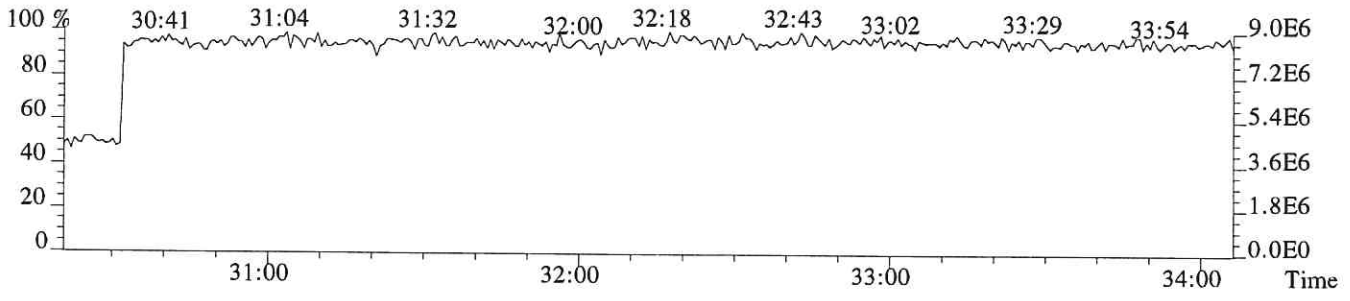
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3028.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2112.0,1.00%,F,T)

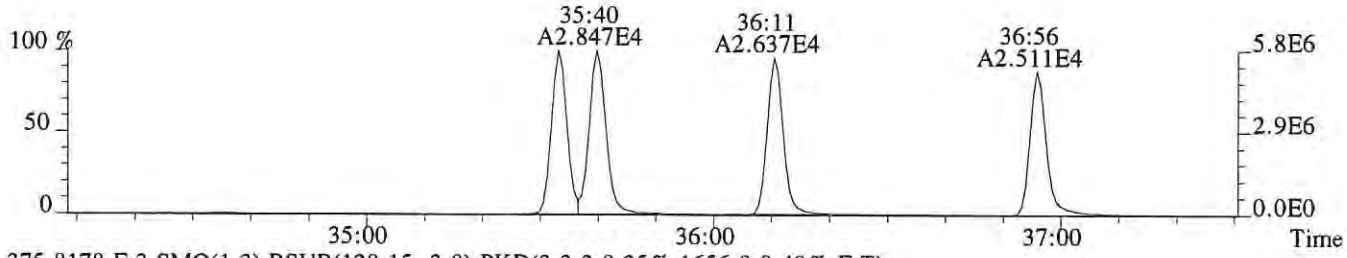


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

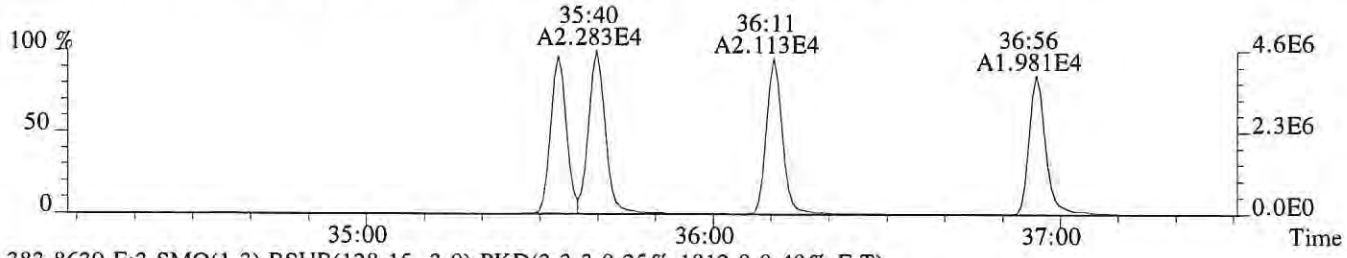


File:P615980 #1-304 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

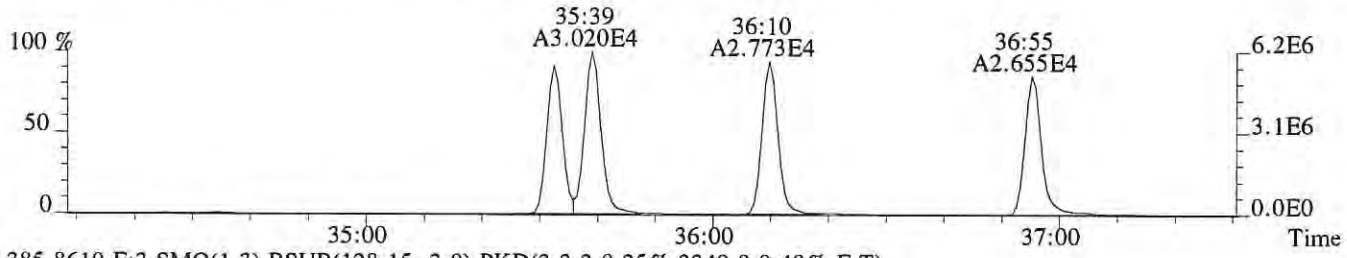
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



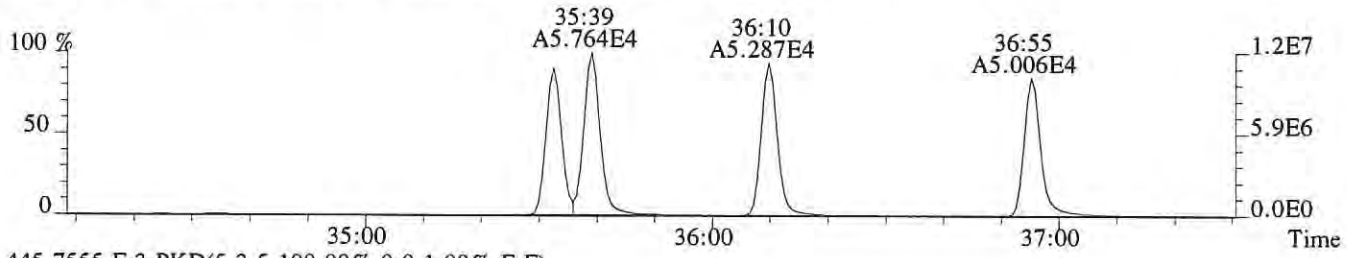
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.40%,F,T)



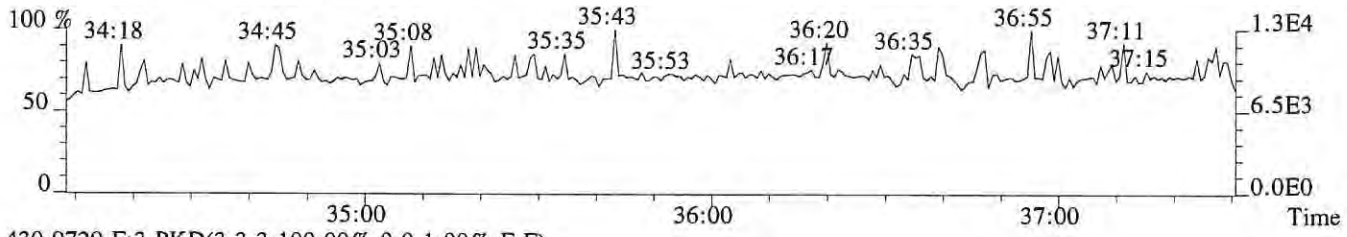
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.40%,F,T)



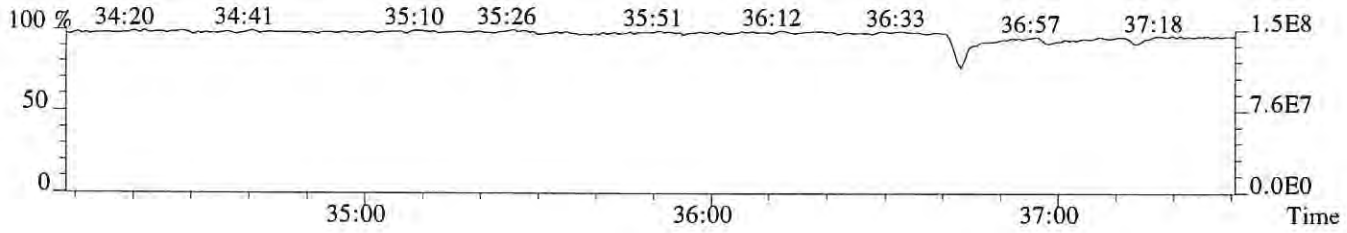
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3340.0,0.40%,F,T)



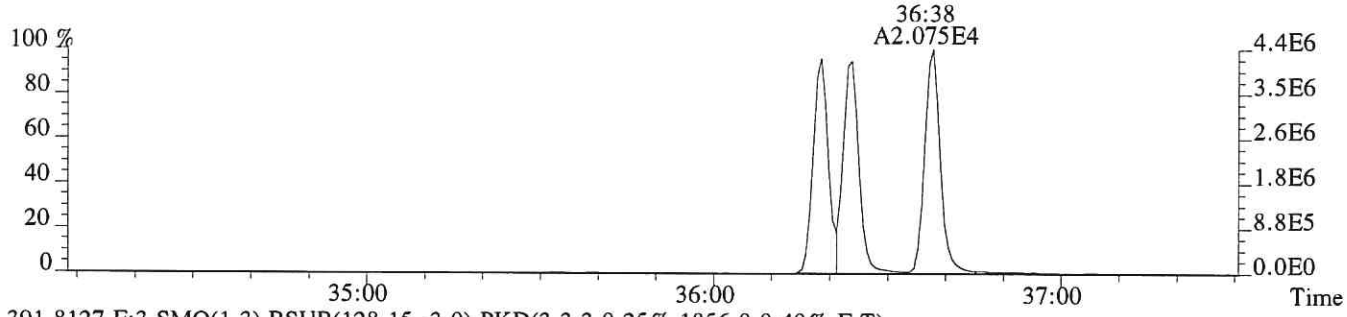
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



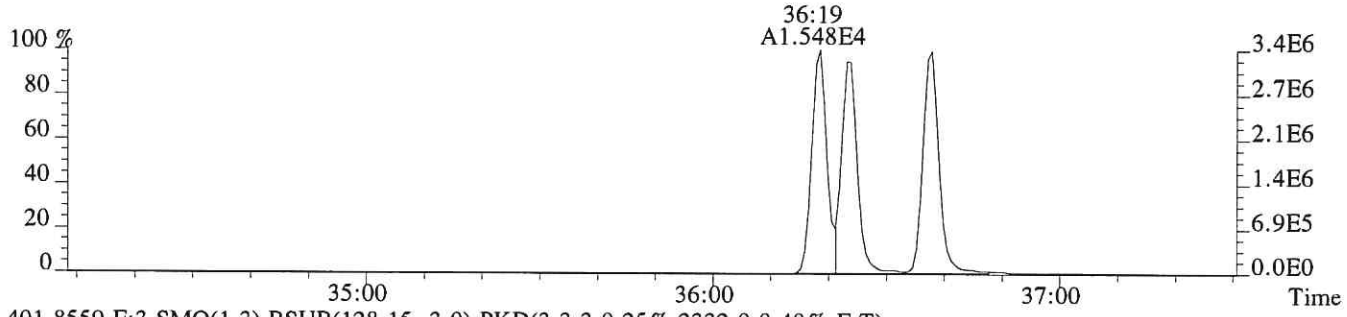
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



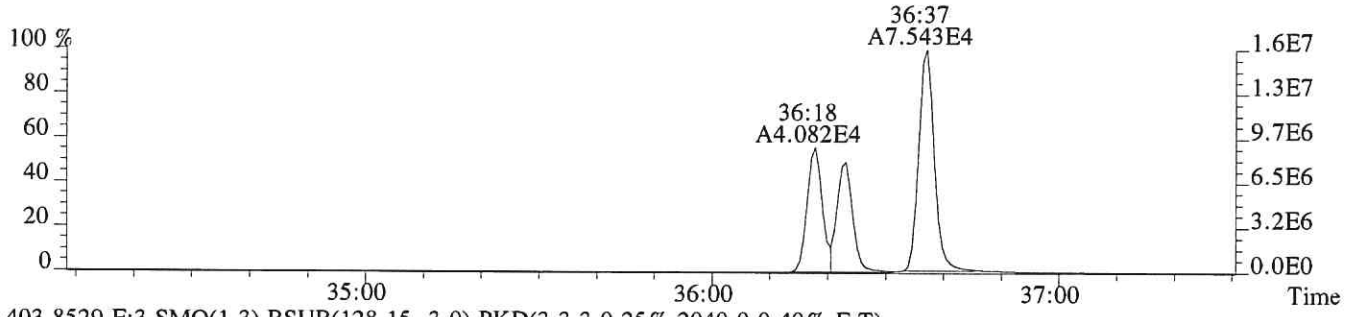
File:P615980 #1-304 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



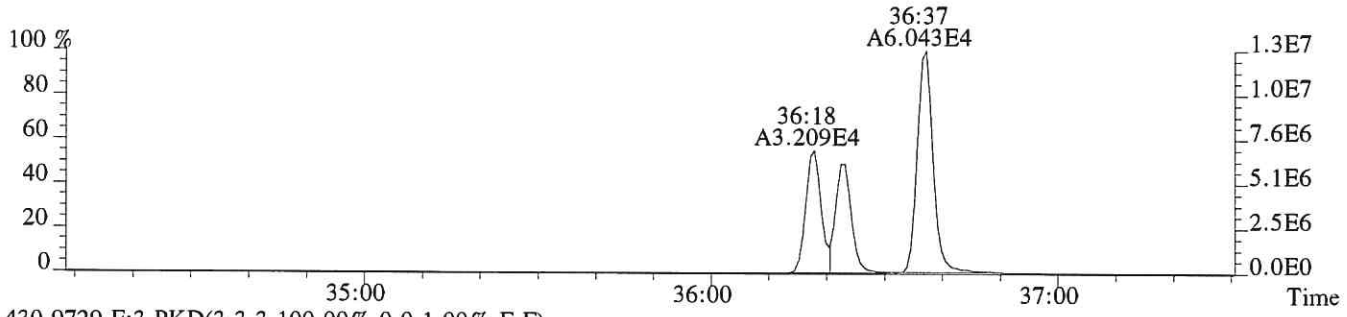
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



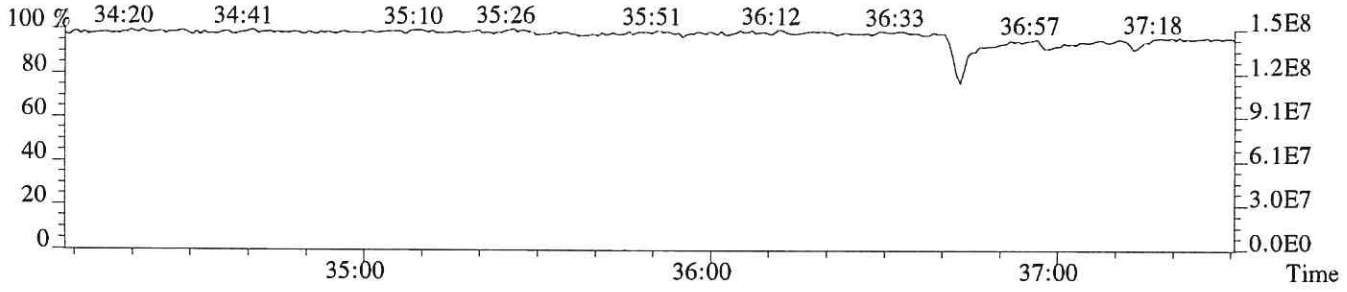
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)



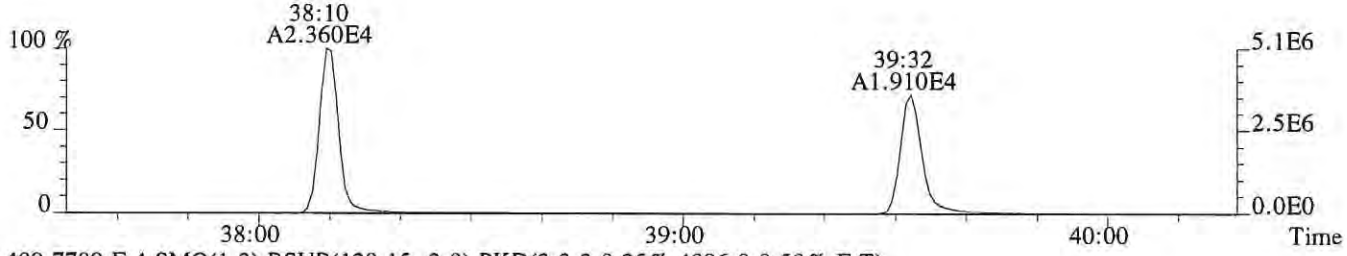
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



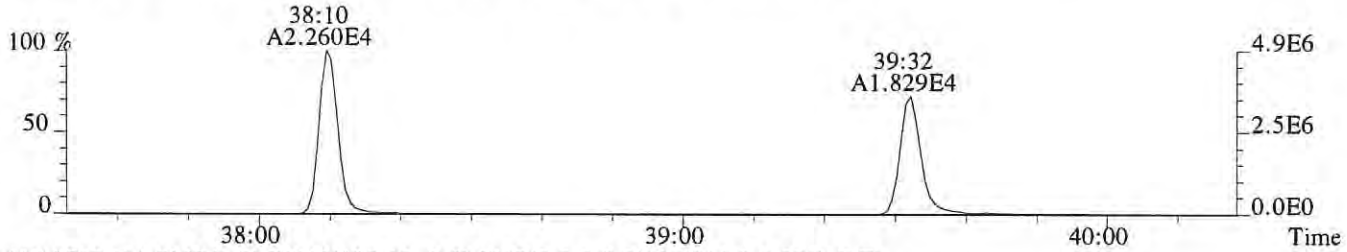
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



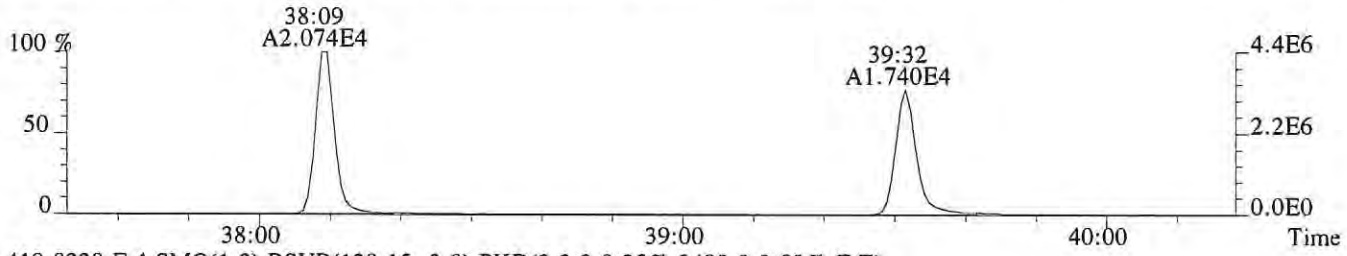
File:P615980 #1-249 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2504.0,0.50%,F,T)



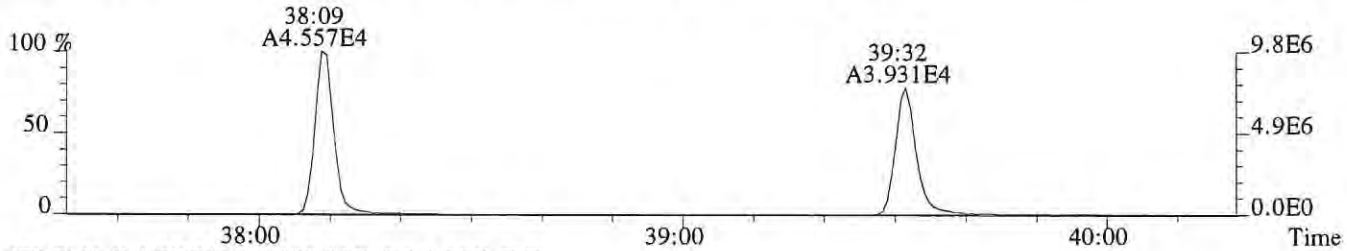
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4096.0,0.50%,F,T)



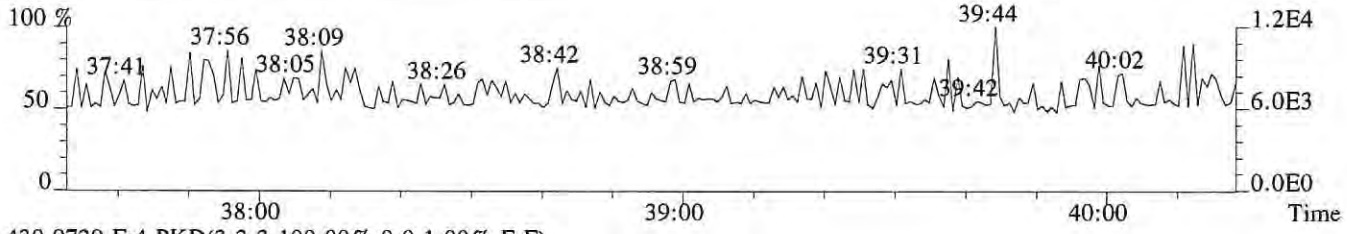
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.50%,F,T)



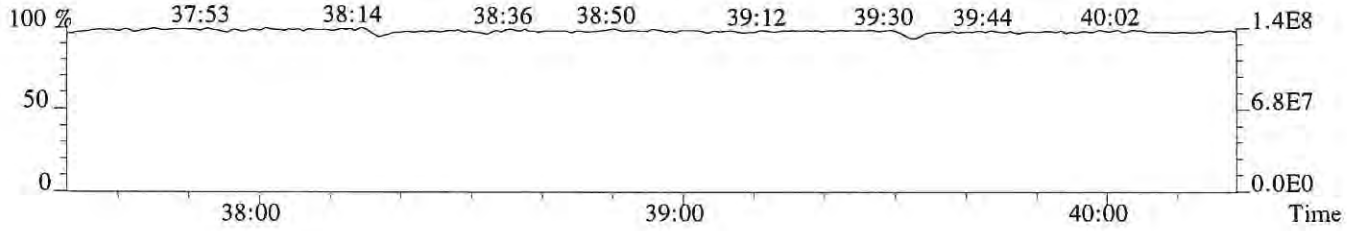
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3480.0,0.50%,F,T)



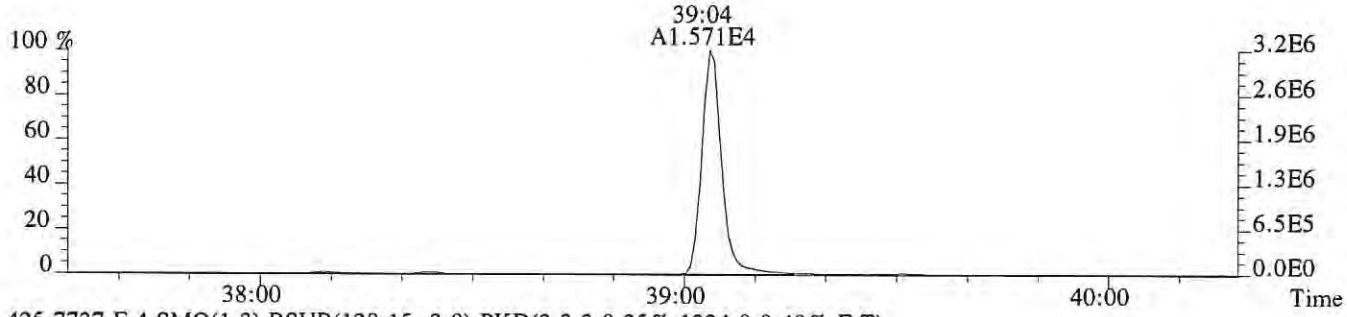
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



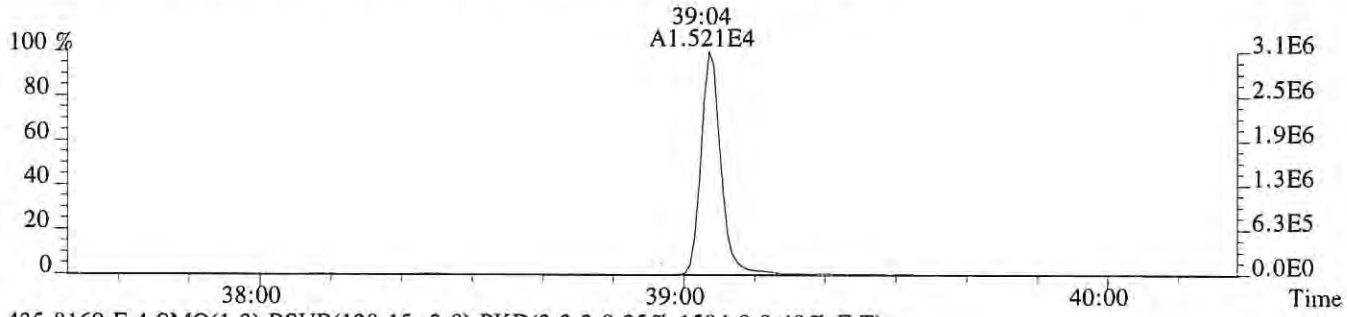
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



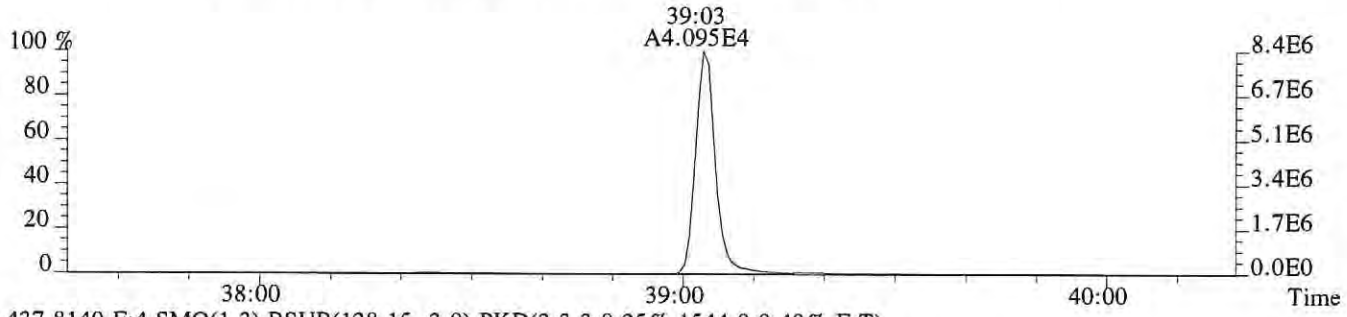
File:P615980 #1-249 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



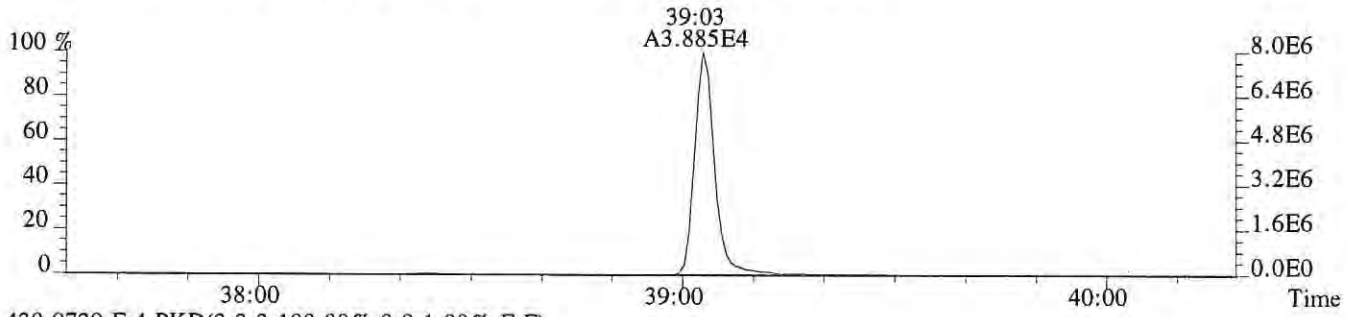
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



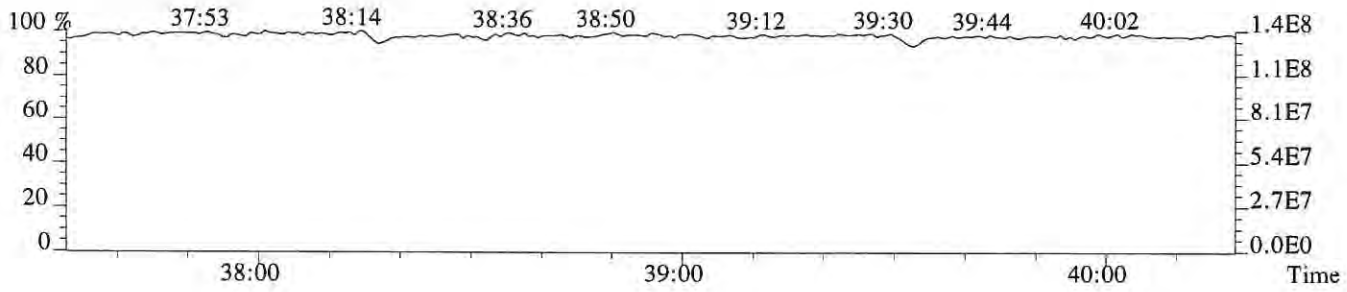
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



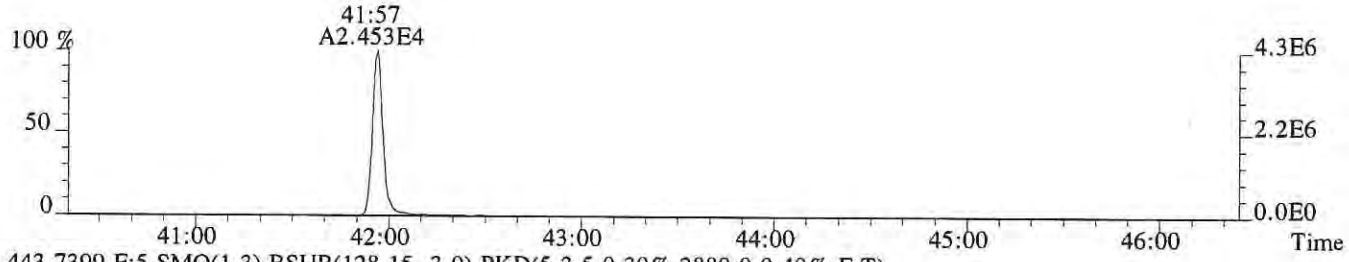
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



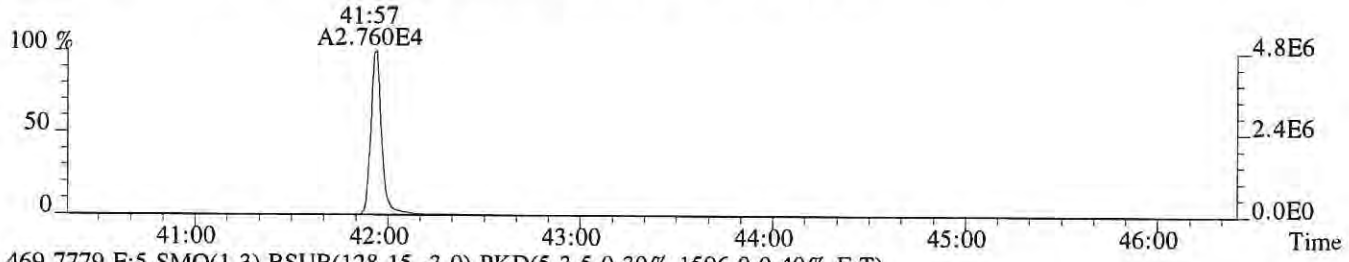
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



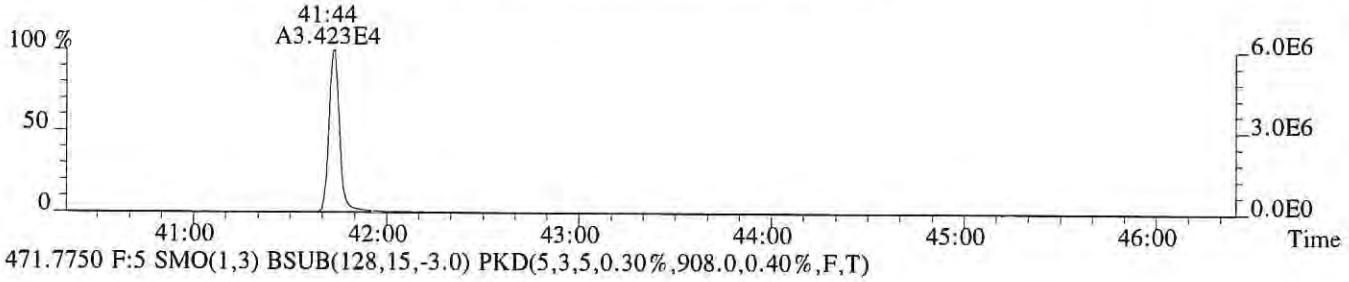
File:P615980 #1-547 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



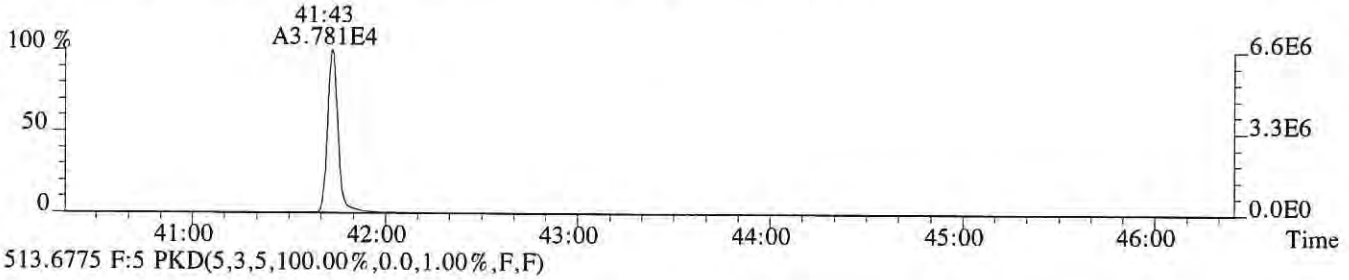
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2880.0,0.40%,F,T)



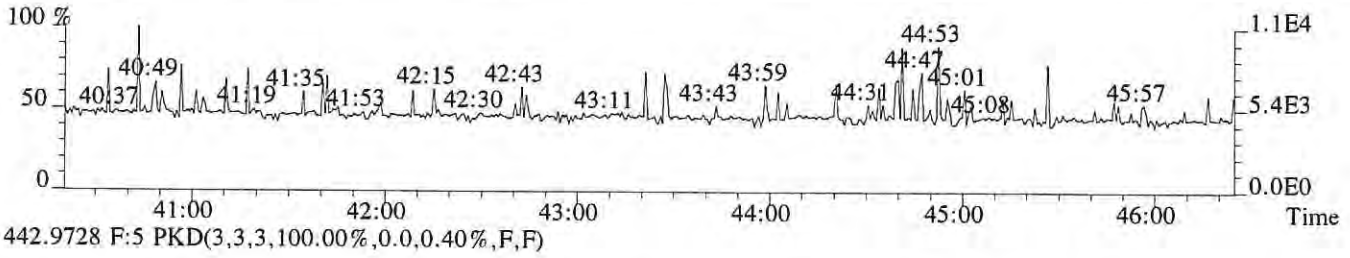
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1596.0,0.40%,F,T)



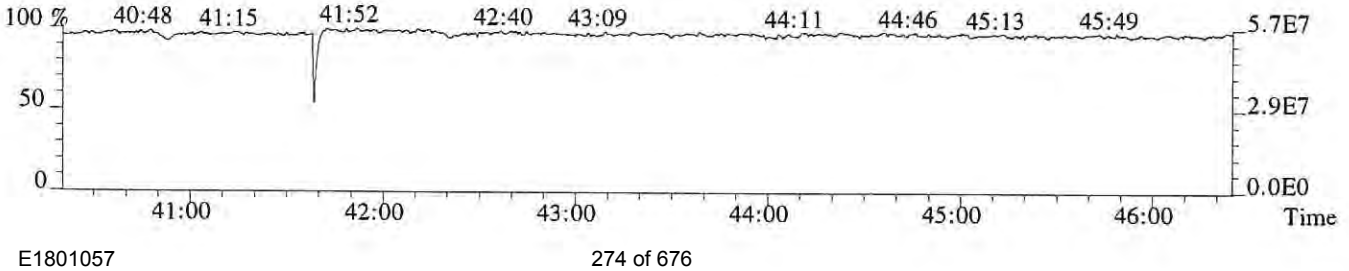
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



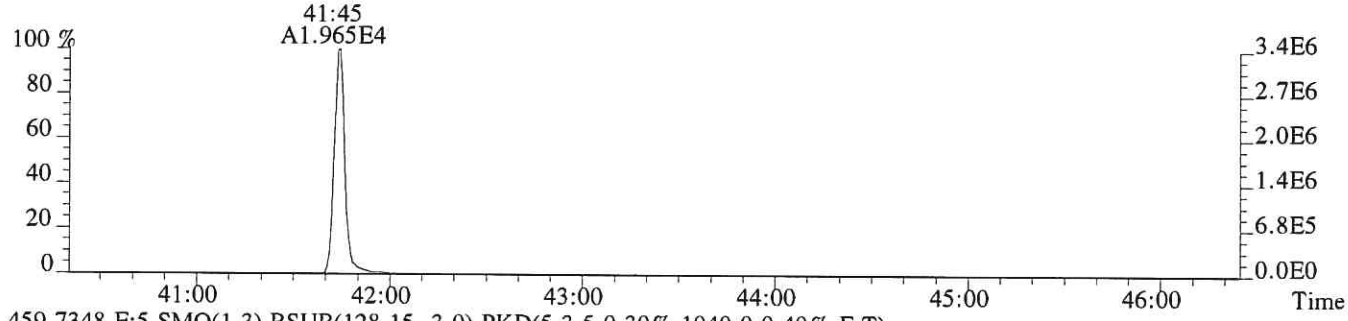
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



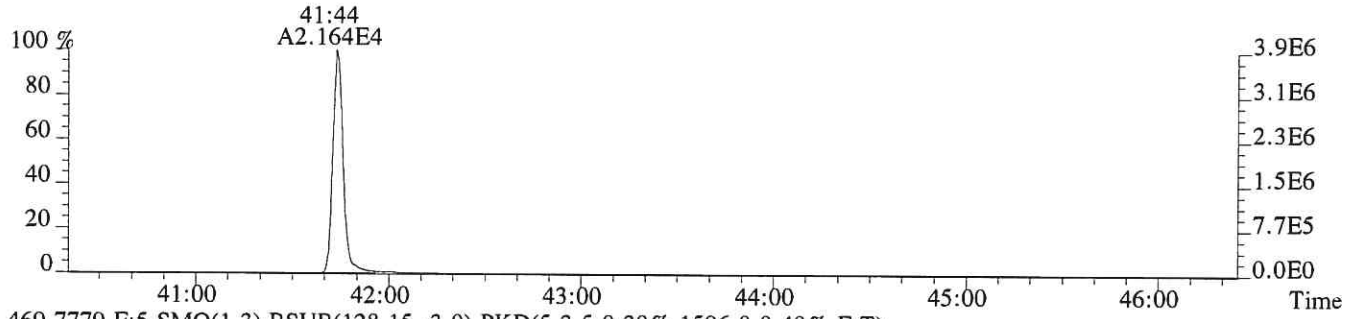
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



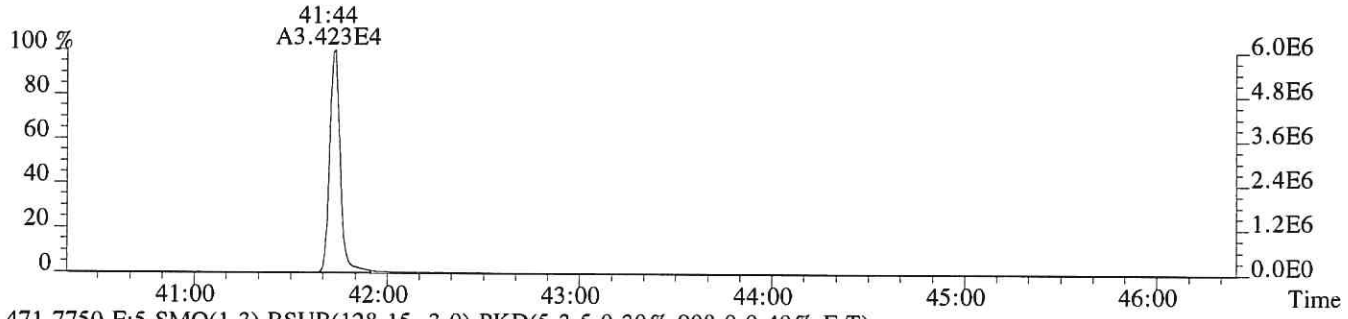
File:P615980 #1-547 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



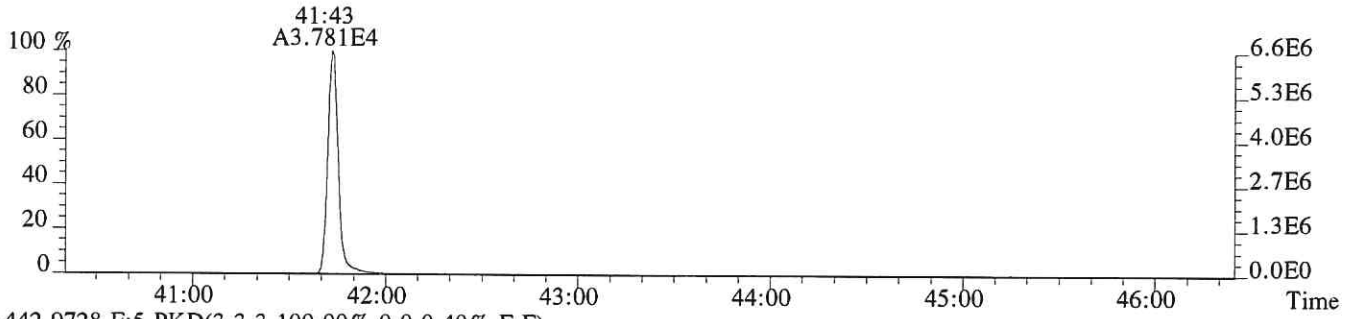
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1040.0,0.40%,F,T)



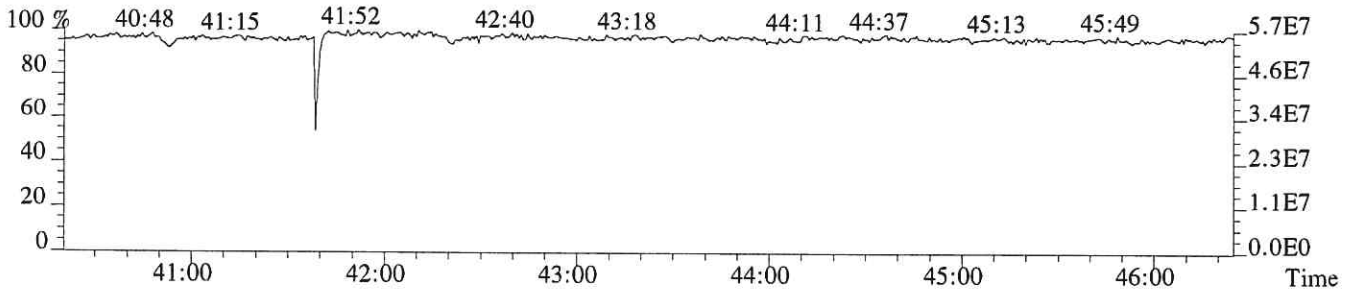
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1596.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P615981 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:19:19
Processed: 10-DEC-18 16:28:28 Sample ID: EQ1800494-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	2.884e+03	3.848e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	3.053e+04	1.965e+04	1.55	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	2.906e+04	1.919e+04	1.51	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	2.978e+04	2.333e+04	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	3.228e+04	2.555e+04	1.26	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.905e+04	2.362e+04	1.23	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	2.708e+04	2.181e+04	1.24	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	2.487e+04	2.414e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	2.017e+04	1.963e+04	1.03	yes	no	1.463
10	Unk	OCDF	41:57	2.475e+04	2.776e+04	0.89	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	2.716e+03	3.228e+03	0.84	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	2.377e+04	1.498e+04	1.59	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	2.050e+04	1.715e+04	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	2.232e+04	1.783e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	2.345e+04	1.861e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.716e+04	1.612e+04	1.06	yes	no	1.112
17	Unk	OCDD	41:44	1.826e+04	2.042e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	2.774e+04	3.555e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	6.495e+04	4.037e+04	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.977e+04	3.777e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	2.992e+04	5.754e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.402e+04	6.491e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	3.137e+04	5.863e+04	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.890e+04	5.478e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.188e+04	4.927e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.857e+04	4.181e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.704e+04	2.132e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	5.169e+04	3.304e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.378e+04	3.487e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	4.264e+04	3.347e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.287e+04	4.085e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	3.314e+04	3.672e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	6.842e+04	8.502e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	8.497e+04	6.680e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	2.416e+04				no	1.086

$$\text{OCDD} = \frac{(1.826e+04 + 2.042e+04) \times 4000\ \text{pg} \times 1}{(3.314e+04 + 3.672e+04) \times \text{g} \times / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P615981 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:19:19
Processed: 10-DEC-18 16:28:28 LAB. ID: EQ1800494-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.71e+05	1.78e+03	2.7e+02	6.30e+05	3.40e+03	1.9e+02
2	1,2,3,7,8-PeCDF	5.49e+06	1.42e+03	3.9e+03	3.51e+06	2.54e+03	1.4e+03
3	2,3,4,7,8-PeCDF	5.45e+06	1.42e+03	3.8e+03	3.52e+06	2.54e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	6.39e+06	2.16e+03	3.0e+03	4.94e+06	8.72e+02	5.7e+03
5	1,2,3,6,7,8-HxCDF	6.62e+06	2.16e+03	3.1e+03	5.20e+06	8.72e+02	6.0e+03
6	2,3,4,6,7,8-HxCDF	6.19e+06	2.16e+03	2.9e+03	4.94e+06	8.72e+02	5.7e+03
7	1,2,3,7,8,9-HxCDF	5.47e+06	2.16e+03	2.5e+03	4.38e+06	8.72e+02	5.0e+03
8	1,2,3,4,6,7,8-HpCDF	5.60e+06	1.90e+03	2.9e+03	5.38e+06	5.03e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.90e+06	1.90e+03	2.0e+03	3.84e+06	5.03e+03	7.6e+02
10	OCDF	4.45e+06	6.88e+02	6.5e+03	4.88e+06	3.00e+03	1.6e+03
11	2,3,7,8-TCDD	4.62e+05	4.40e+03	1.0e+02	5.60e+05	1.82e+03	3.1e+02
12	1,2,3,7,8-PeCDD	4.30e+06	1.81e+03	2.4e+03	2.67e+06	5.28e+02	5.1e+03
13	1,2,3,4,7,8-HxCDD	4.58e+06	1.02e+03	4.5e+03	3.90e+06	9.84e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	4.62e+06	1.02e+03	4.5e+03	3.70e+06	9.84e+02	3.8e+03
15	1,2,3,7,8,9-HxCDD	4.85e+06	1.02e+03	4.8e+03	3.88e+06	9.84e+02	3.9e+03
16	1,2,3,4,6,7,8-HpCDD	3.61e+06	5.04e+02	7.2e+03	3.36e+06	9.32e+02	3.6e+03
17	OCDD	3.24e+06	7.12e+02	4.5e+03	3.68e+06	8.72e+02	4.2e+03
18	13C-2,3,7,8-TCDF	4.50e+06	1.07e+04	4.2e+02	5.73e+06	1.06e+04	5.4e+02
19	13C-1,2,3,7,8-PeCDF	1.14e+07	2.17e+03	5.3e+03	7.16e+06	1.98e+03	3.6e+03
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.17e+03	5.1e+03	7.10e+06	1.98e+03	3.6e+03
21	13C-1,2,3,4,7,8-HxCDF	6.40e+06	1.69e+03	3.8e+03	1.22e+07	1.84e+03	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	7.02e+06	1.69e+03	4.2e+03	1.32e+07	1.84e+03	7.2e+03
23	13C-2,3,4,6,7,8-HxCDF	6.70e+06	1.69e+03	4.0e+03	1.23e+07	1.84e+03	6.7e+03
24	13C-1,2,3,7,8,9-HxCDF	5.72e+06	1.69e+03	3.4e+03	1.10e+07	1.84e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.87e+06	2.42e+03	2.0e+03	1.11e+07	2.98e+03	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.56e+06	2.42e+03	1.5e+03	8.07e+06	2.98e+03	2.7e+03
27	13C-2,3,7,8-TCDD	2.79e+06	1.38e+04	2.0e+02	3.63e+06	7.26e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	9.67e+06	2.25e+03	4.3e+03	6.13e+06	2.38e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	9.91e+06	3.85e+03	2.6e+03	7.93e+06	2.06e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	8.84e+06	3.85e+03	2.3e+03	6.98e+06	2.06e+03	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.96e+06	1.31e+03	6.8e+03	8.39e+06	5.08e+02	1.7e+04
32	13C-OCDD	5.94e+06	1.66e+03	3.6e+03	6.61e+06	1.16e+03	5.7e+03
33	13C-1,2,3,4-TCDD	1.21e+07	1.38e+04	8.7e+02	1.50e+07	7.26e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.80e+07	3.85e+03	4.7e+03	1.41e+07	2.06e+03	6.8e+03
35	37Cl-2,3,7,8-TCDD	4.13e+06	2.77e+03	1.5e+03			

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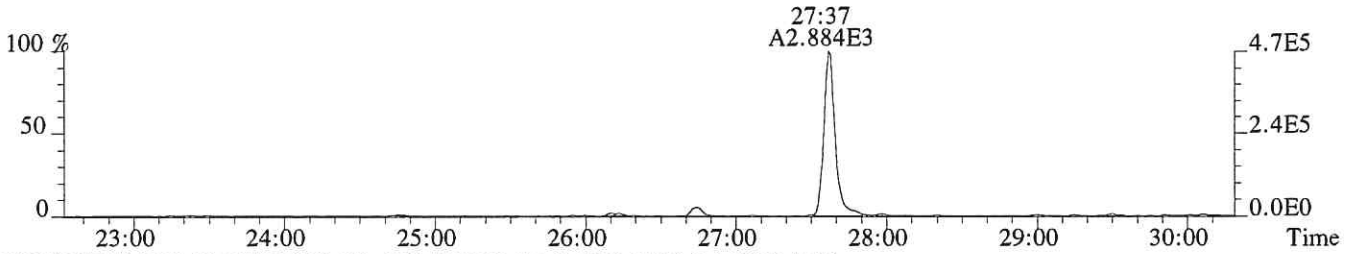
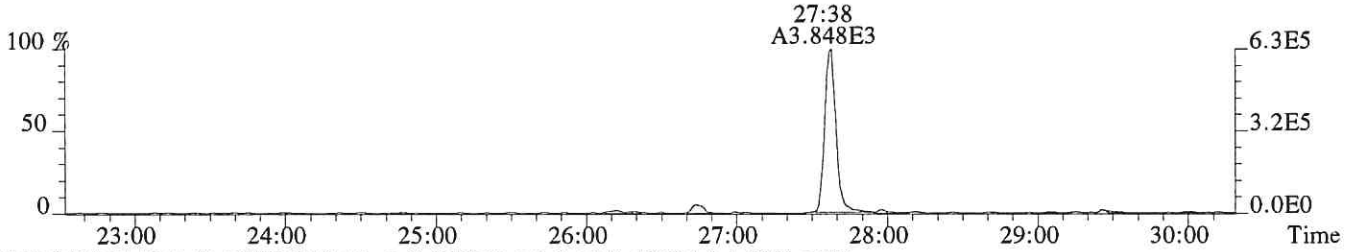
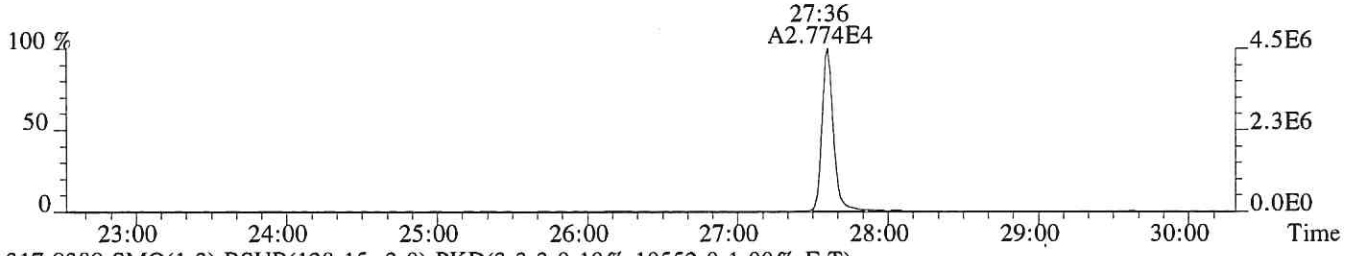
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



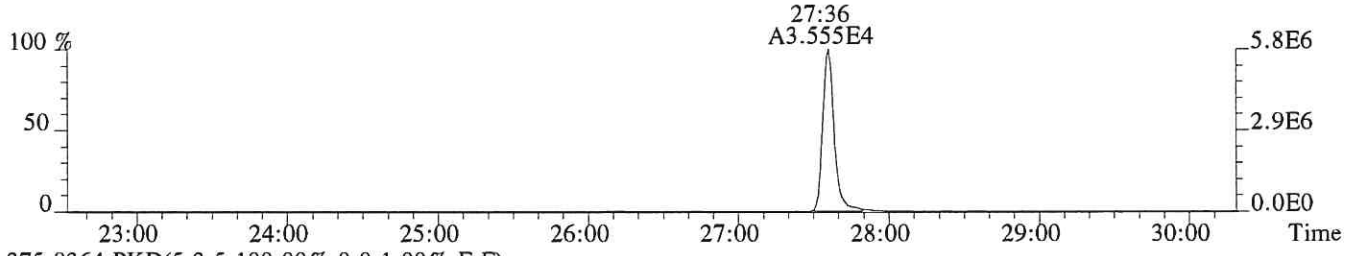
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



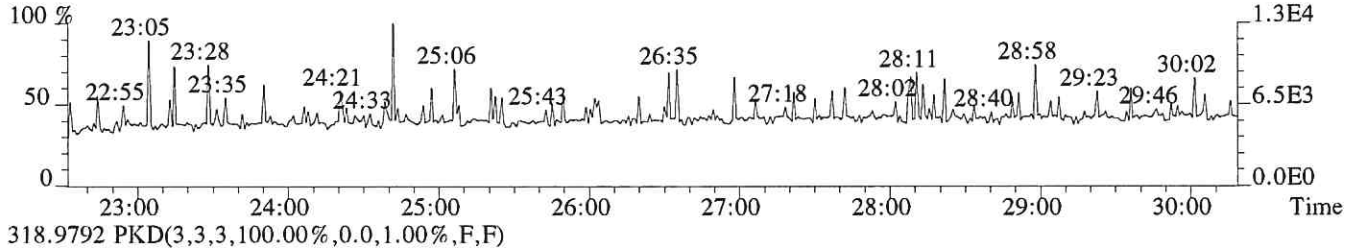
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10684.0,1.00%,F,T)



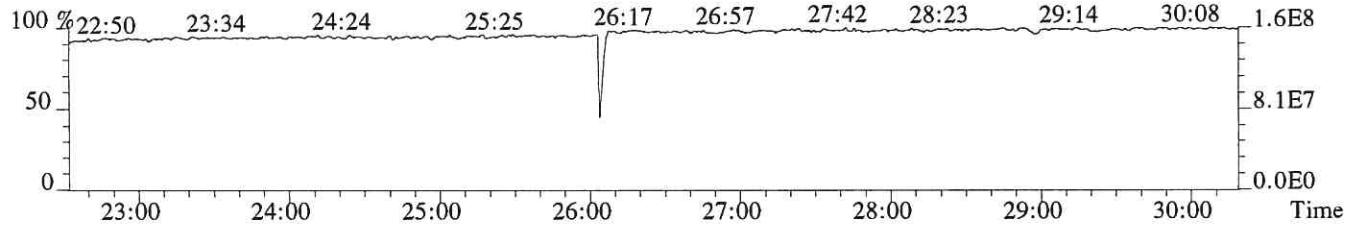
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



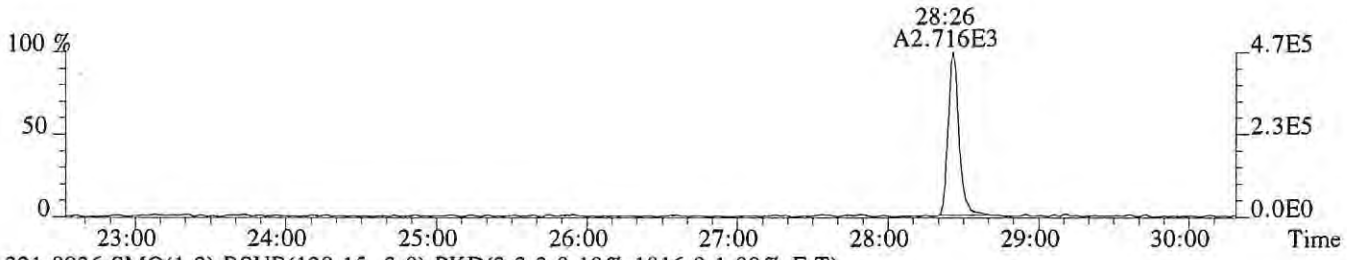
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



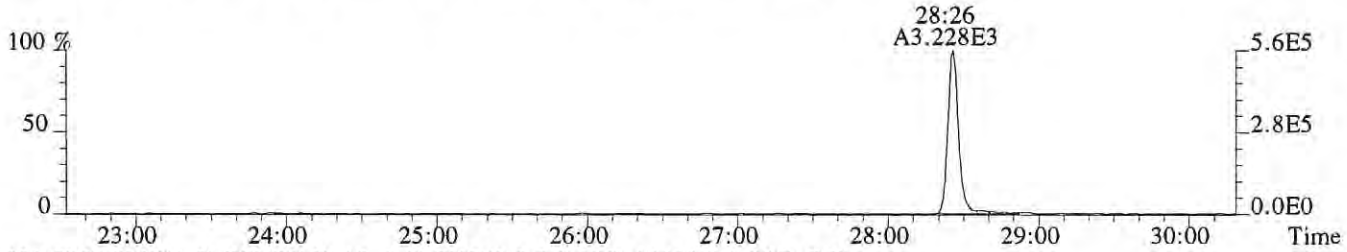
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



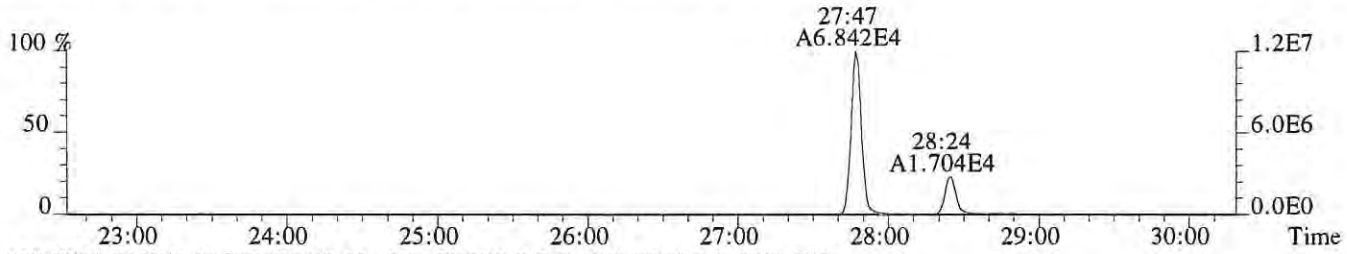
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4400.0,1.00%,F,T)



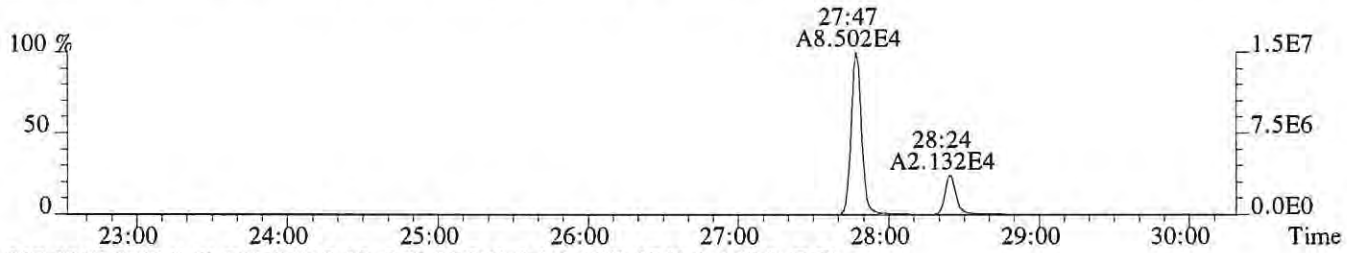
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



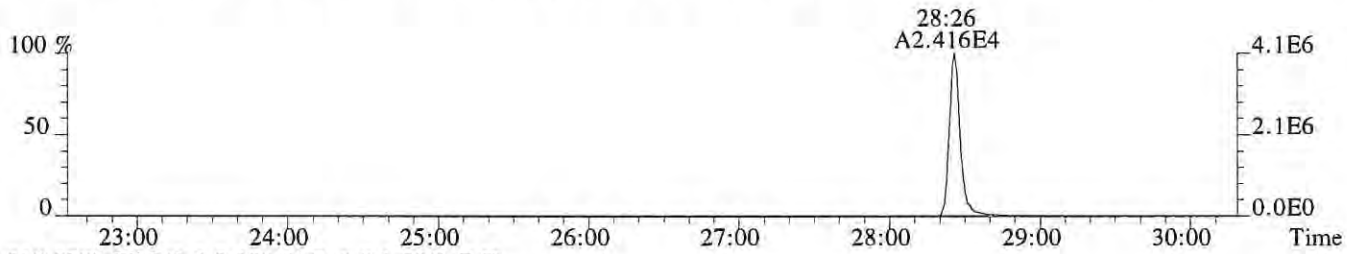
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13832.0,1.00%,F,T)



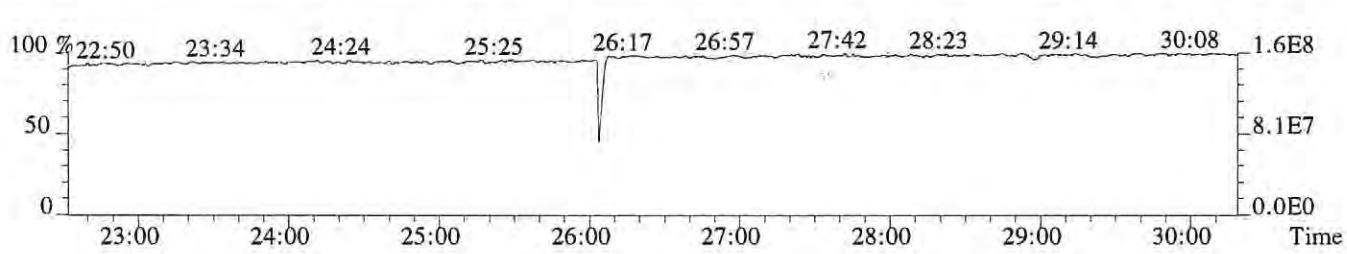
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7260.0,1.00%,F,T)



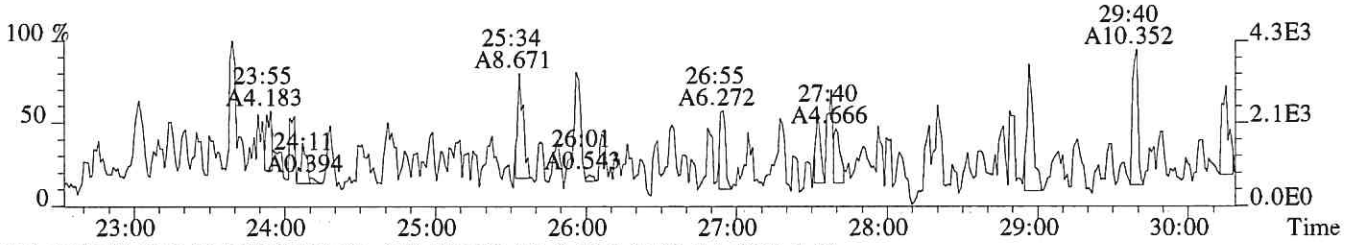
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



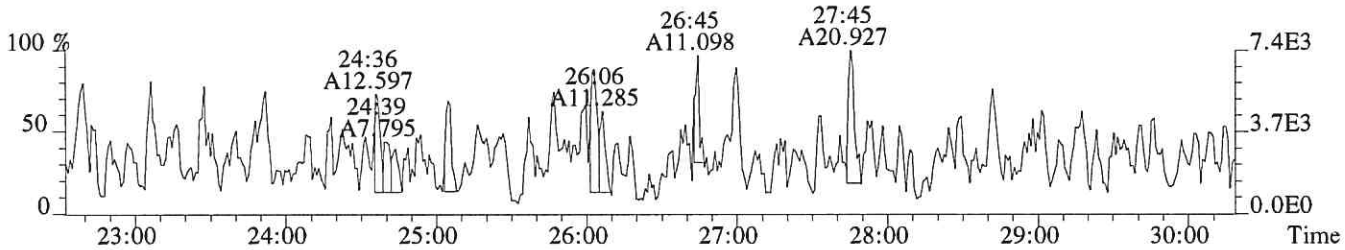
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



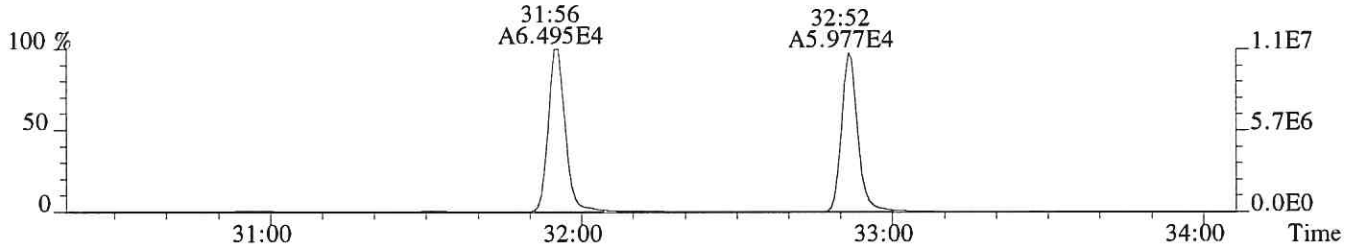
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



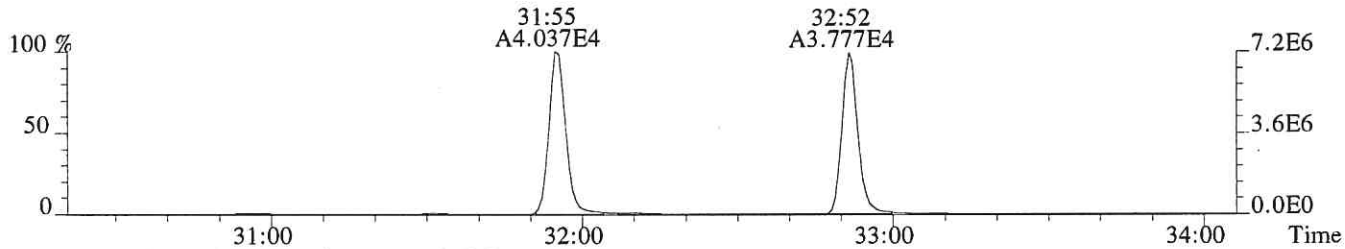
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3120.0,1.00%,F,T)



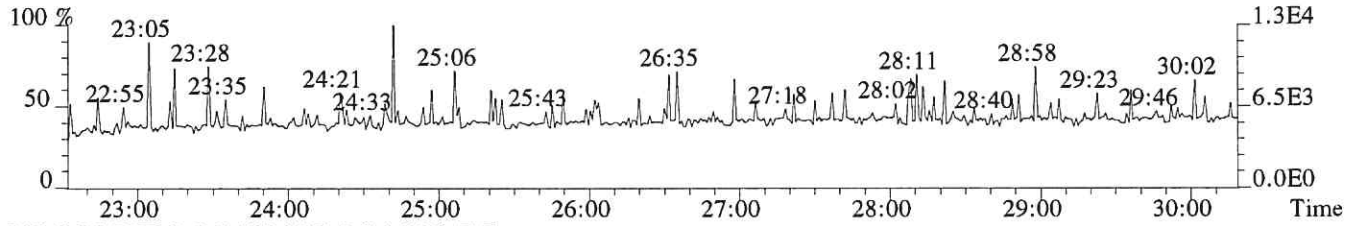
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



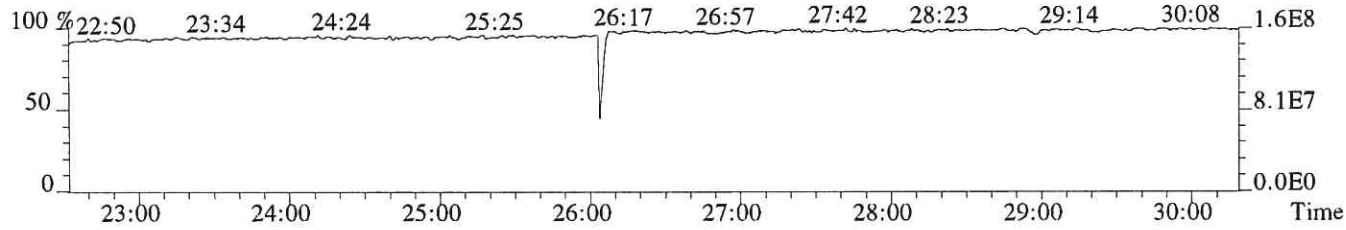
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

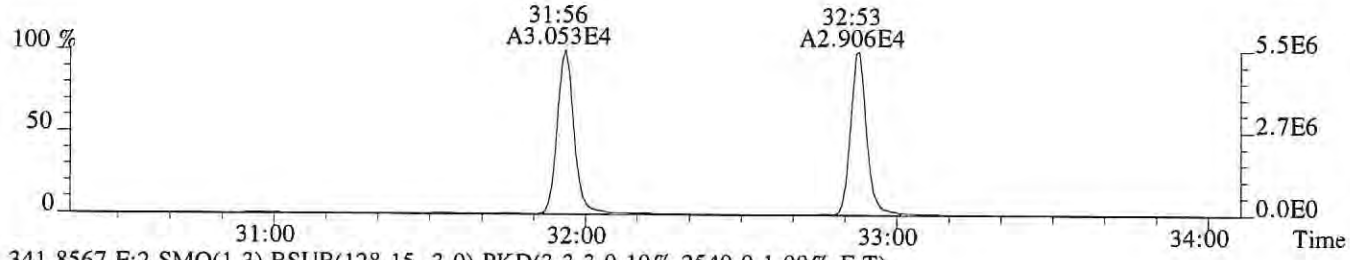


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

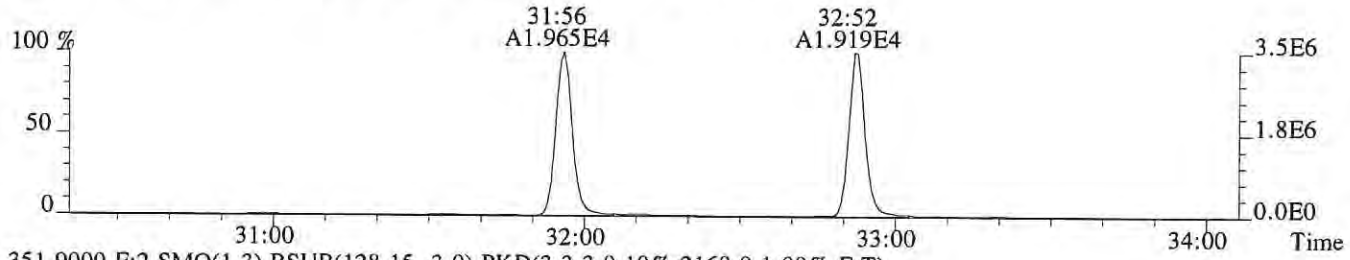


File:P615981 #1-339 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

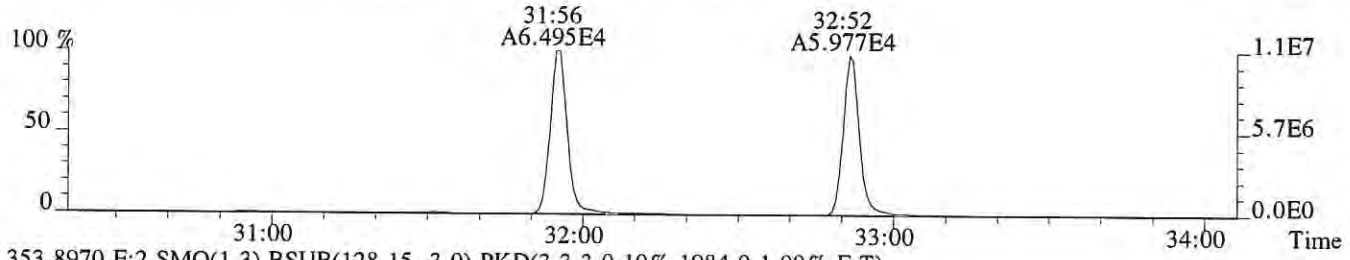
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



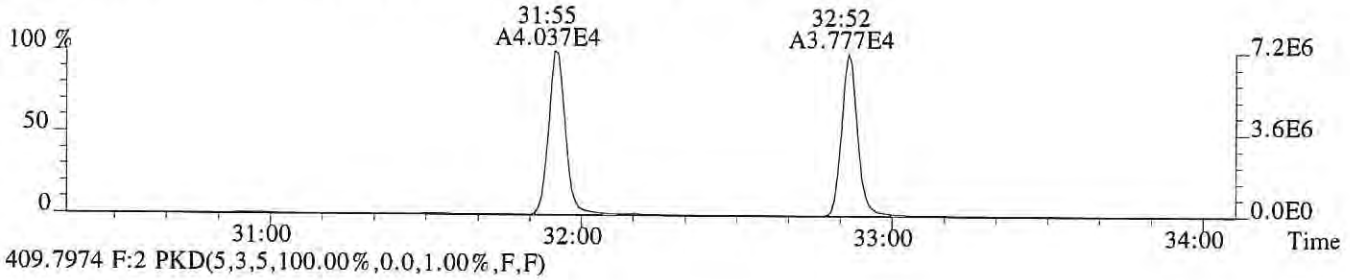
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)



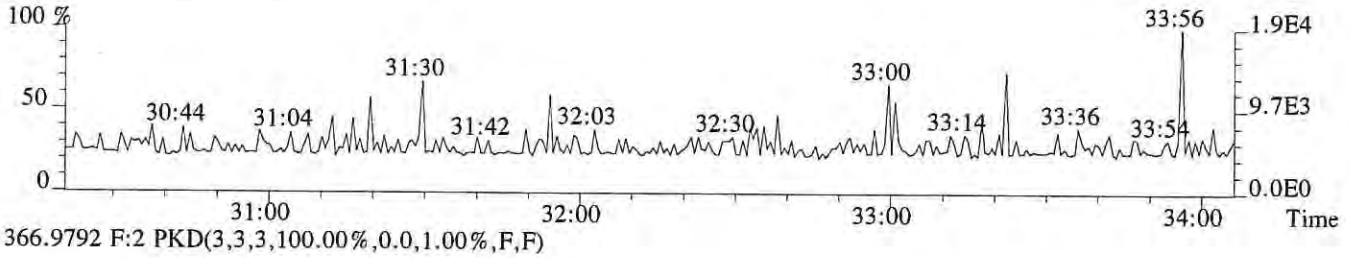
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



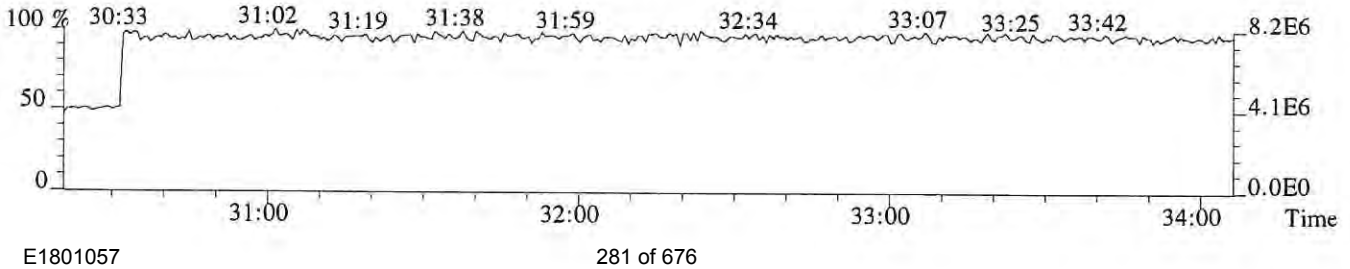
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



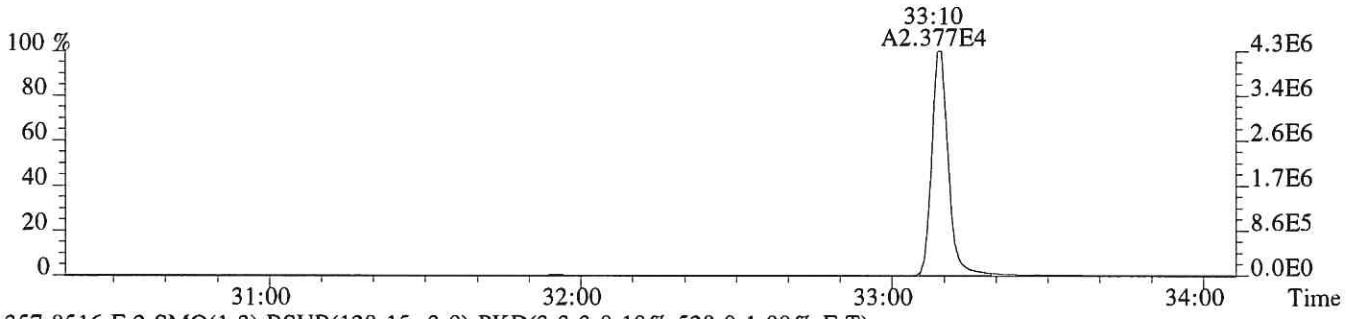
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



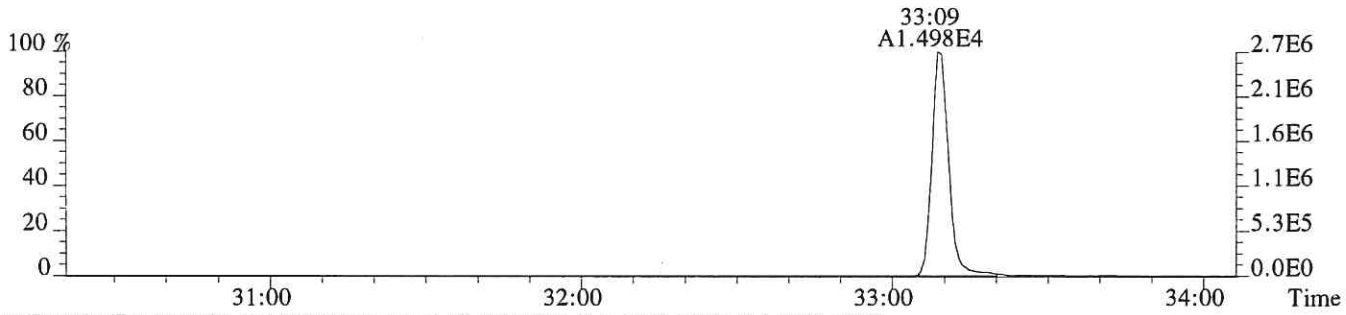
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



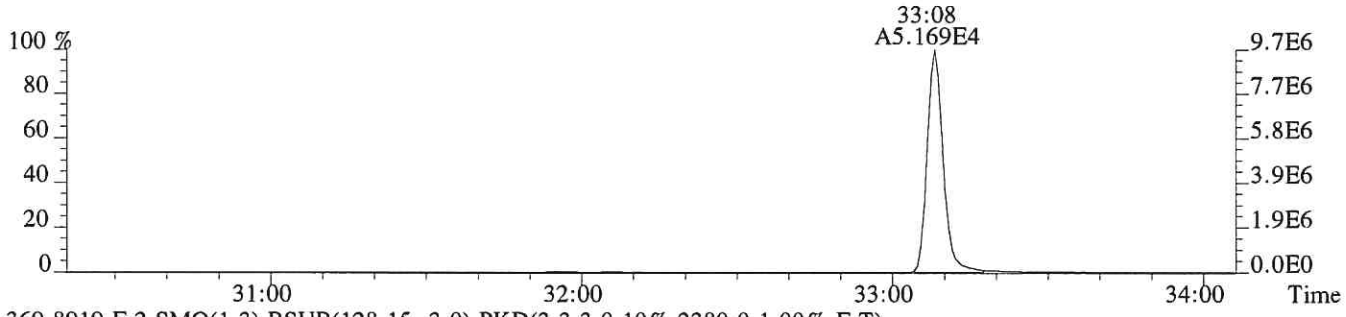
File:P615981 #1-339 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



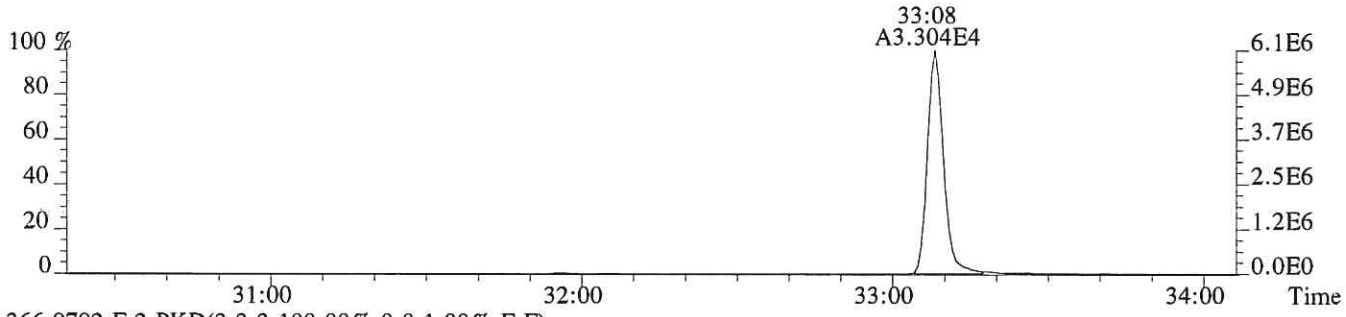
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



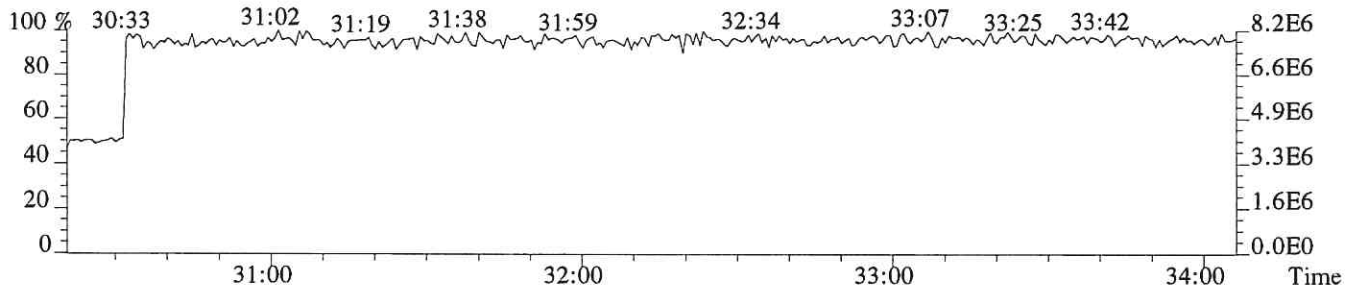
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



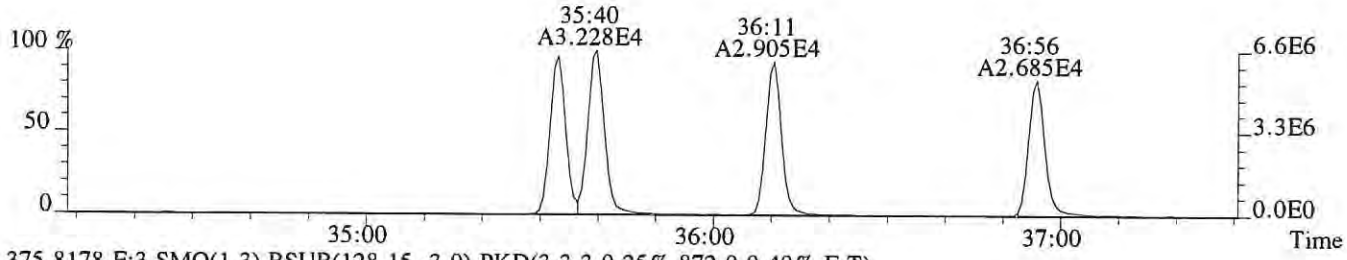
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



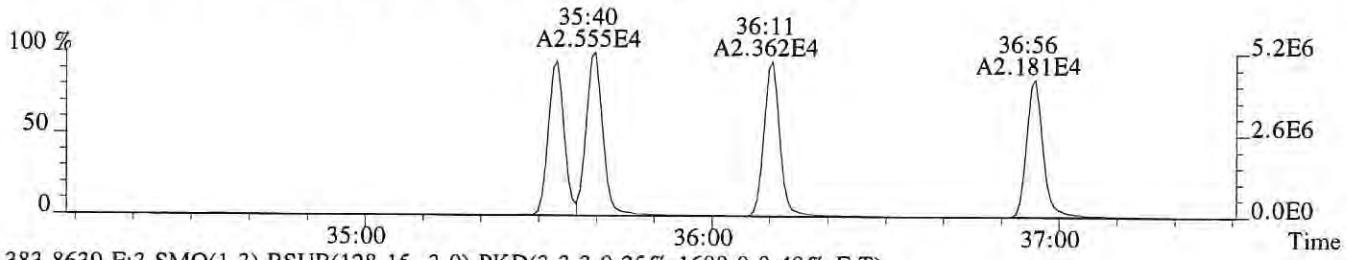
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



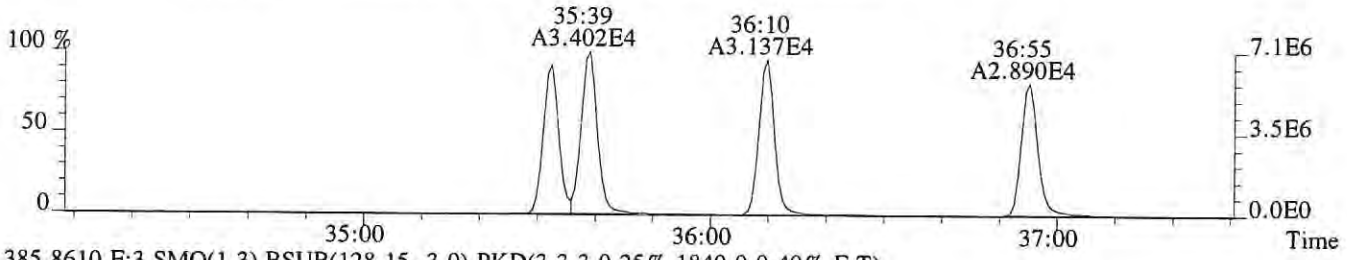
File:P615981 #1-304 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.40%,F,T)



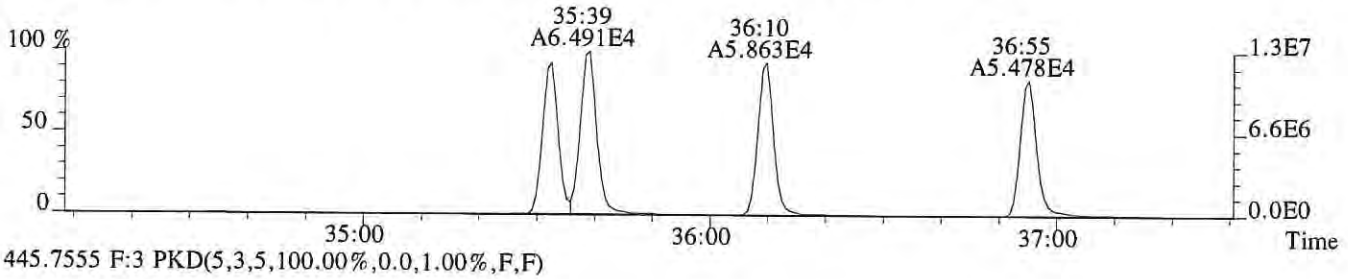
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



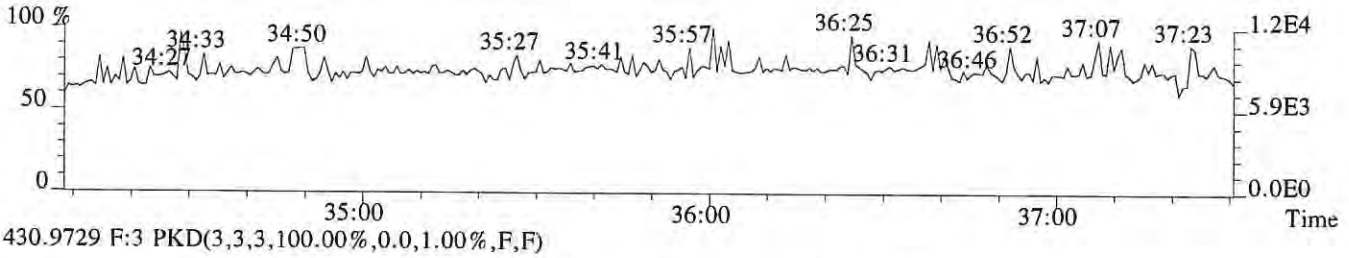
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



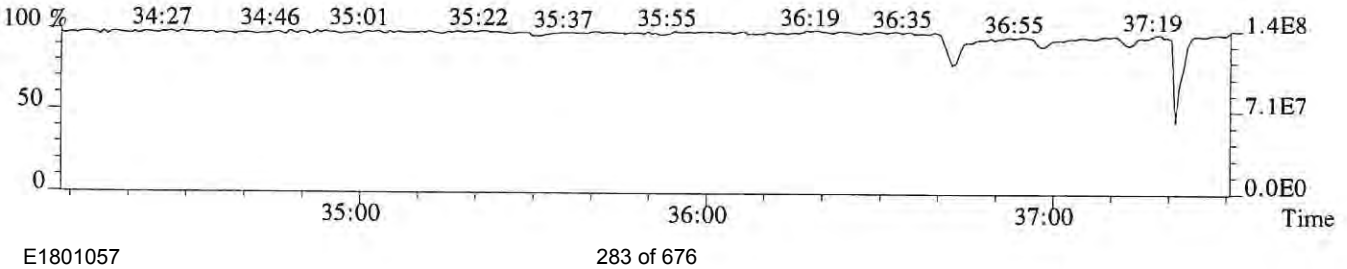
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



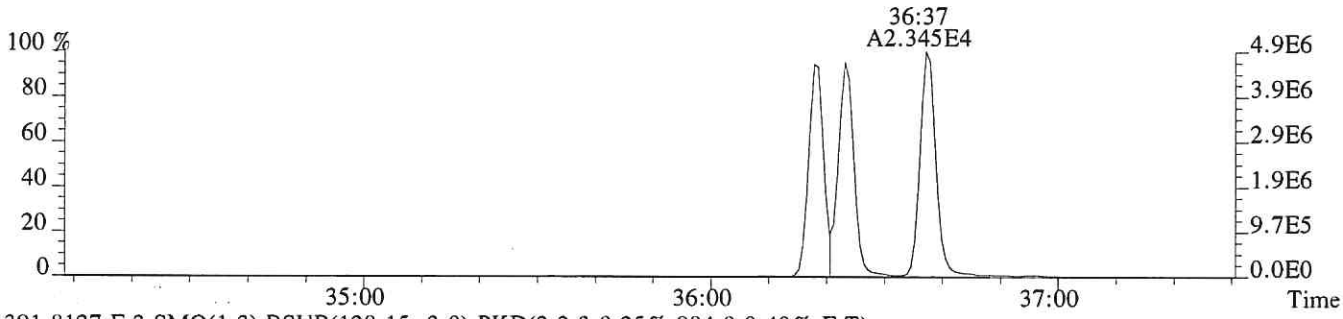
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



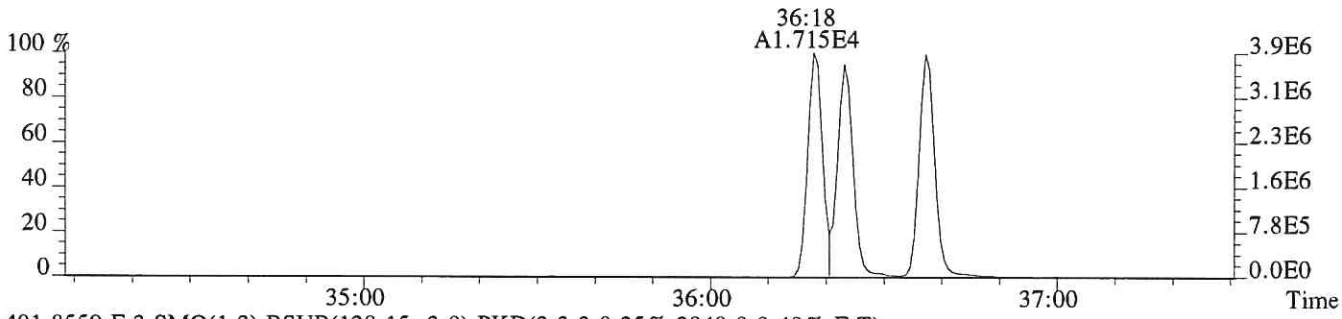
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



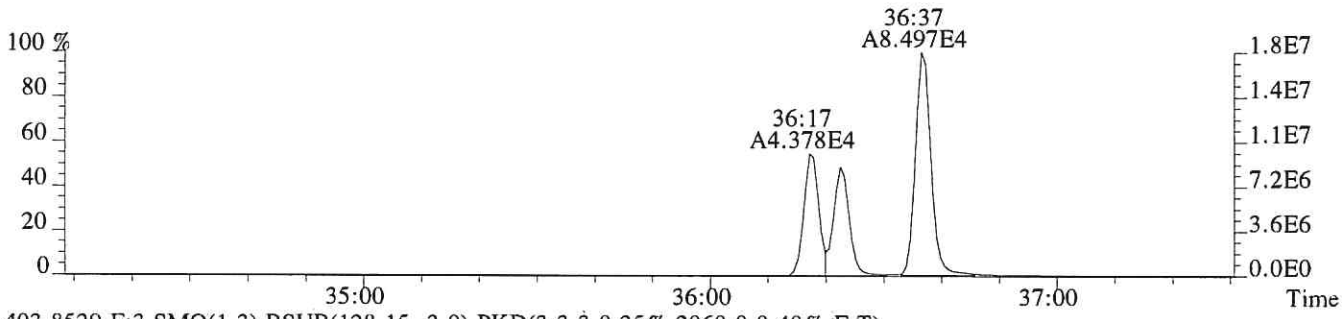
File:P615981 #1-304 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



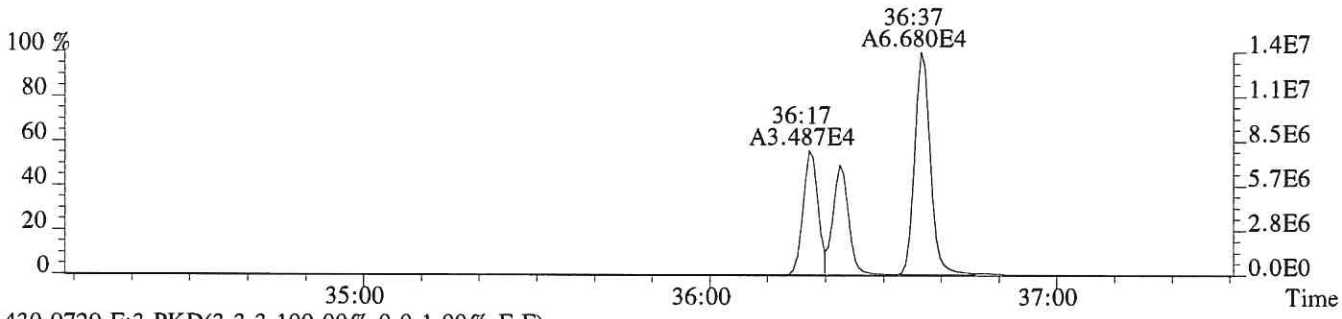
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



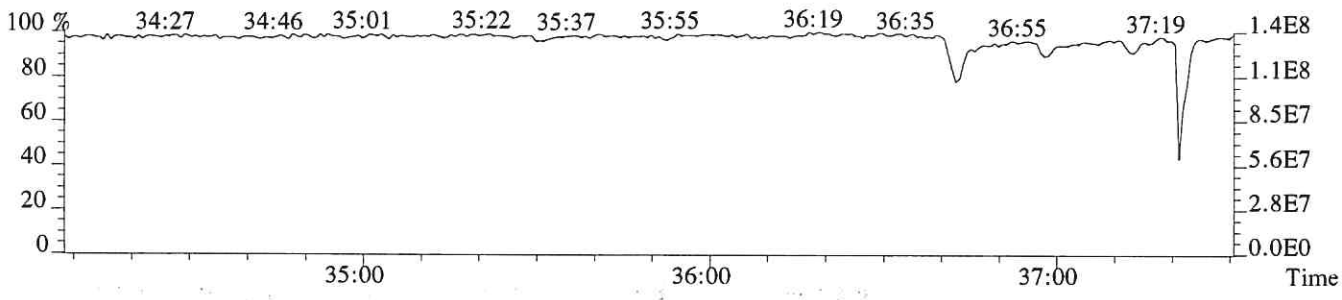
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3848.0,0.40%,F,T)



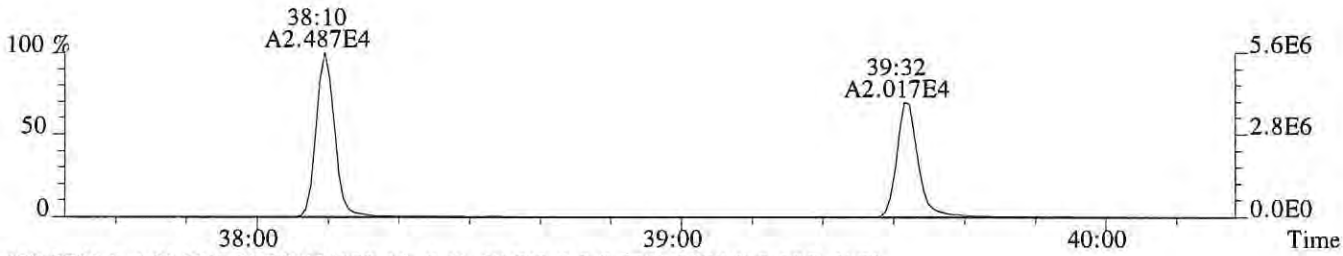
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.40%,F,T)



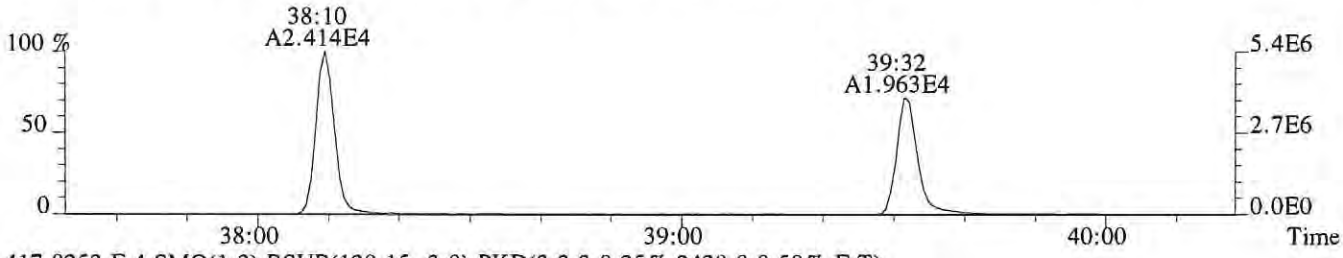
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



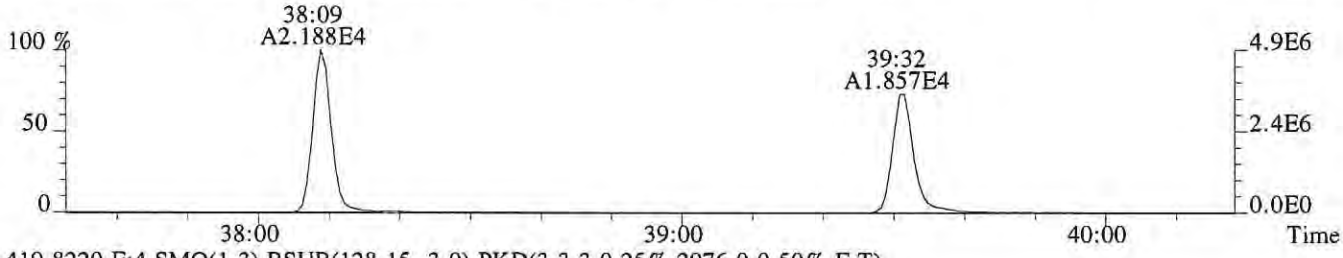
File:P615981 #1-249 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.50%,F,T)



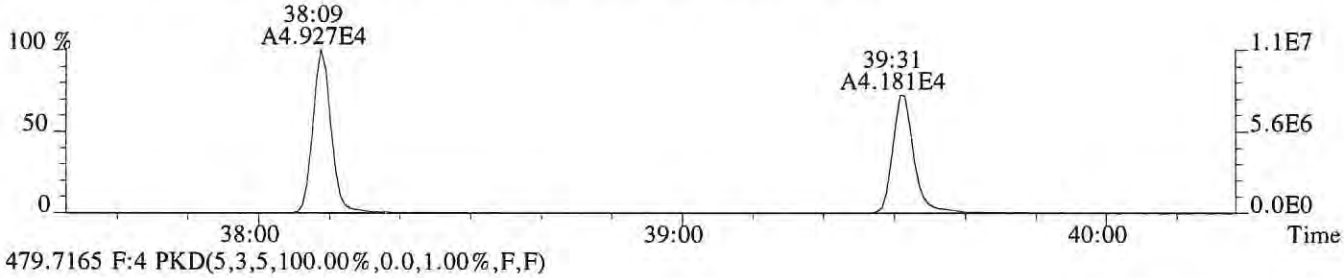
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5028.0,0.50%,F,T)



417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.50%,F,T)



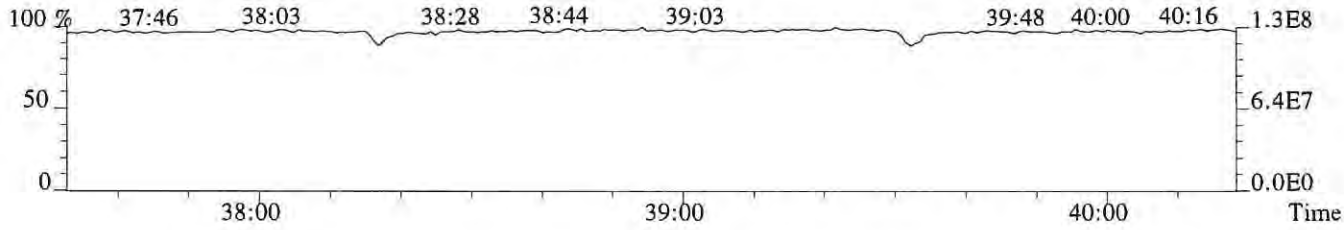
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2976.0,0.50%,F,T)



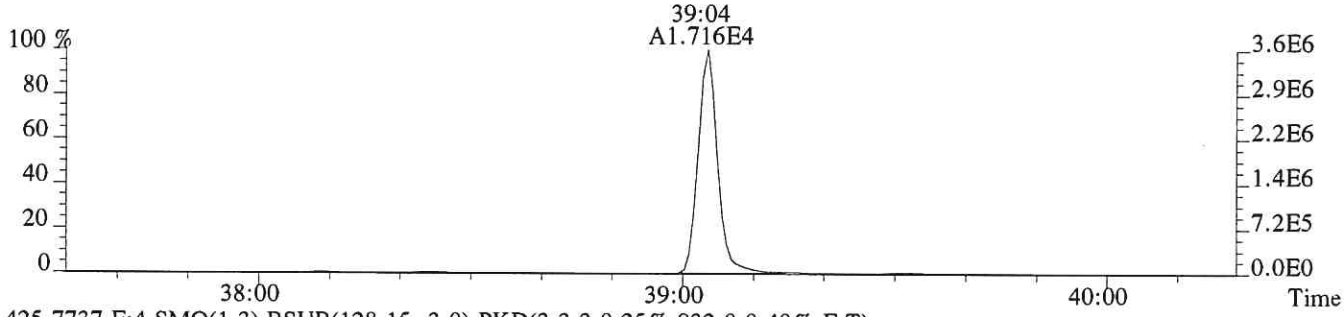
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



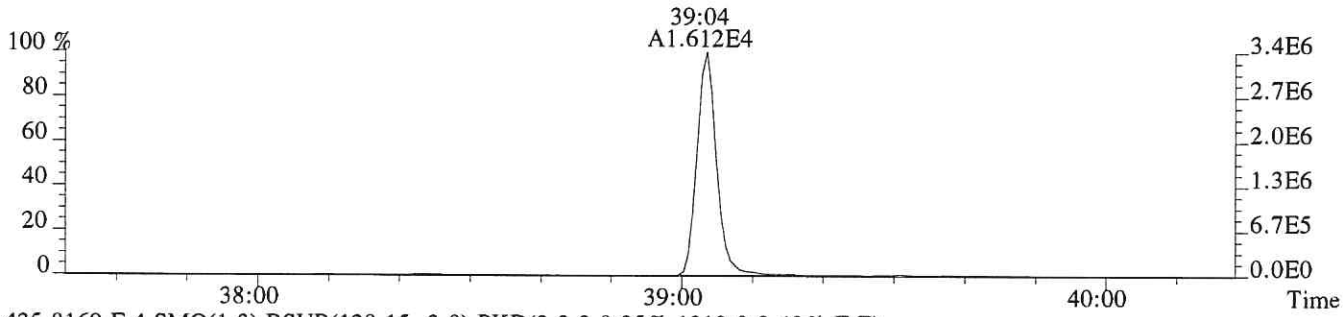
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



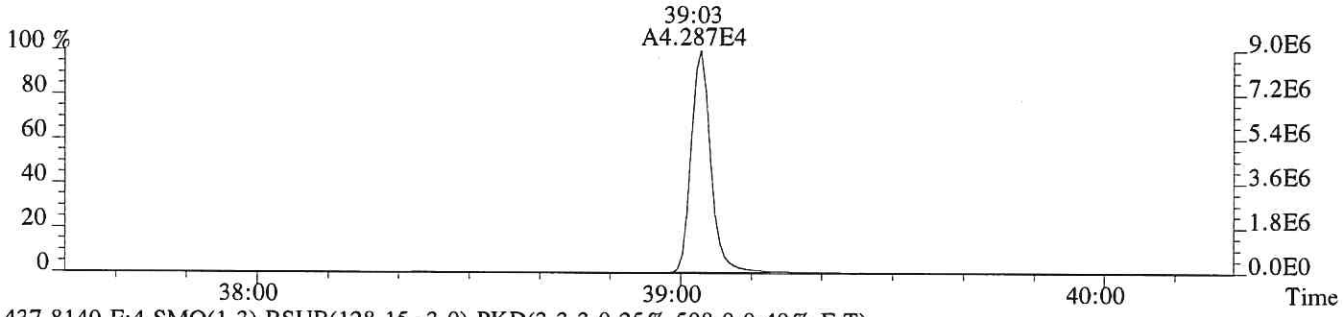
File:P615981 #1-249 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



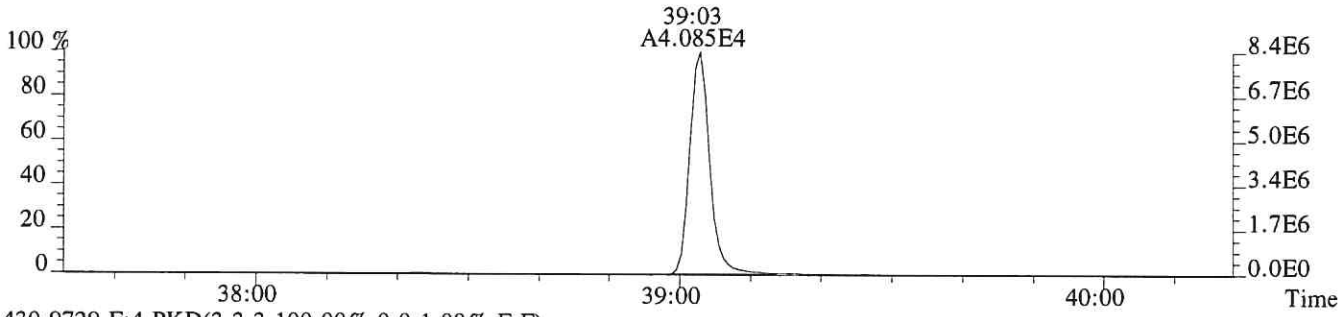
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



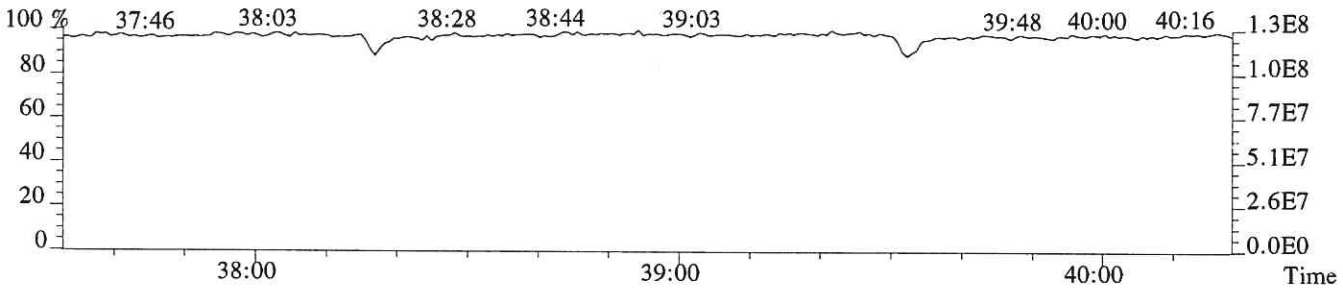
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



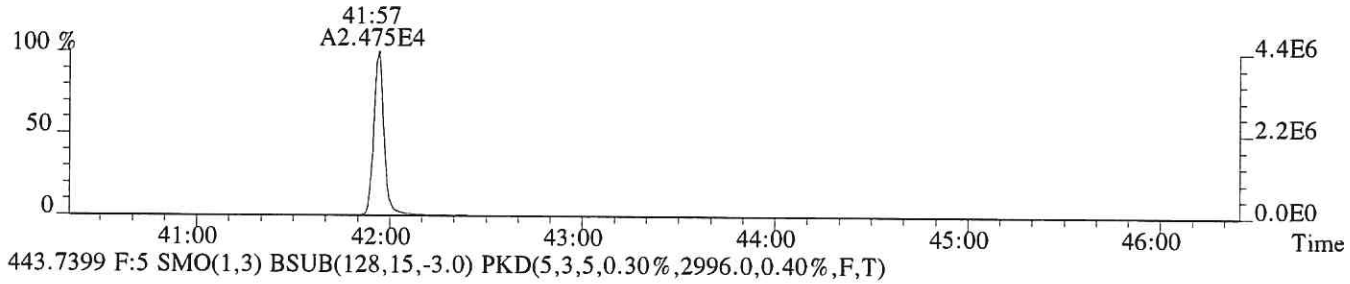
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



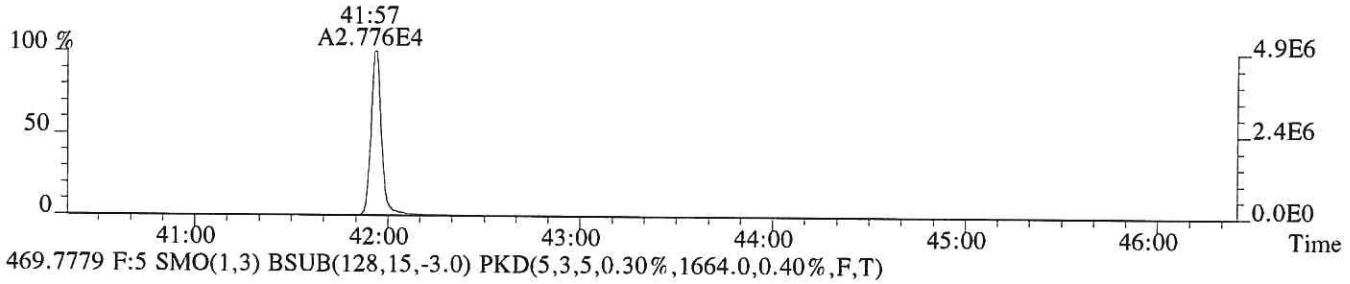
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



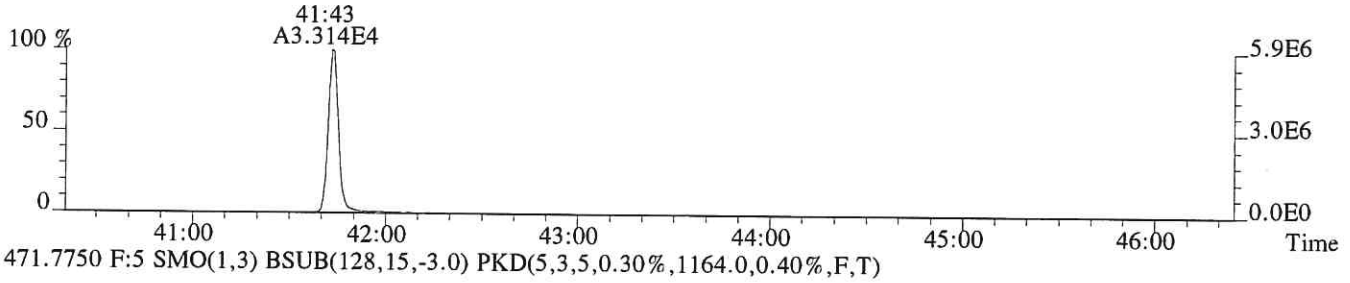
File:P615981 #1-547 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



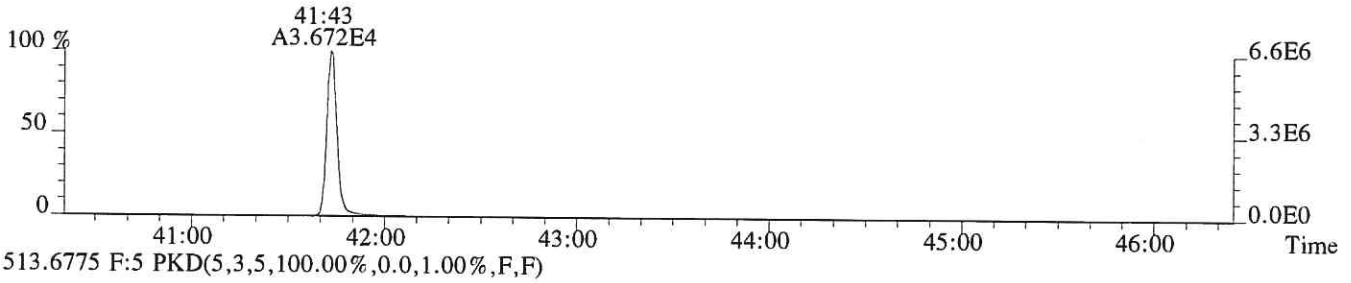
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



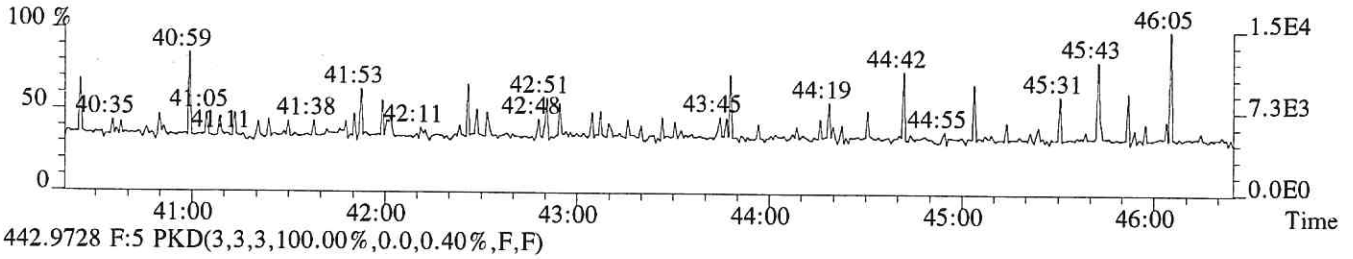
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1664.0,0.40%,F,T)



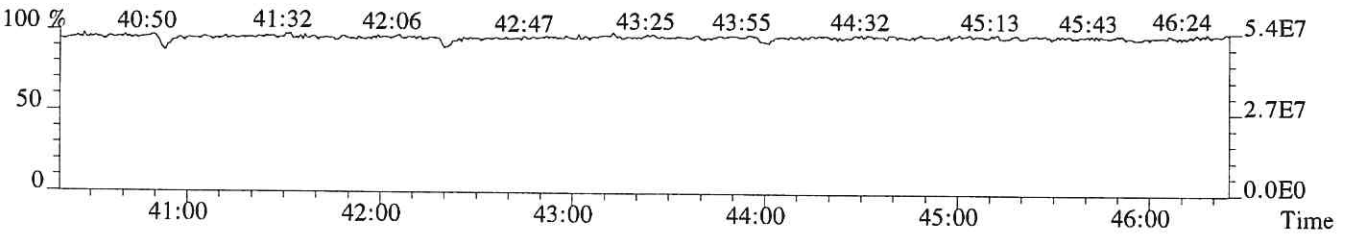
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



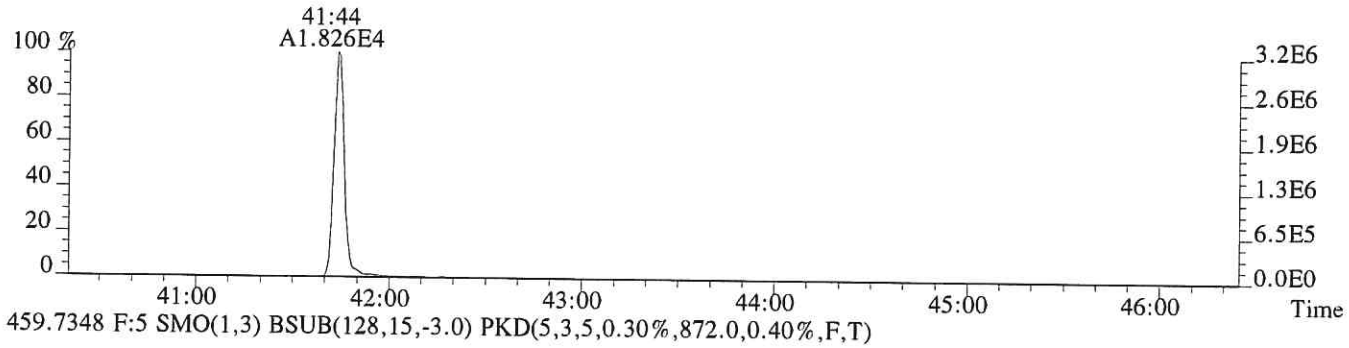
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



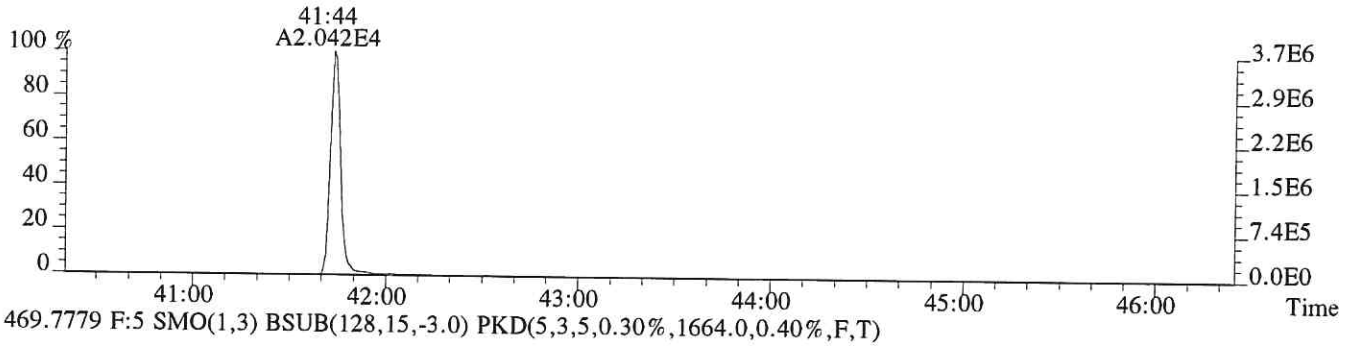
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



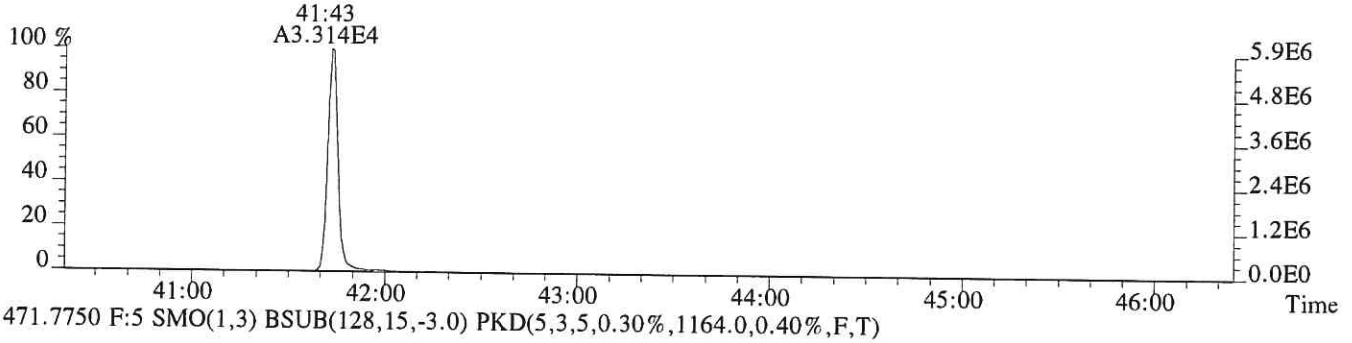
File:P615981 #1-547 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



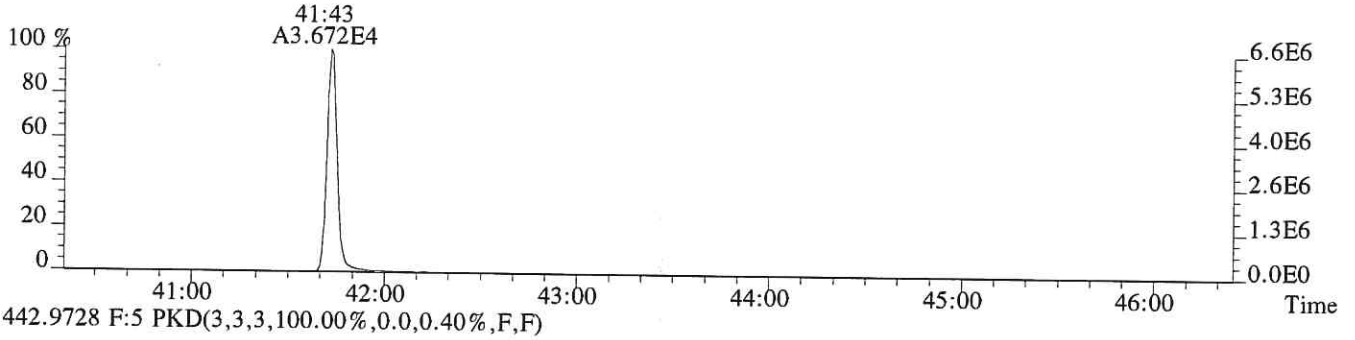
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



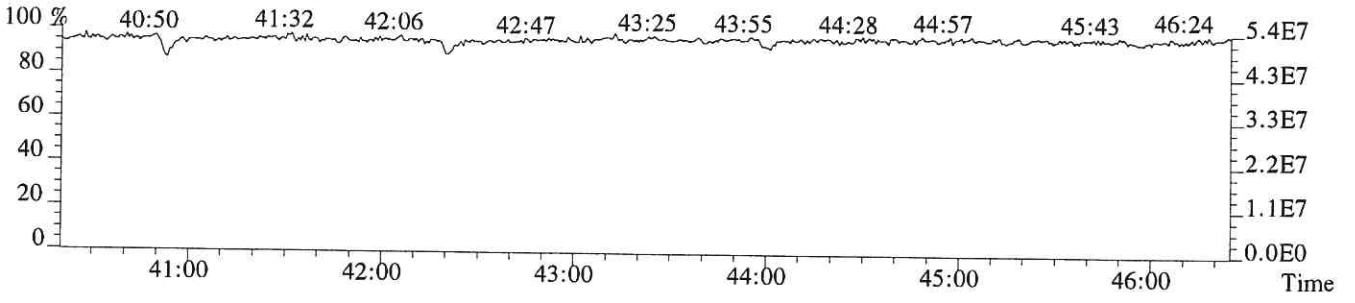
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1664.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519271

Date: 12/07/18

Circle one: (Beginning) / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519272	7-DEC-18	06:41:47
194503	CS3	P519271	7-DEC-18	05:39:40
METHOD BLANK	EQ1800464-01	P519273	7-DEC-18	07:29:34
L24-PC21	E1801063-001	P519274	7-DEC-18	08:18:12
L23-PC20	E1801063-002	P519275	7-DEC-18	09:07:24
L27-PC5	E1801063-003	P519276	7-DEC-18	09:55:27
L22-PC19	E1801063-004	P519277	7-DEC-18	10:44:05
L25-PC22	E1801063-005	P519278	7-DEC-18	11:32:42
#2 BLEACH PLANT	E1801067-001	P519279	7-DEC-18	12:21:20
2018-FA-SA-CR-WH-F	K1810116-002	P519280	7-DEC-18	13:09:56
#3 BLEACH PLANT	E1801077-001	P519281	7-DEC-18	13:59:48
OUTFALL 001 EFFLUE	J1808271-002	P519282	7-DEC-18	14:50:23
SL0553	E1801057-001	P519283	7-DEC-18	15:38:11
SL0556	E1801057-004	P519284	7-DEC-18	16:26:51
SL0557	E1801057-005	P519285	7-DEC-18	17:15:28

E1801057

292 of 676

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207A.SPL
Last Modified: Monday, December 10, 2018 07:31:21 Central Standard Time
Printed: Monday, December 10, 2018 07:31:23 Central Standard Time

Page Position (1, 1)

OPUS5 NET: P519271 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	05:39	P519271	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 06:37
2		06:41	P519272	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		07:29	P519273	MB	EQ1800464-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		08:18	P519274	E1801063-001	E1801063-001	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		09:07	P519275	E1801063-002	E1801063-002	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		09:55	P519276	E1801063-003	E1801063-003	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		10:44	P519277	E1801063-004	E1801063-004	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		11:32	P519278	E1801063-005	E1801063-005	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		12:21	P519279	E1801067-001	E1801067-001	EPA1613_ALS	Dioxin_ALS	Tray1:9		Needs Re-extract
10		13:09	P519280	K1810116-002	K1810116-002	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		13:59	P519281	E1801077-001	E1801077-001	EPA1613_ALS	Dioxin_ALS	Tray1:11		Needs Re-injection
12		14:50	P519282	J1808271-002	J1808271-002	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		15:38	P519283	E1801057-001	E1801057-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		16:26	P519284	E1801057-004	E1801057-004	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		17:15	P519285	E1801057-005	E1801057-005	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		18:12	P519286	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 19:08
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 12/10/18

E9496-?

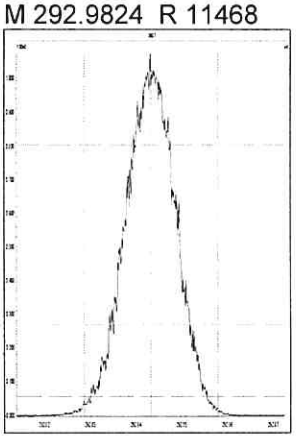
480 P519197

494

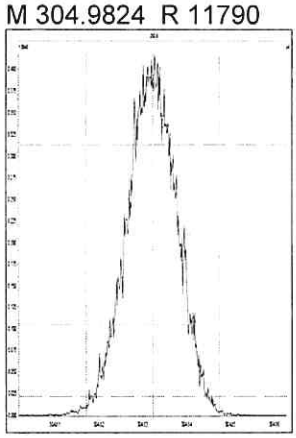
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:37:54 Central Standard Time

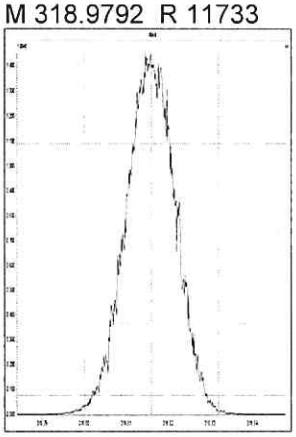
M 292.9824 R 11468



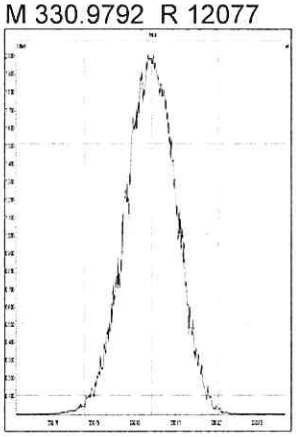
M 304.9824 R 11790



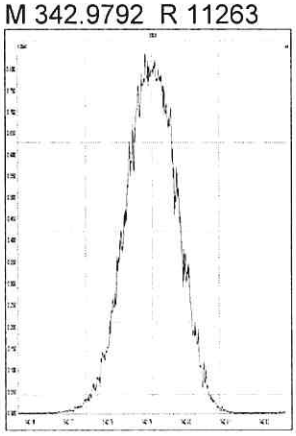
M 318.9792 R 11733



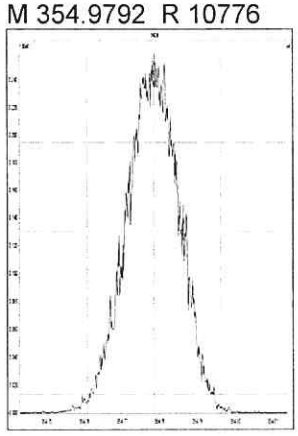
M 330.9792 R 12077



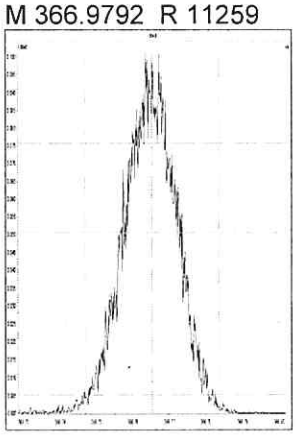
M 342.9792 R 11263



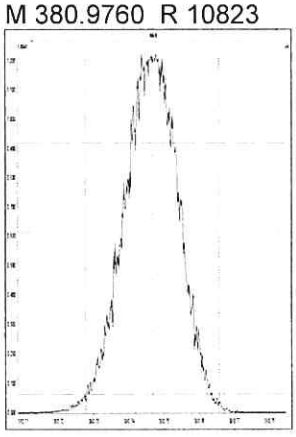
M 354.9792 R 10776



M 366.9792 R 11259



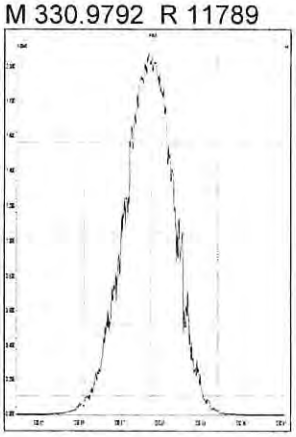
M 380.9760 R 10823



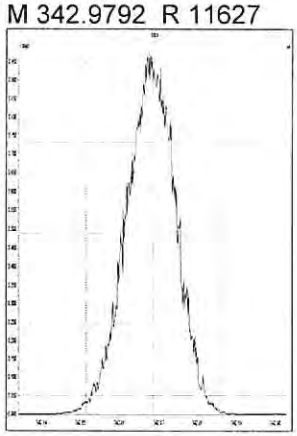
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:38:34 Central Standard Time

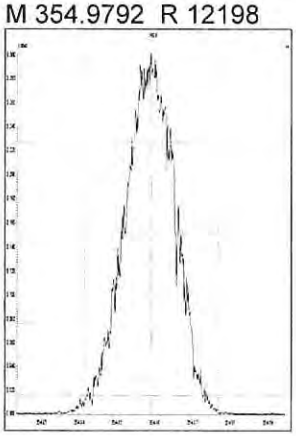
M 330.9792 R 11789



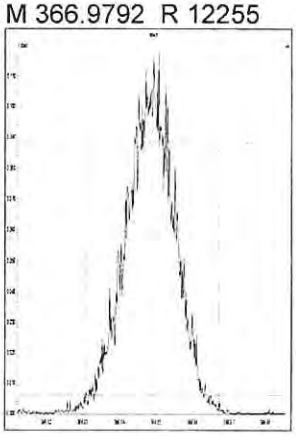
M 342.9792 R 11627



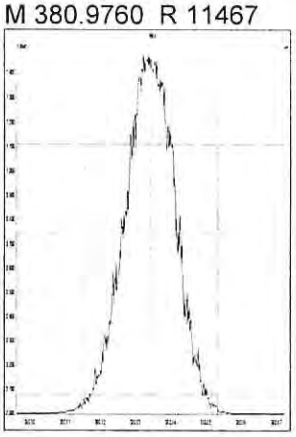
M 354.9792 R 12198



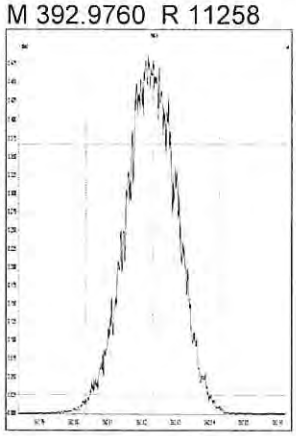
M 366.9792 R 12255



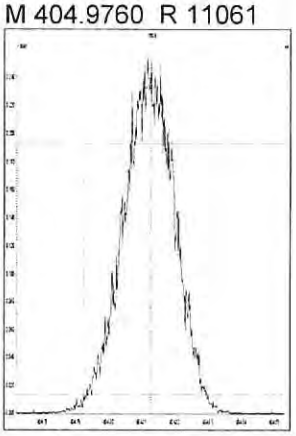
M 380.9760 R 11467



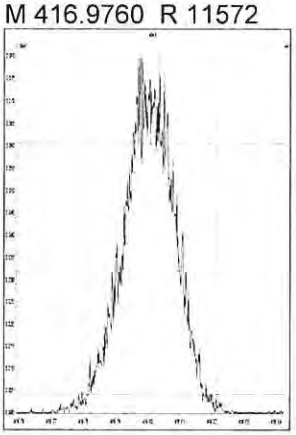
M 392.9760 R 11258



M 404.9760 R 11061



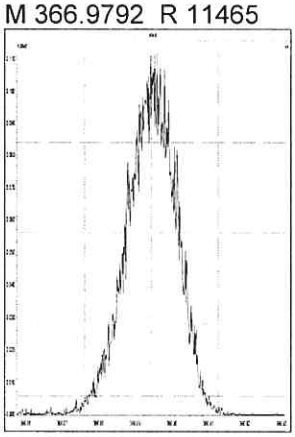
M 416.9760 R 11572



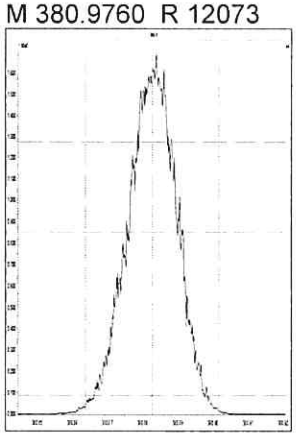
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:39:13 Central Standard Time

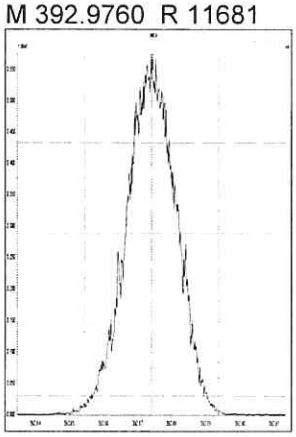
M 366.9792 R 11465



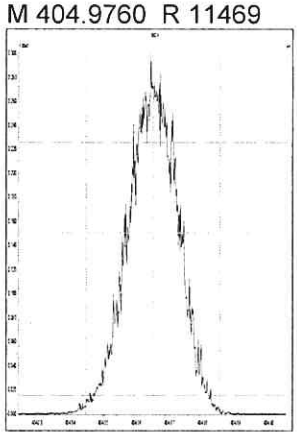
M 380.9760 R 12073



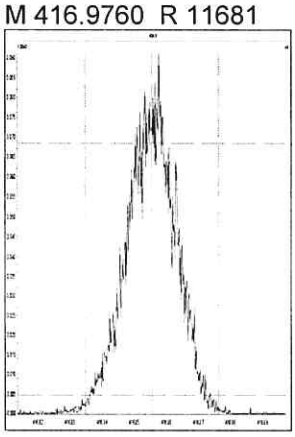
M 392.9760 R 11681



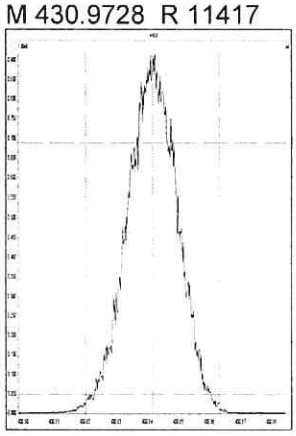
M 404.9760 R 11469



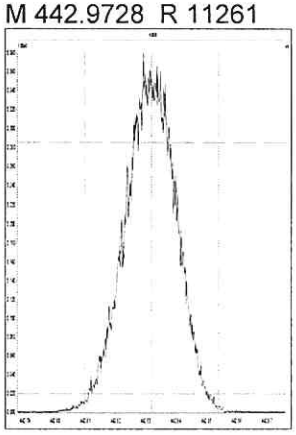
M 416.9760 R 11681



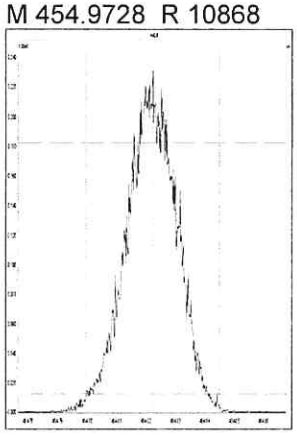
M 430.9728 R 11417



M 442.9728 R 11261



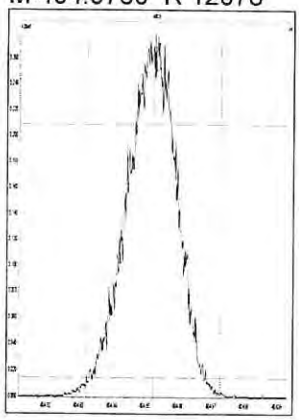
M 454.9728 R 10868



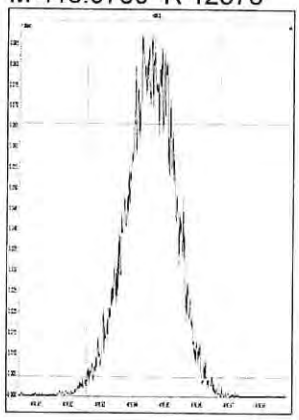
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:39:56 Central Standard Time

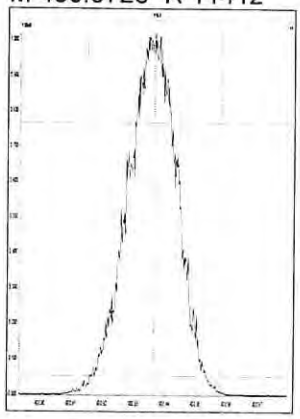
M 404.9760 R 12076



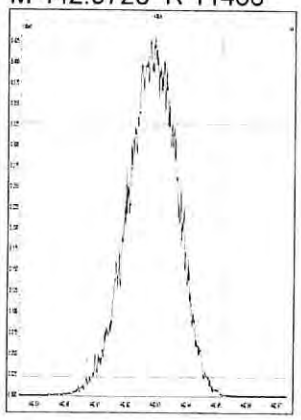
M 416.9760 R 12378



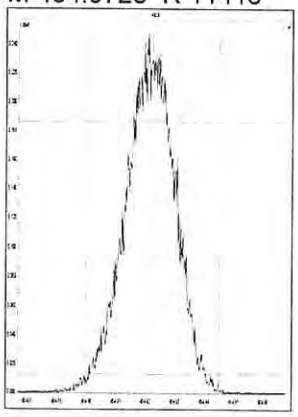
M 430.9728 R 11412



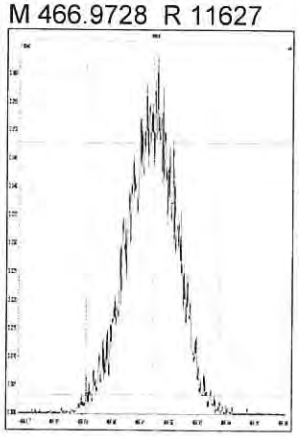
M 442.9728 R 11466



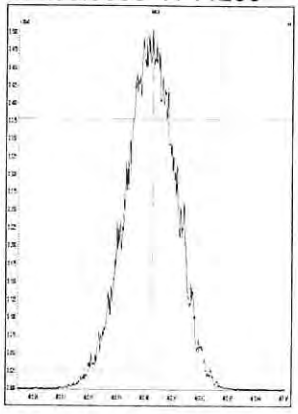
M 454.9728 R 11416



M 466.9728 R 11627



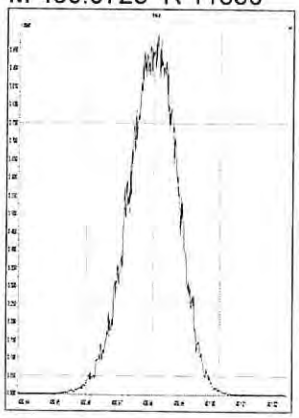
M 480.9696 R 11259



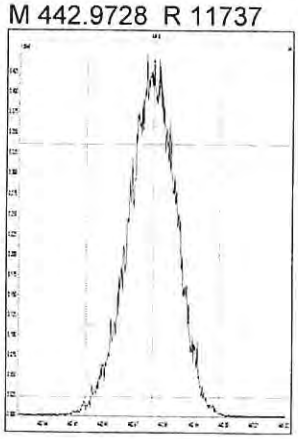
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, December 07, 2018 06:40:35 Central Standard Time

M 430.9728 R 11850



M 442.9728 R 11737



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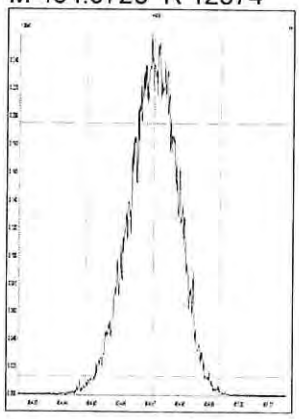

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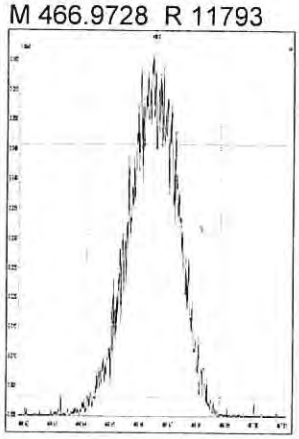
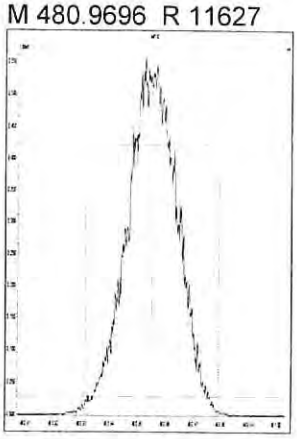


M 480.9696 R 11627



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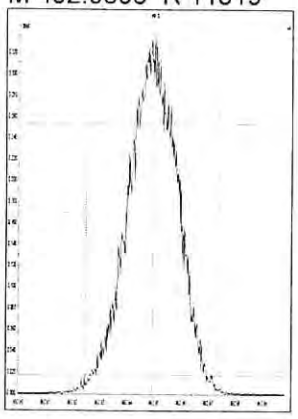

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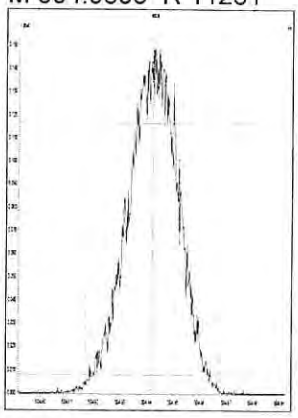

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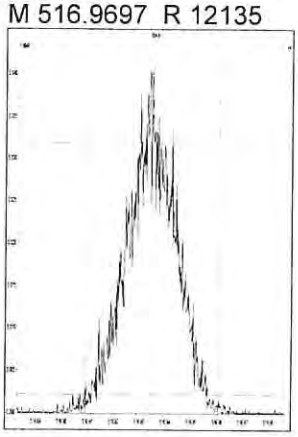

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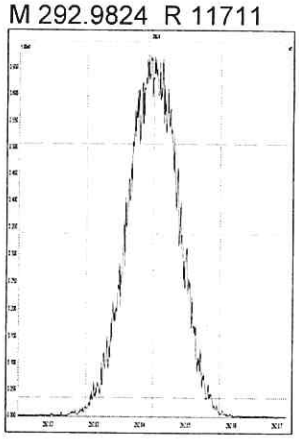

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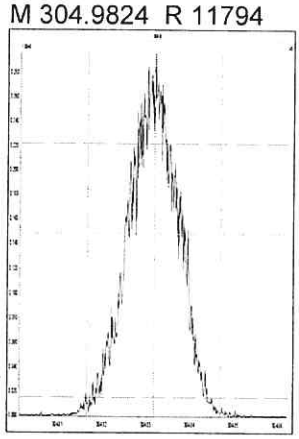

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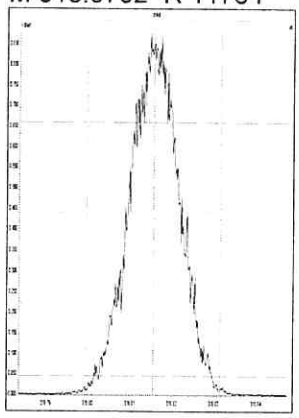

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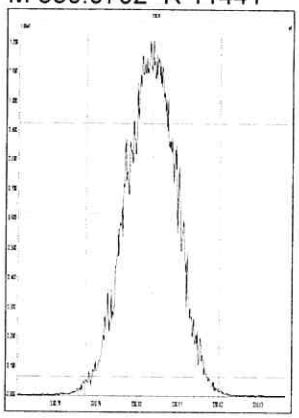

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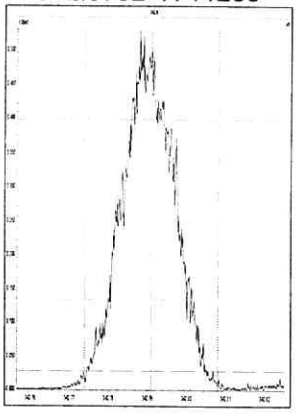

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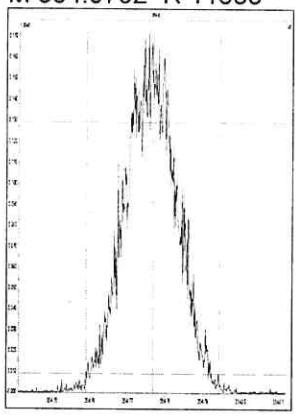

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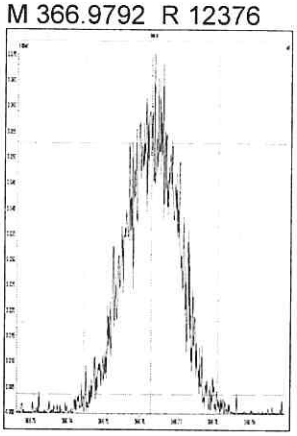

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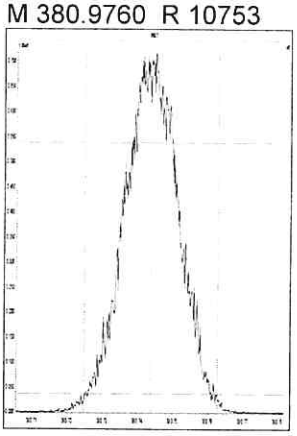

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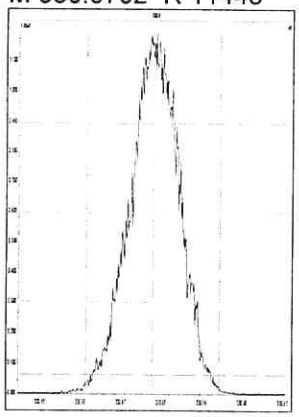

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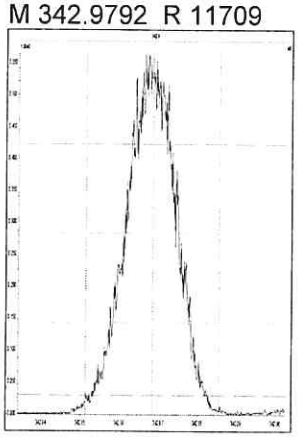

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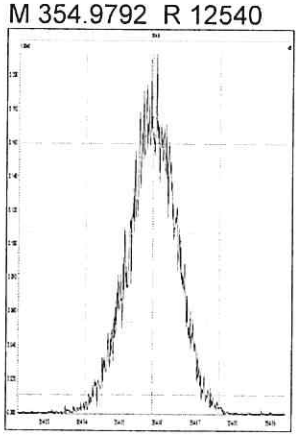

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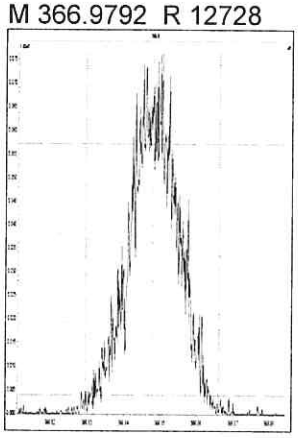

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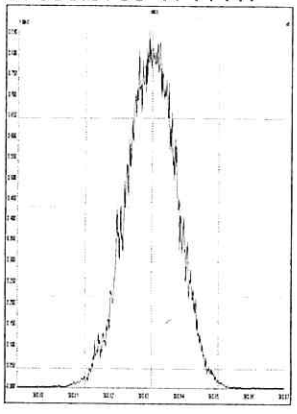

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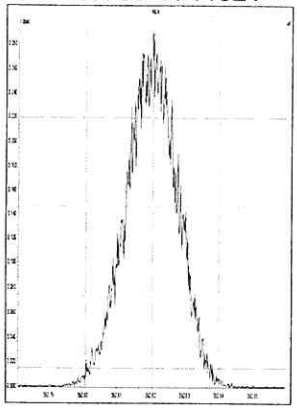

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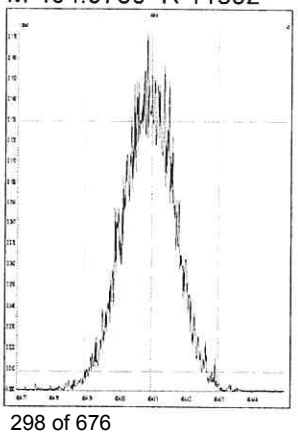

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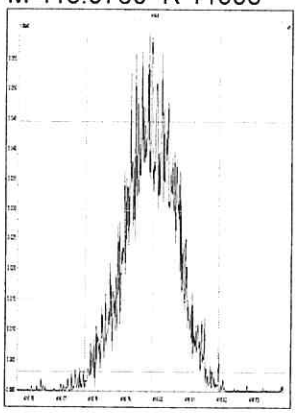

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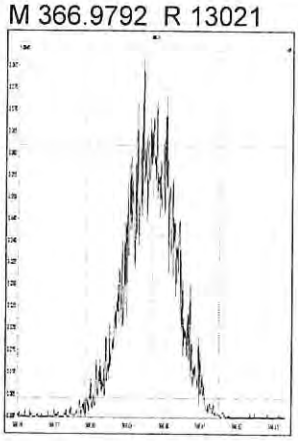

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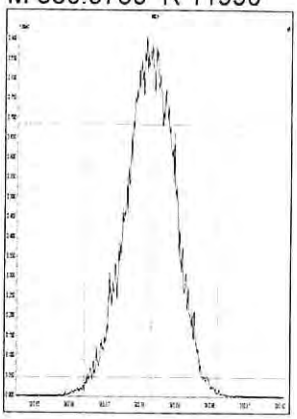

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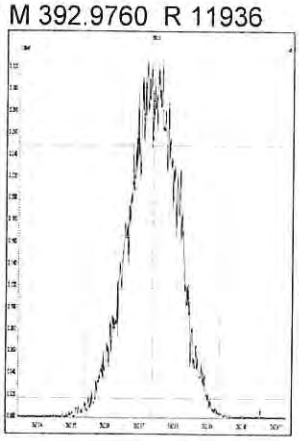

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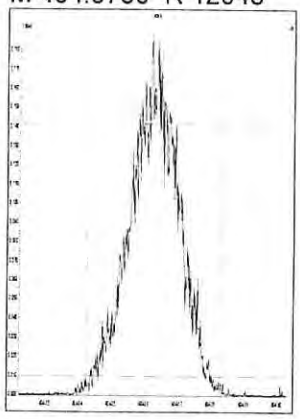

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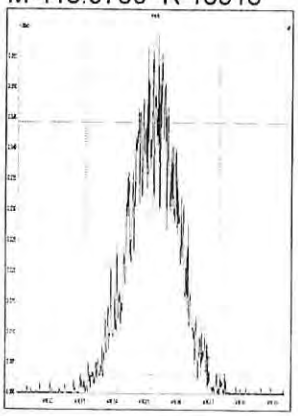

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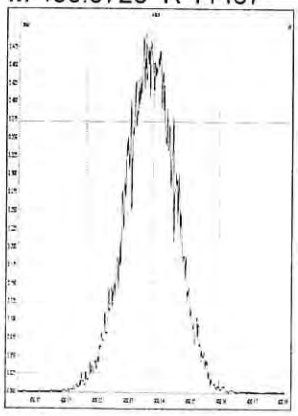

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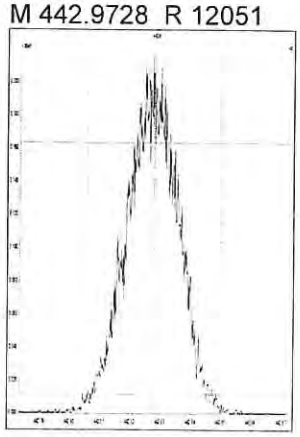

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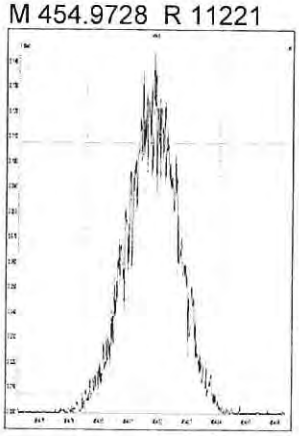

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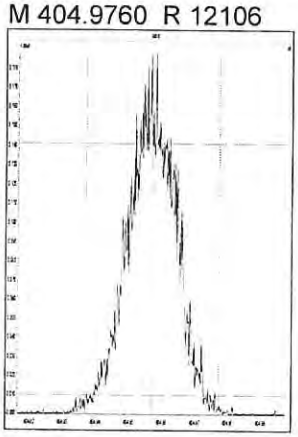

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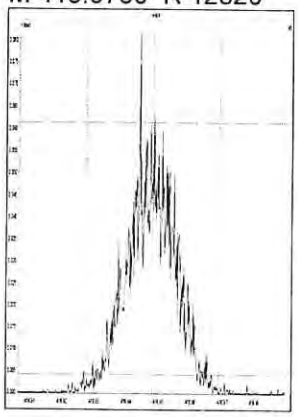

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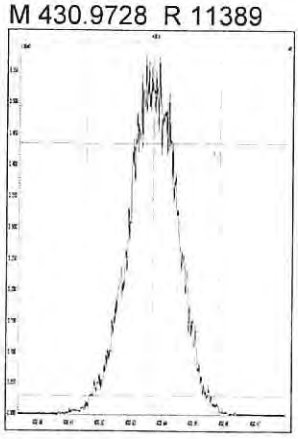

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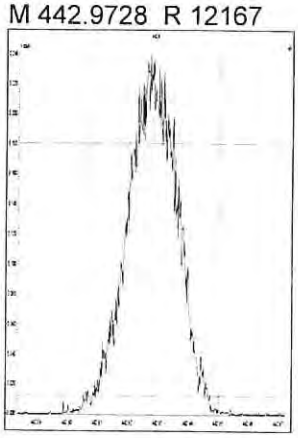

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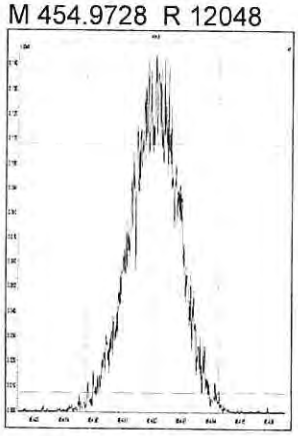

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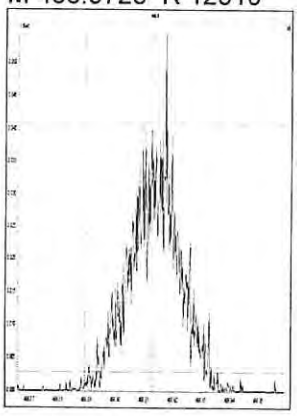

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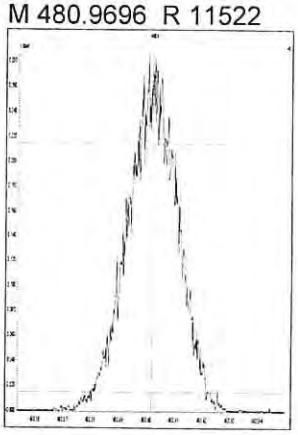

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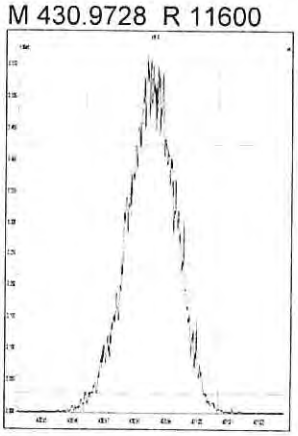

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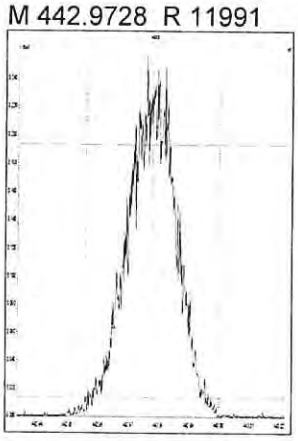

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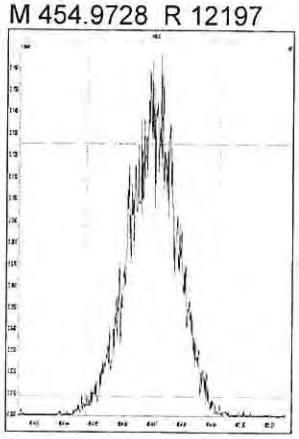

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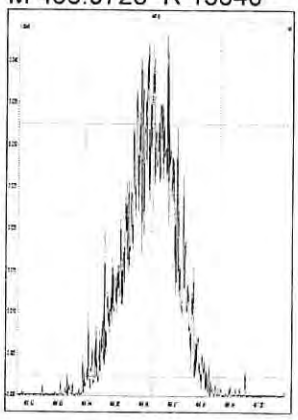

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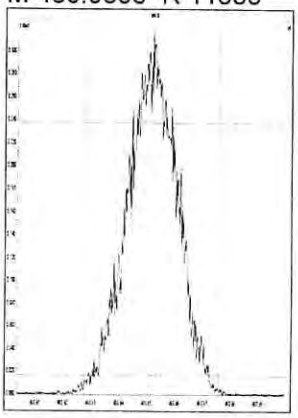

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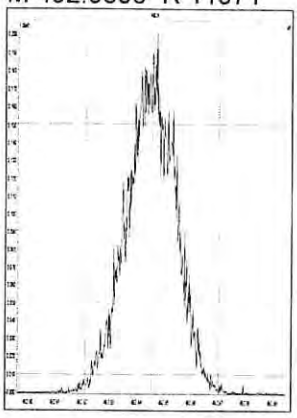

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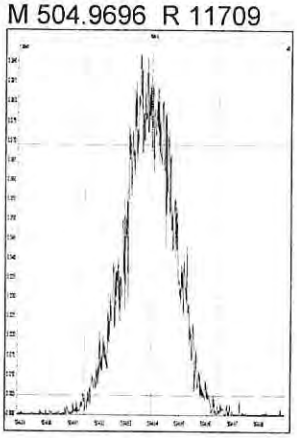

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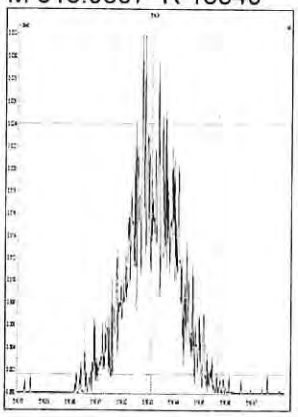


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

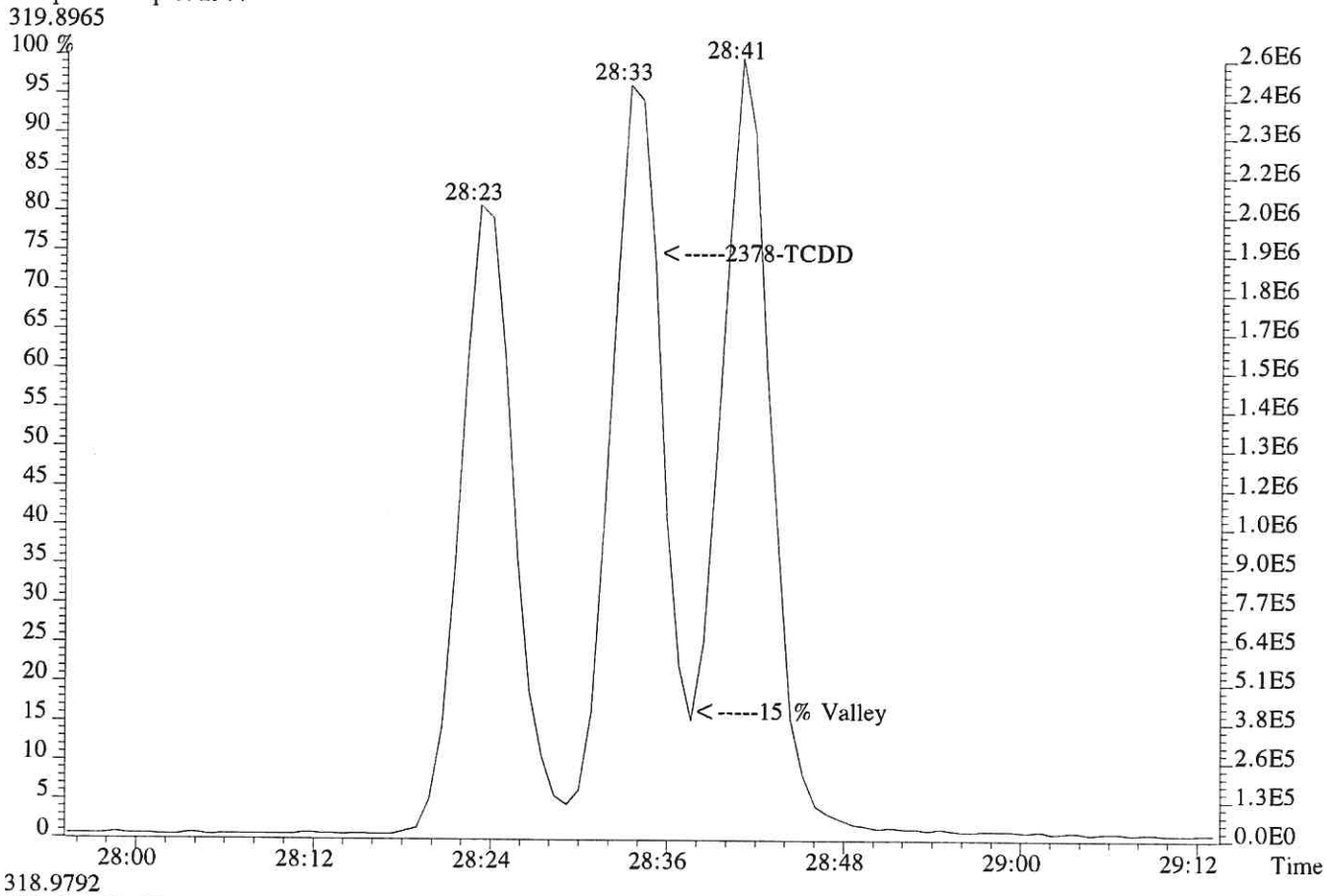
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

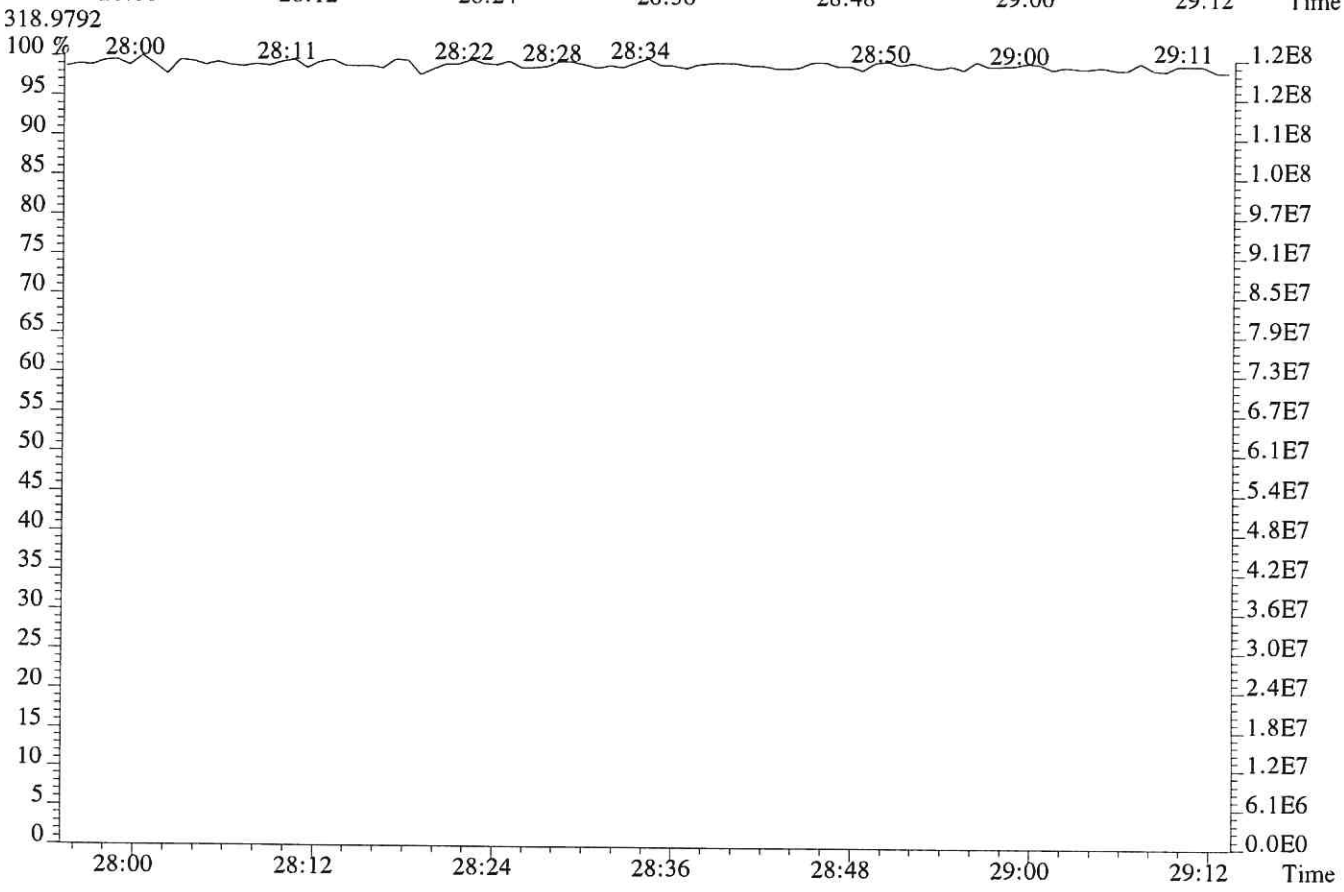
Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519272
Date Analyzed: 7-DEC-18
Time Analyzed: 06:41:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:18	29:45
TCDD	25:07	29:35
PeCDF	29:43	34:03
PeCDD	31:17	33:48
HxCDF	34:45	37:19
HxCDD	35:17	36:55
HpCDF	38:37	40:04
HpCDD	38:53	39:35

% Valley 2378-TCDD: 15 %

File:P519272 #1-587 Acq: 7-DEC-2018 06:41:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





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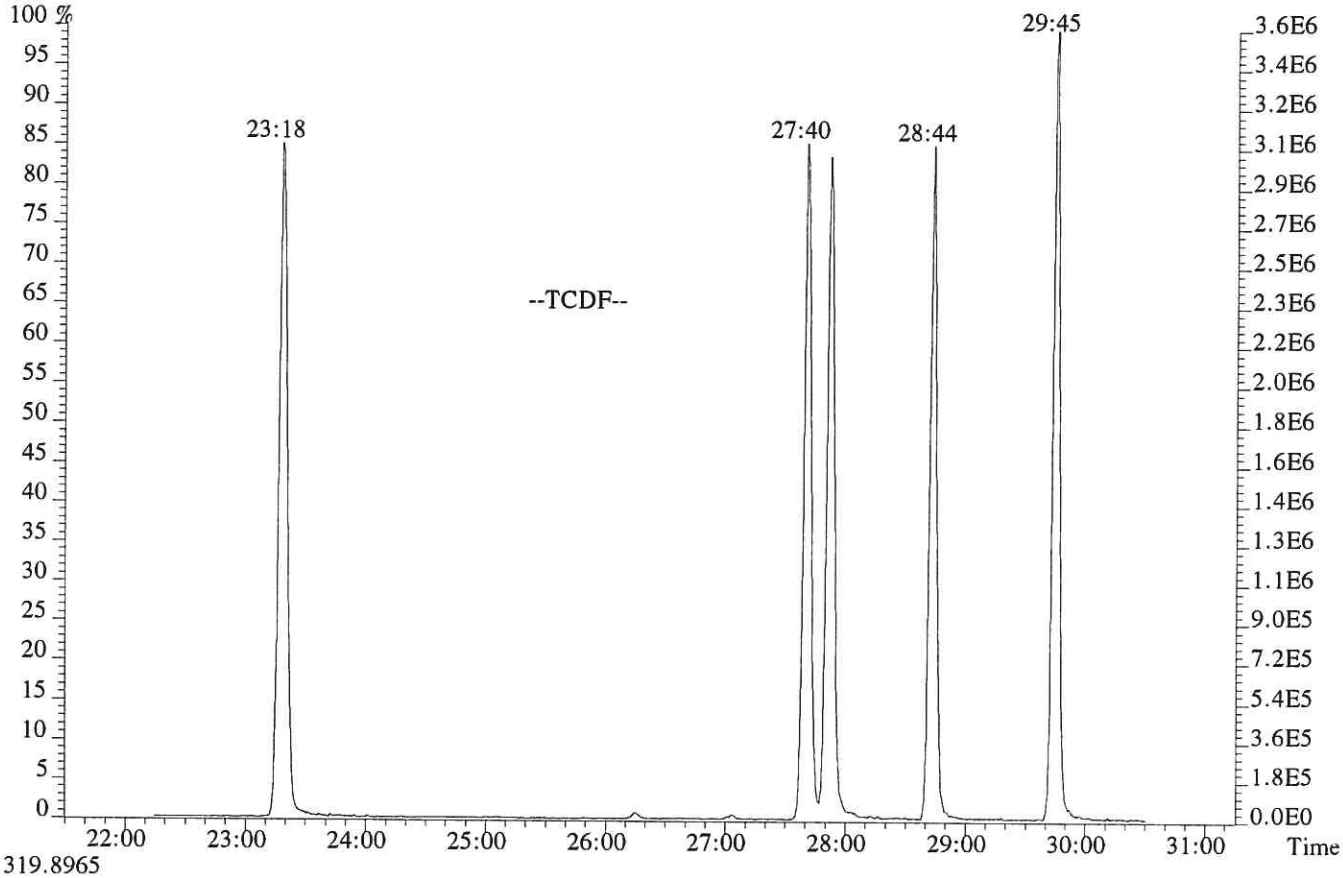

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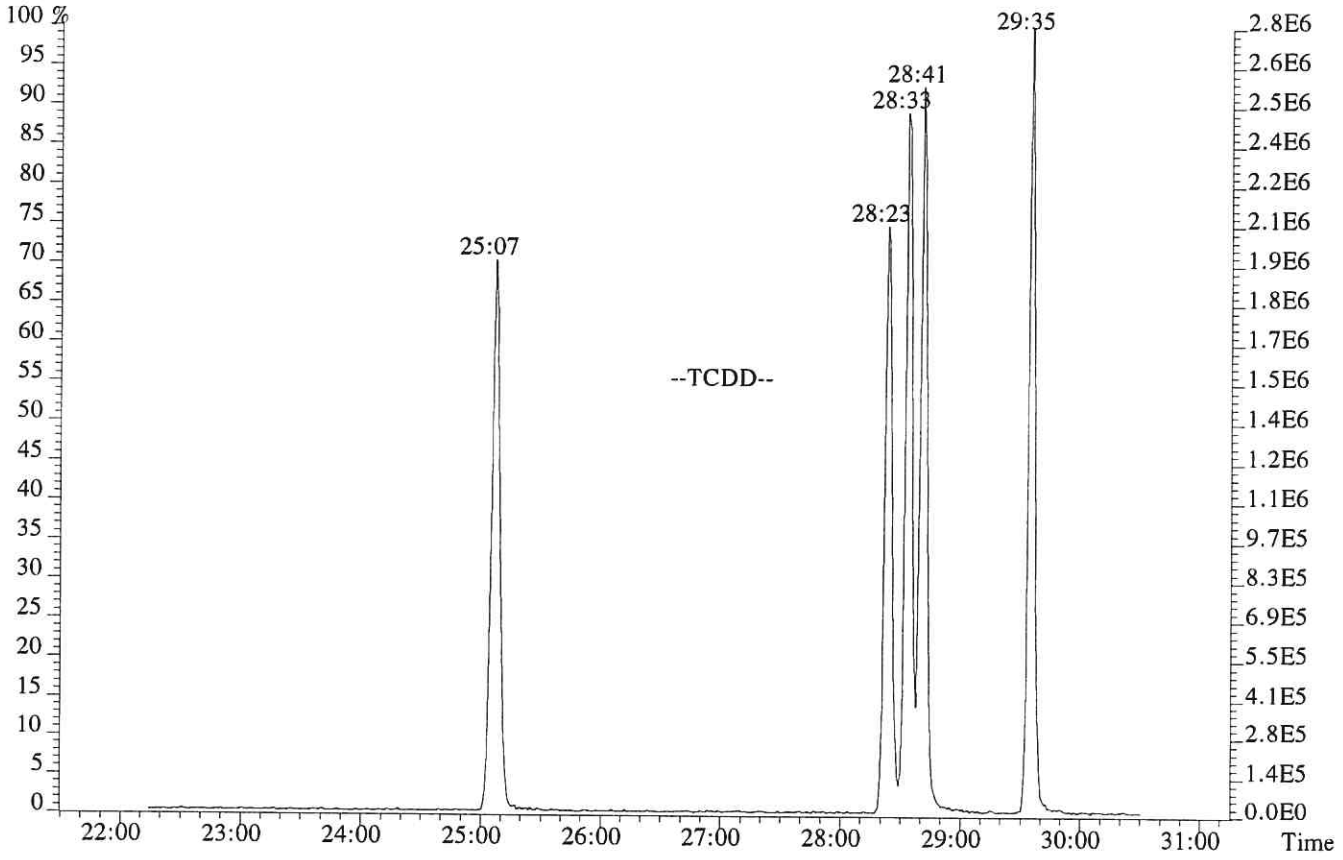

File:P519272 #1-587 Acq: 7-DEC-2018 06:41:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
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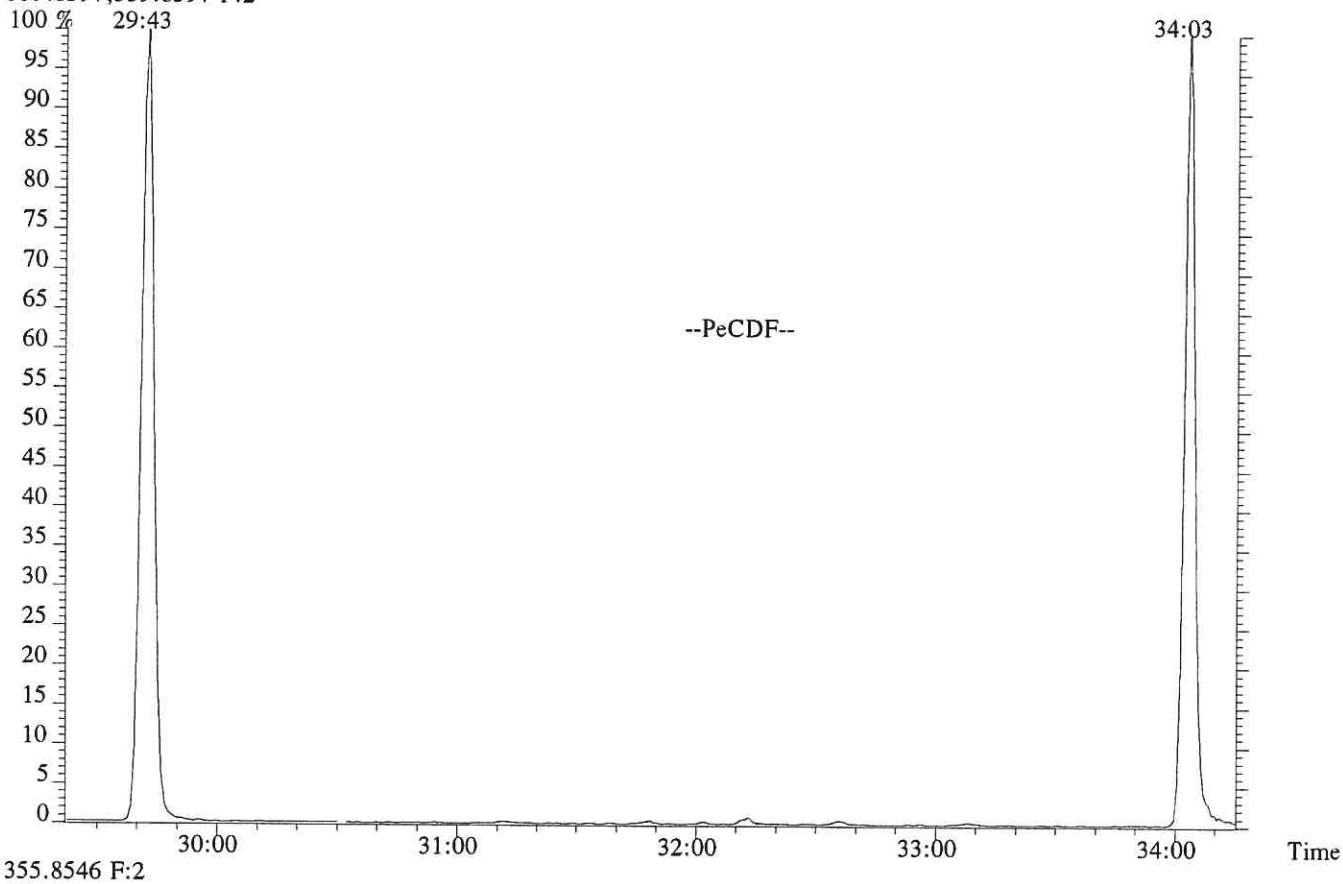
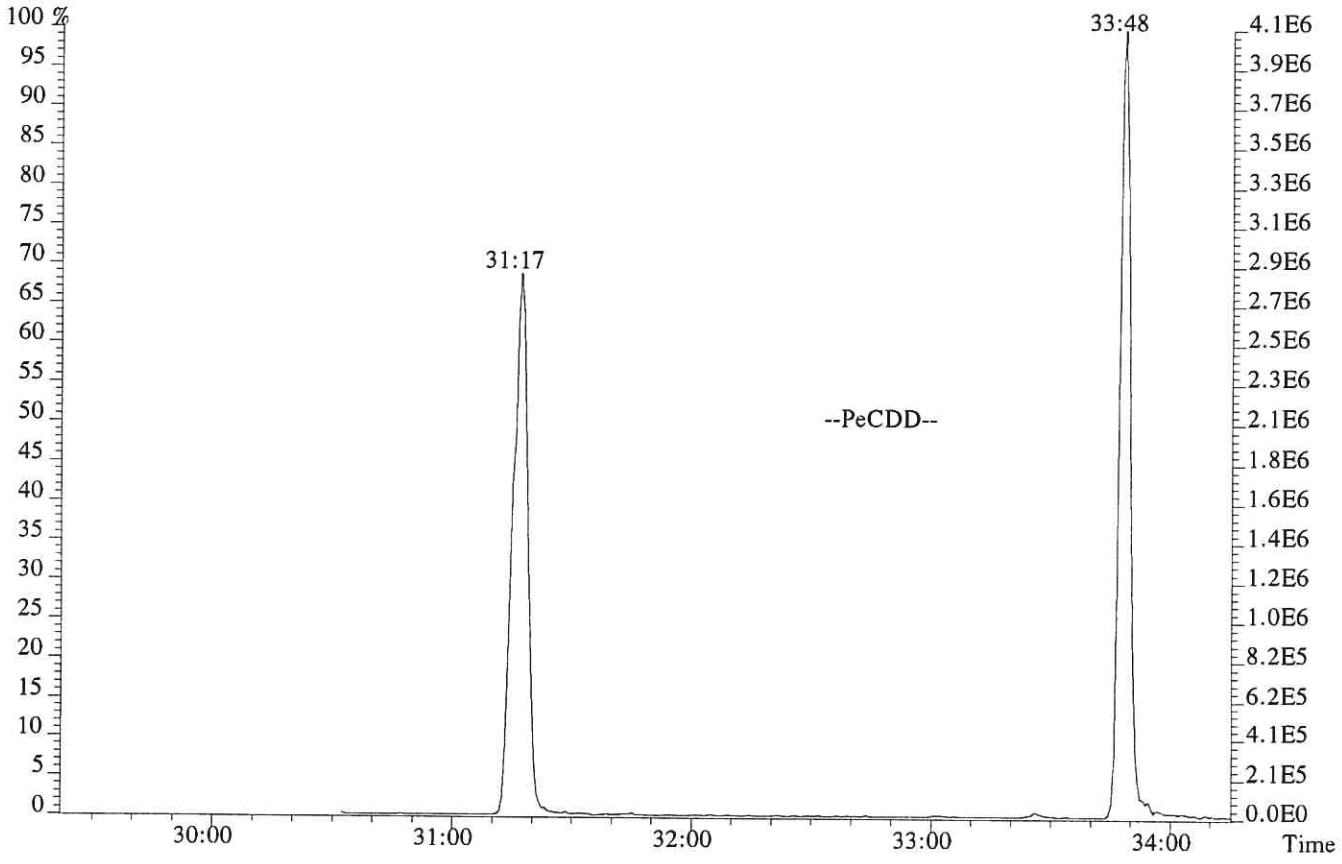


355.8546 F:2



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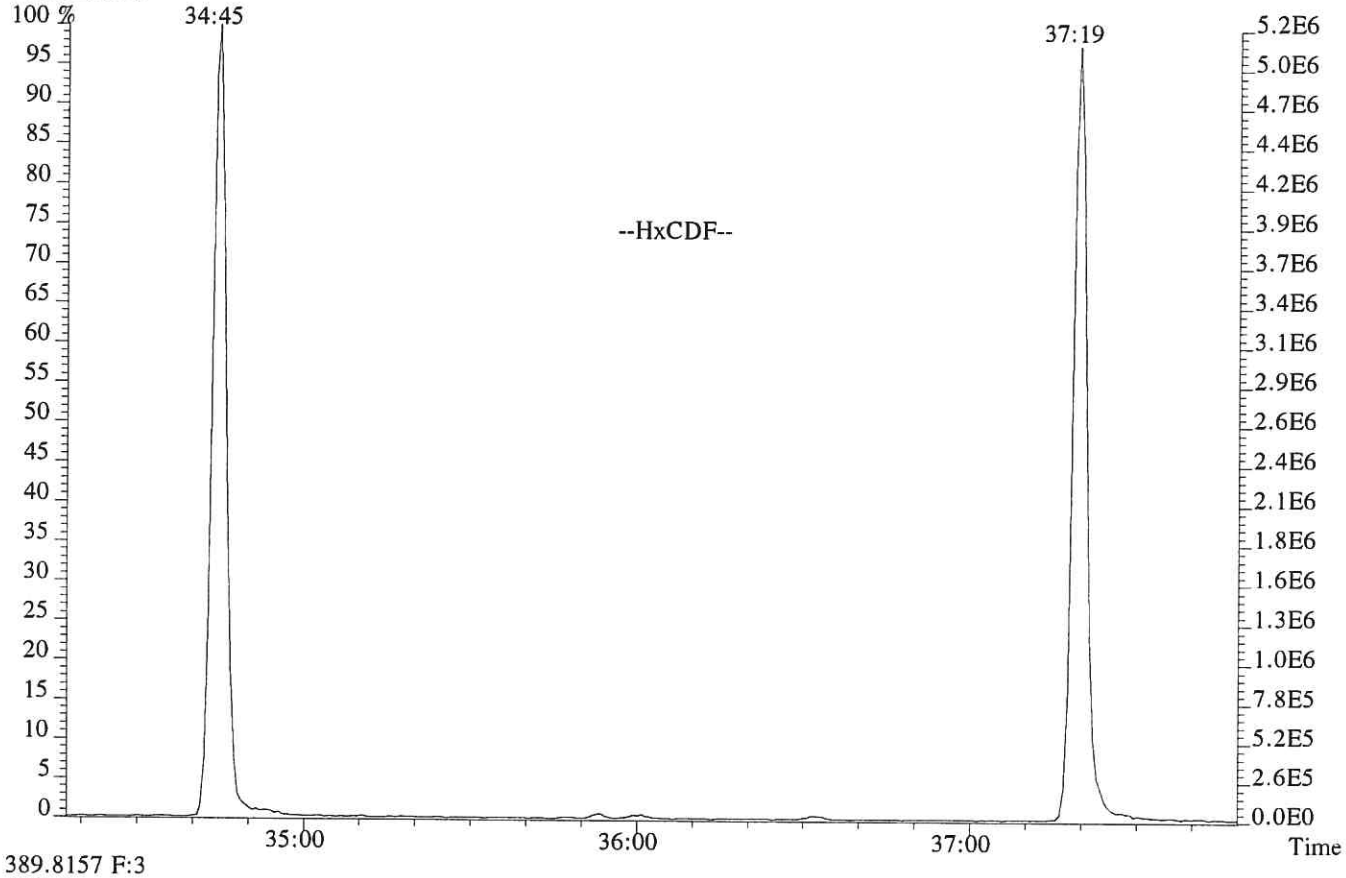
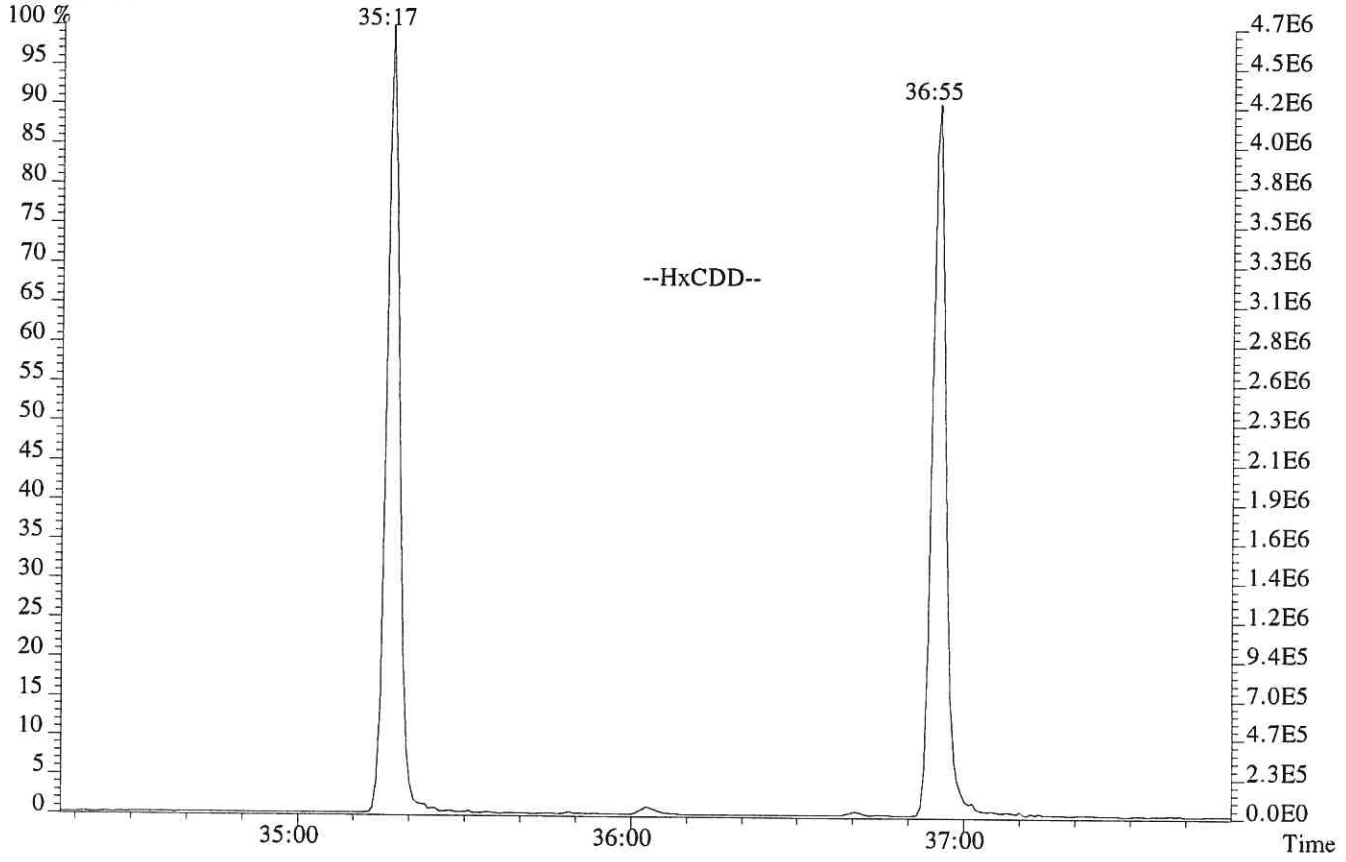
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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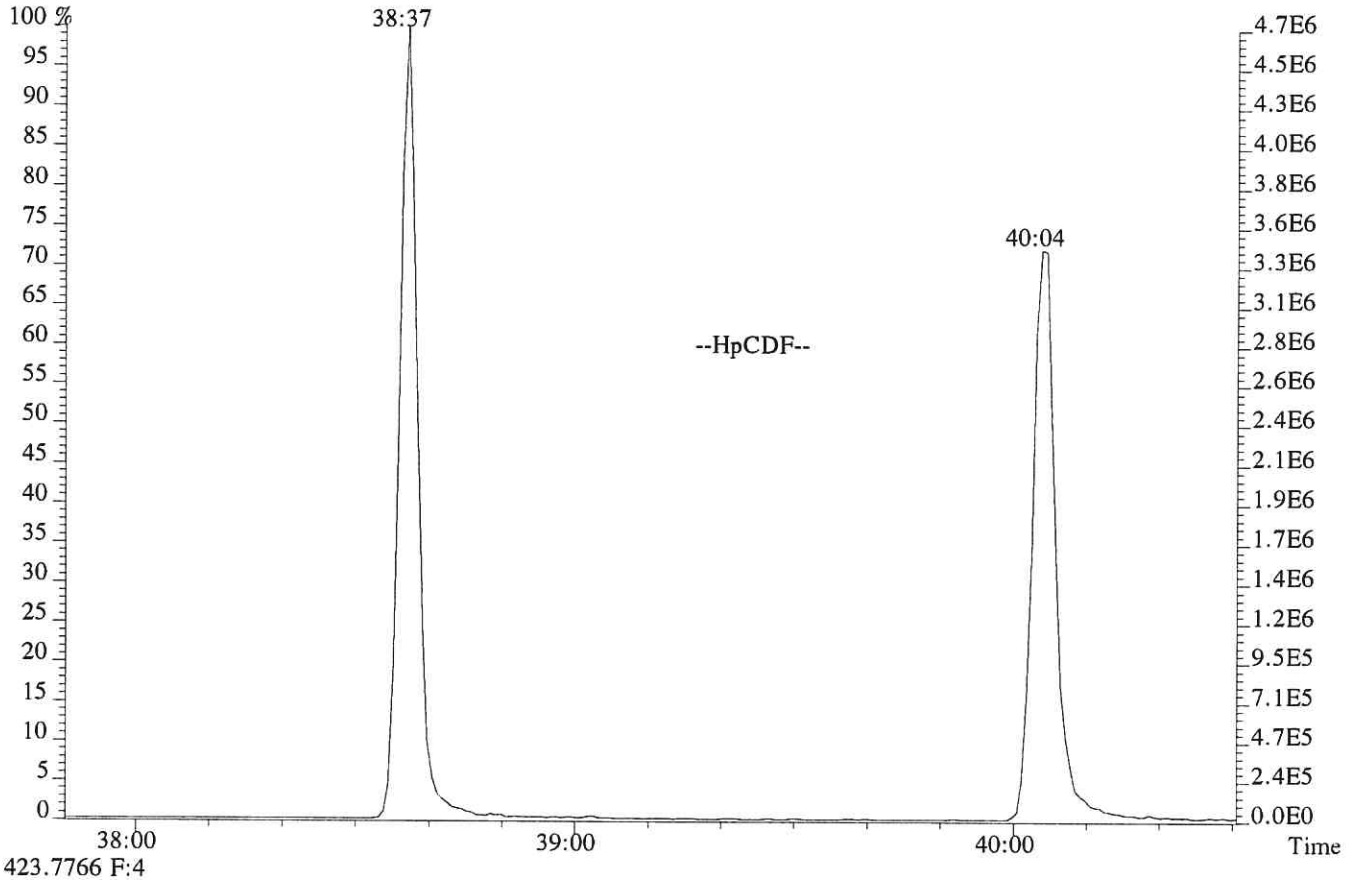
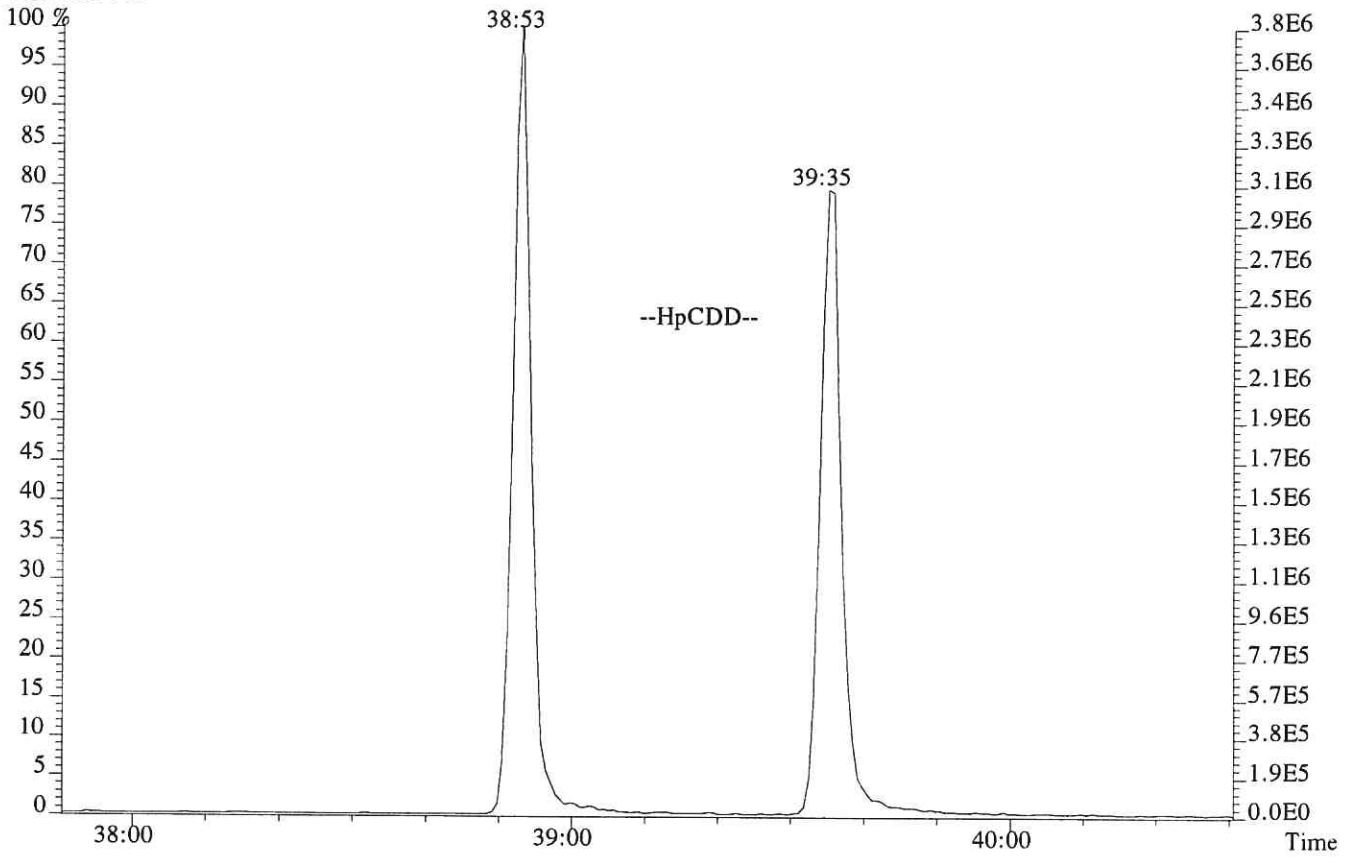
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519271 Analysis Date: 7-DEC-18 Time: 05:39:40

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	51	39 - 65	1.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	50	39 - 64	-0.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	53	41 - 61	6.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.5
OCDD	M+2/M+4	0.90	0.76-1.02	101	79 - 126	0.8
2,3,7,8-TCDF	M/M+2	0.73	0.65-0.89	10.0	8.4 - 12.0	0.0
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	48	41 - 60	-4.5
2,3,4,7,8-PeCDF	M+2/M+4	1.45	1.32-1.78	44	41 - 61	-11.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	1.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	49	44 - 57	-1.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	44 - 57	-0.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	49	45 - 55	-2.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.8
OCDF	M+2/M+4	0.89	0.76-1.02	96	63 - 159	-4.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519271 Analysis Date: 7-DEC-18 Time: 05:39:40

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	105	82 - 121	5.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.67	1.32-1.78	88	62 - 160	-11.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	101	85 - 117	0.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	93	85 - 118	-6.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	109	72 - 138	9.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	268	96 - 415	34.0
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	96	76 - 130	-3.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	80	77 - 130	-19.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	88	76 - 131	-12.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	91	70 - 143	-8.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	99	74 - 135	-0.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-4.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	100	78 - 129	-0.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	108	77 - 129	7.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.3	7.8 - 12.7	3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519271 Samp: 1 Inj: 1 Acquired: 7-DEC-18 05:39:40
Processed: 10-DEC-18 11:03:01 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:52	3.536e+03	4.845e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	2.469e+04	1.649e+04	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	1.777e+04	1.229e+04	1.45	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.435e+04	1.983e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.610e+04	2.163e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.434e+04	2.040e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:16	2.298e+04	1.884e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	2.152e+04	2.142e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.870e+04	1.852e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.226e+04	3.635e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	2.691e+03	3.497e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	1.551e+04	9.752e+03	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:39	1.804e+04	1.441e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:44	1.760e+04	1.377e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:58	1.912e+04	1.536e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.658e+04	1.563e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:33	2.805e+04	3.124e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:51	3.946e+04	4.954e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	5.192e+04	3.330e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	4.313e+04	2.742e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:51	2.456e+04	4.839e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:58	2.907e+04	5.679e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	2.770e+04	5.333e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:15	2.449e+04	4.815e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	1.972e+04	4.536e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	1.840e+04	4.128e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:40	2.574e+04	3.276e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	3.251e+04	1.948e+04	1.67	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:38	3.484e+04	2.783e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.314e+04	2.661e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.278e+04	3.041e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:33	4.962e+04	5.556e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.703e+04	3.322e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:57	3.764e+04	2.977e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	6.319e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary CLIENT ID.
194503

Run #7 Filename P519271 Samp: 1 Inj: 1 Acquired: 7-DEC-18 05:39:40
Processed: 10-DEC-18 11:03:01 LAB. ID: CS3

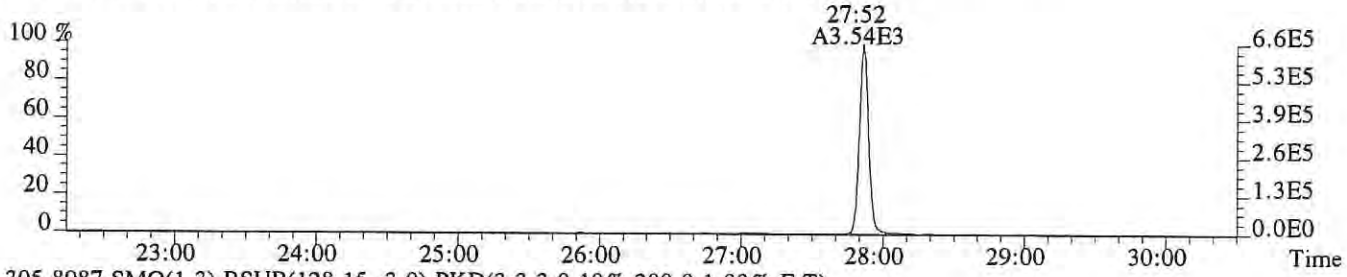
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.56e+05	2.16e+02	3.0e+03	8.66e+05	2.80e+02	3.1e+03
2	1,2,3,7,8-PeCDF	5.45e+06	3.28e+02	1.7e+04	3.56e+06	4.44e+02	8.0e+03
3	2,3,4,7,8-PeCDF	3.04e+06	3.28e+02	9.3e+03	2.18e+06	4.44e+02	4.9e+03
4	1,2,3,4,7,8-HxCDF	5.40e+06	1.80e+02	3.0e+04	4.40e+06	1.48e+02	3.0e+04
5	1,2,3,6,7,8-HxCDF	5.44e+06	1.80e+02	3.0e+04	4.56e+06	1.48e+02	3.1e+04
6	2,3,4,6,7,8-HxCDF	5.20e+06	1.80e+02	2.9e+04	4.28e+06	1.48e+02	2.9e+04
7	1,2,3,7,8,9-HxCDF	4.90e+06	1.80e+02	2.7e+04	4.06e+06	1.48e+02	2.7e+04
8	1,2,3,4,6,7,8-HpCDF	4.54e+06	2.26e+03	2.0e+03	4.53e+06	3.56e+02	1.3e+04
9	1,2,3,4,7,8,9-HpCDF	3.41e+06	2.26e+03	1.5e+03	3.39e+06	3.56e+02	9.5e+03
10	OCDF	4.38e+06	2.60e+02	1.7e+04	5.02e+06	3.80e+02	1.3e+04
11	2,3,7,8-TCDD	5.31e+05	7.36e+02	7.2e+02	6.82e+05	2.96e+02	2.3e+03
12	1,2,3,7,8-PeCDD	3.04e+06	4.72e+02	6.4e+03	1.89e+06	2.12e+02	8.9e+03
13	1,2,3,4,7,8-HxCDD	4.02e+06	2.28e+02	1.8e+04	3.18e+06	1.88e+02	1.7e+04
14	1,2,3,6,7,8-HxCDD	3.60e+06	2.28e+02	1.6e+04	2.84e+06	1.88e+02	1.5e+04
15	1,2,3,7,8,9-HxCDD	4.07e+06	2.28e+02	1.8e+04	3.19e+06	1.88e+02	1.7e+04
16	1,2,3,4,6,7,8-HpCDD	3.08e+06	2.72e+02	1.1e+04	2.95e+06	1.80e+02	1.6e+04
17	OCDD	3.82e+06	2.44e+02	1.6e+04	4.31e+06	3.12e+02	1.4e+04
18	13C-2,3,7,8-TCDF	7.07e+06	3.31e+03	2.1e+03	8.81e+06	1.88e+03	4.7e+03
19	13C-1,2,3,7,8-PeCDF	9.41e+06	3.80e+02	2.5e+04	6.09e+06	1.40e+02	4.3e+04
20	13C-2,3,4,7,8-PeCDF	8.90e+06	3.80e+02	2.3e+04	5.67e+06	1.40e+02	4.0e+04
21	13C-1,2,3,4,7,8-HxCDF	5.47e+06	2.16e+02	2.5e+04	1.08e+07	1.64e+02	6.6e+04
22	13C-1,2,3,6,7,8-HxCDF	6.14e+06	2.16e+02	2.8e+04	1.19e+07	1.64e+02	7.2e+04
23	13C-2,3,4,6,7,8-HxCDF	5.87e+06	2.16e+02	2.7e+04	1.13e+07	1.64e+02	6.9e+04
24	13C-1,2,3,7,8,9-HxCDF	5.27e+06	2.16e+02	2.4e+04	1.03e+07	1.64e+02	6.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.24e+06	1.21e+03	3.5e+03	9.63e+06	3.07e+03	3.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.34e+06	1.21e+03	2.8e+03	7.49e+06	3.07e+03	2.4e+03
27	13C-2,3,7,8-TCDD	4.91e+06	3.15e+03	1.6e+03	6.16e+06	7.76e+02	7.9e+03
28	13C-1,2,3,7,8-PeCDD	6.38e+06	3.08e+02	2.1e+04	3.87e+06	3.52e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	7.78e+06	2.48e+02	3.1e+04	6.12e+06	1.96e+02	3.1e+04
30	13C-1,2,3,6,7,8-HxCDD	6.81e+06	2.48e+02	2.7e+04	5.46e+06	1.96e+02	2.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.12e+06	3.20e+02	1.9e+04	5.66e+06	2.56e+02	2.2e+04
32	13C-OCDD	6.65e+06	2.08e+02	3.2e+04	7.49e+06	2.28e+02	3.3e+04
33	13C-1,2,3,4-TCDD	5.02e+06	3.15e+03	1.6e+03	6.22e+06	7.76e+02	8.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.97e+06	2.48e+02	3.2e+04	6.38e+06	1.96e+02	3.3e+04
35	37Cl-2,3,7,8-TCDD	1.23e+06	1.76e+02	7.0e+03			

---Sample Calculation---

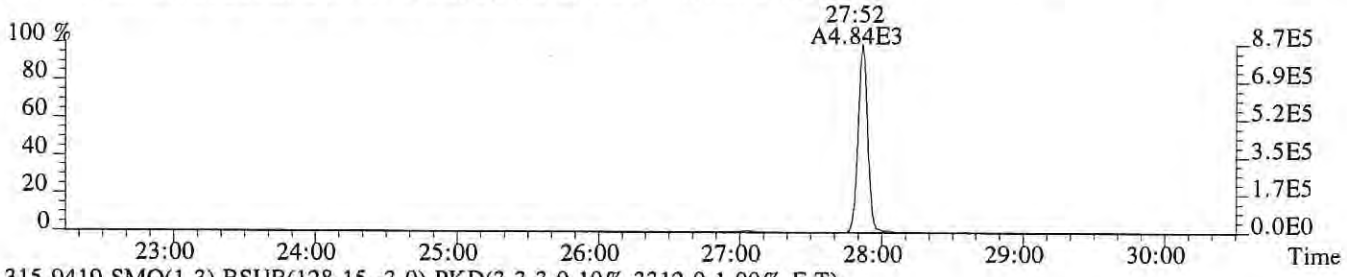
$$\text{D/L TCDD} = \frac{2.5 \times (7.360e{+}02 + 2.960e{+}02) \times 100}{(4.909e{+}06 + 6.160e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(281)530-5656. Fax:(281)530-5887

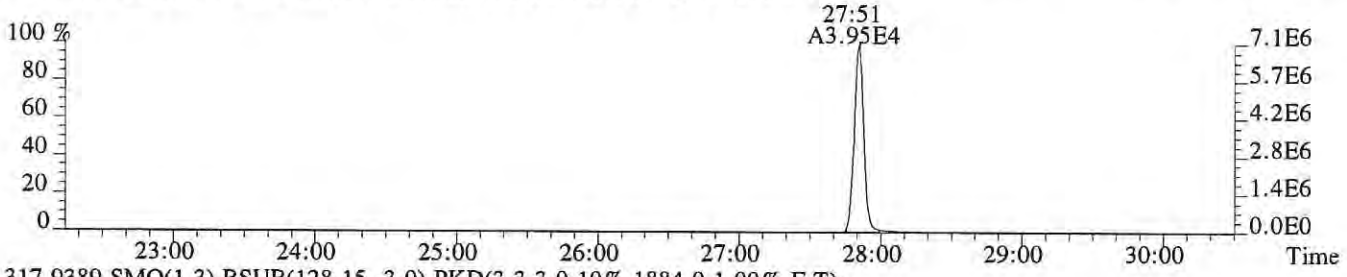
File:P519271 #1-587 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



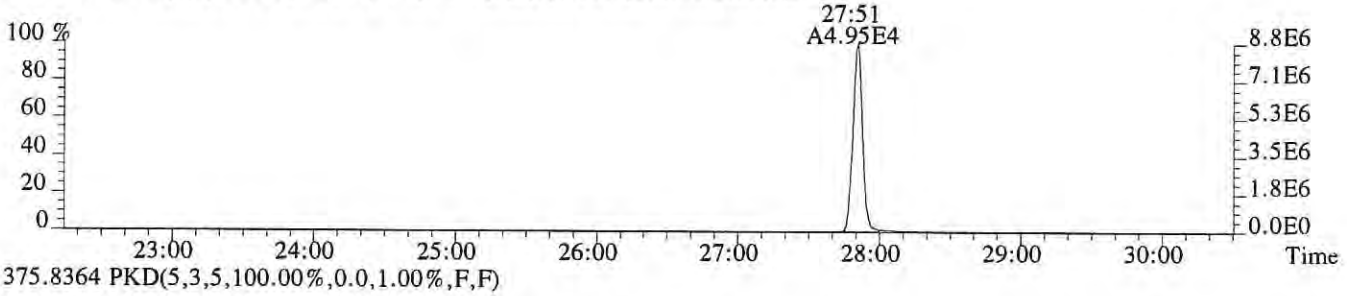
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



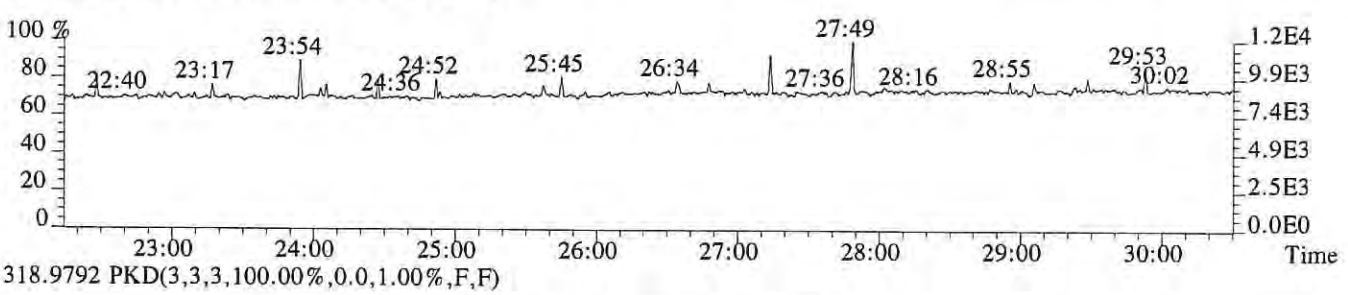
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



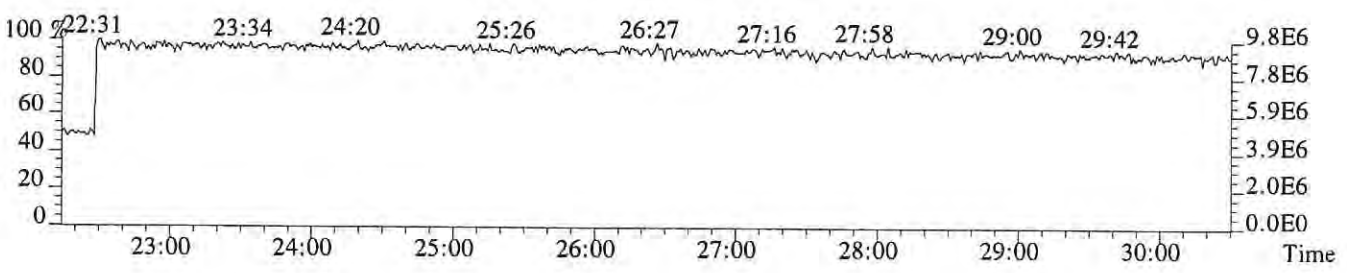
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



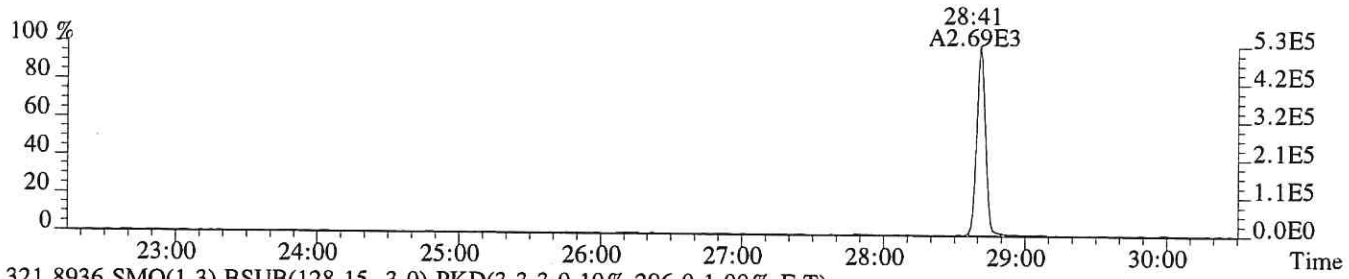
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



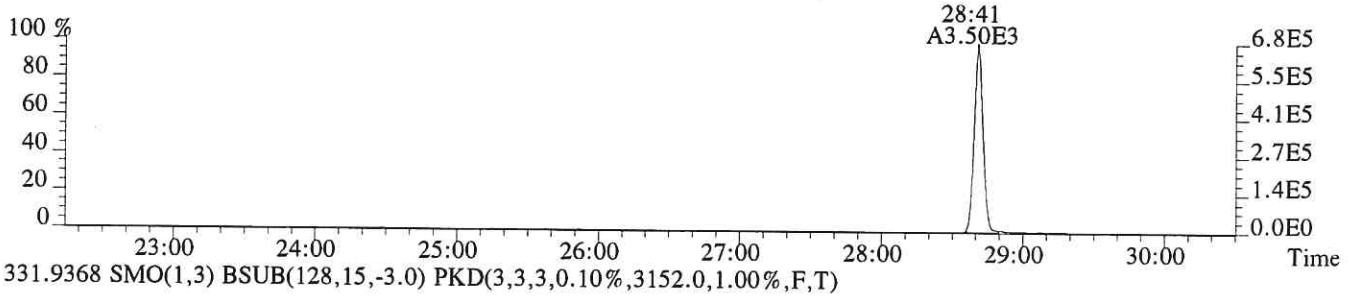
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



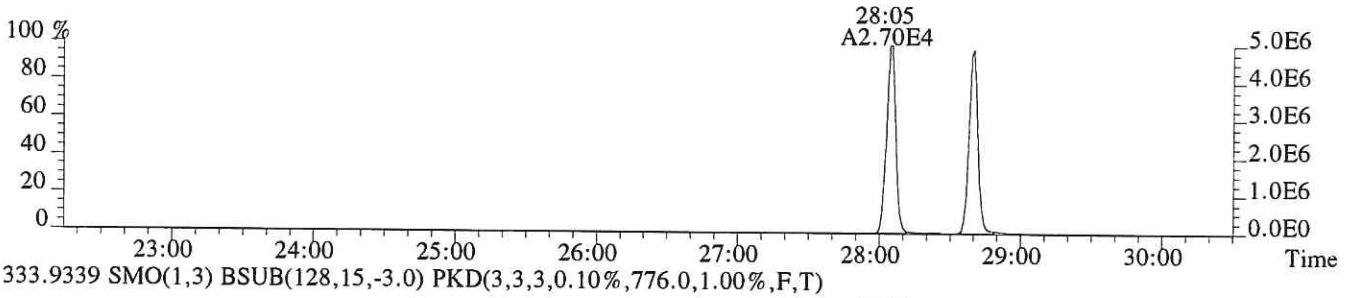
File:P519271 #1-587 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



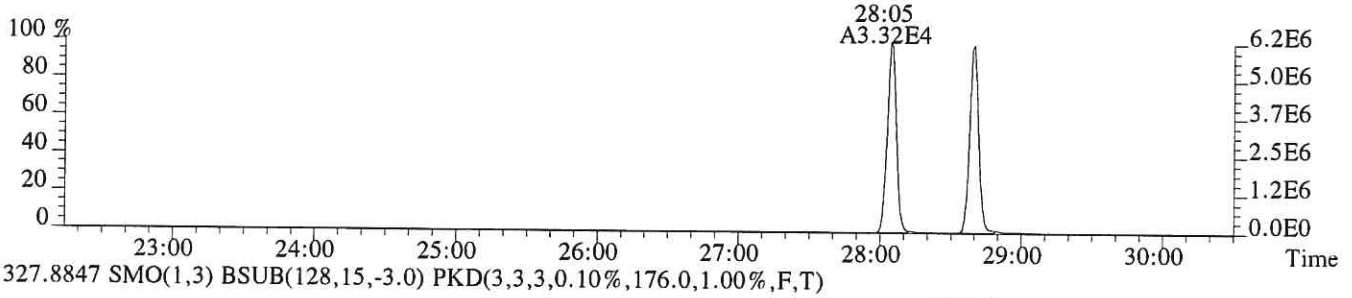
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



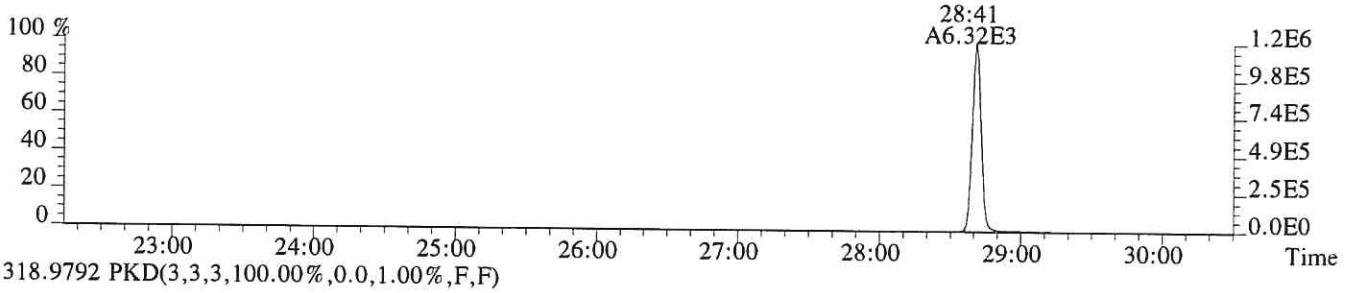
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3152.0,1.00%,F,T)



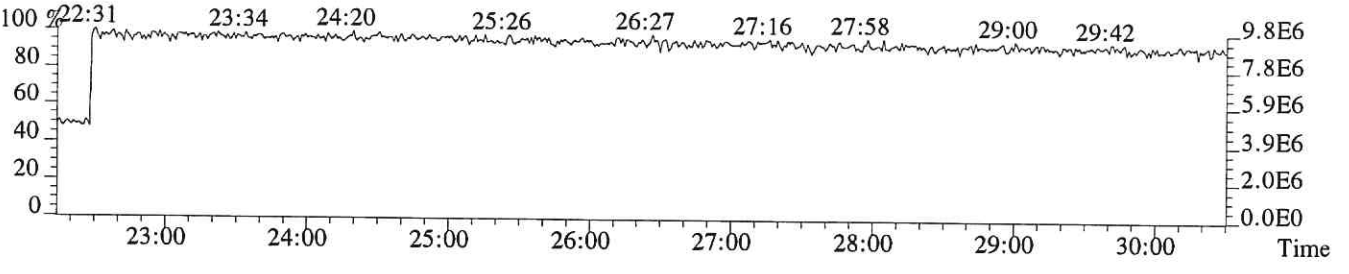
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



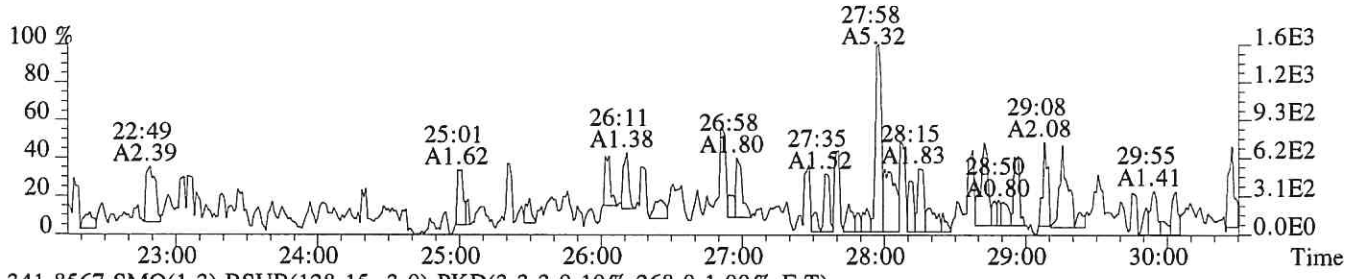
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,176.0,1.00%,F,T)



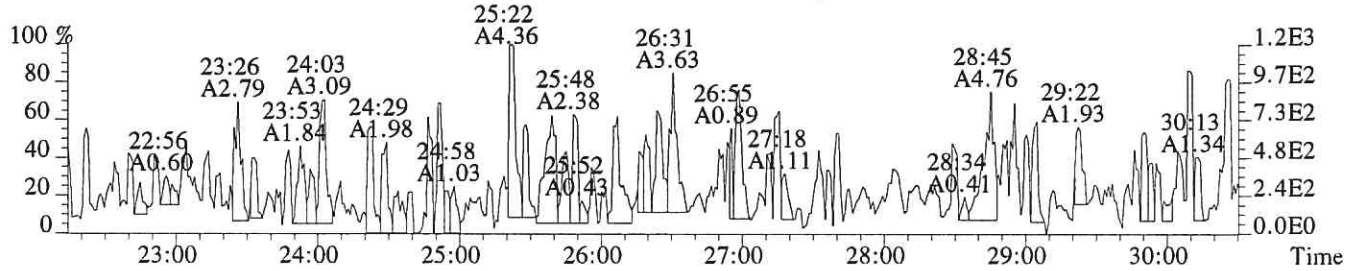
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



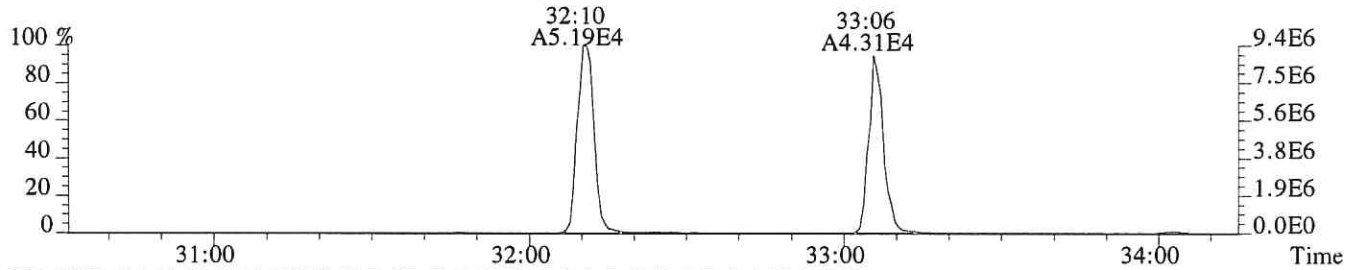
File:P519271 #1-587 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



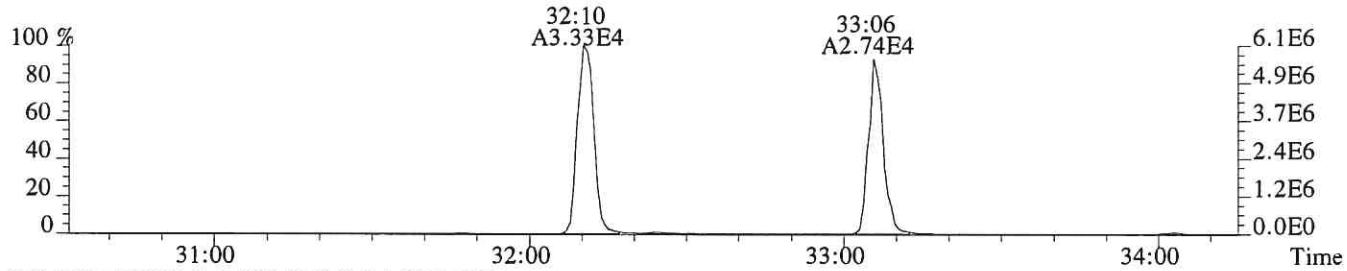
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



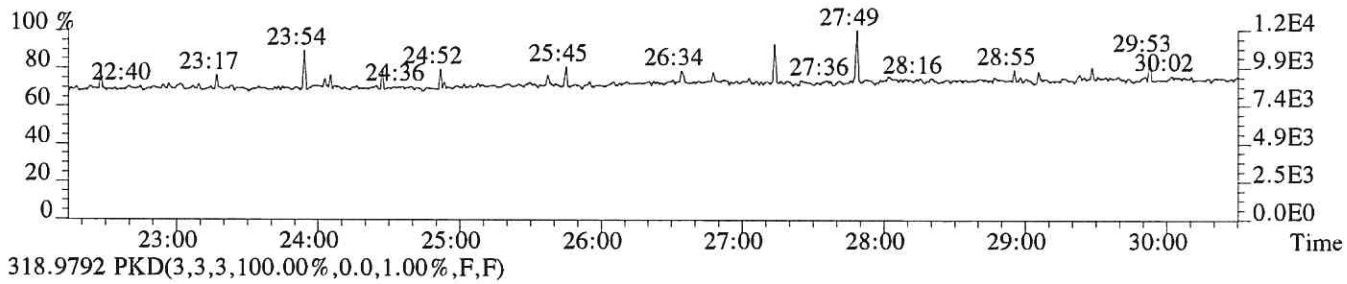
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



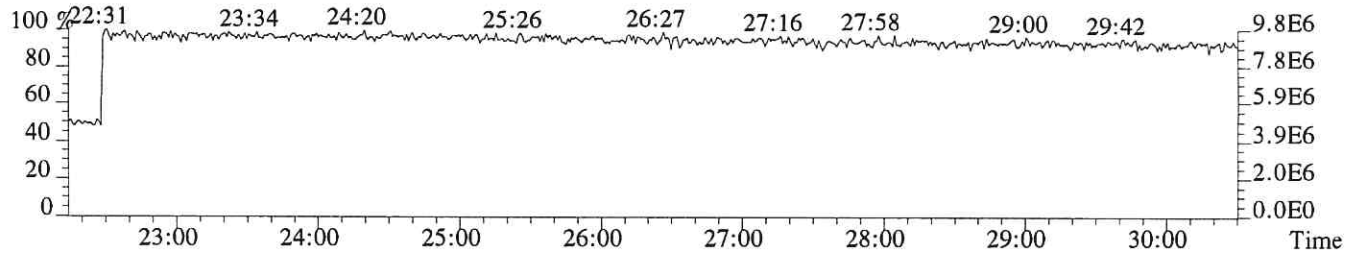
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,140.0,1.00%,F,T)



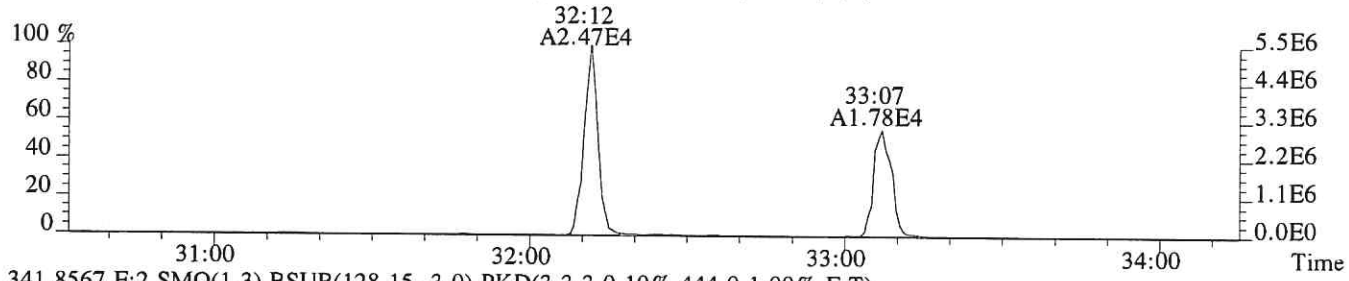
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



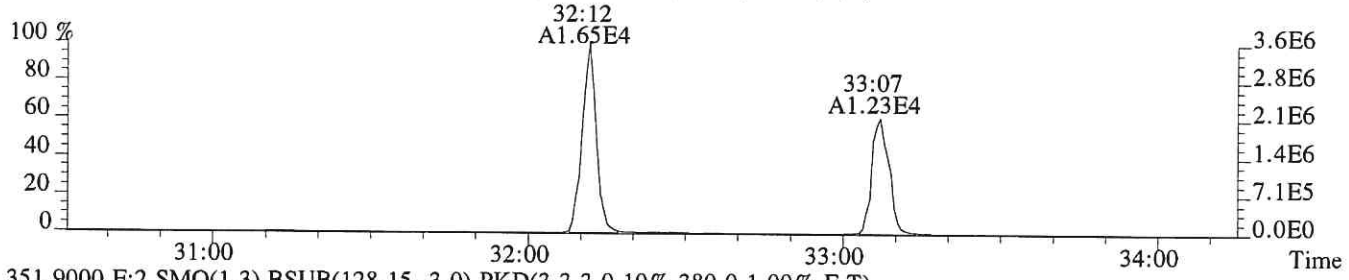
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



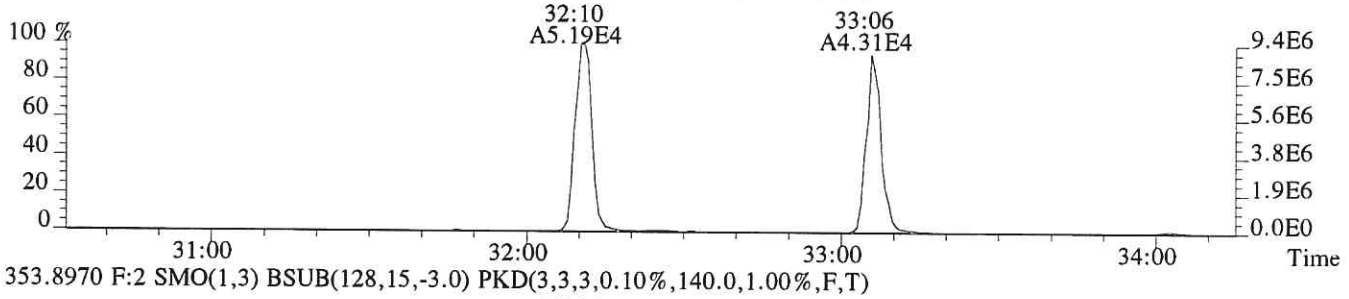
File:P519271 #1-335 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



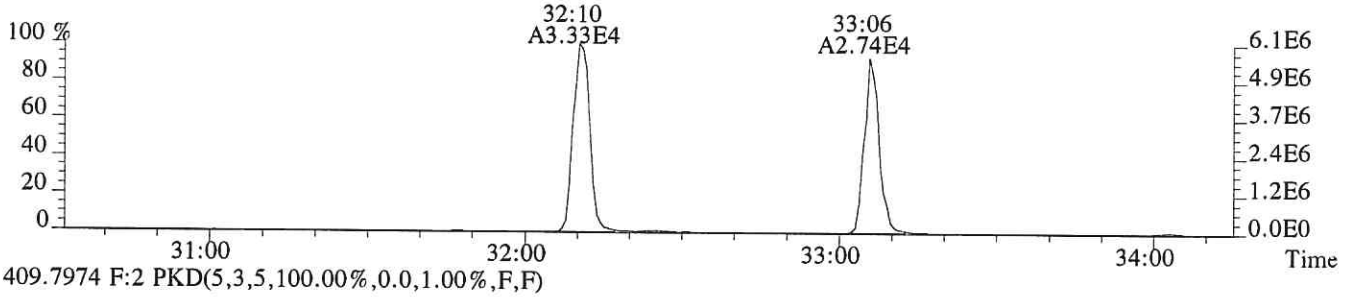
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



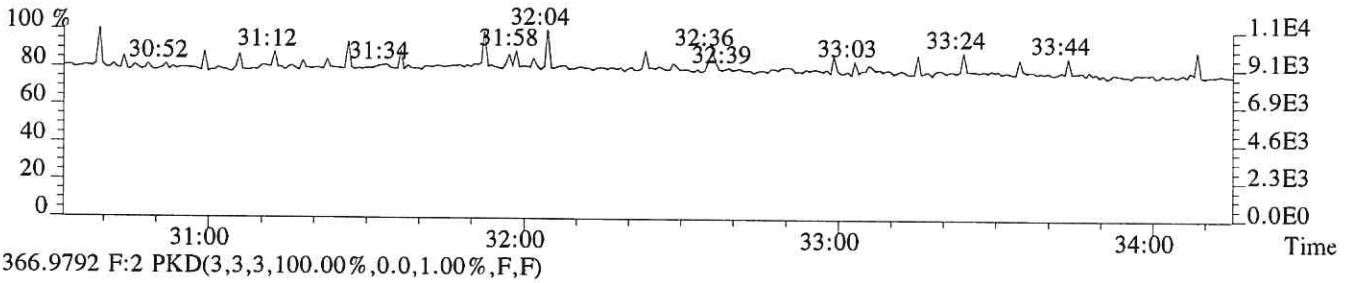
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



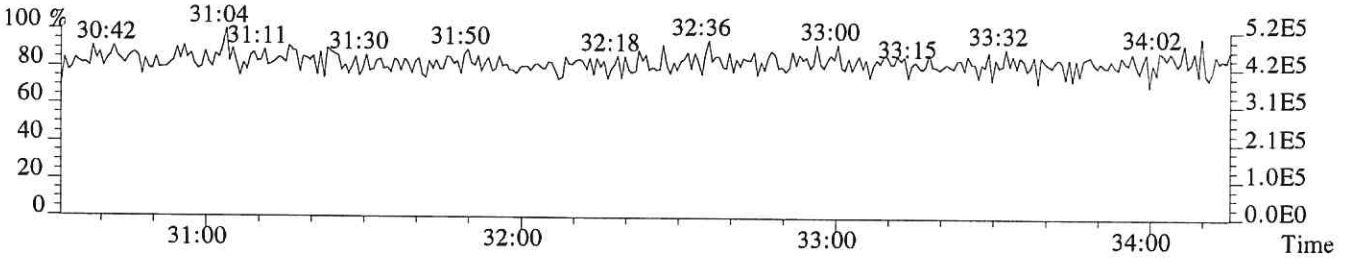
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,140.0,1.00%,F,T)



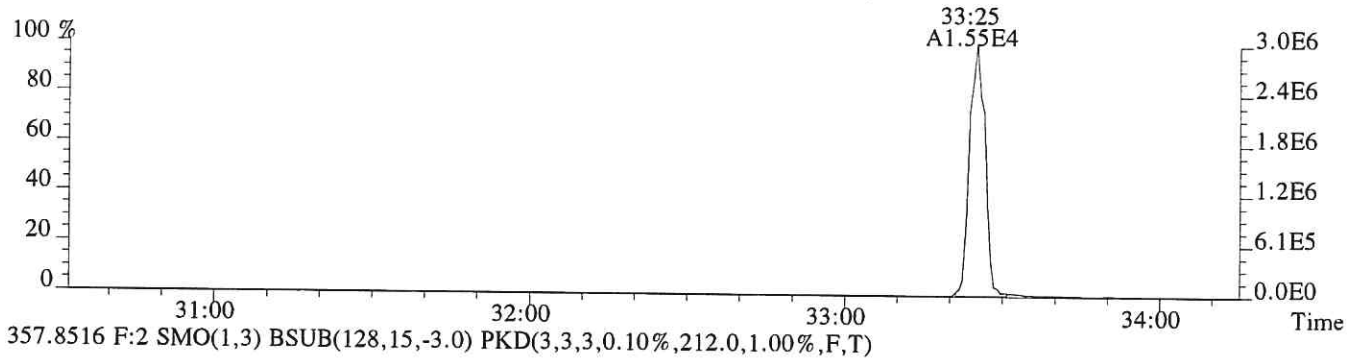
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



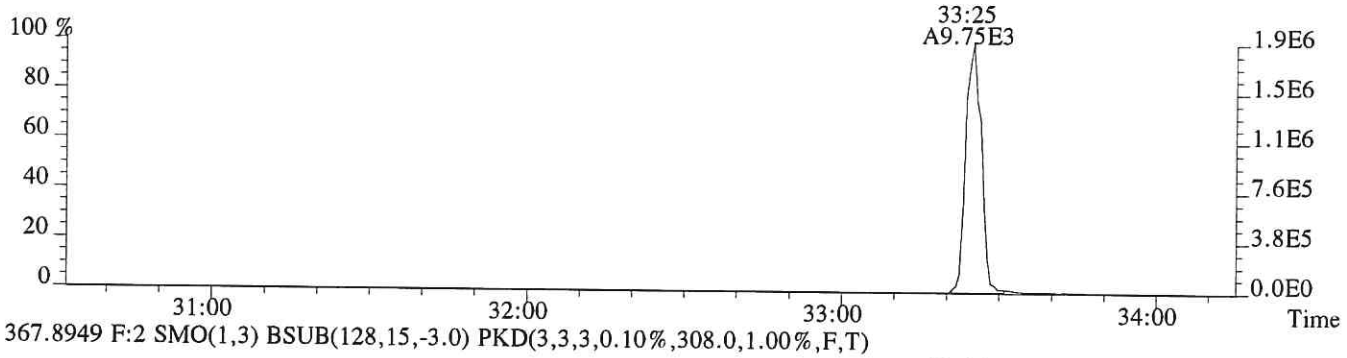
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



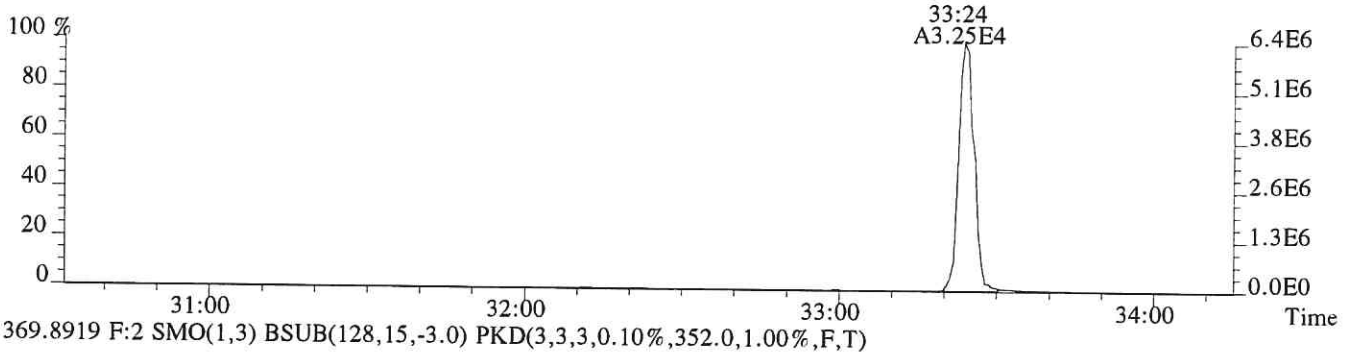
File:P519271 #1-335 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



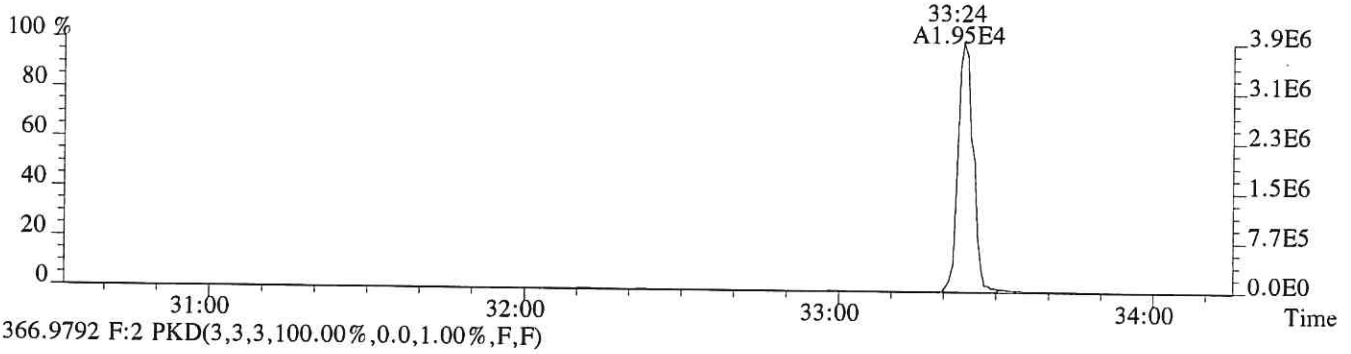
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



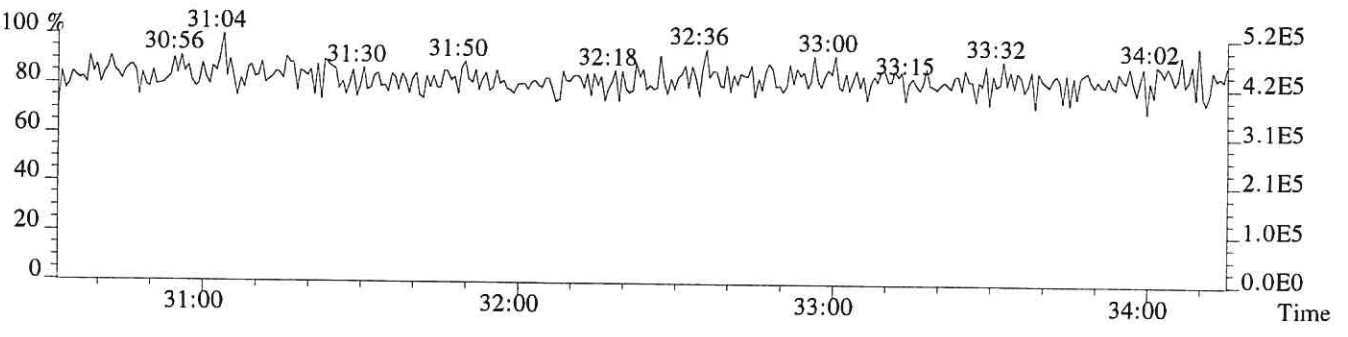
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)

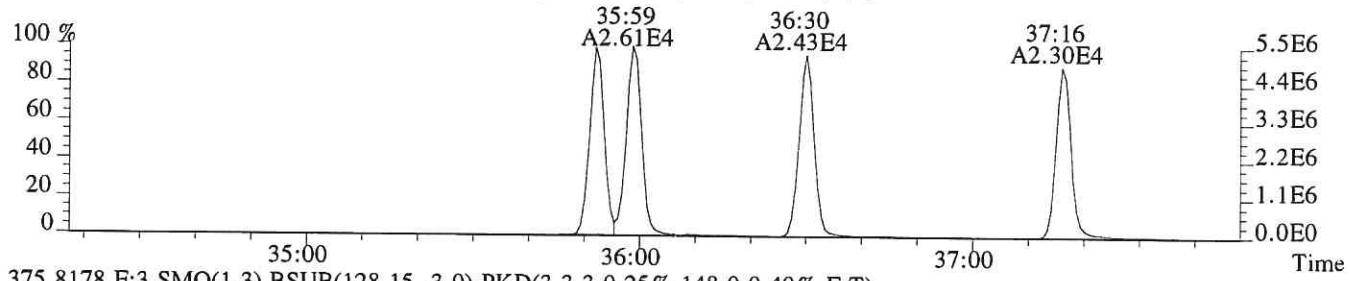


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

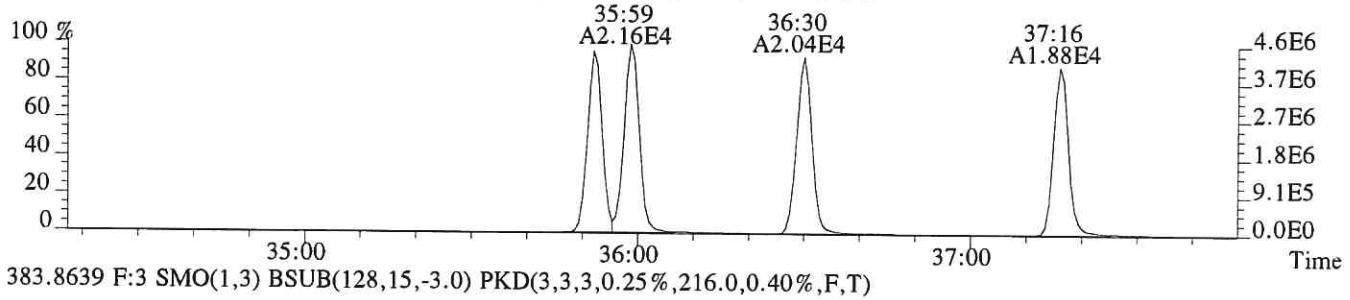


File:P519271 #1-317 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

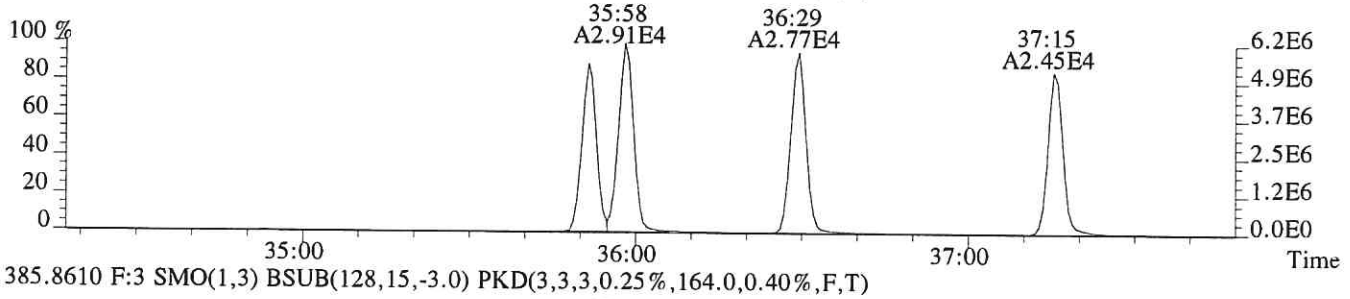
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



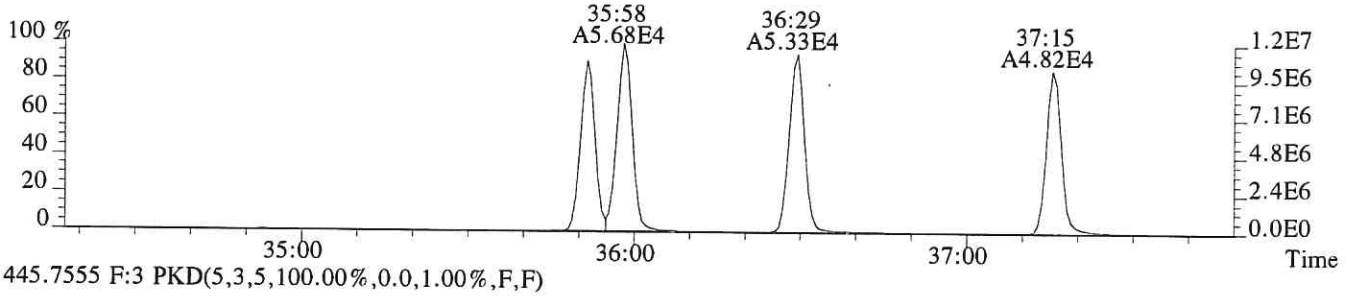
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,148.0,0.40%,F,T)



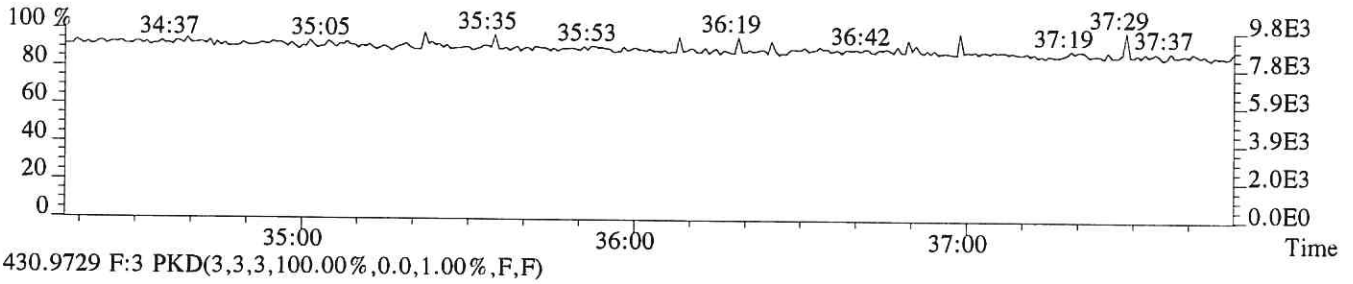
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



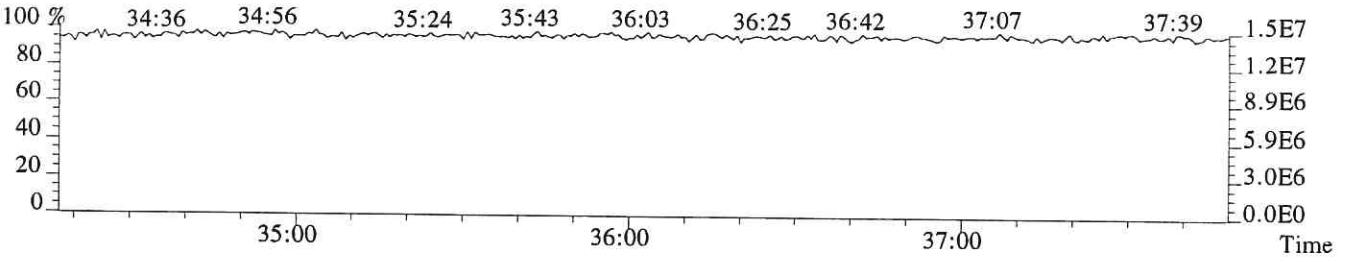
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



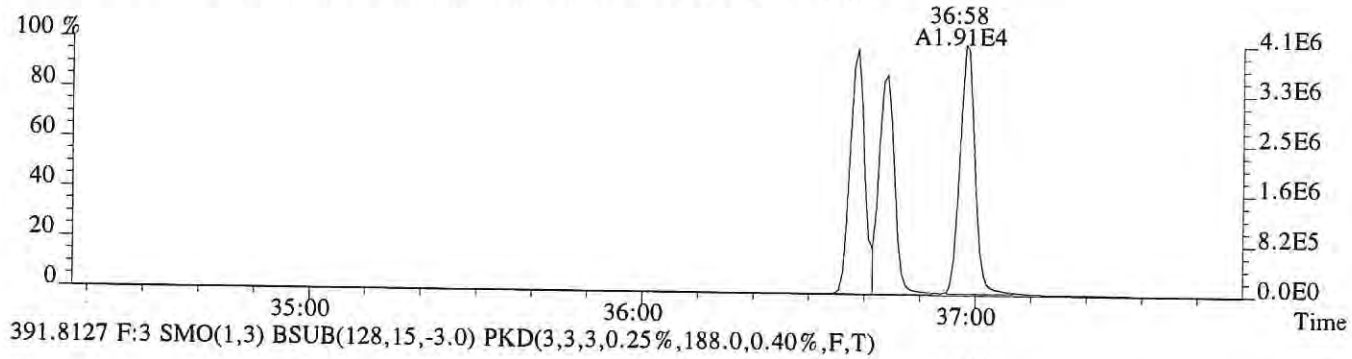
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



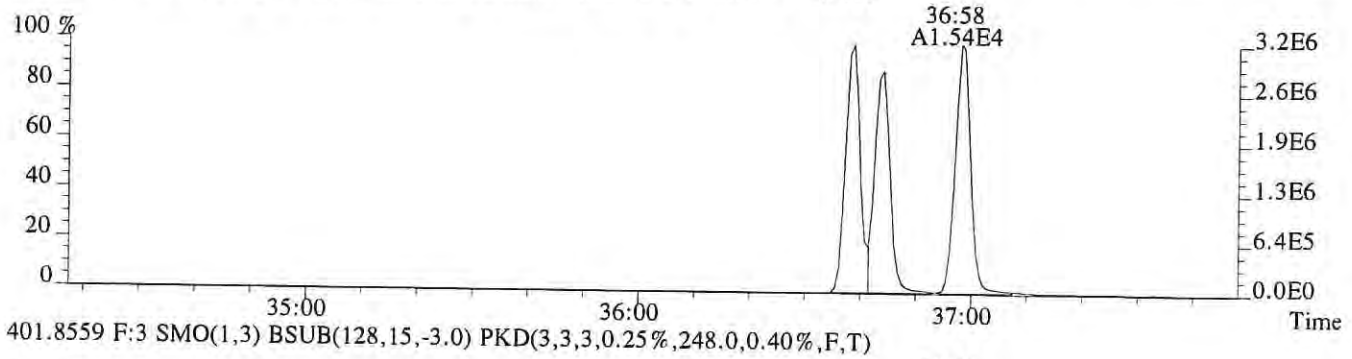
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



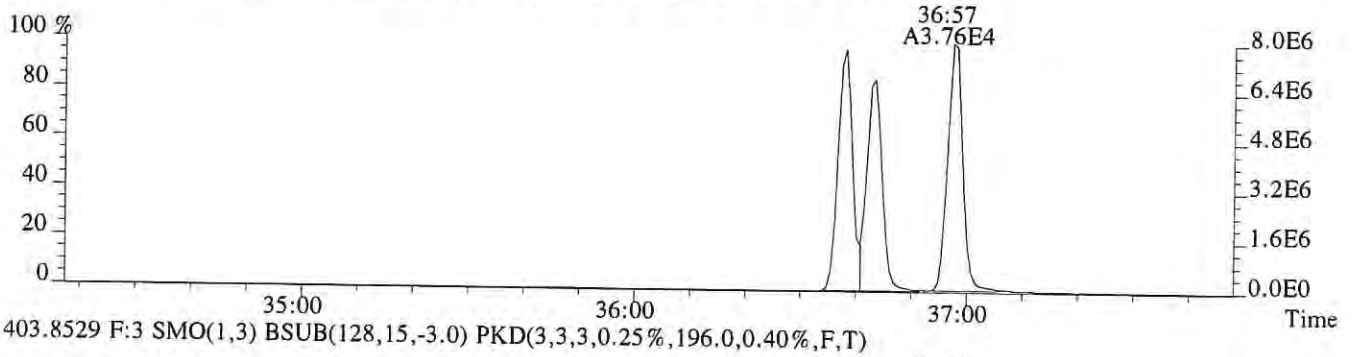
File:P519271 #1-317 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



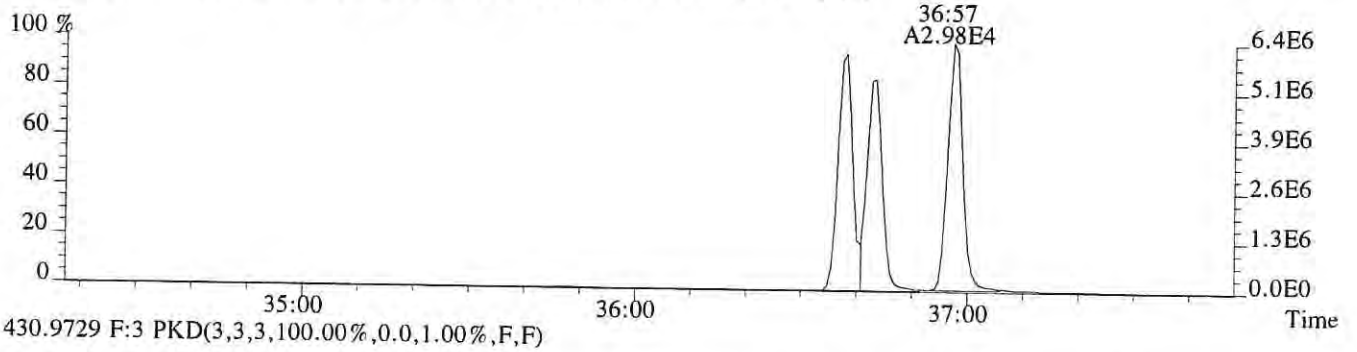
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



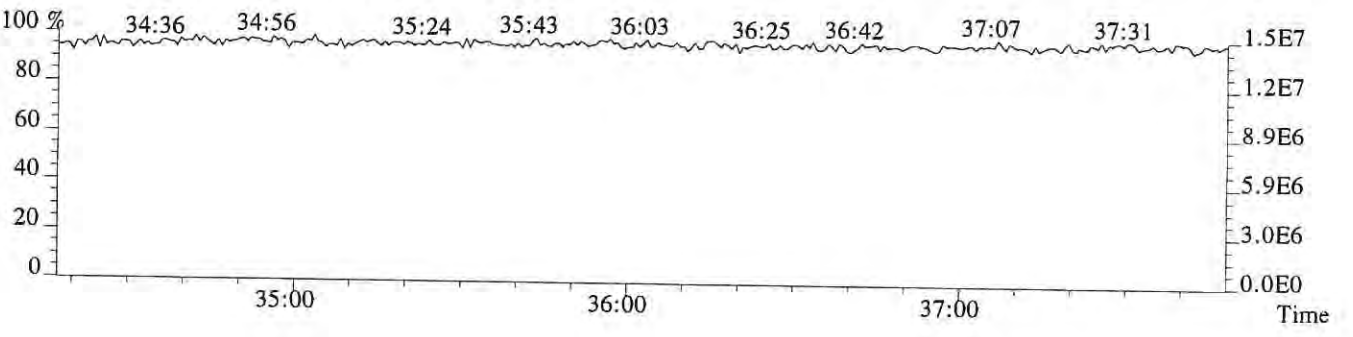
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



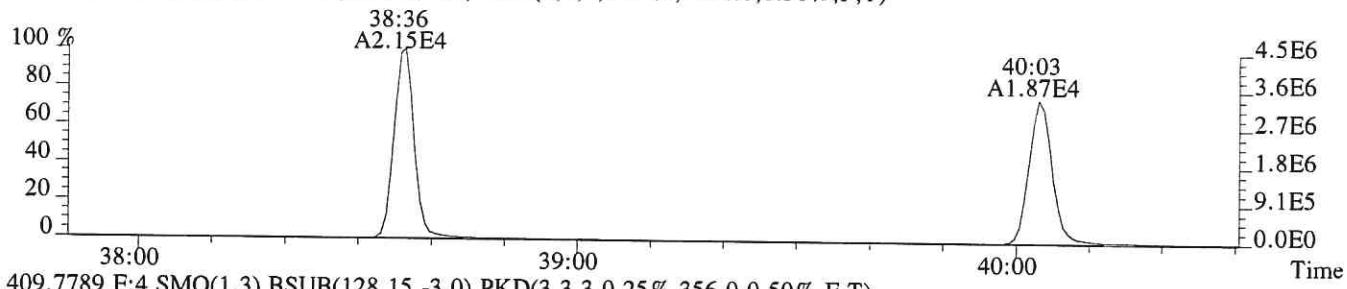
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



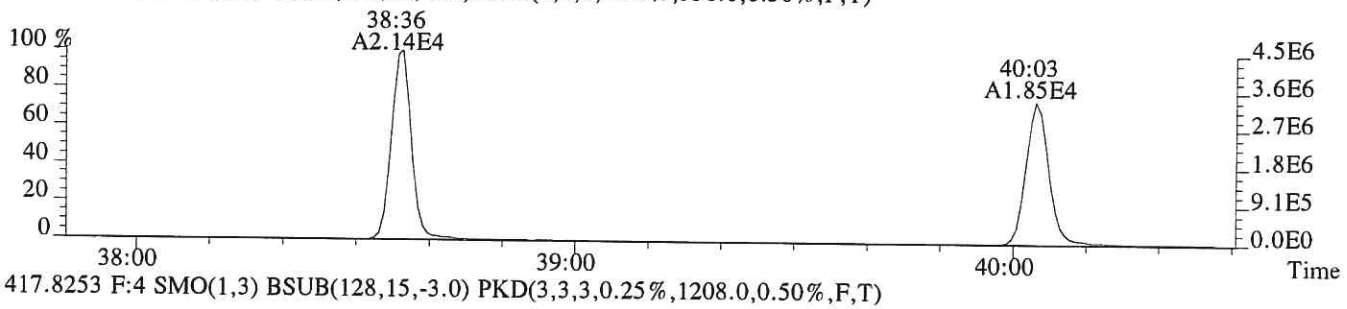
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



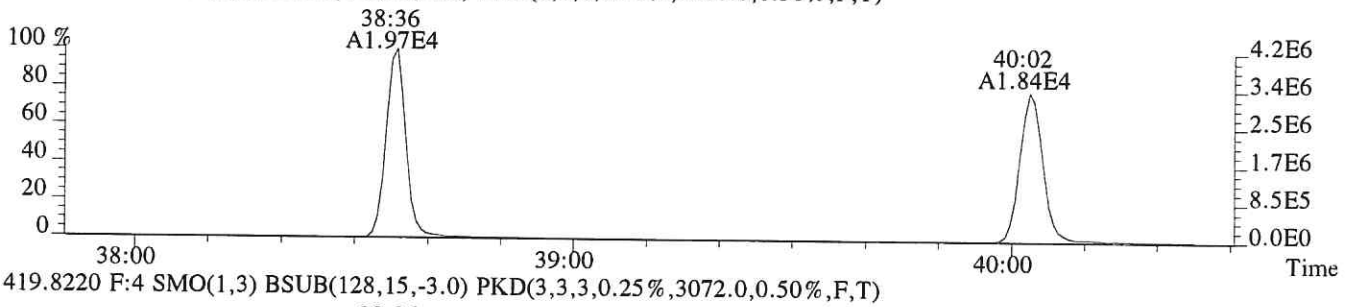
File:P519271 #1-241 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2264.0,0.50%,F,T)



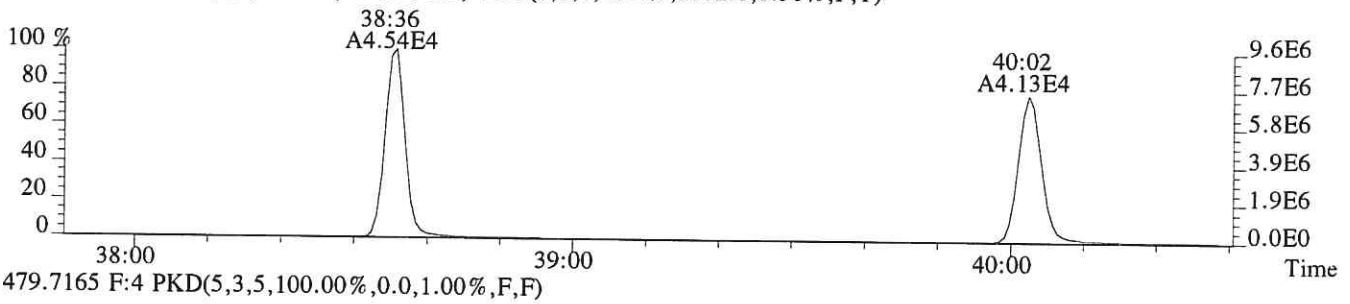
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.50%,F,T)



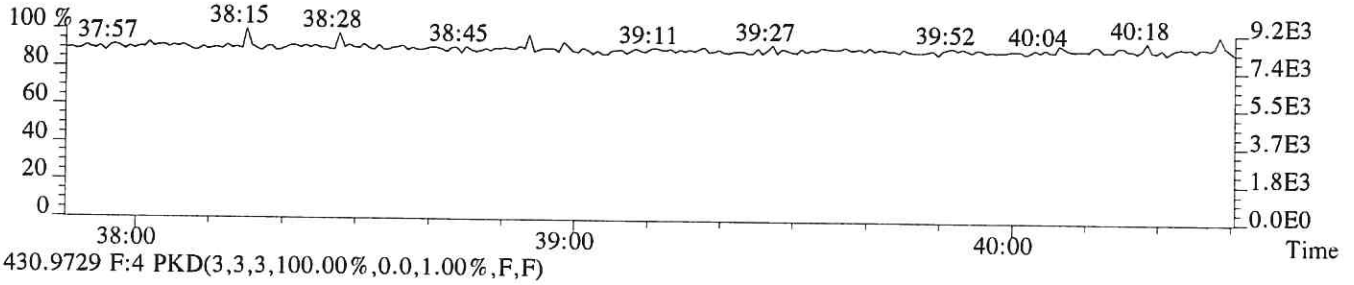
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.50%,F,T)



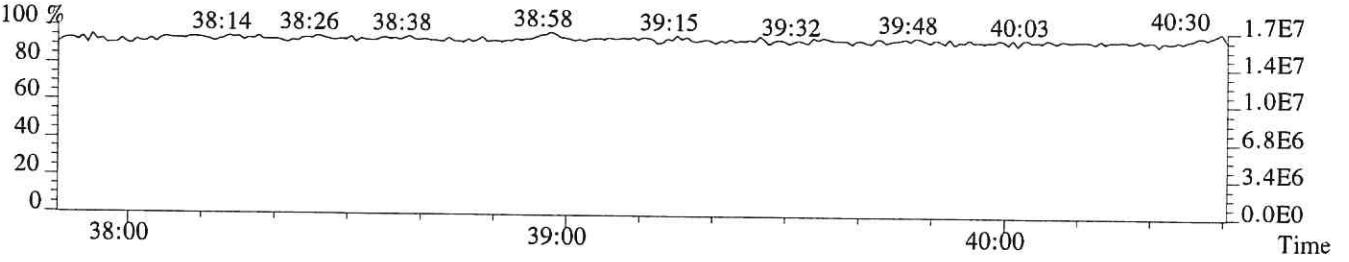
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

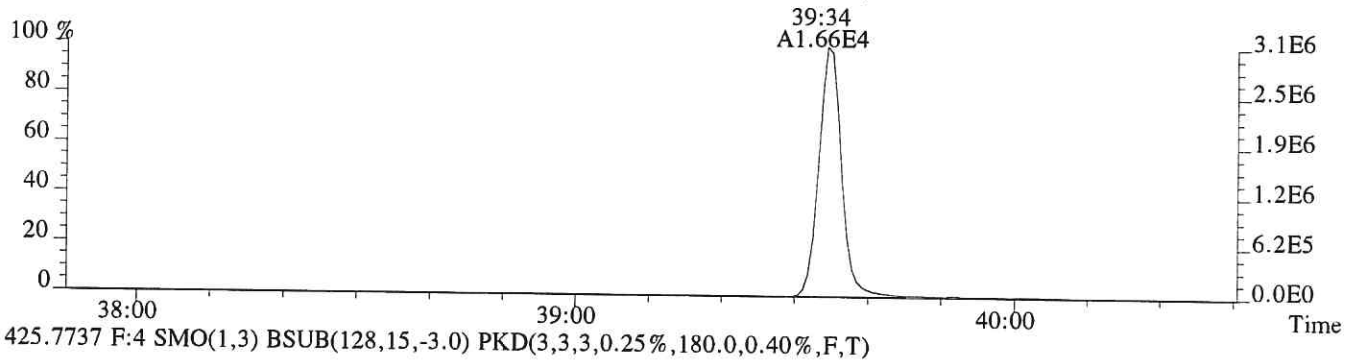


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

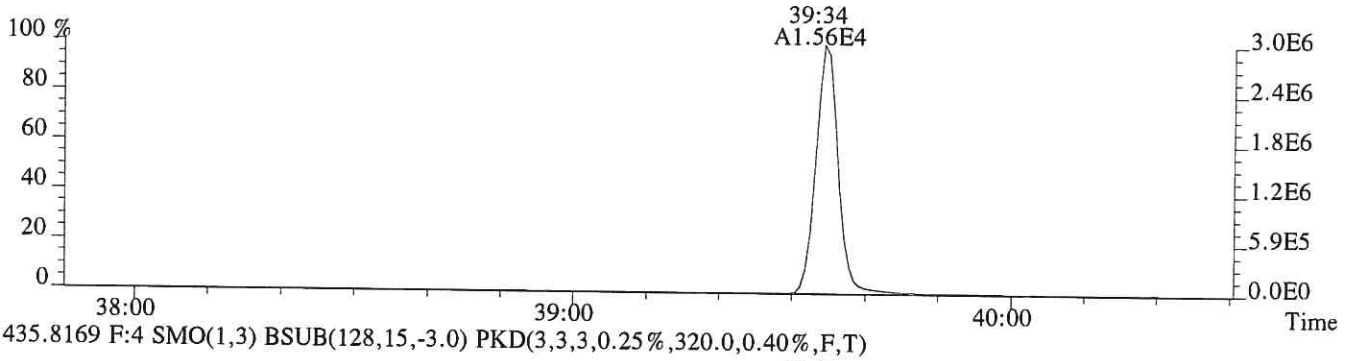


File:P519271 #1-241 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

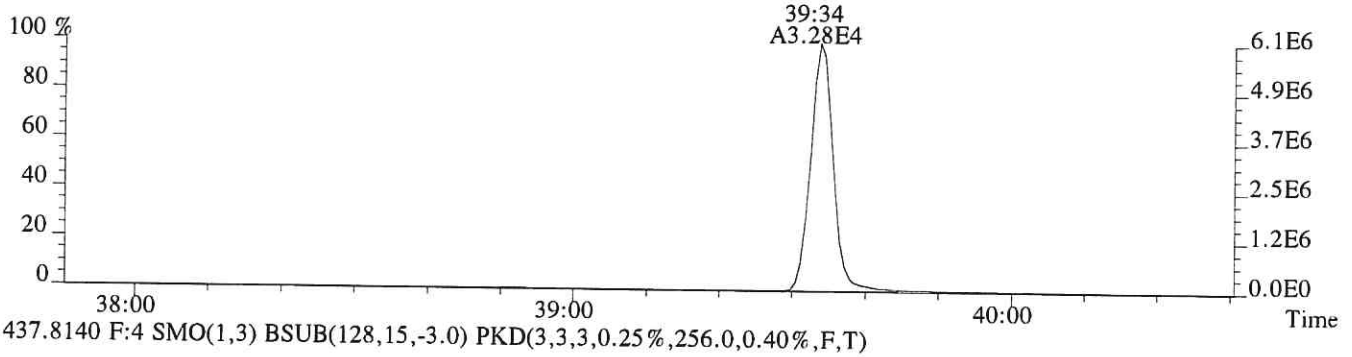
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



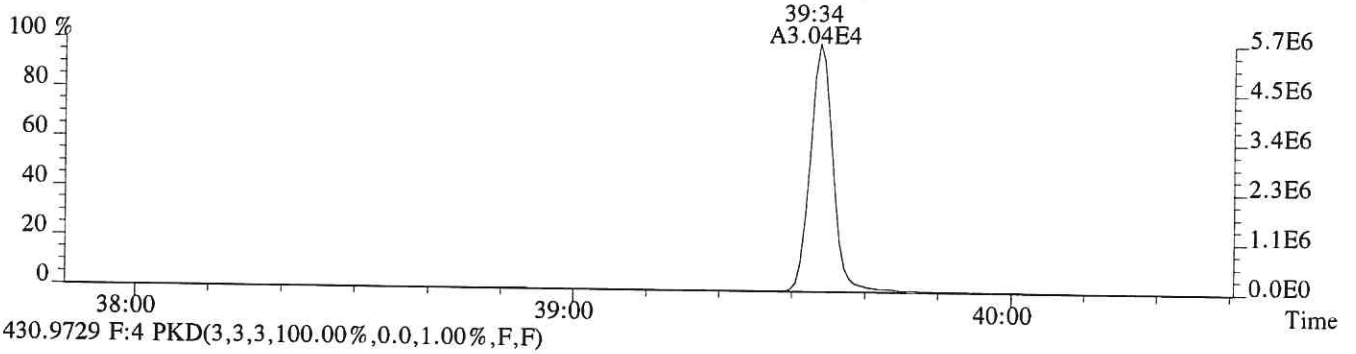
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



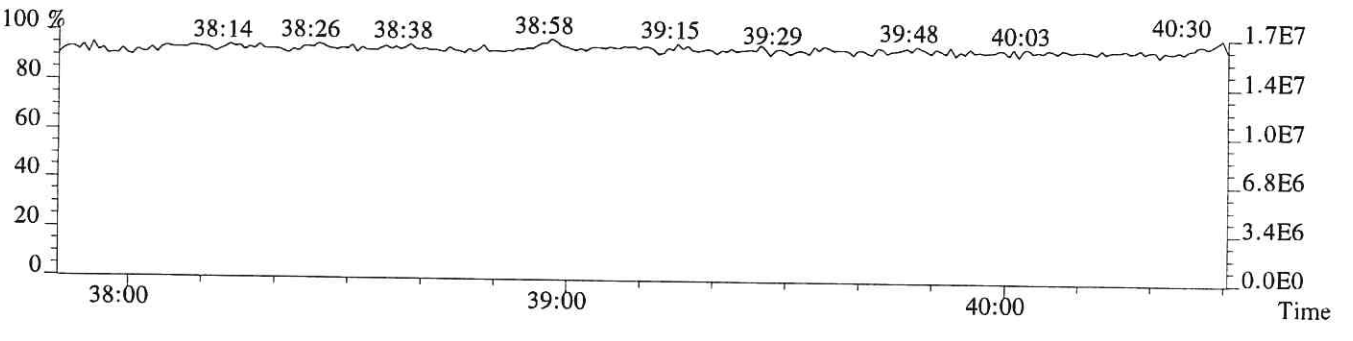
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)

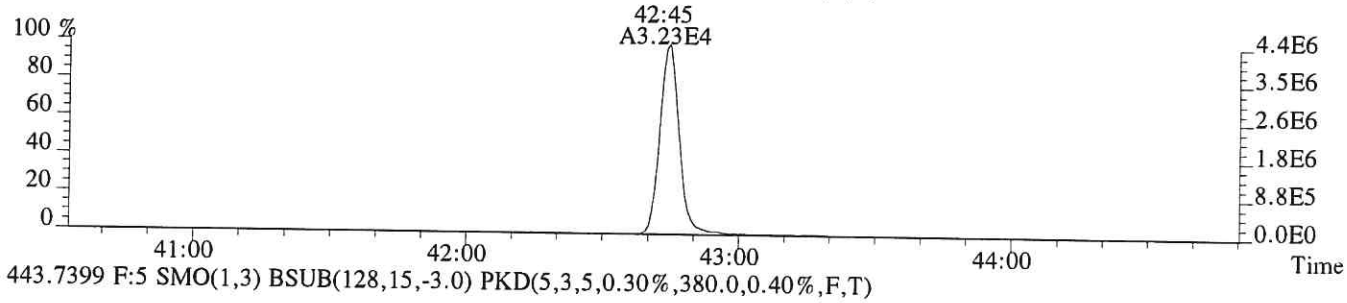


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

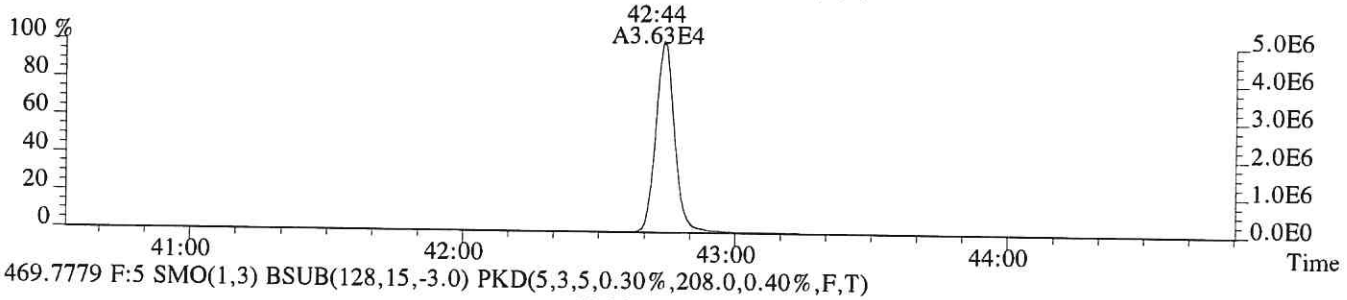


File:P519271 #1-387 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

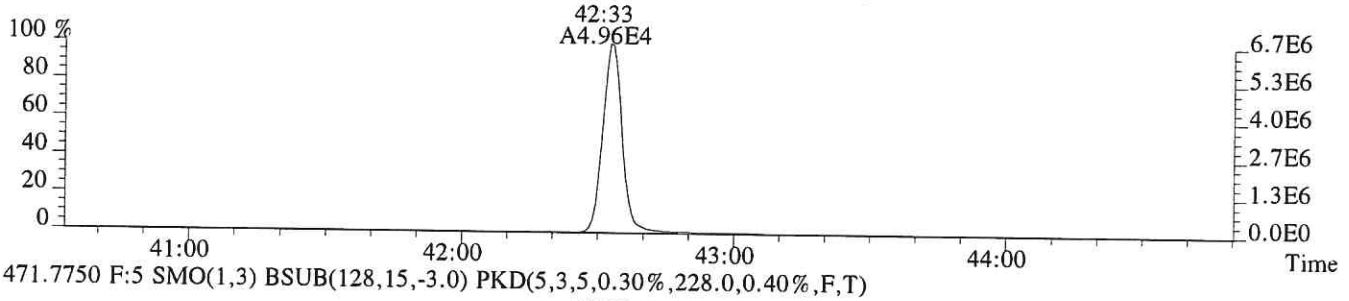
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



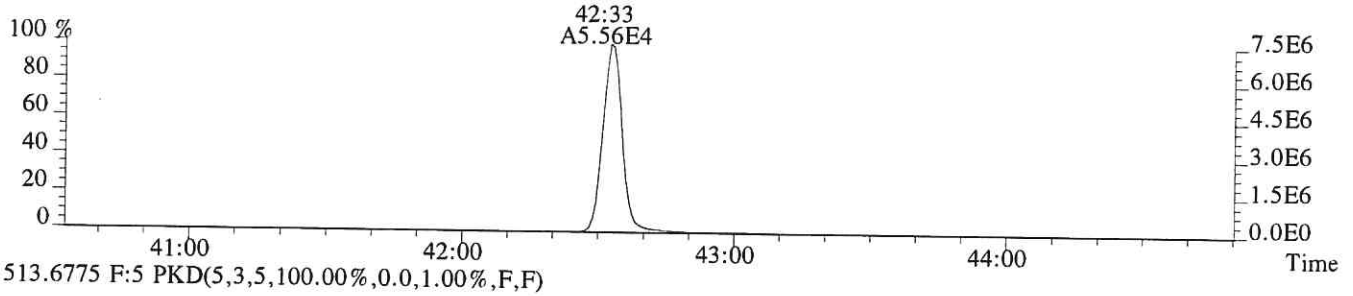
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



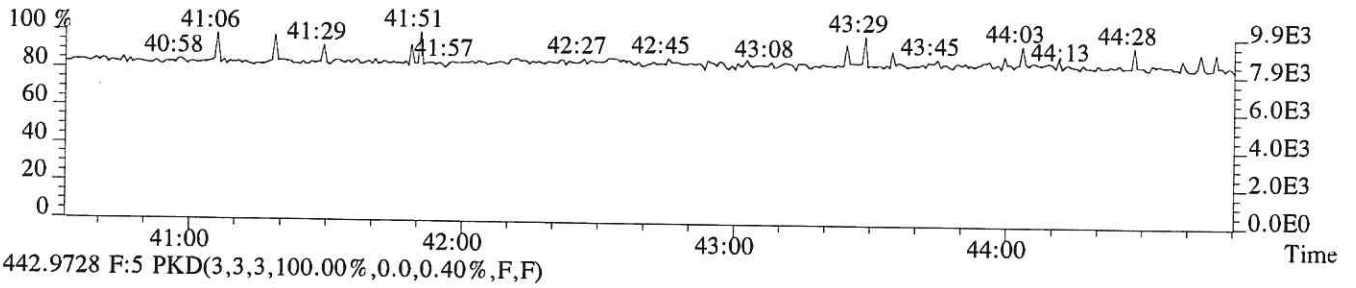
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



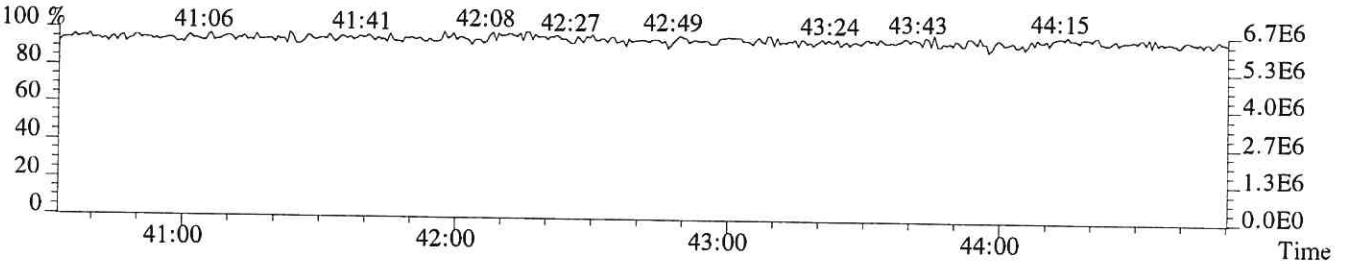
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

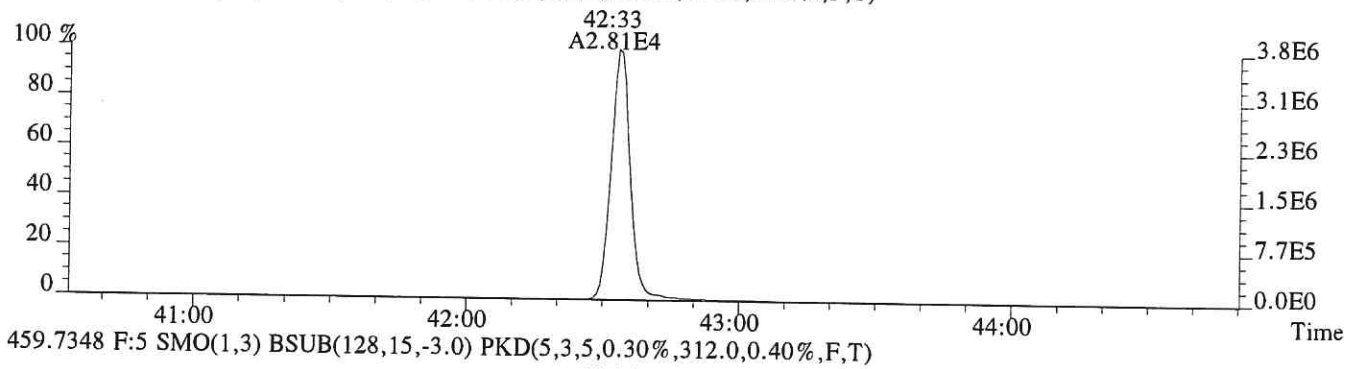


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

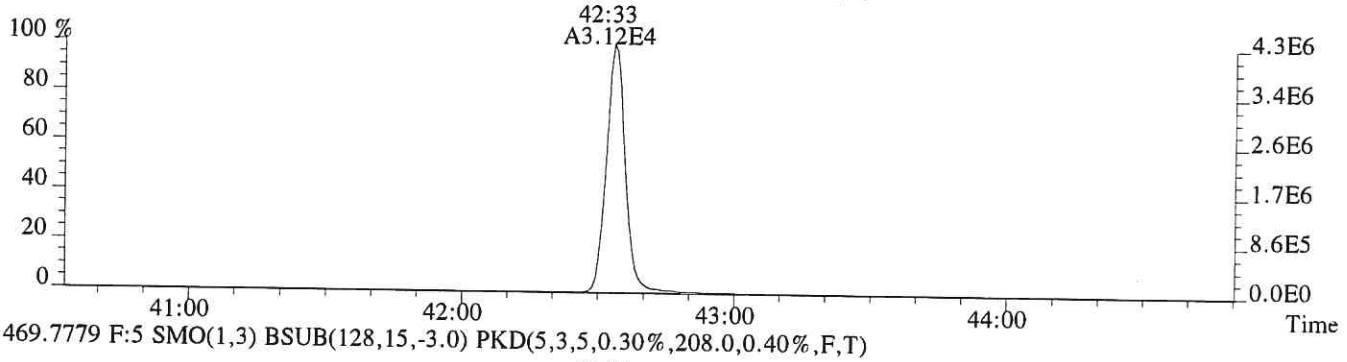


File:P519271 #1-387 Acq: 7-DEC-2018 05:39:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

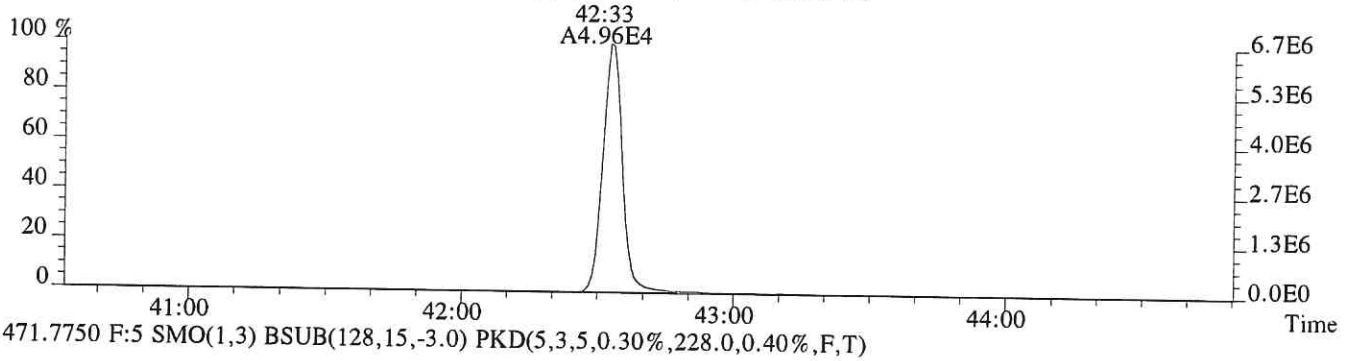
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



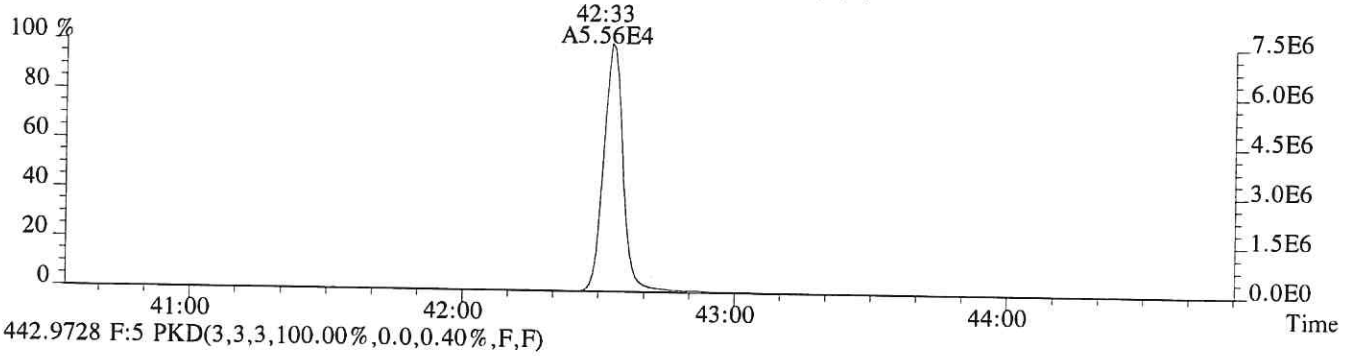
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



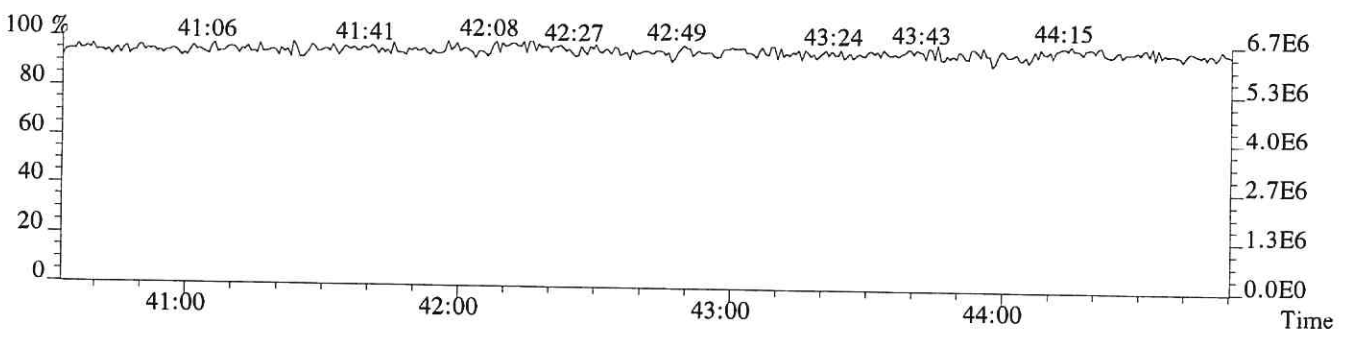
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519287

Date: 12/07/18-12/08/18 (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: qc

Second QC: LKL

ccalqc.xls 07/17/12

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519287	7-DEC-18	19:08:16
192977	WINDOW DEFINE	P519288	7-DEC-18	19:56:03
METHOD BLANK	EQ1800469-01	P519289	7-DEC-18	20:44:48
METHOD BLANK	EQ1800488-01	P519290	7-DEC-18	21:33:23
SL0539	E1801046-001DL	P519291	7-DEC-18	22:22:00
SL0540	E1801046-002DL	P519292	7-DEC-18	23:10:38
SL0541	E1801046-003DL	P519293	7-DEC-18	23:59:16
SL0542	E1801046-004DL	P519294	8-DEC-18	00:47:53
SL0552	E1801055-008	P519295	8-DEC-18	01:36:30
SL0558	E1801057-006	P519296	8-DEC-18	02:25:08
SL0559	E1801057-007	P519297	8-DEC-18	03:13:44
SL0560	E1801057-008	P519298	8-DEC-18	04:02:22
SL0580	E1801065-001	P519299	8-DEC-18	04:50:59
SL0581	E1801065-002	P519300	8-DEC-18	05:39:44
SL0582	E1801065-003	P519301	8-DEC-18	06:28:20

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207B.SPL
Last Modified: Monday, December 10, 2018 07:32:15 Central Standard Time
Printed: Monday, December 10, 2018 07:32:17 Central Standard Time

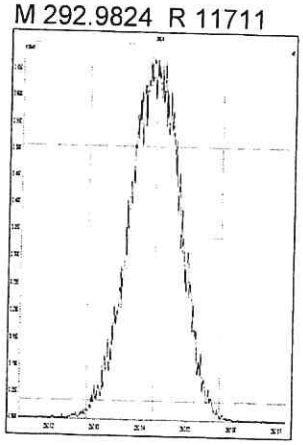
Page Position (1, 1)

OPR54: P519287res

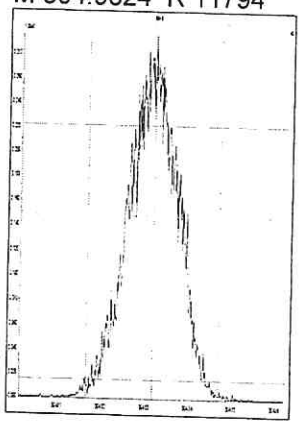
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	19:08	P519287	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 19:08
2		19:56	P519288	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		20:44	P519289	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		21:32	P519290	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		22:22	P519291	E1801046-001DL	E1801046-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		23:10	P519292	E1801046-002DL	E1801046-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		23:59	P519293	E1801046-003DL	E1801046-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8	12/8/18	00:47	P519294	E1801046-004DL	E1801046-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		01:36	P519295	E1801055-008	E1801055-008	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		02:25	P519296	E1801057-006	E1801057-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		03:13	P519297	E1801057-007	E1801057-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		04:02	P519298	E1801057-008	E1801057-008	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		04:50	P519299	E1801065-001	E1801065-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		05:39	P519300	E1801065-002	E1801065-002	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		06:28	P519301	E1801065-003	E1801065-003	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		07:25	P519302	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 07:25
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/10/18

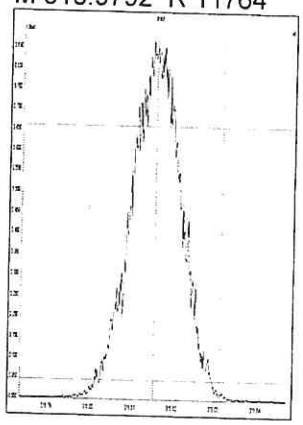
M 292.9824 R 11711



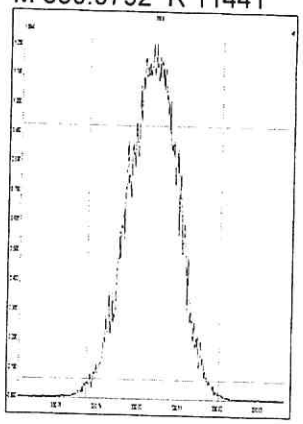
M 304.9824 R 11794



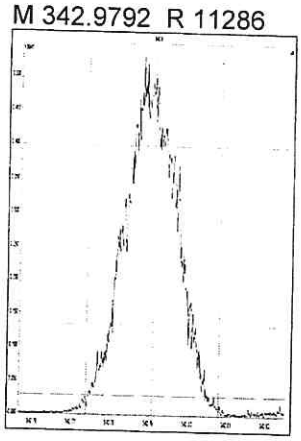
M 318.9792 R 11764



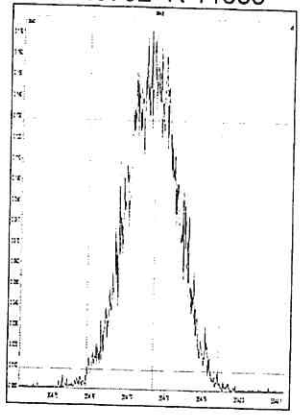
M 330.9792 R 11441



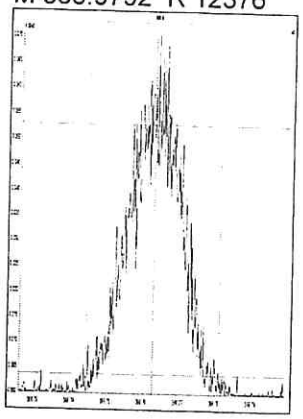
M 342.9792 R 11286



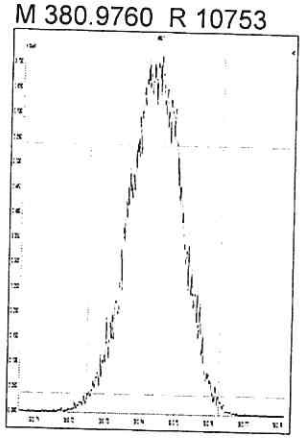
M 354.9792 R 11633



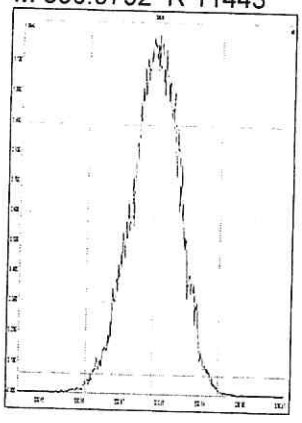
M 366.9792 R 12376



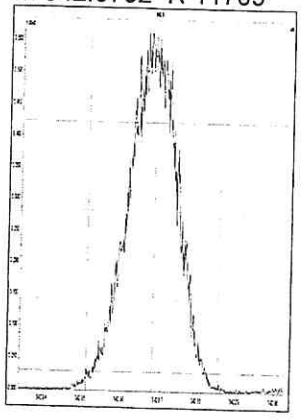
M 380.9760 R 10753



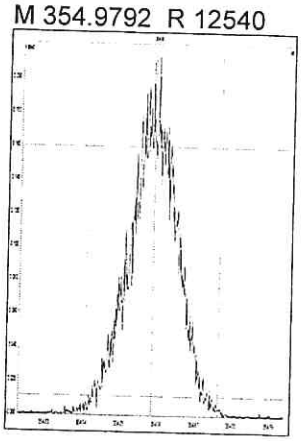
M 330.9792 R 11443



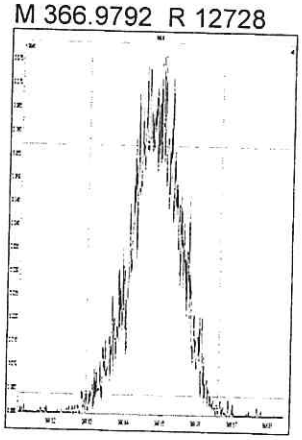
M 342.9792 R 11709



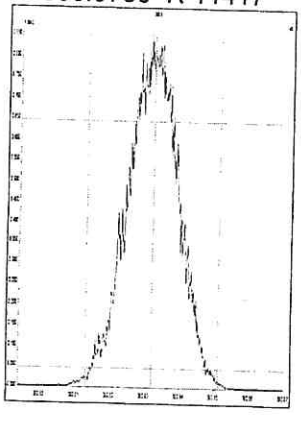
M 354.9792 R 12540



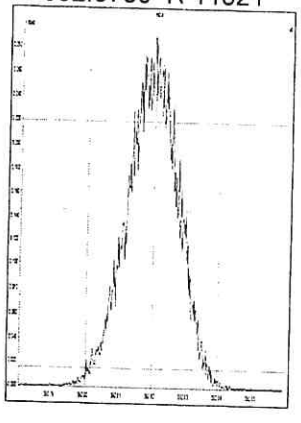
M 366.9792 R 12728



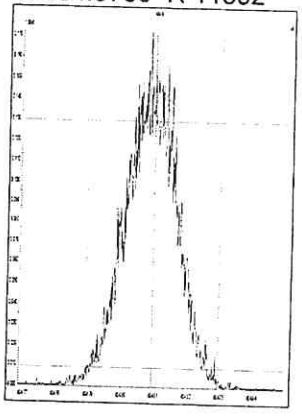
M 380.9760 R 11417



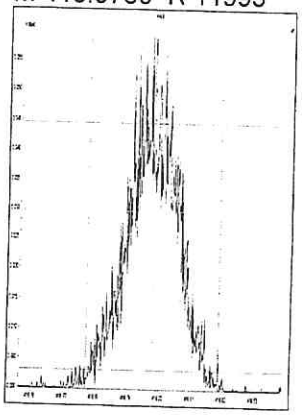
M 392.9760 R 11521



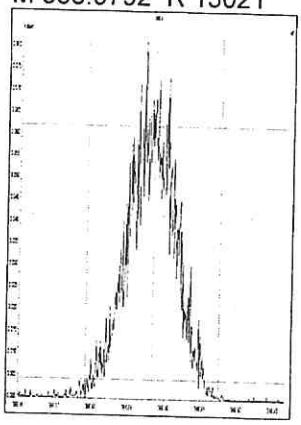
M 404.9760 R 11392



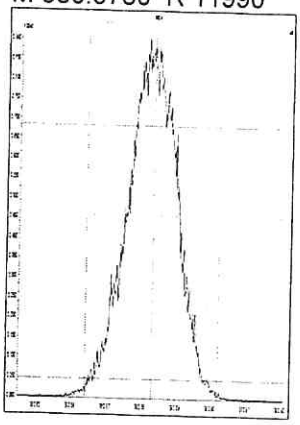
M 416.9760 R 11995



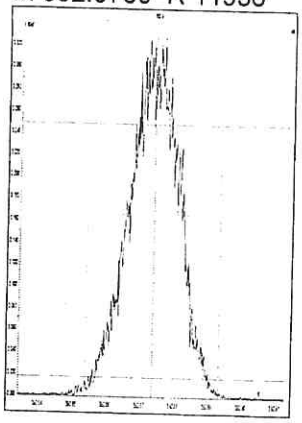
M 366.9792 R 13021



M 380.9760 R 11990



M 392.9760 R 11936



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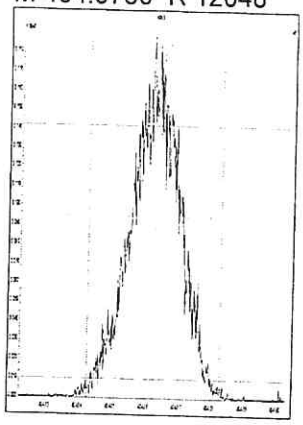

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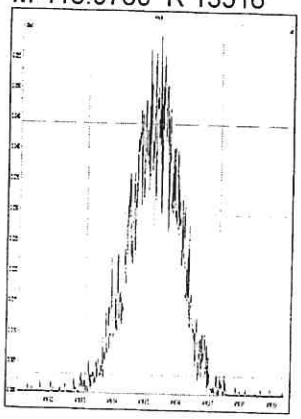
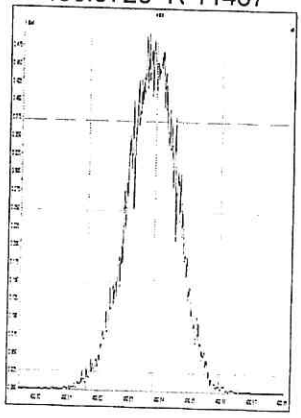


M 430.9728 R 11467



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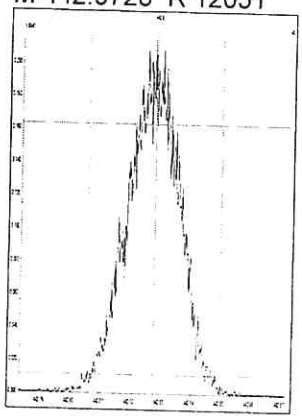

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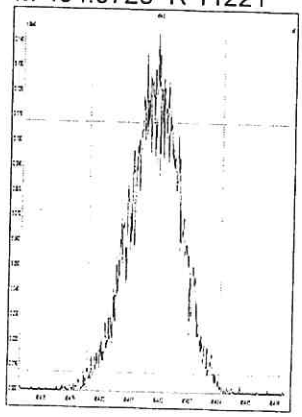

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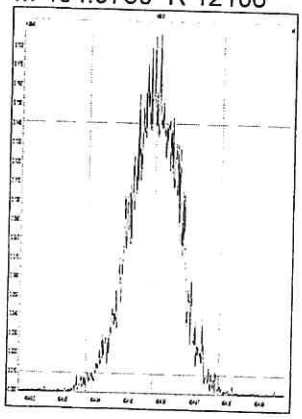

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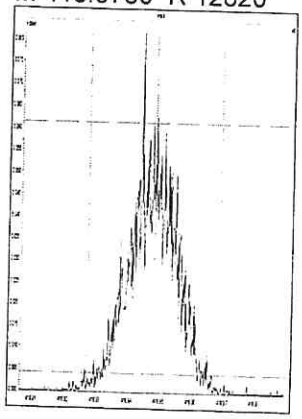

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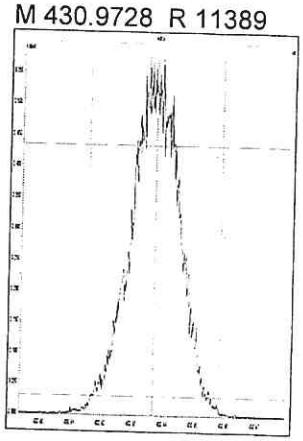

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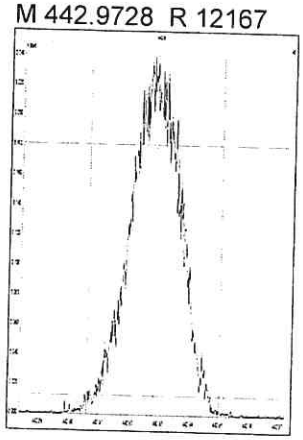
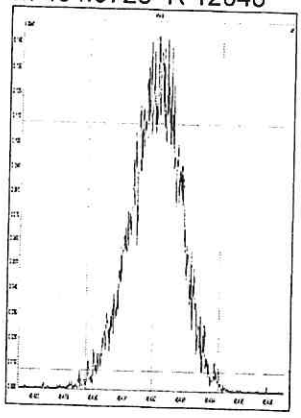


M 454.9728 R 12048



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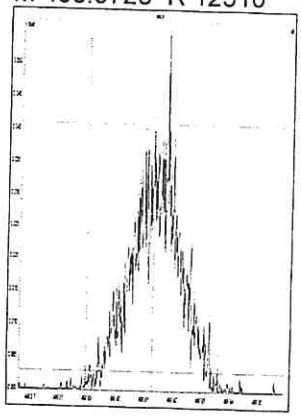

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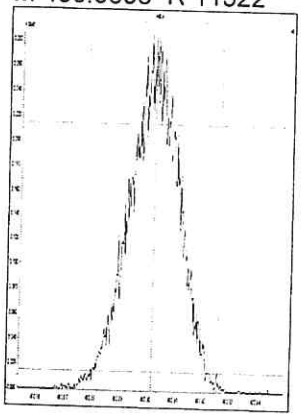
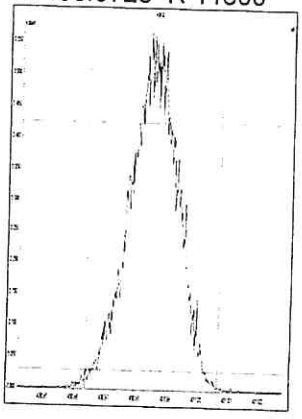


M 430.9728 R 11600



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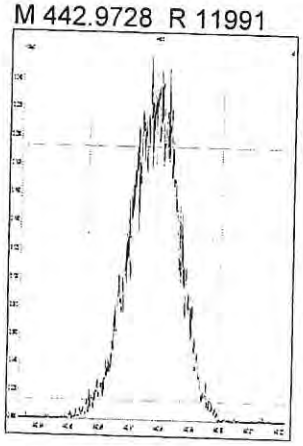
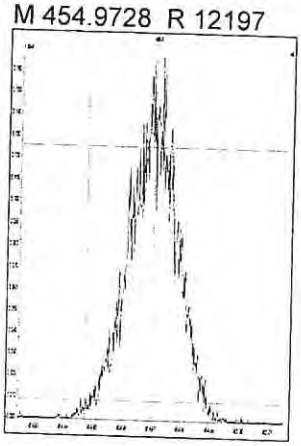
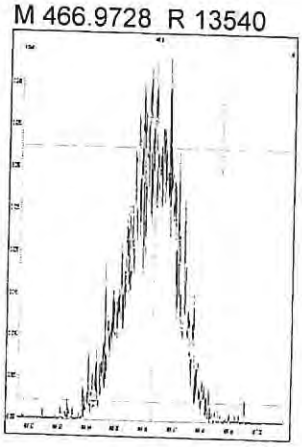


M 454.9728 R 12197



M 466.9728 R 13540



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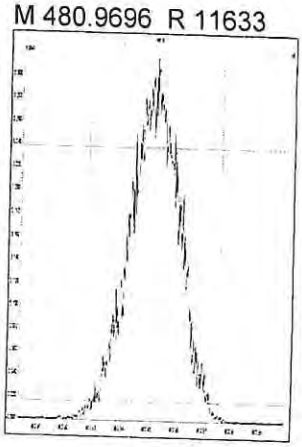

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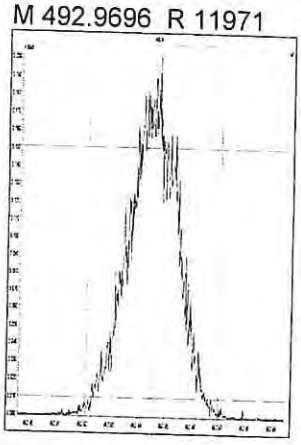

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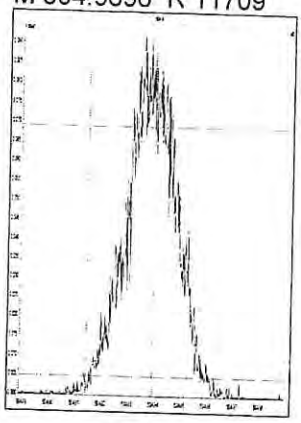

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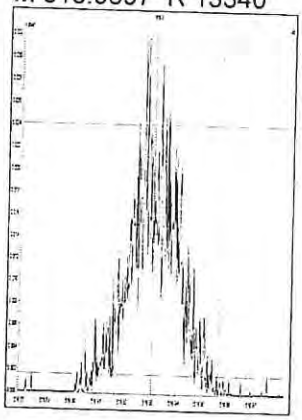

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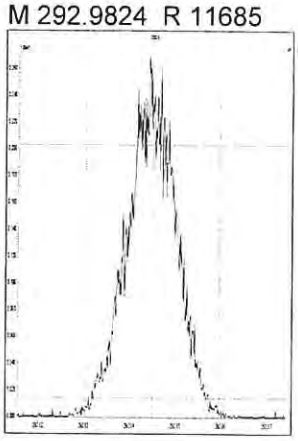

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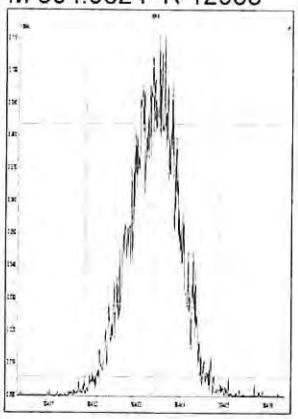

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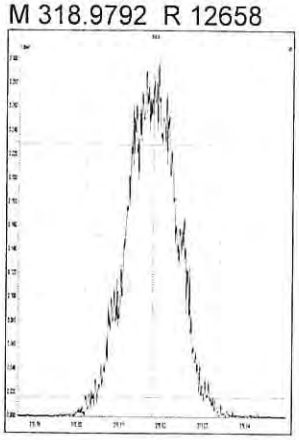

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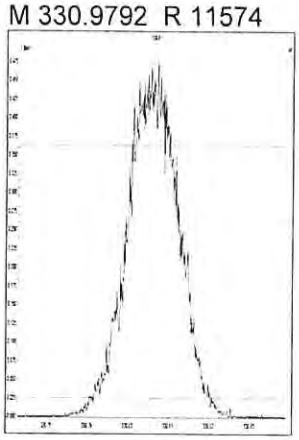
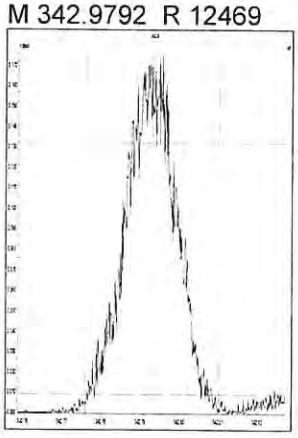
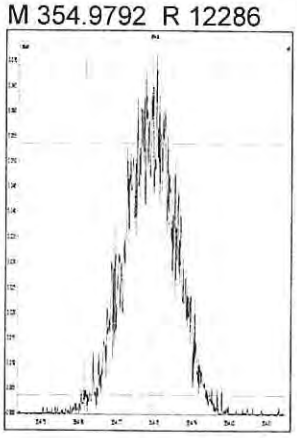


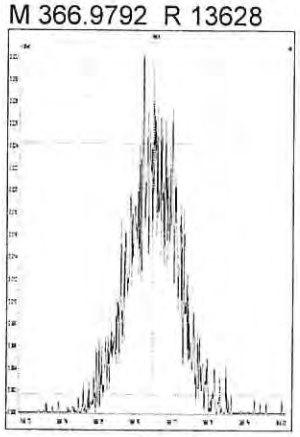
M 342.9792 R 12469



M 354.9792 R 12286



M 366.9792 R 13628



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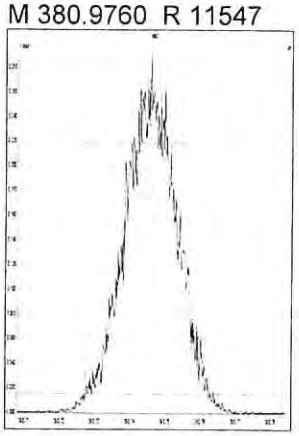

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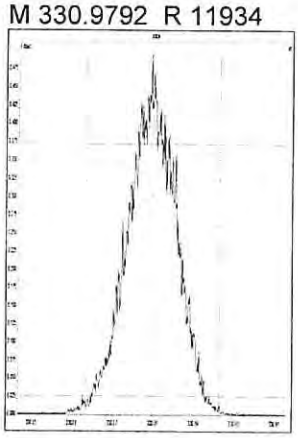

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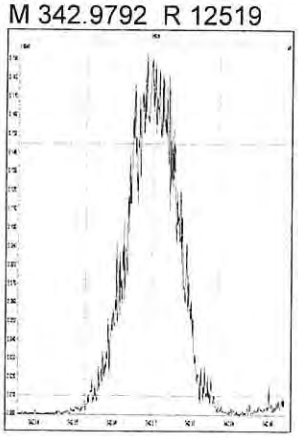

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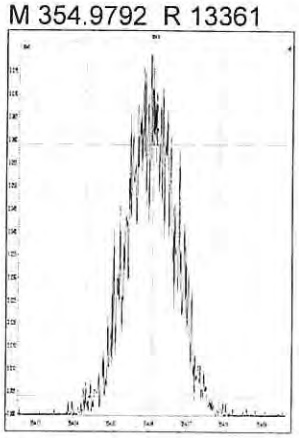

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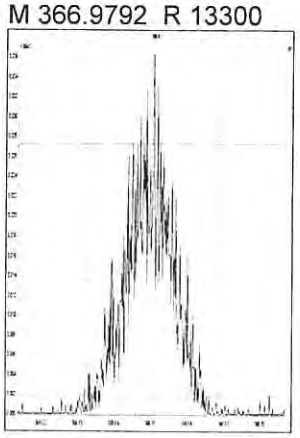

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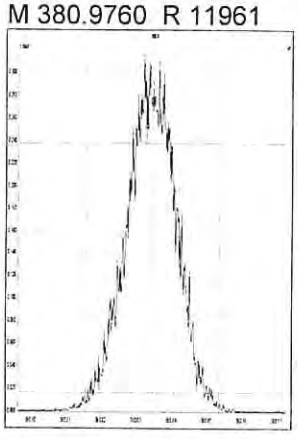

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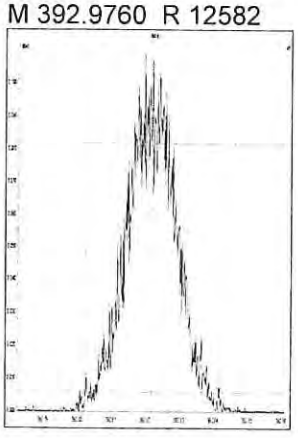

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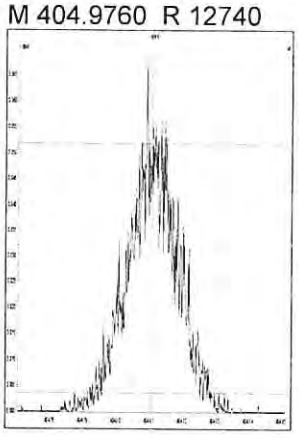

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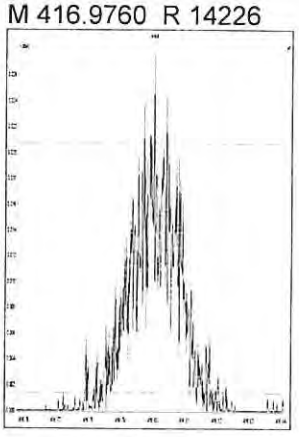
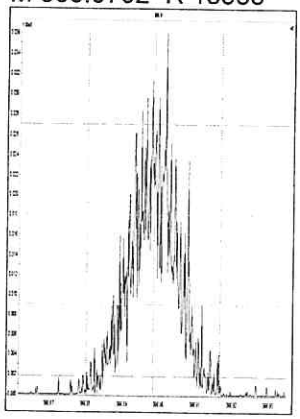


M 366.9792 R 13585



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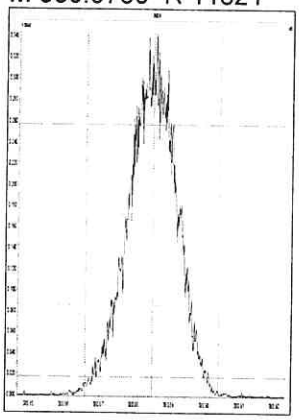

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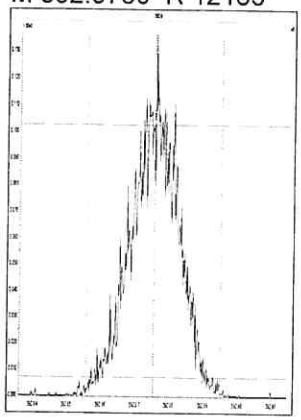

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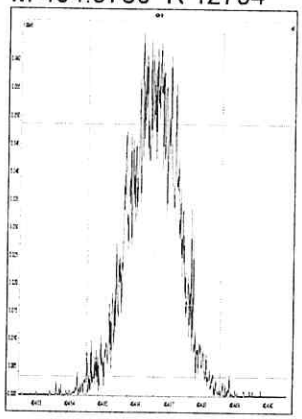

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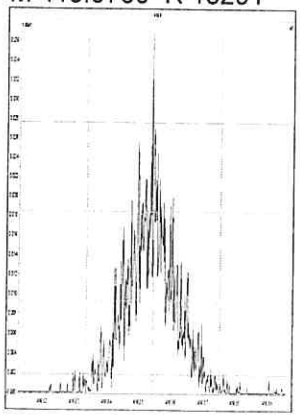
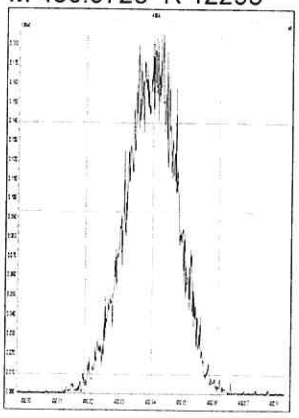


M 430.9728 R 12293



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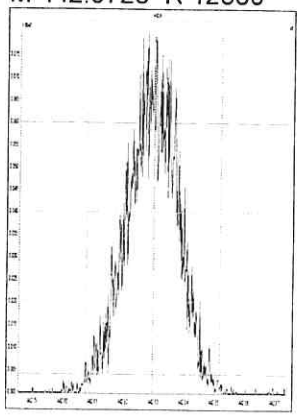

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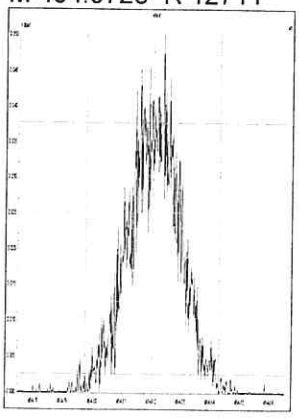

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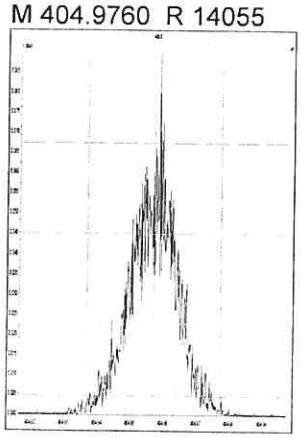

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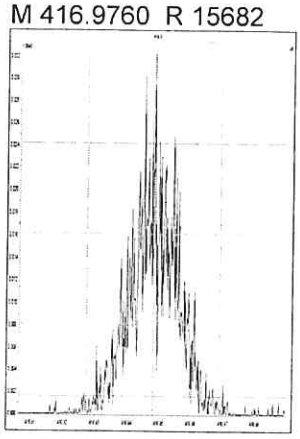
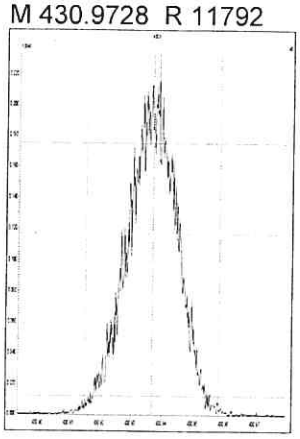


M 430.9728 R 11792



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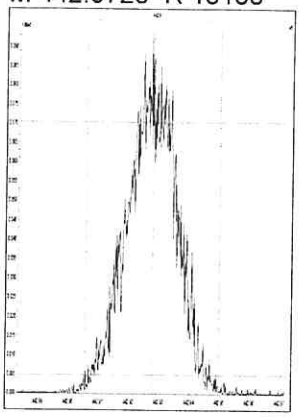
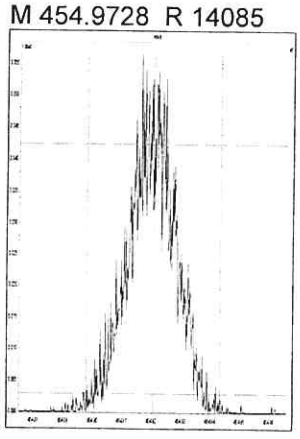


M 454.9728 R 14085



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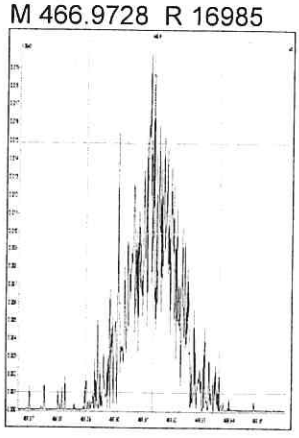

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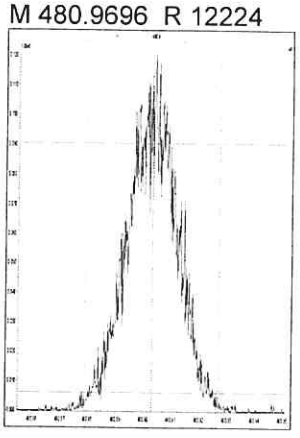

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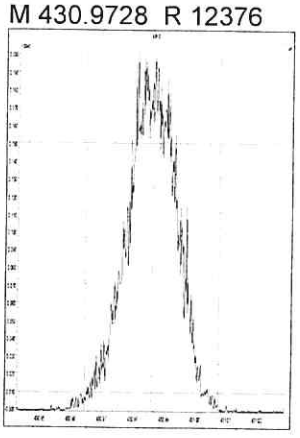
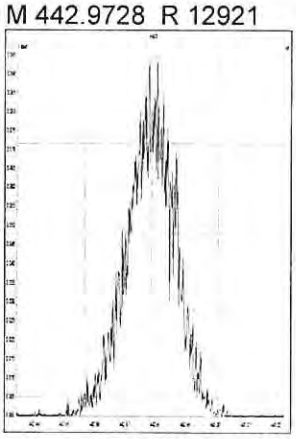
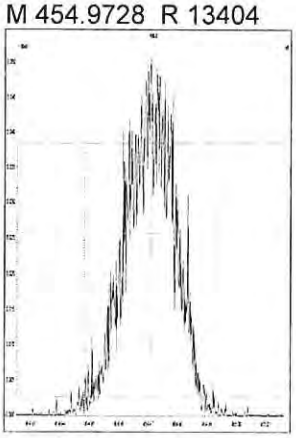


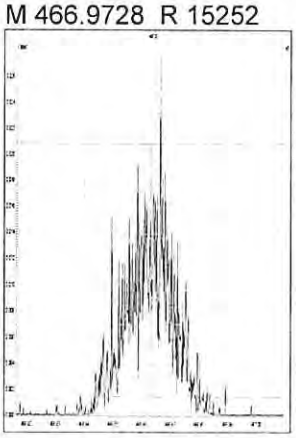
M 442.9728 R 12921



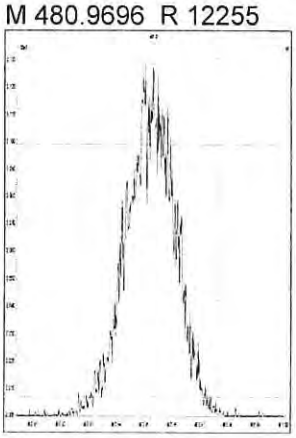
M 454.9728 R 13404



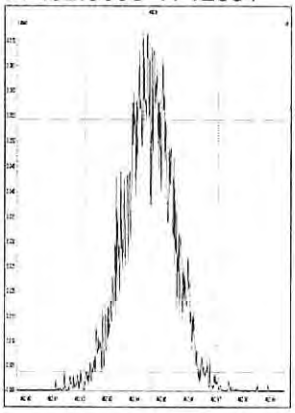
M 466.9728 R 15252



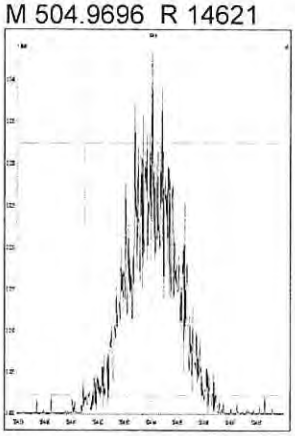
M 480.9696 R 12255



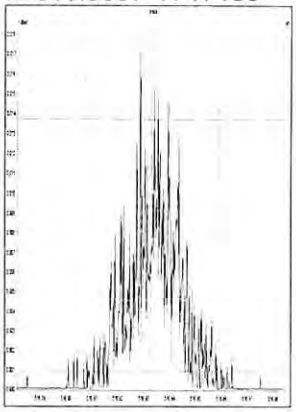
M 492.9696 R 12531



M 504.9696 R 14621



M 516.9697 R 17130



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

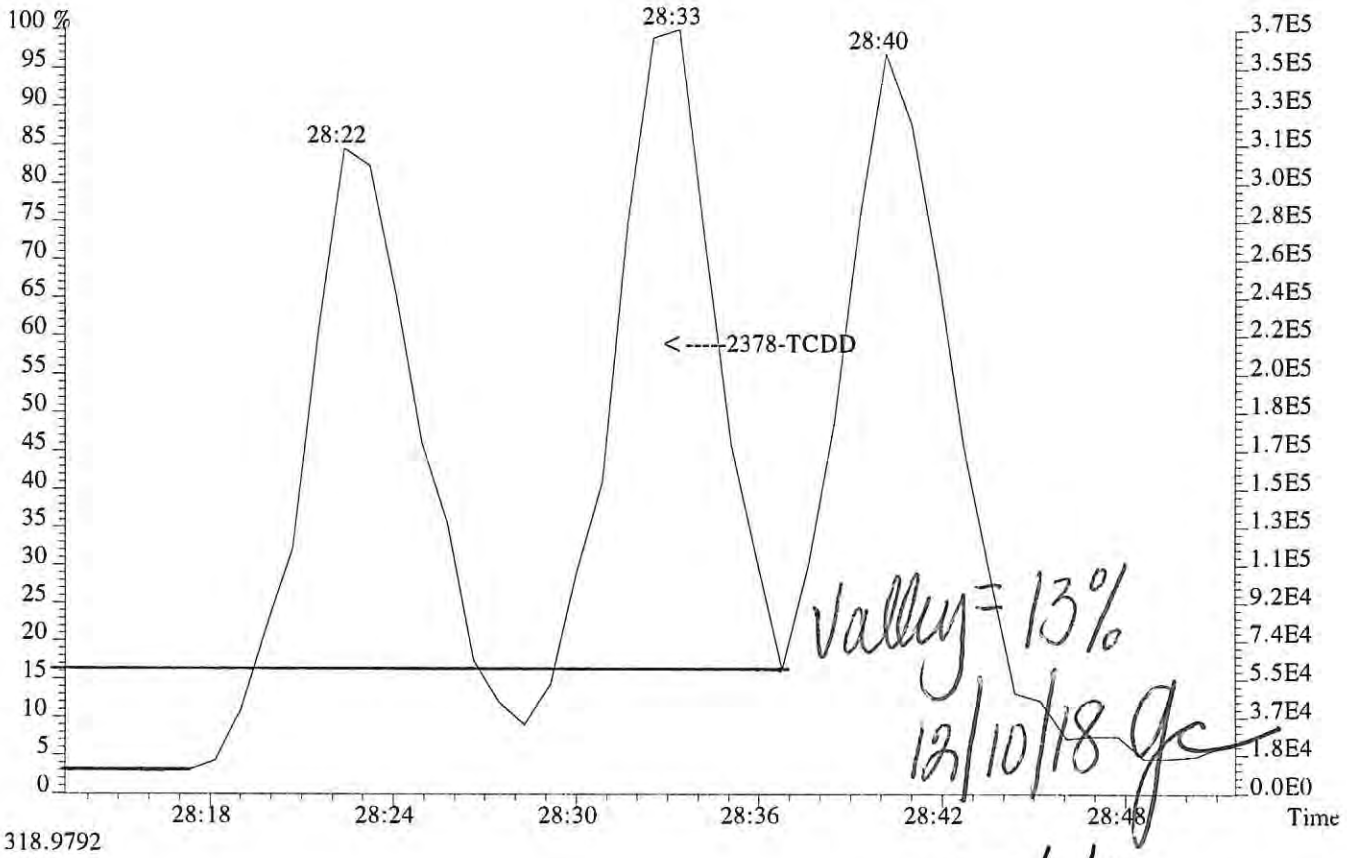
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P519288
Date Analyzed: 7-DEC-2018
Time Analyzed: 19:56:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:17	29:44
TCDD	25:06	29:34
PeCDF	29:42	34:03
PeCDD	31:17	33:48
HxCDF	34:44	37:19
HxCDD	35:16	36:54
HpCDF	38:36	40:04
HpCDD	38:52	39:34

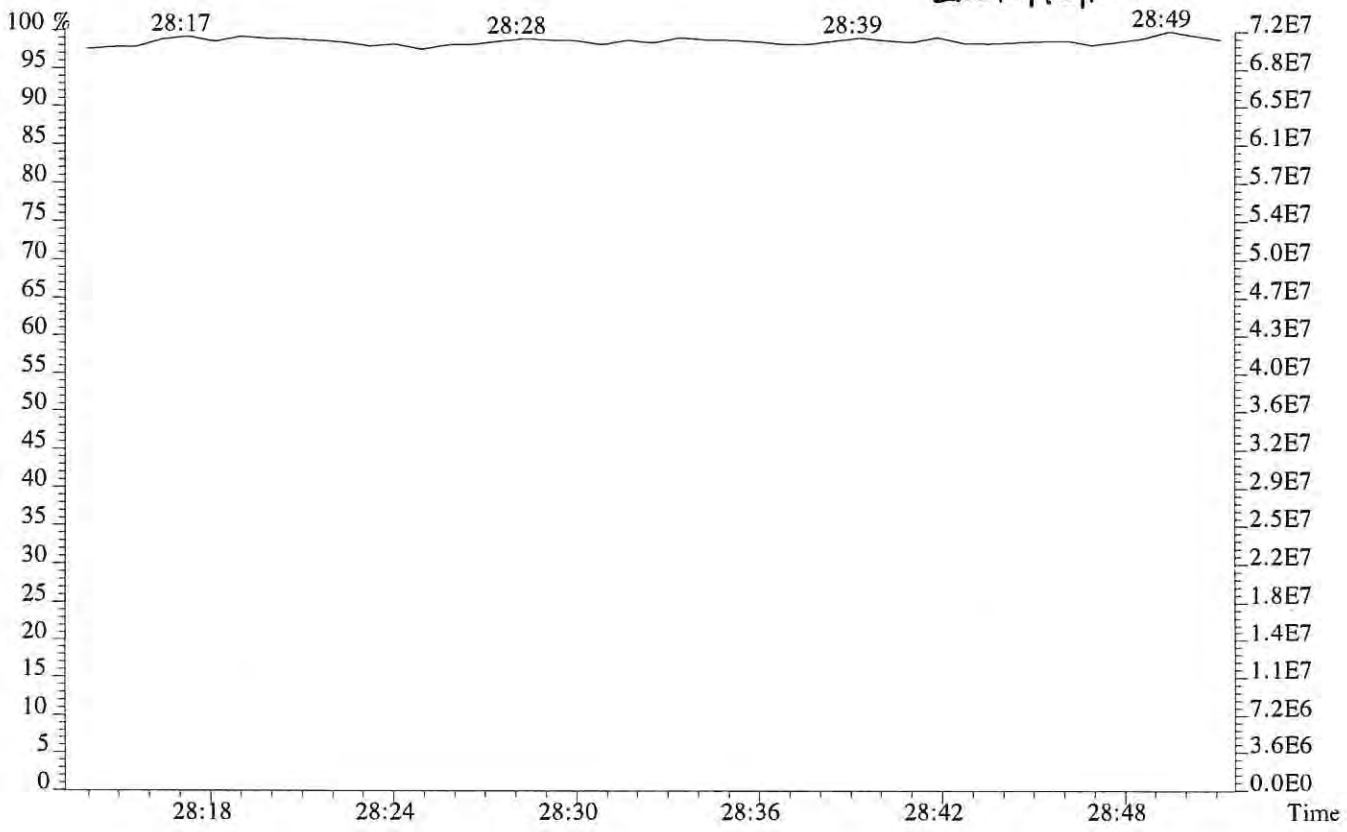
% Valley 2378-TCDD: 13 %

File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LIK 12/10/18



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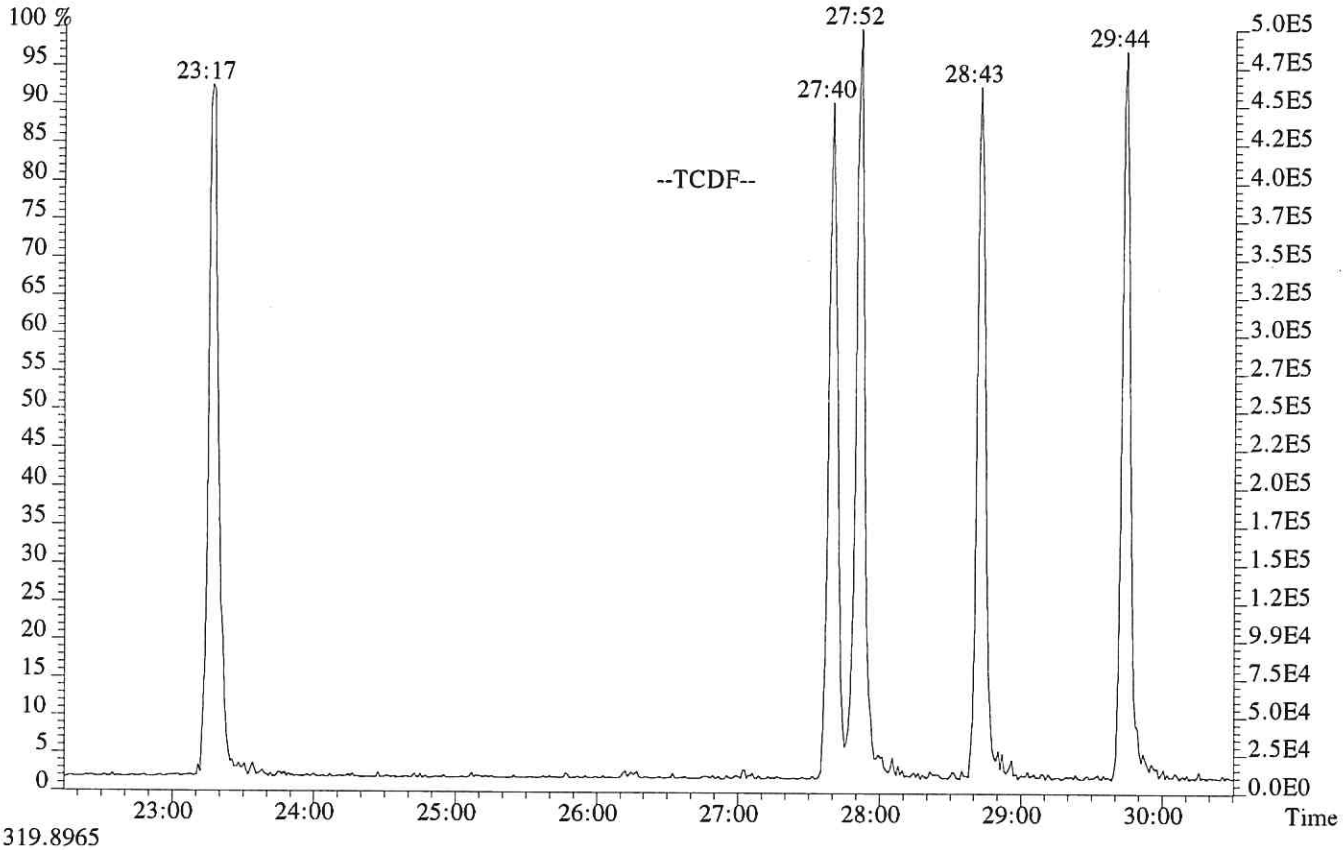
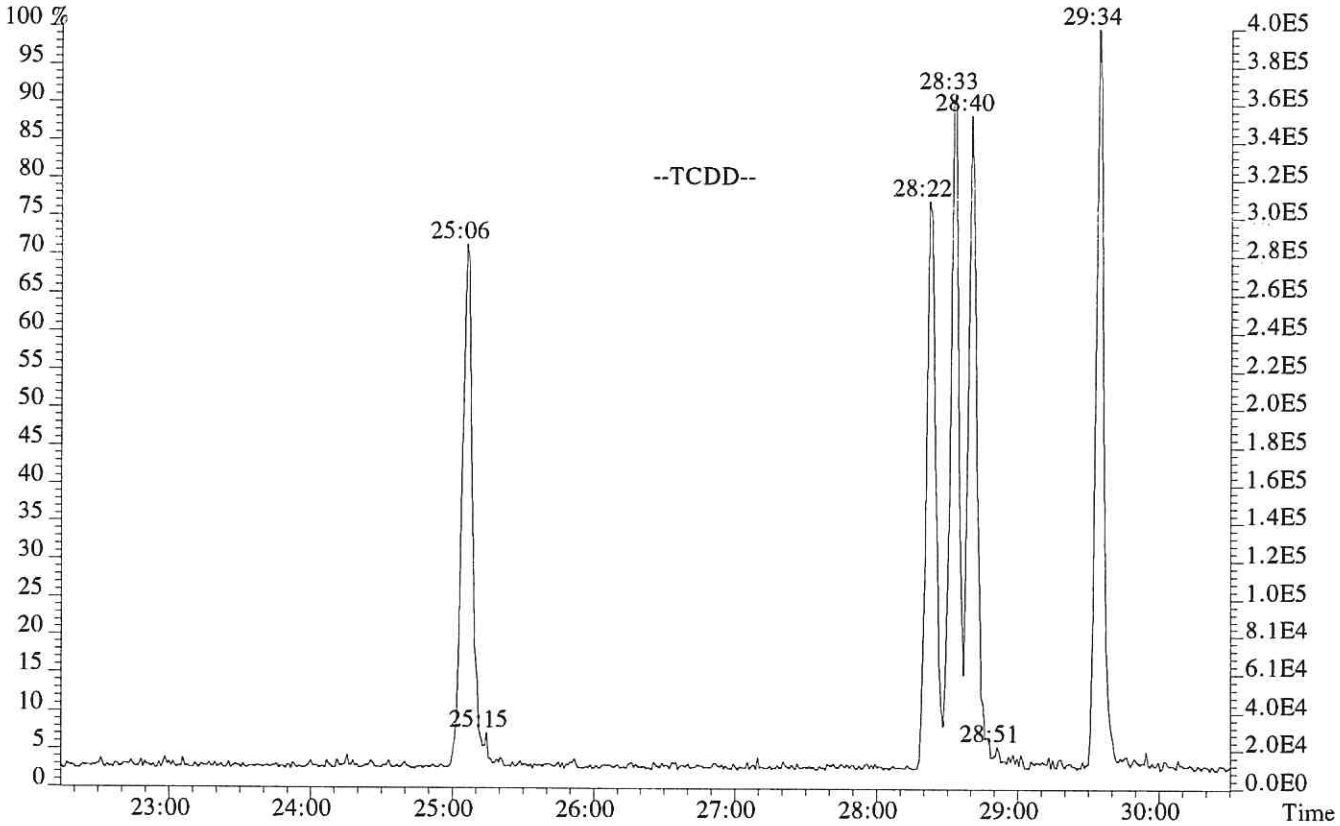
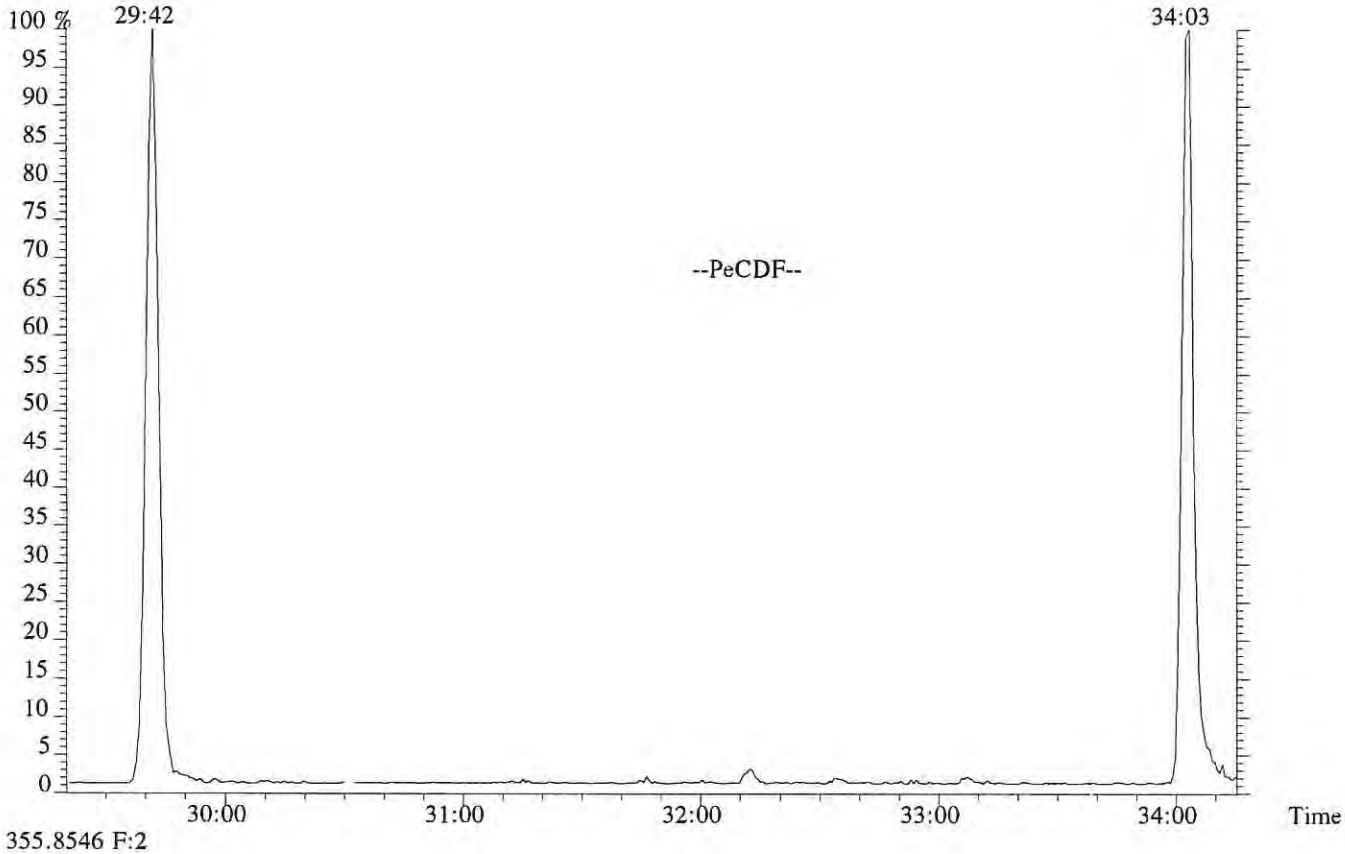
Sample#1 Exp:192977
303.9016



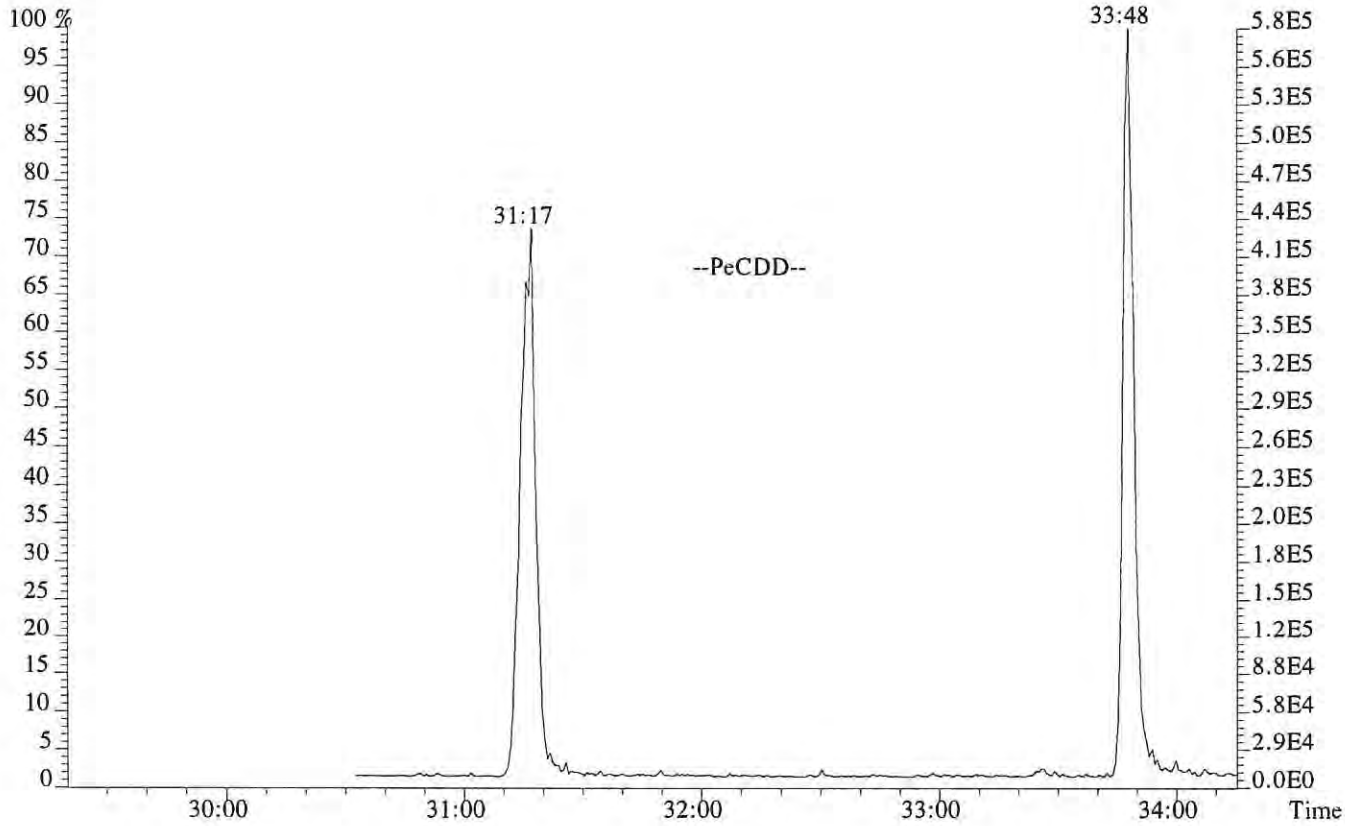
319.8965



File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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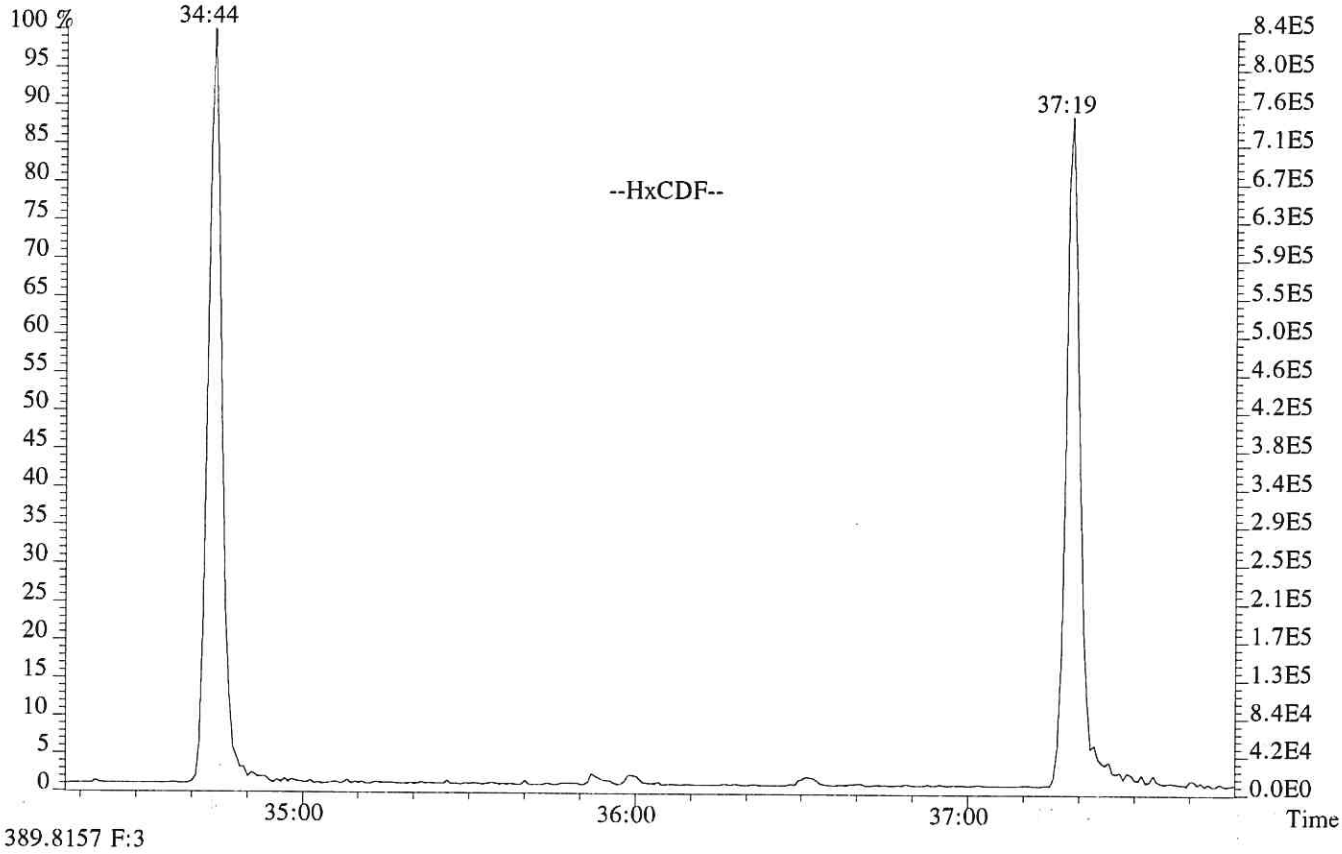
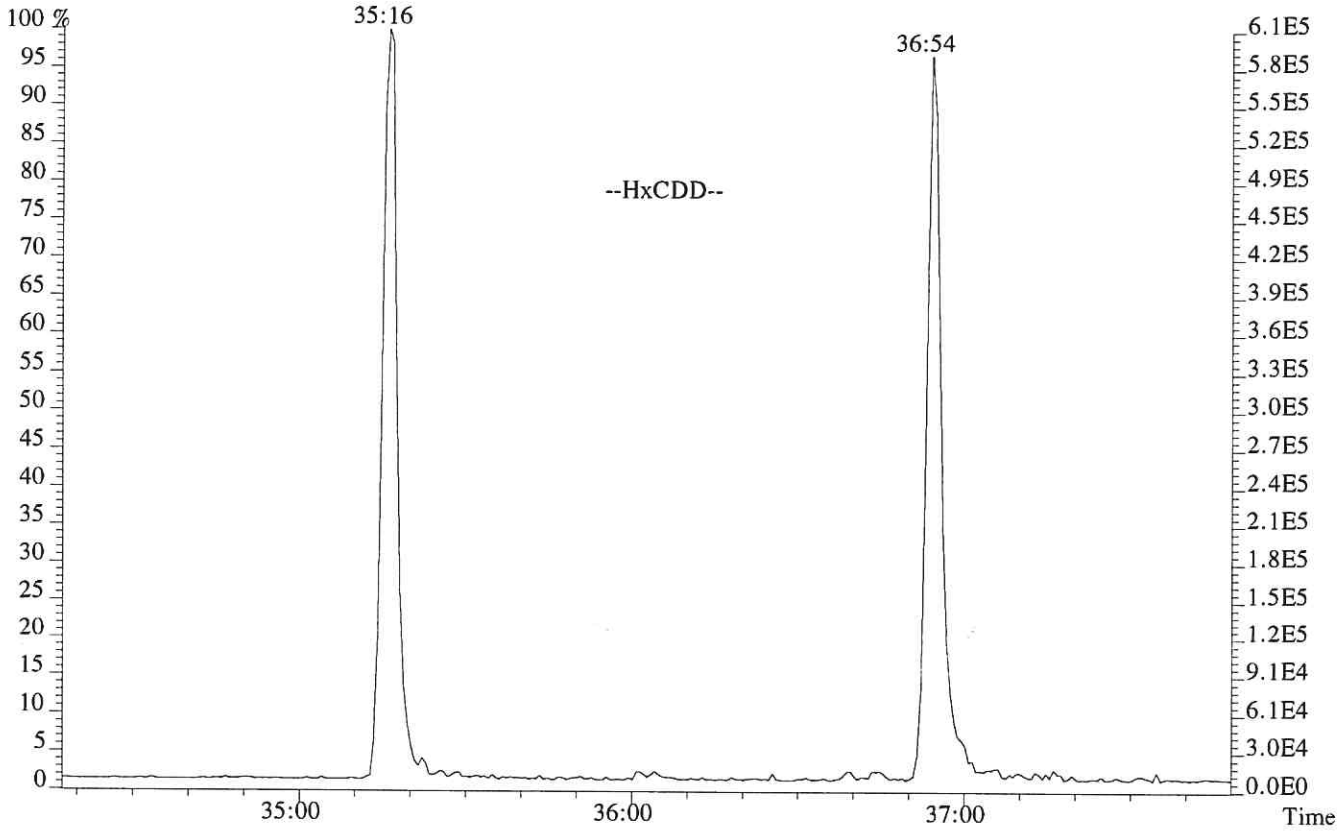
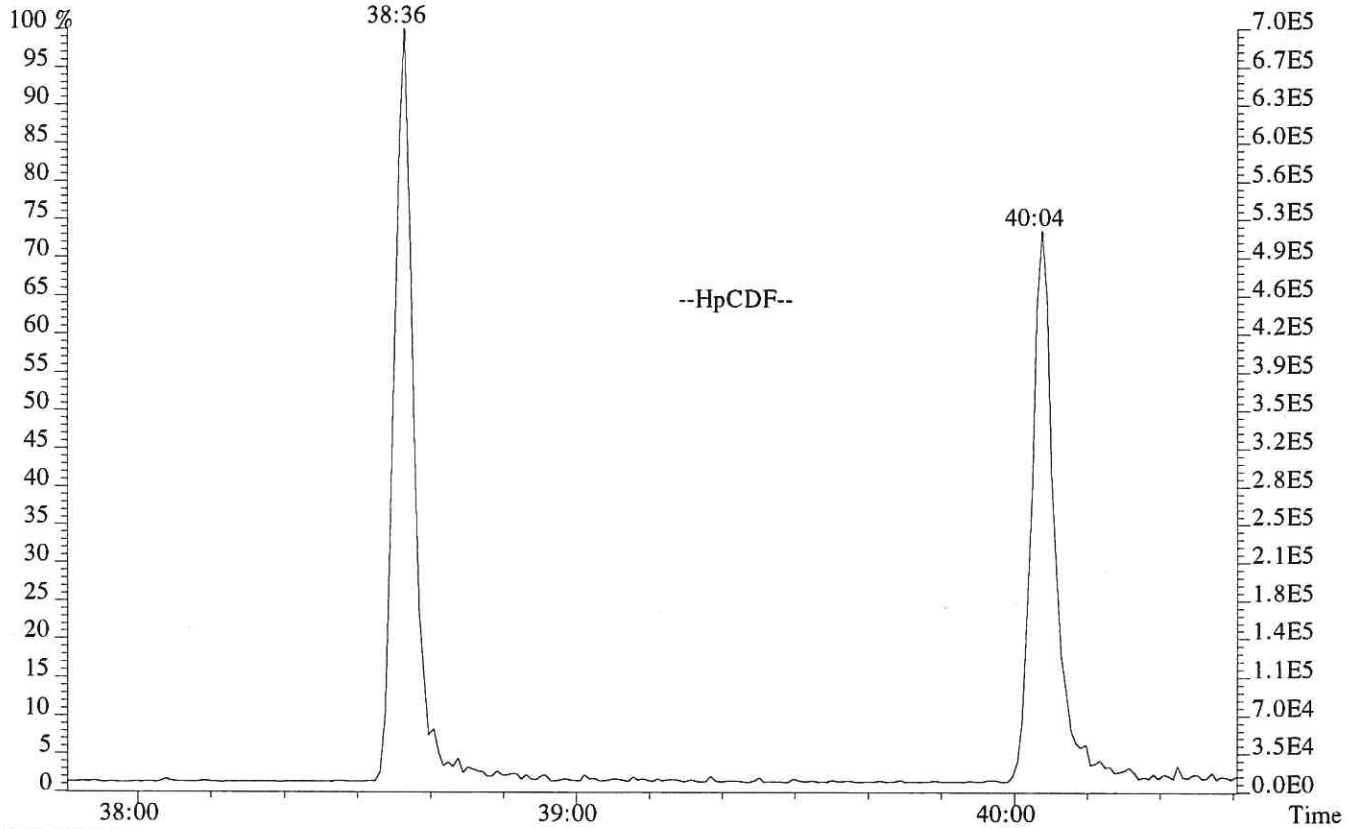
Sample#1 Exp:192977
373.8208 F:3



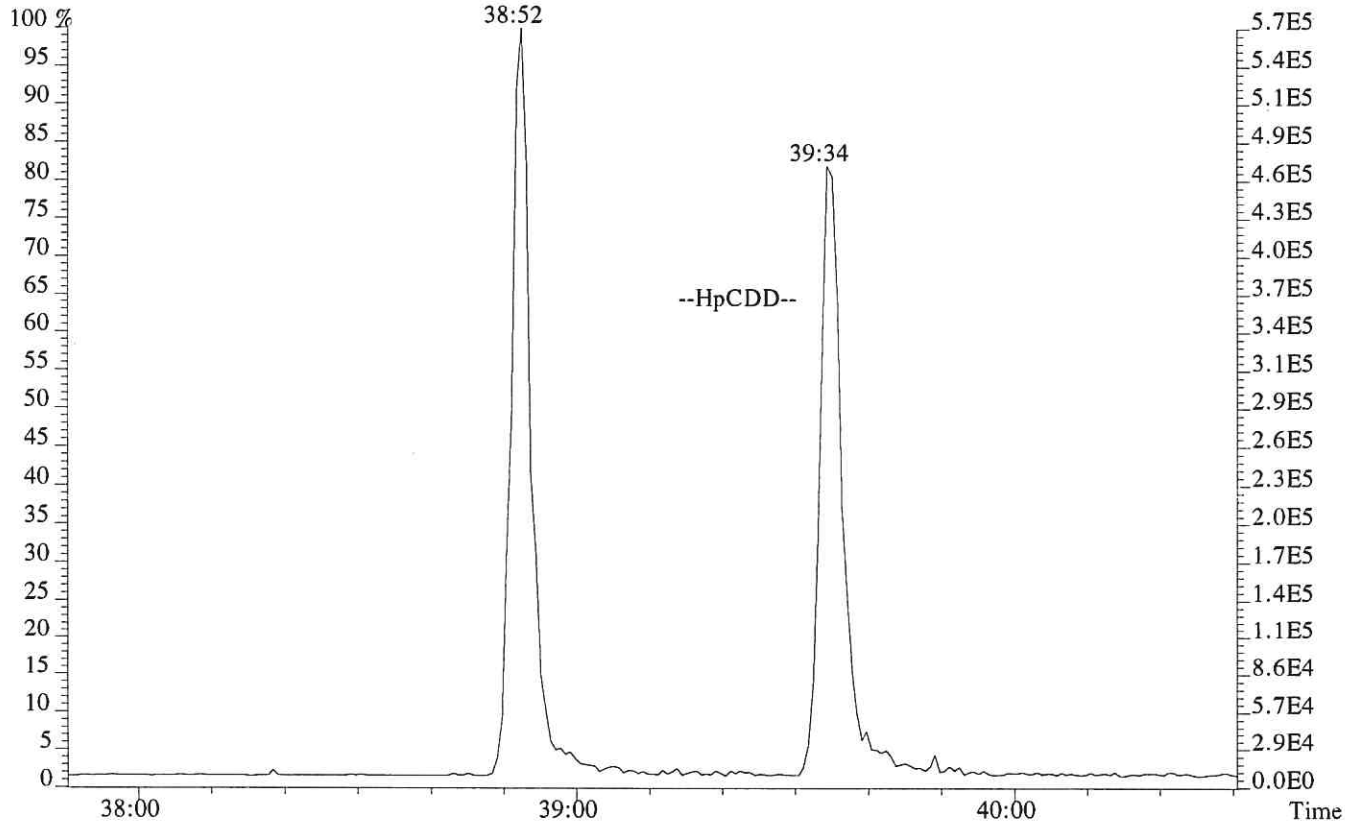
389.8157 F:3



File:P519288 #1-241 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	52	39 - 65	3.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	51	39 - 64	2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	4.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.9
OCDF	M+2/M+4	0.88	0.76-1.02	101	63 - 159	1.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	104	82 - 121	3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	117	62 - 160	16.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	94	85 - 117	-5.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	93	85 - 118	-6.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	109	72 - 138	8.6
13C-OCDD	M+2/M+4	0.89	0.76-1.02	260	96 - 415	29.8
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	115	76 - 130	15.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	116	77 - 130	15.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	111	77 - 129	11.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	1.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.651e+03	4.952e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	3.206e+04	2.107e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.080e+04	1.981e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.691e+04	2.245e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.028e+04	2.509e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.724e+04	2.254e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.554e+04	2.123e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	2.572e+04	2.571e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.196e+04	2.194e+04	1.00	yes	no	1.258
0	Unk	OCDF	42:45	3.662e+04	4.163e+04	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:41	2.761e+03	3.479e+03	0.79	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:24	2.121e+04	1.333e+04	1.59	yes	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	36:39	1.971e+04	1.514e+04	1.30	yes	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:44	2.027e+04	1.584e+04	1.28	yes	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:59	2.150e+04	1.714e+04	1.25	yes	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.894e+04	1.774e+04	1.07	yes	no	1.025
7	Unk	OCDD	42:33	3.068e+04	3.415e+04	0.90	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:50	4.040e+04	5.052e+04	0.80	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:10	6.382e+04	4.020e+04	1.59	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:06	6.314e+04	3.999e+04	1.58	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:51	2.765e+04	5.368e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:58	3.358e+04	6.345e+04	0.53	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:29	3.020e+04	5.826e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:16	2.797e+04	5.320e+04	0.53	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	2.344e+04	5.212e+04	0.45	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	2.114e+04	4.735e+04	0.45	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:39	2.623e+04	3.259e+04	0.80	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:24	4.289e+04	2.696e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:38	3.687e+04	2.852e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.742e+04	2.911e+04	1.29	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.637e+04	3.368e+04	1.08	yes	no	0.858
2	IS	13C-OCDD	42:33	5.342e+04	6.023e+04	0.89	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	28:05	2.717e+04	3.412e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	4.200e+04	3.318e+04	1.27	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.279e+03				no	1.014

LS ENVIRONMENTAL
0450 Stancliff Rd, Suite 115
ouston, TX 77099
ffice(713)266-1599. Fax(713)266-0130

ww.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.34e+05	5.32e+02	1.2e+03	8.78e+05	1.42e+03	6.2e+02
	1,2,3,7,8-PeCDF	5.87e+06	4.76e+02	1.2e+04	3.87e+06	1.20e+03	3.2e+03
	2,3,4,7,8-PeCDF	6.08e+06	4.76e+02	1.3e+04	3.82e+06	1.20e+03	3.2e+03
	1,2,3,4,7,8-HxCDF	5.87e+06	7.00e+02	8.4e+03	4.99e+06	6.00e+02	8.3e+03
	1,2,3,6,7,8-HxCDF	6.14e+06	7.00e+02	8.8e+03	5.11e+06	6.00e+02	8.5e+03
	2,3,4,6,7,8-HxCDF	5.95e+06	7.00e+02	8.5e+03	4.93e+06	6.00e+02	8.2e+03
	1,2,3,7,8,9-HxCDF	4.77e+06	7.00e+02	6.8e+03	3.97e+06	6.00e+02	6.6e+03
	1,2,3,4,6,7,8-HpCDF	5.16e+06	2.04e+02	2.5e+04	5.11e+06	1.60e+02	3.2e+04
	1,2,3,4,7,8,9-HpCDF	3.49e+06	2.04e+02	1.7e+04	3.55e+06	1.60e+02	2.2e+04
0	OCDF	4.67e+06	2.52e+02	1.9e+04	5.34e+06	1.02e+03	5.2e+03
1	2,3,7,8-TCDD	5.32e+05	2.04e+03	2.6e+02	6.56e+05	1.17e+03	5.6e+02
2	1,2,3,7,8-PeCDD	4.13e+06	7.76e+02	5.3e+03	2.61e+06	2.92e+02	8.9e+03
3	1,2,3,4,7,8-HxCDD	4.25e+06	3.72e+02	1.1e+04	3.20e+06	6.84e+02	4.7e+03
4	1,2,3,6,7,8-HxCDD	3.99e+06	3.72e+02	1.1e+04	3.10e+06	6.84e+02	4.5e+03
5	1,2,3,7,8,9-HxCDD	4.16e+06	3.72e+02	1.1e+04	3.22e+06	6.84e+02	4.7e+03
6	1,2,3,4,6,7,8-HpCDD	3.45e+06	4.48e+02	7.7e+03	3.25e+06	4.96e+02	6.6e+03
7	OCDD	3.99e+06	2.52e+02	1.6e+04	4.42e+06	3.00e+02	1.5e+04
8	13C-2,3,7,8-TCDF	7.22e+06	6.64e+03	1.1e+03	9.07e+06	6.70e+03	1.4e+03
9	13C-1,2,3,7,8-PeCDF	1.17e+07	8.12e+02	1.4e+04	7.35e+06	5.40e+02	1.4e+04
0	13C-2,3,4,7,8-PeCDF	1.23e+07	8.12e+02	1.5e+04	7.92e+06	5.40e+02	1.5e+04
1	13C-1,2,3,4,7,8-HxCDF	6.00e+06	9.16e+02	6.6e+03	1.18e+07	8.96e+02	1.3e+04
2	13C-1,2,3,6,7,8-HxCDF	6.90e+06	9.16e+02	7.5e+03	1.30e+07	8.96e+02	1.5e+04
3	13C-2,3,4,6,7,8-HxCDF	6.46e+06	9.16e+02	7.1e+03	1.24e+07	8.96e+02	1.4e+04
4	13C-1,2,3,7,8,9-HxCDF	5.21e+06	9.16e+02	5.7e+03	9.73e+06	8.96e+02	1.1e+04
5	13C-1,2,3,4,6,7,8-HpCDF	4.61e+06	2.22e+03	2.1e+03	1.02e+07	1.12e+03	9.2e+03
6	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	2.22e+03	1.5e+03	7.57e+06	1.12e+03	6.8e+03
7	13C-2,3,7,8-TCDD	4.99e+06	4.20e+03	1.2e+03	6.26e+06	1.75e+03	3.6e+03
8	13C-1,2,3,7,8-PeCDD	8.63e+06	1.40e+03	6.2e+03	5.45e+06	1.18e+03	4.6e+03
9	13C-1,2,3,4,7,8-HxCDD	7.82e+06	7.08e+02	1.1e+04	5.99e+06	7.16e+02	8.4e+03
0	13C-1,2,3,6,7,8-HxCDD	7.35e+06	7.08e+02	1.0e+04	5.72e+06	7.16e+02	8.0e+03
1	13C-1,2,3,4,6,7,8-HpCDD	6.49e+06	6.00e+02	1.1e+04	6.06e+06	5.16e+02	1.2e+04
2	13C-OCDD	6.87e+06	4.92e+02	1.4e+04	7.75e+06	2.76e+02	2.8e+04
3	13C-1,2,3,4-TCDD	5.19e+06	4.20e+03	1.2e+03	6.52e+06	1.75e+03	3.7e+03
4	13C-1,2,3,7,8,9-HxCDD	7.95e+06	7.08e+02	1.1e+04	6.19e+06	7.16e+02	8.6e+03
5	37Cl-2,3,7,8-TCDD	1.17e+06	1.10e+03	1.1e+03			

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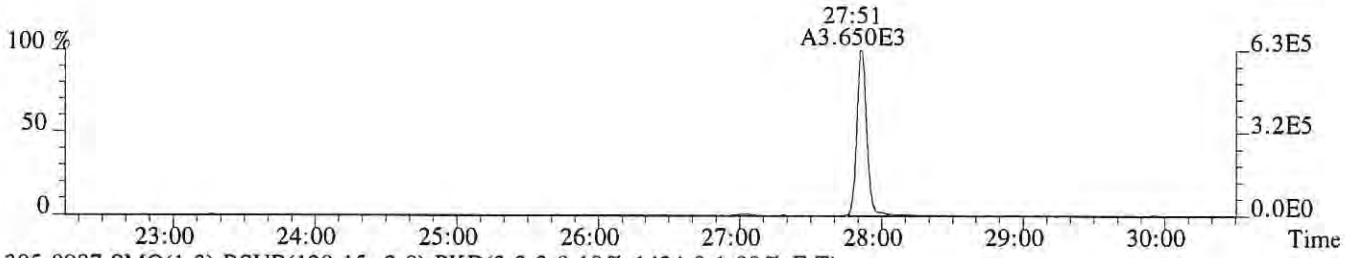
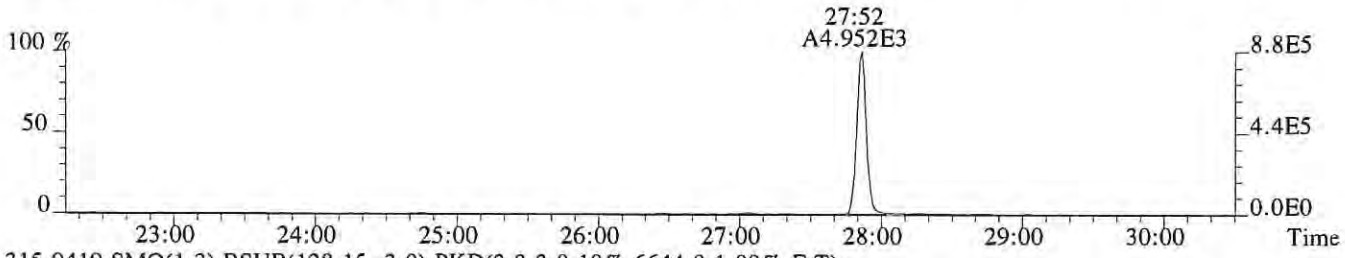
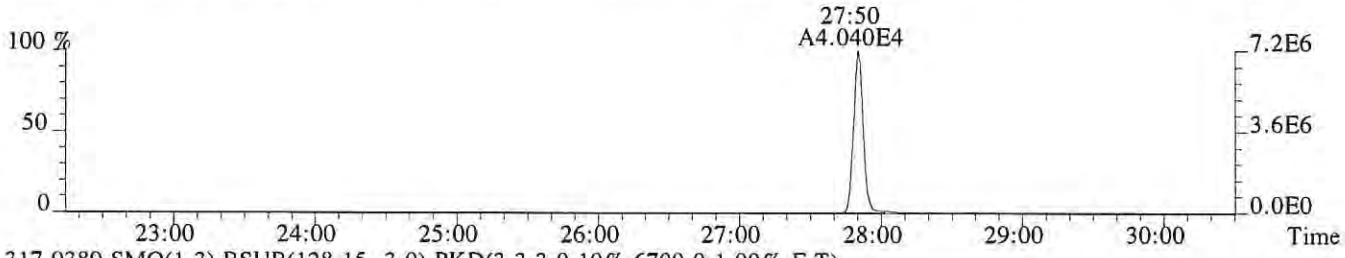
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



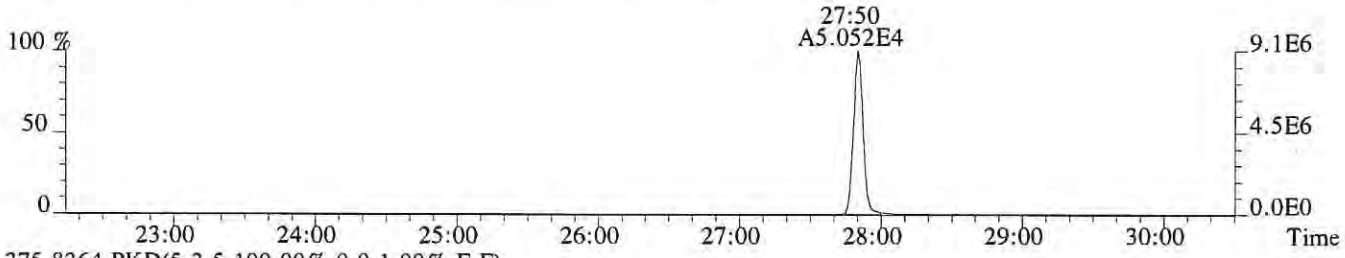
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



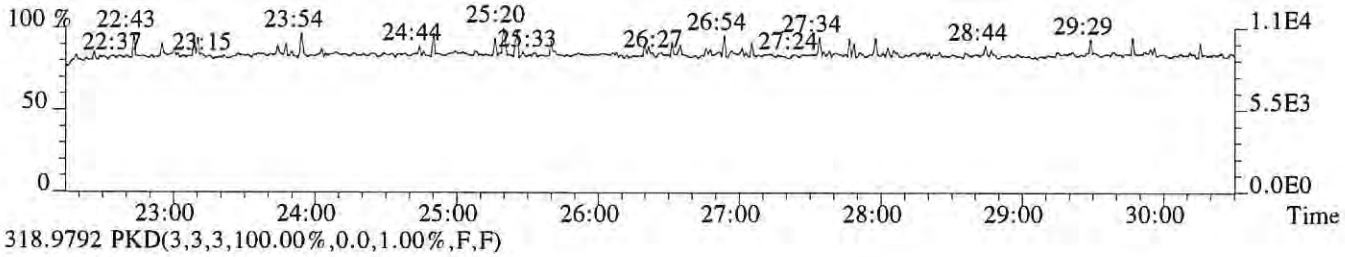
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



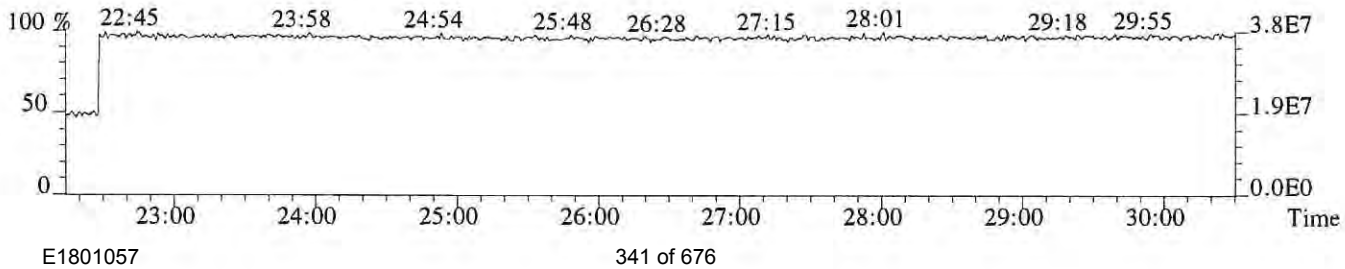
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6700.0,1.00%,F,T)



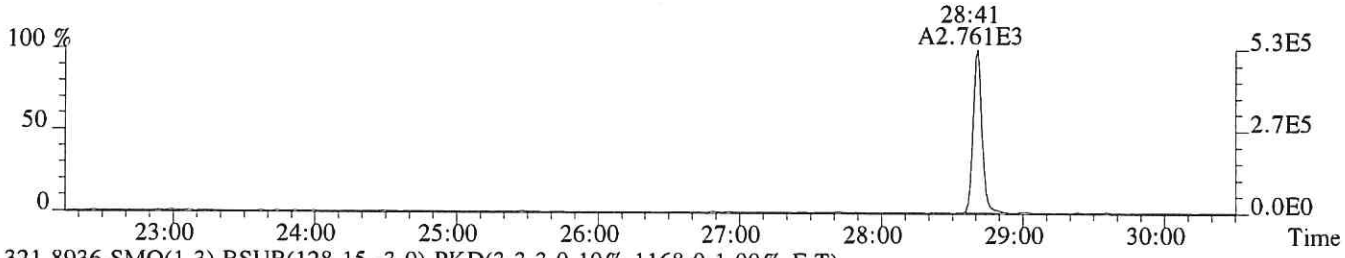
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



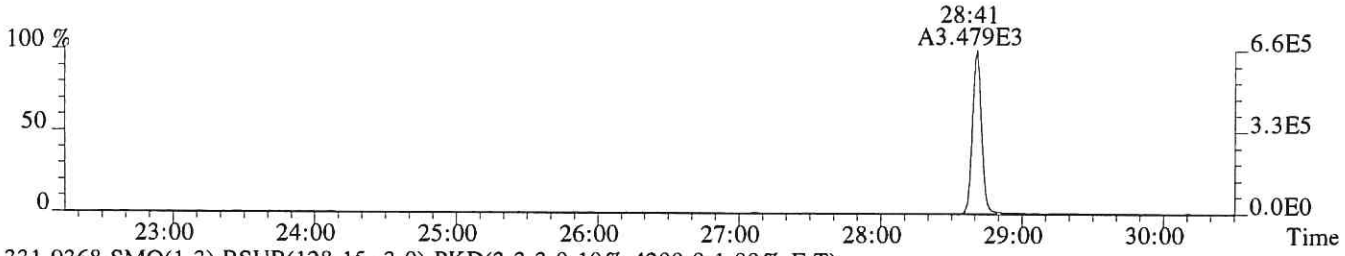
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



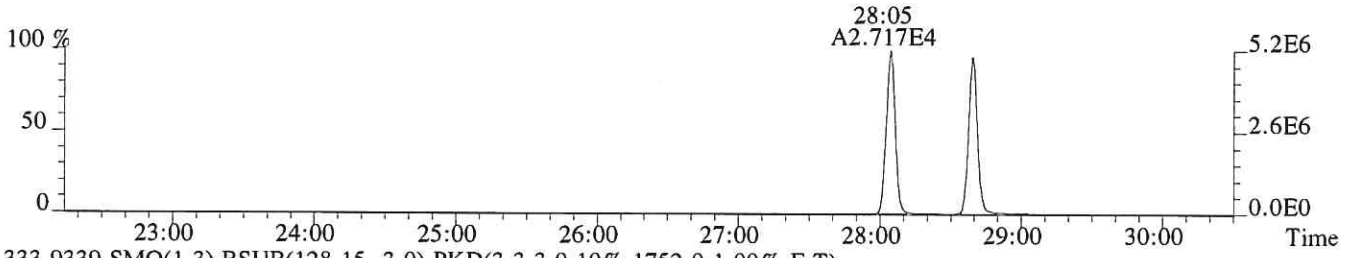
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



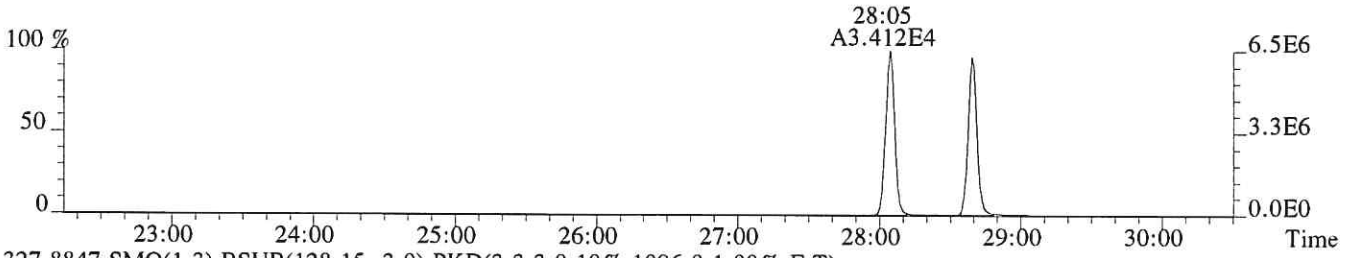
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



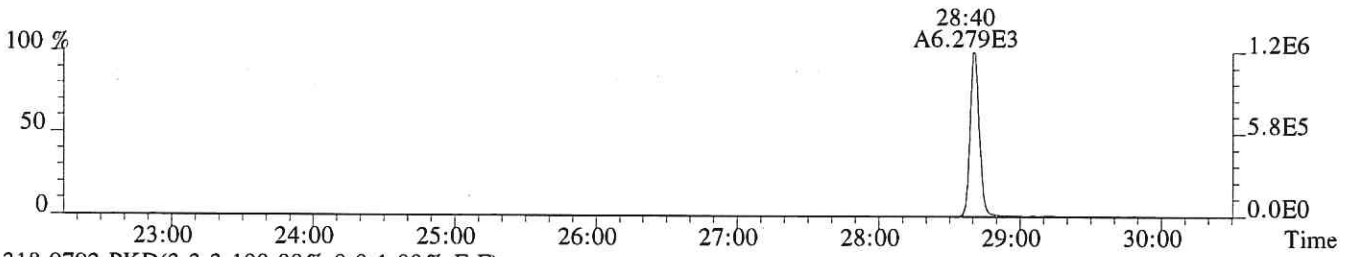
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4200.0,1.00%,F,T)



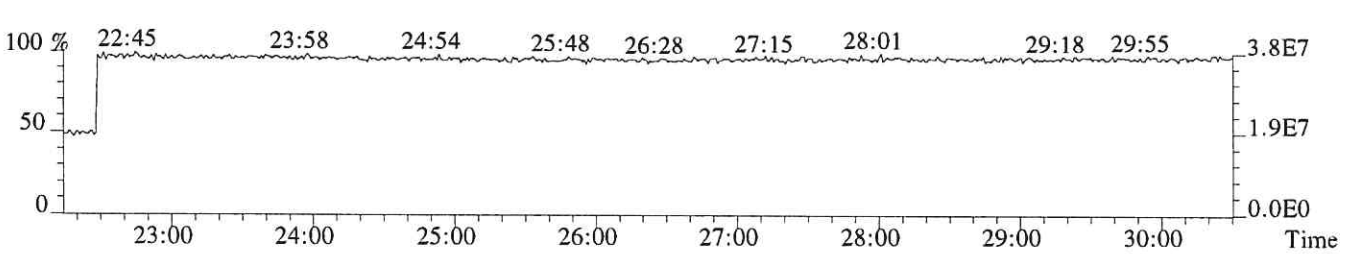
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



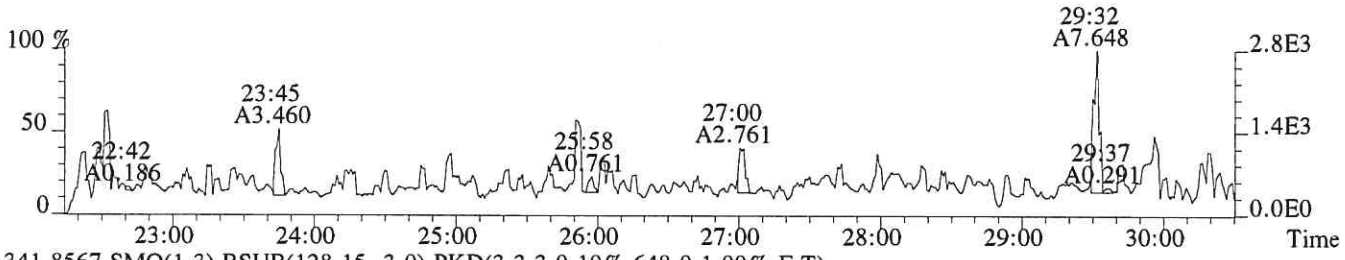
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



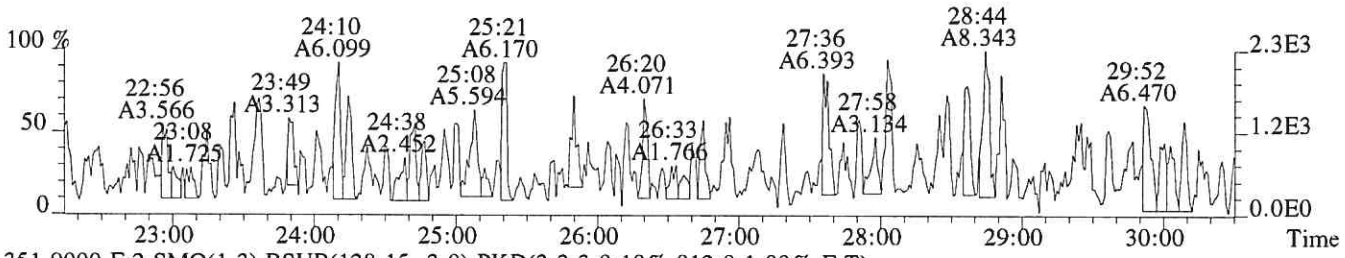
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



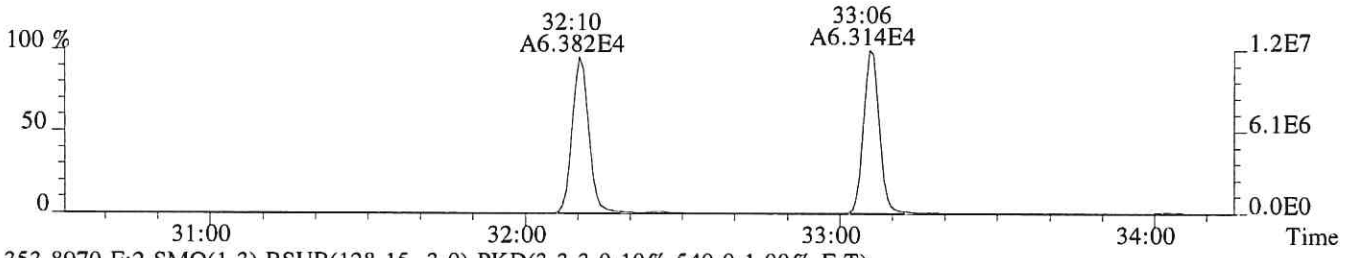
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



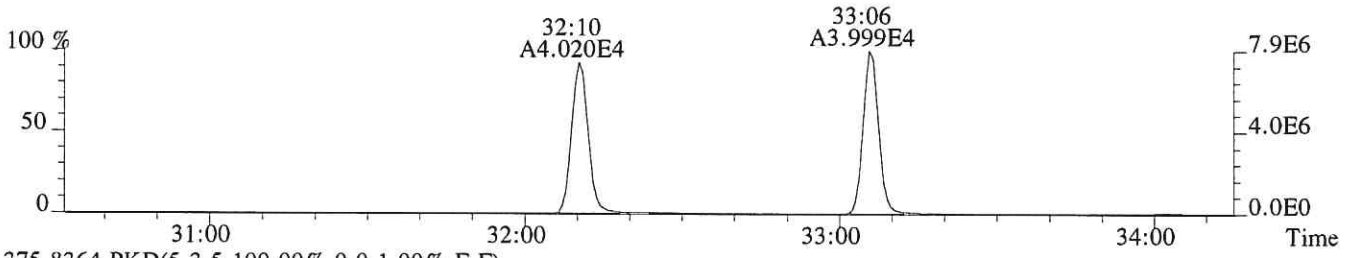
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



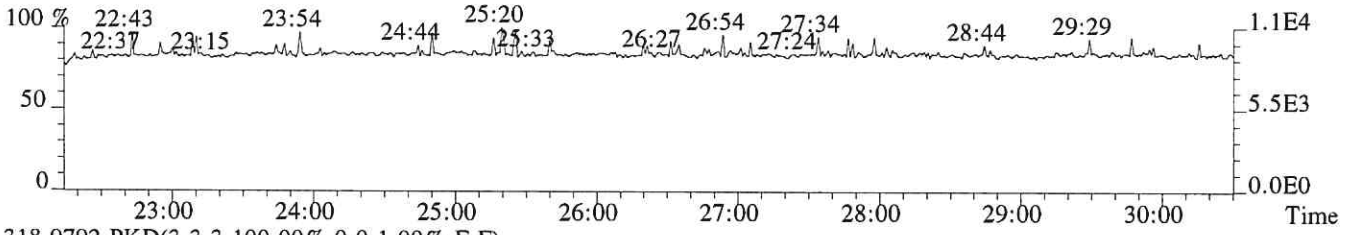
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



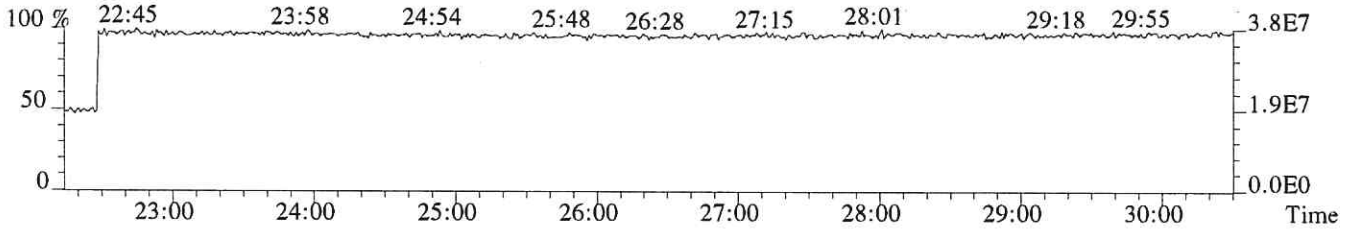
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



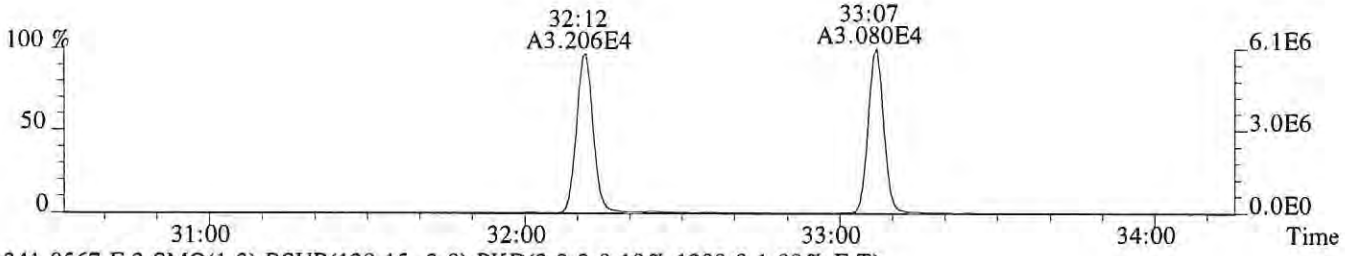
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



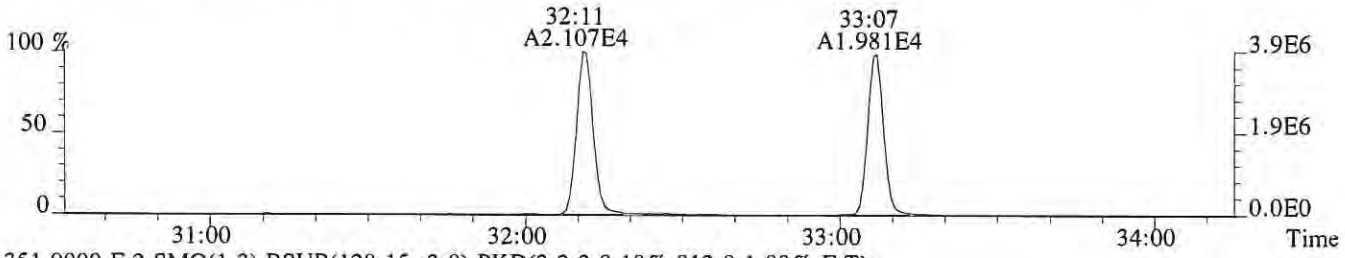
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



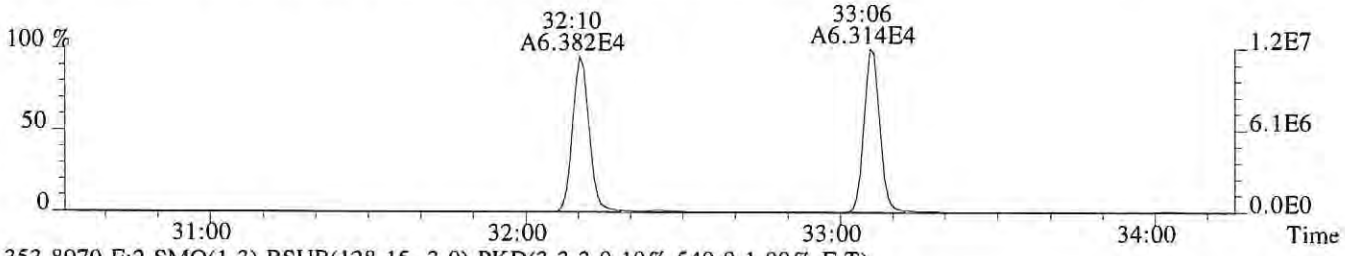
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



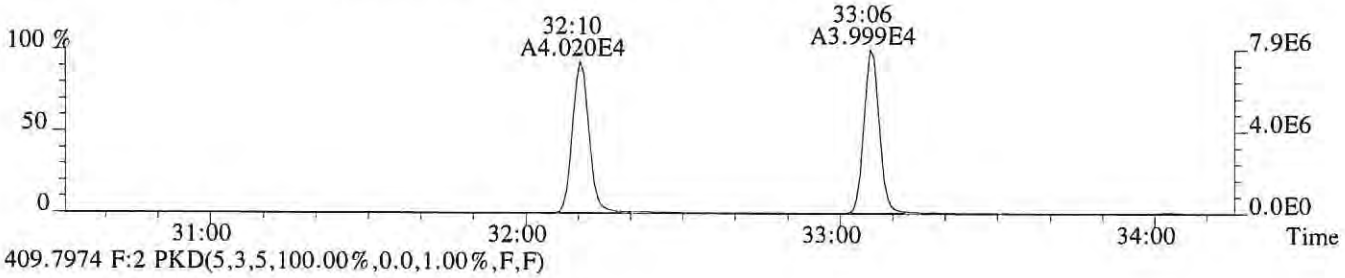
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



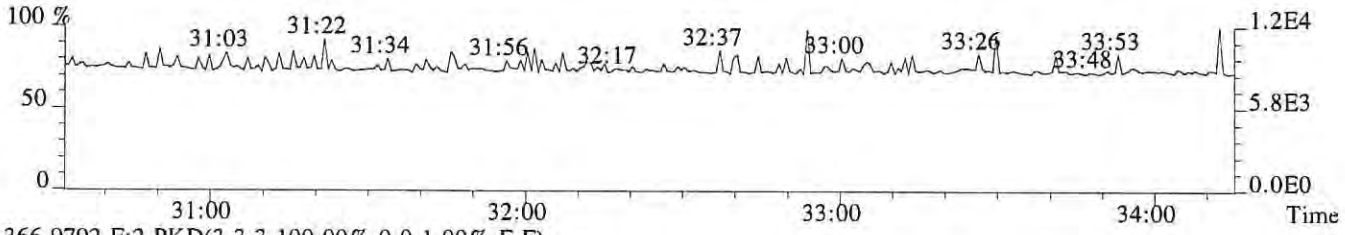
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



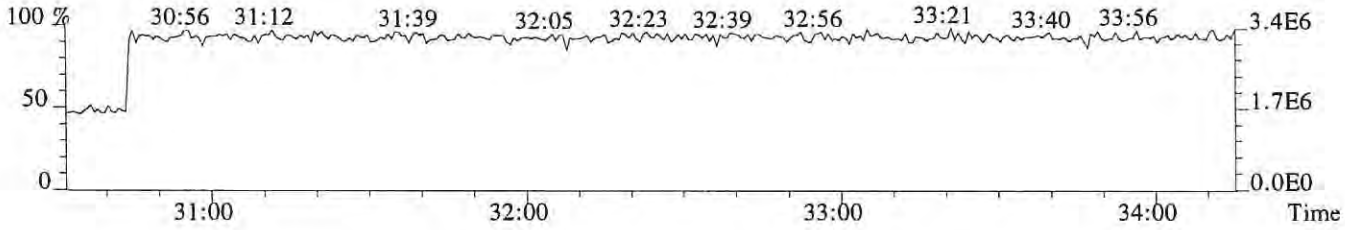
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



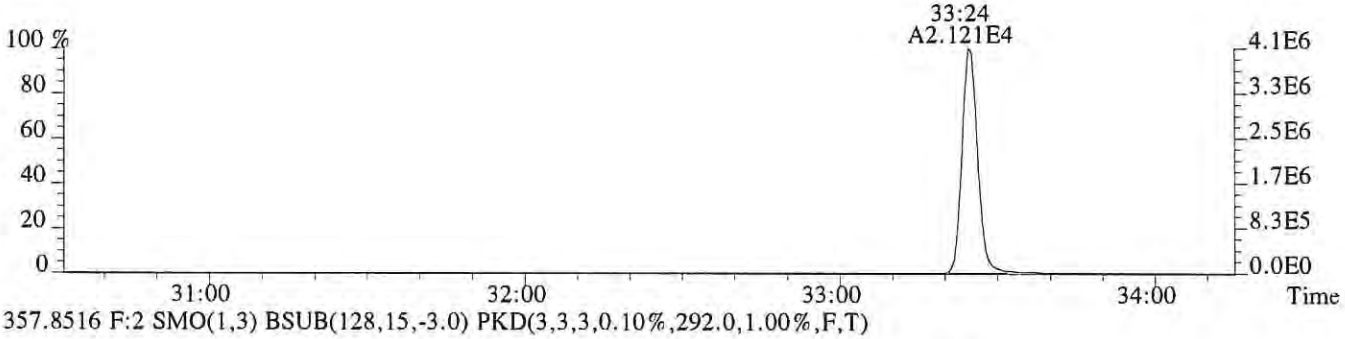
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



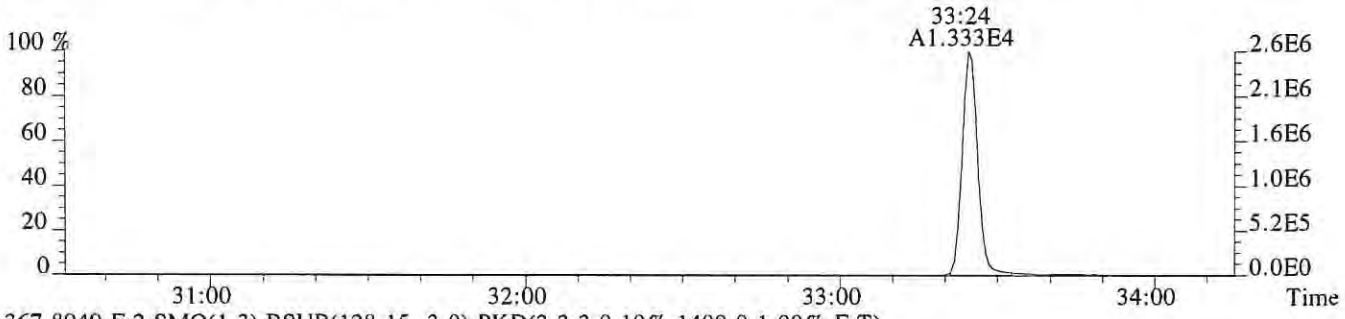
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



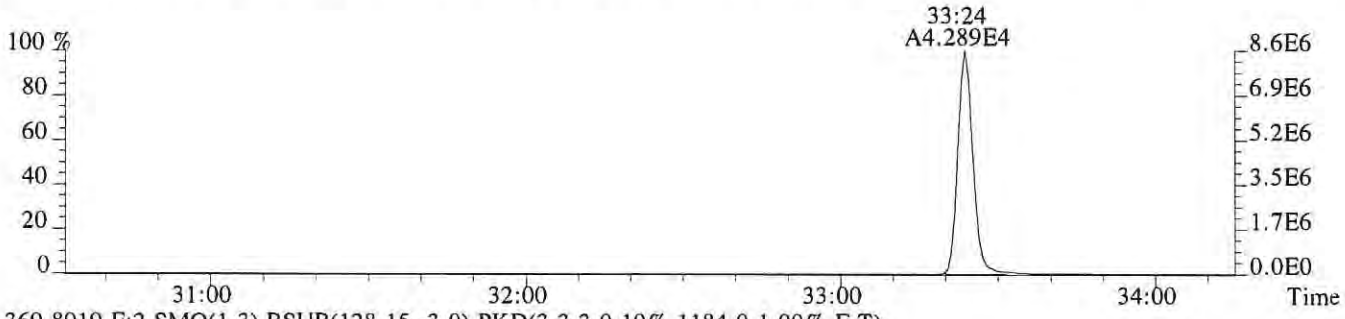
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



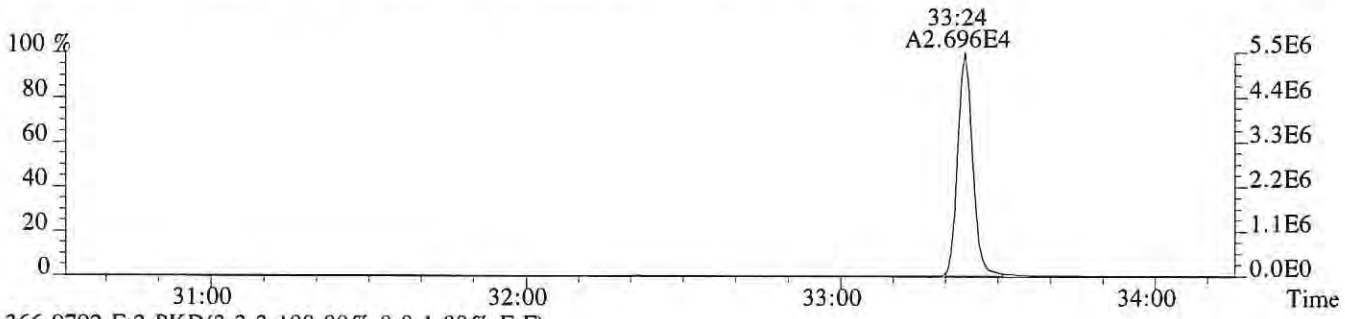
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



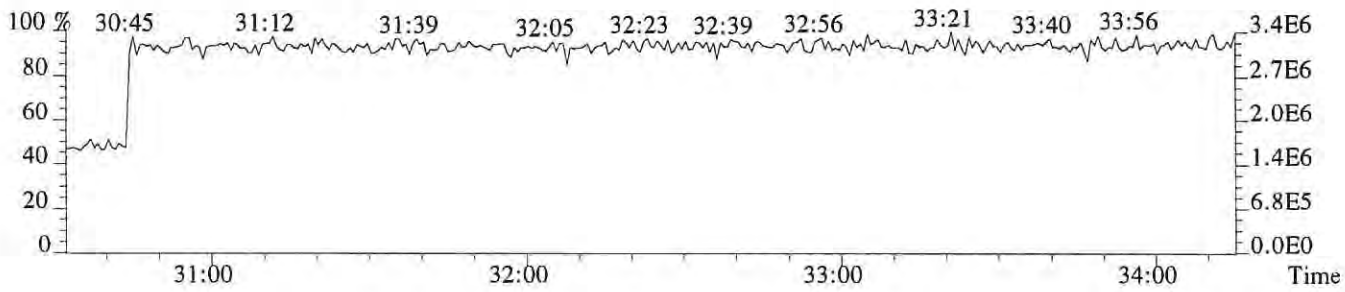
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



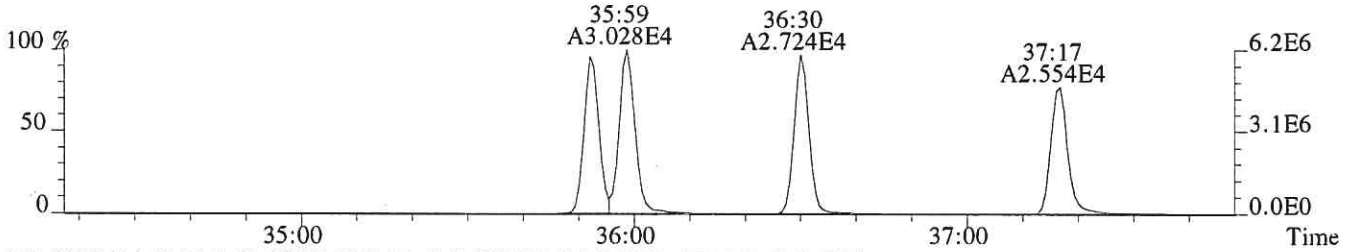
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



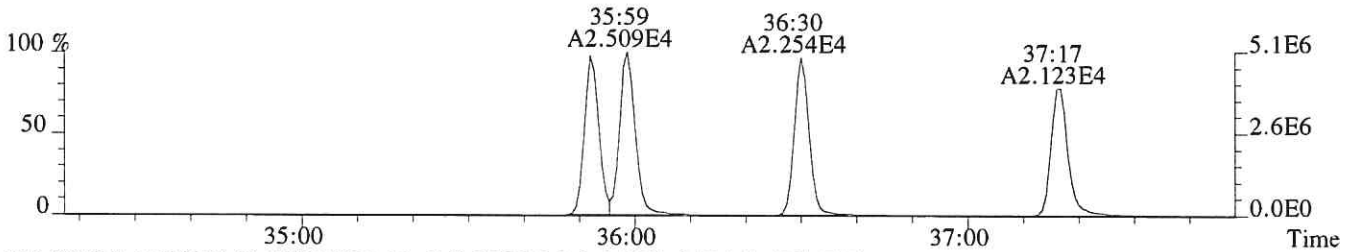
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



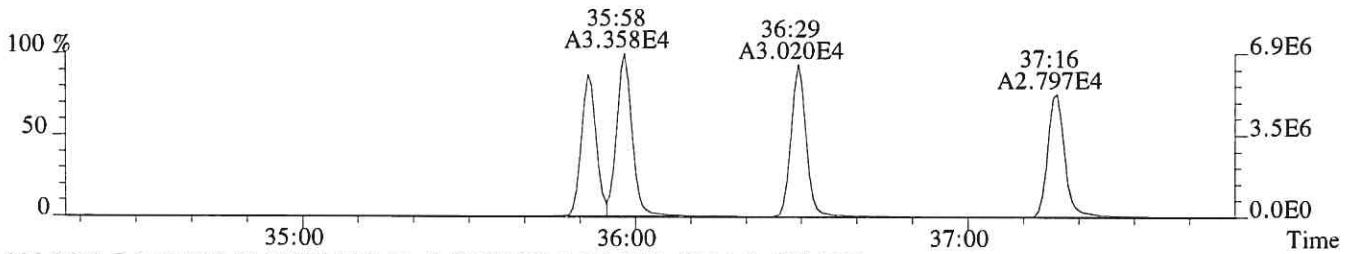
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



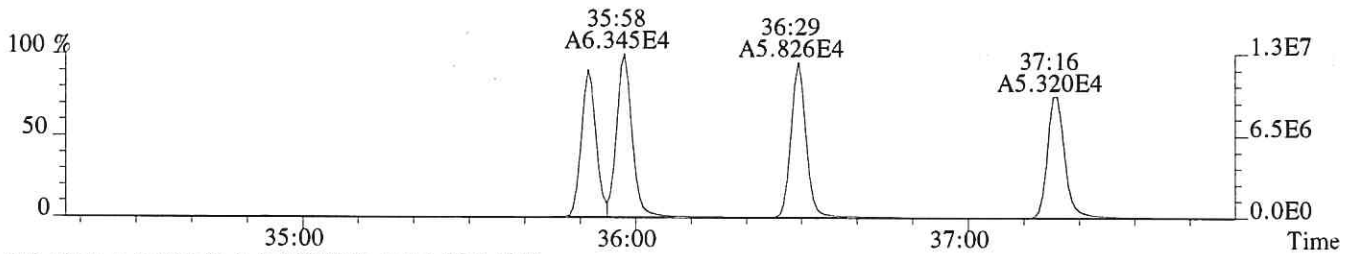
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



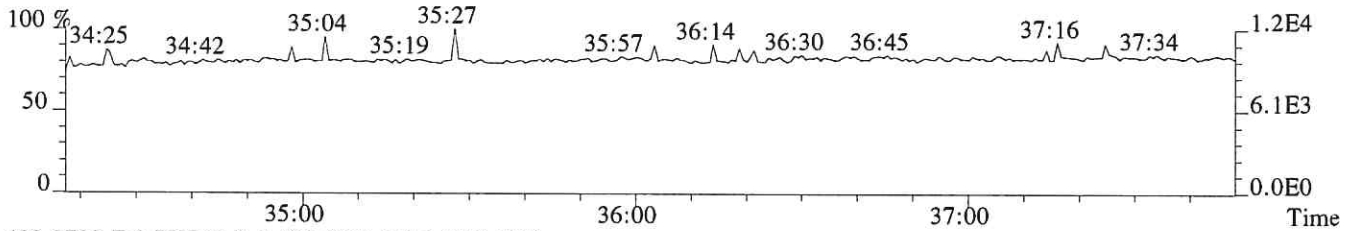
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



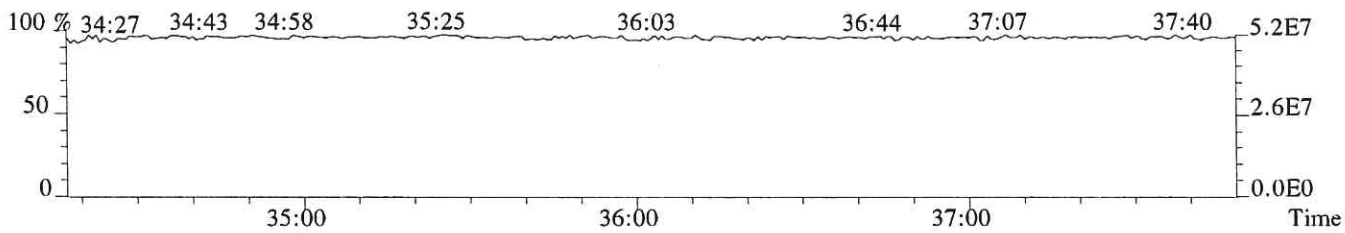
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



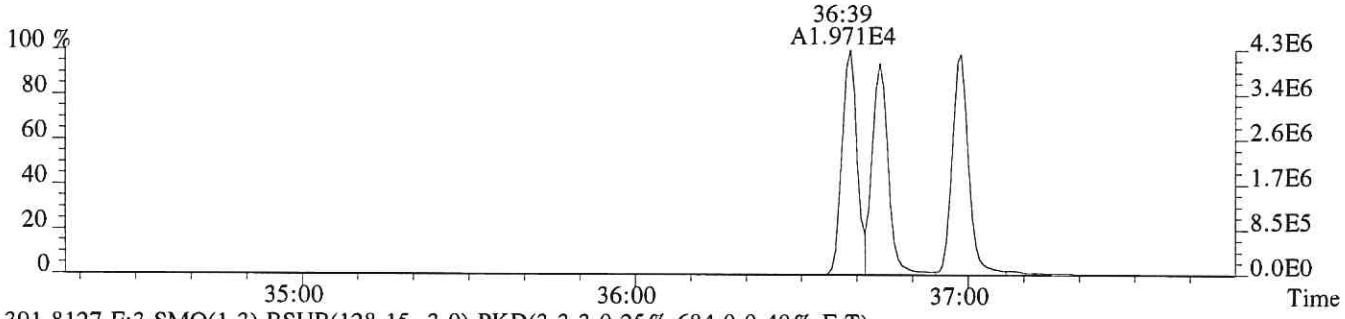
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



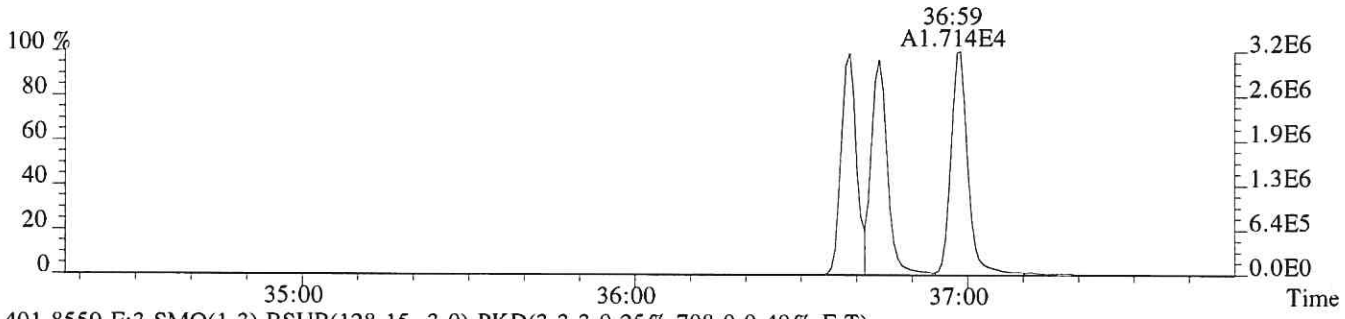
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



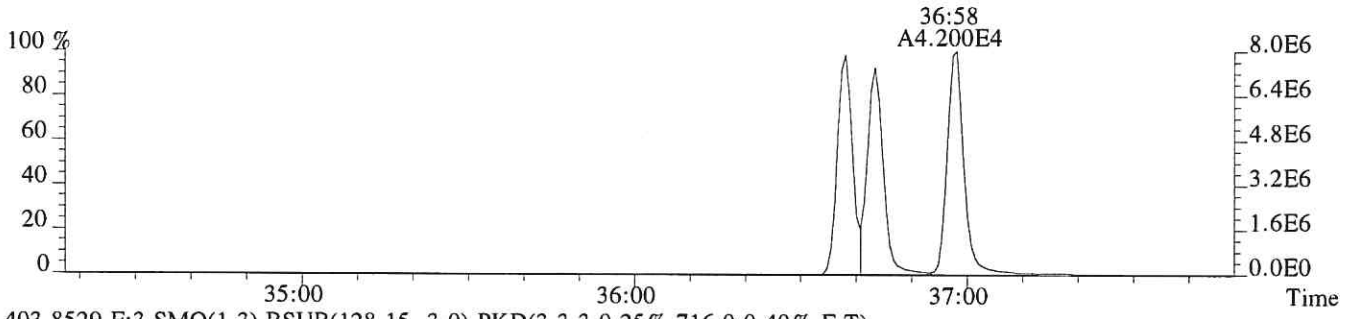
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



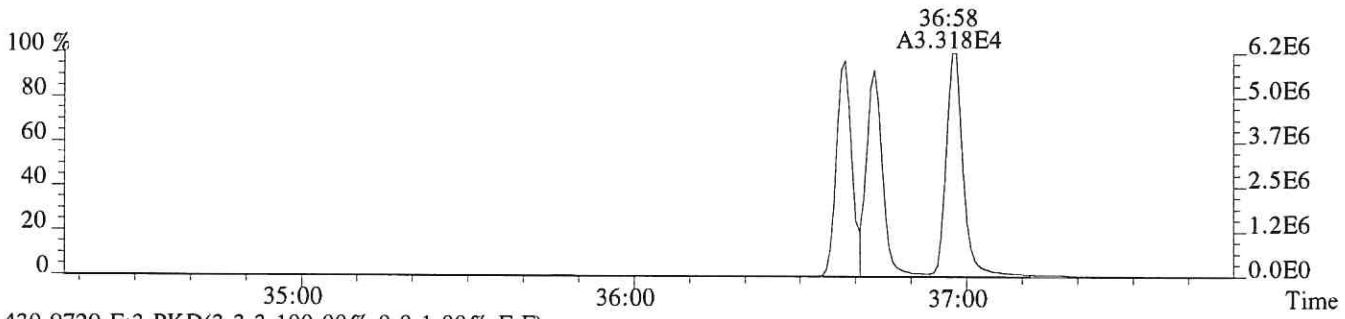
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



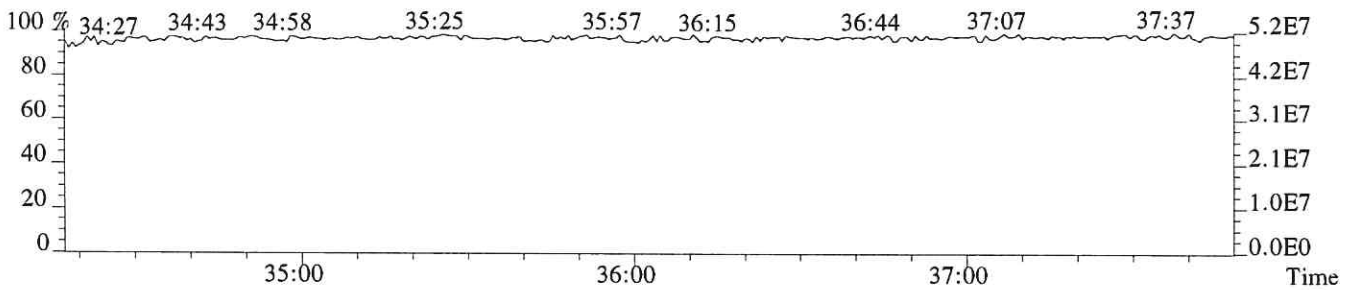
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



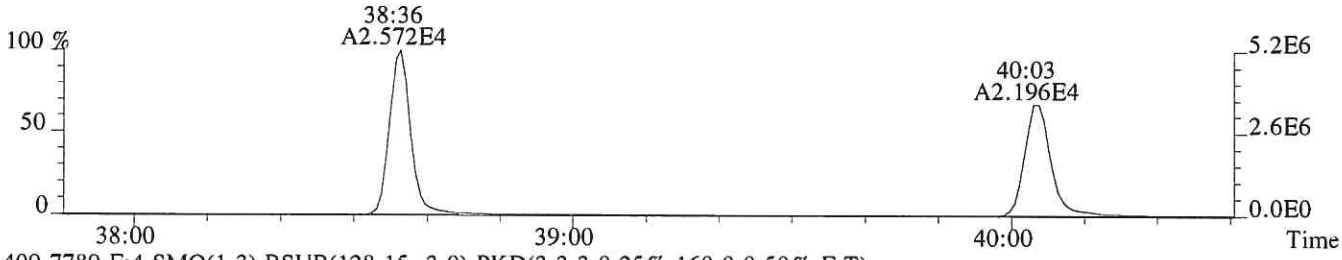
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



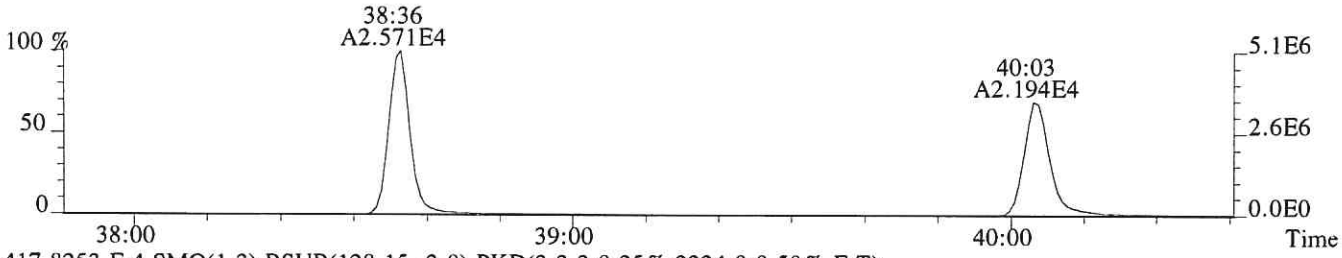
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



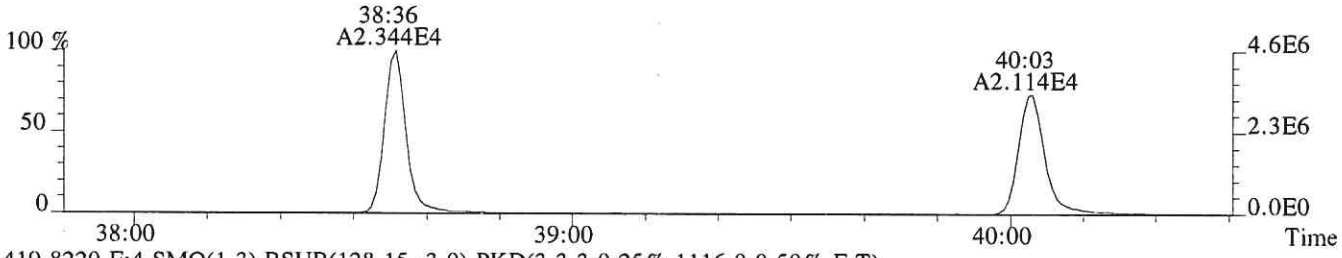
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.50%,F,T)



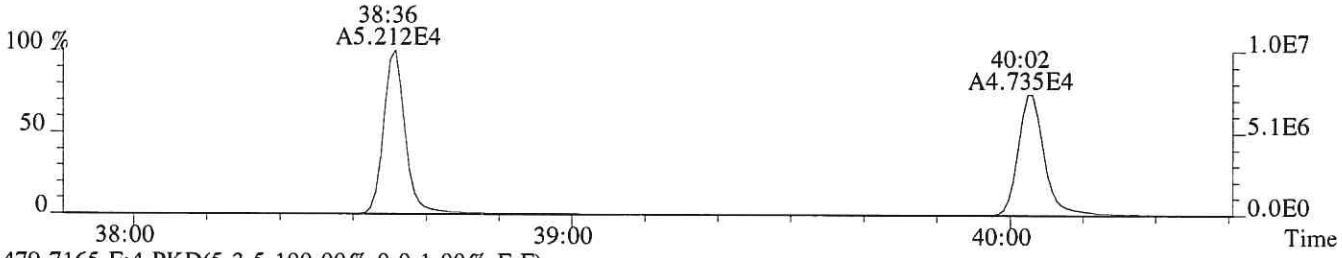
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



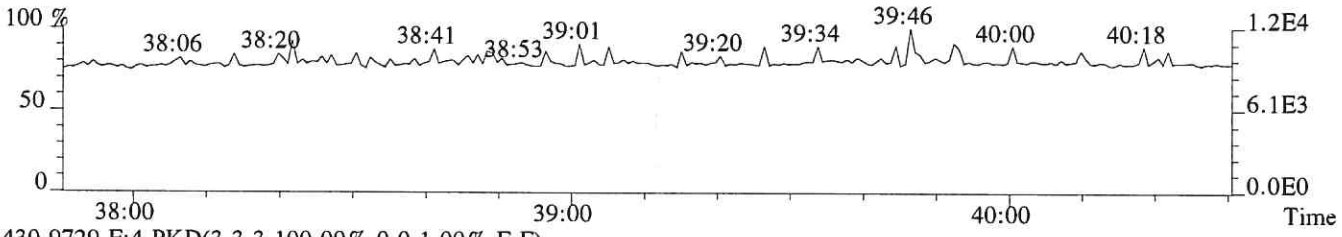
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



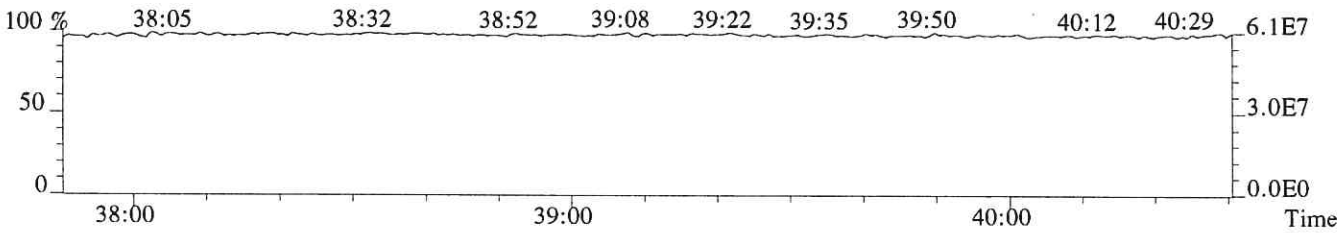
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.50%,F,T)



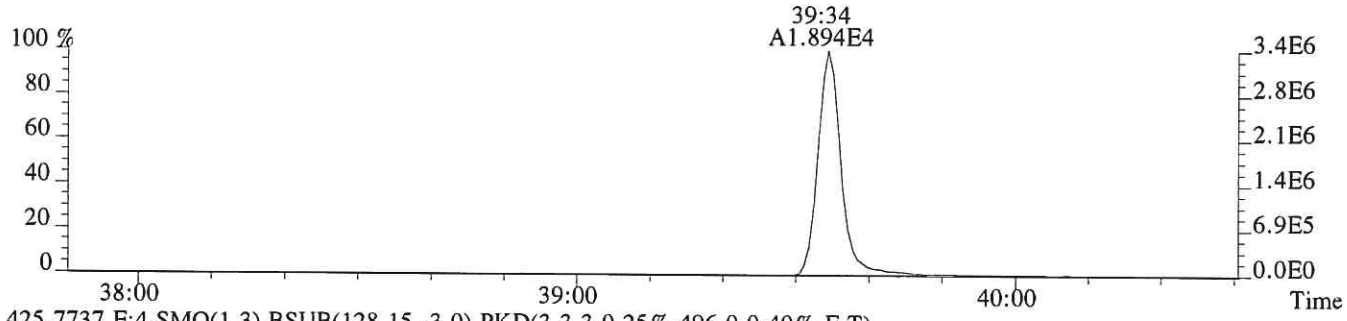
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



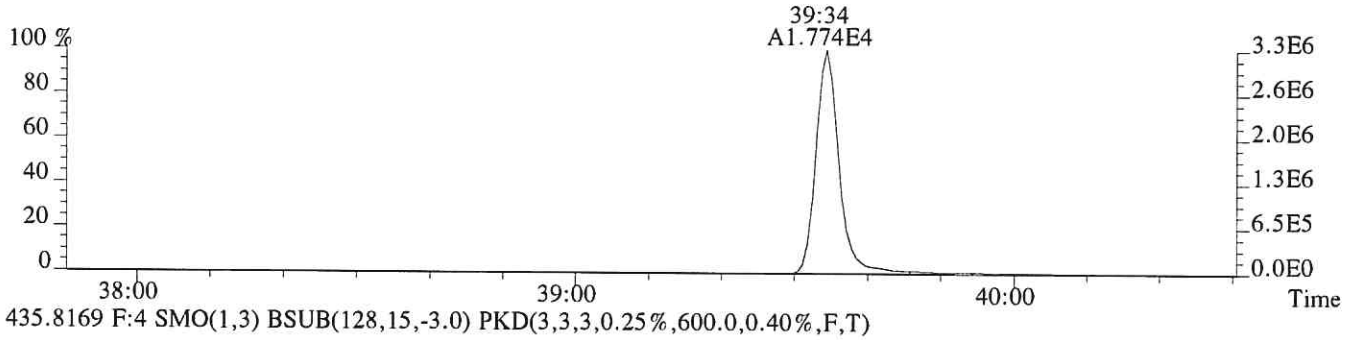
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



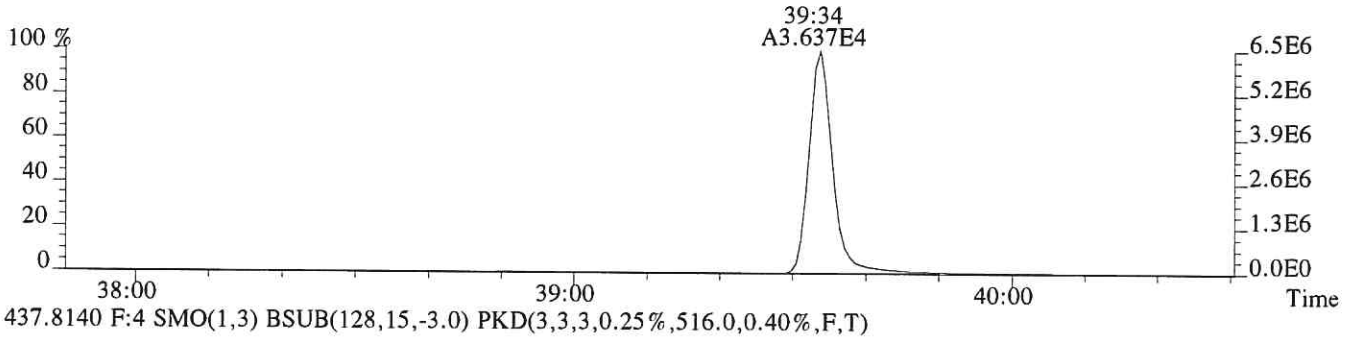
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



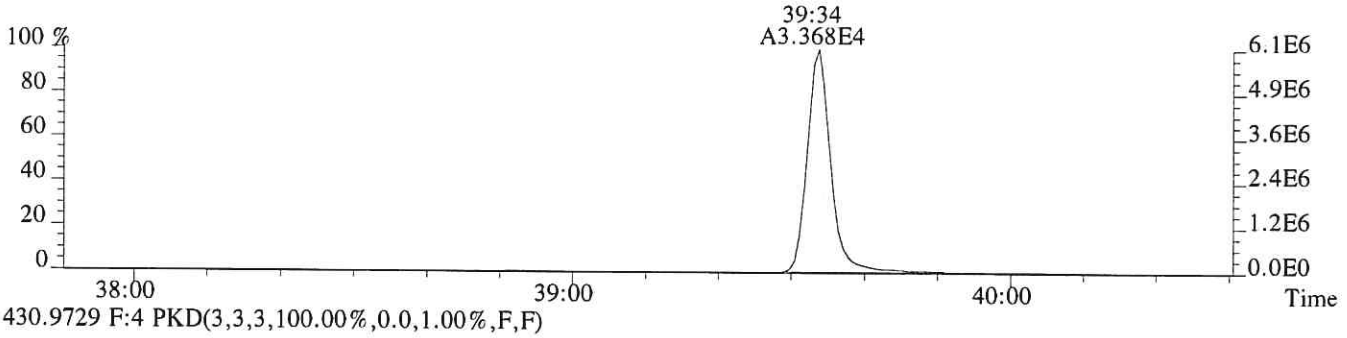
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



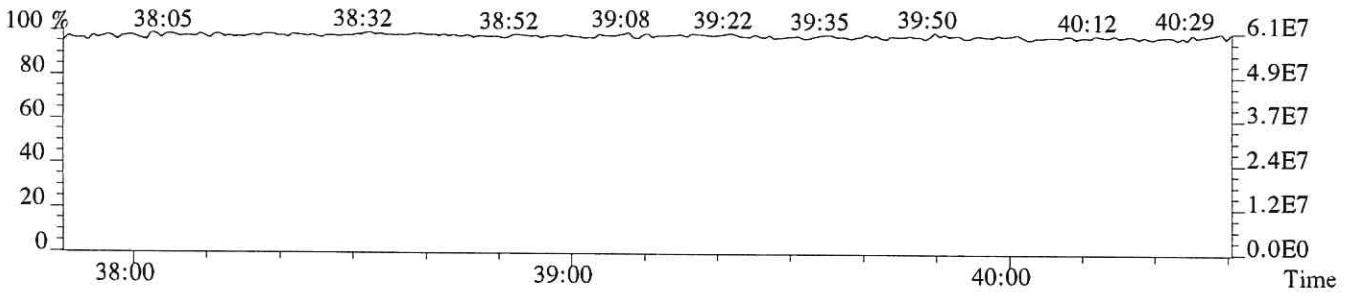
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



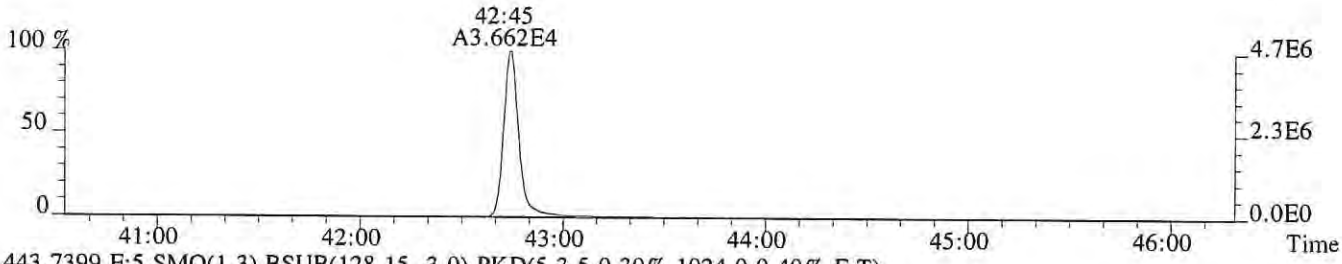
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



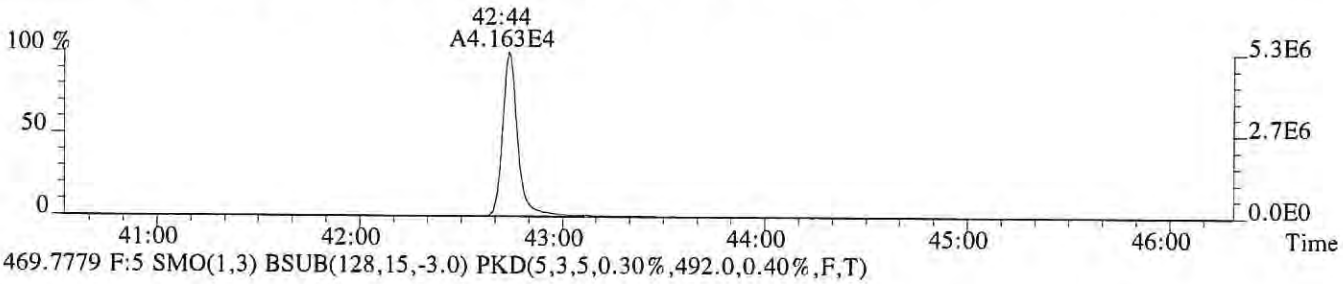
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



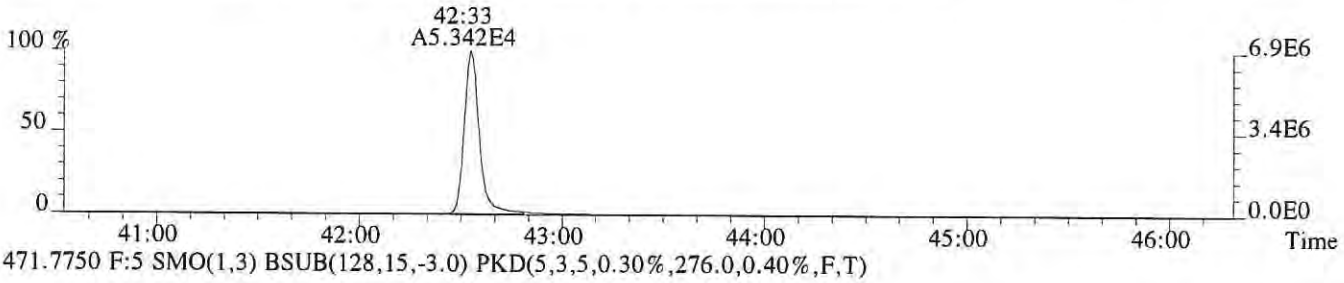
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



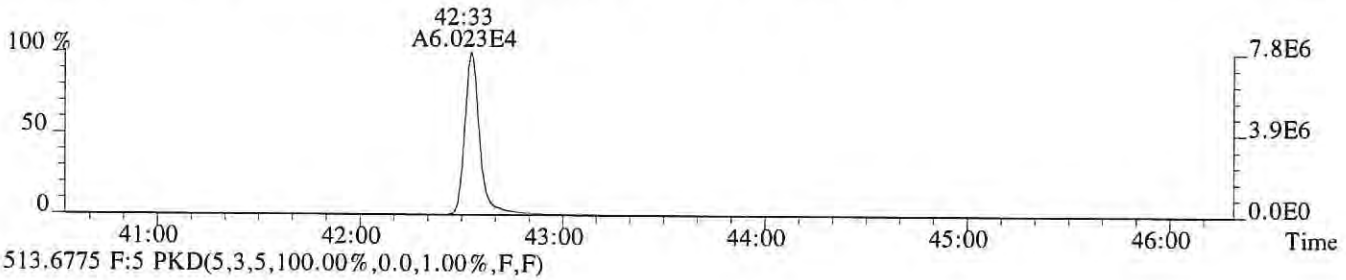
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



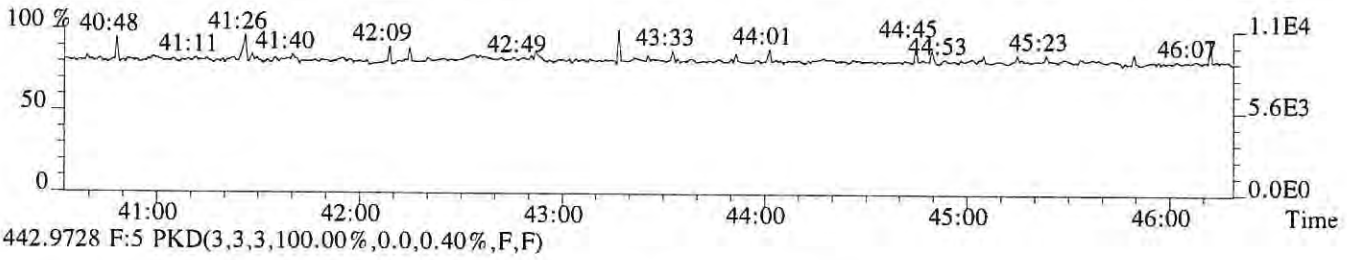
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



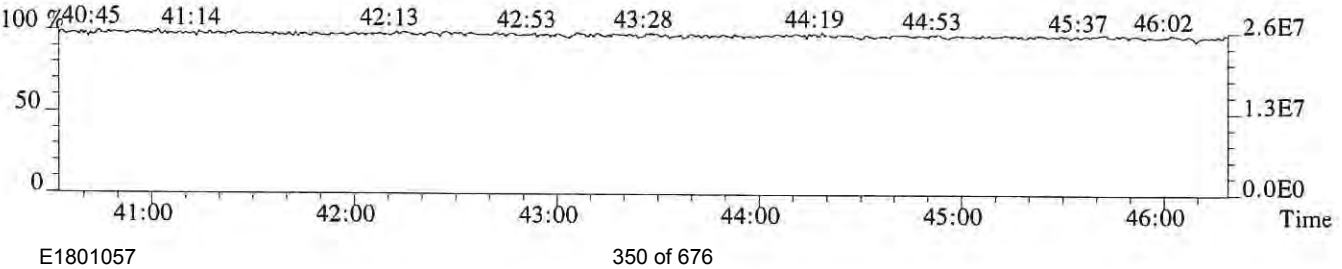
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



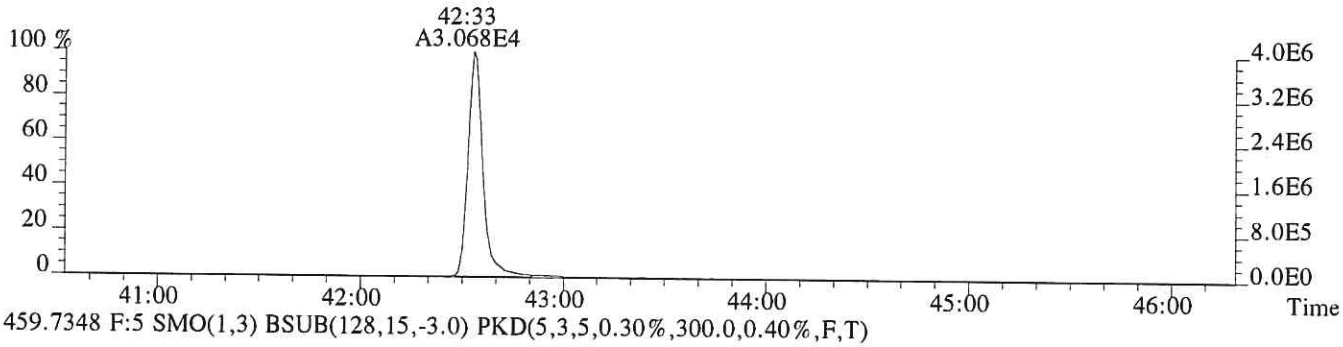
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



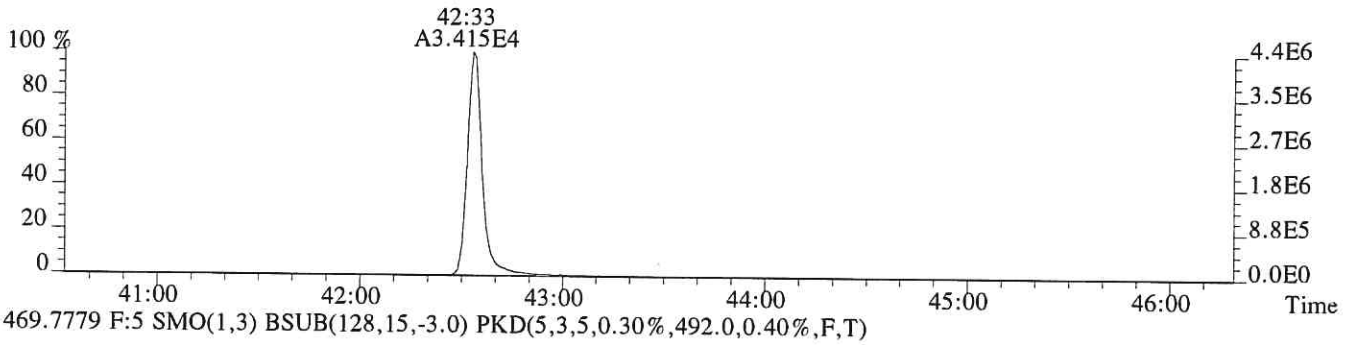
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



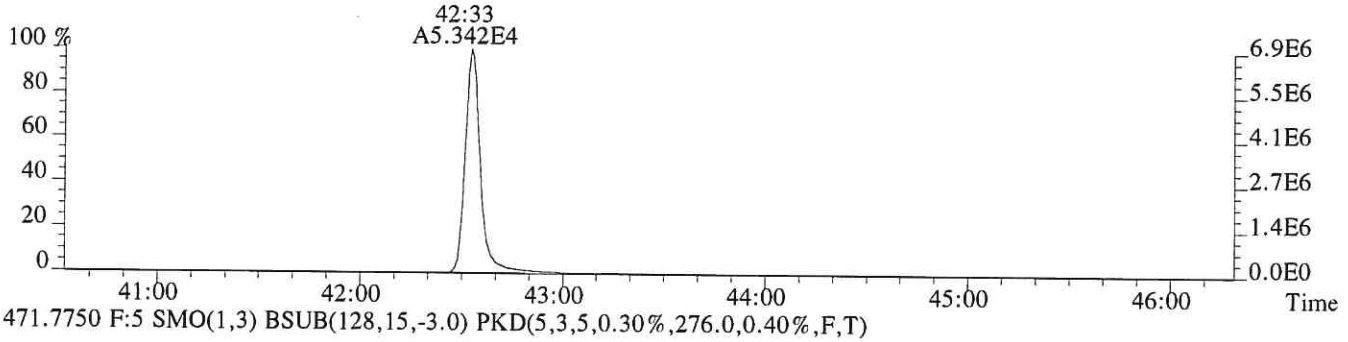
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



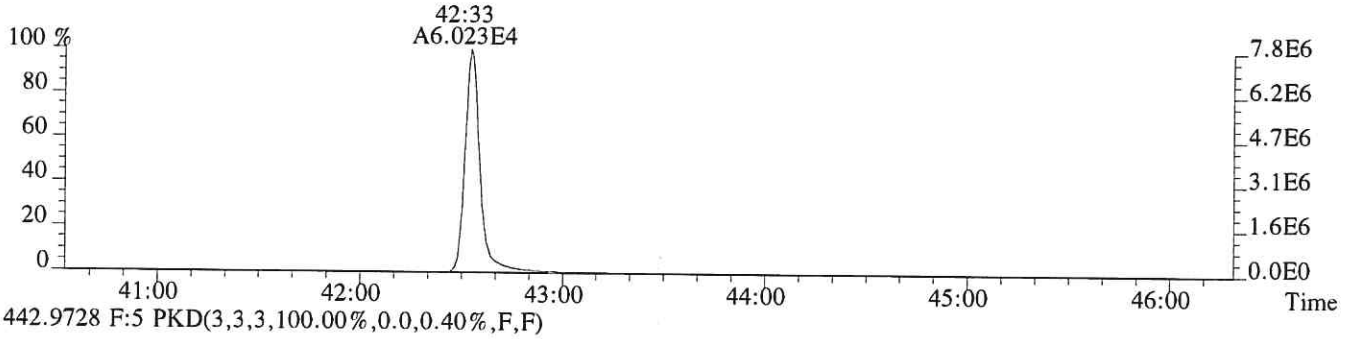
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



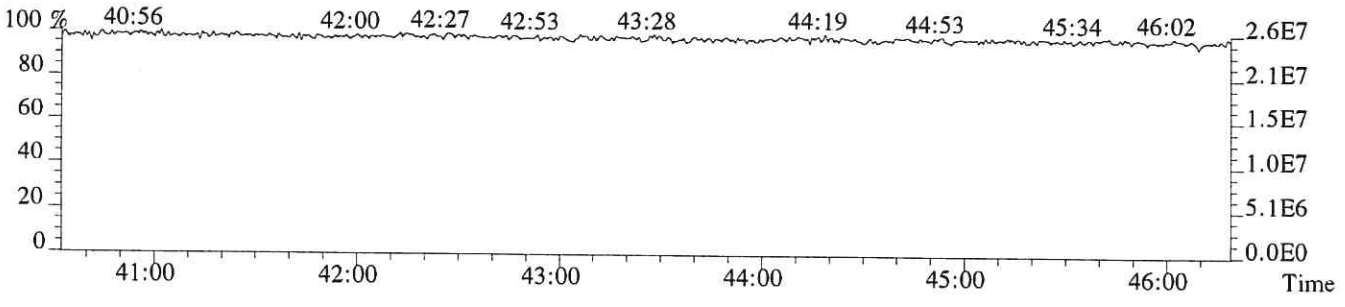
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519319

Date: 12/10/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519319	10-DEC-18	08:43:37
192977	WINDOW DEFINE	P519320	10-DEC-18	09:34:53
METHOD BLANK	EQ1800469-01	P519321	10-DEC-18	10:24:28
METHOD BLANK	EQ1800496-01	P519322	10-DEC-18	11:12:15
SL0175	E1801056-023DL	P519323	10-DEC-18	12:00:55
SL0221	E1801056-057DL	P519324	10-DEC-18	12:49:32
SL0227	E1801056-063DL	P519325	10-DEC-18	13:38:17
SL0249	E1801058-017DL	P519326	10-DEC-18	14:27:45
SL0250	E1801058-018DL	P519327	10-DEC-18	15:16:55
SL0553	E1801057-001DL	P519328	10-DEC-18	16:05:14
SL0556	E1801057-004DL	P519329	10-DEC-18	16:53:18
SL0559	E1801057-007DL	P519330	10-DEC-18	17:41:56
SL0560	E1801057-008DL	P519331	10-DEC-18	18:30:33
LCS	EQ1800498-02	P519332	10-DEC-18	19:19:11
DLCS	EQ1800498-03	P519333	10-DEC-18	20:07:48

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181210A.SPL
Last Modified: Tuesday, December 11, 2018 06:34:31 Central Standard Time
Printed: Tuesday, December 11, 2018 06:34:33 Central Standard Time

Page Position (1, 1)

OPUS 4: P519319res

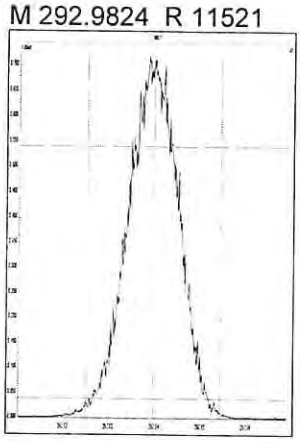
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	08:43	P519319	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 08:39
2		09:34	P519320	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		10:24	P519321	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		11:12	P519322	MB	EQ1800496-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:00	P519323	E1801056-023DL	E1801056-023DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		12:49	P519324	E1801056-057DL	E1801056-057DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		13:38	P519325	E1801056-063DL	E1801056-063DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:27	P519326	E1801058-017DL	E1801058-017DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:16	P519327	E1801058-018DL	E1801058-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:05	P519328	E1801057-001DL	E1801057-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		16:53	P519329	E1801057-004DL	E1801057-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		17:41	P519330	E1801057-007DL	E1801057-007DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:30	P519331	E1801057-008DL	E1801057-008DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:19	P519332	LCS	EQ1800498-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:07	P519333	DLCS	EQ1800498-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:04	P519334	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 21:04
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LG 12/11/18

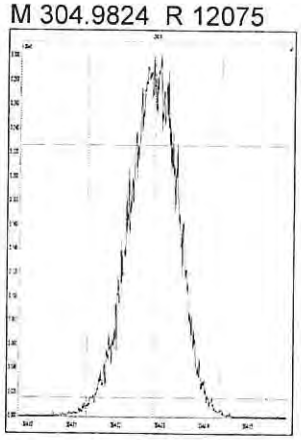
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:39:35 Central Standard Time

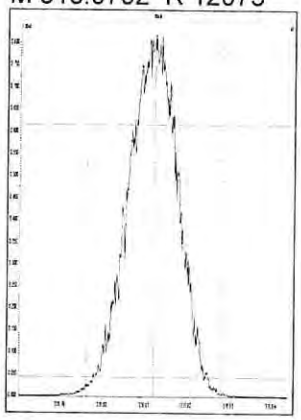
M 292.9824 R 11521



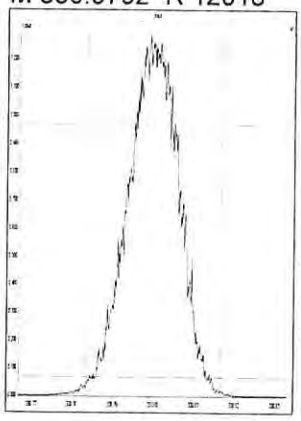
M 304.9824 R 12075



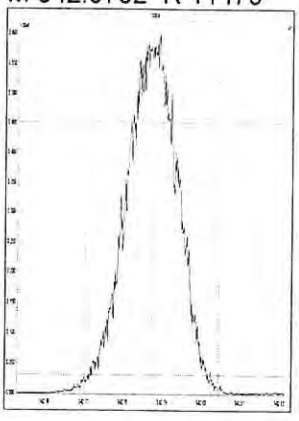
M 318.9792 R 12073



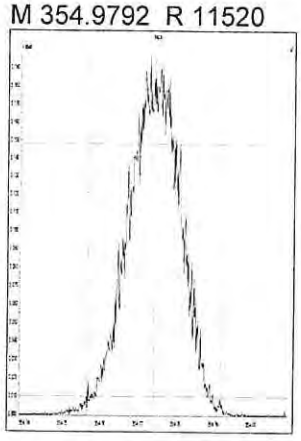
M 330.9792 R 12018



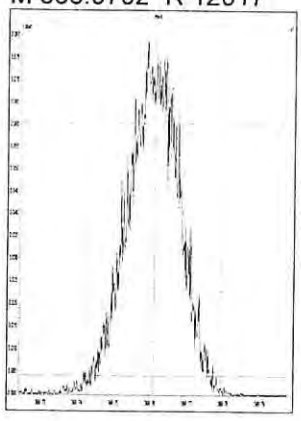
M 342.9792 R 11470



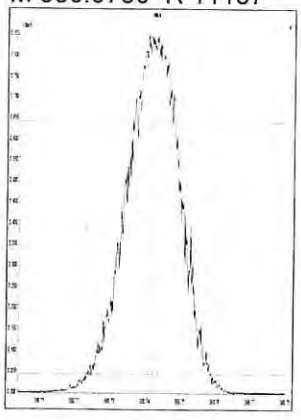
M 354.9792 R 11520



M 366.9792 R 12017



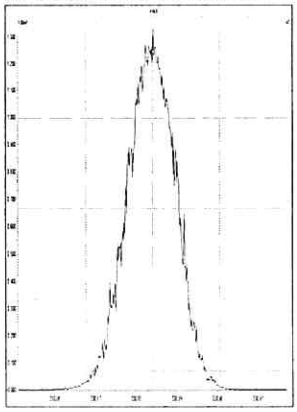
M 380.9760 R 11157



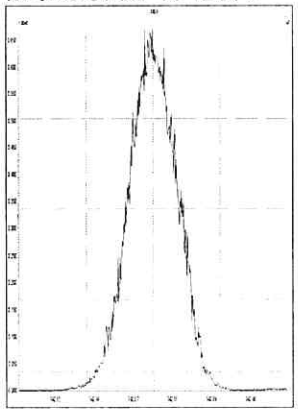
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:40:10 Central Standard Time

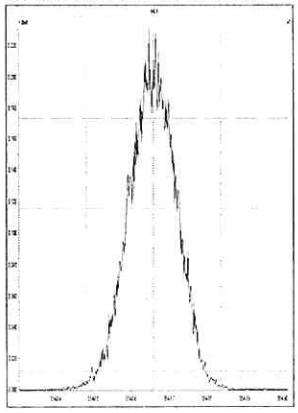
M 330.9792 R 12197



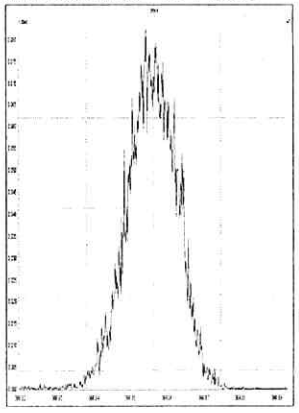
M 342.9792 R 12072



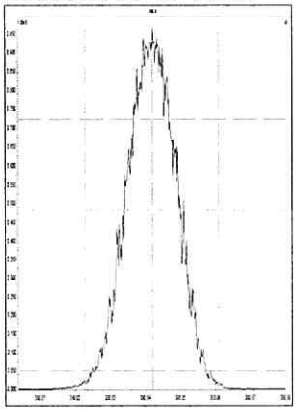
M 354.9792 R 12253



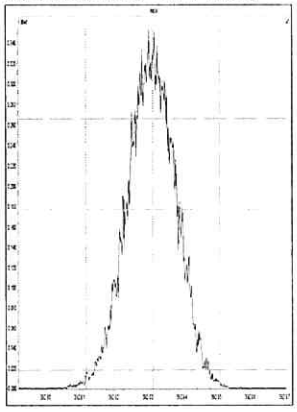
M 366.9792 R 11962



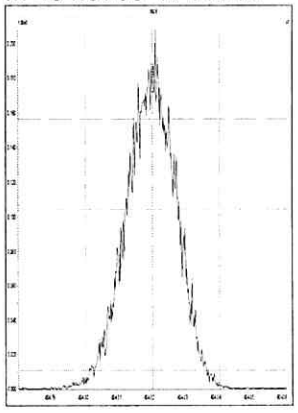
M 380.9760 R 11961



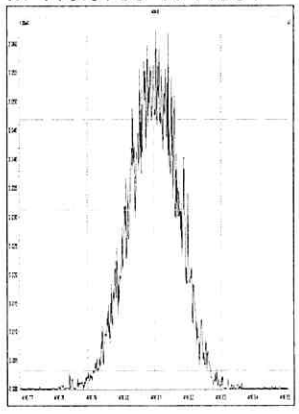
M 392.9760 R 11625



M 404.9760 R 11848



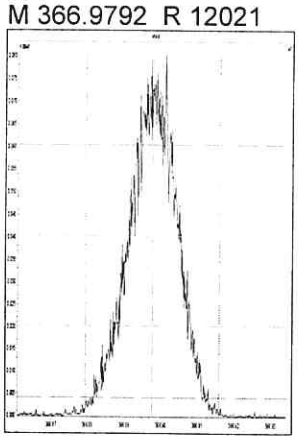
M 416.9760 R 11361



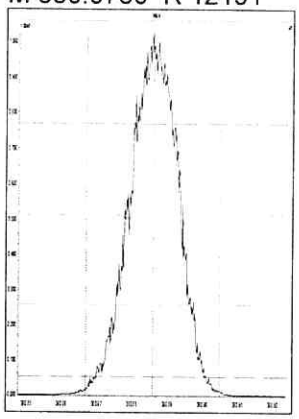
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:10 Central Standard Time

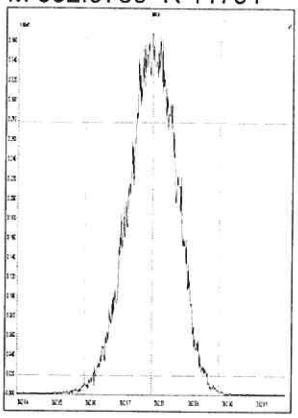
M 366.9792 R 12021



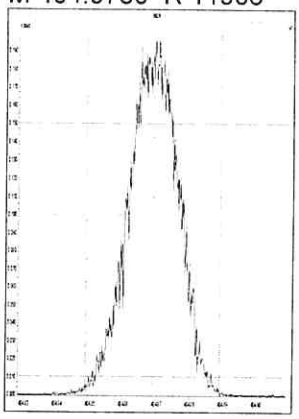
M 380.9760 R 12191



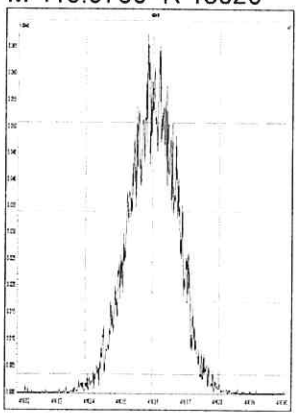
M 392.9760 R 11791



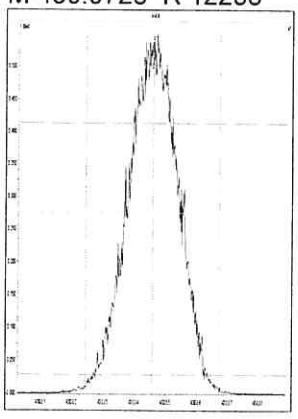
M 404.9760 R 11906



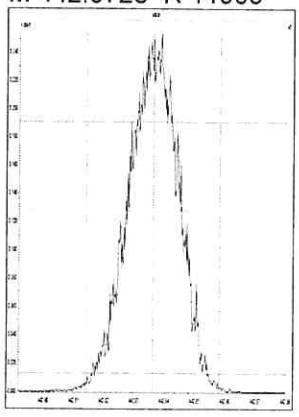
M 416.9760 R 13020



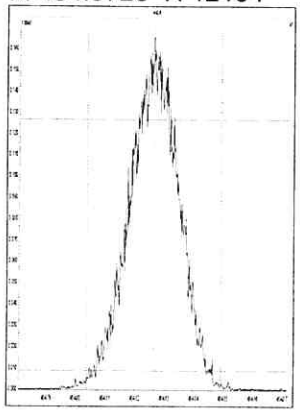
M 430.9728 R 12253



M 442.9728 R 11905



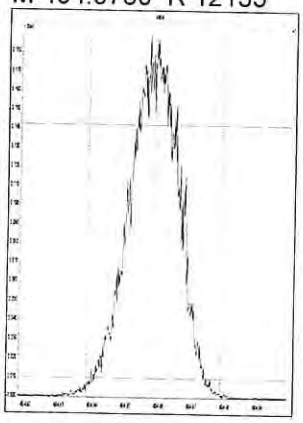
M 454.9728 R 12134



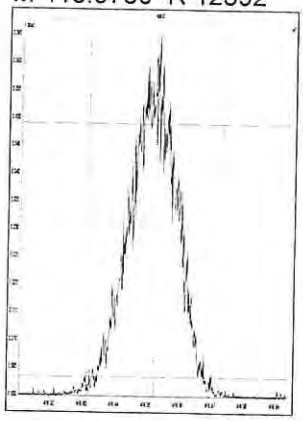
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:54 Central Standard Time

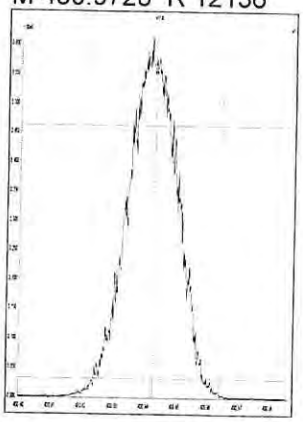
M 404.9760 R 12135



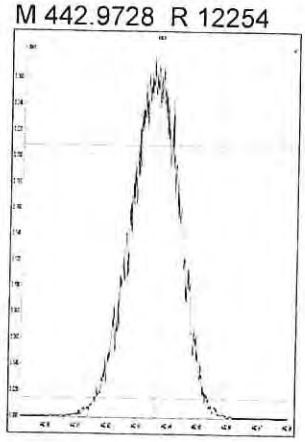
M 416.9760 R 12692



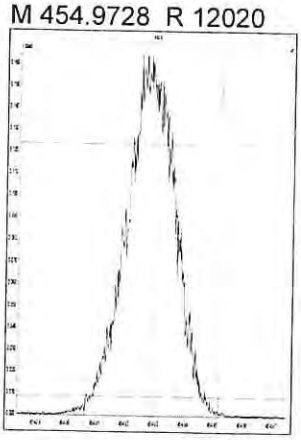
M 430.9728 R 12136



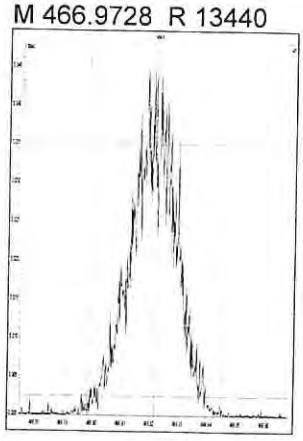
M 442.9728 R 12254



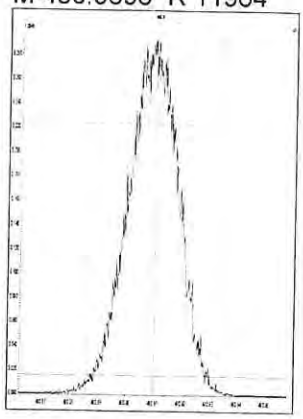
M 454.9728 R 12020



M 466.9728 R 13440



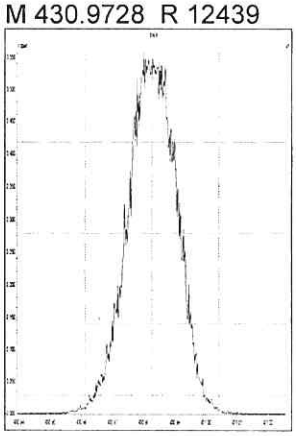
M 480.9696 R 11964



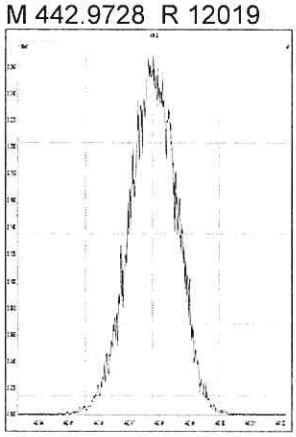
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:42:56 Central Standard Time

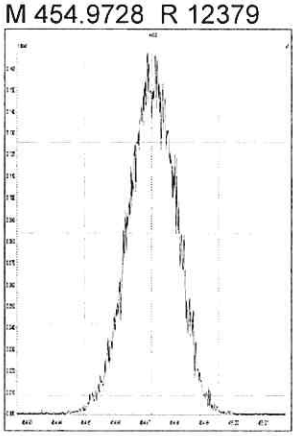
M 430.9728 R 12439



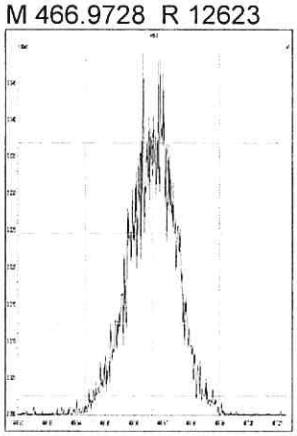
M 442.9728 R 12019



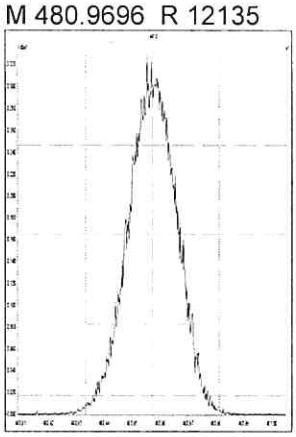
M 454.9728 R 12379



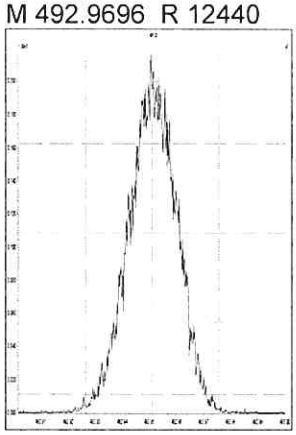
M 466.9728 R 12623



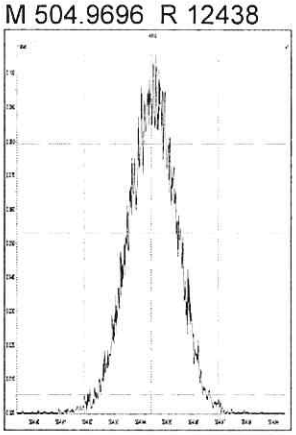
M 480.9696 R 12135



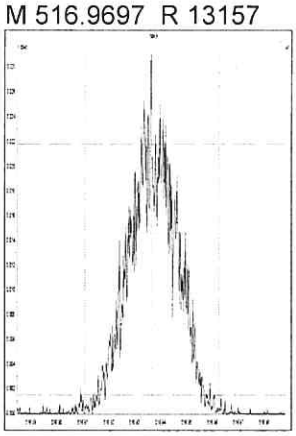
M 492.9696 R 12440



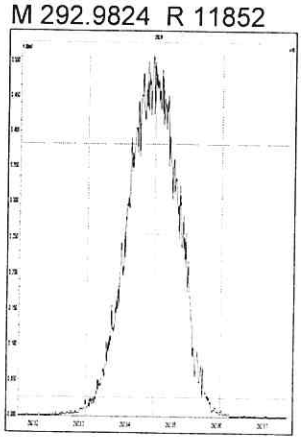
M 504.9696 R 12438



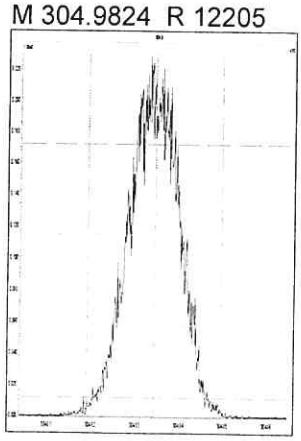
M 516.9697 R 13157



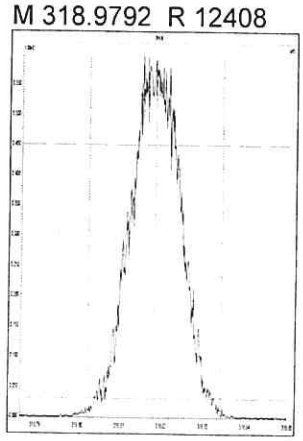
M 292.9824 R 11852



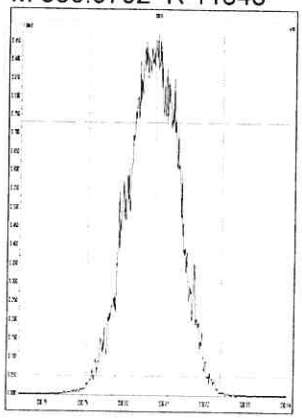
M 304.9824 R 12205



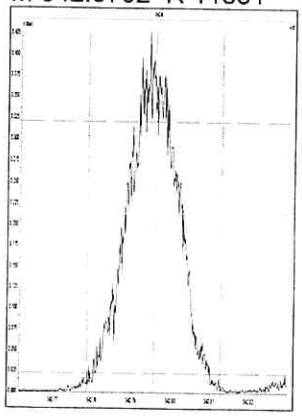
M 318.9792 R 12408



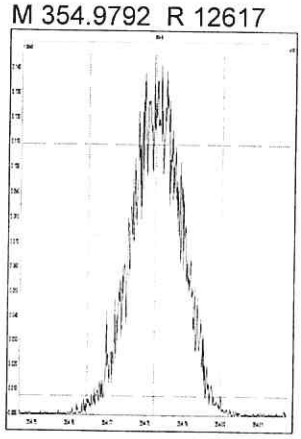
M 330.9792 R 11848



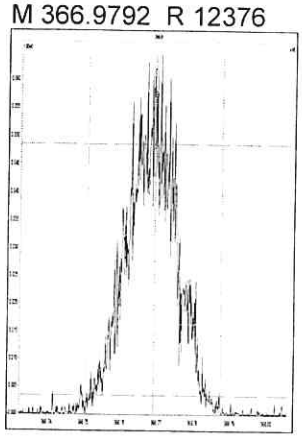
M 342.9792 R 11831



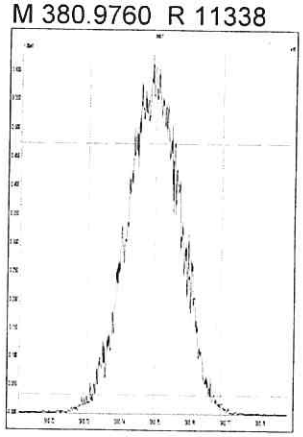
M 354.9792 R 12617



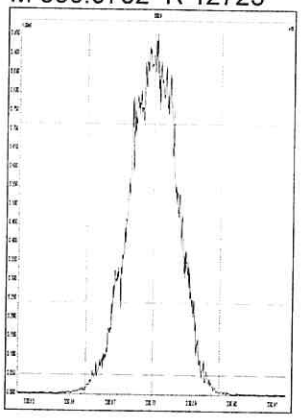
M 366.9792 R 12376



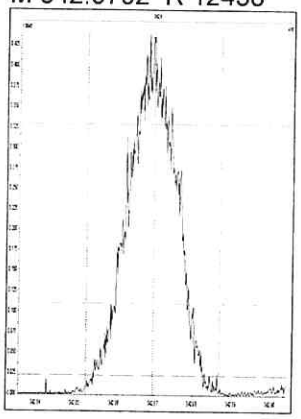
M 380.9760 R 11338



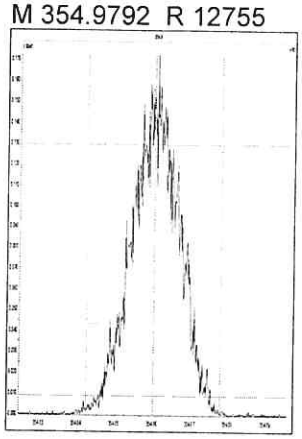
M 330.9792 R 12723



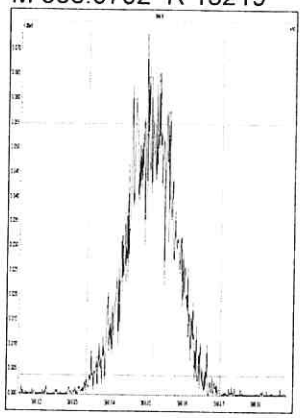
M 342.9792 R 12438



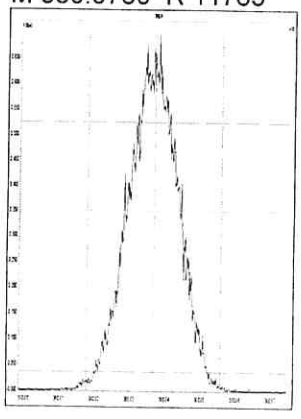
M 354.9792 R 12755



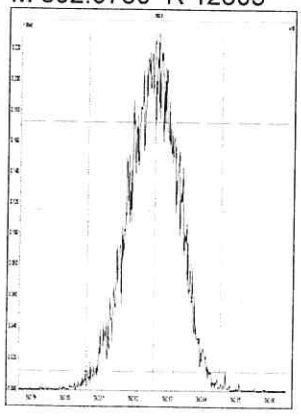
M 366.9792 R 13219



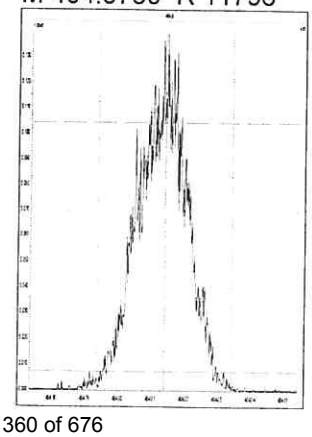
M 380.9760 R 11765



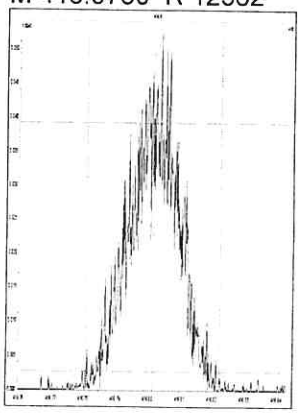
M 392.9760 R 12603



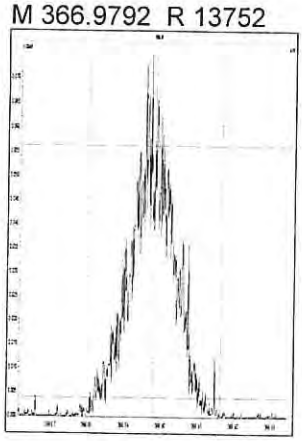
M 404.9760 R 11796



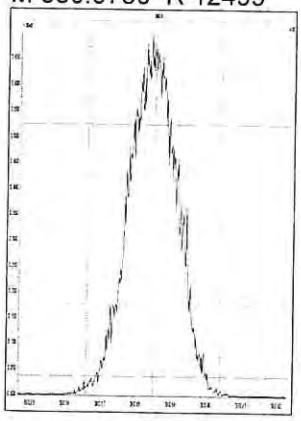
M 416.9760 R 12562



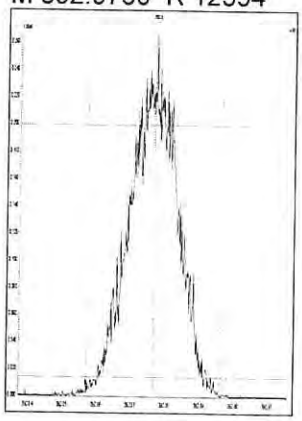
M 366.9792 R 13752



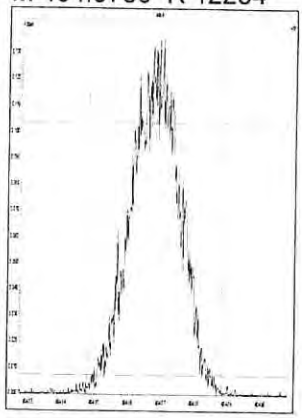
M 380.9760 R 12499



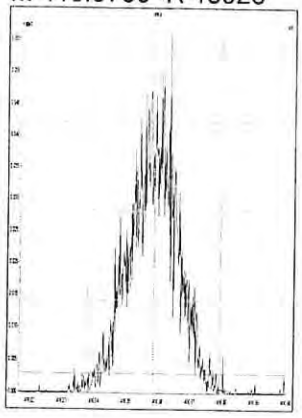
M 392.9760 R 12594



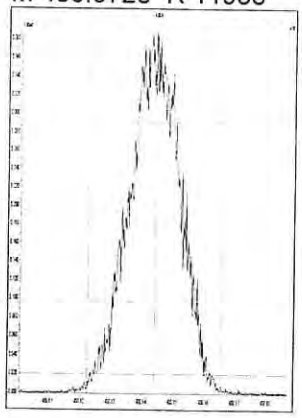
M 404.9760 R 12254



M 416.9760 R 13928



M 430.9728 R 11938



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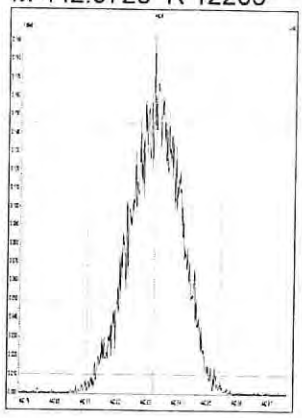
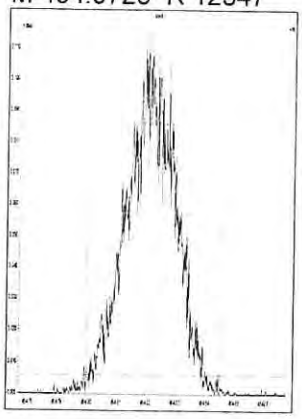
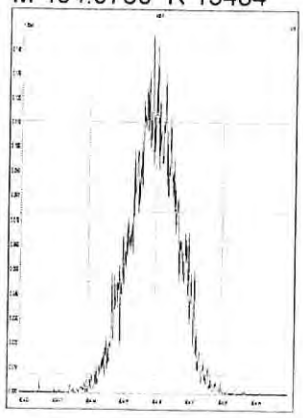


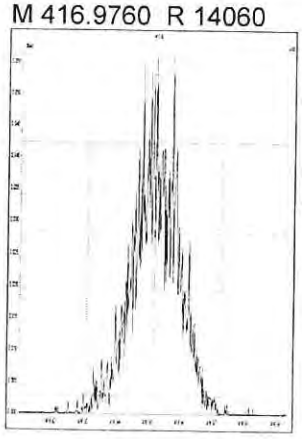
M 454.9728 R 12347



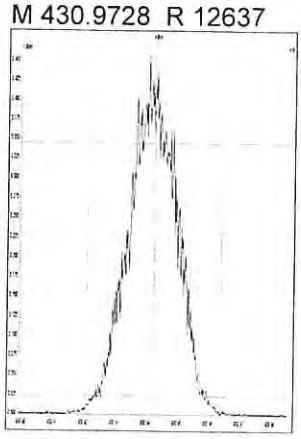
M 404.9760 R 13484



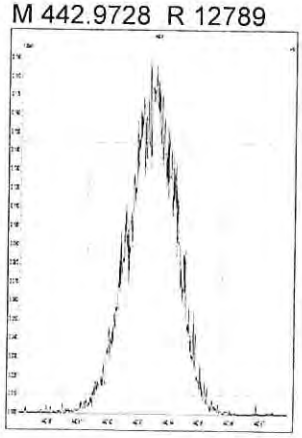
M 416.9760 R 14060



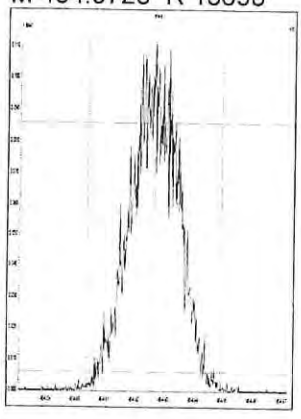
M 430.9728 R 12637



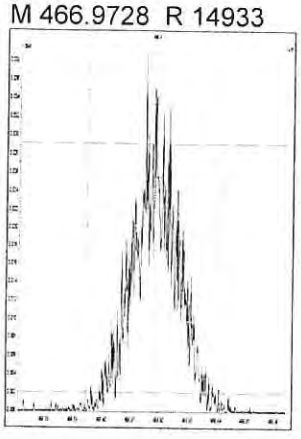
M 442.9728 R 12789



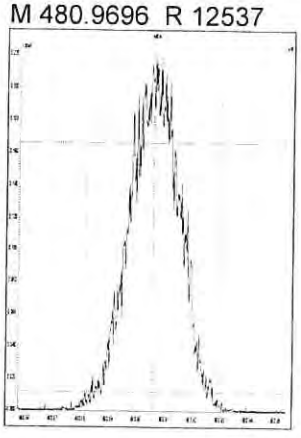
M 454.9728 R 13698



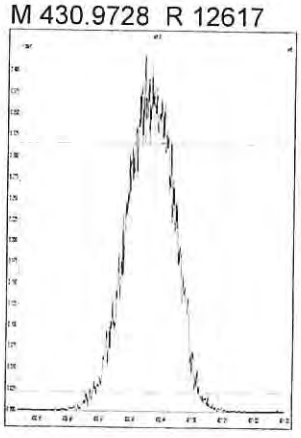
M 466.9728 R 14933



M 480.9696 R 12537



M 430.9728 R 12617



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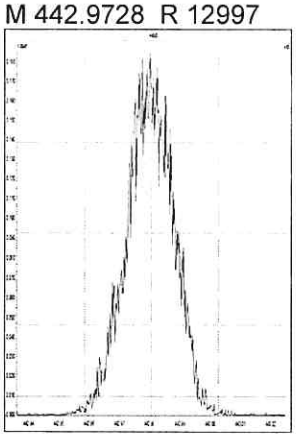
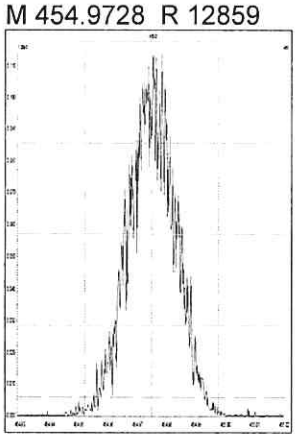
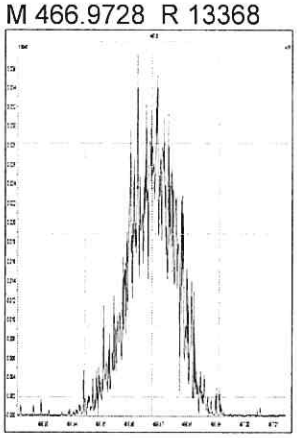


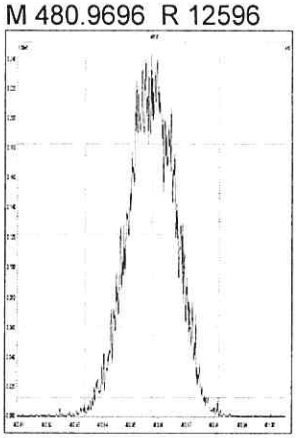
M 454.9728_R 12859



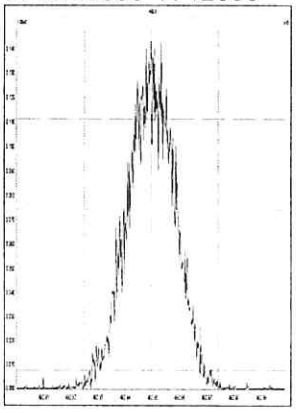
M 466.9728_R 13368



M 480.9696_R 12596



M 492.9696_R 12860



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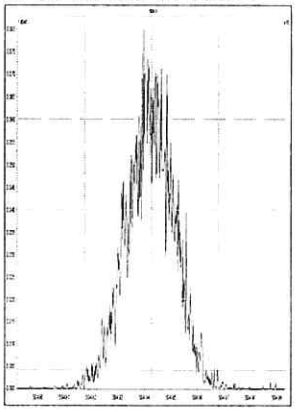

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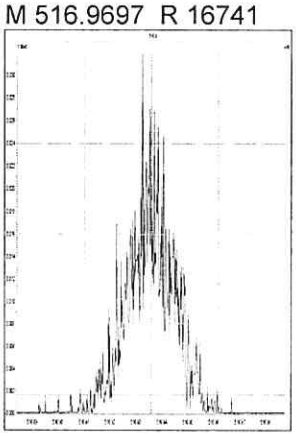


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

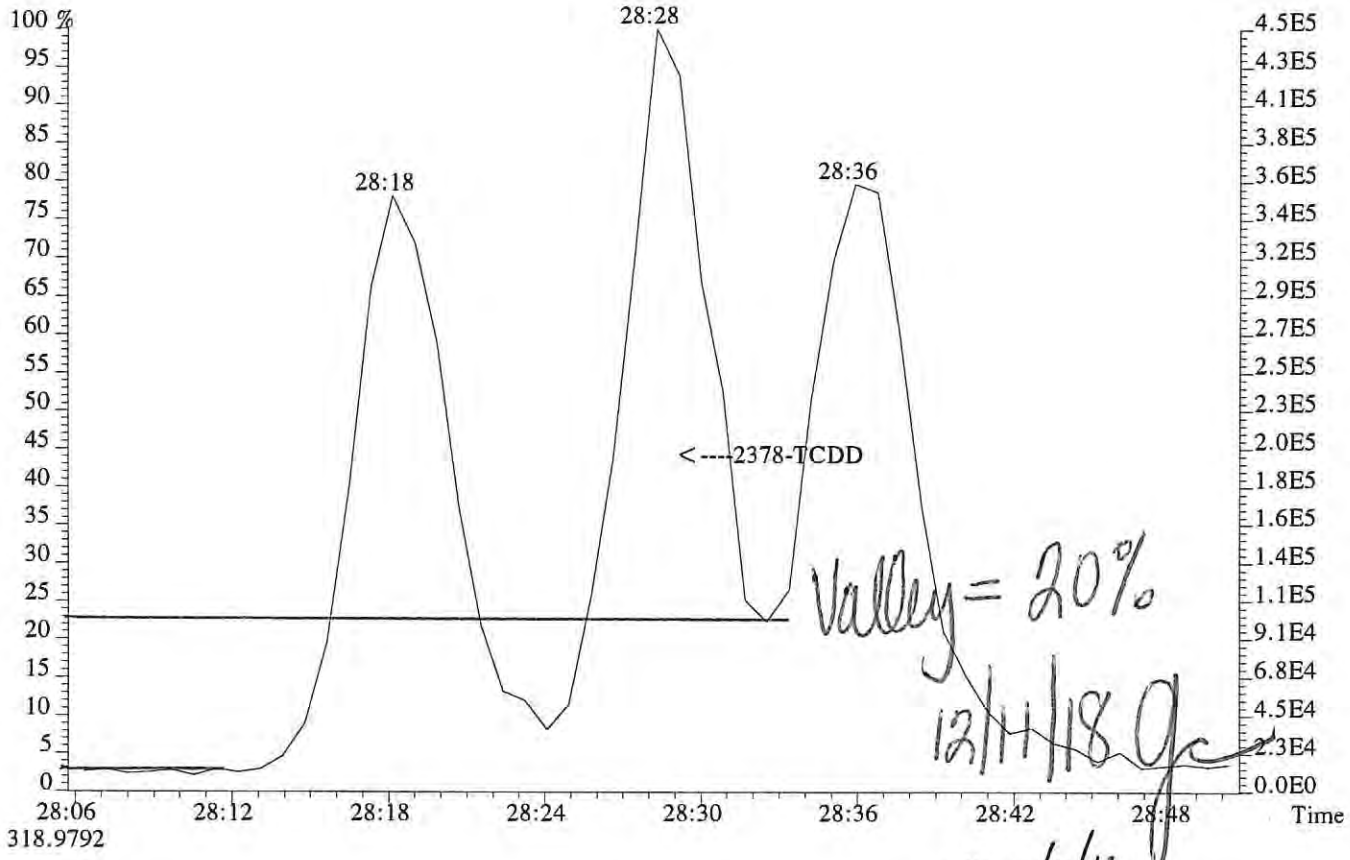
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519320
Date Analyzed: 10-DEC-2018
Time Analyzed: 09:34:53

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:12	29:40
TCDD	25:01	29:30
PeCDF	29:38	33:59
PeCDD	31:12	33:43
HxCDF	34:40	37:14
HxCDD	35:12	36:50
HpCDF	38:32	39:58
HpCDD	38:48	39:30

% Valley 2378-TCDD: 20 %

File:P519320 #1-587 Acq:10-DEC-2018 09:34:53 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:192977
319.8965



318.9792

LM 12/11/18



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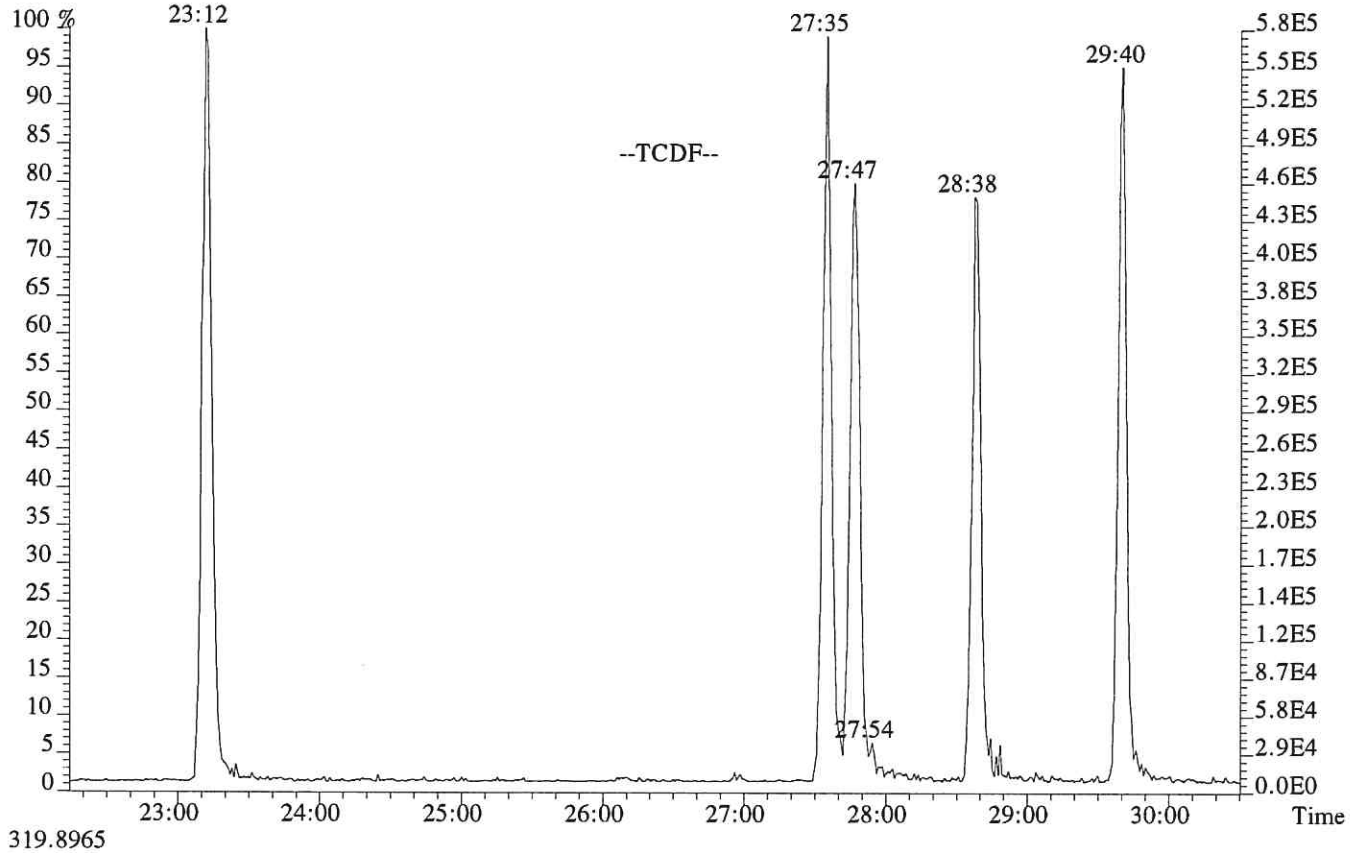
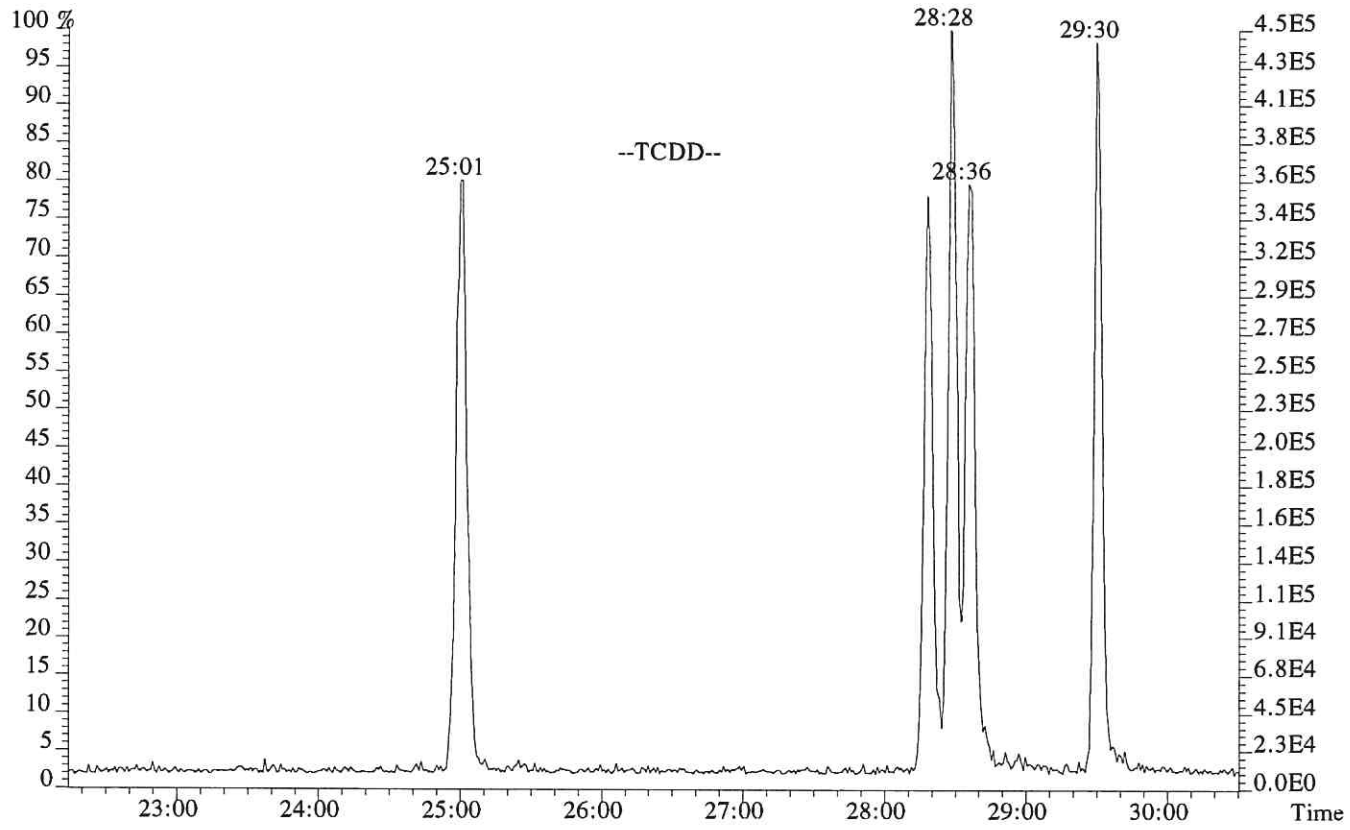
303.9016



319.8965



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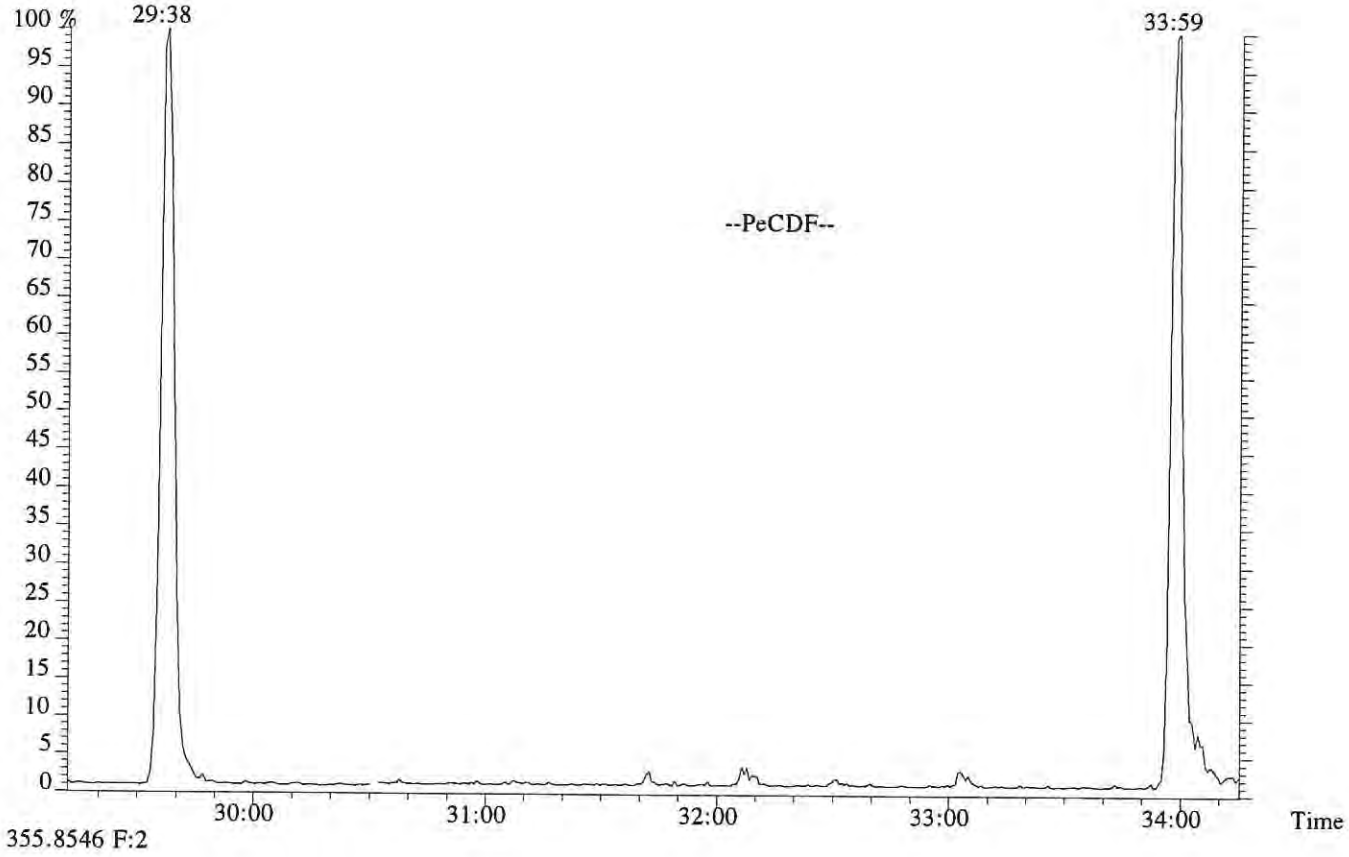
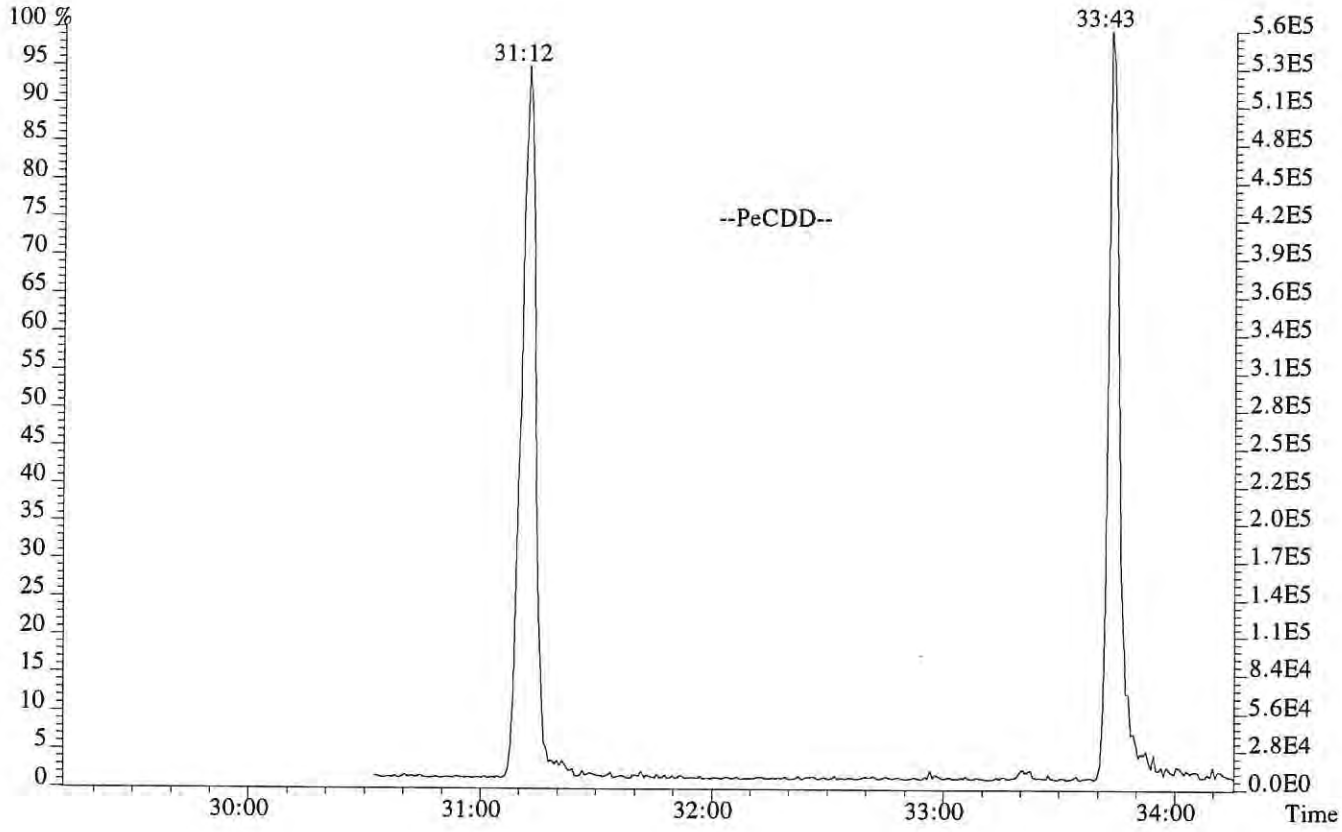
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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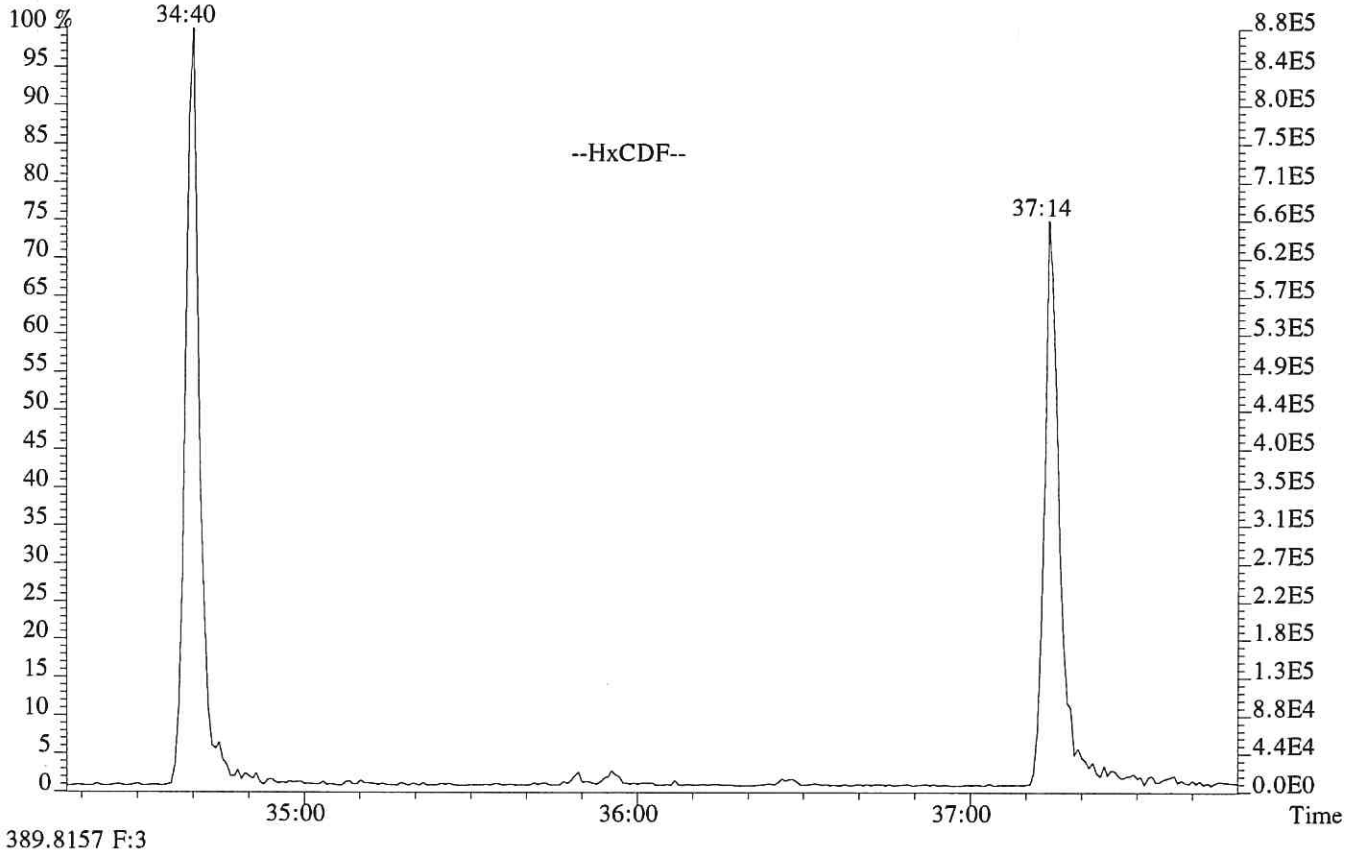
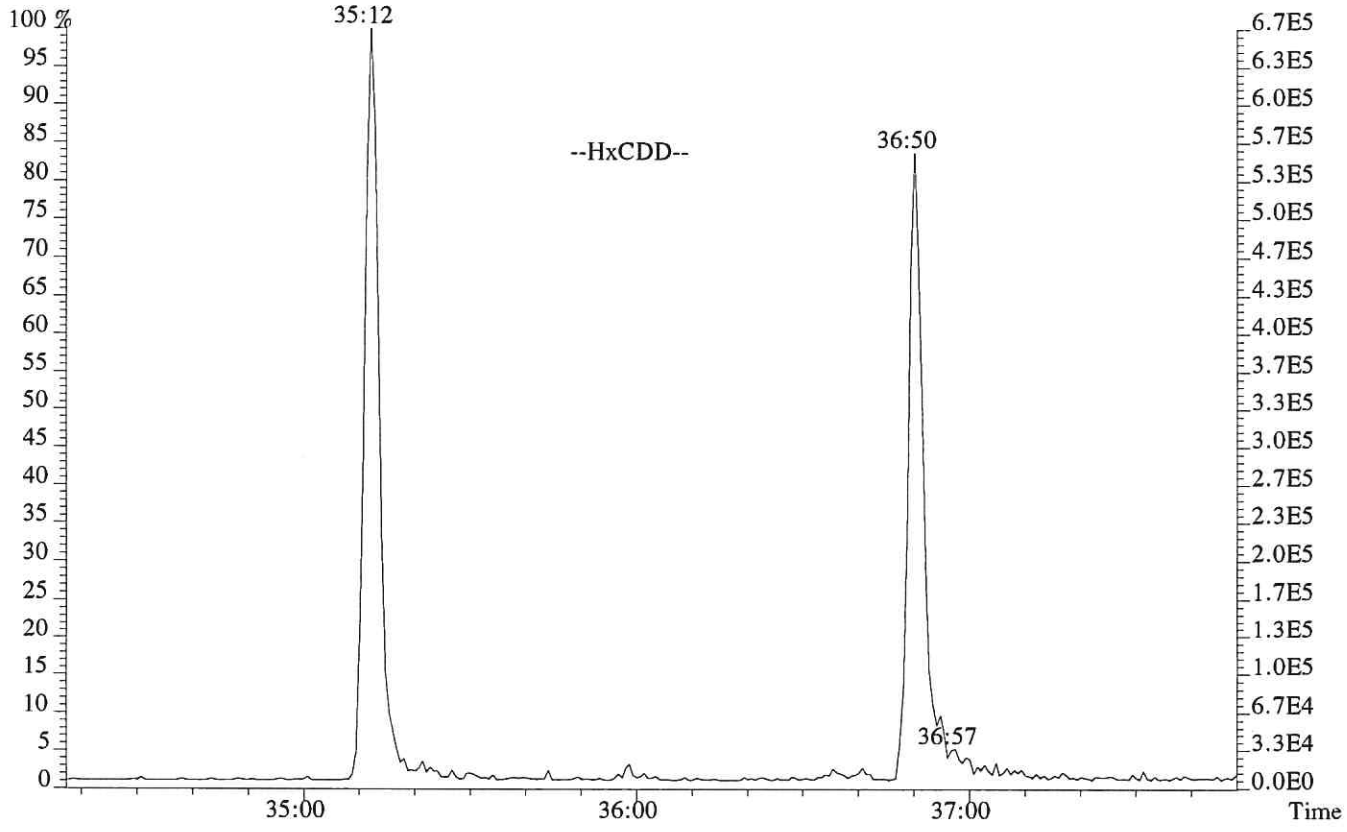
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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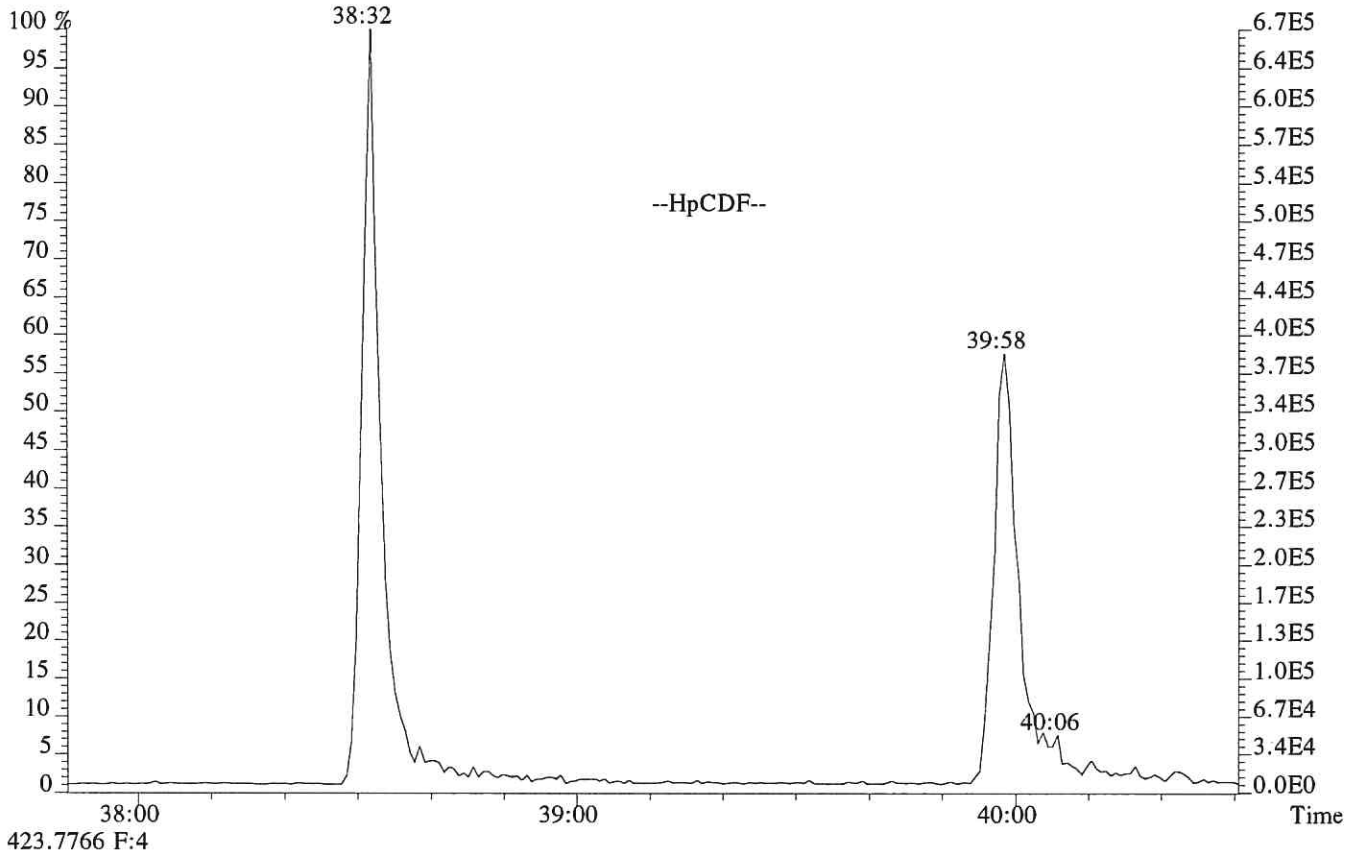
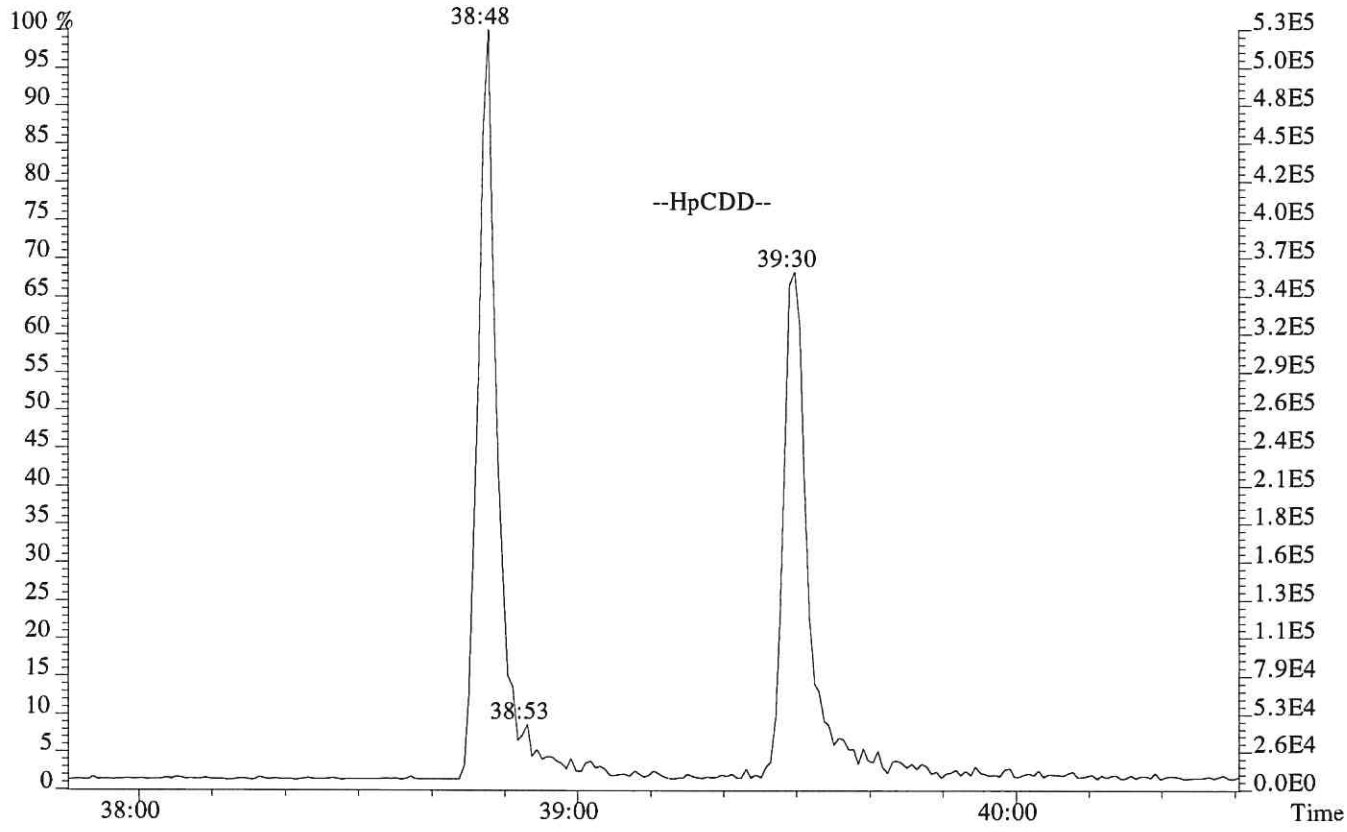
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.8	7.8 - 12.9	-1.7
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	7.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	50	43 - 58	-0.2
OCDD	M+2/M+4	0.90	0.76-1.02	99	79 - 126	-0.7
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.6	8.4 - 12.0	-3.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	-0.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	-0.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	1.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	50	45 - 55	0.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.4
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-2.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	107	62 - 160	6.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-14.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 118	0.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	94	72 - 138	-5.8
13C-OCDD	M+2/M+4	0.90	0.76-1.02	216	96 - 415	8.2
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	93	71 - 140	-7.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	103	76 - 130	2.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	106	77 - 130	6.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	83	76 - 131	-17.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-4.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	85	74 - 135	-15.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	91	73 - 137	-9.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	95	78 - 129	-4.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	89	77 - 129	-11.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-4.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:48	5.306e+03	7.058e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:08	4.475e+04	2.952e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.329e+04	2.830e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.408e+04	2.857e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	4.159e+04	3.445e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.540e+04	2.999e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	2.969e+04	2.408e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	3.257e+04	3.146e+04	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	2.356e+04	2.347e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:35	3.990e+04	4.514e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:37	4.077e+03	5.309e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.919e+04	1.885e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.353e+04	1.866e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	2.847e+04	2.253e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.836e+04	2.256e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:28	2.187e+04	2.028e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:23	3.386e+04	3.752e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:46	6.030e+04	7.611e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:07	9.068e+04	5.677e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	9.205e+04	5.837e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.514e+04	6.920e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.665e+04	8.929e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	3.964e+04	7.706e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	3.177e+04	6.190e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	2.921e+04	6.472e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:56	2.258e+04	5.193e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:35	3.909e+04	4.892e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	6.261e+04	3.883e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	4.579e+04	3.531e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	5.463e+04	4.289e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	4.307e+04	3.937e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:23	6.087e+04	6.772e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	4.342e+04	5.398e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	5.713e+04	4.493e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:37	9.407e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.83e+05	6.04e+02	1.5e+03	1.18e+06	2.18e+03	5.4e+02
2	1,2,3,7,8-PeCDF	7.71e+06	4.68e+02	1.6e+04	5.02e+06	3.74e+03	1.3e+03
3	2,3,4,7,8-PeCDF	7.80e+06	4.68e+02	1.7e+04	5.22e+06	3.74e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	6.80e+06	5.16e+02	1.3e+04	5.62e+06	6.20e+02	9.1e+03
5	1,2,3,6,7,8-HxCDF	7.29e+06	5.16e+02	1.4e+04	6.03e+06	6.20e+02	9.7e+03
6	2,3,4,6,7,8-HxCDF	6.83e+06	5.16e+02	1.3e+04	5.61e+06	6.20e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	5.01e+06	5.16e+02	9.7e+03	4.06e+06	6.20e+02	6.6e+03
8	1,2,3,4,6,7,8-HpCDF	5.95e+06	4.45e+03	1.3e+03	5.72e+06	4.35e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.44e+06	4.45e+03	7.7e+02	3.46e+06	4.35e+03	8.0e+02
10	OCDF	4.72e+06	2.92e+02	1.6e+04	5.36e+06	7.40e+02	7.2e+03
11	2,3,7,8-TCDD	7.27e+05	1.90e+03	3.8e+02	9.05e+05	9.20e+02	9.8e+02
12	1,2,3,7,8-PeCDD	5.13e+06	6.08e+02	8.4e+03	3.28e+06	3.20e+02	1.0e+04
13	1,2,3,4,7,8-HxCDD	4.96e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	5.01e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
15	1,2,3,7,8,9-HxCDD	4.61e+06	4.60e+02	1.0e+04	3.69e+06	9.92e+02	3.7e+03
16	1,2,3,4,6,7,8-HpCDD	3.48e+06	3.68e+02	9.5e+03	3.36e+06	3.52e+02	9.5e+03
17	OCDD	3.92e+06	2.24e+02	1.7e+04	4.35e+06	1.48e+02	2.9e+04
18	13C-2,3,7,8-TCDF	1.01e+07	8.30e+03	1.2e+03	1.28e+07	5.92e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.51e+07	8.24e+02	1.8e+04	9.47e+06	4.32e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	1.68e+07	8.24e+02	2.0e+04	1.07e+07	4.32e+02	2.5e+04
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	3.28e+02	2.1e+04	1.35e+07	7.16e+02	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	8.06e+06	3.28e+02	2.5e+04	1.54e+07	7.16e+02	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	7.55e+06	3.28e+02	2.3e+04	1.45e+07	7.16e+02	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	5.37e+06	3.28e+02	1.6e+04	1.04e+07	7.16e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.27e+06	6.60e+03	8.0e+02	1.18e+07	1.72e+04	6.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.32e+06	6.60e+03	5.0e+02	7.49e+06	1.72e+04	4.4e+02
27	13C-2,3,7,8-TCDD	6.93e+06	8.50e+03	8.1e+02	8.64e+06	3.41e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.07e+07	1.41e+03	7.6e+03	6.64e+06	1.12e+03	5.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.59e+06	1.84e+03	5.2e+03	7.34e+06	5.72e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	9.49e+06	1.84e+03	5.2e+03	7.55e+06	5.72e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.80e+06	4.44e+02	1.5e+04	6.32e+06	6.20e+02	1.0e+04
32	13C-OCDD	6.94e+06	4.08e+02	1.7e+04	7.67e+06	2.36e+02	3.2e+04
33	13C-1,2,3,4-TCDD	7.91e+06	8.50e+03	9.3e+02	9.81e+06	3.41e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	8.95e+06	1.84e+03	4.9e+03	7.11e+06	5.72e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.64e+06	1.46e+03	1.1e+03			

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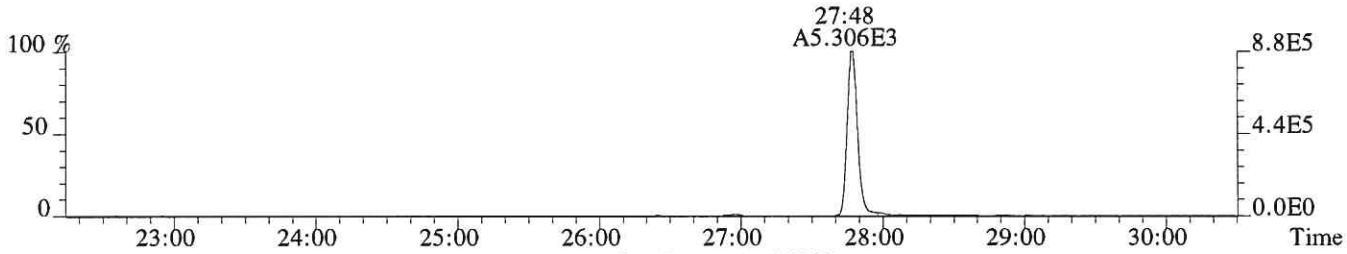
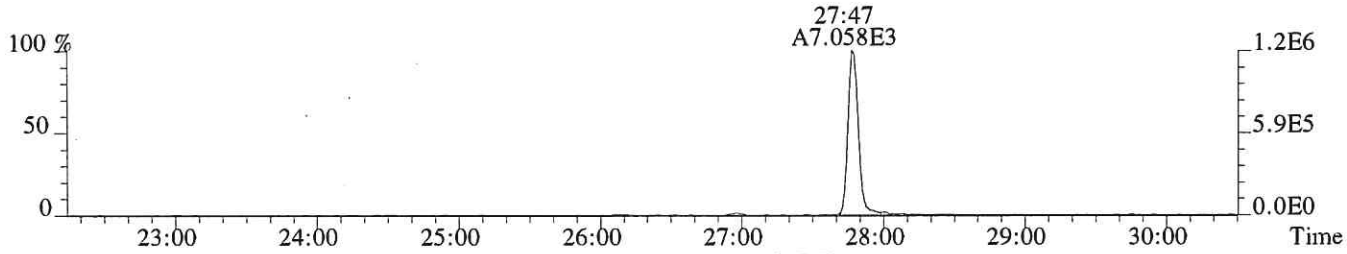
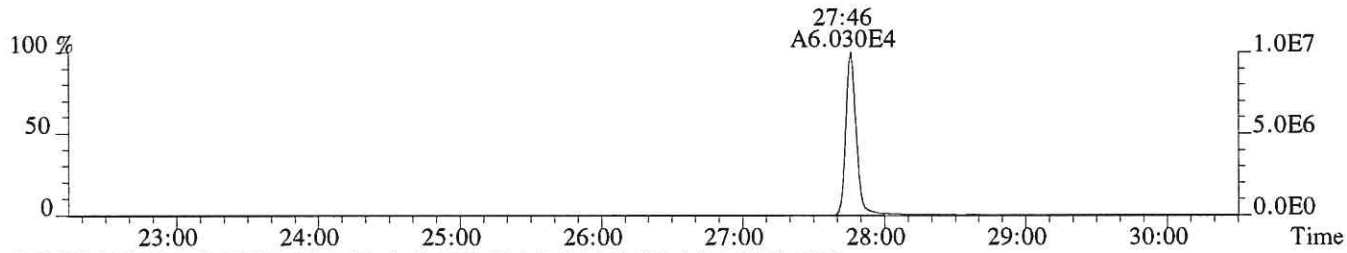
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



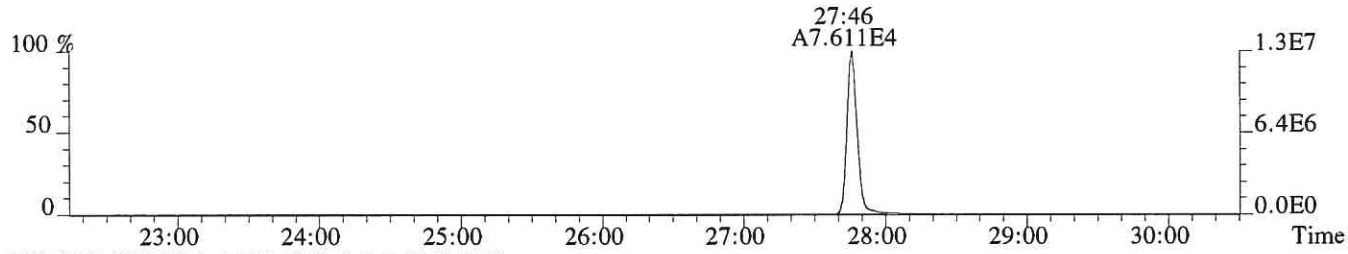
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



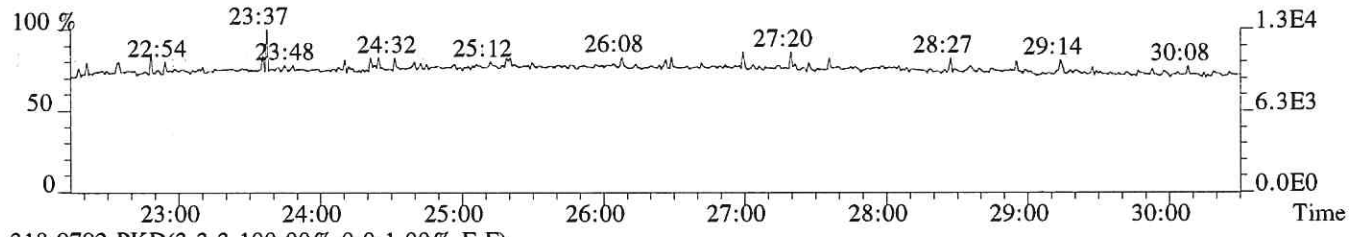
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8304.0,1.00%,F,T)



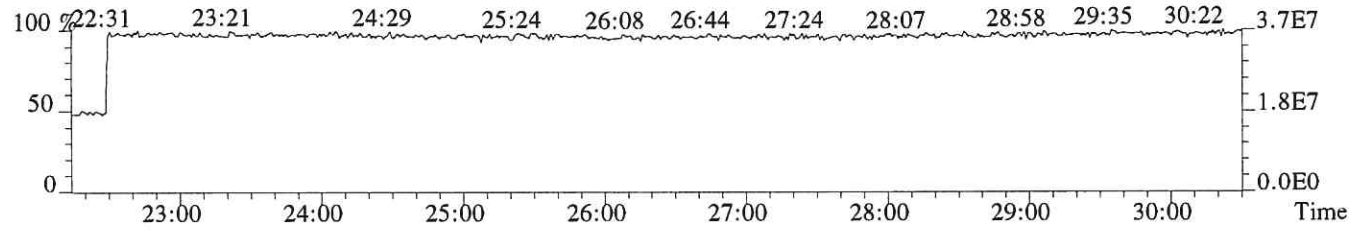
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



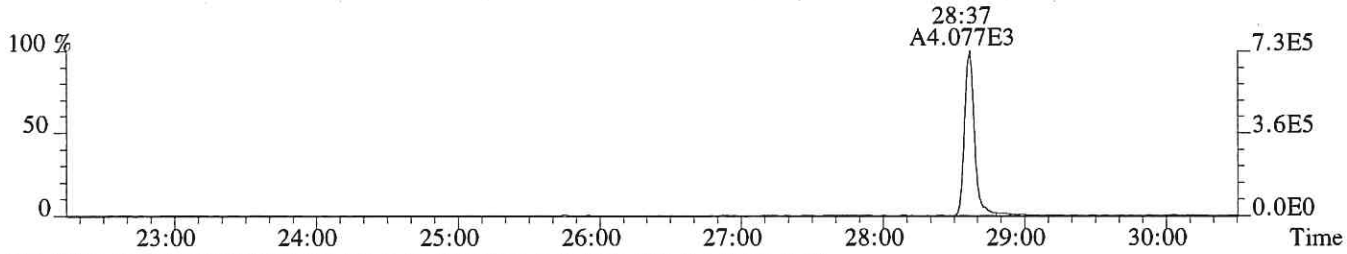
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



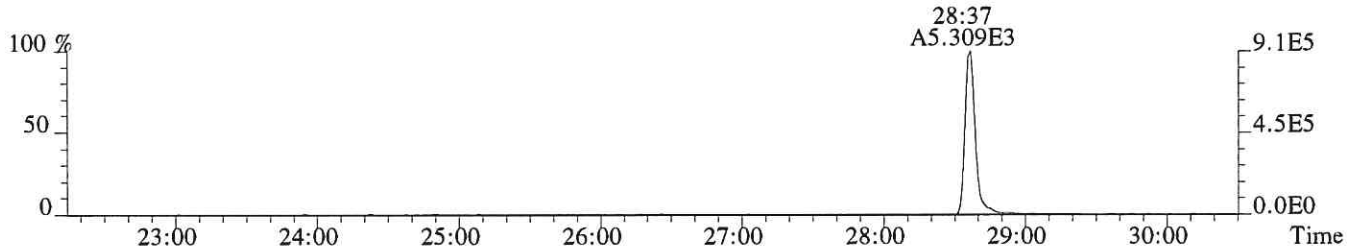
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



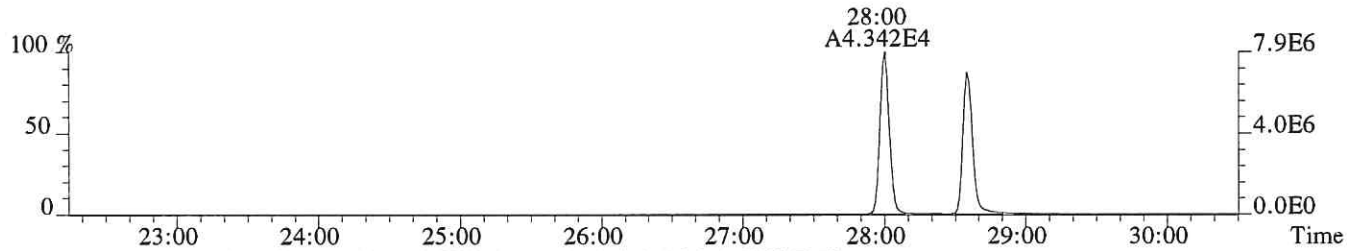
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



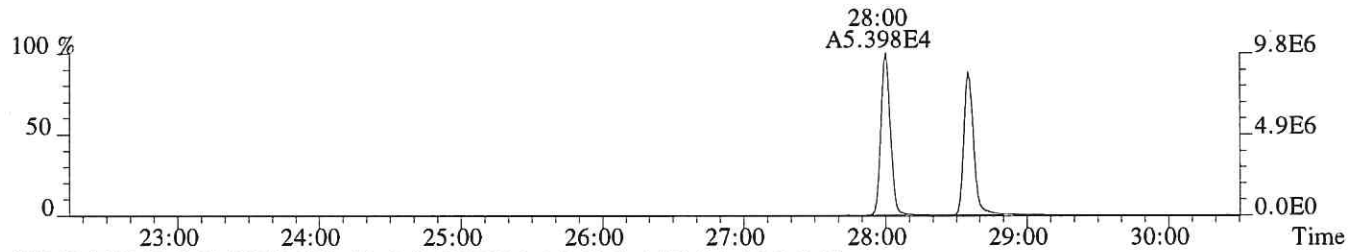
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



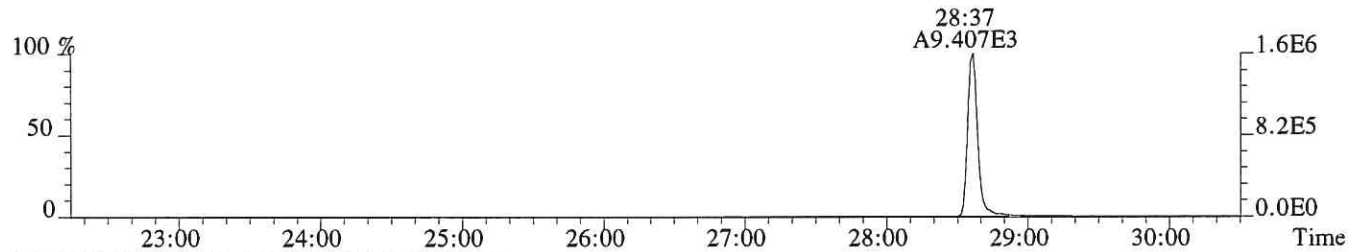
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8504.0,1.00%,F,T)



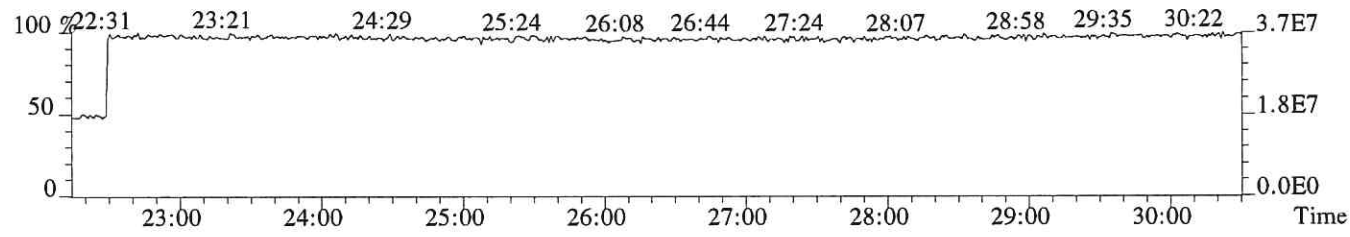
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



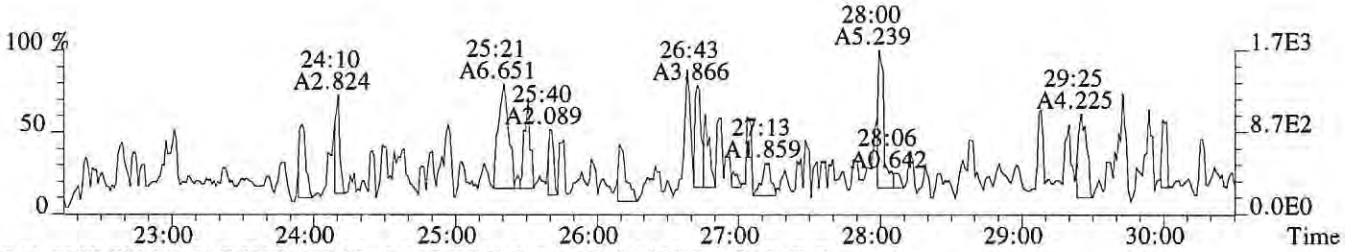
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



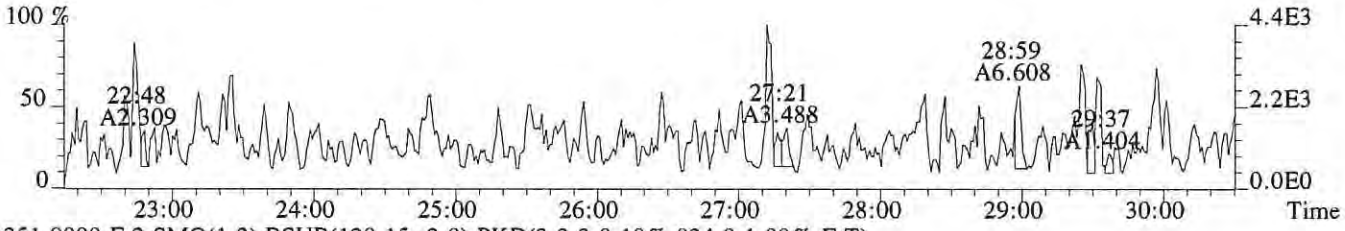
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



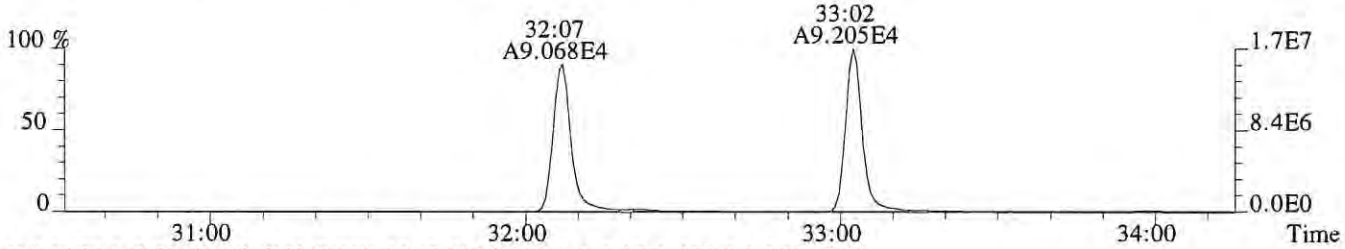
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



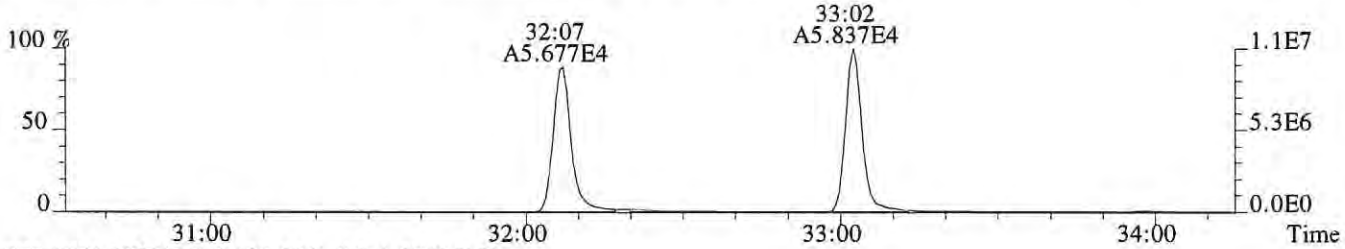
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



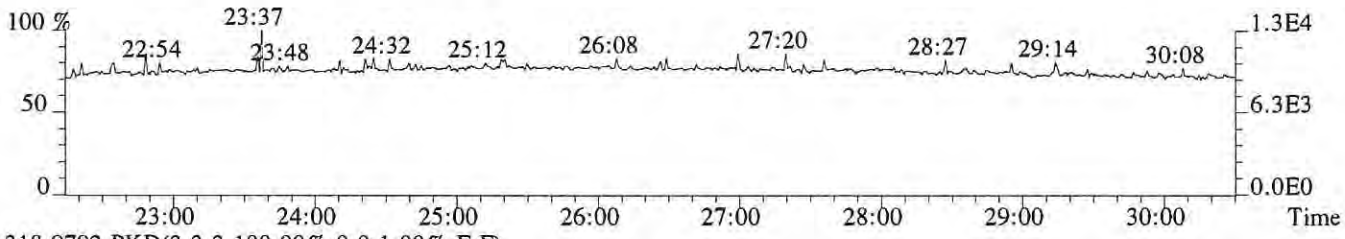
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



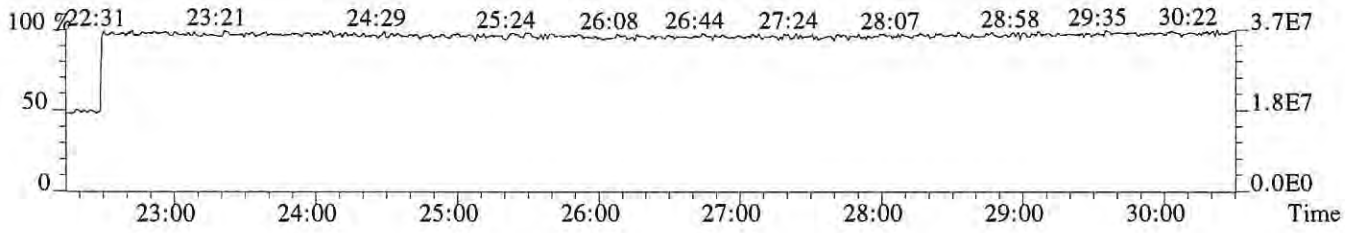
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



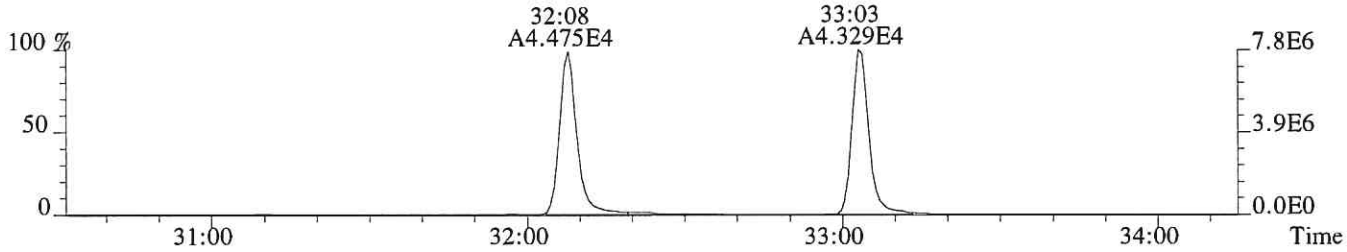
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



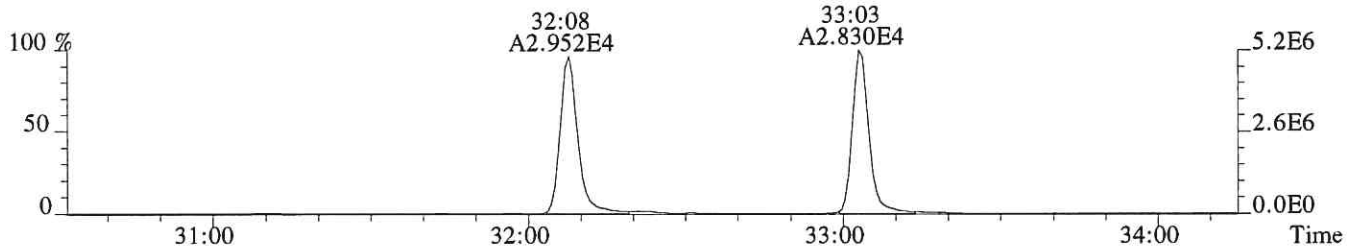
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



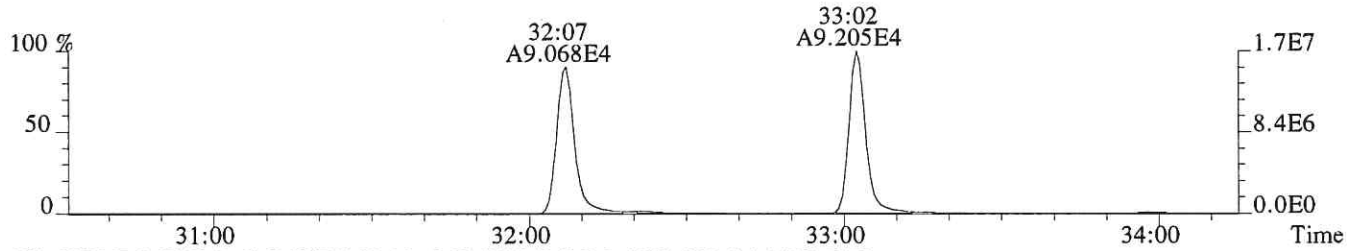
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



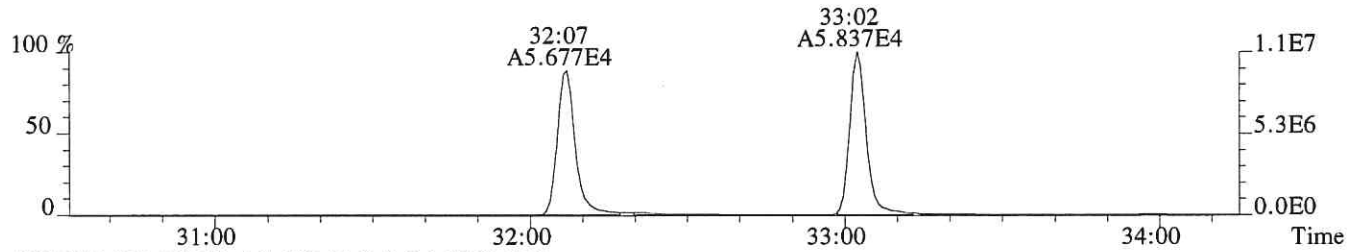
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



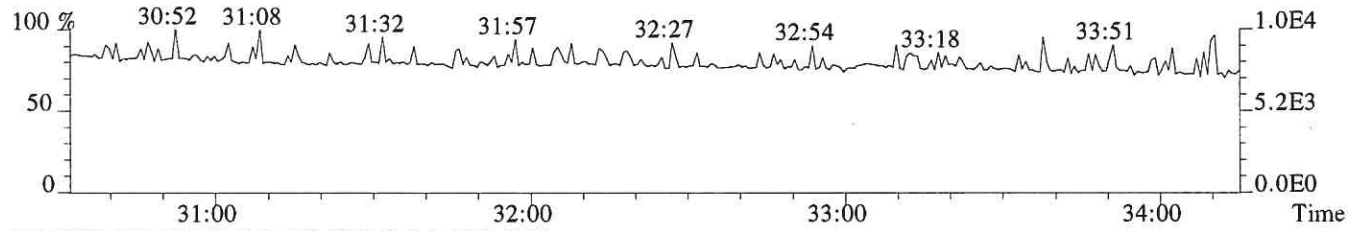
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



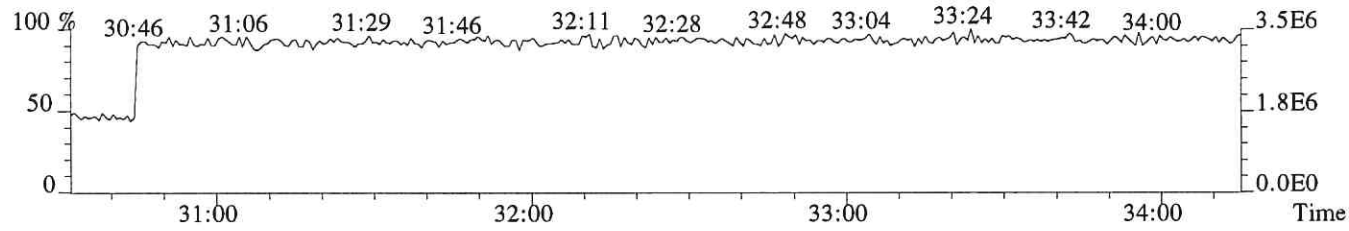
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



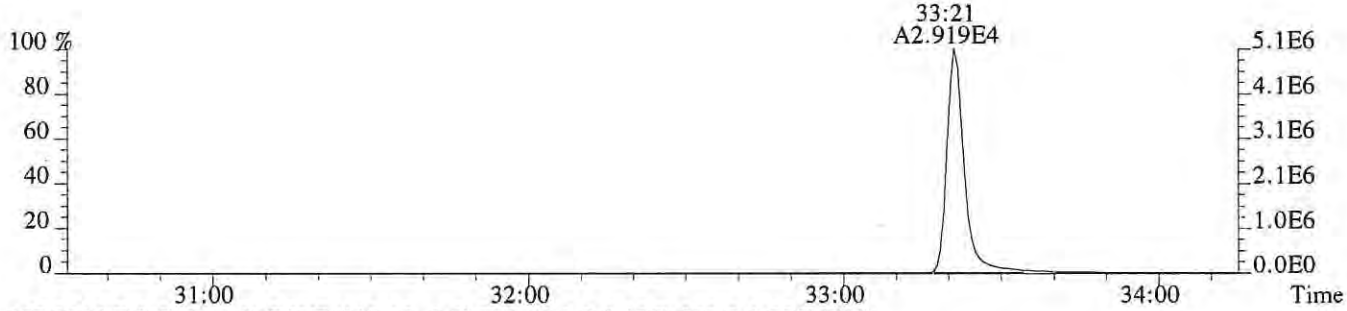
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



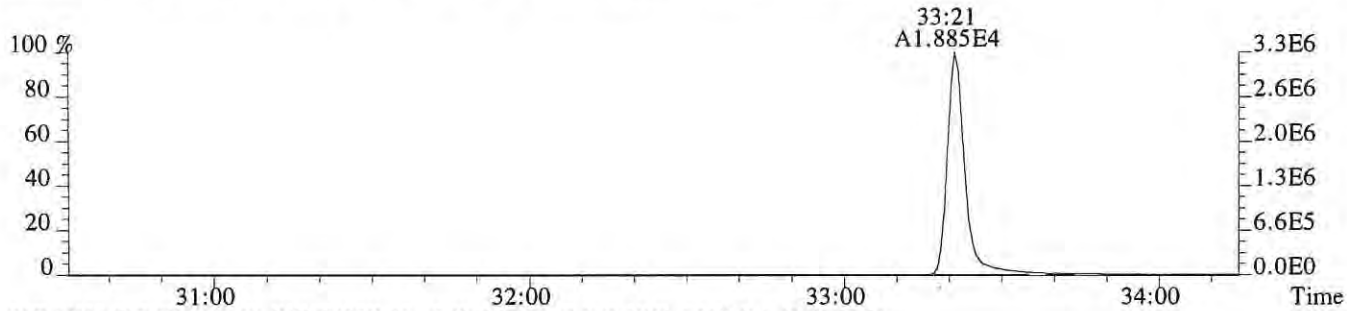
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



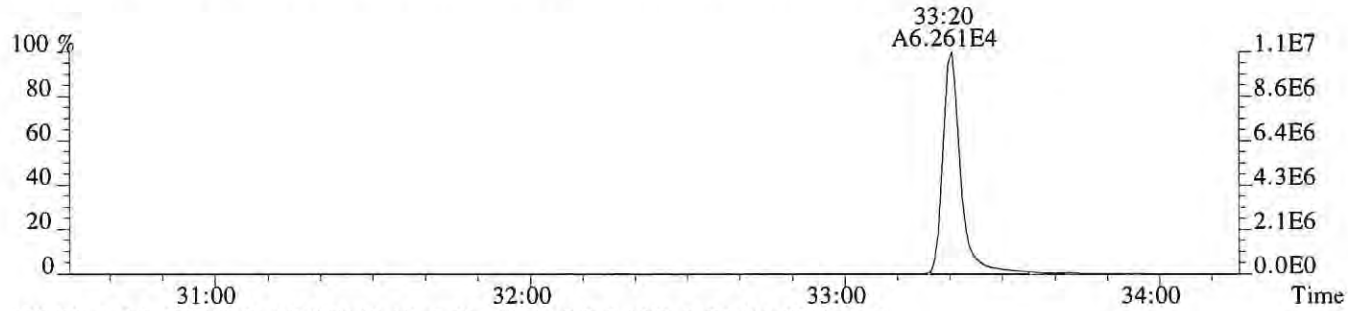
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



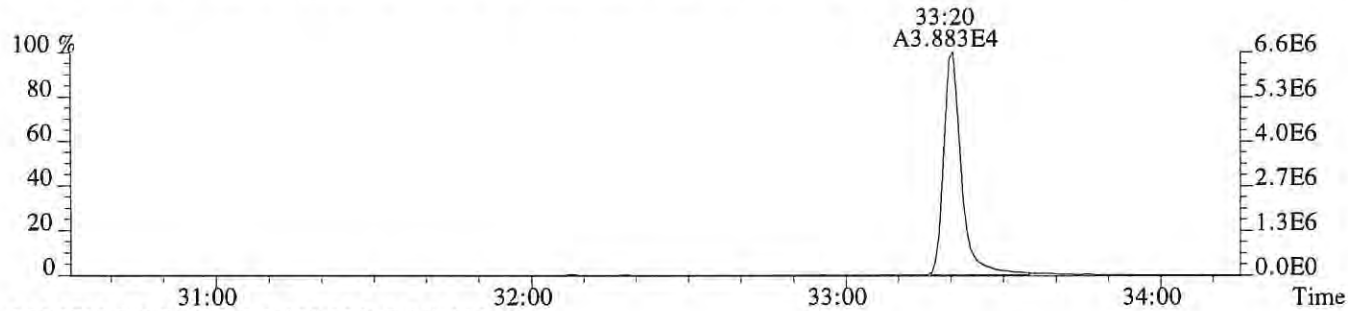
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



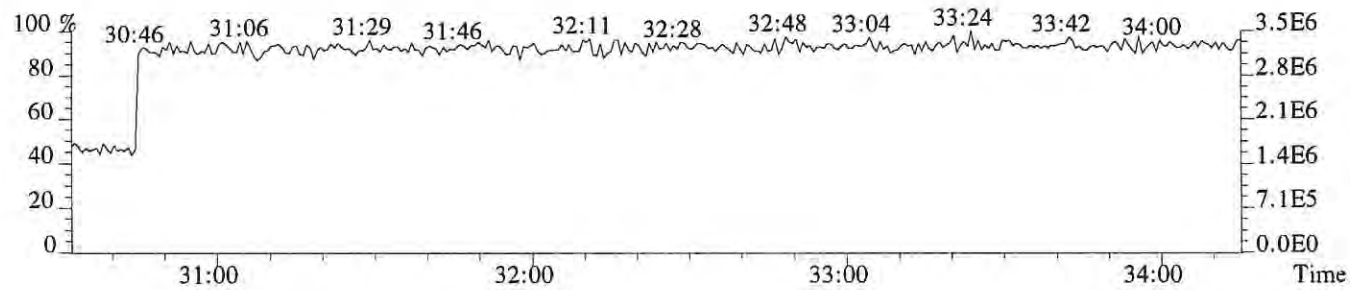
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



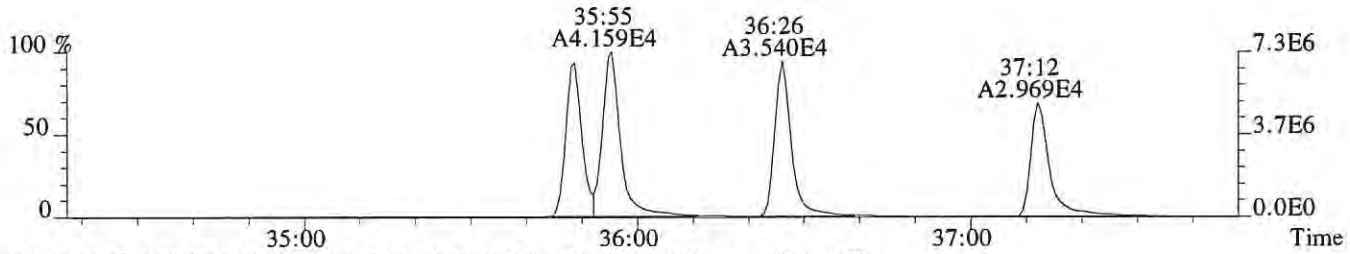
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



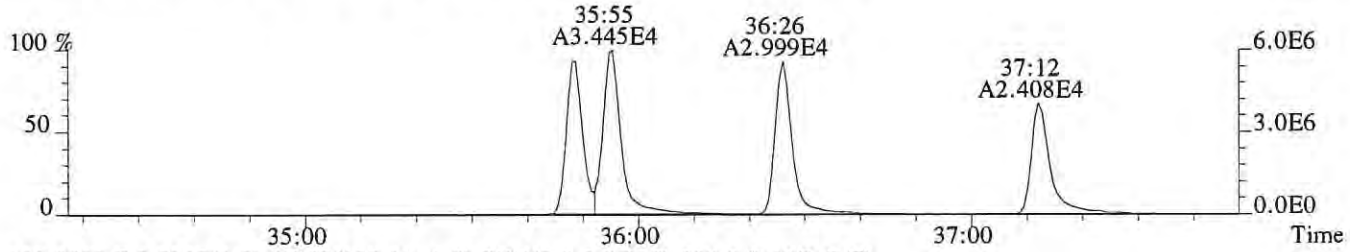
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



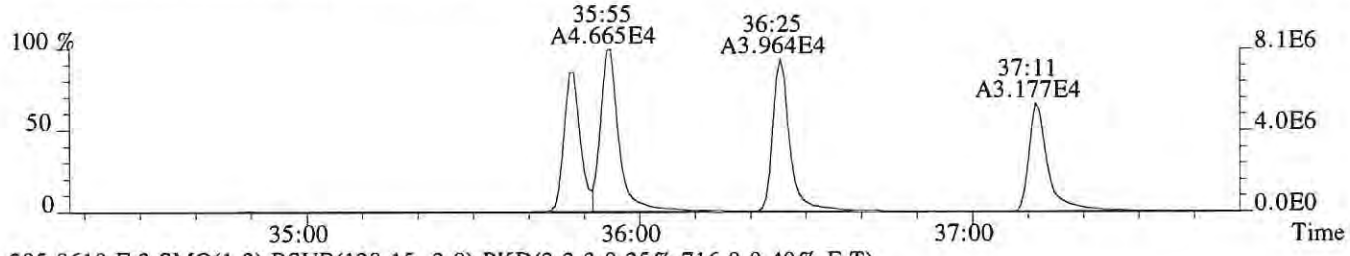
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



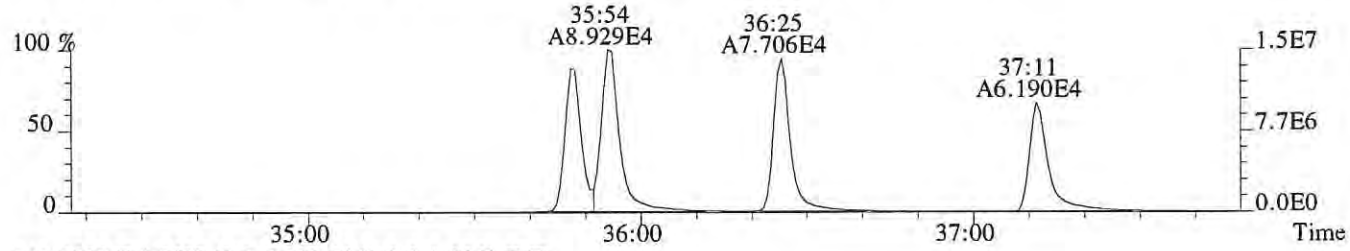
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



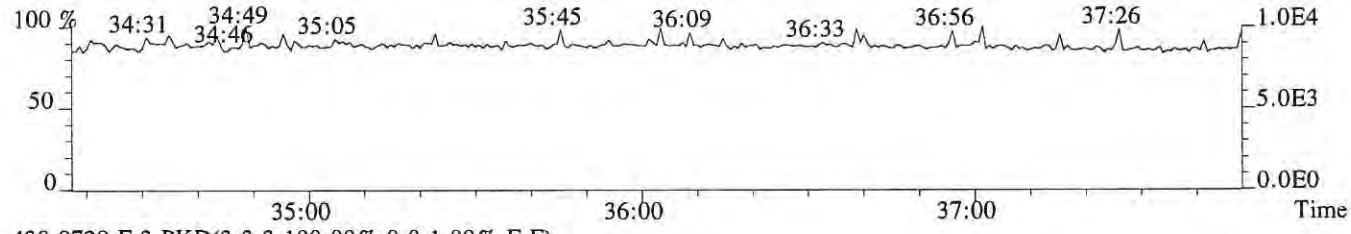
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



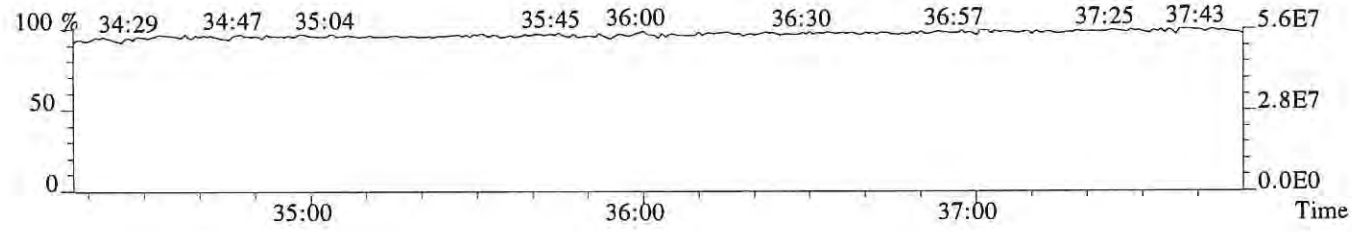
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



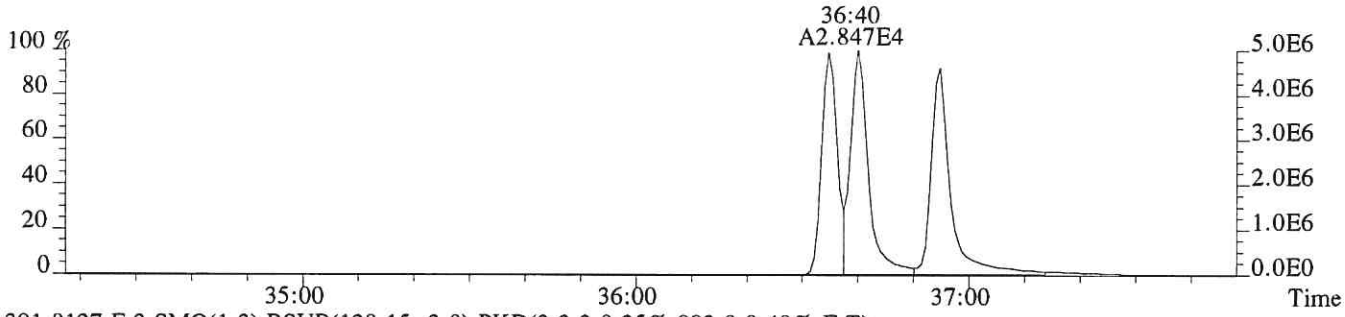
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



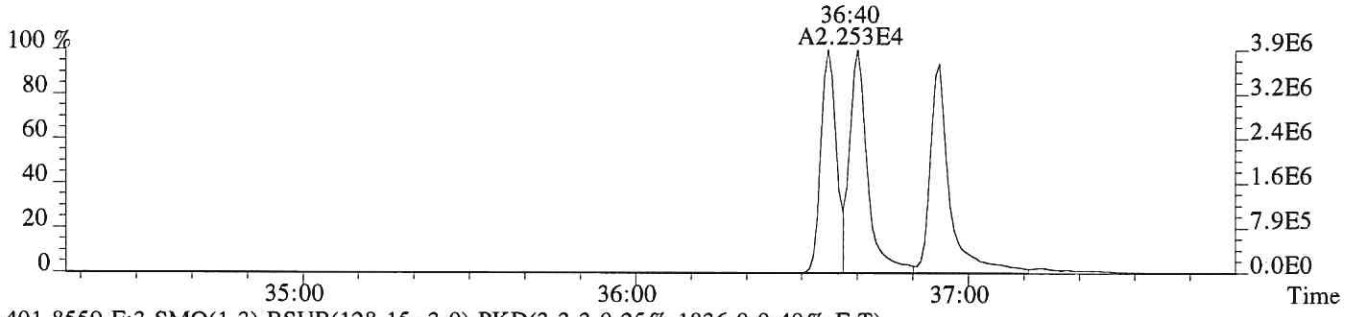
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



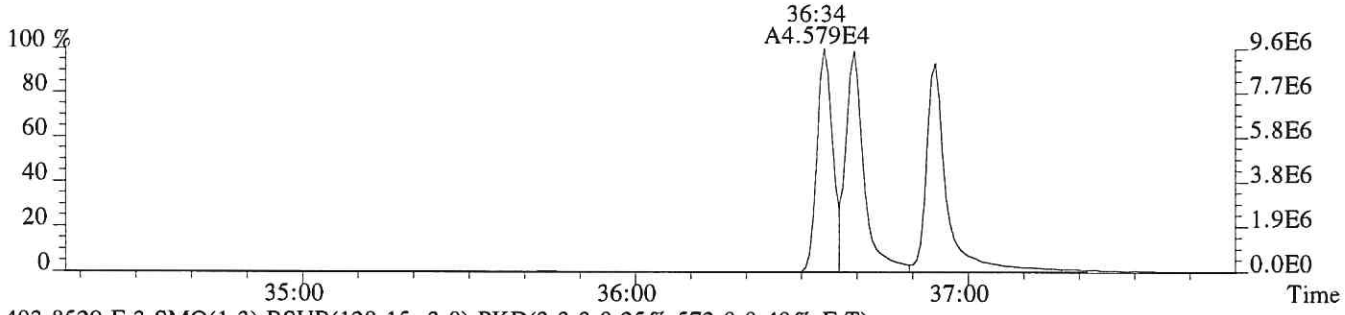
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



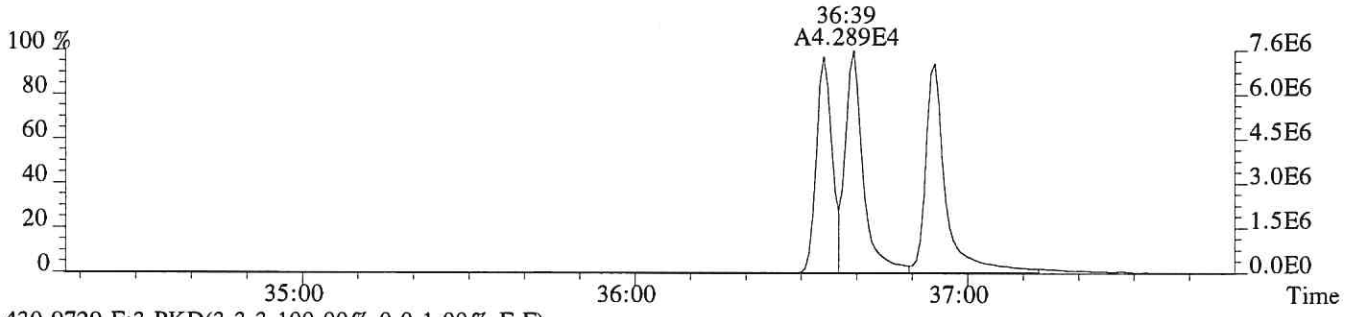
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



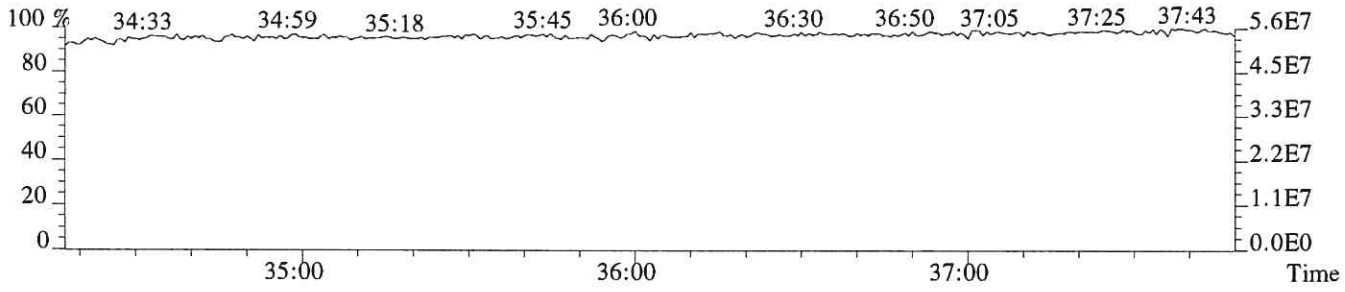
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



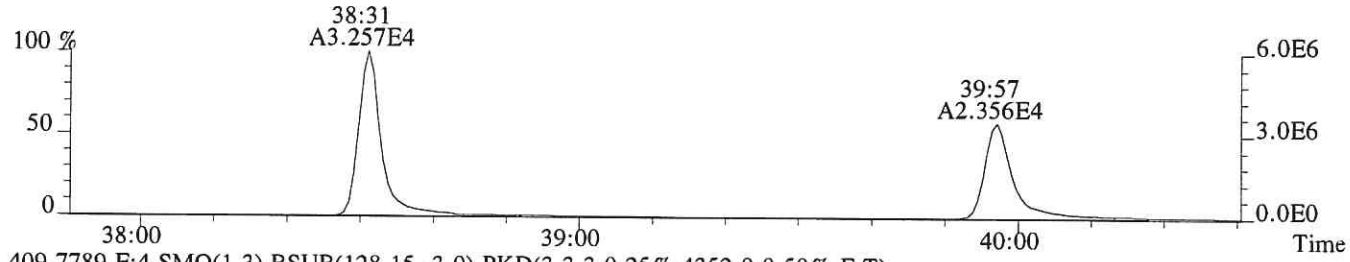
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



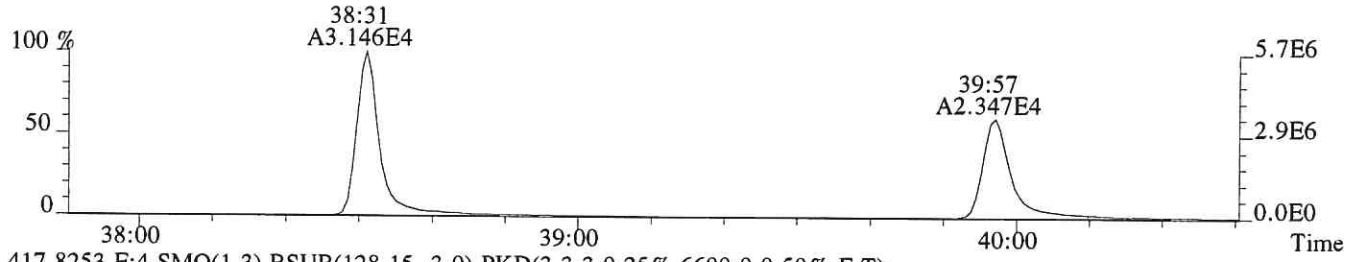
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



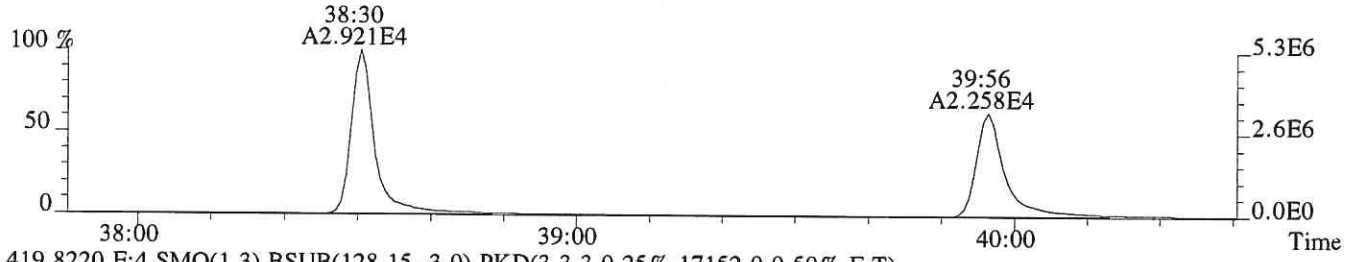
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4448.0,0.50%,F,T)



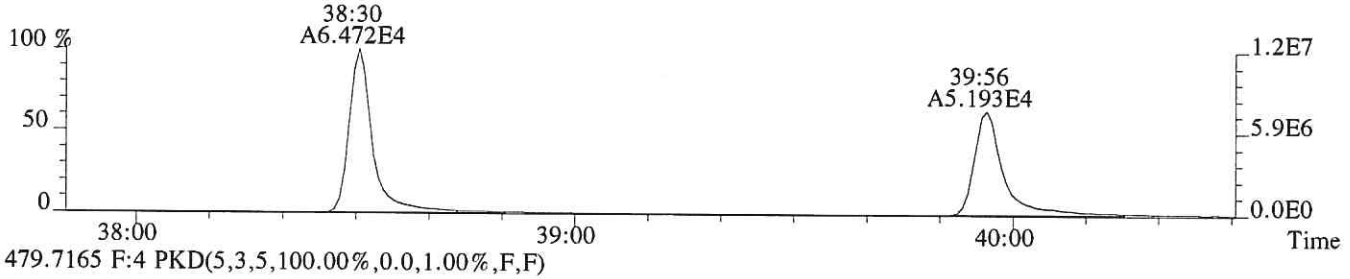
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4352.0,0.50%,F,T)



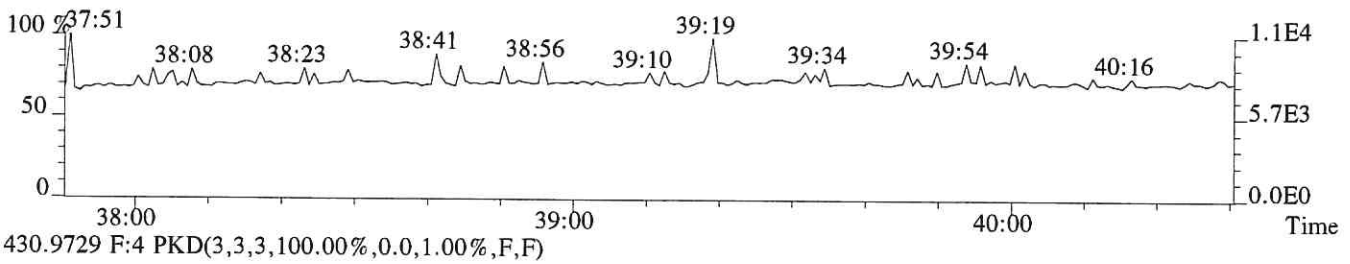
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6600.0,0.50%,F,T)



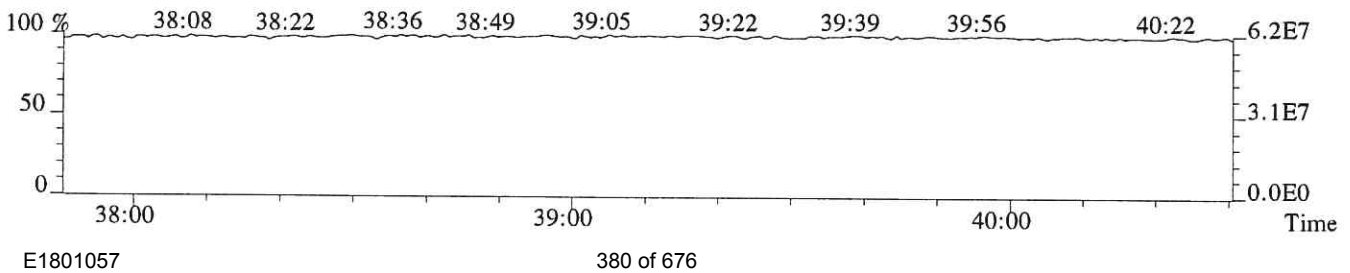
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17152.0,0.50%,F,T)



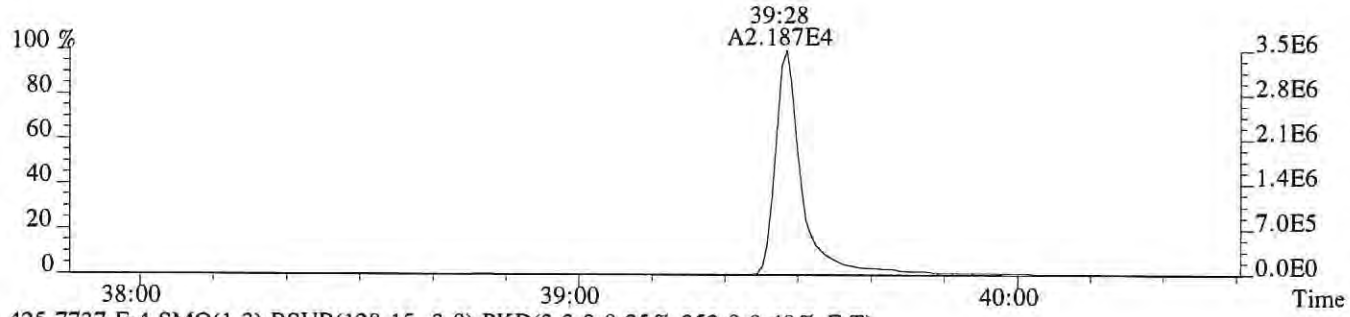
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



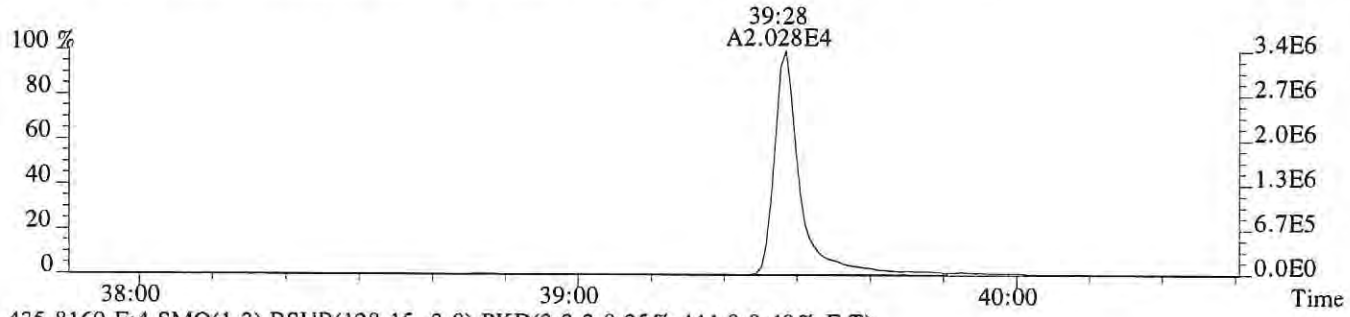
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



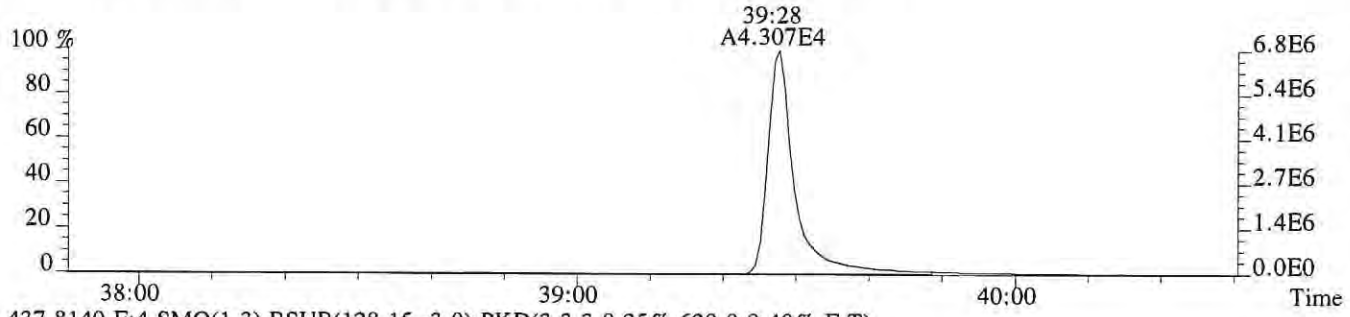
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



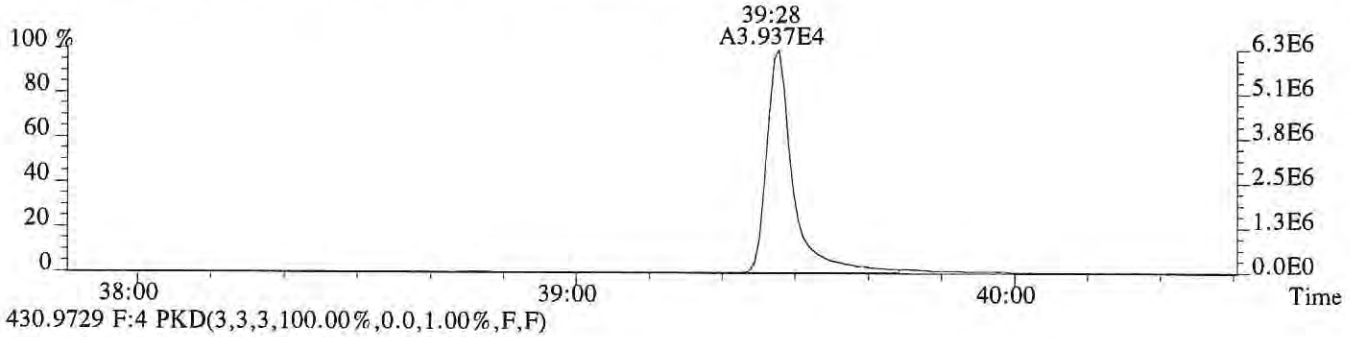
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



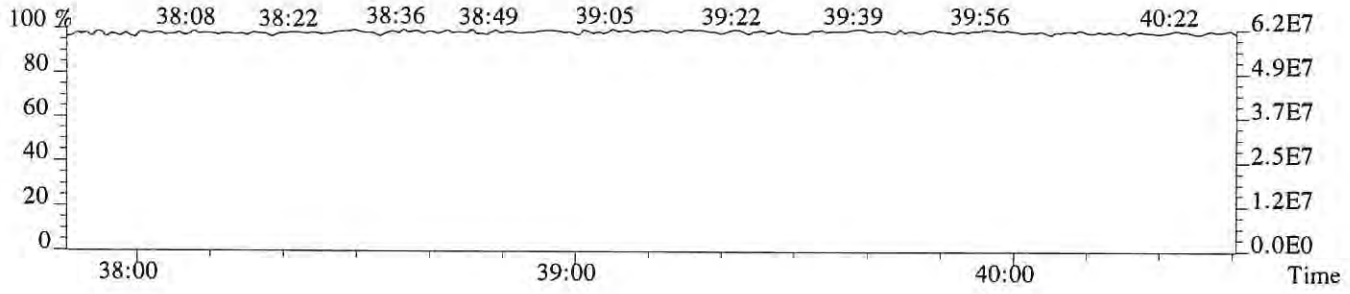
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



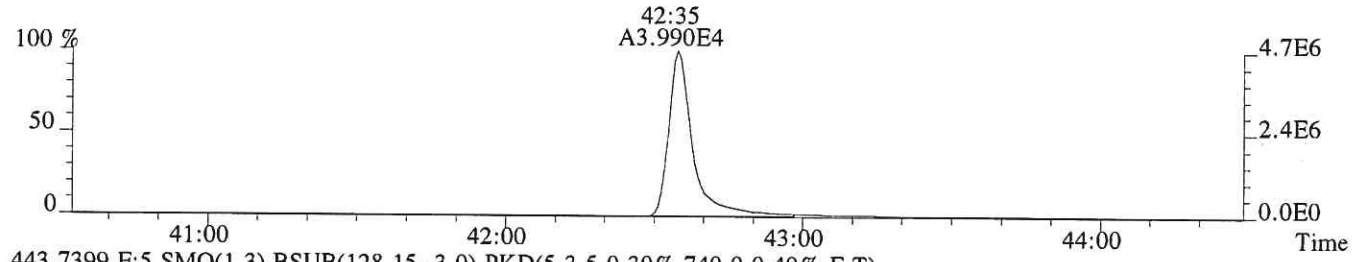
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



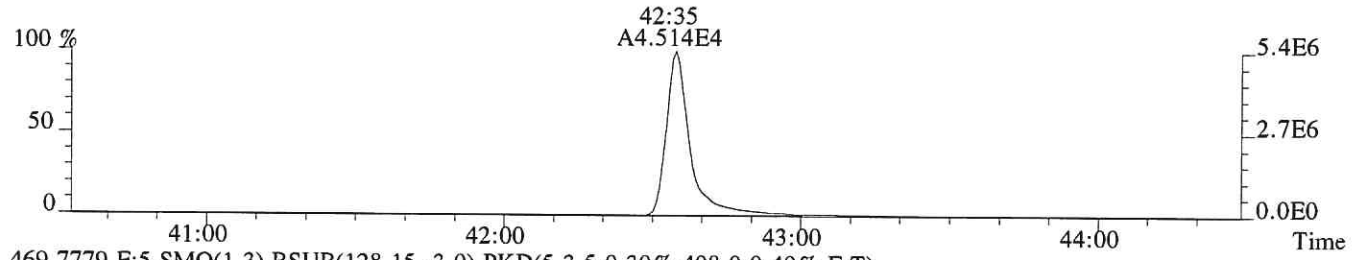
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



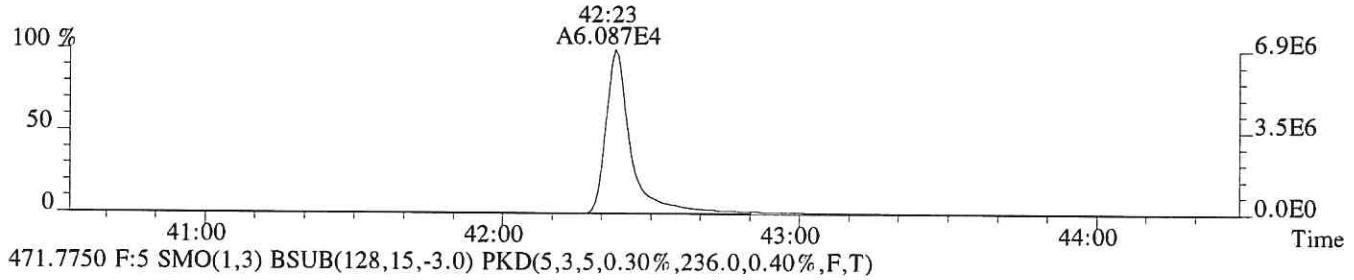
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



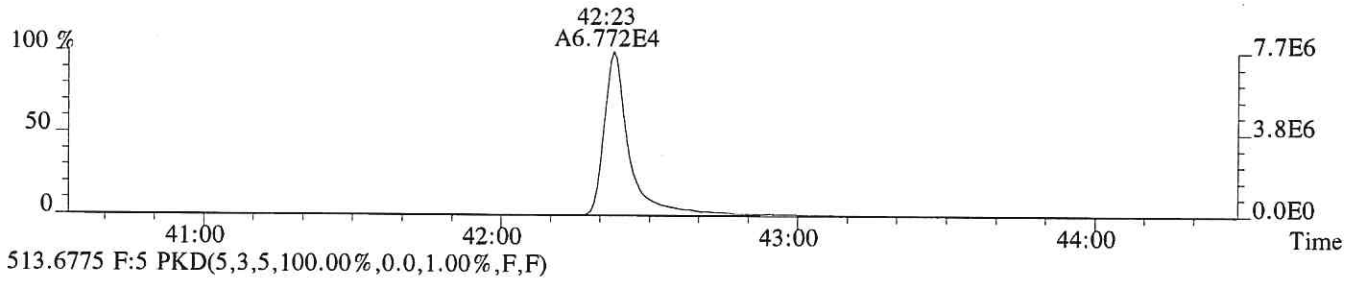
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



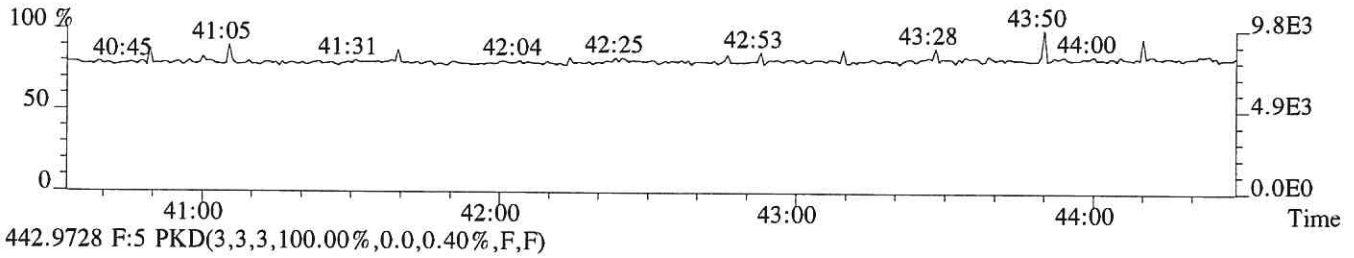
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



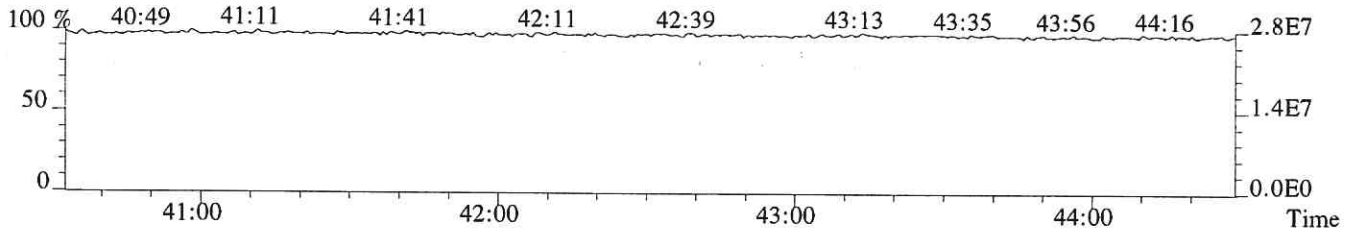
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



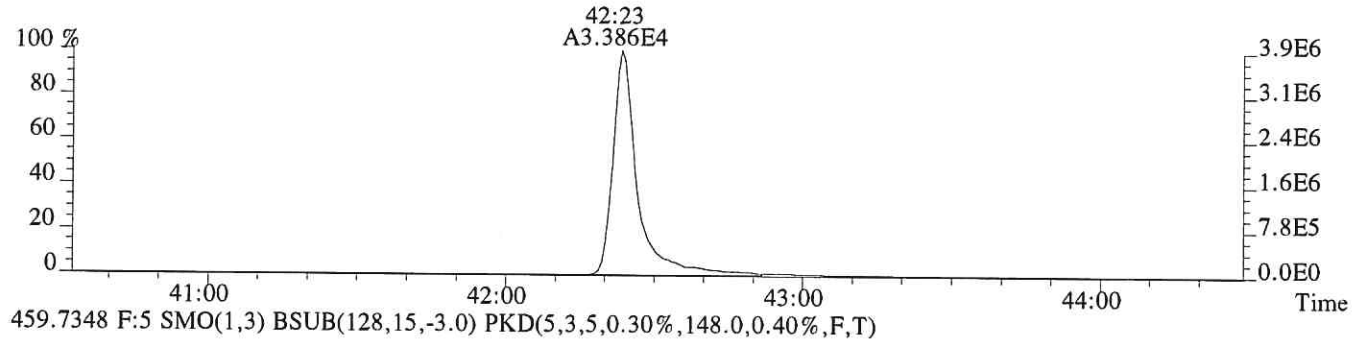
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



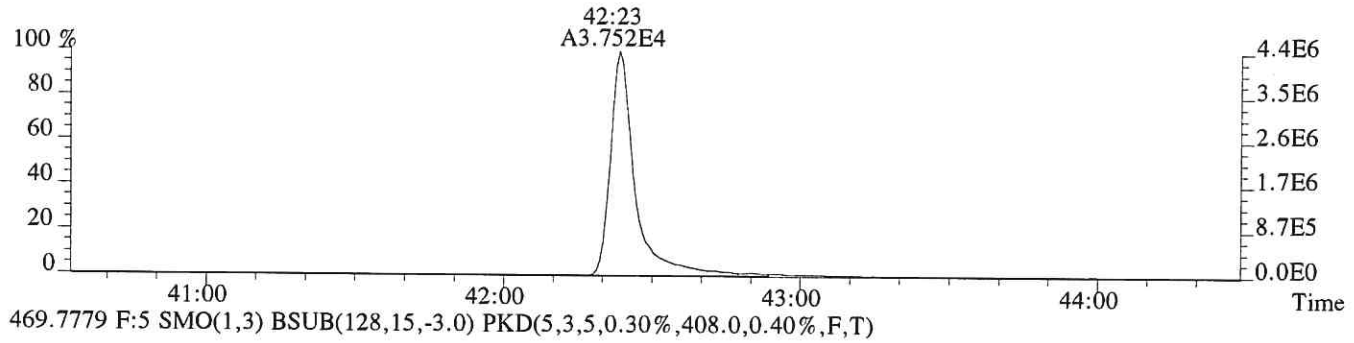
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



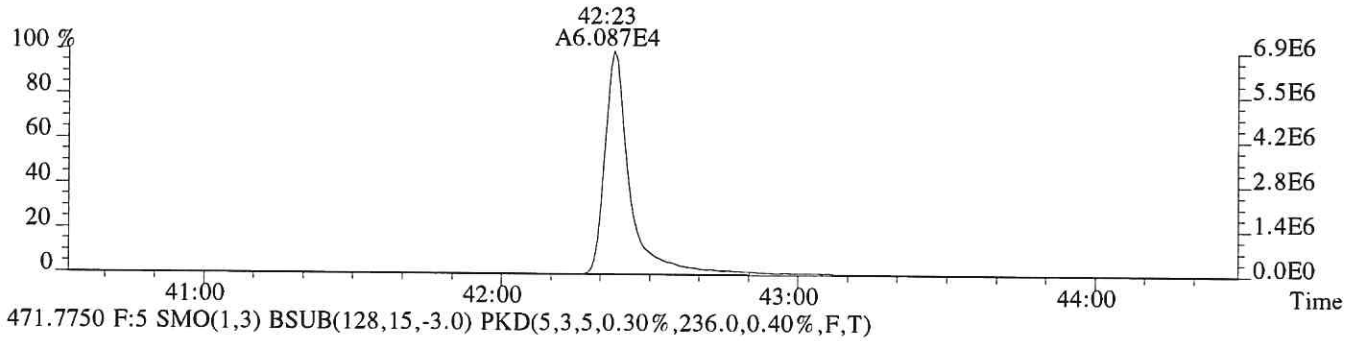
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



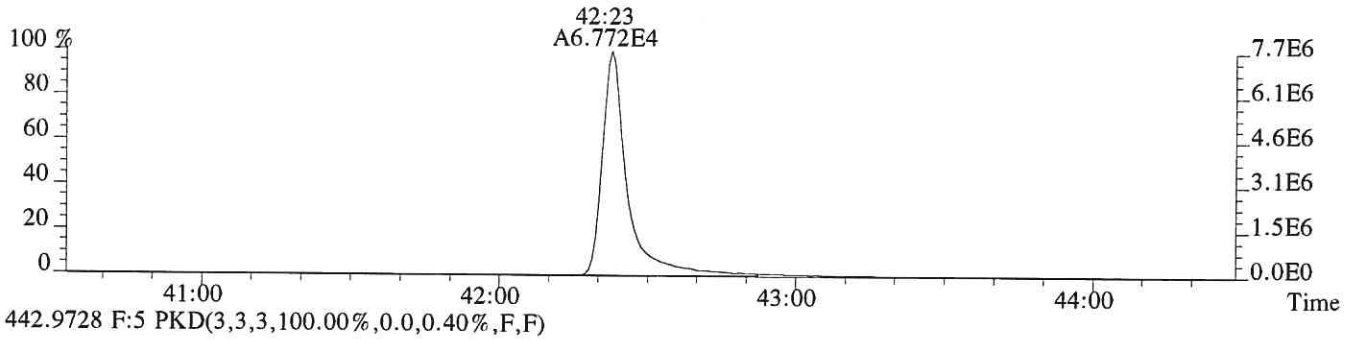
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



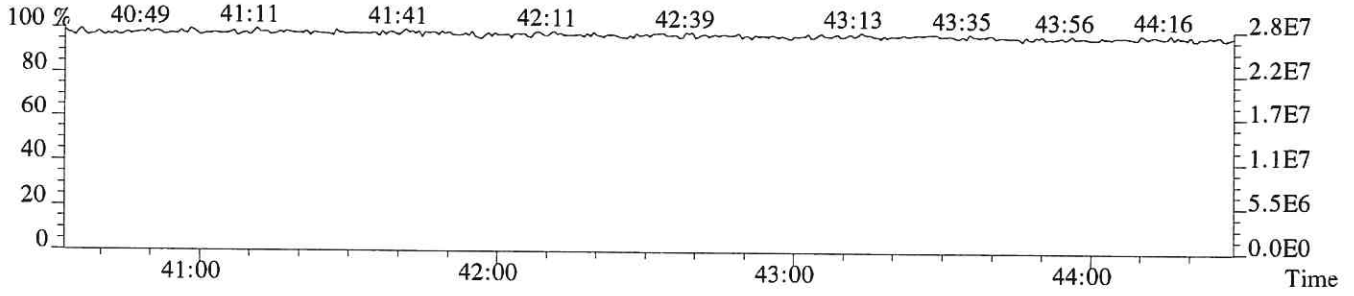
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519335

Date: 12/10/18 - 12/11/18

Circle one: Beginning / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: qc

Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519335	10-DEC-18	22:00:44
192977	WINDOW DEFINE	P519336	10-DEC-18	22:48:30
METHOD BLANK	EQ1800485-01	P519337	10-DEC-18	23:37:07
SL0550	E1801057-005	P519338	11-DEC-18	00:25:45
SL0191	E1801056-006DL	P519339	11-DEC-18	01:14:23
SL0203	E1801056-039DL	P519340	11-DEC-18	02:03:00
SL0204	E1801056-040DL	P519341	11-DEC-18	02:51:38
SL0563	E1801065-014	P519342	11-DEC-18	03:40:15
SL0564	E1801065-015	P519343	11-DEC-18	04:28:53
SL0565	E1801065-016	P519344	11-DEC-18	05:17:31
SL0566	E1801065-017	P519345	11-DEC-18	06:06:16
SL0567	E1801065-018	P519346	11-DEC-18	06:56:26
SL0568	E1801065-019	P519347	11-DEC-18	07:44:14
SL0569	E1801065-020	P519348	11-DEC-18	08:32:58
SL0571	E1801065-021	P519349	11-DEC-18	09:21:38

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181210B.SPL
Last Modified: Tuesday, December 11, 2018 10:08:36 Central Standard Time
Printed: Tuesday, December 11, 2018 10:08:38 Central Standard Time

Page Position (1, 1)

Opus 4: P519335 res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	22:00	P519335	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 22:00
2		22:48	P519336	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		23:37	P519337	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4	12/11/18	00:25	P519338	E1801057-005	E1801057-005	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		01:14	P519339	E1801056-006DL	E1801056-006DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		02:03	P519340	E1801056-039DL	E1801056-039DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		02:51	P519341	E1801056-040DL	E1801056-040DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		03:40	P519342	E1801065-014	E1801065-014	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		04:28	P519343	E1801065-015	E1801065-015	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		05:17	P519344	E1801065-016	E1801065-016	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		06:06	P519345	E1801065-017	E1801065-017	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		06:56	P519346	E1801065-018	E1801065-018	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		07:44	P519347	E1801065-019	E1801065-019	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		08:32	P519348	E1801065-020	E1801065-020	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		09:21	P519349	E1801065-021	E1801065-021	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 10:15
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/12/18

051

Printed: Monday, December 10, 2018 22:00:42 Central Standard Time

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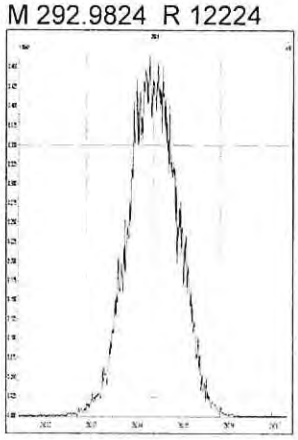

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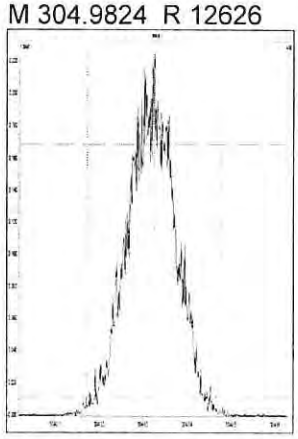

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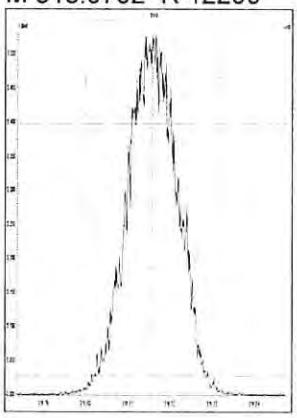

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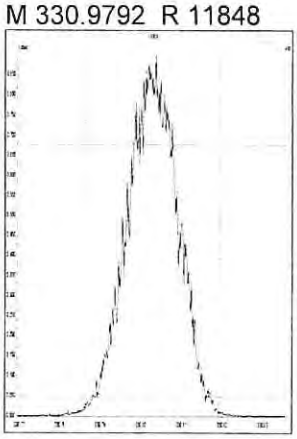

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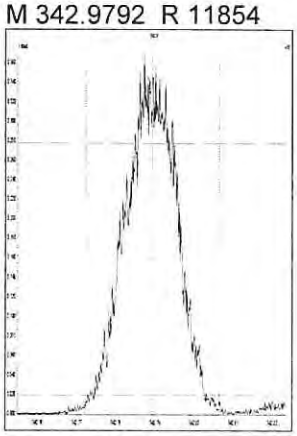

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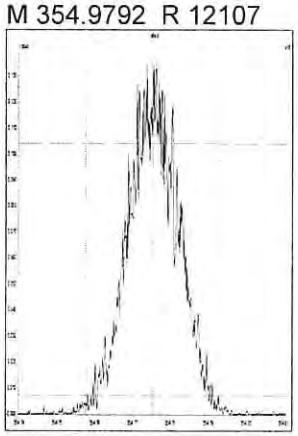

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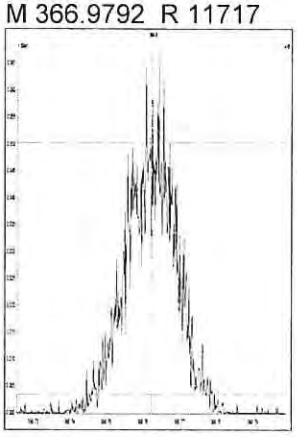

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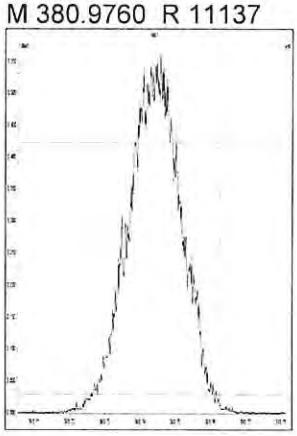

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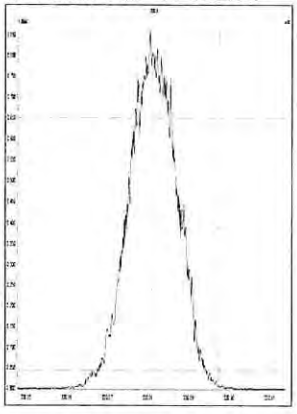

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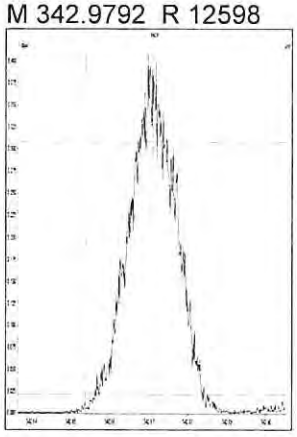

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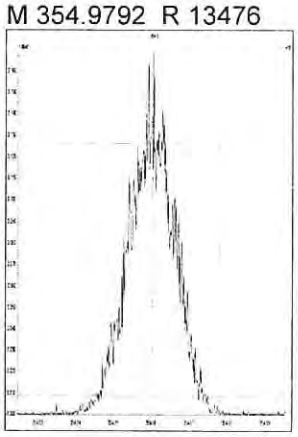

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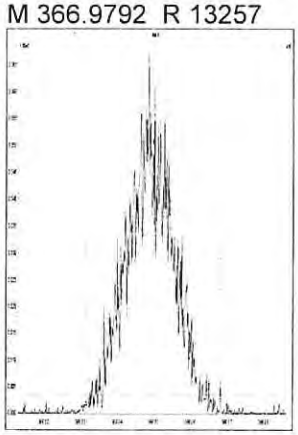

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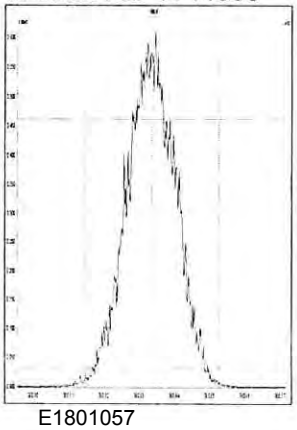

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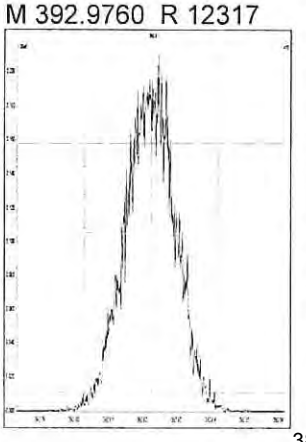

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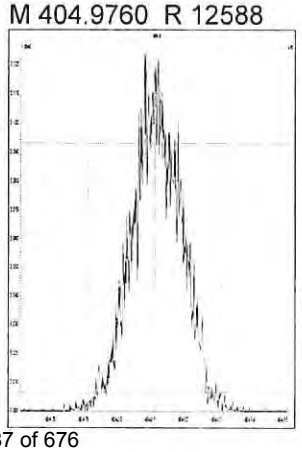

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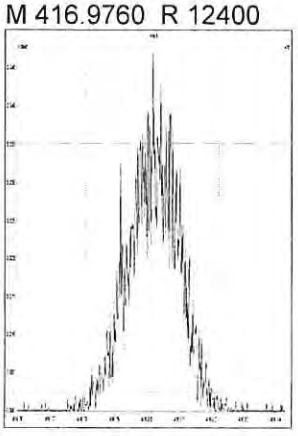

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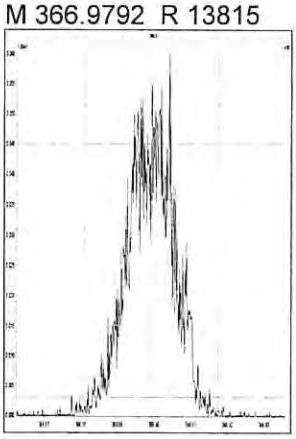

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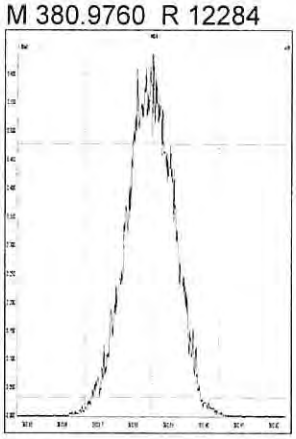

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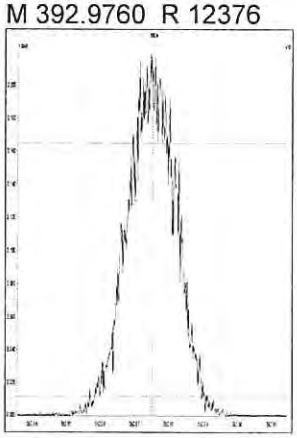

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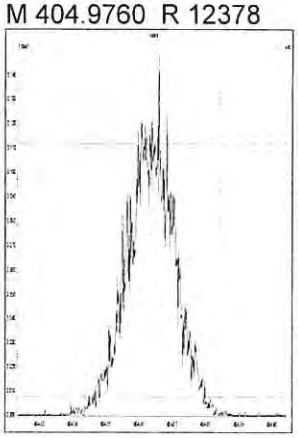

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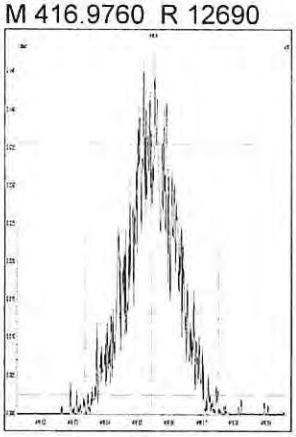

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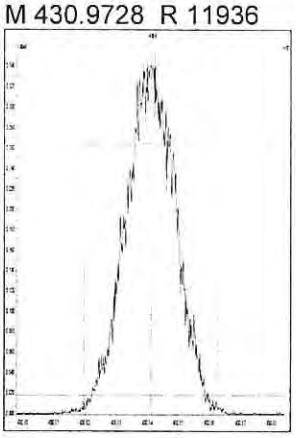

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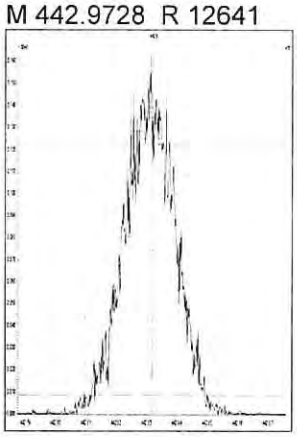

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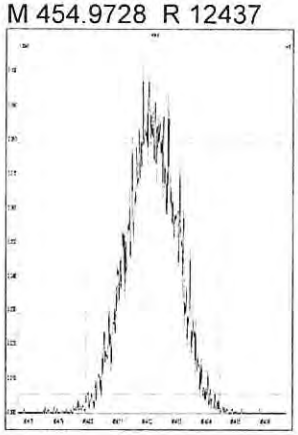

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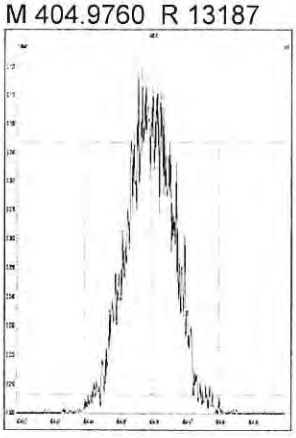

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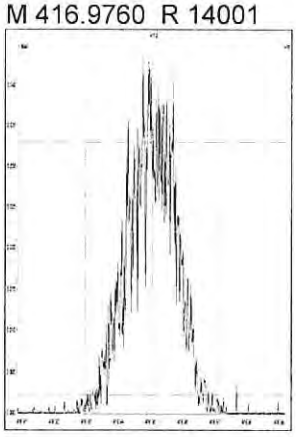

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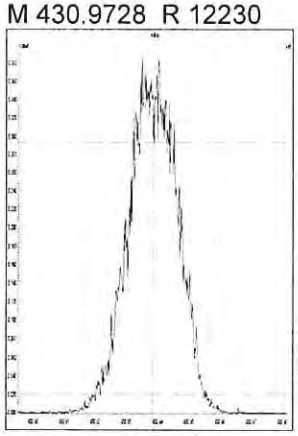

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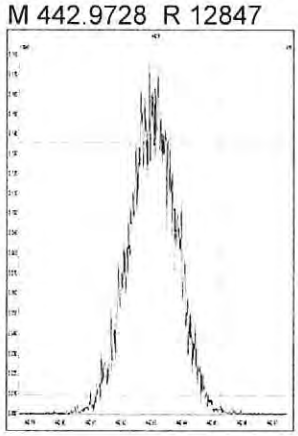

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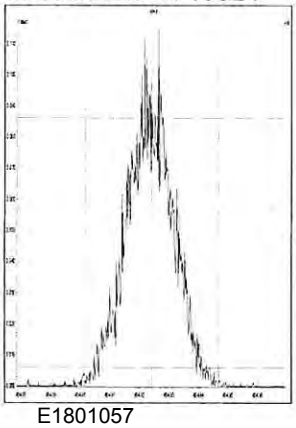

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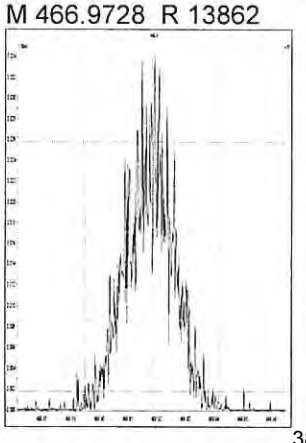

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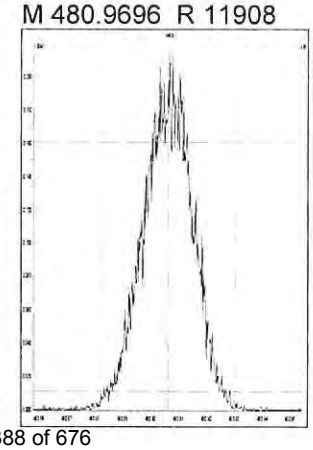

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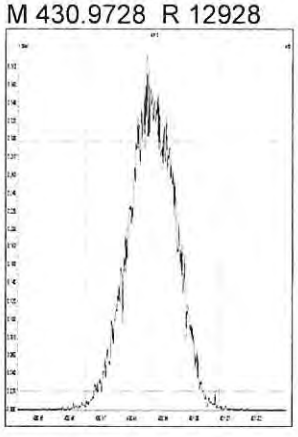

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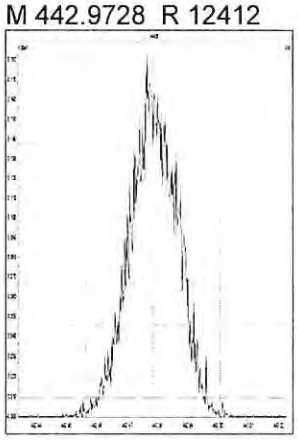

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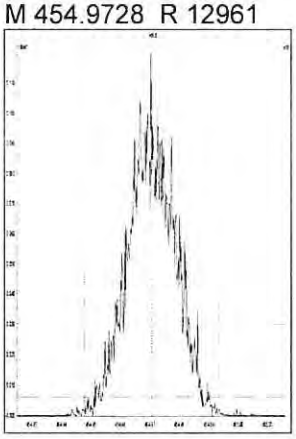

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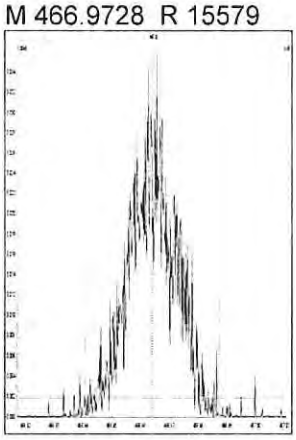

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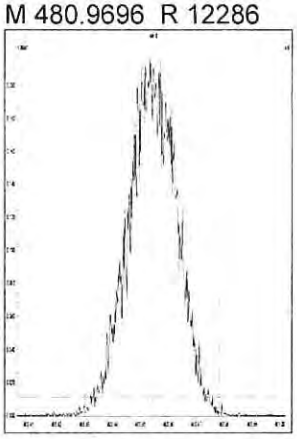

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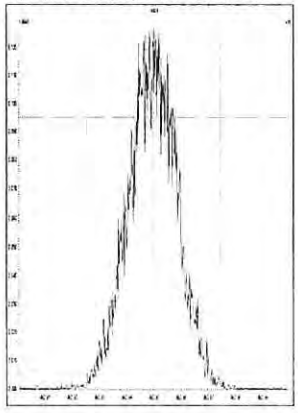

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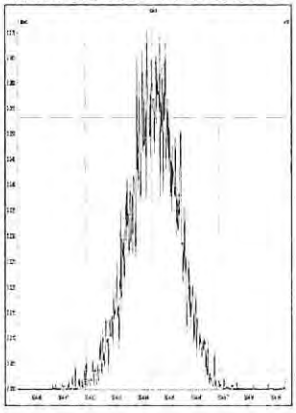

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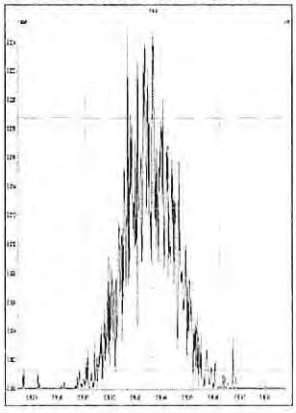

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Printed: Tuesday, December 11, 2018 10:15:43 Central Standard Time

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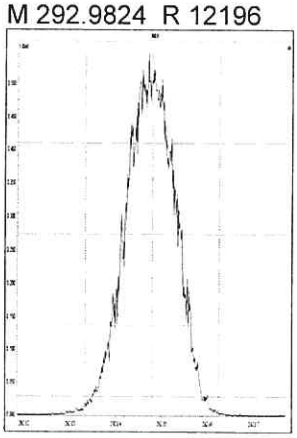

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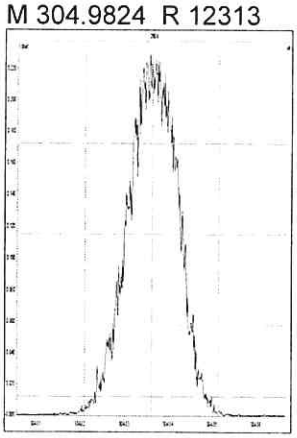

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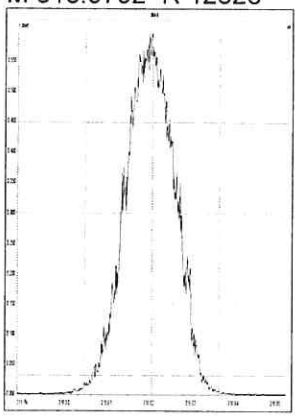

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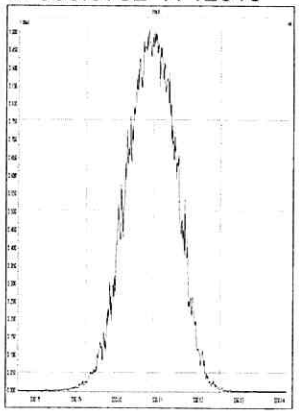

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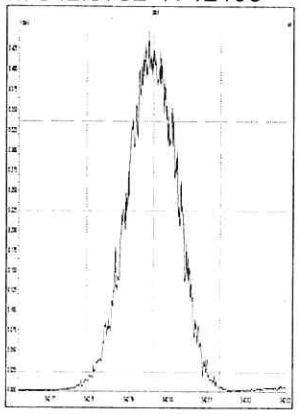

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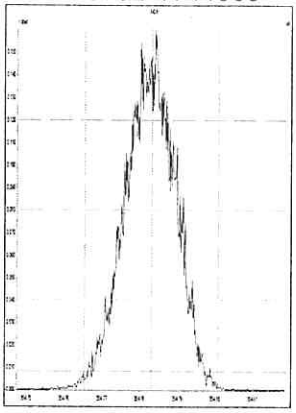

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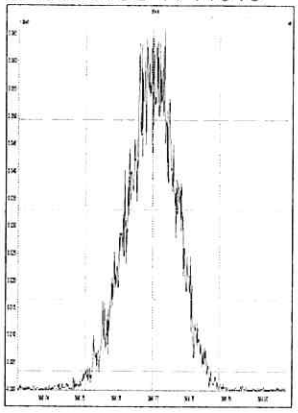
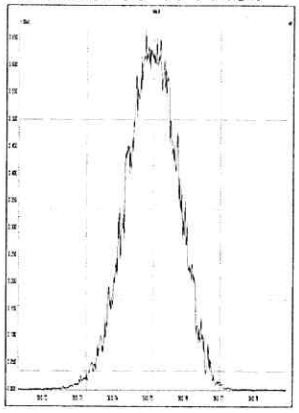


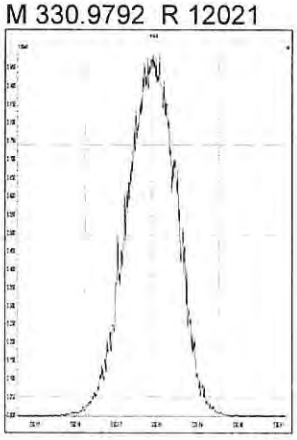
M 380.9760 R 11464



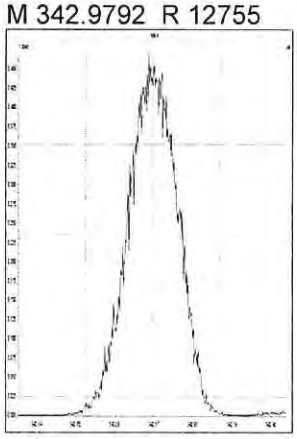
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:16:27 Central Standard Time

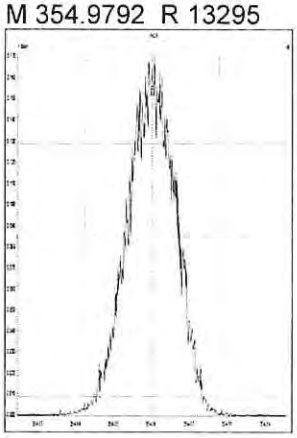
M 330.9792 R 12021



M 342.9792 R 12755



M 354.9792 R 13295



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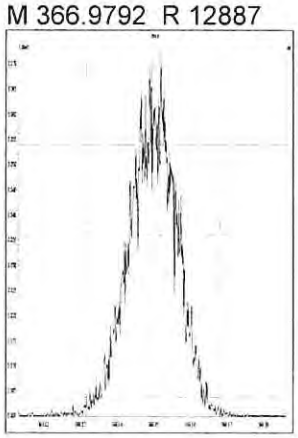
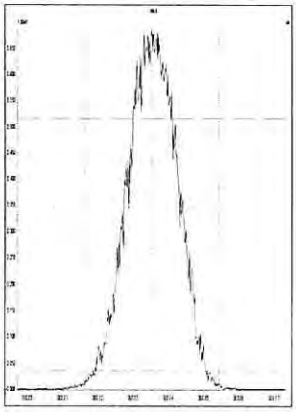
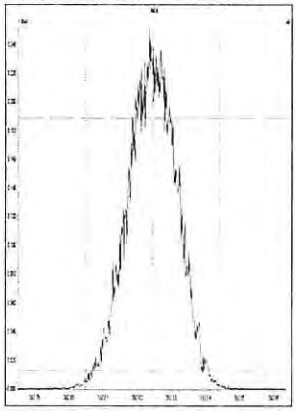


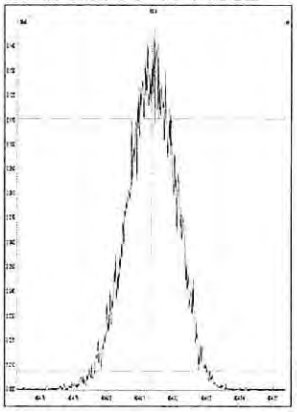
M 380.9760 R 12023



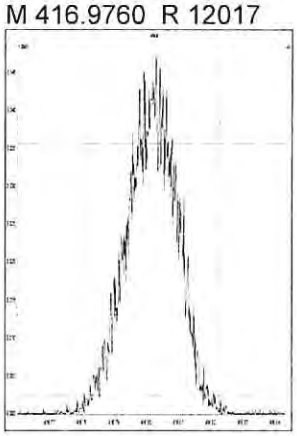
M 392.9760 R 11469



M 404.9760 R 11682



M 416.9760 R 12017



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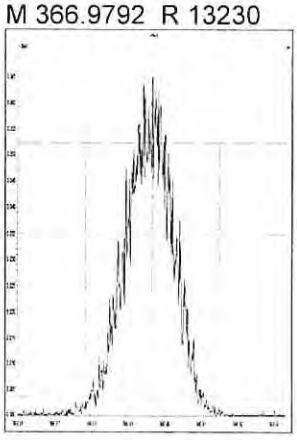
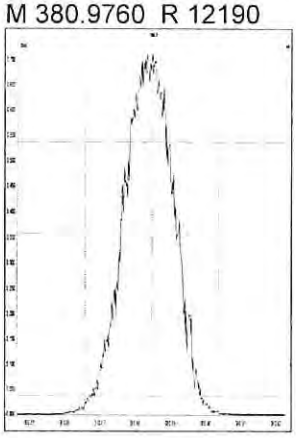
Printed: Tuesday, December 11, 2018 10:17:11 Central Standard Time

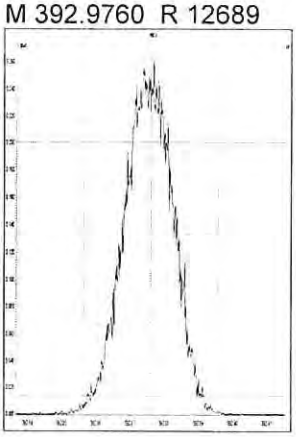
M 366.9792 R 13230



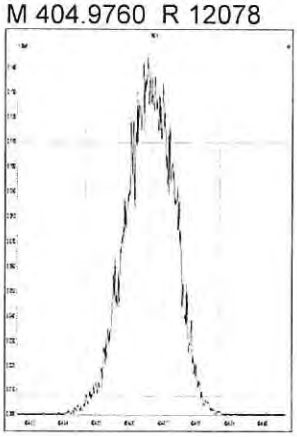
M 380.9760 R 12190



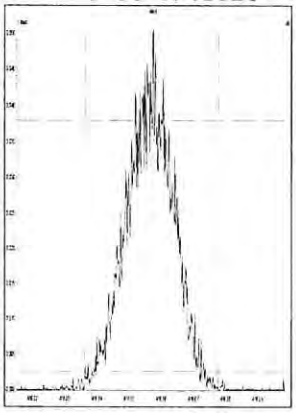
M 392.9760 R 12689



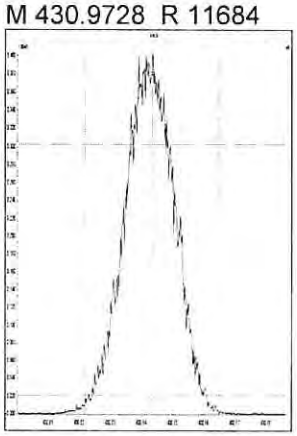
M 404.9760 R 12078



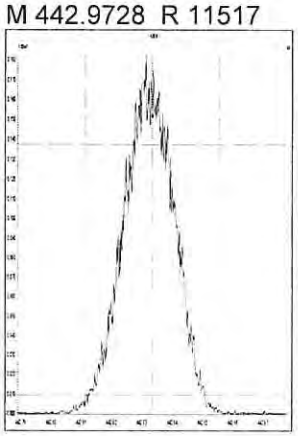
M 416.9760 R 13020



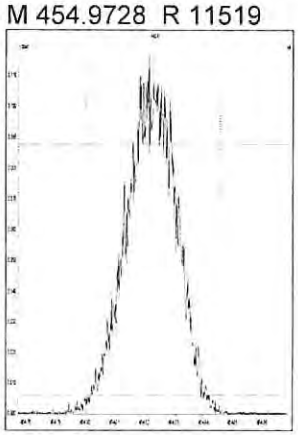
M 430.9728 R 11684



M 442.9728 R 11517



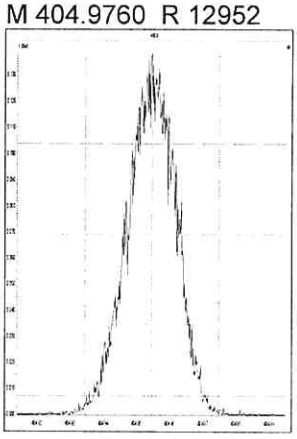
M 454.9728 R 11519



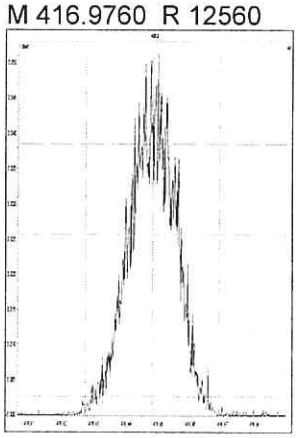
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:51 Central Standard Time

M 404.9760_R 12952



M 416.9760_R 12560



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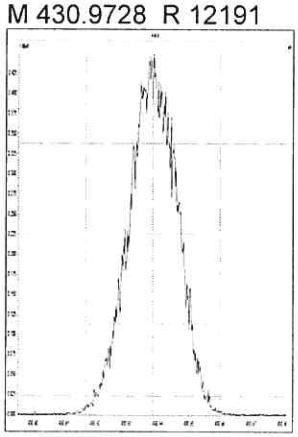

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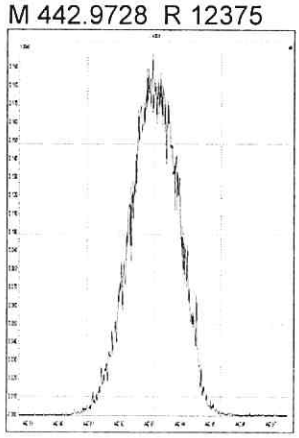
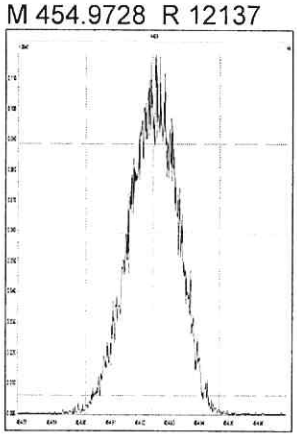


M 454.9728_R 12137



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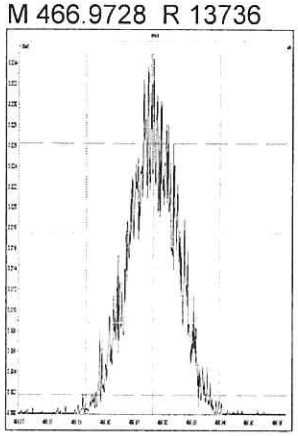
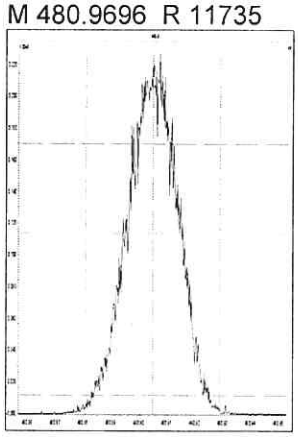


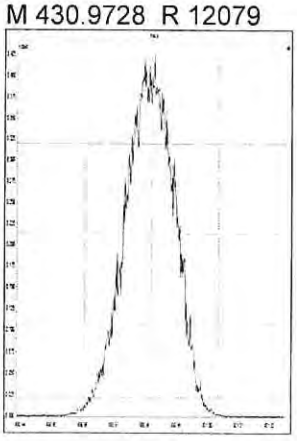
M 480.9696_R 11735



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:18:37 Central Standard Time

M 430.9728 R 12079



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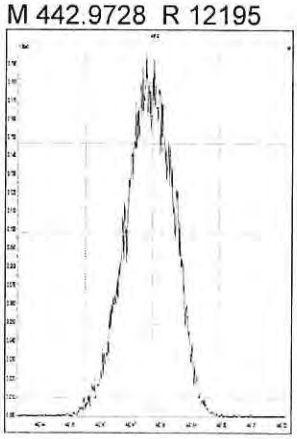
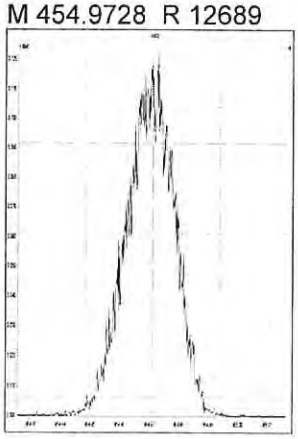
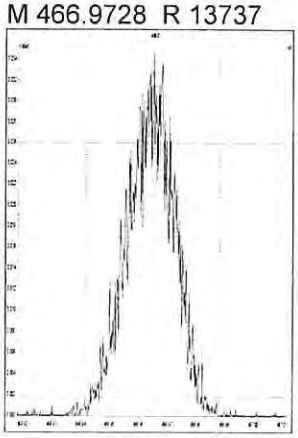


M 454.9728 R 12689



M 466.9728 R 13737



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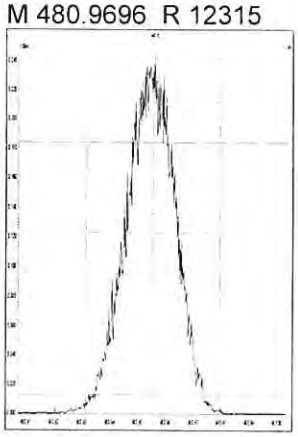
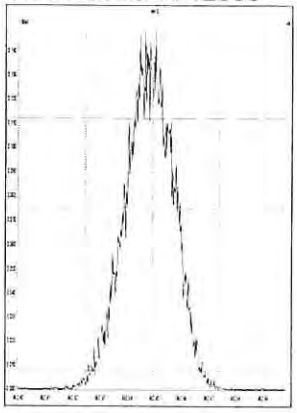
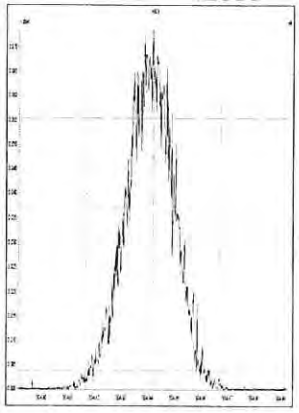


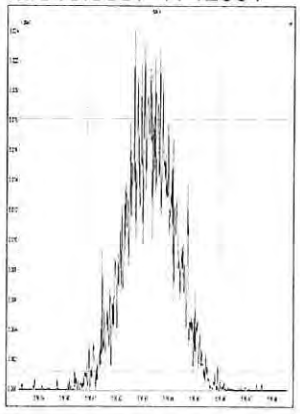
M 492.9696 R 12955



M 504.9696 R 12563



M 516.9697 R 12561



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

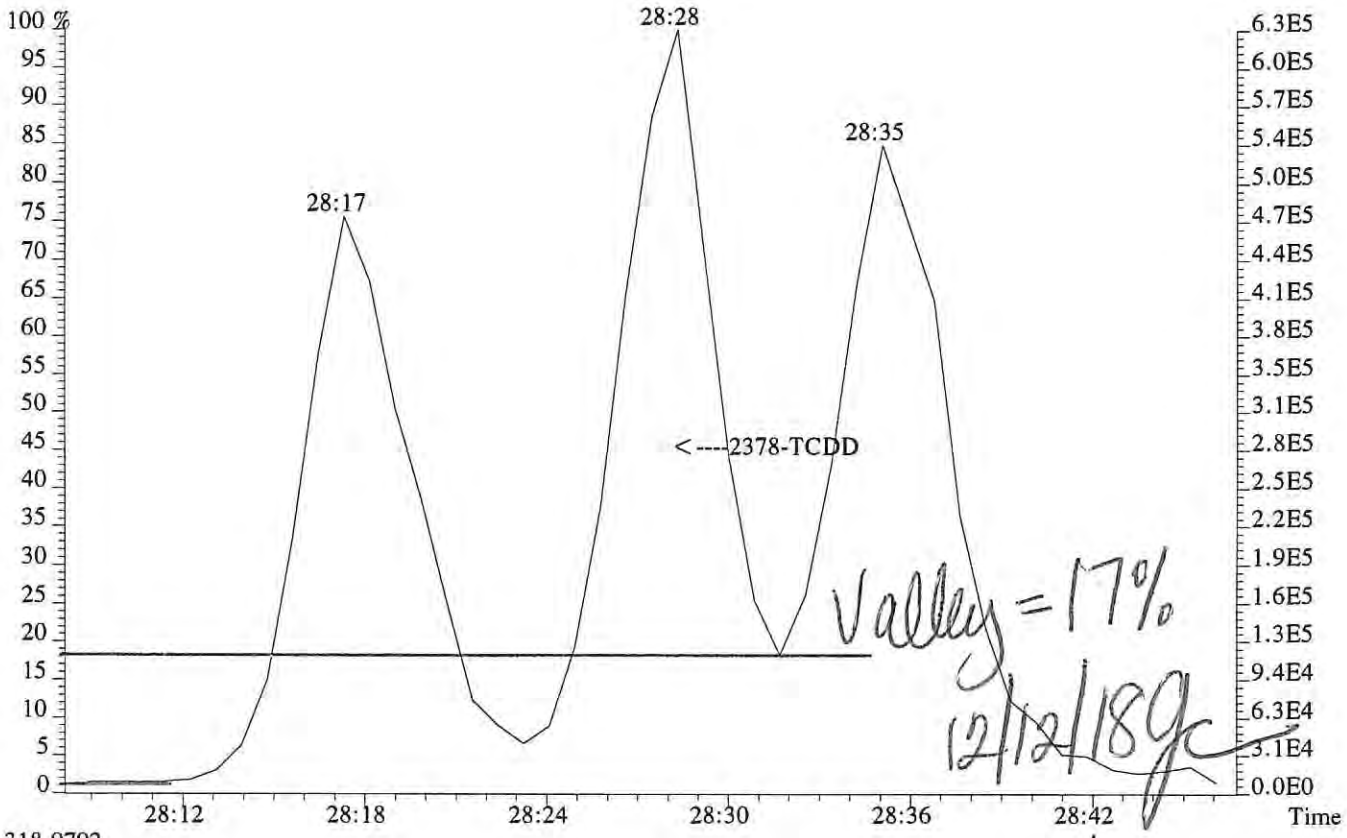
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519336
Date Analyzed: 10-DEC-2018
Time Analyzed: 22:48:30

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:12	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:58
PeCDD	31:12	33:43
HxCDF	34:39	37:15
HxCDD	35:12	36:51
HpCDF	38:32	40:00
HpCDD	38:48	39:31

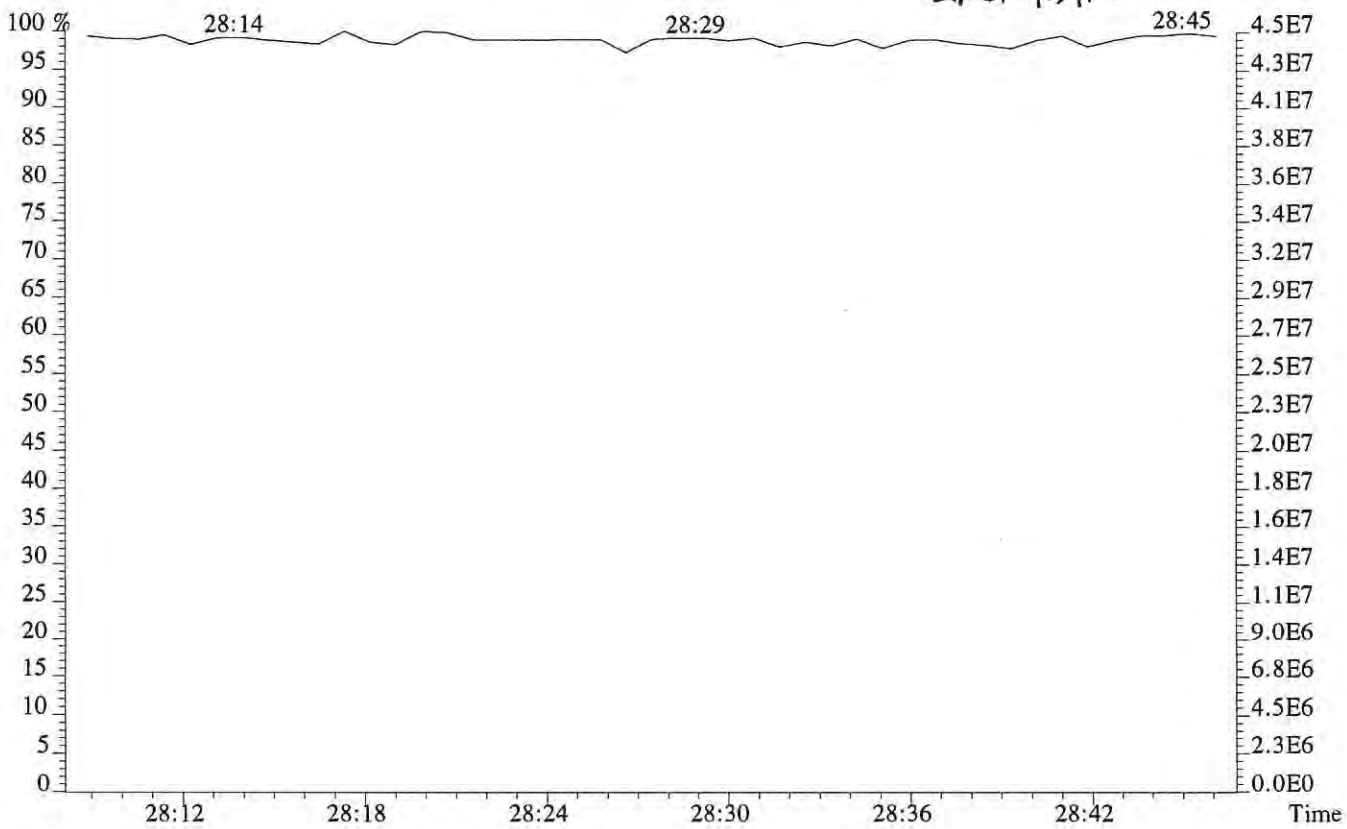
% Valley 2378-TCDD: 17 %

File:P519336 #1-587 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965

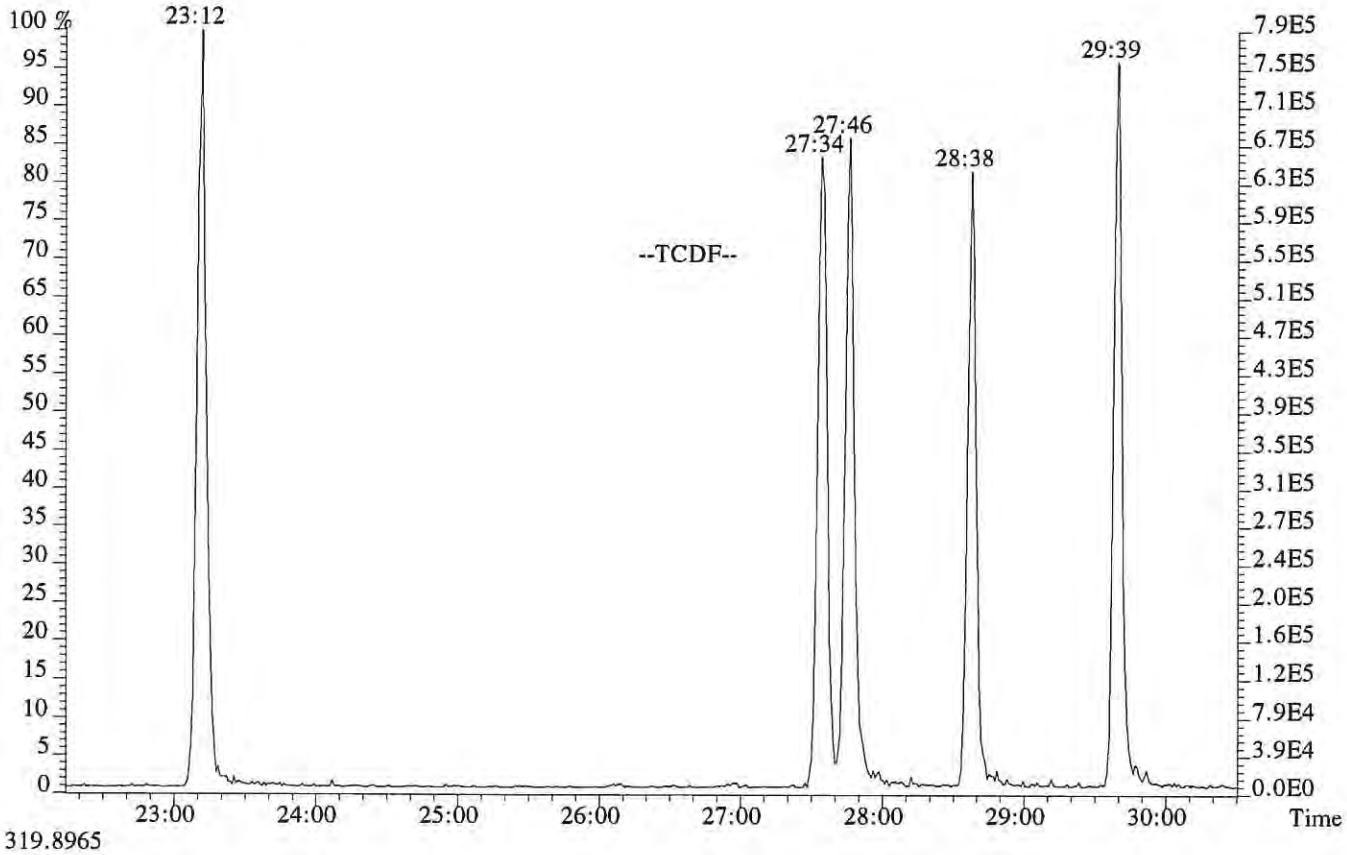


318.9792

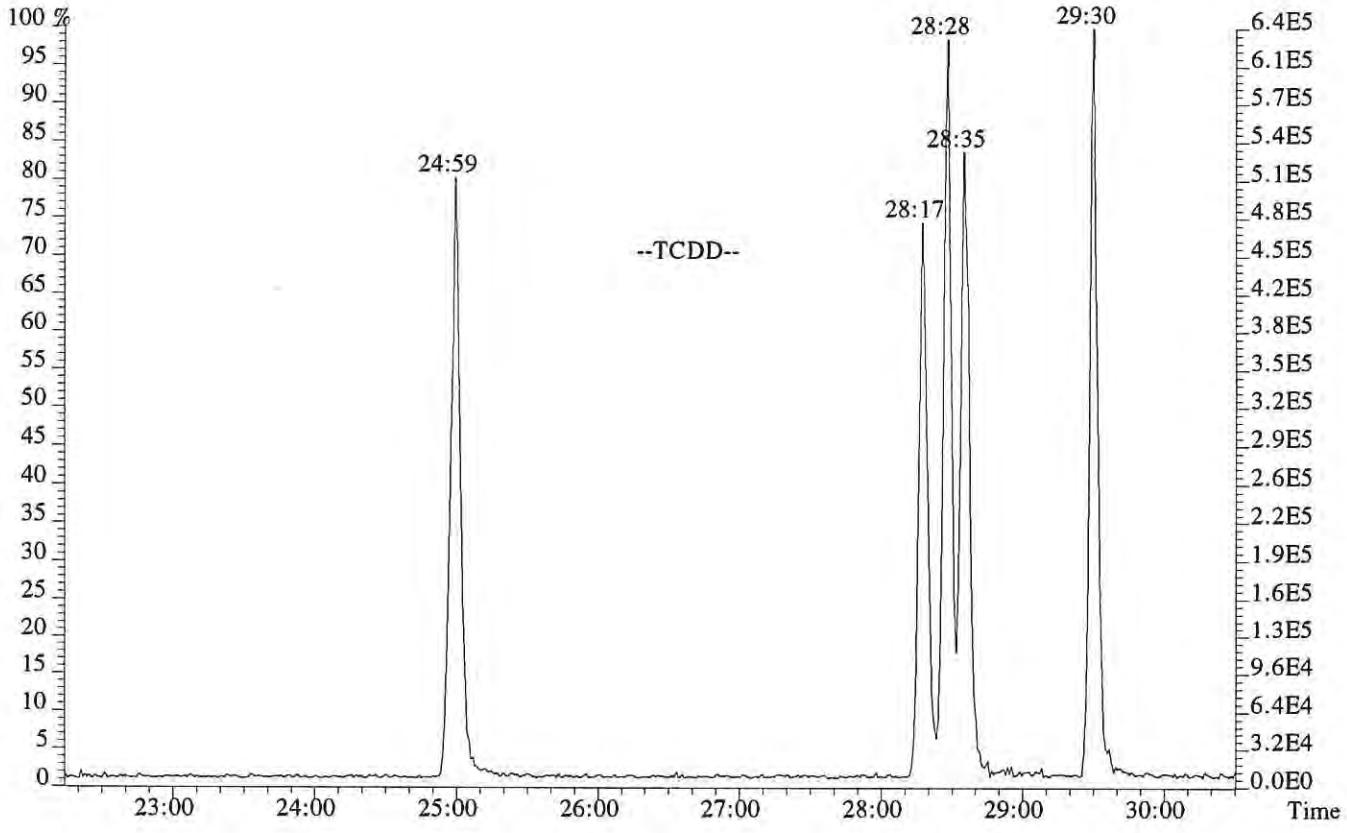
LM 12/13/18



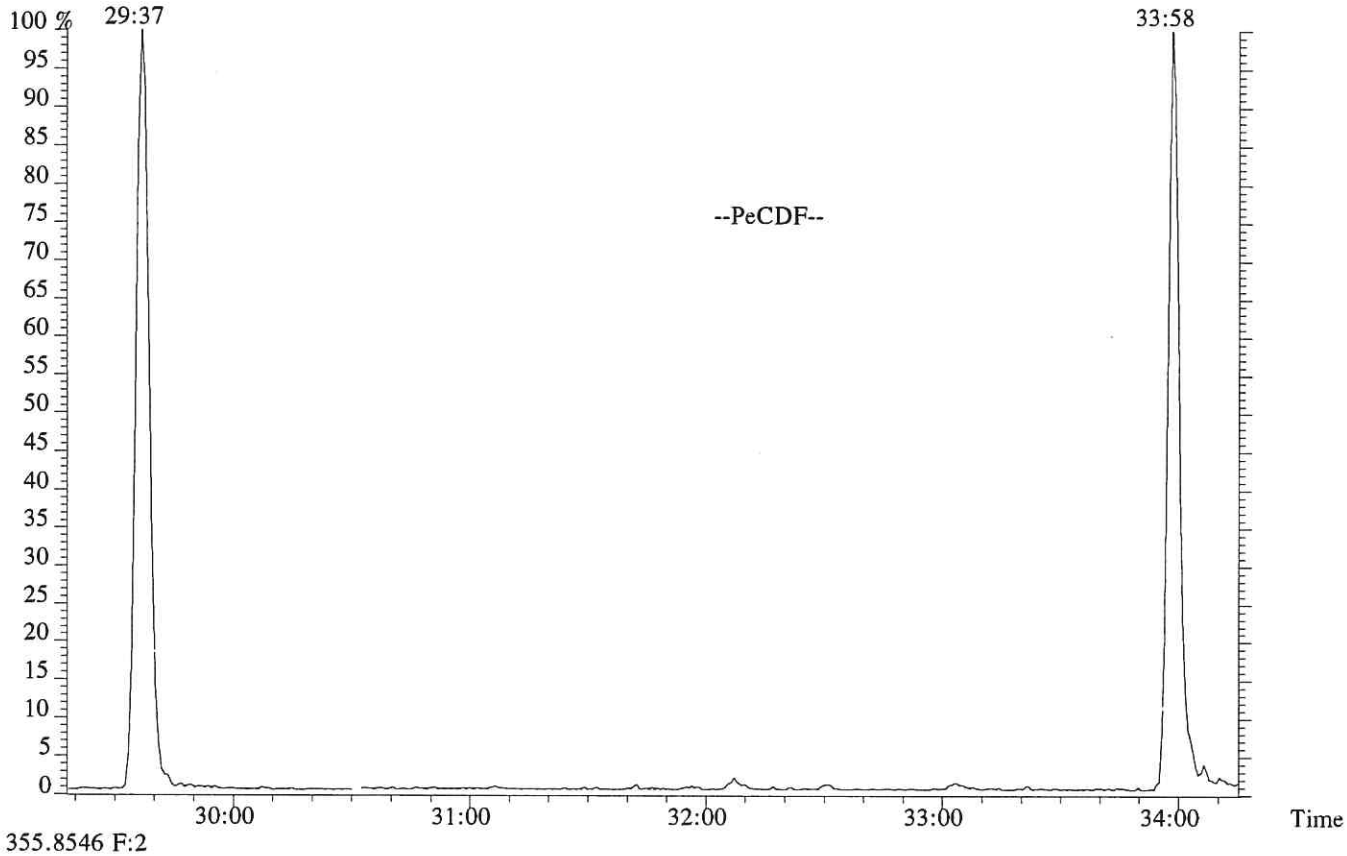
File:P519336 #1-587 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
303.9016



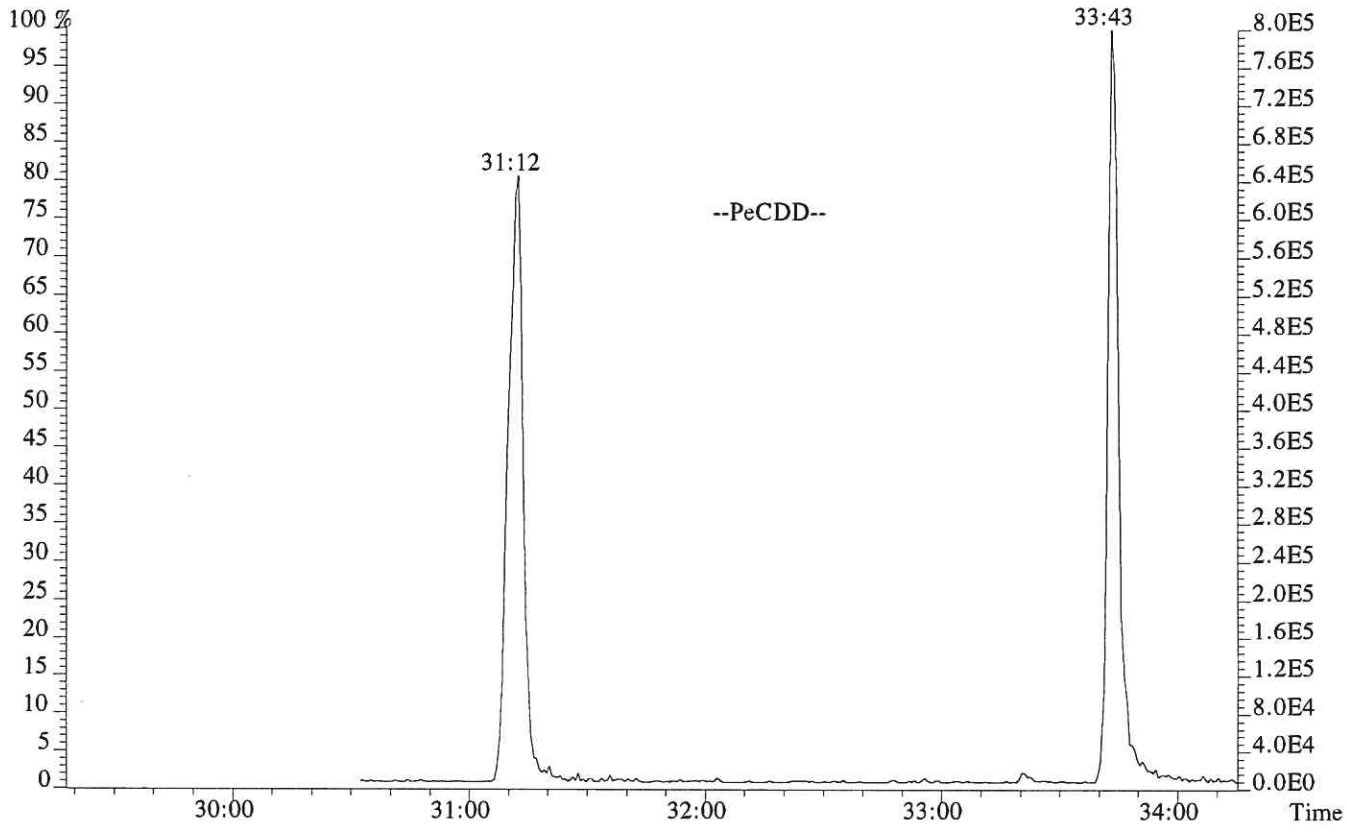
319.8965



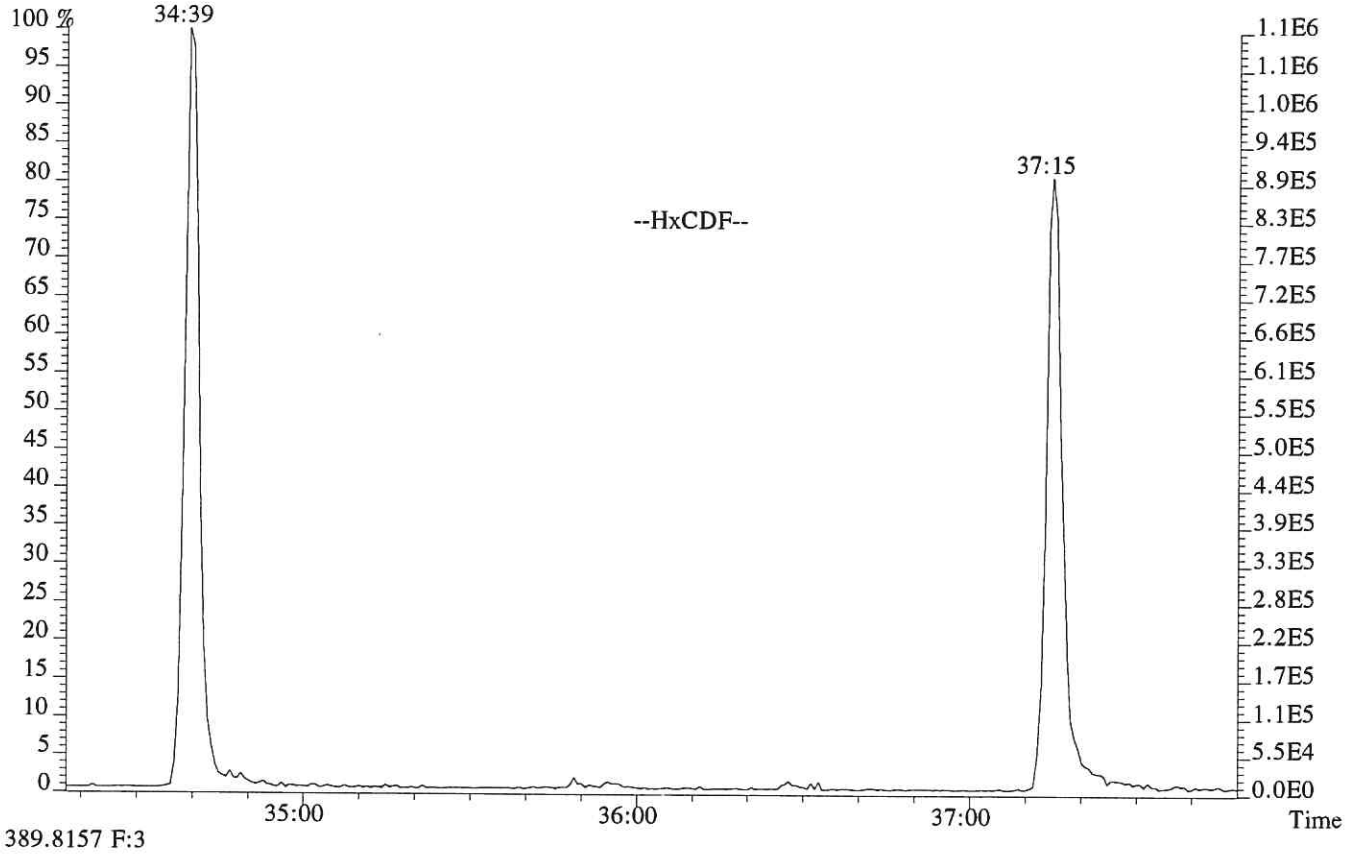
File:P519336 #1-587 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



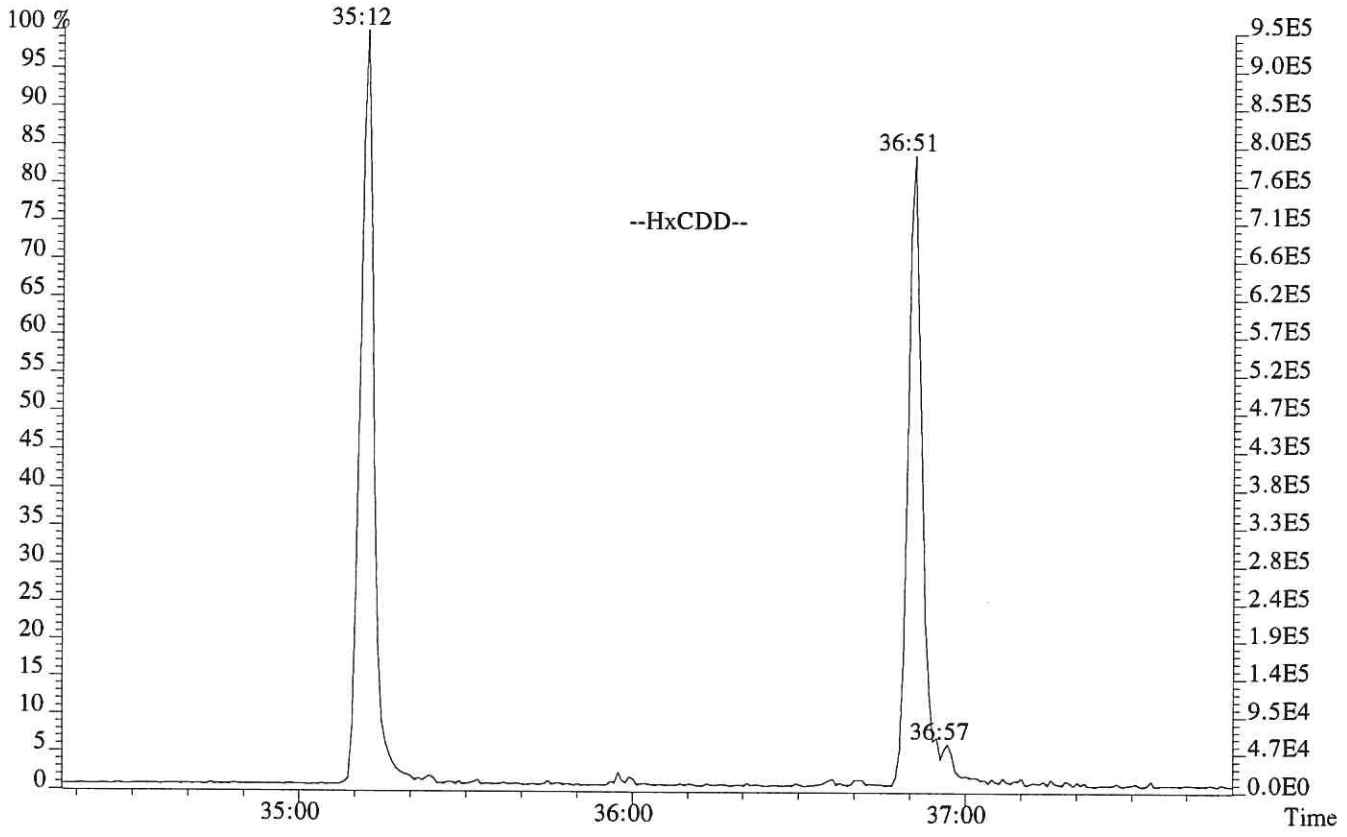
355.8546 F:2



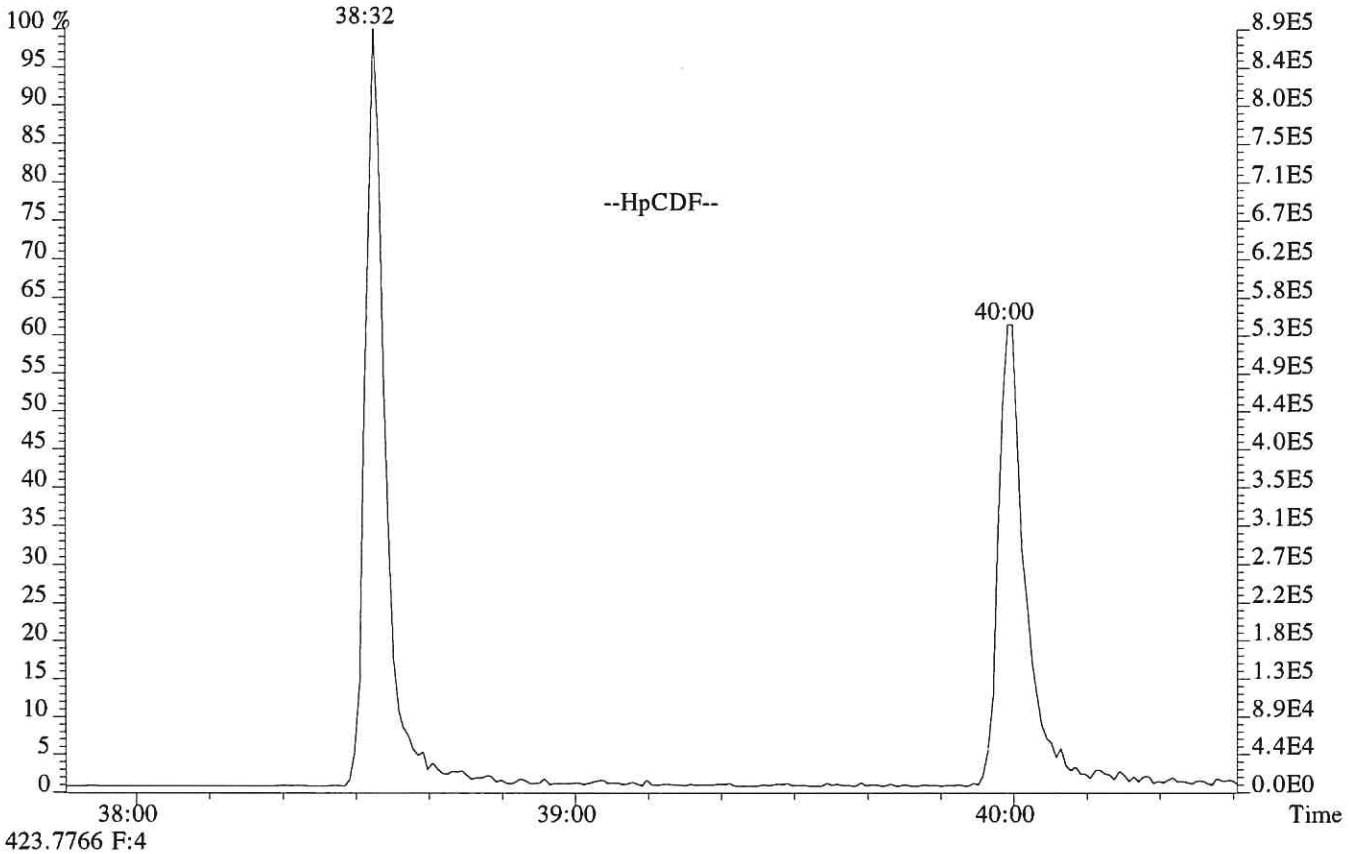
File:P519336 #1-317 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
373.8208 F:3



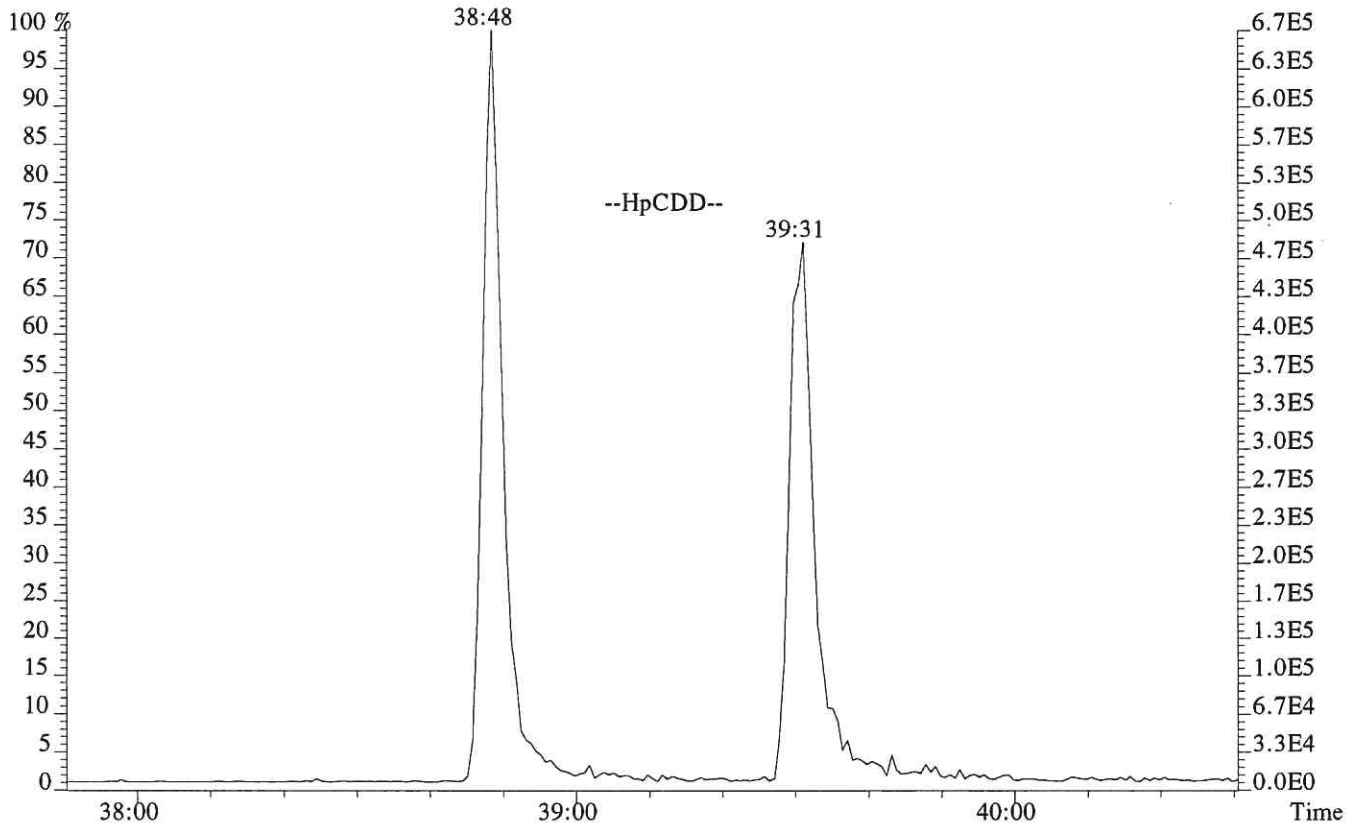
389.8157 F:3



File:P519336 #1-241 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519335 Analysis Date: 10-DEC-18 Time: 22:00:44

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-6.4
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	50	39 - 65	-0.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	-0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	52	41 - 61	4.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	0.3
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.1
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	9.9	8.4 - 12.0	-1.5
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	50	41 - 60	0.4
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	0.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	3.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	1.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	1.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	49	45 - 55	-1.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	99	63 - 159	-0.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519335 Analysis Date: 10-DEC-18 Time: 22:00:44

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	102	82 - 121	1.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	109	62 - 160	9.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	91	85 - 117	-9.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	101	85 - 118	1.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	103	72 - 138	3.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	248	96 - 415	24.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	95	71 - 140	-5.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	110	76 - 130	10.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	109	77 - 130	8.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	76 - 131	-13.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	70 - 143	-2.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	97	74 - 135	-3.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	73 - 137	-5.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	104	77 - 129	4.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519335 Samp: 1 Inj: 1 Acquired: 10-DEC-18 22:00:44
Processed: 12-DEC-18 13:50:37 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	4.207e+03	5.817e+03	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	3.760e+04	2.437e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	3.454e+04	2.258e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	2.910e+04	2.379e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.445e+04	2.814e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	2.957e+04	2.453e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	2.705e+04	2.191e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	2.703e+04	2.632e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	2.153e+04	2.107e+04	1.02	yes	no	1.258
10	Unk	OCDF	42:37	3.685e+04	4.158e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.096e+03	4.097e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	2.340e+04	1.473e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.950e+04	1.535e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	2.233e+04	1.749e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.234e+04	1.803e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	1.861e+04	1.798e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:27	3.088e+04	3.485e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	4.764e+04	6.039e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	7.498e+04	4.695e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	7.313e+04	4.596e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.914e+04	5.644e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	3.728e+04	7.208e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	3.282e+04	6.292e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	2.908e+04	5.536e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	2.467e+04	5.516e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.080e+04	4.803e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.147e+04	3.931e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	4.940e+04	3.074e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	3.832e+04	2.928e+04	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	4.347e+04	3.391e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	3.702e+04	3.420e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:26	5.525e+04	6.107e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.360e+04	4.161e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.512e+04	3.531e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	7.384e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519335 Samp: 1 Inj: 1 Acquired: 10-DEC-18 22:00:44
Processed: 12-DEC-18 13:50:37 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.36e+05	3.56e+02	2.1e+03	9.93e+05	8.76e+02	1.1e+03
2	1,2,3,7,8-PeCDF	6.81e+06	3.48e+02	2.0e+04	4.45e+06	2.02e+03	2.2e+03
3	2,3,4,7,8-PeCDF	6.54e+06	3.48e+02	1.9e+04	4.26e+06	2.02e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	6.05e+06	6.16e+02	9.8e+03	4.98e+06	3.44e+02	1.4e+04
5	1,2,3,6,7,8-HxCDF	6.36e+06	6.16e+02	1.0e+04	5.21e+06	3.44e+02	1.5e+04
6	2,3,4,6,7,8-HxCDF	5.96e+06	6.16e+02	9.7e+03	5.00e+06	3.44e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	4.99e+06	6.16e+02	8.1e+03	3.98e+06	3.44e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	5.02e+06	1.74e+03	2.9e+03	4.89e+06	2.62e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.74e+03	2.0e+03	3.41e+06	2.62e+03	1.3e+03
10	OCDF	4.49e+06	2.60e+02	1.7e+04	5.08e+06	5.96e+02	8.5e+03
11	2,3,7,8-TCDD	5.57e+05	1.48e+03	3.8e+02	7.54e+05	6.96e+02	1.1e+03
12	1,2,3,7,8-PeCDD	4.39e+06	2.00e+02	2.2e+04	2.75e+06	2.16e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	4.14e+06	4.08e+02	1.0e+04	3.24e+06	3.24e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	4.19e+06	4.08e+02	1.0e+04	3.29e+06	3.24e+02	1.0e+04
15	1,2,3,7,8,9-HxCDD	4.08e+06	4.08e+02	1.0e+04	3.28e+06	3.24e+02	1.0e+04
16	1,2,3,4,6,7,8-HpCDD	3.08e+06	4.44e+02	6.9e+03	2.97e+06	5.60e+02	5.3e+03
17	OCDD	3.74e+06	2.20e+02	1.7e+04	4.12e+06	2.52e+02	1.6e+04
18	13C-2,3,7,8-TCDF	8.20e+06	6.94e+03	1.2e+03	1.04e+07	3.87e+03	2.7e+03
19	13C-1,2,3,7,8-PeCDF	1.34e+07	4.04e+02	3.3e+04	8.40e+06	1.06e+03	7.9e+03
20	13C-2,3,4,7,8-PeCDF	1.41e+07	4.04e+02	3.5e+04	9.00e+06	1.06e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	6.12e+06	7.04e+02	8.7e+03	1.18e+07	8.00e+02	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	7.01e+06	7.04e+02	1.0e+04	1.36e+07	8.00e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	6.63e+06	7.04e+02	9.4e+03	1.26e+07	8.00e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	5.29e+06	7.04e+02	7.5e+03	1.02e+07	8.00e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.60e+06	1.06e+03	4.3e+03	1.02e+07	8.57e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.36e+06	1.06e+03	3.2e+03	7.56e+06	8.57e+03	8.8e+02
27	13C-2,3,7,8-TCDD	5.84e+06	3.74e+03	1.6e+03	7.29e+06	1.39e+03	5.2e+03
28	13C-1,2,3,7,8-PeCDD	9.22e+06	3.84e+02	2.4e+04	5.81e+06	6.36e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	8.12e+06	6.36e+02	1.3e+04	6.29e+06	4.28e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	8.17e+06	6.36e+02	1.3e+04	6.42e+06	4.28e+02	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.01e+06	6.08e+02	9.9e+03	5.55e+06	3.28e+02	1.7e+04
32	13C-OCDD	6.58e+06	5.00e+02	1.3e+04	7.22e+06	2.44e+02	3.0e+04
33	13C-1,2,3,4-TCDD	6.17e+06	3.74e+03	1.6e+03	7.58e+06	1.39e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.94e+06	6.36e+02	1.2e+04	6.36e+06	4.28e+02	1.5e+04
35	37Cl-2,3,7,8-TCDD	1.34e+06	6.32e+02	2.1e+03			

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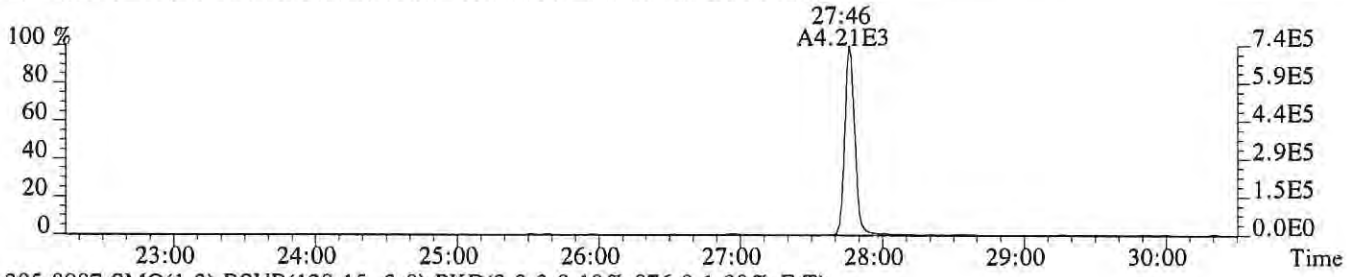
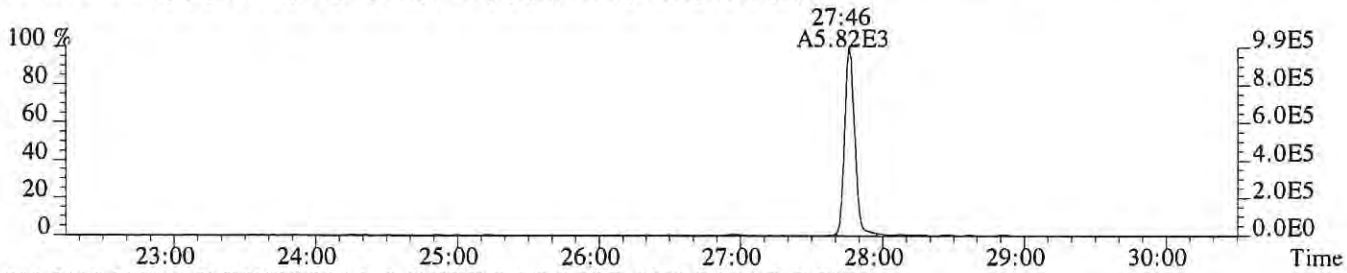
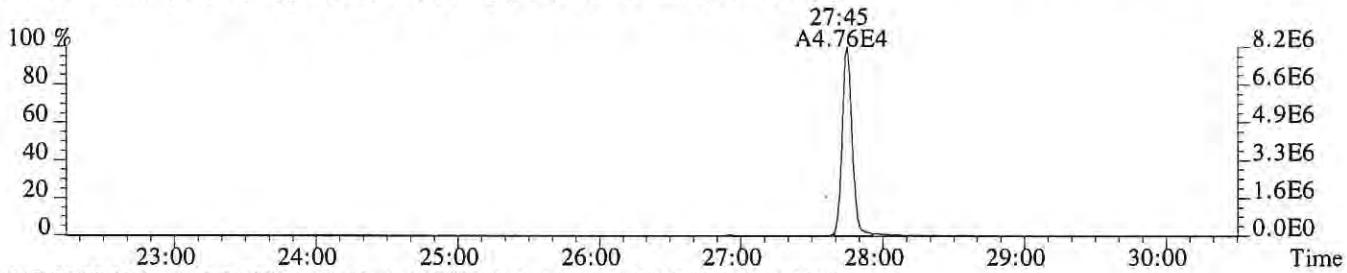
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



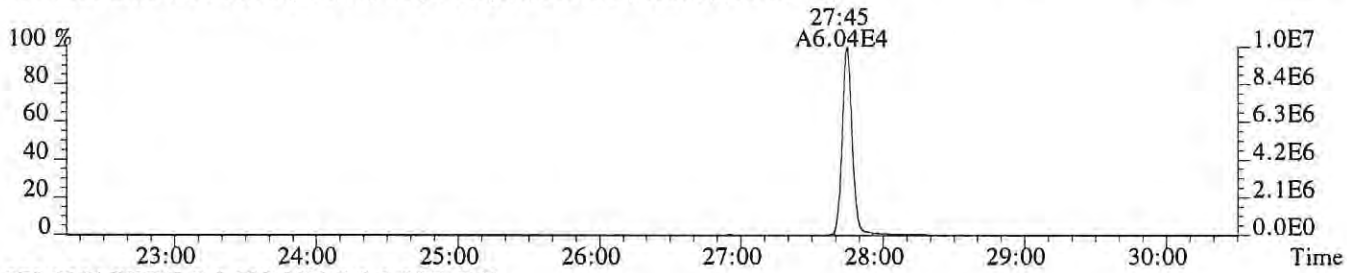
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



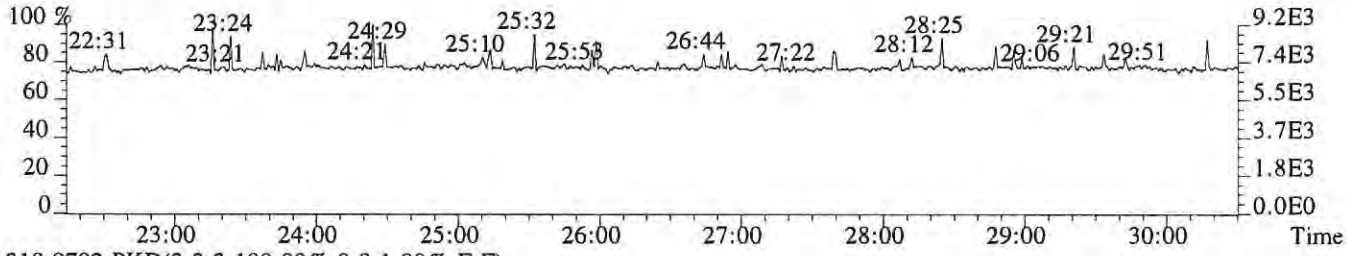
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6940.0,1.00%,F,T)



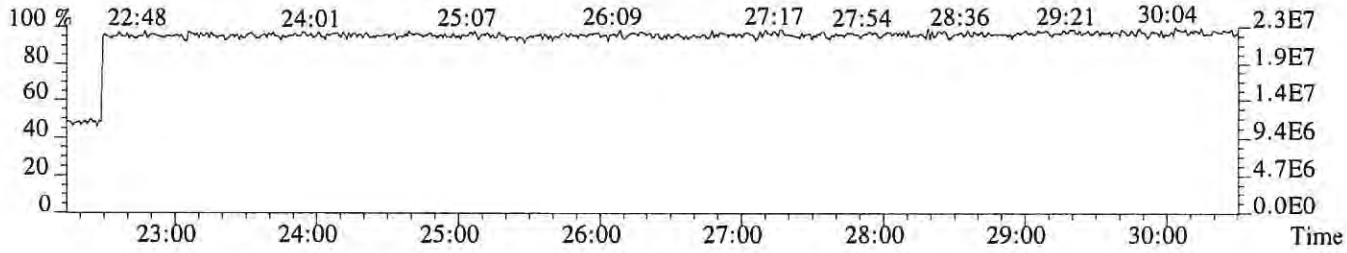
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



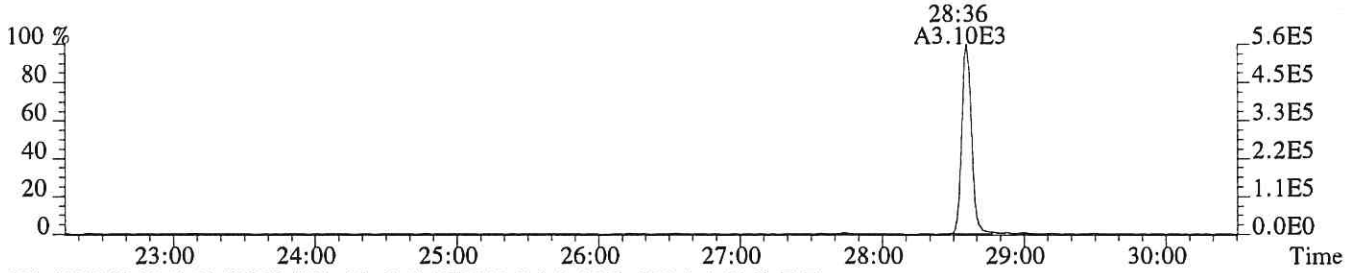
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



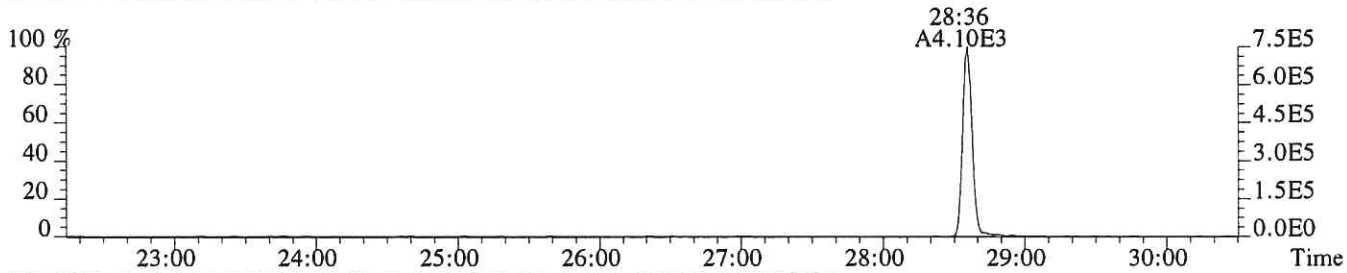
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



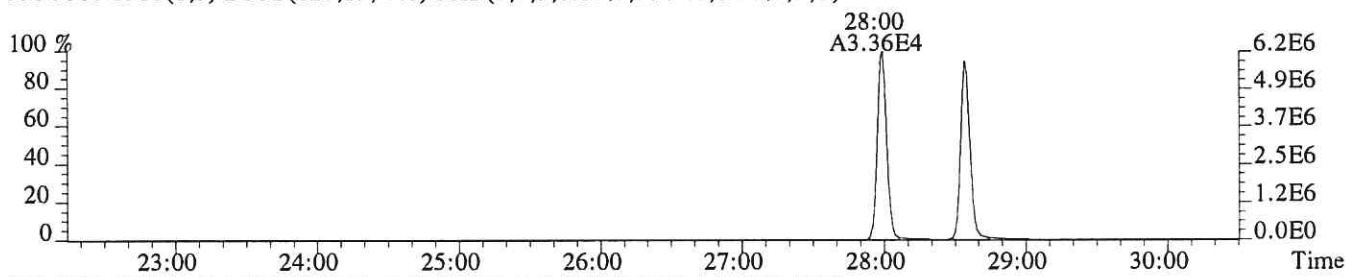
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



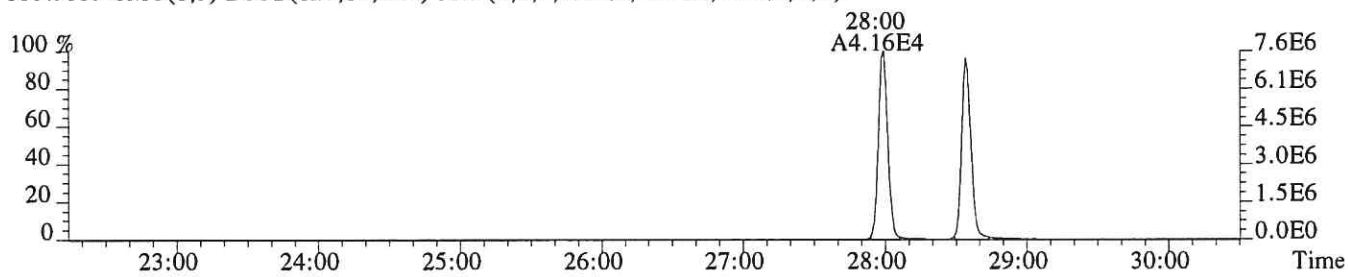
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



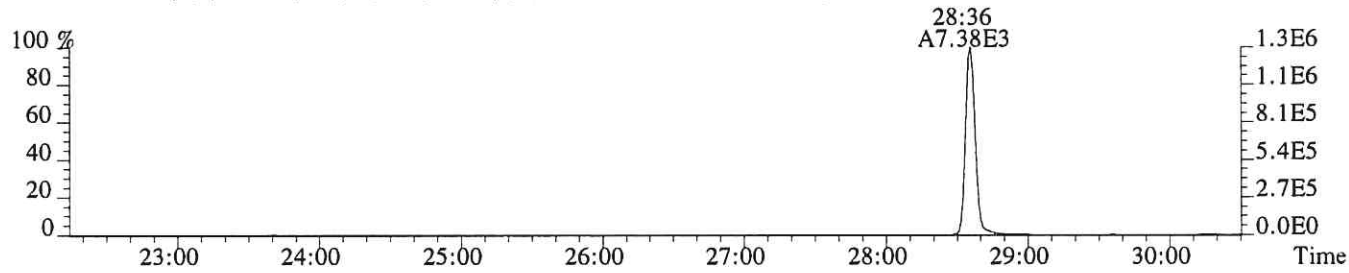
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3744.0,1.00%,F,T)



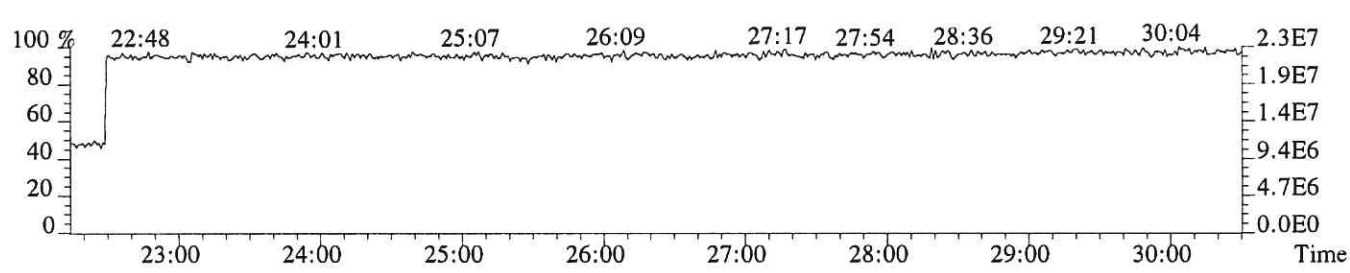
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



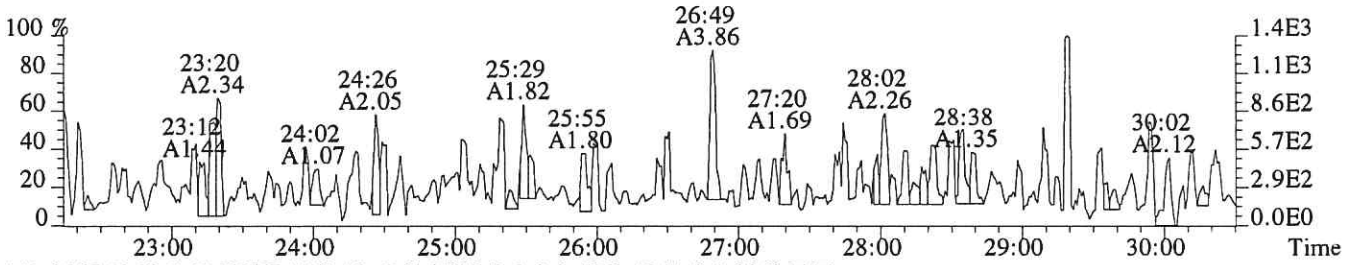
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



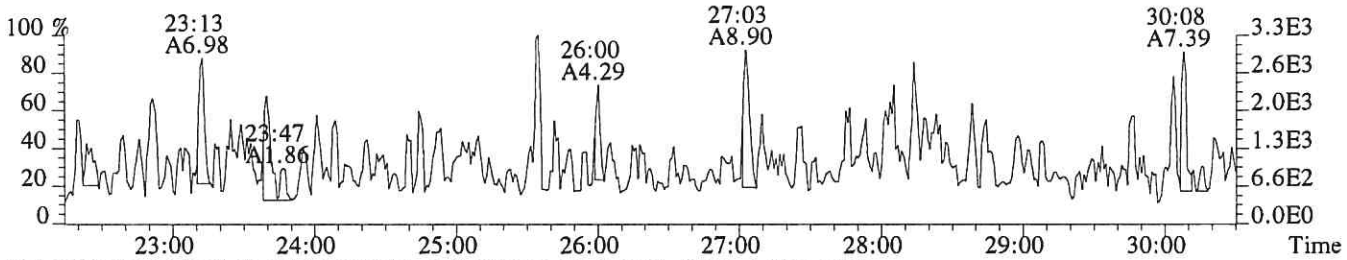
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



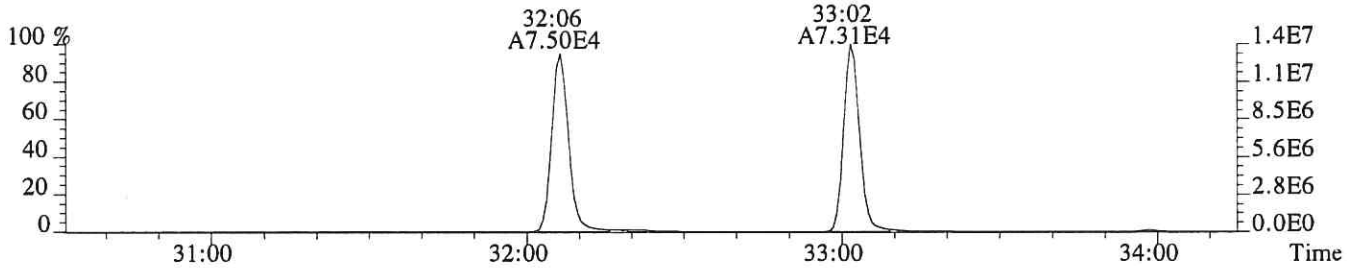
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



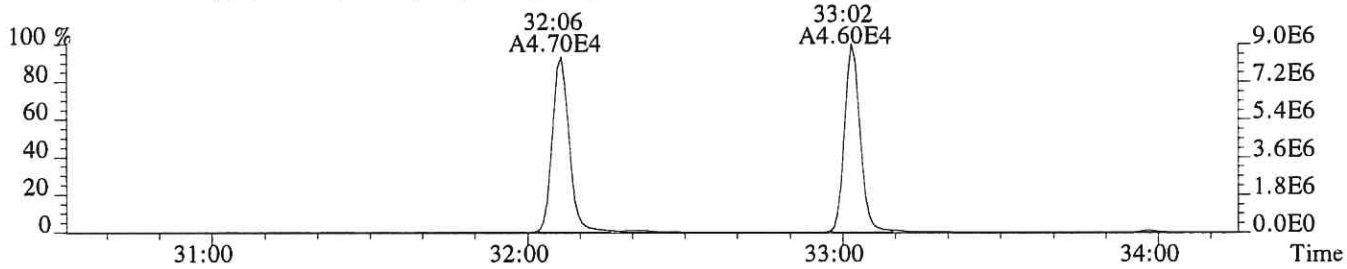
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



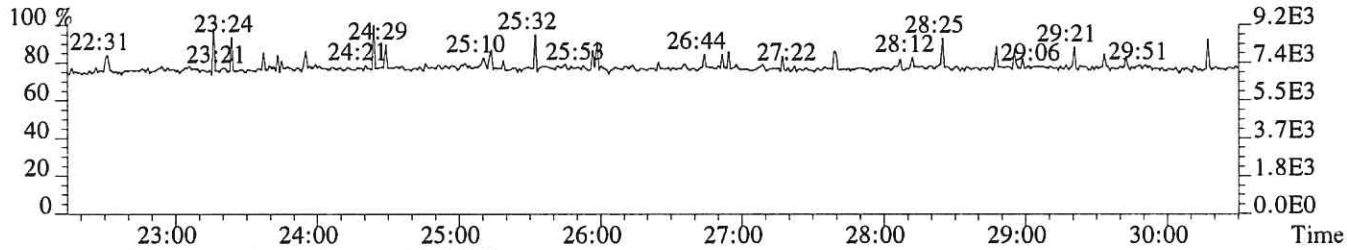
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



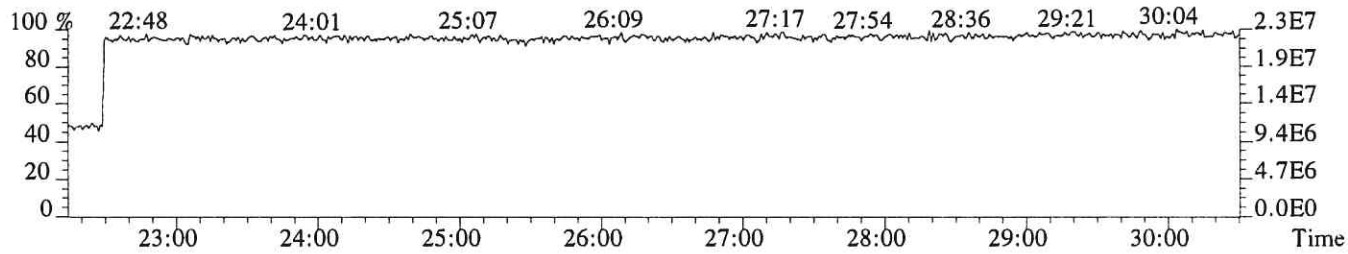
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

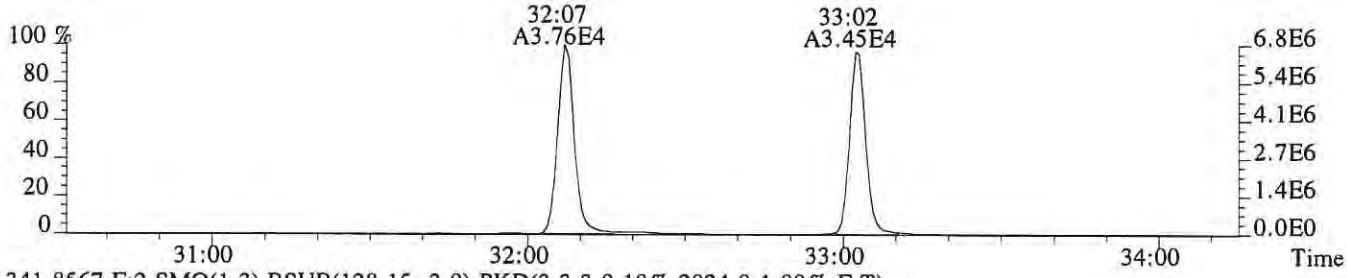


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

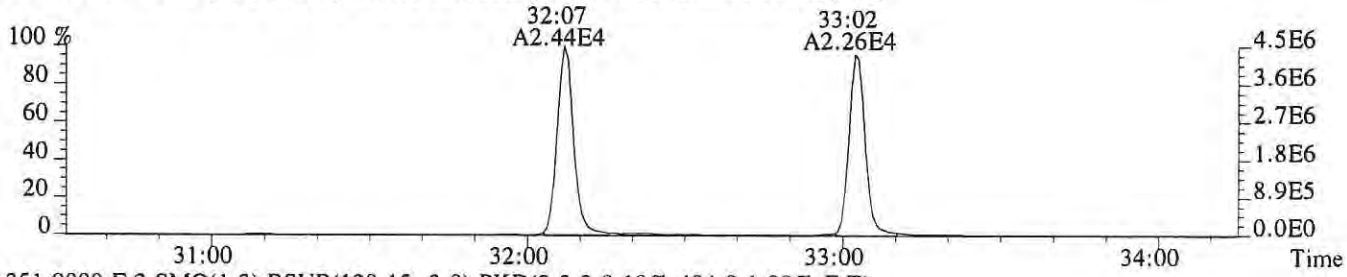


File:P519335 #1-335 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

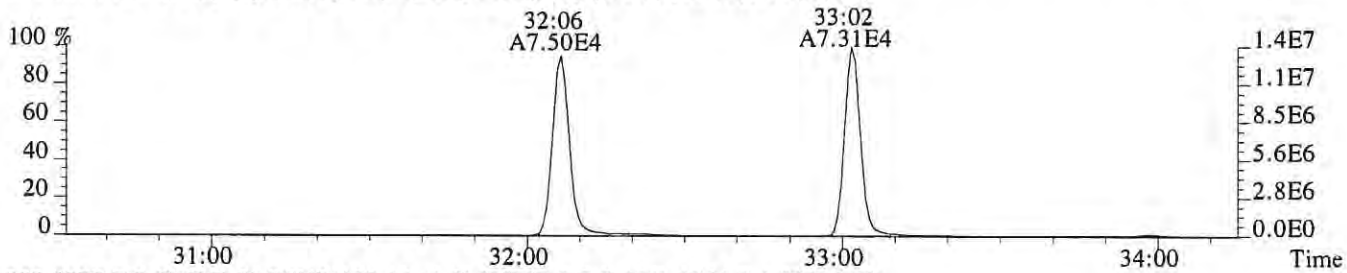
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



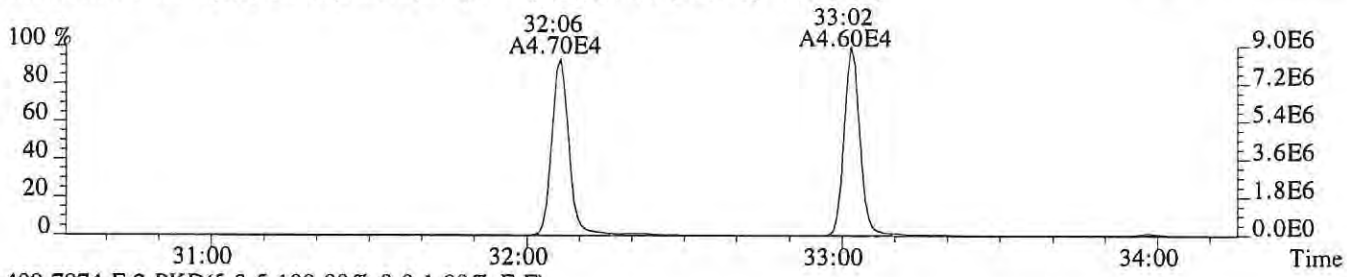
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



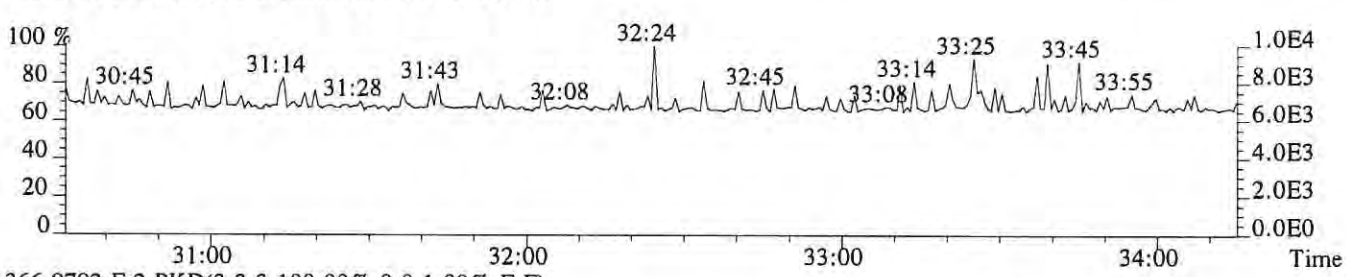
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



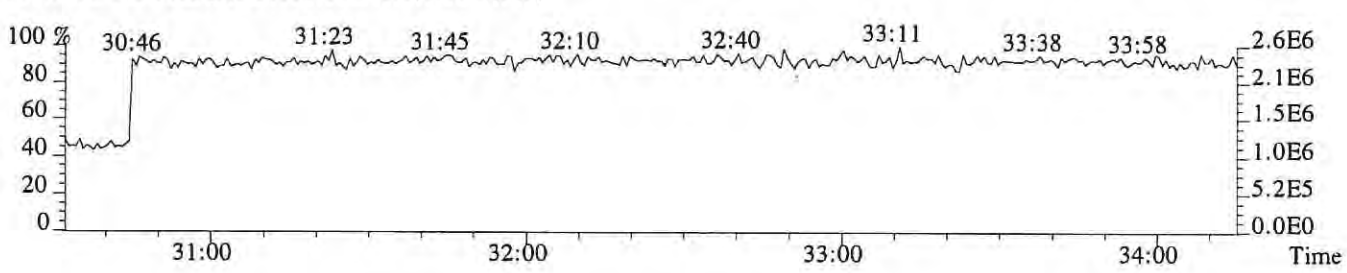
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



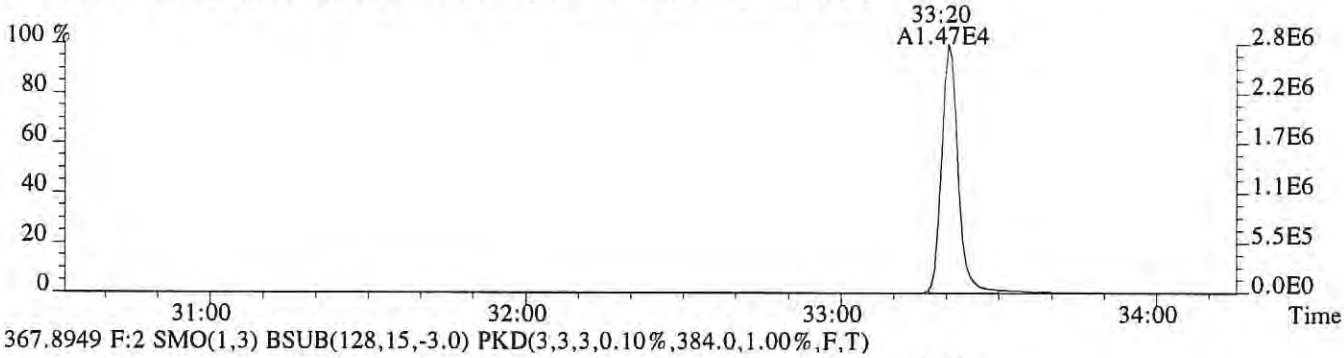
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



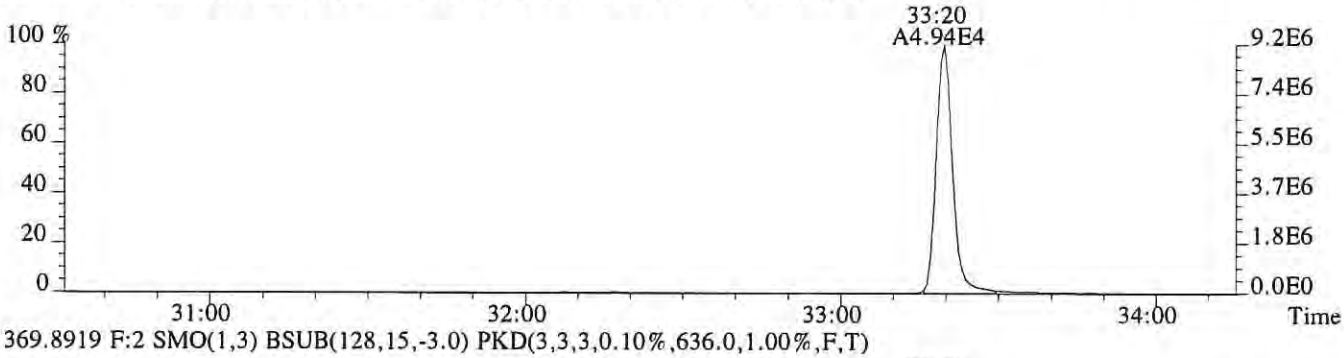
File:P519335 #1-335 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



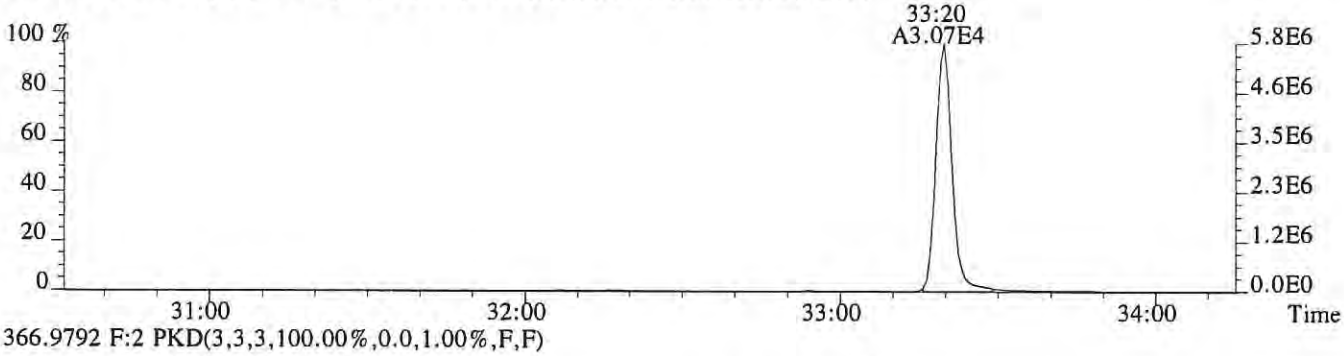
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



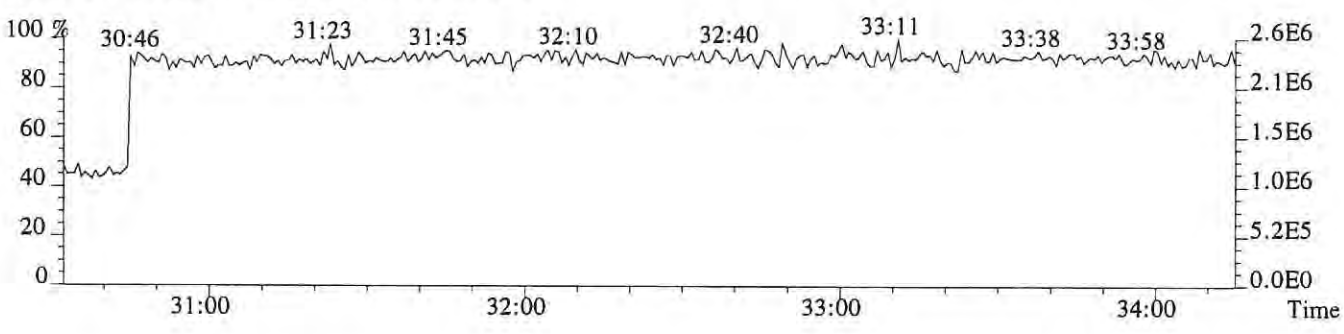
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)

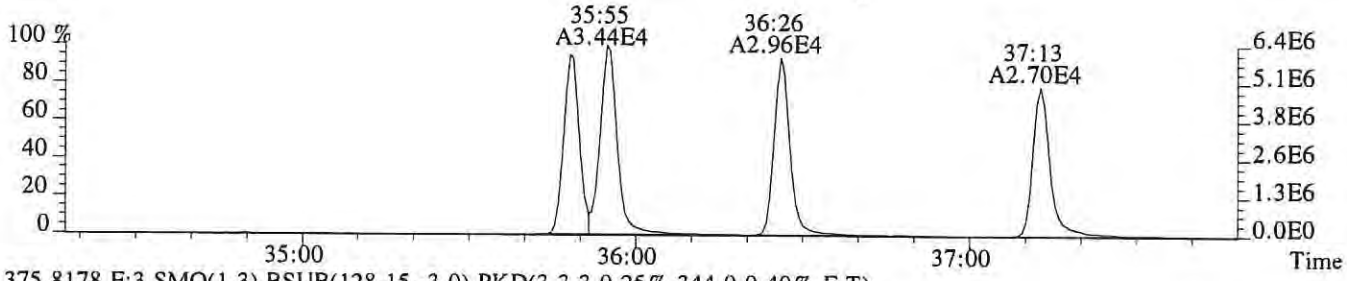


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

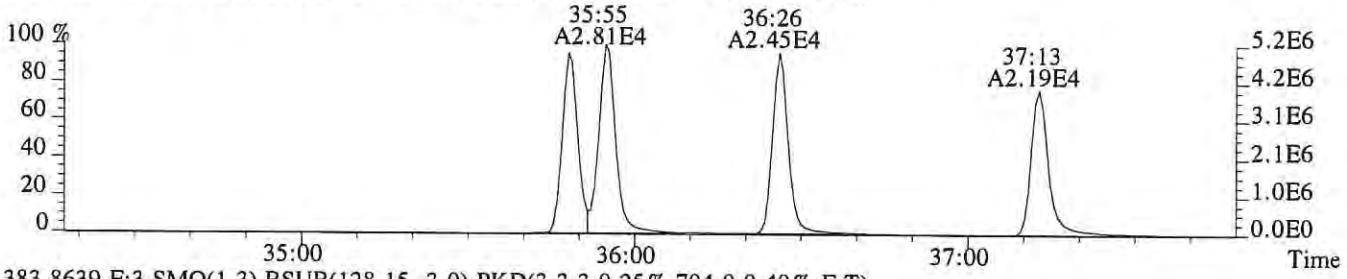


File:P519335 #1-317 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

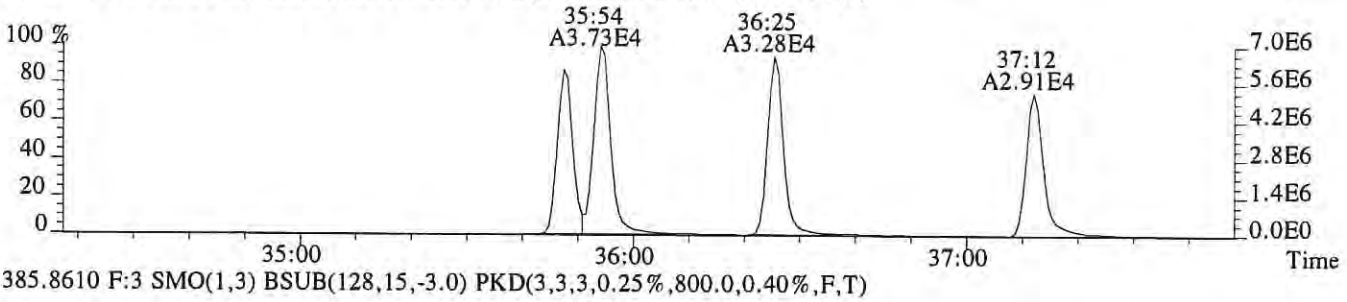
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



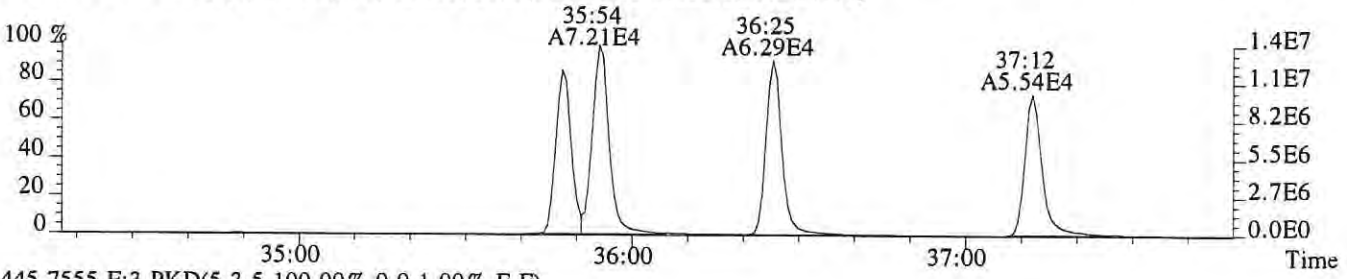
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



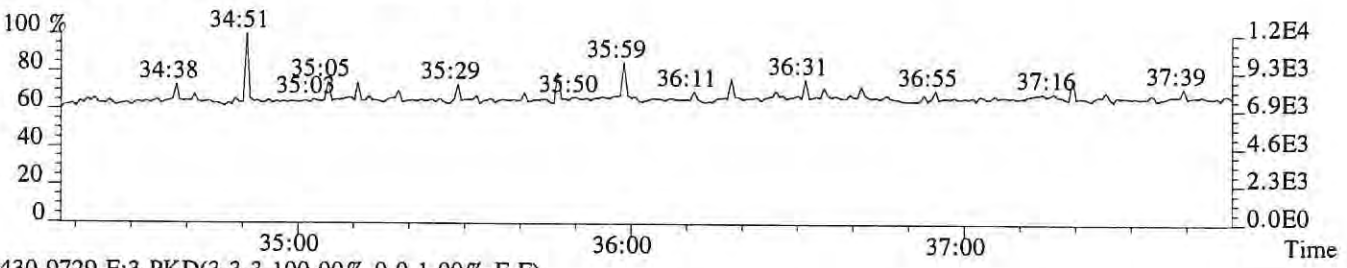
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



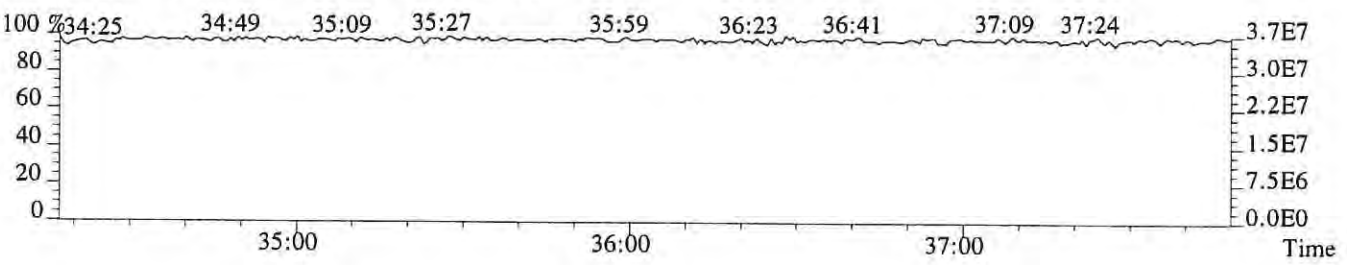
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



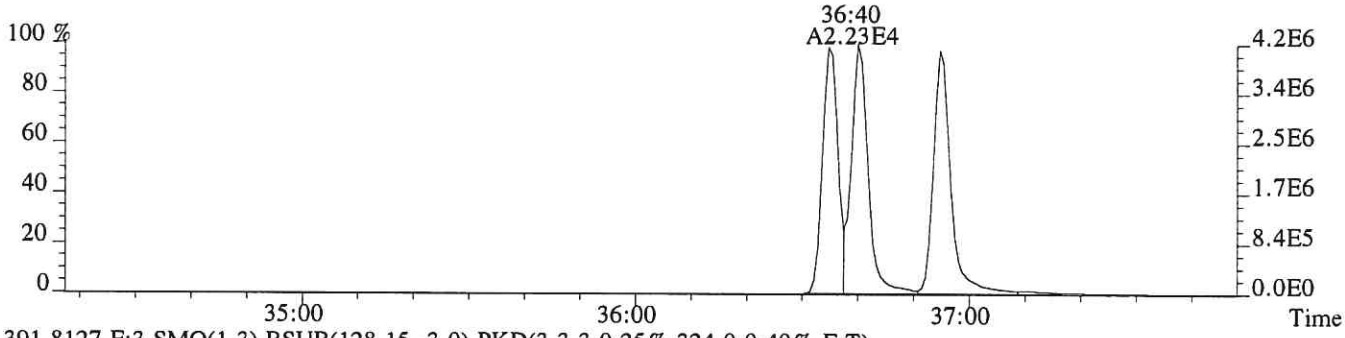
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



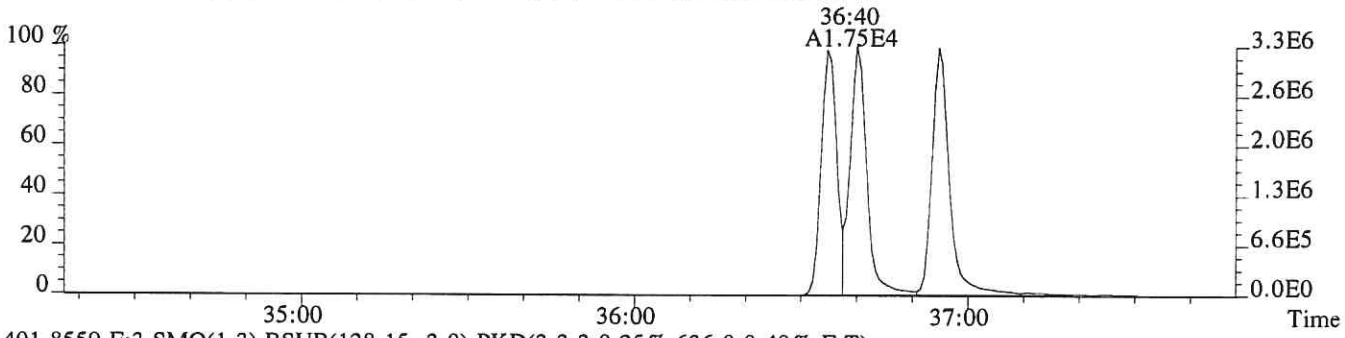
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



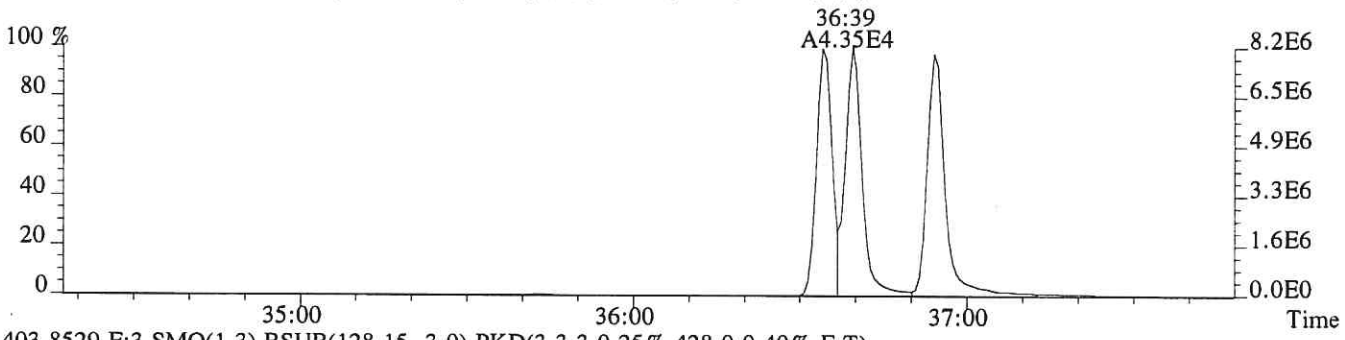
File:P519335 #1-317 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



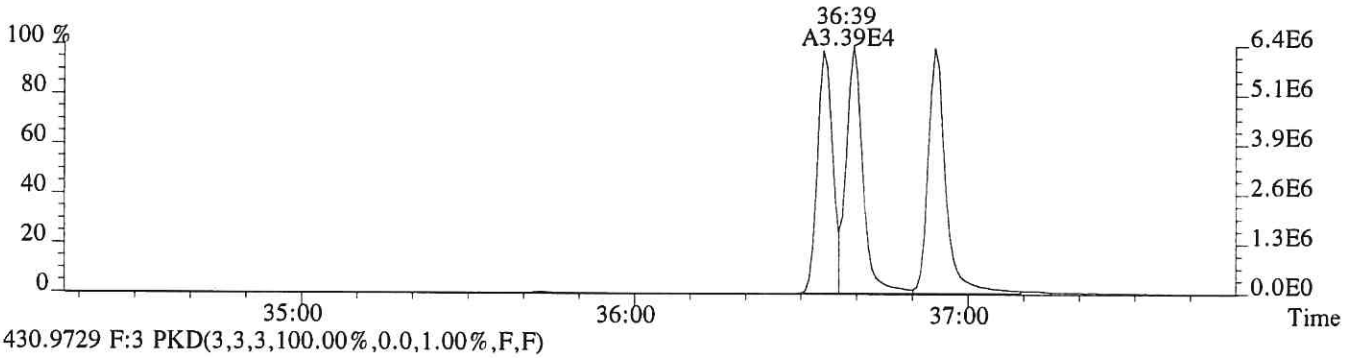
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



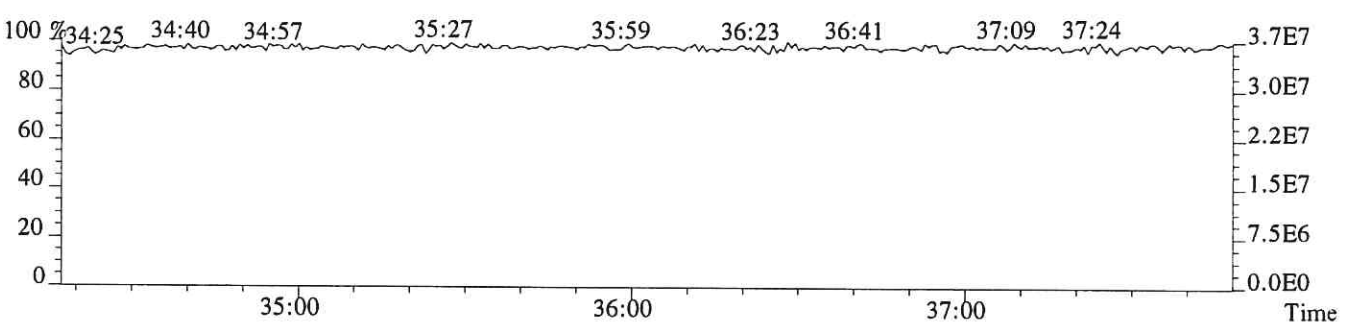
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



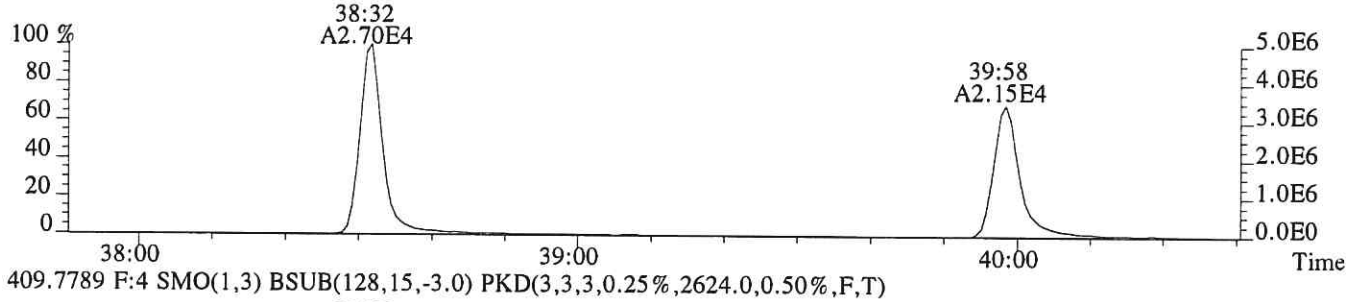
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



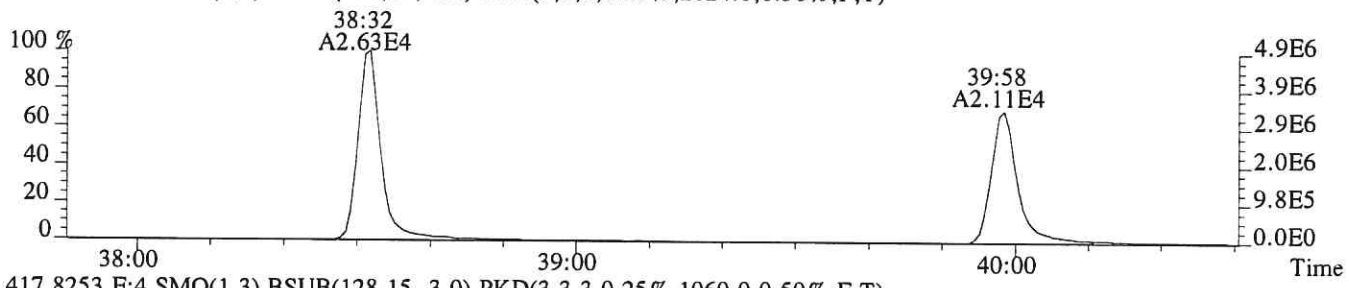
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



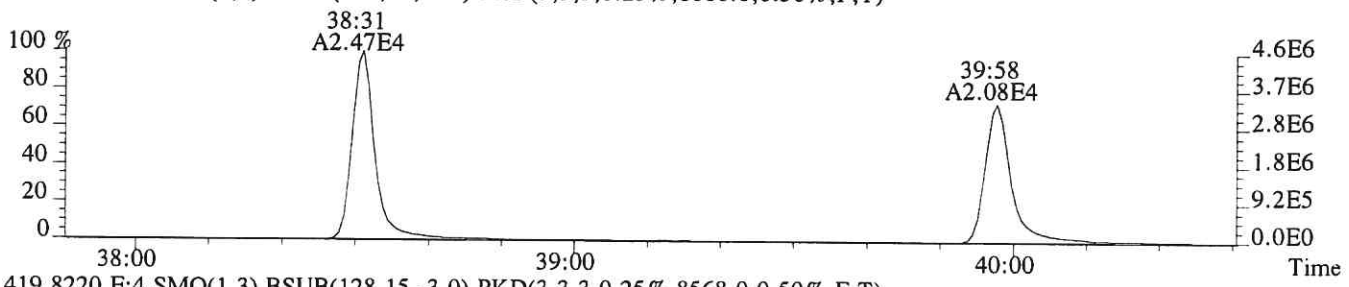
File:P519335 #1-241 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.50%,F,T)



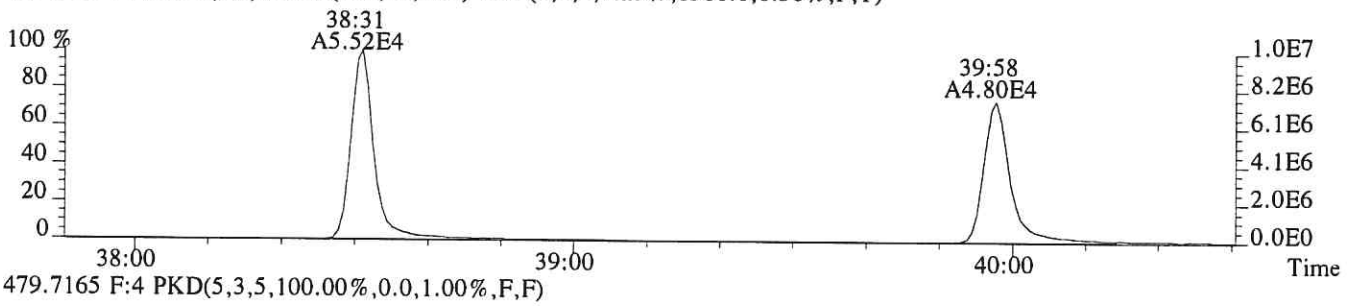
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.50%,F,T)



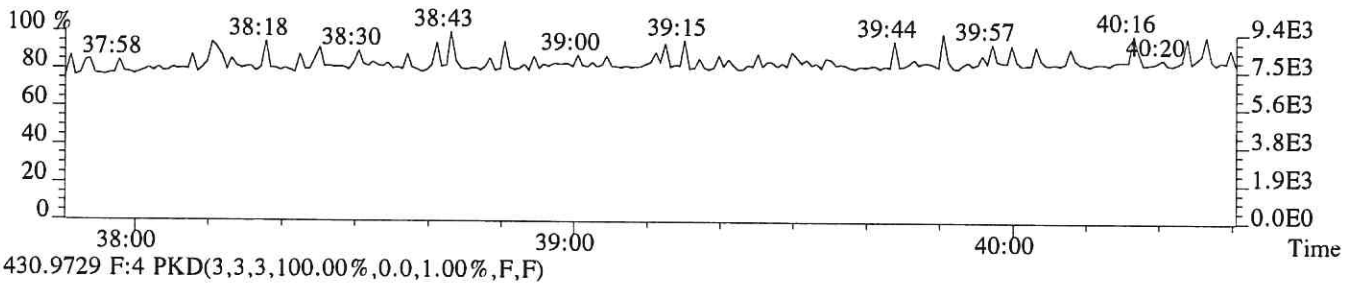
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)



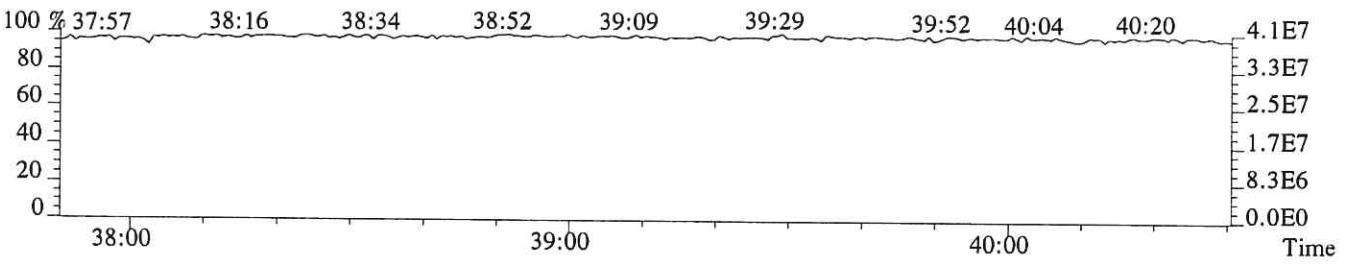
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8568.0,0.50%,F,T)



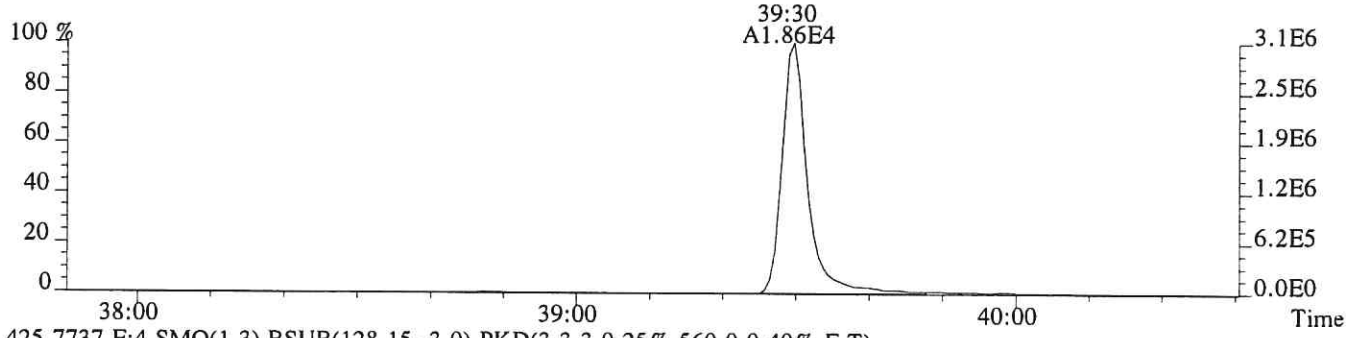
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



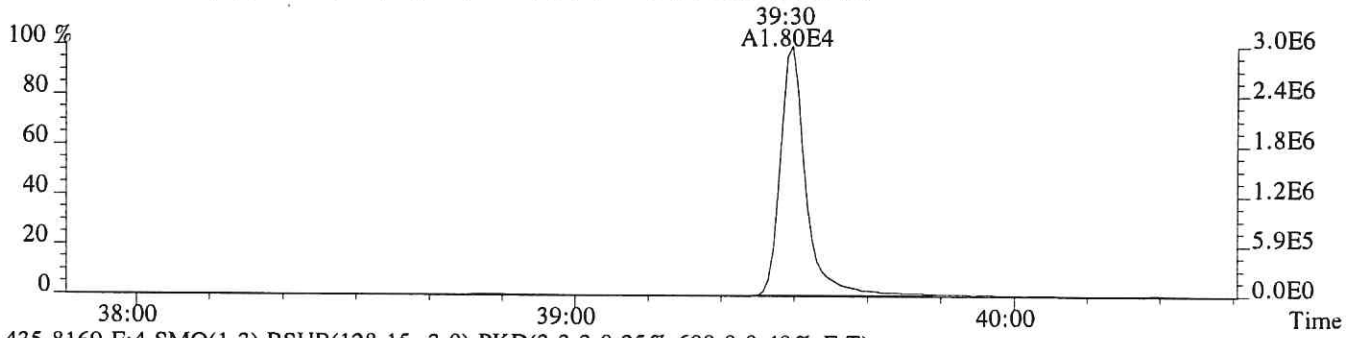
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



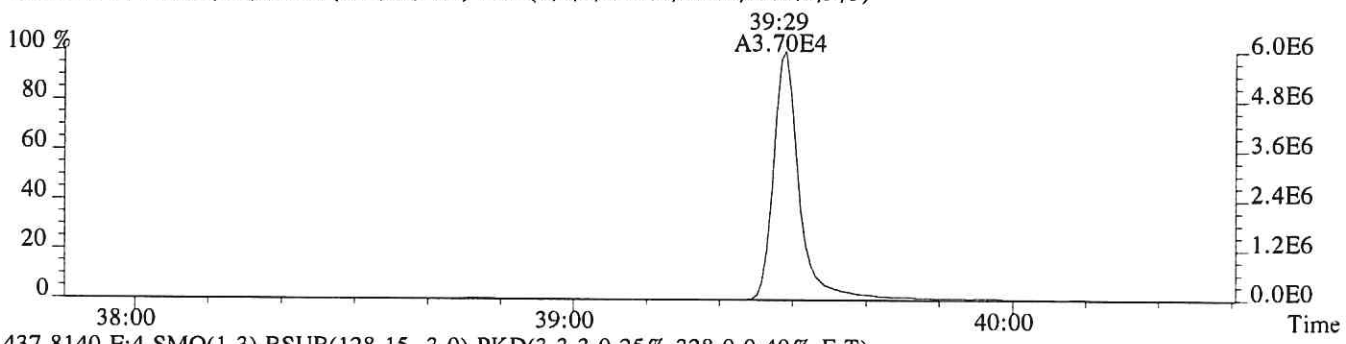
File:P519335 #1-241 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



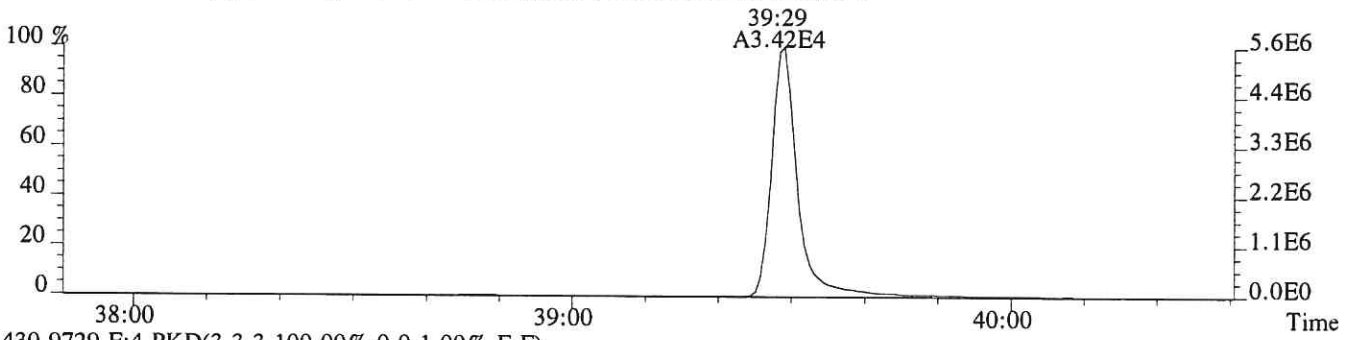
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



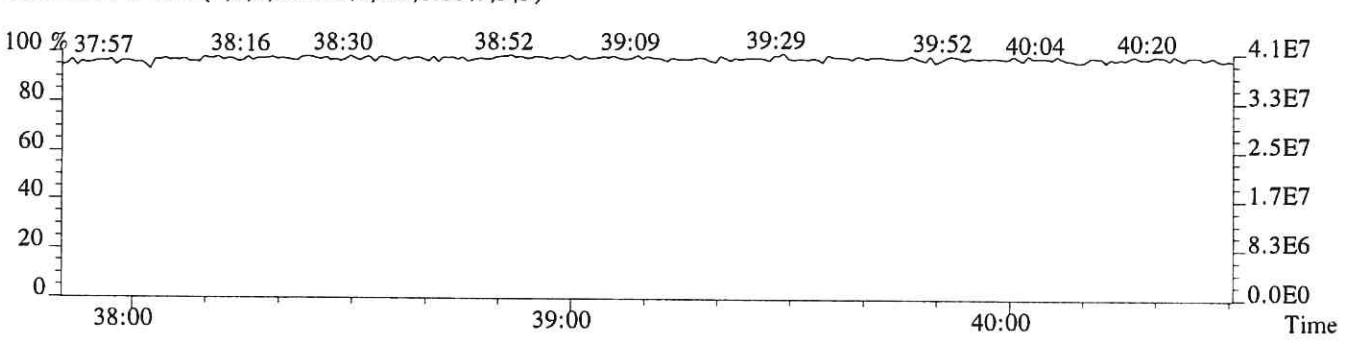
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)

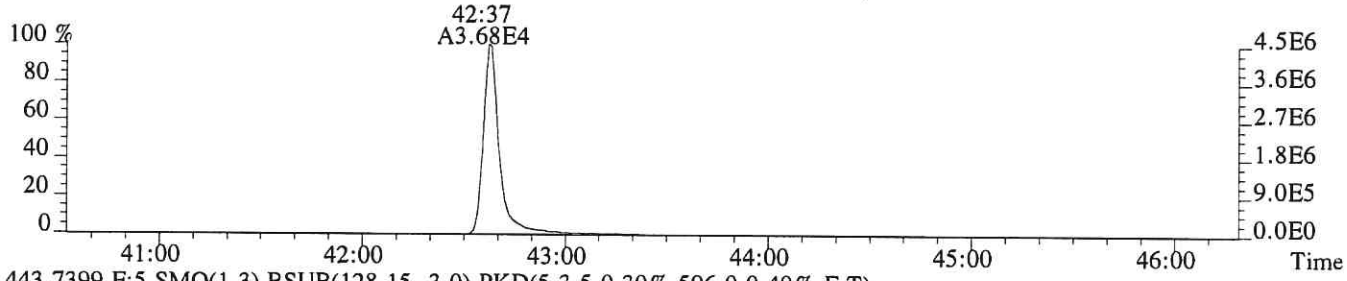


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

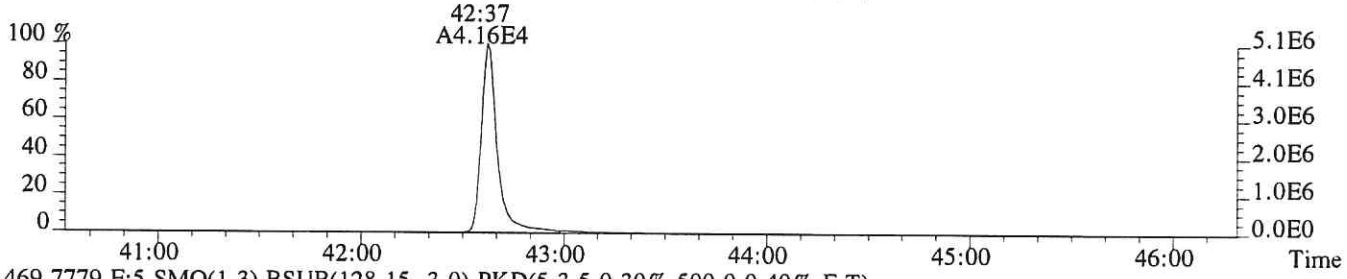


File:P519335 #1-520 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

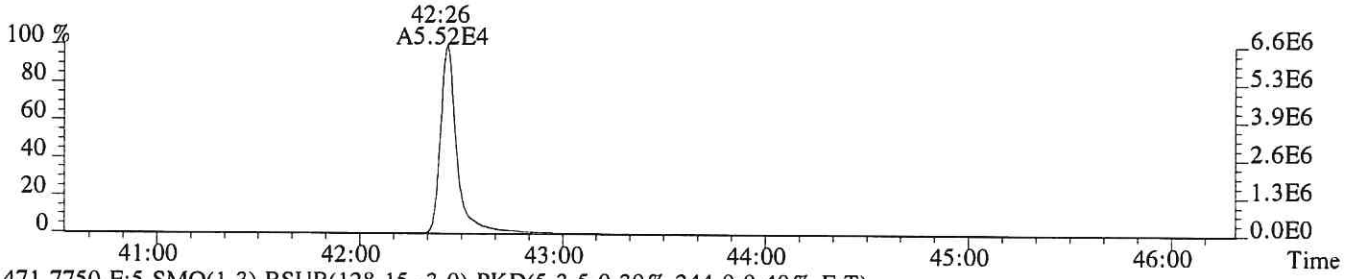
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



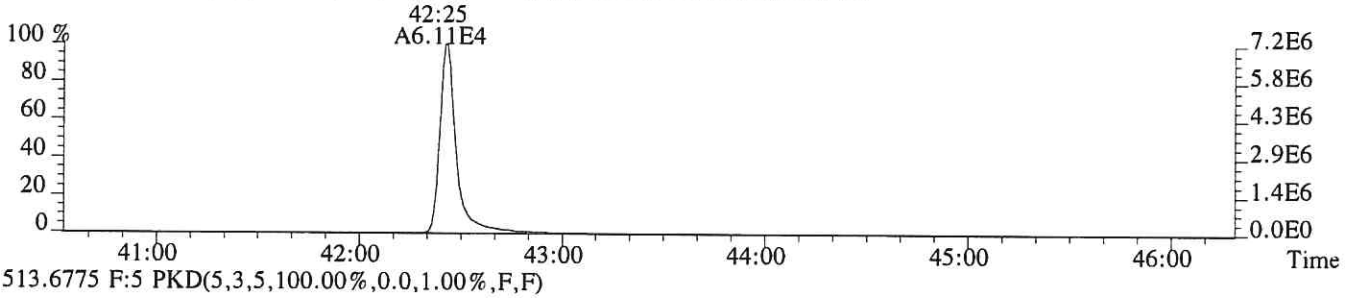
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



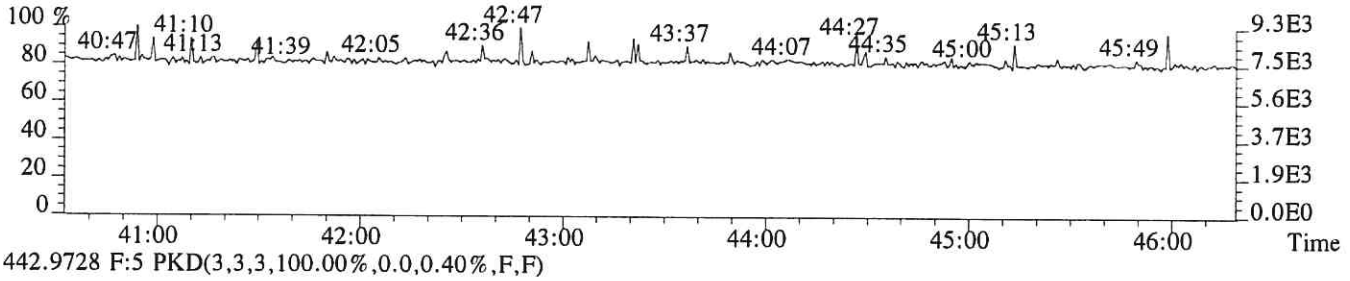
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



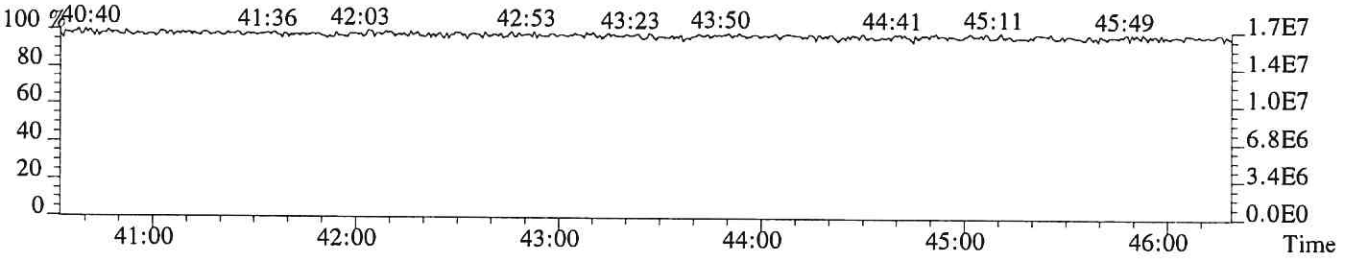
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



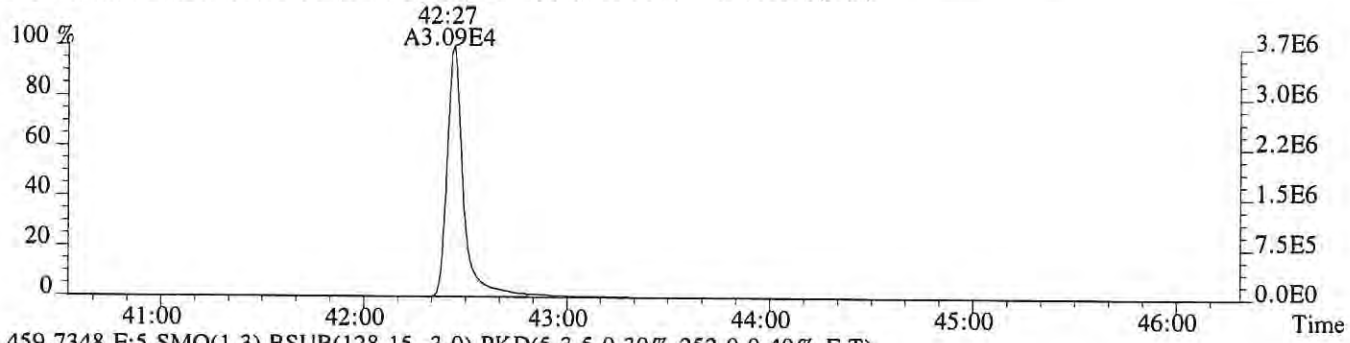
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



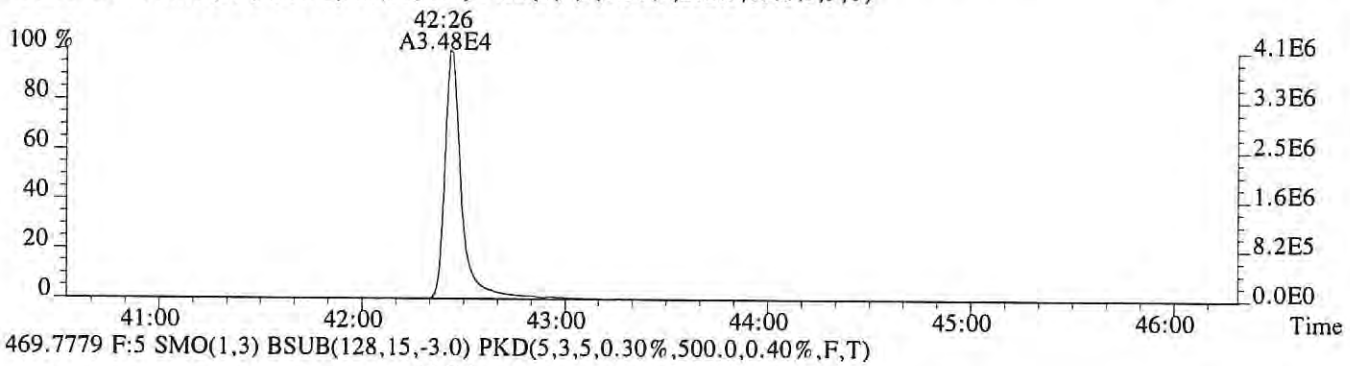
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



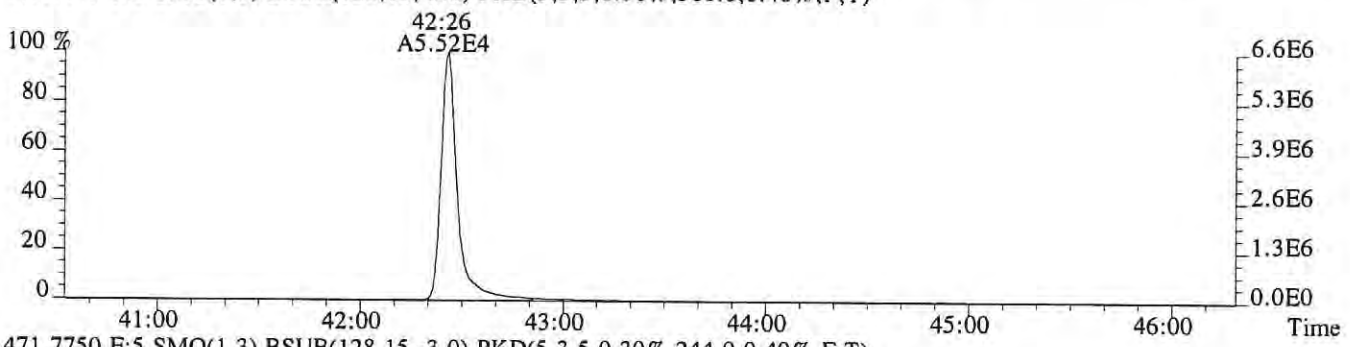
File:P519335 #1-520 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



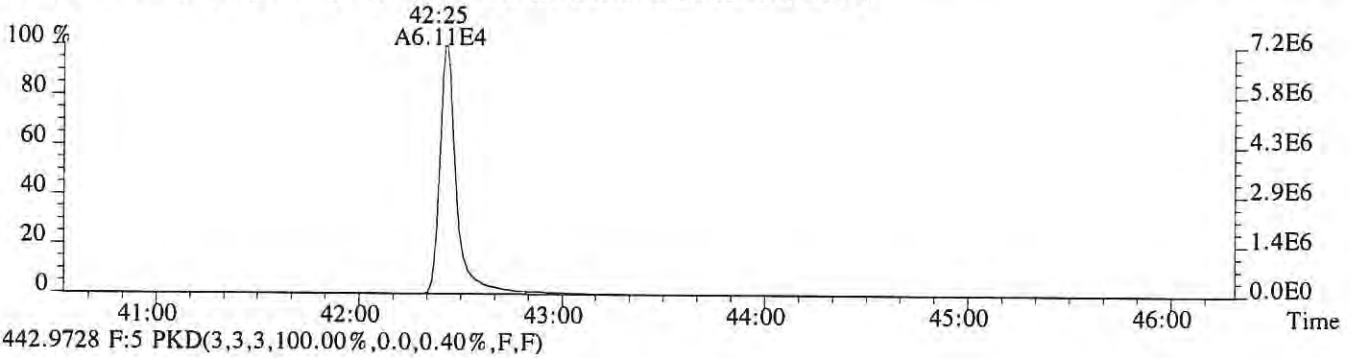
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



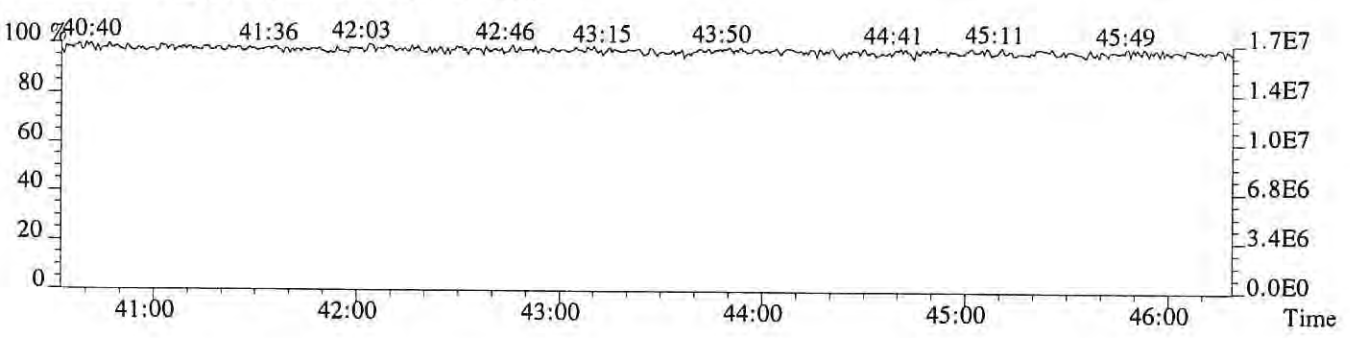
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P6159G7

Date: 12/07/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P615967	7-DEC-18	09:44:40
192977	WINDOW DEFINE	P615968	7-DEC-18	10:37:36
METHOD BLANK	EQ1800482-01	P615969	7-DEC-18	11:29:51
METHOD BLANK	EQ1800487-01	P615970	7-DEC-18	12:18:15
METHOD BLANK	EQ1800494-01	P615971	7-DEC-18	13:07:22
METHOD BLANK	EQ1800491-01	P615972	7-DEC-18	13:56:34
110669-3	E1801081-003	P615973	7-DEC-18	14:47:00
SL0538	E1801055-001	P615974	7-DEC-18	15:35:19
SL0545	E1801055-002	P615975	7-DEC-18	16:24:30
SL0546	E1801055-003	P615976	7-DEC-18	17:13:40
SL0549	E1801055-004	P615977	7-DEC-18	18:02:47
SL0550	E1801055-005	P615978	7-DEC-18	18:51:58
SL0551	E1801055-006	P615979	7-DEC-18	19:41:01
LCS	EQ1800494-02	P615980	7-DEC-18	20:30:09
DLCS	EQ1800494-03	P615981	7-DEC-18	21:19:19

E1801057

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181207A.SPL
Last Modified: Monday, December 10, 2018 07:08:26 Central Standard Time
Printed: Monday, December 10, 2018 07:08:28 Central Standard Time

Page Position (1, 1)

Opus4: P615967res

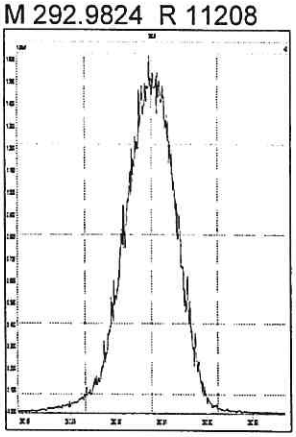
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	09:44	P615967	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 09:41
2		12:37	P615968	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		11:29	P615969	EQ1800482-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		12:18	P615970	EQ1800487-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		13:07	P615971	EQ1800494-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:56	P615972	EQ1800491-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:47	P615973	E1801081-003	E1801081-003	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:35	P615974	E1801055-001	E1801055-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:24	P615975	E1801055-002	E1801055-002	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:13	P615976	E1801055-003	E1801055-003	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:02	P615977	E1801055-004	E1801055-004	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:51	P615978	E1801055-005	E1801055-005	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:41	P615979	E1801055-006	E1801055-006	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:30	P615980	EQ1800494-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:19	P615981	EQ1800494-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		22:16	P615982	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 22:16
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

QC 12/11/18

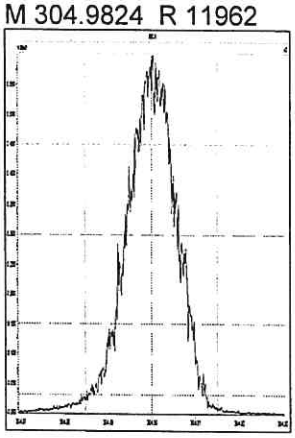
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:41:36 Central Standard Time

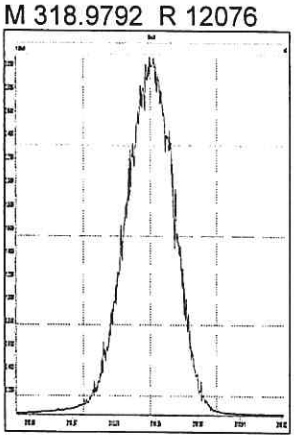
M 292.9824 R 11208



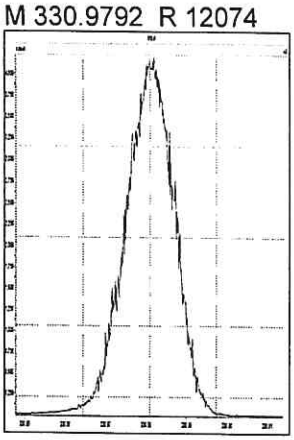
M 304.9824 R 11962



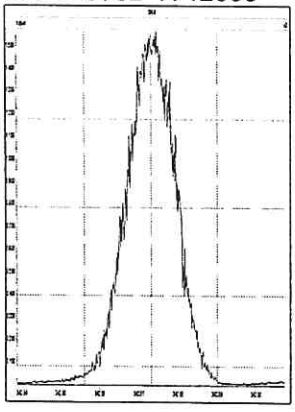
M 318.9792 R 12076



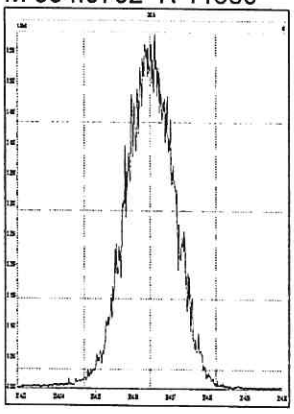
M 330.9792 R 12074



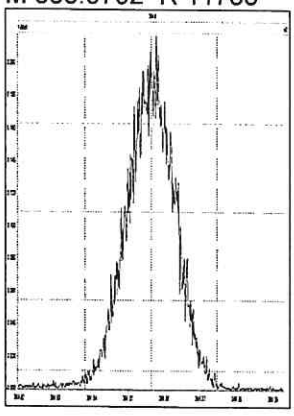
M 342.9792 R 12563



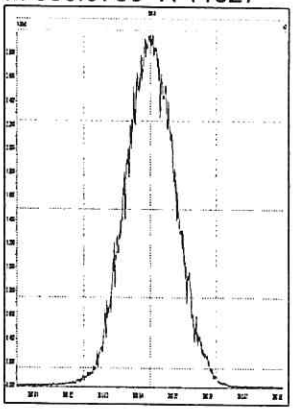
M 354.9792 R 11680



M 366.9792 R 11733



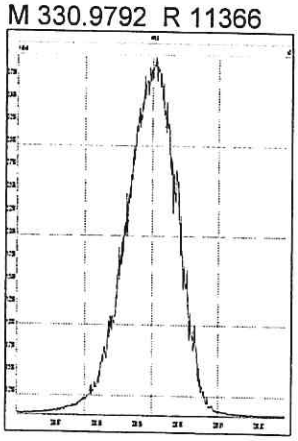
M 380.9760 R 11627



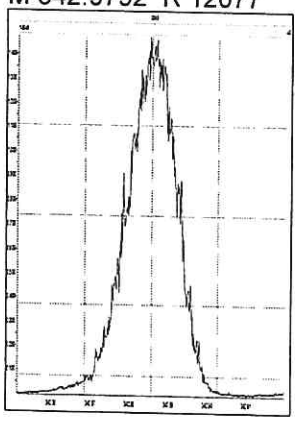
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:42:11 Central Standard Time

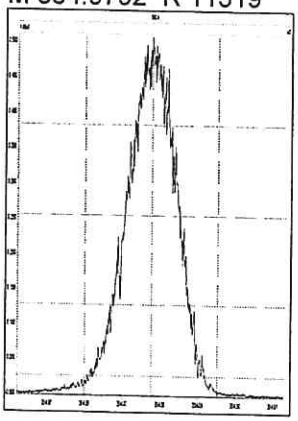
M 330.9792 R 11366



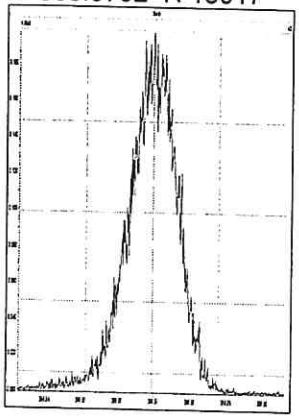
M 342.9792 R 12077



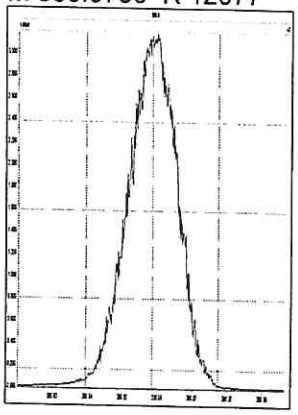
M 354.9792 R 11519



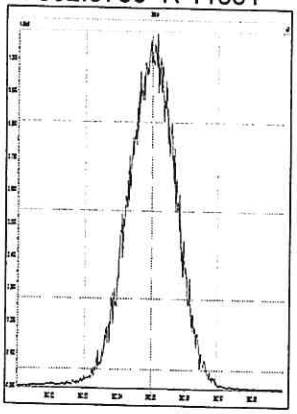
M 366.9792 R 13017



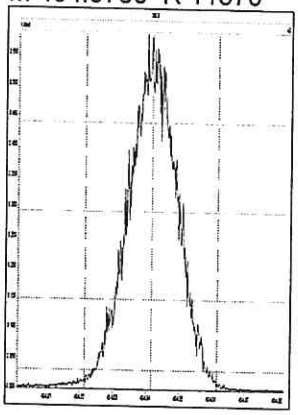
M 380.9760 R 12077



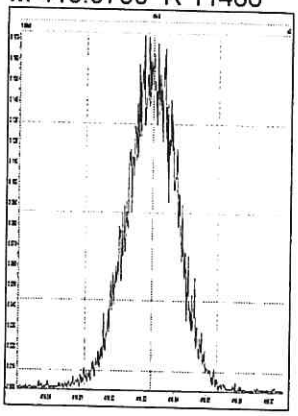
M 392.9760 R 11851



M 404.9760 R 11570



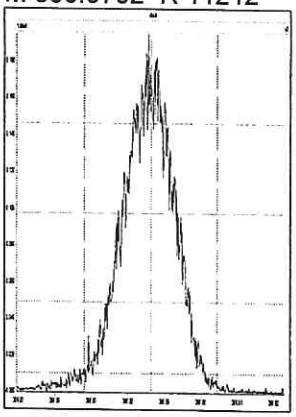
M 416.9760 R 11466



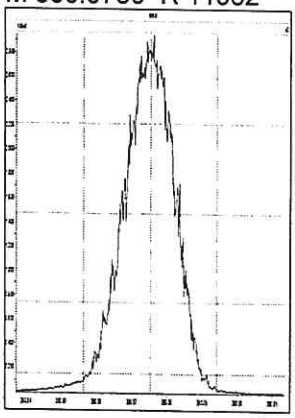
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:42:42 Central Standard Time

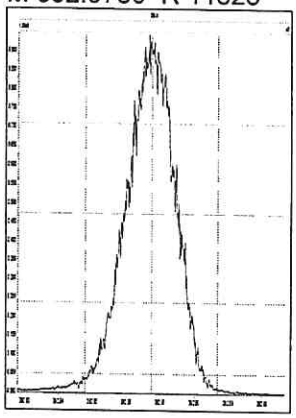
M 366.9792 R 11212



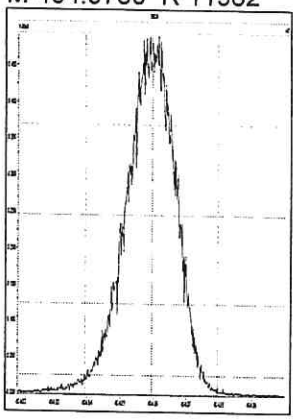
M 380.9760 R 11962



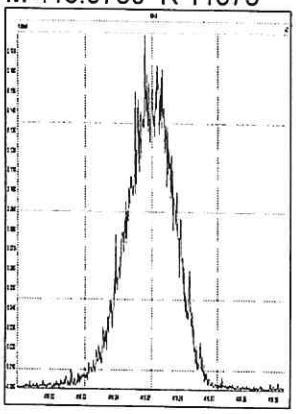
M 392.9760 R 11626



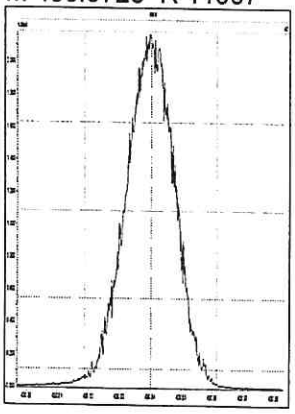
M 404.9760 R 11962



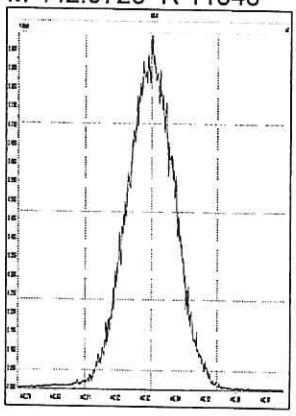
M 416.9760 R 11573



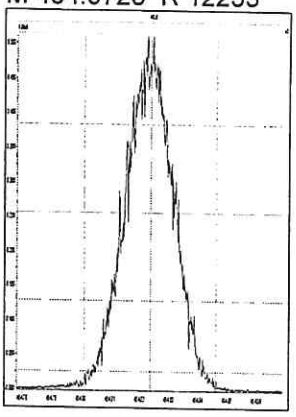
M 430.9728 R 11907



M 442.9728 R 11848



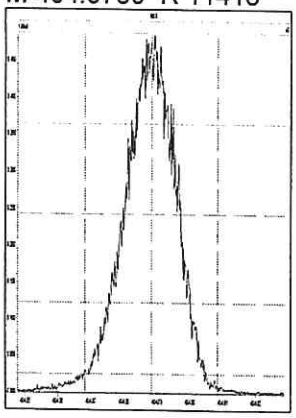
M 454.9728 R 12253



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:43:14 Central Standard Time

M 404.9760 R 11413



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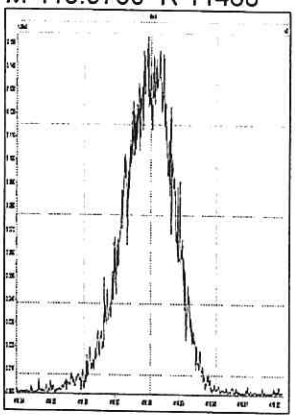
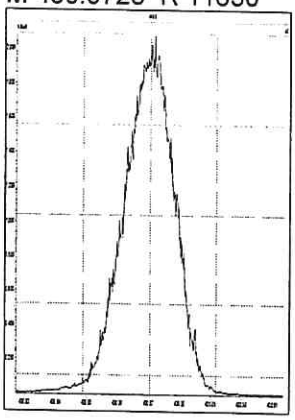
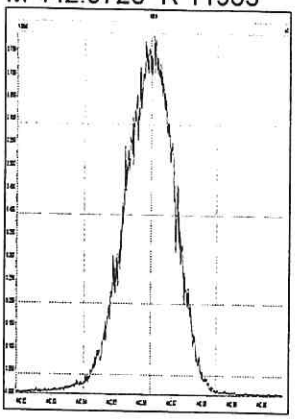


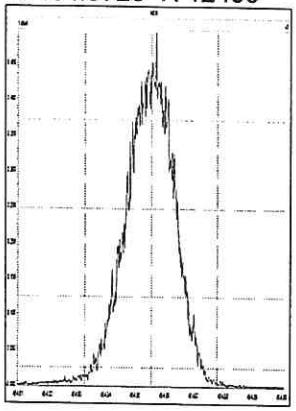
M 430.9728 R 11630



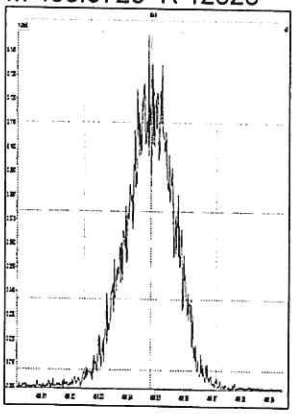
M 442.9728 R 11963



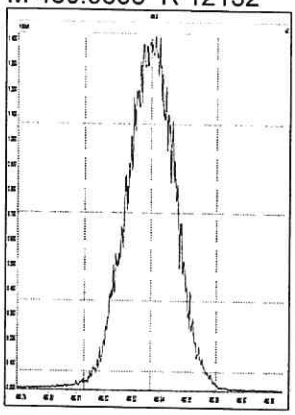
M 454.9728 R 12499



M 466.9728 R 12628



M 480.9696 R 12132



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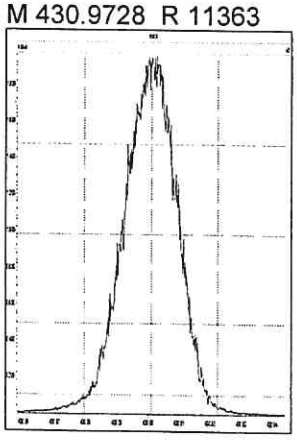
Printed: Friday, December 07, 2018 09:44:05 Central Standard Time

M 430.9728 R 11363



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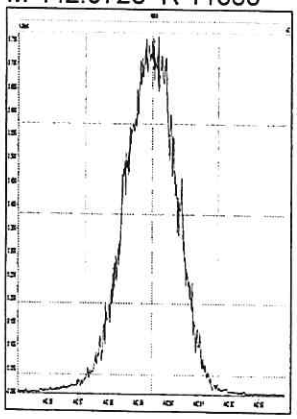

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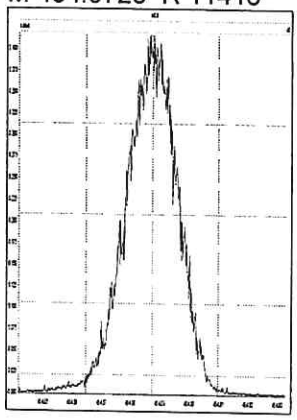

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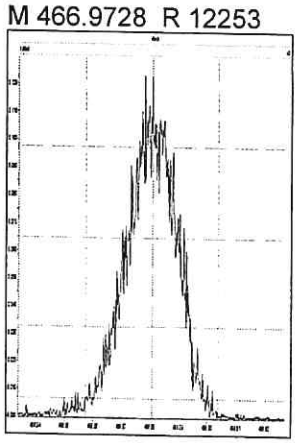

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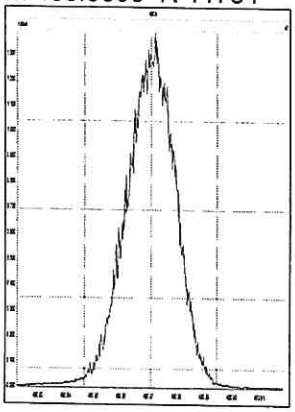

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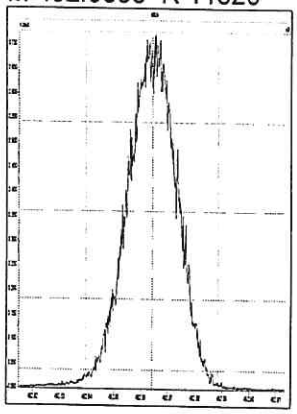

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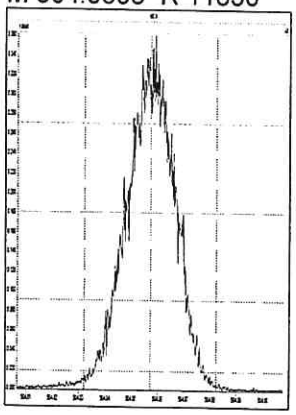

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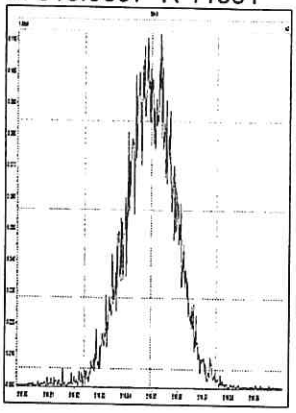

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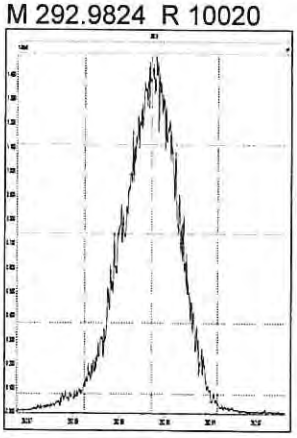

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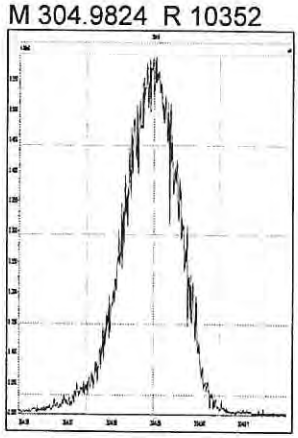

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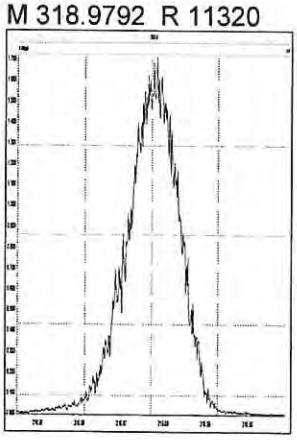

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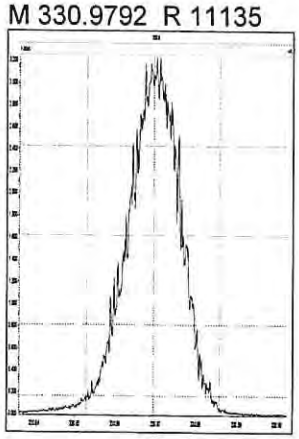

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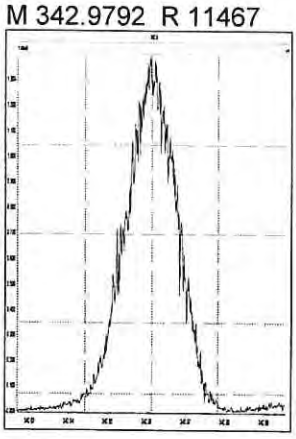

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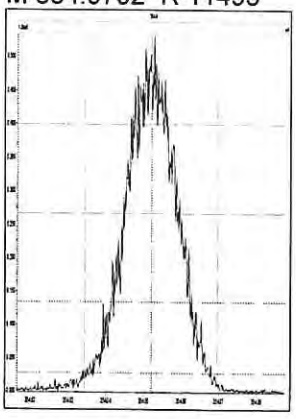

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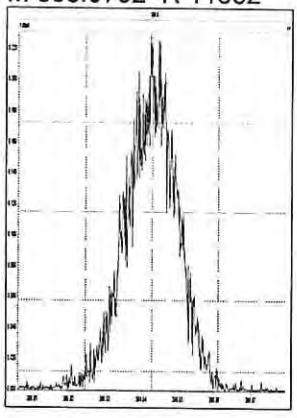

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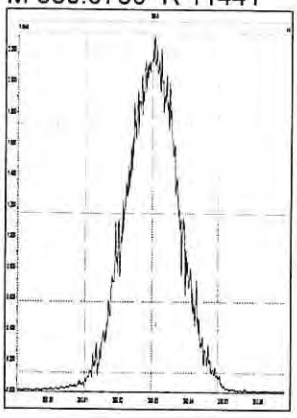

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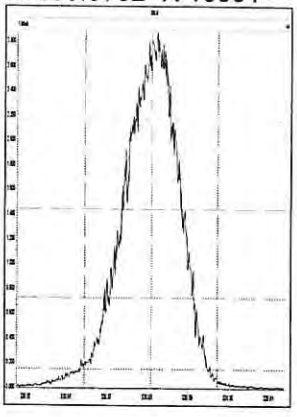

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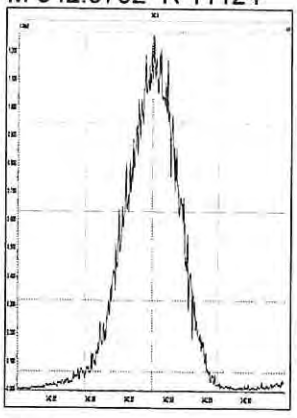

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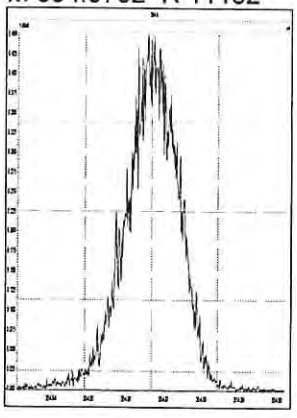

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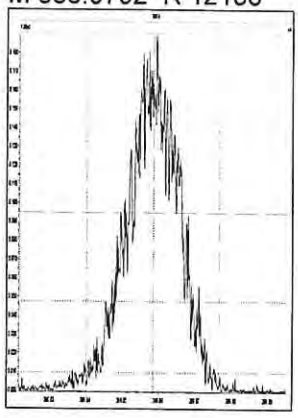

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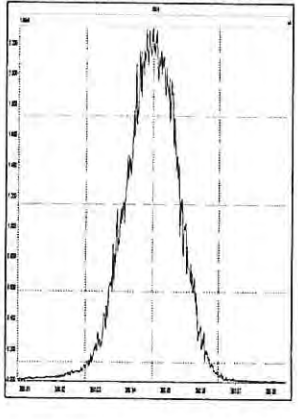

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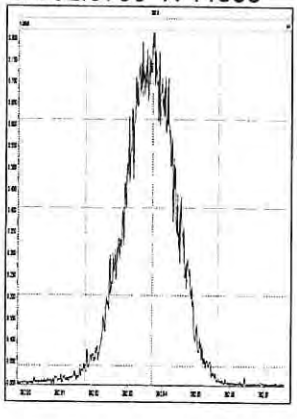

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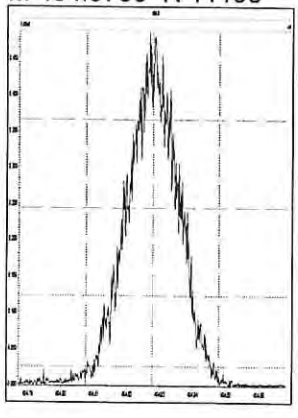

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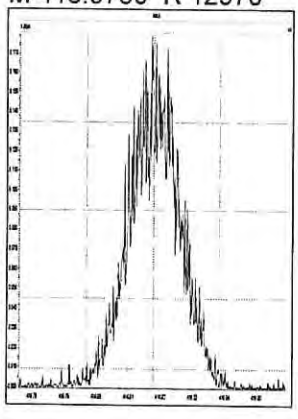

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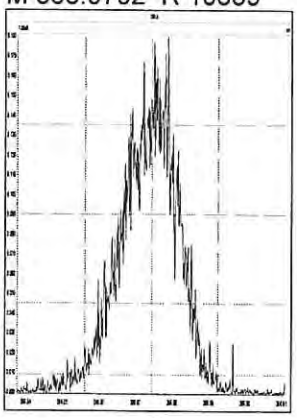

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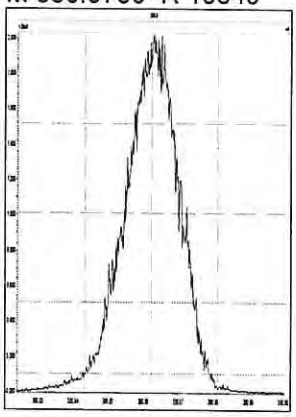

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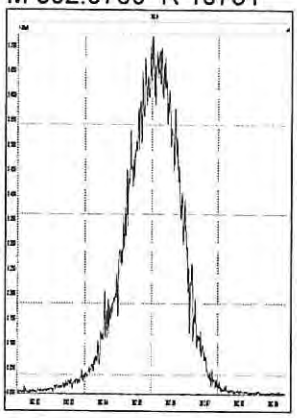

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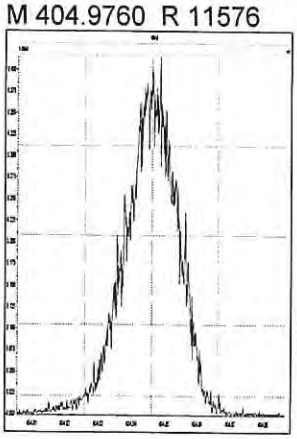

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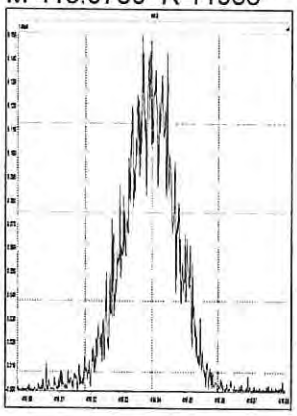

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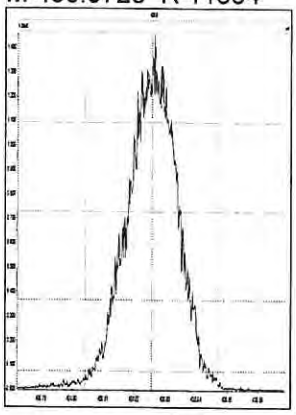

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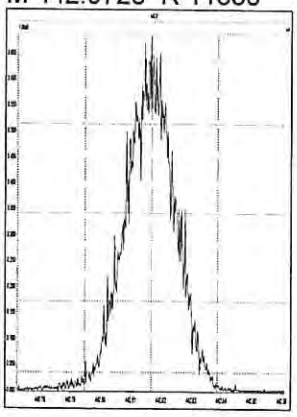

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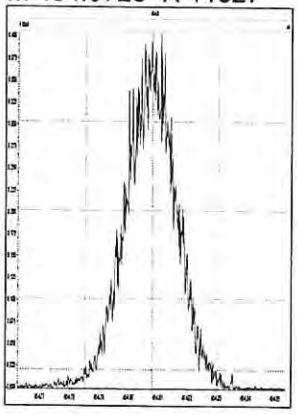

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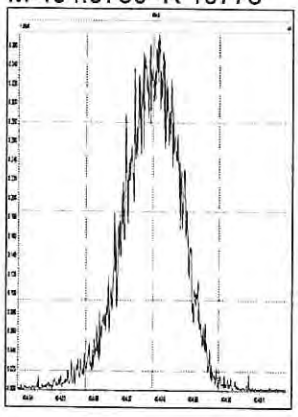

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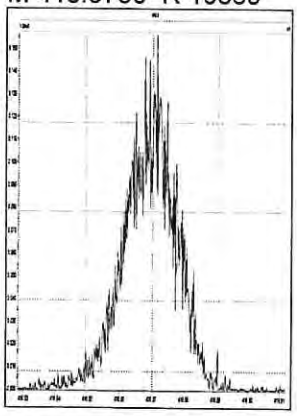

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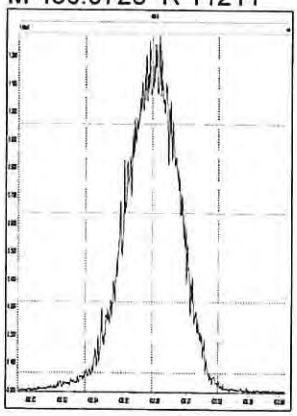

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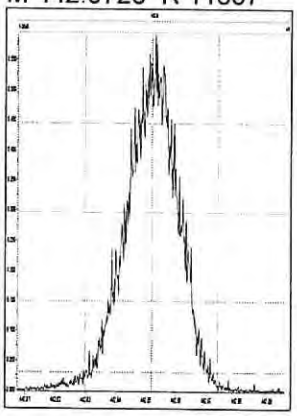

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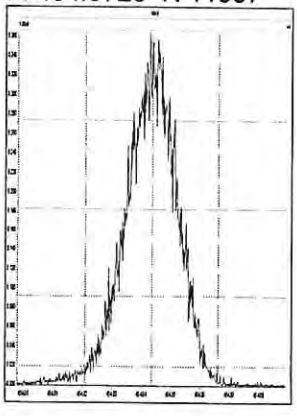

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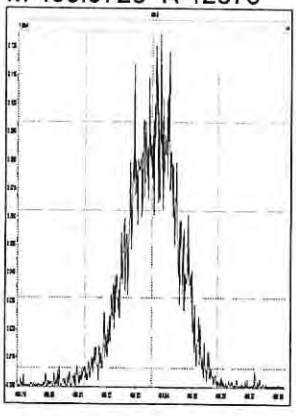

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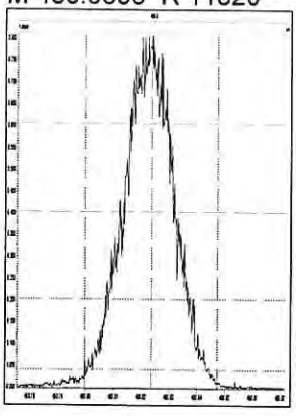

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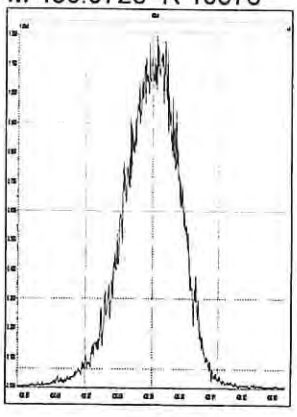

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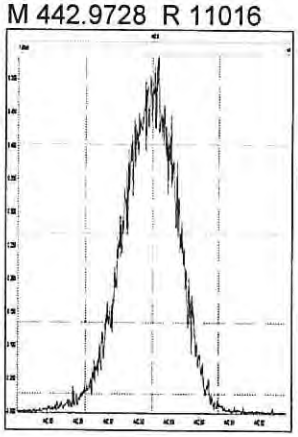

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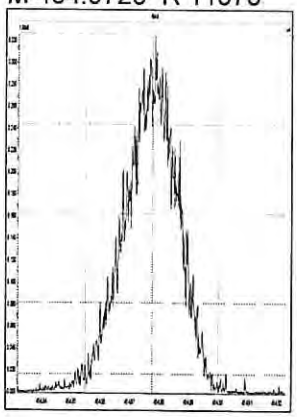

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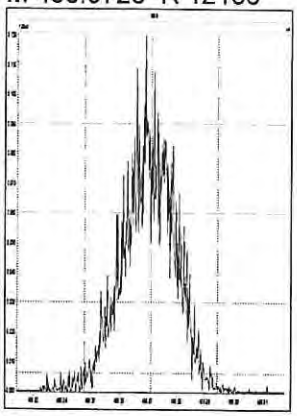

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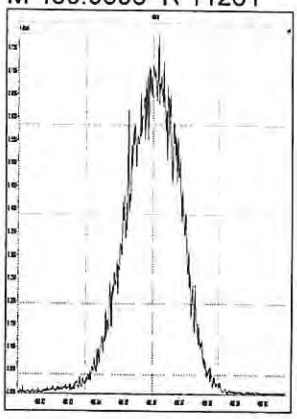

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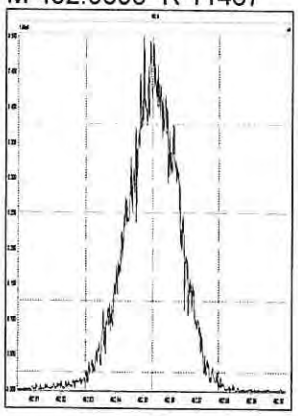

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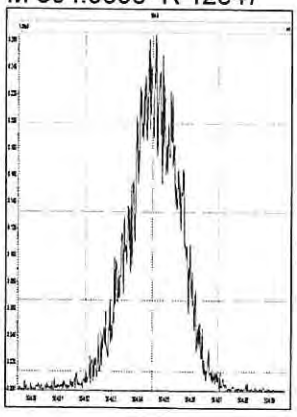

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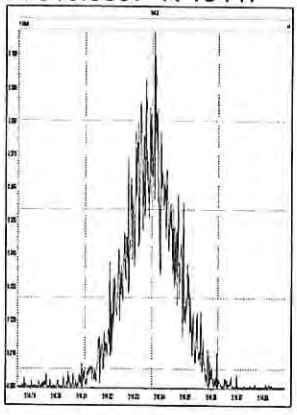


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

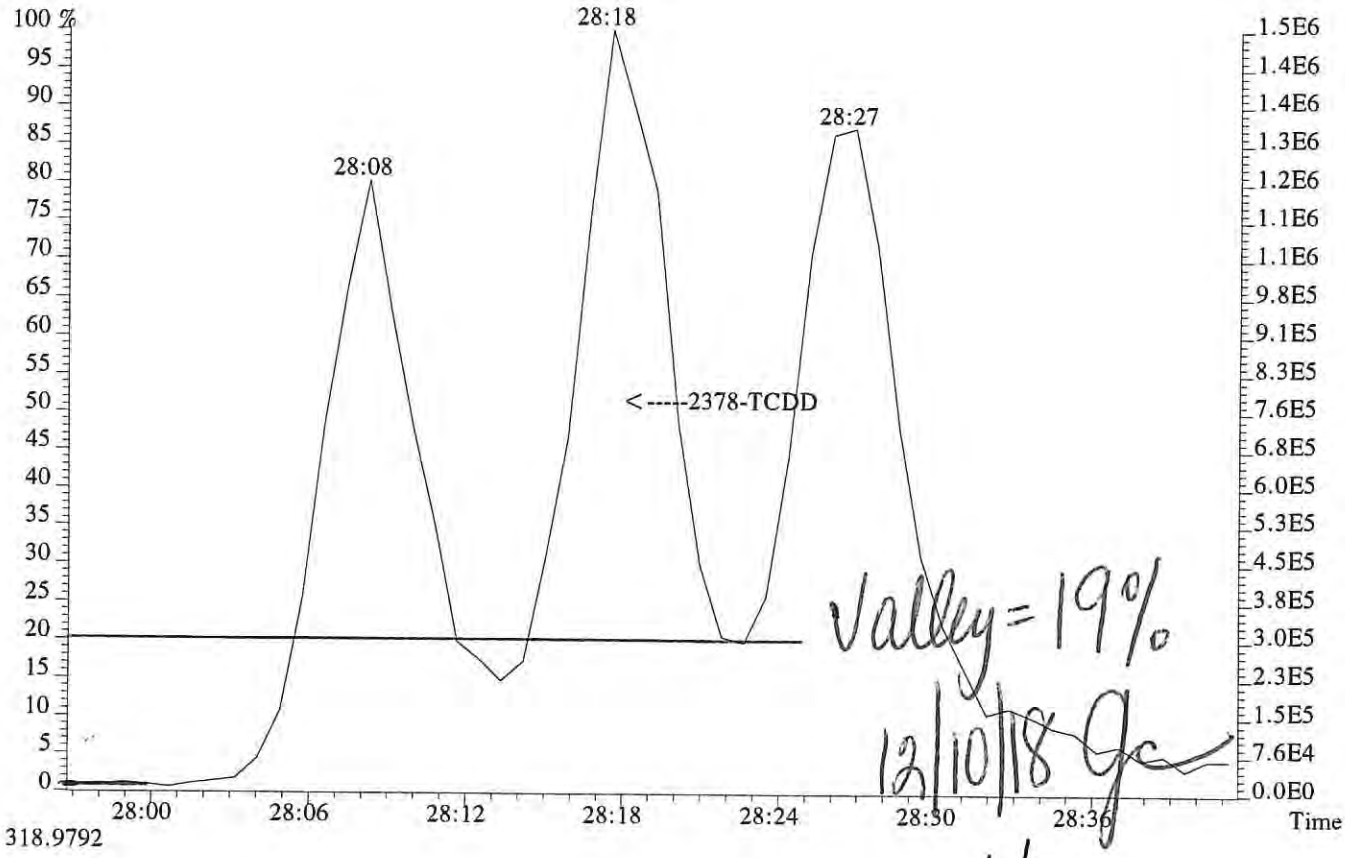
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P615968
Date Analyzed: 7-DEC-18
Time Analyzed: 10:37:36

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:59	29:31
TCDD	24:45	29:20
PeCDF	29:26	33:48
PeCDD	31:02	33:32
HxCDF	34:26	36:58
HxCDD	34:57	36:33
HpCDF	38:10	39:32
HpCDD	38:24	39:04

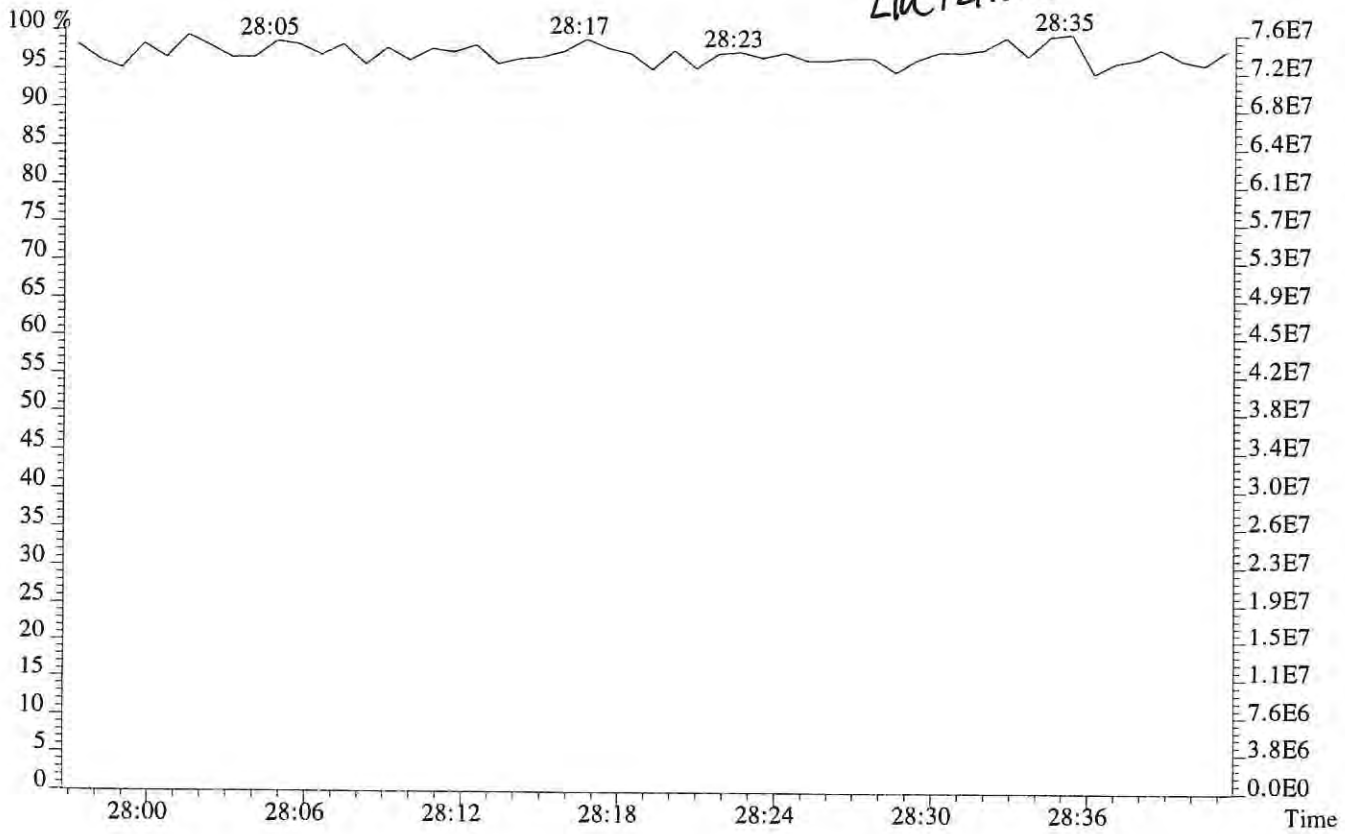
% Valley 2378-TCDD: 19 %

File:P615968 #1-552 Acq: 7-DEC-2018 10:37:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792

LM 12/11/18



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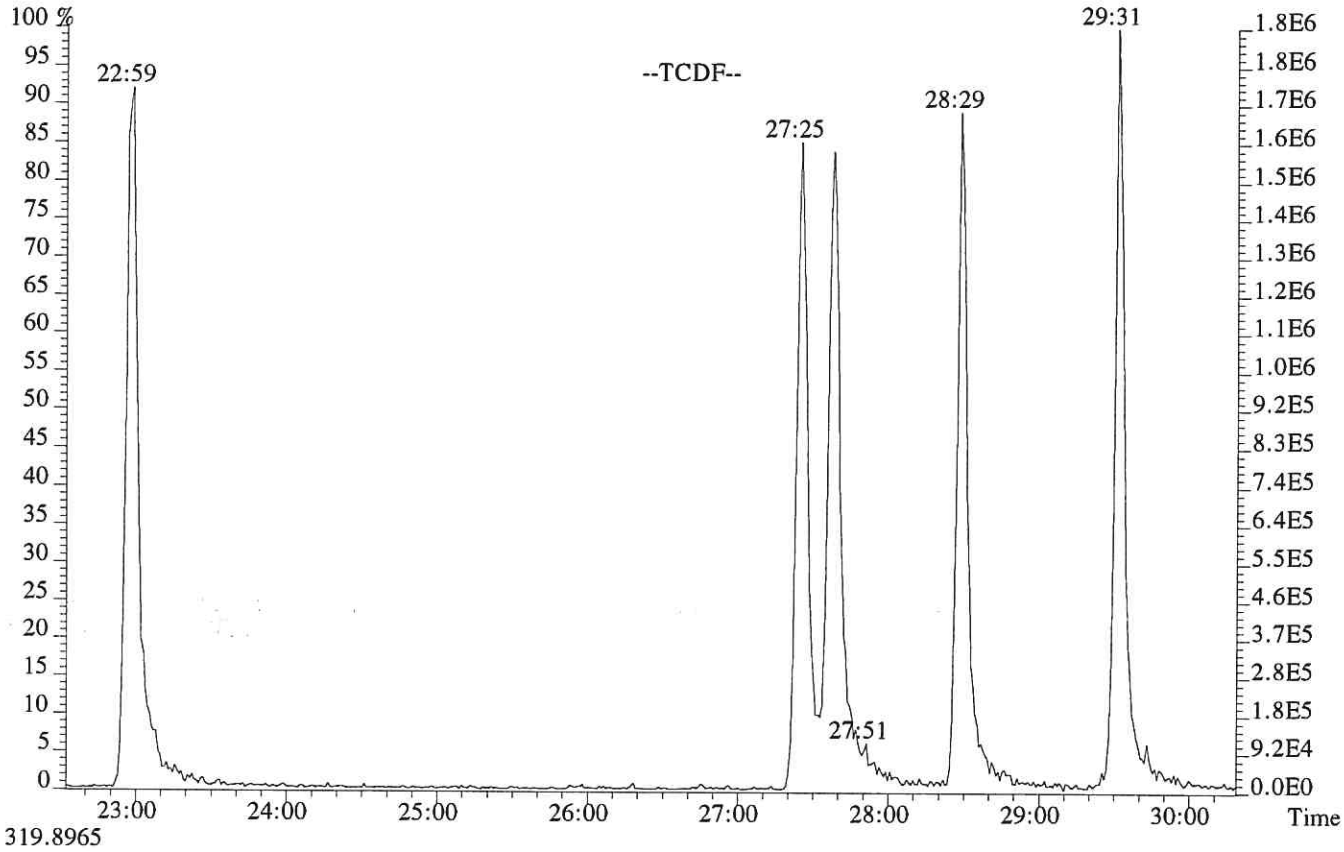
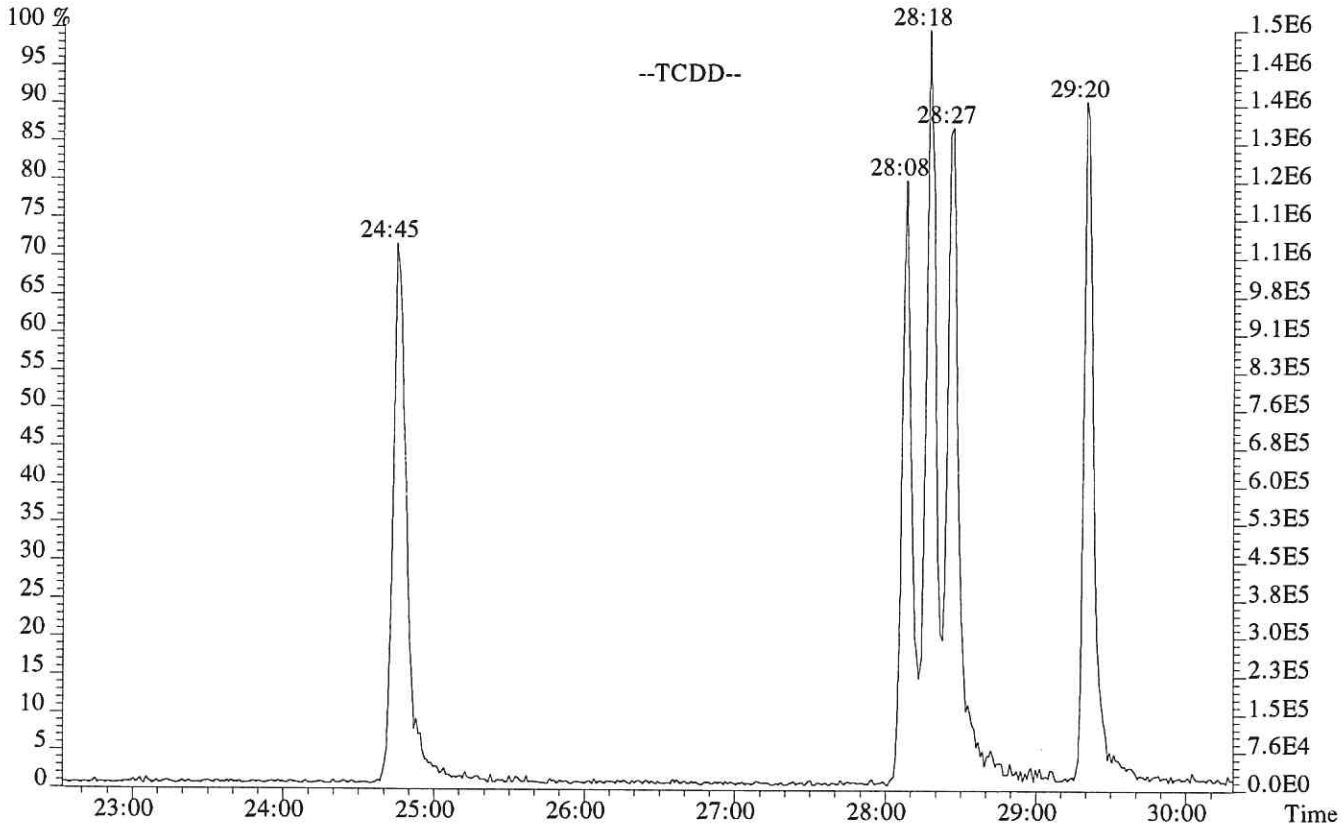
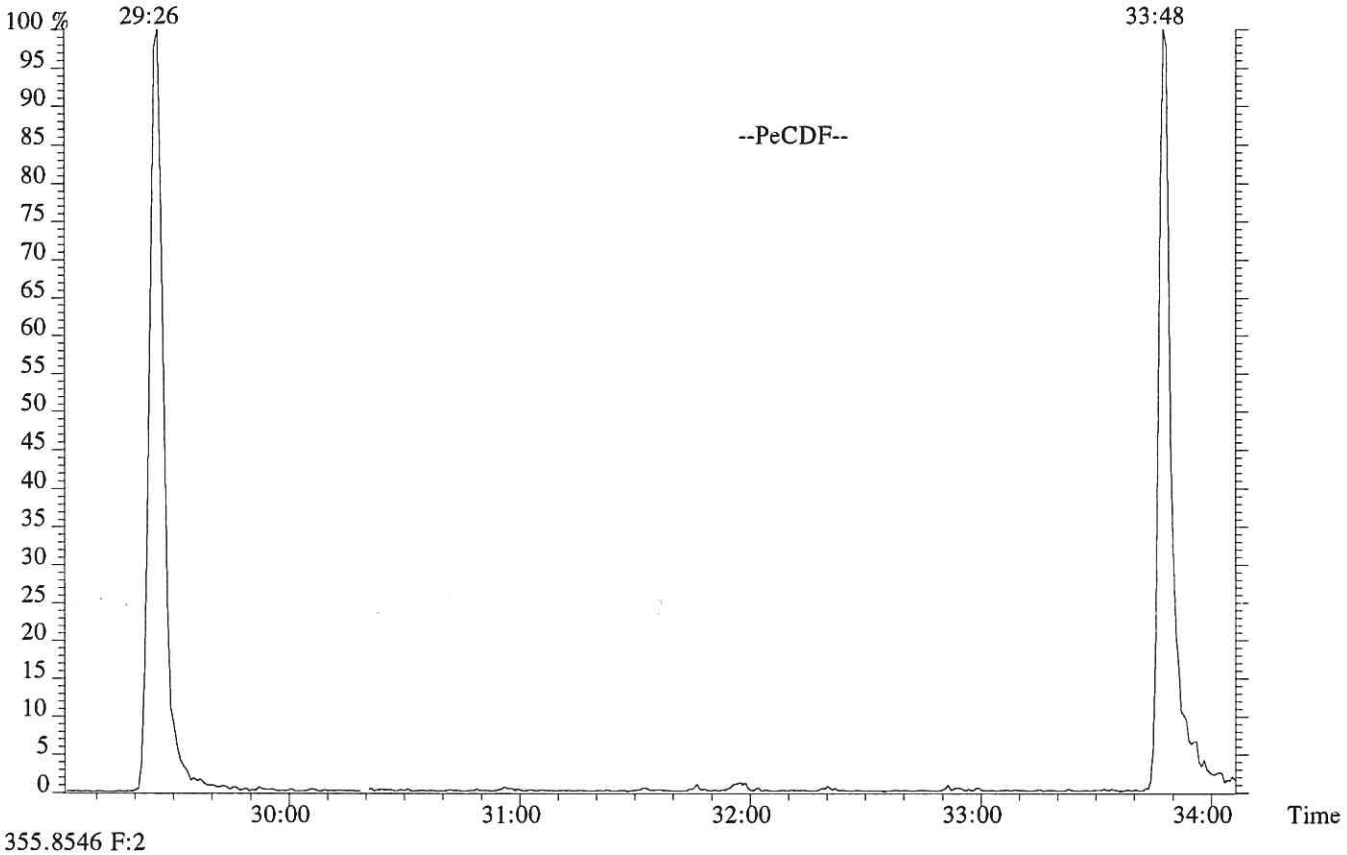


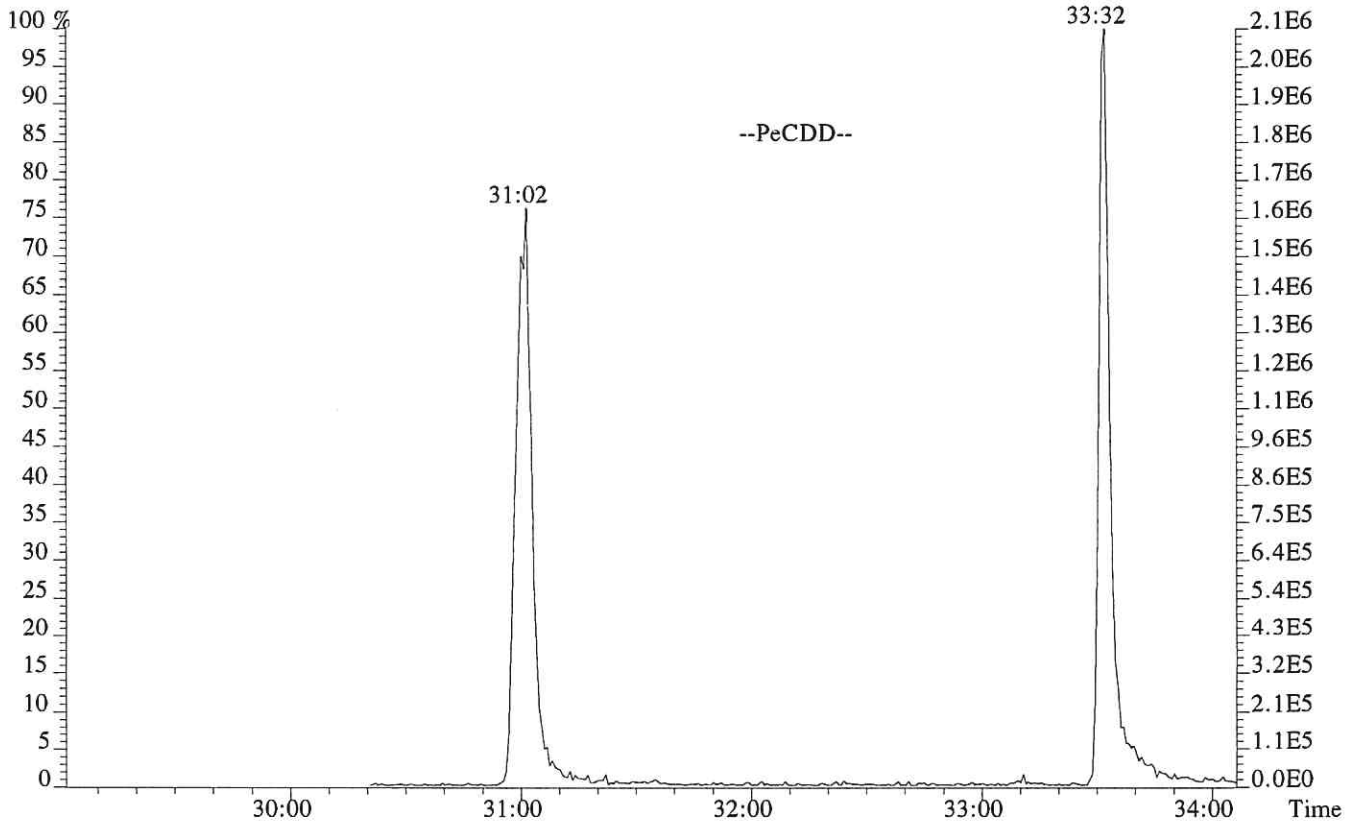
319.8965



File:P615968 #1-552 Acq: 7-DEC-2018 10:37:36 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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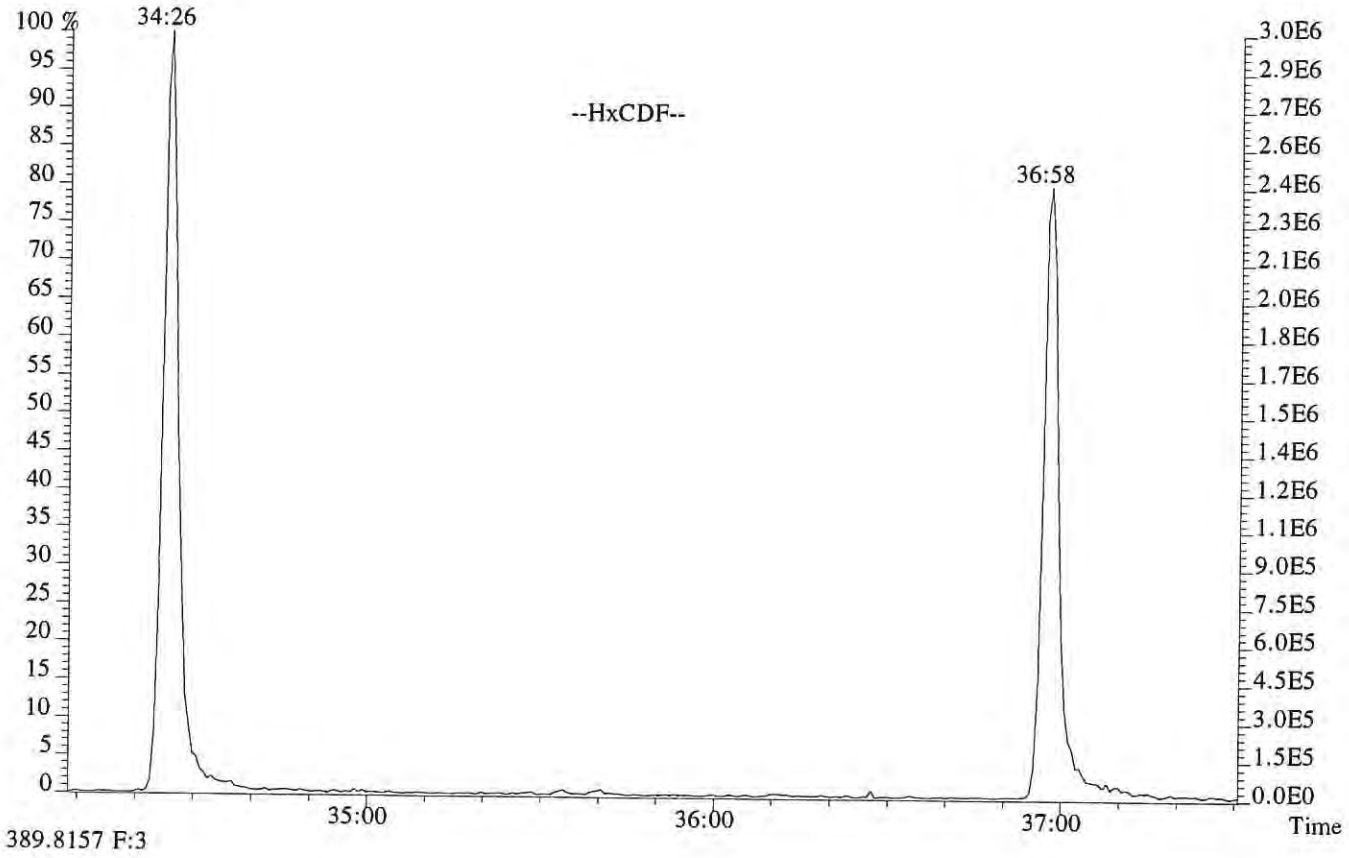
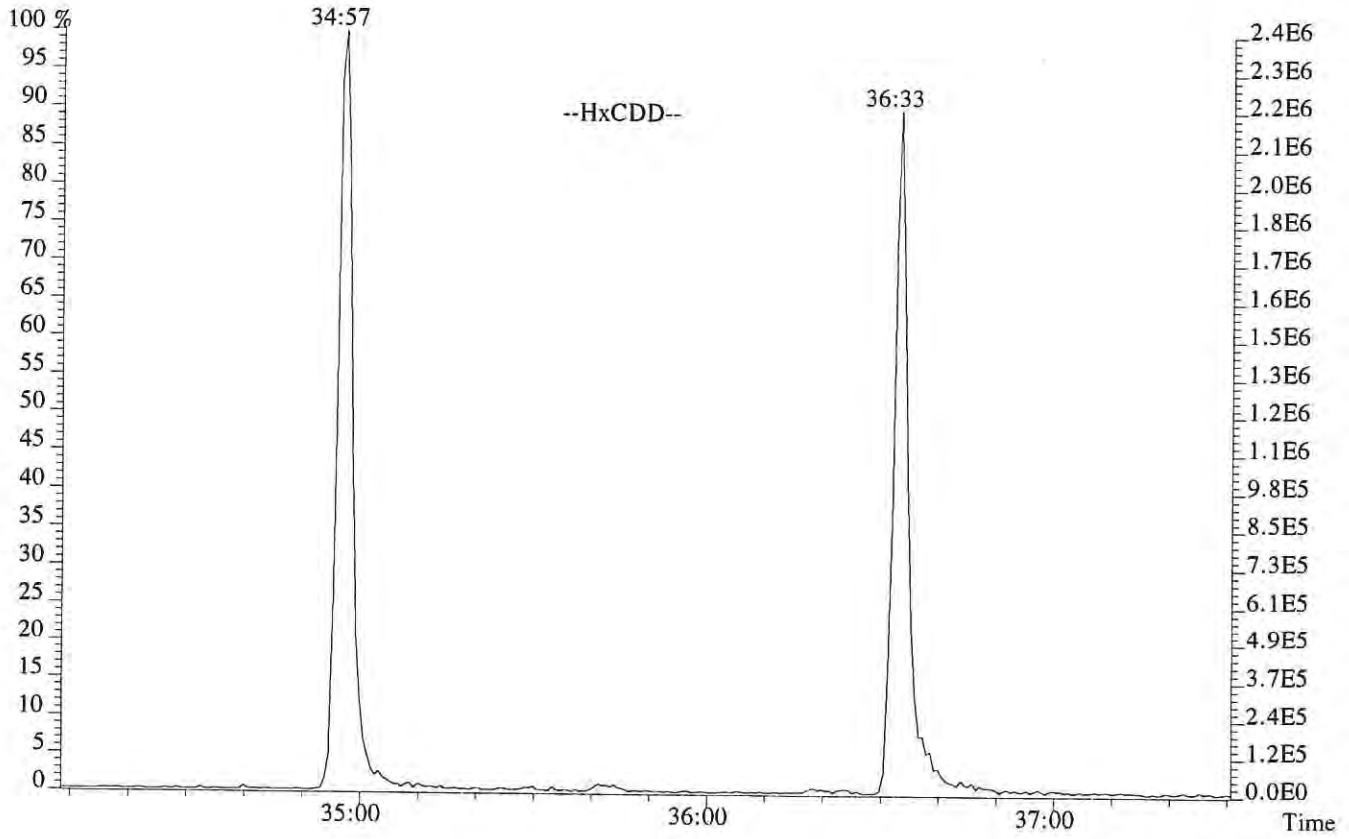
373.8208 F:3



389.8157 F:3



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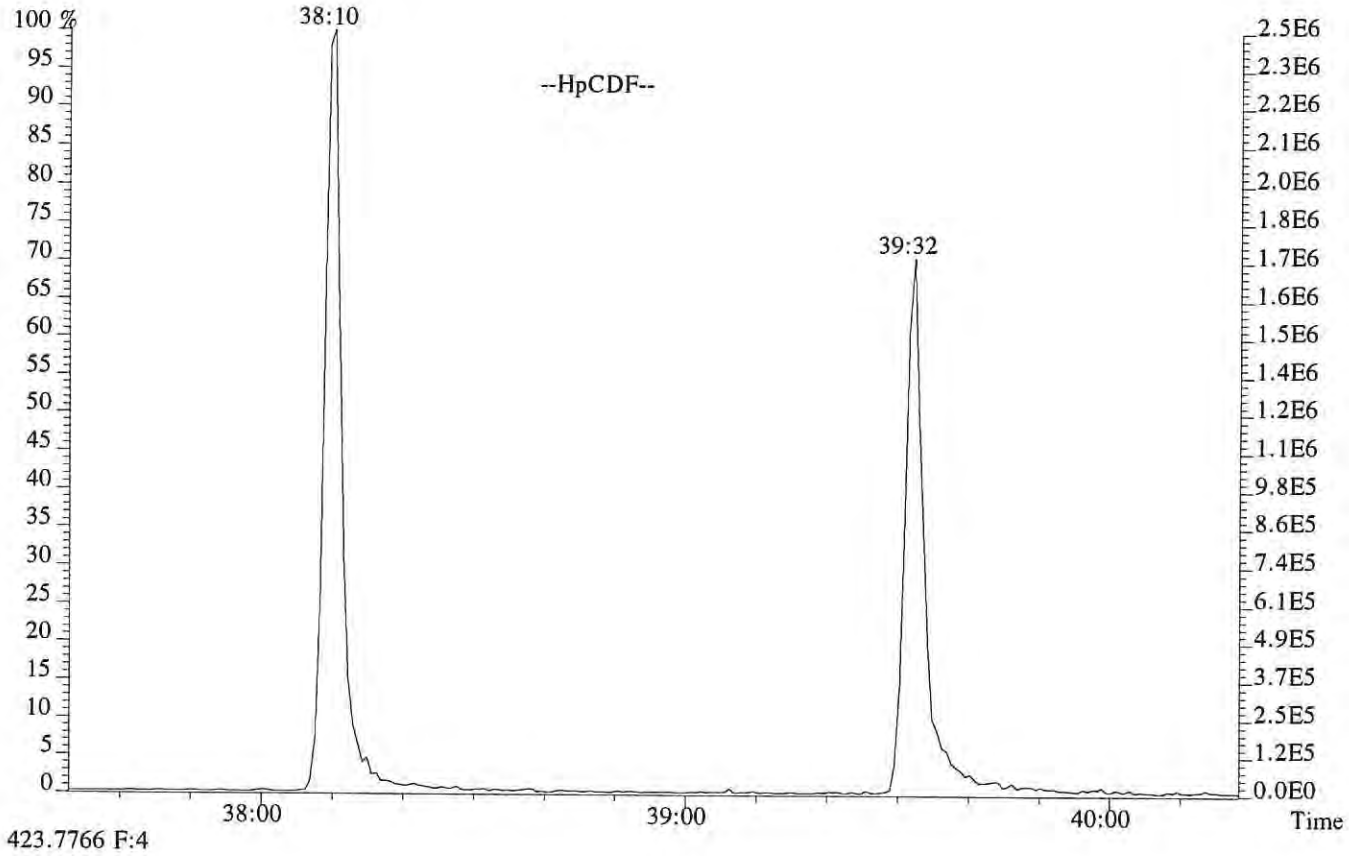
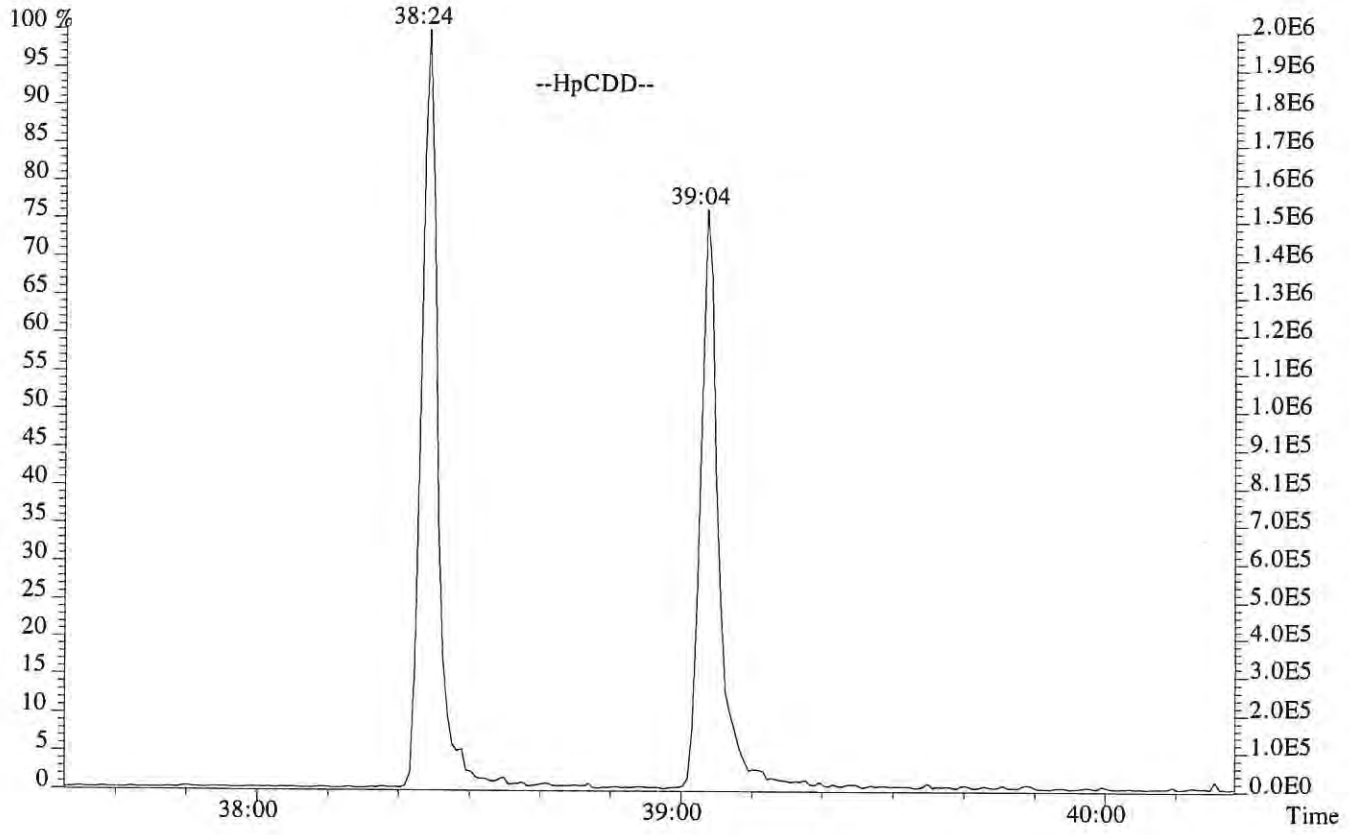
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615967 Analysis Date: 7-DEC-18 Time: 09:44:40

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.8	7.8 - 12.9	-1.6
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-3.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.20	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	48	43 - 58	-4.4
OCDD	M+2/M+4	0.90	0.76-1.02	96	79 - 126	-4.0
2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	9.0	8.4 - 12.0	-10.2
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	46	41 - 60	-8.2
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	46	41 - 61	-8.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	46	45 - 56	-8.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	46	44 - 57	-7.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	46	45 - 56	-8.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	47	44 - 57	-6.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	46	45 - 55	-7.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	46	43 - 58	-8.6
OCDF	M+2/M+4	0.91	0.76-1.02	88	63 - 159	-12.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615967 Analysis Date: 7-DEC-18 Time: 09:44:40

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	102	82 - 121	2.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	93	62 - 160	-7.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 117	-1.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	98	85 - 118	-2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	91	72 - 138	-9.0
13C-OCDD	M+2/M+4	0.90	0.76-1.02	159	96 - 415	-20.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	99	71 - 140	-1.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	95	76 - 130	-5.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	93	77 - 130	-6.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	76 - 131	-5.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	70 - 143	-4.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	93	74 - 135	-7.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	73 - 137	-4.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	89	78 - 129	-10.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	83	77 - 129	-16.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-2.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615967 Samp: 1 Inj: 1 Acquired: 7-DEC-18 09:44:40
Processed: 10-DEC-18 16:28:03 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:38	1.175e+04	1.471e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:57	9.446e+04	6.167e+04	1.53	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	8.769e+04	5.641e+04	1.55	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	7.636e+04	6.054e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	8.110e+04	6.500e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	7.564e+04	6.079e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	6.800e+04	5.374e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	6.311e+04	6.185e+04	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	4.971e+04	4.737e+04	1.05	yes	no	1.463
10	Unk	OCDF	41:57	6.633e+04	7.249e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:27	8.683e+03	1.147e+04	0.76	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	5.703e+04	3.709e+04	1.54	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:19	4.949e+04	3.926e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	4.951e+04	3.930e+04	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:38	5.211e+04	4.353e+04	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	4.061e+04	3.907e+04	1.04	yes	no	1.112
17	Unk	OCDD	41:45	5.292e+04	5.882e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:37	1.202e+05	1.525e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	1.805e+05	1.136e+05	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	1.749e+05	1.100e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	7.273e+04	1.390e+05	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	8.478e+04	1.597e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	7.878e+04	1.499e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	6.996e+04	1.319e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	5.530e+04	1.215e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	4.531e+04	9.986e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:25	8.607e+04	1.090e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:09	1.233e+05	7.932e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:18	9.575e+04	7.504e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	9.495e+04	7.470e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	7.729e+04	7.262e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:44	9.551e+04	1.056e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:48	8.584e+04	1.086e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	1.071e+05	8.509e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:27	2.068e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615967 Samp: 1 Inj: 1 Acquired: 7-DEC-18 09:44:40
Processed: 10-DEC-18 16:28:03 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.80e+06	1.78e+03	1.0e+03	2.21e+06	4.00e+03	5.5e+02
2	1,2,3,7,8-PeCDF	1.65e+07	7.76e+02	2.1e+04	1.06e+07	2.87e+03	3.7e+03
3	2,3,4,7,8-PeCDF	1.67e+07	7.76e+02	2.1e+04	1.07e+07	2.87e+03	3.7e+03
4	1,2,3,4,7,8-HxCDF	1.66e+07	1.60e+03	1.0e+04	1.32e+07	7.28e+02	1.8e+04
5	1,2,3,6,7,8-HxCDF	1.67e+07	1.60e+03	1.0e+04	1.35e+07	7.28e+02	1.9e+04
6	2,3,4,6,7,8-HxCDF	1.65e+07	1.60e+03	1.0e+04	1.32e+07	7.28e+02	1.8e+04
7	1,2,3,7,8,9-HxCDF	1.39e+07	1.60e+03	8.7e+03	1.10e+07	7.28e+02	1.5e+04
8	1,2,3,4,6,7,8-HpCDF	1.39e+07	7.22e+03	1.9e+03	1.37e+07	2.15e+03	6.4e+03
9	1,2,3,4,7,8,9-HpCDF	9.56e+06	7.22e+03	1.3e+03	9.17e+06	2.15e+03	4.3e+03
10	OCDF	1.18e+07	7.88e+02	1.5e+04	1.27e+07	1.92e+03	6.6e+03
11	2,3,7,8-TCDD	1.48e+06	5.02e+03	3.0e+02	1.90e+06	2.54e+03	7.5e+02
12	1,2,3,7,8-PeCDD	1.07e+07	1.37e+03	7.8e+03	6.91e+06	4.84e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	1.11e+07	5.64e+02	2.0e+04	8.74e+06	8.88e+02	9.8e+03
14	1,2,3,6,7,8-HxCDD	1.06e+07	5.64e+02	1.9e+04	8.33e+06	8.88e+02	9.4e+03
15	1,2,3,7,8,9-HxCDD	1.12e+07	5.64e+02	2.0e+04	9.03e+06	8.88e+02	1.0e+04
16	1,2,3,4,6,7,8-HpCDD	8.66e+06	1.26e+03	6.9e+03	8.34e+06	1.45e+03	5.7e+03
17	OCDD	9.55e+06	7.36e+02	1.3e+04	1.07e+07	6.96e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.82e+07	9.18e+03	2.0e+03	2.30e+07	6.64e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.05e+07	1.97e+03	1.5e+04	1.95e+07	1.63e+03	1.2e+04
20	13C-2,3,4,7,8-PeCDF	3.32e+07	1.97e+03	1.7e+04	2.08e+07	1.63e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.59e+07	2.23e+03	7.1e+03	3.03e+07	2.29e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.76e+07	2.23e+03	7.9e+03	3.31e+07	2.29e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.70e+07	2.23e+03	7.6e+03	3.26e+07	2.29e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.44e+07	2.23e+03	6.5e+03	2.72e+07	2.29e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.22e+07	3.22e+03	3.8e+03	2.69e+07	6.65e+03	4.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.66e+06	3.22e+03	2.7e+03	1.92e+07	6.65e+03	2.9e+03
27	13C-2,3,7,8-TCDD	1.44e+07	1.66e+04	8.7e+02	1.83e+07	8.46e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	2.26e+07	1.45e+03	1.6e+04	1.44e+07	1.68e+03	8.6e+03
29	13C-1,2,3,4,7,8-HxCDD	2.14e+07	2.61e+03	8.2e+03	1.65e+07	1.37e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.98e+07	2.61e+03	7.6e+03	1.56e+07	1.37e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.65e+07	1.76e+03	9.4e+03	1.53e+07	5.04e+02	3.0e+04
32	13C-OCDD	1.72e+07	1.45e+03	1.2e+04	1.92e+07	3.00e+02	6.4e+04
33	13C-1,2,3,4-TCDD	1.44e+07	1.66e+04	8.7e+02	1.82e+07	8.46e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.23e+07	2.61e+03	8.5e+03	1.77e+07	1.37e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.40e+06	2.43e+03	1.4e+03			

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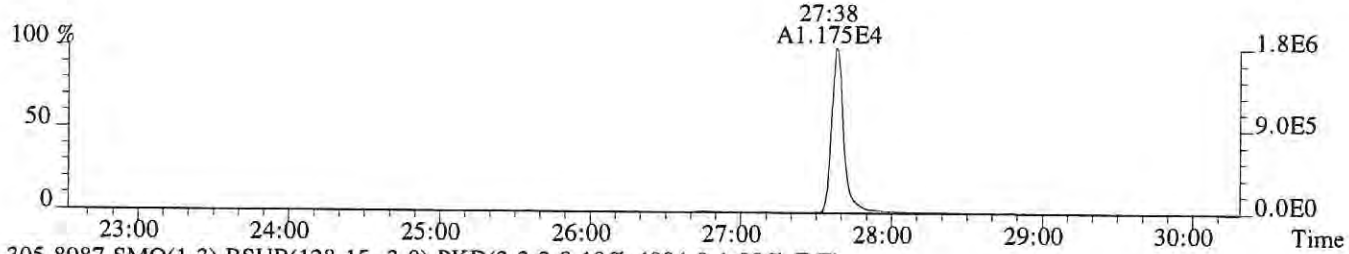
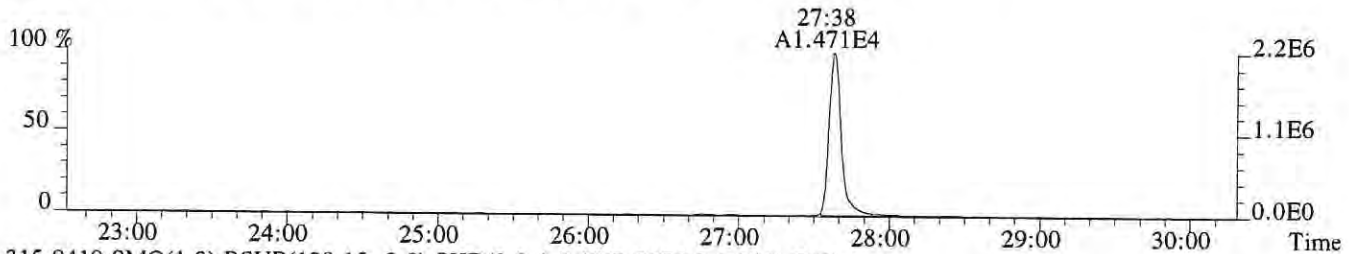
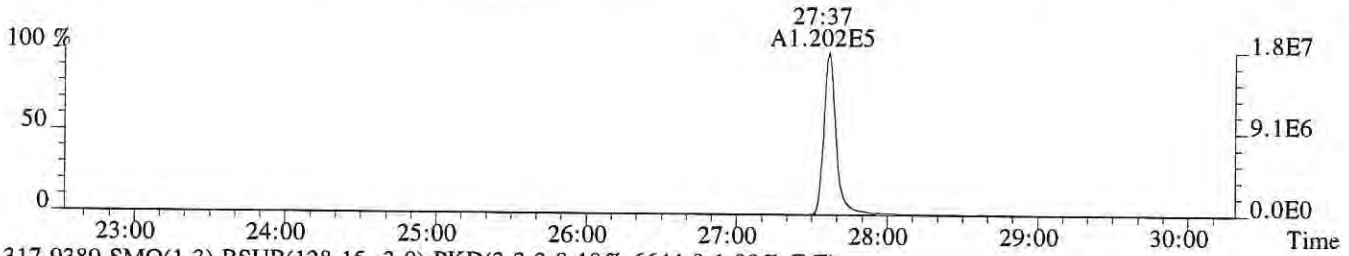
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



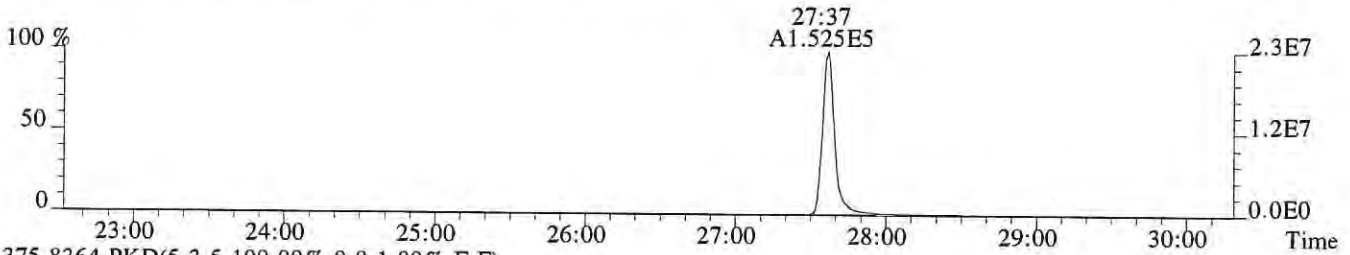
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4004.0,1.00%,F,T)



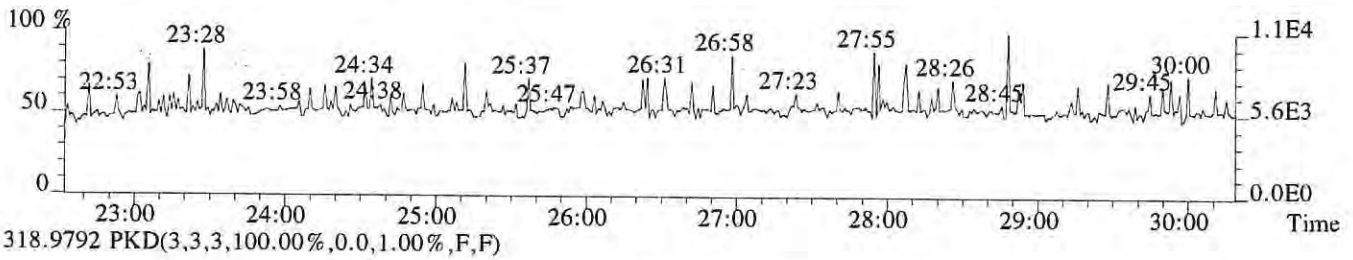
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9176.0,1.00%,F,T)



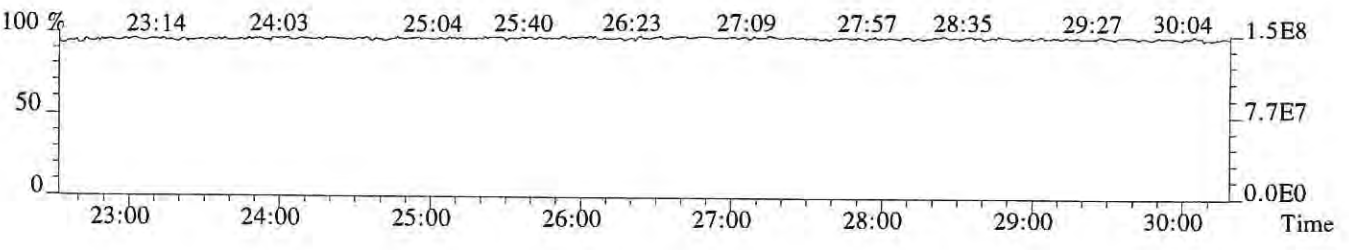
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



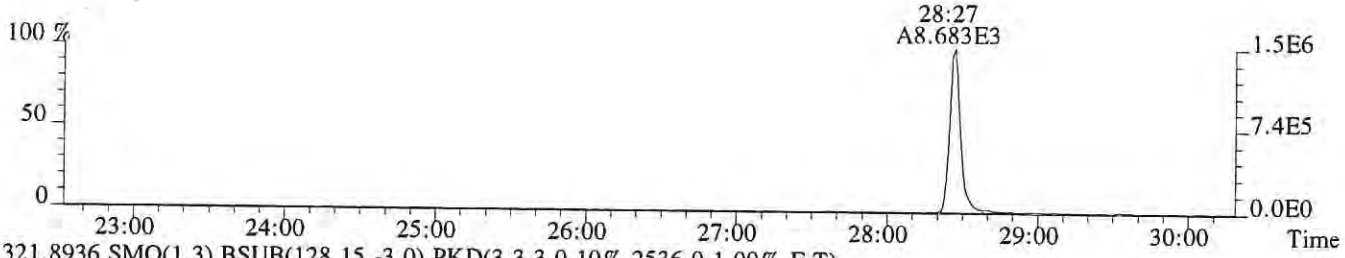
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



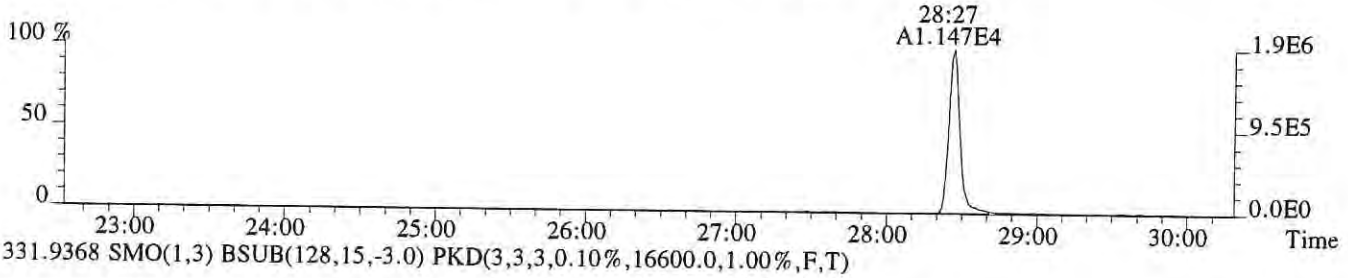
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



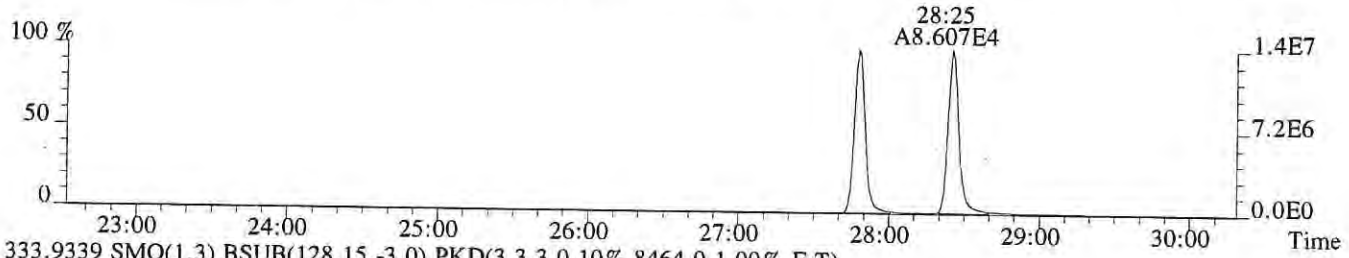
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5020.0,1.00%,F,T)



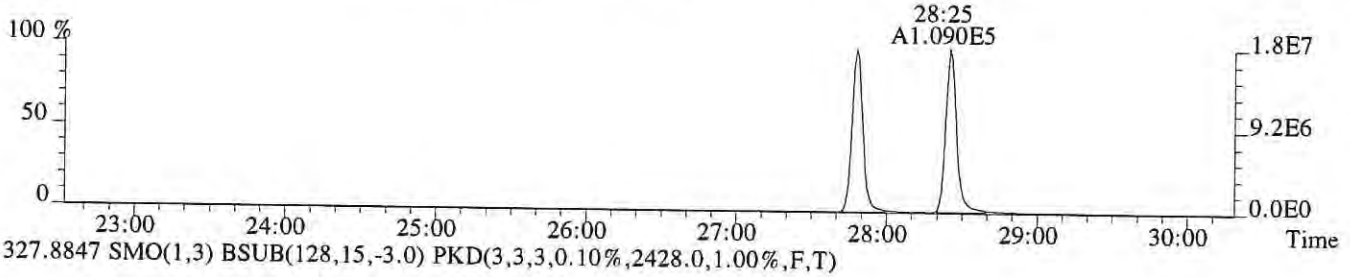
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



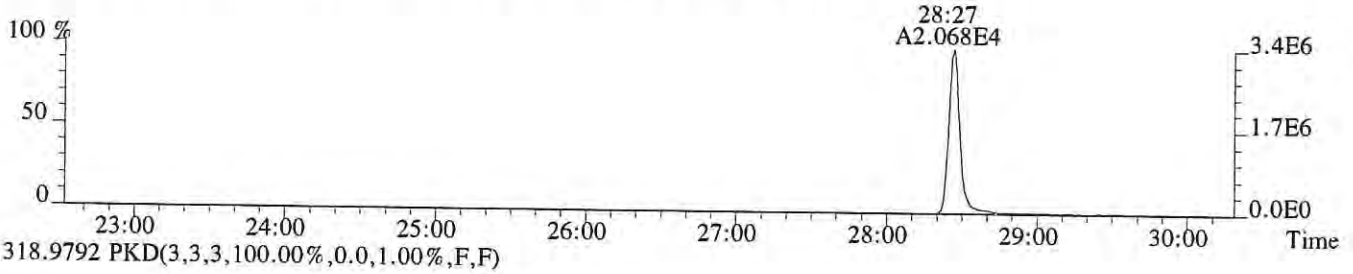
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16600.0,1.00%,F,T)



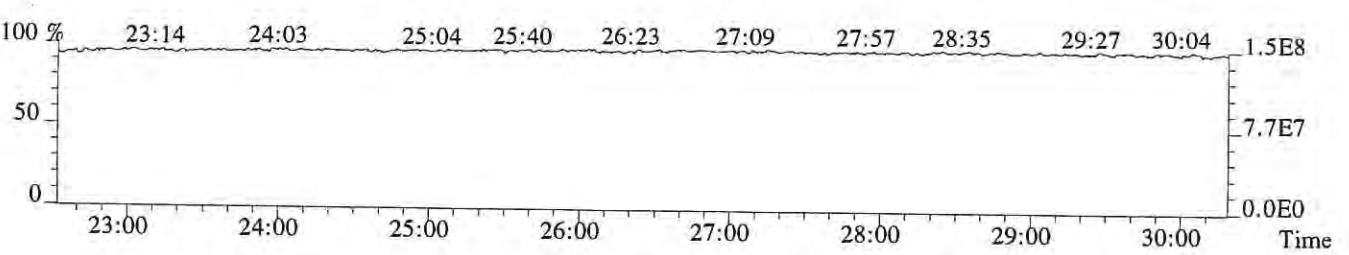
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8464.0,1.00%,F,T)



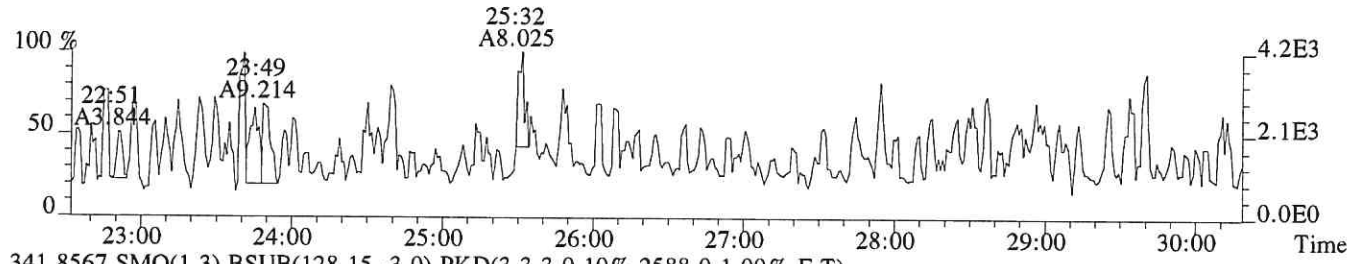
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



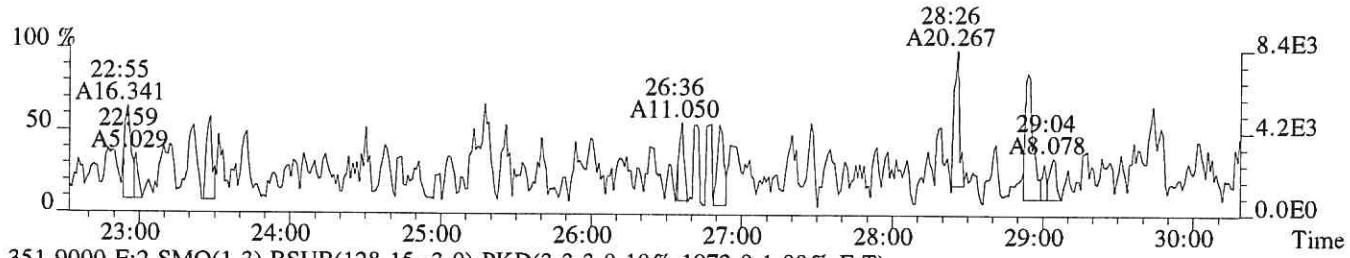
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



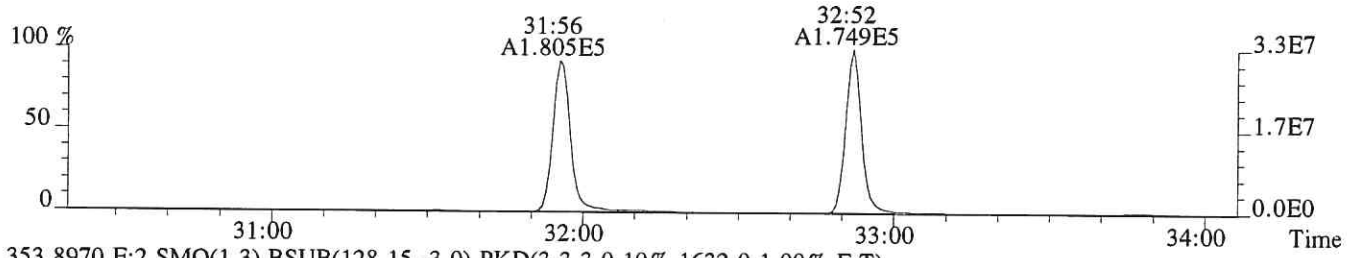
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



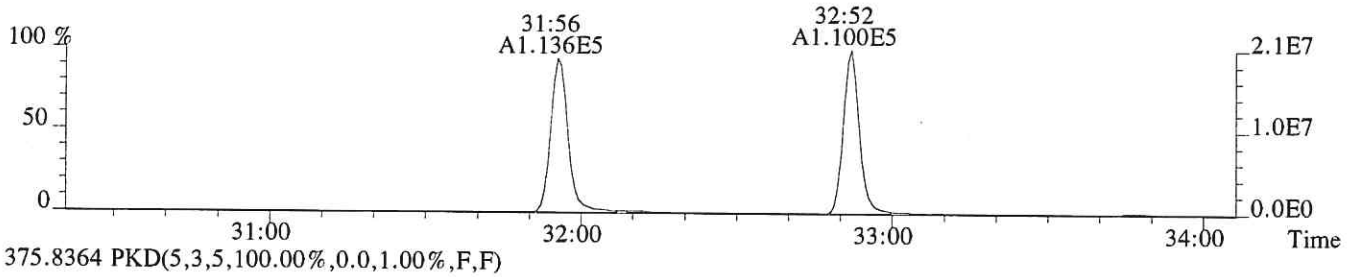
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



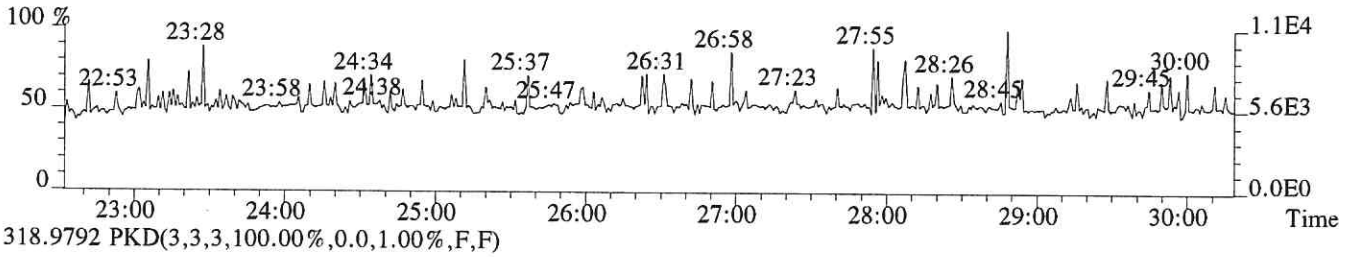
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



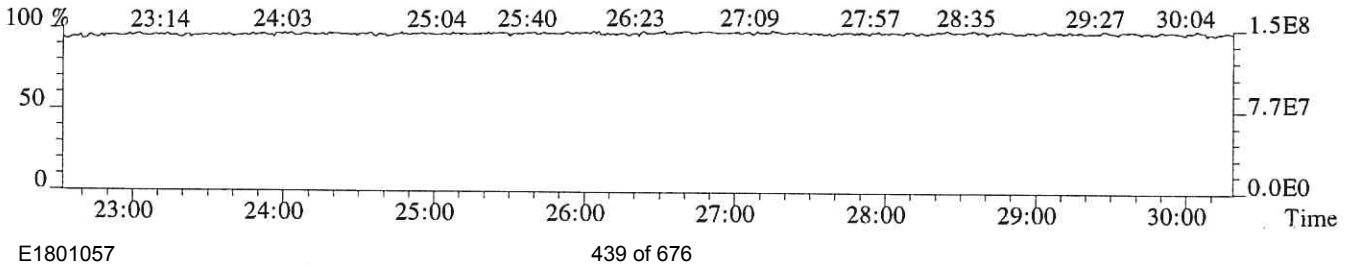
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



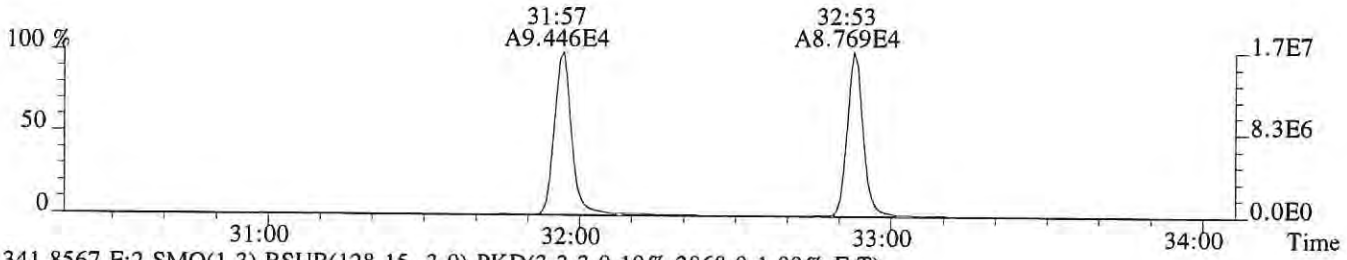
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



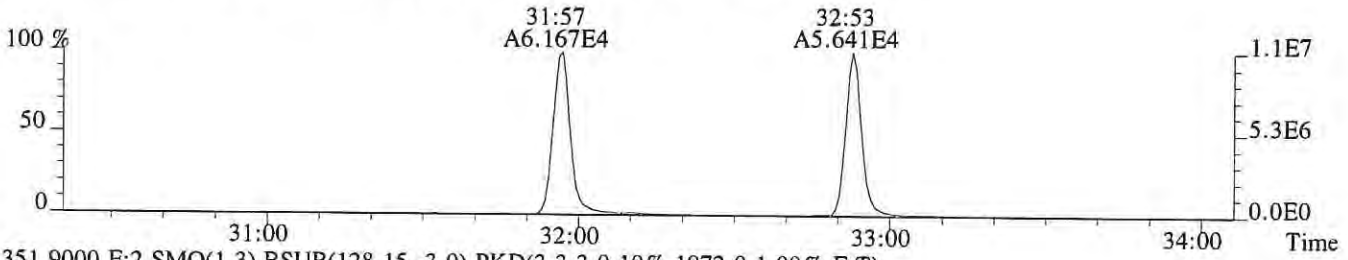
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



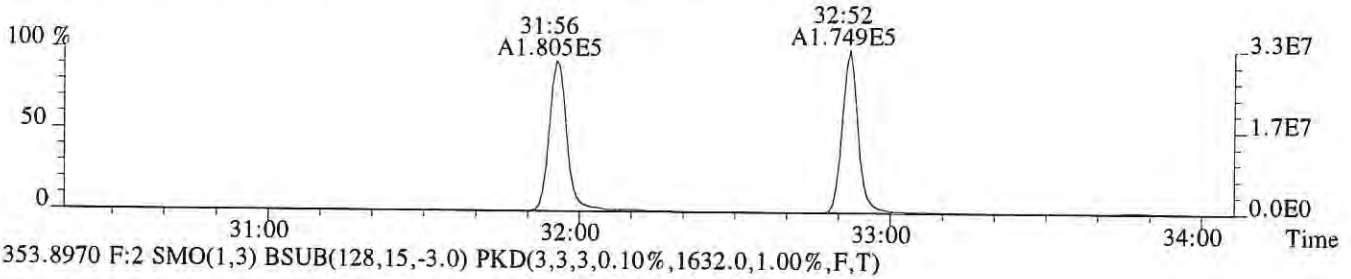
File:P615967 #1-339 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



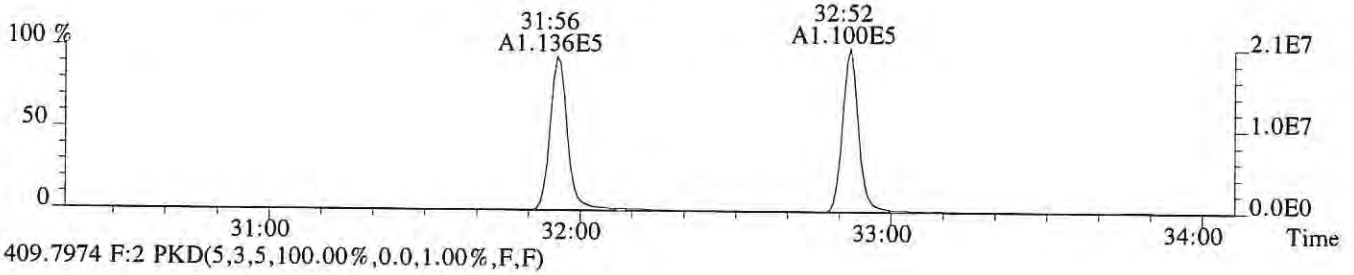
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)



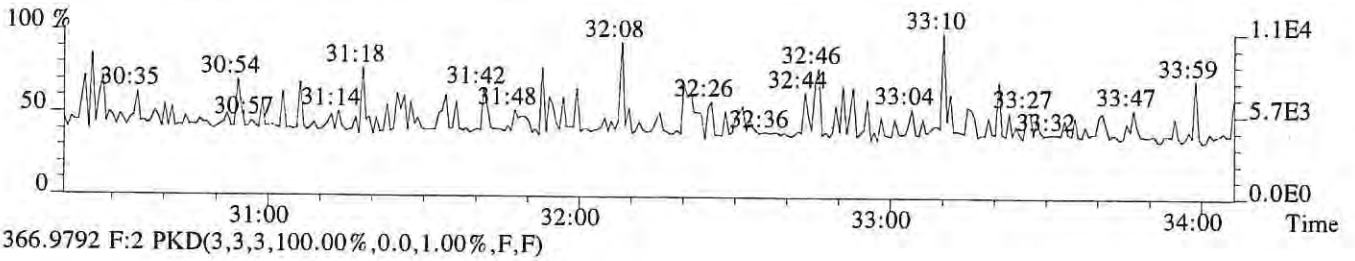
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



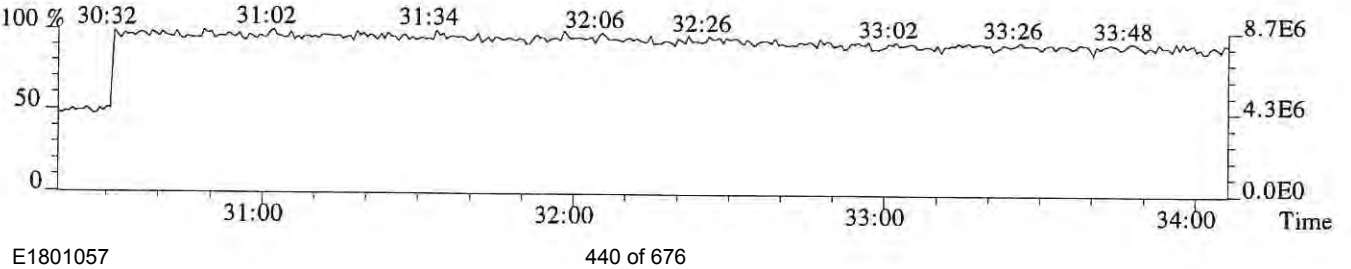
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



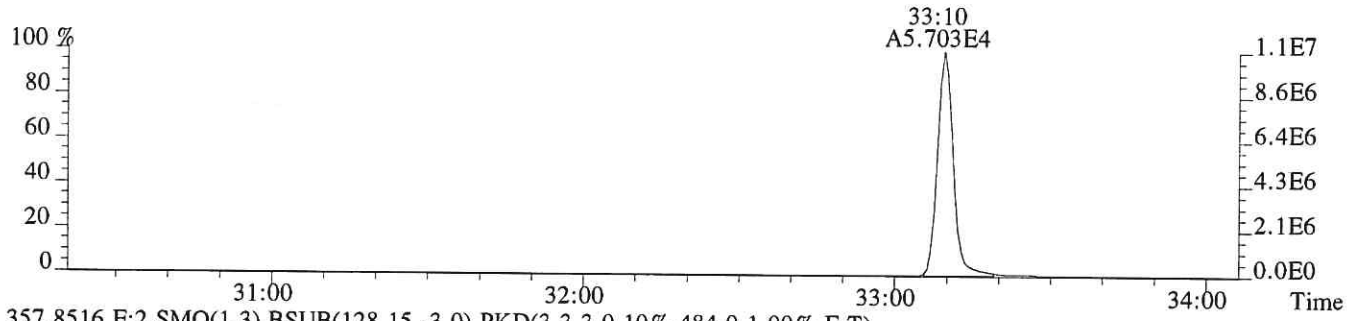
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



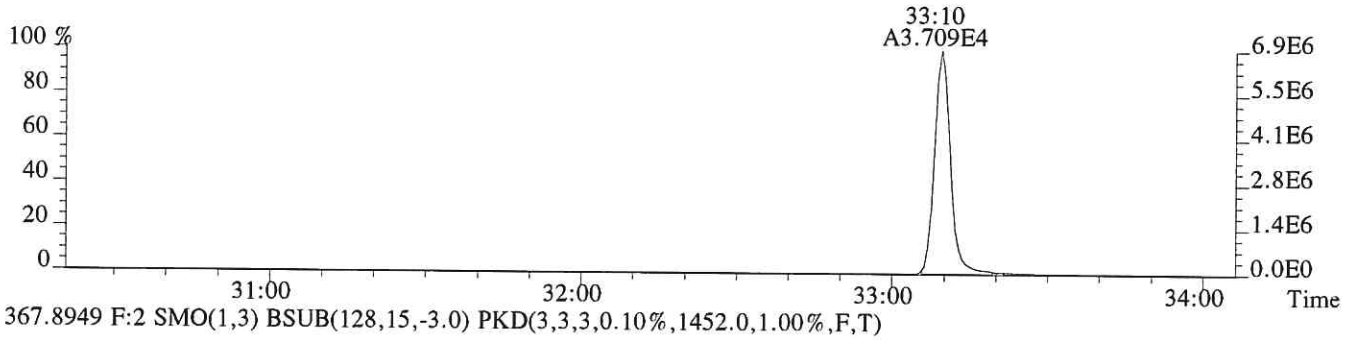
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



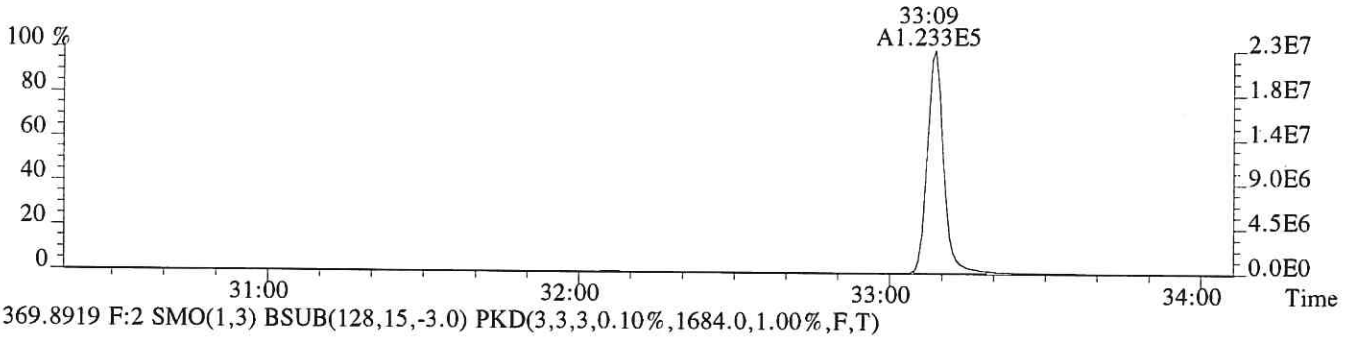
File:P615967 #1-339 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



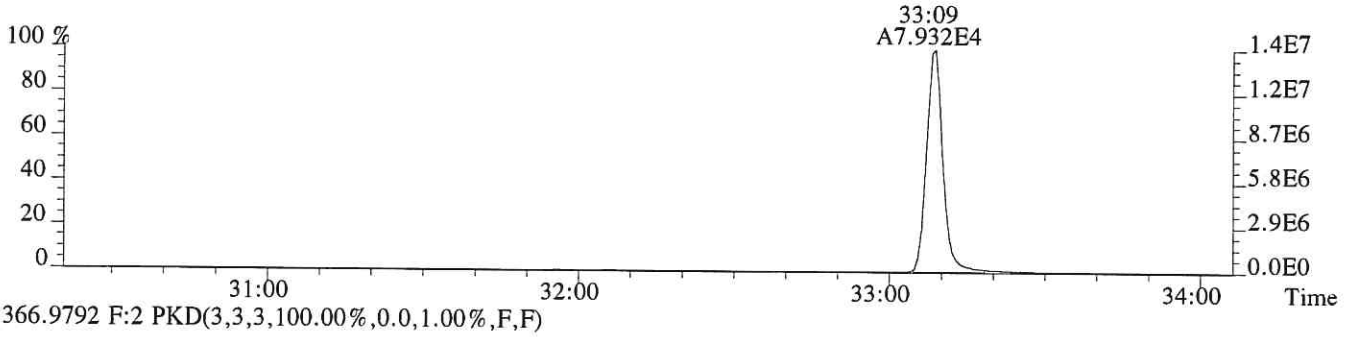
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



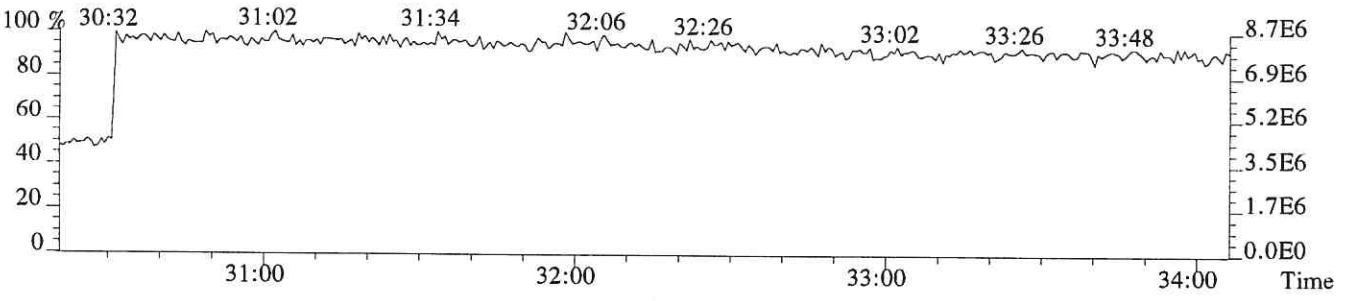
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



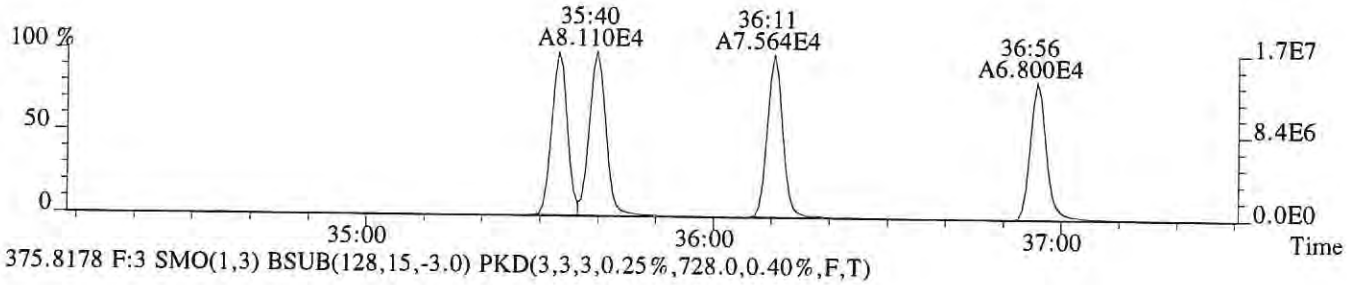
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



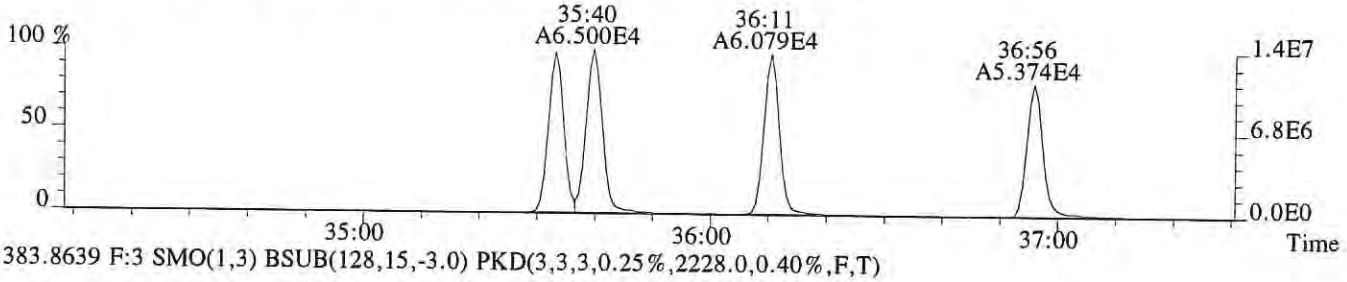
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



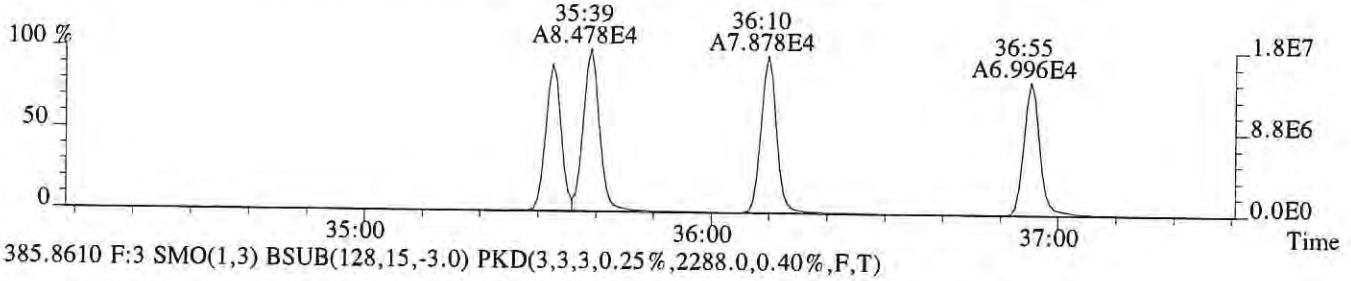
File:P615967 #1-304 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



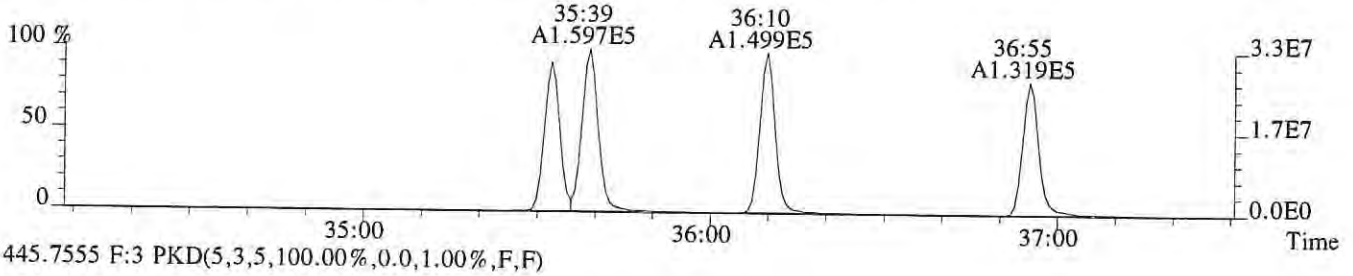
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



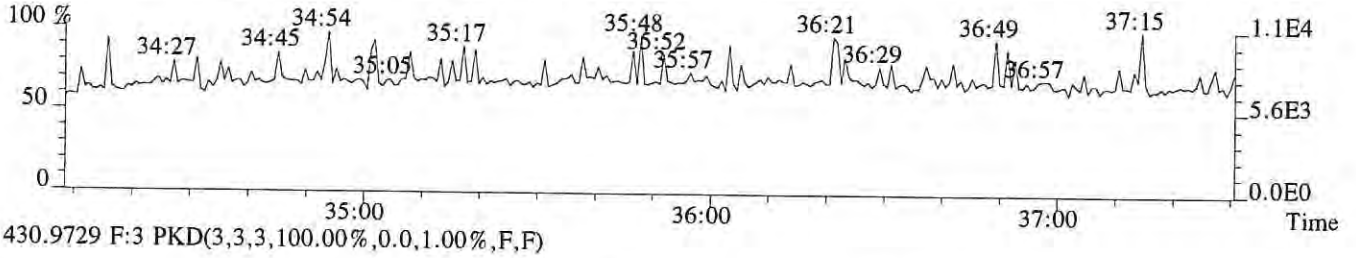
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2228.0,0.40%,F,T)



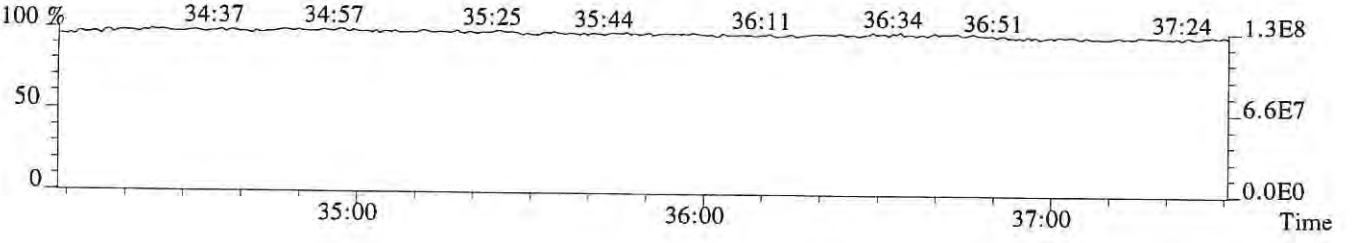
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2288.0,0.40%,F,T)



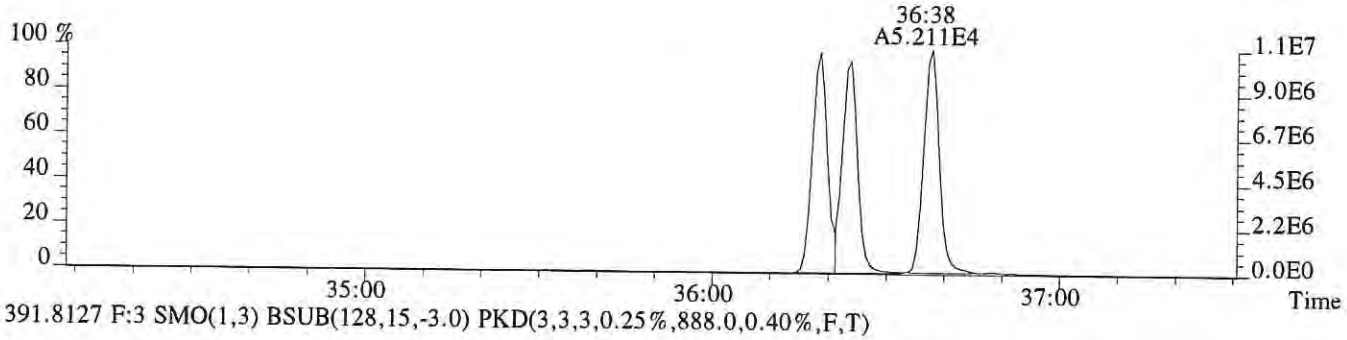
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



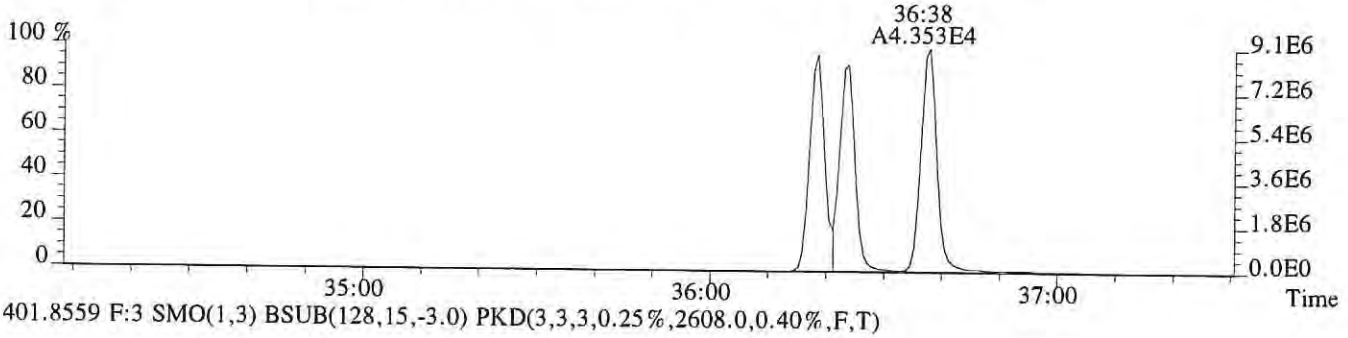
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



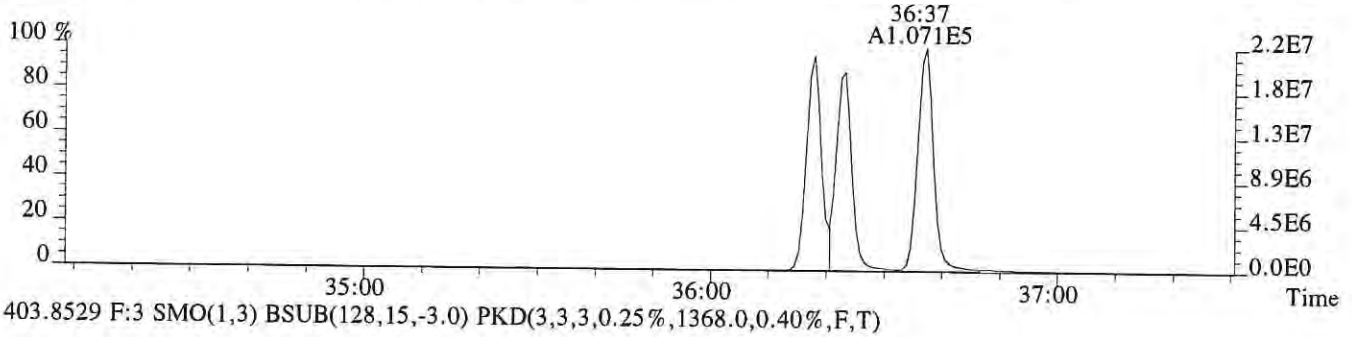
File:P615967 #1-304 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



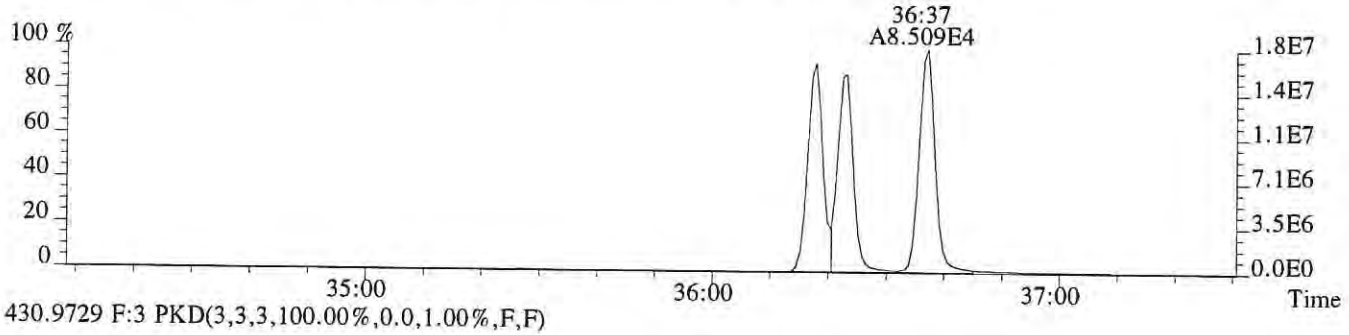
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



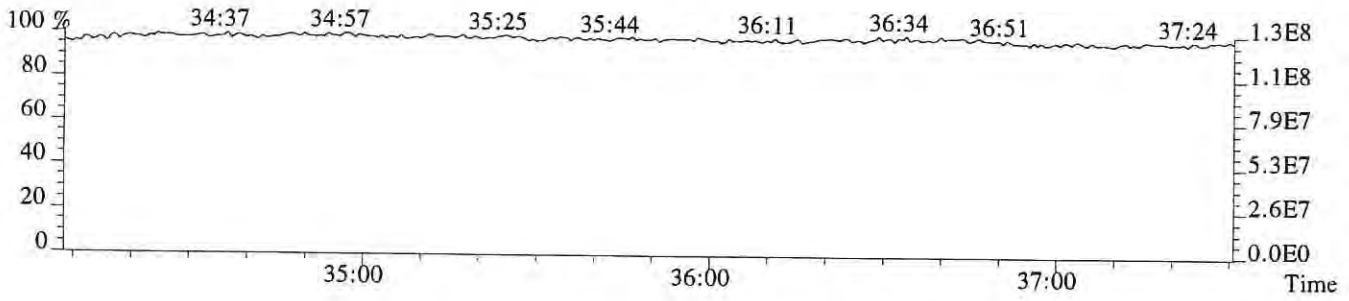
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



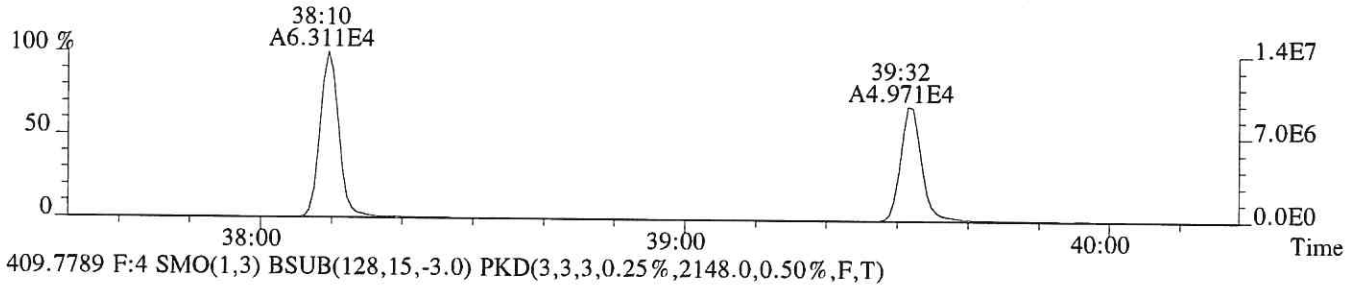
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



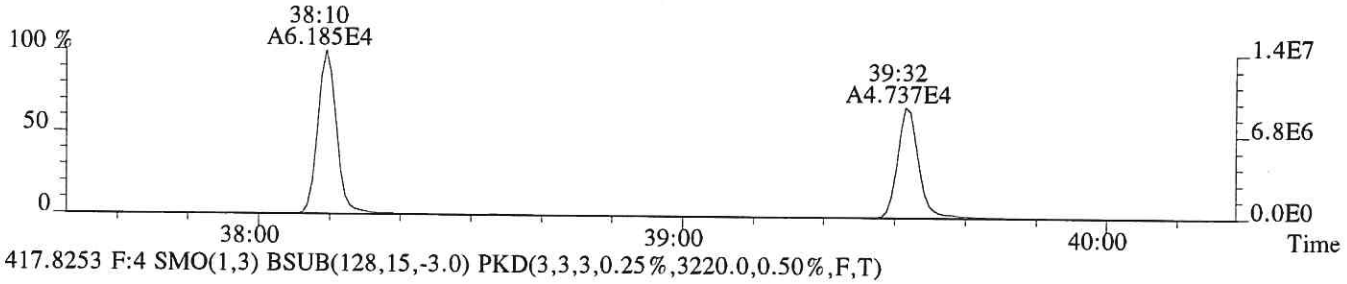
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



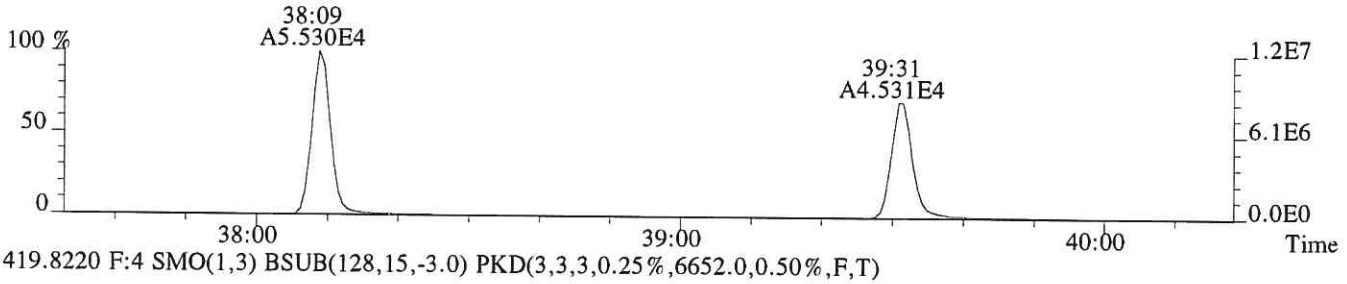
File:P615967 #1-249 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7216.0,0.50%,F,T)



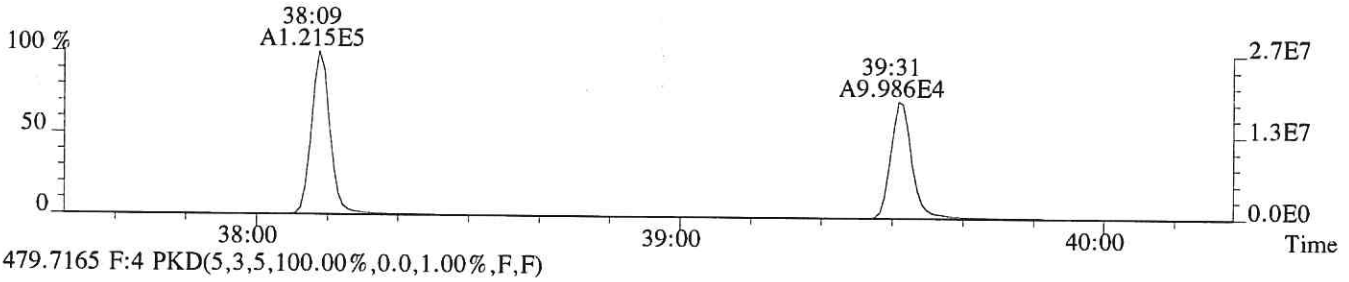
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.50%,F,T)



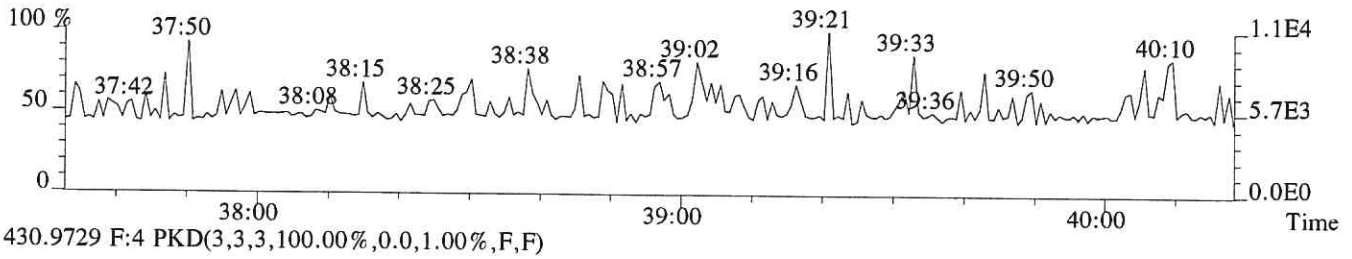
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3220.0,0.50%,F,T)



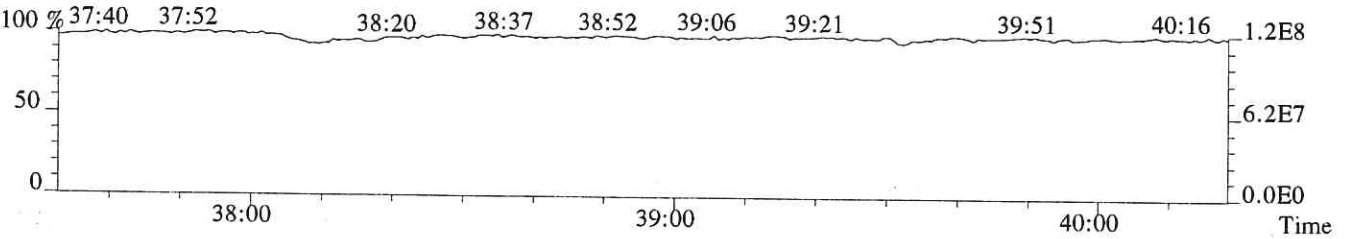
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6652.0,0.50%,F,T)



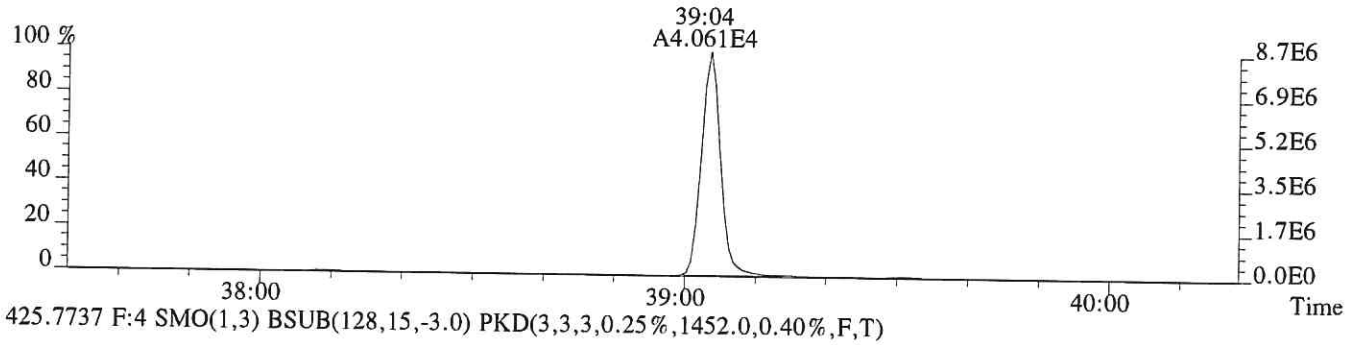
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



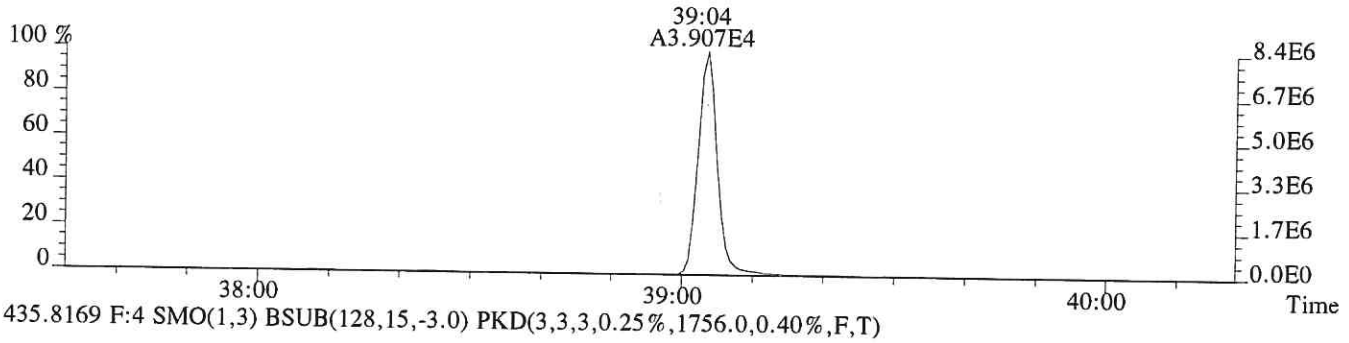
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



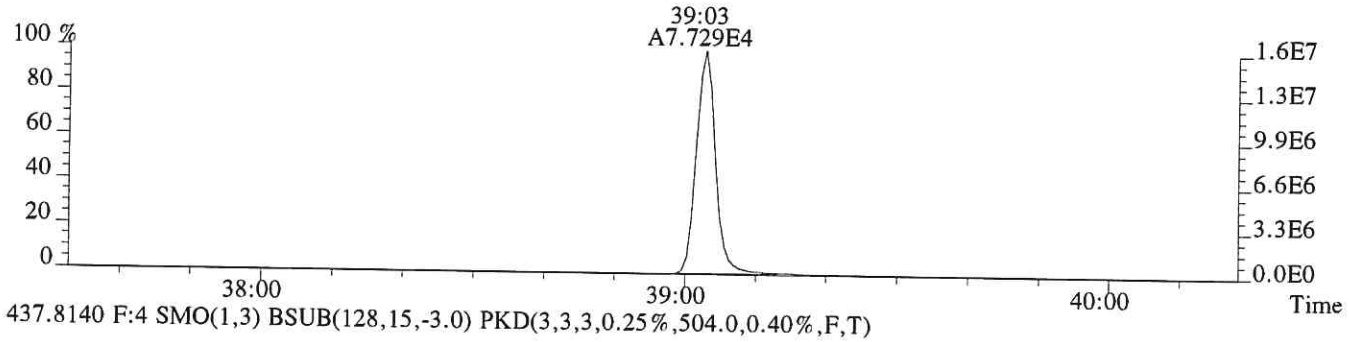
File:P615967 #1-249 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



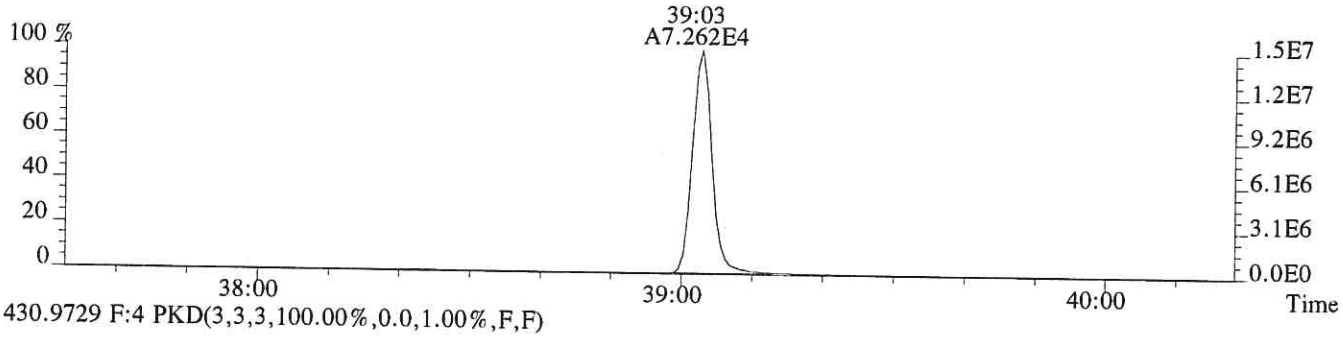
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.40%,F,T)



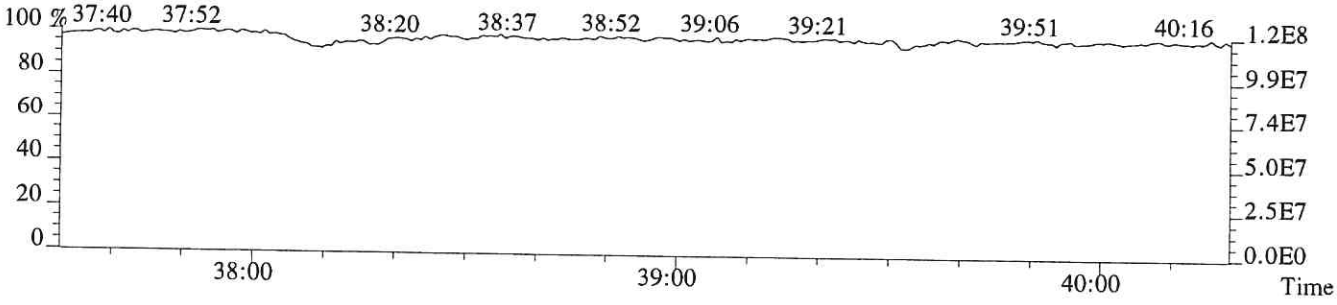
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.40%,F,T)



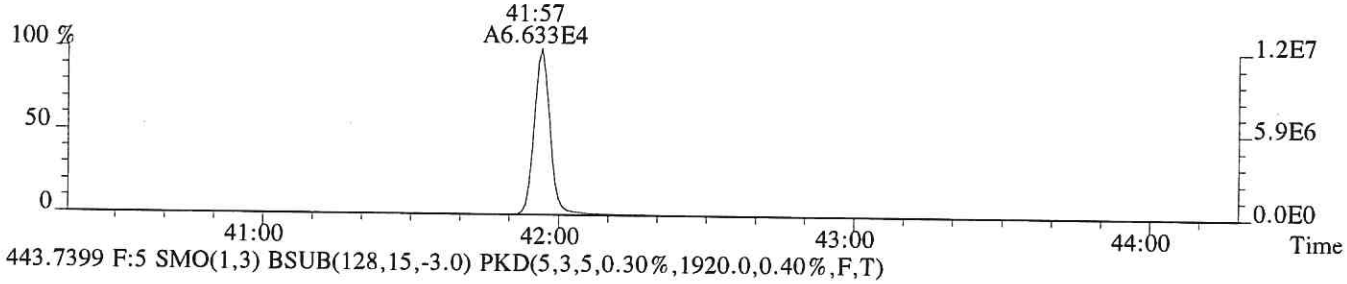
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



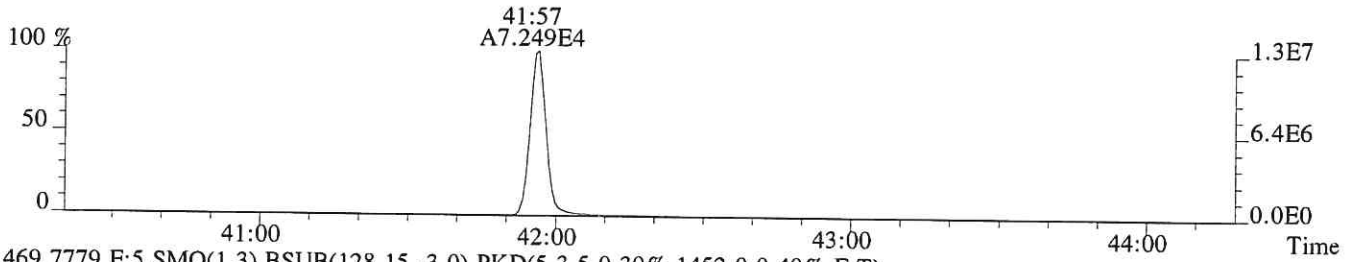
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



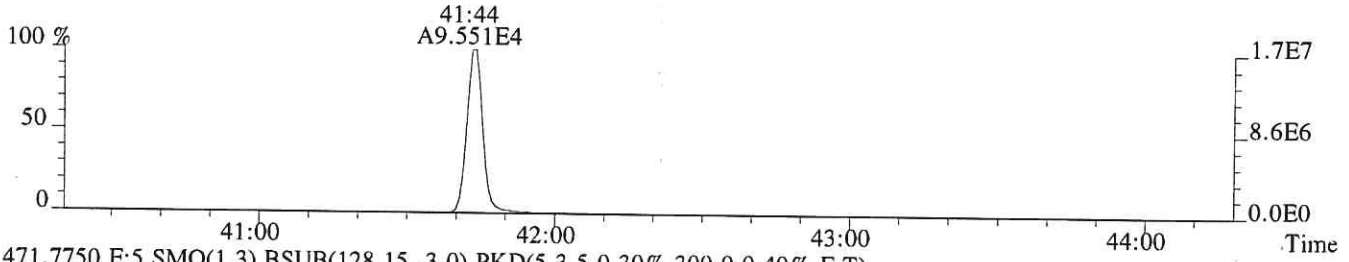
File:P615967 #1-357 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



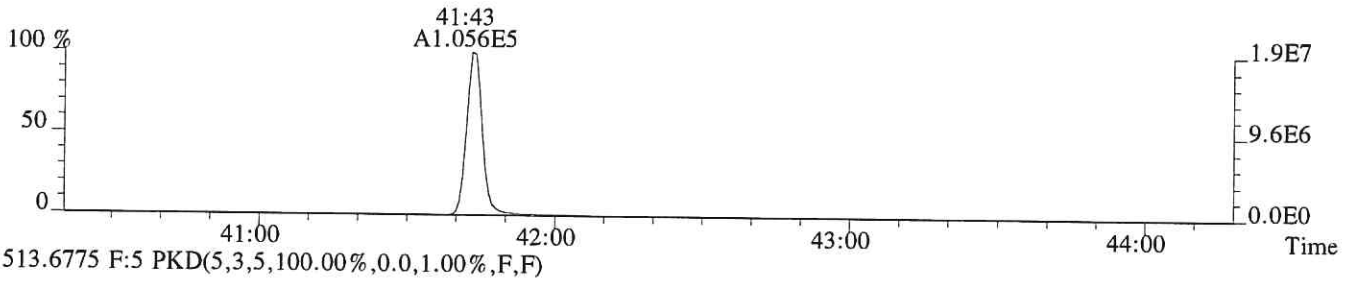
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1920.0,0.40%,F,T)



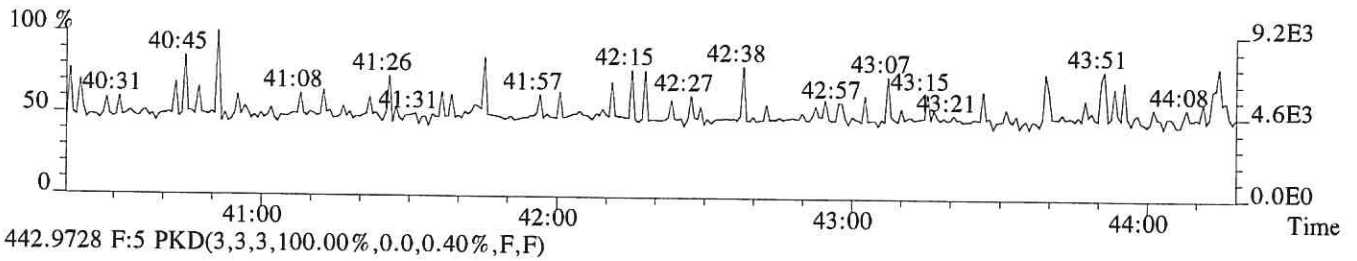
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1452.0,0.40%,F,T)



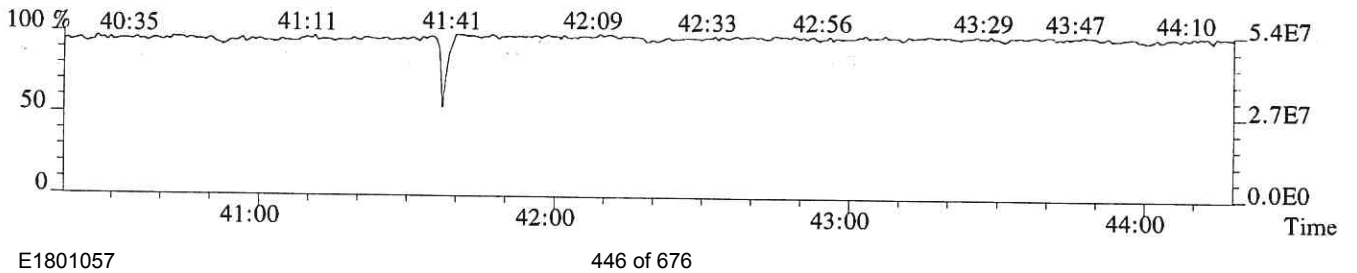
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



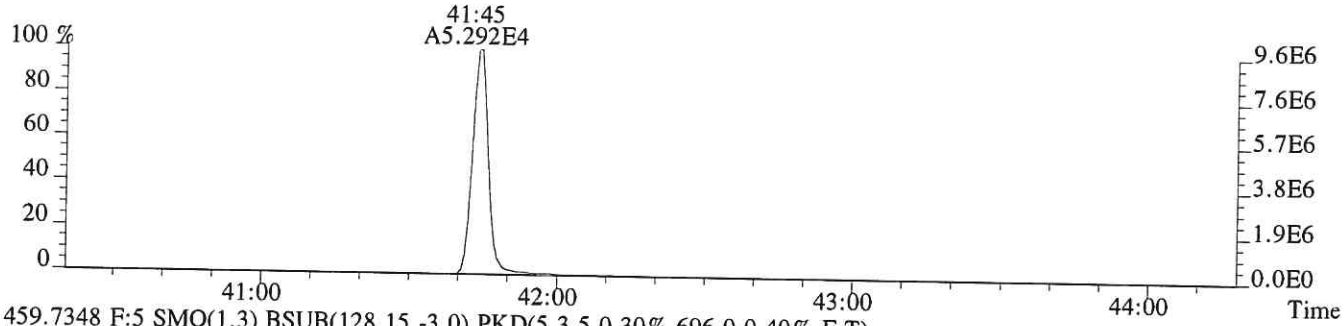
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



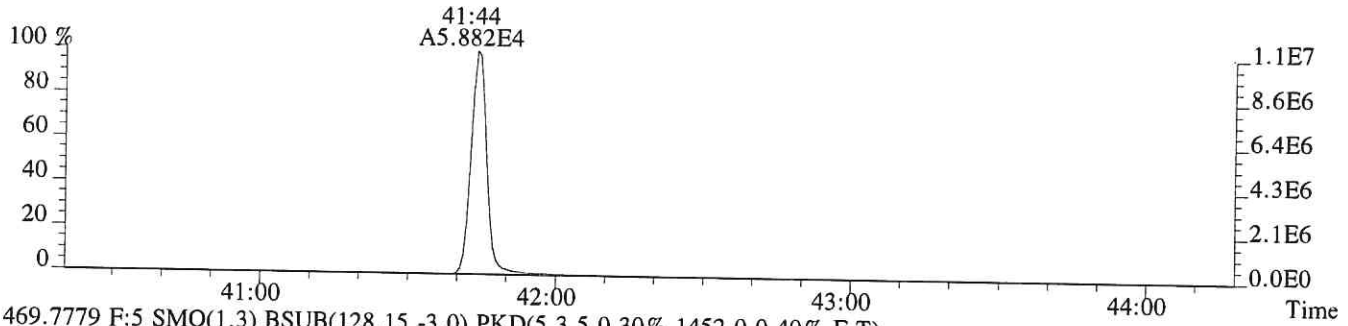
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



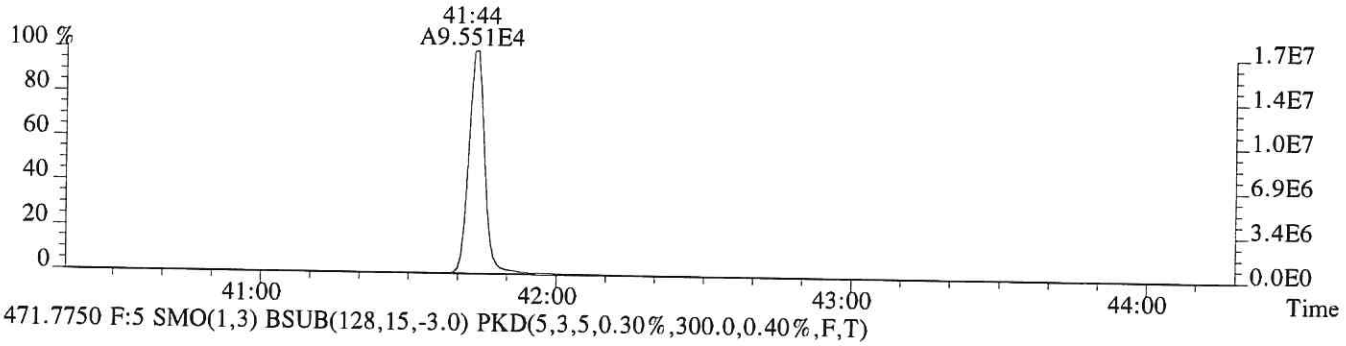
File:P615967 #1-357 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



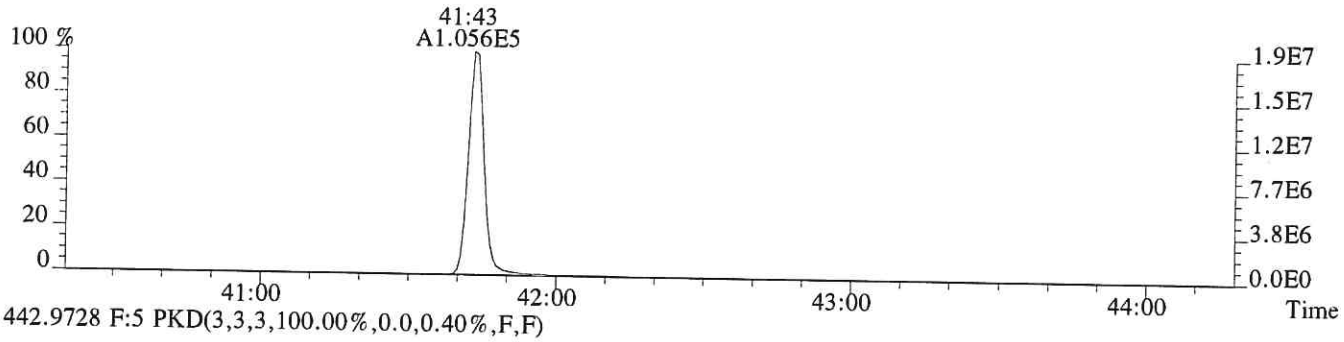
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



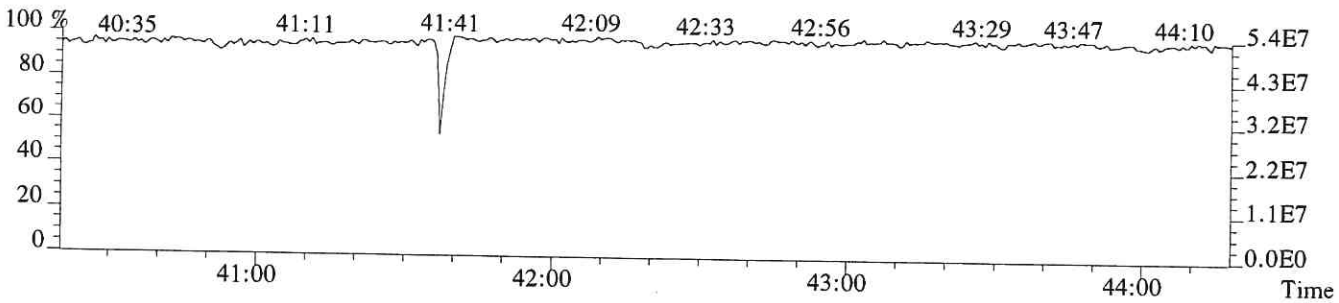
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1452.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Opus 4: P5-180124l613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:38	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	LB	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ LB 1/24/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

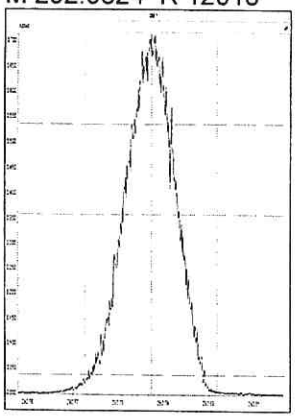
gc 01/25/18

* gc 01/25/18

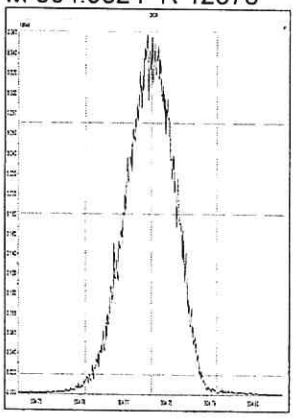
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

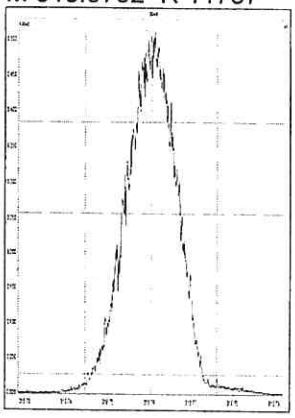
M 292.9824 R 12018



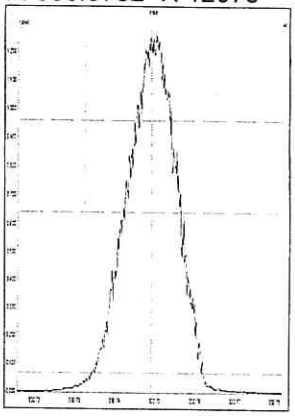
M 304.9824 R 12378



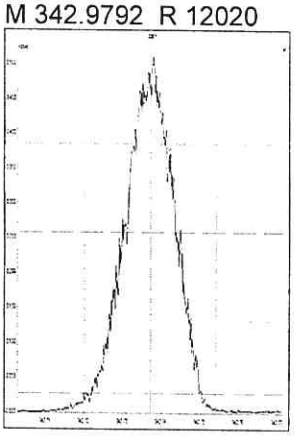
M 318.9792 R 11737



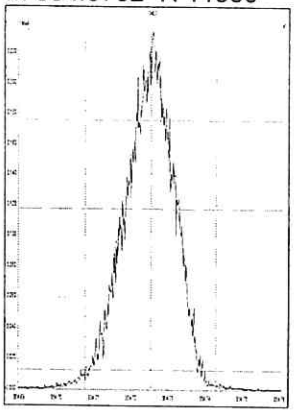
M 330.9792 R 12075



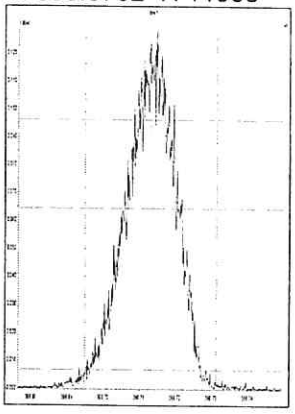
M 342.9792 R 12020



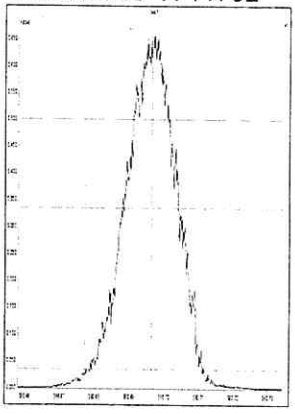
M 354.9792 R 11680



M 366.9792 R 11963



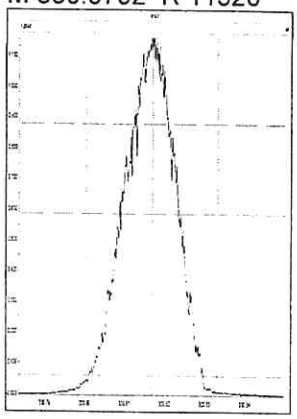
M 380.9760 R 11792



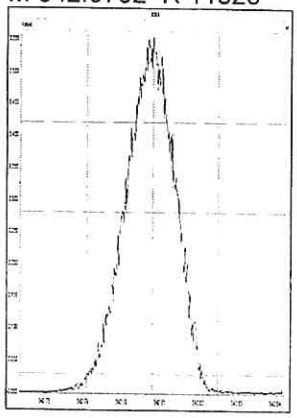
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

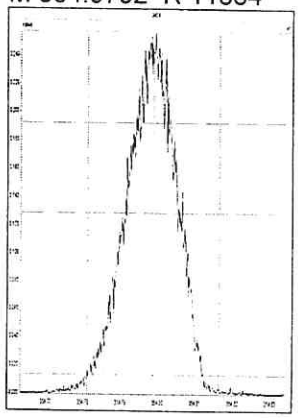
M 330.9792 R 11520



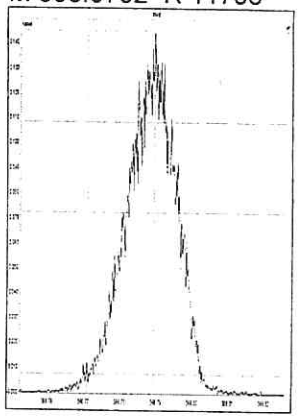
M 342.9792 R 11625



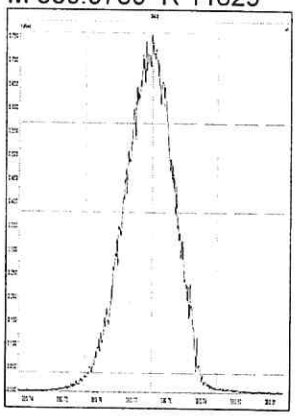
M 354.9792 R 11364



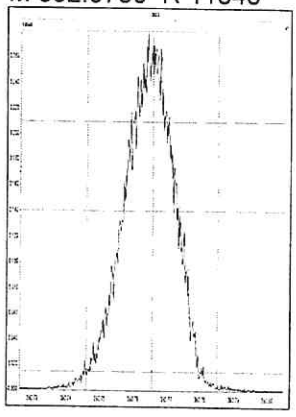
M 366.9792 R 11796



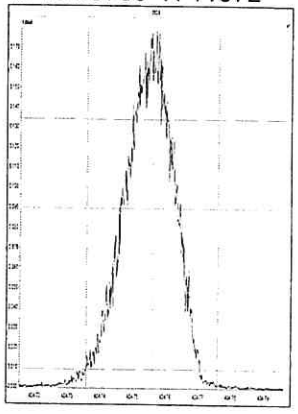
M 380.9760 R 11629



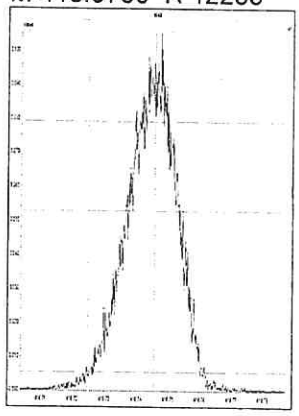
M 392.9760 R 11848



M 404.9760 R 11572



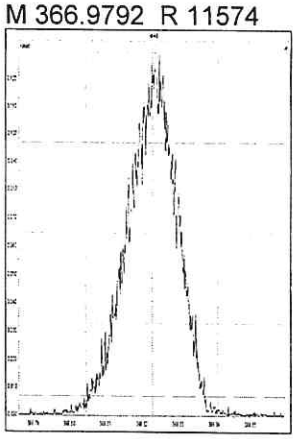
M 416.9760 R 12255



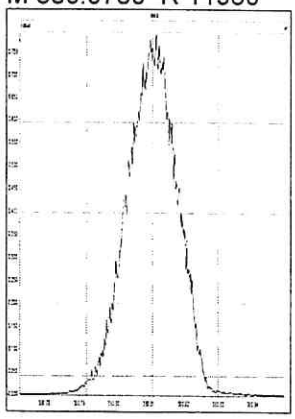
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

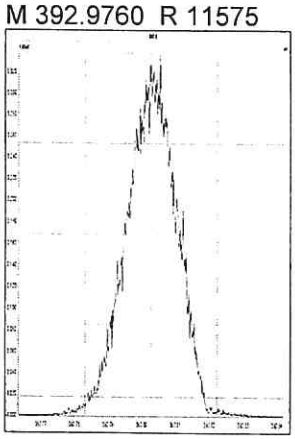
M 366.9792 R 11574



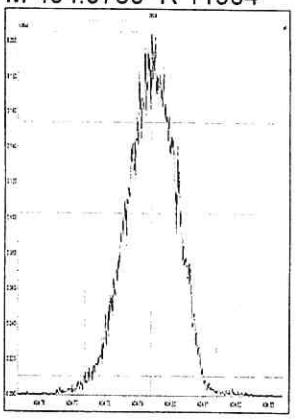
M 380.9760 R 11960



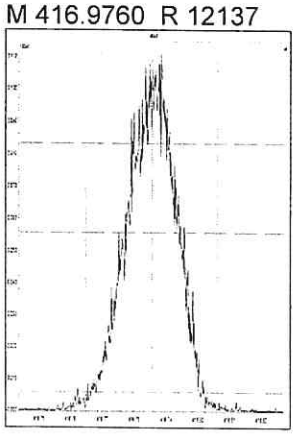
M 392.9760 R 11575



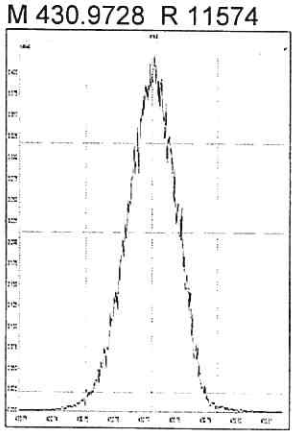
M 404.9760 R 11904



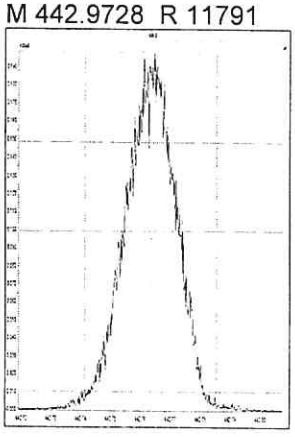
M 416.9760 R 12137



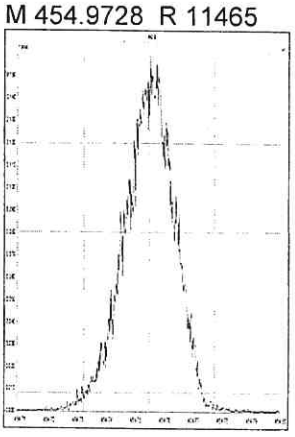
M 430.9728 R 11574



M 442.9728 R 11791



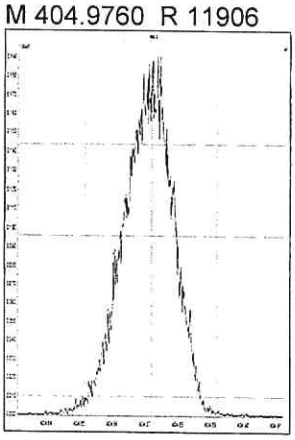
M 454.9728 R 11465



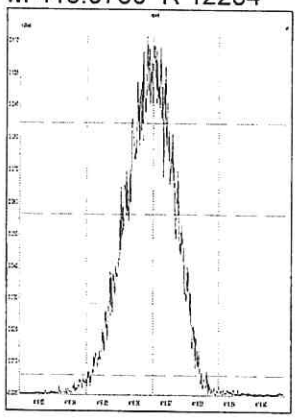
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

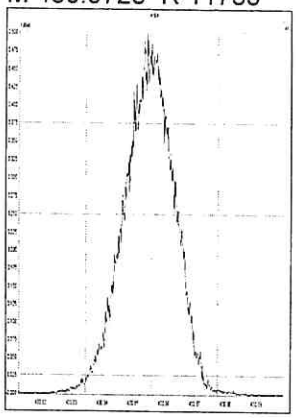
M 404.9760 R 11906



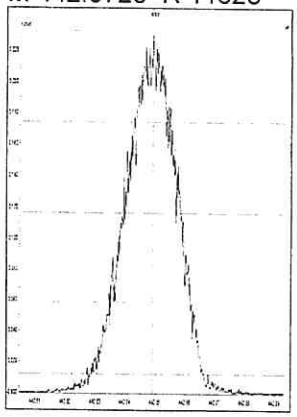
M 416.9760 R 12254



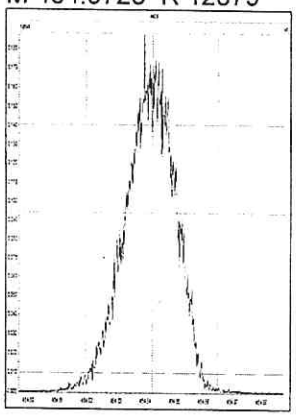
M 430.9728 R 11735



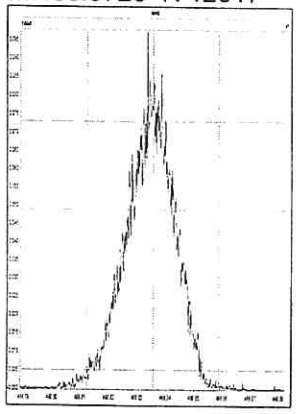
M 442.9728 R 11628



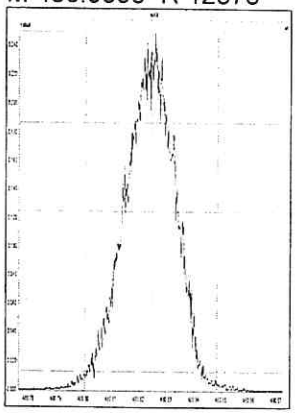
M 454.9728 R 12379



M 466.9728 R 12017



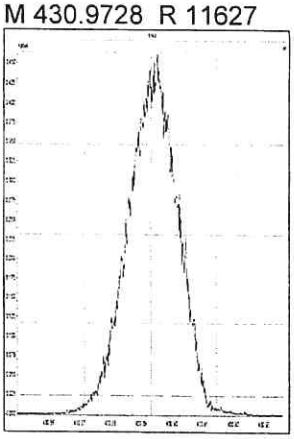
M 480.9696 R 12376



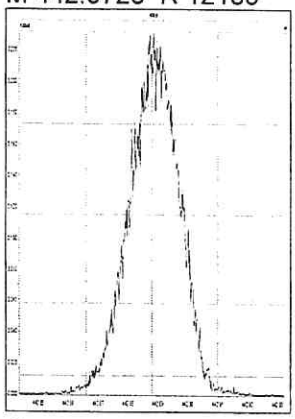
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

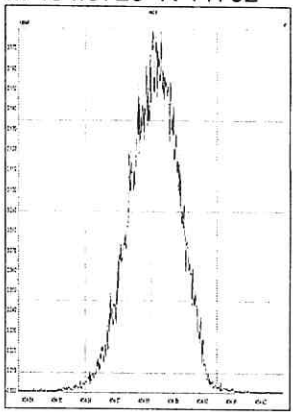
M 430.9728 R 11627



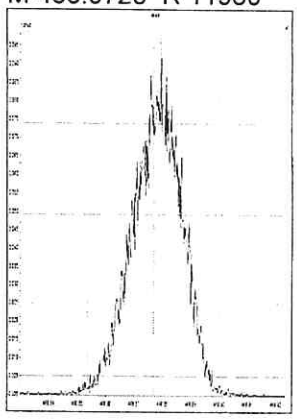
M 442.9728 R 12133



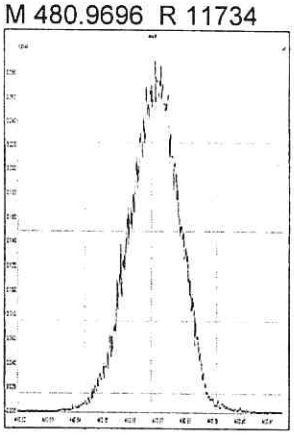
M 454.9728 R 11792



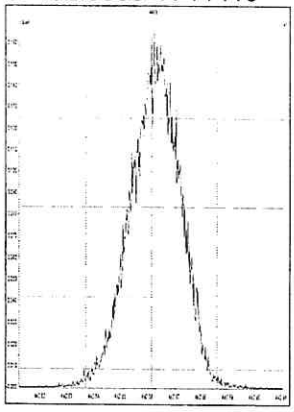
M 466.9728 R 11960



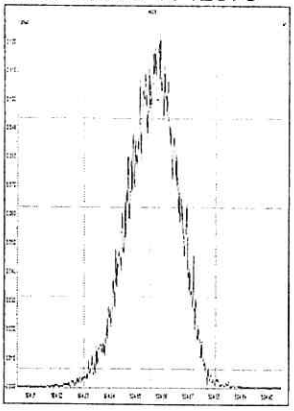
M 480.9696 R 11734



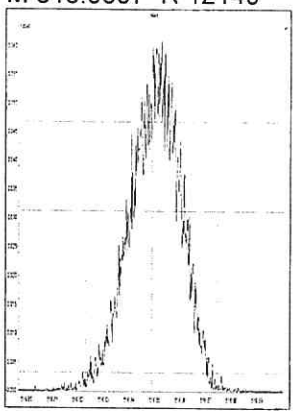
M 492.9696 R 11415



M 504.9696 R 12075



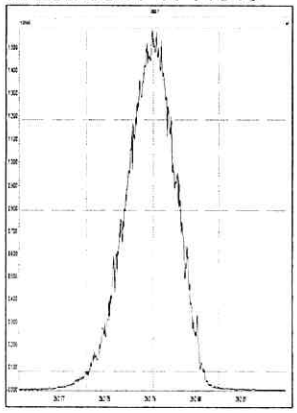
M 516.9697 R 12140



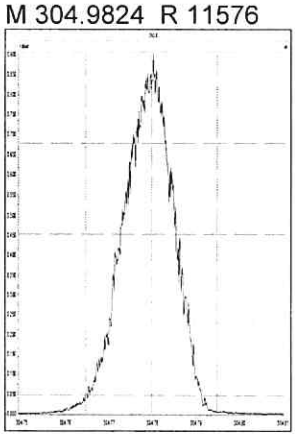
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

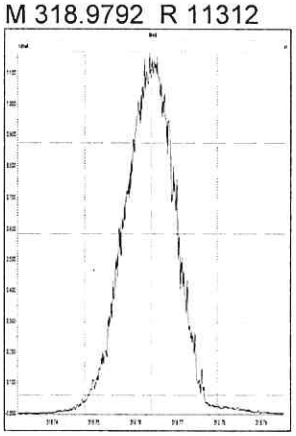
M 292.9824 R 11519



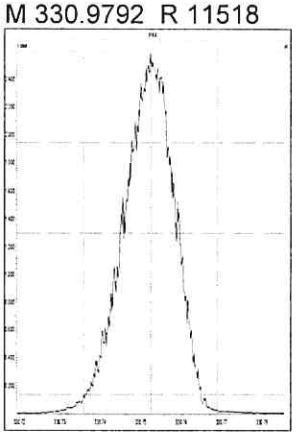
M 304.9824 R 11576



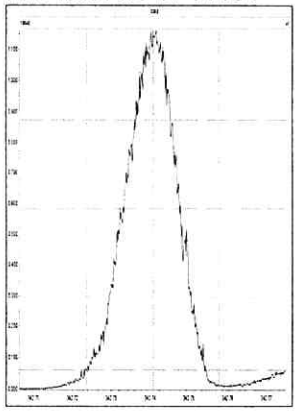
M 318.9792 R 11312



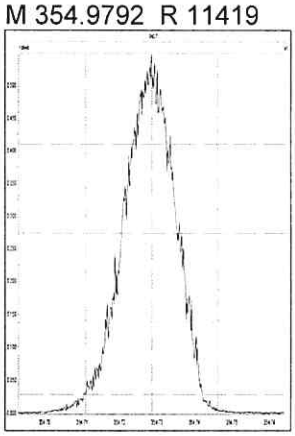
M 330.9792 R 11518



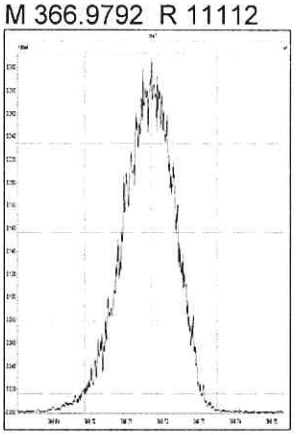
M 342.9792 R 11161



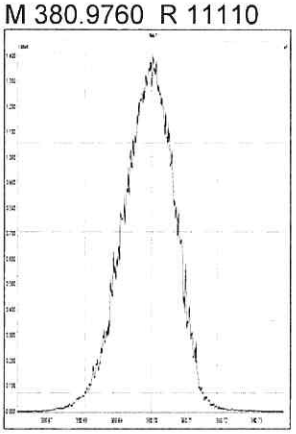
M 354.9792 R 11419



M 366.9792 R 11112



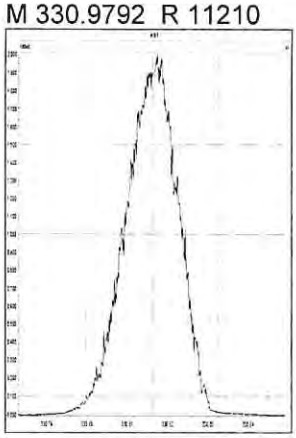
M 380.9760 R 11110



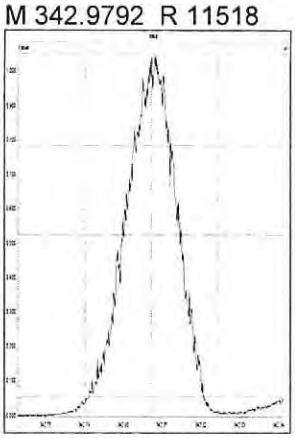
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

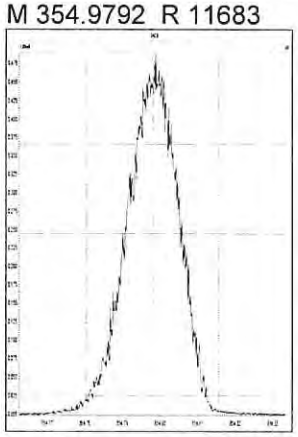
M 330.9792 R 11210



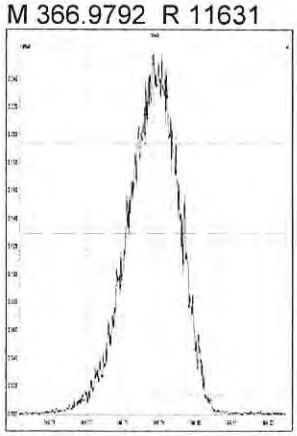
M 342.9792 R 11518



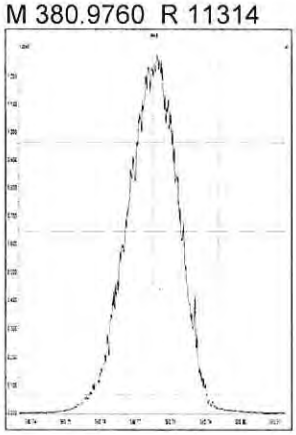
M 354.9792 R 11683



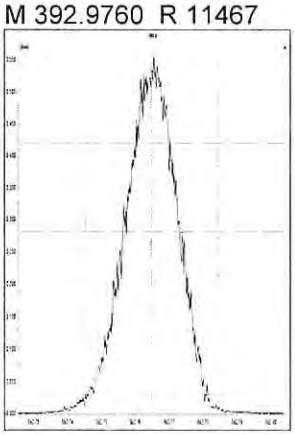
M 366.9792 R 11631



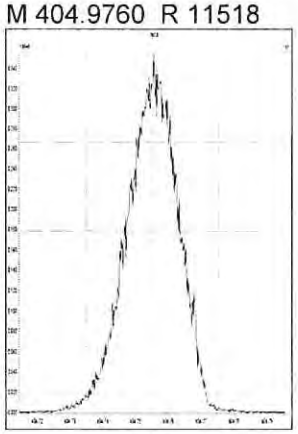
M 380.9760 R 11314



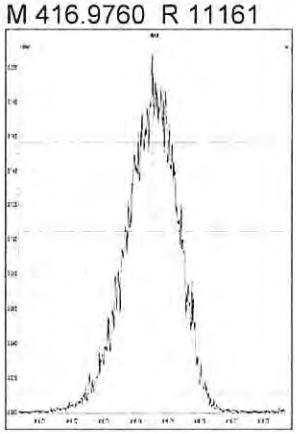
M 392.9760 R 11467



M 404.9760 R 11518



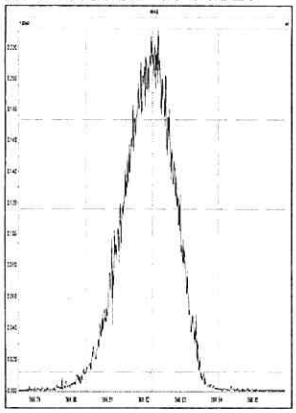
M 416.9760 R 11161



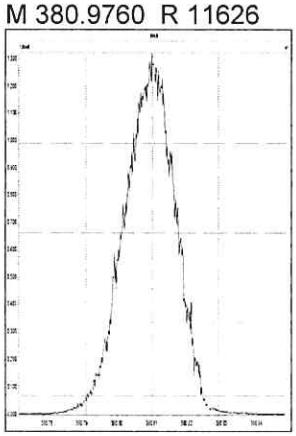
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

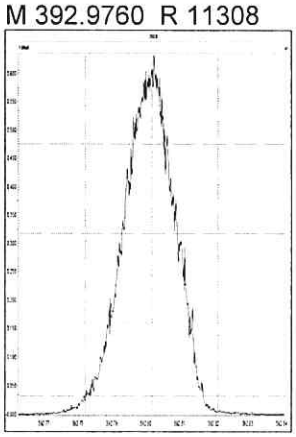
M 366.9792 R 11627



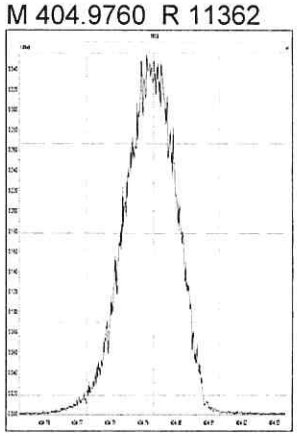
M 380.9760 R 11626



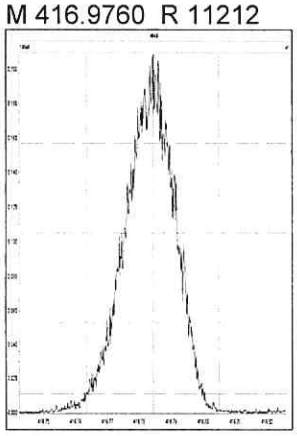
M 392.9760 R 11308



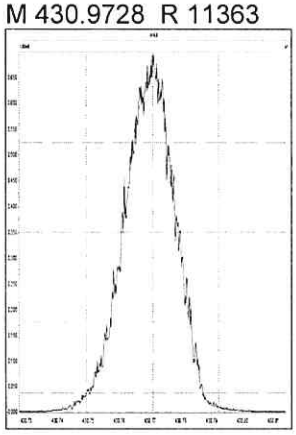
M 404.9760 R 11362



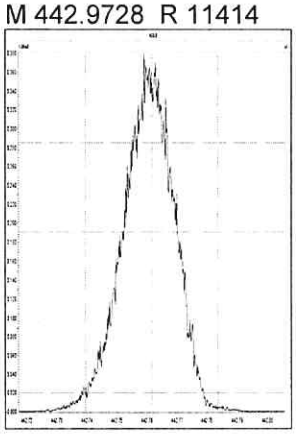
M 416.9760 R 11212



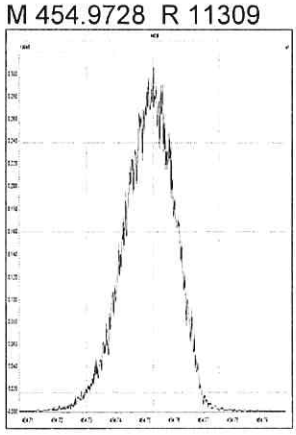
M 430.9728 R 11363



M 442.9728 R 11414



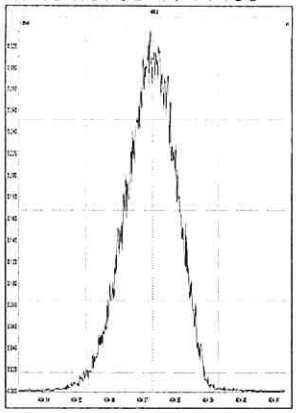
M 454.9728 R 11309



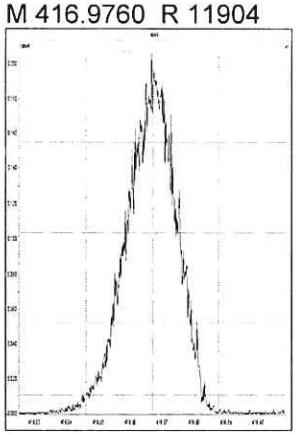
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

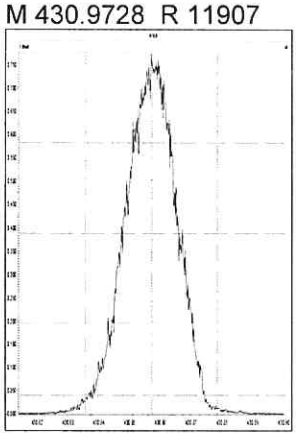
M 404.9760 R 11465



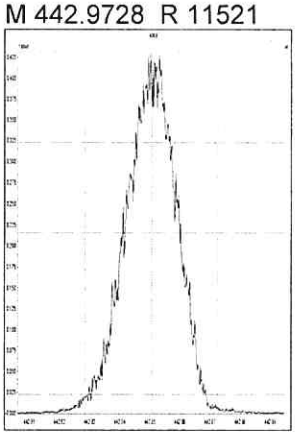
M 416.9760 R 11904



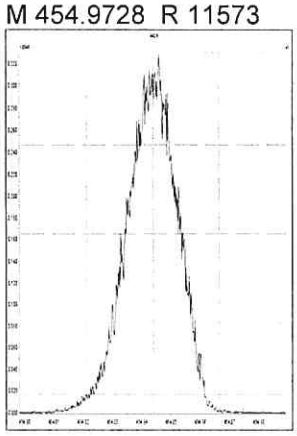
M 430.9728 R 11907



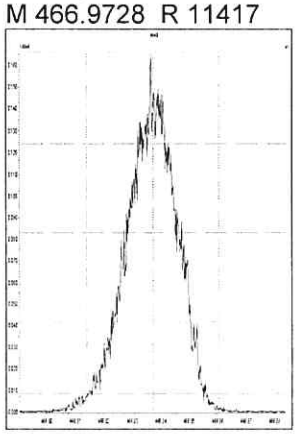
M 442.9728 R 11521



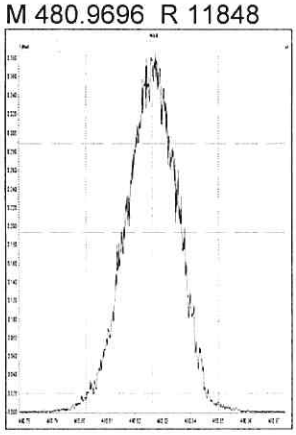
M 454.9728 R 11573



M 466.9728 R 11417



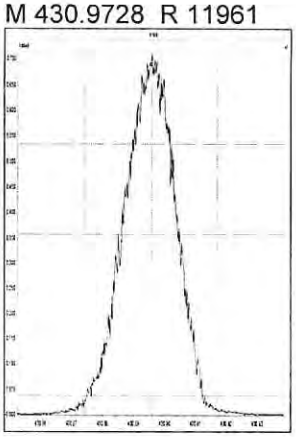
M 480.9696 R 11848



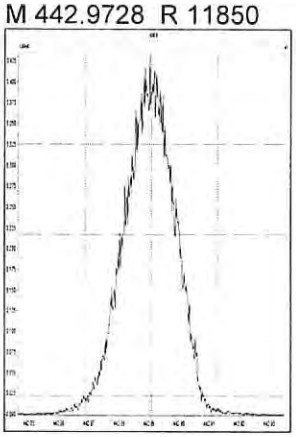
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

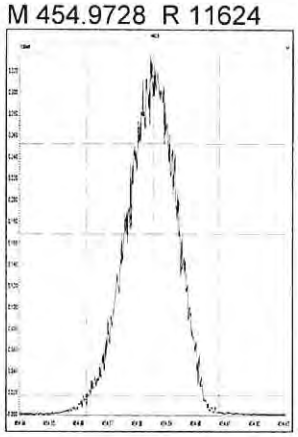
M 430.9728 R 11961



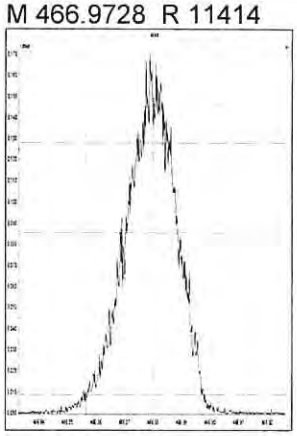
M 442.9728 R 11850



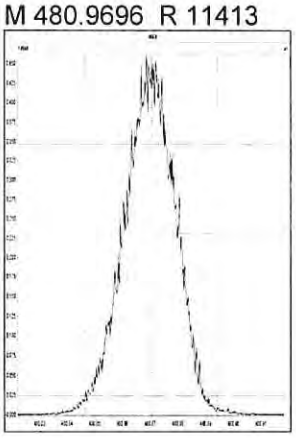
M 454.9728 R 11624



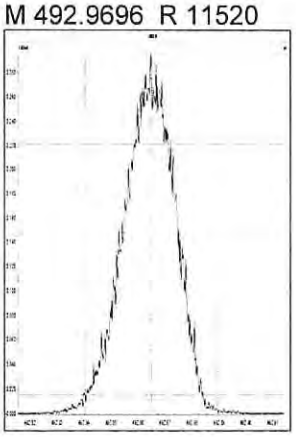
M 466.9728 R 11414



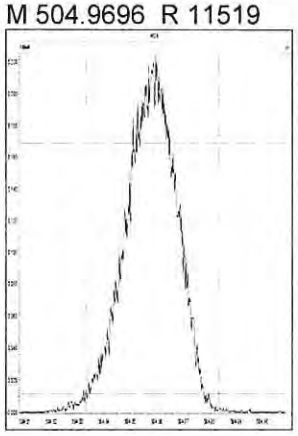
M 480.9696 R 11413



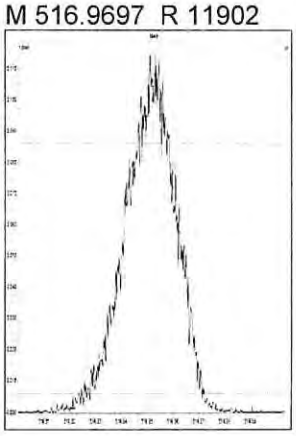
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

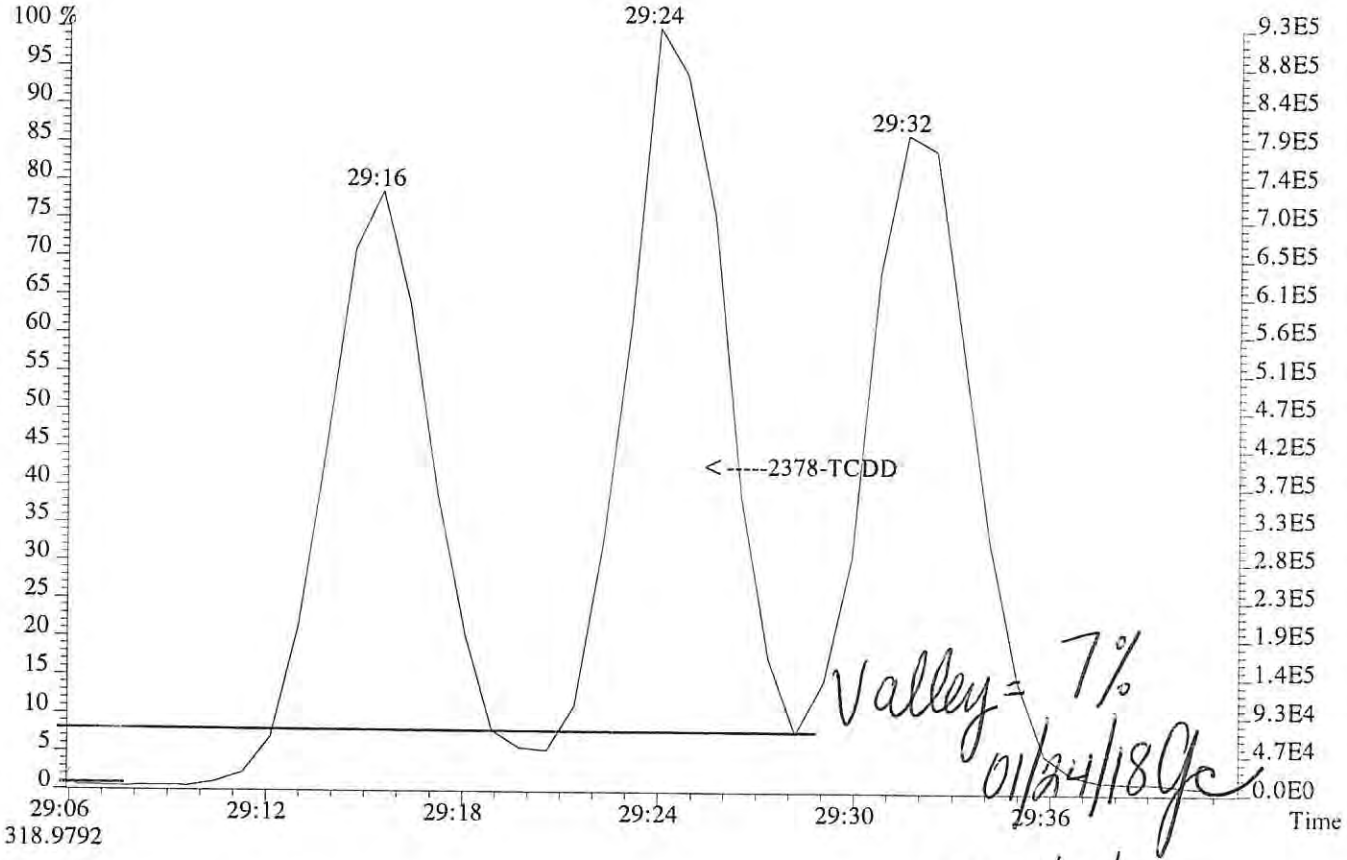
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

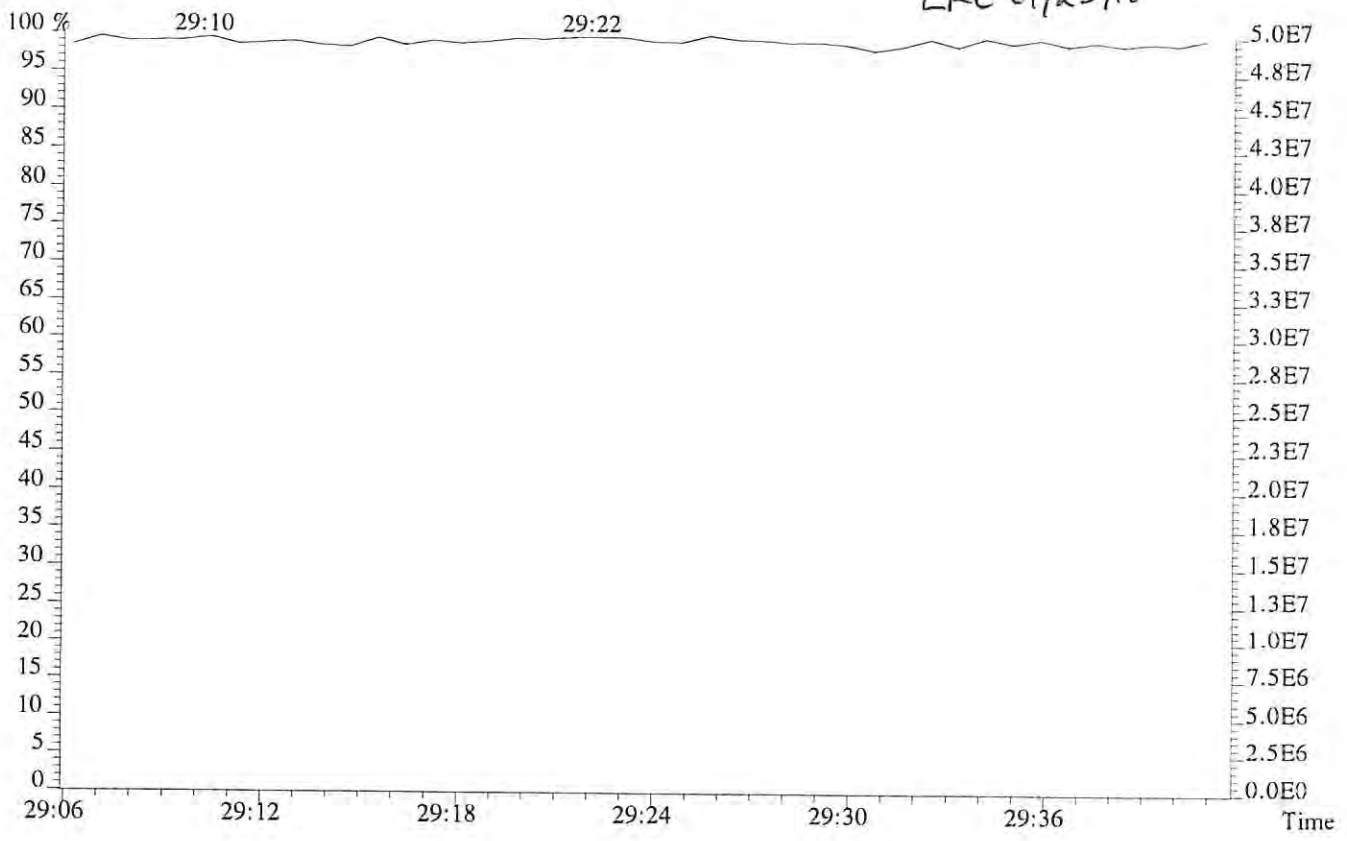
% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965



318.9792

LKL 01/25/18



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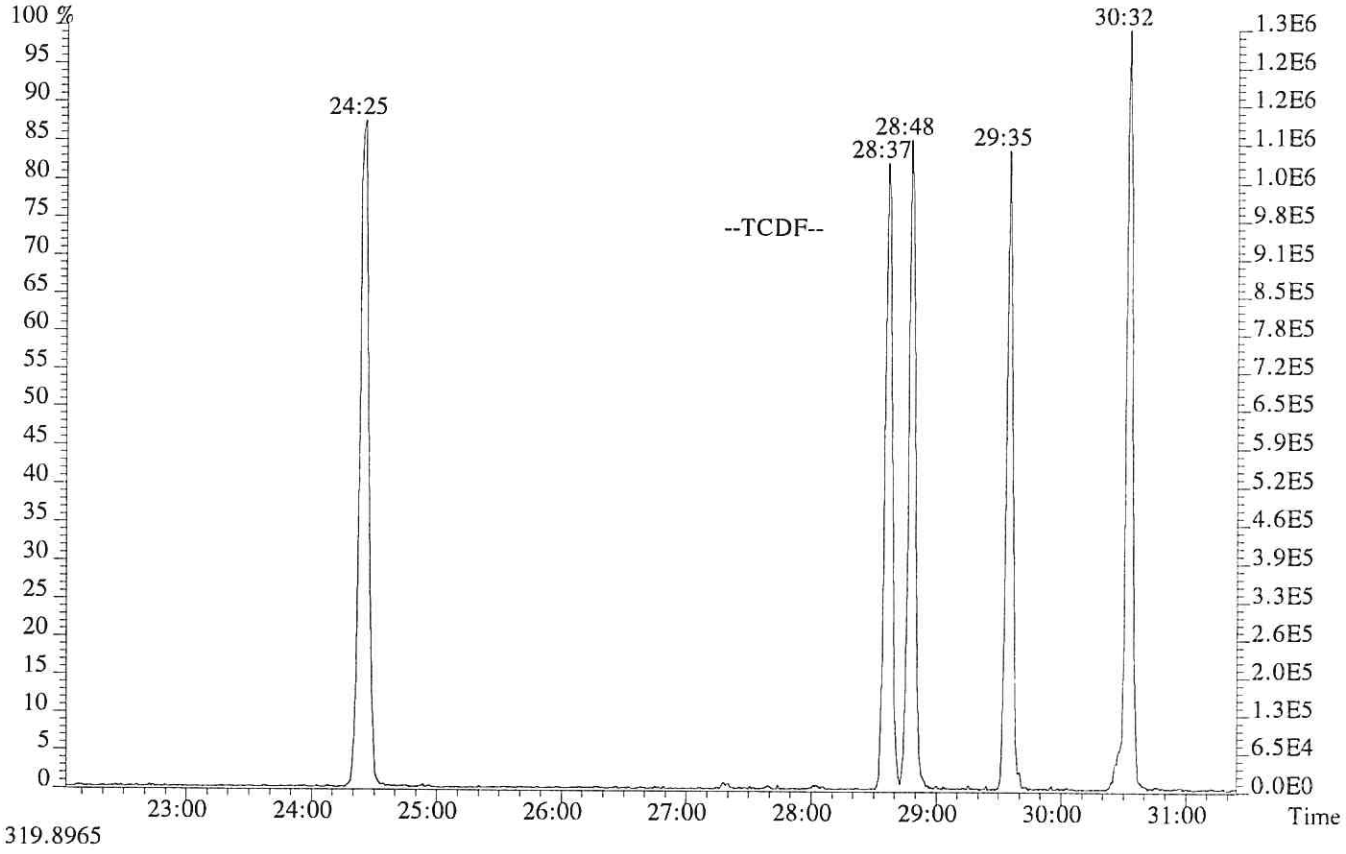
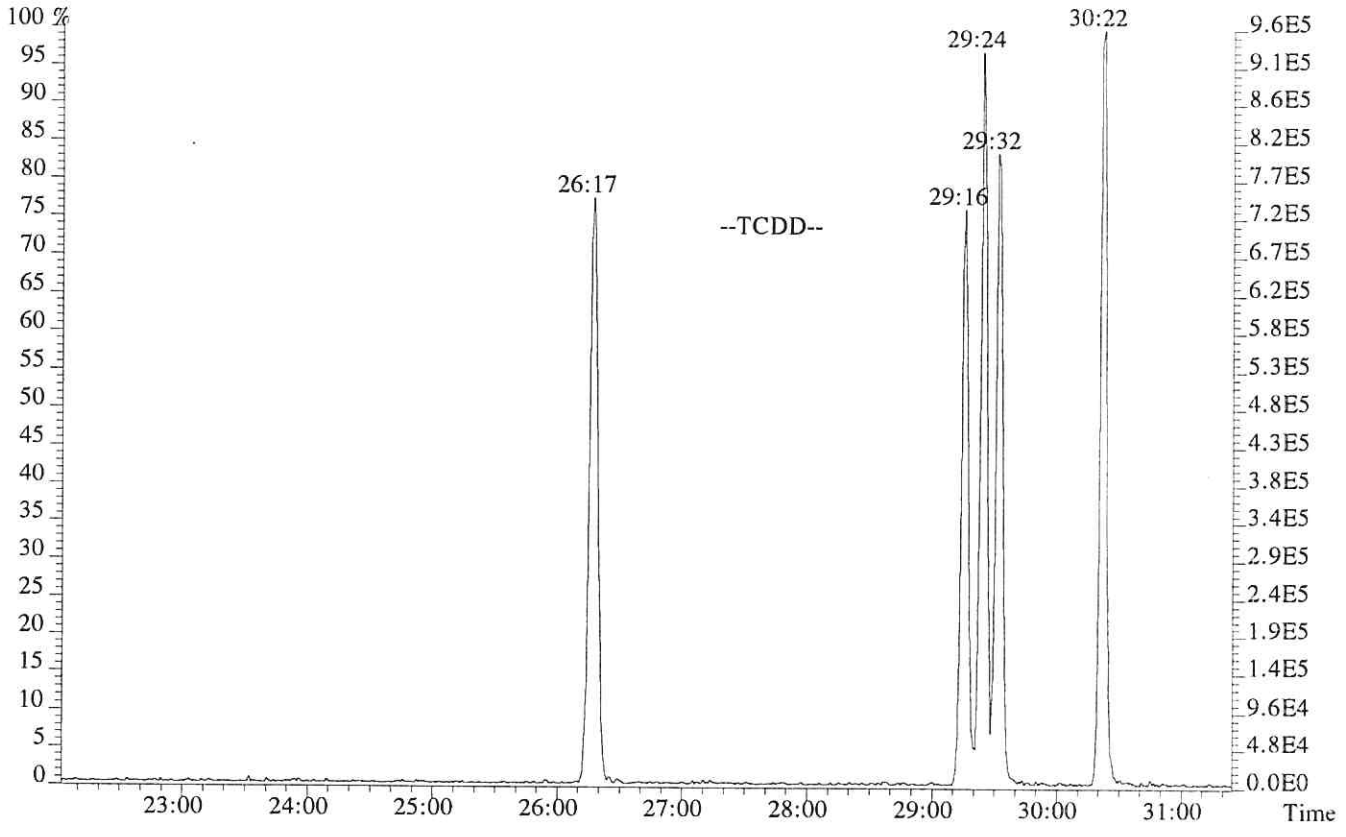
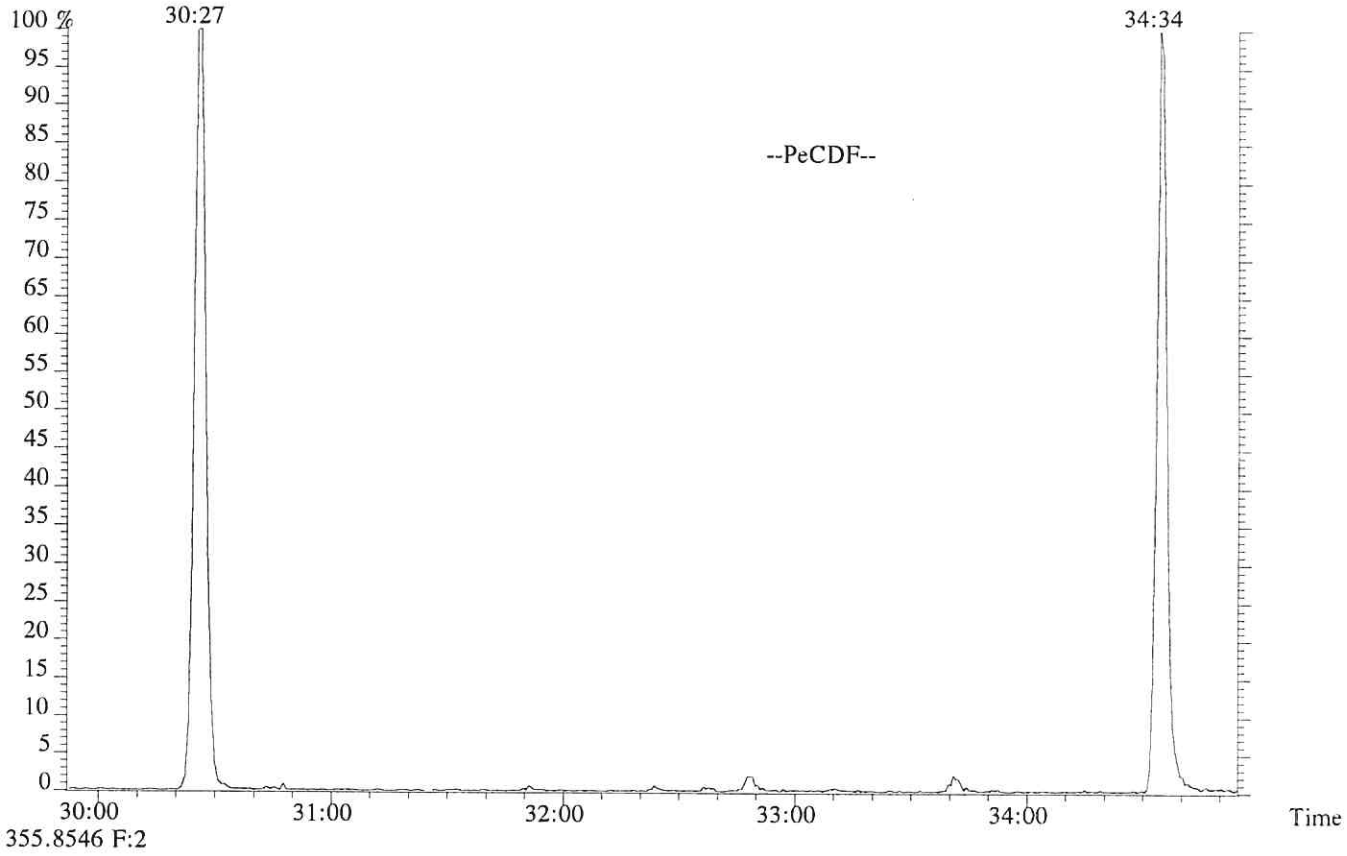
Sample#1 Exp:183360
303.9016



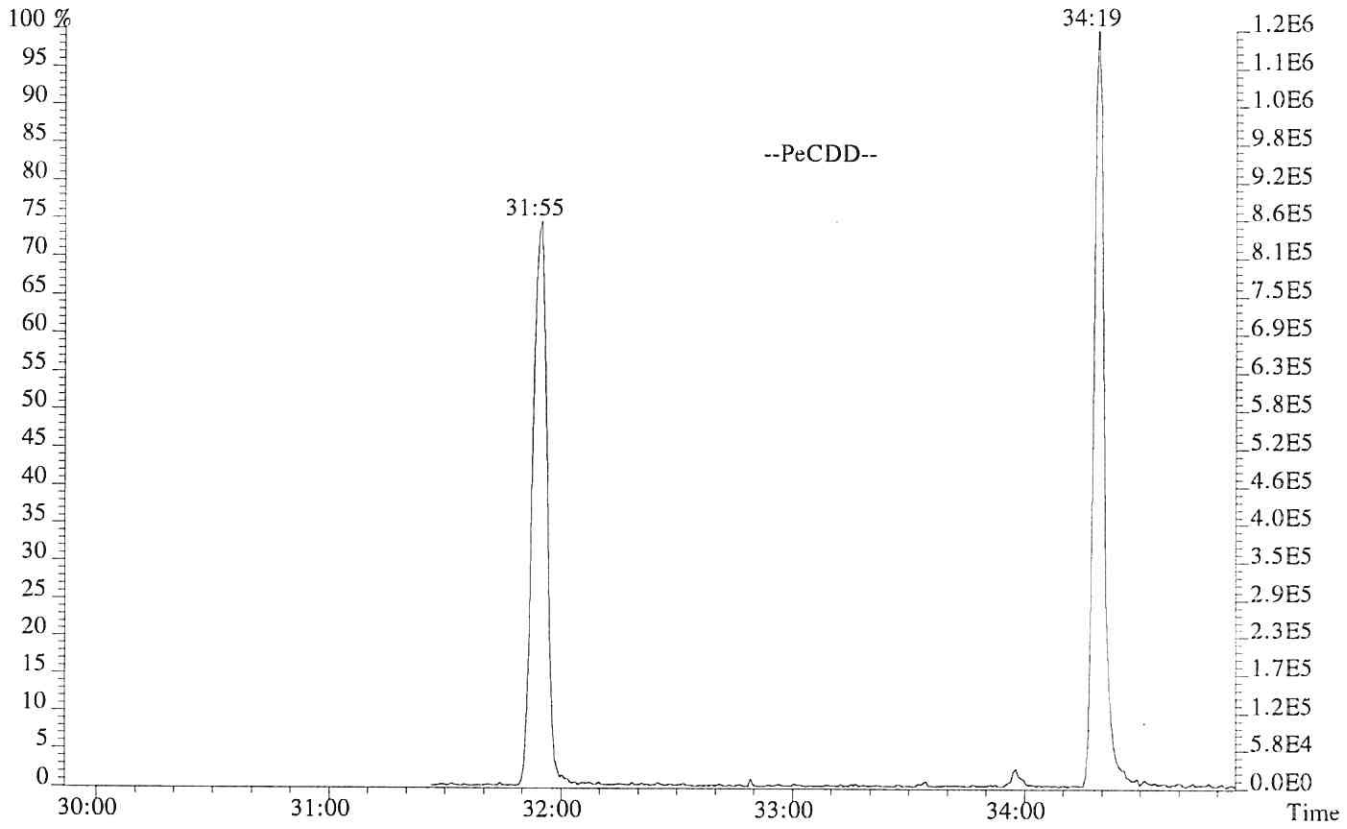
319.8965



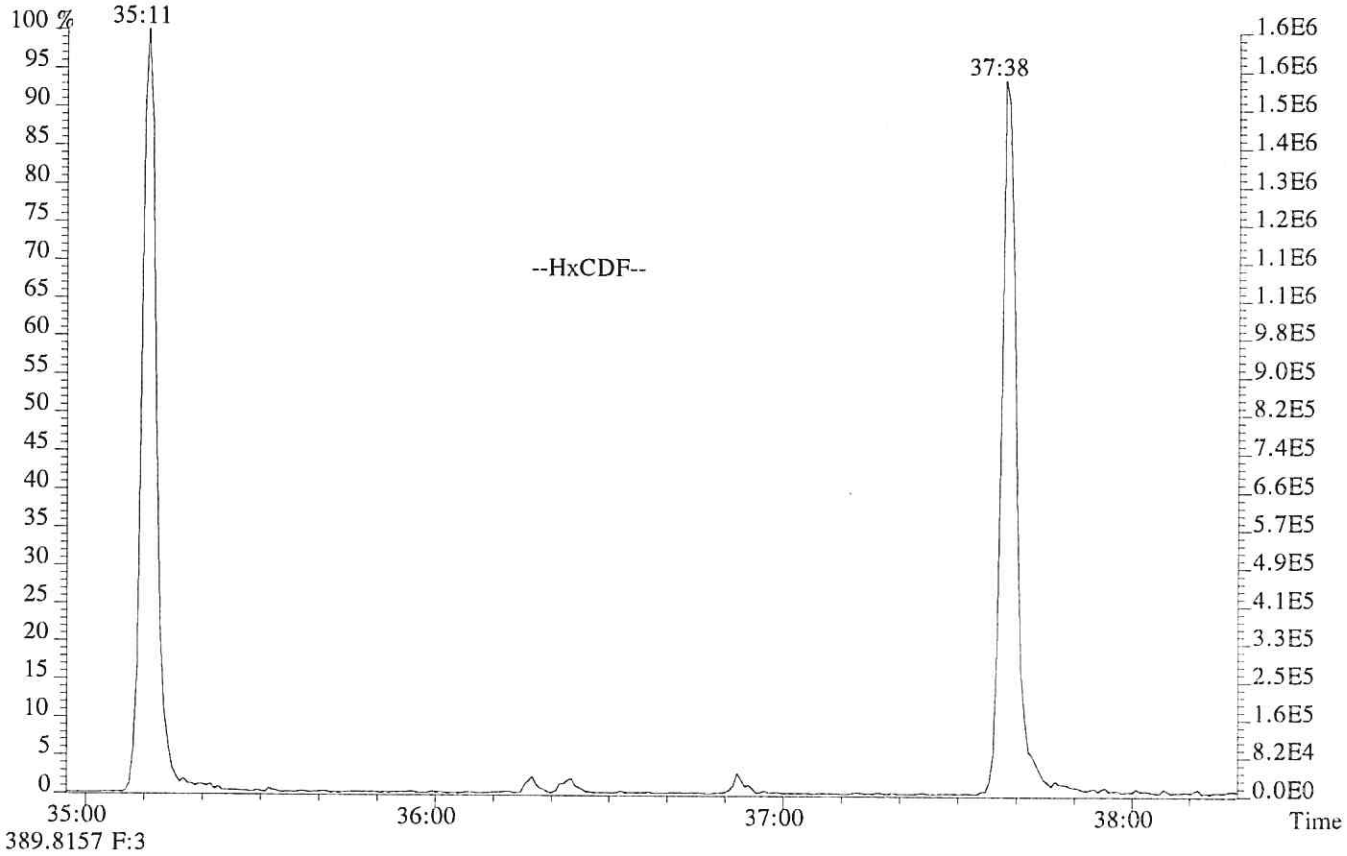
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



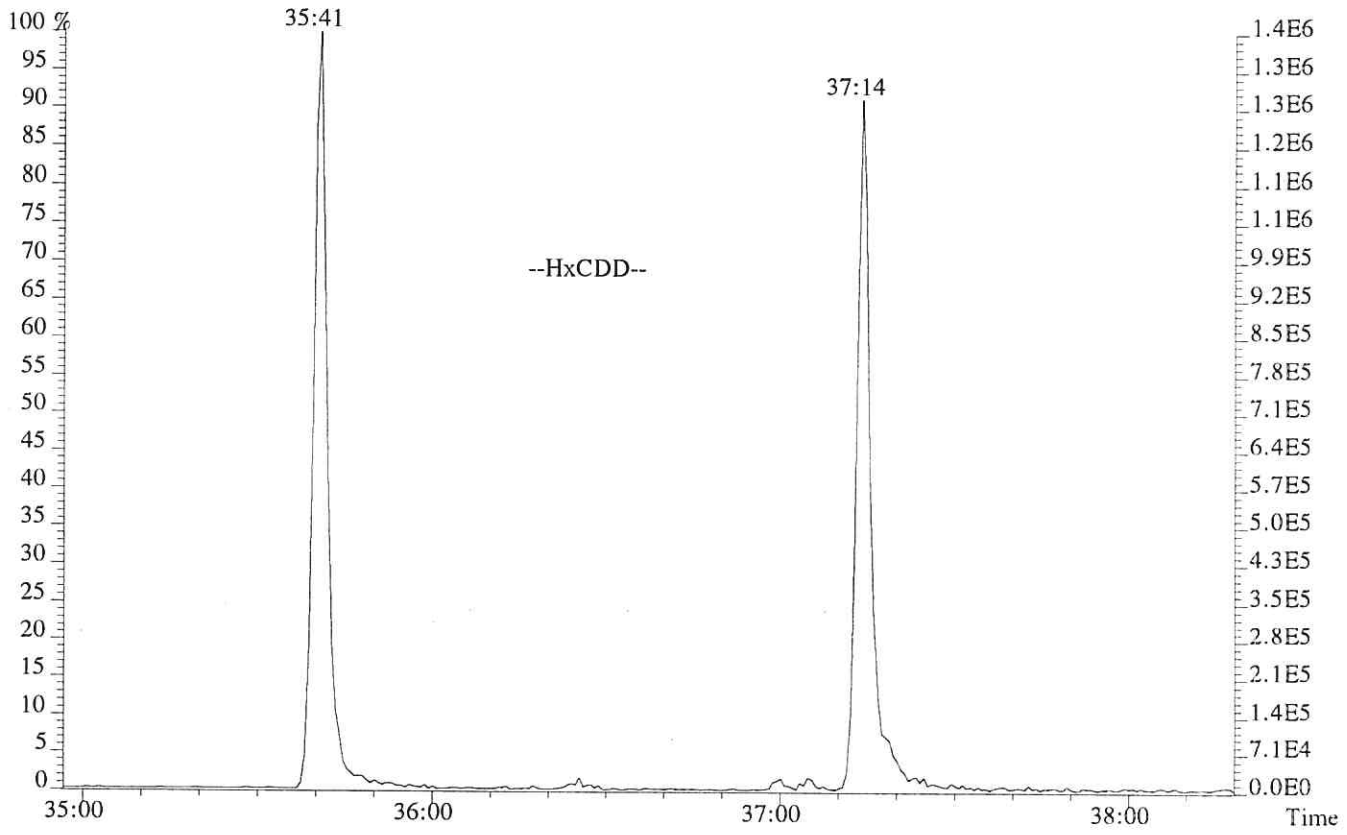
355.8546 F:2



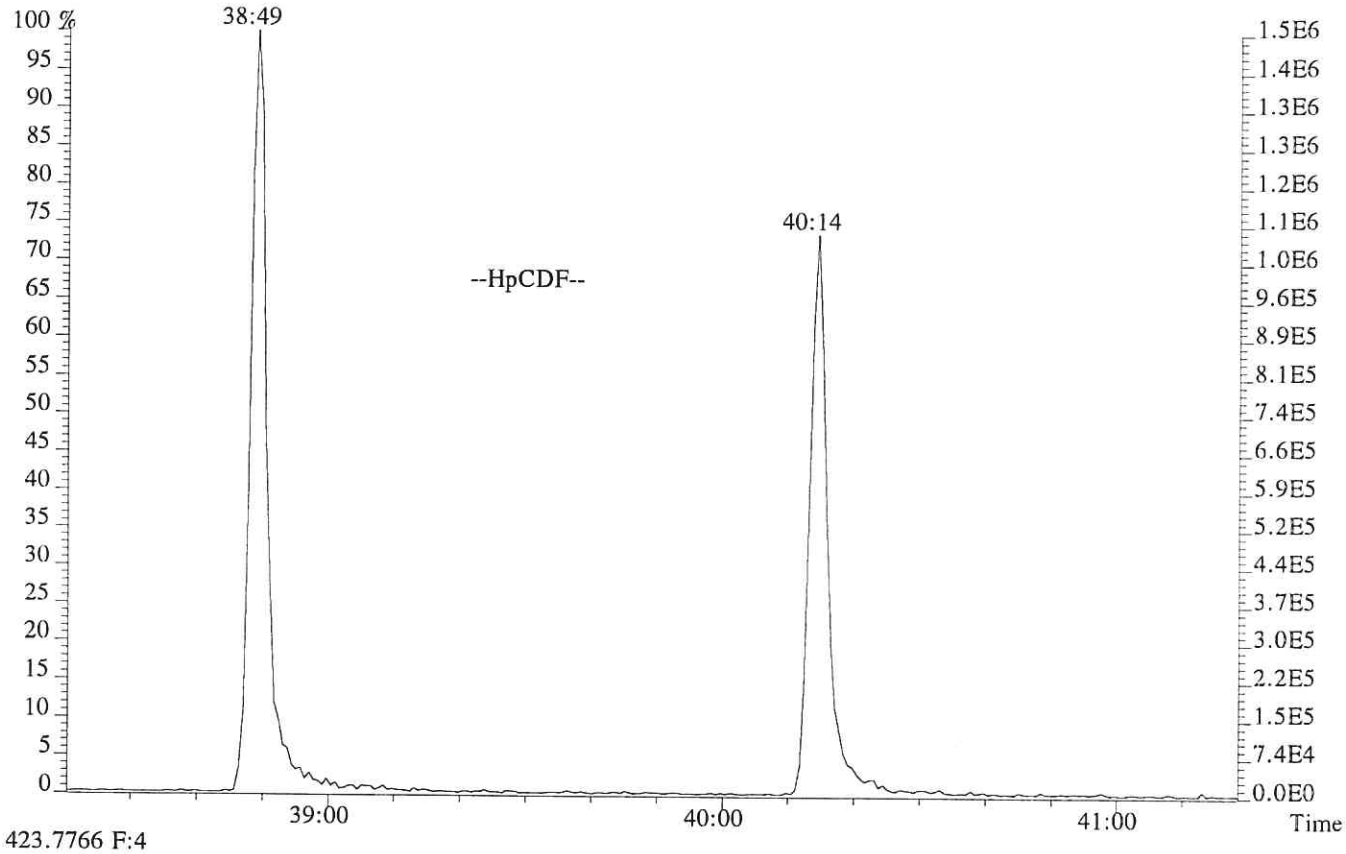
File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3



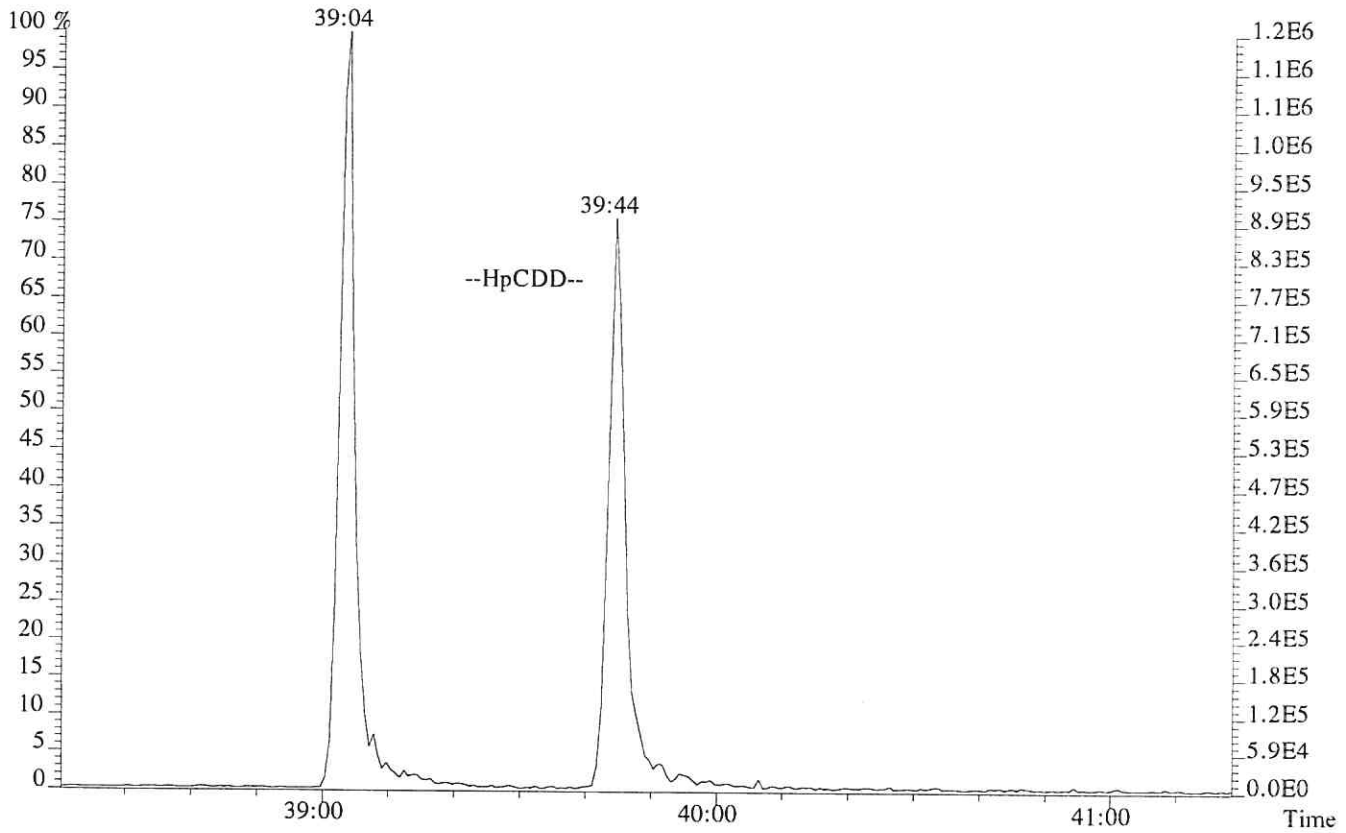
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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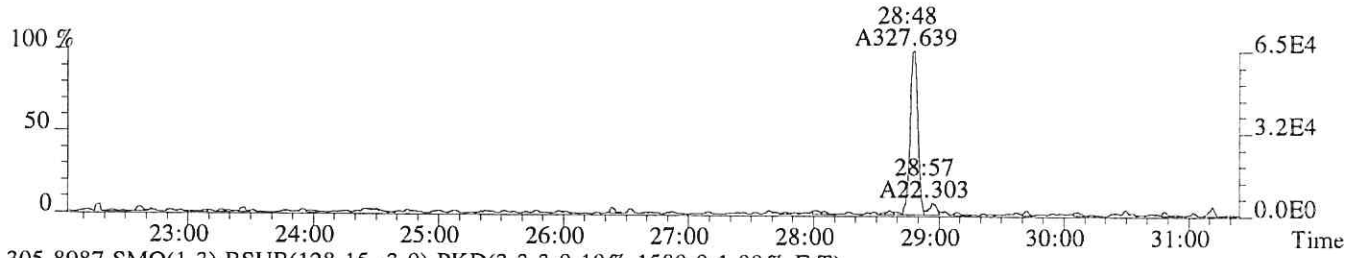
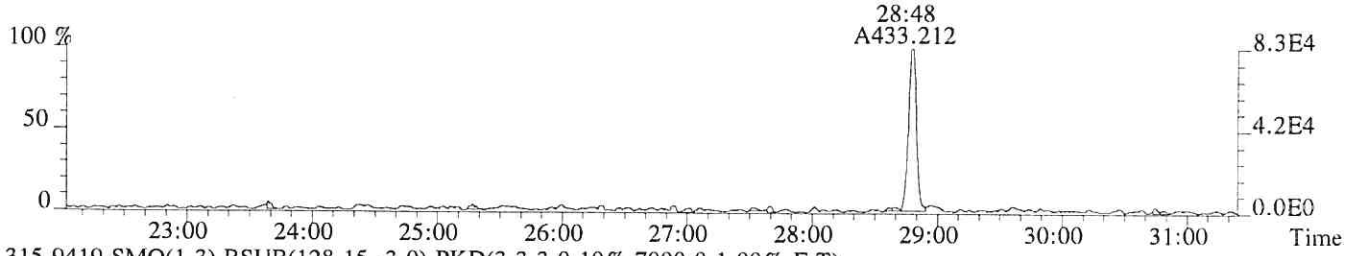
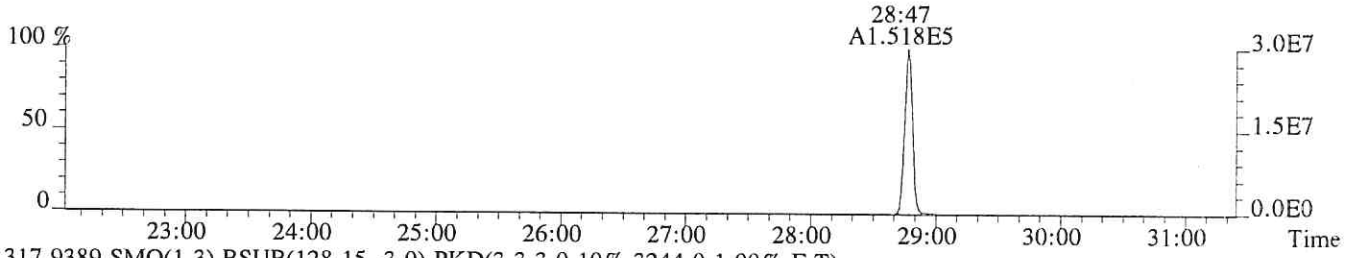
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



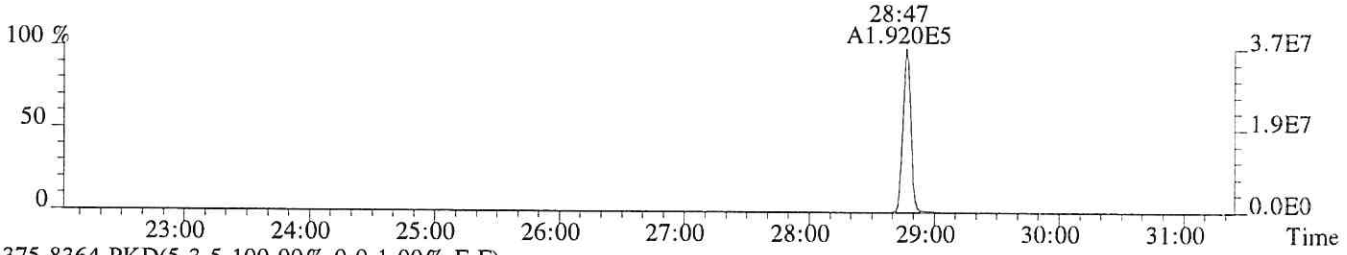
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



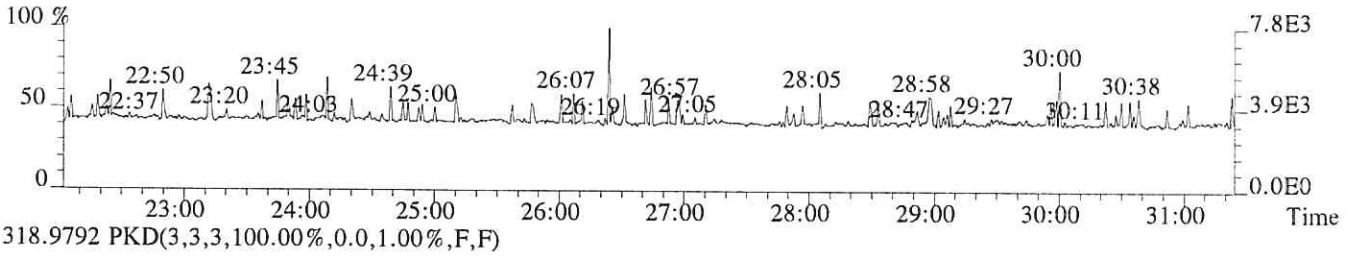
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



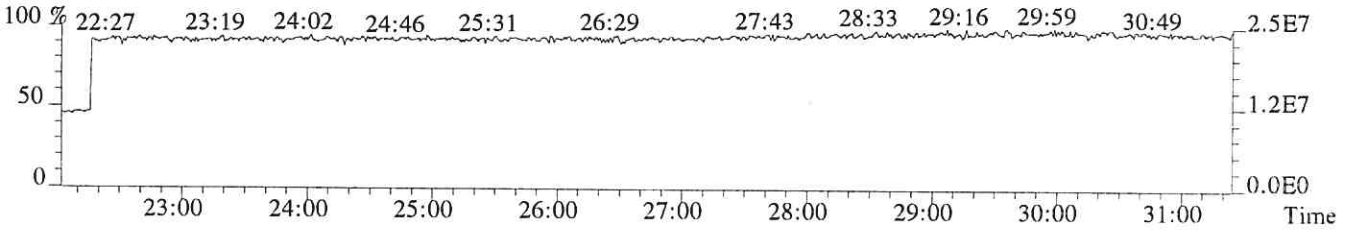
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

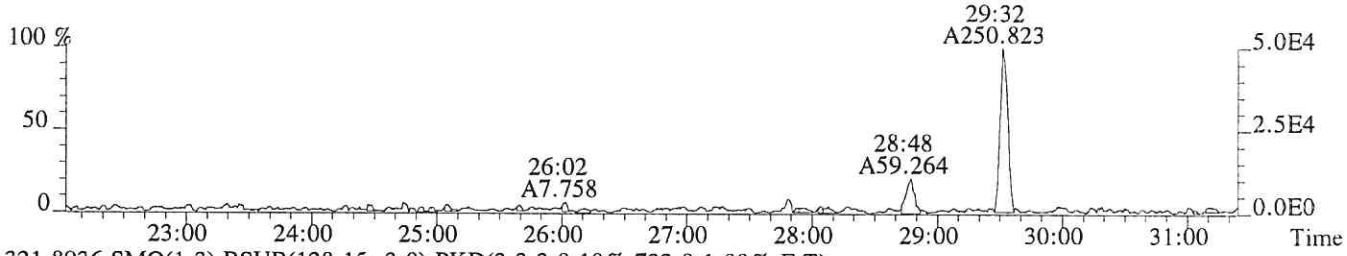


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

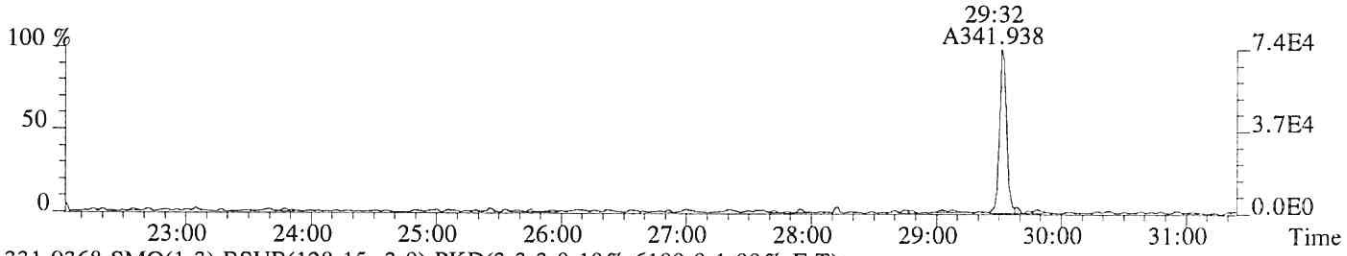


File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

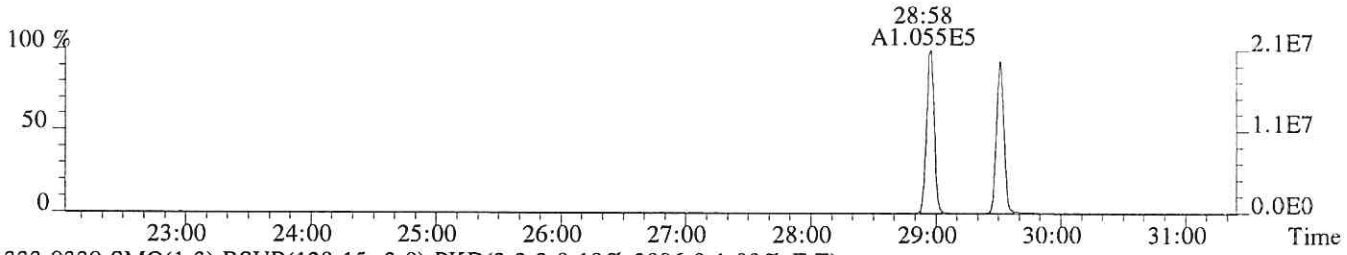
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



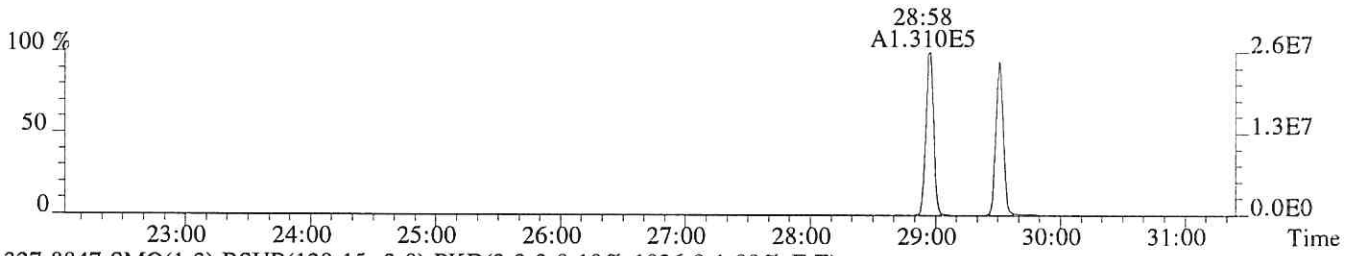
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



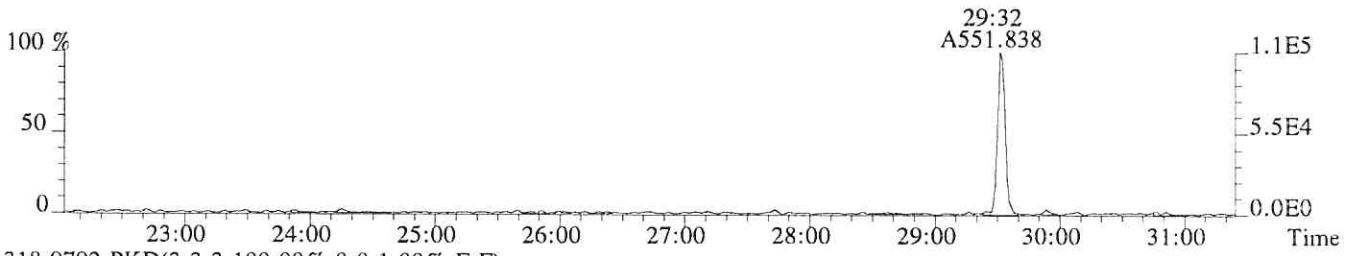
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



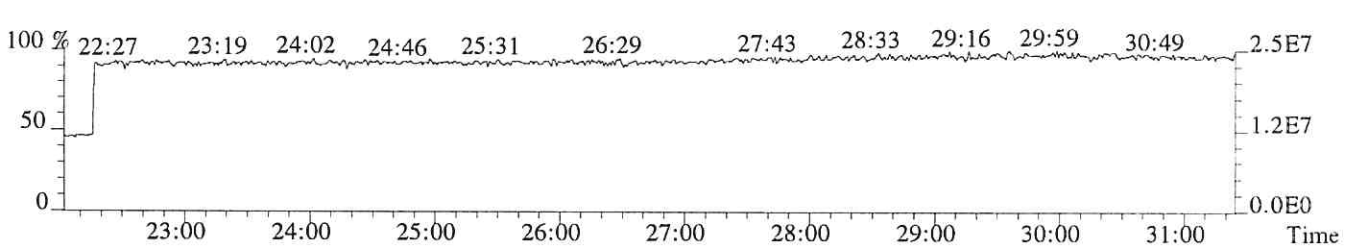
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



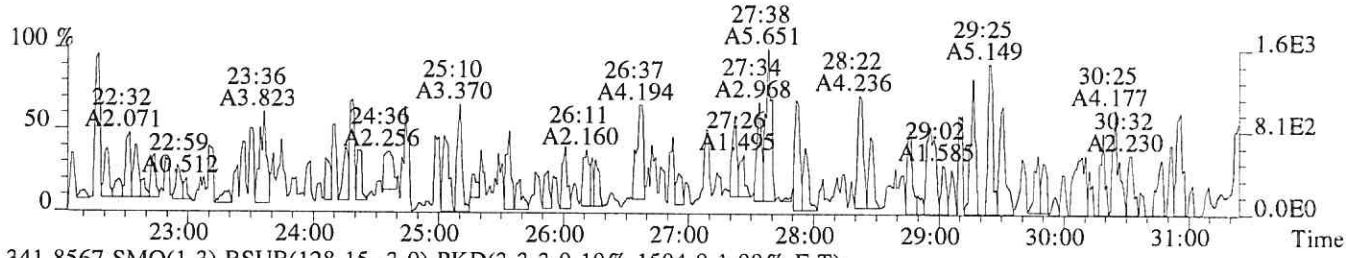
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



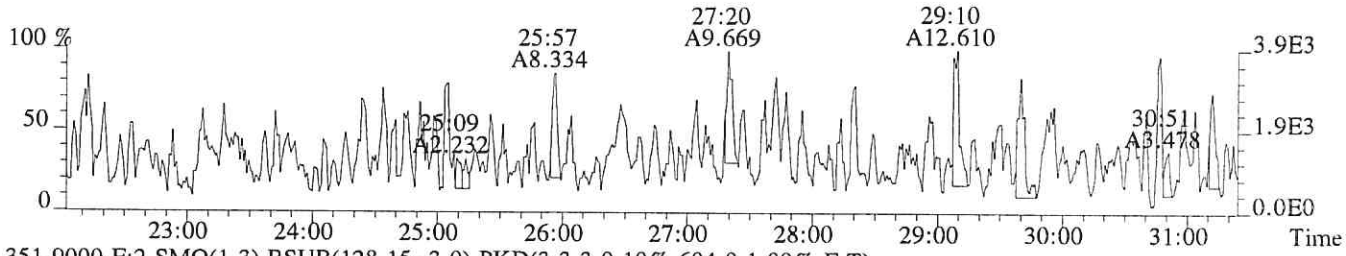
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



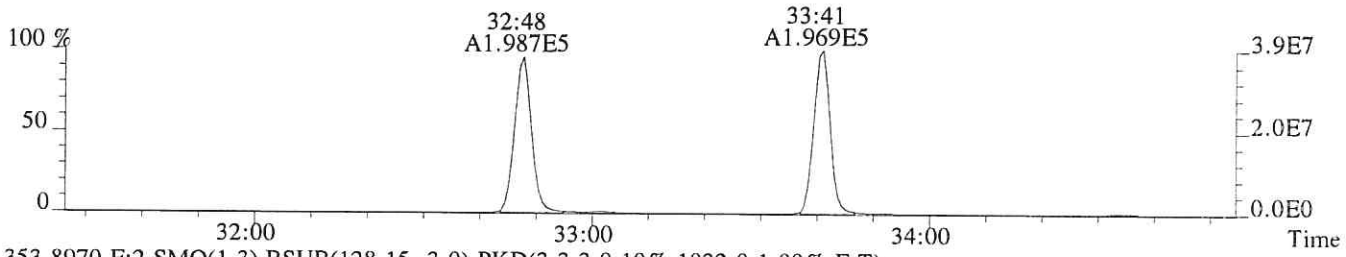
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



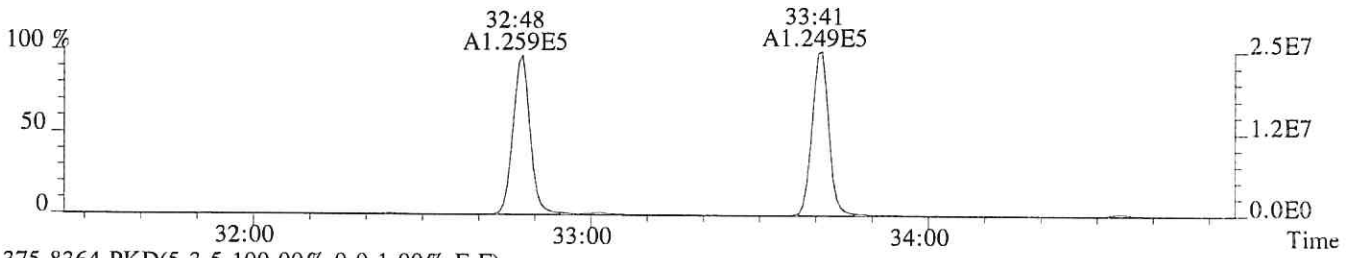
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



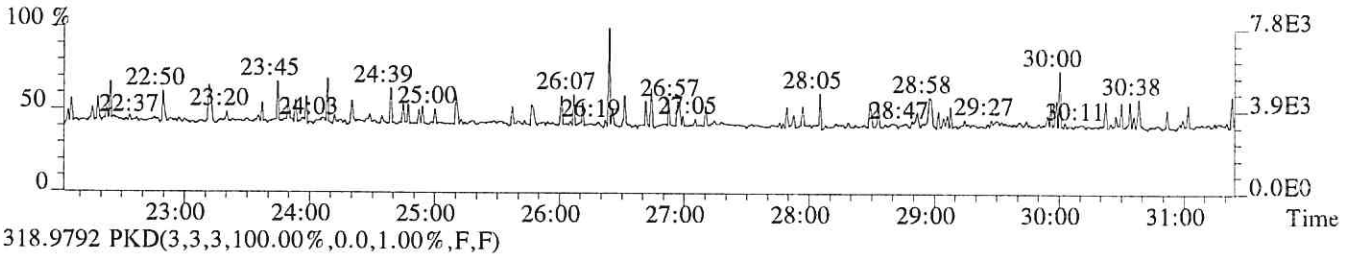
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



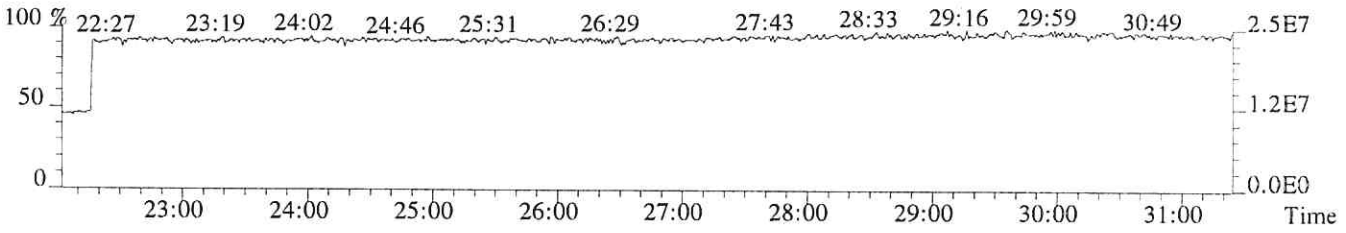
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



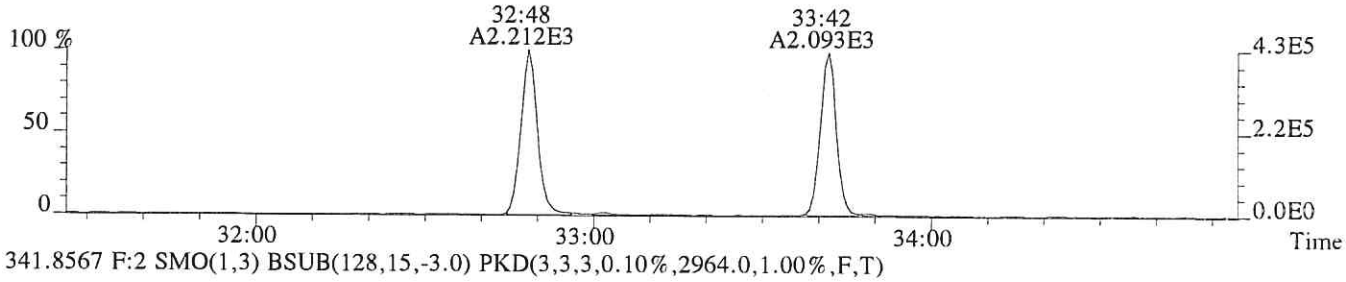
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



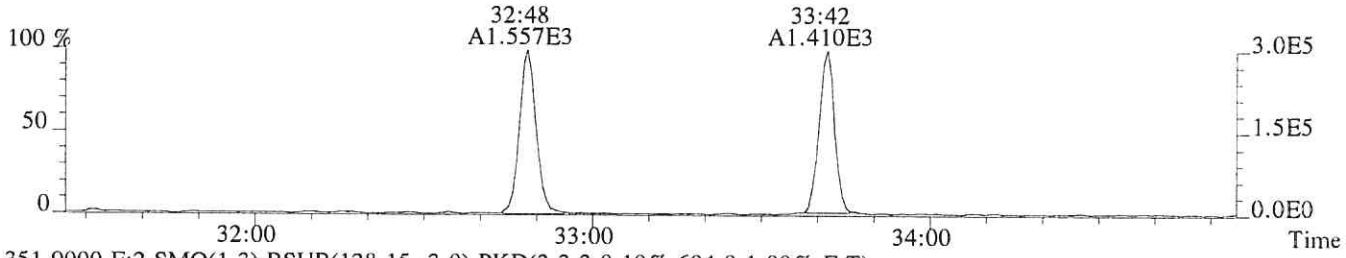
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



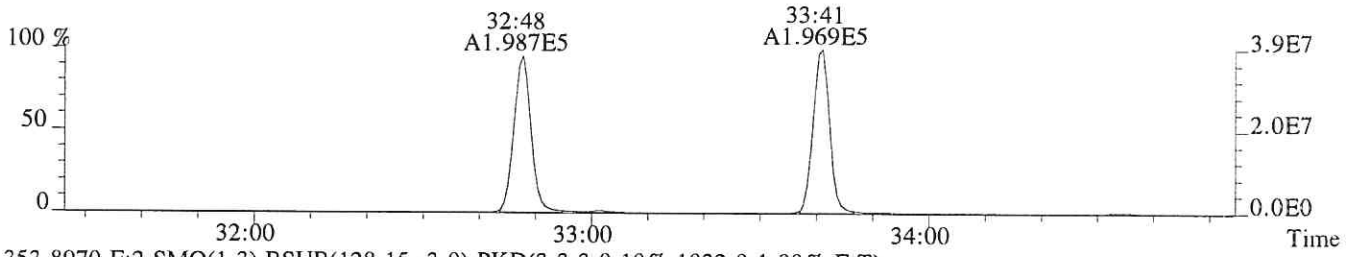
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



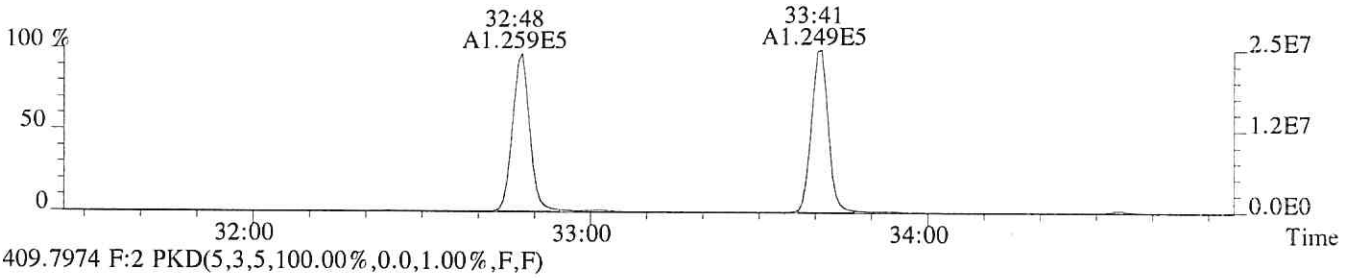
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



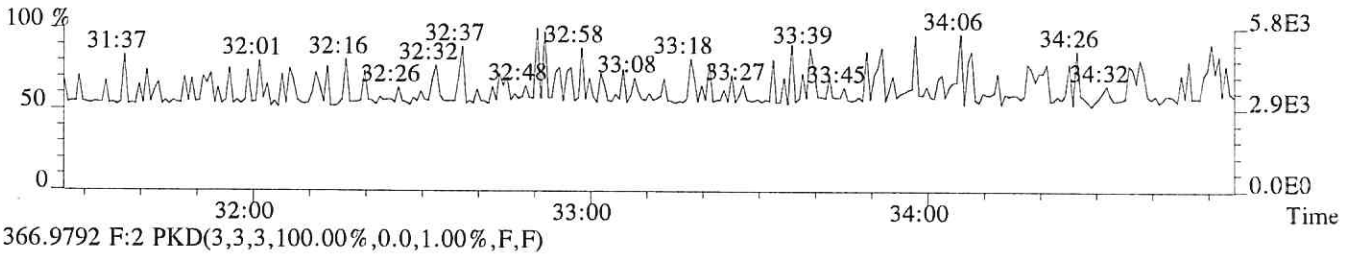
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



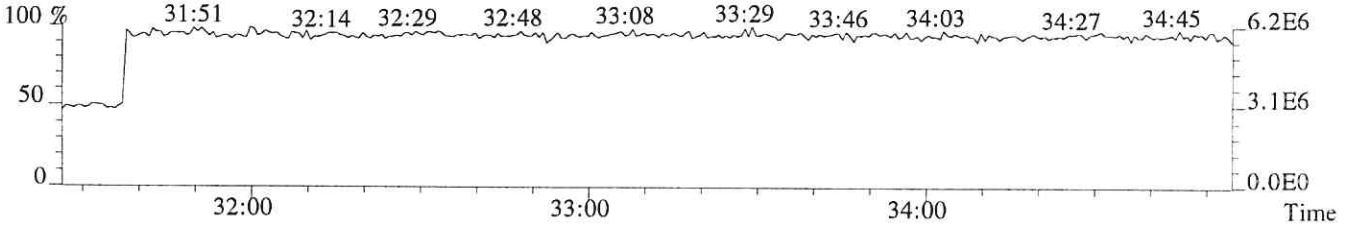
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



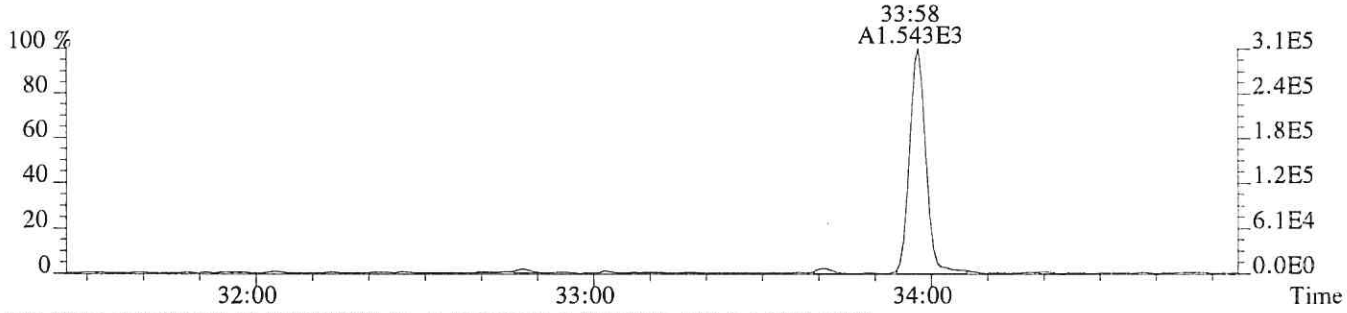
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



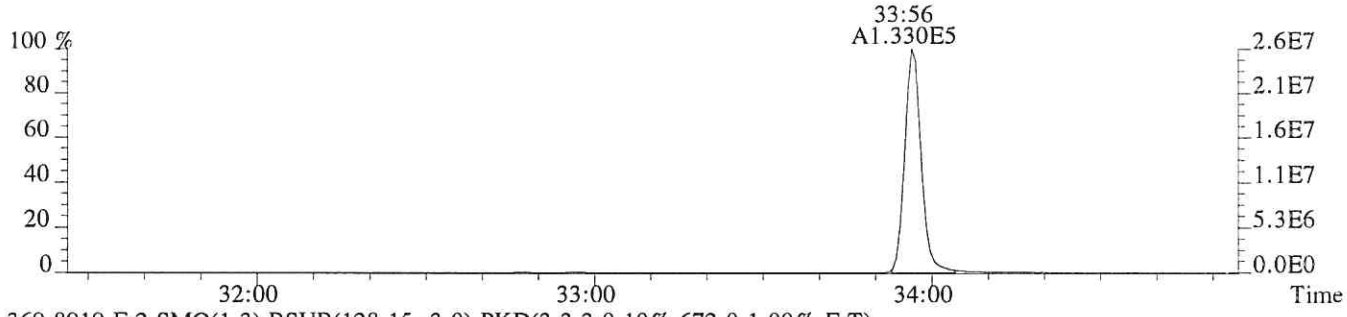
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



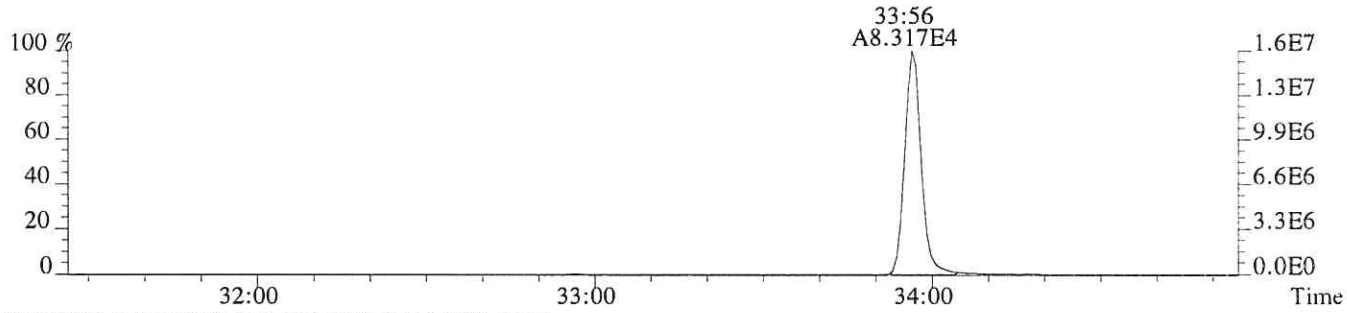
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



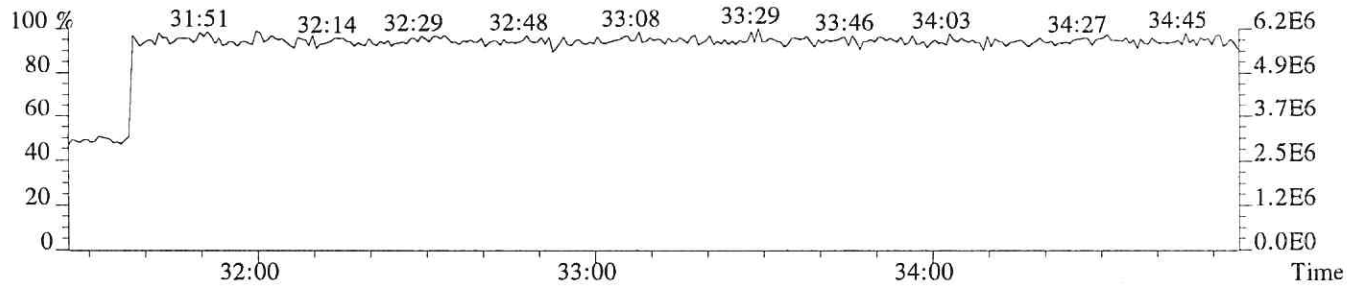
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



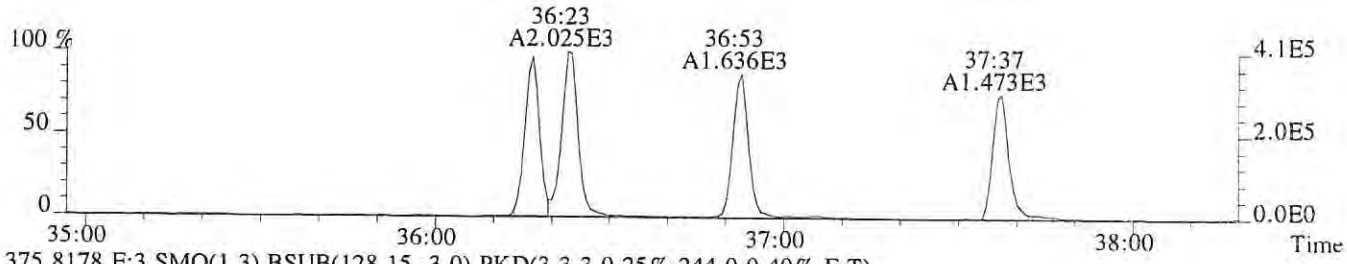
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



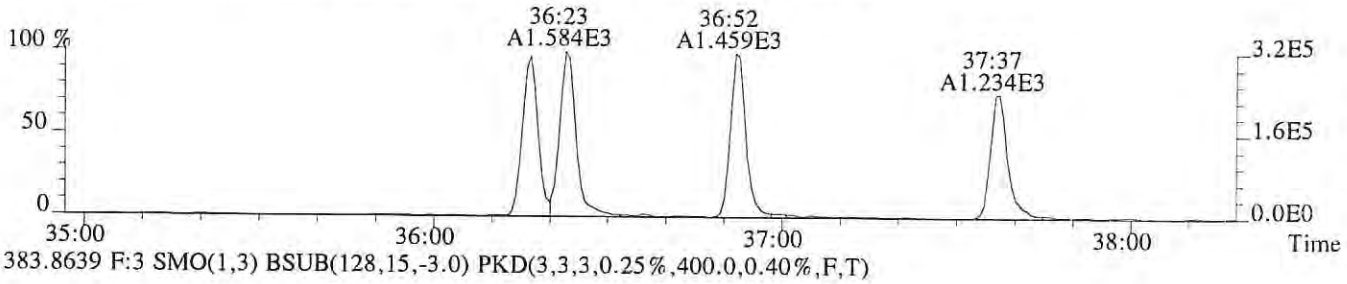
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



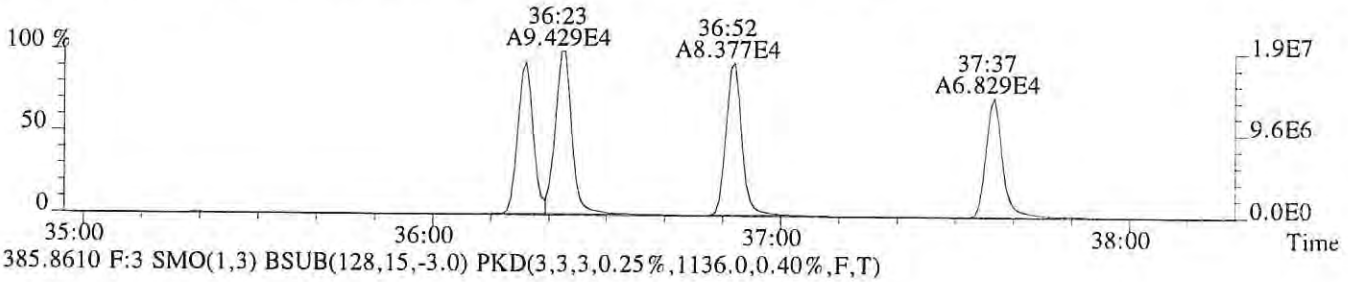
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



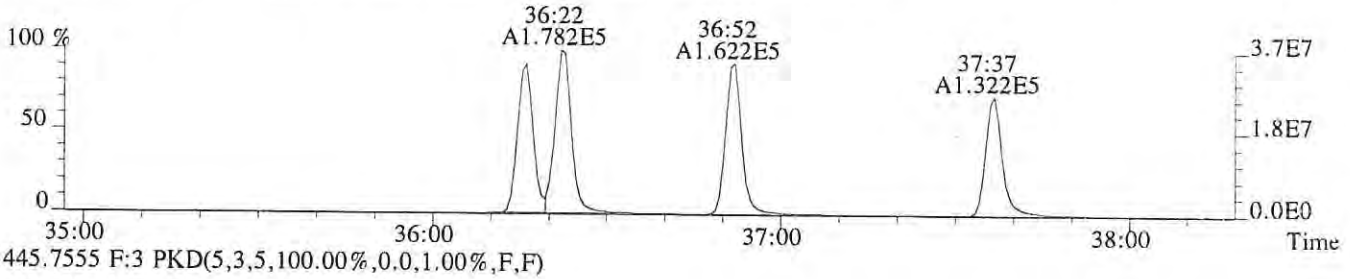
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



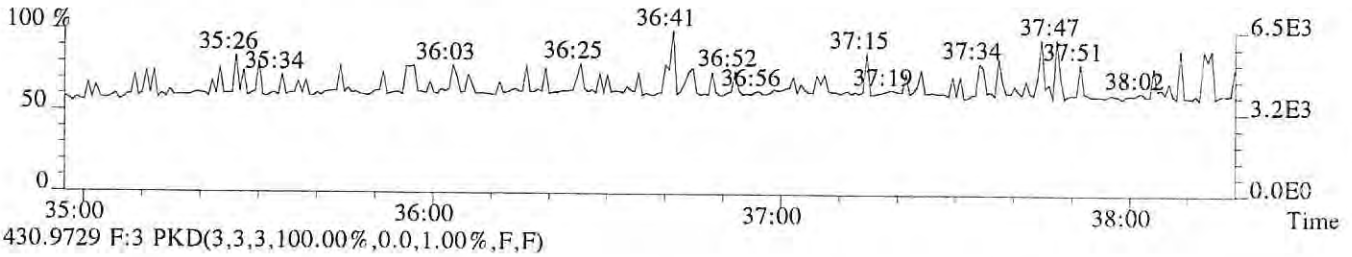
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



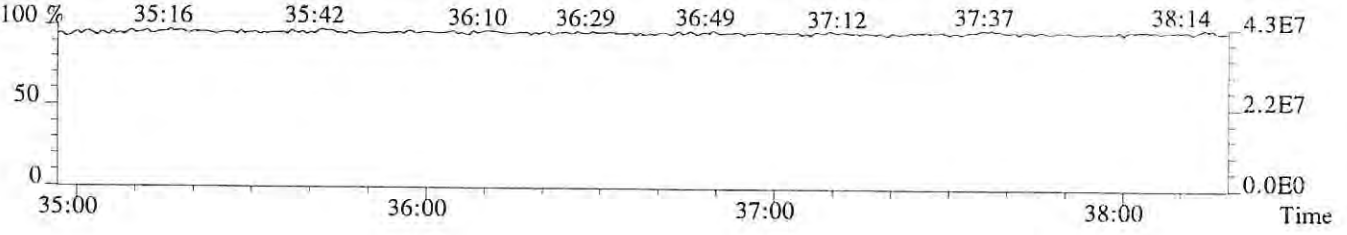
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



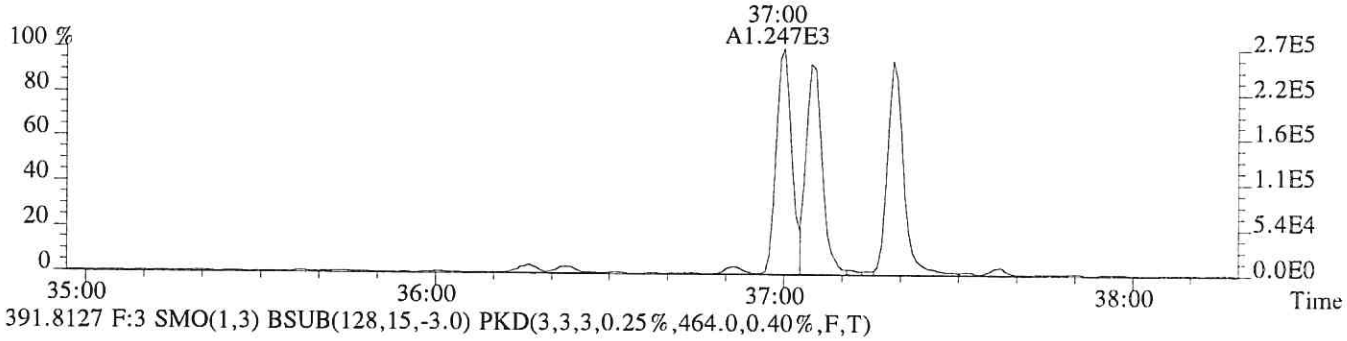
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



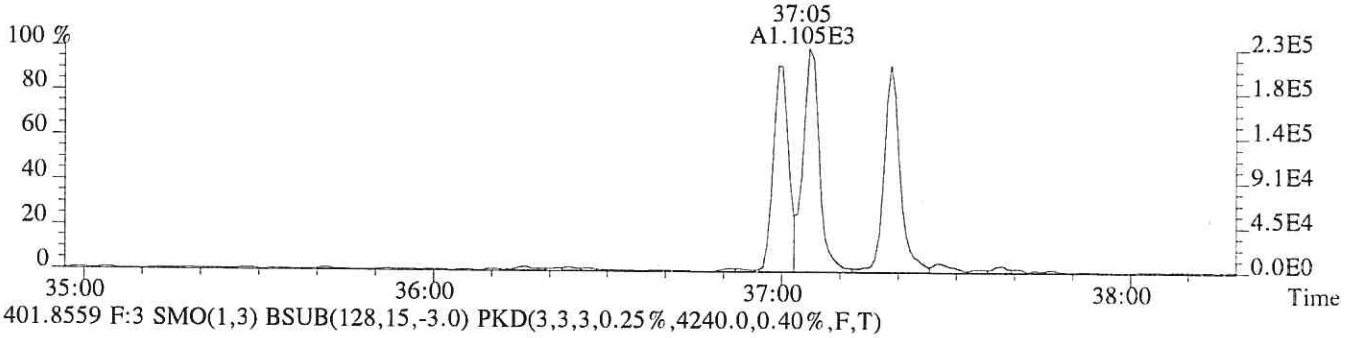
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



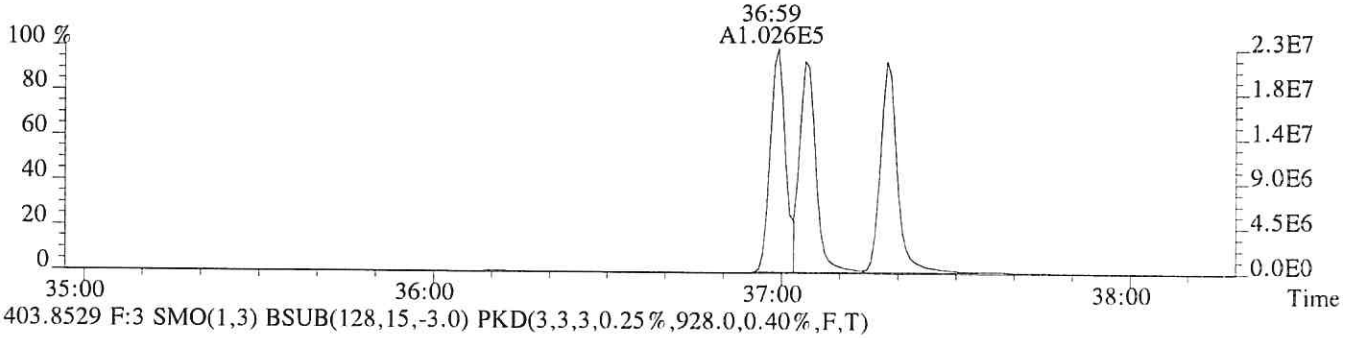
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



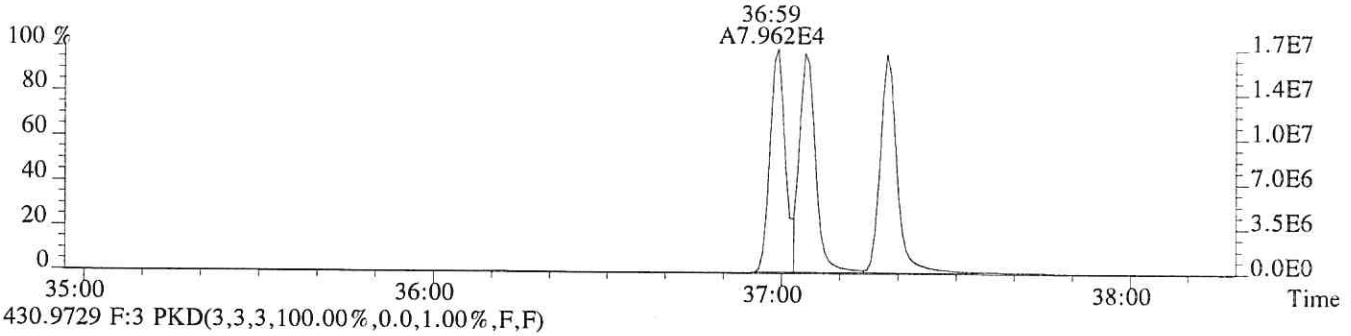
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



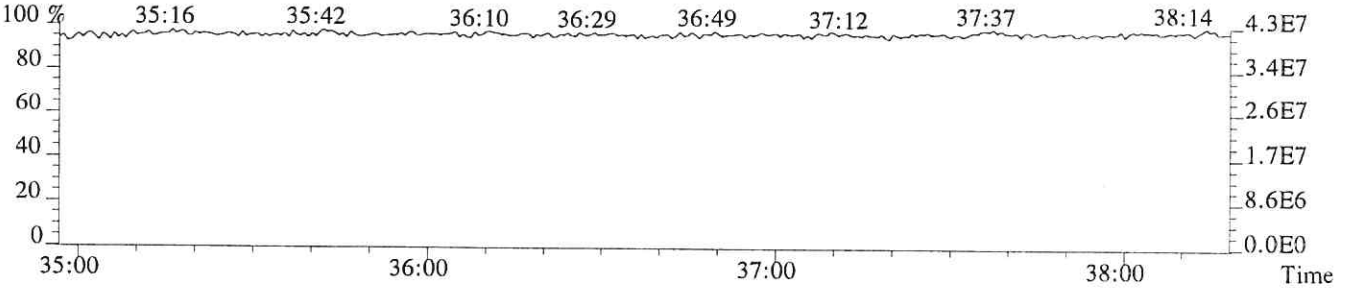
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



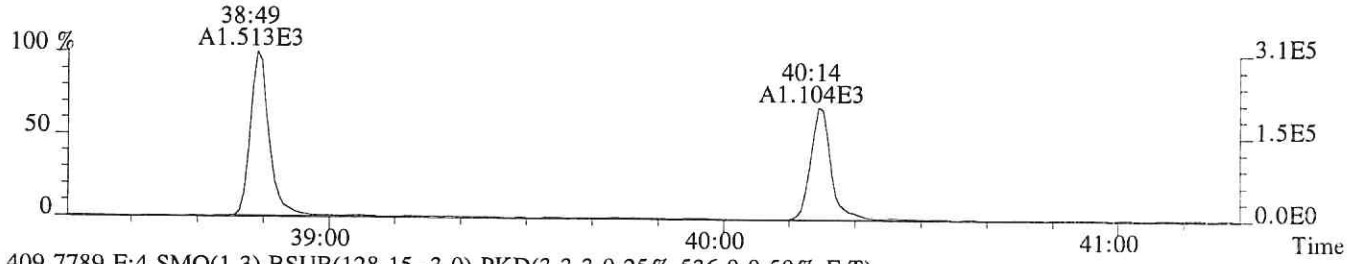
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



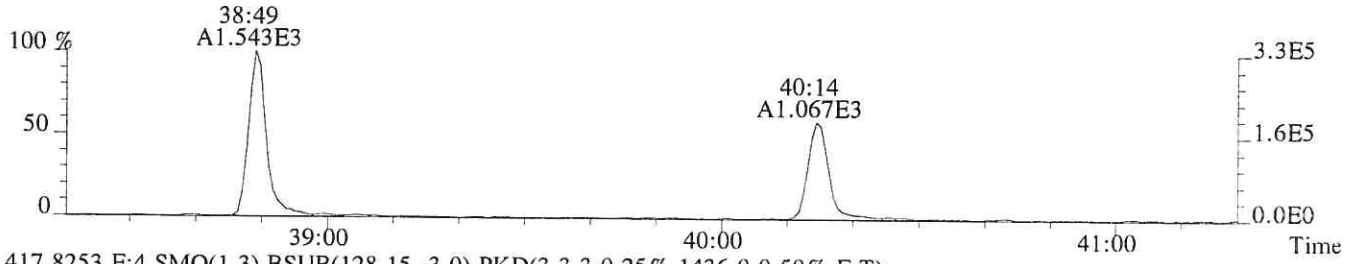
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



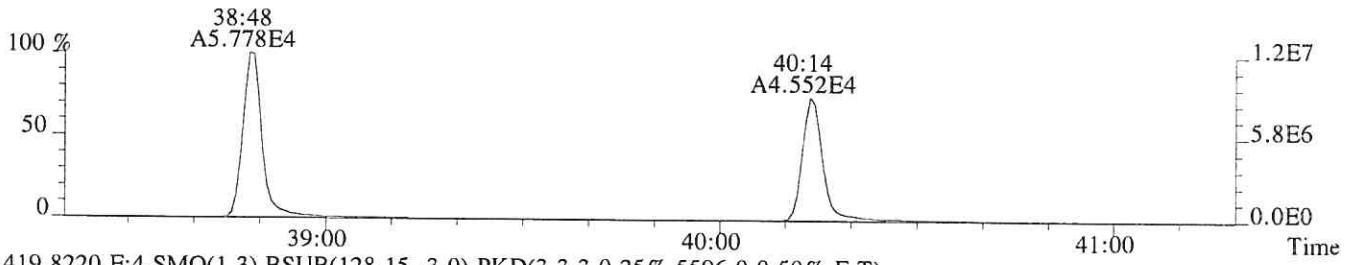
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



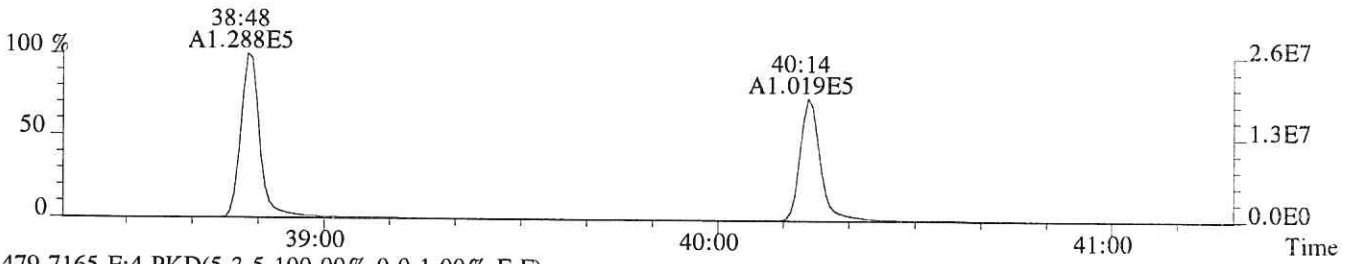
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



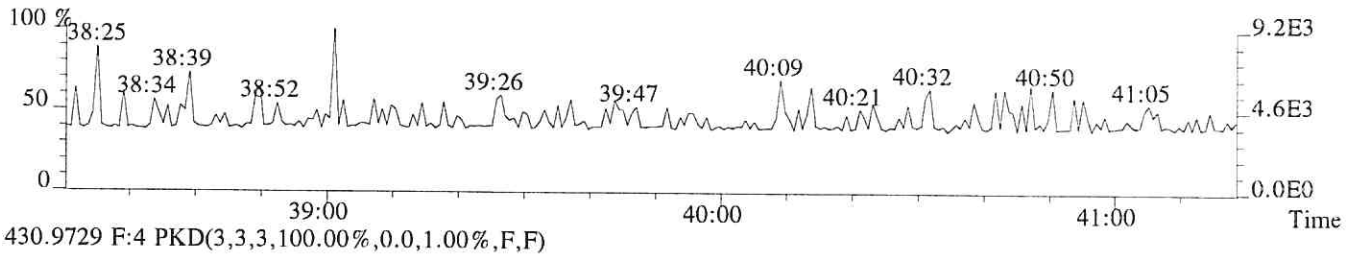
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



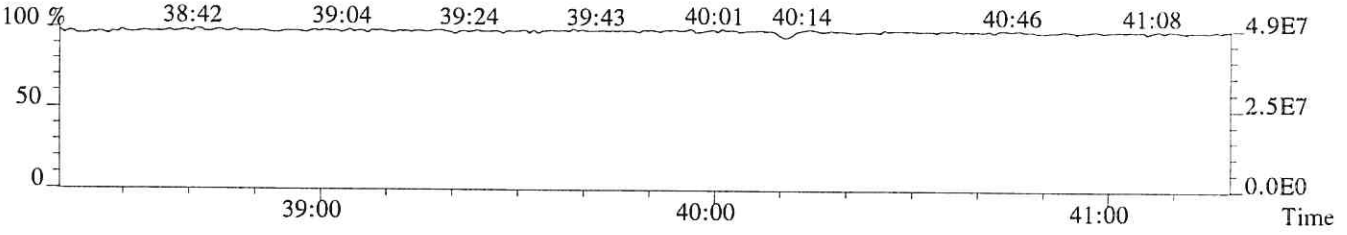
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



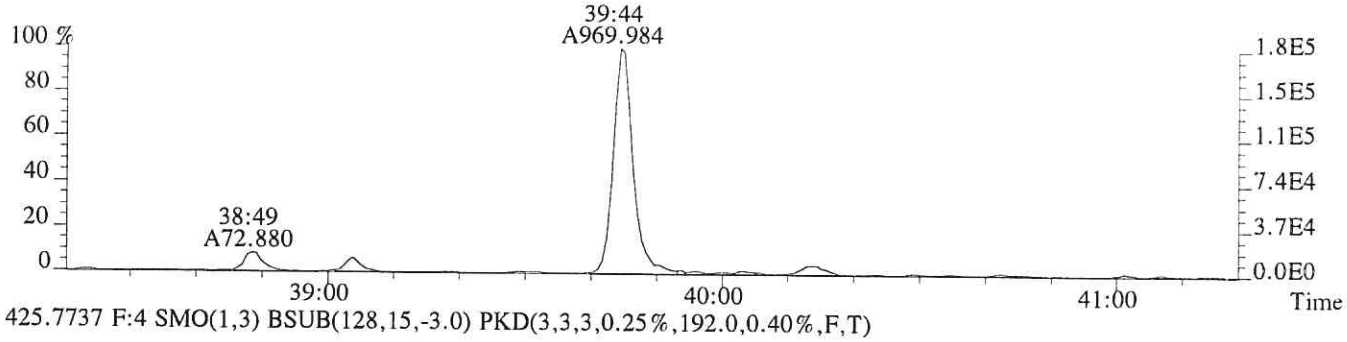
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



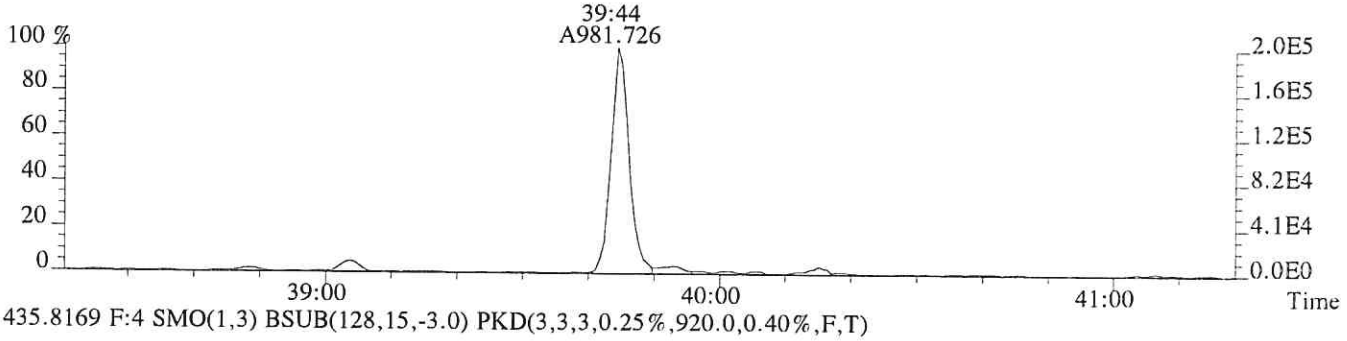
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



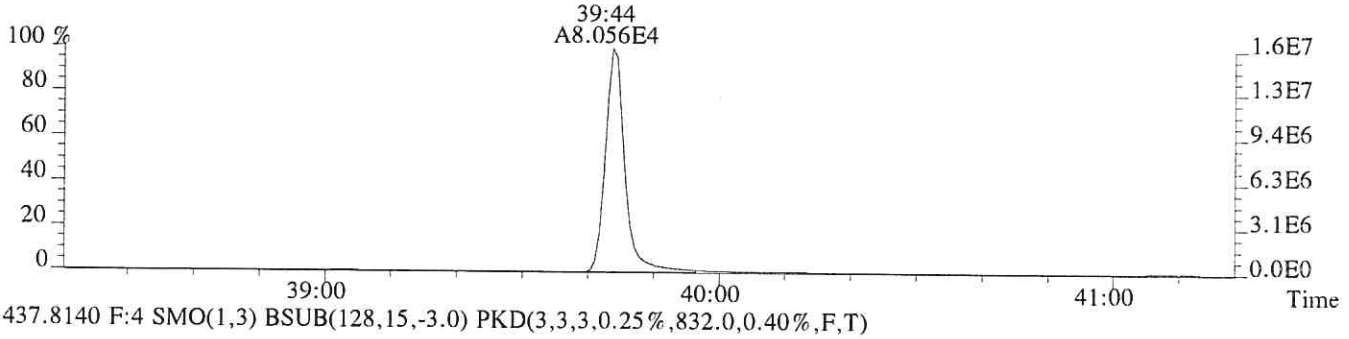
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



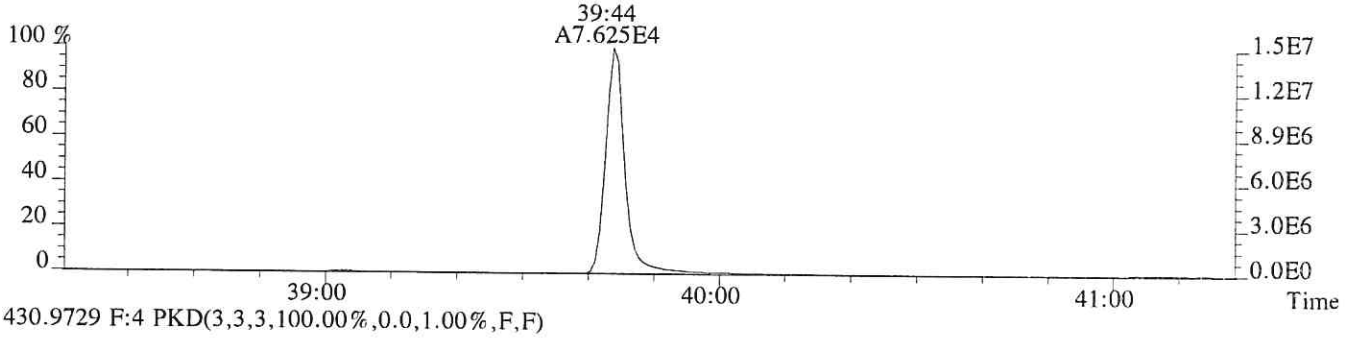
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



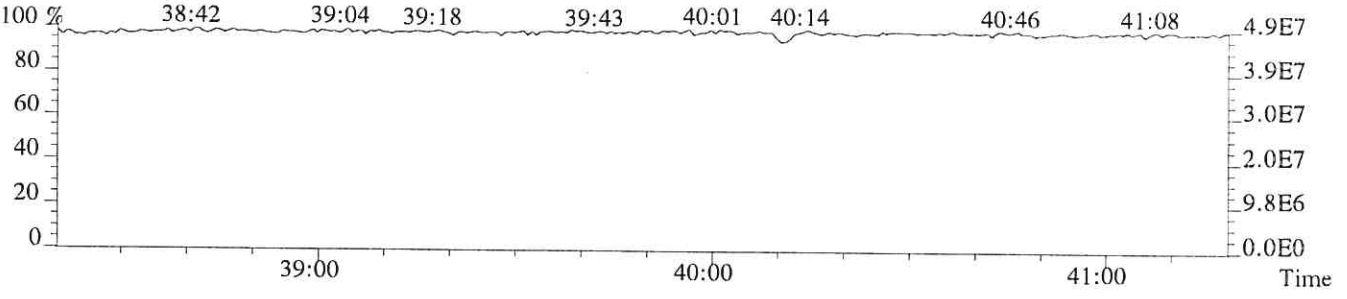
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



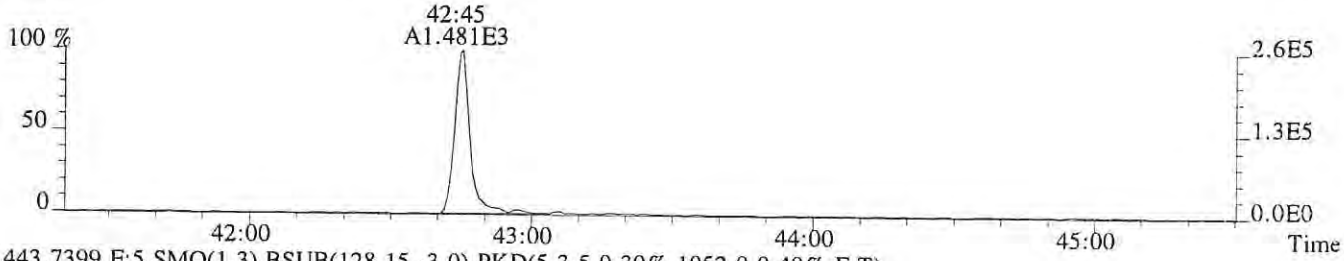
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



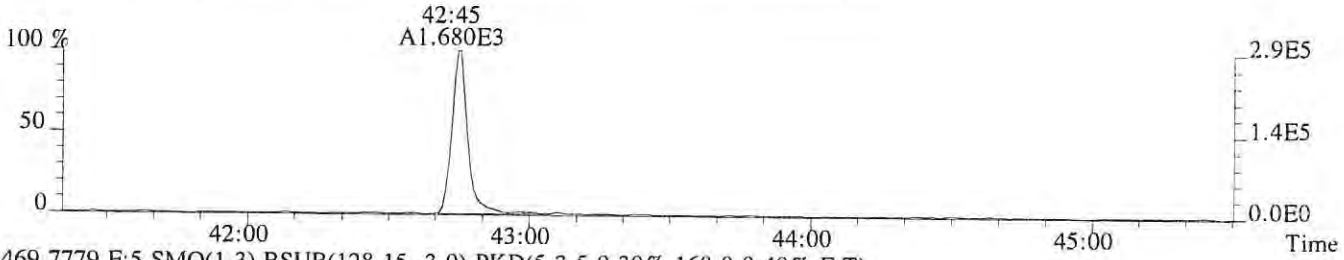
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



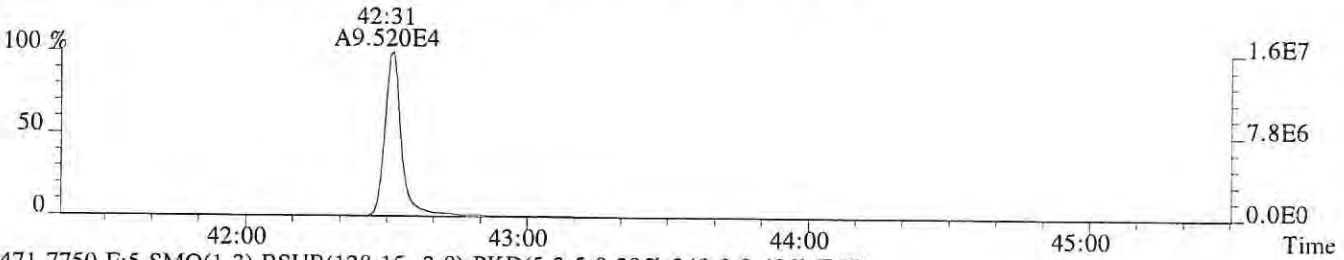
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



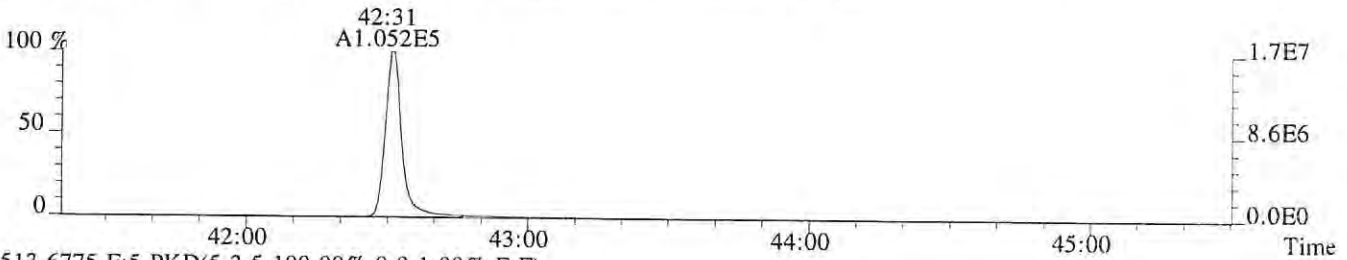
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



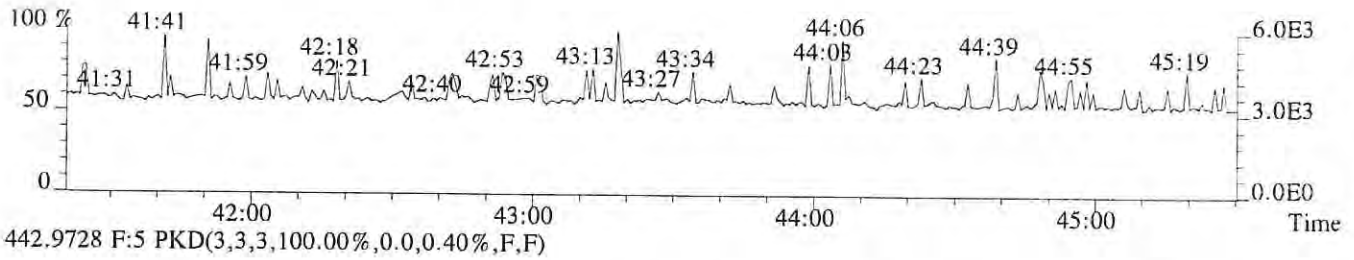
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



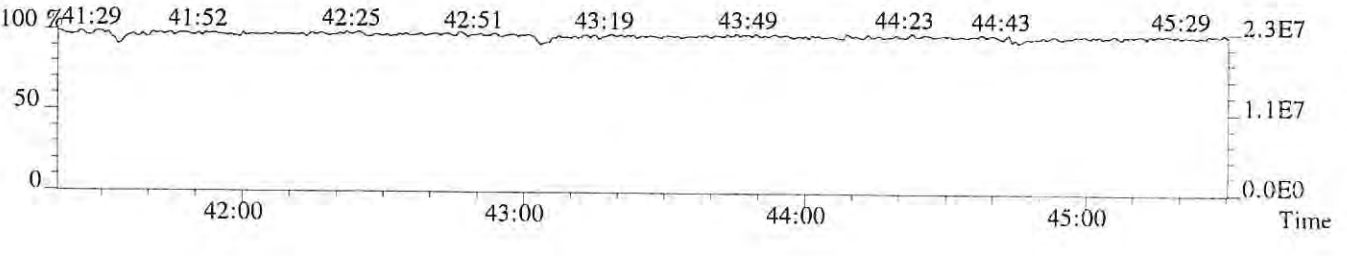
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



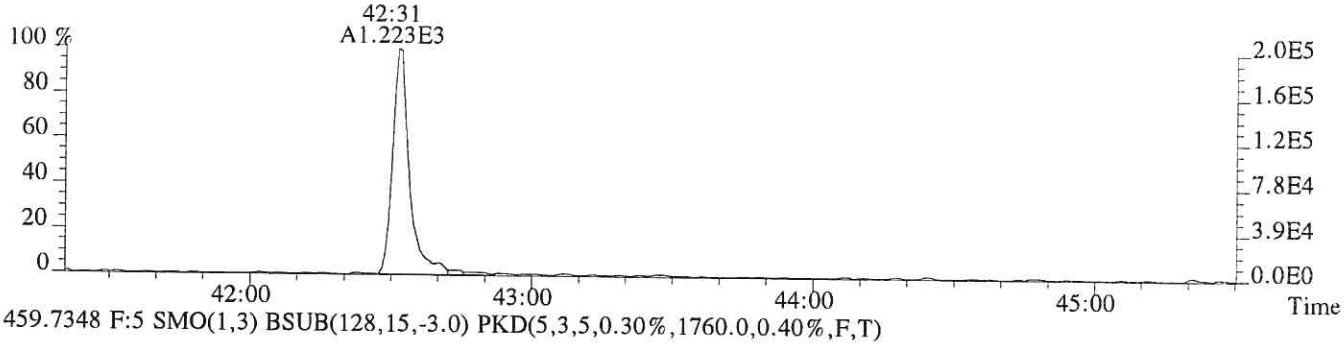
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



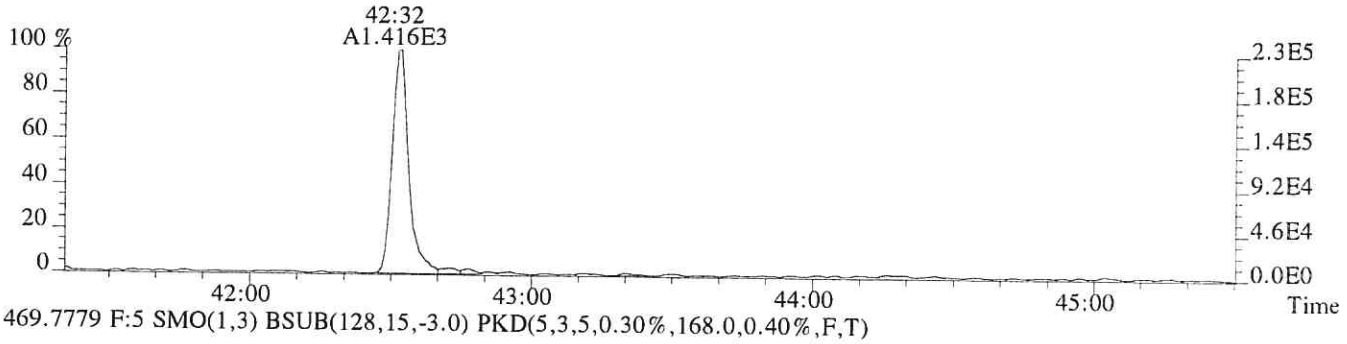
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



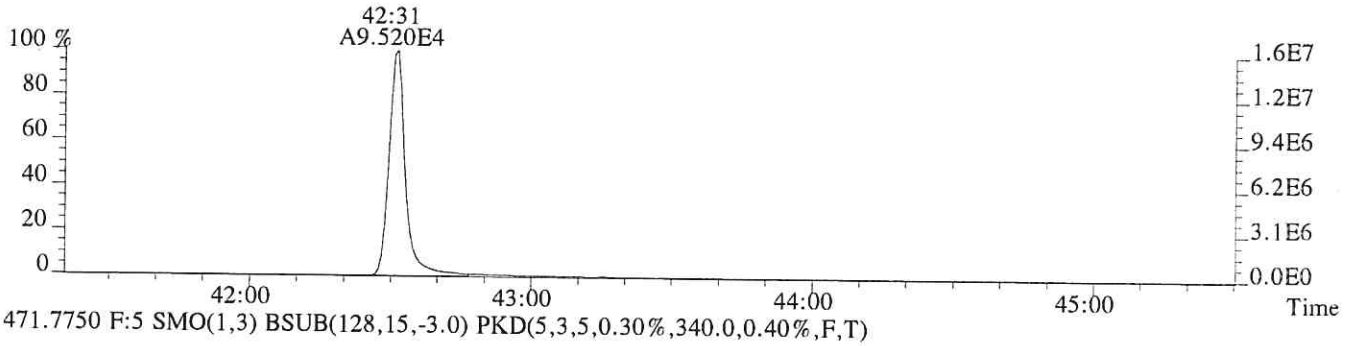
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



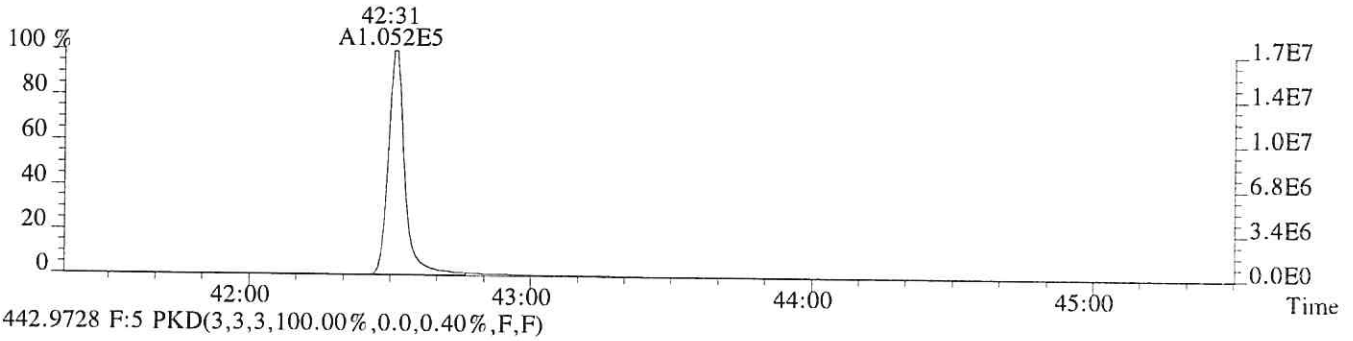
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



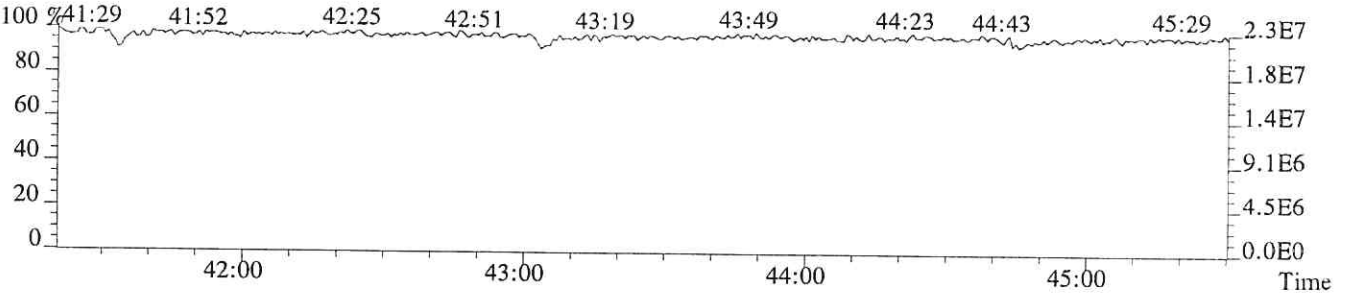
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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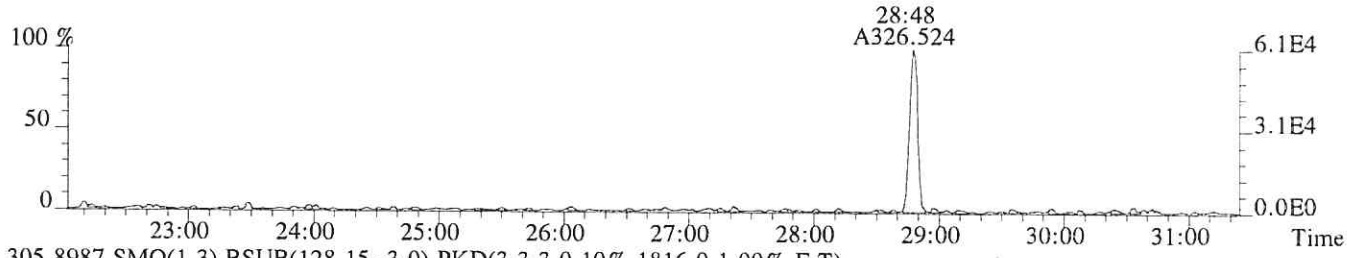
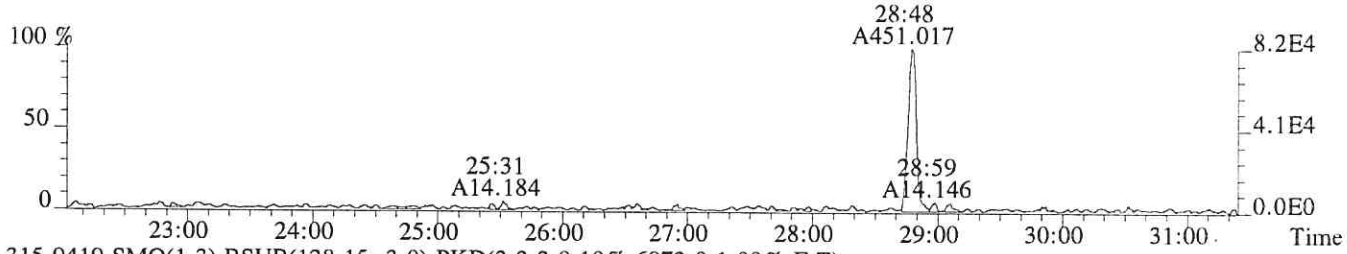
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

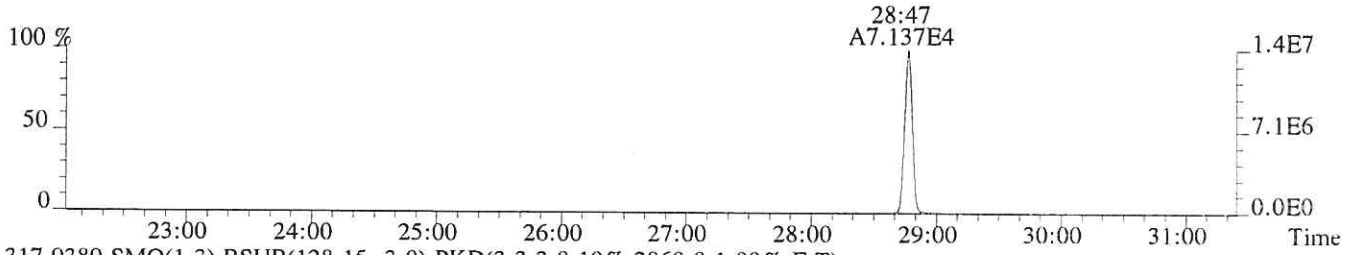
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



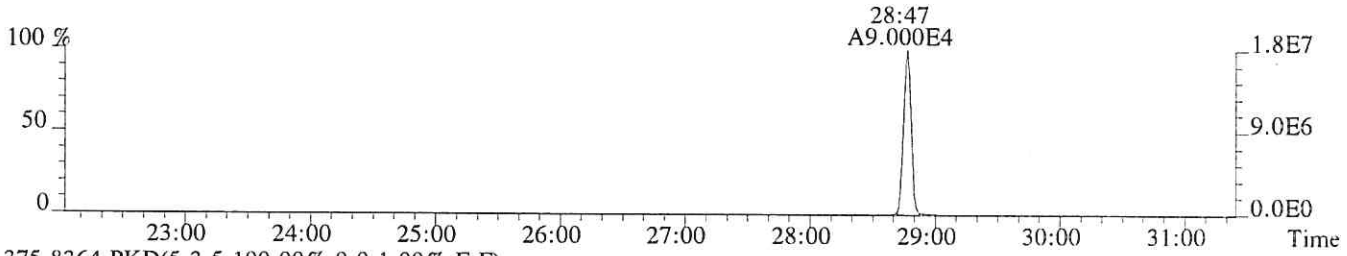
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



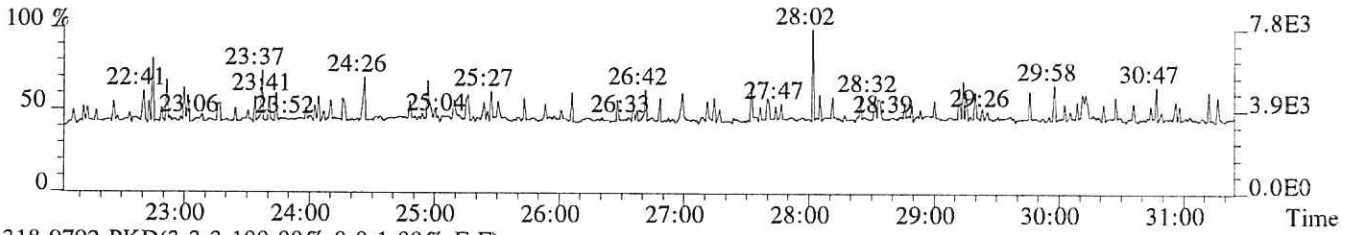
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



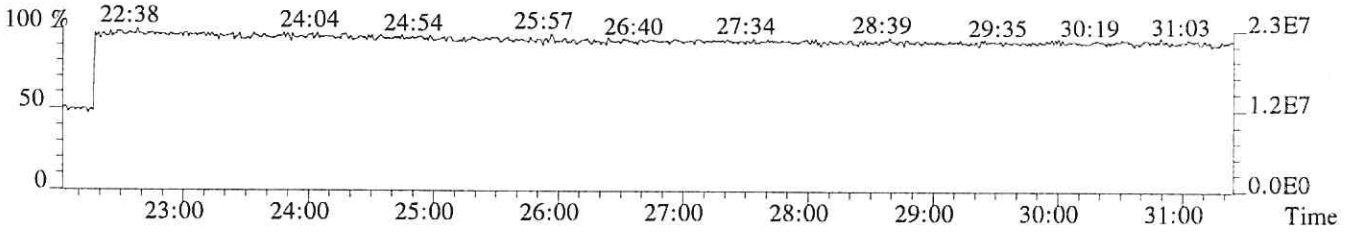
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



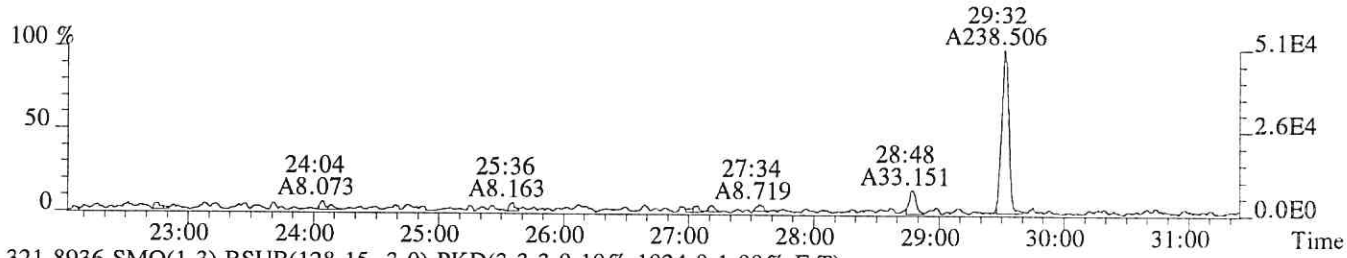
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



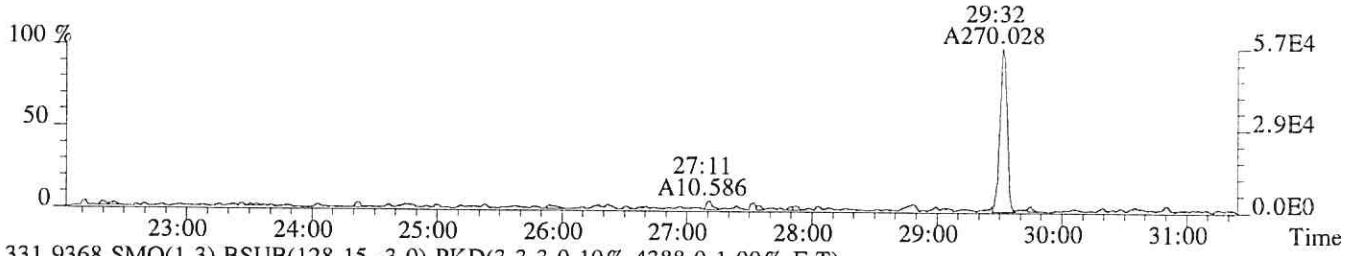
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



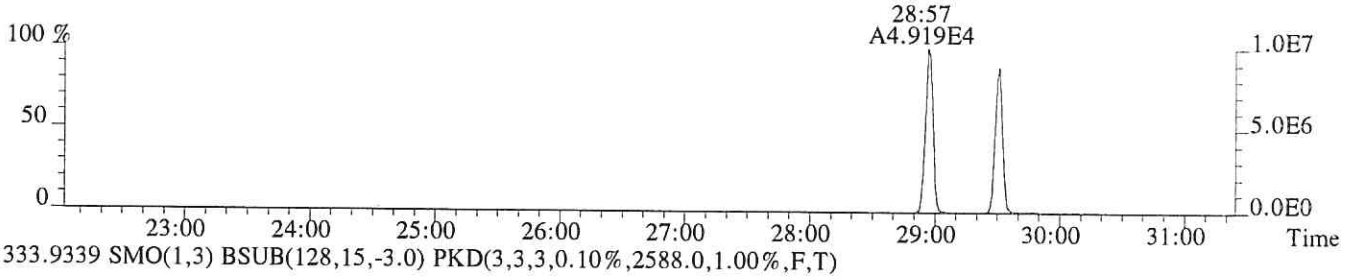
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



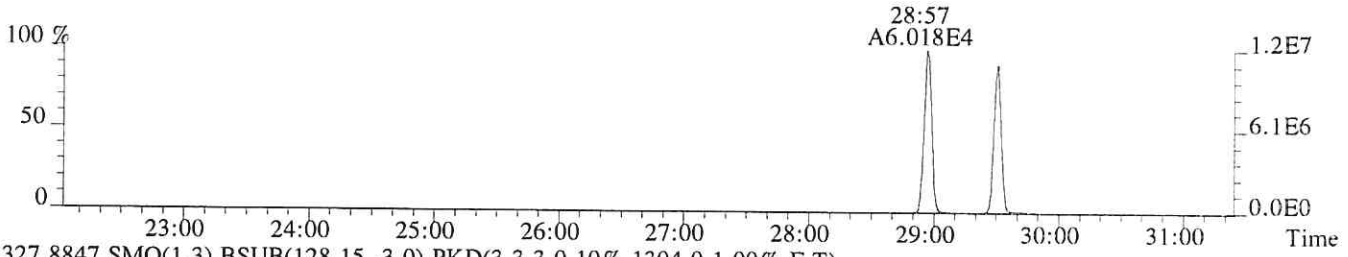
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



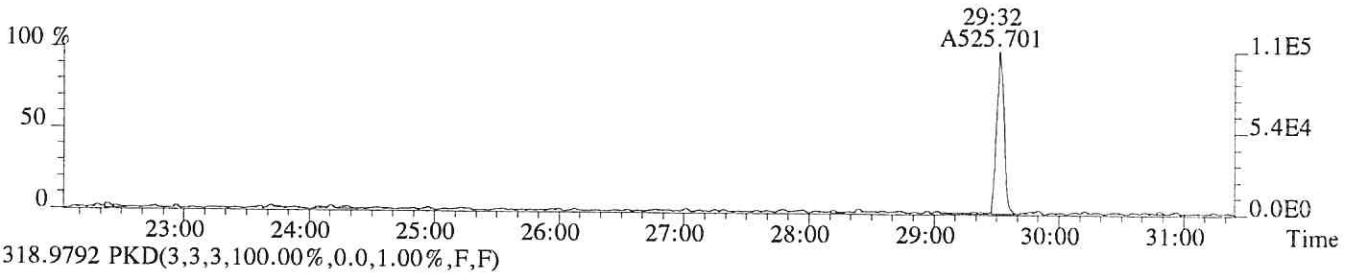
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



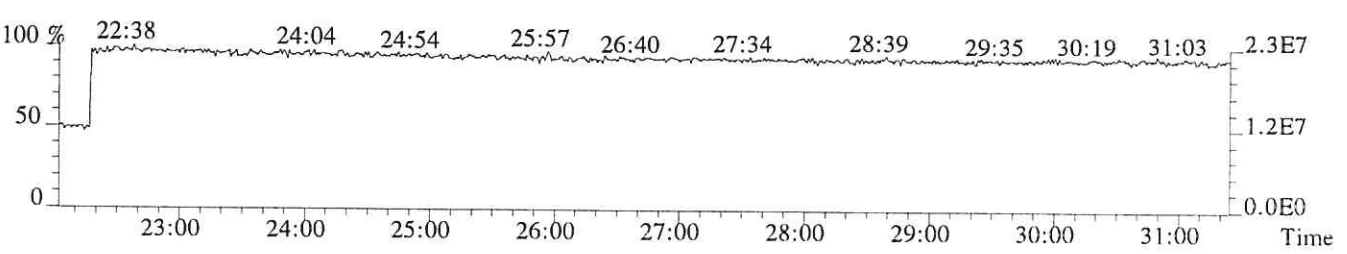
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



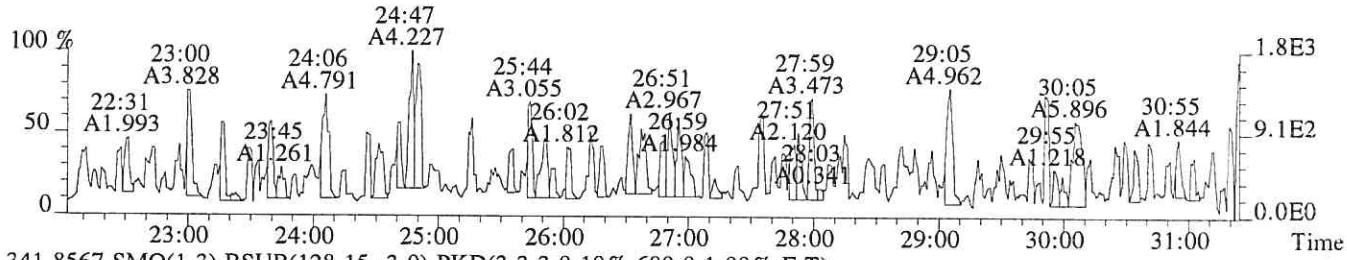
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



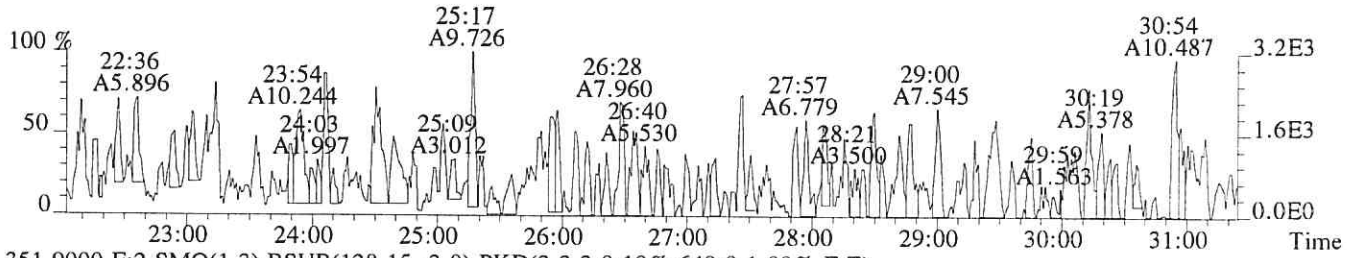
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



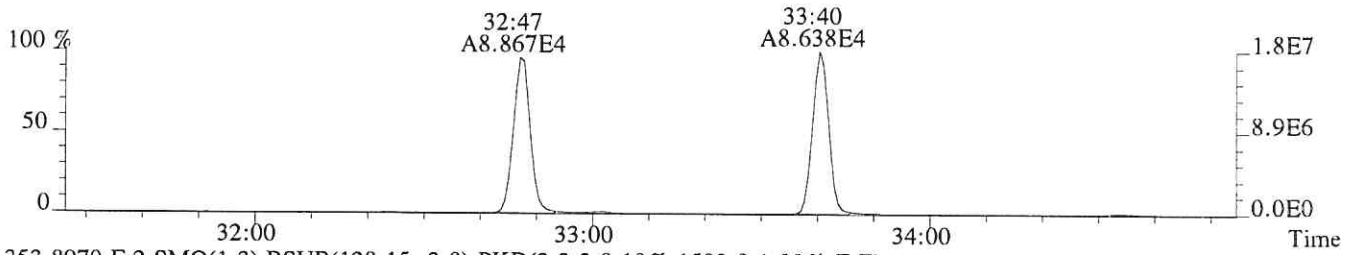
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



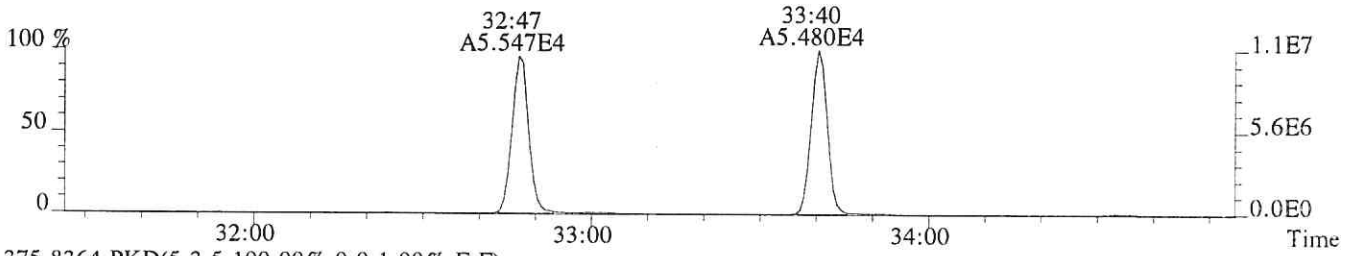
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



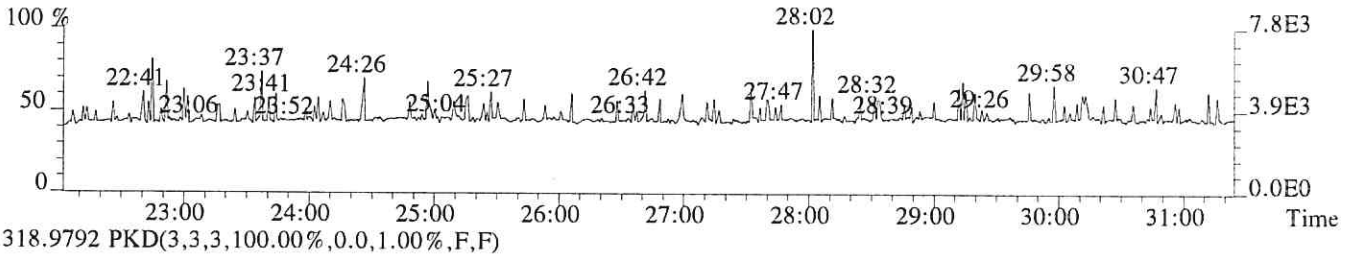
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



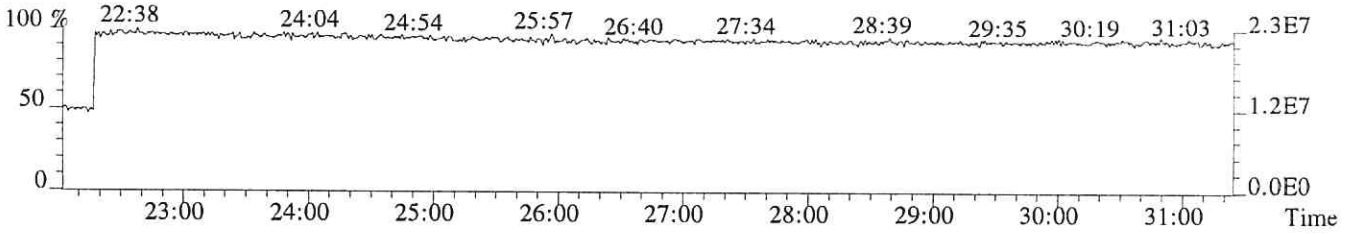
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



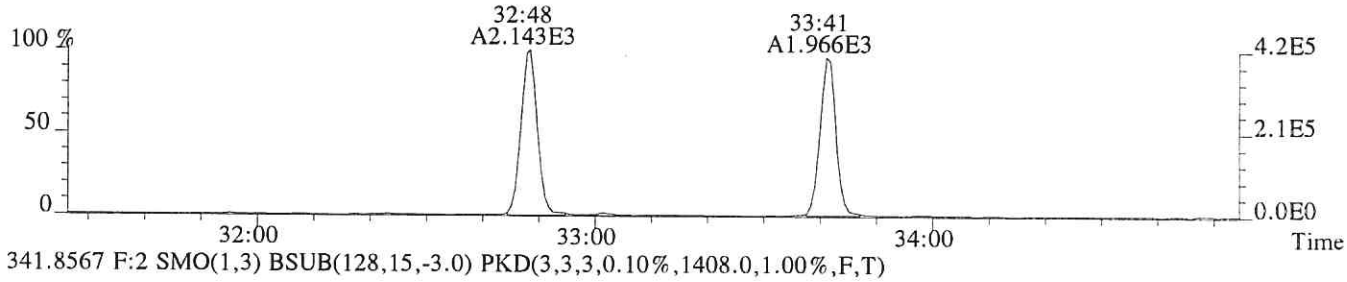
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



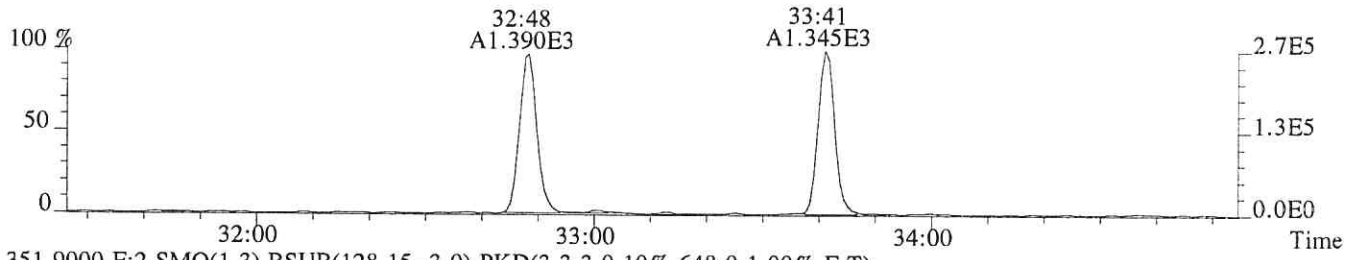
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



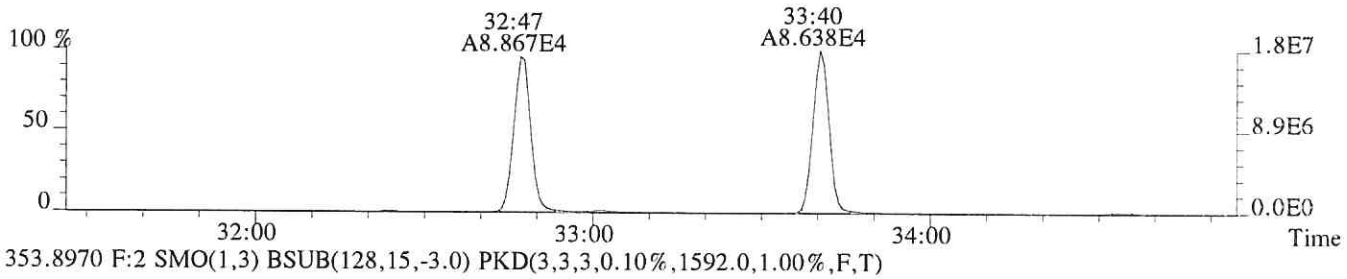
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



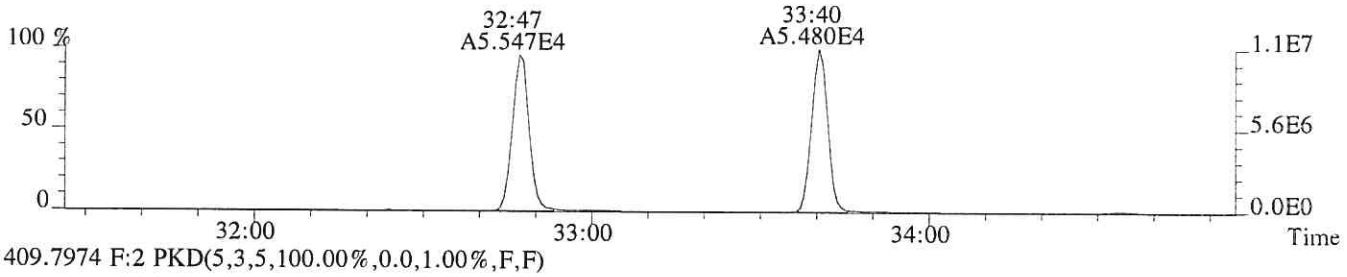
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



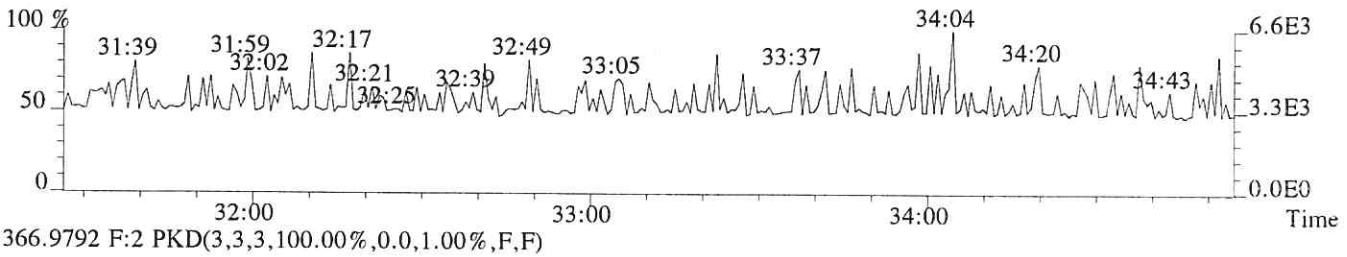
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



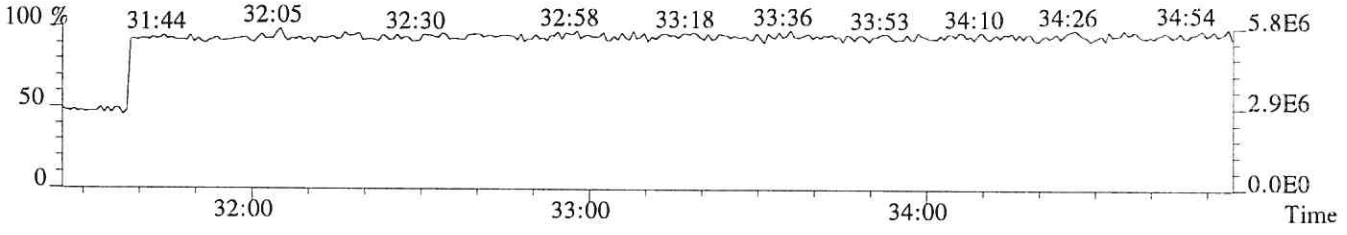
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



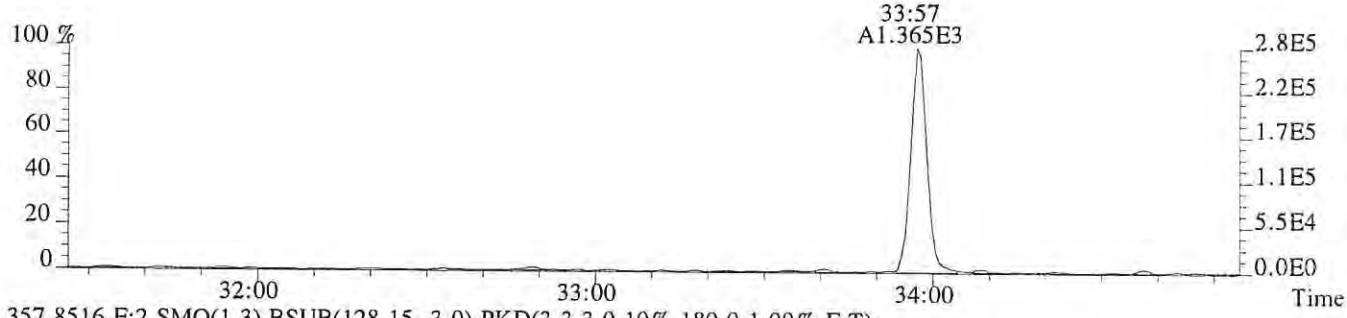
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



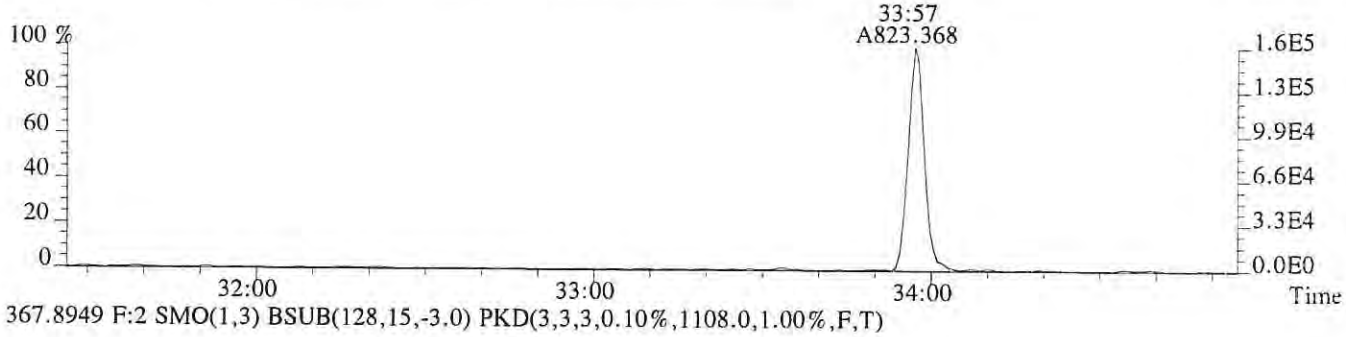
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



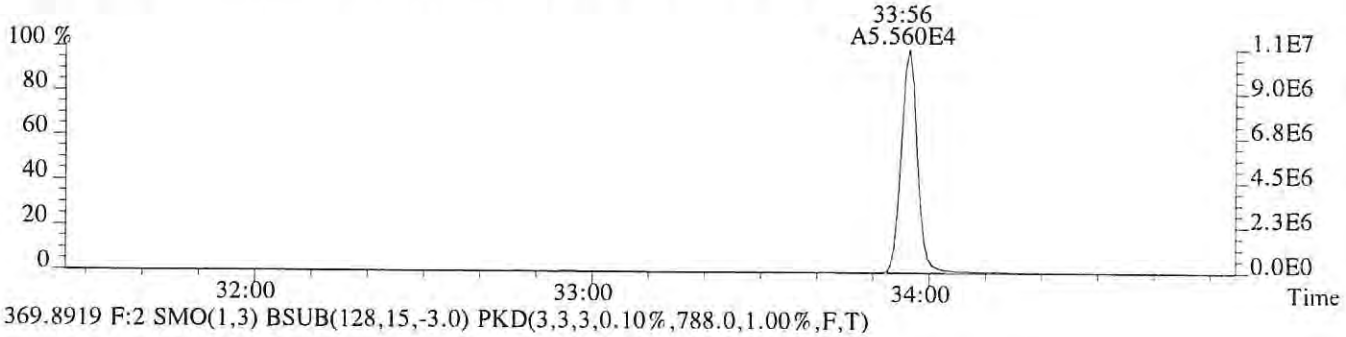
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



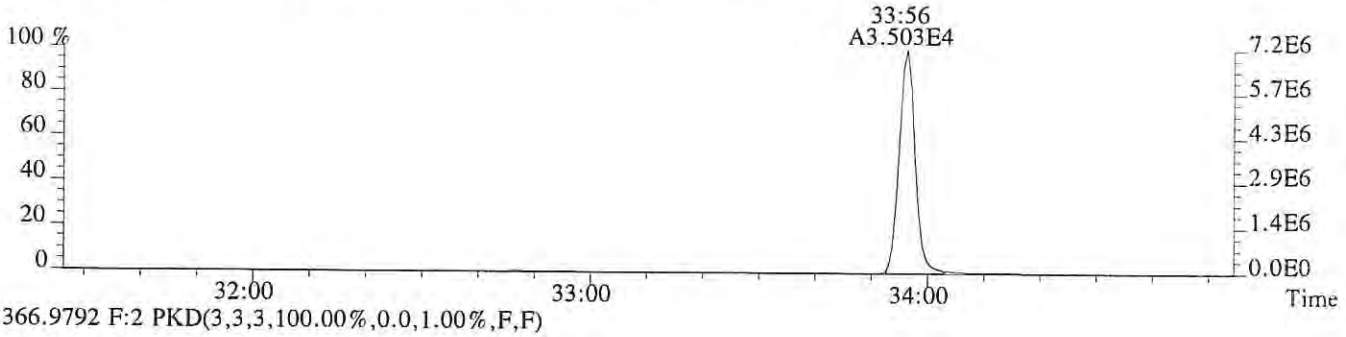
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



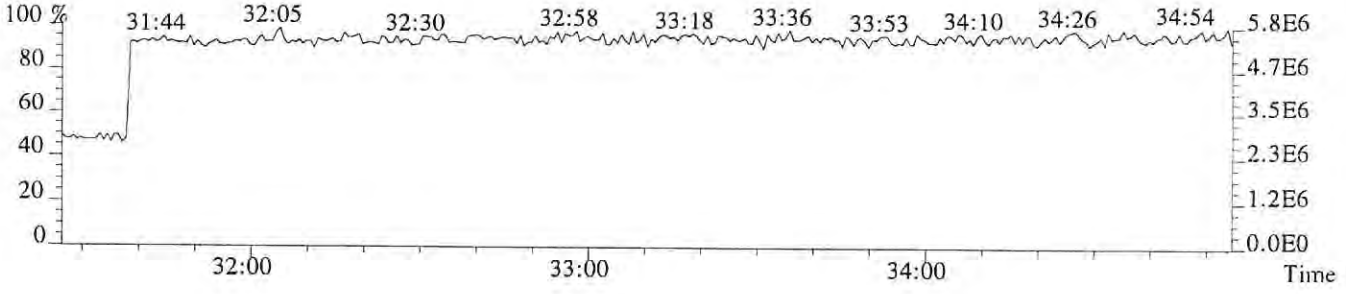
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



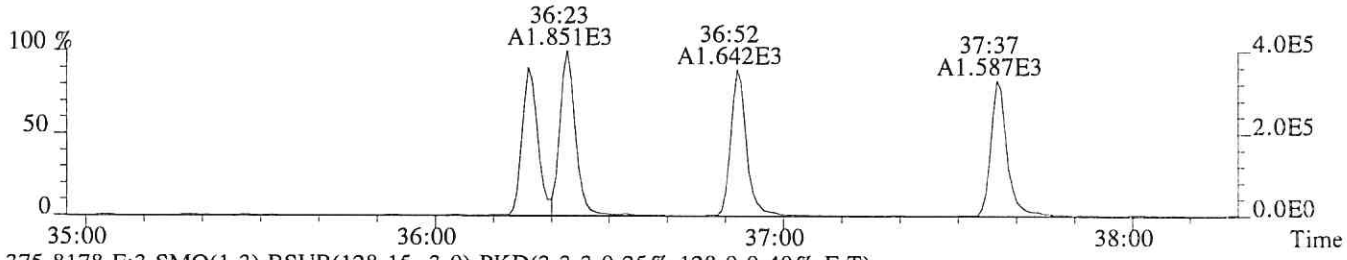
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



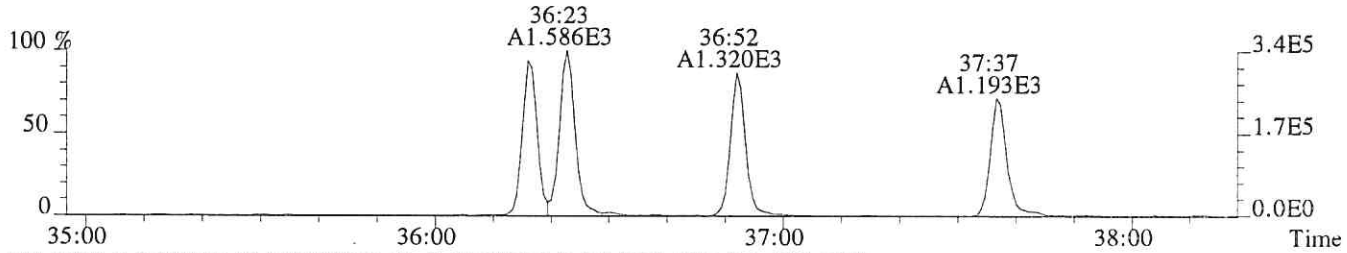
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



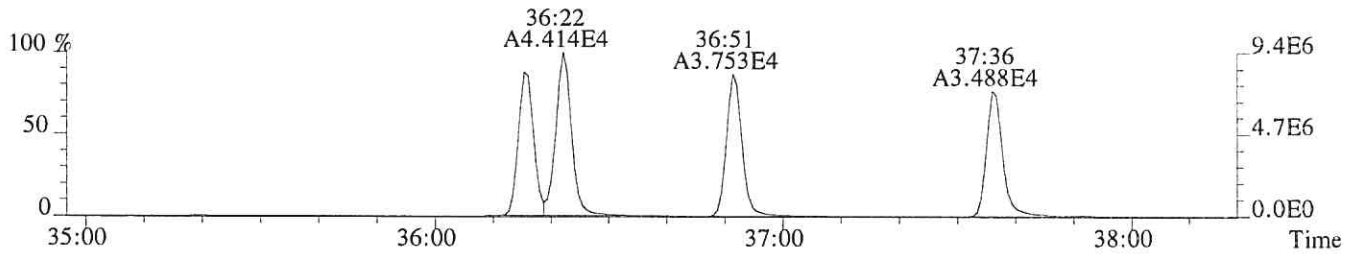
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



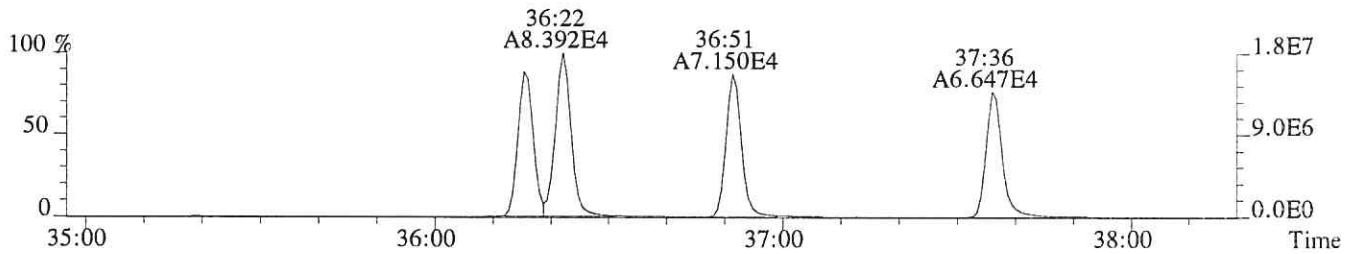
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



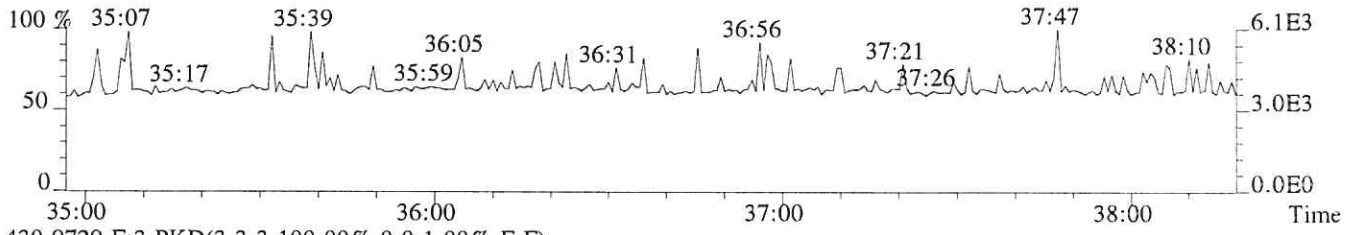
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



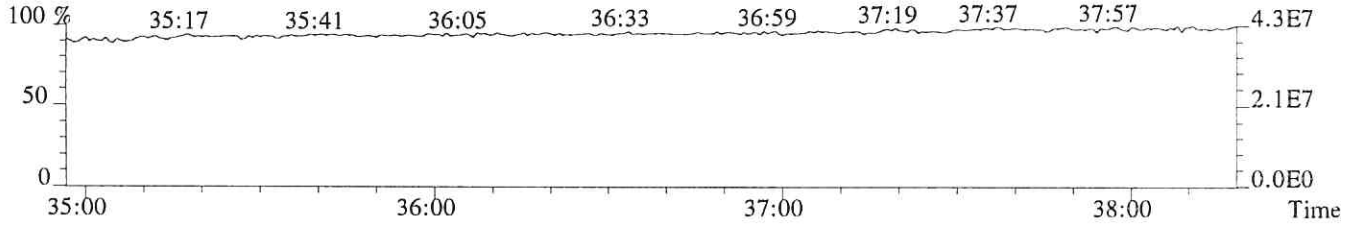
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



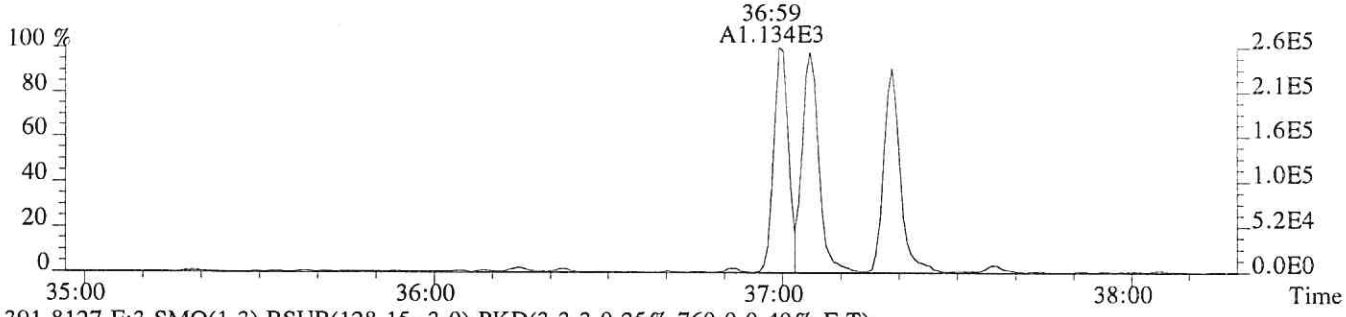
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



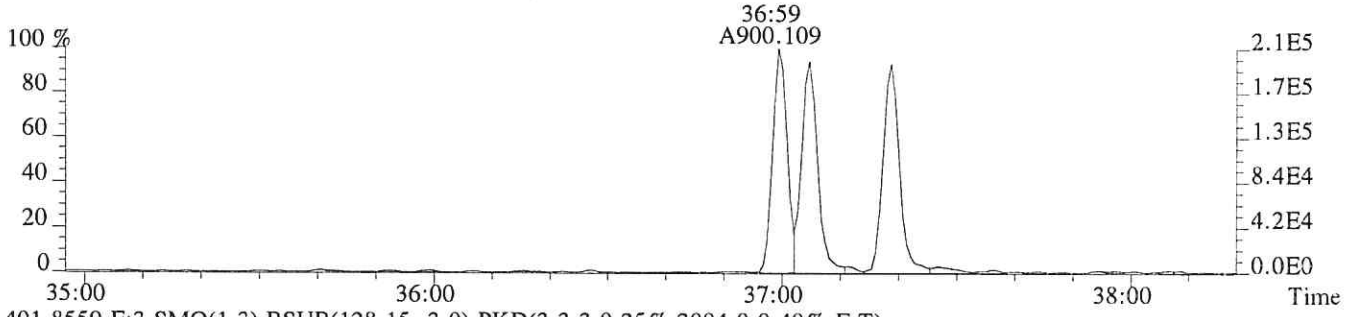
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



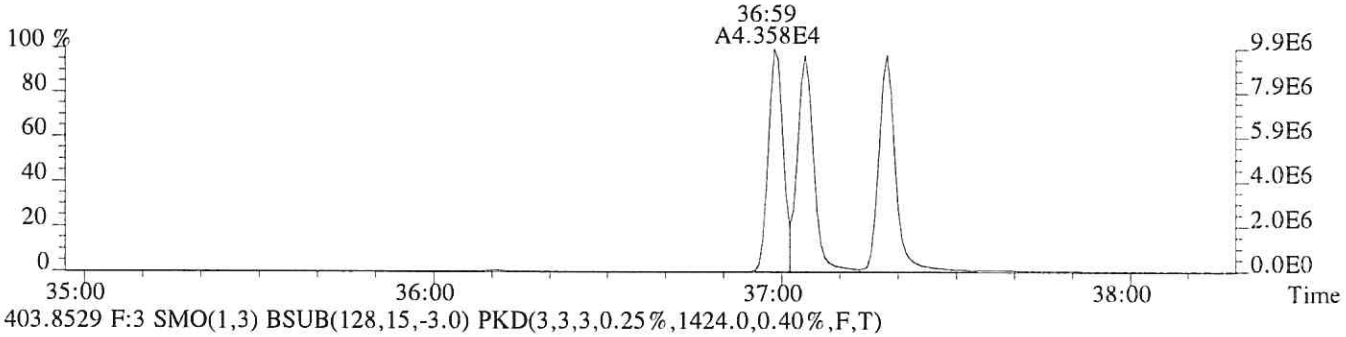
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



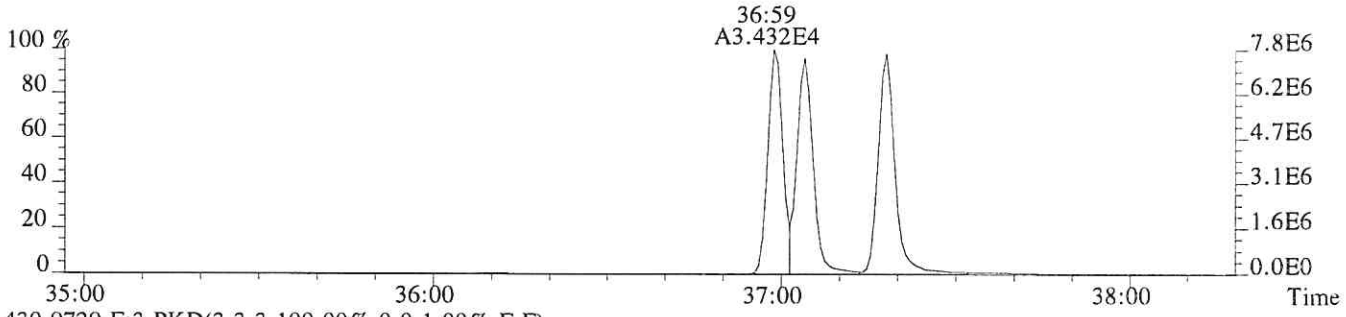
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



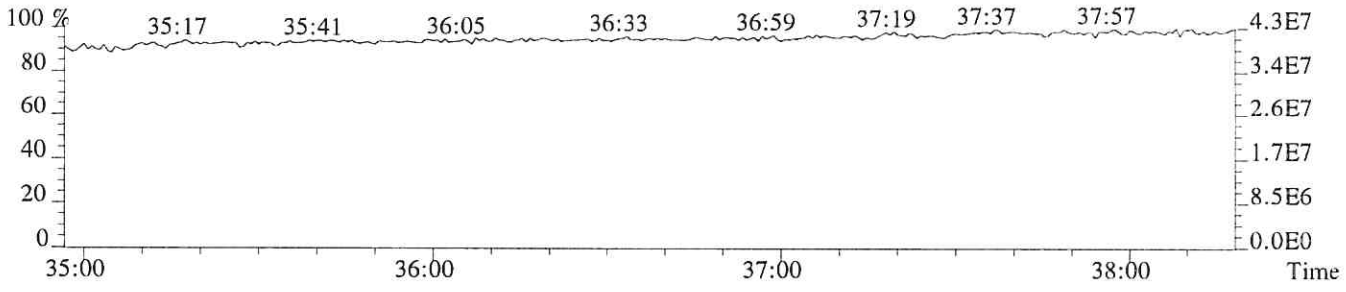
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



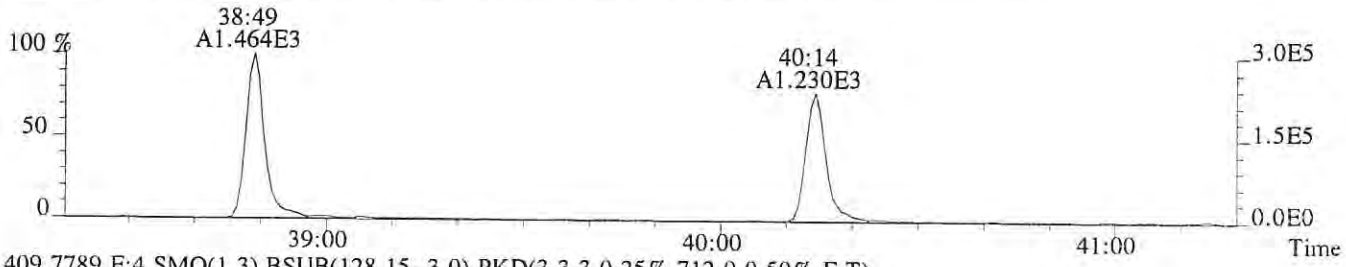
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



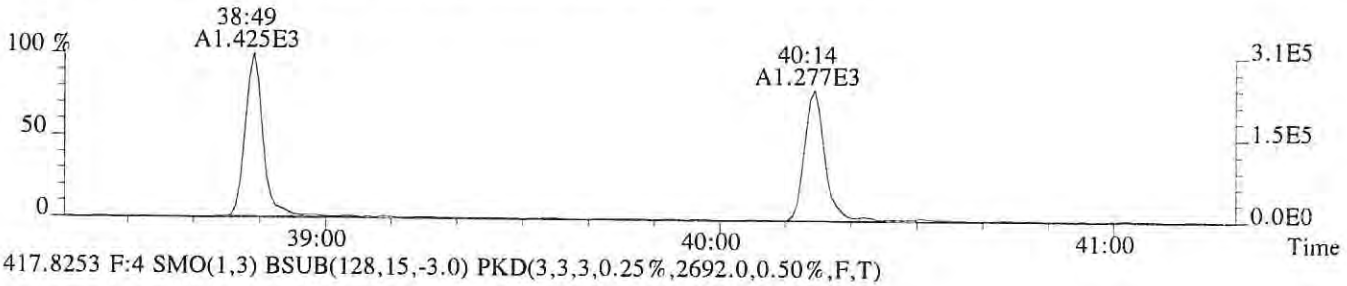
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



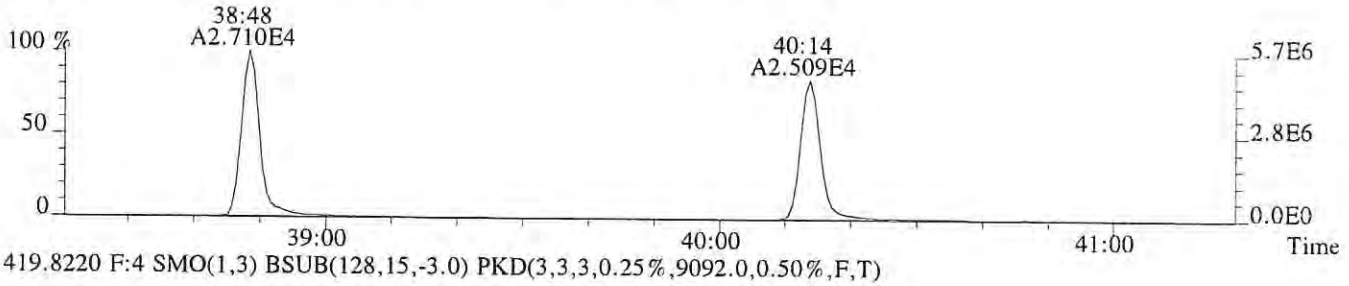
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



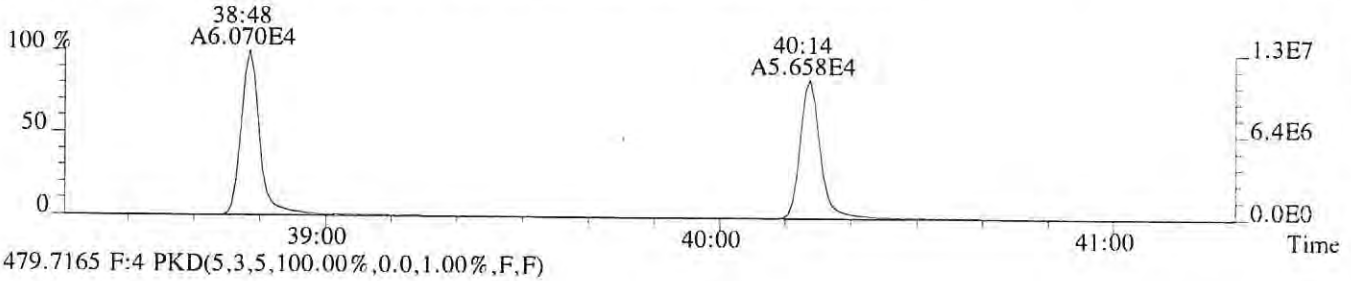
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



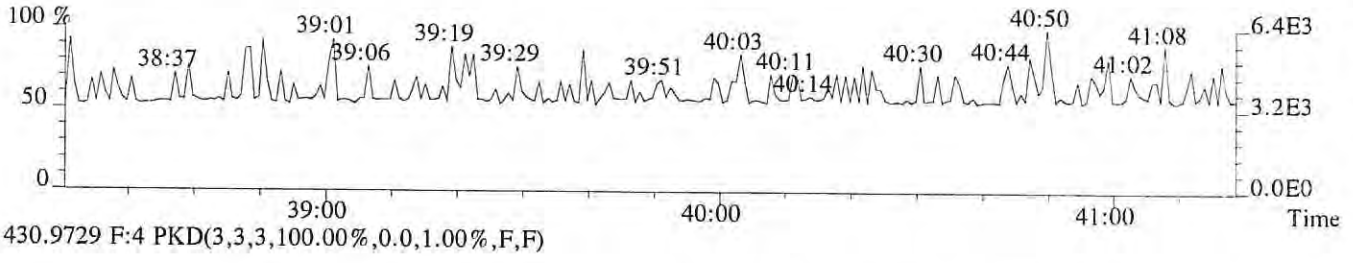
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



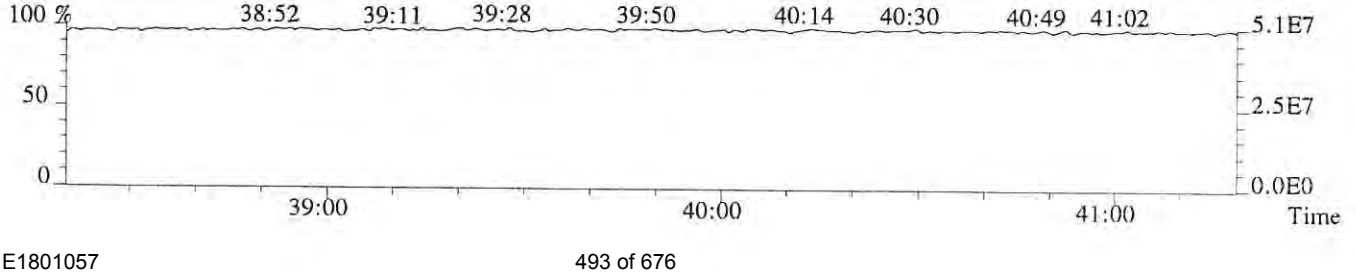
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



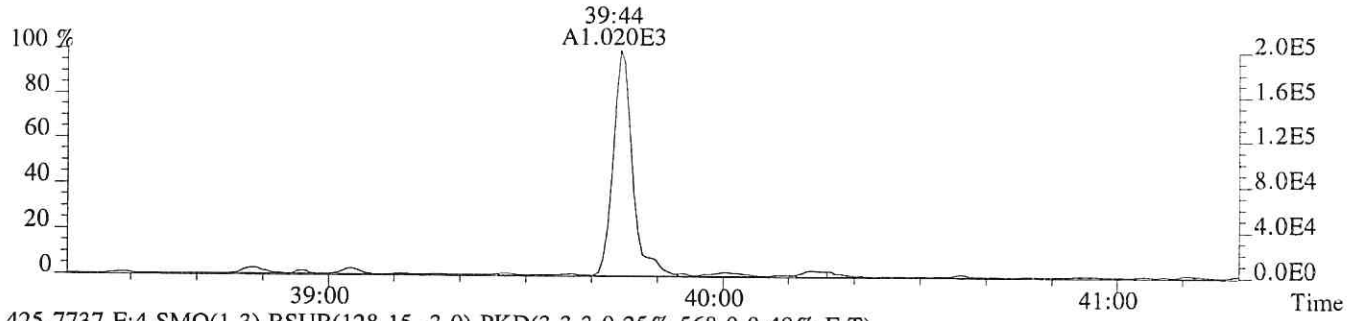
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



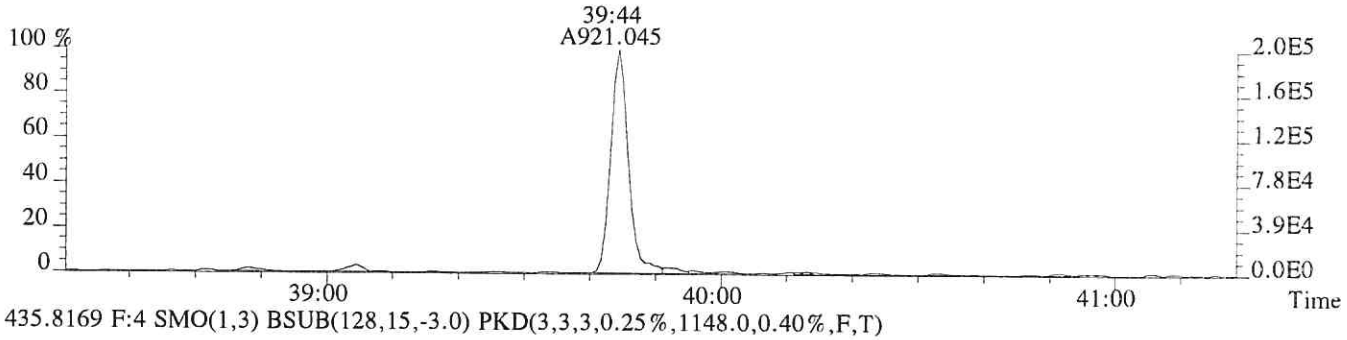
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



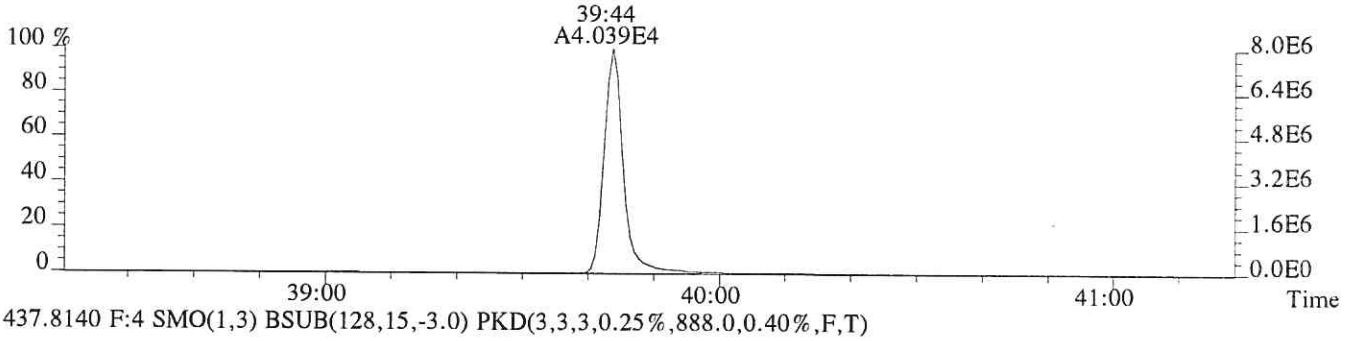
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



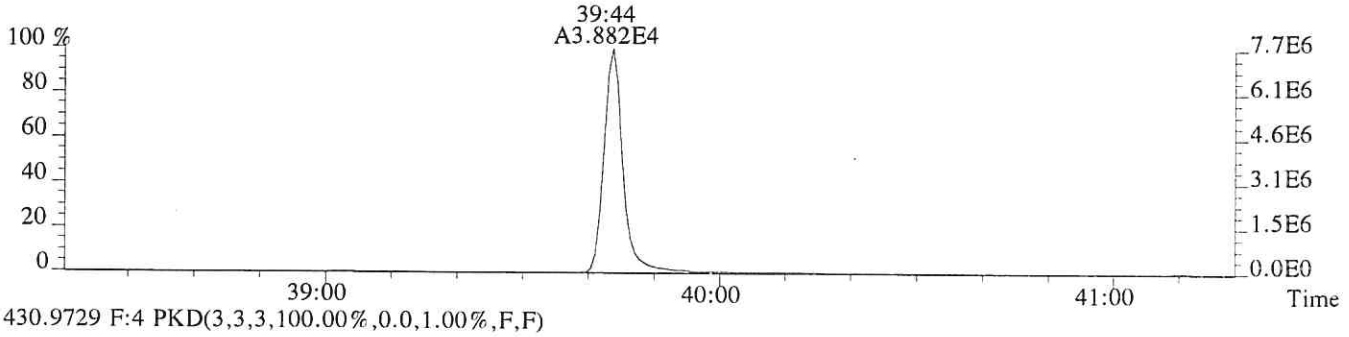
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



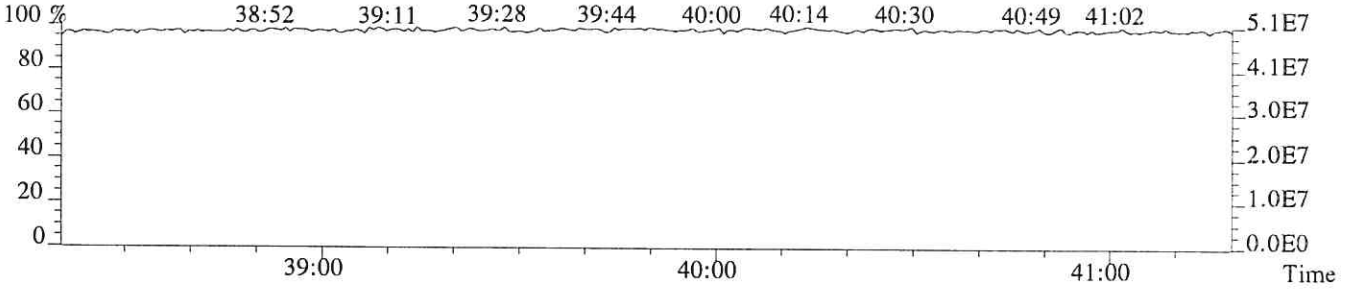
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



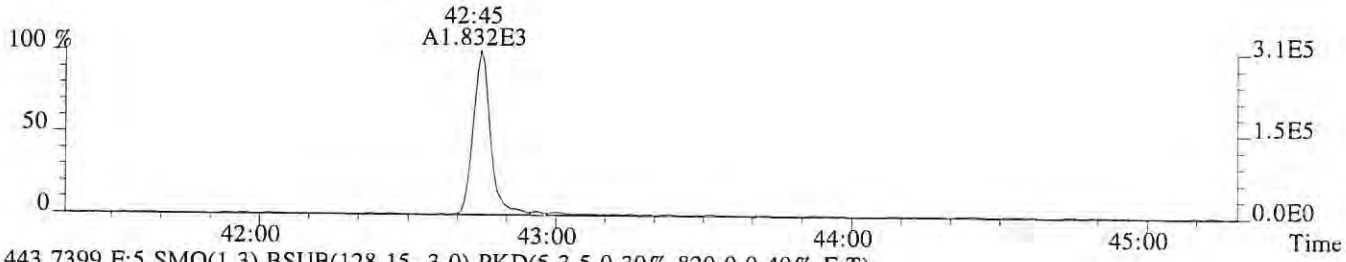
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



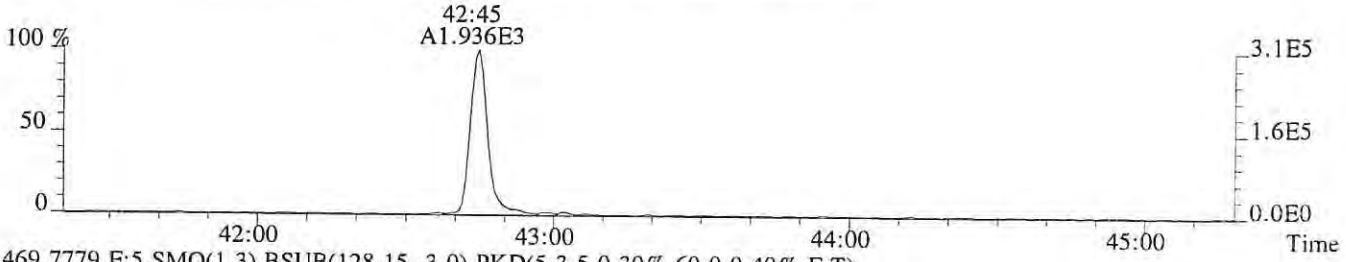
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



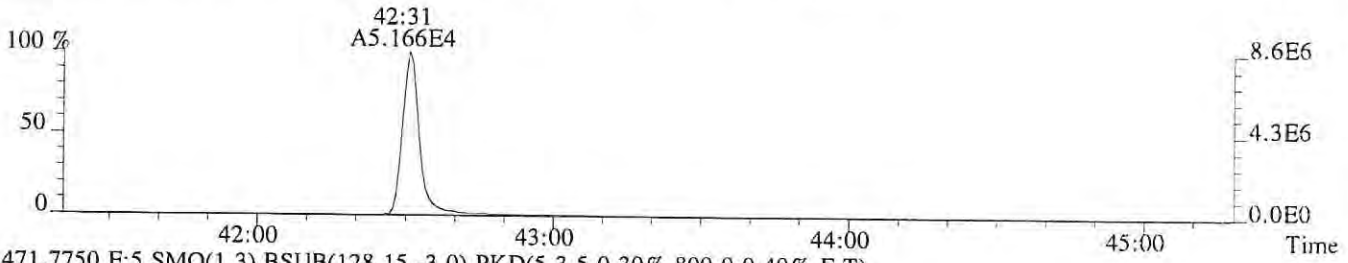
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



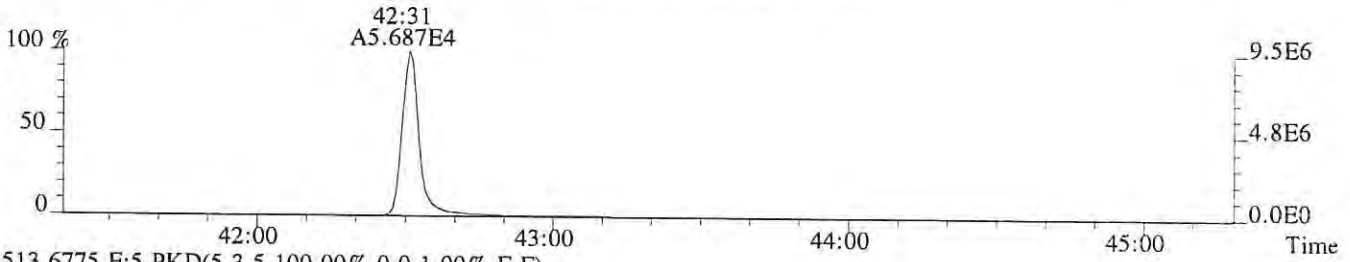
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



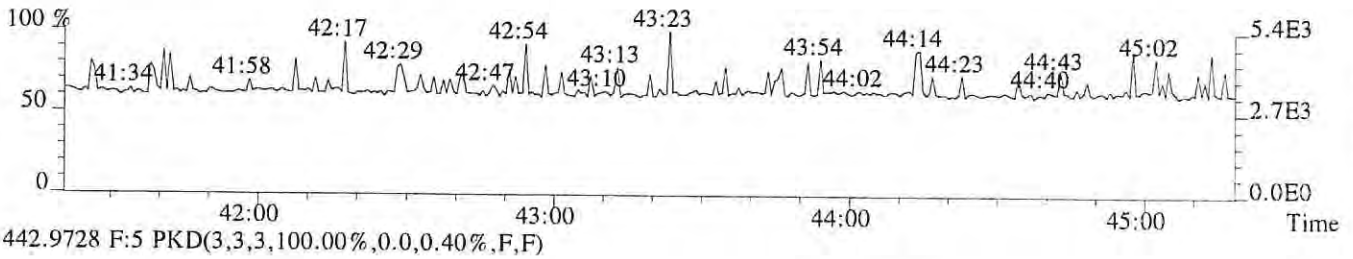
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



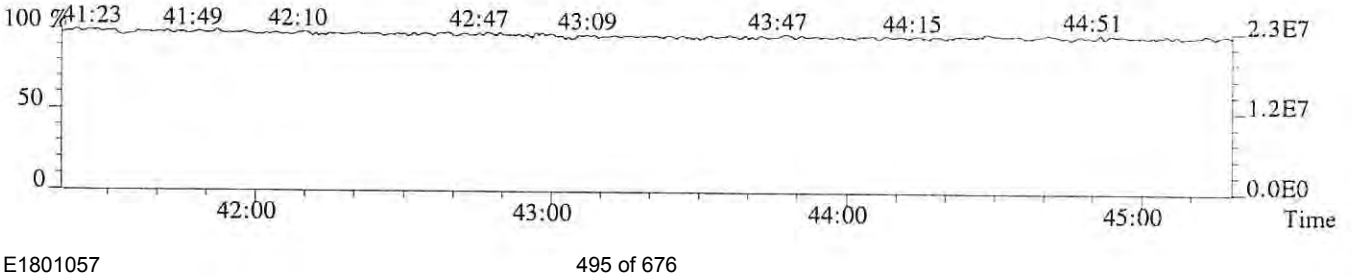
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



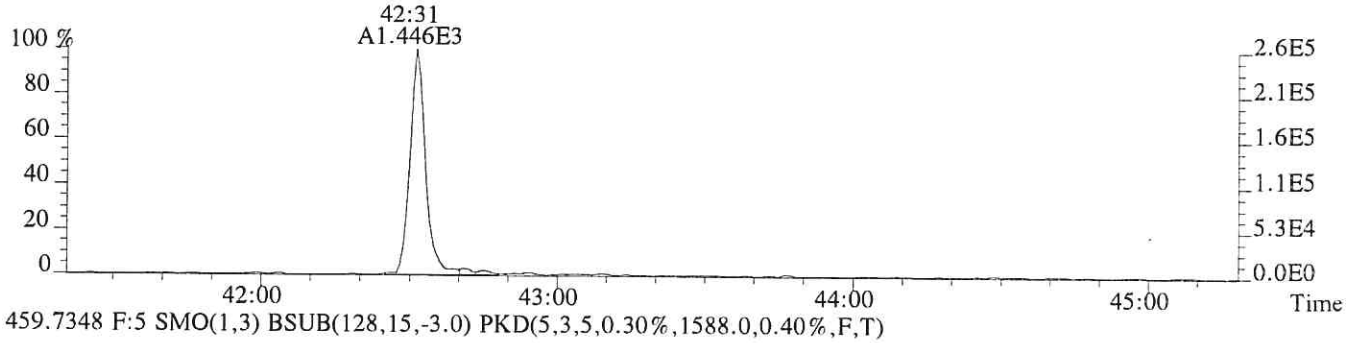
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



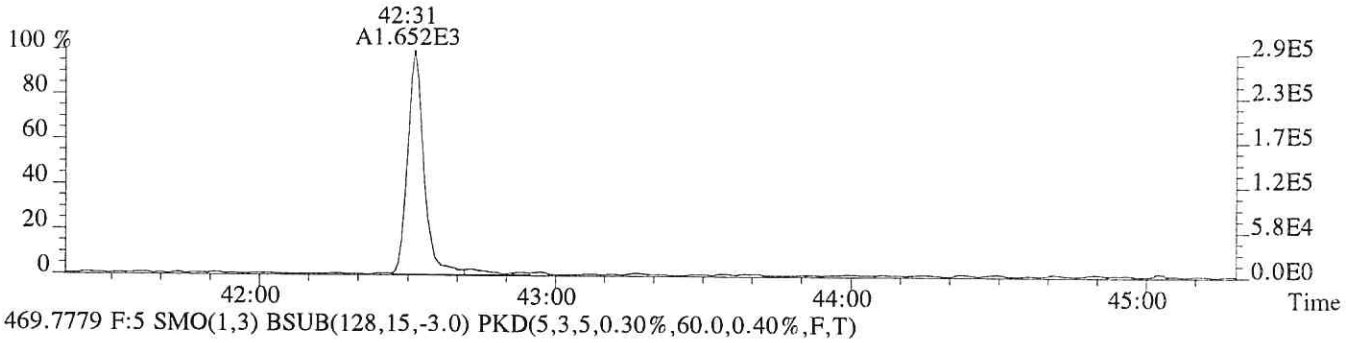
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



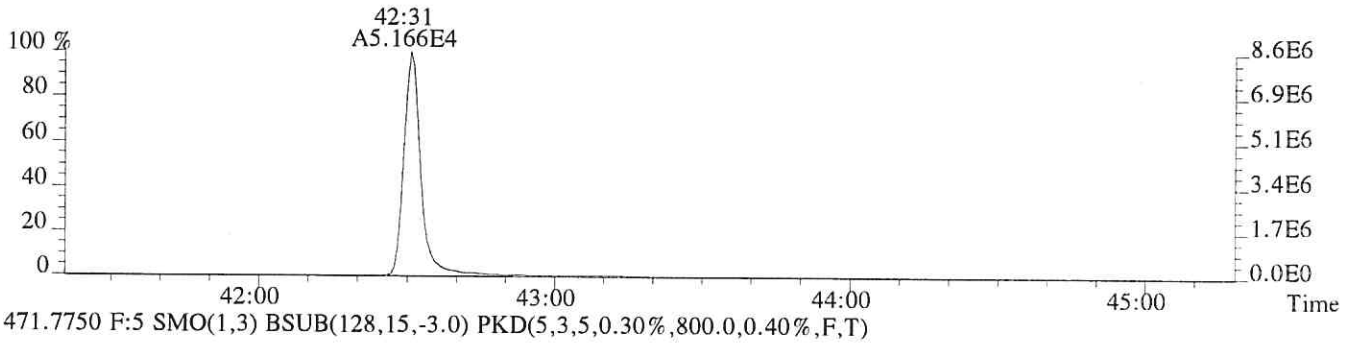
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



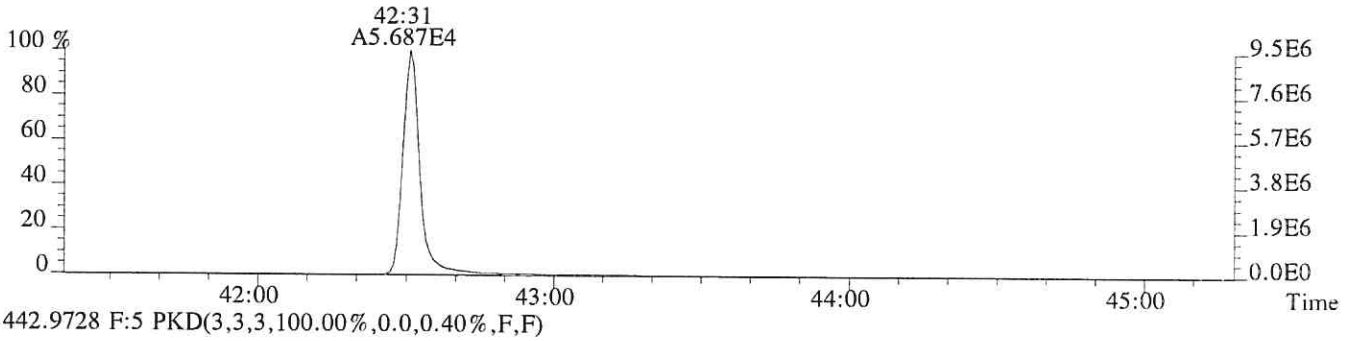
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



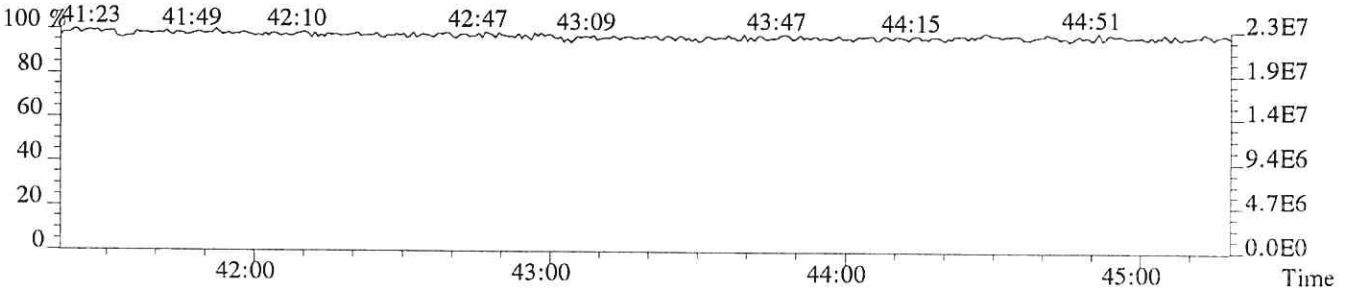
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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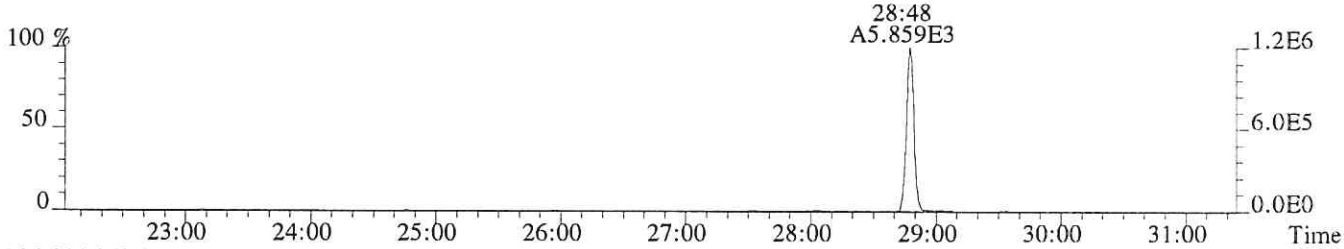
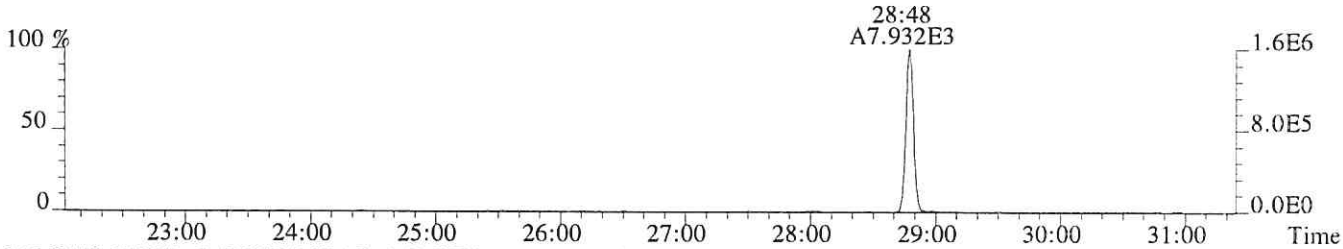
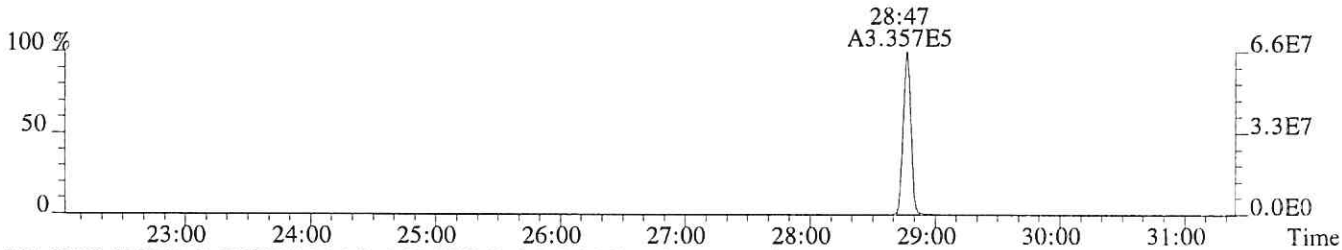
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



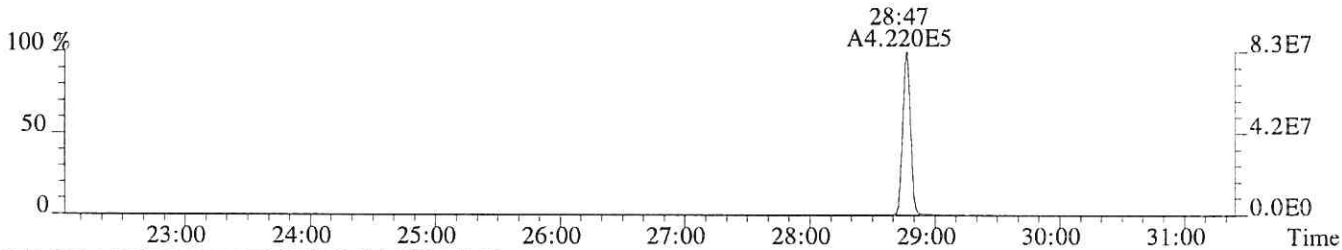
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



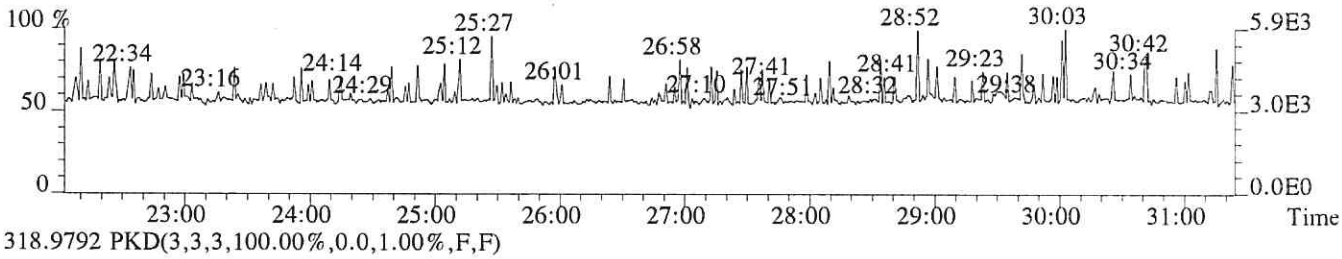
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



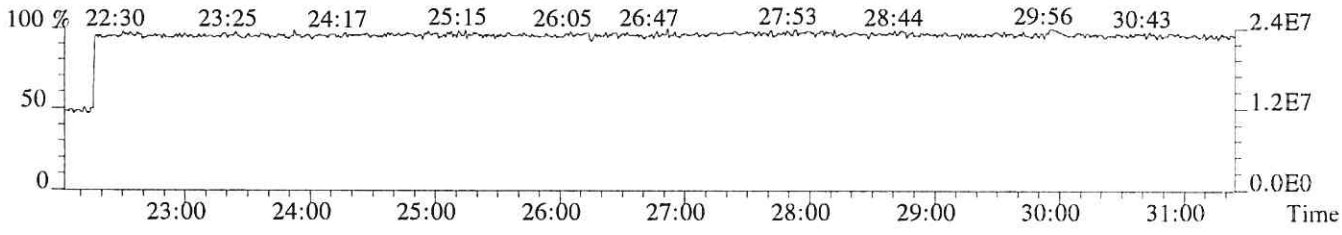
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



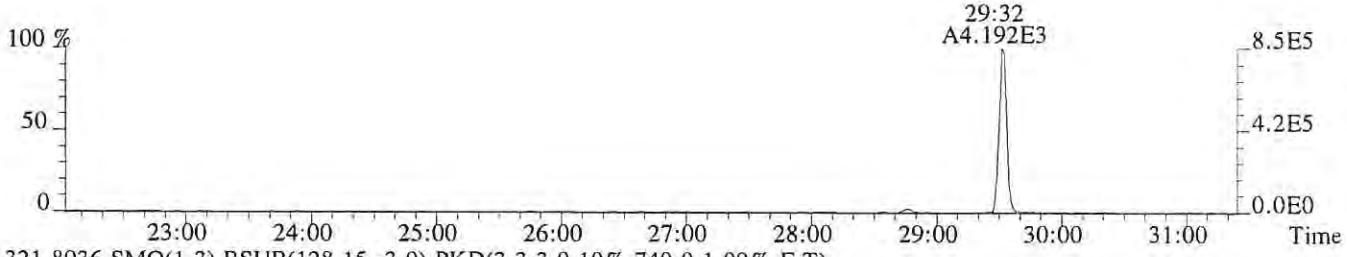
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



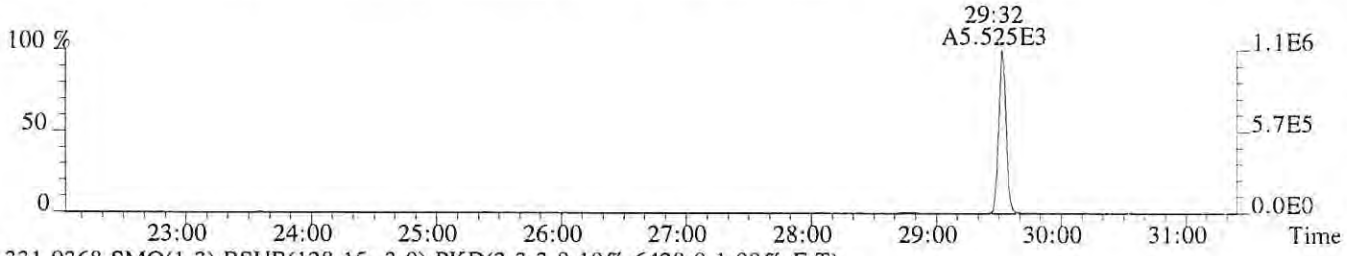
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



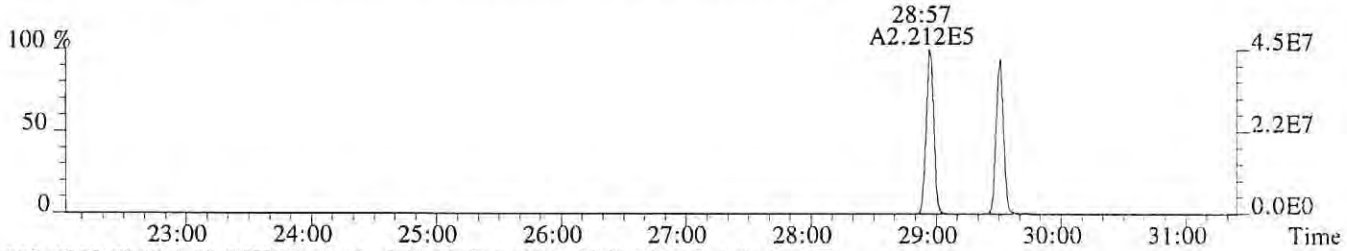
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



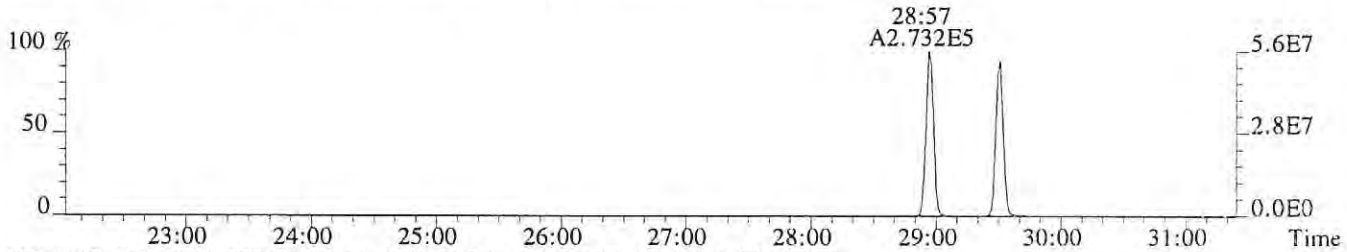
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



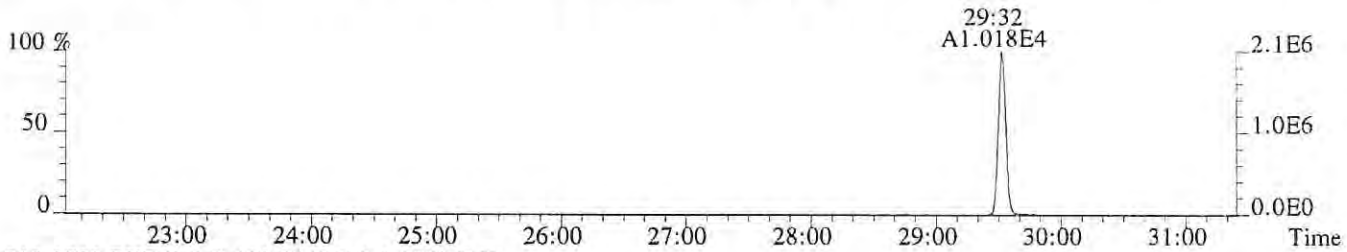
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



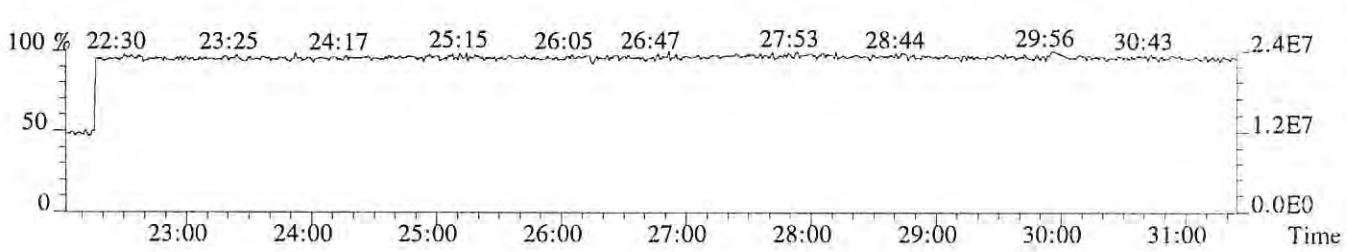
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

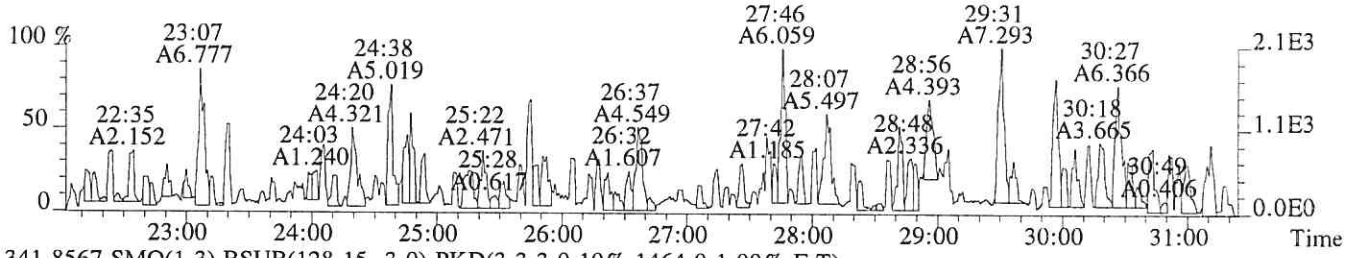


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

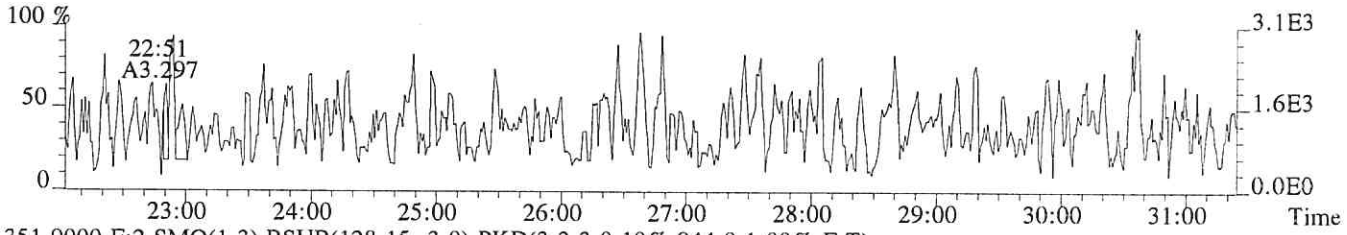


File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

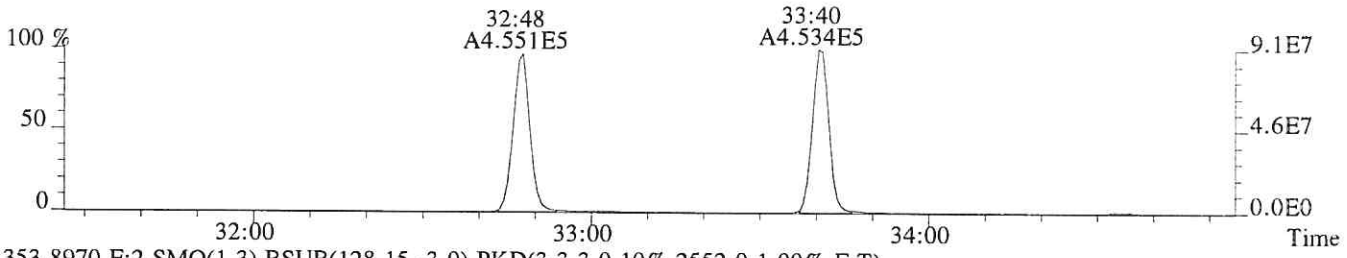
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



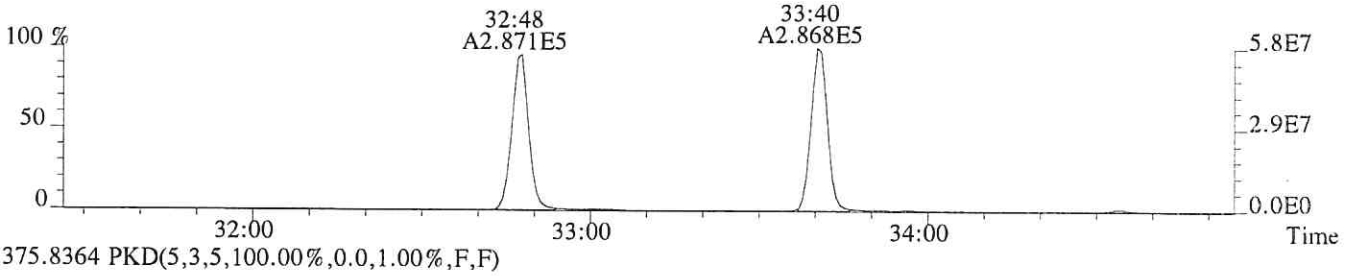
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



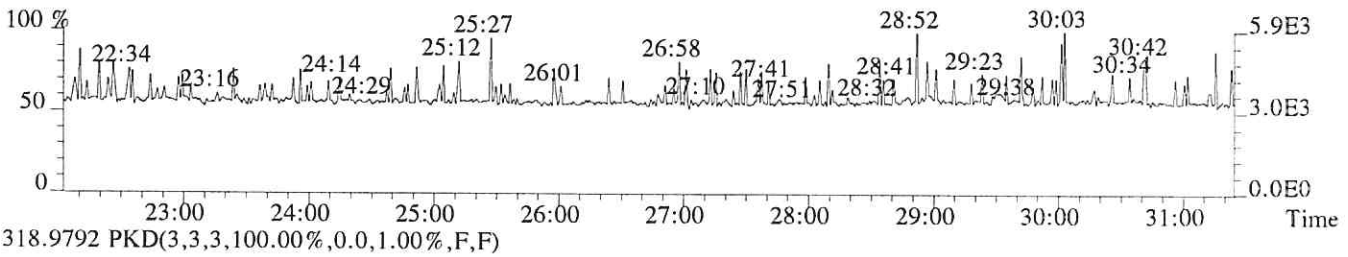
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



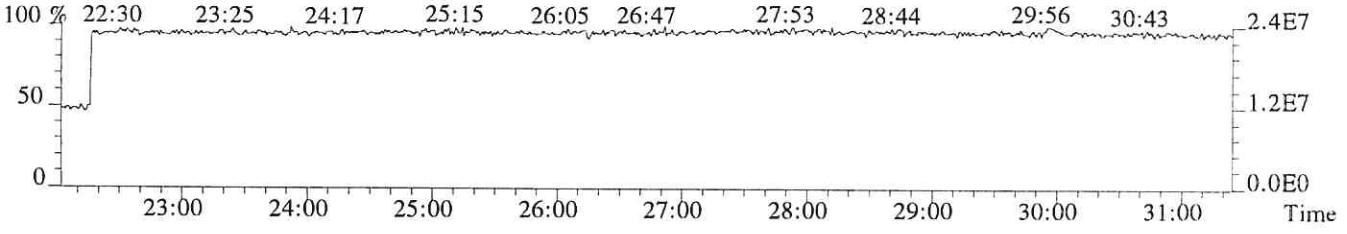
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



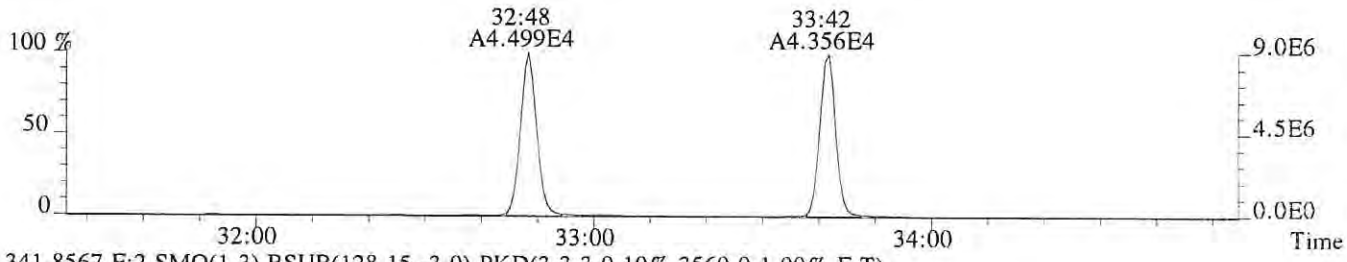
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



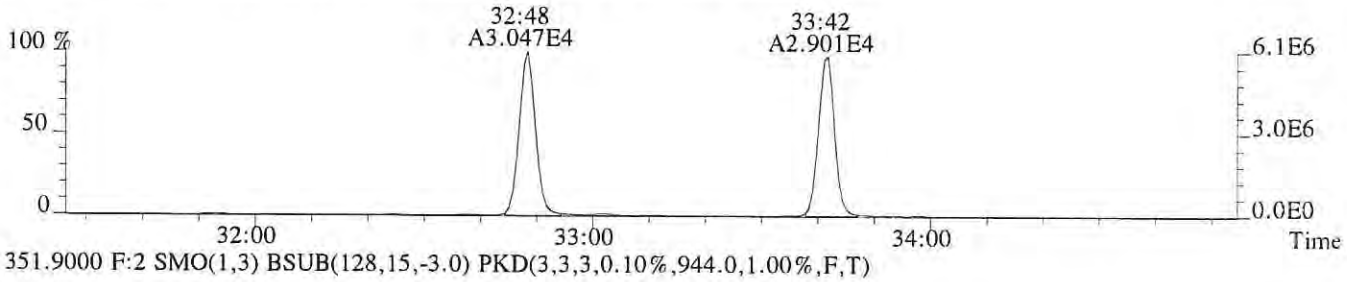
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



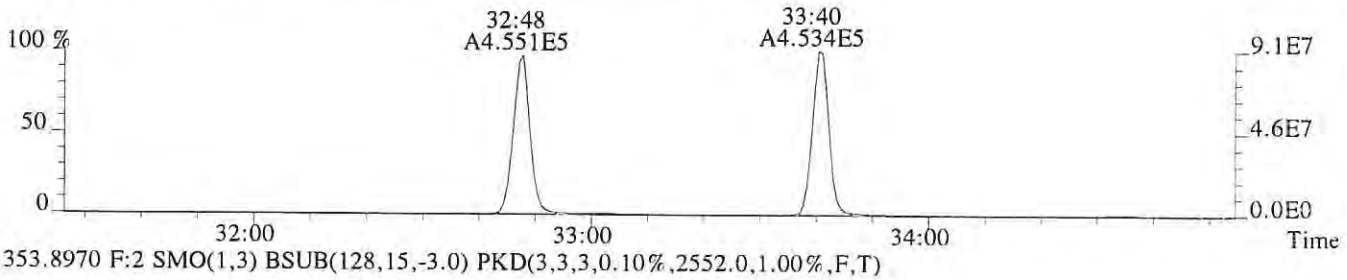
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



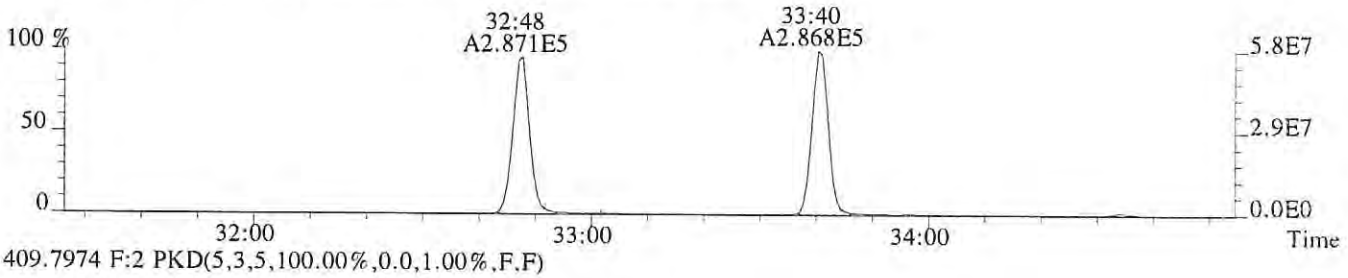
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



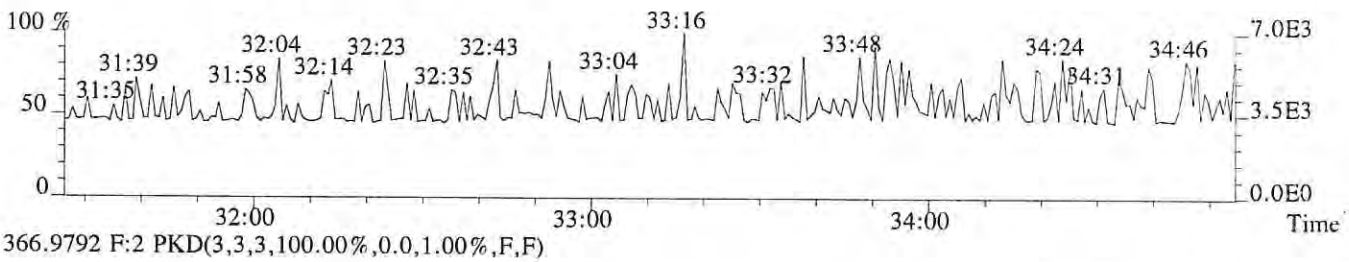
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



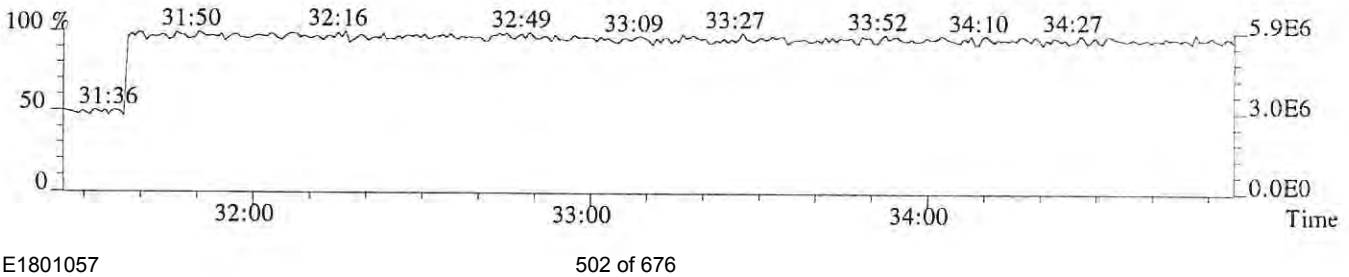
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



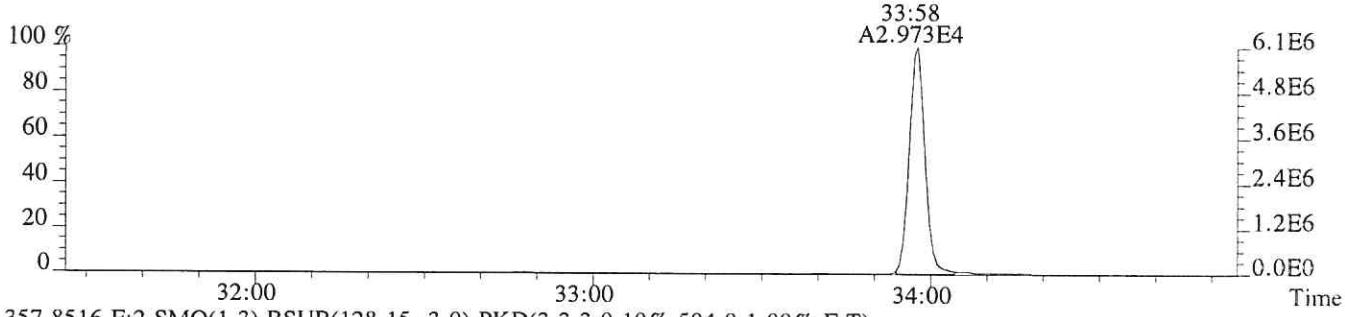
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



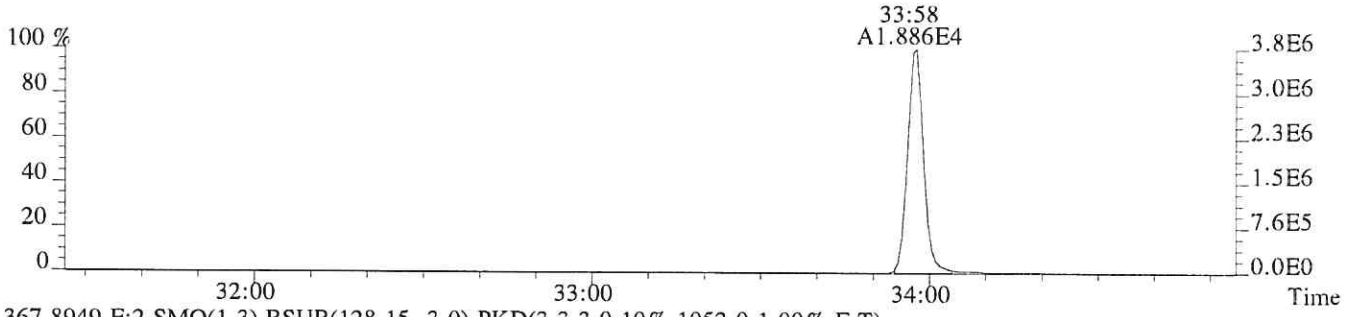
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



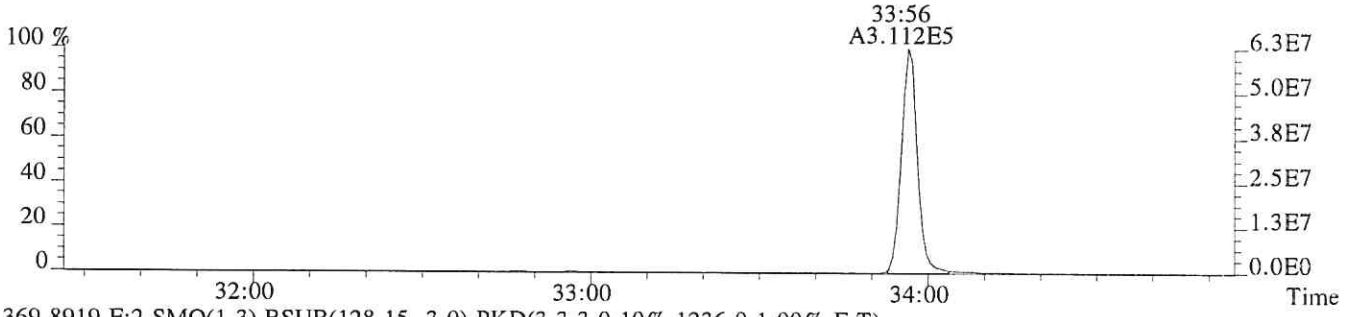
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



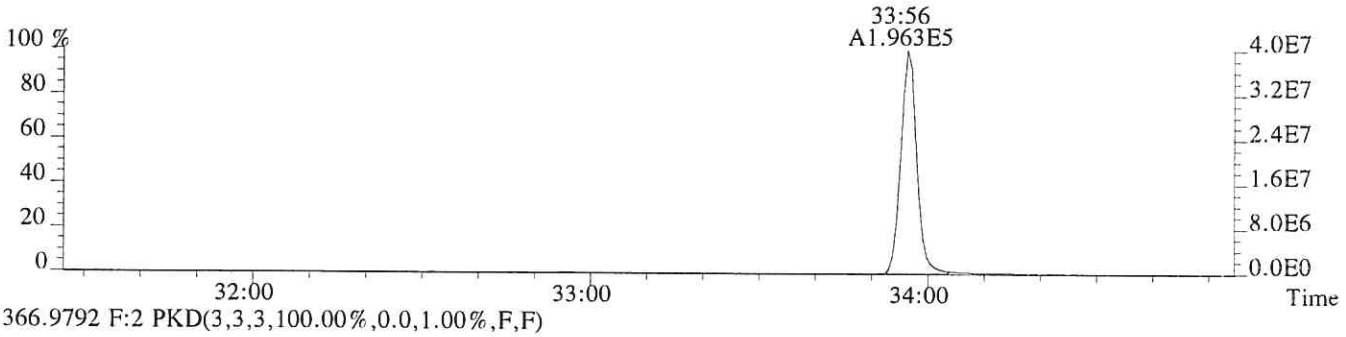
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



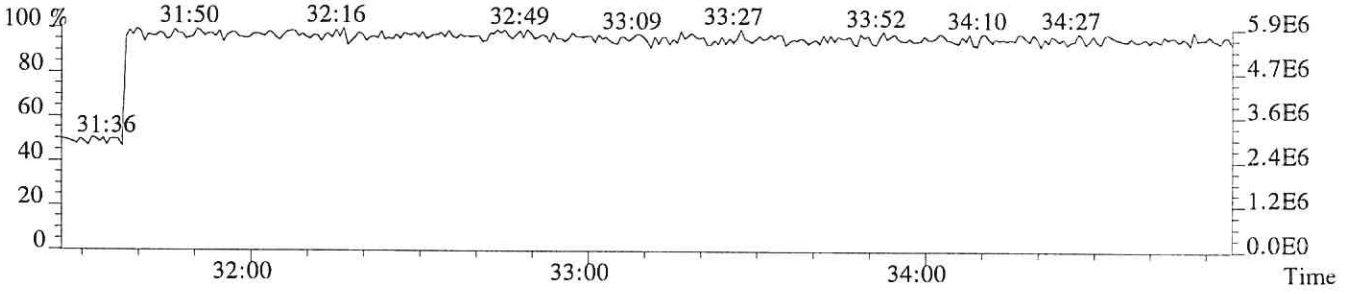
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



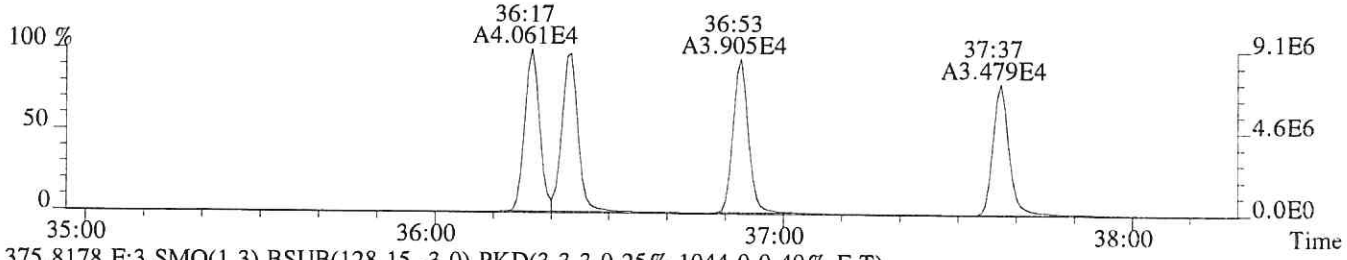
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



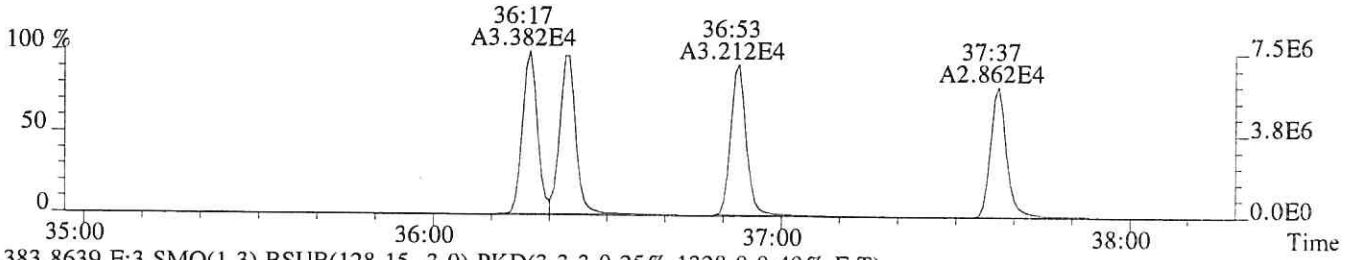
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



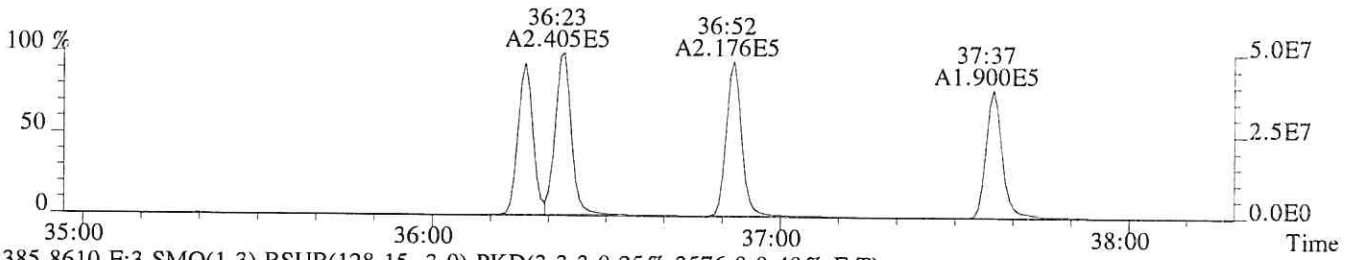
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



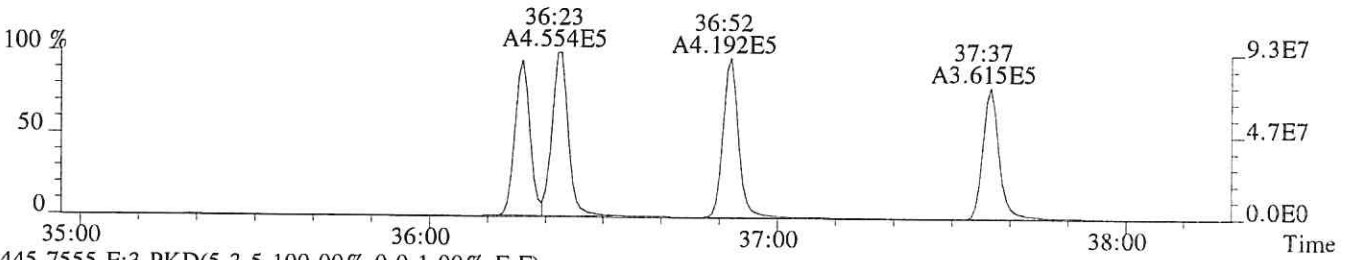
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



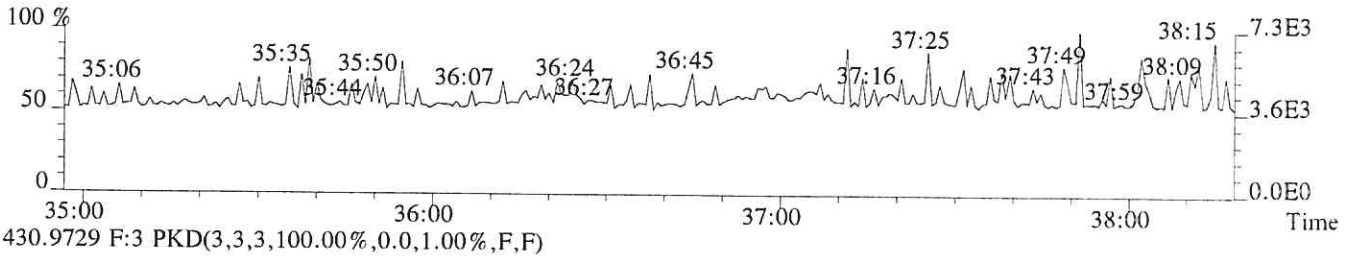
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



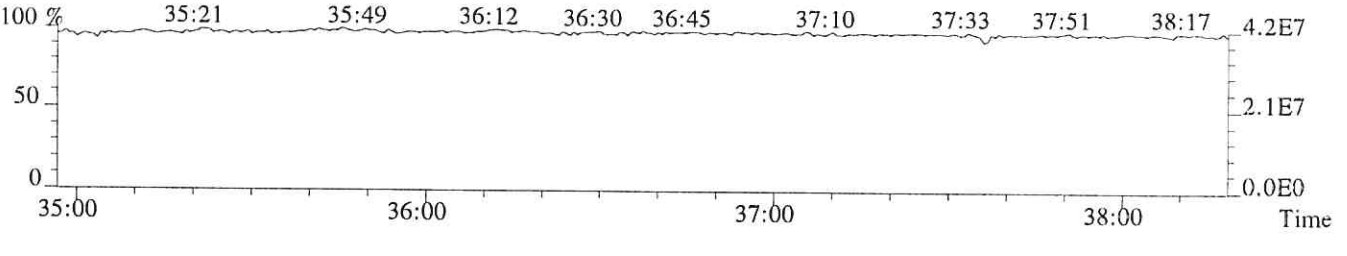
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



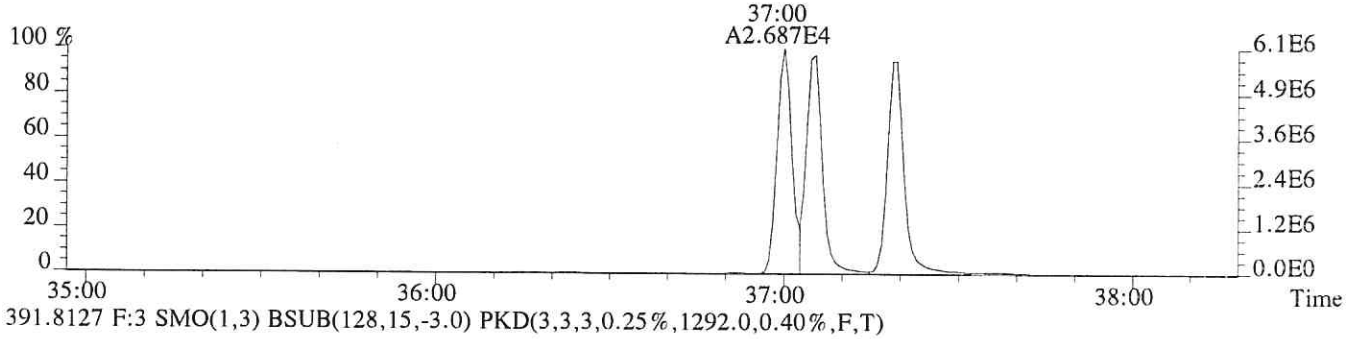
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



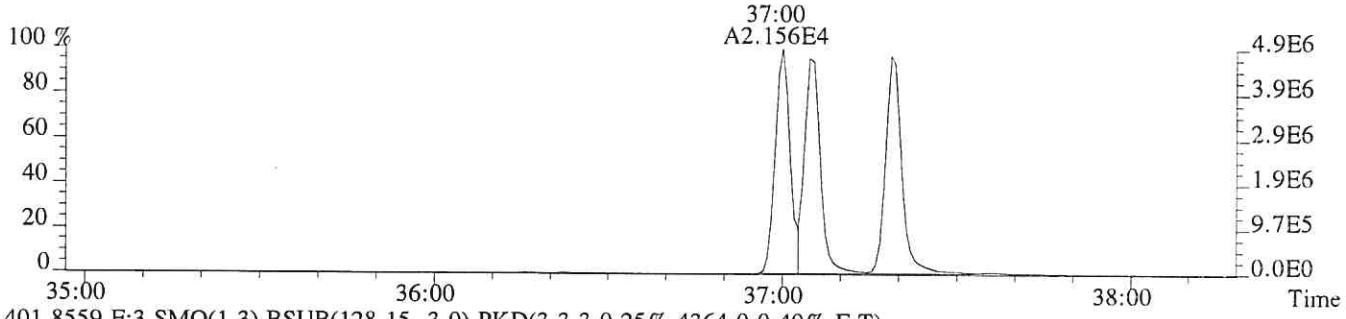
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



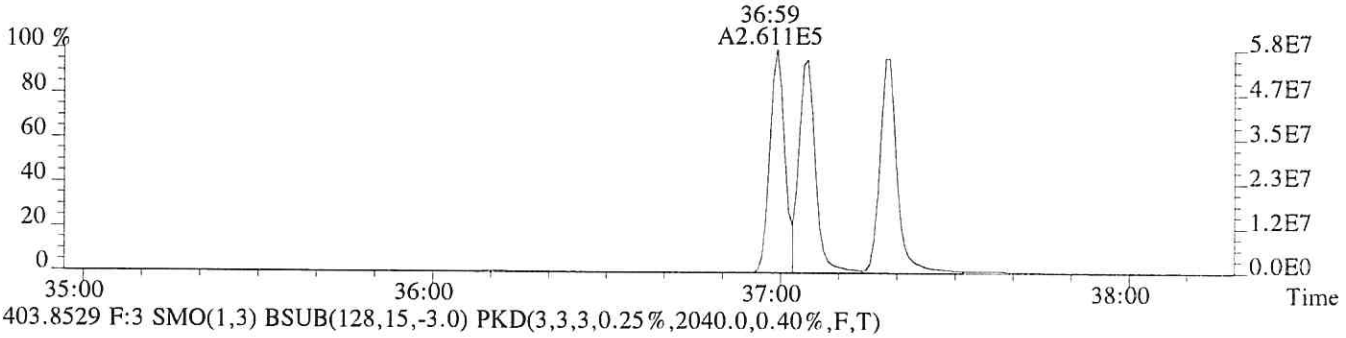
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



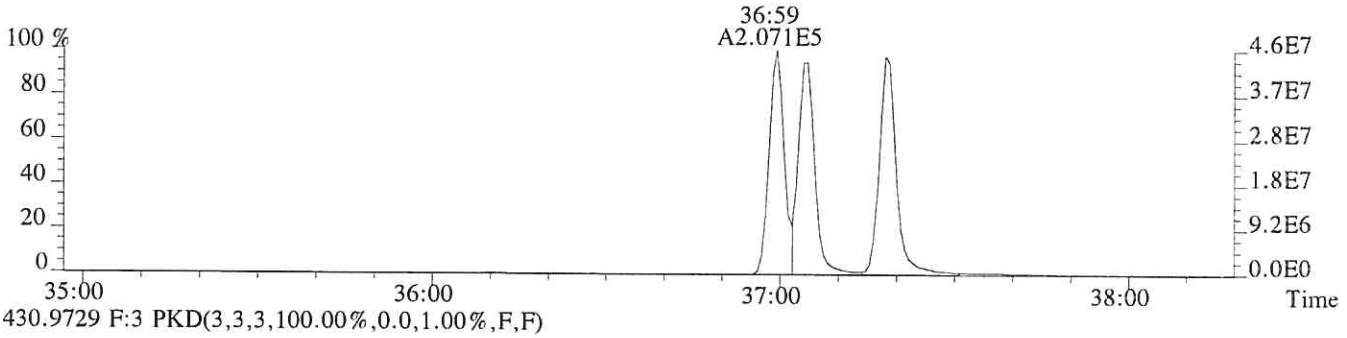
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



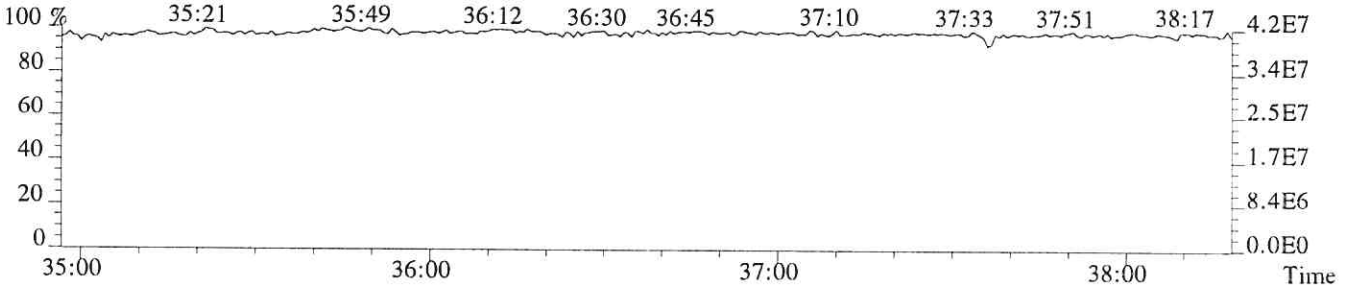
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



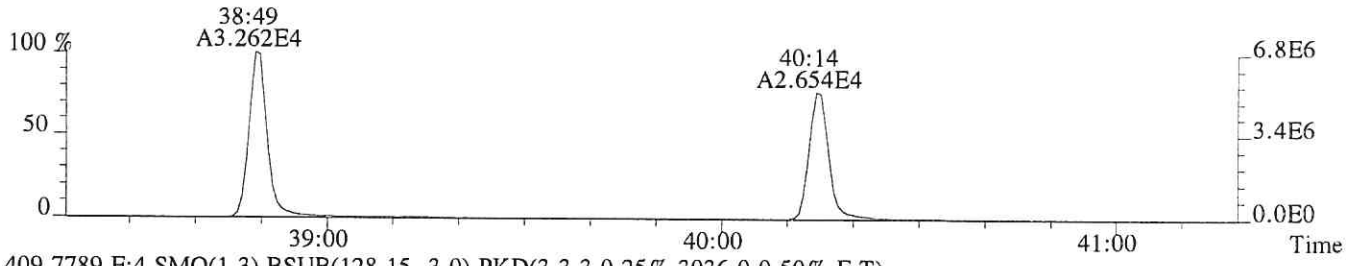
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



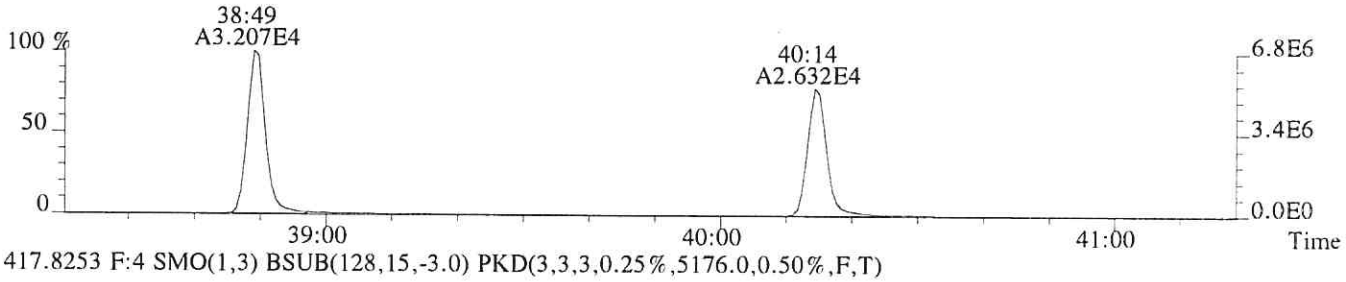
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



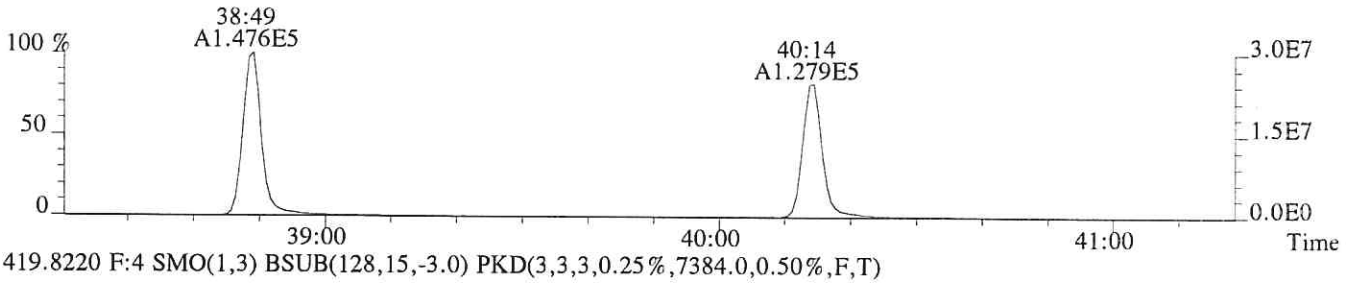
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



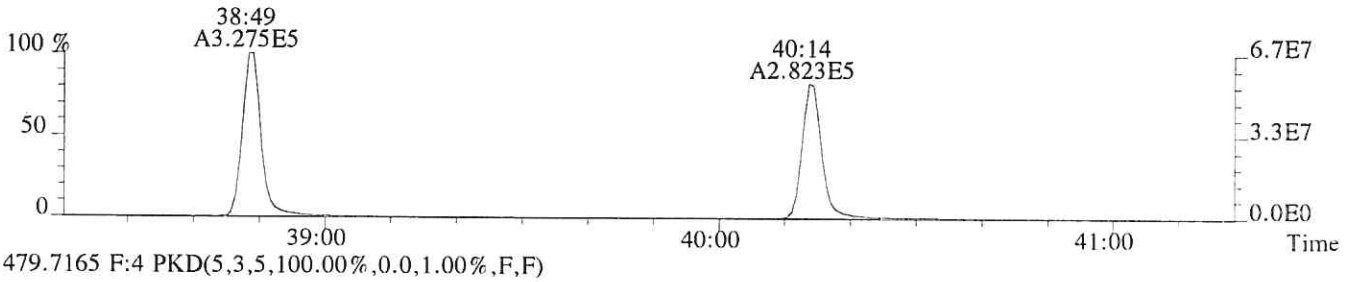
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



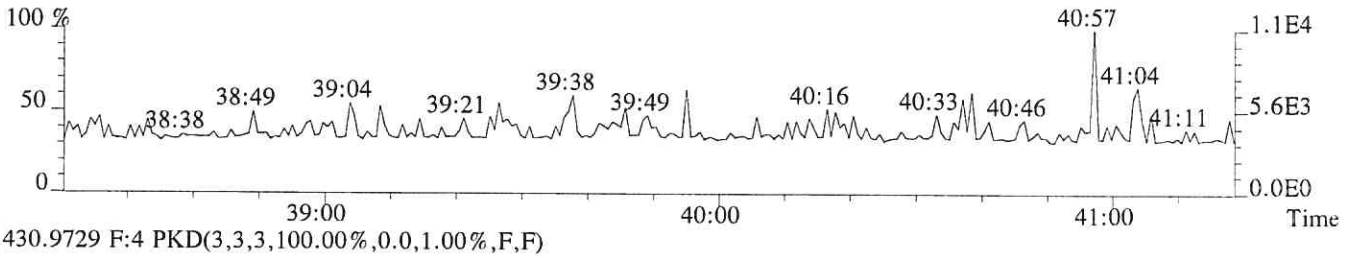
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



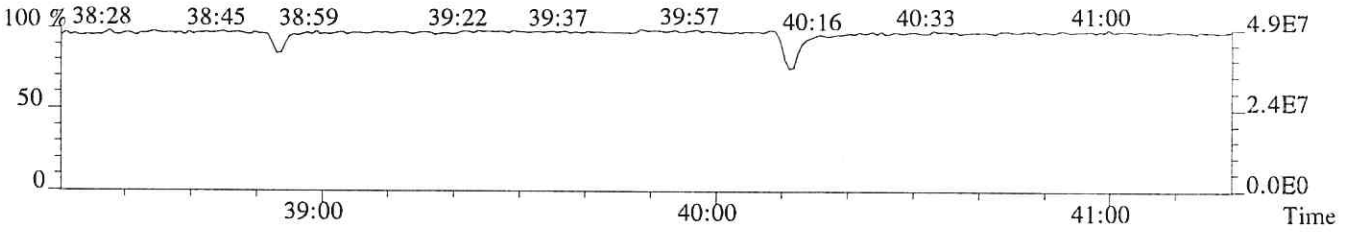
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



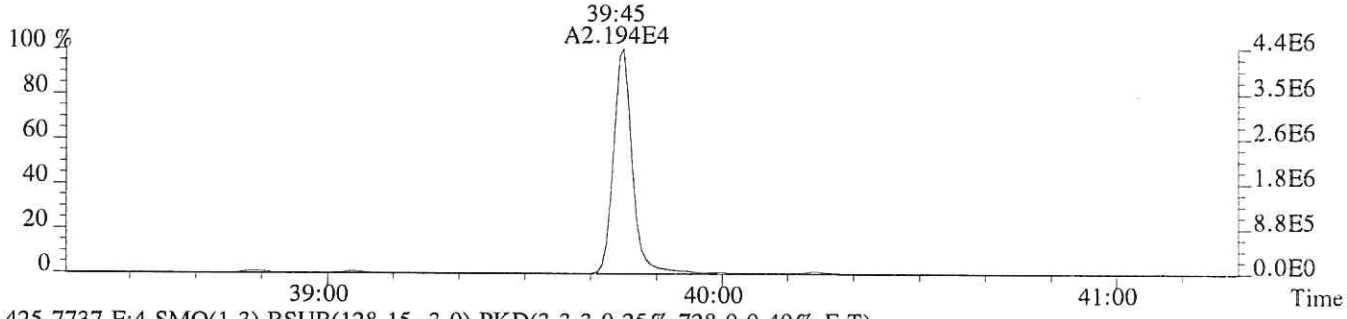
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



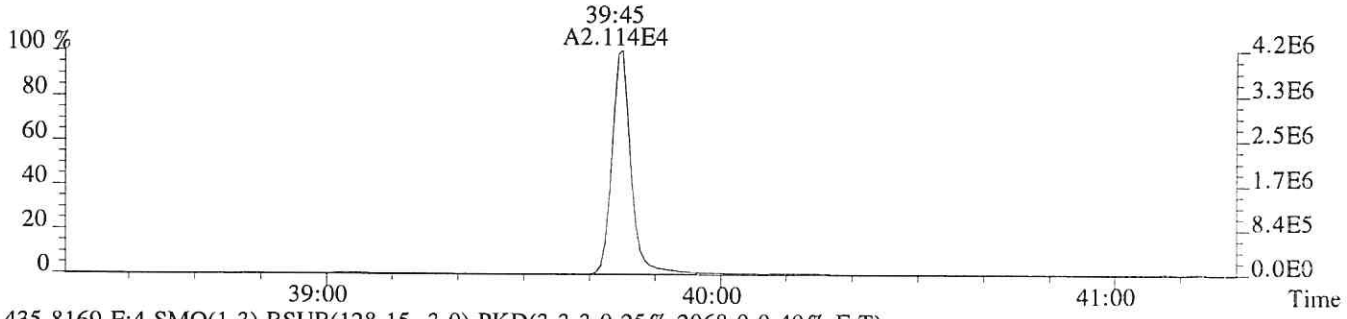
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



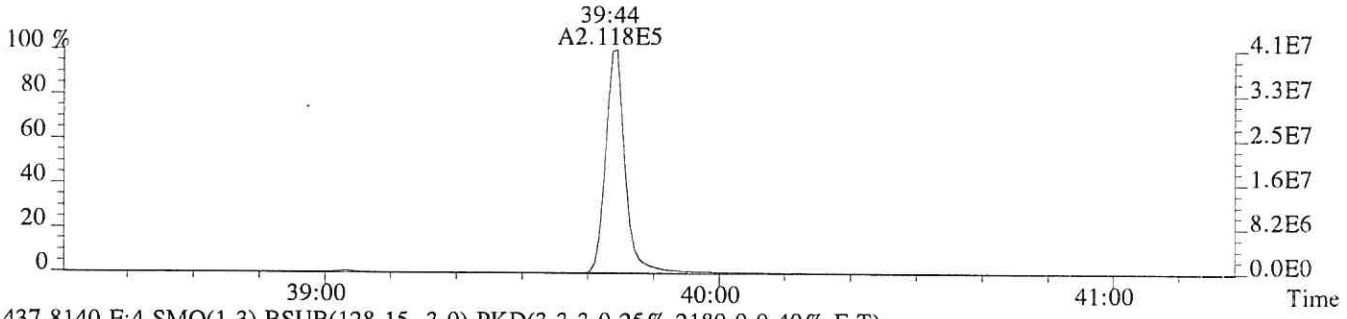
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



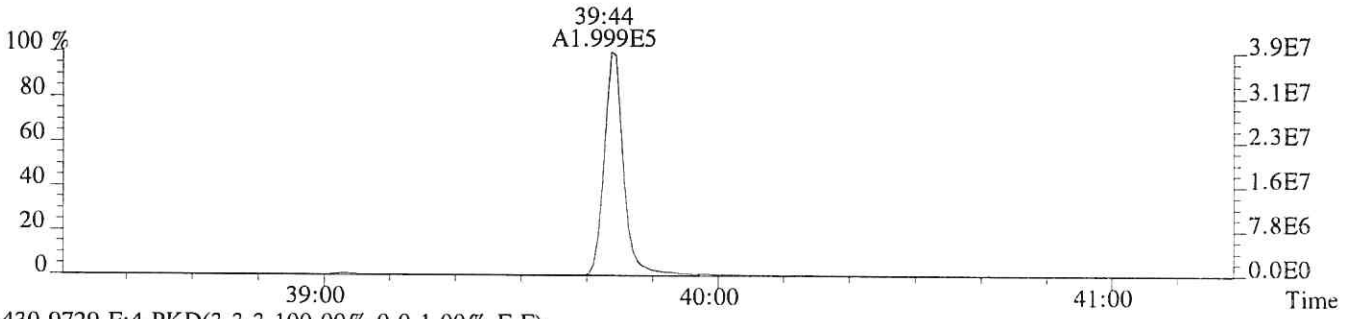
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



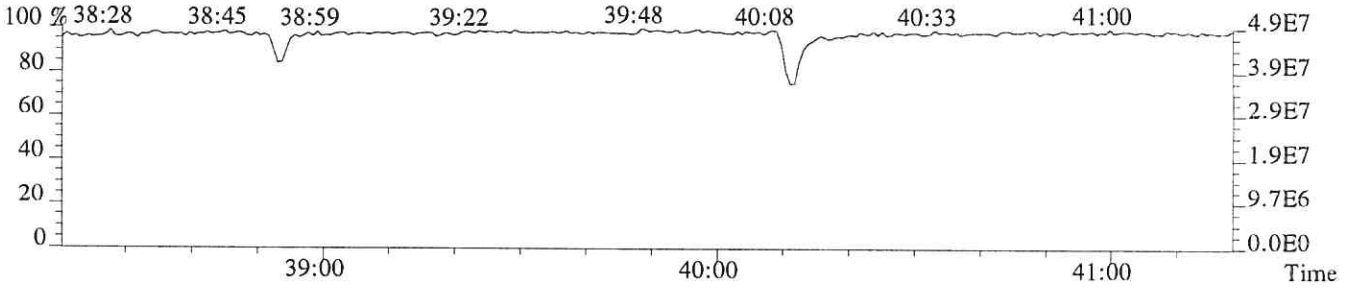
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



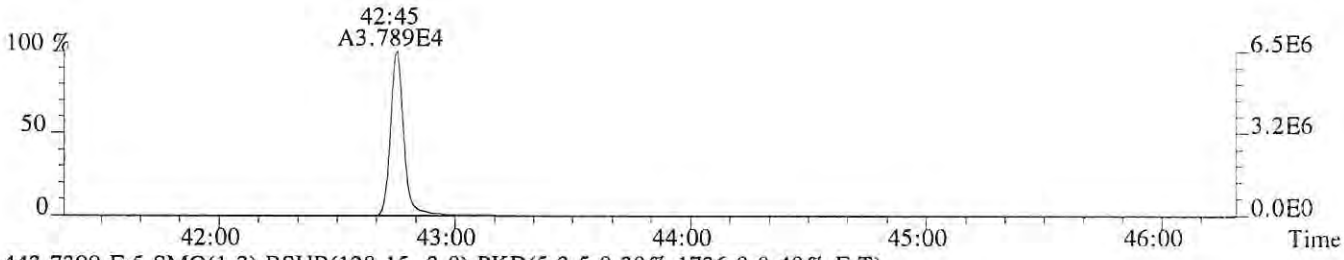
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



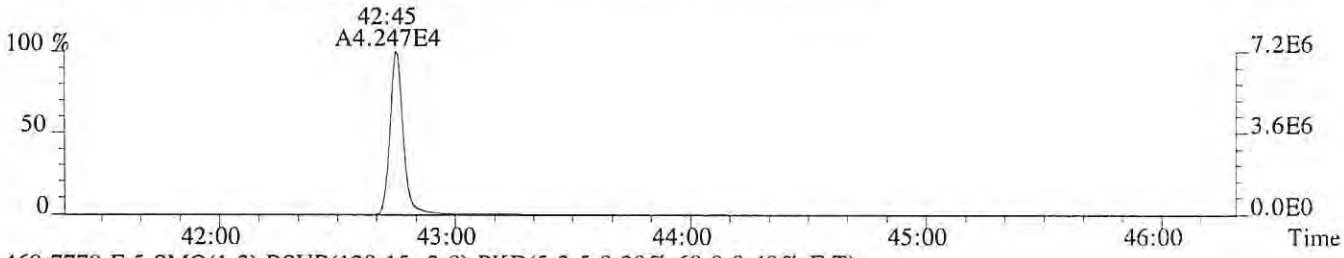
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



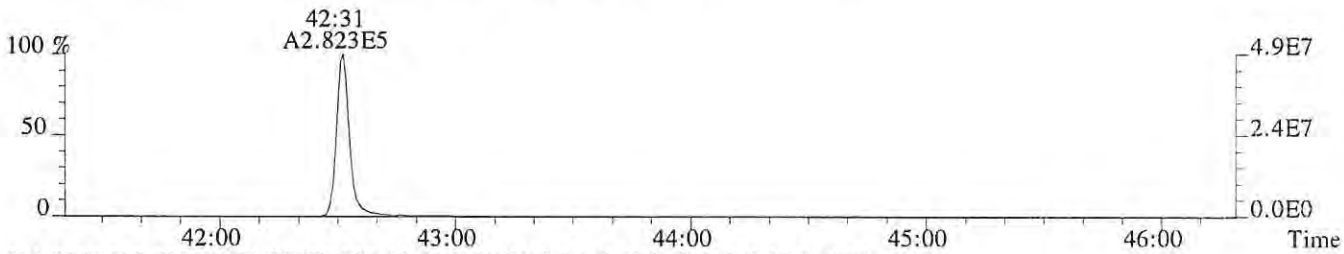
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



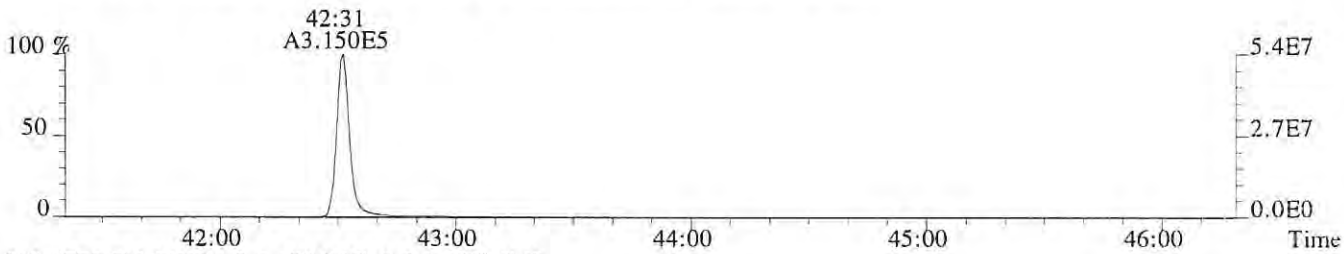
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



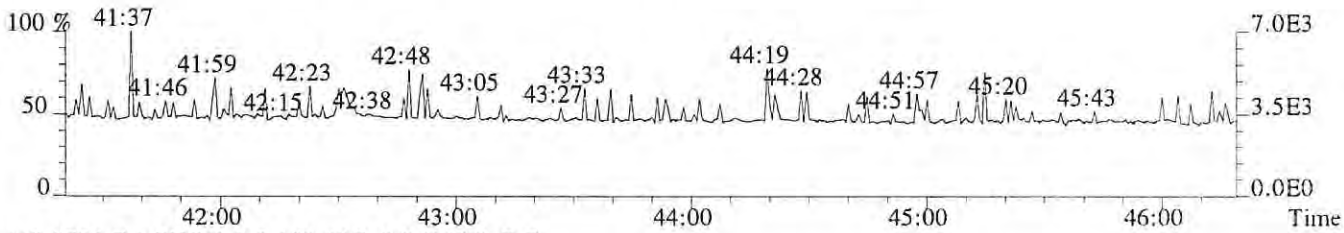
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



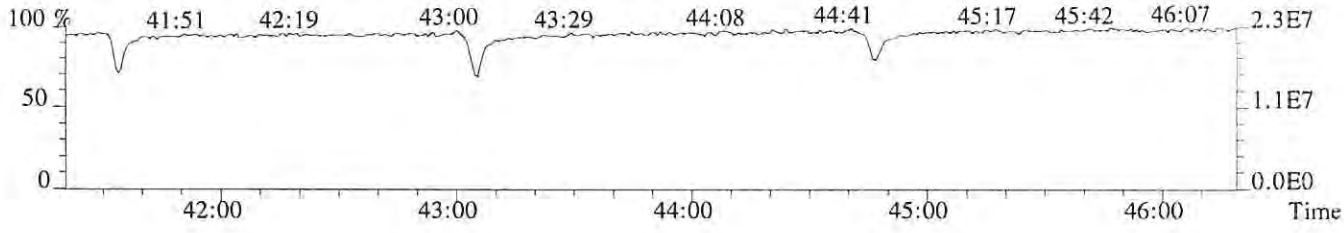
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



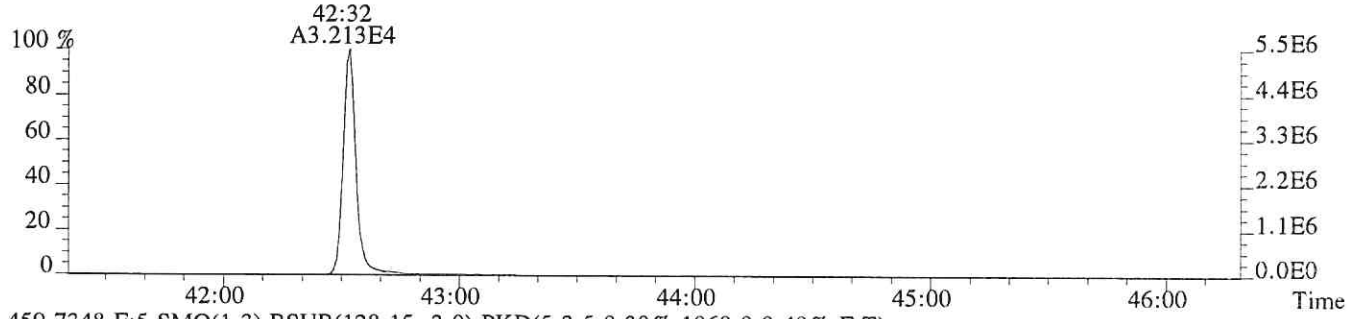
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



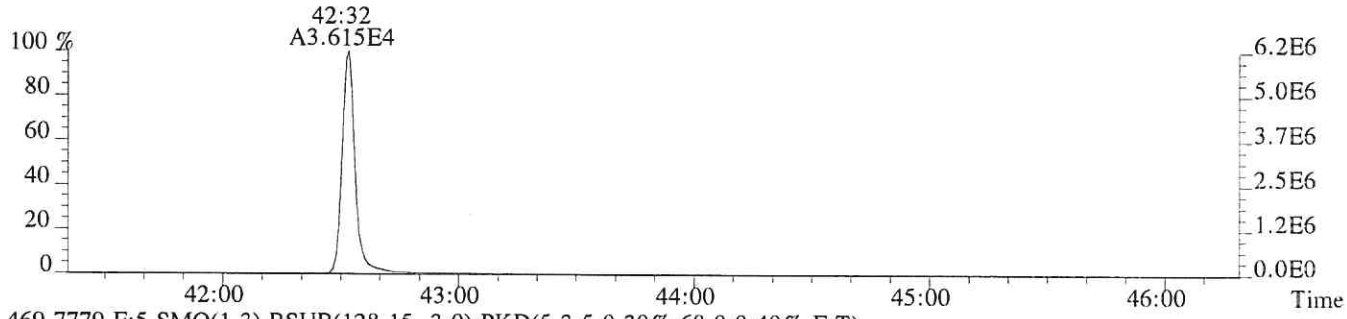
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



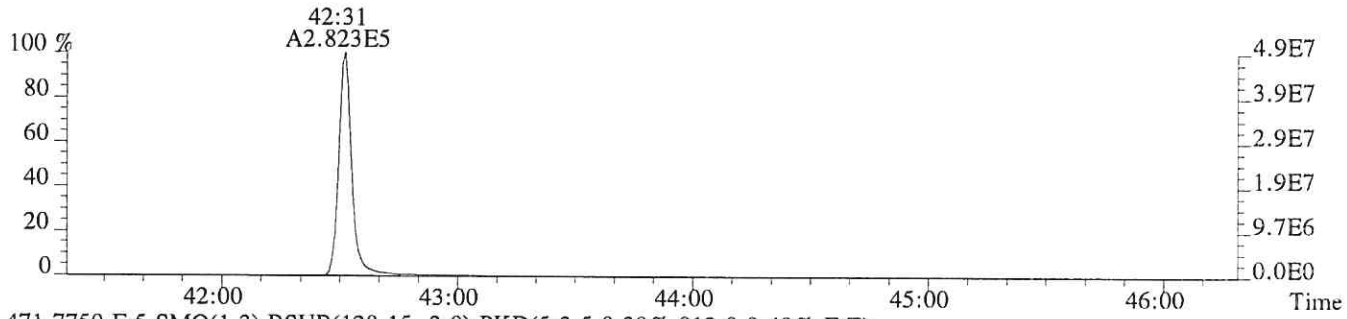
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



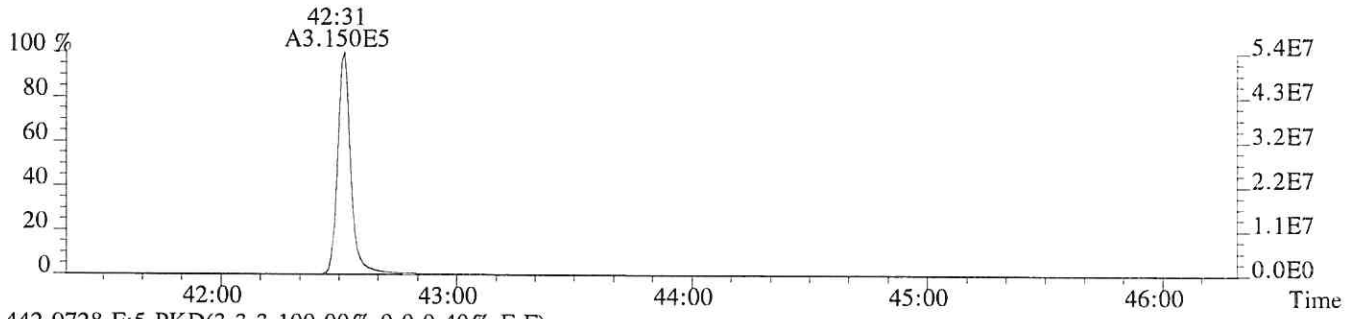
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



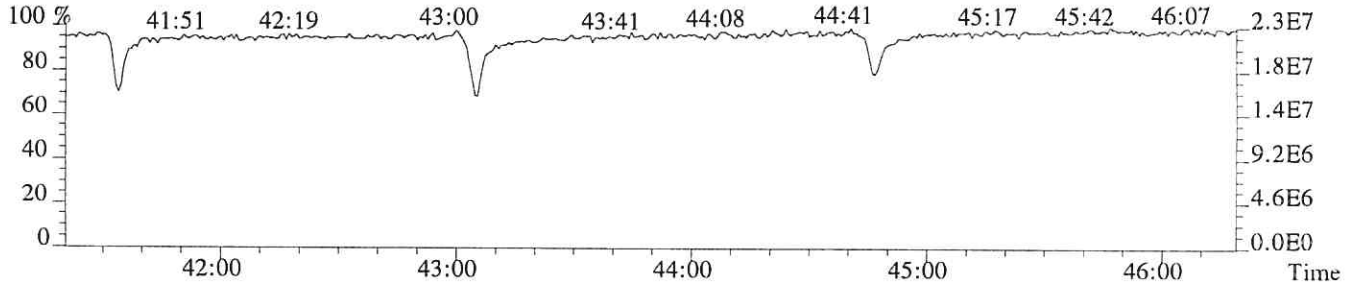
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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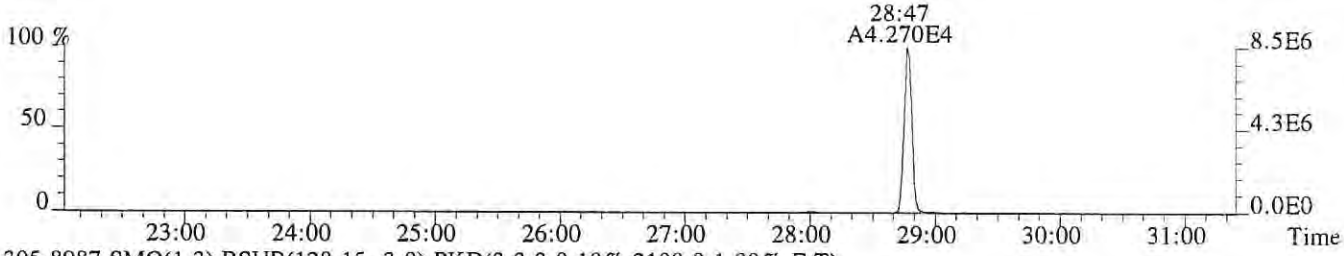
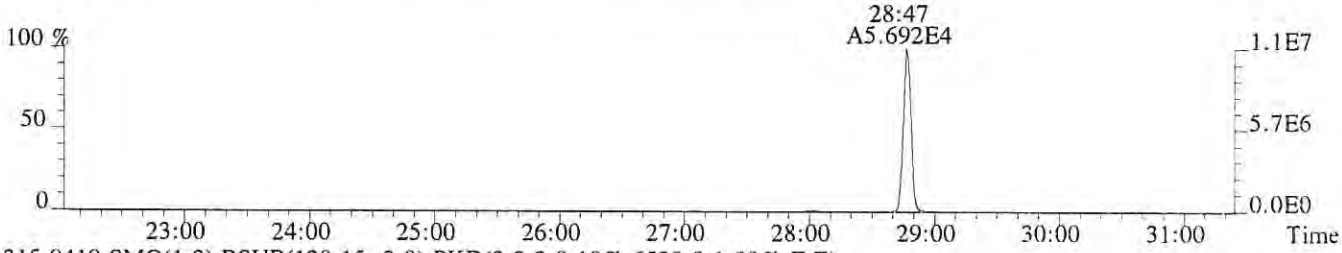
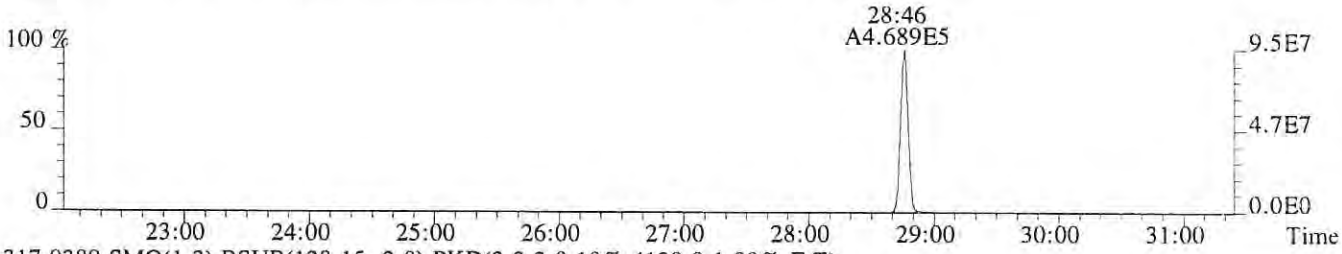
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



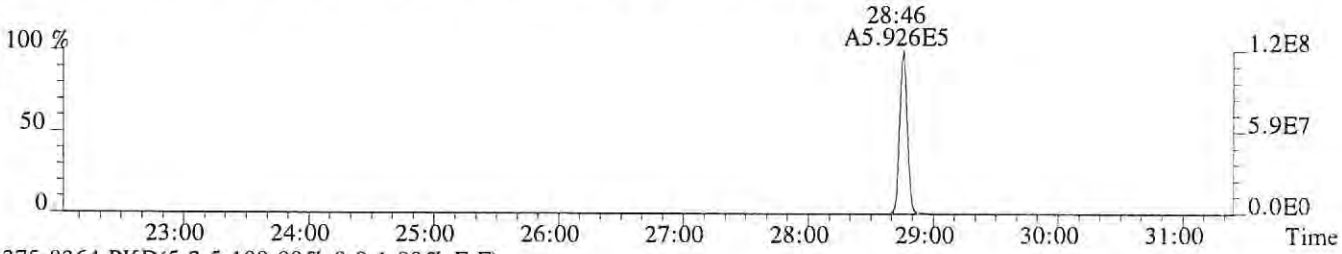
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



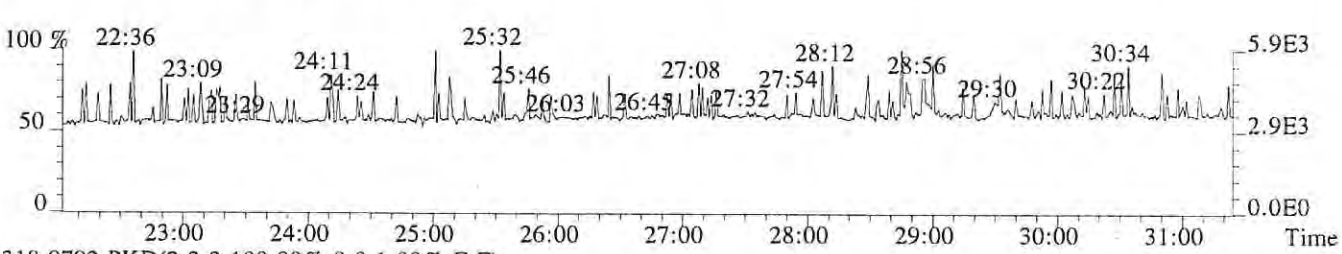
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



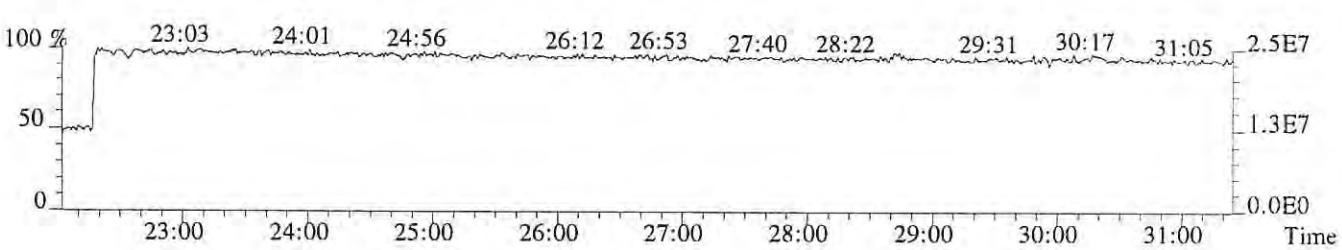
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



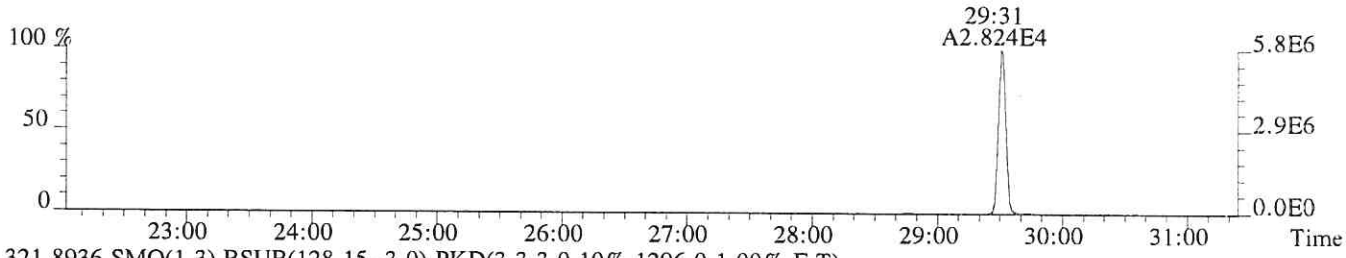
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



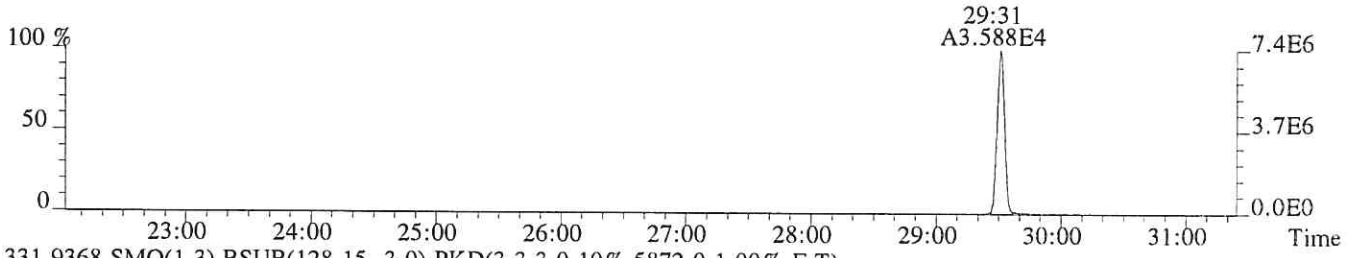
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



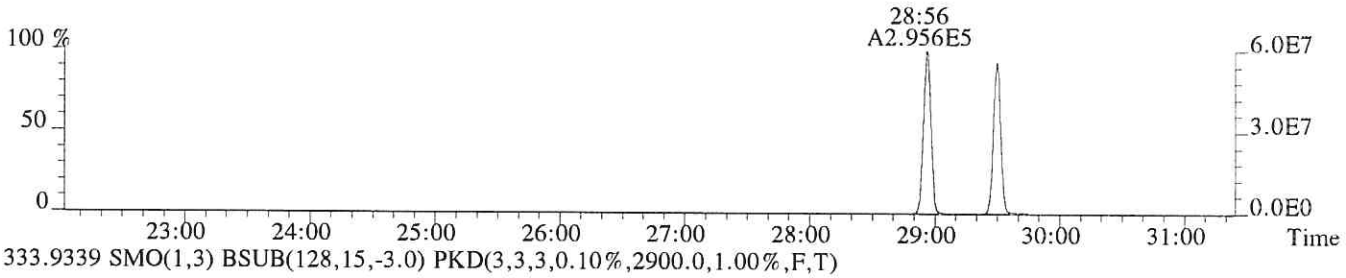
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



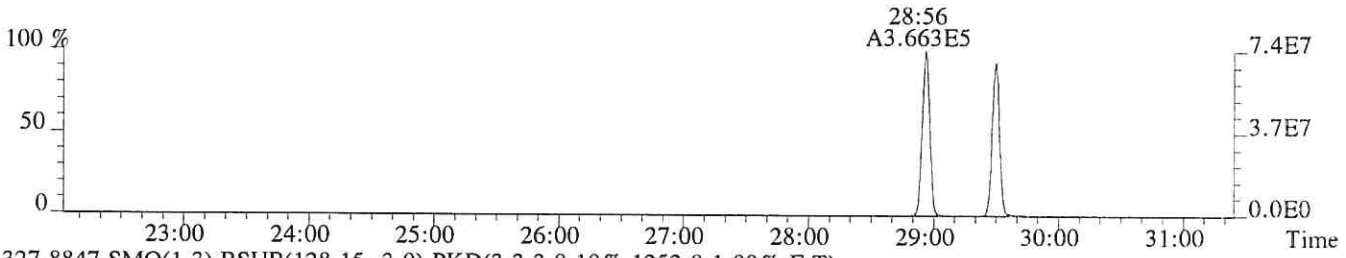
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



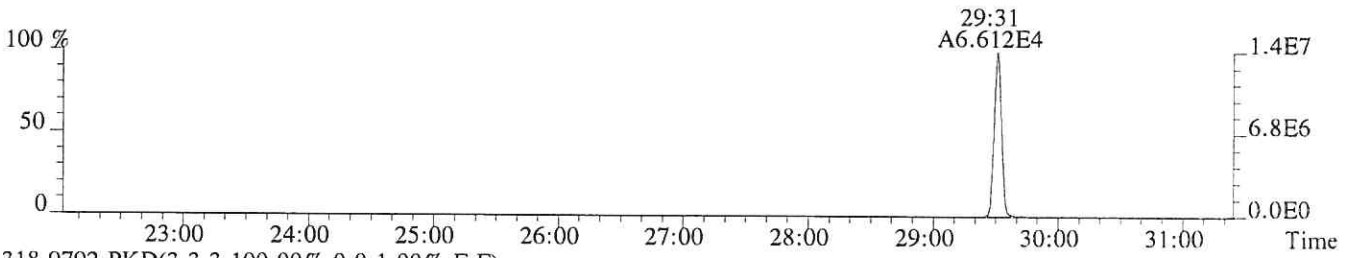
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



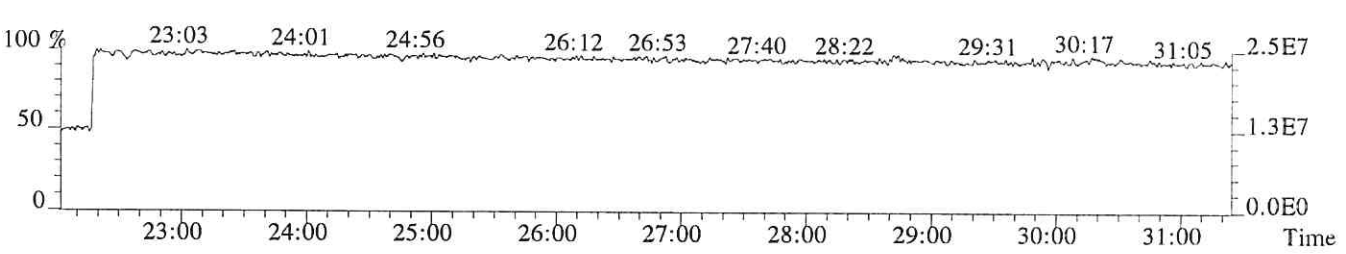
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



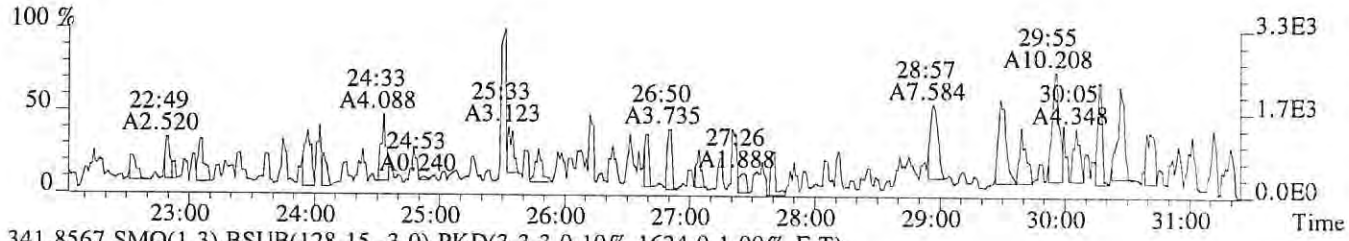
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



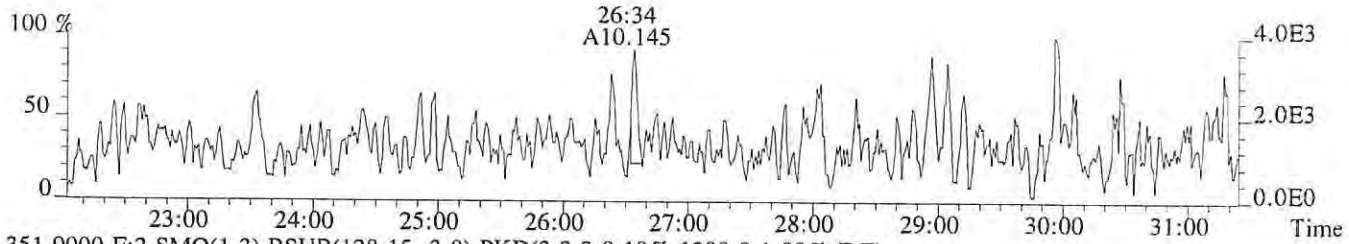
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



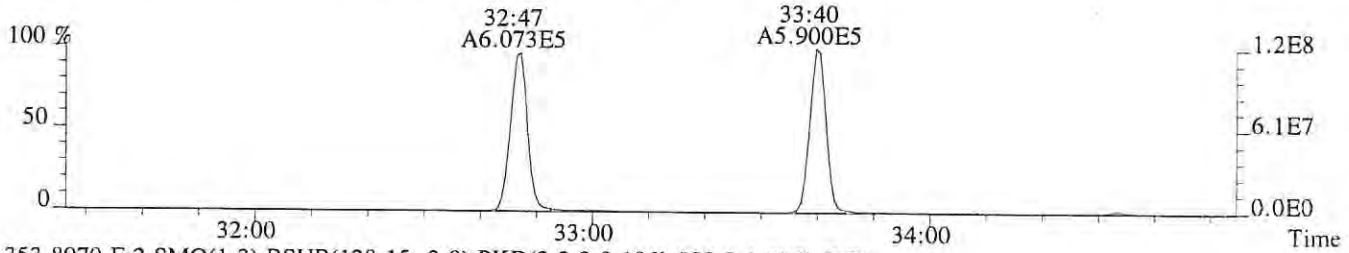
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



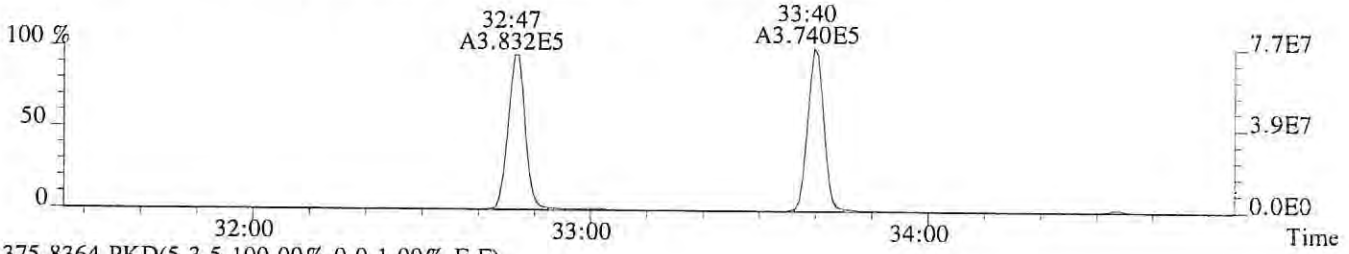
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



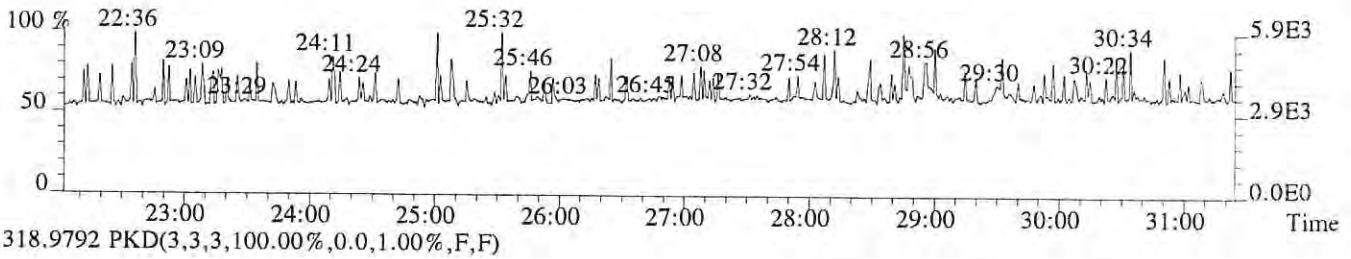
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



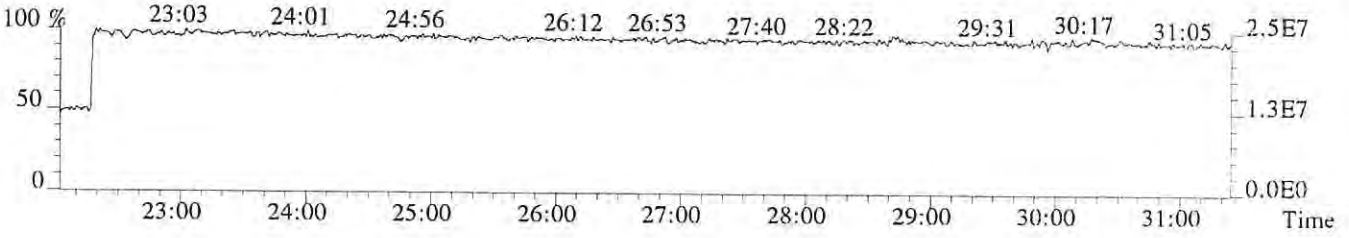
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



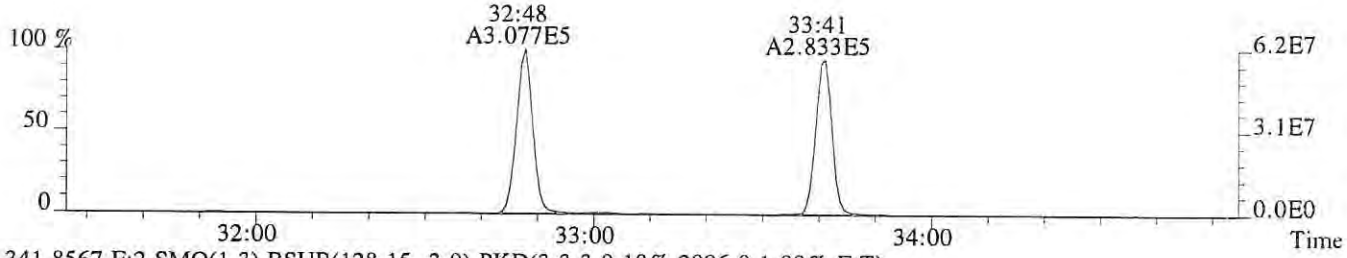
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



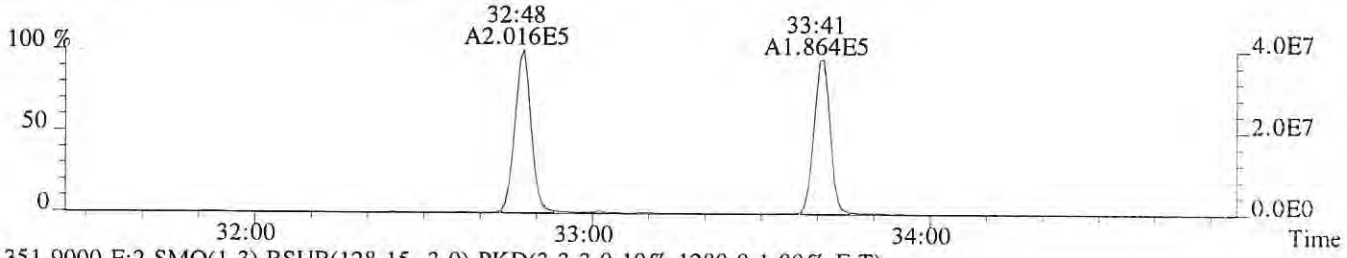
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



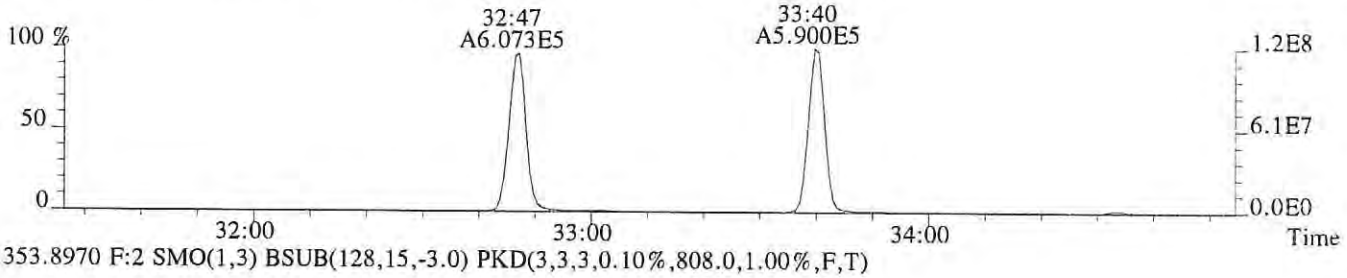
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



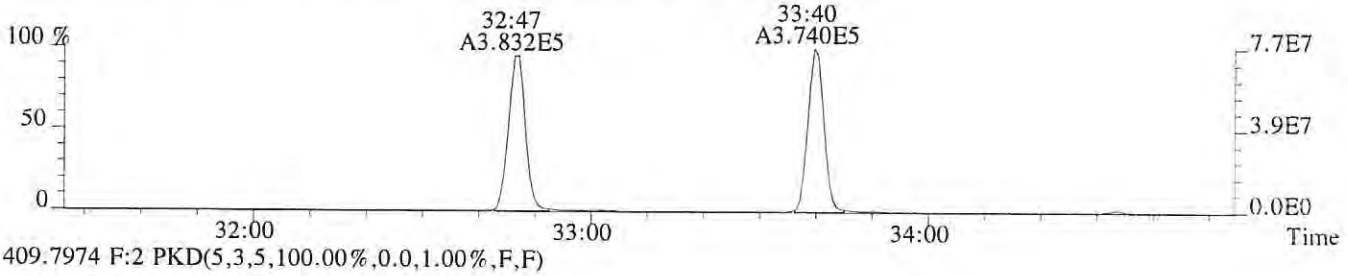
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



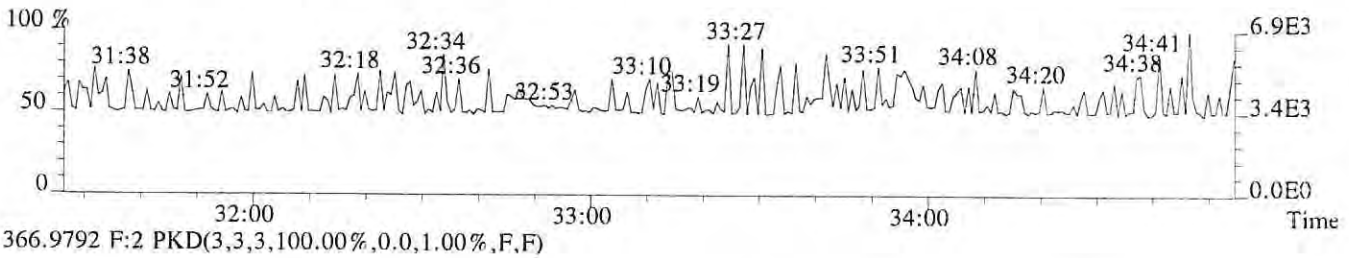
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



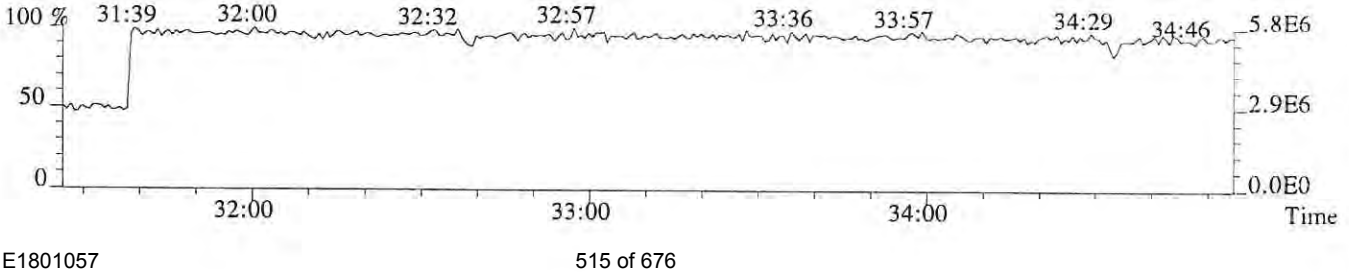
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



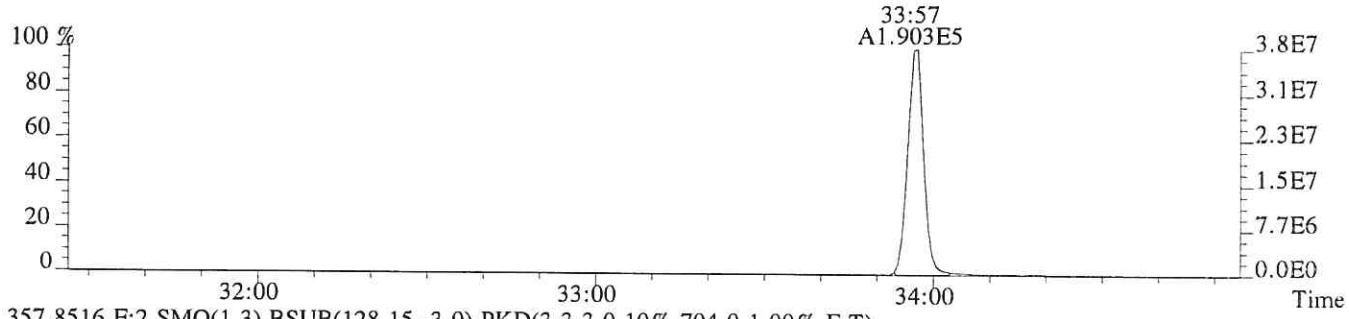
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



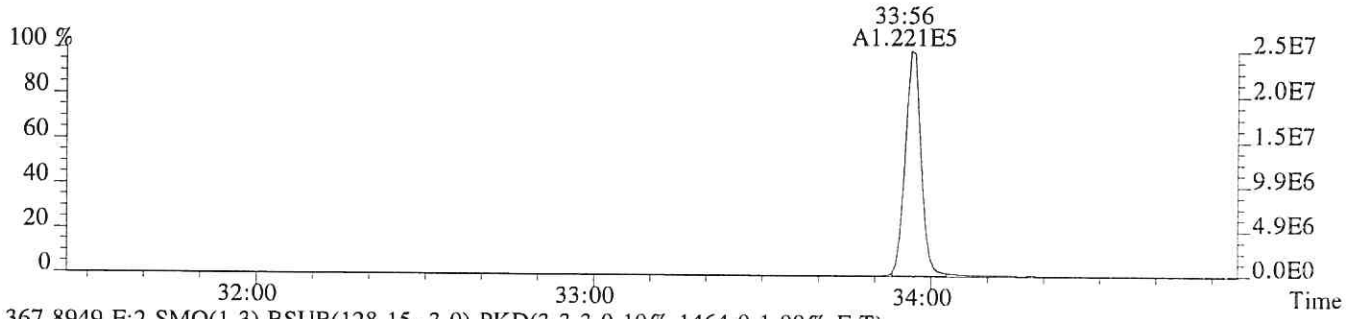
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



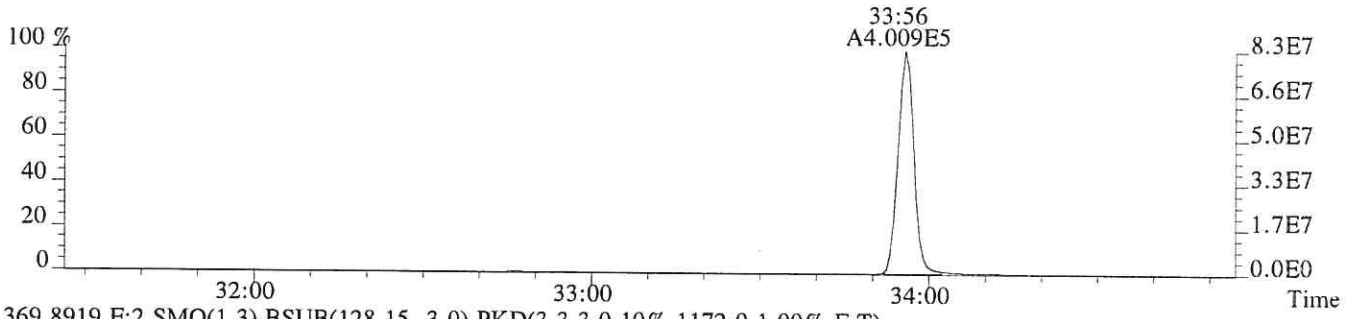
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



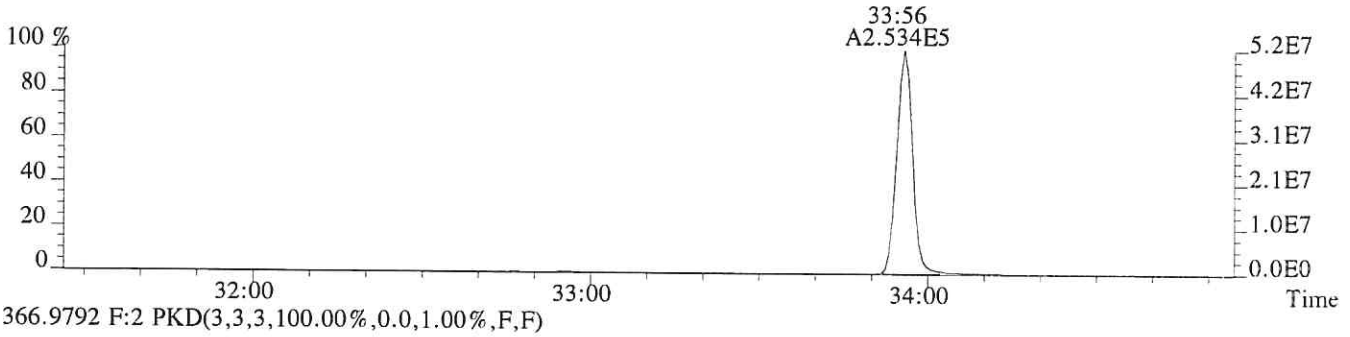
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



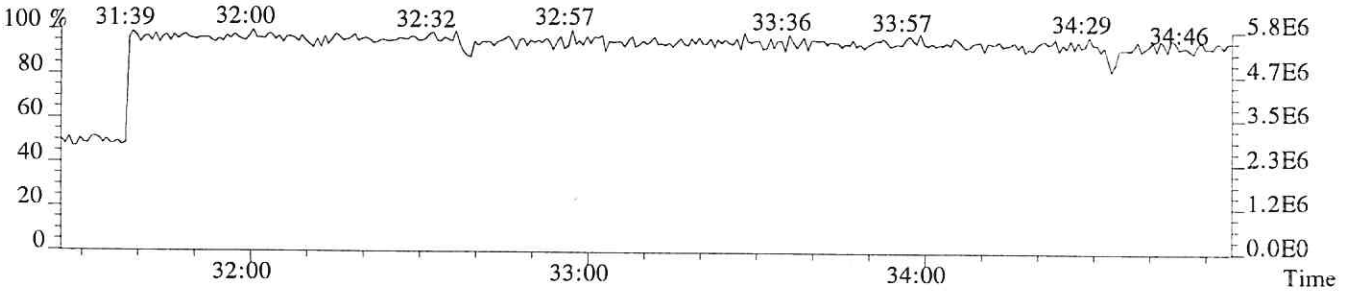
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



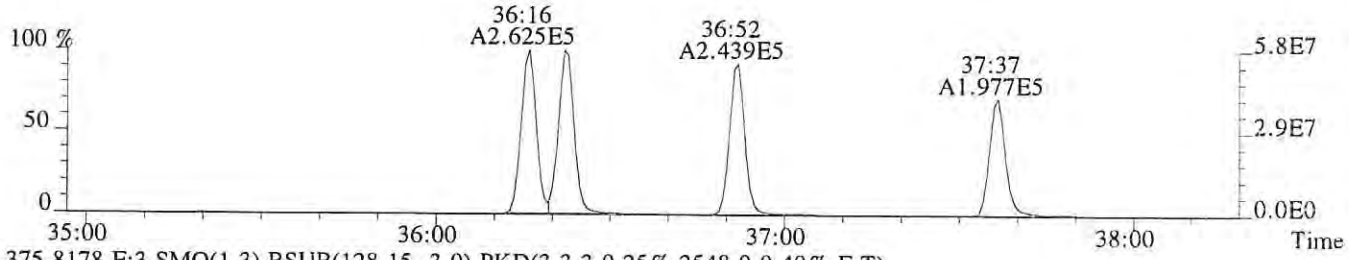
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



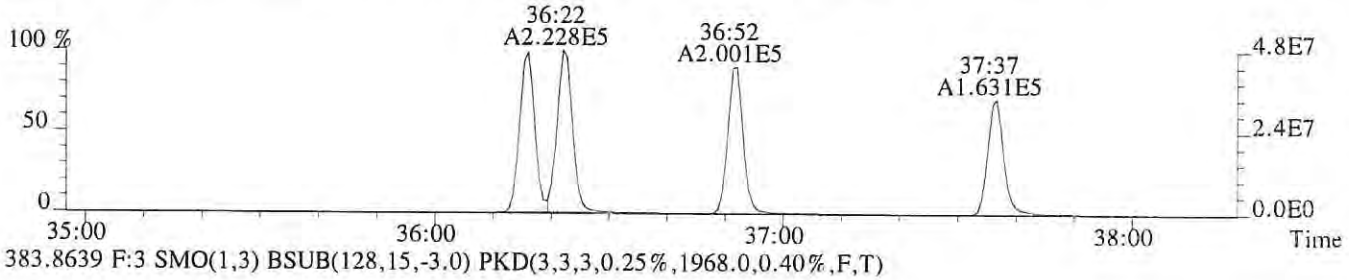
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



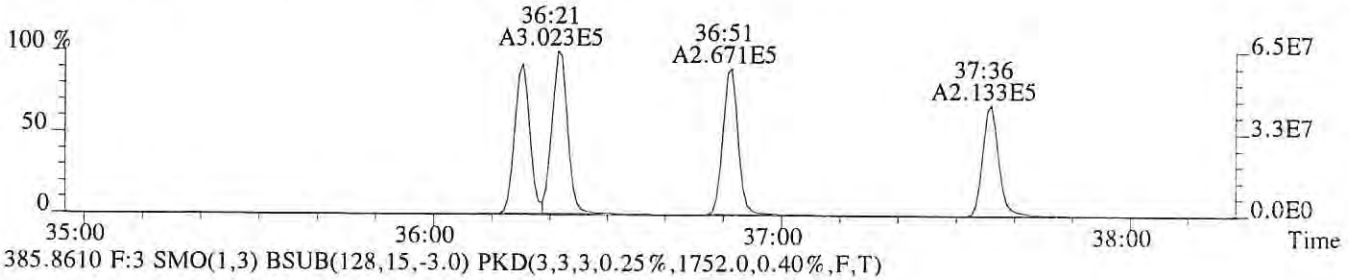
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



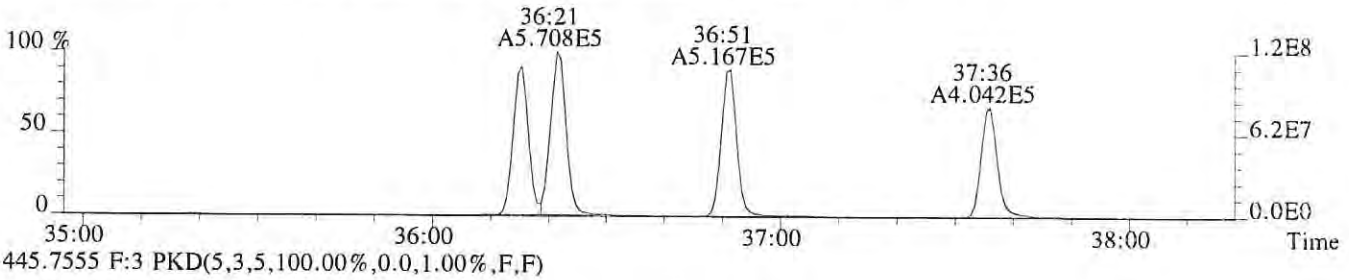
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



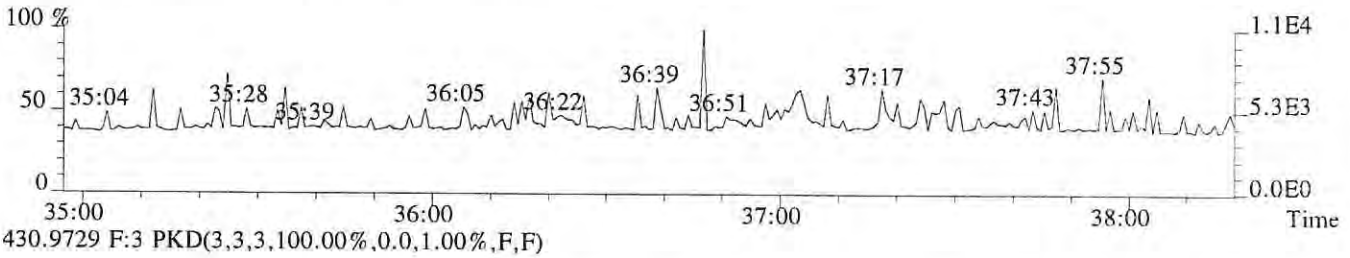
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



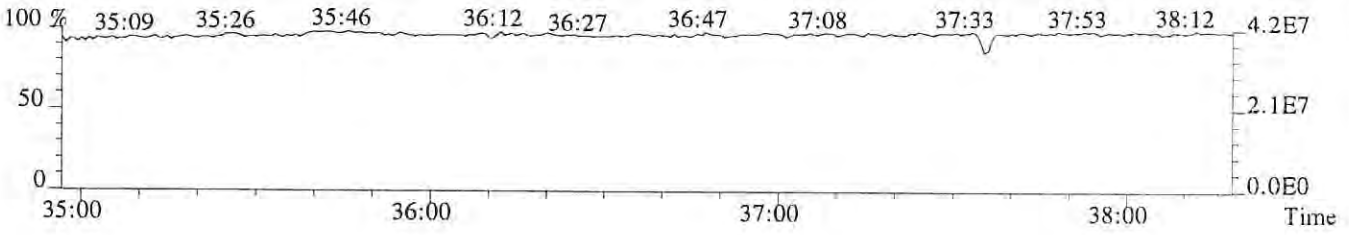
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



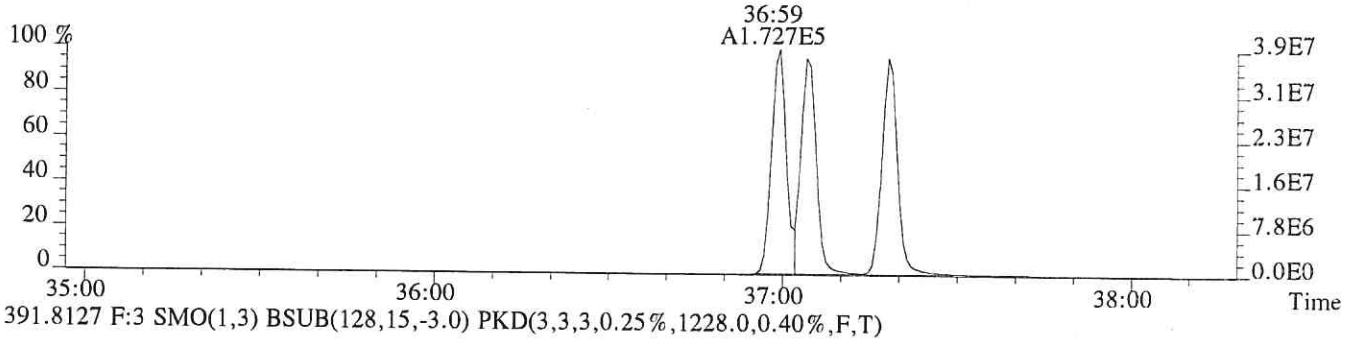
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



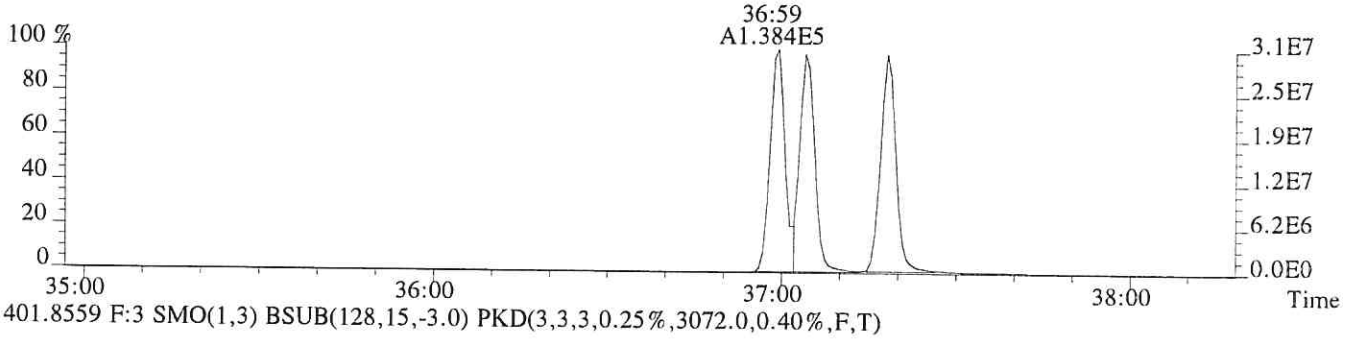
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



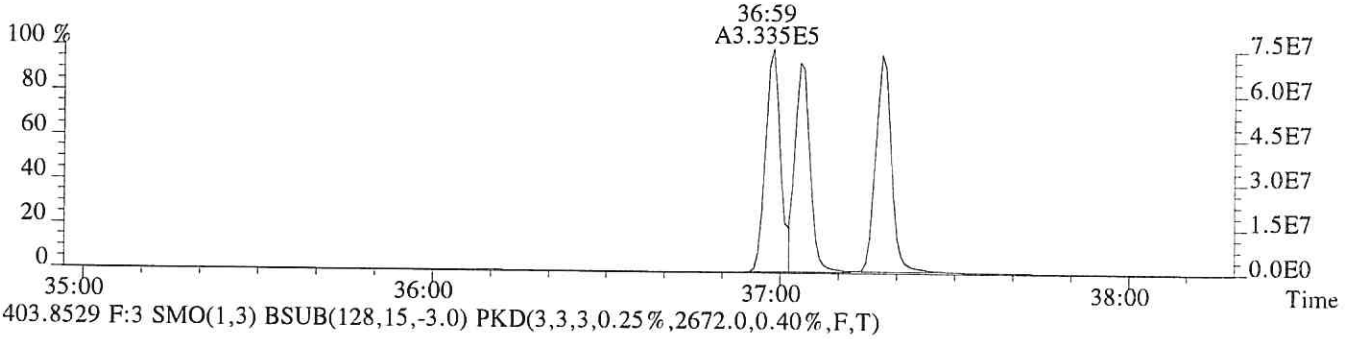
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



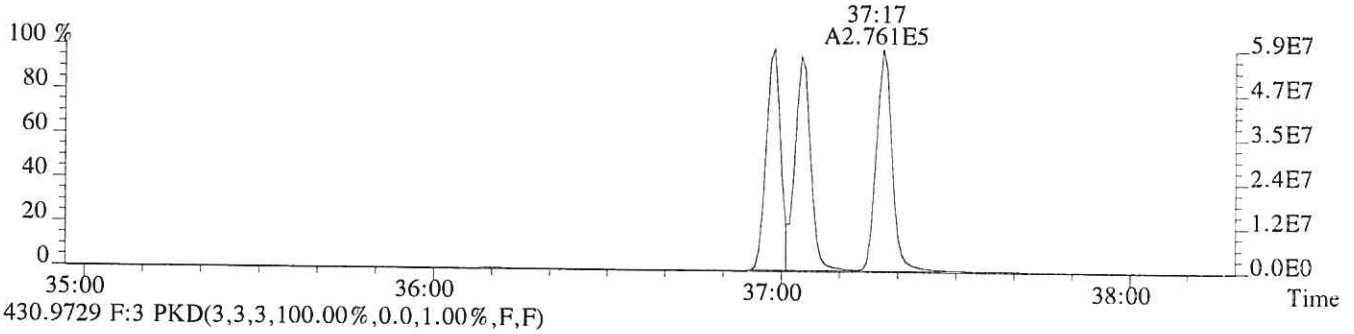
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



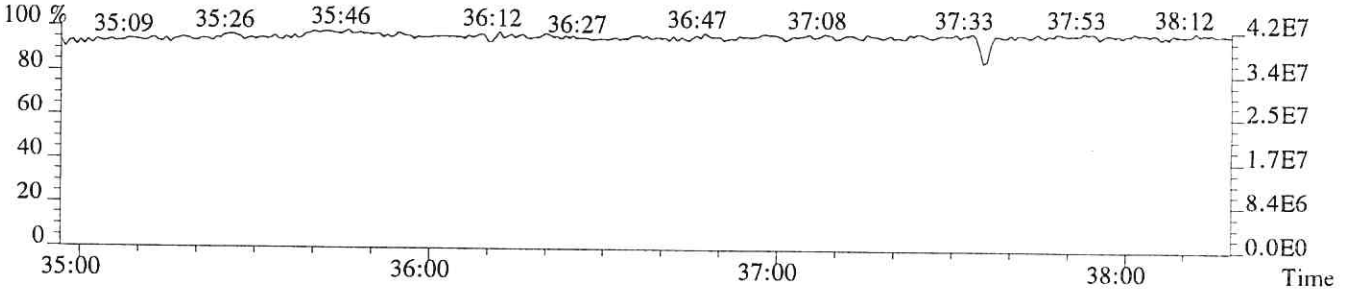
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



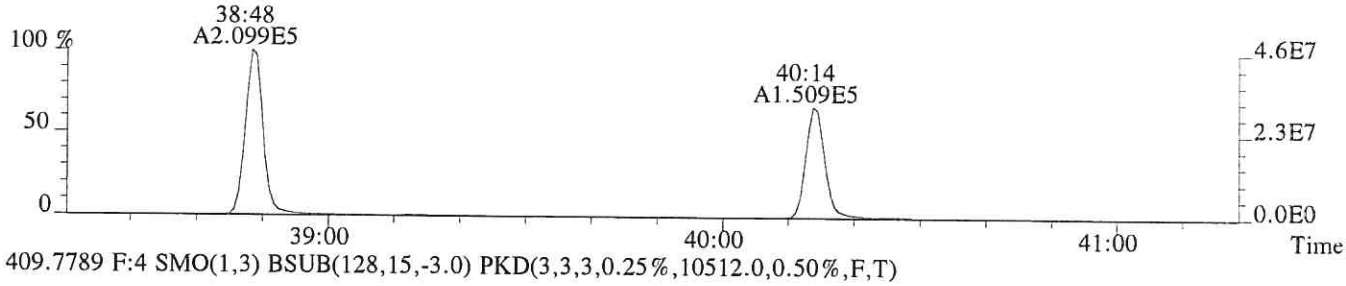
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)



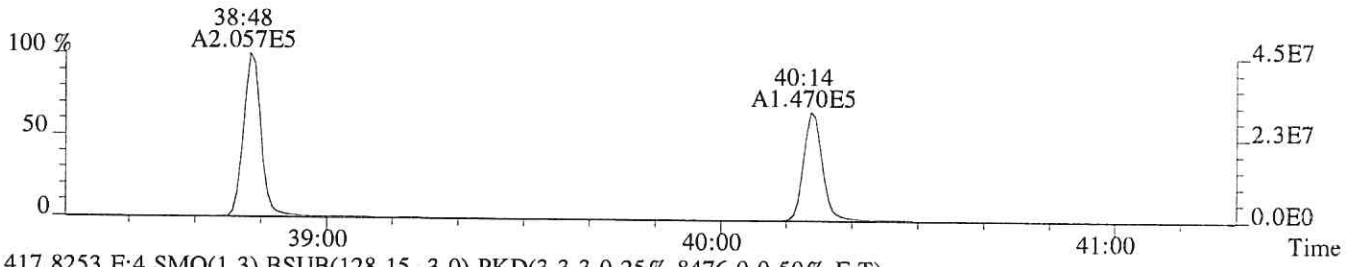
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



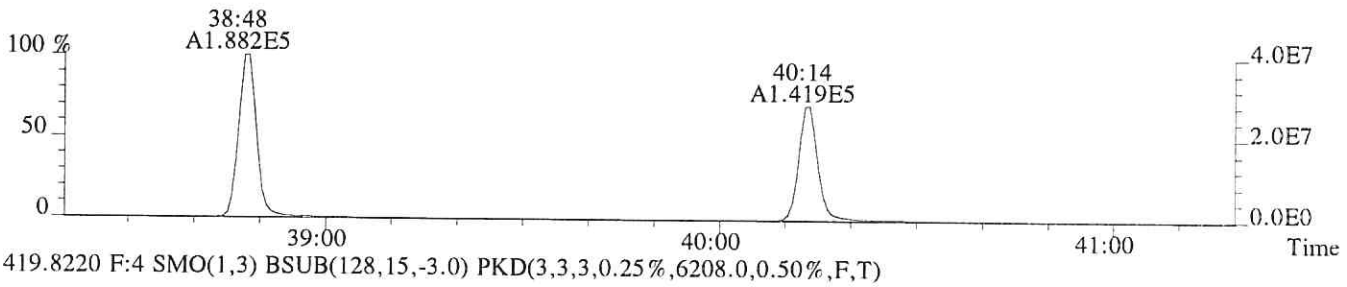
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



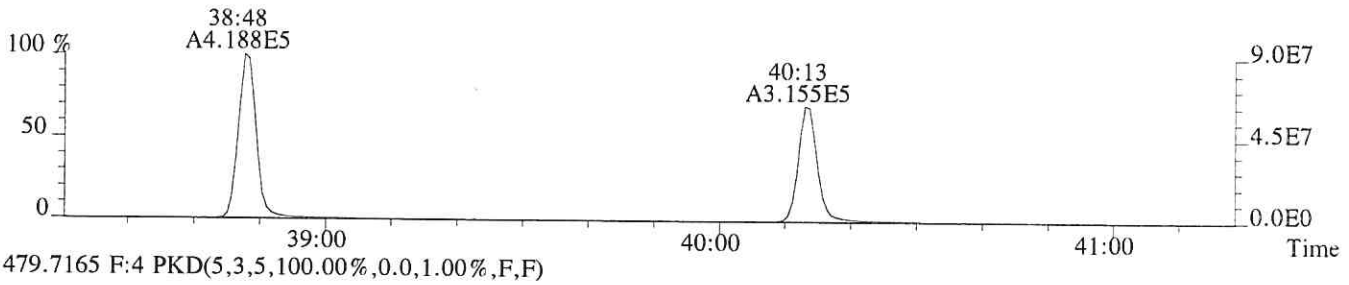
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



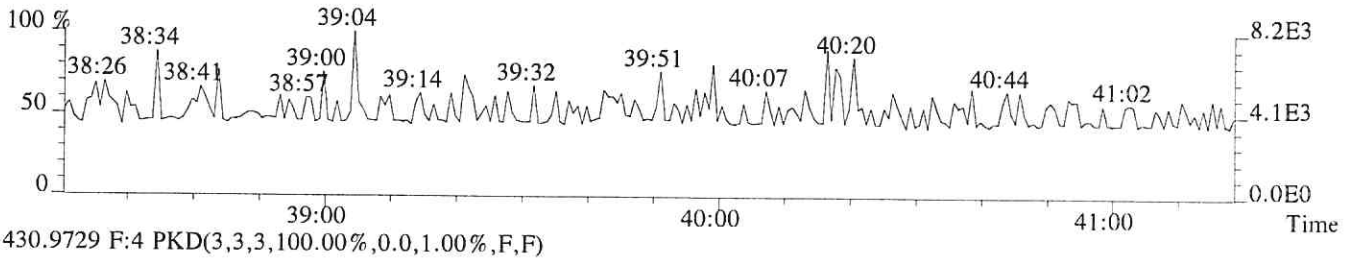
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



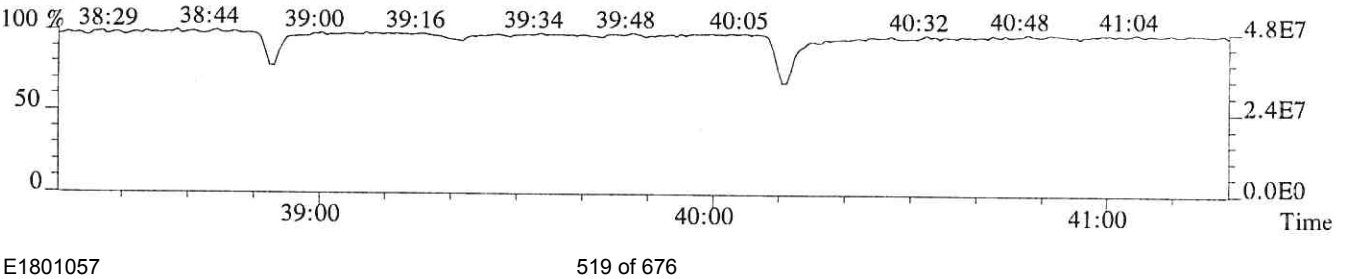
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



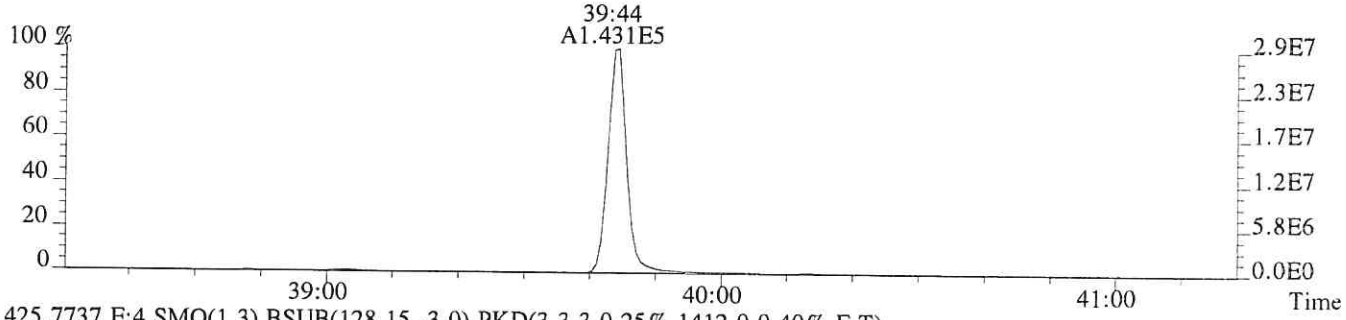
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



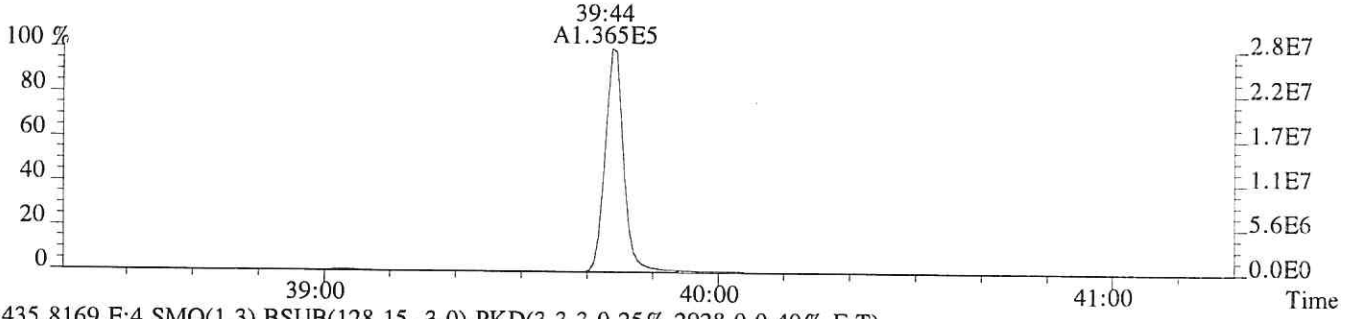
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



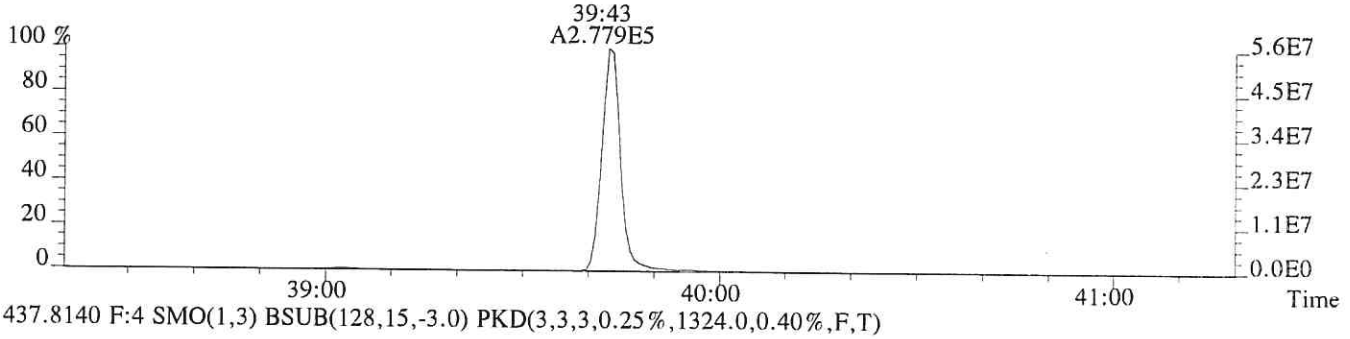
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



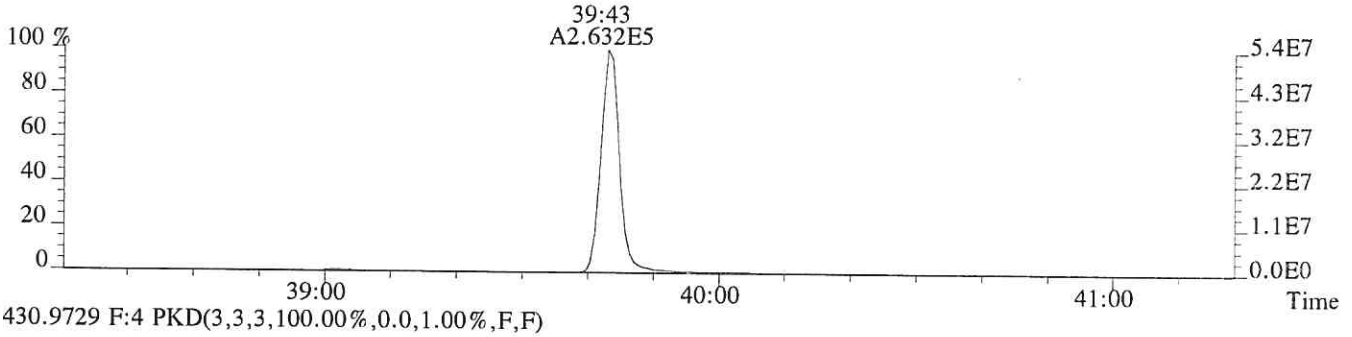
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



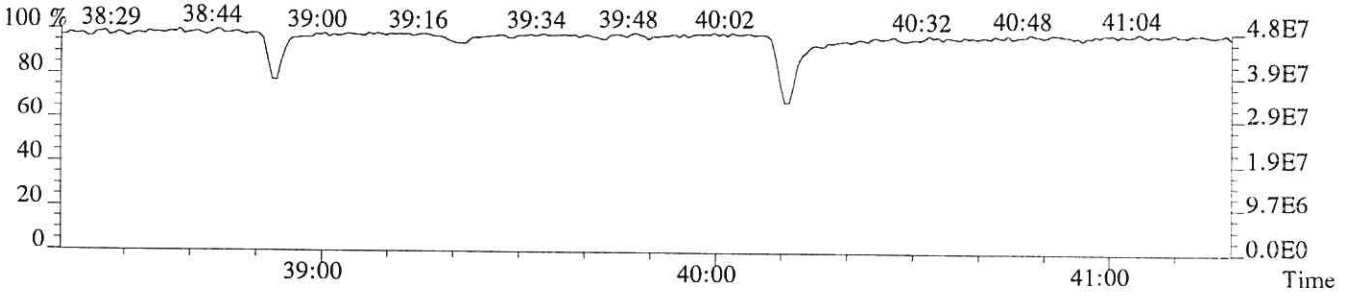
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



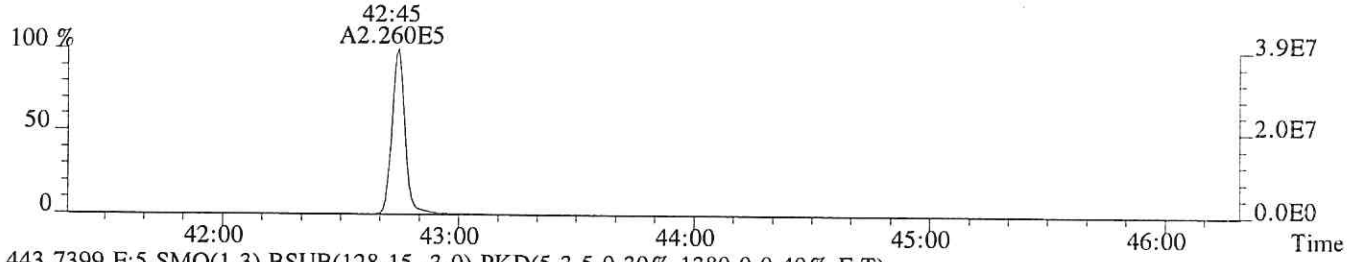
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



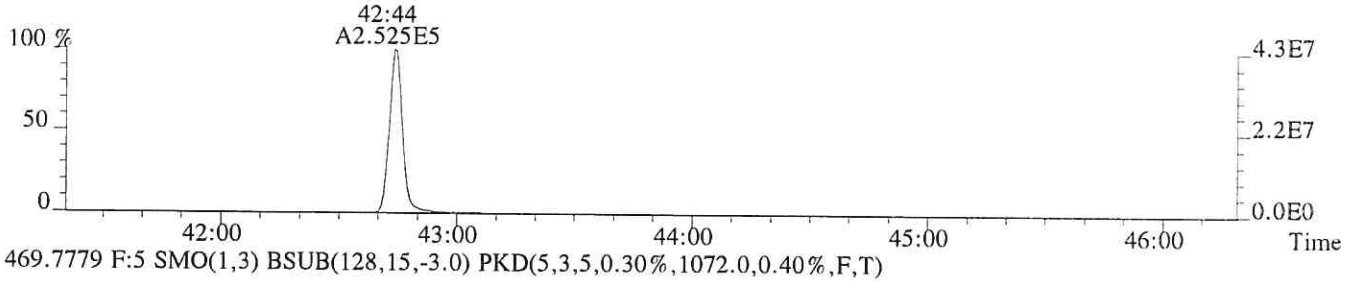
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



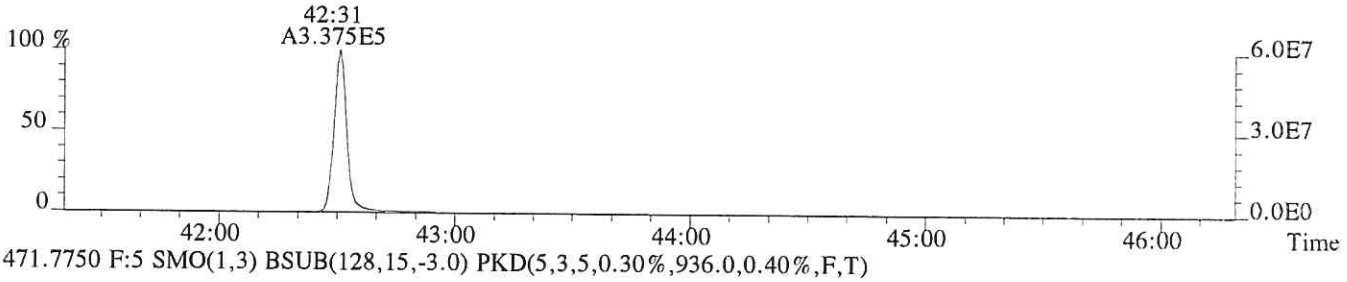
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



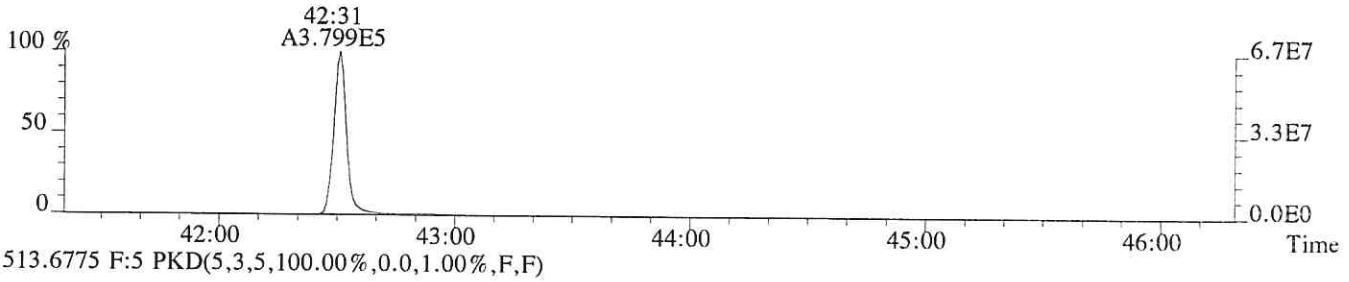
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



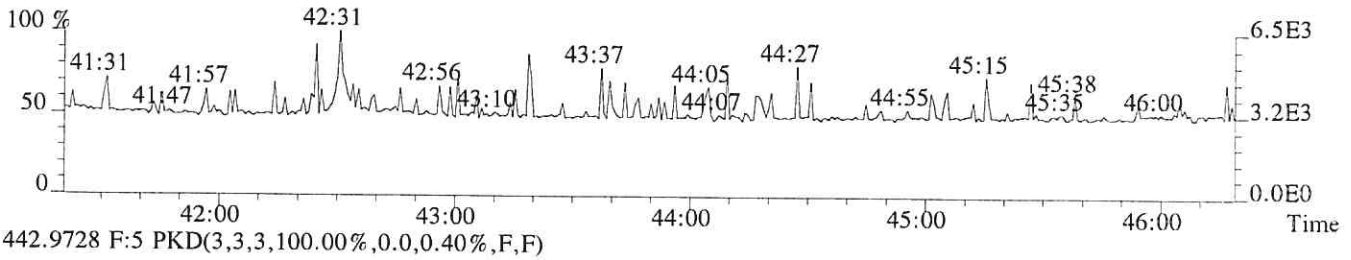
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



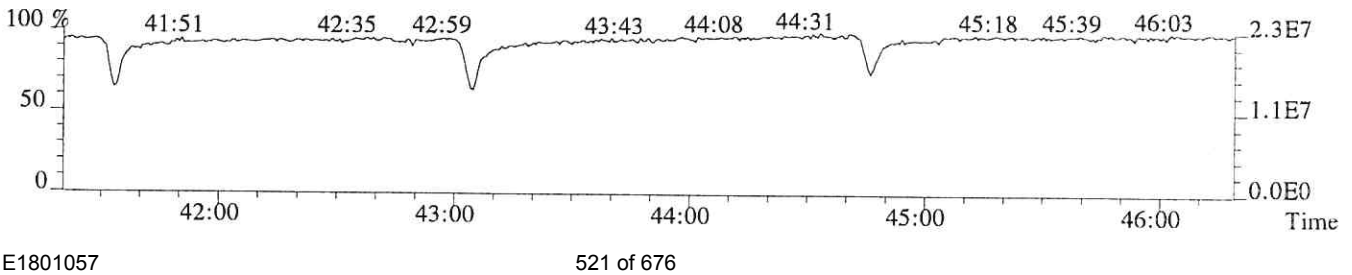
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



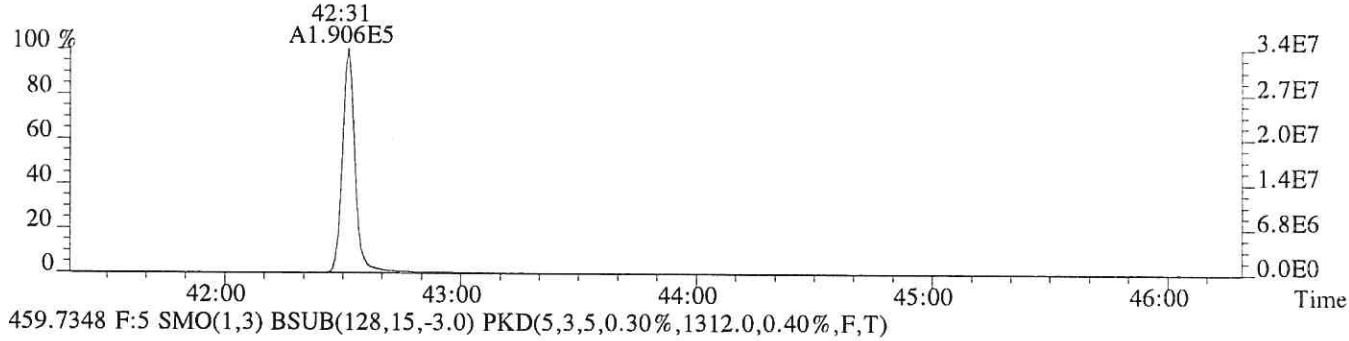
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



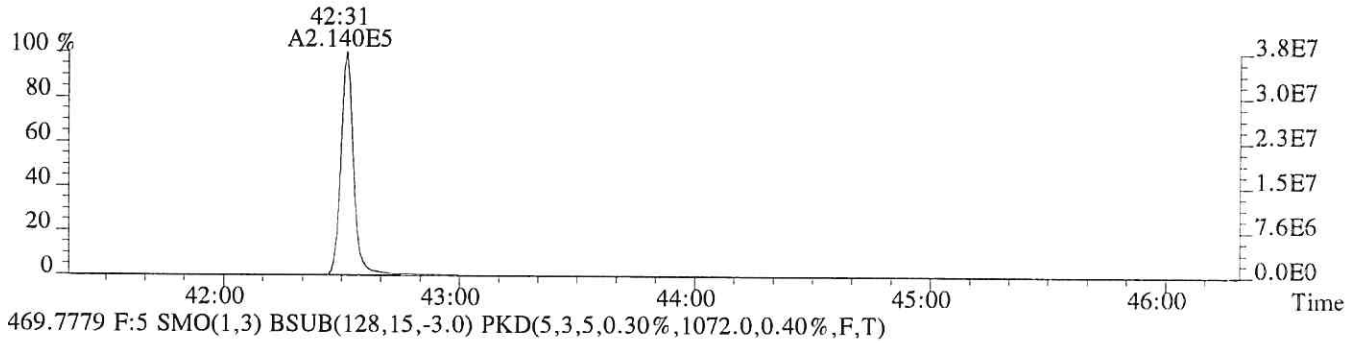
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



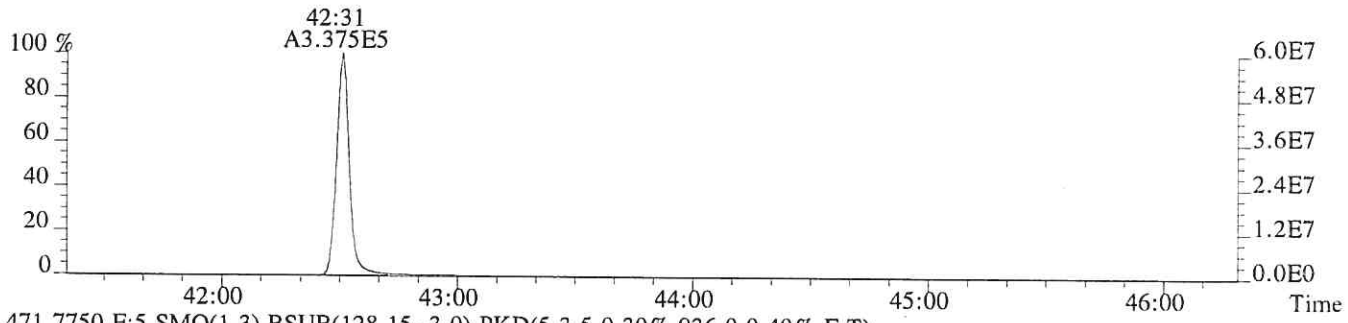
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



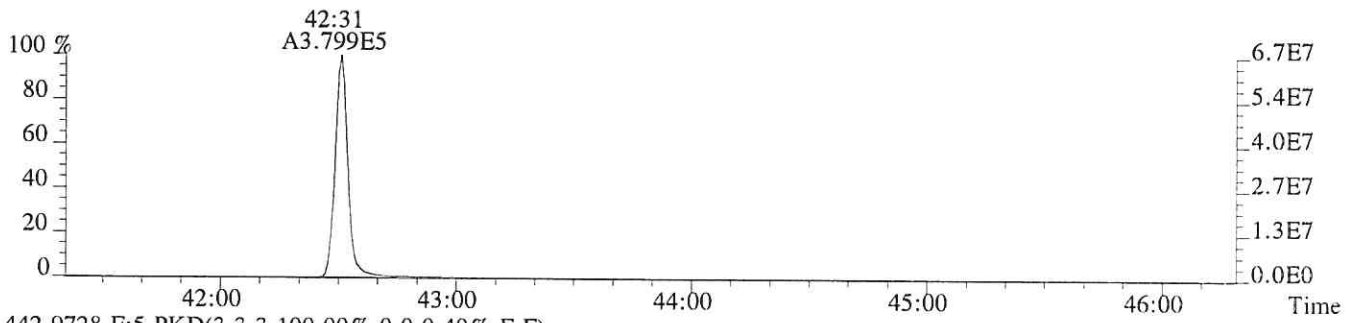
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



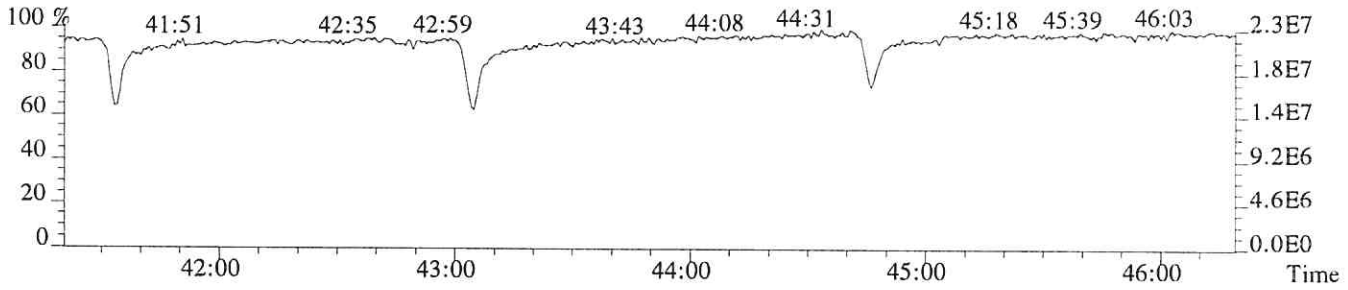
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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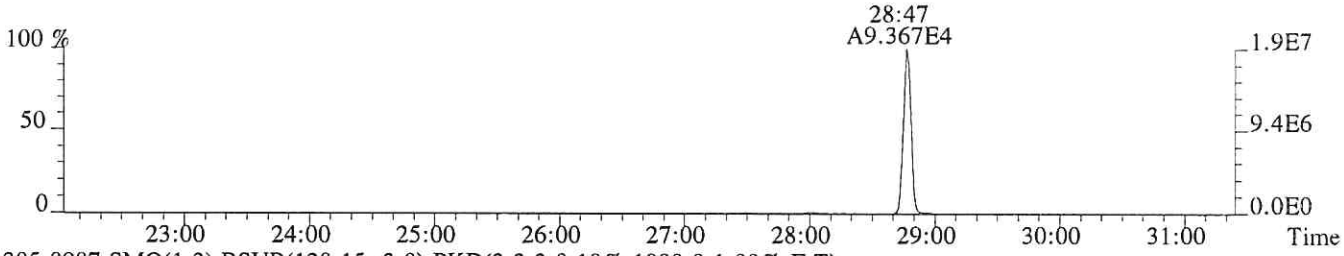
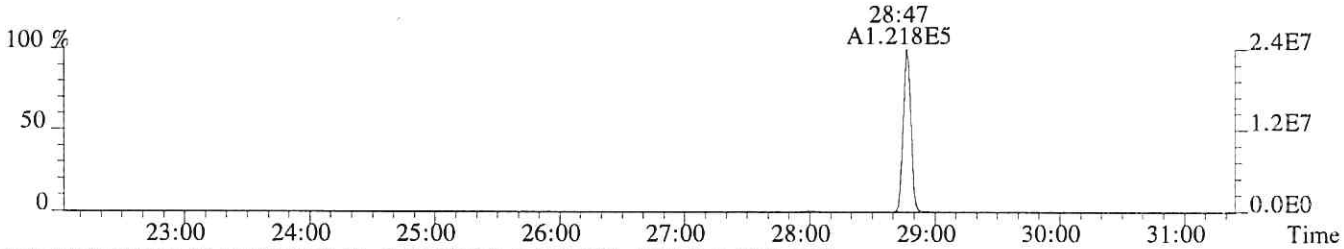
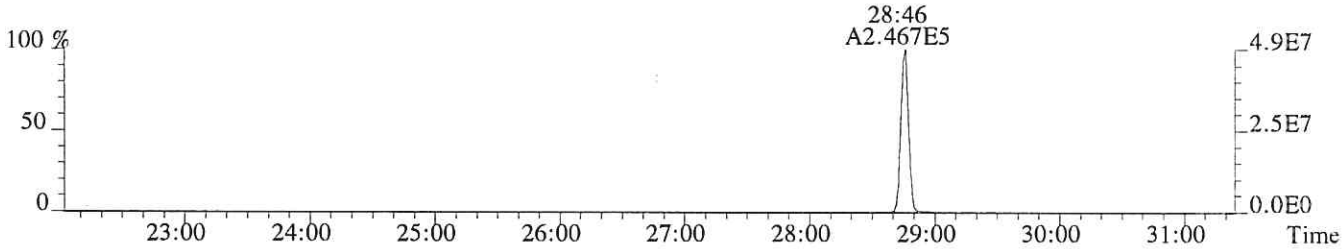
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



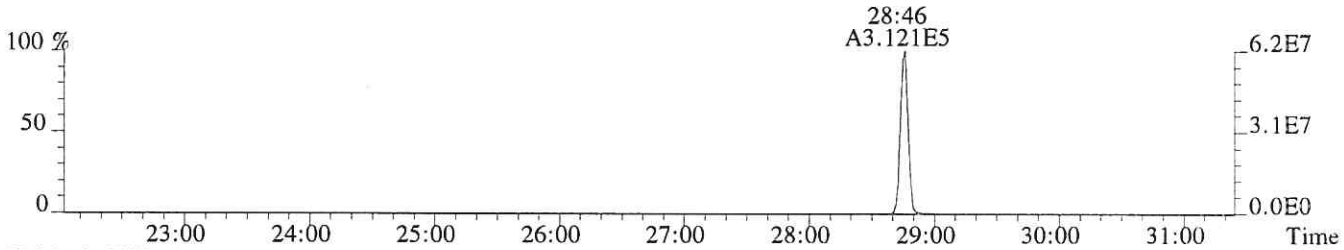
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



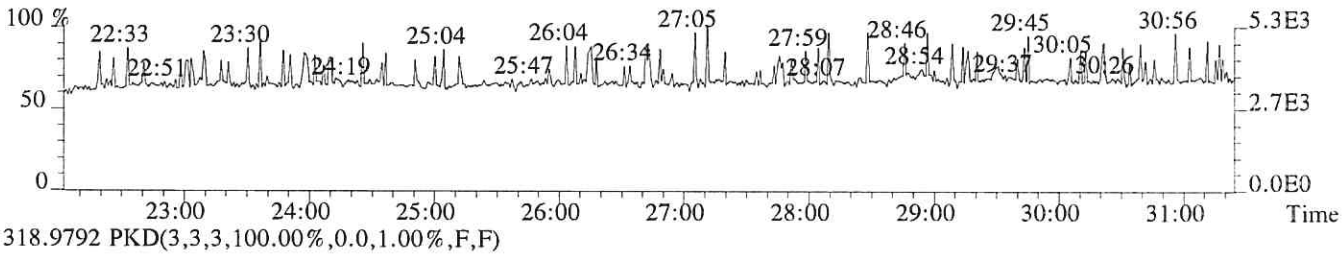
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



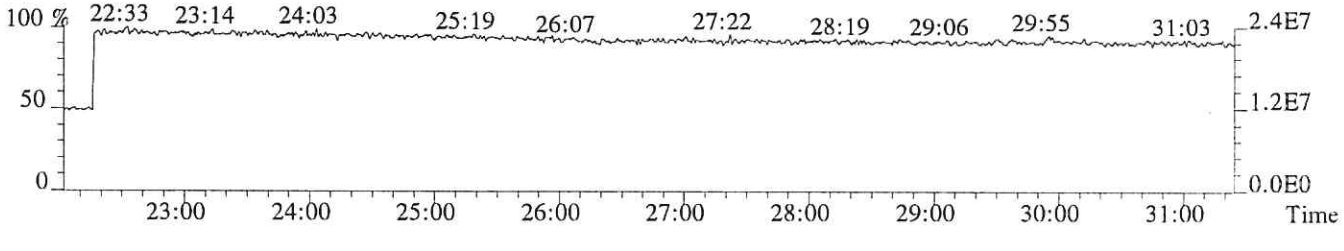
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



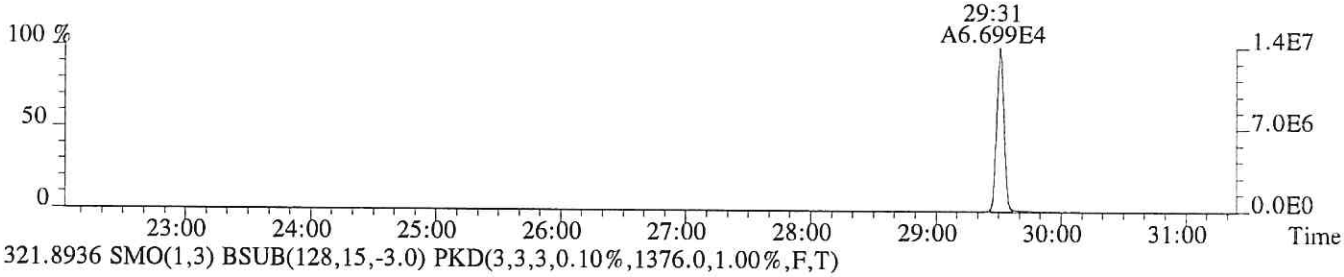
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



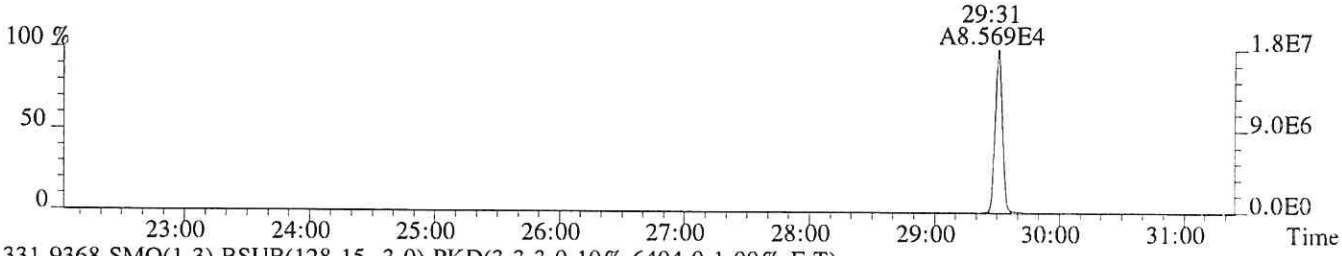
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



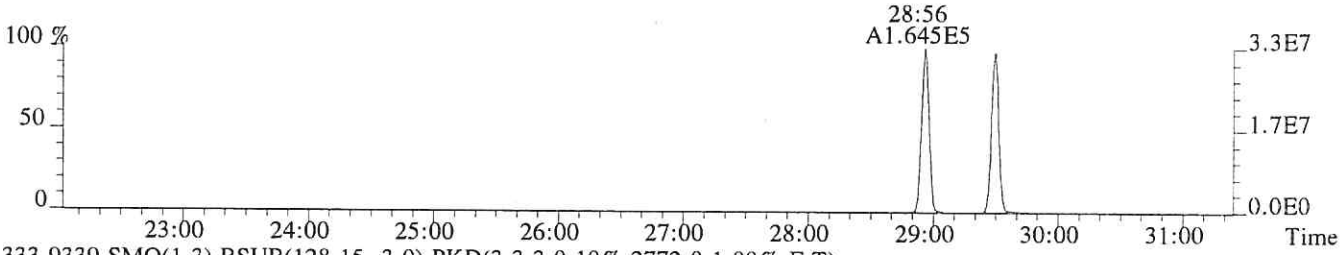
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



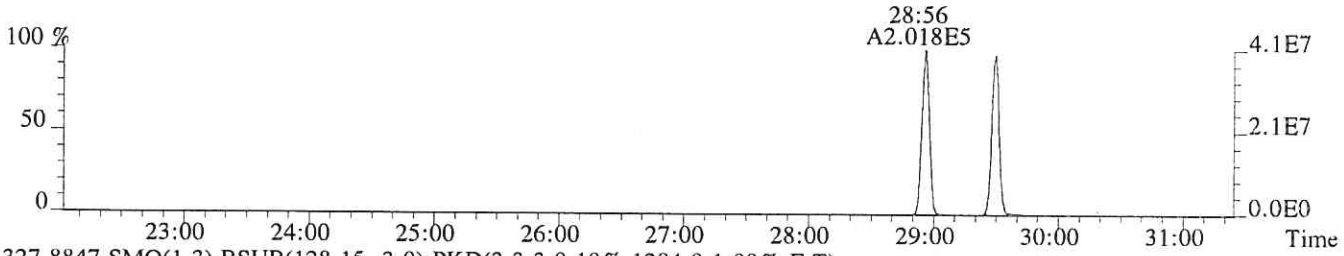
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



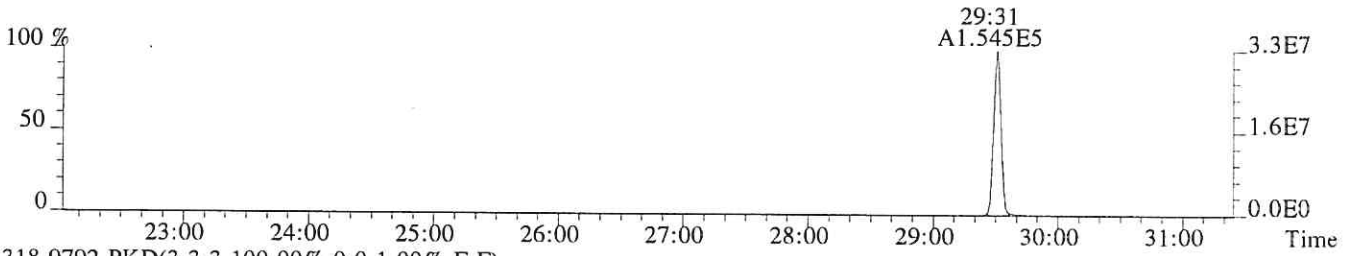
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



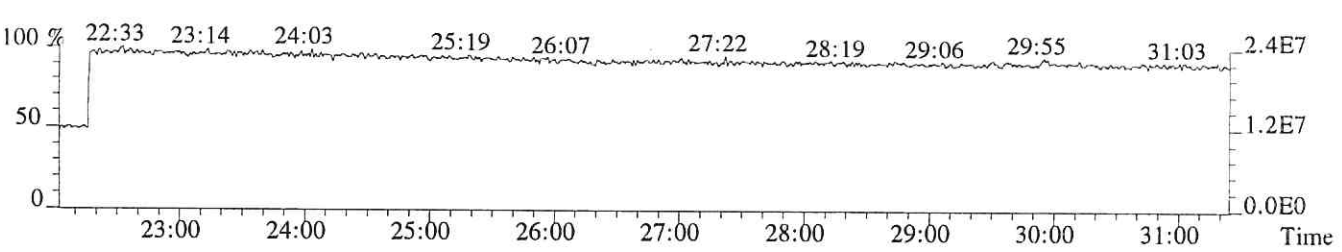
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



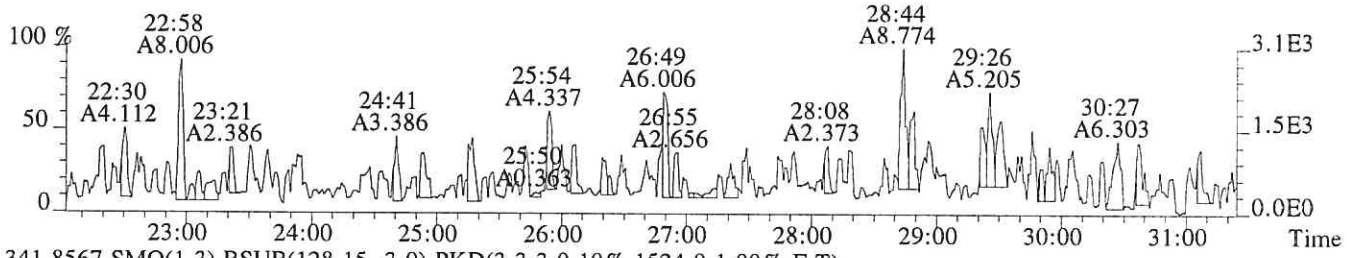
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



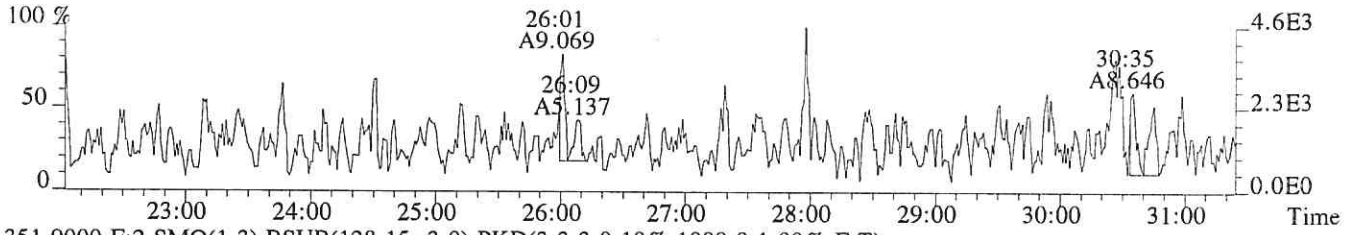
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



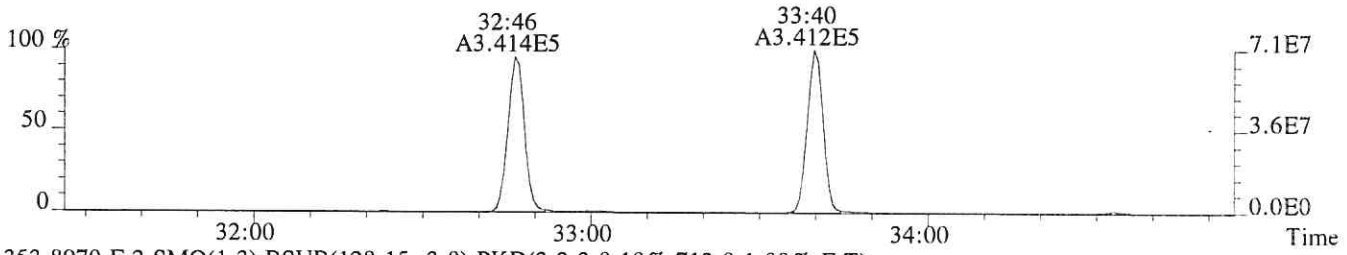
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



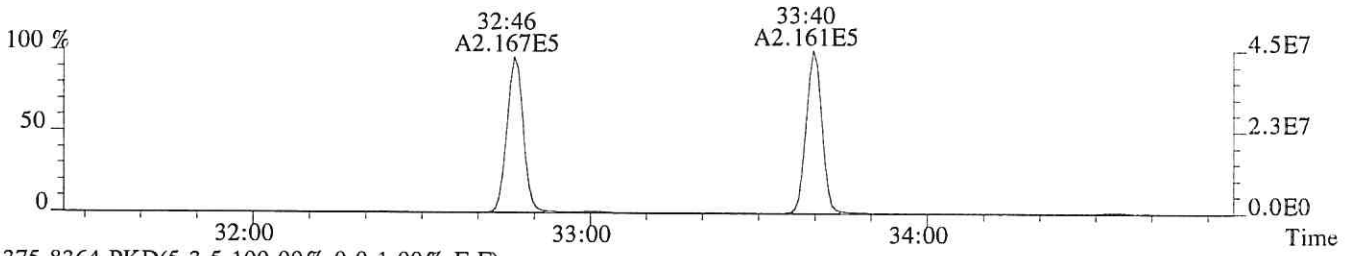
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



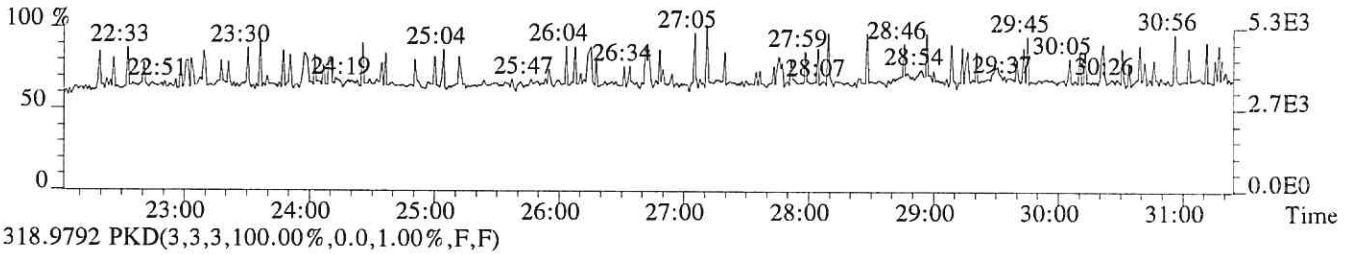
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



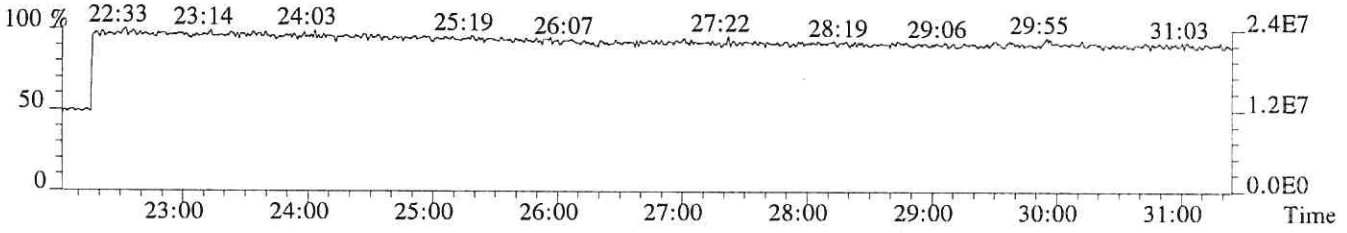
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



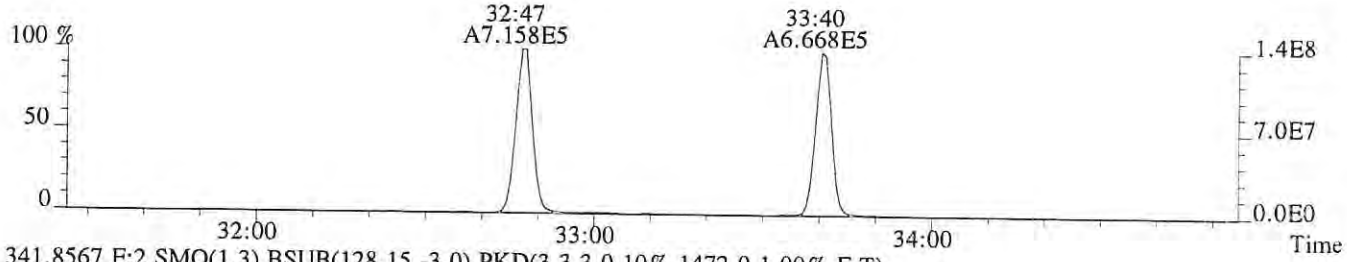
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



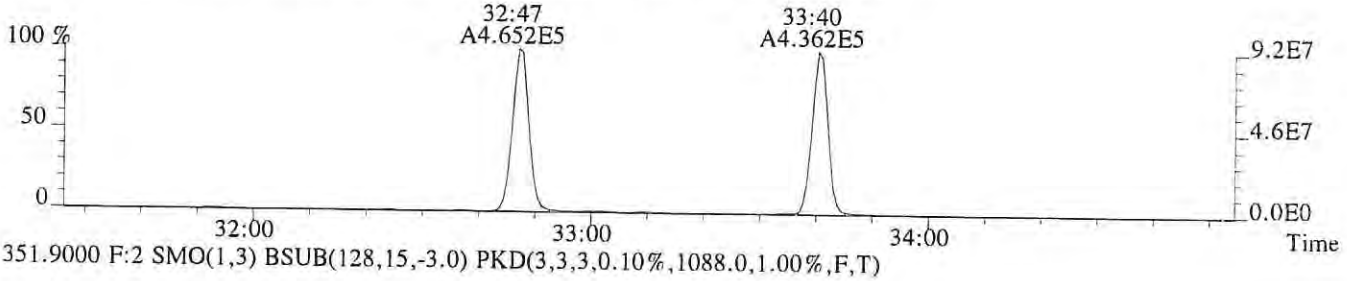
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



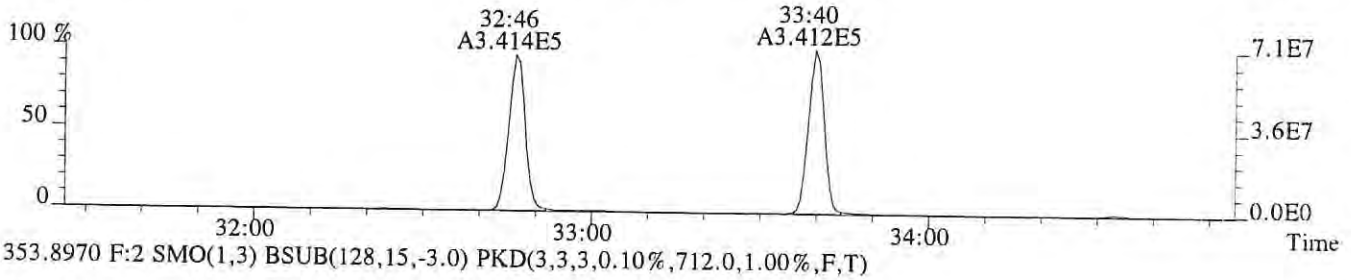
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



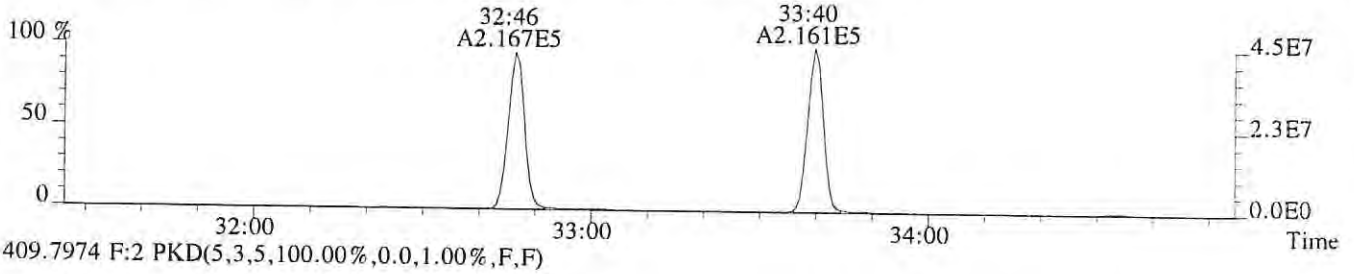
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



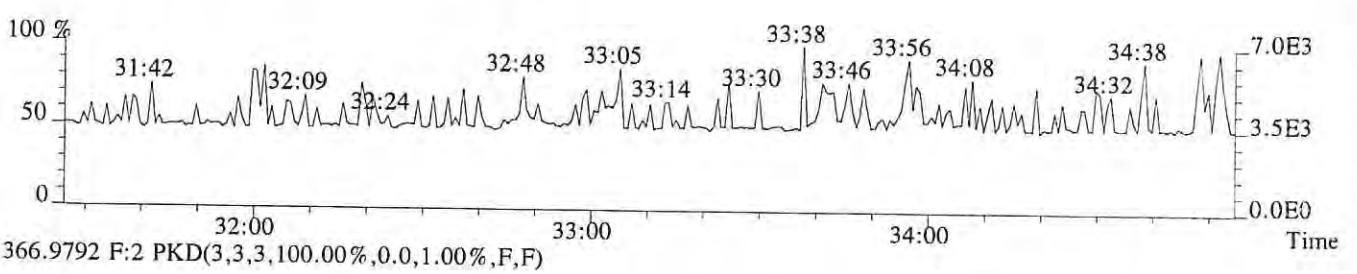
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



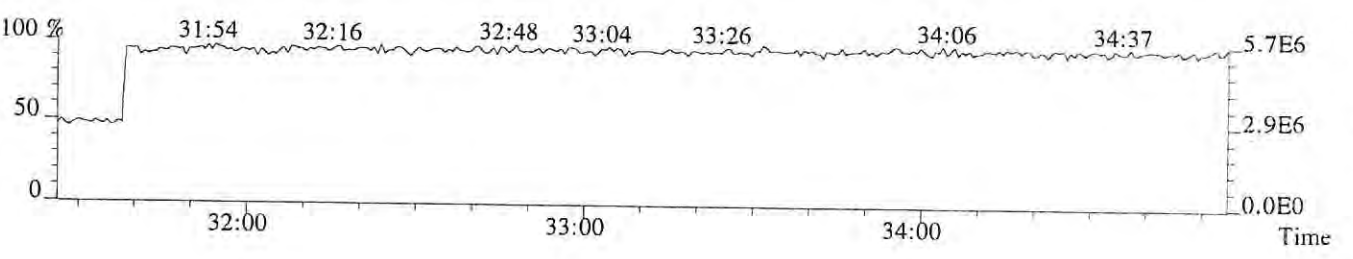
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



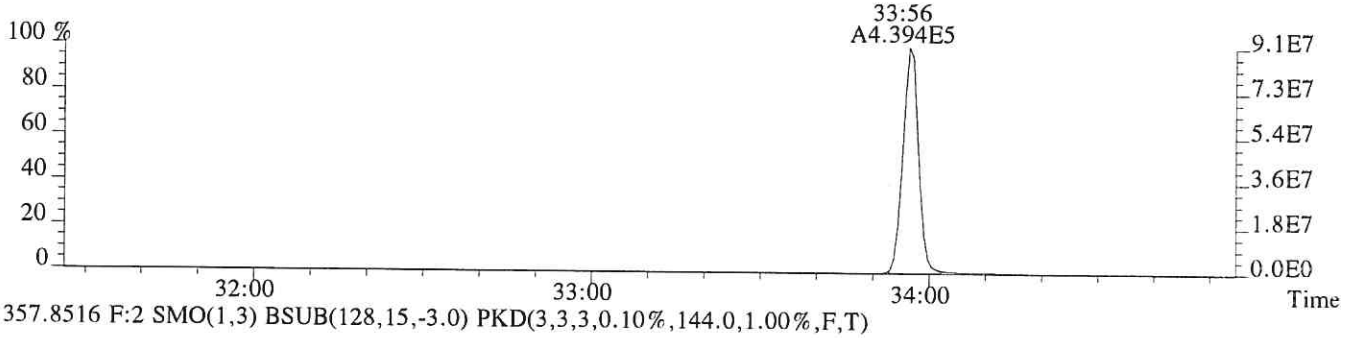
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



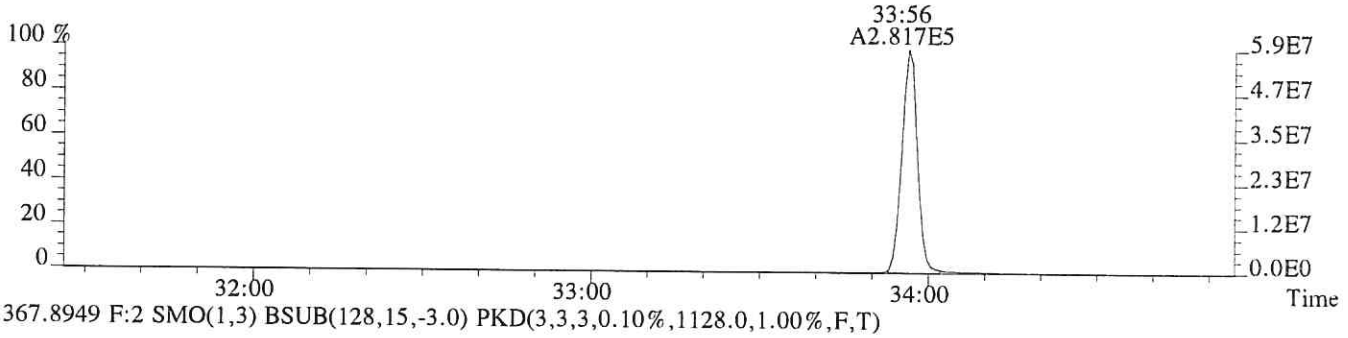
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



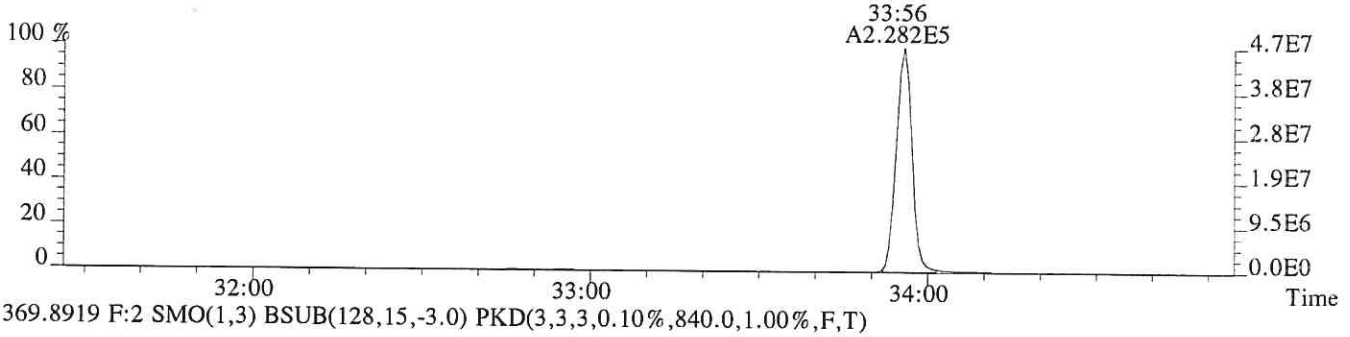
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



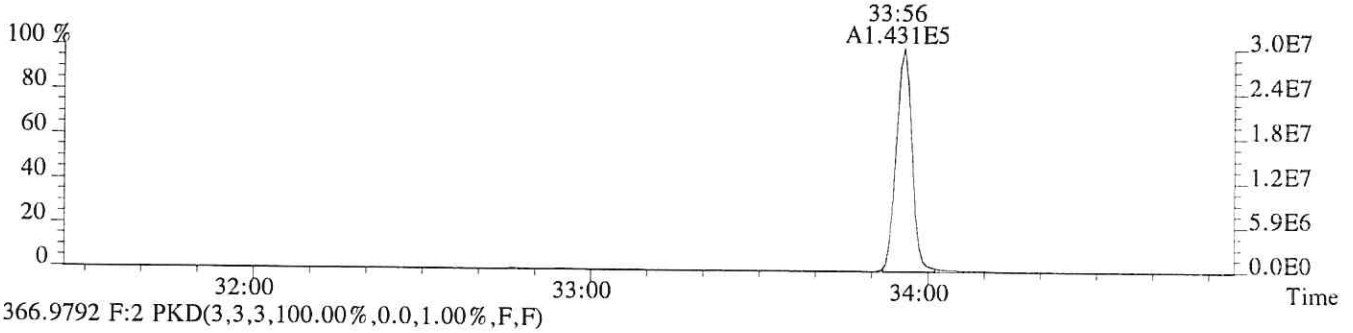
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



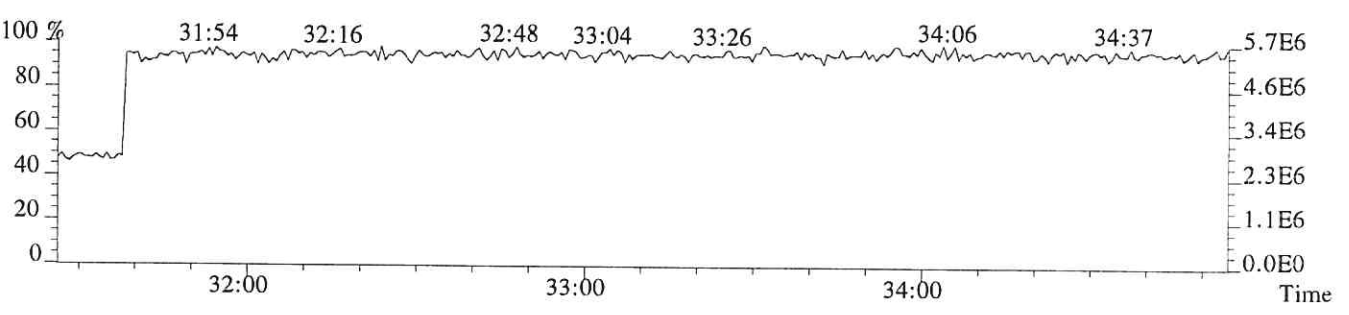
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



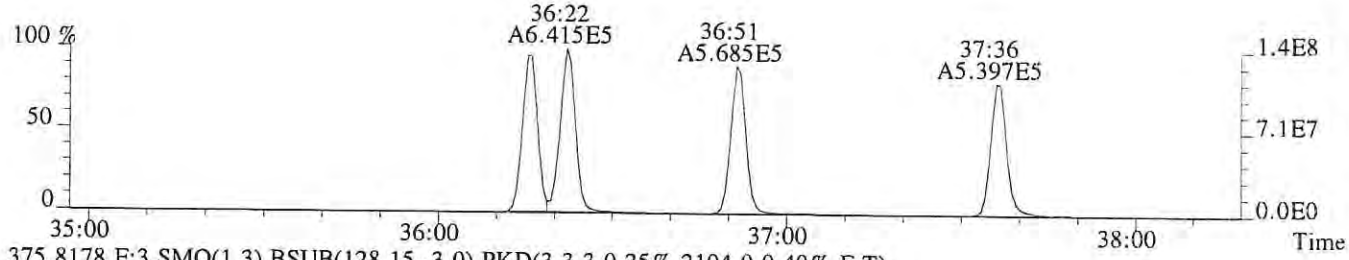
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



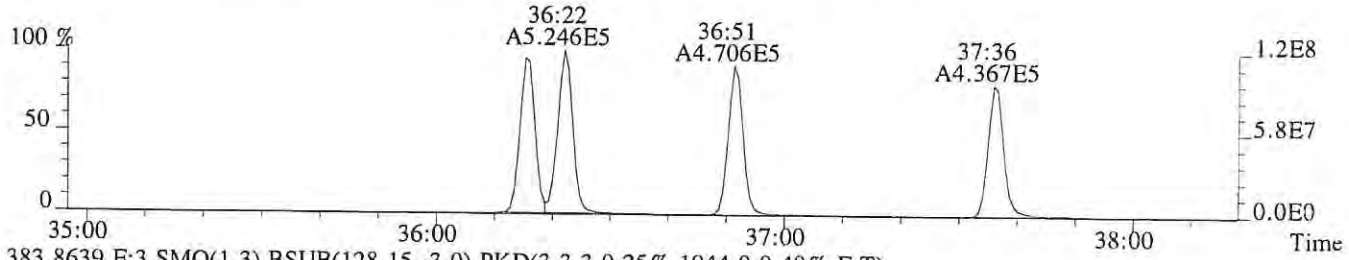
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



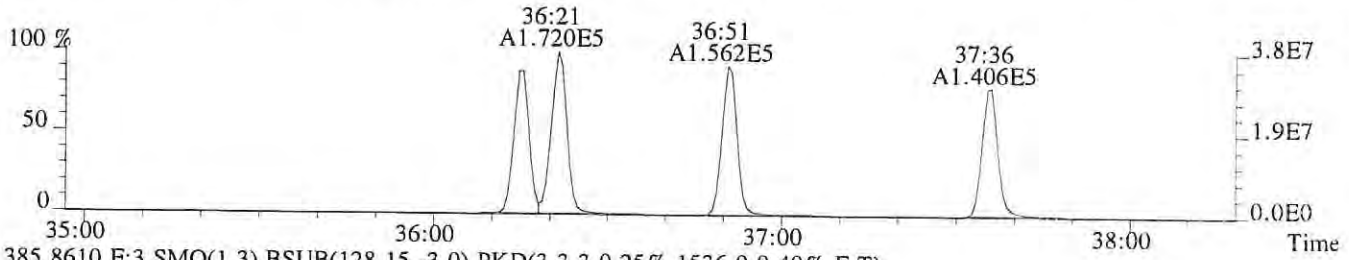
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



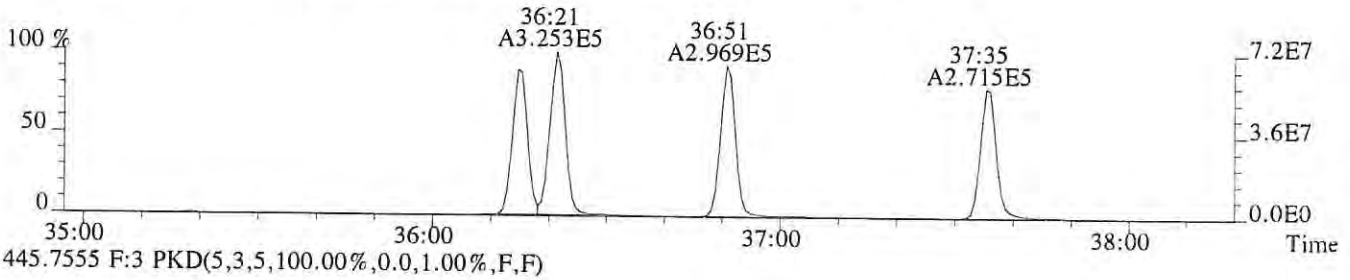
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



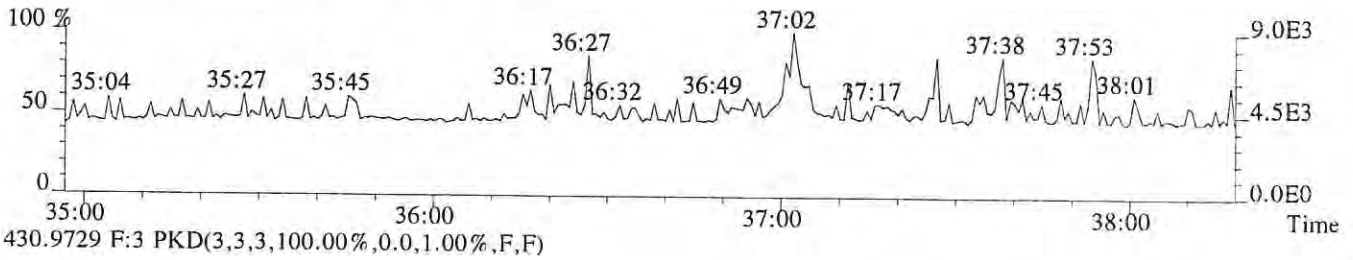
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



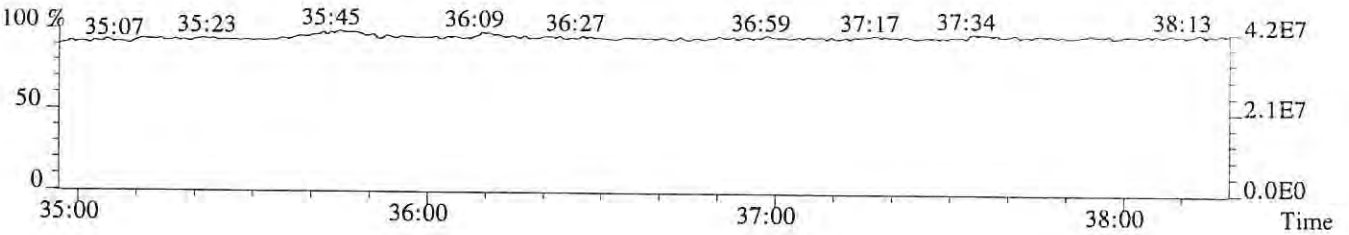
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



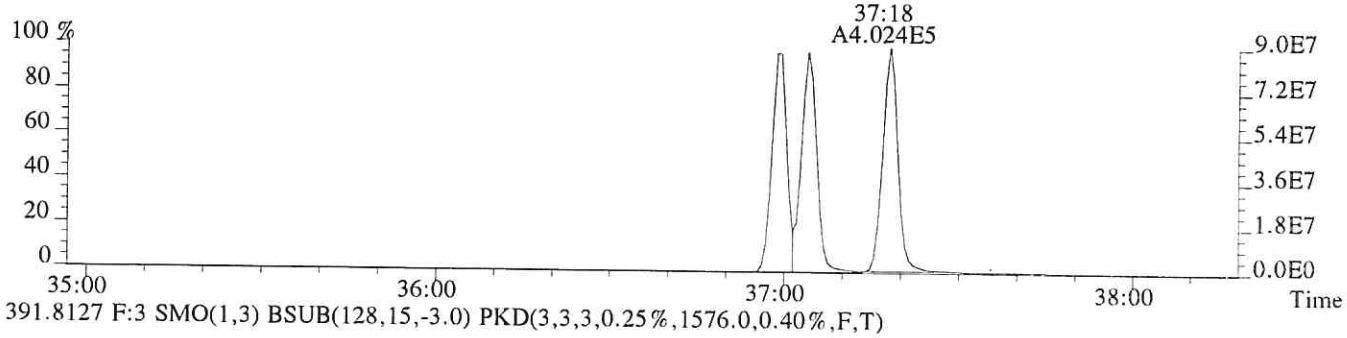
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



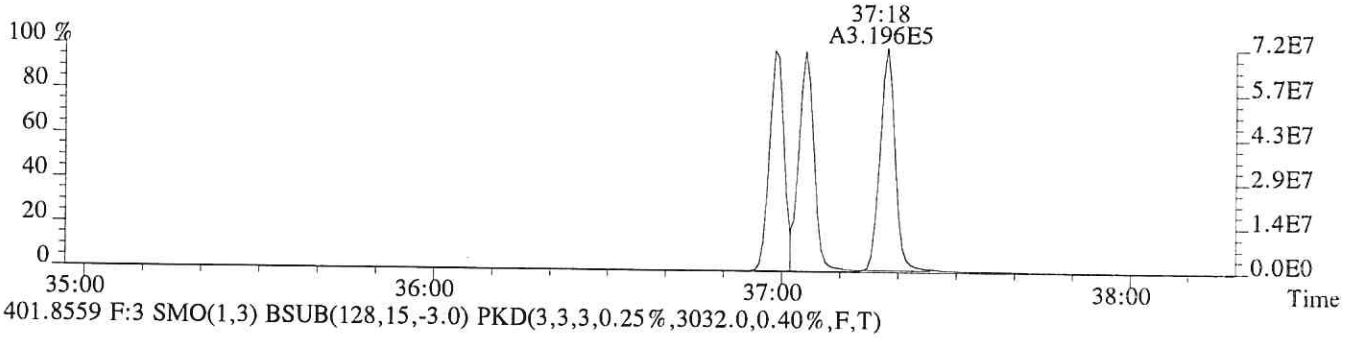
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



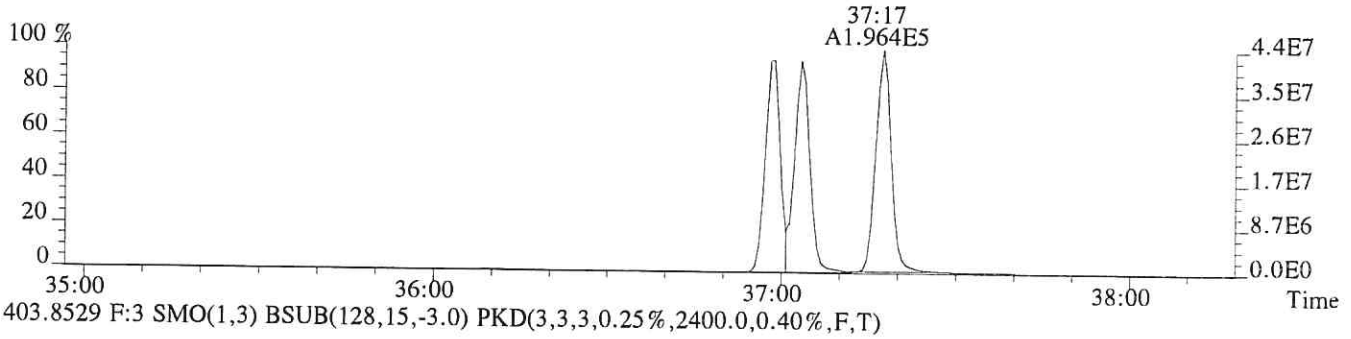
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



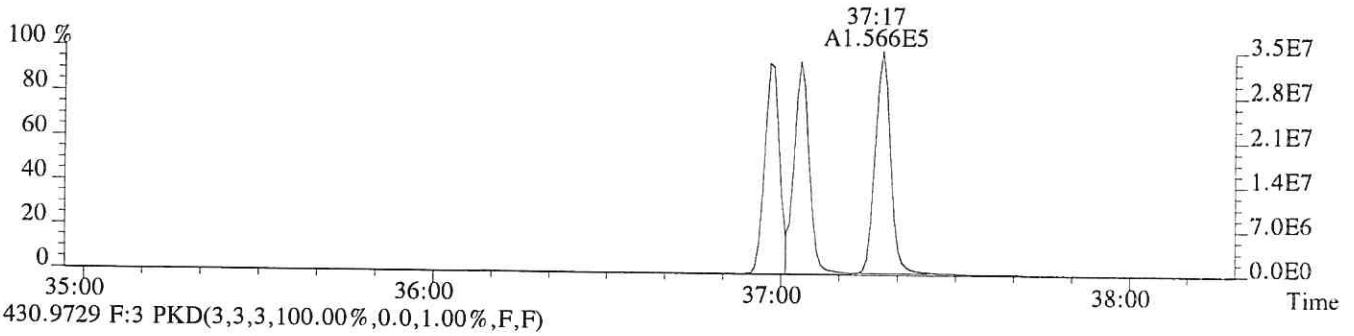
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



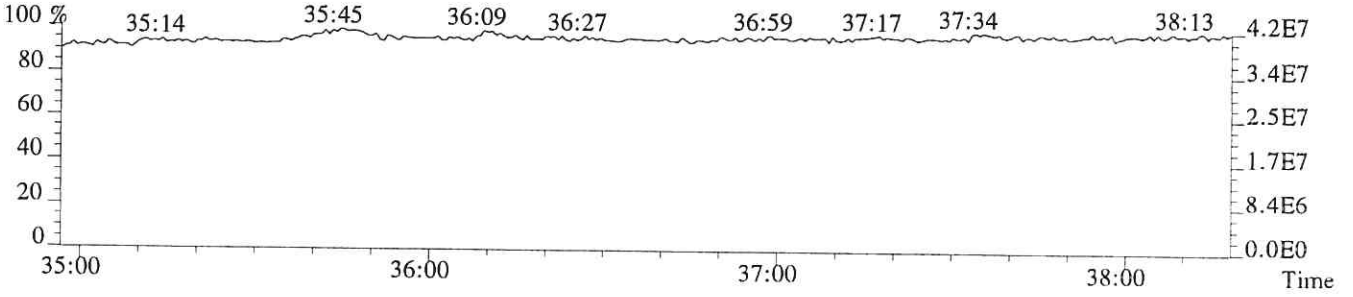
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



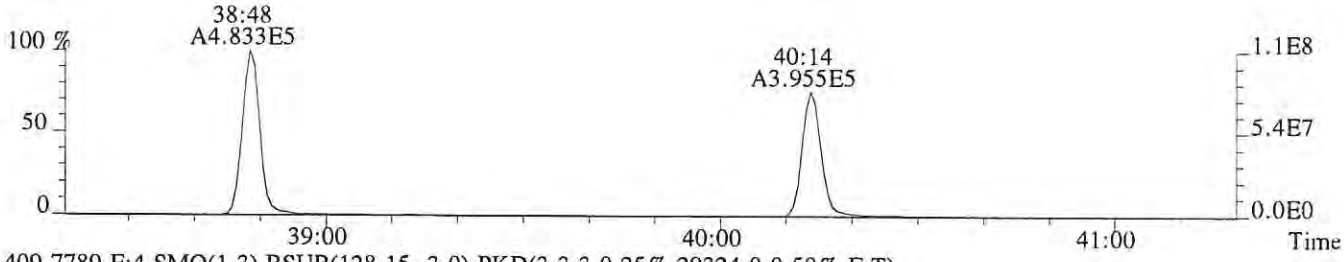
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



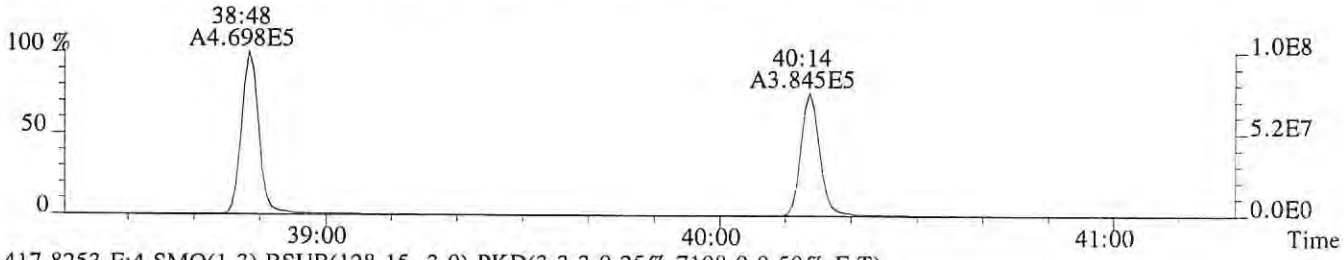
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



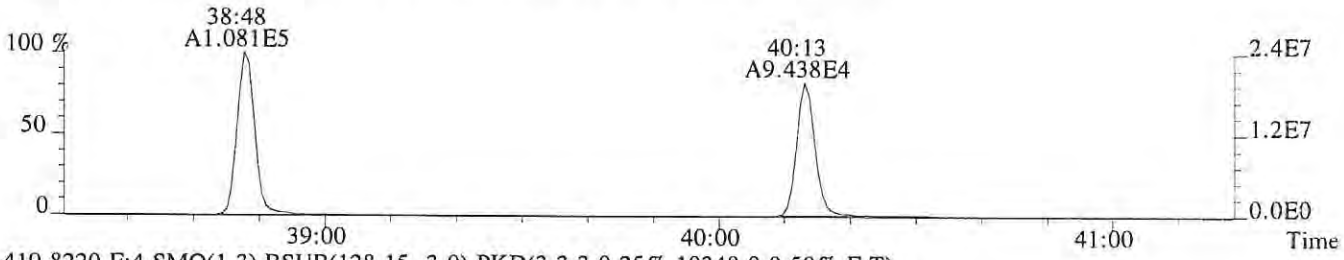
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



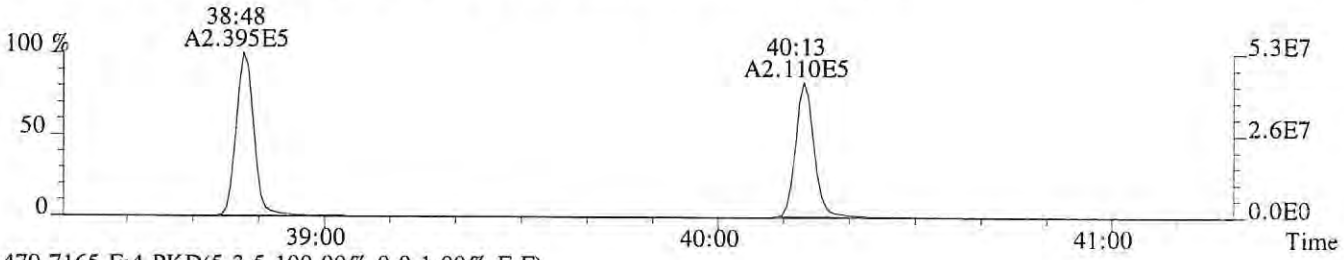
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



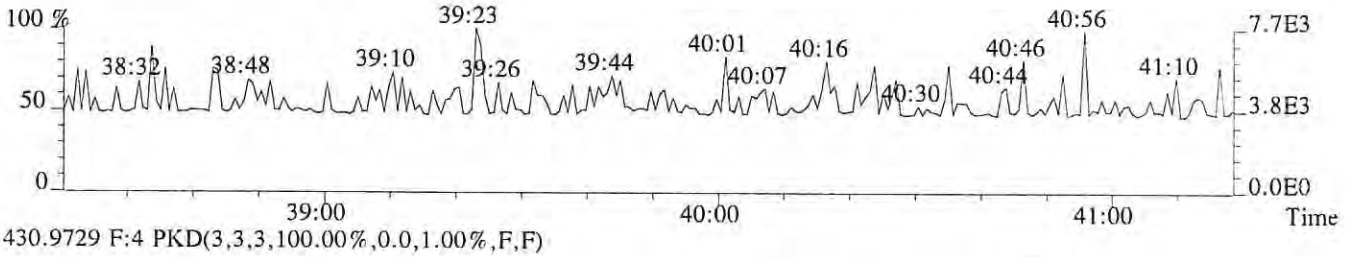
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



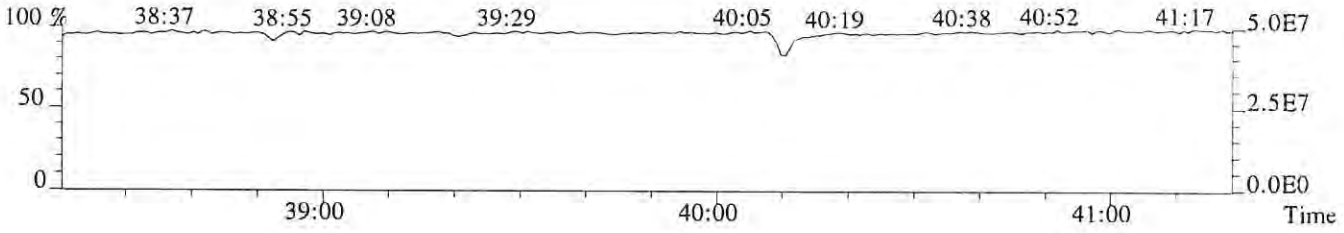
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



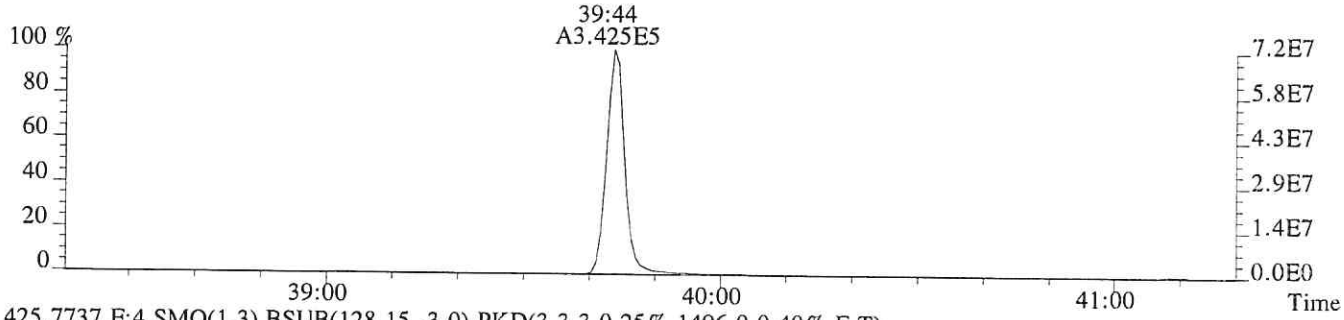
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



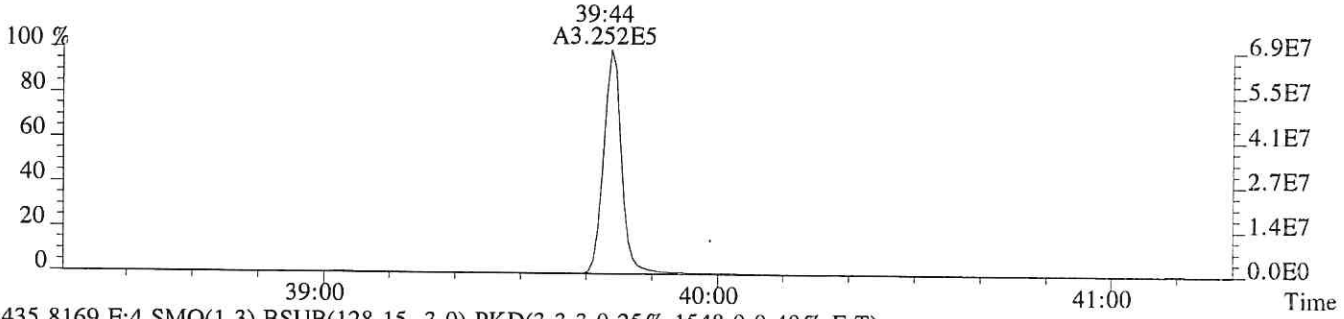
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



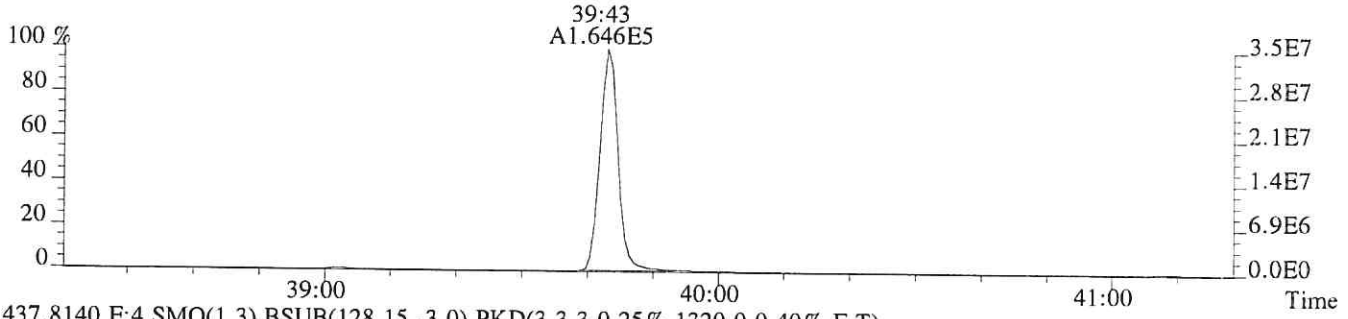
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



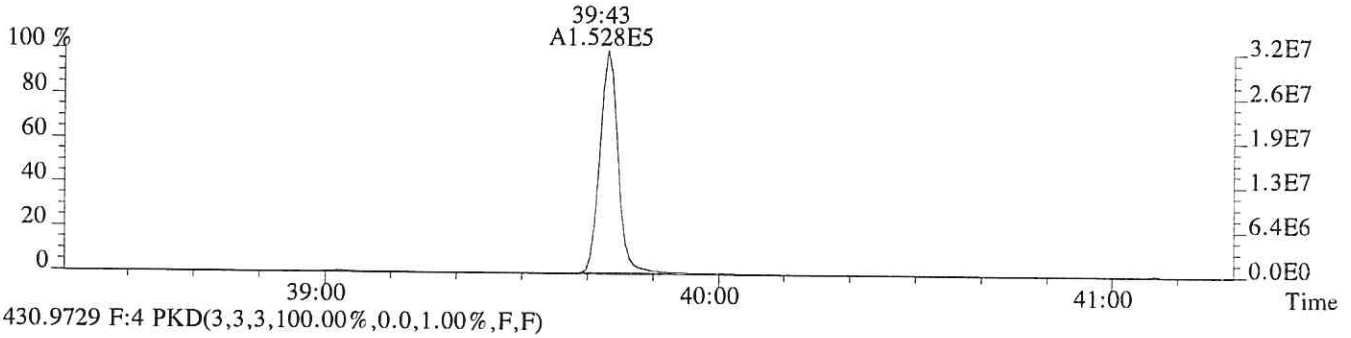
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



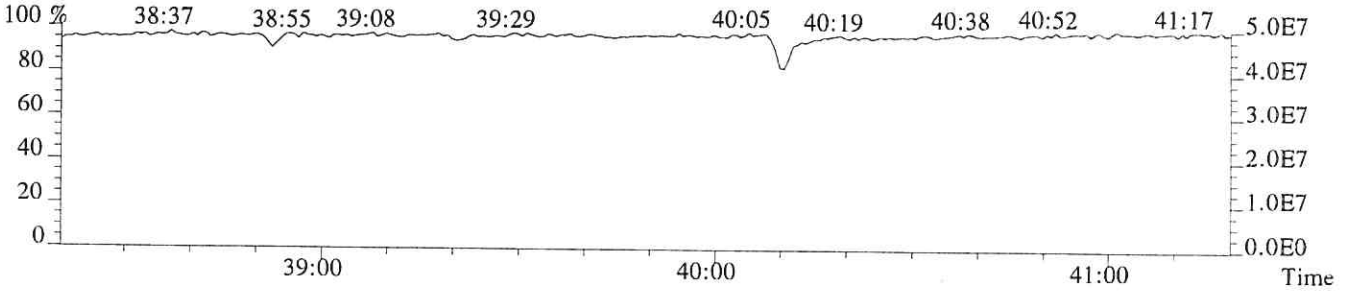
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



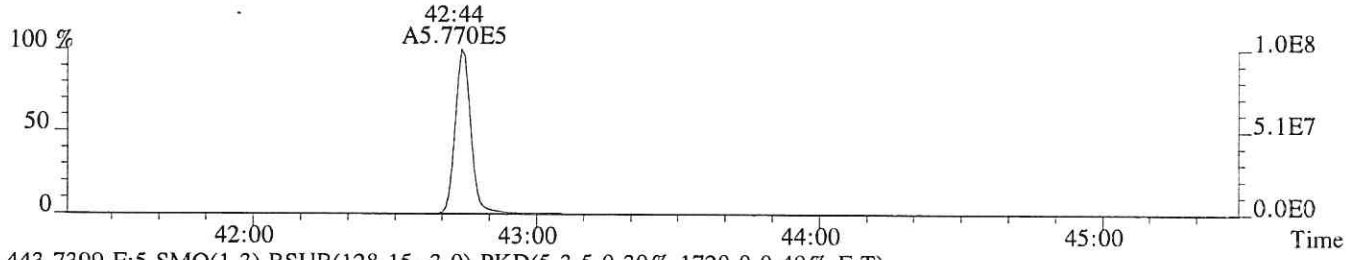
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



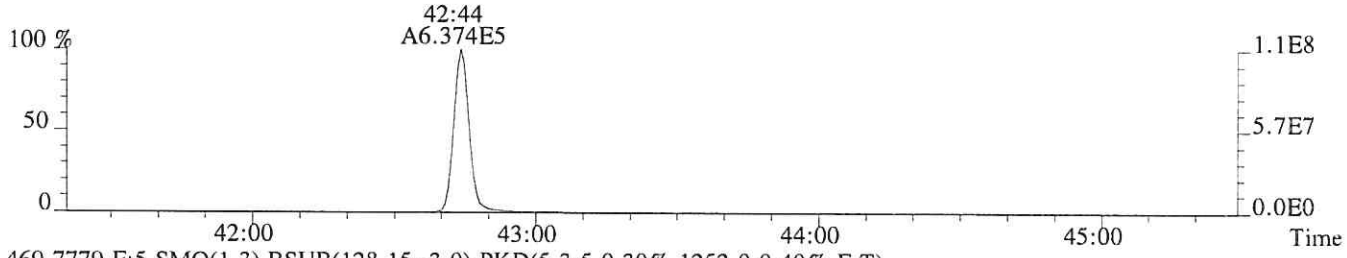
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



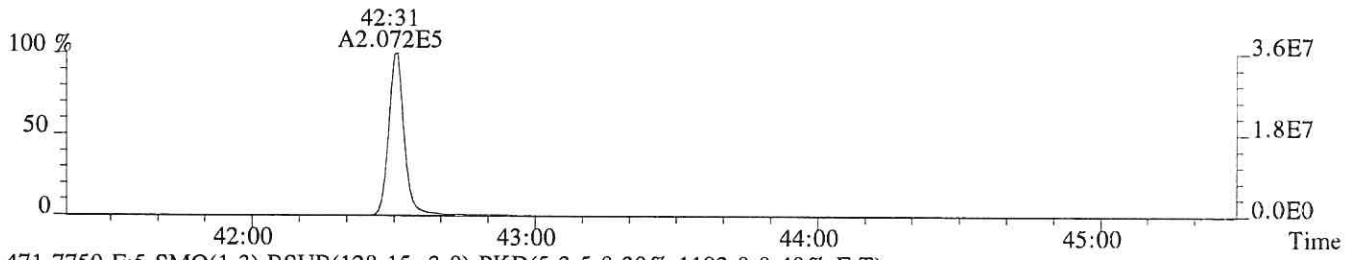
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



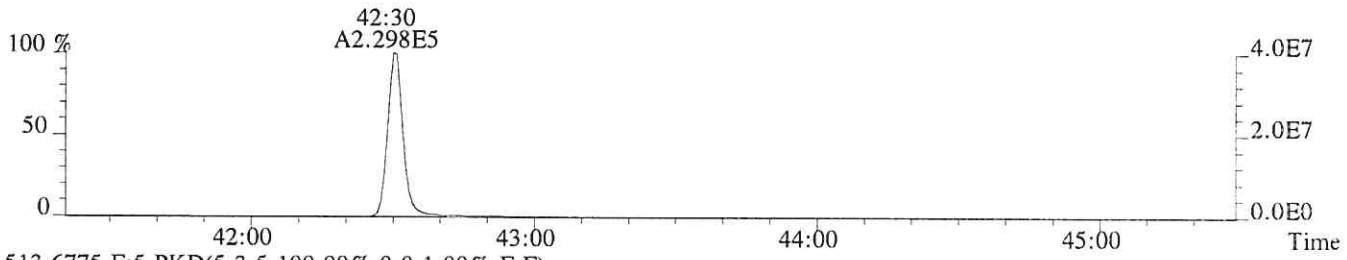
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



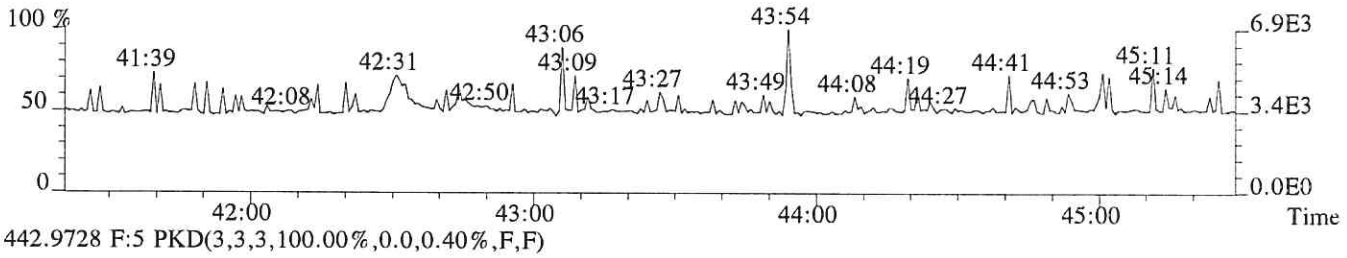
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



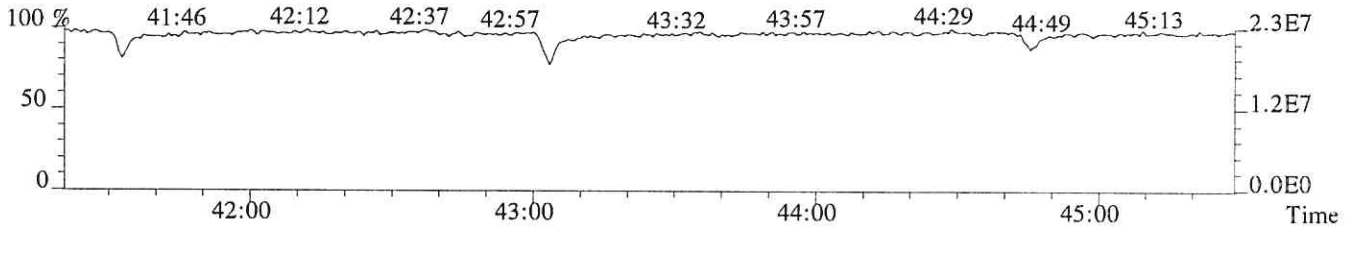
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



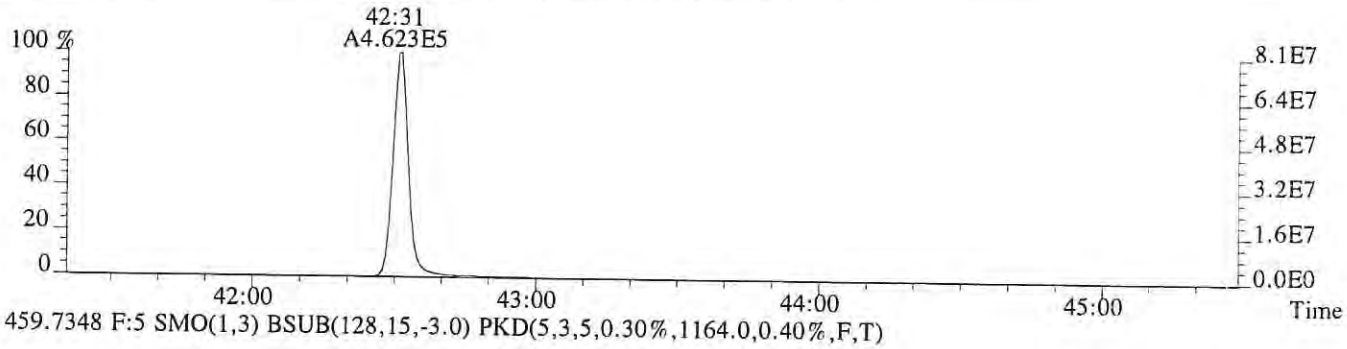
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



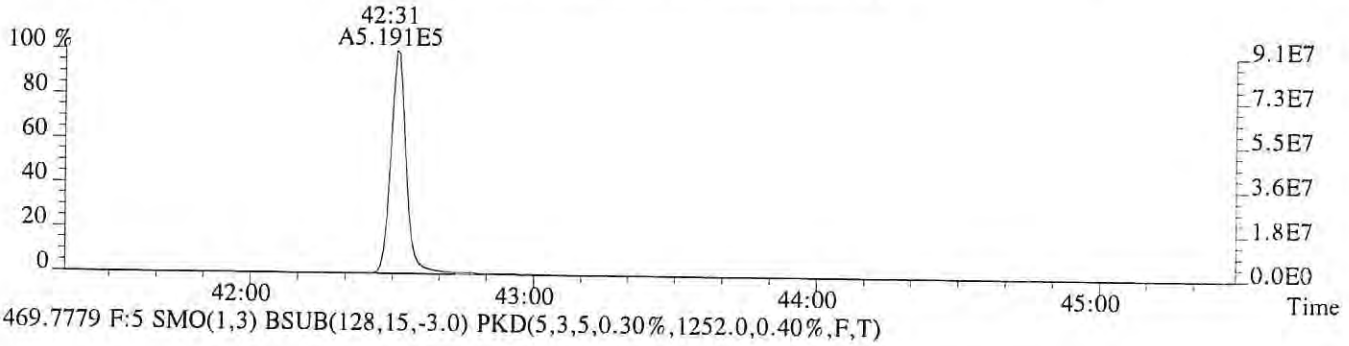
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



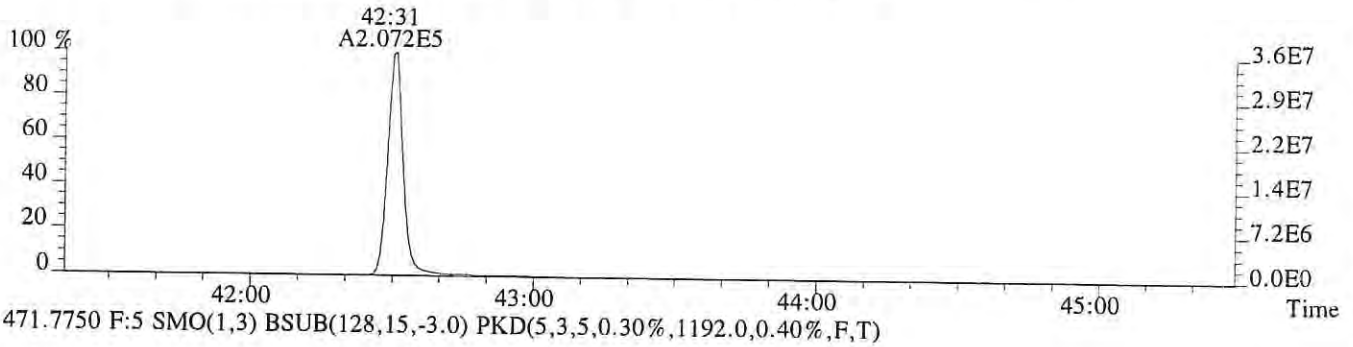
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



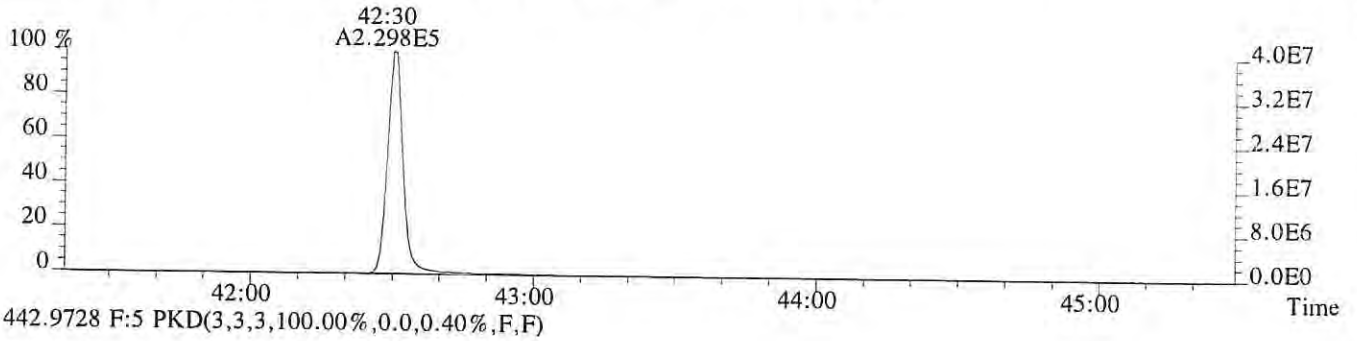
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



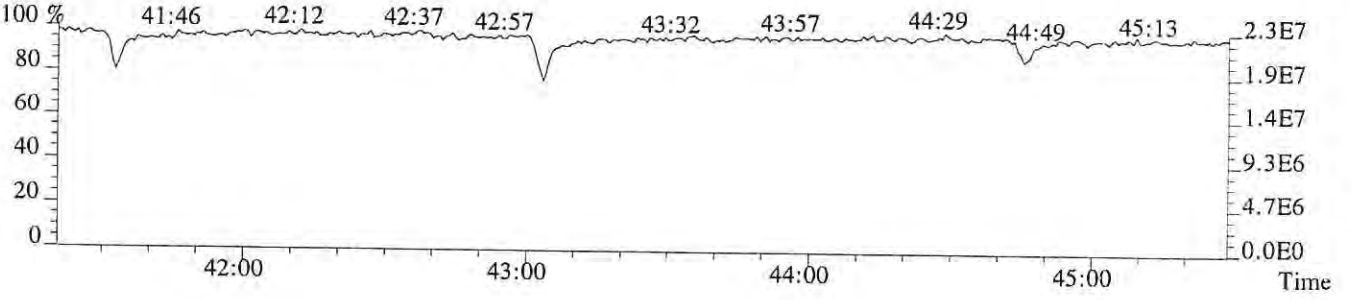
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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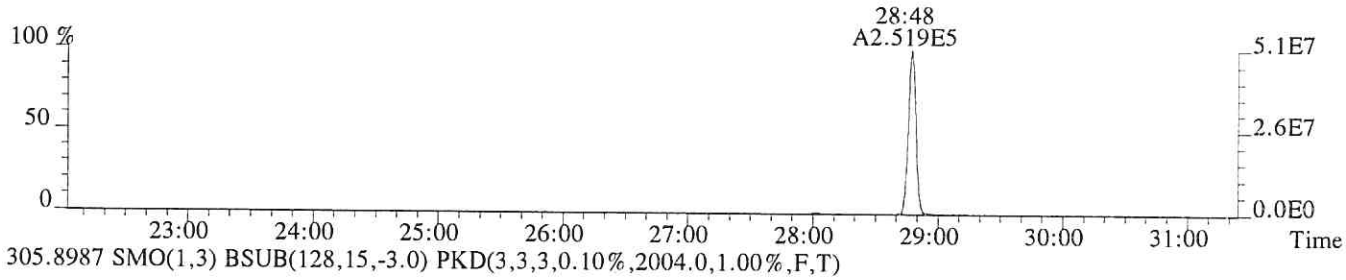
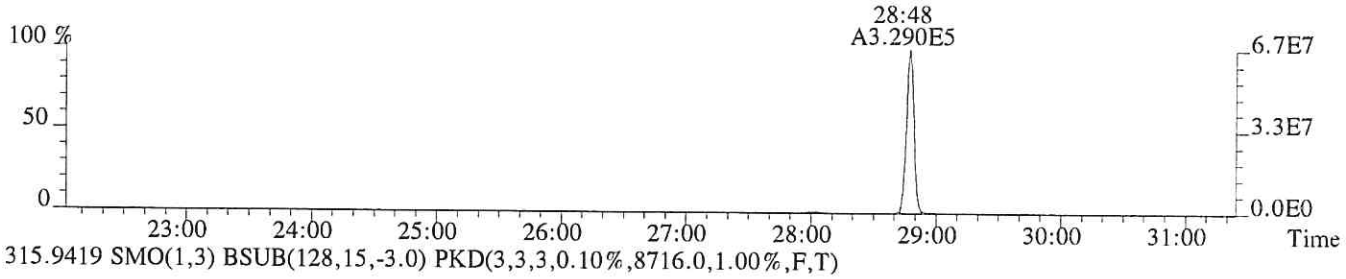
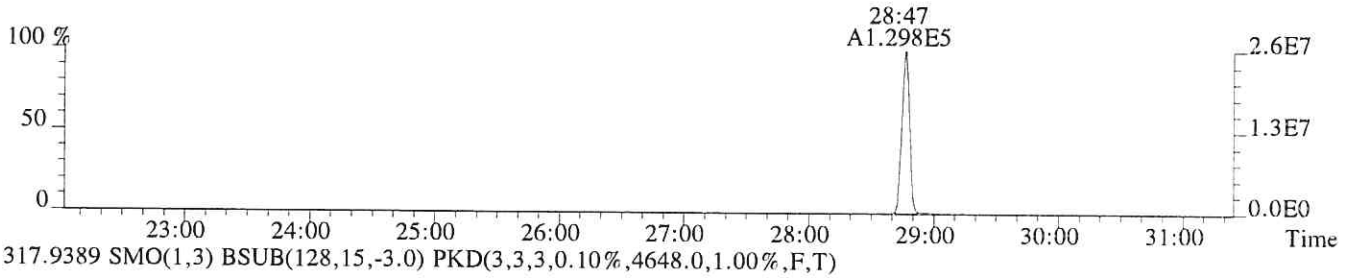
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



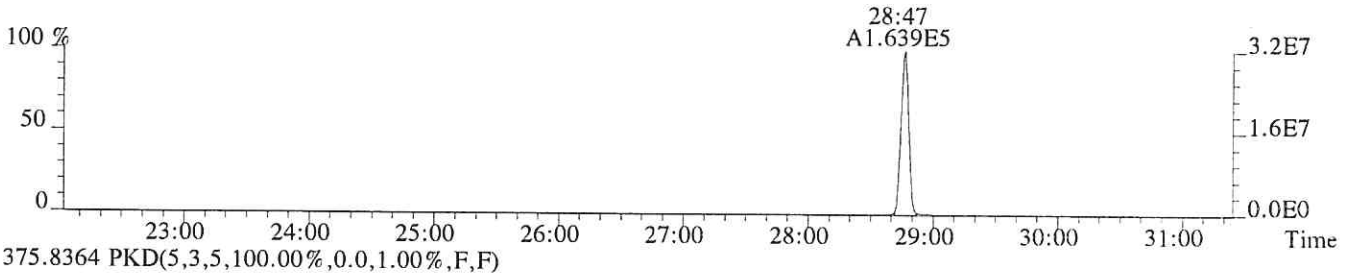
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



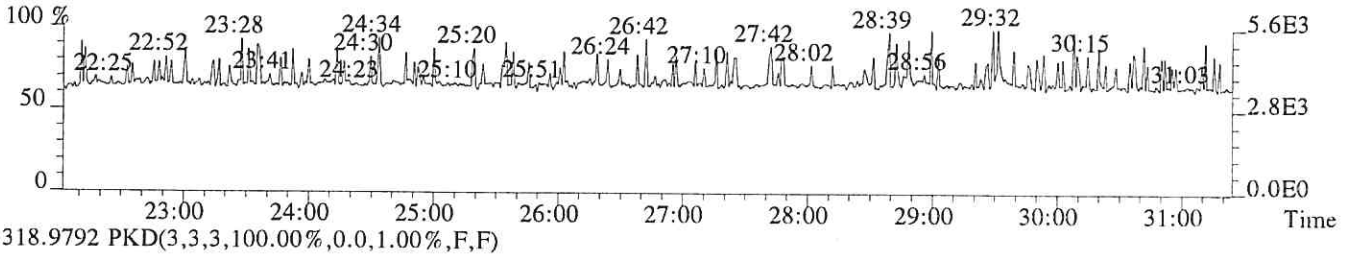
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



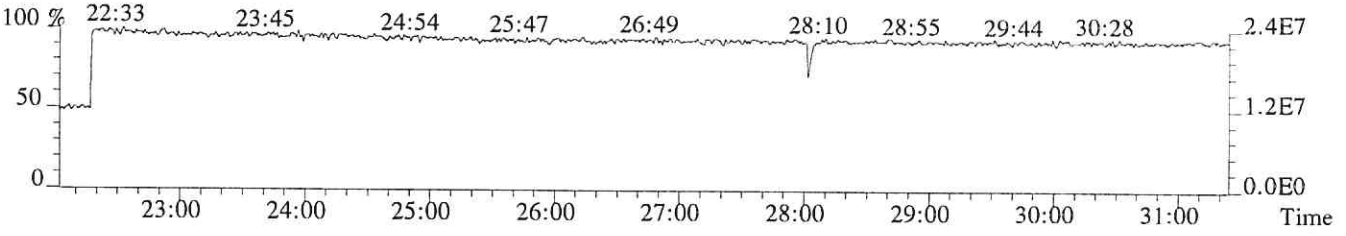
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



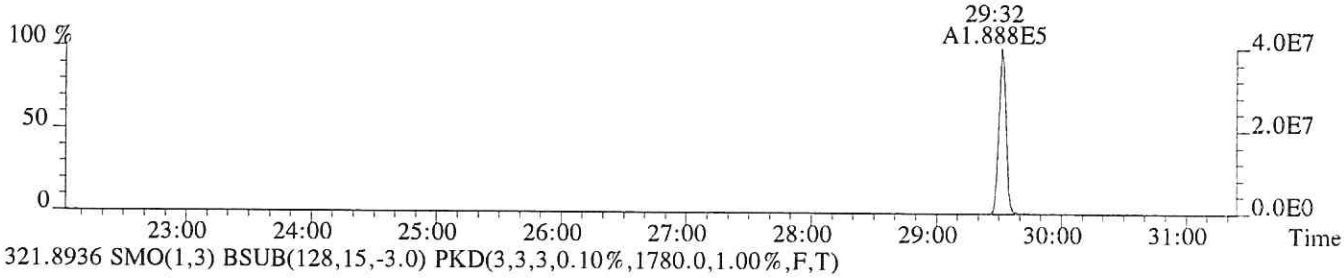
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



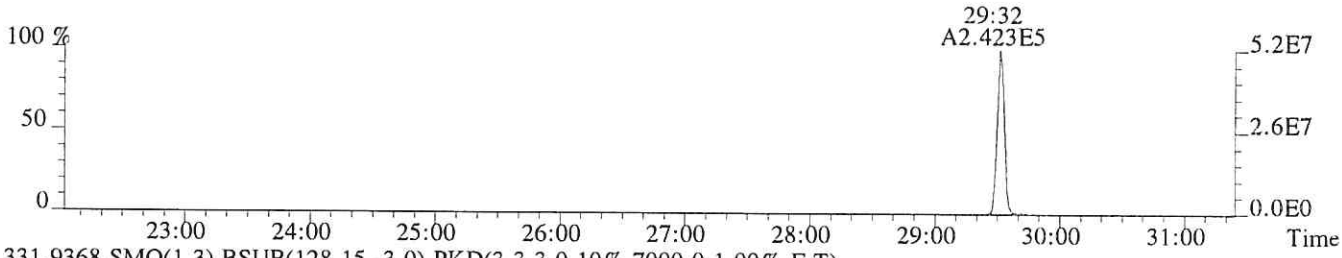
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



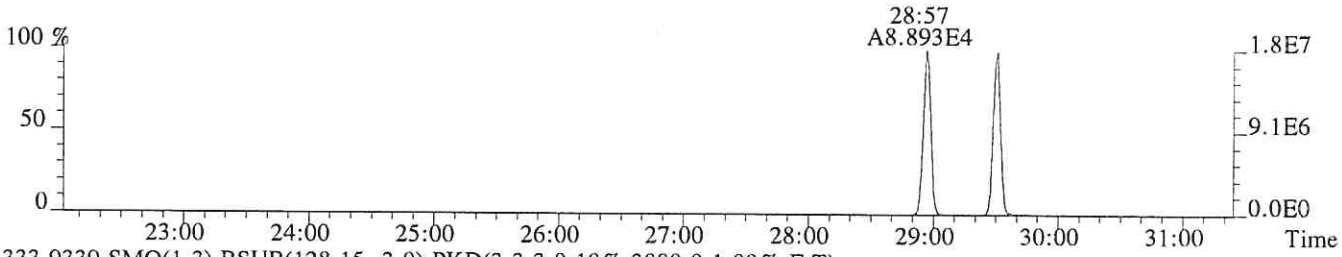
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



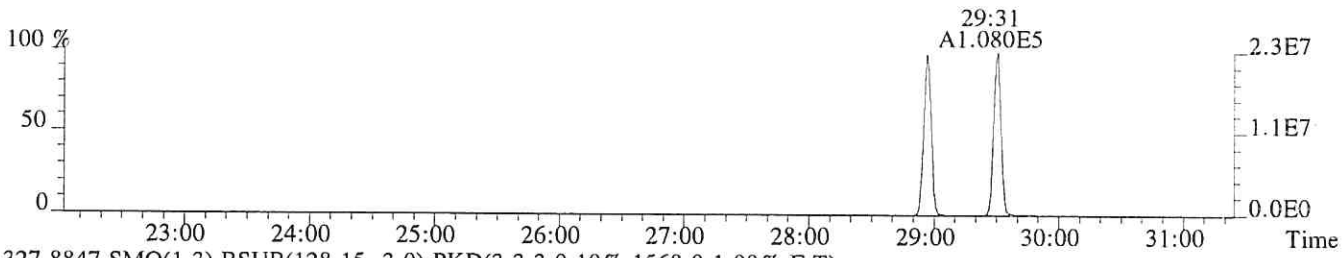
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



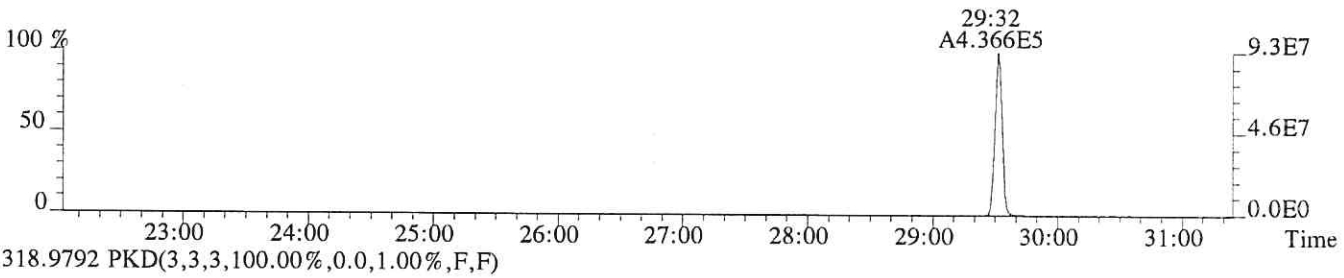
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



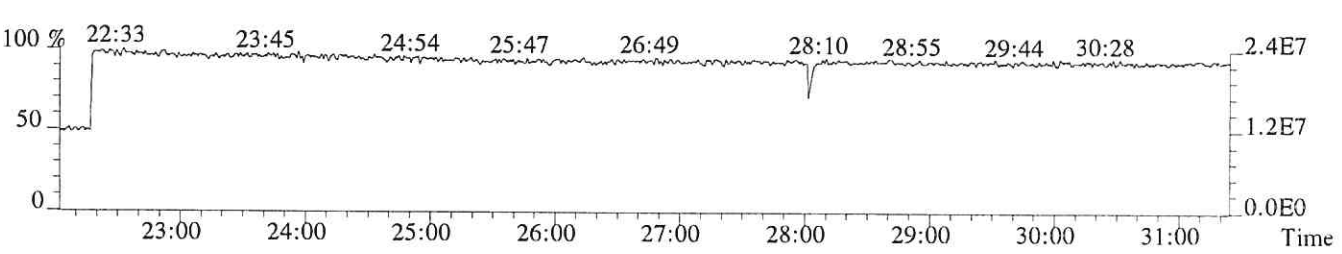
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



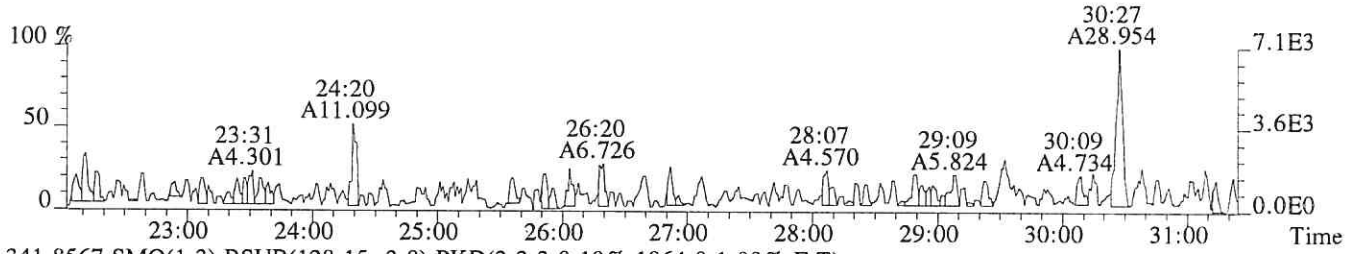
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



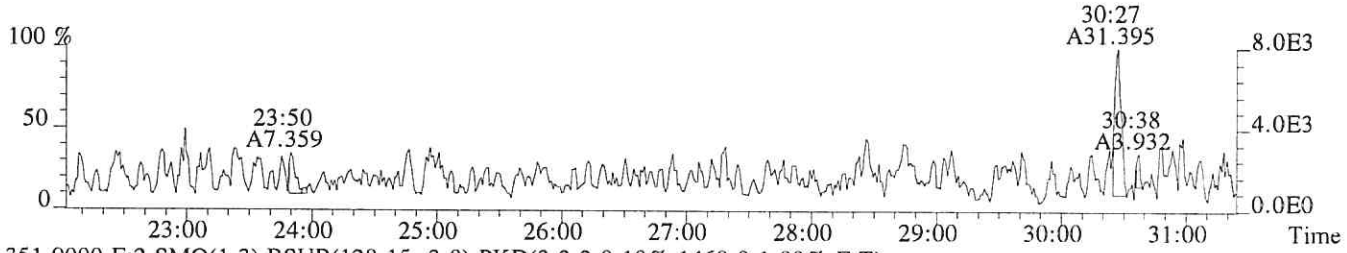
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



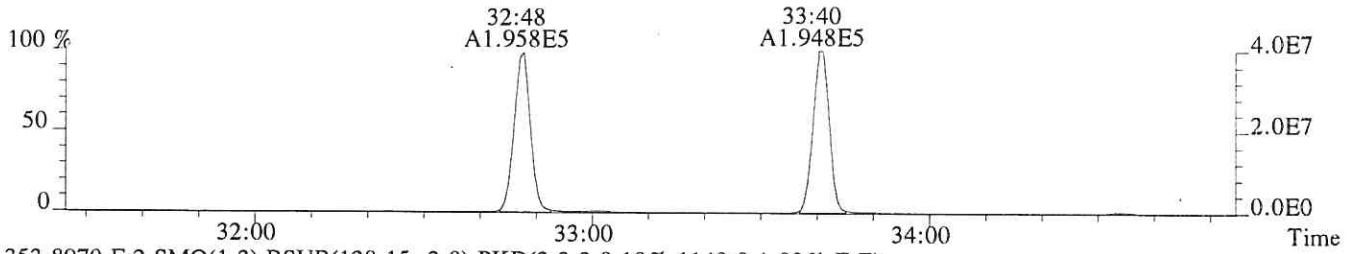
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



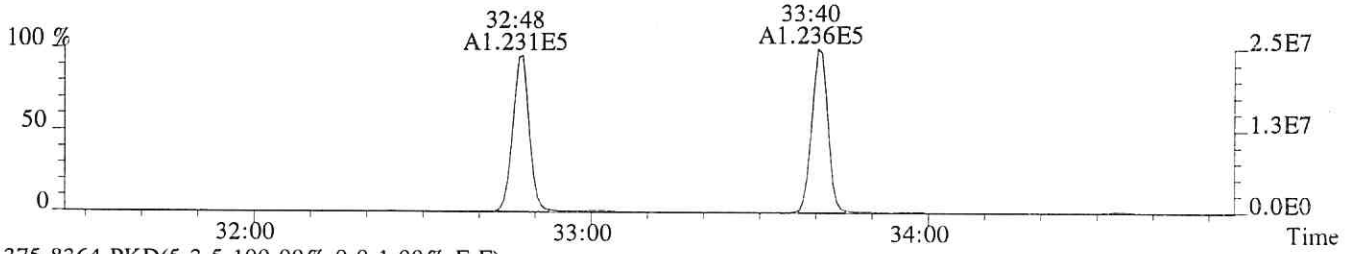
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



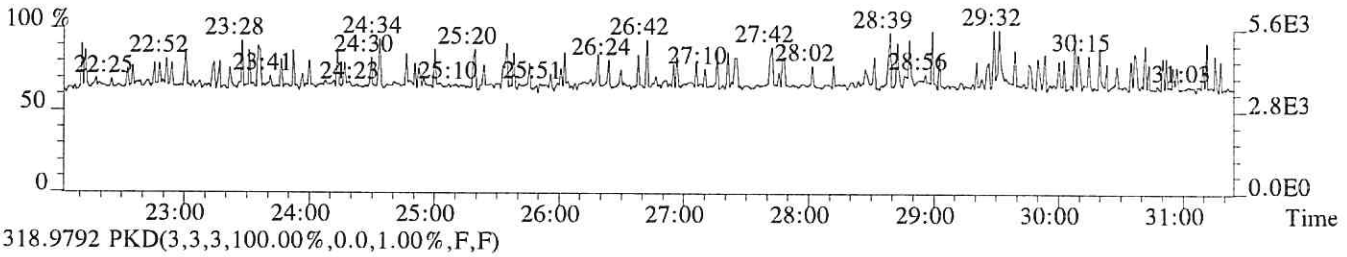
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



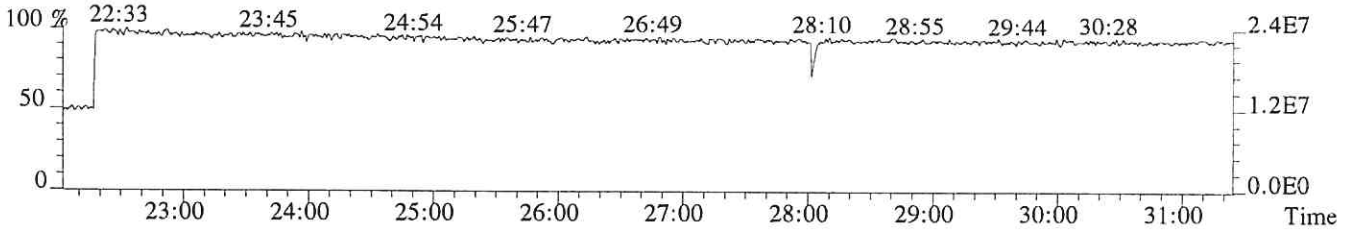
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



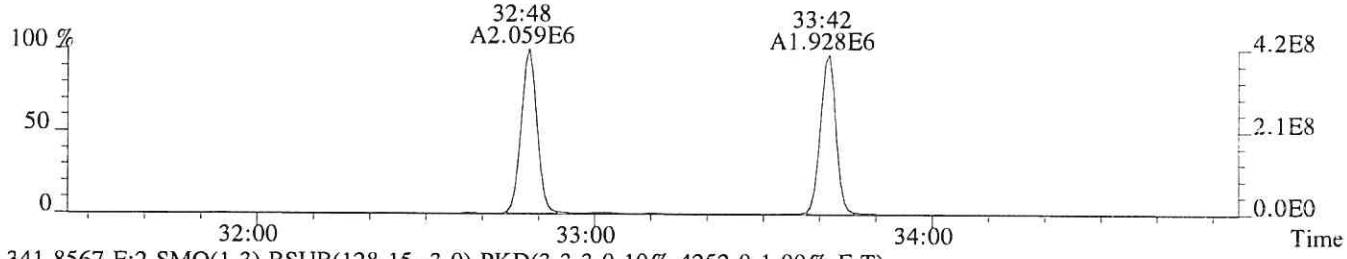
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



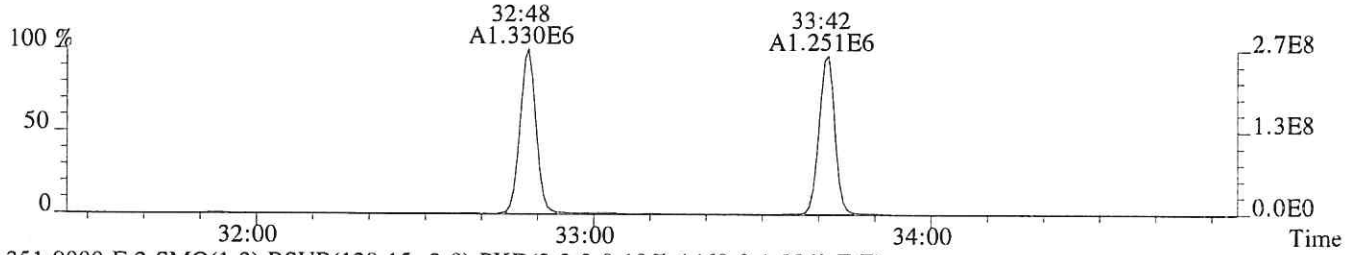
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



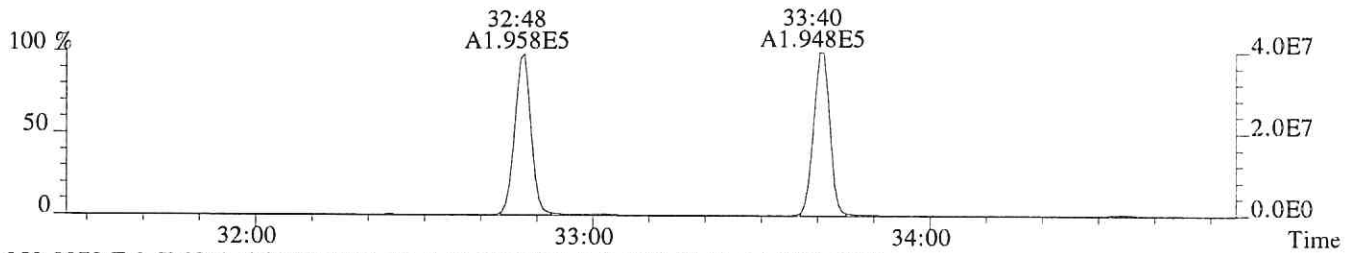
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



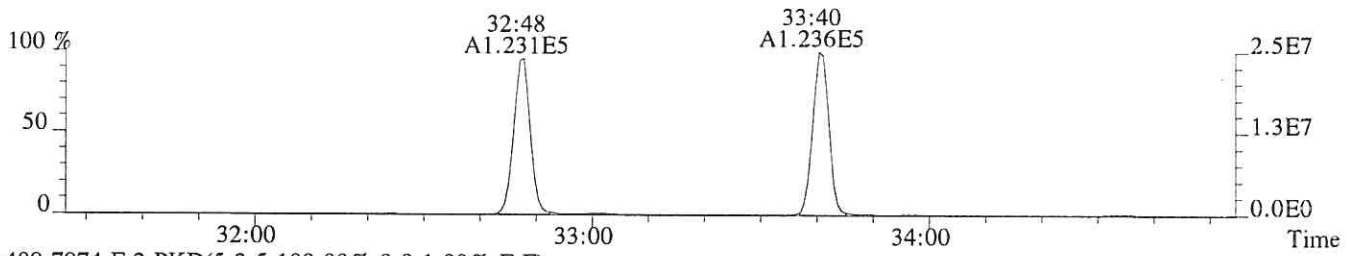
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



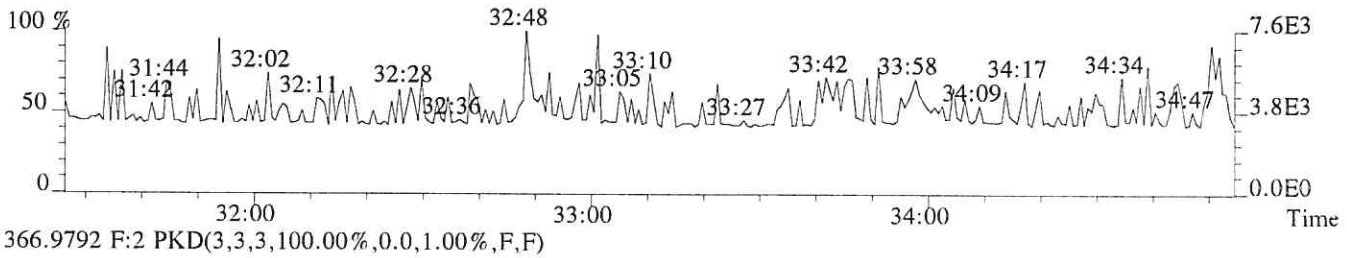
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



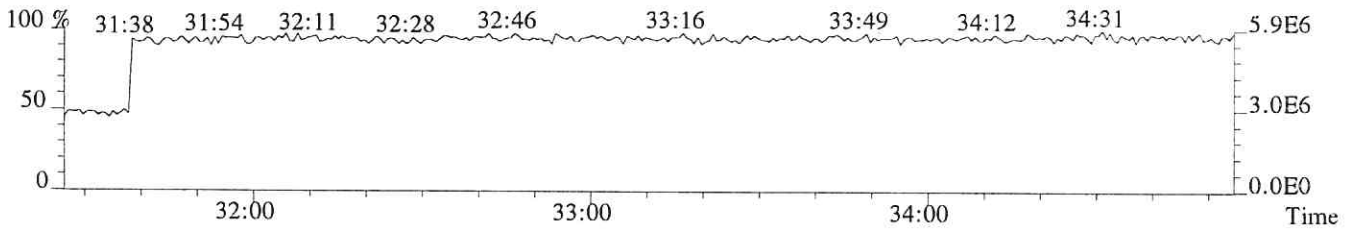
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



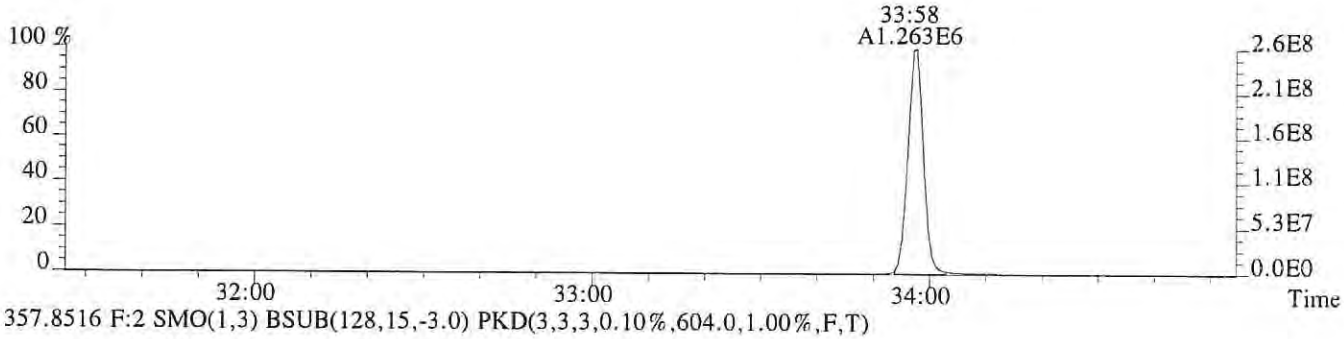
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



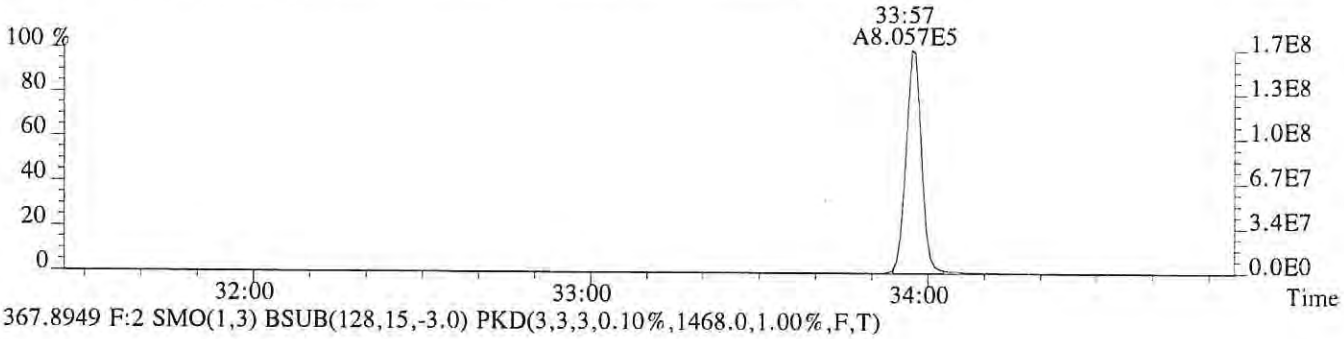
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



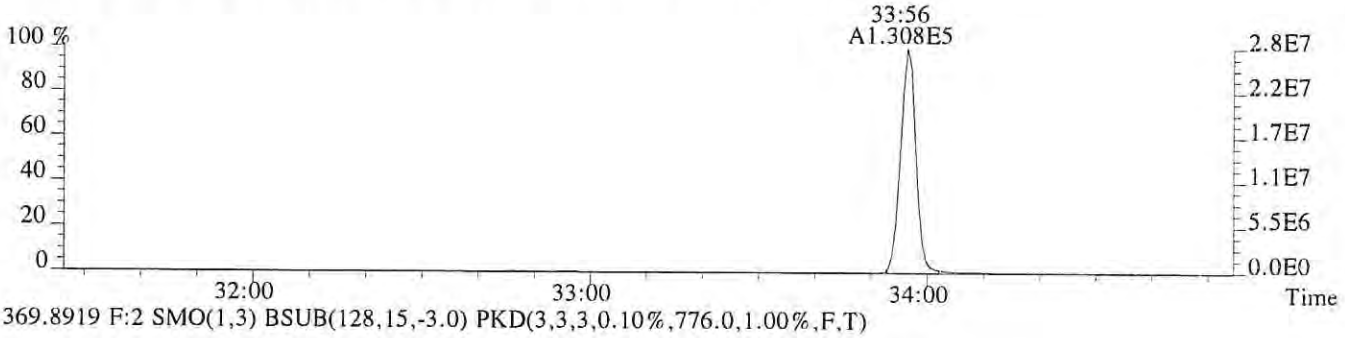
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



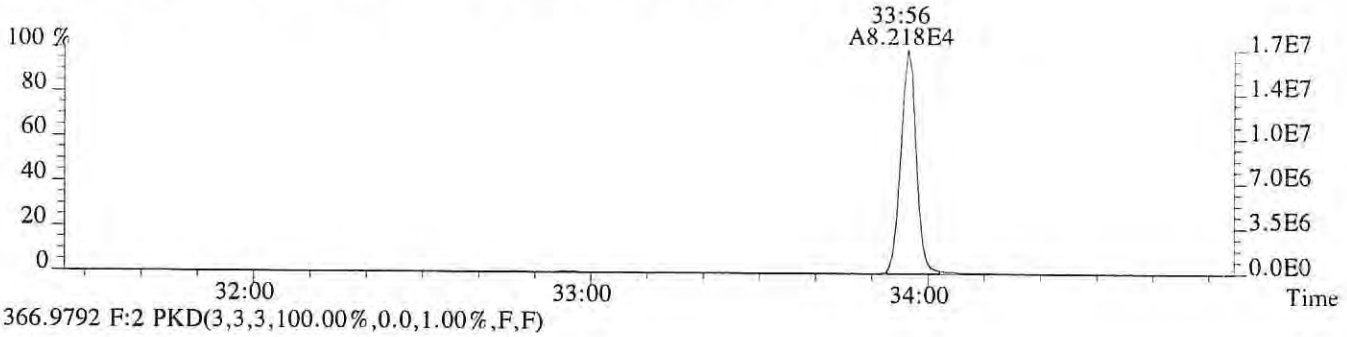
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



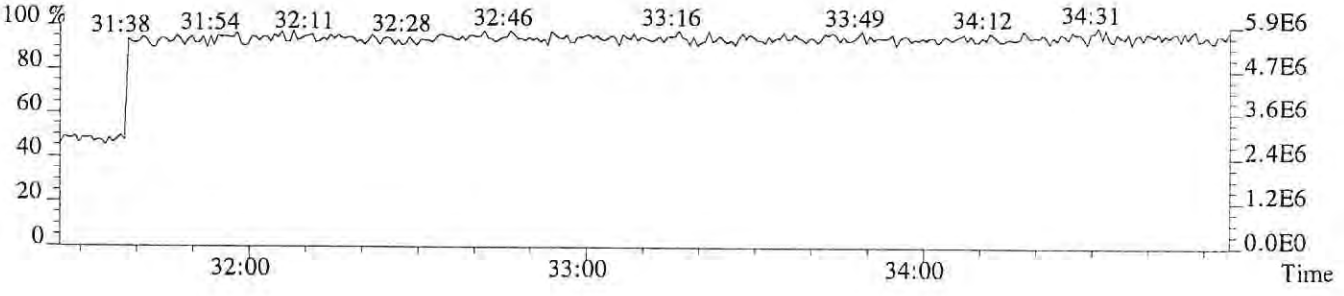
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



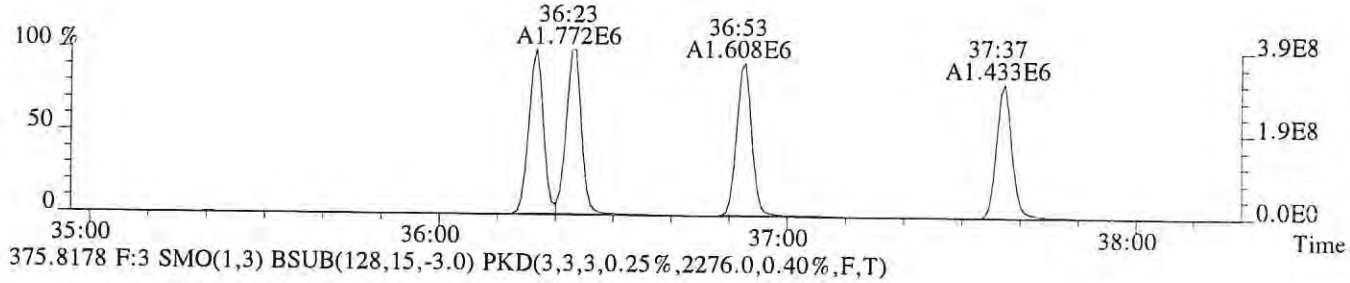
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



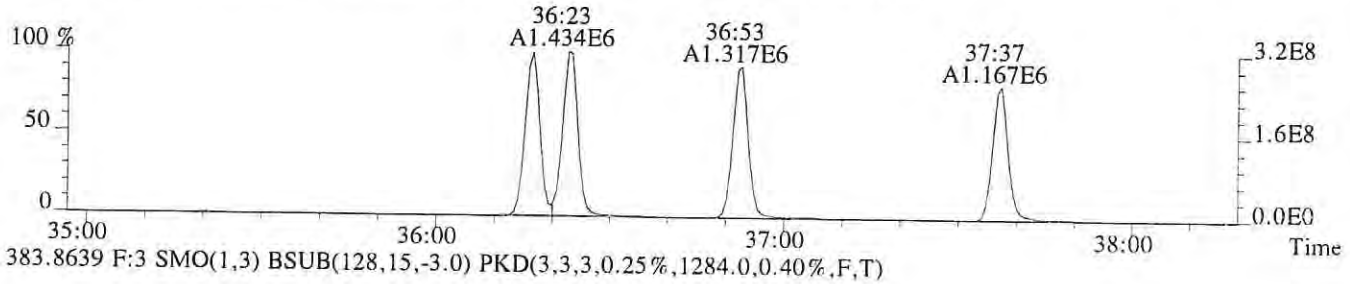
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



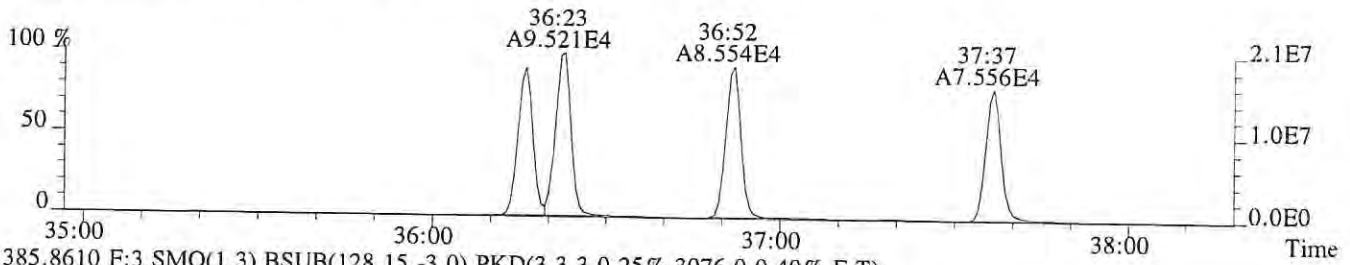
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



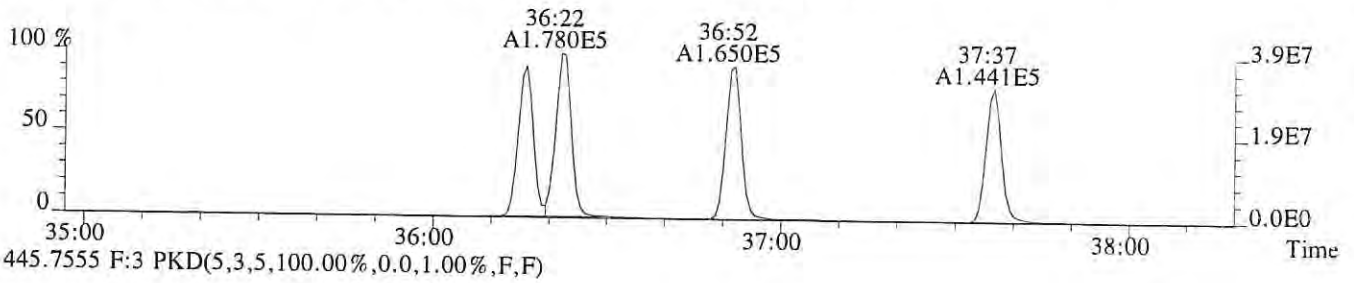
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



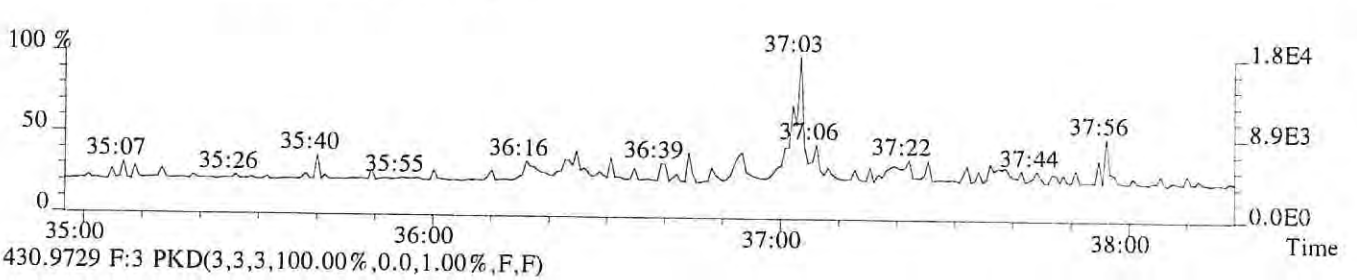
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



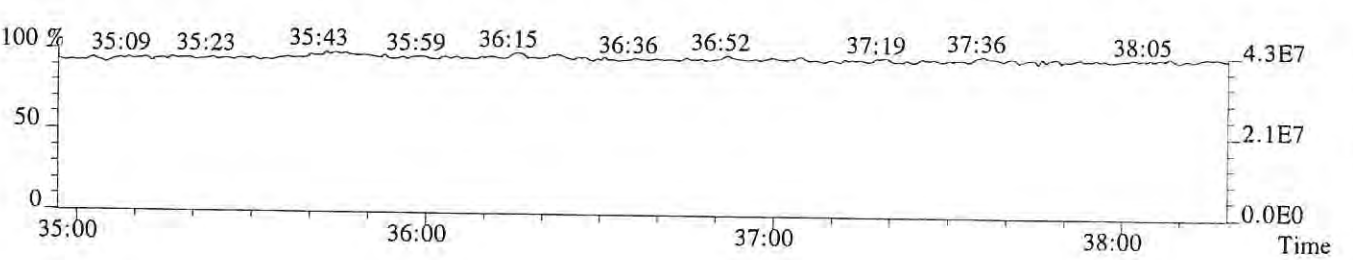
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



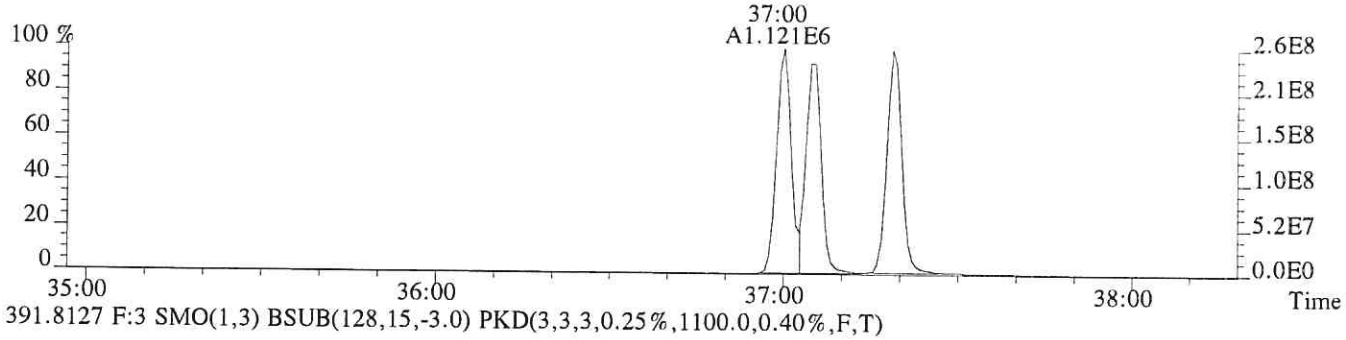
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



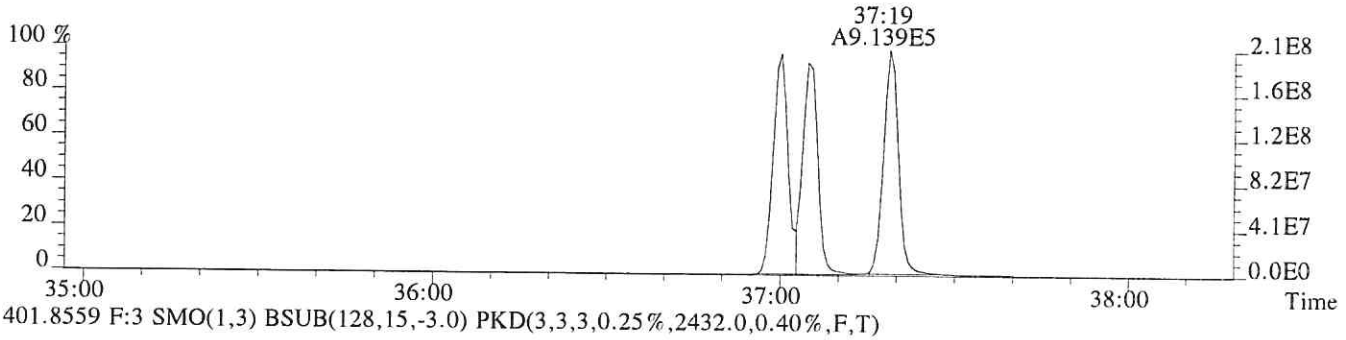
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



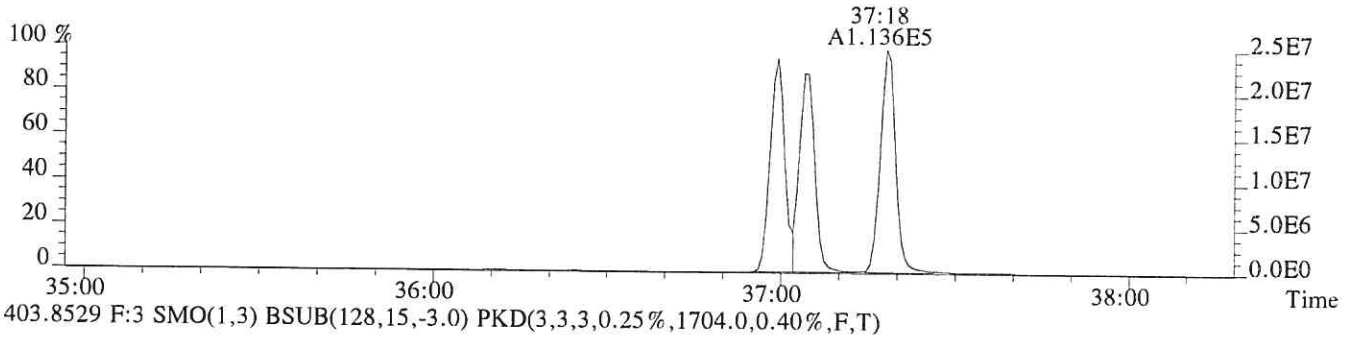
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



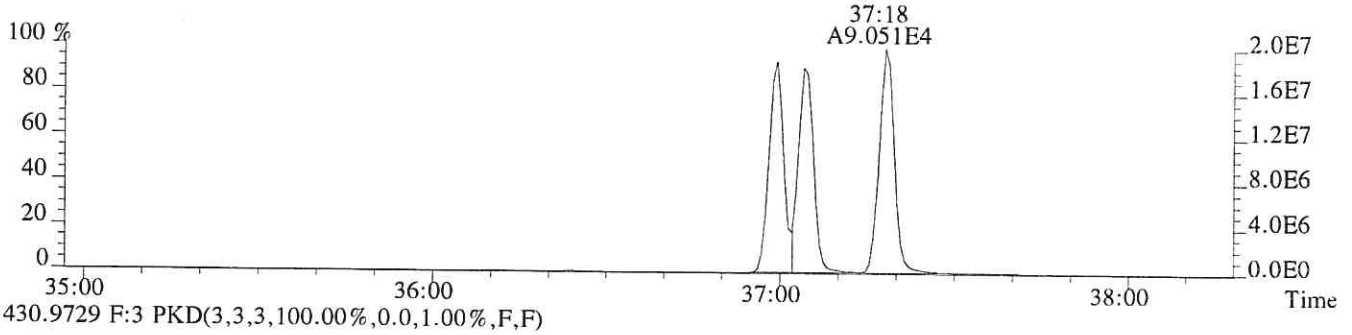
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



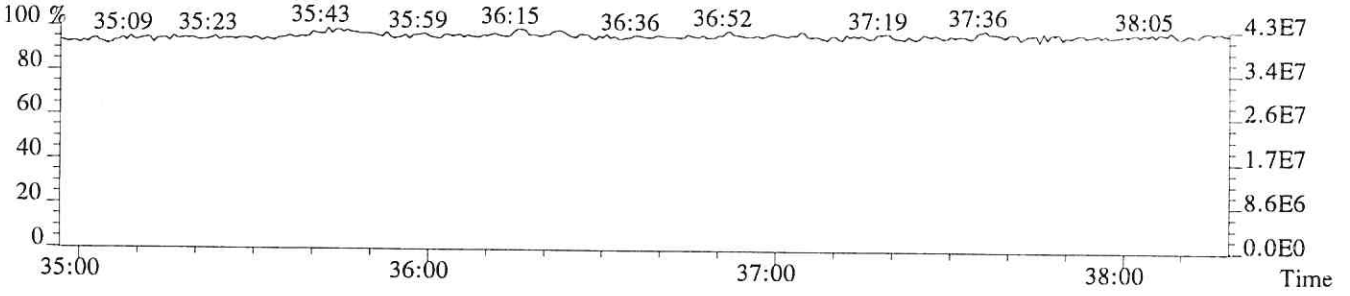
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



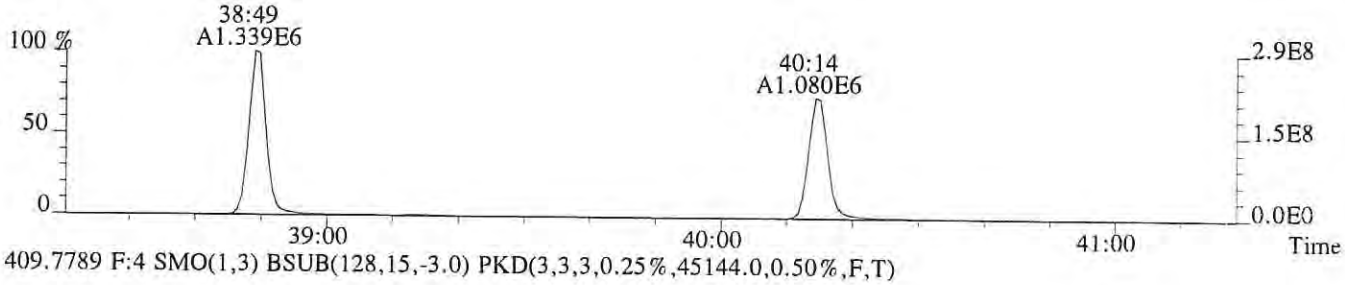
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



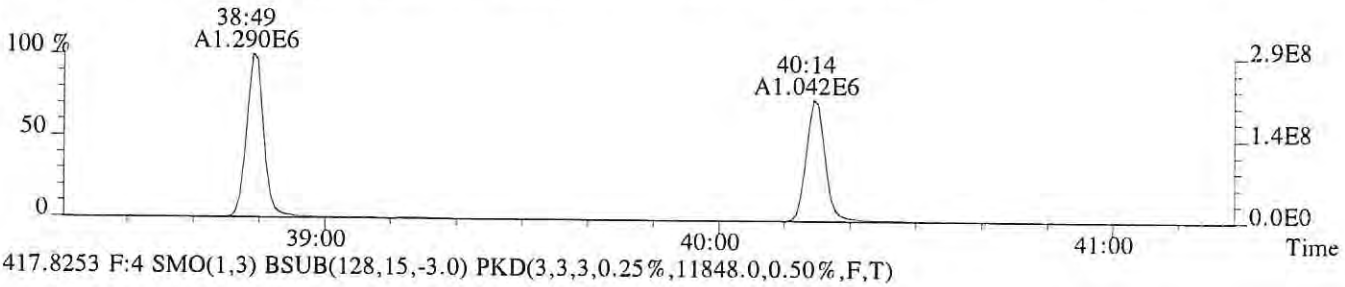
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



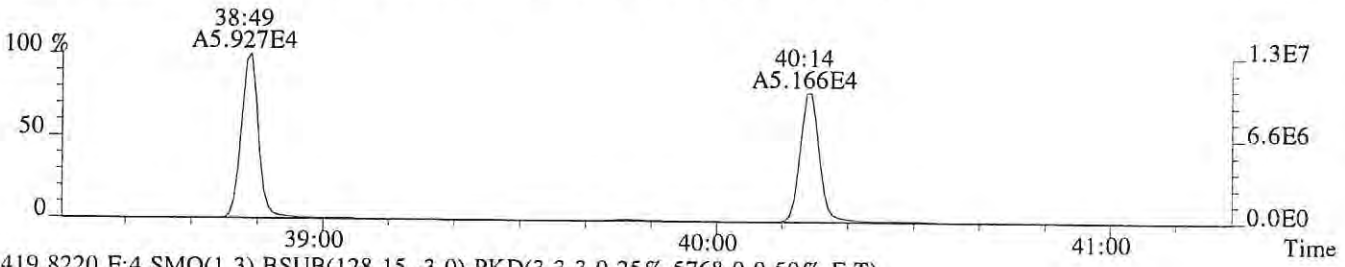
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



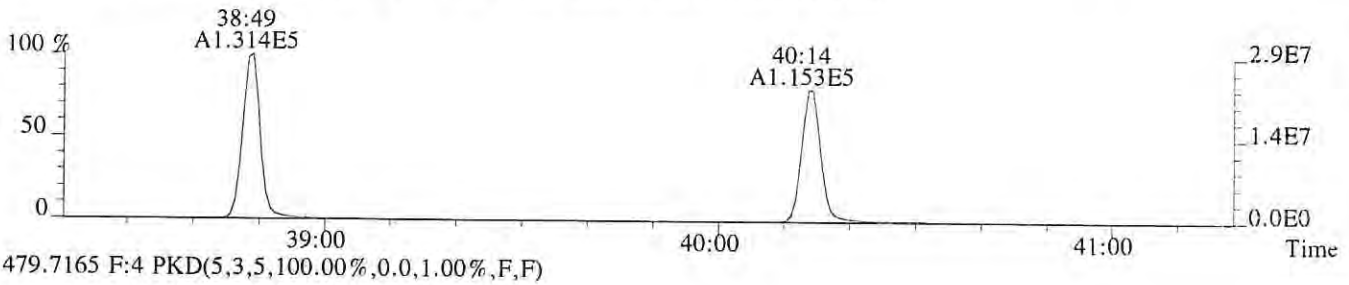
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



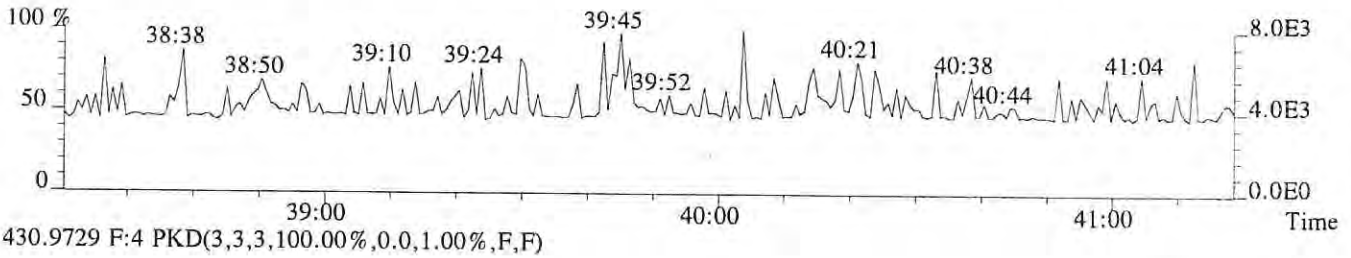
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



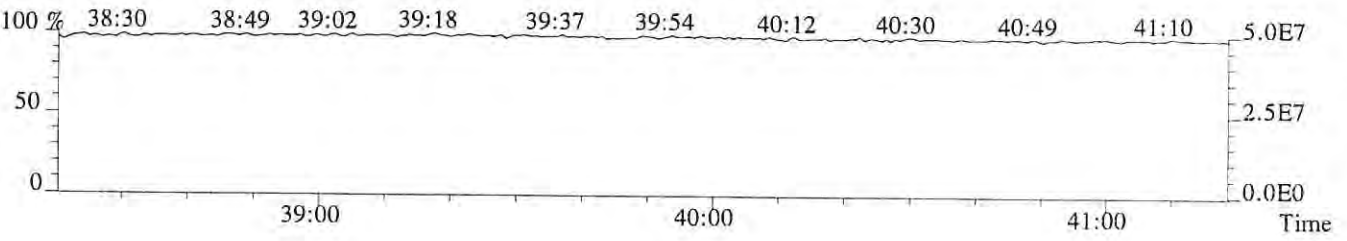
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



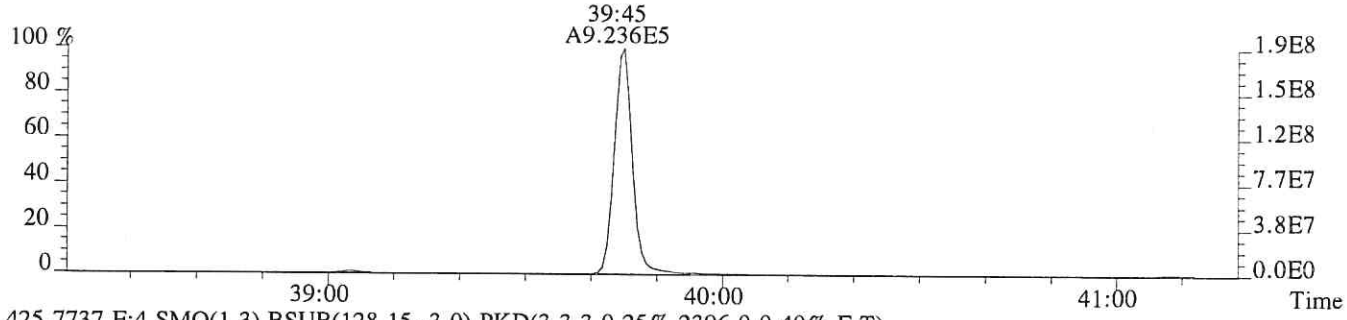
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



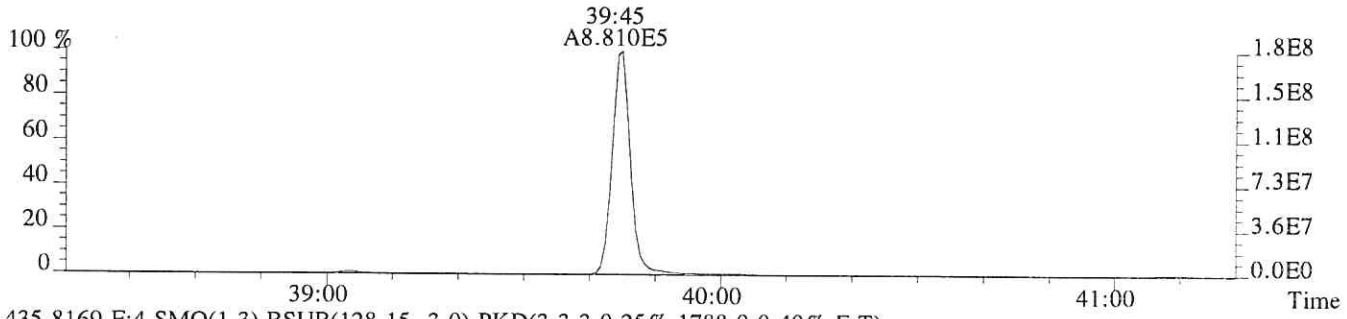
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



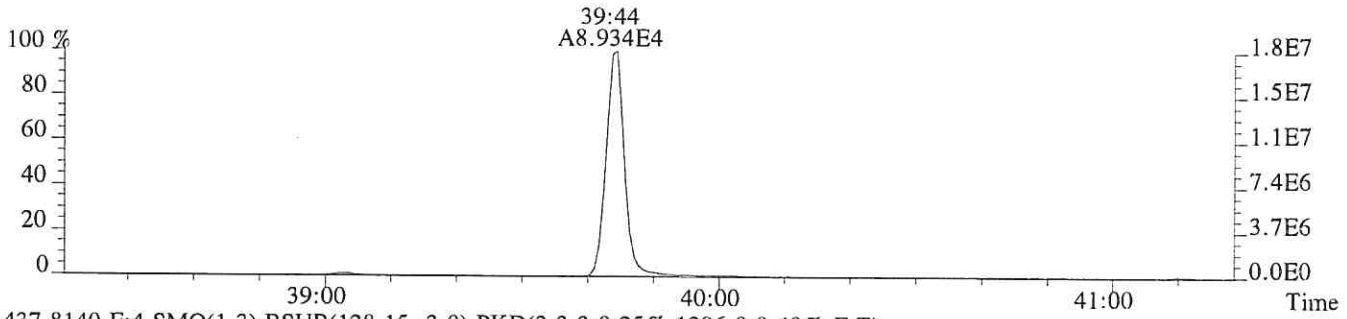
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



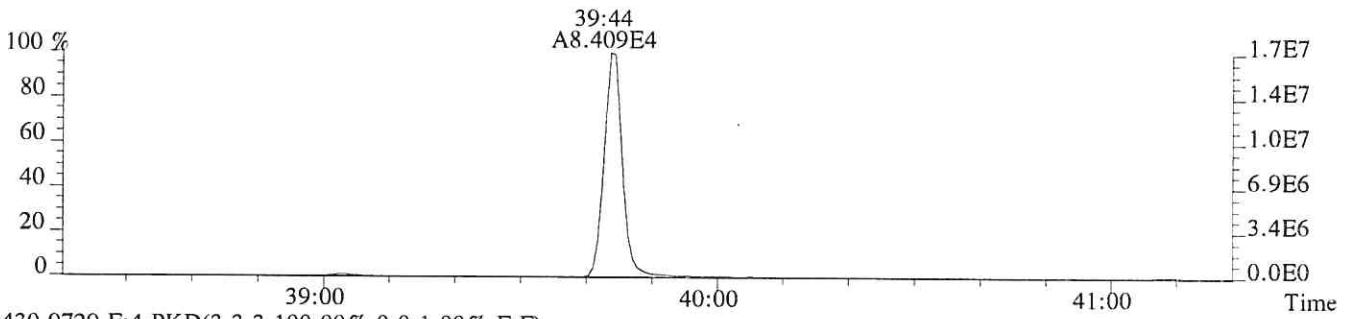
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



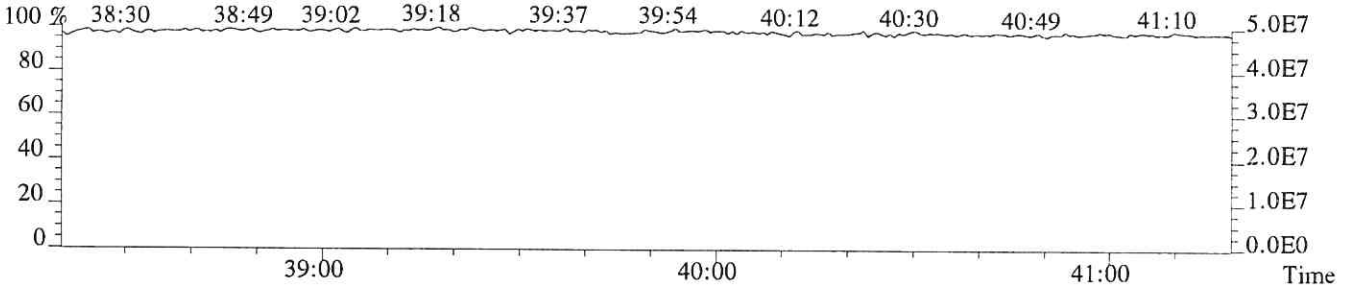
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



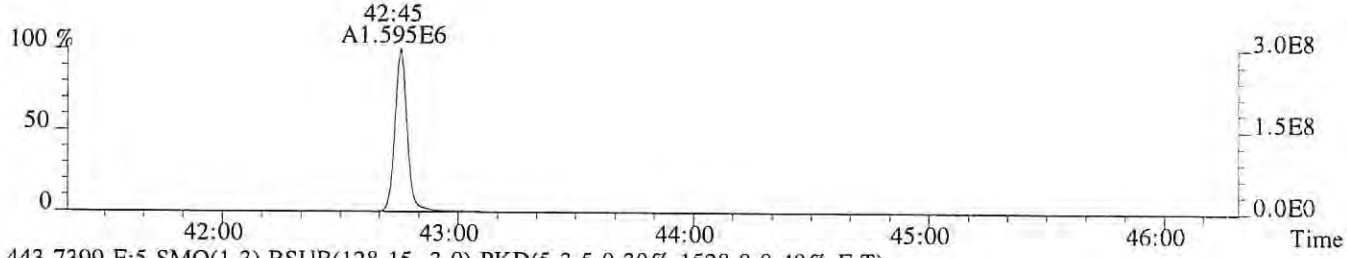
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



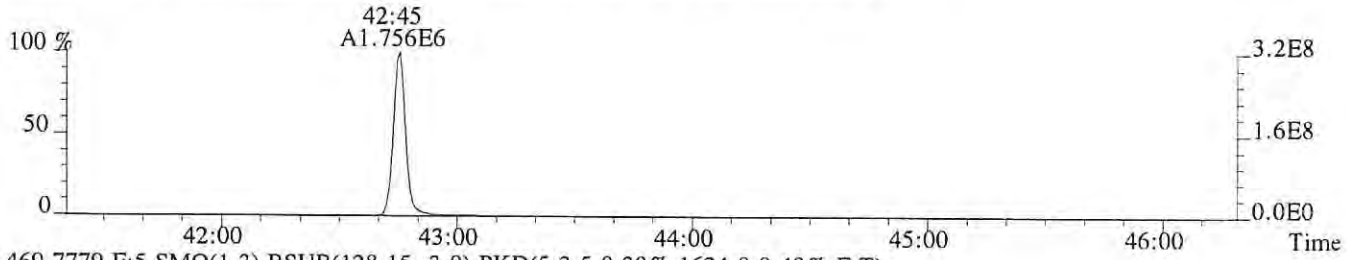
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



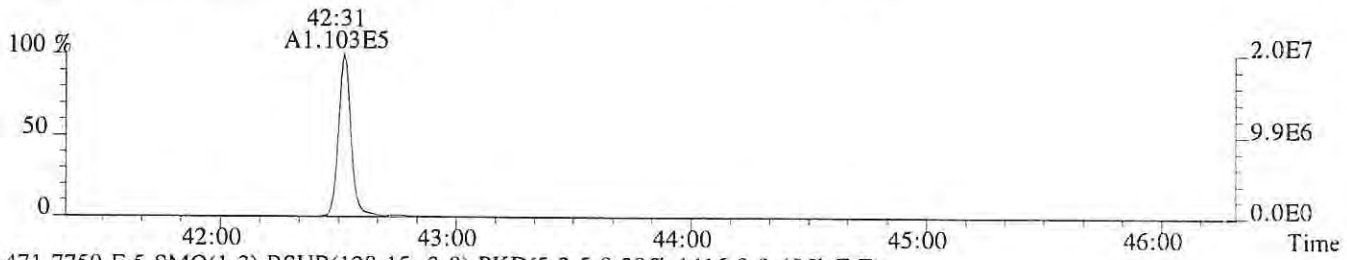
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



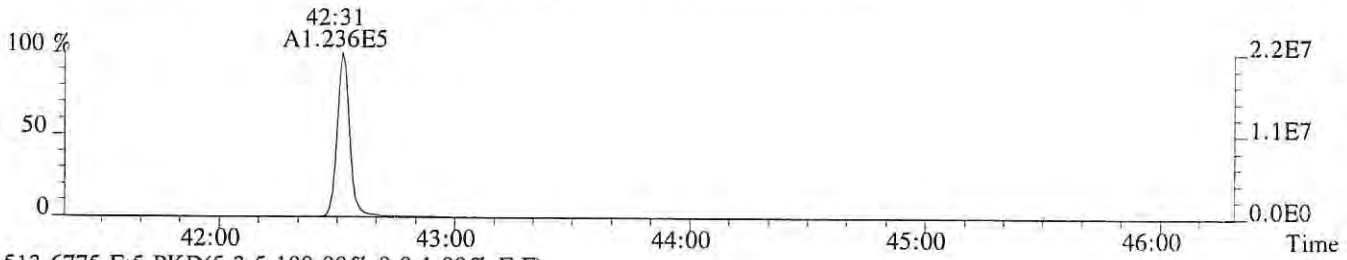
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



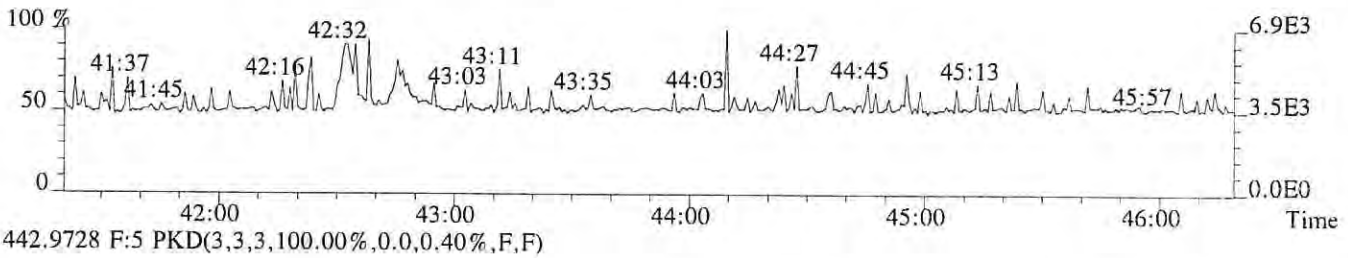
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



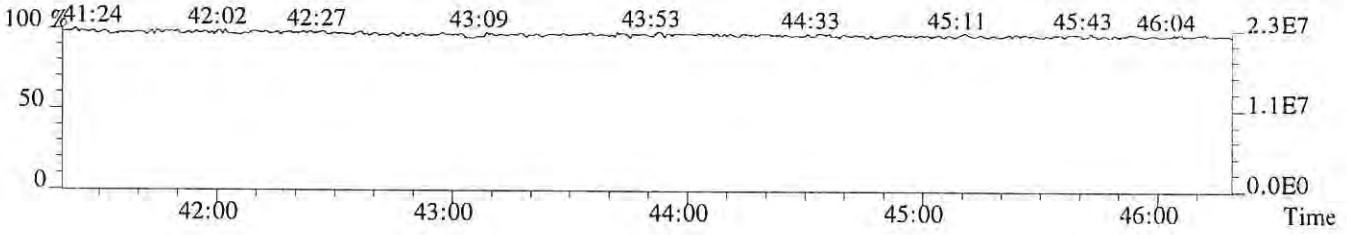
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



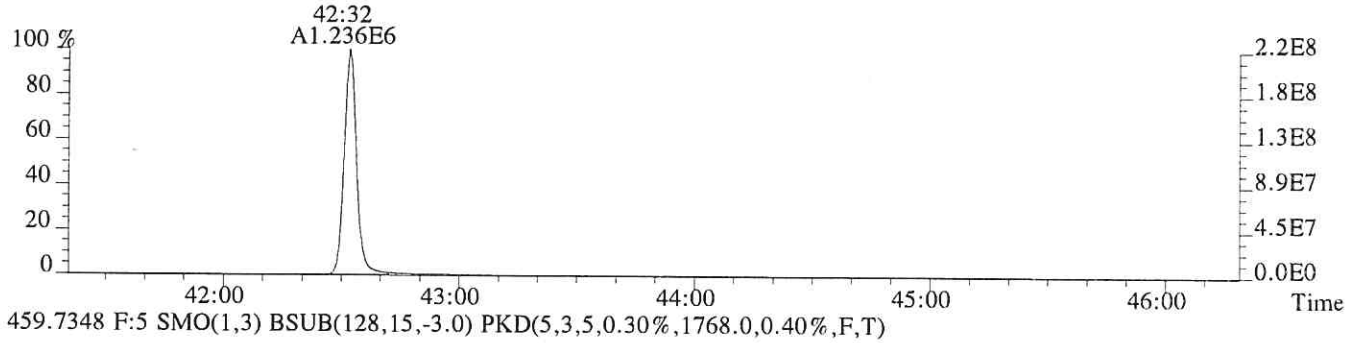
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



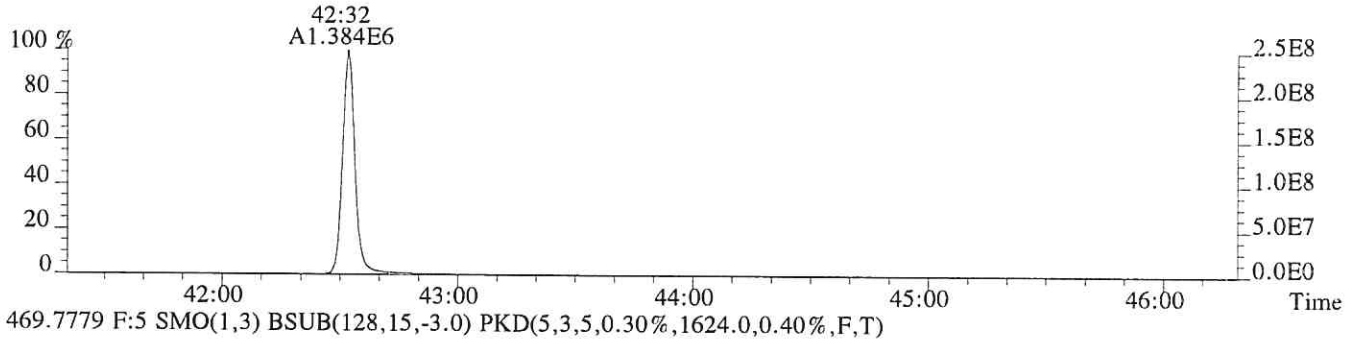
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



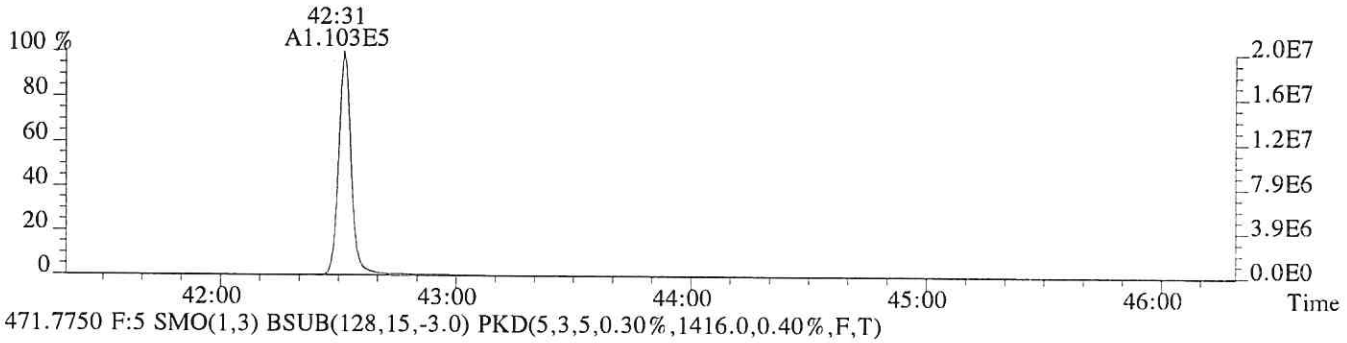
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



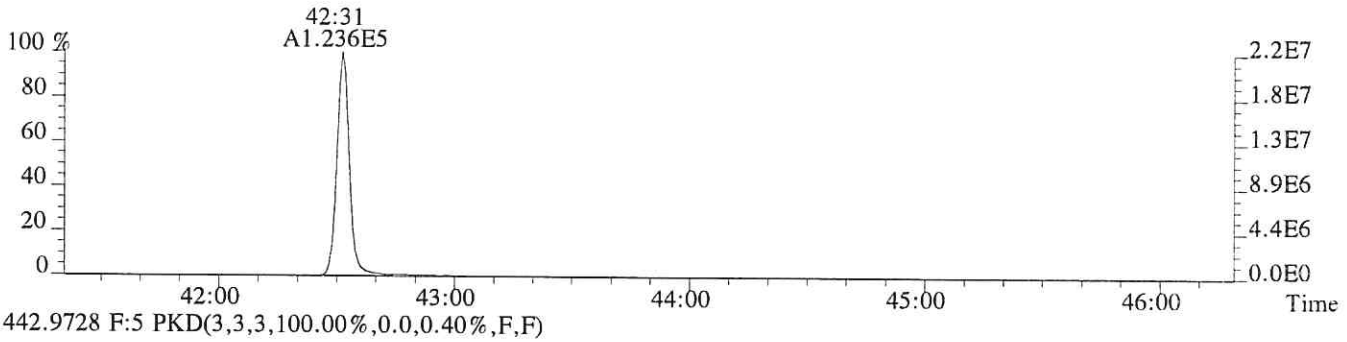
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



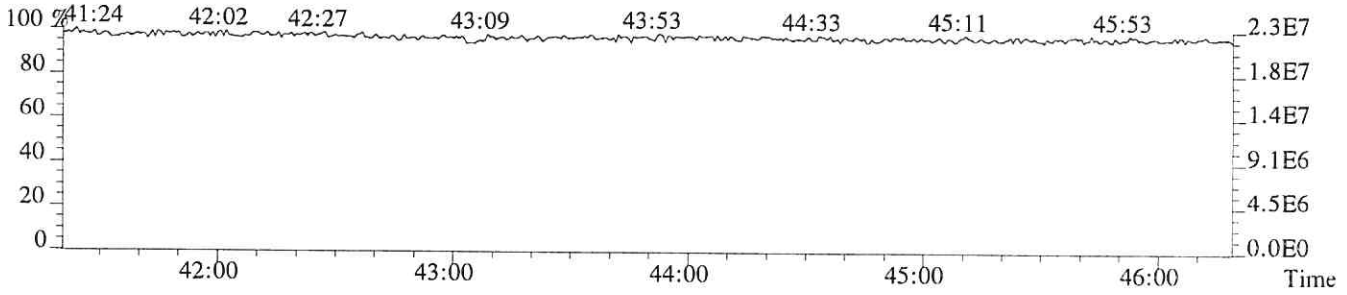
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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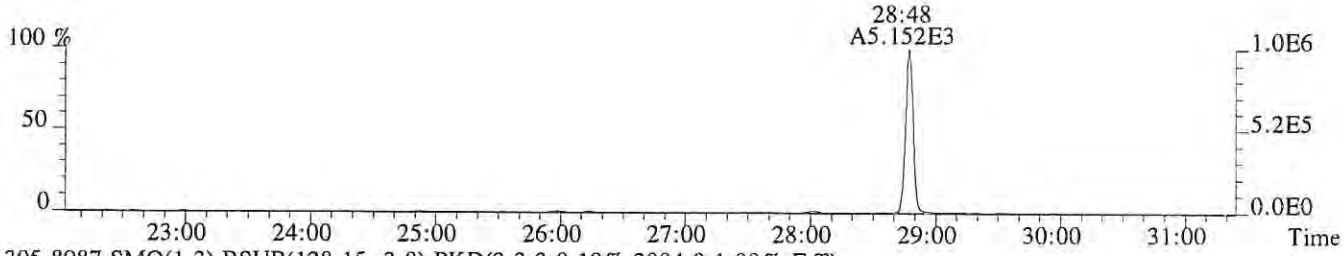
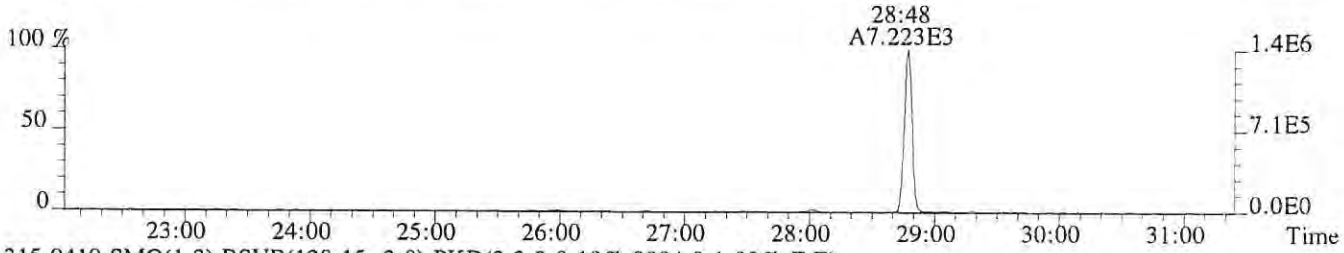
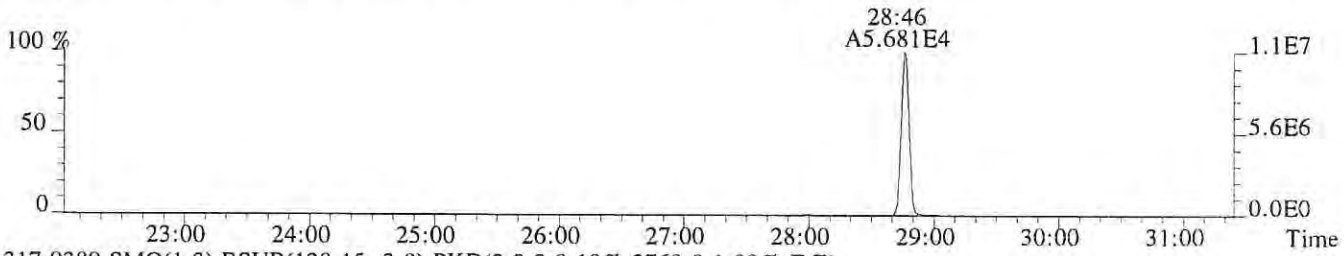
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



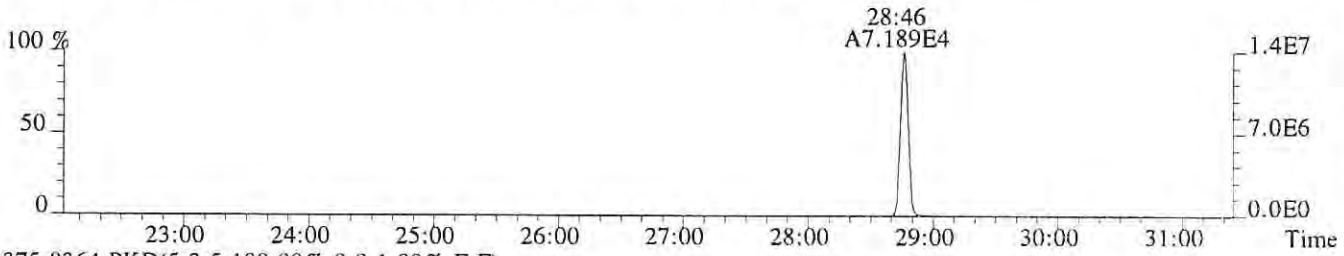
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



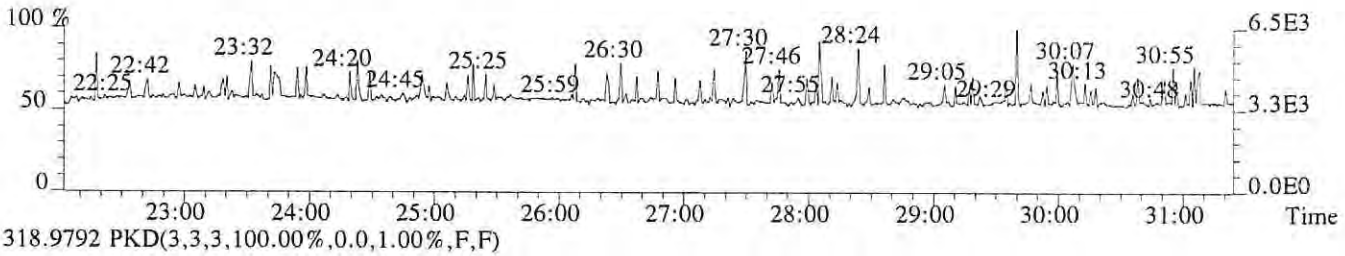
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



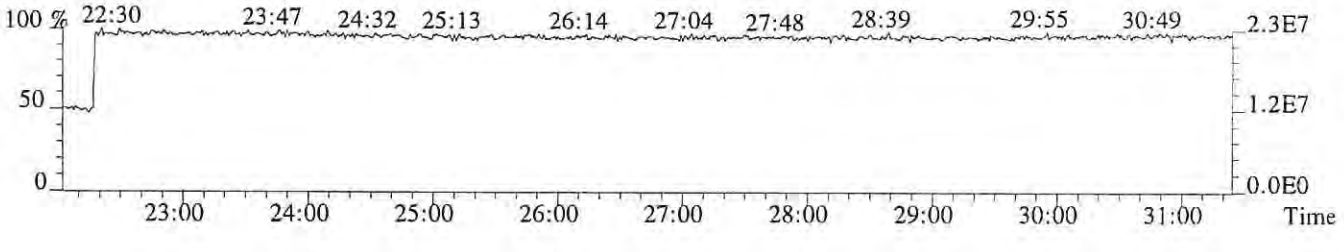
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



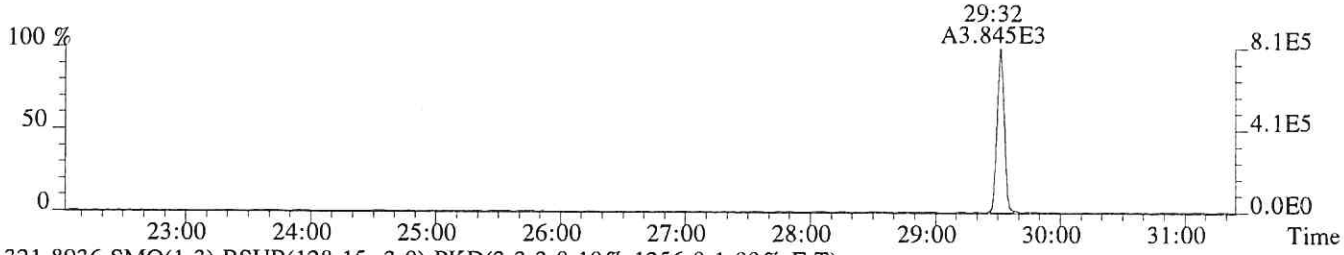
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



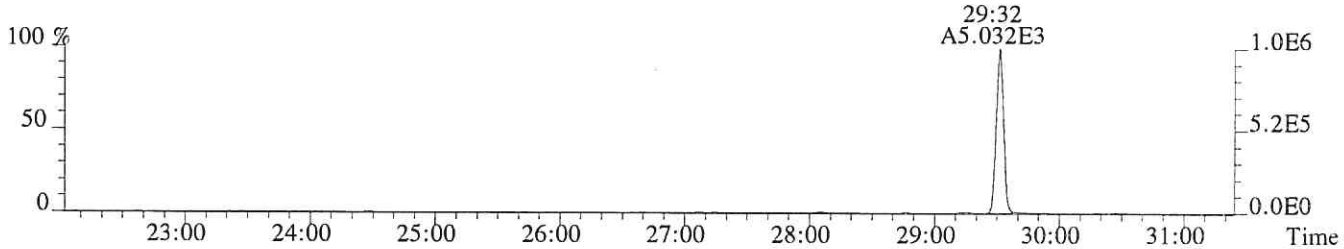
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



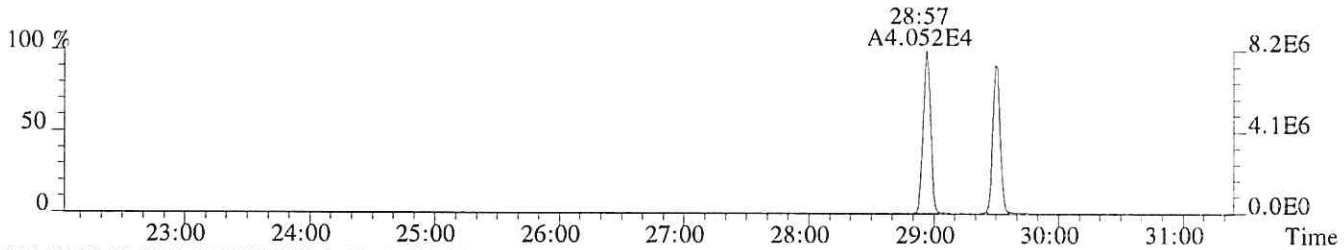
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



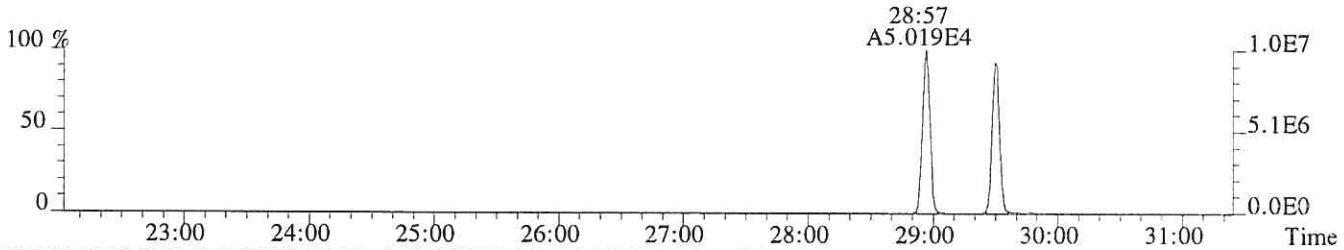
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



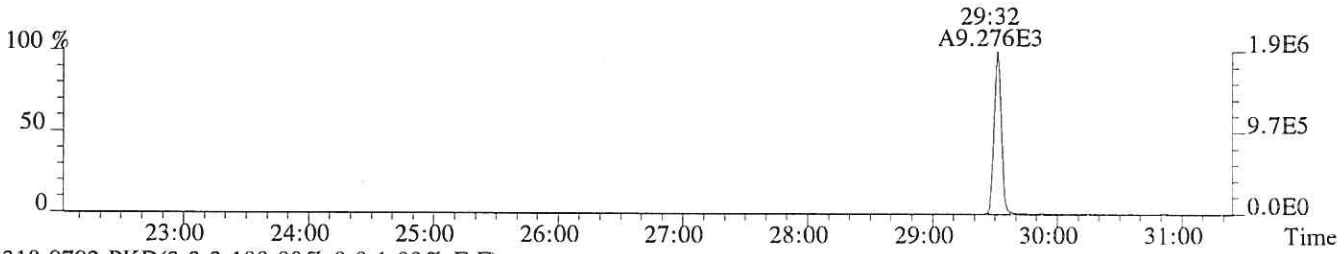
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



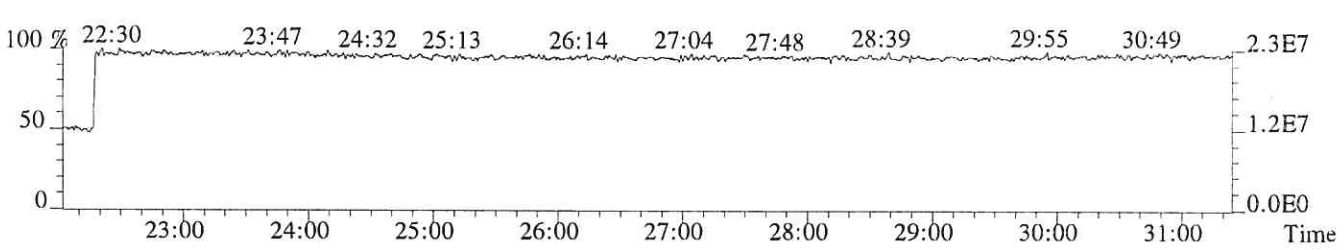
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



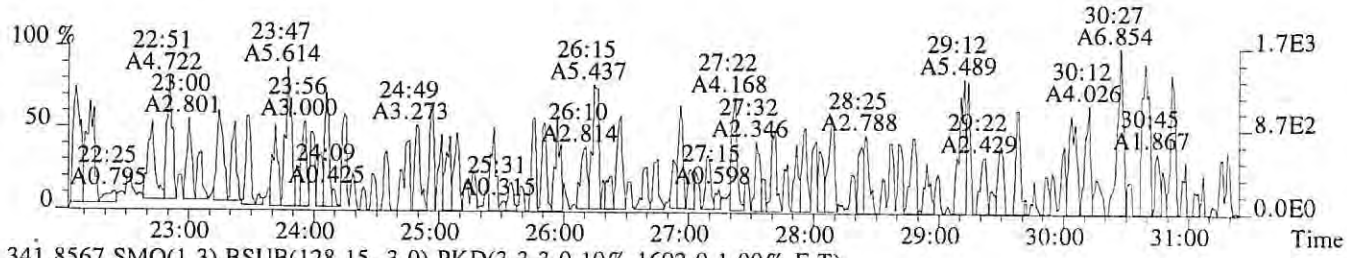
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



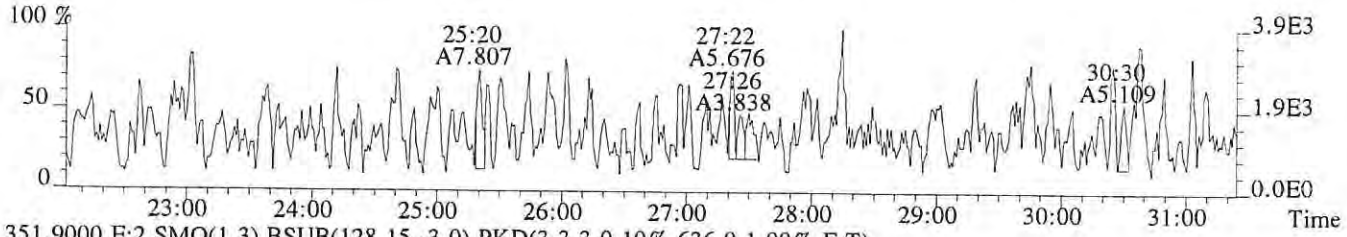
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



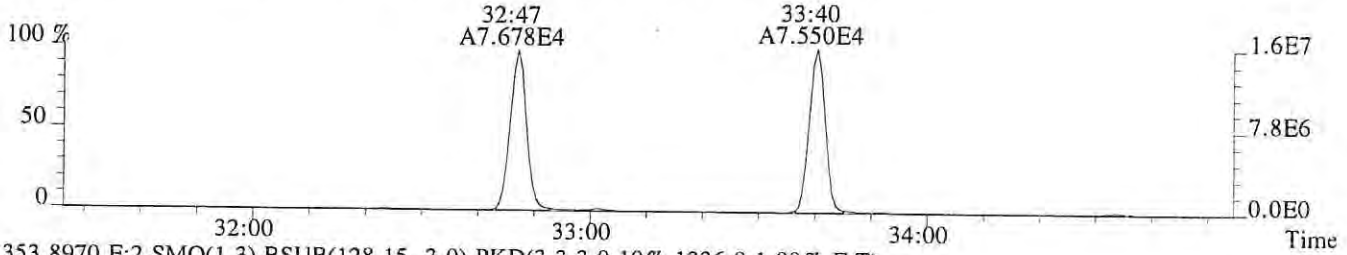
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



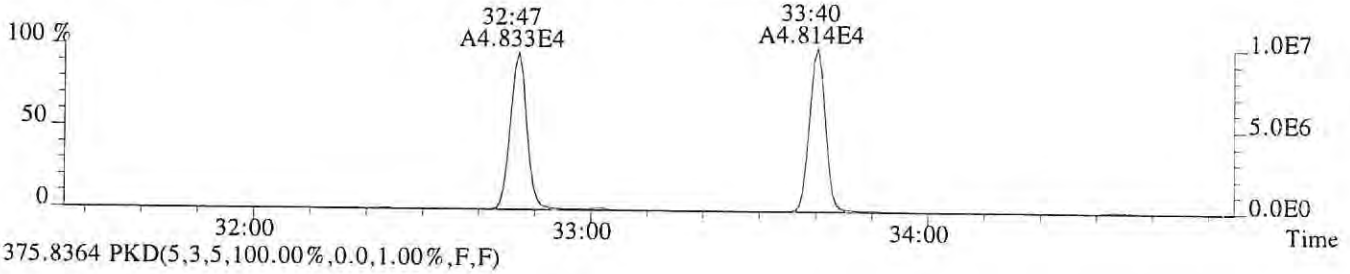
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



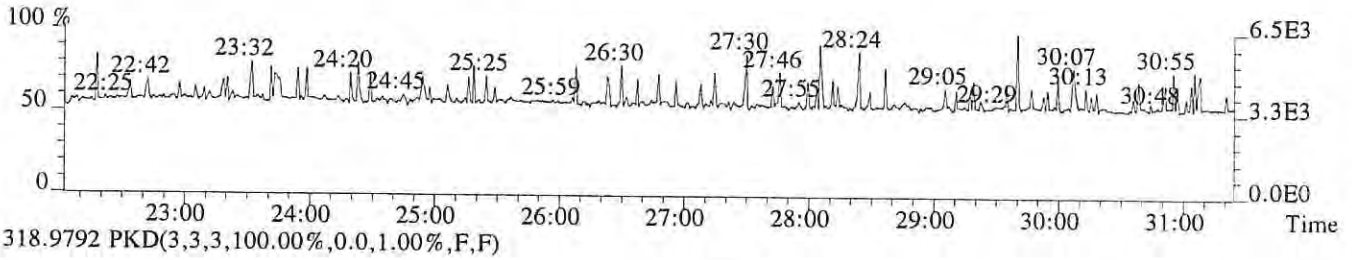
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



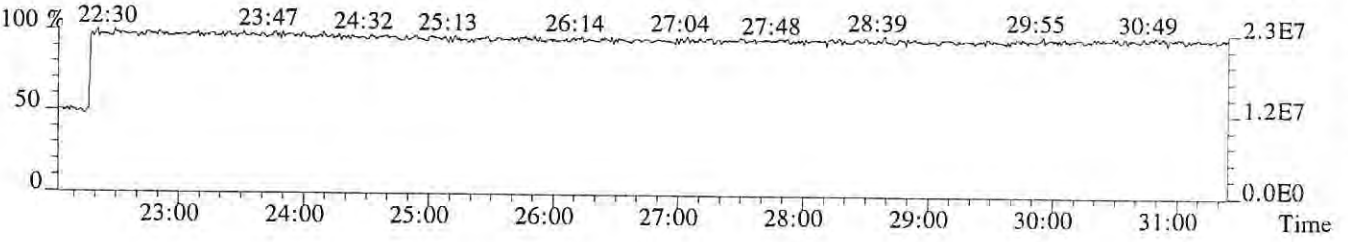
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



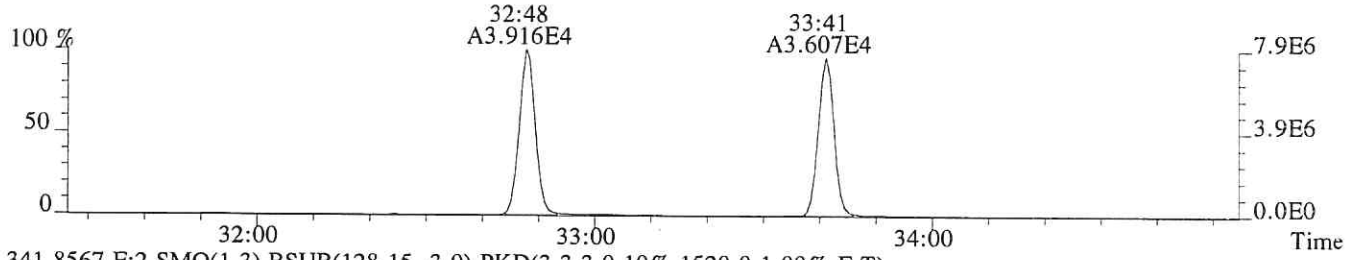
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



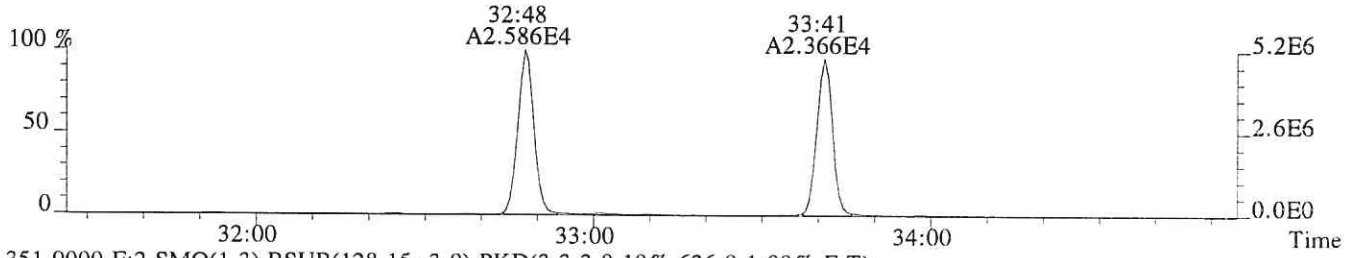
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



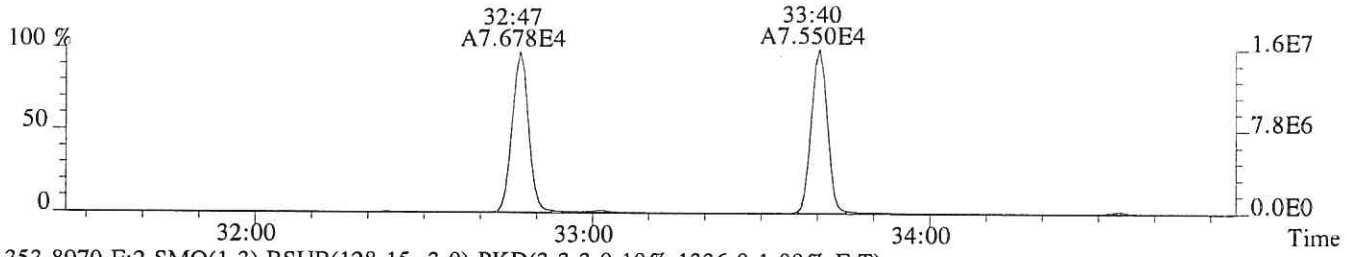
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



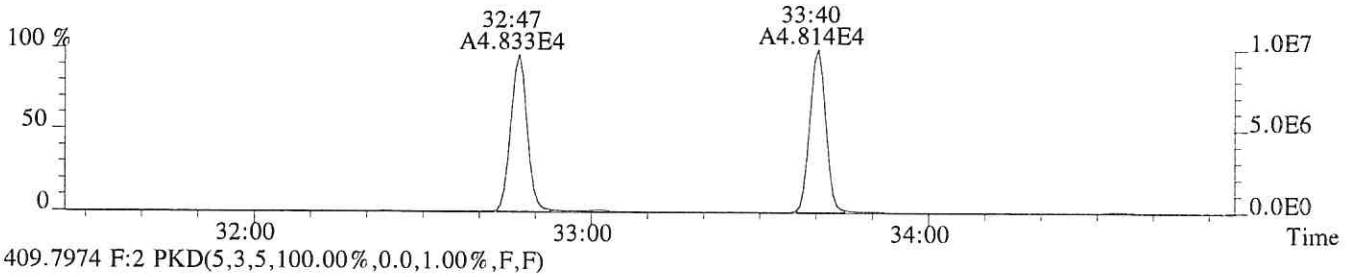
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



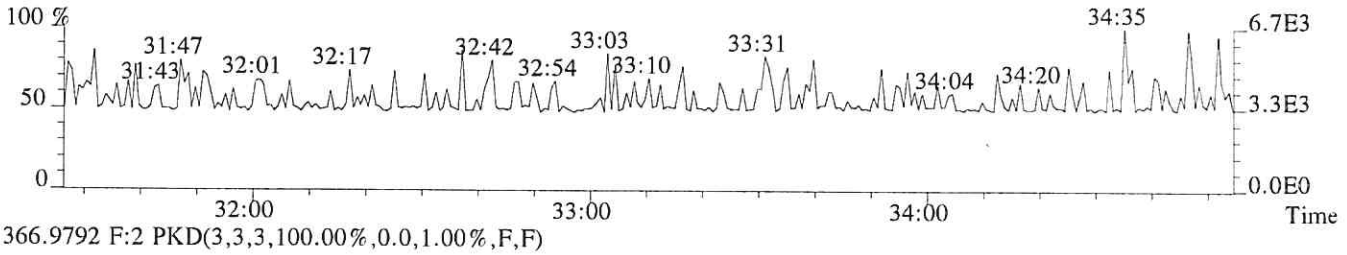
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



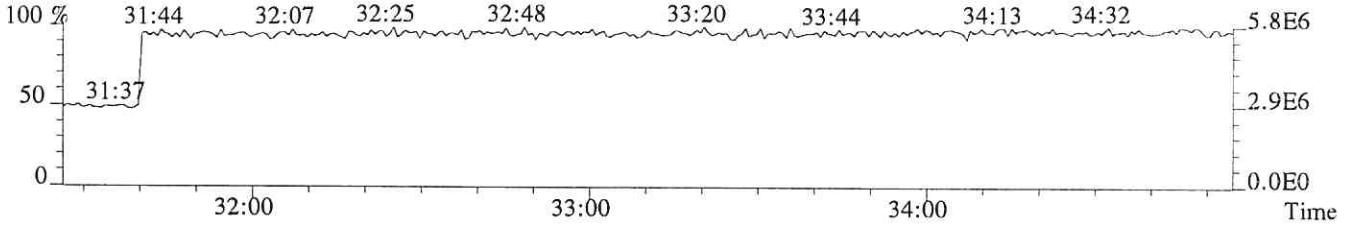
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



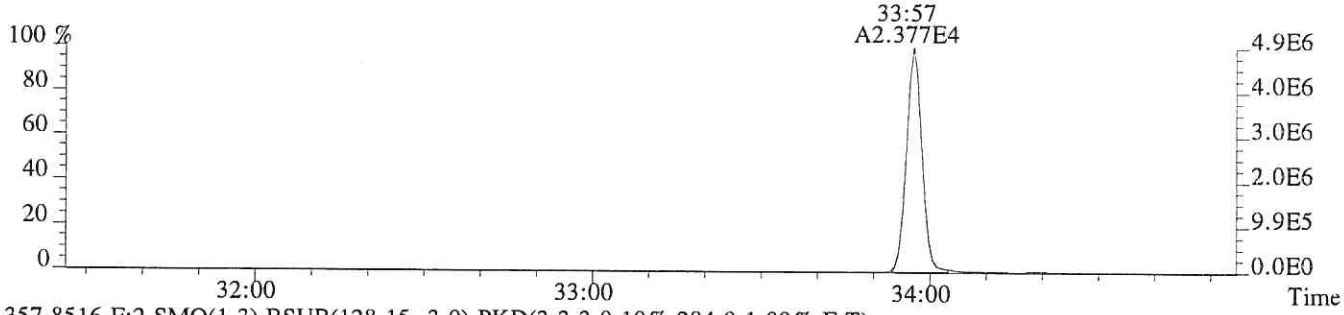
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



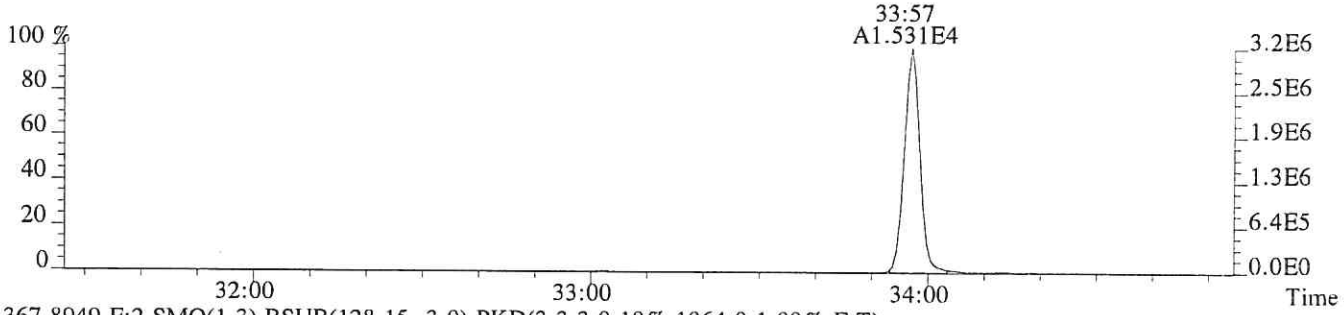
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



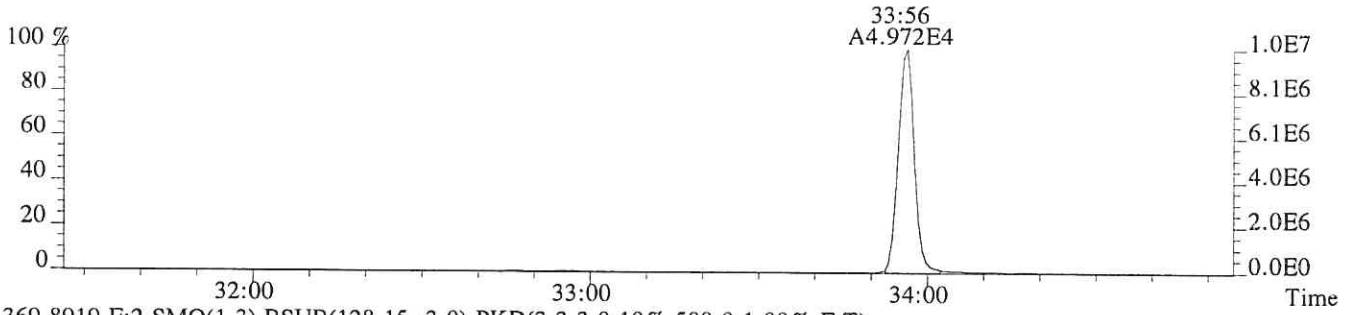
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



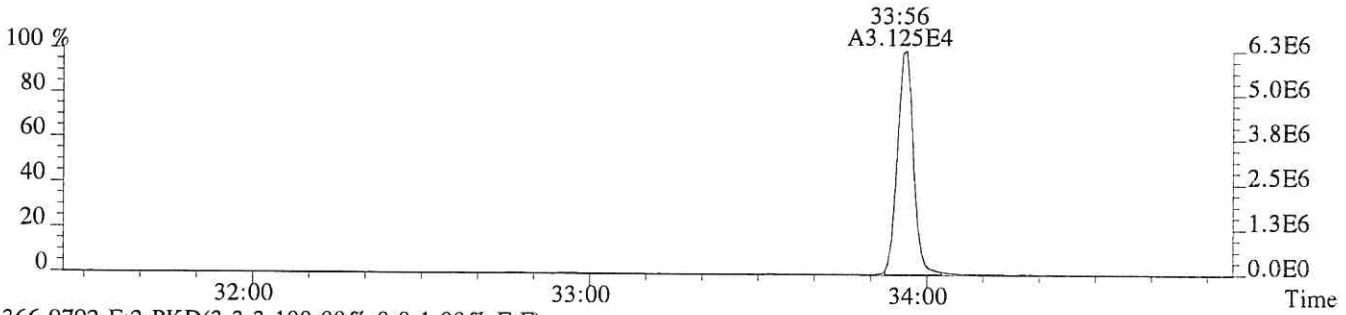
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



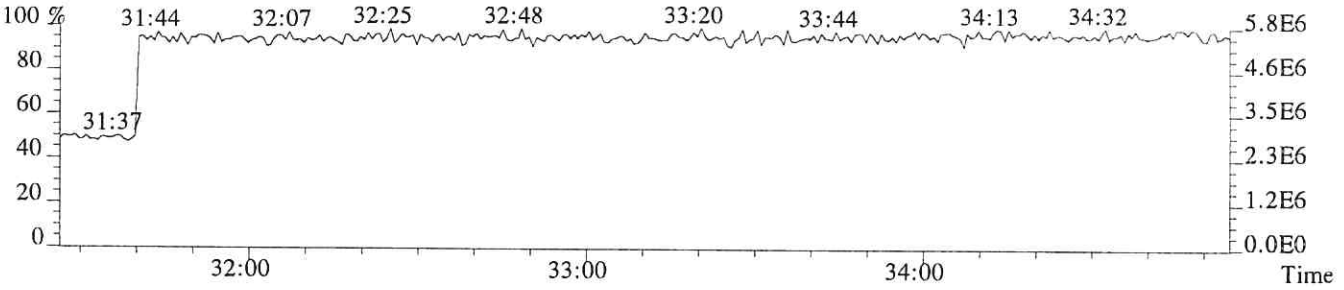
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



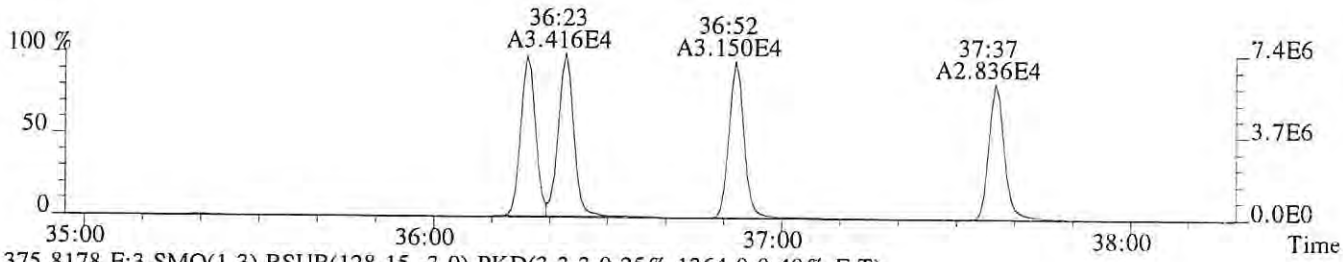
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



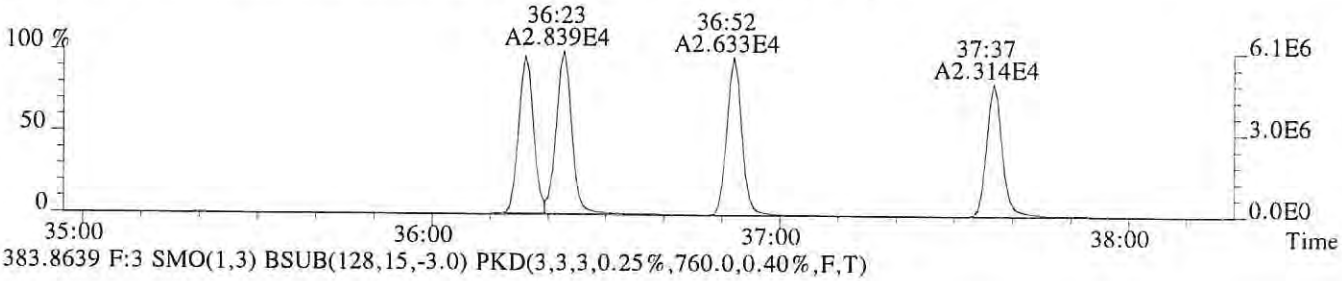
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



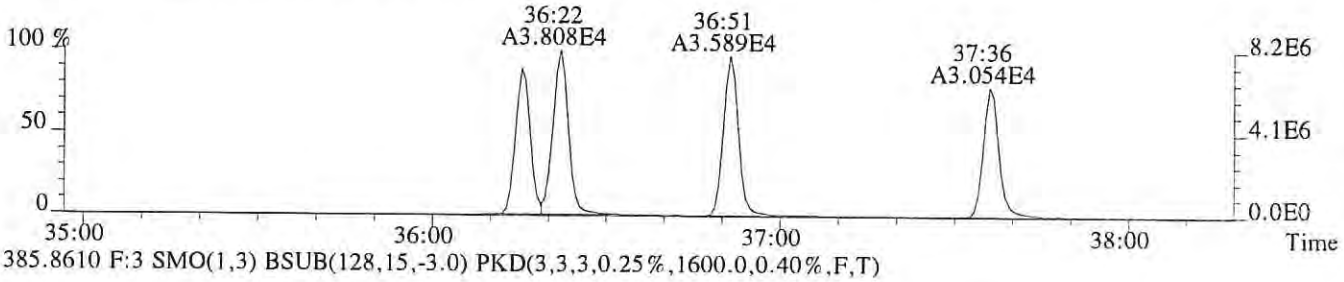
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



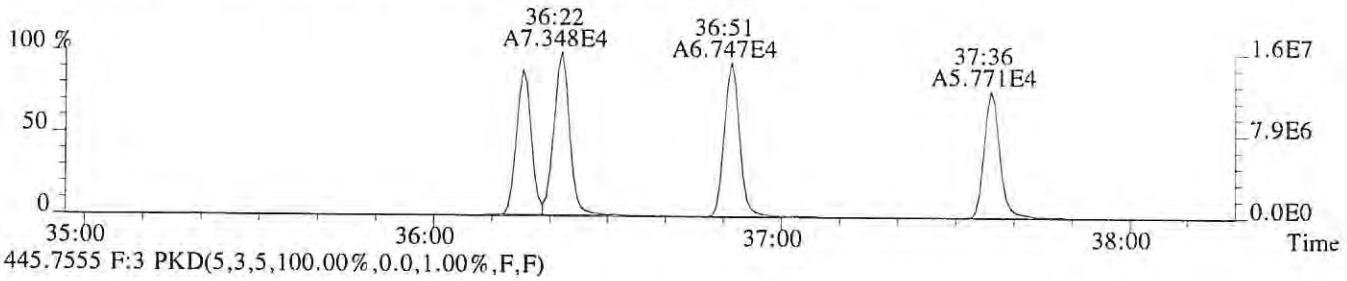
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



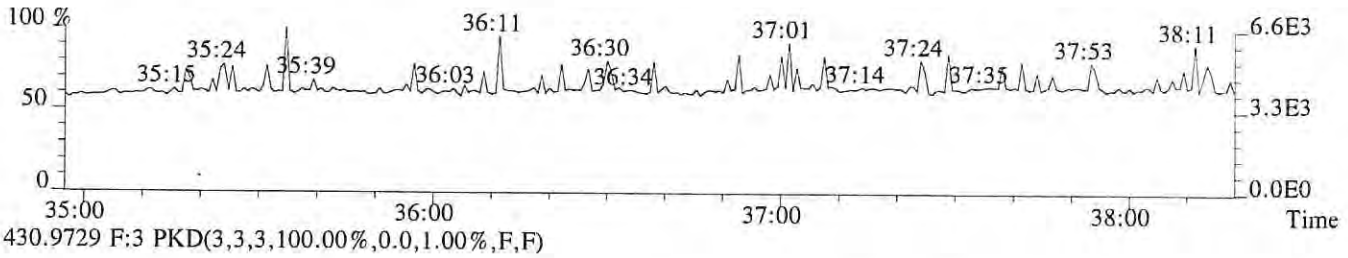
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



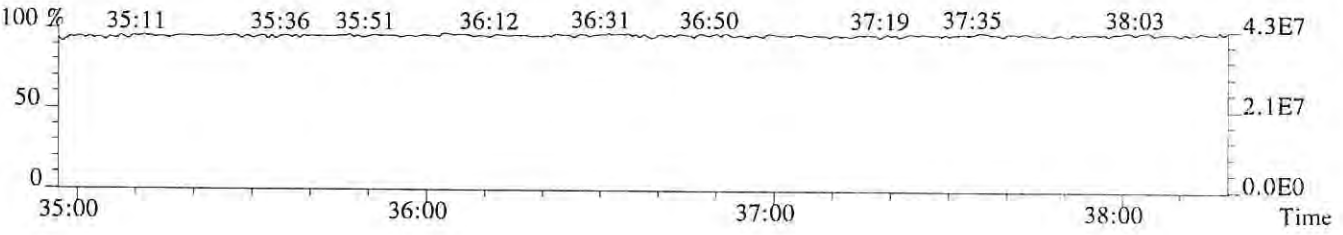
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



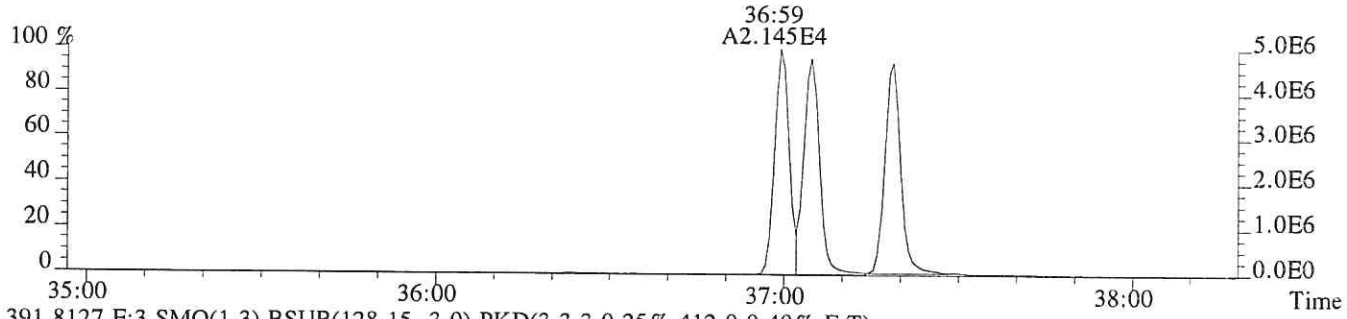
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



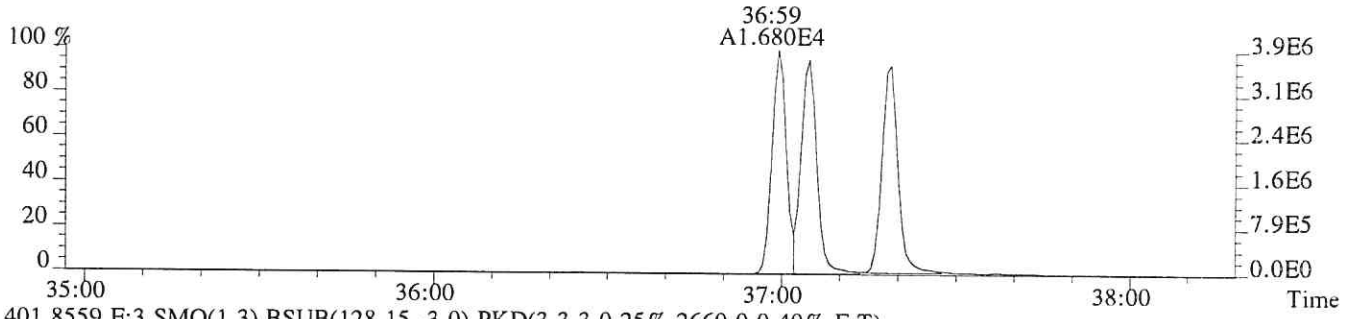
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



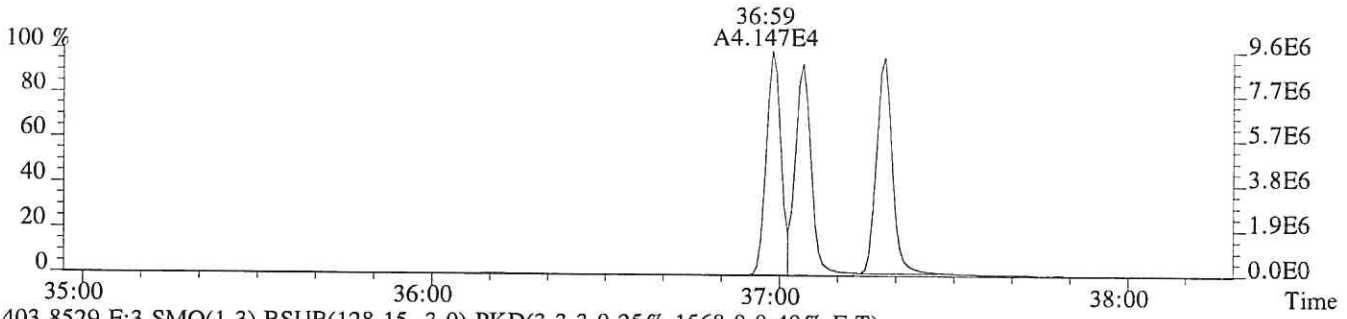
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



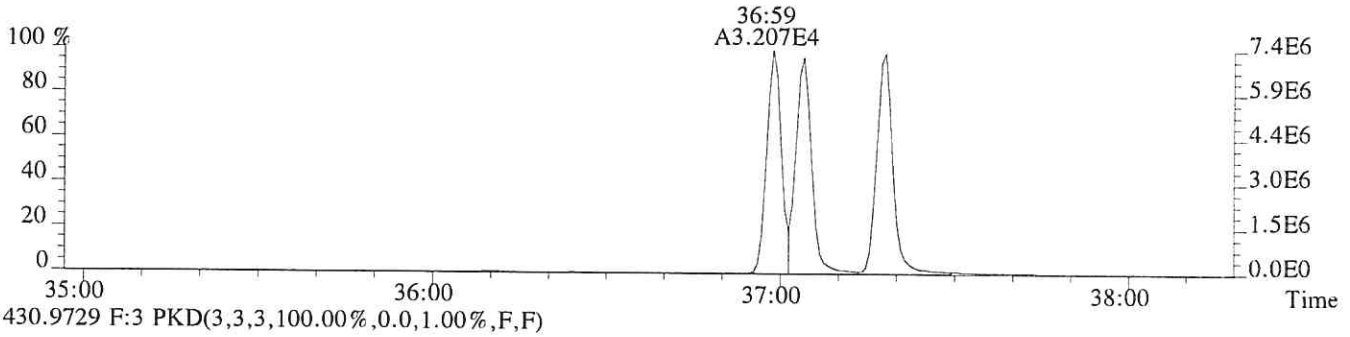
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



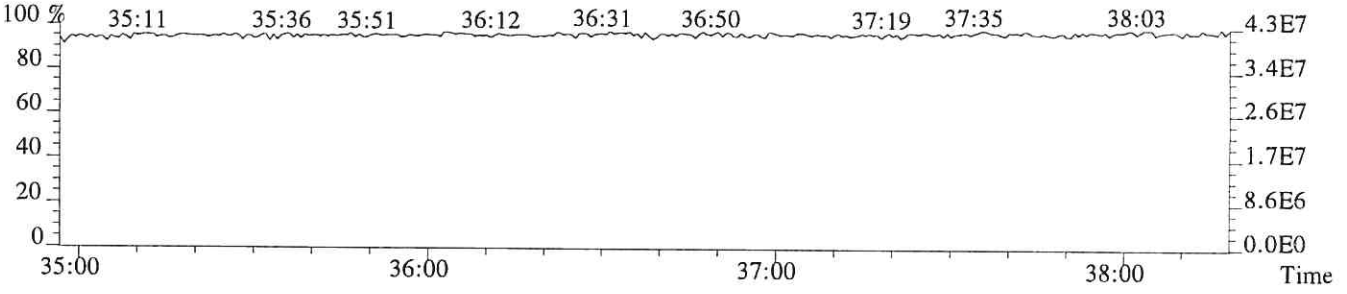
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



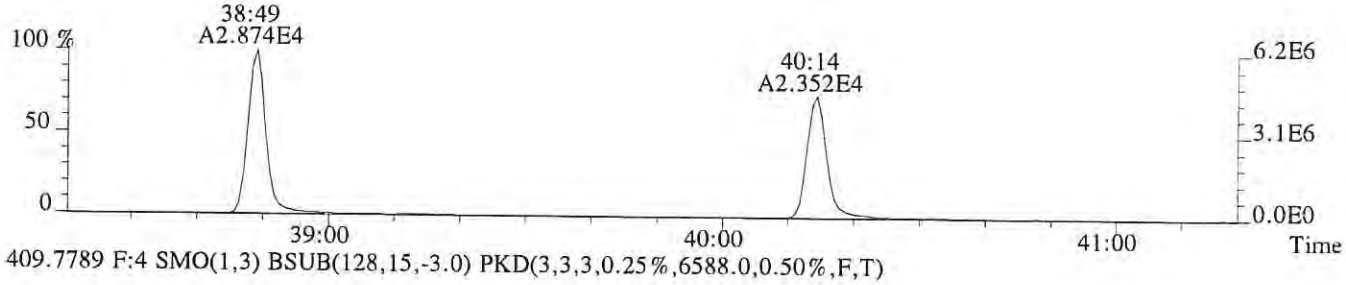
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



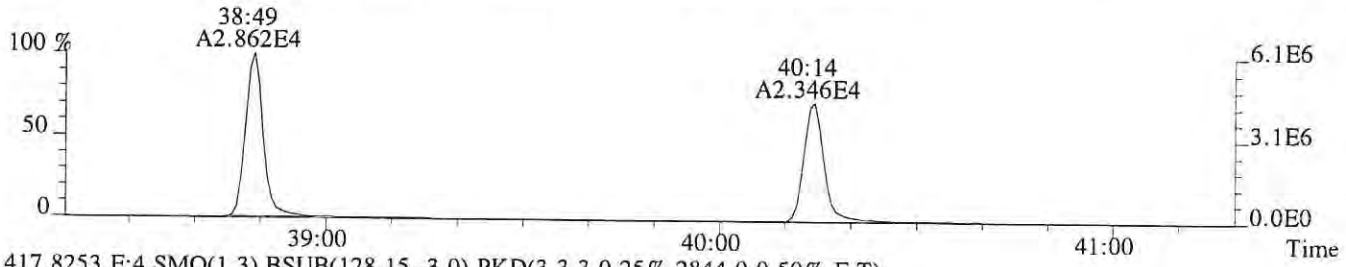
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



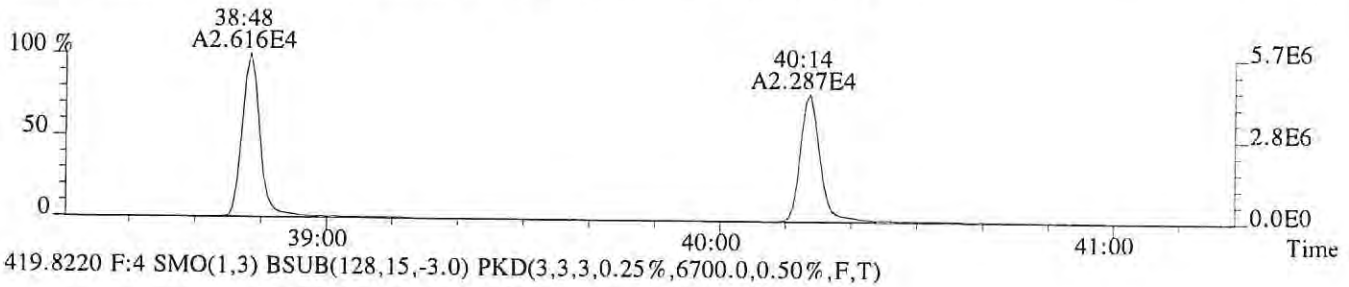
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



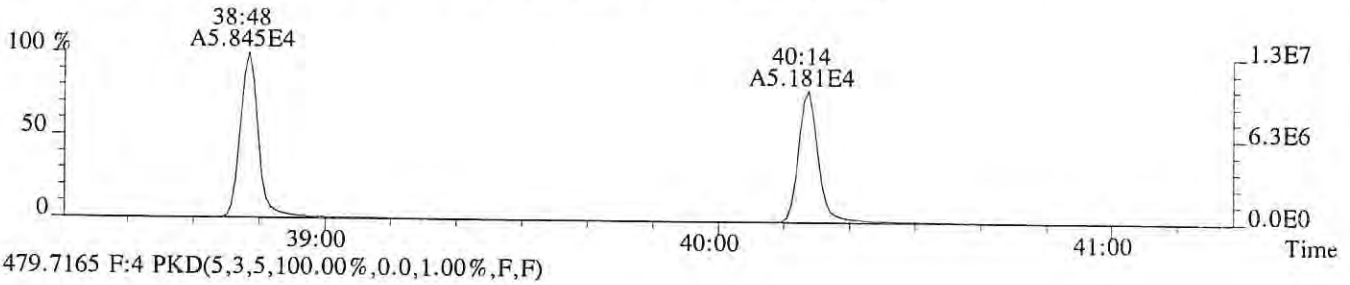
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



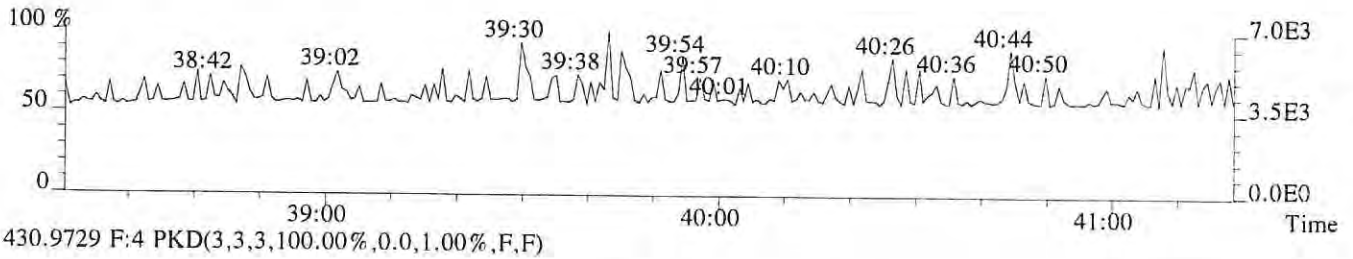
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



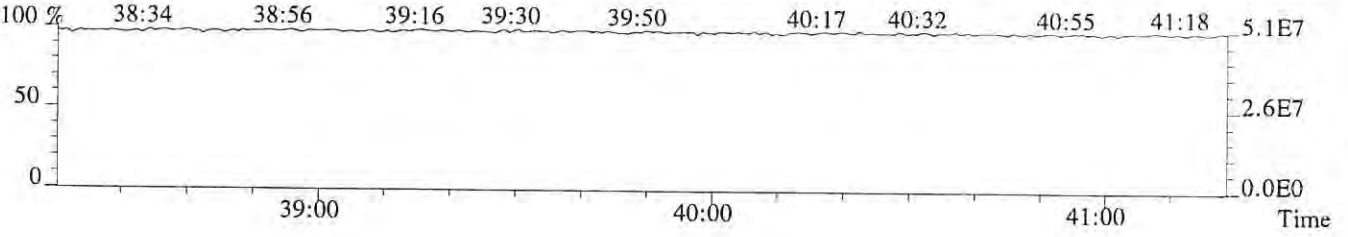
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



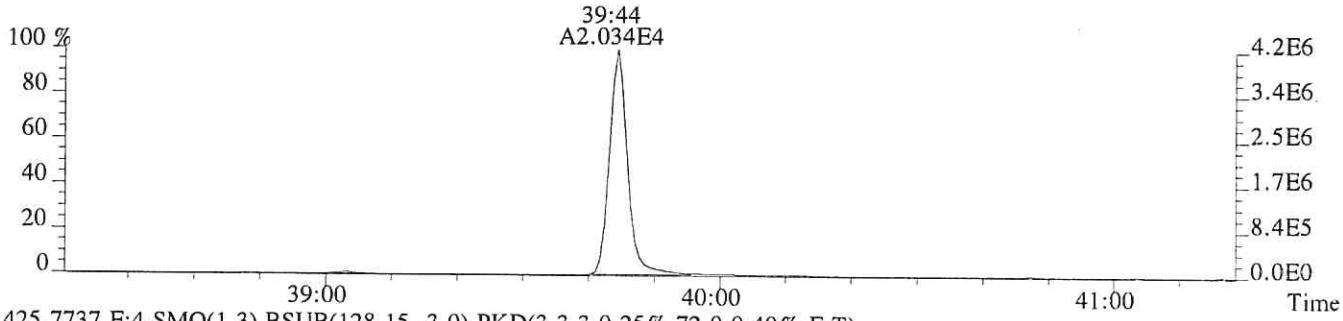
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



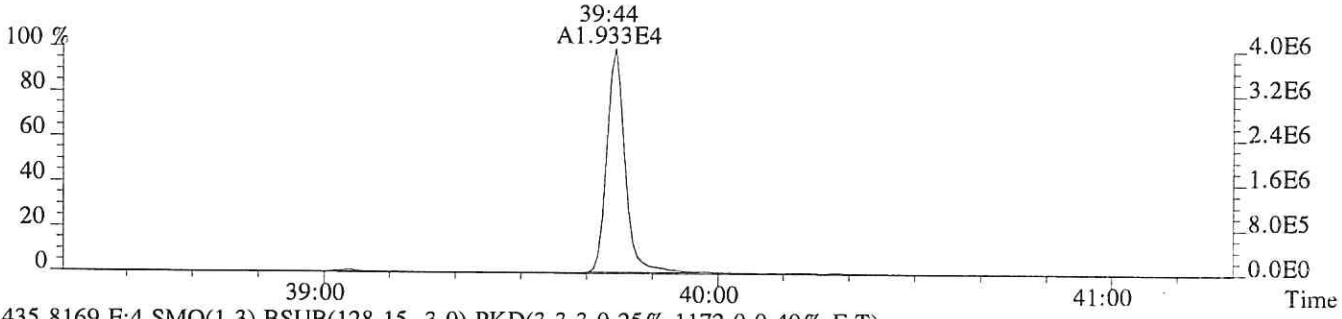
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



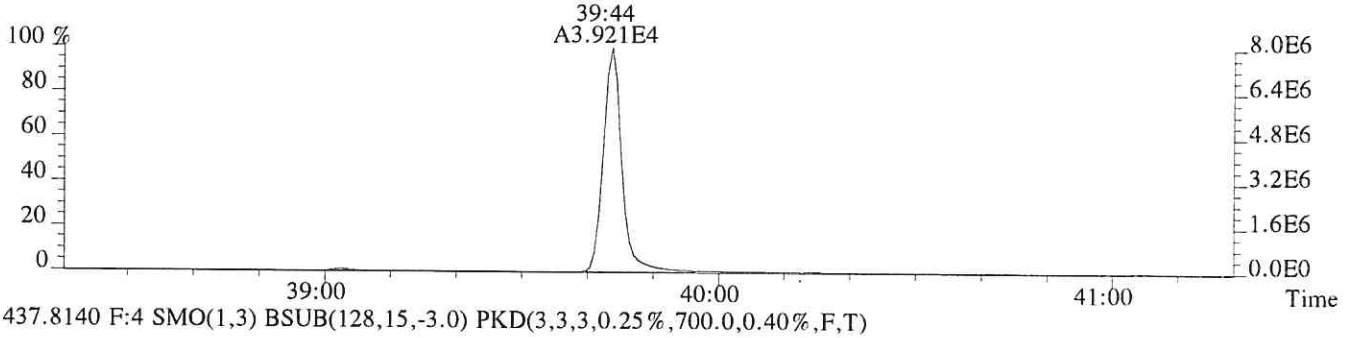
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



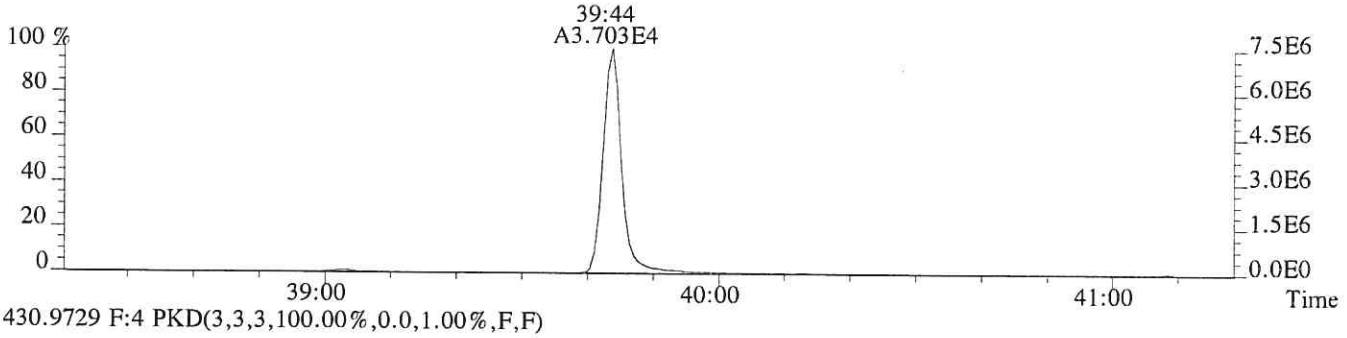
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



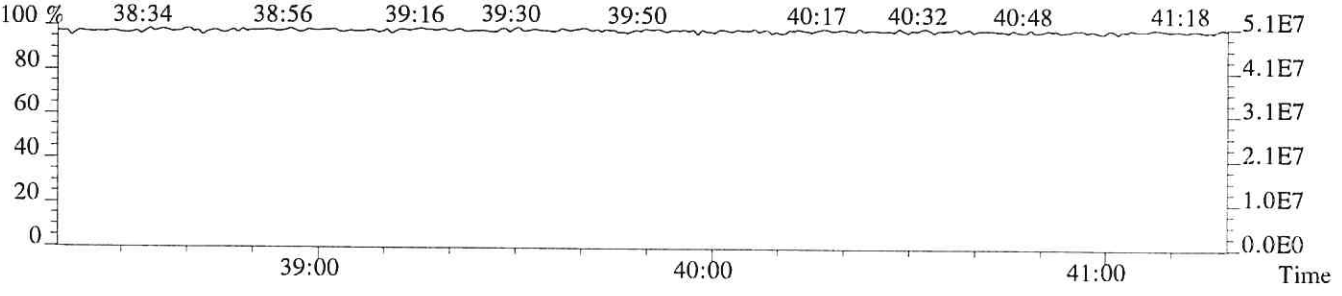
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



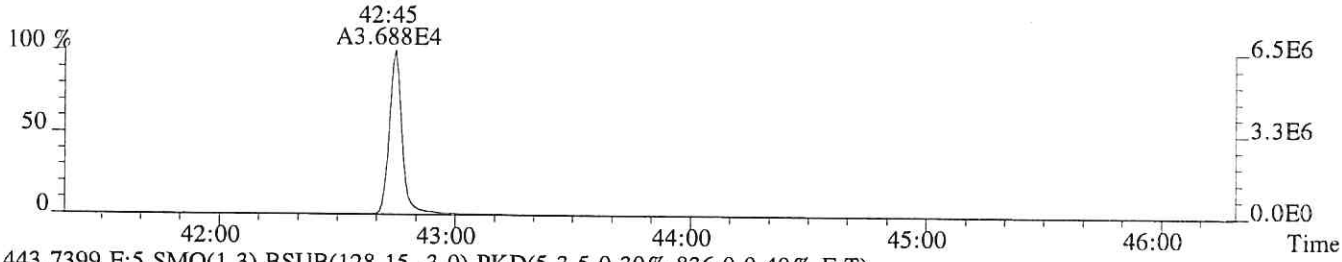
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



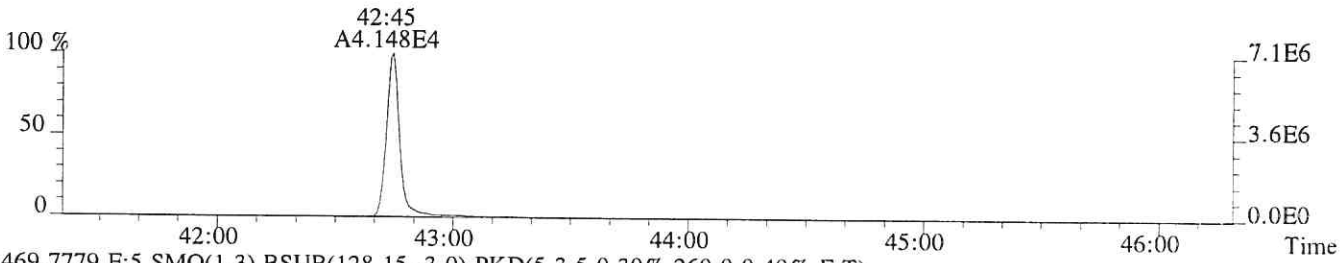
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



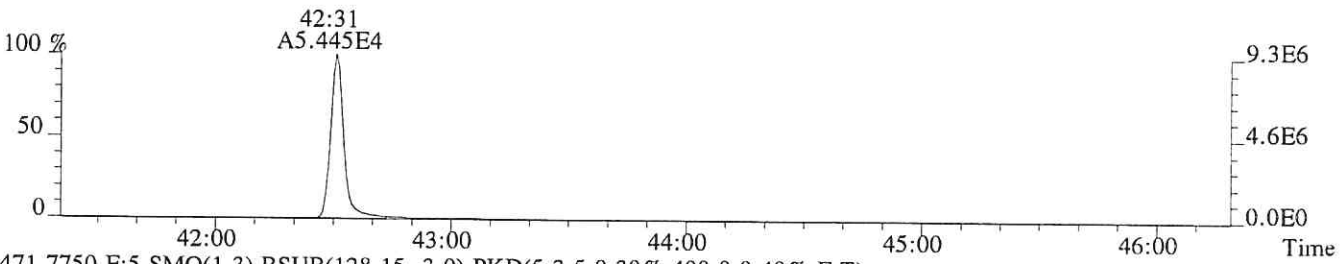
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



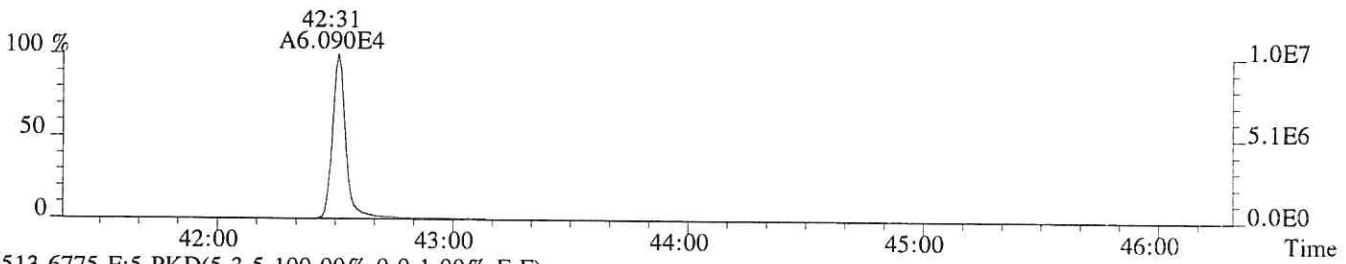
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



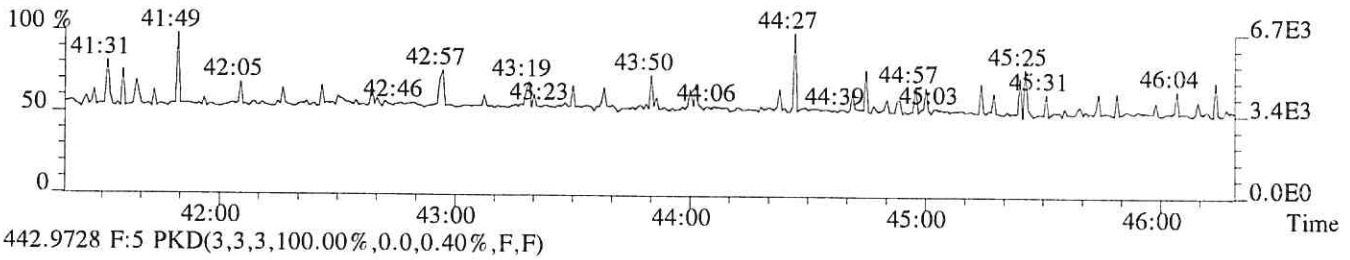
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



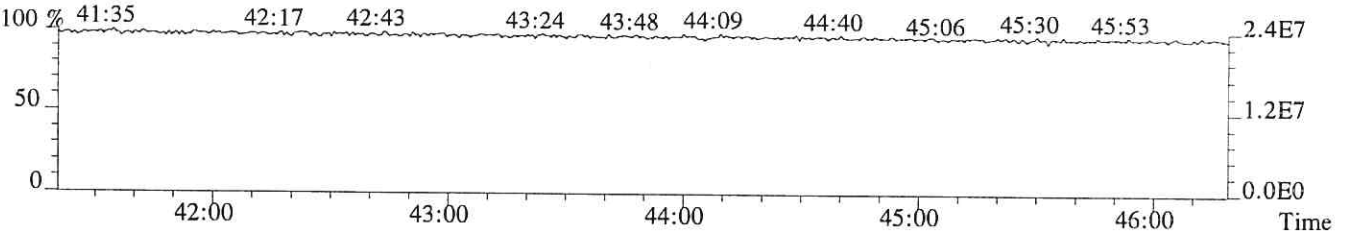
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



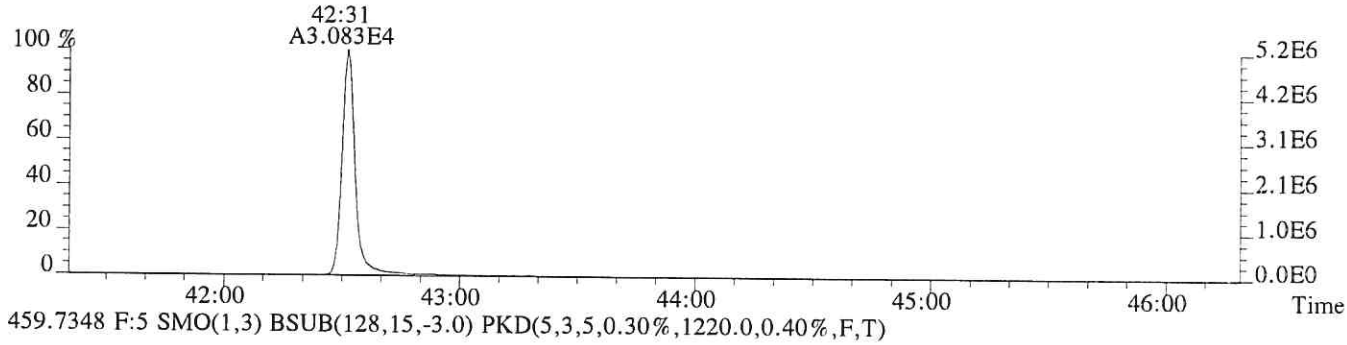
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



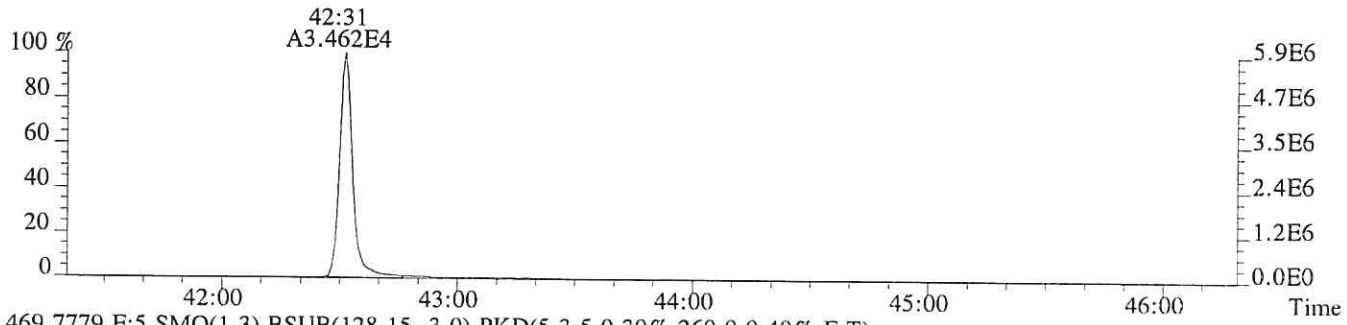
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



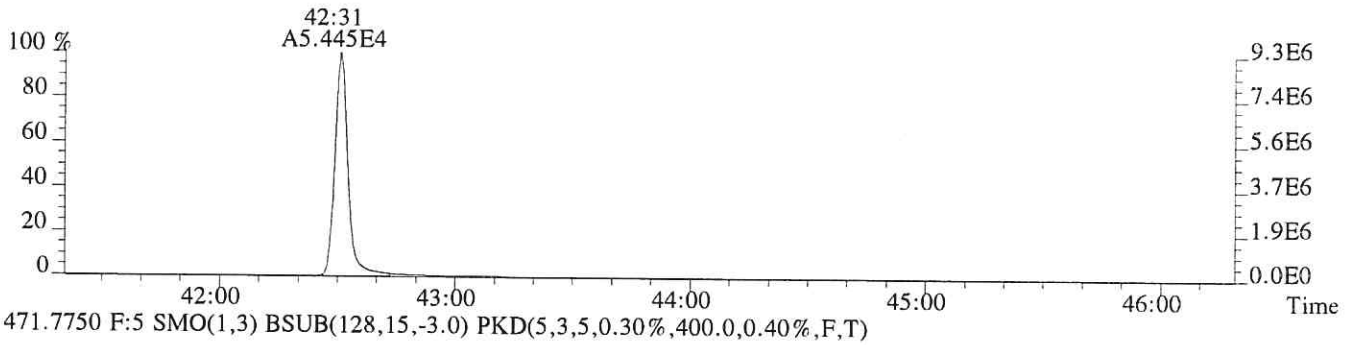
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



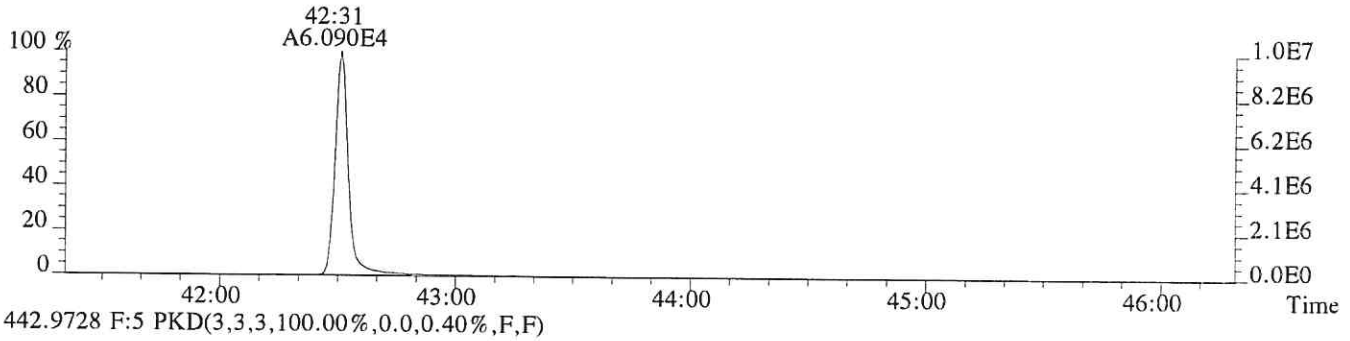
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



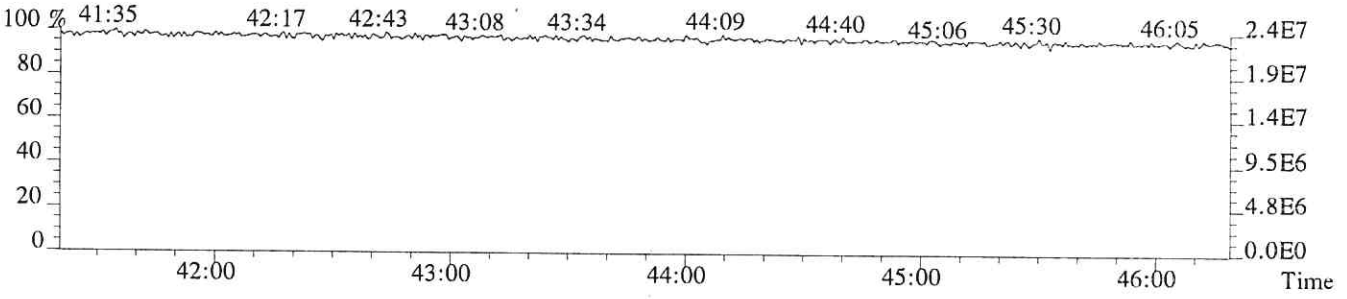
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor Signature: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290		Process Date: 09/26/2018				
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir		Yes	No	NA	NR	ER#
Description						
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?		√				
Were area counts for the highest calibration standard below levels of saturation?		√				
Were manual integrations technically justified to correct for poor software integration?				√		
Response Factors						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?		√				
Were all calibration standards used in determining response factors?		√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?		√				
Did the RSD for RRFs for each native analyte meet method criteria?		√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?		√				
Were RFs for each labeled compound calculated for each calibration point?		√				
Did the RSD for RF for each labeled compound meet method criteria?		√				
Initial Calibration Verification						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)		√				
Did all analytes meet method criteria for the ICV.		√				

Laboratory Review Checklist: Initial Calibration			
Method: 1613/8290		Process Date: 09/26/2018	
Instrument Name: E-HRMS-08		Calibration File Name: P6-18092516131	
Processor Name: Gisela Cruz		Reviewer Name: Loan Luong	
ER#[5]	**Description**		

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690 res

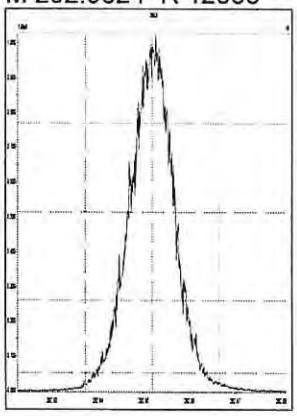
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use.
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:51	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 09/26/18

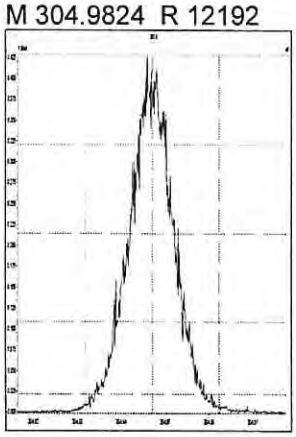
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

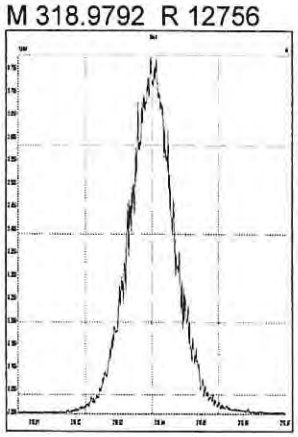
M 292.9824 R 12568



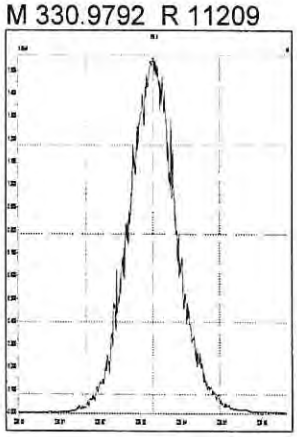
M 304.9824 R 12192



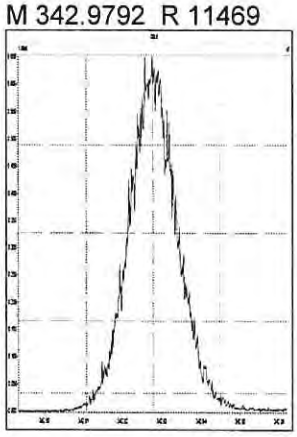
M 318.9792 R 12756



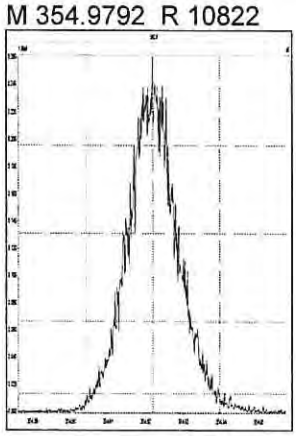
M 330.9792 R 11209



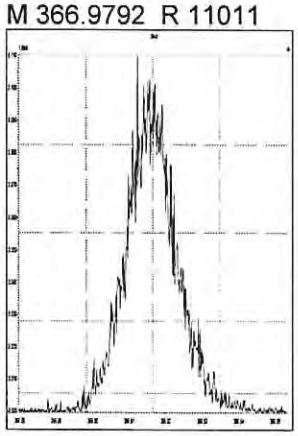
M 342.9792 R 11469



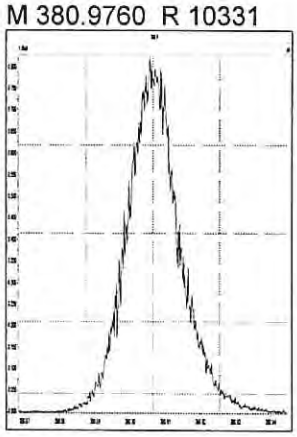
M 354.9792 R 10822



M 366.9792 R 11011



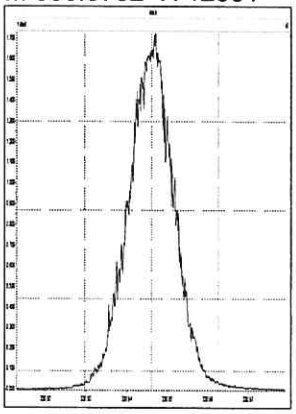
M 380.9760 R 10331



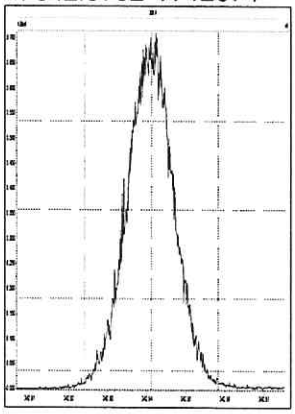
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

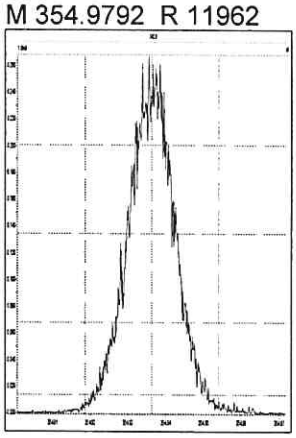
M 330.9792 R 12381



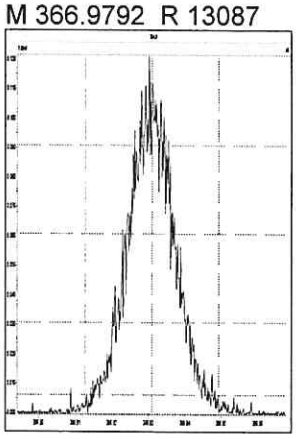
M 342.9792 R 12074



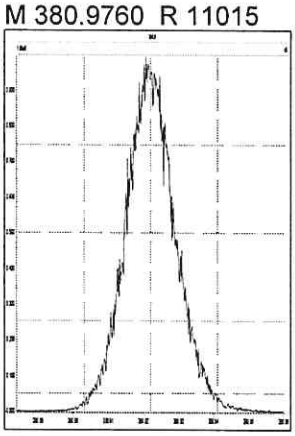
M 354.9792 R 11962



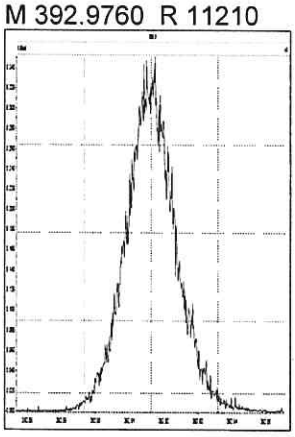
M 366.9792 R 13087



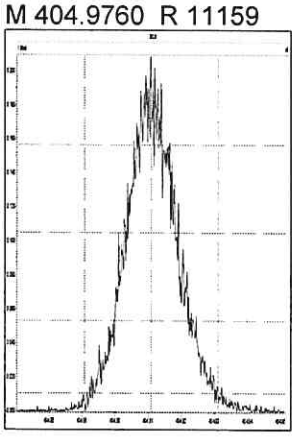
M 380.9760 R 11015



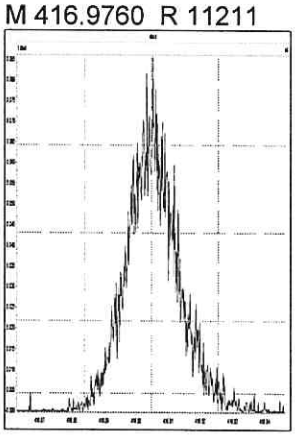
M 392.9760 R 11210



M 404.9760 R 11159



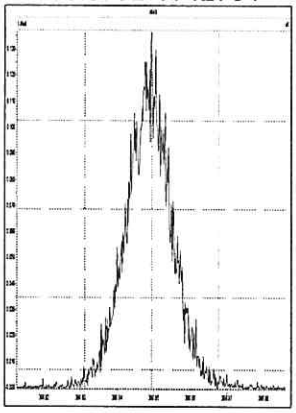
M 416.9760 R 11211



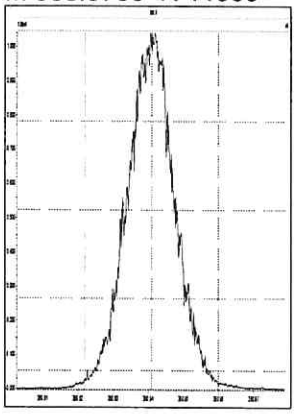
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

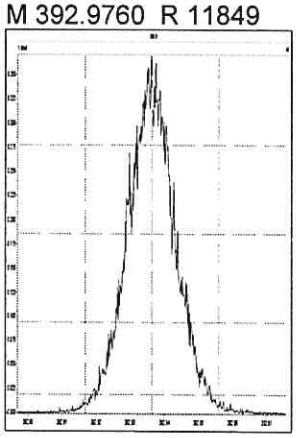
M 366.9792 R 12754



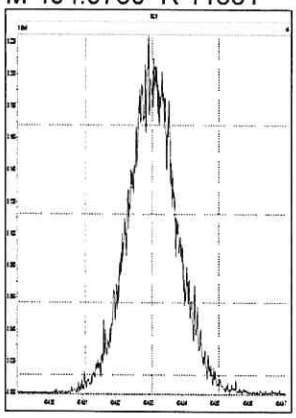
M 380.9760 R 11959



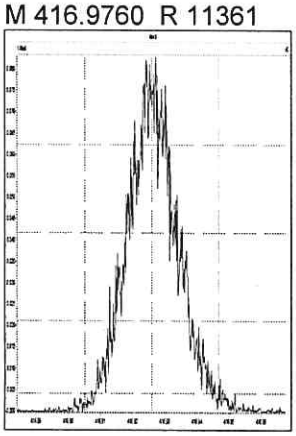
M 392.9760 R 11849



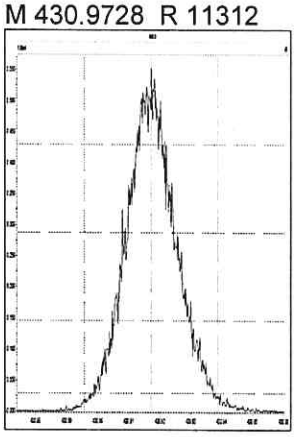
M 404.9760 R 11681



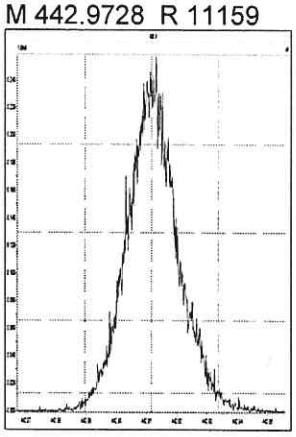
M 416.9760 R 11361



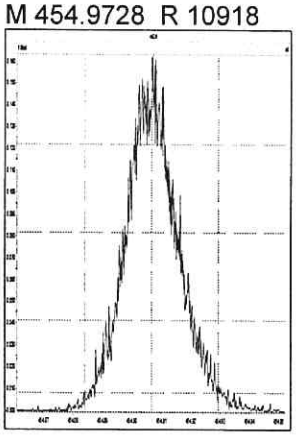
M 430.9728 R 11312



M 442.9728 R 11159



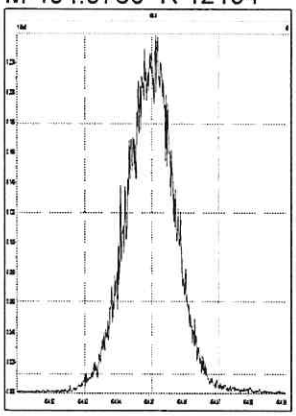
M 454.9728 R 10918



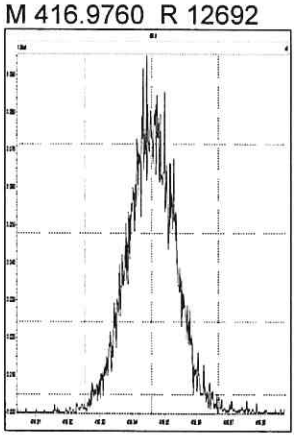
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

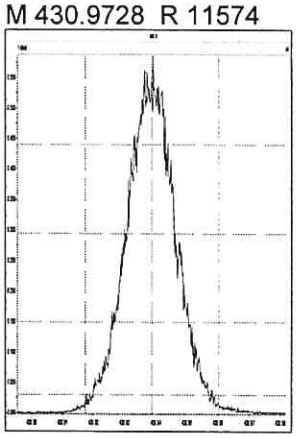
M 404.9760 R 12194



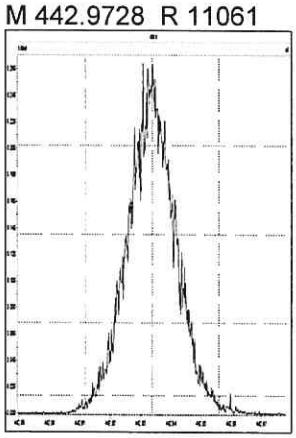
M 416.9760 R 12692



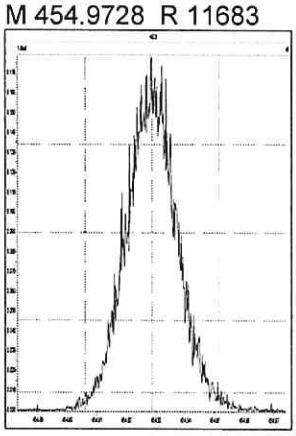
M 430.9728 R 11574



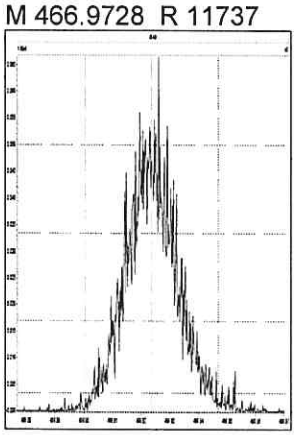
M 442.9728 R 11061



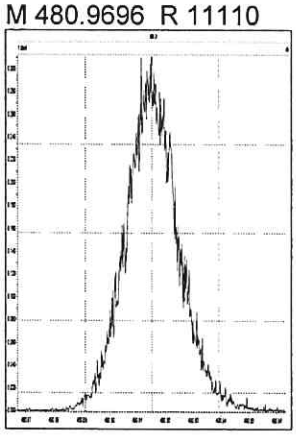
M 454.9728 R 11683



M 466.9728 R 11737



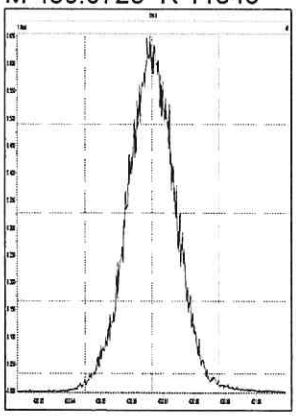
M 480.9696 R 11110



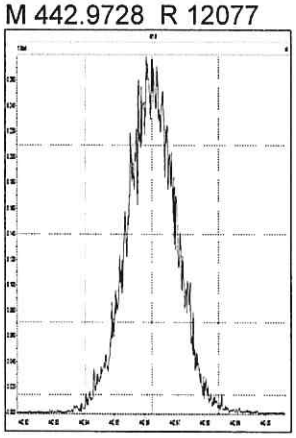
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

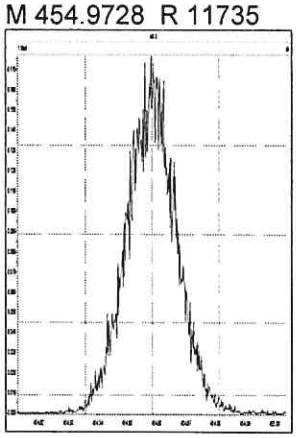
M 430.9728 R 11845



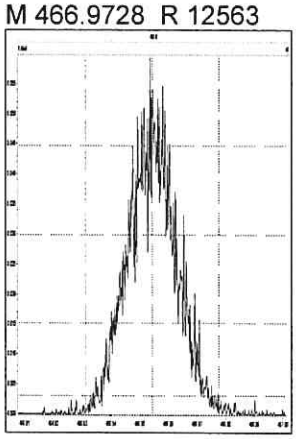
M 442.9728 R 12077



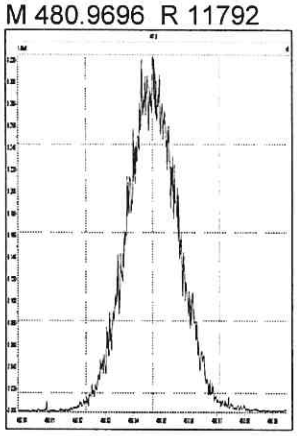
M 454.9728 R 11735



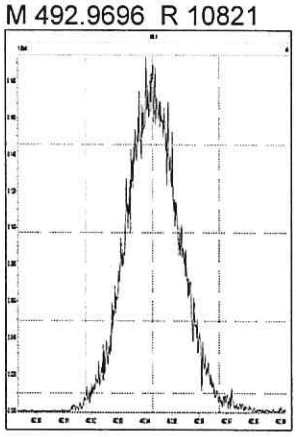
M 466.9728 R 12563



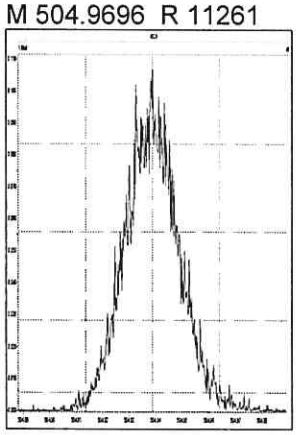
M 480.9696 R 11792



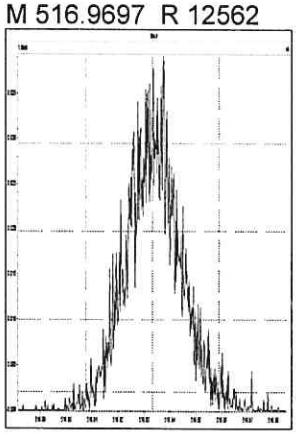
M 492.9696 R 10821



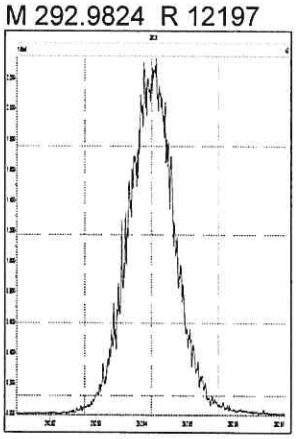
M 504.9696 R 11261



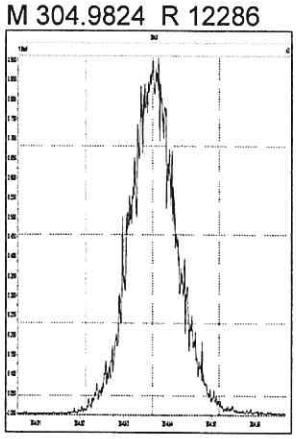
M 516.9697 R 12562



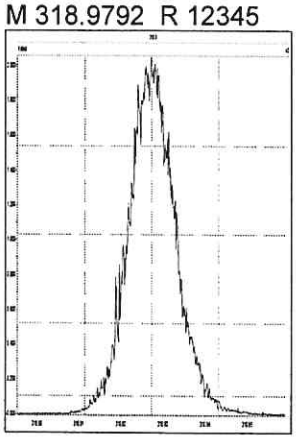
M 292.9824 R 12197



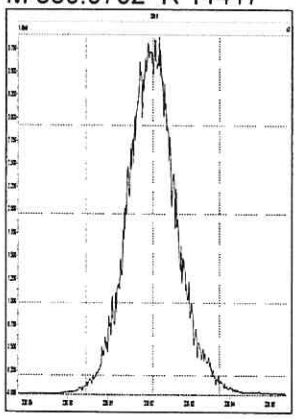
M 304.9824 R 12286



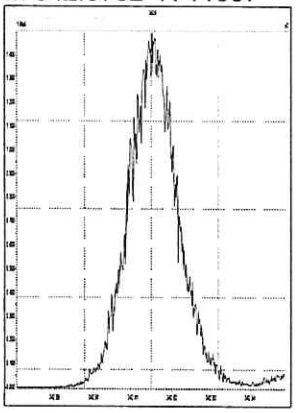
M 318.9792 R 12345



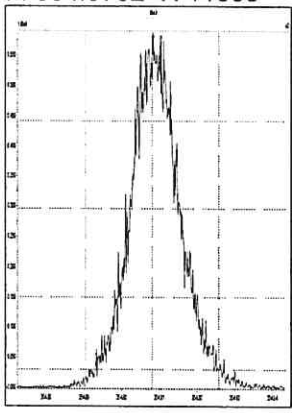
M 330.9792 R 11417



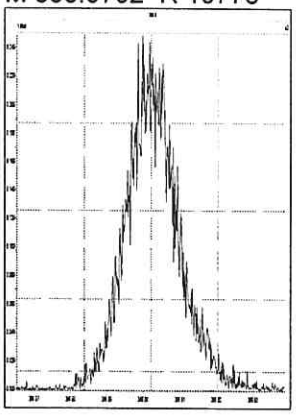
M 342.9792 R 11087



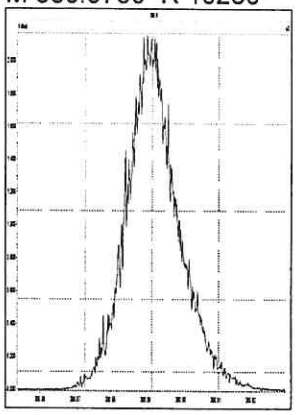
M 354.9792 R 11095



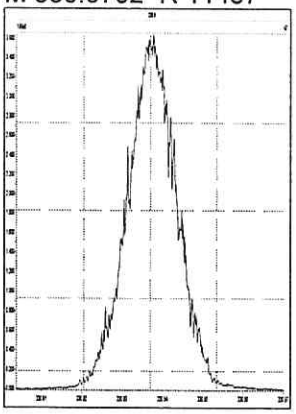
M 366.9792 R 10778



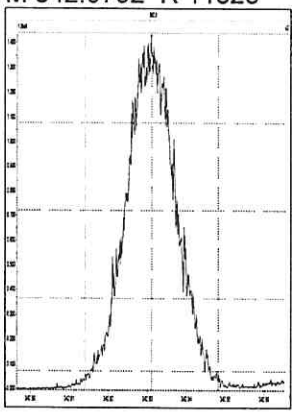
M 380.9760 R 10230



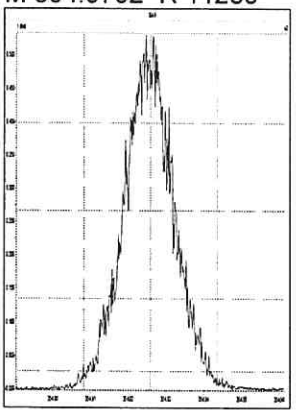
M 330.9792 R 11467



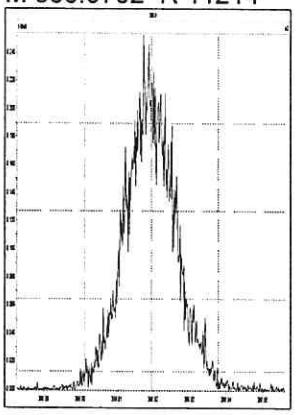
M 342.9792 R 11823



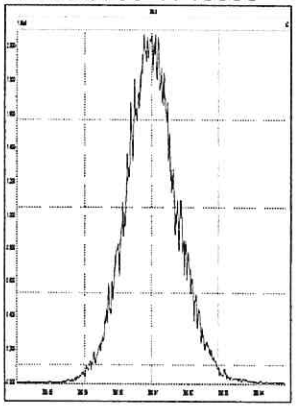
M 354.9792 R 11289



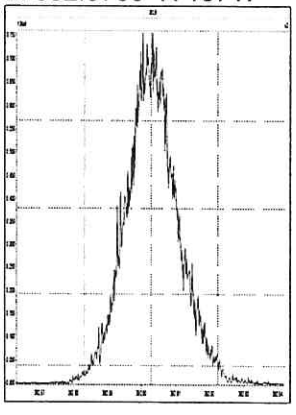
M 366.9792 R 11214



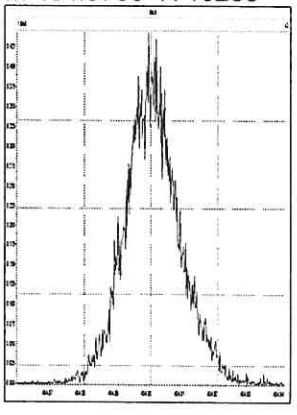
M 380.9760 R 10995



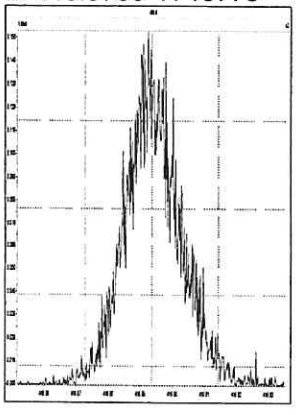
M 392.9760 R 10717



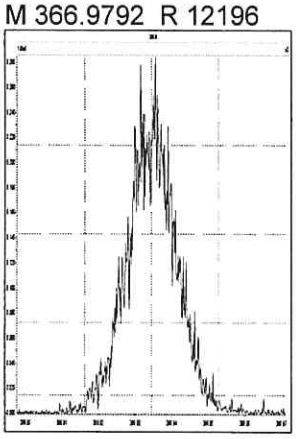
M 404.9760 R 10203



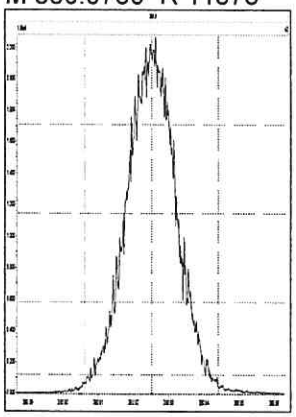
M 416.9760 R 10776



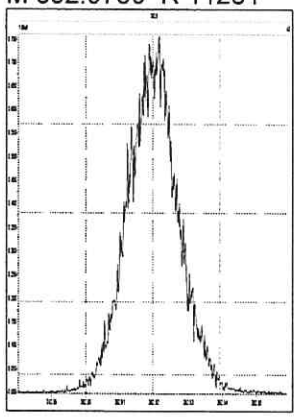
M 366.9792 R 12196



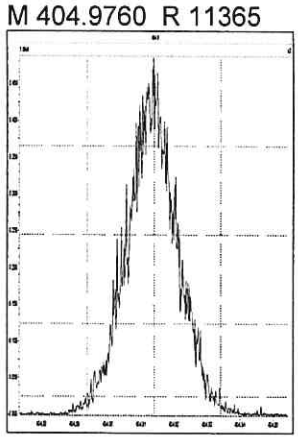
M 380.9760 R 11576



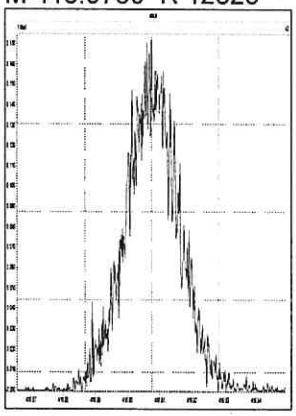
M 392.9760 R 11261



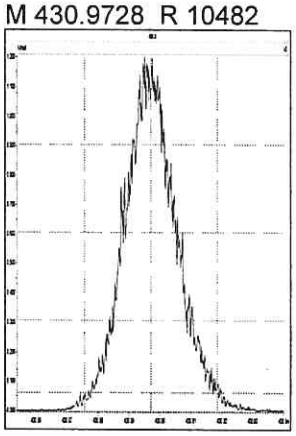
M 404.9760 R 11365



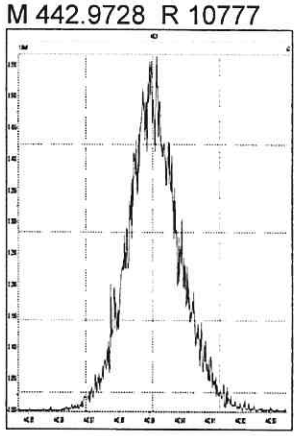
M 416.9760 R 12325



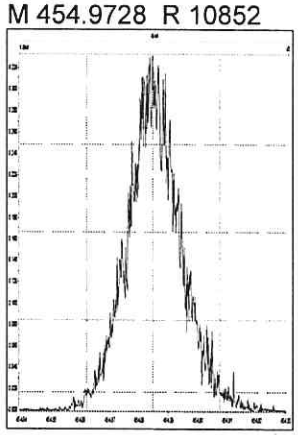
M 430.9728 R 10482



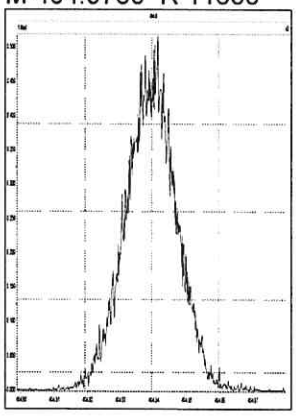
M 442.9728 R 10777



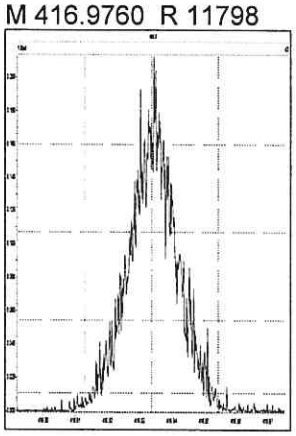
M 454.9728 R 10852



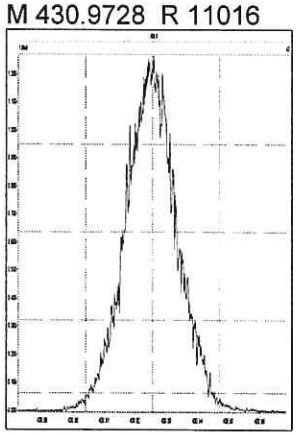
M 404.9760 R 11655



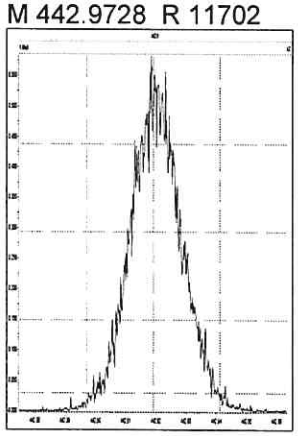
M 416.9760 R 11798



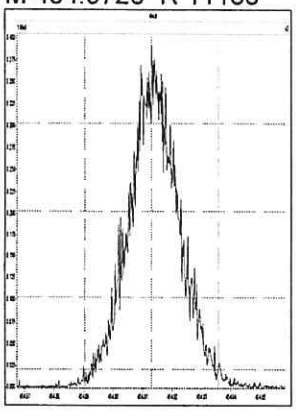
M 430.9728 R 11016



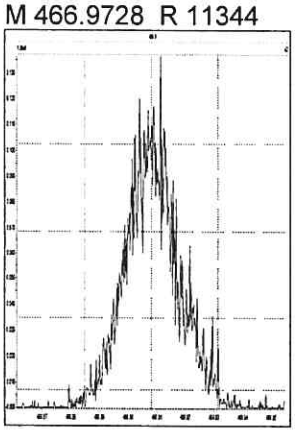
M 442.9728 R 11702



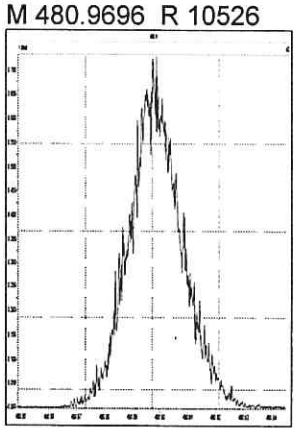
M 454.9728 R 11188



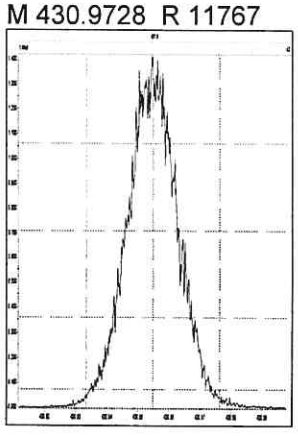
M 466.9728 R 11344



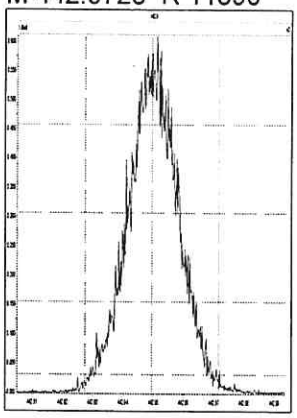
M 480.9696 R 10526



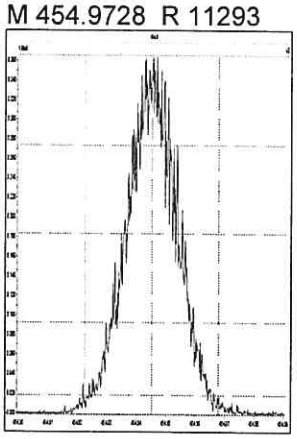
M 430.9728 R 11767



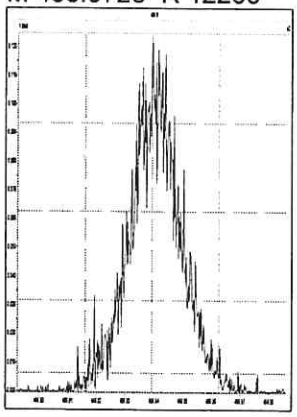
M 442.9728 R 11390



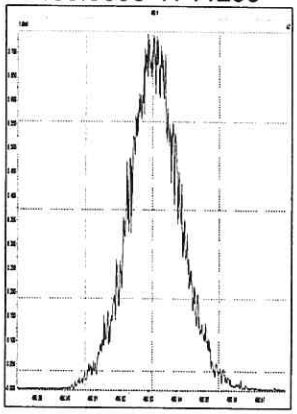
M 454.9728 R 11293



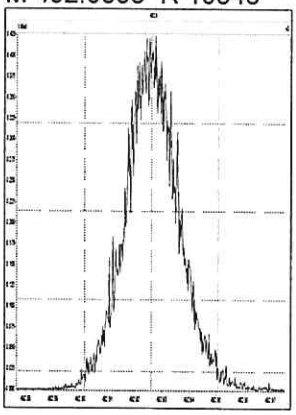
M 466.9728 R 12265



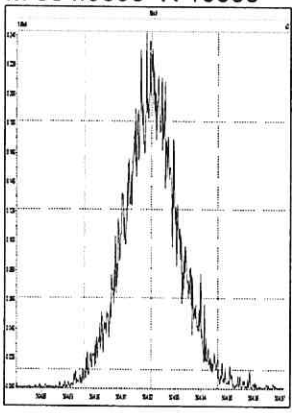
M 480.9696 R 11266



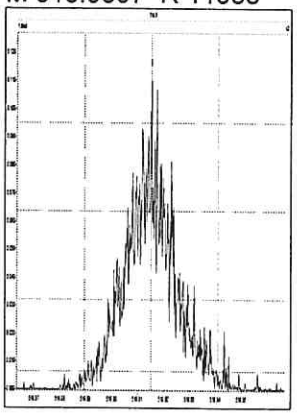
M 492.9696 R 10848



M 504.9696 R 10555



M 516.9697 R 11933



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

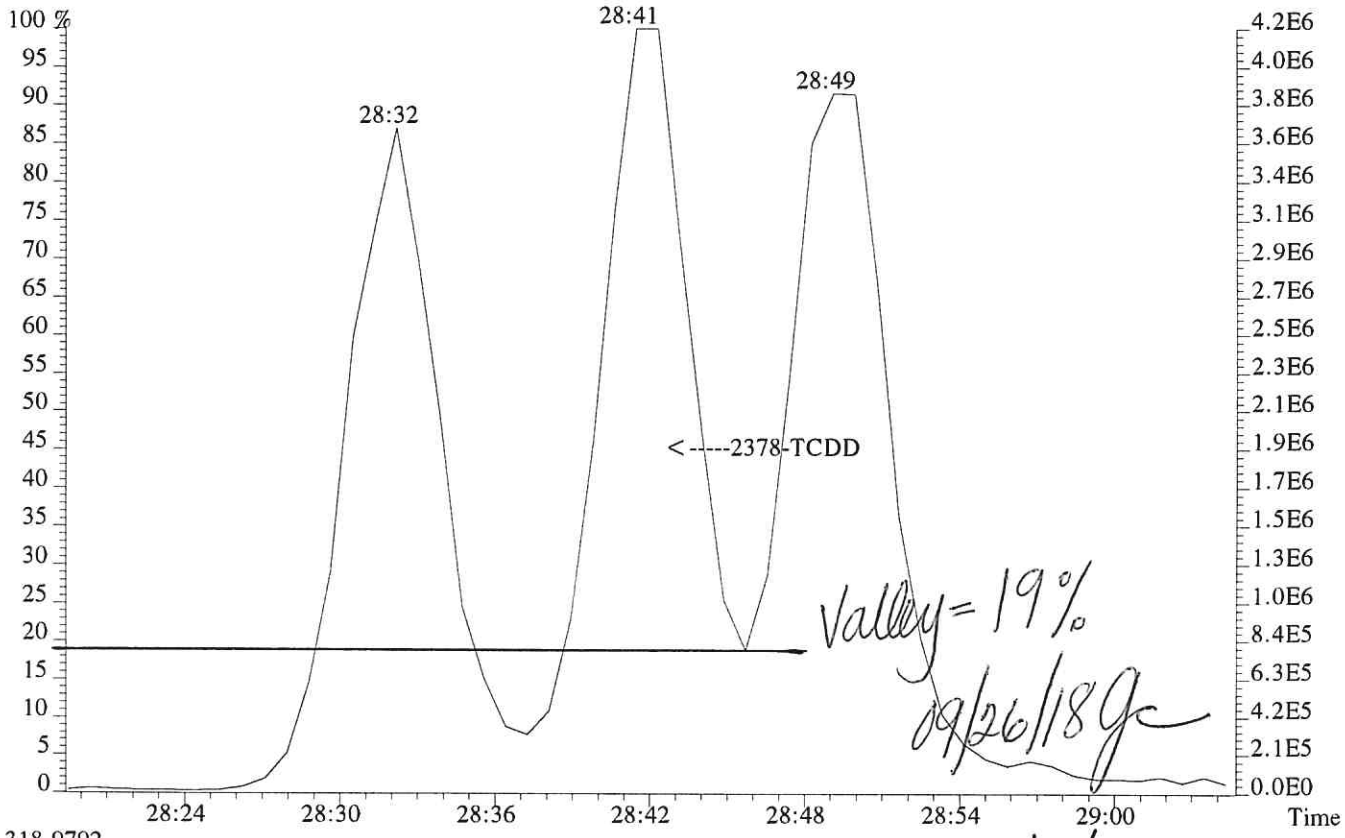
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

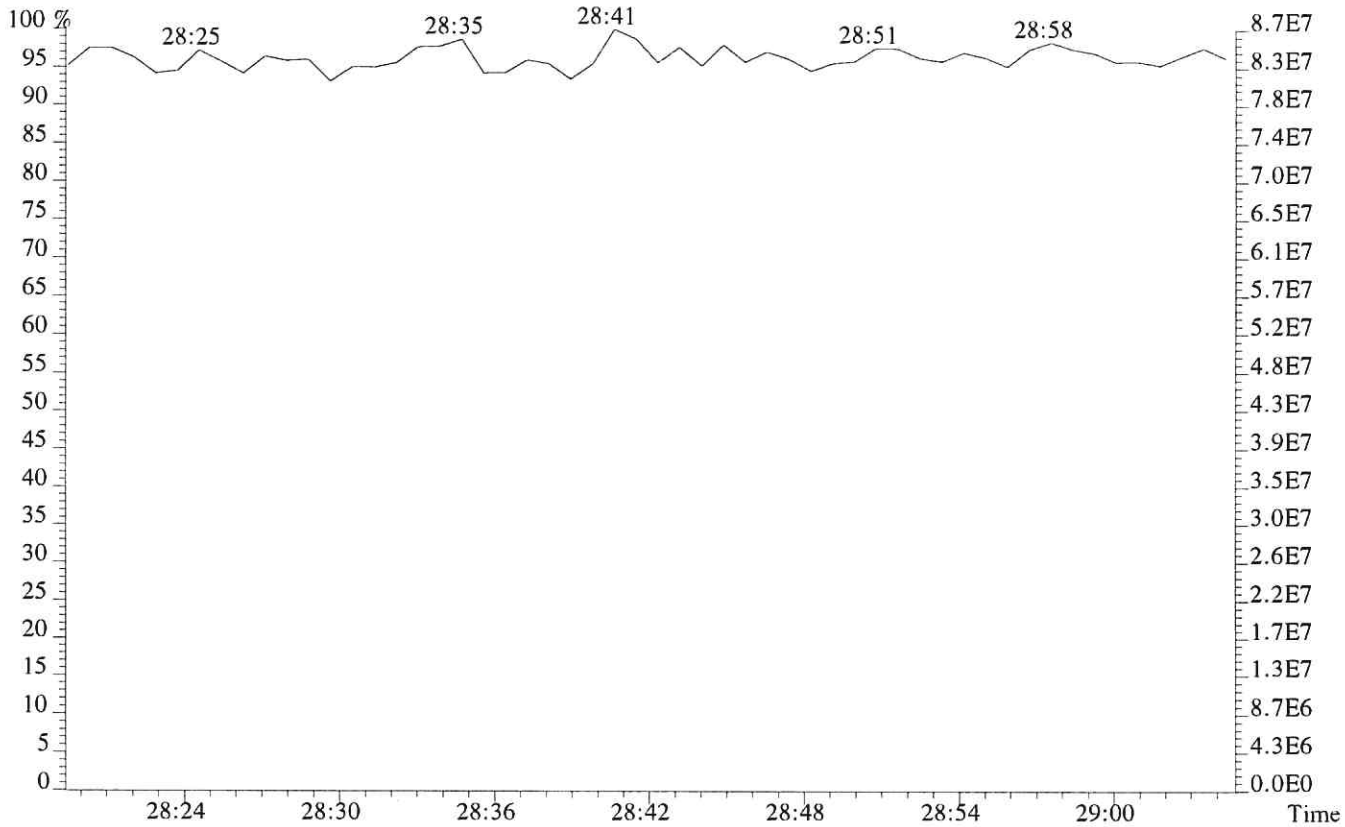
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

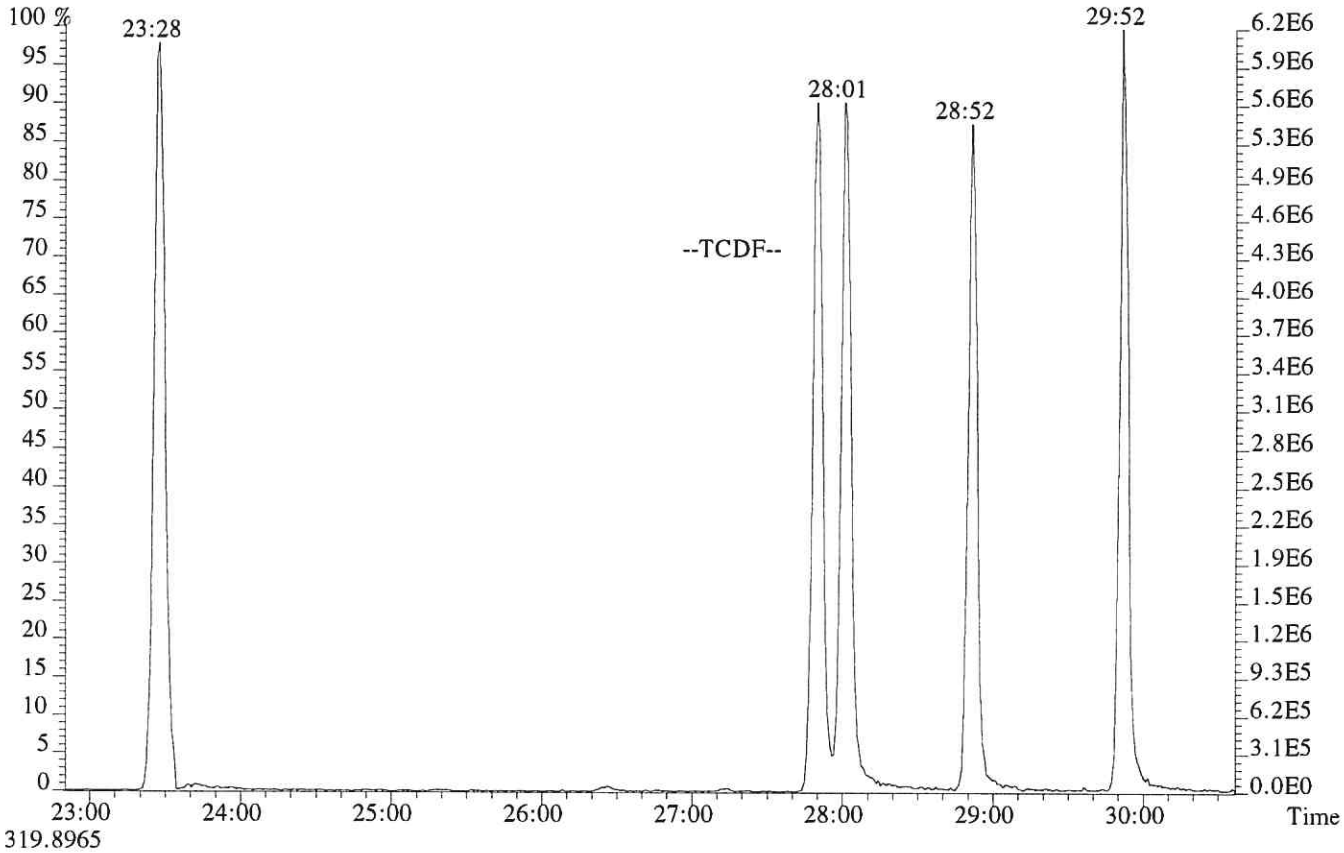


318.9792

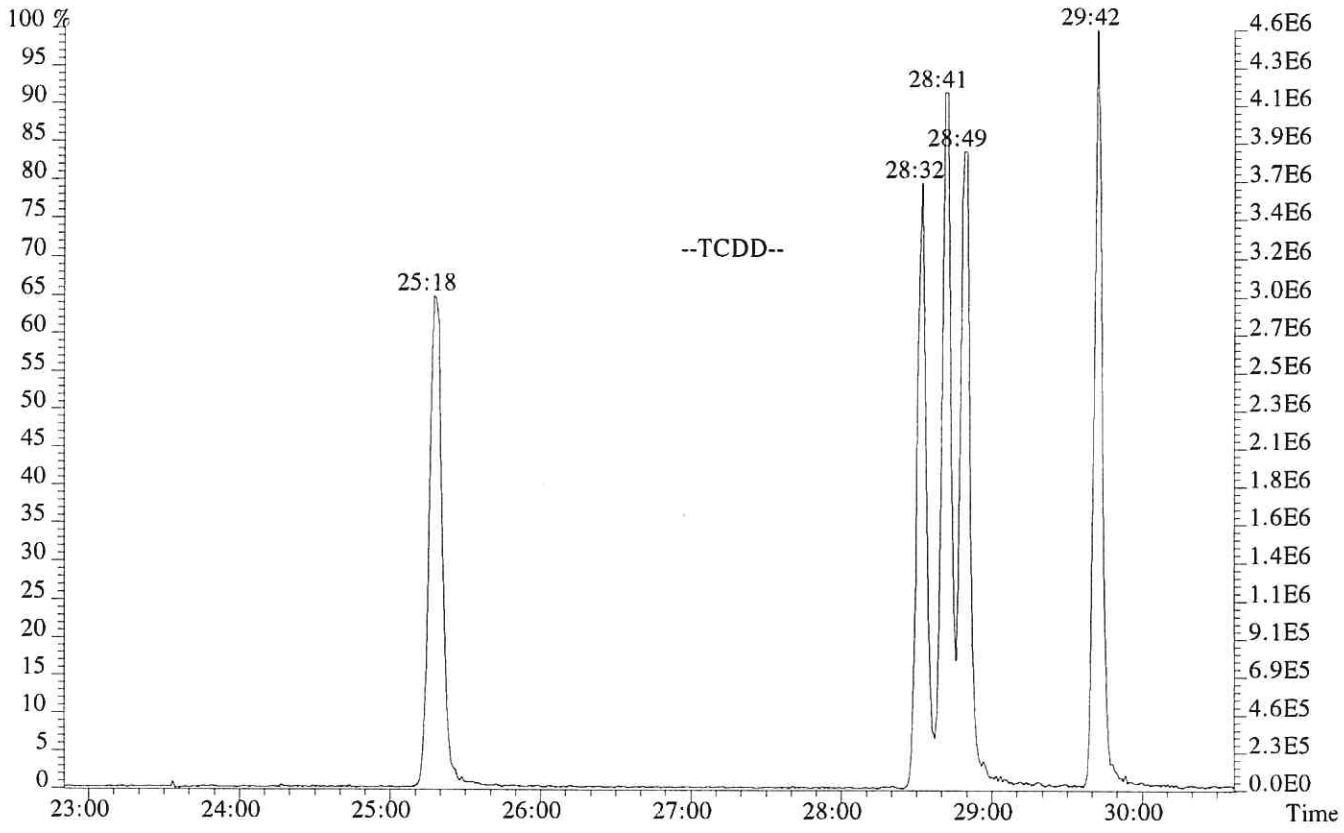
LKL 09/26/18



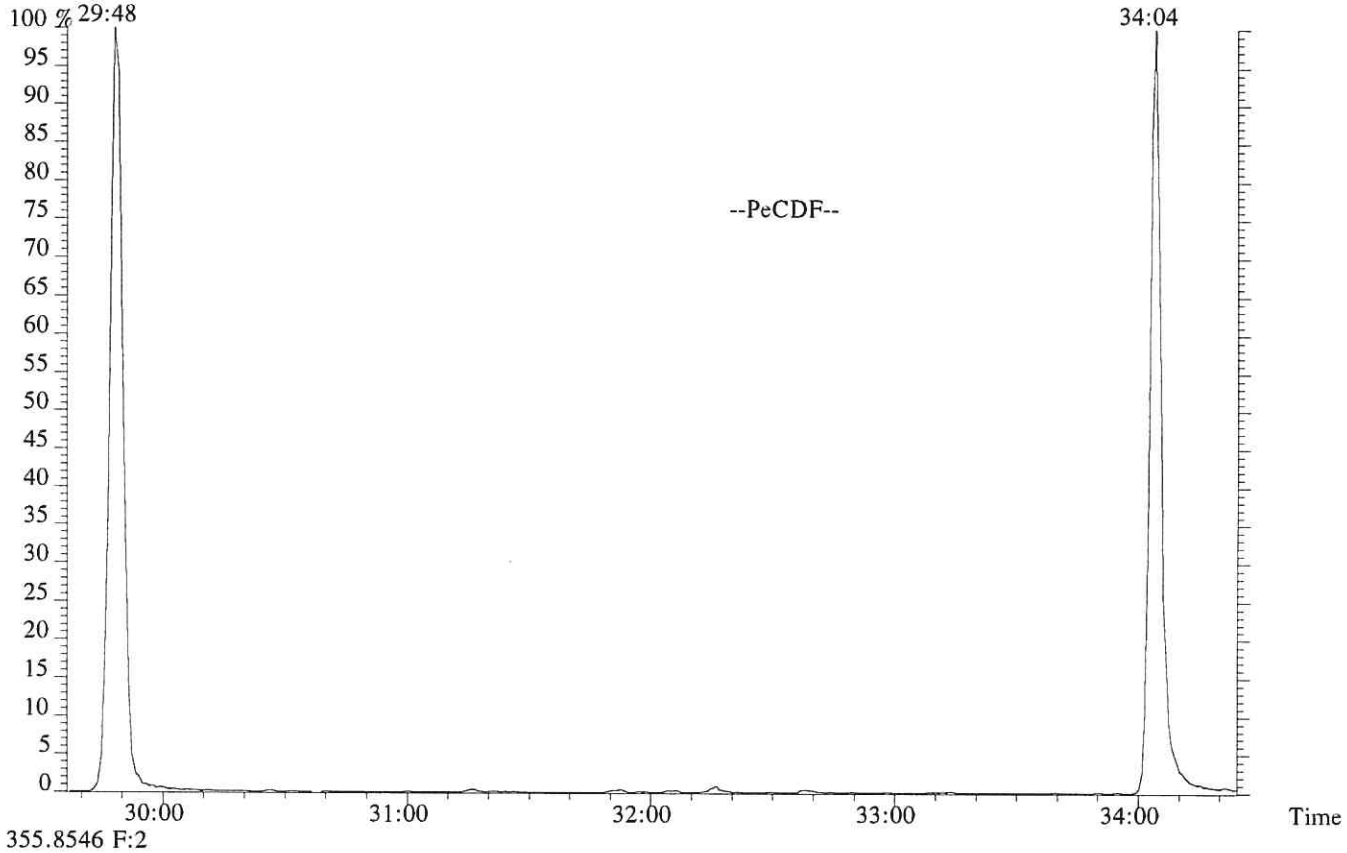
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



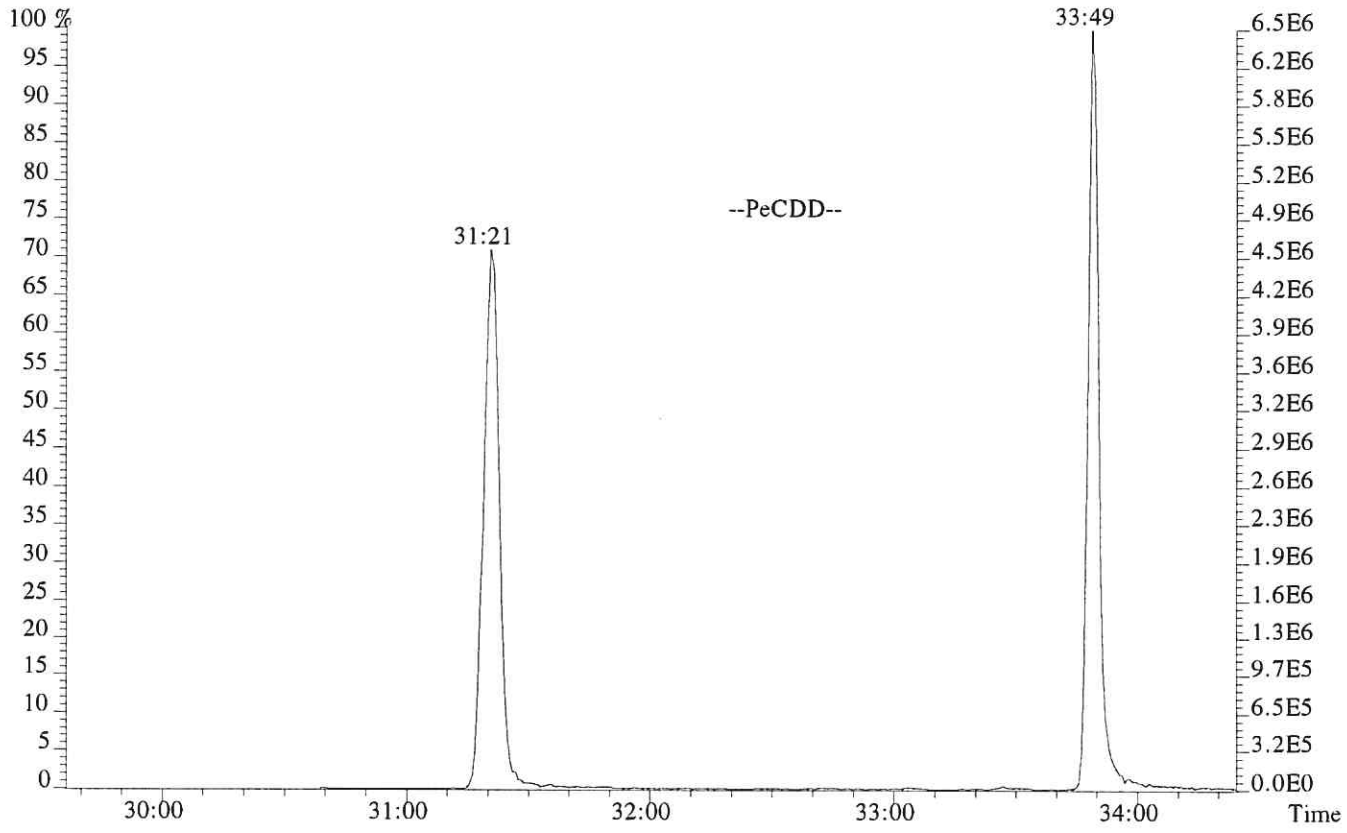
319.8965



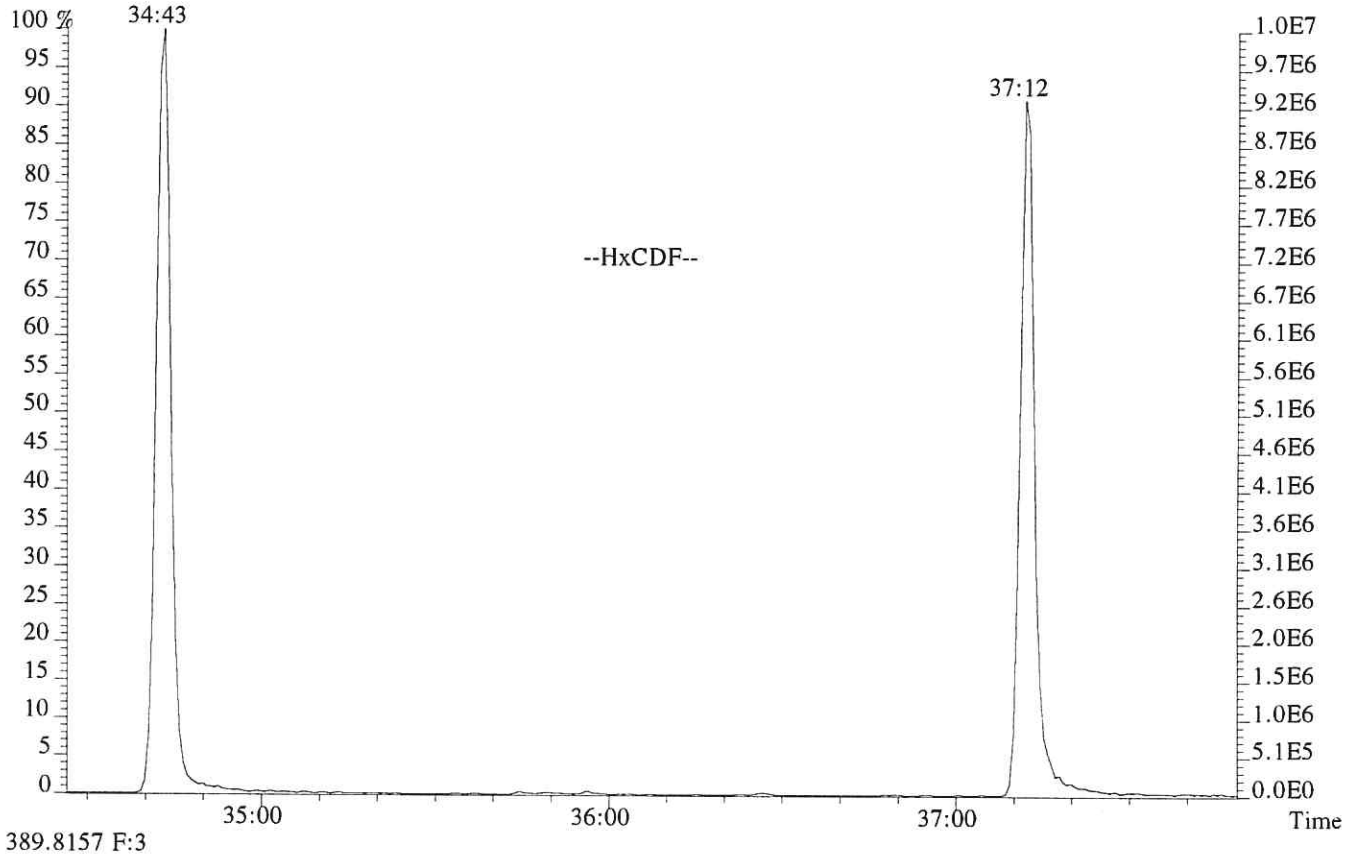
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



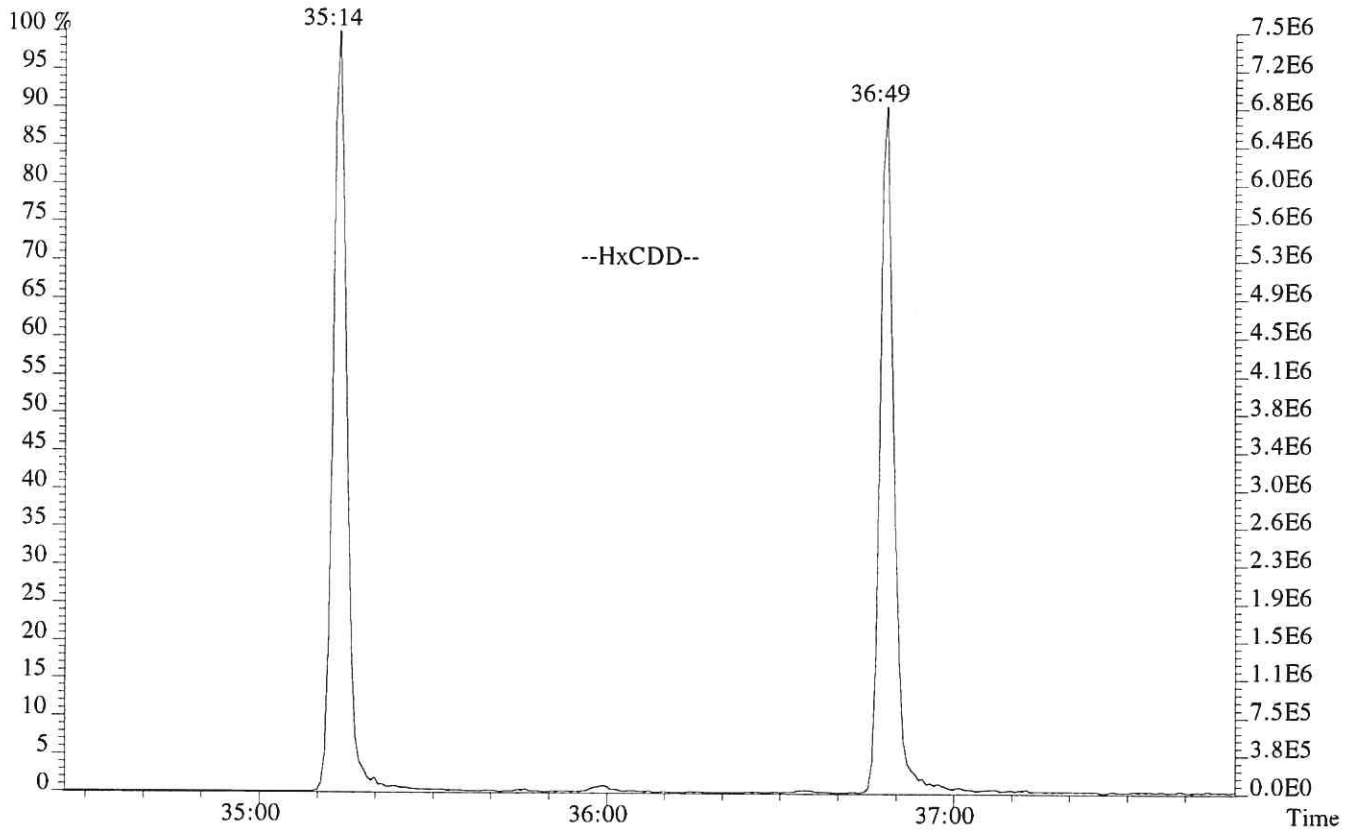
355.8546 F:2



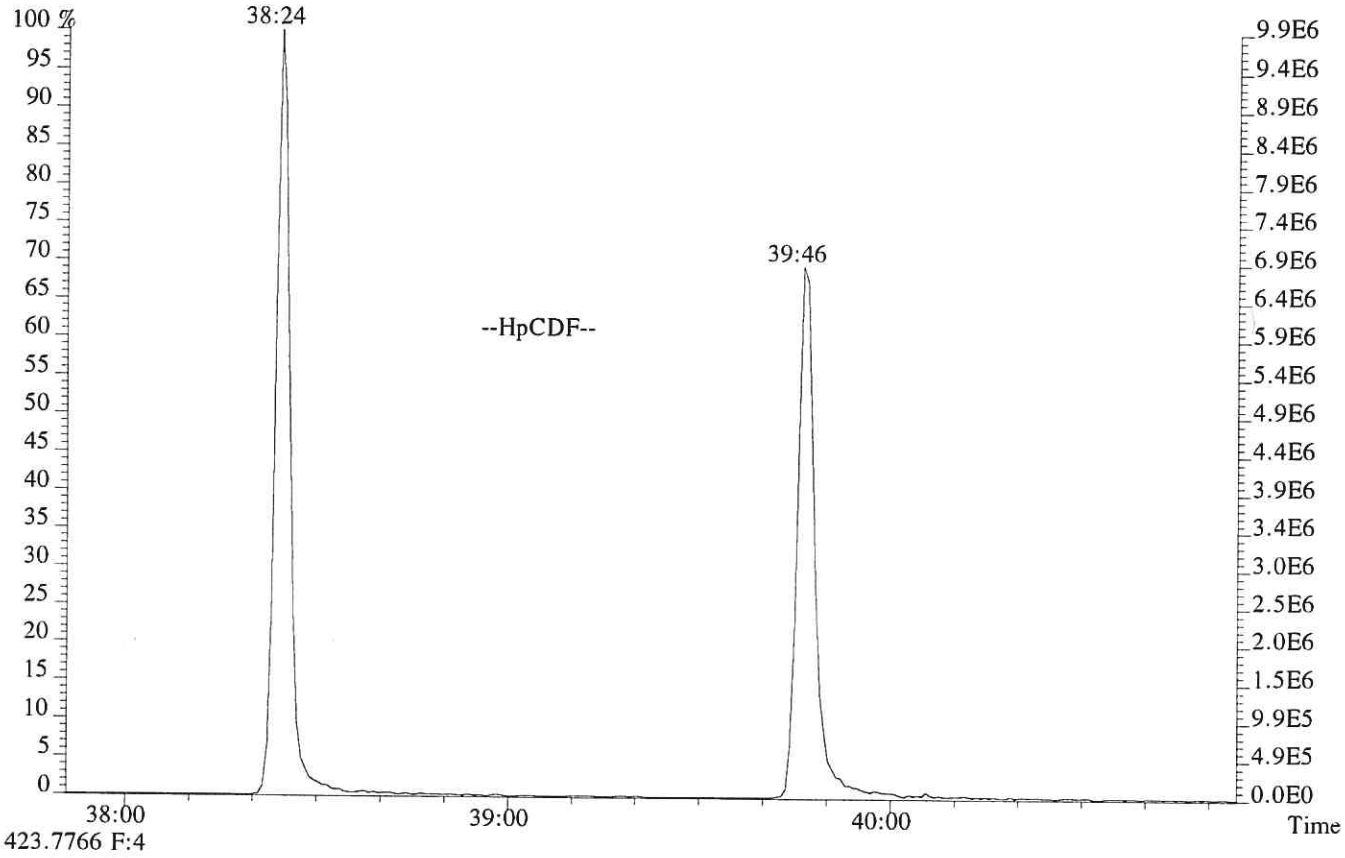
File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



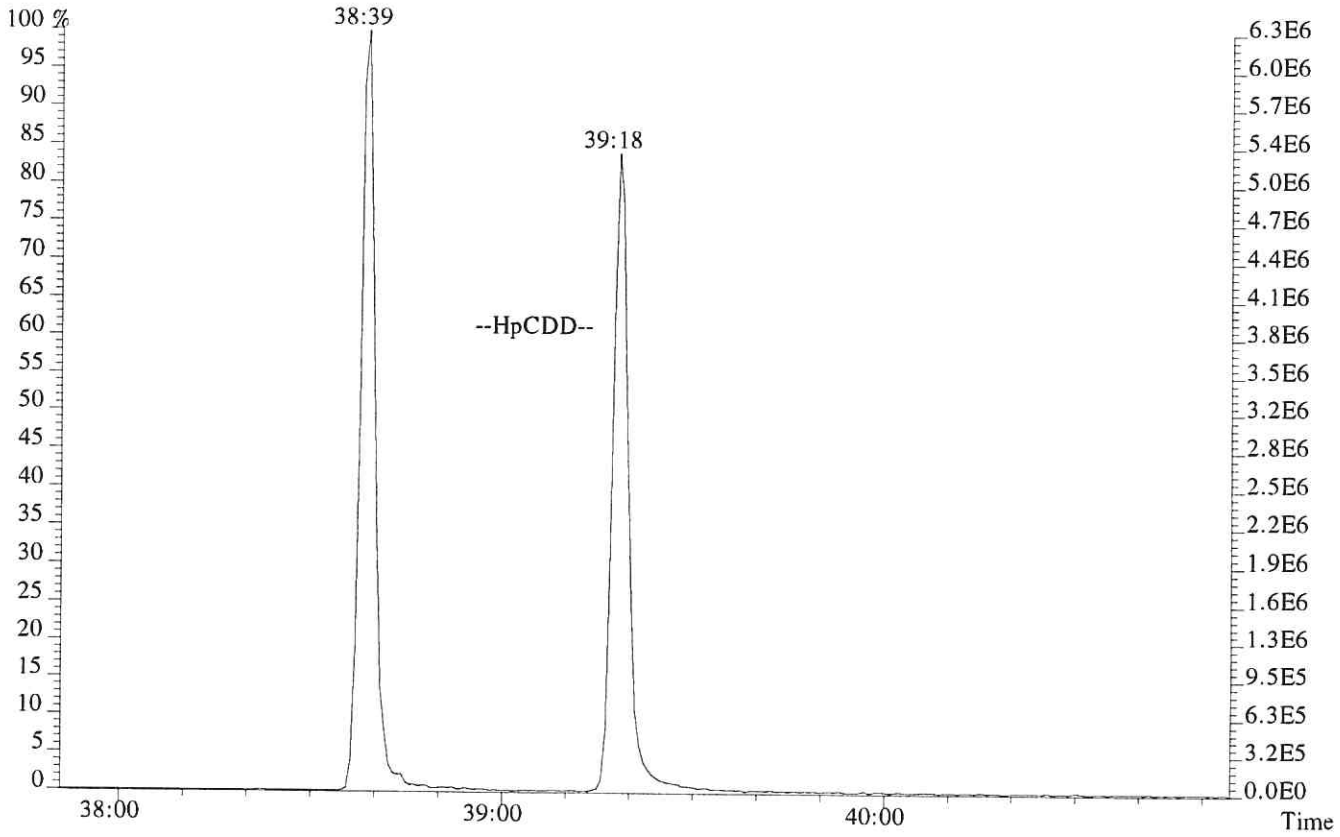
389.8157 F:3



File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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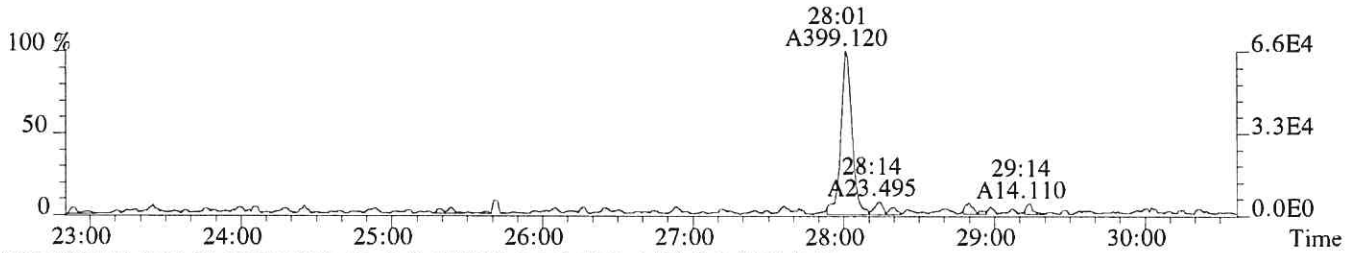
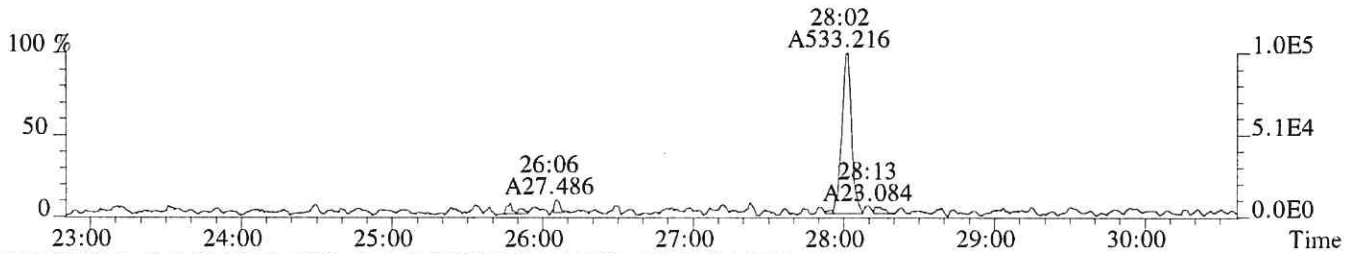
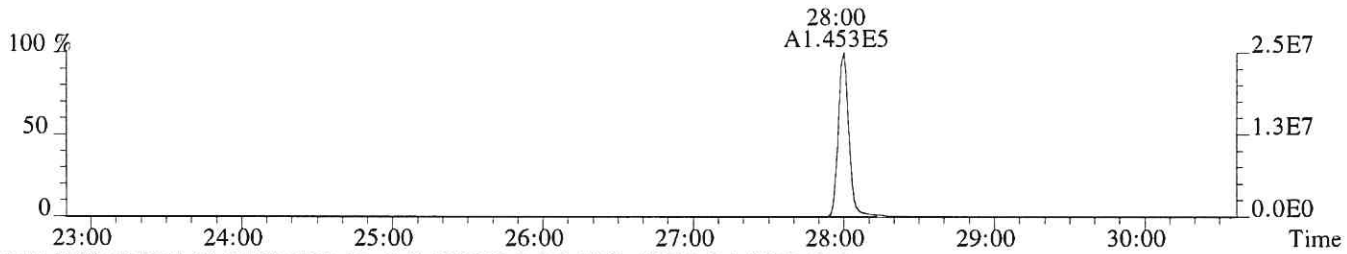
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



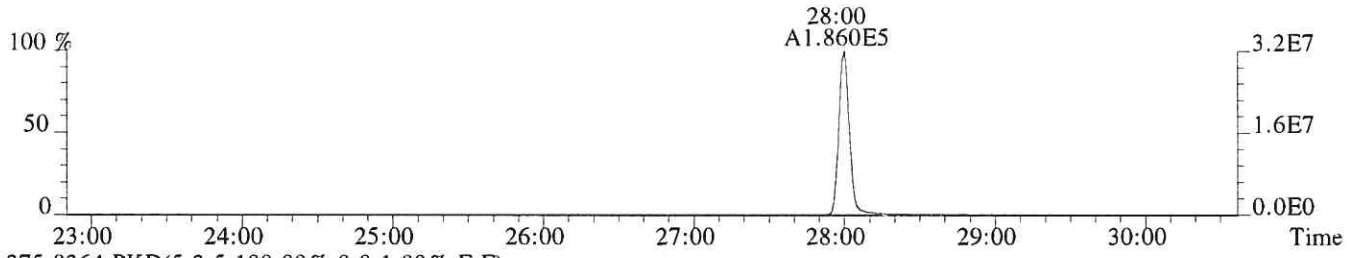
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



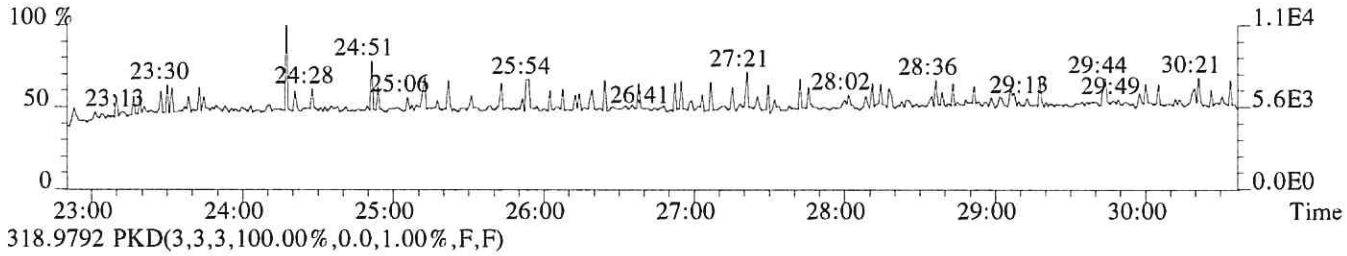
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



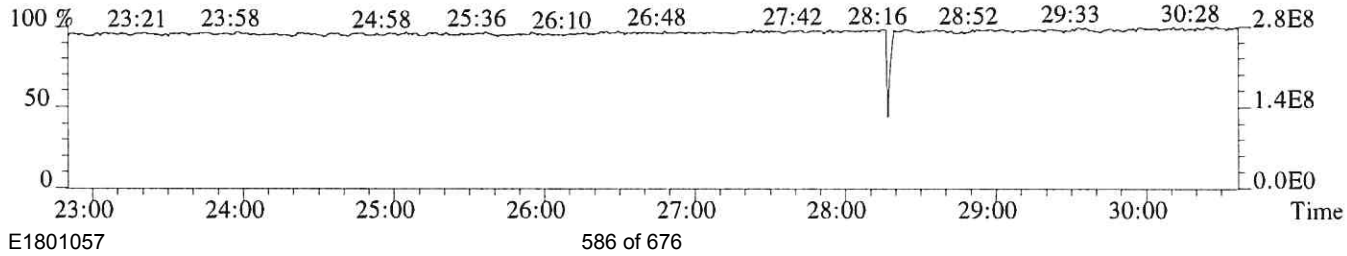
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



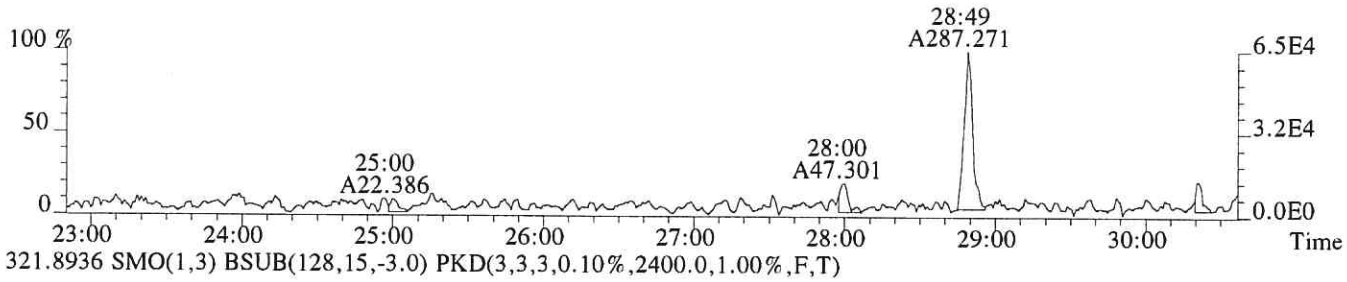
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



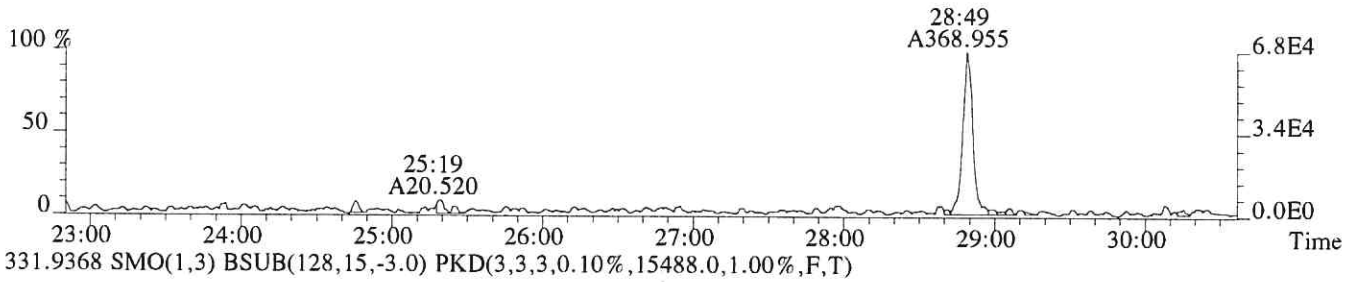
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



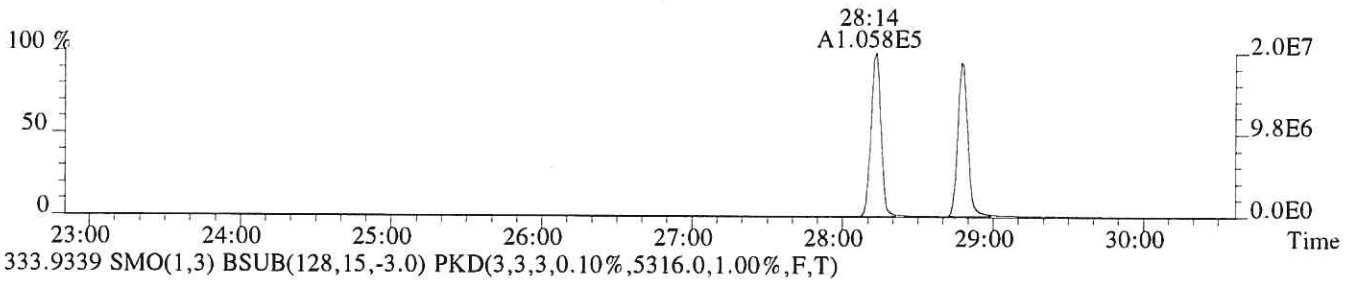
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



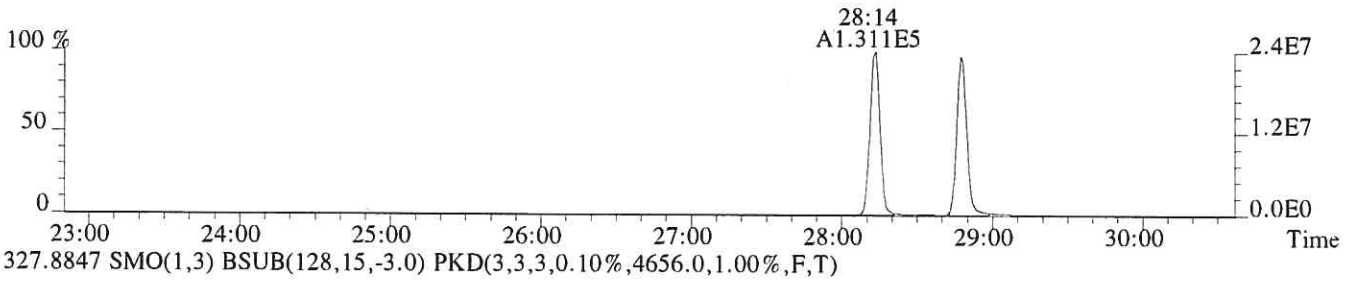
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



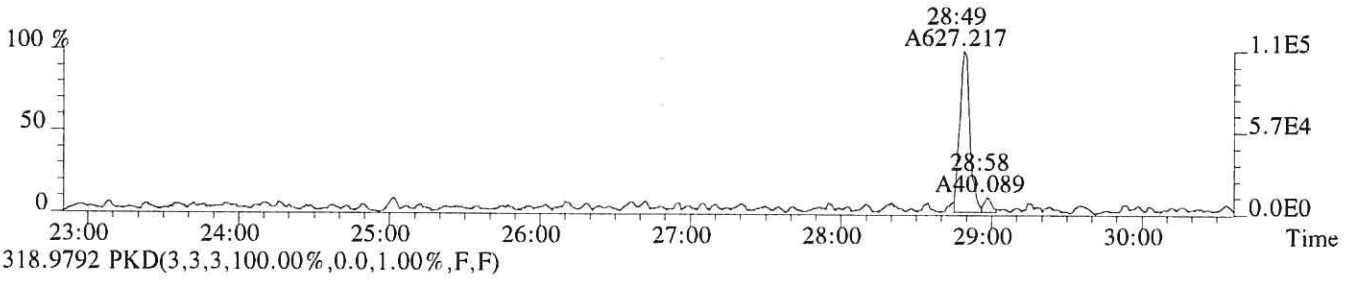
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



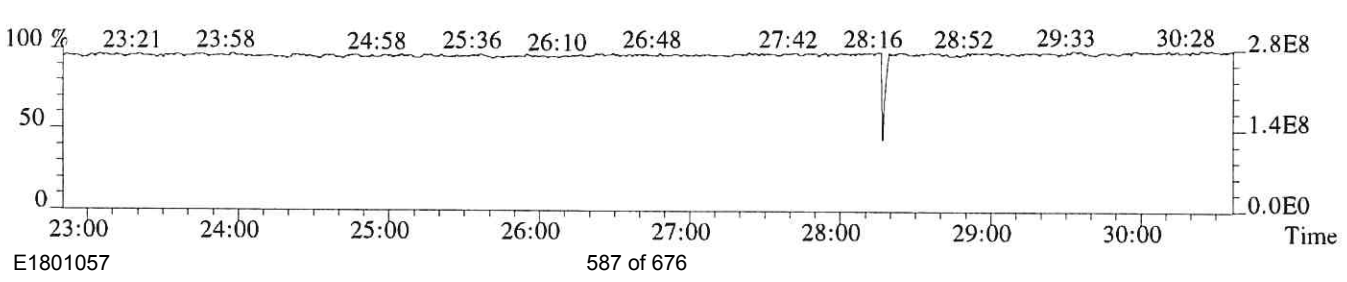
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



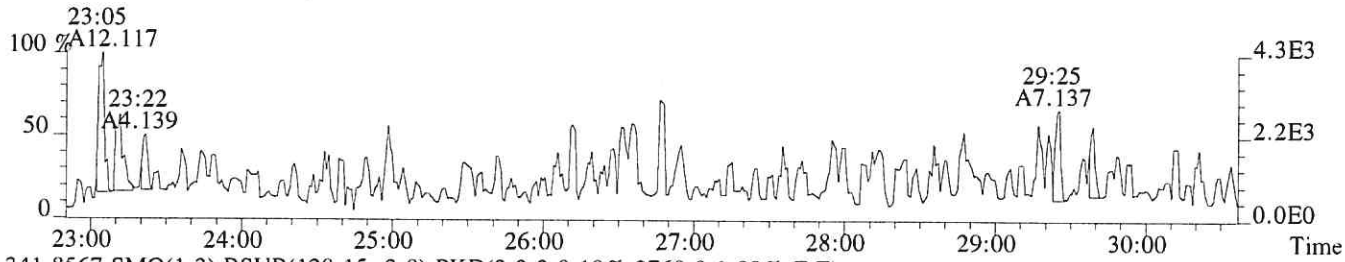
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



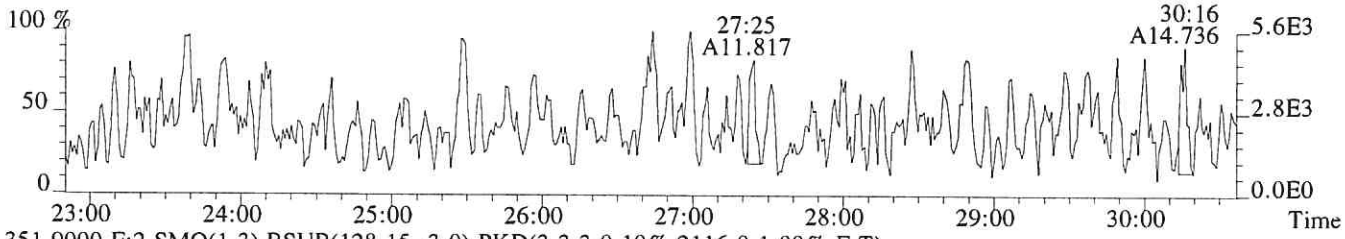
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



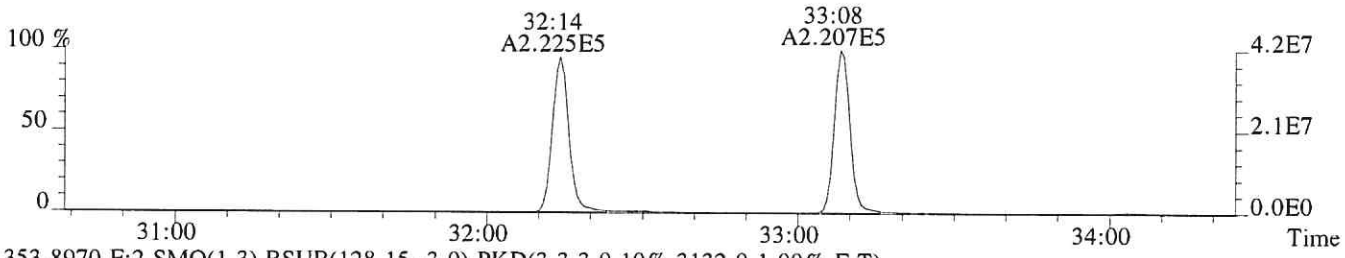
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



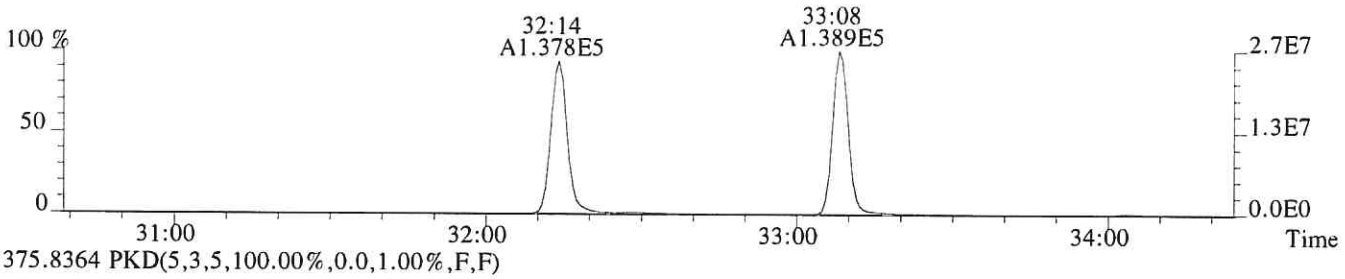
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



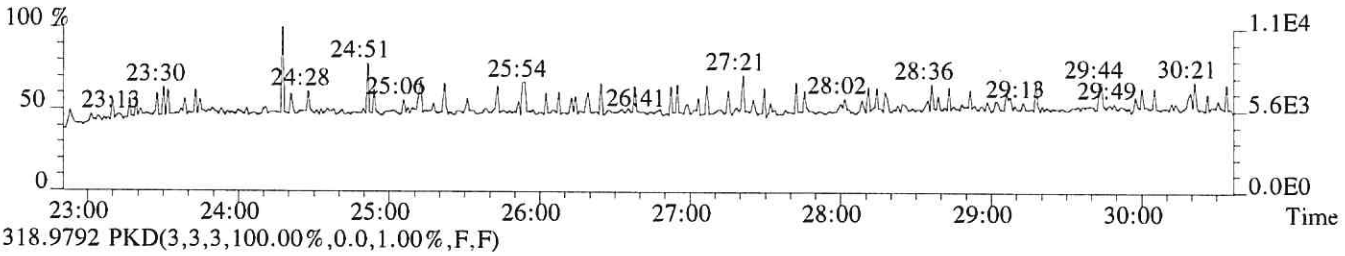
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



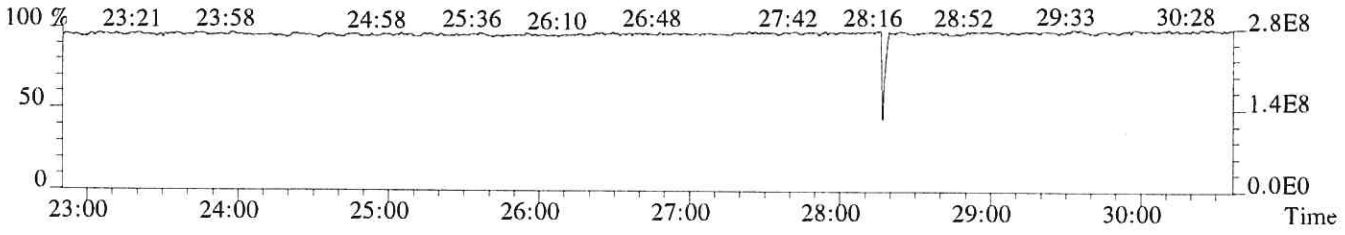
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



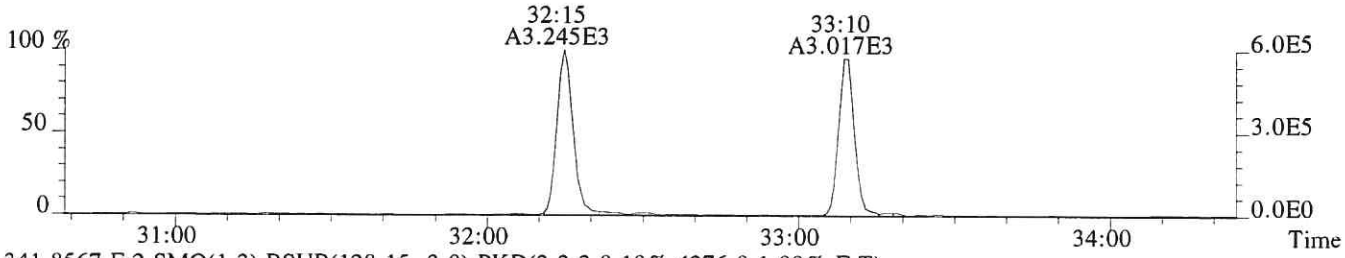
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



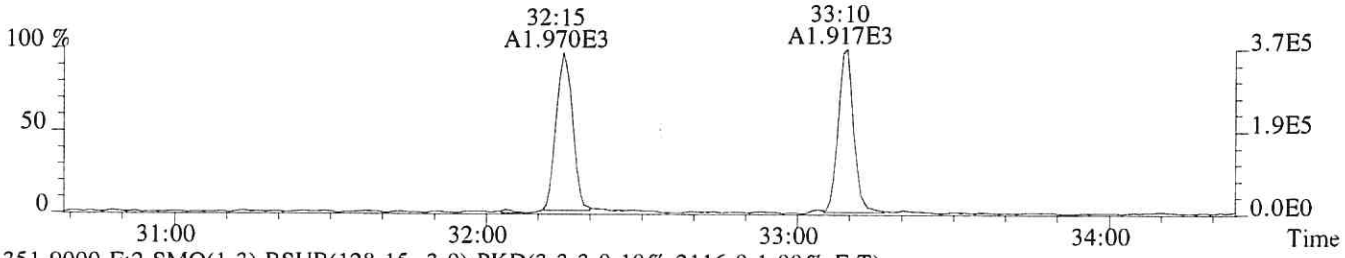
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



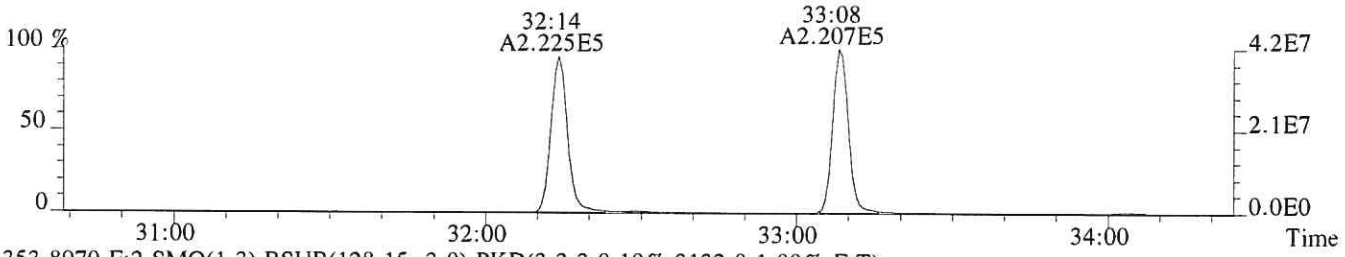
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



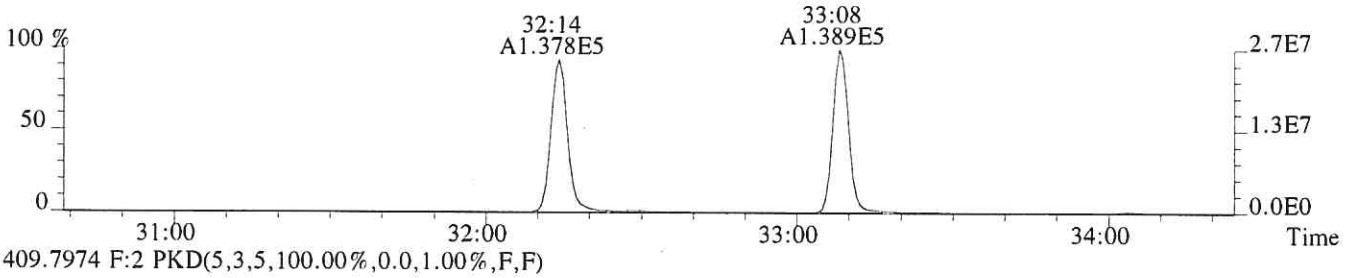
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



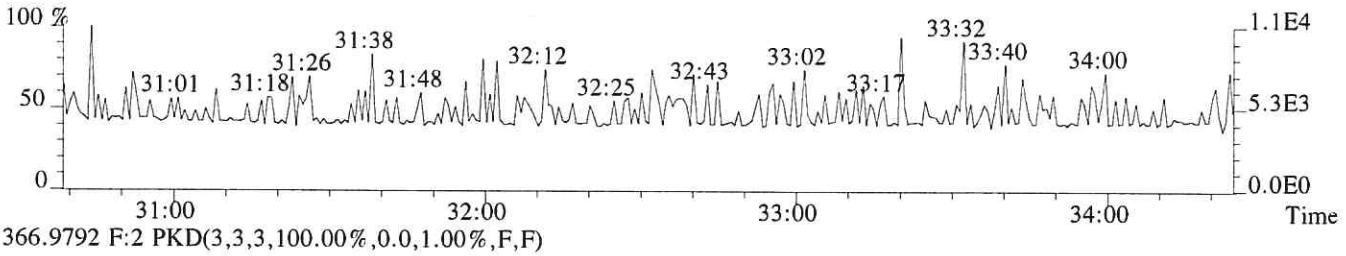
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



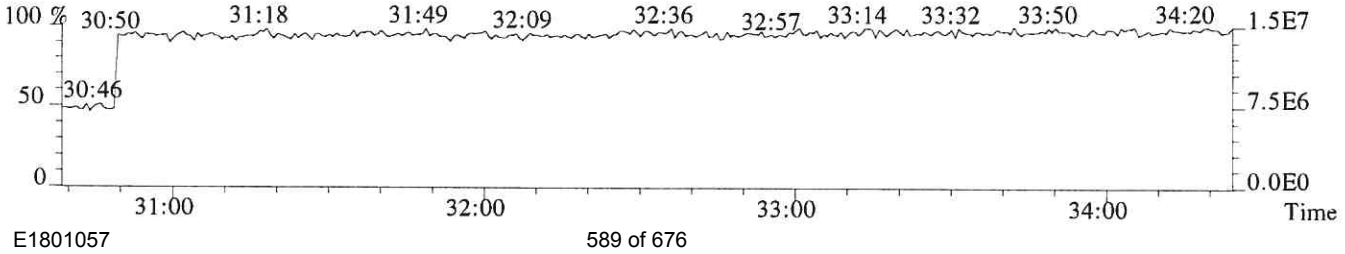
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



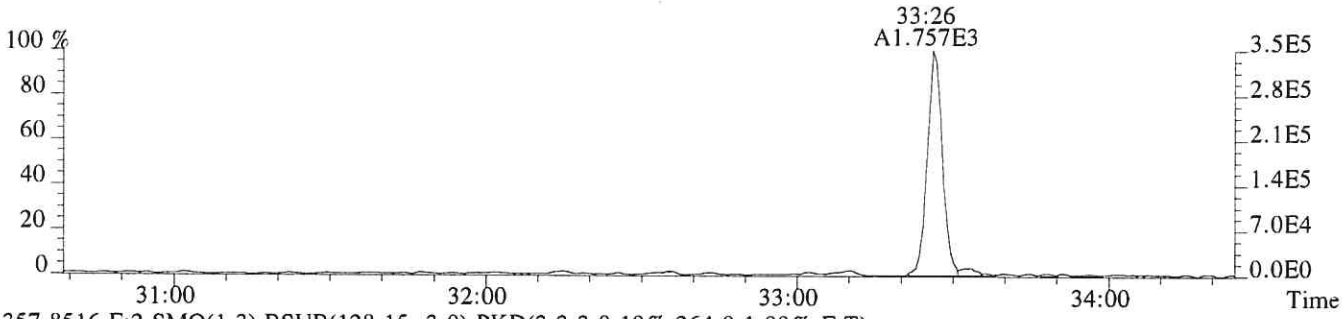
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



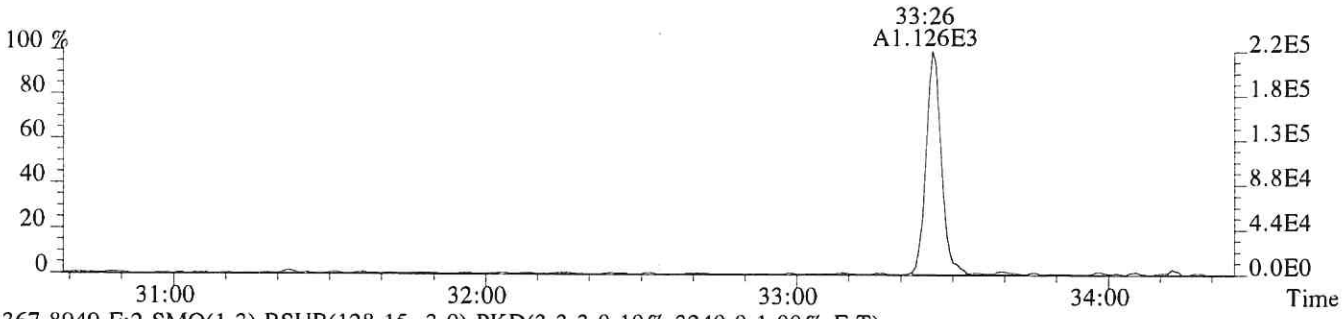
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



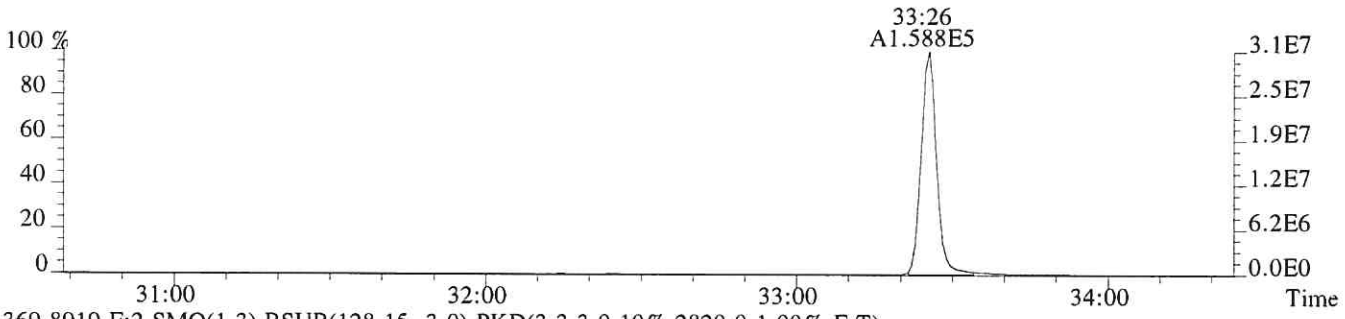
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



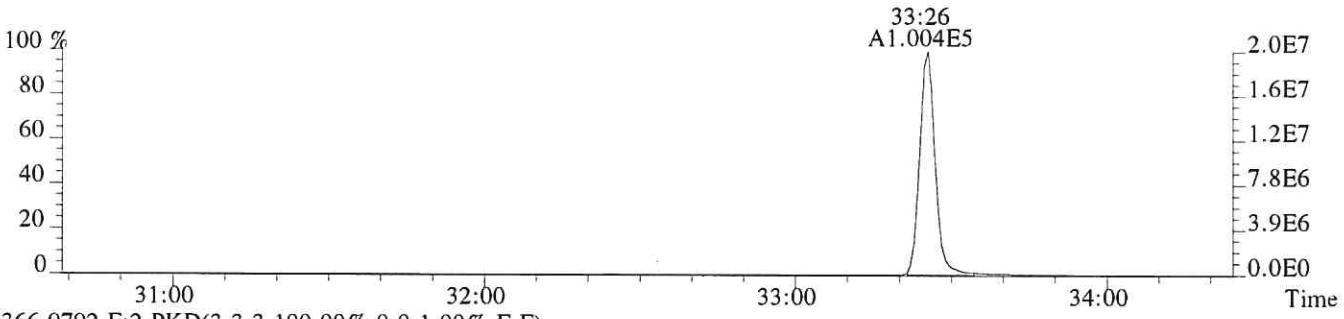
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



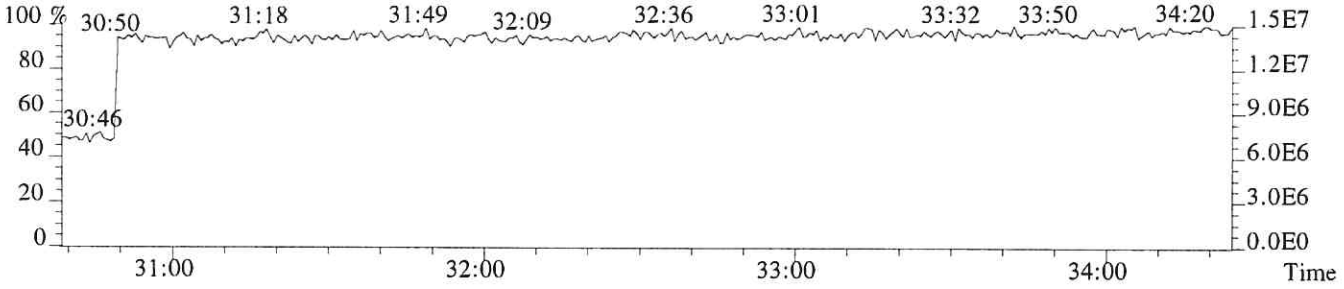
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



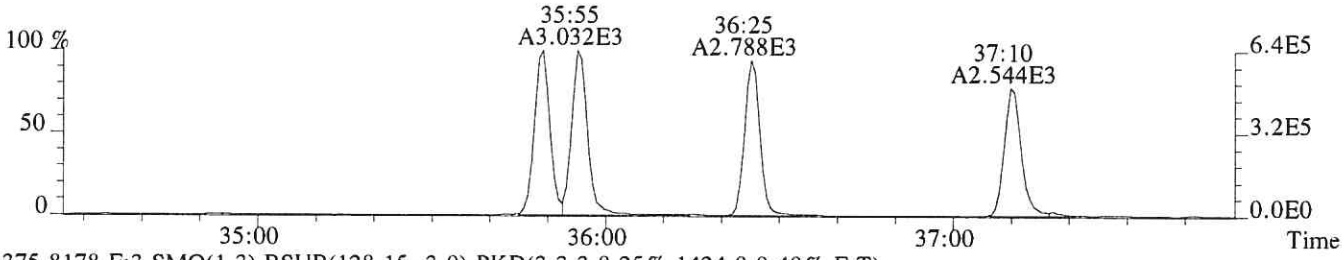
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



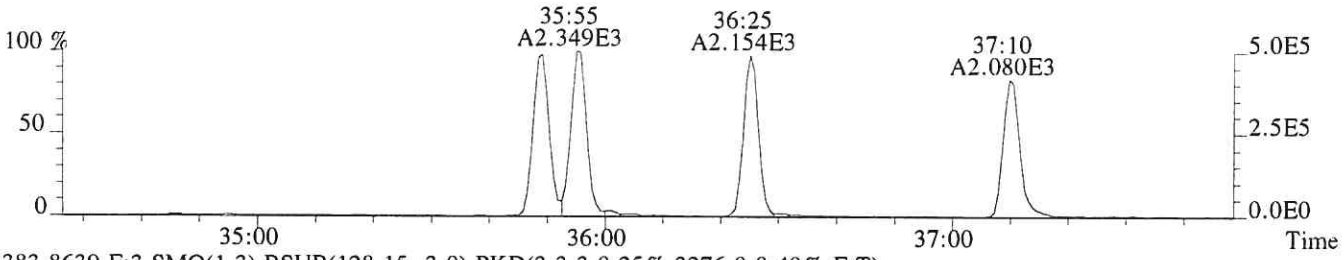
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



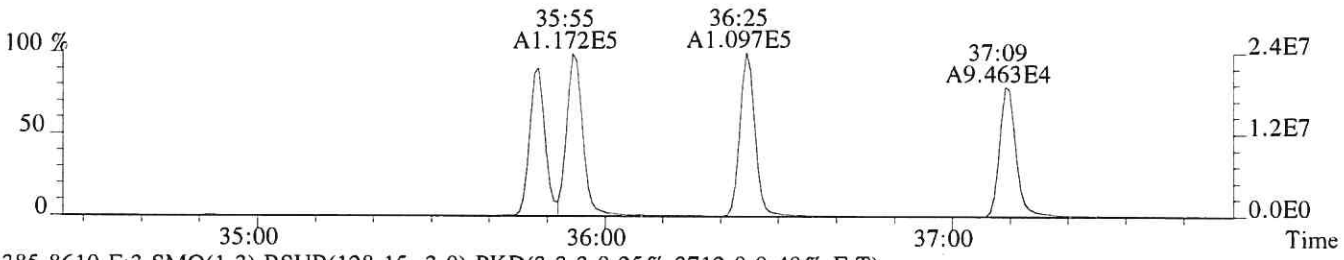
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



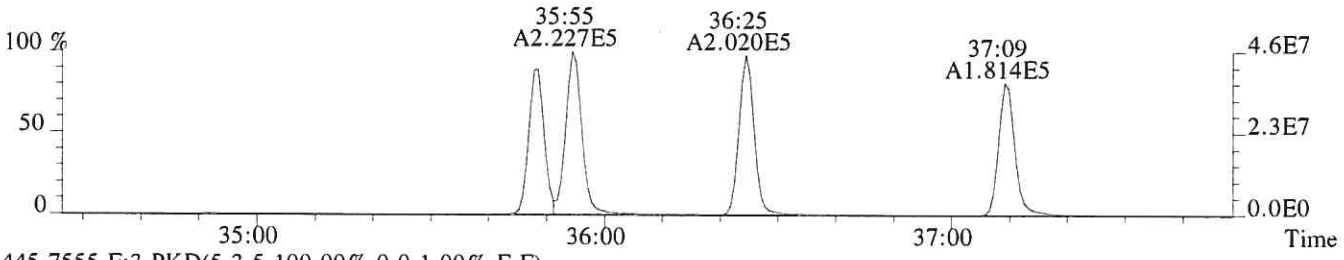
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



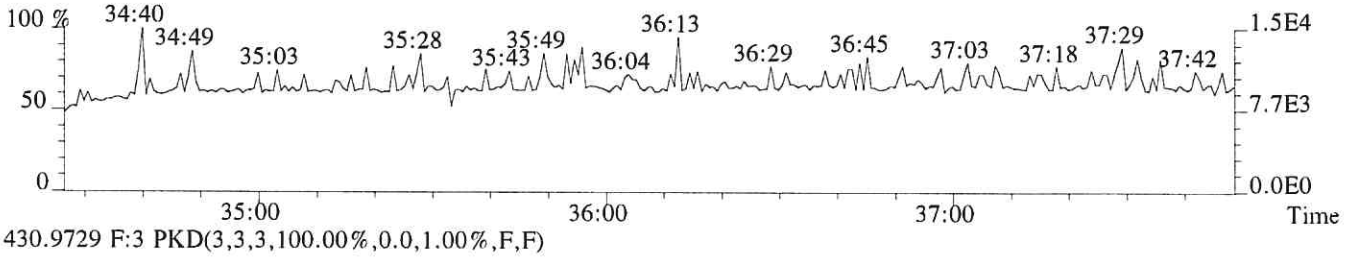
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



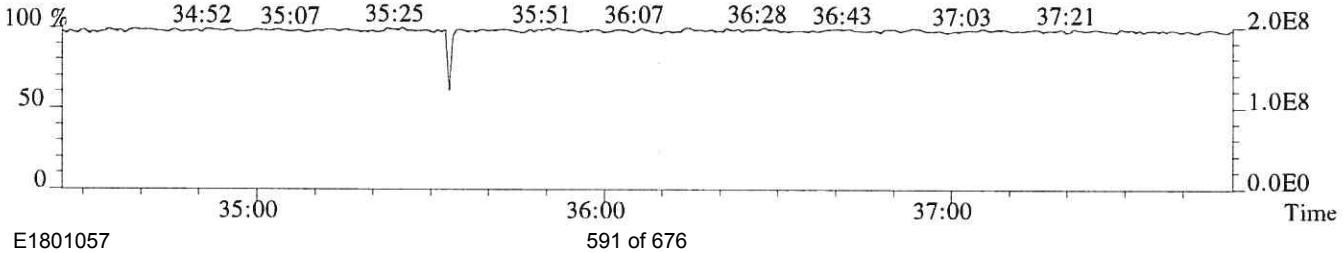
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



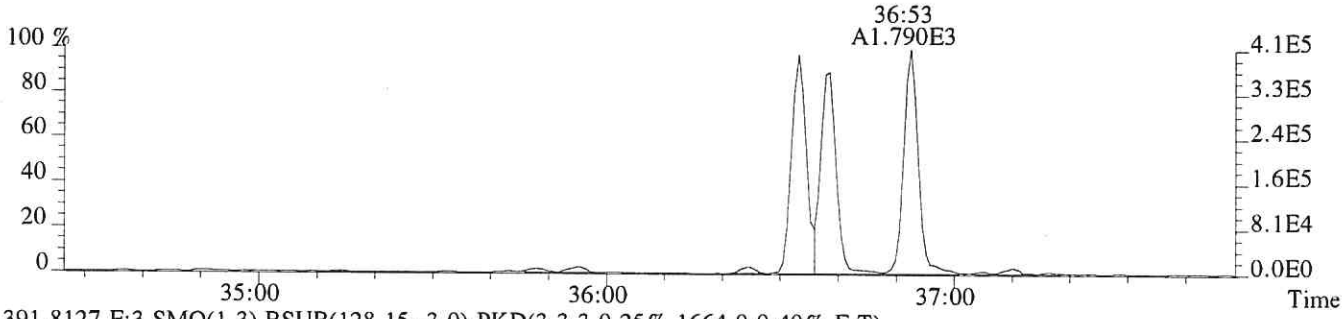
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



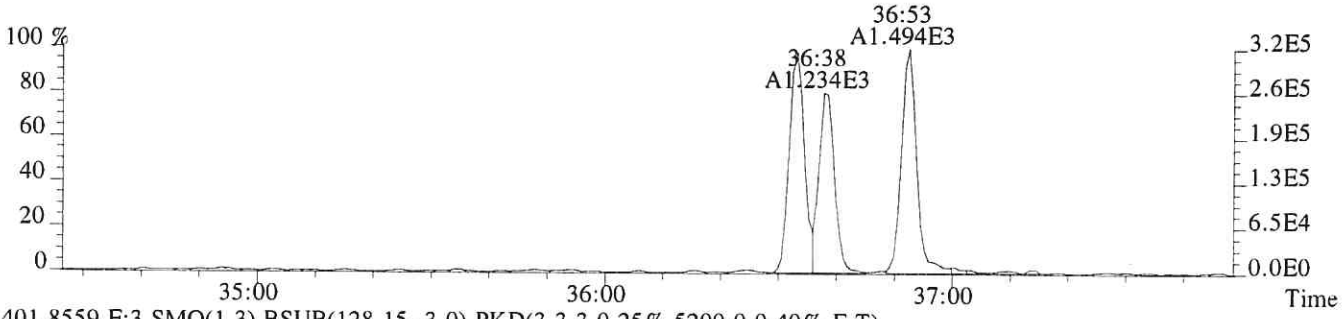
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



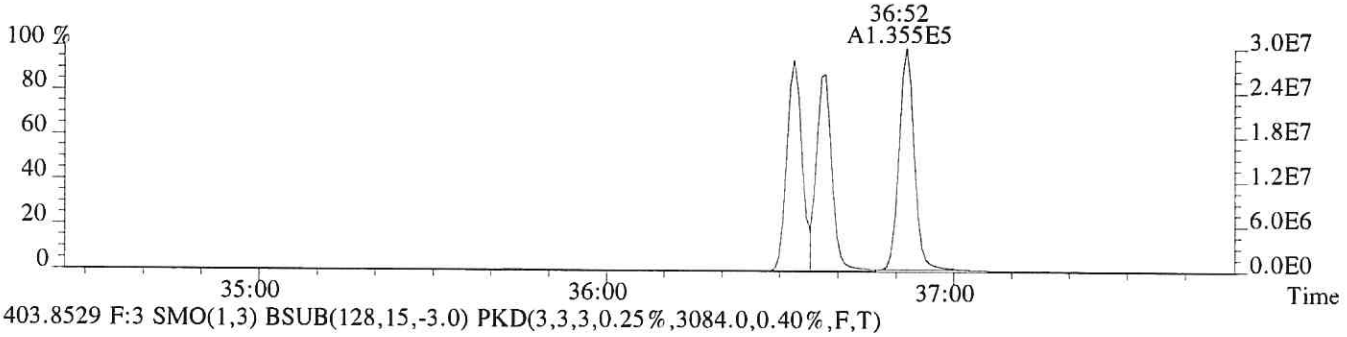
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



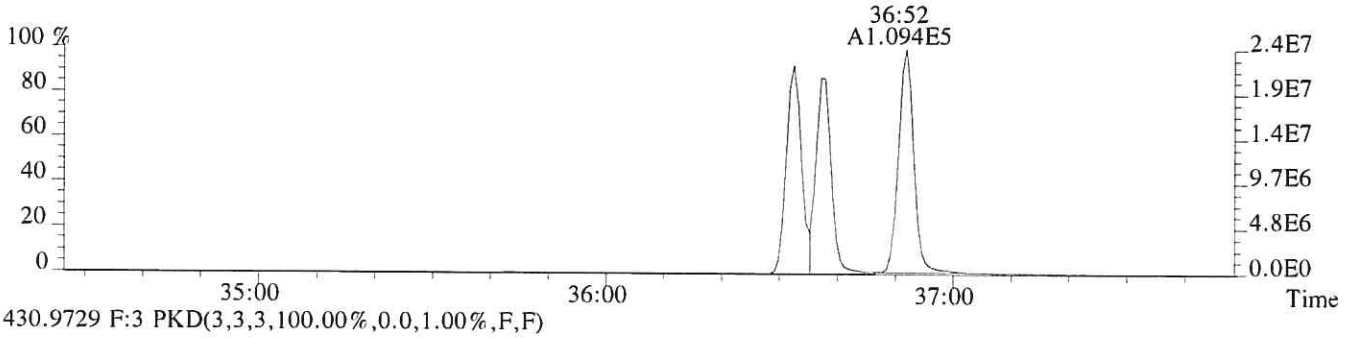
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



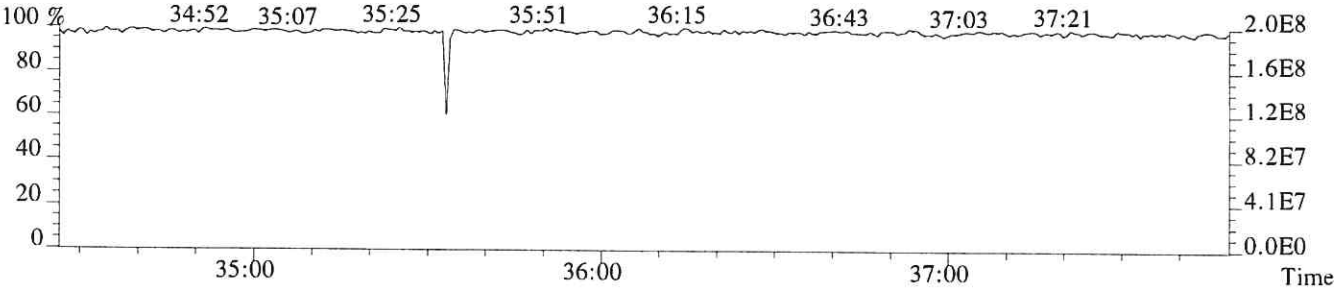
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



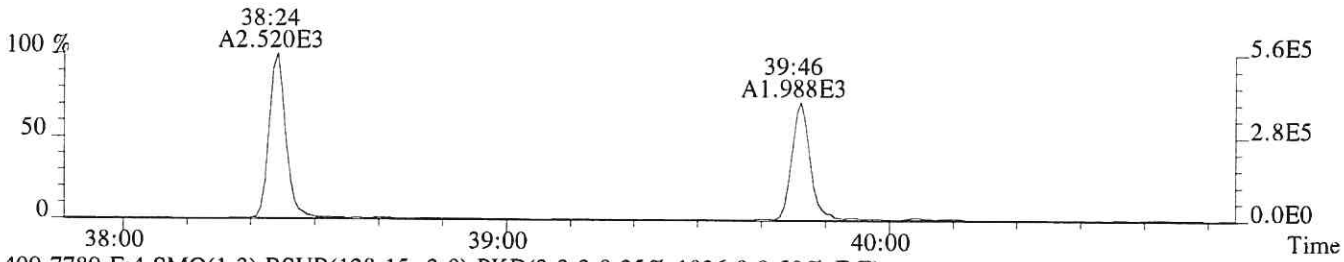
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



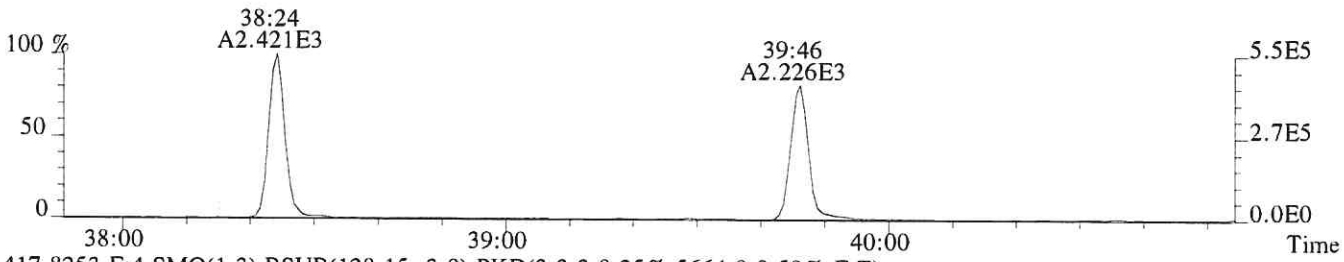
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



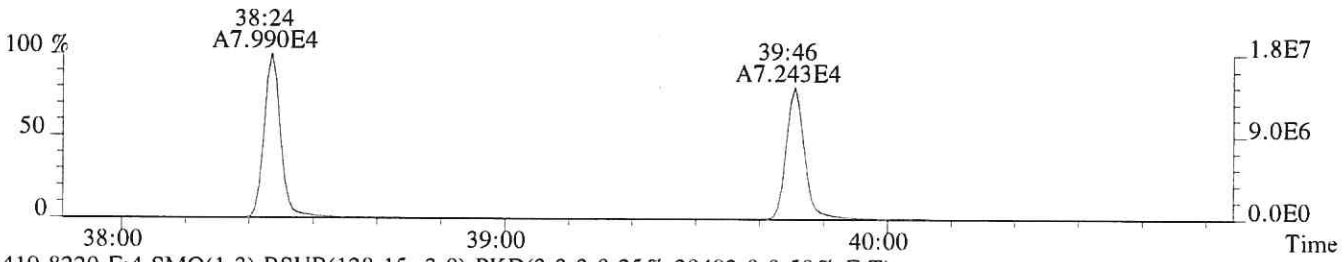
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



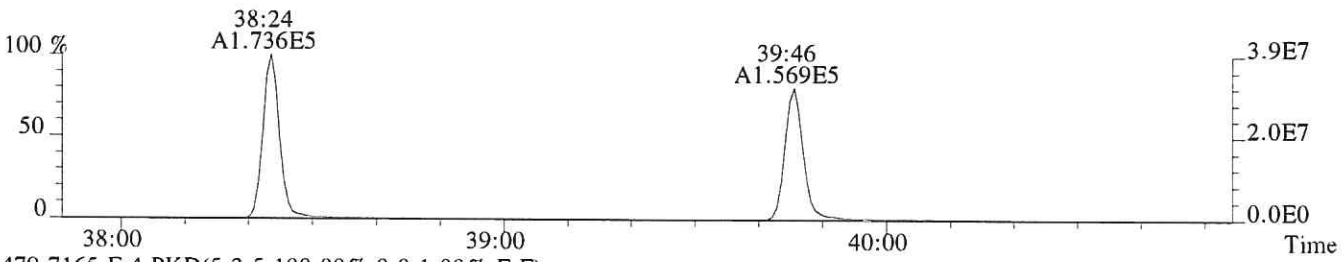
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



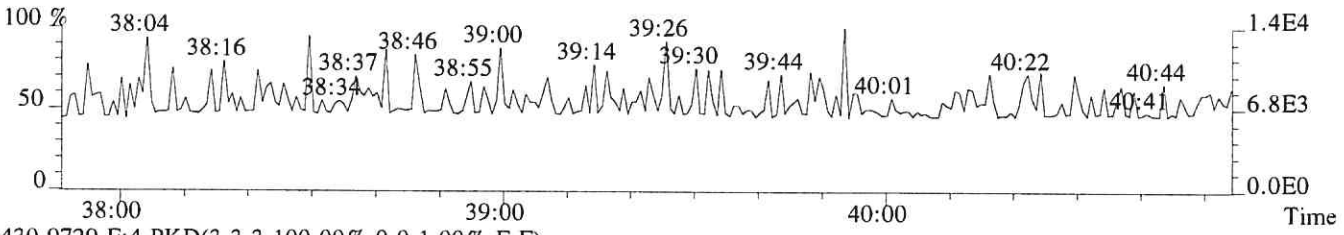
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



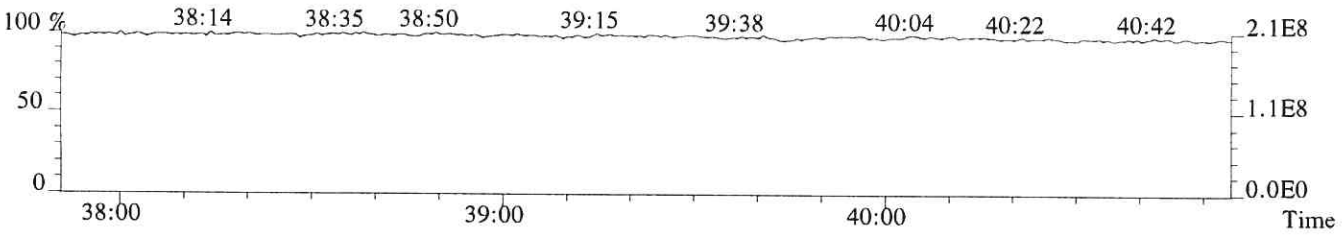
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



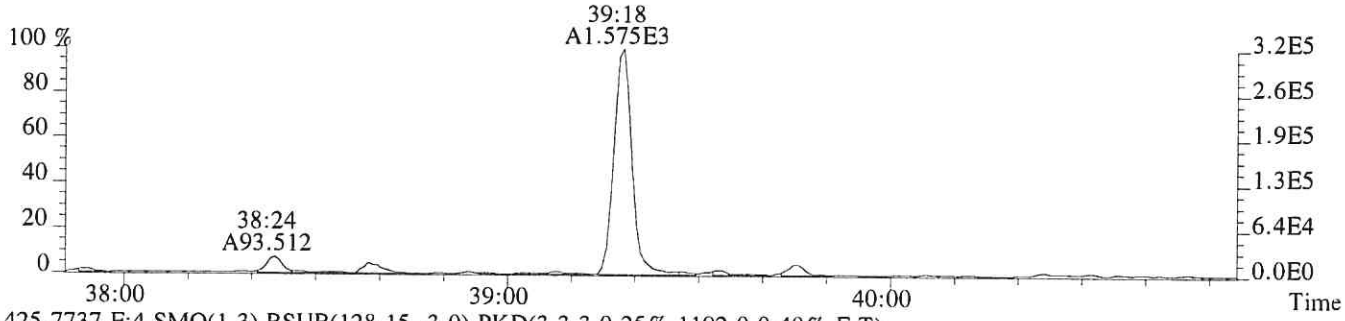
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



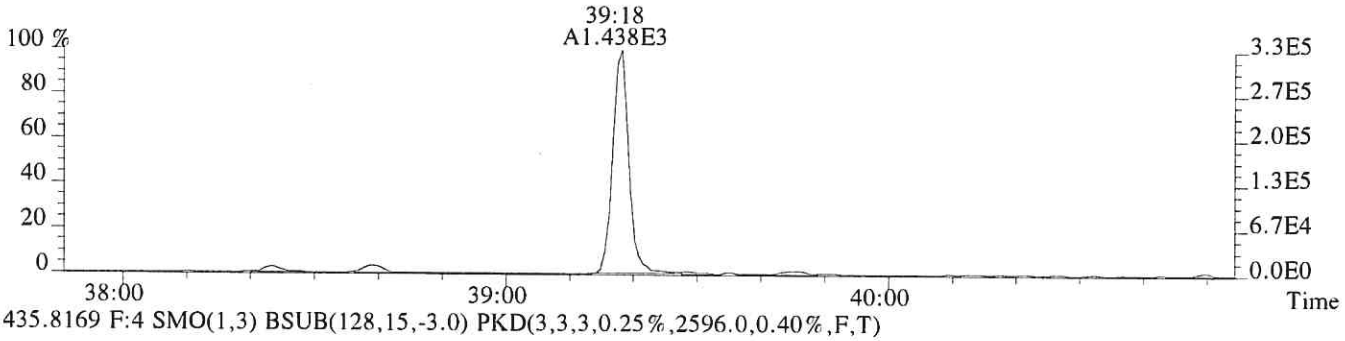
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



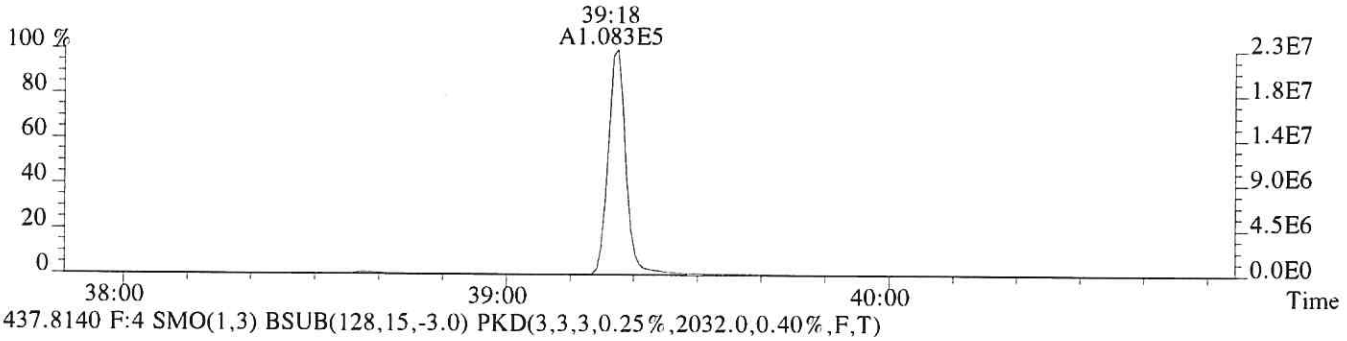
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



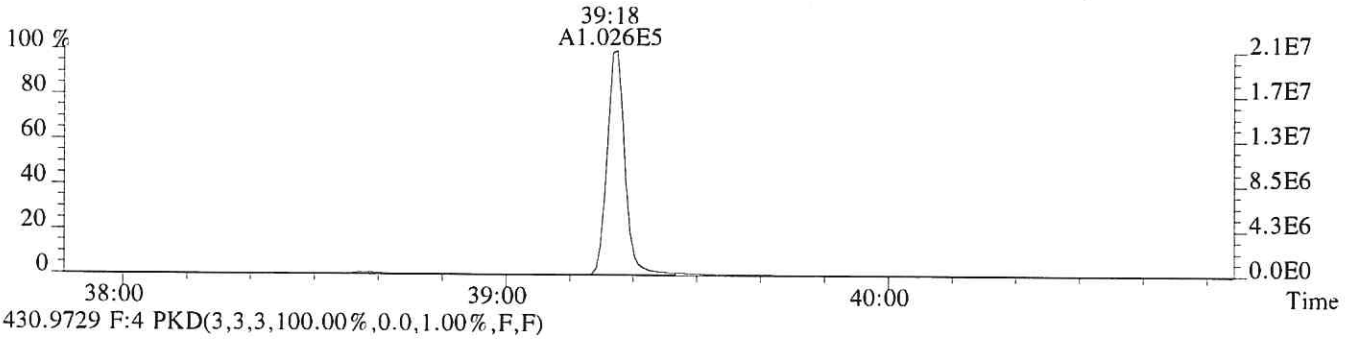
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



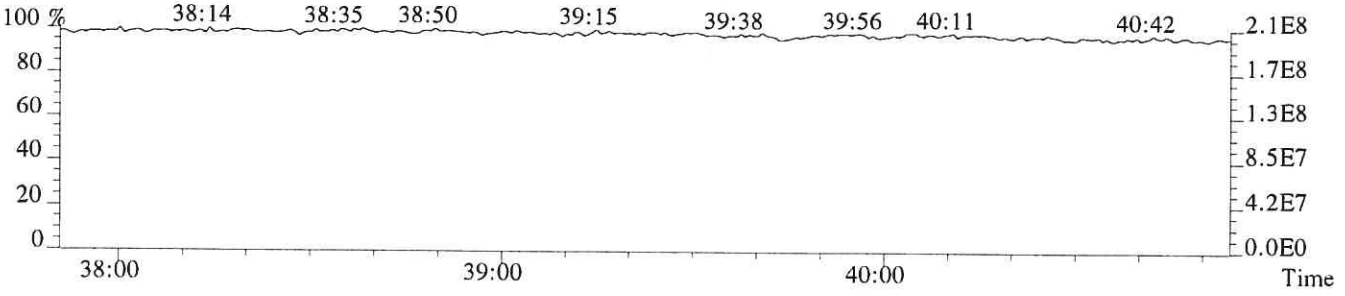
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



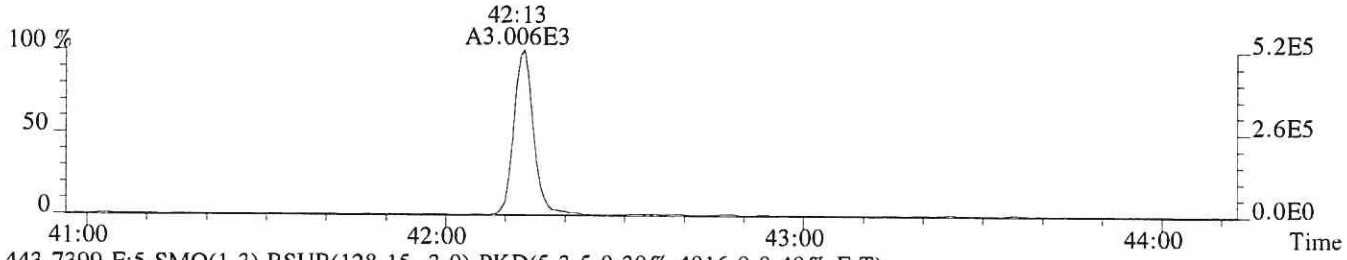
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



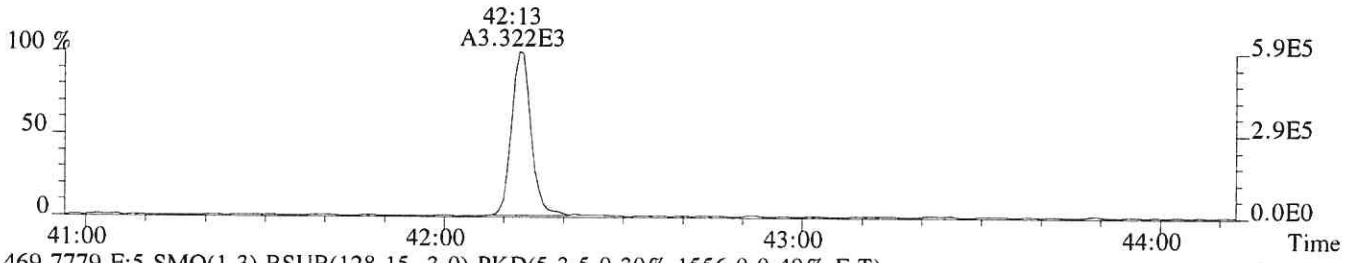
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



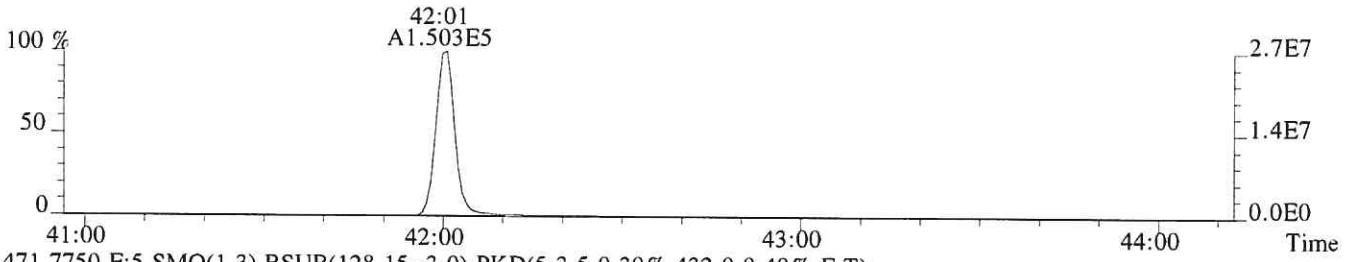
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



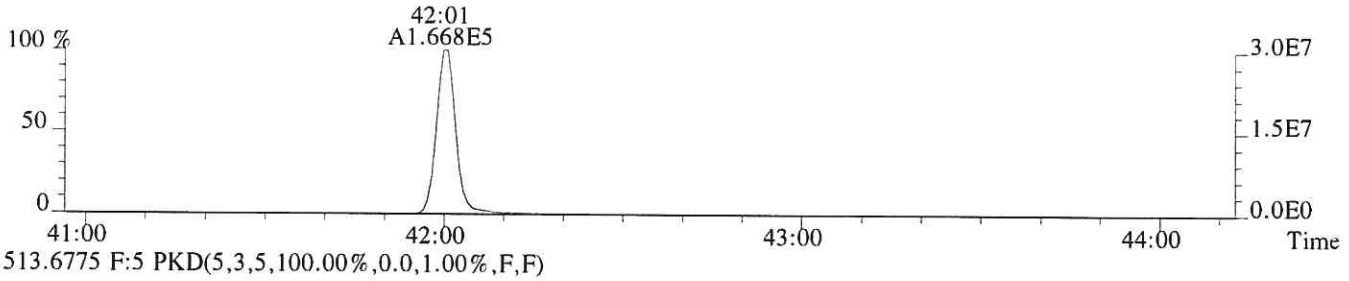
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



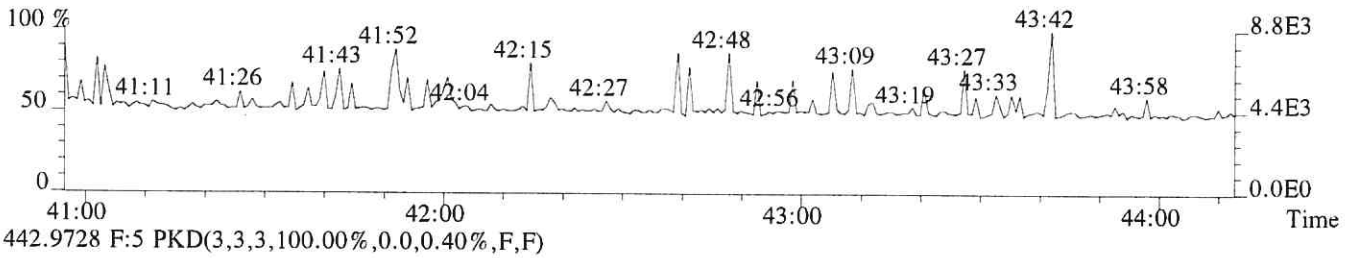
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



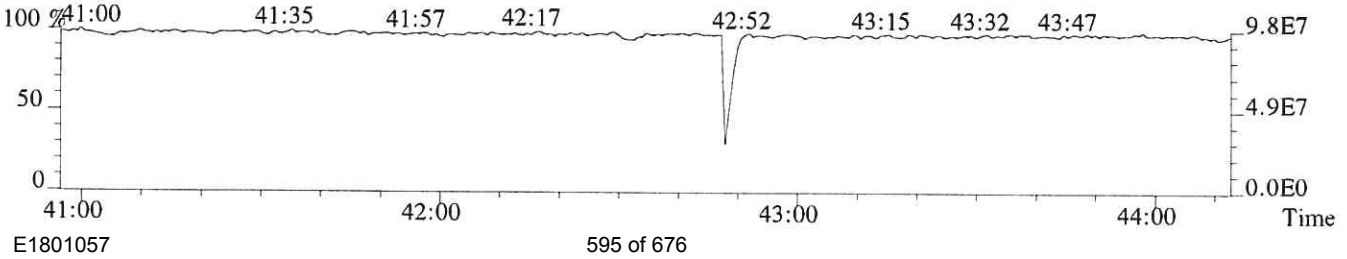
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



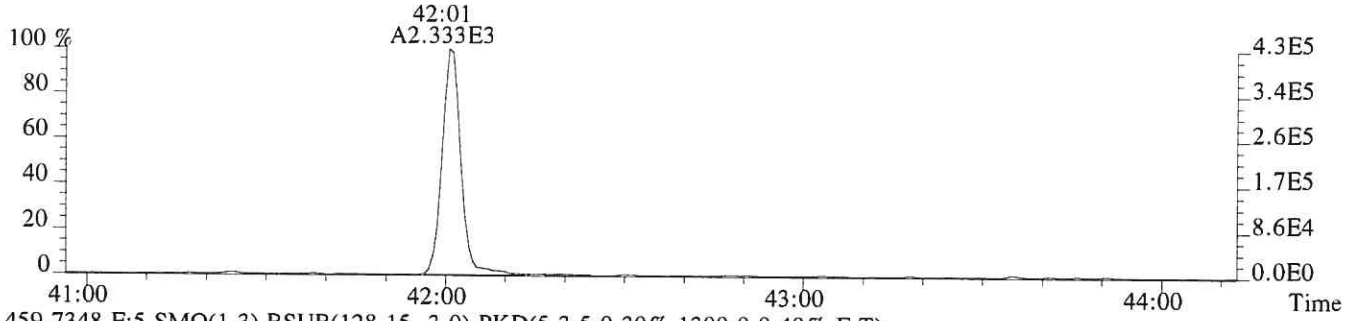
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



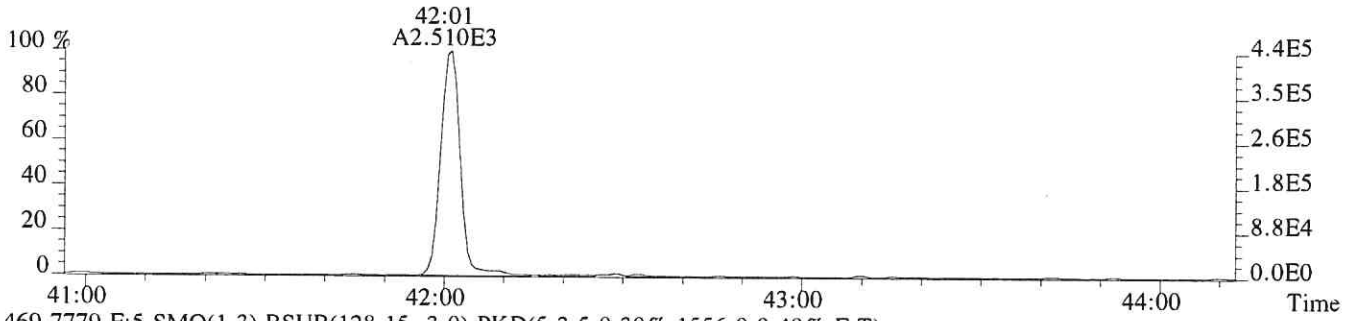
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



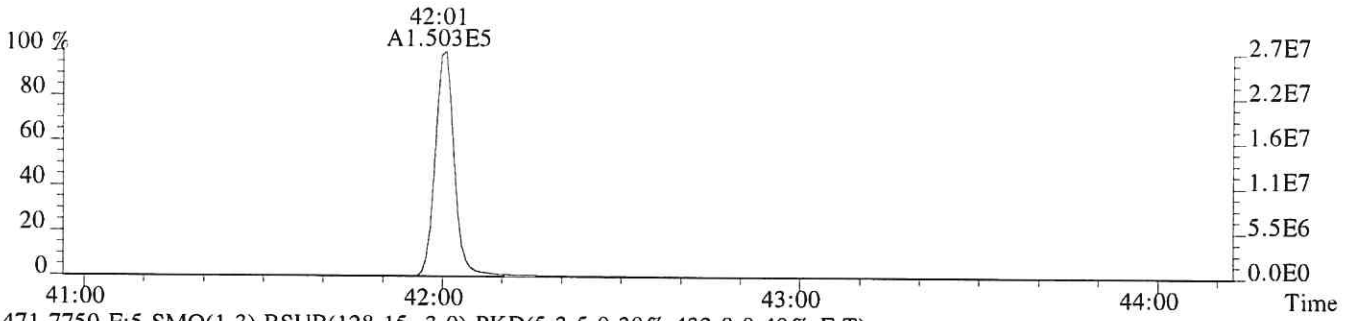
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



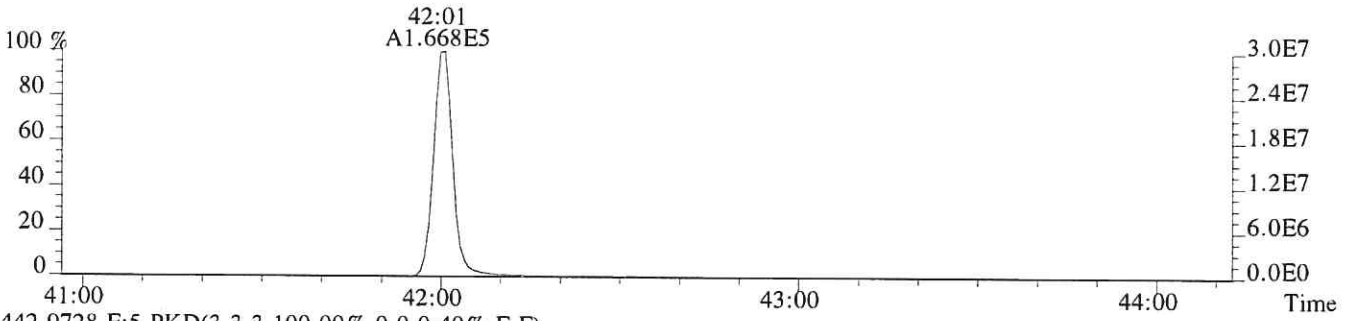
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



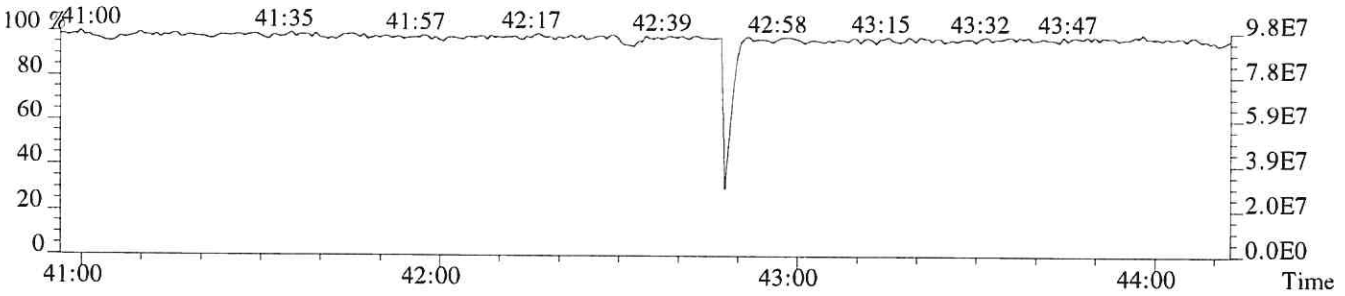
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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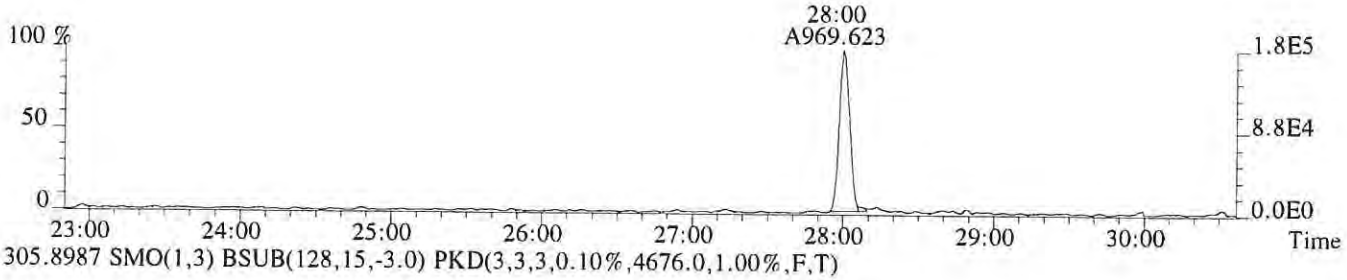
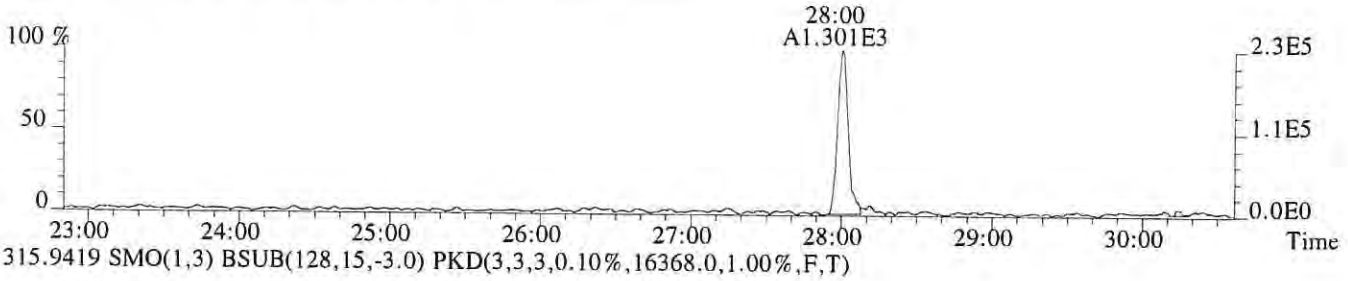
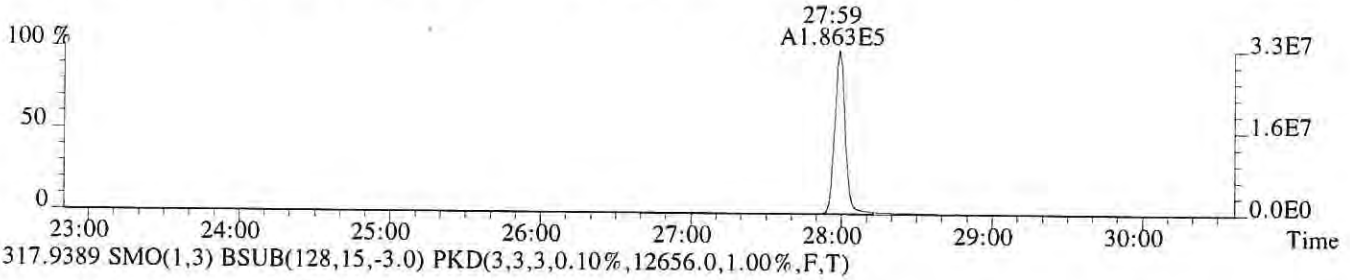
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



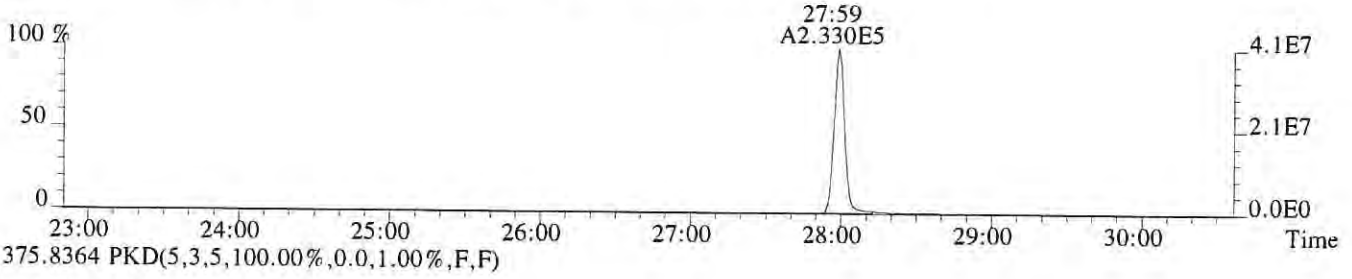
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



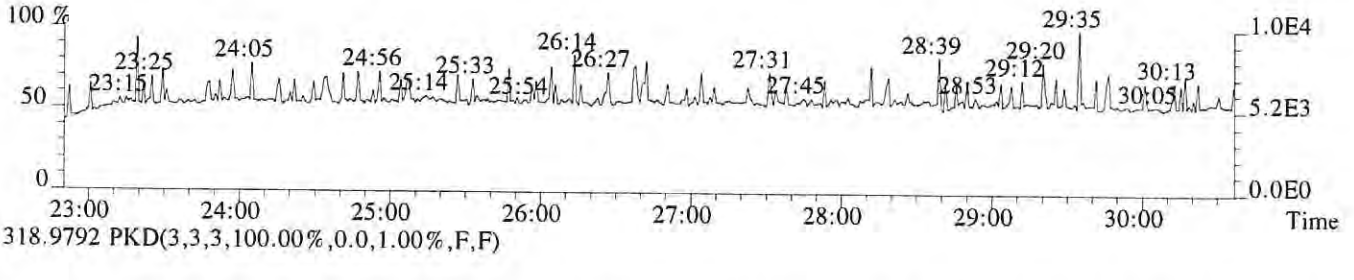
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



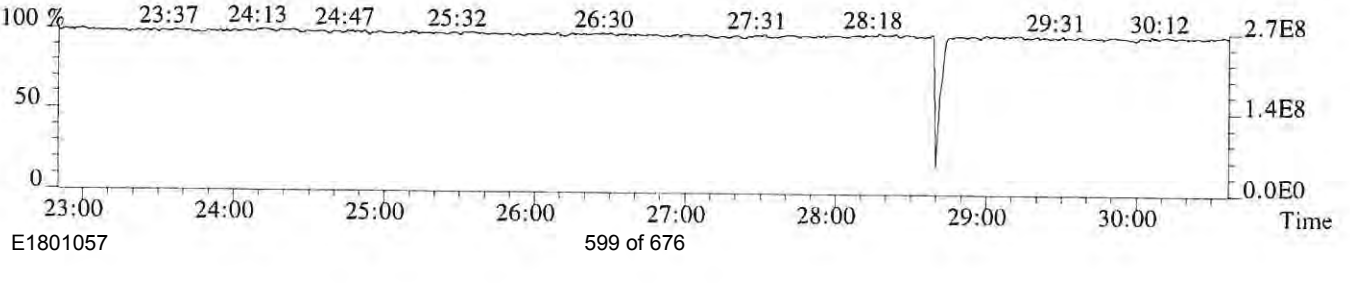
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



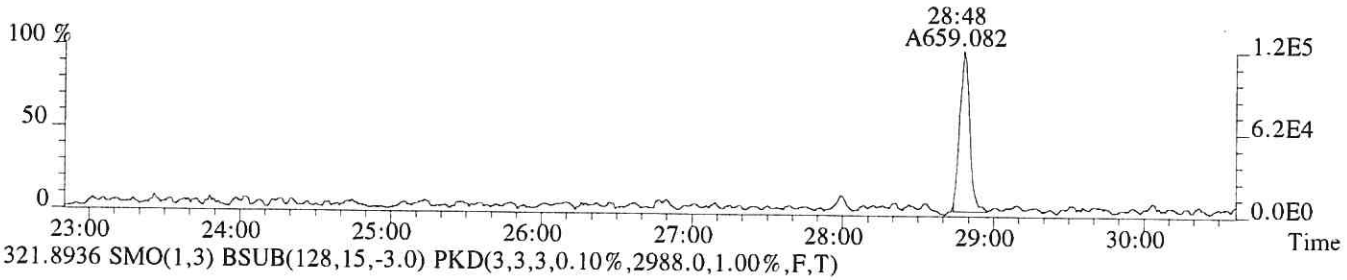
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



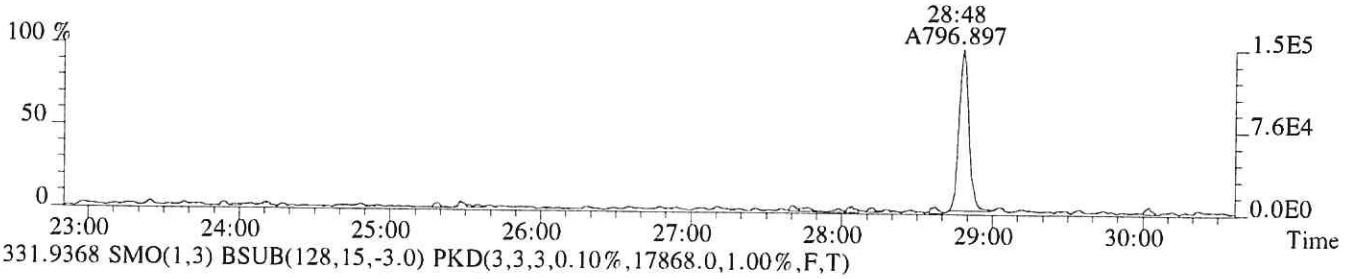
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



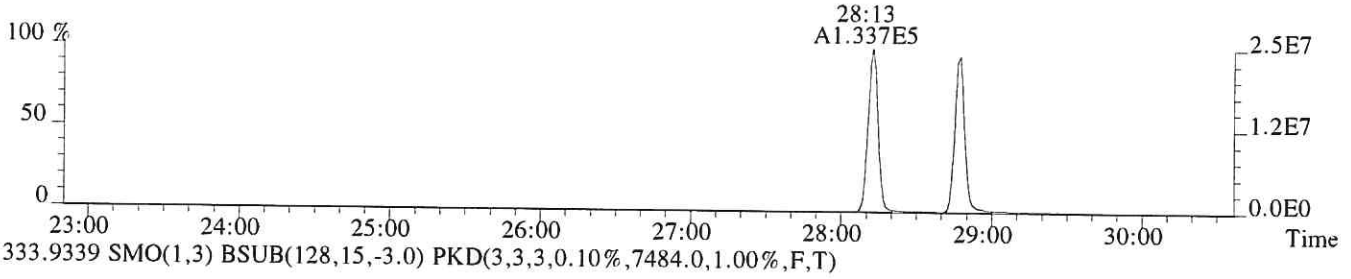
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



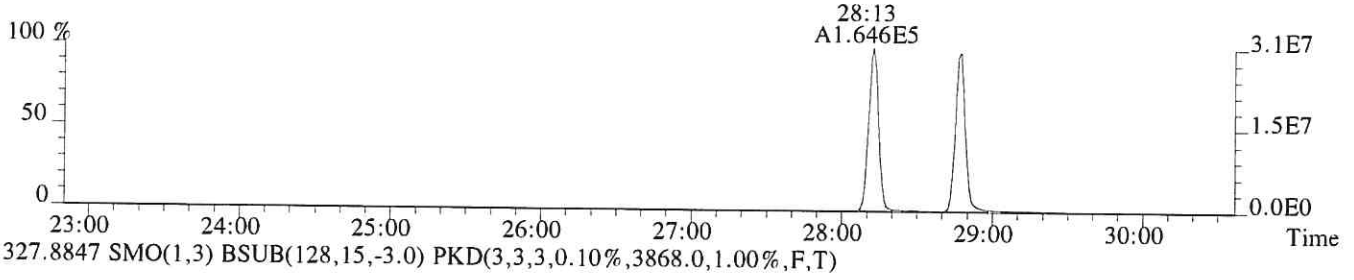
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



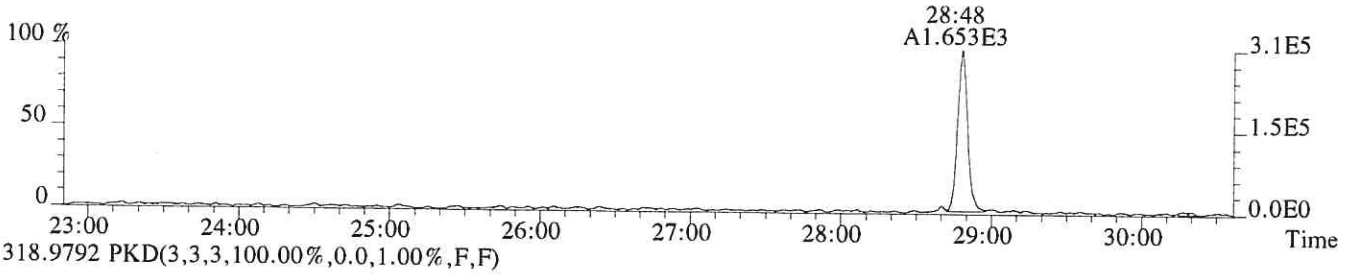
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



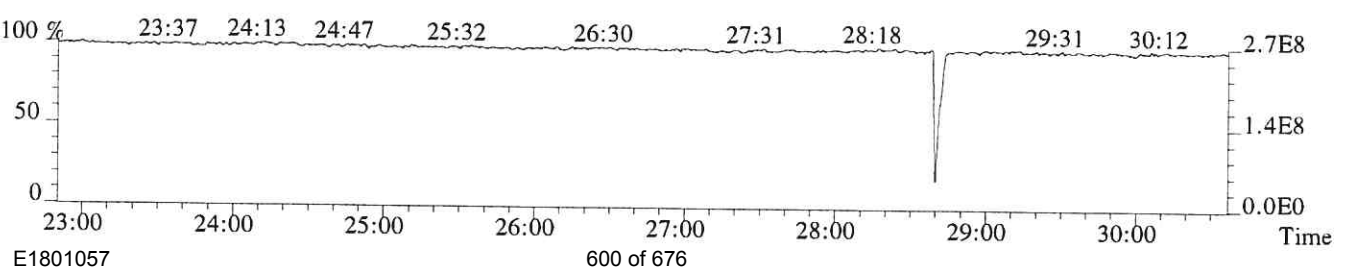
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



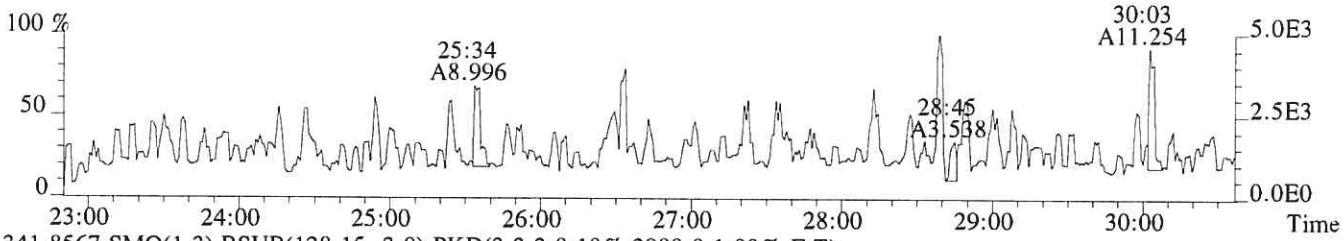
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



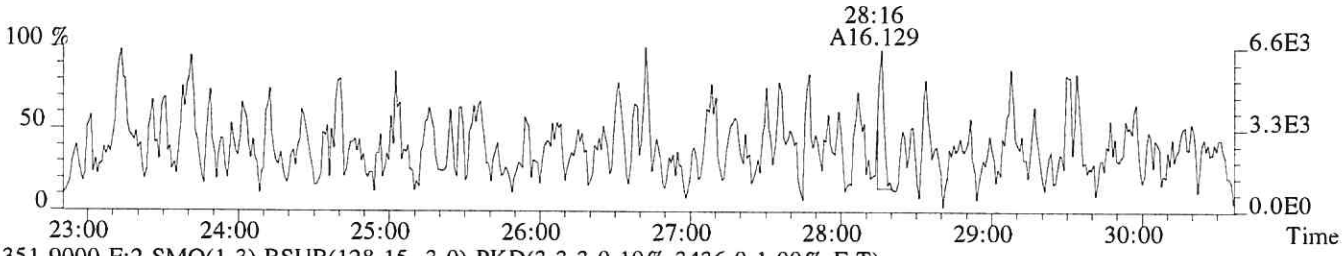
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



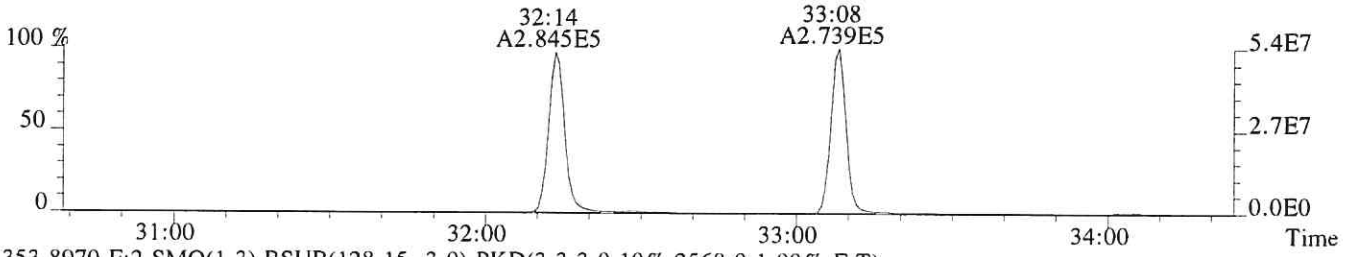
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



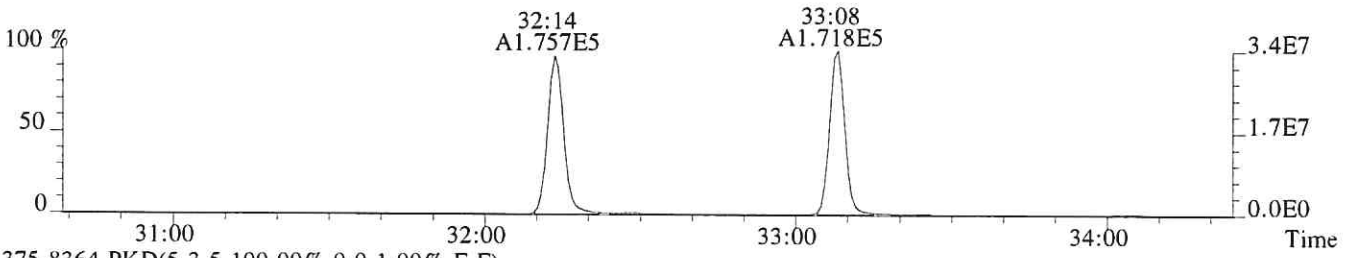
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



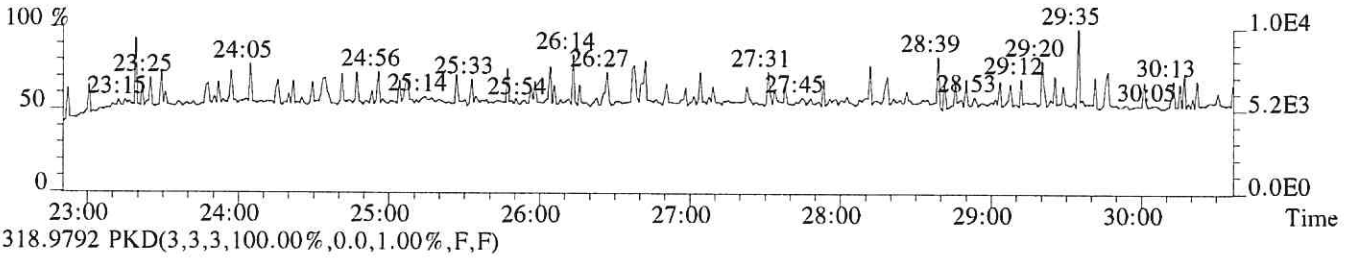
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



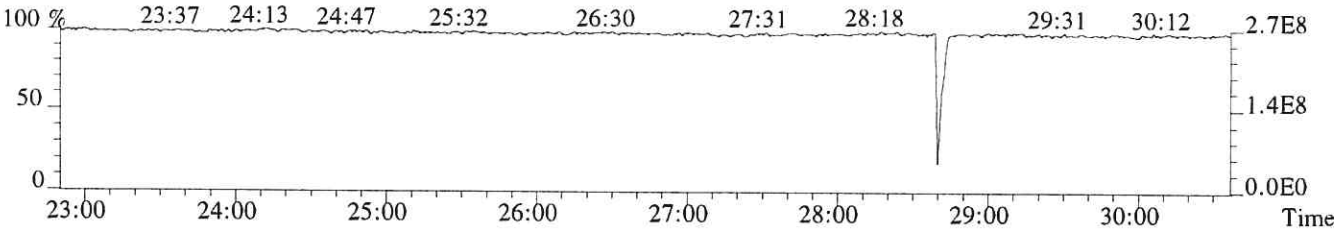
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



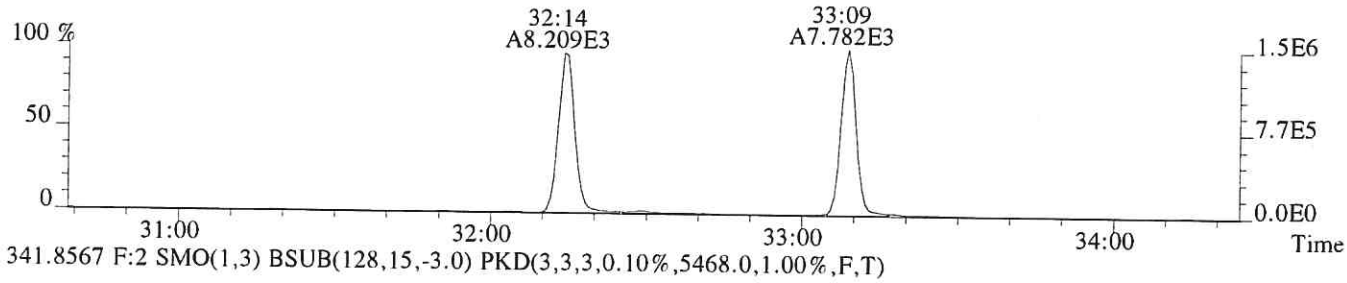
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



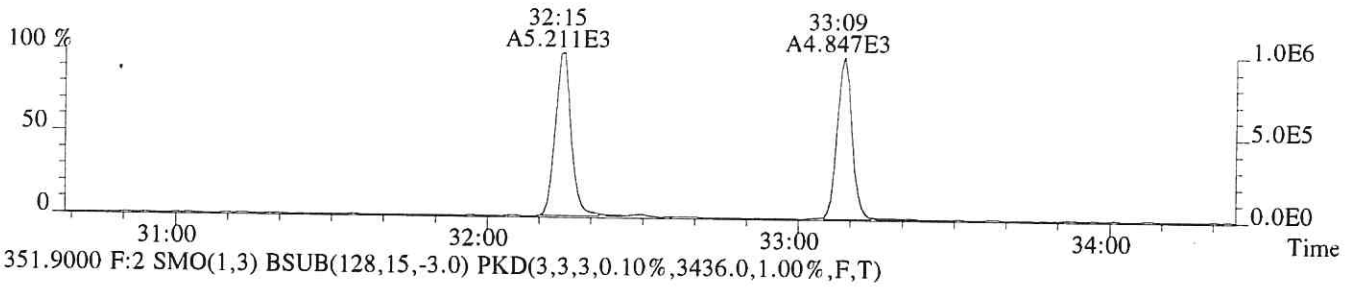
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



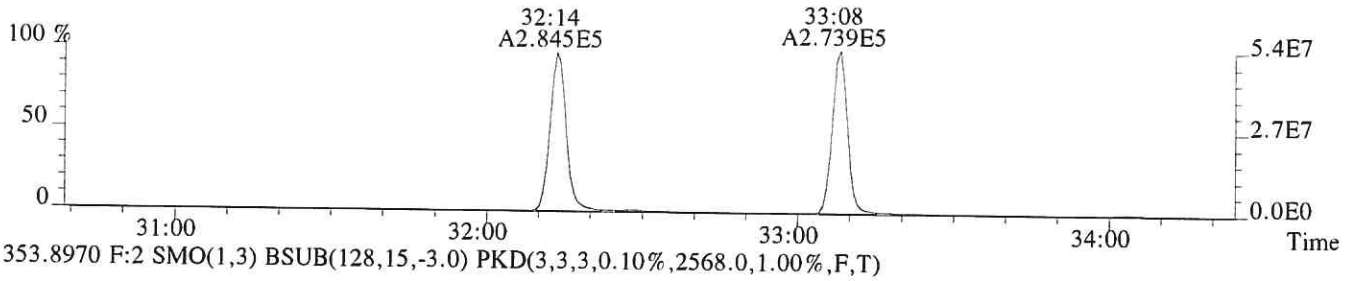
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



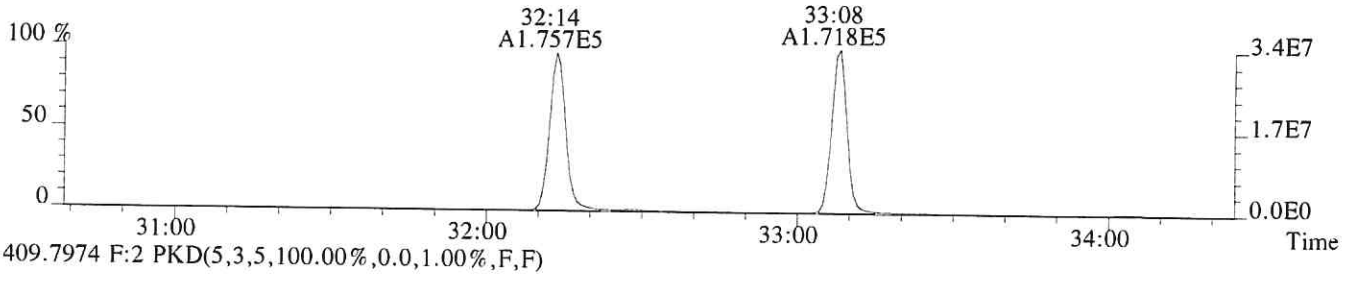
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



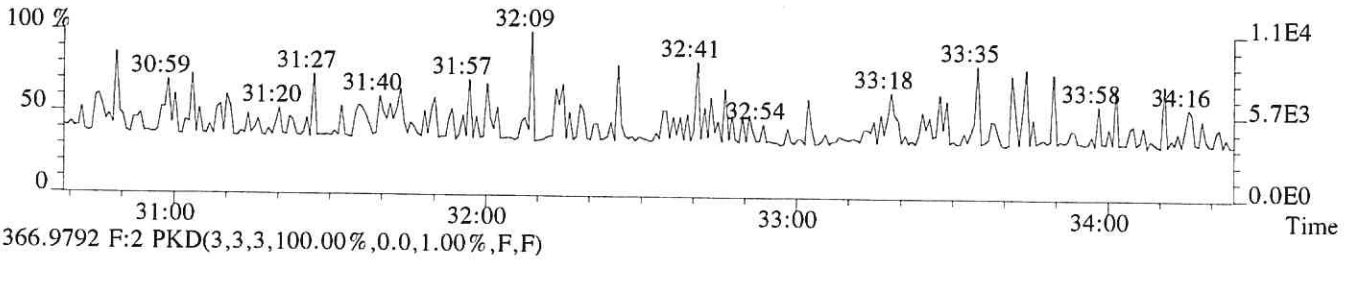
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



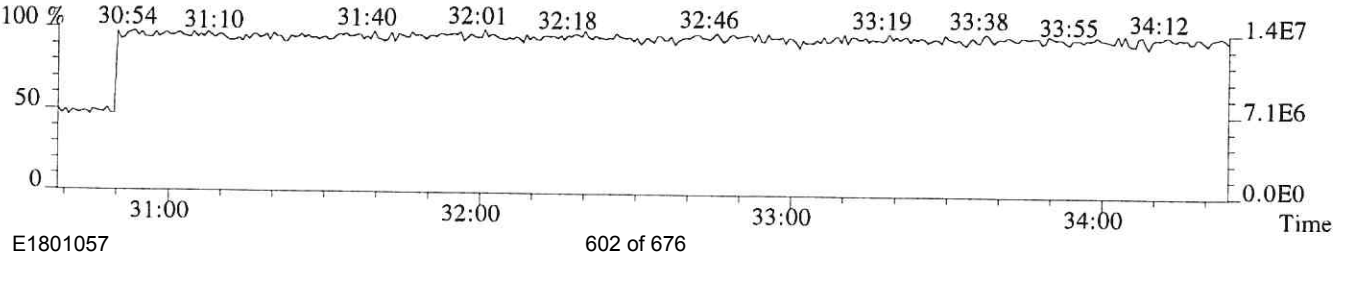
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



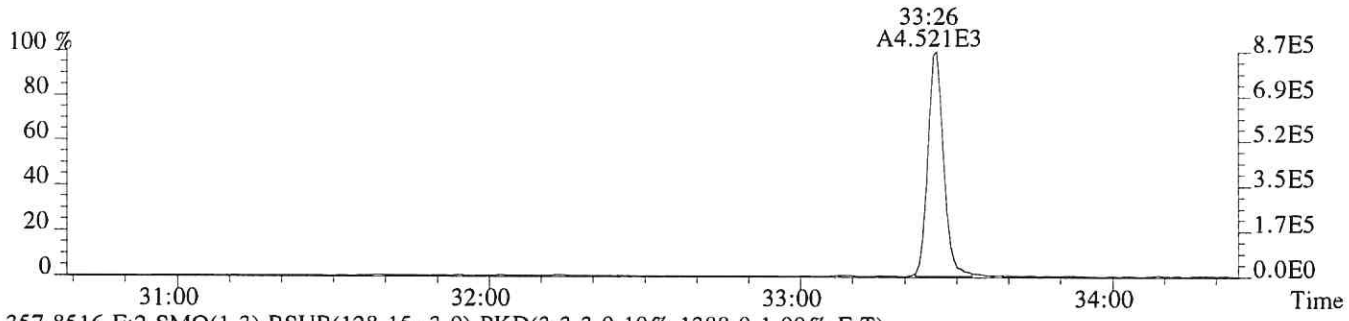
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



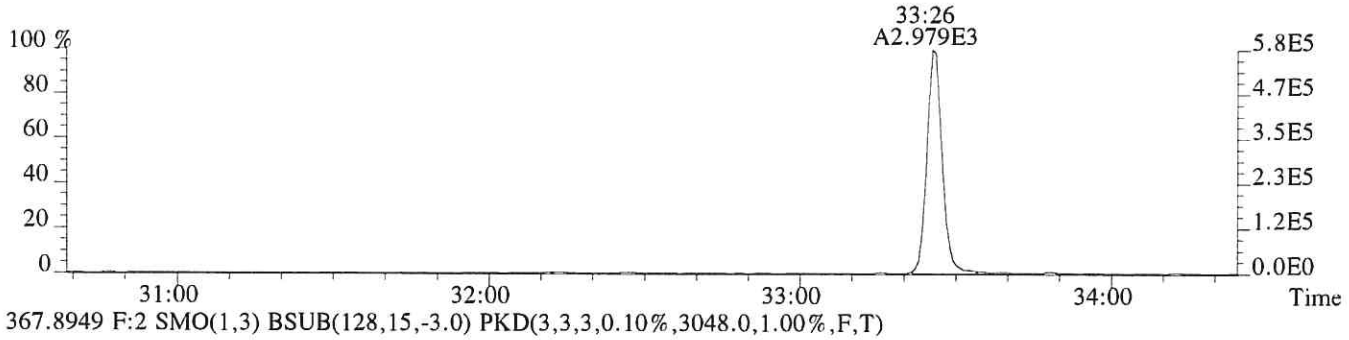
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



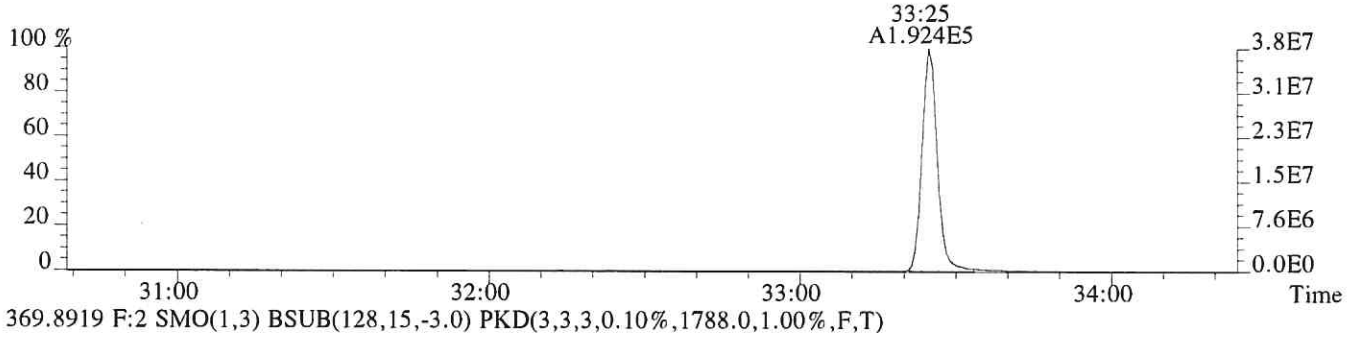
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



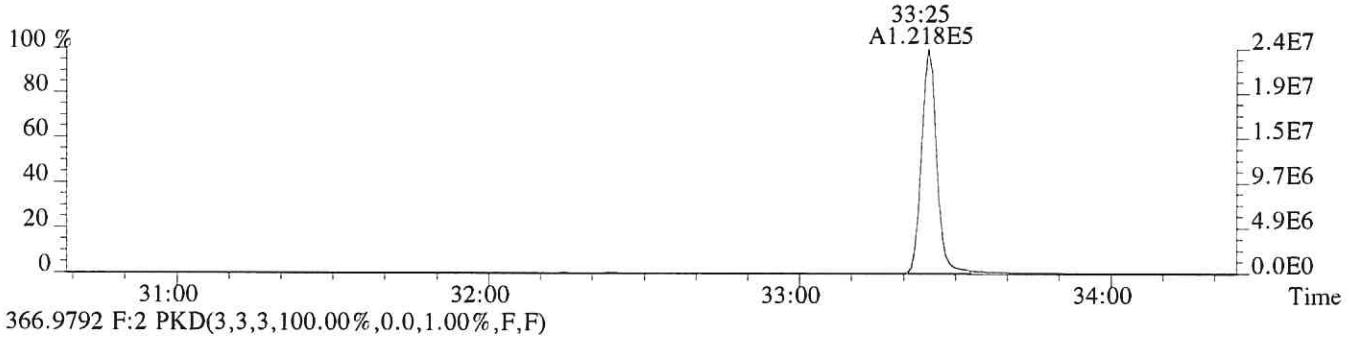
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



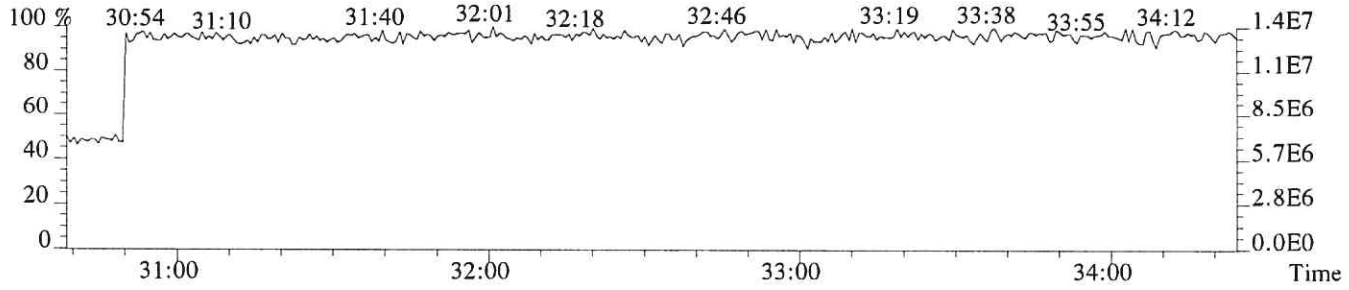
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



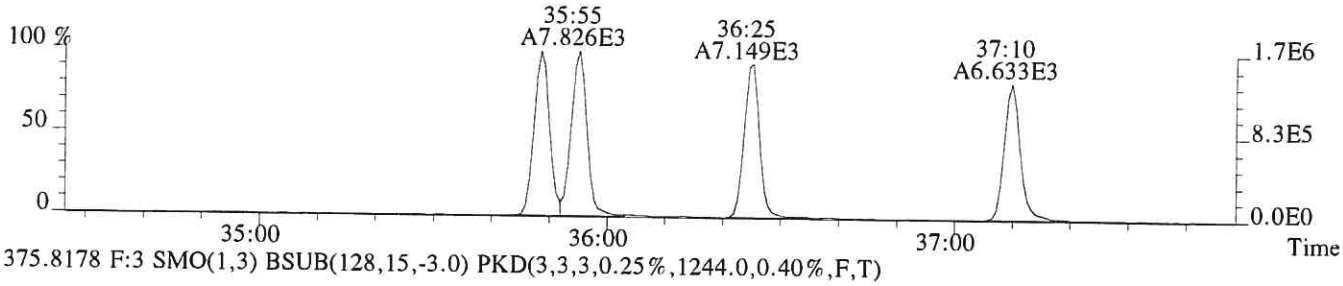
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



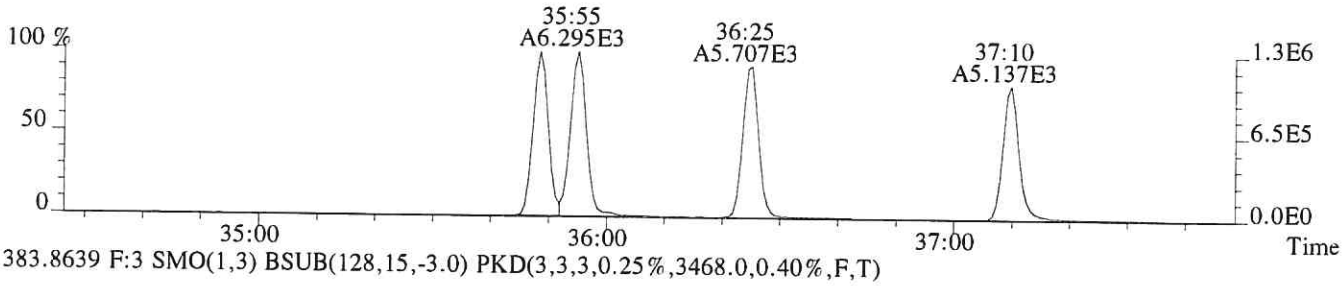
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



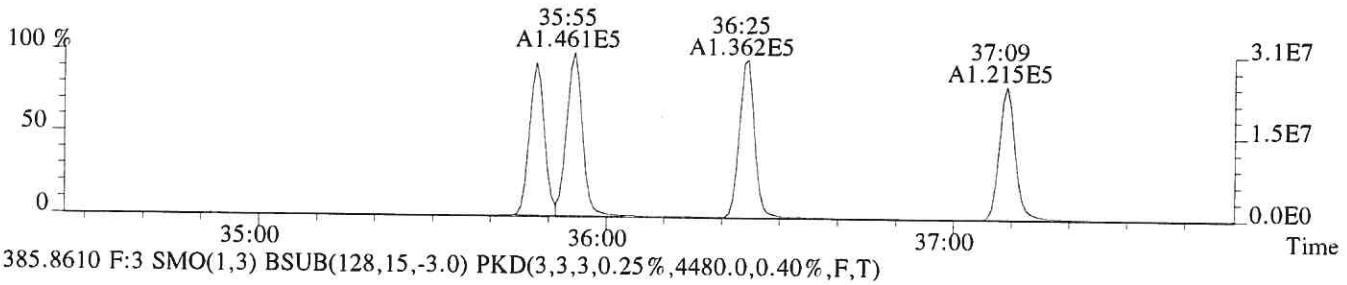
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



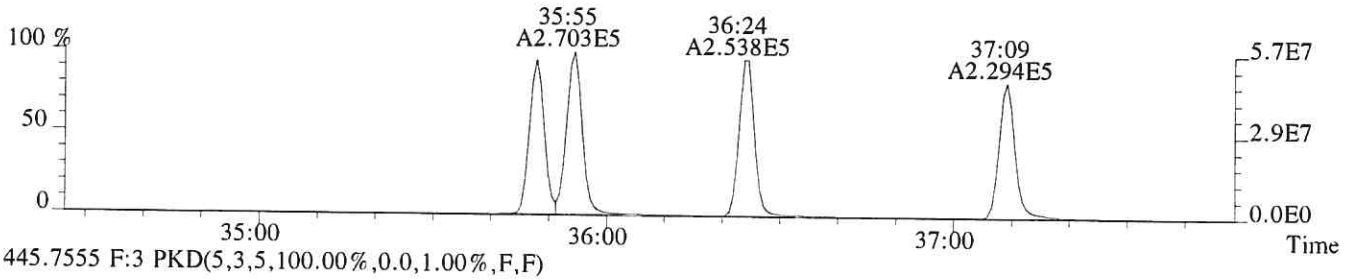
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



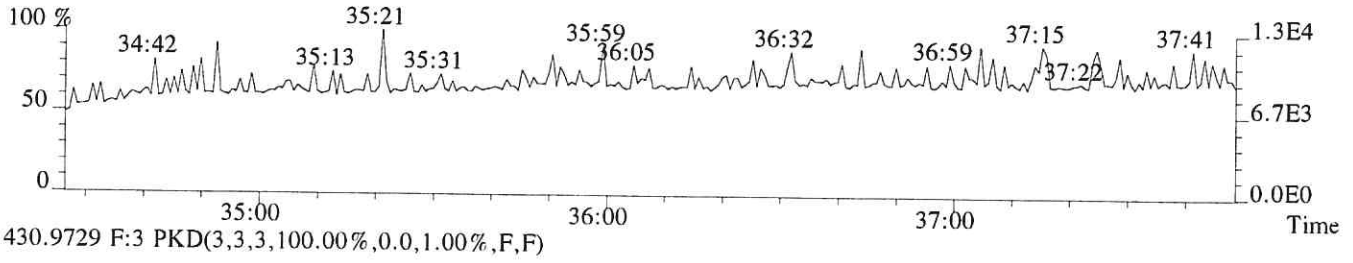
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



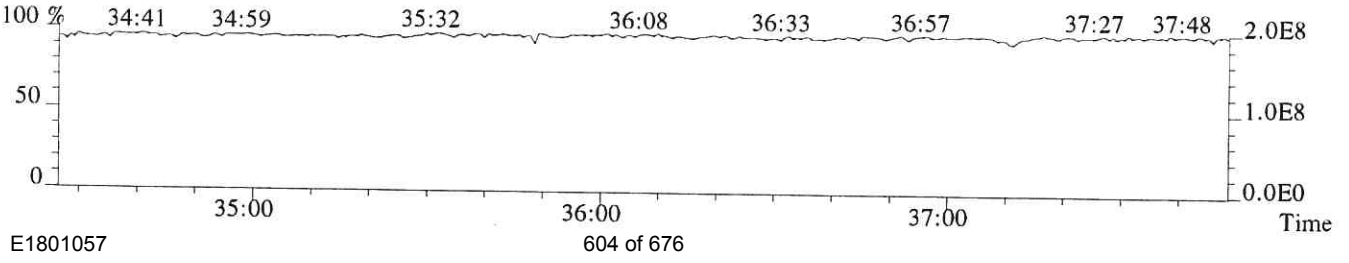
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



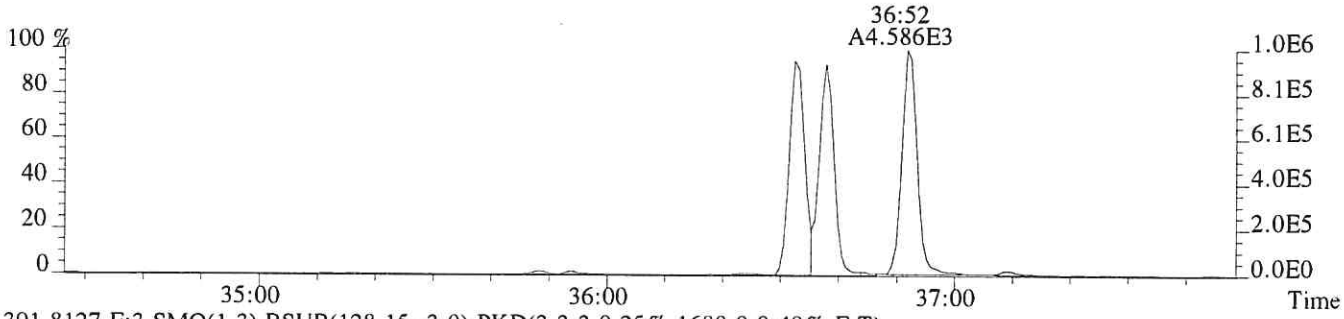
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



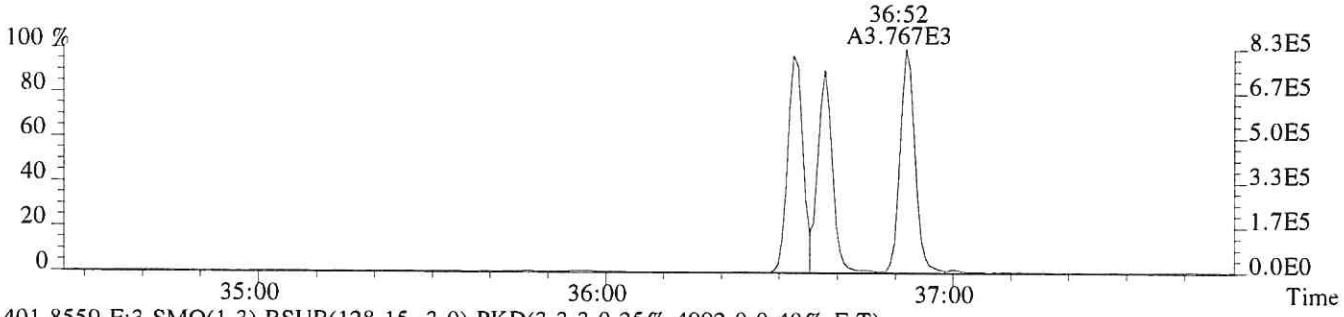
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



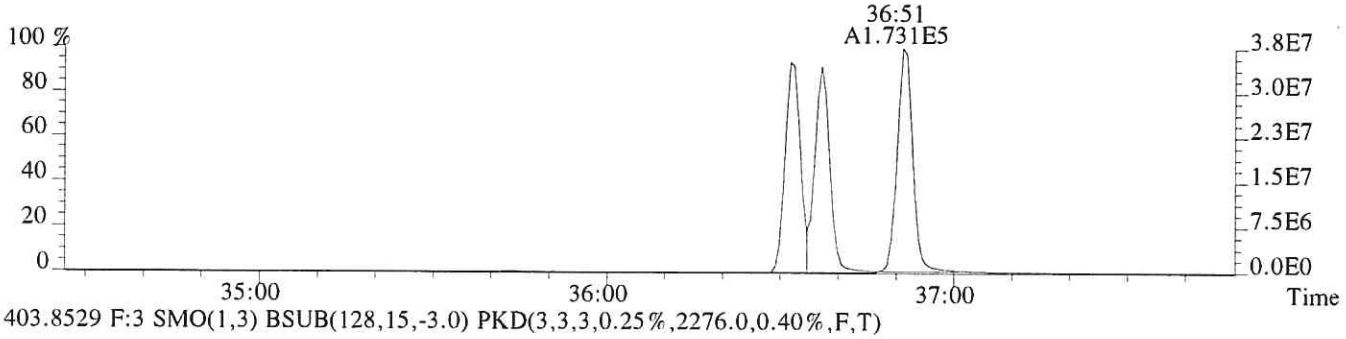
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



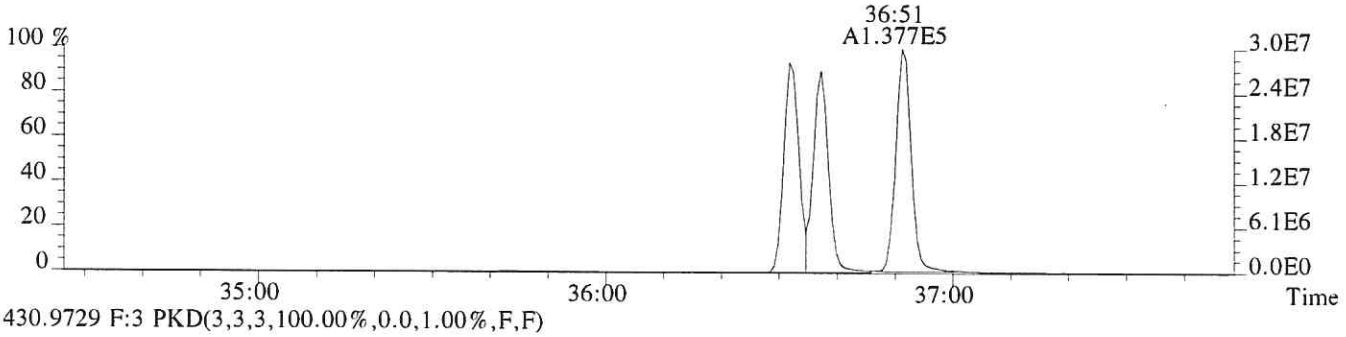
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



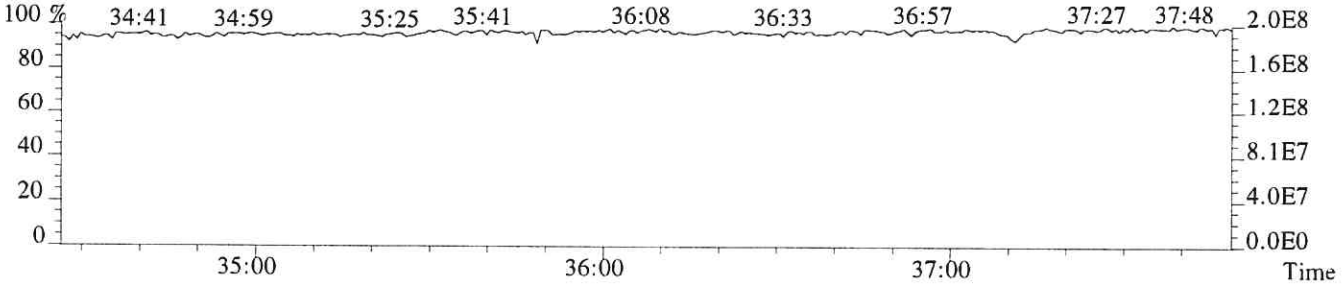
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



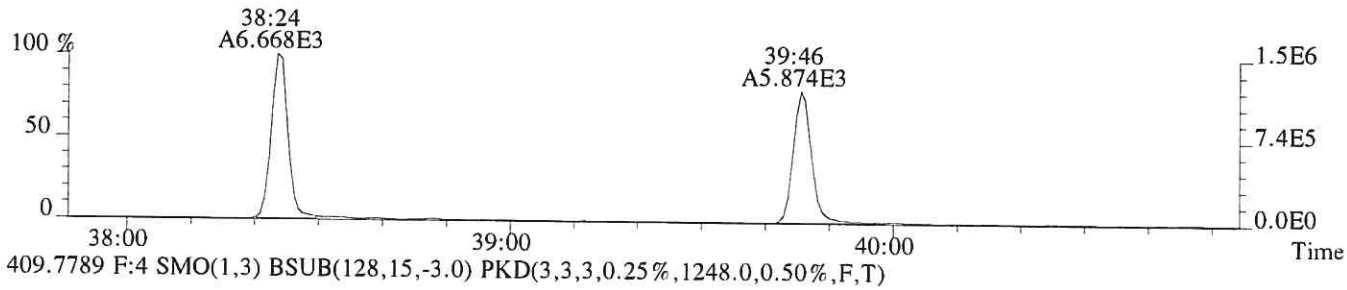
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



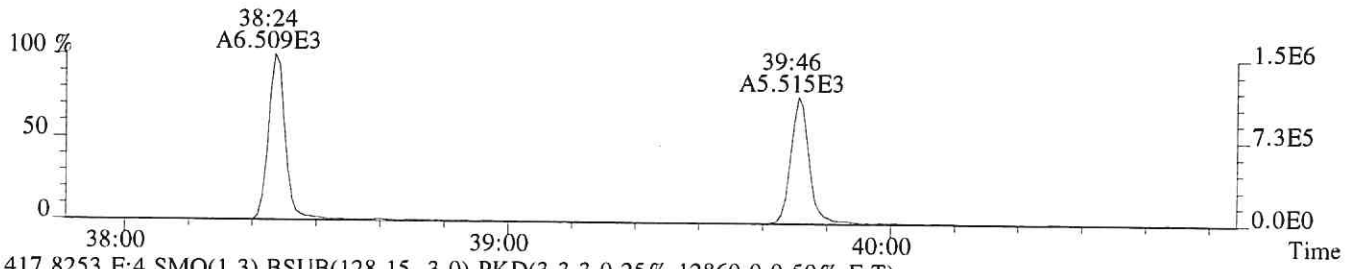
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



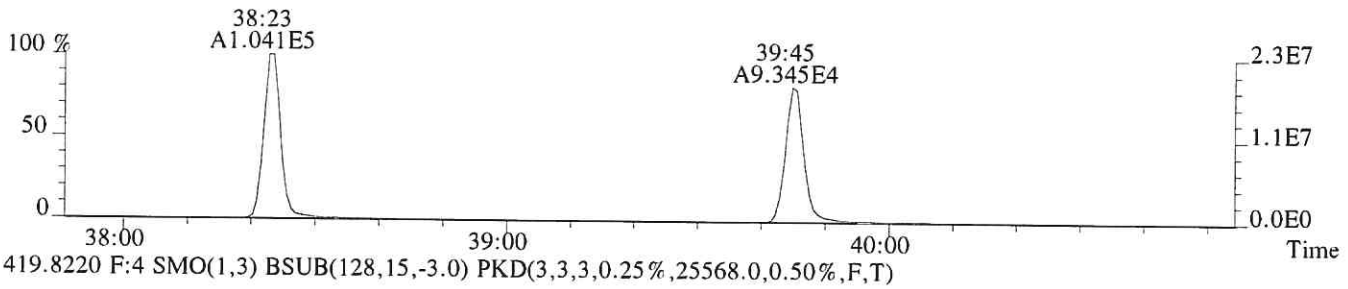
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



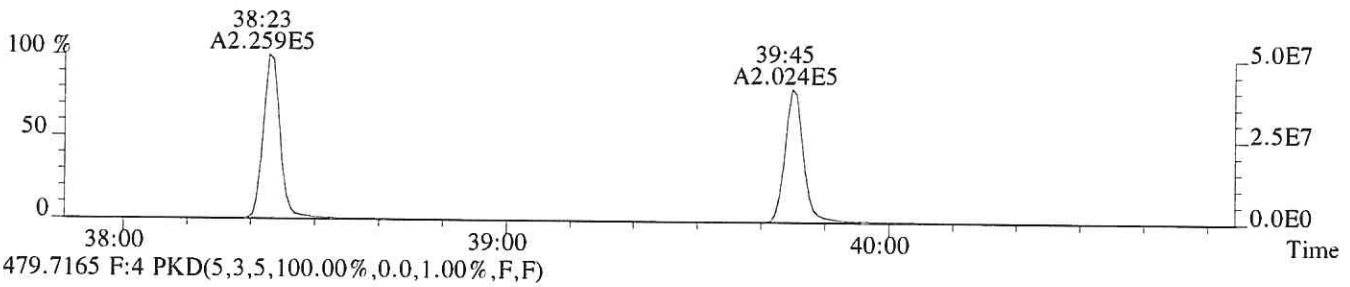
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



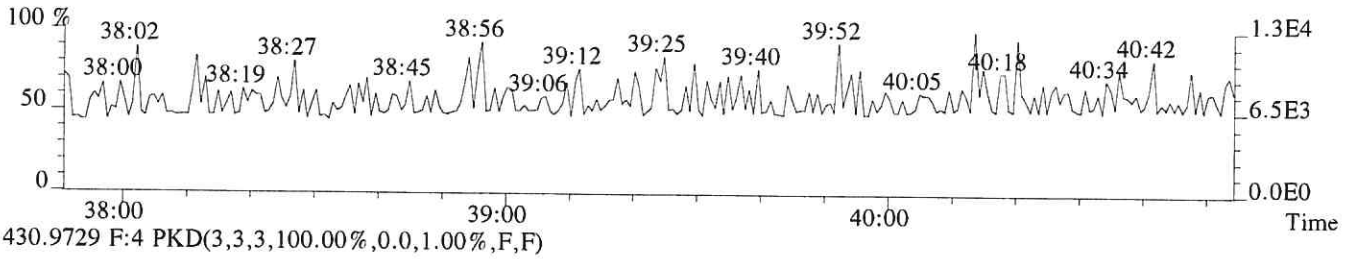
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



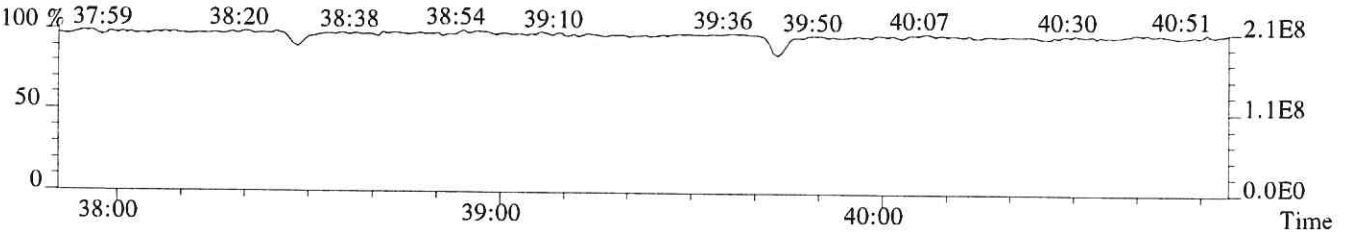
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



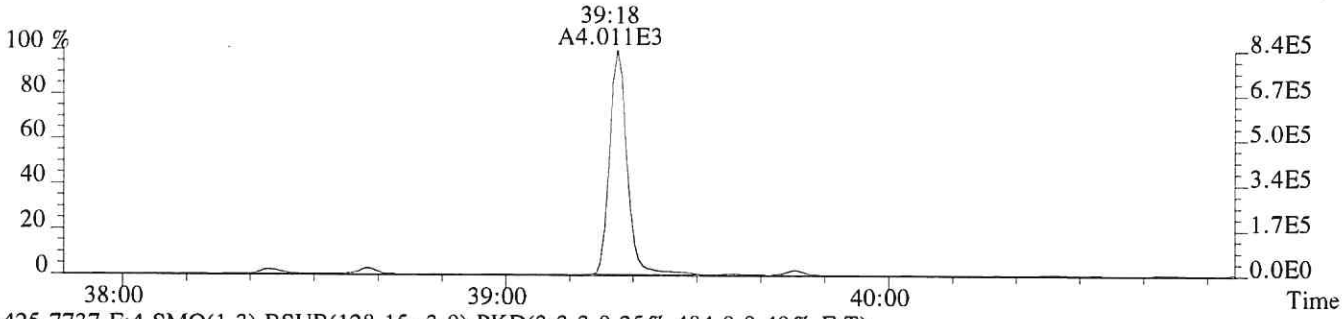
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



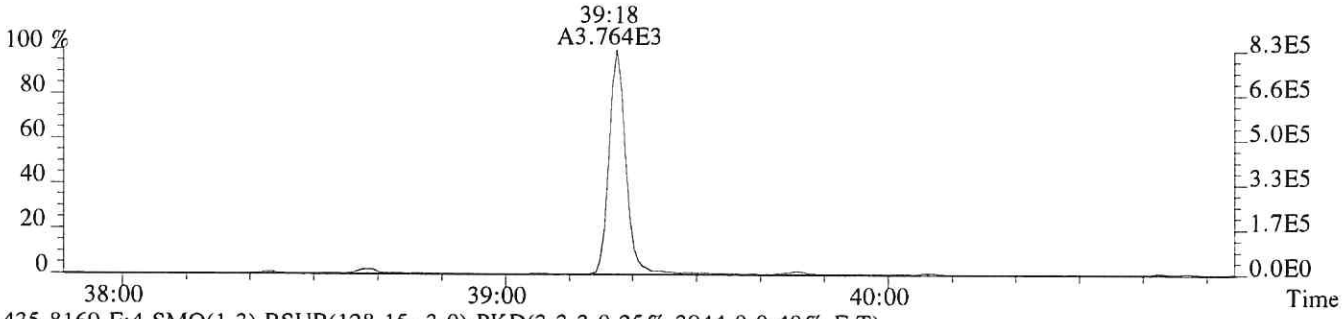
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



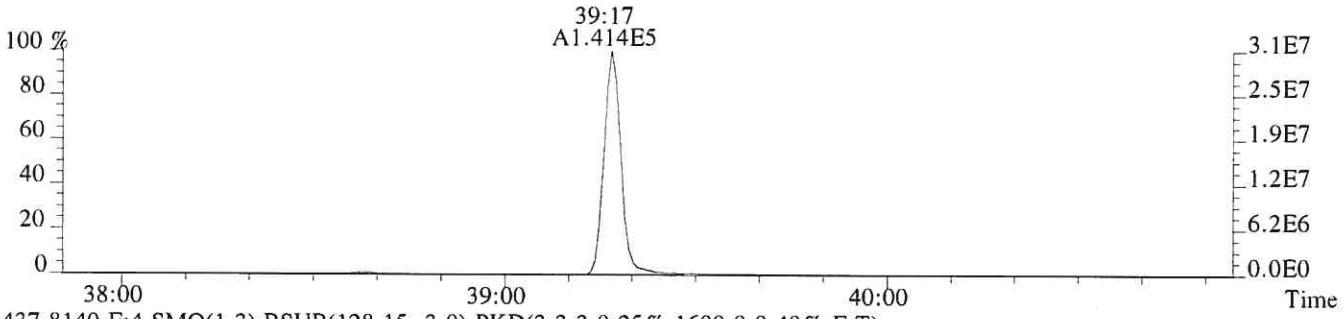
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



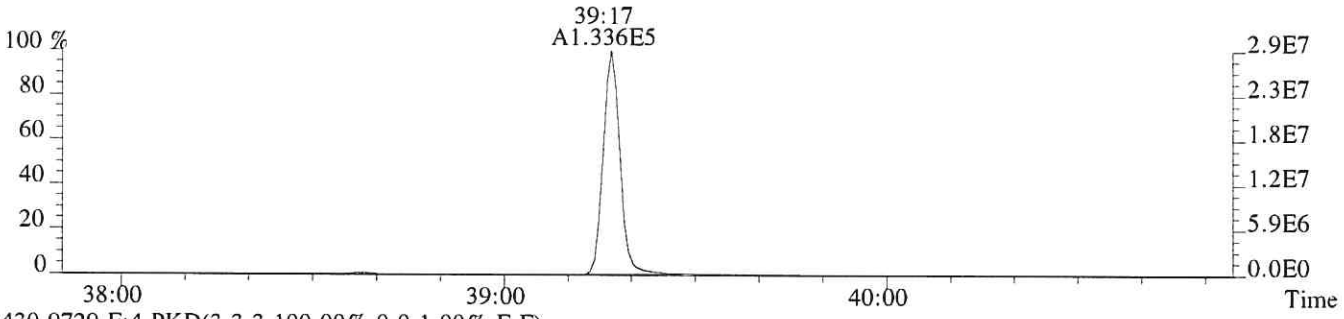
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



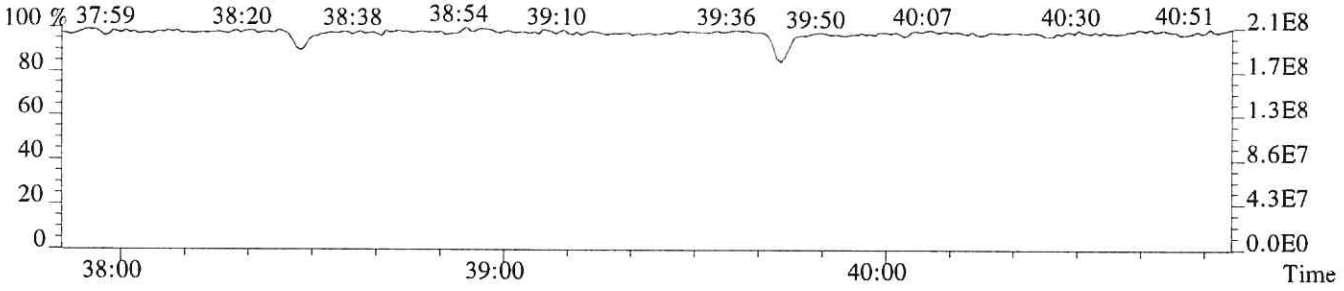
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



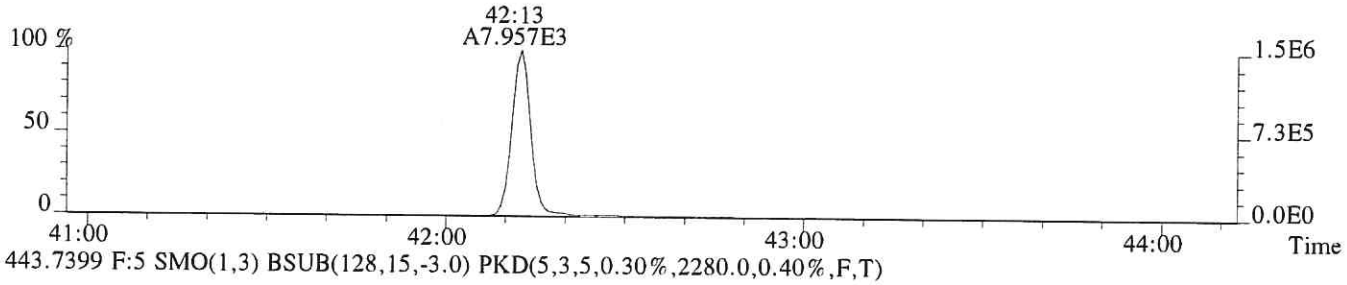
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



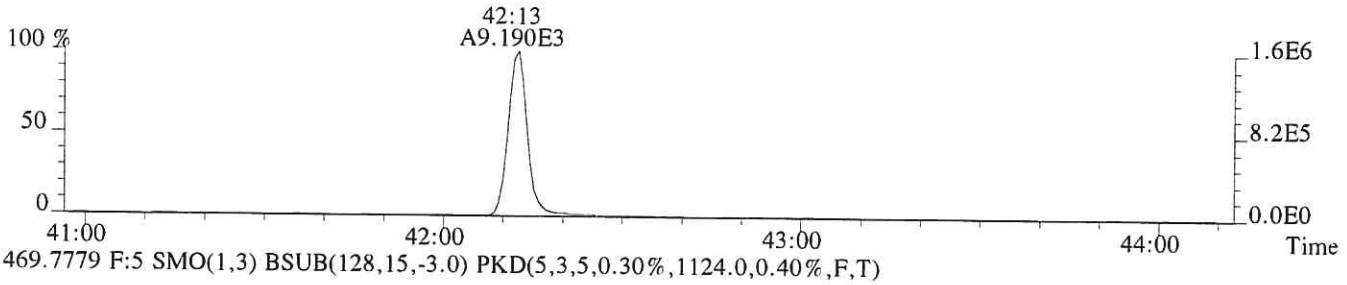
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



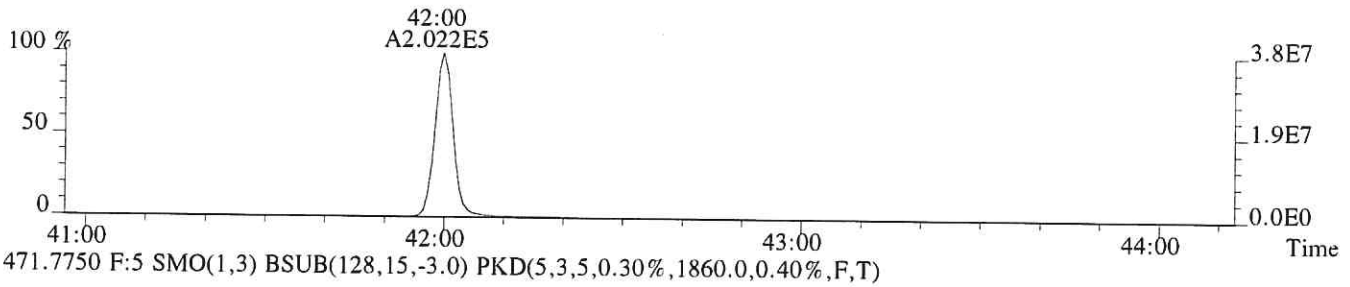
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



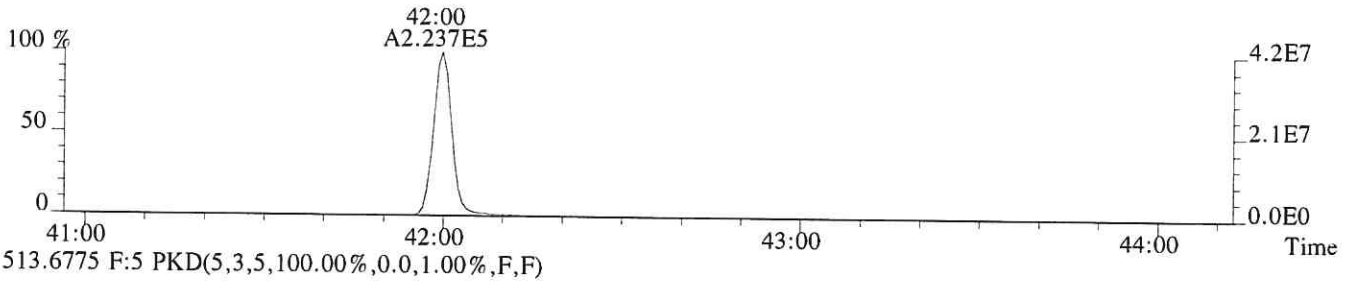
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



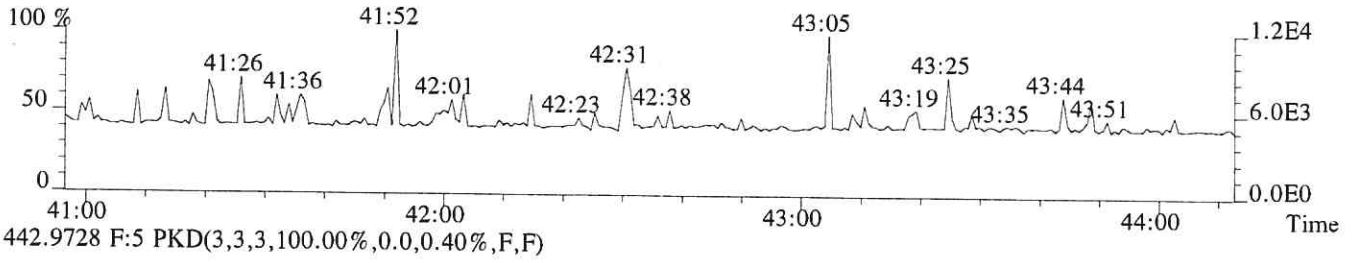
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



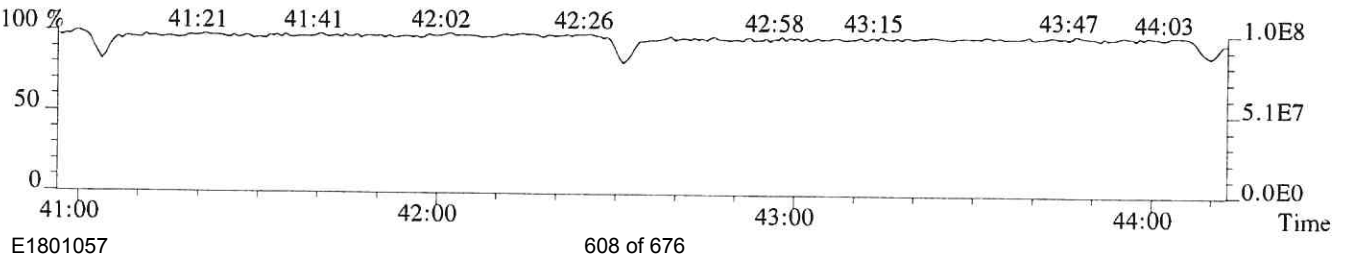
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



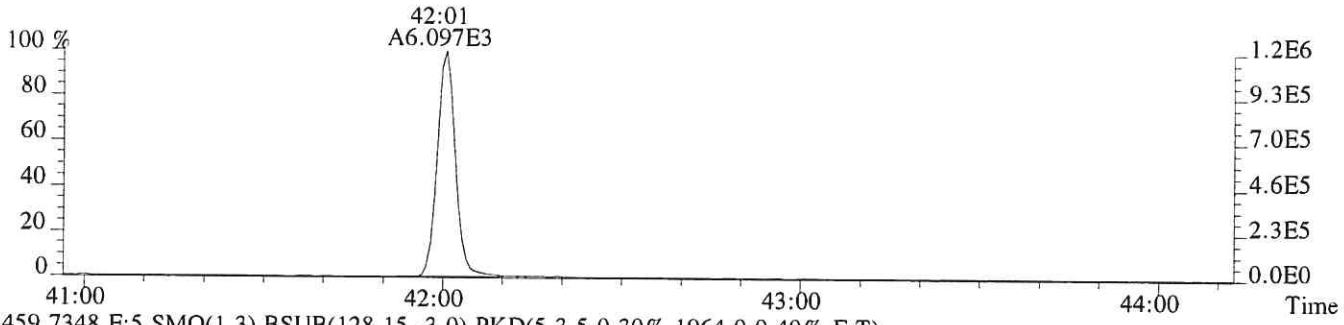
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



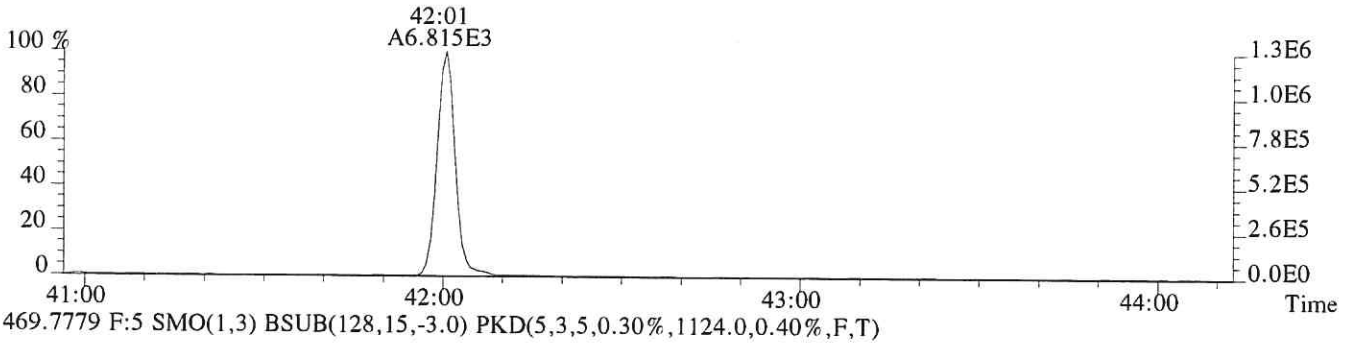
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



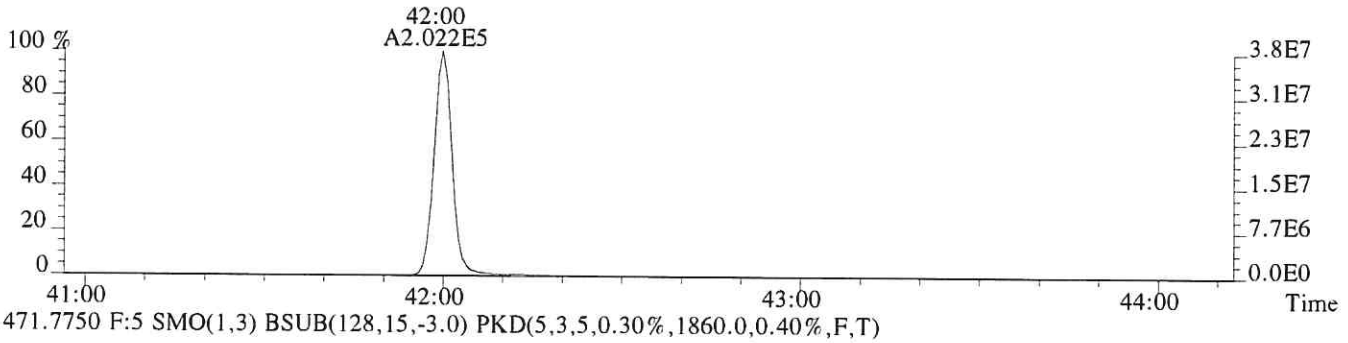
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



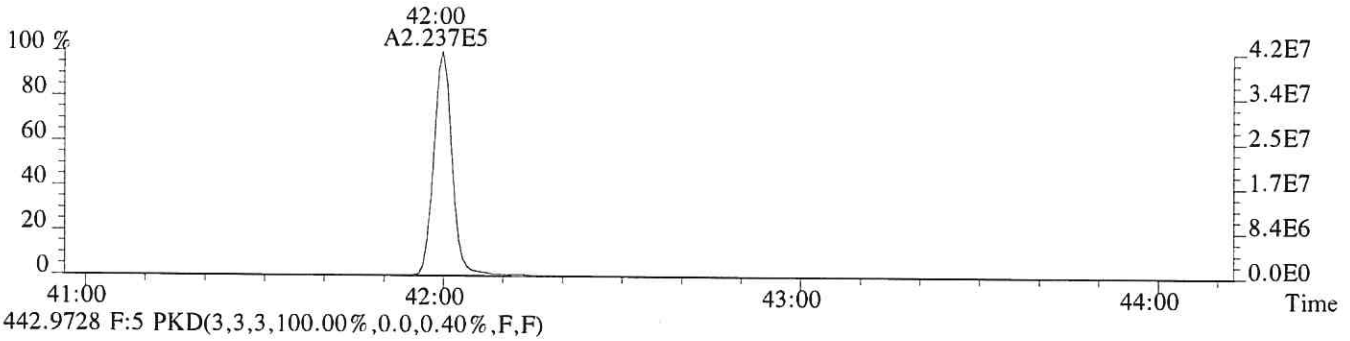
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



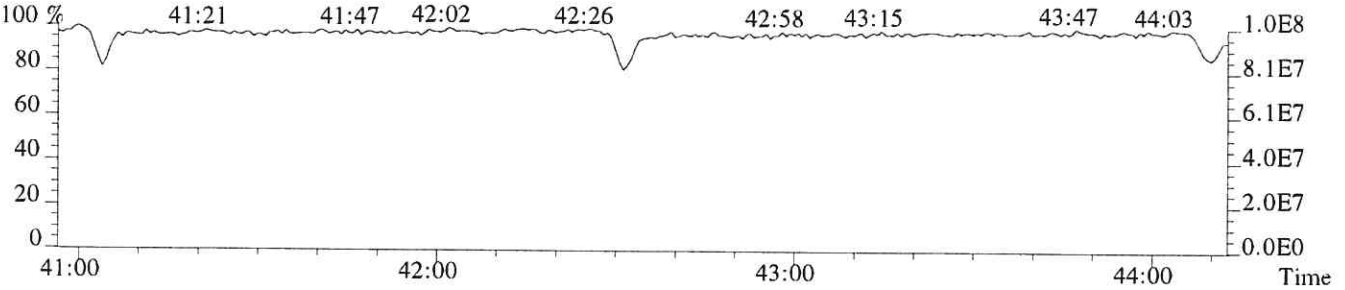
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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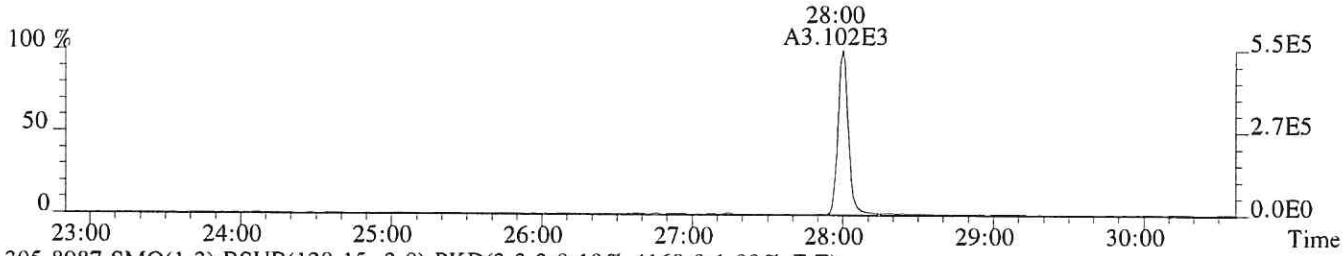
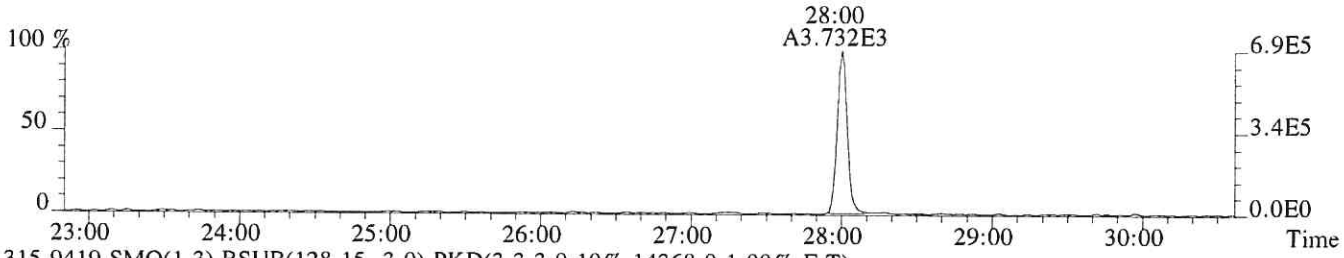
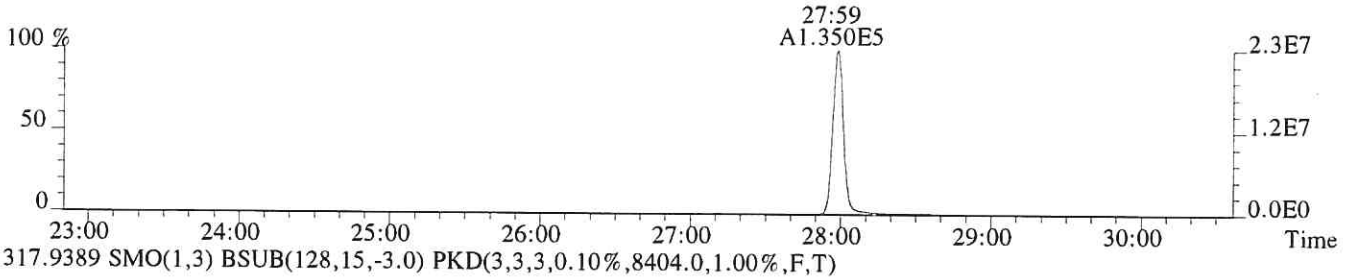
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



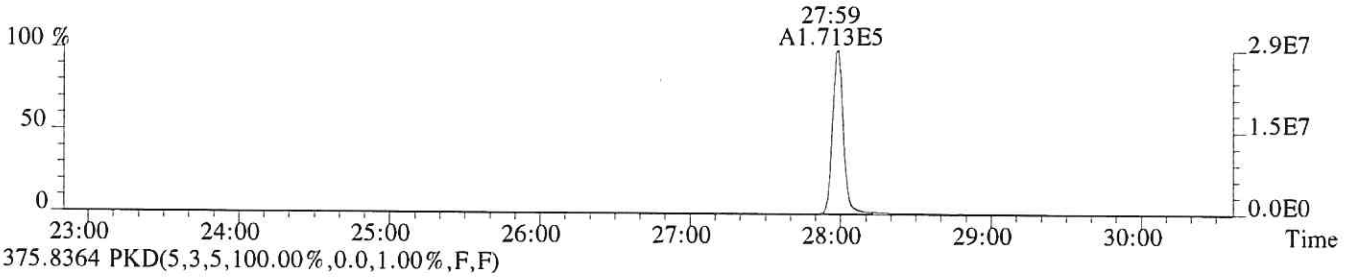
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



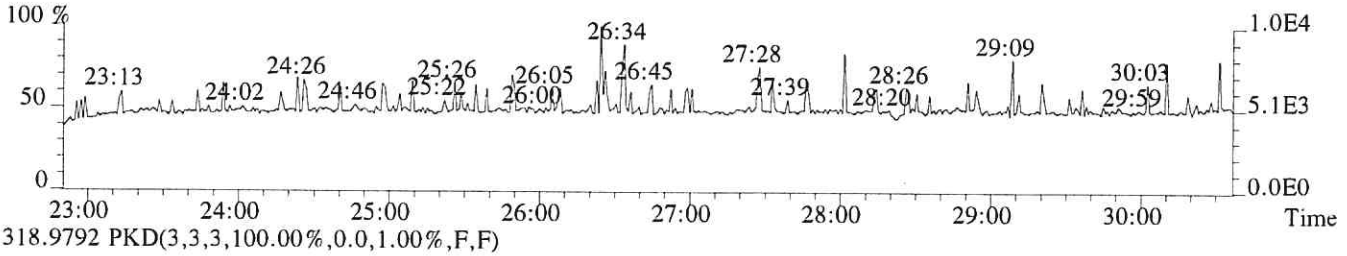
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



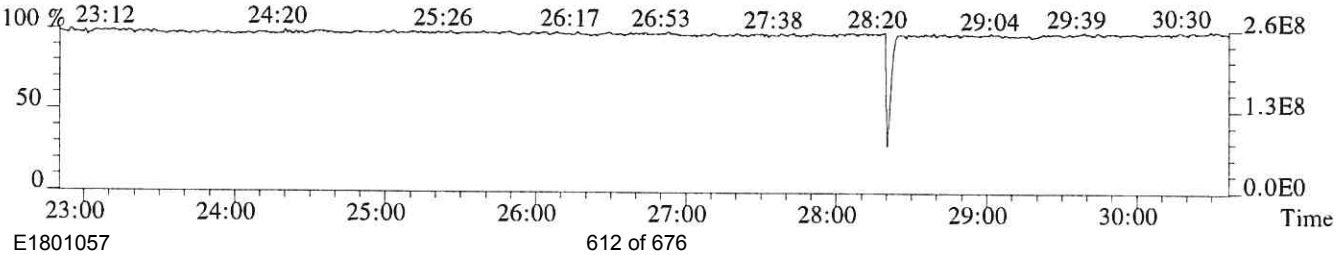
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



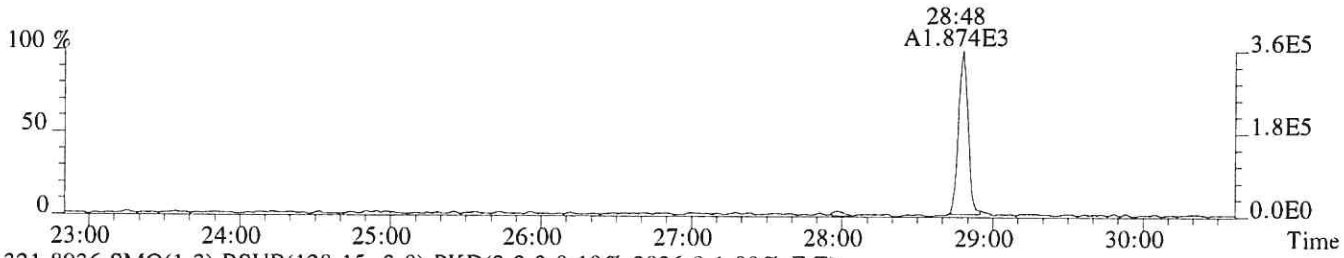
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



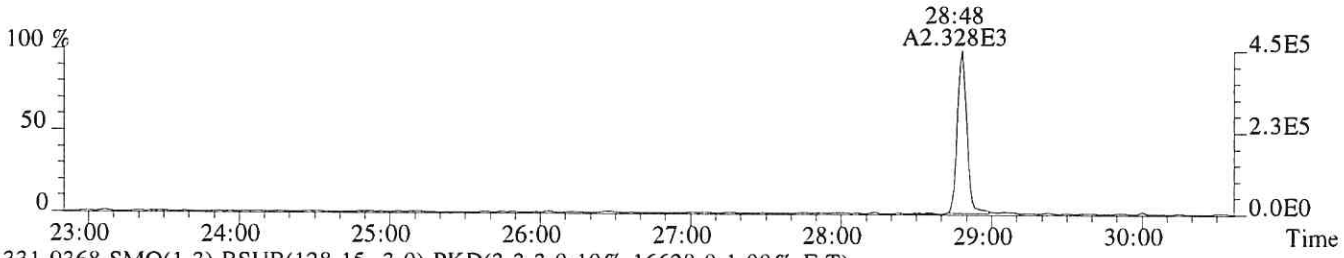
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



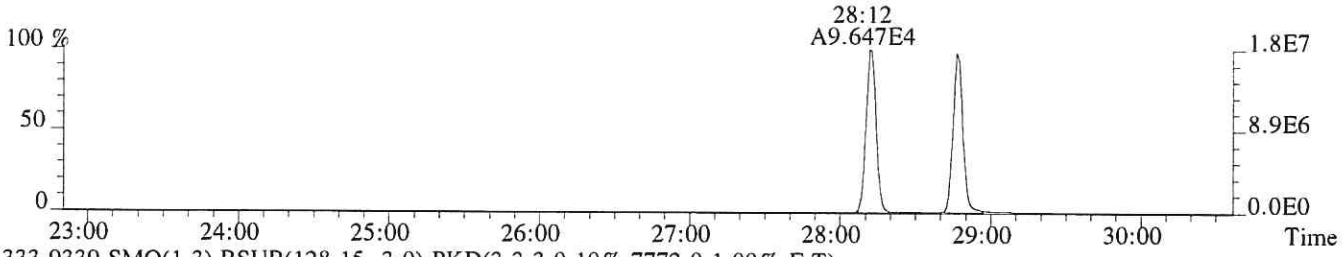
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



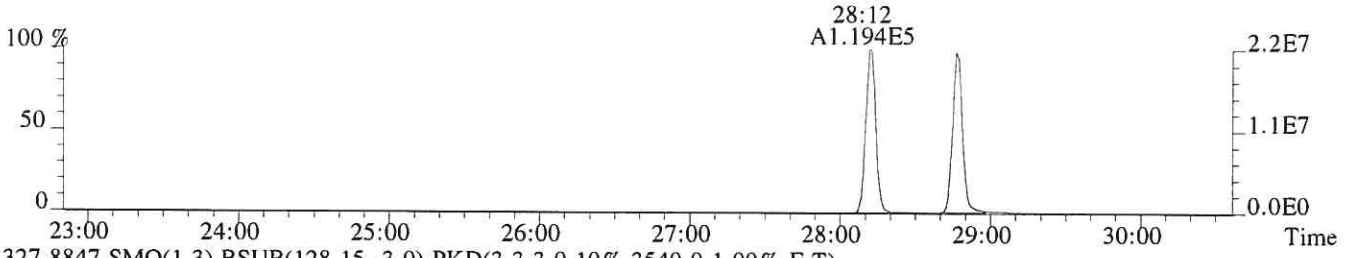
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



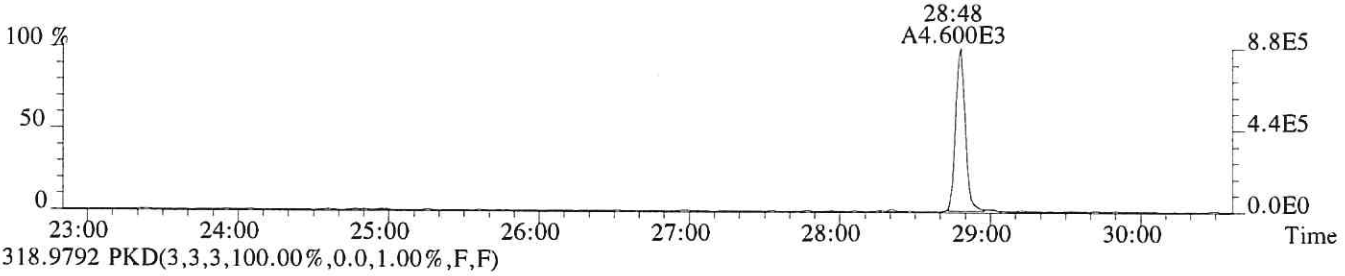
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



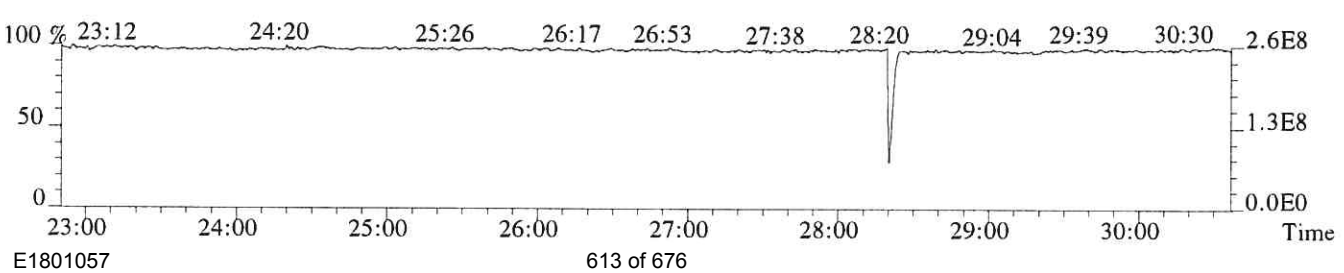
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



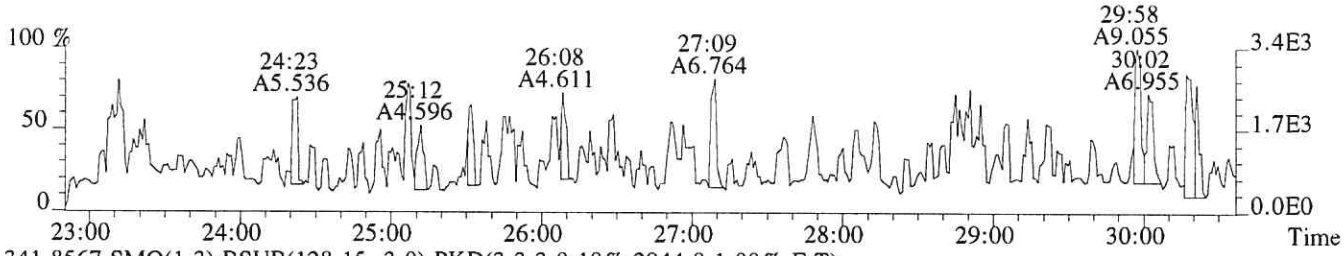
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



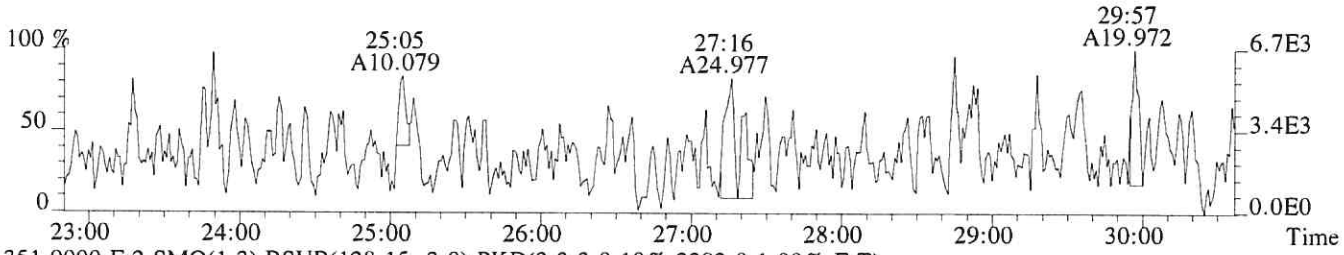
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



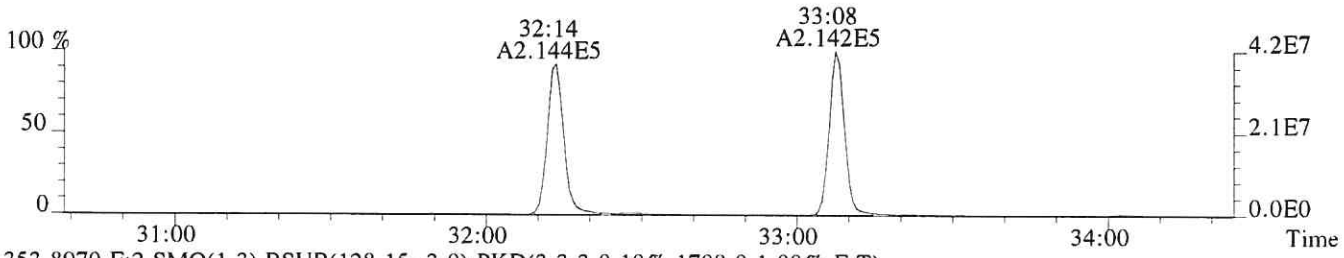
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



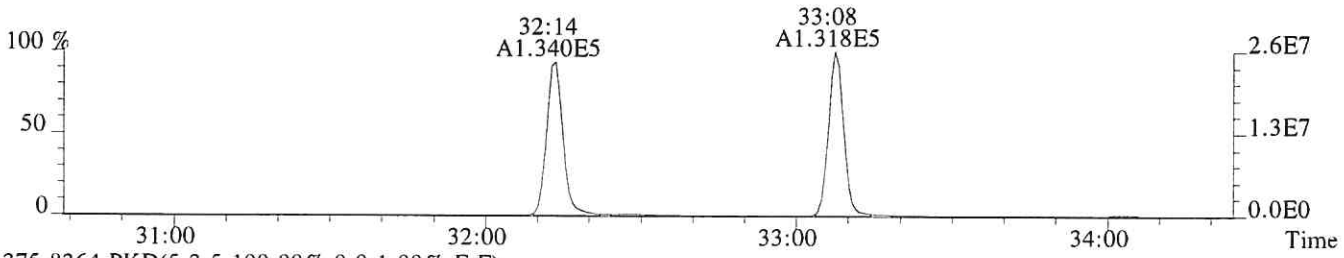
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



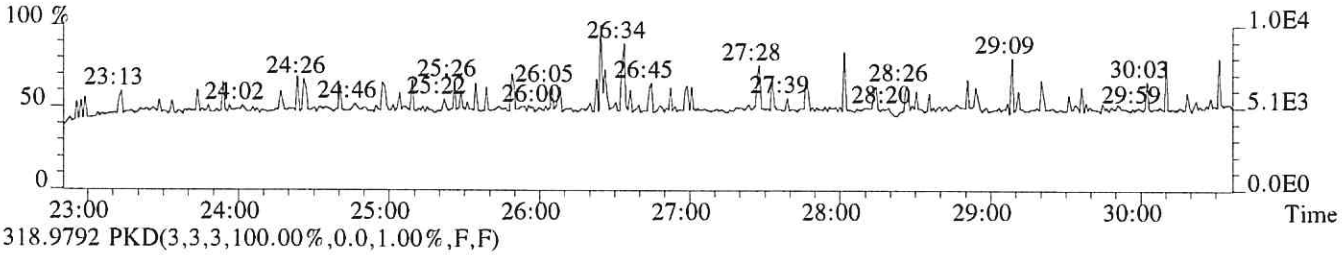
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



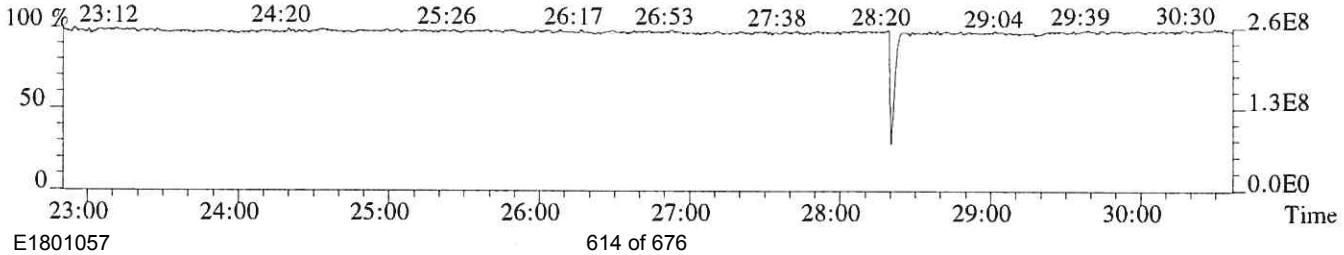
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



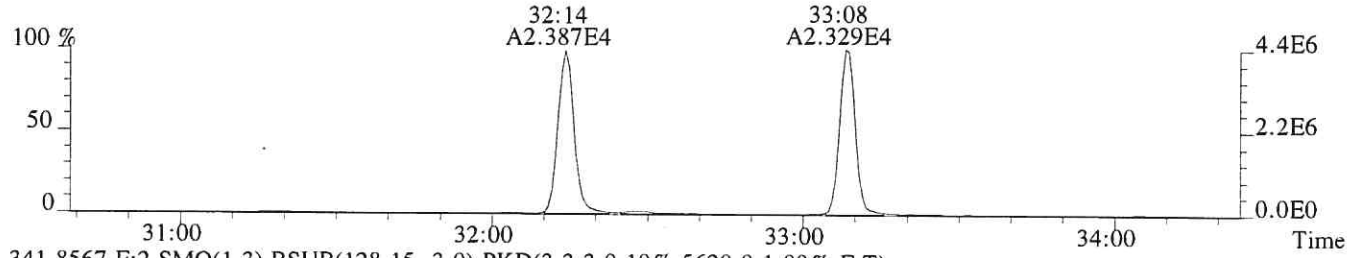
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



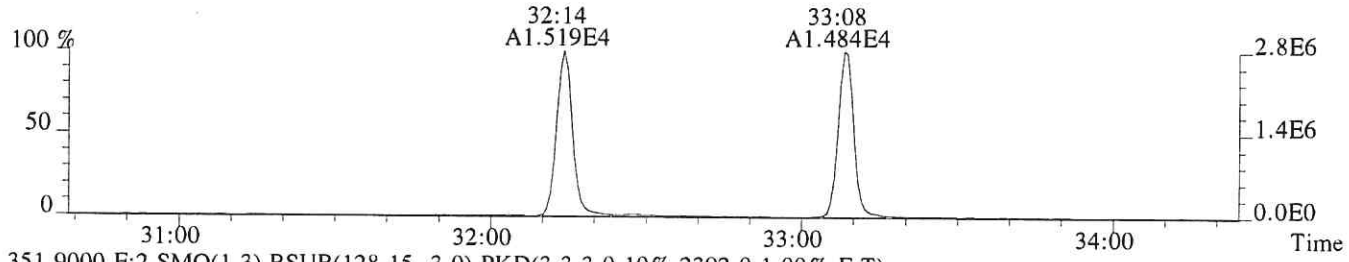
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



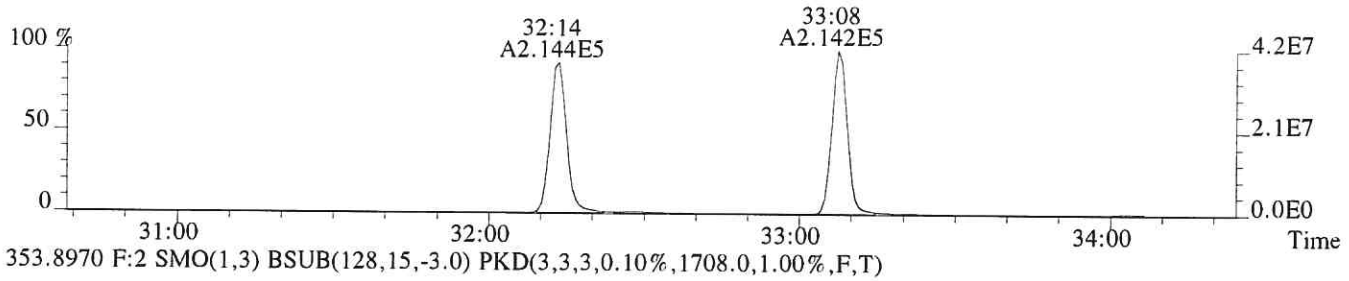
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



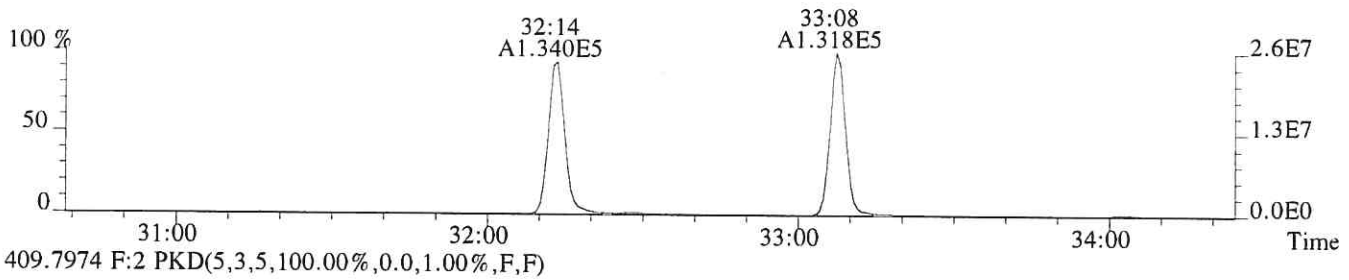
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



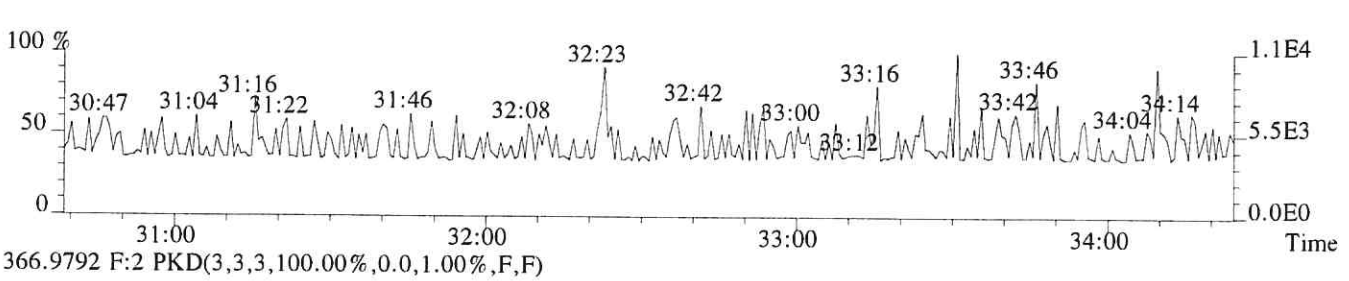
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



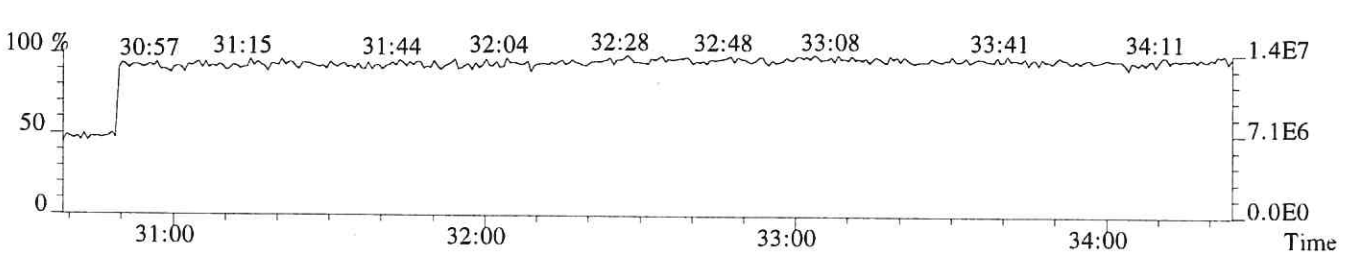
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



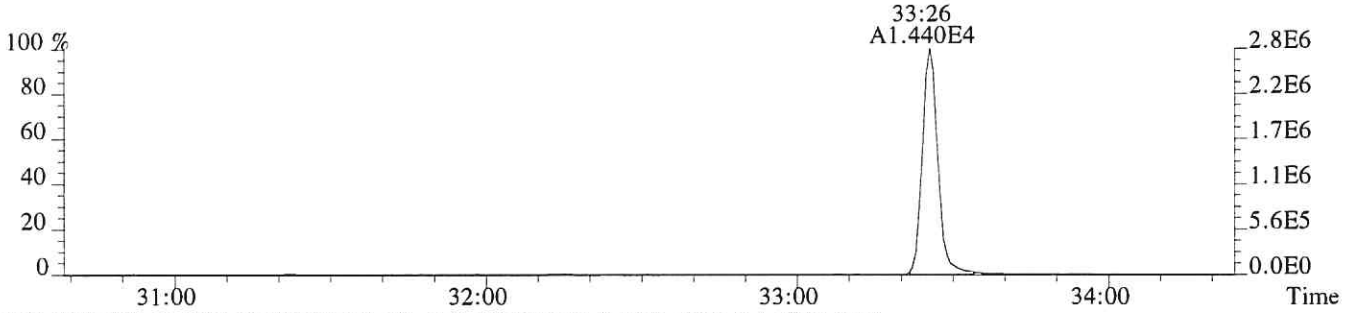
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



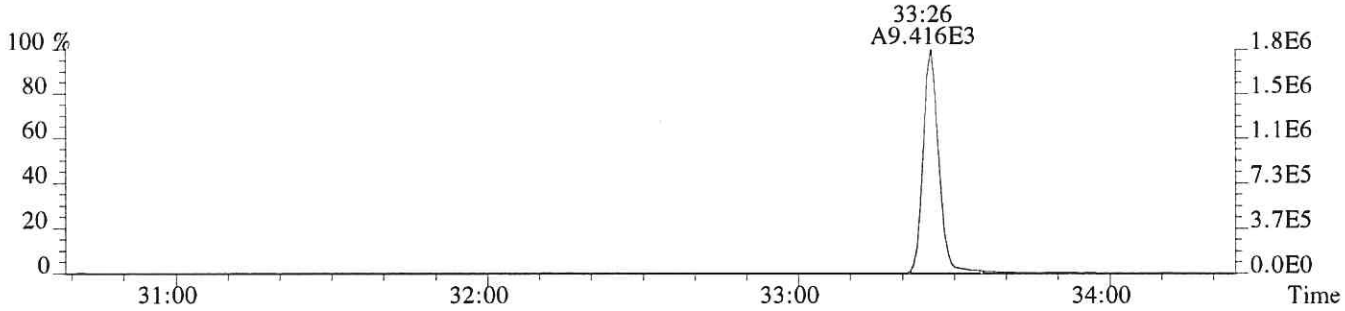
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



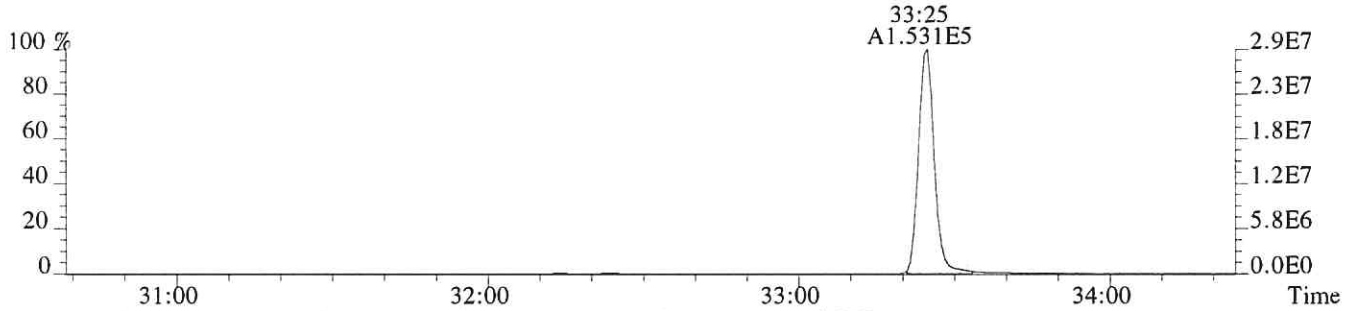
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



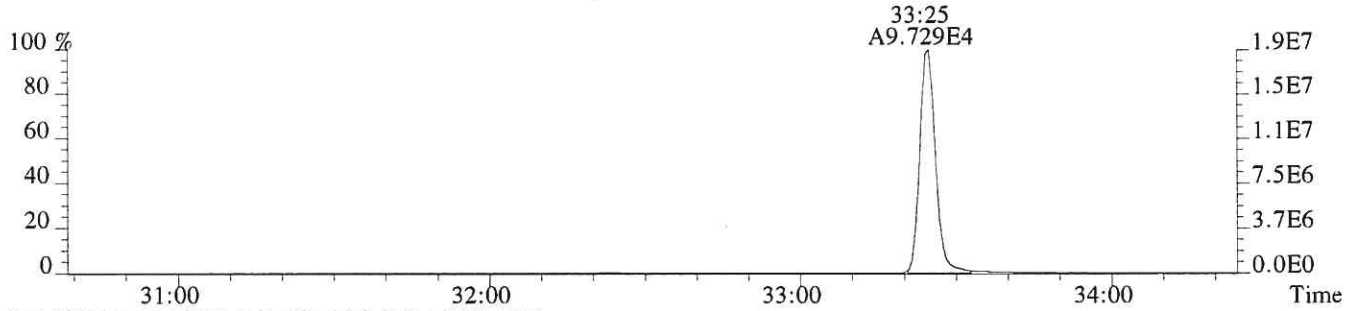
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



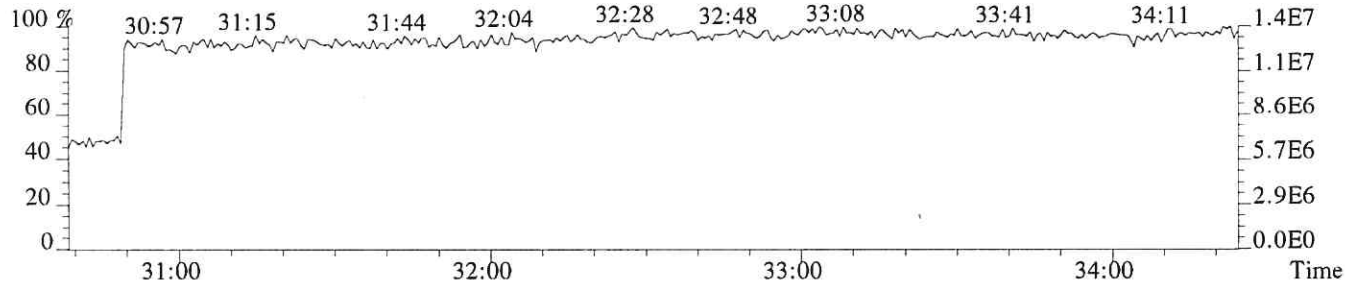
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



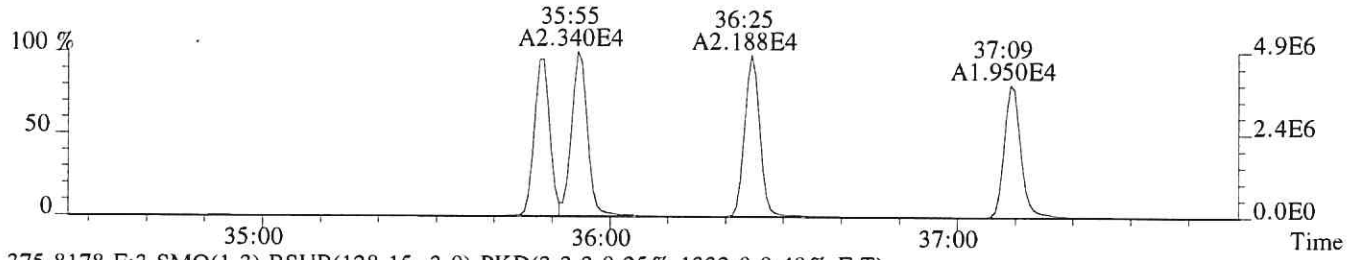
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



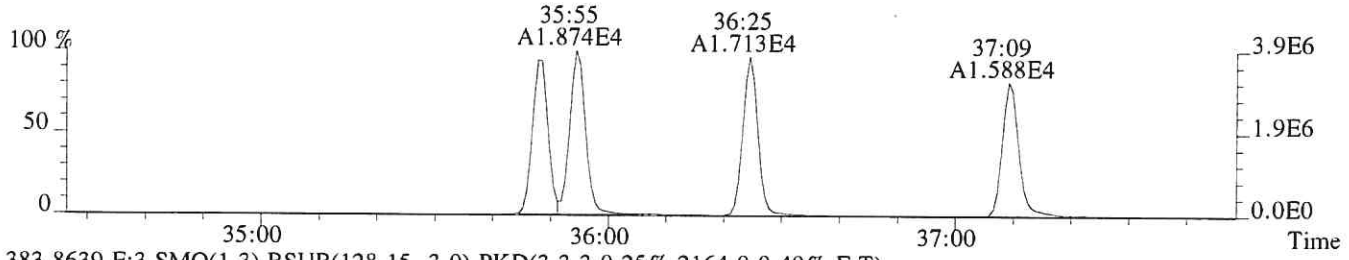
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



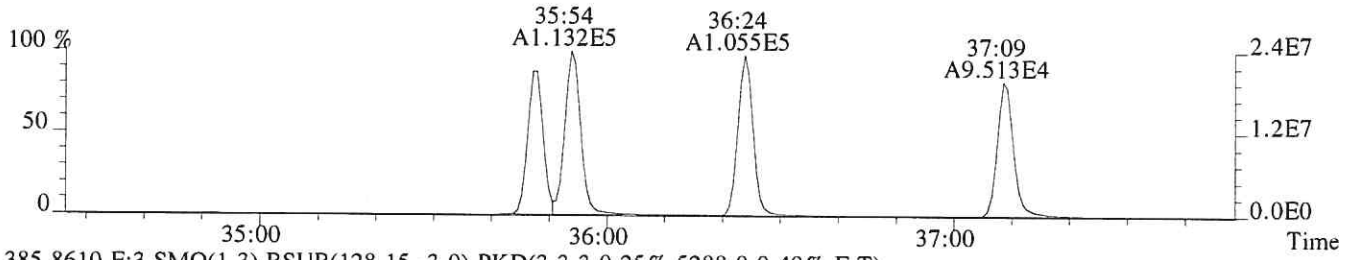
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



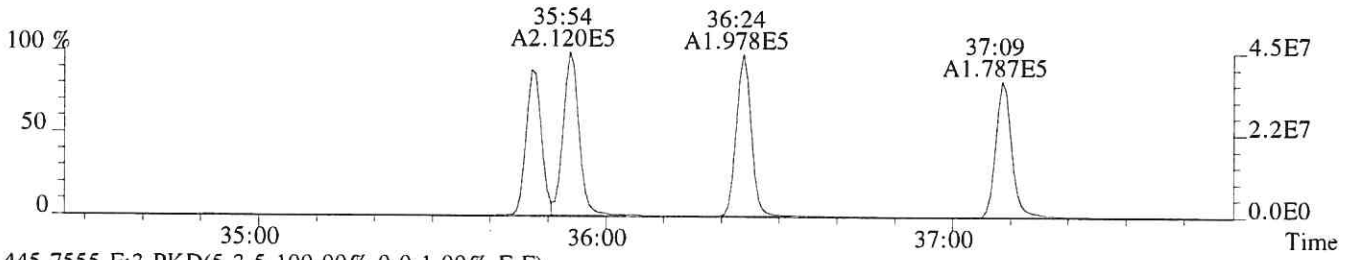
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



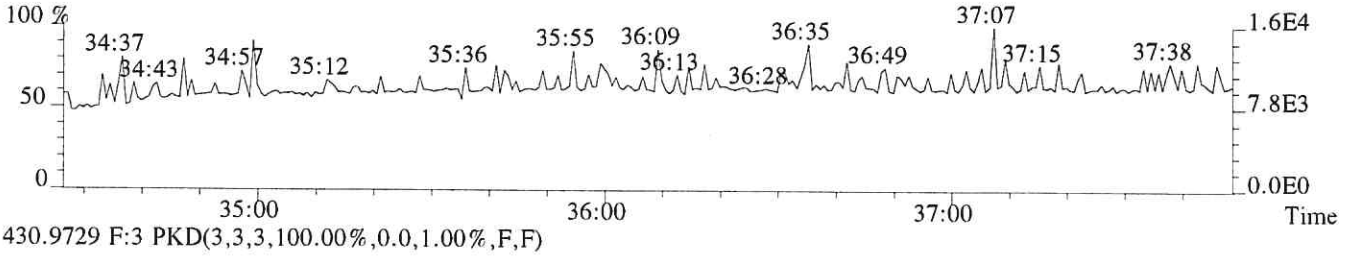
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



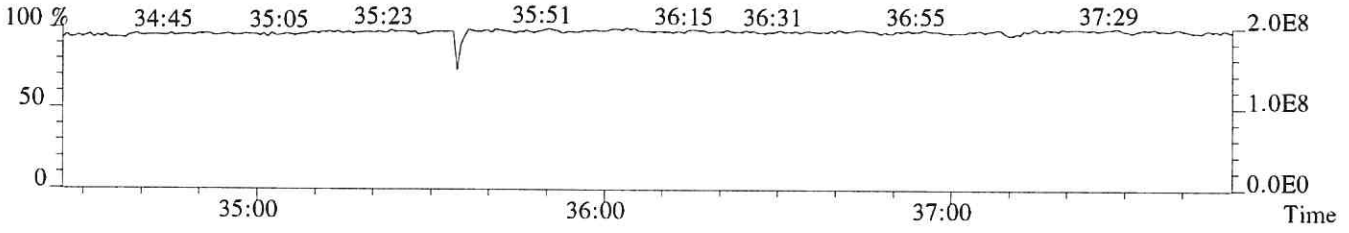
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



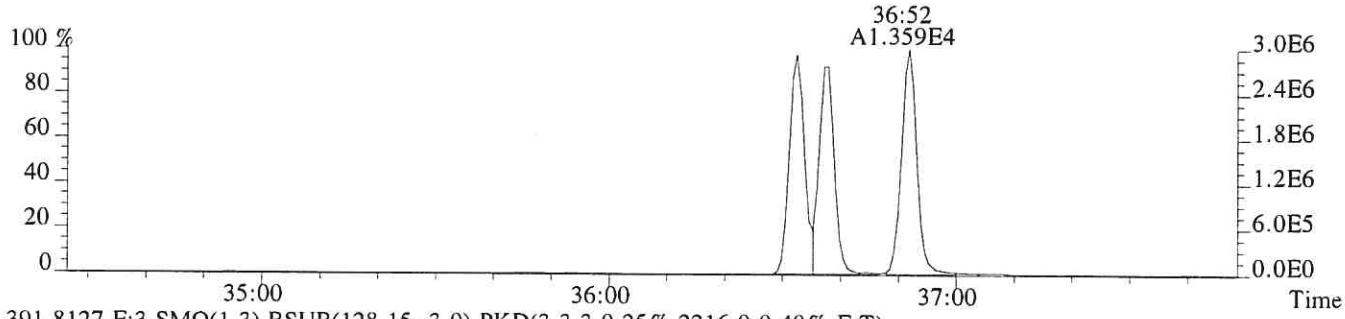
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



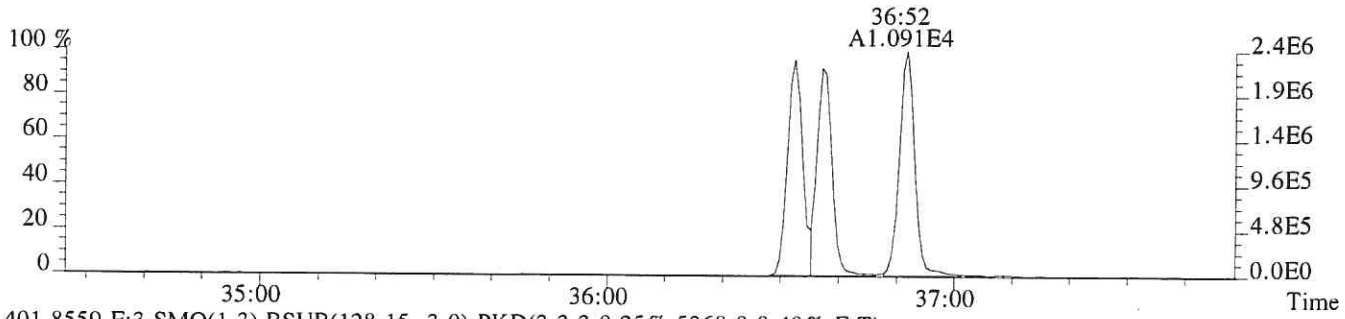
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



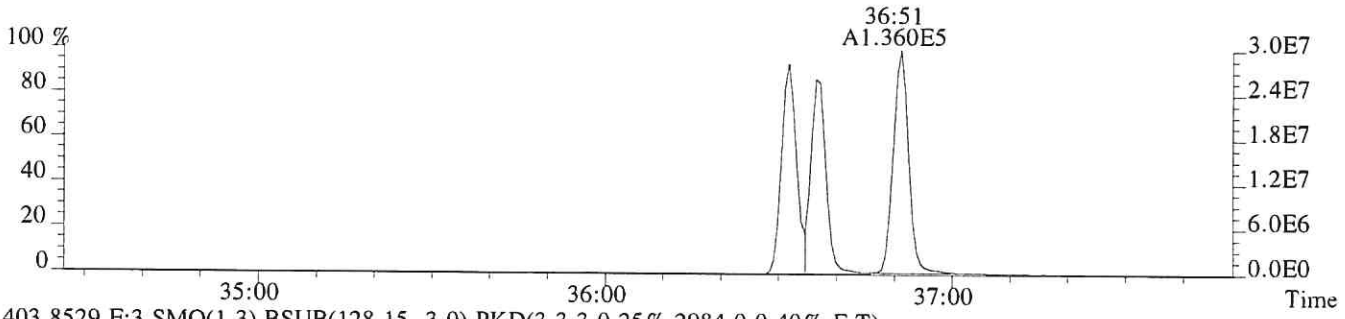
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



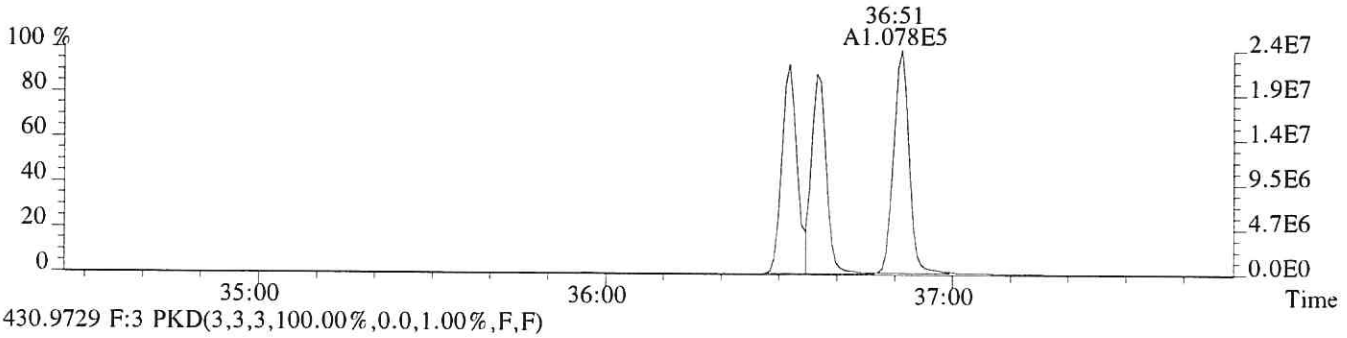
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



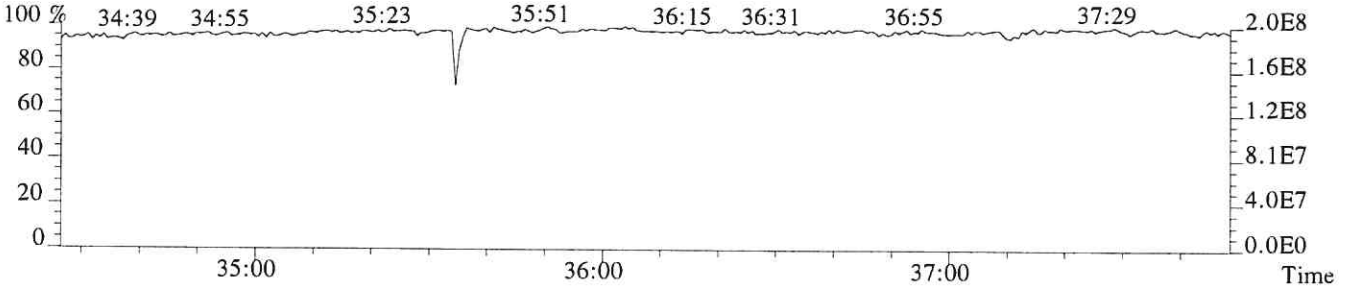
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



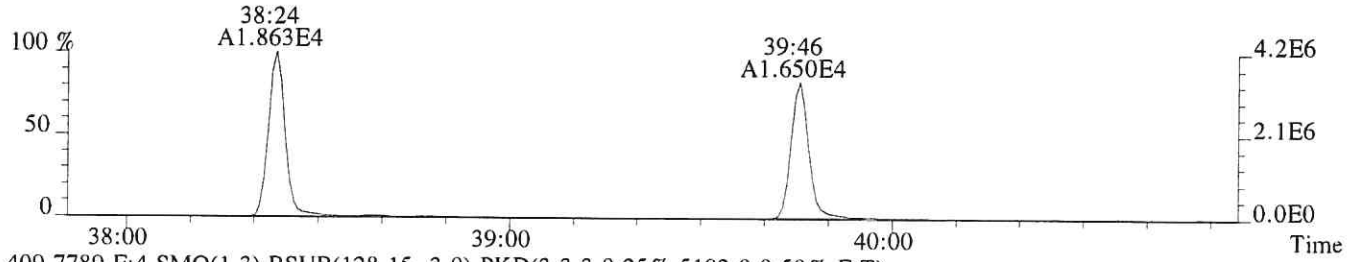
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



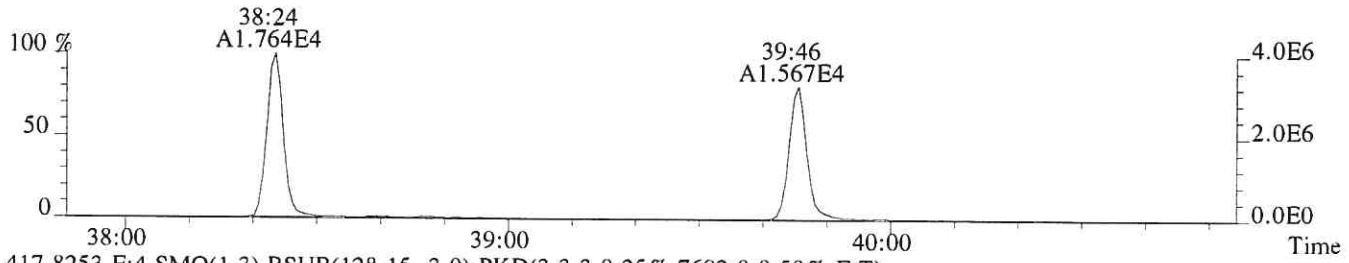
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



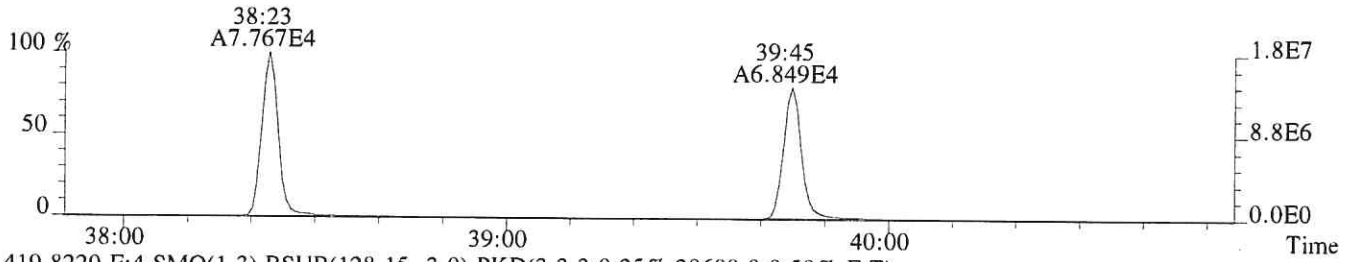
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



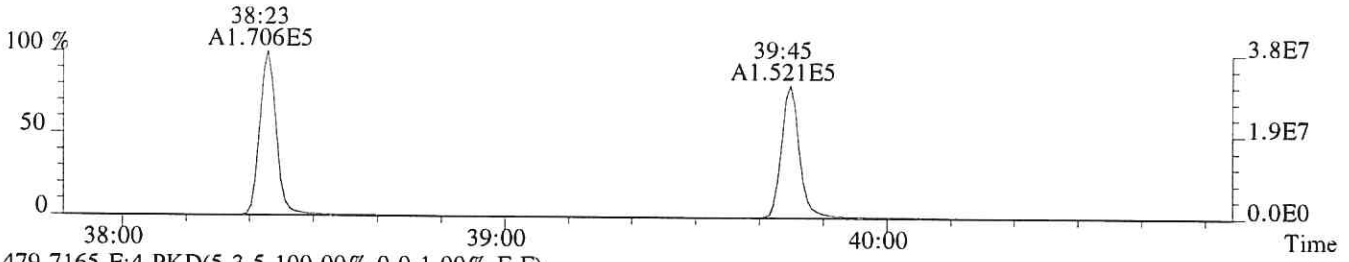
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



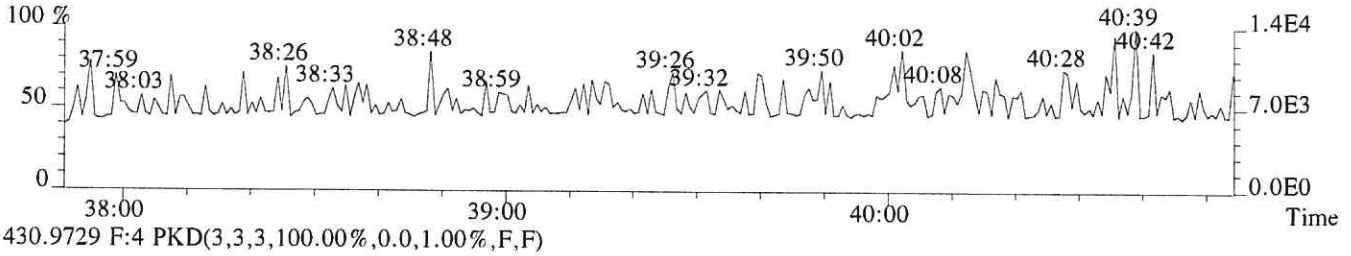
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



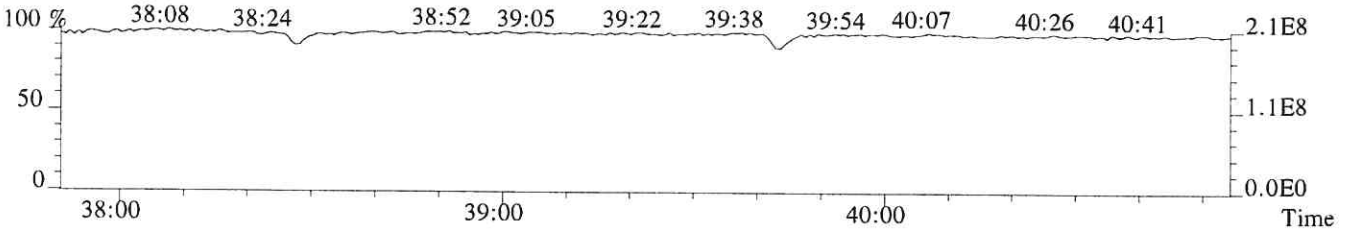
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



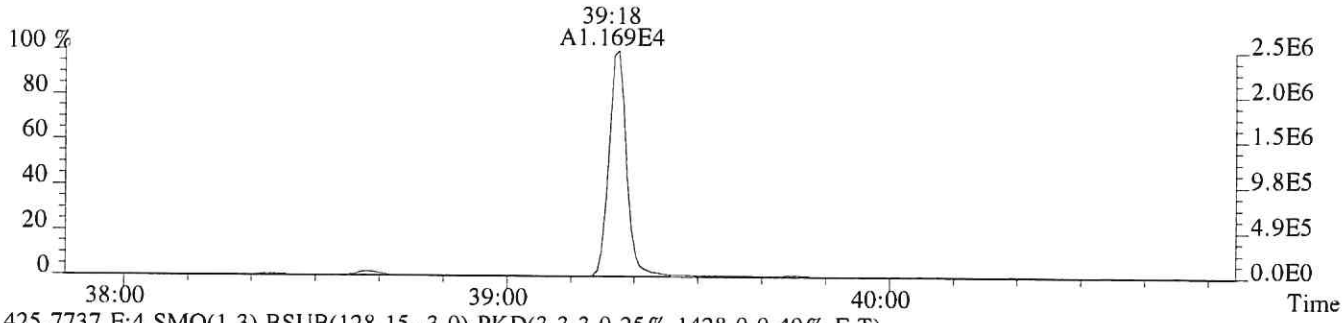
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



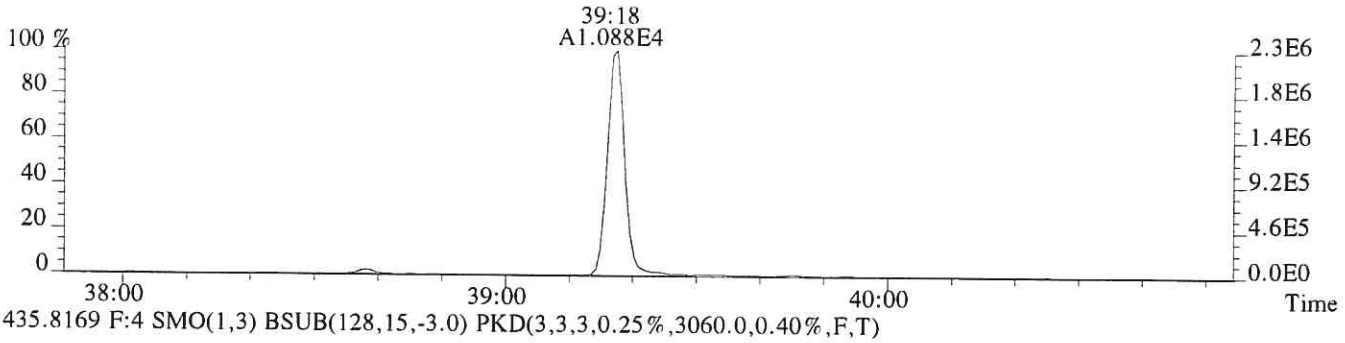
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



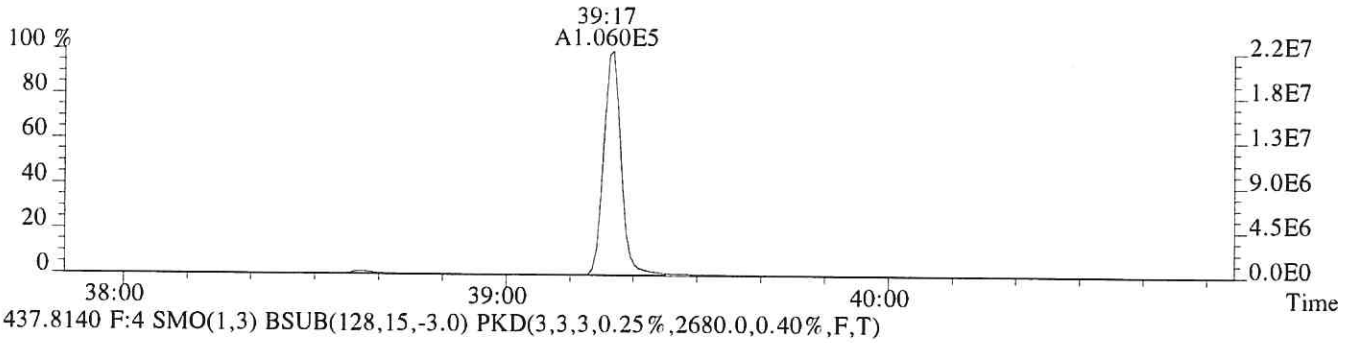
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



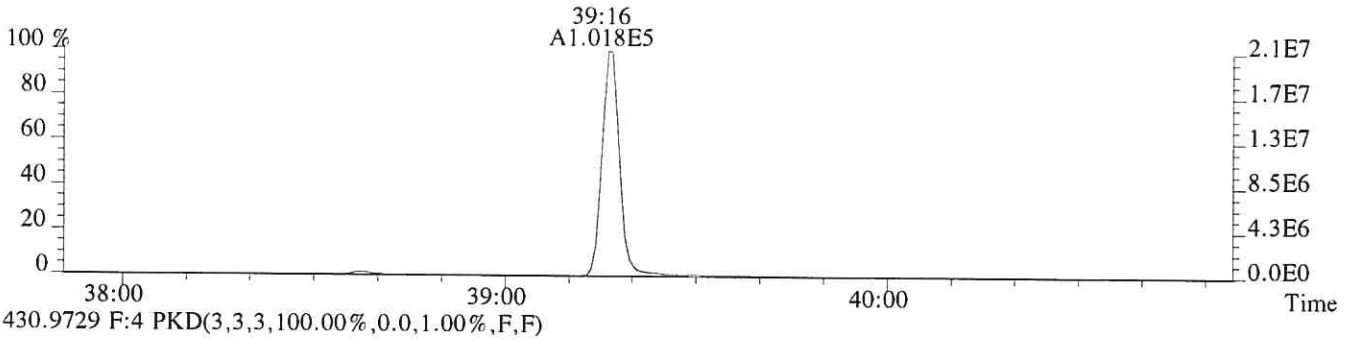
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



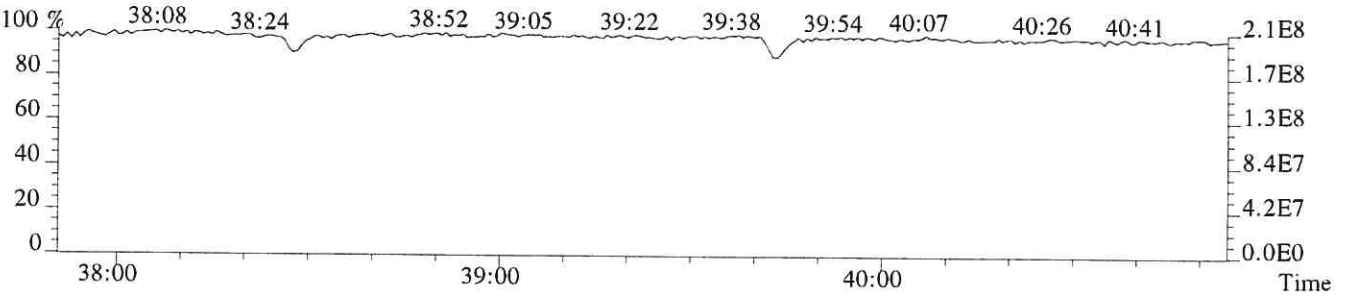
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



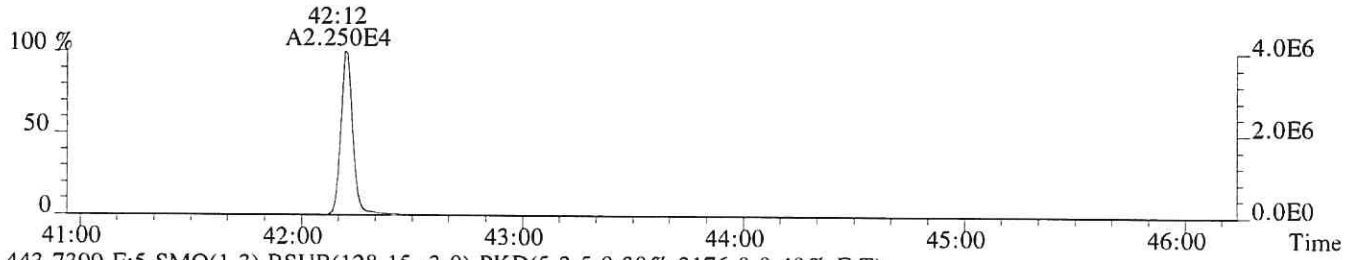
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



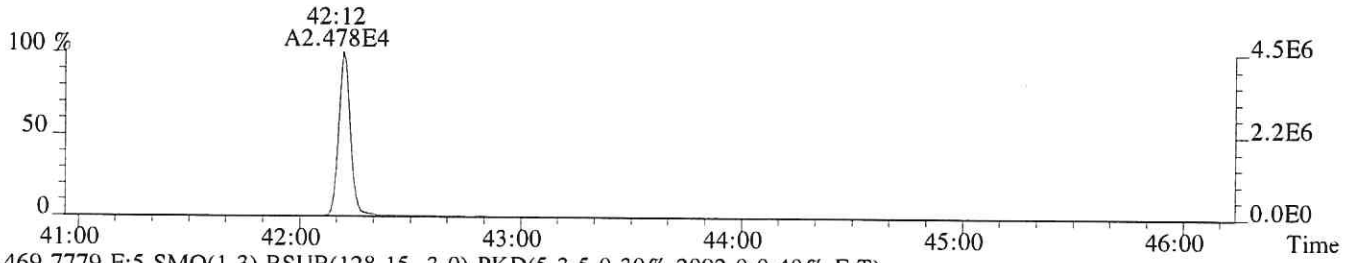
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



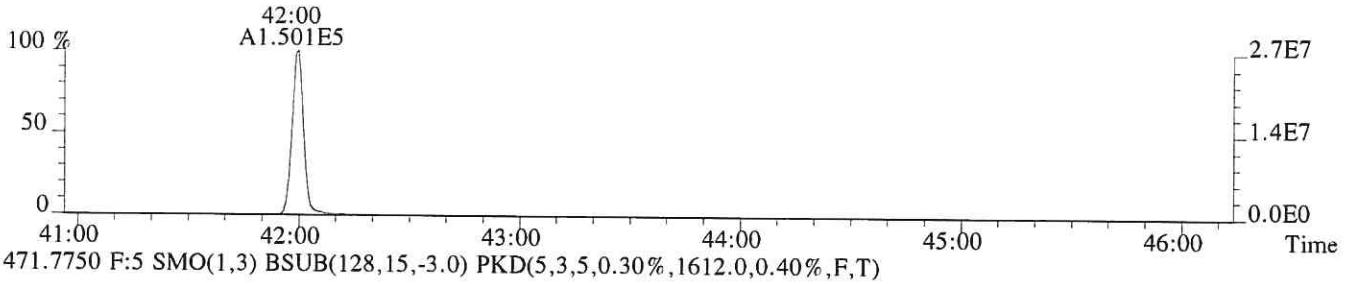
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



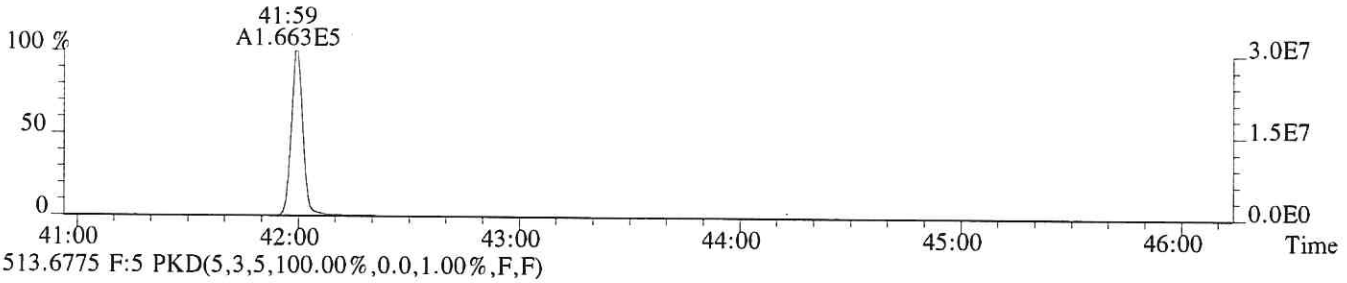
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



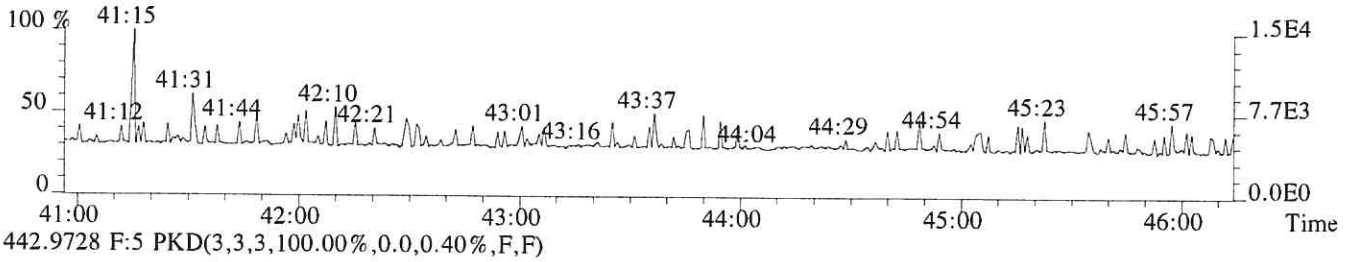
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



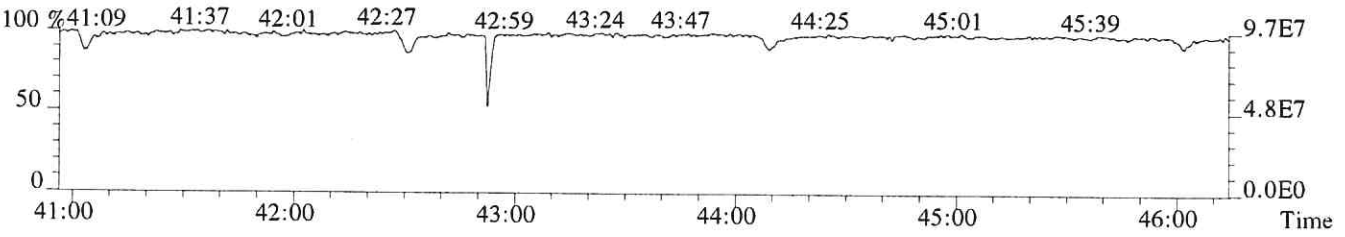
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



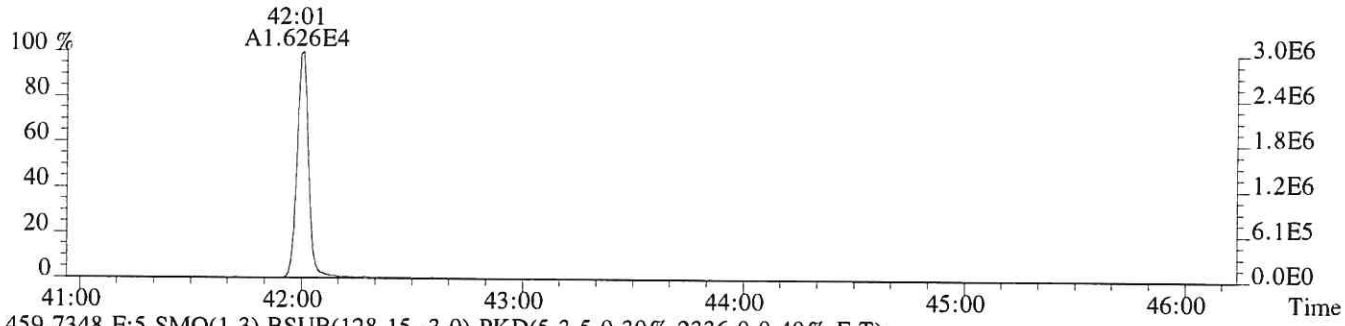
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



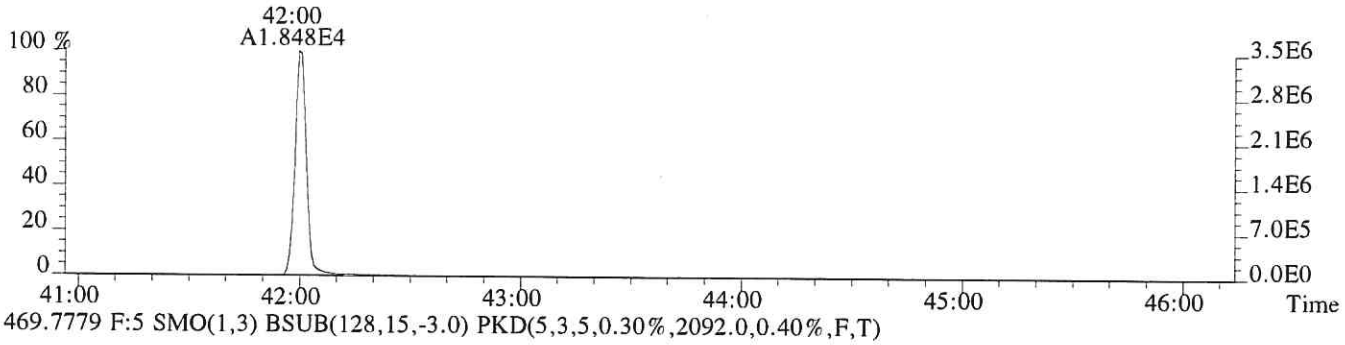
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



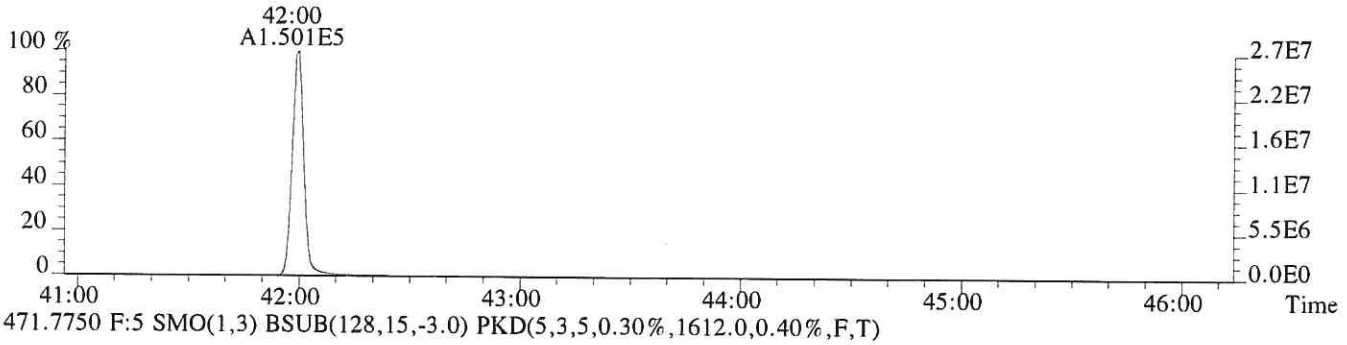
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



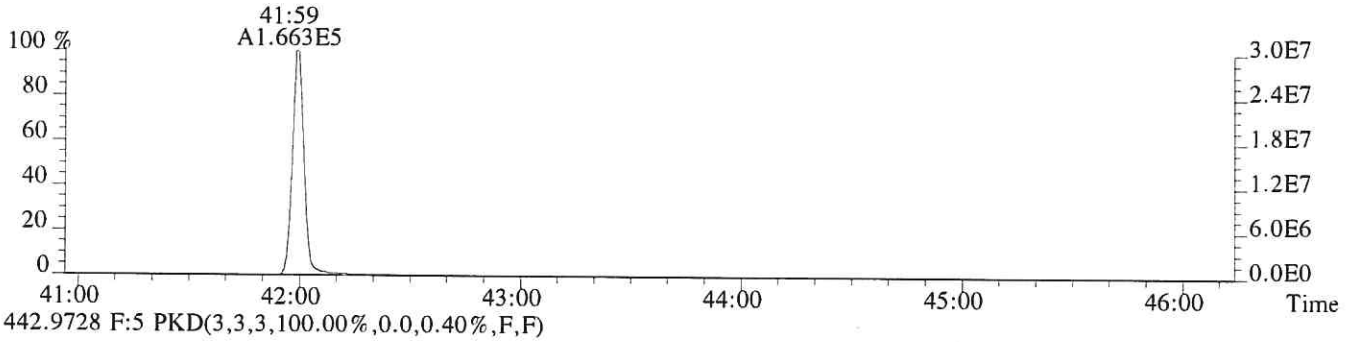
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



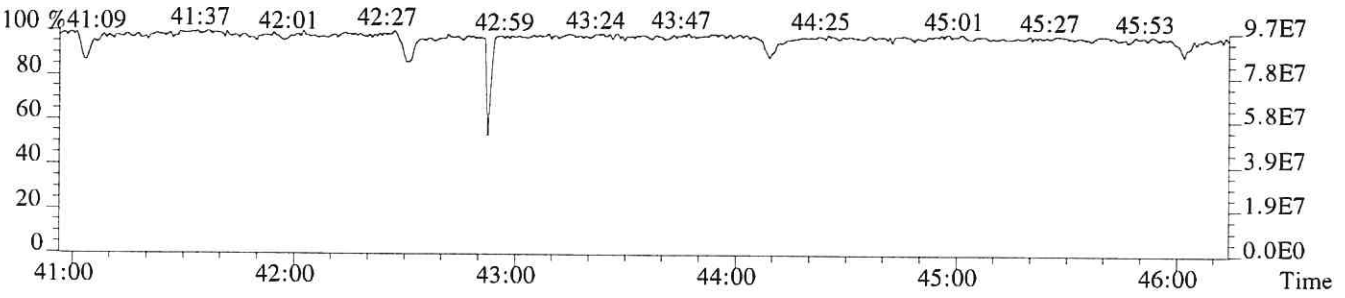
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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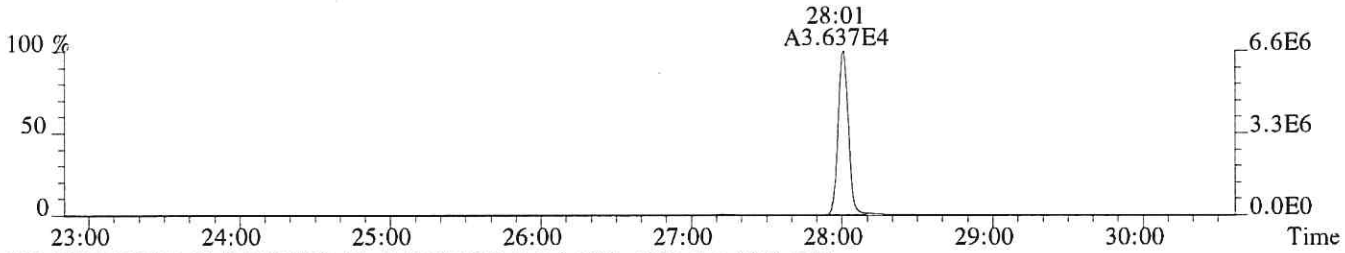
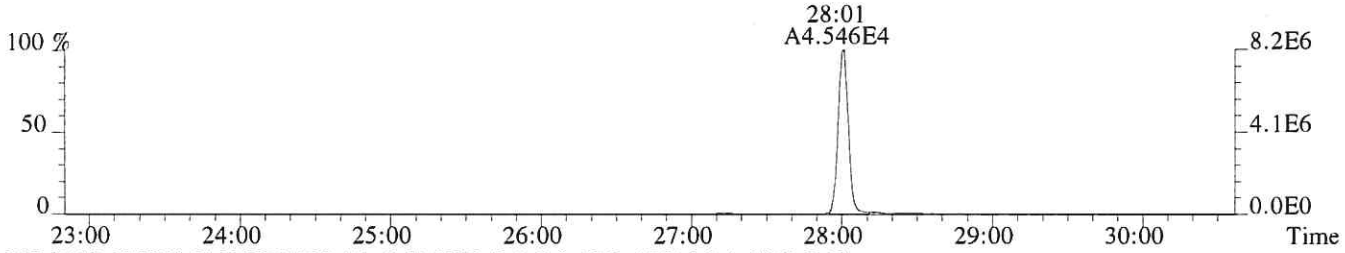
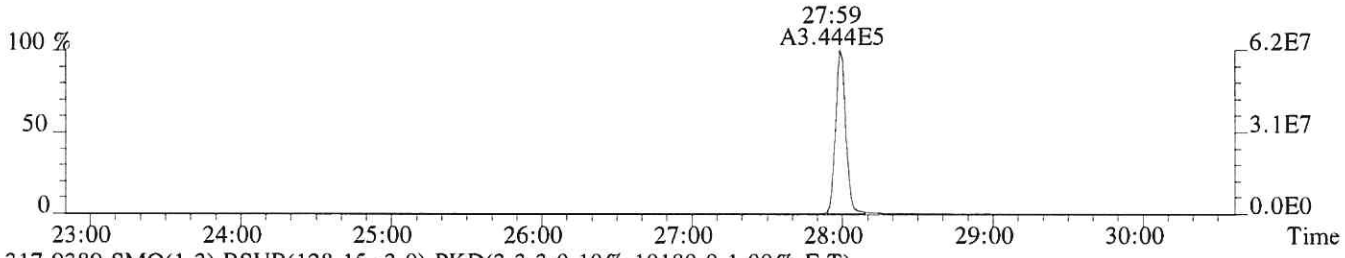
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



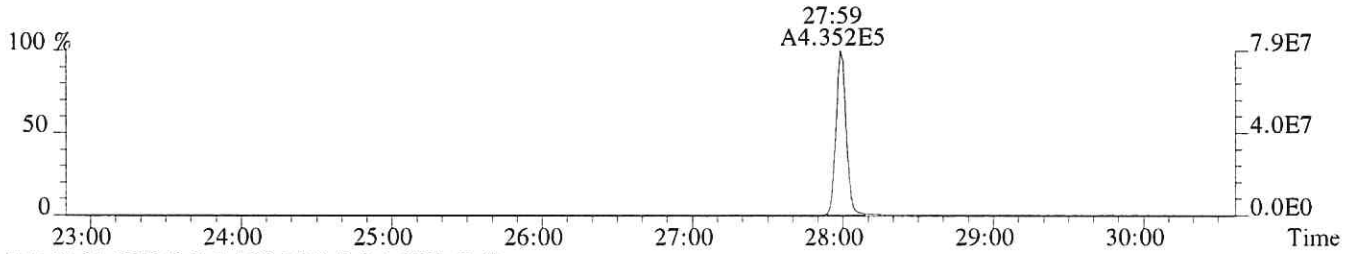
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



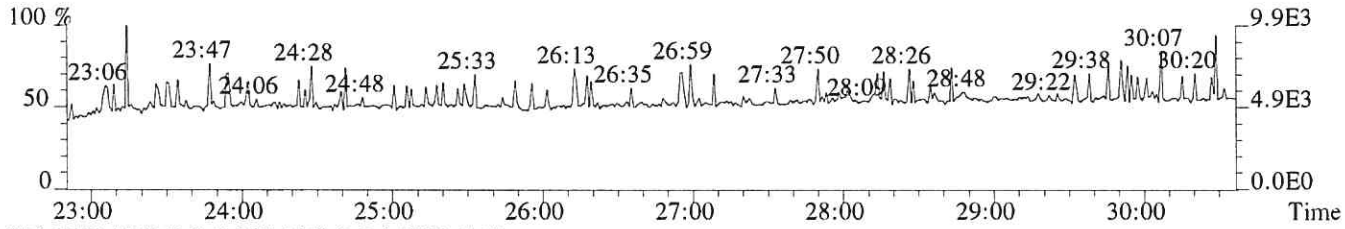
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



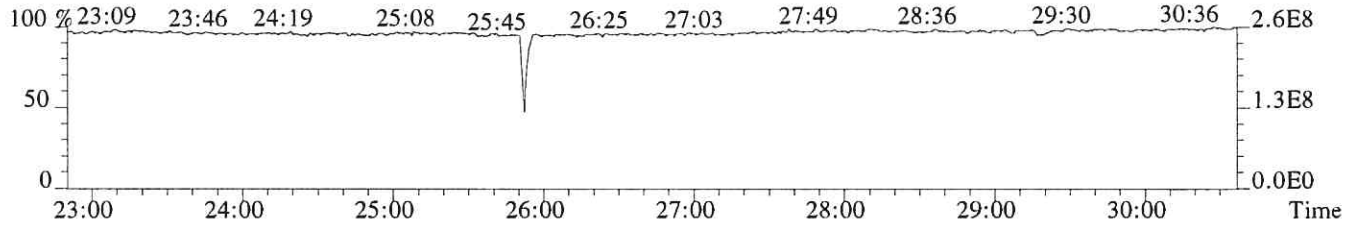
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



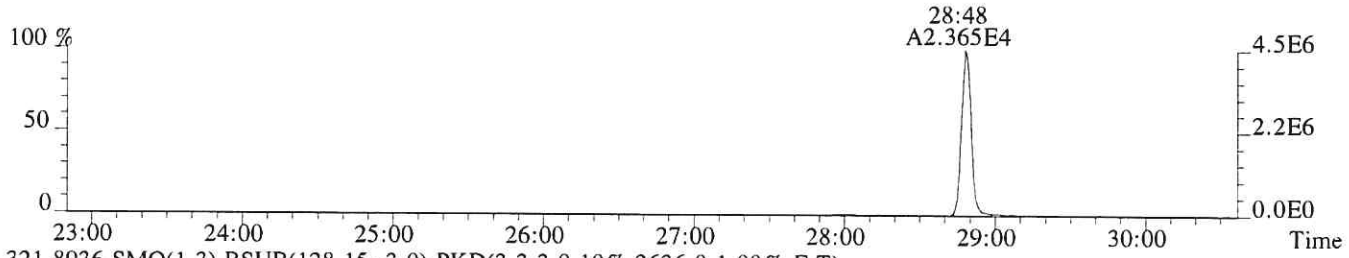
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



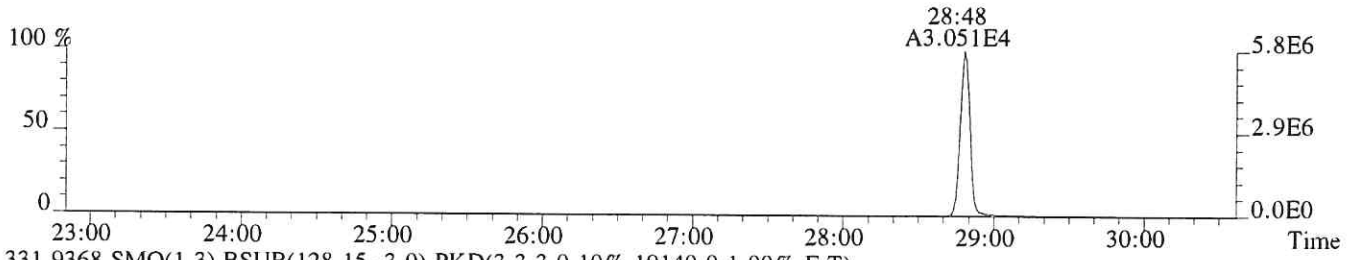
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



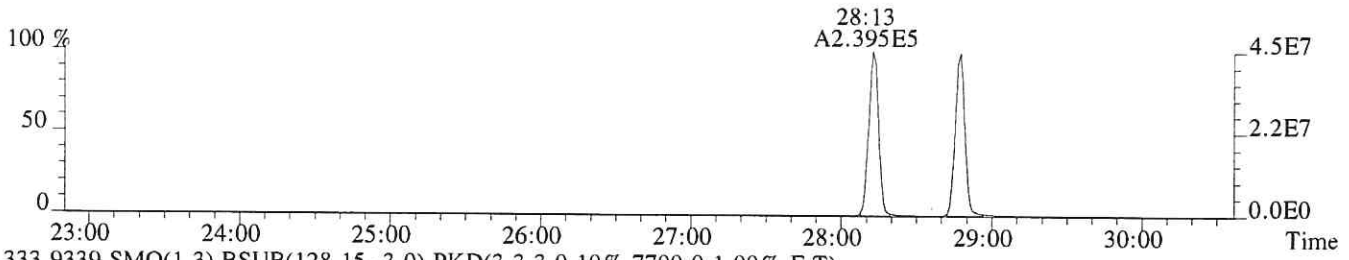
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



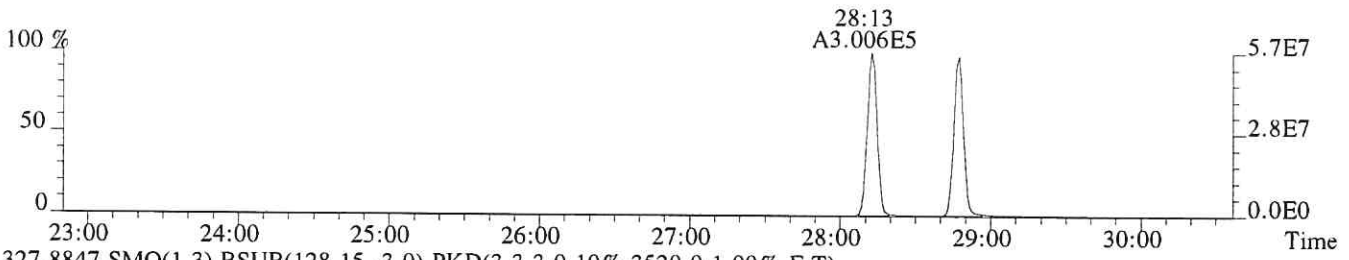
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



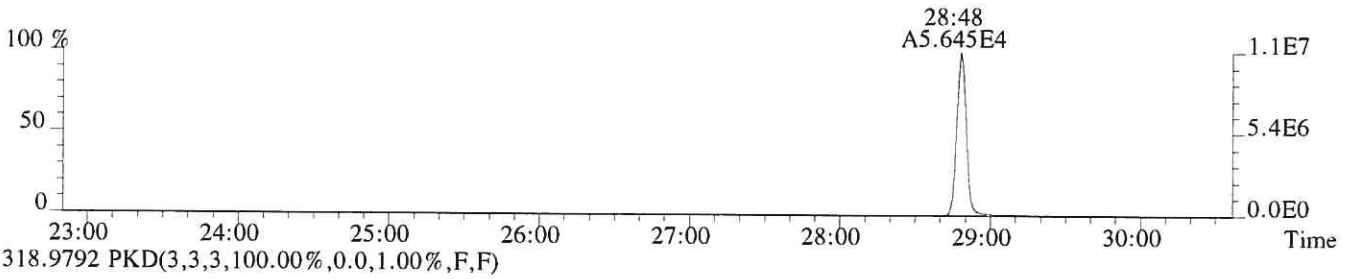
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



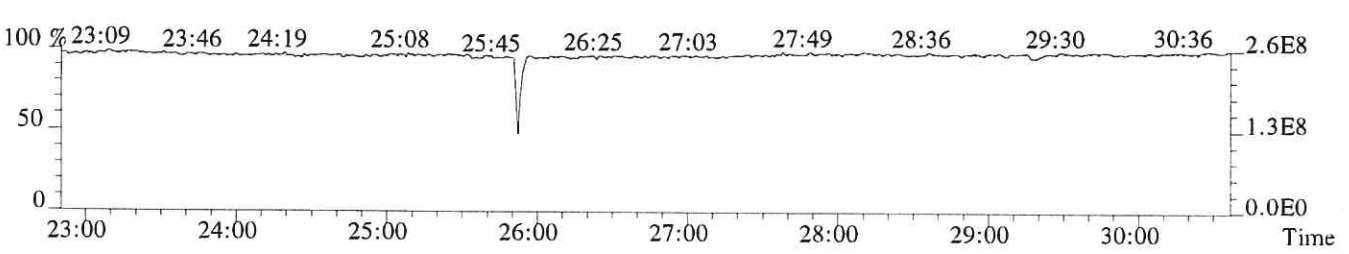
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



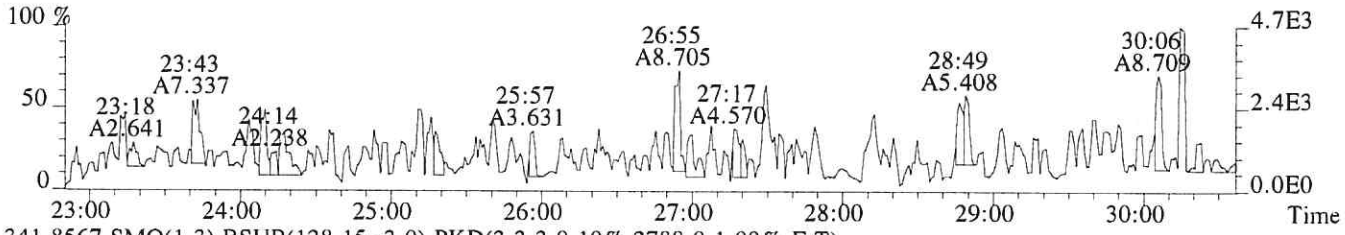
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)



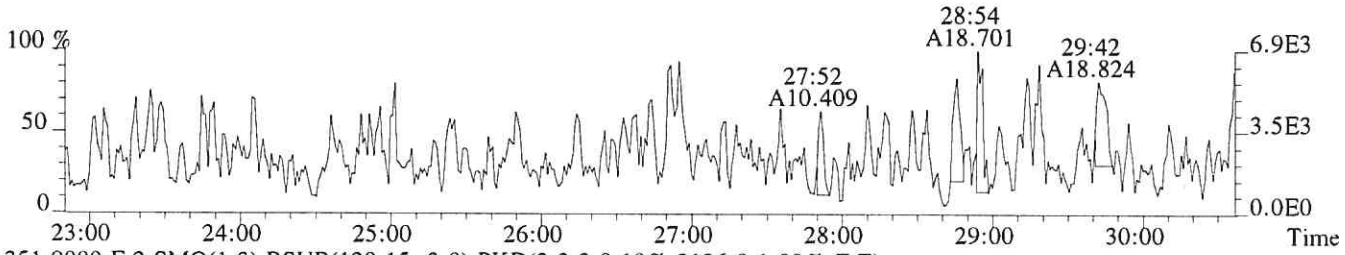
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



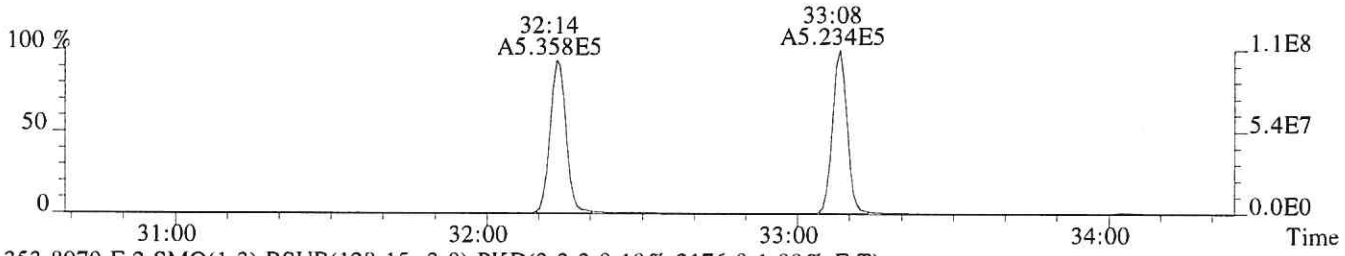
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



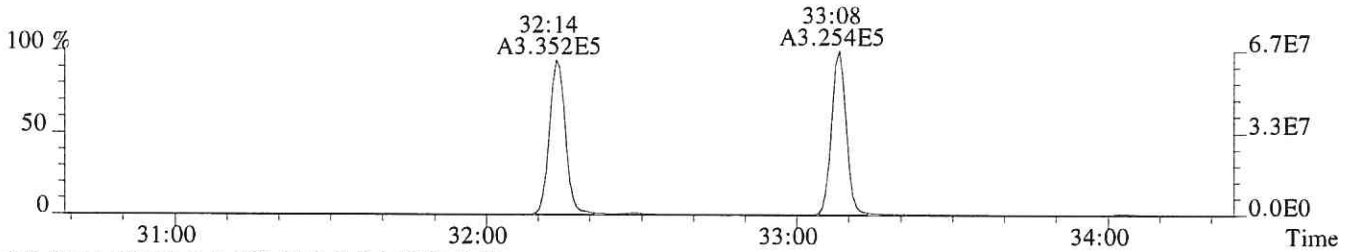
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



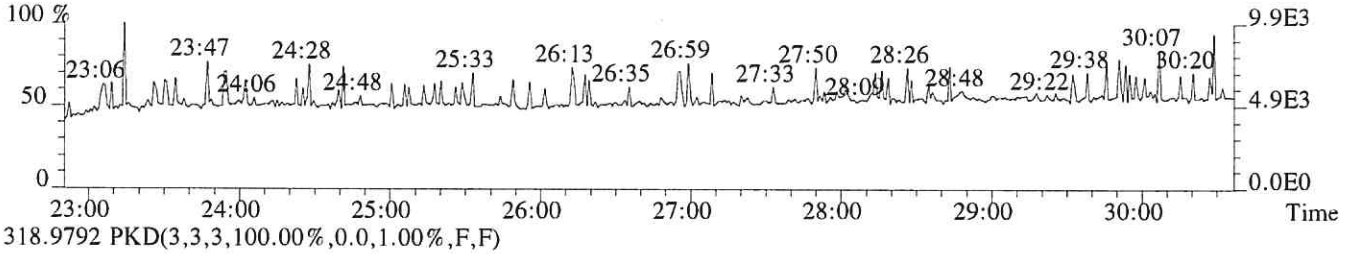
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



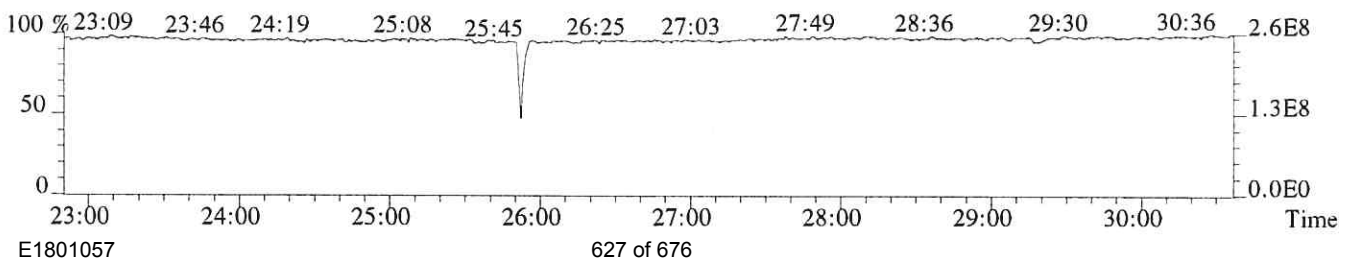
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



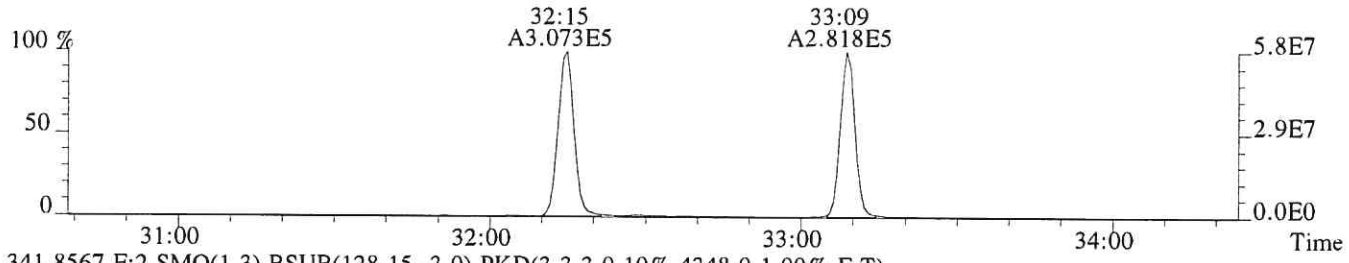
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



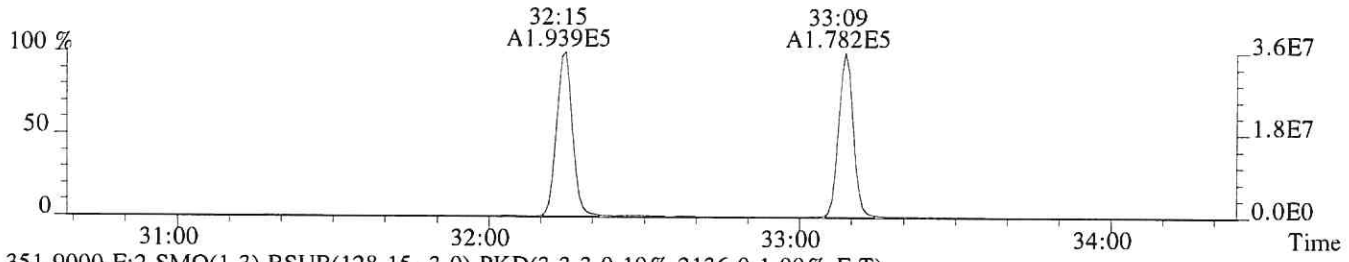
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



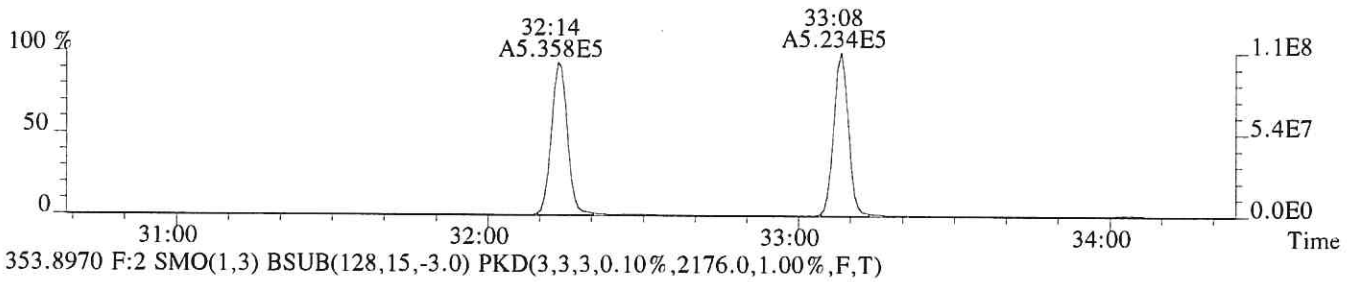
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



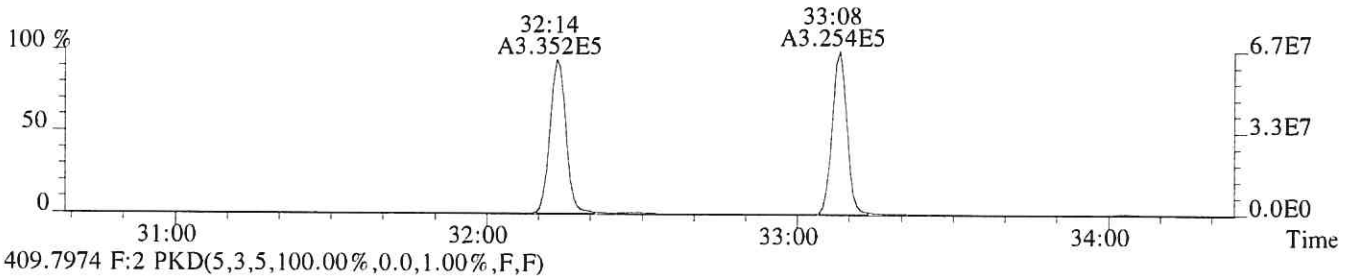
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



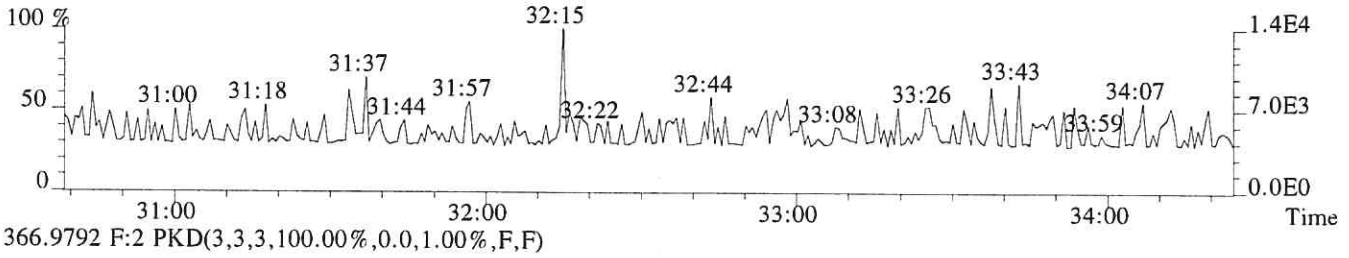
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



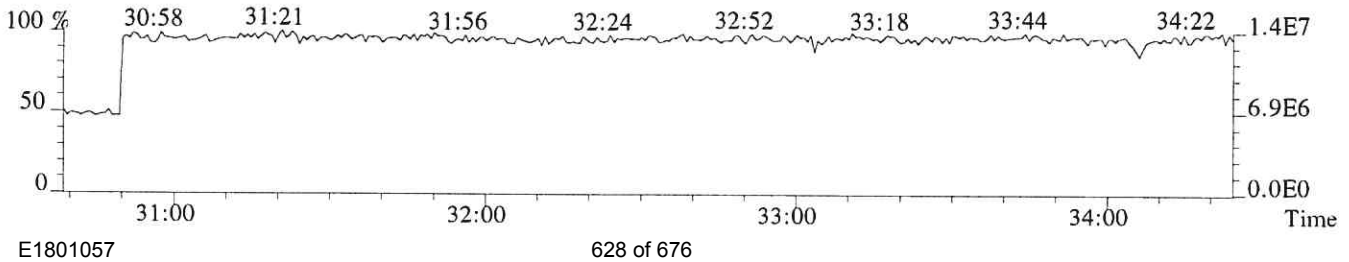
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



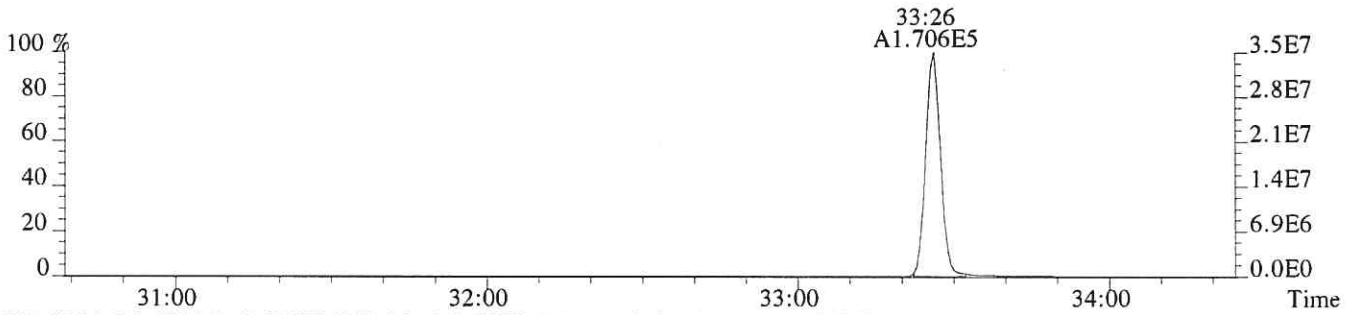
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



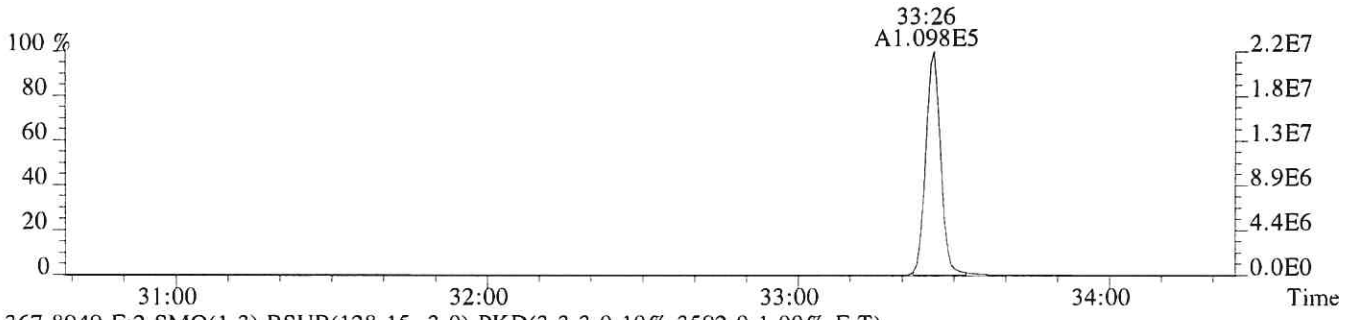
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



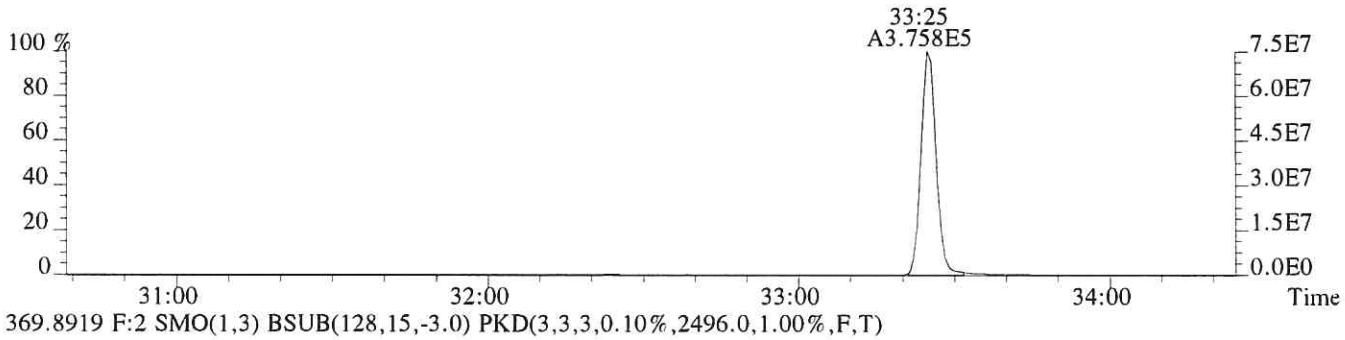
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



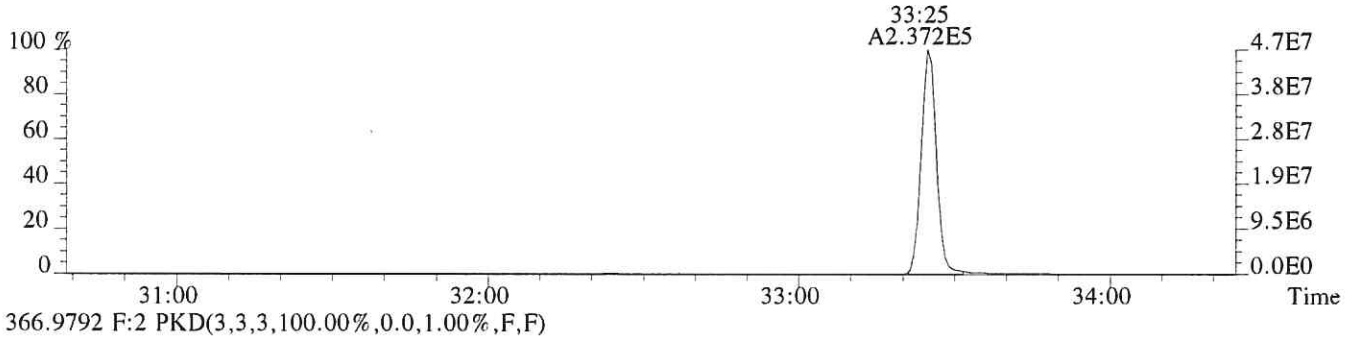
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



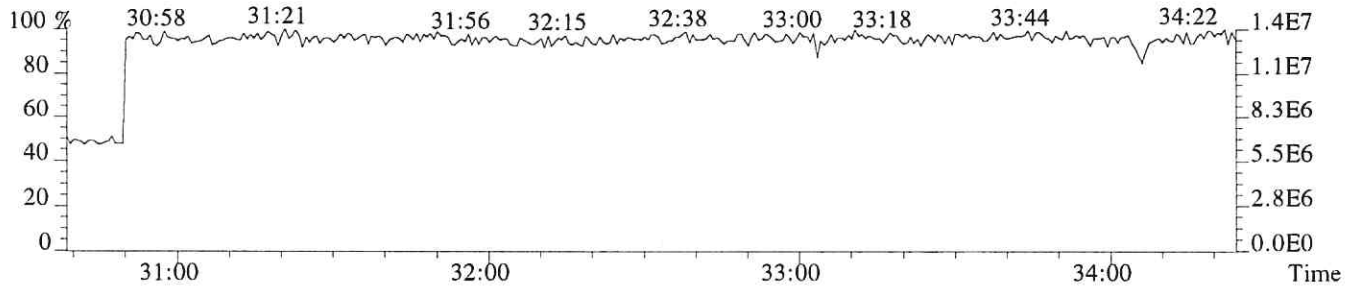
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



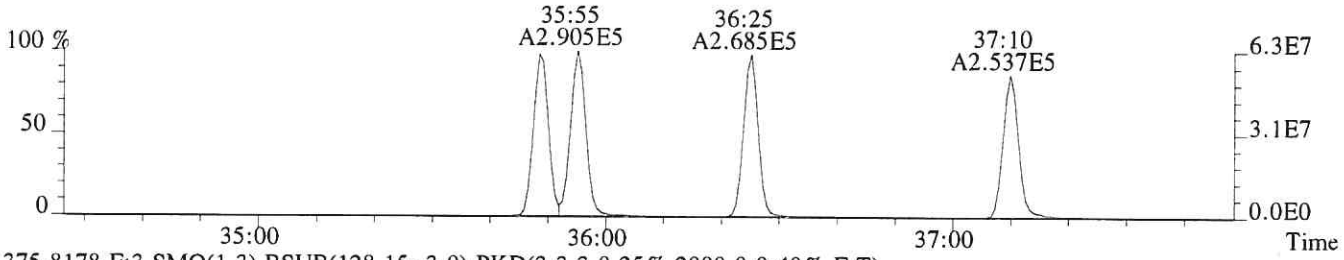
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



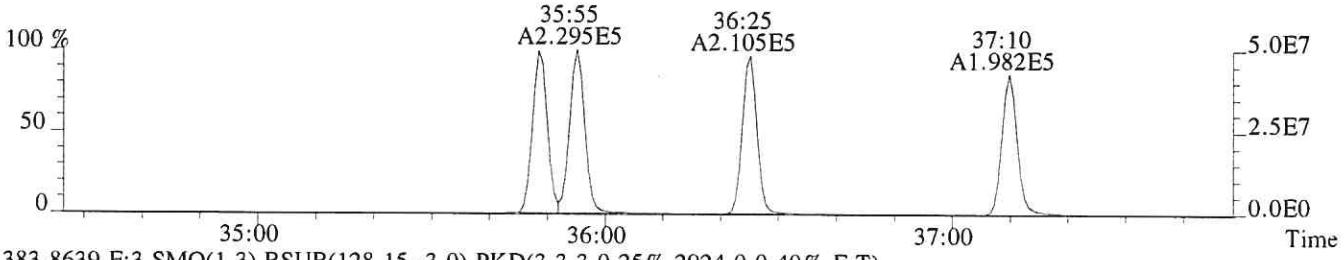
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



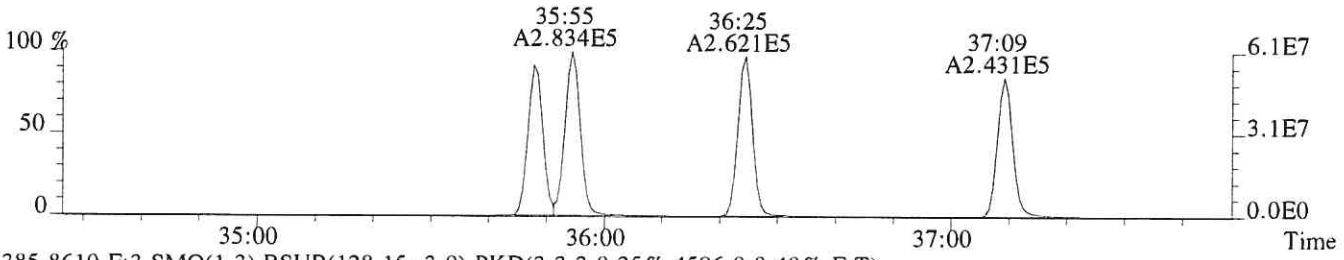
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



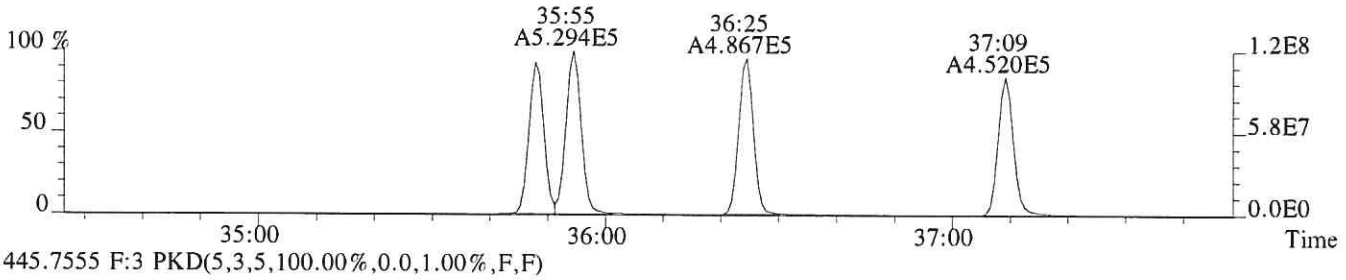
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



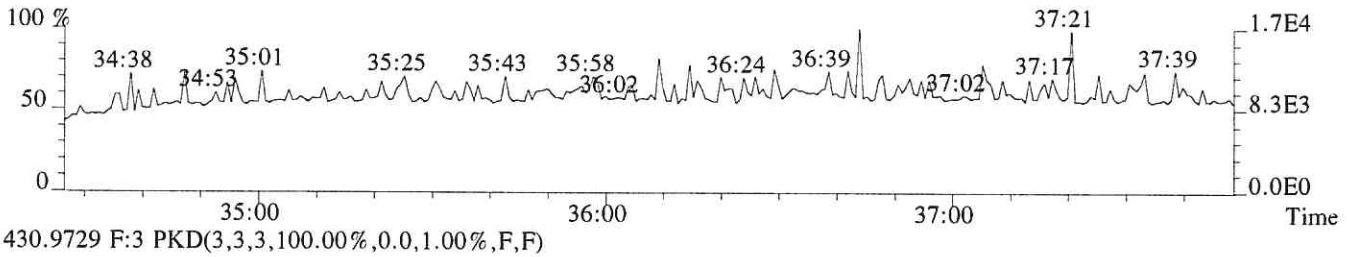
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



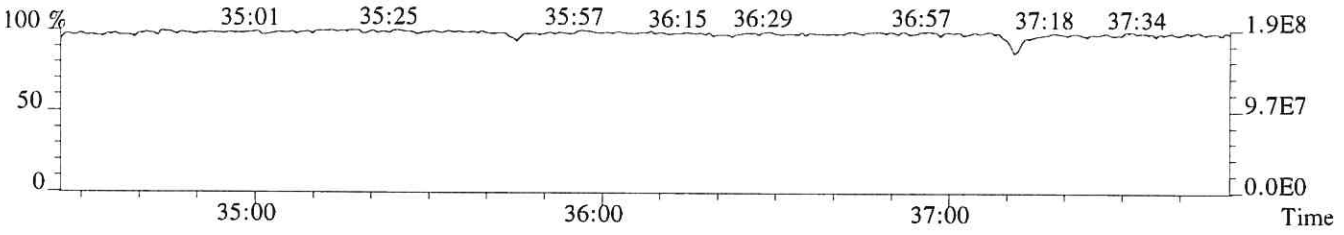
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



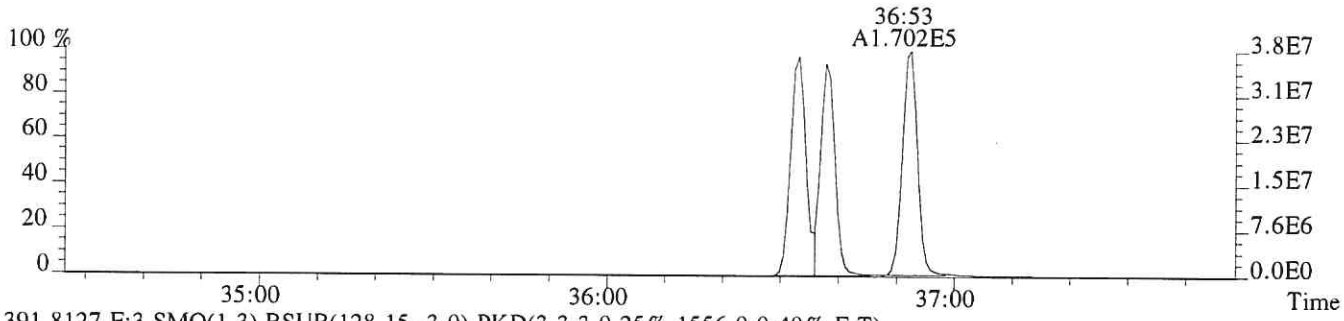
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



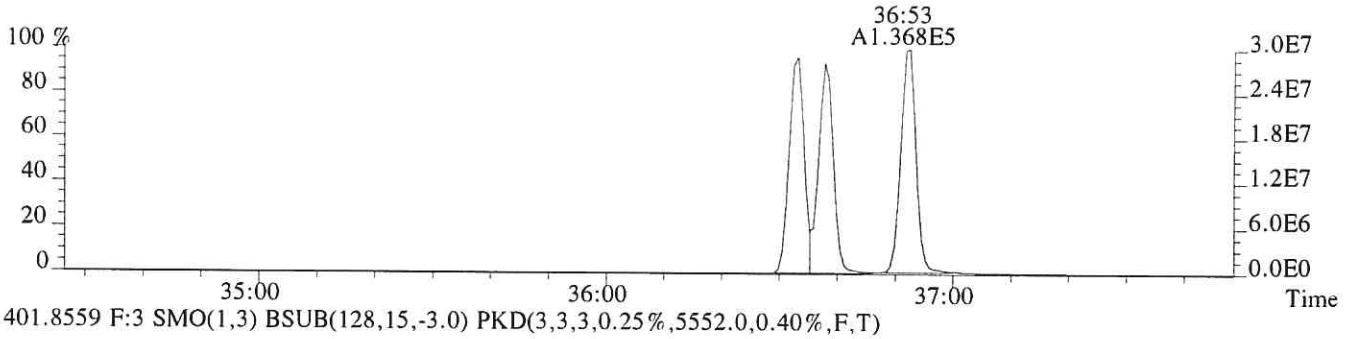
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



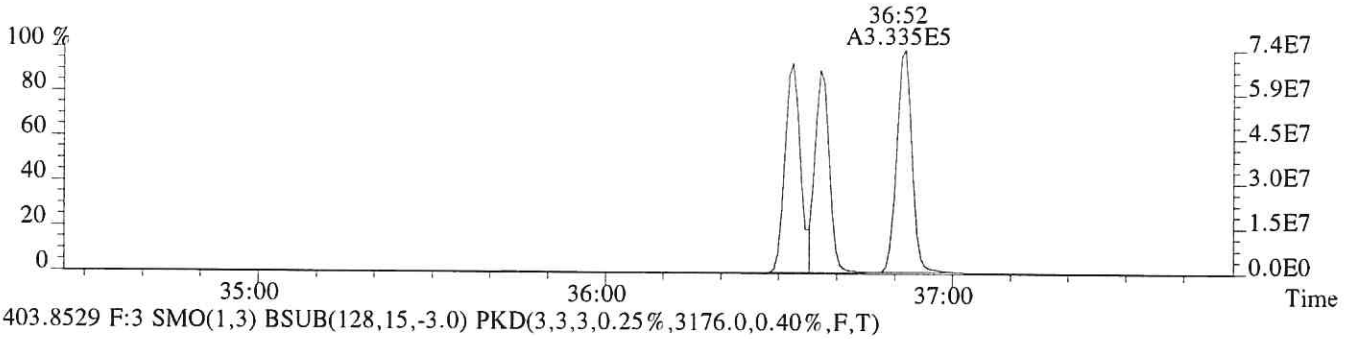
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



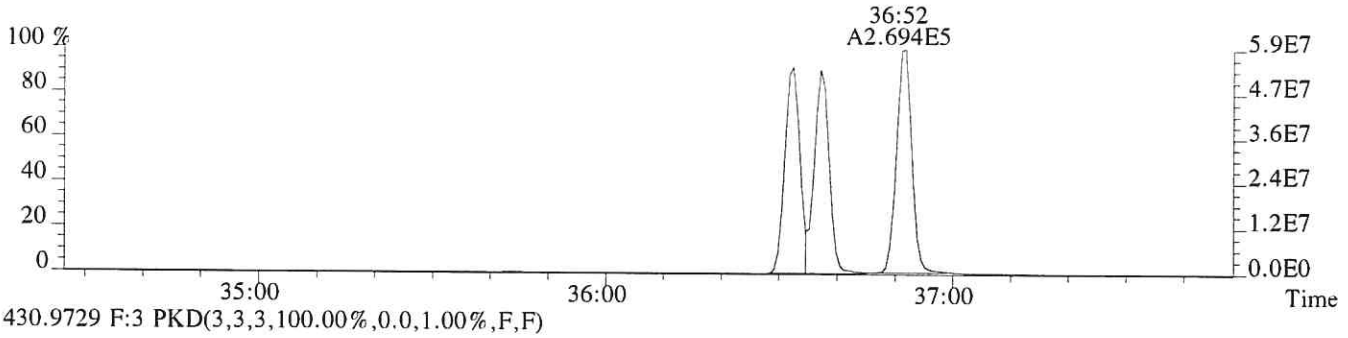
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



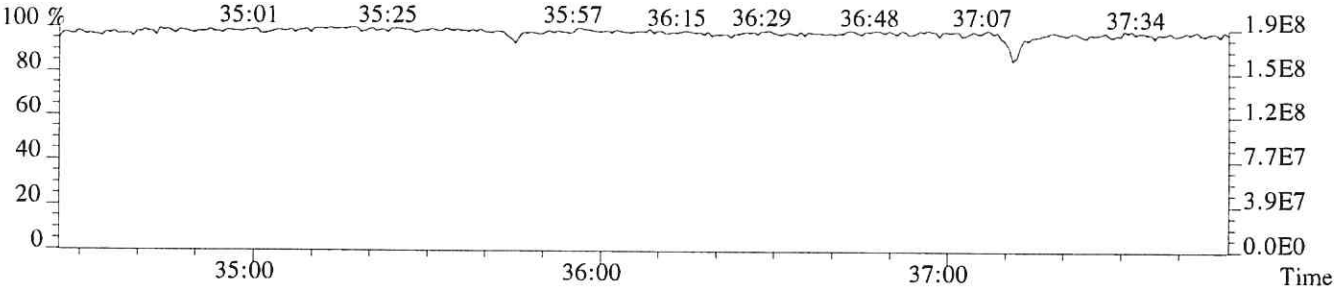
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



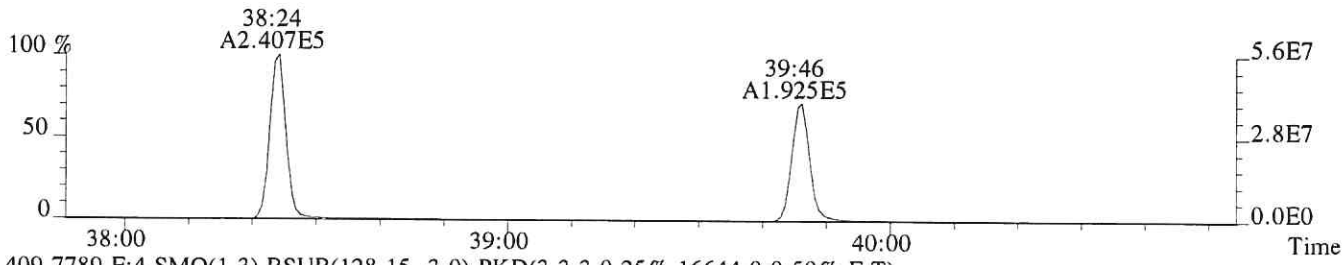
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



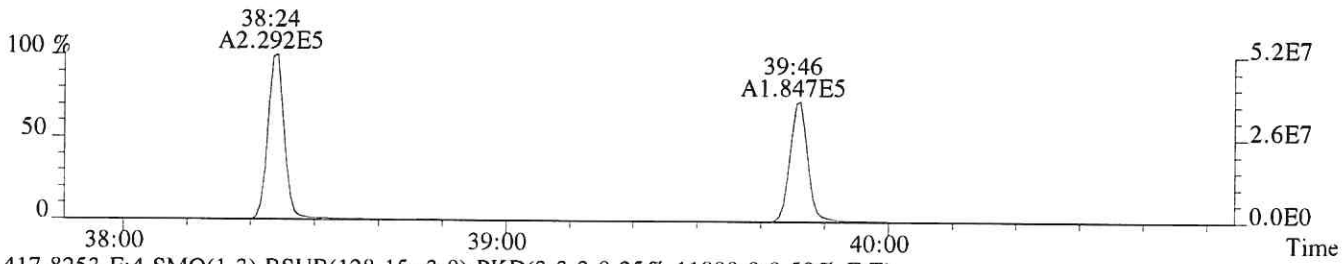
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



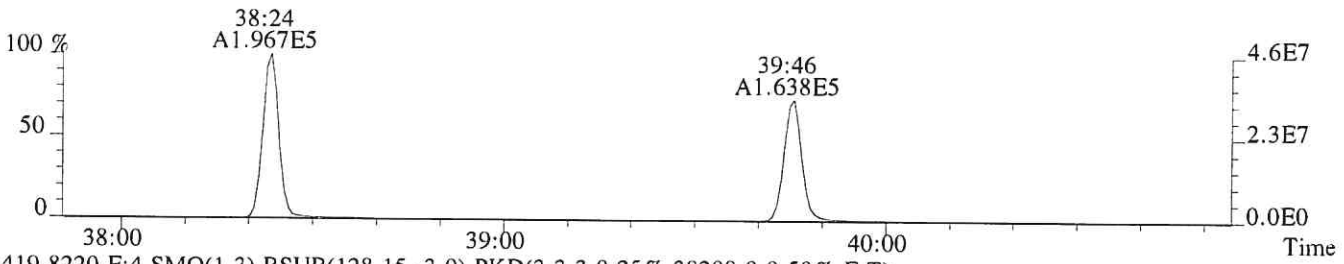
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



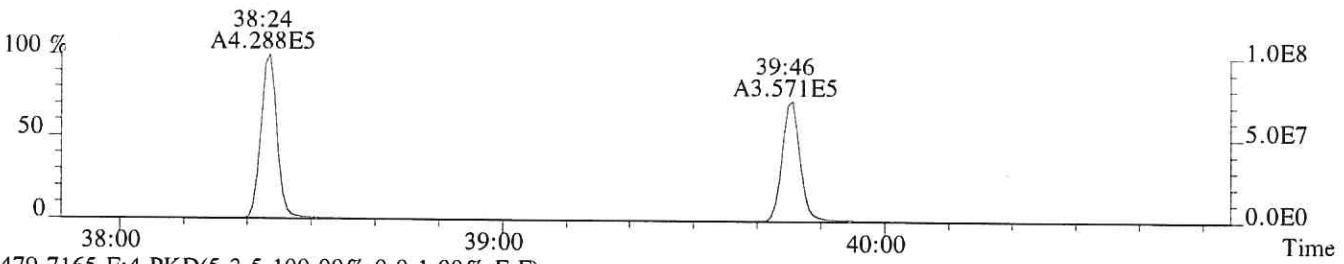
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



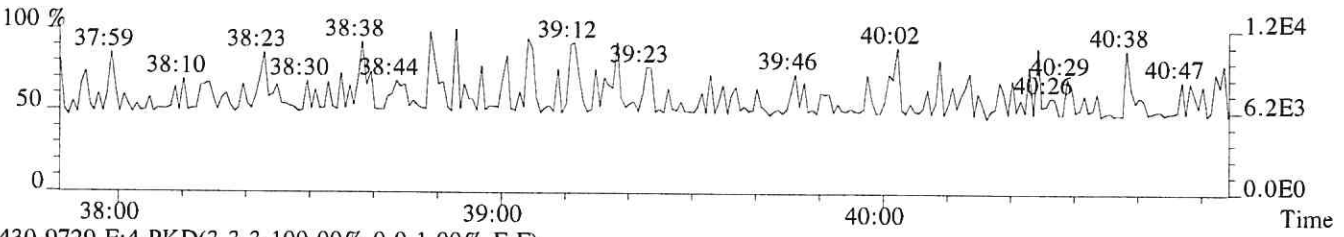
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



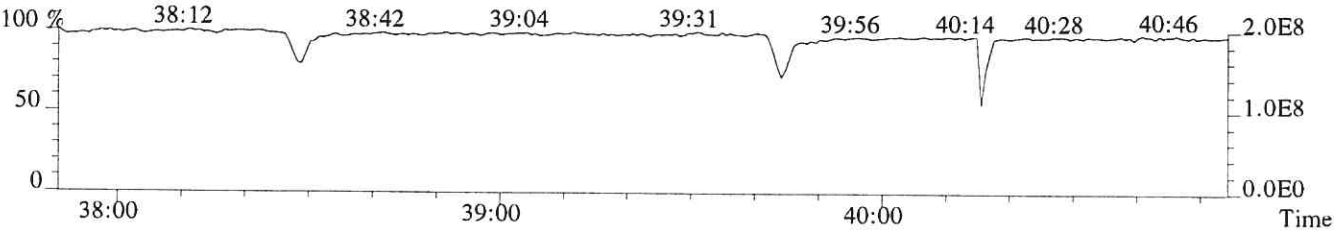
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



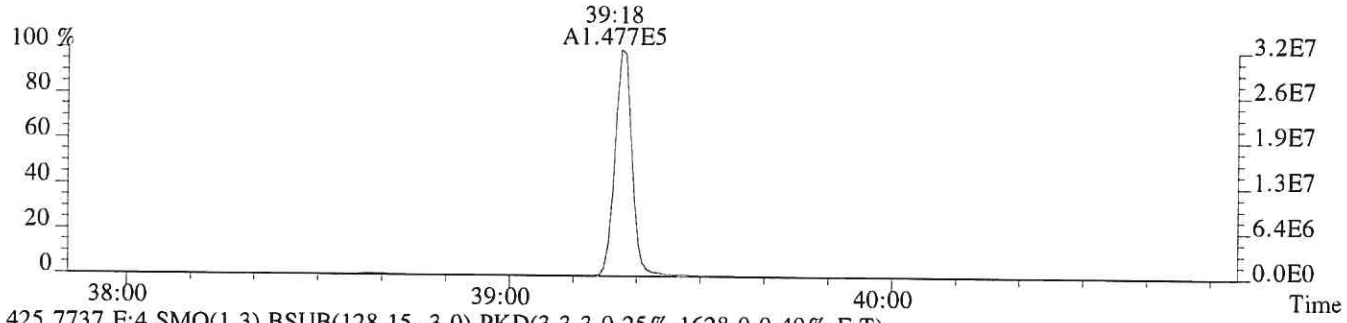
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



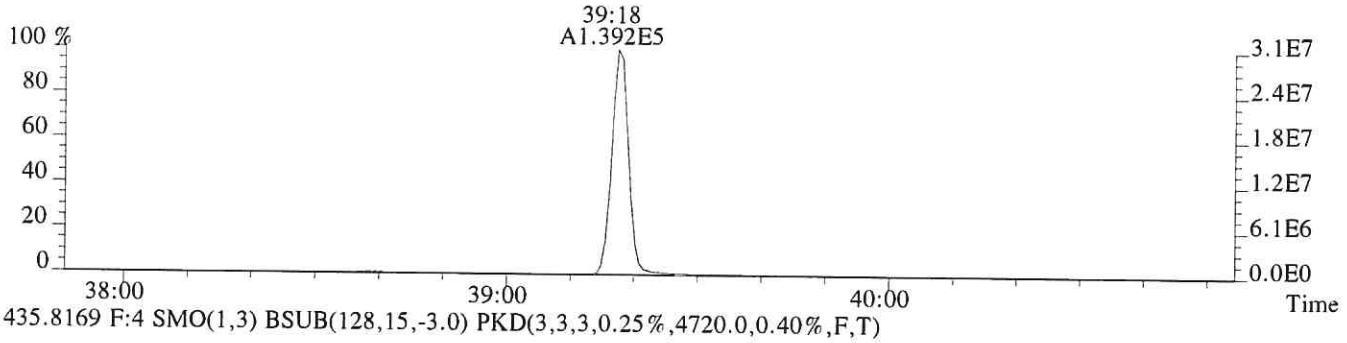
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



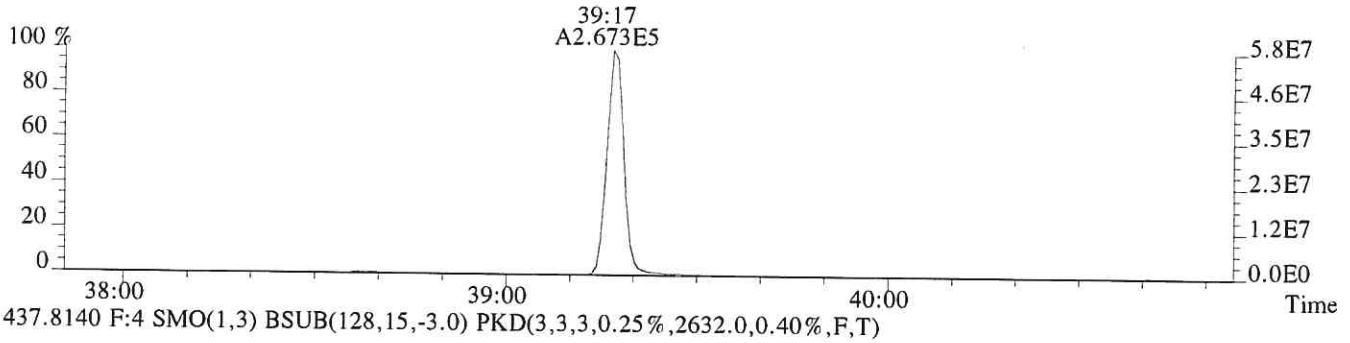
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



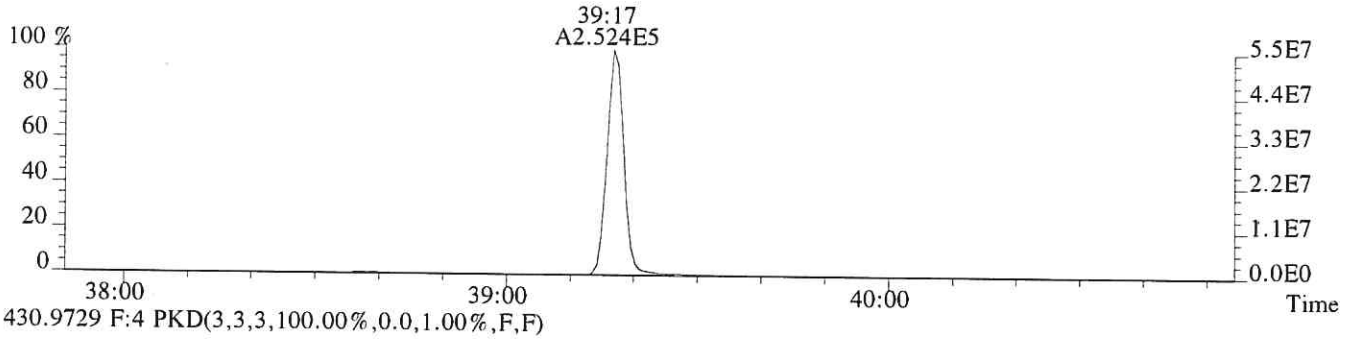
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



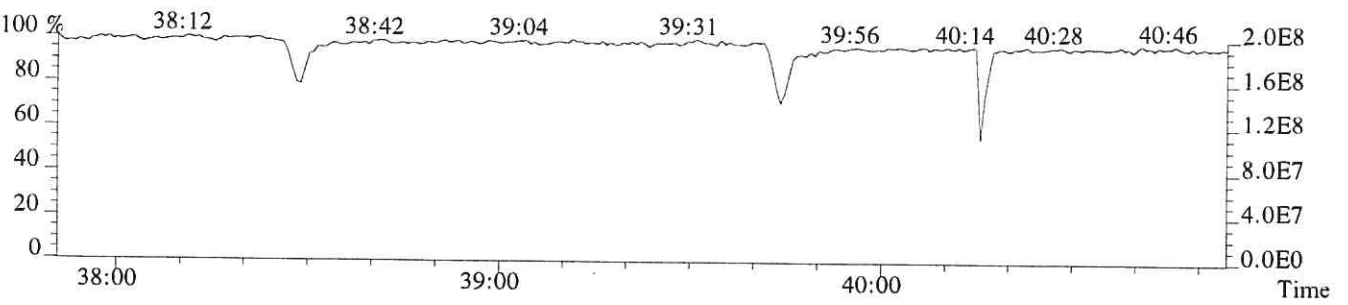
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



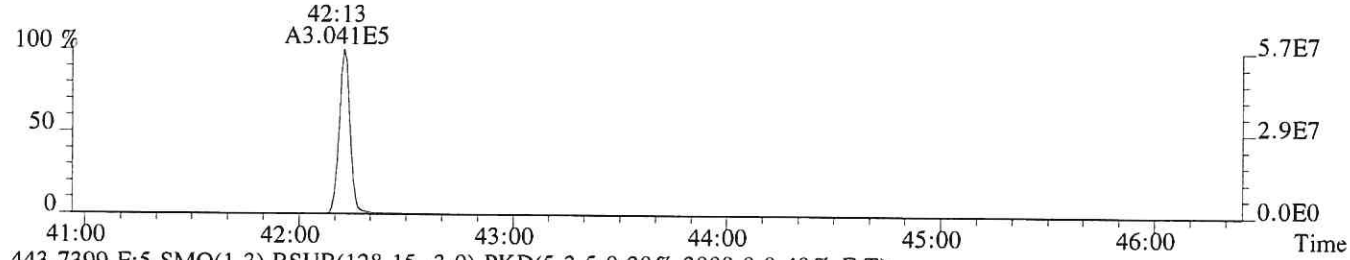
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



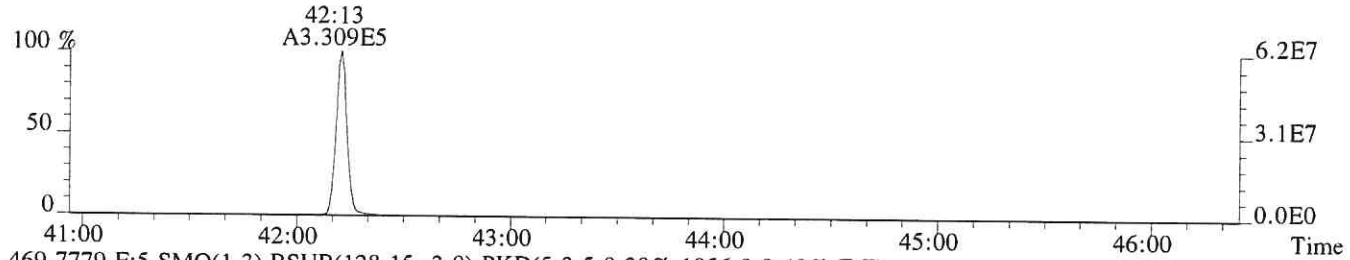
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



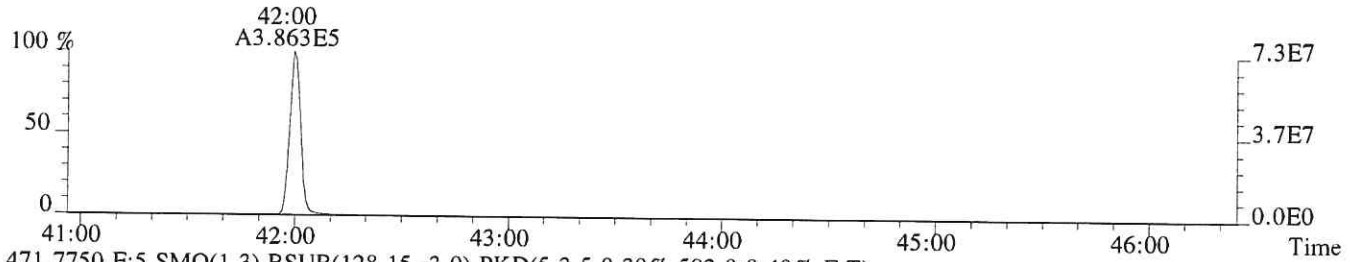
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



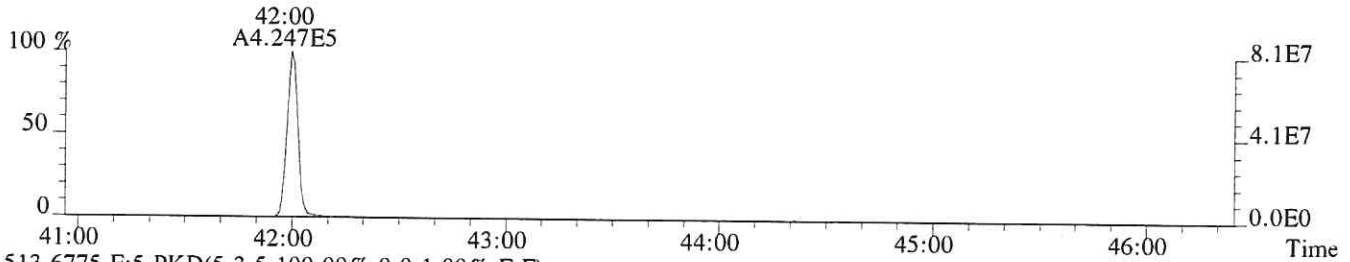
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



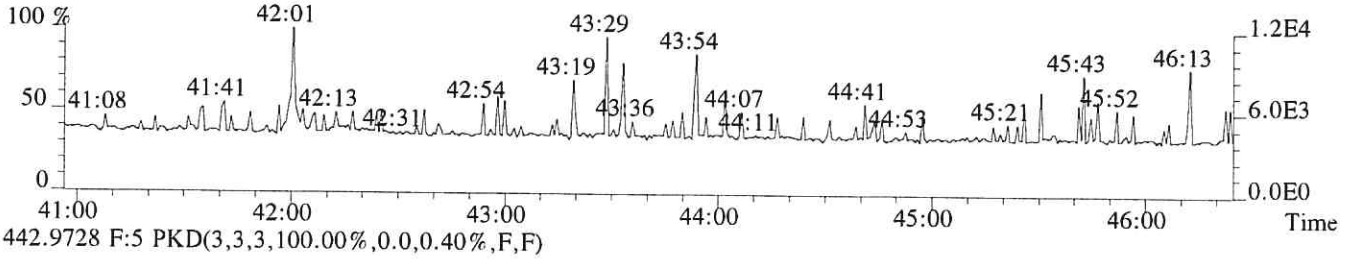
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



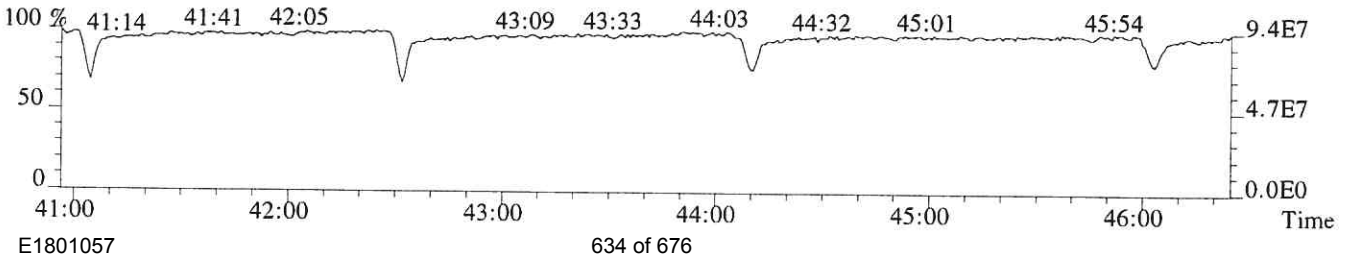
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



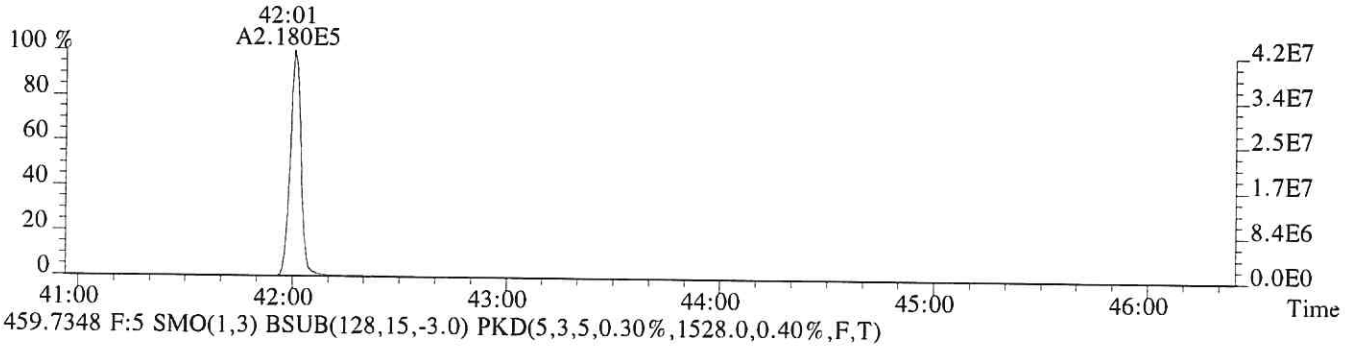
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



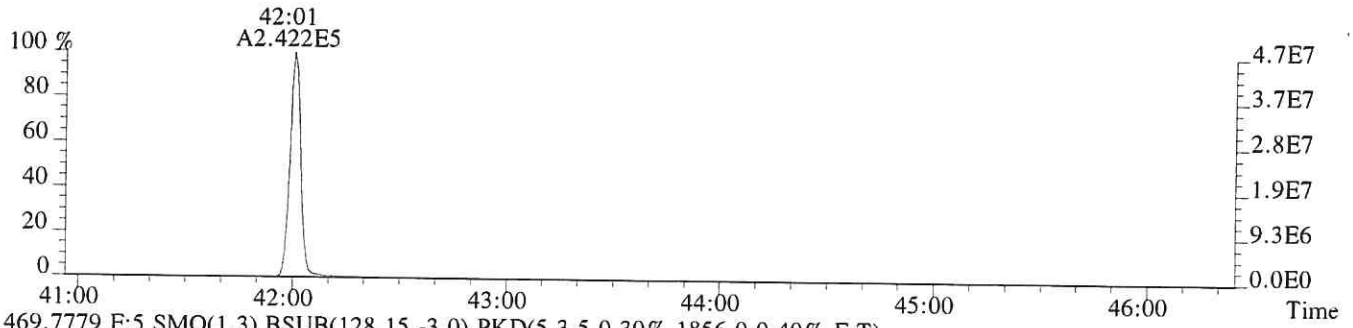
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



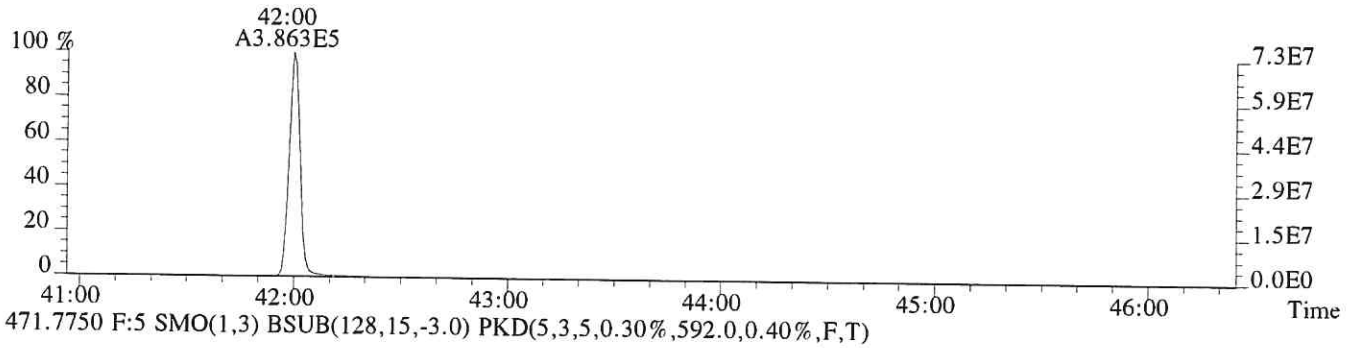
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



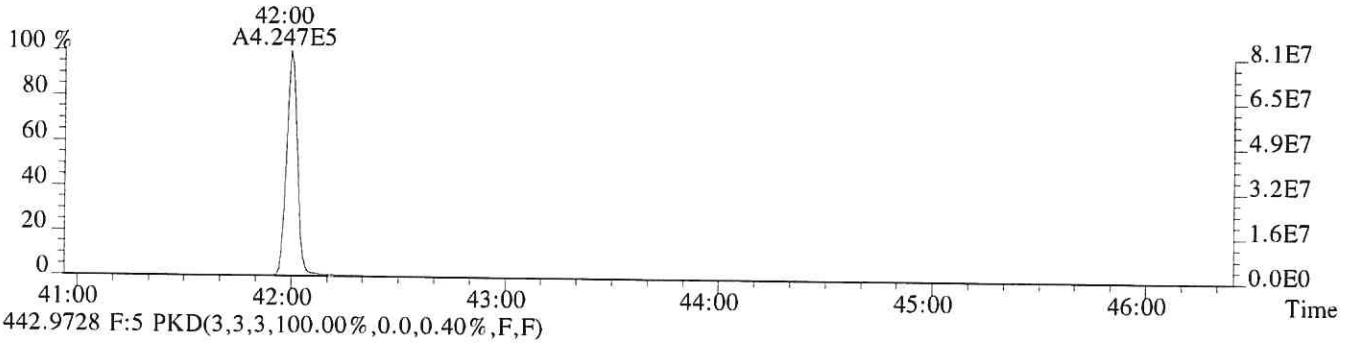
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



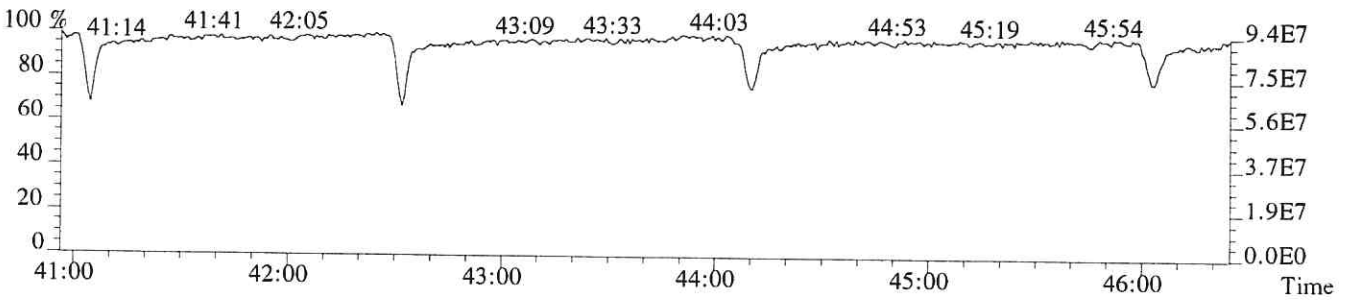
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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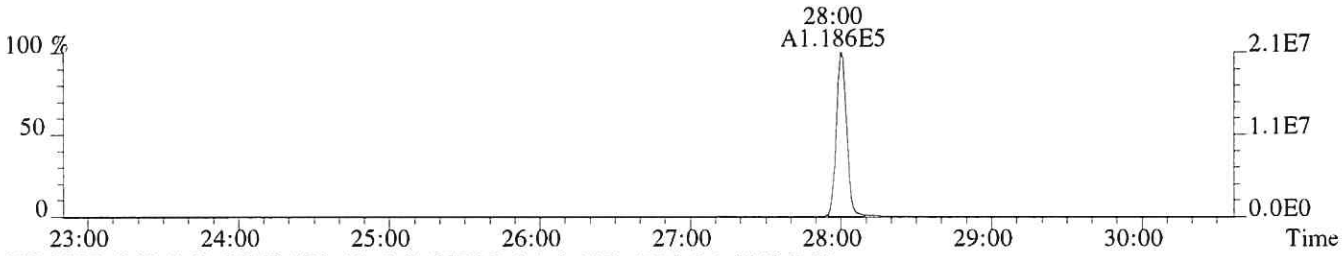
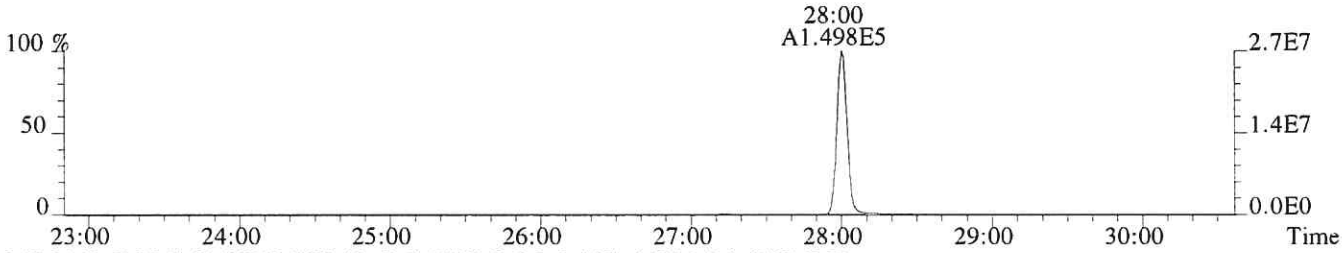
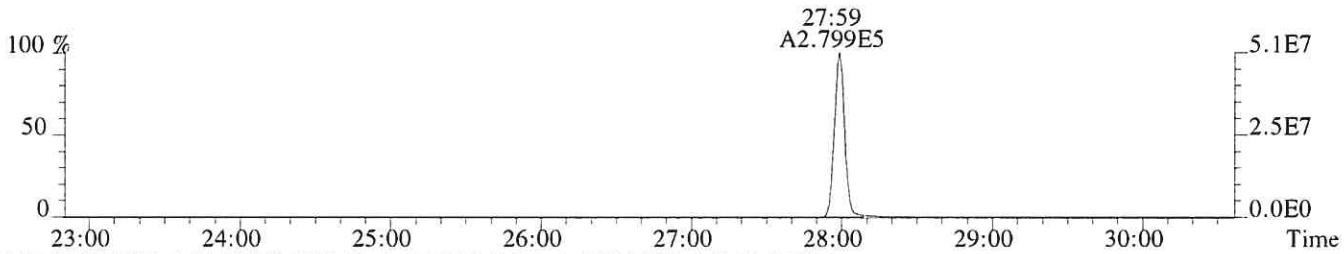
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



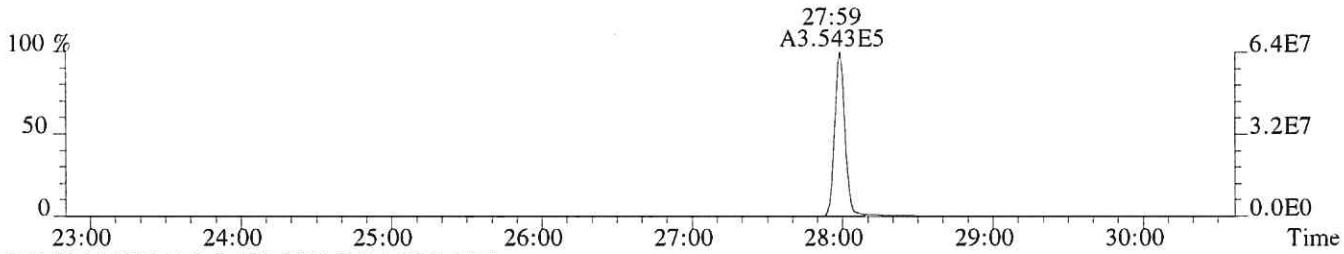
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



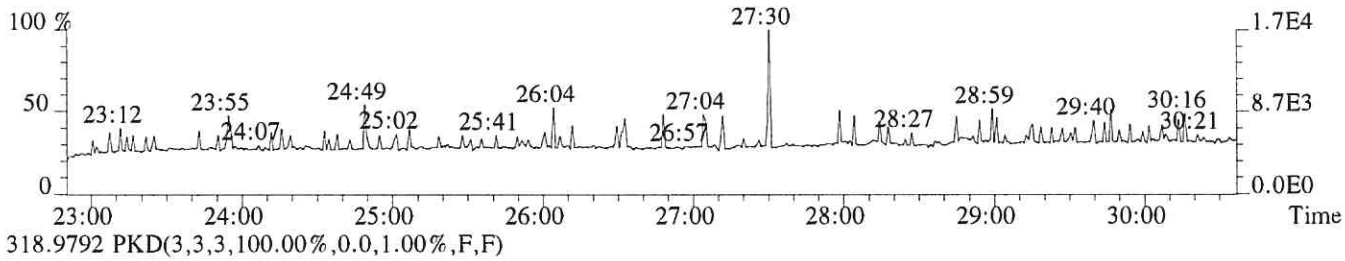
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



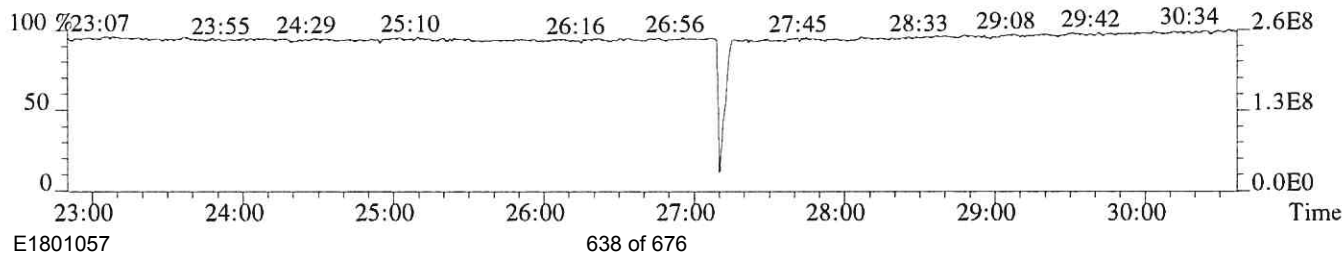
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



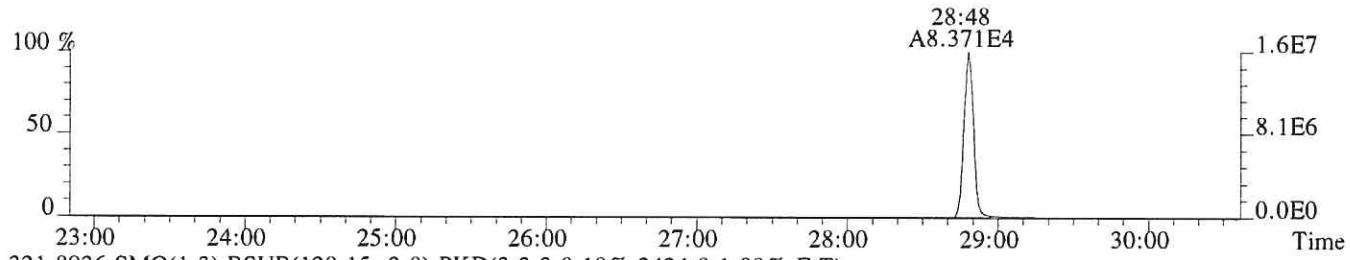
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



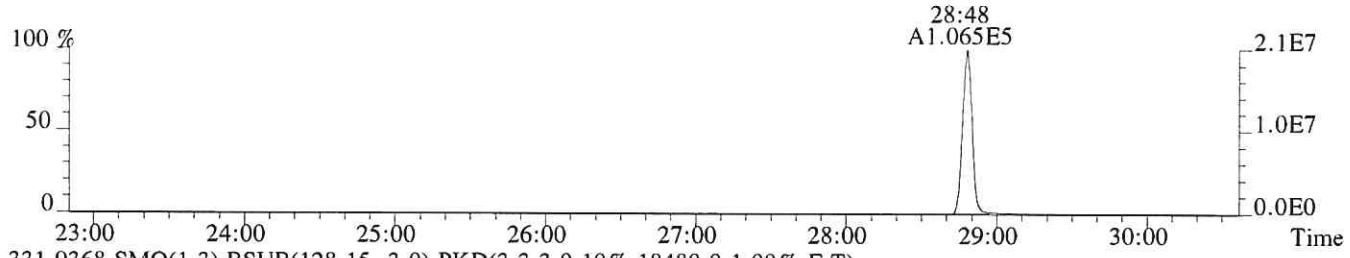
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



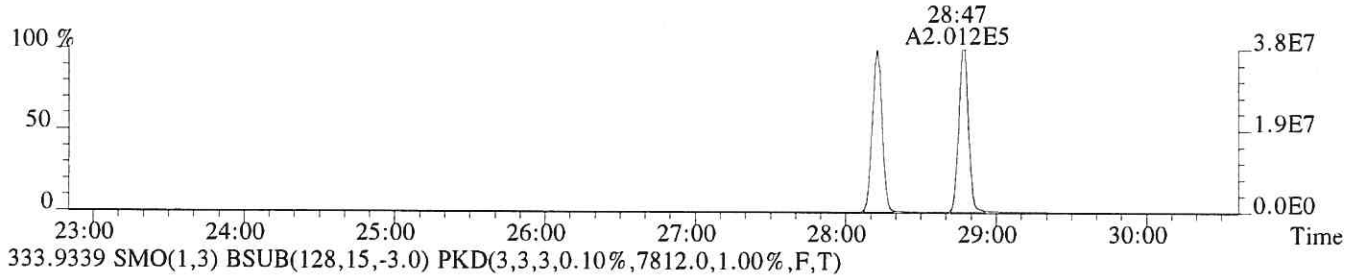
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



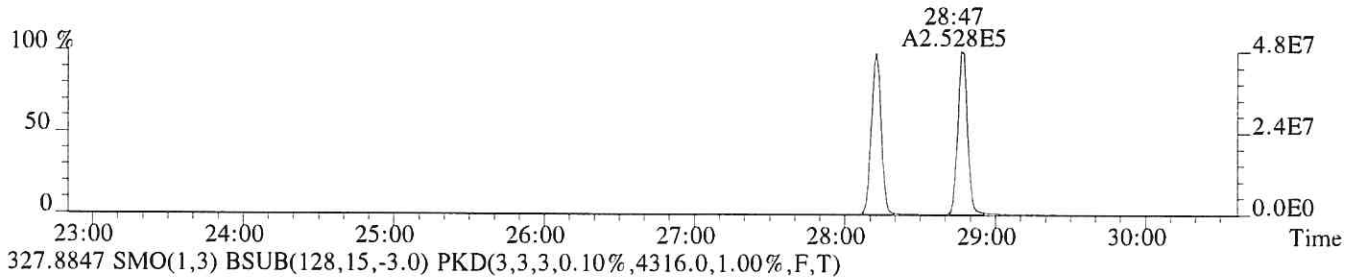
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



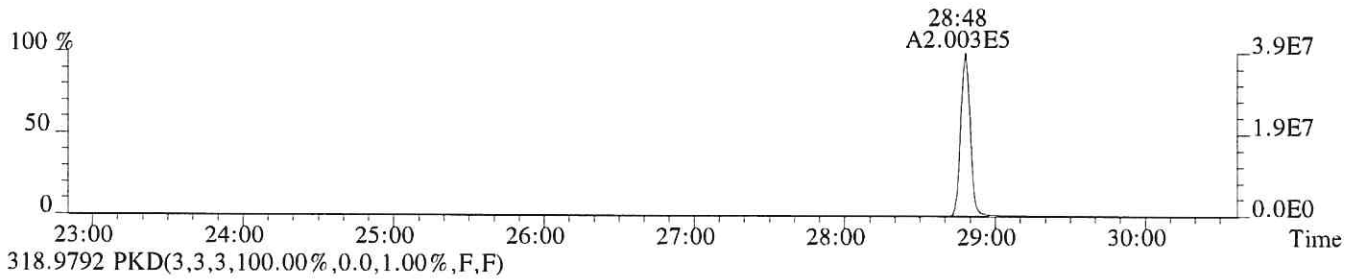
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



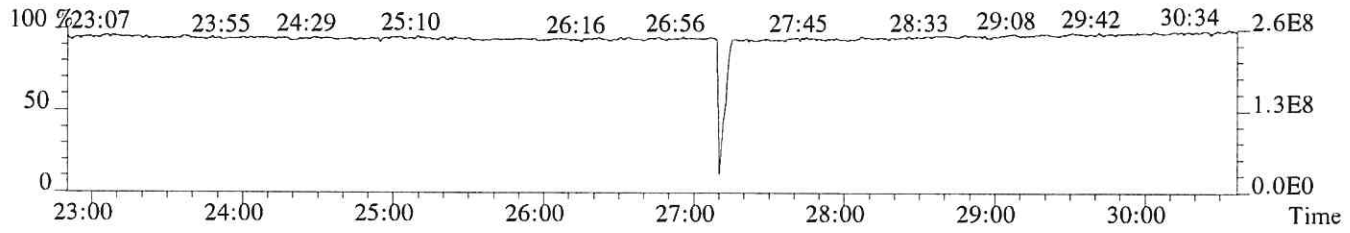
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



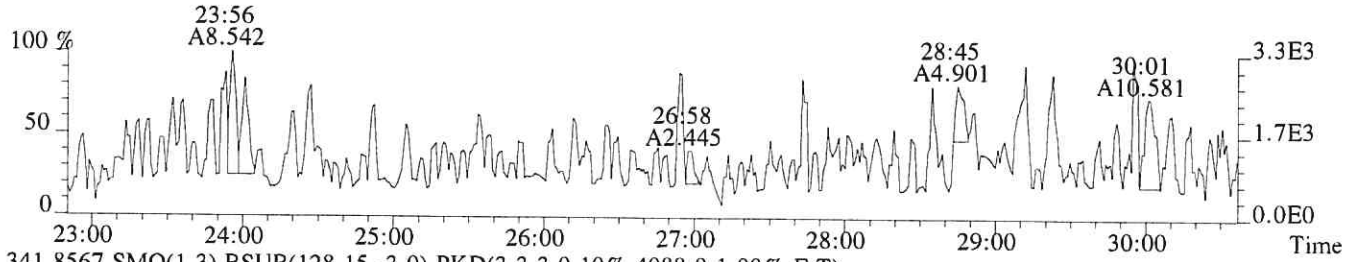
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



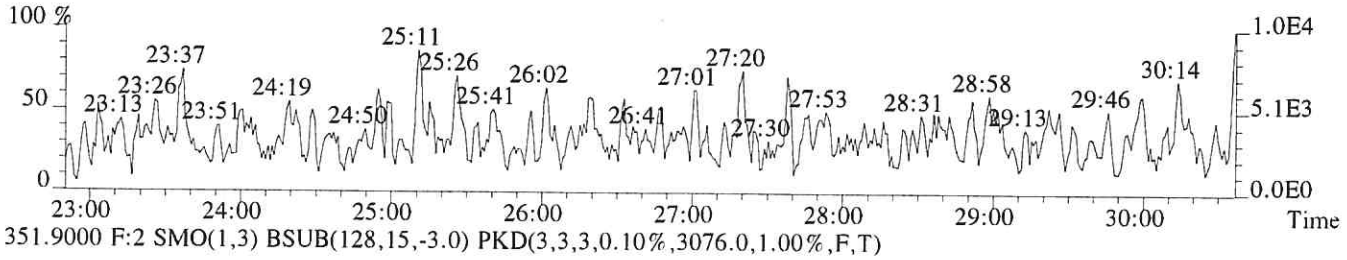
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



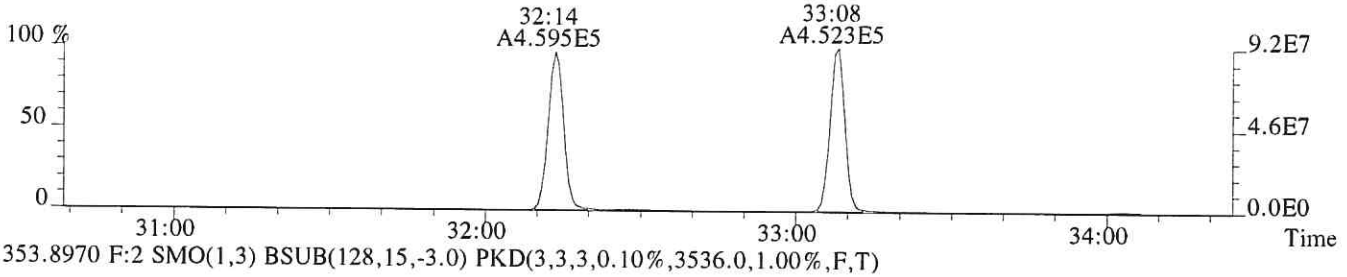
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



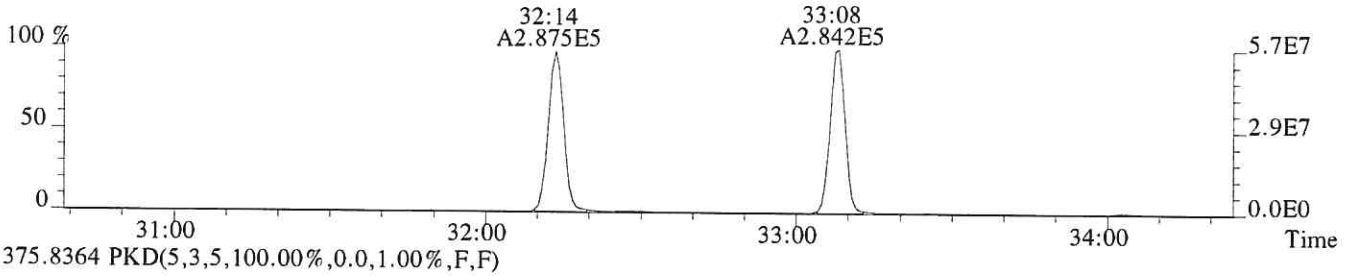
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



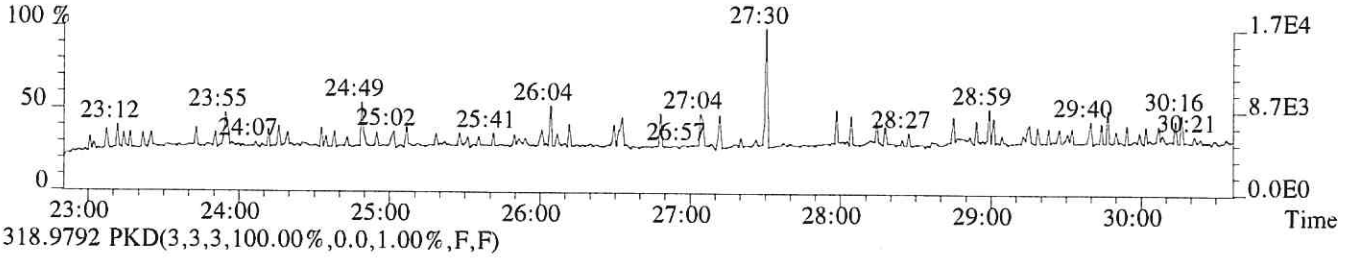
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



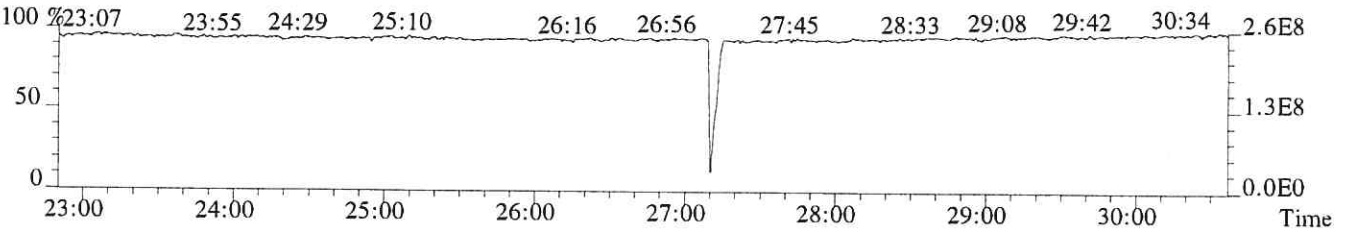
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



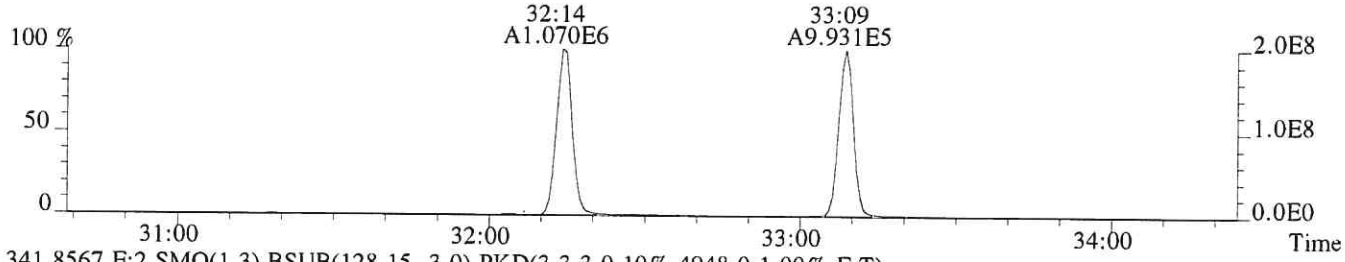
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



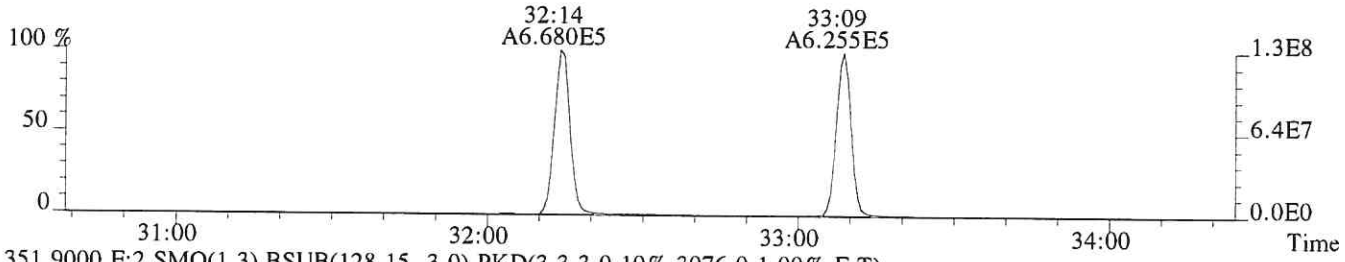
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



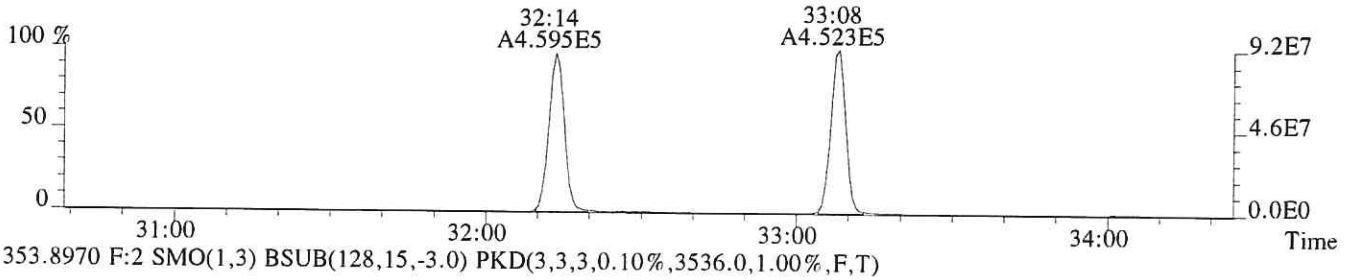
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



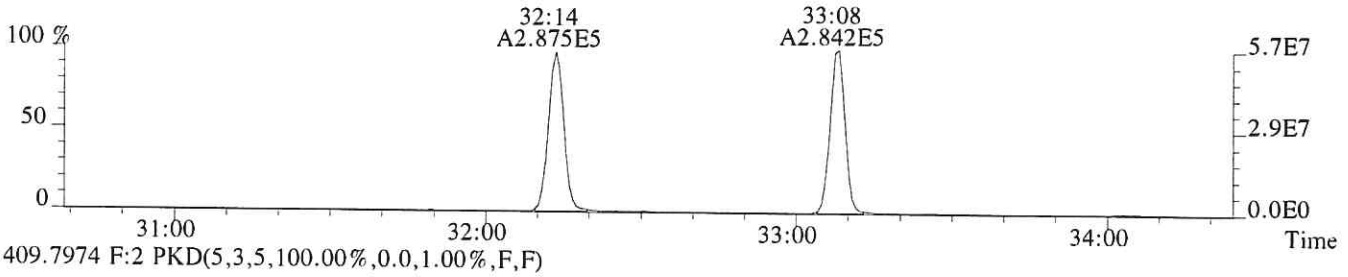
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



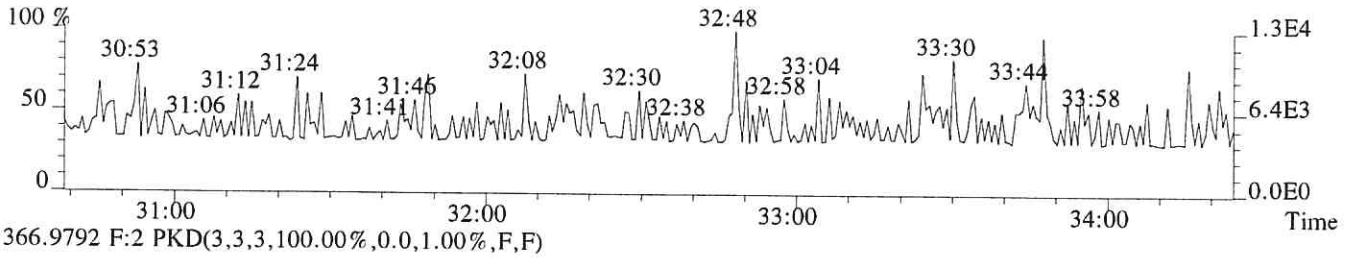
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



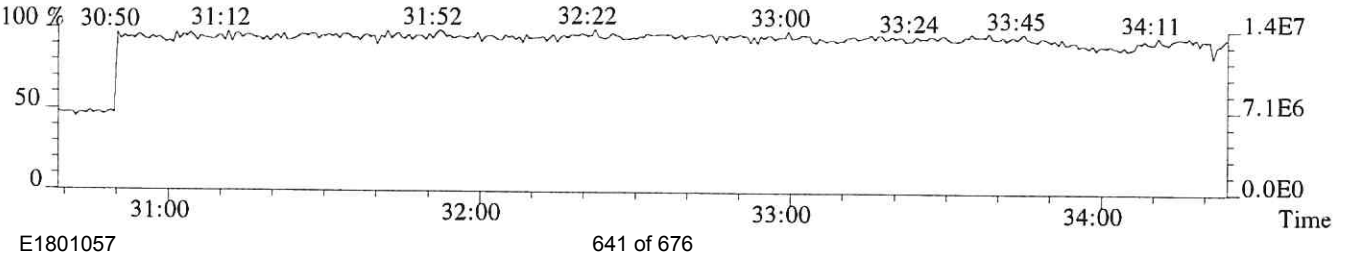
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



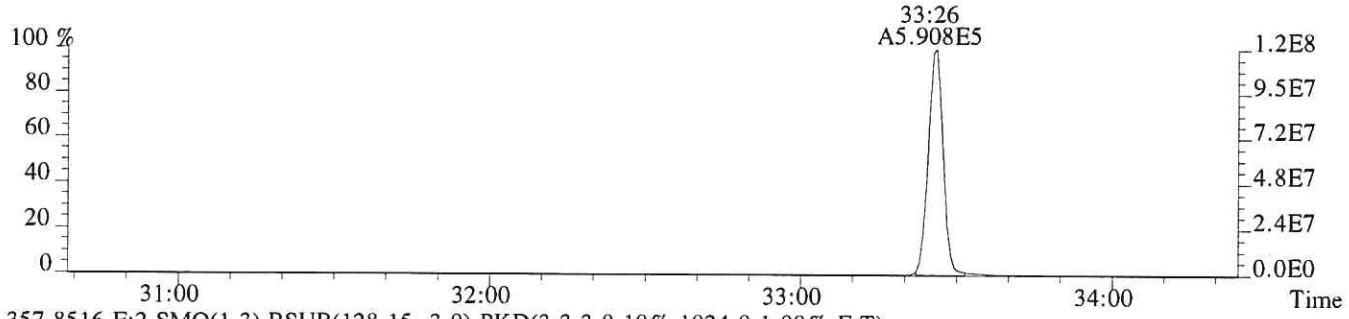
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



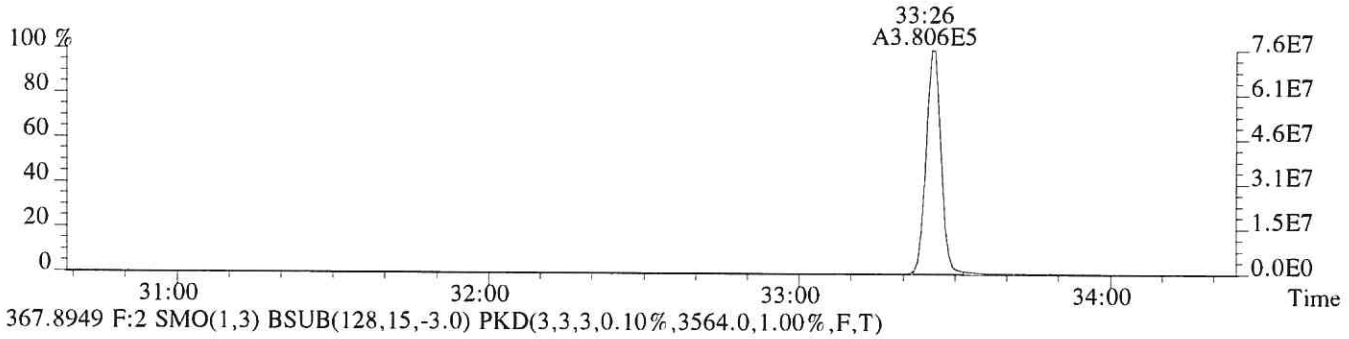
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



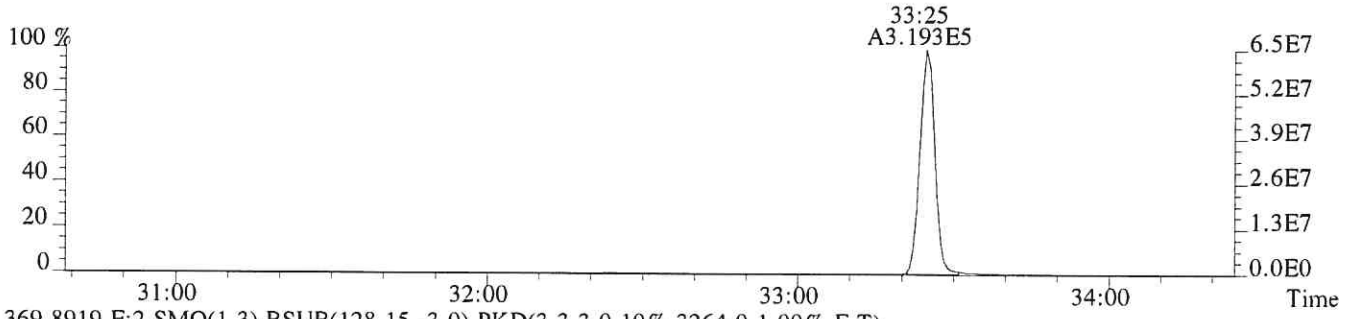
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



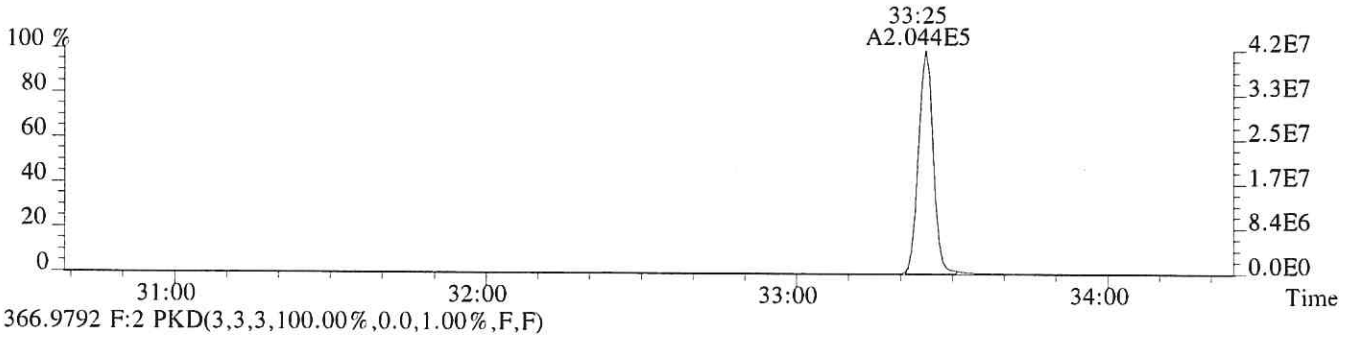
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



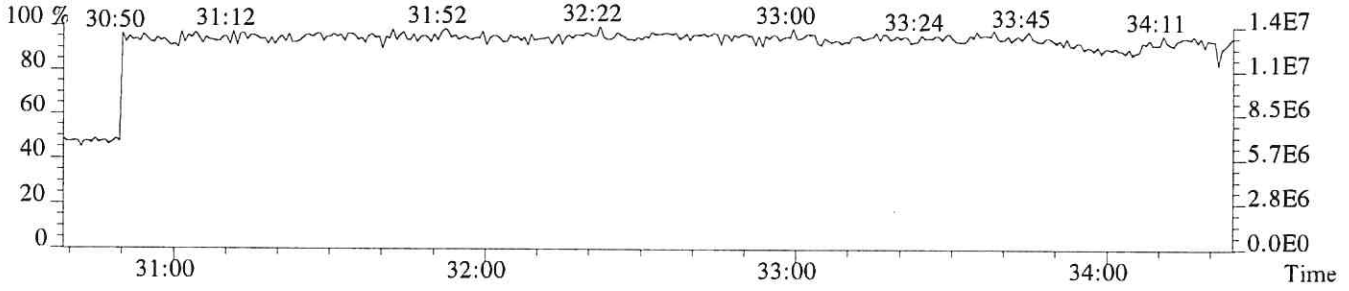
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



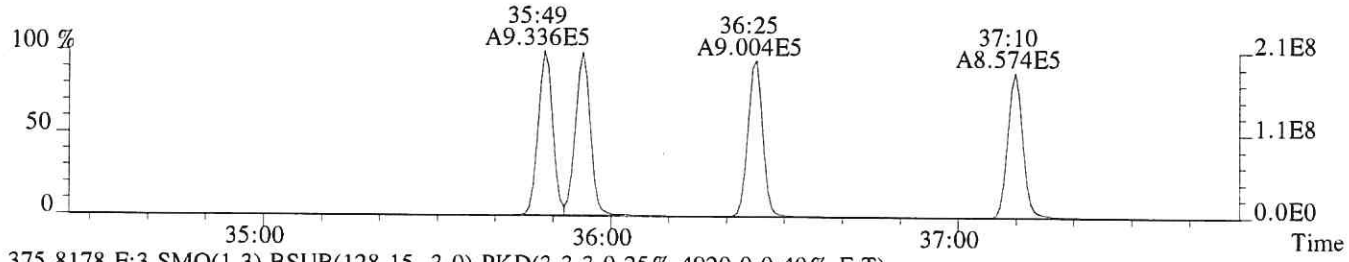
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



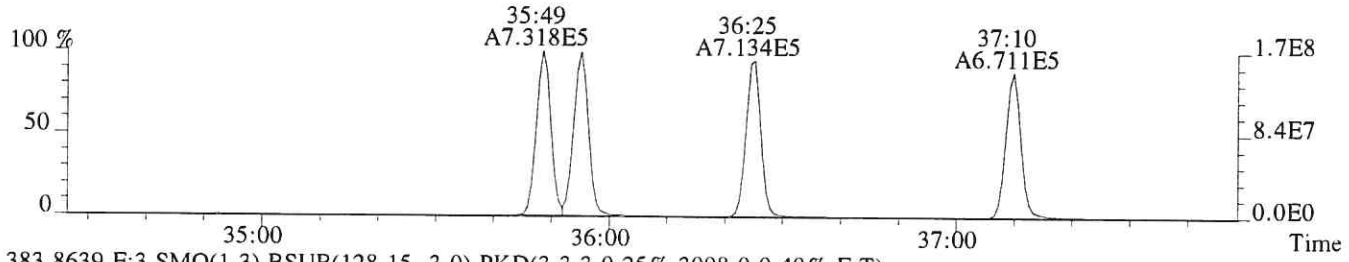
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



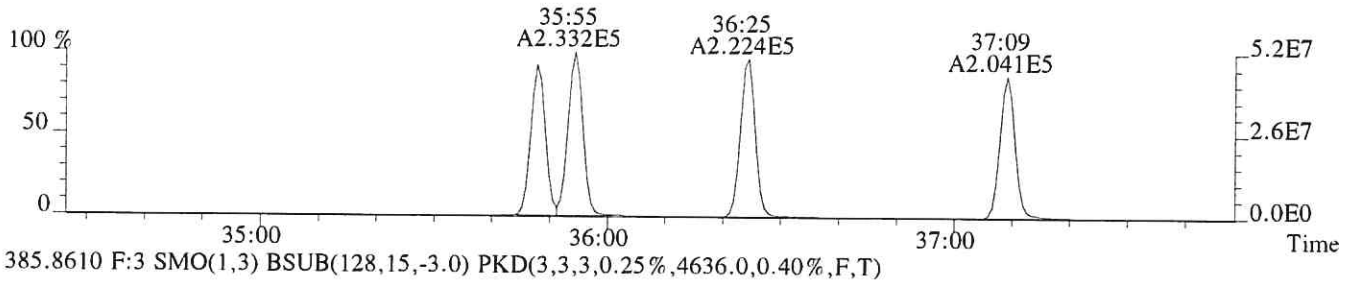
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



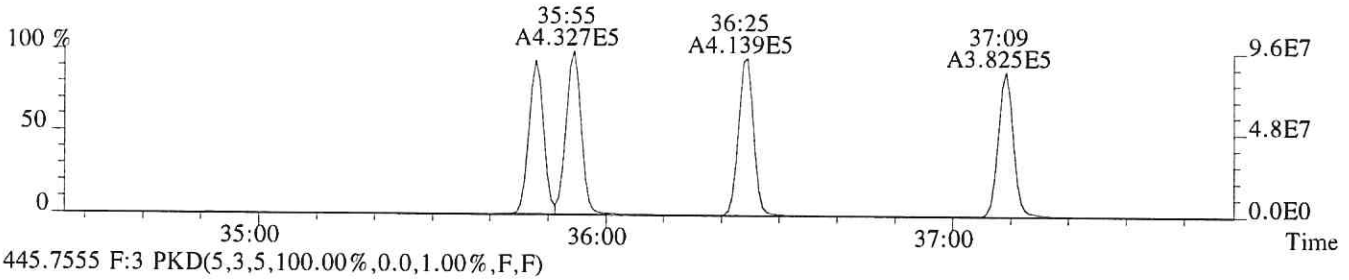
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



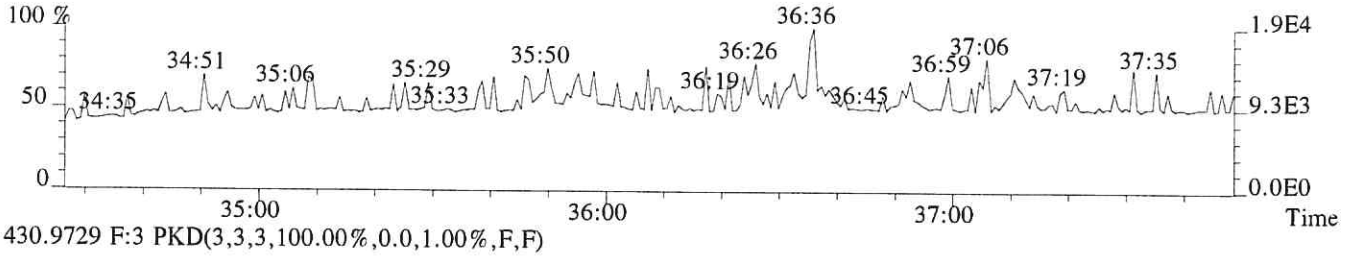
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



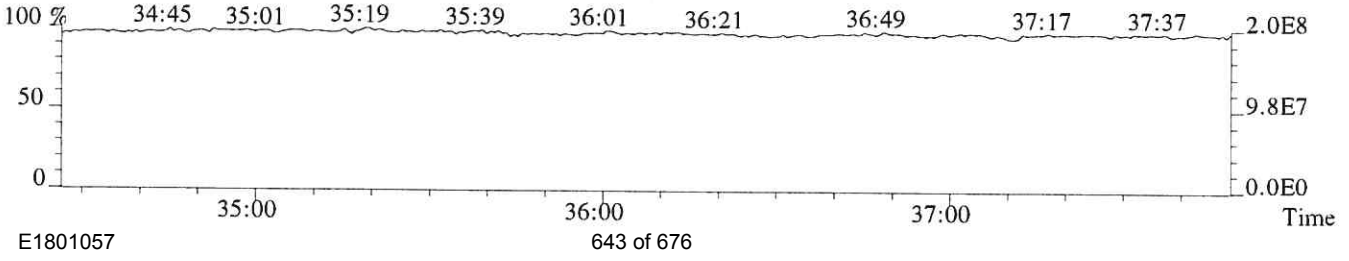
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



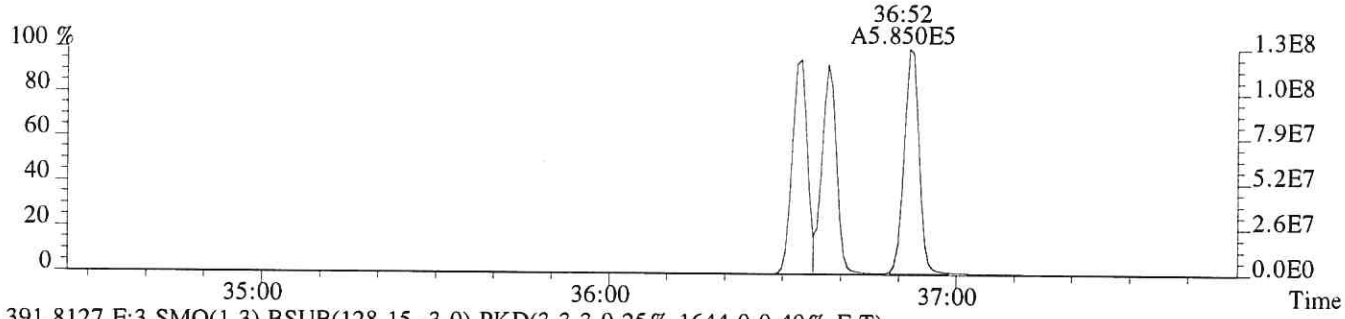
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



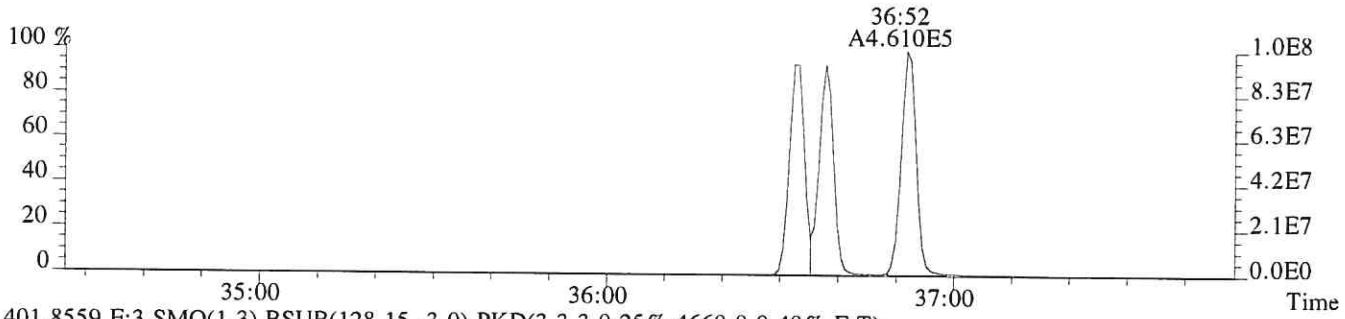
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



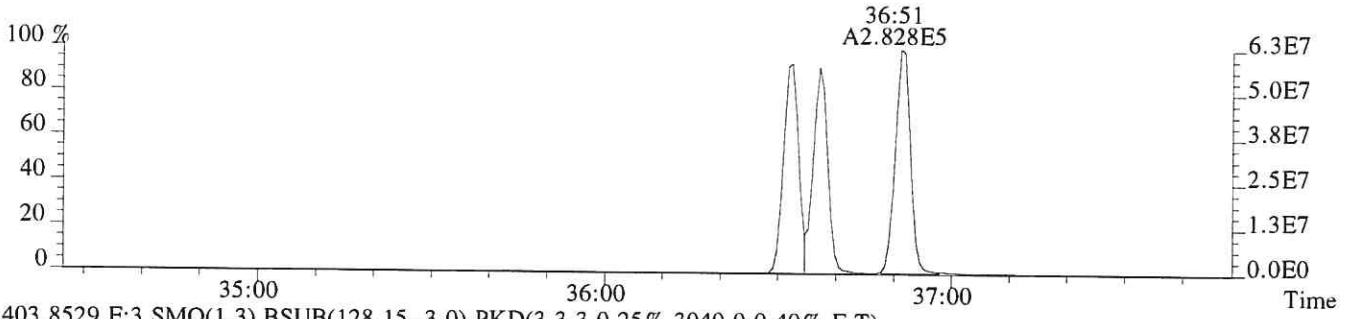
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



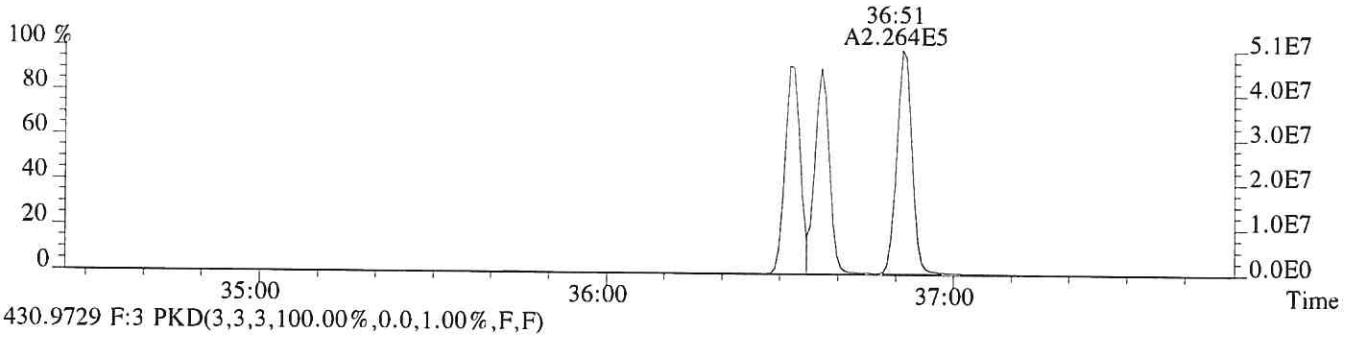
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



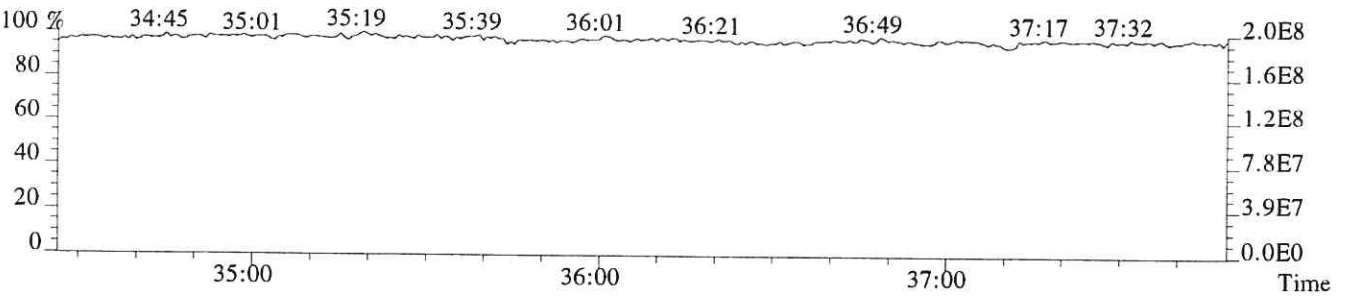
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



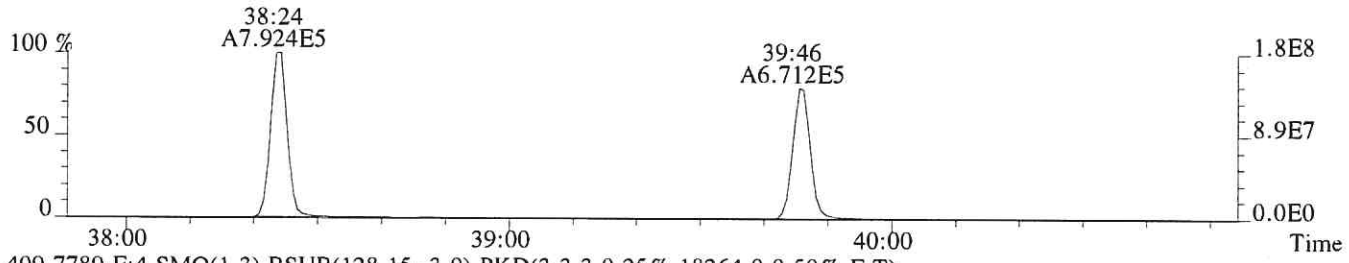
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



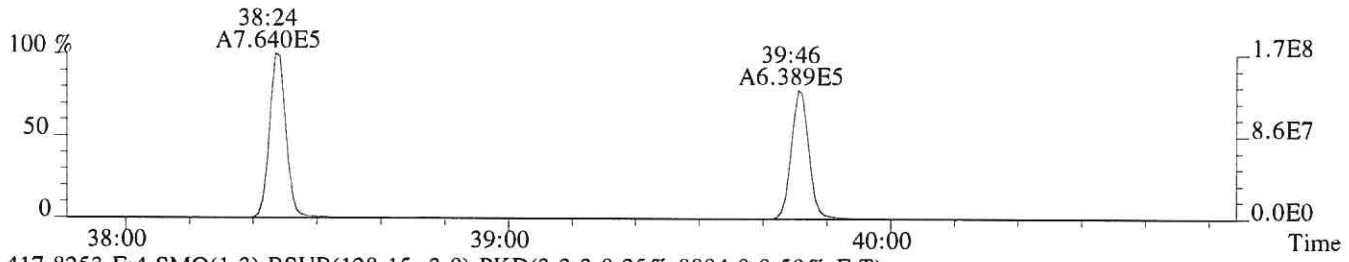
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



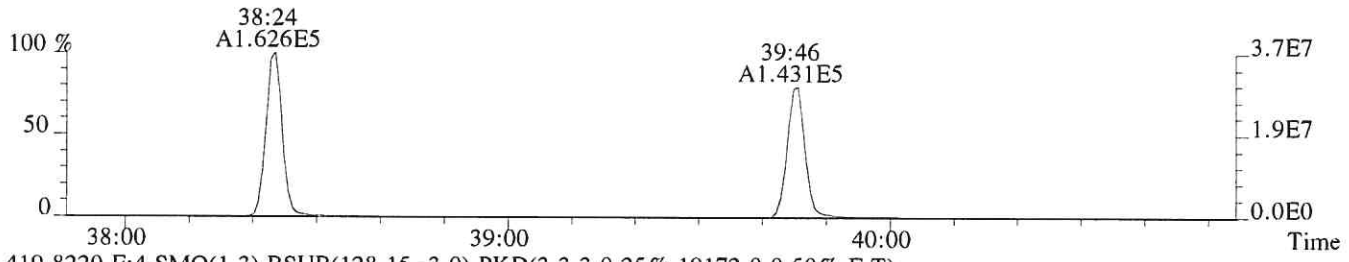
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



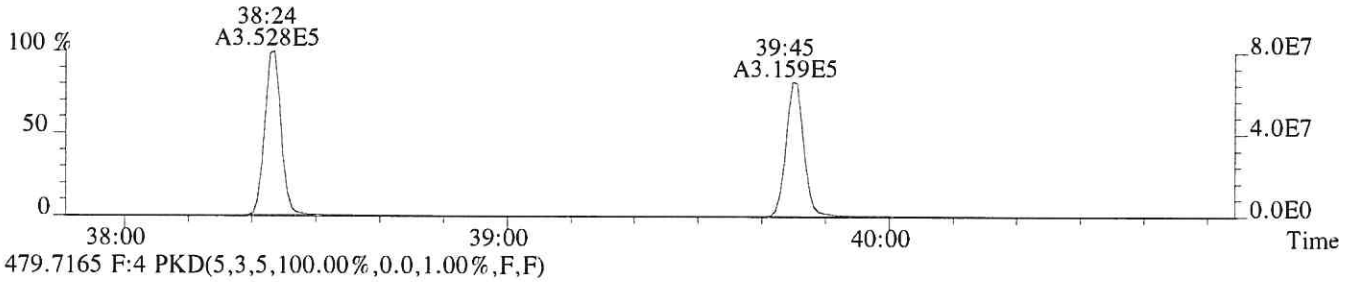
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



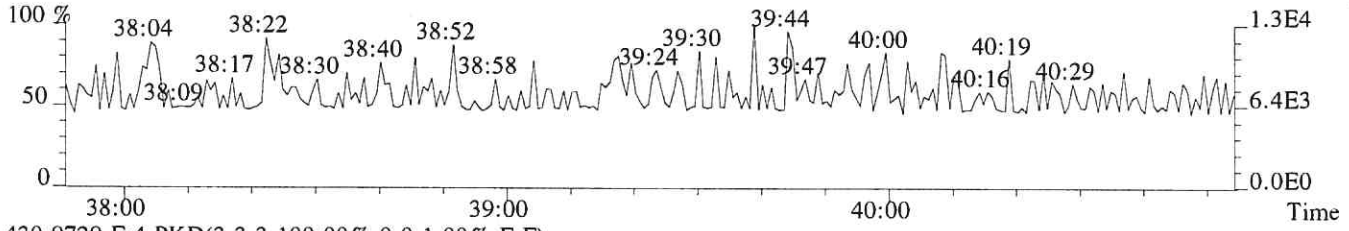
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



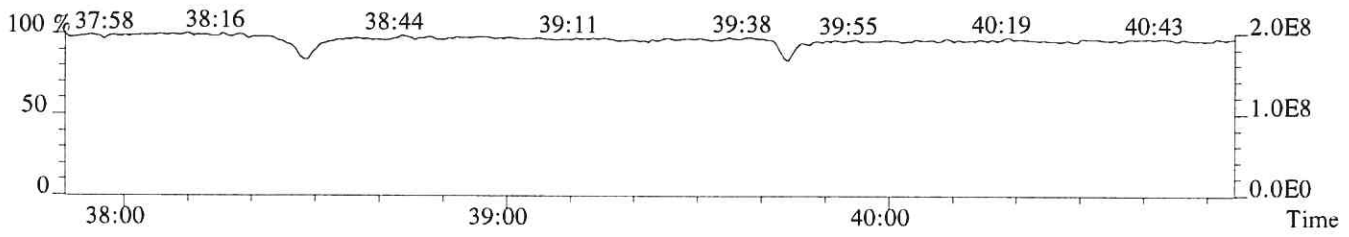
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



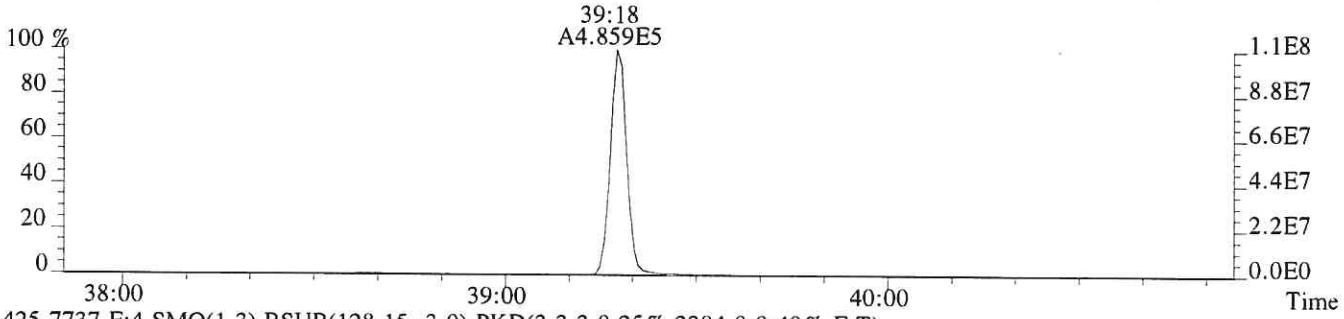
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



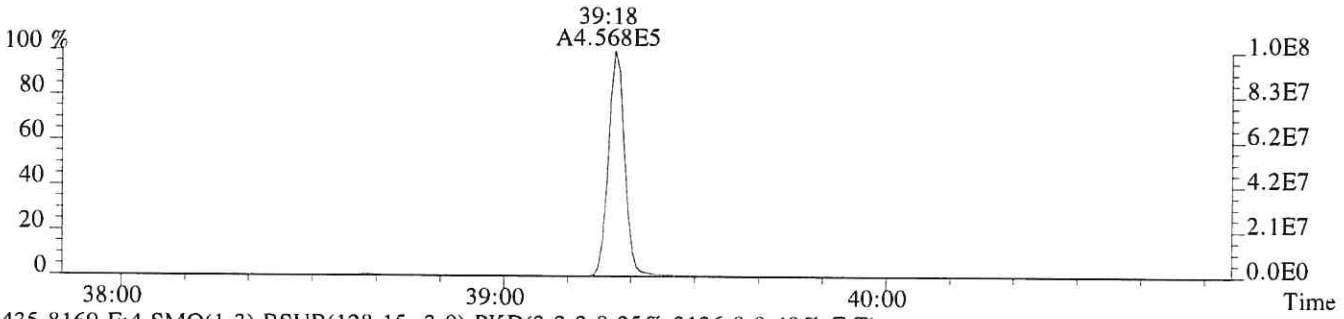
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



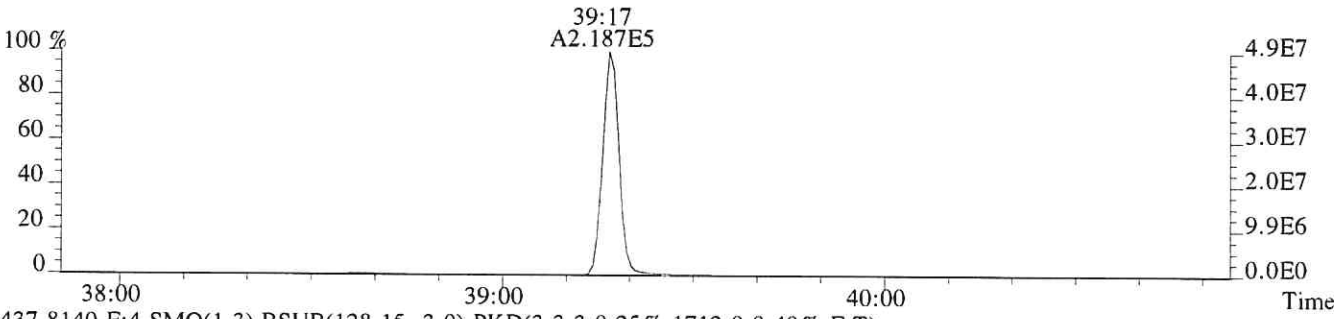
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



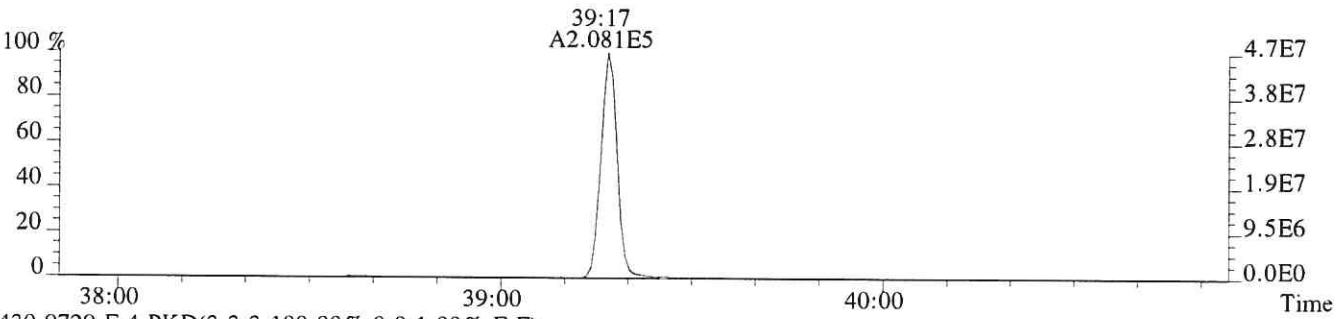
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



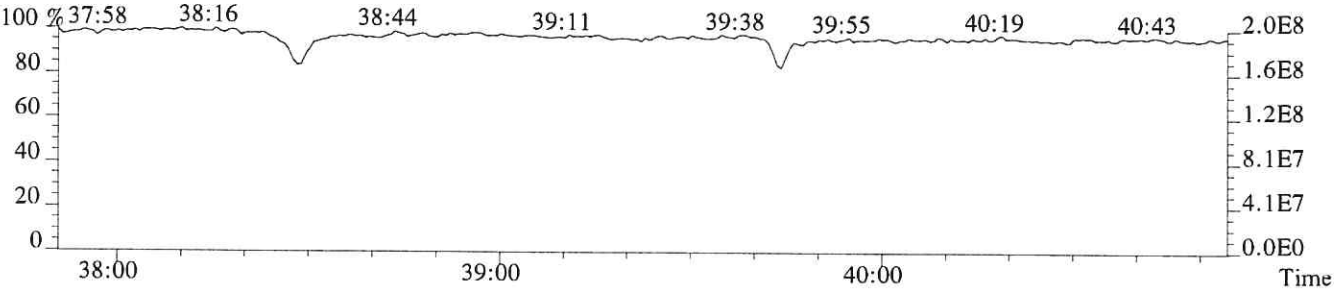
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



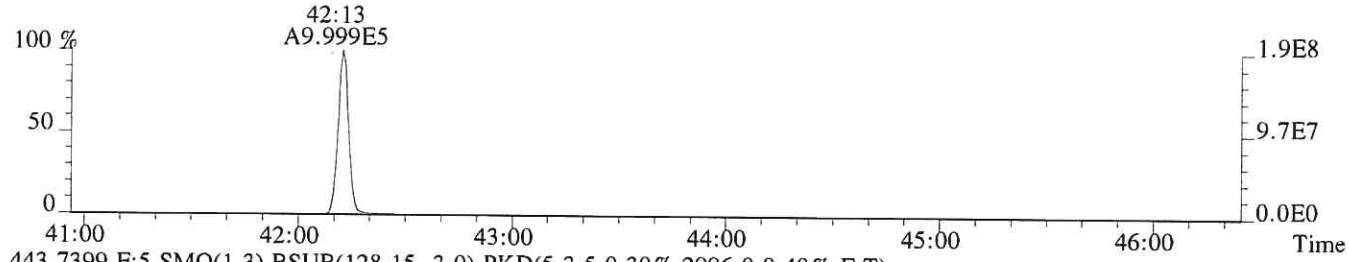
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



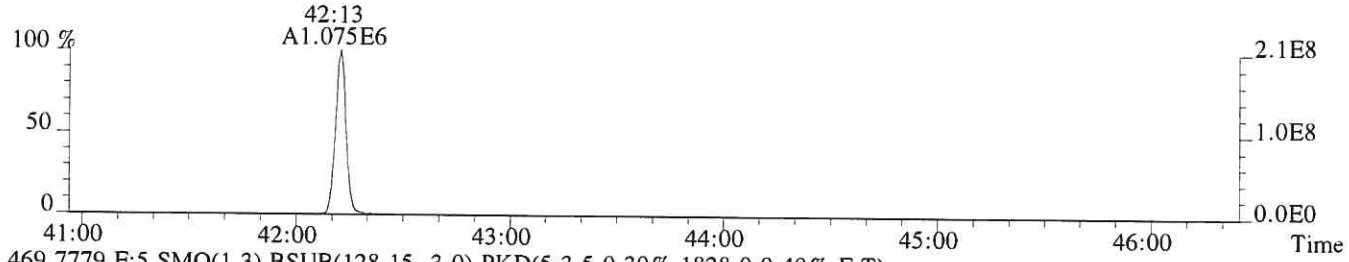
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



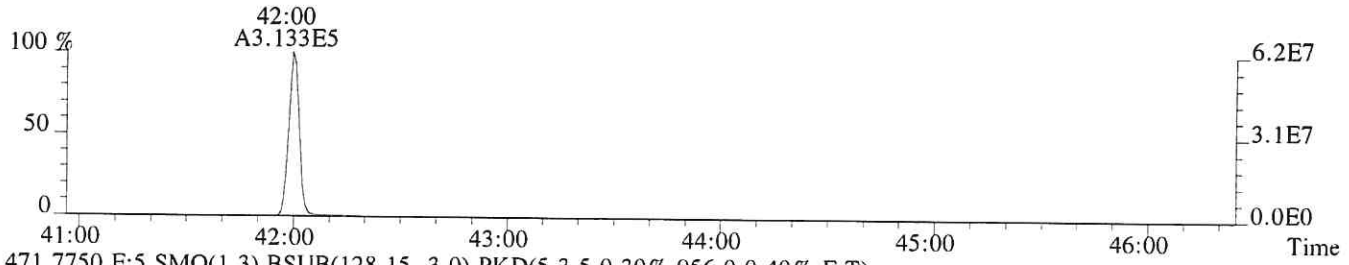
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



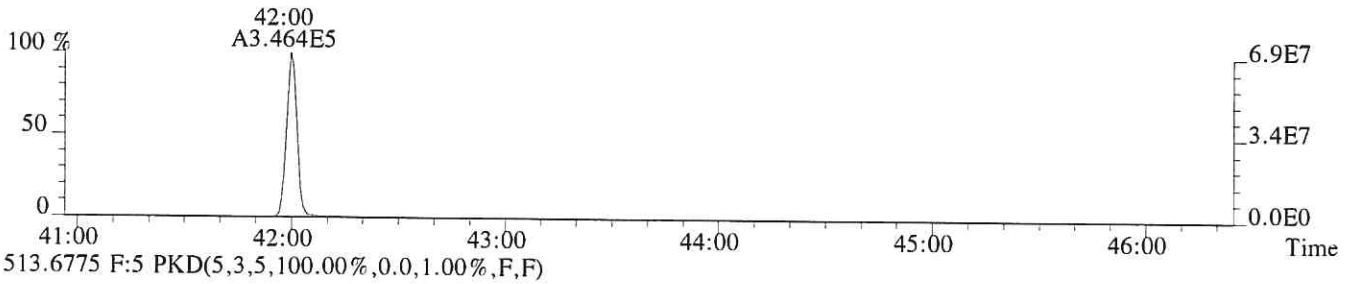
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



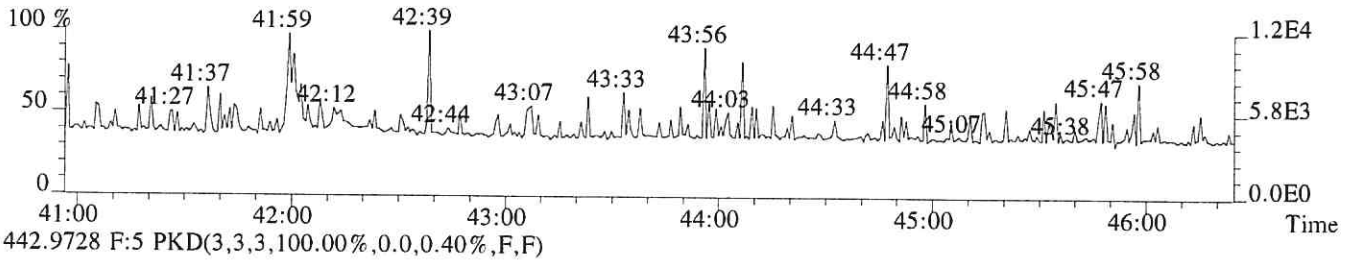
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



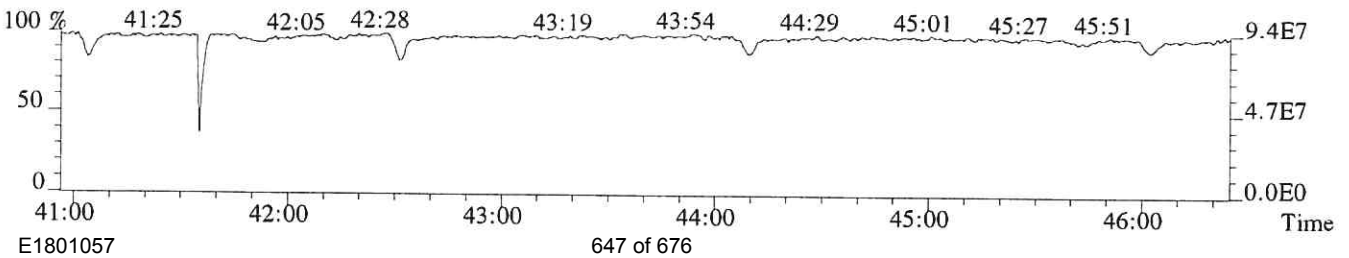
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



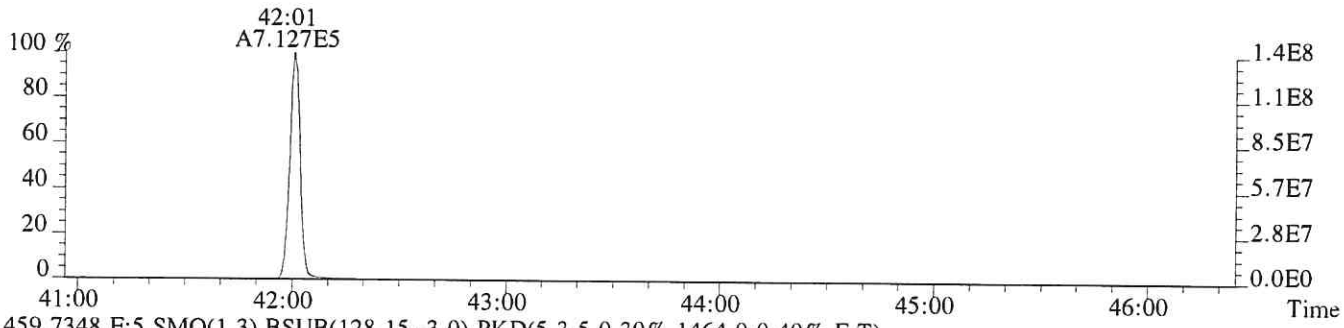
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



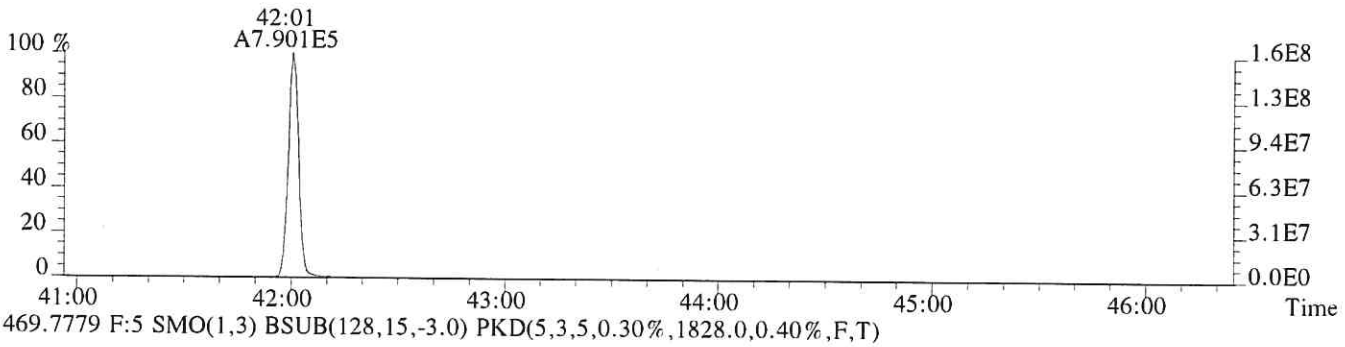
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



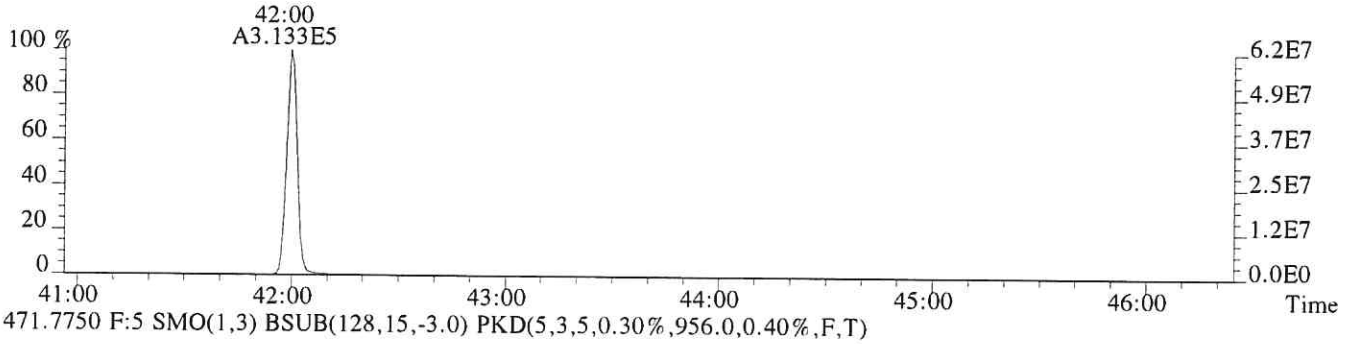
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



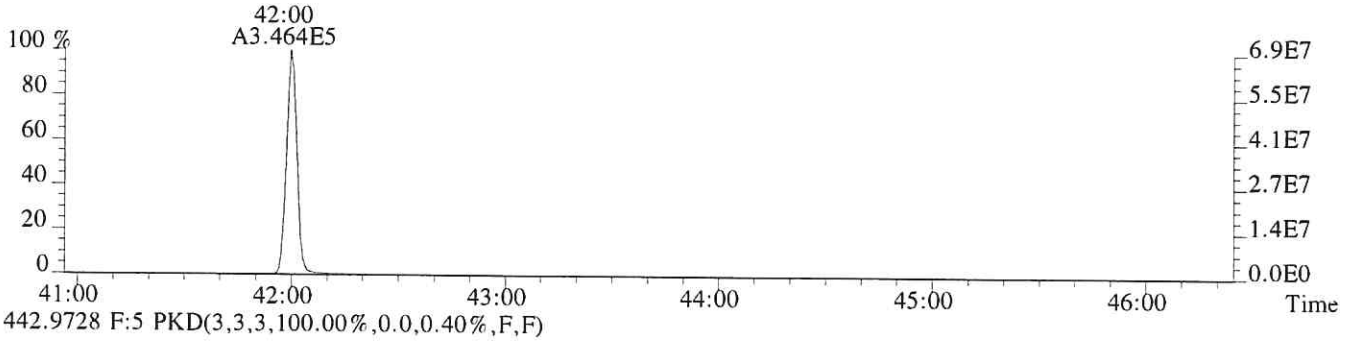
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



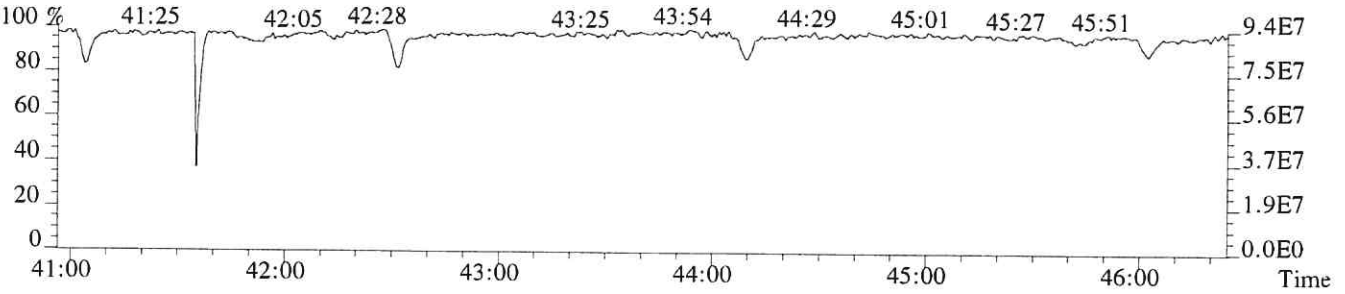
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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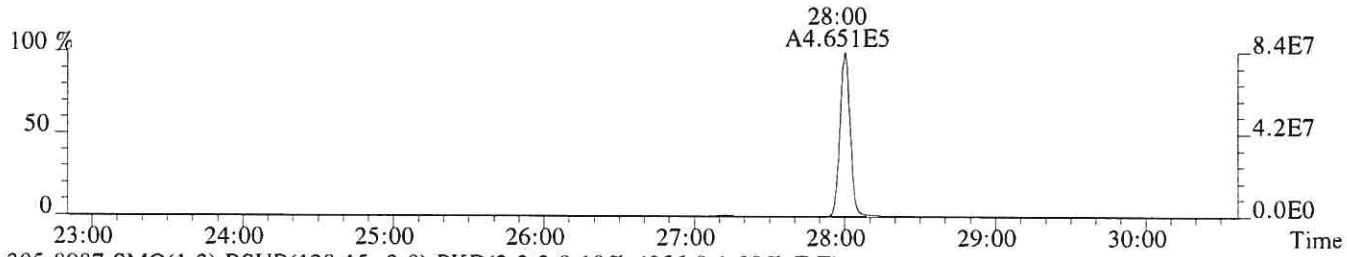
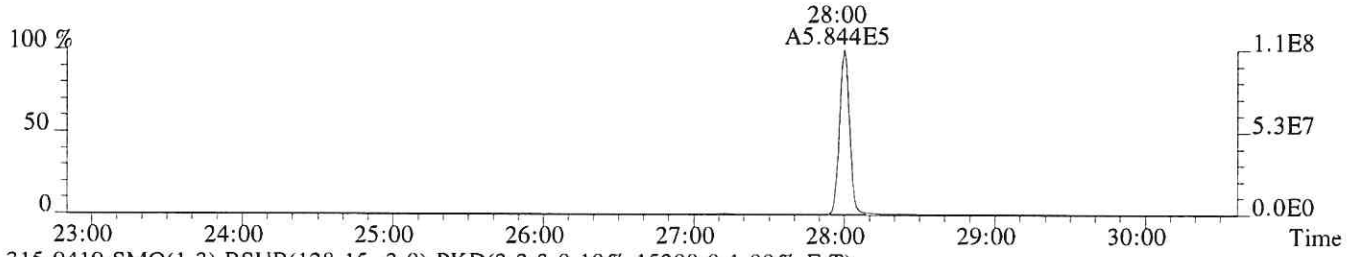
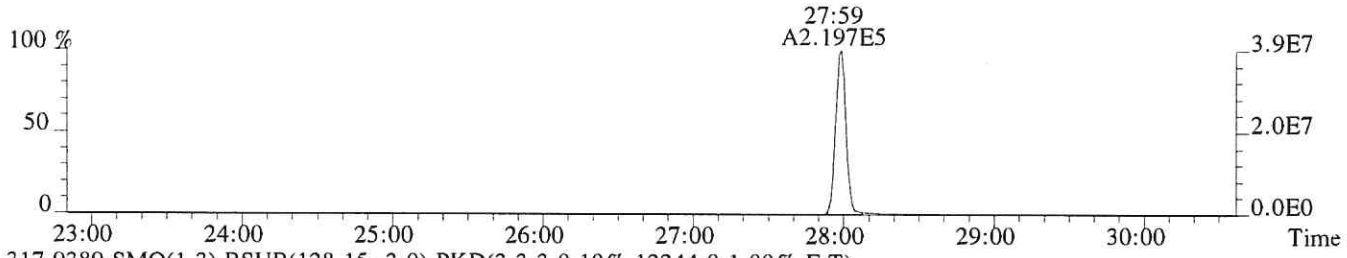
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



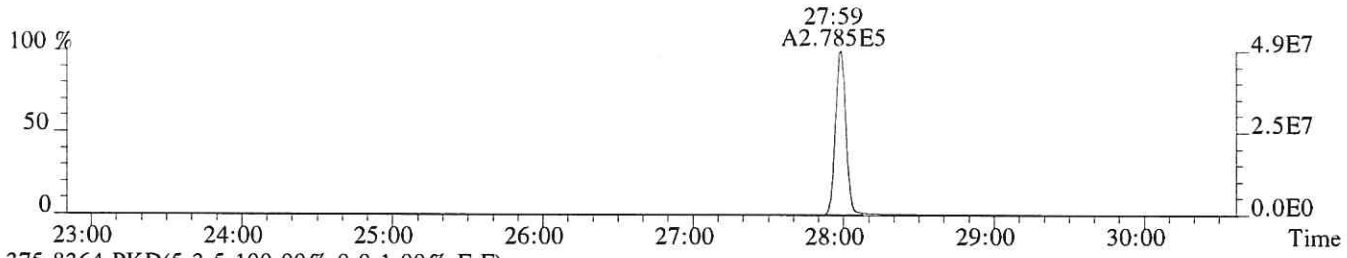
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



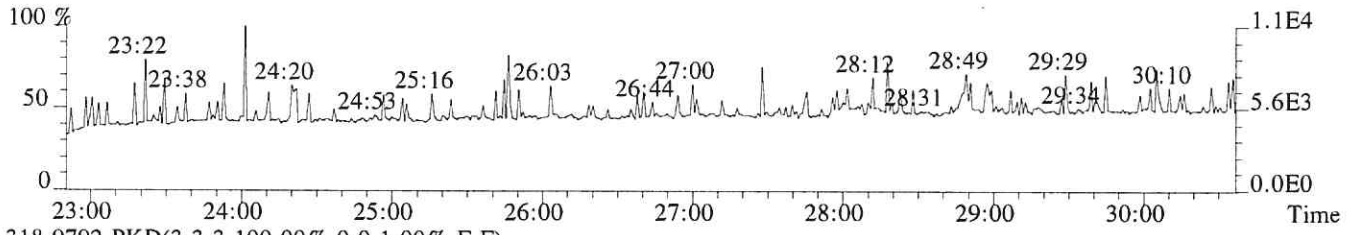
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



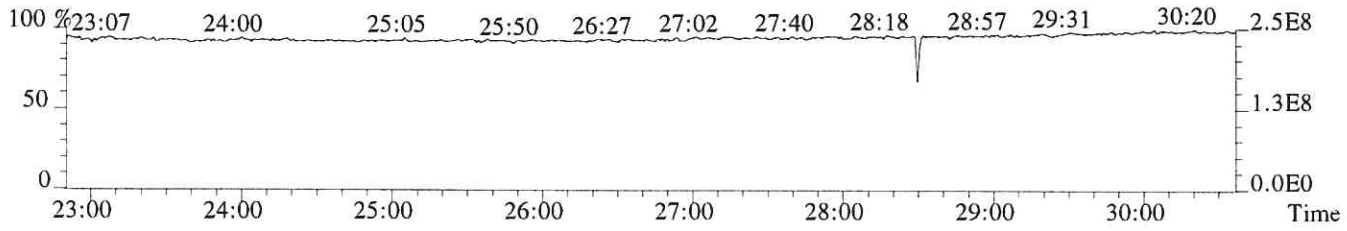
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



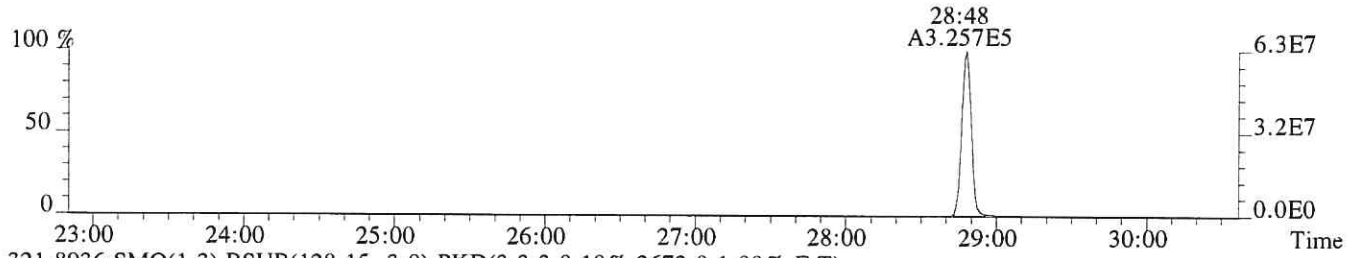
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



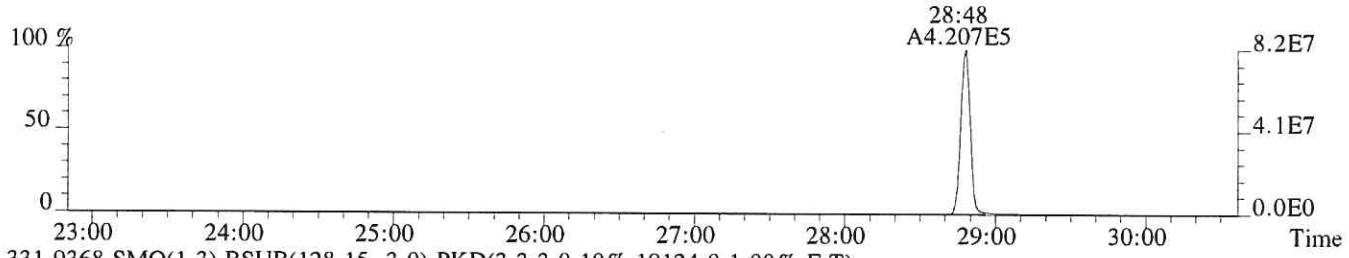
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



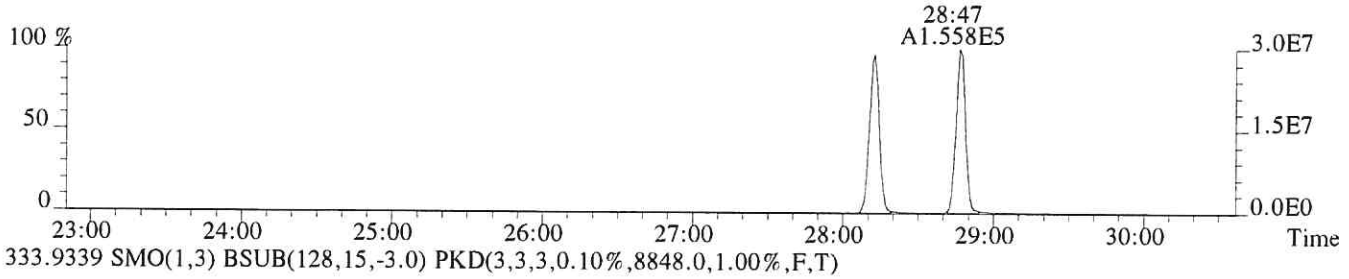
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



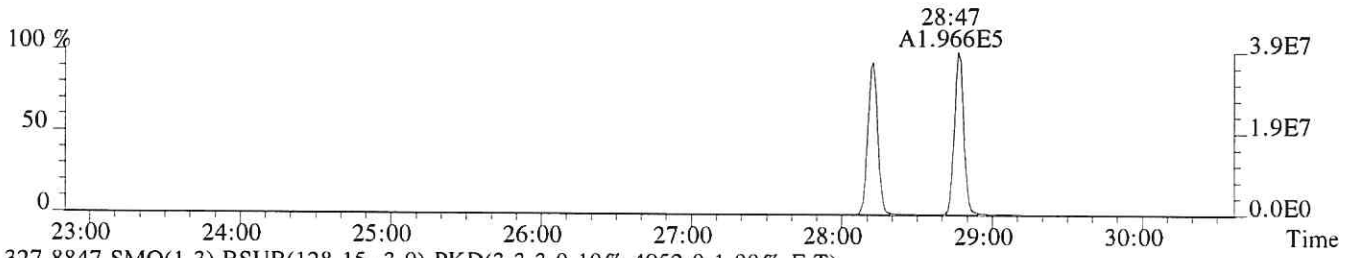
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



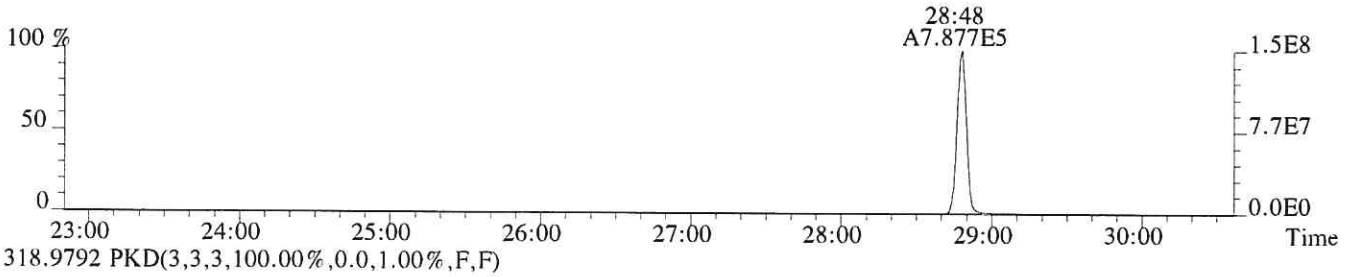
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



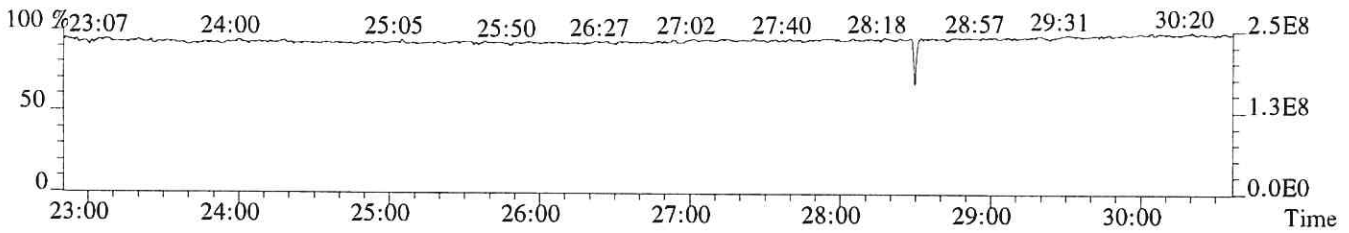
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



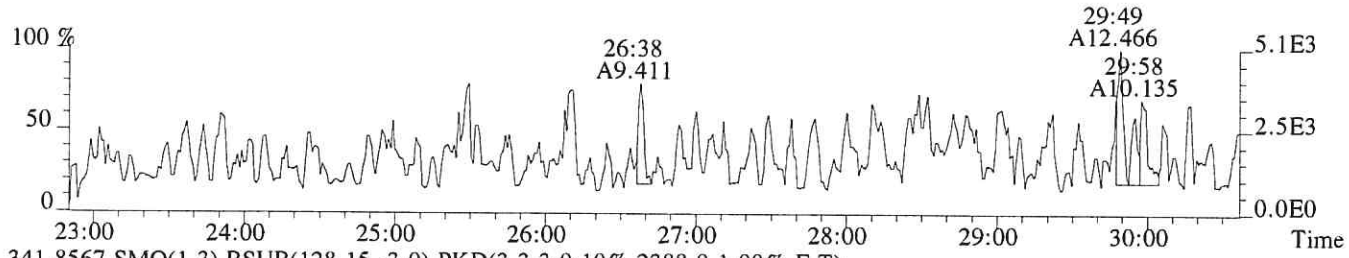
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)



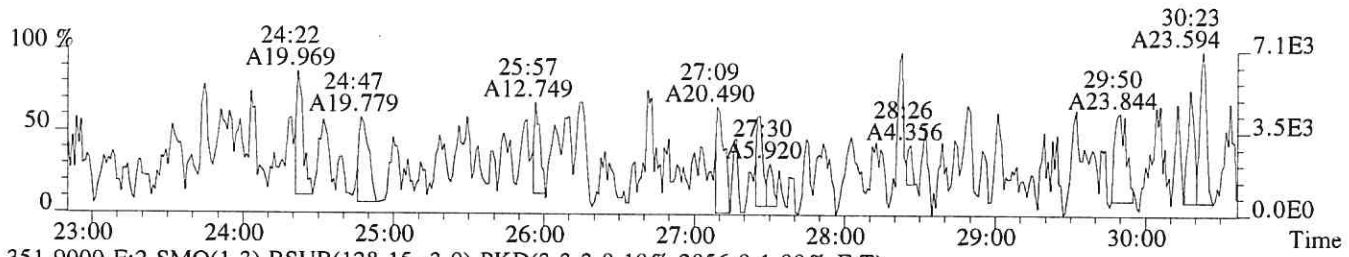
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



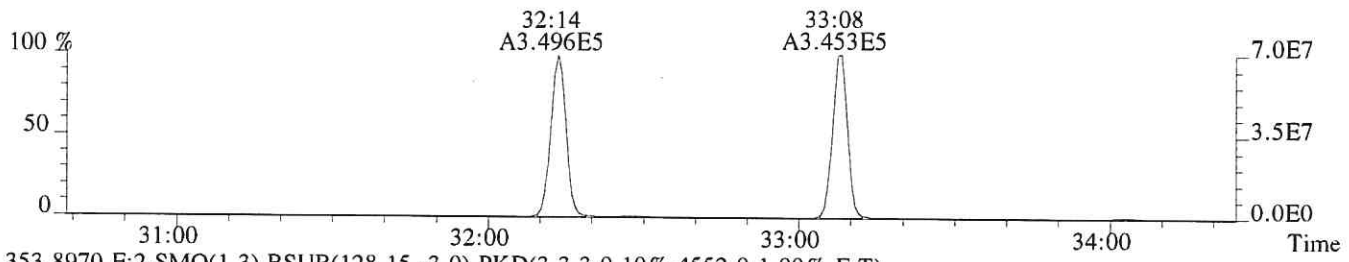
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



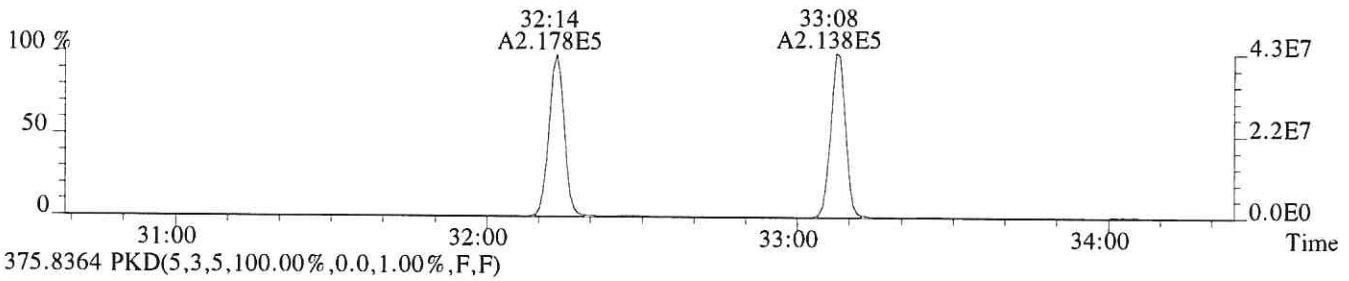
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



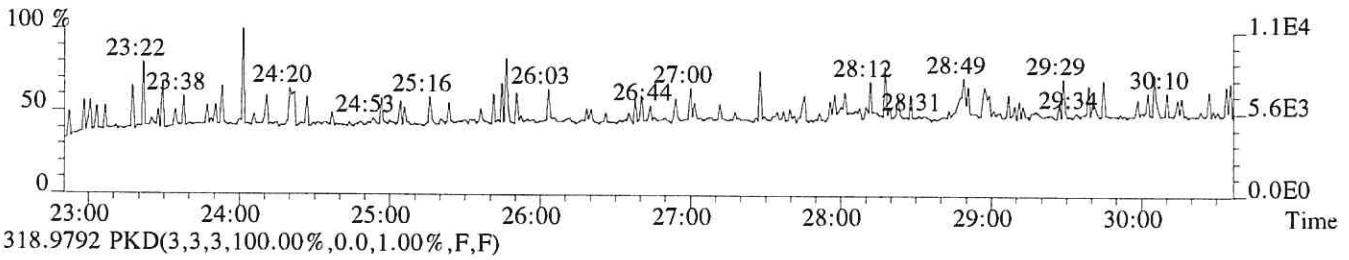
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



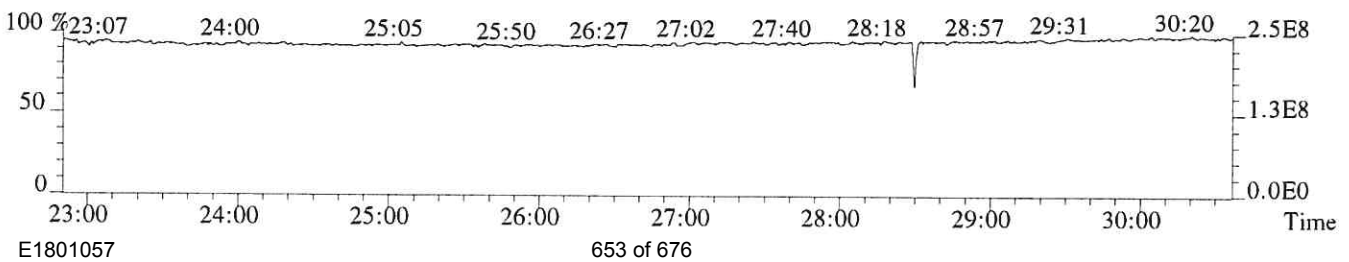
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



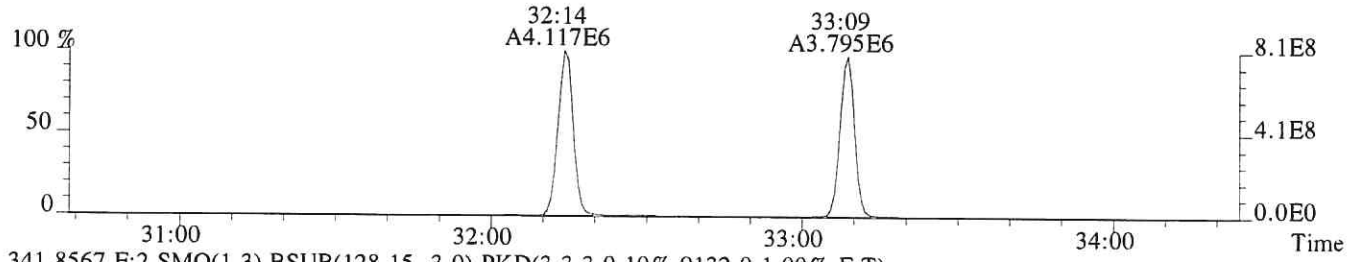
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



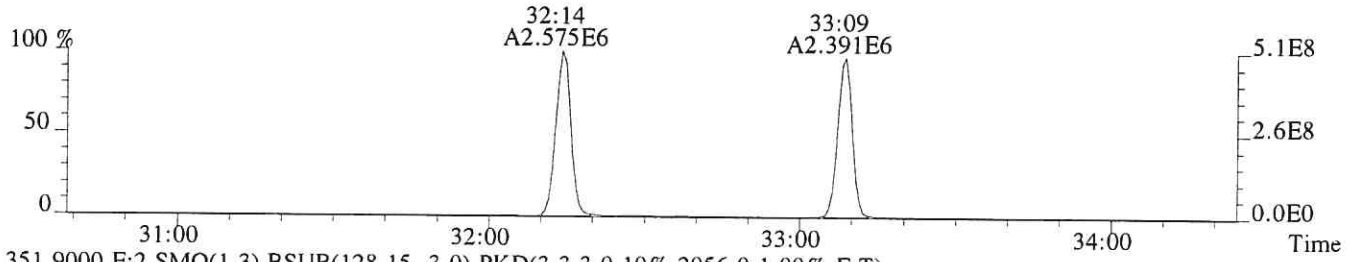
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



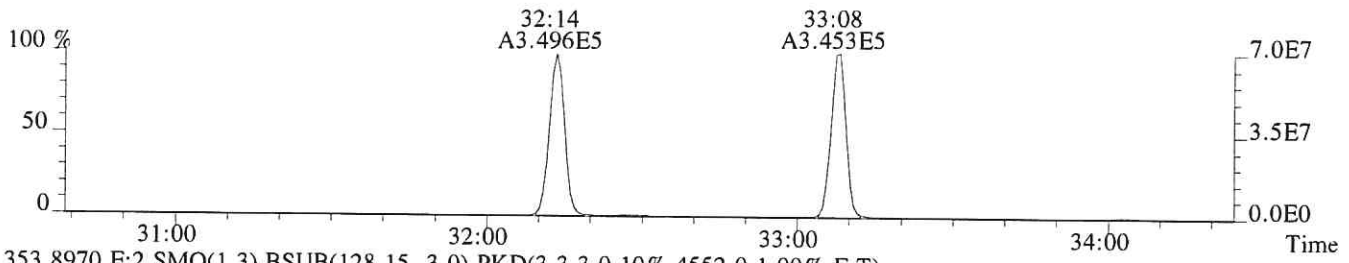
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



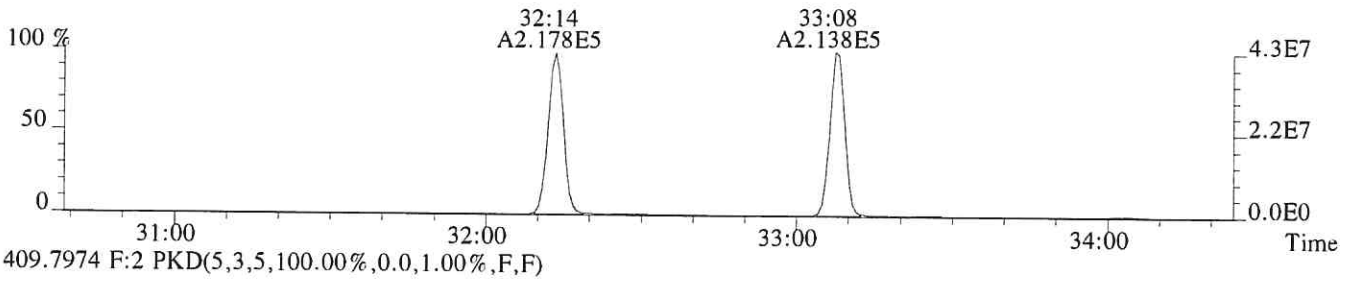
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



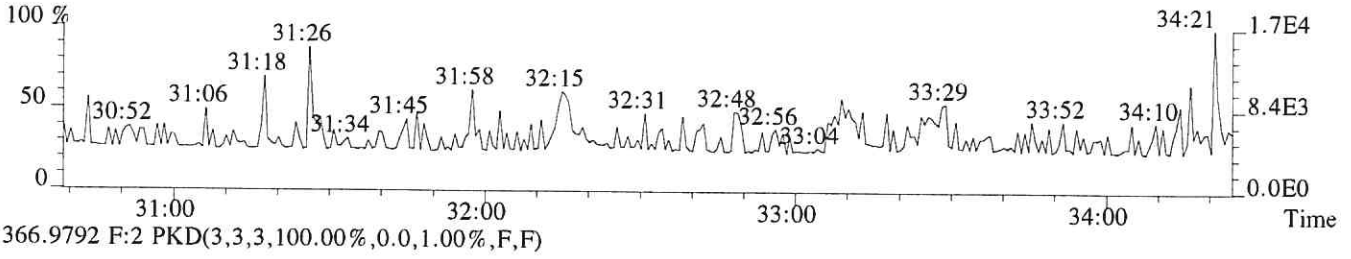
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



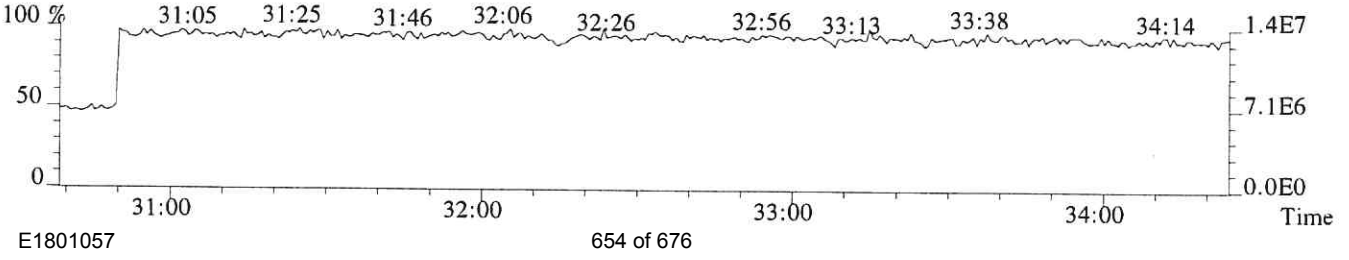
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



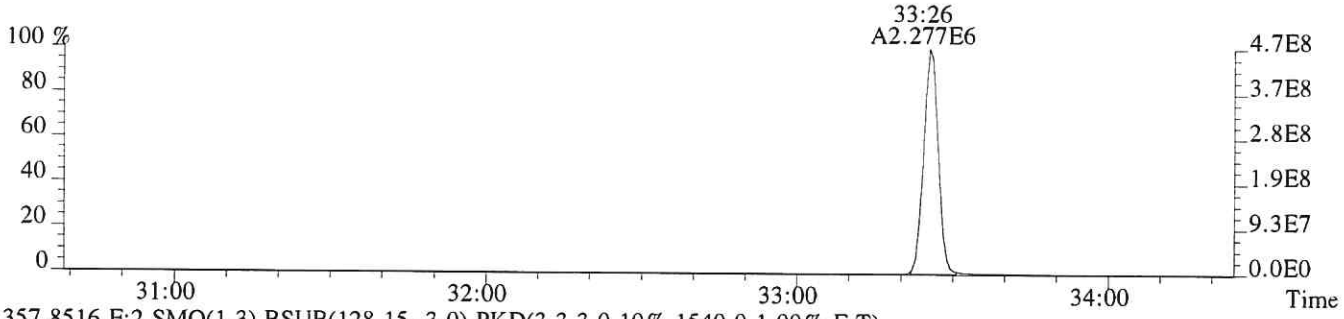
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



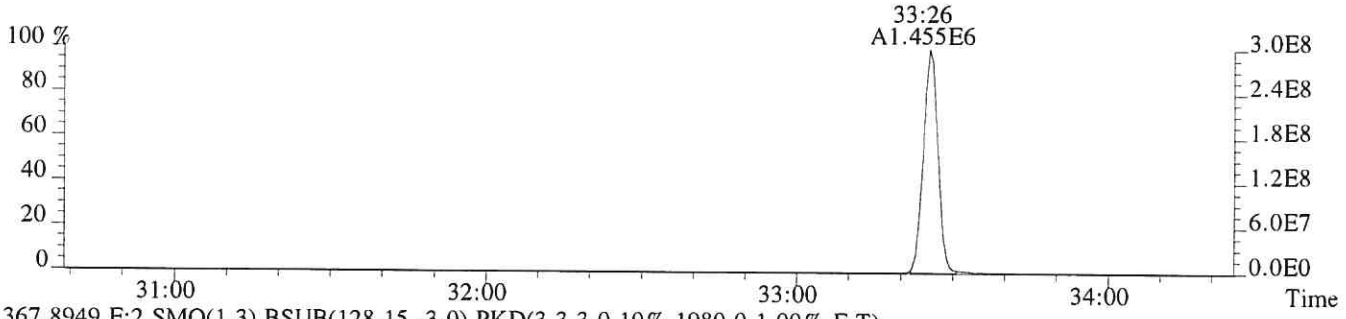
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



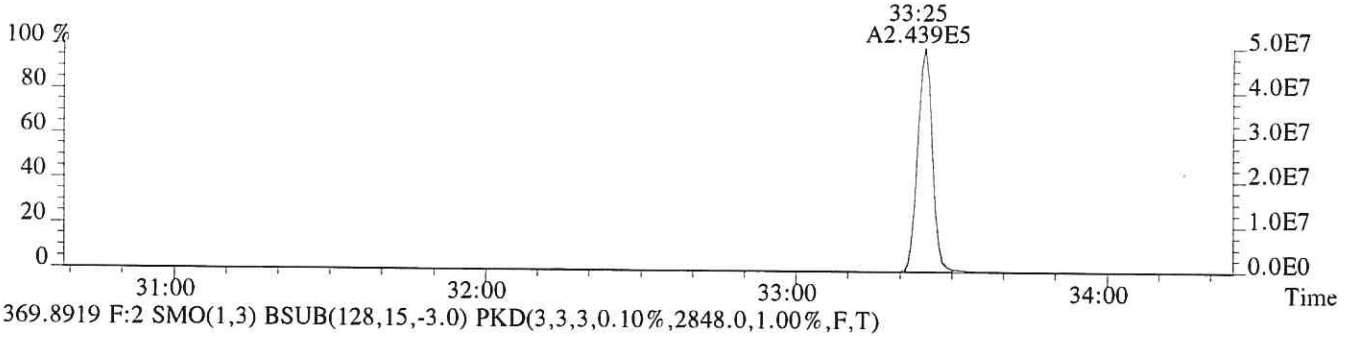
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



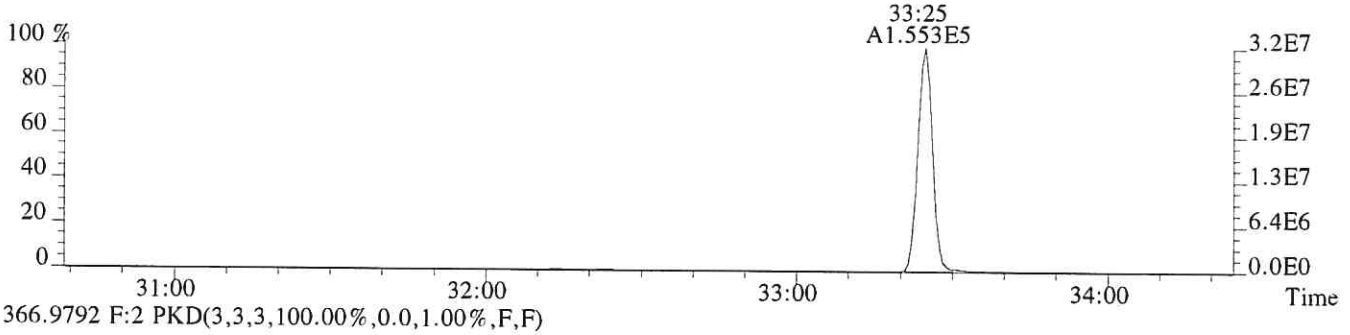
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



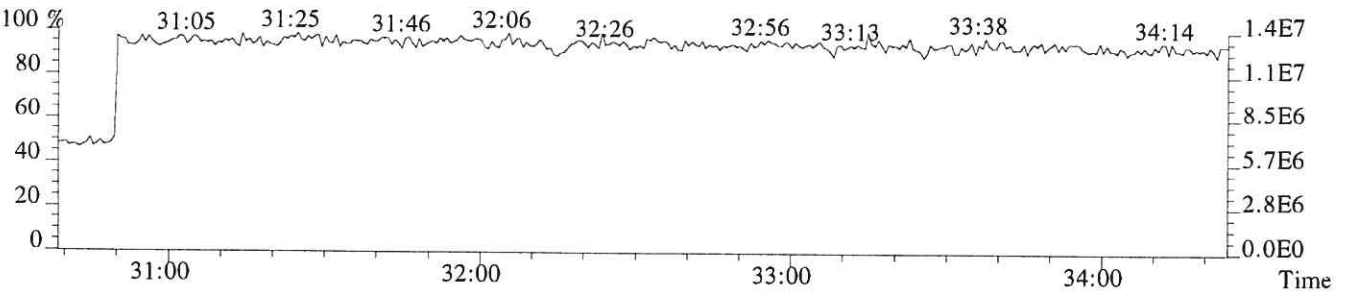
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



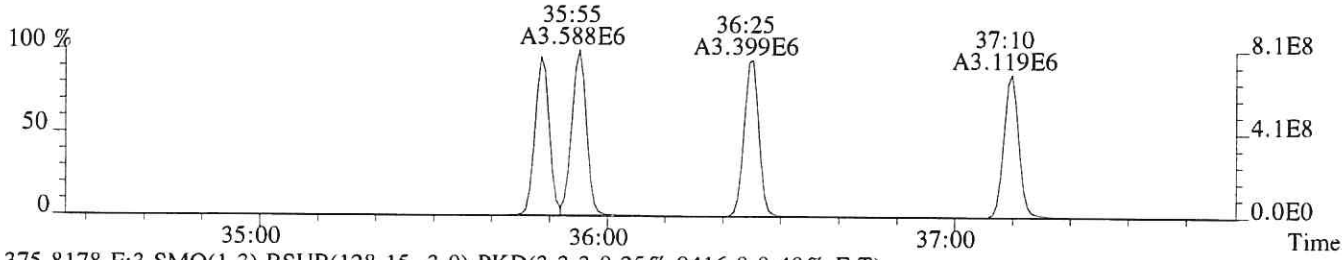
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



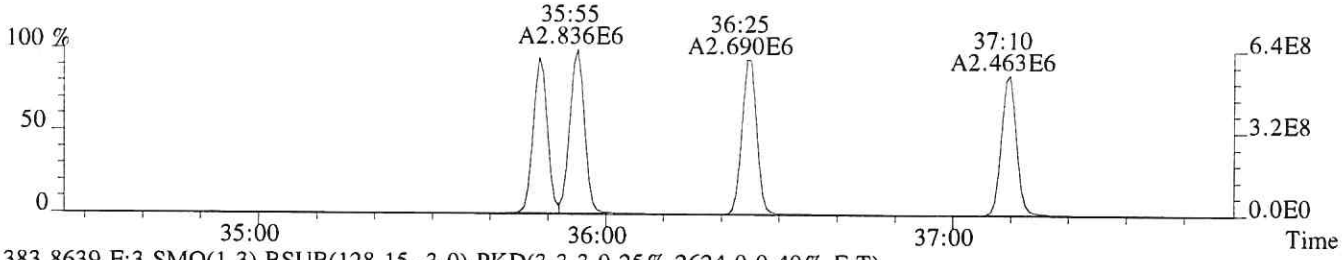
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



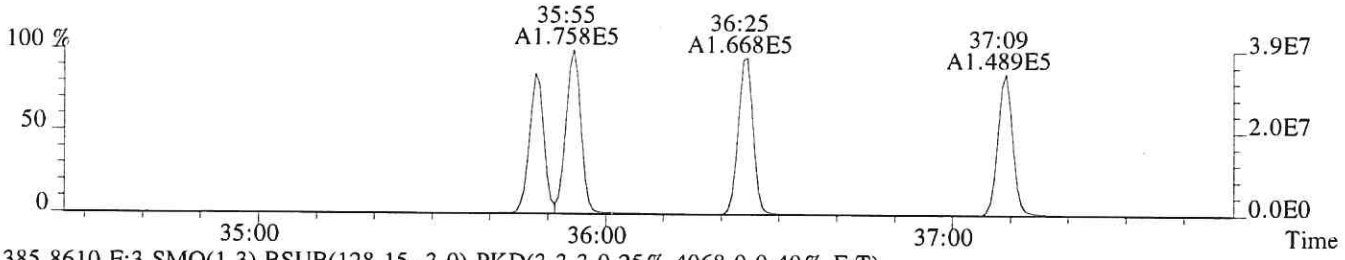
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



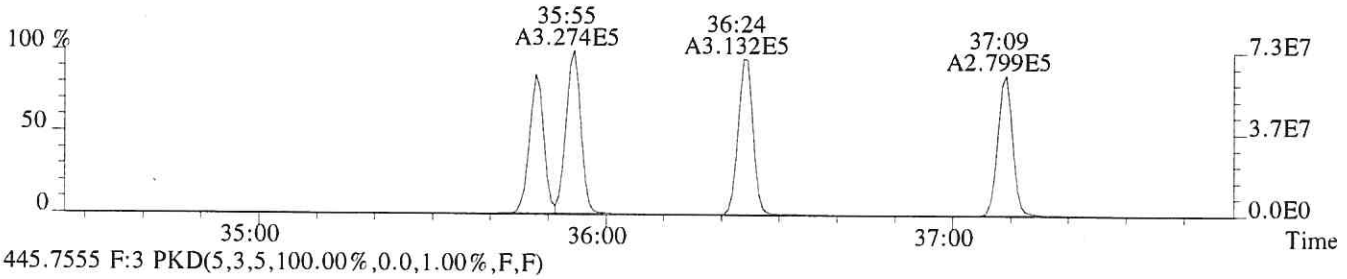
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



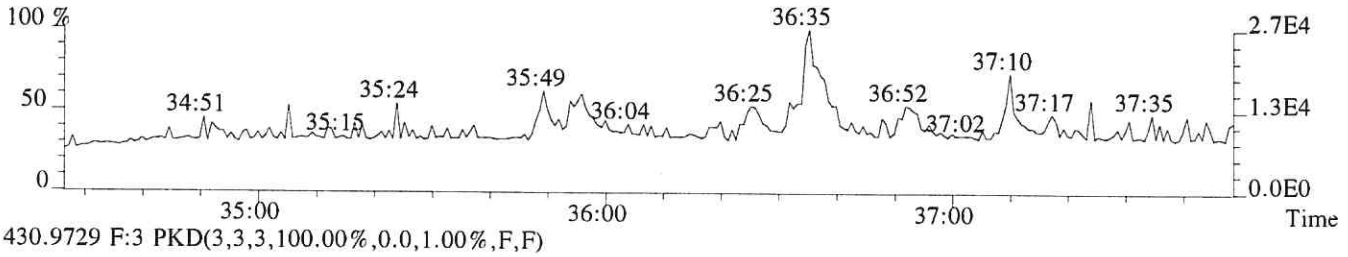
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



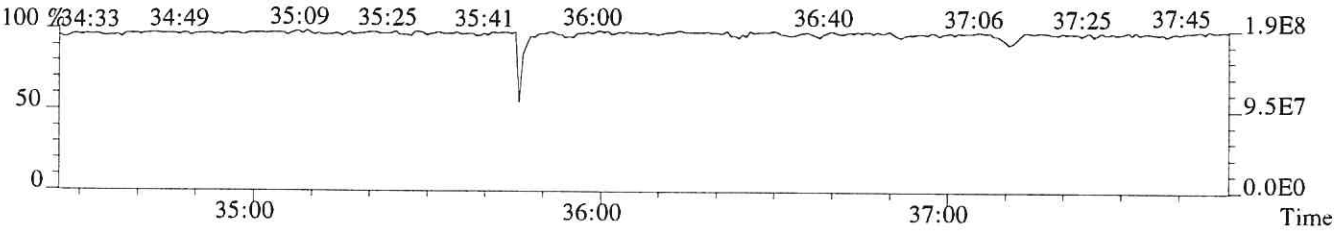
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



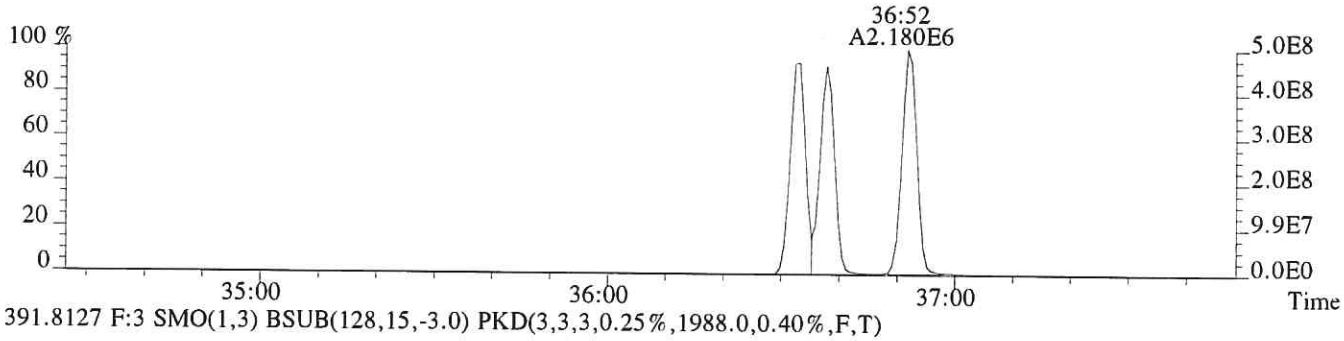
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



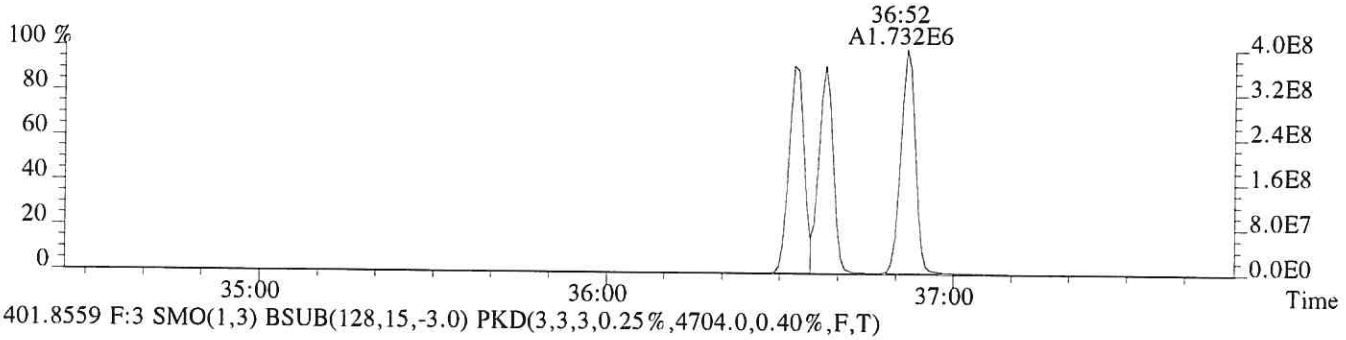
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



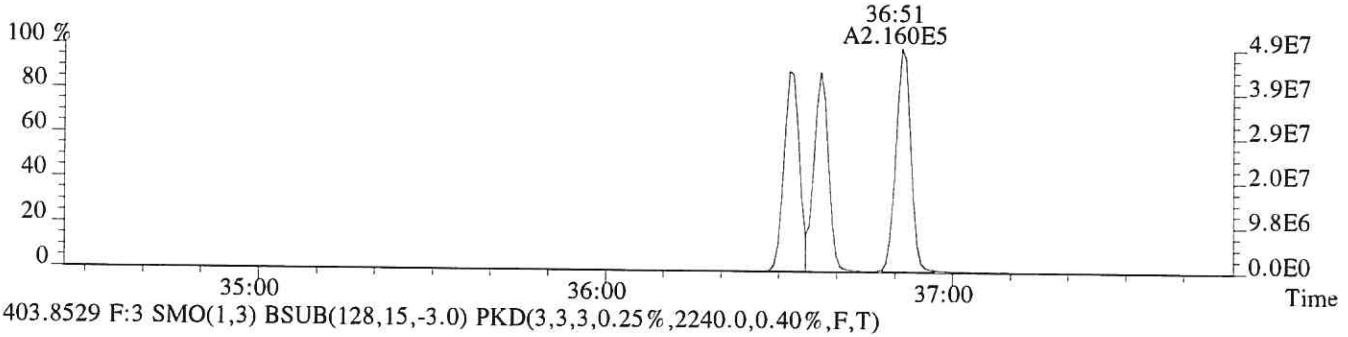
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



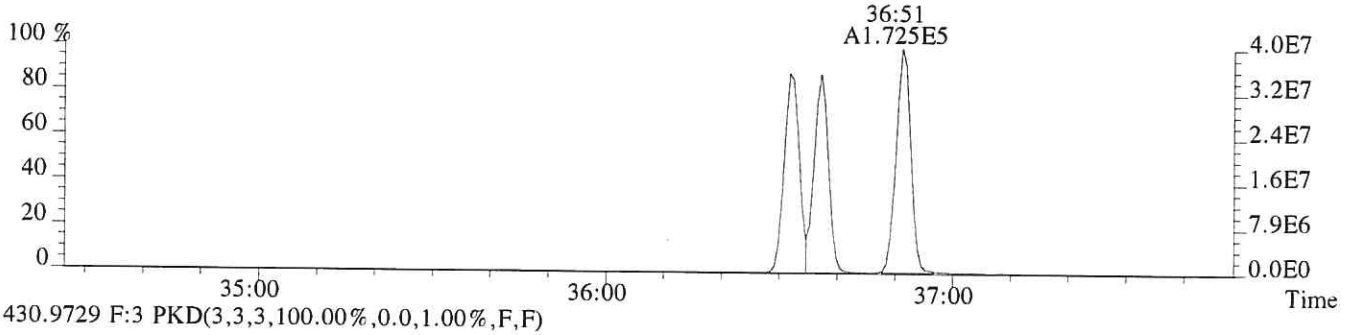
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



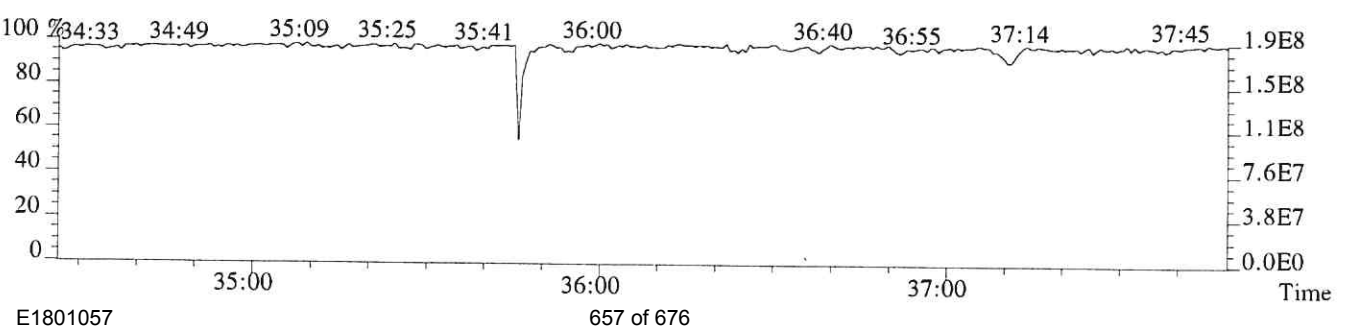
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



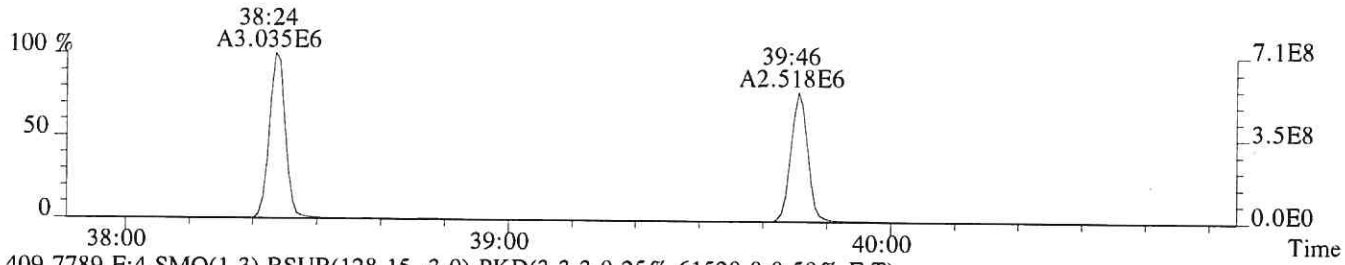
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)



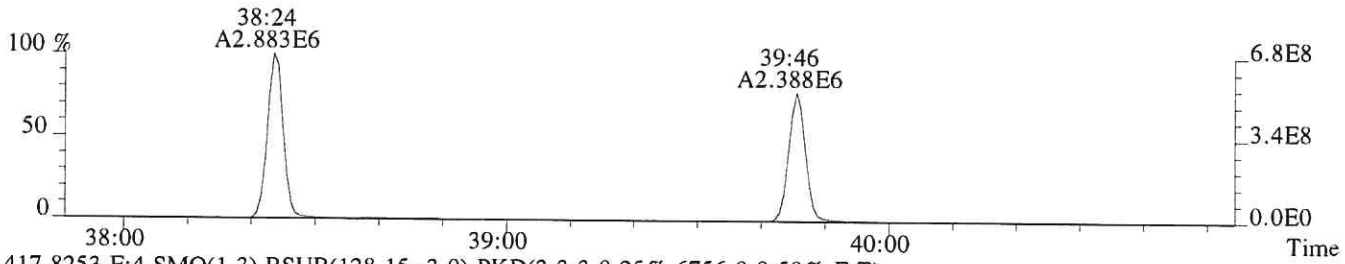
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



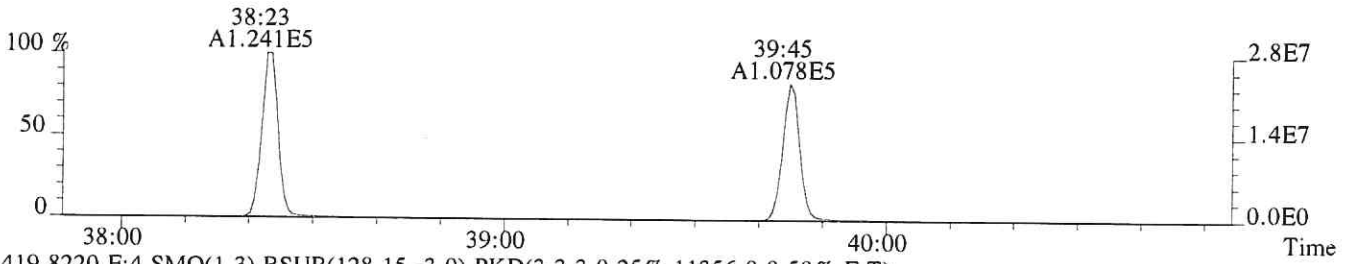
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



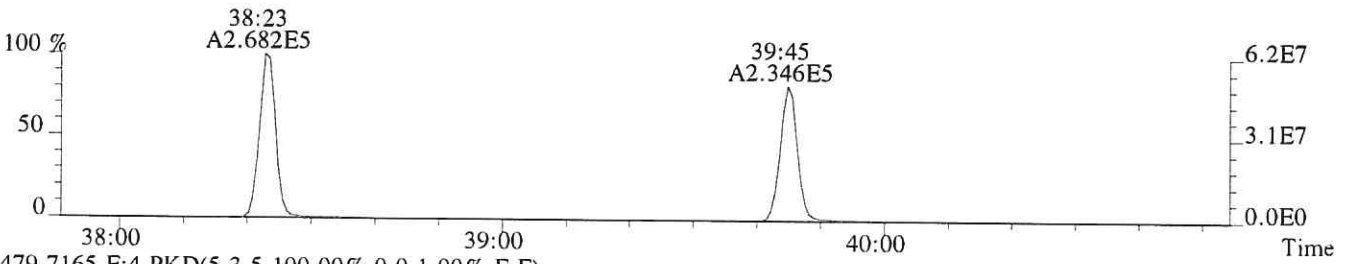
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



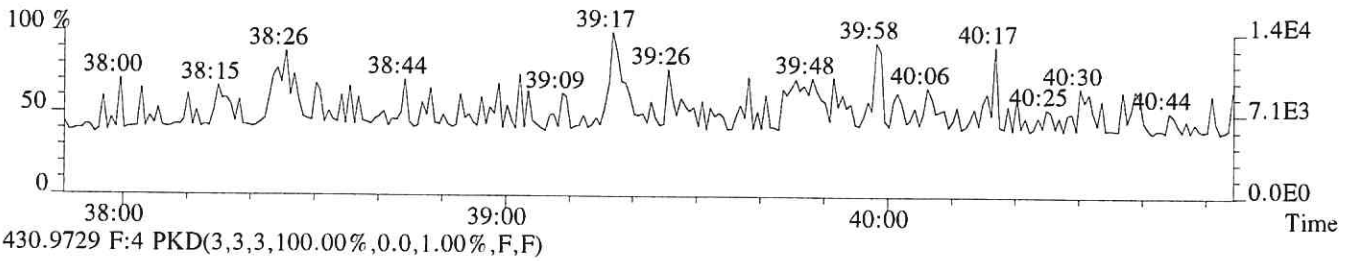
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



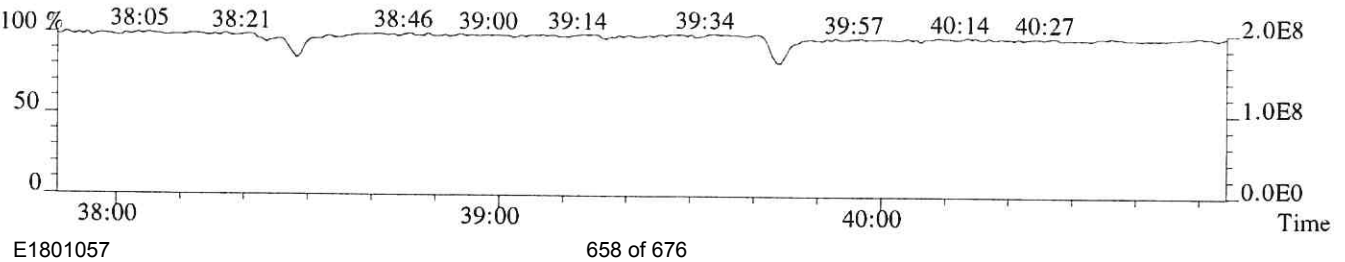
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



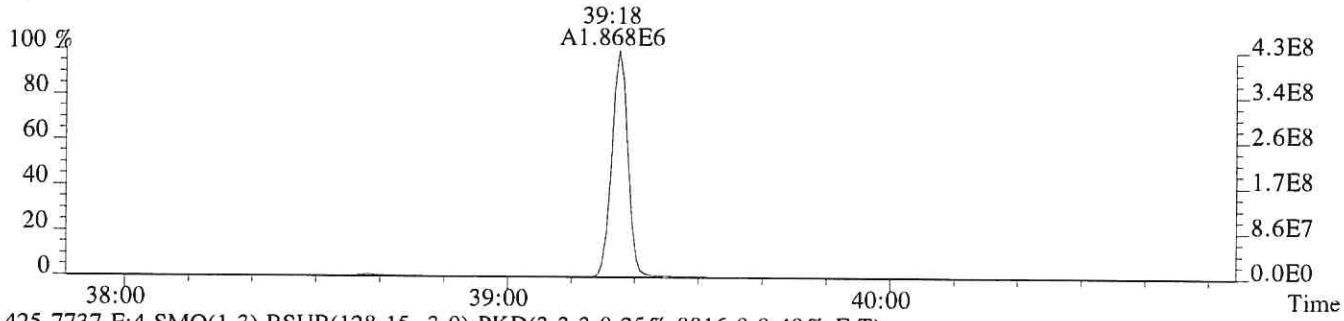
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



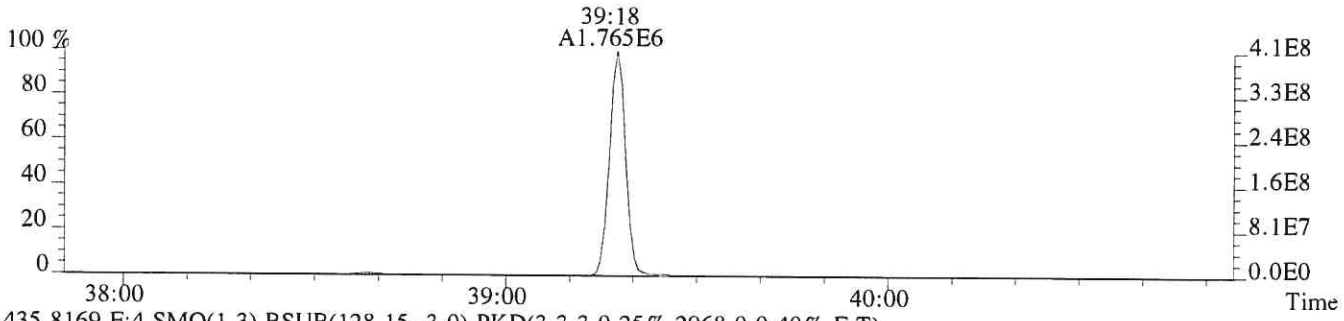
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



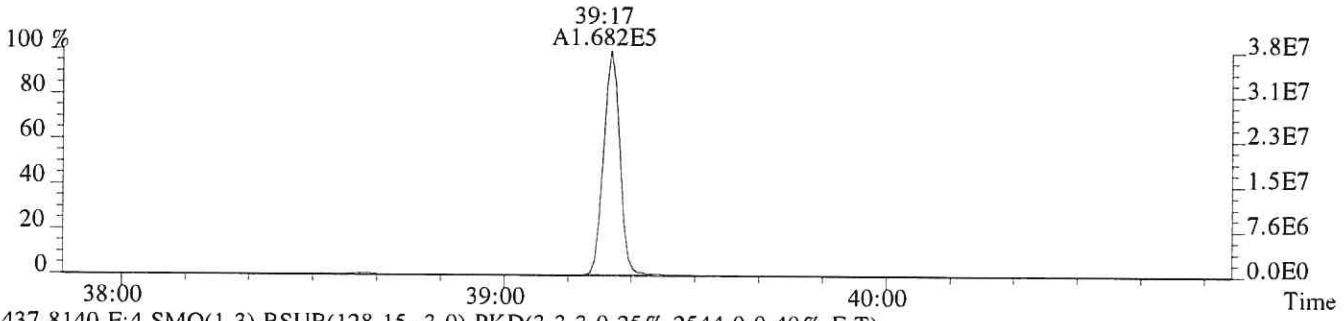
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



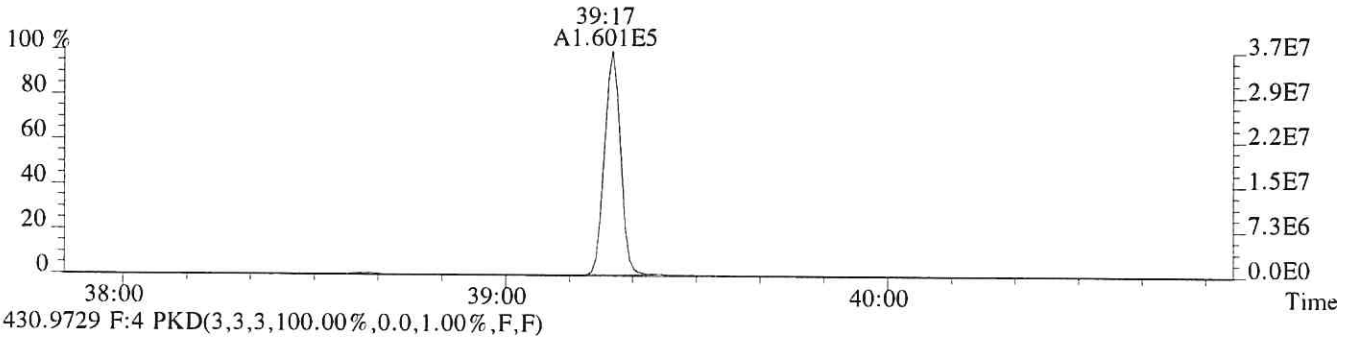
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



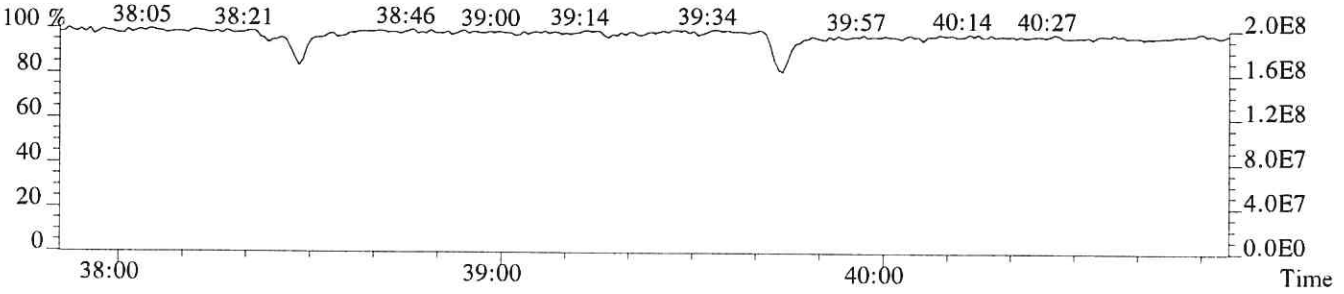
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



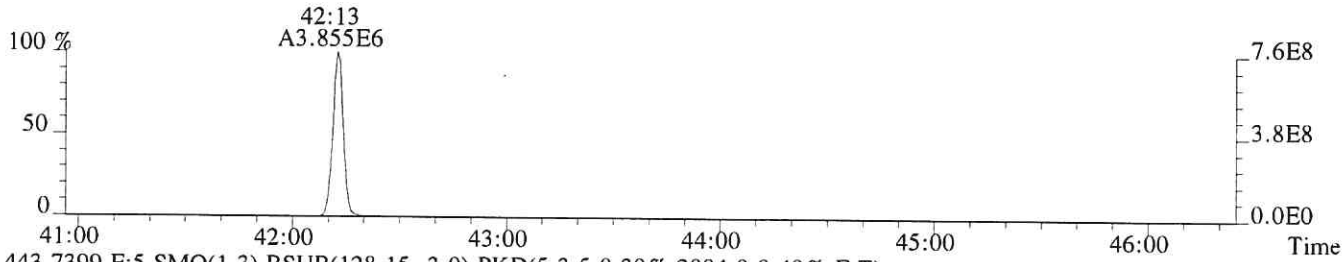
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



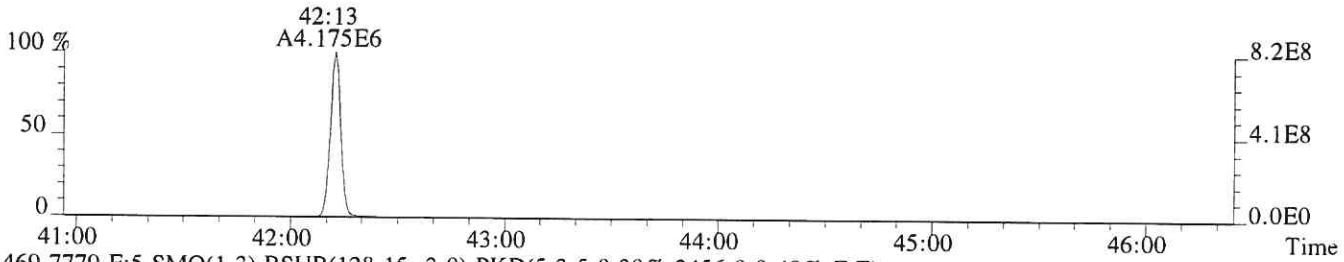
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



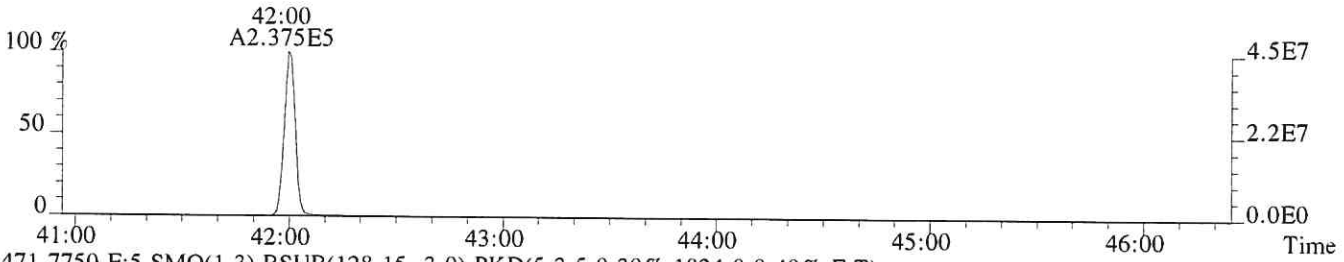
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



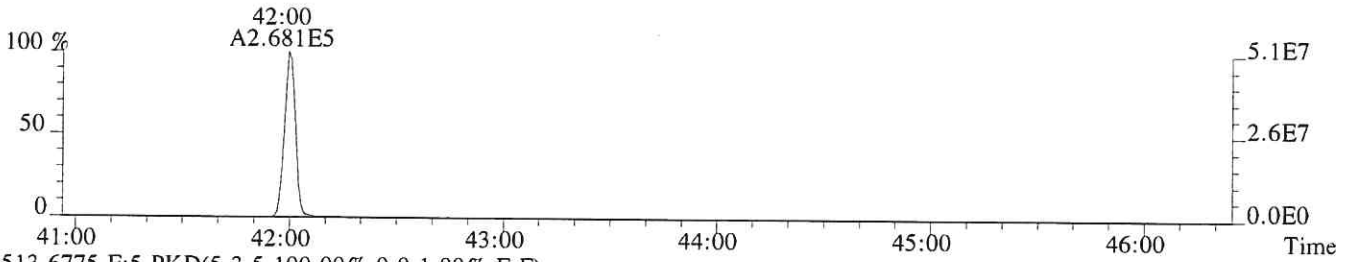
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



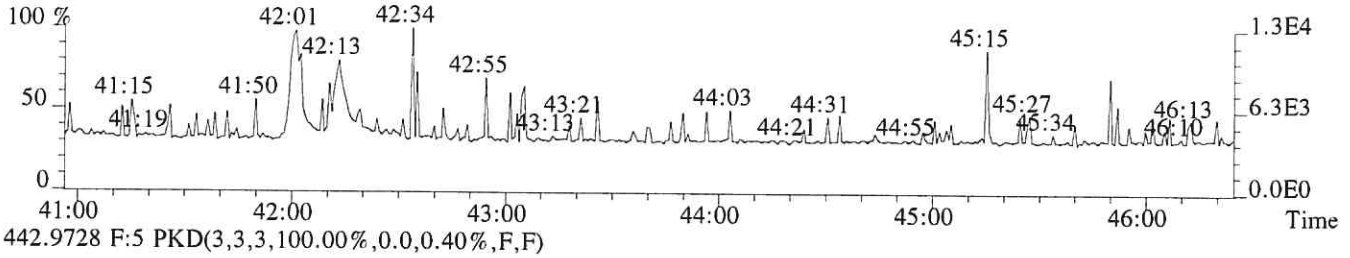
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



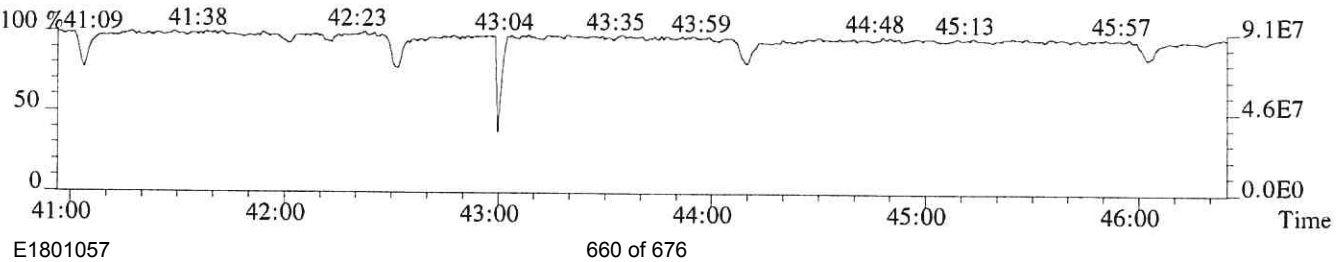
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



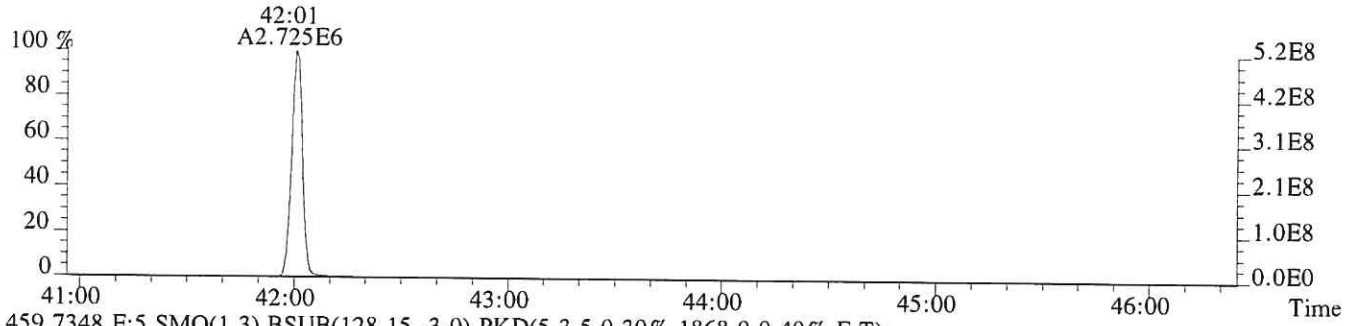
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



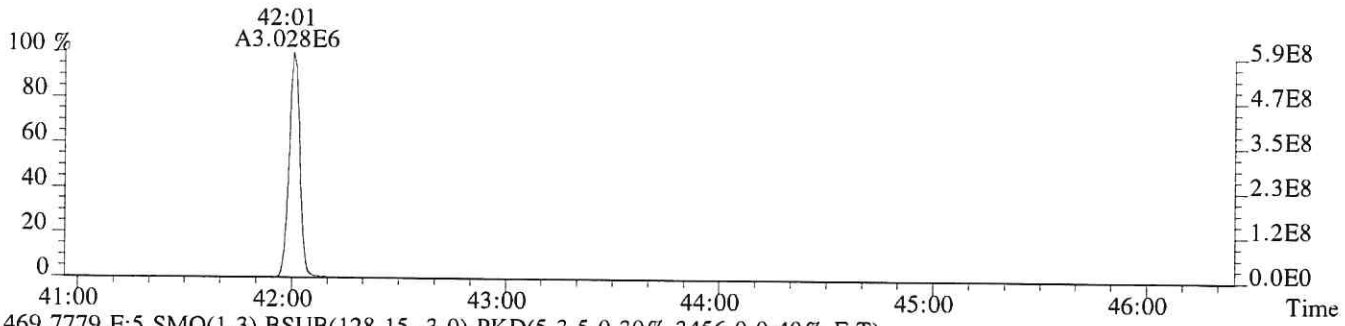
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



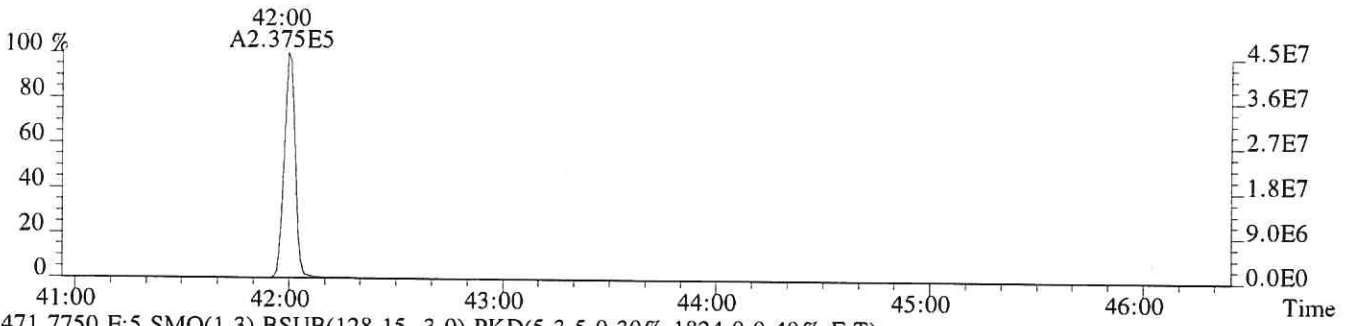
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



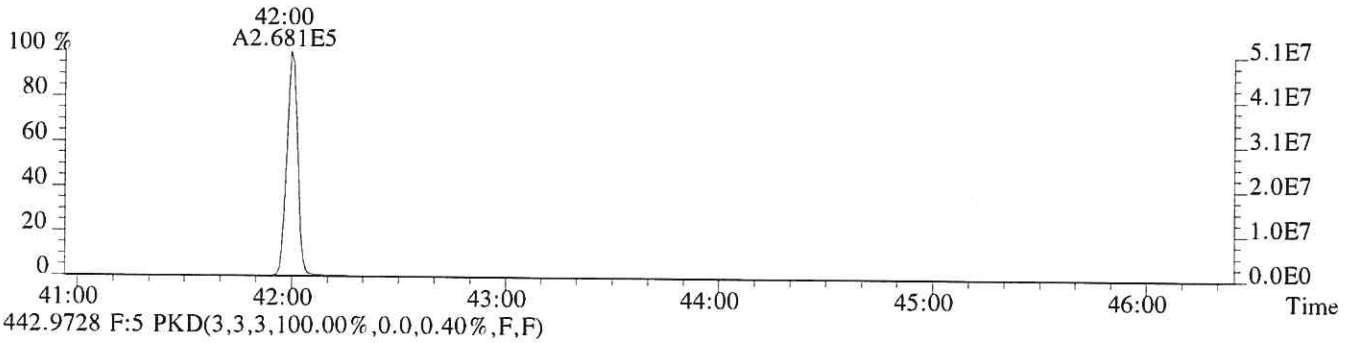
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



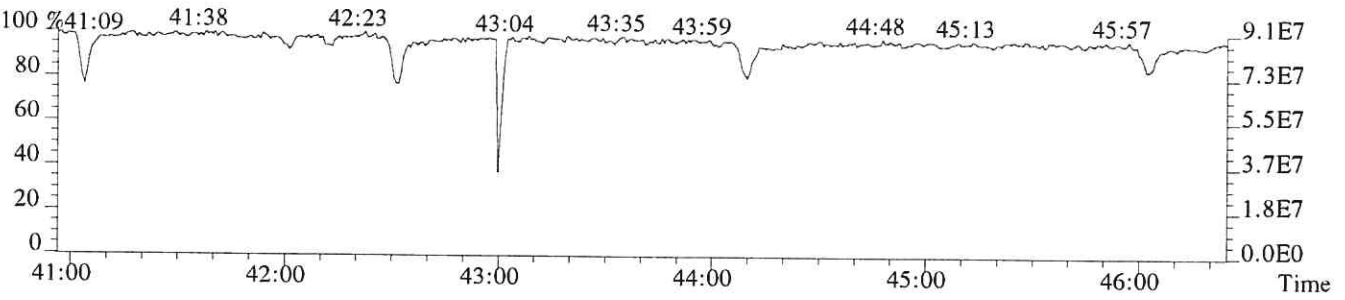
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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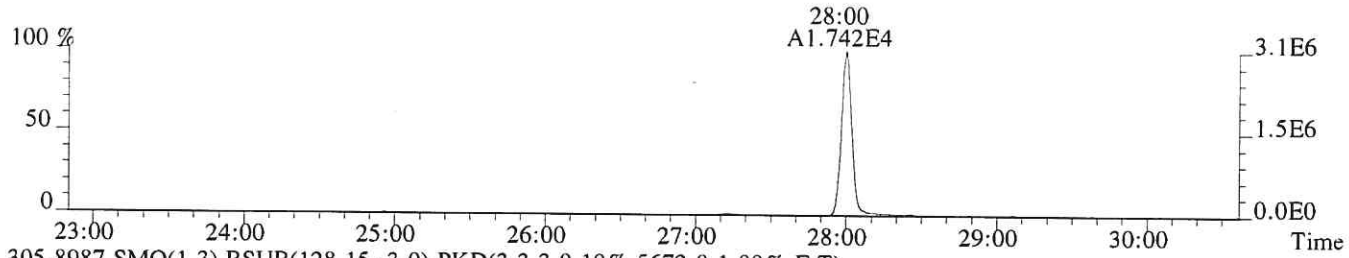
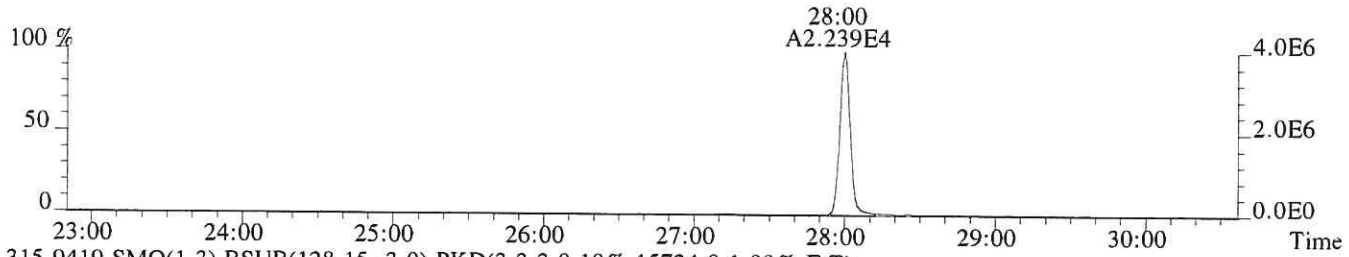
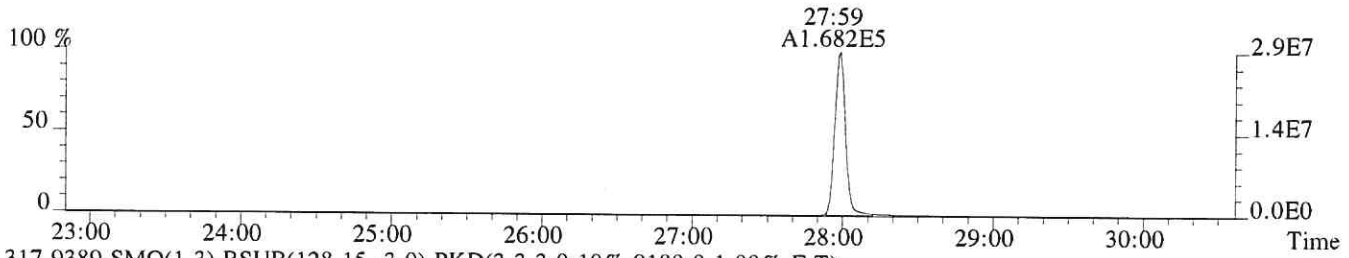
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



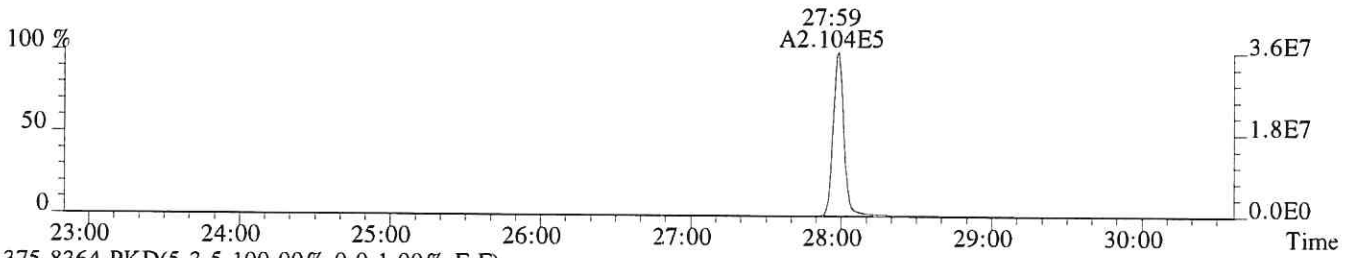
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



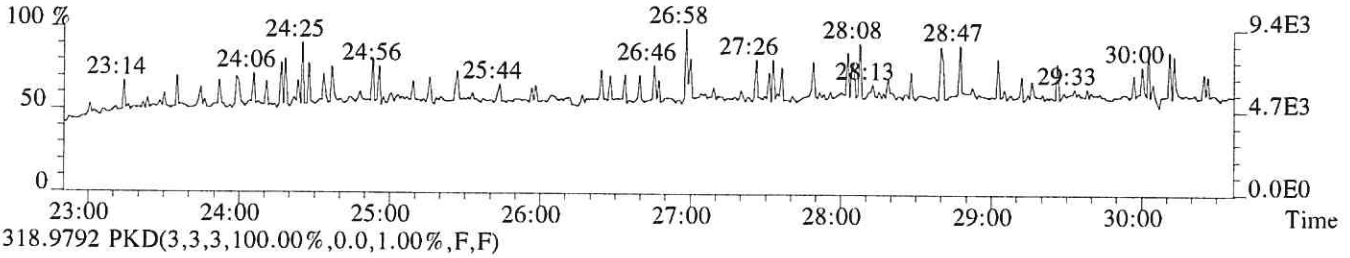
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



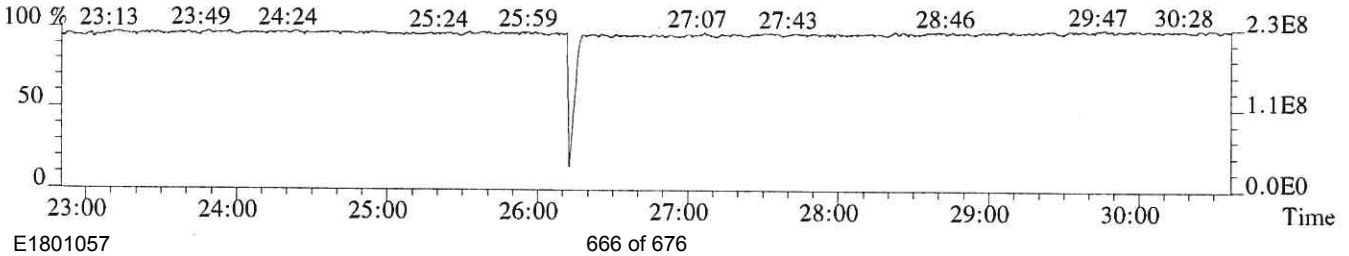
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



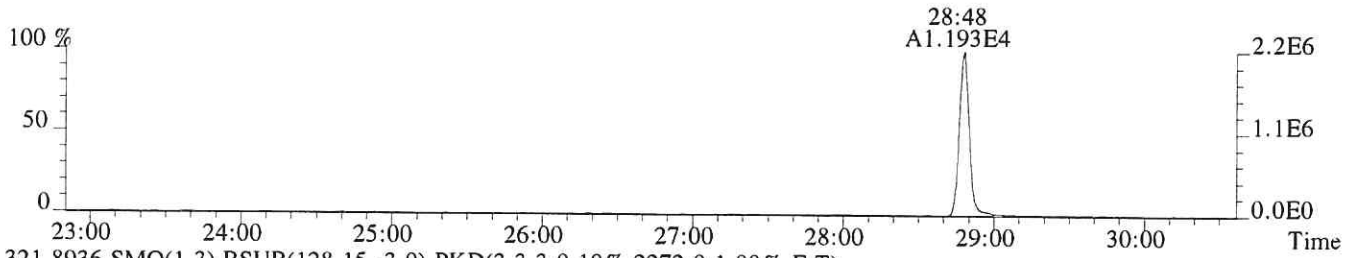
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



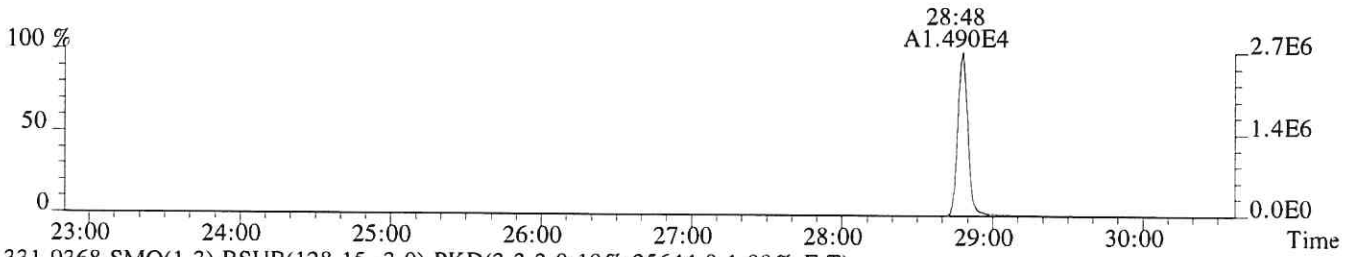
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



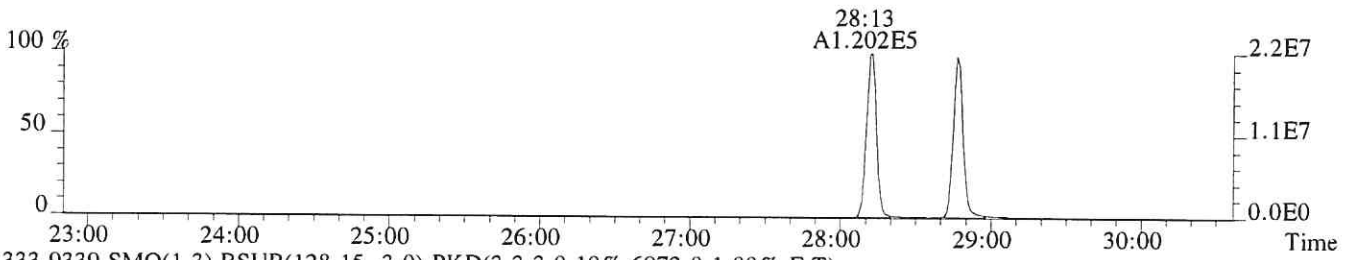
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



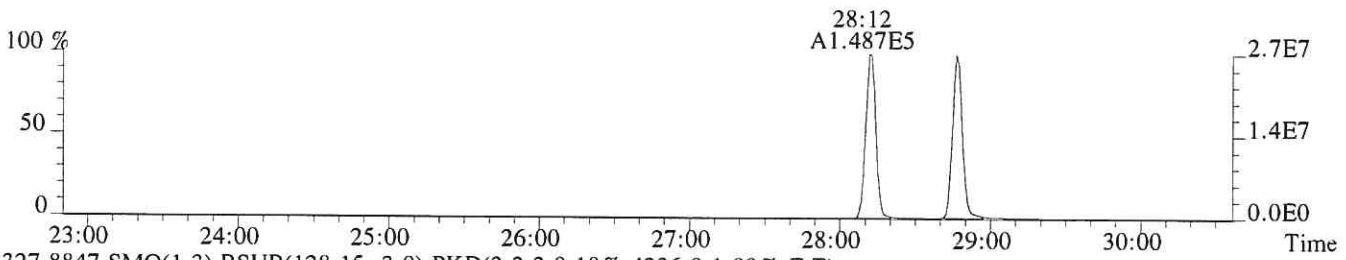
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



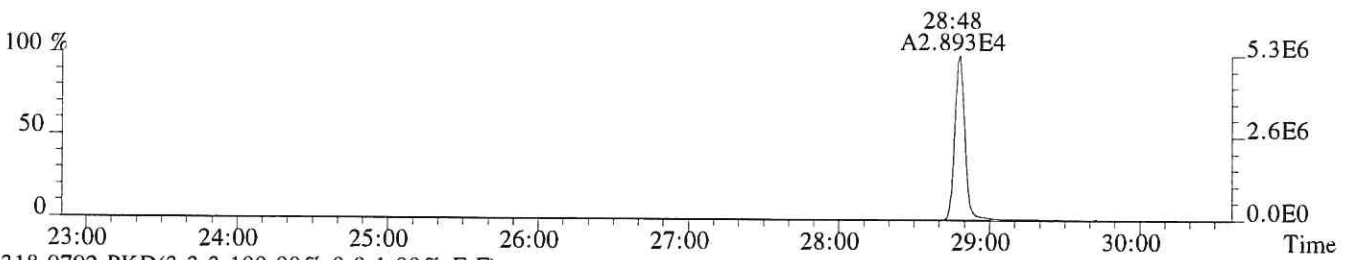
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



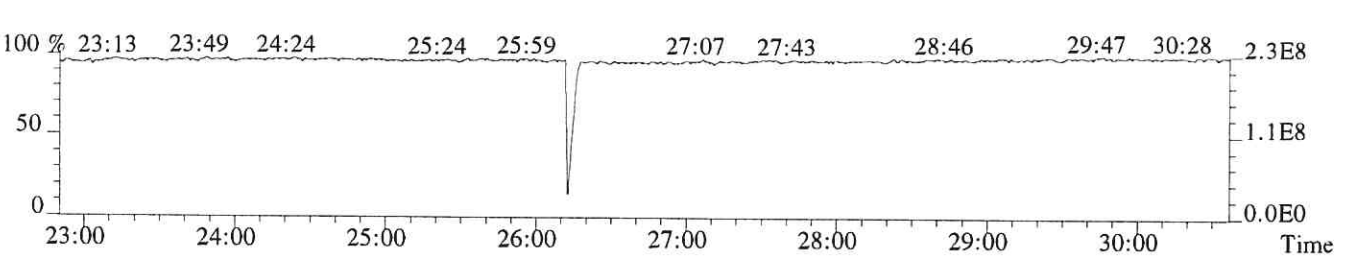
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



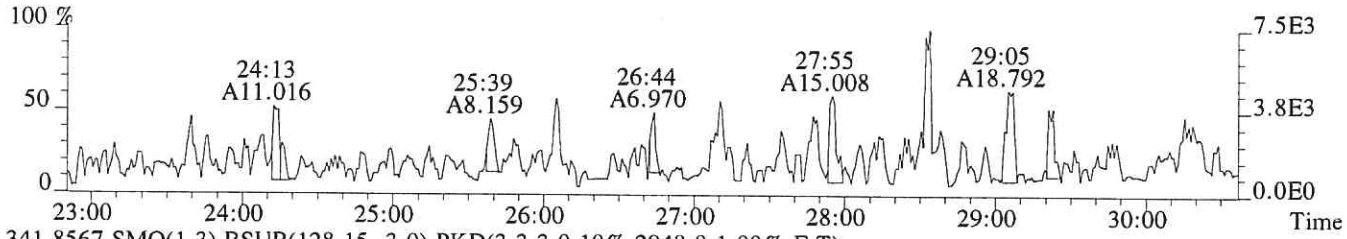
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)



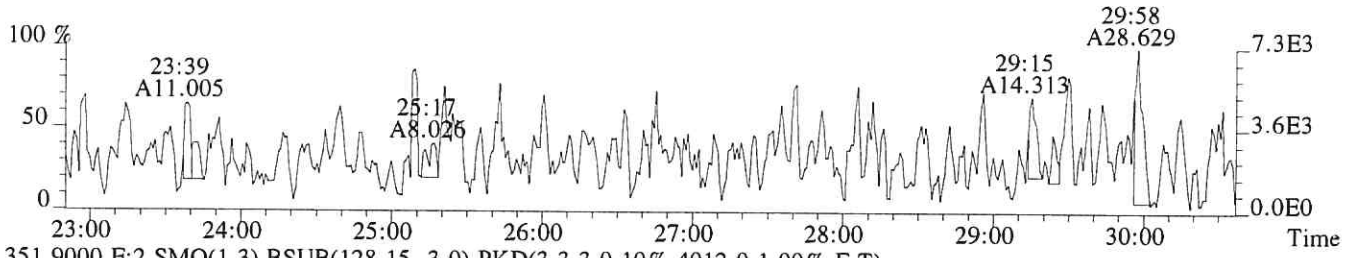
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



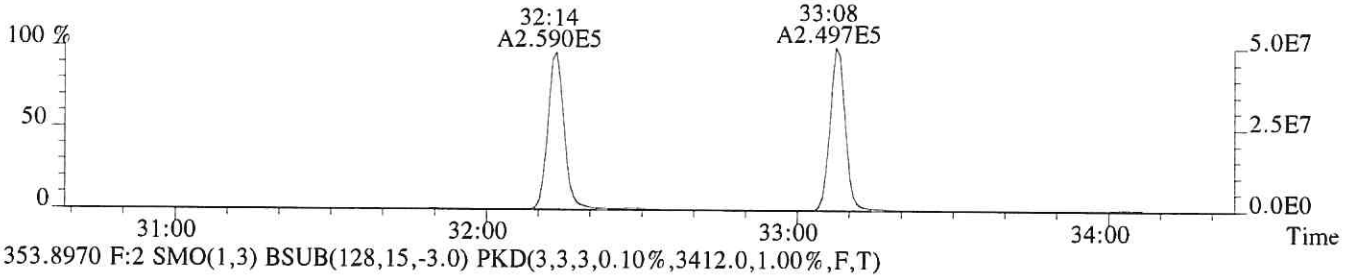
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



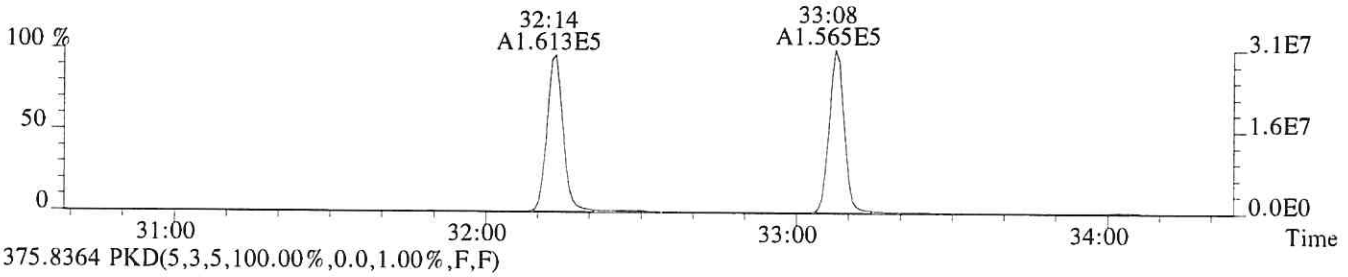
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



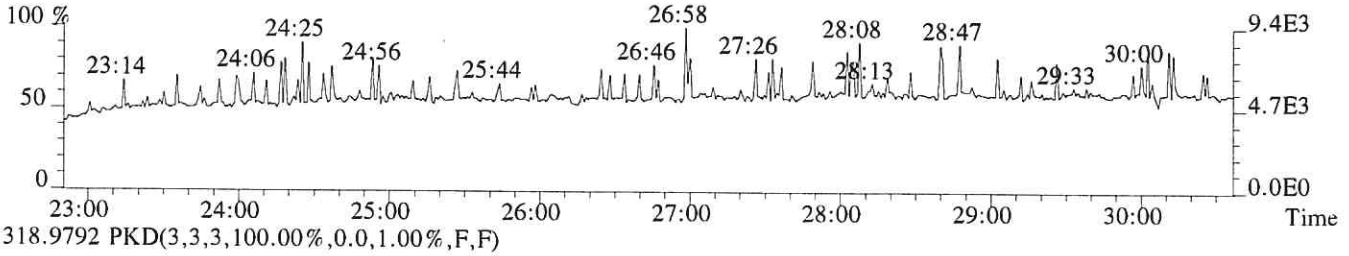
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



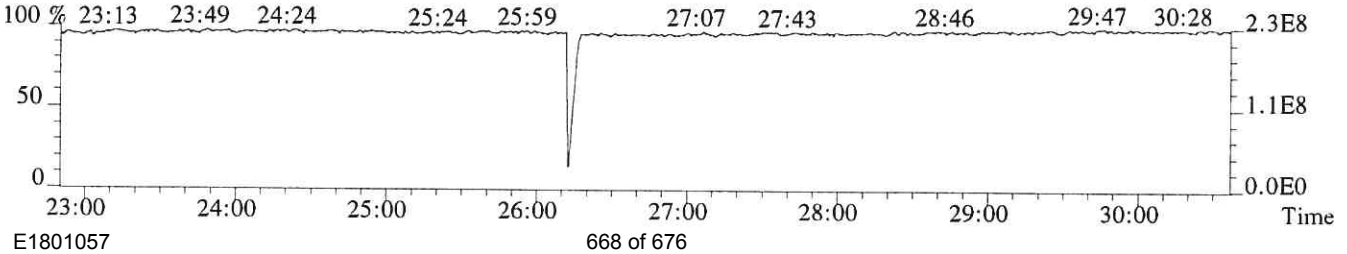
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



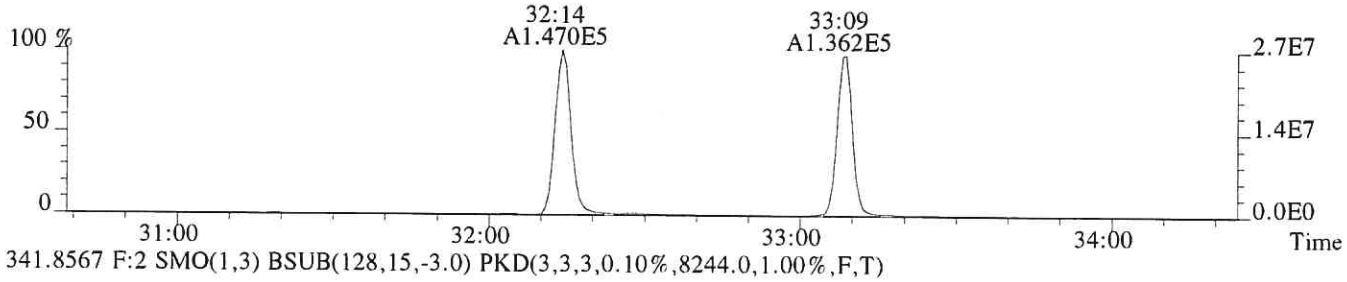
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



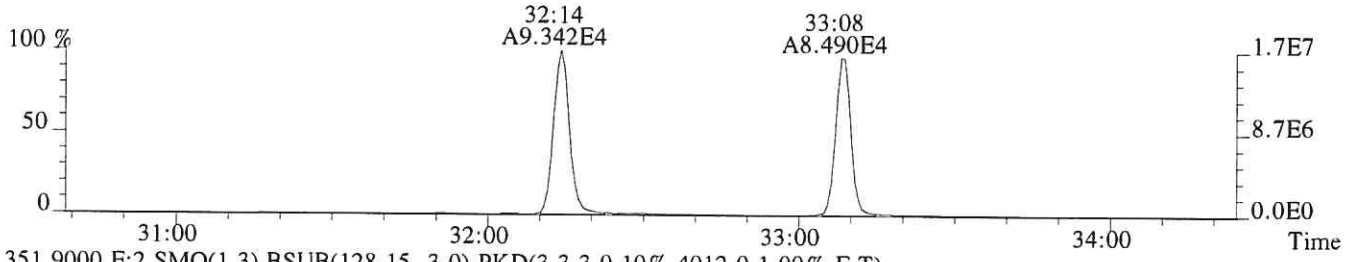
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



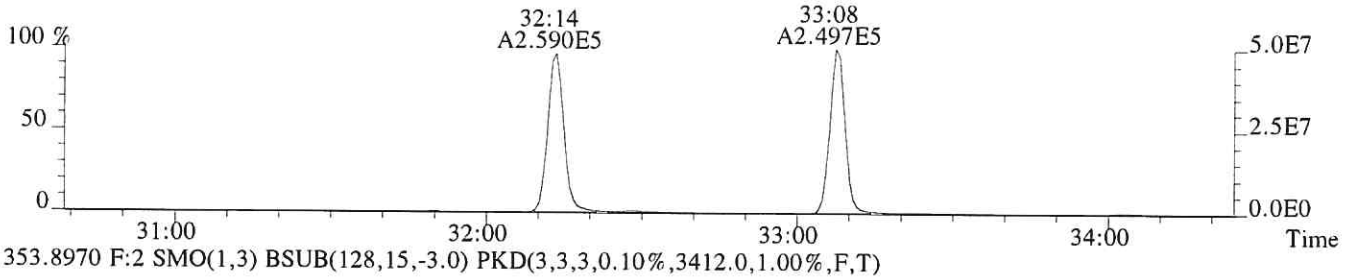
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



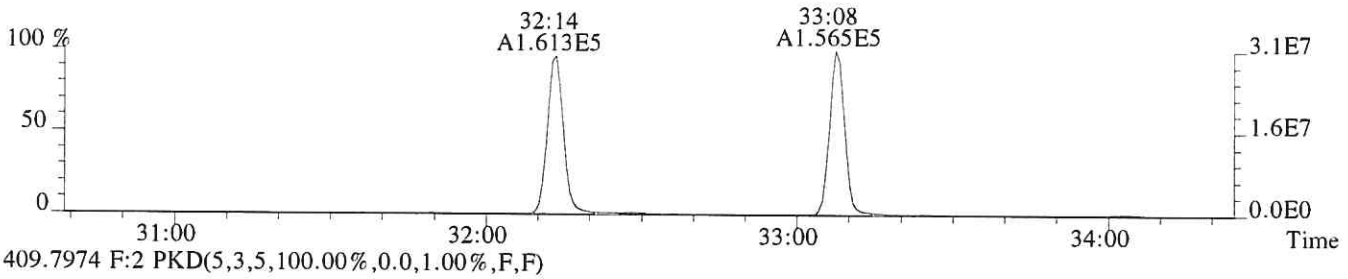
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



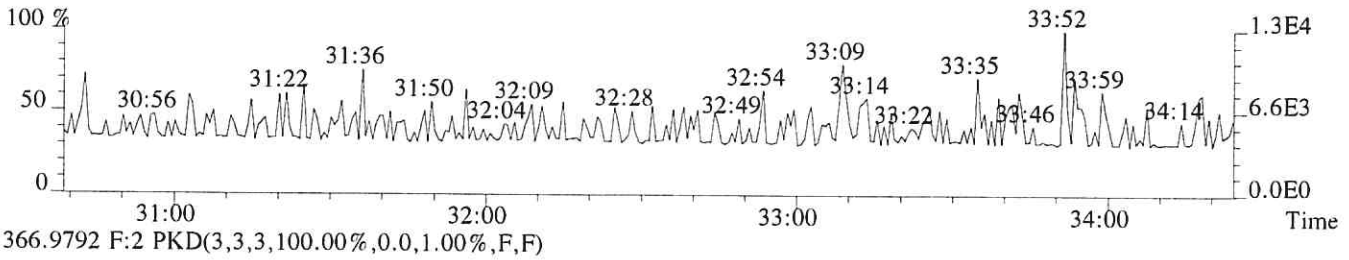
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



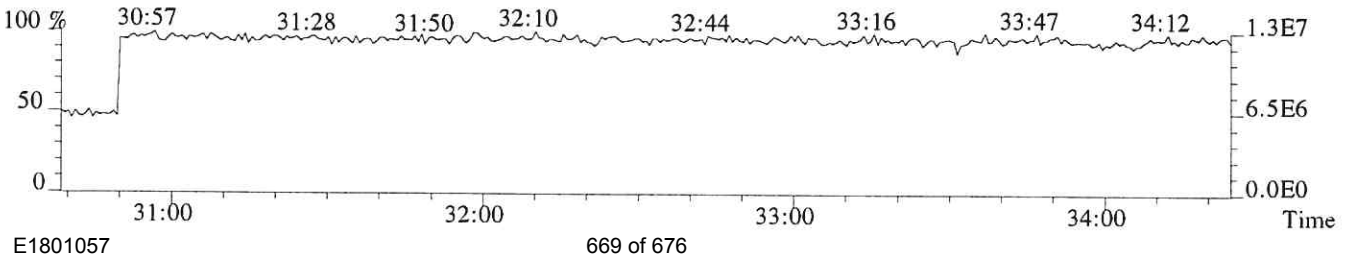
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



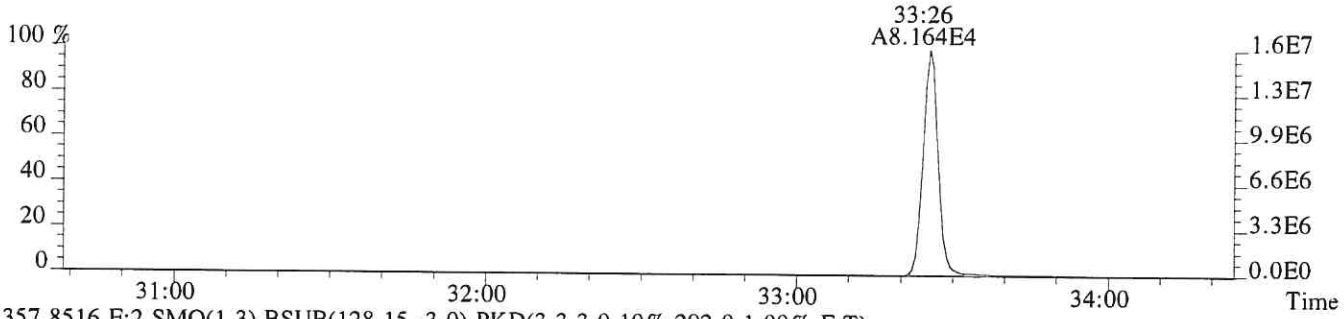
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



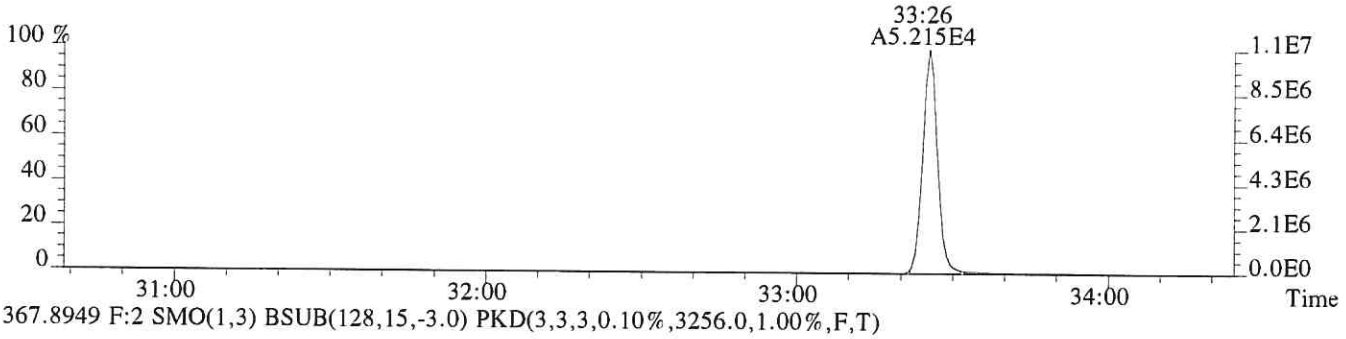
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



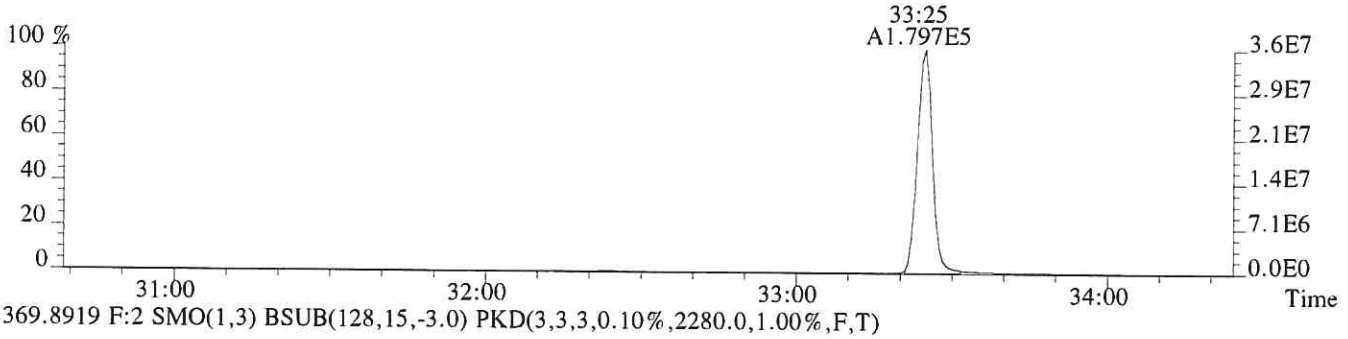
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



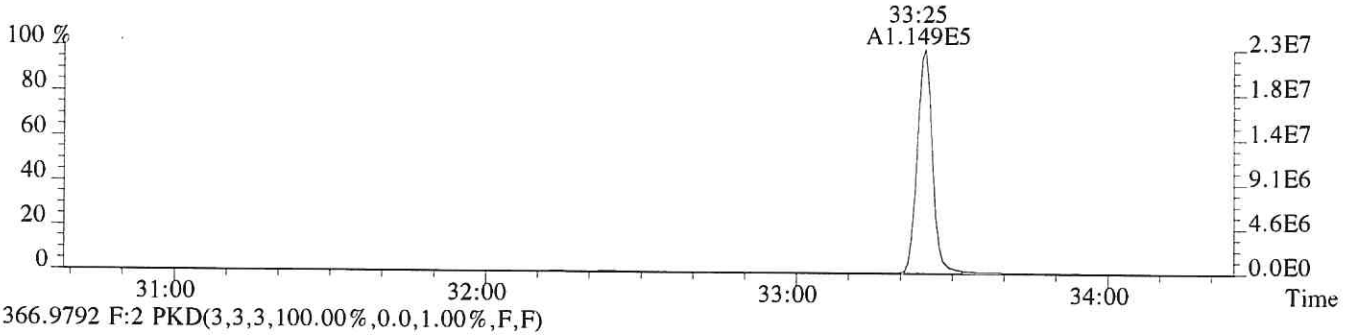
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



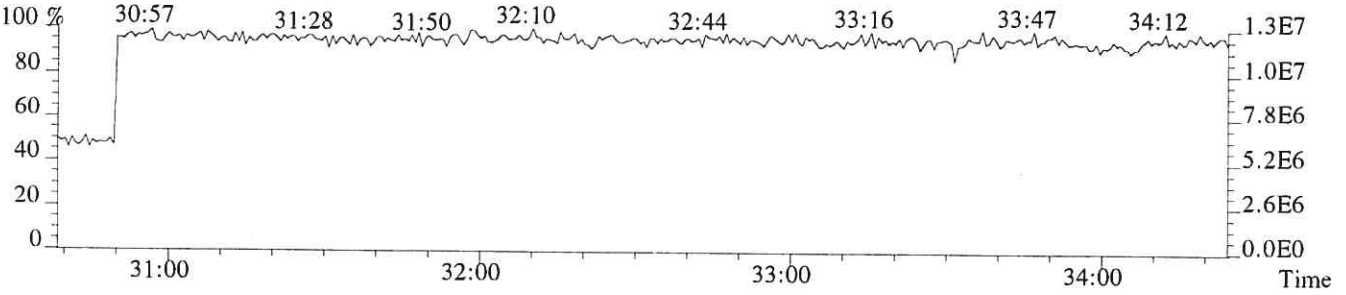
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



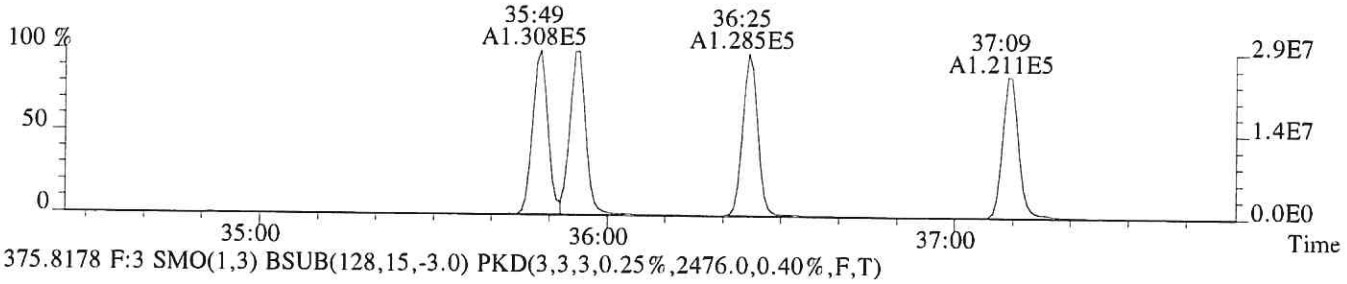
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



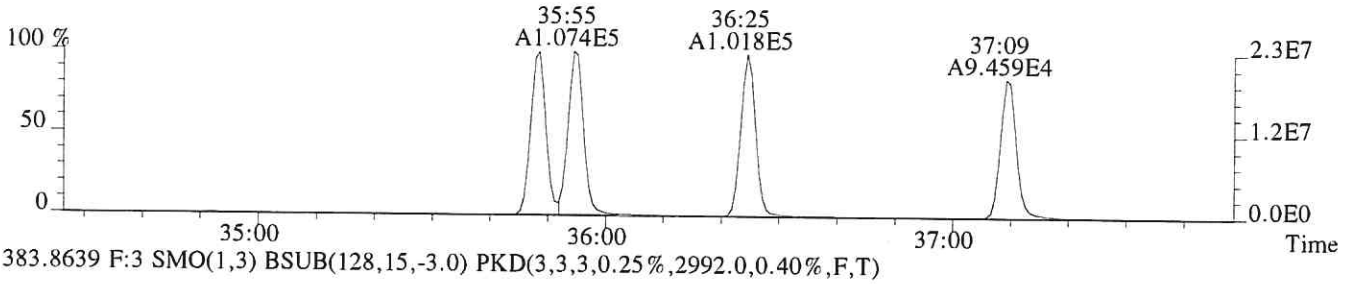
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



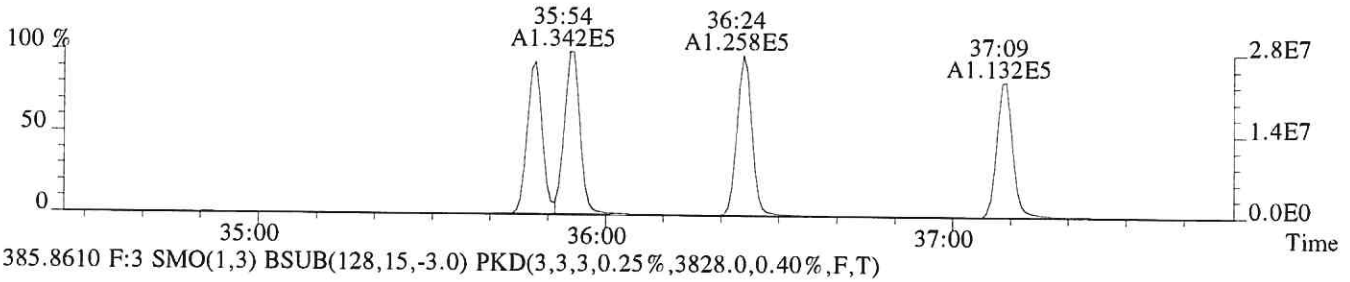
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



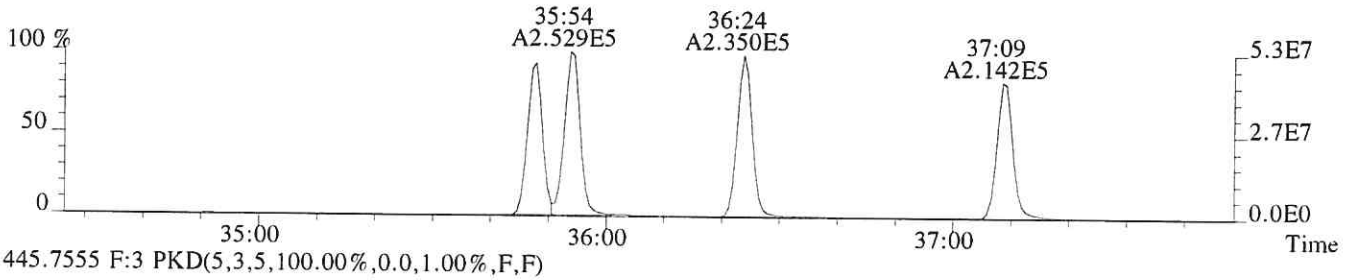
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



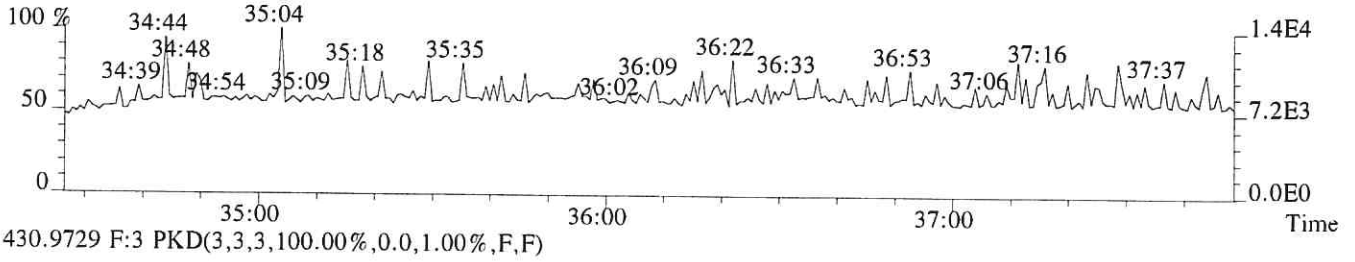
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



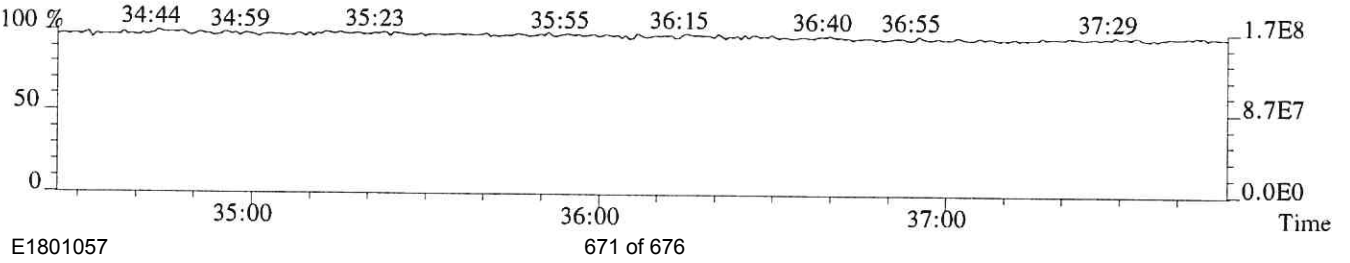
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



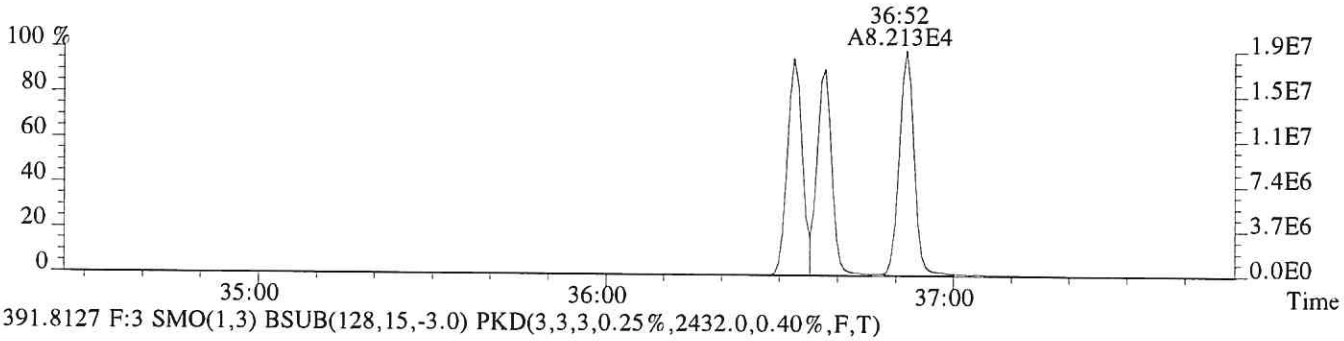
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



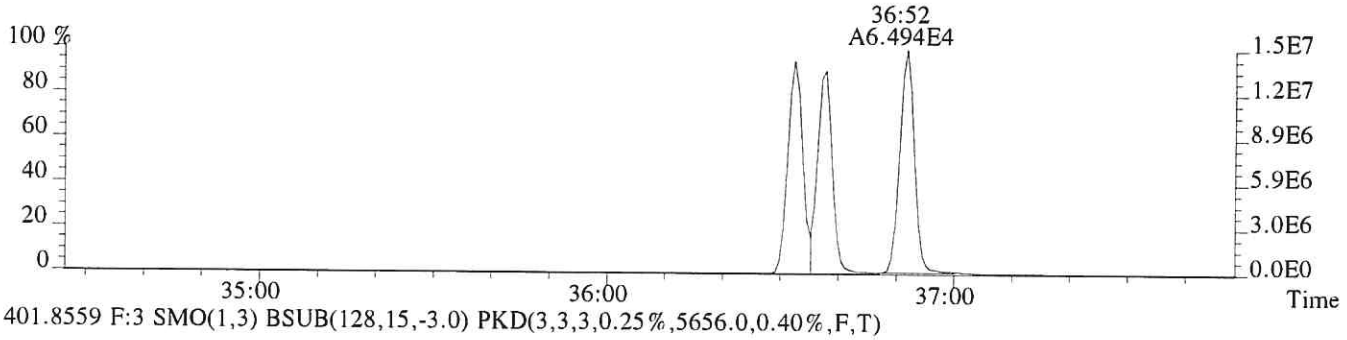
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



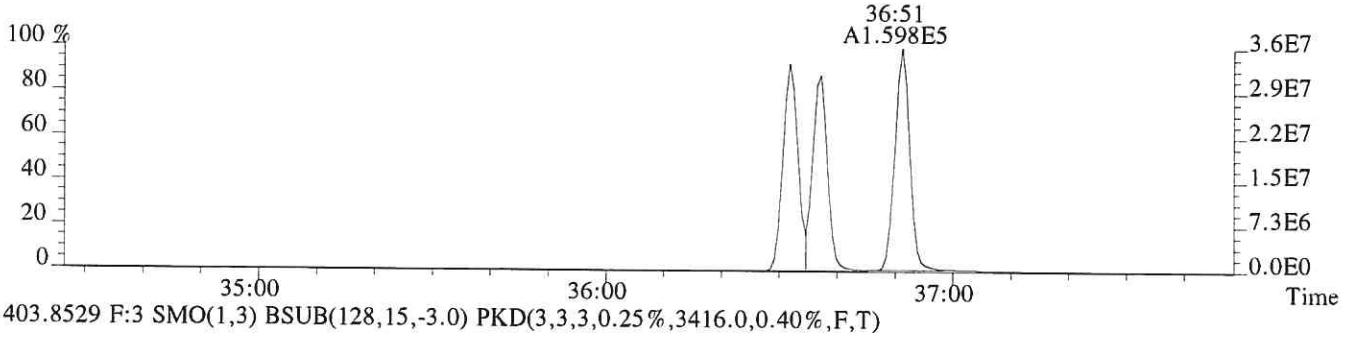
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



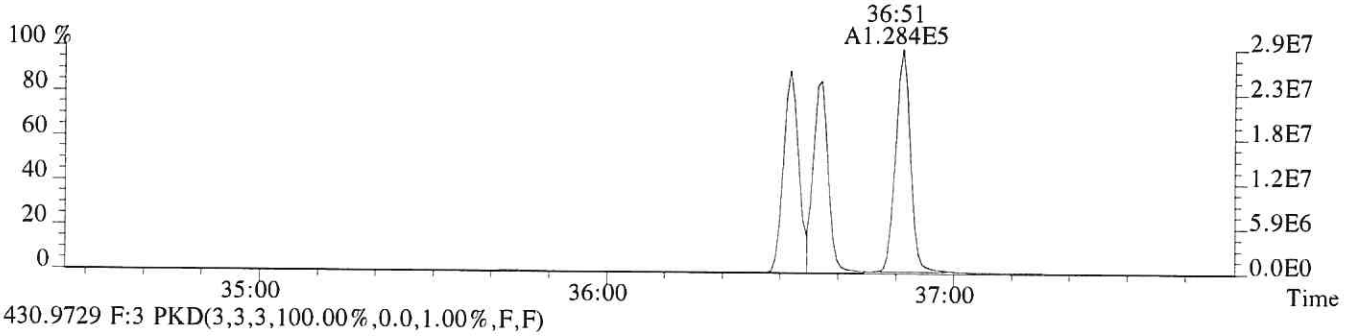
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



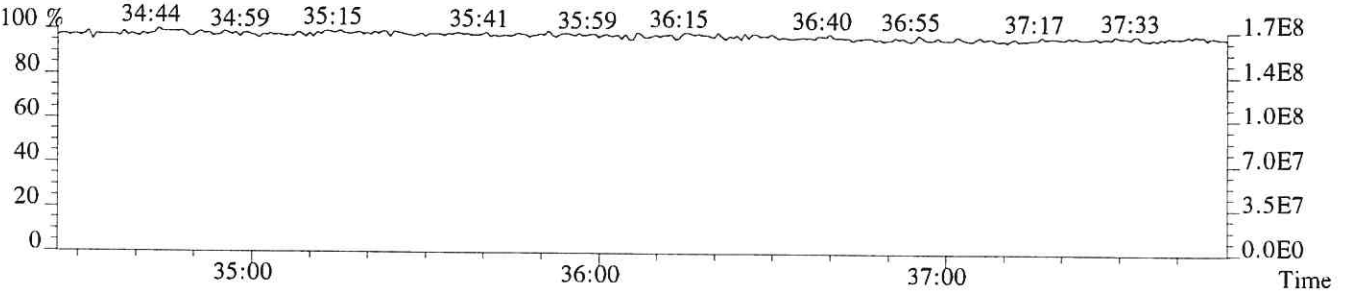
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



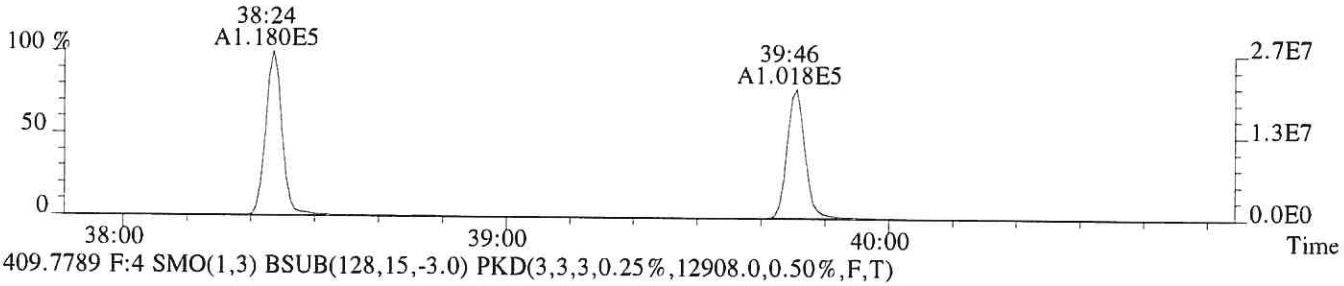
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



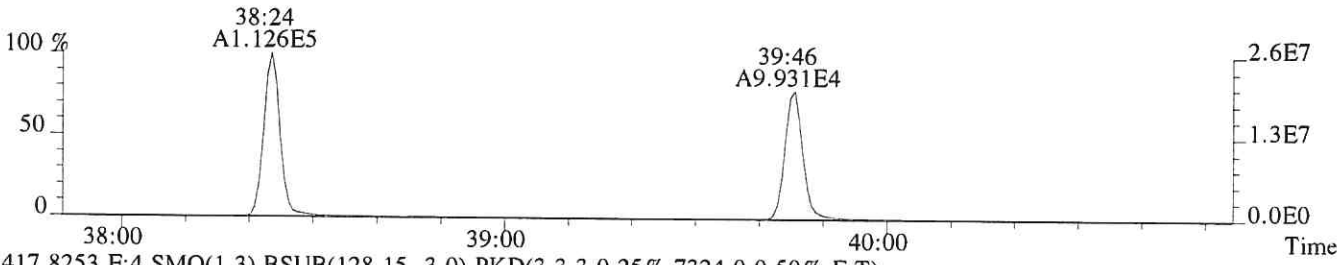
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



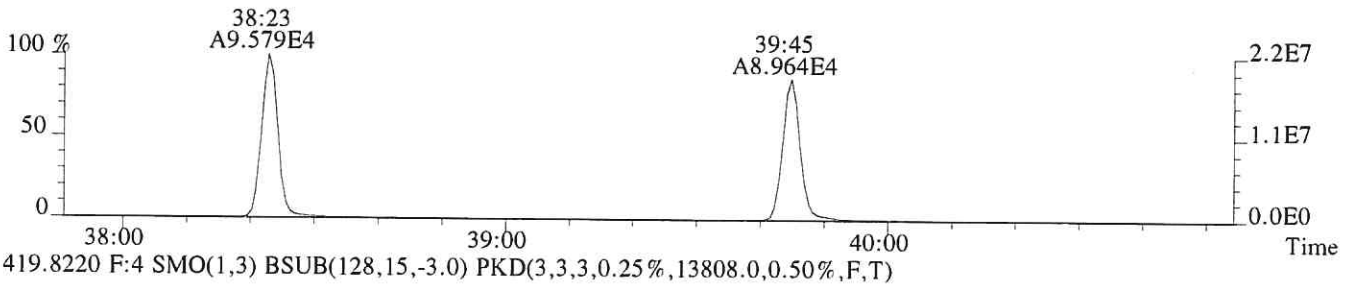
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



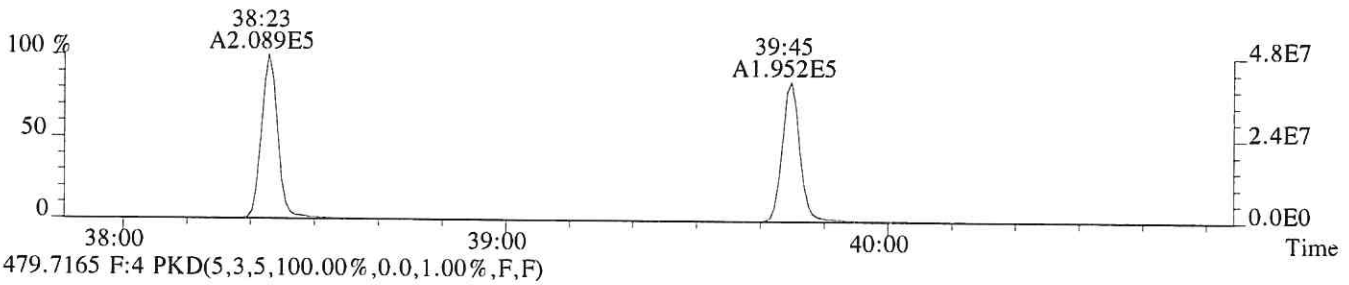
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



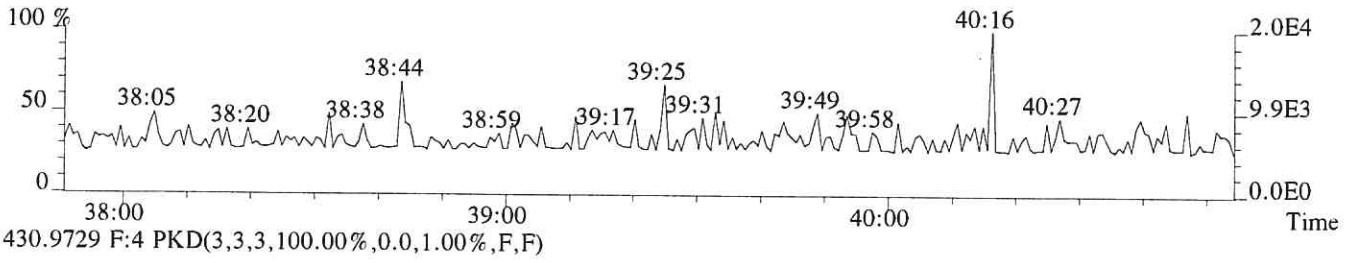
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



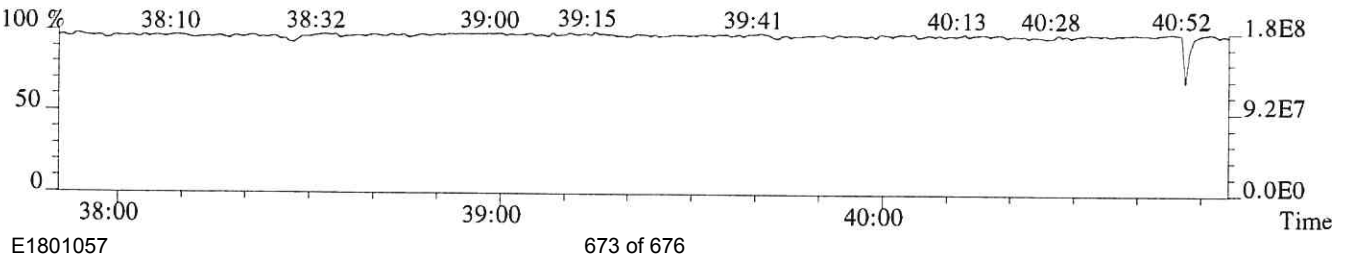
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



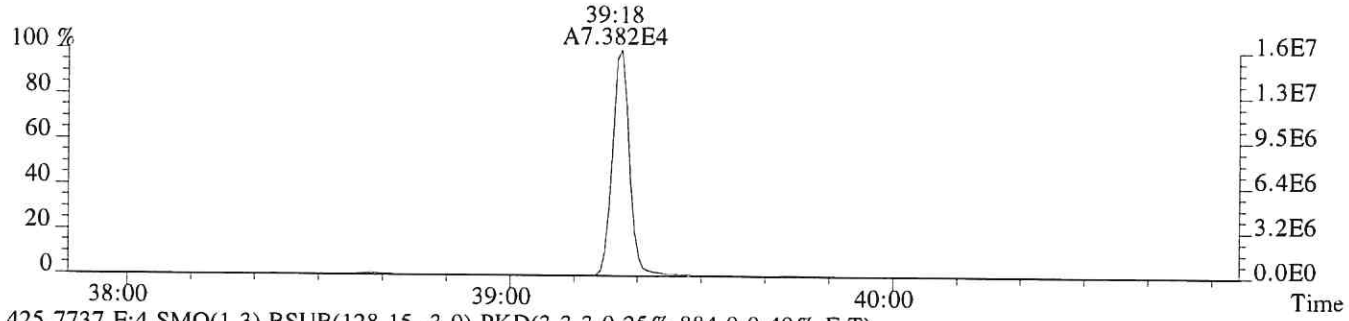
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



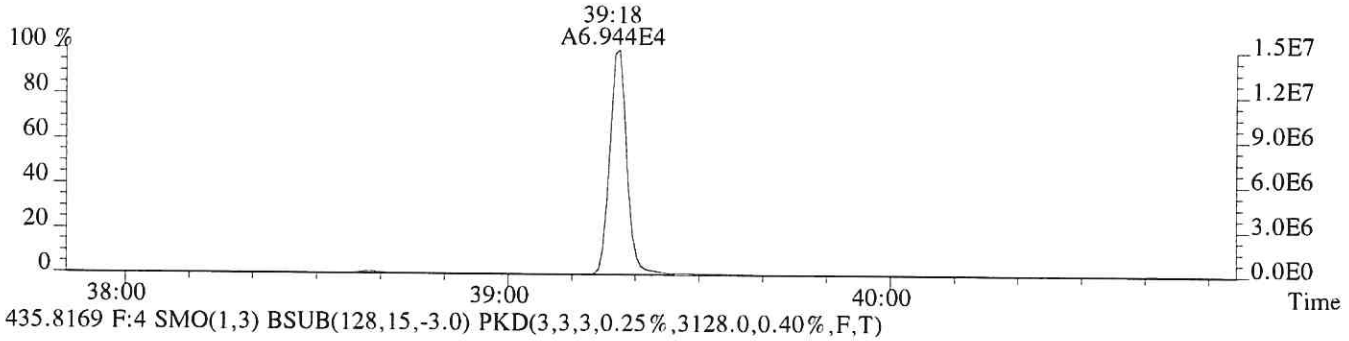
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



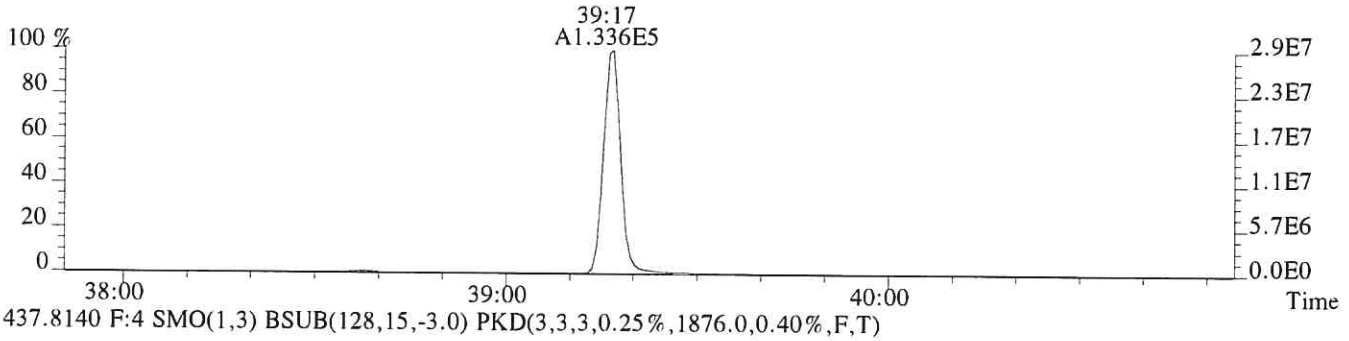
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



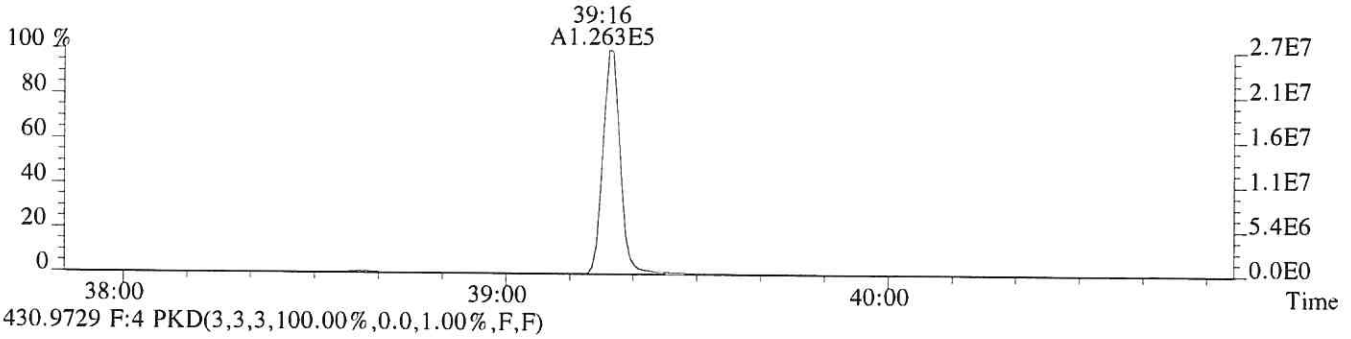
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



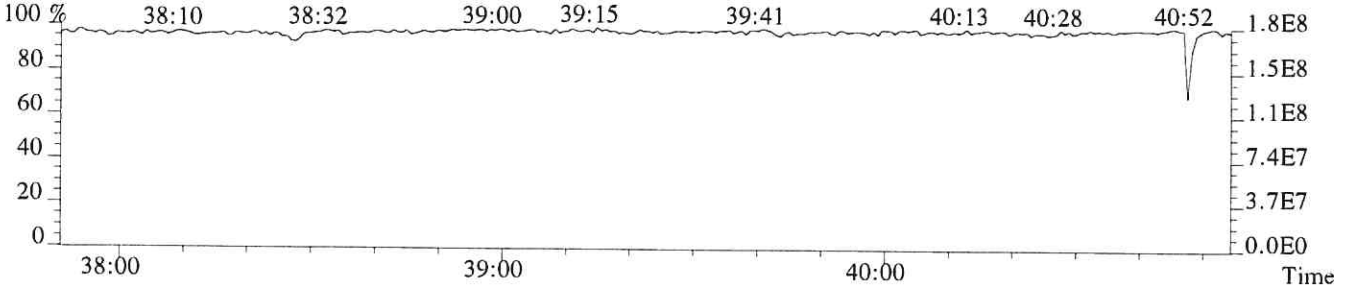
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



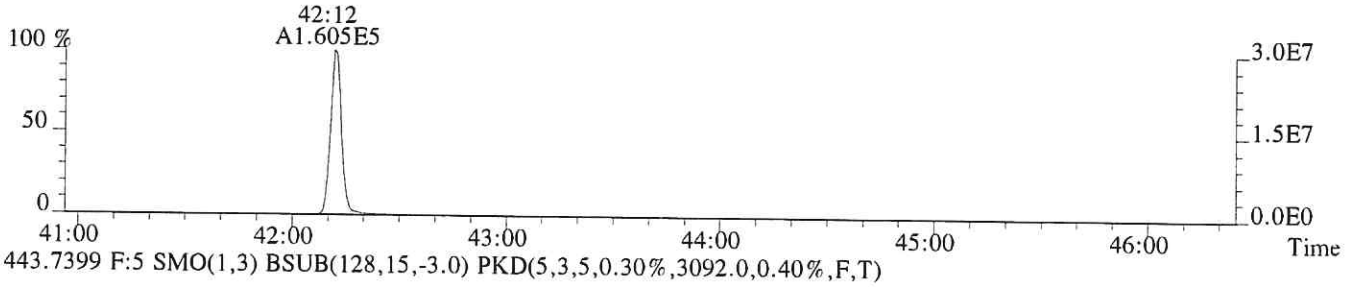
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



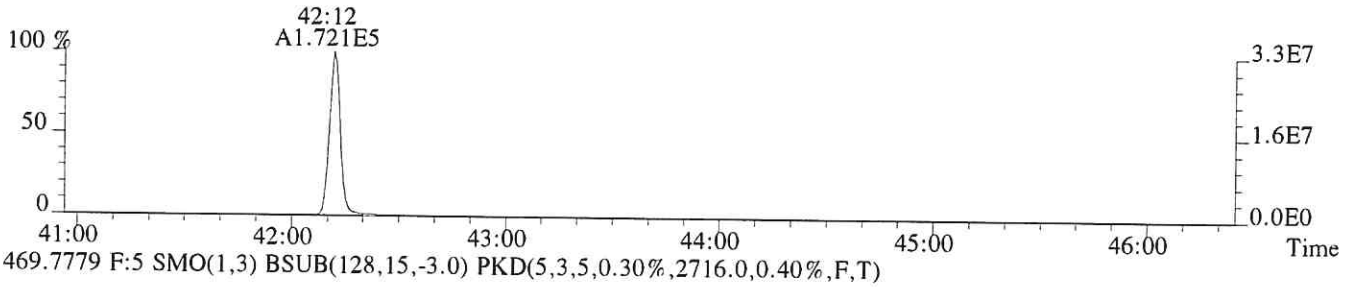
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



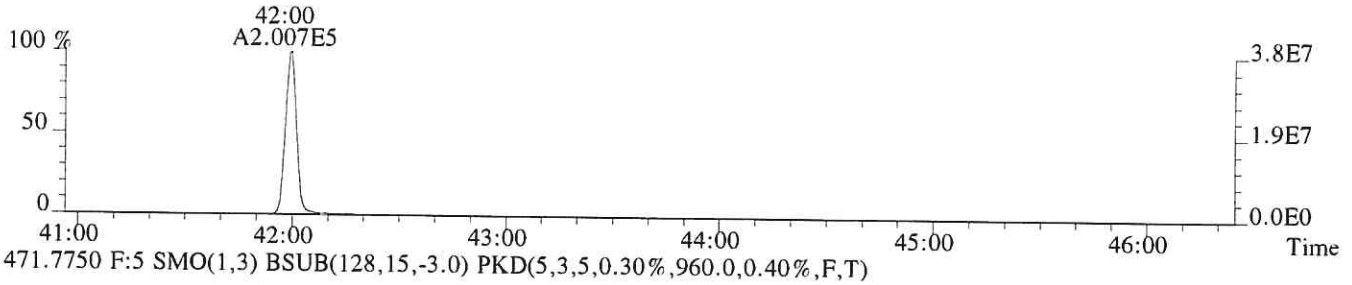
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectŁ
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



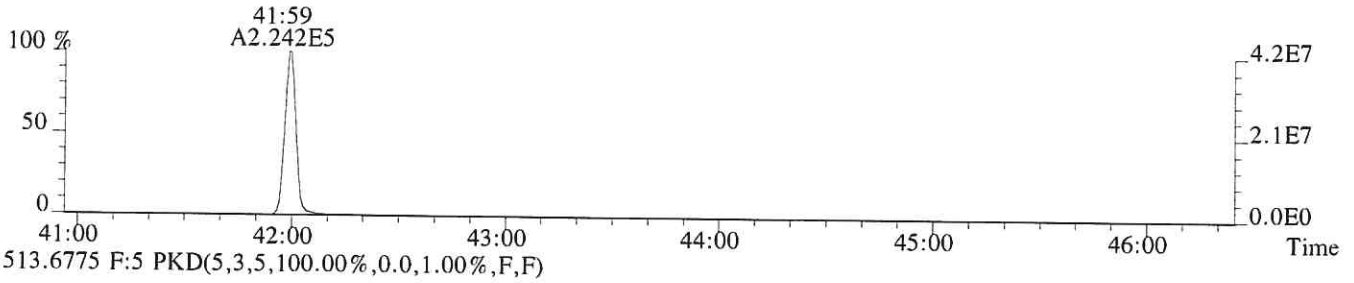
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



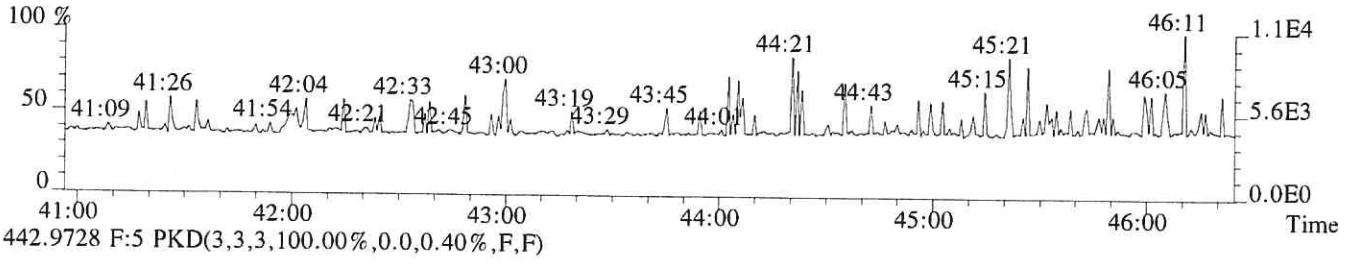
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



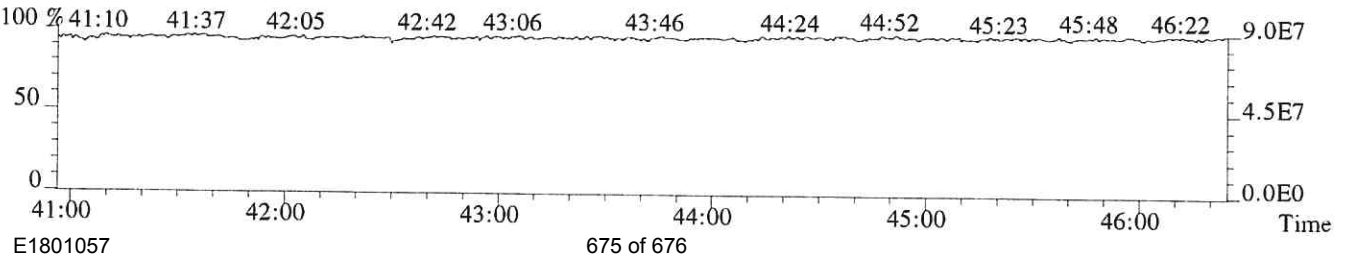
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



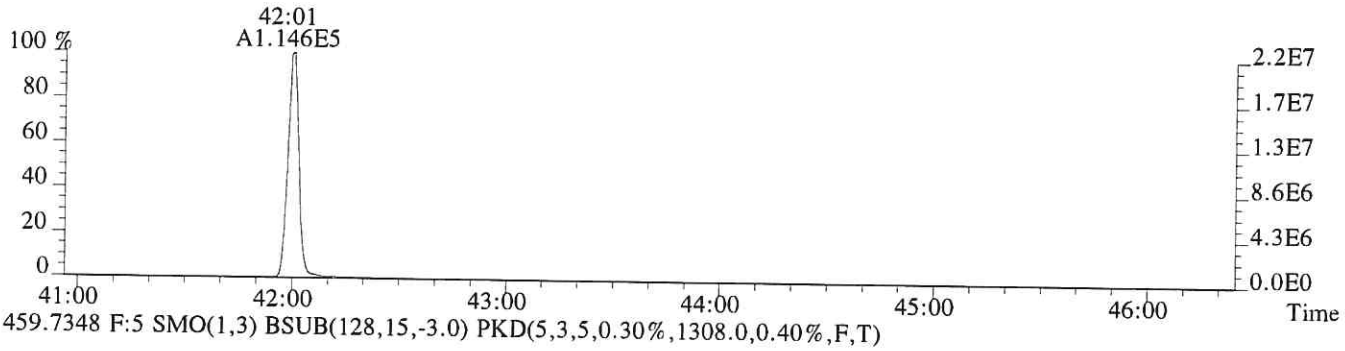
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



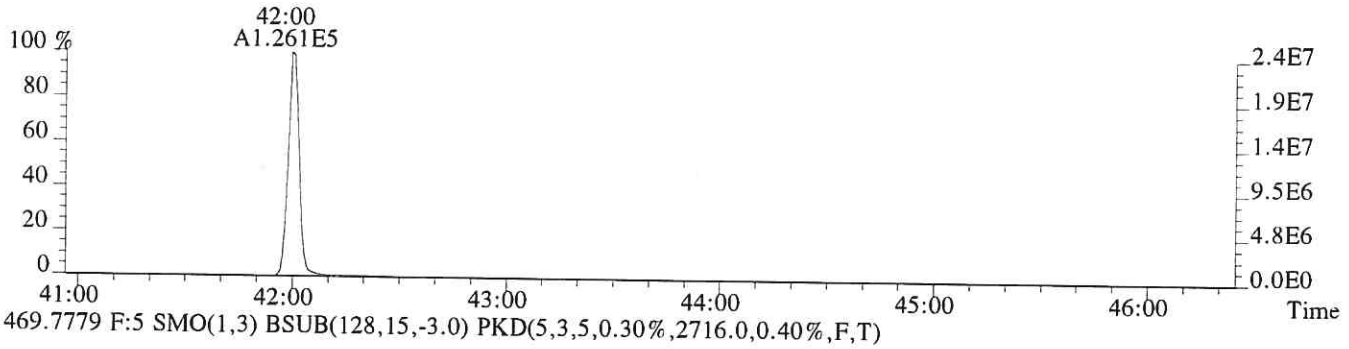
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



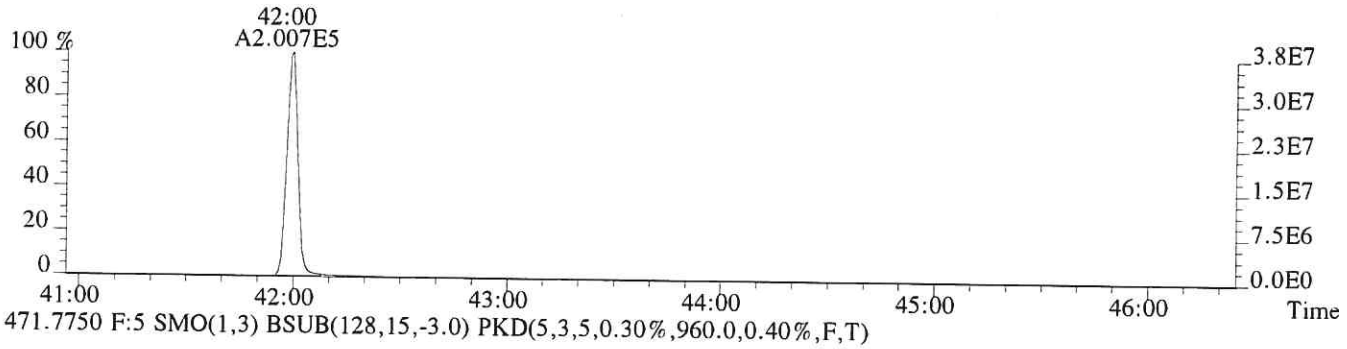
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



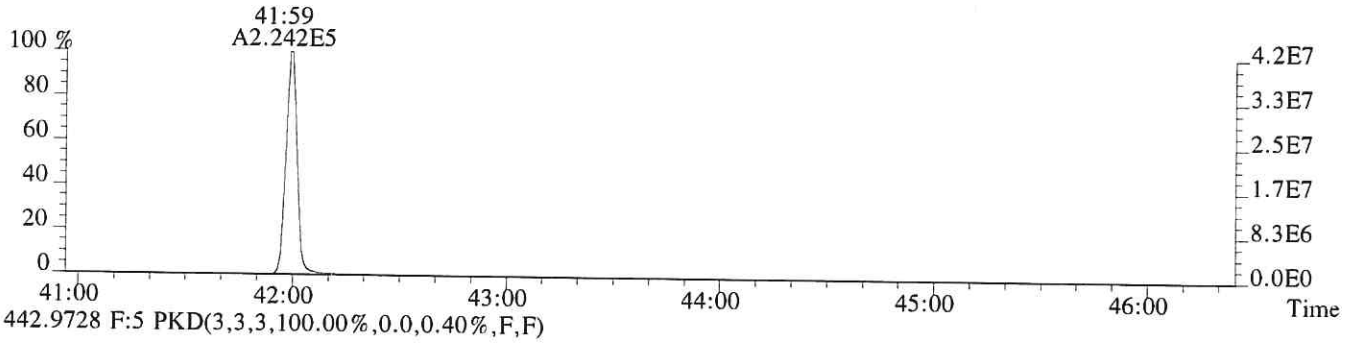
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



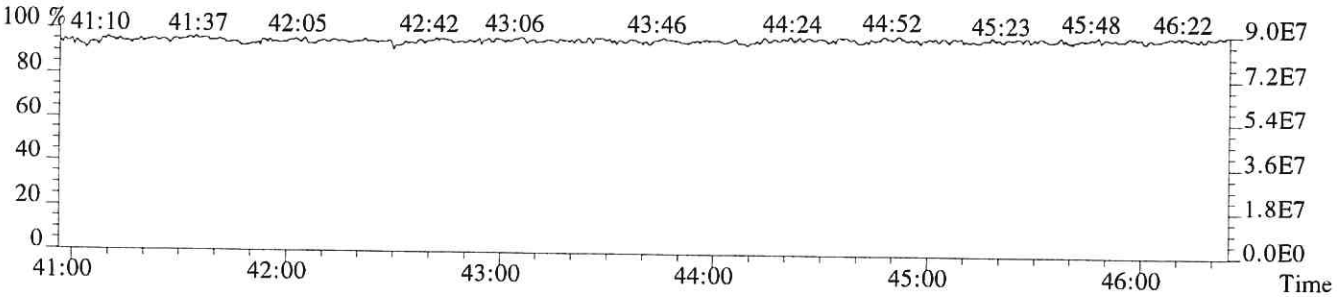
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



December 17, 2018 Service Request No:E1801065

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for:C1844-0501 Northern Impoundment

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory November 19, 2018
For your reference, these analyses have been assigned our service request number **E1801065.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Integral Consulting	**Service Request No.:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Received:**	11/19/18
Sample Matrix:	Soil/Wipe		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Thirty-one samples were received for analysis at ALS Environmental in Houston on 11/19/18.

The samples were received at 1.6 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blanks EQ1800494-01, EQ1800498-01, EQ1800499-01, EQ1800500-01 contained low levels of various dioxins furans compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

LCS/DLCS

EQ1800499: marginally low recovery for 1,2,3,4,6,7,8-HpCDD in the laboratory control sample. The duplicate laboratory control sample and RPD are within control limits.

MS/MSD

EQ1800494, EQ1800498, EQ1800499, EQ1800500: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801065-001	SL0580	11/19/2018	0910
E1801065-002	SL0581	11/19/2018	1030
E1801065-003	SL0582	11/19/2018	1040
E1801065-004	SL0583	11/19/2018	1050
E1801065-005	SL0584	11/19/2018	1115
E1801065-006	SL0585	11/19/2018	1130
E1801065-007	SL0586	11/19/2018	1139
E1801065-008	SL0587	11/19/2018	1145
E1801065-009	SL0588	11/19/2018	1201
E1801065-010	SL0589	11/19/2018	1115
E1801065-011	SL0570	11/17/2018	1507
E1801065-012	SL0561	11/17/2018	1455
E1801065-013	SL0562	11/17/2018	1506
E1801065-014	SL0563	11/17/2018	1508
E1801065-015	SL0564	11/17/2018	1515
E1801065-016	SL0565	11/17/2018	1516
E1801065-017	SL0566	11/17/2018	1521
E1801065-018	SL0567	11/17/2018	1534
E1801065-019	SL0568	11/17/2018	1541
E1801065-020	SL0569	11/17/2018	1548
E1801065-021	SL0571	11/18/2018	1104
E1801065-022	SL0572	11/18/2018	1112
E1801065-023	SL0573	11/18/2018	1135
E1801065-024	SL0574	11/18/2018	1143
E1801065-025	SL0575	11/18/2018	1148
E1801065-026	SL0576	11/18/2018	1202
E1801065-027	SL0577	11/18/2018	1215
E1801065-028	SL0578	11/18/2018	1225
E1801065-029	SL0579	11/18/2018	1240
E1801065-030	FW0052	11/17/2018	0930
E1801065-031	FW0053	11/18/2018	1015

Service Request Summary

Folder #: **E1801065**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 Northern Impoundment
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/19/18
Internal Due Date: 12/12/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

29 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
31 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
29 -N/A N/A

Location: EHRMS-WIC 4B, SMO, E-Disposed

Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801065-001	SL0580	Sediment	11/19/18 0910	**IV**	**IV**
E1801065-002	SL0581	Sediment	11/19/18 1030	**IV**	**IV**
E1801065-003	SL0582	Sediment	11/19/18 1040	**IV**	**IV**
E1801065-004	SL0583	Sediment	11/19/18 1050	**IV**	**IV**
E1801065-005	SL0584	Sediment	11/19/18 1115	**IV**	**IV**
E1801065-006	SL0585	Sediment	11/19/18 1130	**IV**	**IV**
E1801065-007	SL0586	Sediment	11/19/18 1139	**IV**	**IV**
E1801065-008	SL0587	Sediment	11/19/18 1145	**IV**	**IV**
E1801065-009	SL0588	Sediment	11/19/18 1201	**IV**	**IV**
E1801065-010	SL0589	Sediment	11/19/18 1115	**IV**	**IV**
E1801065-011	SL0570	Sediment	11/17/18 1507	**IV**	**IV**
E1801065-012	SL0561	Sediment	11/17/18 1455	**IV**	**IV**
E1801065-013	SL0562	Sediment	11/17/18 1506	**IV**	**IV**
E1801065-014	SL0563	Sediment	11/17/18 1508	**IV**	**IV**
E1801065-015	SL0564	Sediment	11/17/18 1515	**IV**	**IV**
E1801065-016	SL0565	Sediment	11/17/18 1516	**IV**	**IV**

Service Request Summary

Folder #: **E1801065**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 Northern Impoundment
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/19/18
Internal Due Date: 12/12/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

29 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
31 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
29 -N/A N/A

Location: EHRMS-WIC 4B, SMO, E-Disposed

Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1801065-017	SL0566	Sediment	11/17/18 1521	**IV**	**IV**
E1801065-018	SL0567	Sediment	11/17/18 1534	**IV**	**IV**
E1801065-019	SL0568	Sediment	11/17/18 1541	**IV**	**IV**
E1801065-020	SL0569	Sediment	11/17/18 1548	**IV**	**IV**
E1801065-021	SL0571	Sediment	11/18/18 1104	**IV**	**IV**
E1801065-022	SL0572	Sediment	11/18/18 1112	**IV**	**IV**
E1801065-023	SL0573	Sediment	11/18/18 1135	**IV**	**IV**
E1801065-024	SL0574	Sediment	11/18/18 1143	**IV**	**IV**
E1801065-025	SL0575	Sediment	11/18/18 1148	**IV**	**IV**
E1801065-026	SL0576	Sediment	11/18/18 1202	**IV**	**IV**
E1801065-027	SL0577	Sediment	11/18/18 1215	**IV**	**IV**
E1801065-028	SL0578	Sediment	11/18/18 1225	**IV**	**IV**
E1801065-029	SL0579	Sediment	11/18/18 1240	**IV**	**IV**
E1801065-030	FW0052	Wipe	11/17/18 0930	**IV**	
E1801065-031	FW0053	Wipe	11/18/18 1015	**IV**	

Service Request Summary

Folder #:	**E1801065**
Client Name:	Integral Consulting, Incorporated
Project Name:	C1844-0501 Northern Impoundment
Project Number:	

Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA
Phone Number:	360-705-3534
Cell Number:	
Fax Number:	
E-mail:	chutchings@integral-corp.com

Project Chemist:	Kristin Brown
Originating Lab:	HOUSTON
Logged By:	JGUIN
Date Received:	11/19/18
Internal Due Date:	12/12/2018
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N, Y
Report to MDL?:	N, Y
P.O. Number:	
EDD:	Integral-UCR

29 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
31 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
29 -N/A N/A

Location: EHRMS-WIC 4B, SMO, E-Disposed

Pressure Gas:

Service Request Summary

Folder #: **E1801065**
Client Name: Integral Consulting, Incorporated
Project Name: C1844-0501 Northern Impoundment
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: JGUIN
Date Received: 11/19/18
Internal Due Date: 12/12/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
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Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

29 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
31 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
29 -N/A N/A

Location: EHRMS-WIC 4B, SMO, E-Disposed

Pressure Gas:

Superset Summary

Service Request: E1801065 **SuperSet Reference:** 18-0000490846 rev 00

Analytical Method: **1613B**

Calibrations: 01/24/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P519299	P519287	P615971	E1801065-001
P519300	P519287	P615971	E1801065-002
P519301	P519287	P615971	E1801065-003
P519307	P519303	P615971	E1801065-004
P519308	P519303	P615971	E1801065-005
P519309	P519303	P615971	E1801065-006
P519310	P519303	P615971	E1801065-007
P519312	P519303	P519371	E1801065-008
P519313	P519303	P519371	E1801065-009
P519314	P519303	P519371	E1801065-010
P519376	P519366	P519371	E1801065-011
P519315	P519303	P519371	E1801065-011.R01
P519377	P519366	P519371	E1801065-012
P519316	P519303	P519371	E1801065-012.R01
P519378	P519366	P519371	E1801065-013
P519317	P519303	P519371	E1801065-013.R01
P519403	P519397	P519371	E1801065-014
P519342	P519335	P519371	E1801065-014.R01
P519343	P519335	P519371	E1801065-015
P519344	P519335	P519371	E1801065-016
P519345	P519335	P519371	E1801065-017
P519346	P519335	P519371	E1801065-018
P519347	P519335	P519371	E1801065-019
P519348	P519335	P519371	E1801065-020
P519349	P519335	P519371	E1801065-021
P519355	P519350	P519371	E1801065-022
P519373	P519366	P519370	E1801065-027
P519374	P519366	P519370	E1801065-028
P519375	P519366	P519370	E1801065-029
P519371	P519366	P519371	EQ1800498-01
P519332	P519319	P519371	EQ1800498-02
P519333	P519319	P519371	EQ1800498-03
P519370	P519366	P519370	EQ1800500-01
P519379	P519366	P519370	EQ1800500-02
P519380	P519366	P519370	EQ1800500-03

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P616032	P616023	P519371	E1801065-023
P616033	P616023	P519371	E1801065-024
P616034	P616023	P519371	E1801065-025

Superset Summary

Service Request: E1801065 **SuperSet Reference:** 18-0000490846 rev 00

Analytical Method: **1613B**

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P616035	P616023	P519371	E1801065-026
P616049	P616040	P616043	E1801065-030
P616050	P616040	P616043	E1801065-031
P615971	P615967	P615971	EQ1800494-01
P615980	P615967	P615971	EQ1800494-02
P615981	P615967	P615971	EQ1800494-03
P616043	P616040	P616043	EQ1800499-01
P616051	P616040	P616043	EQ1800499-02
P616052	P616040	P616043	EQ1800499-03

Data Qualifiers

HRMS Qualifier Set

B	Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E	Estimated value. The reported concentration is above the calibration range of the instrument.
H	Sample extracted and/or analyzed out of suggested holding time.
J	Estimated value. The reported concentration is below the MRL.
K	The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P	Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q	Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S	Signal saturated detector. Result reported from dilution.
U	Compound was analyzed for, but was not detected (ND).
X	See Case Narrative.
Y	Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i	The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801065 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/12/18	JC	001-003

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/12/18	LKL	001_003

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801065 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/12/18	LKL	004 – 013

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/12/18	LG	004-013

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E181065 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/12/18	JC	014-021

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/13/18	LKL	014-021

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E|801|065 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/12/18	JC	022

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/12/18	LKL	022

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801065 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/13/18	LKL	023 – 026

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/13/18	LG	023-026

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801065 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/13/18	LKL	027_029 _011DL _013DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/13/18	LG	027-029 -011DL 013DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801065 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/13/18	JC	030, 031

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/13/18	LG	030, 031

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801065 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/14/18	JC	014DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/14/18	LKL	014DL

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CHAIN OF CUSTODY FORM

Project: C1844 - 0501 Northern Impoundment

Samplers: D. Hargrave, S. Kissell, Petri

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to:
Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

integral consulting inc.

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides				Extra Container	Archive	Comments
SL0580	0074	11/19/18	0910	SL	X									
SL0581	0072		1030	SL	X									
SL0582	0073		1040	SL	X									
SL0583	0075		1050	SL	X									
SL0584	0081		1115	SL	X									
SL0585	0082		1130	SL	X									
SL0586	0083		1139	SL	X									
SL0587	0084		1145	SL	X									
SL0588	0090		1201	SL	X									
SL0589	0442	11/19/18	1115	SL	X									
SL0570	0410	11/17/18	1507	SL	X									
FW0052	0477	11/17/18	0930	FW	X									
FW0053	0478	11/19/18	1615	FW	X									
SL0561	0044	11/17/18	1455	SL	X									
SL0562	0045		1506	SL	X									
SL0563	0046		1508	SL	X									
SL0564	0047		1515	SL	X									
SL0565	0048		1516	SL	X									
SL0566	0049		1521	SL	X									
SL0567	0050	11/17/18	1534	SL	X									

ANALYSES REQUESTED

E1801065 5
Integral Consulting, Inc.
San Jacinto Waste Pits

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:	
GW - Groundwater	
SL - Soil	SW - Surface water
SD -Sediment	Other:

Relinquished by: _____ (signature) **Date/Time:** 11/19/18 1525 **Received by:** _____ (signature) **Date/Time:** _____

Relinquished by: _____ (signature) **Date/Time:** 11-19-18 **Received by:** _____ (signature) **Date/Time:** 1830

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Cooler 25249 1121
Temp 1.6 CF 0.4

CHAIN OF CUSTODY FORM

Project: C1844 - 0501 Northern Impoundment

Samplers: Hargrave, Kissell, Petri

integral consulting inc.

Integral Contact: Craig Hutchings
Phone 360-705-3354 ext 417

Ship to: Lab Name ALS - Houston
Address 10450 Stancliff Road
Suite 210
Houston, TX USA 77099
Contact Kristin Brown
Phone 281-575-2195

Sample No.	Tag #	Date	Time	Matrix	PCDD/F by 1613B	Flashpoint by 1020B, pH by 9045D, Reactive Sulfide by 9030M	Reactive Cyanide by EPA 7.3.3.2	TCLP Metals, VOCs, SVOCs, Pesticides, Herbicides					Extra Container	Archive	Comments
SL0568	0051	11/17/18	1541	SL	X										
SL0569	0052	11/17/18	1548	SL	X										
SL0571	0053	11/18/18	1104		X										
SL0572	0054		1112		X										
SL0573	0055		1135		X										
SL0574	0056		1143		X										
SL0575	0057		1148		X										
SL0576	0058		1202		X										
SL0577	0059		1215		X										
SL0578	0060		1225		X										
SL0579	0125	11/18/18	1240	SL	X										

E1801065
Integral Consulting, Inc.
San Jacinto Waste Pits
5

Analysis Turn Time: Normal ✓ Rush **Rush Results Needed By:**

Shipped by: **Shipping Tracking No.**

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code:	
GW - Groundwater	SL - Soil
SW - Surface water	SD -Sediment
Other:	

Relinquished by: (signature) **Date/Time:** 11/19/18 1525 **Received by:** DH (signature) **Date/Time:**

Relinquished by: (signature) **Date/Time:** 11.19.18 1820 **Received by:** (signature) **Date/Time:** 11.19.18 1820

Special Instructions: If reactive sulfide is detected run sample for total sulfur by 9056A and total sulfate by 300M, For TCLP analyses use methods 601B/7470A for metals, 8260C for VOCs, 8270D for SVOCs, 8081B for pesticides, and 8015C for herbicides.

Cooler Receipt Form

ALS Environmental

Project Chemist KW

Client/Project Integral

Thermometer ID KW 11/19/18 Stock 1R11

Date/Time Received: 11/19/18 Initials: ____ Date/Time Logged in: 11/21/18 11:48 Initials TG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ○ Courier ☒ Client

2. Samples received in: ☒ Cooler ○ Box ○ Envelope ○ Other ____

3. Were custody seals on coolers? ☒ Yes ○ No
   Were they intact? ☒ Yes ○ No ○ N/A
   Were they signed and dated? ☒ Yes ○ No ○ N/A
   If yes, how many and where? 2, left and right on top

4. Packing Material: ○ Inserts ☒ Baggies ☒ Bubble Wrap ○ Gel Packs ☒ Wet Ice ○ Sleeves ○ Other ____

5. Foreign or Regulated Soil? ○ Yes ☒ No Location of Sampling: ____

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
N/A		11/19/18	1820	ALS	1.6/2.0	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ☒ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: E1801065 5
Integral Consulting, Inc.
San Jacinto Waste Pits

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 327468 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/3/18 09:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801055-001	SL0538	.01	1613B/Dioxins Furans			Sediment	10.859g	Brown Dirt + Rocks
2	E1801055-002	SL0545	.01	1613B/Dioxins Furans			Sediment	10.580g	Moist Brown Sand
3	E1801055-003	SL0546	.01	1613B/Dioxins Furans			Sediment	10.346g	Moist Brown Sand
4	E1801055-004	SL0549	.01	1613B/Dioxins Furans			Sediment	10.473g	Brown Mud
5	E1801055-005	SL0550	.01	1613B/Dioxins Furans			Sediment	10.292g	Brown Mud
6	E1801055-006	SL0551	.01	1613B/Dioxins Furans			Sediment	10.954g	Brown Mud
7	E1801055-008	SL0552	.01	1613B/Dioxins Furans			Sediment	10.682g	Brown Mud
8	E1801057-001	SL0553	.01	1613B/Dioxins Furans			Sediment	10.092g	Brown Mud
9	E1801057-004	SL0556	.01	1613B/Dioxins Furans			Sediment	10.631g	Brown Mud
10	E1801057-005	SL0557	.01	1613B/Dioxins Furans			Sediment	10.877g	Brown Mud + Sand
11	E1801057-006	SL0558	.01	1613B/Dioxins Furans			Sediment	10.132g	Brown Mud
12	E1801057-007	SL0559	.01	1613B/Dioxins Furans			Sediment	10.687g	Brown Mud
13	E1801057-008	SL0560	.01	1613B/Dioxins Furans			Sediment	10.695g	Brown Mud
14	E1801065-001	SL0580	.01	1613B/Dioxins Furans			Sediment	10.480g	Brown Mud
15	E1801065-002	SL0581	.01	1613B/Dioxins Furans			Sediment	10.622g	Brown Mud
16	E1801065-003	SL0582	.01	1613B/Dioxins Furans			Sediment	10.494g	Brown Mud
17	E1801065-004	SL0583	.01	1613B/Dioxins Furans			Sediment	10.829g	Brown Mud
18	E1801065-005	SL0584	.01	1613B/Dioxins Furans			Sediment	10.444g	Brown Mud
19	E1801065-006	SL0585	.01	1613B/Dioxins Furans			Sediment	10.320g	Brown Mud
20	E1801065-007	SL0586	.01	1613B/Dioxins Furans			Sediment	10.597g	Brown Mud
21	EQ1800494-01	MB		1613B/Dioxins Furans			Solid	10.300g	
22	EQ1800494-02	LCS		1613B/Dioxins Furans			Solid	10.142g	
23	EQ1800494-03	DLCS		1613B/Dioxins Furans			Solid	10.111g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800494-02 100.00µL EQ1800494-03 100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801055-001	100.00µL	E1801055-002	100.00µL	E1801055-003	100.00µL	E1801055-004	100.00µL	E1801055-005	100.00µL	E1801055-006	100.00µL
E1801055-008	100.00µL	E1801057-001	100.00µL	E1801057-004	100.00µL	E1801057-005	100.00µL	E1801057-006	100.00µL	E1801057-007	100.00µL
E1801057-008	100.00µL	E1801065-001	100.00µL	E1801065-002	100.00µL	E1801065-003	100.00µL	E1801065-004	100.00µL	E1801065-005	100.00µL
E1801065-006	100.00µL	E1801065-007	100.00µL	EQ1800494-01	100.00µL	EQ1800494-02	100.00µL	EQ1800494-03	100.00µL		

Preparation Information Benchsheet

Prep Run#: 327468 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/3/18 09:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	195330	Logbook Ref:	195330 AL 12/3/18 2-4 ng/mL	Expires On:	01/31/2019

E1801055-001	1,000.00µL	E1801055-002	1,000.00µL	E1801055-003	1,000.00µL	E1801055-004	1,000.00µL	E1801055-005	1,000.00µL	E1801055-006	1,000.00µL
E1801055-008	1,000.00µL	E1801057-001	1,000.00µL	E1801057-004	1,000.00µL	E1801057-005	1,000.00µL	E1801057-006	1,000.00µL	E1801057-007	1,000.00µL
E1801057-008	1,000.00µL	E1801065-001	1,000.00µL	E1801065-002	1,000.00µL	E1801065-003	1,000.00µL	E1801065-004	1,000.00µL	E1801065-005	1,000.00µL
E1801065-006	1,000.00µL	E1801065-007	1,000.00µL	EQ1800494-01	1,000.00µL	EQ1800494-02	1,000.00µL	EQ1800494-03	1,000.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195003)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/3/18 09:00	Started:	12/4/18 09:00	Started:	12/4/18 11:00	Started:	12/6/18 09:00
Finished:	12/4/18 07:30	Finished:	12/4/18 10:00	Finished:	12/4/18 14:00	Finished:	12/6/18 12:00
By:	JGUIN	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

E1801065 29 of 1643

Preparation Information Benchsheet

Prep Run#: 327579 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/4/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801039-042	Comp-SL0119-0123	.01	1613B/Dioxins Furans			Sediment	10.916g	Brown Mud + Rocks
2	E1801065-008	SL0587	.01	1613B/Dioxins Furans			Sediment	10.035g	Brown Mud
3	E1801065-009	SL0588	.01	1613B/Dioxins Furans			Sediment	10.726g	Brown Mud
4	E1801065-010	SL0589	.01	1613B/Dioxins Furans			Sediment	10.431g	Brown Mud
5	E1801065-011	SL0570	.01	1613B/Dioxins Furans			Sediment	10.099g	Brown Mud
6	E1801065-012	SL0561	.01	1613B/Dioxins Furans			Sediment	10.634g	Brown Mud Clumps + Rocks
7	E1801065-013	SL0562	.01	1613B/Dioxins Furans			Sediment	10.394g	Brown Mud Clumps + Rocks
8	E1801065-014	SL0563	.01	1613B/Dioxins Furans			Sediment	10.530g	Brown Mud
9	E1801065-015	SL0564	.01	1613B/Dioxins Furans			Sediment	10.662g	Brown Mud
10	E1801065-016	SL0565	.01	1613B/Dioxins Furans			Sediment	10.347g	Brown Mud
11	E1801065-017	SL0566	.01	1613B/Dioxins Furans			Sediment	10.355g	Brown Mud Clumps
12	E1801065-018	SL0567	.01	1613B/Dioxins Furans			Sediment	10.722g	Brown Mud
13	E1801065-019	SL0568	.01	1613B/Dioxins Furans			Sediment	10.822g	Brown Sand + Water
14	E1801065-020	SL0569	.01	1613B/Dioxins Furans			Sediment	10.205g	Moist Brown Sand
15	E1801065-021	SL0571	.01	1613B/Dioxins Furans			Sediment	10.039g	Brown Dirt + Rocks
16	E1801065-022	SL0572	.01	1613B/Dioxins Furans			Sediment	10.225g	Brown Dirt + Rocks
17	E1801065-023	SL0573	.01	1613B/Dioxins Furans			Sediment	10.068g	Brown Mud
18	E1801065-024	SL0574	.01	1613B/Dioxins Furans			Sediment	10.701g	Brown Mud
19	E1801065-025	SL0575	.01	1613B/Dioxins Furans			Sediment	10.815g	Brown Mud
20	E1801065-026	SL0576	.01	1613B/Dioxins Furans			Sediment	10.596g	Brown Mud
21	EQ1800498-01	MB		1613B/Dioxins Furans			Solid	10.340g	
22	EQ1800498-02	LCS		1613B/Dioxins Furans			Solid	10.382g	
23	EQ1800498-03	DLCS		1613B/Dioxins Furans			Solid	10.120g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800498-02	100.00µL	EQ1800498-03	100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801039-042	100.00µL	E1801065-008	100.00µL	E1801065-009	100.00µL	E1801065-010	100.00µL	E1801065-011	100.00µL	E1801065-012	100.00µL
E1801065-013	100.00µL	E1801065-014	100.00µL	E1801065-015	100.00µL	E1801065-016	100.00µL	E1801065-017	100.00µL	E1801065-018	100.00µL
E1801065-019	100.00µL	E1801065-020	100.00µL	E1801065-021	100.00µL	E1801065-022	100.00µL	E1801065-023	100.00µL	E1801065-024	100.00µL
E1801065-025	100.00µL	E1801065-026	100.00µL	EQ1800498-01	100.00µL	EQ1800498-02	100.00µL	EQ1800498-03	100.00µL		

Preparation Information Benchsheet

Prep Run#: 327579 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/JGUIN **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/4/18 11:00 AM

Name:	1613B Labeled Working Standard	Inventory ID	195357	Logbook Ref:	195357 AL 12/4/18 2-4 ng/mL	Expires On:	01/31/2019

E1801039-042	1,000.00µL	E1801065-008	1,000.00µL	E1801065-009	1,000.00µL	E1801065-010	1,000.00µL	E1801065-011	1,000.00µL	E1801065-012	1,000.00µL
E1801065-013	1,000.00µL	E1801065-014	1,000.00µL	E1801065-015	1,000.00µL	E1801065-016	1,000.00µL	E1801065-017	1,000.00µL	E1801065-018	1,000.00µL
E1801065-019	1,000.00µL	E1801065-020	1,000.00µL	E1801065-021	1,000.00µL	E1801065-022	1,000.00µL	E1801065-023	1,000.00µL	E1801065-024	1,000.00µL
E1801065-025	1,000.00µL	E1801065-026	1,000.00µL	EQ1800498-01	1,000.00µL	EQ1800498-02	1,000.00µL	EQ1800498-03	1,000.00µL		

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Toluene 99.9% Minimum	AL 11/16/18 (195002)	sulfuric acid	AL 10/11/18 (194007)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Silica Gel	AL 10/11/18 (194005)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/4/18 11:00	Started:	12/5/18 08:00	Started:	12/5/18 10:00	Started:	12/6/18 11:00
Finished:	12/5/18 07:30	Finished:	12/5/18 09:00	Finished:	12/5/18 13:00	Finished:	12/6/18 14:00
By:	ALOPEZ	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 327661 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/5/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801065-027	SL0577	.01	1613B/Dioxins Furans			Sediment	10.446g	Brown Mud
2	E1801065-028	SL0578	.01	1613B/Dioxins Furans			Sediment	10.276g	Brown Mud
3	E1801065-029	SL0579	.01	1613B/Dioxins Furans			Sediment	10.536g	Brown Mud
4	EQ1800500-01	MB		1613B/Dioxins Furans			Solid	10.239g	
5	EQ1800500-02	LCS		1613B/Dioxins Furans			Solid	10.141g	
6	EQ1800500-03	DLCS		1613B/Dioxins Furans			Solid	10.167g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800500-02 100.00µL EQ1800500-03 100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801065-027 100.00µL E1801065-028 100.00µL E1801065-029 100.00µL EQ1800500-01 100.00µL EQ1800500-02 100.00µL EQ1800500-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195390 Logbook Ref: 195388 JG 12/5/18 2-4ngml Expires On: 01/31/2019

E1801065-027 1,000.00µL E1801065-028 1,000.00µL E1801065-029 1,000.00µL EQ1800500-01 1,000.00µL EQ1800500-02 1,000.00µL EQ1800500-03 1,000.00µL

Preparation Materials

Carbon, High Purity	12/7/18 carbon tw (195519)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Toluene 99.9% Minimum	AL 11/16/18 (195002)
Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)
Silica Gel	AL 10/11/18 (194005)	sulfuric acid	AL 10/11/18 (194007)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/5/18 11:00	Started:	12/10/18 10:00	Started:	12/10/18 13:00	Started:	12/11/18 10:00
Finished:	12/6/18 07:30	Finished:	12/10/18 11:00	Finished:	12/10/18 16:00	Finished:	12/11/18 13:00
By:	ALOPEZ	By:	TWOODS	By:	TWOODS	By:	TWOODS
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Preparation Information Benchsheet

Prep Run#: 327661
Team: Semivoa GCMS/ALOPEZ

Prep WorkFlow: OrgExtS(365)
Prep Method: Method Soxhlet

Status: Prepped
Prep Date/Time: 12/5/18 11:00 AM

Chain of Custody

Relinquished By:		Date:		Extracts Examined
Received By:		Date:		Yes No

Preparation Information Benchsheet

Prep Run#: 327660 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 12/5/18 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801046-007	FW0051	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
2	E1801056-069	FW0007	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
3	E1801058-030	FW008	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
4	E1801058-031	FW009	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
5	E1801058-032	FW010	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
6	E1801065-030	FW0052	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
7	E1801065-031	FW0053	.01	1613B/Dioxins Furans			Wipe	0.5000Sample	White Wipe
8	EQ1800499-01	MB		1613B/Dioxins Furans			Wipes	0.5000Sample	
9	EQ1800499-02	LCS		1613B/Dioxins Furans			Wipes	0.5000Sample	
10	EQ1800499-03	DLCS		1613B/Dioxins Furans			Wipes	0.5000Sample	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195317 Logbook Ref: 195317 12/3/18 2-20ngml JG Expires On: 06/01/2019

EQ1800499-02 200.00µL EQ1800499-03 200.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195318 Logbook Ref: 195318 tw 120318 8ng/ml Expires On: 04/27/2019

E1801046-007 100.00µL E1801056-069 100.00µL E1801058-030 100.00µL E1801058-031 100.00µL E1801058-032 100.00µL E1801065-030 100.00µL
E1801065-031 100.00µL EQ1800499-01 100.00µL EQ1800499-02 100.00µL EQ1800499-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195390 Logbook Ref: 195388 JG 12/5/18 2-4ngml Expires On: 01/31/2019

E1801046-007 2,000.00µL E1801056-069 2,000.00µL E1801058-030 2,000.00µL E1801058-031 2,000.00µL E1801058-032 2,000.00µL E1801065-030 2,000.00µL
E1801065-031 2,000.00µL EQ1800499-01 2,000.00µL EQ1800499-02 2,000.00µL EQ1800499-03 2,000.00µL

Preparation Materials

Carbon, High Purity	tw 11/26/18 carbon (195147)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	AL 11/16/18 (195004)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	sodium hydroxide (180303)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 10/23/18 (194374)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195002)		

Preparation Information Benchsheet

Prep Run#: 327660 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 12/5/18 11:00 AM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/5/18 11:00	Started:	12/6/18 13:00	Started:	12/6/18 14:00	Started:	12/7/18 09:00
Finished:	12/6/18 07:30	Finished:	12/6/18 14:00	Finished:	12/6/18 17:00	Finished:	12/7/18 12:00
By:	ALOPEZ	By:	JGUIN	By:	JGUIN	By:	JGUIN
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0580	**Units:**	ng/Kg
Lab Code:	E1801065-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 04:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.480g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519299	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	41.9		0.445	0.595	0.85	1.001	1
1,2,3,7,8-PeCDD	0.754**J**		0.0722	2.97	1.37	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.451	2.97			1
1,2,3,6,7,8-HxCDD	1.72**J**		0.511	2.97	1.13	1.000	1
1,2,3,7,8,9-HxCDD	1.47**J**		0.469	2.97	1.05	1.007	1
1,2,3,4,6,7,8-HpCDD	46.0		0.149	2.97	1.07	1.000	1
OCDD	2130		0.183	5.95	0.90	1.000	1
2,3,7,8-TCDF	124		0.177	0.595	0.74	1.001	1
1,2,3,7,8-PeCDF	3.06		0.240	2.97	1.50	1.001	1
2,3,4,7,8-PeCDF	4.55		0.268	2.97	1.43	1.001	1
1,2,3,4,7,8-HxCDF	5.90**K**		0.0890	2.97	1.47	1.000	1
1,2,3,6,7,8-HxCDF	2.83**J**		0.0843	2.97	1.19	1.000	1
1,2,3,7,8,9-HxCDF	0.933**JK**		0.0973	2.97	0.91	1.001	1
2,3,4,6,7,8-HxCDF	3.72		0.0931	2.97	1.38	1.000	1
1,2,3,4,6,7,8-HpCDF	19.2		0.310	2.97	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	2.14**J**		0.421	2.97	1.05	1.000	1
OCDF	28.1		0.125	5.95	0.84	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0580	**Units:**	ng/Kg
Lab Code:	E1801065-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 04:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.480g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519299	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	46.7		0.445	0.595	0.73		1
Total Penta-Dioxins	3.51		0.0722	2.97	1.69		1
Total Hexa-Dioxins	27.8		0.477	2.97	1.28		1
Total Hepta-Dioxins	132		0.149	2.97	1.07		1
Total Tetra-Furans	222		0.177	0.595	0.76		1
Total Penta-Furans	19.4		0.254	2.97	1.69		1
Total Hexa-Furans	21.1		0.0907	2.97	1.15		1
Total Hepta-Furans	36.8		0.362	2.97	1.07		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0580	**Units:**	Percent
Lab Code:	E1801065-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 04:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.480g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519299	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	818.848	41		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1403.287	70		25-181	1.61	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1209.654	60		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1142.567	57		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1737.494	87		23-140	1.06	1.070
13C-OCDD	4000	2813.163	70		17-157	0.91	1.152
13C-2,3,7,8-TCDF	2000	1113.224	56		24-169	0.81	0.991
13C-1,2,3,7,8-PeCDF	2000	1389.475	69		24-185	1.59	1.146
13C-2,3,4,7,8-PeCDF	2000	1315.654	66		21-178	1.57	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1022.343	51		26-152	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1107.469	55		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1258.089	63		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1088.546	54		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1183.580	59		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1354.798	68		26-138	0.46	1.083
37Cl-2,3,7,8-TCDD	800	414.426	52		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0580	**Units:**	ng/Kg
Lab Code:	E1801065-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**41.9**	0.445	0.595	1	1	41.9
1,2,3,7,8-PeCDD	**0.754**	0.0722	2.97	1	1	0.754
1,2,3,4,7,8-HxCDD	ND	0.451	2.97	1	0.1	
1,2,3,6,7,8-HxCDD	**1.72**	0.511	2.97	1	0.1	0.172
1,2,3,7,8,9-HxCDD	**1.47**	0.469	2.97	1	0.1	0.147
1,2,3,4,6,7,8-HpCDD	**46.0**	0.149	2.97	1	0.01	0.460
OCDD	**2130**	0.183	5.95	1	0.0003	0.639
2,3,7,8-TCDF	**124**	0.177	0.595	1	0.1	12.4
1,2,3,7,8-PeCDF	**3.06**	0.240	2.97	1	0.03	0.0918
2,3,4,7,8-PeCDF	**4.55**	0.268	2.97	1	0.3	1.37
1,2,3,4,7,8-HxCDF	**5.90**	0.0890	2.97	1	0.1	0.590
1,2,3,6,7,8-HxCDF	**2.83**	0.0843	2.97	1	0.1	0.283
1,2,3,7,8,9-HxCDF	**0.933**	0.0973	2.97	1	0.1	0.0933
2,3,4,6,7,8-HxCDF	**3.72**	0.0931	2.97	1	0.1	0.372
1,2,3,4,6,7,8-HpCDF	**19.2**	0.310	2.97	1	0.01	0.192
1,2,3,4,7,8,9-HpCDF	**2.14**	0.421	2.97	1	0.01	0.0214
OCDF	**28.1**	0.125	5.95	1	0.0003	0.00843
		Total TEQ				59.5

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 09:10
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0580	**Units:**	Percent
Lab Code:	E1801065-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	6.132g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.2		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0581	**Units:**	ng/Kg
Lab Code:	E1801065-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 05:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.622g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519300	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.64**K**		0.408	0.615	0.59	1.001	1
1,2,3,7,8-PeCDD	0.282**J**		0.0620	3.07	1.44	1.001	1
1,2,3,4,7,8-HxCDD	0.352**JK**		0.179	3.07	0.99	1.000	1
1,2,3,6,7,8-HxCDD	0.582**JK**		0.193	3.07	1.62	1.000	1
1,2,3,7,8,9-HxCDD	1.08**JK**		0.182	3.07	0.89	1.006	1
1,2,3,4,6,7,8-HpCDD	23.5		0.0497	3.07	1.02	1.000	1
OCDD	1680		0.148	6.15	0.89	1.000	1
2,3,7,8-TCDF	4.51		0.145	0.615	0.72	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0842	3.07			1
2,3,4,7,8-PeCDF	0.0940**JK**		0.0904	3.07	0.77	1.001	1
1,2,3,4,7,8-HxCDF	0.144**BJK**		0.0691	3.07	0.61	1.000	1
1,2,3,6,7,8-HxCDF	0.0916**J**		0.0583	3.07	1.27	1.000	1
1,2,3,7,8,9-HxCDF	0.102**J**		0.0696	3.07	1.33	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0647	3.07			1
1,2,3,4,6,7,8-HpCDF	0.341**BJ**		0.0726	3.07	1.13	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0978	3.07			1
OCDF	1.24**J**		0.199	6.15	0.79	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0581	**Units:**	ng/Kg
Lab Code:	E1801065-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 05:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.622g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519300	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.408	0.615			1
Total Penta-Dioxins	1.24**J**		0.0620	3.07	1.51		1
Total Hexa-Dioxins	14.6		0.185	3.07	1.21		1
Total Hepta-Dioxins	69.4		0.0497	3.07	1.06		1
Total Tetra-Furans	6.20		0.145	0.615	0.83		1
Total Penta-Furans	ND	U	0.0872	3.07			1
Total Hexa-Furans	0.194**J**		0.0649	3.07	1.27		1
Total Hepta-Furans	0.715**J**		0.0840	3.07	1.13		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0581	**Units:**	Percent
Lab Code:	E1801065-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 05:39
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.622g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519300	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	867.223	43		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1649.183	82		25-181	1.61	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1379.045	69		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1368.567	68		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1977.150	99		23-140	1.07	1.071
13C-OCDD	4000	2927.725	73		17-157	0.93	1.152
13C-2,3,7,8-TCDF	2000	1185.734	59		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1641.042	82		24-185	1.62	1.145
13C-2,3,4,7,8-PeCDF	2000	1492.098	75		21-178	1.64	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1179.192	59		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1355.204	68		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1433.734	72		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1272.372	64		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1382.547	69		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1501.758	75		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	1189.873	149		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0581	**Units:**	ng/Kg
Lab Code:	E1801065-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.64**	0.408	0.615	1	1	1.64
1,2,3,7,8-PeCDD	**0.282**	0.0620	3.07	1	1	0.282
1,2,3,4,7,8-HxCDD	**0.352**	0.179	3.07	1	0.1	0.0352
1,2,3,6,7,8-HxCDD	**0.582**	0.193	3.07	1	0.1	0.0582
1,2,3,7,8,9-HxCDD	**1.08**	0.182	3.07	1	0.1	0.108
1,2,3,4,6,7,8-HpCDD	**23.5**	0.0497	3.07	1	0.01	0.235
OCDD	**1680**	0.148	6.15	1	0.0003	0.504
2,3,7,8-TCDF	**4.51**	0.145	0.615	1	0.1	0.451
1,2,3,7,8-PeCDF	ND	0.0842	3.07	1	0.03	
2,3,4,7,8-PeCDF	**0.0940**	0.0904	3.07	1	0.3	0.0282
1,2,3,4,7,8-HxCDF	**0.144**	0.0691	3.07	1	0.1	0.0144
1,2,3,6,7,8-HxCDF	**0.0916**	0.0583	3.07	1	0.1	0.00916
1,2,3,7,8,9-HxCDF	**0.102**	0.0696	3.07	1	0.1	0.0102
2,3,4,6,7,8-HxCDF	ND	0.0647	3.07	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.341**	0.0726	3.07	1	0.01	0.00341
1,2,3,4,7,8,9-HpCDF	ND	0.0978	3.07	1	0.01	
OCDF	**1.24**	0.199	6.15	1	0.0003	0.000372
		Total TEQ				3.38

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0581	**Units:**	Percent
Lab Code:	E1801065-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	7.069g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	76.6		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0582	**Units:**	ng/Kg
Lab Code:	E1801065-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 06:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.494g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519301	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	26.3		0.516	0.665	0.79	1.001	1
1,2,3,7,8-PeCDD	0.384**JK**		0.0926	3.32	1.93	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.188	3.32			1
1,2,3,6,7,8-HxCDD	0.940**JK**		0.208	3.32	1.48	1.000	1
1,2,3,7,8,9-HxCDD	1.31**J**		0.193	3.32	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	38.6		0.275	3.32	1.08	1.000	1
OCDD	2570		0.480	6.65	0.90	1.000	1
2,3,7,8-TCDF	74.1		0.157	0.665	0.81	1.001	1
1,2,3,7,8-PeCDF	1.87**JK**		0.204	3.32	1.90	1.001	1
2,3,4,7,8-PeCDF	1.63**JK**		0.224	3.32	1.05	1.001	1
1,2,3,4,7,8-HxCDF	3.37**K**		0.0690	3.32	1.48	1.000	1
1,2,3,6,7,8-HxCDF	1.27**JK**		0.0646	3.32	1.56	1.000	1
1,2,3,7,8,9-HxCDF	0.435**JK**		0.0910	3.32	2.31	1.001	1
2,3,4,6,7,8-HxCDF	0.460**JK**		0.0810	3.32	0.92	1.000	1
1,2,3,4,6,7,8-HpCDF	6.55		0.160	3.32	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	0.798**JK**		0.225	3.32	0.80	1.000	1
OCDF	64.0		0.346	6.65	0.84	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0582	**Units:**	ng/Kg
Lab Code:	E1801065-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 06:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.494g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519301	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	29.9		0.516	0.665	0.79		1
Total Penta-Dioxins	1.34**J**		0.0926	3.32	1.58		1
Total Hexa-Dioxins	15.0		0.196	3.32	1.34		1
Total Hepta-Dioxins	119		0.275	3.32	0.99		1
Total Tetra-Furans	124		0.157	0.665	0.74		1
Total Penta-Furans	1.67**J**		0.214	3.32	1.46		1
Total Hexa-Furans	4.64		0.0751	3.32	1.35		1
Total Hepta-Furans	14.0		0.190	3.32	0.98		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0582	**Units:**	Percent
Lab Code:	E1801065-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 06:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.494g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519301	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519287

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	791.841	40		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1552.290	78		25-181	1.69	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1406.296	70		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1277.989	64		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1592.230	80		23-140	1.05	1.071
13C-OCDD	4000	1648.309	41		17-157	0.93	1.153
13C-2,3,7,8-TCDF	2000	1094.968	55		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1479.363	74		24-185	1.58	1.146
13C-2,3,4,7,8-PeCDF	2000	1403.650	70		21-178	1.64	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1165.648	58		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1267.970	63		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1145.651	57		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1091.072	55		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1177.905	59		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1297.327	65		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	468.466	59		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0582	**Units:**	ng/Kg
Lab Code:	E1801065-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**26.3**	0.516	0.665	1	1	26.3
1,2,3,7,8-PeCDD	**0.384**	0.0926	3.32	1	1	0.384
1,2,3,4,7,8-HxCDD	ND	0.188	3.32	1	0.1	
1,2,3,6,7,8-HxCDD	**0.940**	0.208	3.32	1	0.1	0.0940
1,2,3,7,8,9-HxCDD	**1.31**	0.193	3.32	1	0.1	0.131
1,2,3,4,6,7,8-HpCDD	**38.6**	0.275	3.32	1	0.01	0.386
OCDD	**2570**	0.480	6.65	1	0.0003	0.771
2,3,7,8-TCDF	**74.1**	0.157	0.665	1	0.1	7.41
1,2,3,7,8-PeCDF	**1.87**	0.204	3.32	1	0.03	0.0561
2,3,4,7,8-PeCDF	**1.63**	0.224	3.32	1	0.3	0.489
1,2,3,4,7,8-HxCDF	**3.37**	0.0690	3.32	1	0.1	0.337
1,2,3,6,7,8-HxCDF	**1.27**	0.0646	3.32	1	0.1	0.127
1,2,3,7,8,9-HxCDF	**0.435**	0.0910	3.32	1	0.1	0.0435
2,3,4,6,7,8-HxCDF	**0.460**	0.0810	3.32	1	0.1	0.0460
1,2,3,4,6,7,8-HpCDF	**6.55**	0.160	3.32	1	0.01	0.0655
1,2,3,4,7,8,9-HpCDF	**0.798**	0.225	3.32	1	0.01	0.00798
OCDF	**64.0**	0.346	6.65	1	0.0003	0.0192
		Total TEQ				36.7

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0582	**Units:**	Percent
Lab Code:	E1801065-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	5.692g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	71.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0583	**Units:**	ng/Kg
Lab Code:	E1801065-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 11:34
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.829g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519307	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	8.45		0.391	0.665	0.70	1.001	1
1,2,3,7,8-PeCDD	0.390**JK**		0.0547	3.33	1.02	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.105	3.33			1
1,2,3,6,7,8-HxCDD	0.939**J**		0.119	3.33	1.21	1.000	1
1,2,3,7,8,9-HxCDD	1.48**J**		0.109	3.33	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	32.0		0.0356	3.33	0.97	1.000	1
OCDD	2260		0.114	6.65	0.89	1.000	1
2,3,7,8-TCDF	21.6		0.0803	0.665	0.74	1.001	1
1,2,3,7,8-PeCDF	0.621**J**		0.105	3.33	1.38	1.001	1
2,3,4,7,8-PeCDF	0.397**JK**		0.115	3.33	0.81	1.000	1
1,2,3,4,7,8-HxCDF	0.935**J**		0.0417	3.33	1.18	1.000	1
1,2,3,6,7,8-HxCDF	0.259**JK**		0.0361	3.33	1.68	1.000	1
1,2,3,7,8,9-HxCDF	0.203**JK**		0.0440	3.33	1.92	1.000	1
2,3,4,6,7,8-HxCDF	0.232**J**		0.0410	3.33	1.11	1.000	1
1,2,3,4,6,7,8-HpCDF	1.33**JK**		0.111	3.33	1.23	1.000	1
1,2,3,4,7,8,9-HpCDF	0.181**JK**		0.155	3.33	1.33	1.000	1
OCDF	4.82**J**		0.101	6.65	0.85	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0583	**Units:**	ng/Kg
Lab Code:	E1801065-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 11:34
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.829g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519307	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	8.45		0.391	0.665	0.70		1
Total Penta-Dioxins	ND	U	0.0547	3.33			1
Total Hexa-Dioxins	23.3		0.111	3.33	1.32		1
Total Hepta-Dioxins	90.0		0.0356	3.33	1.05		1
Total Tetra-Furans	39.2		0.0803	0.665	0.67		1
Total Penta-Furans	0.621**J**		0.110	3.33	1.38		1
Total Hexa-Furans	1.68**J**		0.0404	3.33	1.06		1
Total Hepta-Furans	1.71**J**		0.131	3.33	1.08		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0583	**Units:**	Percent
Lab Code:	E1801065-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 11:34
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.829g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519307	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	909.652	45		25-164	0.82	1.020
13C-1,2,3,7,8-PeCDD	2000	1631.196	82		25-181	1.60	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1399.719	70		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1344.518	67		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1999.749	100		23-140	1.09	1.071
13C-OCDD	4000	3024.756	76		17-157	0.91	1.152
13C-2,3,7,8-TCDF	2000	1226.250	61		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1615.274	81		24-185	1.59	1.146
13C-2,3,4,7,8-PeCDF	2000	1510.237	76		21-178	1.57	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1206.716	60		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1381.414	69		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1454.890	73		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1314.876	66		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1389.185	69		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1541.209	77		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	468.234	59		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0583	**Units:**	ng/Kg
Lab Code:	E1801065-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**8.45**	0.391	0.665	1	1	8.45
1,2,3,7,8-PeCDD	**0.390**	0.0547	3.33	1	1	0.390
1,2,3,4,7,8-HxCDD	ND	0.105	3.33	1	0.1	
1,2,3,6,7,8-HxCDD	**0.939**	0.119	3.33	1	0.1	0.0939
1,2,3,7,8,9-HxCDD	**1.48**	0.109	3.33	1	0.1	0.148
1,2,3,4,6,7,8-HpCDD	**32.0**	0.0356	3.33	1	0.01	0.320
OCDD	**2260**	0.114	6.65	1	0.0003	0.678
2,3,7,8-TCDF	**21.6**	0.0803	0.665	1	0.1	2.16
1,2,3,7,8-PeCDF	**0.621**	0.105	3.33	1	0.03	0.0186
2,3,4,7,8-PeCDF	**0.397**	0.115	3.33	1	0.3	0.119
1,2,3,4,7,8-HxCDF	**0.935**	0.0417	3.33	1	0.1	0.0935
1,2,3,6,7,8-HxCDF	**0.259**	0.0361	3.33	1	0.1	0.0259
1,2,3,7,8,9-HxCDF	**0.203**	0.0440	3.33	1	0.1	0.0203
2,3,4,6,7,8-HxCDF	**0.232**	0.0410	3.33	1	0.1	0.0232
1,2,3,4,6,7,8-HpCDF	**1.33**	0.111	3.33	1	0.01	0.0133
1,2,3,4,7,8,9-HpCDF	**0.181**	0.155	3.33	1	0.01	0.00181
OCDF	**4.82**	0.101	6.65	1	0.0003	0.00145
		Total TEQ				12.6

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 10:50
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0583	**Units:**	Percent
Lab Code:	E1801065-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	6.139g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	69.4		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0584	**Units:**	ng/Kg
Lab Code:	E1801065-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 12:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.444g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519308	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4.55		0.444	0.669	0.65	1.002	1
1,2,3,7,8-PeCDD	0.233**J**		0.0652	3.34	1.76	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.203	3.34			1
1,2,3,6,7,8-HxCDD	ND	U	0.224	3.34			1
1,2,3,7,8,9-HxCDD	0.358**JK**		0.208	3.34	0.80	1.007	1
1,2,3,4,6,7,8-HpCDD	13.0		0.116	3.34	1.03	1.000	1
OCDD	948		0.146	6.69	0.91	1.000	1
2,3,7,8-TCDF	16.0		0.0958	0.669	0.73	1.001	1
1,2,3,7,8-PeCDF	0.495**JK**		0.0497	3.34	1.26	1.001	1
2,3,4,7,8-PeCDF	0.636**J**		0.0522	3.34	1.64	1.001	1
1,2,3,4,7,8-HxCDF	0.993**JK**		0.0416	3.34	1.02	1.000	1
1,2,3,6,7,8-HxCDF	0.214**JK**		0.0344	3.34	2.00	1.000	1
1,2,3,7,8,9-HxCDF	0.112**JK**		0.0428	3.34	2.91	1.000	1
2,3,4,6,7,8-HxCDF	0.207**J**		0.0399	3.34	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	0.946**J**		0.0612	3.34	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	0.190**J**		0.0868	3.34	0.88	1.000	1
OCDF	2.40**J**		0.128	6.69	0.92	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0584	**Units:**	ng/Kg
Lab Code:	E1801065-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 12:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.444g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519308	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.444	0.669			1
Total Penta-Dioxins	0.713**J**		0.0652	3.34	1.43		1
Total Hexa-Dioxins	7.62		0.211	3.34	1.20		1
Total Hepta-Dioxins	38.4		0.116	3.34	1.00		1
Total Tetra-Furans	24.4		0.0958	0.669	0.84		1
Total Penta-Furans	0.636**J**		0.0510	3.34	1.64		1
Total Hexa-Furans	0.667**J**		0.0394	3.34	1.37		1
Total Hepta-Furans	2.29**J**		0.0729	3.34	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0584	**Units:**	Percent
Lab Code:	E1801065-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 12:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.444g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519308	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	725.194	36		25-164	0.82	1.021
13C-1,2,3,7,8-PeCDD	2000	1547.794	77		25-181	1.57	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1392.990	70		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1322.493	66		28-130	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1962.782	98		23-140	1.08	1.071
13C-OCDD	4000	2768.299	69		17-157	0.89	1.152
13C-2,3,7,8-TCDF	2000	941.959	47		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1484.456	74		24-185	1.62	1.146
13C-2,3,4,7,8-PeCDF	2000	1403.778	70		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1147.792	57		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1357.187	68		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1418.870	71		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1255.989	63		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1380.233	69		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1490.481	75		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	440.502	55		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0584	**Units:**	ng/Kg
Lab Code:	E1801065-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4.55**	0.444	0.669	1	1	4.55
1,2,3,7,8-PeCDD	**0.233**	0.0652	3.34	1	1	0.233
1,2,3,4,7,8-HxCDD	ND	0.203	3.34	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.224	3.34	1	0.1	
1,2,3,7,8,9-HxCDD	**0.358**	0.208	3.34	1	0.1	0.0358
1,2,3,4,6,7,8-HpCDD	**13.0**	0.116	3.34	1	0.01	0.130
OCDD	**948**	0.146	6.69	1	0.0003	0.284
2,3,7,8-TCDF	**16.0**	0.0958	0.669	1	0.1	1.60
1,2,3,7,8-PeCDF	**0.495**	0.0497	3.34	1	0.03	0.0149
2,3,4,7,8-PeCDF	**0.636**	0.0522	3.34	1	0.3	0.191
1,2,3,4,7,8-HxCDF	**0.993**	0.0416	3.34	1	0.1	0.0993
1,2,3,6,7,8-HxCDF	**0.214**	0.0344	3.34	1	0.1	0.0214
1,2,3,7,8,9-HxCDF	**0.112**	0.0428	3.34	1	0.1	0.0112
2,3,4,6,7,8-HxCDF	**0.207**	0.0399	3.34	1	0.1	0.0207
1,2,3,4,6,7,8-HpCDF	**0.946**	0.0612	3.34	1	0.01	0.00946
1,2,3,4,7,8,9-HpCDF	**0.190**	0.0868	3.34	1	0.01	0.00190
OCDF	**2.40**	0.128	6.69	1	0.0003	0.000720
		Total TEQ				7.20

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0584	**Units:**	Percent
Lab Code:	E1801065-005	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	7.727g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	71.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0585	**Units:**	ng/Kg
Lab Code:	E1801065-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 13:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.320g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519309	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.36		0.206	0.665	0.82	1.001	1
1,2,3,7,8-PeCDD	0.164**JK**		0.0577	3.32	1.06	1.001	1
1,2,3,4,7,8-HxCDD	0.262**J**		0.123	3.32	1.21	1.000	1
1,2,3,6,7,8-HxCDD	0.399**JK**		0.138	3.32	1.71	1.000	1
1,2,3,7,8,9-HxCDD	0.601**J**		0.127	3.32	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	9.57		0.0589	3.32	1.03	1.000	1
OCDD	683		0.111	6.65	0.89	1.000	1
2,3,7,8-TCDF	4.49		0.112	0.665	0.74	1.001	1
1,2,3,7,8-PeCDF	0.214**J**		0.0763	3.32	1.48	1.001	1
2,3,4,7,8-PeCDF	0.177**JK**		0.0868	3.32	2.19	1.001	1
1,2,3,4,7,8-HxCDF	0.288**JK**		0.0438	3.32	1.74	1.000	1
1,2,3,6,7,8-HxCDF	0.0887**JK**		0.0377	3.32	0.63	1.001	1
1,2,3,7,8,9-HxCDF	0.0750**JK**		0.0495	3.32	1.01	1.001	1
2,3,4,6,7,8-HxCDF	ND	U	0.0440	3.32			1
1,2,3,4,6,7,8-HpCDF	0.183**BJK**		0.0414	3.32	0.53	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0575	3.32			1
OCDF	2.19**J**		0.103	6.65	0.82	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0585	**Units:**	ng/Kg
Lab Code:	E1801065-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 13:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.320g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519309	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.36		0.206	0.665	0.82		1
Total Penta-Dioxins	0.247**J**		0.0577	3.32	1.60		1
Total Hexa-Dioxins	4.85		0.129	3.32	1.05		1
Total Hepta-Dioxins	27.3		0.0589	3.32	1.09		1
Total Tetra-Furans	6.89		0.112	0.665	0.78		1
Total Penta-Furans	0.214**J**		0.0813	3.32	1.48		1
Total Hexa-Furans	0.195**J**		0.0434	3.32	1.38		1
Total Hepta-Furans	0.315**J**		0.0488	3.32	1.12		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0585	**Units:**	Percent
Lab Code:	E1801065-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 13:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.320g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519309	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	859.716	43		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1626.852	81		25-181	1.59	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1529.093	76		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1380.450	69		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	2097.030	105		23-140	1.05	1.071
13C-OCDD	4000	3081.844	77		17-157	0.91	1.152
13C-2,3,7,8-TCDF	2000	1155.520	58		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1600.053	80		24-185	1.60	1.146
13C-2,3,4,7,8-PeCDF	2000	1488.366	74		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1259.850	63		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1462.370	73		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1470.921	74		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1342.672	67		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1473.704	74		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1605.227	80		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	502.700	63		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0585	**Units:**	ng/Kg
Lab Code:	E1801065-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.36**	0.206	0.665	1	1	2.36
1,2,3,7,8-PeCDD	**0.164**	0.0577	3.32	1	1	0.164
1,2,3,4,7,8-HxCDD	**0.262**	0.123	3.32	1	0.1	0.0262
1,2,3,6,7,8-HxCDD	**0.399**	0.138	3.32	1	0.1	0.0399
1,2,3,7,8,9-HxCDD	**0.601**	0.127	3.32	1	0.1	0.0601
1,2,3,4,6,7,8-HpCDD	**9.57**	0.0589	3.32	1	0.01	0.0957
OCDD	**683**	0.111	6.65	1	0.0003	0.205
2,3,7,8-TCDF	**4.49**	0.112	0.665	1	0.1	0.449
1,2,3,7,8-PeCDF	**0.214**	0.0763	3.32	1	0.03	0.00642
2,3,4,7,8-PeCDF	**0.177**	0.0868	3.32	1	0.3	0.0531
1,2,3,4,7,8-HxCDF	**0.288**	0.0438	3.32	1	0.1	0.0288
1,2,3,6,7,8-HxCDF	**0.0887**	0.0377	3.32	1	0.1	0.00887
1,2,3,7,8,9-HxCDF	**0.0750**	0.0495	3.32	1	0.1	0.00750
2,3,4,6,7,8-HxCDF	ND	0.0440	3.32	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.183**	0.0414	3.32	1	0.01	0.00183
1,2,3,4,7,8,9-HpCDF	ND	0.0575	3.32	1	0.01	
OCDF	**2.19**	0.103	6.65	1	0.0003	0.000657
		Total TEQ				3.51

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:30
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0585	**Units:**	Percent
Lab Code:	E1801065-006	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	5.819g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	72.9		-	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:39
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0586	**Units:**	ng/Kg
Lab Code:	E1801065-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 14:00
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.597g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519310	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.40**K**		0.779	0.779	0.51	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.151	3.27			1
1,2,3,4,7,8-HxCDD	0.284**JK**		0.0689	3.27	1.70	1.001	1
1,2,3,6,7,8-HxCDD	0.439**JK**		0.0751	3.27	0.92	1.000	1
1,2,3,7,8,9-HxCDD	0.766**JK**		0.0704	3.27	0.88	1.006	1
1,2,3,4,6,7,8-HpCDD	16.8		0.137	3.27	1.06	1.000	1
OCDD	1070		0.142	6.54	0.91	1.000	1
2,3,7,8-TCDF	7.04		0.247	0.654	0.87	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.154	3.27			1
2,3,4,7,8-PeCDF	ND	U	0.157	3.27			1
1,2,3,4,7,8-HxCDF	0.243**BJK**		0.0636	3.27	0.87	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0559	3.27			1
1,2,3,7,8,9-HxCDF	0.0823**JK**		0.0659	3.27	1.70	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0627	3.27			1
1,2,3,4,6,7,8-HpCDF	0.260**BJK**		0.0454	3.27	0.73	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0608	3.27			1
OCDF	1.34**JK**		0.126	6.54	0.65	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:39
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0586	**Units:**	ng/Kg
Lab Code:	E1801065-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 14:00
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.597g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519310	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.779	0.779			1
Total Penta-Dioxins	ND	U	0.151	3.27			1
Total Hexa-Dioxins	12.4		0.0714	3.27	1.15		1
Total Hepta-Dioxins	52.3		0.137	3.27	1.03		1
Total Tetra-Furans	9.89		0.247	0.654	0.78		1
Total Penta-Furans	ND	U	0.156	3.27			1
Total Hexa-Furans	ND	U	0.0617	3.27			1
Total Hepta-Furans	ND	U	0.0525	3.27			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:39
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0586	**Units:**	Percent
Lab Code:	E1801065-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 14:00
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.597g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519310	**Blank File Name:**	P615971
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	489.413	24	**Y**	25-164	0.76	1.020
13C-1,2,3,7,8-PeCDD	2000	1333.421	67		25-181	1.59	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1186.927	59		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1162.853	58		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1798.664	90		23-140	1.05	1.071
13C-OCDD	4000	2886.226	72		17-157	0.90	1.153
13C-2,3,7,8-TCDF	2000	601.890	30		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1187.487	59		24-185	1.61	1.146
13C-2,3,4,7,8-PeCDF	2000	1175.460	59		21-178	1.63	1.179
13C-1,2,3,4,7,8-HxCDF	2000	989.689	49		26-152	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1104.363	55		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1194.587	60		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1063.747	53		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1273.932	64		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1411.833	71		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	297.323	37		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:39
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0586	**Units:**	ng/Kg
Lab Code:	E1801065-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.40**	0.779	0.779	1	1	2.40
1,2,3,7,8-PeCDD	ND	0.151	3.27	1	1	
1,2,3,4,7,8-HxCDD	**0.284**	0.0689	3.27	1	0.1	0.0284
1,2,3,6,7,8-HxCDD	**0.439**	0.0751	3.27	1	0.1	0.0439
1,2,3,7,8,9-HxCDD	**0.766**	0.0704	3.27	1	0.1	0.0766
1,2,3,4,6,7,8-HpCDD	**16.8**	0.137	3.27	1	0.01	0.168
OCDD	**1070**	0.142	6.54	1	0.0003	0.321
2,3,7,8-TCDF	**7.04**	0.247	0.654	1	0.1	0.704
1,2,3,7,8-PeCDF	ND	0.154	3.27	1	0.03	
2,3,4,7,8-PeCDF	ND	0.157	3.27	1	0.3	
1,2,3,4,7,8-HxCDF	**0.243**	0.0636	3.27	1	0.1	0.0243
1,2,3,6,7,8-HxCDF	ND	0.0559	3.27	1	0.1	
1,2,3,7,8,9-HxCDF	**0.0823**	0.0659	3.27	1	0.1	0.00823
2,3,4,6,7,8-HxCDF	ND	0.0627	3.27	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.260**	0.0454	3.27	1	0.01	0.00260
1,2,3,4,7,8,9-HpCDF	ND	0.0608	3.27	1	0.01	
OCDF	**1.34**	0.126	6.54	1	0.0003	0.000402
		Total TEQ				3.78

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:39
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0586	**Units:**	Percent
Lab Code:	E1801065-007	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:06
	5.708g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	72.2		-	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0587	**Units:**	ng/Kg
Lab Code:	E1801065-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 15:38
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.035g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519312	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.16**K**		0.396	0.663	0.91	1.002	1
1,2,3,7,8-PeCDD	0.0787**BJK**		0.0714	3.32	1.08	1.000	1
1,2,3,4,7,8-HxCDD	0.192**JK**		0.0819	3.32	0.62	1.001	1
1,2,3,6,7,8-HxCDD	0.530**J**		0.0897	3.32	1.32	1.000	1
1,2,3,7,8,9-HxCDD	0.718**J**		0.0838	3.32	1.34	1.007	1
1,2,3,4,6,7,8-HpCDD	16.3		0.0462	3.32	1.00	1.000	1
OCDD	856		0.115	6.63	0.89	1.000	1
2,3,7,8-TCDF	6.74		0.117	0.663	0.79	1.001	1
1,2,3,7,8-PeCDF	0.163**J**		0.0811	3.32	1.44	1.001	1
2,3,4,7,8-PeCDF	0.179**JK**		0.0870	3.32	2.48	1.001	1
1,2,3,4,7,8-HxCDF	0.262**JK**		0.0367	3.32	1.46	1.000	1
1,2,3,6,7,8-HxCDF	0.0543**JK**		0.0300	3.32	0.52	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0380	3.32			1
2,3,4,6,7,8-HxCDF	ND	U	0.0363	3.32			1
1,2,3,4,6,7,8-HpCDF	0.333**JK**		0.0311	3.32	0.85	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0433	3.32			1
OCDF	1.20**JK**		0.0980	6.63	0.70	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0587	**Units:**	ng/Kg
Lab Code:	E1801065-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 15:38
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.035g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519312	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.565**J**		0.396	0.663	0.69		1
Total Penta-Dioxins	0.882**J**		0.0714	3.32	1.45		1
Total Hexa-Dioxins	15.5		0.0851	3.32	1.29		1
Total Hepta-Dioxins	54.0		0.0462	3.32	1.03		1
Total Tetra-Furans	8.48		0.117	0.663	0.79		1
Total Penta-Furans	0.163**J**		0.0839	3.32	1.44		1
Total Hexa-Furans	0.163**J**		0.0349	3.32	1.24		1
Total Hepta-Furans	0.669**J**		0.0367	3.32	1.11		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0587	**Units:**	Percent
Lab Code:	E1801065-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 15:38
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.035g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519312	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	699.266	35		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1508.763	75		25-181	1.58	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1419.033	71		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1341.717	67		28-130	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2031.103	102		23-140	1.06	1.071
13C-OCDD	4000	3000.282	75		17-157	0.91	1.153
13C-2,3,7,8-TCDF	2000	910.903	46		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1422.422	71		24-185	1.59	1.146
13C-2,3,4,7,8-PeCDF	2000	1403.936	70		21-178	1.57	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1162.894	58		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1403.004	70		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1500.482	75		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1284.074	64		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1410.852	71		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1546.447	77		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	424.380	53		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0587	**Units:**	ng/Kg
Lab Code:	E1801065-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.16**	0.396	0.663	1	1	2.16
1,2,3,7,8-PeCDD	**0.0787**	0.0714	3.32	1	1	0.0787
1,2,3,4,7,8-HxCDD	**0.192**	0.0819	3.32	1	0.1	0.0192
1,2,3,6,7,8-HxCDD	**0.530**	0.0897	3.32	1	0.1	0.0530
1,2,3,7,8,9-HxCDD	**0.718**	0.0838	3.32	1	0.1	0.0718
1,2,3,4,6,7,8-HpCDD	**16.3**	0.0462	3.32	1	0.01	0.163
OCDD	**856**	0.115	6.63	1	0.0003	0.257
2,3,7,8-TCDF	**6.74**	0.117	0.663	1	0.1	0.674
1,2,3,7,8-PeCDF	**0.163**	0.0811	3.32	1	0.03	0.00489
2,3,4,7,8-PeCDF	**0.179**	0.0870	3.32	1	0.3	0.0537
1,2,3,4,7,8-HxCDF	**0.262**	0.0367	3.32	1	0.1	0.0262
1,2,3,6,7,8-HxCDF	**0.0543**	0.0300	3.32	1	0.1	0.00543
1,2,3,7,8,9-HxCDF	ND	0.0380	3.32	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0363	3.32	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.333**	0.0311	3.32	1	0.01	0.00333
1,2,3,4,7,8,9-HpCDF	ND	0.0433	3.32	1	0.01	
OCDF	**1.20**	0.0980	6.63	1	0.0003	0.000360
		Total TEQ				3.57

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:45
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0587	**Units:**	Percent
Lab Code:	E1801065-008	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	7.575g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	75.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 12:01
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0588	**Units:**	ng/Kg
Lab Code:	E1801065-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 16:26
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.726g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519313	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.386	0.647			1
1,2,3,7,8-PeCDD	0.153**BJK**		0.0579	3.23	2.33	1.000	1
1,2,3,4,7,8-HxCDD	0.268**J**		0.0620	3.23	1.33	1.000	1
1,2,3,6,7,8-HxCDD	0.582**JK**		0.0687	3.23	1.68	1.000	1
1,2,3,7,8,9-HxCDD	0.674**JK**		0.0638	3.23	0.83	1.006	1
1,2,3,4,6,7,8-HpCDD	20.9		0.0585	3.23	1.09	1.000	1
OCDD	985		0.115	6.47	0.89	1.000	1
2,3,7,8-TCDF	1.84		0.0823	0.647	0.69	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0635	3.23			1
2,3,4,7,8-PeCDF	ND	U	0.0683	3.23			1
1,2,3,4,7,8-HxCDF	ND	U	0.0421	3.23			1
1,2,3,6,7,8-HxCDF	ND	U	0.0370	3.23			1
1,2,3,7,8,9-HxCDF	ND	U	0.0450	3.23			1
2,3,4,6,7,8-HxCDF	ND	U	0.0414	3.23			1
1,2,3,4,6,7,8-HpCDF	0.0720**JK**		0.0466	3.23	0.62	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0628	3.23			1
OCDF	0.349**JK**		0.0760	6.47	1.30	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 12:01
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0588	**Units:**	ng/Kg
Lab Code:	E1801065-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 16:26
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.726g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519313	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.386	0.647			1
Total Penta-Dioxins	2.51**J**		0.0579	3.23	1.55		1
Total Hexa-Dioxins	20.5		0.0647	3.23	1.34		1
Total Hepta-Dioxins	68.7		0.0585	3.23	1.06		1
Total Tetra-Furans	1.84		0.0823	0.647	0.69		1
Total Penta-Furans	ND	U	0.0657	3.23			1
Total Hexa-Furans	ND	U	0.0412	3.23			1
Total Hepta-Furans	ND	U	0.0541	3.23			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 12:01
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0588	**Units:**	Percent
Lab Code:	E1801065-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 16:26
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.726g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519313	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	600.593	30		25-164	0.81	1.020
13C-1,2,3,7,8-PeCDD	2000	1388.088	69		25-181	1.57	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1415.911	71		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1302.686	65		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2100.316	105		23-140	1.06	1.071
13C-OCDD	4000	3238.782	81		17-157	0.90	1.153
13C-2,3,7,8-TCDF	2000	848.604	42		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1348.653	67		24-185	1.61	1.146
13C-2,3,4,7,8-PeCDF	2000	1258.182	63		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1132.056	57		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1343.131	67		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1480.482	74		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1307.236	65		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1433.951	72		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1618.224	81		26-138	0.42	1.084
37Cl-2,3,7,8-TCDD	800	370.054	46		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 12:01
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0588	**Units:**	ng/Kg
Lab Code:	E1801065-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.386	0.647	1	1	
1,2,3,7,8-PeCDD	**0.153**	0.0579	3.23	1	1	0.153
1,2,3,4,7,8-HxCDD	**0.268**	0.0620	3.23	1	0.1	0.0268
1,2,3,6,7,8-HxCDD	**0.582**	0.0687	3.23	1	0.1	0.0582
1,2,3,7,8,9-HxCDD	**0.674**	0.0638	3.23	1	0.1	0.0674
1,2,3,4,6,7,8-HpCDD	**20.9**	0.0585	3.23	1	0.01	0.209
OCDD	**985**	0.115	6.47	1	0.0003	0.296
2,3,7,8-TCDF	**1.84**	0.0823	0.647	1	0.1	0.184
1,2,3,7,8-PeCDF	ND	0.0635	3.23	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0683	3.23	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0421	3.23	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0370	3.23	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0450	3.23	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0414	3.23	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0720**	0.0466	3.23	1	0.01	0.000720
1,2,3,4,7,8,9-HpCDF	ND	0.0628	3.23	1	0.01	
OCDF	**0.349**	0.0760	6.47	1	0.0003	0.000105
		Total TEQ				0.995

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 12:01
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0588	**Units:**	Percent
Lab Code:	E1801065-009	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.413g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	72.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0589	**Units:**	ng/Kg
Lab Code:	E1801065-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 17:15
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.431g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519314	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	14.9		0.472	0.681	0.72	1.001	1
1,2,3,7,8-PeCDD	0.229	**BJK**	0.101	3.40	5.12	1.000	1
1,2,3,4,7,8-HxCDD	0.605	**JK**	0.256	3.40	1.53	1.000	1
1,2,3,6,7,8-HxCDD	1.20	**JK**	0.294	3.40	1.52	1.000	1
1,2,3,7,8,9-HxCDD	1.89	**J**	0.268	3.40	1.37	1.007	1
1,2,3,4,6,7,8-HpCDD	39.9		0.0730	3.40	1.01	1.000	1
OCDD	3270		0.182	6.81	0.89	1.000	1
2,3,7,8-TCDF	40.8		0.125	0.681	0.77	1.001	1
1,2,3,7,8-PeCDF	1.26	**J**	0.111	3.40	1.38	1.001	1
2,3,4,7,8-PeCDF	1.17	**JK**	0.0909	3.40	1.31	1.001	1
1,2,3,4,7,8-HxCDF	1.71	**JK**	0.0450	3.40	0.98	1.000	1
1,2,3,6,7,8-HxCDF	0.704	**J**	0.0393	3.40	1.41	1.000	1
1,2,3,7,8,9-HxCDF	0.0976	**JK**	0.0484	3.40	0.36	1.001	1
2,3,4,6,7,8-HxCDF	0.424	**J**	0.0454	3.40	1.41	1.000	1
1,2,3,4,6,7,8-HpCDF	2.10	**JK**	0.0864	3.40	1.35	1.000	1
1,2,3,4,7,8,9-HpCDF	0.261	**JK**	0.115	3.40	0.52	1.000	1
OCDF	5.86	**J**	0.137	6.81	0.83	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0589	**Units:**	ng/Kg
Lab Code:	E1801065-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 17:15
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.431g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519314	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	16.1		0.472	0.681	0.77		1
Total Penta-Dioxins	1.57**J**		0.101	3.40	1.43		1
Total Hexa-Dioxins	19.3		0.272	3.40	1.36		1
Total Hepta-Dioxins	120		0.0730	3.40	1.03		1
Total Tetra-Furans	70.6		0.125	0.681	0.70		1
Total Penta-Furans	4.12		0.101	3.40	1.36		1
Total Hexa-Furans	1.91**J**		0.0443	3.40	1.26		1
Total Hepta-Furans	3.50		0.0995	3.40	1.17		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0589	**Units:**	Percent
Lab Code:	E1801065-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 17:15
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.431g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519314	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	712.218	36		25-164	0.78	1.021
13C-1,2,3,7,8-PeCDD	2000	1607.849	80		25-181	1.59	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1374.530	69		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1269.531	63		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	2000.888	100		23-140	1.06	1.071
13C-OCDD	4000	3231.334	81		17-157	0.91	1.153
13C-2,3,7,8-TCDF	2000	903.872	45		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1258.887	63		24-185	1.55	1.146
13C-2,3,4,7,8-PeCDF	2000	1495.838	75		21-178	1.58	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1137.576	57		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1275.969	64		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1386.574	69		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1191.467	60		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1404.988	70		28-143	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1592.256	80		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	455.223	57		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0589	**Units:**	ng/Kg
Lab Code:	E1801065-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**14.9**	0.472	0.681	1	1	14.9
1,2,3,7,8-PeCDD	**0.229**	0.101	3.40	1	1	0.229
1,2,3,4,7,8-HxCDD	**0.605**	0.256	3.40	1	0.1	0.0605
1,2,3,6,7,8-HxCDD	**1.20**	0.294	3.40	1	0.1	0.120
1,2,3,7,8,9-HxCDD	**1.89**	0.268	3.40	1	0.1	0.189
1,2,3,4,6,7,8-HpCDD	**39.9**	0.0730	3.40	1	0.01	0.399
OCDD	**3270**	0.182	6.81	1	0.0003	0.981
2,3,7,8-TCDF	**40.8**	0.125	0.681	1	0.1	4.08
1,2,3,7,8-PeCDF	**1.26**	0.111	3.40	1	0.03	0.0378
2,3,4,7,8-PeCDF	**1.17**	0.0909	3.40	1	0.3	0.351
1,2,3,4,7,8-HxCDF	**1.71**	0.0450	3.40	1	0.1	0.171
1,2,3,6,7,8-HxCDF	**0.704**	0.0393	3.40	1	0.1	0.0704
1,2,3,7,8,9-HxCDF	**0.0976**	0.0484	3.40	1	0.1	0.00976
2,3,4,6,7,8-HxCDF	**0.424**	0.0454	3.40	1	0.1	0.0424
1,2,3,4,6,7,8-HpCDF	**2.10**	0.0864	3.40	1	0.01	0.0210
1,2,3,4,7,8,9-HpCDF	**0.261**	0.115	3.40	1	0.01	0.00261
OCDF	**5.86**	0.137	6.81	1	0.0003	0.00176
		Total TEQ				21.7

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/19/18 11:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0589	**Units:**	Percent
Lab Code:	E1801065-010	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.015g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	70.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:07
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0570	**Units:**	ng/Kg
Lab Code:	E1801065-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 07:54
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.099g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519376	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1460		22.6	22.6	0.73	1.001	20
1,2,3,7,8-PeCDD	6.25		0.0692	2.98	1.50	1.000	1
1,2,3,4,7,8-HxCDD	0.246	**J**	0.0725	2.98	1.30	1.000	1
1,2,3,6,7,8-HxCDD	1.19	**J**	0.0793	2.98	1.28	1.000	1
1,2,3,7,8,9-HxCDD	0.578	**JK**	0.0741	2.98	0.94	1.007	1
1,2,3,4,6,7,8-HpCDD	31.7		0.0333	2.98	1.02	1.000	1
OCDD	839		0.103	5.97	0.88	1.000	1
2,3,7,8-TCDF	2450		9.97	11.9	0.77	1.001	20
1,2,3,7,8-PeCDF	48.0		0.181	2.98	1.60	1.001	1
2,3,4,7,8-PeCDF	46.6		0.193	2.98	1.57	1.001	1
1,2,3,4,7,8-HxCDF	87.8		0.0308	2.98	1.22	1.000	1
1,2,3,6,7,8-HxCDF	21.0		0.0282	2.98	1.09	1.000	1
1,2,3,7,8,9-HxCDF	5.72		0.0337	2.98	1.23	1.001	1
2,3,4,6,7,8-HxCDF	3.61		0.0327	2.98	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	29.6		0.0758	2.98	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	9.94		0.103	2.98	1.03	1.000	1
OCDF	21.5		0.111	5.97	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:07
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0570	**Units:**	ng/Kg
Lab Code:	E1801065-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 07:54
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.099g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519376	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	893		0.268	0.597	0.76		1
Total Penta-Dioxins	8.48		0.0692	2.98	1.41		1
Total Hexa-Dioxins	15.1		0.0753	2.98	1.18		1
Total Hepta-Dioxins	71.8		0.0333	2.98	1.05		1
Total Tetra-Furans	3300		0.0746	0.597	0.71		1
Total Penta-Furans	ND	U	-	2.98			1
Total Hexa-Furans	127		0.0312	2.98	1.24		1
Total Hepta-Furans	53.5		0.0882	2.98	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:07
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0570	**Units:**	Percent
Lab Code:	E1801065-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 18:04
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.099g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519315	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	971.134	49		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1448.654	72		25-181	1.59	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1374.743	69		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1378.723	69		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1929.666	96		23-140	1.06	1.071
13C-OCDD	4000	2645.565	66		17-157	0.93	1.153
13C-2,3,7,8-TCDF	2000	1380.393	69		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1482.995	74		24-185	1.56	1.146
13C-2,3,4,7,8-PeCDF	2000	1454.028	73		21-178	1.55	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1251.250	63		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1410.888	71		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1545.254	77		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1303.826	65		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1357.670	68		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1501.938	75		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	597.706	75		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:07
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0570	**Units:**	ng/Kg
Lab Code:	E1801065-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1460**	22.6	22.6	20	1	1460
1,2,3,7,8-PeCDD	**6.25**	0.0692	2.98	1	1	6.25
1,2,3,4,7,8-HxCDD	**0.246**	0.0725	2.98	1	0.1	0.0246
1,2,3,6,7,8-HxCDD	**1.19**	0.0793	2.98	1	0.1	0.119
1,2,3,7,8,9-HxCDD	**0.578**	0.0741	2.98	1	0.1	0.0578
1,2,3,4,6,7,8-HpCDD	**31.7**	0.0333	2.98	1	0.01	0.317
OCDD	**839**	0.103	5.97	1	0.0003	0.252
2,3,7,8-TCDF	**2450**	9.97	11.9	20	0.1	245
1,2,3,7,8-PeCDF	**48.0**	0.181	2.98	1	0.03	1.44
2,3,4,7,8-PeCDF	**46.6**	0.193	2.98	1	0.3	14.0
1,2,3,4,7,8-HxCDF	**87.8**	0.0308	2.98	1	0.1	8.78
1,2,3,6,7,8-HxCDF	**21.0**	0.0282	2.98	1	0.1	2.10
1,2,3,7,8,9-HxCDF	**5.72**	0.0337	2.98	1	0.1	0.572
2,3,4,6,7,8-HxCDF	**3.61**	0.0327	2.98	1	0.1	0.361
1,2,3,4,6,7,8-HpCDF	**29.6**	0.0758	2.98	1	0.01	0.296
1,2,3,4,7,8,9-HpCDF	**9.94**	0.103	2.98	1	0.01	0.0994
OCDF	**21.5**	0.111	5.97	1	0.0003	0.00645
		Total TEQ				1740

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:07
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0570	**Units:**	Percent
Lab Code:	E1801065-011	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.132g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	83.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0561	**Units:**	ng/Kg
Lab Code:	E1801065-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 08:43
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.634g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519377	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2800		63.3	63.3	0.79	1.001	50
1,2,3,7,8-PeCDD	14.3		0.0514	2.79	1.55	1.000	1
1,2,3,4,7,8-HxCDD	0.480	**J**	0.0528	2.79	1.35	1.000	1
1,2,3,6,7,8-HxCDD	2.58	**J**	0.0585	2.79	1.09	1.000	1
1,2,3,7,8,9-HxCDD	0.813	**JK**	0.0542	2.79	1.82	1.007	1
1,2,3,4,6,7,8-HpCDD	69.6		0.0427	2.79	1.00	1.000	1
OCDD	1630		0.209	5.57	0.88	1.000	1
2,3,7,8-TCDF	5210		19.8	27.9	0.77	1.001	50
1,2,3,7,8-PeCDF	141		0.426	2.79	1.63	1.001	1
2,3,4,7,8-PeCDF	123		0.373	2.79	1.55	1.001	1
1,2,3,4,7,8-HxCDF	236		0.162	2.79	1.23	1.000	1
1,2,3,6,7,8-HxCDF	57.2		0.155	2.79	1.18	1.000	1
1,2,3,7,8,9-HxCDF	15.7		0.185	2.79	1.35	1.001	1
2,3,4,6,7,8-HxCDF	9.79		0.177	2.79	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	79.0		0.0627	2.79	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	25.4		0.0977	2.79	0.98	1.000	1
OCDF	56.7		0.176	5.57	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0561	**Units:**	ng/Kg
Lab Code:	E1801065-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 08:43
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.634g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519377	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2130		0.181	0.557	0.72		1
Total Penta-Dioxins	19.9		0.0514	2.79	1.77		1
Total Hexa-Dioxins	18.2		0.0551	2.79	1.10		1
Total Hepta-Dioxins	156		0.0427	2.79	1.08		1
Total Tetra-Furans	8180		0.0598	0.557	0.72		1
Total Penta-Furans	388		0.398	2.79	1.63		1
Total Hexa-Furans	350		0.169	2.79	1.17		1
Total Hepta-Furans	146		0.0779	2.79	1.07		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0561	**Units:**	Percent
Lab Code:	E1801065-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 18:52
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.634g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519316	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	939.821	47		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1415.168	71		25-181	1.59	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1357.604	68		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1238.179	62		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1466.083	73		23-140	1.05	1.071
13C-OCDD	4000	1463.109	37		17-157	0.88	1.153
13C-2,3,7,8-TCDF	2000	1314.117	66		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1169.257	58		24-185	1.51	1.146
13C-2,3,4,7,8-PeCDF	2000	1339.072	67		21-178	1.56	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1201.398	60		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1219.873	61		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1386.359	69		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1199.269	60		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1120.721	56		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1085.944	54		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	596.027	75		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0561	**Units:**	ng/Kg
Lab Code:	E1801065-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2800**	63.3	63.3	50	1	2800
1,2,3,7,8-PeCDD	**14.3**	0.0514	2.79	1	1	14.3
1,2,3,4,7,8-HxCDD	**0.480**	0.0528	2.79	1	0.1	0.0480
1,2,3,6,7,8-HxCDD	**2.58**	0.0585	2.79	1	0.1	0.258
1,2,3,7,8,9-HxCDD	**0.813**	0.0542	2.79	1	0.1	0.0813
1,2,3,4,6,7,8-HpCDD	**69.6**	0.0427	2.79	1	0.01	0.696
OCDD	**1630**	0.209	5.57	1	0.0003	0.489
2,3,7,8-TCDF	**5210**	19.8	27.9	50	0.1	521
1,2,3,7,8-PeCDF	**141**	0.426	2.79	1	0.03	4.23
2,3,4,7,8-PeCDF	**123**	0.373	2.79	1	0.3	36.9
1,2,3,4,7,8-HxCDF	**236**	0.162	2.79	1	0.1	23.6
1,2,3,6,7,8-HxCDF	**57.2**	0.155	2.79	1	0.1	5.72
1,2,3,7,8,9-HxCDF	**15.7**	0.185	2.79	1	0.1	1.57
2,3,4,6,7,8-HxCDF	**9.79**	0.177	2.79	1	0.1	0.979
1,2,3,4,6,7,8-HpCDF	**79.0**	0.0627	2.79	1	0.01	0.790
1,2,3,4,7,8,9-HpCDF	**25.4**	0.0977	2.79	1	0.01	0.254
OCDF	**56.7**	0.176	5.57	1	0.0003	0.0170
		Total TEQ				3410

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 14:55
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0561	**Units:**	Percent
Lab Code:	E1801065-012	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.403g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	84.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:06
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0562	**Units:**	ng/Kg
Lab Code:	E1801065-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 09:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.394g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519378	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	6450		67.8	67.8	0.80	1.001	50
1,2,3,7,8-PeCDD	28.1		0.0634	2.95	1.55	1.000	1
1,2,3,4,7,8-HxCDD	0.660	**J**	0.218	2.95	1.08	1.000	1
1,2,3,6,7,8-HxCDD	4.16		0.236	2.95	1.27	1.000	1
1,2,3,7,8,9-HxCDD	1.25	**JK**	0.222	2.95	1.01	1.007	1
1,2,3,4,6,7,8-HpCDD	134		0.0500	2.95	1.05	1.000	1
OCDD	2730		0.198	5.91	0.90	1.000	1
2,3,7,8-TCDF	10500		20.4	29.5	0.73	1.001	50
1,2,3,7,8-PeCDF	233		0.603	2.95	1.71	1.001	1
2,3,4,7,8-PeCDF	226		0.487	2.95	1.54	1.001	1
1,2,3,4,7,8-HxCDF	400		0.280	2.95	1.23	1.000	1
1,2,3,6,7,8-HxCDF	94.9		0.275	2.95	1.23	1.000	1
1,2,3,7,8,9-HxCDF	24.6		0.309	2.95	1.09	1.001	1
2,3,4,6,7,8-HxCDF	16.9		0.292	2.95	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	134		0.274	2.95	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	40.7		0.436	2.95	1.02	1.000	1
OCDF	102		0.192	5.91	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:06
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0562	**Units:**	ng/Kg
Lab Code:	E1801065-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 09:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.394g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519378	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4430		0.193	0.591	0.84		1
Total Penta-Dioxins	31.6		0.0634	2.95	1.69		1
Total Hexa-Dioxins	27.9		0.225	2.95	1.20		1
Total Hepta-Dioxins	258		0.0500	2.95	1.05		1
Total Tetra-Furans	15500		0.0976	0.591	0.75		1
Total Penta-Furans	686		0.540	2.95	1.64		1
Total Hexa-Furans	589		0.289	2.95	1.21		1
Total Hepta-Furans	245		0.344	2.95	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:06
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0562	**Units:**	Percent
Lab Code:	E1801065-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/08/18 19:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.394g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519317	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519303

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	965.883	48		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	1445.273	72		25-181	1.61	1.189
13C-1,2,3,4,7,8-HxCDD	2000	1335.035	67		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1297.454	65		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1441.216	72		23-140	1.06	1.071
13C-OCDD	4000	1407.347	35		17-157	0.92	1.153
13C-2,3,7,8-TCDF	2000	1381.729	69		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1231.275	62		24-185	1.52	1.145
13C-2,3,4,7,8-PeCDF	2000	1507.936	75		21-178	1.59	1.179
13C-1,2,3,4,7,8-HxCDF	2000	1217.271	61		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1209.064	60		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1386.216	69		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1252.373	63		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1155.129	58		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1093.774	55		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	682.046	85		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:06
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0562	**Units:**	ng/Kg
Lab Code:	E1801065-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**6450**	67.8	67.8	50	1	6450
1,2,3,7,8-PeCDD	**28.1**	0.0634	2.95	1	1	28.1
1,2,3,4,7,8-HxCDD	**0.660**	0.218	2.95	1	0.1	0.0660
1,2,3,6,7,8-HxCDD	**4.16**	0.236	2.95	1	0.1	0.416
1,2,3,7,8,9-HxCDD	**1.25**	0.222	2.95	1	0.1	0.125
1,2,3,4,6,7,8-HpCDD	**134**	0.0500	2.95	1	0.01	1.34
OCDD	**2730**	0.198	5.91	1	0.0003	0.819
2,3,7,8-TCDF	**10500**	20.4	29.5	50	0.1	1050
1,2,3,7,8-PeCDF	**233**	0.603	2.95	1	0.03	6.99
2,3,4,7,8-PeCDF	**226**	0.487	2.95	1	0.3	67.8
1,2,3,4,7,8-HxCDF	**400**	0.280	2.95	1	0.1	40.0
1,2,3,6,7,8-HxCDF	**94.9**	0.275	2.95	1	0.1	9.49
1,2,3,7,8,9-HxCDF	**24.6**	0.309	2.95	1	0.1	2.46
2,3,4,6,7,8-HxCDF	**16.9**	0.292	2.95	1	0.1	1.69
1,2,3,4,6,7,8-HpCDF	**134**	0.274	2.95	1	0.01	1.34
1,2,3,4,7,8,9-HpCDF	**40.7**	0.436	2.95	1	0.01	0.407
OCDF	**102**	0.192	5.91	1	0.0003	0.0306
		Total TEQ				7660

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:06
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0562	**Units:**	Percent
Lab Code:	E1801065-013	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	5.35g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0563	**Units:**	ng/Kg
Lab Code:	E1801065-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/13/18 06:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.530g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519403	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519397

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2650		43.4	43.4	0.83	1.001	20
1,2,3,7,8-PeCDD	6.72		0.207	2.86	1.66	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.220	2.86			1
1,2,3,6,7,8-HxCDD	1.43**J**		0.243	2.86	1.41	1.000	1
1,2,3,7,8,9-HxCDD	0.701**JK**		0.226	2.86	1.59	1.007	1
1,2,3,4,6,7,8-HpCDD	40.8		0.248	2.86	1.05	1.000	1
OCDD	1090		0.142	5.73	0.90	1.000	1
2,3,7,8-TCDF	4620		16.4	16.4	0.75	1.001	20
1,2,3,7,8-PeCDF	92.4		0.482	2.86	1.55	1.001	1
2,3,4,7,8-PeCDF	79.6		0.574	2.86	1.52	1.001	1
1,2,3,4,7,8-HxCDF	159		0.135	2.86	1.21	1.000	1
1,2,3,6,7,8-HxCDF	40.1		0.118	2.86	1.19	1.000	1
1,2,3,7,8,9-HxCDF	14.8		0.158	2.86	1.23	1.001	1
2,3,4,6,7,8-HxCDF	8.72		0.144	2.86	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	46.7		0.169	2.86	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	16.0		0.244	2.86	0.97	1.000	1
OCDF	31.4		0.221	5.73	0.85	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0563	**Units:**	ng/Kg
Lab Code:	E1801065-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/13/18 06:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.530g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519403	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519397

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1200		0.509	0.573	0.73		1
Total Penta-Dioxins	7.65		0.207	2.86	1.74		1
Total Hexa-Dioxins	16.6		0.230	2.86	1.38		1
Total Hepta-Dioxins	91.2		0.248	2.86	1.00		1
Total Tetra-Furans	4270		0.164	0.573	0.73		1
Total Penta-Furans	260		0.524	2.86	1.74		1
Total Hexa-Furans	241		0.138	2.86	1.23		1
Total Hepta-Furans	83.4		0.203	2.86	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0563	**Units:**	Percent
Lab Code:	E1801065-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 03:40
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.530g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519342	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	394.472	20	**Y**	25-164	0.76	1.021
13C-1,2,3,7,8-PeCDD	2000	681.508	34		25-181	1.60	1.191
13C-1,2,3,4,7,8-HxCDD	2000	577.649	29	**Y**	32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	583.773	29		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	837.879	42		23-140	1.06	1.070
13C-OCDD	4000	1256.596	31		17-157	0.91	1.150
13C-2,3,7,8-TCDF	2000	552.754	28		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	770.851	39		24-185	1.60	1.147
13C-2,3,4,7,8-PeCDF	2000	659.039	33		21-178	1.59	1.180
13C-1,2,3,4,7,8-HxCDF	2000	528.968	26		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	606.461	30		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	641.459	32		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	553.509	28		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	600.977	30		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	641.942	32		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	242.967	30	**Y**	35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0563	**Units:**	ng/Kg
Lab Code:	E1801065-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2650**	43.4	43.4	20	1	2650
1,2,3,7,8-PeCDD	**6.72**	0.207	2.86	1	1	6.72
1,2,3,4,7,8-HxCDD	ND	0.220	2.86	1	0.1	
1,2,3,6,7,8-HxCDD	**1.43**	0.243	2.86	1	0.1	0.143
1,2,3,7,8,9-HxCDD	**0.701**	0.226	2.86	1	0.1	0.0701
1,2,3,4,6,7,8-HpCDD	**40.8**	0.248	2.86	1	0.01	0.408
OCDD	**1090**	0.142	5.73	1	0.0003	0.327
2,3,7,8-TCDF	**4620**	16.4	16.4	20	0.1	462
1,2,3,7,8-PeCDF	**92.4**	0.482	2.86	1	0.03	2.77
2,3,4,7,8-PeCDF	**79.6**	0.574	2.86	1	0.3	23.9
1,2,3,4,7,8-HxCDF	**159**	0.135	2.86	1	0.1	15.9
1,2,3,6,7,8-HxCDF	**40.1**	0.118	2.86	1	0.1	4.01
1,2,3,7,8,9-HxCDF	**14.8**	0.158	2.86	1	0.1	1.48
2,3,4,6,7,8-HxCDF	**8.72**	0.144	2.86	1	0.1	0.872
1,2,3,4,6,7,8-HpCDF	**46.7**	0.169	2.86	1	0.01	0.467
1,2,3,4,7,8,9-HpCDF	**16.0**	0.244	2.86	1	0.01	0.160
OCDF	**31.4**	0.221	5.73	1	0.0003	0.00942
		Total TEQ				3170

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:08
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0563	**Units:**	Percent
Lab Code:	E1801065-014	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	5.881g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.9		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0564	**Units:**	ng/Kg
Lab Code:	E1801065-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 04:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.662g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519343	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4.79		0.240	0.609	0.69	1.001	1
1,2,3,7,8-PeCDD	0.174**BJ**		0.0465	3.05	1.53	1.001	1
1,2,3,4,7,8-HxCDD	0.151**JK**		0.0589	3.05	1.69	1.000	1
1,2,3,6,7,8-HxCDD	0.360**JK**		0.0634	3.05	0.80	1.000	1
1,2,3,7,8,9-HxCDD	0.418**JK**		0.0596	3.05	1.67	1.007	1
1,2,3,4,6,7,8-HpCDD	9.37		0.0804	3.05	1.06	1.000	1
OCDD	432		0.0499	6.09	0.88	1.000	1
2,3,7,8-TCDF	8.96		0.0773	0.609	0.83	1.001	1
1,2,3,7,8-PeCDF	0.279**J**		0.0448	3.05	1.59	1.000	1
2,3,4,7,8-PeCDF	0.267**JK**		0.0456	3.05	0.72	1.000	1
1,2,3,4,7,8-HxCDF	0.605**J**		0.0472	3.05	1.11	1.000	1
1,2,3,6,7,8-HxCDF	0.242**J**		0.0451	3.05	1.19	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0495	3.05			1
2,3,4,6,7,8-HxCDF	0.100**JK**		0.0489	3.05	1.01	1.000	1
1,2,3,4,6,7,8-HpCDF	0.663**J**		0.0382	3.05	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0833**JK**		0.0534	3.05	0.70	1.000	1
OCDF	2.21**J**		0.0551	6.09	0.78	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0564	**Units:**	ng/Kg
Lab Code:	E1801065-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 04:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.662g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519343	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4.79		0.240	0.609	0.69		1
Total Penta-Dioxins	1.06**J**		0.0465	3.05	1.74		1
Total Hexa-Dioxins	6.04		0.0606	3.05	1.25		1
Total Hepta-Dioxins	30.5		0.0804	3.05	1.07		1
Total Tetra-Furans	15.3		0.0773	0.609	0.70		1
Total Penta-Furans	0.801**J**		0.0452	3.05	1.41		1
Total Hexa-Furans	1.51**J**		0.0477	3.05	1.25		1
Total Hepta-Furans	0.663**J**		0.0451	3.05	0.98		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0564	**Units:**	Percent
Lab Code:	E1801065-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 04:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.662g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519343	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	751.901	38		25-164	0.77	1.021
13C-1,2,3,7,8-PeCDD	2000	1405.845	70		25-181	1.61	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1279.729	64		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1234.636	62		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1827.851	91		23-140	1.06	1.070
13C-OCDD	4000	3224.185	81		17-157	0.91	1.150
13C-2,3,7,8-TCDF	2000	1030.344	52		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1358.710	68		24-185	1.59	1.147
13C-2,3,4,7,8-PeCDF	2000	1307.417	65		21-178	1.60	1.180
13C-1,2,3,4,7,8-HxCDF	2000	1104.417	55		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1180.355	59		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1427.210	71		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1180.584	59		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1315.063	66		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1418.469	71		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	450.068	56		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0564	**Units:**	ng/Kg
Lab Code:	E1801065-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4.79**	0.240	0.609	1	1	4.79
1,2,3,7,8-PeCDD	**0.174**	0.0465	3.05	1	1	0.174
1,2,3,4,7,8-HxCDD	**0.151**	0.0589	3.05	1	0.1	0.0151
1,2,3,6,7,8-HxCDD	**0.360**	0.0634	3.05	1	0.1	0.0360
1,2,3,7,8,9-HxCDD	**0.418**	0.0596	3.05	1	0.1	0.0418
1,2,3,4,6,7,8-HpCDD	**9.37**	0.0804	3.05	1	0.01	0.0937
OCDD	**432**	0.0499	6.09	1	0.0003	0.130
2,3,7,8-TCDF	**8.96**	0.0773	0.609	1	0.1	0.896
1,2,3,7,8-PeCDF	**0.279**	0.0448	3.05	1	0.03	0.00837
2,3,4,7,8-PeCDF	**0.267**	0.0456	3.05	1	0.3	0.0801
1,2,3,4,7,8-HxCDF	**0.605**	0.0472	3.05	1	0.1	0.0605
1,2,3,6,7,8-HxCDF	**0.242**	0.0451	3.05	1	0.1	0.0242
1,2,3,7,8,9-HxCDF	ND	0.0495	3.05	1	0.1	
2,3,4,6,7,8-HxCDF	**0.100**	0.0489	3.05	1	0.1	0.0100
1,2,3,4,6,7,8-HpCDF	**0.663**	0.0382	3.05	1	0.01	0.00663
1,2,3,4,7,8,9-HpCDF	**0.0833**	0.0534	3.05	1	0.01	0.000833
OCDF	**2.21**	0.0551	6.09	1	0.0003	0.000663
		Total TEQ				6.37

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0564	**Units:**	Percent
Lab Code:	E1801065-015	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	5.225g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	77.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:16
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0565	**Units:**	ng/Kg
Lab Code:	E1801065-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 05:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.347g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519344	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	66.7		0.235	0.600	0.75	1.001	1
1,2,3,7,8-PeCDD	0.681	**J**	0.0597	3.00	1.47	1.000	1
1,2,3,4,7,8-HxCDD	0.405	**J**	0.0818	3.00	1.42	1.001	1
1,2,3,6,7,8-HxCDD	0.391	**JK**	0.0908	3.00	1.82	1.000	1
1,2,3,7,8,9-HxCDD	0.698	**J**	0.0842	3.00	1.17	1.007	1
1,2,3,4,6,7,8-HpCDD	12.1		0.0261	3.00	1.04	1.000	1
OCDD	496		0.0572	6.00	0.91	1.000	1
2,3,7,8-TCDF	157		0.0748	0.600	0.76	1.001	1
1,2,3,7,8-PeCDF	3.96		0.0740	3.00	1.63	1.000	1
2,3,4,7,8-PeCDF	4.05		0.0816	3.00	1.41	1.000	1
1,2,3,4,7,8-HxCDF	6.84		0.0241	3.00	1.17	1.000	1
1,2,3,6,7,8-HxCDF	1.72	**J**	0.0205	3.00	1.24	1.000	1
1,2,3,7,8,9-HxCDF	0.513	**JK**	0.0247	3.00	1.77	1.001	1
2,3,4,6,7,8-HxCDF	0.497	**J**	0.0235	3.00	1.40	1.000	1
1,2,3,4,6,7,8-HpCDF	2.60	**J**	0.0646	3.00	0.94	1.000	1
1,2,3,4,7,8,9-HpCDF	0.810	**J**	0.0861	3.00	1.06	1.000	1
OCDF	3.22	**J**	0.0774	6.00	0.96	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:16
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0565	**Units:**	ng/Kg
Lab Code:	E1801065-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 05:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.347g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519344	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	67.9		0.235	0.600	0.81		1
Total Penta-Dioxins	0.893	**J**	0.0597	3.00	1.78		1
Total Hexa-Dioxins	10.7		0.0855	3.00	1.30		1
Total Hepta-Dioxins	37.4		0.0261	3.00	0.96		1
Total Tetra-Furans	282		0.0748	0.600	0.71		1
Total Penta-Furans	12.2		0.0776	3.00	1.68		1
Total Hexa-Furans	9.25		0.0230	3.00	1.23		1
Total Hepta-Furans	4.94		0.0746	3.00	0.94		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:16
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0565	**Units:**	Percent
Lab Code:	E1801065-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 05:17
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.347g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519344	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	724.640	36		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1289.161	64		25-181	1.59	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1199.365	60		32-141	1.34	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1166.915	58		28-130	1.19	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1919.374	96		23-140	1.05	1.071
13C-OCDD	4000	3363.175	84		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	980.328	49		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1275.384	64		24-185	1.59	1.148
13C-2,3,4,7,8-PeCDF	2000	1186.992	59		21-178	1.61	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1032.760	52		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1206.371	60		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1316.017	66		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1098.285	55		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1307.881	65		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1475.698	74		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	426.892	53		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:16
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0565	**Units:**	ng/Kg
Lab Code:	E1801065-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**66.7**	0.235	0.600	1	1	66.7
1,2,3,7,8-PeCDD	**0.681**	0.0597	3.00	1	1	0.681
1,2,3,4,7,8-HxCDD	**0.405**	0.0818	3.00	1	0.1	0.0405
1,2,3,6,7,8-HxCDD	**0.391**	0.0908	3.00	1	0.1	0.0391
1,2,3,7,8,9-HxCDD	**0.698**	0.0842	3.00	1	0.1	0.0698
1,2,3,4,6,7,8-HpCDD	**12.1**	0.0261	3.00	1	0.01	0.121
OCDD	**496**	0.0572	6.00	1	0.0003	0.149
2,3,7,8-TCDF	**157**	0.0748	0.600	1	0.1	15.7
1,2,3,7,8-PeCDF	**3.96**	0.0740	3.00	1	0.03	0.119
2,3,4,7,8-PeCDF	**4.05**	0.0816	3.00	1	0.3	1.22
1,2,3,4,7,8-HxCDF	**6.84**	0.0241	3.00	1	0.1	0.684
1,2,3,6,7,8-HxCDF	**1.72**	0.0205	3.00	1	0.1	0.172
1,2,3,7,8,9-HxCDF	**0.513**	0.0247	3.00	1	0.1	0.0513
2,3,4,6,7,8-HxCDF	**0.497**	0.0235	3.00	1	0.1	0.0497
1,2,3,4,6,7,8-HpCDF	**2.60**	0.0646	3.00	1	0.01	0.0260
1,2,3,4,7,8,9-HpCDF	**0.810**	0.0861	3.00	1	0.01	0.00810
OCDF	**3.22**	0.0774	6.00	1	0.0003	0.000966
		Total TEQ				85.8

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:16
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0565	**Units:**	Percent
Lab Code:	E1801065-016	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	5.704g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:21
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0566	**Units:**	ng/Kg
Lab Code:	E1801065-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 06:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.355g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519345	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	21.4		0.187	0.585	0.82	1.001	1
1,2,3,7,8-PeCDD	0.239**BJ**		0.0924	2.93	1.67	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.0434	2.93			1
1,2,3,6,7,8-HxCDD	0.106**JK**		0.0496	2.93	1.80	1.000	1
1,2,3,7,8,9-HxCDD	0.101**JK**		0.0454	2.93	0.93	1.007	1
1,2,3,4,6,7,8-HpCDD	2.59**J**		0.0348	2.93	1.12	1.000	1
OCDD	97.4		0.0704	5.85	0.93	1.000	1
2,3,7,8-TCDF	43.9		0.0661	0.585	0.75	1.001	1
1,2,3,7,8-PeCDF	1.28**J**		0.0486	2.93	1.38	1.001	1
2,3,4,7,8-PeCDF	1.14**J**		0.0510	2.93	1.44	1.001	1
1,2,3,4,7,8-HxCDF	1.95**JK**		0.0297	2.93	1.00	1.000	1
1,2,3,6,7,8-HxCDF	0.663**J**		0.0272	2.93	1.13	1.000	1
1,2,3,7,8,9-HxCDF	0.203**JK**		0.0318	2.93	1.60	1.001	1
2,3,4,6,7,8-HxCDF	0.120**J**		0.0303	2.93	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	0.722**JK**		0.0287	2.93	1.22	1.000	1
1,2,3,4,7,8,9-HpCDF	0.265**J**		0.0411	2.93	1.14	1.000	1
OCDF	0.521**JK**		0.120	5.85	0.65	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:21
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0566	**Units:**	ng/Kg
Lab Code:	E1801065-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 06:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.355g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519345	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	21.4		0.187	0.585	0.82		1
Total Penta-Dioxins	0.422**J**		0.0924	2.93	1.48		1
Total Hexa-Dioxins	2.69**J**		0.0461	2.93	1.09		1
Total Hepta-Dioxins	10.7		0.0348	2.93	1.04		1
Total Tetra-Furans	85.6		0.0661	0.585	0.70		1
Total Penta-Furans	2.42**J**		0.0498	2.93	1.38		1
Total Hexa-Furans	0.966**J**		0.0297	2.93	1.18		1
Total Hepta-Furans	0.265**J**		0.0342	2.93	1.14		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:21
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0566	**Units:**	Percent
Lab Code:	E1801065-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 06:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.355g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519345	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	711.768	36		25-164	0.77	1.021
13C-1,2,3,7,8-PeCDD	2000	1232.517	62		25-181	1.56	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1186.447	59		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1112.856	56		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1762.269	88		23-140	1.04	1.070
13C-OCDD	4000	2671.376	67		17-157	0.92	1.151
13C-2,3,7,8-TCDF	2000	995.271	50		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1220.450	61		24-185	1.60	1.147
13C-2,3,4,7,8-PeCDF	2000	1149.143	57		21-178	1.56	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1052.198	53		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1118.884	56		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1275.532	64		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1104.211	55		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1340.186	67		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1370.574	69		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	448.421	56		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:21
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0566	**Units:**	ng/Kg
Lab Code:	E1801065-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**21.4**	0.187	0.585	1	1	21.4
1,2,3,7,8-PeCDD	**0.239**	0.0924	2.93	1	1	0.239
1,2,3,4,7,8-HxCDD	ND	0.0434	2.93	1	0.1	
1,2,3,6,7,8-HxCDD	**0.106**	0.0496	2.93	1	0.1	0.0106
1,2,3,7,8,9-HxCDD	**0.101**	0.0454	2.93	1	0.1	0.0101
1,2,3,4,6,7,8-HpCDD	**2.59**	0.0348	2.93	1	0.01	0.0259
OCDD	**97.4**	0.0704	5.85	1	0.0003	0.0292
2,3,7,8-TCDF	**43.9**	0.0661	0.585	1	0.1	4.39
1,2,3,7,8-PeCDF	**1.28**	0.0486	2.93	1	0.03	0.0384
2,3,4,7,8-PeCDF	**1.14**	0.0510	2.93	1	0.3	0.342
1,2,3,4,7,8-HxCDF	**1.95**	0.0297	2.93	1	0.1	0.195
1,2,3,6,7,8-HxCDF	**0.663**	0.0272	2.93	1	0.1	0.0663
1,2,3,7,8,9-HxCDF	**0.203**	0.0318	2.93	1	0.1	0.0203
2,3,4,6,7,8-HxCDF	**0.120**	0.0303	2.93	1	0.1	0.0120
1,2,3,4,6,7,8-HpCDF	**0.722**	0.0287	2.93	1	0.01	0.00722
1,2,3,4,7,8,9-HpCDF	**0.265**	0.0411	2.93	1	0.01	0.00265
OCDF	**0.521**	0.120	5.85	1	0.0003	0.000156
		Total TEQ				26.8

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:21
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0566	**Units:**	Percent
Lab Code:	E1801065-017	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.944g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:34
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0567	**Units:**	ng/Kg
Lab Code:	E1801065-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 06:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.722g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519346	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	12.7		0.424	0.579	0.76	1.001	1
1,2,3,7,8-PeCDD	0.156**BJ**		0.0480	2.89	1.57	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.0318	2.89			1
1,2,3,6,7,8-HxCDD	0.0632**JK**		0.0341	2.89	2.35	1.000	1
1,2,3,7,8,9-HxCDD	0.0782**JK**		0.0322	2.89	3.48	1.007	1
1,2,3,4,6,7,8-HpCDD	2.42**J**		0.0209	2.89	1.03	1.001	1
OCDD	80.9		0.0577	5.79	0.87	1.000	1
2,3,7,8-TCDF	27.3		0.150	0.579	0.75	1.001	1
1,2,3,7,8-PeCDF	0.883**J**		0.0480	2.89	1.38	1.001	1
2,3,4,7,8-PeCDF	0.731**JK**		0.0499	2.89	1.19	1.001	1
1,2,3,4,7,8-HxCDF	1.38**J**		0.0269	2.89	1.38	1.000	1
1,2,3,6,7,8-HxCDF	0.341**J**		0.0249	2.89	1.09	1.000	1
1,2,3,7,8,9-HxCDF	0.0691**JK**		0.0289	2.89	1.01	1.000	1
2,3,4,6,7,8-HxCDF	0.0505**JK**		0.0267	2.89	0.51	1.000	1
1,2,3,4,6,7,8-HpCDF	0.390**J**		0.0367	2.89	0.88	1.001	1
1,2,3,4,7,8,9-HpCDF	0.111**JK**		0.0492	2.89	1.31	1.000	1
OCDF	ND	U	0.0841	5.79			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:34
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0567	**Units:**	ng/Kg
Lab Code:	E1801065-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 06:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.722g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519346	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.7		0.424	0.579	0.75		1
Total Penta-Dioxins	0.643**J**		0.0480	2.89	1.35		1
Total Hexa-Dioxins	3.05		0.0327	2.89	1.39		1
Total Hepta-Dioxins	9.98		0.0209	2.89	1.05		1
Total Tetra-Furans	46.2		0.150	0.579	0.84		1
Total Penta-Furans	1.66**J**		0.0489	2.89	1.45		1
Total Hexa-Furans	1.72**J**		0.0268	2.89	1.38		1
Total Hepta-Furans	ND	U	0.0424	2.89			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:34
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0567	**Units:**	Percent
Lab Code:	E1801065-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 06:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.722g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519346	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	680.861	34		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1485.942	74		25-181	1.58	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1405.281	70		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1378.186	69		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1928.898	96		23-140	1.07	1.070
13C-OCDD	4000	2999.183	75		17-157	0.91	1.151
13C-2,3,7,8-TCDF	2000	911.969	46		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1411.406	71		24-185	1.59	1.147
13C-2,3,4,7,8-PeCDF	2000	1363.323	68		21-178	1.58	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1207.157	60		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1331.930	67		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1539.380	77		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1332.775	67		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1457.789	73		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1561.974	78		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	409.808	51		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:34
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0567	**Units:**	ng/Kg
Lab Code:	E1801065-018	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**12.7**	0.424	0.579	1	1	12.7
1,2,3,7,8-PeCDD	**0.156**	0.0480	2.89	1	1	0.156
1,2,3,4,7,8-HxCDD	ND	0.0318	2.89	1	0.1	
1,2,3,6,7,8-HxCDD	**0.0632**	0.0341	2.89	1	0.1	0.00632
1,2,3,7,8,9-HxCDD	**0.0782**	0.0322	2.89	1	0.1	0.00782
1,2,3,4,6,7,8-HpCDD	**2.42**	0.0209	2.89	1	0.01	0.0242
OCDD	**80.9**	0.0577	5.79	1	0.0003	0.0243
2,3,7,8-TCDF	**27.3**	0.150	0.579	1	0.1	2.73
1,2,3,7,8-PeCDF	**0.883**	0.0480	2.89	1	0.03	0.0265
2,3,4,7,8-PeCDF	**0.731**	0.0499	2.89	1	0.3	0.219
1,2,3,4,7,8-HxCDF	**1.38**	0.0269	2.89	1	0.1	0.138
1,2,3,6,7,8-HxCDF	**0.341**	0.0249	2.89	1	0.1	0.0341
1,2,3,7,8,9-HxCDF	**0.0691**	0.0289	2.89	1	0.1	0.00691
2,3,4,6,7,8-HxCDF	**0.0505**	0.0267	2.89	1	0.1	0.00505
1,2,3,4,6,7,8-HpCDF	**0.390**	0.0367	2.89	1	0.01	0.00390
1,2,3,4,7,8,9-HpCDF	**0.111**	0.0492	2.89	1	0.01	0.00111
OCDF	ND	0.0841	5.79	1	0.0003	
		Total TEQ				16.1

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:34
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0567	**Units:**	Percent
Lab Code:	E1801065-018	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.84g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:41
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0568	**Units:**	ng/Kg
Lab Code:	E1801065-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 07:44
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.822g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519347	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.69		0.656	0.656	0.66	1.001	1
1,2,3,7,8-PeCDD	0.133**BJK**		0.0607	3.10	1.80	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.0557	3.10			1
1,2,3,6,7,8-HxCDD	ND	U	0.0622	3.10			1
1,2,3,7,8,9-HxCDD	0.201**JK**		0.0576	3.10	1.48	1.007	1
1,2,3,4,6,7,8-HpCDD	1.70**J**		0.0378	3.10	1.12	1.000	1
OCDD	49.2		0.109	6.20	0.86	1.000	1
2,3,7,8-TCDF	2.98		0.185	0.620	0.68	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0834	3.10			1
2,3,4,7,8-PeCDF	ND	U	0.0822	3.10			1
1,2,3,4,7,8-HxCDF	0.159**JK**		0.0287	3.10	1.59	1.000	1
1,2,3,6,7,8-HxCDF	0.0392**J**		0.0267	3.10	1.07	1.000	1
1,2,3,7,8,9-HxCDF	0.0388**JK**		0.0328	3.10	0.99	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0287	3.10			1
1,2,3,4,6,7,8-HpCDF	0.0680**J**		0.0319	3.10	1.11	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0463	3.10			1
OCDF	0.333**J**		0.129	6.20	0.92	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:41
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0568	**Units:**	ng/Kg
Lab Code:	E1801065-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 07:44
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.822g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519347	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3.44		0.656	0.656	0.85		1
Total Penta-Dioxins	0.645**J**		0.0607	3.10	1.37		1
Total Hexa-Dioxins	3.19		0.0585	3.10	1.20		1
Total Hepta-Dioxins	6.26		0.0378	3.10	1.09		1
Total Tetra-Furans	3.28		0.185	0.620	0.68		1
Total Penta-Furans	ND	U	0.0828	3.10			1
Total Hexa-Furans	0.0392**J**		0.0292	3.10	1.07		1
Total Hepta-Furans	0.0680**J**		0.0384	3.10	1.11		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:41
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0568	**Units:**	Percent
Lab Code:	E1801065-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 07:44
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.822g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519347	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	504.274	25		25-164	0.77	1.021
13C-1,2,3,7,8-PeCDD	2000	1143.599	57		25-181	1.60	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1254.024	63		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1202.333	60		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1715.813	86		23-140	1.06	1.070
13C-OCDD	4000	2707.099	68		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	682.863	34		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1067.855	53		24-185	1.61	1.147
13C-2,3,4,7,8-PeCDF	2000	1085.813	54		21-178	1.62	1.180
13C-1,2,3,4,7,8-HxCDF	2000	1100.039	55		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1178.196	59		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1361.727	68		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1206.311	60		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1313.759	66		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1364.617	68		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	297.567	37		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:41
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0568	**Units:**	ng/Kg
Lab Code:	E1801065-019	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.69**	0.656	0.656	1	1	1.69
1,2,3,7,8-PeCDD	**0.133**	0.0607	3.10	1	1	0.133
1,2,3,4,7,8-HxCDD	ND	0.0557	3.10	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.0622	3.10	1	0.1	
1,2,3,7,8,9-HxCDD	**0.201**	0.0576	3.10	1	0.1	0.0201
1,2,3,4,6,7,8-HpCDD	**1.70**	0.0378	3.10	1	0.01	0.0170
OCDD	**49.2**	0.109	6.20	1	0.0003	0.0148
2,3,7,8-TCDF	**2.98**	0.185	0.620	1	0.1	0.298
1,2,3,7,8-PeCDF	ND	0.0834	3.10	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0822	3.10	1	0.3	
1,2,3,4,7,8-HxCDF	**0.159**	0.0287	3.10	1	0.1	0.0159
1,2,3,6,7,8-HxCDF	**0.0392**	0.0267	3.10	1	0.1	0.00392
1,2,3,7,8,9-HxCDF	**0.0388**	0.0328	3.10	1	0.1	0.00388
2,3,4,6,7,8-HxCDF	ND	0.0287	3.10	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0680**	0.0319	3.10	1	0.01	0.000680
1,2,3,4,7,8,9-HpCDF	ND	0.0463	3.10	1	0.01	
OCDF	**0.333**	0.129	6.20	1	0.0003	0.0000999
		Total TEQ				2.20

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:41
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0568	**Units:**	Percent
Lab Code:	E1801065-019	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	7.155g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	74.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0569	**Units:**	ng/Kg
Lab Code:	E1801065-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.205g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519348	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	10.2		0.623	0.623	0.87	1.001	1
1,2,3,7,8-PeCDD	0.170**BJK**		0.0914	3.08	1.16	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.0576	3.08			1
1,2,3,6,7,8-HxCDD	0.111**J**		0.0662	3.08	1.10	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0604	3.08			1
1,2,3,4,6,7,8-HpCDD	1.31**J**		0.0473	3.08	1.05	1.000	1
OCDD	32.9		0.0606	6.16	0.85	1.000	1
2,3,7,8-TCDF	21.8		0.221	0.616	0.73	1.001	1
1,2,3,7,8-PeCDF	0.522**JK**		0.114	3.08	0.82	1.001	1
2,3,4,7,8-PeCDF	0.512**JK**		0.108	3.08	1.82	1.000	1
1,2,3,4,7,8-HxCDF	1.32**J**		0.0441	3.08	1.13	1.000	1
1,2,3,6,7,8-HxCDF	0.295**JK**		0.0391	3.08	1.44	1.000	1
1,2,3,7,8,9-HxCDF	0.0667**JK**		0.0502	3.08	4.13	1.001	1
2,3,4,6,7,8-HxCDF	ND	U	0.0439	3.08			1
1,2,3,4,6,7,8-HpCDF	0.322**JK**		0.0269	3.08	0.68	1.000	1
1,2,3,4,7,8,9-HpCDF	0.133**JK**		0.0408	3.08	1.39	1.000	1
OCDF	0.770**JK**		0.119	6.16	0.74	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0569	**Units:**	ng/Kg
Lab Code:	E1801065-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.205g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519348	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	10.2		0.623	0.623	0.87		1
Total Penta-Dioxins	0.368**J**		0.0914	3.08	1.64		1
Total Hexa-Dioxins	0.560**J**		0.0614	3.08	1.07		1
Total Hepta-Dioxins	4.14		0.0473	3.08	1.07		1
Total Tetra-Furans	33.5		0.221	0.616	0.69		1
Total Penta-Furans	0.286**J**		0.111	3.08	1.73		1
Total Hexa-Furans	1.44**J**		0.0441	3.08	1.18		1
Total Hepta-Furans	ND	U	0.0332	3.08			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0569	**Units:**	Percent
Lab Code:	E1801065-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 08:32
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.205g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519348	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	374.247	19	**Y**	25-164	0.80	1.021
13C-1,2,3,7,8-PeCDD	2000	1126.600	56		25-181	1.61	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1220.854	61		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1175.199	59		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1633.208	82		23-140	1.08	1.070
13C-OCDD	4000	2398.693	60		17-157	0.92	1.151
13C-2,3,7,8-TCDF	2000	514.458	26		24-169	0.81	0.991
13C-1,2,3,7,8-PeCDF	2000	984.576	49		24-185	1.59	1.147
13C-2,3,4,7,8-PeCDF	2000	1059.368	53		21-178	1.59	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1022.585	51		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1126.005	56		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1255.550	63		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1126.543	56		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1242.485	62		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1290.329	65		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	227.656	28	**Y**	35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0569	**Units:**	ng/Kg
Lab Code:	E1801065-020	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**10.2**	0.623	0.623	1	1	10.2
1,2,3,7,8-PeCDD	**0.170**	0.0914	3.08	1	1	0.170
1,2,3,4,7,8-HxCDD	ND	0.0576	3.08	1	0.1	
1,2,3,6,7,8-HxCDD	**0.111**	0.0662	3.08	1	0.1	0.0111
1,2,3,7,8,9-HxCDD	ND	0.0604	3.08	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.31**	0.0473	3.08	1	0.01	0.0131
OCDD	**32.9**	0.0606	6.16	1	0.0003	0.00987
2,3,7,8-TCDF	**21.8**	0.221	0.616	1	0.1	2.18
1,2,3,7,8-PeCDF	**0.522**	0.114	3.08	1	0.03	0.0157
2,3,4,7,8-PeCDF	**0.512**	0.108	3.08	1	0.3	0.154
1,2,3,4,7,8-HxCDF	**1.32**	0.0441	3.08	1	0.1	0.132
1,2,3,6,7,8-HxCDF	**0.295**	0.0391	3.08	1	0.1	0.0295
1,2,3,7,8,9-HxCDF	**0.0667**	0.0502	3.08	1	0.1	0.00667
2,3,4,6,7,8-HxCDF	ND	0.0439	3.08	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.322**	0.0269	3.08	1	0.01	0.00322
1,2,3,4,7,8,9-HpCDF	**0.133**	0.0408	3.08	1	0.01	0.00133
OCDF	**0.770**	0.119	6.16	1	0.0003	0.000231
		Total TEQ				12.9

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 15:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0569	**Units:**	Percent
Lab Code:	E1801065-020	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.463g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	79.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:04
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0571	**Units:**	ng/Kg
Lab Code:	E1801065-021	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 09:21
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.039g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519349	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	4.01	**K**	0.290	0.586	0.90	1.001	1
1,2,3,7,8-PeCDD	0.269	**BJK**	0.0476	2.93	1.17	1.000	1
1,2,3,4,7,8-HxCDD	0.261	**JK**	0.159	2.93	2.37	1.000	1
1,2,3,6,7,8-HxCDD	2.04	**J**	0.184	2.93	1.30	1.000	1
1,2,3,7,8,9-HxCDD	1.12	**J**	0.167	2.93	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	68.1		0.169	2.93	1.05	1.000	1
OCDD	1290		0.154	5.86	0.88	1.000	1
2,3,7,8-TCDF	11.1		0.116	0.586	0.69	1.001	1
1,2,3,7,8-PeCDF	1.08	**J**	0.134	2.93	1.69	1.001	1
2,3,4,7,8-PeCDF	1.44	**J**	0.144	2.93	1.65	1.001	1
1,2,3,4,7,8-HxCDF	1.60	**J**	0.115	2.93	1.25	1.000	1
1,2,3,6,7,8-HxCDF	0.828	**J**	0.115	2.93	1.34	1.001	1
1,2,3,7,8,9-HxCDF	0.178	**JK**	0.141	2.93	0.66	1.001	1
2,3,4,6,7,8-HxCDF	0.680	**J**	0.125	2.93	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	9.23		0.132	2.93	0.95	1.000	1
1,2,3,4,7,8,9-HpCDF	0.875	**J**	0.206	2.93	1.19	1.000	1
OCDF	55.7		0.193	5.86	0.83	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:04
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0571	**Units:**	ng/Kg
Lab Code:	E1801065-021	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 09:21
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.039g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519349	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.290	0.586			1
Total Penta-Dioxins	1.43**J**		0.0476	2.93	1.36		1
Total Hexa-Dioxins	20.1		0.170	2.93	1.29		1
Total Hepta-Dioxins	160		0.169	2.93	1.04		1
Total Tetra-Furans	22.2		0.116	0.586	0.70		1
Total Penta-Furans	7.36		0.139	2.93	1.71		1
Total Hexa-Furans	12.9		0.123	2.93	1.16		1
Total Hepta-Furans	35.5		0.164	2.93	0.95		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:04
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0571	**Units:**	Percent
Lab Code:	E1801065-021	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 09:21
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.039g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519349	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519335

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1025.945	51		25-164	0.78	1.021
13C-1,2,3,7,8-PeCDD	2000	1654.893	83		25-181	1.57	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1420.721	71		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1412.809	71		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1629.977	81		23-140	1.06	1.070
13C-OCDD	4000	1812.156	45		17-157	0.90	1.152
13C-2,3,7,8-TCDF	2000	1428.808	71		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1687.121	84		24-185	1.59	1.147
13C-2,3,4,7,8-PeCDF	2000	1575.630	79		21-178	1.63	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1334.845	67		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1392.395	70		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1467.200	73		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1358.149	68		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1339.912	67		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1293.476	65		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	627.315	78		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:04
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0571	**Units:**	ng/Kg
Lab Code:	E1801065-021	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**4.01**	0.290	0.586	1	1	4.01
1,2,3,7,8-PeCDD	**0.269**	0.0476	2.93	1	1	0.269
1,2,3,4,7,8-HxCDD	**0.261**	0.159	2.93	1	0.1	0.0261
1,2,3,6,7,8-HxCDD	**2.04**	0.184	2.93	1	0.1	0.204
1,2,3,7,8,9-HxCDD	**1.12**	0.167	2.93	1	0.1	0.112
1,2,3,4,6,7,8-HpCDD	**68.1**	0.169	2.93	1	0.01	0.681
OCDD	**1290**	0.154	5.86	1	0.0003	0.387
2,3,7,8-TCDF	**11.1**	0.116	0.586	1	0.1	1.11
1,2,3,7,8-PeCDF	**1.08**	0.134	2.93	1	0.03	0.0324
2,3,4,7,8-PeCDF	**1.44**	0.144	2.93	1	0.3	0.432
1,2,3,4,7,8-HxCDF	**1.60**	0.115	2.93	1	0.1	0.160
1,2,3,6,7,8-HxCDF	**0.828**	0.115	2.93	1	0.1	0.0828
1,2,3,7,8,9-HxCDF	**0.178**	0.141	2.93	1	0.1	0.0178
2,3,4,6,7,8-HxCDF	**0.680**	0.125	2.93	1	0.1	0.0680
1,2,3,4,6,7,8-HpCDF	**9.23**	0.132	2.93	1	0.01	0.0923
1,2,3,4,7,8,9-HpCDF	**0.875**	0.206	2.93	1	0.01	0.00875
OCDF	**55.7**	0.193	5.86	1	0.0003	0.0167
		Total TEQ				7.71

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:04
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0571	**Units:**	Percent
Lab Code:	E1801065-021	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	5.78g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	85.0		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:12
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0572	**Units:**	ng/Kg
Lab Code:	E1801065-022	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 14:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.225g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519355	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.867**K**		0.174	0.565	0.55	1.001	1
1,2,3,7,8-PeCDD	0.184**BJK**		0.0601	2.83	2.76	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.318	2.83			1
1,2,3,6,7,8-HxCDD	0.913**J**		0.360	2.83	1.12	1.000	1
1,2,3,7,8,9-HxCDD	1.23**JK**		0.330	2.83	1.51	1.007	1
1,2,3,4,6,7,8-HpCDD	28.2		0.127	2.83	1.05	1.000	1
OCDD	2130		0.0677	5.65	0.89	1.000	1
2,3,7,8-TCDF	2.34		0.0963	0.565	0.69	1.001	1
1,2,3,7,8-PeCDF	0.202**JK**		0.116	2.83	1.31	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.133	2.83			1
1,2,3,4,7,8-HxCDF	0.230**JK**		0.0404	2.83	0.93	1.000	1
1,2,3,6,7,8-HxCDF	0.119**JK**		0.0339	2.83	0.97	1.000	1
1,2,3,7,8,9-HxCDF	0.0854**JK**		0.0431	2.83	0.81	1.000	1
2,3,4,6,7,8-HxCDF	0.130**JK**		0.0420	2.83	1.83	1.000	1
1,2,3,4,6,7,8-HpCDF	0.718**J**		0.170	2.83	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.249	2.83			1
OCDF	2.84**JK**		0.149	5.65	1.05	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:12
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0572	**Units:**	ng/Kg
Lab Code:	E1801065-022	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 14:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.225g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519355	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.801		0.174	0.565	0.80		1
Total Penta-Dioxins	0.533**J**		0.0601	2.83	1.42		1
Total Hexa-Dioxins	17.0		0.336	2.83	1.31		1
Total Hepta-Dioxins	86.7		0.127	2.83	1.08		1
Total Tetra-Furans	3.86		0.0963	0.565	0.86		1
Total Penta-Furans	ND	U	0.124	2.83			1
Total Hexa-Furans	0.504**J**		0.0394	2.83	1.15		1
Total Hepta-Furans	1.94**J**		0.206	2.83	1.06		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:12
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0572	**Units:**	Percent
Lab Code:	E1801065-022	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 14:36
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.225g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519355	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519350

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	951.586	48		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1581.126	79		25-181	1.62	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1366.189	68		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1298.796	65		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	2008.240	100		23-140	1.04	1.070
13C-OCDD	4000	3423.786	86		17-157	0.91	1.152
13C-2,3,7,8-TCDF	2000	1274.303	64		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1637.891	82		24-185	1.58	1.147
13C-2,3,4,7,8-PeCDF	2000	1467.107	73		21-178	1.64	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1165.138	58		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1405.942	70		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1485.575	74		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1229.365	61		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1482.555	74		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1585.161	79		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	550.015	69		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:12
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0572	**Units:**	ng/Kg
Lab Code:	E1801065-022	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.867**	0.174	0.565	1	1	0.867
1,2,3,7,8-PeCDD	**0.184**	0.0601	2.83	1	1	0.184
1,2,3,4,7,8-HxCDD	ND	0.318	2.83	1	0.1	
1,2,3,6,7,8-HxCDD	**0.913**	0.360	2.83	1	0.1	0.0913
1,2,3,7,8,9-HxCDD	**1.23**	0.330	2.83	1	0.1	0.123
1,2,3,4,6,7,8-HpCDD	**28.2**	0.127	2.83	1	0.01	0.282
OCDD	**2130**	0.0677	5.65	1	0.0003	0.639
2,3,7,8-TCDF	**2.34**	0.0963	0.565	1	0.1	0.234
1,2,3,7,8-PeCDF	**0.202**	0.116	2.83	1	0.03	0.00606
2,3,4,7,8-PeCDF	ND	0.133	2.83	1	0.3	
1,2,3,4,7,8-HxCDF	**0.230**	0.0404	2.83	1	0.1	0.0230
1,2,3,6,7,8-HxCDF	**0.119**	0.0339	2.83	1	0.1	0.0119
1,2,3,7,8,9-HxCDF	**0.0854**	0.0431	2.83	1	0.1	0.00854
2,3,4,6,7,8-HxCDF	**0.130**	0.0420	2.83	1	0.1	0.0130
1,2,3,4,6,7,8-HpCDF	**0.718**	0.170	2.83	1	0.01	0.00718
1,2,3,4,7,8,9-HpCDF	ND	0.249	2.83	1	0.01	
OCDF	**2.84**	0.149	5.65	1	0.0003	0.000852
		Total TEQ				2.49

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:12
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0572	**Units:**	Percent
Lab Code:	E1801065-022	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.258g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	86.5		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:35
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0573	**Units:**	ng/Kg
Lab Code:	E1801065-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 02:34
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.068g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616032	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.354	0.607			1
1,2,3,7,8-PeCDD	ND	U	0.141	3.04			1
1,2,3,4,7,8-HxCDD	ND	U	0.107	3.04			1
1,2,3,6,7,8-HxCDD	0.257**JK**		0.117	3.04	1.68	1.000	1
1,2,3,7,8,9-HxCDD	0.380**J**		0.104	3.04	1.34	1.007	1
1,2,3,4,6,7,8-HpCDD	6.45		0.0957	3.04	1.10	1.000	1
OCDD	329		0.153	6.07	0.88	1.000	1
2,3,7,8-TCDF	1.13		0.170	0.607	0.73	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.116	3.04			1
2,3,4,7,8-PeCDF	ND	U	0.132	3.04			1
1,2,3,4,7,8-HxCDF	0.0628**JK**		0.0276	3.04	0.98	1.000	1
1,2,3,6,7,8-HxCDF	0.0429**JK**		0.0289	3.04	0.90	1.000	1
1,2,3,7,8,9-HxCDF	0.0674**JK**		0.0351	3.04	0.79	1.000	1
2,3,4,6,7,8-HxCDF	0.0353**JK**		0.0303	3.04	3.36	1.000	1
1,2,3,4,6,7,8-HpCDF	0.154**JK**		0.0360	3.04	1.74	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0508	3.04			1
OCDF	0.822**J**		0.125	6.07	0.89	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:35
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0573	**Units:**	ng/Kg
Lab Code:	E1801065-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 02:34
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.068g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616032	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.354	0.607			1
Total Penta-Dioxins	0.639**J**		0.141	3.04	1.66		1
Total Hexa-Dioxins	7.72		0.110	3.04	1.21		1
Total Hepta-Dioxins	24.1		0.0957	3.04	1.03		1
Total Tetra-Furans	1.60		0.170	0.607	0.73		1
Total Penta-Furans	ND	U	0.124	3.04			1
Total Hexa-Furans	ND	U	0.0304	3.04			1
Total Hepta-Furans	0.277**J**		0.0428	3.04	0.99		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:35
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0573	**Units:**	Percent
Lab Code:	E1801065-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 02:34
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.068g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616032	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	687.430	34		25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	1085.886	54		25-181	1.55	1.194
13C-1,2,3,4,7,8-HxCDD	2000	1242.988	62		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1259.821	63		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1491.847	75		23-140	1.04	1.067
13C-OCDD	4000	1773.504	44		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	938.223	47		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1034.717	52		24-185	1.58	1.150
13C-2,3,4,7,8-PeCDF	2000	985.709	49		21-178	1.61	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1131.091	57		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1142.827	57		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1166.707	58		29-147	0.53	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1126.607	56		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1052.597	53		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1043.813	52		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	415.099	52		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:35
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0573	**Units:**	ng/Kg
Lab Code:	E1801065-023	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.354	0.607	1	1	
1,2,3,7,8-PeCDD	ND	0.141	3.04	1	1	
1,2,3,4,7,8-HxCDD	ND	0.107	3.04	1	0.1	
1,2,3,6,7,8-HxCDD	**0.257**	0.117	3.04	1	0.1	0.0257
1,2,3,7,8,9-HxCDD	**0.380**	0.104	3.04	1	0.1	0.0380
1,2,3,4,6,7,8-HpCDD	**6.45**	0.0957	3.04	1	0.01	0.0645
OCDD	**329**	0.153	6.07	1	0.0003	0.0987
2,3,7,8-TCDF	**1.13**	0.170	0.607	1	0.1	0.113
1,2,3,7,8-PeCDF	ND	0.116	3.04	1	0.03	
2,3,4,7,8-PeCDF	ND	0.132	3.04	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0628**	0.0276	3.04	1	0.1	0.00628
1,2,3,6,7,8-HxCDF	**0.0429**	0.0289	3.04	1	0.1	0.00429
1,2,3,7,8,9-HxCDF	**0.0674**	0.0351	3.04	1	0.1	0.00674
2,3,4,6,7,8-HxCDF	**0.0353**	0.0303	3.04	1	0.1	0.00353
1,2,3,4,6,7,8-HpCDF	**0.154**	0.0360	3.04	1	0.01	0.00154
1,2,3,4,7,8,9-HpCDF	ND	0.0508	3.04	1	0.01	
OCDF	**0.822**	0.125	6.07	1	0.0003	0.000247
		Total TEQ				0.363

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:35
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0573	**Units:**	Percent
Lab Code:	E1801065-023	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	7.091g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.8		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:43
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0574	**Units:**	ng/Kg
Lab Code:	E1801065-024	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 03:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.701g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616033	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.83		0.296	0.564	0.70	1.001	1
1,2,3,7,8-PeCDD	0.188	**BJK**	0.0964	2.82	1.07	1.000	1
1,2,3,4,7,8-HxCDD	0.289	**J**	0.0713	2.82	1.13	1.000	1
1,2,3,6,7,8-HxCDD	0.455	**J**	0.0794	2.82	1.27	1.000	1
1,2,3,7,8,9-HxCDD	0.651	**J**	0.0701	2.82	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	15.0		0.0618	2.82	1.07	1.000	1
OCDD	744		0.0841	5.64	0.89	1.000	1
2,3,7,8-TCDF	2.83		0.150	0.564	0.85	1.001	1
1,2,3,7,8-PeCDF	0.193	**JK**	0.0855	2.82	1.05	1.001	1
2,3,4,7,8-PeCDF	0.140	**JK**	0.0826	2.82	0.99	1.001	1
1,2,3,4,7,8-HxCDF	0.424	**JK**	0.0531	2.82	0.96	1.000	1
1,2,3,6,7,8-HxCDF	0.124	**JK**	0.0551	2.82	0.75	1.000	1
1,2,3,7,8,9-HxCDF	0.135	**JK**	0.0628	2.82	1.84	1.001	1
2,3,4,6,7,8-HxCDF	0.168	**J**	0.0572	2.82	1.36	1.000	1
1,2,3,4,6,7,8-HpCDF	2.06	**JP**	0.0449	2.82	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	0.171	**JK**	0.0628	2.82	1.21	1.000	1
OCDF	9.54		0.0917	5.64	0.92	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:43
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0574	**Units:**	ng/Kg
Lab Code:	E1801065-024	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 03:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.701g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616033	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.38		0.296	0.564	0.79		1
Total Penta-Dioxins	1.29**J**		0.0964	2.82	1.35		1
Total Hexa-Dioxins	11.1		0.0735	2.82	1.26		1
Total Hepta-Dioxins	44.6		0.0618	2.82	1.02		1
Total Tetra-Furans	3.99		0.150	0.564	0.72		1
Total Penta-Furans	ND	U	0.0840	2.82			1
Total Hexa-Furans	1.12**J**		0.0570	2.82	1.37		1
Total Hepta-Furans	4.96		0.0531	2.82	1.09		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:43
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0574	**Units:**	Percent
Lab Code:	E1801065-024	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 03:23
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.701g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616033	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	738.929	37		25-164	0.80	1.023
13C-1,2,3,7,8-PeCDD	2000	1341.208	67		25-181	1.56	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1488.610	74		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1455.266	73		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1743.816	87		23-140	1.06	1.067
13C-OCDD	4000	2013.767	50		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1038.853	52		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1231.501	62		24-185	1.61	1.151
13C-2,3,4,7,8-PeCDF	2000	1287.292	64		21-178	1.60	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1372.676	69		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1352.735	68		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1426.542	71		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1345.628	67		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1234.573	62		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1230.726	62		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	413.090	52		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:43
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0574	**Units:**	ng/Kg
Lab Code:	E1801065-024	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.83**	0.296	0.564	1	1	1.83
1,2,3,7,8-PeCDD	**0.188**	0.0964	2.82	1	1	0.188
1,2,3,4,7,8-HxCDD	**0.289**	0.0713	2.82	1	0.1	0.0289
1,2,3,6,7,8-HxCDD	**0.455**	0.0794	2.82	1	0.1	0.0455
1,2,3,7,8,9-HxCDD	**0.651**	0.0701	2.82	1	0.1	0.0651
1,2,3,4,6,7,8-HpCDD	**15.0**	0.0618	2.82	1	0.01	0.150
OCDD	**744**	0.0841	5.64	1	0.0003	0.223
2,3,7,8-TCDF	**2.83**	0.150	0.564	1	0.1	0.283
1,2,3,7,8-PeCDF	**0.193**	0.0855	2.82	1	0.03	0.00579
2,3,4,7,8-PeCDF	**0.140**	0.0826	2.82	1	0.3	0.0420
1,2,3,4,7,8-HxCDF	**0.424**	0.0531	2.82	1	0.1	0.0424
1,2,3,6,7,8-HxCDF	**0.124**	0.0551	2.82	1	0.1	0.0124
1,2,3,7,8,9-HxCDF	**0.135**	0.0628	2.82	1	0.1	0.0135
2,3,4,6,7,8-HxCDF	**0.168**	0.0572	2.82	1	0.1	0.0168
1,2,3,4,6,7,8-HpCDF	**2.06**	0.0449	2.82	1	0.01	0.0206
1,2,3,4,7,8,9-HpCDF	**0.171**	0.0628	2.82	1	0.01	0.00171
OCDF	**9.54**	0.0917	5.64	1	0.0003	0.00286
		Total TEQ				2.97

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:43
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0574	**Units:**	Percent
Lab Code:	E1801065-024	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.111g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.9		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0575	**Units:**	ng/Kg
Lab Code:	E1801065-025	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 04:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.815g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616034	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.453**JK**		0.287	0.566	0.58	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.0647	2.83			1
1,2,3,4,7,8-HxCDD	0.101**J**		0.0760	2.83	1.29	1.000	1
1,2,3,6,7,8-HxCDD	0.167**J**		0.0857	2.83	1.17	1.000	1
1,2,3,7,8,9-HxCDD	0.134**JK**		0.0751	2.83	0.71	1.006	1
1,2,3,4,6,7,8-HpCDD	3.31		0.0374	2.83	1.01	1.000	1
OCDD	175		0.0953	5.66	0.90	1.000	1
2,3,7,8-TCDF	0.966**K**		0.125	0.566	0.95	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0692	2.83			1
2,3,4,7,8-PeCDF	ND	U	0.0680	2.83			1
1,2,3,4,7,8-HxCDF	0.0231**JK**		0.0150	2.83	0.72	1.000	1
1,2,3,6,7,8-HxCDF	0.0181**JK**		0.0160	2.83	0.95	1.000	1
1,2,3,7,8,9-HxCDF	0.0215**JK**		0.0182	2.83	0.61	1.001	1
2,3,4,6,7,8-HxCDF	ND	U	0.0168	2.83			1
1,2,3,4,6,7,8-HpCDF	0.0432**JK**		0.0222	2.83	1.61	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0314	2.83			1
OCDF	ND	U	0.115	5.66			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0575	**Units:**	ng/Kg
Lab Code:	E1801065-025	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 04:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.815g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616034	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.287	0.566			1
Total Penta-Dioxins	0.0882**J**		0.0647	2.83	1.51		1
Total Hexa-Dioxins	2.32**J**		0.0788	2.83	1.26		1
Total Hepta-Dioxins	12.5		0.0374	2.83	1.03		1
Total Tetra-Furans	0.458**J**		0.125	0.566	0.70		1
Total Penta-Furans	ND	U	0.0685	2.83			1
Total Hexa-Furans	ND	U	0.0165	2.83			1
Total Hepta-Furans	ND	U	0.0264	2.83			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0575	**Units:**	Percent
Lab Code:	E1801065-025	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 04:12
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.815g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616034	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	720.325	36		25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	1379.764	69		25-181	1.58	1.194
13C-1,2,3,4,7,8-HxCDD	2000	1471.198	74		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1427.339	71		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1695.315	85		23-140	1.06	1.067
13C-OCDD	4000	1989.123	50		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1026.701	51		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1231.168	62		24-185	1.59	1.150
13C-2,3,4,7,8-PeCDF	2000	1326.874	66		21-178	1.59	1.184
13C-1,2,3,4,7,8-HxCDF	2000	1389.170	69		26-152	0.54	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1316.354	66		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1452.424	73		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1320.374	66		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1239.193	62		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1244.236	62		26-138	0.46	1.080
37Cl-2,3,7,8-TCDD	800	416.702	52		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0575	**Units:**	ng/Kg
Lab Code:	E1801065-025	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.453**	0.287	0.566	1	1	0.453
1,2,3,7,8-PeCDD	ND	0.0647	2.83	1	1	
1,2,3,4,7,8-HxCDD	**0.101**	0.0760	2.83	1	0.1	0.0101
1,2,3,6,7,8-HxCDD	**0.167**	0.0857	2.83	1	0.1	0.0167
1,2,3,7,8,9-HxCDD	**0.134**	0.0751	2.83	1	0.1	0.0134
1,2,3,4,6,7,8-HpCDD	**3.31**	0.0374	2.83	1	0.01	0.0331
OCDD	**175**	0.0953	5.66	1	0.0003	0.0525
2,3,7,8-TCDF	**0.966**	0.125	0.566	1	0.1	0.0966
1,2,3,7,8-PeCDF	ND	0.0692	2.83	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0680	2.83	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0231**	0.0150	2.83	1	0.1	0.00231
1,2,3,6,7,8-HxCDF	**0.0181**	0.0160	2.83	1	0.1	0.00181
1,2,3,7,8,9-HxCDF	**0.0215**	0.0182	2.83	1	0.1	0.00215
2,3,4,6,7,8-HxCDF	ND	0.0168	2.83	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0432**	0.0222	2.83	1	0.01	0.000432
1,2,3,4,7,8,9-HpCDF	ND	0.0314	2.83	1	0.01	
OCDF	ND	0.115	5.66	1	0.0003	
		Total TEQ				0.682

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 11:48
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0575	**Units:**	Percent
Lab Code:	E1801065-025	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.148g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.7		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:02
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0576	**Units:**	ng/Kg
Lab Code:	E1801065-026	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 05:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.596g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616035	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.598		0.440	0.573	0.67	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.0717	2.86			1
1,2,3,4,7,8-HxCDD	0.123**J**		0.0533	2.86	1.16	1.000	1
1,2,3,6,7,8-HxCDD	0.103**J**		0.0606	2.86	1.28	1.000	1
1,2,3,7,8,9-HxCDD	0.314**J**		0.0530	2.86	1.15	1.007	1
1,2,3,4,6,7,8-HpCDD	2.19**J**		0.0494	2.86	1.15	1.000	1
OCDD	108		0.0772	5.73	0.93	1.000	1
2,3,7,8-TCDF	0.659		0.146	0.573	0.89	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0735	2.86			1
2,3,4,7,8-PeCDF	ND	U	0.0760	2.86			1
1,2,3,4,7,8-HxCDF	0.0300**JK**		0.0240	2.86	0.58	1.001	1
1,2,3,6,7,8-HxCDF	0.0299**JK**		0.0255	2.86	2.63	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0297	2.86			1
2,3,4,6,7,8-HxCDF	ND	U	0.0267	2.86			1
1,2,3,4,6,7,8-HpCDF	0.0440**JK**		0.0206	2.86	1.30	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0286	2.86			1
OCDF	0.293**J**		0.0829	5.73	0.85	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:02
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0576	**Units:**	ng/Kg
Lab Code:	E1801065-026	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 05:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.596g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616035	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.598		0.440	0.573	0.67		1
Total Penta-Dioxins	ND	U	0.0717	2.86			1
Total Hexa-Dioxins	2.15**J**		0.0556	2.86	1.16		1
Total Hepta-Dioxins	8.71		0.0494	2.86	0.92		1
Total Tetra-Furans	0.393**J**		0.146	0.573	0.75		1
Total Penta-Furans	ND	U	0.0747	2.86			1
Total Hexa-Furans	ND	U	0.0264	2.86			1
Total Hepta-Furans	0.0588**J**		0.0242	2.86	1.16		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:02
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0576	**Units:**	Percent
Lab Code:	E1801065-026	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 05:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.596g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616035	**Blank File Name:**	P519371
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616023

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	678.155	34		25-164	0.76	1.023
13C-1,2,3,7,8-PeCDD	2000	1310.729	66		25-181	1.55	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1420.994	71		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1406.621	70		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1740.665	87		23-140	1.05	1.067
13C-OCDD	4000	2076.773	52		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	960.438	48		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1206.596	60		24-185	1.59	1.151
13C-2,3,4,7,8-PeCDF	2000	1228.403	61		21-178	1.58	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1329.985	66		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1312.679	66		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1420.095	71		29-147	0.53	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1308.011	65		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1287.385	64		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1291.922	65		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	394.945	49		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:02
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0576	**Units:**	ng/Kg
Lab Code:	E1801065-026	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.598**	0.440	0.573	1	1	0.598
1,2,3,7,8-PeCDD	ND	0.0717	2.86	1	1	
1,2,3,4,7,8-HxCDD	**0.123**	0.0533	2.86	1	0.1	0.0123
1,2,3,6,7,8-HxCDD	**0.103**	0.0606	2.86	1	0.1	0.0103
1,2,3,7,8,9-HxCDD	**0.314**	0.0530	2.86	1	0.1	0.0314
1,2,3,4,6,7,8-HpCDD	**2.19**	0.0494	2.86	1	0.01	0.0219
OCDD	**108**	0.0772	5.73	1	0.0003	0.0324
2,3,7,8-TCDF	**0.659**	0.146	0.573	1	0.1	0.0659
1,2,3,7,8-PeCDF	ND	0.0735	2.86	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0760	2.86	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0300**	0.0240	2.86	1	0.1	0.00300
1,2,3,6,7,8-HxCDF	**0.0299**	0.0255	2.86	1	0.1	0.00299
1,2,3,7,8,9-HxCDF	ND	0.0297	2.86	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0267	2.86	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0440**	0.0206	2.86	1	0.01	0.000440
1,2,3,4,7,8,9-HpCDF	ND	0.0286	2.86	1	0.01	
OCDF	**0.293**	0.0829	5.73	1	0.0003	0.0000879
		Total TEQ				0.779

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:02
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0576	**Units:**	Percent
Lab Code:	E1801065-026	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:03
	6.985g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	82.4		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0577	**Units:**	ng/Kg
Lab Code:	E1801065-027	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 05:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.446g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519373	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.360	0.590			1
1,2,3,7,8-PeCDD	ND	U	0.134	2.95			1
1,2,3,4,7,8-HxCDD	0.124**BJ**		0.0631	2.95	1.18	1.001	1
1,2,3,6,7,8-HxCDD	0.200**BJ**		0.0699	2.95	1.29	1.000	1
1,2,3,7,8,9-HxCDD	0.300**BJ**		0.0650	2.95	1.11	1.007	1
1,2,3,4,6,7,8-HpCDD	2.85**J**		0.0677	2.95	1.12	1.000	1
OCDD	163		0.261	5.90	0.87	1.000	1
2,3,7,8-TCDF	ND	U	0.139	0.590			1
1,2,3,7,8-PeCDF	ND	U	0.0958	2.95			1
2,3,4,7,8-PeCDF	0.128**JK**		0.102	2.95	0.94	1.001	1
1,2,3,4,7,8-HxCDF	0.341**J**		0.0412	2.95	1.22	1.000	1
1,2,3,6,7,8-HxCDF	0.0872**JK**		0.0399	2.95	0.86	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0486	2.95			1
2,3,4,6,7,8-HxCDF	ND	U	0.0420	2.95			1
1,2,3,4,6,7,8-HpCDF	1.01**J**		0.0697	2.95	1.10	1.000	1
1,2,3,4,7,8,9-HpCDF	0.113**JK**		0.103	2.95	1.55	1.000	1
OCDF	9.72		0.195	5.90	0.95	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0577	**Units:**	ng/Kg
Lab Code:	E1801065-027	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 05:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.446g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519373	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.360	0.590			1
Total Penta-Dioxins	ND	U	0.134	2.95			1
Total Hexa-Dioxins	0.624**J**		0.0660	2.95	1.18		1
Total Hepta-Dioxins	11.0		0.0677	2.95	1.02		1
Total Tetra-Furans	ND	U	0.139	0.590			1
Total Penta-Furans	ND	U	0.0987	2.95			1
Total Hexa-Furans	0.341**J**		0.0427	2.95	1.22		1
Total Hepta-Furans	1.01**J**		0.0846	2.95	1.10		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0577	**Units:**	Percent
Lab Code:	E1801065-027	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 05:28
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.446g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519373	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	737.986	37		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1315.725	66		25-181	1.60	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1098.956	55		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1058.210	53		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1480.319	74		23-140	1.08	1.070
13C-OCDD	4000	2207.825	55		17-157	0.90	1.152
13C-2,3,7,8-TCDF	2000	989.182	49		24-169	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1260.112	63		24-185	1.61	1.147
13C-2,3,4,7,8-PeCDF	2000	1202.390	60		21-178	1.61	1.181
13C-1,2,3,4,7,8-HxCDF	2000	942.525	47		26-152	0.51	0.969
13C-1,2,3,6,7,8-HxCDF	2000	988.036	49		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1038.510	52		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1010.790	51		28-136	0.52	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	1065.574	53		28-143	0.46	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1108.672	55		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	444.443	56		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0577	**Units:**	ng/Kg
Lab Code:	E1801065-027	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.360	0.590	1	1	
1,2,3,7,8-PeCDD	ND	0.134	2.95	1	1	
1,2,3,4,7,8-HxCDD	**0.124**	0.0631	2.95	1	0.1	0.0124
1,2,3,6,7,8-HxCDD	**0.200**	0.0699	2.95	1	0.1	0.0200
1,2,3,7,8,9-HxCDD	**0.300**	0.0650	2.95	1	0.1	0.0300
1,2,3,4,6,7,8-HpCDD	**2.85**	0.0677	2.95	1	0.01	0.0285
OCDD	**163**	0.261	5.90	1	0.0003	0.0489
2,3,7,8-TCDF	ND	0.139	0.590	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0958	2.95	1	0.03	
2,3,4,7,8-PeCDF	**0.128**	0.102	2.95	1	0.3	0.0384
1,2,3,4,7,8-HxCDF	**0.341**	0.0412	2.95	1	0.1	0.0341
1,2,3,6,7,8-HxCDF	**0.0872**	0.0399	2.95	1	0.1	0.00872
1,2,3,7,8,9-HxCDF	ND	0.0486	2.95	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0420	2.95	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.01**	0.0697	2.95	1	0.01	0.0101
1,2,3,4,7,8,9-HpCDF	**0.113**	0.103	2.95	1	0.01	0.00113
OCDF	**9.72**	0.195	5.90	1	0.0003	0.00292
		Total TEQ				0.235

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:15
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0577	**Units:**	Percent
Lab Code:	E1801065-027	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:04
	6.387g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	81.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:25
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0578	**Units:**	ng/Kg
Lab Code:	E1801065-028	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 06:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.276g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519374	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.566	0.604			1
1,2,3,7,8-PeCDD	ND	U	0.129	3.02			1
1,2,3,4,7,8-HxCDD	0.176**BJK**		0.0814	3.02	1.46	1.000	1
1,2,3,6,7,8-HxCDD	0.300**BJK**		0.0925	3.02	1.87	1.000	1
1,2,3,7,8,9-HxCDD	0.372**BJK**		0.0849	3.02	0.98	1.007	1
1,2,3,4,6,7,8-HpCDD	5.33		0.194	3.02	0.97	1.000	1
OCDD	195		0.232	6.04	0.93	1.000	1
2,3,7,8-TCDF	ND	U	0.279	0.604			1
1,2,3,7,8-PeCDF	ND	U	0.115	3.02			1
2,3,4,7,8-PeCDF	ND	U	0.121	3.02			1
1,2,3,4,7,8-HxCDF	ND	U	0.107	3.02			1
1,2,3,6,7,8-HxCDF	ND	U	0.0994	3.02			1
1,2,3,7,8,9-HxCDF	ND	U	0.129	3.02			1
2,3,4,6,7,8-HxCDF	ND	U	0.110	3.02			1
1,2,3,4,6,7,8-HpCDF	0.130**JK**		0.0892	3.02	0.75	1.001	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.115	3.02			1
OCDF	0.976**BJK**		0.404	6.04	0.53	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:25
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0578	**Units:**	ng/Kg
Lab Code:	E1801065-028	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 06:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.276g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519374	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3.31		0.566	0.604	0.67		1
Total Penta-Dioxins	2.27**J**		0.129	3.02	1.69		1
Total Hexa-Dioxins	2.28**J**		0.0863	3.02	1.09		1
Total Hepta-Dioxins	24.7		0.194	3.02	0.93		1
Total Tetra-Furans	ND	U	0.279	0.604			1
Total Penta-Furans	ND	U	0.118	3.02			1
Total Hexa-Furans	ND	U	0.111	3.02			1
Total Hepta-Furans	ND	U	0.102	3.02			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:25
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0578	**Units:**	Percent
Lab Code:	E1801065-028	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 06:18
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.276g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519374	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	777.684	39		25-164	0.81	1.021
13C-1,2,3,7,8-PeCDD	2000	1408.773	70		25-181	1.58	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1202.526	60		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1177.863	59		28-130	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1315.265	66		23-140	1.04	1.070
13C-OCDD	4000	1572.594	39		17-157	0.93	1.152
13C-2,3,7,8-TCDF	2000	1005.067	50		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1330.018	67		24-185	1.59	1.148
13C-2,3,4,7,8-PeCDF	2000	1286.058	64		21-178	1.61	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1006.798	50		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1086.807	54		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1093.198	55		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1071.954	54		28-136	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	924.060	46		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1086.536	54		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	453.414	57		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:25
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0578	**Units:**	ng/Kg
Lab Code:	E1801065-028	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.566	0.604	1	1	
1,2,3,7,8-PeCDD	ND	0.129	3.02	1	1	
1,2,3,4,7,8-HxCDD	**0.176**	0.0814	3.02	1	0.1	0.0176
1,2,3,6,7,8-HxCDD	**0.300**	0.0925	3.02	1	0.1	0.0300
1,2,3,7,8,9-HxCDD	**0.372**	0.0849	3.02	1	0.1	0.0372
1,2,3,4,6,7,8-HpCDD	**5.33**	0.194	3.02	1	0.01	0.0533
OCDD	**195**	0.232	6.04	1	0.0003	0.0585
2,3,7,8-TCDF	ND	0.279	0.604	1	0.1	
1,2,3,7,8-PeCDF	ND	0.115	3.02	1	0.03	
2,3,4,7,8-PeCDF	ND	0.121	3.02	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.107	3.02	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0994	3.02	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.129	3.02	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.110	3.02	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.130**	0.0892	3.02	1	0.01	0.00130
1,2,3,4,7,8,9-HpCDF	ND	0.115	3.02	1	0.01	
OCDF	**0.976**	0.404	6.04	1	0.0003	0.000293
		Total TEQ				0.198

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:25
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0578	**Units:**	Percent
Lab Code:	E1801065-028	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:04
	5.713g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	80.6		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0579	**Units:**	ng/Kg
Lab Code:	E1801065-029	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 07:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.536g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519375	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.503	0.641			1
1,2,3,7,8-PeCDD	0.201**JK**		0.130	3.21	2.05	1.000	1
1,2,3,4,7,8-HxCDD	0.303**BJK**		0.0587	3.21	0.92	1.000	1
1,2,3,6,7,8-HxCDD	0.655**BJ**		0.0633	3.21	1.06	1.000	1
1,2,3,7,8,9-HxCDD	1.08**J**		0.0596	3.21	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	14.5		0.123	3.21	1.04	1.000	1
OCDD	424		0.215	6.41	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.220	0.641			1
1,2,3,7,8-PeCDF	ND	U	0.149	3.21			1
2,3,4,7,8-PeCDF	ND	U	0.165	3.21			1
1,2,3,4,7,8-HxCDF	0.264**J**		0.0661	3.21	1.06	1.000	1
1,2,3,6,7,8-HxCDF	0.0909**JK**		0.0643	3.21	0.78	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0846	3.21			1
2,3,4,6,7,8-HxCDF	0.109**JK**		0.0689	3.21	0.82	1.000	1
1,2,3,4,6,7,8-HpCDF	0.545**JK**		0.0540	3.21	1.37	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0813**JK**		0.0798	3.21	0.55	1.001	1
OCDF	1.27**BJ**		0.333	6.41	0.87	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0579	**Units:**	ng/Kg
Lab Code:	E1801065-029	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 07:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.536g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519375	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.503	0.641			1
Total Penta-Dioxins	ND	U	0.130	3.21			1
Total Hexa-Dioxins	16.4		0.0605	3.21	1.23		1
Total Hepta-Dioxins	49.6		0.123	3.21	1.11		1
Total Tetra-Furans	0.451**J**		0.220	0.641	0.68		1
Total Penta-Furans	ND	U	0.157	3.21			1
Total Hexa-Furans	0.264**J**		0.0705	3.21	1.06		1
Total Hepta-Furans	0.208**J**		0.0656	3.21	1.17		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0579	**Units:**	Percent
Lab Code:	E1801065-029	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 07:06
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.536g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519375	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	882.127	44		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1518.701	76		25-181	1.62	1.192
13C-1,2,3,4,7,8-HxCDD	2000	1277.160	64		32-141	1.34	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1281.793	64		28-130	1.19	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1632.556	82		23-140	1.09	1.070
13C-OCDD	4000	1970.551	49		17-157	0.92	1.152
13C-2,3,7,8-TCDF	2000	1154.821	58		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1476.639	74		24-185	1.62	1.148
13C-2,3,4,7,8-PeCDF	2000	1351.982	68		21-178	1.62	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1099.823	55		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1171.475	59		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1192.922	60		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1157.452	58		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1179.857	59		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1215.697	61		26-138	0.45	1.084
37Cl-2,3,7,8-TCDD	800	524.874	66		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0579	**Units:**	ng/Kg
Lab Code:	E1801065-029	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.503	0.641	1	1	
1,2,3,7,8-PeCDD	**0.201**	0.130	3.21	1	1	0.201
1,2,3,4,7,8-HxCDD	**0.303**	0.0587	3.21	1	0.1	0.0303
1,2,3,6,7,8-HxCDD	**0.655**	0.0633	3.21	1	0.1	0.0655
1,2,3,7,8,9-HxCDD	**1.08**	0.0596	3.21	1	0.1	0.108
1,2,3,4,6,7,8-HpCDD	**14.5**	0.123	3.21	1	0.01	0.145
OCDD	**424**	0.215	6.41	1	0.0003	0.127
2,3,7,8-TCDF	ND	0.220	0.641	1	0.1	
1,2,3,7,8-PeCDF	ND	0.149	3.21	1	0.03	
2,3,4,7,8-PeCDF	ND	0.165	3.21	1	0.3	
1,2,3,4,7,8-HxCDF	**0.264**	0.0661	3.21	1	0.1	0.0264
1,2,3,6,7,8-HxCDF	**0.0909**	0.0643	3.21	1	0.1	0.00909
1,2,3,7,8,9-HxCDF	ND	0.0846	3.21	1	0.1	
2,3,4,6,7,8-HxCDF	**0.109**	0.0689	3.21	1	0.1	0.0109
1,2,3,4,6,7,8-HpCDF	**0.545**	0.0540	3.21	1	0.01	0.00545
1,2,3,4,7,8,9-HpCDF	**0.0813**	0.0798	3.21	1	0.01	0.000813
OCDF	**1.27**	0.333	6.41	1	0.0003	0.000381
		Total TEQ				0.730

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 12:40
Sample Matrix:	Sediment	**Date Received:**	11/19/18 18:20
Sample Name:	SL0579	**Units:**	Percent
Lab Code:	E1801065-029	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/10/18 16:04
	8.776g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	74.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 09:30
Sample Matrix:	Wipe	**Date Received:**	11/19/18 18:20
Sample Name:	FW0052	**Units:**	pg
Lab Code:	E1801065-030	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 18:06
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616049	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	9.60	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.74	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.62	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.84	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.61	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.900	50.0			1
OCDD	13.2**BJK**		3.03	100	0.74	1.000	1
2,3,7,8-TCDF	9.22**J**		5.79	10.0	0.85	1.001	1
1,2,3,7,8-PeCDF	ND	U	1.84	50.0			1
2,3,4,7,8-PeCDF	ND	U	1.93	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	0.950	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	0.950	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.18	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.984	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.718	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.990	50.0			1
OCDF	ND	U	3.00	100			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 09:30
Sample Matrix:	Wipe	**Date Received:**	11/19/18 18:20
Sample Name:	FW0052	**Units:**	pg
Lab Code:	E1801065-030	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 18:06
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616049	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	9.60	10.0			1
Total Penta-Dioxins	ND	U	1.74	50.0			1
Total Hexa-Dioxins	ND	U	1.69	50.0			1
Total Hepta-Dioxins	ND	U	0.900	50.0			1
Total Tetra-Furans	9.22**J**		5.79	10.0	0.85		1
Total Penta-Furans	ND	U	1.88	50.0			1
Total Hexa-Furans	ND	U	1.01	50.0			1
Total Hepta-Furans	ND	U	0.840	50.0			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 09:30
Sample Matrix:	Wipe	**Date Received:**	11/19/18 18:20
Sample Name:	FW0052	**Units:**	Percent
Lab Code:	E1801065-030	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 18:06
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616049	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	813.636	41		25-164	0.75	1.023
13C-1,2,3,7,8-PeCDD	2000	1443.560	72		25-181	1.56	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1651.523	83		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1618.367	81		28-130	1.24	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1940.118	97		23-140	1.06	1.067
13C-OCDD	4000	2218.422	55		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	1013.077	51		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1276.983	64		24-185	1.56	1.151
13C-2,3,4,7,8-PeCDF	2000	1254.534	63		21-178	1.59	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1381.103	69		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1401.220	70		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1367.937	68		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1389.984	69		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1364.146	68		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1301.216	65		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	438.173	55		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/17/18 09:30
Sample Matrix:	Wipe	**Date Received:**	11/19/18 18:20
Sample Name:	FW0052	**Units:**	pg
Lab Code:	E1801065-030	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	9.60	10.0	1	1	4.80
1,2,3,7,8-PeCDD	ND	1.74	50.0	1	1	0.870
1,2,3,4,7,8-HxCDD	ND	1.62	50.0	1	0.1	0.0810
1,2,3,6,7,8-HxCDD	ND	1.84	50.0	1	0.1	0.0920
1,2,3,7,8,9-HxCDD	ND	1.61	50.0	1	0.1	0.0805
1,2,3,4,6,7,8-HpCDD	ND	0.900	50.0	1	0.01	0.00450
OCDD	**13.2**	3.03	100	1	0.0003	0.00396
2,3,7,8-TCDF	**9.22**	5.79	10.0	1	0.1	0.922
1,2,3,7,8-PeCDF	ND	1.84	50.0	1	0.03	0.0276
2,3,4,7,8-PeCDF	ND	1.93	50.0	1	0.3	0.290
1,2,3,4,7,8-HxCDF	ND	0.950	50.0	1	0.1	0.0475
1,2,3,6,7,8-HxCDF	ND	0.950	50.0	1	0.1	0.0475
1,2,3,7,8,9-HxCDF	ND	1.18	50.0	1	0.1	0.0590
2,3,4,6,7,8-HxCDF	ND	0.984	50.0	1	0.1	0.0492
1,2,3,4,6,7,8-HpCDF	ND	0.718	50.0	1	0.01	0.00359
1,2,3,4,7,8,9-HpCDF	ND	0.990	50.0	1	0.01	0.00495
OCDF	ND	3.00	100	1	0.0003	0.000450
		Total TEQ				7.38

2005 WHO TEFs, ND = 0.5*DL

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 10:15
Sample Matrix:	Wipe	**Date Received:**	11/19/18 18:20
Sample Name:	FW0053	**Units:**	pg
Lab Code:	E1801065-031	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 18:55
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616050	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	8.07	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.46	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.21	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.32	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.17	50.0			1
1,2,3,4,6,7,8-HpCDD	2.00**BJK**		0.974	50.0	2.58	1.001	1
OCDD	56.6**BJK**		3.28	100	1.03	1.000	1
2,3,7,8-TCDF	ND	U	3.64	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.97	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.16	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	1.30	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.32	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.56	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.37	50.0			1
1,2,3,4,6,7,8-HpCDF	1.06**J**		0.628	50.0	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.858	50.0			1
OCDF	ND	U	4.35	100			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 10:15
Sample Matrix:	Wipe	**Date Received:**	11/19/18 18:20
Sample Name:	FW0053	**Units:**	pg
Lab Code:	E1801065-031	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 18:55
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616050	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	8.07	10.0			1
Total Penta-Dioxins	ND	U	2.46	50.0			1
Total Hexa-Dioxins	ND	U	1.23	50.0			1
Total Hepta-Dioxins	ND	U	0.974	50.0			1
Total Tetra-Furans	ND	U	3.64	10.0			1
Total Penta-Furans	ND	U	2.06	50.0			1
Total Hexa-Furans	ND	U	1.38	50.0			1
Total Hepta-Furans	1.06**J**		0.732	50.0	1.05		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 10:15
Sample Matrix:	Wipe	**Date Received:**	11/19/18 18:20
Sample Name:	FW0053	**Units:**	Percent
Lab Code:	E1801065-031	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 18:55
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616050	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	835.172	42		25-164	0.77	1.023
13C-1,2,3,7,8-PeCDD	2000	1304.067	65		25-181	1.57	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1460.639	73		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1423.572	71		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1617.670	81		23-140	1.06	1.066
13C-OCDD	4000	1679.956	42		17-157	0.93	1.139
13C-2,3,7,8-TCDF	2000	1062.138	53		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1226.714	61		24-185	1.60	1.151
13C-2,3,4,7,8-PeCDF	2000	1166.419	58		21-178	1.63	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1228.677	61		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1247.065	62		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1216.503	61		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1197.287	60		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1158.831	58		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1123.147	56		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	476.296	60		35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	11/18/18 10:15
Sample Matrix:	Wipe	**Date Received:**	11/19/18 18:20
Sample Name:	FW0053	**Units:**	pg
Lab Code:	E1801065-031	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	8.07	10.0	1	1	4.04
1,2,3,7,8-PeCDD	ND	2.46	50.0	1	1	1.23
1,2,3,4,7,8-HxCDD	ND	1.21	50.0	1	0.1	0.0605
1,2,3,6,7,8-HxCDD	ND	1.32	50.0	1	0.1	0.0660
1,2,3,7,8,9-HxCDD	ND	1.17	50.0	1	0.1	0.0585
1,2,3,4,6,7,8-HpCDD	**2.00**	0.974	50.0	1	0.01	0.0200
OCDD	**56.6**	3.28	100	1	0.0003	0.0170
2,3,7,8-TCDF	ND	3.64	10.0	1	0.1	0.182
1,2,3,7,8-PeCDF	ND	1.97	50.0	1	0.03	0.0296
2,3,4,7,8-PeCDF	ND	2.16	50.0	1	0.3	0.324
1,2,3,4,7,8-HxCDF	ND	1.30	50.0	1	0.1	0.0650
1,2,3,6,7,8-HxCDF	ND	1.32	50.0	1	0.1	0.0660
1,2,3,7,8,9-HxCDF	ND	1.56	50.0	1	0.1	0.0780
2,3,4,6,7,8-HxCDF	ND	1.37	50.0	1	0.1	0.0685
1,2,3,4,6,7,8-HpCDF	**1.06**	0.628	50.0	1	0.01	0.0106
1,2,3,4,7,8,9-HpCDF	ND	0.858	50.0	1	0.01	0.00429
OCDF	ND	4.35	100	1	0.0003	0.000653
		Total TEQ				6.32

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.256	0.485			1
1,2,3,7,8-PeCDD	ND	U	0.0576	2.43			1
1,2,3,4,7,8-HxCDD	ND	U	0.0383	2.43			1
1,2,3,6,7,8-HxCDD	ND	U	0.0422	2.43			1
1,2,3,7,8,9-HxCDD	ND	U	0.0374	2.43			1
1,2,3,4,6,7,8-HpCDD	0.0694**J**		0.0223	2.43	0.88	1.000	1
OCDD	0.760**JK**		0.0845	4.85	0.71	1.000	1
2,3,7,8-TCDF	0.186**J**		0.103	0.485	0.67	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0642	2.43			1
2,3,4,7,8-PeCDF	ND	U	0.0734	2.43			1
1,2,3,4,7,8-HxCDF	0.0280**J**		0.0222	2.43	1.18	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0223	2.43			1
1,2,3,7,8,9-HxCDF	ND	U	0.0285	2.43			1
2,3,4,6,7,8-HxCDF	ND	U	0.0245	2.43			1
1,2,3,4,6,7,8-HpCDF	0.0449**JK**		0.0177	2.43	1.30	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0240	2.43			1
OCDF	ND	U	0.135	4.85			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.256	0.485			1
Total Penta-Dioxins	ND	U	0.0576	2.43			1
Total Hexa-Dioxins	ND	U	0.0393	2.43			1
Total Hepta-Dioxins	ND	U	0.0223	2.43			1
Total Tetra-Furans	0.186**J**		0.103	0.485	0.67		1
Total Penta-Furans	ND	U	0.0685	2.43			1
Total Hexa-Furans	0.0280**J**		0.0242	2.43	1.18		1
Total Hepta-Furans	ND	U	0.0206	2.43			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800494-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 13:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.300g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615971	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	664.870	33		25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	998.062	50		25-181	1.57	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1109.592	55		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1073.693	54		28-130	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1253.124	63		23-140	1.05	1.066
13C-OCDD	4000	1409.965	35		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	881.985	44		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	984.157	49		24-185	1.58	1.149
13C-2,3,4,7,8-PeCDF	2000	892.732	45		21-178	1.57	1.183
13C-1,2,3,4,7,8-HxCDF	2000	982.621	49		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	989.792	49		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	936.430	47		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	931.386	47		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	885.084	44		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	870.209	44		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	358.073	45		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800498-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.340g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519371	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.183	0.484			1
1,2,3,7,8-PeCDD	0.0485**J**		0.0386	2.42	1.50	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.0166	2.42			1
1,2,3,6,7,8-HxCDD	ND	U	0.0179	2.42			1
1,2,3,7,8,9-HxCDD	ND	U	0.0169	2.42			1
1,2,3,4,6,7,8-HpCDD	0.0476**J**		0.0177	2.42	1.02	1.001	1
OCDD	0.190**J**		0.0784	4.84	0.99	1.000	1
2,3,7,8-TCDF	ND	U	0.0567	0.484			1
1,2,3,7,8-PeCDF	ND	U	0.0353	2.42			1
2,3,4,7,8-PeCDF	ND	U	0.0352	2.42			1
1,2,3,4,7,8-HxCDF	ND	U	0.0175	2.42			1
1,2,3,6,7,8-HxCDF	ND	U	0.0168	2.42			1
1,2,3,7,8,9-HxCDF	ND	U	0.0204	2.42			1
2,3,4,6,7,8-HxCDF	ND	U	0.0181	2.42			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0171	2.42			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0231	2.42			1
OCDF	ND	U	0.0558	4.84			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800498-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.340g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519371	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.183	0.484			1
Total Penta-Dioxins	0.0485**J**		0.0386	2.42	1.50		1
Total Hexa-Dioxins	ND	U	0.0171	2.42			1
Total Hepta-Dioxins	0.0476**J**		0.0177	2.42	1.02		1
Total Tetra-Furans	ND	U	0.0567	0.484			1
Total Penta-Furans	ND	U	0.0353	2.42			1
Total Hexa-Furans	ND	U	0.0181	2.42			1
Total Hepta-Furans	ND	U	0.0199	2.42			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800498-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.340g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519371	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	849.177	42		25-164	0.77	1.021
13C-1,2,3,7,8-PeCDD	2000	2091.475	105		25-181	1.63	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1886.530	94		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1803.185	90		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	2441.416	122		23-140	1.06	1.070
13C-OCDD	4000	3321.340	83		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	1090.599	55		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1861.216	93		24-185	1.60	1.147
13C-2,3,4,7,8-PeCDF	2000	1899.788	95		21-178	1.61	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1588.705	79		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1706.146	85		26-123	0.50	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1901.330	95		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1674.858	84		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1782.298	89		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1969.640	98		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	272.958	34	**Y**	35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	18.3	18.3			1
1,2,3,7,8-PeCDD	ND	U	4.42	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.85	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	3.23	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	2.83	50.0			1
1,2,3,4,6,7,8-HpCDD	1.84**JK**		1.70	50.0	1.21	1.000	1
OCDD	20.3**JK**		4.20	100	0.62	1.000	1
2,3,7,8-TCDF	ND	U	9.75	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.98	50.0			1
2,3,4,7,8-PeCDF	ND	U	3.24	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.35	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	2.41	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	3.25	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.98	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.57	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	2.16	50.0			1
OCDF	ND	U	11.9	100			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	18.3	18.3			1
Total Penta-Dioxins	ND	U	4.42	50.0			1
Total Hexa-Dioxins	5.86**J**		2.97	50.0	1.24		1
Total Hepta-Dioxins	ND	U	1.70	50.0			1
Total Tetra-Furans	ND	U	9.75	10.0			1
Total Penta-Furans	ND	U	3.11	50.0			1
Total Hexa-Furans	ND	U	2.71	50.0			1
Total Hepta-Furans	ND	U	1.84	50.0			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800499-01	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 12:27
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616043	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	621.382	31		25-164	0.75	1.023
13C-1,2,3,7,8-PeCDD	2000	1043.953	52		25-181	1.51	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1043.326	52		32-141	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1011.483	51		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1098.367	55		23-140	1.02	1.067
13C-OCDD	4000	1090.398	27		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	770.763	39		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	940.344	47		24-185	1.58	1.151
13C-2,3,4,7,8-PeCDF	2000	893.556	45		21-178	1.58	1.185
13C-1,2,3,4,7,8-HxCDF	2000	899.042	45		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	906.808	45		26-123	0.55	0.974
13C-1,2,3,7,8,9-HxCDF	2000	823.883	41		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	755.788	38		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	812.929	41		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	783.678	39		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	342.030	43		35-197	NA	1.024

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800500-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.239g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519370	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.391	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.0638	2.44			1
1,2,3,4,7,8-HxCDD	0.0732**J**		0.0407	2.44	1.05	1.000	1
1,2,3,6,7,8-HxCDD	0.0685**J**		0.0461	2.44	1.12	1.000	1
1,2,3,7,8,9-HxCDD	0.0485**J**		0.0423	2.44	1.27	1.006	1
1,2,3,4,6,7,8-HpCDD	0.129**J**		0.0503	2.44	0.90	1.001	1
OCDD	1.28**JK**		0.167	4.88	1.10	1.001	1
2,3,7,8-TCDF	ND	U	0.124	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.0458	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0463	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0341	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0325	2.44			1
1,2,3,7,8,9-HxCDF	0.0611**JK**		0.0387	2.44	2.13	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0353	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0432	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0579	2.44			1
OCDF	0.296**JK**		0.162	4.88	0.74	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800500-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.239g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519370	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.391	0.488			1
Total Penta-Dioxins	ND	U	0.0638	2.44			1
Total Hexa-Dioxins	0.117**J**		0.0430	2.44	1.12		1
Total Hepta-Dioxins	0.337**J**		0.0503	2.44	1.05		1
Total Tetra-Furans	ND	U	0.124	0.488			1
Total Penta-Furans	ND	U	0.0461	2.44			1
Total Hexa-Furans	ND	U	0.0351	2.44			1
Total Hepta-Furans	ND	U	0.0502	2.44			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800500-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 03:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.239g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519370	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	636.075	32		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1215.269	61		25-181	1.63	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1050.485	53		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1005.283	50		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1206.514	60		23-140	1.09	1.070
13C-OCDD	4000	1403.034	35		17-157	0.90	1.151
13C-2,3,7,8-TCDF	2000	842.604	42		24-169	0.77	0.991
13C-1,2,3,7,8-PeCDF	2000	1157.814	58		24-185	1.61	1.147
13C-2,3,4,7,8-PeCDF	2000	1141.282	57		21-178	1.60	1.180
13C-1,2,3,4,7,8-HxCDF	2000	880.338	44		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	928.181	46		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1095.086	55		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	945.892	47		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	875.258	44		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1015.590	51		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	361.582	45		35-197	NA	1.021

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	12/07/18
Sample Matrix:	Sediment	**Date Extracted:**	12/03/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618435

	Lab Control Sample EQ1800494-02			Duplicate Lab Control Sample EQ1800494-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	68.7	98.6	70	70.7	98.9	71	70-140	3	50
1,2,3,4,7,8-HxCDD	87.1	98.6	88	88.4	98.9	89	70-164	1	50
1,2,3,6,7,8-HxCDD	97.3	98.6	99	98.5	98.9	100	76-134	1	50
1,2,3,7,8,9-HxCDD	91.1	98.6	92	93.9	98.9	95	64-162	3	50
1,2,3,7,8-PeCDD	99.3	98.6	101	97.4	98.9	98	70-142	2	50
2,3,7,8-TCDD	27.8	19.7	141	29.2	19.8	148	67-158	5	50
OCDD	195	197	99	189	198	96	78-144	3	50
1,2,3,4,6,7,8-HpCDF	90.2	98.6	91	89.5	98.9	90	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	88.9	98.6	90	89.2	98.9	90	78-138	<1	50
1,2,3,4,7,8-HxCDF	87.4	98.6	89	84.8	98.9	86	72-134	3	50
1,2,3,6,7,8-HxCDF	89.1	98.6	90	89.5	98.9	90	84-130	<1	50
1,2,3,7,8,9-HxCDF	88.0	98.6	89	88.0	98.9	89	78-130	<1	50
1,2,3,7,8-PeCDF	82.8	98.6	84	81.5	98.9	82	80-134	2	50
2,3,4,6,7,8-HxCDF	90.7	98.6	92	90.3	98.9	91	70-156	<1	50
2,3,4,7,8-PeCDF	89.6	98.6	91	88.7	98.9	90	68-160	1	50
2,3,7,8-TCDF	17.9	19.7	91	19.5	19.8	98	75-158	8	50
OCDF	182	197	92	189	198	96	63-170	4	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	27.8		0.828	0.828	0.76	1.001	1
1,2,3,7,8-PeCDD	99.3		0.0934	2.46	1.53	1.001	1
1,2,3,4,7,8-HxCDD	87.1		0.0848	2.46	1.23	1.000	1
1,2,3,6,7,8-HxCDD	97.3		0.0967	2.46	1.28	1.000	1
1,2,3,7,8,9-HxCDD	91.1		0.0843	2.46	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	68.7		0.0573	2.46	1.03	1.000	1
OCDD	195		0.0904	4.93	0.91	1.000	1
2,3,7,8-TCDF	17.9		0.425	0.493	0.78	1.001	1
1,2,3,7,8-PeCDF	82.8		0.124	2.46	1.56	1.000	1
2,3,4,7,8-PeCDF	89.6		0.136	2.46	1.54	1.001	1
1,2,3,4,7,8-HxCDF	87.4		0.0692	2.46	1.26	1.000	1
1,2,3,6,7,8-HxCDF	89.1		0.0688	2.46	1.25	1.000	1
1,2,3,7,8,9-HxCDF	88.0		0.0795	2.46	1.27	1.000	1
2,3,4,6,7,8-HxCDF	90.7		0.0738	2.46	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	90.2		0.150	2.46	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	88.9		0.200	2.46	1.04	1.000	1
OCDF	182		0.181	4.93	0.89	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	27.8		0.828	0.828	0.76		1
Total Penta-Dioxins	99.3		0.0934	2.46	1.53		1
Total Hexa-Dioxins	276		0.0884	2.46	1.23		1
Total Hepta-Dioxins	69.1		0.0573	2.46	1.00		1
Total Tetra-Furans	18.3		0.425	0.493	0.76		1
Total Penta-Furans	175		0.129	2.46	1.47		1
Total Hexa-Furans	356		0.0726	2.46	1.26		1
Total Hepta-Furans	179		0.172	2.46	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800494-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 20:30
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.142g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615980	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	394.500	20	**Y**	25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	917.495	46		25-181	1.57	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1188.788	59		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1115.480	56		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1370.222	69		23-140	1.05	1.066
13C-OCDD	4000	1609.789	40		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	476.338	24		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	813.478	41		24-185	1.57	1.149
13C-2,3,4,7,8-PeCDF	2000	777.175	39		21-178	1.58	1.183
13C-1,2,3,4,7,8-HxCDF	2000	960.114	48		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	968.174	48		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	996.811	50		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	949.338	47		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	948.543	47		28-143	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	920.814	46		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	234.117	29	**Y**	35-197	NA	1.023

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	29.2		0.456	0.495	0.84	1.001	1
1,2,3,7,8-PeCDD	97.4		0.0786	2.47	1.59	1.001	1
1,2,3,4,7,8-HxCDD	88.4		0.0517	2.47	1.20	1.000	1
1,2,3,6,7,8-HxCDD	98.5		0.0589	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	93.9		0.0514	2.47	1.26	1.006	1
1,2,3,4,6,7,8-HpCDD	70.7		0.0367	2.47	1.06	1.000	1
OCDD	189		0.108	4.95	0.89	1.000	1
2,3,7,8-TCDF	19.5		0.231	0.495	0.75	1.001	1
1,2,3,7,8-PeCDF	81.5		0.0908	2.47	1.55	1.000	1
2,3,4,7,8-PeCDF	88.7		0.0969	2.47	1.51	1.001	1
1,2,3,4,7,8-HxCDF	84.8		0.0565	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDF	89.5		0.0570	2.47	1.26	1.000	1
1,2,3,7,8,9-HxCDF	88.0		0.0681	2.47	1.24	1.000	1
2,3,4,6,7,8-HxCDF	90.3		0.0611	2.47	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	89.5		0.141	2.47	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	89.2		0.201	2.47	1.03	1.000	1
OCDF	189		0.184	4.95	0.89	1.006	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	29.2		0.456	0.495	0.84		1
Total Penta-Dioxins	98.0		0.0786	2.47	1.59		1
Total Hexa-Dioxins	281		0.0539	2.47	1.20		1
Total Hepta-Dioxins	70.7		0.0367	2.47	1.06		1
Total Tetra-Furans	20.7		0.231	0.495	0.76		1
Total Penta-Furans	171		0.0937	2.47	1.62		1
Total Hexa-Furans	353		0.0605	2.47	1.28		1
Total Hepta-Furans	179		0.168	2.47	1.03		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800494-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/07/18 21:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/3/18
Sample Amount:	10.111g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P615981	**Blank File Name:**	P615971
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P615967

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	508.753	25		25-164	0.80	1.022
13C-1,2,3,7,8-PeCDD	2000	981.801	49		25-181	1.56	1.193
13C-1,2,3,4,7,8-HxCDD	2000	1147.936	57		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1110.349	56		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1286.687	64		23-140	1.05	1.066
13C-OCDD	4000	1397.362	35		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	582.151	29		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	860.239	43		24-185	1.61	1.149
13C-2,3,4,7,8-PeCDF	2000	809.386	40		21-178	1.58	1.183
13C-1,2,3,4,7,8-HxCDF	2000	993.807	50		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	976.142	49		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	974.655	49		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	948.957	47		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	911.119	46		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	877.518	44		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	289.847	36		35-197	NA	1.023

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	12/10/18
Sample Matrix:	Sediment	**Date Extracted:**	12/04/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618423

	Lab Control Sample EQ1800498-02			Duplicate Lab Control Sample EQ1800498-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	71.9	96.3	75	74.0	98.8	75	70-140	3	50
1,2,3,4,7,8-HxCDD	90.7	96.3	94	94.6	98.8	96	70-164	4	50
1,2,3,6,7,8-HxCDD	96.1	96.3	100	97.2	98.8	98	76-134	1	50
1,2,3,7,8,9-HxCDD	100	96.3	104	94.1	98.8	95	64-162	6	50
1,2,3,7,8-PeCDD	96.7	96.3	100	99.2	98.8	100	70-142	3	50
2,3,7,8-TCDD	27.3	19.3	142	30.2	19.8	153	67-158	10	50
OCDD	197	193	102	206	198	104	78-144	4	50
1,2,3,4,6,7,8-HpCDF	92.4	96.3	96	96.6	98.8	98	82-122	4	50
1,2,3,4,7,8,9-HpCDF	95.1	96.3	99	97.5	98.8	99	78-138	2	50
1,2,3,4,7,8-HxCDF	97.5	96.3	101	98.5	98.8	100	72-134	1	50
1,2,3,6,7,8-HxCDF	96.6	96.3	100	95.8	98.8	97	84-130	<1	50
1,2,3,7,8,9-HxCDF	94.5	96.3	98	96.9	98.8	98	78-130	3	50
1,2,3,7,8-PeCDF	90.1	96.3	94	92.5	98.8	94	80-134	3	50
2,3,4,6,7,8-HxCDF	98.6	96.3	102	101	98.8	102	70-156	2	50
2,3,4,7,8-PeCDF	98.6	96.3	102	102	98.8	103	68-160	3	50
2,3,7,8-TCDF	18.1	19.3	94	19.1	19.8	96	75-158	5	50
OCDF	209	193	108	246	198	124	63-170	16	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800498-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 19:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.382g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519332	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	27.3		0.213	0.482	0.74	1.001	1
1,2,3,7,8-PeCDD	96.7		0.0498	2.41	1.56	1.000	1
1,2,3,4,7,8-HxCDD	90.7		0.0184	2.41	1.29	1.000	1
1,2,3,6,7,8-HxCDD	96.1		0.0200	2.41	1.27	1.000	1
1,2,3,7,8,9-HxCDD	100		0.0187	2.41	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	71.9		0.0373	2.41	1.08	1.000	1
OCDD	197		0.0950	4.82	0.87	1.001	1
2,3,7,8-TCDF	18.1		0.0382	0.482	0.79	1.001	1
1,2,3,7,8-PeCDF	90.1		0.0624	2.41	1.56	1.001	1
2,3,4,7,8-PeCDF	98.6		0.0633	2.41	1.51	1.001	1
1,2,3,4,7,8-HxCDF	97.5		0.0288	2.41	1.21	1.000	1
1,2,3,6,7,8-HxCDF	96.6		0.0274	2.41	1.24	1.000	1
1,2,3,7,8,9-HxCDF	94.5		0.0355	2.41	1.19	1.000	1
2,3,4,6,7,8-HxCDF	98.6		0.0316	2.41	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	92.4		0.131	2.41	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	95.1		0.176	2.41	1.04	1.000	1
OCDF	209		0.135	4.82	0.87	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800498-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 19:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.382g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519332	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	27.3		0.213	0.482	0.74		1
Total Penta-Dioxins	96.7		0.0498	2.41	1.56		1
Total Hexa-Dioxins	287		0.0191	2.41	1.29		1
Total Hepta-Dioxins	71.9		0.0373	2.41	1.08		1
Total Tetra-Furans	18.6		0.0382	0.482	0.88		1
Total Penta-Furans	189		0.0629	2.41	1.56		1
Total Hexa-Furans	387		0.0307	2.41	1.21		1
Total Hepta-Furans	188		0.152	2.41	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800498-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 19:19
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.382g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519332	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	842.646	42		25-164	0.81	1.021
13C-1,2,3,7,8-PeCDD	2000	1612.754	81		25-181	1.60	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1280.936	64		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1303.712	65		28-130	1.32	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1543.839	77		23-140	1.08	1.070
13C-OCDD	4000	2138.222	53		17-157	0.87	1.149
13C-2,3,7,8-TCDF	2000	1178.695	59		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1488.847	74		24-185	1.60	1.146
13C-2,3,4,7,8-PeCDF	2000	1442.430	72		21-178	1.59	1.180
13C-1,2,3,4,7,8-HxCDF	2000	1157.385	58		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1258.309	63		26-123	0.53	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1320.767	66		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1168.887	58		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1160.969	58		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1255.582	63		26-138	0.43	1.083
37Cl-2,3,7,8-TCDD	800	485.203	61		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800498-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 20:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.120g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519333	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	30.2		0.427	0.494	0.78	1.001	1
1,2,3,7,8-PeCDD	99.2		0.0595	2.47	1.57	1.000	1
1,2,3,4,7,8-HxCDD	94.6		0.0511	2.47	1.28	1.000	1
1,2,3,6,7,8-HxCDD	97.2		0.0547	2.47	1.25	1.000	1
1,2,3,7,8,9-HxCDD	94.1		0.0517	2.47	1.21	1.007	1
1,2,3,4,6,7,8-HpCDD	74.0		0.0651	2.47	1.14	1.000	1
OCDD	206		0.196	4.94	0.87	1.000	1
2,3,7,8-TCDF	19.1		0.120	0.494	0.77	1.001	1
1,2,3,7,8-PeCDF	92.5		0.0896	2.47	1.52	1.000	1
2,3,4,7,8-PeCDF	102		0.0897	2.47	1.54	1.001	1
1,2,3,4,7,8-HxCDF	98.5		0.0531	2.47	1.24	1.000	1
1,2,3,6,7,8-HxCDF	95.8		0.0510	2.47	1.21	1.000	1
1,2,3,7,8,9-HxCDF	96.9		0.0700	2.47	1.22	1.000	1
2,3,4,6,7,8-HxCDF	101		0.0603	2.47	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	96.6		0.366	2.47	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	97.5		0.508	2.47	1.03	1.000	1
OCDF	246		0.339	4.94	0.86	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800498-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 20:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.120g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519333	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	30.2		0.427	0.494	0.78		1
Total Penta-Dioxins	99.2		0.0595	2.47	1.57		1
Total Hexa-Dioxins	286		0.0525	2.47	1.28		1
Total Hepta-Dioxins	74.0		0.0651	2.47	1.14		1
Total Tetra-Furans	19.1		0.120	0.494	0.77		1
Total Penta-Furans	194		0.0896	2.47	1.34		1
Total Hexa-Furans	392		0.0580	2.47	1.24		1
Total Hepta-Furans	197		0.430	2.47	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800498-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/10/18 20:07
Prep Method:	Method Soxhlet	**Date Extracted:**	12/4/18
Sample Amount:	10.120g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519333	**Blank File Name:**	P519371
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519319

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	695.328	35		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1227.118	61		25-181	1.64	1.191
13C-1,2,3,4,7,8-HxCDD	2000	883.589	44		32-141	1.37	0.991
13C-1,2,3,6,7,8-HxCDD	2000	903.125	45		28-130	1.21	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	868.683	43		23-140	1.08	1.070
13C-OCDD	4000	910.928	23		17-157	0.91	1.150
13C-2,3,7,8-TCDF	2000	1007.815	50		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	1129.669	56		24-185	1.59	1.148
13C-2,3,4,7,8-PeCDF	2000	1140.692	57		21-178	1.60	1.181
13C-1,2,3,4,7,8-HxCDF	2000	813.440	41		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	860.344	43		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	828.108	41		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	775.514	39		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	676.416	34		28-143	0.43	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	724.340	36		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	410.403	51		35-197	NA	1.021

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	12/11/18
Sample Matrix:	Wipe	**Date Extracted:**	12/05/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg
Prep Method:	Method	**Basis:**	As Received
		Analysis Lot:	618605

	Lab Control Sample EQ1800499-02			Duplicate Lab Control Sample EQ1800499-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	1370	2000	69 *	1420	2000	71	70-140	3	50
1,2,3,4,7,8-HxCDD	1760	2000	88	1800	2000	90	70-164	2	50
1,2,3,6,7,8-HxCDD	1950	2000	97	1960	2000	98	76-134	<1	50
1,2,3,7,8,9-HxCDD	1820	2000	91	1850	2000	92	64-162	2	50
1,2,3,7,8-PeCDD	1950	2000	98	2020	2000	101	70-142	3	50
2,3,7,8-TCDD	541	400	135	555	400	139	67-158	3	50
OCDD	3930	4000	98	3920	4000	98	78-144	<1	50
1,2,3,4,6,7,8-HpCDF	1820	2000	91	1810	2000	90	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	1800	2000	90	1800	2000	90	78-138	<1	50
1,2,3,4,7,8-HxCDF	1760	2000	88	1740	2000	87	72-134	1	50
1,2,3,6,7,8-HxCDF	1820	2000	91	1830	2000	91	84-130	<1	50
1,2,3,7,8,9-HxCDF	1740	2000	87	1790	2000	89	78-130	3	50
1,2,3,7,8-PeCDF	1620	2000	81	1620	2000	81	80-134	<1	50
2,3,4,6,7,8-HxCDF	1850	2000	92	1820	2000	91	70-156	2	50
2,3,4,7,8-PeCDF	1740	2000	87	1780	2000	89	68-160	2	50
2,3,7,8-TCDF	354	400	89	331	400	83	75-158	7	50
OCDF	3760	4000	94	3700	4000	93	63-170	2	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	541		5.92	10.0	0.79	1.001	1
1,2,3,7,8-PeCDD	1950		1.02	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDD	1760		1.34	50.0	1.23	1.000	1
1,2,3,6,7,8-HxCDD	1950		1.50	50.0	1.24	1.000	1
1,2,3,7,8,9-HxCDD	1820		1.32	50.0	1.27	1.006	1
1,2,3,4,6,7,8-HpCDD	1370		0.634	50.0	1.07	1.001	1
OCDD	3930		2.06	100	0.90	1.000	1
2,3,7,8-TCDF	354		3.26	10.0	0.74	1.001	1
1,2,3,7,8-PeCDF	1620		1.88	50.0	1.53	1.000	1
2,3,4,7,8-PeCDF	1740		1.97	50.0	1.52	1.001	1
1,2,3,4,7,8-HxCDF	1760		0.670	50.0	1.28	1.000	1
1,2,3,6,7,8-HxCDF	1820		0.676	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1740		0.826	50.0	1.25	1.000	1
2,3,4,6,7,8-HxCDF	1850		0.716	50.0	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	1820		2.45	50.0	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	1800		3.30	50.0	0.99	1.000	1
OCDF	3760		3.02	100	0.90	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	541		5.92	10.0	0.79		1
Total Penta-Dioxins	1950		1.02	50.0	1.53		1
Total Hexa-Dioxins	5530		1.38	50.0	1.23		1
Total Hepta-Dioxins	1370		0.634	50.0	1.07		1
Total Tetra-Furans	361		3.26	10.0	0.67		1
Total Penta-Furans	3360		1.92	50.0	1.53		1
Total Hexa-Furans	7170		0.718	50.0	1.28		1
Total Hepta-Furans	3620		2.84	50.0	1.02		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800499-02	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 19:45
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616051	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1379.145	69		25-164	0.79	1.024
13C-1,2,3,7,8-PeCDD	2000	2077.843	104		25-181	1.56	1.197
13C-1,2,3,4,7,8-HxCDD	2000	1687.372	84		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1598.825	80		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1794.902	90		23-140	1.06	1.066
13C-OCDD	4000	1922.794	48		17-157	0.91	1.139
13C-2,3,7,8-TCDF	2000	1777.501	89		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1906.634	95		24-185	1.56	1.153
13C-2,3,4,7,8-PeCDF	2000	1828.814	91		21-178	1.59	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1448.419	72		26-152	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1405.252	70		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1383.466	69		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1365.154	68		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1272.217	64		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1265.684	63		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	733.439	92		35-197	NA	1.025

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	555		8.33	10.0	0.74	1.001	1
1,2,3,7,8-PeCDD	2020		2.29	50.0	1.59	1.001	1
1,2,3,4,7,8-HxCDD	1800		0.988	50.0	1.24	1.000	1
1,2,3,6,7,8-HxCDD	1960		1.10	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1850		0.970	50.0	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	1420		0.708	50.0	1.04	1.000	1
OCDD	3920		1.48	100	0.90	1.000	1
2,3,7,8-TCDF	331		3.77	10.0	0.83	1.001	1
1,2,3,7,8-PeCDF	1620		2.51	50.0	1.56	1.001	1
2,3,4,7,8-PeCDF	1780		2.87	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDF	1740		0.800	50.0	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1830		0.812	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1790		1.05	50.0	1.27	1.000	1
2,3,4,6,7,8-HxCDF	1820		0.934	50.0	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	1810		1.77	50.0	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	1800		2.44	50.0	1.02	1.000	1
OCDF	3700		3.04	100	0.93	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	555		8.33	10.0	0.74		1
Total Penta-Dioxins	2020		2.29	50.0	1.59		1
Total Hexa-Dioxins	5620		1.02	50.0	1.24		1
Total Hepta-Dioxins	1420		0.708	50.0	1.04		1
Total Tetra-Furans	335		3.77	10.0	0.78		1
Total Penta-Furans	3400		2.68	50.0	1.56		1
Total Hexa-Furans	7170		0.890	50.0	1.26		1
Total Hepta-Furans	3610		2.07	50.0	1.00		1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Wipe	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800499-03	**Basis:**	As Received

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/11/18 20:34
Prep Method:	Method	**Date Extracted:**	12/5/18
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616052	**Blank File Name:**	P616043
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616040

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	842.482	42		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1347.262	67		25-181	1.54	1.195
13C-1,2,3,4,7,8-HxCDD	2000	1494.024	75		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1502.512	75		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1706.315	85		23-140	1.06	1.067
13C-OCDD	4000	1960.430	49		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1088.712	54		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1264.486	63		24-185	1.57	1.151
13C-2,3,4,7,8-PeCDF	2000	1175.771	59		21-178	1.64	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1311.605	66		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1331.396	67		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1250.468	63		29-147	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1250.711	63		28-136	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1219.583	61		28-143	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1191.130	60		26-138	0.45	1.080
37Cl-2,3,7,8-TCDD	800	471.492	59		35-197	NA	1.023

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Analyzed:**	12/12/18
Sample Matrix:	Sediment	**Date Extracted:**	12/05/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	618660

	Lab Control Sample EQ1800500-02			Duplicate Lab Control Sample EQ1800500-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	75.0	98.6	76	73.8	98.4	75	70-140	2	50
1,2,3,4,7,8-HxCDD	93.3	98.6	95	91.4	98.4	93	70-164	2	50
1,2,3,6,7,8-HxCDD	102	98.6	104	100	98.4	102	76-134	2	50
1,2,3,7,8,9-HxCDD	99.8	98.6	101	96.3	98.4	98	64-162	4	50
1,2,3,7,8-PeCDD	102	98.6	104	98.8	98.4	101	70-142	3	50
2,3,7,8-TCDD	28.7	19.7	145	28.6	19.7	145	67-158	<1	50
OCDD	203	197	103	194	197	98	78-144	5	50
1,2,3,4,6,7,8-HpCDF	95.8	98.6	97	93.7	98.4	95	82-122	2	50
1,2,3,4,7,8,9-HpCDF	102	98.6	104	101	98.4	102	78-138	2	50
1,2,3,4,7,8-HxCDF	97.3	98.6	99	100	98.4	102	72-134	3	50
1,2,3,6,7,8-HxCDF	98.0	98.6	99	97.0	98.4	99	84-130	1	50
1,2,3,7,8,9-HxCDF	94.7	98.6	96	95.0	98.4	97	78-130	<1	50
1,2,3,7,8-PeCDF	92.4	98.6	94	91.2	98.4	93	80-134	1	50
2,3,4,6,7,8-HxCDF	98.9	98.6	100	99.2	98.4	101	70-156	<1	50
2,3,4,7,8-PeCDF	100	98.6	102	98.6	98.4	100	68-160	2	50
2,3,7,8-TCDF	20.0	19.7	101	19.1	19.7	97	75-158	4	50
OCDF	212	197	108	217	197	110	63-170	2	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800500-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.141g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519379	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	28.7		0.680	0.680	0.70	1.001	1
1,2,3,7,8-PeCDD	102		0.262	2.47	1.55	1.000	1
1,2,3,4,7,8-HxCDD	93.3		0.0716	2.47	1.27	1.000	1
1,2,3,6,7,8-HxCDD	102		0.0795	2.47	1.27	1.000	1
1,2,3,7,8,9-HxCDD	99.8		0.0738	2.47	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	75.0		0.121	2.47	1.04	1.000	1
OCDD	203		0.214	4.93	0.92	1.000	1
2,3,7,8-TCDF	20.0		0.269	0.493	0.79	1.001	1
1,2,3,7,8-PeCDF	92.4		0.262	2.47	1.46	1.001	1
2,3,4,7,8-PeCDF	100		0.270	2.47	1.49	1.001	1
1,2,3,4,7,8-HxCDF	97.3		0.0950	2.47	1.22	1.000	1
1,2,3,6,7,8-HxCDF	98.0		0.0904	2.47	1.20	1.000	1
1,2,3,7,8,9-HxCDF	94.7		0.125	2.47	1.20	1.000	1
2,3,4,6,7,8-HxCDF	98.9		0.103	2.47	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	95.8		0.258	2.47	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	102		0.377	2.47	0.98	1.000	1
OCDF	212		0.315	4.93	0.86	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800500-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.141g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519379	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	28.7		0.680	0.680	0.70		1
Total Penta-Dioxins	102		0.262	2.47	1.55		1
Total Hexa-Dioxins	295		0.0750	2.47	1.27		1
Total Hepta-Dioxins	75.0		0.121	2.47	1.04		1
Total Tetra-Furans	20.1		0.269	0.493	0.81		1
Total Penta-Furans	193		0.266	2.47	1.46		1
Total Hexa-Furans	389		0.103	2.47	1.22		1
Total Hepta-Furans	198		0.311	2.47	1.01		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800500-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.141g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519379	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	758.902	38		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1294.739	65		25-181	1.59	1.192
13C-1,2,3,4,7,8-HxCDD	2000	1193.137	60		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1185.238	59		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1494.162	75		23-140	1.09	1.070
13C-OCDD	4000	2089.219	52		17-157	0.92	1.152
13C-2,3,7,8-TCDF	2000	970.918	49		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1222.062	61		24-185	1.59	1.148
13C-2,3,4,7,8-PeCDF	2000	1180.340	59		21-178	1.62	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1057.919	53		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1117.311	56		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1114.200	56		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1125.104	56		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1124.324	56		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1151.227	58		26-138	0.44	1.084
37Cl-2,3,7,8-TCDD	800	431.018	54		35-197	NA	1.022

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800500-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 11:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.167g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519380	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	28.6		0.379	0.492	0.85	1.001	1
1,2,3,7,8-PeCDD	98.8		0.0601	2.46	1.65	1.000	1
1,2,3,4,7,8-HxCDD	91.4		0.0514	2.46	1.26	1.000	1
1,2,3,6,7,8-HxCDD	100		0.0561	2.46	1.26	1.000	1
1,2,3,7,8,9-HxCDD	96.3		0.0526	2.46	1.31	1.007	1
1,2,3,4,6,7,8-HpCDD	73.8		0.0951	2.46	1.02	1.000	1
OCDD	194		0.232	4.92	0.91	1.000	1
2,3,7,8-TCDF	19.1		0.153	0.492	0.75	1.001	1
1,2,3,7,8-PeCDF	91.2		0.0862	2.46	1.49	1.000	1
2,3,4,7,8-PeCDF	98.6		0.0904	2.46	1.54	1.001	1
1,2,3,4,7,8-HxCDF	100		0.0661	2.46	1.23	1.000	1
1,2,3,6,7,8-HxCDF	97.0		0.0636	2.46	1.23	1.000	1
1,2,3,7,8,9-HxCDF	95.0		0.0819	2.46	1.21	1.000	1
2,3,4,6,7,8-HxCDF	99.2		0.0672	2.46	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	93.7		0.357	2.46	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	101		0.476	2.46	1.03	1.000	1
OCDF	217		0.316	4.92	0.89	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800500-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 11:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.167g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519380	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	28.6		0.379	0.492	0.85		1
Total Penta-Dioxins	99.0		0.0601	2.46	1.65		1
Total Hexa-Dioxins	288		0.0534	2.46	1.26		1
Total Hepta-Dioxins	73.8		0.0951	2.46	1.02		1
Total Tetra-Furans	19.3		0.153	0.492	0.80		1
Total Penta-Furans	190		0.0883	2.46	1.49		1
Total Hexa-Furans	391		0.0692	2.46	1.23		1
Total Hepta-Furans	194		0.413	2.46	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801065
Project:	C1844-0501 Northern Impoundment	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800500-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/12/18 11:09
Prep Method:	Method Soxhlet	**Date Extracted:**	12/5/18
Sample Amount:	10.167g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P519380	**Blank File Name:**	P519370
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P519366

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	781.495	39		25-164	0.80	1.021
13C-1,2,3,7,8-PeCDD	2000	1449.227	72		25-181	1.59	1.191
13C-1,2,3,4,7,8-HxCDD	2000	1236.817	62		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1302.291	65		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1446.570	72		23-140	1.09	1.071
13C-OCDD	4000	1611.925	40		17-157	0.91	1.152
13C-2,3,7,8-TCDF	2000	1022.036	51		24-169	0.81	0.991
13C-1,2,3,7,8-PeCDF	2000	1380.001	69		24-185	1.60	1.148
13C-2,3,4,7,8-PeCDF	2000	1336.809	67		21-178	1.61	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1079.448	54		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1164.733	58		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1174.513	59		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1145.583	57		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1026.896	51		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1183.706	59		26-138	0.43	1.084
37Cl-2,3,7,8-TCDD	800	454.610	57		35-197	NA	1.021

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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Sample Response Summary

CLIENT ID.
SL0580

Run #19 Filename P519299 Samp: 1 Inj: 1 Acquired: 8-DEC-18 04:50:59
Processed: 10-DEC-18 09:24:40 Sample ID: E1801065-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	5.911e+03	8.014e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	2.693e+02	1.792e+02	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.481e+02	2.441e+02	1.43	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	5.077e+02	3.451e+02	1.47	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	2.336e+02	1.966e+02	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	2.862e+02	2.071e+02	1.38	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	7.048e+01	7.736e+01	0.91	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:37	1.339e+03	1.253e+03	1.07	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:05	1.337e+02	1.269e+02	1.05	yes	no	1.258
10	Unk	OCDF	42:48	1.249e+03	1.479e+03	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	1.123e+03	1.314e+03	0.85	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	4.037e+01	2.954e+01	1.37	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	8.986e+01	7.949e+01	1.13	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	8.301e+01	7.916e+01	1.05	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	3.174e+03	2.961e+03	1.07	yes	no	1.025
17	Unk	OCDD	42:37	8.059e+04	8.982e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	1.269e+04	1.570e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.117e+04	1.329e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.973e+04	1.257e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	8.789e+03	1.742e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.106e+04	2.111e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	9.559e+03	1.885e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	9.698e+03	1.868e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	7.257e+03	1.650e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	7.271e+03	1.581e+04	0.46	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	5.567e+03	7.183e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.423e+04	8.833e+03	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.311e+04	1.012e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.263e+04	9.897e+03	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:35	1.594e+04	1.501e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:36	1.624e+04	1.779e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.475e+04	1.896e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.331e+04	1.823e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	7.082e+03				no	1.014

$$\text{OCDD} = \frac{(8.059e{+}04 + 8.982e{+}04) \times 4000\ \text{pg} \times 1}{(1.624e{+}04 + 1.779e{+}04) \times 10.480\ \text{g} \times 80.2/100 \times 1.118} = 2131\ \text{ng/kg}$$

LM 12/12/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0580

Run #19 Filename P519299 Samp: 1 Inj: 1 Acquired: 8-DEC-18 04:50:59
Processed: 10-DEC-18 09:24:40 LAB. ID: E1801065-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.87e+05	4.56e+02	2.2e+03	1.32e+06	9.88e+02	1.3e+03
2	1,2,3,7,8-PeCDF	5.20e+04	1.60e+03	3.2e+01	3.52e+04	1.04e+03	3.4e+01
3	2,3,4,7,8-PeCDF	5.34e+04	1.60e+03	3.3e+01	3.79e+04	1.04e+03	3.7e+01
4	1,2,3,4,7,8-HxCDF	9.88e+04	7.32e+02	1.4e+02	6.77e+04	2.56e+02	2.6e+02
5	1,2,3,6,7,8-HxCDF	4.71e+04	7.32e+02	6.4e+01	3.76e+04	2.56e+02	1.5e+02
6	2,3,4,6,7,8-HxCDF	5.56e+04	7.32e+02	7.6e+01	3.98e+04	2.56e+02	1.6e+02
7	1,2,3,7,8,9-HxCDF	1.57e+04	7.32e+02	2.1e+01	1.34e+04	2.56e+02	5.2e+01
8	1,2,3,4,6,7,8-HpCDF	2.35e+05	2.17e+03	1.1e+02	2.39e+05	1.02e+03	2.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.06e+04	2.17e+03	9.5e+00	2.35e+04	1.02e+03	2.3e+01
10	OCDF	1.46e+05	2.56e+02	5.7e+02	1.81e+05	3.00e+02	6.0e+02
11	2,3,7,8-TCDD	2.07e+05	1.24e+03	1.7e+02	2.52e+05	6.96e+02	3.6e+02
12	1,2,3,7,8-PeCDD	9.20e+03	3.00e+02	3.1e+01	6.01e+03	2.12e+02	2.8e+01
13	1,2,3,4,7,8-HxCDD	*	7.56e+02	*	*	3.05e+03	*
14	1,2,3,6,7,8-HxCDD	1.82e+04	7.56e+02	2.4e+01	1.70e+04	3.05e+03	5.6e+00
15	1,2,3,7,8,9-HxCDD	1.44e+04	7.56e+02	1.9e+01	1.54e+04	3.05e+03	5.1e+00
16	1,2,3,4,6,7,8-HpCDD	5.07e+05	1.10e+03	4.6e+02	4.90e+05	2.04e+02	2.4e+03
17	OCDD	9.29e+06	4.28e+02	2.2e+04	1.04e+07	2.44e+02	4.3e+04
18	13C-2,3,7,8-TCDF	2.31e+06	4.41e+03	5.2e+02	2.83e+06	3.24e+03	8.7e+02
19	13C-1,2,3,7,8-PeCDF	3.96e+06	5.12e+02	7.7e+03	2.48e+06	3.20e+02	7.7e+03
20	13C-2,3,4,7,8-PeCDF	3.71e+06	5.12e+02	7.2e+03	2.38e+06	3.20e+02	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.85e+06	2.44e+02	7.6e+03	3.67e+06	4.64e+02	7.9e+03
22	13C-1,2,3,6,7,8-HxCDF	2.13e+06	2.44e+02	8.7e+03	4.05e+06	4.64e+02	8.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.92e+06	2.44e+02	7.9e+03	3.73e+06	4.64e+02	8.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.80e+06	2.44e+02	7.4e+03	3.47e+06	4.64e+02	7.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.38e+06	1.51e+03	9.1e+02	3.13e+06	1.91e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.13e+06	1.51e+03	7.5e+02	2.44e+06	1.91e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.04e+06	4.59e+03	2.3e+02	1.34e+06	2.11e+03	6.4e+02
28	13C-1,2,3,7,8-PeCDD	2.72e+06	3.20e+02	8.5e+03	1.68e+06	8.20e+02	2.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.71e+06	6.16e+02	4.4e+03	2.11e+06	5.52e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.37e+06	6.16e+02	3.8e+03	1.88e+06	5.52e+02	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.58e+06	3.16e+02	8.2e+03	2.50e+06	3.08e+02	8.1e+03
32	13C-OCDD	1.86e+06	3.44e+02	5.4e+03	2.04e+06	2.44e+02	8.4e+03
33	13C-1,2,3,4-TCDD	2.75e+06	4.59e+03	6.0e+02	3.53e+06	2.11e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	4.28e+06	6.16e+02	6.9e+03	3.35e+06	5.52e+02	6.1e+03
35	37Cl-2,3,7,8-TCDD	1.37e+06	8.16e+02	1.7e+03			

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Office:(713)266-1599. Fax:(713)266-0130

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0580

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P519299 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 303.9020 305.8990 Tot Response: 2.49e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:18	1.44e+01	1.90e+01	0.76	yes	3.34e+01		n	n
2	24:15	6.80e+01	8.40e+01	0.81	yes	1.52e+02		n	n
3	25:06	3.17e+02	4.05e+02	0.78	yes	7.23e+02		n	n
4	25:39	2.85e+01	4.24e+01	0.67	yes	7.09e+01		n	n
5	25:49	2.65e+02	3.47e+02	0.76	yes	6.12e+02		n	n
6	26:35	3.08e+02	4.38e+02	0.70	yes	7.46e+02		n	n
7	27:01	2.58e+03	3.26e+03	0.79	yes	5.84e+03		n	n
8	27:16	1.71e+02	2.12e+02	0.81	yes	3.84e+02		n	n
9	27:51	5.91e+03	8.01e+03	0.74	yes	1.39e+04	2,3,7,8-TCDF	n	n
10	28:12	5.17e+02	6.61e+02	0.78	yes	1.18e+03		n	n
11	28:26	9.17e+01	1.21e+02	0.76	yes	2.12e+02		n	n
12	29:44	4.76e+02	5.95e+02	0.80	yes	1.07e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0580

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P519299 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 319.8970 321.8940 Tot Response: 2.72e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:06	2.44e+01	3.36e+01	0.73	yes	5.80e+01		n	n
2	25:31	1.09e+01	1.25e+01	0.87	yes	2.34e+01		n	n
3	28:40	1.12e+03	1.31e+03	0.85	yes	2.44e+03	2,3,7,8-TCDD	n	n
4	28:58	8.78e+01	1.12e+02	0.78	yes	2.00e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0580

Entry: 38 Totals Name: Total Penta-Furans1

Run: 19 File: P519299 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 339.8600 341.8570 Tot Response: 3.30e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:43	1.94e+02	1.36e+02 1.42	yes	3.30e+02		n	n

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Peak List Summary

CLIENT ID.
SL0580

Entry: 39 Totals Name: Total Penta-Furans2

Run: 19 File: P519299 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 339.8600 341.8570 Tot Response: 2.34e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:06	1.96e+02	1.16e+02	1.69	yes	3.13e+02		n	n
2	31:14	3.72e+02	2.62e+02	1.42	yes	6.34e+02		n	n
3	32:11	2.69e+02	1.79e+02	1.50	yes	4.49e+02	1,2,3,7,8-PeCDF	n	n
4	33:02	2.03e+02	1.18e+02	1.73	yes	3.21e+02		n	n
5	33:07	3.48e+02	2.44e+02	1.43	yes	5.92e+02	2,3,4,7,8-PeCDF	n	n
6	34:02	2.02e+01	1.30e+01	1.56	yes	3.31e+01		n	n

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Peak List Summary

CLIENT ID.
SL0580

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P519299 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 355.8550 357.8520 Tot Response: 3.25e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:15	1.19e+02	7.07e+01	1.69	yes	1.90e+02		n	n
2	32:28	3.72e+01	2.80e+01	1.33	yes	6.52e+01		n	n
3	33:24	4.04e+01	2.95e+01	1.37	yes	6.99e+01	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0580

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P519299 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 373.8210 375.8180 Tot Response: 2.93e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:54	5.34e+02	4.63e+02	1.15	yes	9.97e+02		n	n
2	35:15	3.46e+01	2.70e+01	1.28	yes	6.16e+01		n	n
3	35:26	2.44e+02	2.04e+02	1.20	yes	4.48e+02		n	n
4	35:47	2.68e+02	2.33e+02	1.15	yes	5.00e+02		n	n
5	35:59	2.34e+02	1.97e+02	1.19	yes	4.30e+02	1,2,3,6,7,8-HxCDF	n	n
6	36:31	2.86e+02	2.07e+02	1.38	yes	4.93e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0580

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P519299 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 389.8160 391.8130 Tot Response: 2.79e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	7.85e+02	6.13e+02	1.28	yes	1.40e+03		n	n
2	35:49	1.44e+02	1.26e+02	1.14	yes	2.70e+02		n	n
3	36:03	4.74e+02	3.82e+02	1.24	yes	8.56e+02		n	n
4	36:09	5.24e+01	4.62e+01	1.13	yes	9.86e+01		n	n
5	36:45	8.99e+01	7.95e+01	1.13	yes	1.69e+02	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0580

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P519299 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 407.7820 409.7790 Tot Response: 4.84e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:37	1.34e+03	1.25e+03	1.07	yes	2.59e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:02	1.00e+03	9.84e+02	1.02	yes	1.99e+03		n	n
3	40:05	1.34e+02	1.27e+02	1.05	yes	2.61e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0580

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P519299 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 04:50:59 Processed: 10-DEC-18 09:24:40

Mass: 423.7770 425.7740 Tot Response: 1.76e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:53	5.94e+03	5.55e+03	1.07	yes	1.15e+04		n	n
2	39:36	3.17e+03	2.96e+03	1.07	yes	6.13e+03	1,2,3,4,6,7,8-HpCDD	n	n

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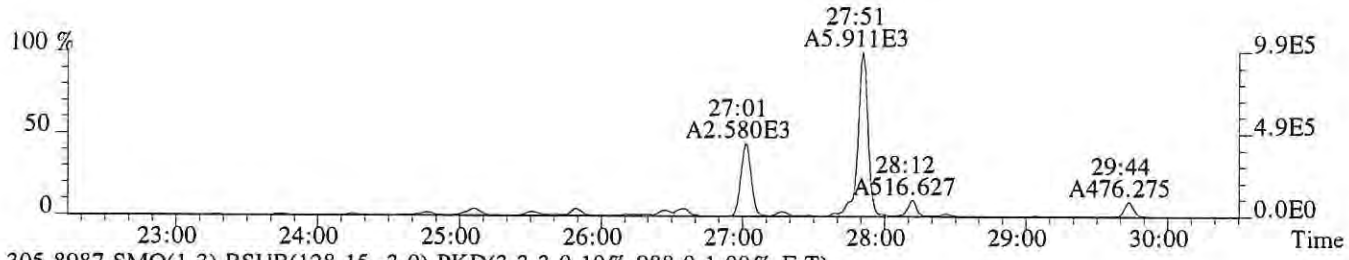
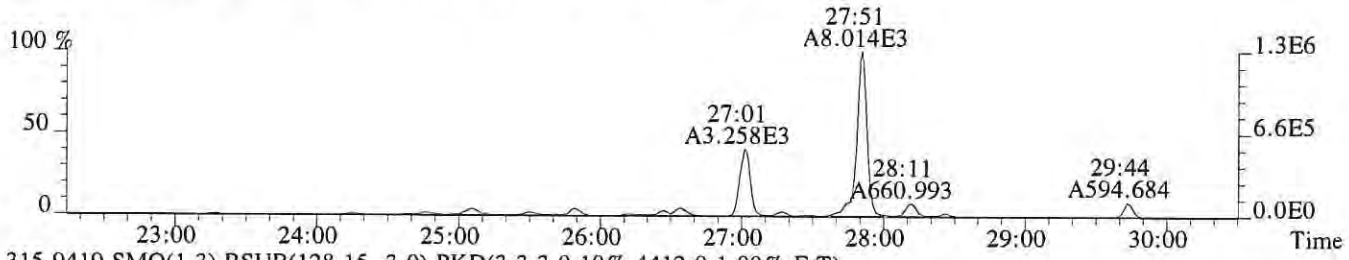
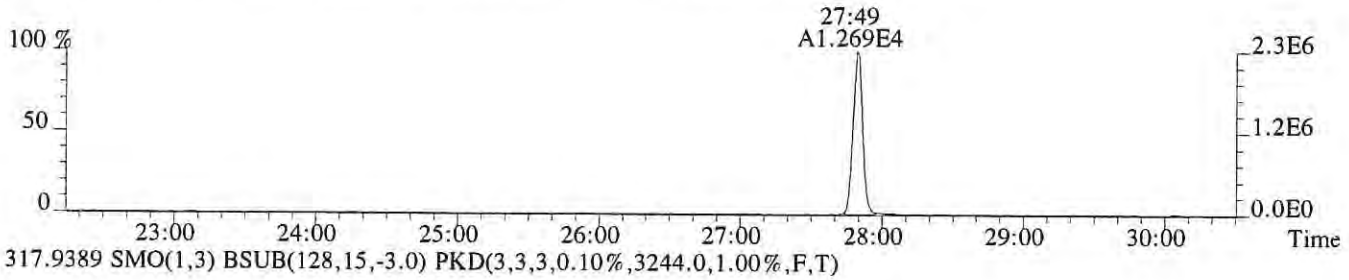
File:P519299 #1-587 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



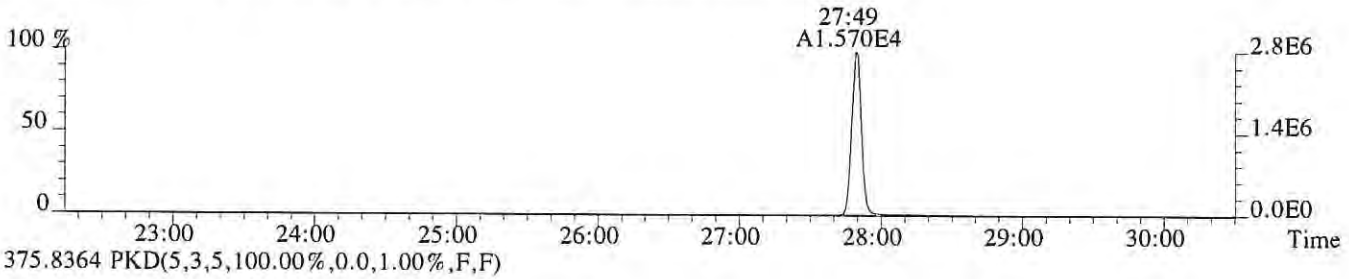
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



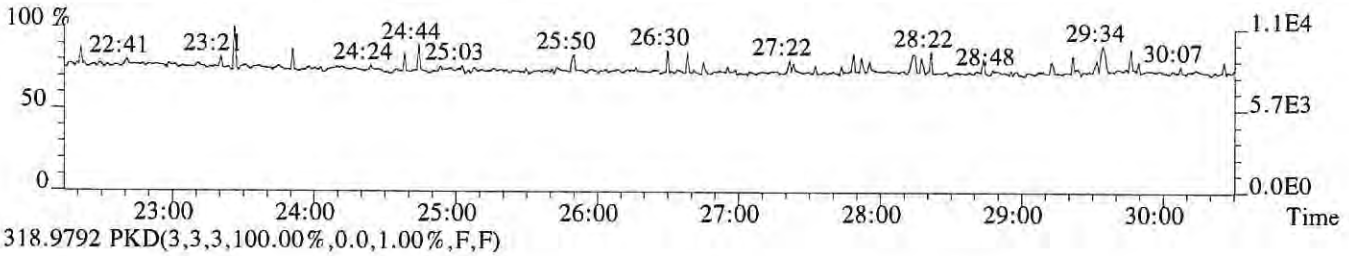
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4412.0,1.00%,F,T)



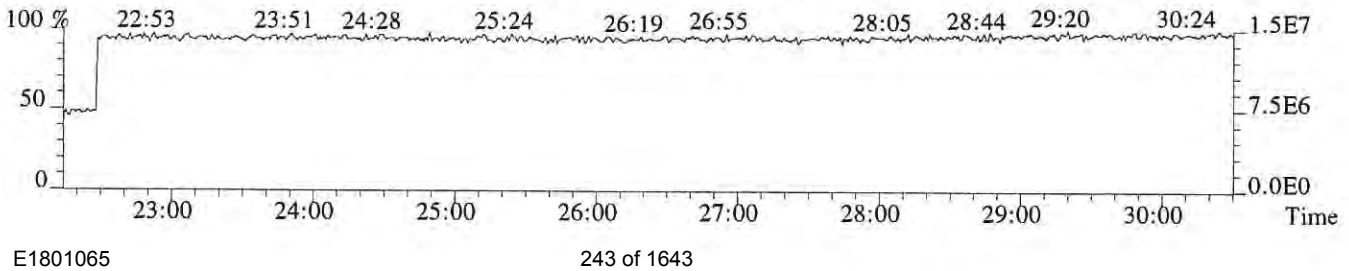
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



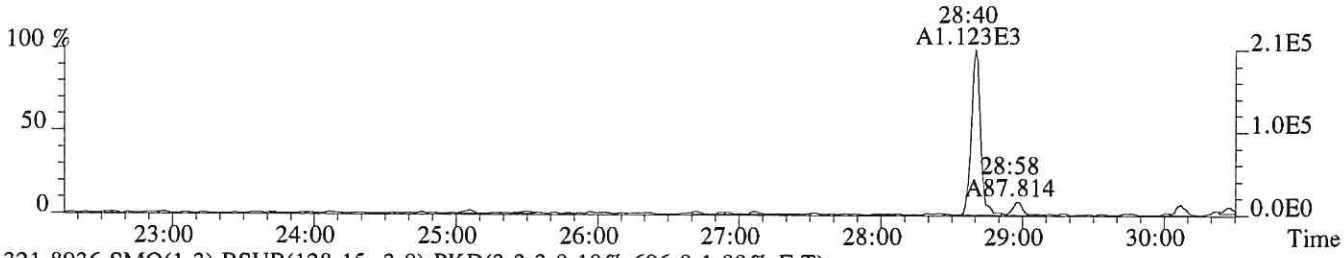
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



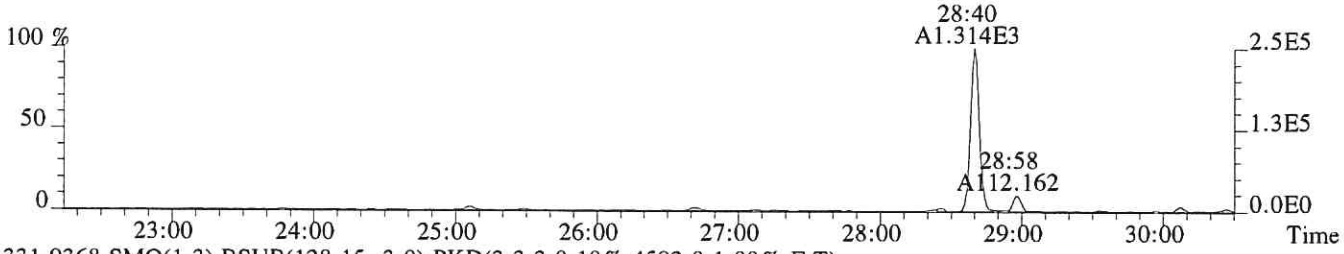
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



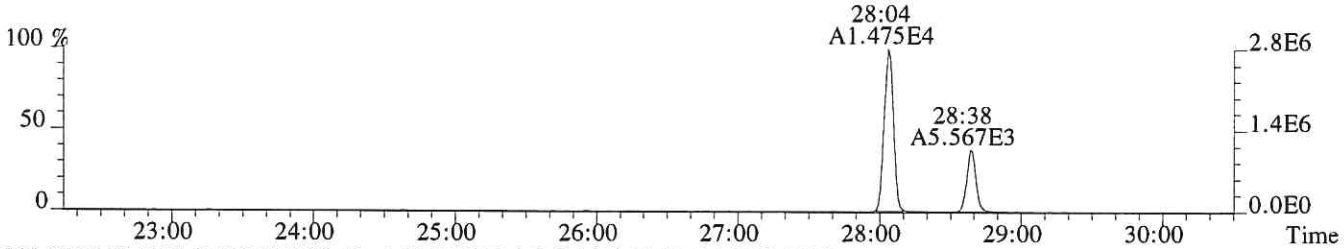
File:P519299 #1-587 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



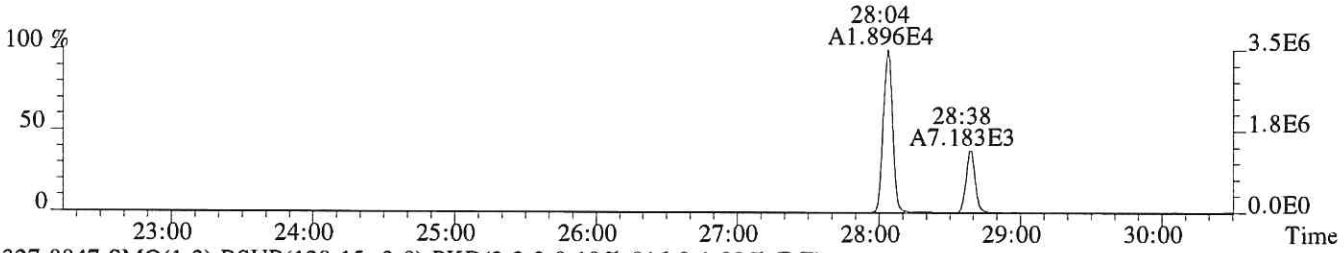
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



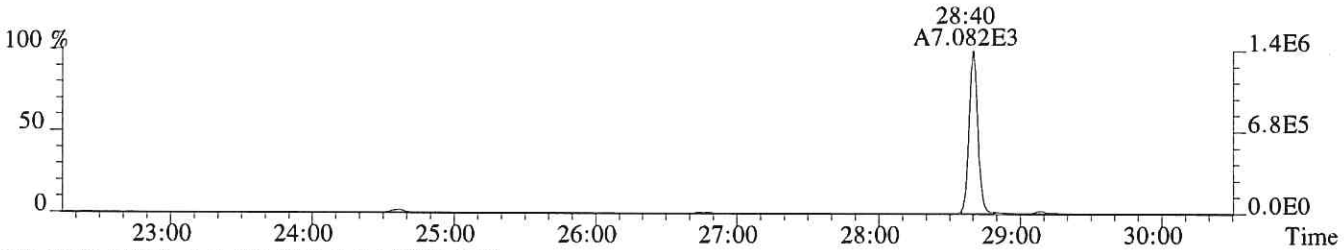
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4592.0,1.00%,F,T)



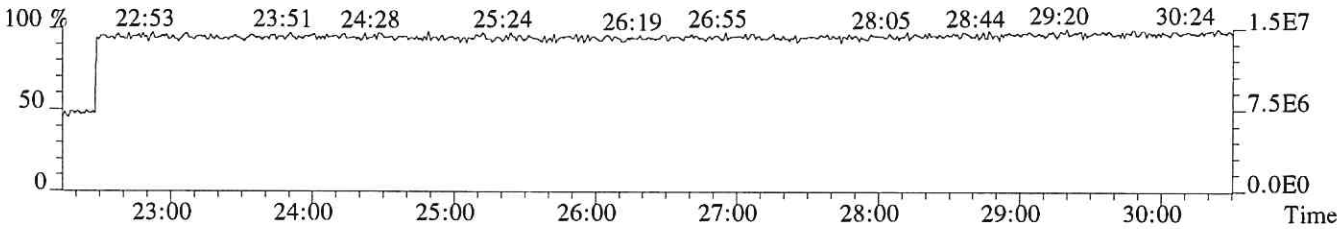
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2112.0,1.00%,F,T)



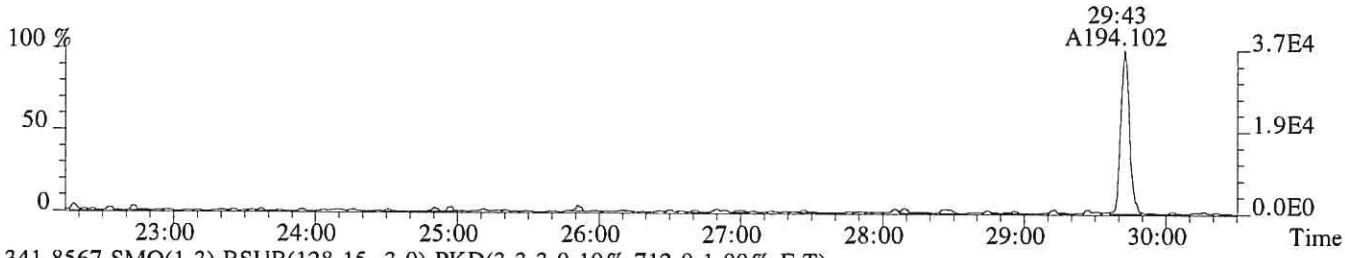
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



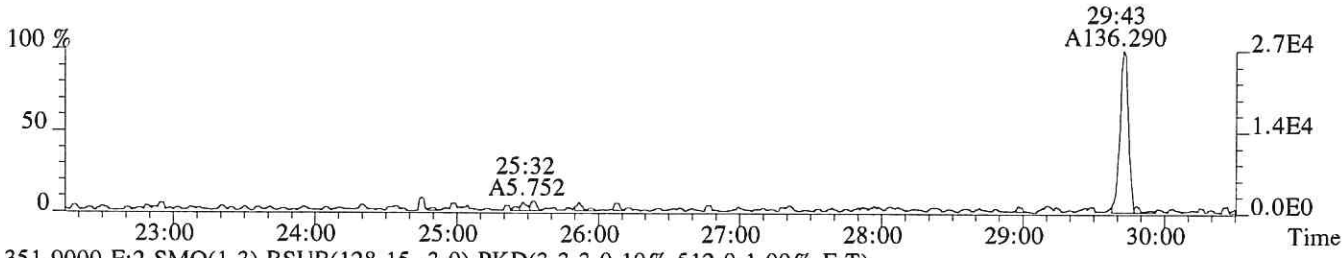
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



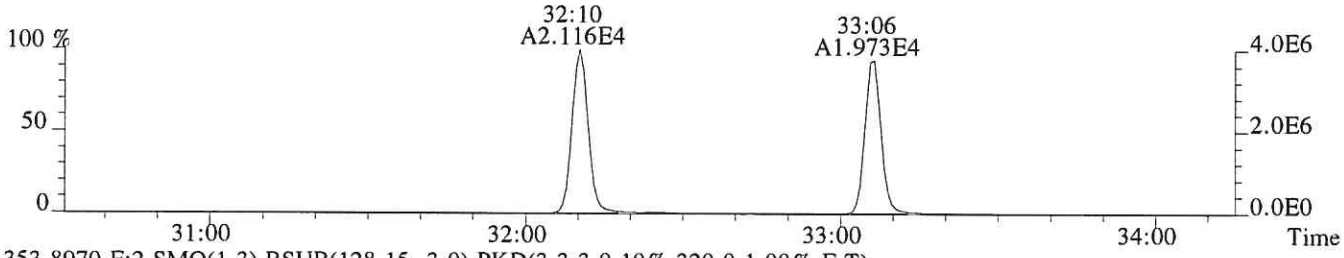
File:P519299 #1-587 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



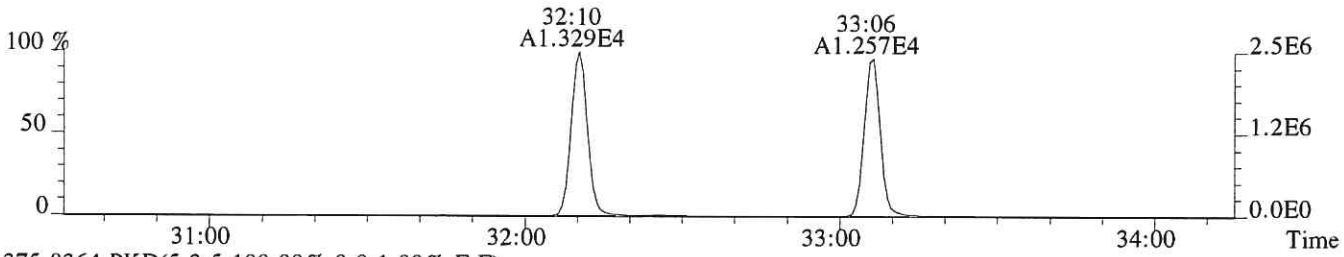
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



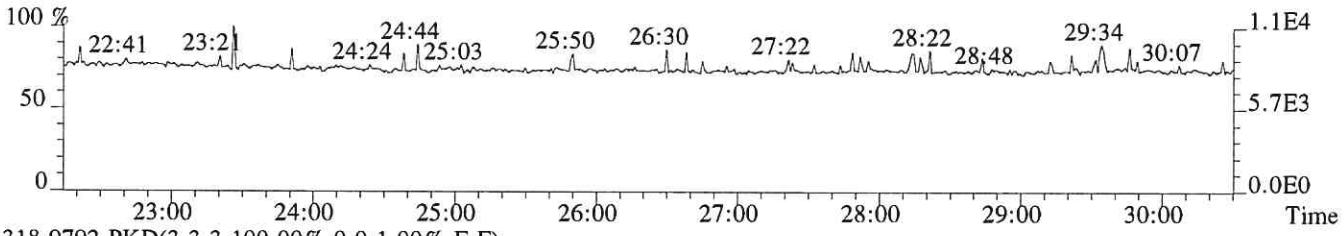
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



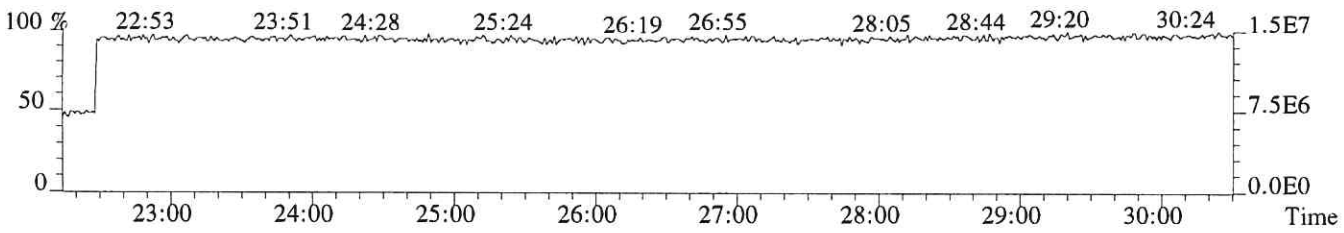
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



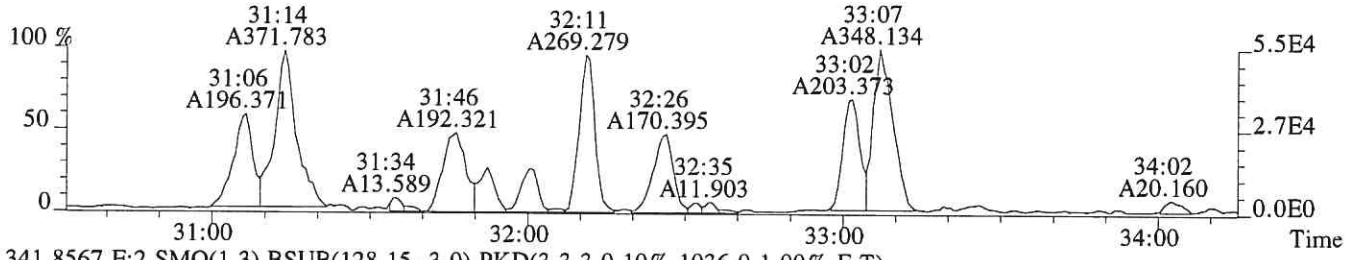
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



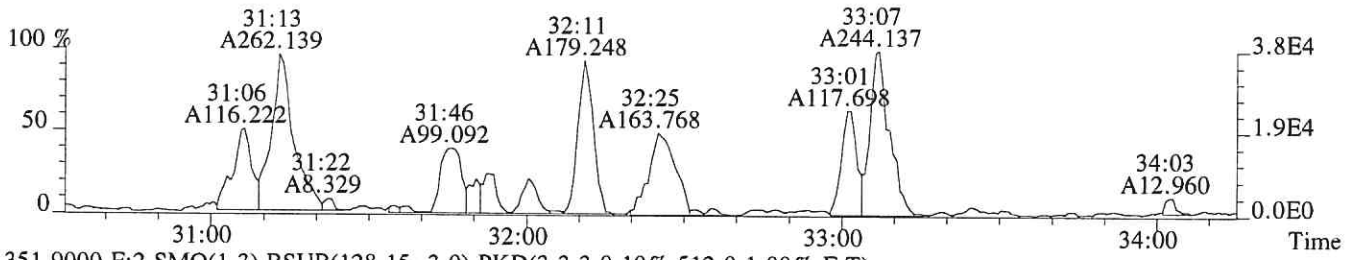
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



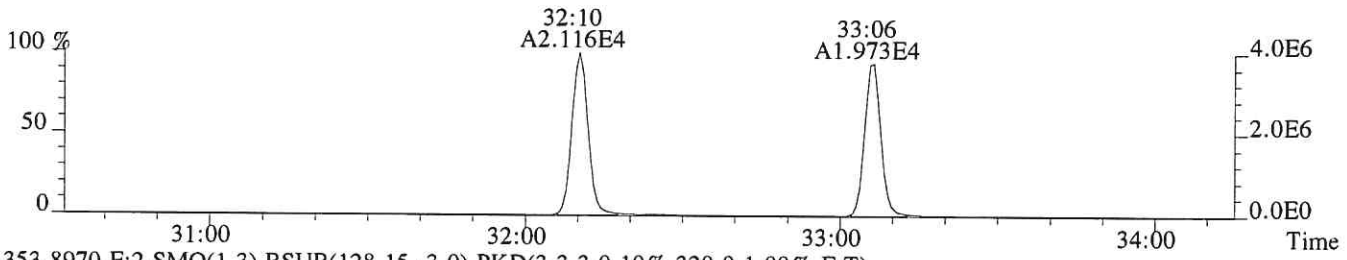
File:P519299 #1-335 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1604.0,1.00%,F,T)



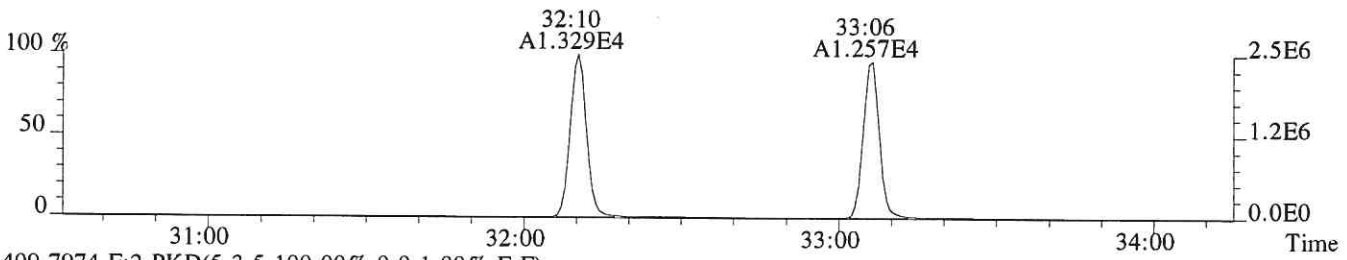
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



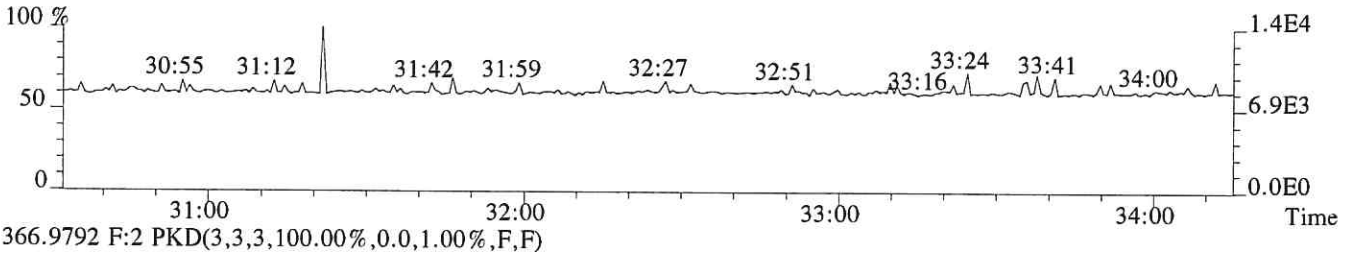
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



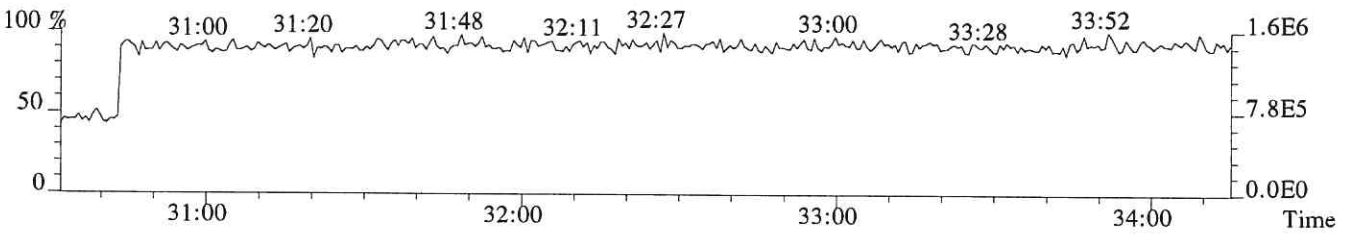
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



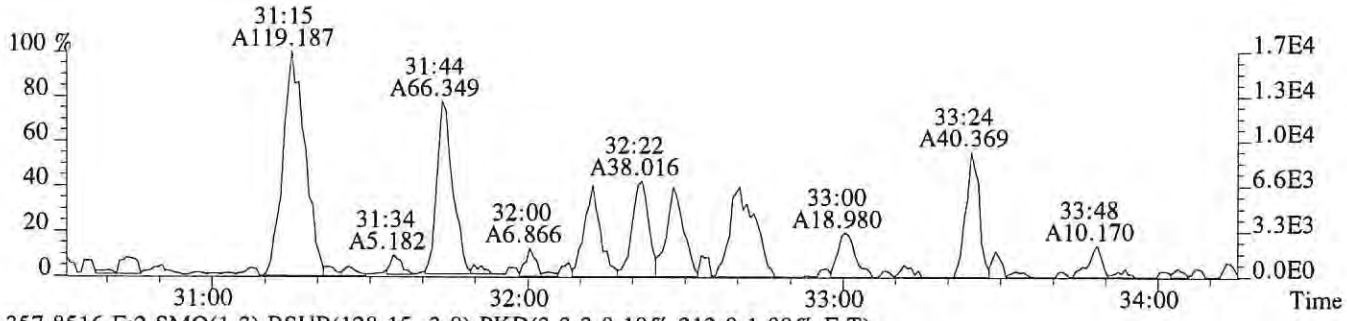
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



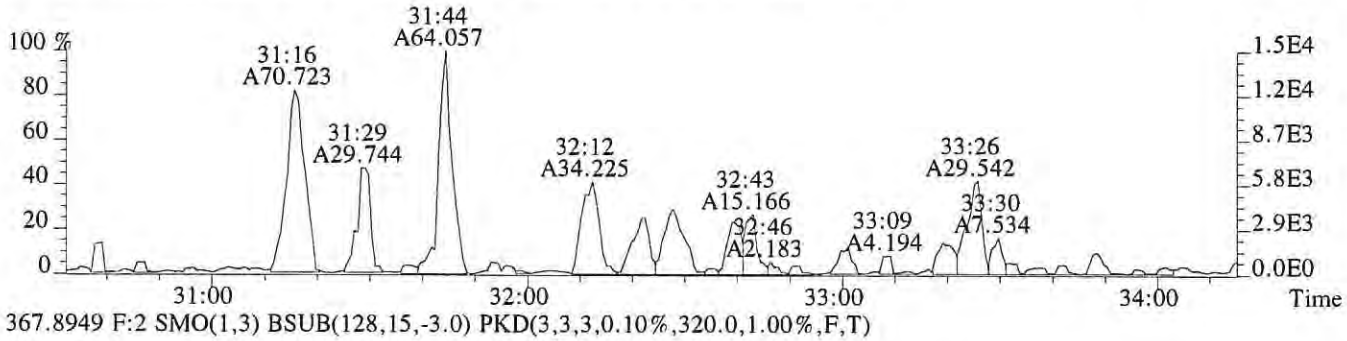
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



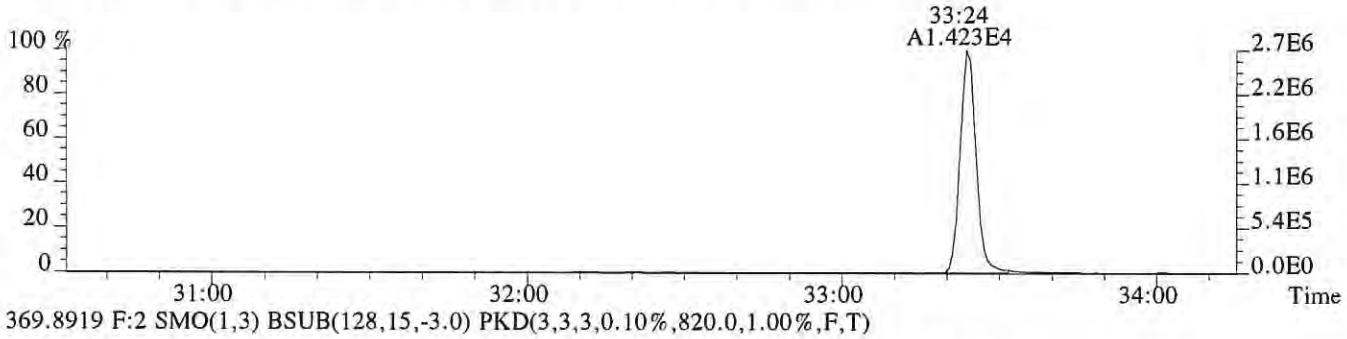
File:P519299 #1-335 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



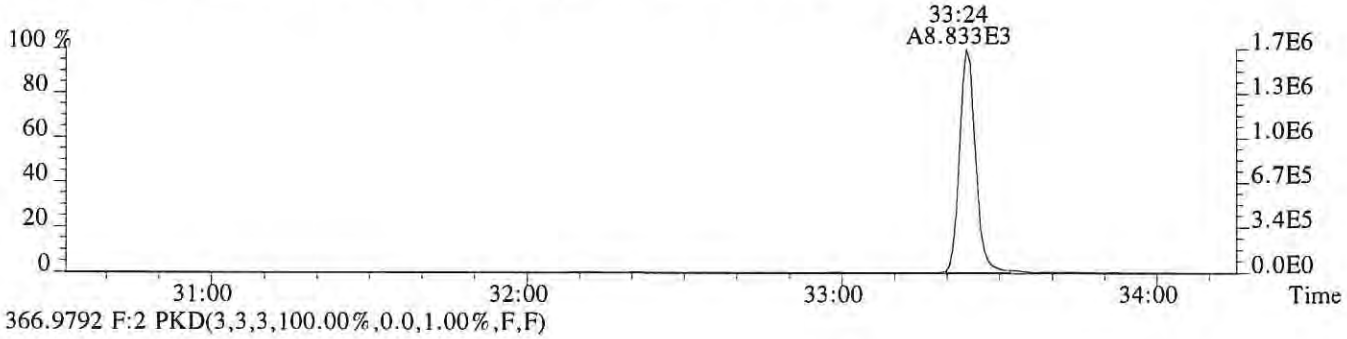
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



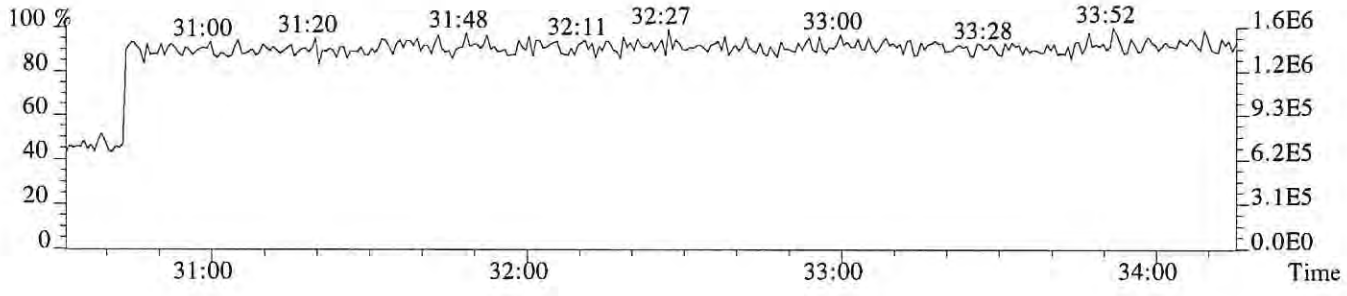
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



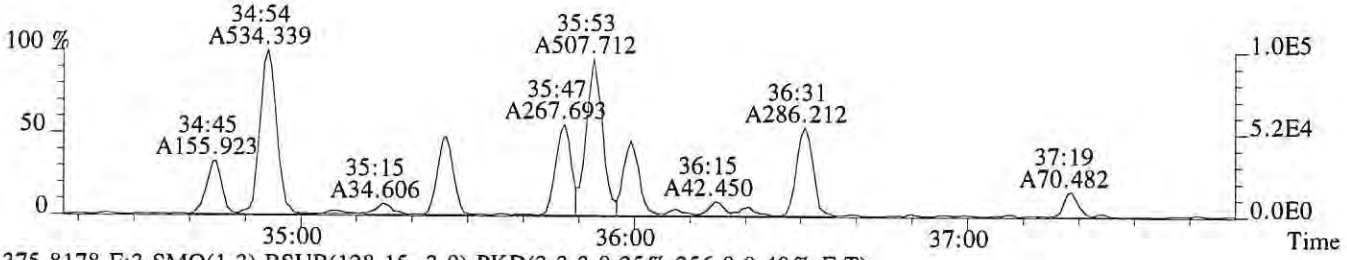
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



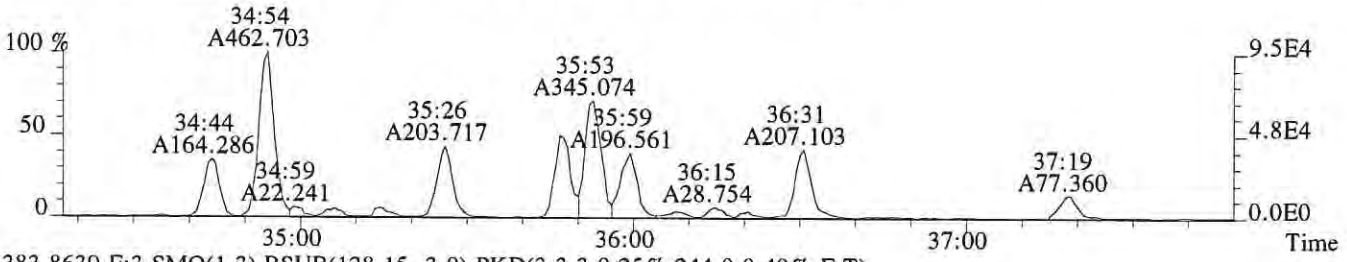
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



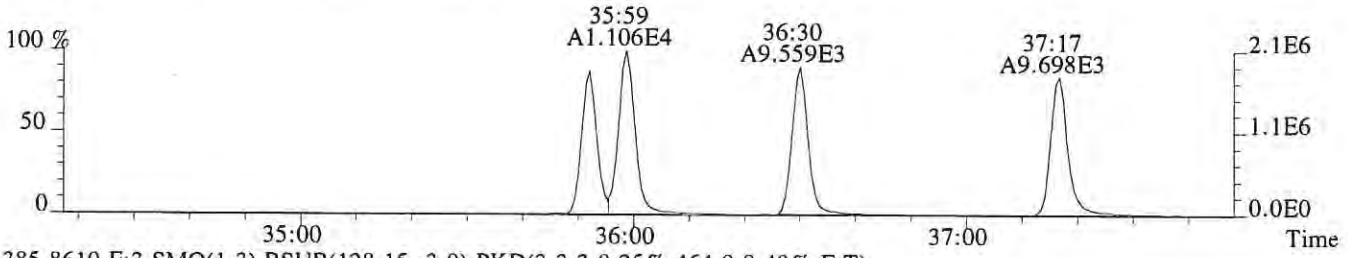
File:P519299 #1-317 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



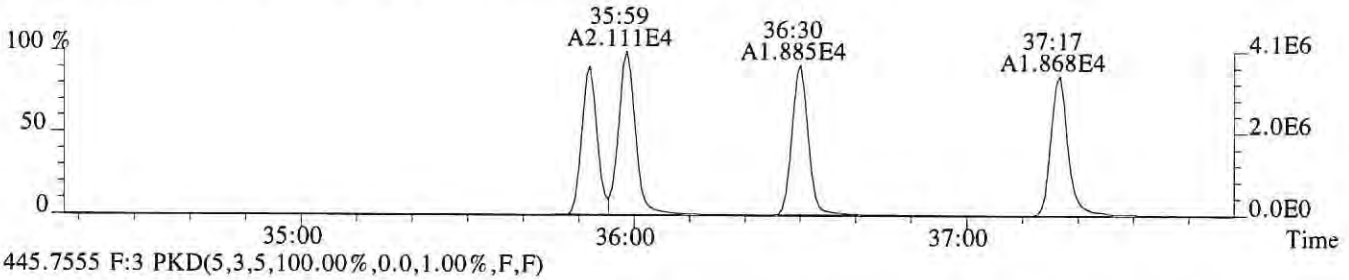
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



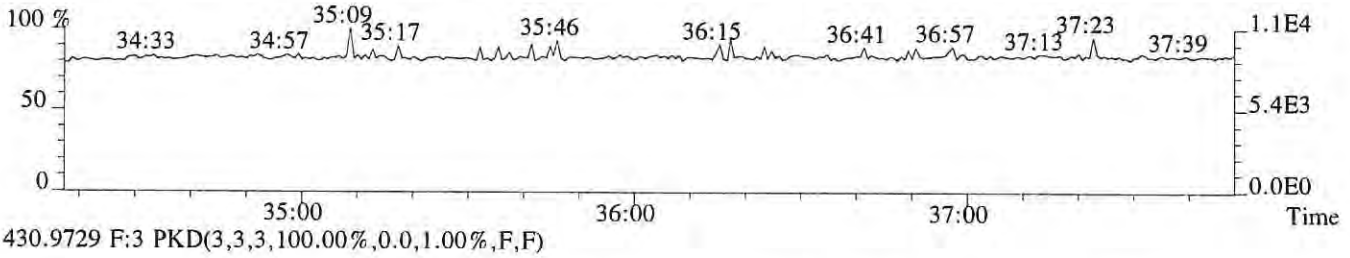
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



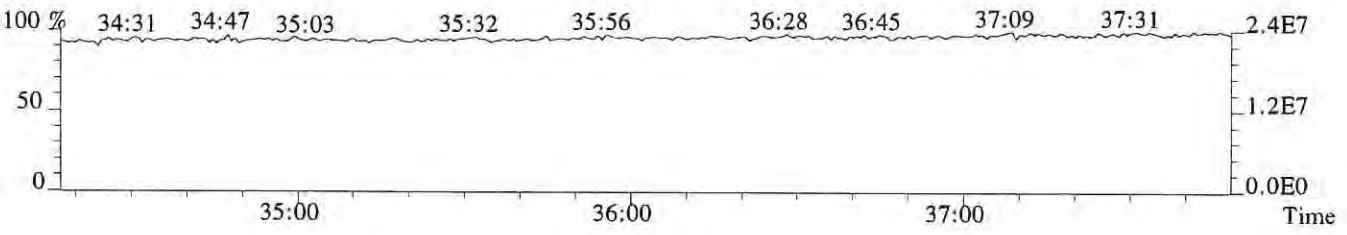
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



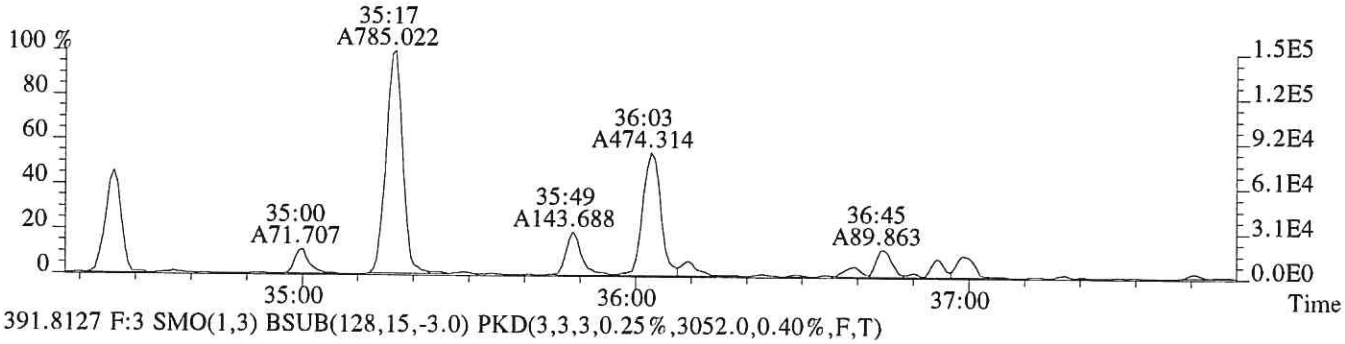
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



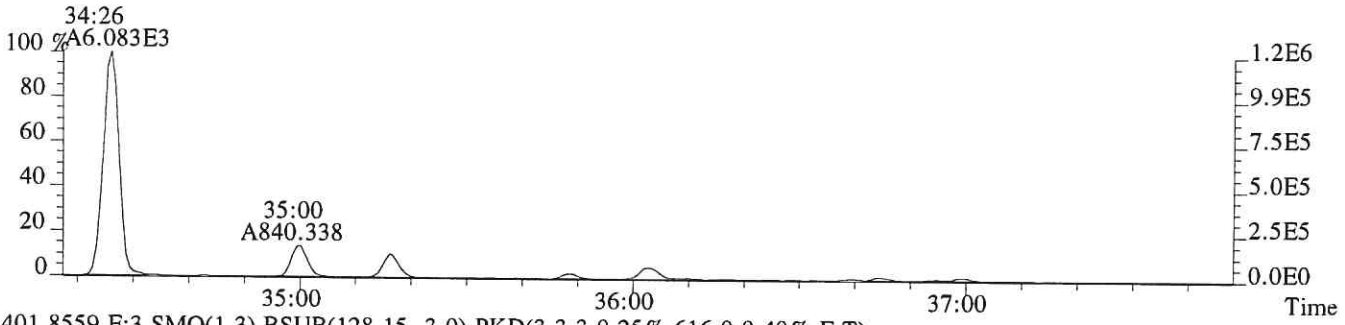
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



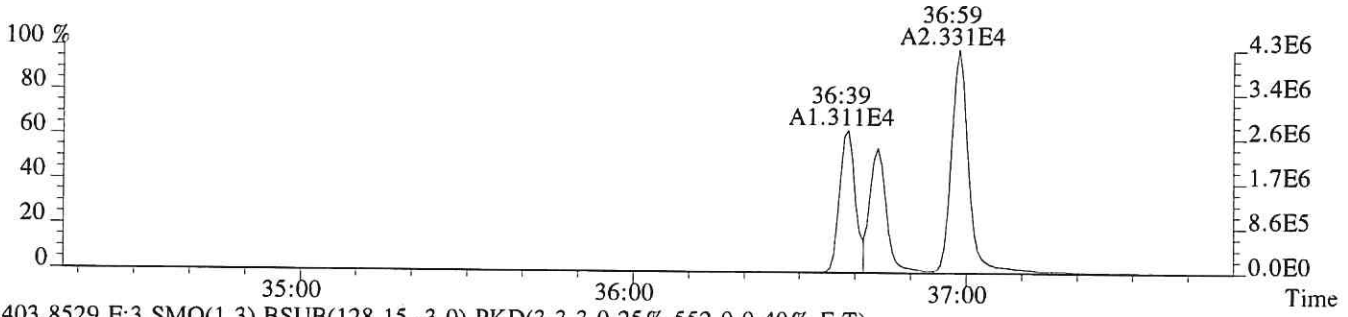
File:P519299 #1-317 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



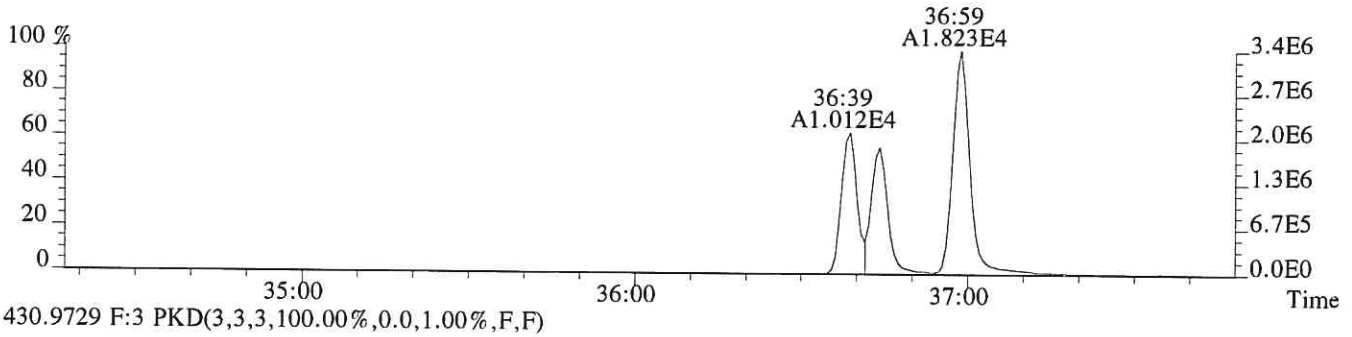
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3052.0,0.40%,F,T)



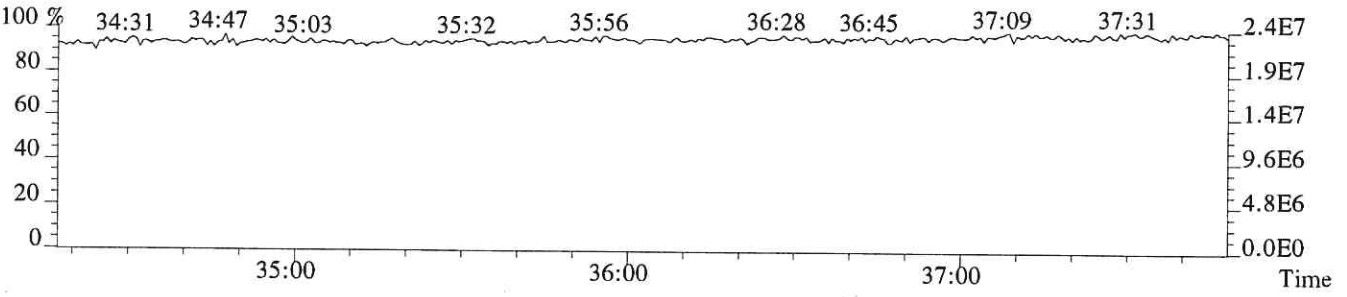
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



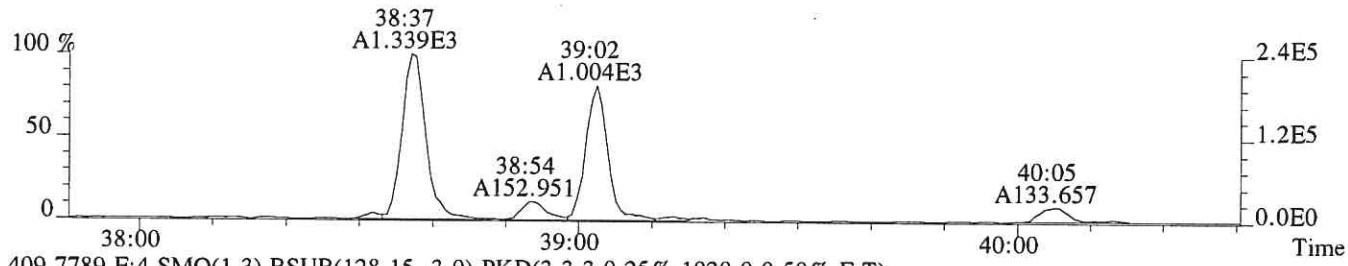
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



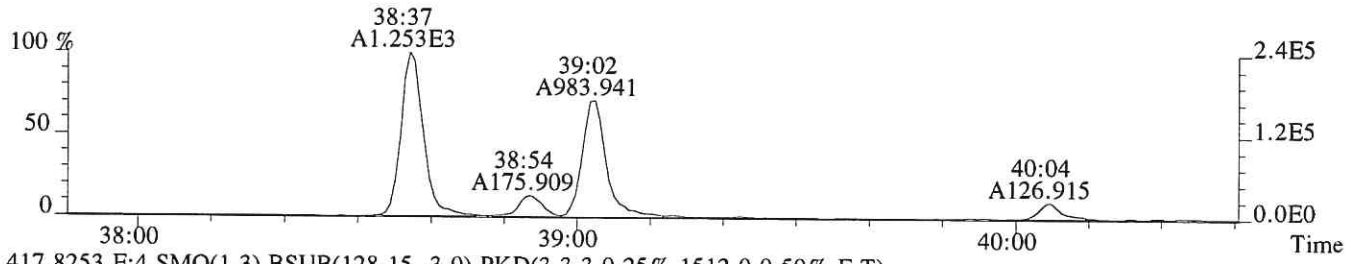
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



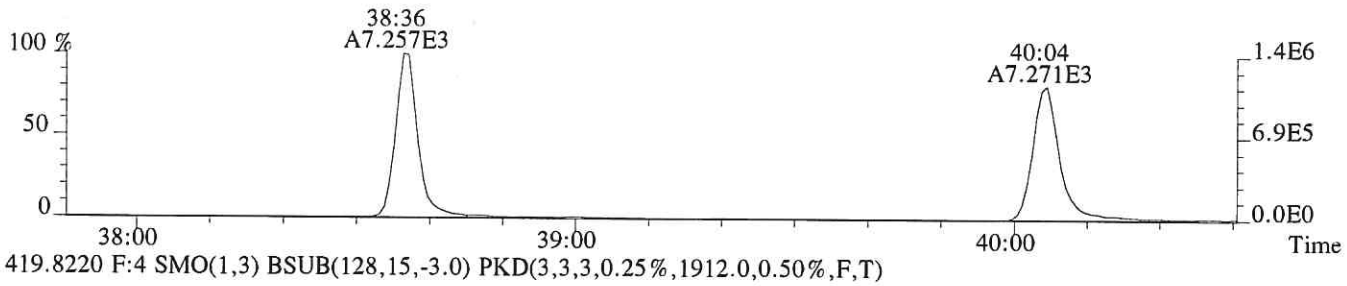
File:P519299 #1-241 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2168.0,0.50%,F,T)



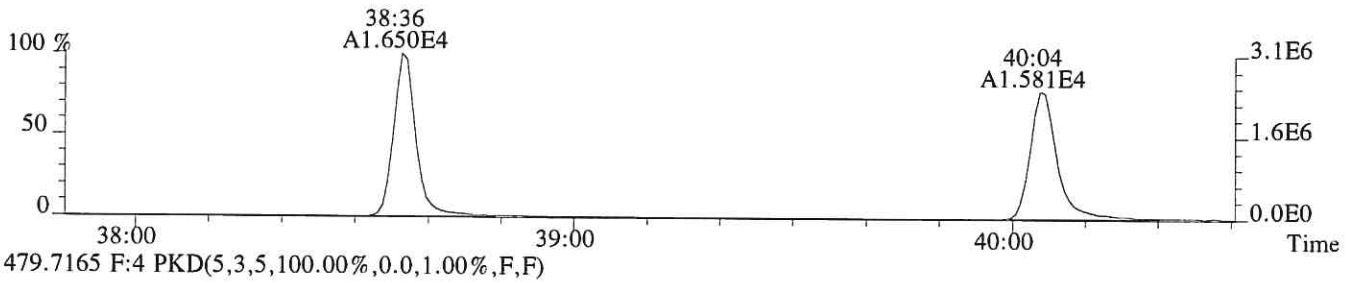
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.50%,F,T)



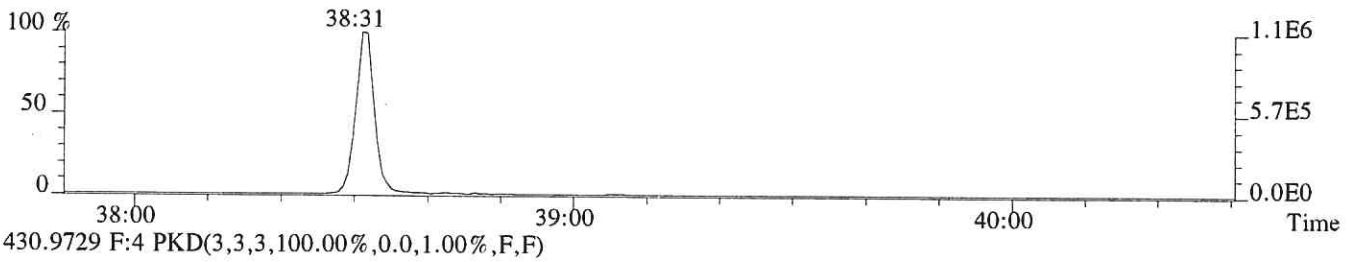
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.50%,F,T)



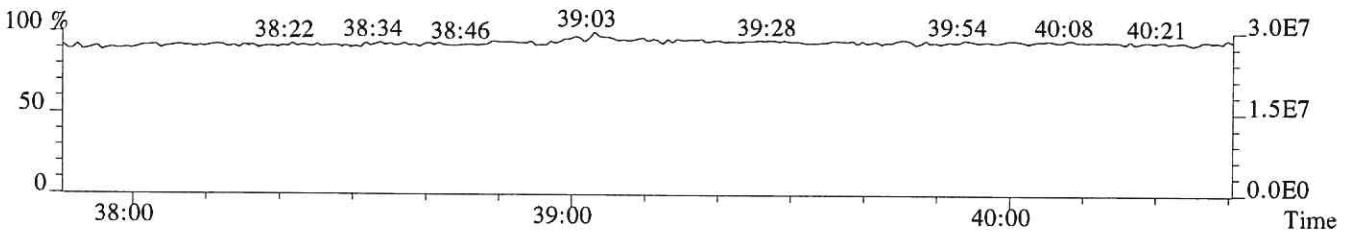
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1912.0,0.50%,F,T)



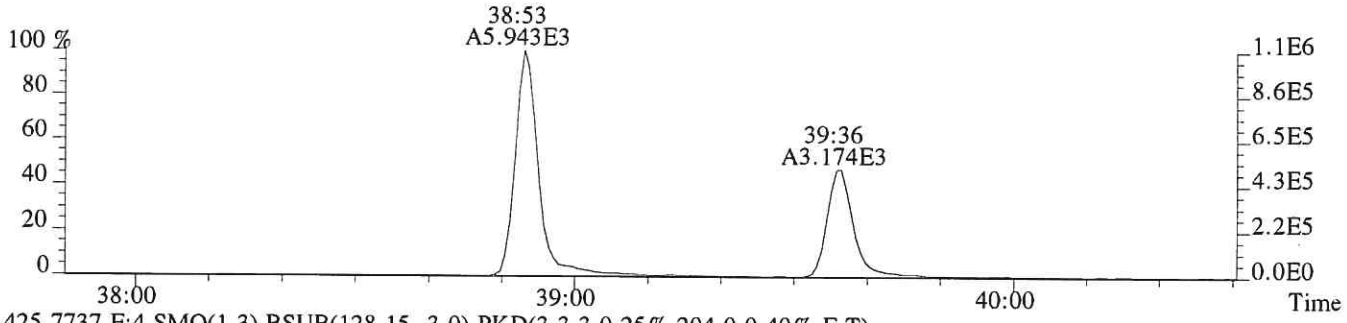
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



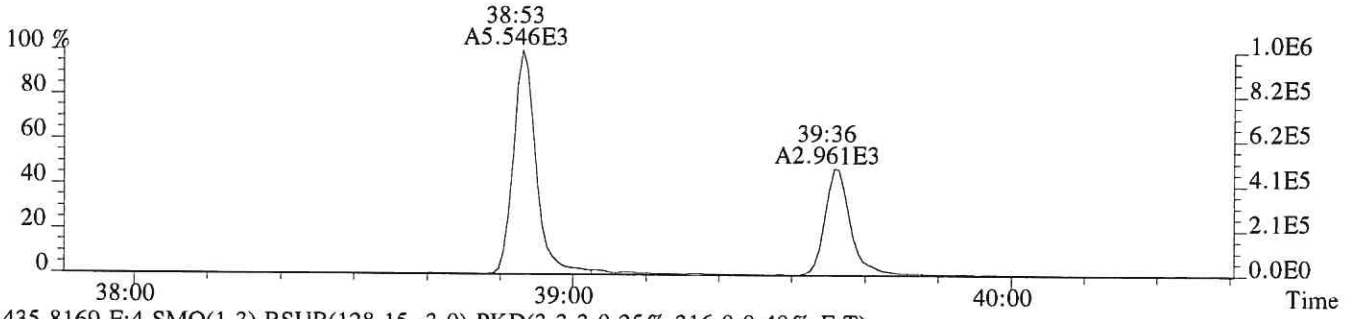
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



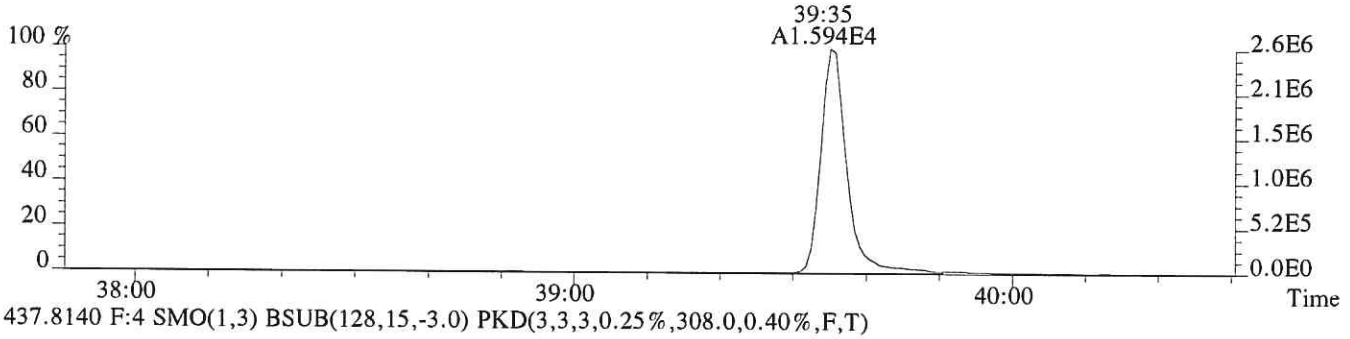
File:P519299 #1-241 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



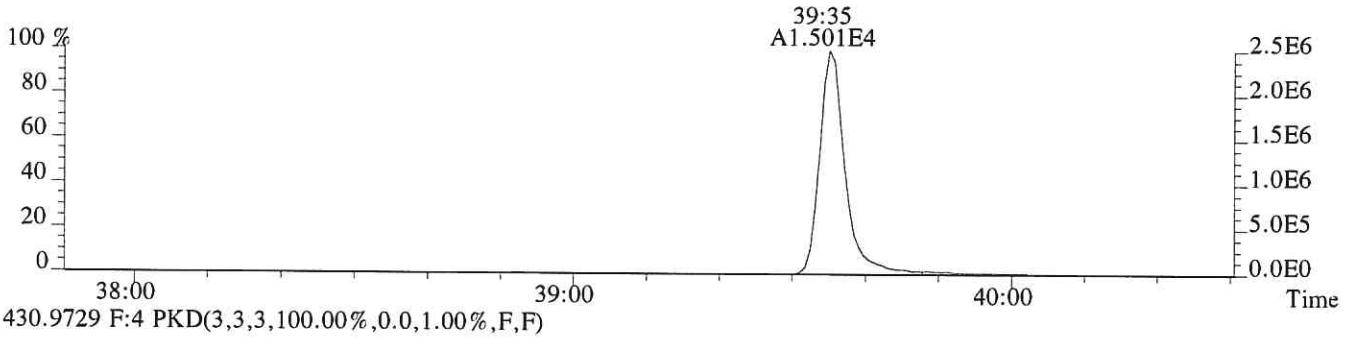
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



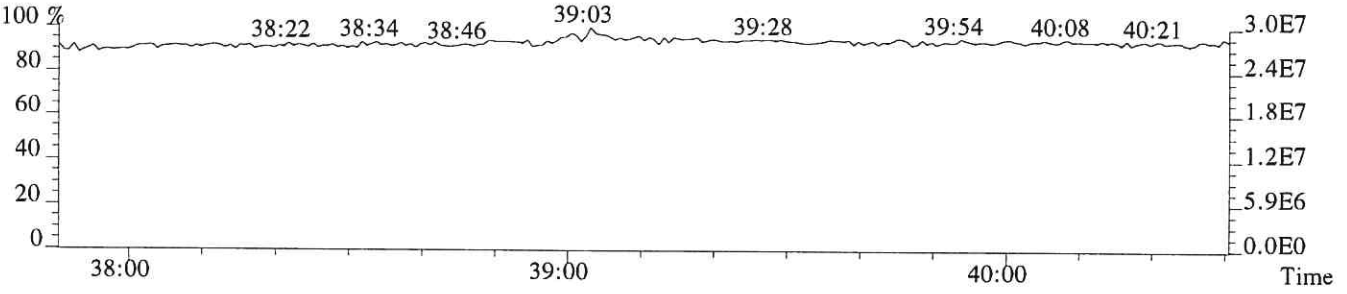
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



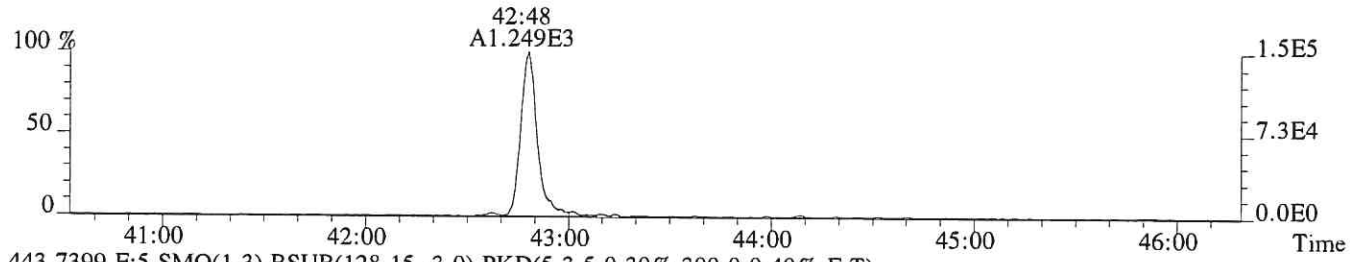
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



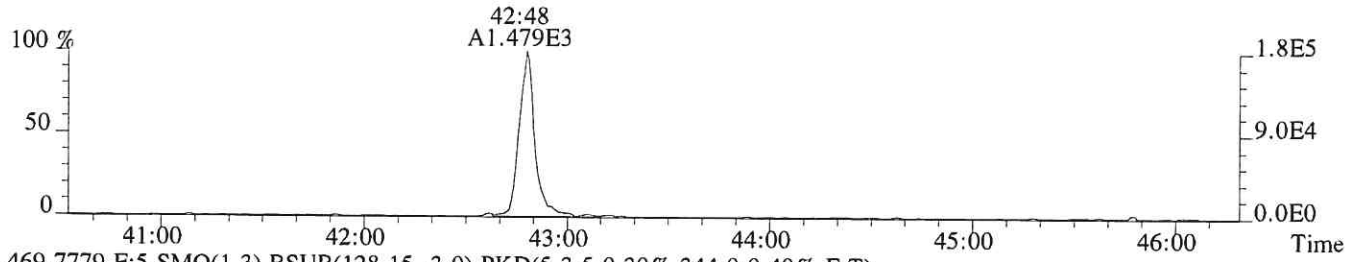
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



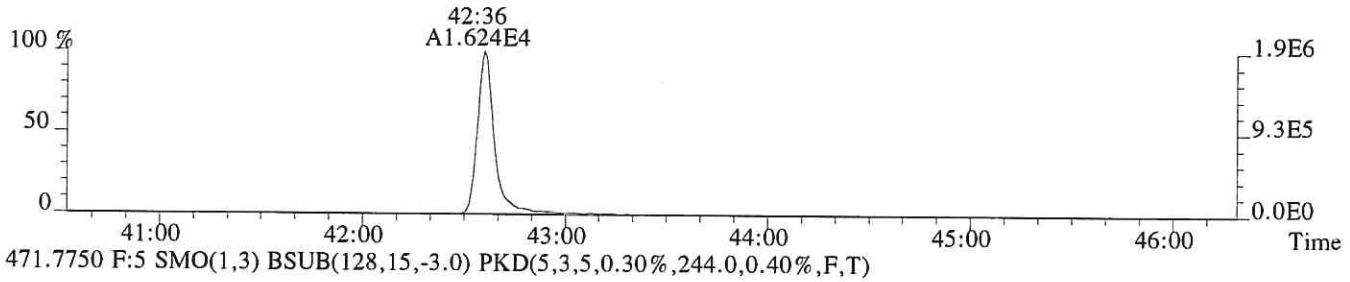
File:P519299 #1-520 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



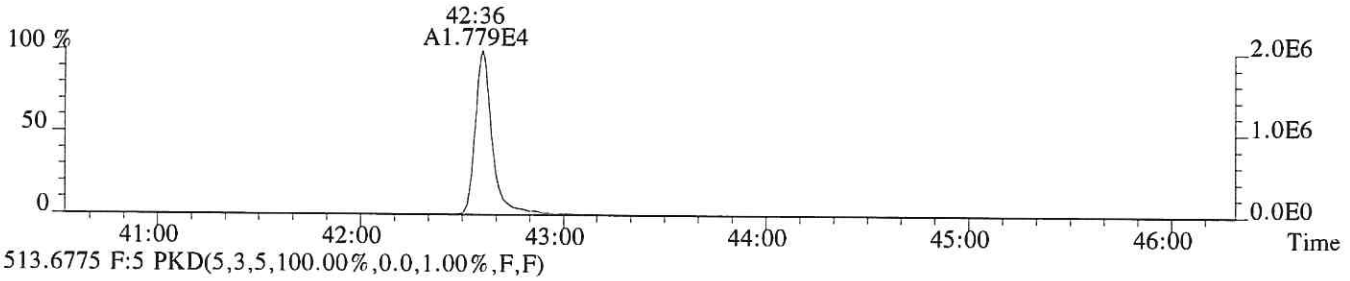
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



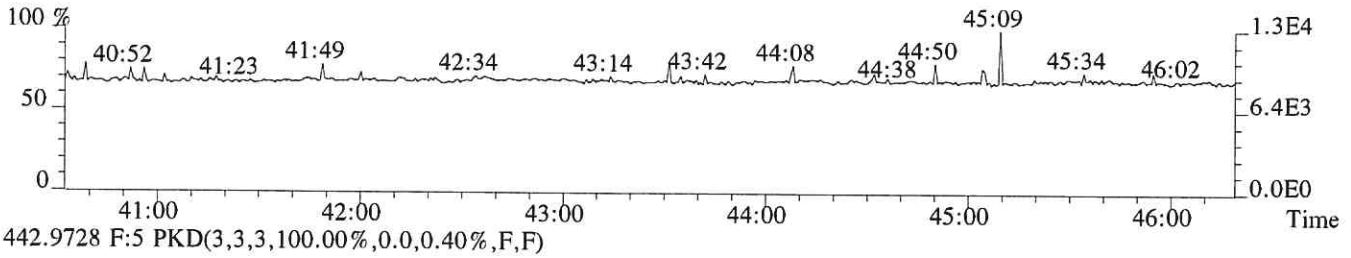
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



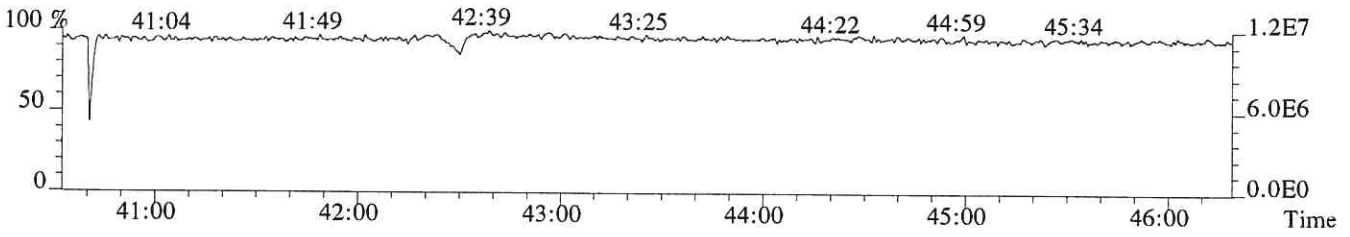
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



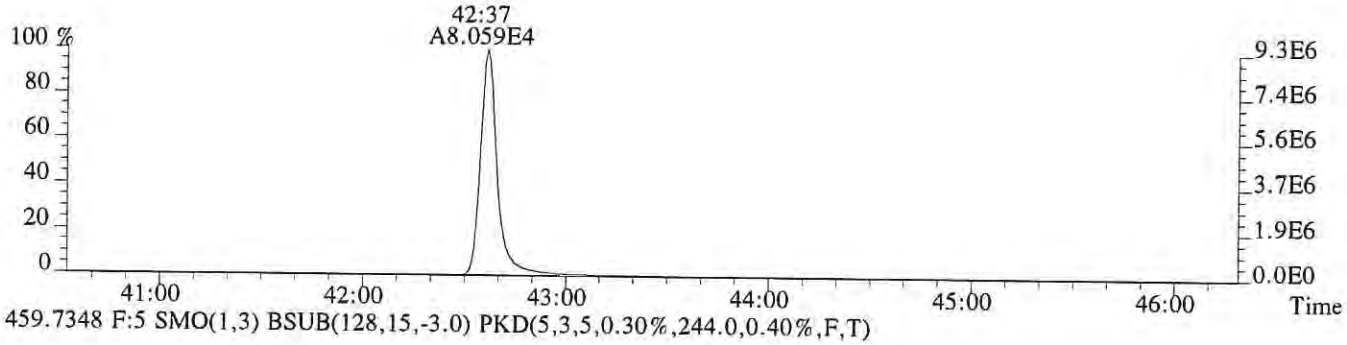
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



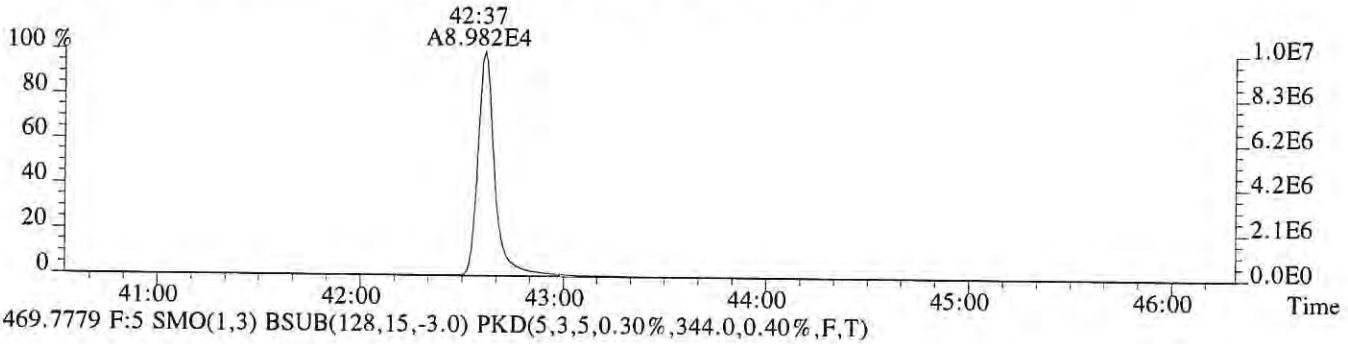
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



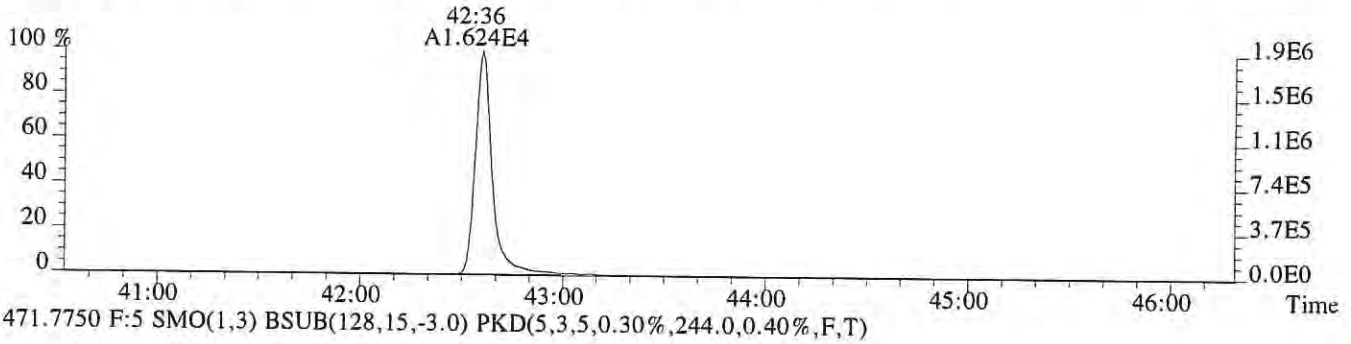
File:P519299 #1-520 Acq: 8-DEC-2018 04:50:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



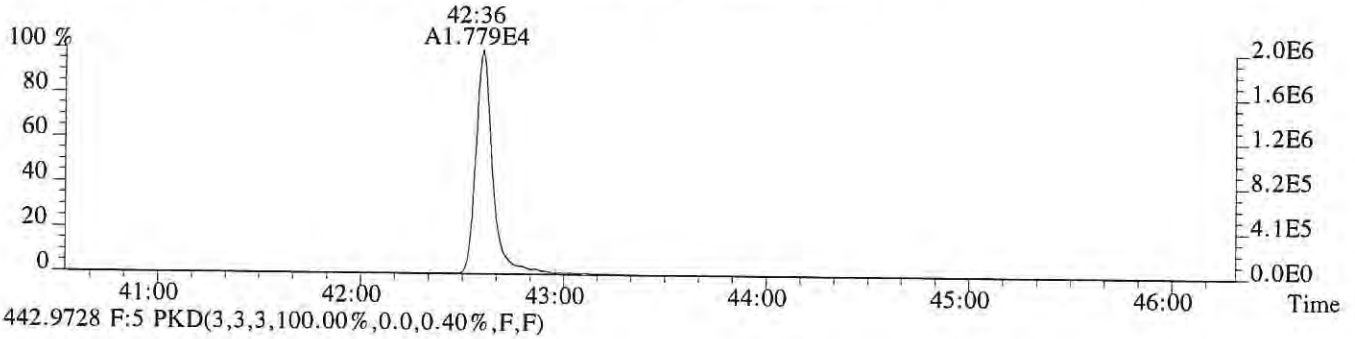
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



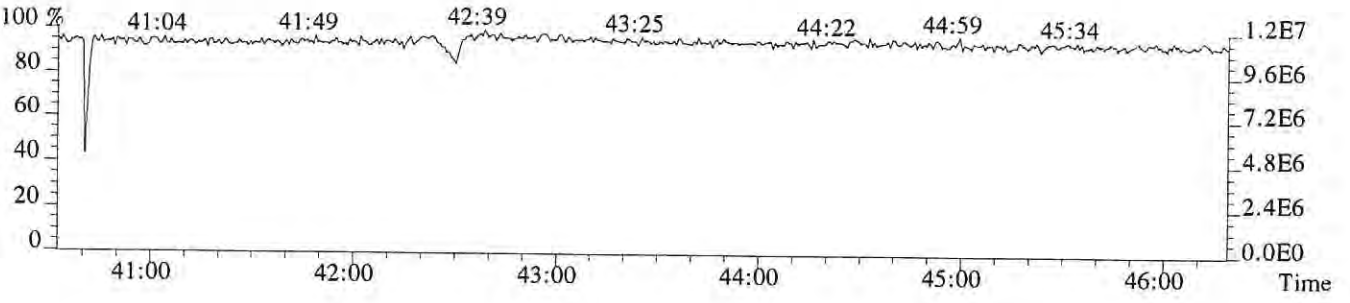
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0581

Run #20 Filename P519300 Samp: 1 Inj: 1 Acquired: 8-DEC-18 05:39:44
Processed: 10-DEC-18 09:24:41 Sample ID: E1801065-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.388e+02	3.322e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	8.913e+00	1.161e+01	0.77	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	1.300e+01	2.115e+01	0.61	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.030e+01	8.095e+00	1.27	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:18	9.805e+00	7.363e+00	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	3.077e+01	2.725e+01	1.13	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:51	5.984e+01	7.561e+01	0.79	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	4.647e+01	7.926e+01	0.59	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:26	1.914e+01	1.329e+01	1.44	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	2.432e+01	2.463e+01	0.99	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	5.351e+01	3.306e+01	1.62	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	7.703e+01	8.628e+01	0.89	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	1.950e+03	1.903e+03	1.02	yes	no	1.025
17	Unk	OCDD	42:38	7.133e+04	7.987e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.450e+04	1.852e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.747e+04	1.696e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.482e+04	1.517e+04	1.64	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.168e+04	2.207e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.519e+04	2.877e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	1.267e+04	2.441e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.220e+04	2.390e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	9.524e+03	2.146e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	8.669e+03	1.990e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	6.512e+03	8.230e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.824e+04	1.135e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.661e+04	1.297e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.684e+04	1.328e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	2.035e+04	1.898e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:37	1.910e+04	2.044e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.642e+04	2.039e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.618e+04	2.020e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	2.220e+04				no	1.014

$$\text{OCDD} = \frac{(7.133e+04 + 7.987e+04) \times 4000\ \text{pg} \times 1}{(1.910e+04 + 2.044e+04) \times 10.622\ \text{g} \times 76.6 / 100 \times 1.118} = 1681\ \text{ng/kg}$$

LM 12/12/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0581

Run #20 Filename P519300 Samp: 1 Inj: 1 Acquired: 8-DEC-18 05:39:44
Processed: 10-DEC-18 09:24:41 LAB. ID: E1801065-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.61e+04	2.64e+02	1.4e+02	5.30e+04	1.04e+03	5.1e+01
2	1,2,3,7,8-PeCDF	*	2.76e+02	*	*	8.40e+02	*
3	2,3,4,7,8-PeCDF	1.94e+03	2.76e+02	7.0e+00	2.53e+03	8.40e+02	3.0e+00
4	1,2,3,4,7,8-HxCDF	3.43e+03	5.80e+02	5.9e+00	4.64e+03	3.28e+02	1.4e+01
5	1,2,3,6,7,8-HxCDF	2.18e+03	5.80e+02	3.8e+00	1.77e+03	3.28e+02	5.4e+00
6	2,3,4,6,7,8-HxCDF	*	5.80e+02	*	*	3.28e+02	*
7	1,2,3,7,8,9-HxCDF	2.83e+03	5.80e+02	4.9e+00	1.94e+03	3.28e+02	5.9e+00
8	1,2,3,4,6,7,8-HpCDF	6.27e+03	6.48e+02	9.7e+00	5.32e+03	2.52e+02	2.1e+01
9	1,2,3,4,7,8,9-HpCDF	*	6.48e+02	*	*	2.52e+02	*
10	OCDF	5.91e+03	2.72e+02	2.2e+01	1.05e+04	7.44e+02	1.4e+01
11	2,3,7,8-TCDD	9.95e+03	1.20e+03	8.3e+00	1.39e+04	8.24e+02	1.7e+01
12	1,2,3,7,8-PeCDD	5.42e+03	2.92e+02	1.9e+01	3.12e+03	2.56e+02	1.2e+01
13	1,2,3,4,7,8-HxCDD	5.67e+03	2.40e+02	2.4e+01	5.53e+03	1.66e+03	3.3e+00
14	1,2,3,6,7,8-HxCDD	1.06e+04	2.40e+02	4.4e+01	7.20e+03	1.66e+03	4.3e+00
15	1,2,3,7,8,9-HxCDD	1.66e+04	2.40e+02	6.9e+01	2.07e+04	1.66e+03	1.2e+01
16	1,2,3,4,6,7,8-HpCDD	3.22e+05	2.40e+02	1.3e+03	3.13e+05	3.00e+02	1.0e+03
17	OCDD	8.37e+06	3.08e+02	2.7e+04	9.34e+06	3.12e+02	3.0e+04
18	13C-2,3,7,8-TCDF	2.58e+06	4.11e+03	6.3e+02	3.25e+06	1.94e+03	1.7e+03
19	13C-1,2,3,7,8-PeCDF	4.93e+06	6.16e+02	8.0e+03	3.07e+06	3.36e+02	9.1e+03
20	13C-2,3,4,7,8-PeCDF	4.89e+06	6.16e+02	7.9e+03	3.00e+06	3.36e+02	8.9e+03
21	13C-1,2,3,4,7,8-HxCDF	2.34e+06	2.32e+02	1.0e+04	4.43e+06	1.40e+02	3.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.90e+06	2.32e+02	1.3e+04	5.63e+06	1.40e+02	4.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.67e+06	2.32e+02	1.2e+04	5.06e+06	1.40e+02	3.6e+04
24	13C-1,2,3,7,8,9-HxCDF	2.38e+06	2.32e+02	1.0e+04	4.60e+06	1.40e+02	3.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.71e+06	2.89e+03	5.9e+02	3.93e+06	1.80e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.38e+06	2.89e+03	4.8e+02	3.08e+06	1.80e+03	1.7e+03
27	13C-2,3,7,8-TCDD	1.24e+06	4.09e+03	3.0e+02	1.55e+06	1.68e+03	9.3e+02
28	13C-1,2,3,7,8-PeCDD	3.46e+06	2.16e+02	1.6e+04	2.19e+06	4.76e+02	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.51e+06	6.84e+02	5.1e+03	2.76e+06	3.08e+02	8.9e+03
30	13C-1,2,3,6,7,8-HxCDD	3.23e+06	6.84e+02	4.7e+03	2.58e+06	3.08e+02	8.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.37e+06	3.40e+02	9.9e+03	3.12e+06	3.44e+02	9.1e+03
32	13C-OCDD	2.22e+06	4.04e+02	5.5e+03	2.39e+06	3.04e+02	7.9e+03
33	13C-1,2,3,4-TCDD	3.03e+06	4.09e+03	7.4e+02	3.73e+06	1.68e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	4.93e+06	6.84e+02	7.2e+03	3.76e+06	3.08e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	4.24e+06	5.68e+02	7.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0581

Entry: 36 Totals Name: Total Tetra-Furans

Run: 20 File: P519300 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 05:39:44 Processed: 10-DEC-18 09:24:41

Mass: 303.9020 305.8990 Tot Response: 7.84e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:03	9.66e+01	1.16e+02	0.83	yes	2.13e+02		n	n
2	27:51	2.39e+02	3.32e+02	0.72	yes	5.71e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0581

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 20 File: P519300 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 05:39:44 Processed: 10-DEC-18 09:24:41

Mass: 355.8550 357.8520 Tot Response: 1.43e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:16	3.75e+01	2.49e+01	1.51	yes	6.24e+01		n	n
2	32:12	1.09e+01	8.18e+00	1.33	yes	1.91e+01		n	n
3	32:22	1.77e+01	1.17e+01	1.51	yes	2.94e+01		n	n
4	33:26	1.91e+01	1.33e+01	1.44	yes	3.24e+01	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0581

Entry: 41 Totals Name: Total Hexa-Furans

Run: 20 File: P519300 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 05:39:44 Processed: 10-DEC-18 09:24:41

Mass: 373.8210 375.8180 Tot Response: 3.56e+01 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:59	1.03e+01	8.09e+00	1.27	yes	1.84e+01	1,2,3,6,7,8-HxCDF	n	n
2	37:18	9.81e+00	7.36e+00	1.33	yes	1.72e+01	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0581

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 20 File: P519300 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 05:39:44 Processed: 10-DEC-18 09:24:41

Mass: 389.8160 391.8130 Tot Response: 1.86e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	6.98e+02	5.76e+02	1.21	yes	1.27e+03		n	n
2	36:03	3.41e+02	2.41e+02	1.41	yes	5.83e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0581

Entry: 43 Totals Name: Total Hepta-Furans

Run: 20 File: P519300 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 05:39:44 Processed: 10-DEC-18 09:24:41

Mass: 407.7820 409.7790 Tot Response: 1.17e+02 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	3.08e+01	2.73e+01	1.13	yes	5.80e+01	1,2,3,4,6,7,8-HpCDF	n	n
2	39:04	2.87e+01	3.06e+01	0.94	yes	5.94e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0581

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 20 File: P519300 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 05:39:44 Processed: 10-DEC-18 09:24:41

Mass: 423.7770 425.7740 Tot Response: 1.14e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	3.86e+03	3.66e+03	1.06	yes	7.52e+03		n	n
2	39:37	1.95e+03	1.90e+03	1.02	yes	3.85e+03	1,2,3,4,6,7,8-HpCDD	n	n

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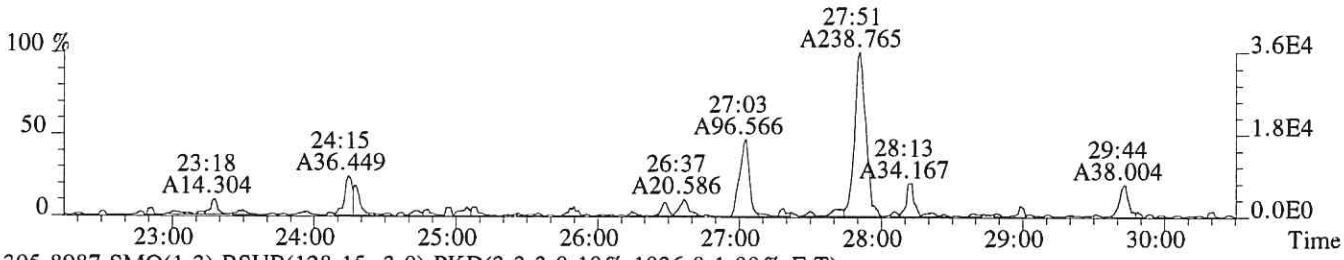
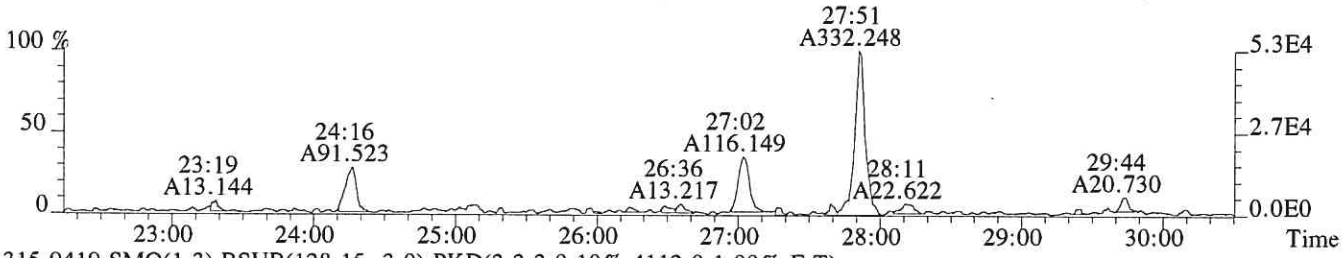
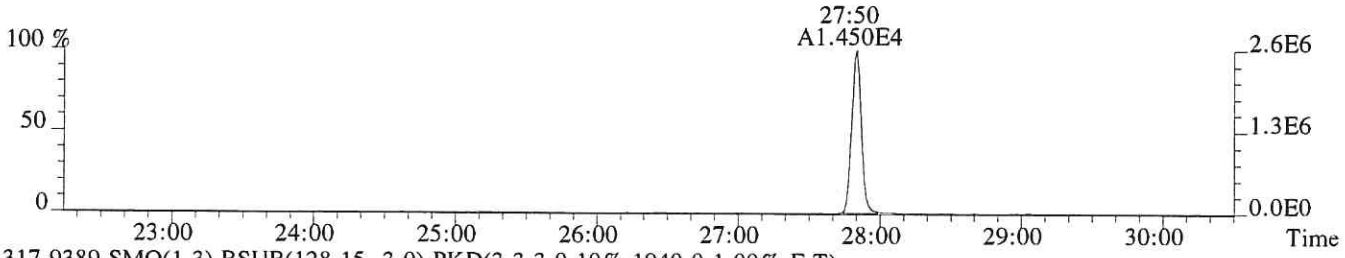
File:P519300 #1-587 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



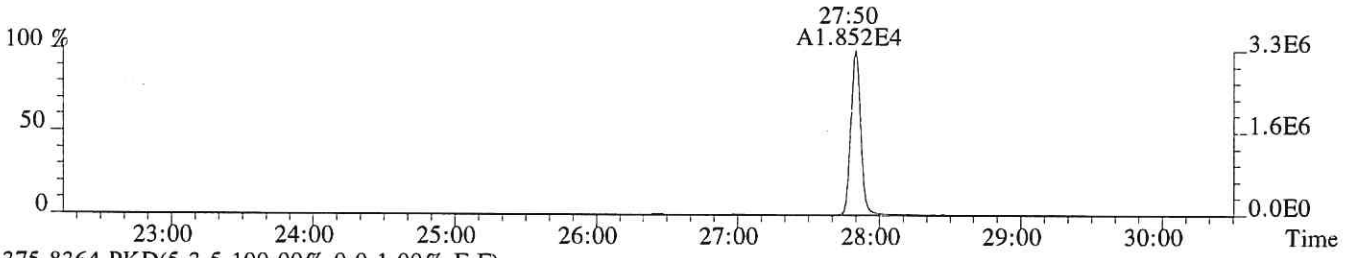
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



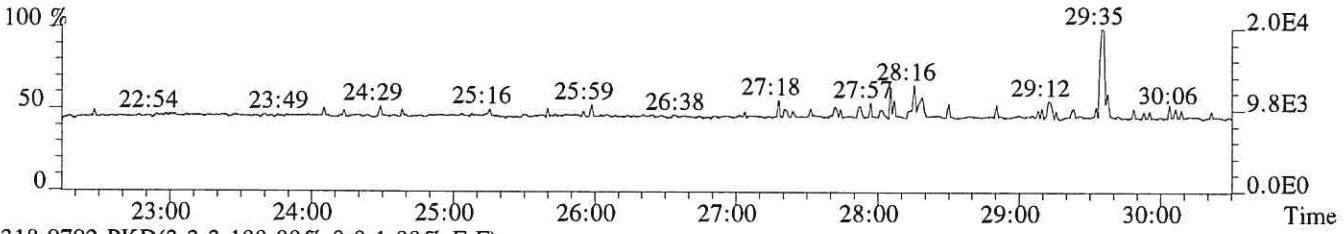
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4112.0,1.00%,F,T)



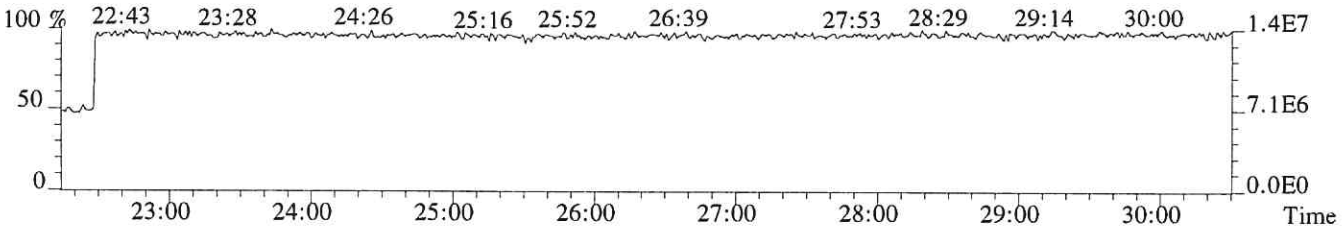
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



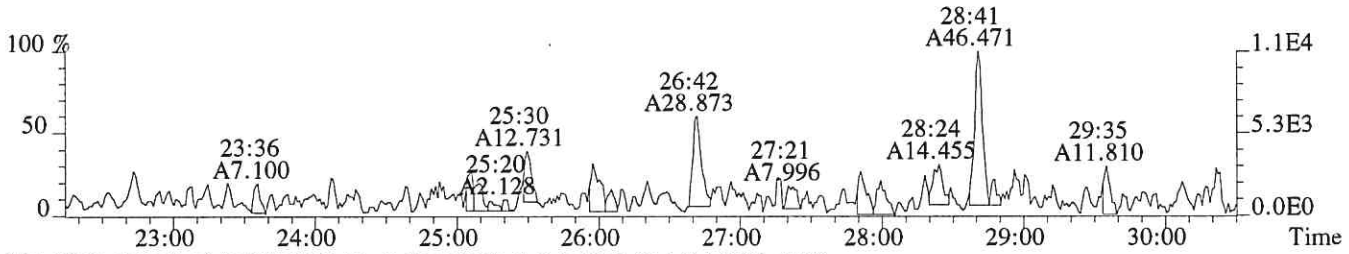
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



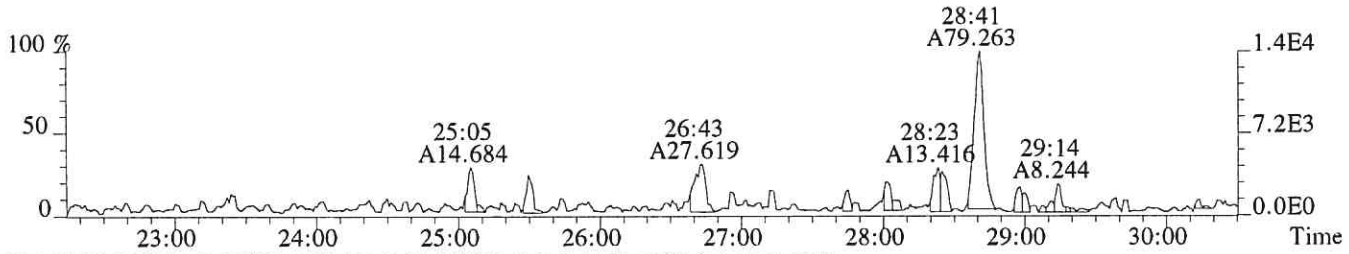
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



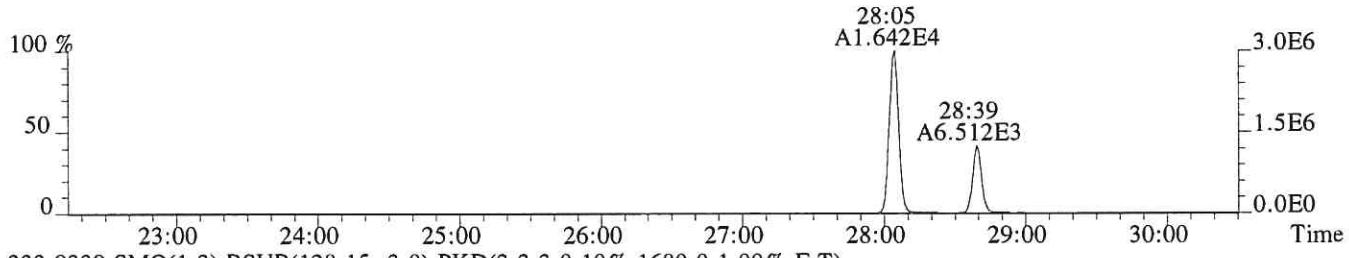
File:P519300 #1-587 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



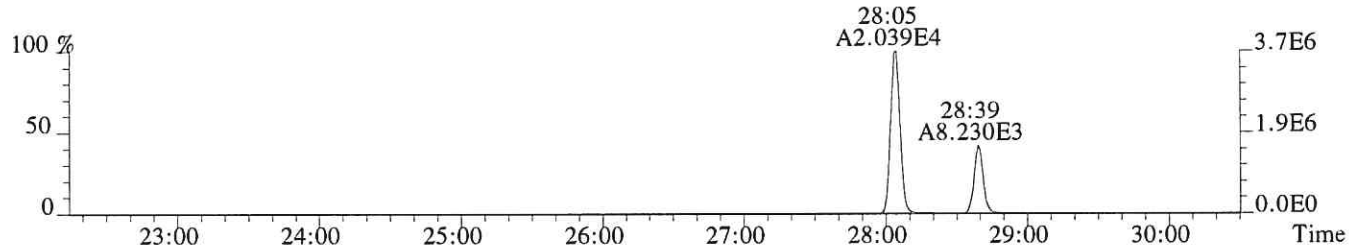
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



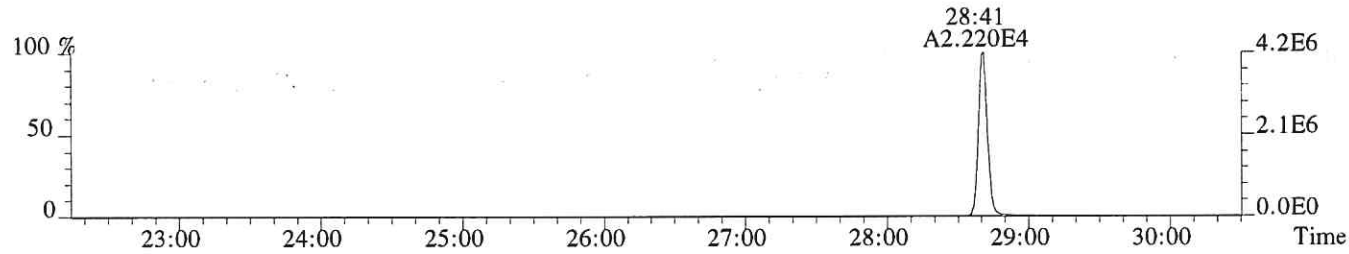
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



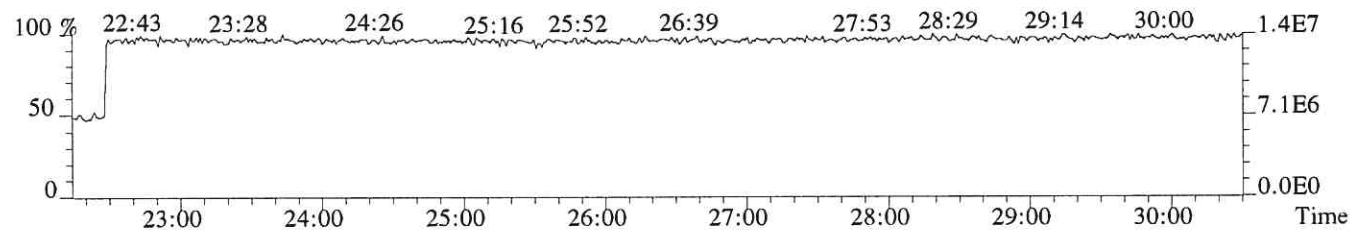
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



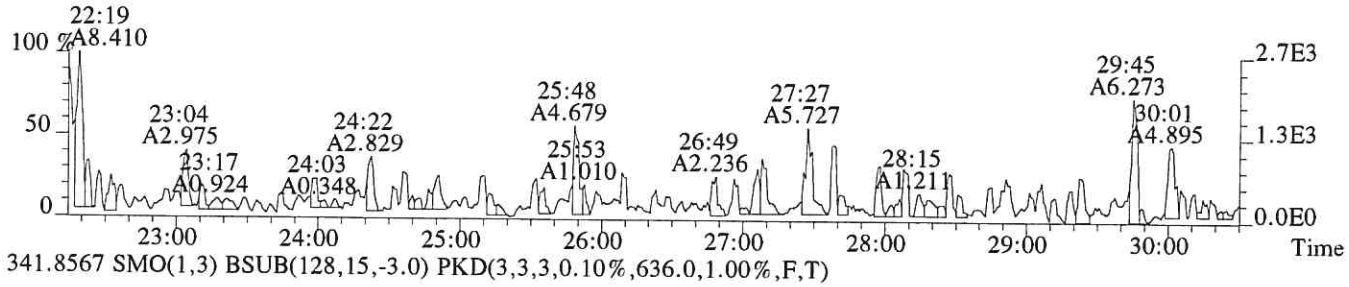
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



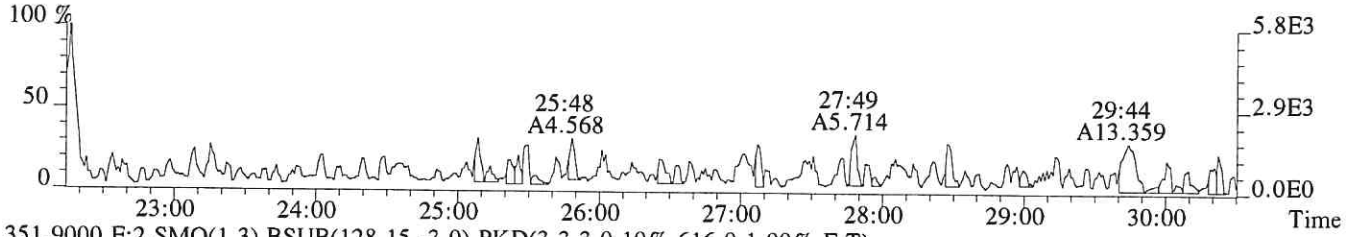
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



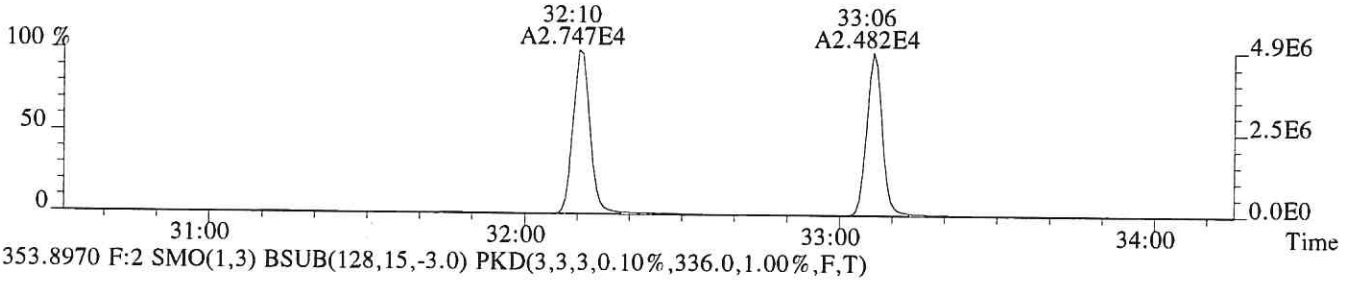
File:P519300 #1-587 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



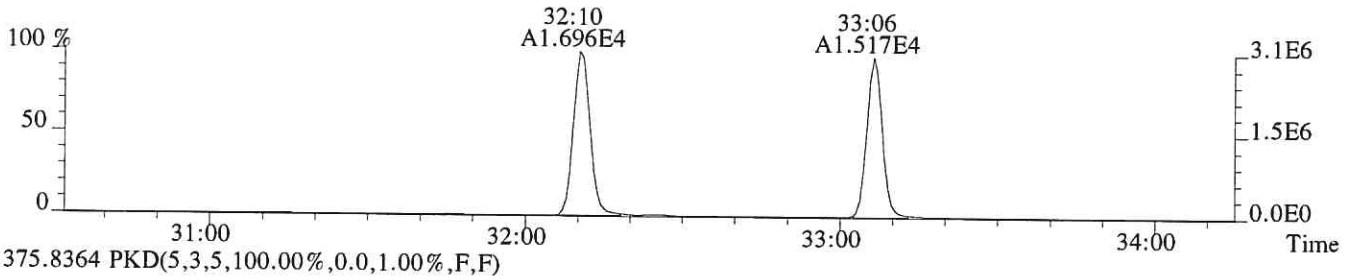
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



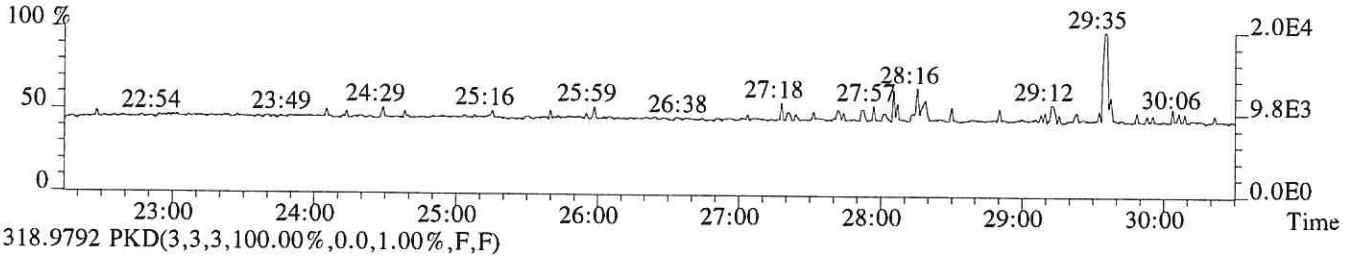
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



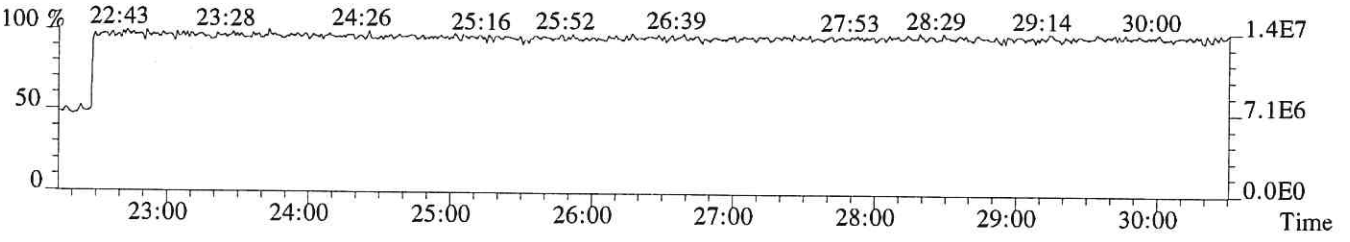
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

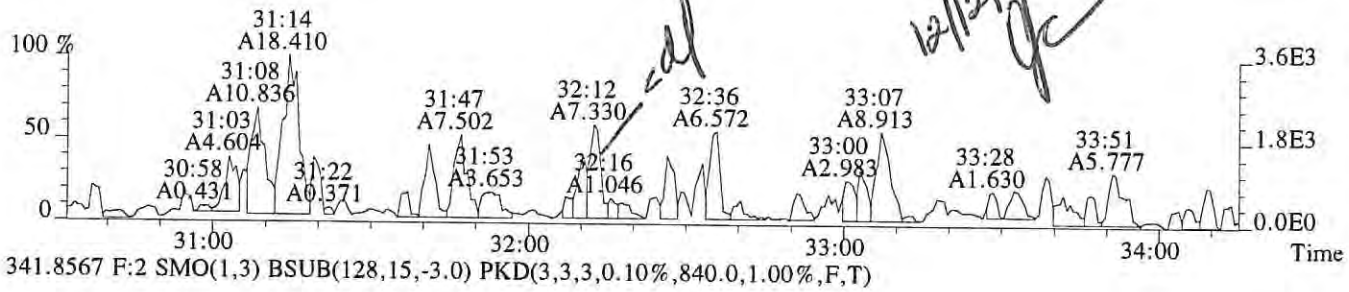


File:P519300 #1-335 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002

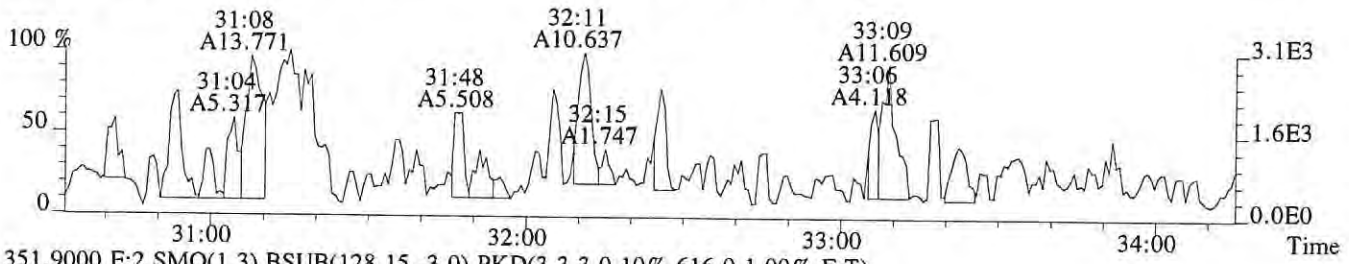
LIU 12/12/18

12/12/18 JC

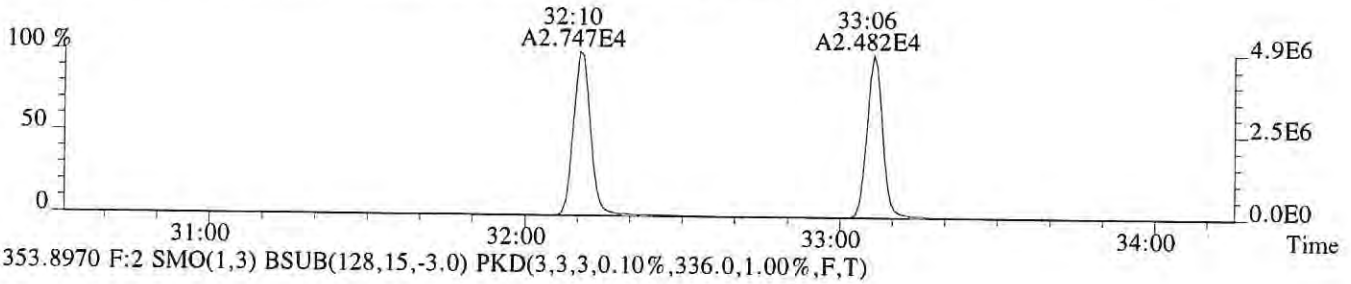
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



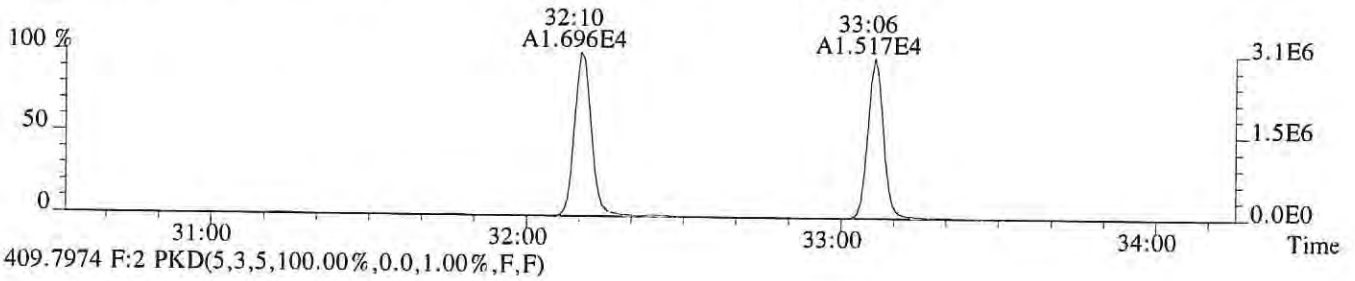
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



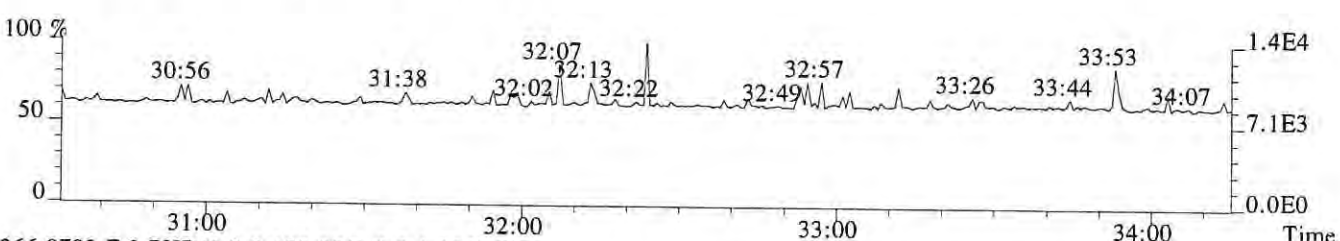
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



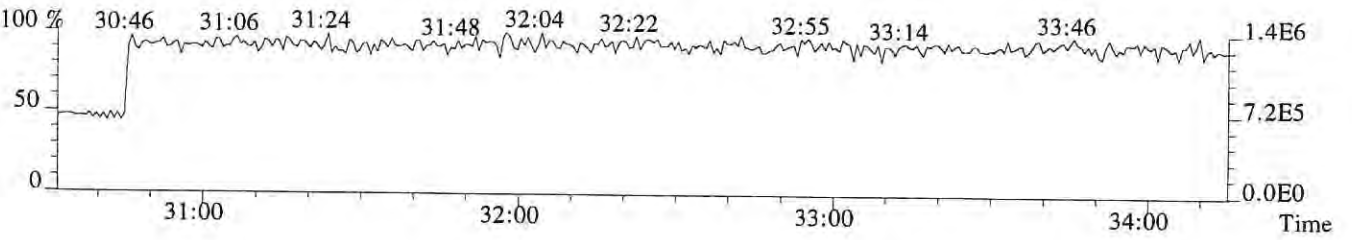
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



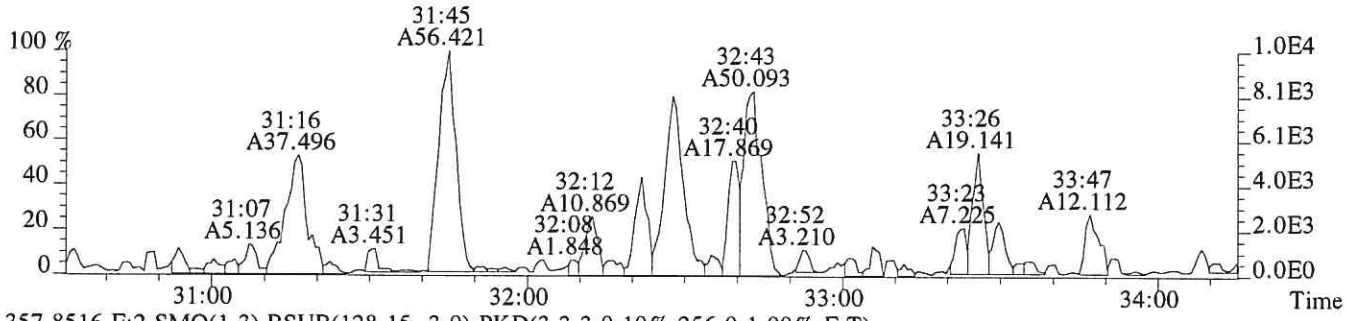
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



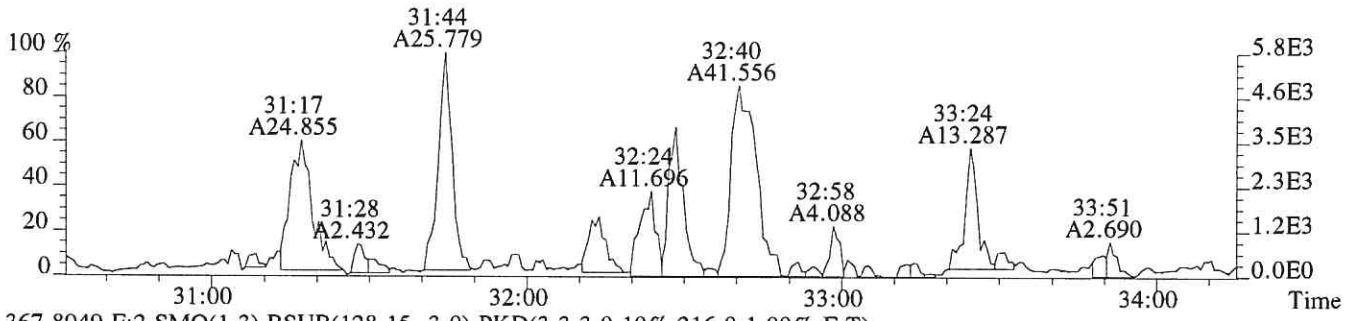
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



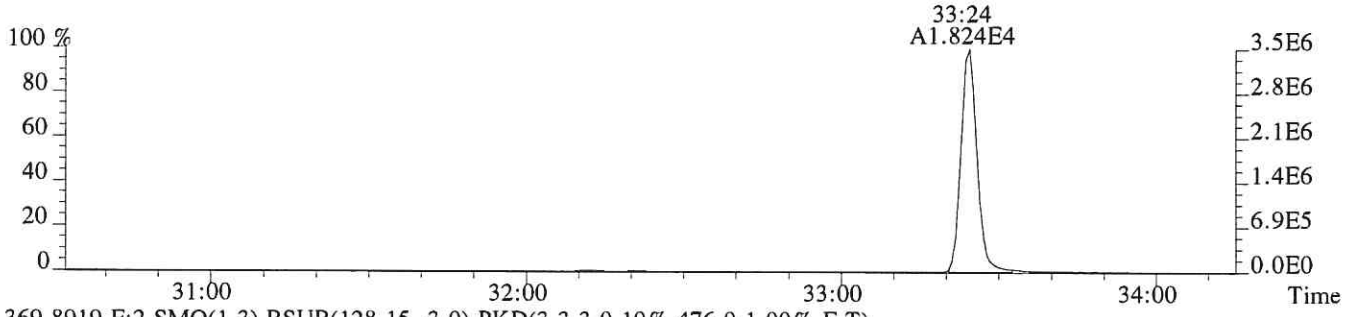
File:P519300 #1-335 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



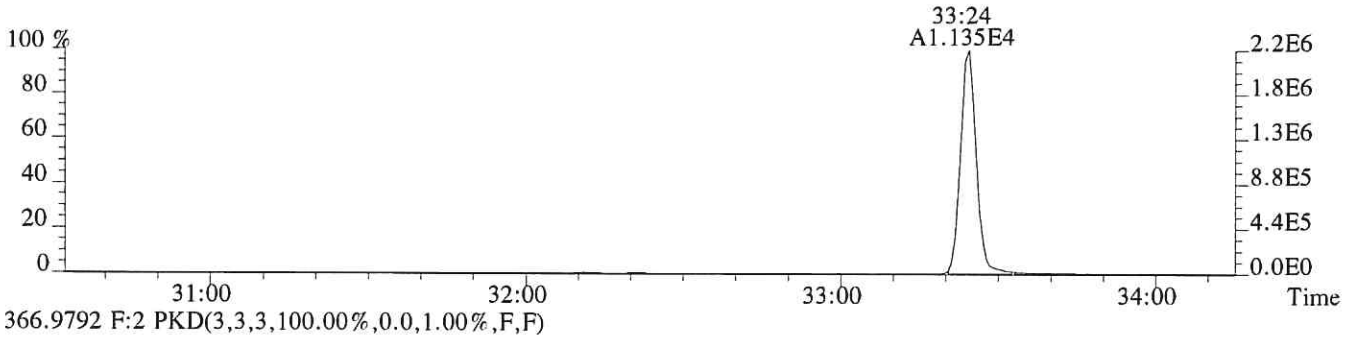
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



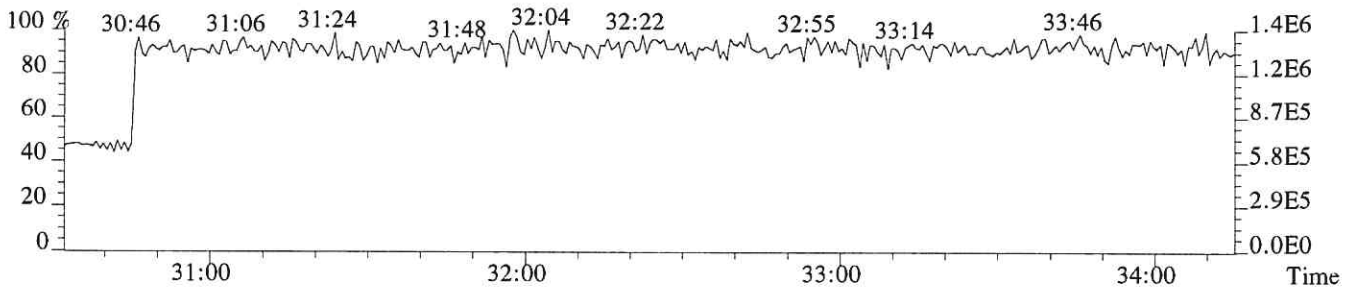
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



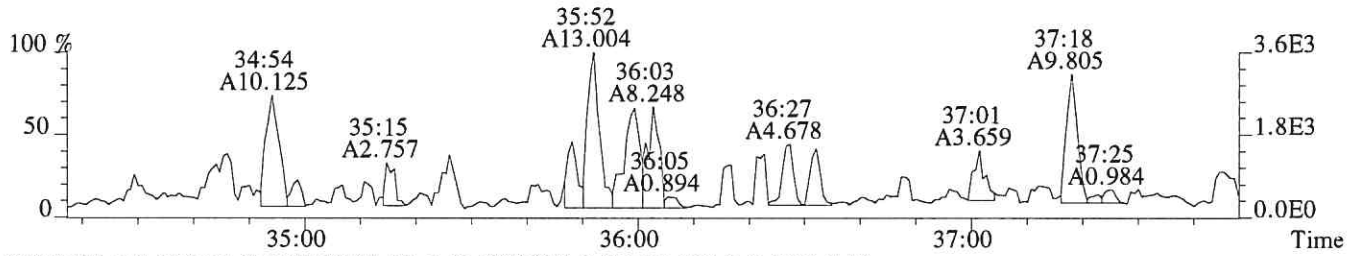
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



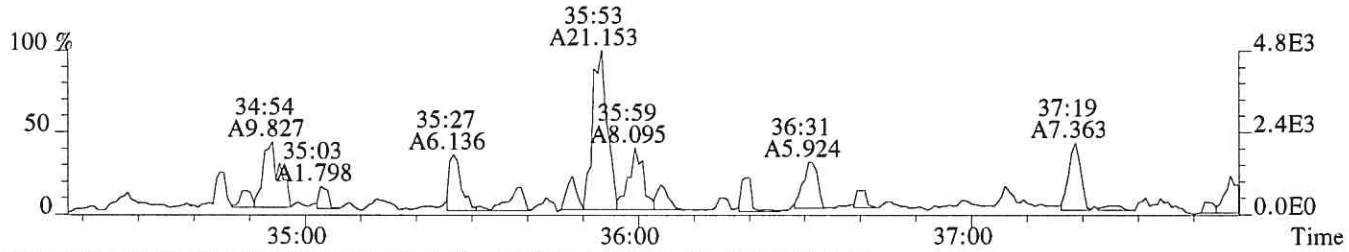
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



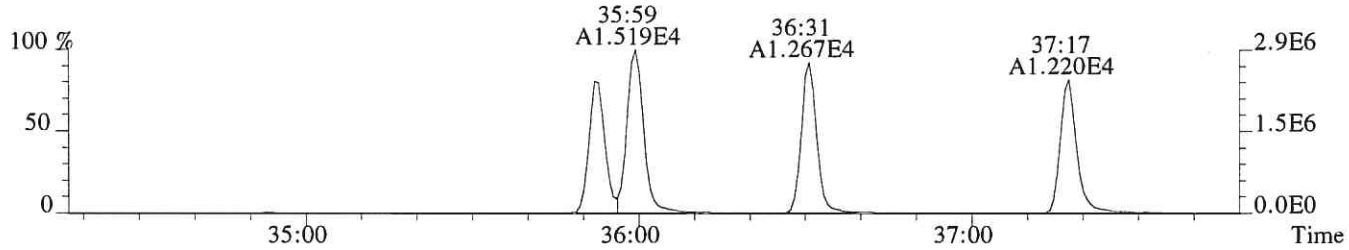
File:P519300 #1-317 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



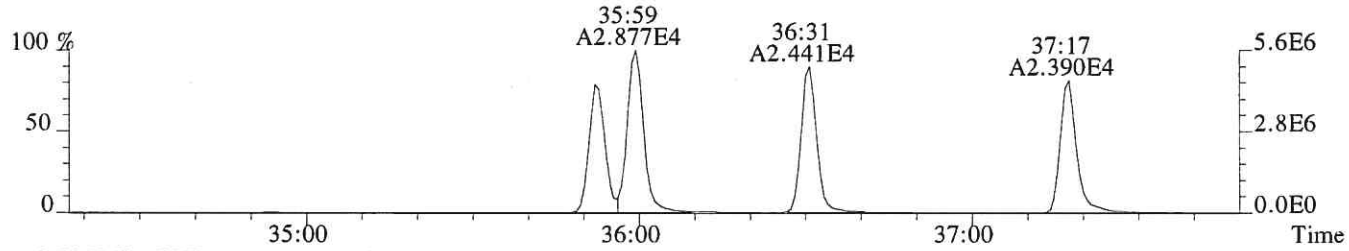
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



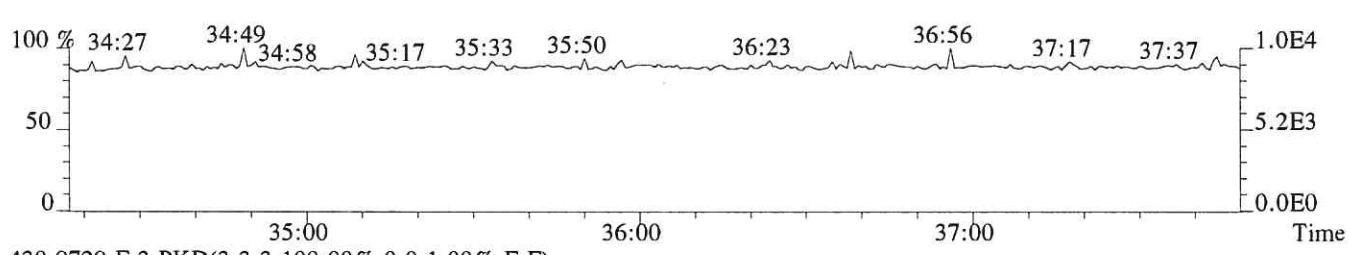
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



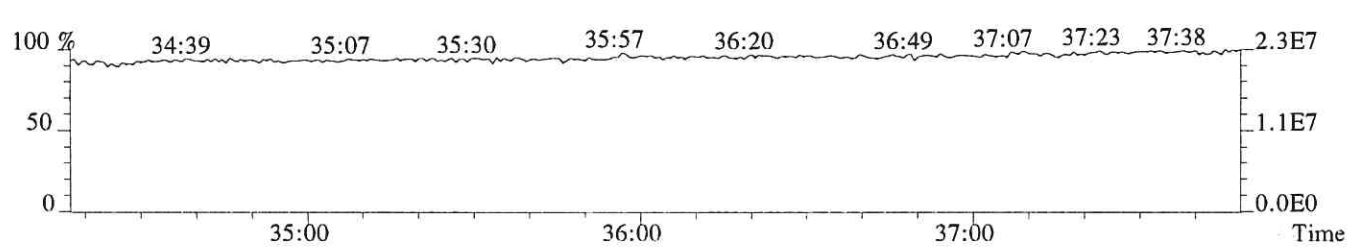
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



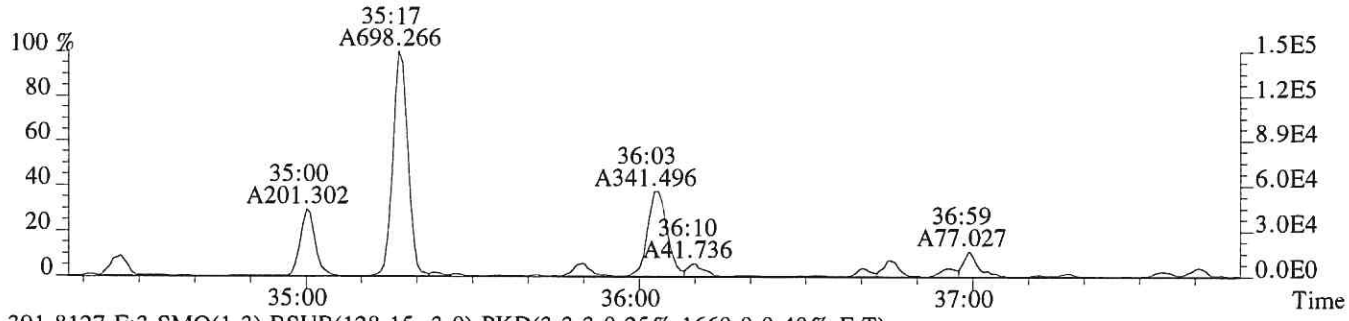
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



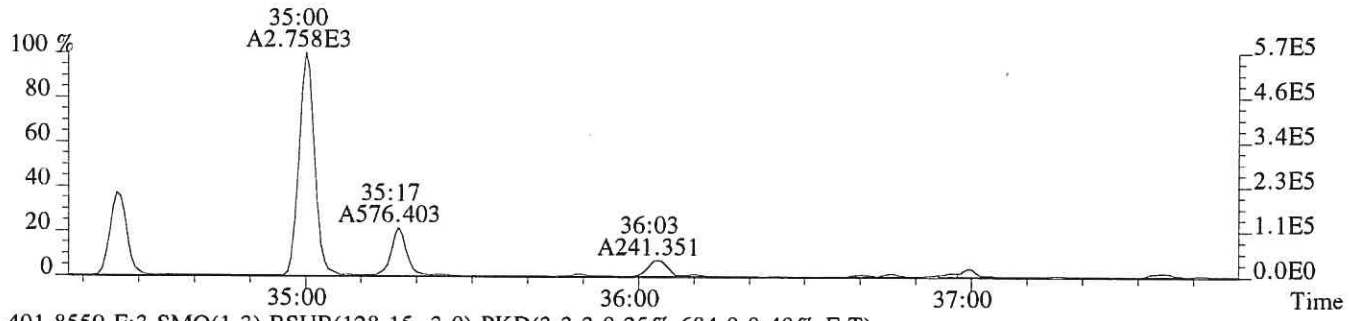
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



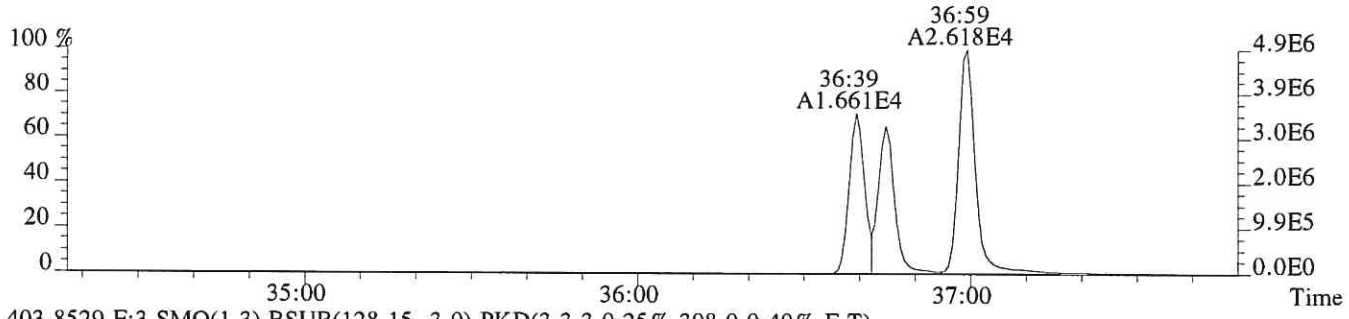
File:P519300 #1-317 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



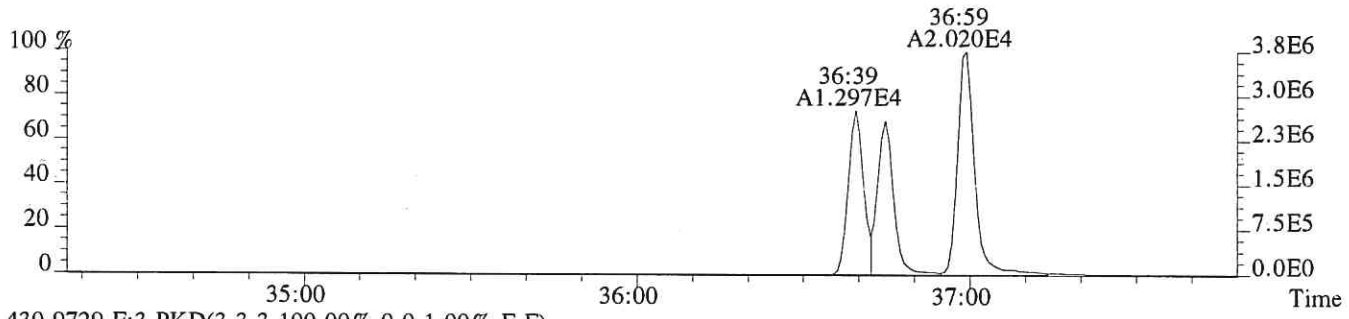
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1660.0,0.40%,F,T)



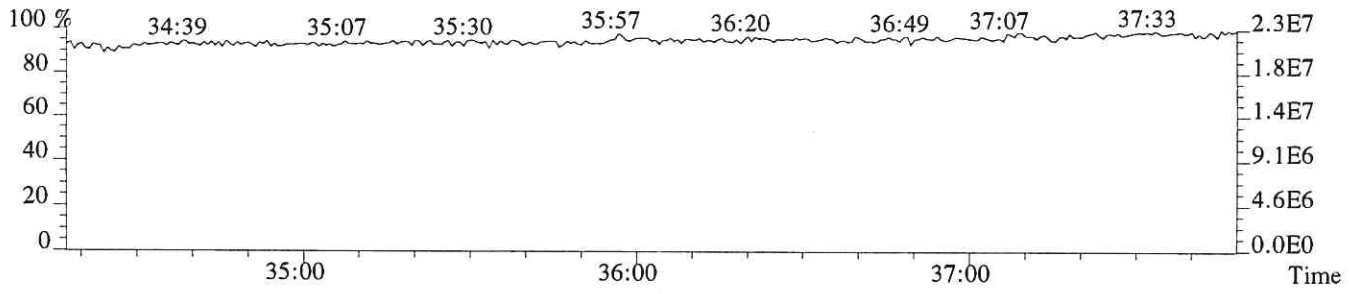
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



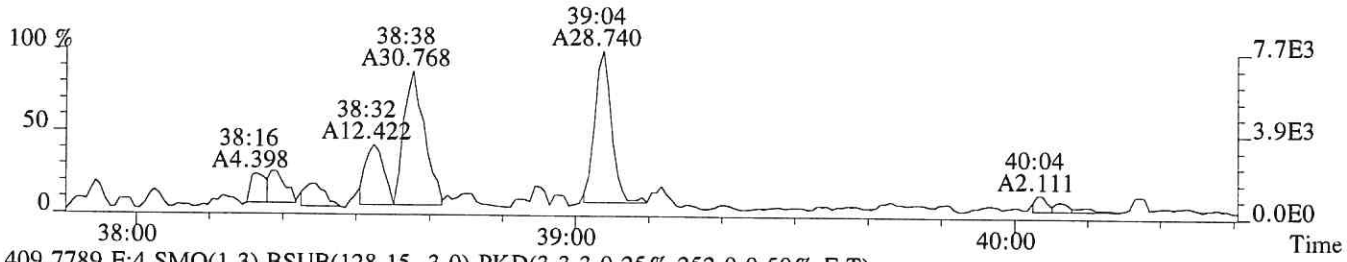
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



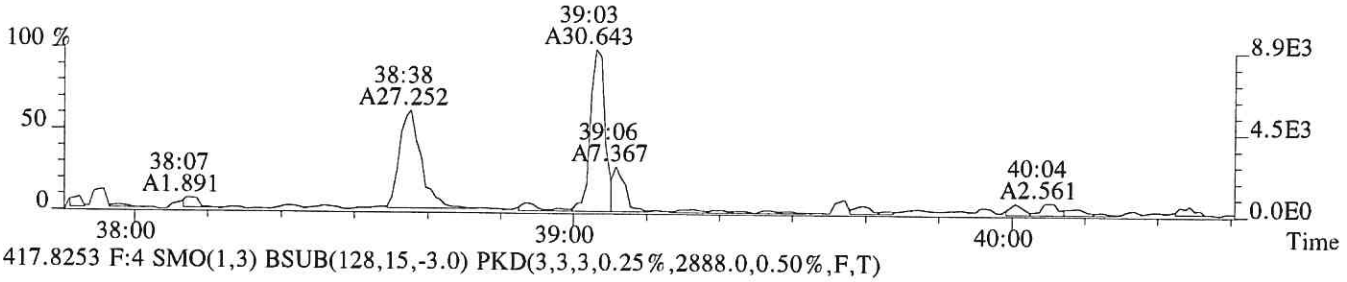
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



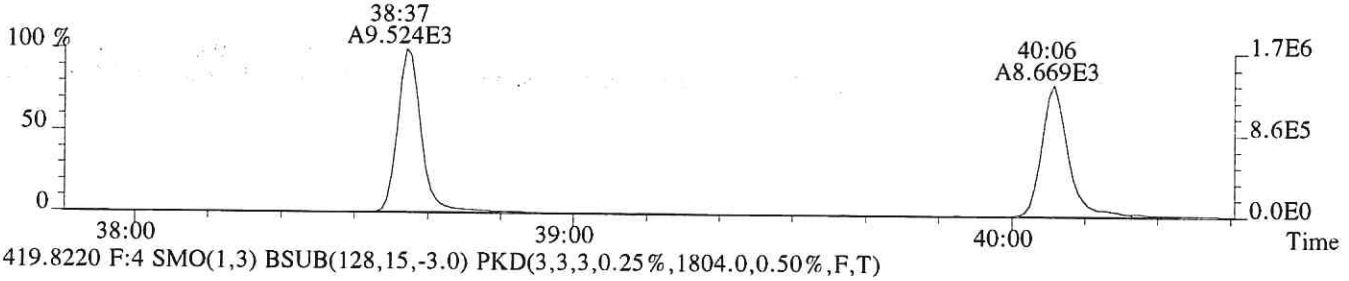
File:P519300 #1-241 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.50%,F,T)



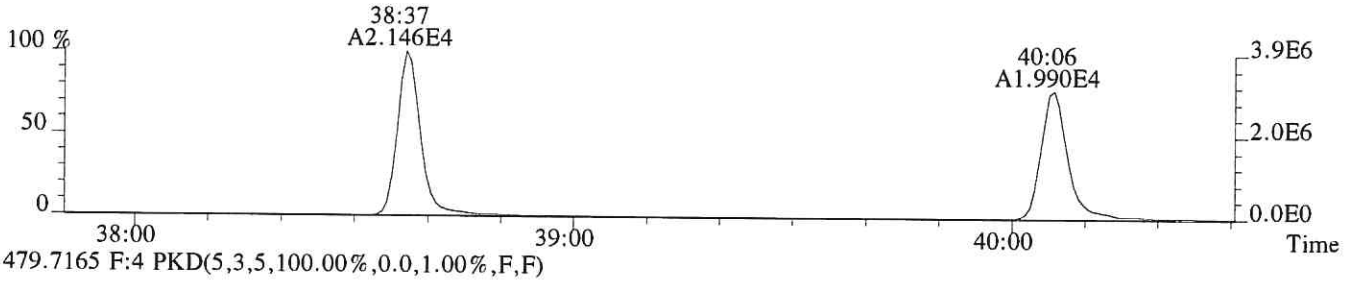
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.50%,F,T)



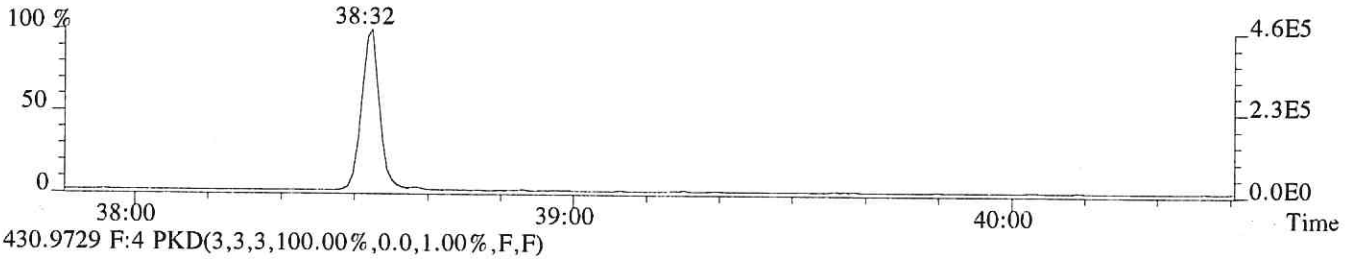
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



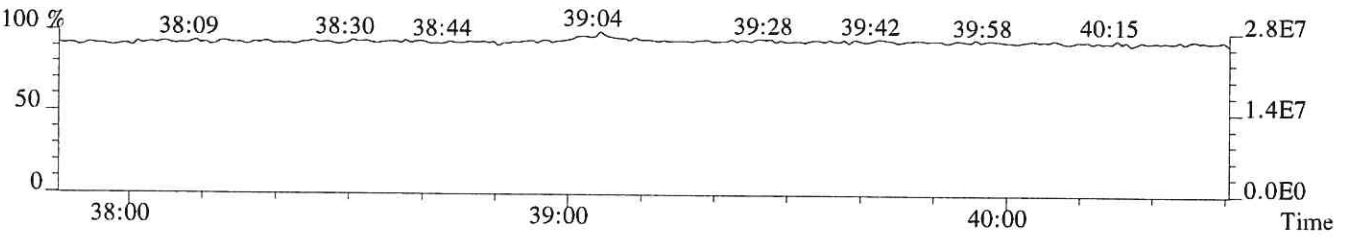
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.50%,F,T)



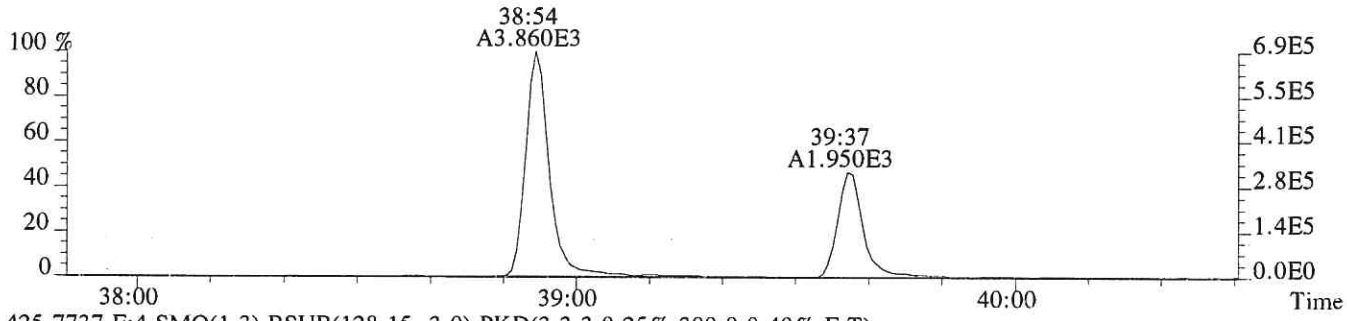
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



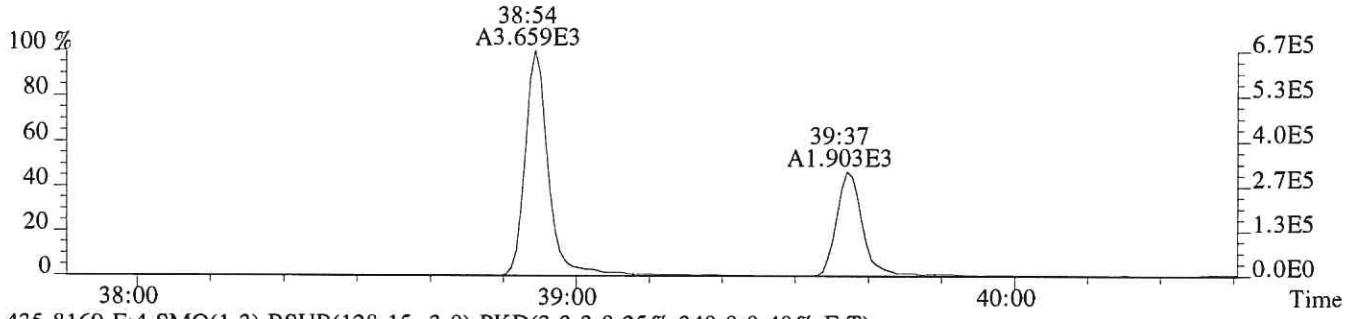
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



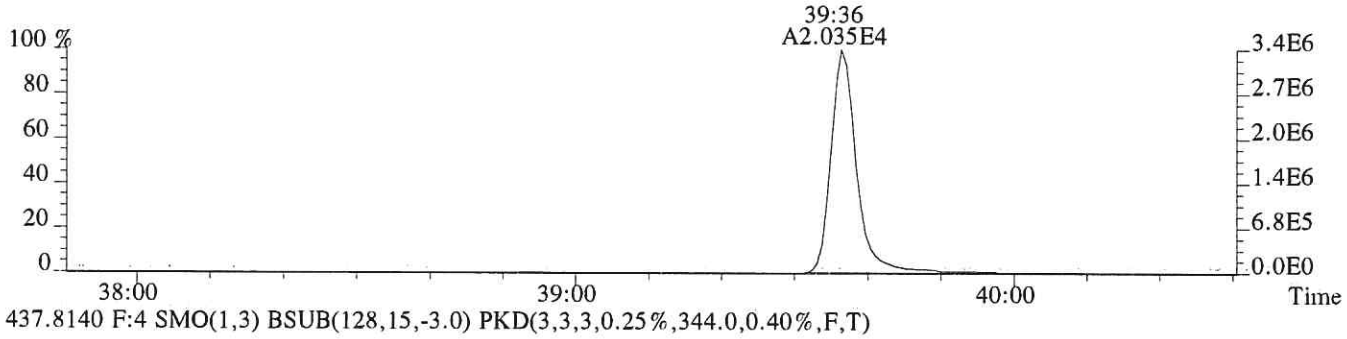
File:P519300 #1-241 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



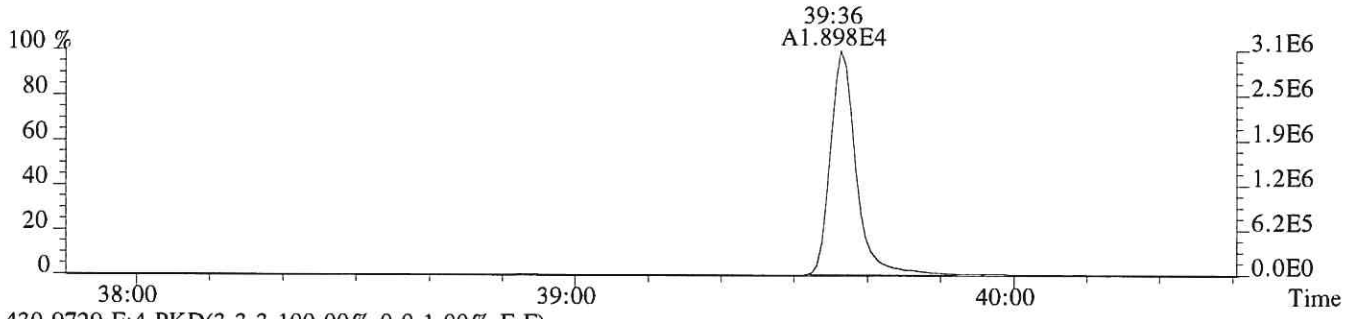
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



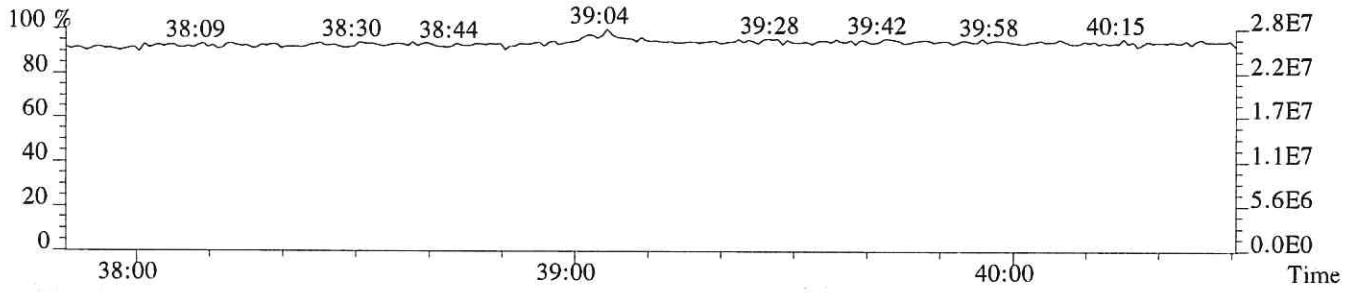
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



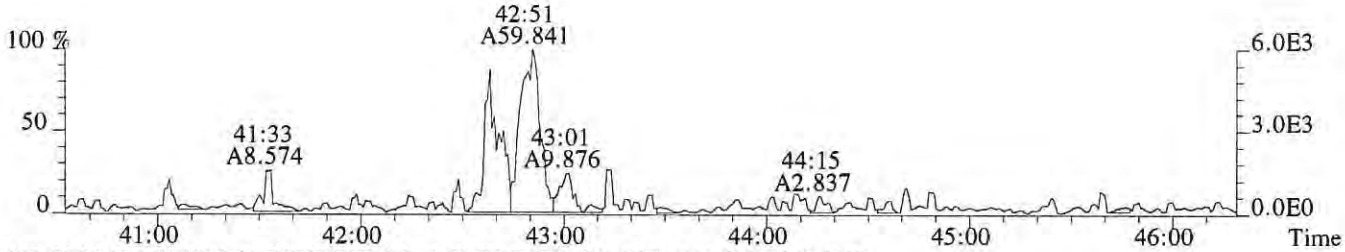
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



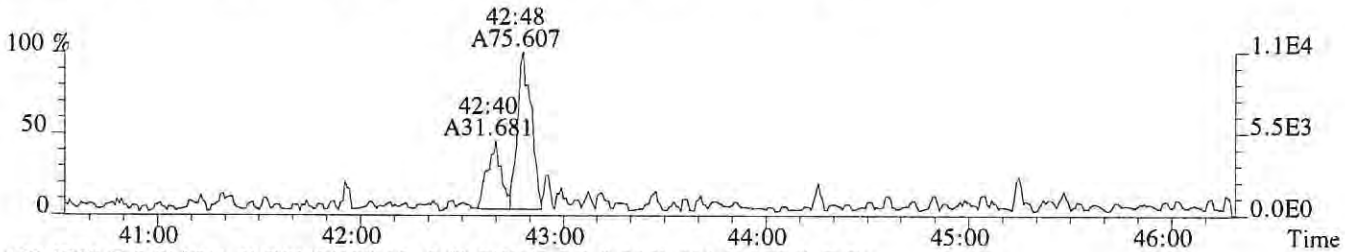
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



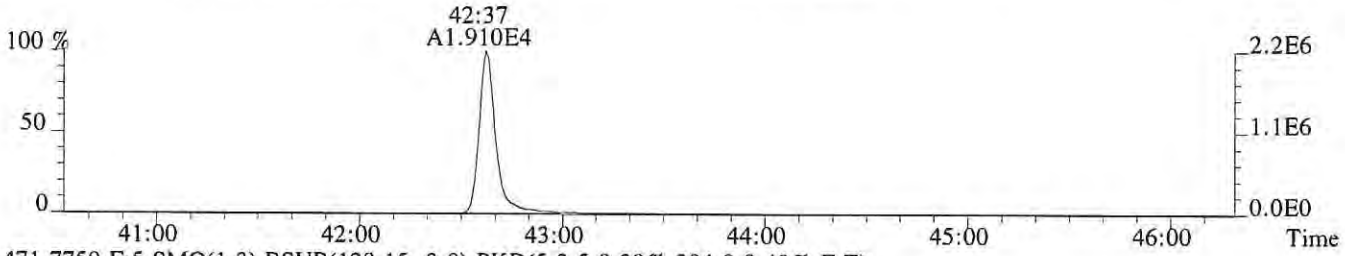
File:P519300 #1-520 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



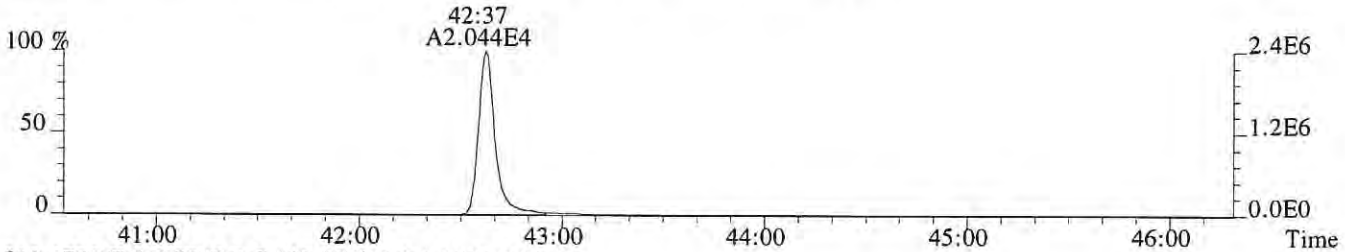
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



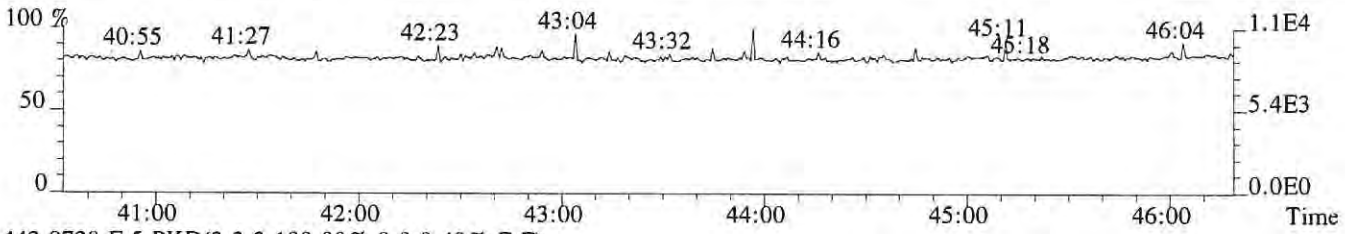
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



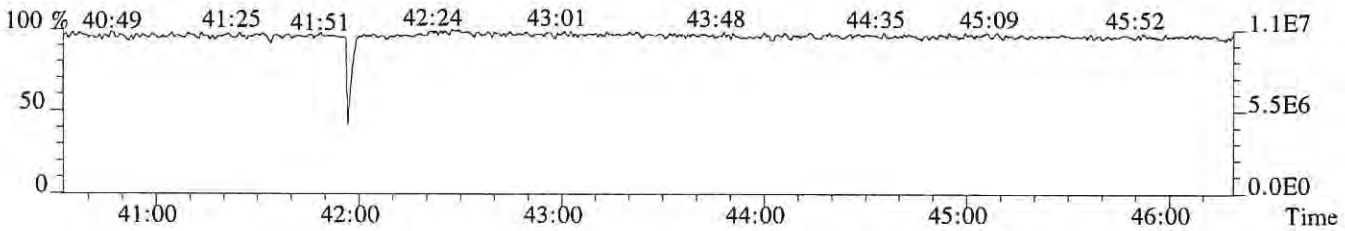
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



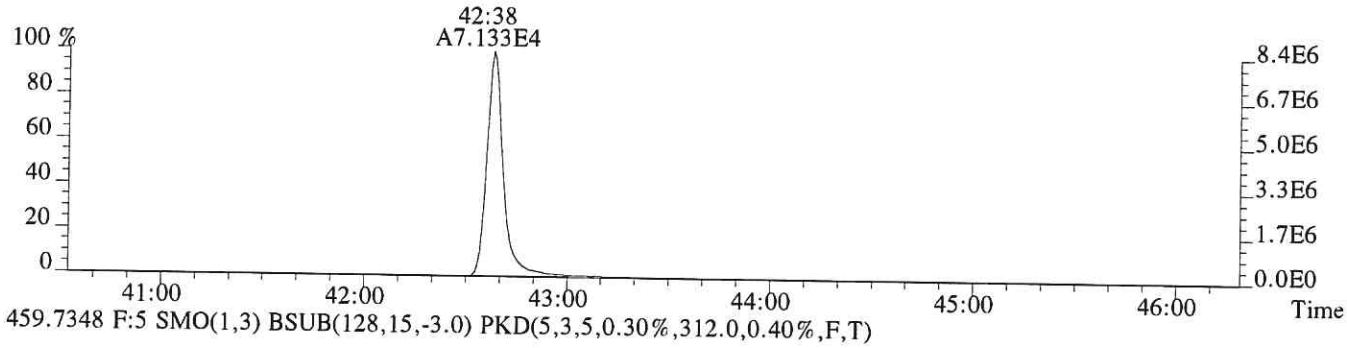
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



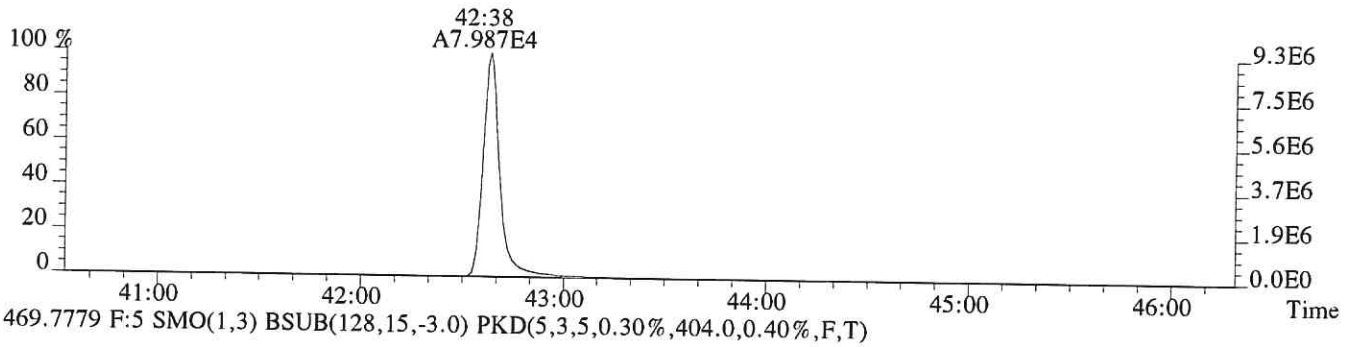
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



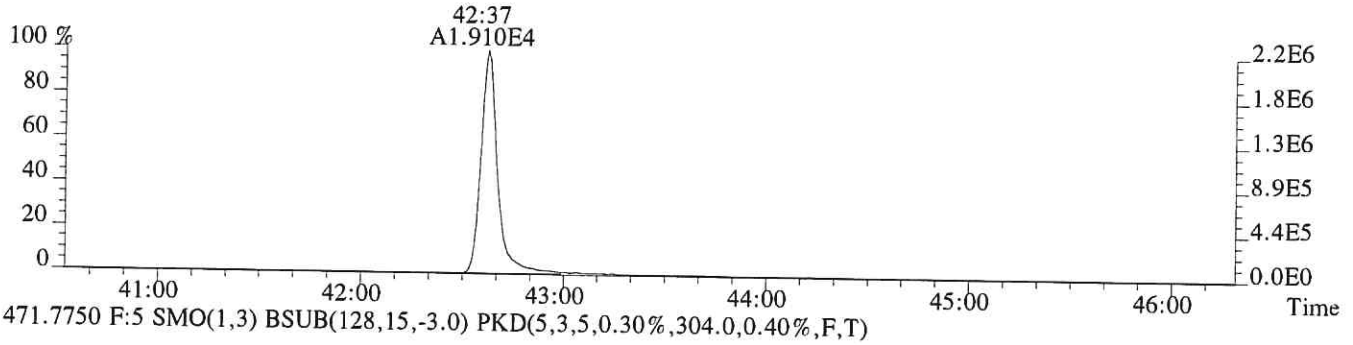
File:P519300 #1-520 Acq: 8-DEC-2018 05:39:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



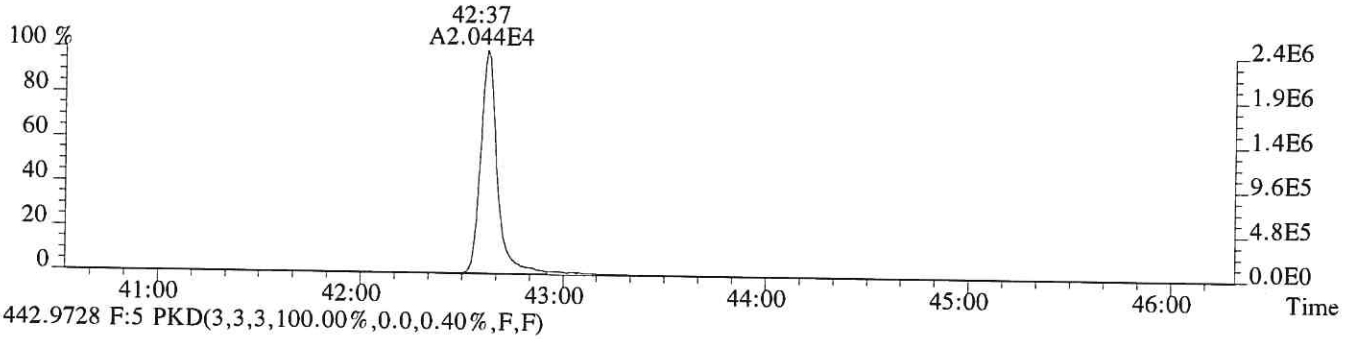
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



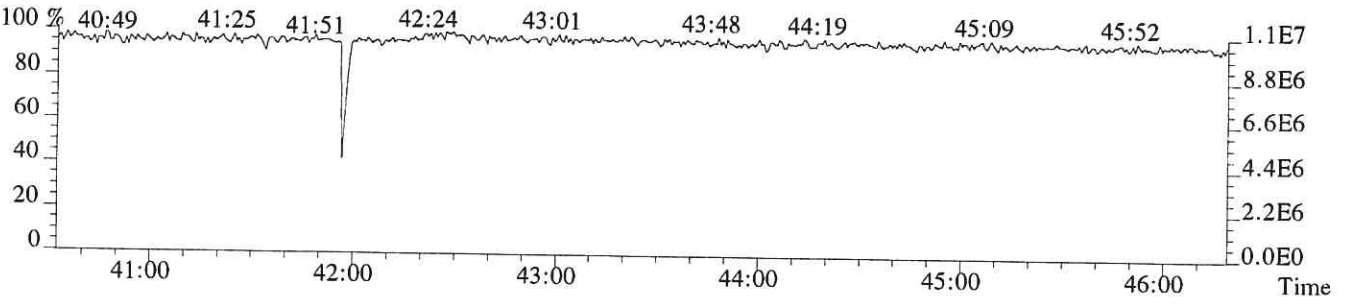
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0582

Run #21 Filename P519301 Samp: 1 Inj: 1 Acquired: 8-DEC-18 06:28:20
Processed: 10-DEC-18 09:24:42 Sample ID: E1801065-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:52	2.554e+03	3.158e+03	0.81	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	1.517e+02	7.973e+01	1.90	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	9.590e+01	9.119e+01	1.05	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.271e+02	1.530e+02	1.48	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	1.048e+02	6.735e+01	1.56	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	2.302e+01	2.502e+01	0.92	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	3.788e+01	1.642e+01	2.31	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	2.960e+02	3.031e+02	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:05	3.234e+01	4.027e+01	0.80	no	no	1.258
10	Unk	OCDF	42:49	1.134e+03	1.346e+03	0.84	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	4.544e+02	5.768e+02	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:26	2.086e+01	1.078e+01	1.93	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:46	4.648e+01	3.140e+01	1.48	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:00	5.827e+01	4.580e+01	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	1.668e+03	1.541e+03	1.08	yes	no	1.025
17	Unk	OCDD	42:39	3.872e+04	4.313e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	9.543e+03	1.222e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:11	1.750e+04	1.109e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:07	1.668e+04	1.018e+04	1.64	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	7.795e+03	1.493e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	9.521e+03	1.850e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	7.470e+03	1.419e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	6.694e+03	1.296e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	5.518e+03	1.247e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:04	5.099e+03	1.171e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	4.278e+03	5.331e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.249e+04	7.392e+03	1.69	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:40	1.149e+04	9.050e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.077e+04	8.395e+03	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	1.103e+04	1.055e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:38	7.308e+03	7.859e+03	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.178e+04	1.449e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	1.792e+04	1.368e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	6.239e+03				no	1.014

$$\text{OCDD} = \frac{(3.872e+04 + 4.313e+04) \times 4000\ \text{pg} \times 1}{(7.308e+03 + 7.859e+03) \times 10.494\ \text{g} \times 71.7 / 100 \times 1.118} = 2566\ \text{ng/kg}$$

LMM 12/12/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0582

Run #21 Filename P519301 Samp: 1 Inj: 1 Acquired: 8-DEC-18 06:28:20
Processed: 10-DEC-18 09:24:42 LAB. ID: E1801065-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.27e+05	4.08e+02	1.0e+03	5.15e+05	4.64e+02	1.1e+03
2	1,2,3,7,8-PeCDF	2.34e+04	3.44e+02	6.8e+01	1.56e+04	1.33e+03	1.2e+01
3	2,3,4,7,8-PeCDF	1.98e+04	3.44e+02	5.7e+01	1.55e+04	1.33e+03	1.2e+01
4	1,2,3,4,7,8-HxCDF	4.67e+04	2.96e+02	1.6e+02	3.15e+04	3.00e+02	1.0e+02
5	1,2,3,6,7,8-HxCDF	2.03e+04	2.96e+02	6.9e+01	1.22e+04	3.00e+02	4.1e+01
6	2,3,4,6,7,8-HxCDF	4.57e+03	2.96e+02	1.5e+01	5.14e+03	3.00e+02	1.7e+01
7	1,2,3,7,8,9-HxCDF	6.27e+03	2.96e+02	2.1e+01	2.76e+03	3.00e+02	9.2e+00
8	1,2,3,4,6,7,8-HpCDF	5.83e+04	8.40e+02	6.9e+01	5.97e+04	3.04e+02	2.0e+02
9	1,2,3,4,7,8,9-HpCDF	7.19e+03	8.40e+02	8.6e+00	7.74e+03	3.04e+02	2.5e+01
10	OCDF	1.34e+05	2.68e+02	5.0e+02	1.61e+05	3.56e+02	4.5e+02
11	2,3,7,8-TCDD	8.08e+04	8.92e+02	9.1e+01	1.06e+05	6.20e+02	1.7e+02
12	1,2,3,7,8-PeCDD	4.14e+03	2.08e+02	2.0e+01	1.62e+03	2.92e+02	5.6e+00
13	1,2,3,4,7,8-HxCDD	*	3.24e+02	*	*	9.20e+02	*
14	1,2,3,6,7,8-HxCDD	9.07e+03	3.24e+02	2.8e+01	8.09e+03	9.20e+02	8.8e+00
15	1,2,3,7,8,9-HxCDD	1.13e+04	3.24e+02	3.5e+01	1.02e+04	9.20e+02	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	2.90e+05	3.32e+02	8.7e+02	2.71e+05	1.24e+03	2.2e+02
17	OCDD	4.50e+06	2.88e+02	1.6e+04	5.12e+06	4.24e+02	1.2e+04
18	13C-2,3,7,8-TCDF	1.72e+06	4.69e+03	3.7e+02	2.20e+06	2.43e+03	9.1e+02
19	13C-1,2,3,7,8-PeCDF	3.29e+06	7.64e+02	4.3e+03	2.09e+06	5.24e+02	4.0e+03
20	13C-2,3,4,7,8-PeCDF	3.20e+06	7.64e+02	4.2e+03	1.95e+06	5.24e+02	3.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.65e+06	2.36e+02	7.0e+03	3.15e+06	8.20e+02	3.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.84e+06	2.36e+02	7.8e+03	3.61e+06	8.20e+02	4.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.52e+06	2.36e+02	6.5e+03	2.86e+06	8.20e+02	3.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.28e+06	2.36e+02	5.4e+03	2.52e+06	8.20e+02	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.08e+06	9.48e+02	1.1e+03	2.44e+06	1.06e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.20e+05	9.48e+02	8.7e+02	1.86e+06	1.06e+03	1.8e+03
27	13C-2,3,7,8-TCDD	7.90e+05	3.79e+03	2.1e+02	1.00e+06	1.26e+03	8.0e+02
28	13C-1,2,3,7,8-PeCDD	2.36e+06	3.88e+02	6.1e+03	1.38e+06	3.56e+02	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.37e+06	4.56e+02	5.2e+03	1.86e+06	4.16e+02	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	2.14e+06	4.56e+02	4.7e+03	1.68e+06	4.16e+02	4.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.90e+06	3.84e+02	4.9e+03	1.81e+06	2.48e+02	7.3e+03
32	13C-OCDD	8.32e+05	2.52e+02	3.3e+03	9.27e+05	2.16e+02	4.3e+03
33	13C-1,2,3,4-TCDD	2.23e+06	3.79e+03	5.9e+02	2.77e+06	1.26e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+06	4.56e+02	7.9e+03	2.79e+06	4.16e+02	6.7e+03
35	37Cl-2,3,7,8-TCDD	1.18e+06	7.44e+02	1.6e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0582

Entry: 36 Totals Name: Total Tetra-Furans

Run: 21 File: P519301 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 303.9020 305.8990 Tot Response: 9.59e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:08	1.23e+02	1.66e+02	0.74	yes	2.89e+02		n	n
2	25:31	4.63e+01	5.46e+01	0.85	yes	1.01e+02		n	n
3	26:18	7.98e+00	1.02e+01	0.78	yes	1.82e+01		n	n
4	26:35	1.09e+02	1.59e+02	0.69	yes	2.68e+02		n	n
5	27:02	1.05e+03	1.43e+03	0.74	yes	2.48e+03		n	n
6	27:17	8.10e+01	1.05e+02	0.77	yes	1.86e+02		n	n
7	27:52	2.55e+03	3.16e+03	0.81	yes	5.71e+03	2,3,7,8-TCDF	n	n
8	28:12	2.52e+02	2.85e+02	0.88	yes	5.37e+02		n	n

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Peak List Summary

CLIENT ID.
SL0582

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 21 File: P519301 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 319.8970 321.8940 Tot Response: 1.17e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:41	4.54e+02	5.77e+02	0.79	yes	1.03e+03	2,3,7,8-TCDD	n	n
2	28:49	5.91e+00	8.52e+00	0.69	yes	1.44e+01		n	n
3	29:00	5.72e+01	7.06e+01	0.81	yes	1.28e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0582

Entry: 38 Totals Name: Total Penta-Furans1

Run: 21 File: P519301 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 339.8600 341.8570 Tot Response: 1.37e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:44	7.94e+01	5.75e+01 1.38	yes	1.37e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0582

Entry: 39 Totals Name: Total Penta-Furans2

Run: 21 File: P519301 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 339.8600 341.8570 Tot Response: 3.53e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:48	2.09e+01	1.43e+01 1.46	yes	3.53e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0582

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 21 File: P519301 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 355.8550 357.8520 Tot Response: 9.60e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:45	5.88e+01	3.72e+01 1.58	yes	9.60e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0582

Entry: 41 Totals Name: Total Hexa-Furans

Run: 21 File: P519301 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 373.8210 375.8180 Tot Response: 4.59e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:45	2.81e+01	2.09e+01 1.35	yes	4.90e+01		n	n
2	34:55	1.22e+02	9.30e+01 1.32	yes	2.15e+02		n	n
3	35:27	1.09e+02	8.49e+01 1.29	yes	1.94e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0582

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 21 File: P519301 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 389.8160 391.8130 Tot Response: 1.18e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	6.14e+02	4.60e+02 1.34	yes	1.07e+03		n	n
2	37:00	5.83e+01	4.58e+01 1.27	yes	1.04e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0582

Entry: 43 Totals Name: Total Hepta-Furans

Run: 21 File: P519301 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 407.7820 409.7790 Tot Response: 1.24e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	2.96e+02	3.03e+02	0.98	yes	5.99e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:47	2.52e+00	2.47e+00	1.02	yes	4.98e+00		n	n
3	39:03	3.29e+02	3.07e+02	1.07	yes	6.37e+02		n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0582

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 21 File: P519301 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 06:28:20 Processed: 10-DEC-18 09:24:42

Mass: 423.7770 425.7740 Tot Response: 9.92e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	3.35e+03	3.36e+03 0.99	yes	6.71e+03		n	n
2	39:36	1.67e+03	1.54e+03 1.08	yes	3.21e+03	1,2,3,4,6,7,8-HpCDD	n	n

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Houston, TX 77099
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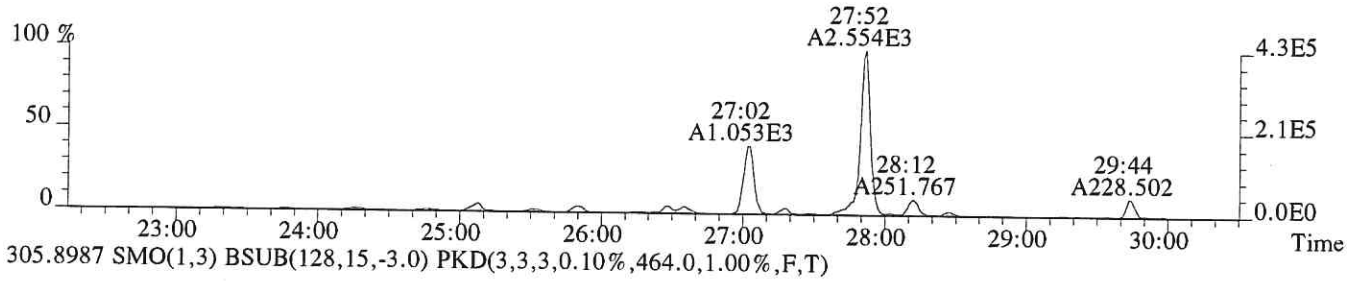
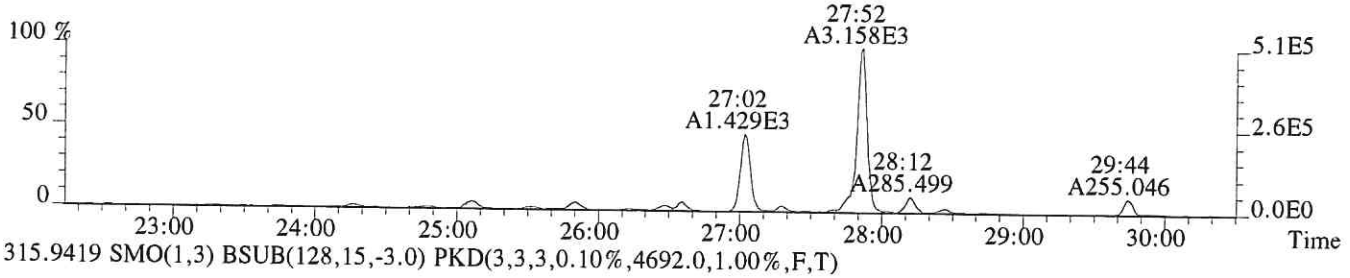
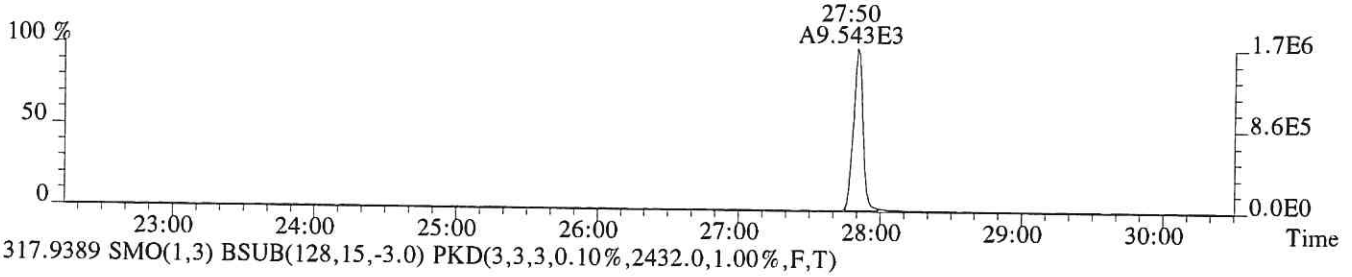
File:P519301 #1-587 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



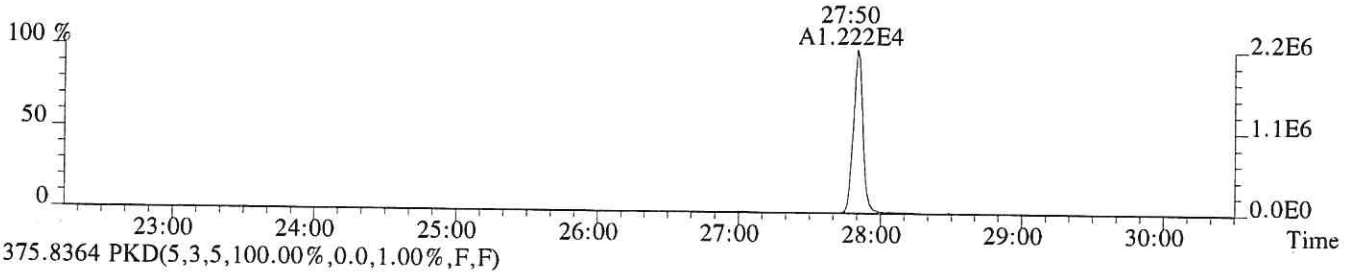
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



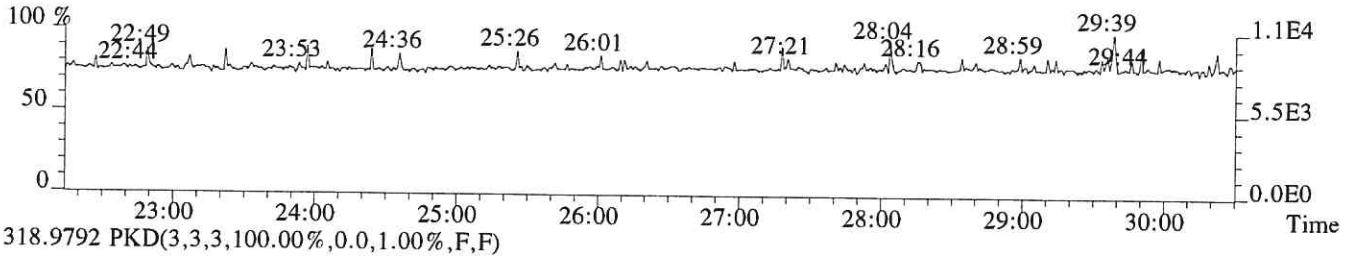
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4692.0,1.00%,F,T)



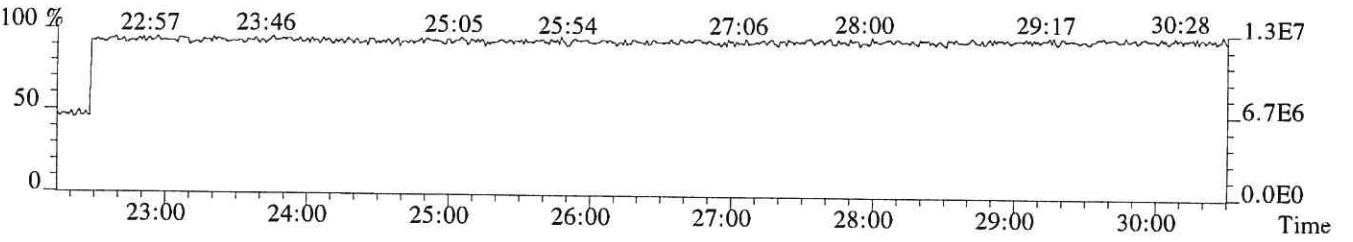
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



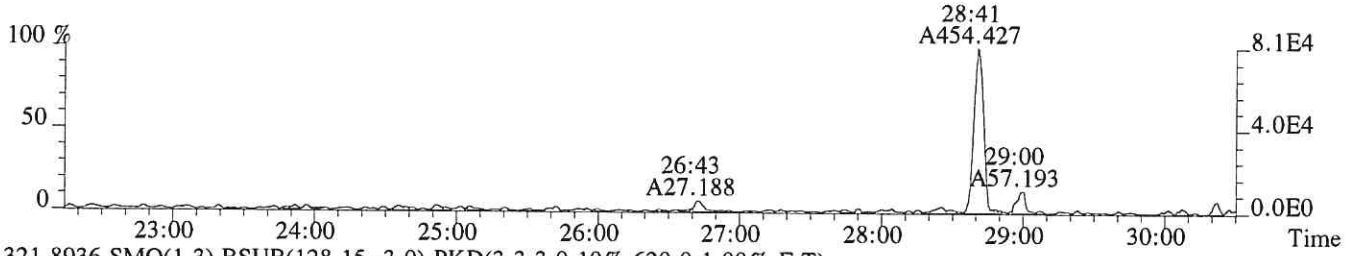
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



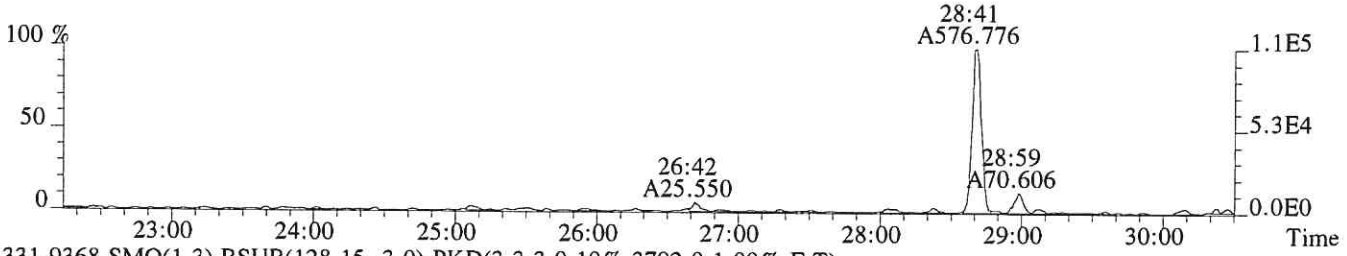
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



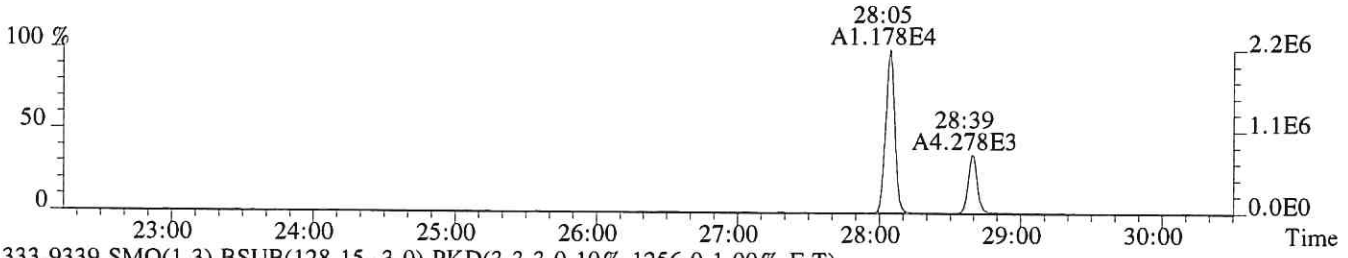
File:P519301 #1-587 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



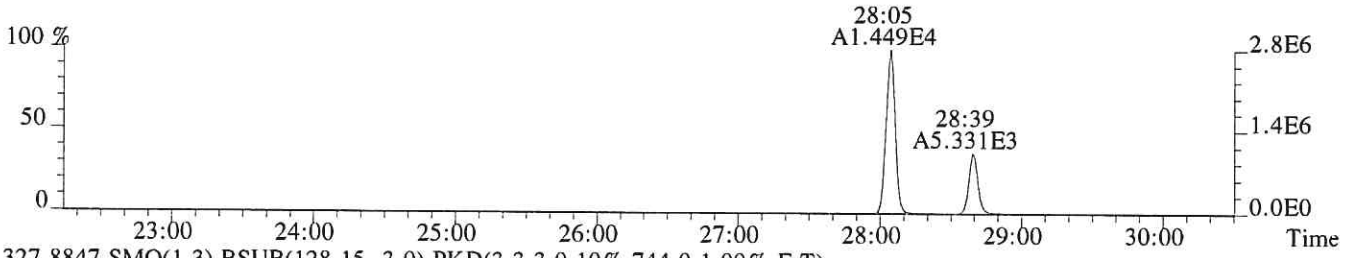
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



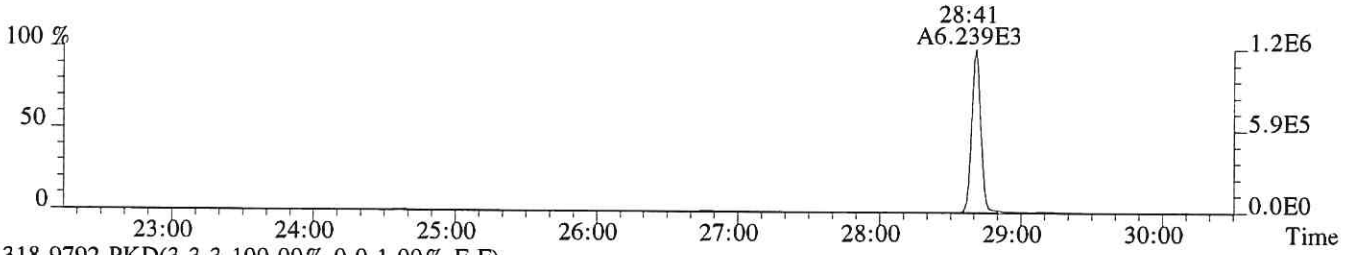
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3792.0,1.00%,F,T)



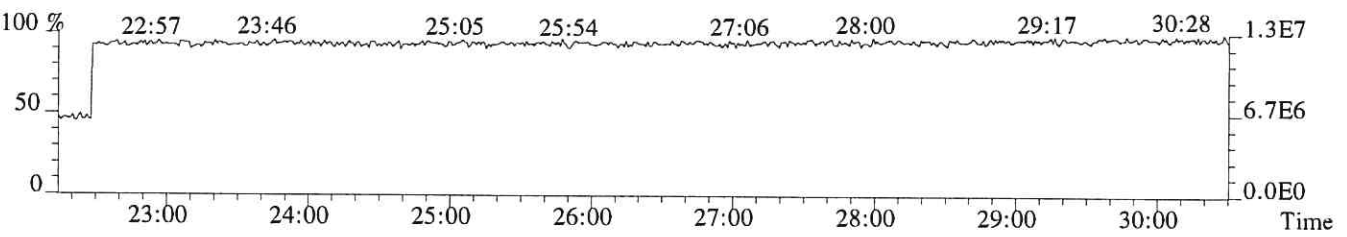
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



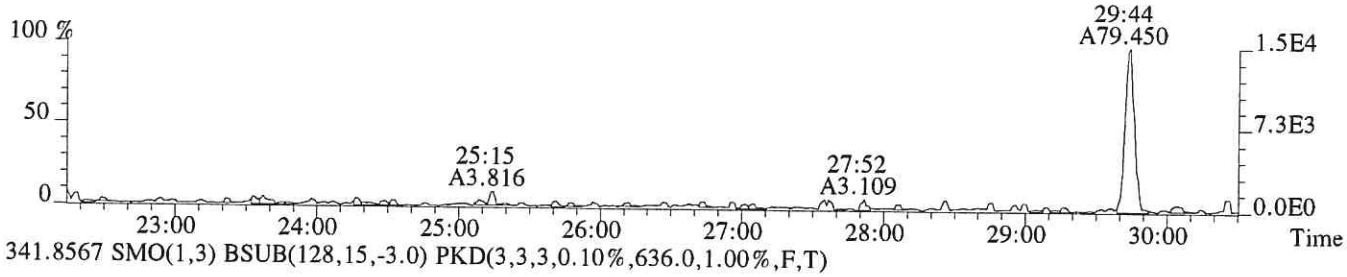
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



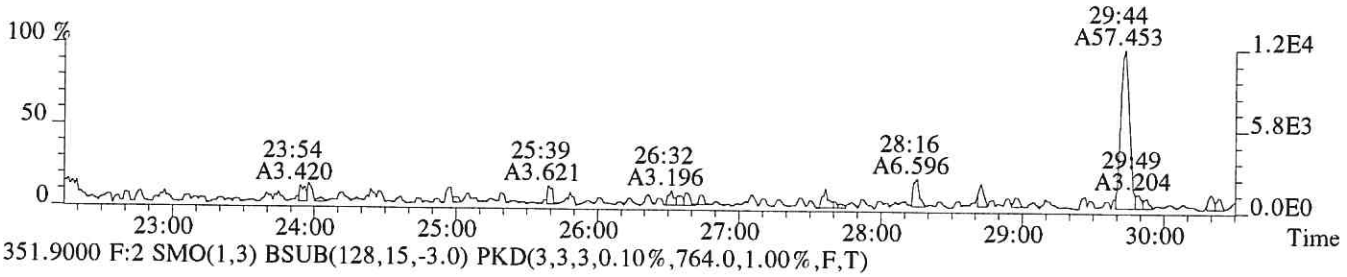
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



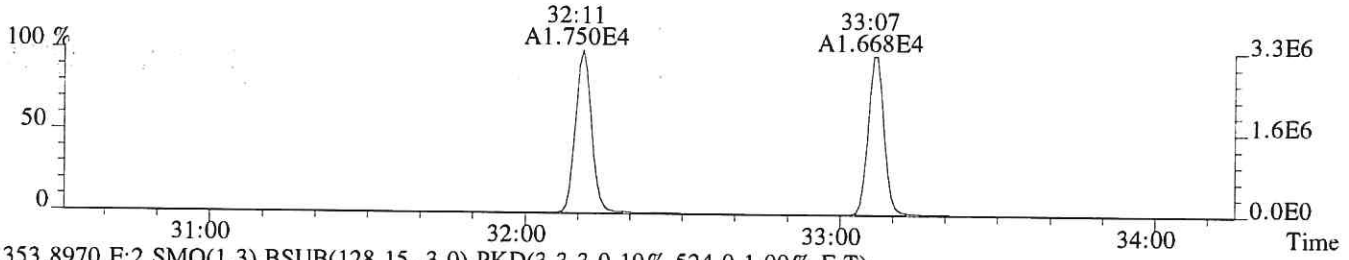
File:P519301 #1-587 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



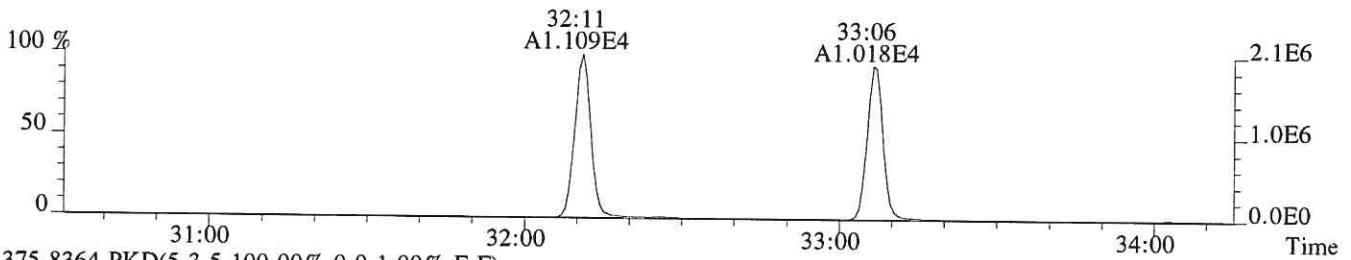
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



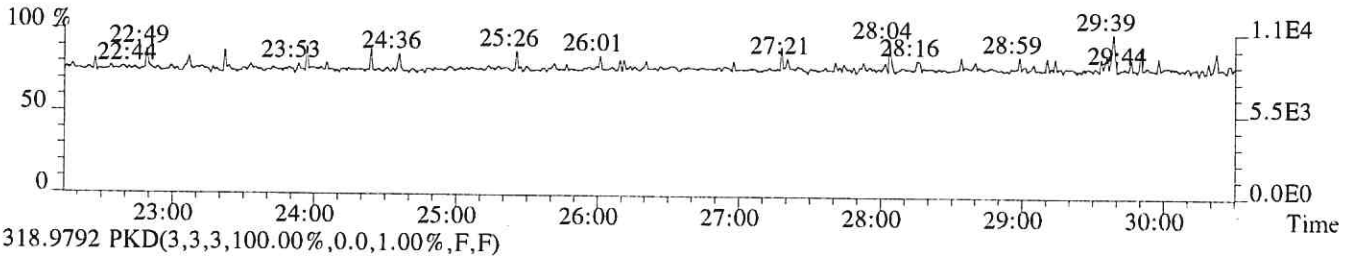
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



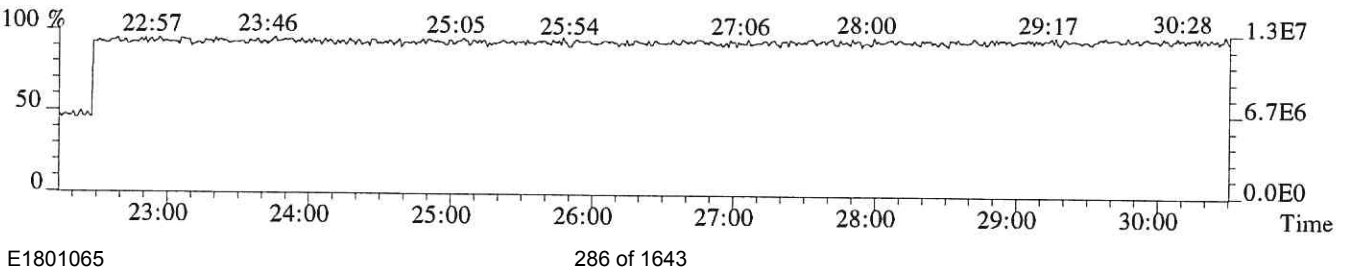
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



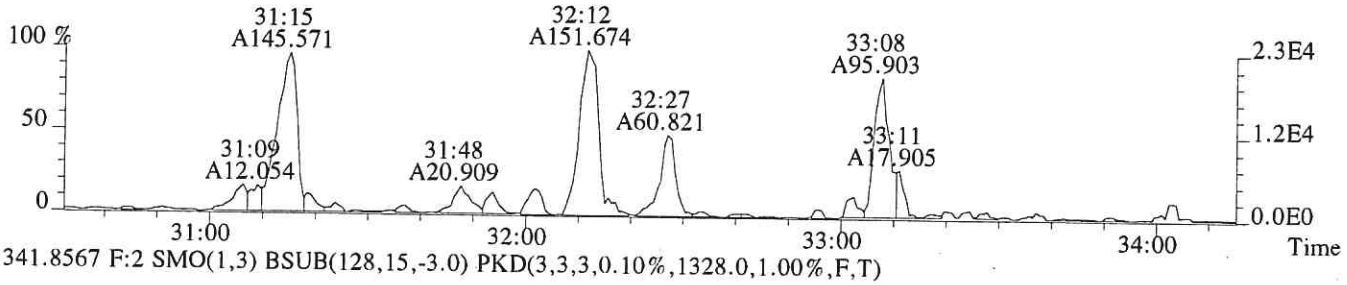
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



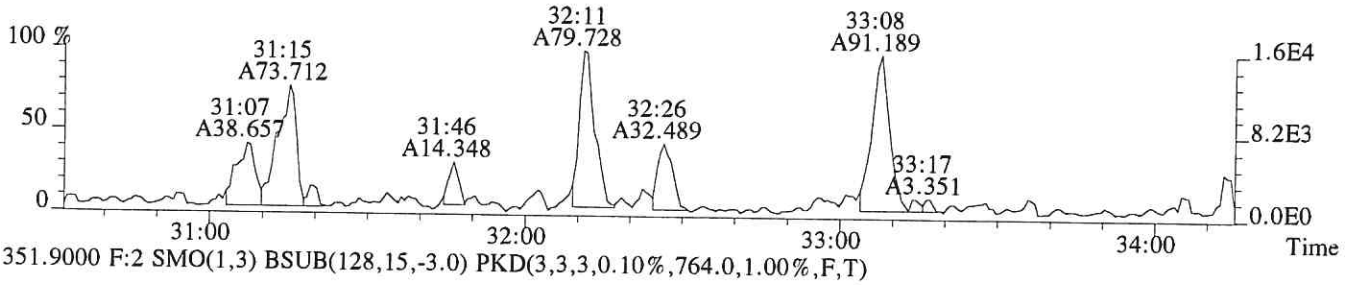
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



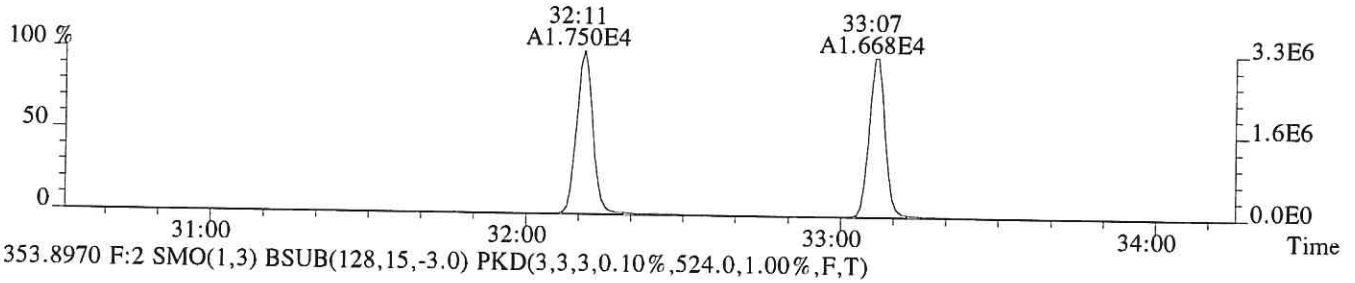
File:P519301 #1-335 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



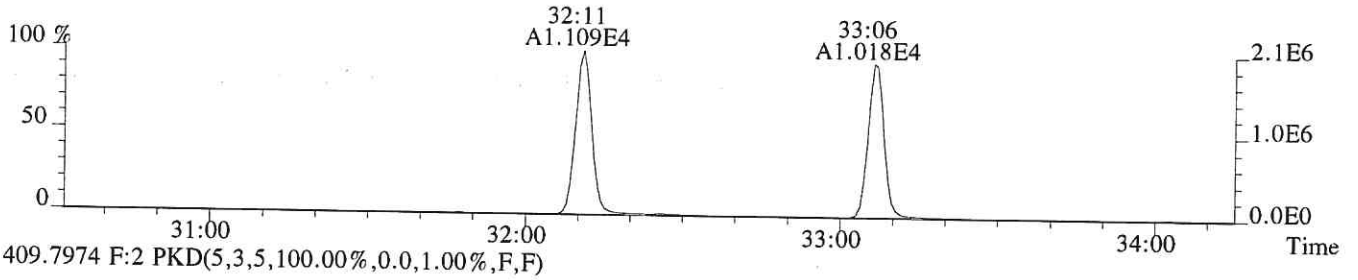
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



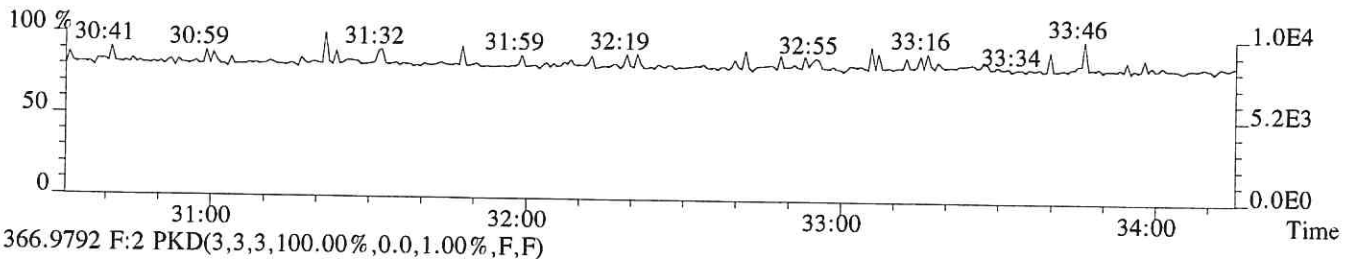
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



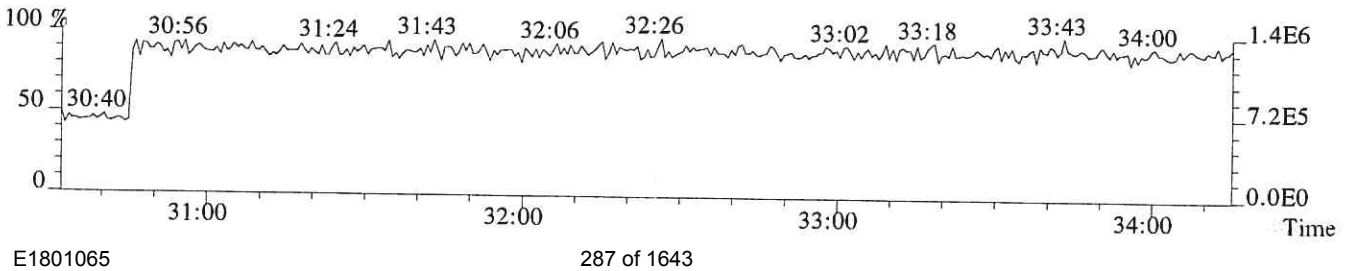
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



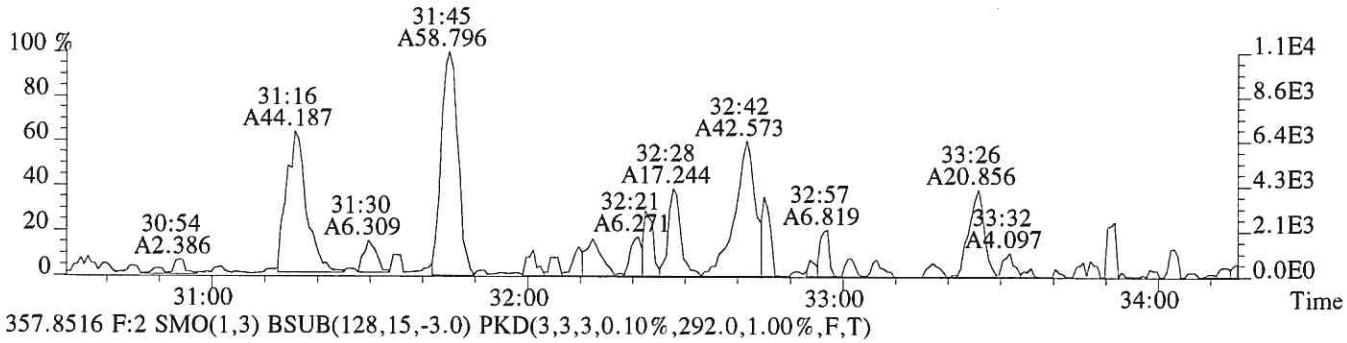
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



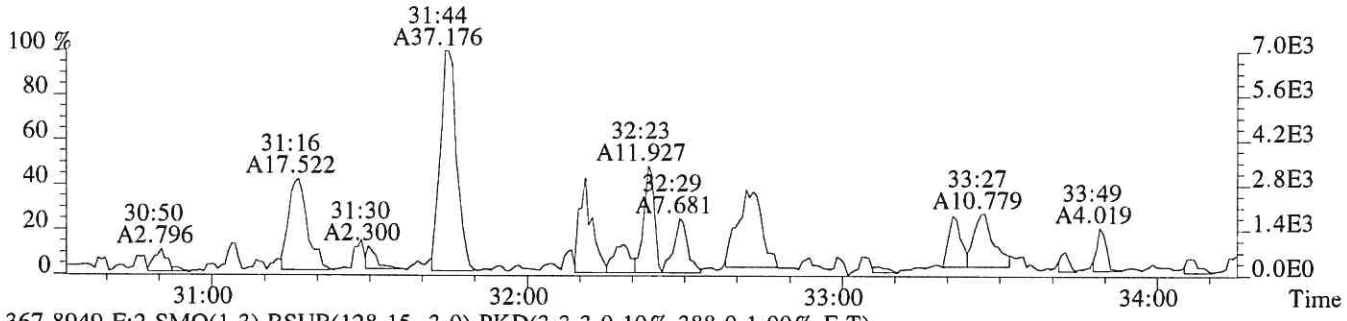
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



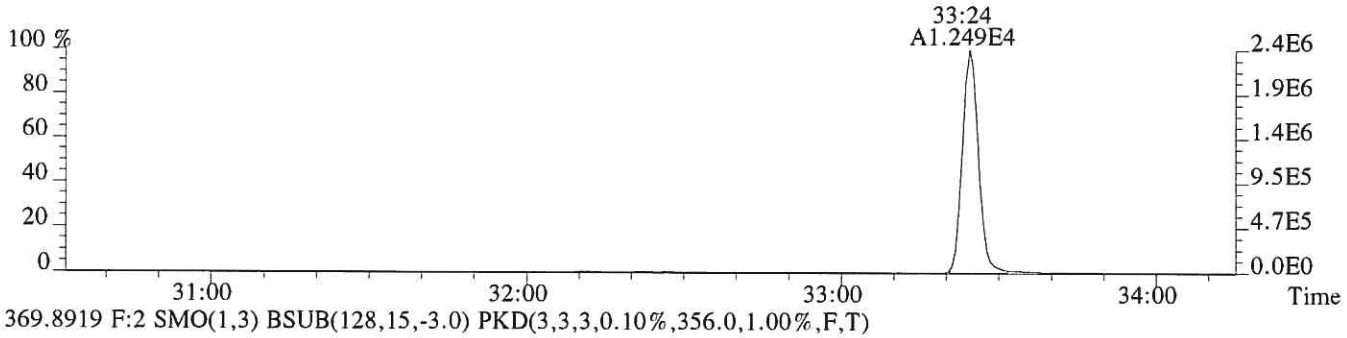
File:P519301 #1-335 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



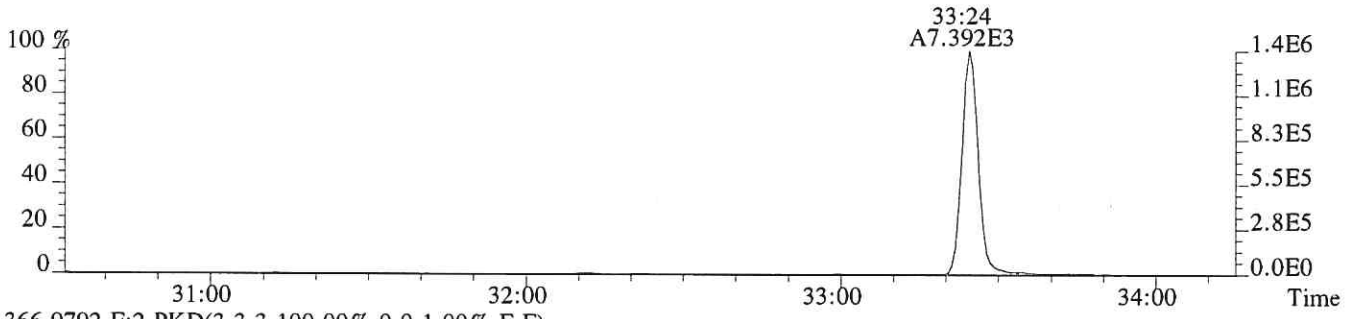
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



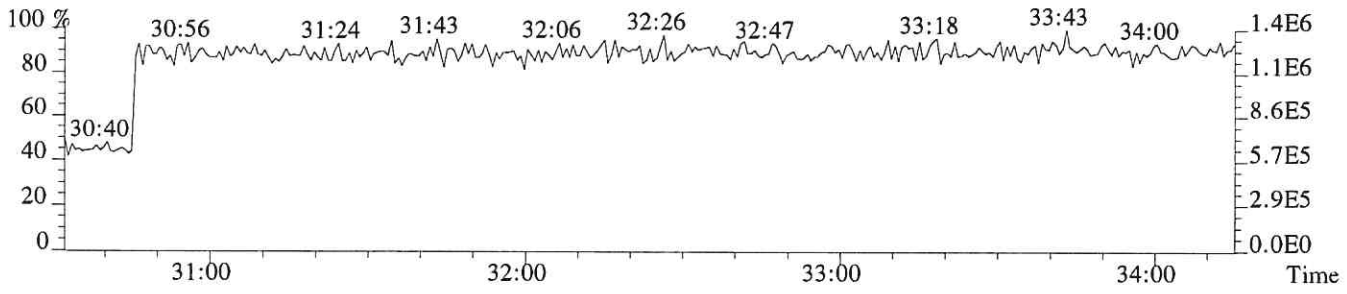
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



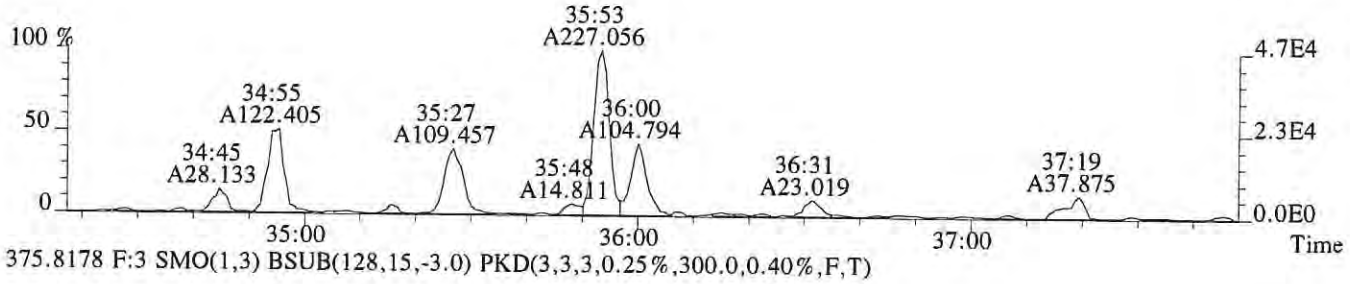
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



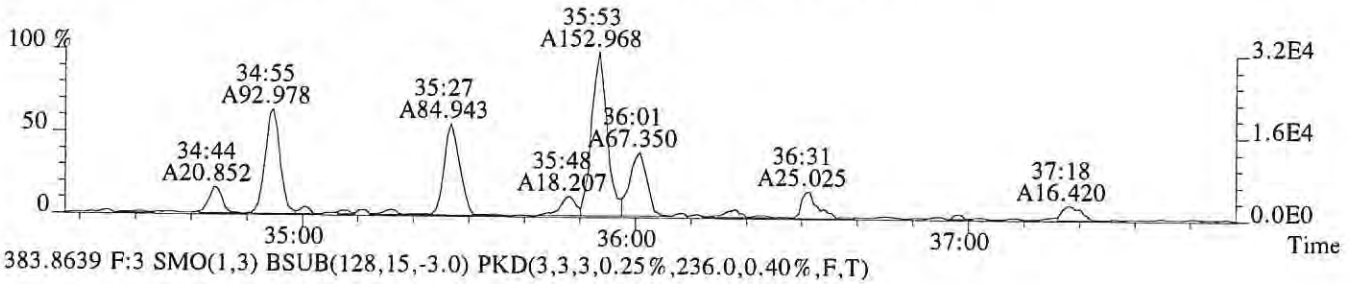
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



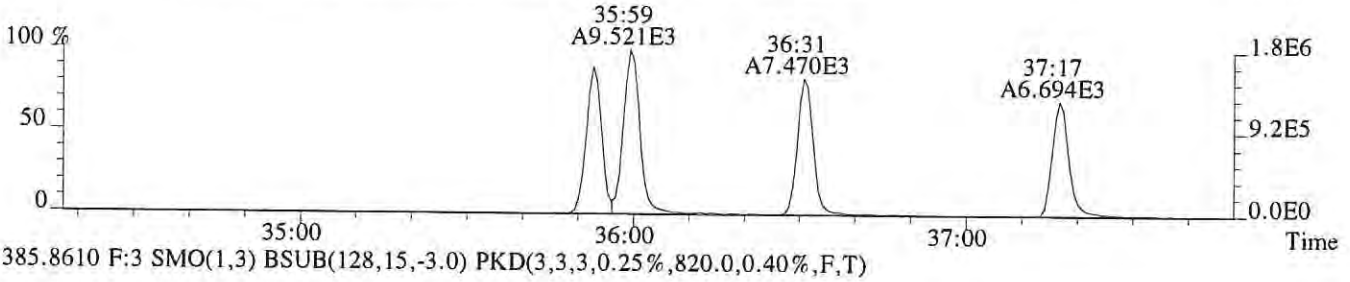
File:P519301 #1-317 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



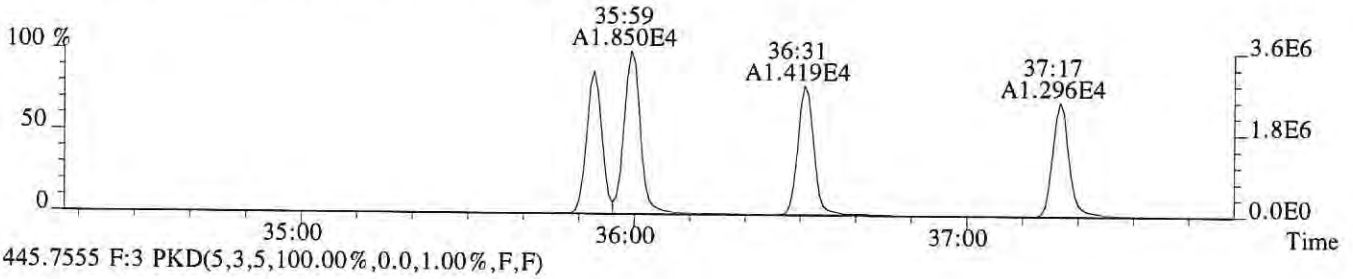
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



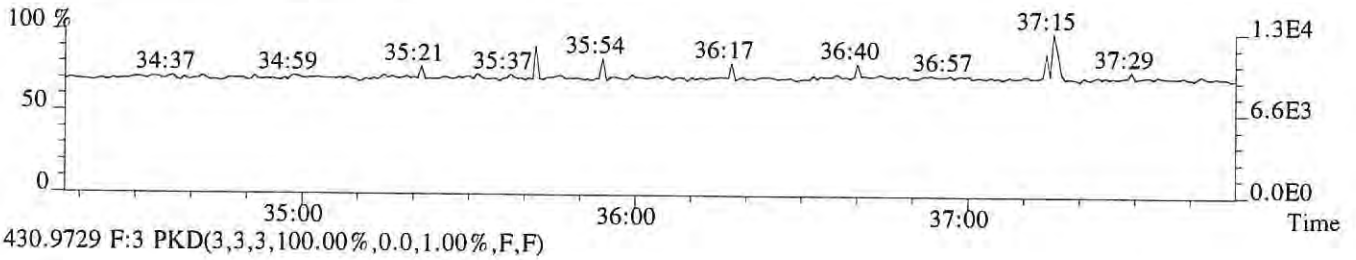
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



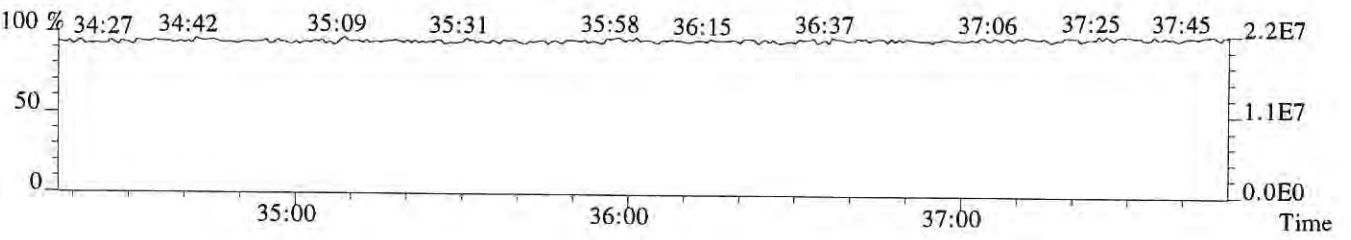
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



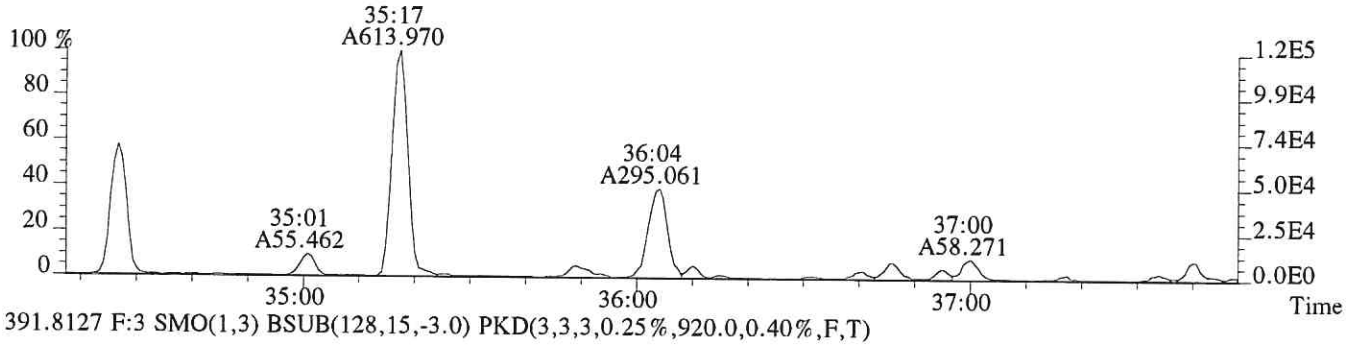
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



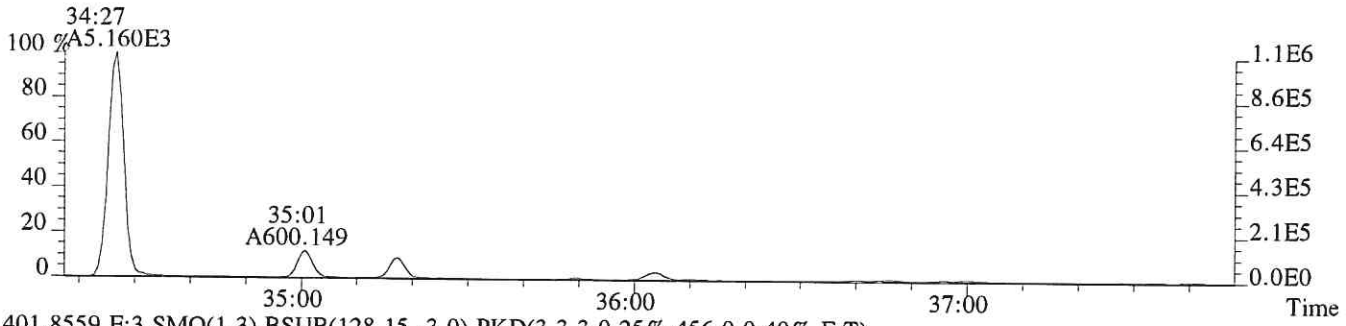
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



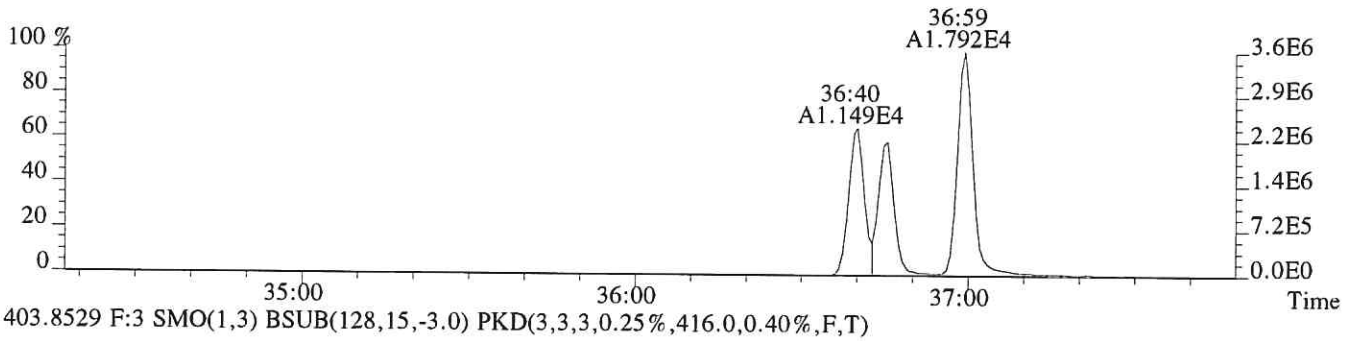
File:P519301 #1-317 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



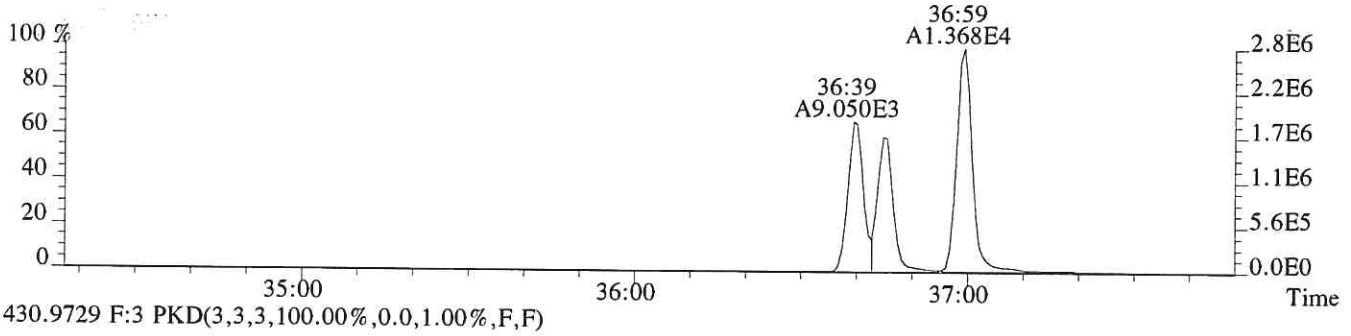
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



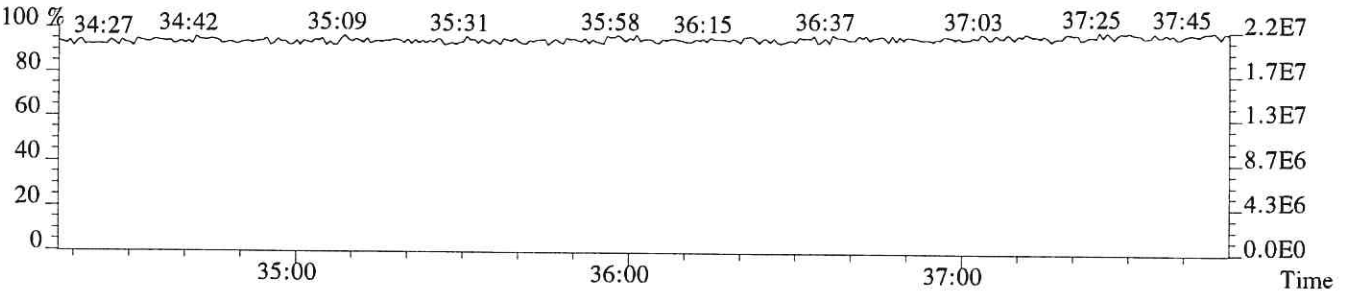
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



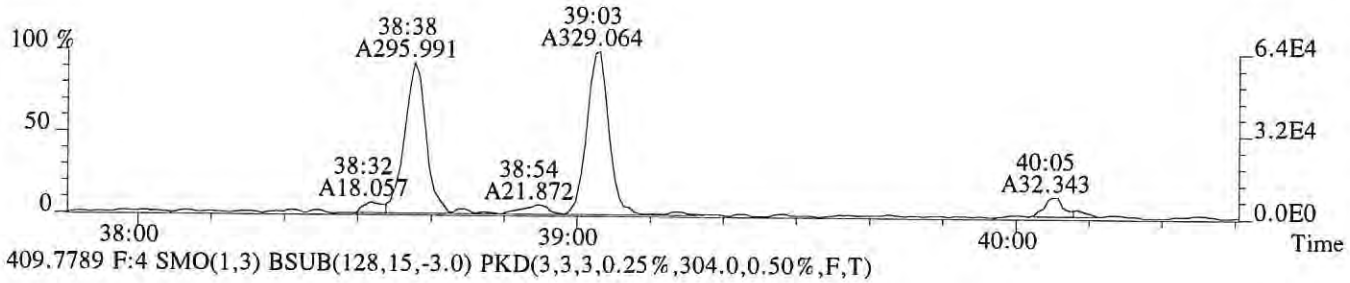
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



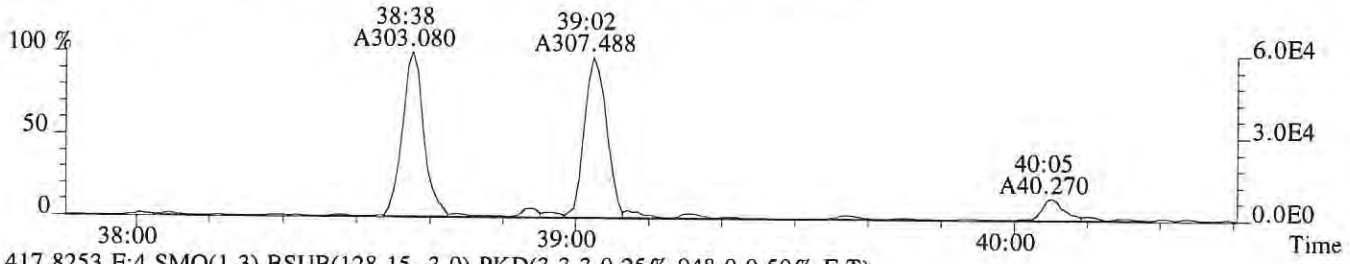
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



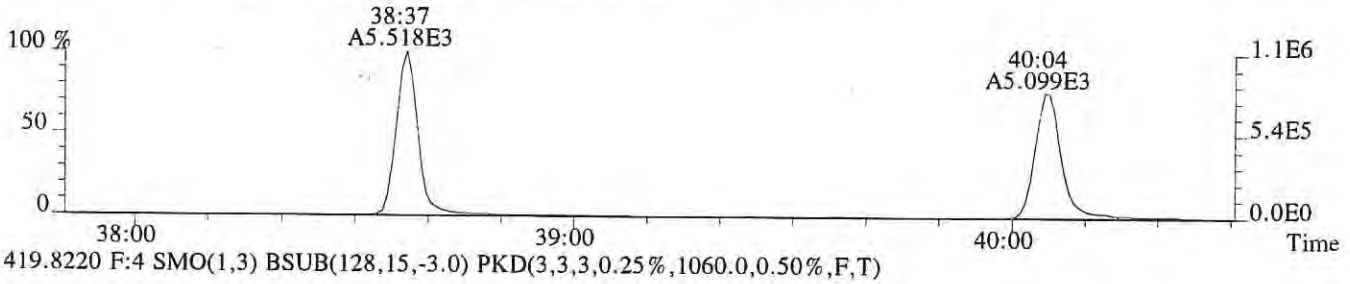
File:P519301 #1-241 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.50%,F,T)



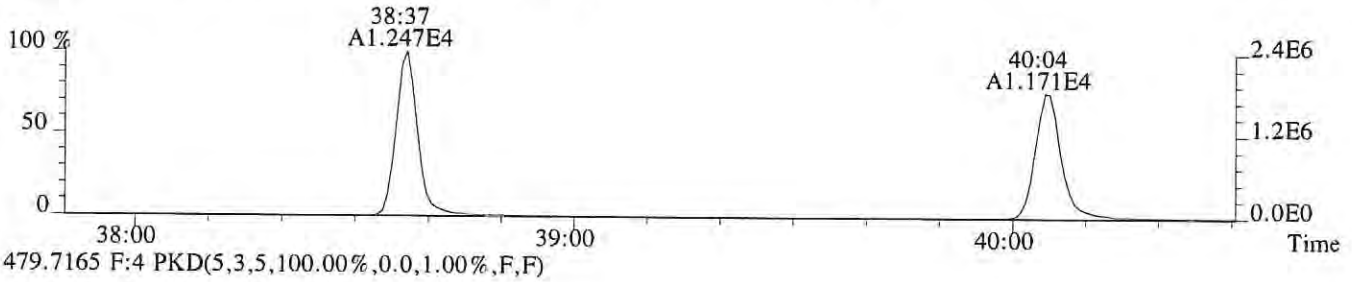
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



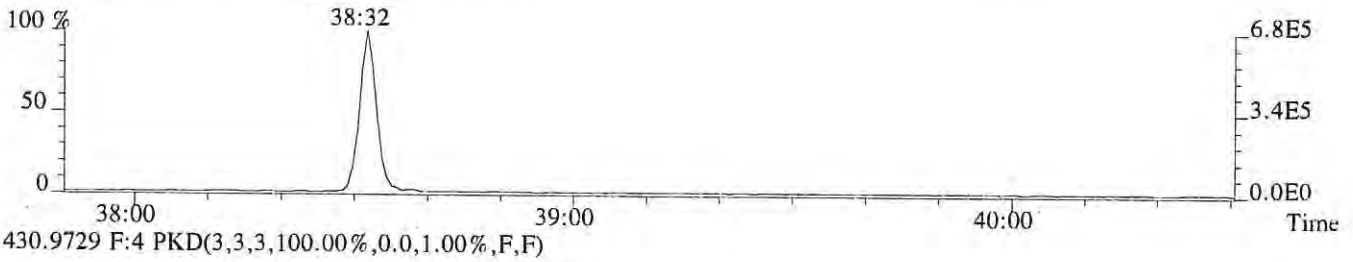
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.50%,F,T)



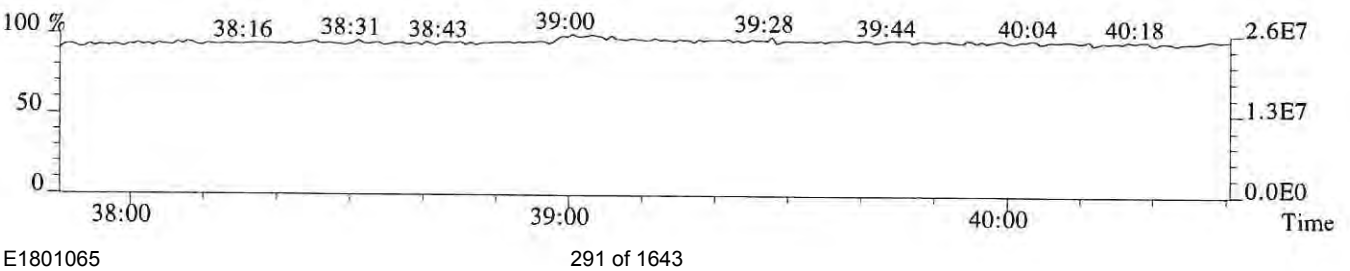
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)



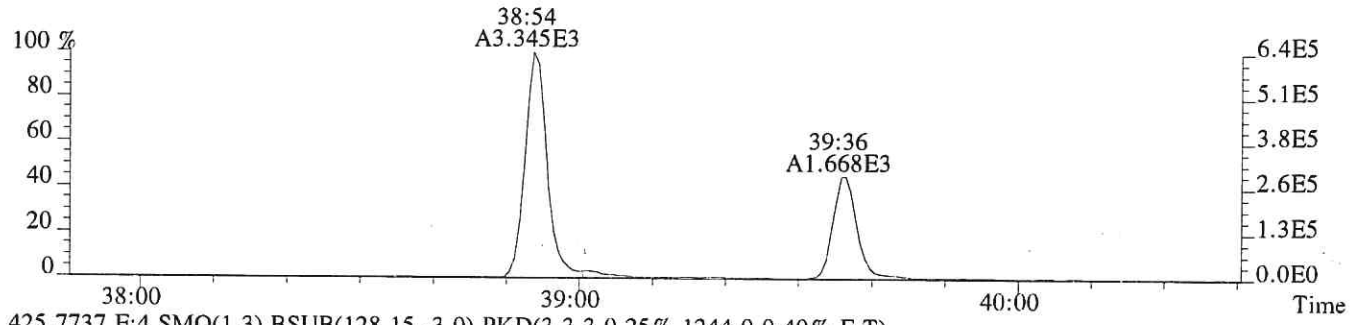
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



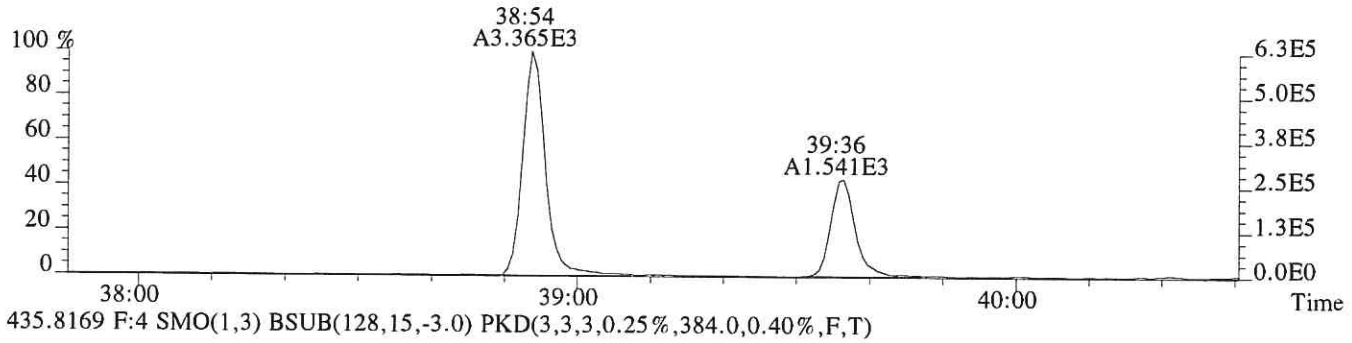
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



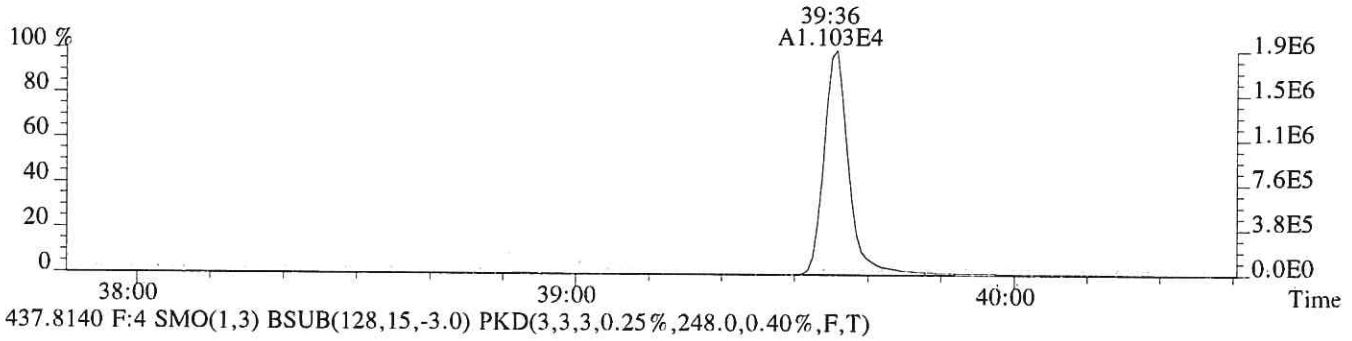
File:P519301 #1-241 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



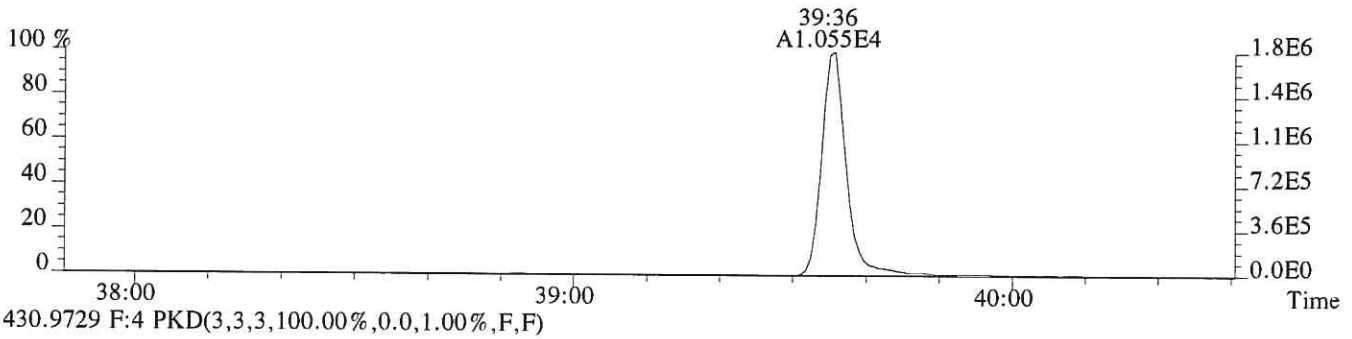
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



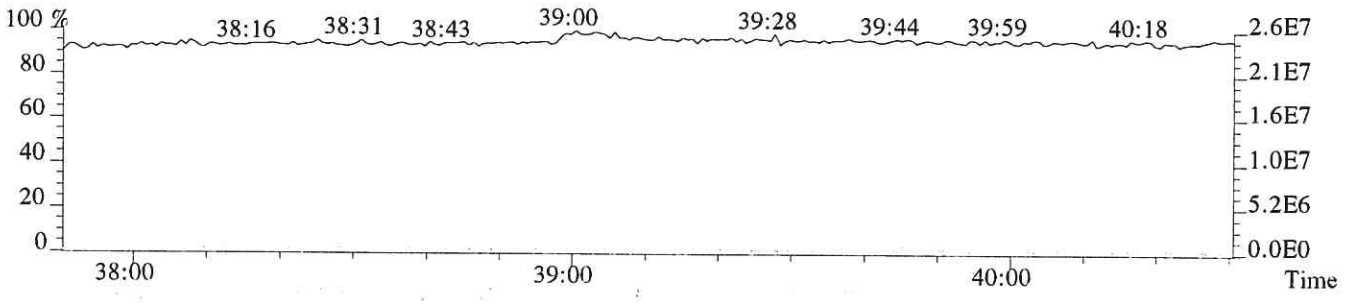
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



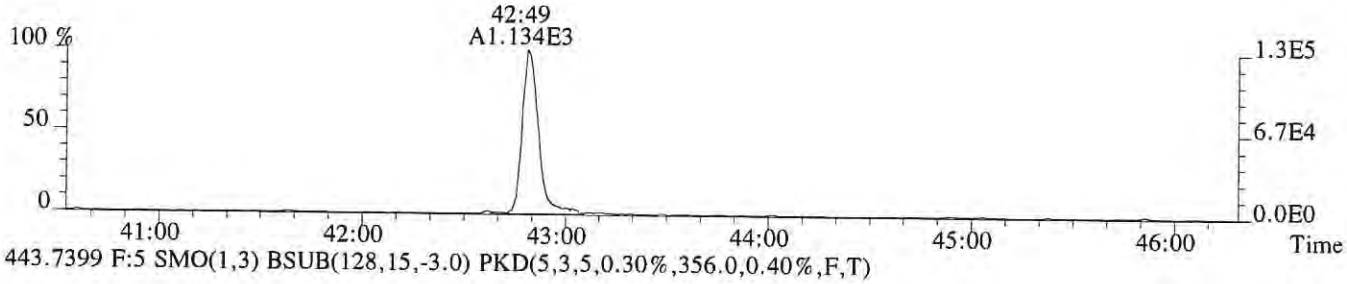
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



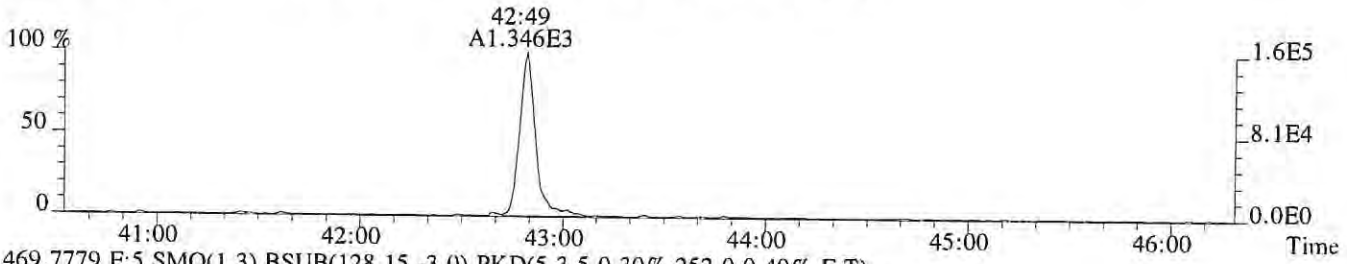
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



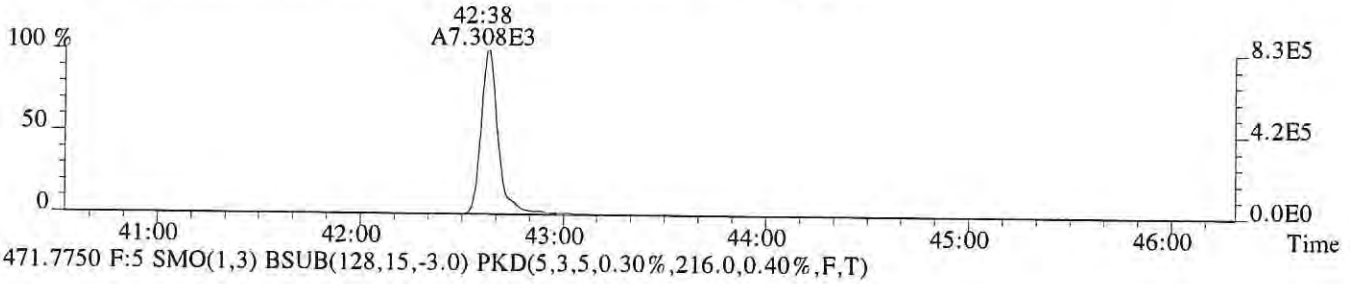
File:P519301 #1-520 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



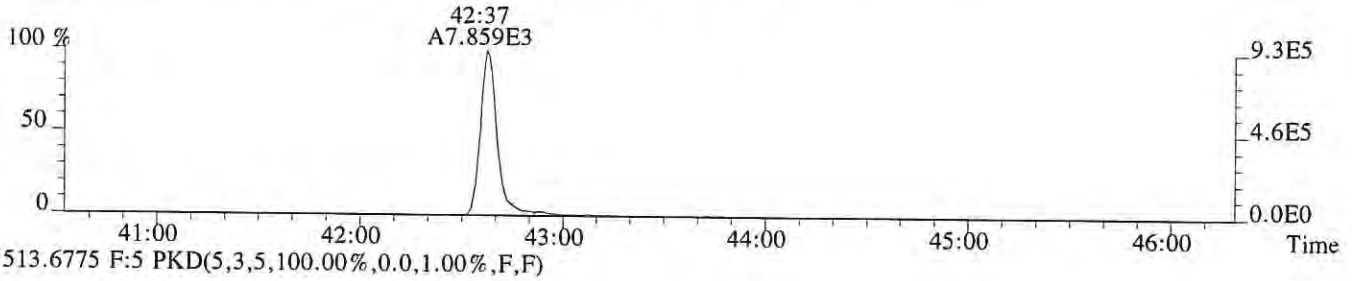
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



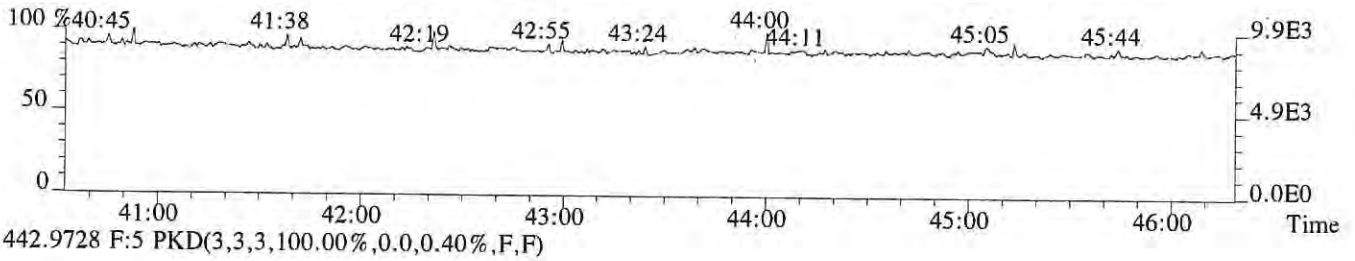
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



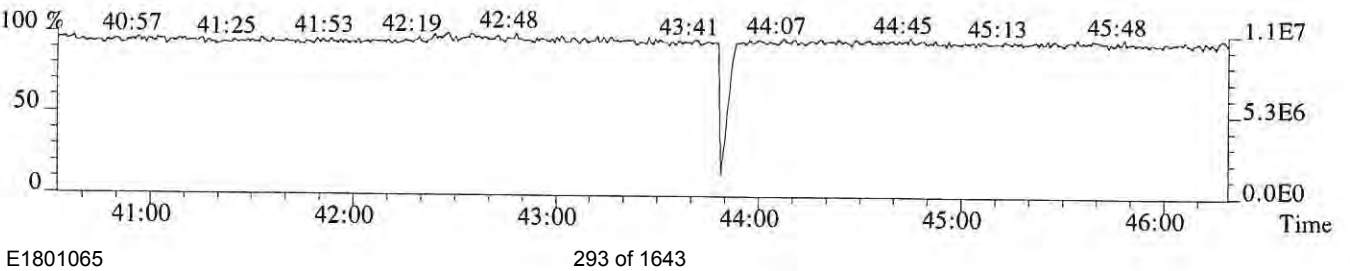
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



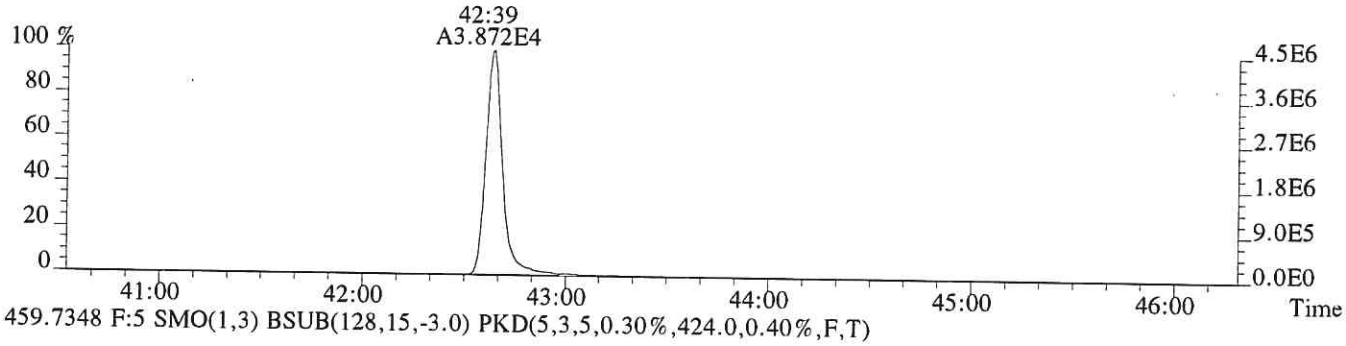
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



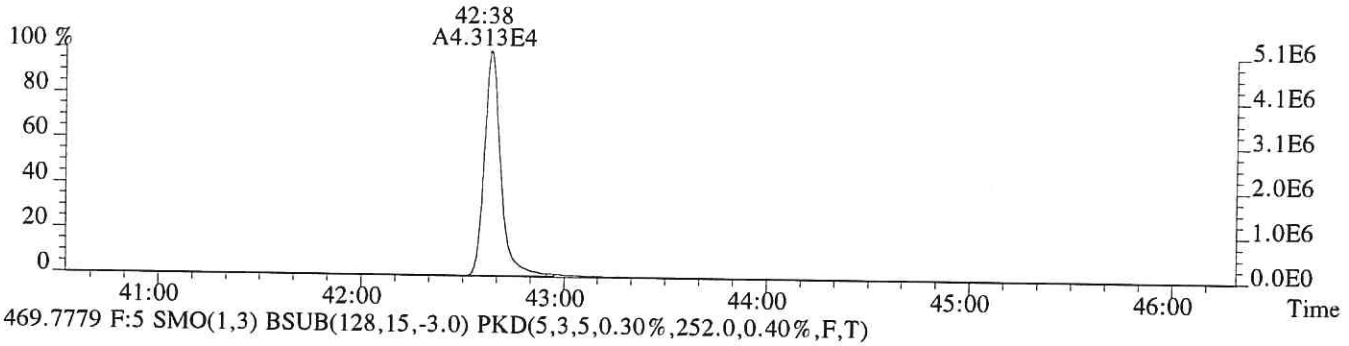
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



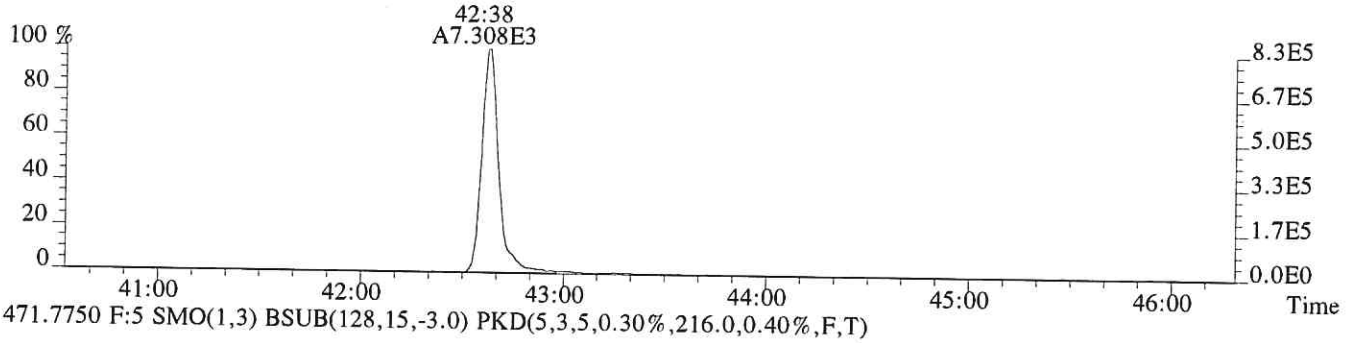
File:P519301 #1-520 Acq: 8-DEC-2018 06:28:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



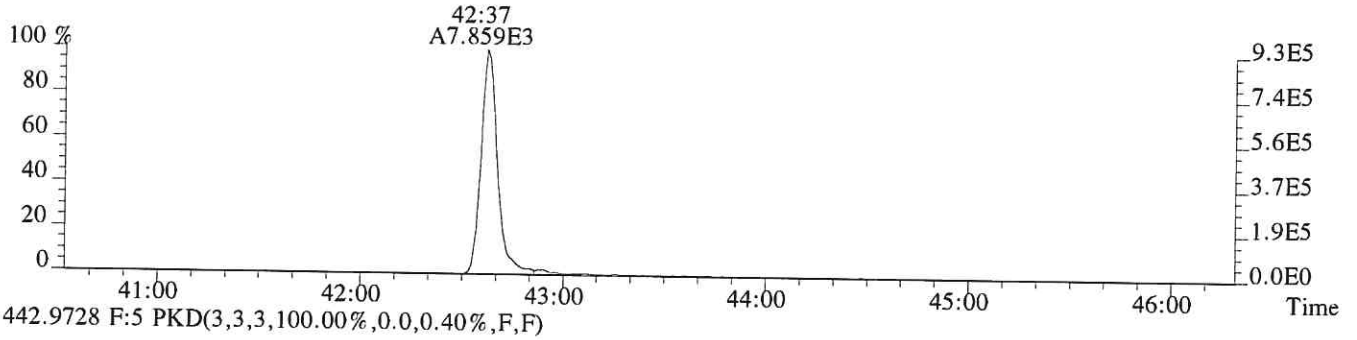
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



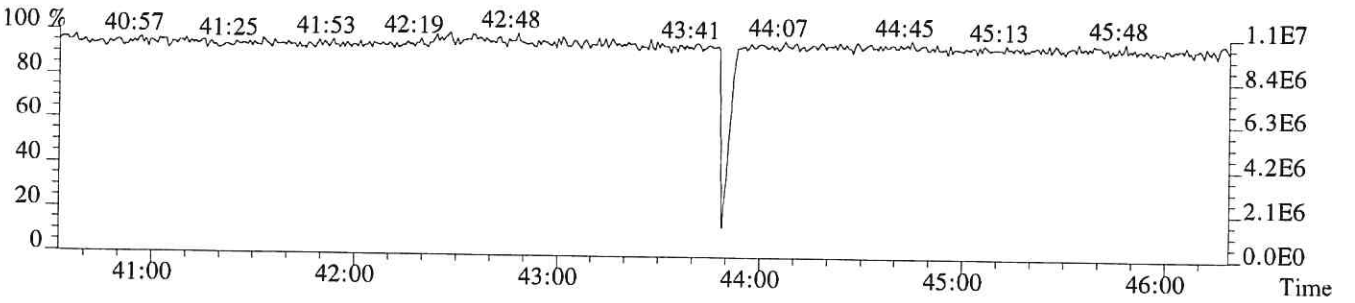
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0583

Run #10 Filename P519307 Samp: 1 Inj: 1 Acquired: 8-DEC-18 11:34:47
Processed: 11-DEC-18 16:37:43 Sample ID: E1801065-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:50	1.183e+03	1.607e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	6.392e+01	4.630e+01	1.38	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:06	3.750e+01	4.601e+01	0.81	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	8.242e+01	6.960e+01	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.868e+01	2.303e+01	1.68	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	2.053e+01	1.848e+01	1.11	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.885e+01	1.499e+01	1.92	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.339e+02	1.085e+02	1.23	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.714e+01	1.291e+01	1.33	no	no	1.258
10	Unk	OCDF	42:49	2.429e+02	2.857e+02	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	2.336e+02	3.346e+02	0.70	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	2.661e+01	2.622e+01	1.02	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	6.250e+01	5.155e+01	1.21	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	1.042e+02	8.134e+01	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	2.532e+03	2.621e+03	0.97	yes	no	1.025
17	Unk	OCDD	42:38	9.620e+04	1.080e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	1.620e+04	2.022e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.860e+04	1.804e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.641e+04	1.677e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.260e+04	2.376e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.610e+04	3.108e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	1.384e+04	2.650e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.288e+04	2.569e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	9.982e+03	2.279e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	9.490e+03	2.137e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	7.416e+03	9.078e+03	0.82	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.921e+04	1.201e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.782e+04	1.378e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.736e+04	1.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	2.182e+04	2.005e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:37	2.048e+04	2.253e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.740e+04	2.186e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.701e+04	2.182e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:39	9.317e+03				no	1.014

$$\text{OCDD} = \frac{(9.620e+04 + 1.080e+05) \times 4000\ \text{pg} \times 1}{(2.048e+04 + 2.253e+04) \times 10.829\ \text{g} \times 69.4 / 100 \times 1.118} = 2260.2509\ \text{ng/kg}$$

LG 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0583

Run #10 Filename P519307 Samp: 1 Inj: 1 Acquired: 8-DEC-18 11:34:47
Processed: 11-DEC-18 16:37:43 LAB. ID: E1801065-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.97e+05	3.72e+02	5.3e+02	2.47e+05	3.68e+02	6.7e+02
2	1,2,3,7,8-PeCDF	1.20e+04	3.28e+02	3.7e+01	9.16e+03	1.06e+03	8.6e+00
3	2,3,4,7,8-PeCDF	7.99e+03	3.28e+02	2.4e+01	9.83e+03	1.06e+03	9.3e+00
4	1,2,3,4,7,8-HxCDF	1.54e+04	2.16e+02	7.1e+01	1.64e+04	3.48e+02	4.7e+01
5	1,2,3,6,7,8-HxCDF	6.65e+03	2.16e+02	3.1e+01	5.14e+03	3.48e+02	1.5e+01
6	2,3,4,6,7,8-HxCDF	4.96e+03	2.16e+02	2.3e+01	3.15e+03	3.48e+02	9.0e+00
7	1,2,3,7,8,9-HxCDF	4.08e+03	2.16e+02	1.9e+01	2.50e+03	3.48e+02	7.2e+00
8	1,2,3,4,6,7,8-HpCDF	2.67e+04	1.07e+03	2.5e+01	2.18e+04	3.16e+02	6.9e+01
9	1,2,3,4,7,8,9-HpCDF	2.88e+03	1.07e+03	2.7e+00	2.54e+03	3.16e+02	8.0e+00
10	OCDF	3.13e+04	2.64e+02	1.2e+02	3.77e+04	2.68e+02	1.4e+02
11	2,3,7,8-TCDD	3.97e+04	1.29e+03	3.1e+01	5.78e+04	7.32e+02	7.9e+01
12	1,2,3,7,8-PeCDD	6.47e+03	1.92e+02	3.4e+01	4.51e+03	2.84e+02	1.6e+01
13	1,2,3,4,7,8-HxCDD	*	2.88e+02	*	*	8.36e+02	*
14	1,2,3,6,7,8-HxCDD	1.26e+04	2.88e+02	4.4e+01	9.67e+03	8.36e+02	1.2e+01
15	1,2,3,7,8,9-HxCDD	2.21e+04	2.88e+02	7.7e+01	1.59e+04	8.36e+02	1.9e+01
16	1,2,3,4,6,7,8-HpCDD	4.04e+05	1.40e+02	2.9e+03	4.36e+05	2.40e+02	1.8e+03
17	OCDD	1.14e+07	2.64e+02	4.3e+04	1.27e+07	2.28e+02	5.6e+04
18	13C-2,3,7,8-TCDF	2.89e+06	3.15e+03	9.2e+02	3.60e+06	1.65e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	5.33e+06	3.80e+02	1.4e+04	3.33e+06	3.12e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	5.13e+06	3.80e+02	1.4e+04	3.27e+06	3.12e+02	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	2.62e+06	4.80e+02	5.5e+03	4.92e+06	4.04e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.13e+06	4.80e+02	6.5e+03	6.12e+06	4.04e+02	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	2.82e+06	4.80e+02	5.9e+03	5.40e+06	4.04e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.54e+06	4.80e+02	5.3e+03	4.85e+06	4.04e+02	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.85e+06	2.56e+03	7.2e+02	4.29e+06	1.40e+03	3.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.46e+06	2.56e+03	5.7e+02	3.25e+06	1.40e+03	2.3e+03
27	13C-2,3,7,8-TCDD	1.40e+06	2.71e+03	5.2e+02	1.76e+06	1.20e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	3.71e+06	2.48e+02	1.5e+04	2.31e+06	3.52e+02	6.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.85e+06	3.04e+02	1.3e+04	3.01e+06	4.76e+02	6.3e+03
30	13C-1,2,3,6,7,8-HxCDD	3.37e+06	3.04e+02	1.1e+04	2.68e+06	4.76e+02	5.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.63e+06	2.20e+02	1.6e+04	3.30e+06	2.68e+02	1.2e+04
32	13C-OCDD	2.44e+06	2.36e+02	1.0e+04	2.70e+06	2.56e+02	1.1e+04
33	13C-1,2,3,4-TCDD	3.24e+06	2.71e+03	1.2e+03	4.04e+06	1.20e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	5.33e+06	3.04e+02	1.8e+04	4.18e+06	4.76e+02	8.8e+03
35	37Cl-2,3,7,8-TCDD	1.74e+06	4.80e+02	3.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.288e+03 + 7.320e+02) \times 2000}{(1.401e+06 + 1.764e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0583

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P519307 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 11:34:47 Processed: 11-DEC-18 16:37:43

Mass: 303.9020 305.8990 Tot Response: 5.05e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:05	7.27e+01	1.08e+02	0.67	yes	1.81e+02		n	n
2	25:48	6.53e+01	8.06e+01	0.81	yes	1.46e+02		n	n
3	26:27	5.47e+01	8.35e+01	0.65	yes	1.38e+02		n	n
4	27:01	5.17e+02	6.97e+02	0.74	yes	1.21e+03		n	n
5	27:16	3.53e+01	4.71e+01	0.75	yes	8.23e+01		n	n
6	27:50	1.18e+03	1.61e+03	0.74	yes	2.79e+03	2,3,7,8-TCDF	n	n
7	28:11	1.14e+02	1.41e+02	0.81	yes	2.56e+02		n	n
8	29:43	1.13e+02	1.28e+02	0.88	yes	2.41e+02		n	n

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Peak List Summary

CLIENT ID.
SL0583

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P519307 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 11:34:47 Processed: 11-DEC-18 16:37:43

Mass: 319.8970 321.8940 Tot Response: 5.68e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:40	2.34e+02	3.35e+02 0.70	yes	5.68e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

SL0583

Entry: 39 Totals Name: Total Penta-Furans2

Run: 10 File: P519307 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 11:34:47 Processed: 11-DEC-18 16:37:43

Mass: 339.8600 341.8570 Tot Response: 1.10e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:11	6.39e+01	4.63e+01 1.38	yes	1.10e+02	1,2,3,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0583

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P519307 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 11:34:47 Processed: 11-DEC-18 16:37:43

Mass: 373.8210 375.8180 Tot Response: 2.80e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:26	4.59e+01	4.35e+01	1.06	yes	8.94e+01		n	n
2	35:53	8.24e+01	6.96e+01	1.18	yes	1.52e+02	1,2,3,4,7,8-HxCDF	n	n
3	36:31	2.05e+01	1.85e+01	1.11	yes	3.90e+01	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0583

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P519307 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 11:34:47 Processed: 11-DEC-18 16:37:43

Mass: 389.8160 391.8130 Tot Response: 2.87e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	9.63e+02	7.27e+02	1.32	yes	1.69e+03		n	n
2	36:03	4.29e+02	3.30e+02	1.30	yes	7.59e+02		n	n
3	36:09	3.21e+01	2.32e+01	1.38	yes	5.54e+01		n	n
4	36:45	6.25e+01	5.16e+01	1.21	yes	1.14e+02	1,2,3,6,7,8-HxCDD	n	n
5	36:54	3.96e+01	2.92e+01	1.35	yes	6.88e+01		n	n
6	36:59	1.04e+02	8.13e+01	1.28	yes	1.86e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0583

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P519307 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 11:34:47 Processed: 11-DEC-18 16:37:43

Mass: 407.7820 409.7790 Tot Response: 2.68e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.39e+02	1.29e+02 1.08	yes	2.68e+02		n	n

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Peak List Summary

CLIENT ID.
SL0583

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P519307 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 11:34:47 Processed: 11-DEC-18 16:37:43

Mass: 423.7770 425.7740 Tot Response: 1.45e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	4.79e+03	4.56e+03	1.05	yes	9.35e+03		n	n
2	39:37	2.53e+03	2.62e+03	0.97	yes	5.15e+03	1,2,3,4,6,7,8-HpCDD	n	n

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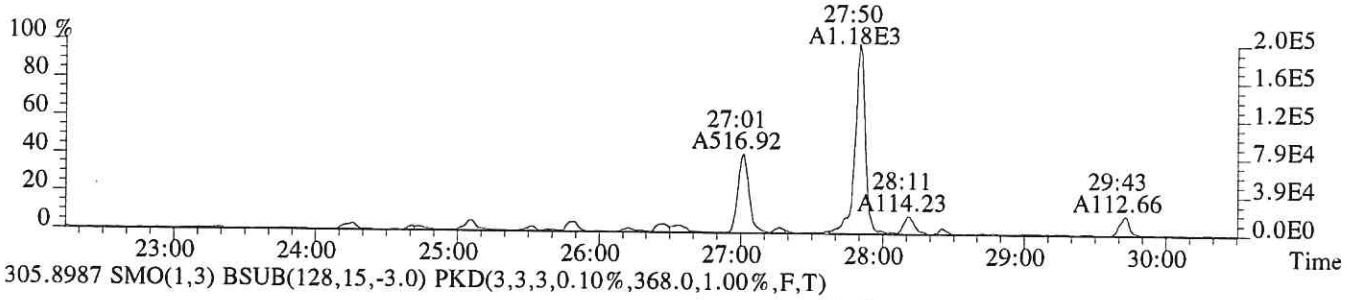
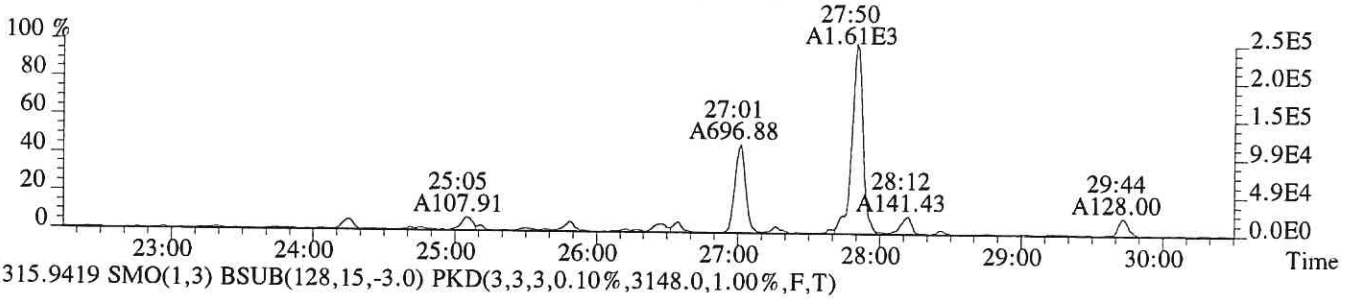
File:P519307 #1-587 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004

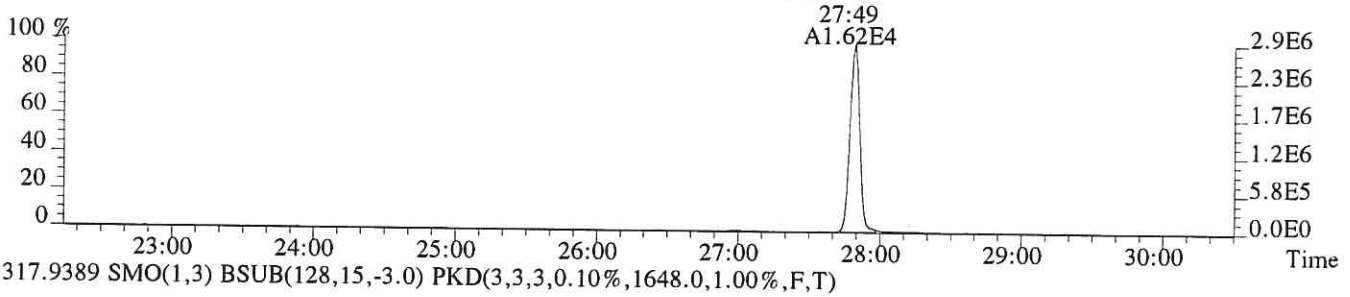
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



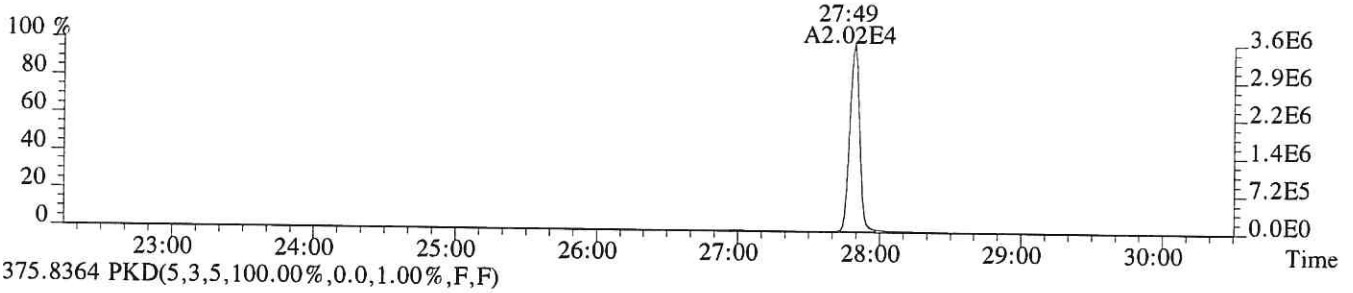
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



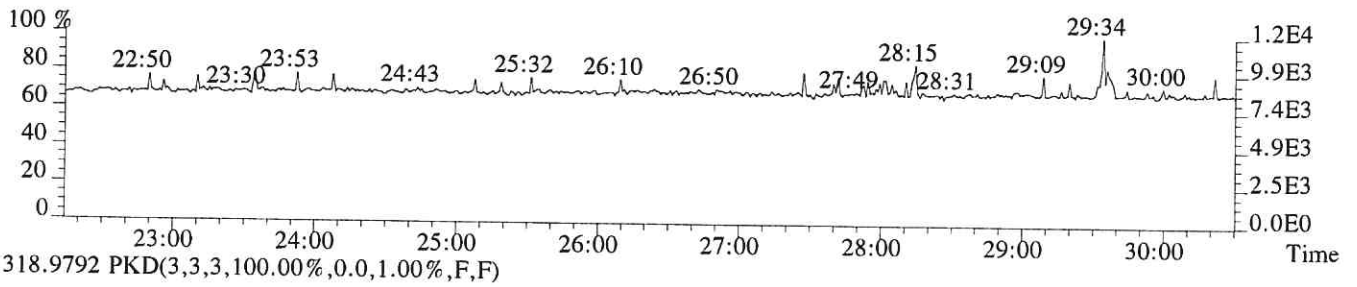
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3148.0,1.00%,F,T)



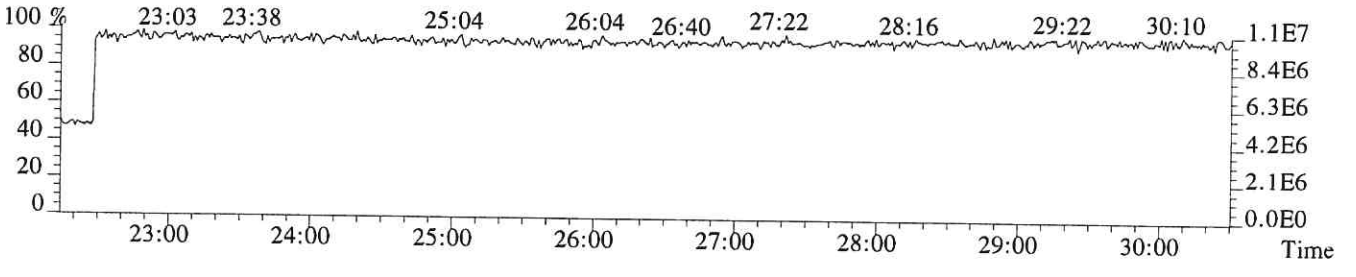
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



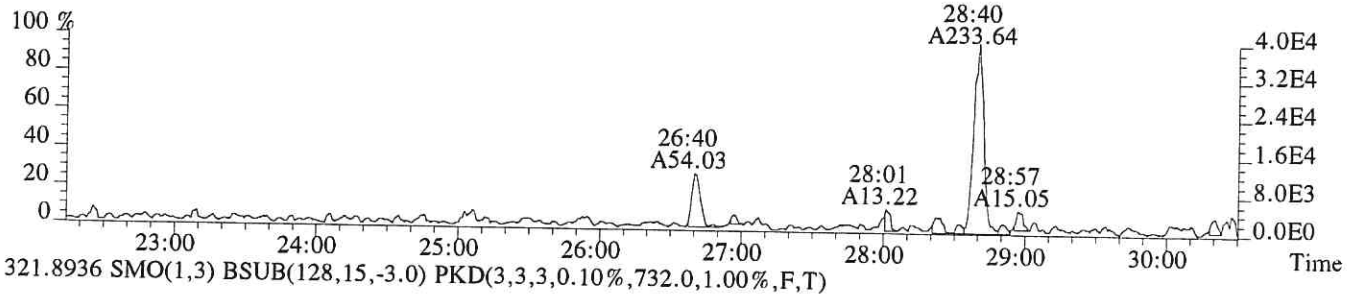
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



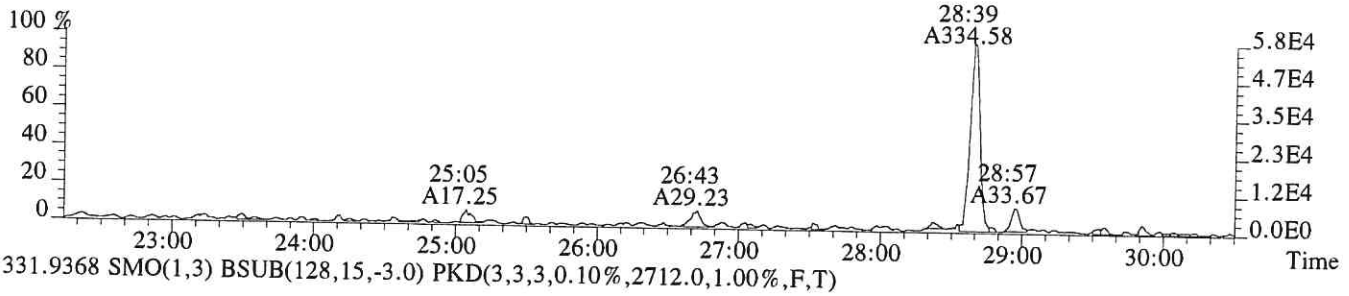
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



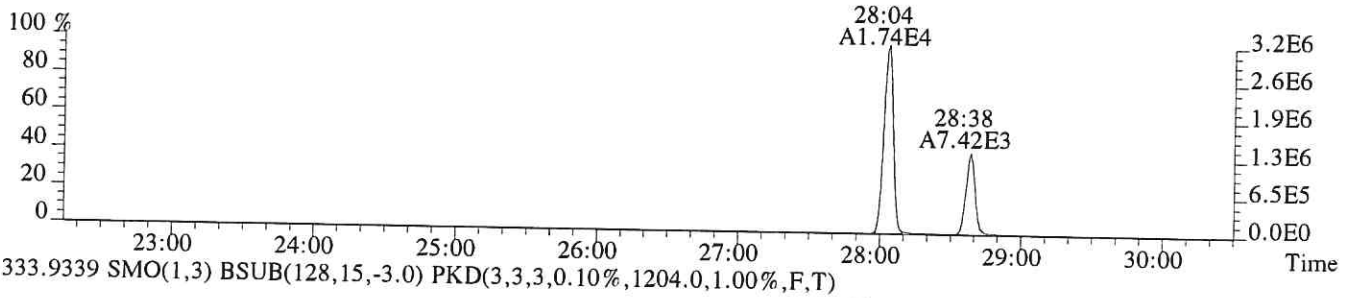
File:P519307 #1-587 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



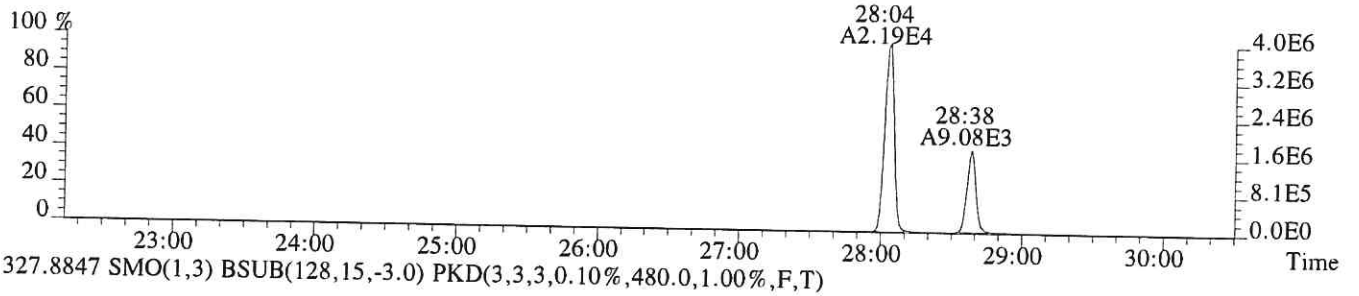
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



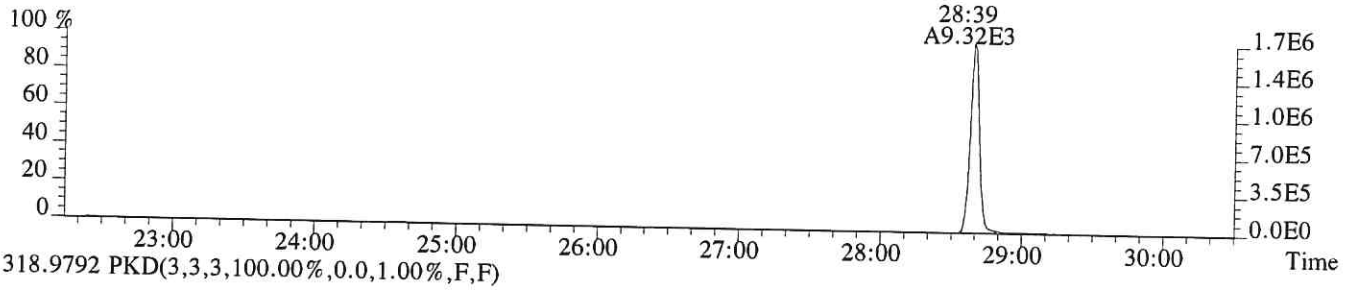
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



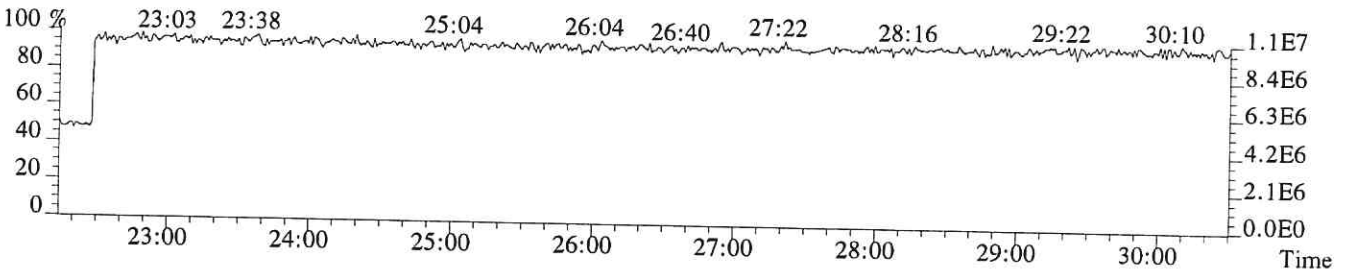
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



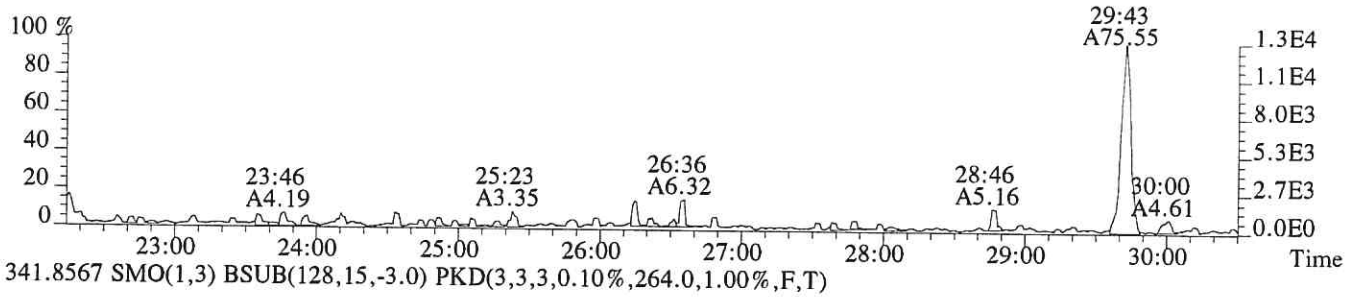
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



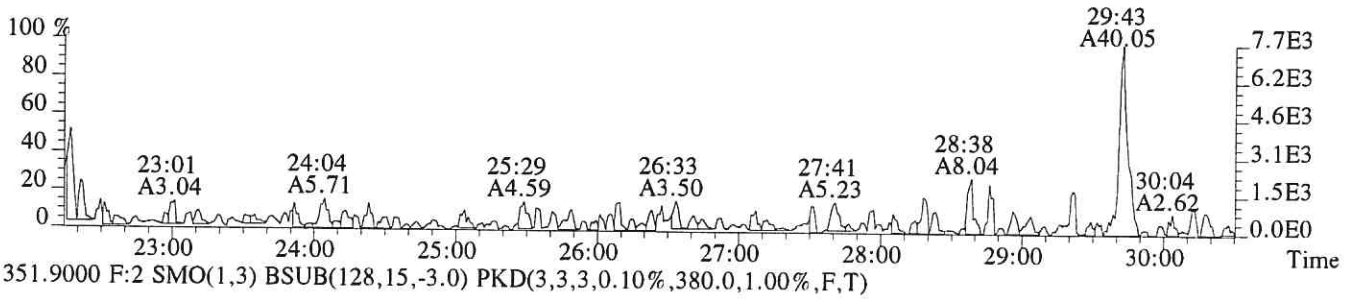
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



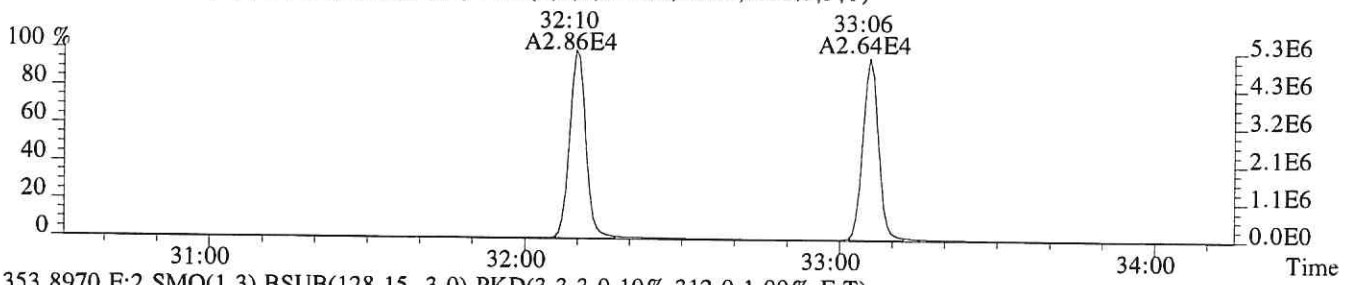
File:P519307 #1-587 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



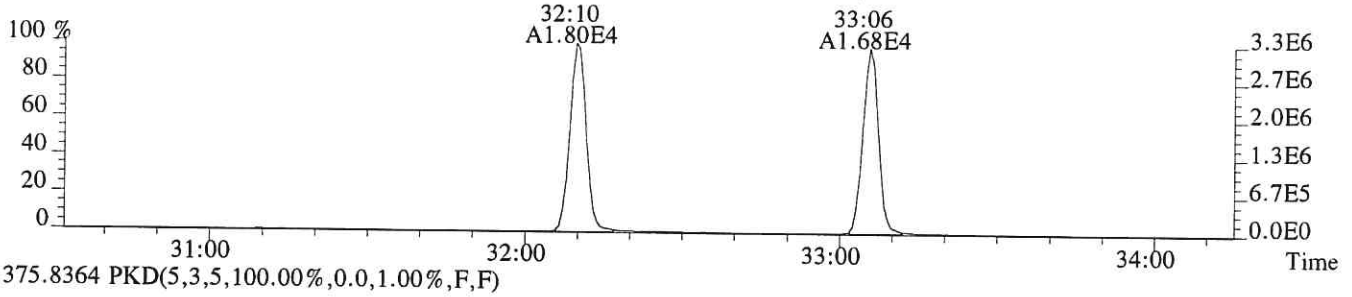
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



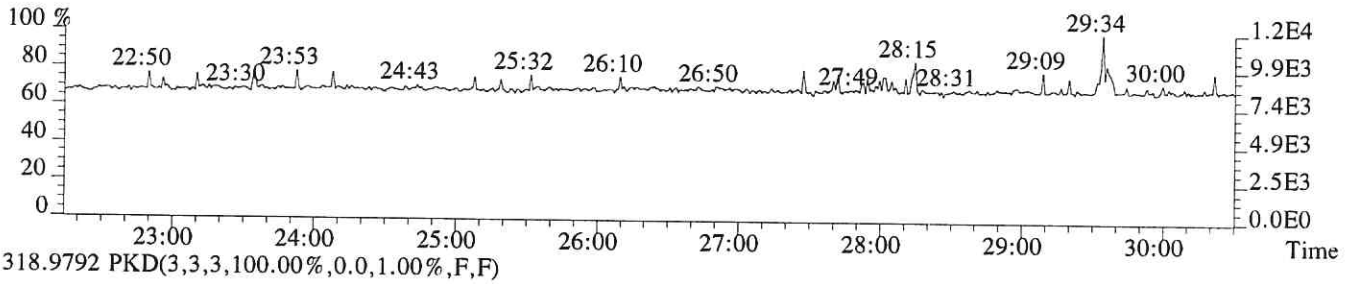
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



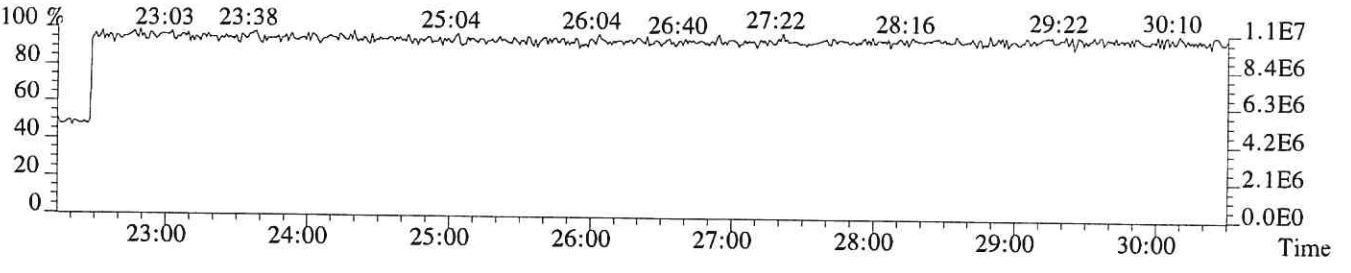
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

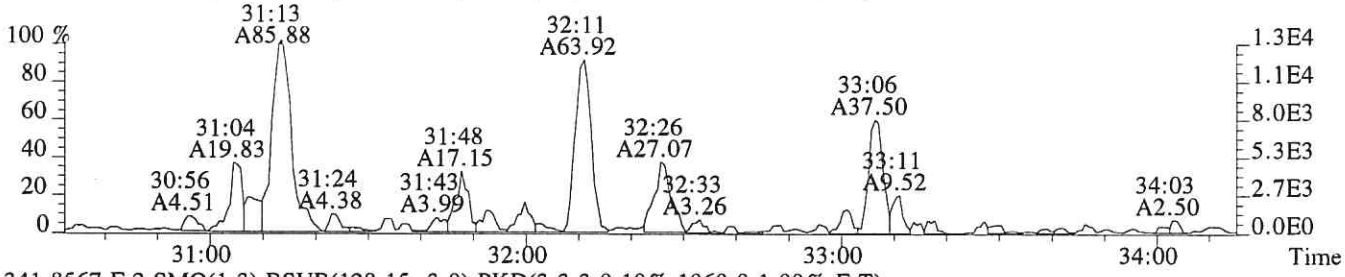


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

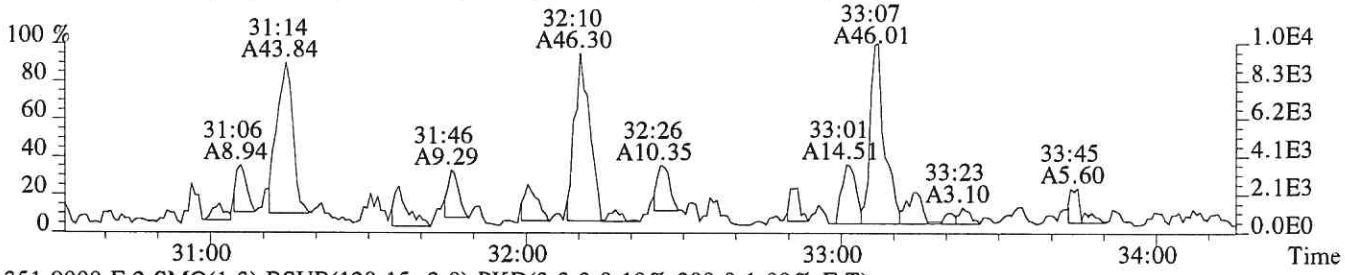


File:P519307 #1-335 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004

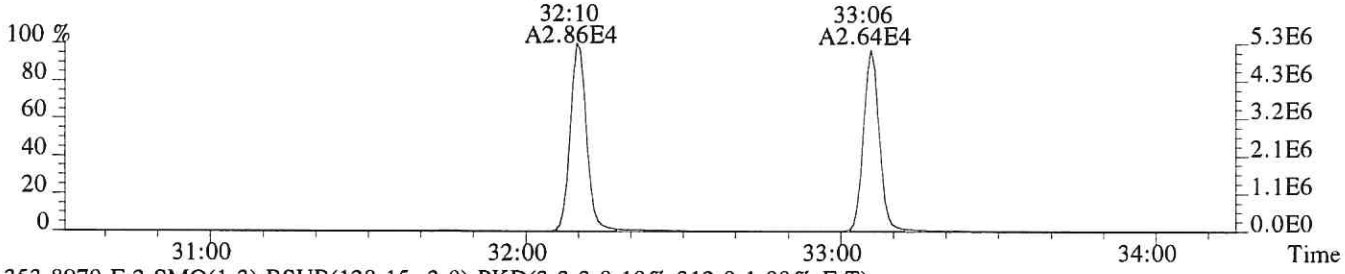
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



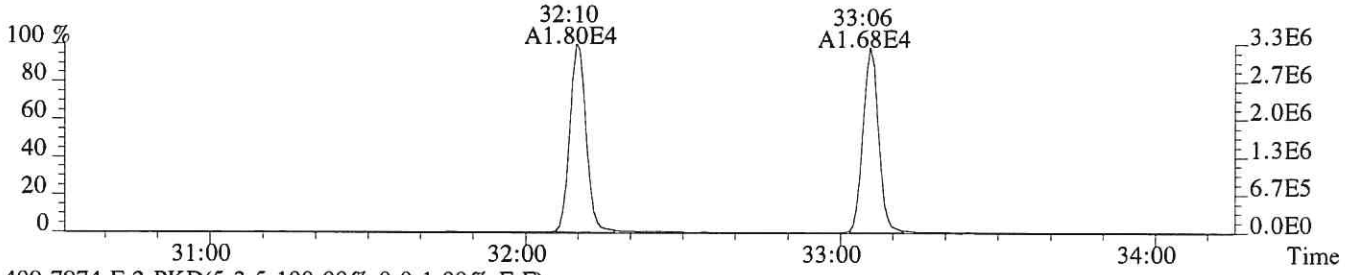
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



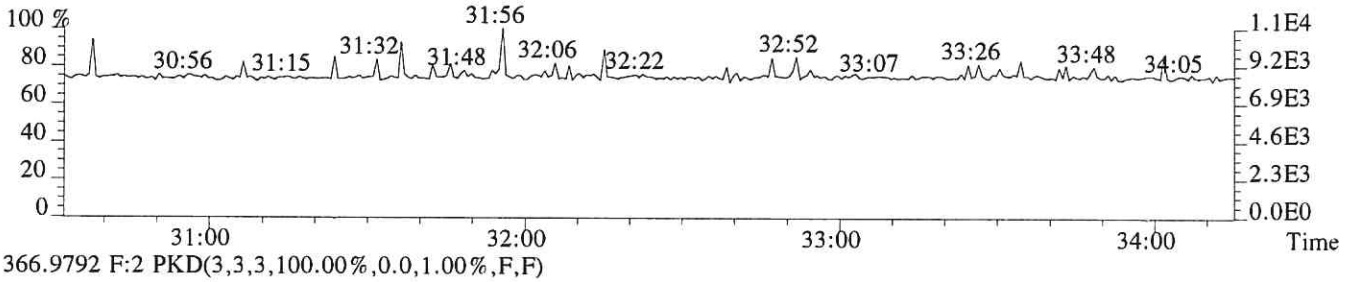
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



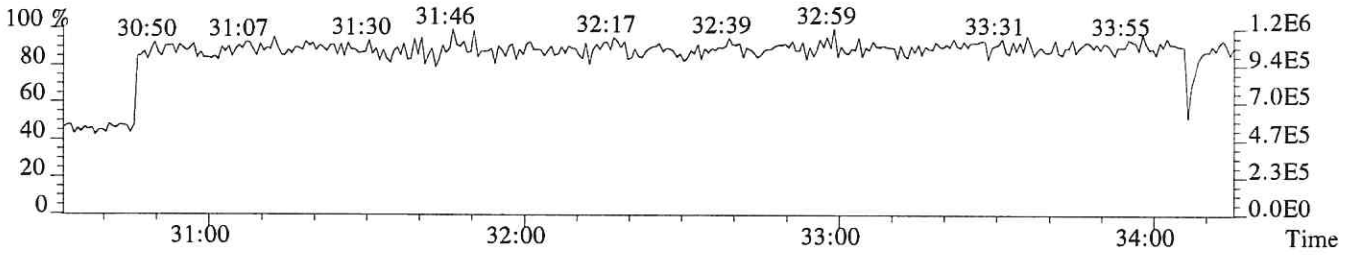
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



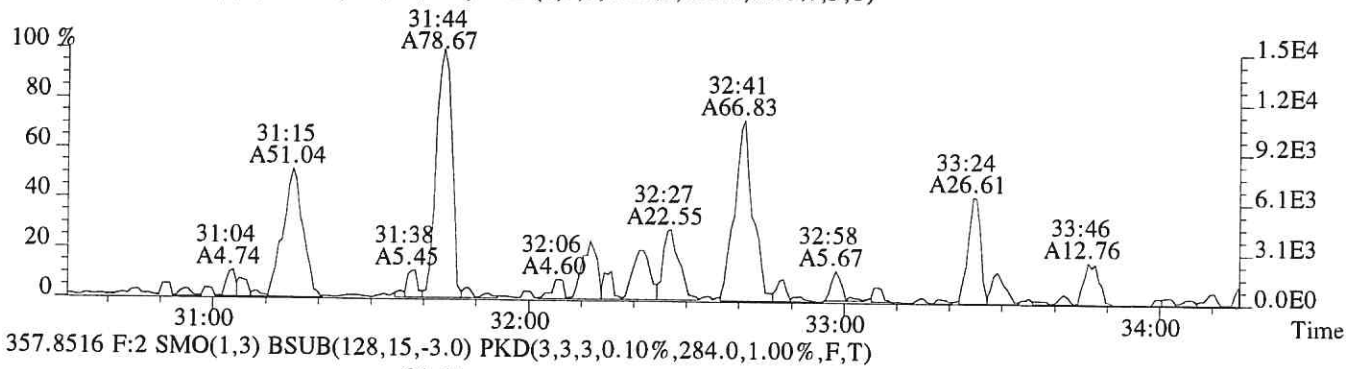
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



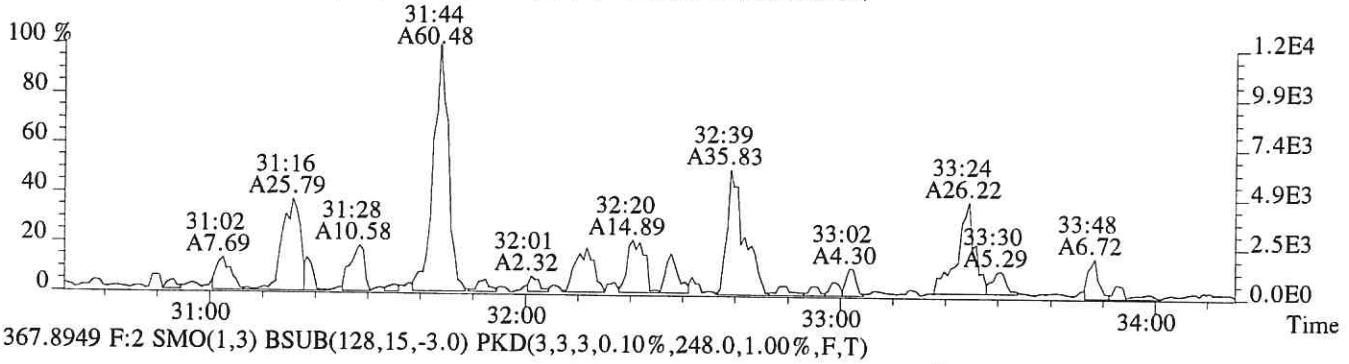
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



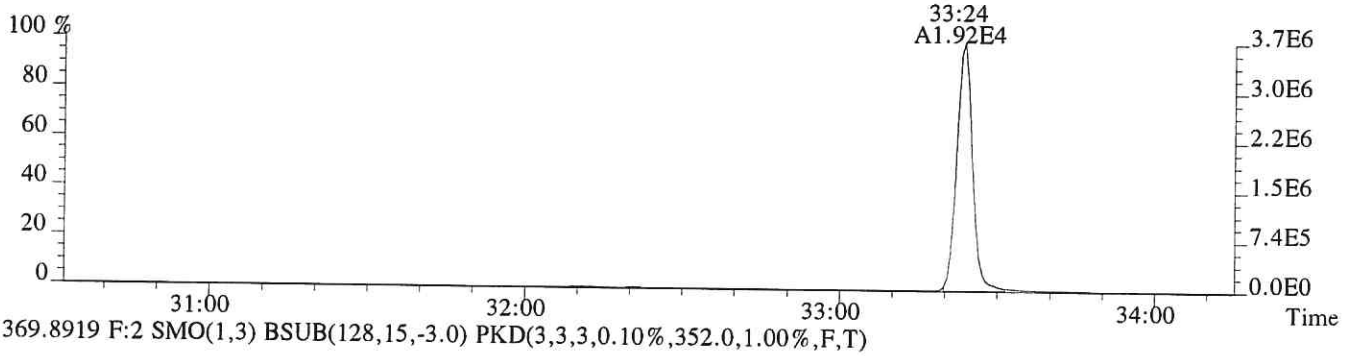
File:P519307 #1-335 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



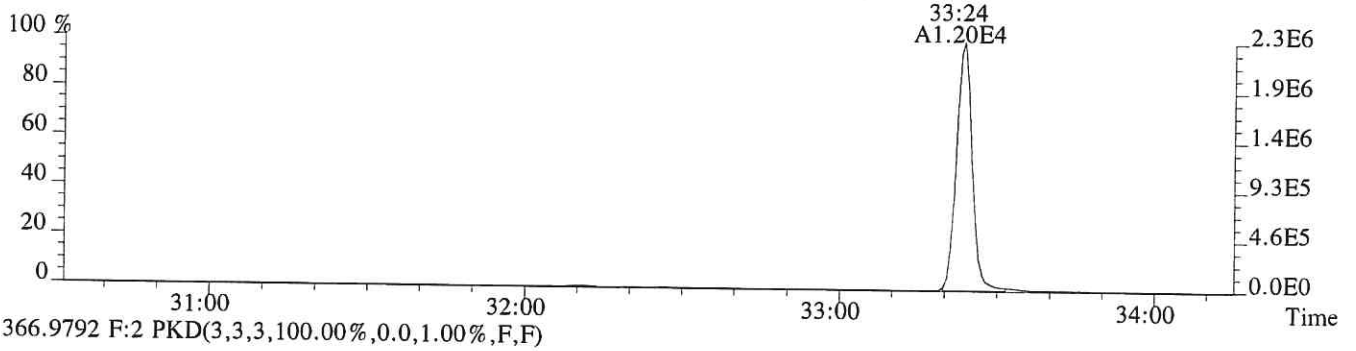
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



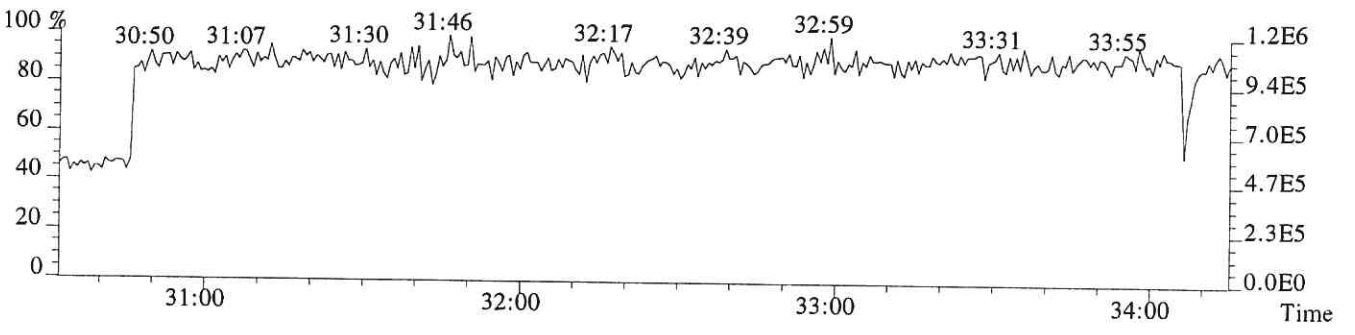
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)

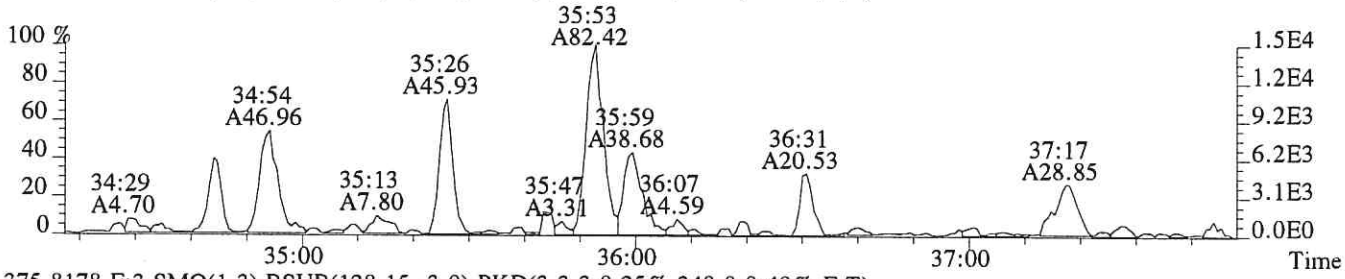


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

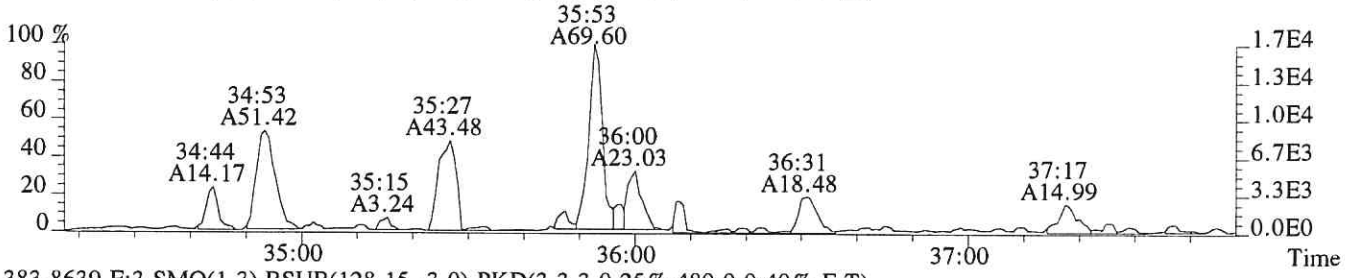


File:P519307 #1-317 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004

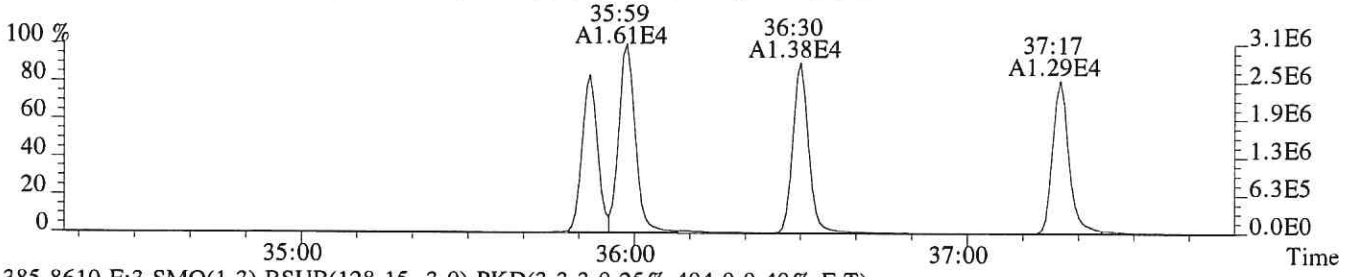
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



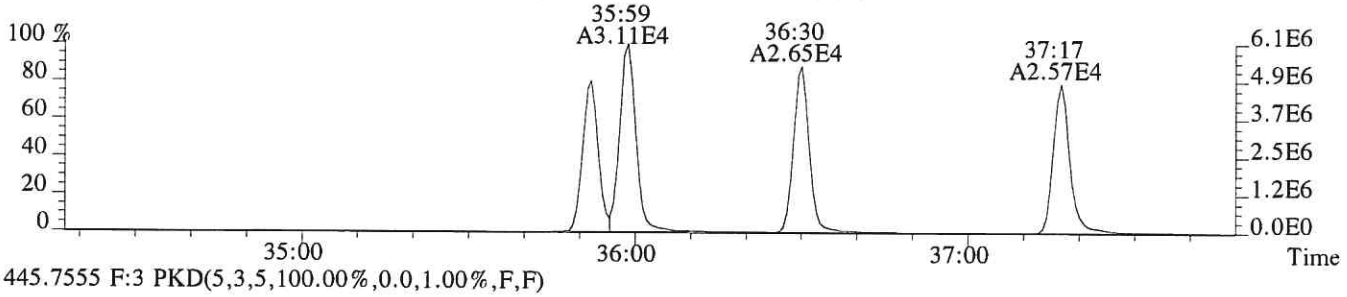
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



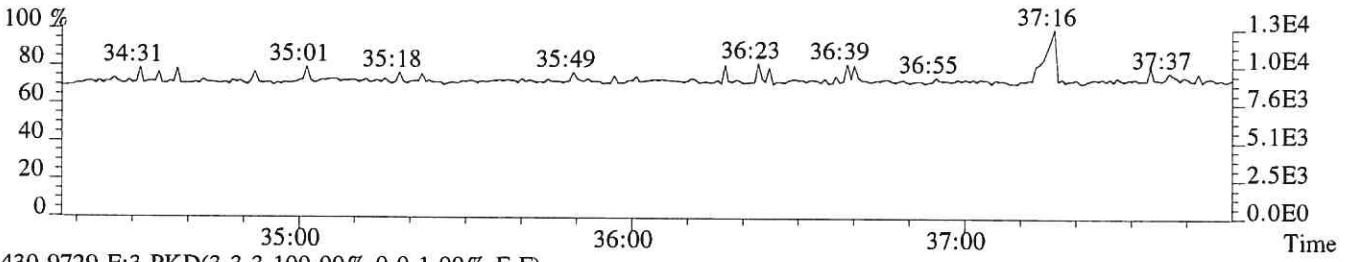
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



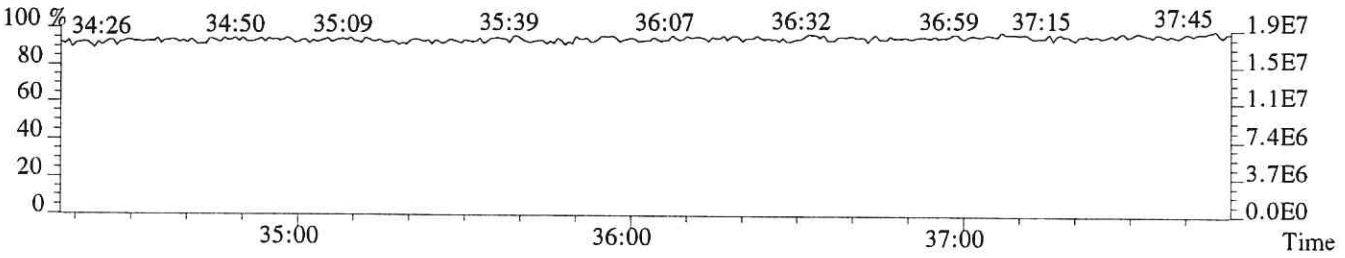
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



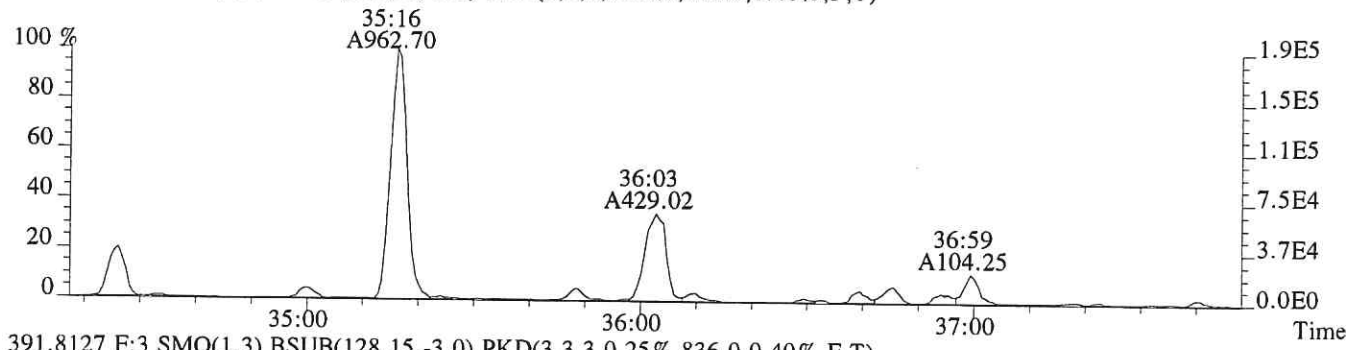
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



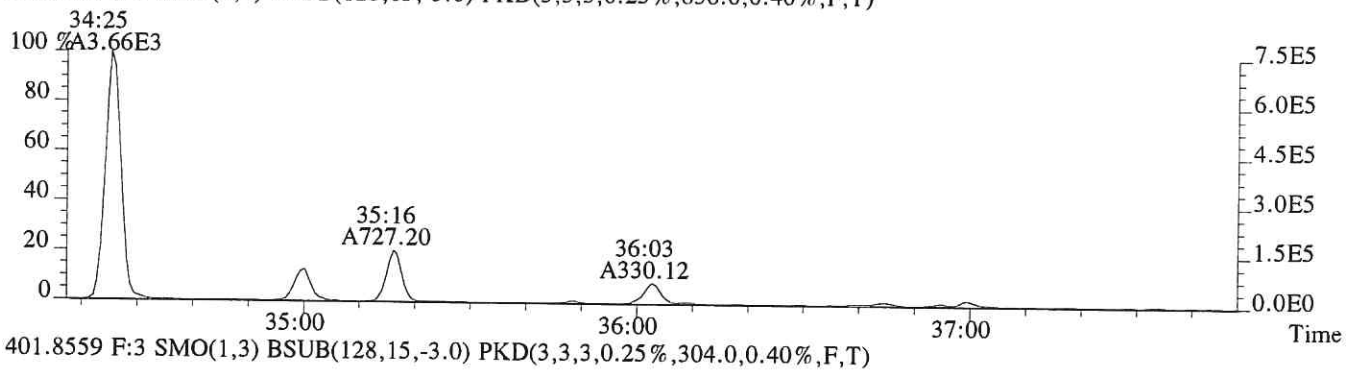
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



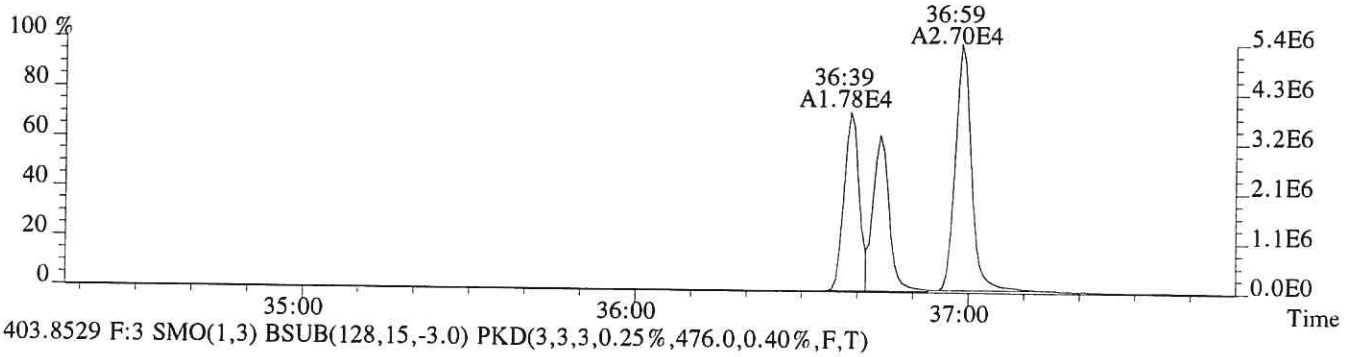
File:P519307 #1-317 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



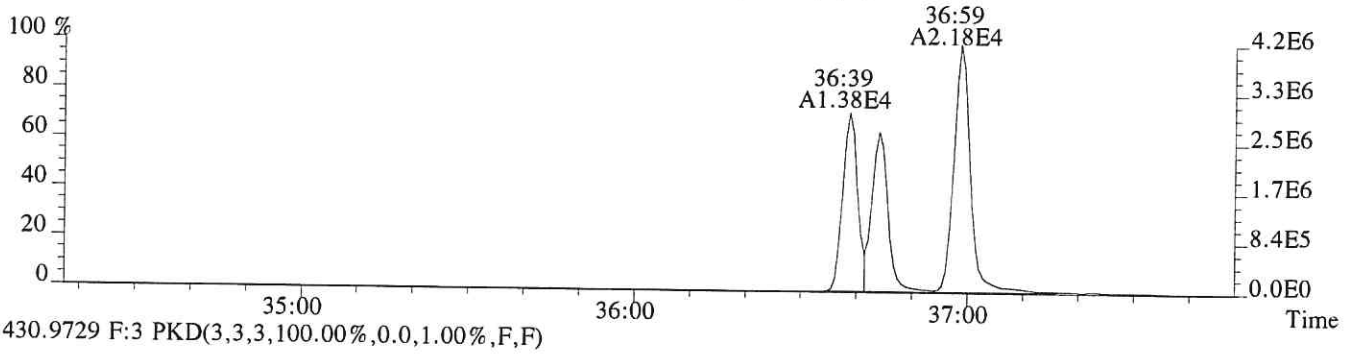
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



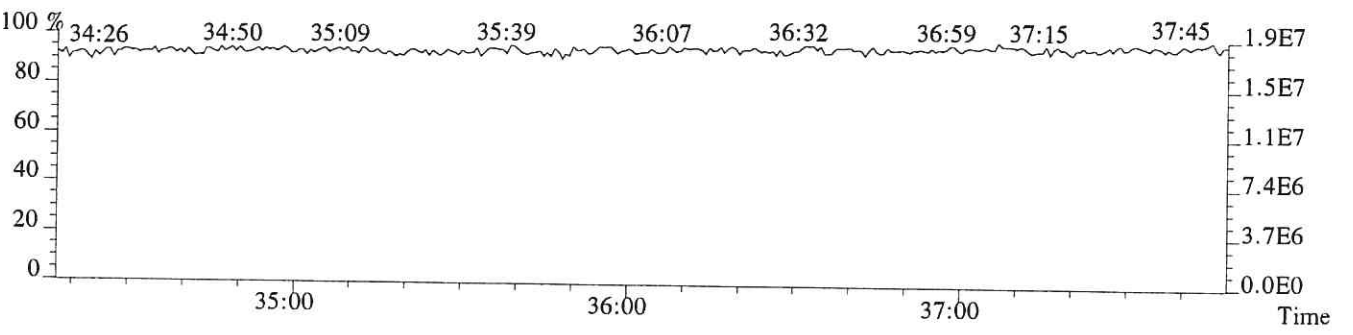
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



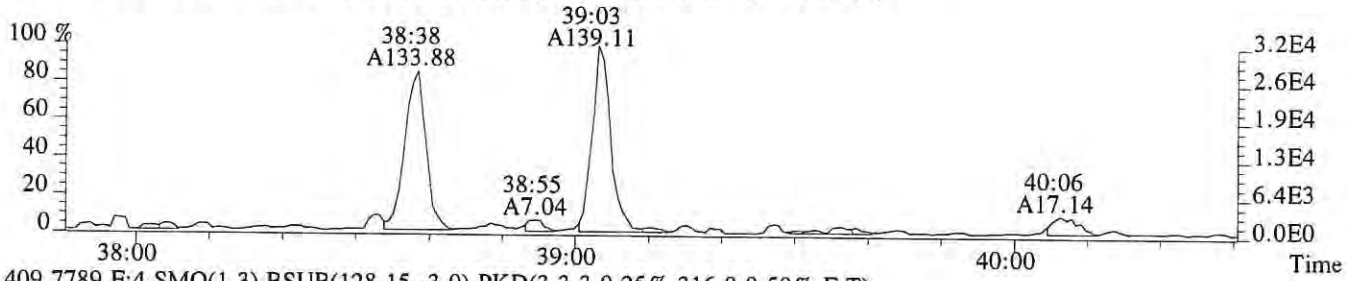
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



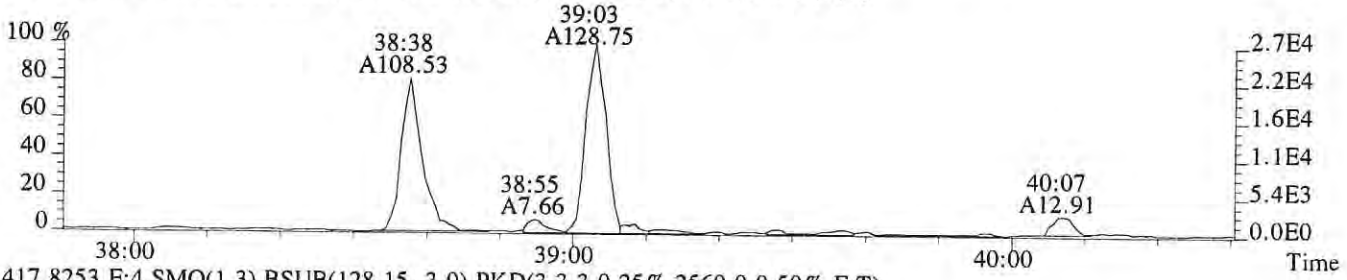
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



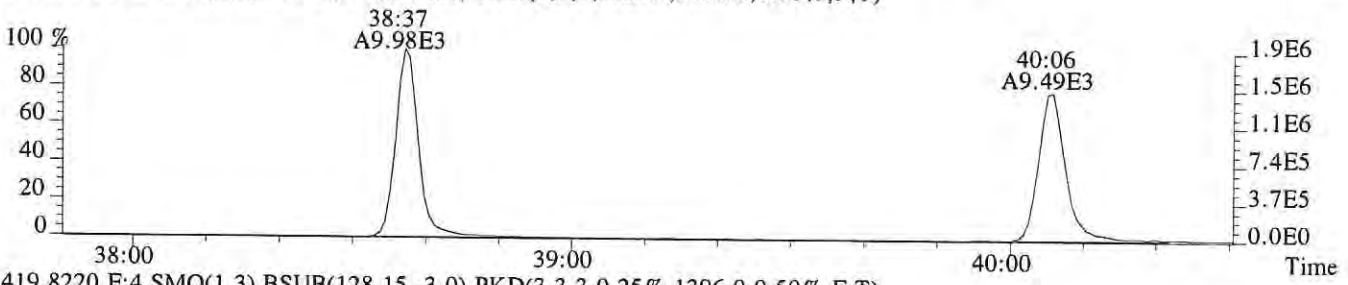
File:P519307 #1-241 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.50%,F,T)



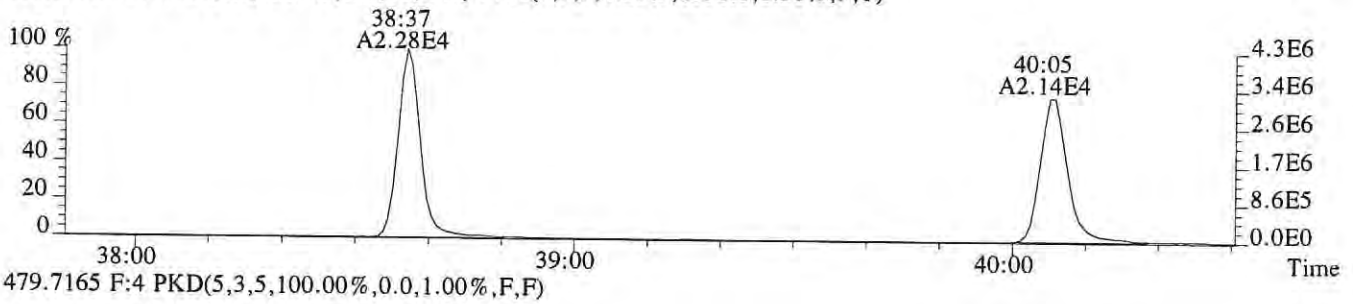
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.50%,F,T)



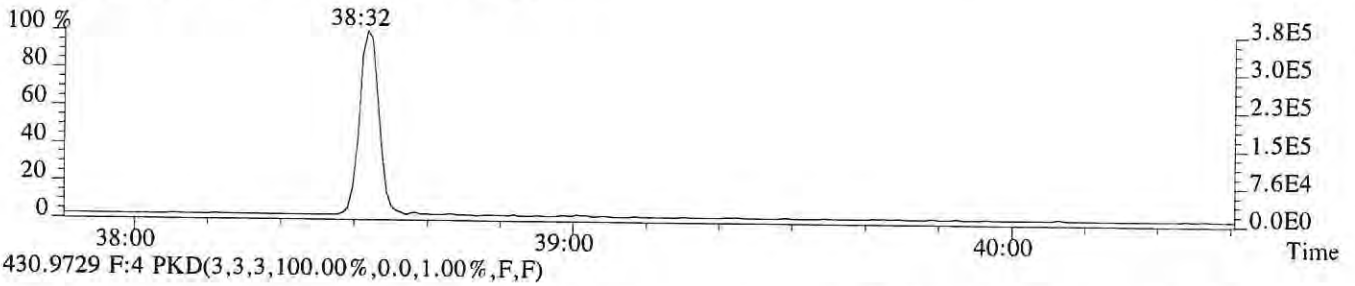
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2560.0,0.50%,F,T)



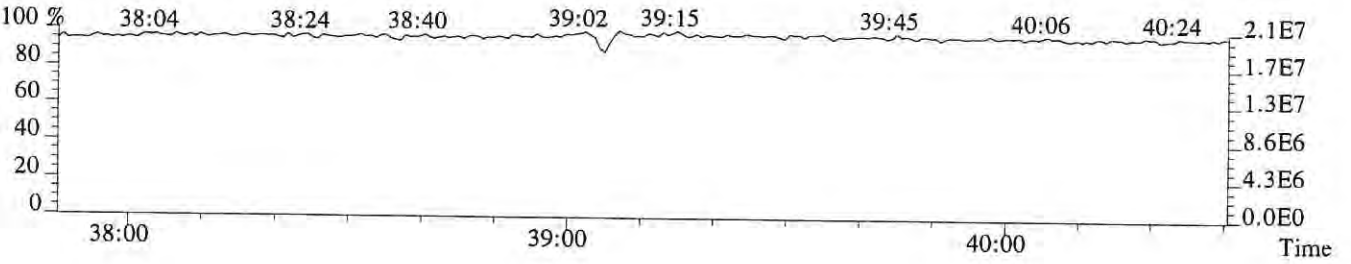
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.50%,F,T)



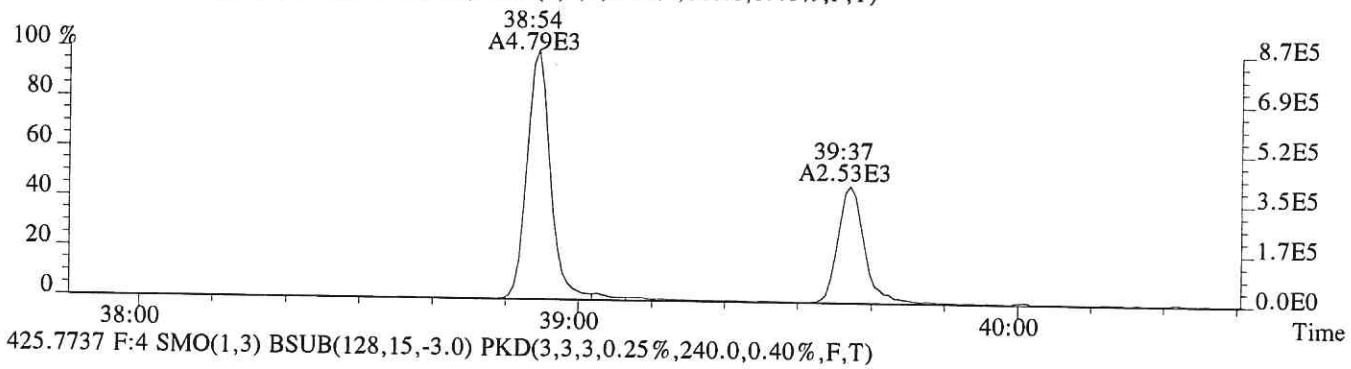
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



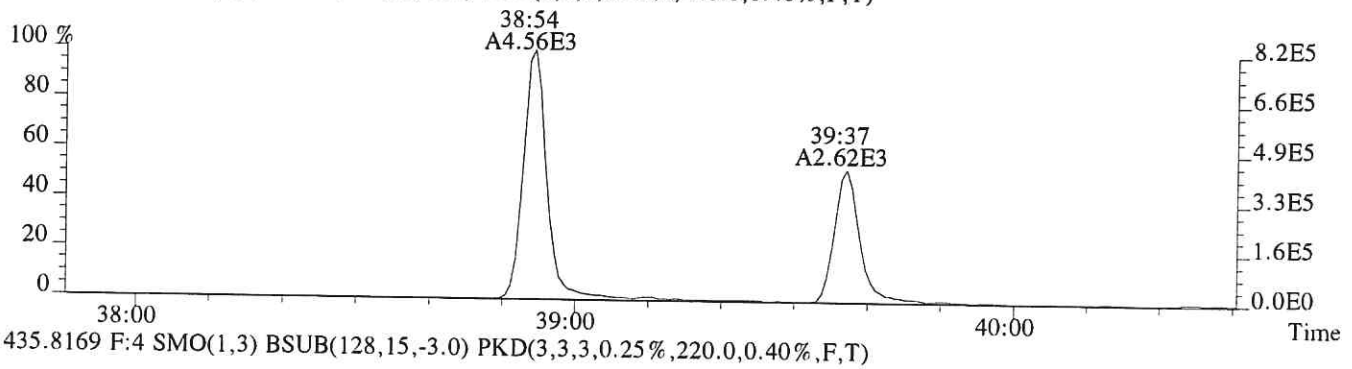
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



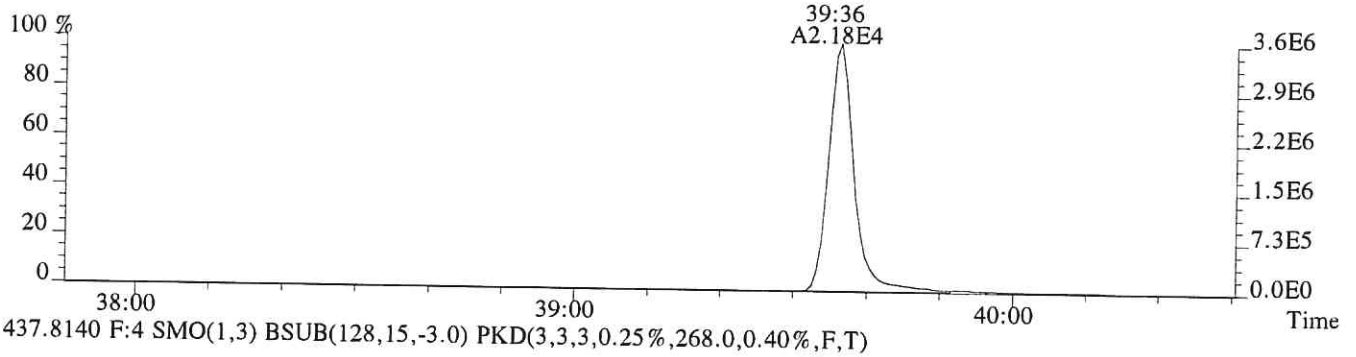
File:P519307 #1-241 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



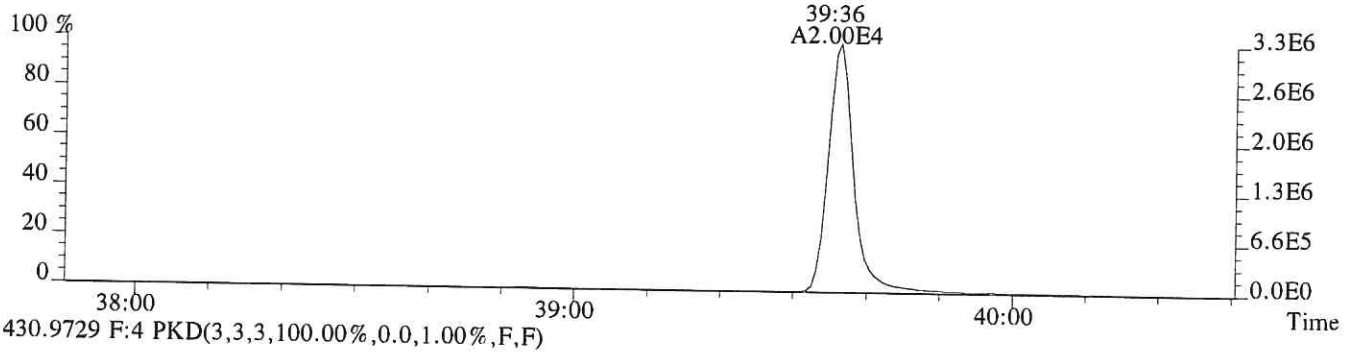
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



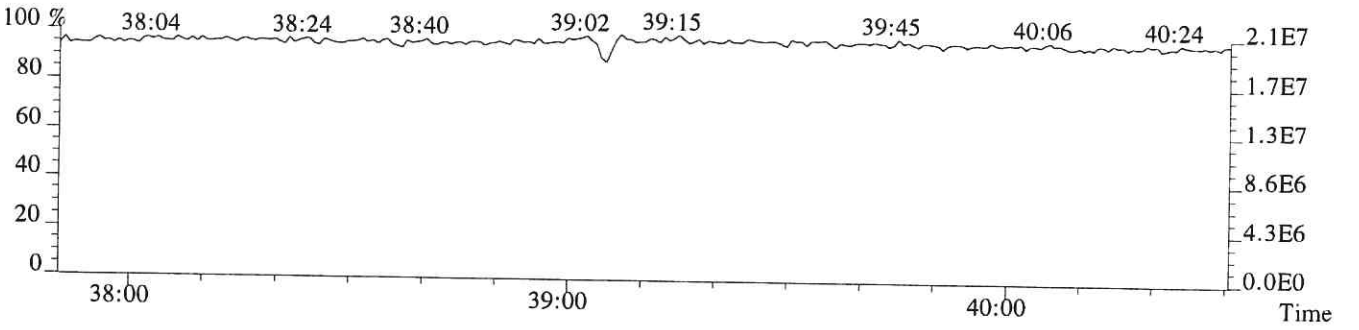
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)

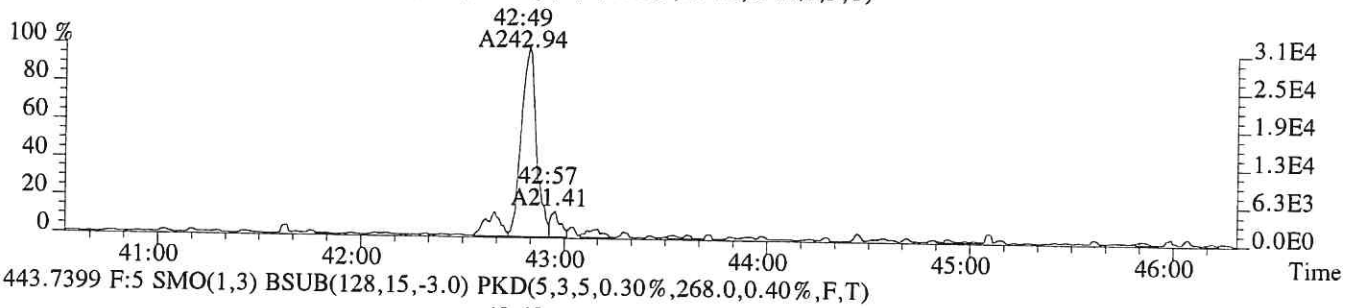


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

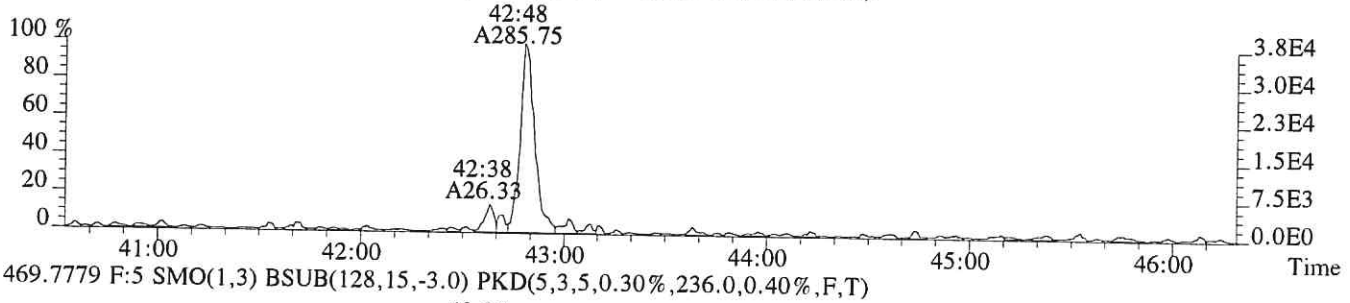


File:P519307 #1-520 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004

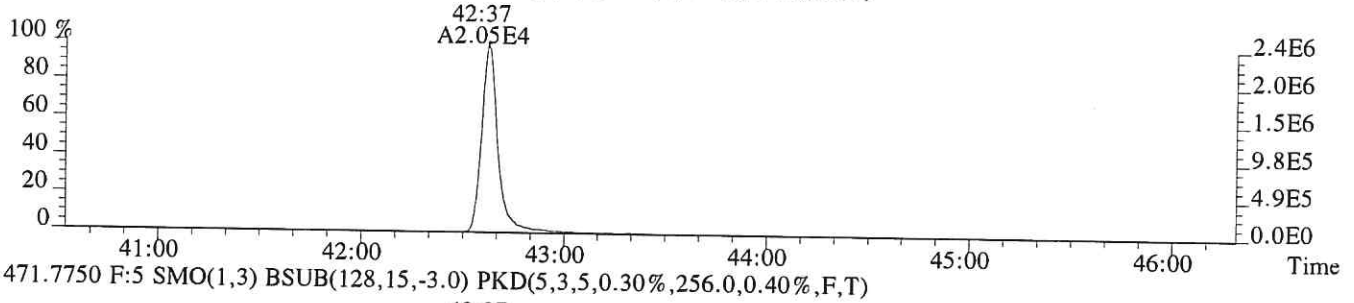
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



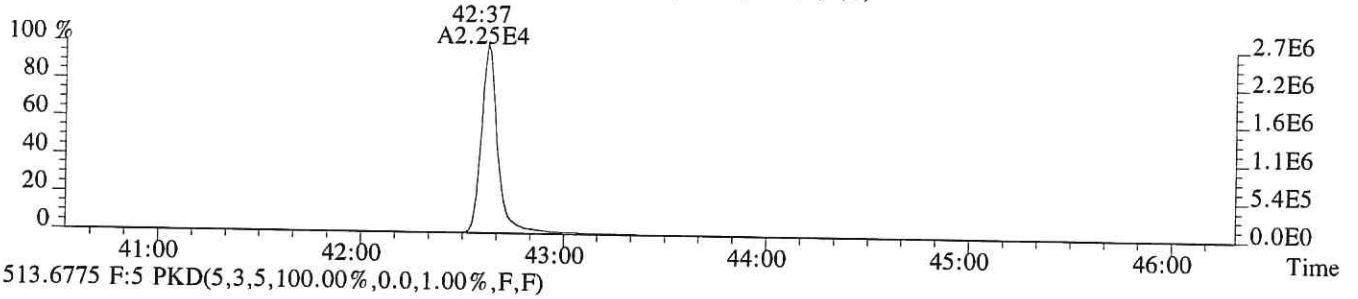
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



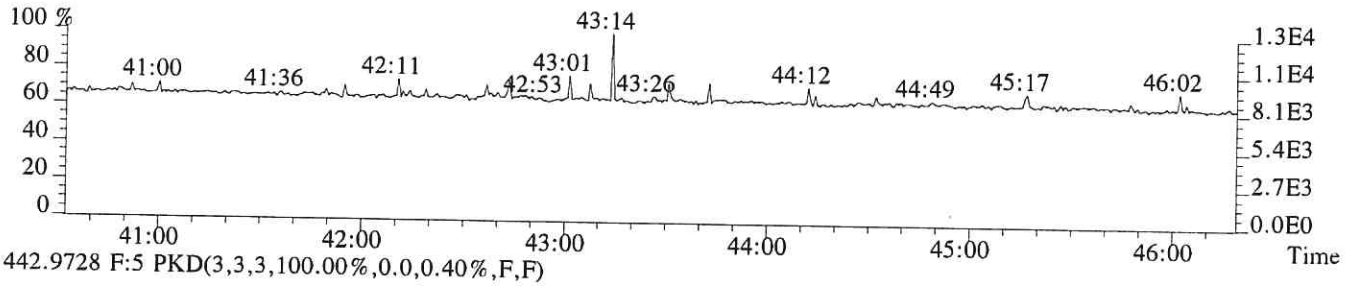
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



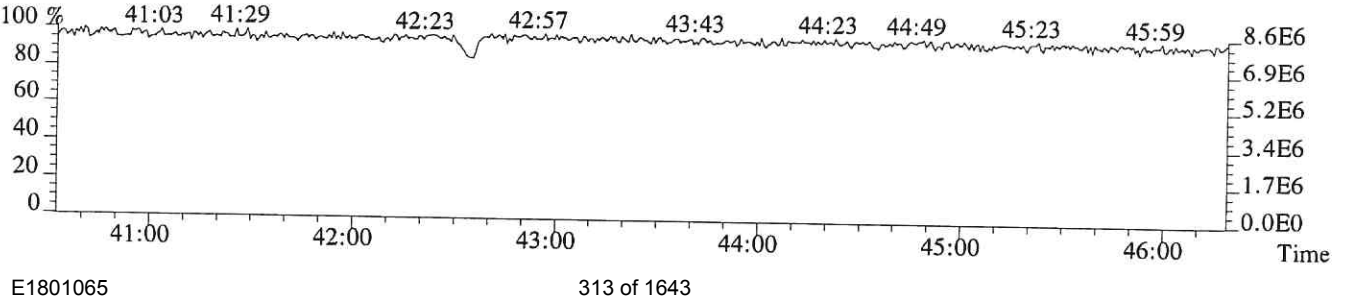
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



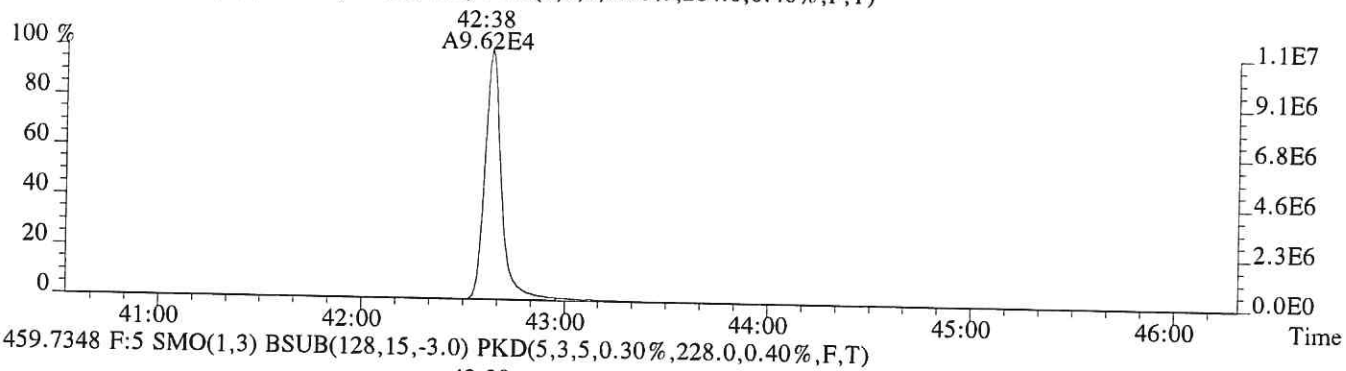
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



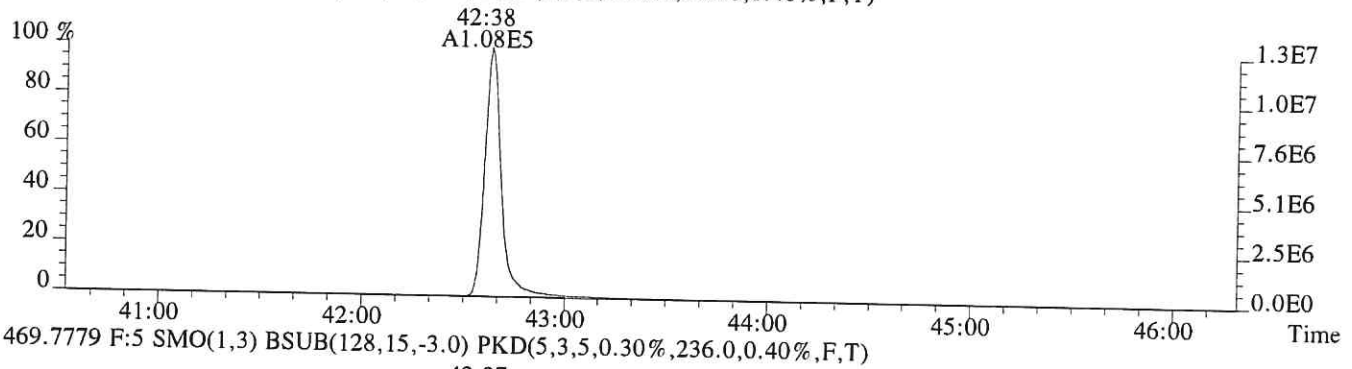
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



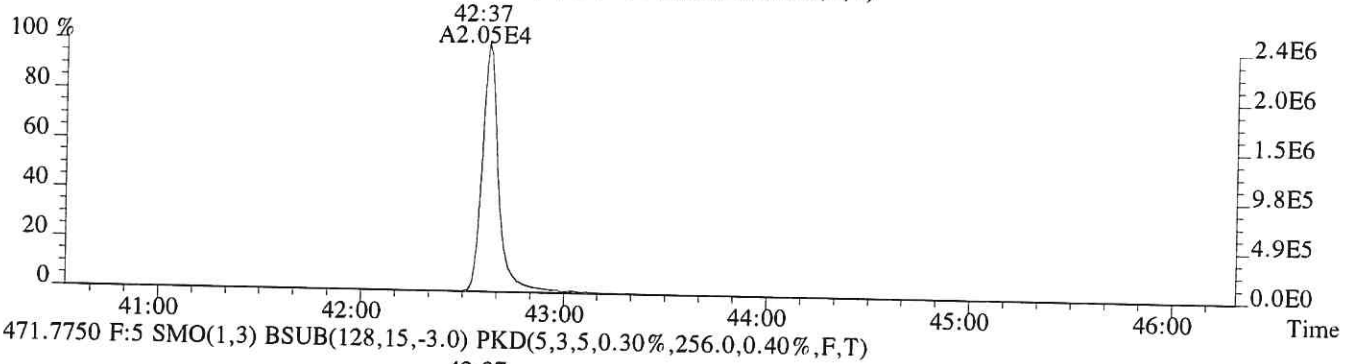
File:P519307 #1-520 Acq: 8-DEC-2018 11:34:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



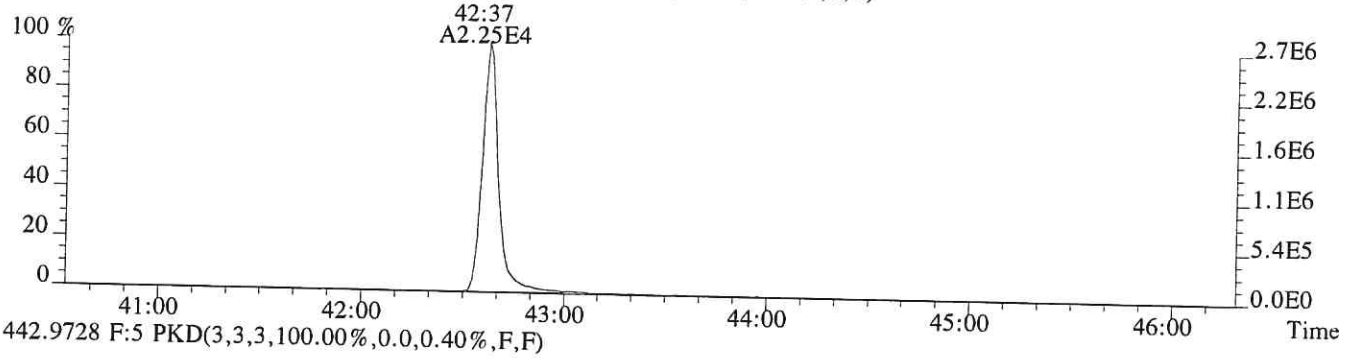
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



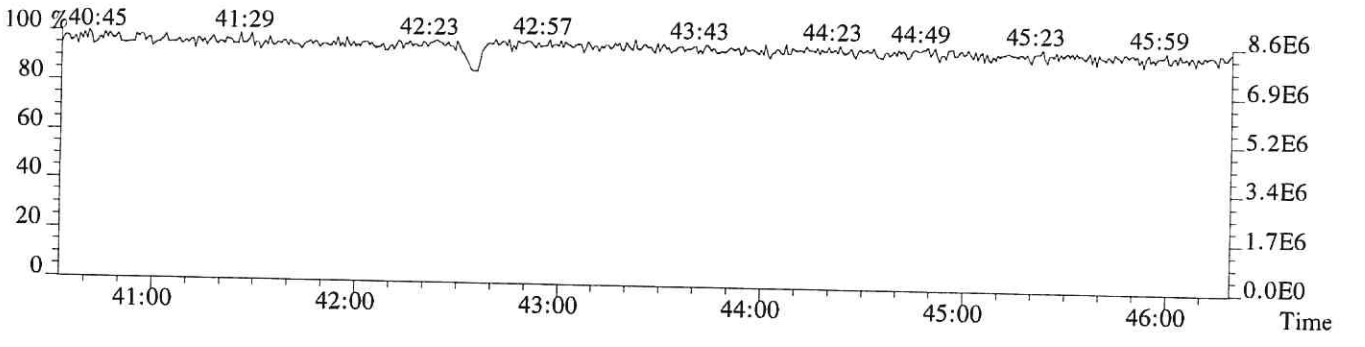
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0584

Run #11 Filename P519308 Samp: 1 Inj: 1 Acquired: 8-DEC-18 12:23:33
Processed: 11-DEC-18 16:38:52 Sample ID: E1801065-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	6.757e+02	9.227e+02	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	4.959e+01	3.923e+01	1.26	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	5.772e+01	3.525e+01	1.64	yes	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	8.619e+01	8.486e+01	1.02	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	3.778e+01	1.892e+01	2.00	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	1.875e+01	1.496e+01	1.25	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.391e+01	8.205e+00	2.91	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	8.016e+01	7.839e+01	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.388e+01	1.571e+01	0.88	no	no	1.258
10	Unk	OCDF	42:48	1.173e+02	1.275e+02	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:42	1.073e+02	1.642e+02	0.65	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:26	1.602e+01	9.099e+00	1.76	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:00	2.494e+01	3.100e+01	0.80	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	1.060e+03	1.028e+03	1.03	yes	no	1.025
17	Unk	OCDD	42:37	3.788e+04	4.165e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.263e+04	1.581e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.695e+04	1.662e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.503e+04	1.577e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.222e+04	2.303e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.611e+04	3.113e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	1.347e+04	2.581e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.279e+04	2.555e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.023e+04	2.296e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	9.277e+03	2.115e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	6.008e+03	7.359e+03	0.82	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.839e+04	1.172e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.807e+04	1.398e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.771e+04	1.353e+04	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	2.178e+04	2.011e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:36	1.887e+04	2.126e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.748e+04	2.243e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.873e+04	2.105e+04	1.36	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	8.910e+03				no	1.014

$$\text{OCDD} = \frac{(3.788e+04 + 4.165e+04) \times 4000\ \text{pg} \times 1}{(1.887e+04 + 2.126e+04) \times 10.444\text{g} \times 71.6 / 100 \times 1.118} = 948.204\ \text{ng/Kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0584

Run #11 Filename P519308 Samp: 1 Inj: 1 Acquired: 8-DEC-18 12:23:33
Processed: 11-DEC-18 16:38:52 LAB. ID: E1801065-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.11e+05	2.20e+02	5.0e+02	1.40e+05	4.56e+02	3.1e+02
2	1,2,3,7,8-PeCDF	9.42e+03	2.40e+02	3.9e+01	7.24e+03	3.68e+02	2.0e+01
3	2,3,4,7,8-PeCDF	8.11e+03	2.40e+02	3.4e+01	6.70e+03	3.68e+02	1.8e+01
4	1,2,3,4,7,8-HxCDF	1.55e+04	2.76e+02	5.6e+01	1.74e+04	2.52e+02	6.9e+01
5	1,2,3,6,7,8-HxCDF	6.95e+03	2.76e+02	2.5e+01	4.36e+03	2.52e+02	1.7e+01
6	2,3,4,6,7,8-HxCDF	3.98e+03	2.76e+02	1.4e+01	2.58e+03	2.52e+02	1.0e+01
7	1,2,3,7,8,9-HxCDF	4.95e+03	2.76e+02	1.8e+01	1.77e+03	2.52e+02	7.0e+00
8	1,2,3,4,6,7,8-HpCDF	1.35e+04	5.00e+02	2.7e+01	1.70e+04	2.80e+02	6.1e+01
9	1,2,3,4,7,8,9-HpCDF	4.25e+03	5.00e+02	8.5e+00	2.65e+03	2.80e+02	9.5e+00
10	OCDF	1.51e+04	2.24e+02	6.7e+01	1.39e+04	3.96e+02	3.5e+01
11	2,3,7,8-TCDD	1.91e+04	1.32e+03	1.4e+01	3.34e+04	4.84e+02	6.9e+01
12	1,2,3,7,8-PeCDD	2.68e+03	2.32e+02	1.2e+01	2.68e+03	3.04e+02	8.8e+00
13	1,2,3,4,7,8-HxCDD	*	2.76e+02	*	*	1.86e+03	*
14	1,2,3,6,7,8-HxCDD	*	2.76e+02	*	*	1.86e+03	*
15	1,2,3,7,8,9-HxCDD	6.60e+03	2.76e+02	2.4e+01	7.67e+03	1.86e+03	4.1e+00
16	1,2,3,4,6,7,8-HpCDD	1.73e+05	1.88e+02	9.2e+02	1.73e+05	1.08e+03	1.6e+02
17	OCDD	4.54e+06	2.60e+02	1.7e+04	5.01e+06	3.24e+02	1.5e+04
18	13C-2,3,7,8-TCDF	2.24e+06	3.44e+03	6.5e+02	2.75e+06	1.42e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	4.96e+06	2.12e+02	2.3e+04	3.08e+06	1.84e+02	1.7e+04
20	13C-2,3,4,7,8-PeCDF	4.97e+06	2.12e+02	2.3e+04	3.13e+06	1.84e+02	1.7e+04
21	13C-1,2,3,4,7,8-HxCDF	2.45e+06	2.44e+02	1.0e+04	4.66e+06	4.84e+02	9.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.08e+06	2.44e+02	1.3e+04	6.06e+06	4.84e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.75e+06	2.44e+02	1.1e+04	5.20e+06	4.84e+02	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	2.45e+06	2.44e+02	1.0e+04	4.70e+06	4.84e+02	9.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.95e+06	4.92e+03	4.0e+02	4.33e+06	1.36e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.47e+06	4.92e+03	3.0e+02	3.27e+06	1.36e+03	2.4e+03
27	13C-2,3,7,8-TCDD	1.15e+06	3.67e+03	3.1e+02	1.35e+06	8.24e+02	1.6e+03
28	13C-1,2,3,7,8-PeCDD	3.52e+06	4.16e+02	8.5e+03	2.21e+06	4.24e+02	5.2e+03
29	13C-1,2,3,4,7,8-HxCDD	3.83e+06	6.60e+02	5.8e+03	2.96e+06	2.40e+02	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.47e+06	6.60e+02	5.3e+03	2.66e+06	2.40e+02	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.68e+06	2.48e+02	1.5e+04	3.46e+06	2.44e+02	1.4e+04
32	13C-OCDD	2.25e+06	1.56e+02	1.4e+04	2.52e+06	1.80e+02	1.4e+04
33	13C-1,2,3,4-TCDD	3.26e+06	3.67e+03	8.9e+02	4.22e+06	8.24e+02	5.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.43e+06	6.60e+02	8.2e+03	4.24e+06	2.40e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.66e+06	4.60e+02	3.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.324e{+}03 + 4.840e{+}02) \times 2000}{(1.148e{+}06 + 1.349e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0584

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P519308 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 12:23:33 Processed: 11-DEC-18 16:38:52

Mass: 303.9020 305.8990 Tot Response: 2.44e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:15	3.13e+01	3.71e+01	0.84	yes	6.84e+01	n	n
2	25:32	2.47e+01	2.98e+01	0.83	yes	5.45e+01	n	n
3	27:02	3.03e+02	4.20e+02	0.72	yes	7.23e+02	n	n
4	27:51	6.76e+02	9.23e+02	0.73	yes	1.60e+03 2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0584

Entry: 39 Totals Name: Total Penta-Furans2

Run: 11 File: P519308 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 12:23:33 Processed: 11-DEC-18 16:38:52

Mass: 339.8600 341.8570 Tot Response: 9.30e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:08	5.77e+01	3.53e+01 1.64	yes	9.30e+01	2,3,4,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.
SL0584

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519308 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 12:23:33 Processed: 11-DEC-18 16:38:52

Mass: 355.8550 357.8520 Tot Response: 7.68e+01 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:44	3.04e+01	2.12e+01	1.43	yes	5.17e+01		n	n
2	33:26	1.60e+01	9.10e+00	1.76	yes	2.51e+01	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0584

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P519308 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 12:23:33 Processed: 11-DEC-18 16:38:52

Mass: 373.8210 375.8180 Tot Response: 1.12e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	4.54e+01	3.32e+01	1.37	yes	7.86e+01		n	n
2	36:31	1.88e+01	1.50e+01	1.25	yes	3.37e+01	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0584

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P519308 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 12:23:33 Processed: 11-DEC-18 16:38:52

Mass: 389.8160 391.8130 Tot Response: 9.44e+02 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	3.79e+02	3.16e+02	1.20	yes	6.95e+02		n	n
2	36:04	1.33e+02	1.17e+02	1.14	yes	2.50e+02		n	n

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Peak List Summary

CLIENT ID.
SL0584

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P519308 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 12:23:33 Processed: 11-DEC-18 16:38:52

Mass: 407.7820 409.7790 Tot Response: 3.68e+02 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	8.02e+01	7.84e+01	1.02	yes	1.59e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:02	1.11e+02	9.85e+01	1.13	yes	2.10e+02		n	n

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Peak List Summary

CLIENT ID.
SL0584

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519308 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 12:23:33 Processed: 11-DEC-18 16:38:52

Mass: 423.7770 425.7740 Tot Response: 6.16e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	2.04e+03	1.00	yes	4.07e+03		n	n
2	39:36	1.06e+03	1.03	yes	2.09e+03	1,2,3,4,6,7,8-HpCDD	n	n

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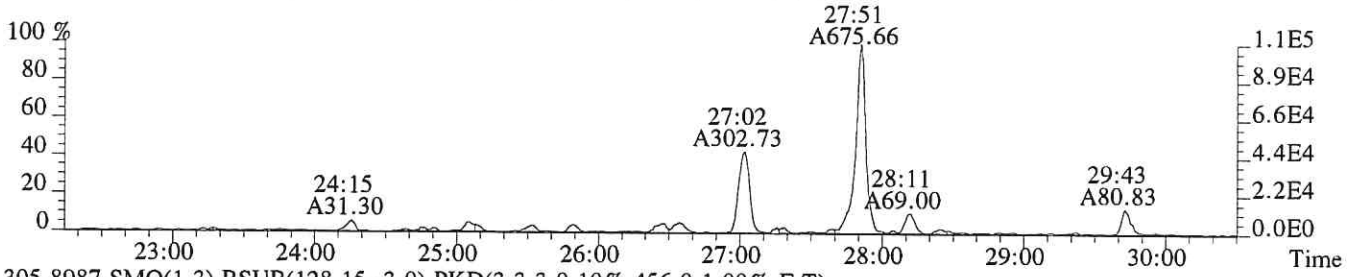
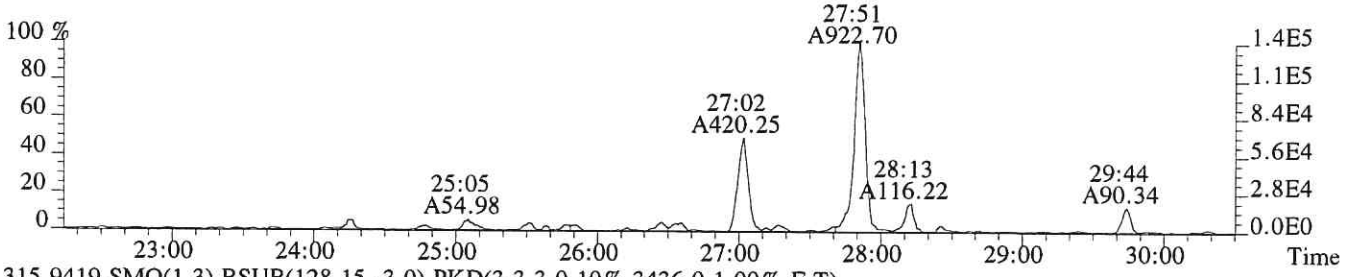
File:P519308 #1-587 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005

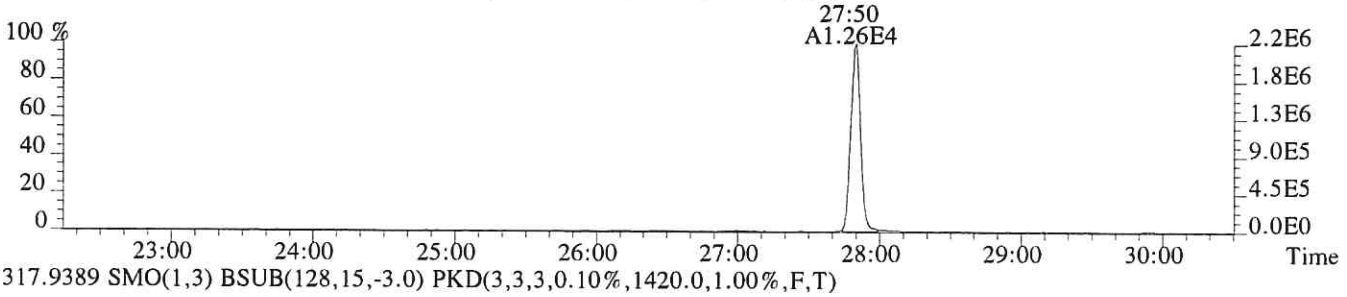
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



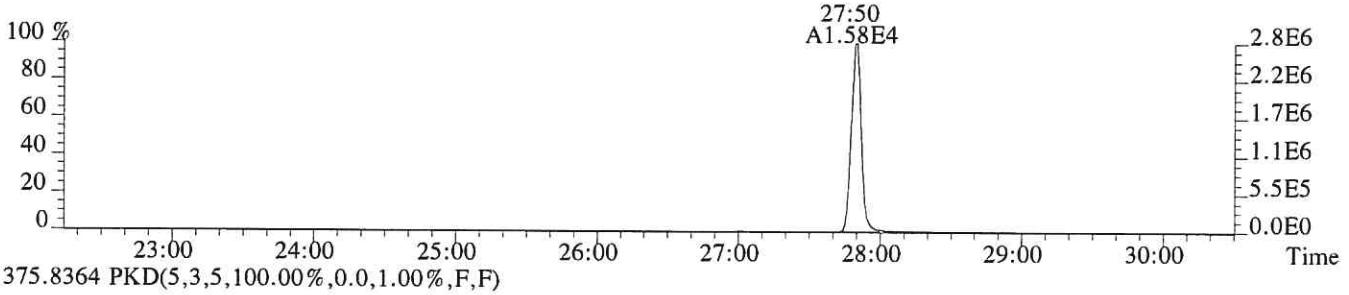
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



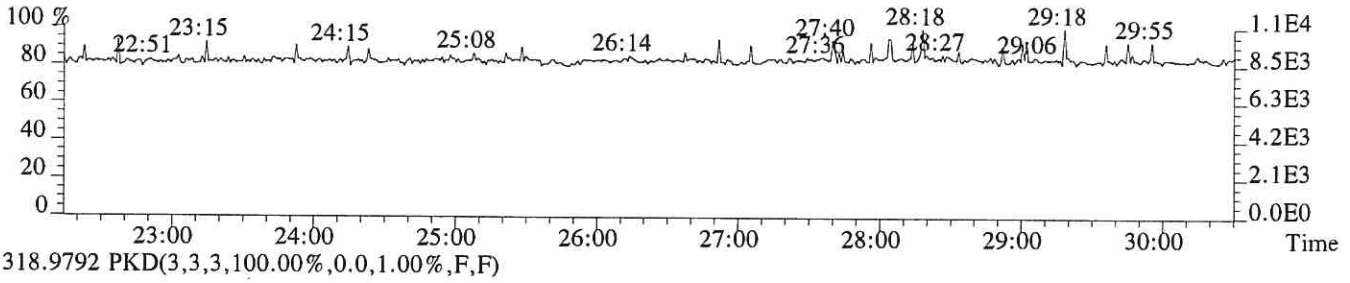
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



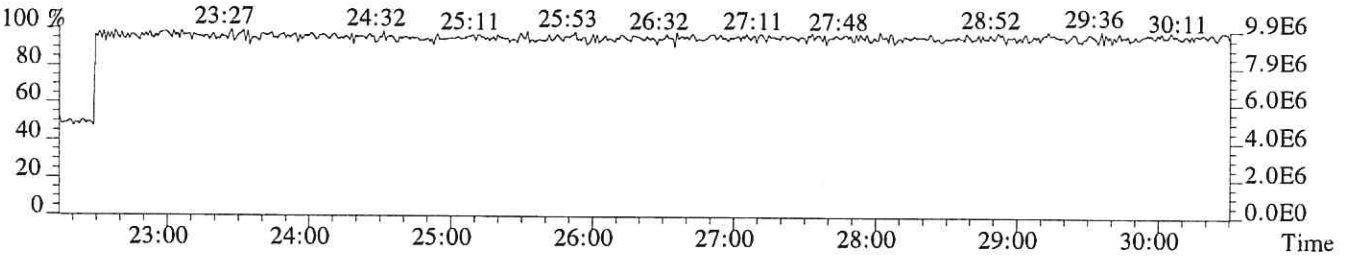
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



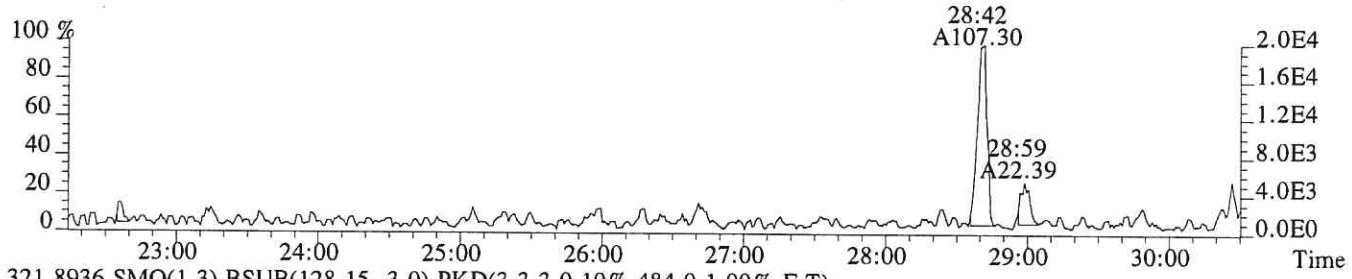
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



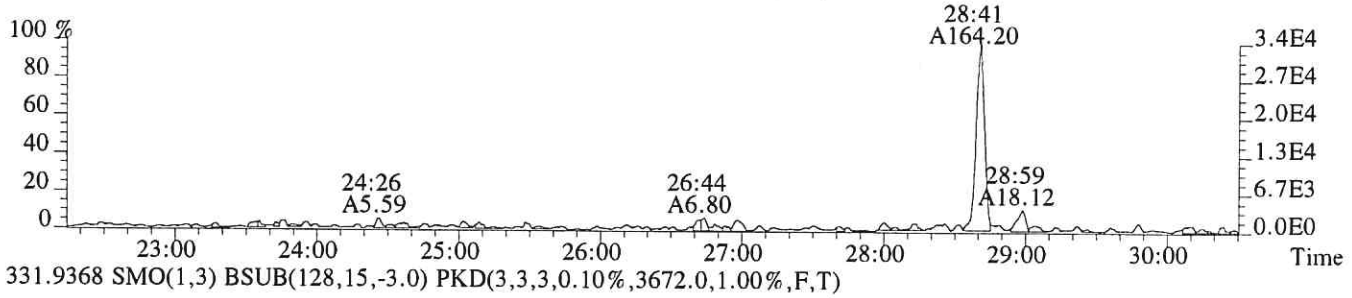
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



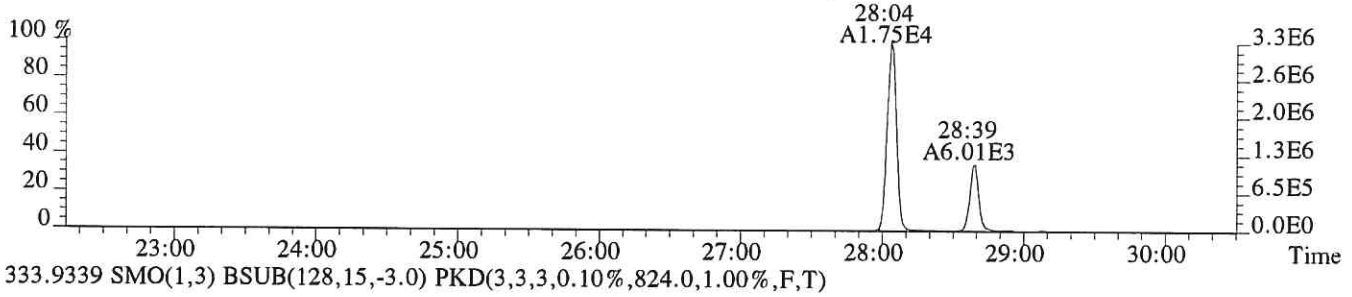
File:P519308 #1-587 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



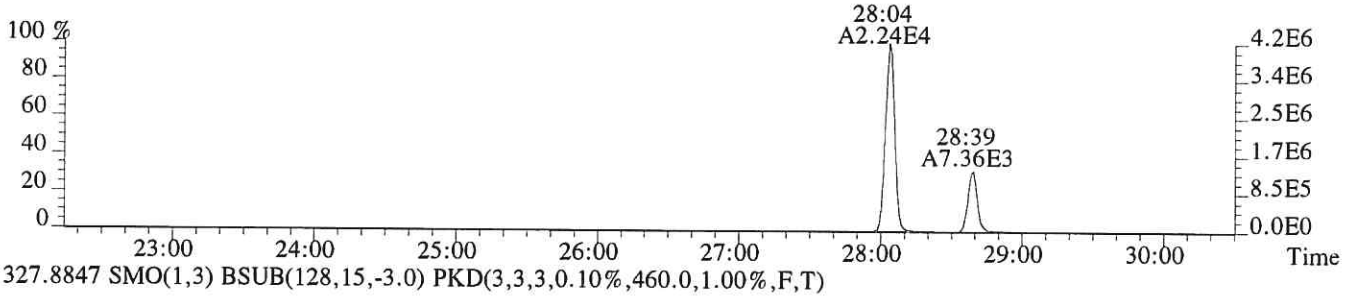
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



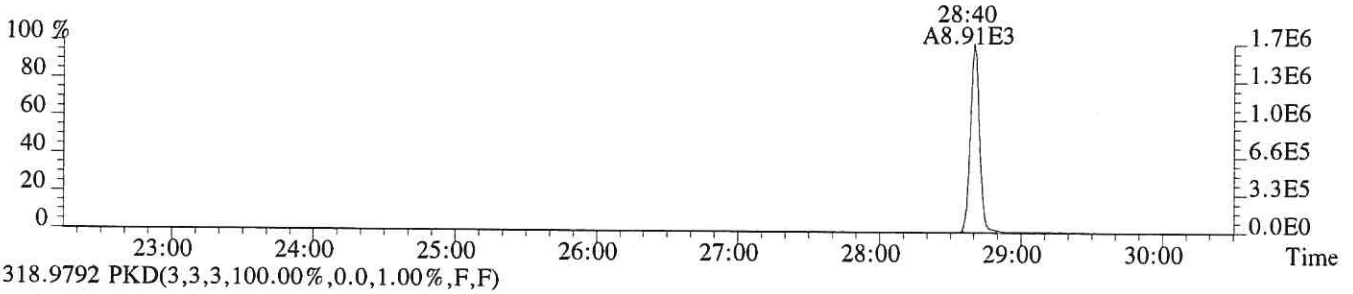
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3672.0,1.00%,F,T)



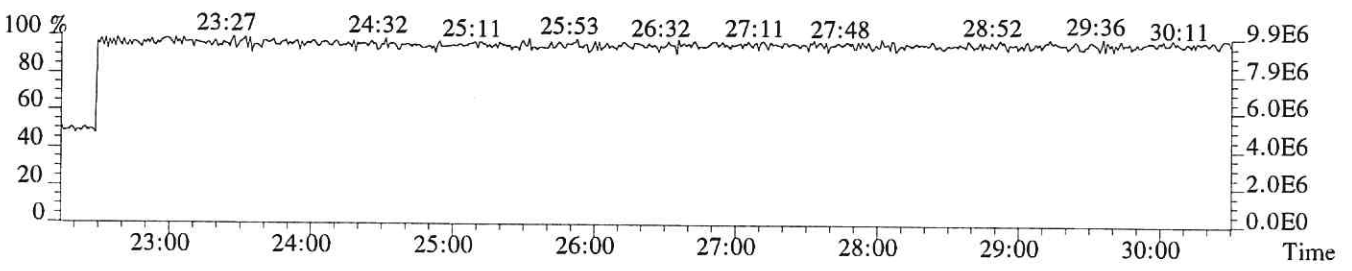
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



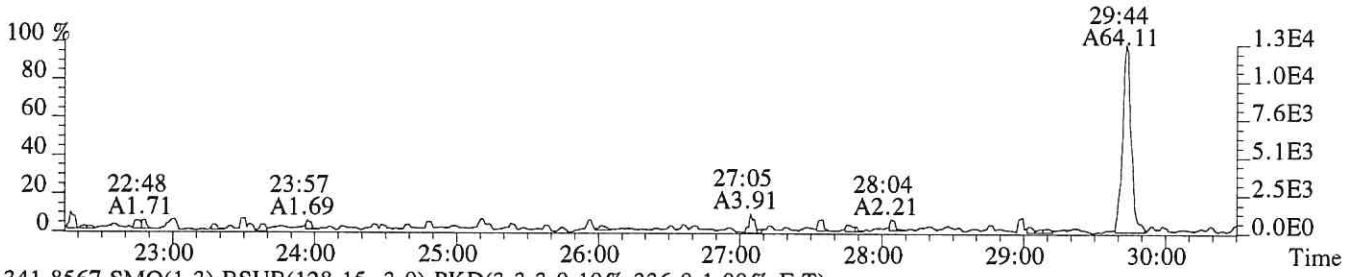
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



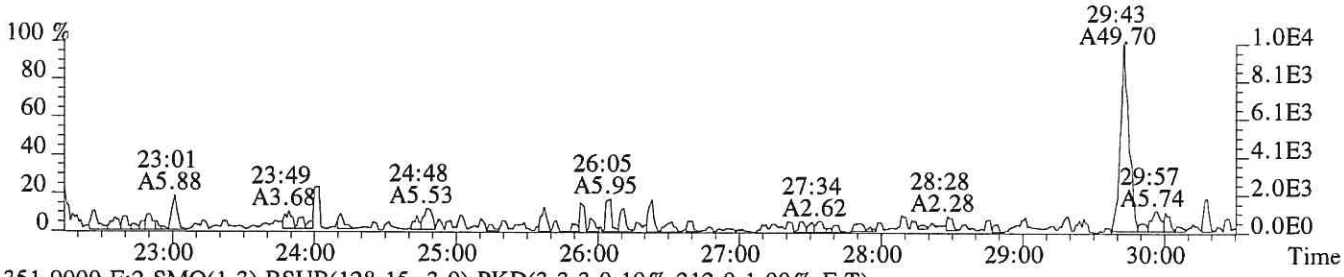
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



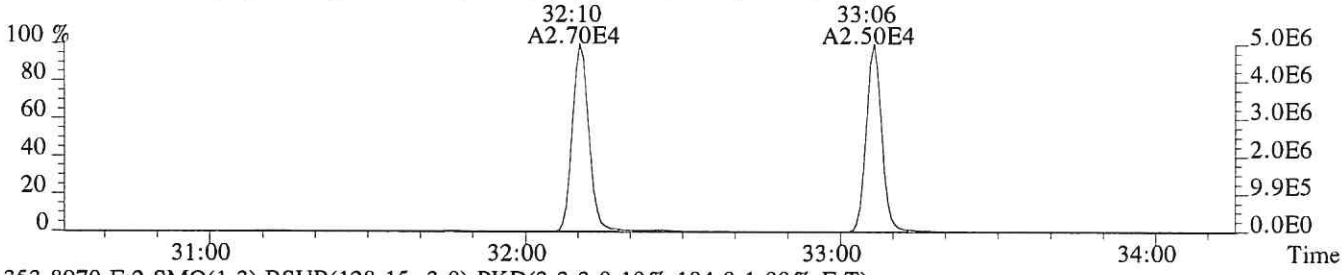
File:P519308 #1-587 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



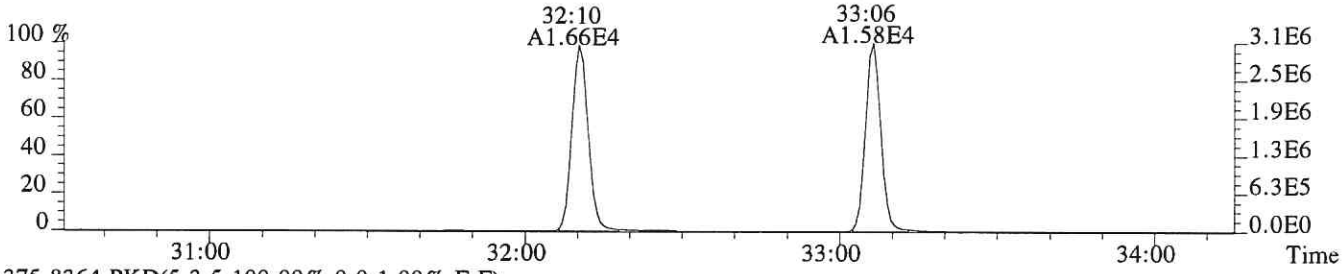
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



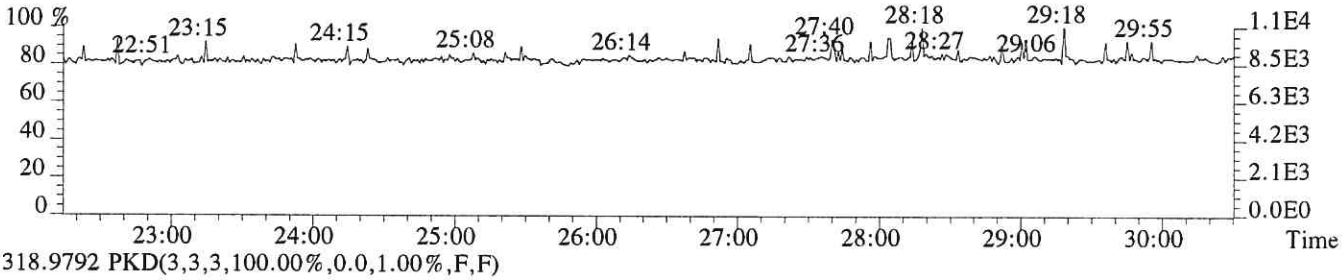
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



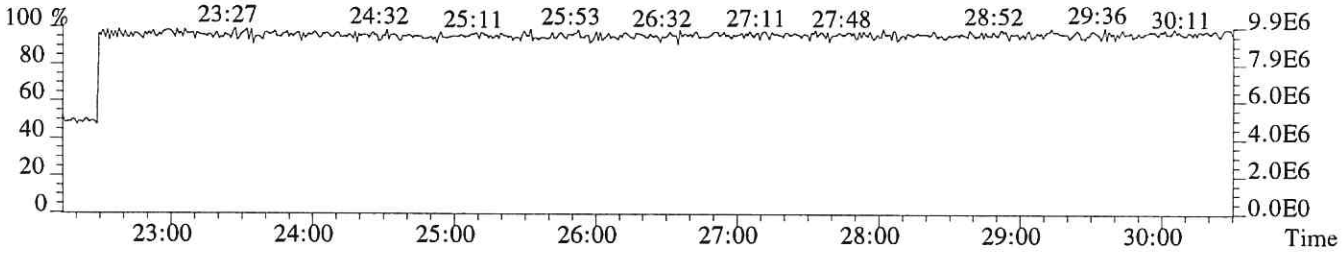
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



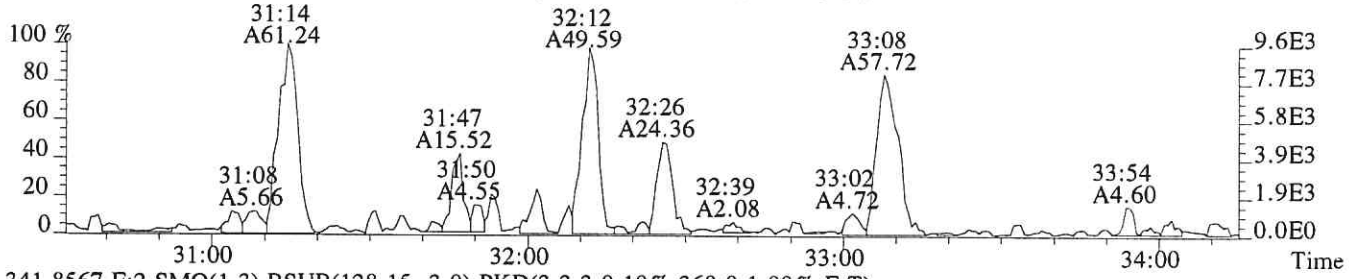
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



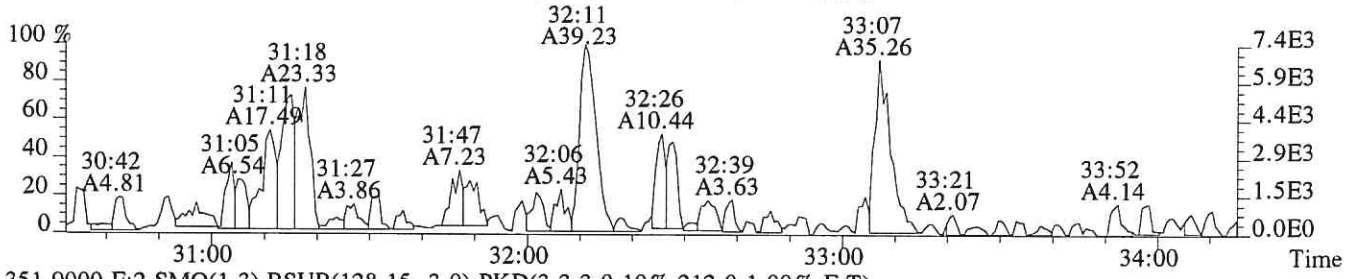
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



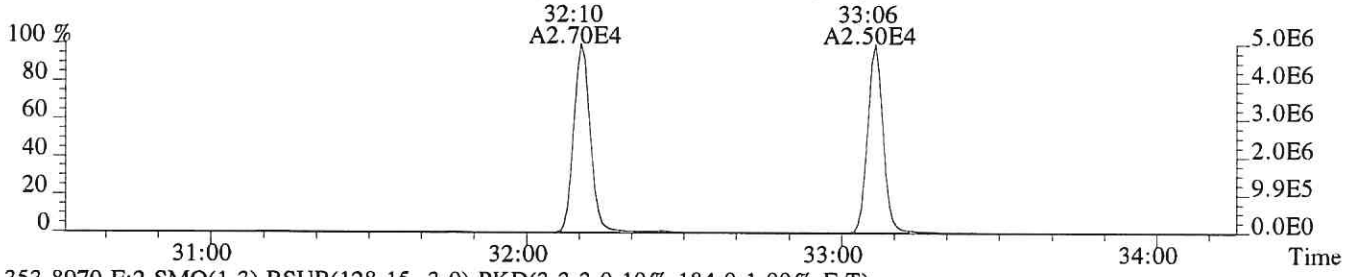
File:P519308 #1-335 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



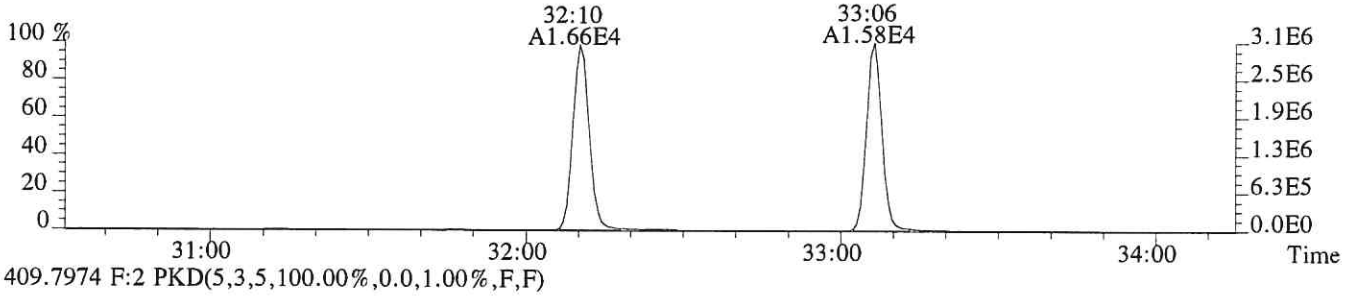
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



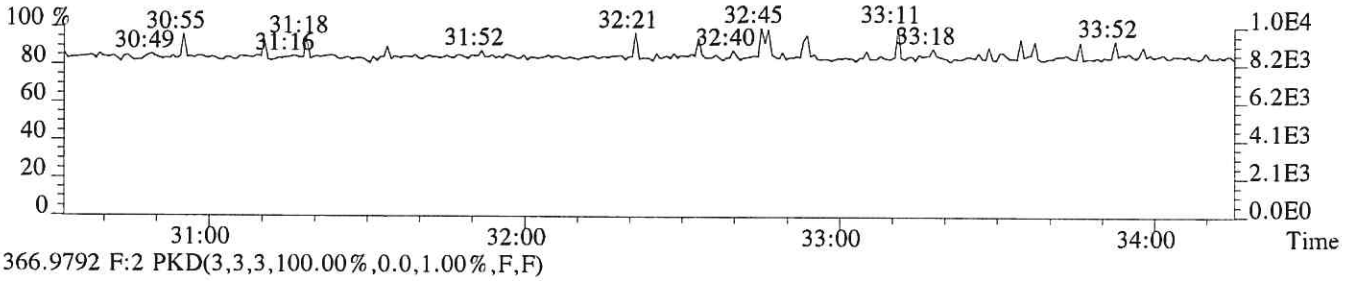
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



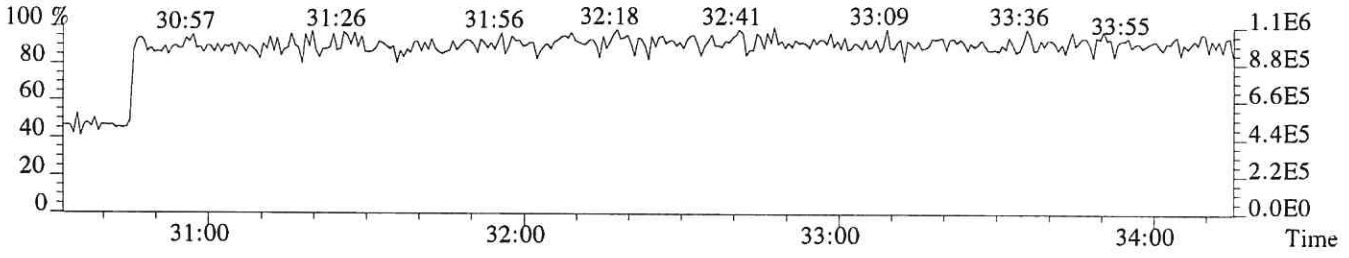
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



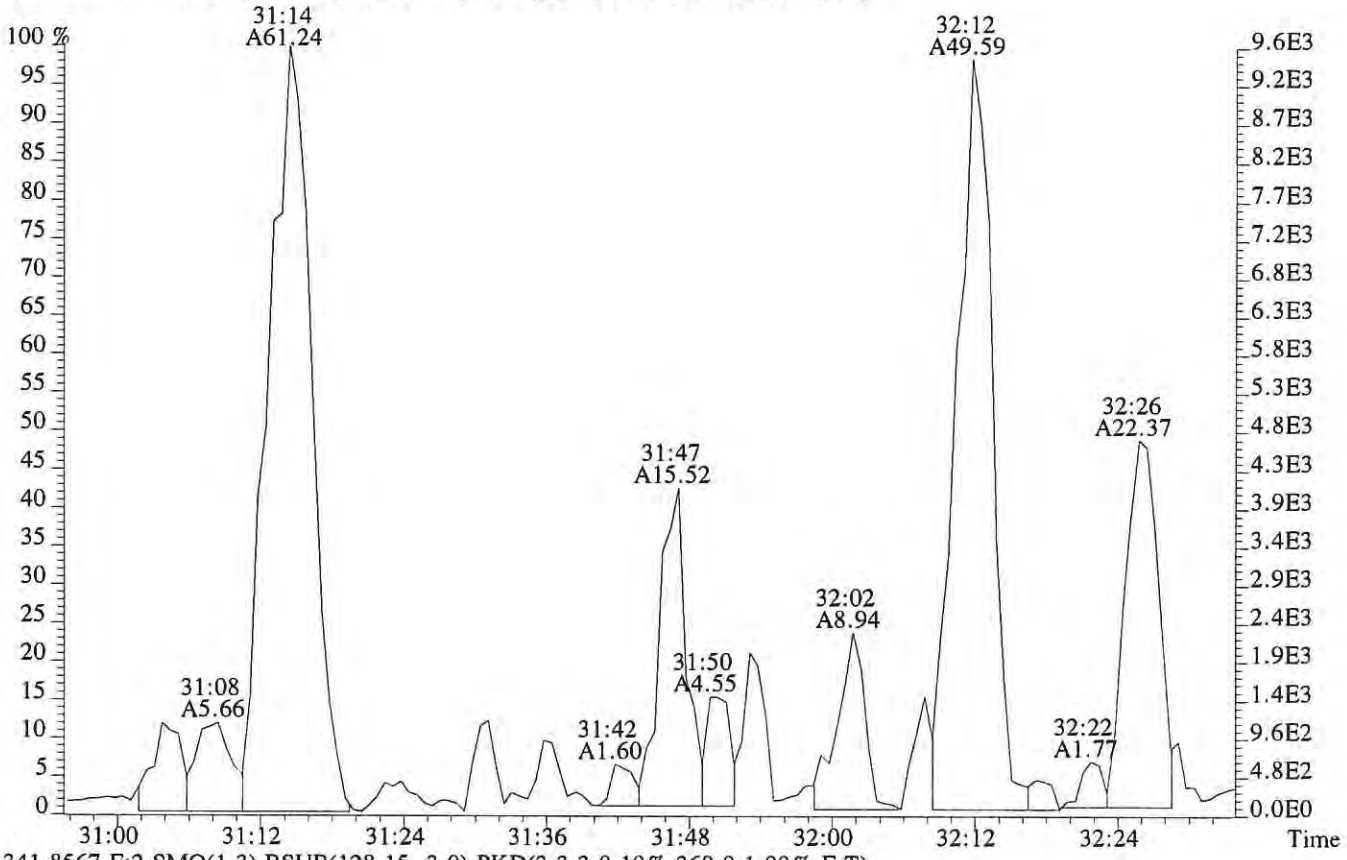
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



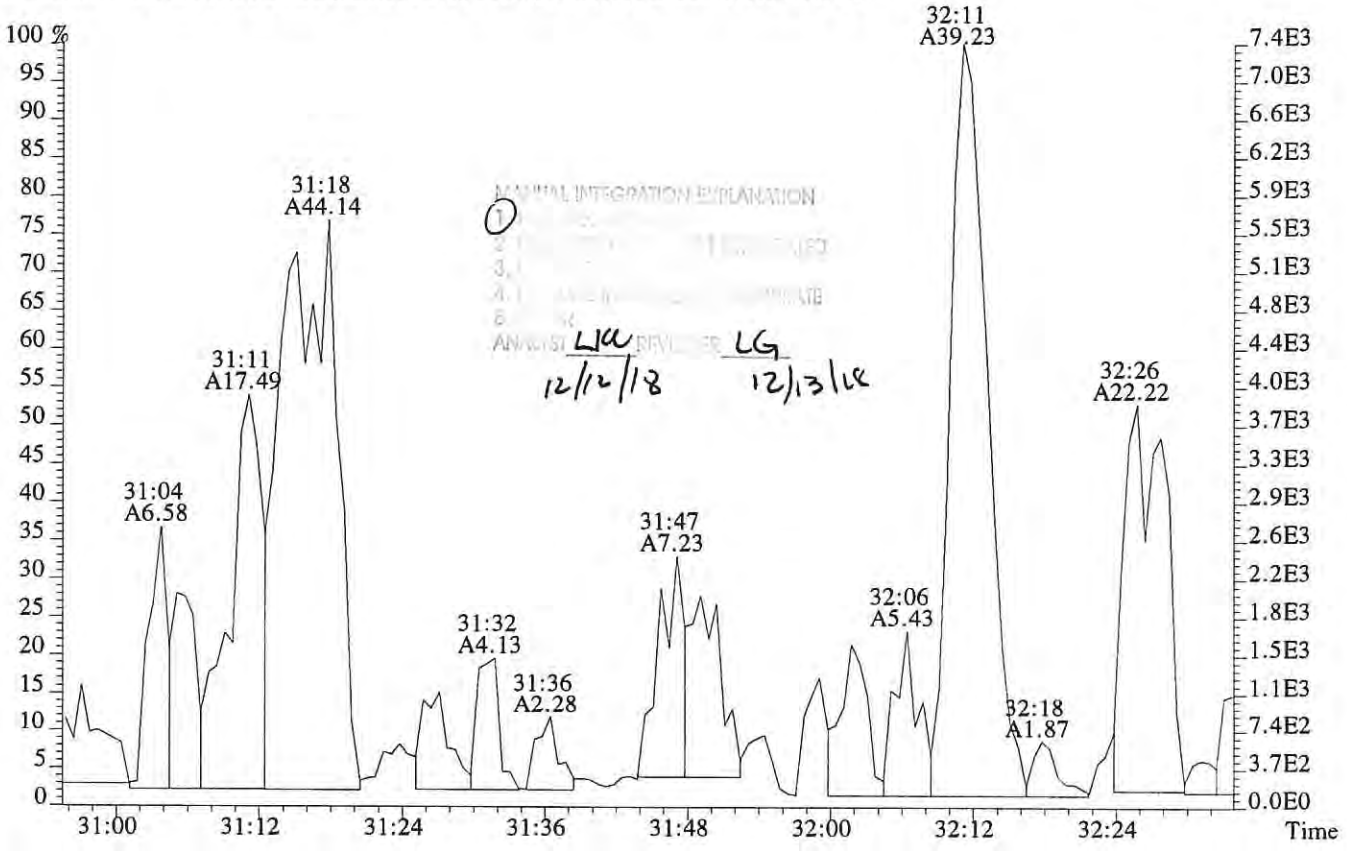
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519308 #1-335 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)

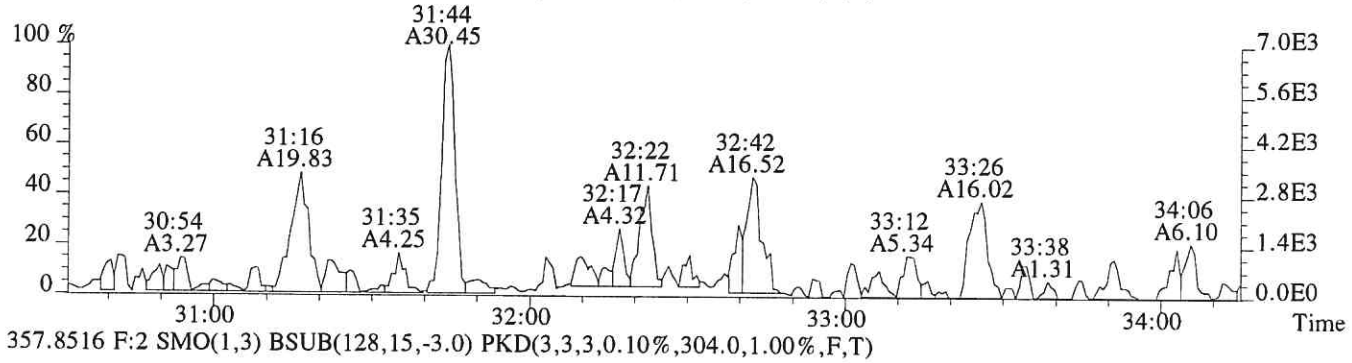


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)

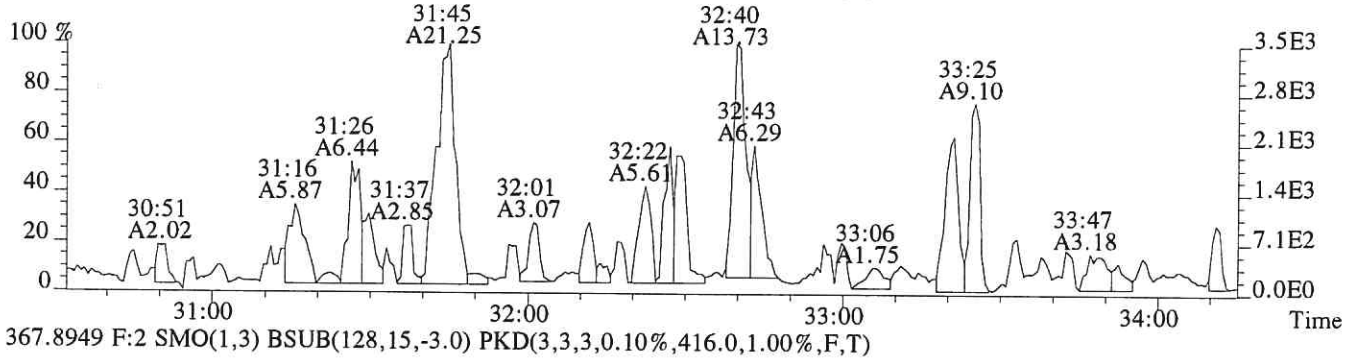


MANUAL INTEGRATION EXPLANATION
1
ANALYST LW 12/12/18 REVIEWER LG 12/13/18

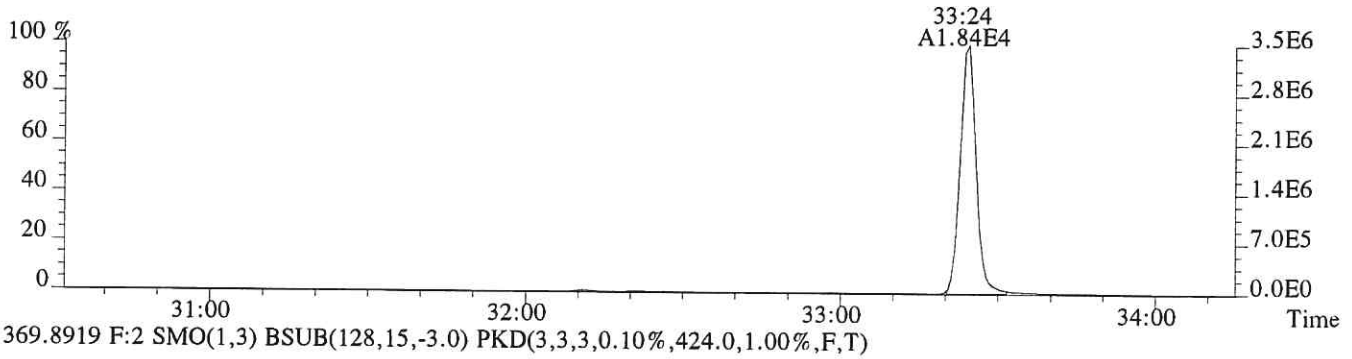
File:P519308 #1-335 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



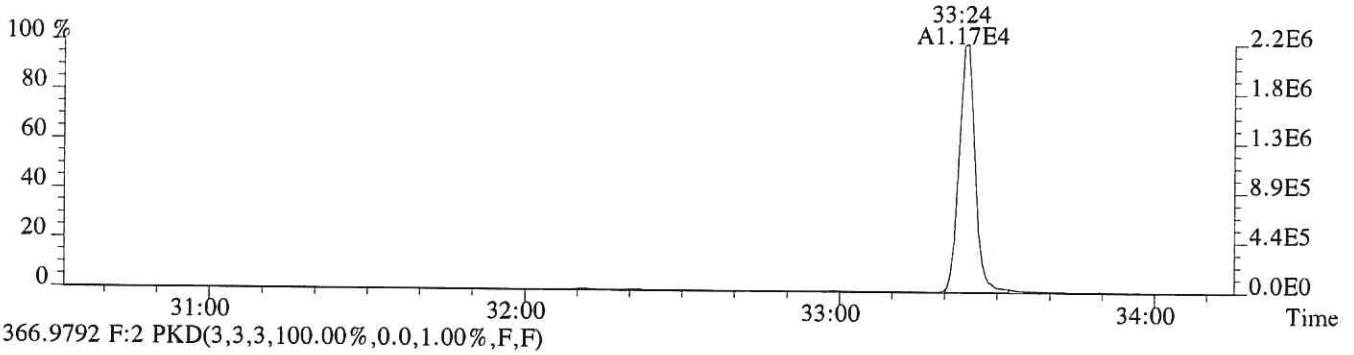
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



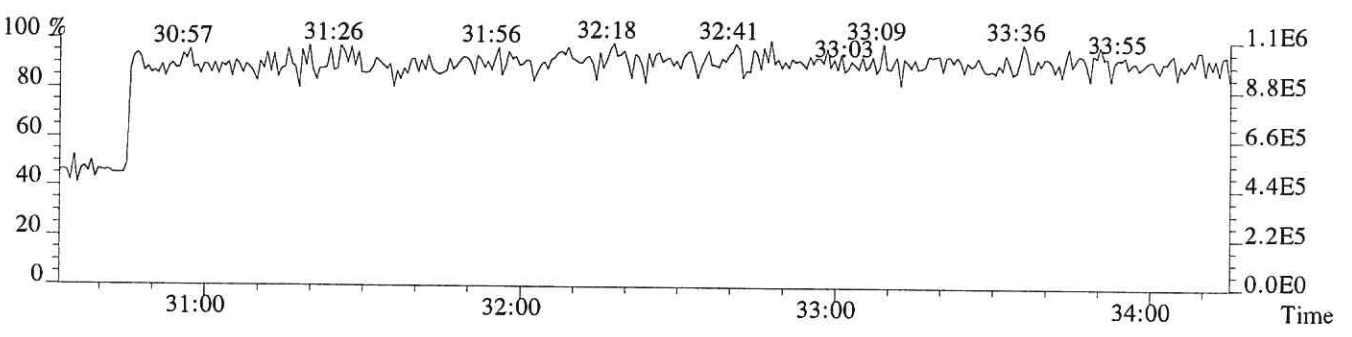
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)

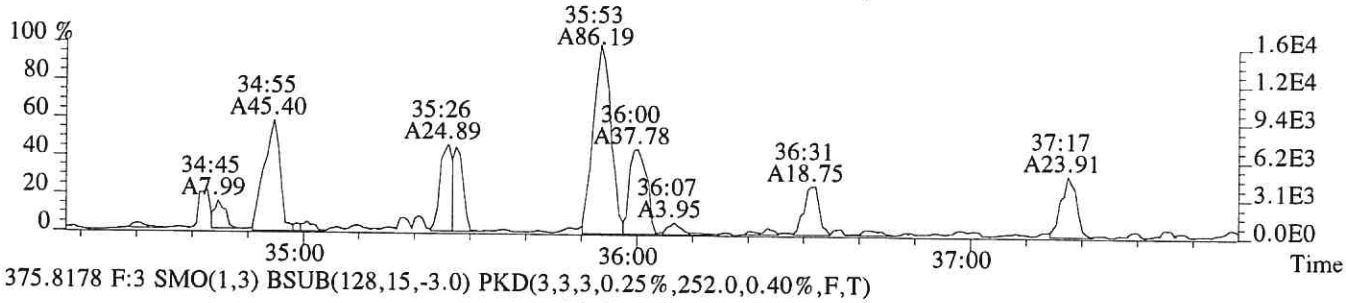


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

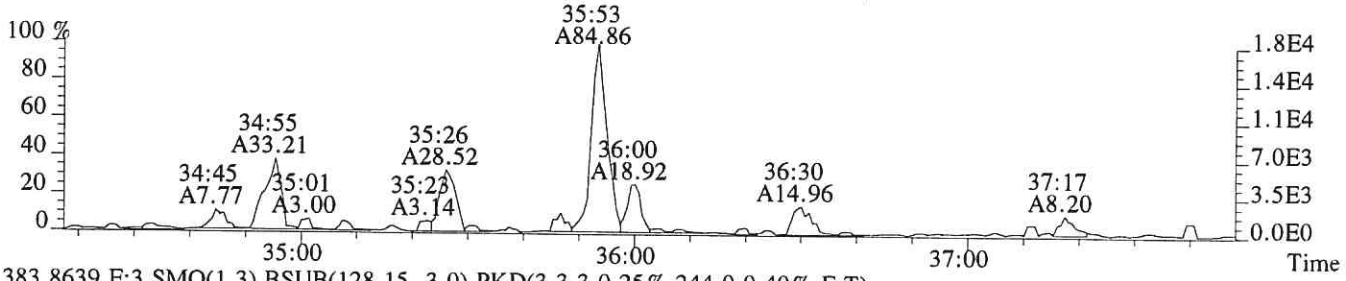


File:P519308 #1-317 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005

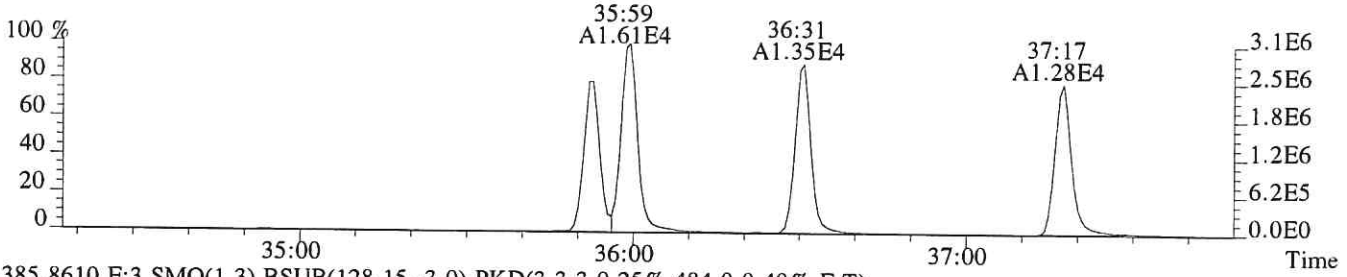
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



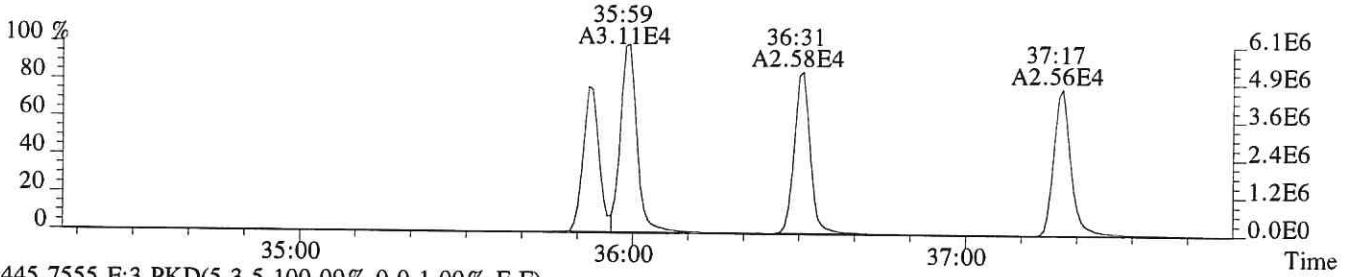
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



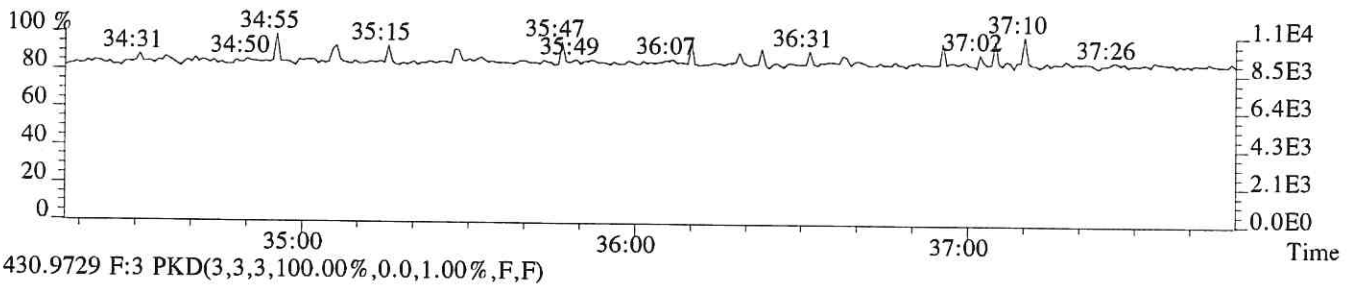
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



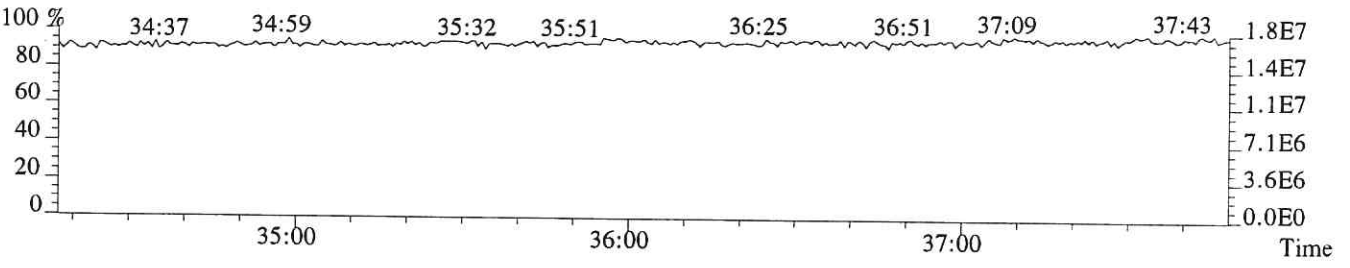
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



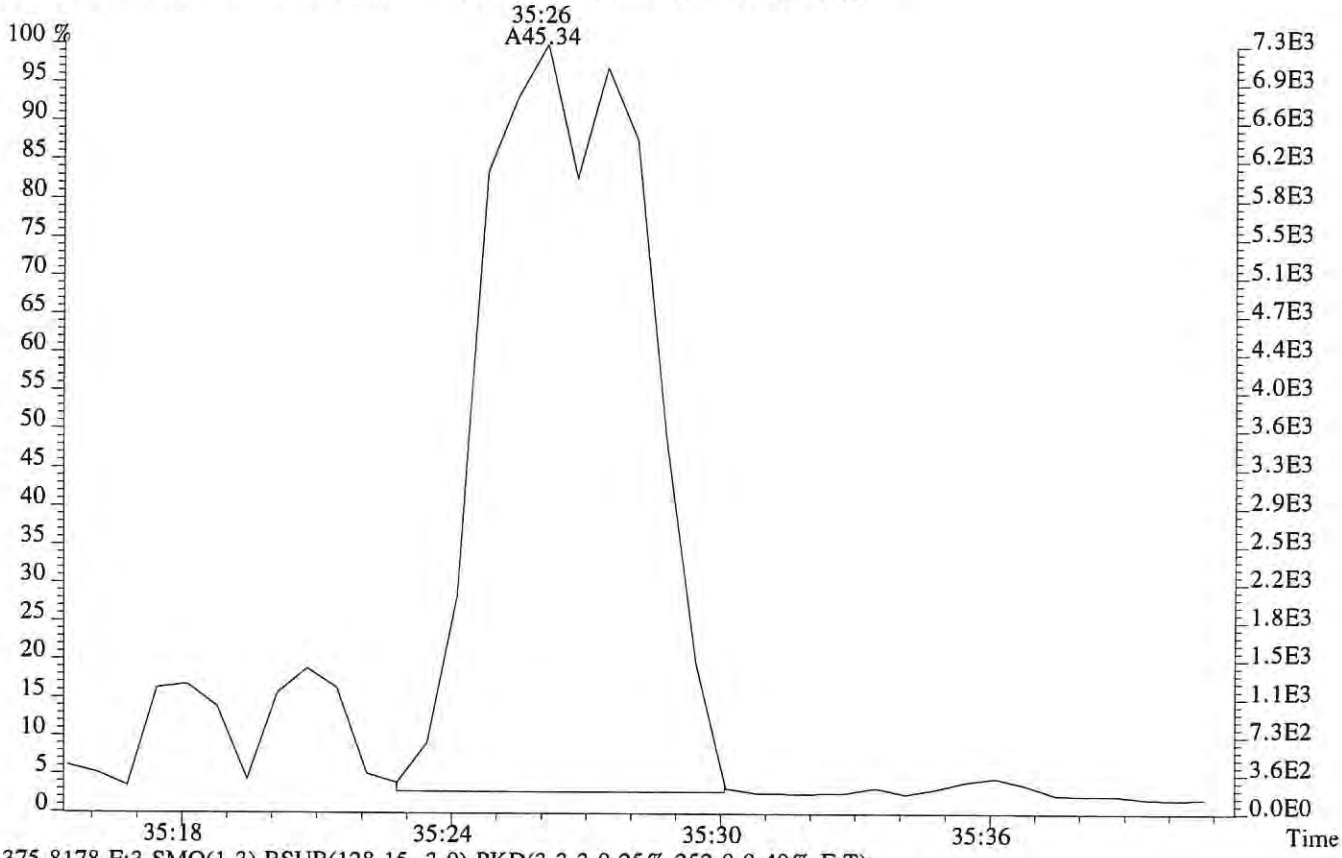
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



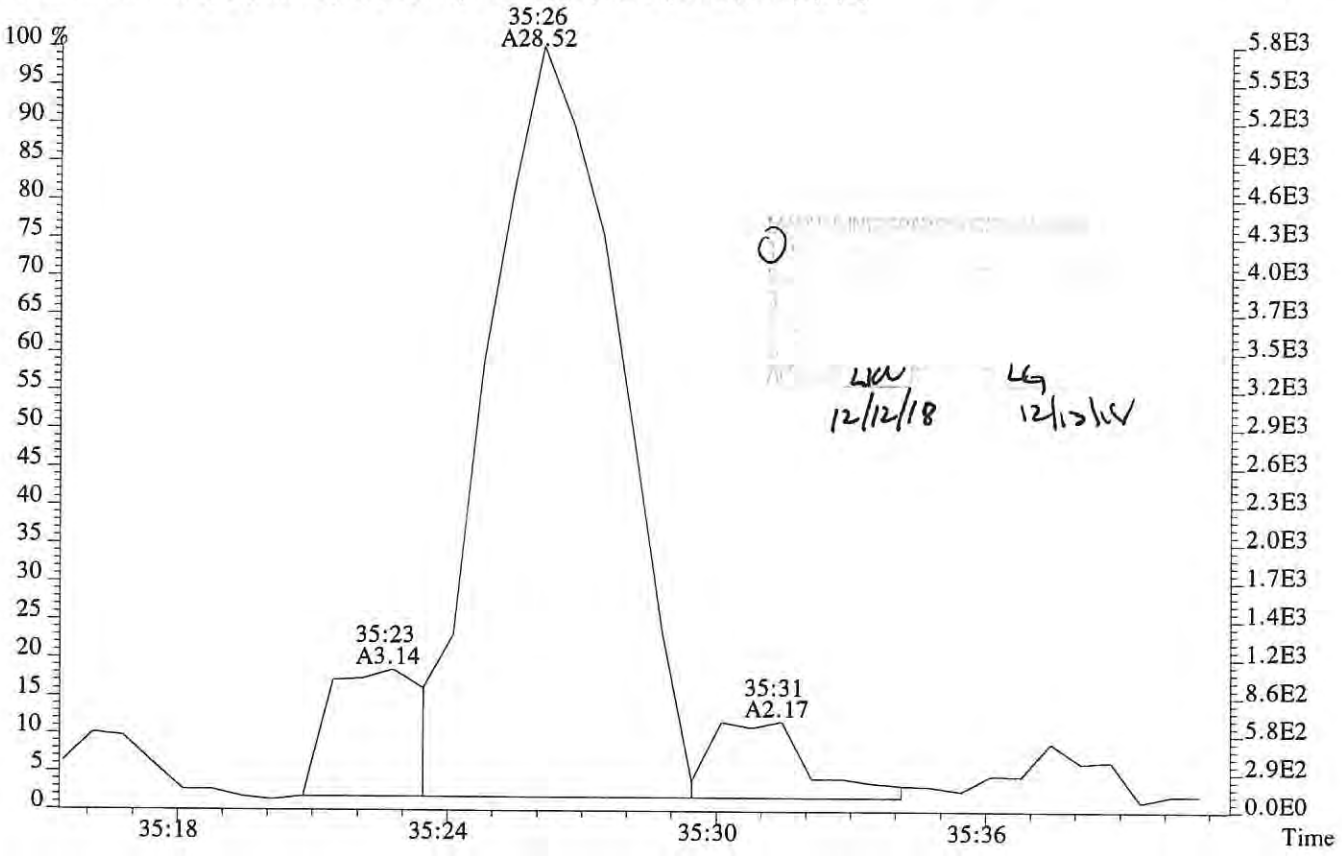
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519308 #1-317 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)

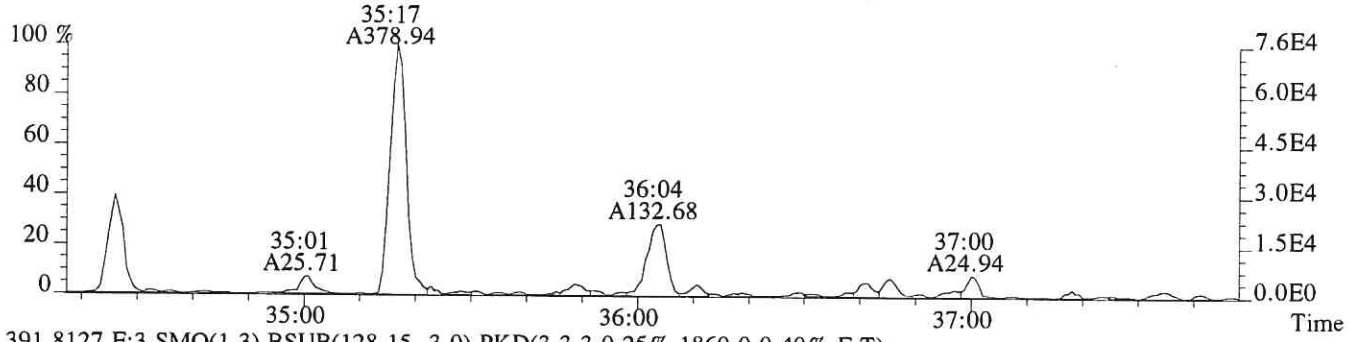


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)

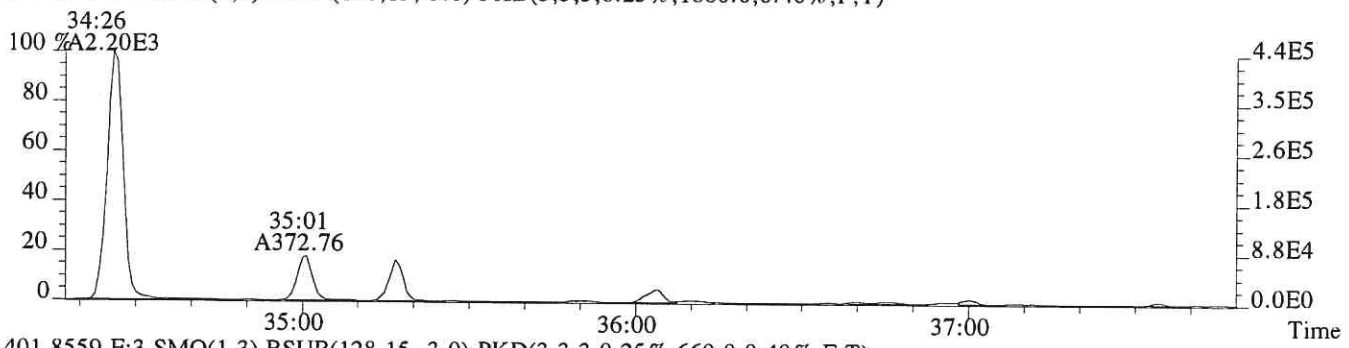


LKW 12/12/18 LG 12/13/18

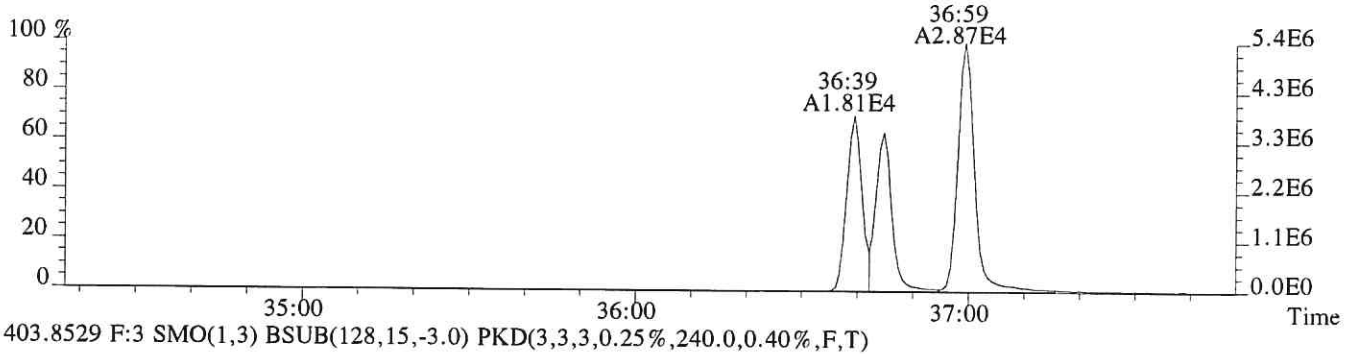
File:P519308 #1-317 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



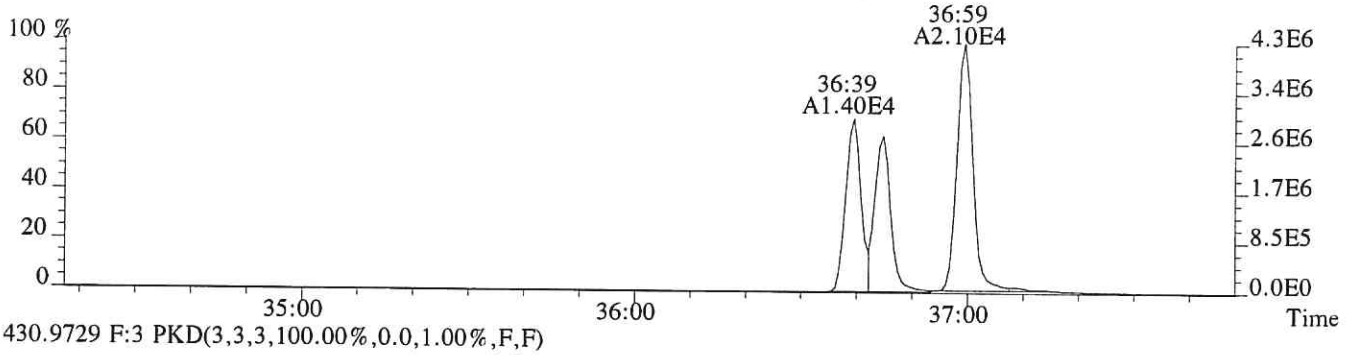
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1860.0,0.40%,F,T)



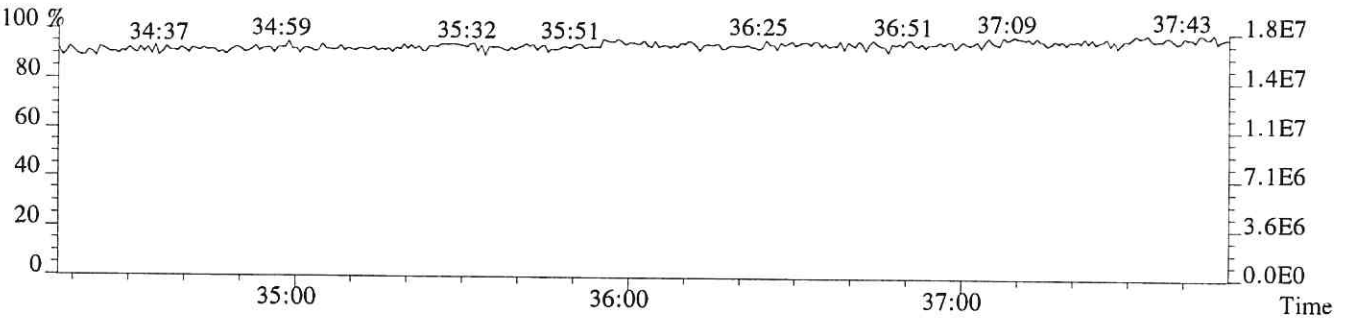
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



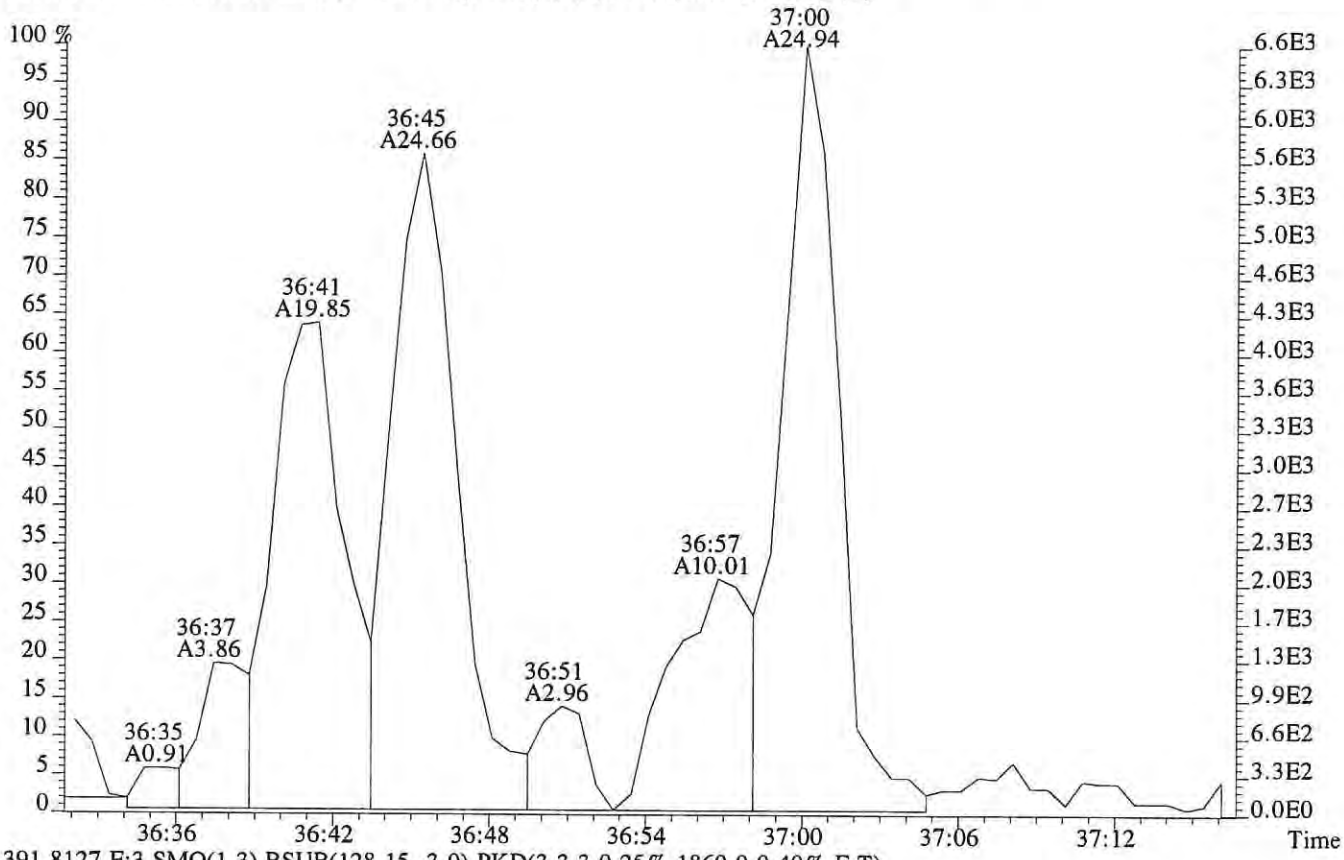
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



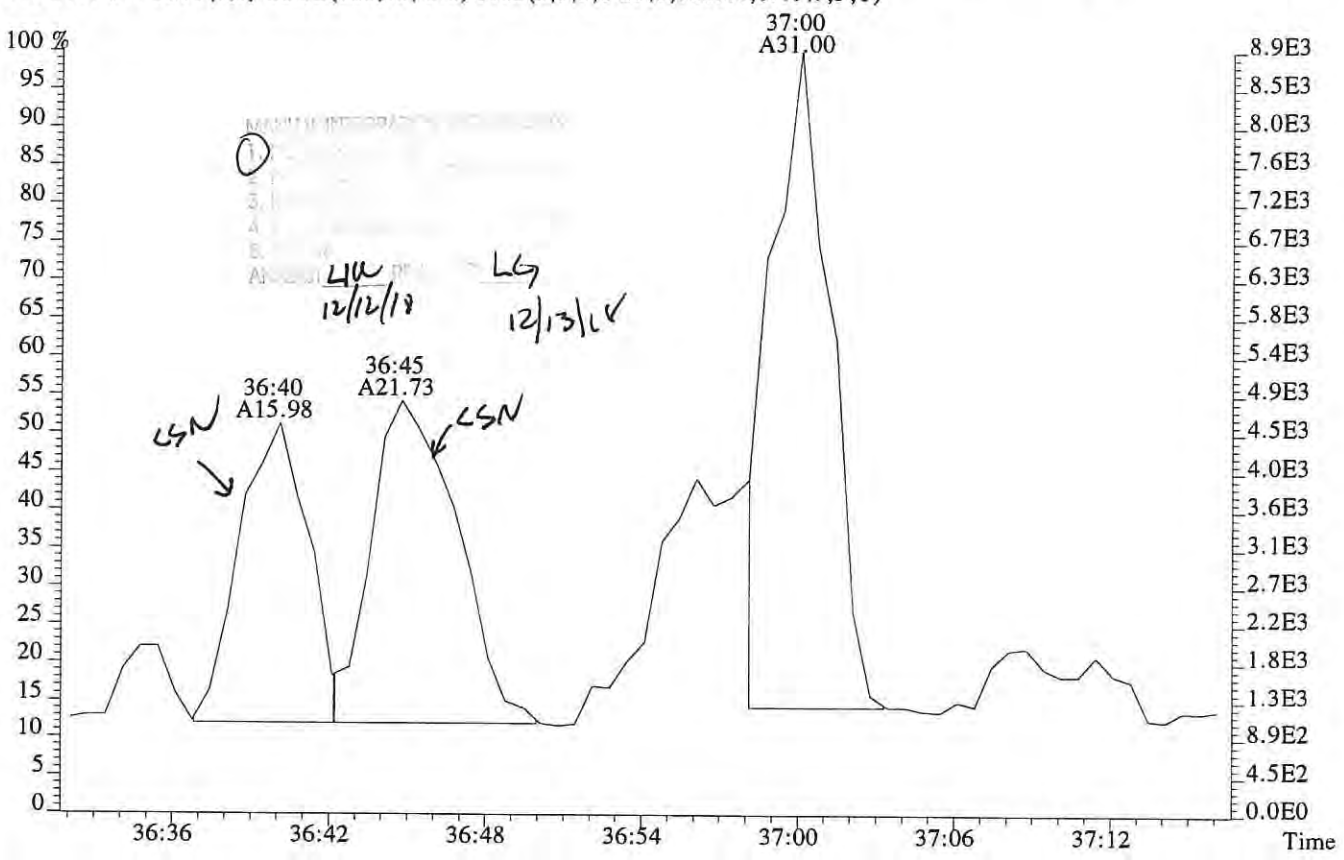
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



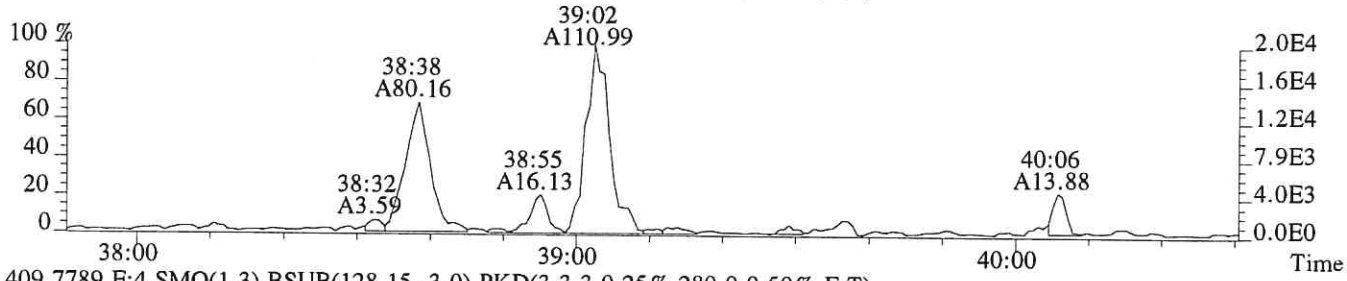
File:P519308 #1-317 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



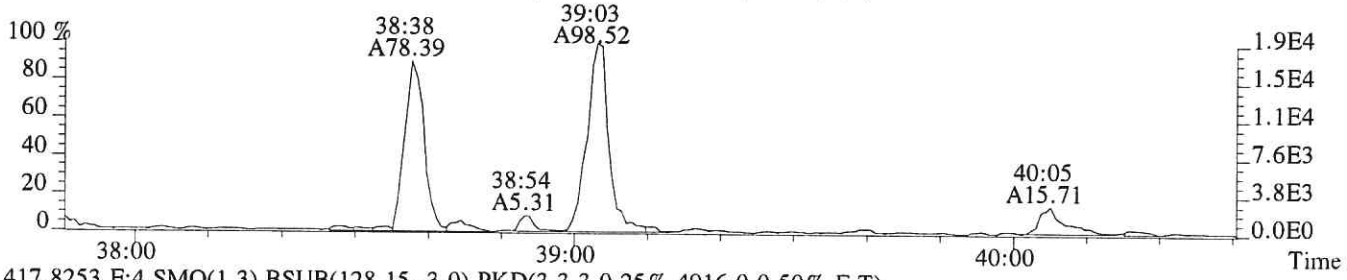
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1860.0,0.40%,F,T)



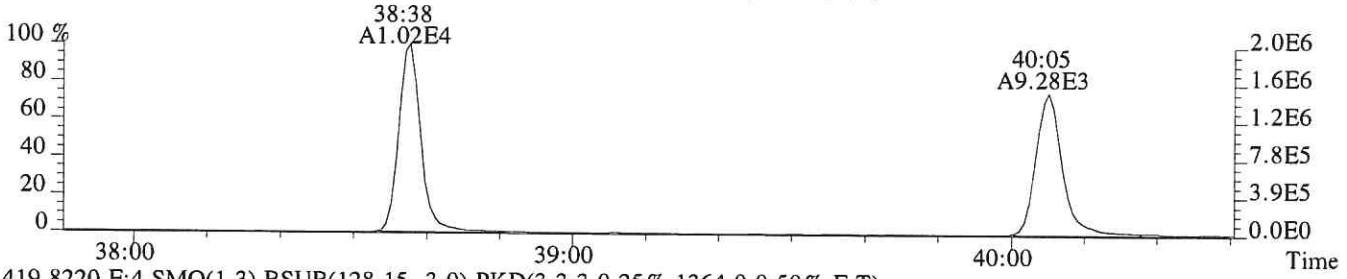
File:P519308 #1-241 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.50%,F,T)



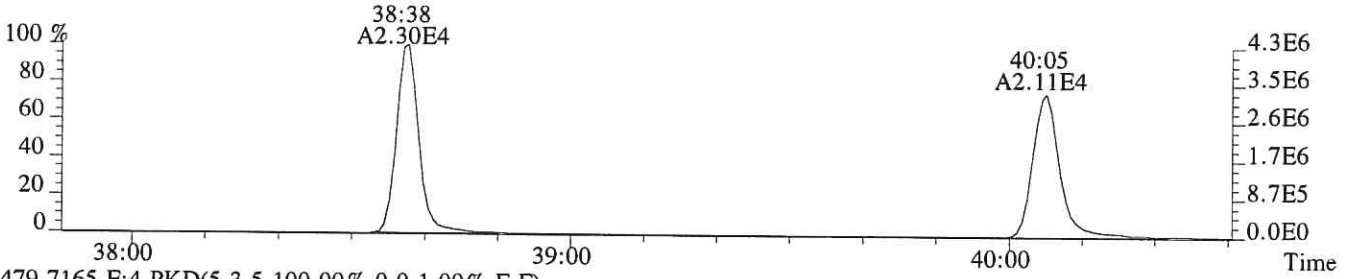
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.50%,F,T)



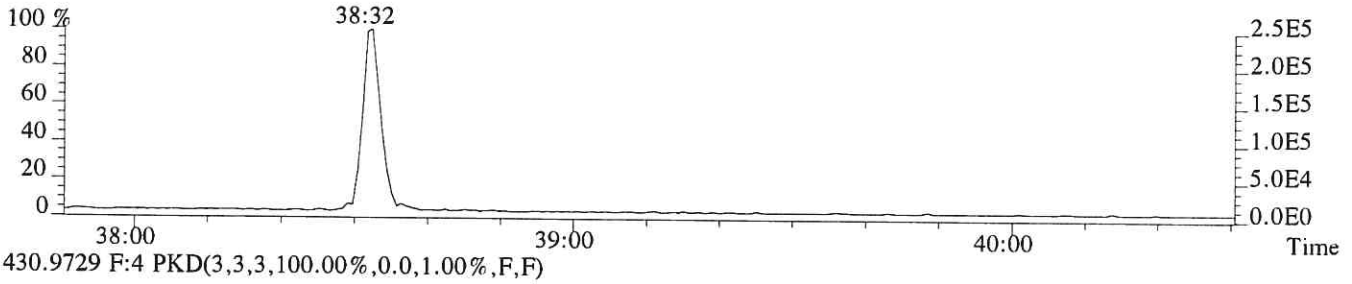
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4916.0,0.50%,F,T)



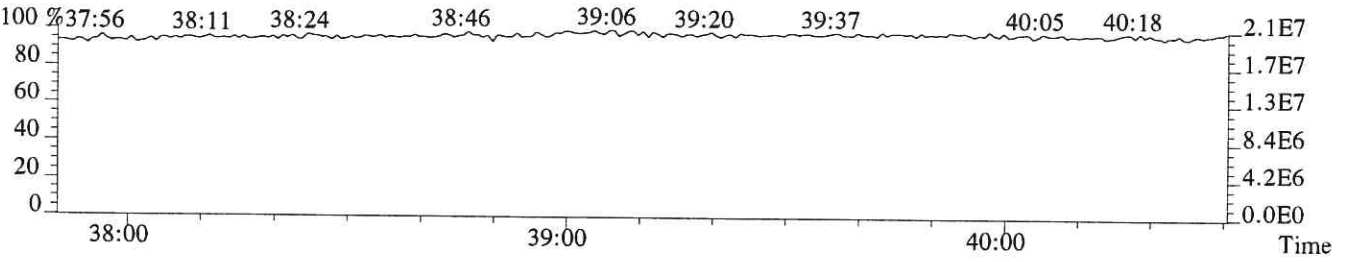
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.50%,F,T)



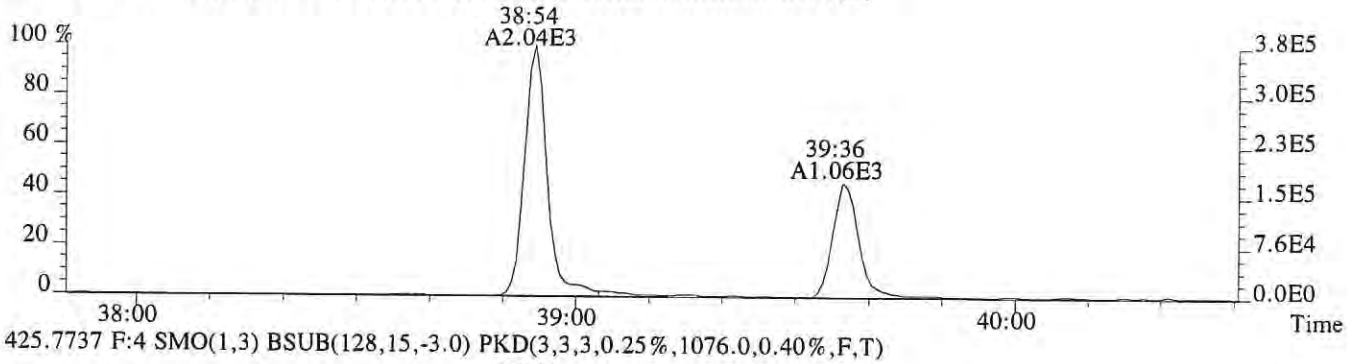
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



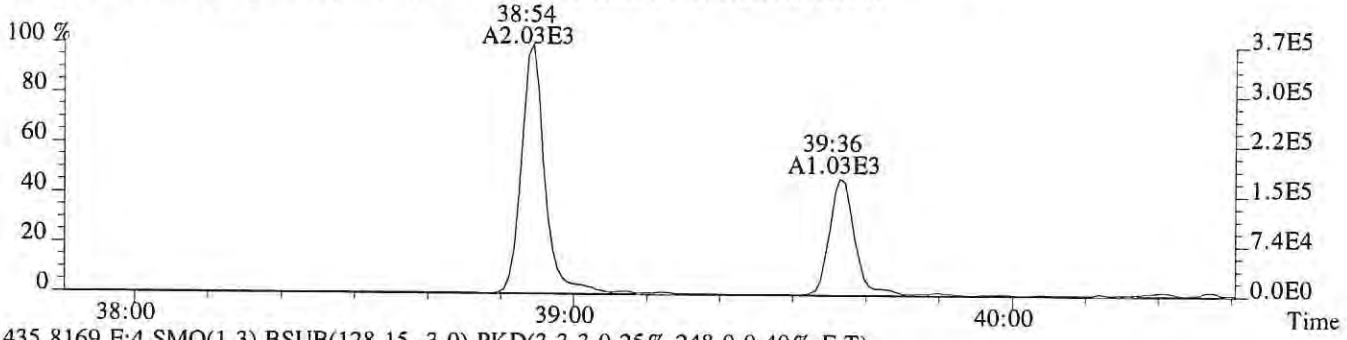
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



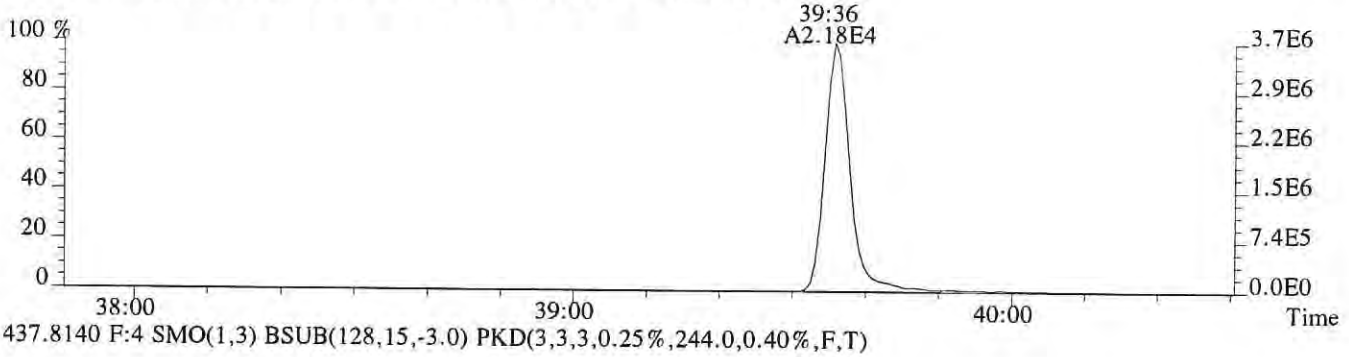
File:P519308 #1-241 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



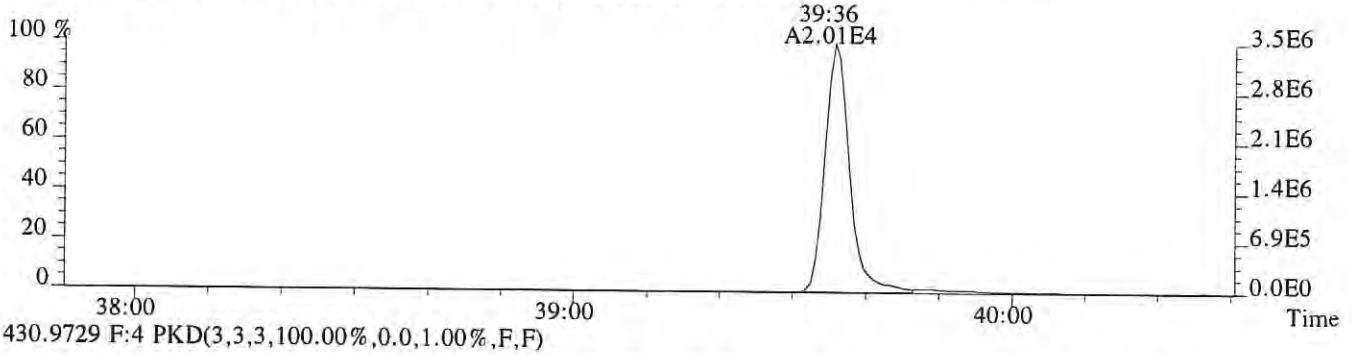
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



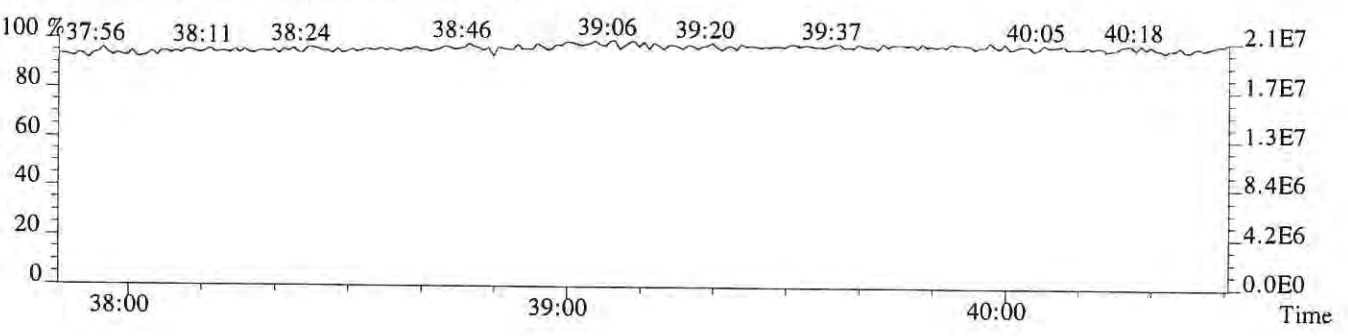
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)

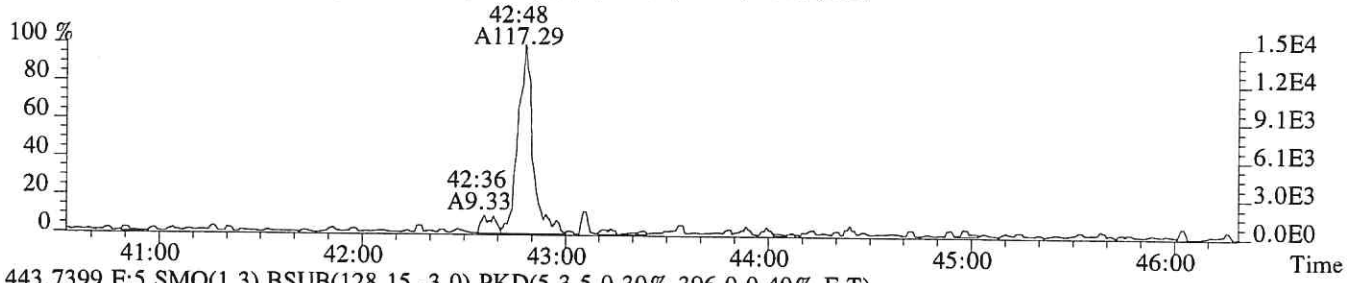


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

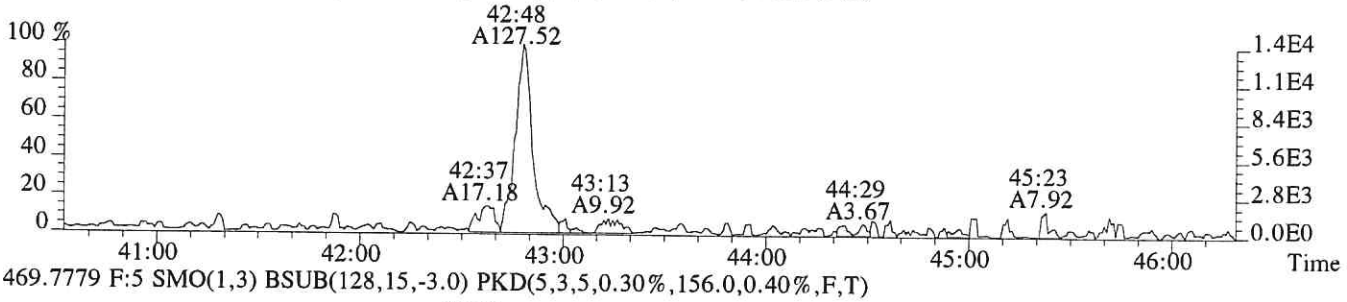


File:P519308 #1-520 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005

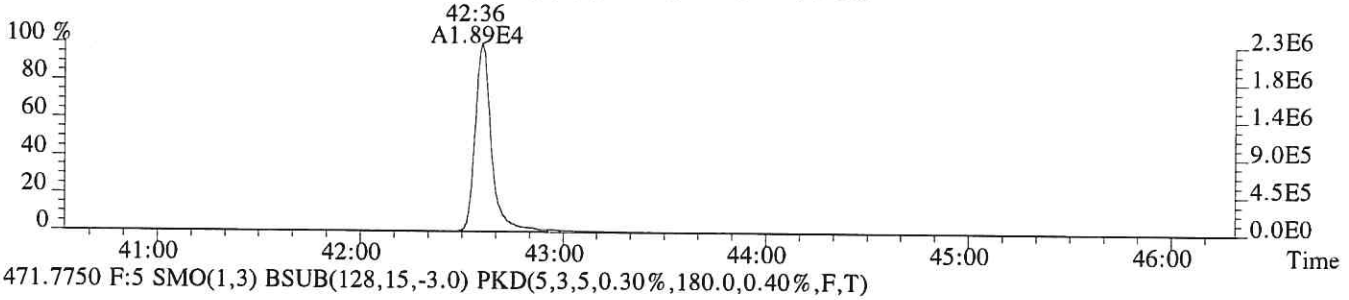
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



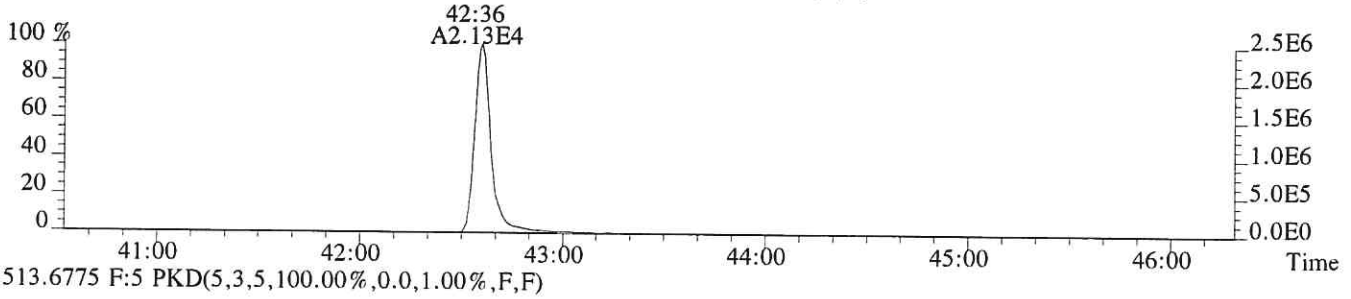
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,396.0,0.40%,F,T)



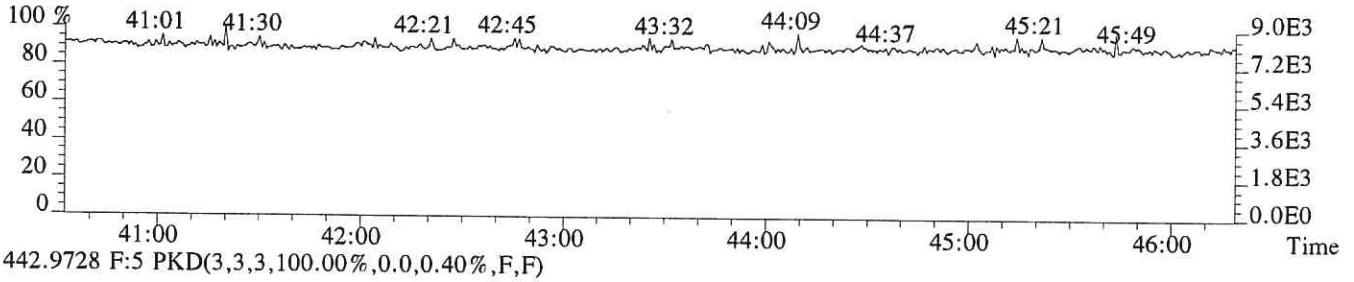
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



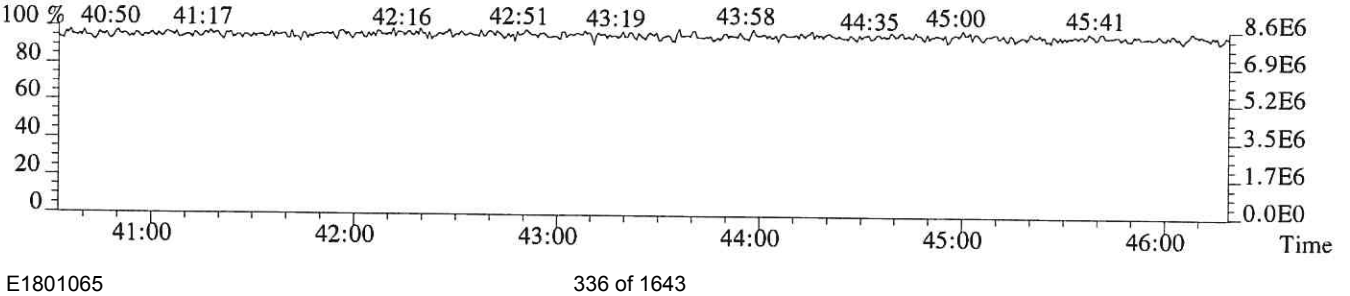
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



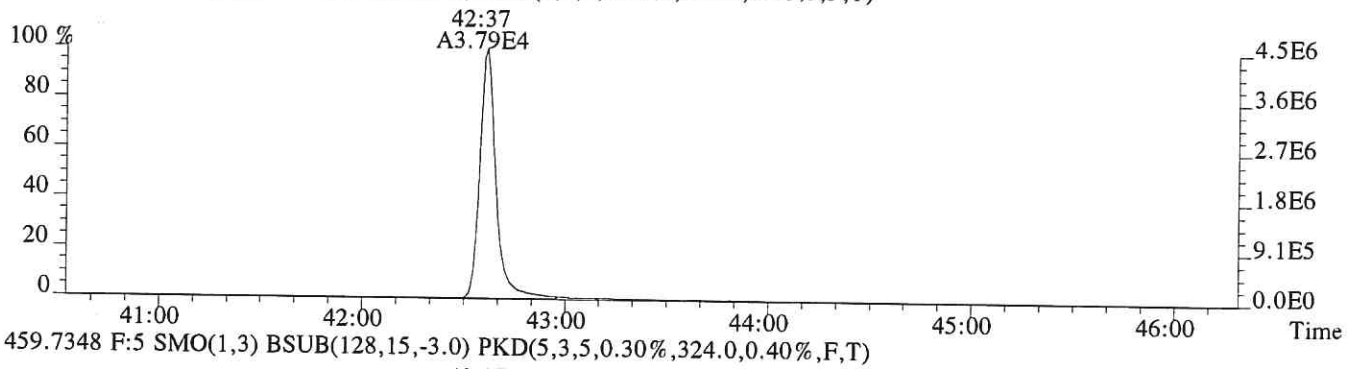
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



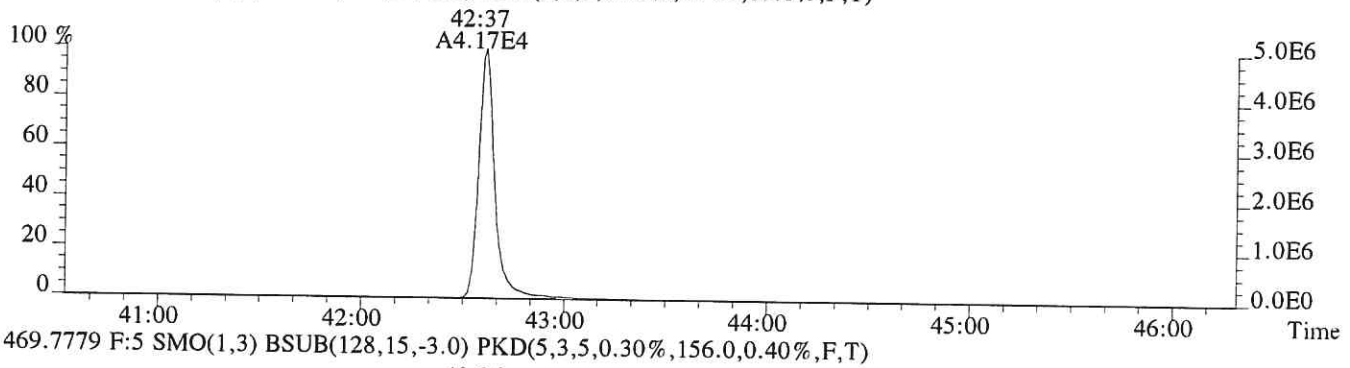
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



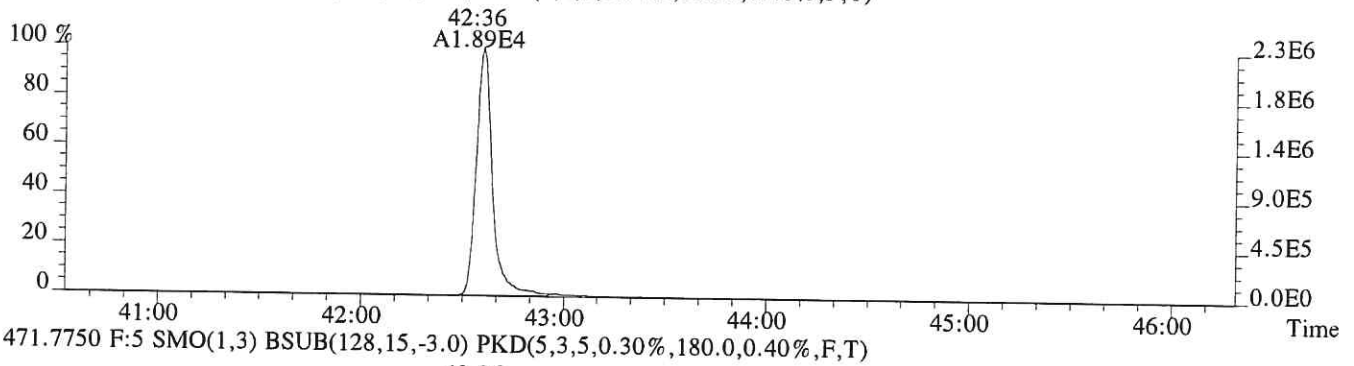
File:P519308 #1-520 Acq: 8-DEC-2018 12:23:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



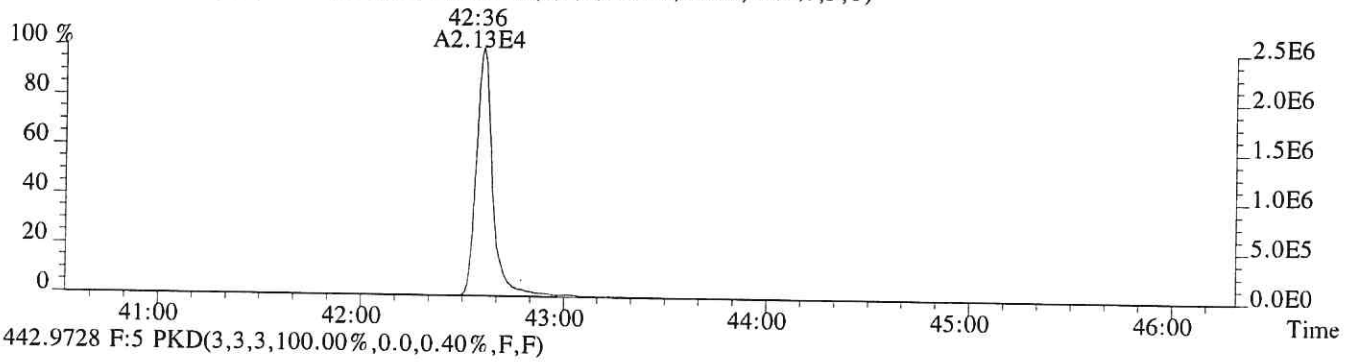
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



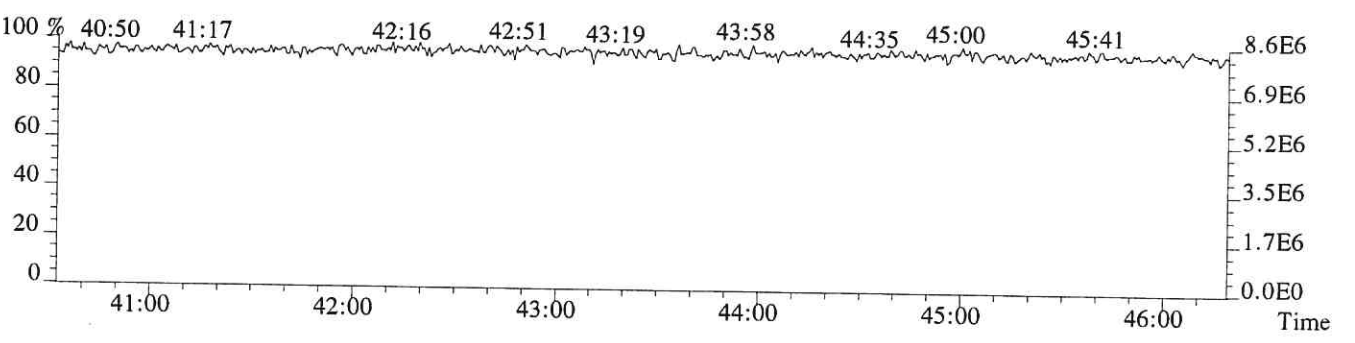
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0585

Run #12 Filename P519309 Samp: 1 Inj: 1 Acquired: 8-DEC-18 13:12:09
Processed: 11-DEC-18 16:39:37 Sample ID: E1801065-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	2.355e+02	3.177e+02	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	2.276e+01	1.536e+01	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	2.366e+01	1.079e+01	2.19	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:54	3.703e+01	2.125e+01	1.74	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:01	1.007e+01	1.609e+01	0.63	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	6.772e+00	6.689e+00	1.01	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.604e+01	3.050e+01	0.53	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:50	1.074e+02	1.312e+02	0.82	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	6.858e+01	8.326e+01	0.82	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:26	1.131e+01	1.064e+01	1.06	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	1.883e+01	1.558e+01	1.21	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:46	3.699e+01	2.167e+01	1.71	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:01	4.235e+01	3.538e+01	1.20	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:38	7.982e+02	7.780e+02	1.03	yes	no	1.025
17	Unk	OCDD	42:39	2.892e+04	3.231e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	1.536e+04	1.941e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:11	2.881e+04	1.800e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.644e+04	1.667e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.274e+04	2.420e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.675e+04	3.185e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	1.366e+04	2.643e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.290e+04	2.505e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.027e+04	2.357e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	9.617e+03	2.166e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	7.042e+03	8.750e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.936e+04	1.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:40	1.891e+04	1.468e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.736e+04	1.376e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	2.187e+04	2.086e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:38	2.030e+04	2.234e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.774e+04	2.203e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	2.686e+04	2.066e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	1.013e+04				no	1.014

$$\text{OCDD} = \frac{(2.892e+04 + 3.231e+04) \times 4000\ \text{pg} \times 1}{(2.030e+04 + 2.234e+04) \times 10.32\ \text{g} \times 729 / 100 \times 1.118} = 682.9014\ \text{ng/kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0585

Run #12 Filename P519309 Samp: 1 Inj: 1 Acquired: 8-DEC-18 13:12:09
Processed: 11-DEC-18 16:39:37 LAB. ID: E1801065-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.01e+04	3.00e+02	1.3e+02	5.80e+04	6.92e+02	8.4e+01
2	1,2,3,7,8-PeCDF	5.22e+03	3.72e+02	1.4e+01	3.05e+03	6.36e+02	4.8e+00
3	2,3,4,7,8-PeCDF	4.81e+03	3.72e+02	1.3e+01	1.85e+03	6.36e+02	2.9e+00
4	1,2,3,4,7,8-HxCDF	8.47e+03	3.28e+02	2.6e+01	5.96e+03	2.76e+02	2.2e+01
5	1,2,3,6,7,8-HxCDF	2.11e+03	3.28e+02	6.4e+00	3.33e+03	2.76e+02	1.2e+01
6	2,3,4,6,7,8-HxCDF	*	3.28e+02	*	*	2.76e+02	*
7	1,2,3,7,8,9-HxCDF	1.10e+03	3.28e+02	3.4e+00	1.22e+03	2.76e+02	4.4e+00
8	1,2,3,4,6,7,8-HpCDF	3.59e+03	3.76e+02	9.6e+00	6.16e+03	1.60e+02	3.9e+01
9	1,2,3,4,7,8,9-HpCDF	*	3.76e+02	*	*	1.60e+02	*
10	OCDF	1.51e+04	2.08e+02	7.3e+01	2.01e+04	3.12e+02	6.5e+01
11	2,3,7,8-TCDD	1.05e+04	6.56e+02	1.6e+01	1.76e+04	3.60e+02	4.9e+01
12	1,2,3,7,8-PeCDD	3.37e+03	2.28e+02	1.5e+01	2.32e+03	2.72e+02	8.5e+00
13	1,2,3,4,7,8-HxCDD	4.22e+03	3.20e+02	1.3e+01	2.79e+03	9.88e+02	2.8e+00
14	1,2,3,6,7,8-HxCDD	6.93e+03	3.20e+02	2.2e+01	5.04e+03	9.88e+02	5.1e+00
15	1,2,3,7,8,9-HxCDD	7.46e+03	3.20e+02	2.3e+01	6.91e+03	9.88e+02	7.0e+00
16	1,2,3,4,6,7,8-HpCDD	1.32e+05	3.96e+02	3.3e+02	1.27e+05	2.68e+02	4.7e+02
17	OCDD	3.32e+06	2.52e+02	1.3e+04	3.72e+06	2.08e+02	1.8e+04
18	13C-2,3,7,8-TCDF	2.78e+06	2.80e+03	9.9e+02	3.47e+06	1.07e+03	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.34e+06	3.20e+02	1.7e+04	3.31e+06	7.12e+02	4.6e+03
20	13C-2,3,4,7,8-PeCDF	4.92e+06	3.20e+02	1.5e+04	3.10e+06	7.12e+02	4.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.63e+06	3.88e+02	6.8e+03	5.05e+06	6.36e+02	7.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.23e+06	3.88e+02	8.3e+03	6.28e+06	6.36e+02	9.9e+03
23	13C-2,3,4,6,7,8-HxCDF	2.77e+06	3.88e+02	7.1e+03	5.43e+06	6.36e+02	8.5e+03
24	13C-1,2,3,7,8,9-HxCDF	2.40e+06	3.88e+02	6.2e+03	4.66e+06	6.36e+02	7.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.92e+06	4.73e+03	4.1e+02	4.43e+06	2.67e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.52e+06	4.73e+03	3.2e+02	3.39e+06	2.67e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.34e+06	2.80e+03	4.8e+02	1.67e+06	7.36e+02	2.3e+03
28	13C-1,2,3,7,8-PeCDD	3.71e+06	2.96e+02	1.3e+04	2.30e+06	3.84e+02	6.0e+03
29	13C-1,2,3,4,7,8-HxCDD	3.86e+06	4.88e+02	7.9e+03	2.97e+06	2.48e+02	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.36e+06	4.88e+02	6.9e+03	2.69e+06	2.48e+02	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.74e+06	3.28e+02	1.1e+04	3.55e+06	3.00e+02	1.2e+04
32	13C-OCDD	2.35e+06	2.96e+02	8.0e+03	2.57e+06	2.24e+02	1.1e+04
33	13C-1,2,3,4-TCDD	3.29e+06	2.80e+03	1.2e+03	4.11e+06	7.36e+02	5.6e+03
34	13C-1,2,3,7,8,9-HxCDD	5.13e+06	4.88e+02	1.1e+04	3.97e+06	2.48e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.88e+06	4.88e+02	3.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (6.560e{+}02 + 3.600e{+}02) \times 2000}{(1.336e{+}06 + 1.675e{+}06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0585

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519309 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 13:12:09 Processed: 11-DEC-18 16:39:37

Mass: 303.9020 305.8990 Tot Response: 8.48e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:02	1.06e+02	1.37e+02	0.78	yes	2.43e+02		n	n
2	27:51	2.35e+02	3.18e+02	0.74	yes	5.53e+02	2,3,7,8-TCDF	n	n
3	28:12	2.39e+01	2.85e+01	0.84	yes	5.24e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0585

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519309 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 13:12:09 Processed: 11-DEC-18 16:39:37

Mass: 319.8970 321.8940 Tot Response: 1.52e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:41	6.86e+01	8.33e+01 0.82	yes	1.52e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0585

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P519309 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 13:12:09 Processed: 11-DEC-18 16:39:37

Mass: 339.8600 341.8570 Tot Response: 3.81e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:12	2.28e+01	1.54e+01	1.48	yes	3.81e+01	1,2,3,7,8-PeCDF	n	n

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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0585

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519309 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 13:12:09 Processed: 11-DEC-18 16:39:37

Mass: 355.8550 357.8520 Tot Response: 2.80e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:16	1.72e+01	1.08e+01 1.60	yes	2.80e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0585

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519309 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 13:12:09 Processed: 11-DEC-18 16:39:37

Mass: 373.8210 375.8180 Tot Response: 3.42e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:54	1.98e+01	1.44e+01 1.38	yes	3.42e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0585

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519309 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 13:12:09 Processed: 11-DEC-18 16:39:37

Mass: 389.8160 391.8130 Tot Response: 6.20e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	2.61e+02	2.47e+02 1.05	yes	5.08e+02		n	n
2	36:40	1.88e+01	1.56e+01 1.21	yes	3.44e+01	1,2,3,4,7,8-HxCDD	n	n
3	37:01	4.23e+01	3.54e+01 1.20	yes	7.77e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0585

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519309 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 13:12:09 Processed: 11-DEC-18 16:39:37

Mass: 407.7820 409.7790 Tot Response: 5.05e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:04	2.67e+01	2.38e+01 1.12	yes	5.05e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0585

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519309 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 13:12:09 Processed: 11-DEC-18 16:39:37

Mass: 423.7770 425.7740 Tot Response: 4.50e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:55	1.52e+03	1.40e+03	1.09	yes	2.92e+03		n	n
2	39:38	7.98e+02	7.78e+02	1.03	yes	1.58e+03	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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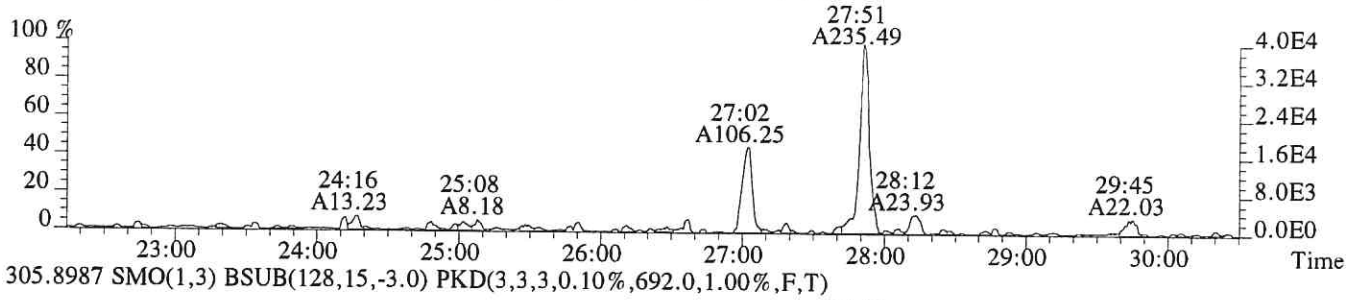
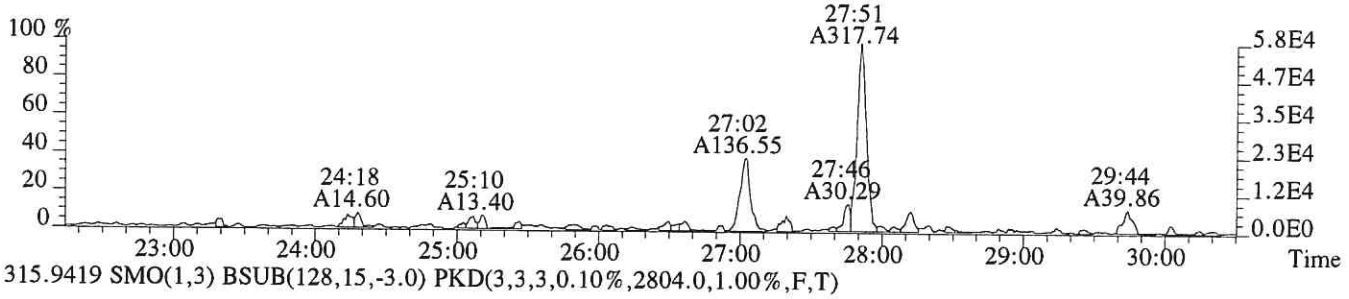
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

File:P519309 #1-587 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006

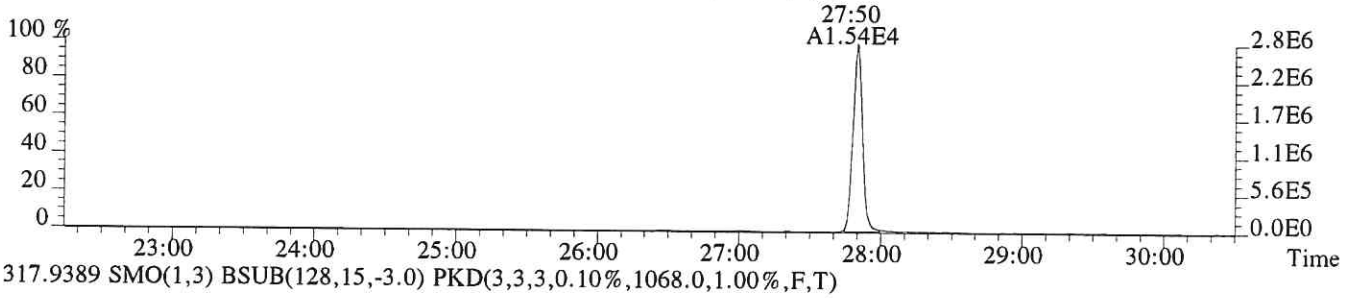
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



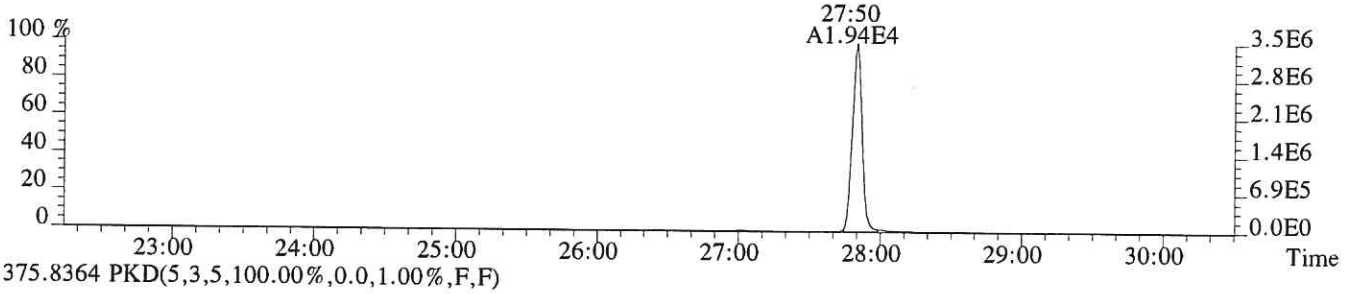
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



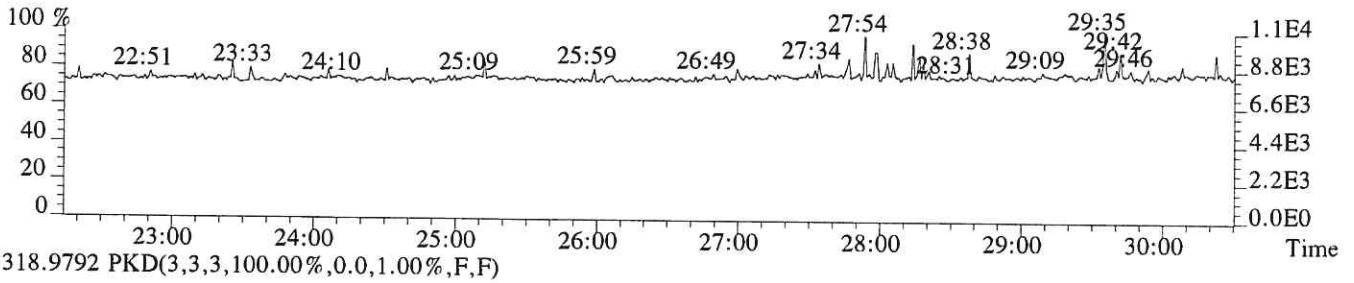
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



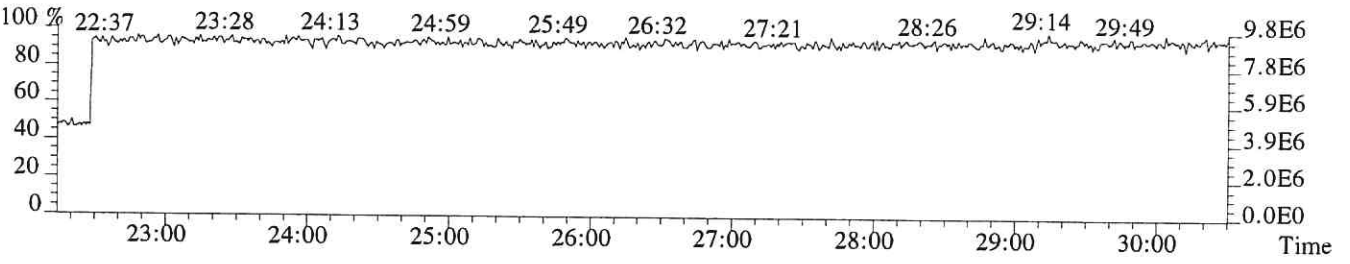
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



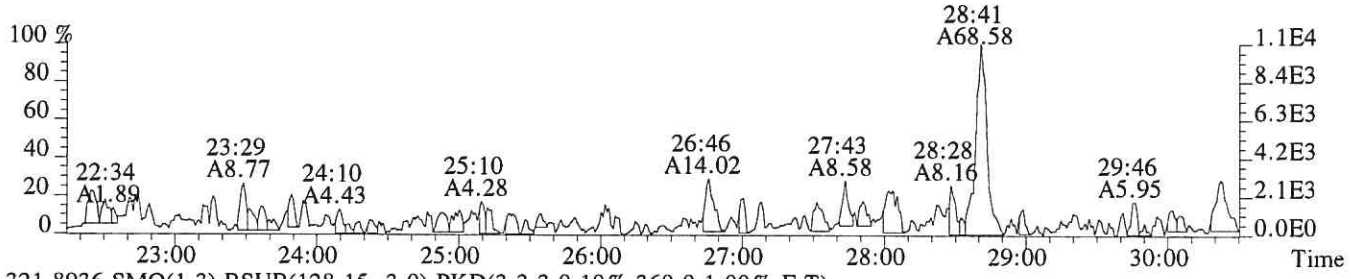
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



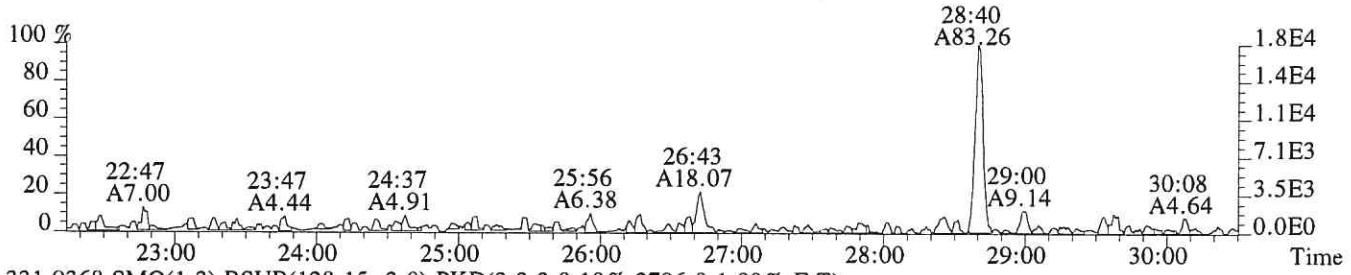
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



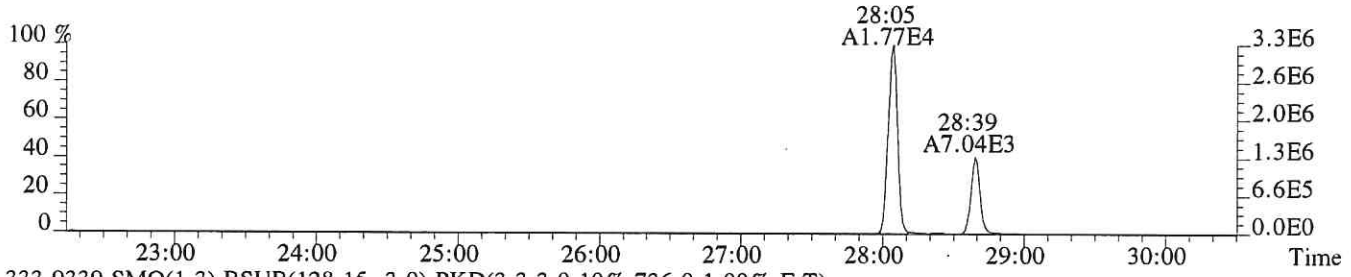
File:P519309 #1-587 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



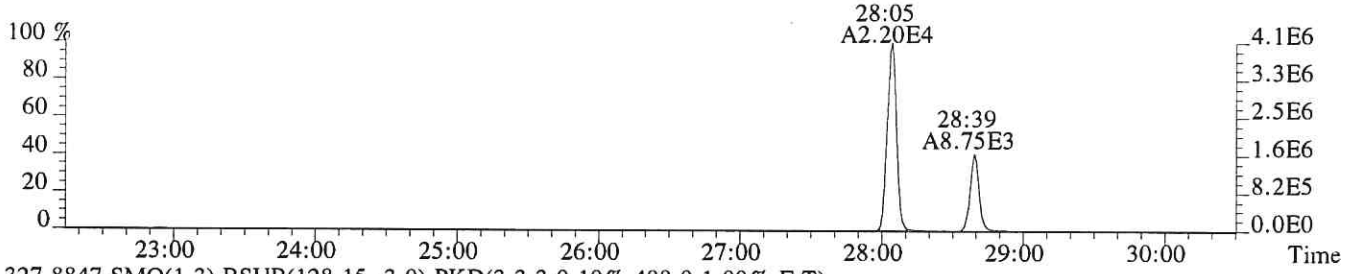
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



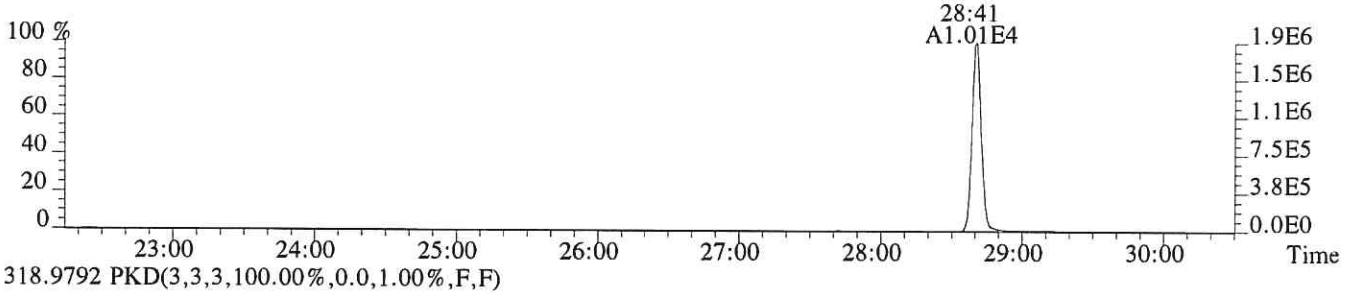
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2796.0,1.00%,F,T)



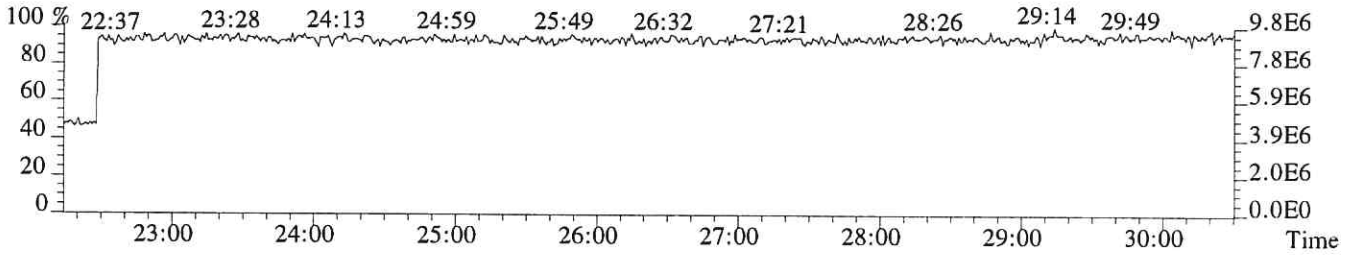
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



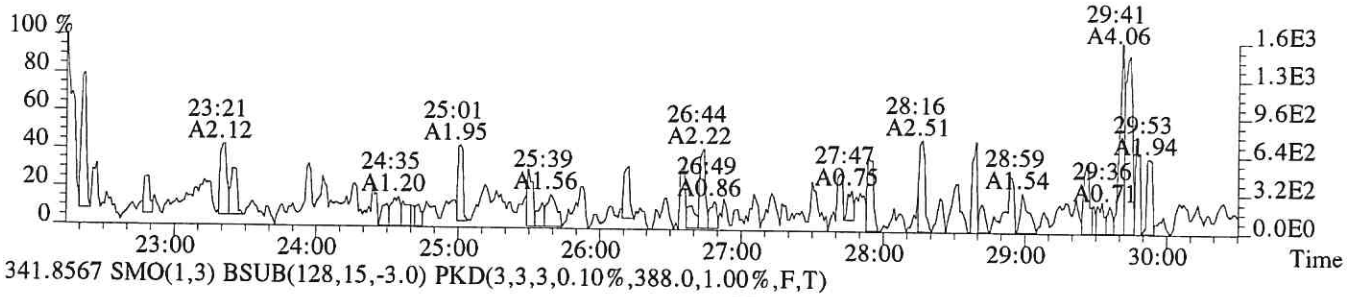
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



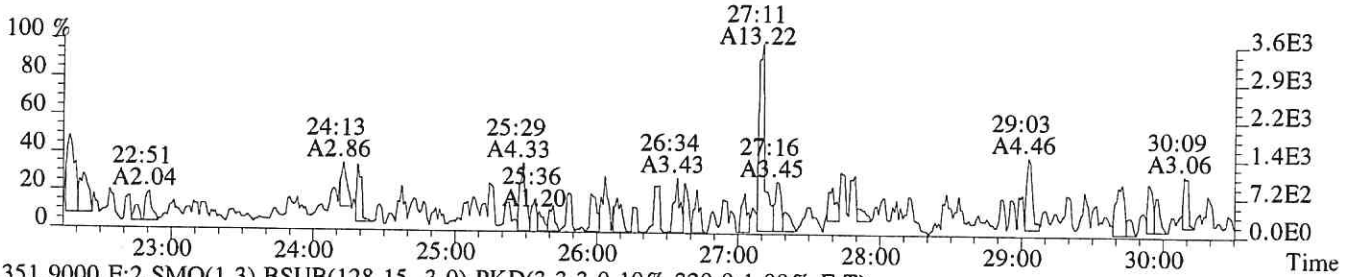
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



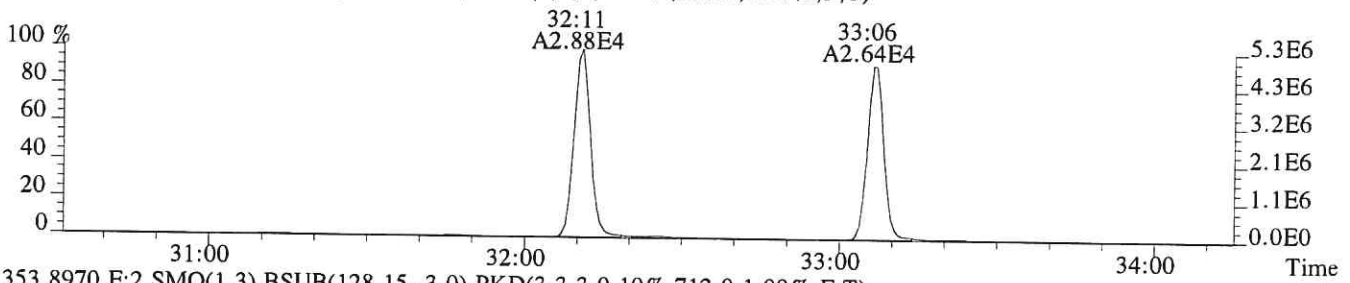
File:P519309 #1-587 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



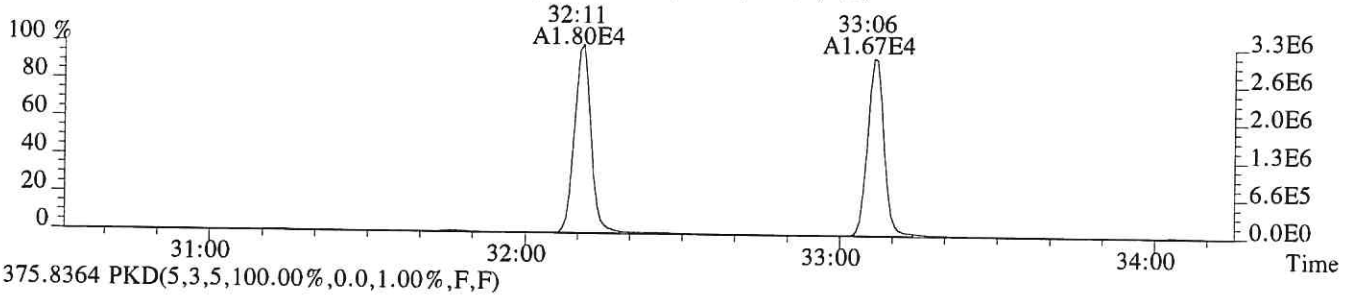
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



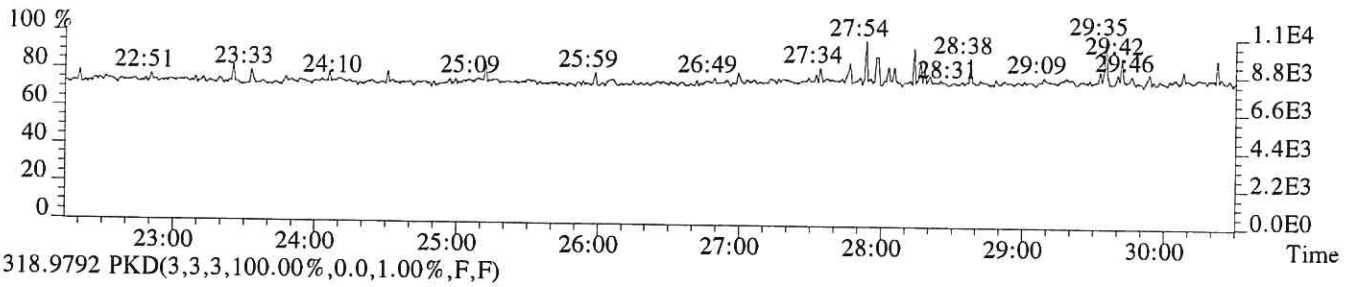
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



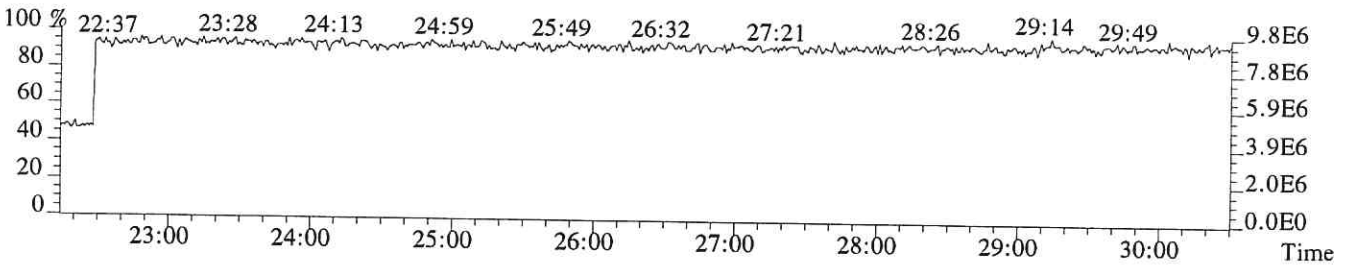
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

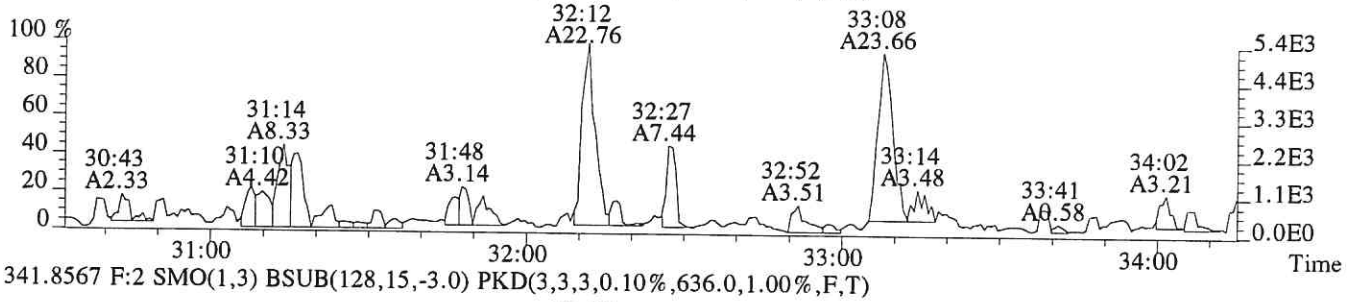


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

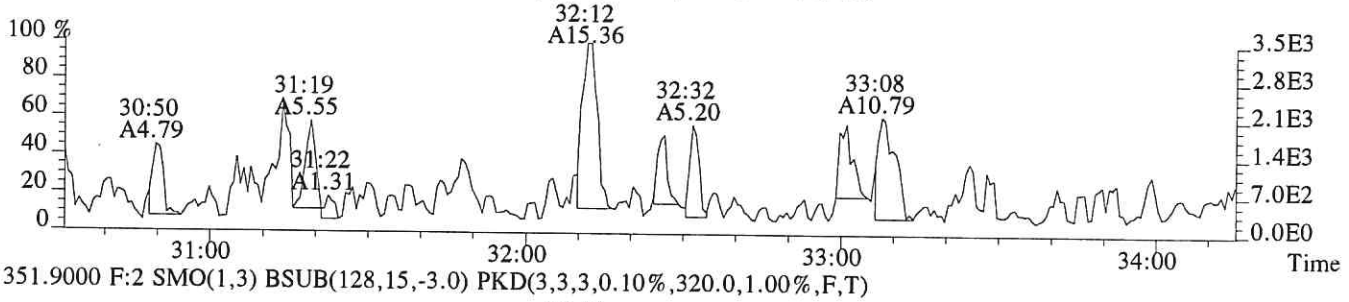


File:P519309 #1-335 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006

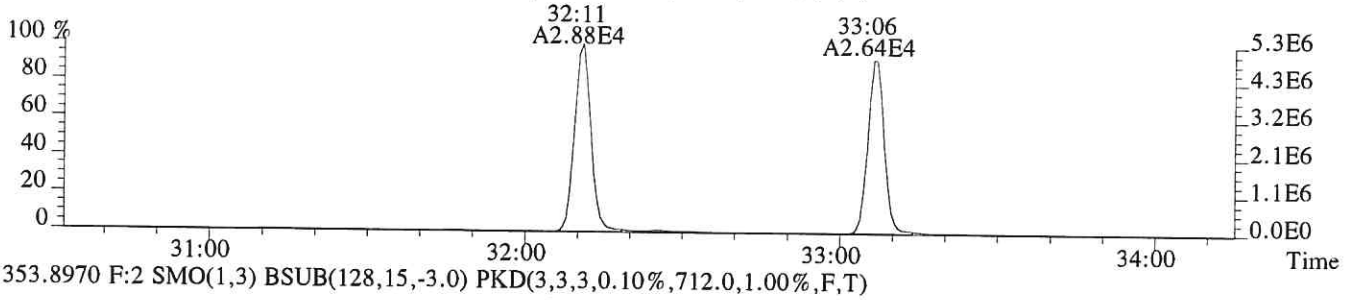
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



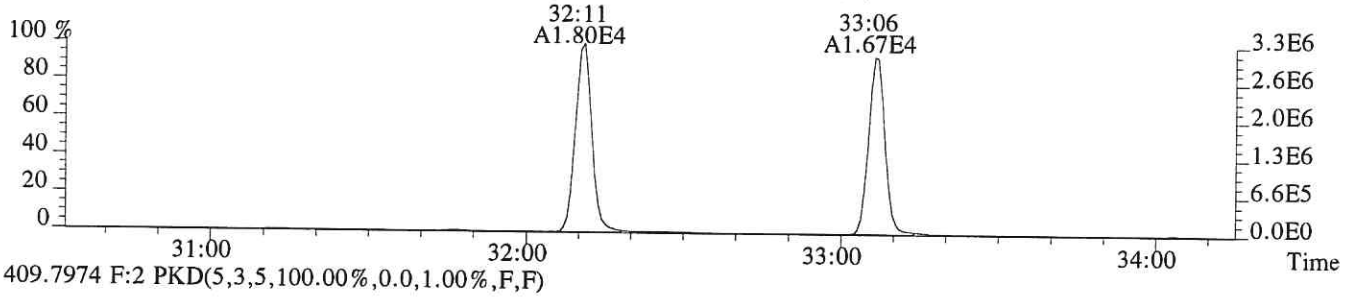
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



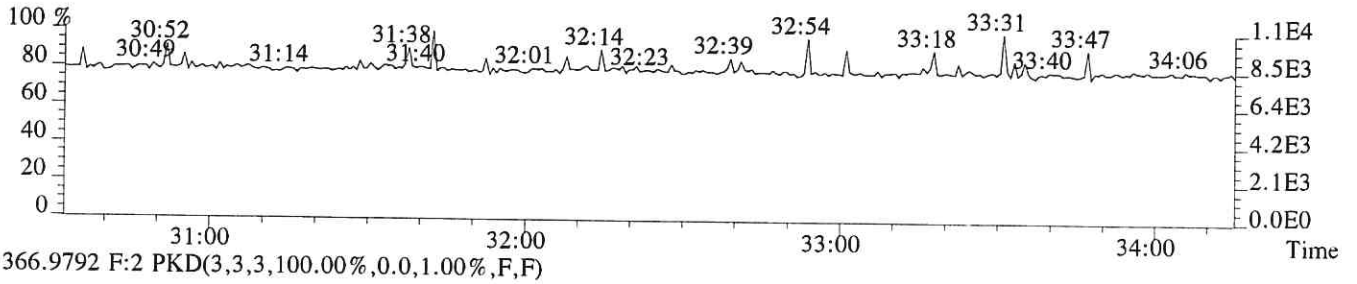
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



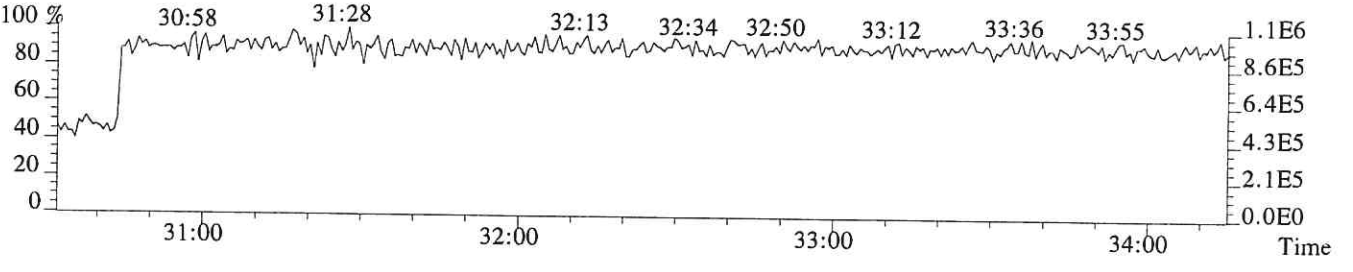
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



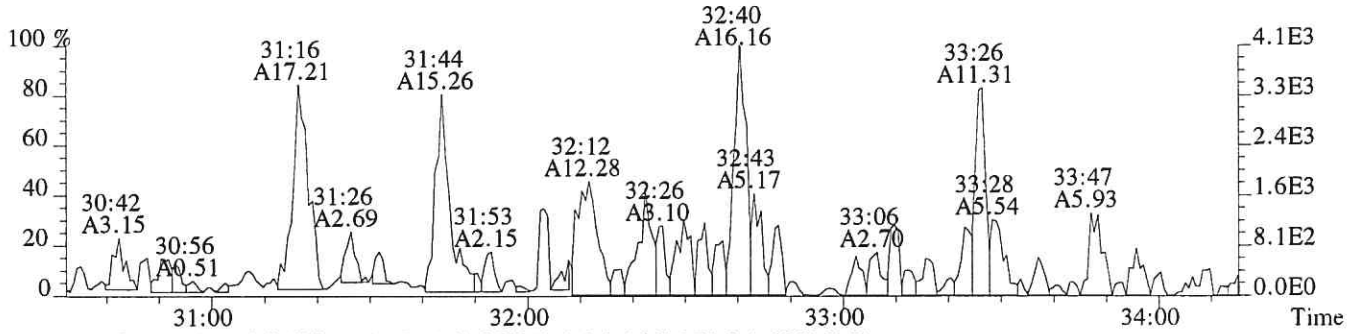
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



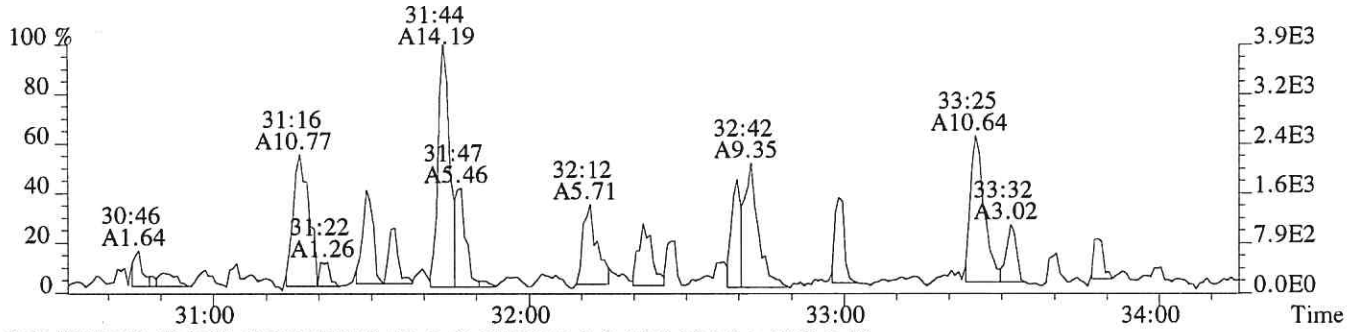
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519309 #1-335 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



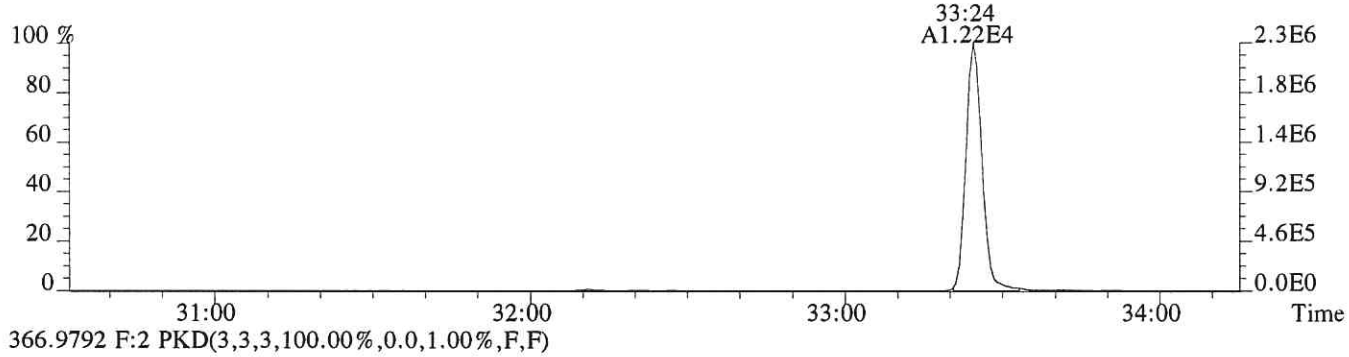
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



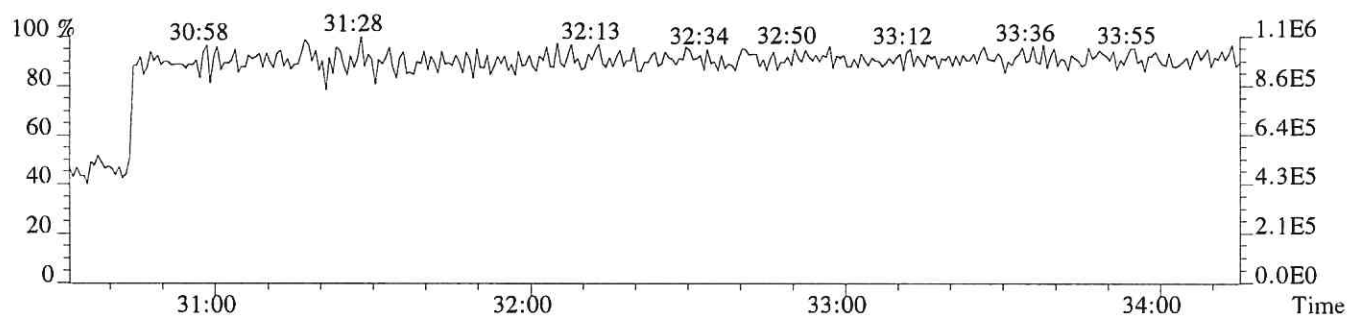
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



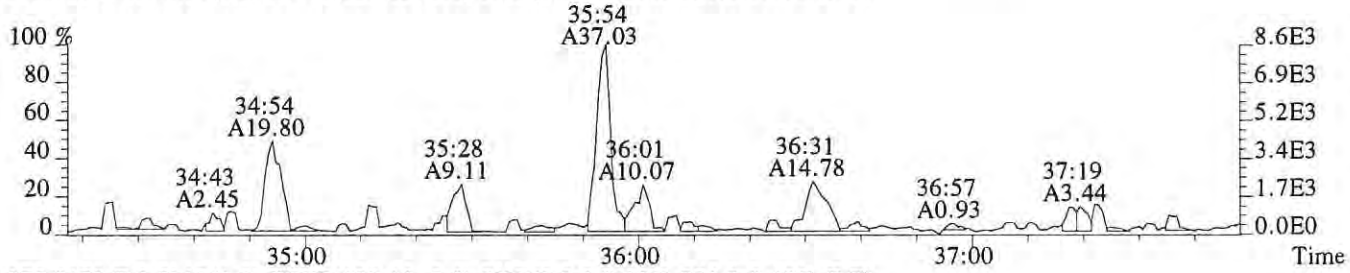
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



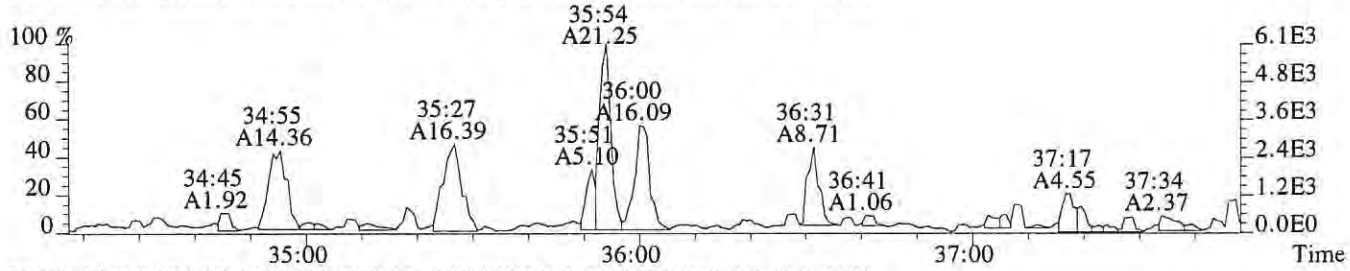
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



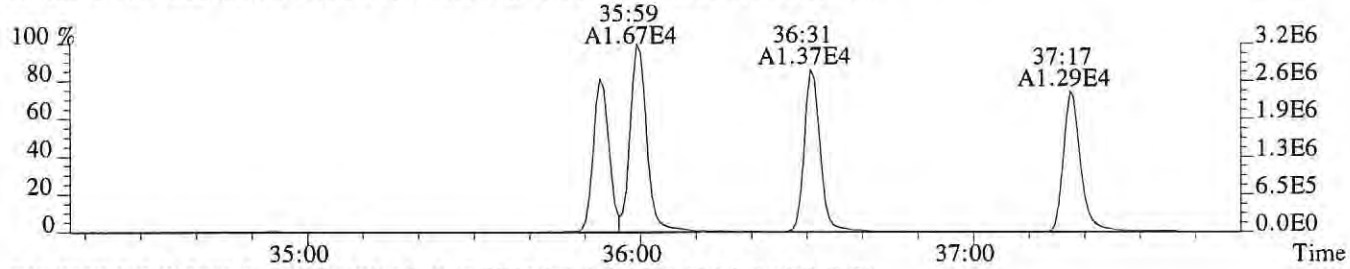
File:P519309 #1-317 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



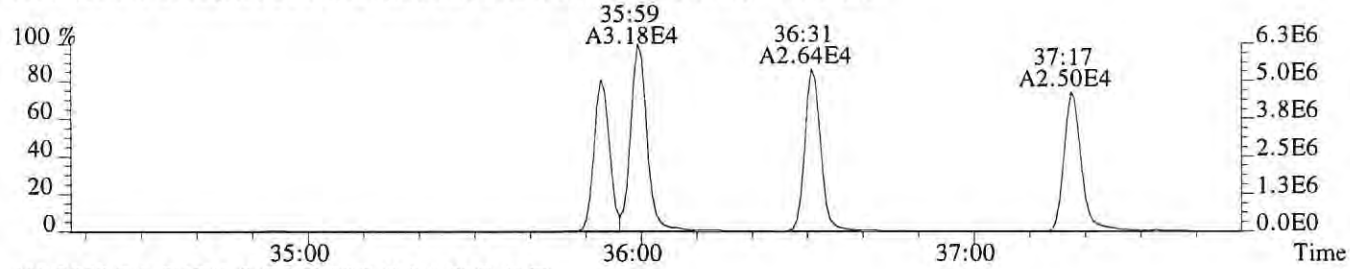
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



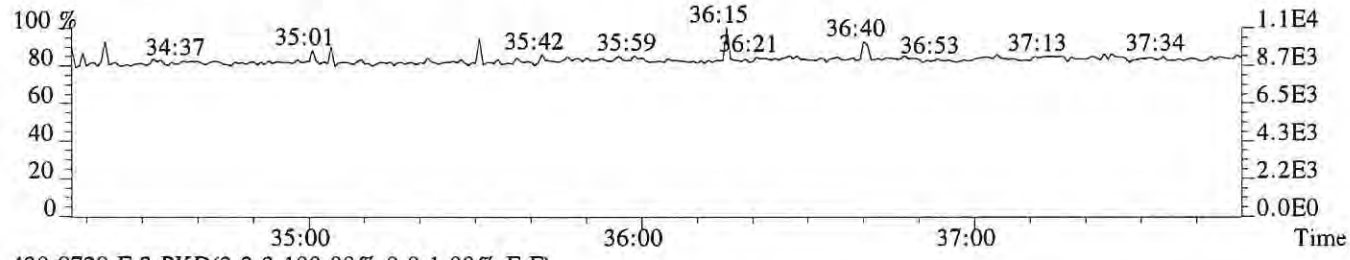
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



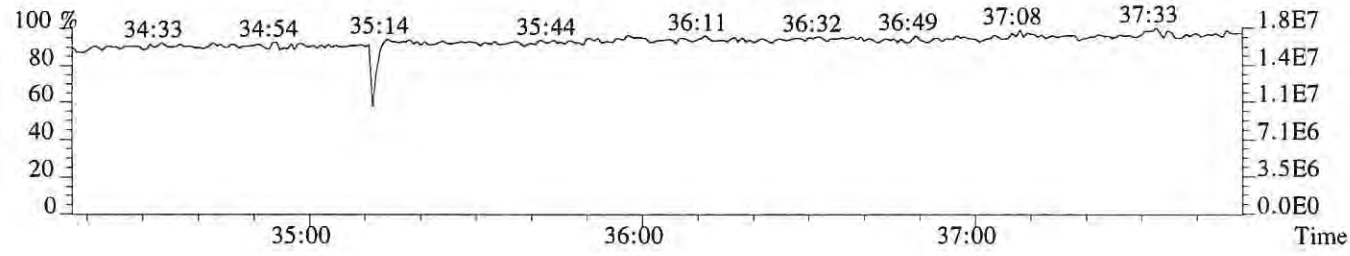
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



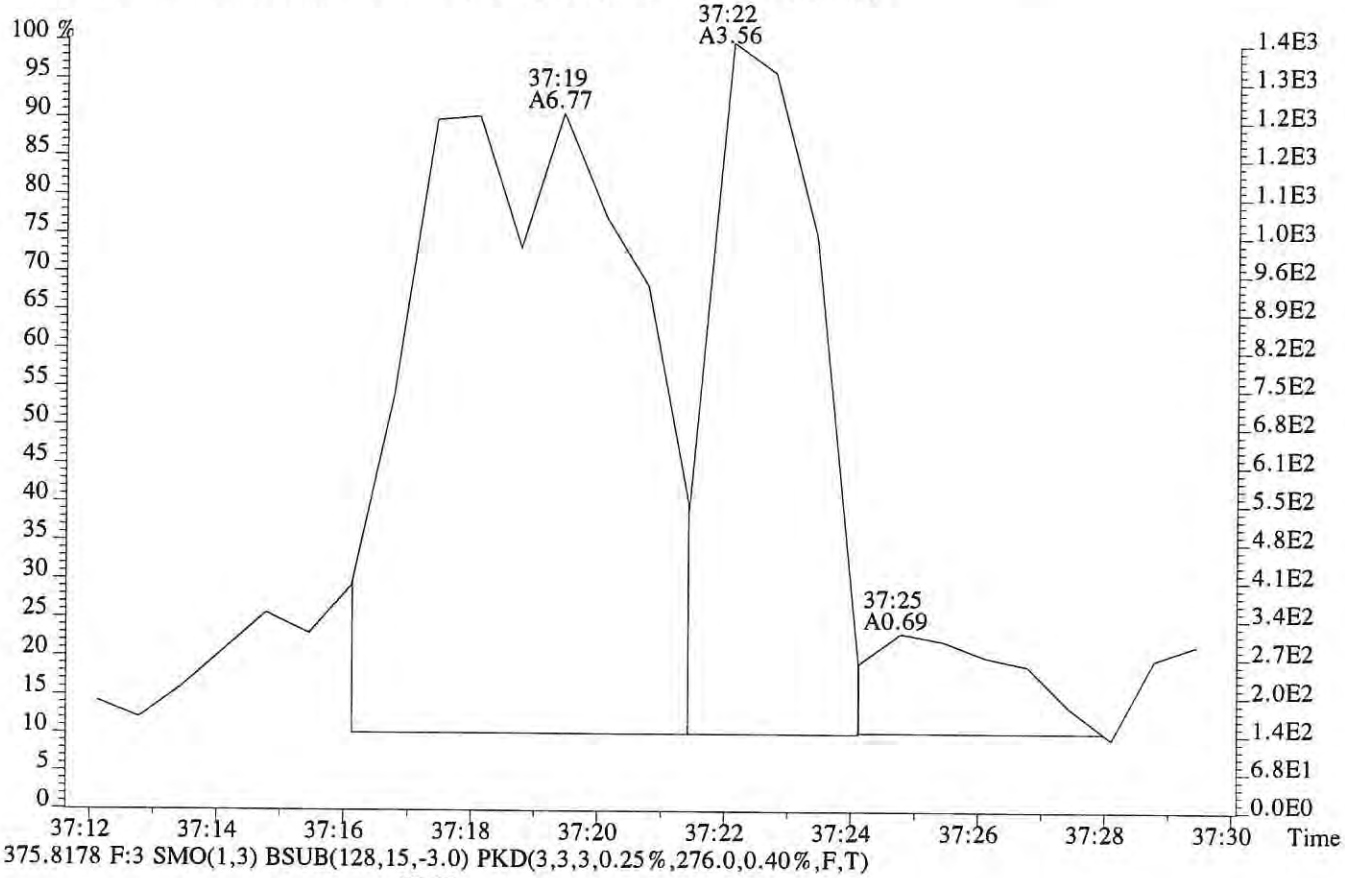
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



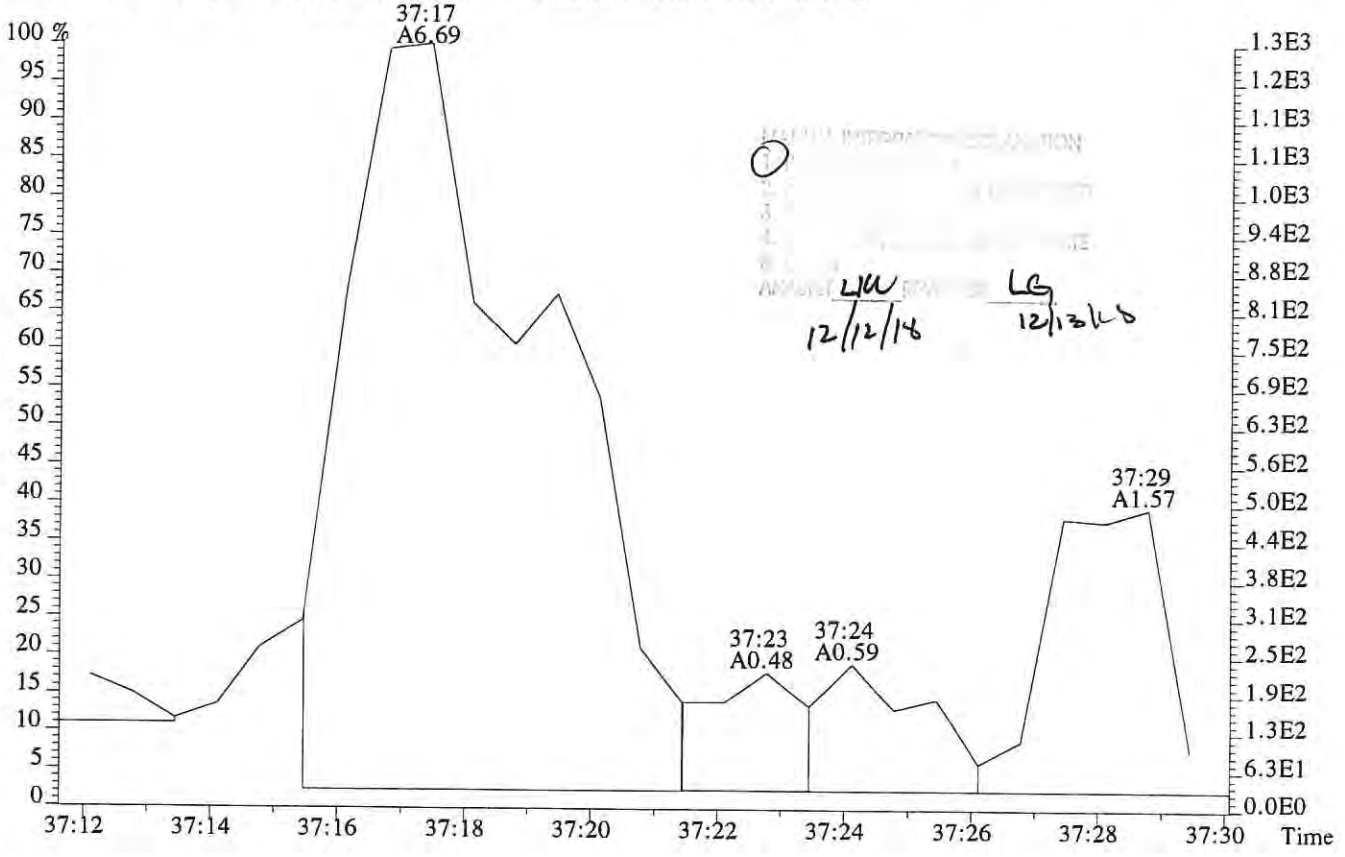
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519309 #1-317 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)

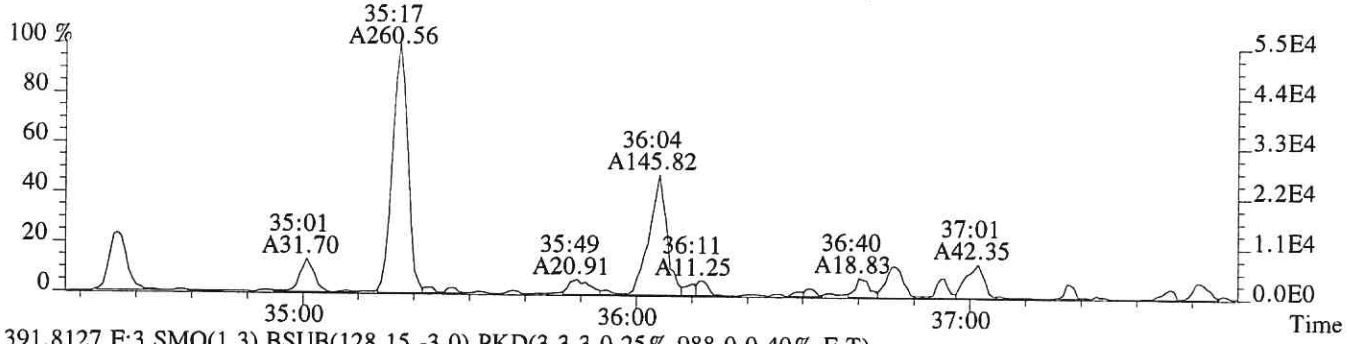


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)

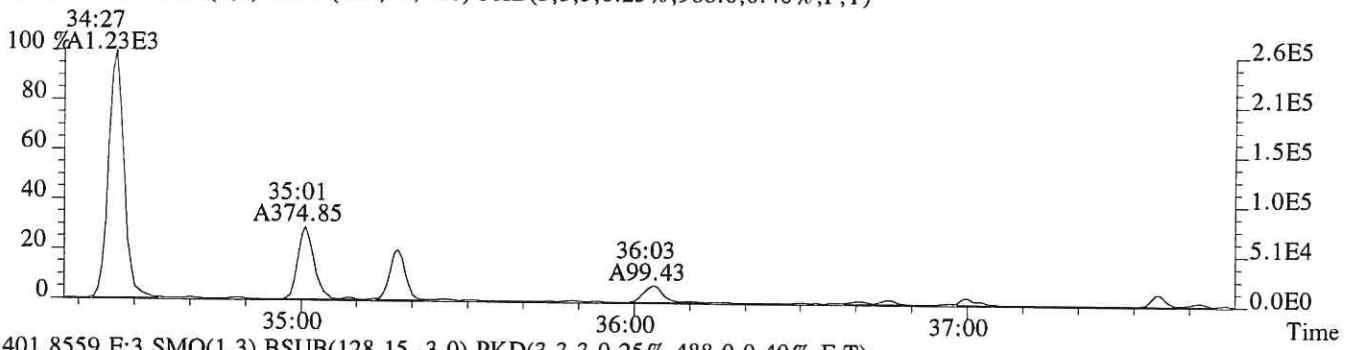


12/12/18 12/13/18

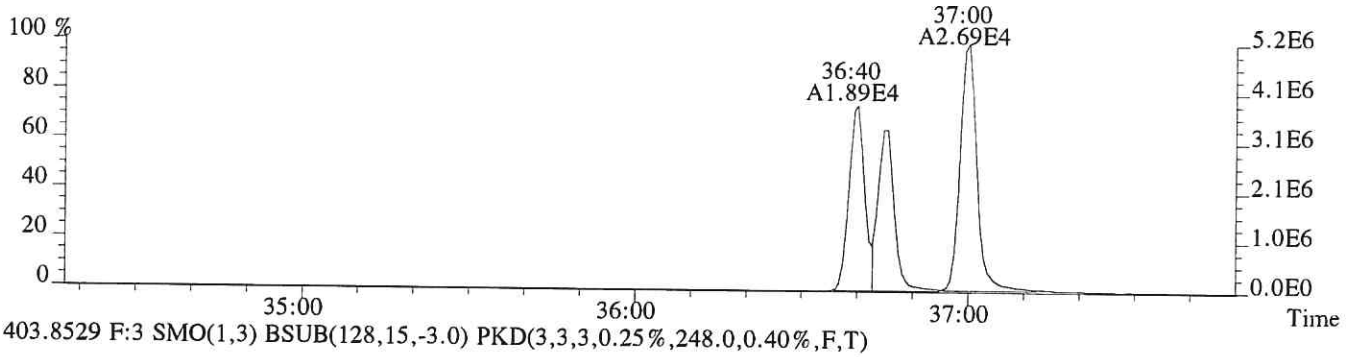
File:P519309 #1-317 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



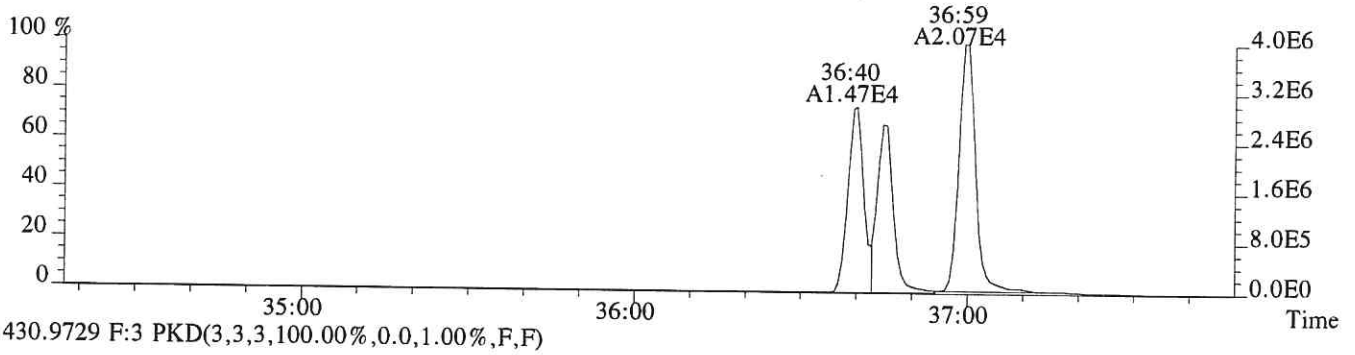
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



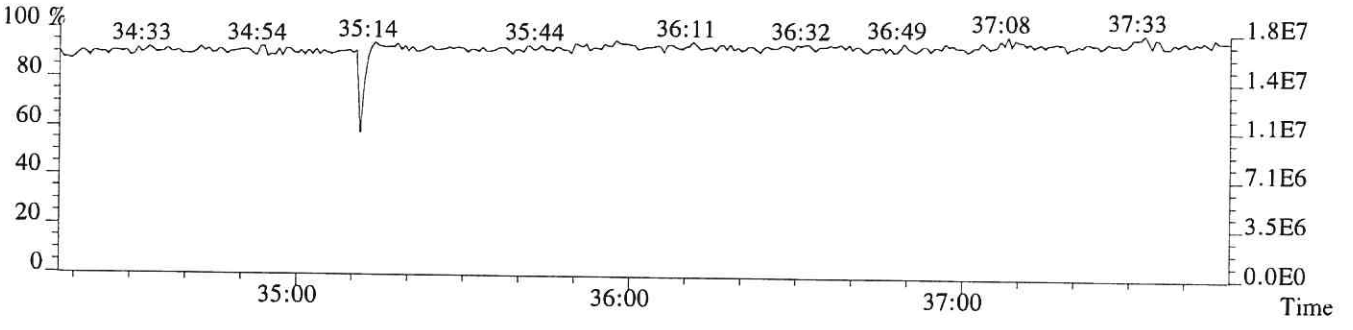
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)

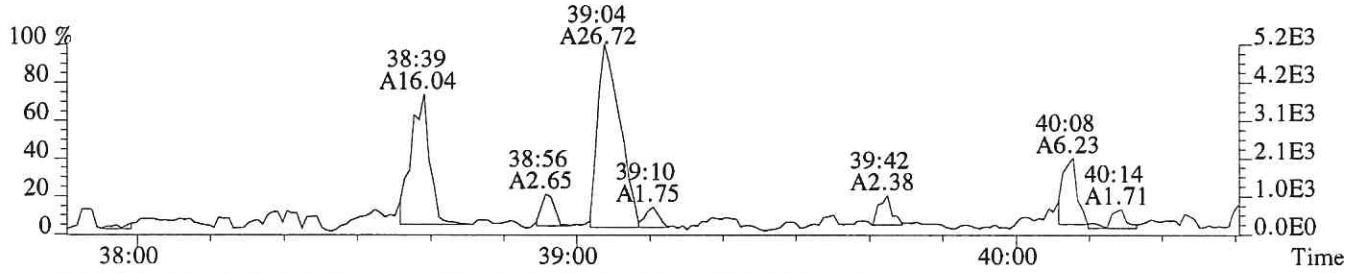


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

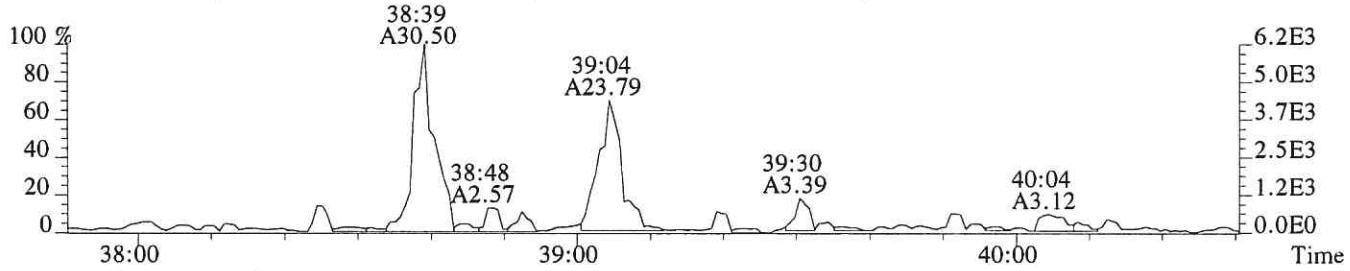


File:P519309 #1-241 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006

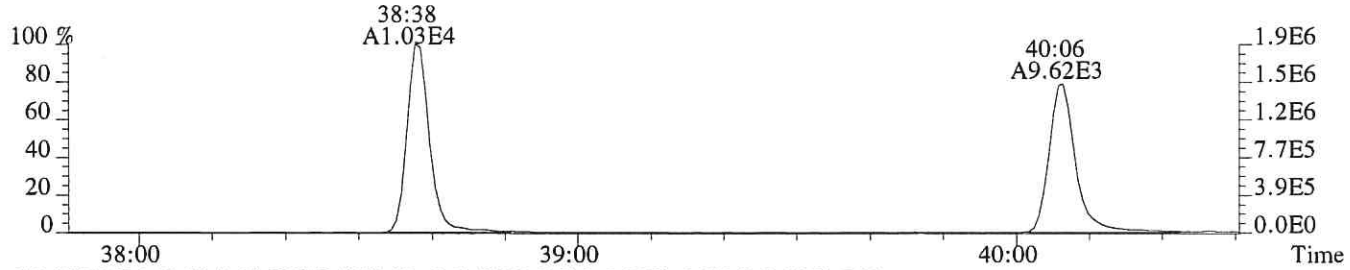
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.50%,F,T)



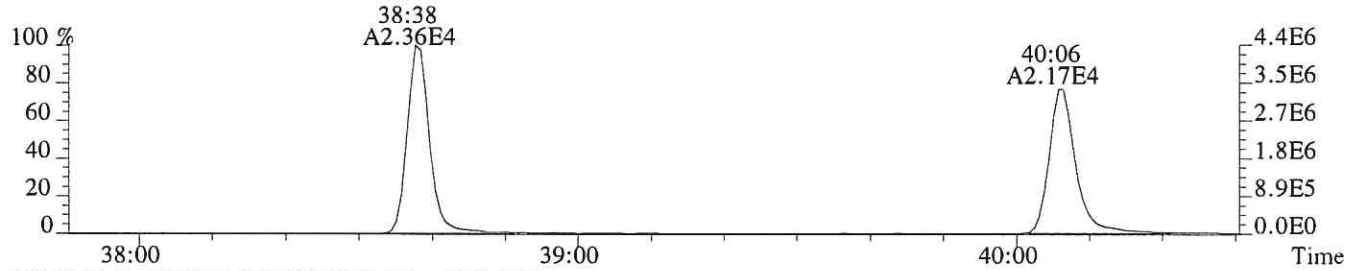
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



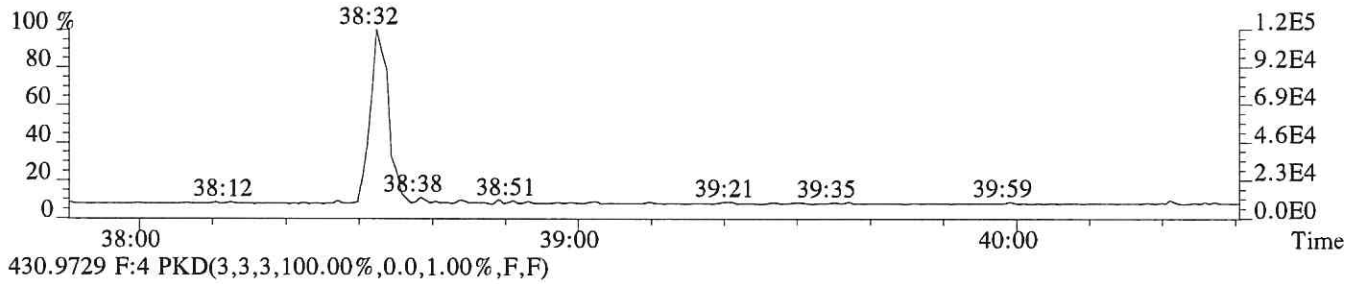
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4728.0,0.50%,F,T)



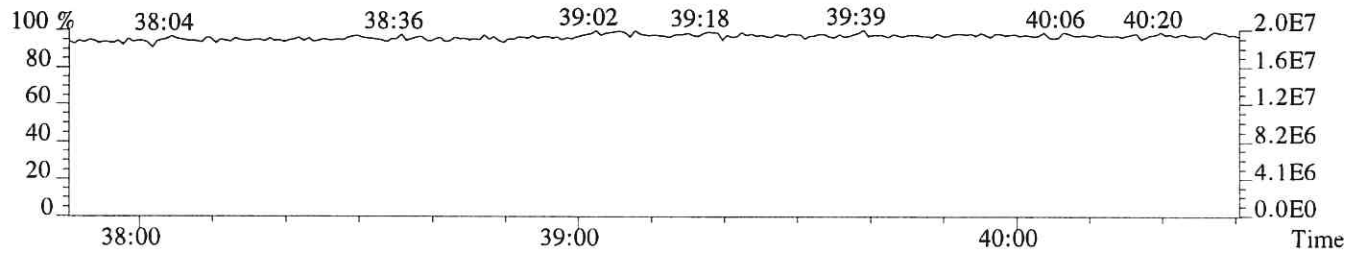
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.50%,F,T)



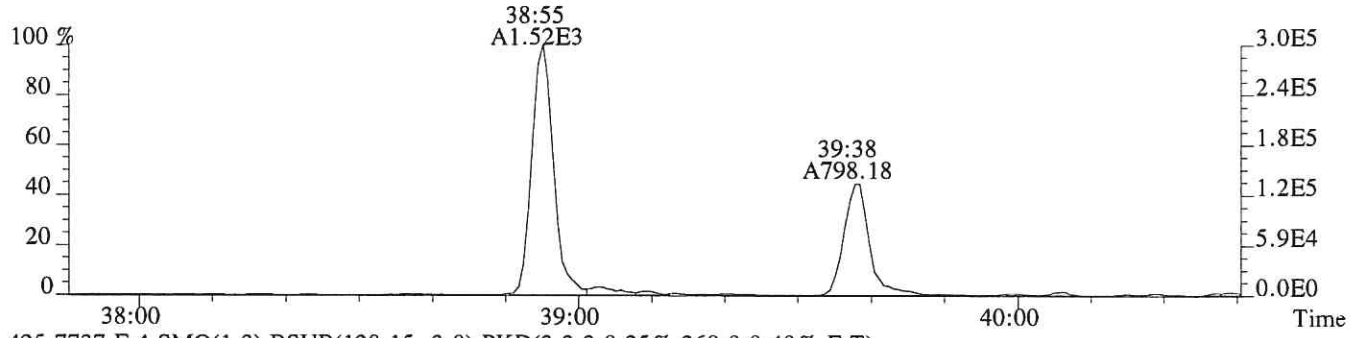
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



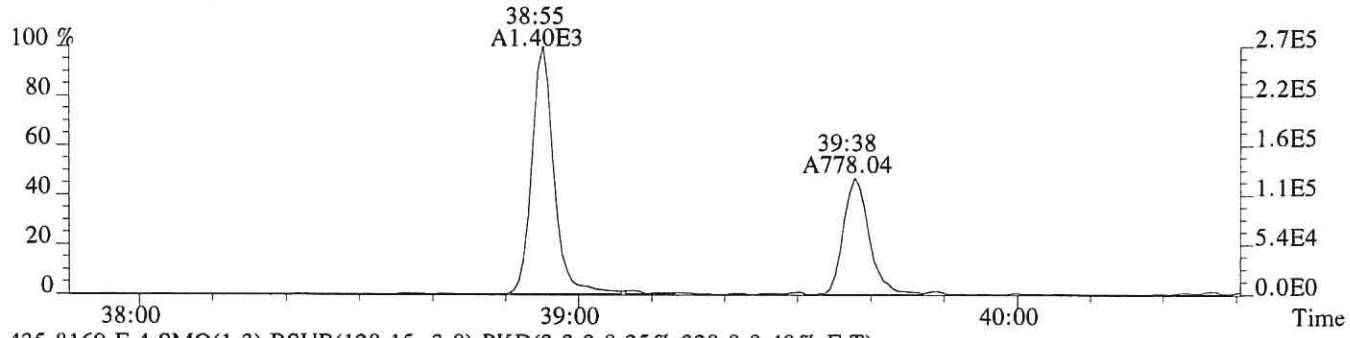
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



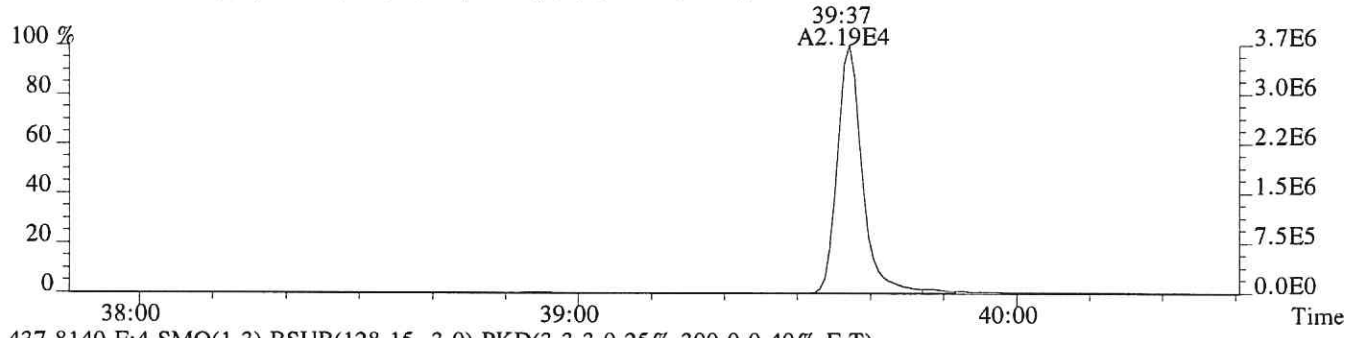
File:P519309 #1-241 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



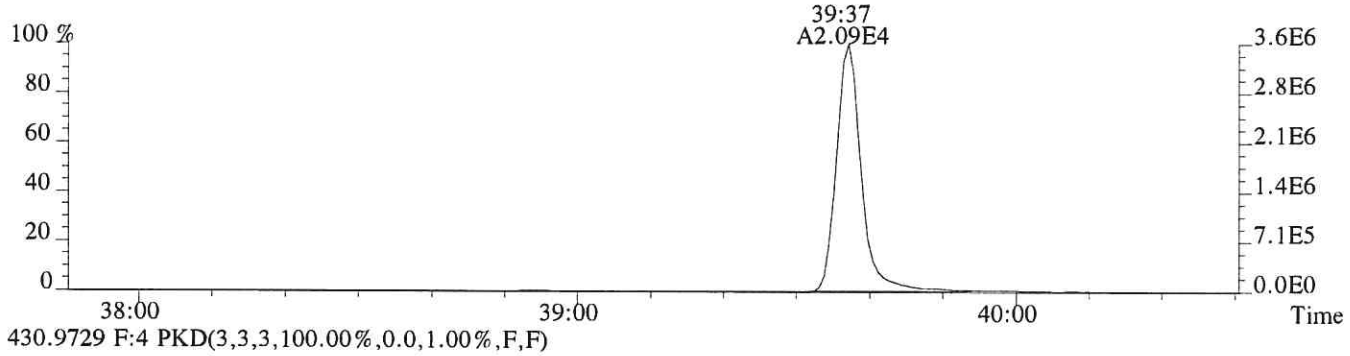
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



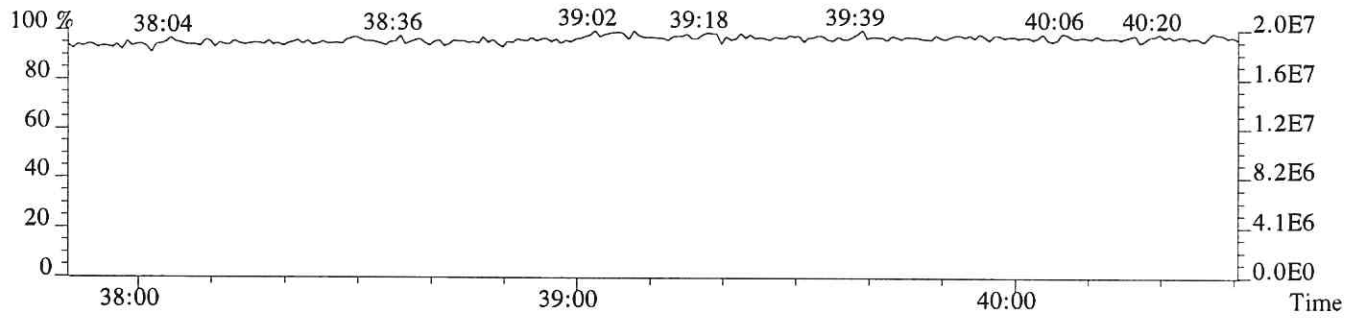
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)

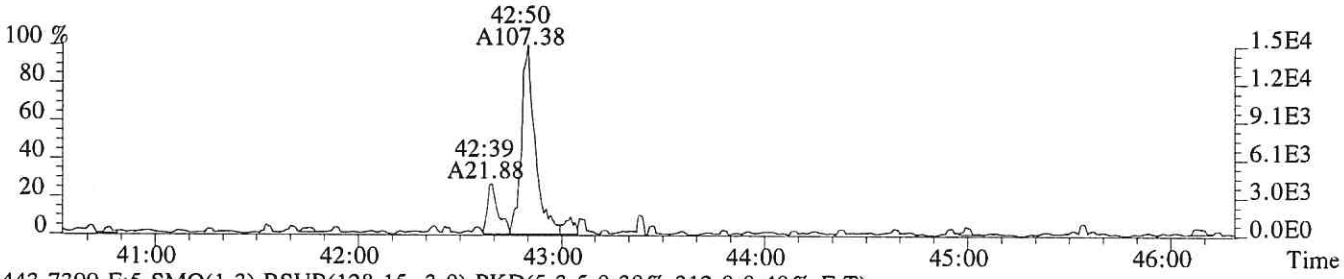


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

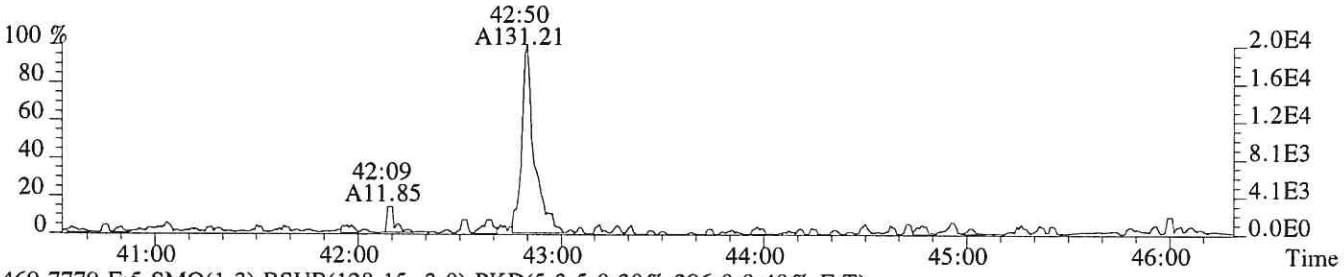


File:P519309 #1-520 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006

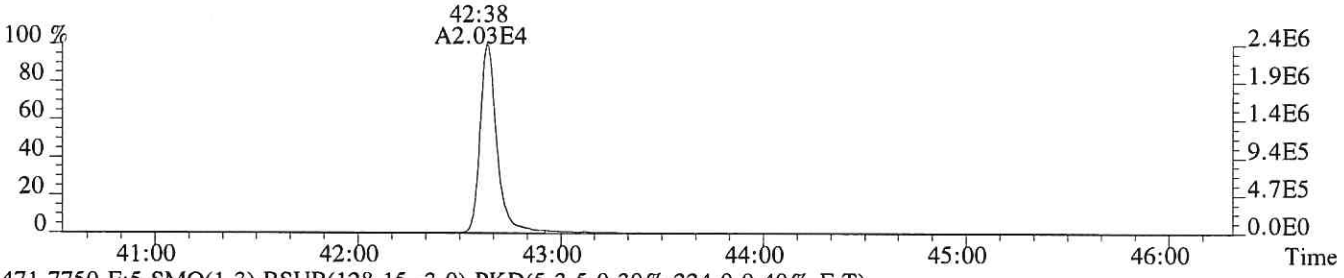
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



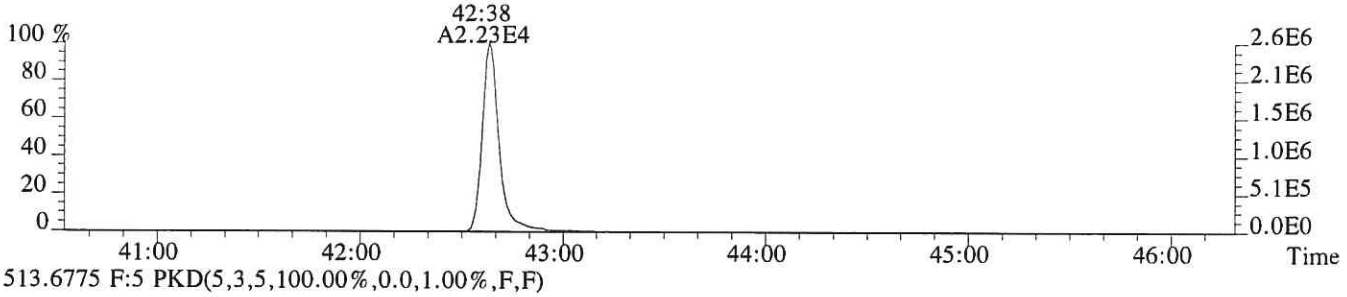
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



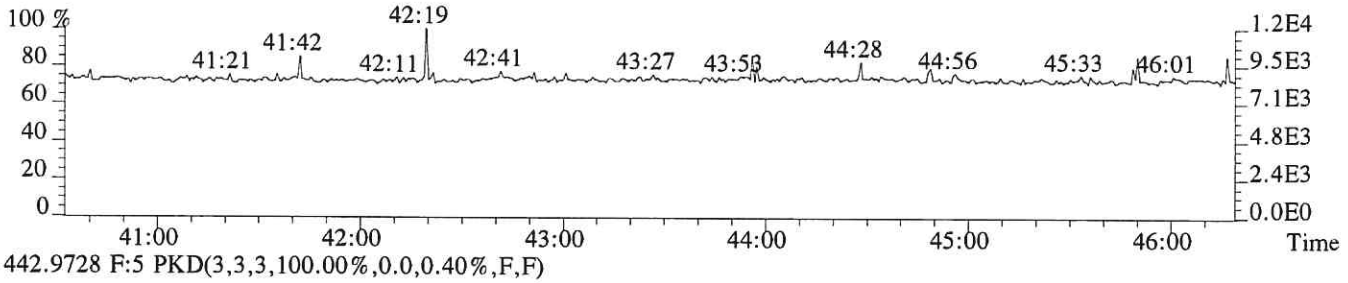
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



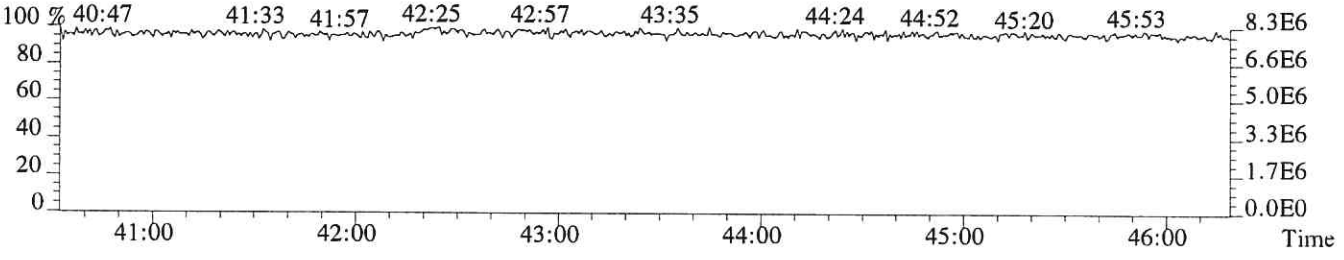
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



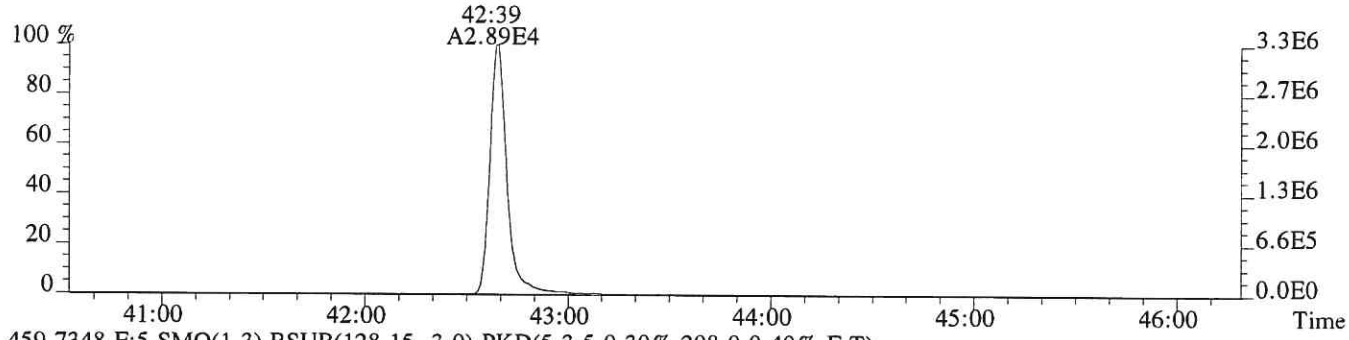
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



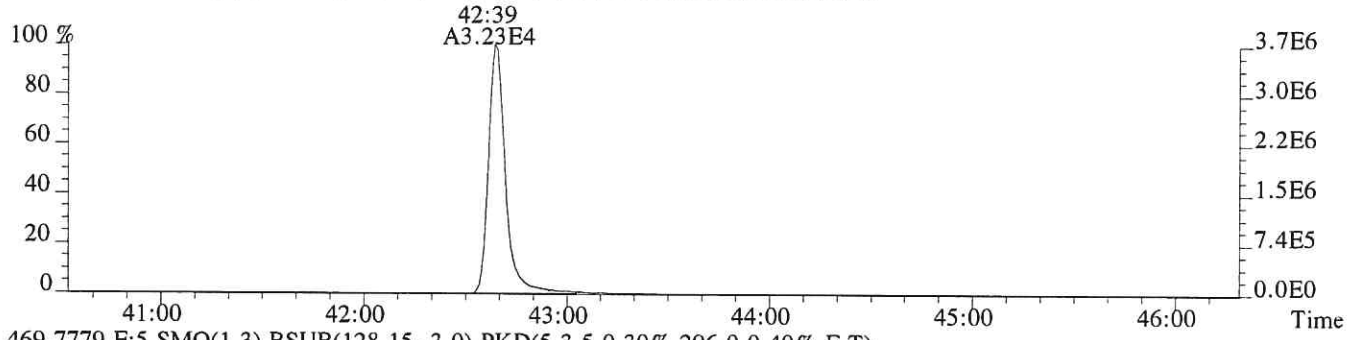
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



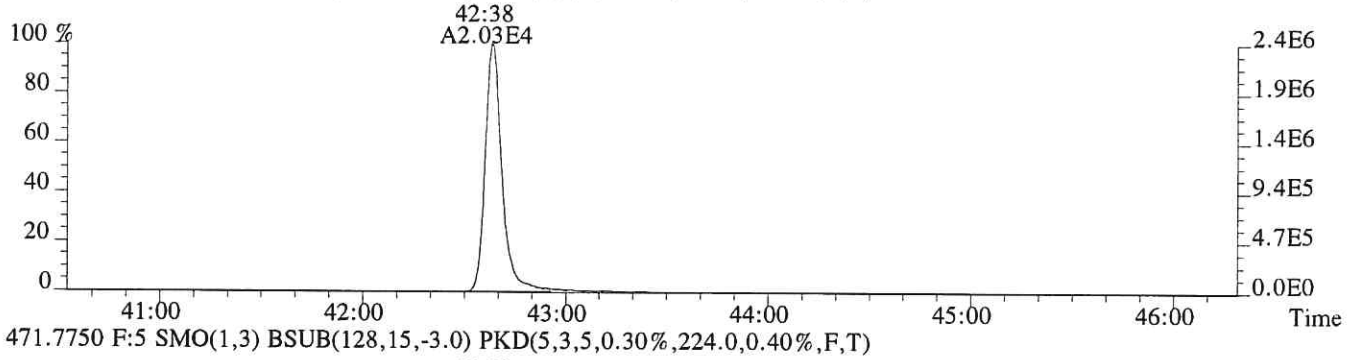
File:P519309 #1-520 Acq: 8-DEC-2018 13:12:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



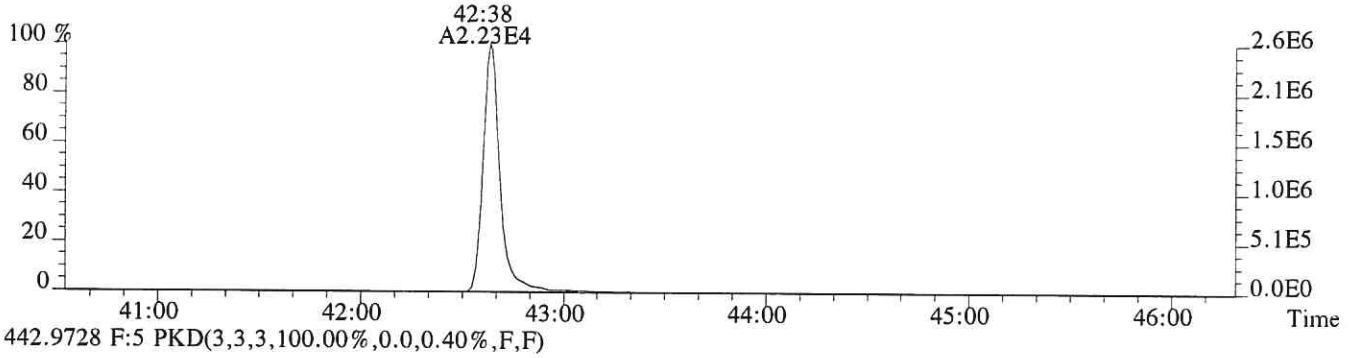
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



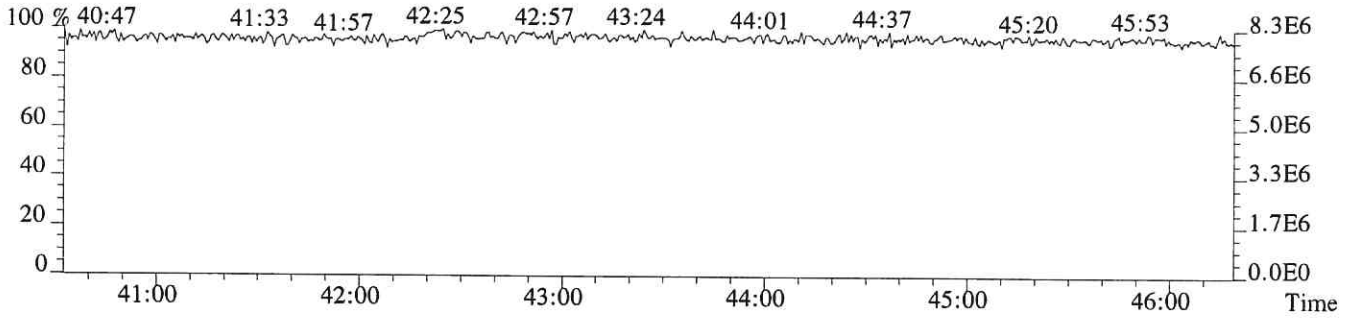
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0586

Run #13 Filename P519310 Samp: 1 Inj: 1 Acquired: 8-DEC-18 14:00:47
Processed: 11-DEC-18 16:40:26 Sample ID: E1801065-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:52	1.509e+02	1.743e+02	0.87	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	1.414e+01	1.633e+01	0.87	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	6.681e+00	3.935e+00	1.70	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.591e+01	2.193e+01	0.73	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:52	5.216e+01	8.022e+01	0.65	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	2.755e+01	5.389e+01	0.51	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:41	1.777e+01	1.042e+01	1.70	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	2.011e+01	2.174e+01	0.92	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	3.581e+01	4.073e+01	0.88	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:38	9.876e+02	9.336e+02	1.06	yes	no	1.025
17	Unk	OCDD	42:39	3.464e+04	3.794e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	5.684e+03	7.146e+03	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:11	1.519e+04	9.417e+03	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.495e+04	9.166e+03	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	7.683e+03	1.537e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	9.866e+03	1.928e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	8.550e+03	1.668e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	8.357e+03	1.612e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	7.143e+03	1.609e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	6.704e+03	1.515e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	2.758e+03	3.610e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.124e+04	7.079e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.169e+04	9.025e+03	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.156e+04	9.268e+03	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	1.489e+04	1.422e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:39	1.500e+04	1.673e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	1.269e+04	1.549e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.098e+04	1.676e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	4.246e+03				no	1.014

$$\text{OCDD} = \frac{(3.464e+04 + 3.794e+04) \times 4000 \text{ pg} \times 1}{(1.500e+04 + 1.673e+04) \times 10.597 \text{ g} \times 72.2/100 \times 1.118} = 1069.6580 \text{ ng/kg}$$

LG 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0586

Run #13 Filename P519310 Samp: 1 Inj: 1 Acquired: 8-DEC-18 14:00:47
Processed: 11-DEC-18 16:40:26 LAB. ID: E1801065-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.30e+04	2.52e+02	9.1e+01	2.89e+04	5.48e+02	5.3e+01
2	1,2,3,7,8-PeCDF	*	3.00e+02	*	*	7.60e+02	*
3	2,3,4,7,8-PeCDF	*	3.00e+02	*	*	7.60e+02	*
4	1,2,3,4,7,8-HxCDF	3.29e+03	3.48e+02	9.4e+00	3.87e+03	2.08e+02	1.9e+01
5	1,2,3,6,7,8-HxCDF	*	3.48e+02	*	*	2.08e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.48e+02	*	*	2.08e+02	*
7	1,2,3,7,8,9-HxCDF	2.11e+03	3.48e+02	6.1e+00	8.69e+02	2.08e+02	4.2e+00
8	1,2,3,4,6,7,8-HpCDF	3.25e+03	1.80e+02	1.8e+01	5.14e+03	2.32e+02	2.2e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.80e+02	*	*	2.32e+02	*
10	OCDF	5.49e+03	2.36e+02	2.3e+01	7.72e+03	2.52e+02	3.1e+01
11	2,3,7,8-TCDD	5.82e+03	1.09e+03	5.3e+00	1.08e+04	4.92e+02	2.2e+01
12	1,2,3,7,8-PeCDD	*	5.68e+02	*	*	2.12e+02	*
13	1,2,3,4,7,8-HxCDD	4.55e+03	2.80e+02	1.6e+01	2.25e+03	2.12e+02	1.1e+01
14	1,2,3,6,7,8-HxCDD	4.27e+03	2.80e+02	1.5e+01	4.13e+03	2.12e+02	1.9e+01
15	1,2,3,7,8,9-HxCDD	7.61e+03	2.80e+02	2.7e+01	8.85e+03	2.12e+02	4.2e+01
16	1,2,3,4,6,7,8-HpCDD	1.71e+05	7.68e+02	2.2e+02	1.63e+05	2.96e+02	5.5e+02
17	OCDD	4.04e+06	2.16e+02	1.9e+04	4.41e+06	2.36e+02	1.9e+04
18	13C-2,3,7,8-TCDF	9.90e+05	3.58e+03	2.8e+02	1.26e+06	1.58e+03	8.0e+02
19	13C-1,2,3,7,8-PeCDF	2.75e+06	5.80e+02	4.7e+03	1.69e+06	5.36e+02	3.2e+03
20	13C-2,3,4,7,8-PeCDF	2.82e+06	5.80e+02	4.9e+03	1.76e+06	5.36e+02	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.59e+06	2.20e+02	7.2e+03	3.20e+06	1.80e+02	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	1.96e+06	2.20e+02	8.9e+03	3.81e+06	1.80e+02	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.77e+06	2.20e+02	8.0e+03	3.44e+06	1.80e+02	1.9e+04
24	13C-1,2,3,7,8,9-HxCDF	1.64e+06	2.20e+02	7.4e+03	3.16e+06	1.80e+02	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.34e+06	1.12e+03	1.2e+03	3.05e+06	1.28e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.09e+06	1.12e+03	9.7e+02	2.41e+06	1.28e+03	1.9e+03
27	13C-2,3,7,8-TCDD	5.29e+05	3.55e+03	1.5e+02	6.88e+05	8.84e+02	7.8e+02
28	13C-1,2,3,7,8-PeCDD	2.18e+06	3.00e+02	7.3e+03	1.34e+06	5.16e+02	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	2.55e+06	8.40e+02	3.0e+03	1.93e+06	1.68e+02	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.27e+06	8.40e+02	2.7e+03	1.83e+06	1.68e+02	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.54e+06	2.48e+02	1.0e+04	2.43e+06	3.36e+02	7.2e+03
32	13C-OCDD	1.77e+06	3.00e+02	5.9e+03	1.95e+06	2.92e+02	6.7e+03
33	13C-1,2,3,4-TCDD	2.34e+06	3.55e+03	6.6e+02	2.90e+06	8.84e+02	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.15e+06	8.40e+02	4.9e+03	3.35e+06	1.68e+02	2.0e+04
35	37Cl-2,3,7,8-TCDD	7.90e+05	2.48e+02	3.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.088e+03 + 4.920e+02) \times 2000}{(5.285e+05 + 6.876e+05) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0586

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P519310 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 14:00:47 Processed: 11-DEC-18 16:40:26

Mass: 303.9020 305.8990 Tot Response: 4.57e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:03	5.75e+01	7.42e+01	0.78	yes	1.32e+02		n	n
2	27:52	1.51e+02	1.74e+02	0.87	yes	3.25e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0586

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519310 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 14:00:47 Processed: 11-DEC-18 16:40:26

Mass: 389.8160 391.8130 Tot Response: 1.03e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	3.68e+02	3.20e+02	1.15	yes	6.88e+02		n	n
2	35:49	1.59e+01	1.30e+01	1.22	yes	2.89e+01		n	n
3	36:04	1.69e+02	1.26e+02	1.34	yes	2.95e+02		n	n
4	36:56	1.11e+01	9.25e+00	1.20	yes	2.04e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0586

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519310 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 14:00:47 Processed: 11-DEC-18 16:40:26

Mass: 423.7770 425.7740 Tot Response: 5.96e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:55	2.05e+03	1.99e+03	1.03	yes	4.04e+03		n	n
2	39:38	9.88e+02	9.34e+02	1.06	yes	1.92e+03	1,2,3,4,6,7,8-HpCDD	n	n

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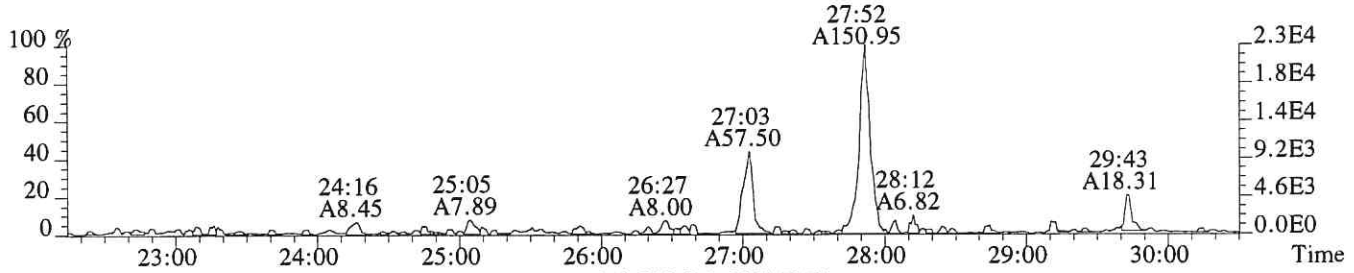
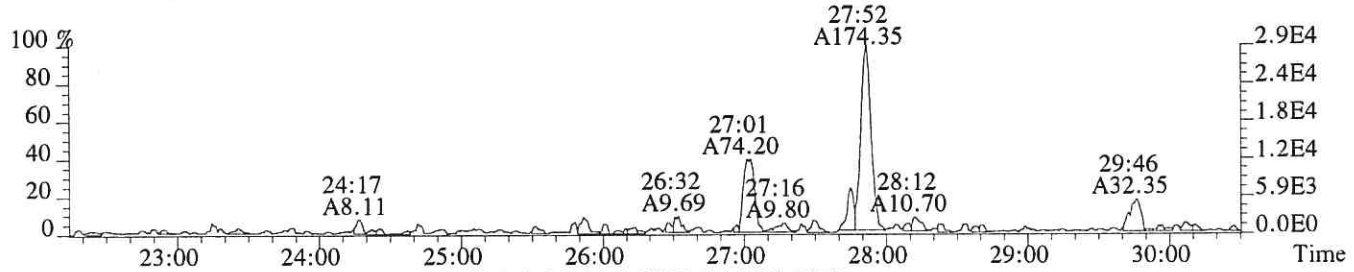
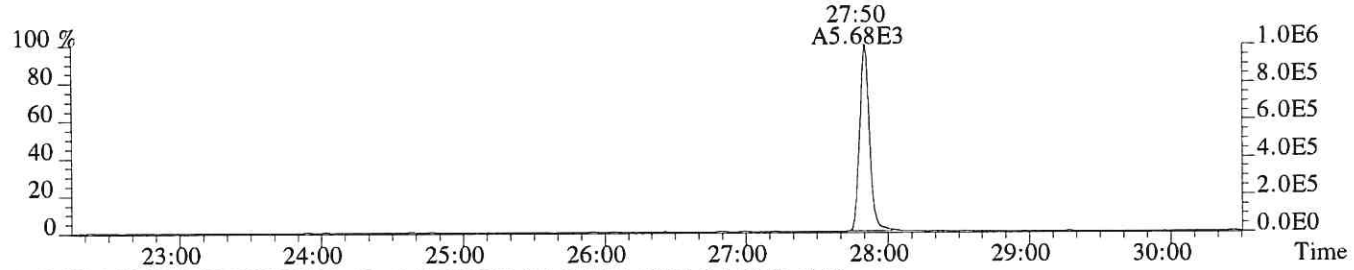
File:P519310 #1-587 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



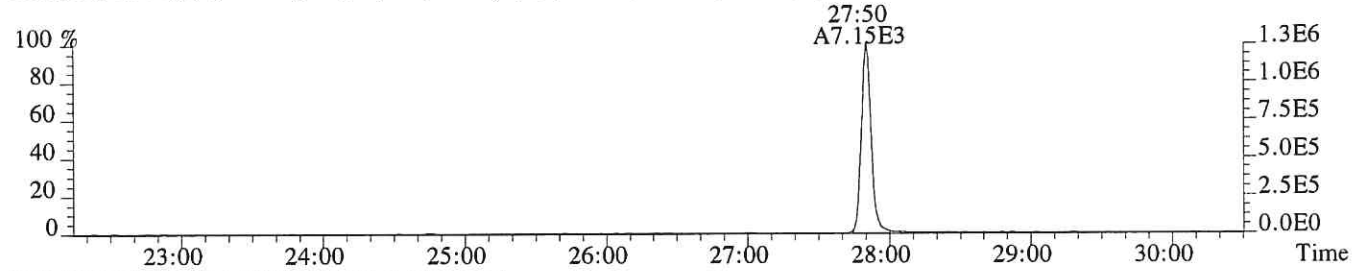
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



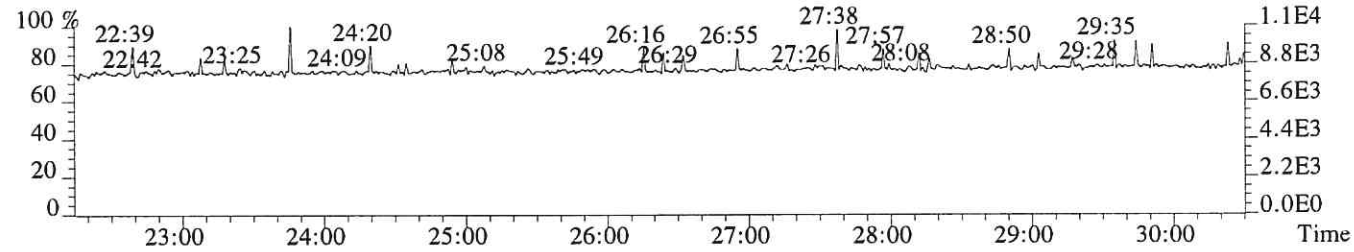
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3580.0,1.00%,F,T)



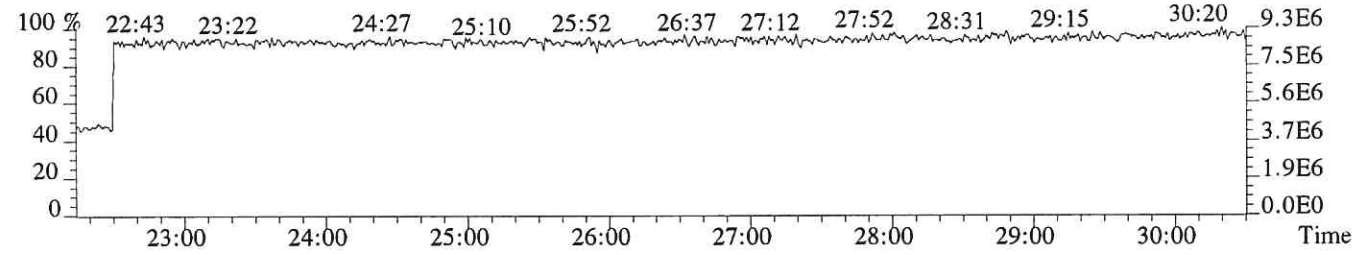
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



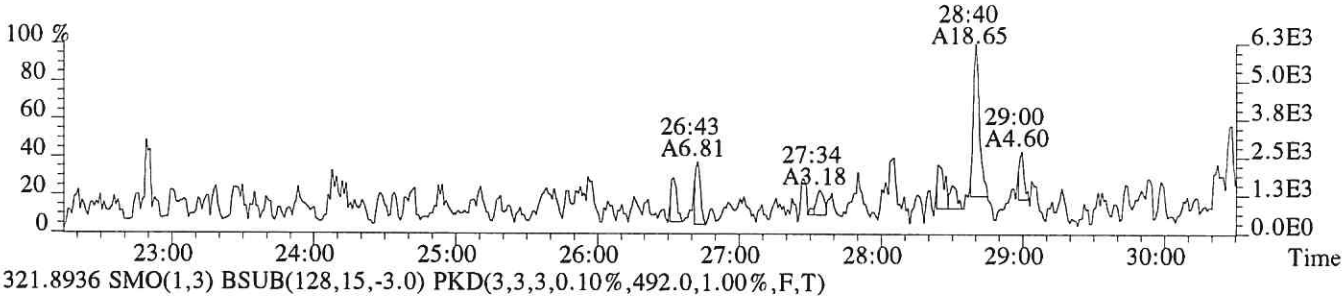
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



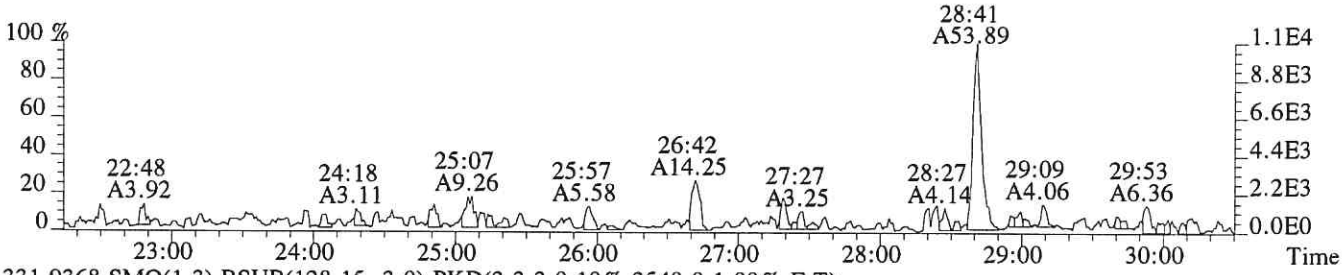
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



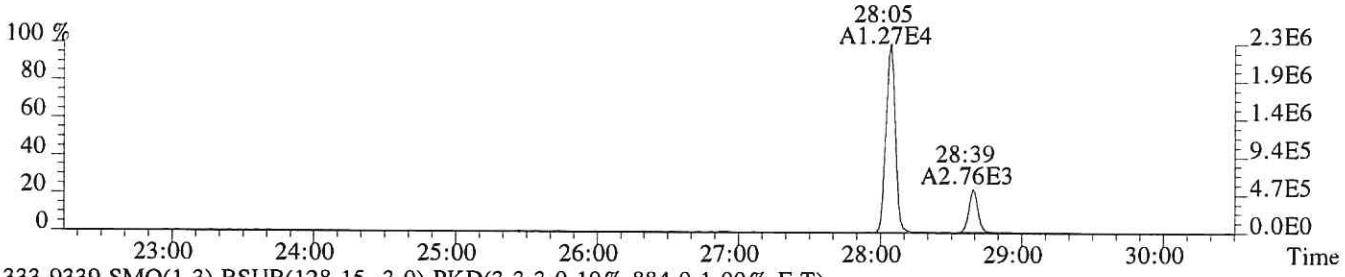
File:P519310 #1-587 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



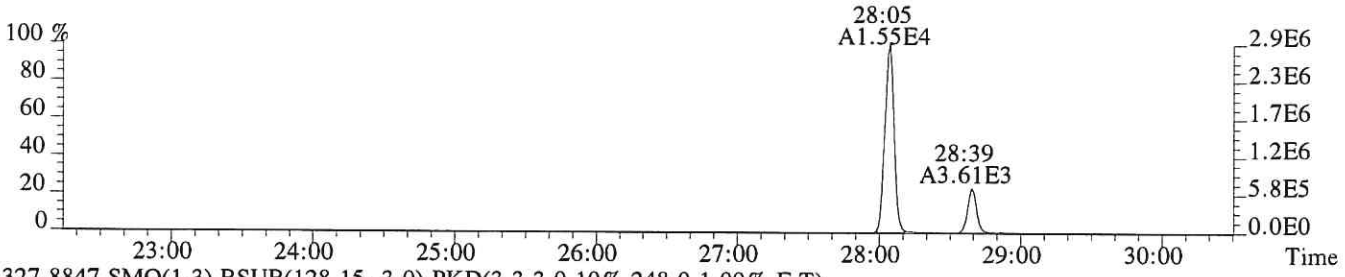
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



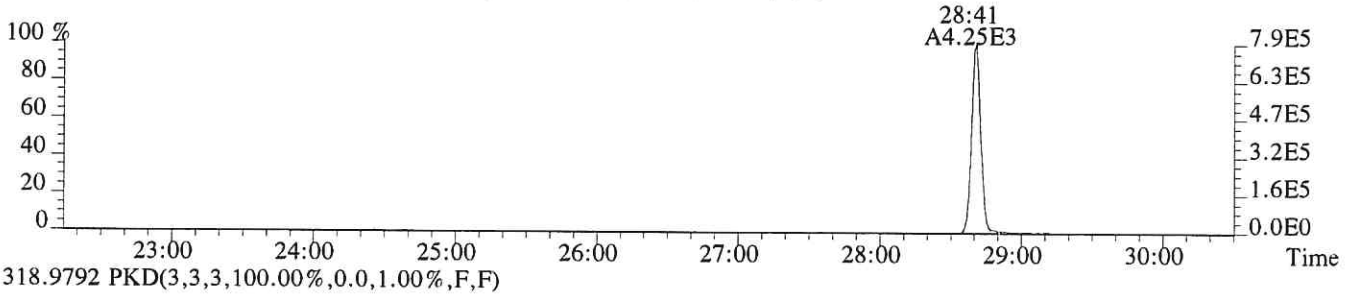
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3548.0,1.00%,F,T)



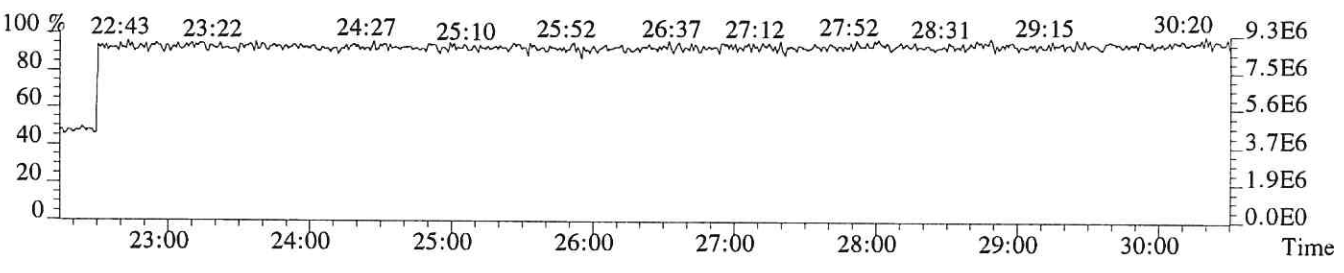
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



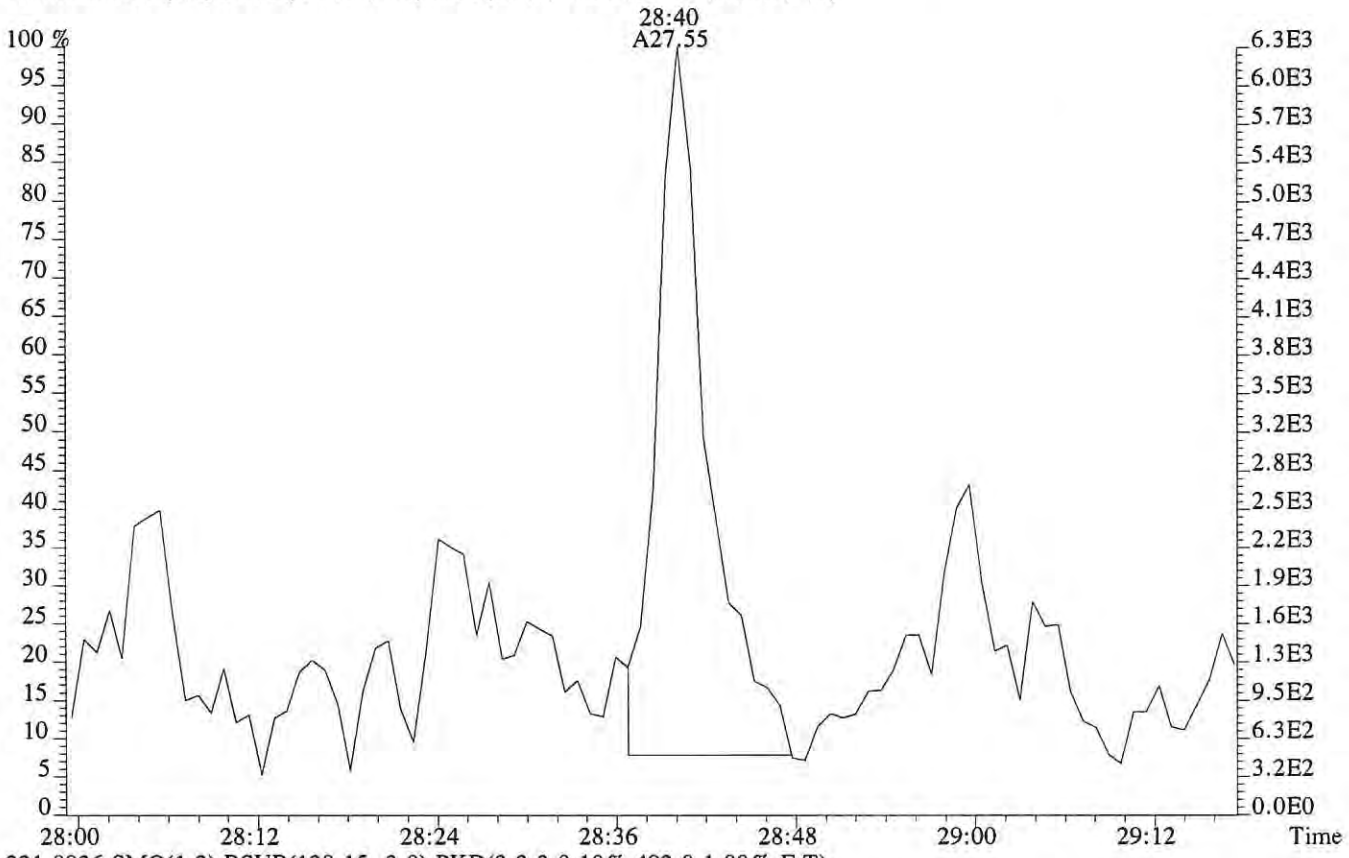
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



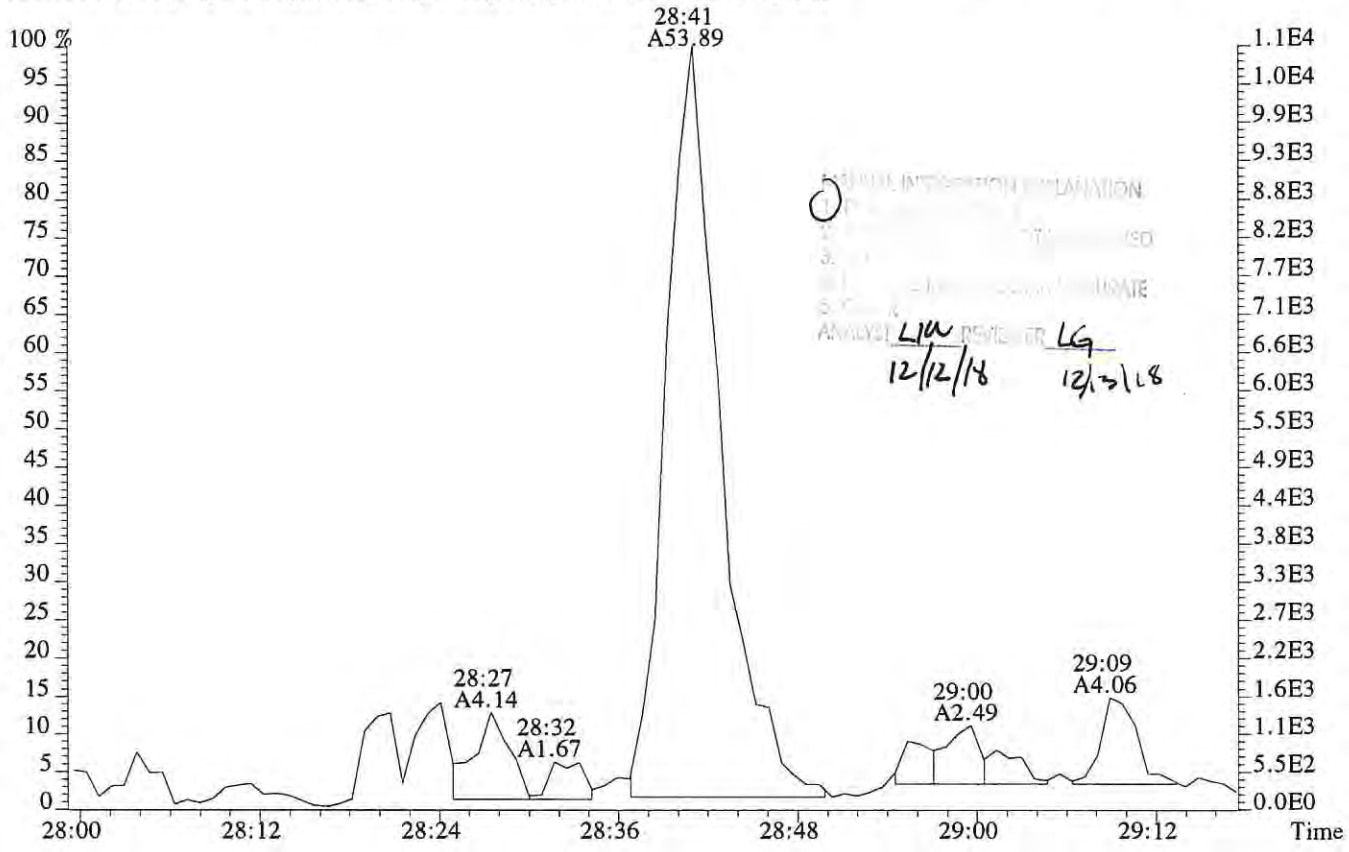
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519310 #1-587 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)

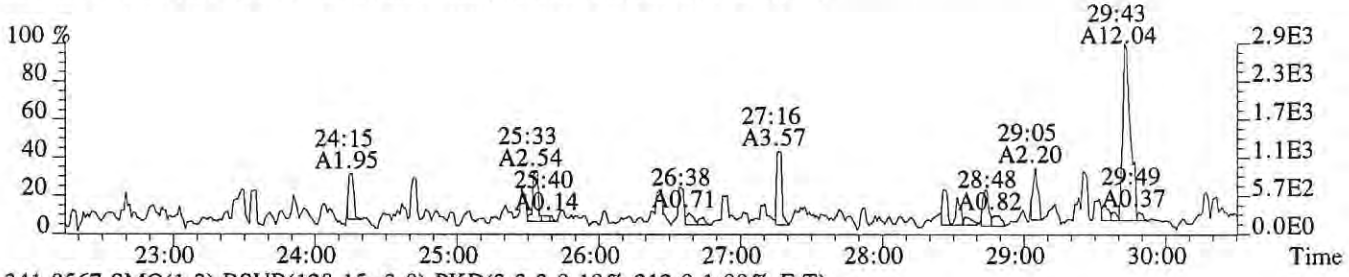


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)

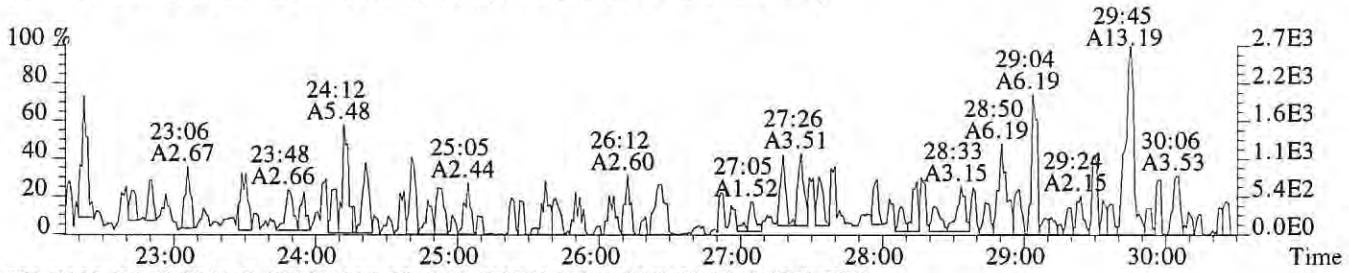


LW 12/12/18
LG 12/13/18

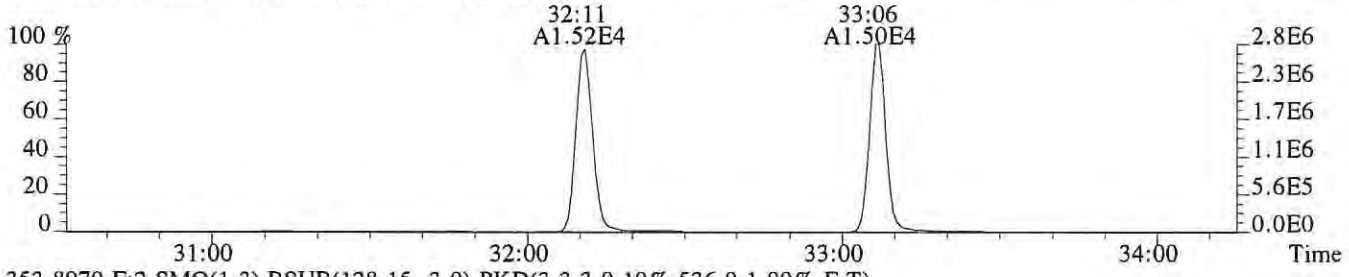
File:P519310 #1-587 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



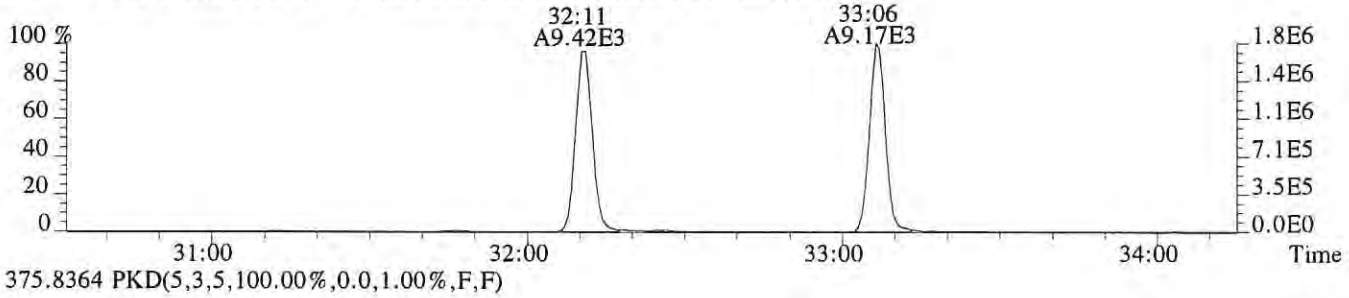
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



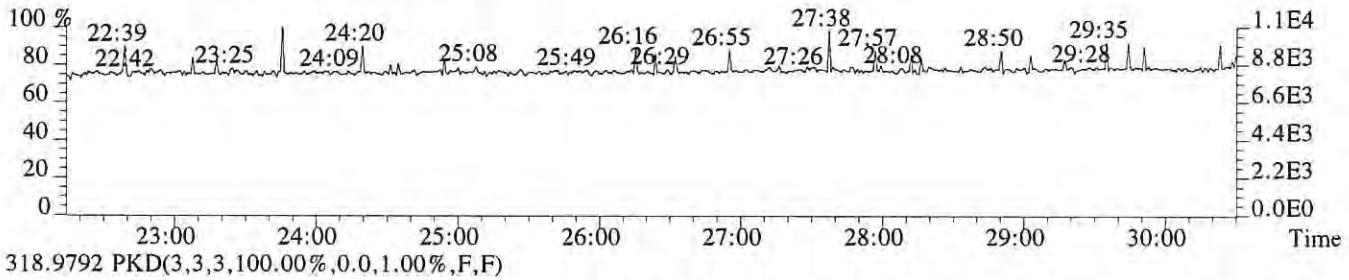
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



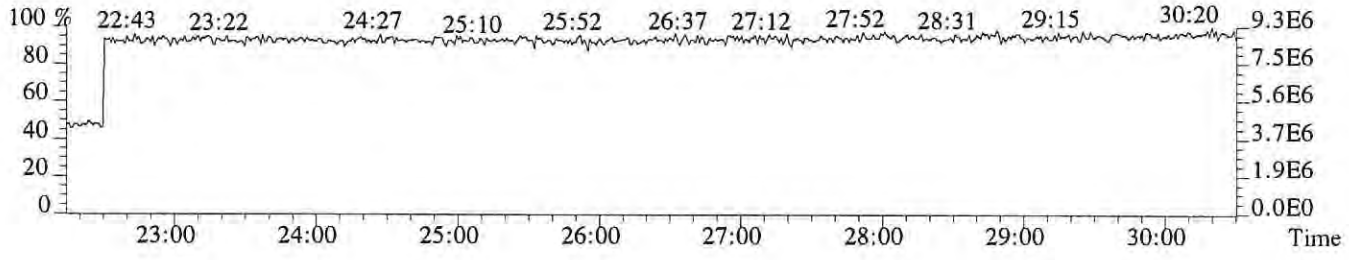
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

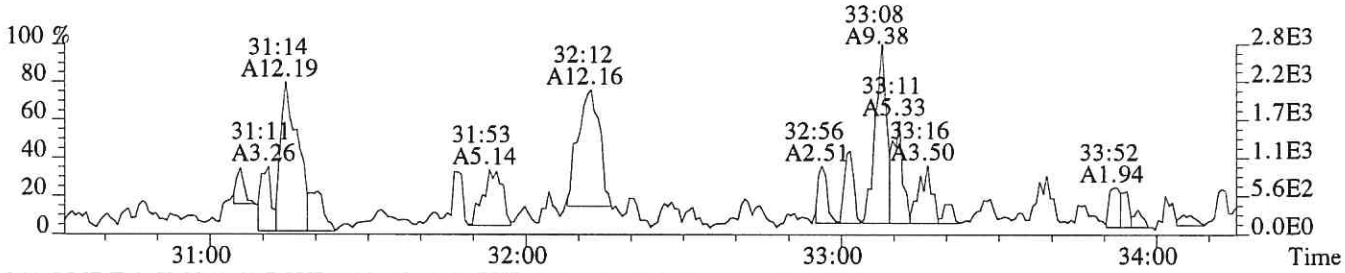


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

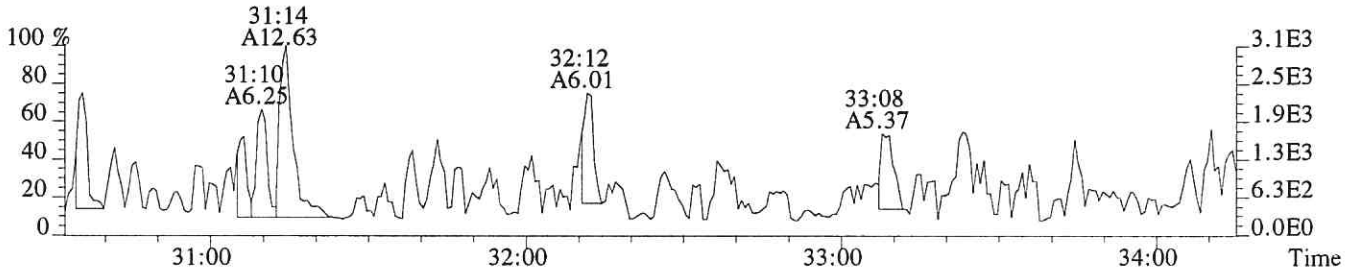


File:P519310 #1-335 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007

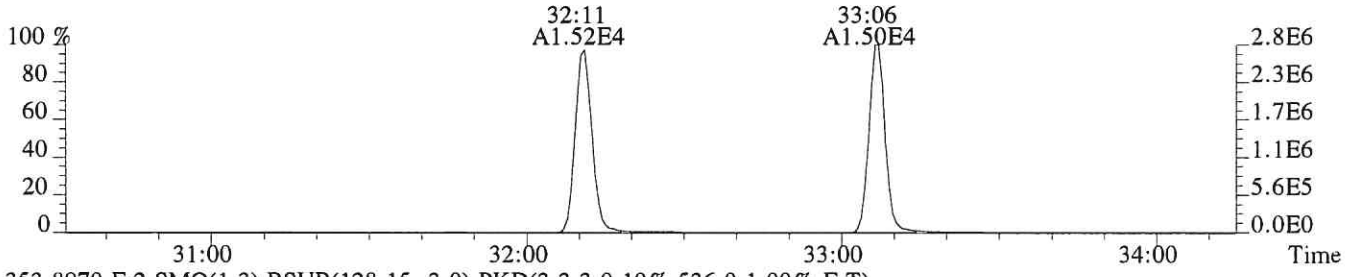
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



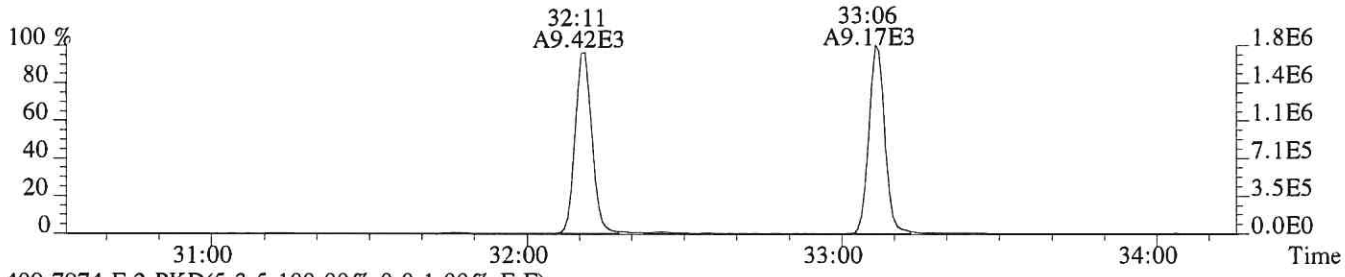
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



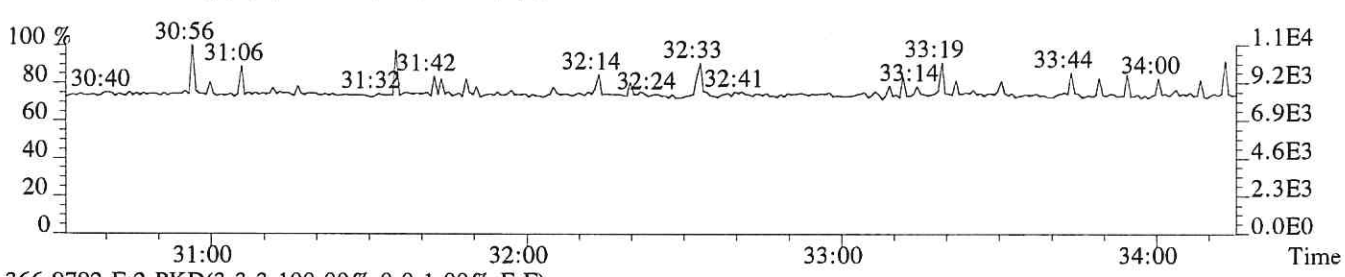
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



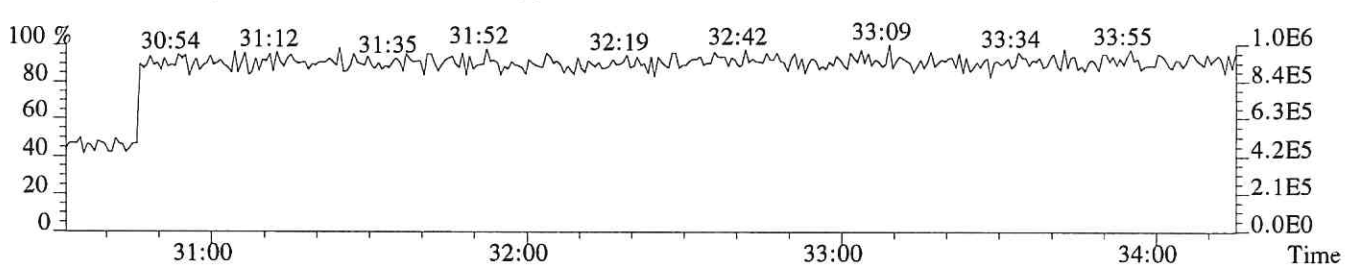
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



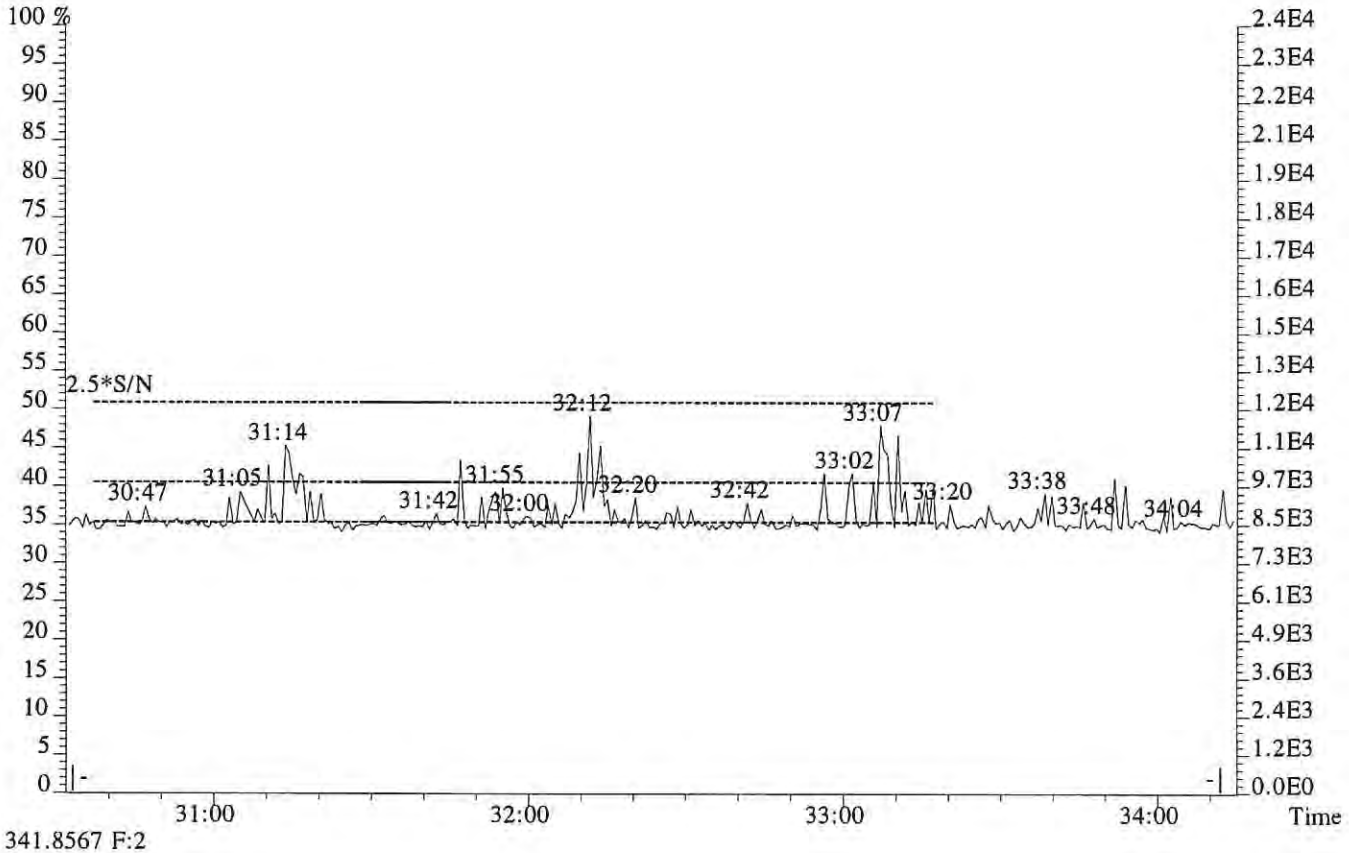
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



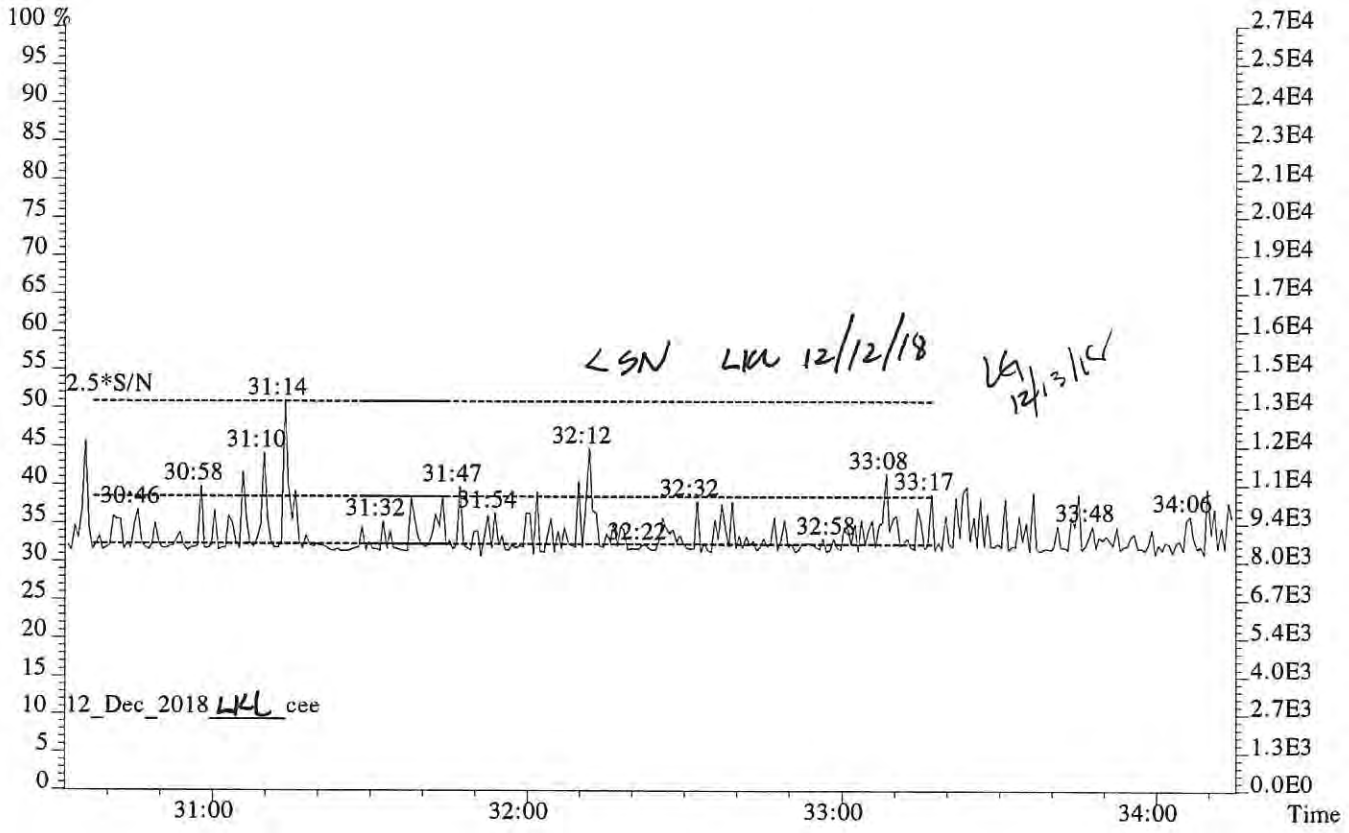
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519310 #1-335 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
339.8597 F:2

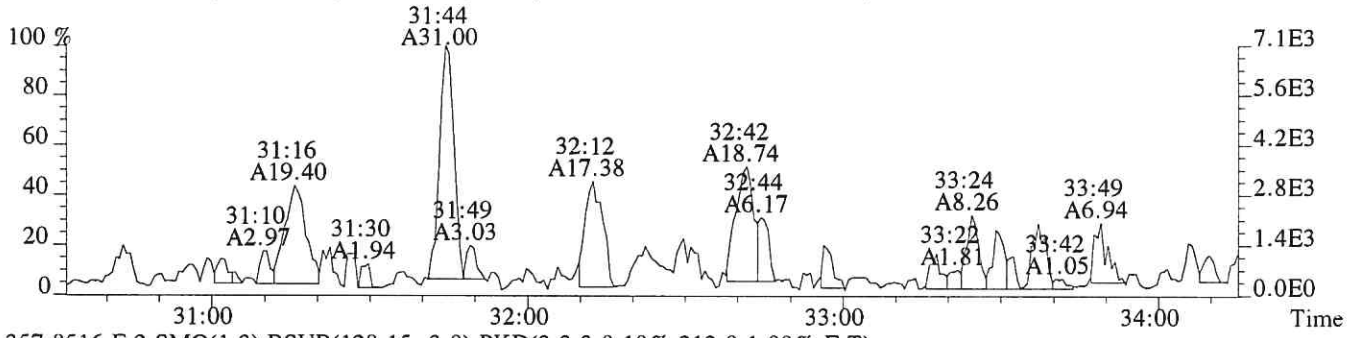


341.8567 F:2

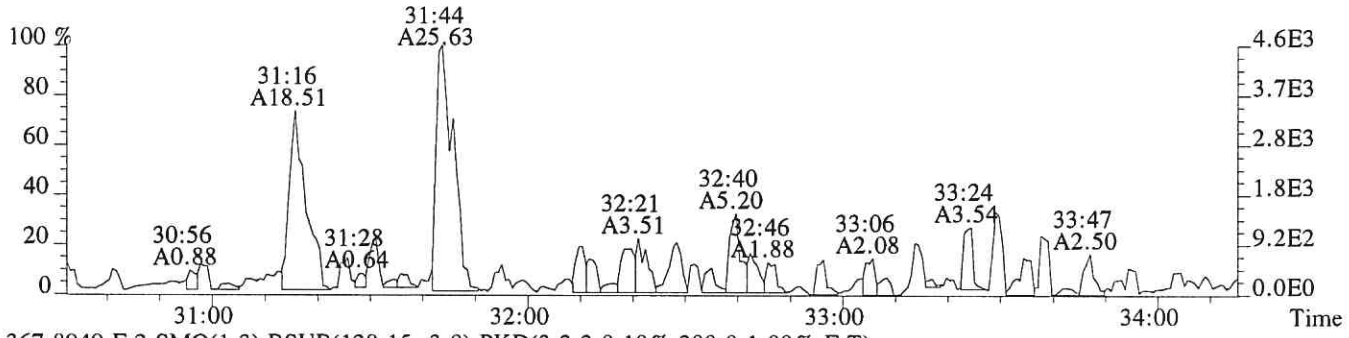


<S/N LKL 12/12/18 LKL 12/13/18

File:P519310 #1-335 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



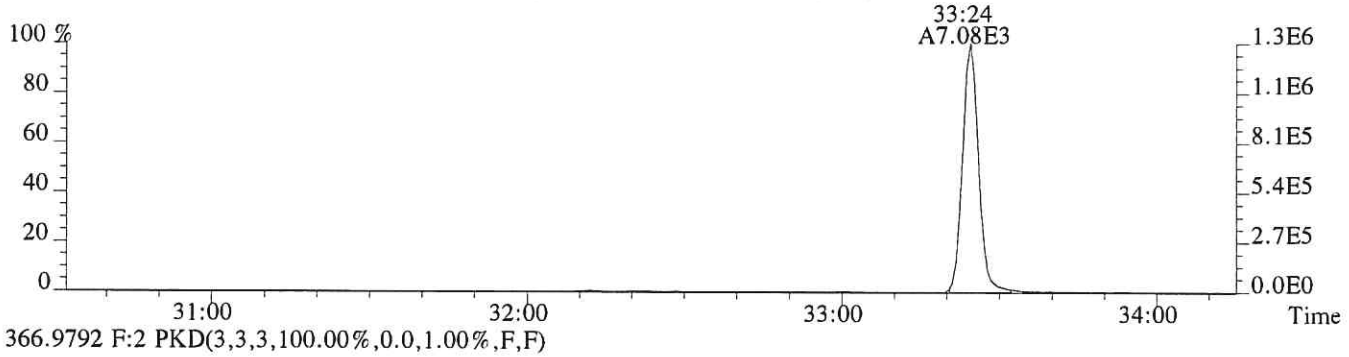
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



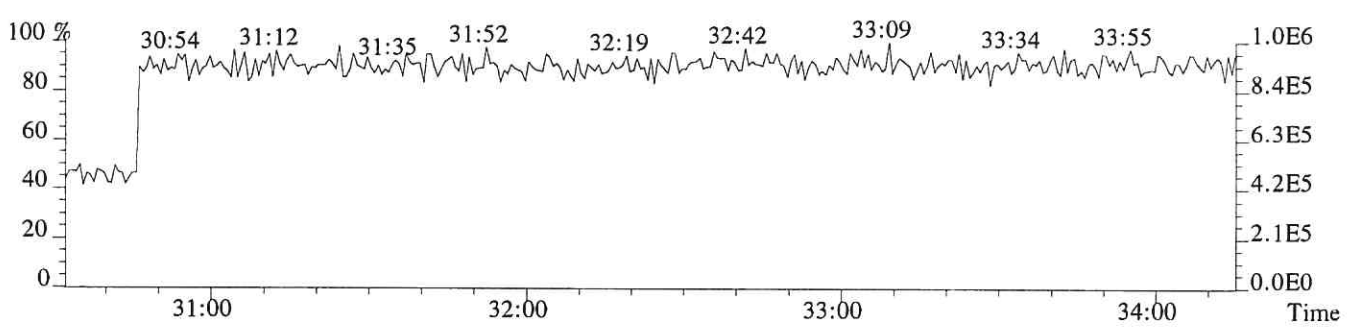
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)

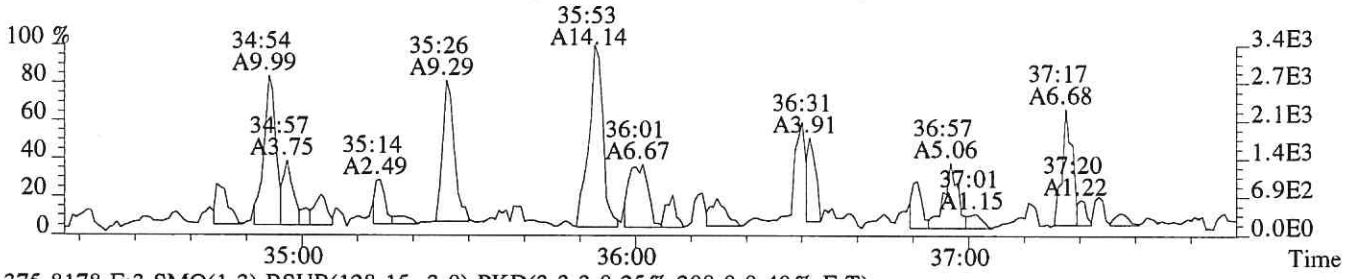


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

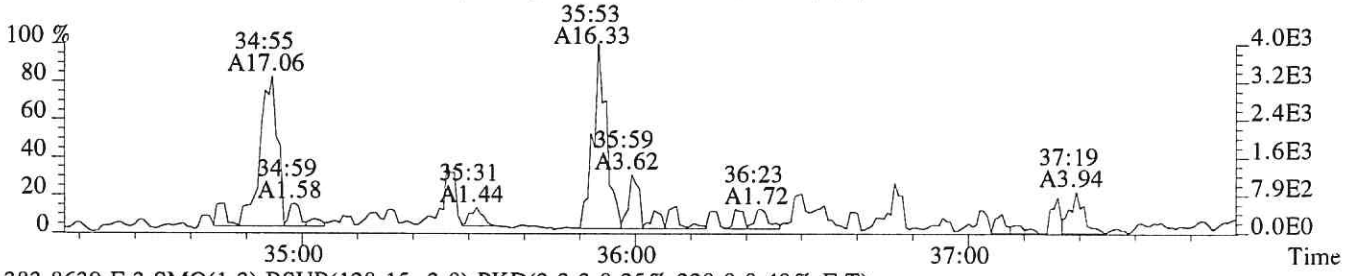


File:P519310 #1-317 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007

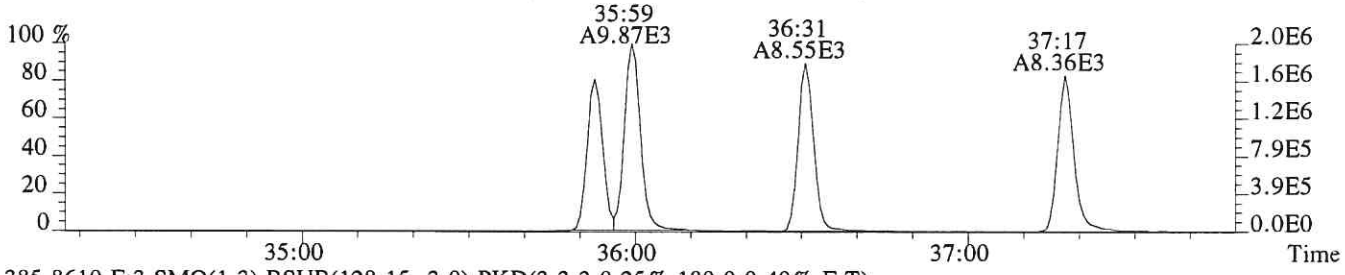
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



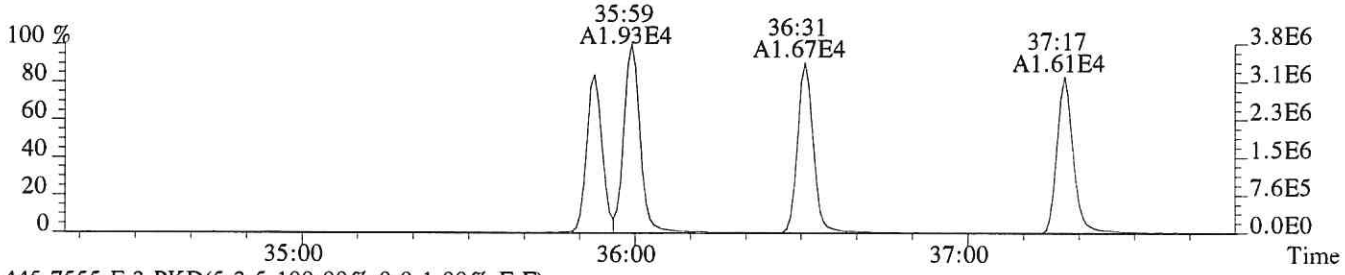
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



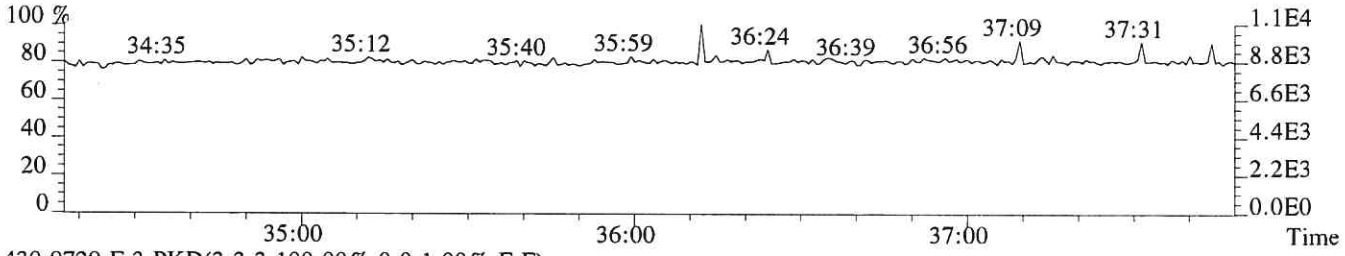
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



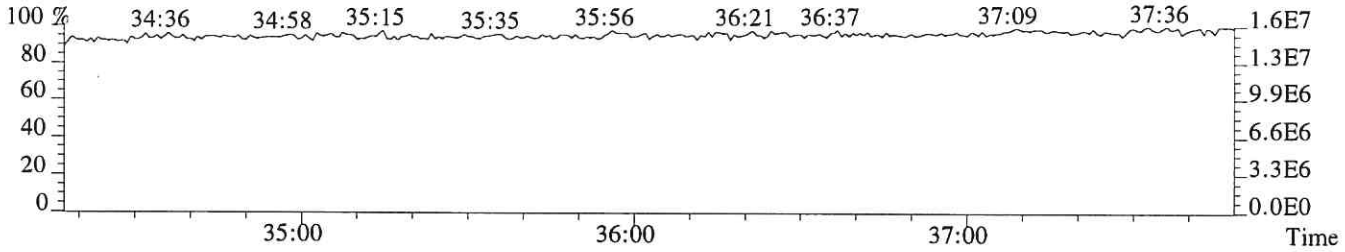
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



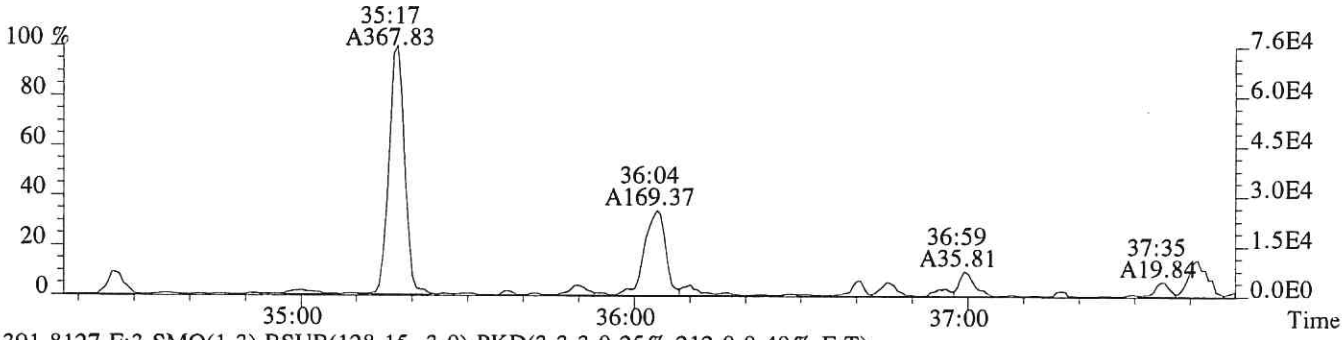
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



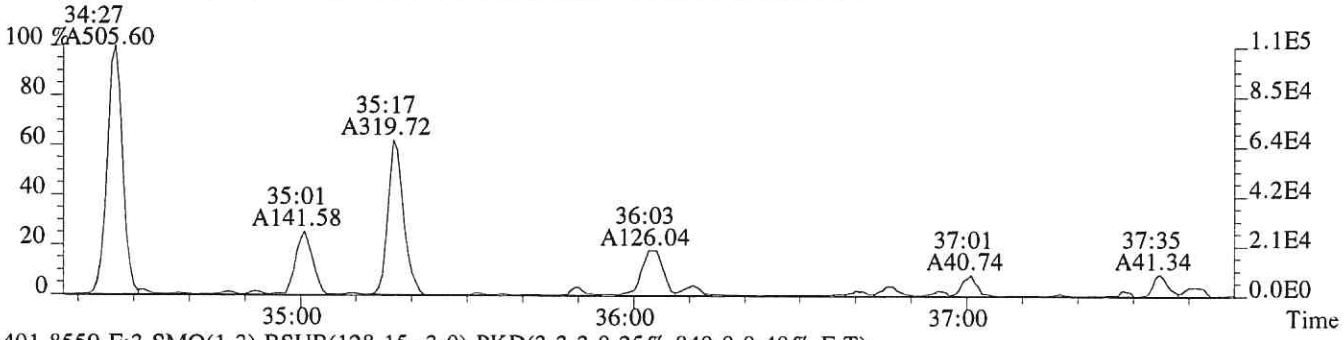
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



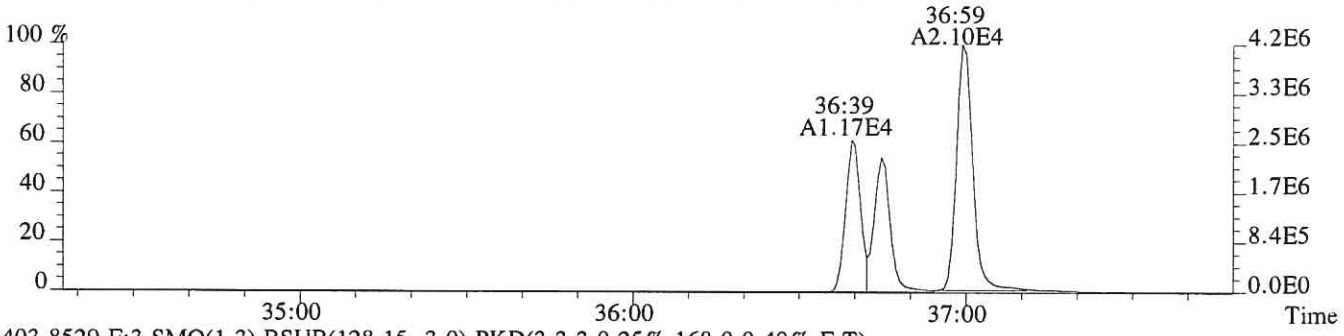
File:P519310 #1-317 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



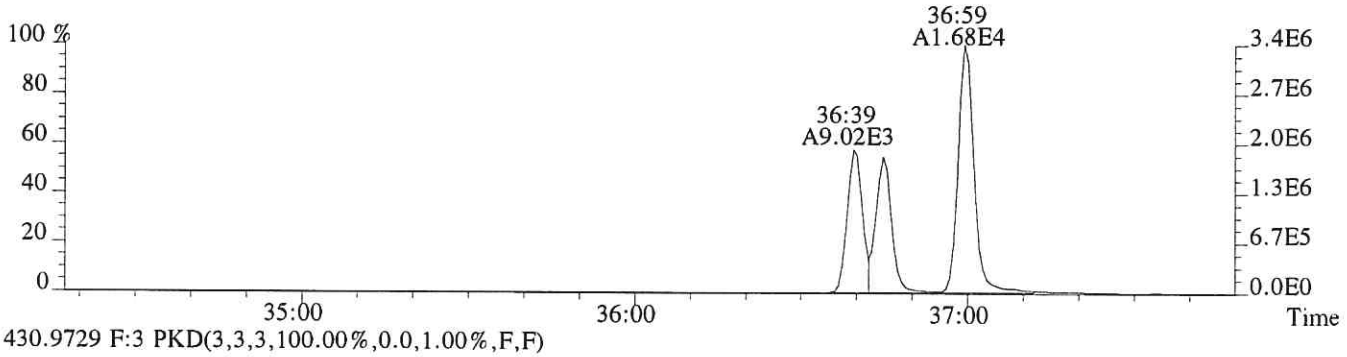
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



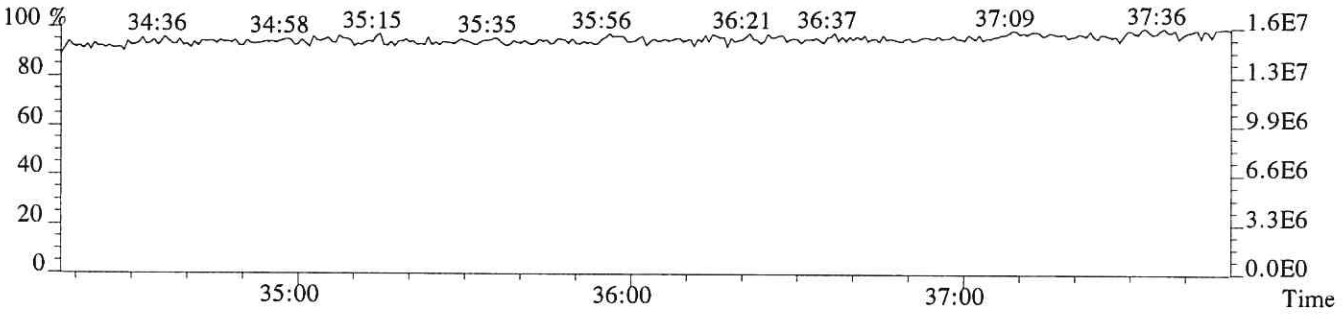
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



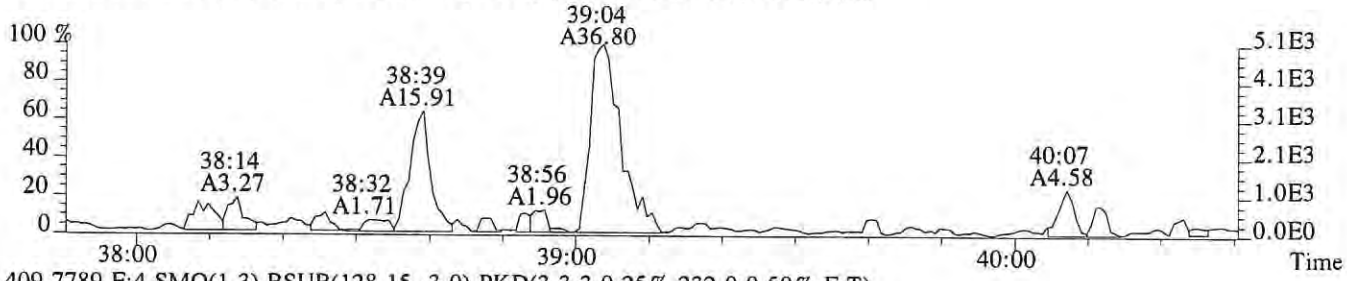
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



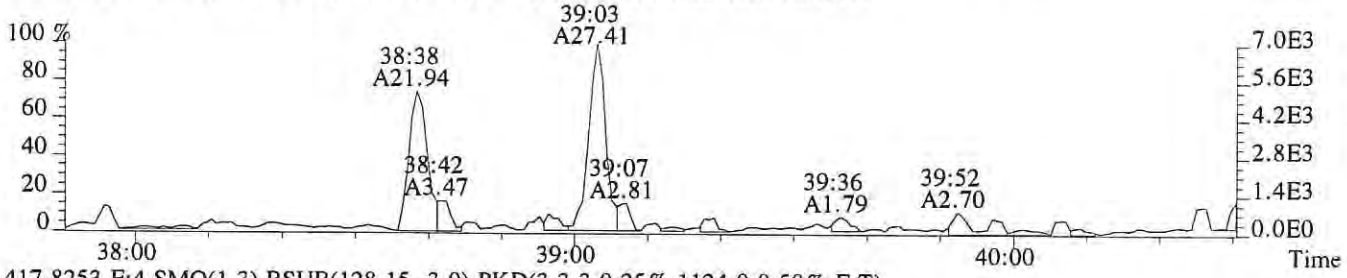
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



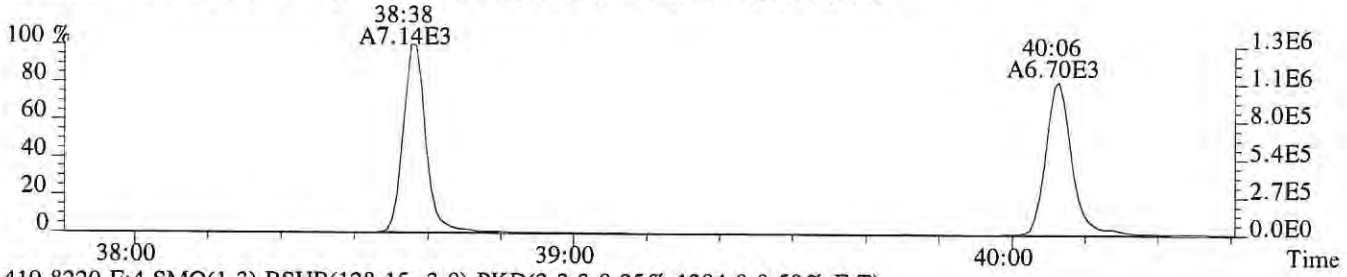
File:P519310 #1-241 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.50%,F,T)



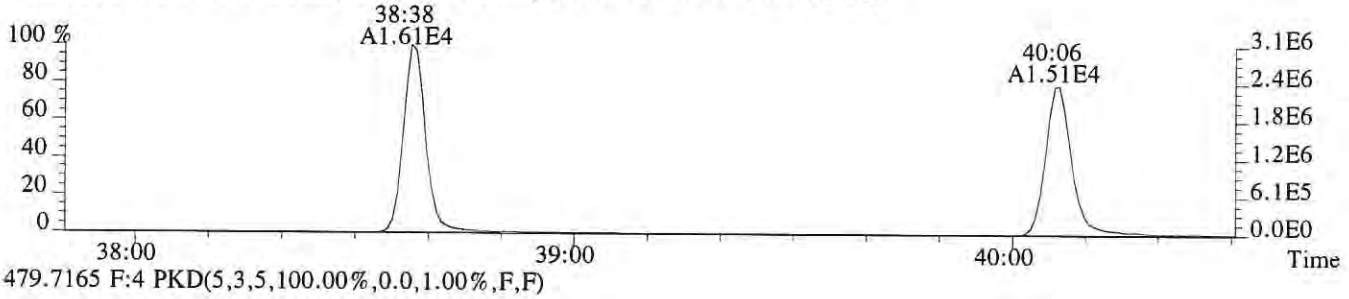
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



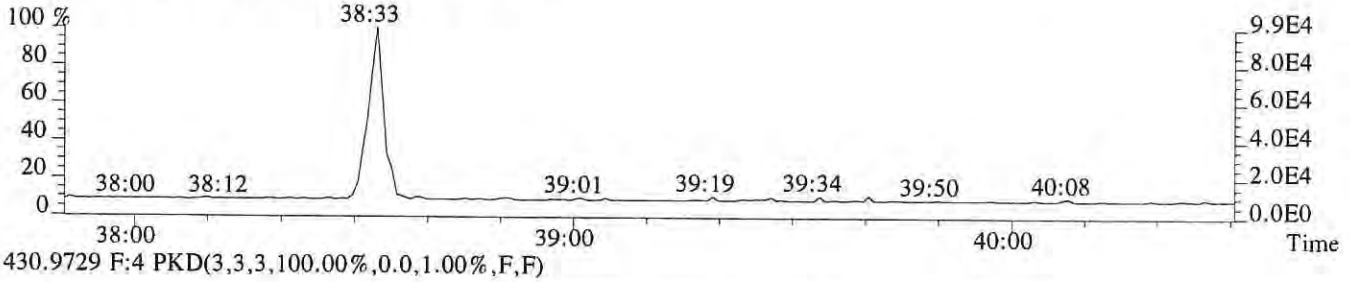
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.50%,F,T)



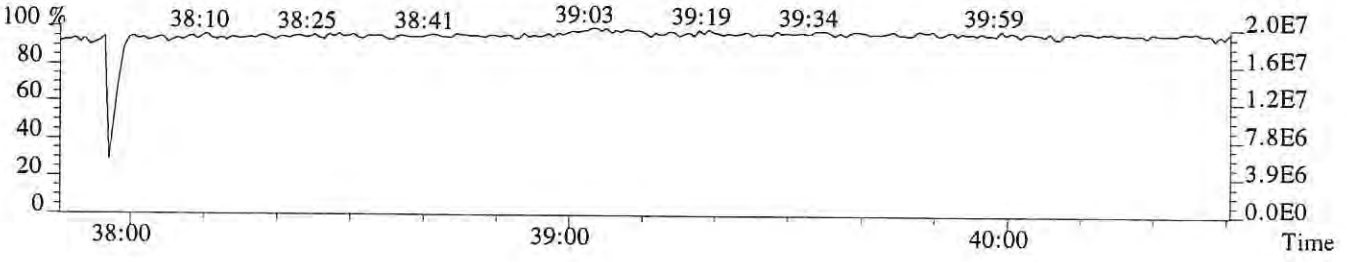
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.50%,F,T)



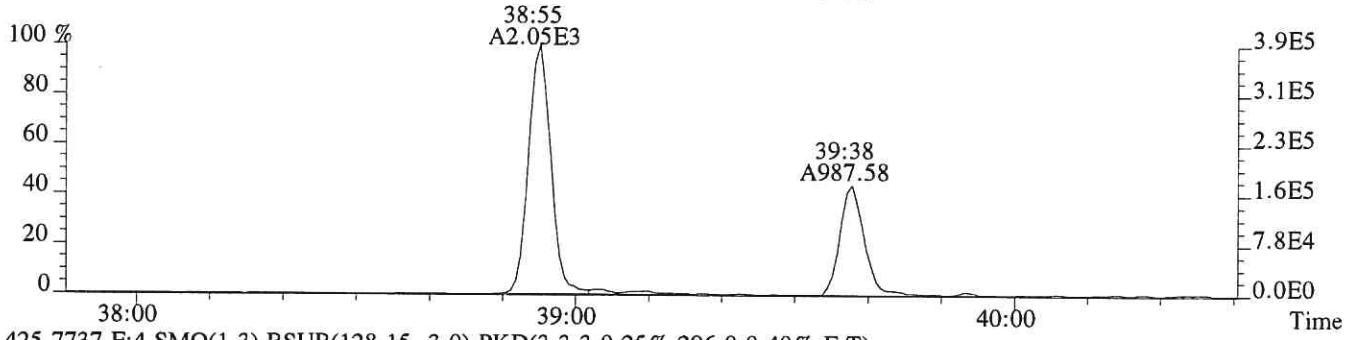
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



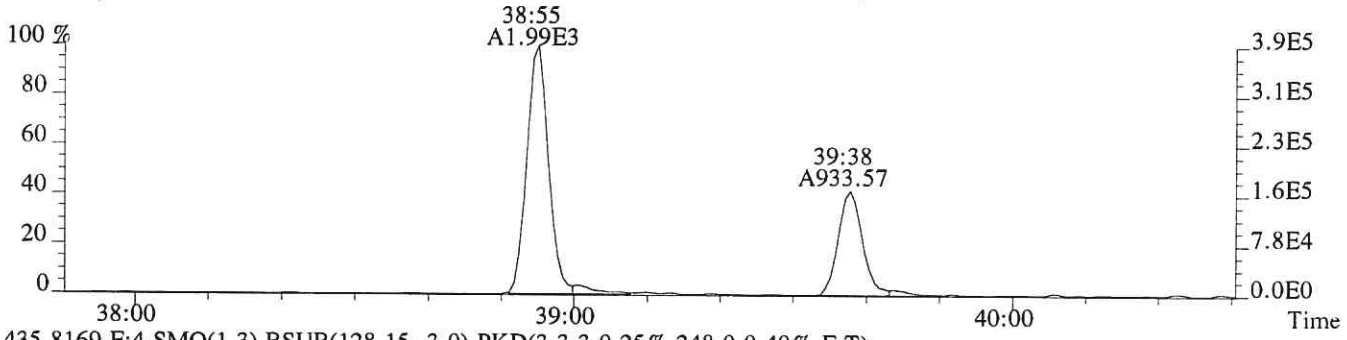
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



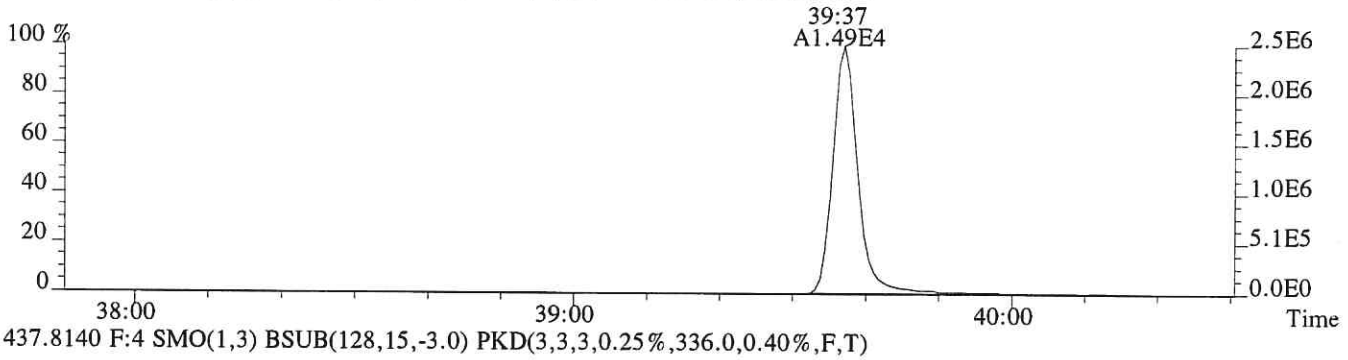
File:P519310 #1-241 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



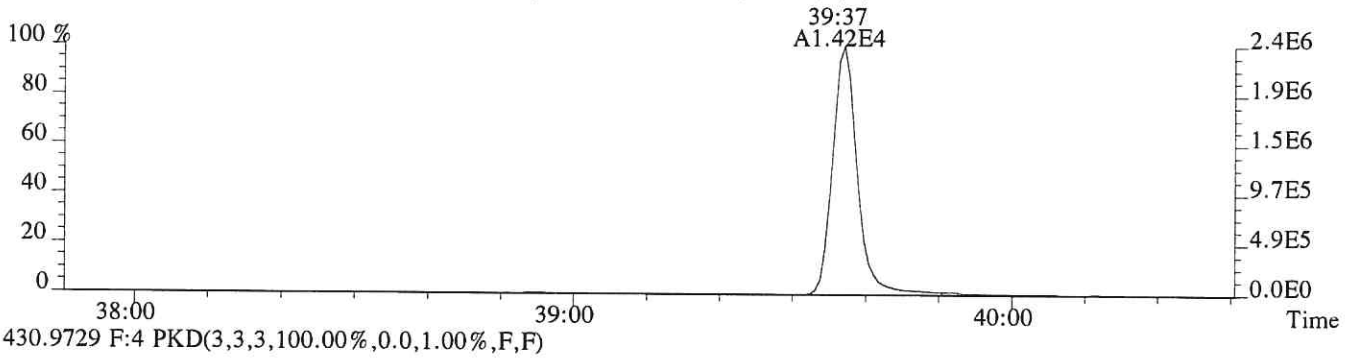
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



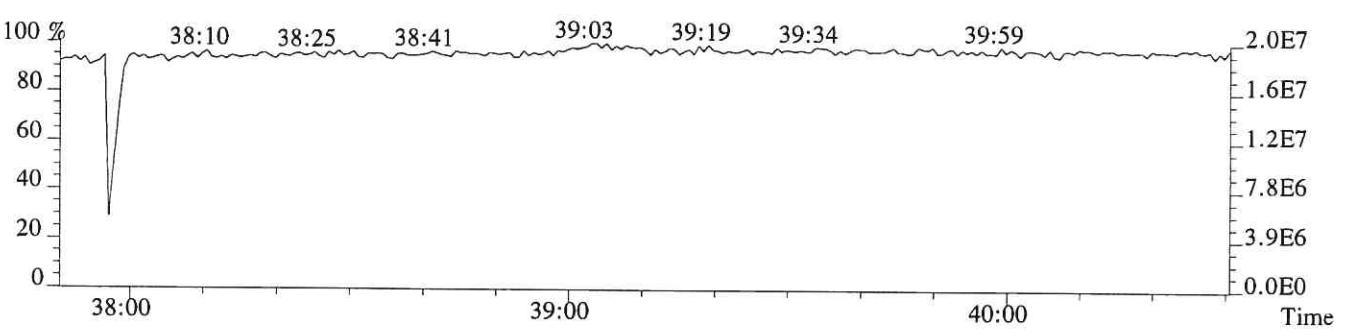
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



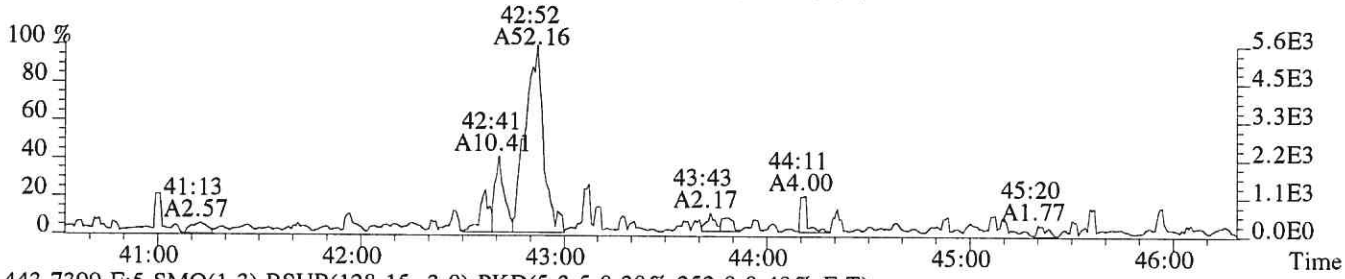
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



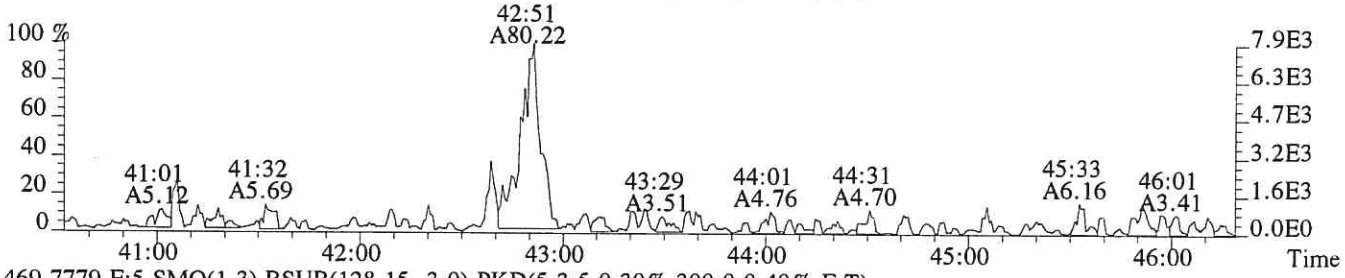
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



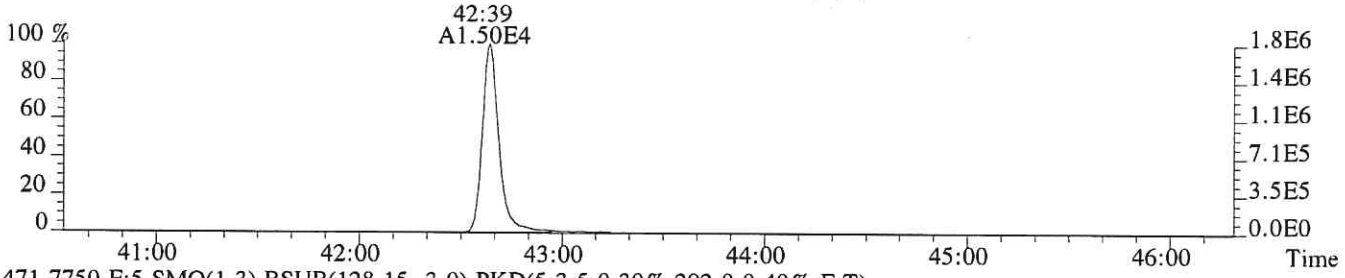
File:P519310 #1-520 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



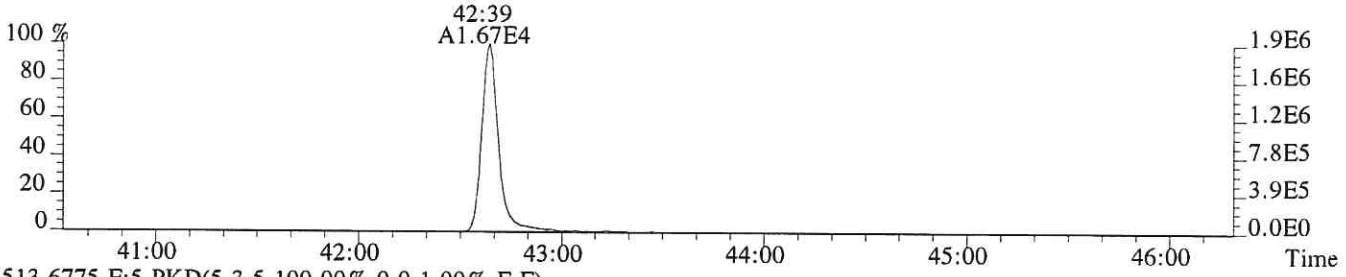
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



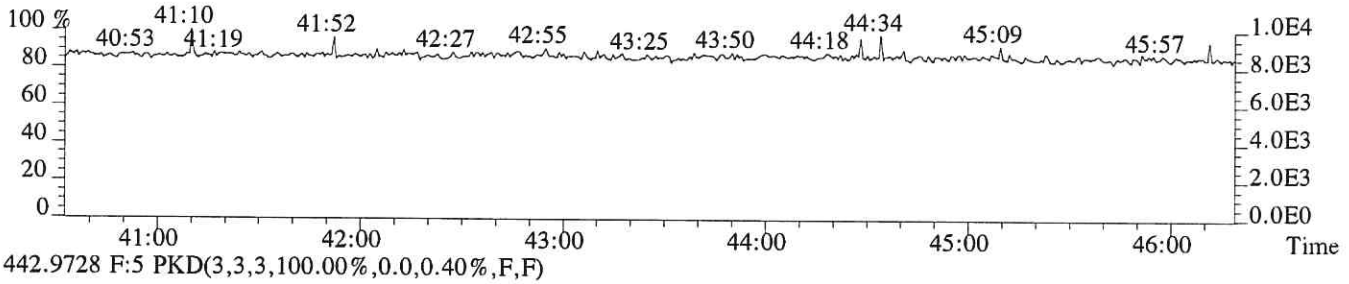
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



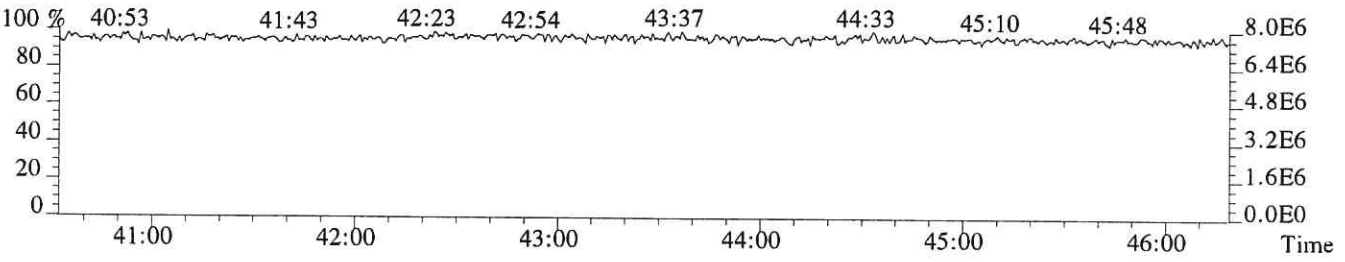
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



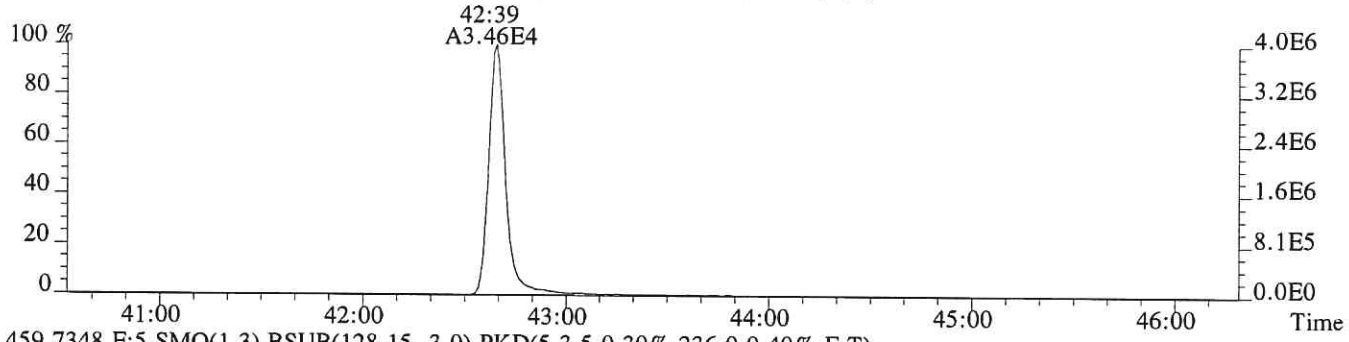
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



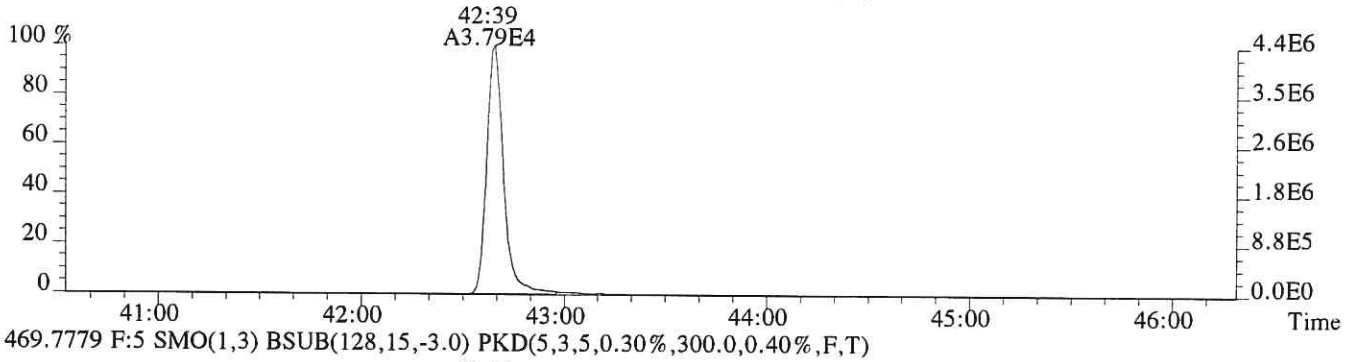
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



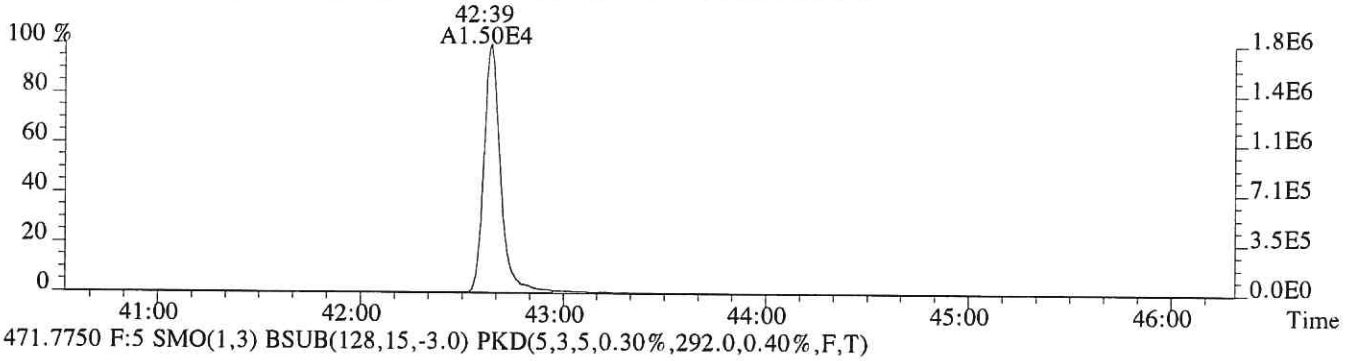
File:P519310 #1-520 Acq: 8-DEC-2018 14:00:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



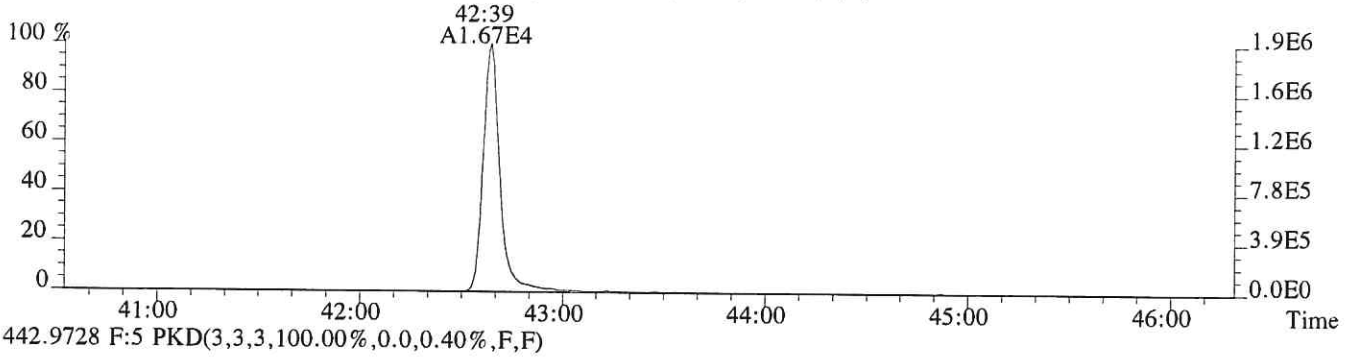
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



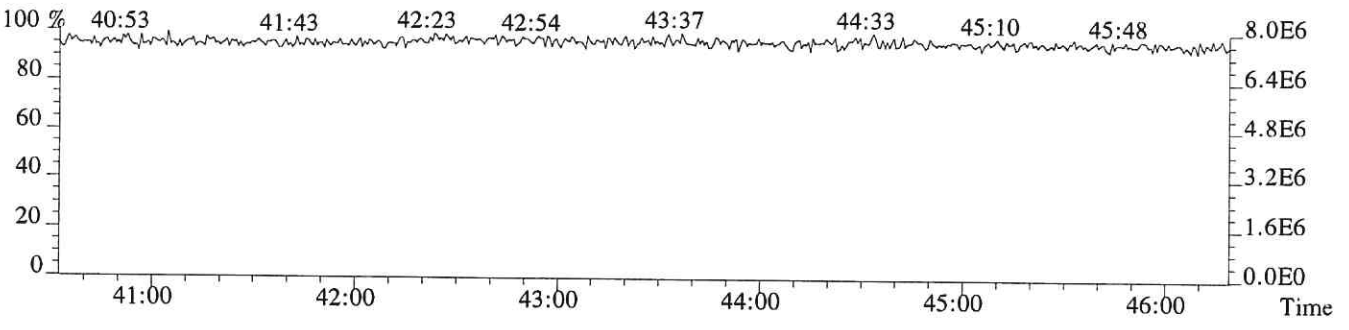
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0587

Run #15 Filename P519312 Samp: 1 Inj: 1 Acquired: 8-DEC-18 15:38:09
Processed: 11-DEC-18 16:42:25 Sample ID: E1801065-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.018e+02	3.828e+02	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	1.598e+01	1.110e+01	1.44	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	2.668e+01	1.075e+01	2.48	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.852e+01	1.949e+01	1.46	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	6.455e+00	1.245e+01	0.52	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	3.045e+01	3.581e+01	0.85	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:50	6.546e+01	9.382e+01	0.70	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:41	6.086e+01	6.694e+01	0.91	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	5.266e+00	4.889e+00	1.08	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:41	1.408e+01	2.263e+01	0.62	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	3.878e+01	2.943e+01	1.32	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:00	5.516e+01	4.103e+01	1.34	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:38	1.416e+03	1.418e+03	1.00	yes	no	1.025
17	Unk	OCDD	42:39	3.837e+04	4.312e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	1.256e+04	1.606e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.667e+04	1.679e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.591e+04	1.655e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.269e+04	2.442e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.737e+04	3.336e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	1.420e+04	2.752e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.431e+04	2.781e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.091e+04	2.434e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	9.990e+03	2.280e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	5.906e+03	7.507e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.872e+04	1.183e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.907e+04	1.485e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.866e+04	1.426e+04	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	2.320e+04	2.184e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:39	2.158e+04	2.359e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.831e+04	2.322e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.927e+04	2.244e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	8.934e+03				no	1.014

$$\text{OCDD} = \frac{(3.837e+04 + 4.312e+04) \times 4000 \text{ pg} \times 1}{(2.158e+04 + 2.359e+04) \times 10.035 \text{ g} \times 75.1 / 100 \times 1.118} = 856.4758 \text{ ng/kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0587

Run #15 Filename P519312 Samp: 1 Inj: 1 Acquired: 8-DEC-18 15:38:09
Processed: 11-DEC-18 16:42:25 LAB. ID: E1801065-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.14e+04	2.40e+02	2.1e+02	6.13e+04	5.88e+02	1.0e+02
2	1,2,3,7,8-PeCDF	4.34e+03	4.96e+02	8.7e+00	2.14e+03	5.28e+02	4.0e+00
3	2,3,4,7,8-PeCDF	4.95e+03	4.96e+02	1.0e+01	1.76e+03	5.28e+02	3.3e+00
4	1,2,3,4,7,8-HxCDF	5.23e+03	2.64e+02	2.0e+01	4.45e+03	2.44e+02	1.8e+01
5	1,2,3,6,7,8-HxCDF	1.58e+03	2.64e+02	6.0e+00	2.96e+03	2.44e+02	1.2e+01
6	2,3,4,6,7,8-HxCDF	*	2.64e+02	*	*	2.44e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.64e+02	*	*	2.44e+02	*
8	1,2,3,4,6,7,8-HpCDF	7.27e+03	2.40e+02	3.0e+01	5.43e+03	1.92e+02	2.8e+01
9	1,2,3,4,7,8,9-HpCDF	*	2.40e+02	*	*	1.92e+02	*
10	OCDF	1.01e+04	2.40e+02	4.2e+01	1.11e+04	2.72e+02	4.1e+01
11	2,3,7,8-TCDD	1.19e+04	1.02e+03	1.2e+01	1.14e+04	6.28e+02	1.8e+01
12	1,2,3,7,8-PeCDD	1.43e+03	3.76e+02	3.8e+00	1.21e+03	2.40e+02	5.0e+00
13	1,2,3,4,7,8-HxCDD	3.95e+03	3.40e+02	1.2e+01	5.44e+03	5.88e+02	9.2e+00
14	1,2,3,6,7,8-HxCDD	7.15e+03	3.40e+02	2.1e+01	5.18e+03	5.88e+02	8.8e+00
15	1,2,3,7,8,9-HxCDD	1.11e+04	3.40e+02	3.3e+01	8.60e+03	5.88e+02	1.5e+01
16	1,2,3,4,6,7,8-HpCDD	2.41e+05	2.60e+02	9.3e+02	2.34e+05	2.60e+02	9.0e+02
17	OCDD	4.40e+06	1.84e+02	2.4e+04	4.87e+06	3.08e+02	1.6e+04
18	13C-2,3,7,8-TCDF	2.18e+06	3.00e+03	7.3e+02	2.81e+06	1.42e+03	2.0e+03
19	13C-1,2,3,7,8-PeCDF	5.06e+06	4.60e+02	1.1e+04	3.18e+06	2.04e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	4.94e+06	4.60e+02	1.1e+04	3.18e+06	2.04e+02	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	2.63e+06	2.20e+02	1.2e+04	5.08e+06	2.16e+02	2.4e+04
22	13C-1,2,3,6,7,8-HxCDF	3.40e+06	2.20e+02	1.5e+04	6.59e+06	2.16e+02	3.1e+04
23	13C-2,3,4,6,7,8-HxCDF	2.81e+06	2.20e+02	1.3e+04	5.58e+06	2.16e+02	2.6e+04
24	13C-1,2,3,7,8,9-HxCDF	2.67e+06	2.20e+02	1.2e+04	5.02e+06	2.16e+02	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.11e+06	9.44e+02	2.2e+03	4.70e+06	2.52e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.61e+06	9.44e+02	1.7e+03	3.62e+06	2.52e+03	1.4e+03
27	13C-2,3,7,8-TCDD	1.11e+06	3.08e+03	3.6e+02	1.42e+06	1.03e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	3.66e+06	2.16e+02	1.7e+04	2.30e+06	2.40e+02	9.6e+03
29	13C-1,2,3,4,7,8-HxCDD	4.07e+06	7.76e+02	5.2e+03	3.15e+06	4.68e+02	6.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.76e+06	7.76e+02	4.8e+03	2.83e+06	4.68e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.73e+06	2.40e+02	1.6e+04	3.53e+06	2.36e+02	1.5e+04
32	13C-OCDD	2.43e+06	2.56e+02	9.5e+03	2.66e+06	2.40e+02	1.1e+04
33	13C-1,2,3,4-TCDD	3.44e+06	3.08e+03	1.1e+03	4.47e+06	1.03e+03	4.4e+03
34	13C-1,2,3,7,8,9-HxCDD	5.49e+06	7.76e+02	7.1e+03	4.30e+06	4.68e+02	9.2e+03
35	37Cl-2,3,7,8-TCDD	1.70e+06	4.04e+02	4.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.016e+03 + 6.280e+02) \times 2000}{(1.110e+06 + 1.420e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0587

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519312 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 15:38:09 Processed: 11-DEC-18 16:42:25

Mass: 303.9020 305.8990 Tot Response: 8.61e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:51	3.02e+02	3.83e+02 0.79	yes	6.85e+02	2,3,7,8-TCDF	n	n
2	28:12	3.37e+01	4.89e+01 0.69	yes	8.26e+01		n	n
3	29:43	4.09e+01	5.32e+01 0.77	yes	9.40e+01		n	n

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Peak List Summary

CLIENT ID.
SL0587

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519312 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 15:38:09 Processed: 11-DEC-18 16:42:25

Mass: 319.8970 321.8940 Tot Response: 3.10e+01 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:02	1.26e+01	1.84e+01 0.69	yes	3.10e+01		n	n

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Peak List Summary

CLIENT ID.
SL0587

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P519312 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 15:38:09 Processed: 11-DEC-18 16:42:25

Mass: 339.8600 341.8570 Tot Response: 2.71e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:11	1.60e+01	1.11e+01	1.44	yes	2.71e+01 1,2,3,7,8-PeCDF	n	y

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Peak List Summary

CLIENT ID.
SL0587

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519312 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 15:38:09 Processed: 11-DEC-18 16:42:25

Mass: 355.8550 357.8520 Tot Response: 9.71e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:44	5.74e+01	3.97e+01 1.45	yes	9.71e+01		n	n

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Peak List Summary

CLIENT ID.
SL0587

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519312 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 15:38:09 Processed: 11-DEC-18 16:42:25

Mass: 373.8210 375.8180 Tot Response: 3.01e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:53	1.66e+01	1.34e+01 1.24	yes	3.01e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0587

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519312 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 15:38:09 Processed: 11-DEC-18 16:42:25

Mass: 389.8160 391.8130 Tot Response: 2.04e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	7.06e+02	5.49e+02 1.29	yes	1.26e+03		n	n
2	35:23	1.12e+01	1.01e+01 1.11	yes	2.12e+01		n	n
3	35:49	1.90e+01	1.53e+01 1.25	yes	3.43e+01		n	n
4	36:03	3.16e+02	2.52e+02 1.26	yes	5.68e+02		n	n
5	36:45	3.88e+01	2.94e+01 1.32	yes	6.82e+01	1,2,3,6,7,8-HxCDD	n	n
6	37:00	5.52e+01	4.10e+01 1.34	yes	9.62e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0587

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519312 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 15:38:09 Processed: 11-DEC-18 16:42:25

Mass: 407.7820 409.7790 Tot Response: 1.12e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:04	5.90e+01	5.32e+01 1.11	yes	1.12e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0587

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519312 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 15:38:09 Processed: 11-DEC-18 16:42:25

Mass: 423.7770 425.7740 Tot Response: 9.39e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:55	3.33e+03	3.22e+03	1.03	yes	6.55e+03		n	n
2	39:38	1.42e+03	1.42e+03	1.00	yes	2.83e+03	1,2,3,4,6,7,8-HpCDD	n	n

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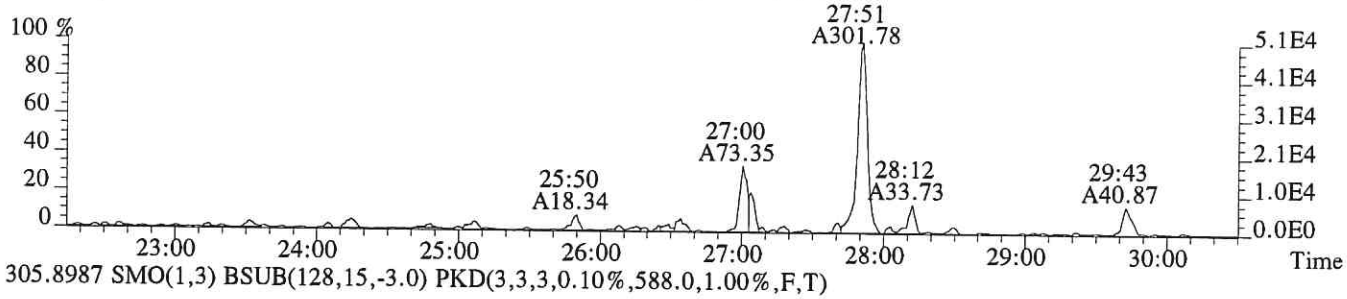
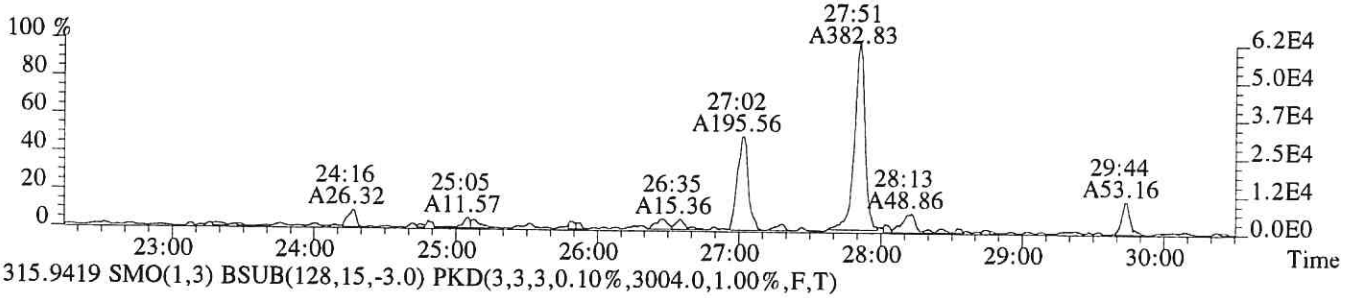
File:P519312 #1-587 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008

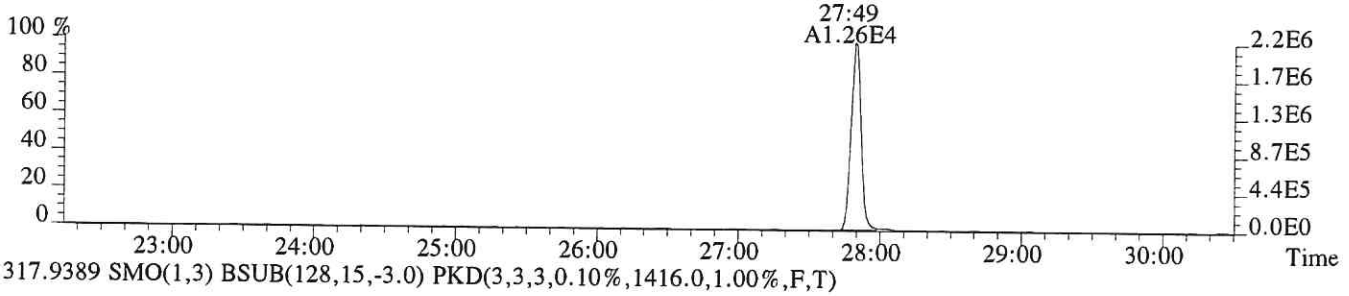
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



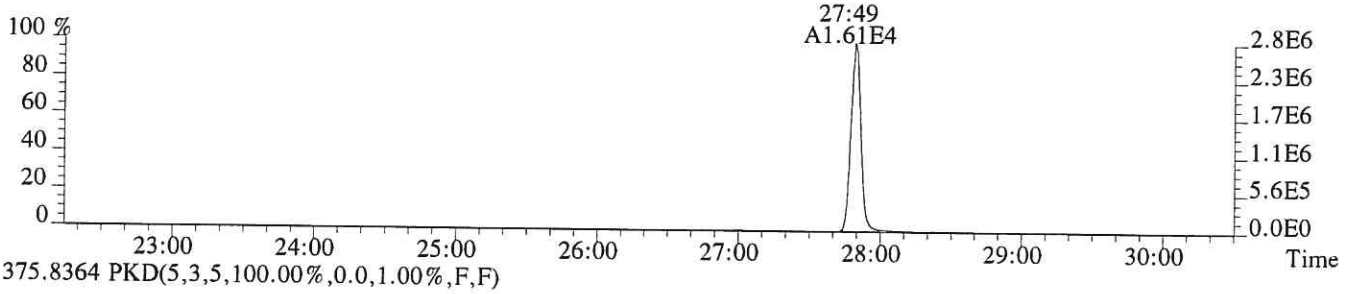
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



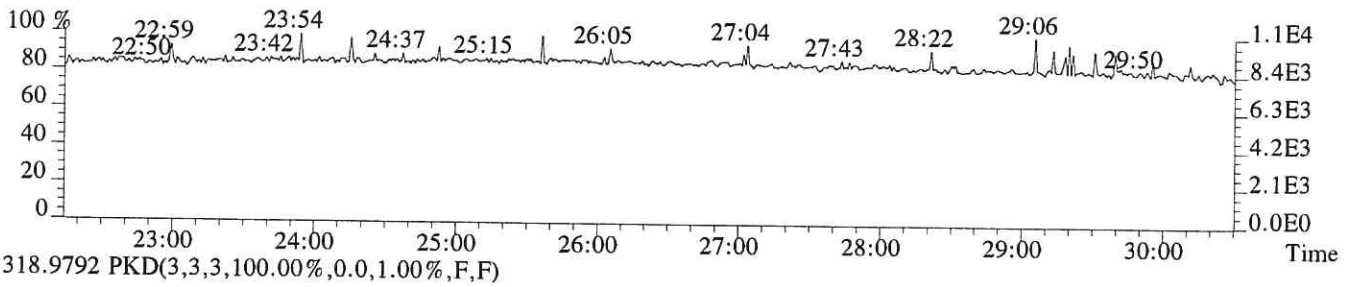
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3004.0,1.00%,F,T)



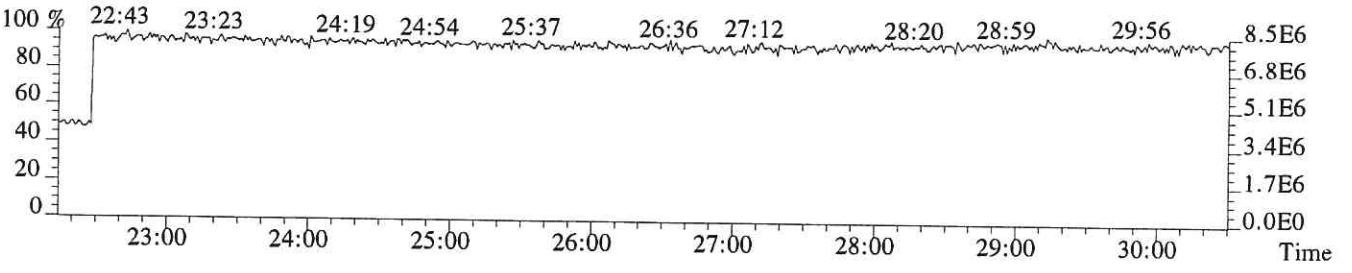
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



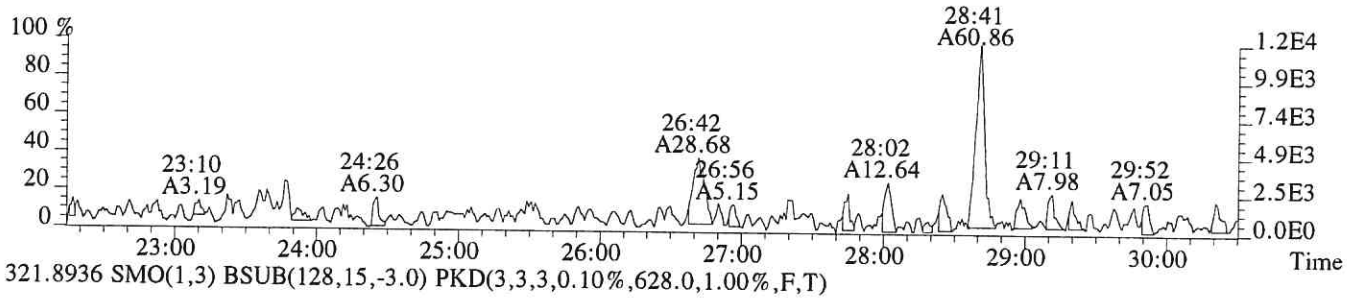
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



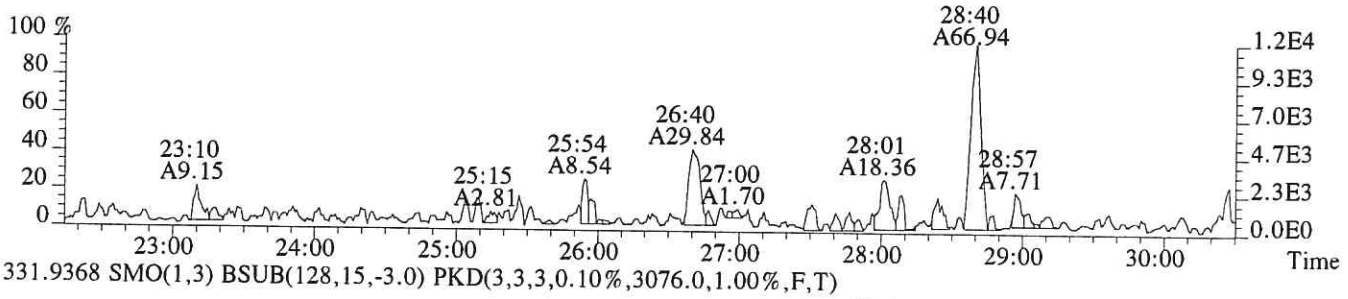
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



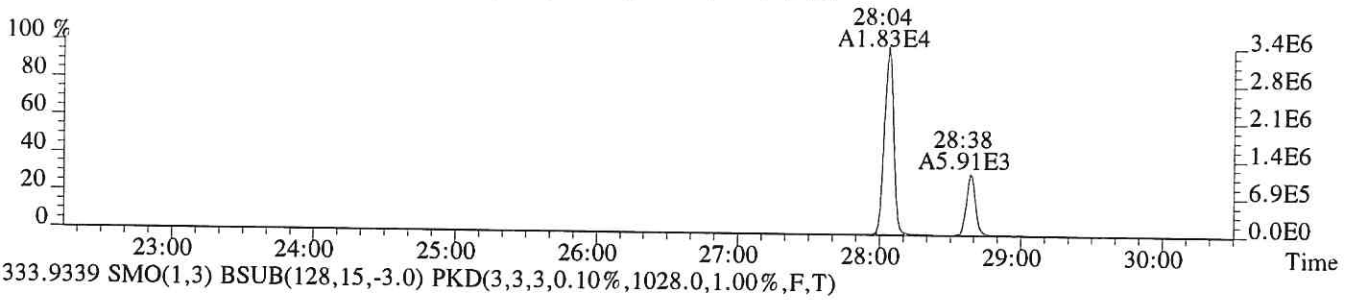
File:P519312 #1-587 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



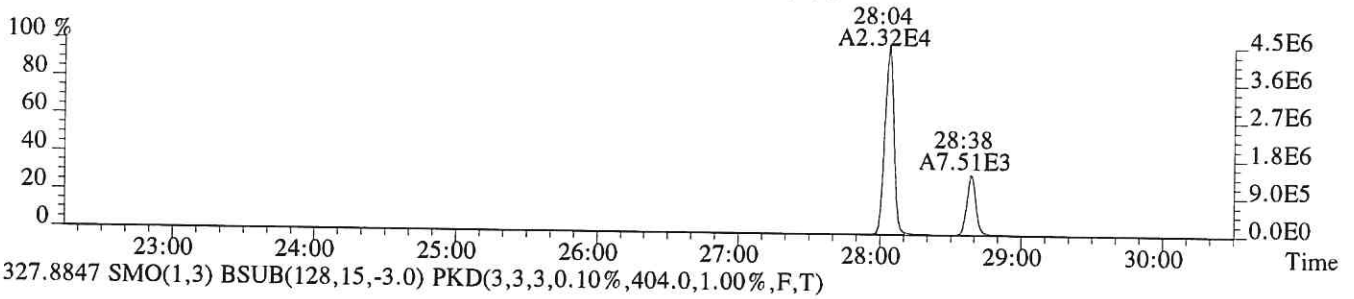
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



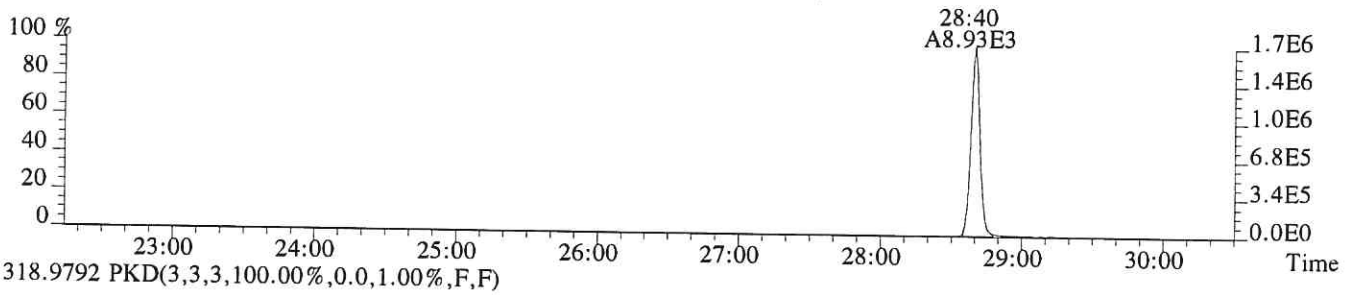
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



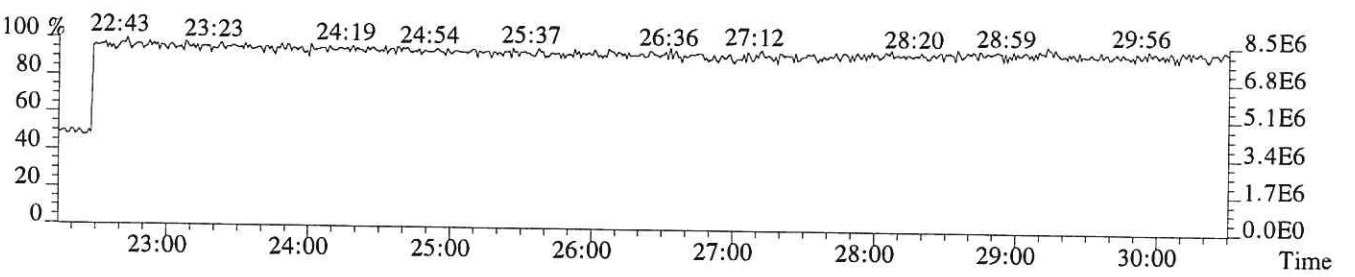
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



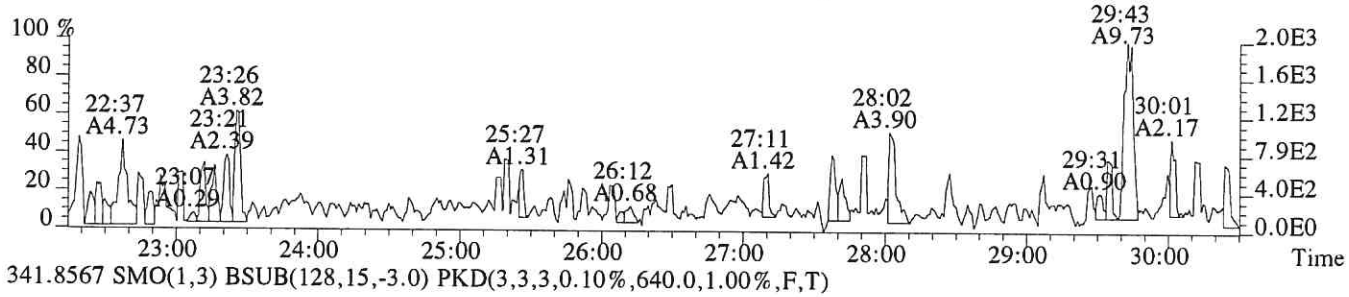
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



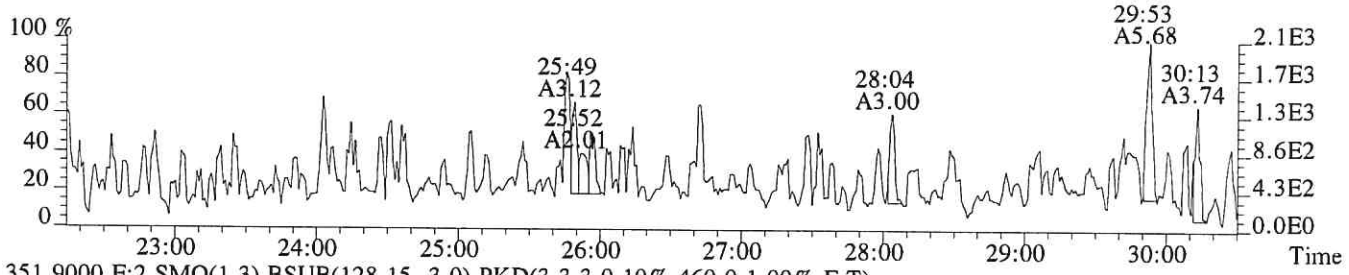
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



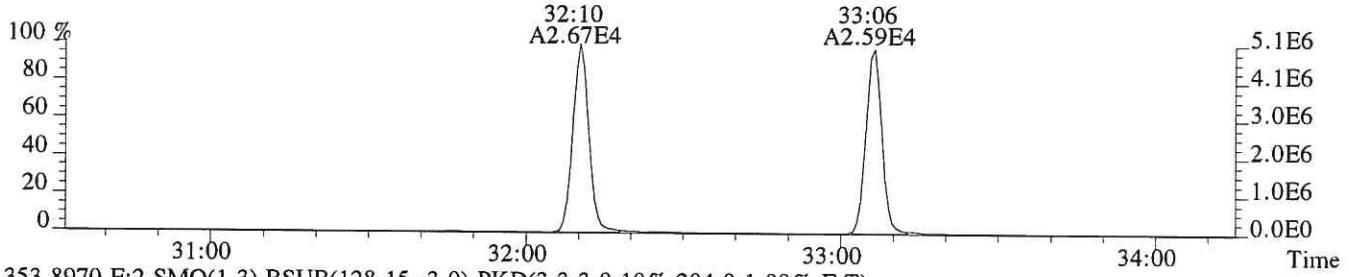
File:P519312 #1-587 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



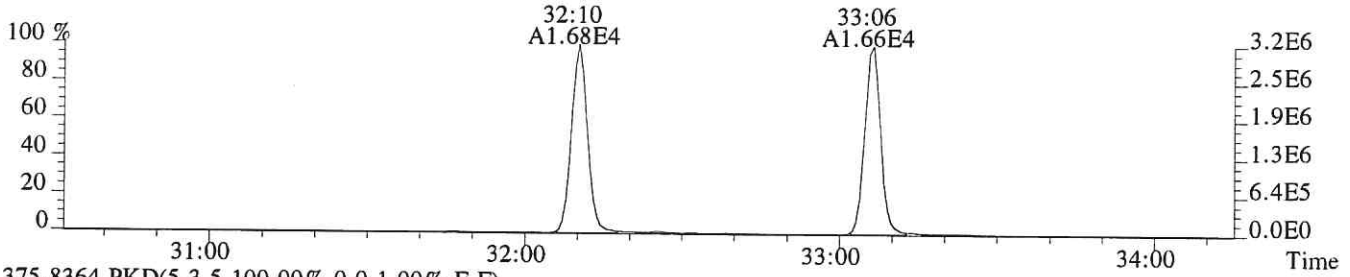
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



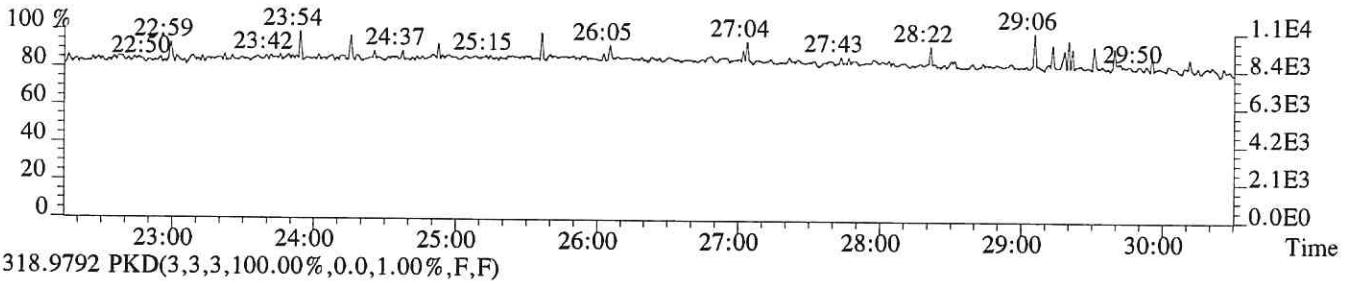
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



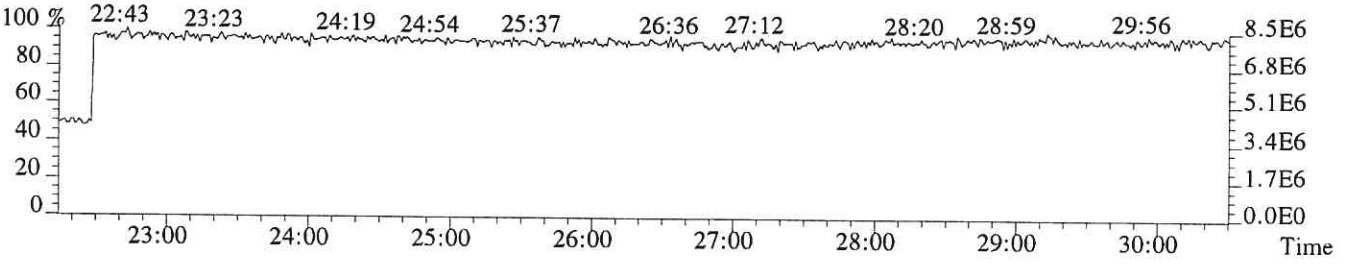
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



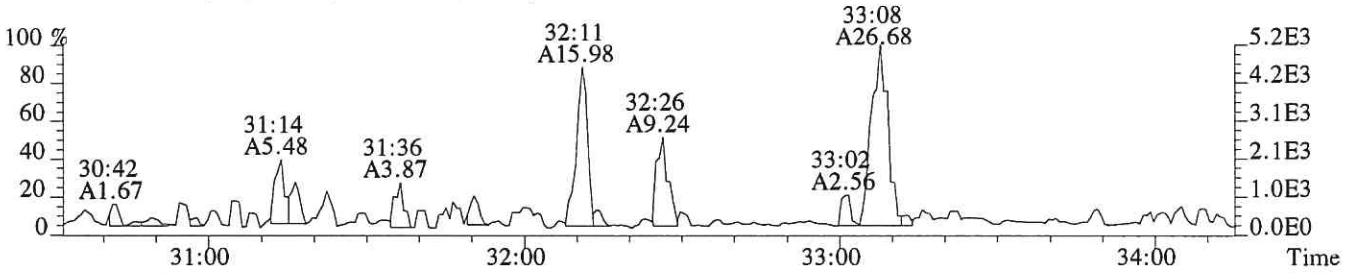
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



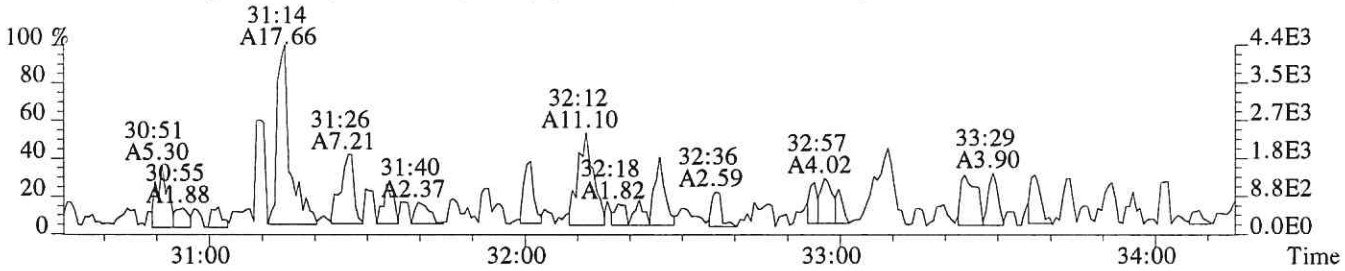
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



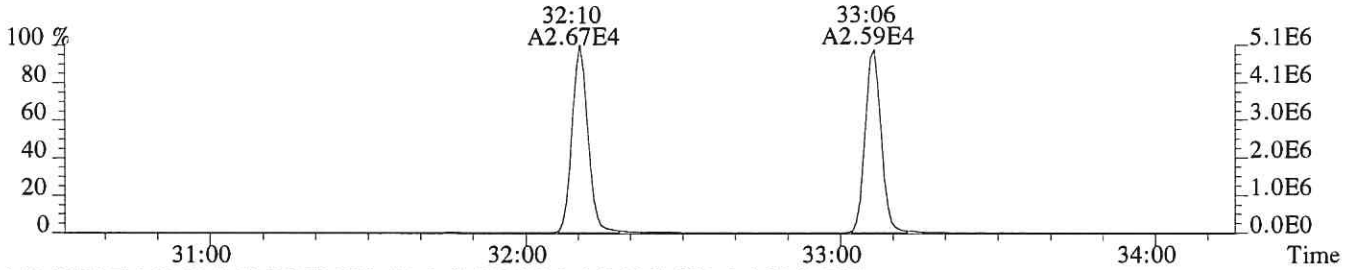
File:P519312 #1-335 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



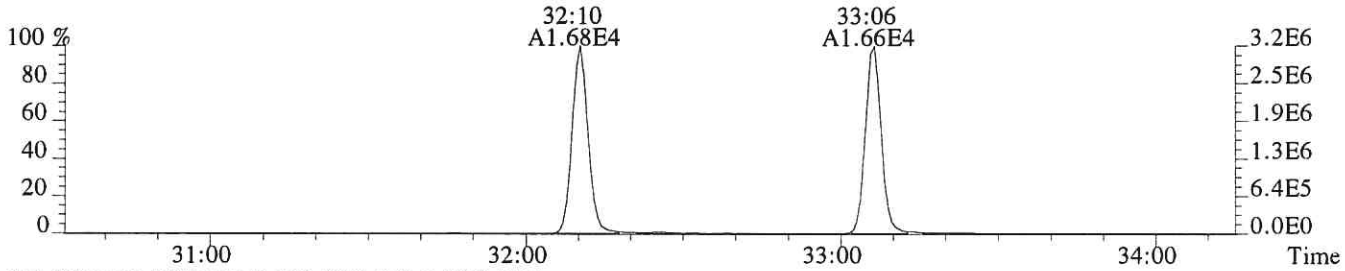
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



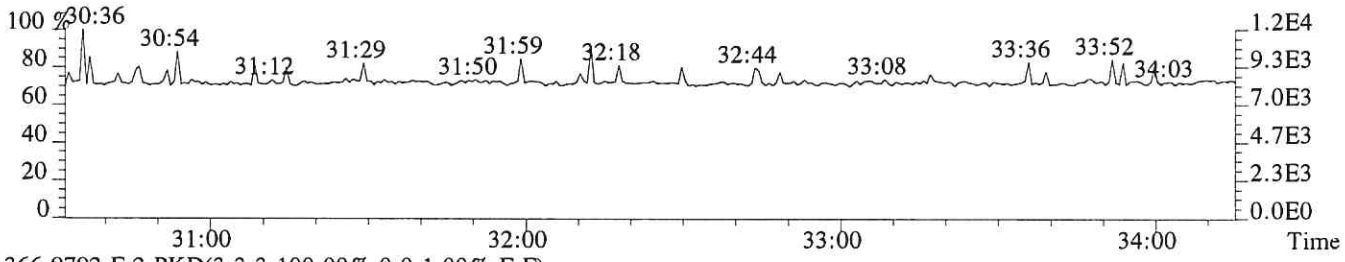
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



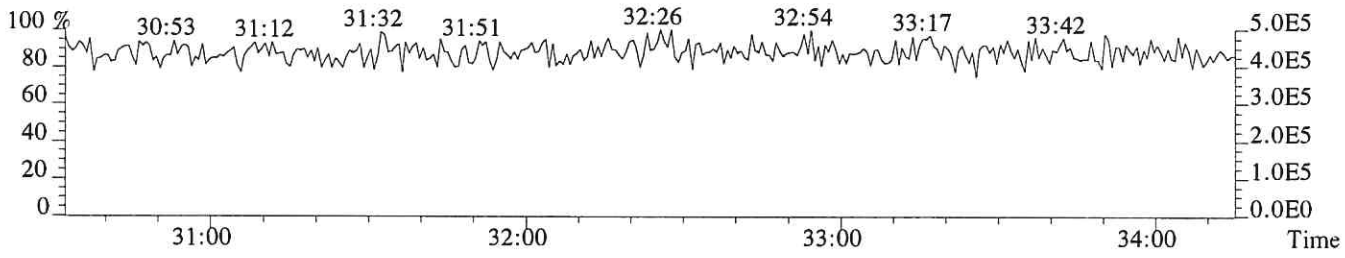
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



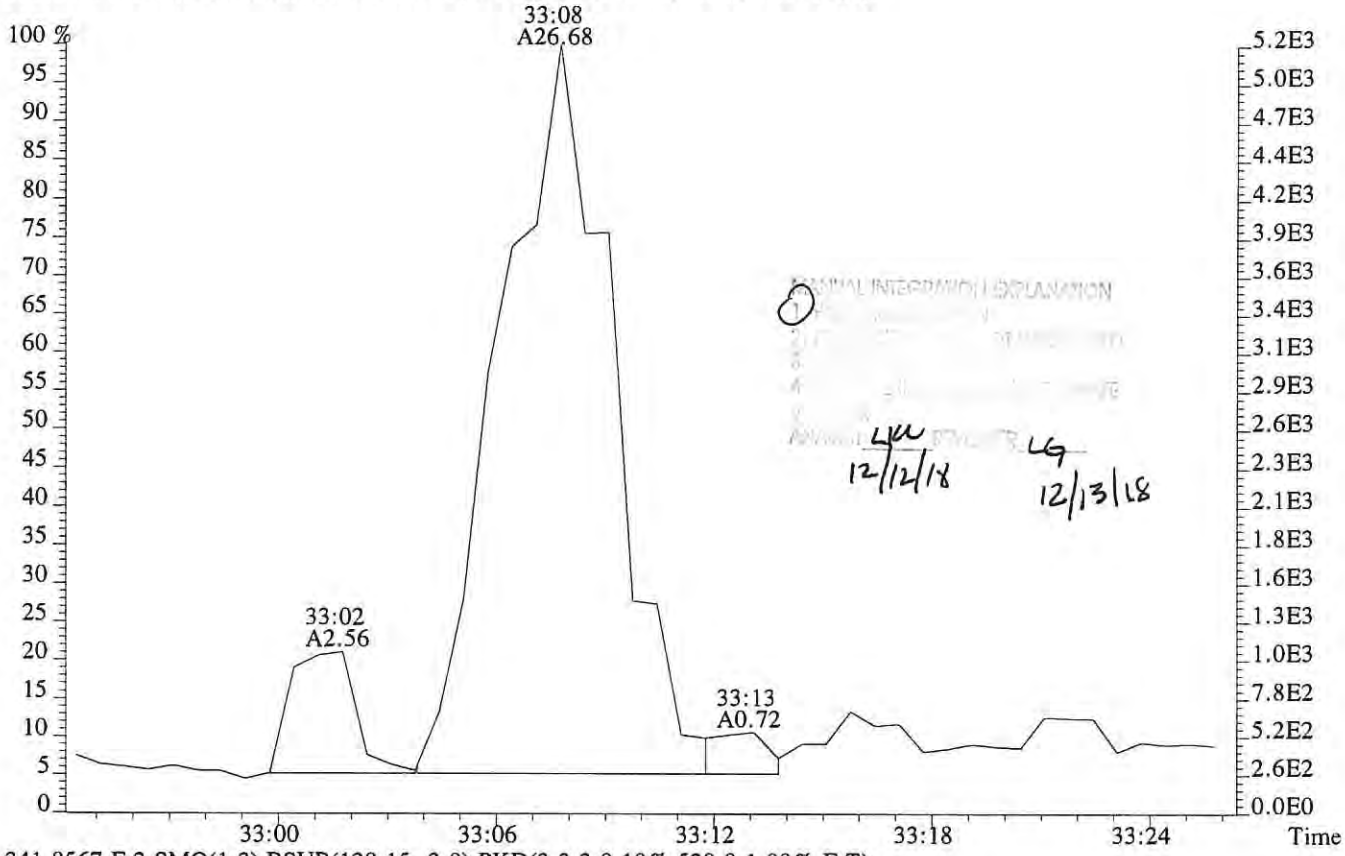
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



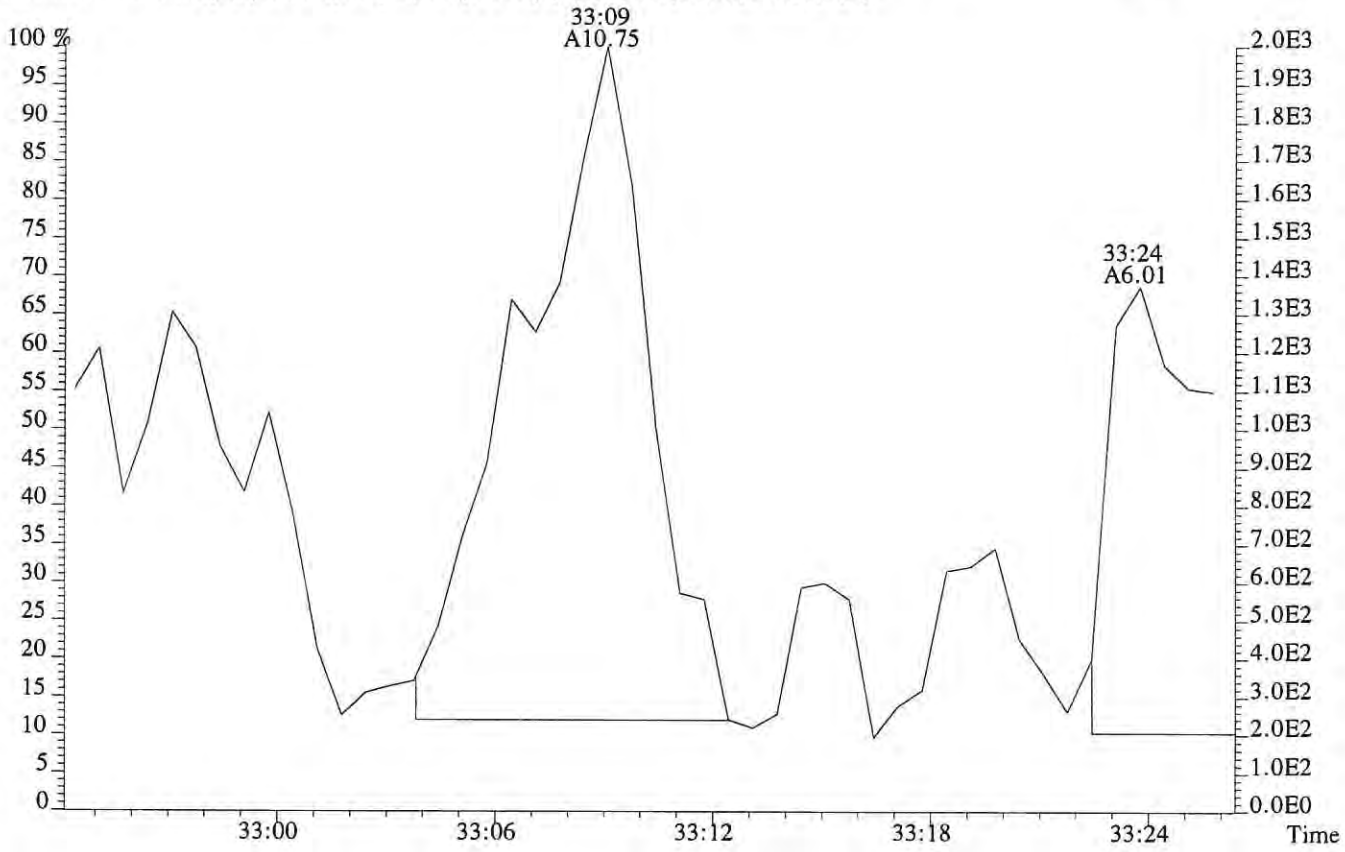
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



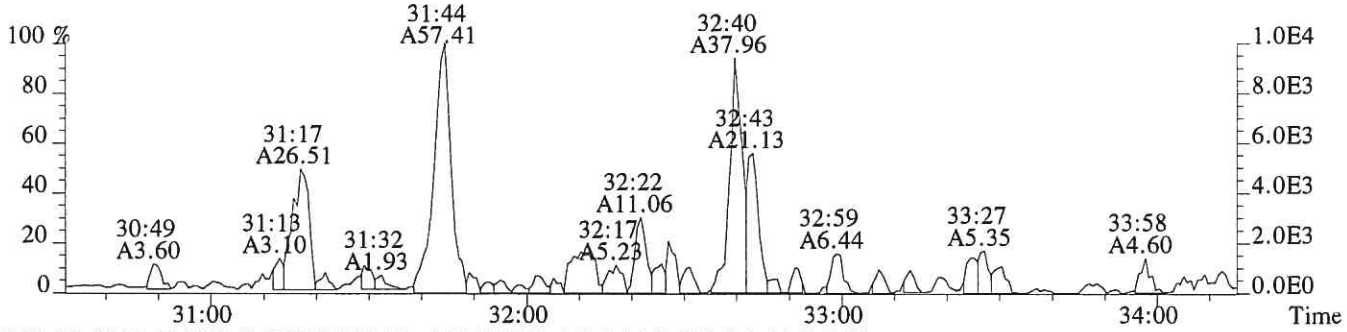
File:P519312 #1-335 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



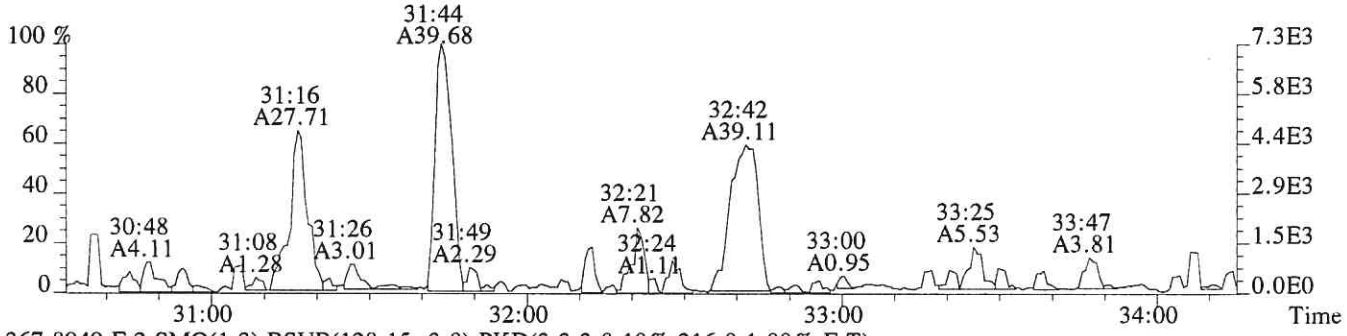
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



File:P519312 #1-335 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



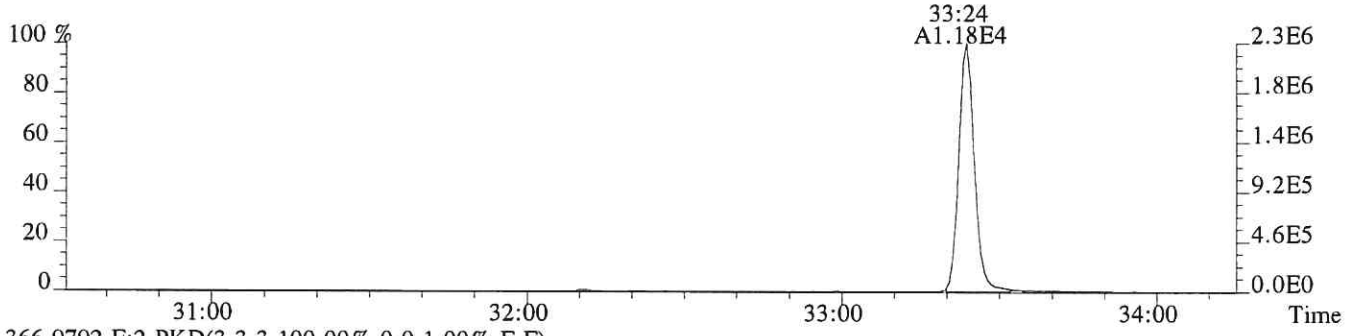
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



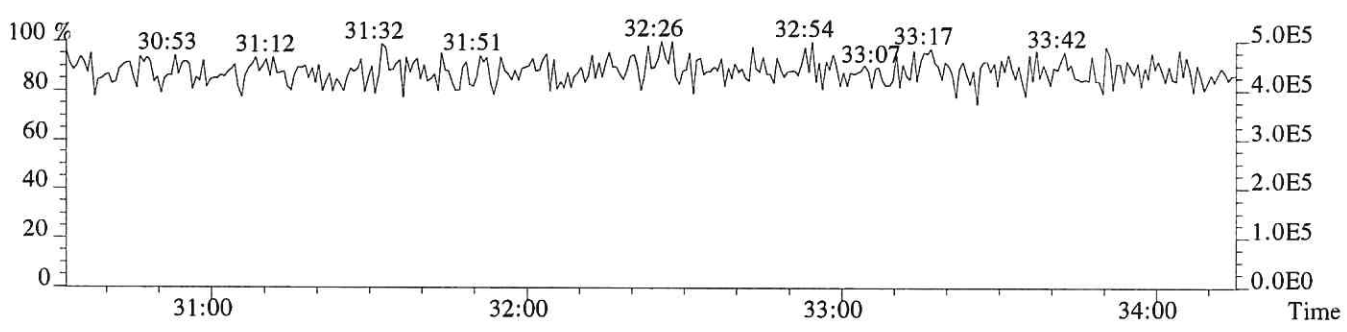
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



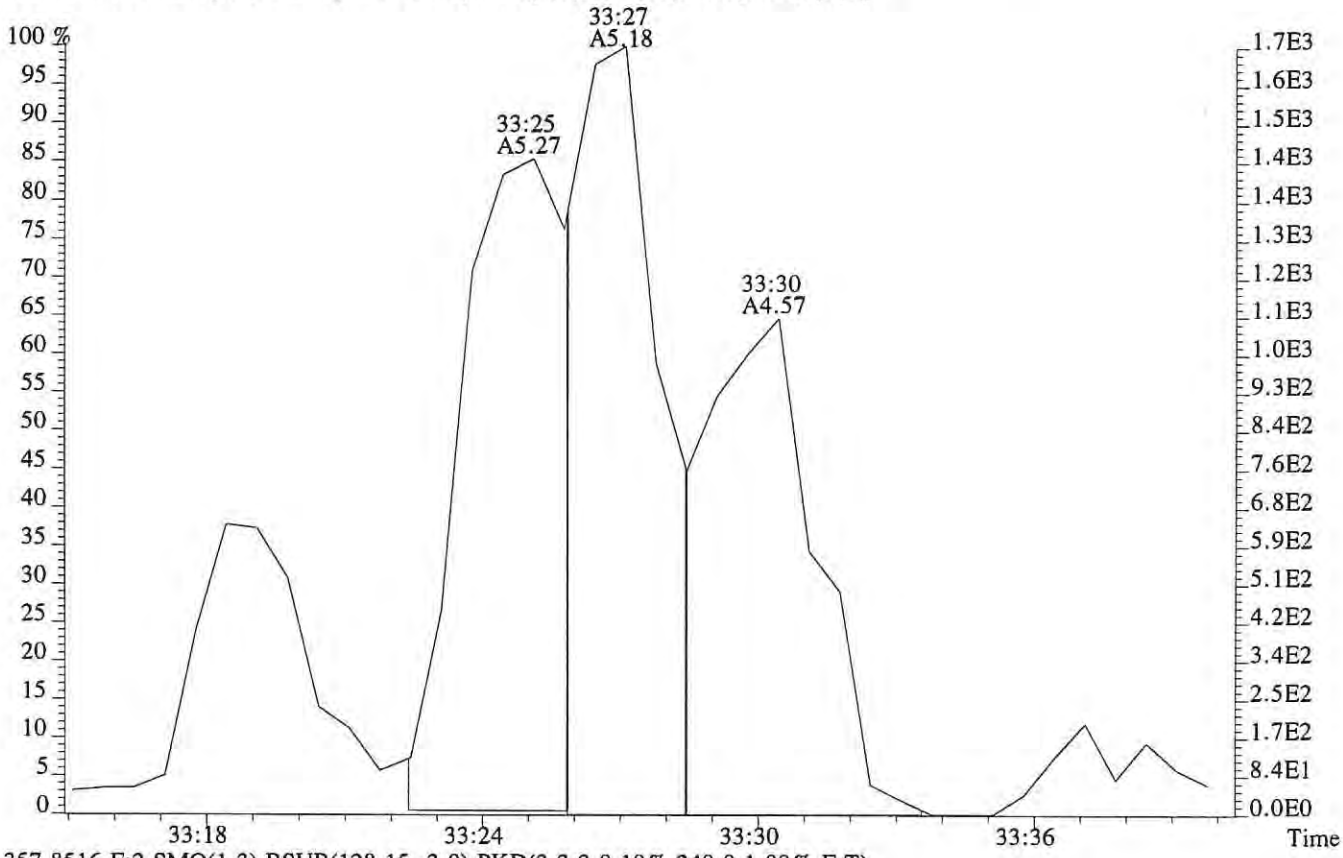
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



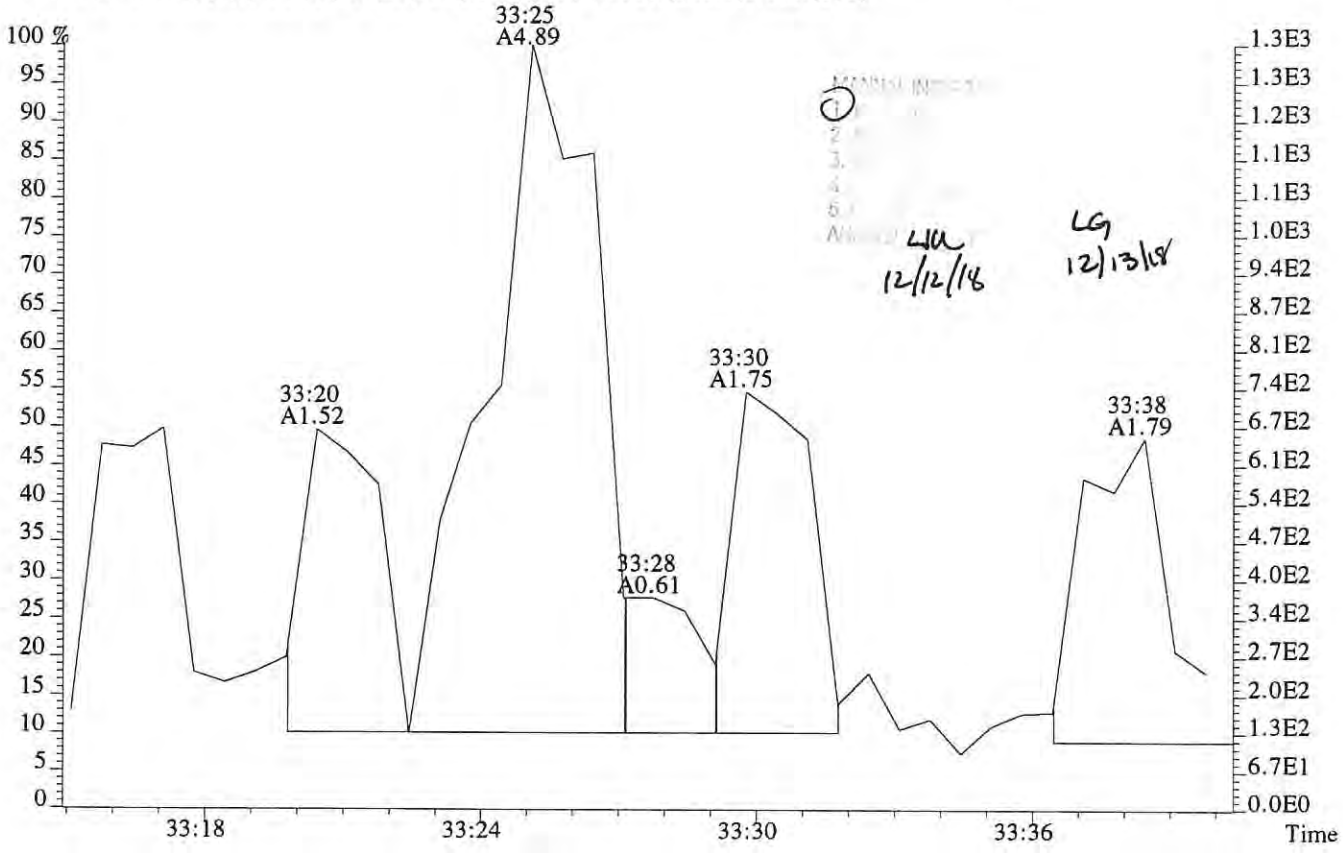
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



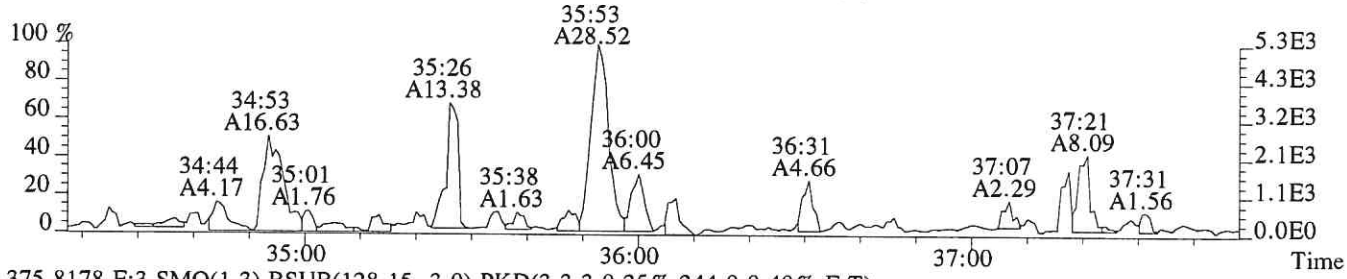
File:P519312 #1-335 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



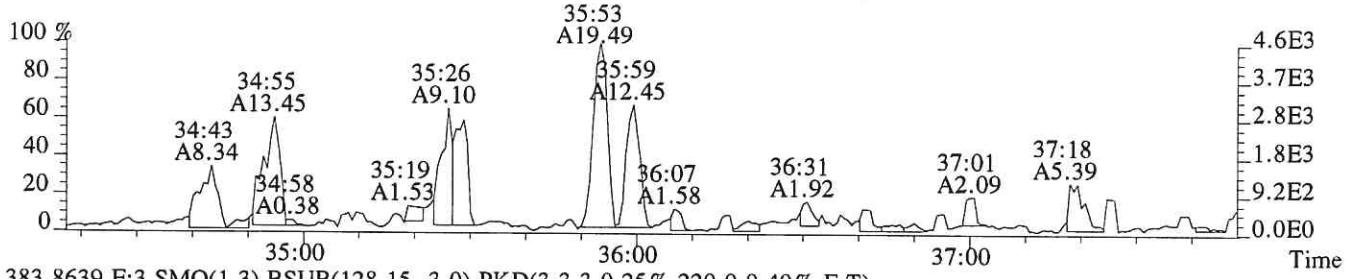
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



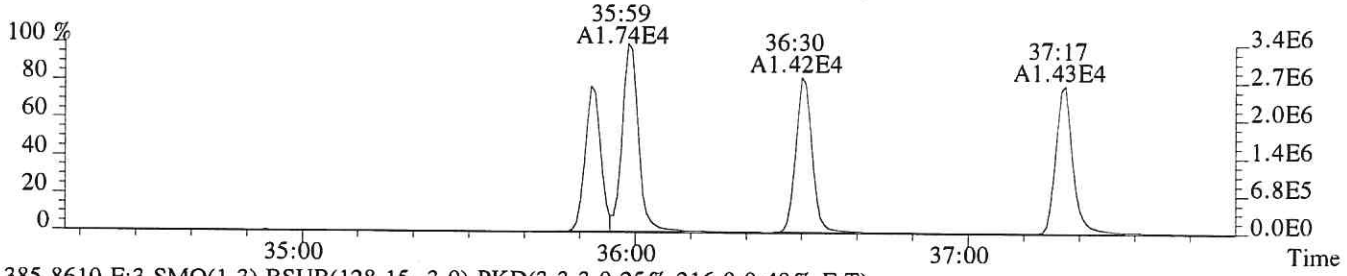
File:P519312 #1-317 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



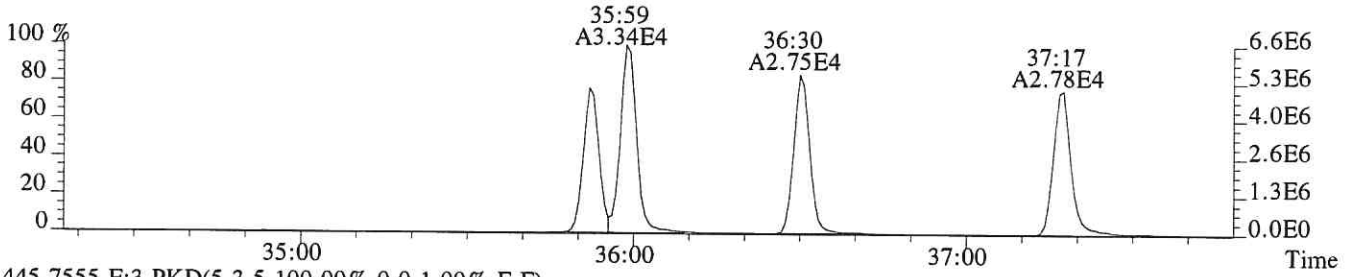
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



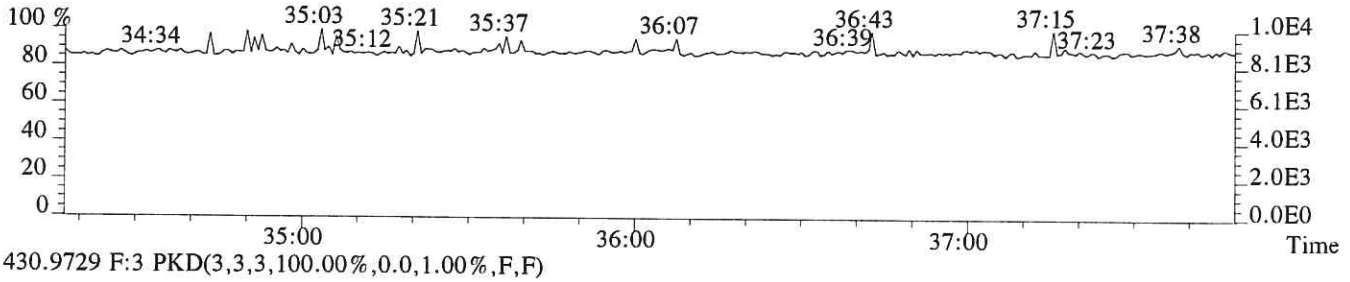
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



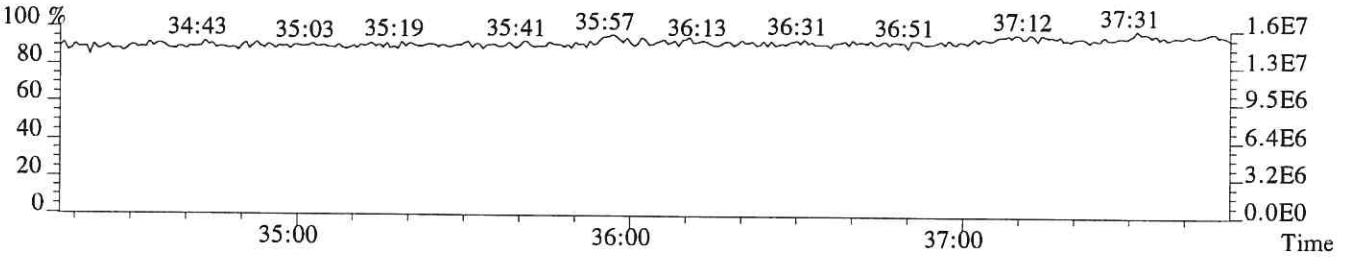
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



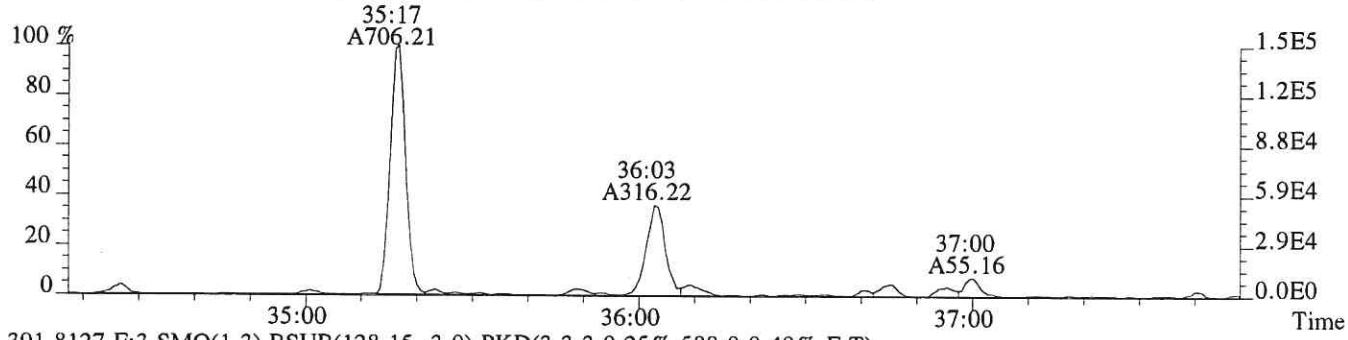
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



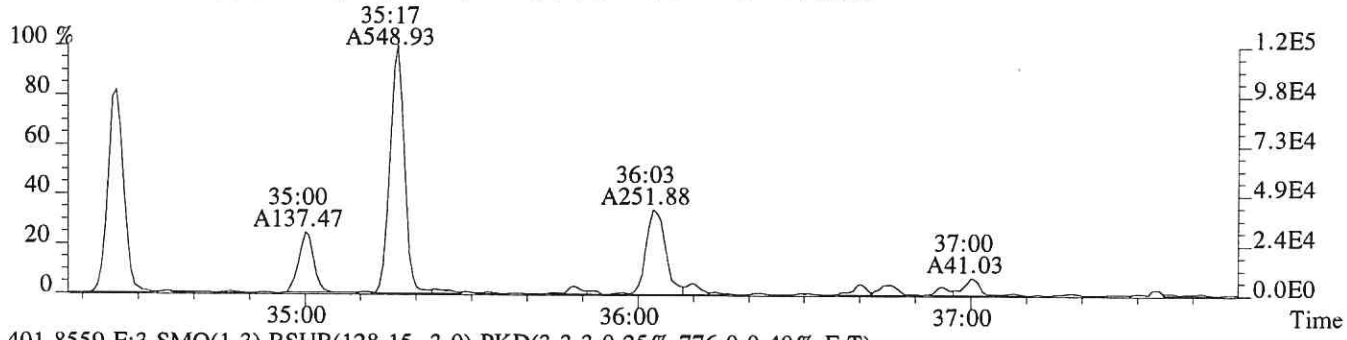
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



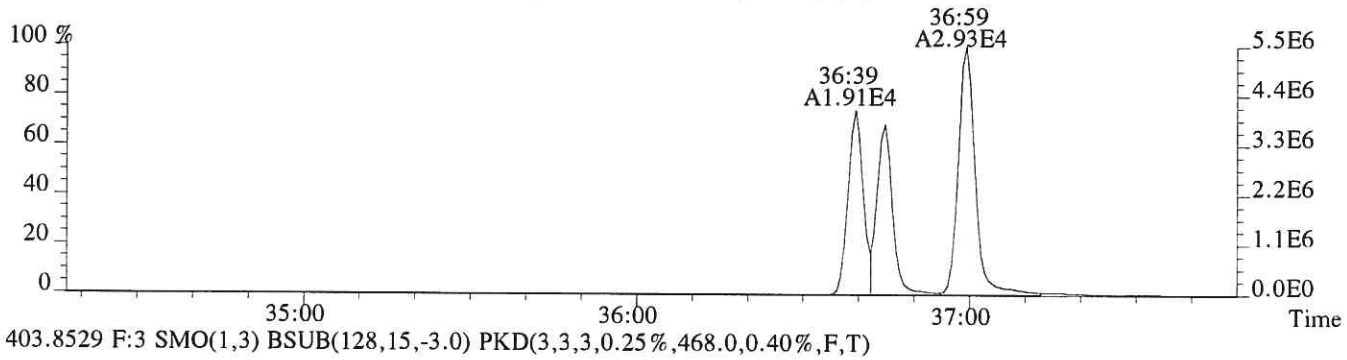
File:P519312 #1-317 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



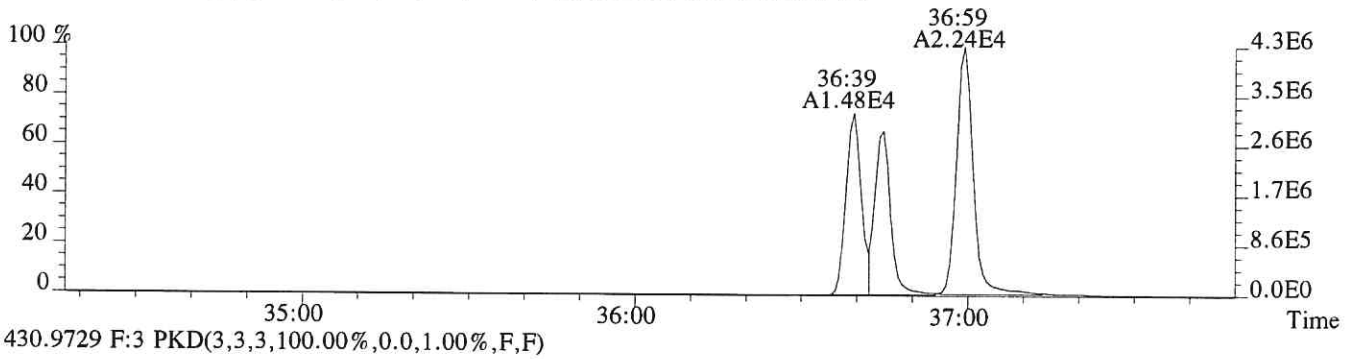
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



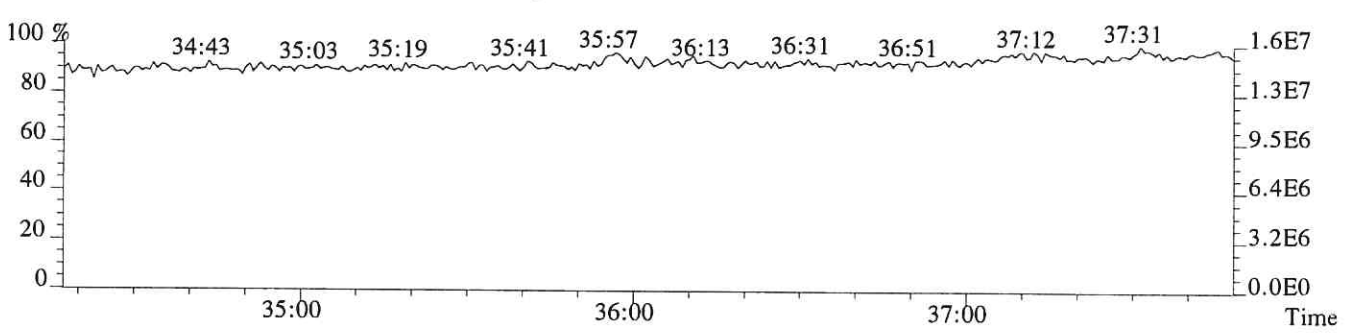
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



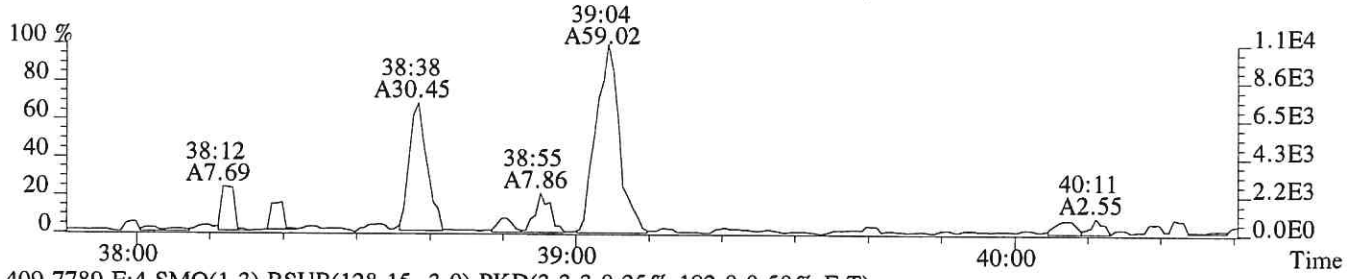
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



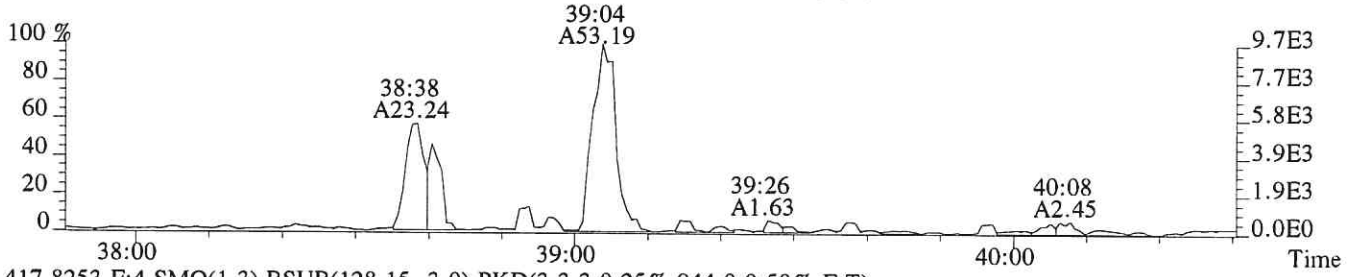
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



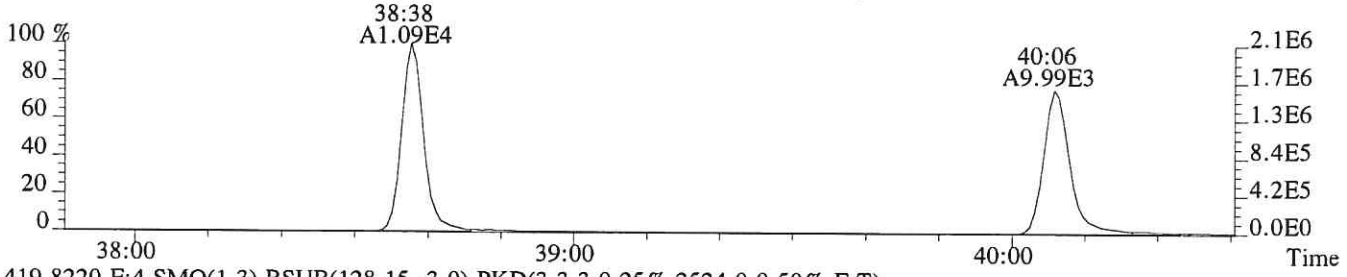
File:P519312 #1-241 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.50%,F,T)



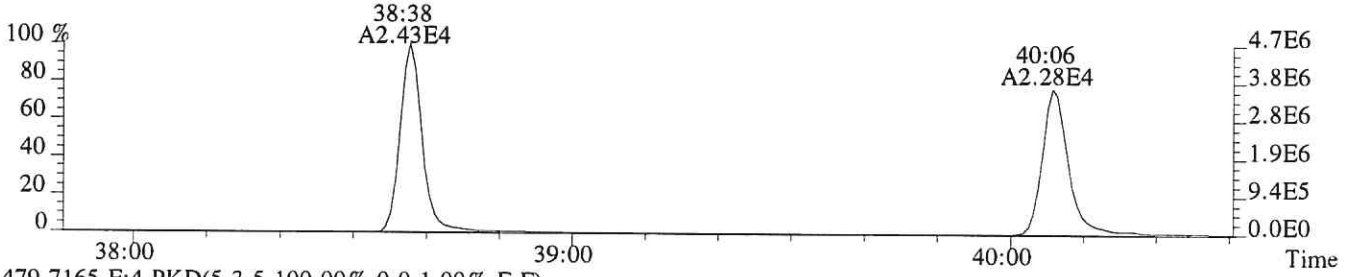
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.50%,F,T)



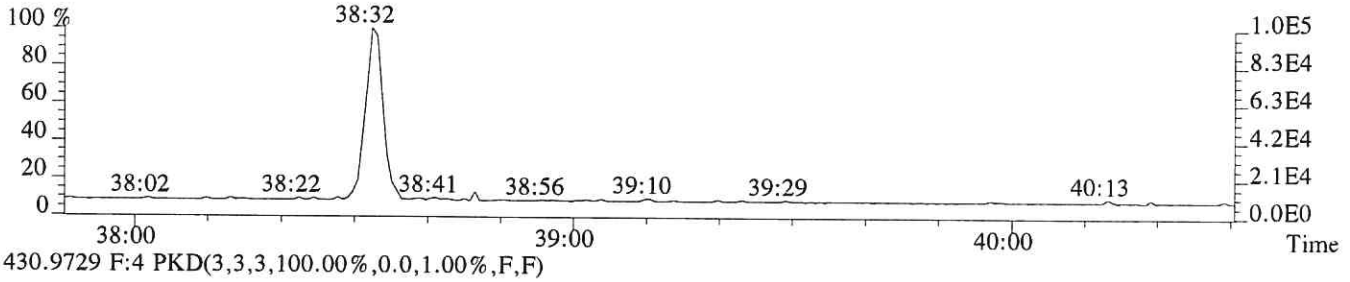
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.50%,F,T)



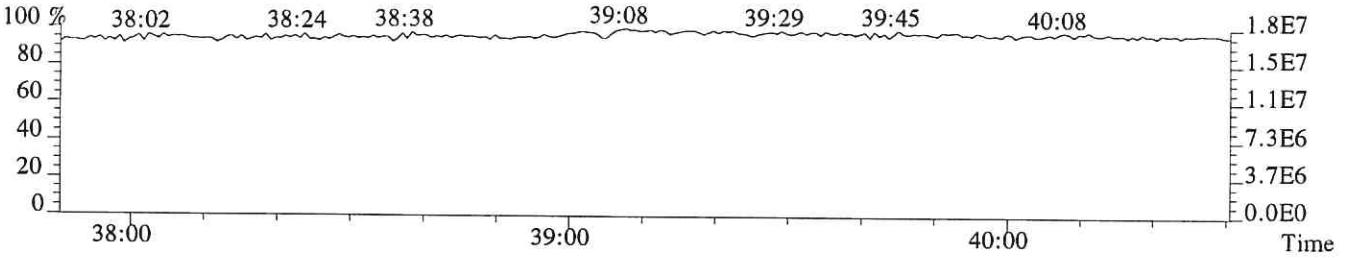
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2524.0,0.50%,F,T)



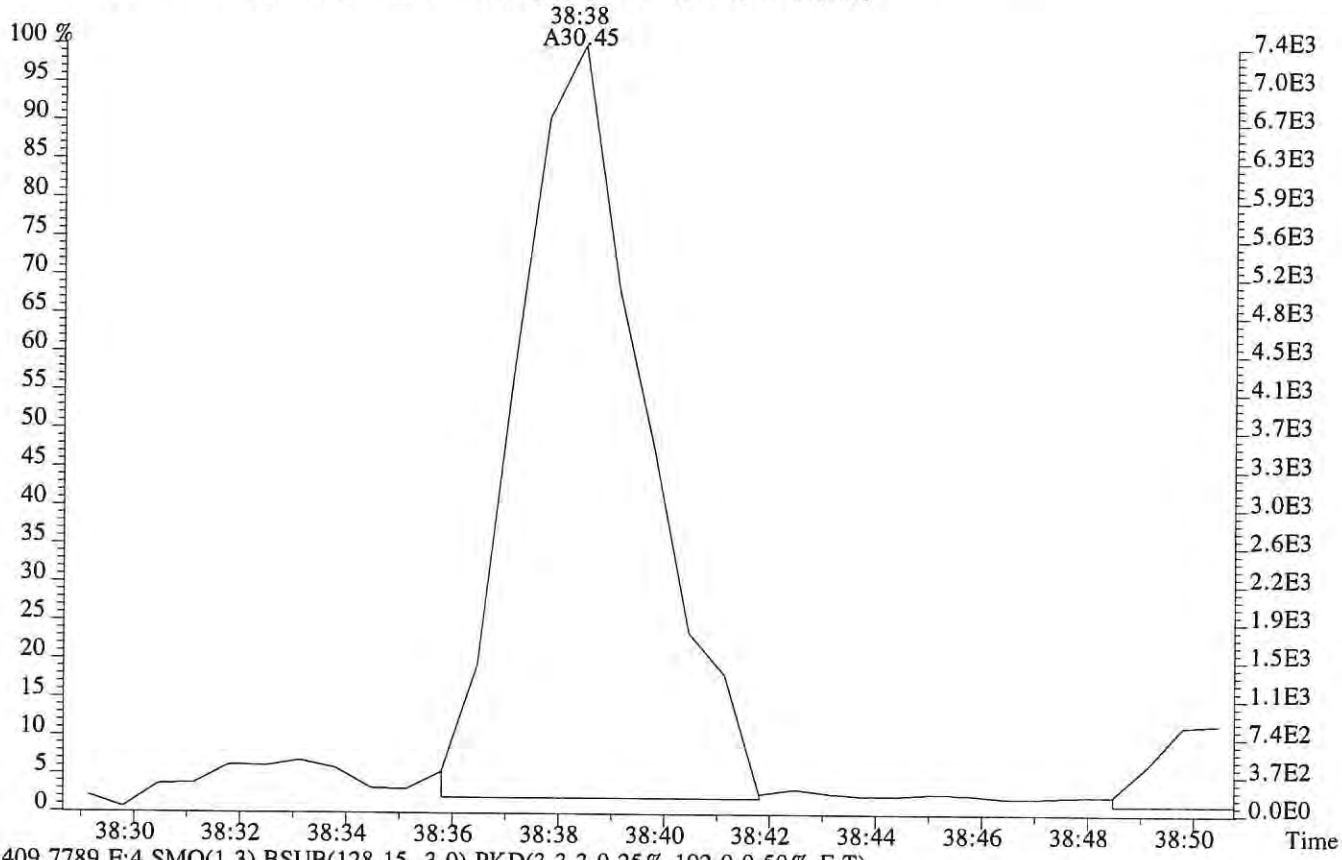
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



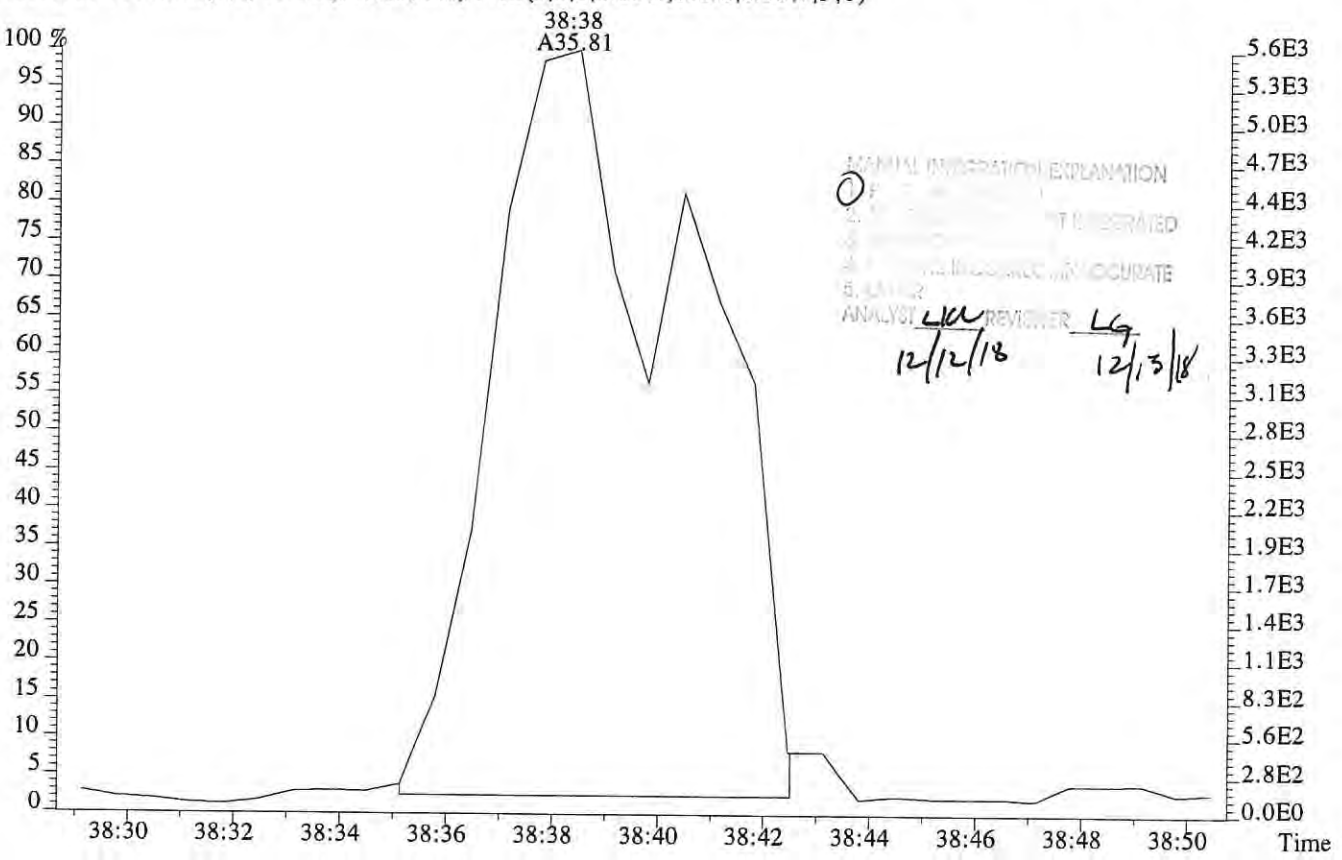
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519312 #1-241 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.50%,F,T)

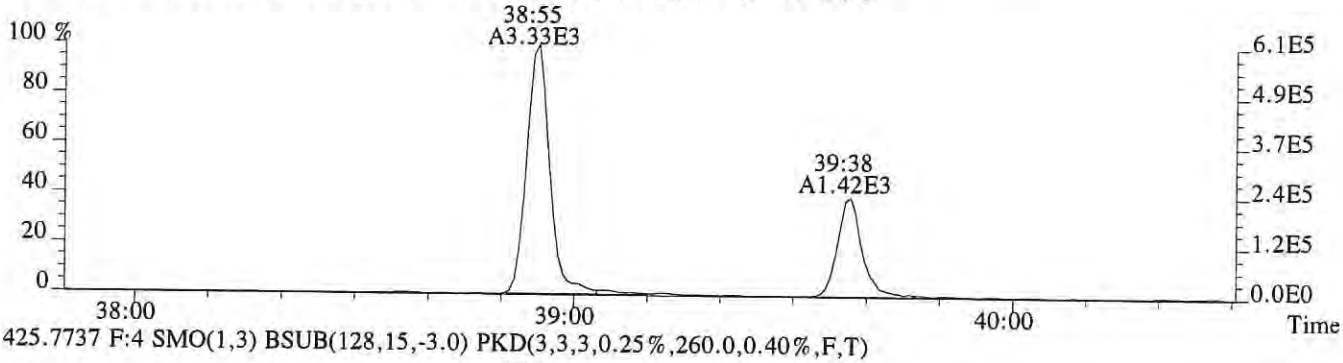


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.50%,F,T)

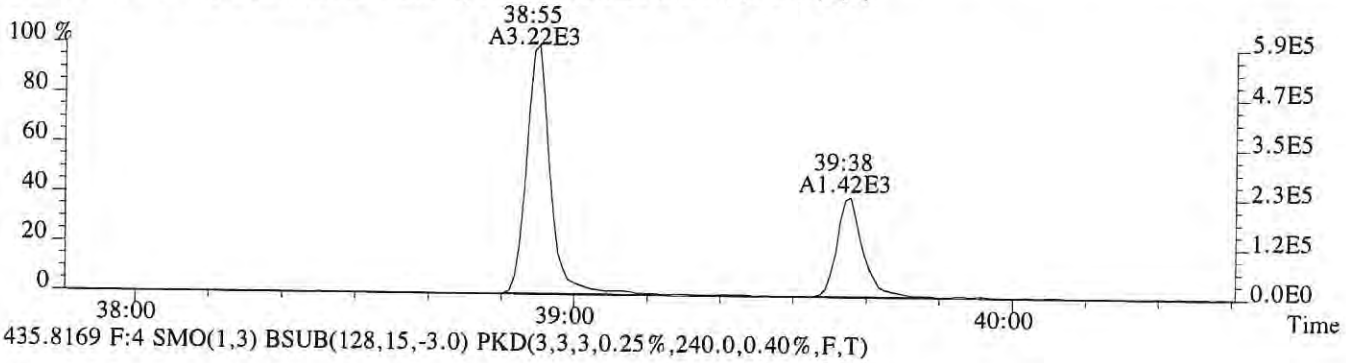


MANUAL INTEGRATION EXPLANATION
ANALYST LKL 12/12/18 REVIEWER LG 12/13/18

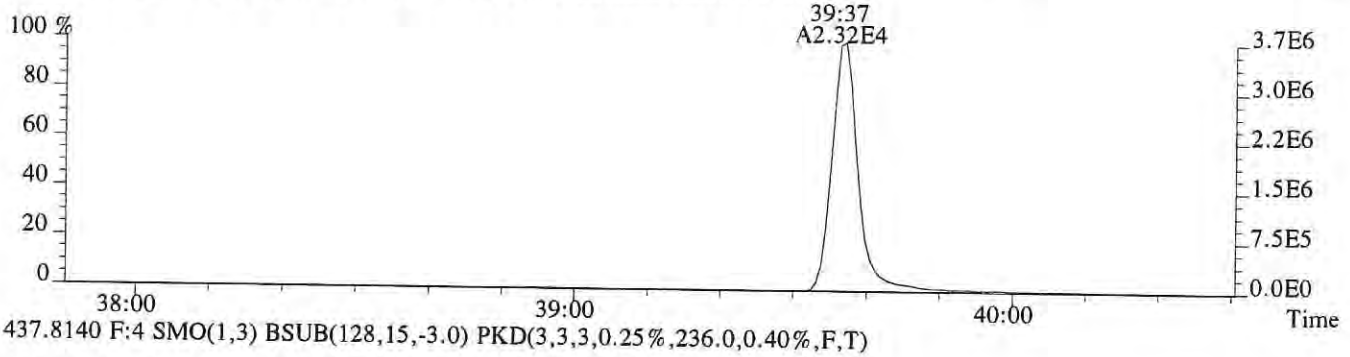
File:P519312 #1-241 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



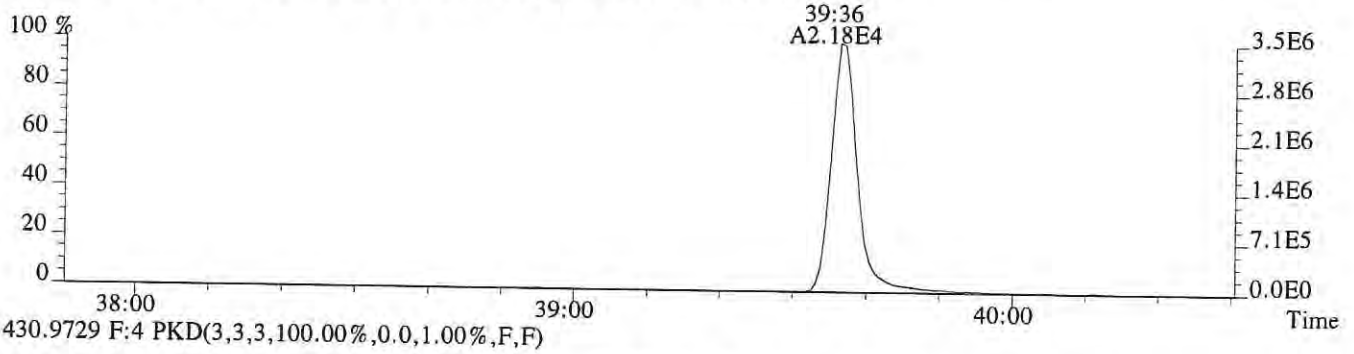
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



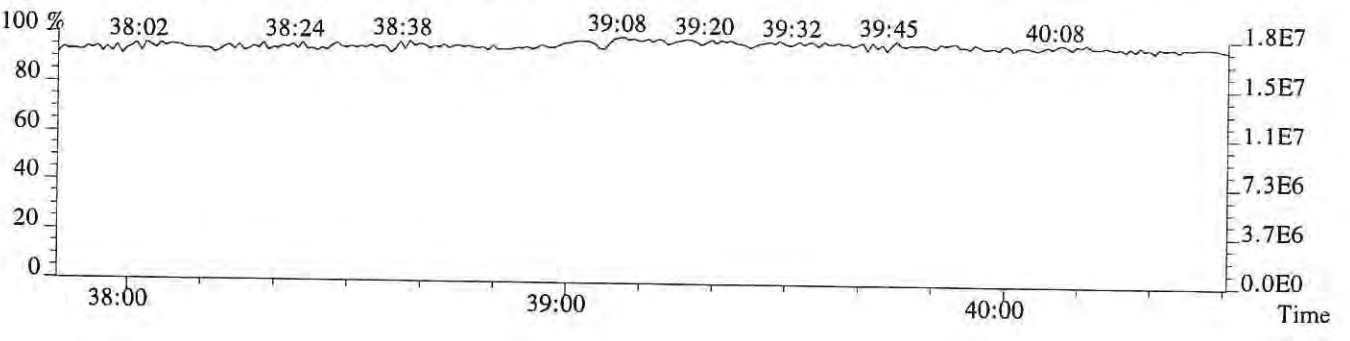
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



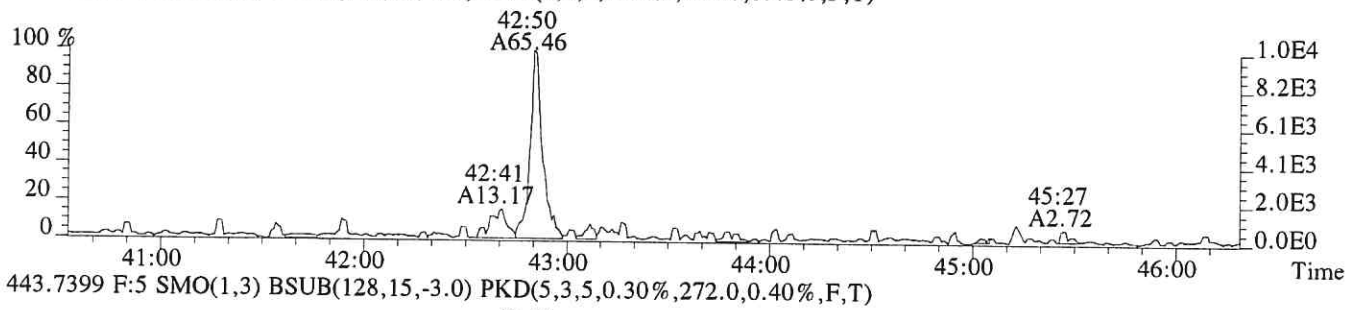
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



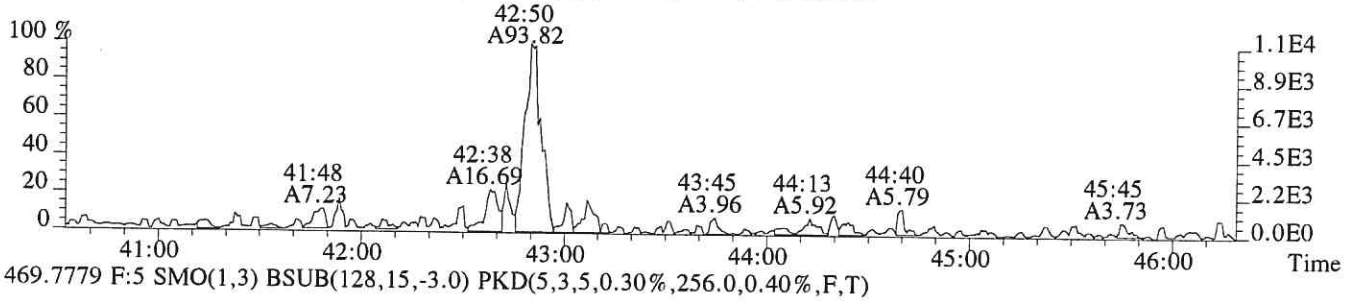
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



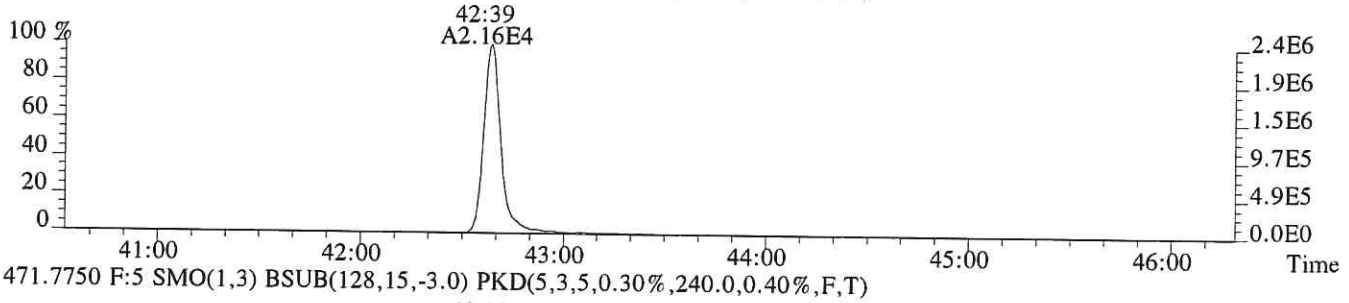
File:P519312 #1-520 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



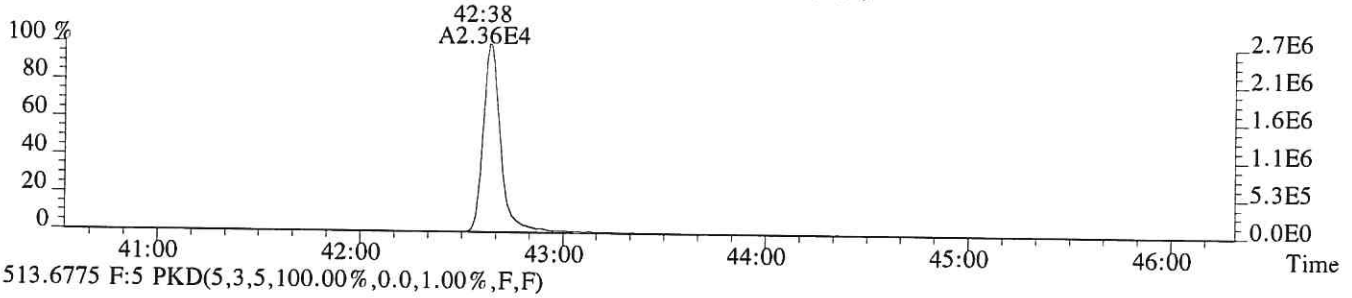
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



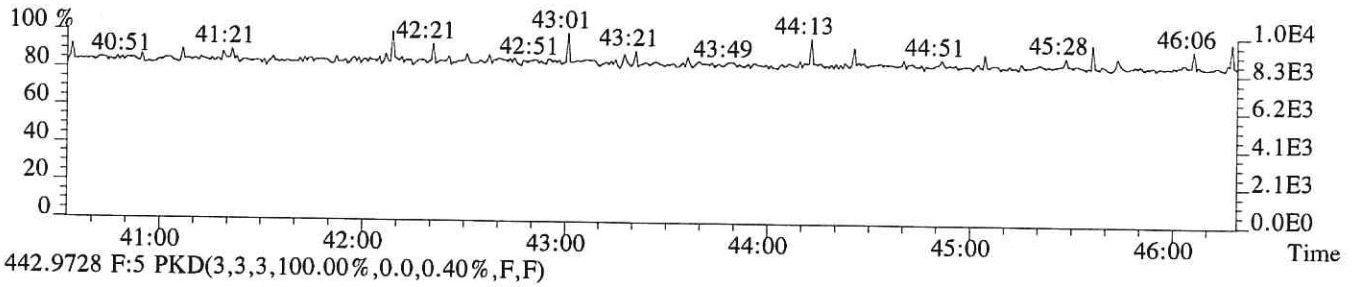
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



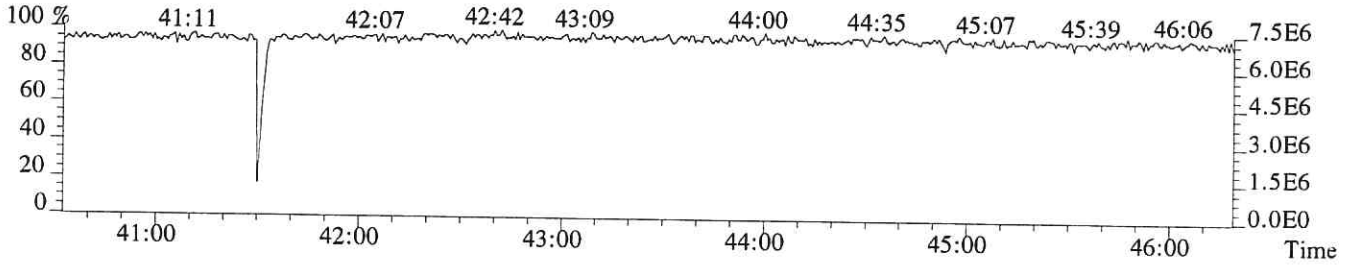
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



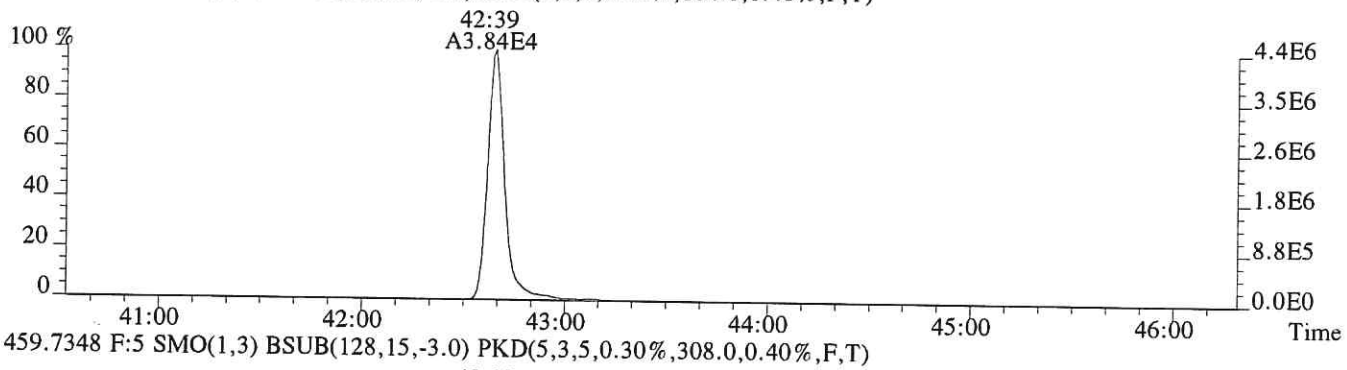
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



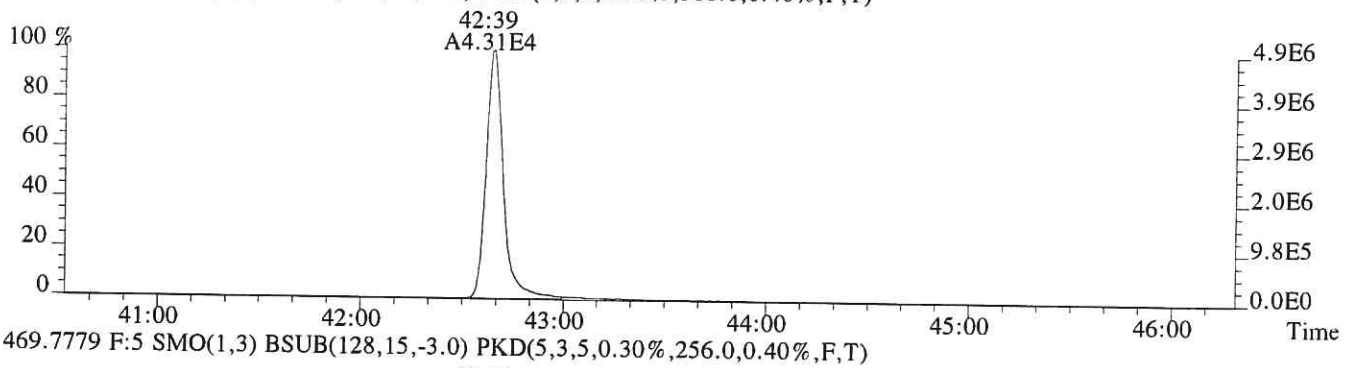
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



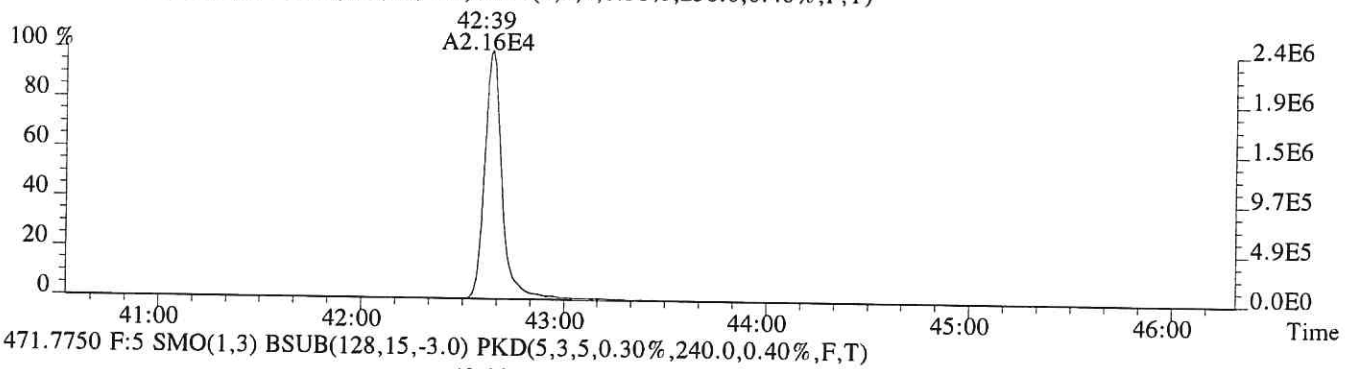
File:P519312 #1-520 Acq: 8-DEC-2018 15:38:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



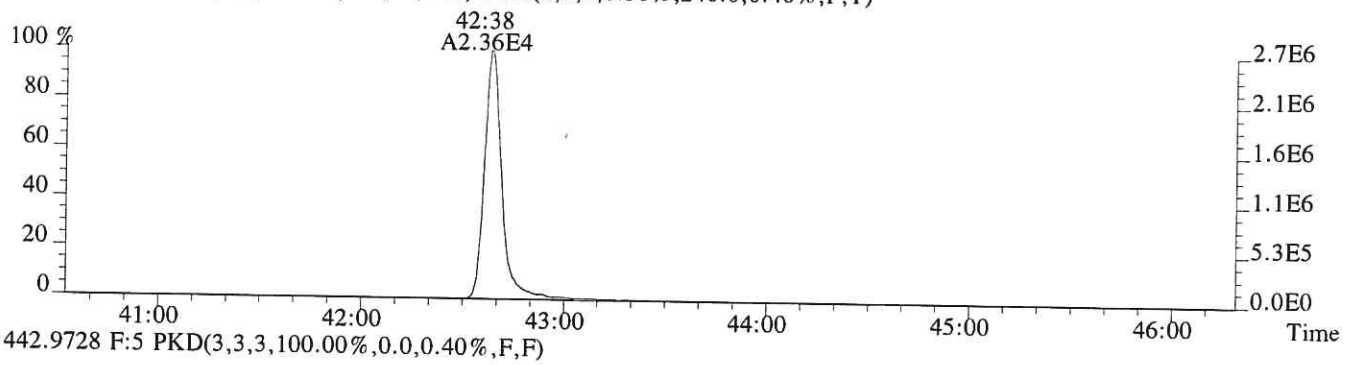
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



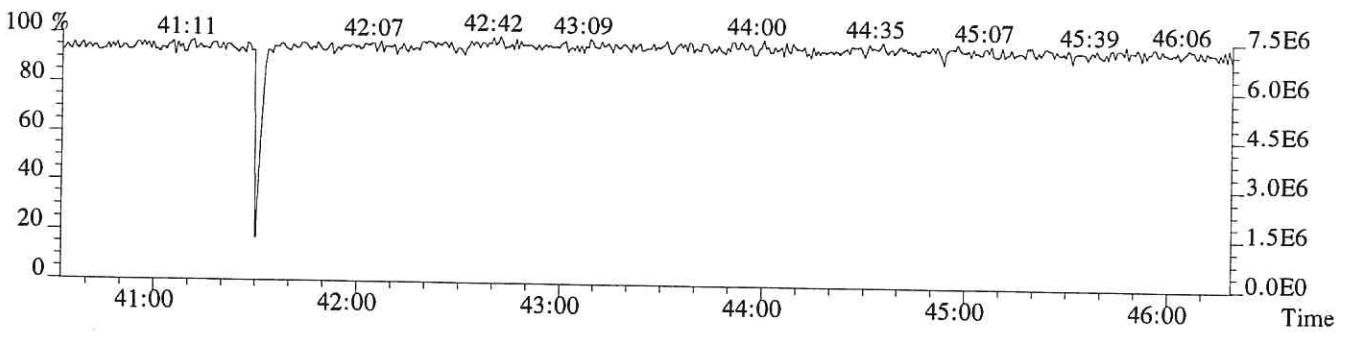
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0588

Run #16 Filename P519313 Samp: 1 Inj: 1 Acquired: 8-DEC-18 16:26:46
Processed: 11-DEC-18 16:43:15 Sample ID: E1801065-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:50	7.278e+01	1.047e+02	0.69	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:37	6.687e+00	1.085e+01	0.62	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:49	2.997e+01	2.304e+01	1.30	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	33:24	1.449e+01	6.207e+00	2.33	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	2.023e+01	1.519e+01	1.33	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	5.444e+01	3.241e+01	1.68	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:59	4.912e+01	5.930e+01	0.83	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:38	1.956e+03	1.793e+03	1.09	yes	no	1.025
17	Unk	OCDD	42:40	4.767e+04	5.336e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	1.160e+04	1.485e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.522e+04	1.565e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.318e+04	1.457e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.198e+04	2.317e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.623e+04	3.103e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	1.426e+04	2.707e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.366e+04	2.678e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.061e+04	2.425e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	9.946e+03	2.345e+04	0.42	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	5.130e+03	6.298e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.701e+04	1.087e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.856e+04	1.438e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.750e+04	1.361e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	2.333e+04	2.199e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:39	2.253e+04	2.493e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.826e+04	2.294e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.819e+04	2.213e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	7.727e+03				no	1.014

$$OCDD = \frac{(4.767e+04 + 5.336e+04) \times 4000\ pg \times 1}{(2.253e+04 + 2.493e+04) \times 10.726\ g \times 72.1 / 100 \times 1.118} = 984.9442\ ng/kg$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0588

Run #16 Filename P519313 Samp: 1 Inj: 1 Acquired: 8-DEC-18 16:26:46
Processed: 11-DEC-18 16:43:15 LAB. ID: E1801065-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.12e+04	2.32e+02	4.8e+01	1.96e+04	3.40e+02	5.8e+01
2	1,2,3,7,8-PeCDF	*	2.76e+02	*	*	4.96e+02	*
3	2,3,4,7,8-PeCDF	*	2.76e+02	*	*	4.96e+02	*
4	1,2,3,4,7,8-HxCDF	*	2.72e+02	*	*	3.12e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.72e+02	*	*	3.12e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.72e+02	*	*	3.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.72e+02	*	*	3.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.29e+03	3.48e+02	3.7e+00	2.41e+03	2.92e+02	8.3e+00
9	1,2,3,4,7,8,9-HpCDF	*	3.48e+02	*	*	2.92e+02	*
10	OCDF	4.33e+03	2.20e+02	2.0e+01	2.80e+03	2.08e+02	1.3e+01
11	2,3,7,8-TCDD	*	8.32e+02	*	*	5.60e+02	*
12	1,2,3,7,8-PeCDD	3.67e+03	2.52e+02	1.5e+01	1.05e+03	2.36e+02	4.5e+00
13	1,2,3,4,7,8-HxCDD	4.20e+03	3.36e+02	1.3e+01	3.78e+03	3.28e+02	1.2e+01
14	1,2,3,6,7,8-HxCDD	1.11e+04	3.36e+02	3.3e+01	6.15e+03	3.28e+02	1.9e+01
15	1,2,3,7,8,9-HxCDD	1.08e+04	3.36e+02	3.2e+01	1.19e+04	3.28e+02	3.6e+01
16	1,2,3,4,6,7,8-HpCDD	3.34e+05	4.12e+02	8.1e+02	3.00e+05	2.68e+02	1.1e+03
17	OCDD	5.42e+06	2.56e+02	2.1e+04	6.03e+06	2.76e+02	2.2e+04
18	13C-2,3,7,8-TCDF	2.10e+06	2.73e+03	7.7e+02	2.65e+06	1.16e+03	2.3e+03
19	13C-1,2,3,7,8-PeCDF	4.80e+06	2.48e+02	1.9e+04	2.95e+06	1.28e+02	2.3e+04
20	13C-2,3,4,7,8-PeCDF	4.68e+06	2.48e+02	1.9e+04	2.92e+06	1.28e+02	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.58e+06	3.00e+02	8.6e+03	4.92e+06	4.32e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	3.11e+06	3.00e+02	1.0e+04	5.94e+06	4.32e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.85e+06	3.00e+02	9.5e+03	5.30e+06	4.32e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.48e+06	3.00e+02	8.3e+03	4.80e+06	4.32e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.00e+06	2.10e+03	9.5e+02	4.54e+06	1.39e+03	3.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.57e+06	2.10e+03	7.5e+02	3.65e+06	1.39e+03	2.6e+03
27	13C-2,3,7,8-TCDD	9.60e+05	2.76e+03	3.5e+02	1.18e+06	7.12e+02	1.7e+03
28	13C-1,2,3,7,8-PeCDD	3.46e+06	2.60e+02	1.3e+04	2.22e+06	1.96e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	3.73e+06	1.04e+03	3.6e+03	2.91e+06	2.92e+02	1.0e+04
30	13C-1,2,3,6,7,8-HxCDD	3.37e+06	1.04e+03	3.3e+03	2.62e+06	2.92e+02	9.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.76e+06	3.64e+02	1.0e+04	3.55e+06	2.80e+02	1.3e+04
32	13C-OCDD	2.51e+06	2.44e+02	1.0e+04	2.84e+06	2.16e+02	1.3e+04
33	13C-1,2,3,4-TCDD	3.36e+06	2.76e+03	1.2e+03	4.22e+06	7.12e+02	5.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.35e+06	1.04e+03	5.2e+03	4.17e+06	2.92e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.41e+06	3.68e+02	3.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (8.320e{+}02 + 5.600e{+}02\ ) \times 2000}{(9.596e{+}05 + 1.182e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0588

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519313 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 16:26:46 Processed: 11-DEC-18 16:43:15

Mass: 303.9020 305.8990 Tot Response: 1.78e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:50	7.28e+01	1.05e+02 0.69	yes	1.78e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0588

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519313 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 16:26:46 Processed: 11-DEC-18 16:43:15

Mass: 355.8550 357.8520 Tot Response: 2.59e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:44	1.09e+02	7.02e+01 1.55	yes	1.79e+02		n	n
2	32:23	1.38e+01	1.04e+01 1.33	yes	2.42e+01		n	n
3	32:40	3.51e+01	2.04e+01 1.72	yes	5.56e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0588

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519313 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 16:26:46 Processed: 11-DEC-18 16:43:15

Mass: 389.8160 391.8130 Tot Response: 2.65e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	1.09e+03	8.10e+02	1.34	yes	1.90e+03	n	n
2	35:48	3.12e+01	2.74e+01	1.14	yes	5.86e+01	n	n
3	36:03	3.83e+02	2.80e+02	1.37	yes	6.64e+02	n	n
4	36:40	2.02e+01	1.52e+01	1.33	yes	3.54e+01 1,2,3,4,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0588

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519313 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 16:26:46 Processed: 11-DEC-18 16:43:15

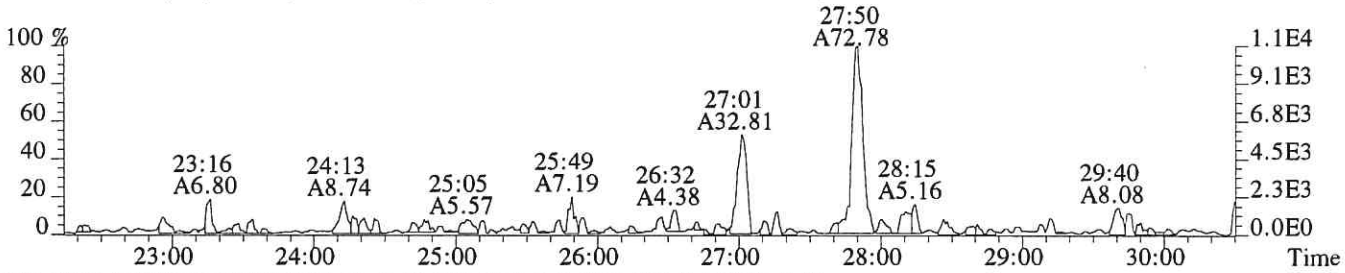
Mass: 423.7770 425.7740 Tot Response: 1.23e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	4.42e+03	4.17e+03 1.06	yes	8.59e+03		n	n
2	39:38	1.96e+03	1.79e+03 1.09	yes	3.75e+03	1,2,3,4,6,7,8-HpCDD	n	n

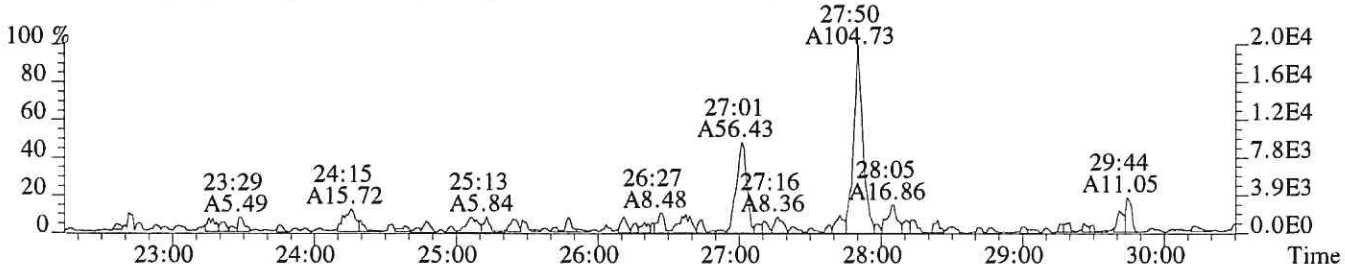
ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

File:P519313 #1-587 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009

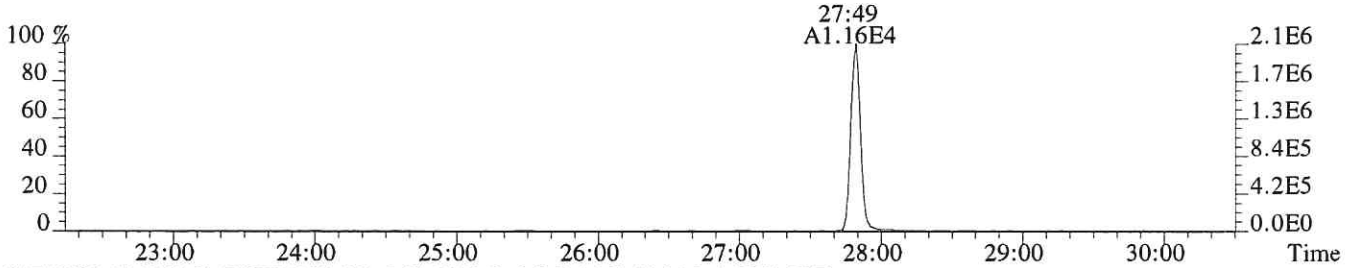
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



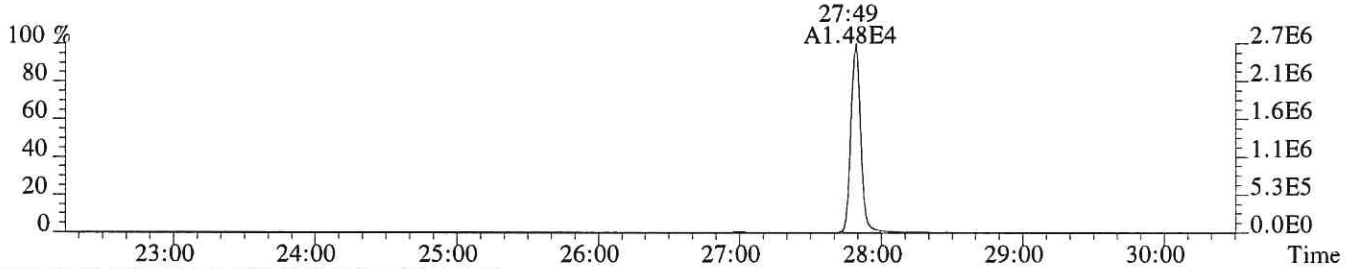
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



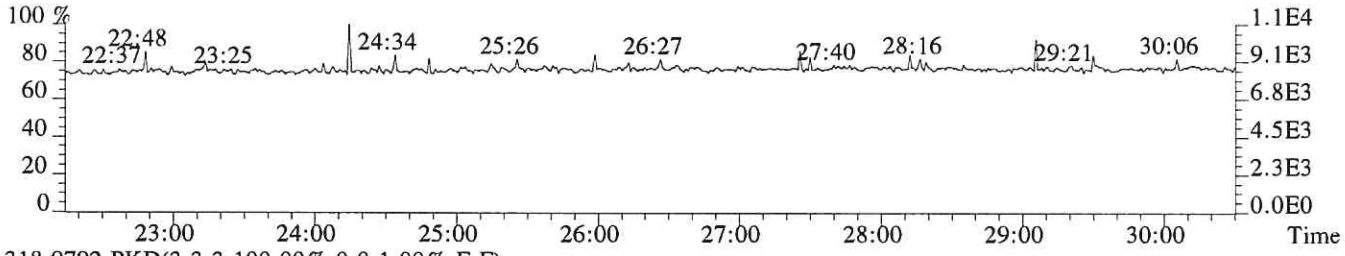
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2732.0,1.00%,F,T)



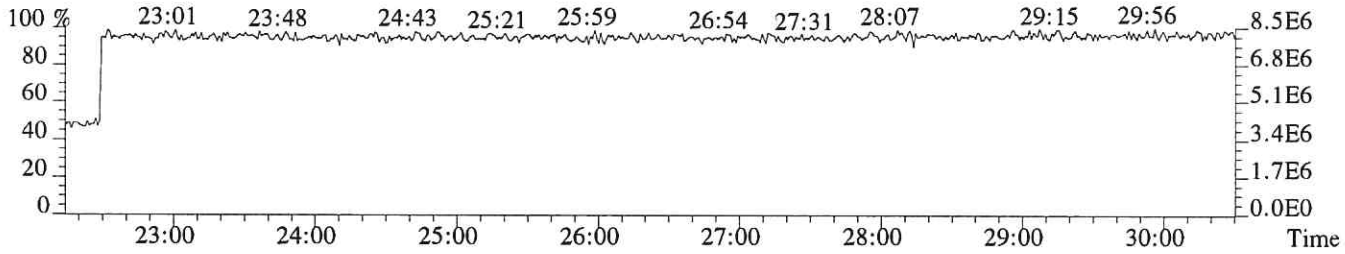
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



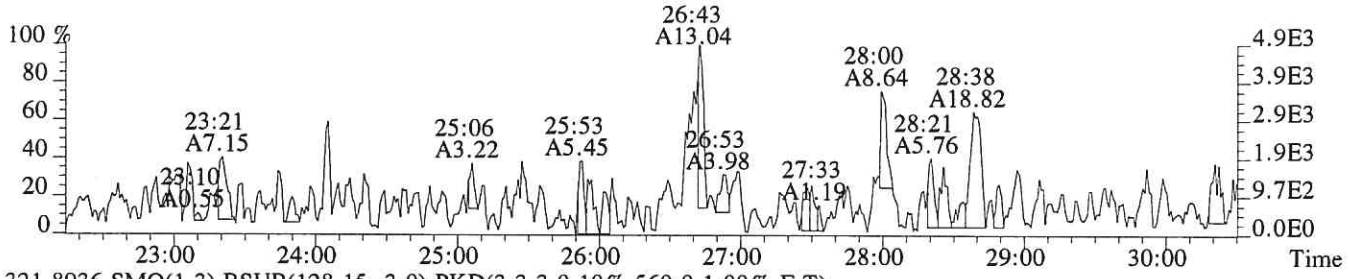
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



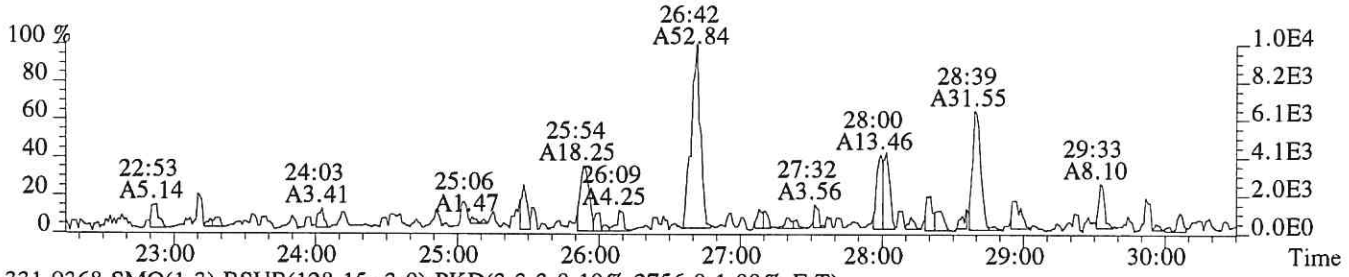
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



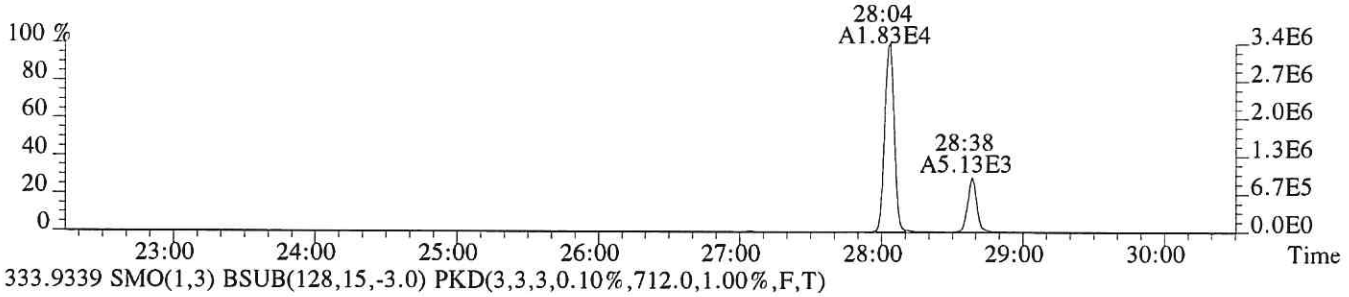
File:P519313 #1-587 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



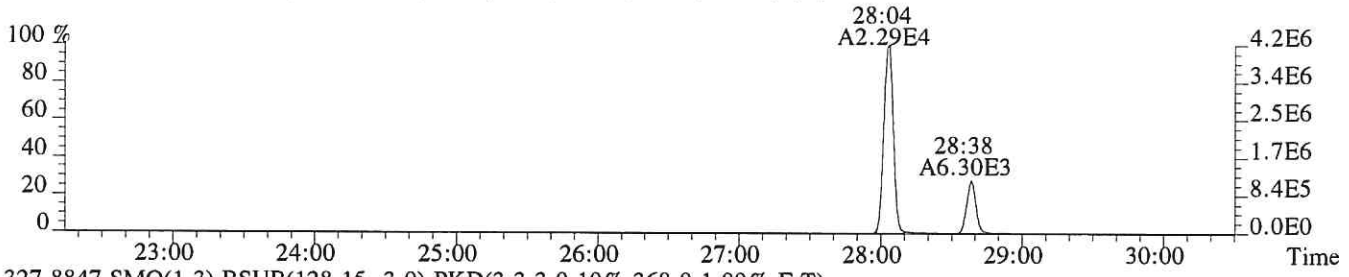
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



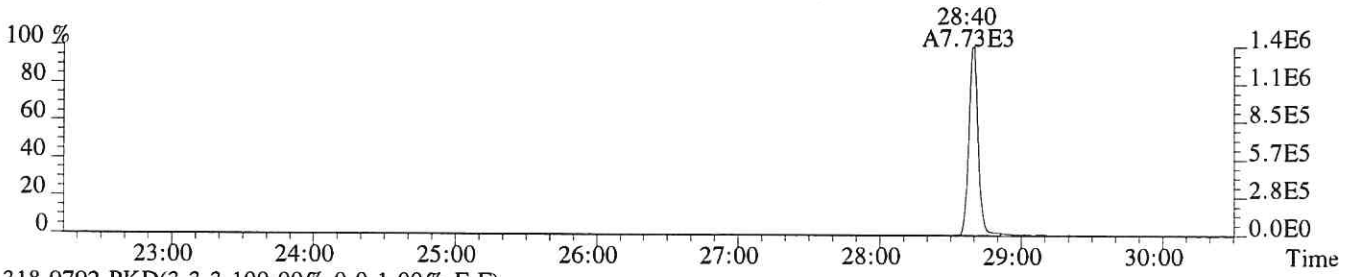
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2756.0,1.00%,F,T)



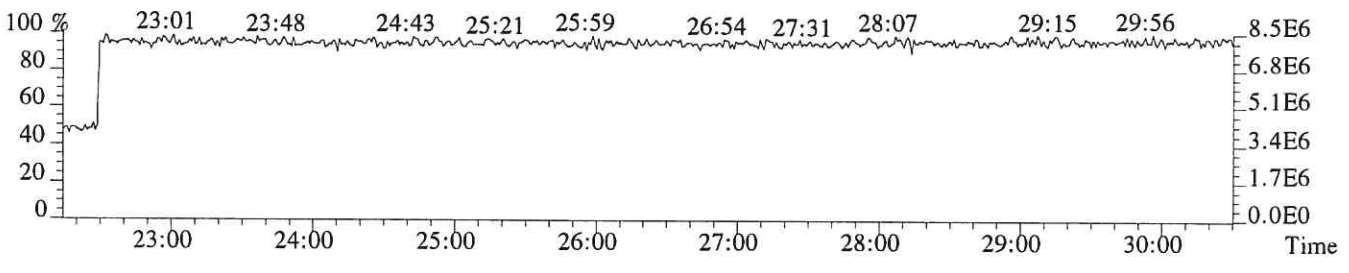
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)

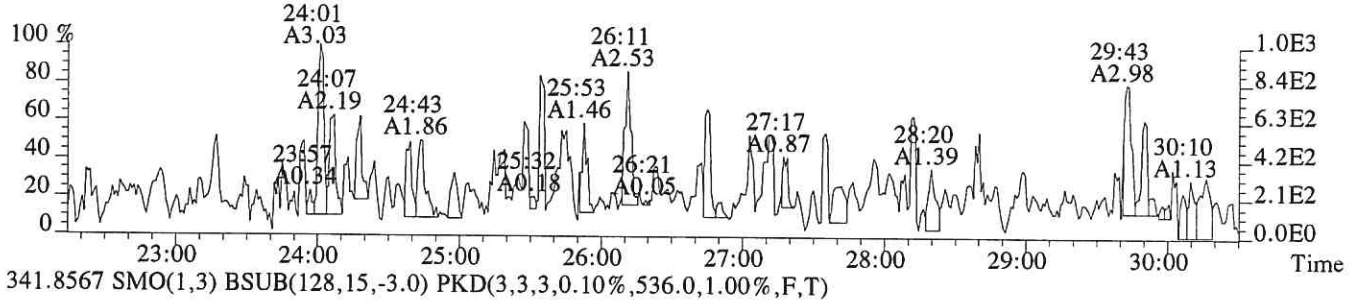


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

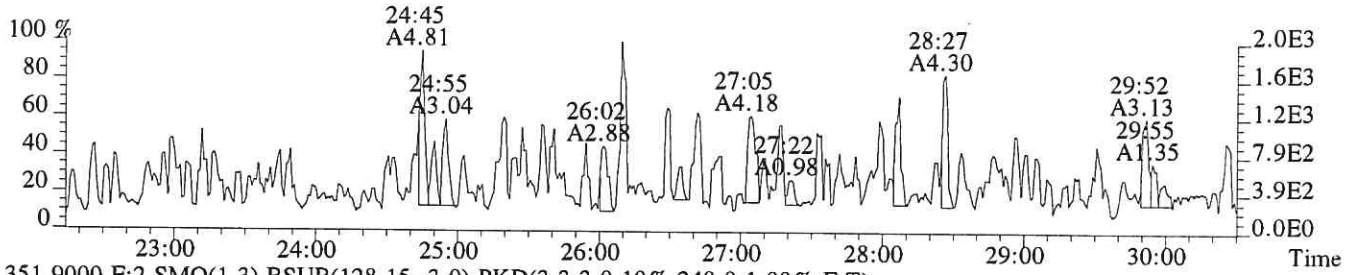


File:P519313 #1-587 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009

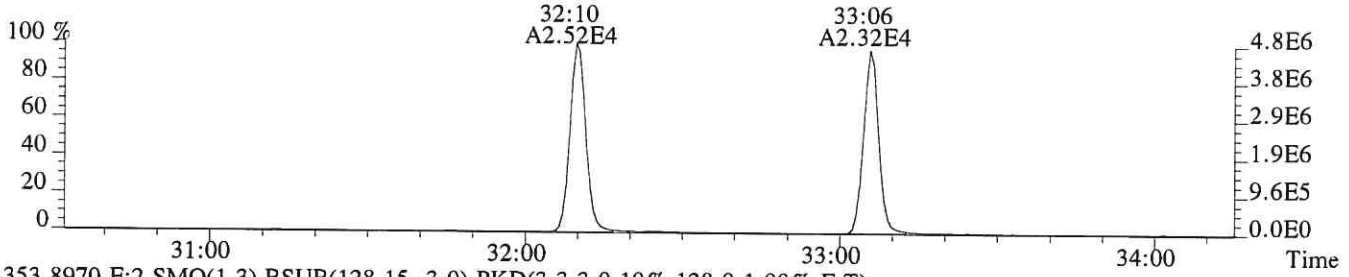
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



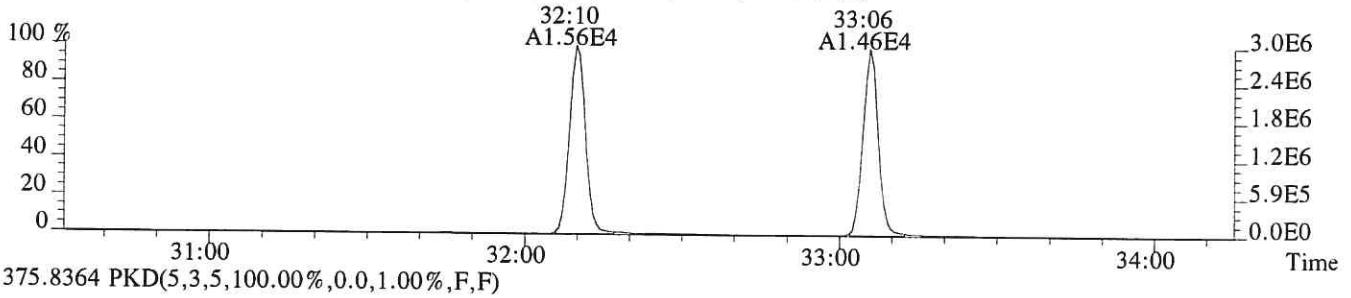
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



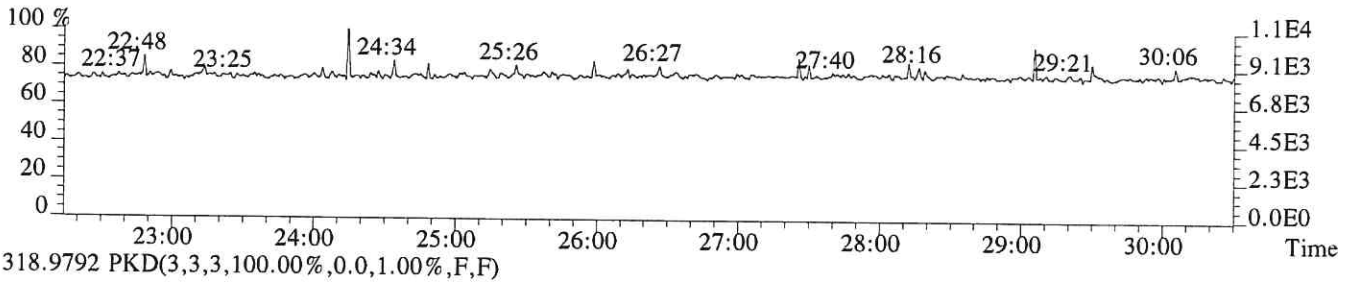
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



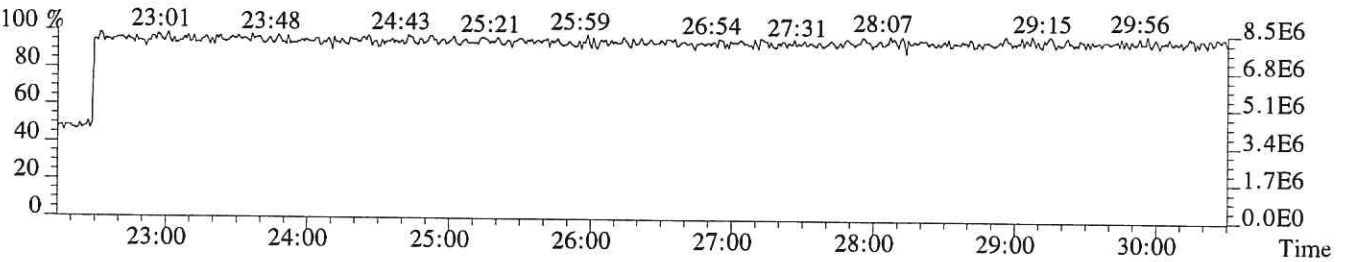
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

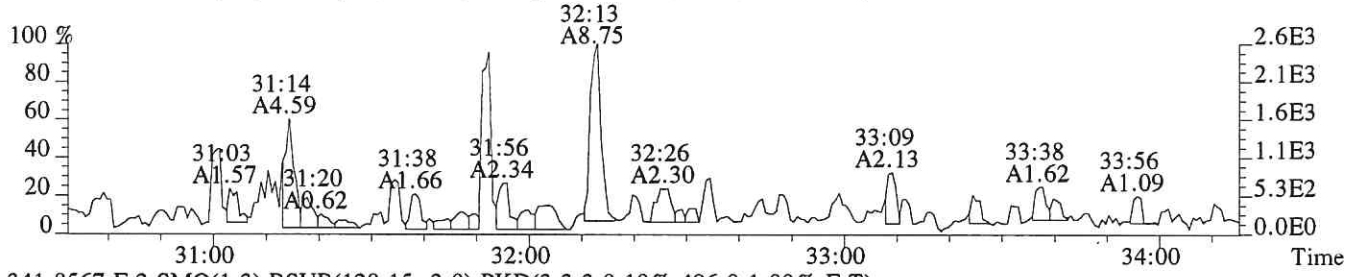


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

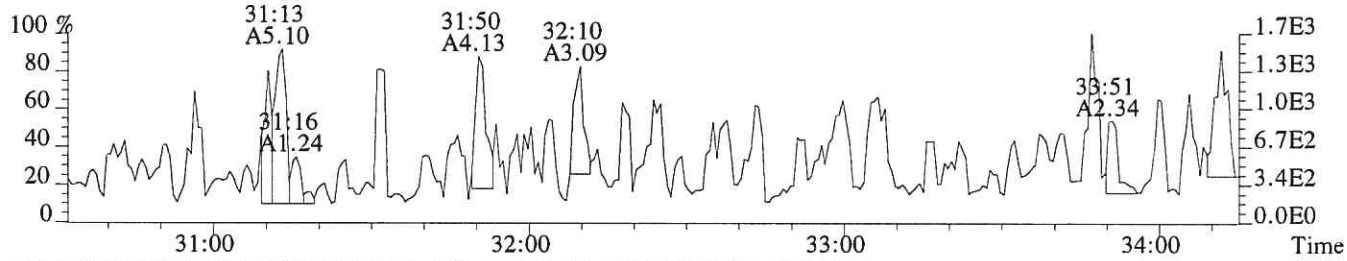


File:P519313 #1-335 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009

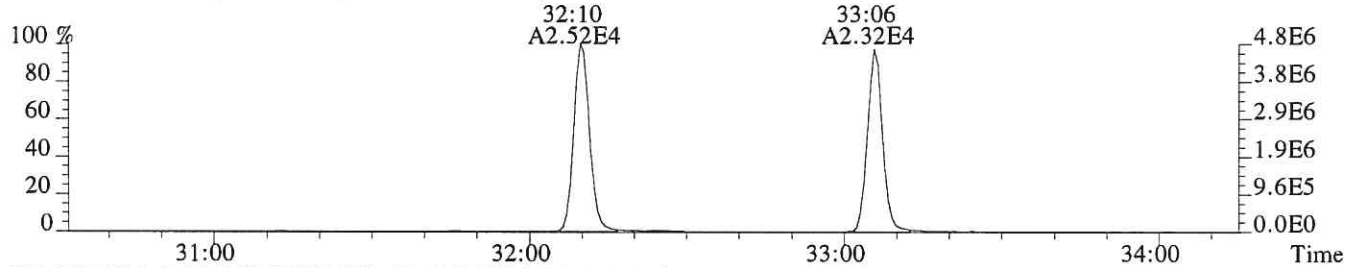
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



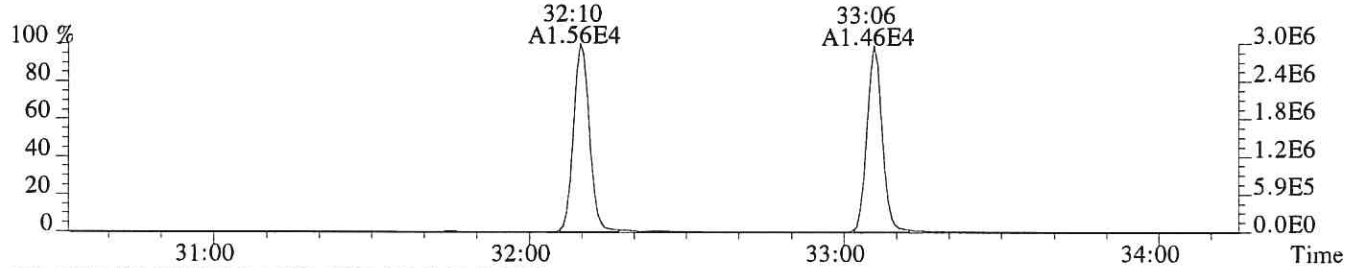
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



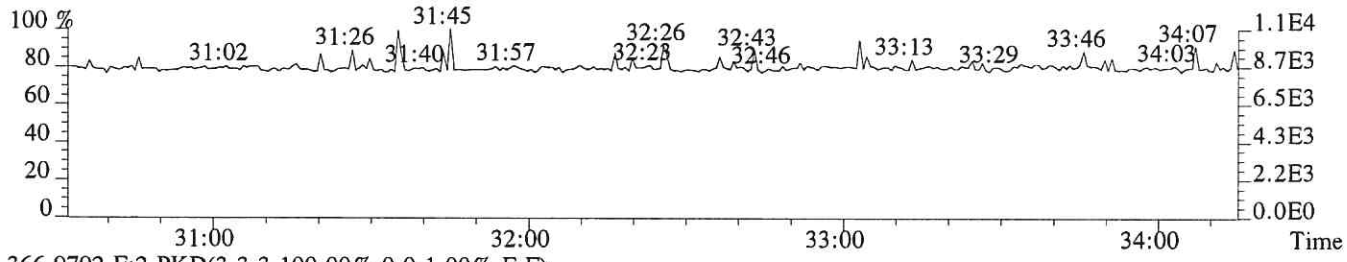
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



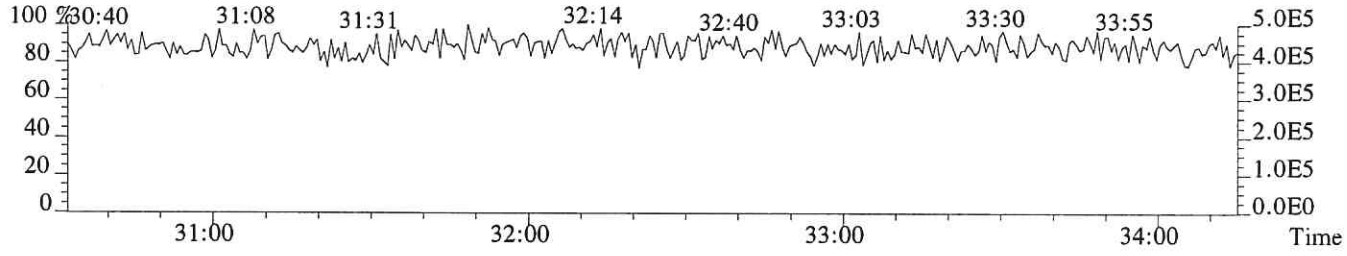
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



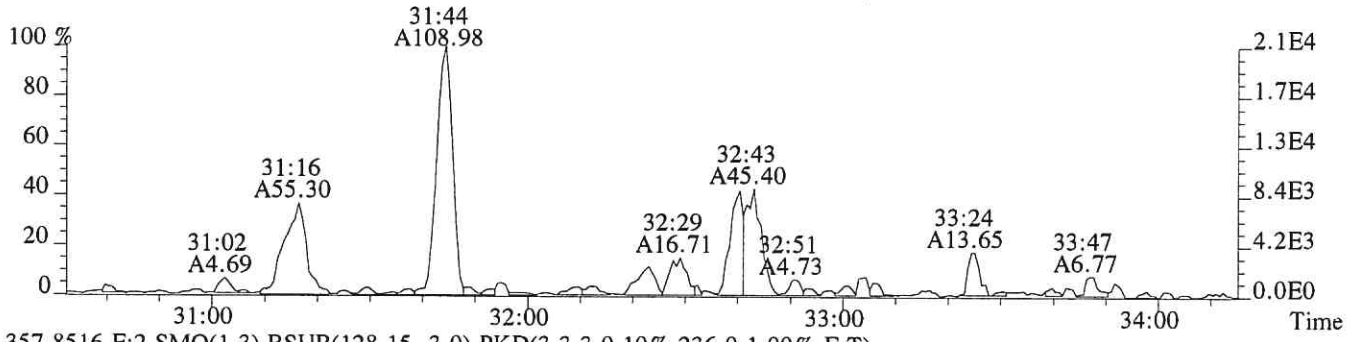
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



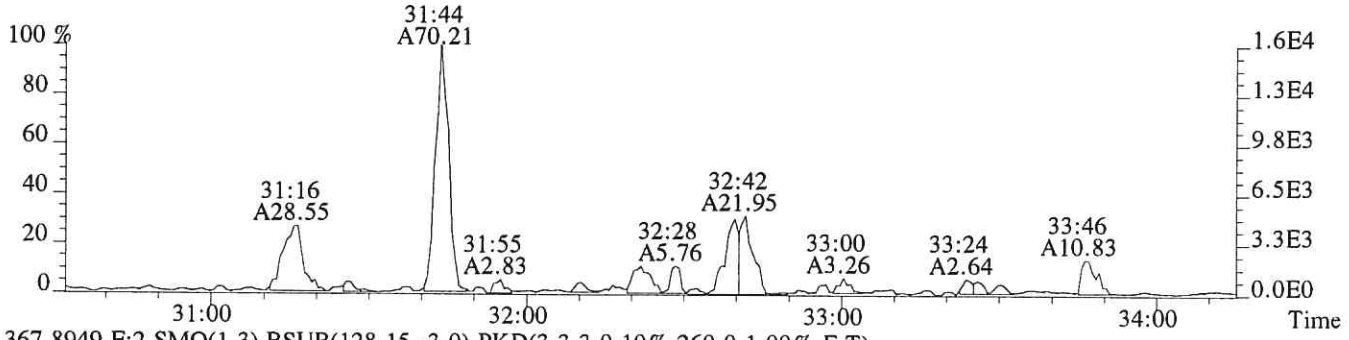
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



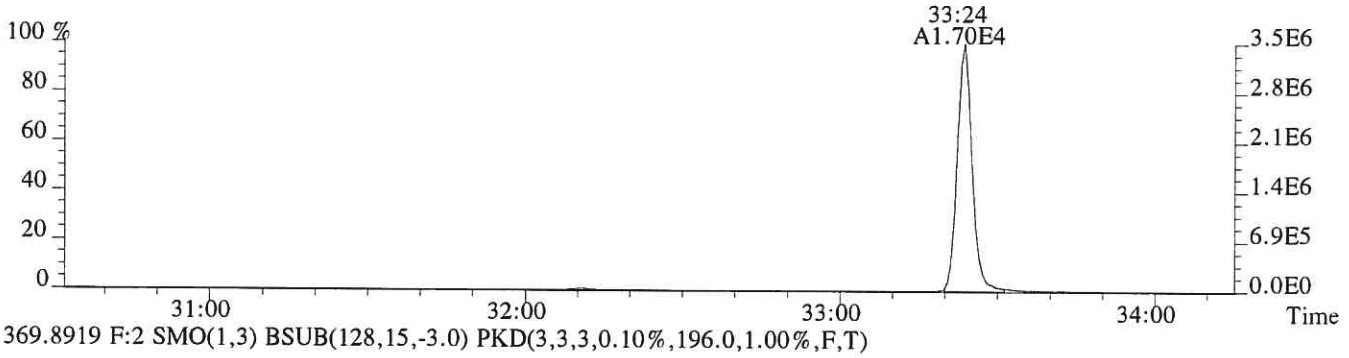
File:P519313 #1-335 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



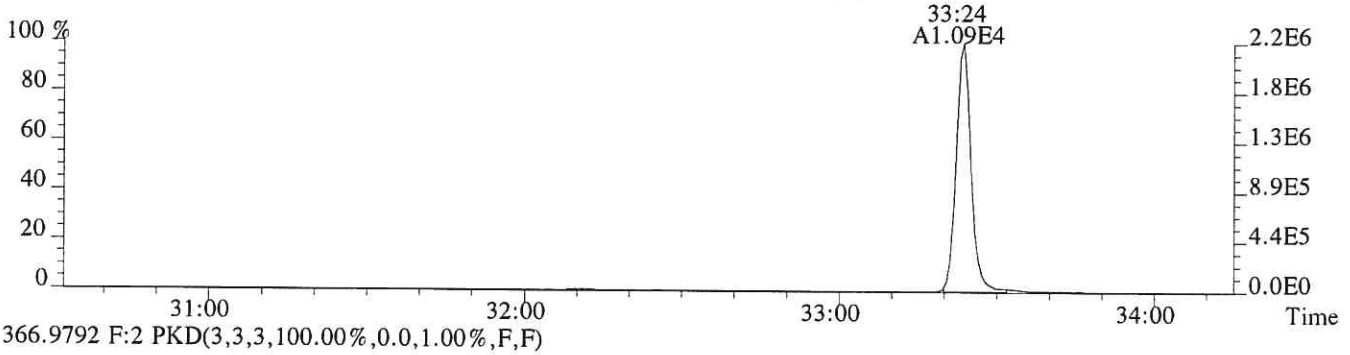
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



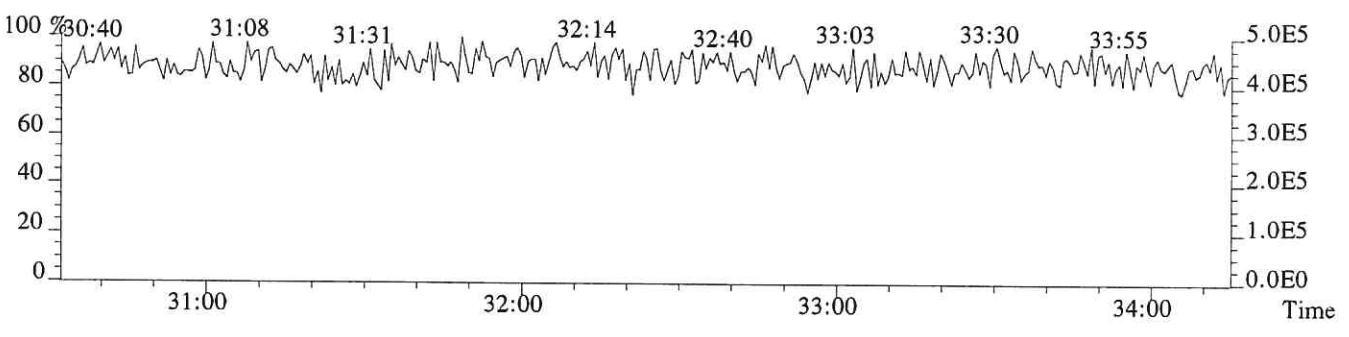
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



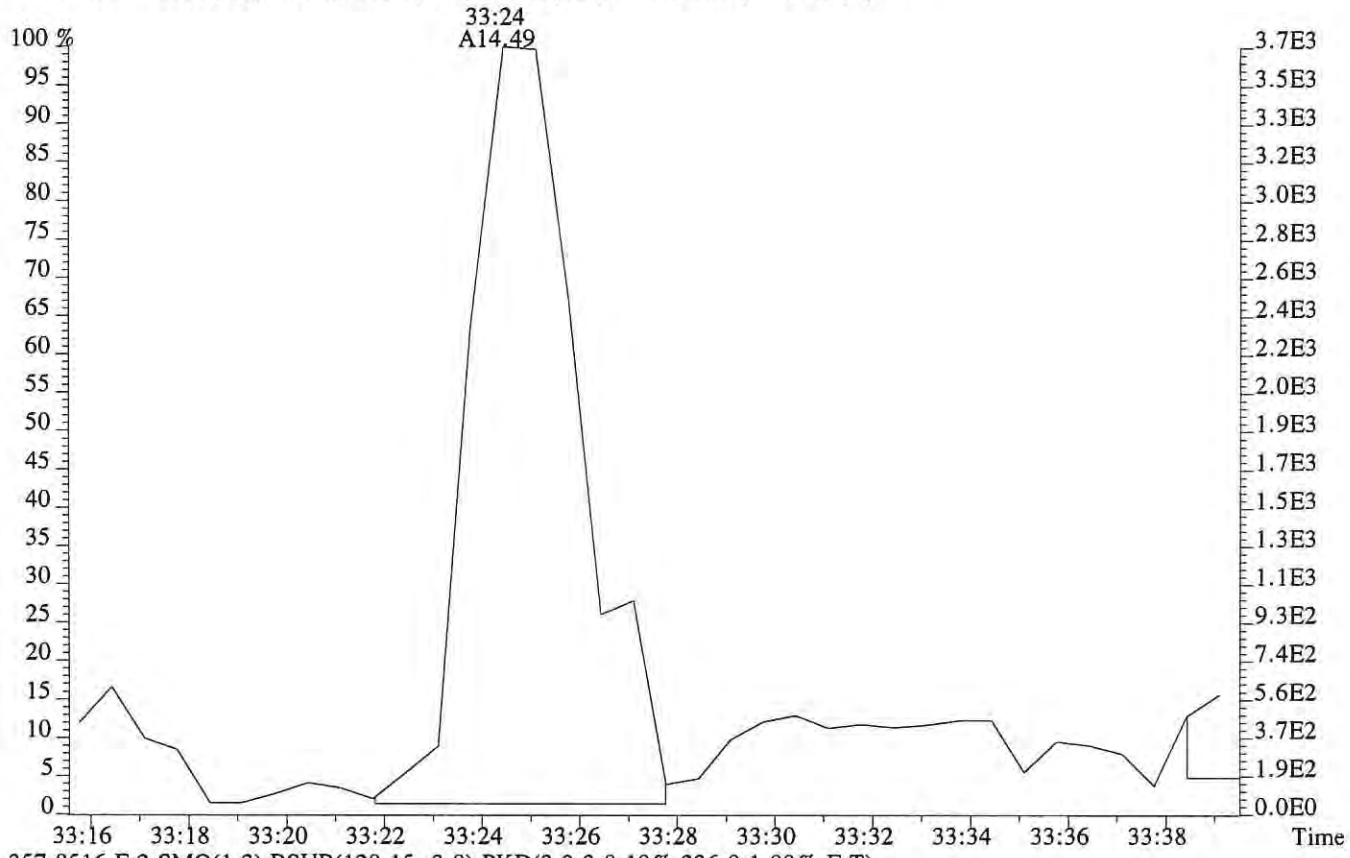
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



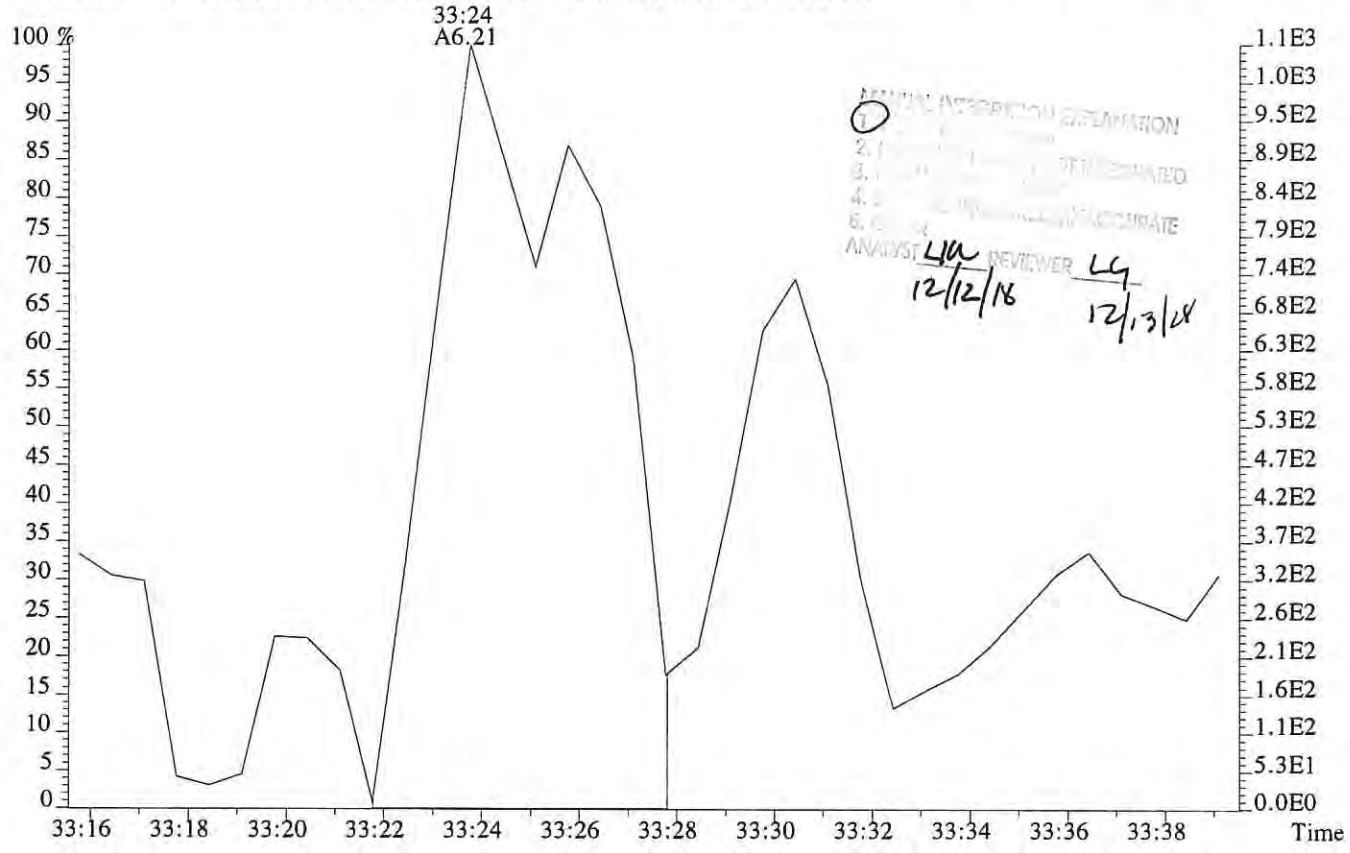
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519313 #1-335 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)

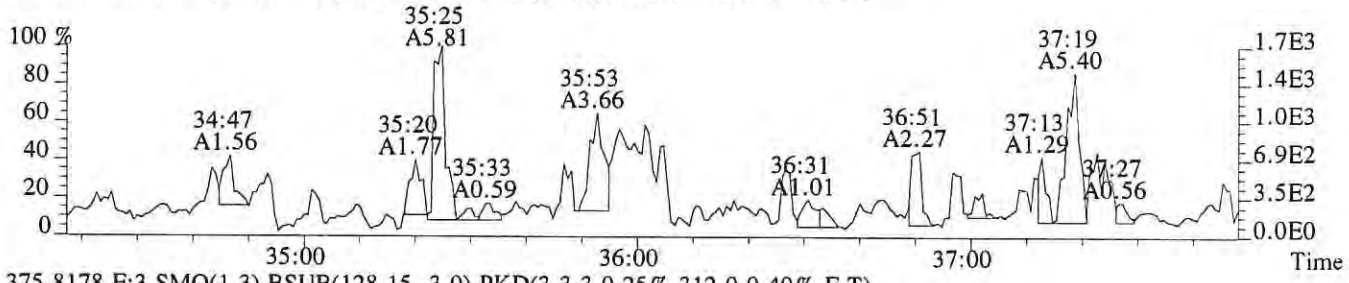


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)

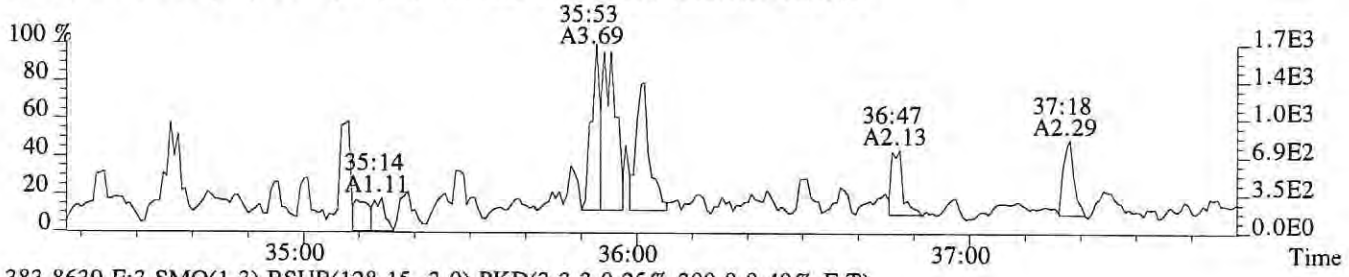


MANUAL INTEGRATION EXPLANATION
1.
2.
3. INTEGRATED
4.
5. ACCURATE
ANALYST LW 12/12/18 REVIEWER LG 12/13/18

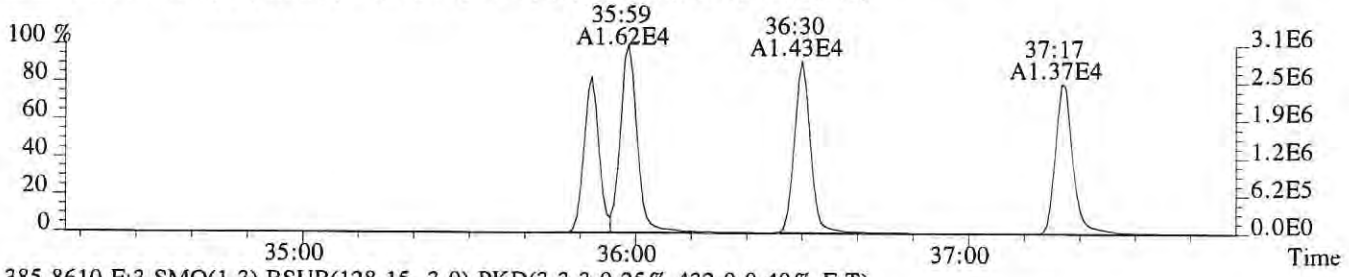
File:P519313 #1-317 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



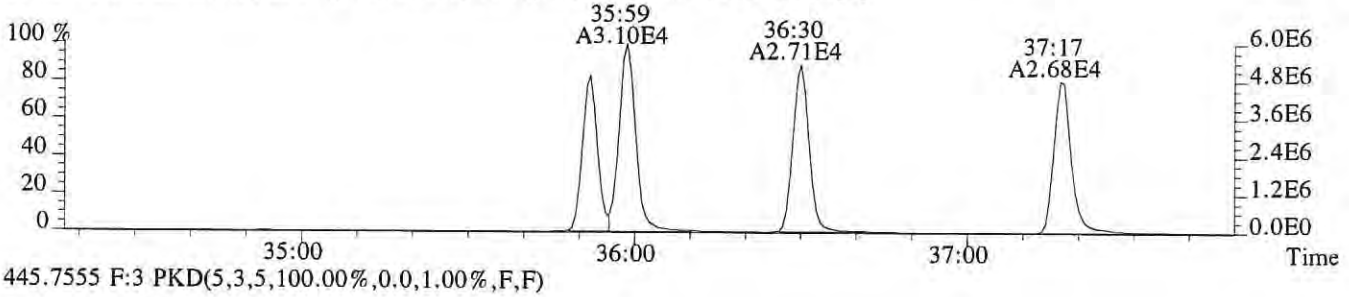
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



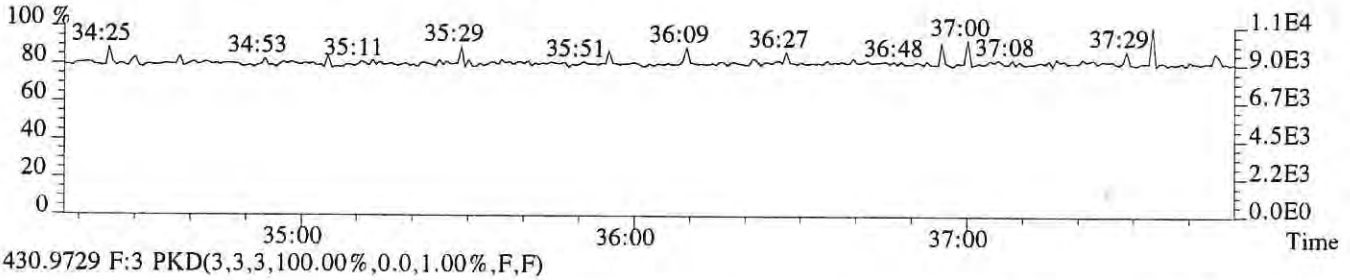
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



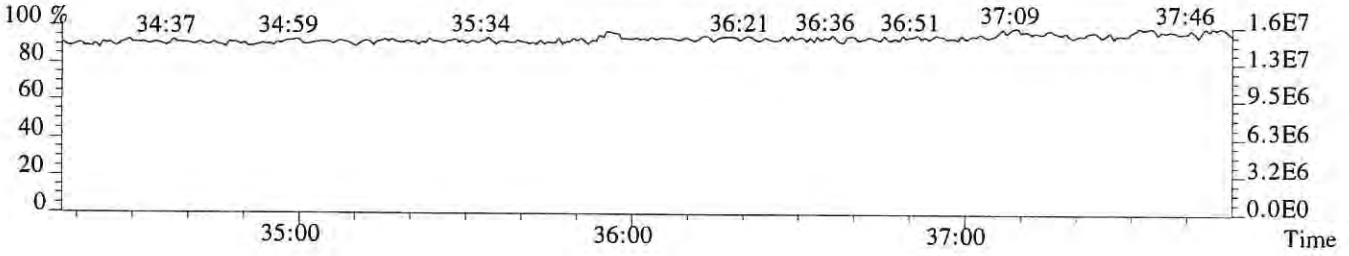
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



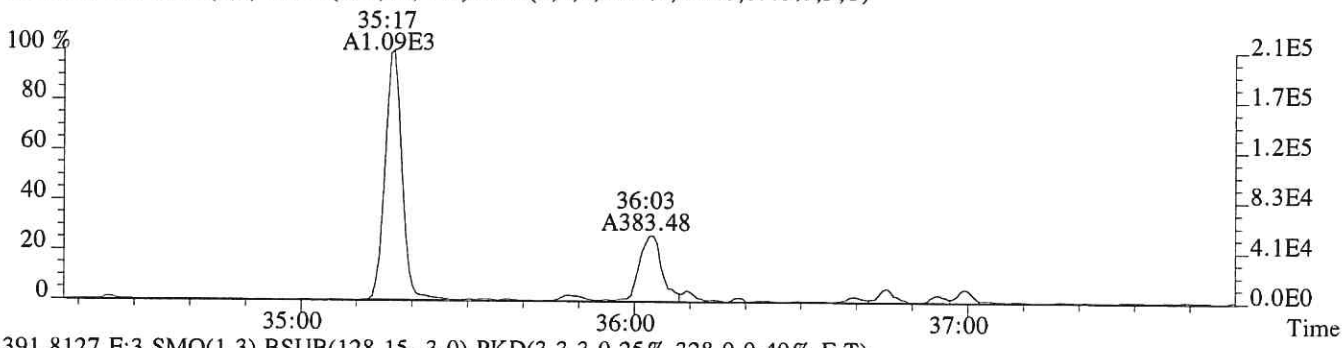
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



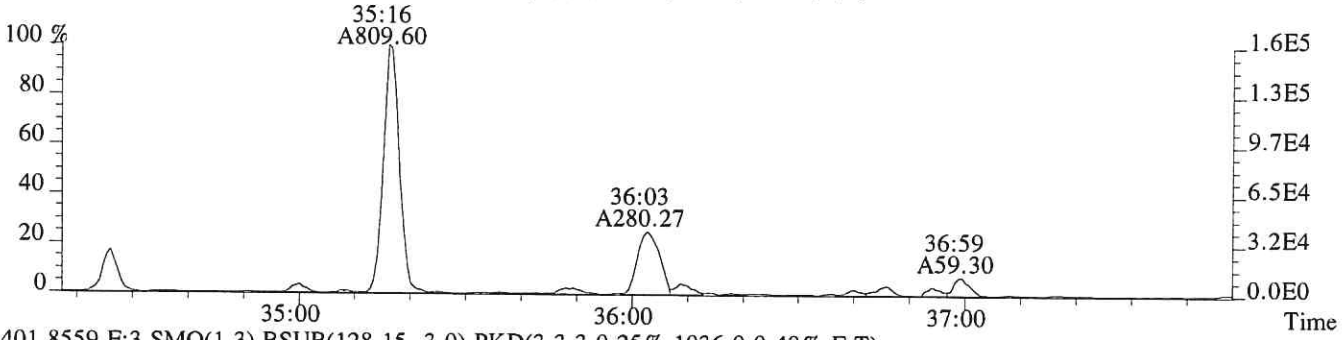
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



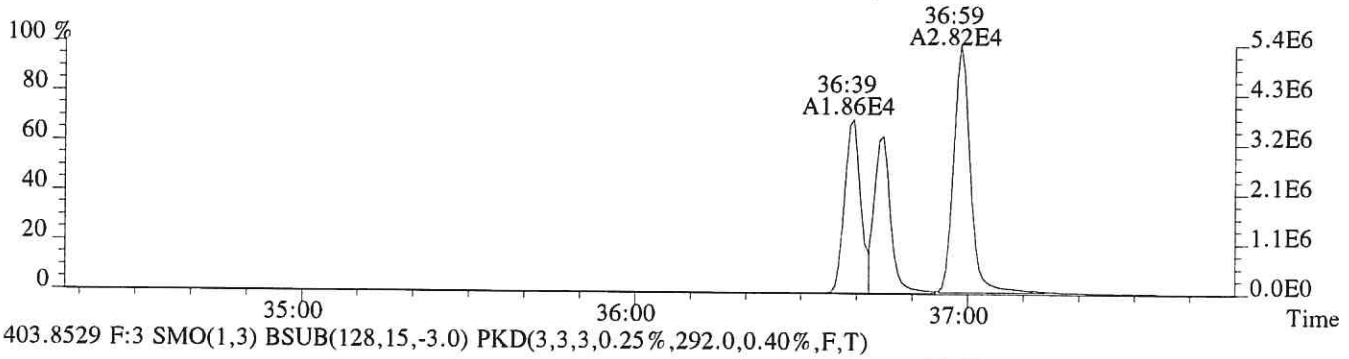
File:P519313 #1-317 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



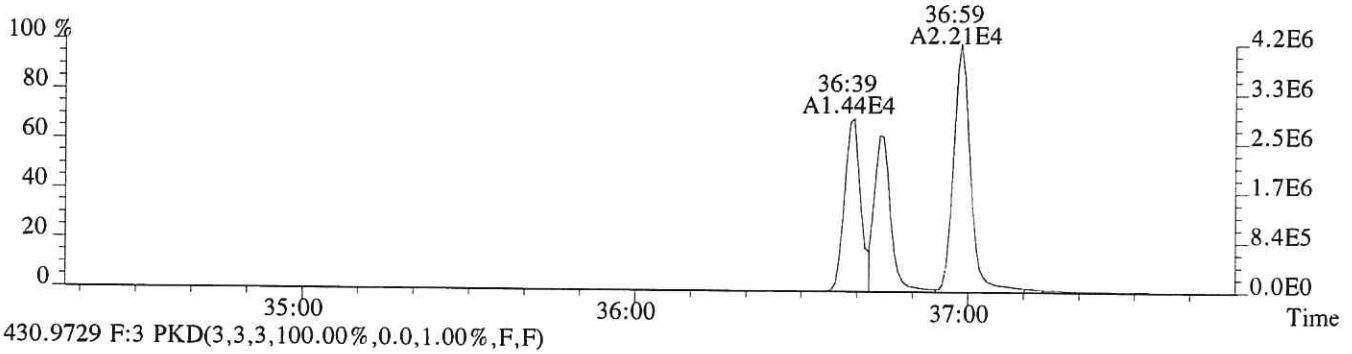
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



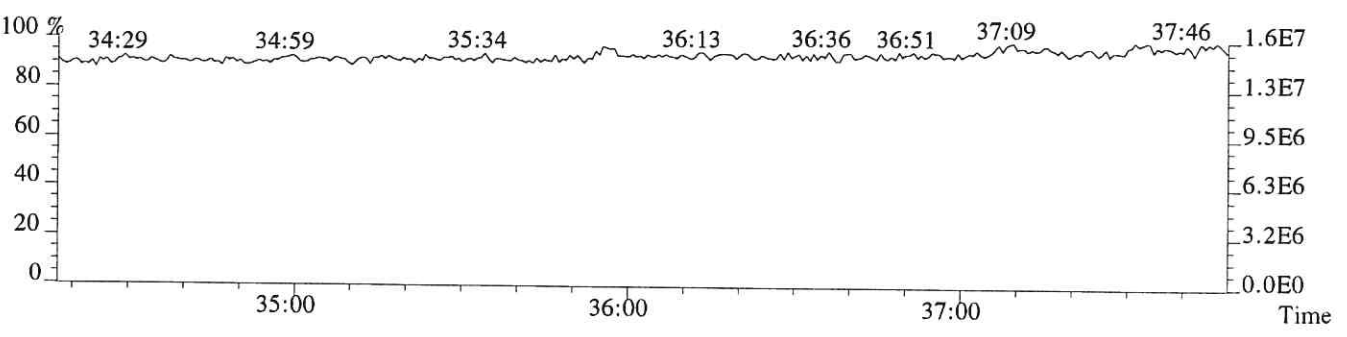
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



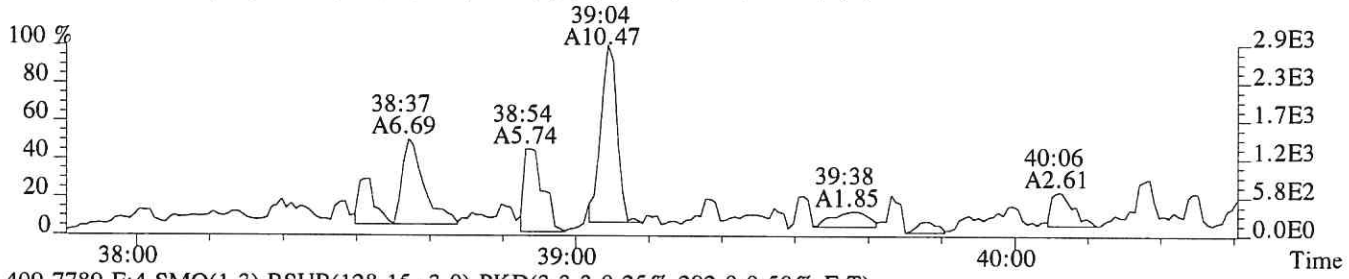
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



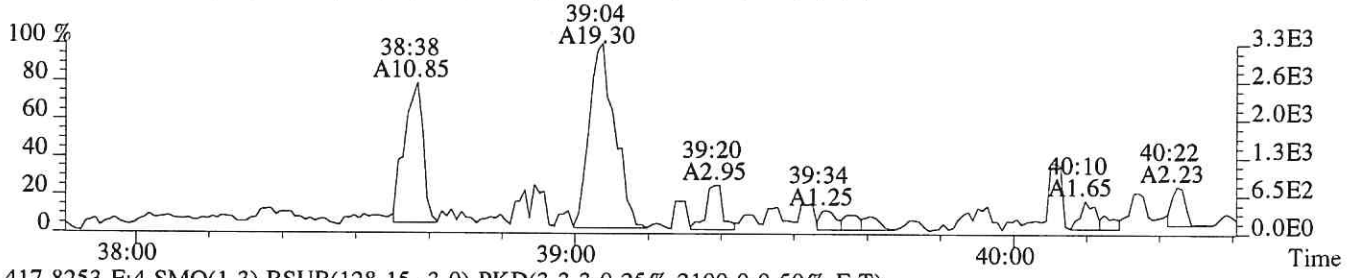
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



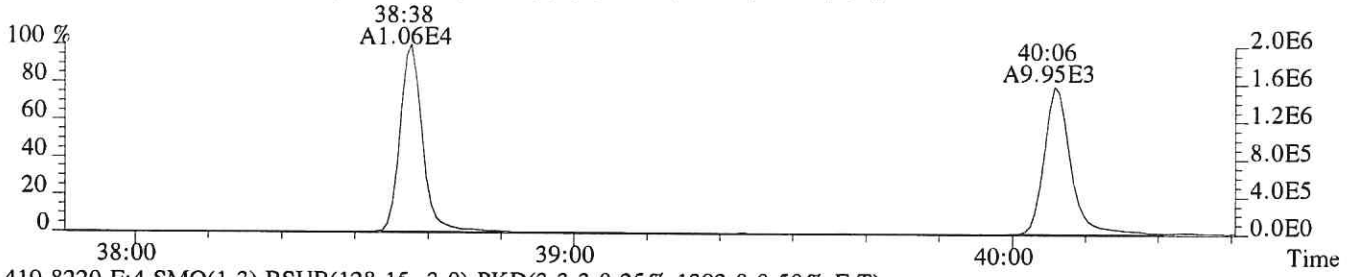
File:P519313 #1-241 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.50%,F,T)



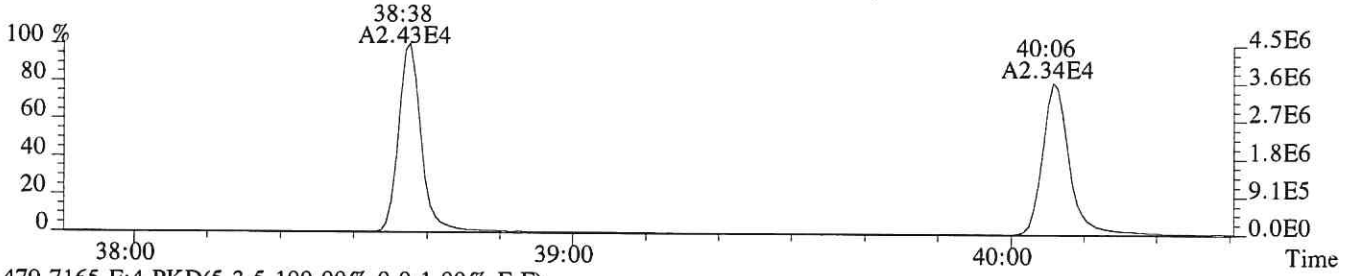
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.50%,F,T)



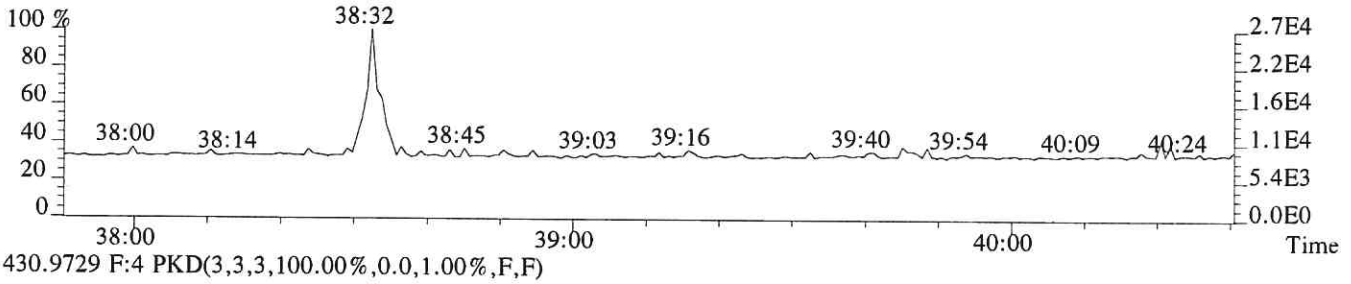
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2100.0,0.50%,F,T)



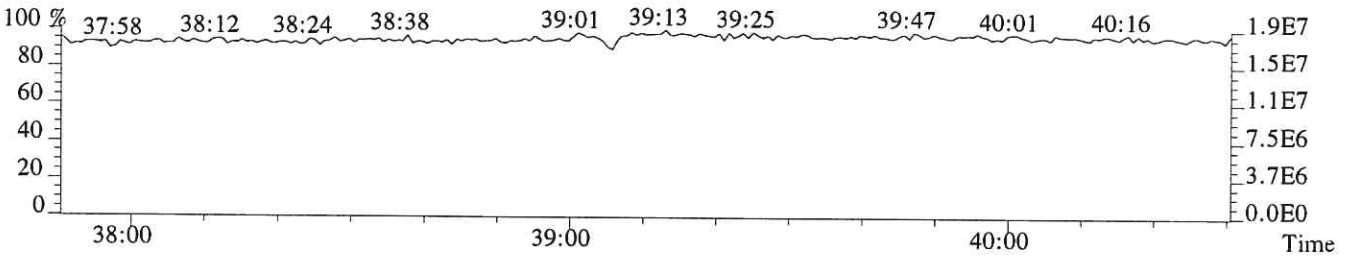
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.50%,F,T)



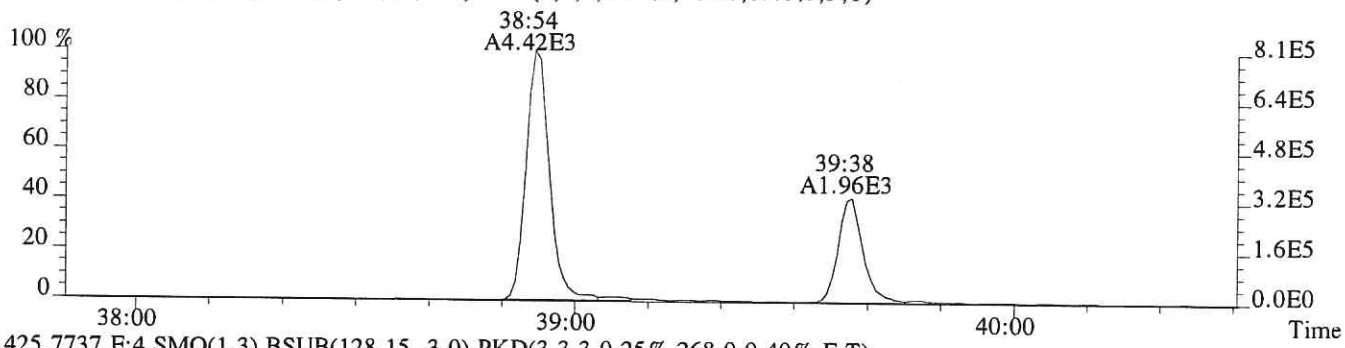
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



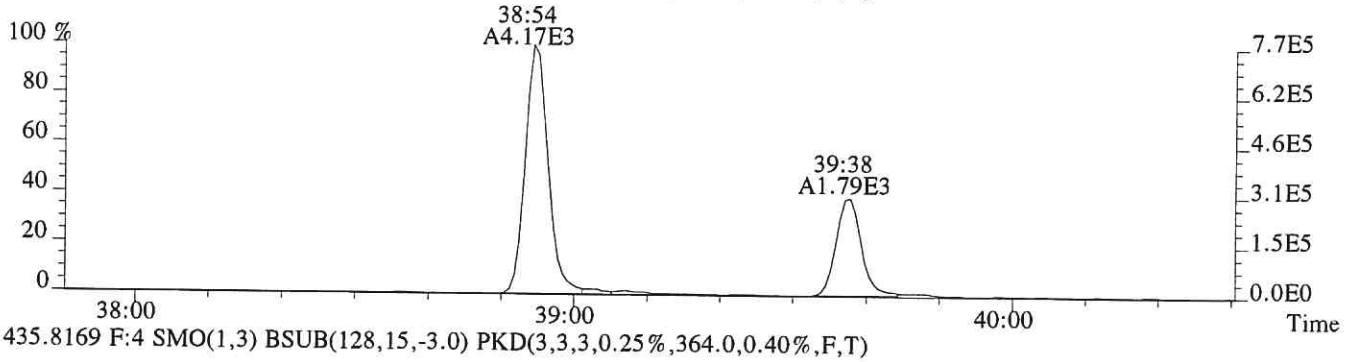
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



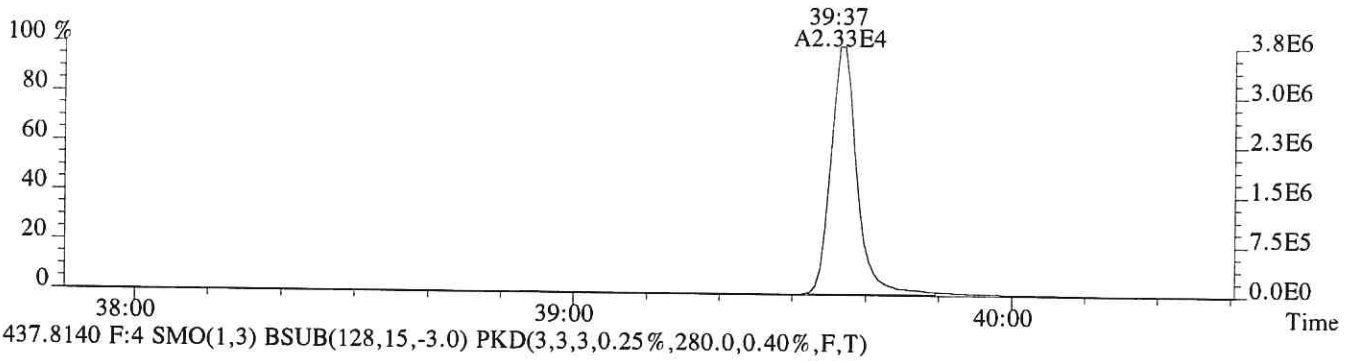
File:P519313 #1-241 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



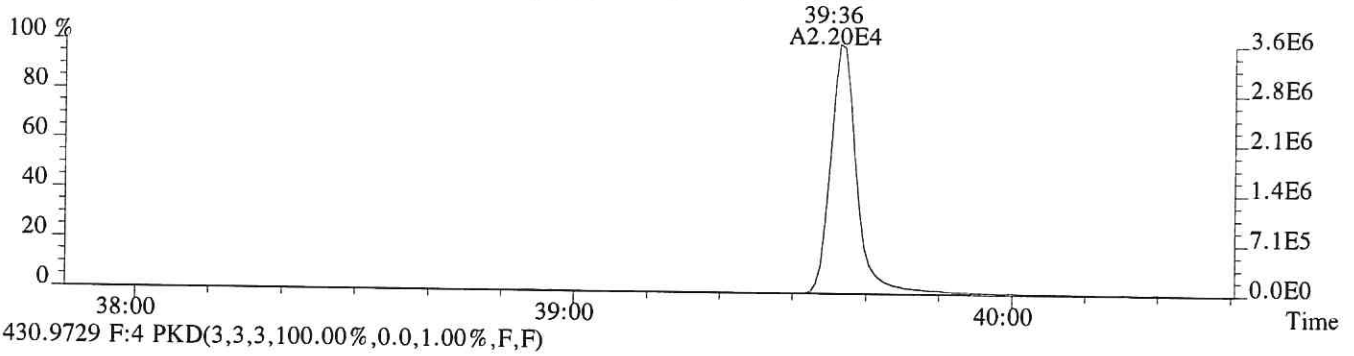
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



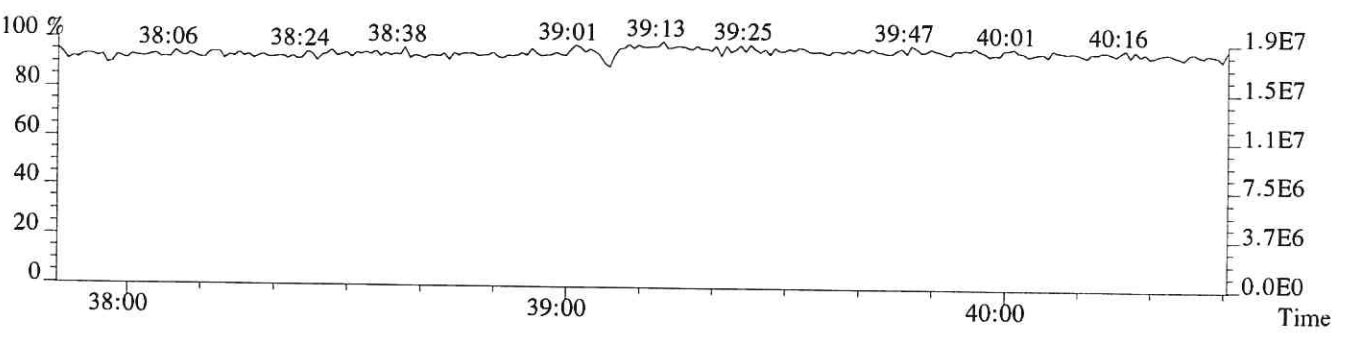
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)

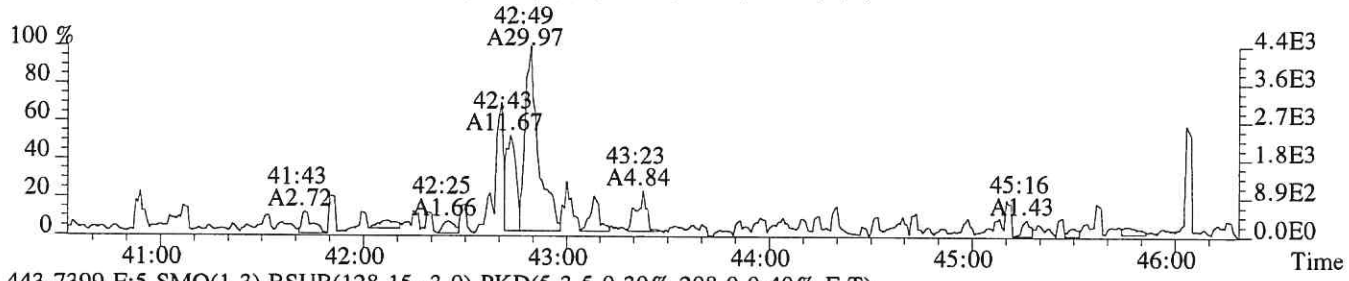


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

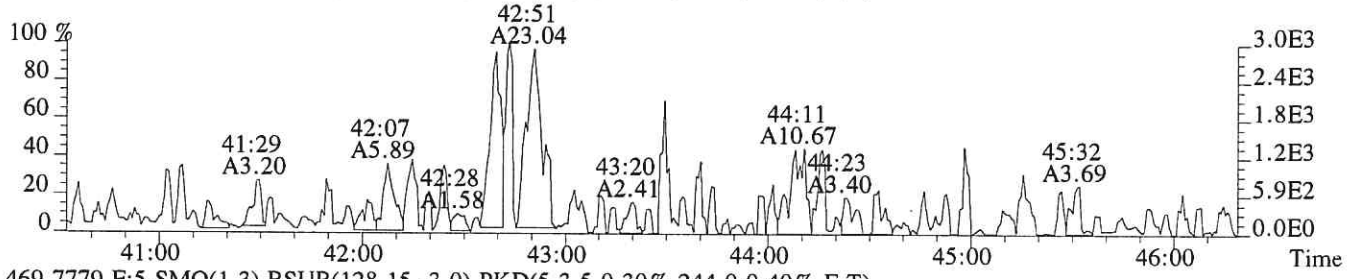


File:P519313 #1-520 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009

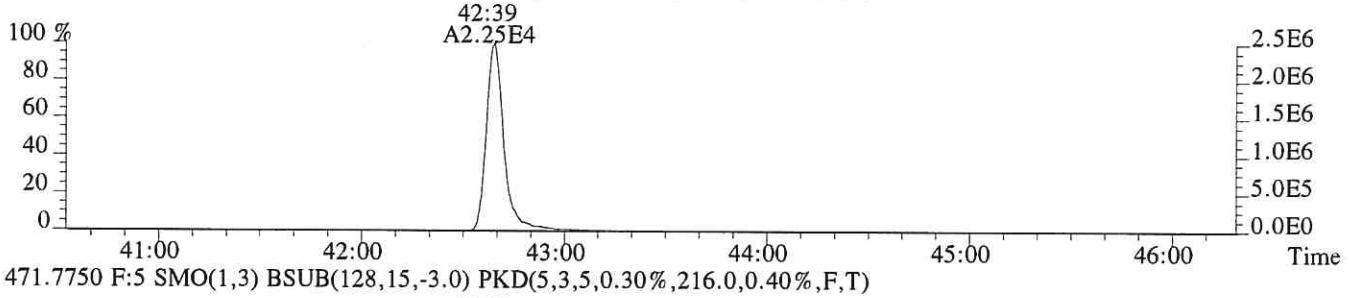
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



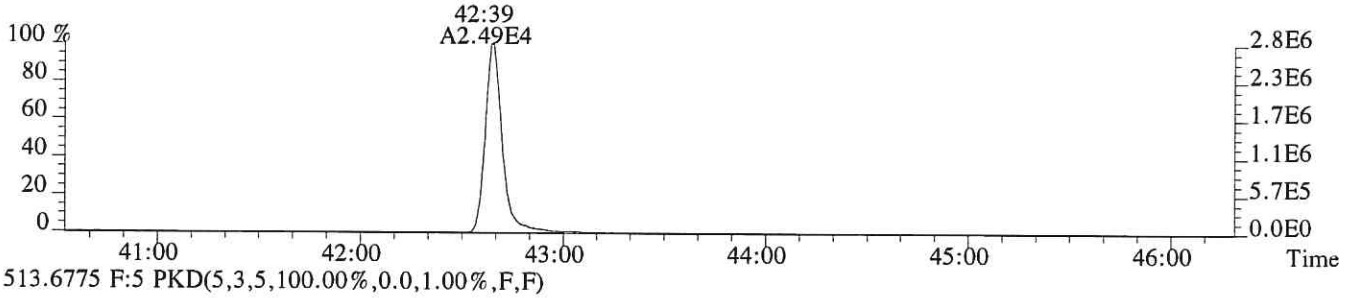
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



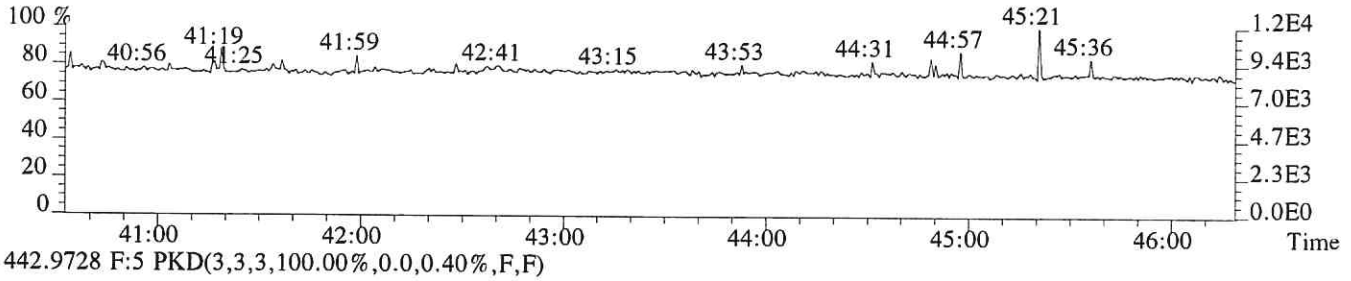
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



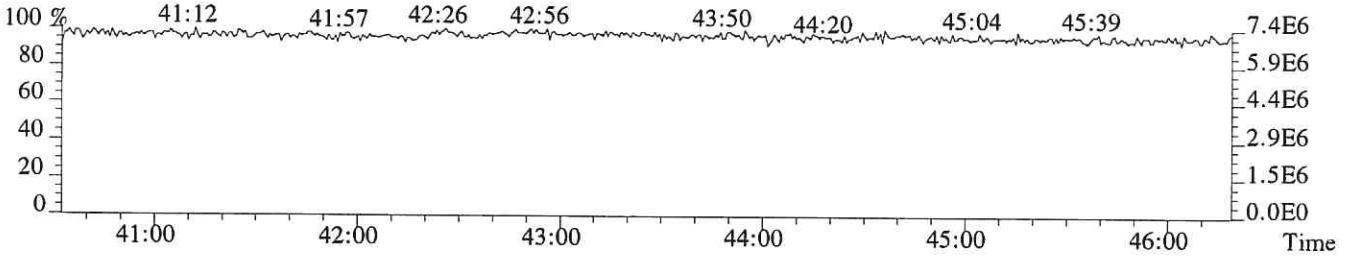
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



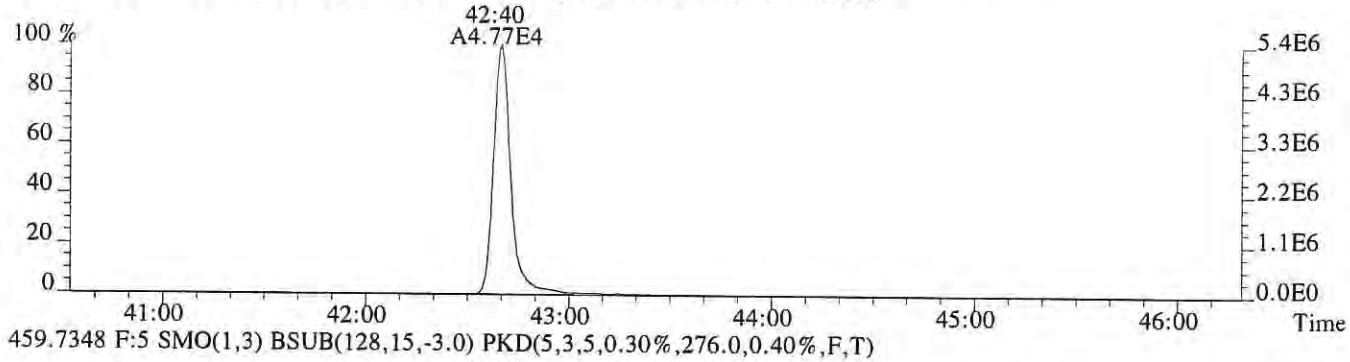
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



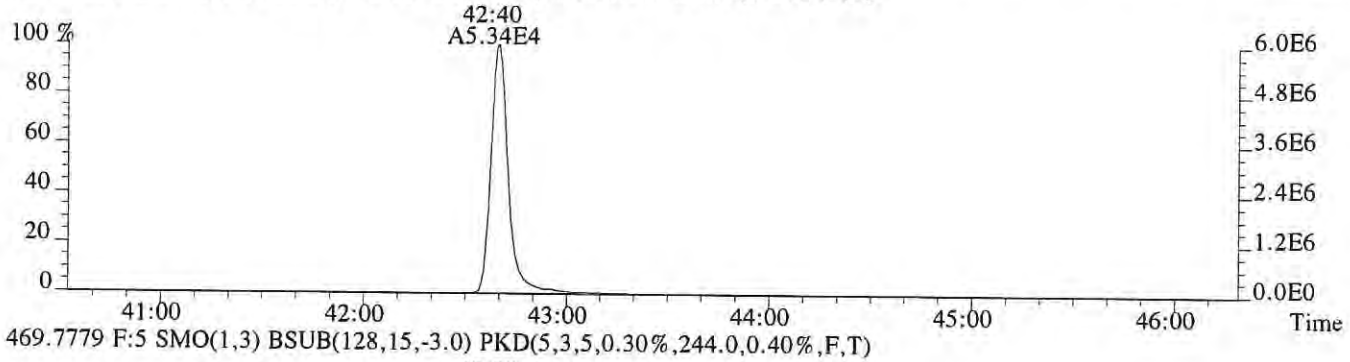
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



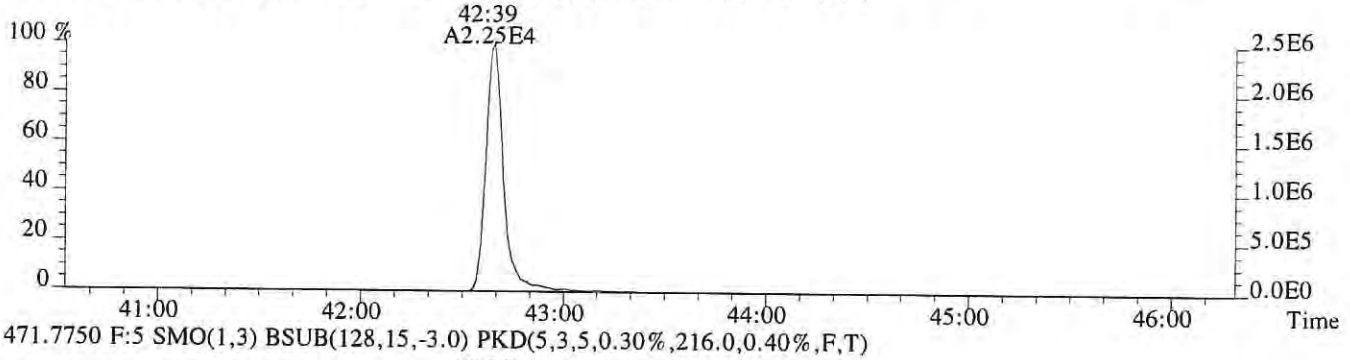
File:P519313 #1-520 Acq: 8-DEC-2018 16:26:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-009
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



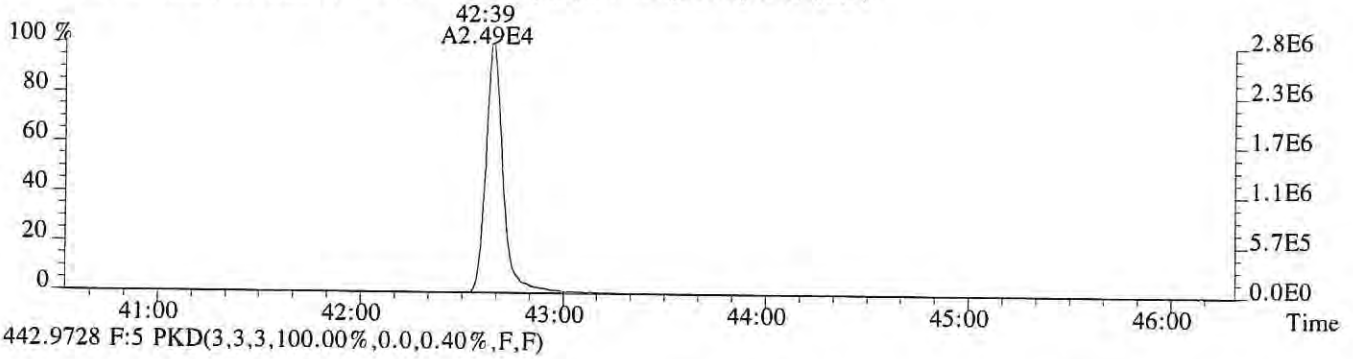
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



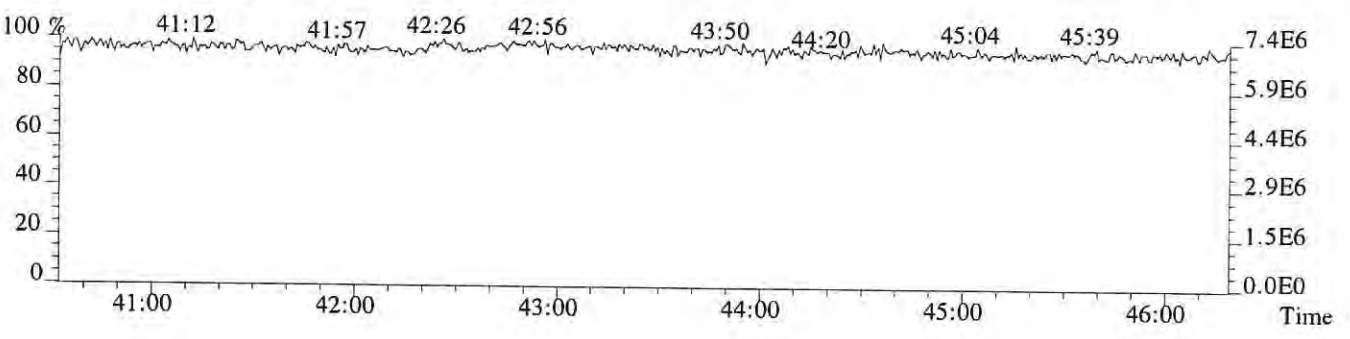
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0589

Run #17 Filename P519314 Samp: 1 Inj: 1 Acquired: 8-DEC-18 17:15:32
Processed: 11-DEC-18 16:44:06 Sample ID: E1801065-010

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	1.125e+03	1.453e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	6.712e+01	4.864e+01	1.38	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	7.289e+01	5.585e+01	1.31	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	1.114e+02	1.135e+02	0.98	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	5.824e+01	4.134e+01	1.41	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	2.905e+01	2.066e+01	1.41	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:20	6.574e+00	1.805e+01	0.36	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.793e+02	1.333e+02	1.35	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.540e+01	2.978e+01	0.52	no	no	1.258
10	Unk	OCDF	42:51	2.396e+02	2.897e+02	0.83	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	2.188e+02	3.023e+02	0.72	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	3.379e+01	6.598e+00	5.12	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	3.847e+01	2.516e+01	1.53	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	7.201e+01	4.729e+01	1.52	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:00	1.016e+02	7.416e+01	1.37	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:38	2.492e+03	2.465e+03	1.01	yes	no	1.025
17	Unk	OCDD	42:39	1.144e+05	1.288e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	8.080e+03	1.021e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	1.506e+04	9.709e+03	1.55	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	1.784e+04	1.129e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	9.104e+03	1.790e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.176e+04	2.256e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	9.707e+03	1.909e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	9.788e+03	1.916e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	7.843e+03	1.827e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	7.708e+03	1.741e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	3.856e+03	4.942e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.286e+04	8.101e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.371e+04	1.073e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.302e+04	1.014e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	1.699e+04	1.601e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:39	1.720e+04	1.899e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.172e+04	1.502e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.129e+04	1.718e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.171e+03				no	1.014

$$\text{OCDD} = \frac{(1.144e+05 + 1.288e+05) \times 4000 \text{ pg} \times 1}{(1.720e+04 + 1.899e+04) \times 10.431 \text{ g} \times 70.4/100 \times 1.118} = 3274.1198 \text{ ng/kg}$$

LG 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0589

Run #17 Filename P519314 Samp: 1 Inj: 1 Acquired: 8-DEC-18 17:15:32
Processed: 11-DEC-18 16:44:06 LAB. ID: E1801065-010

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.80e+05	2.64e+02	6.8e+02	2.35e+05	3.00e+02	7.8e+02
2	1,2,3,7,8-PeCDF	1.22e+04	2.92e+02	4.2e+01	1.02e+04	4.16e+02	2.4e+01
3	2,3,4,7,8-PeCDF	1.23e+04	2.92e+02	4.2e+01	1.18e+04	4.16e+02	2.8e+01
4	1,2,3,4,7,8-HxCDF	2.29e+04	2.16e+02	1.1e+02	2.31e+04	2.20e+02	1.0e+02
5	1,2,3,6,7,8-HxCDF	8.47e+03	2.16e+02	3.9e+01	6.34e+03	2.20e+02	2.9e+01
6	2,3,4,6,7,8-HxCDF	6.72e+03	2.16e+02	3.1e+01	4.80e+03	2.20e+02	2.2e+01
7	1,2,3,7,8,9-HxCDF	1.57e+03	2.16e+02	7.3e+00	3.00e+03	2.20e+02	1.4e+01
8	1,2,3,4,6,7,8-HpCDF	3.39e+04	6.52e+02	5.2e+01	2.81e+04	1.96e+02	1.4e+02
9	1,2,3,4,7,8,9-HpCDF	2.91e+03	6.52e+02	4.5e+00	5.29e+03	1.96e+02	2.7e+01
10	OCDF	2.55e+04	2.72e+02	9.4e+01	3.23e+04	3.04e+02	1.1e+02
11	2,3,7,8-TCDD	4.01e+04	7.40e+02	5.4e+01	5.15e+04	4.72e+02	1.1e+02
12	1,2,3,7,8-PeCDD	5.36e+03	3.28e+02	1.6e+01	2.05e+03	2.24e+02	9.2e+00
13	1,2,3,4,7,8-HxCDD	7.34e+03	5.84e+02	1.3e+01	3.53e+03	1.40e+03	2.5e+00
14	1,2,3,6,7,8-HxCDD	1.34e+04	5.84e+02	2.3e+01	1.06e+04	1.40e+03	7.5e+00
15	1,2,3,7,8,9-HxCDD	1.99e+04	5.84e+02	3.4e+01	1.48e+04	1.40e+03	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	4.23e+05	3.84e+02	1.1e+03	4.07e+05	2.20e+02	1.9e+03
17	OCDD	1.33e+07	3.20e+02	4.2e+04	1.51e+07	3.12e+02	4.8e+04
18	13C-2,3,7,8-TCDF	1.44e+06	2.39e+03	6.0e+02	1.81e+06	1.12e+03	1.6e+03
19	13C-1,2,3,7,8-PeCDF	2.56e+06	2.60e+02	9.8e+03	1.71e+06	7.28e+02	2.3e+03
20	13C-2,3,4,7,8-PeCDF	3.38e+06	2.60e+02	1.3e+04	2.14e+06	7.28e+02	2.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.87e+06	2.24e+02	8.4e+03	3.65e+06	4.00e+02	9.1e+03
22	13C-1,2,3,6,7,8-HxCDF	2.30e+06	2.24e+02	1.0e+04	4.41e+06	4.00e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.97e+06	2.24e+02	8.8e+03	3.91e+06	4.00e+02	9.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.82e+06	2.24e+02	8.1e+03	3.51e+06	4.00e+02	8.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.48e+06	1.06e+03	1.4e+03	3.44e+06	4.52e+02	7.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.23e+06	1.06e+03	1.2e+03	2.77e+06	4.52e+02	6.1e+03
27	13C-2,3,7,8-TCDD	7.12e+05	3.13e+03	2.3e+02	8.90e+05	1.29e+03	6.9e+02
28	13C-1,2,3,7,8-PeCDD	2.36e+06	3.96e+02	6.0e+03	1.52e+06	3.64e+02	4.2e+03
29	13C-1,2,3,4,7,8-HxCDD	2.87e+06	9.92e+02	2.9e+03	2.21e+06	3.96e+02	5.6e+03
30	13C-1,2,3,6,7,8-HxCDD	2.49e+06	9.92e+02	2.5e+03	1.93e+06	3.96e+02	4.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.82e+06	2.68e+02	1.1e+04	2.66e+06	2.80e+02	9.5e+03
32	13C-OCDD	2.02e+06	3.52e+02	5.7e+03	2.20e+06	3.28e+02	6.7e+03
33	13C-1,2,3,4-TCDD	2.22e+06	3.13e+03	7.1e+02	2.81e+06	1.29e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	4.13e+06	9.92e+02	4.2e+03	3.33e+06	3.96e+02	8.4e+03
35	37Cl-2,3,7,8-TCDD	1.16e+06	5.36e+02	2.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (7.400e{+}02 + 4.720e{+}02) \times 2000}{(7.123e{+}05 + 8.904e{+}05) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0589

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519314 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 17:15:32 Processed: 11-DEC-18 16:44:06

Mass: 303.9020 305.8990 Tot Response: 4.46e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:44	2.58e+01	3.71e+01	0.70	yes	6.29e+01		n	n
2	25:30	2.30e+01	3.09e+01	0.75	yes	5.39e+01		n	n
3	26:35	7.30e+01	1.01e+02	0.72	yes	1.74e+02		n	n
4	27:02	4.74e+02	5.99e+02	0.79	yes	1.07e+03		n	n
5	27:51	1.12e+03	1.45e+03	0.77	yes	2.58e+03	2,3,7,8-TCDF	n	n
6	28:11	1.10e+02	1.36e+02	0.81	yes	2.46e+02		n	n
7	29:44	1.25e+02	1.52e+02	0.83	yes	2.77e+02		n	n

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Peak List Summary

CLIENT ID.
SL0589

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519314 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 17:15:32 Processed: 11-DEC-18 16:44:06

Mass: 319.8970 321.8940 Tot Response: 5.65e+02 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:42	1.91e+01	2.48e+01	0.77	yes	4.39e+01		n	n
2	28:40	2.19e+02	3.02e+02	0.72	yes	5.21e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.
SL0589

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519314 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 17:15:32 Processed: 11-DEC-18 16:44:06

Mass: 339.8600 341.8570 Tot Response: 3.95e+02 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	9.61e+01	7.06e+01	1.36	yes	1.67e+02		n	y
2	32:00	2.06e+01	1.49e+01	1.38	yes	3.56e+01		n	y
3	32:12	6.71e+01	4.86e+01	1.38	yes	1.16e+02	1,2,3,7,8-PeCDF	n	n
4	33:02	4.41e+01	3.28e+01	1.35	yes	7.69e+01		n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0589

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P519314 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 17:15:32 Processed: 11-DEC-18 16:44:06

Mass: 355.8550 357.8520 Tot Response: 1.16e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:44	6.83e+01	4.76e+01 1.43	yes	1.16e+02		n	n

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Peak List Summary

CLIENT ID.
SL0589

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519314 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 17:15:32 Processed: 11-DEC-18 16:44:06

Mass: 373.8210 375.8180 Tot Response: 2.46e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:44	2.84e+01	2.25e+01 1.26	yes	5.09e+01		n	n
2	35:48	2.43e+01	2.20e+01 1.10	yes	4.63e+01		n	n
3	36:00	5.82e+01	4.13e+01 1.41	yes	9.96e+01	1,2,3,6,7,8-HxCDF	n	n
4	36:31	2.90e+01	2.07e+01 1.41	yes	4.97e+01	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0589

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519314 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 17:15:32 Processed: 11-DEC-18 16:44:06

Mass: 389.8160 391.8130 Tot Response: 1.77e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	8.76e+02	6.45e+02 1.36	yes	1.52e+03		n	n
2	35:49	4.32e+01	3.20e+01 1.35	yes	7.52e+01		n	n
3	37:00	1.02e+02	7.42e+01 1.37	yes	1.76e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0589

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519314 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 17:15:32 Processed: 11-DEC-18 16:44:06

Mass: 407.7820 409.7790 Tot Response: 4.30e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:04	2.32e+02	1.98e+02 1.17	yes	4.30e+02		n	n

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Peak List Summary

CLIENT ID.
SL0589

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519314 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 17:15:32 Processed: 11-DEC-18 16:44:06

Mass: 423.7770 425.7740 Tot Response: 1.49e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:55	5.04e+03	4.89e+03	1.03	yes	9.93e+03		n	n
2	39:38	2.49e+03	2.46e+03	1.01	yes	4.96e+03	1,2,3,4,6,7,8-HpCDD	n	n

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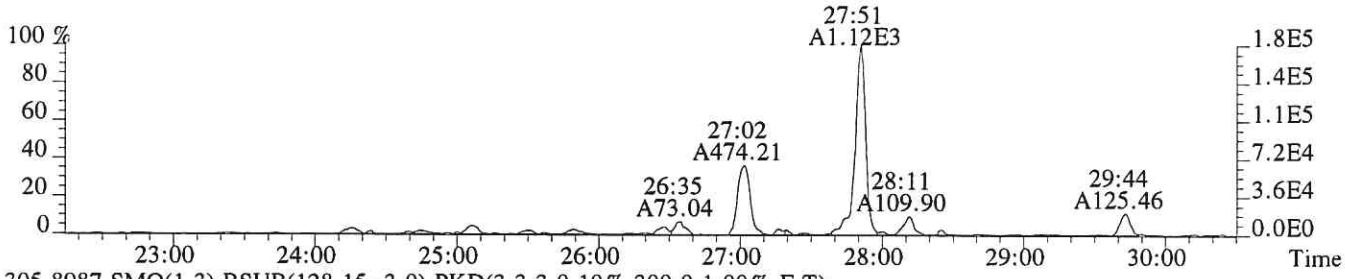
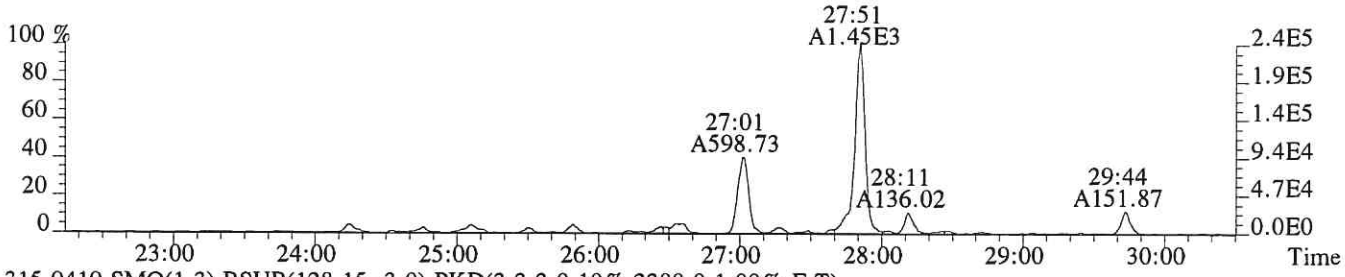
File:P519314 #1-587 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010

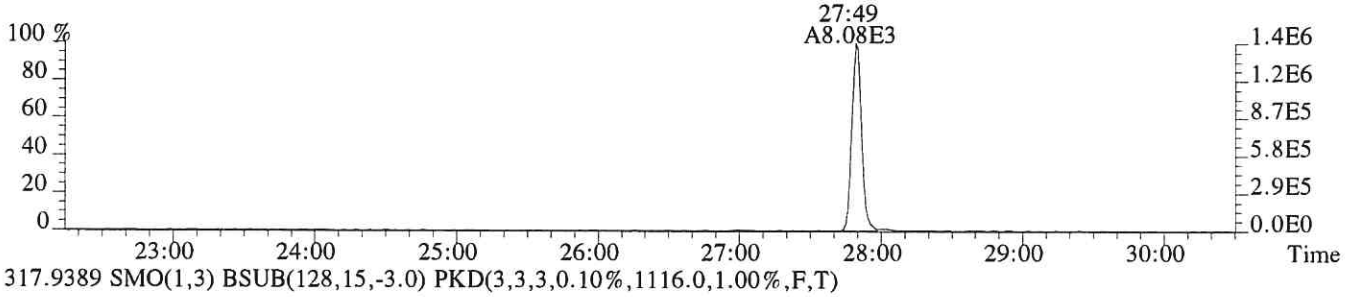
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



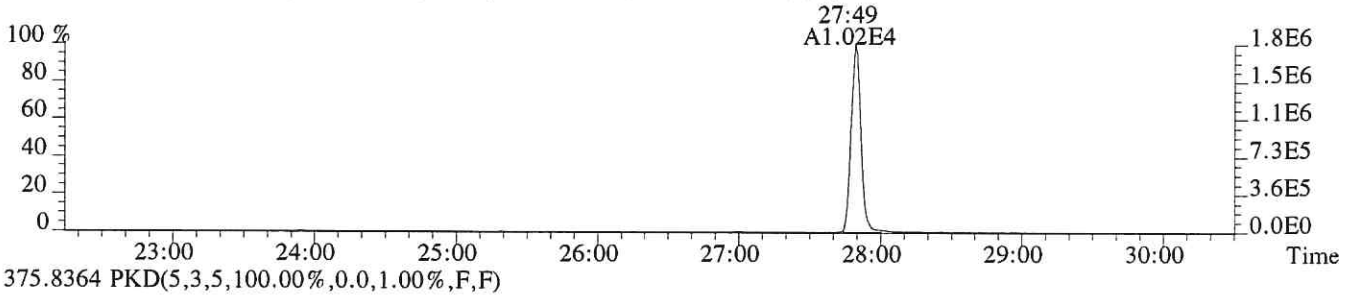
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



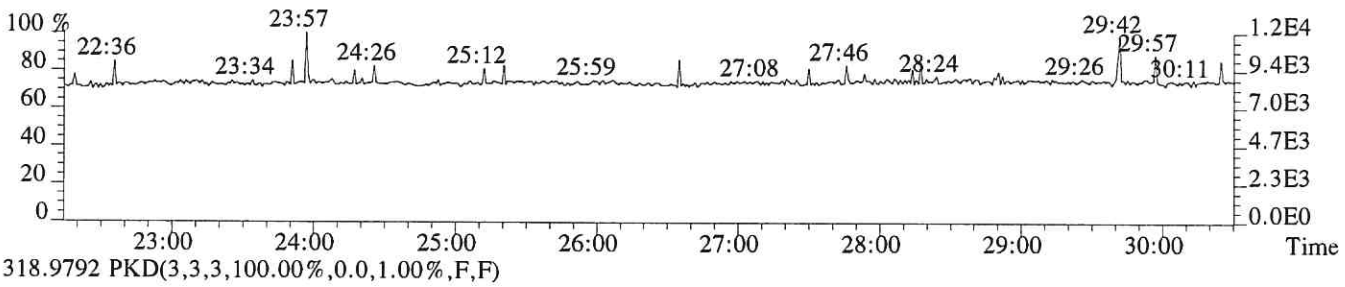
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



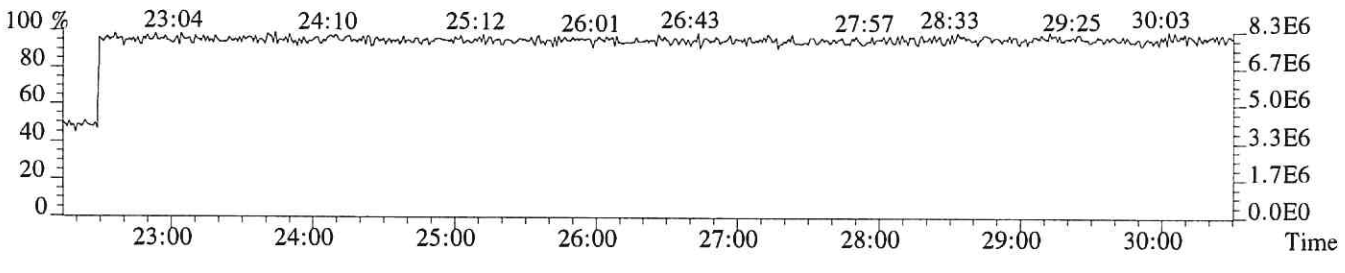
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



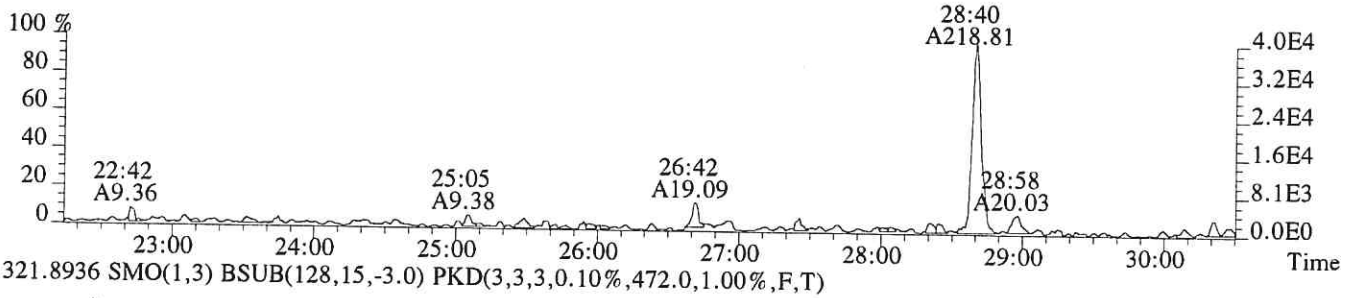
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



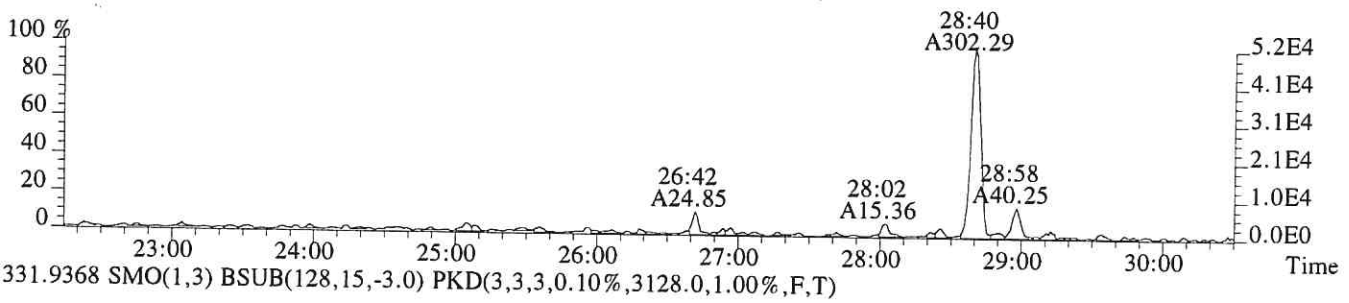
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



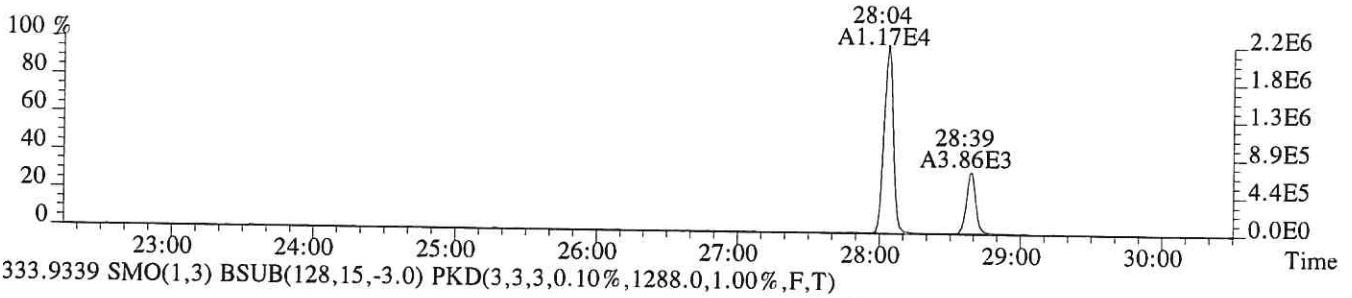
File:P519314 #1-587 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



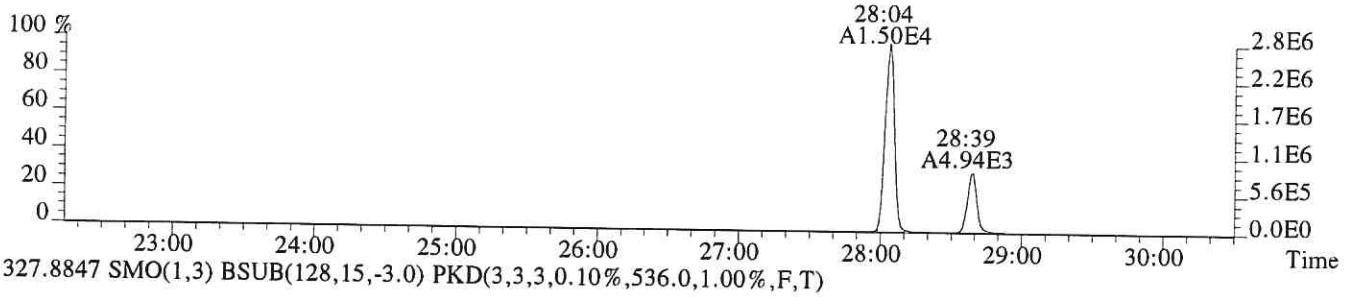
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



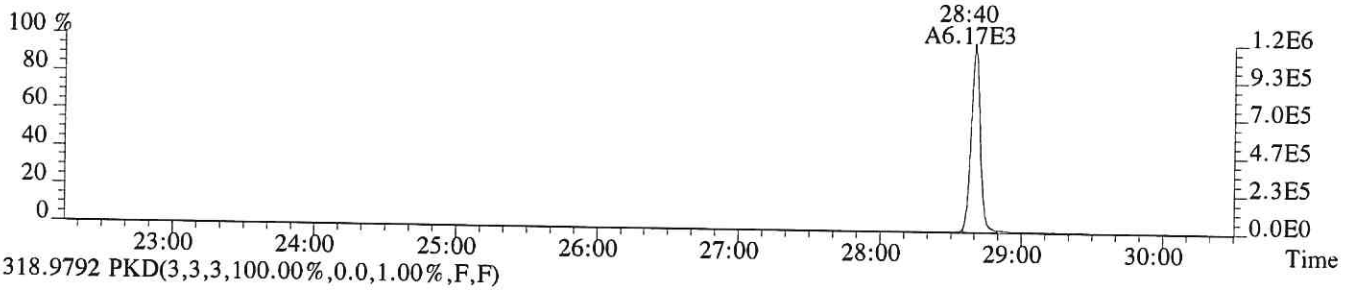
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3128.0,1.00%,F,T)



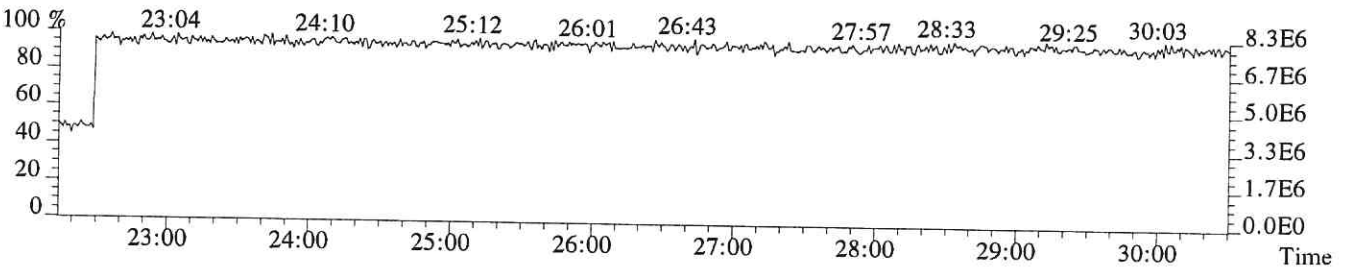
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



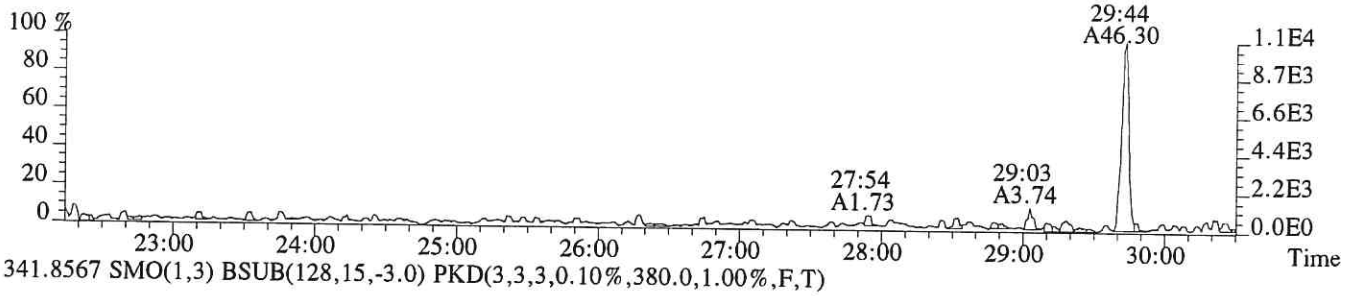
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



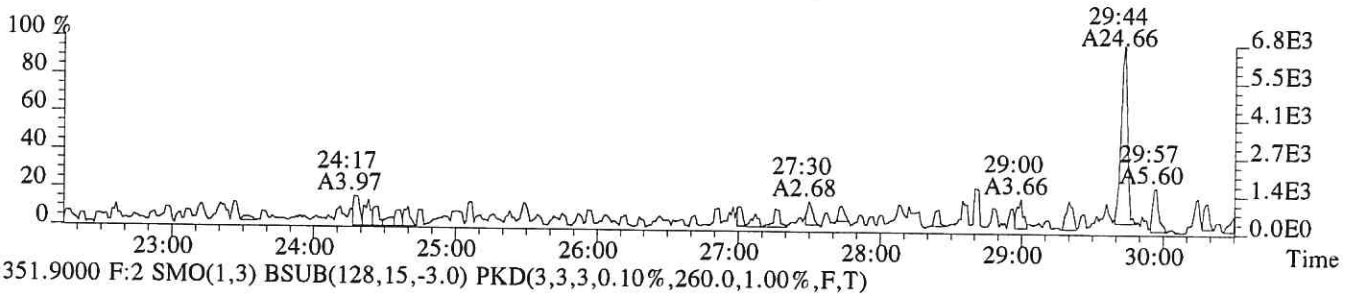
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



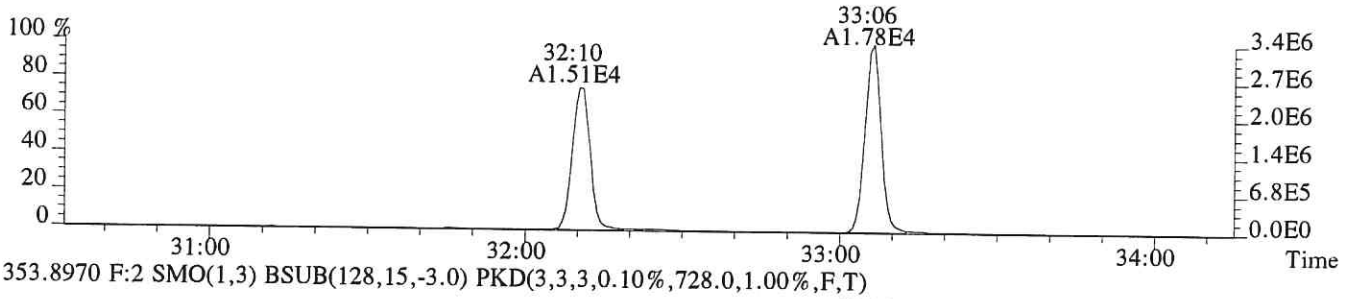
File:P519314 #1-587 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



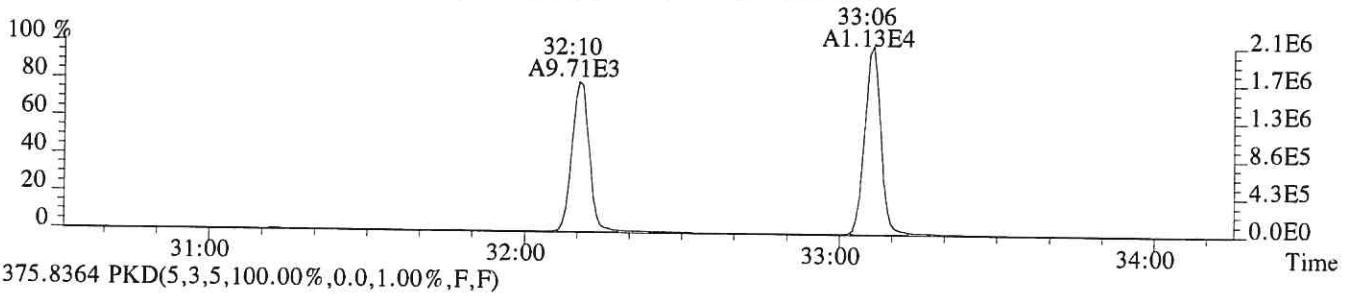
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



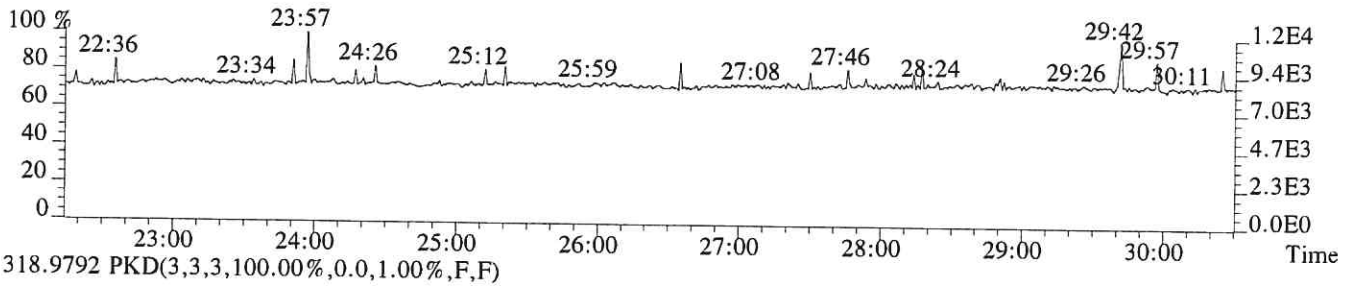
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



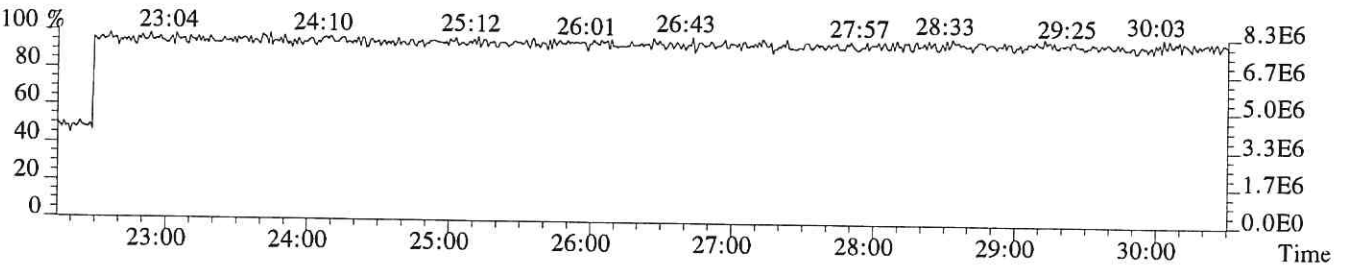
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

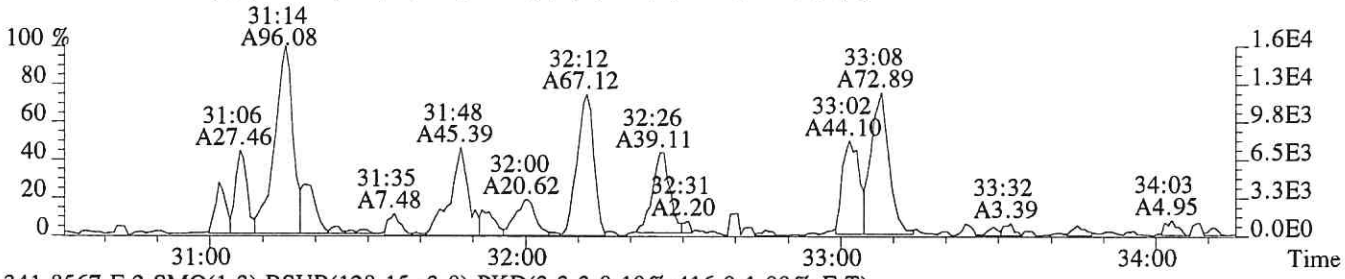


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

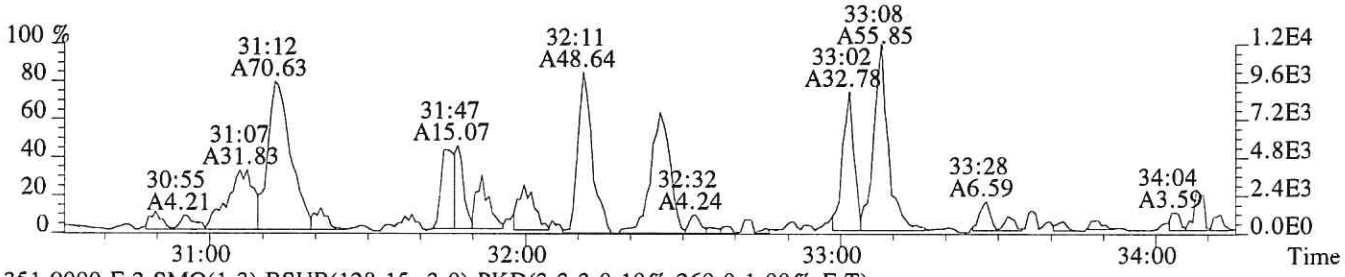


File:P519314 #1-335 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010

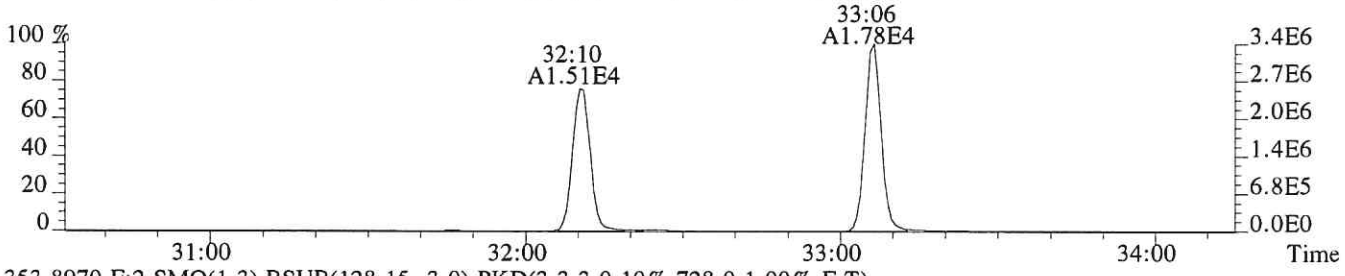
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



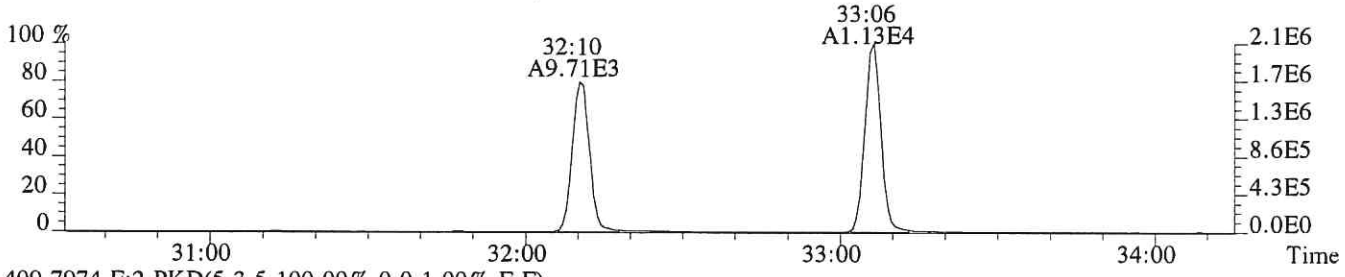
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



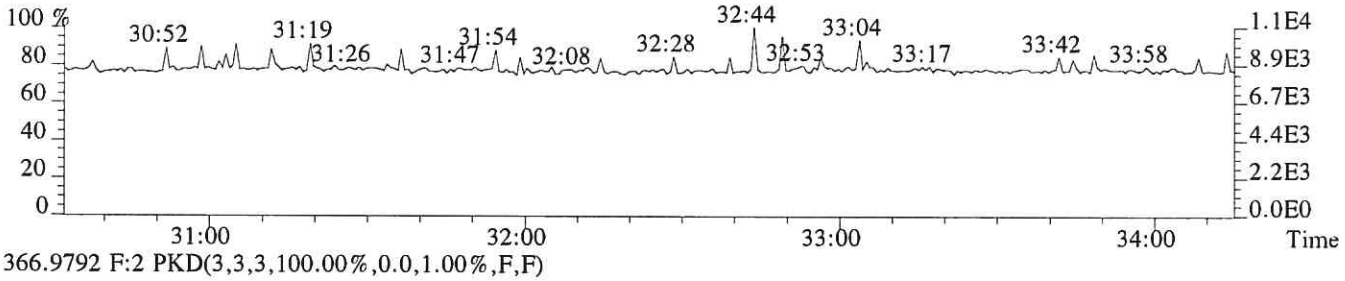
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



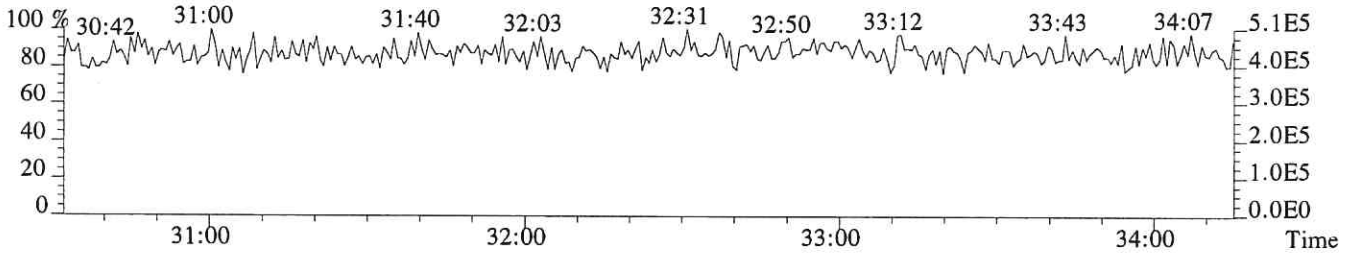
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



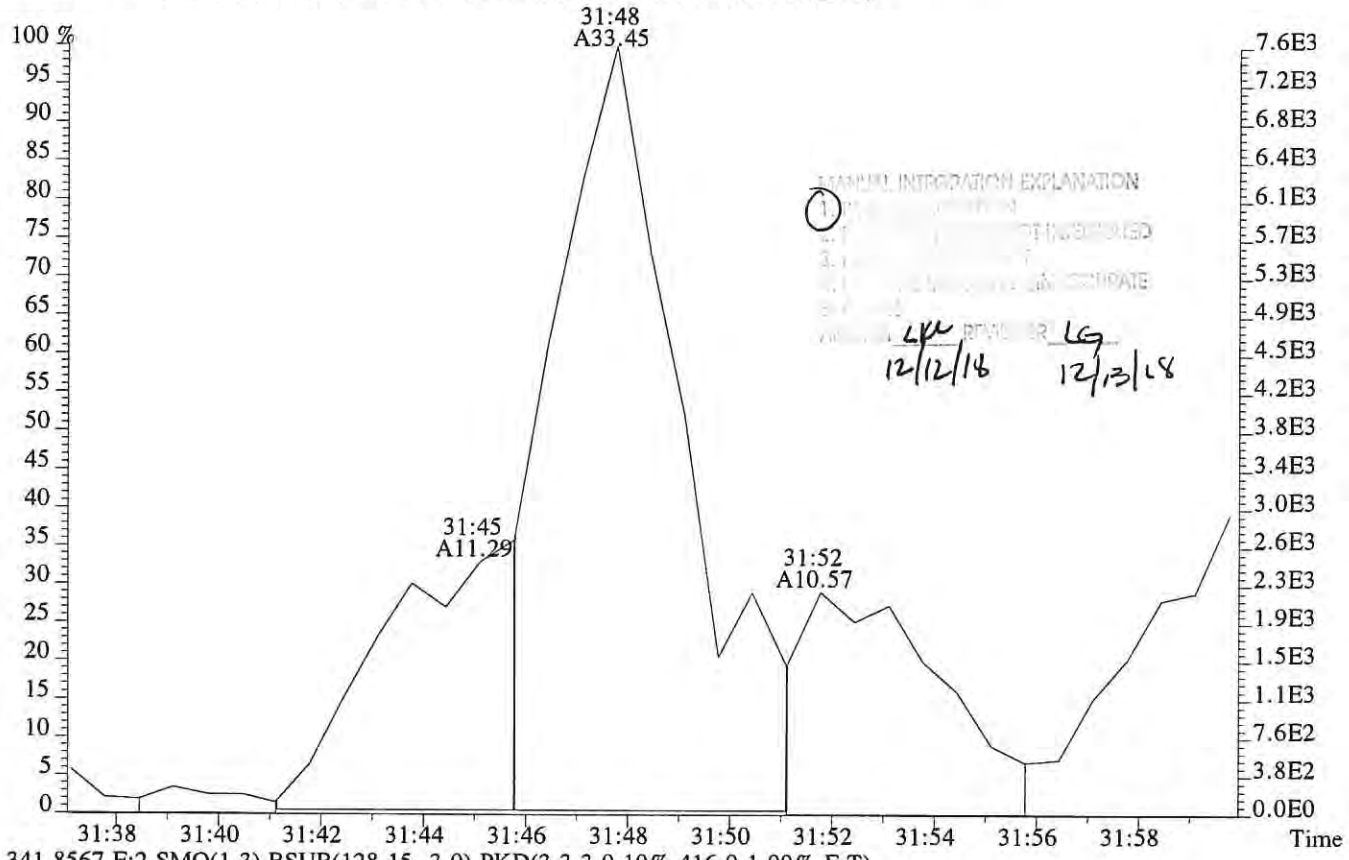
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



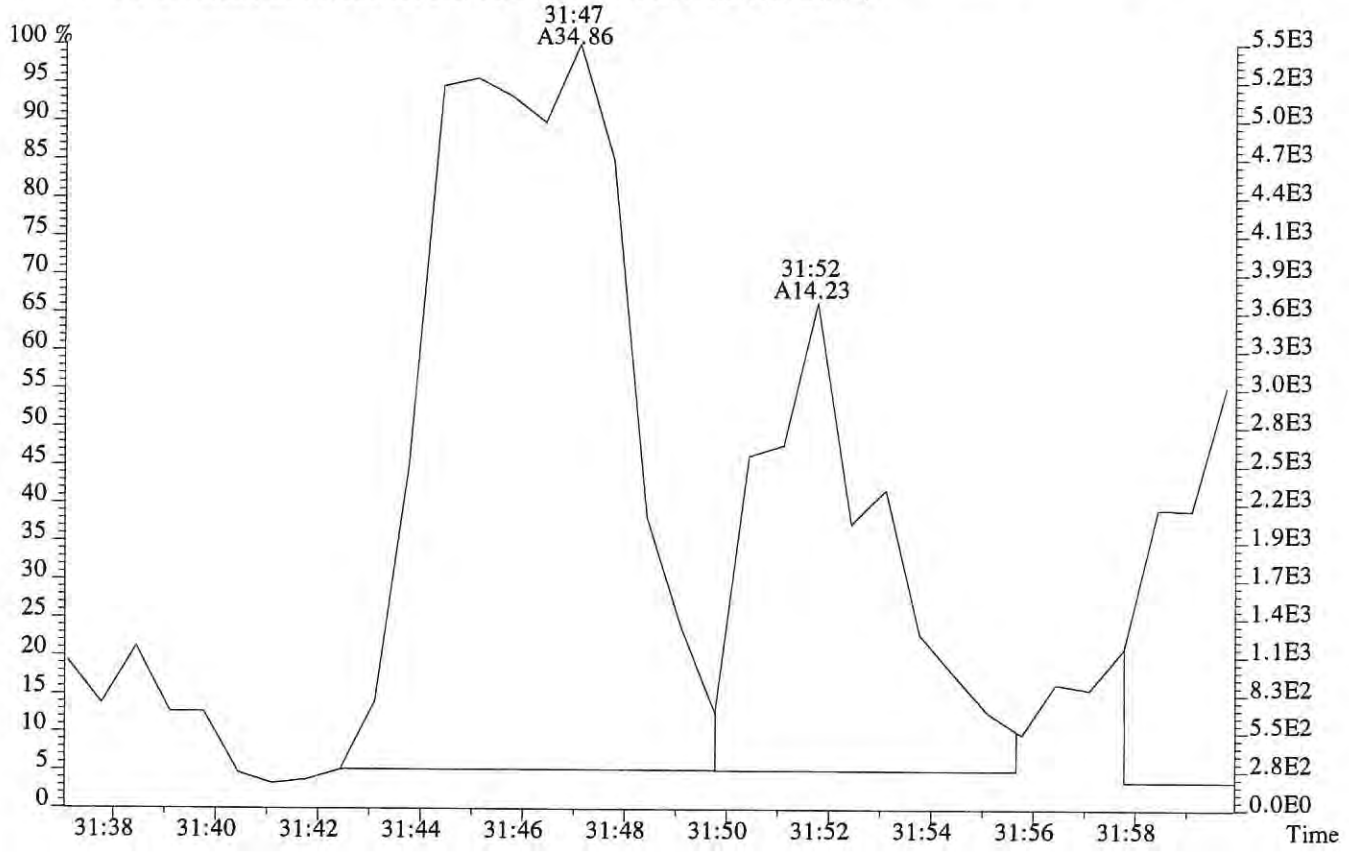
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



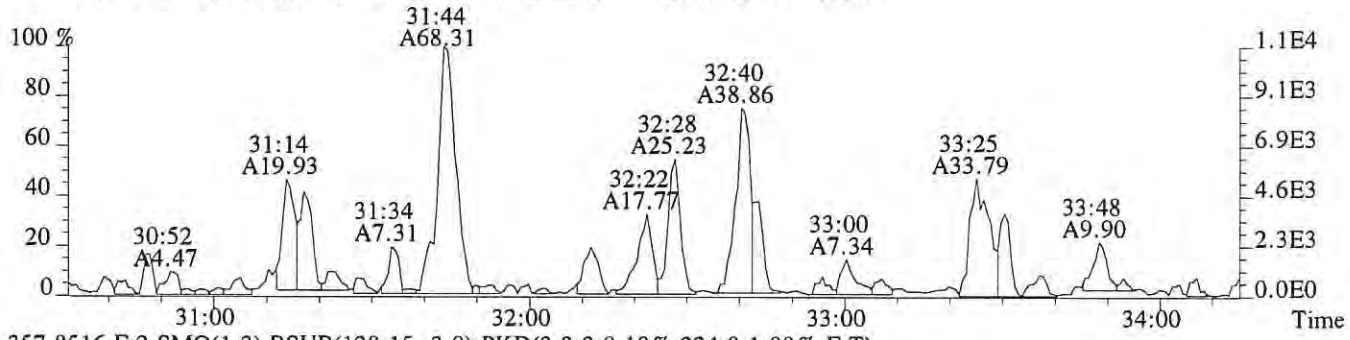
File:P519314 #1-335 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



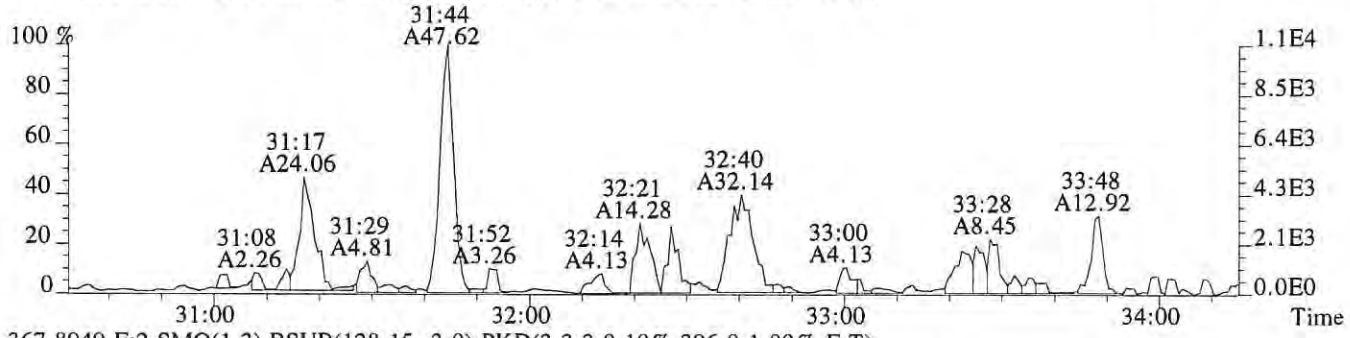
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



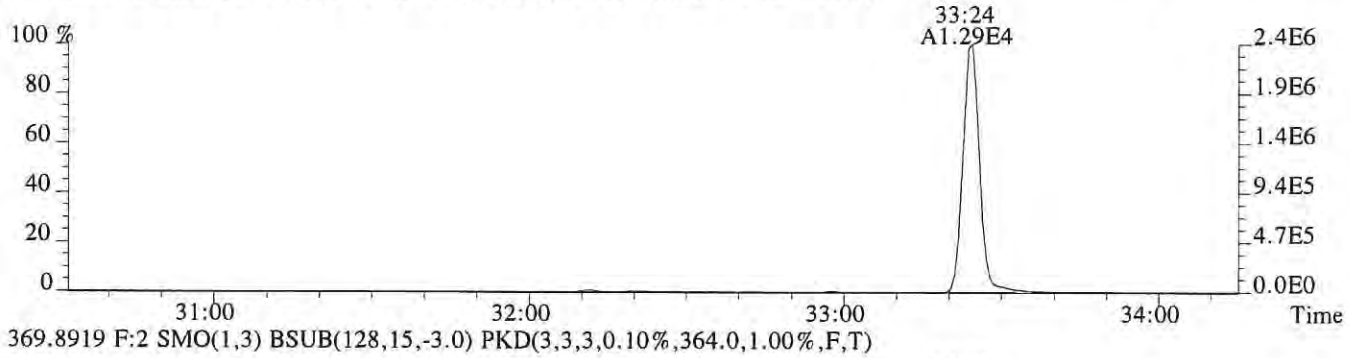
File:P519314 #1-335 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



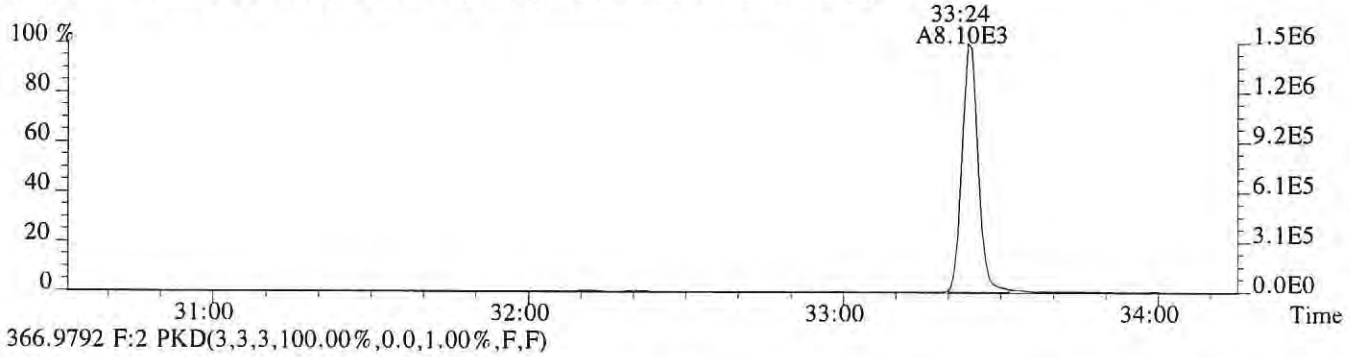
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



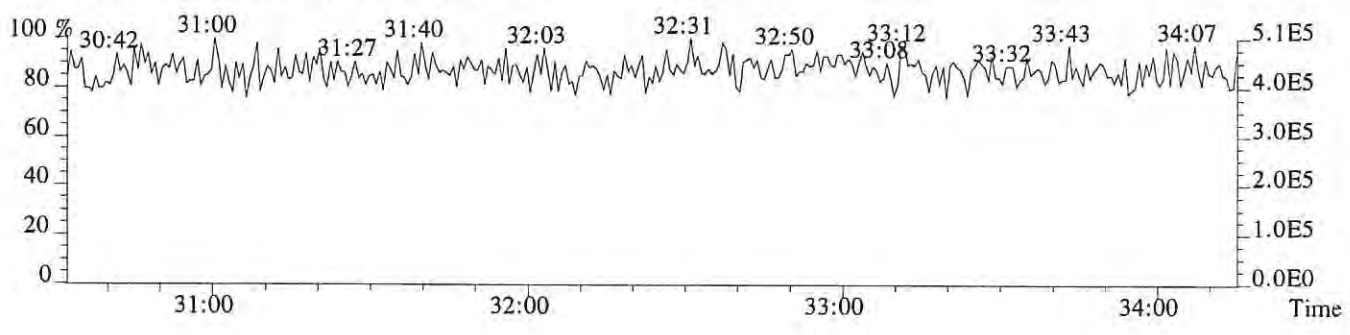
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



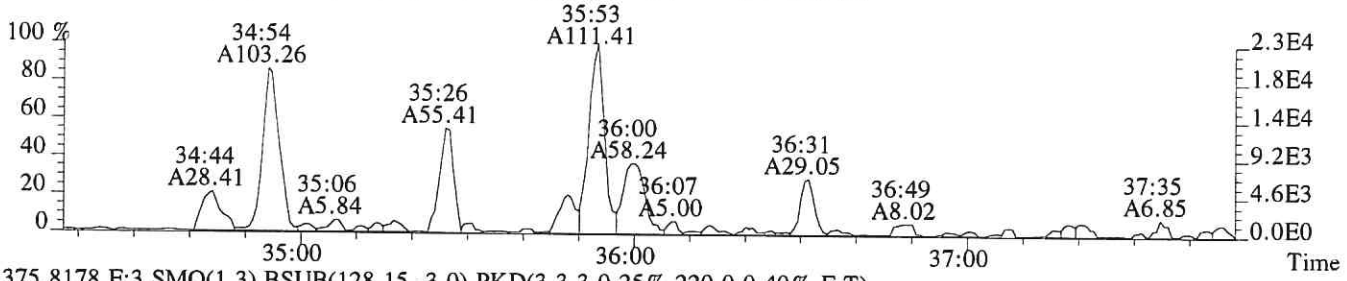
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



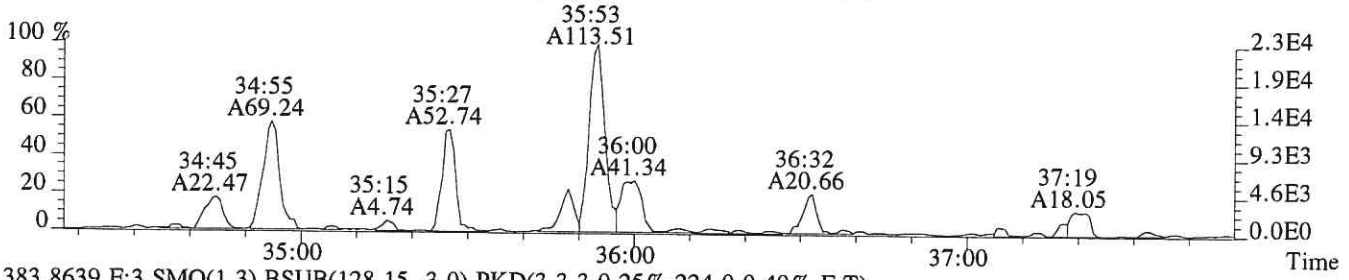
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



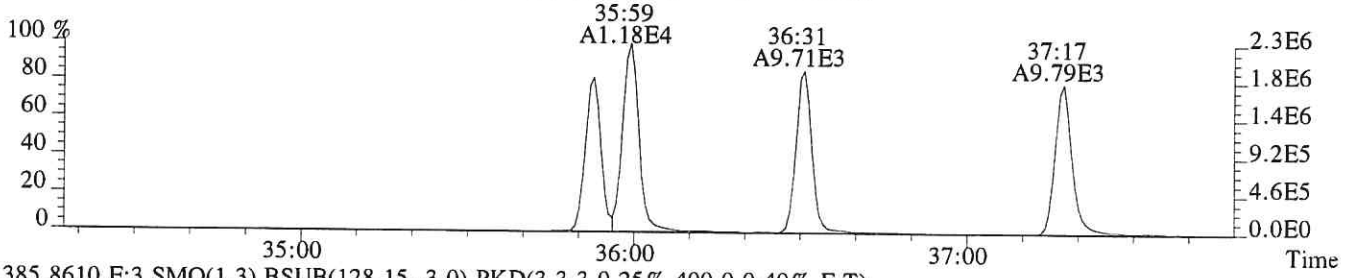
File:P519314 #1-317 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



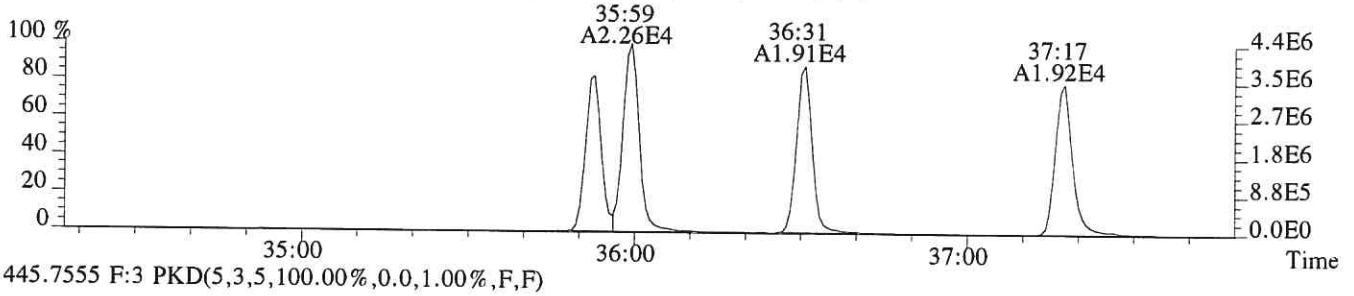
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



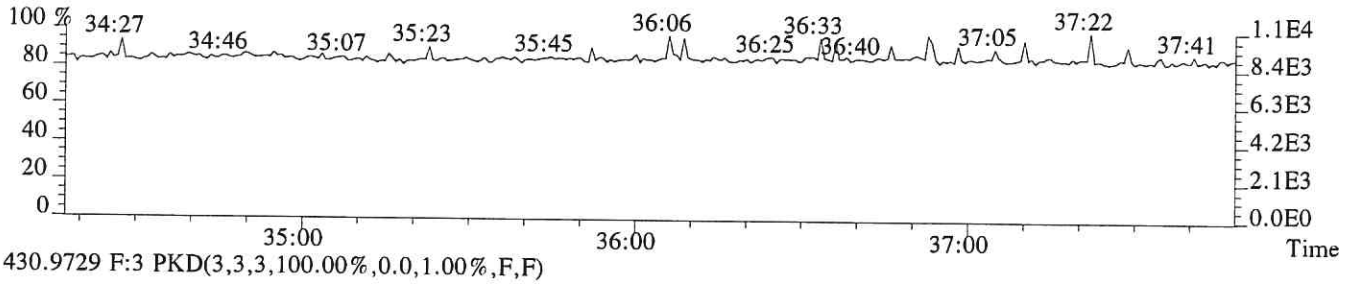
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



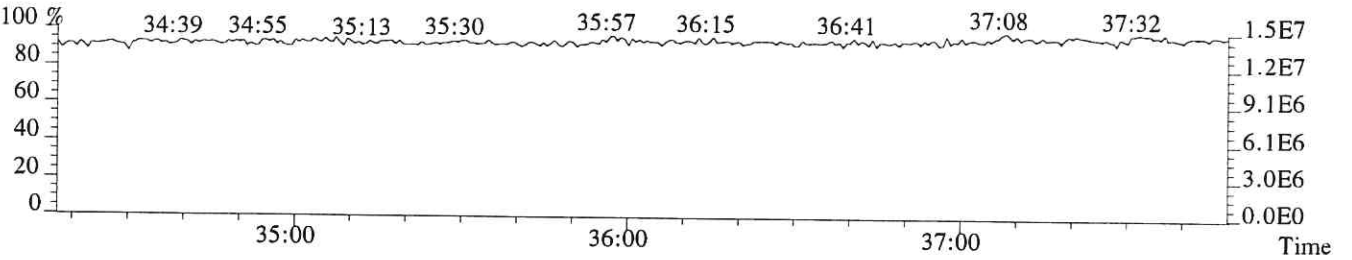
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



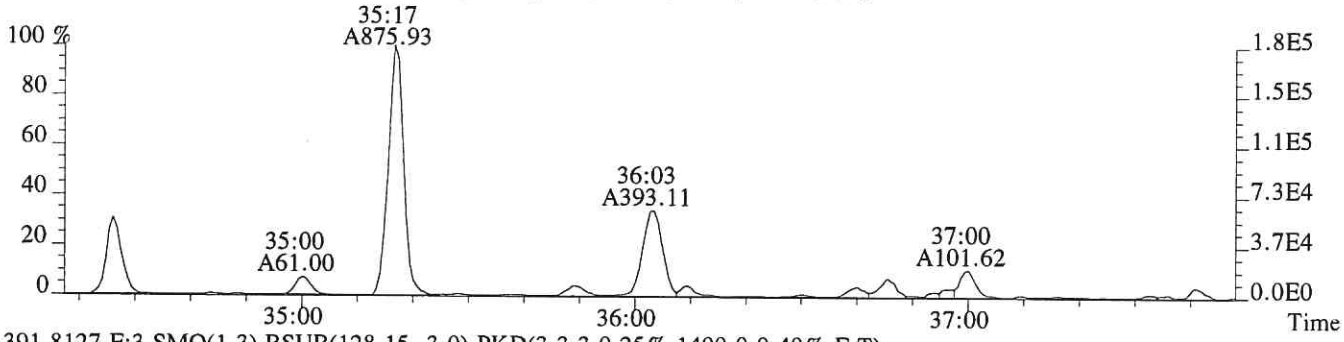
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



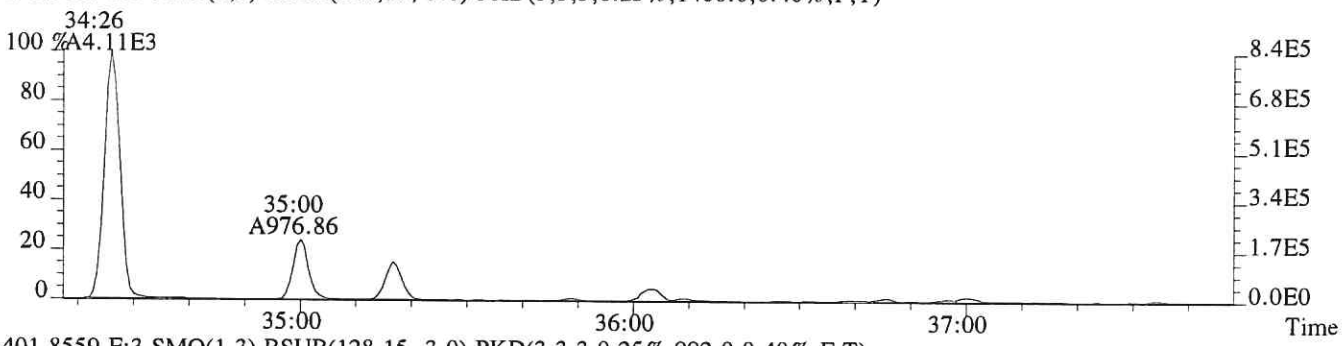
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



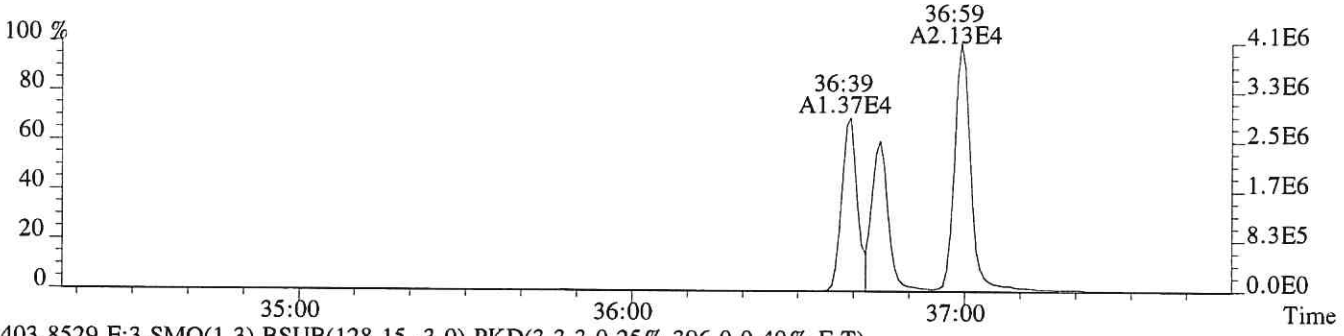
File:P519314 #1-317 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



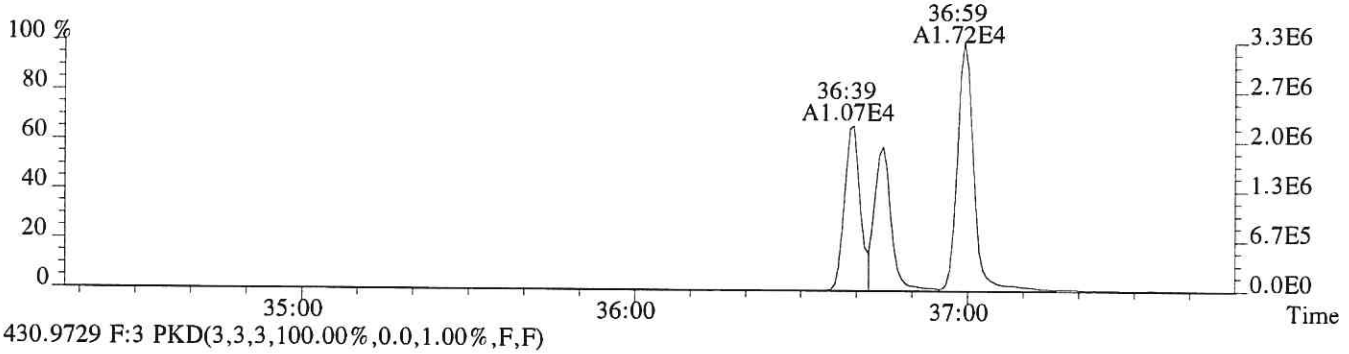
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



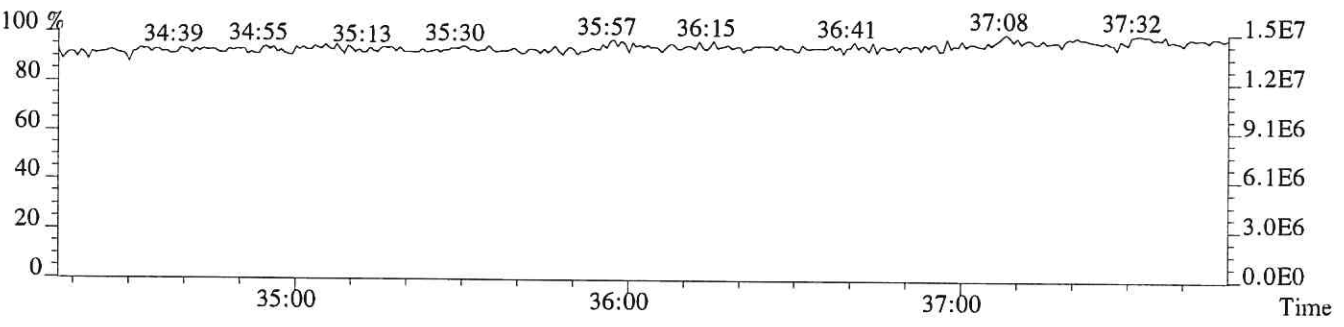
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



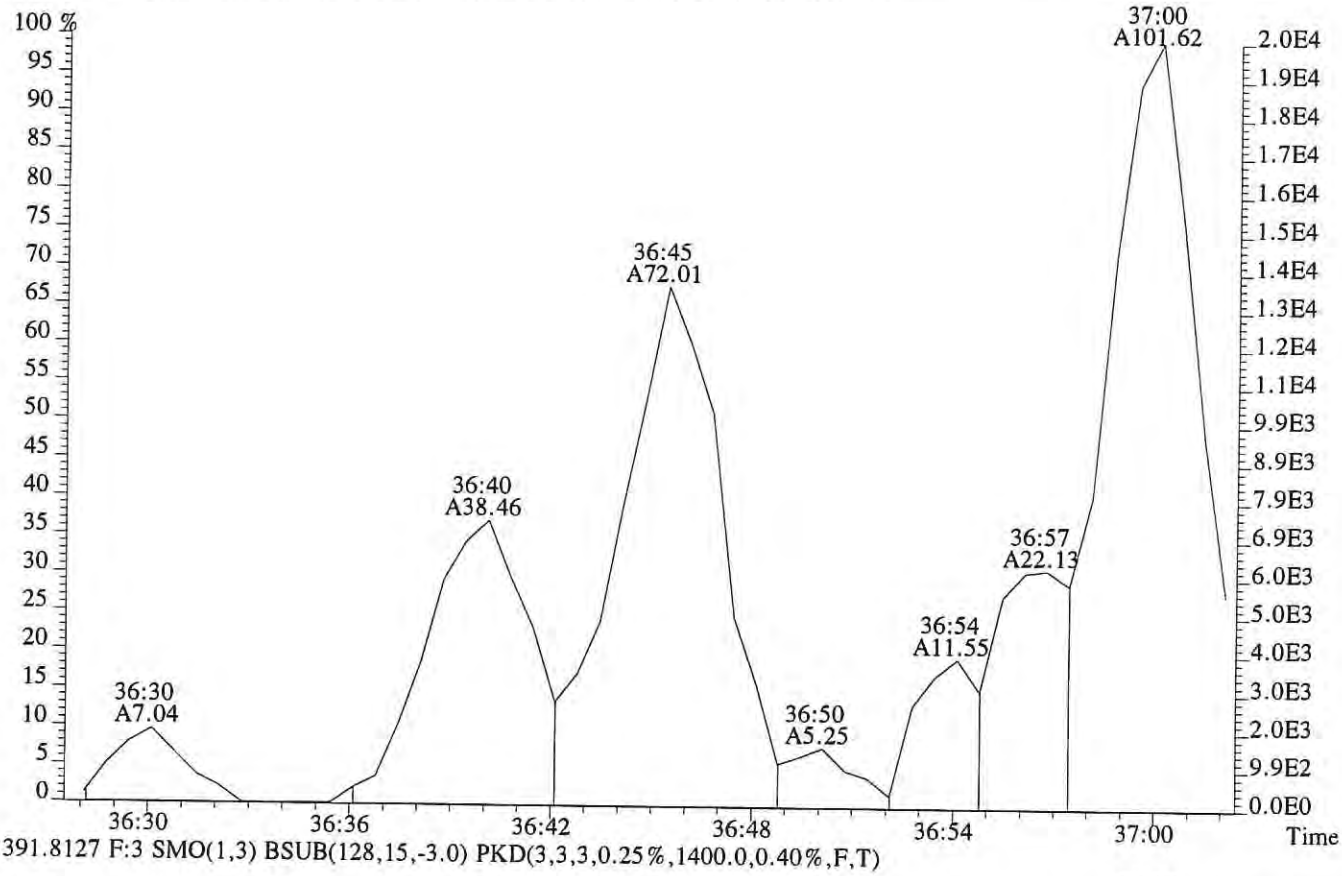
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



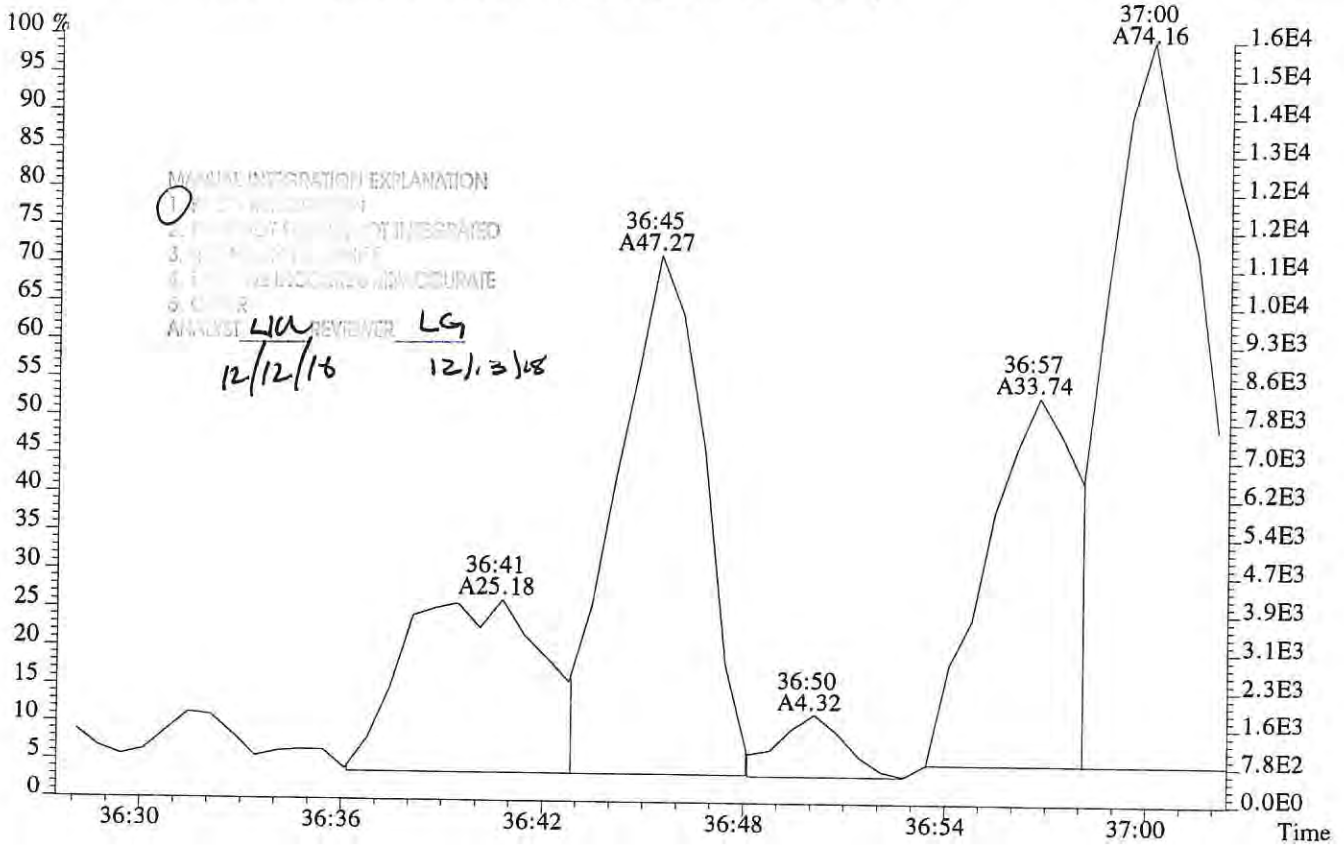
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519314 #1-317 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)

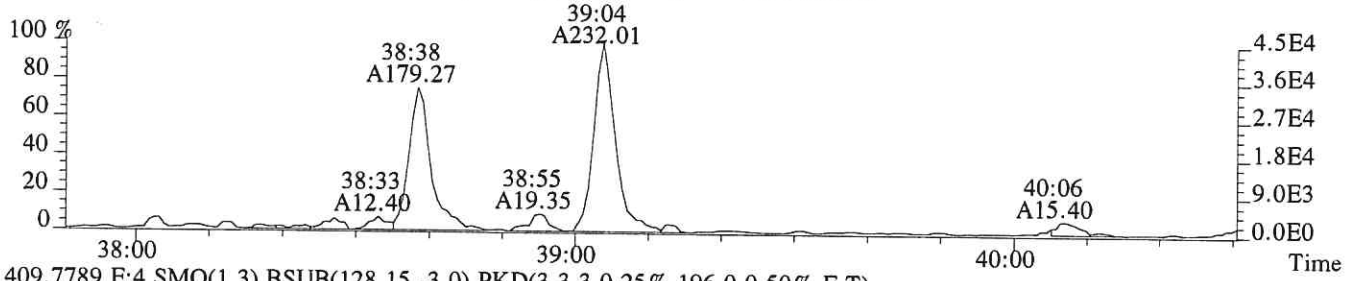


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)

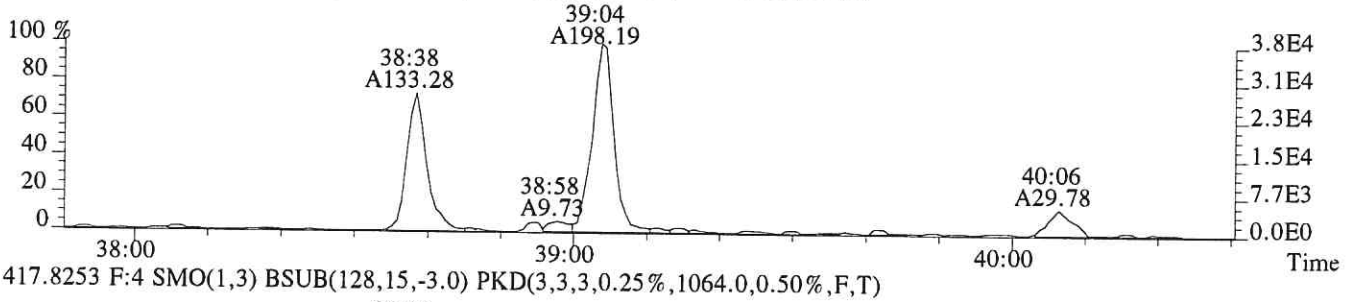


MANUAL INTEGRATION EXPLANATION
1.
2. NOT INTEGRATED
3.
4. INCORRECT/INACCURATE
5. OTHER
ANALYST LW REVIEWER LG
12/12/18 12/13/18

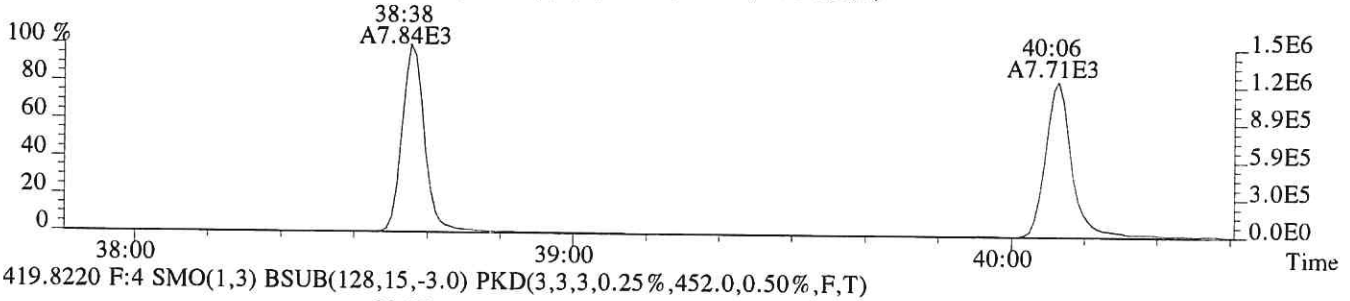
File:P519314 #1-241 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.50%,F,T)



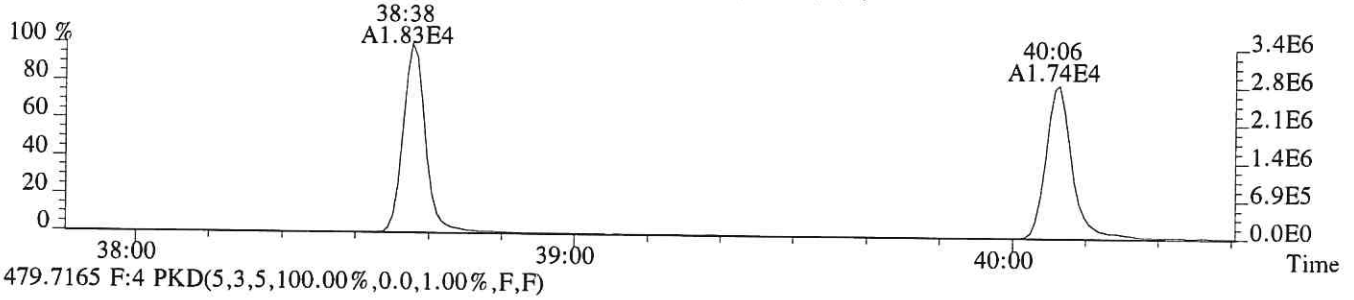
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.50%,F,T)



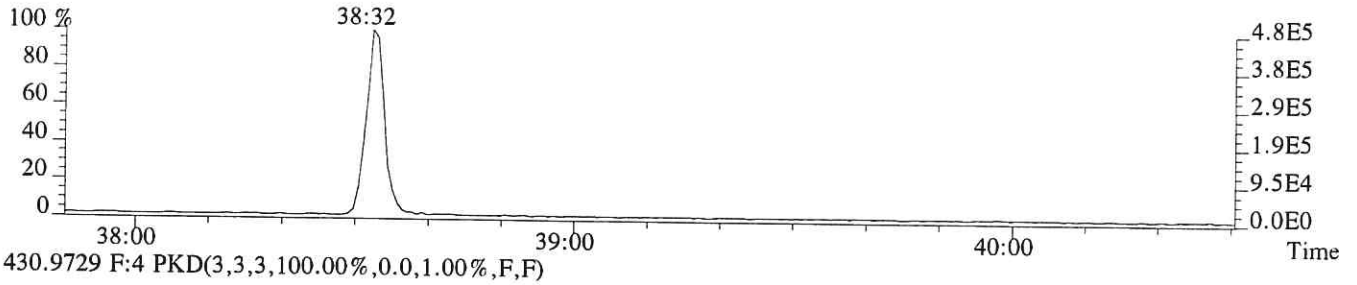
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.50%,F,T)



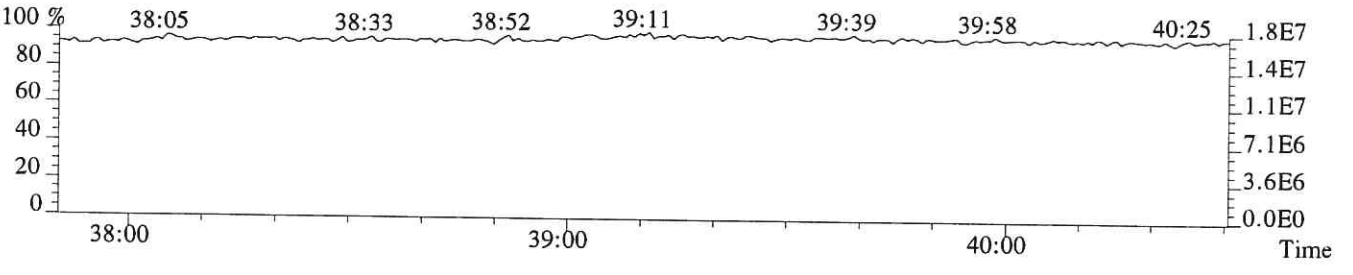
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.50%,F,T)



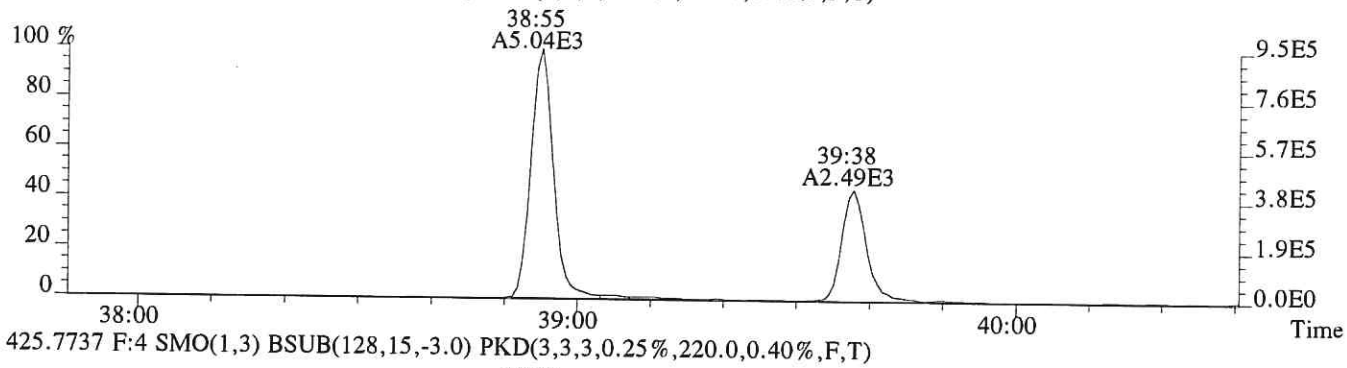
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



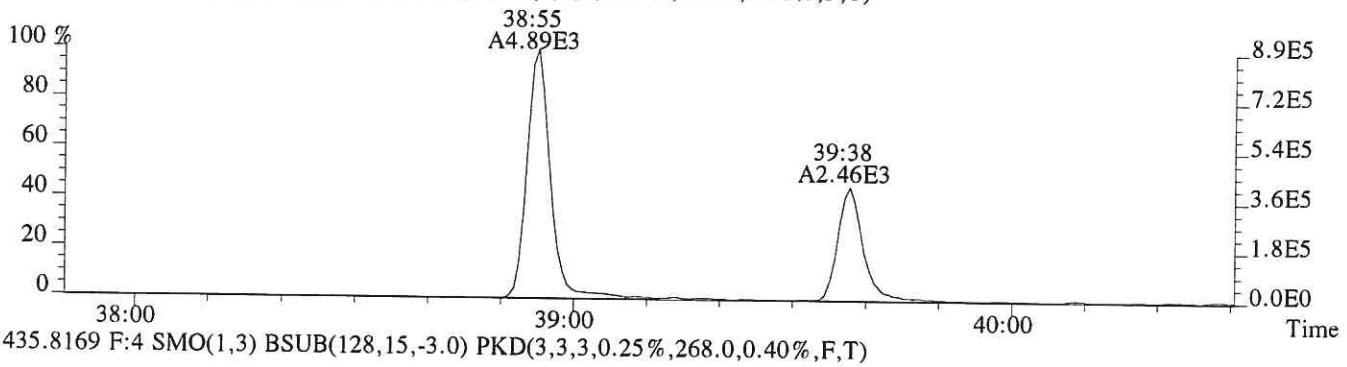
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



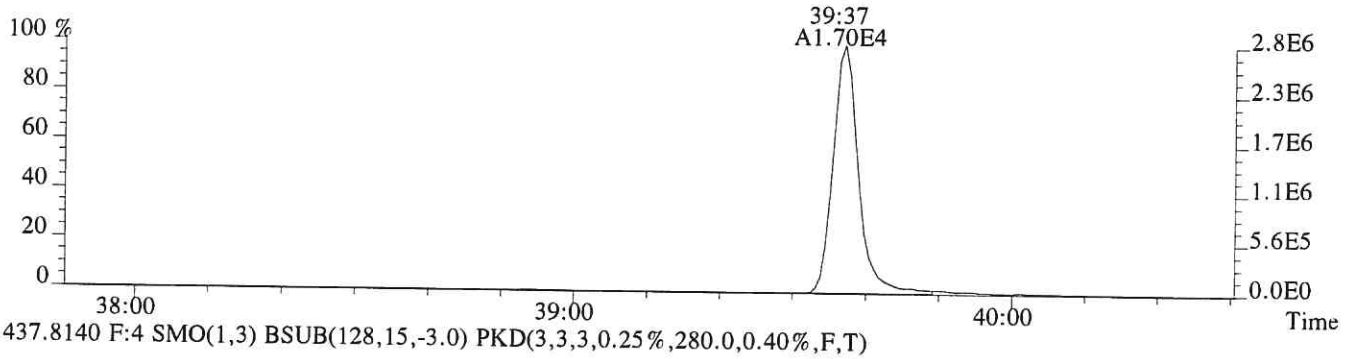
File:P519314 #1-241 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



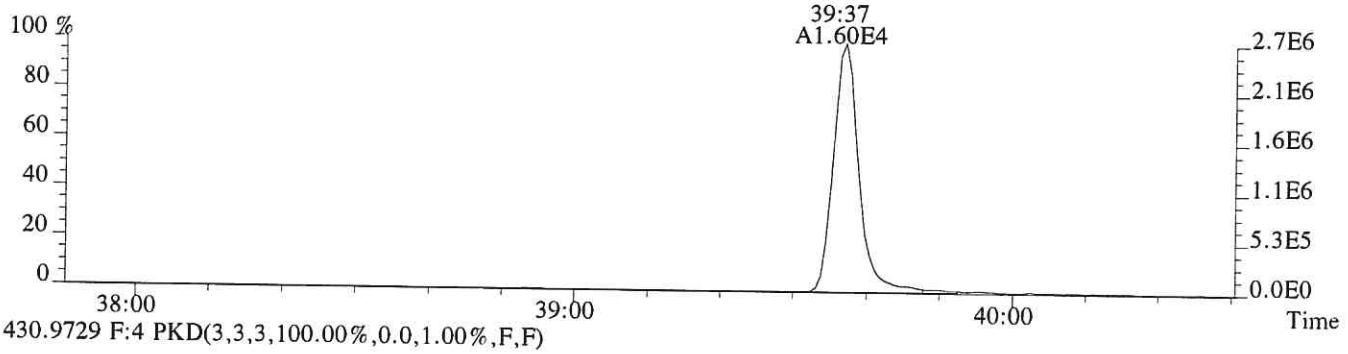
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



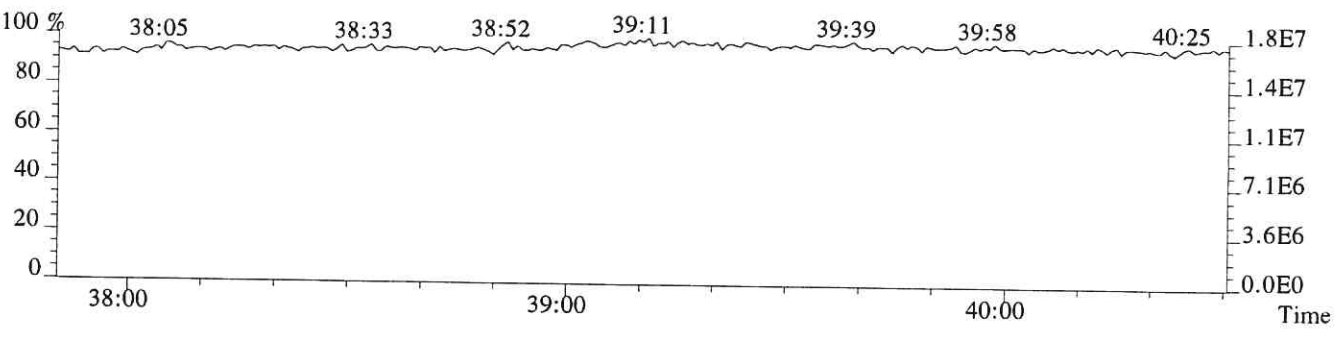
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)

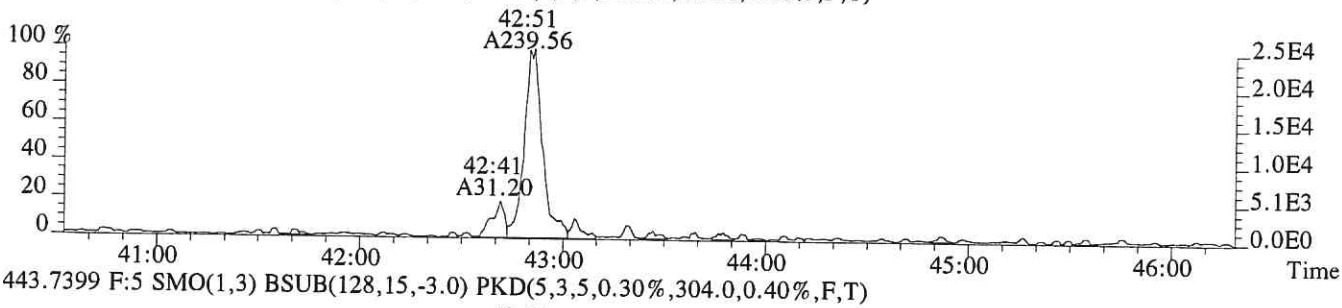


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

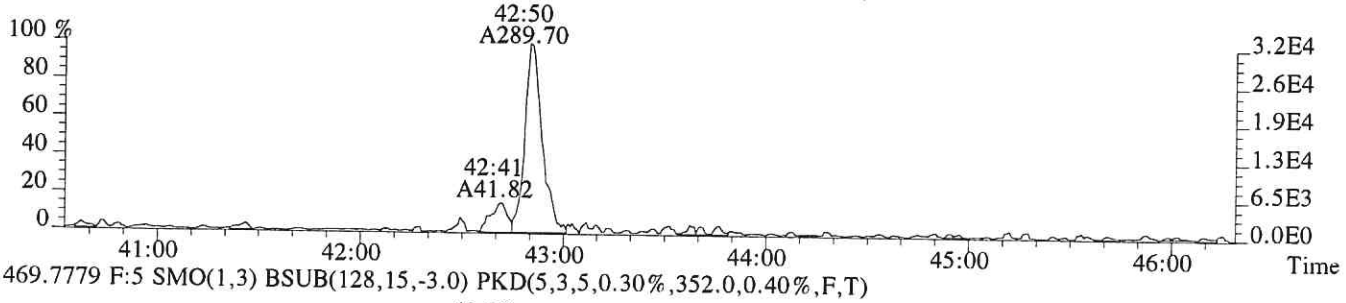


File:P519314 #1-520 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010

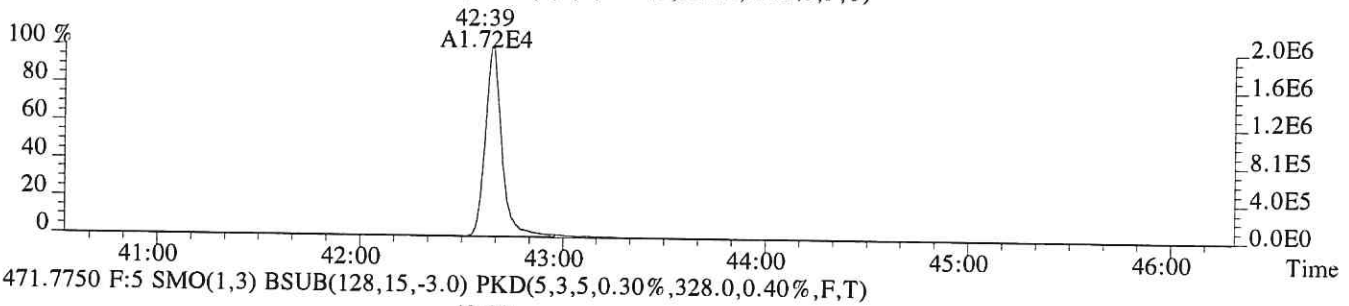
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



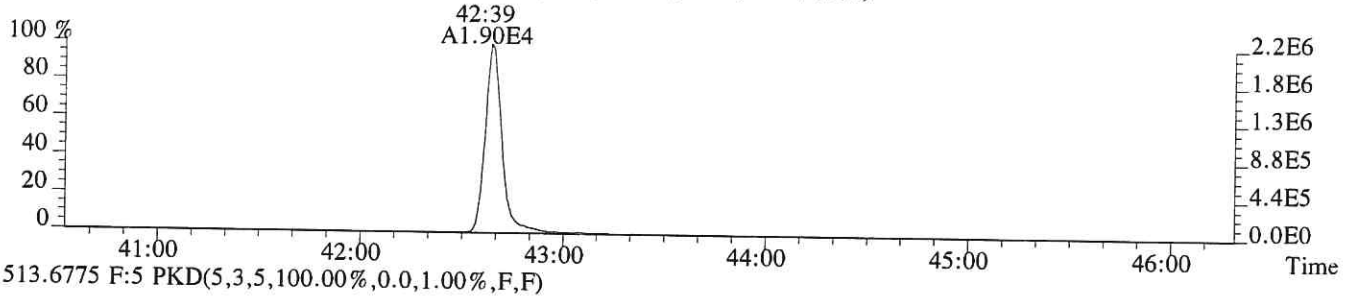
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



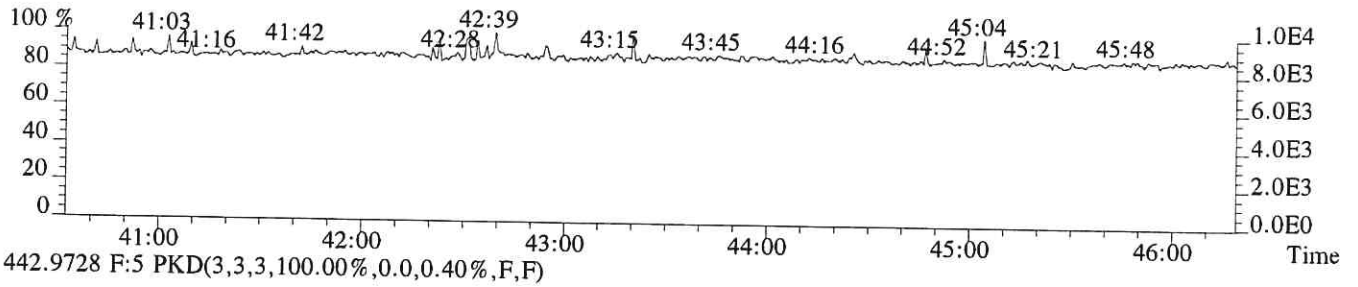
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



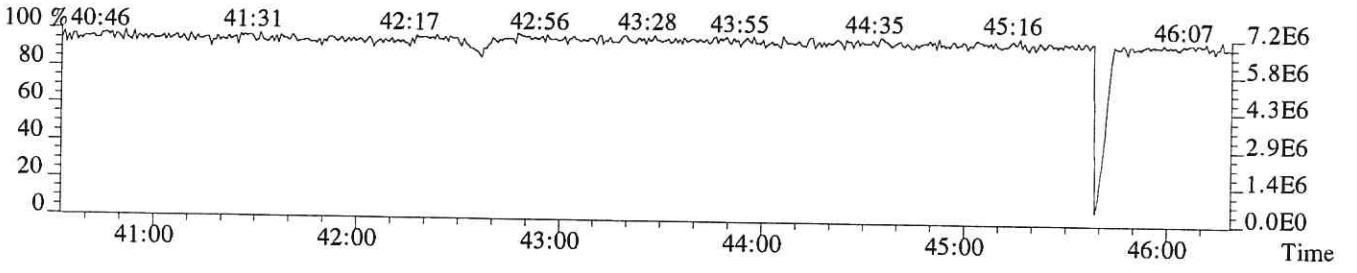
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



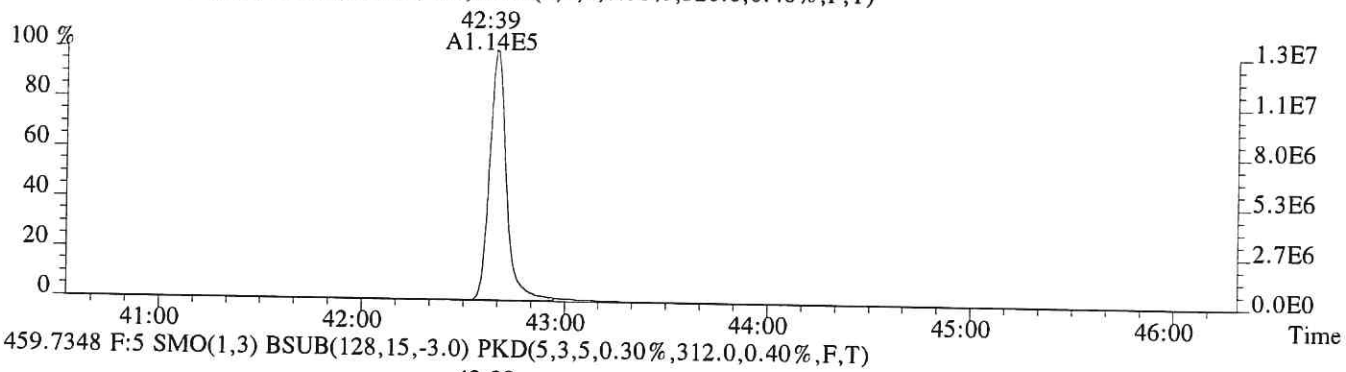
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



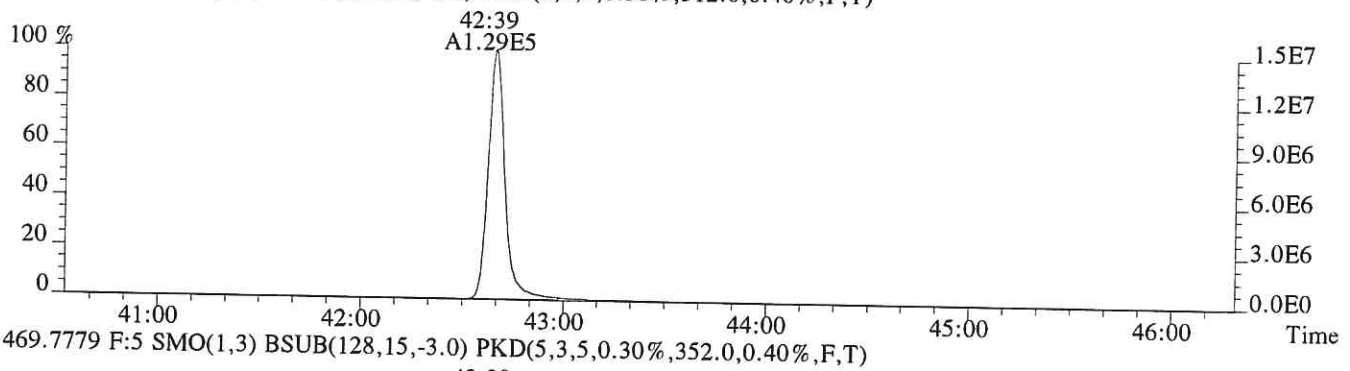
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



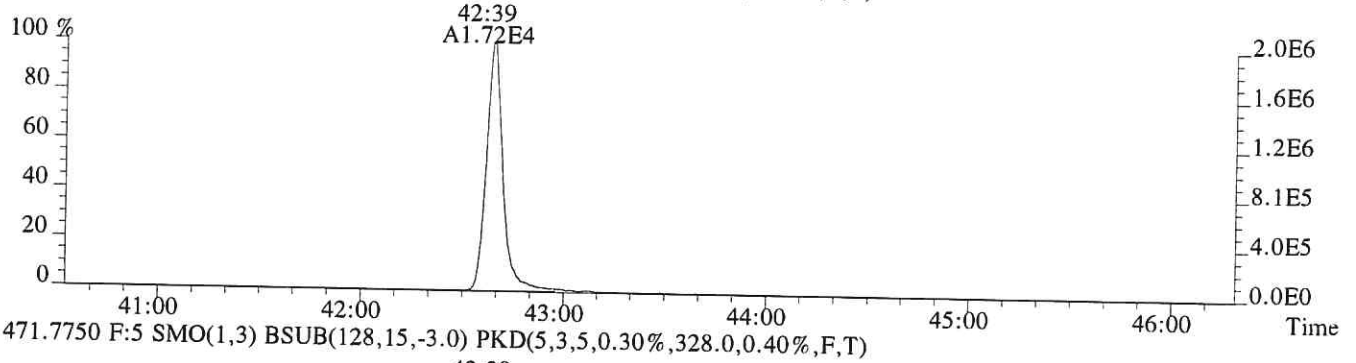
File:P519314 #1-520 Acq: 8-DEC-2018 17:15:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-010
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



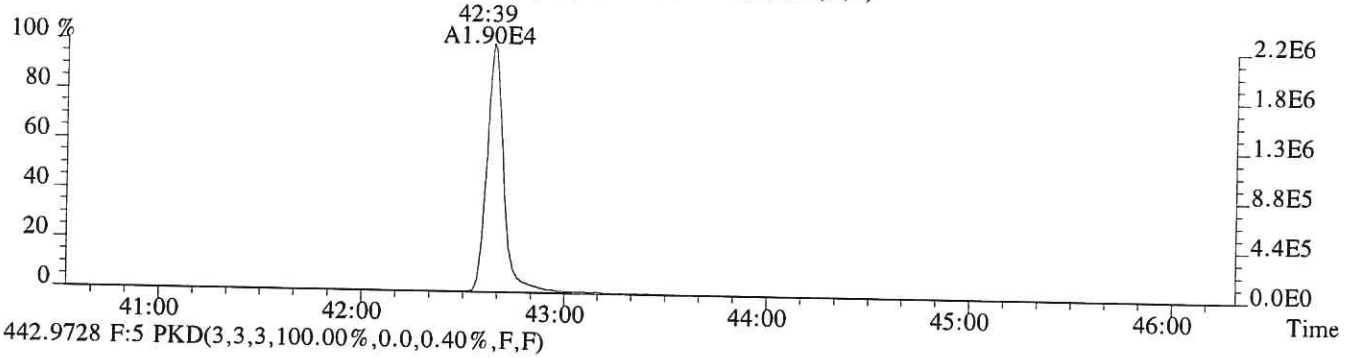
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



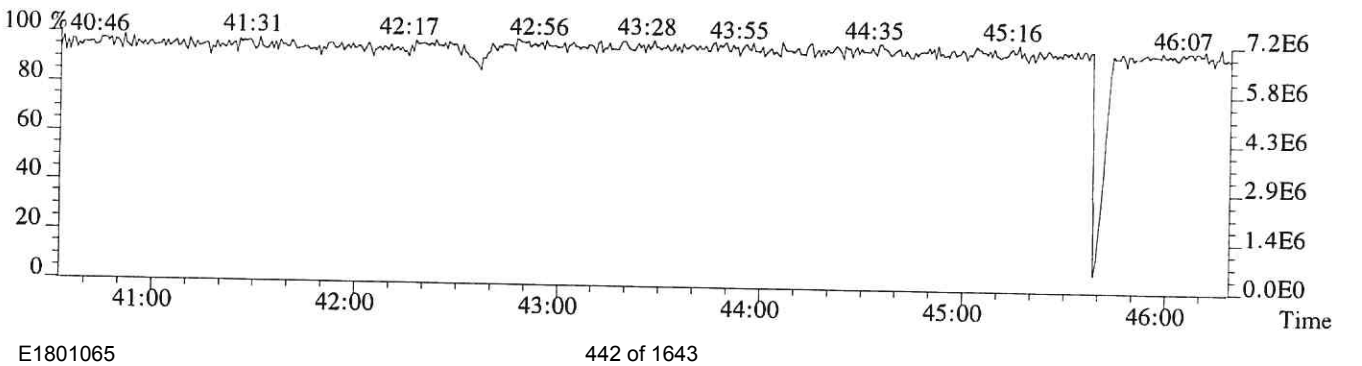
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0570

Run #18 Filename P519315 Samp: 1 Inj: 1 Acquired: 8-DEC-18 18:04:08
Processed: 11-DEC-18 16:44:54 Sample ID: E1801065-011

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	1.426e+05	1.852e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	5.877e+03	3.665e+03	1.60	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	5.189e+03	3.310e+03	1.57	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	9.488e+03	7.771e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	2.603e+03	2.383e+03	1.09	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:32	3.763e+02	3.251e+02	1.16	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:20	6.462e+02	5.272e+02	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	2.857e+03	2.750e+03	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:07	8.379e+02	8.098e+02	1.03	yes	no	1.258
10	Unk	OCDF	42:51	1.109e+03	1.296e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	3.143e+04	3.968e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	4.551e+02	3.035e+02	1.50	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	1.967e+01	1.509e+01	1.30	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	9.702e+01	7.571e+01	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:01	4.691e+01	5.009e+01	0.94	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:38	2.899e+03	2.851e+03	1.02	yes	no	1.025
17	Unk	OCDD	42:40	3.609e+04	4.122e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	1.998e+04	2.484e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.854e+04	1.827e+04	1.56	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.760e+04	1.784e+04	1.55	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.333e+04	2.608e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.744e+04	3.292e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	1.431e+04	2.751e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.441e+04	2.841e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.039e+04	2.309e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	9.605e+03	2.183e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	8.523e+03	1.072e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	1.862e+04	1.168e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.813e+04	1.431e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.875e+04	1.464e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	2.174e+04	2.050e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:39	1.893e+04	2.039e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	1.908e+04	2.383e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:00	2.910e+04	2.194e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	1.300e+04				no	1.014

$$\text{OCDD} = \frac{(3.609e{+}04 + 4.122e{+}04) \times 4000\ \text{pg} \times 1}{(1.893e{+}04 + 2.039e{+}04) \times 10.099\ \text{g} \times 83 / 100 \times 1.118} = 839.235\ \text{ng/kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0570

Run #18 Filename P519315 Samp: 1 Inj: 1 Acquired: 8-DEC-18 18:04:08
Processed: 11-DEC-18 16:44:54 LAB. ID: E1801065-011

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.42e+07	4.60e+02	5.3e+04	3.08e+07	5.12e+02	6.0e+04
2	1,2,3,7,8-PeCDF	1.08e+06	7.72e+02	1.4e+03	6.70e+05	2.03e+03	3.3e+02
3	2,3,4,7,8-PeCDF	8.52e+05	7.72e+02	1.1e+03	5.54e+05	2.03e+03	2.7e+02
4	1,2,3,4,7,8-HxCDF	1.96e+06	2.48e+02	7.9e+03	1.64e+06	2.72e+02	6.0e+03
5	1,2,3,6,7,8-HxCDF	4.97e+05	2.48e+02	2.0e+03	4.31e+05	2.72e+02	1.6e+03
6	2,3,4,6,7,8-HxCDF	7.61e+04	2.48e+02	3.1e+02	6.65e+04	2.72e+02	2.4e+02
7	1,2,3,7,8,9-HxCDF	1.21e+05	2.48e+02	4.9e+02	9.01e+04	2.72e+02	3.3e+02
8	1,2,3,4,6,7,8-HpCDF	5.43e+05	8.92e+02	6.1e+02	5.16e+05	2.00e+02	2.6e+03
9	1,2,3,4,7,8,9-HpCDF	1.52e+05	8.92e+02	1.7e+02	1.40e+05	2.00e+02	7.0e+02
10	OCDF	1.22e+05	2.92e+02	4.2e+02	1.54e+05	2.80e+02	5.5e+02
11	2,3,7,8-TCDD	6.07e+06	1.10e+03	5.5e+03	7.77e+06	6.84e+02	1.1e+04
12	1,2,3,7,8-PeCDD	8.10e+04	1.80e+02	4.5e+02	5.69e+04	4.64e+02	1.2e+02
13	1,2,3,4,7,8-HxCDD	4.04e+03	2.88e+02	1.4e+01	3.65e+03	5.88e+02	6.2e+00
14	1,2,3,6,7,8-HxCDD	2.19e+04	2.88e+02	7.6e+01	1.68e+04	5.88e+02	2.9e+01
15	1,2,3,7,8,9-HxCDD	9.76e+03	2.88e+02	3.4e+01	1.03e+04	5.88e+02	1.8e+01
16	1,2,3,4,6,7,8-HpCDD	4.66e+05	1.64e+02	2.8e+03	4.76e+05	2.40e+02	2.0e+03
17	OCDD	4.08e+06	2.36e+02	1.7e+04	4.67e+06	2.00e+02	2.3e+04
18	13C-2,3,7,8-TCDF	3.65e+06	3.43e+03	1.1e+03	4.58e+06	1.32e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	5.57e+06	4.60e+02	1.2e+04	3.53e+06	7.80e+02	4.5e+03
20	13C-2,3,4,7,8-PeCDF	5.49e+06	4.60e+02	1.2e+04	3.54e+06	7.80e+02	4.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.87e+06	2.20e+02	1.3e+04	5.54e+06	7.40e+02	7.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.39e+06	2.20e+02	1.5e+04	6.39e+06	7.40e+02	8.6e+03
23	13C-2,3,4,6,7,8-HxCDF	2.91e+06	2.20e+02	1.3e+04	5.60e+06	7.40e+02	7.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.69e+06	2.20e+02	1.2e+04	5.33e+06	7.40e+02	7.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.96e+06	1.28e+03	1.5e+03	4.37e+06	3.80e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.52e+06	1.28e+03	1.2e+03	3.51e+06	3.80e+03	9.2e+02
27	13C-2,3,7,8-TCDD	1.61e+06	3.92e+03	4.1e+02	2.04e+06	7.00e+02	2.9e+03
28	13C-1,2,3,7,8-PeCDD	3.53e+06	2.24e+02	1.6e+04	2.24e+06	2.16e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.84e+06	8.68e+02	4.4e+03	3.07e+06	2.80e+02	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	3.53e+06	8.68e+02	4.1e+03	2.79e+06	2.80e+02	1.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.62e+06	1.68e+02	2.2e+04	3.41e+06	2.32e+02	1.5e+04
32	13C-OCDD	2.16e+06	2.64e+02	8.2e+03	2.38e+06	2.20e+02	1.1e+04
33	13C-1,2,3,4-TCDD	3.56e+06	3.92e+03	9.1e+02	4.39e+06	7.00e+02	6.3e+03
34	13C-1,2,3,7,8,9-HxCDD	5.47e+06	8.68e+02	6.3e+03	4.22e+06	2.80e+02	1.5e+04
35	37Cl-2,3,7,8-TCDD	2.52e+06	5.00e+02	5.0e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.100e+03 + 6.840e+02) \times 2000}{(1.610e+06 + 2.044e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0570

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519315 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 303.9020 305.8990 Tot Response: 5.84e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:46	1.09e+03	1.54e+03	0.71	yes	2.63e+03		n	n
2	25:05	6.00e+03	8.26e+03	0.73	yes	1.43e+04		n	n
3	25:31	1.85e+03	2.53e+03	0.73	yes	4.38e+03		n	n
4	25:40	2.93e+02	3.65e+02	0.80	yes	6.59e+02		n	n
5	25:49	5.37e+03	7.04e+03	0.76	yes	1.24e+04		n	n
6	26:13	9.55e+02	1.25e+03	0.76	yes	2.21e+03		n	n
7	26:27	3.47e+03	4.39e+03	0.79	yes	7.86e+03		n	n
8	26:34	6.30e+03	8.36e+03	0.75	yes	1.47e+04		n	n
9	27:01	6.05e+04	7.81e+04	0.78	yes	1.39e+05		n	n
10	27:17	2.91e+03	3.77e+03	0.77	yes	6.68e+03		n	n
11	27:51	1.43e+05	1.85e+05	0.77	yes	3.28e+05	2,3,7,8-TCDF	n	n
12	28:11	9.70e+03	1.33e+04	0.73	yes	2.30e+04		n	n
13	28:26	1.70e+03	2.23e+03	0.76	yes	3.93e+03		n	n
14	29:44	1.12e+04	1.37e+04	0.82	yes	2.48e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0570

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519315 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 319.8970 321.8940 Tot Response: 7.81e+04 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:25	3.82e+02	5.03e+02	0.76	yes	8.86e+02		n n
2	28:40	3.14e+04	3.97e+04	0.79	yes	7.11e+04	2,3,7,8-TCDD	n n
3	28:58	2.63e+03	3.52e+03	0.75	yes	6.15e+03		n n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0570

Entry: 38 Totals Name: Total Penta-Furans1

Run: 18 File: P519315 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 339.8600 341.8570 Tot Response: 2.33e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:44	1.45e+02	8.81e+01 1.64	yes	2.33e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0570

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P519315 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 339.8600 341.8570 Tot Response: 2.57e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	2.69e+03	1.69e+03	1.59	yes	4.37e+03		n	n
2	31:34	2.22e+01	1.48e+01	1.51	yes	3.70e+01		n	n
3	31:47	1.34e+02	9.97e+01	1.35	yes	2.34e+02		n	n
4	32:11	5.88e+03	3.67e+03	1.60	yes	9.54e+03	1,2,3,7,8-PeCDF	n	n
5	32:27	1.82e+03	1.18e+03	1.54	yes	3.00e+03		n	n
6	33:08	5.19e+03	3.31e+03	1.57	yes	8.50e+03	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0570

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P519315 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 355.8550 357.8520 Tot Response: 1.03e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:44	7.22e+01	5.13e+01	1.41	yes	1.24e+02		n	n
2	32:12	9.36e+01	5.46e+01	1.71	yes	1.48e+02		n	n
3	33:25	4.55e+02	3.04e+02	1.50	yes	7.59e+02	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0570

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519315 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 373.8210 375.8180 Tot Response: 2.60e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:55	6.77e+02	5.45e+02	1.24	yes	1.22e+03		n	n
2	35:26	3.83e+02	2.91e+02	1.32	yes	6.74e+02		n	n
3	35:53	9.49e+03	7.77e+03	1.22	yes	1.73e+04	1,2,3,4,7,8-HxCDF	n	n
4	36:00	2.60e+03	2.38e+03	1.09	yes	4.99e+03	1,2,3,6,7,8-HxCDF	n	n
5	36:32	3.76e+02	3.25e+02	1.16	yes	7.01e+02	2,3,4,6,7,8-HxCDF	n	n
6	37:20	6.46e+02	5.27e+02	1.23	yes	1.17e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0570

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519315 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 389.8160 391.8130 Tot Response: 2.18e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	7.08e+02	6.03e+02	1.18	yes	1.31e+03		n	n
2	35:49	3.76e+01	2.97e+01	1.27	yes	6.74e+01		n	n
3	36:04	3.38e+02	2.59e+02	1.30	yes	5.97e+02		n	n
4	36:40	1.97e+01	1.51e+01	1.30	yes	3.48e+01	1,2,3,4,7,8-HxCDD	n	n
5	36:45	9.70e+01	7.57e+01	1.28	yes	1.73e+02	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0570

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P519315 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 407.7820 409.7790 Tot Response: 9.75e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:39	2.86e+03	2.75e+03	1.04	yes	5.61e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:54	2.57e+01	2.37e+01	1.08	yes	4.94e+01		n	n
3	39:04	1.23e+03	1.22e+03	1.01	yes	2.44e+03		n	n
4	40:07	8.38e+02	8.10e+02	1.03	yes	1.65e+03	1,2,3,4,7,8,9-HpCDF	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SL0570

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519315 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 18:04:08 Processed: 11-DEC-18 16:44:54

Mass: 423.7770 425.7740 Tot Response: 1.30e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:55	3.72e+03	3.55e+03	1.05	yes	7.27e+03		n	n
2	39:38	2.90e+03	2.85e+03	1.02	yes	5.75e+03	1,2,3,4,6,7,8-HpCDD	n	n

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Houston, TX 77099
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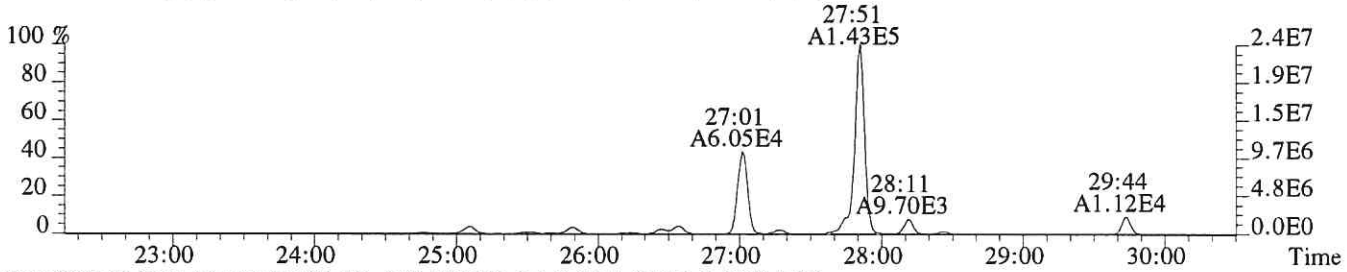
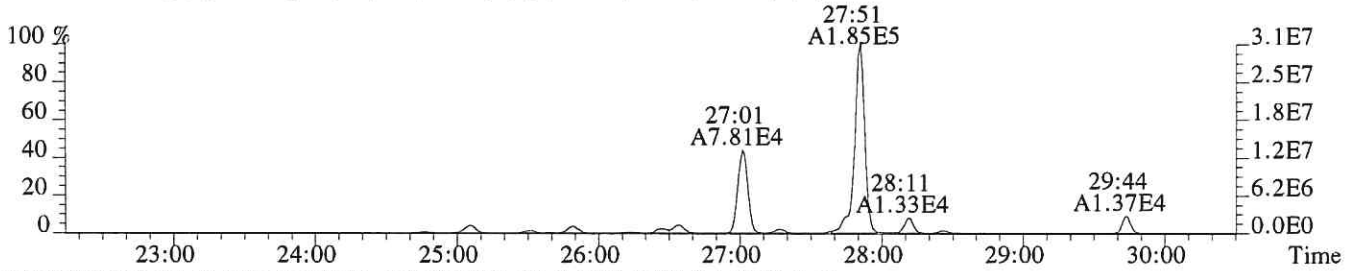
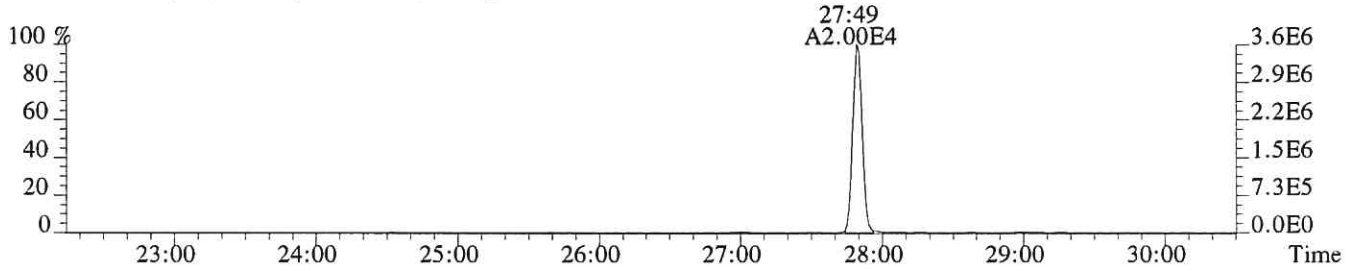
File:P519315 #1-587 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



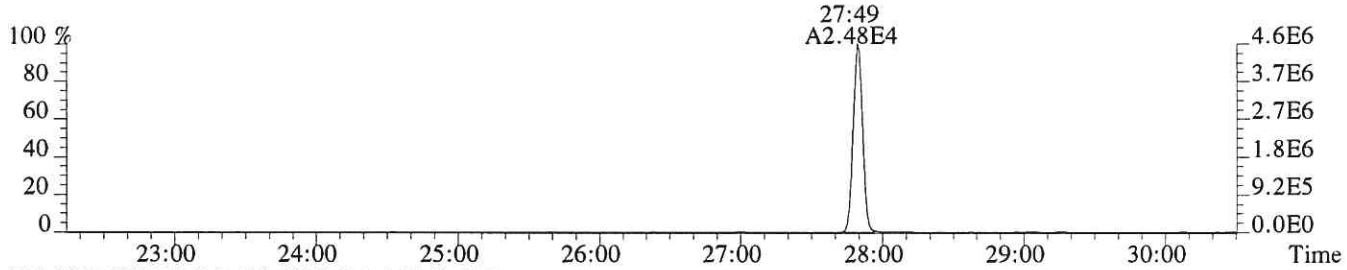
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



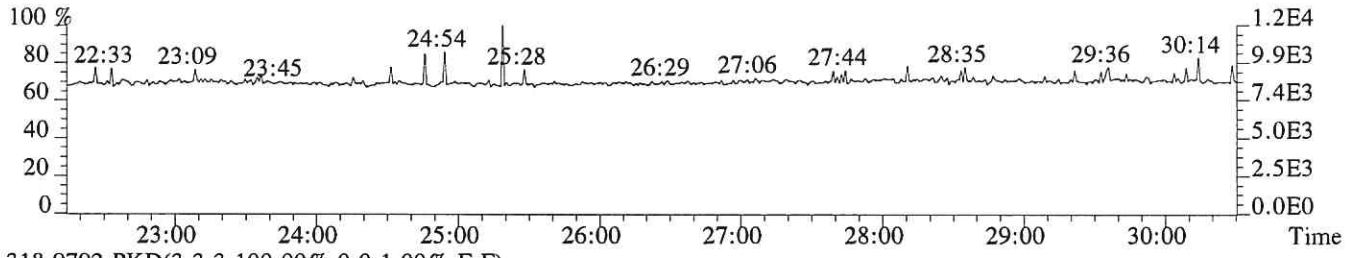
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3432.0,1.00%,F,T)



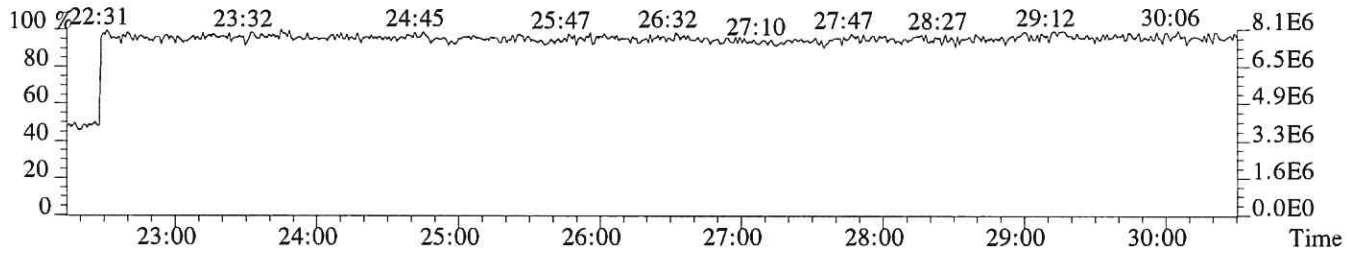
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

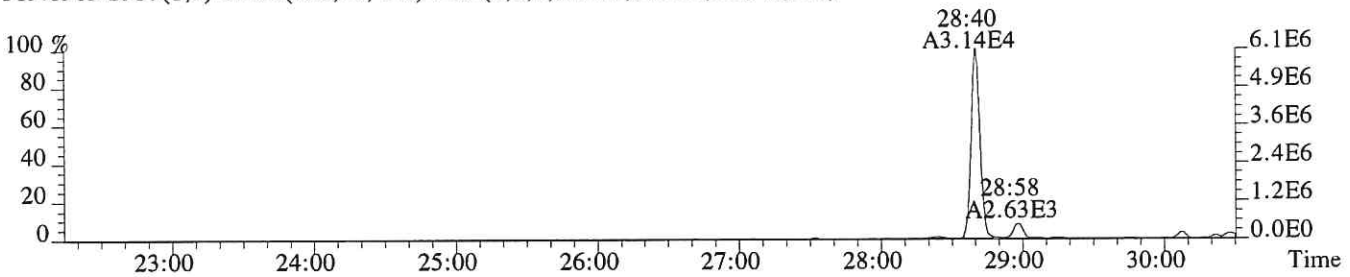


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

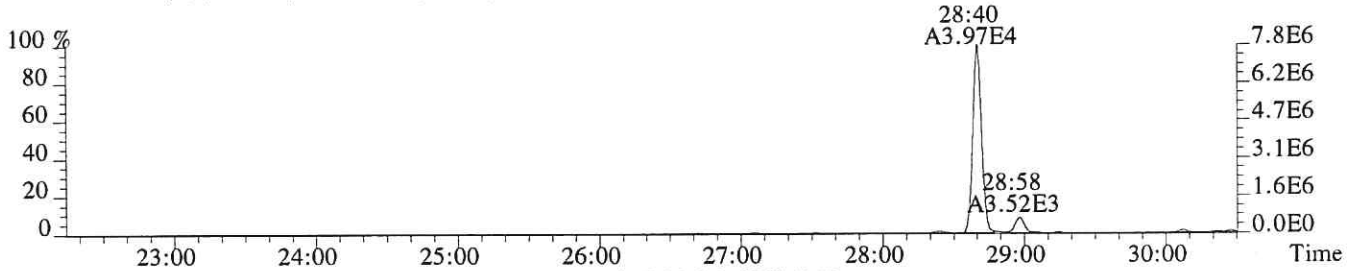


File:P519315 #1-587 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011

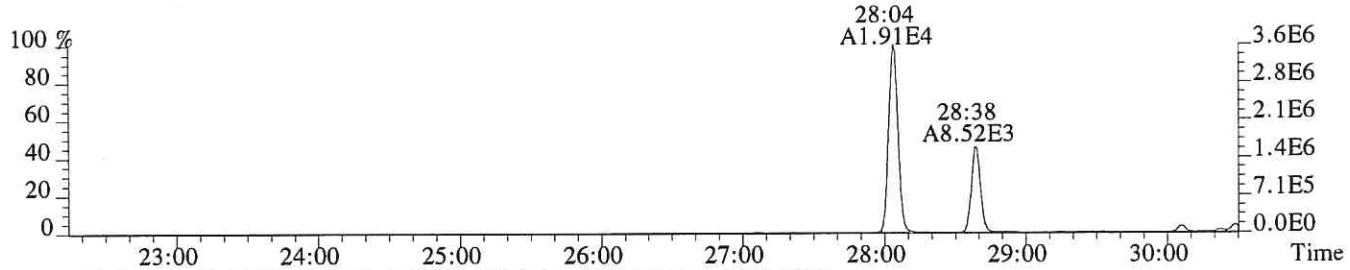
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



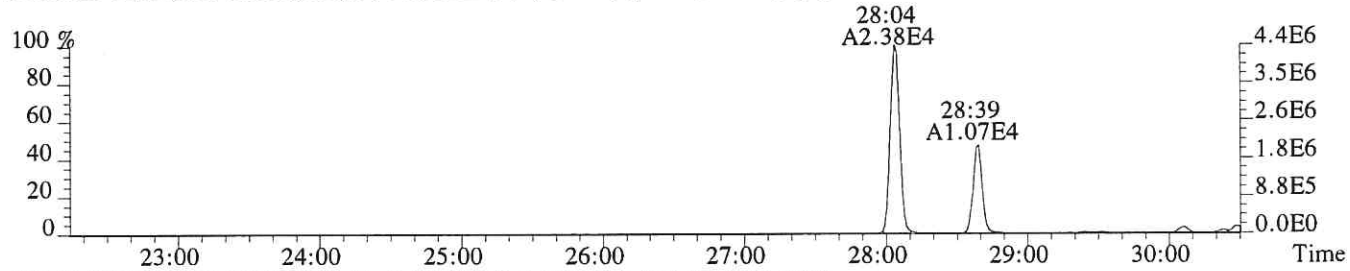
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



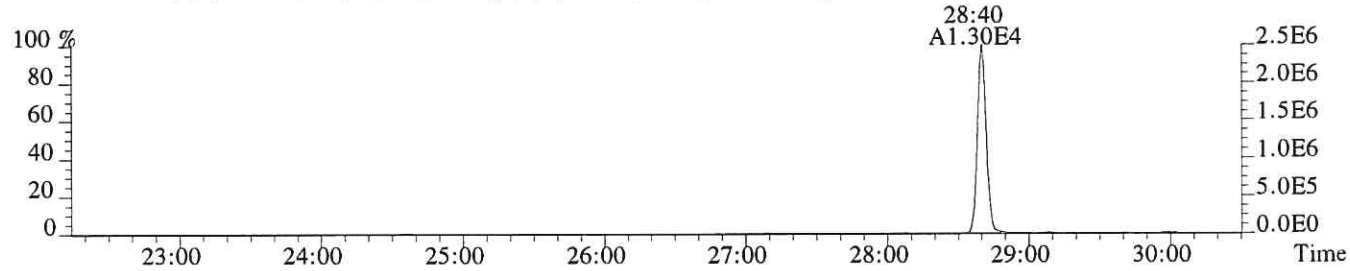
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3920.0,1.00%,F,T)



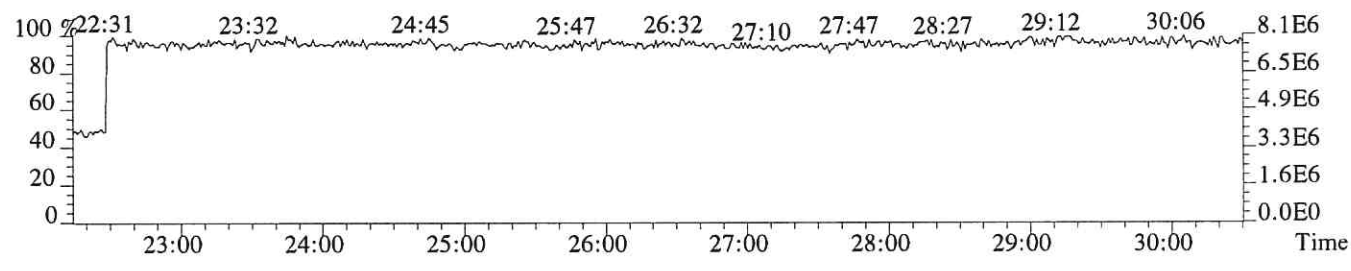
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



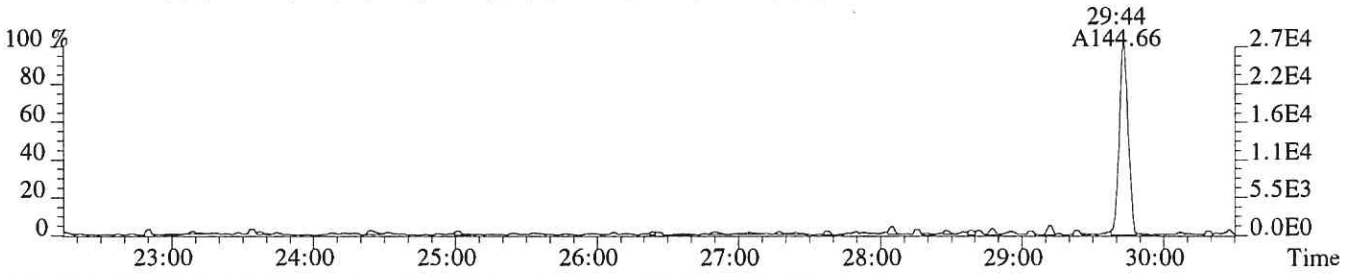
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



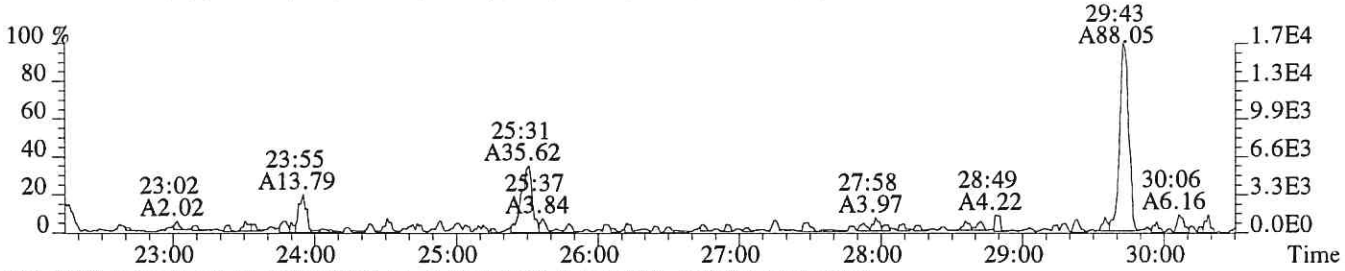
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



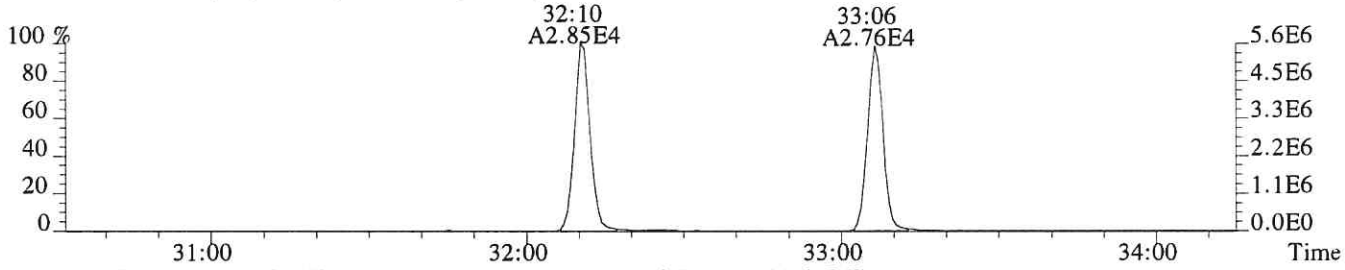
File:P519315 #1-587 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



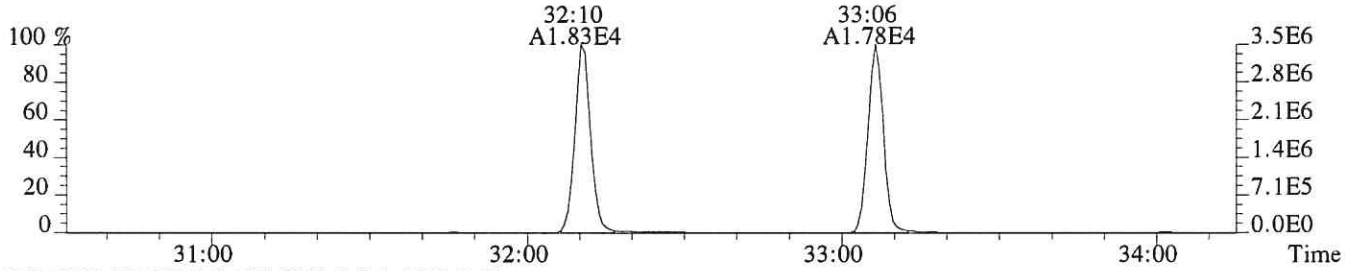
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



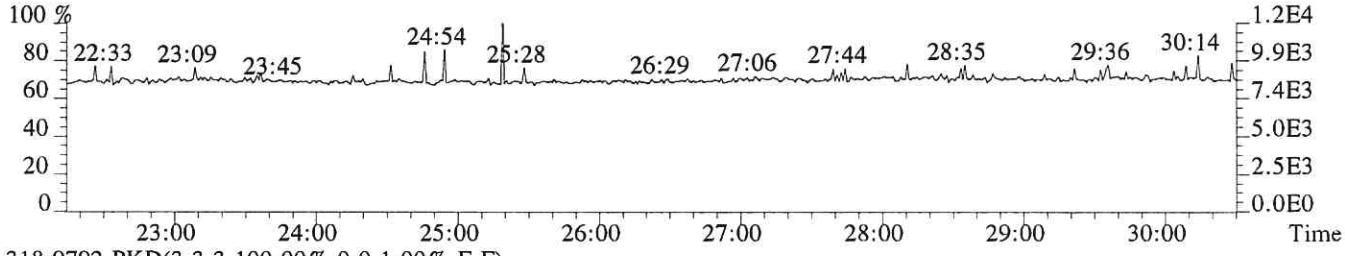
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



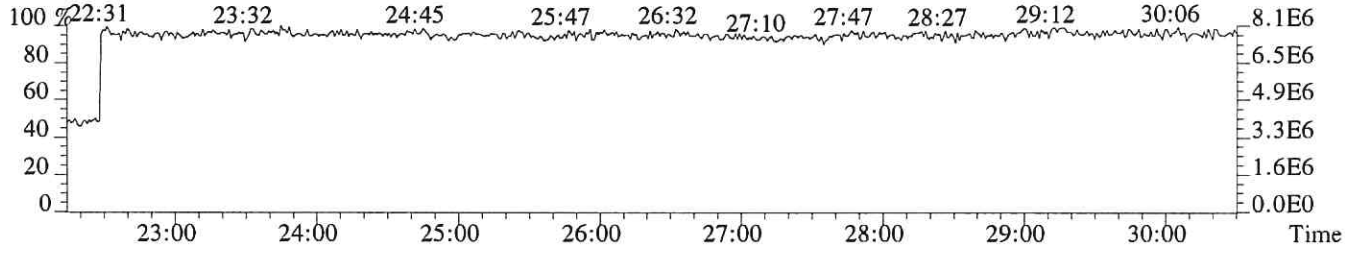
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

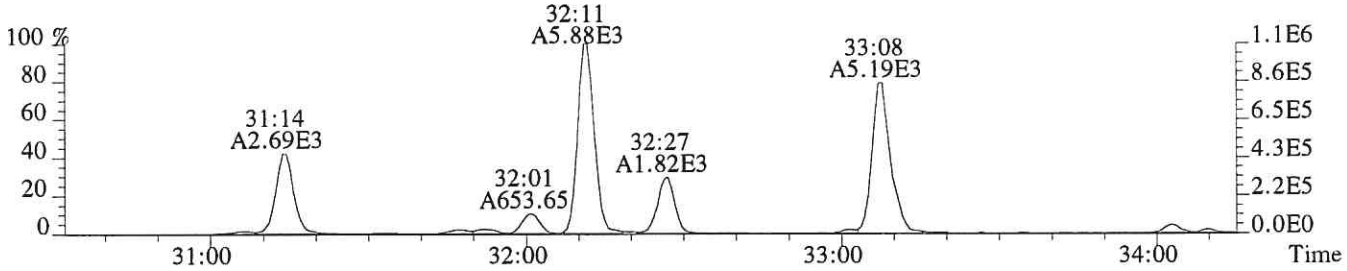


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

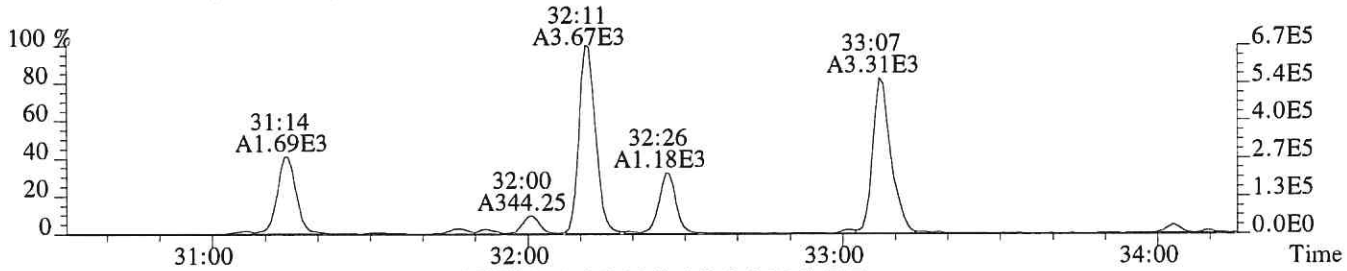


File:P519315 #1-335 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011

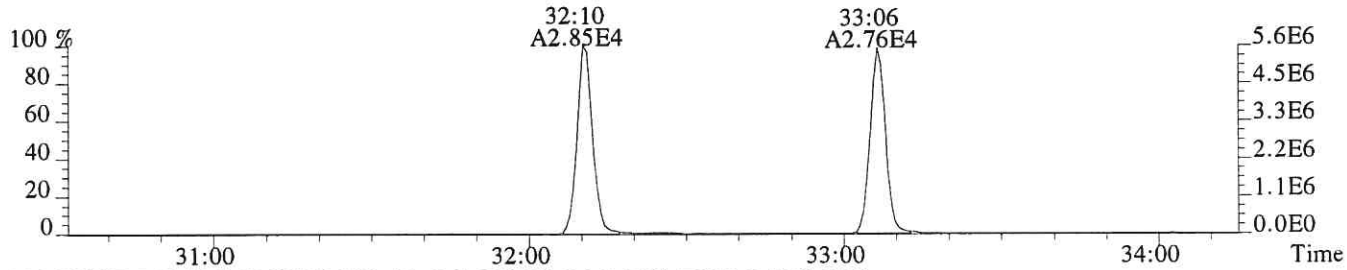
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



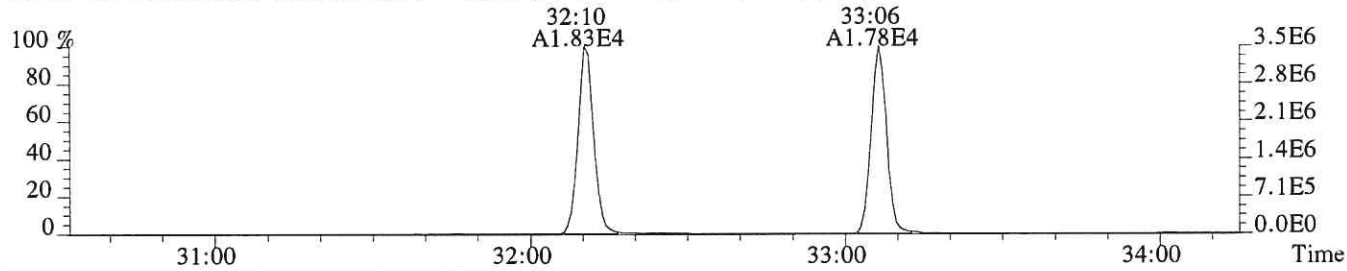
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2032.0,1.00%,F,T)



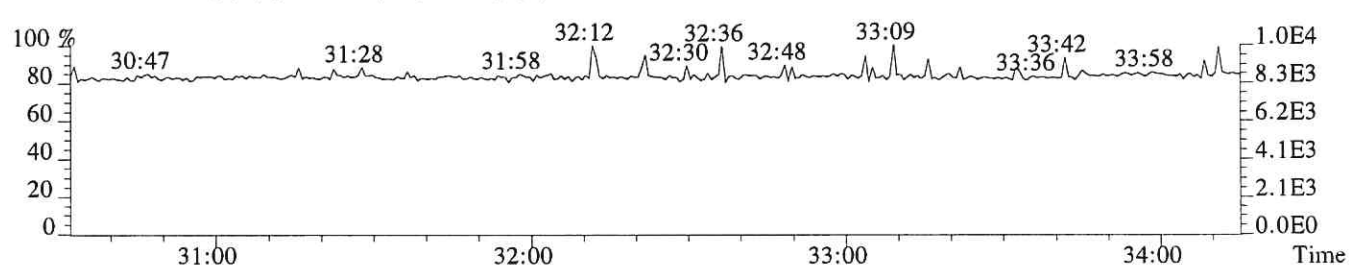
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



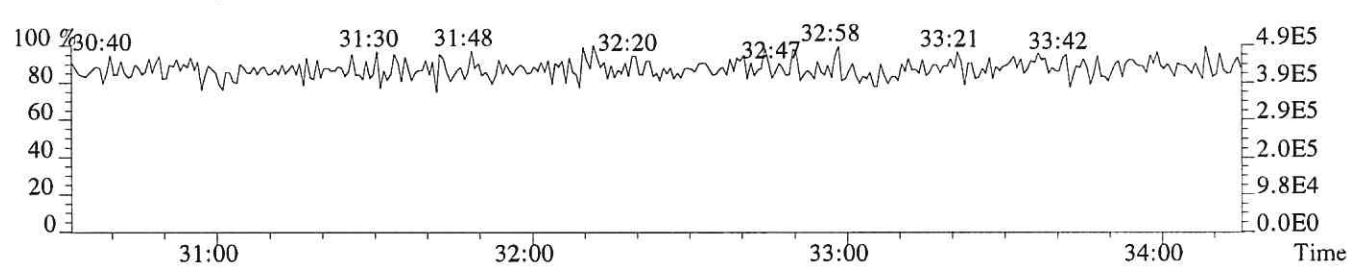
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



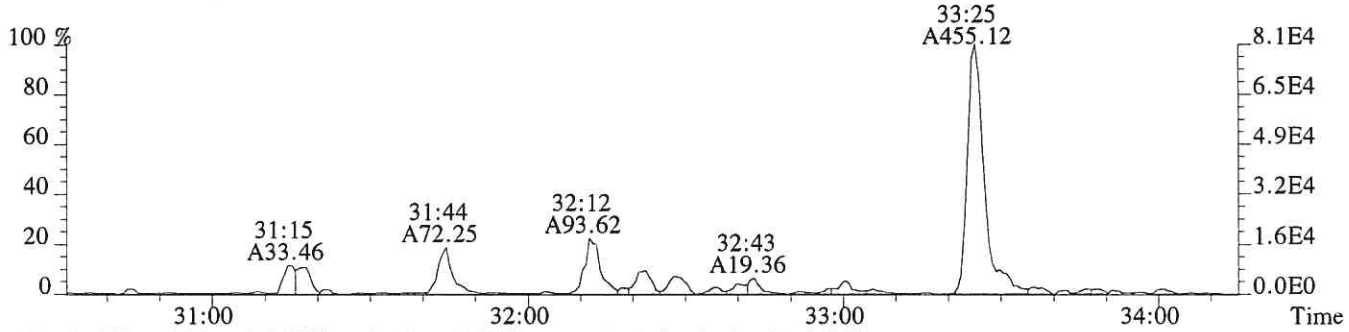
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



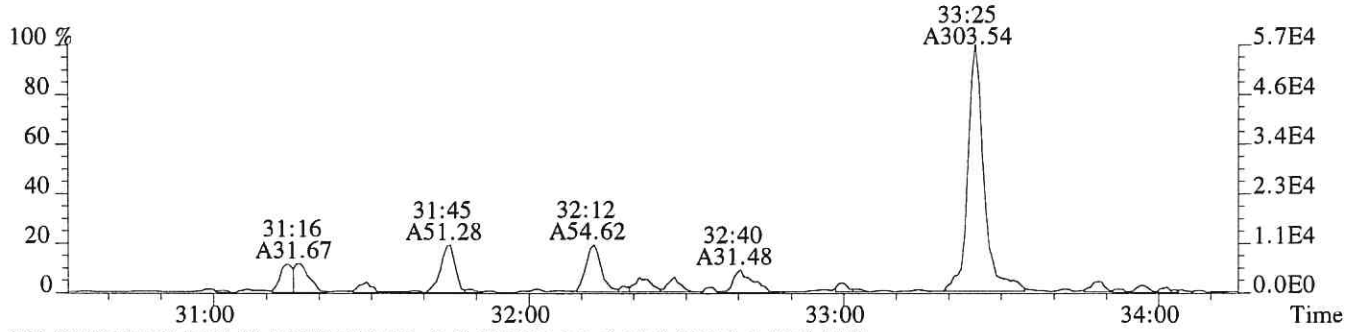
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519315 #1-335 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



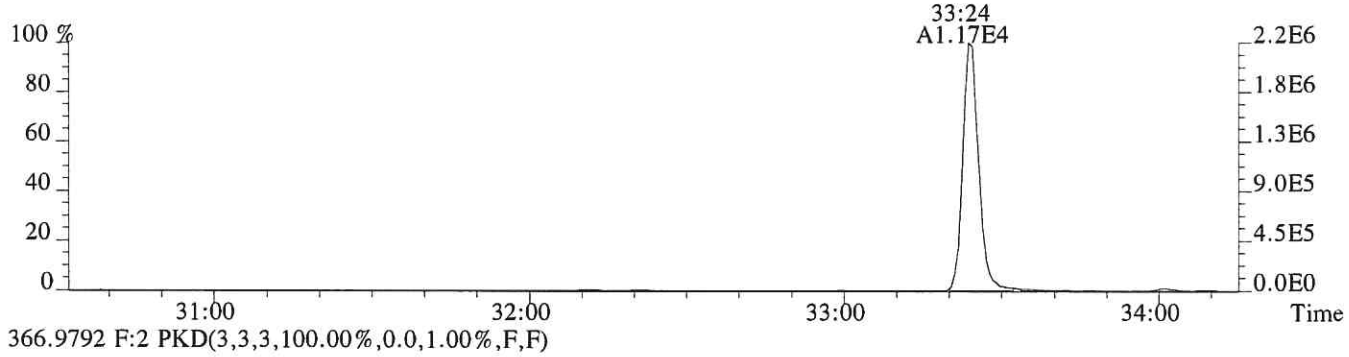
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



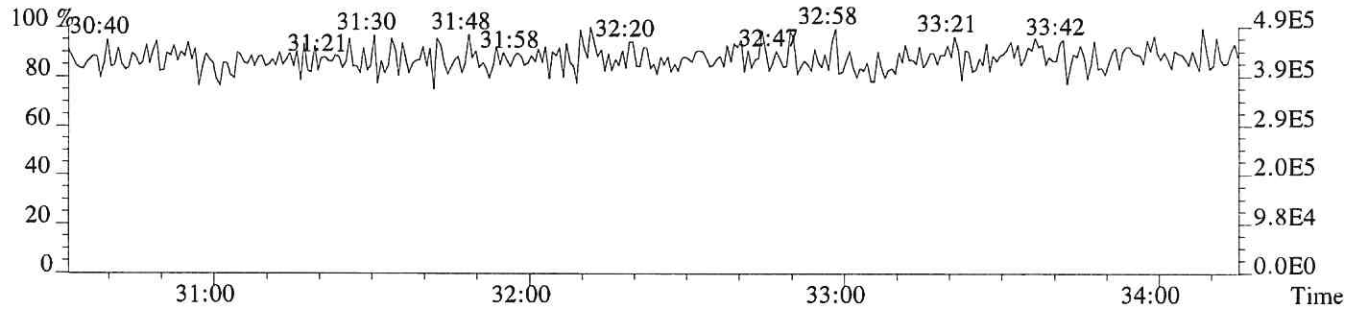
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)

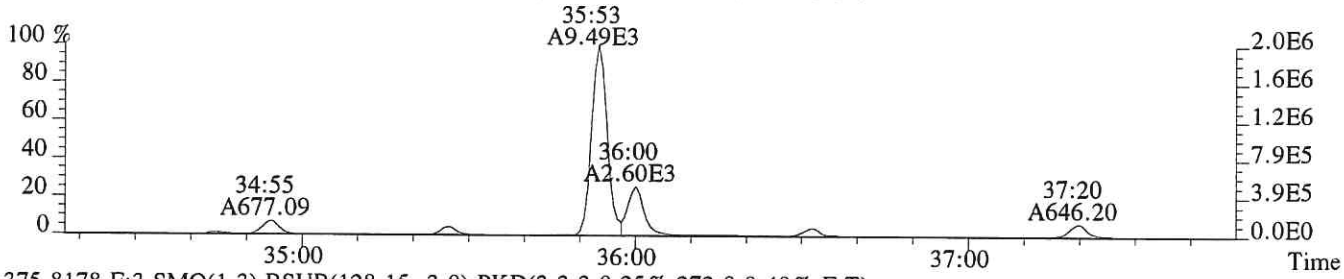


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

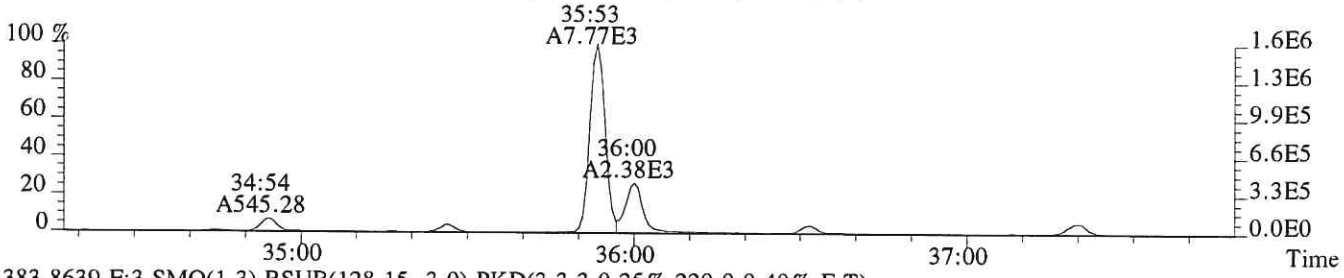


File:P519315 #1-317 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011

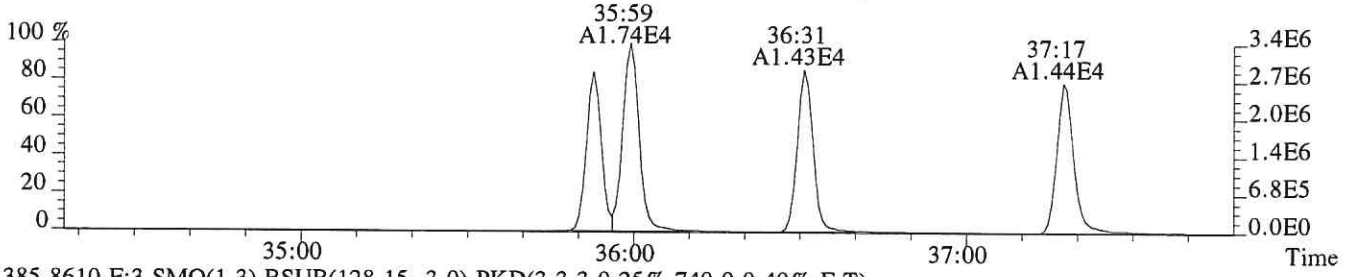
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



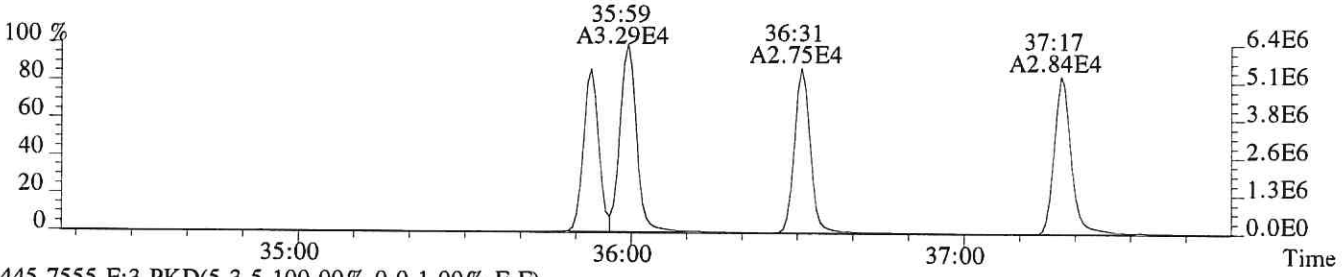
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



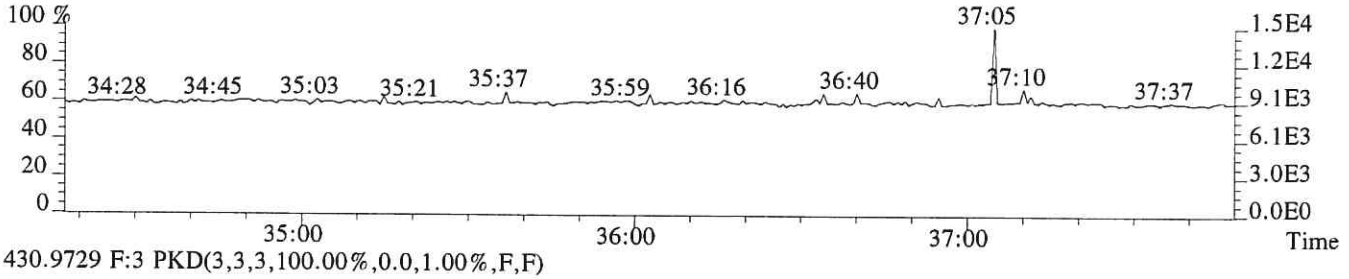
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



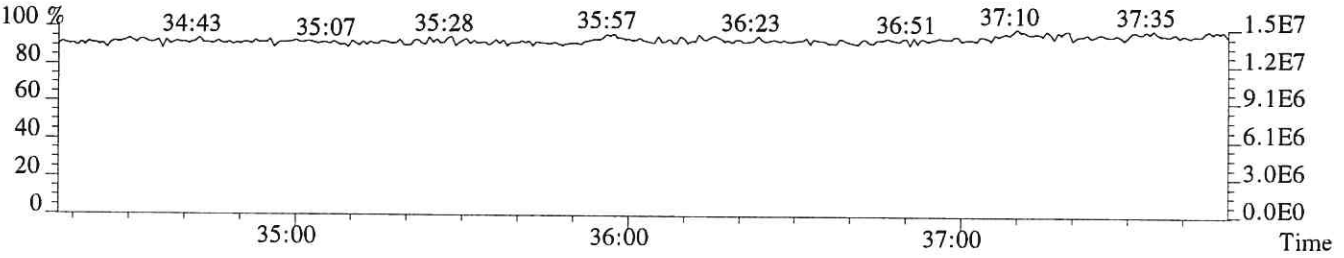
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



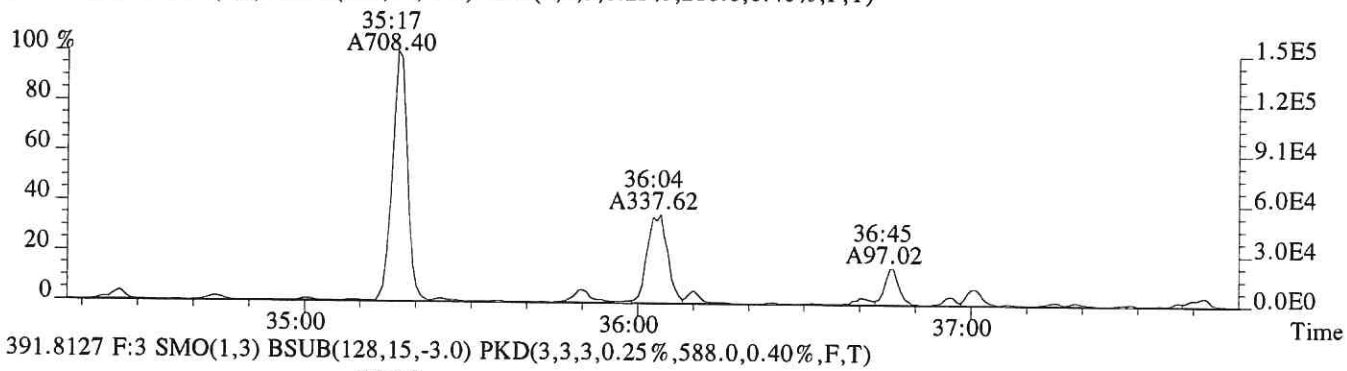
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



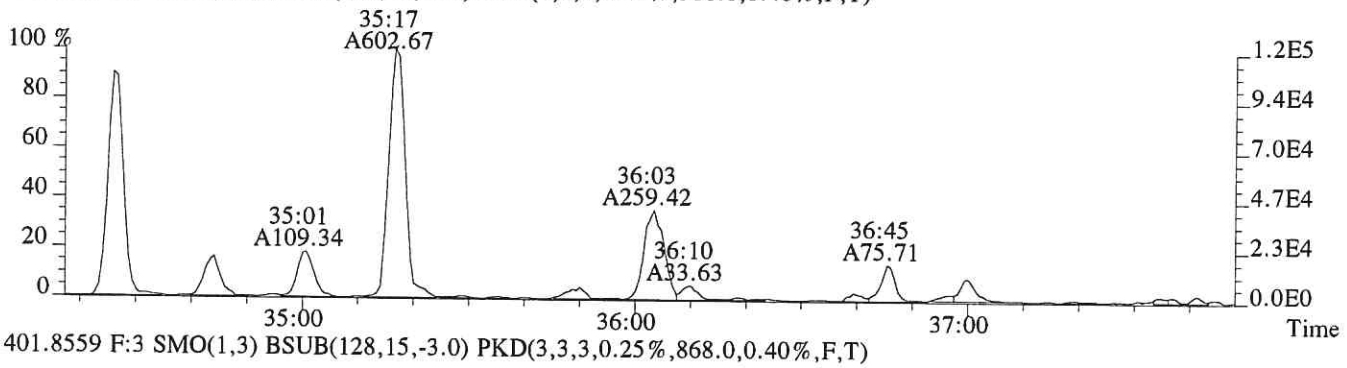
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



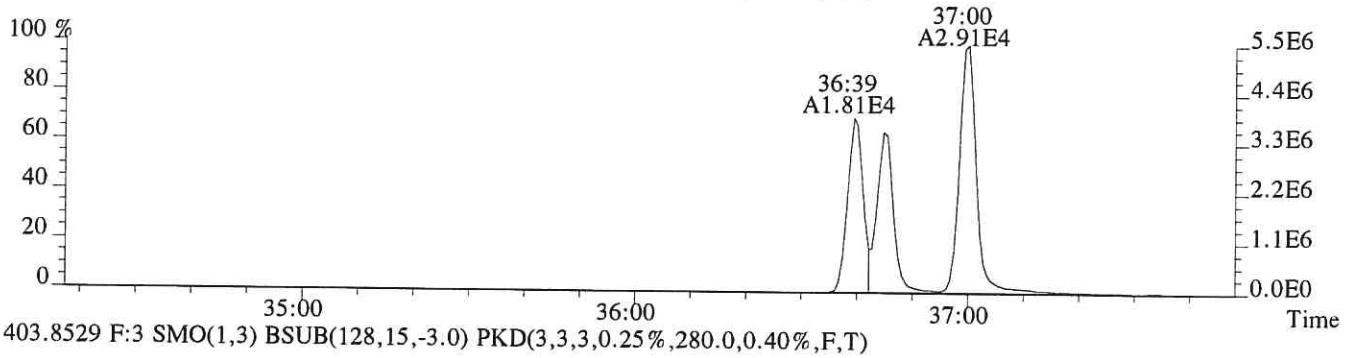
File:P519315 #1-317 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



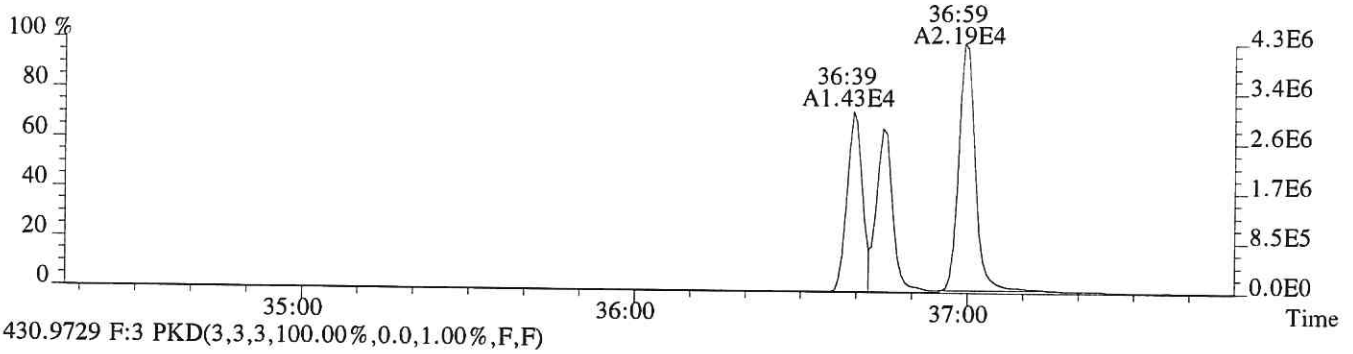
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



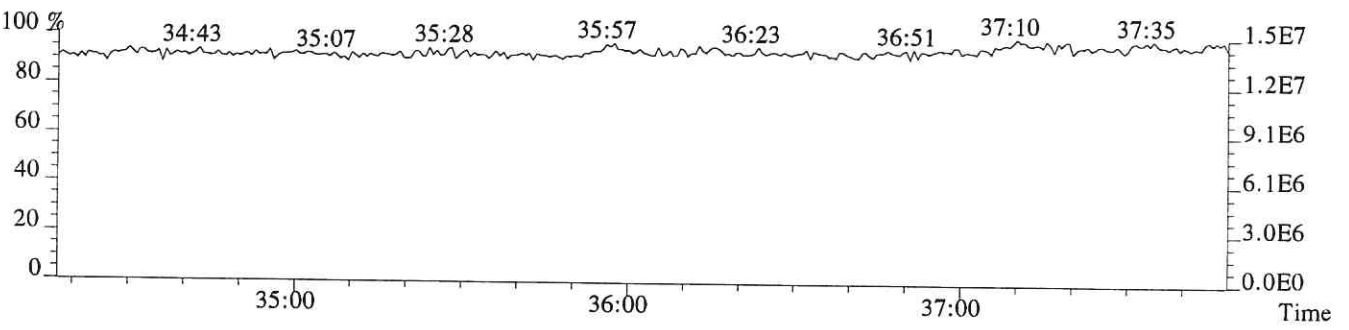
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



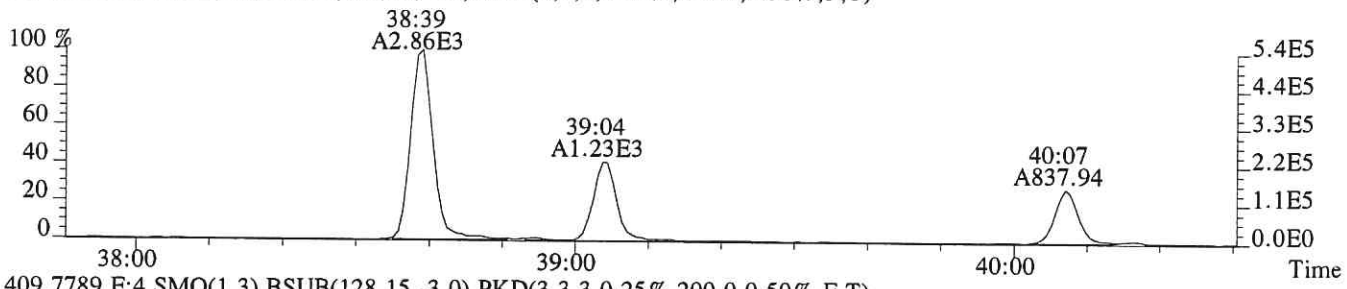
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



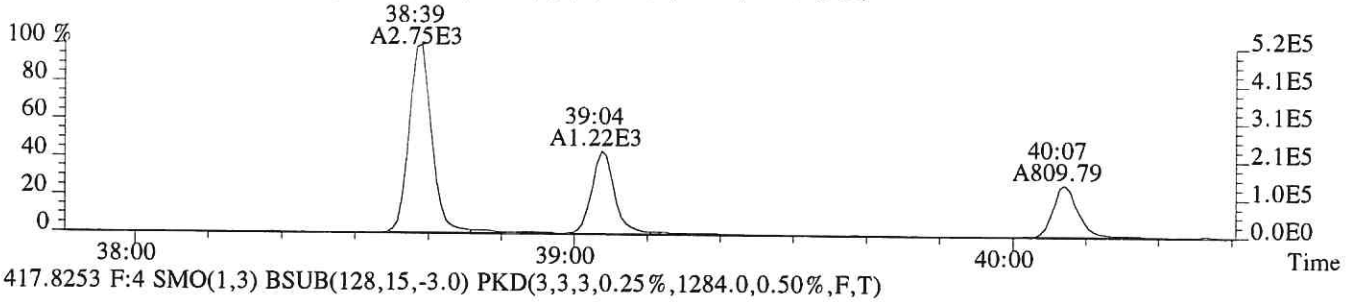
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



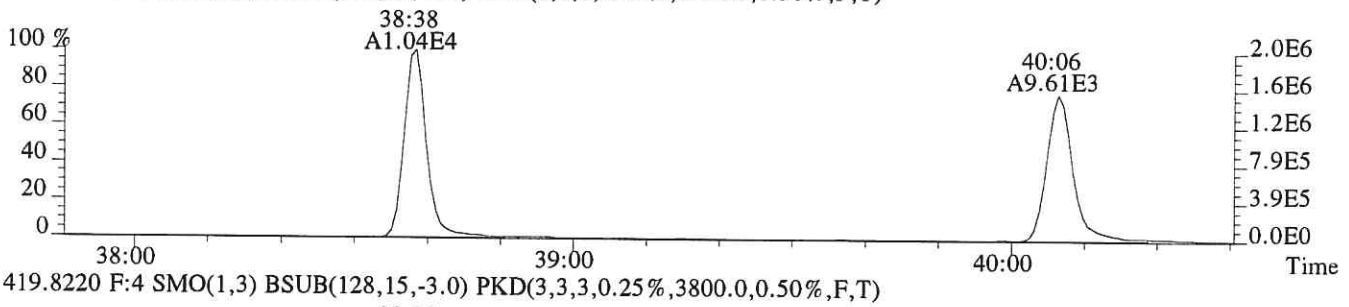
File:P519315 #1-241 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.50%,F,T)



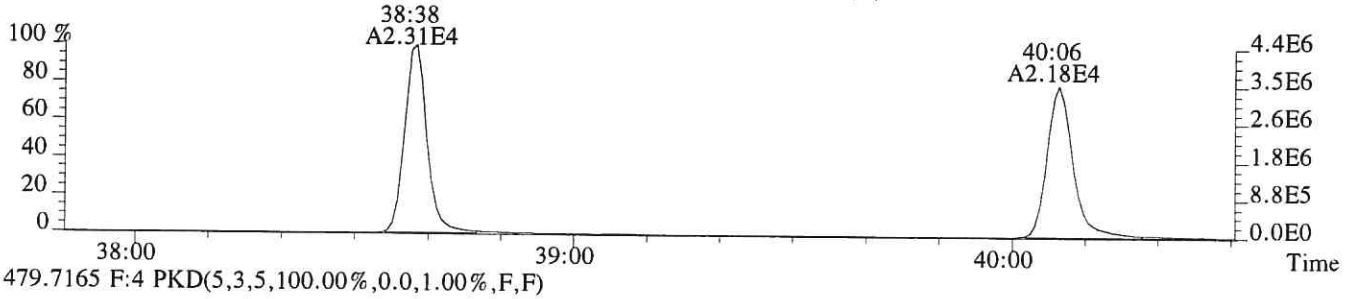
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.50%,F,T)



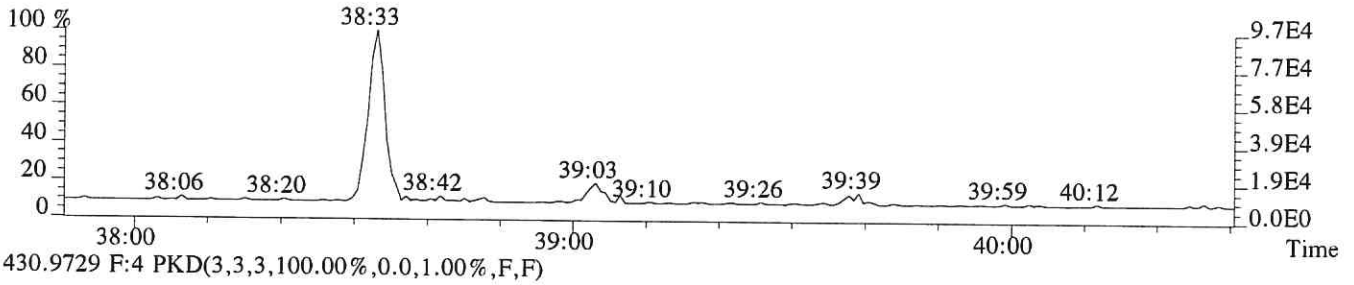
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.50%,F,T)



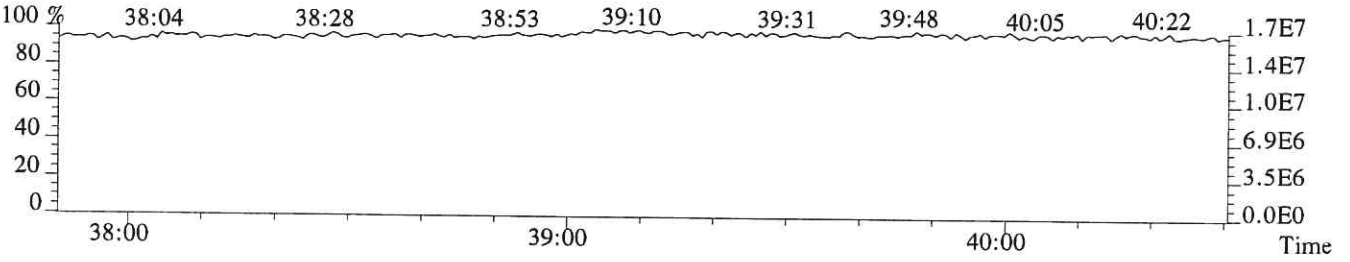
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3800.0,0.50%,F,T)



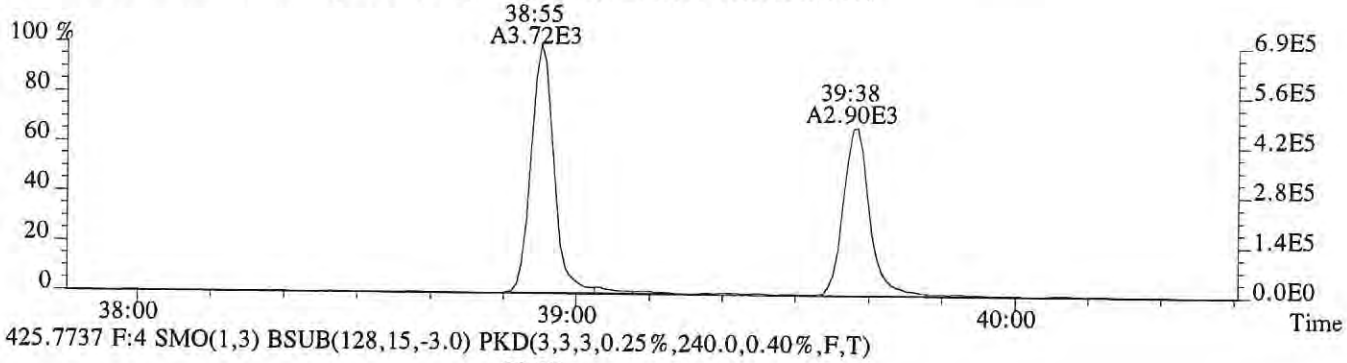
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



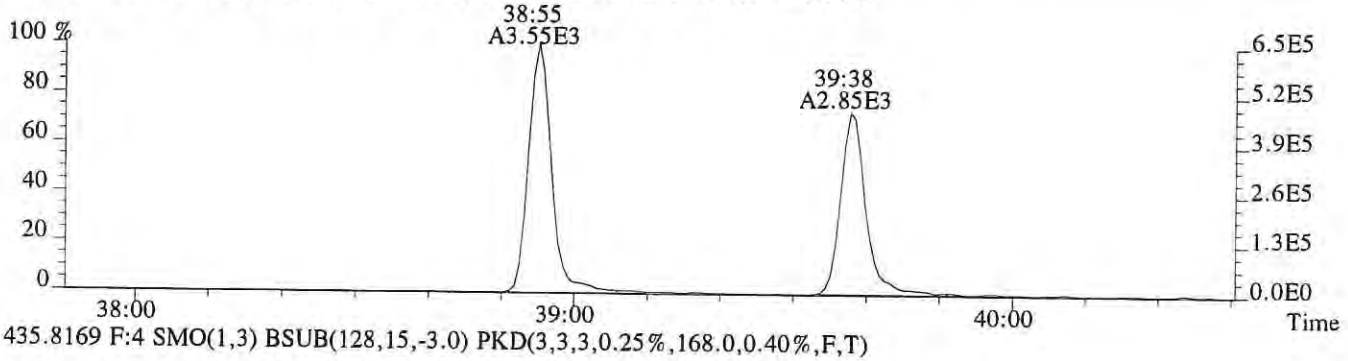
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



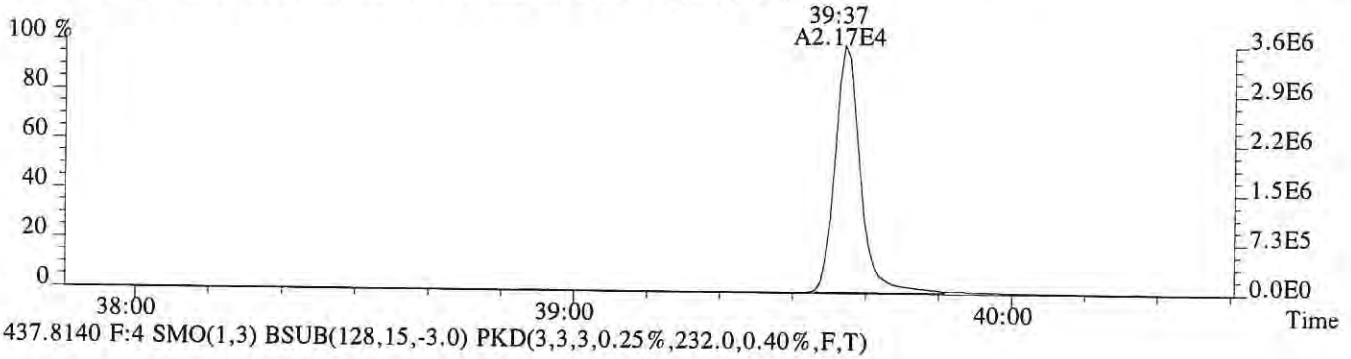
File:P519315 #1-241 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



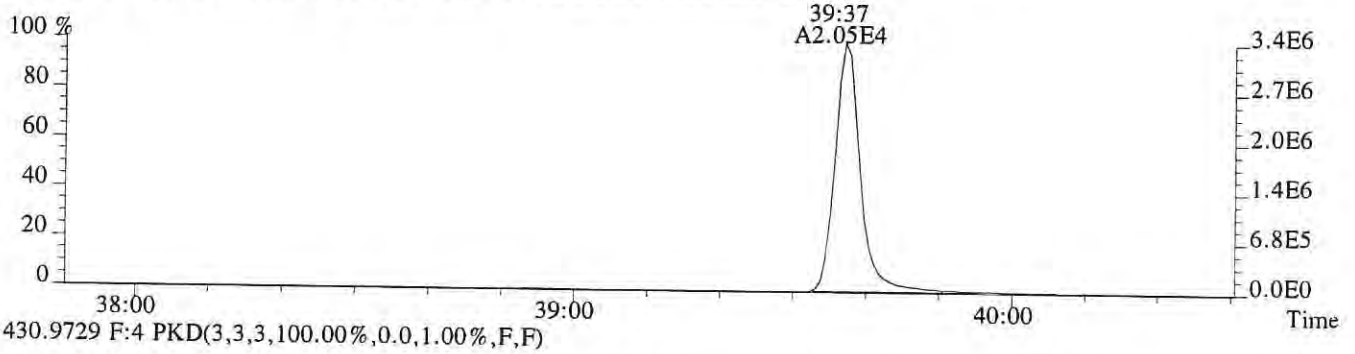
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



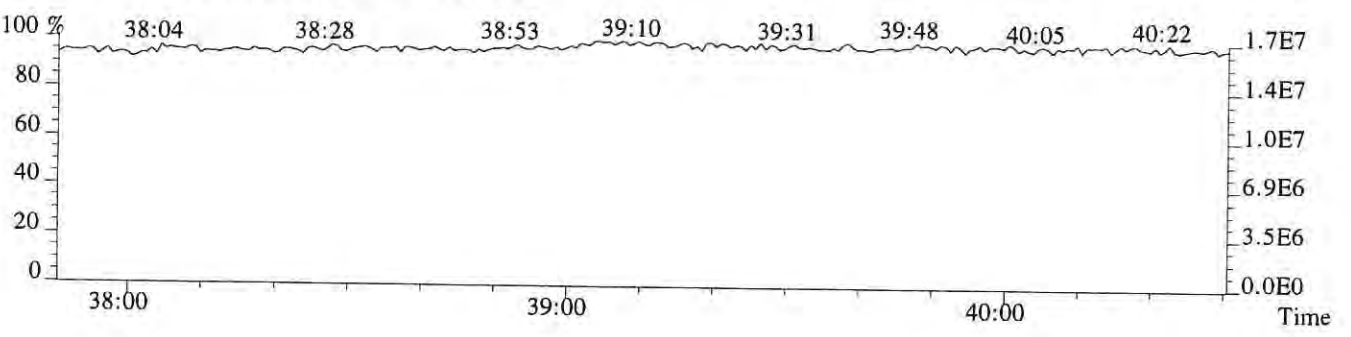
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)

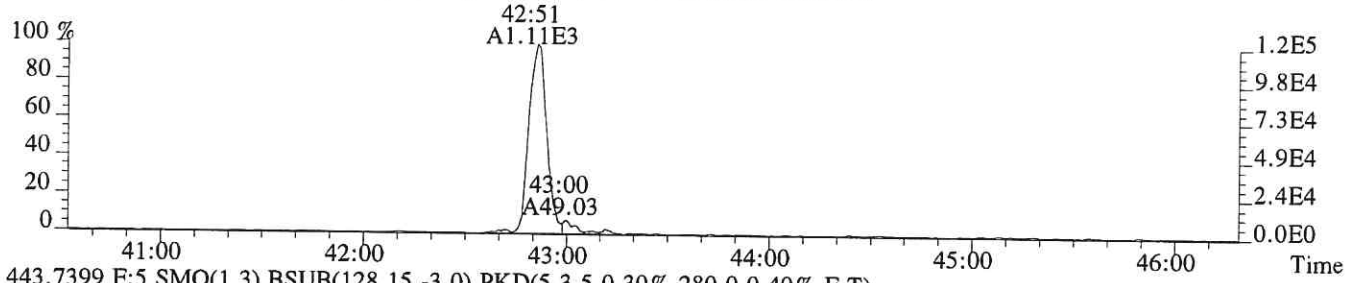


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

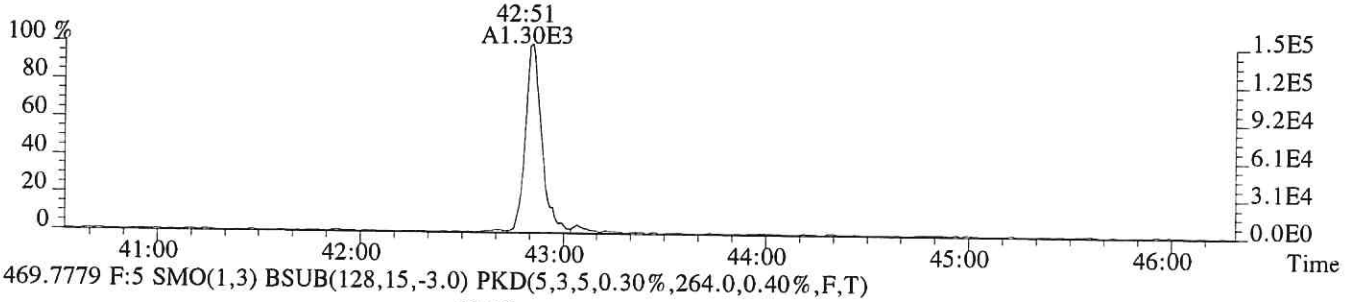


File:P519315 #1-520 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011

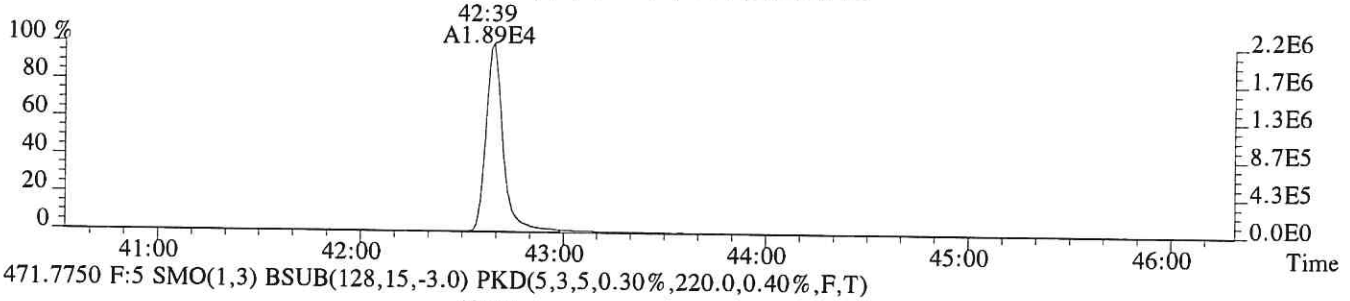
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



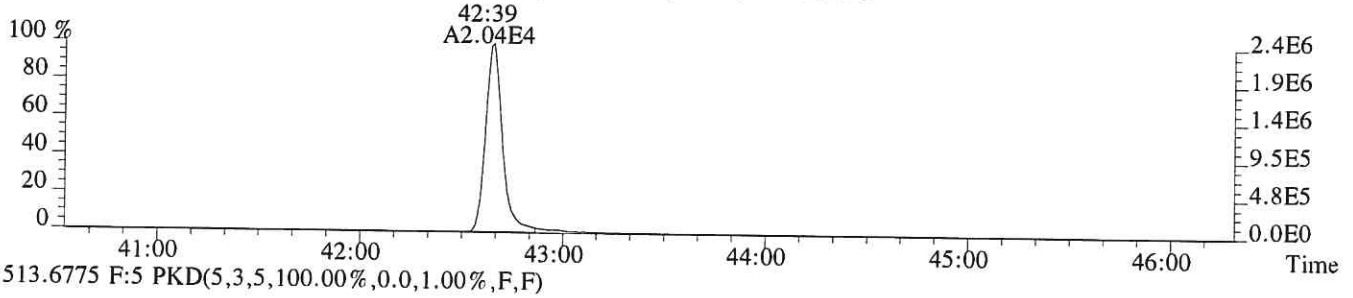
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



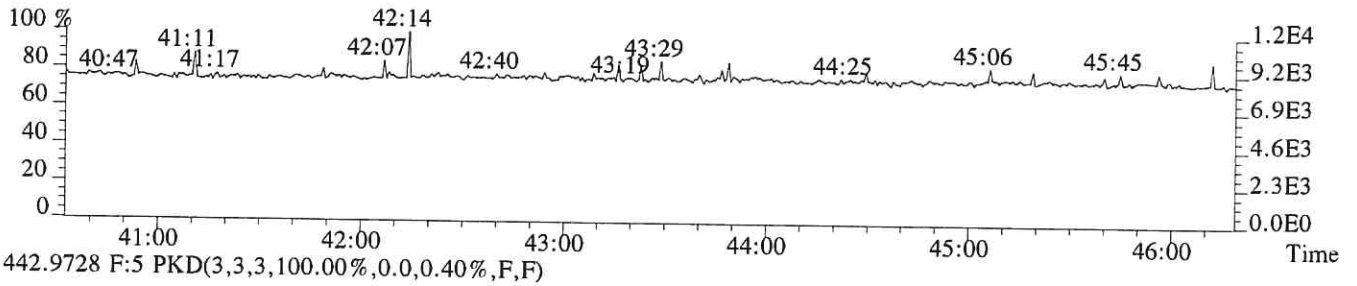
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



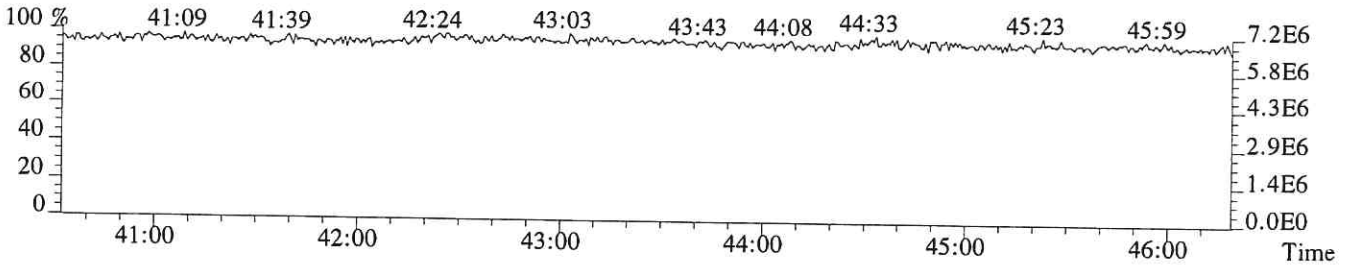
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



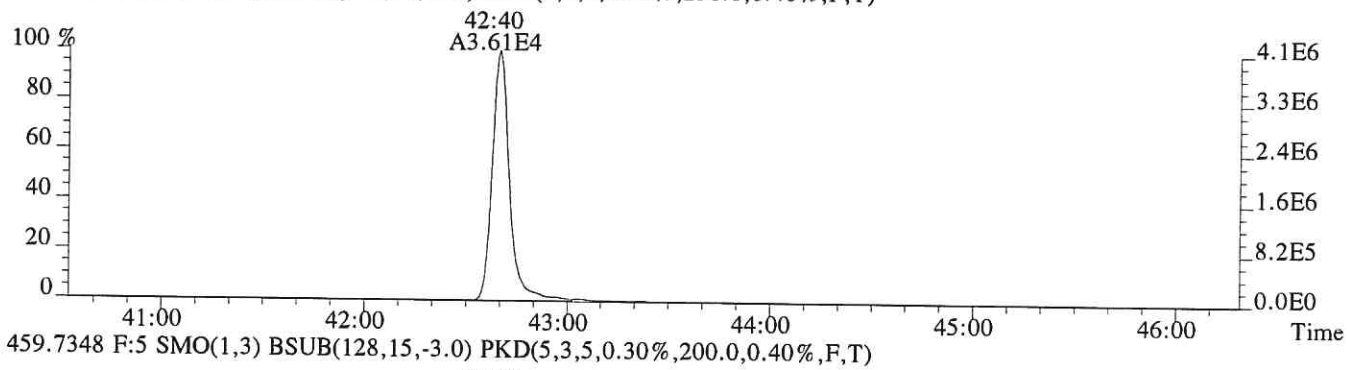
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



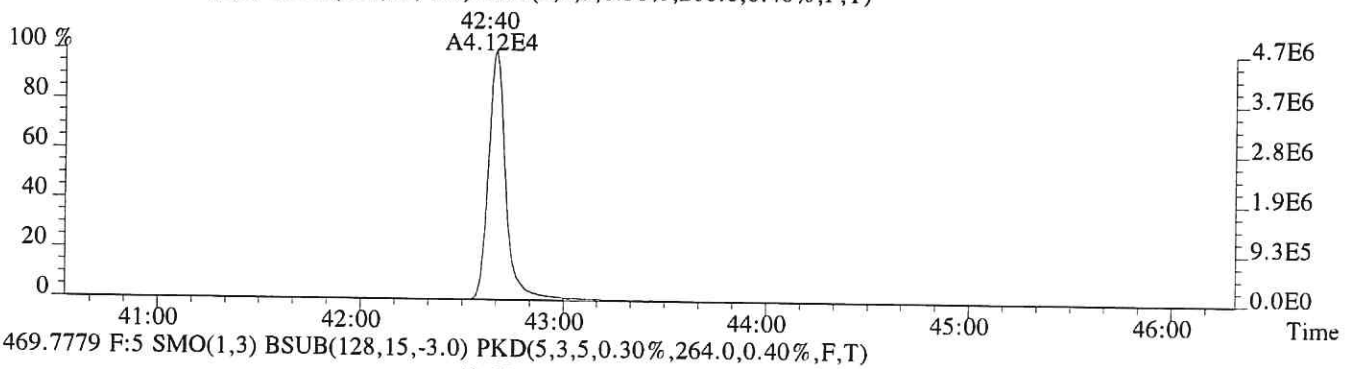
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



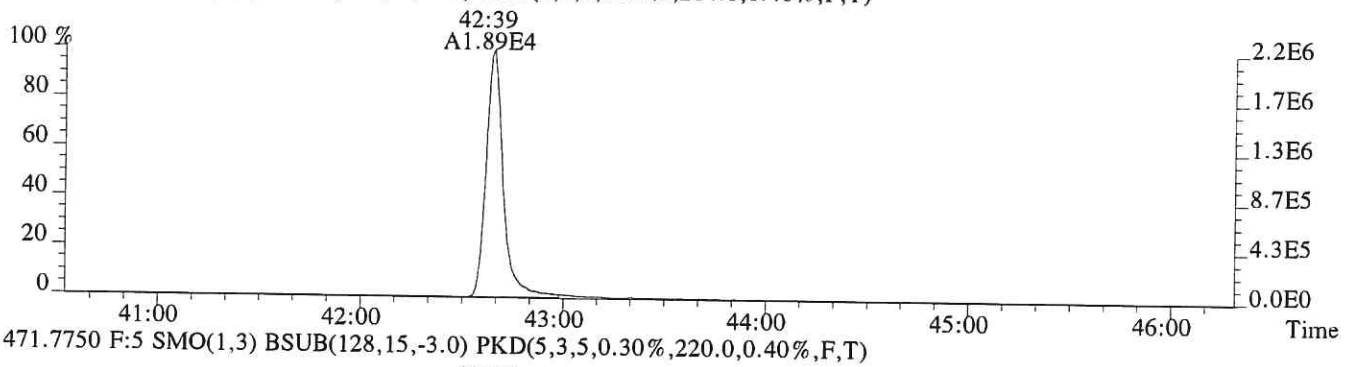
File:P519315 #1-520 Acq: 8-DEC-2018 18:04:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



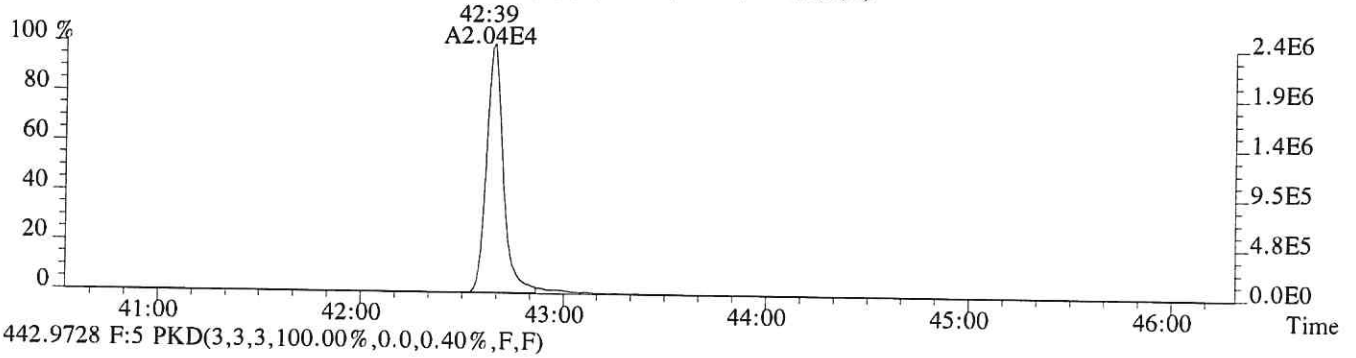
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



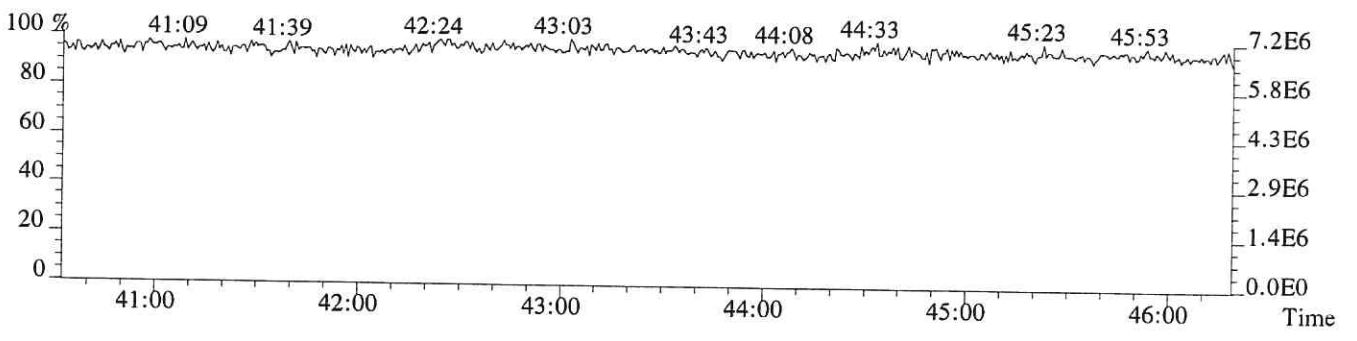
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0570

Run #16 Filename P519376 Samp: 1 Inj: 1 Acquired: 12-DEC-18 07:54:43
Processed: 13-DEC-18 09:35:43 Sample ID: E1801065-011DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	4.727e+03	6.144e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	2.012e+02	1.602e+02	1.26	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	1.832e+02	1.374e+02	1.33	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.532e+02	2.683e+02	1.32	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.187e+01	8.678e+01	1.06	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:28	1.513e+01	1.512e+01	1.00	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.422e+01	1.749e+01	1.38	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	1.126e+02	1.200e+02	0.94	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:04	2.397e+01	3.403e+01	0.70	no	no	1.258
10	Unk	OCDF	42:44	6.625e+01	3.909e+01	1.69	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.073e+03	1.479e+03	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:22	1.549e+01	1.961e+01	0.79	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.085e+02	1.121e+02	0.97	yes	no	1.025
17	Unk	OCDD	42:32	1.200e+03	1.401e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.409e+04	1.848e+04	0.76	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.220e+04	1.396e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.163e+04	1.352e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	8.996e+03	1.749e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.096e+04	2.089e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:27	1.027e+04	2.039e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	8.594e+03	1.672e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:34	8.081e+03	1.854e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:01	6.894e+03	1.549e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	6.855e+03	8.858e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.564e+04	1.003e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	1.299e+04	1.021e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:41	1.425e+04	1.090e+04	1.31	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:32	1.458e+04	1.404e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:32	1.602e+04	1.765e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	1.171e+04	1.476e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	1.708e+04	1.349e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	4.597e+02				no	1.014

$$\text{OCDD} = \frac{(1.200e+03 + 1.401e+03) \times 4000\ \text{pg} \times 20}{(1.602e+04 + 1.765e+04) \times 10.099\ \text{g} \times 83\ /\ 100 \times 1.118} = 999.1830\ \text{ng/kg}$$

LG 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0570

Run #16 Filename P519376 Samp: 1 Inj: 1 Acquired: 12-DEC-18 07:54:43
Processed: 13-DEC-18 09:35:43 LAB. ID: E1801065-011DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.35e+05	8.96e+02	8.2e+02	9.64e+05	2.08e+03	4.6e+02
2	1,2,3,7,8-PeCDF	3.68e+04	1.04e+03	3.6e+01	2.32e+04	8.64e+02	2.7e+01
3	2,3,4,7,8-PeCDF	2.90e+04	1.04e+03	2.8e+01	2.21e+04	8.64e+02	2.6e+01
4	1,2,3,4,7,8-HxCDF	6.59e+04	3.48e+02	1.9e+02	5.45e+04	4.24e+02	1.3e+02
5	1,2,3,6,7,8-HxCDF	1.68e+04	3.48e+02	4.8e+01	1.29e+04	4.24e+02	3.0e+01
6	2,3,4,6,7,8-HxCDF	2.29e+03	3.48e+02	6.6e+00	3.86e+03	4.24e+02	9.1e+00
7	1,2,3,7,8,9-HxCDF	4.33e+03	3.48e+02	1.2e+01	2.96e+03	4.24e+02	7.0e+00
8	1,2,3,4,6,7,8-HpCDF	1.81e+04	4.92e+02	3.7e+01	1.97e+04	4.52e+02	4.4e+01
9	1,2,3,4,7,8,9-HpCDF	5.52e+03	4.92e+02	1.1e+01	4.86e+03	4.52e+02	1.1e+01
10	OCDF	7.87e+03	2.56e+02	3.1e+01	6.99e+03	8.64e+02	8.1e+00
11	2,3,7,8-TCDD	1.89e+05	1.86e+03	1.0e+02	2.53e+05	9.92e+02	2.5e+02
12	1,2,3,7,8-PeCDD	4.28e+03	9.48e+02	4.5e+00	3.27e+03	3.72e+02	8.8e+00
13	1,2,3,4,7,8-HxCDD	*	6.40e+02	*	*	8.20e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.40e+02	*	*	8.20e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.40e+02	*	*	8.20e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.87e+04	2.72e+02	6.9e+01	1.72e+04	4.72e+02	3.7e+01
17	OCDD	1.28e+05	2.12e+02	6.0e+02	1.51e+05	3.92e+02	3.9e+02
18	13C-2,3,7,8-TCDF	2.35e+06	6.81e+03	3.4e+02	3.11e+06	6.85e+03	4.5e+02
19	13C-1,2,3,7,8-PeCDF	3.87e+06	7.92e+02	4.9e+03	2.40e+06	5.92e+02	4.0e+03
20	13C-2,3,4,7,8-PeCDF	3.91e+06	7.92e+02	4.9e+03	2.45e+06	5.92e+02	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.75e+06	8.00e+02	2.2e+03	3.45e+06	9.32e+02	3.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.02e+06	8.00e+02	2.5e+03	3.74e+06	9.32e+02	4.0e+03
23	13C-2,3,4,6,7,8-HxCDF	1.94e+06	8.00e+02	2.4e+03	3.93e+06	9.32e+02	4.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.48e+06	8.00e+02	1.8e+03	2.81e+06	9.32e+02	3.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.43e+06	3.20e+03	4.5e+02	3.25e+06	2.63e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.19e+05	3.20e+03	2.9e+02	2.21e+06	2.63e+03	8.4e+02
27	13C-2,3,7,8-TCDD	1.24e+06	6.06e+03	2.0e+02	1.59e+06	2.50e+03	6.3e+02
28	13C-1,2,3,7,8-PeCDD	2.84e+06	1.06e+03	2.7e+03	1.79e+06	9.08e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.64e+06	1.46e+03	1.8e+03	2.10e+06	6.52e+02	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.64e+06	1.46e+03	1.8e+03	1.99e+06	6.52e+02	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+06	6.64e+02	3.4e+03	2.10e+06	4.12e+02	5.1e+03
32	13C-OCDD	1.71e+06	2.48e+02	6.9e+03	1.84e+06	4.52e+02	4.1e+03
33	13C-1,2,3,4-TCDD	2.13e+06	6.06e+03	3.5e+02	2.75e+06	2.50e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.90e+06	1.46e+03	2.0e+03	2.26e+06	6.52e+02	3.5e+03
35	37Cl-2,3,7,8-TCDD	8.23e+04	9.60e+02	8.6e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.864e{+}03 + 9.920e{+}02) \times 2000}{(1.236e{+}06 + 1.589e{+}06) \times (\quad) \times 1.085} =$$

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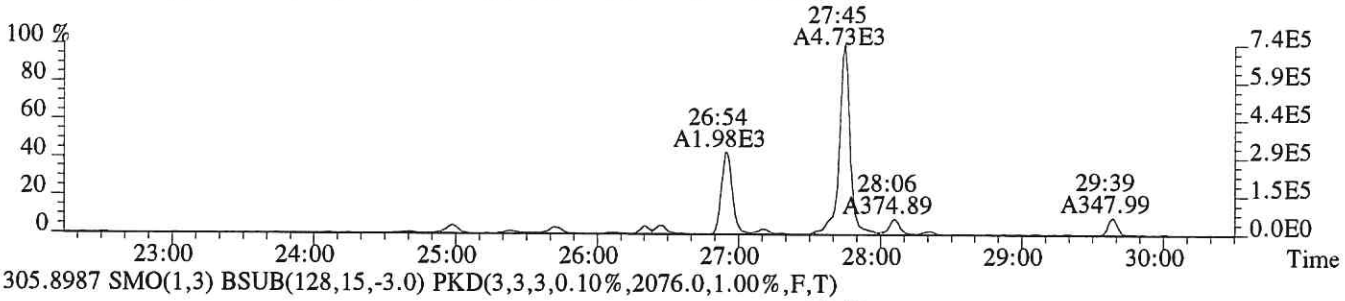
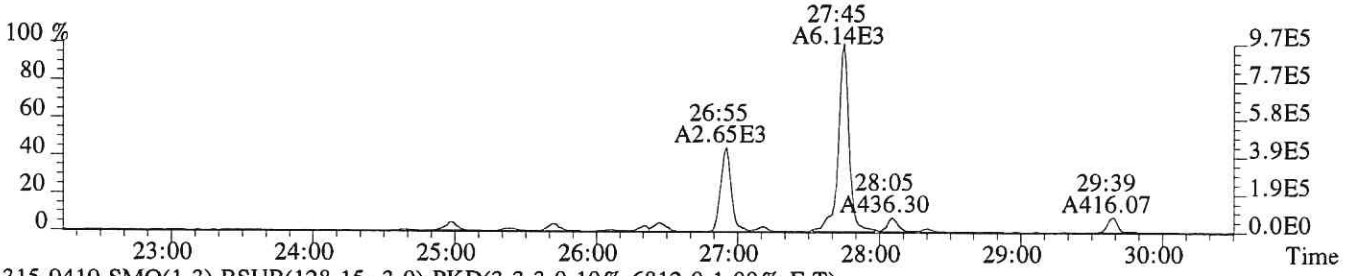
File:P519376 #1-587 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL

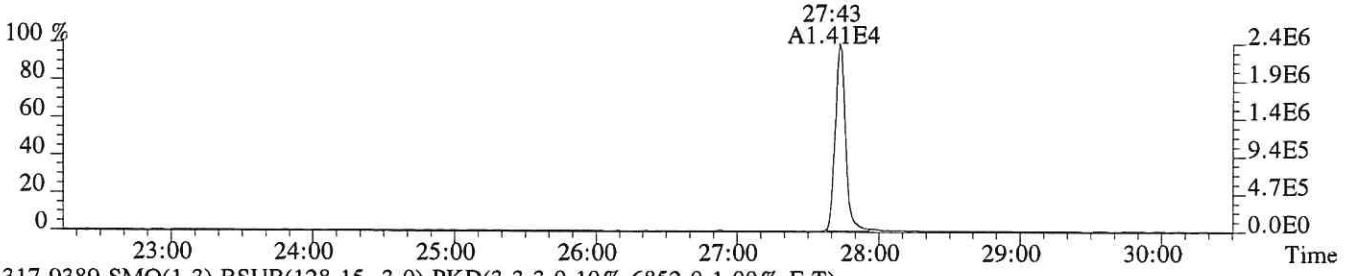
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



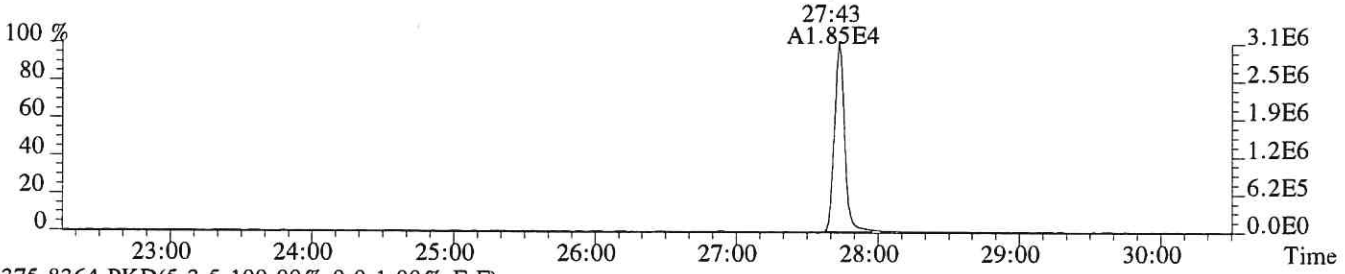
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



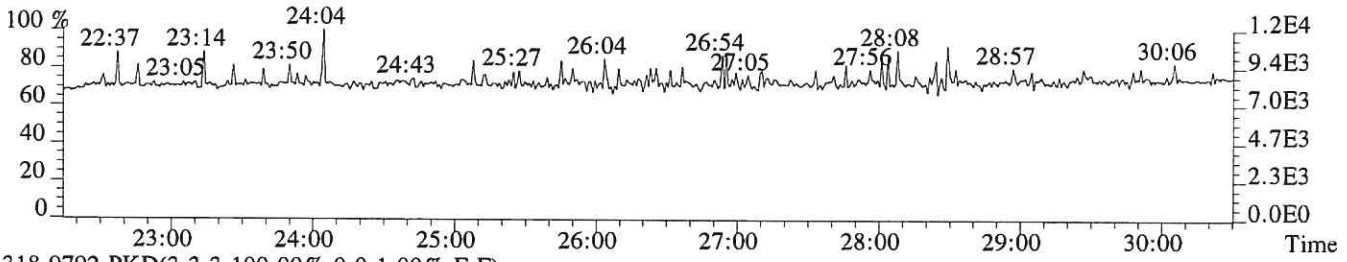
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6812.0,1.00%,F,T)



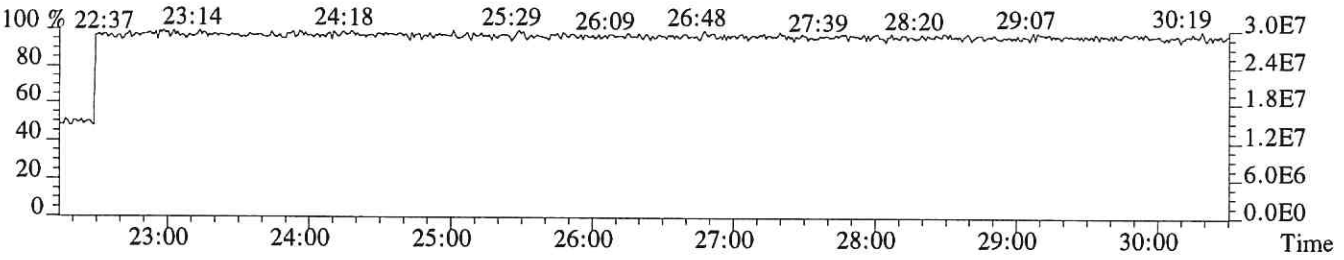
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6852.0,1.00%,F,T)



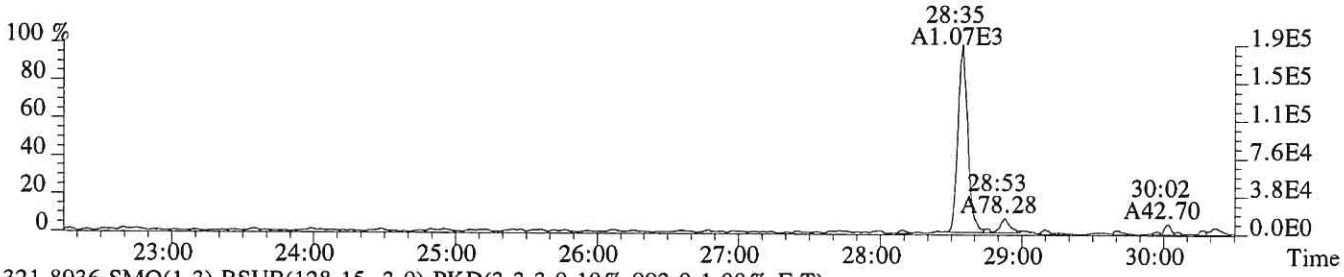
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



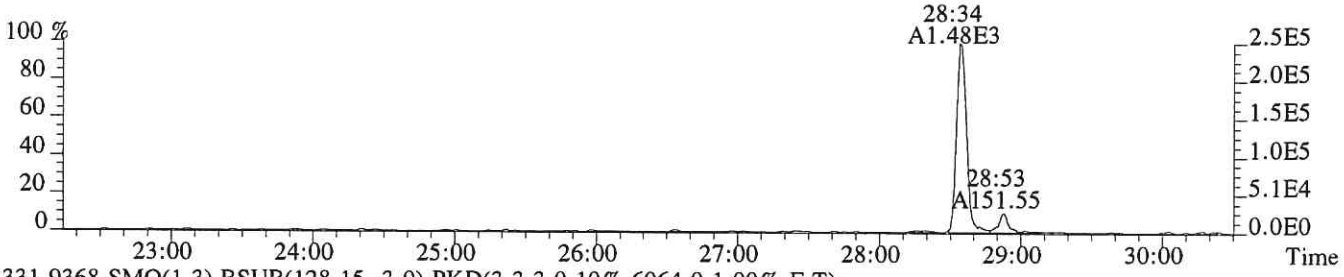
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



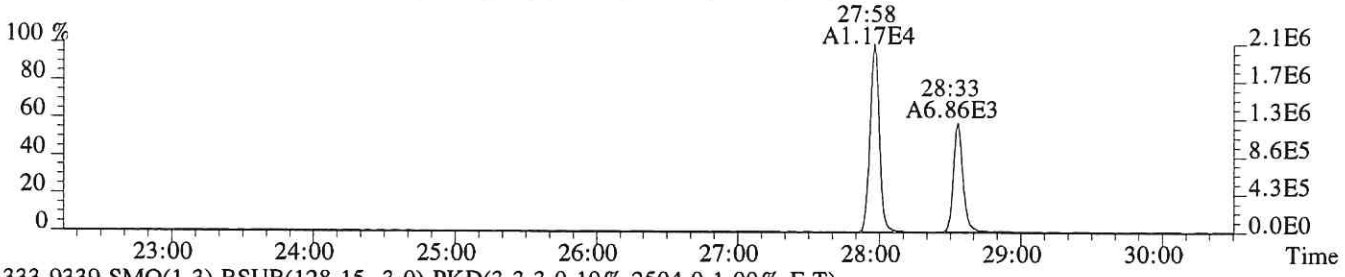
File:P519376 #1-587 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



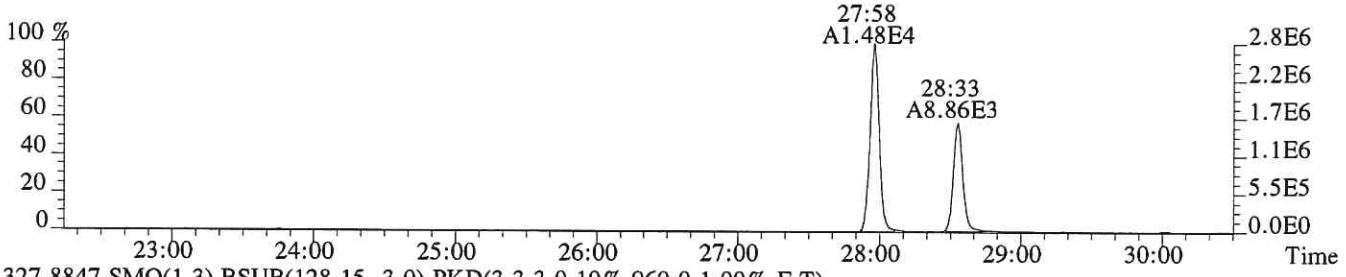
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



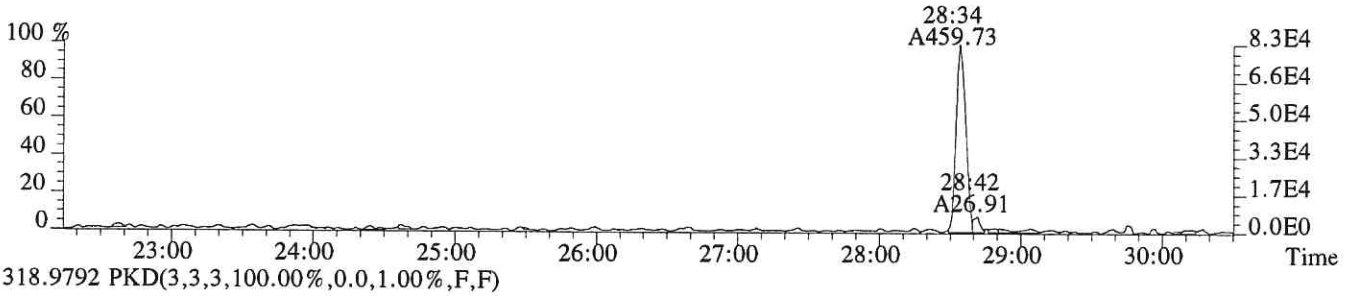
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6064.0,1.00%,F,T)



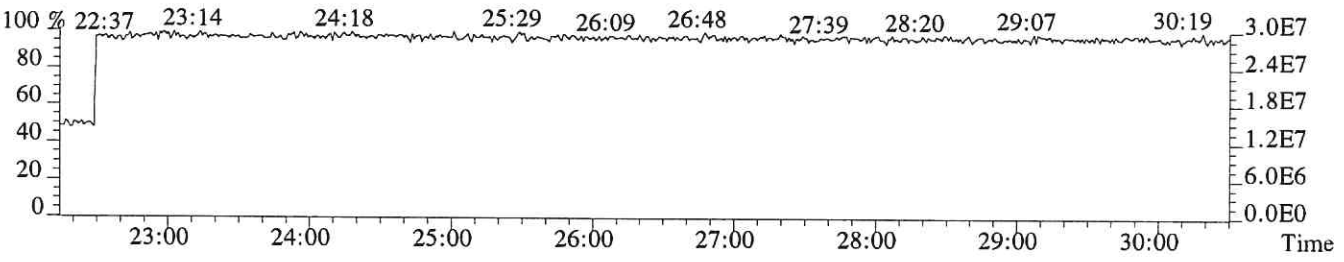
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2504.0,1.00%,F,T)



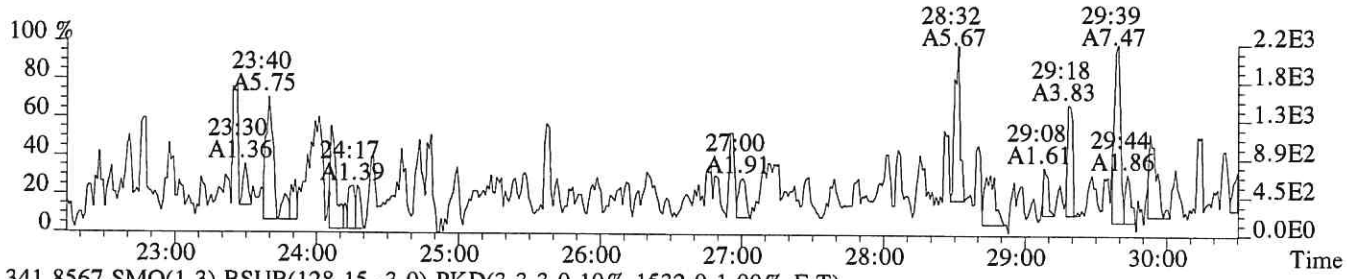
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



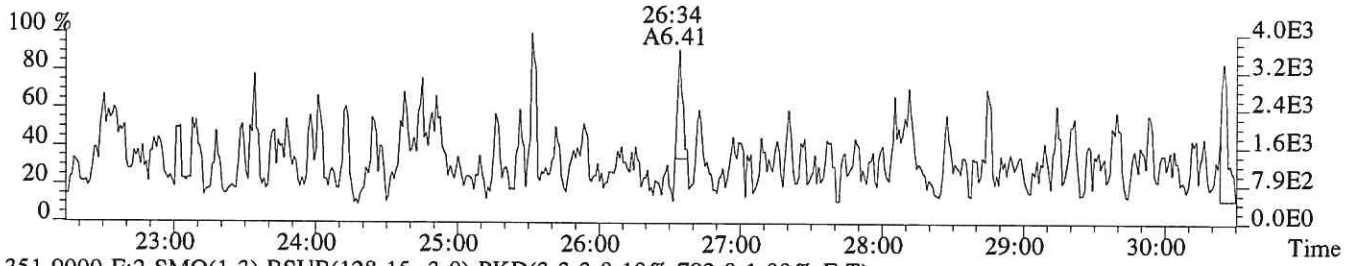
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



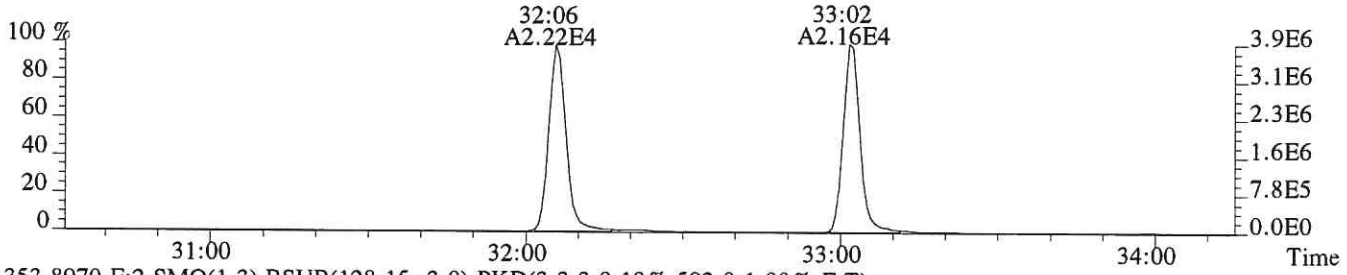
File:P519376 #1-587 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



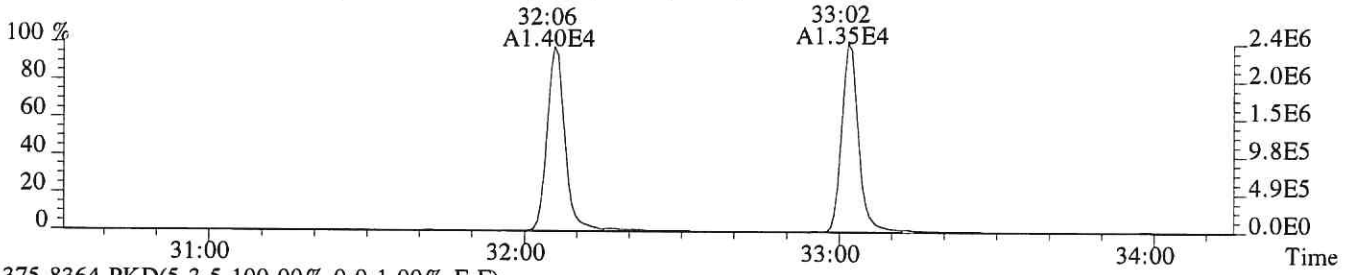
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



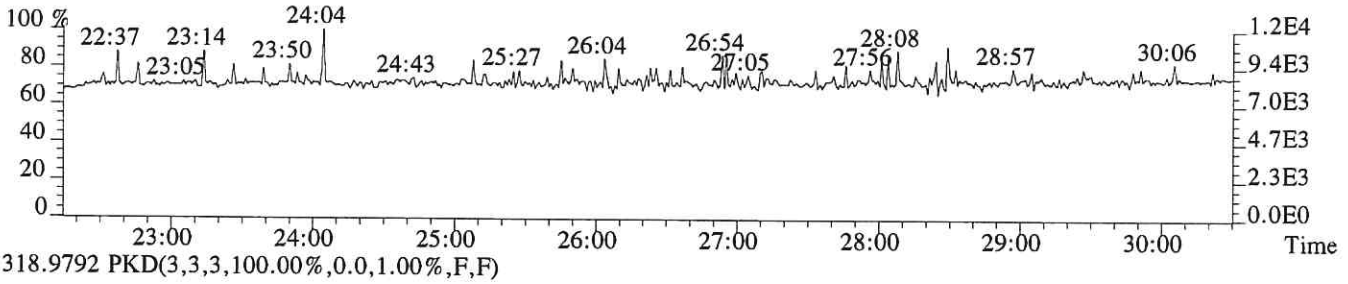
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



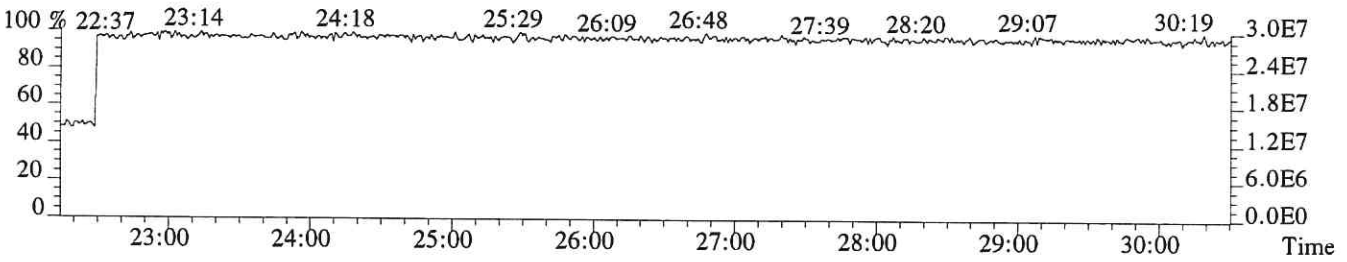
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



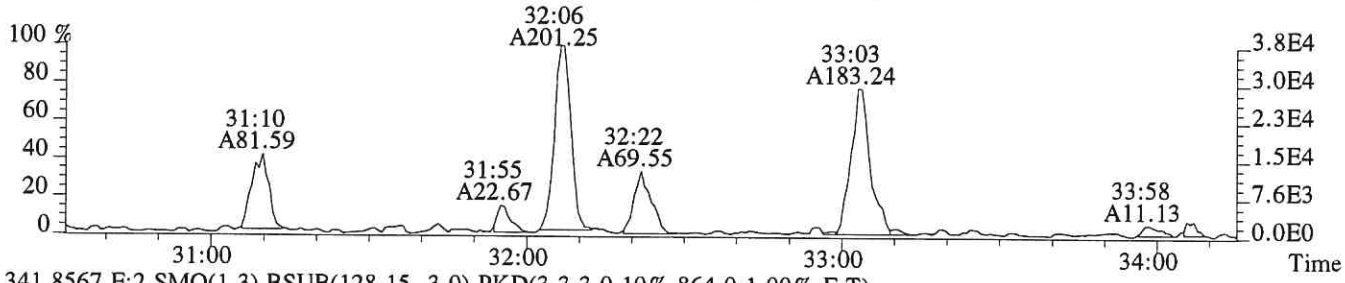
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



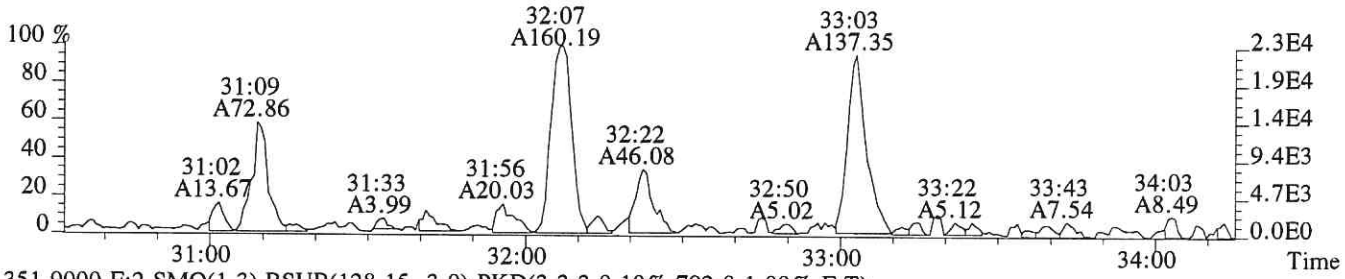
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



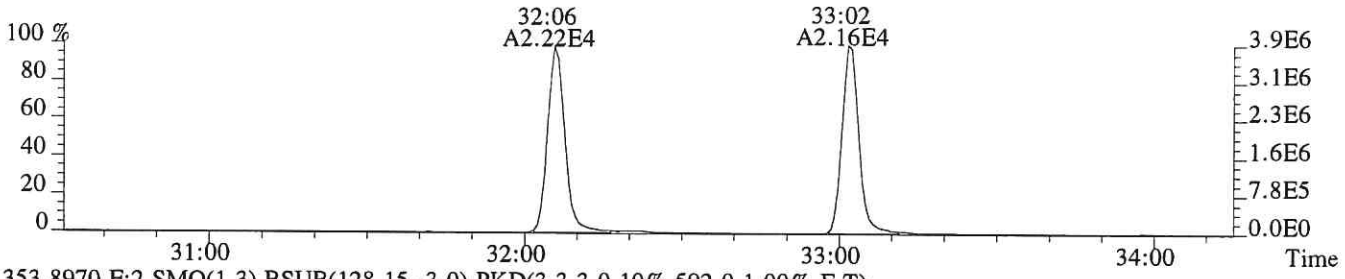
File:P519376 #1-335 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



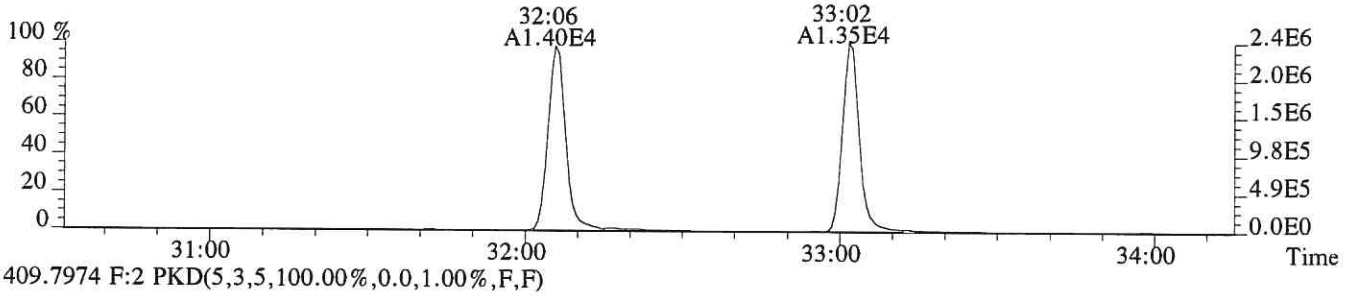
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



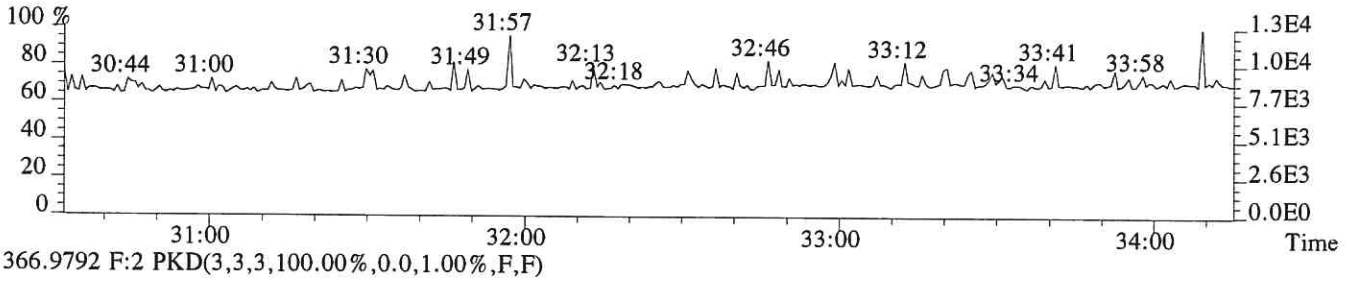
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



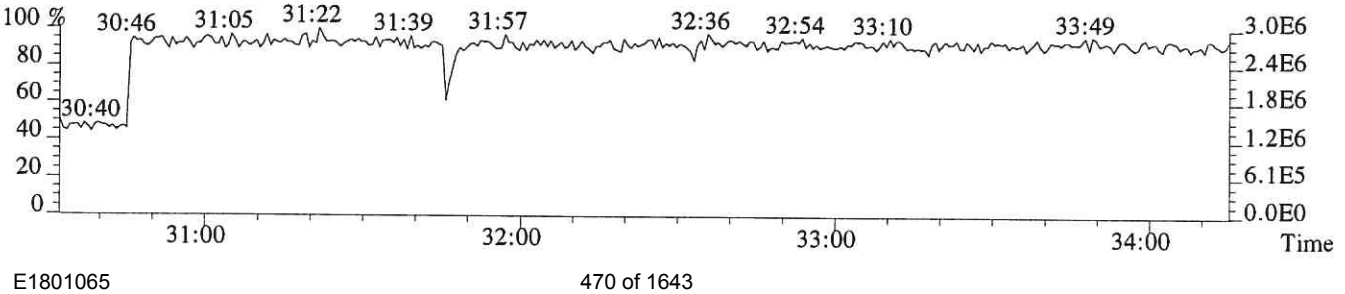
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



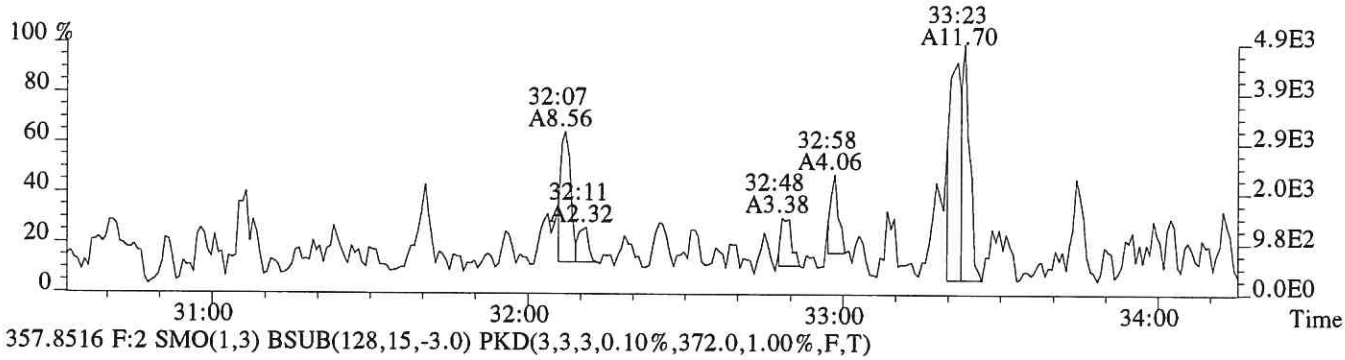
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



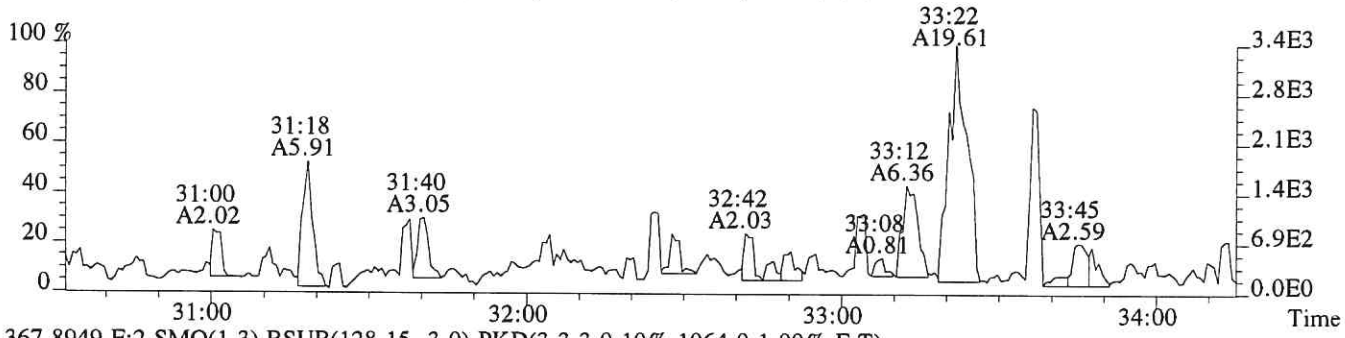
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



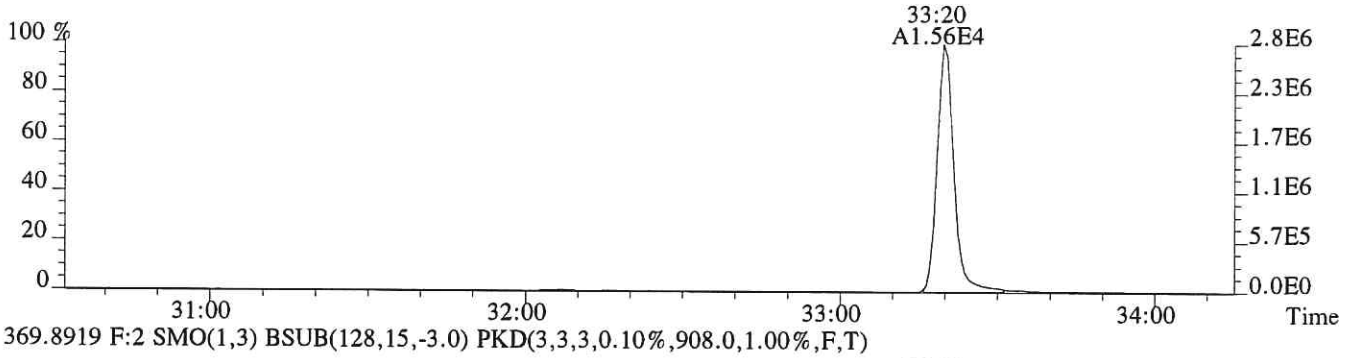
File:P519376 #1-335 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



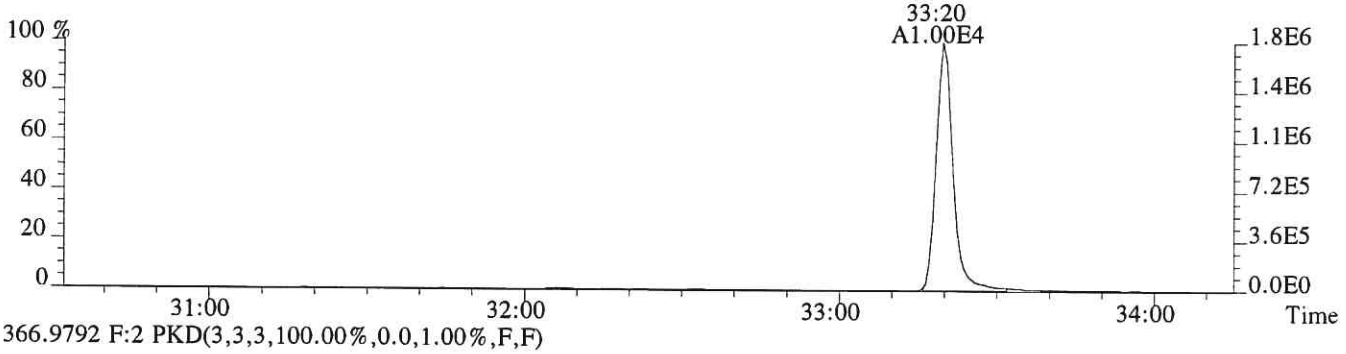
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



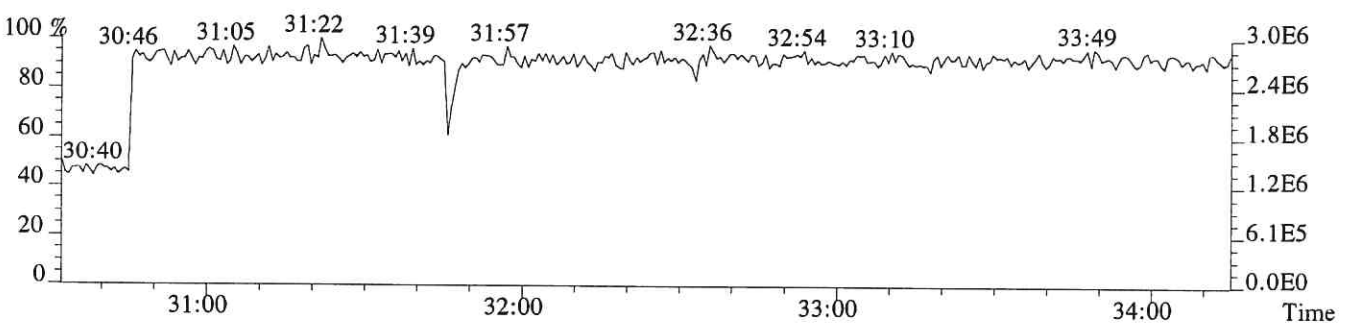
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



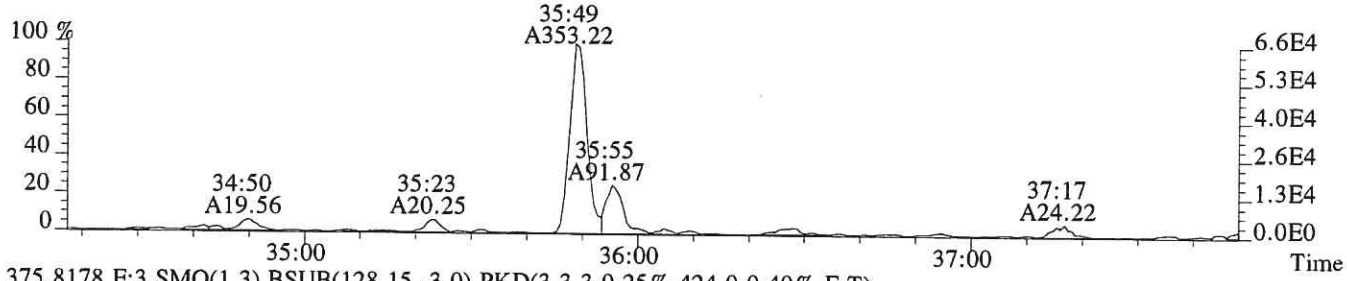
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



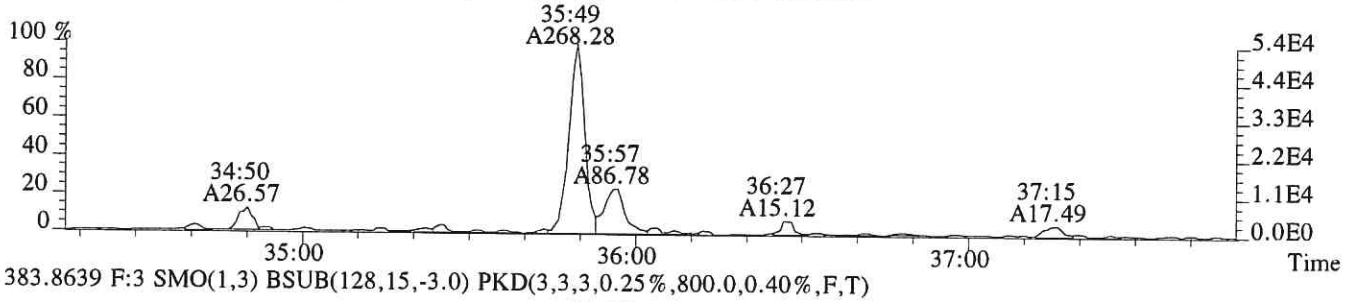
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



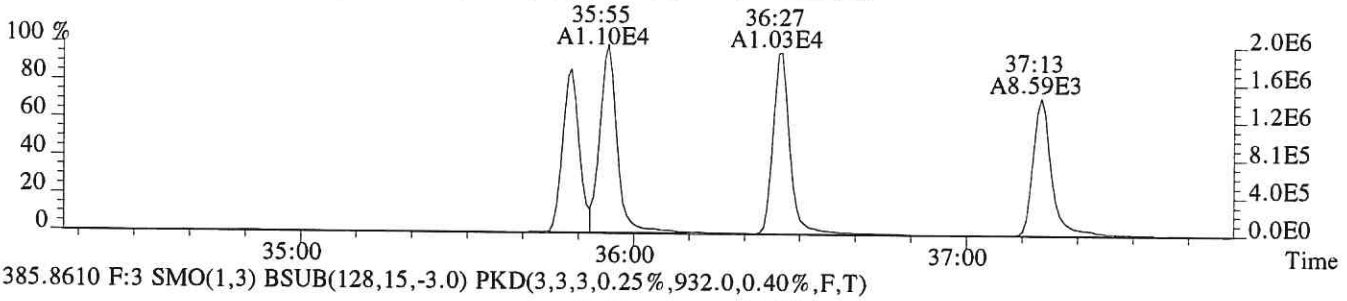
File:P519376 #1-317 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



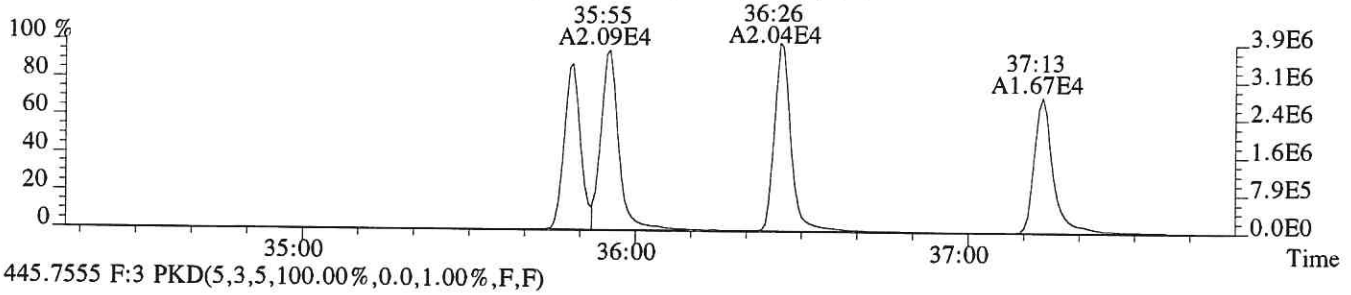
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



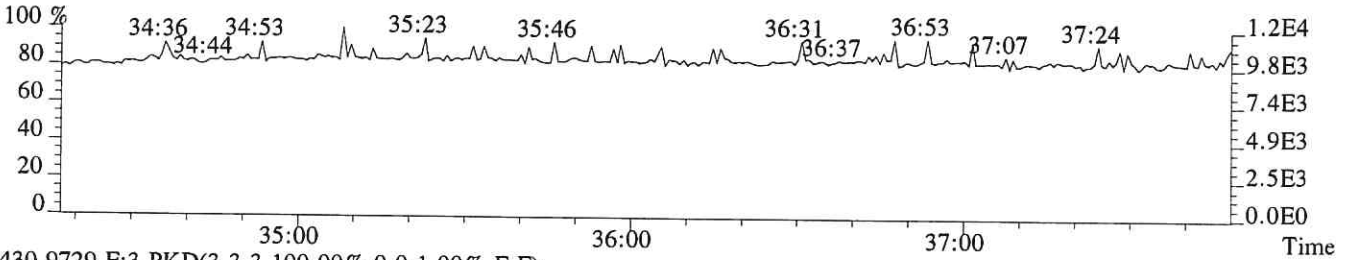
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



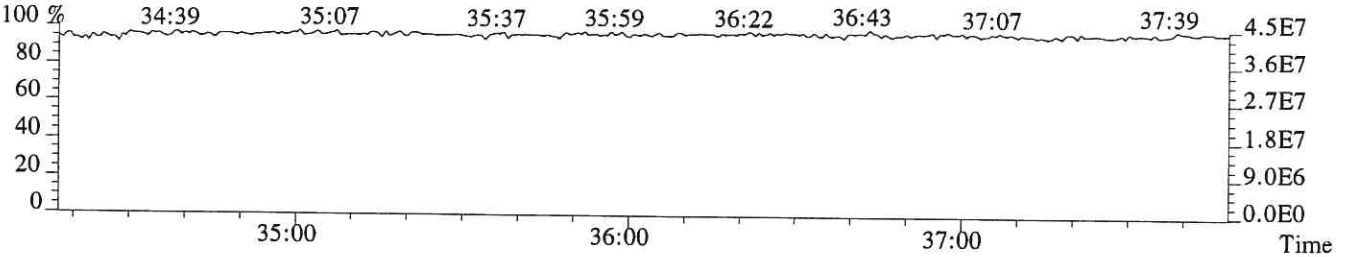
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



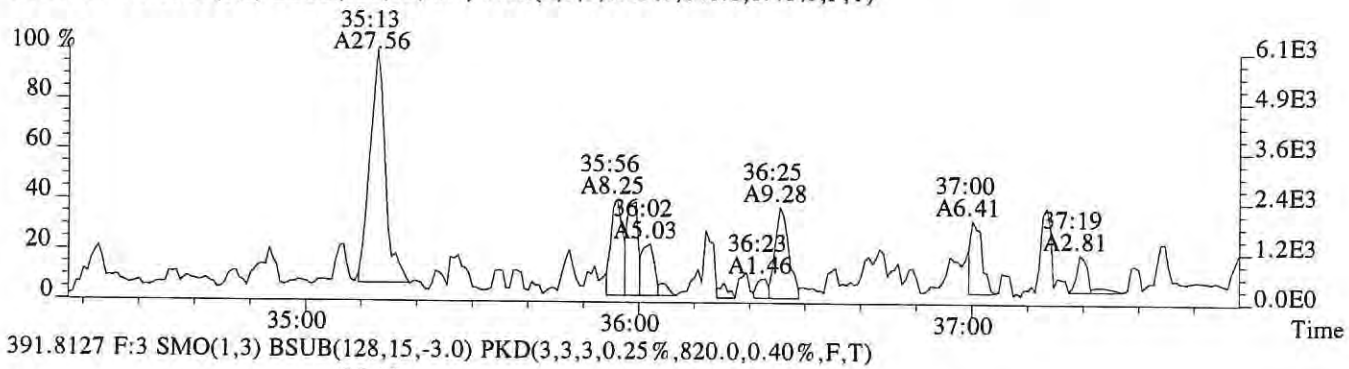
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



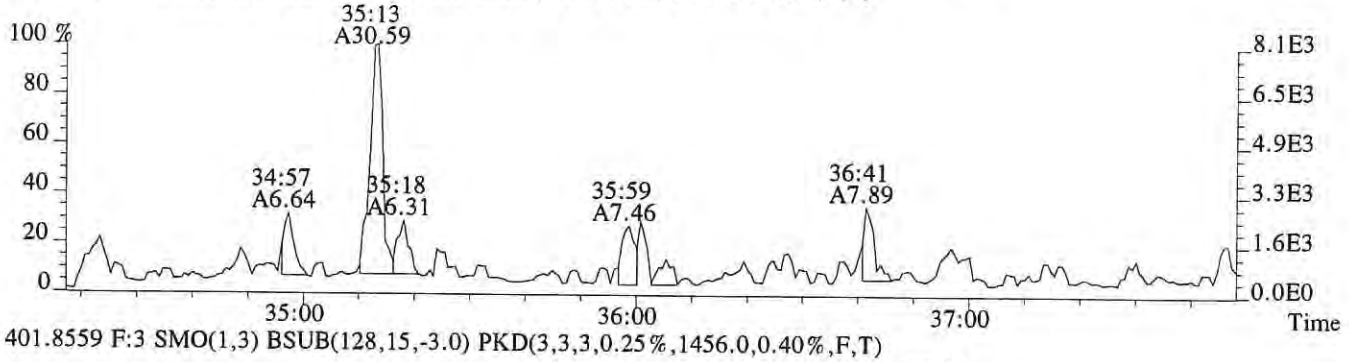
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



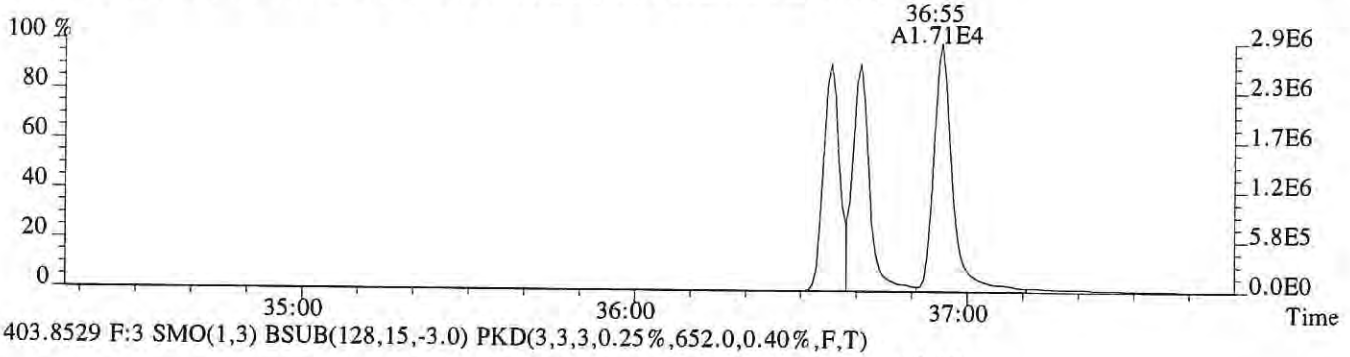
File:P519376 #1-317 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



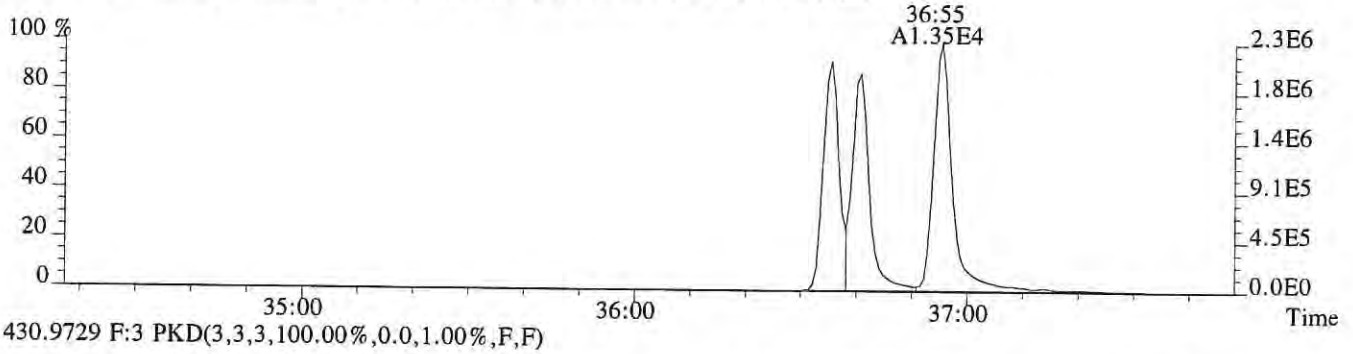
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



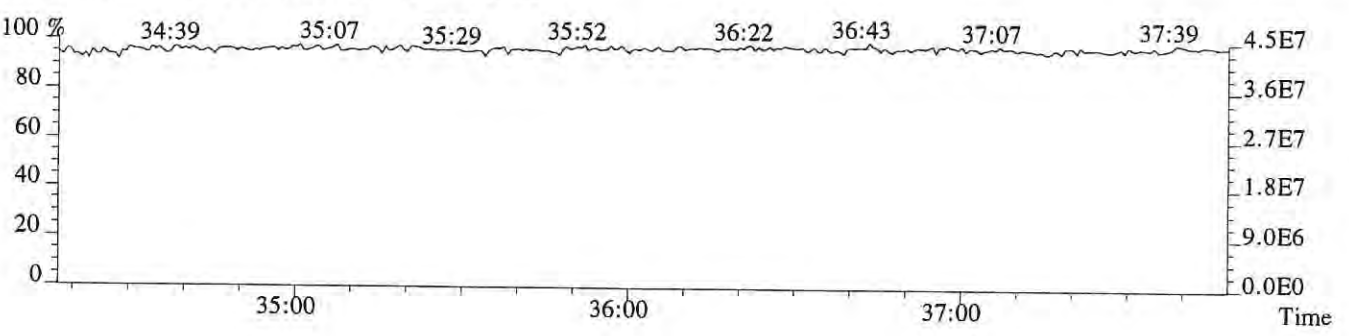
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)

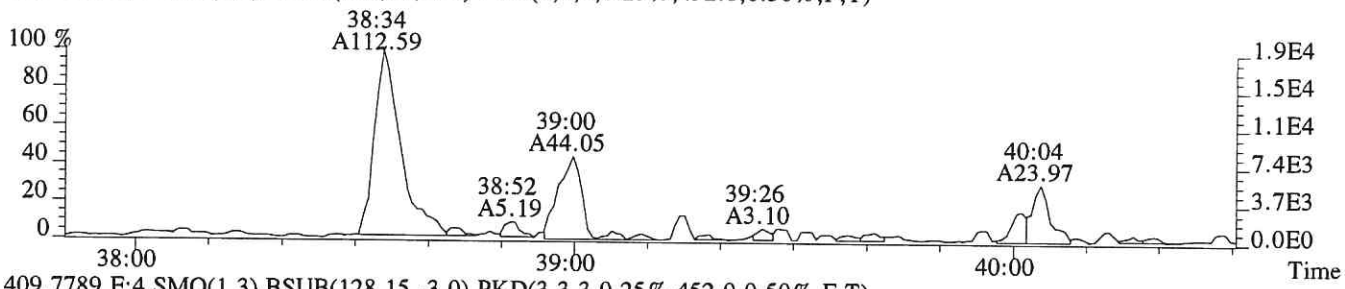


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

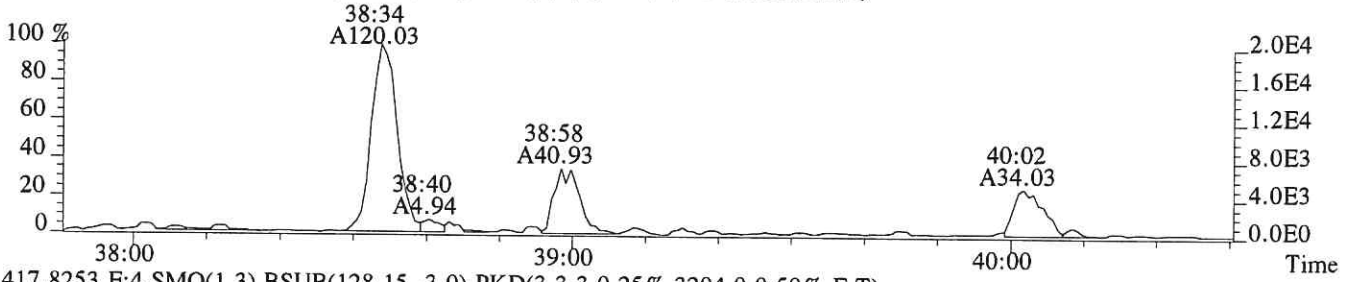


File:P519376 #1-241 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL

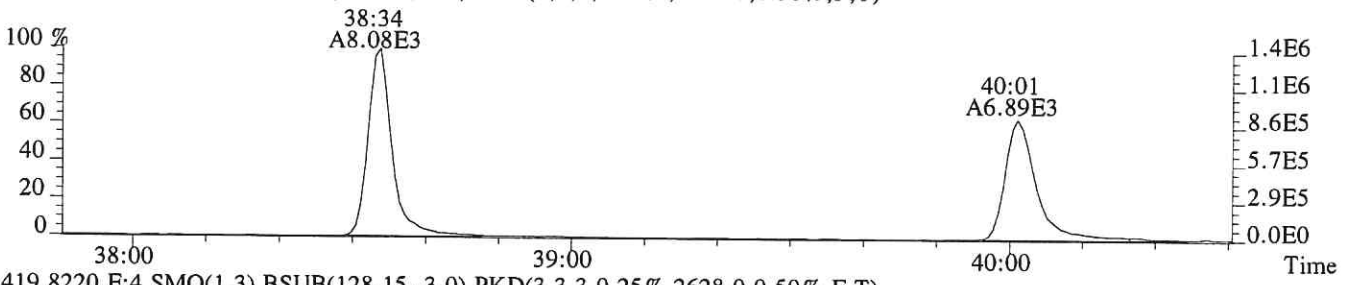
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.50%,F,T)



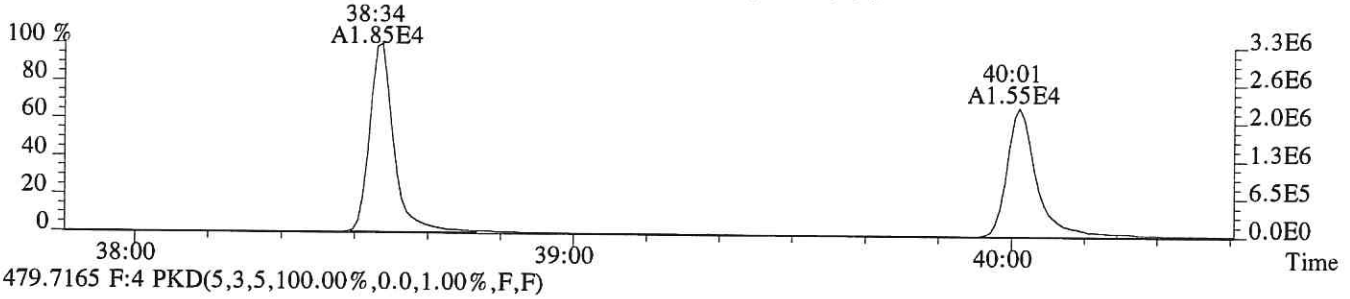
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.50%,F,T)



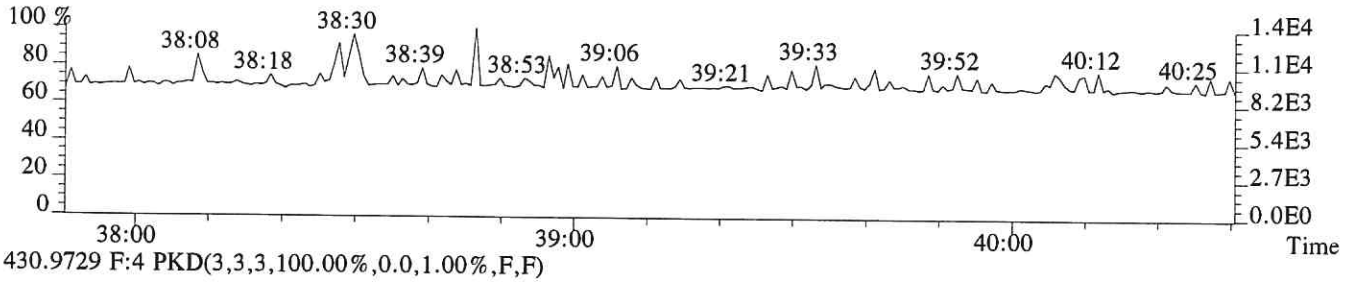
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3204.0,0.50%,F,T)



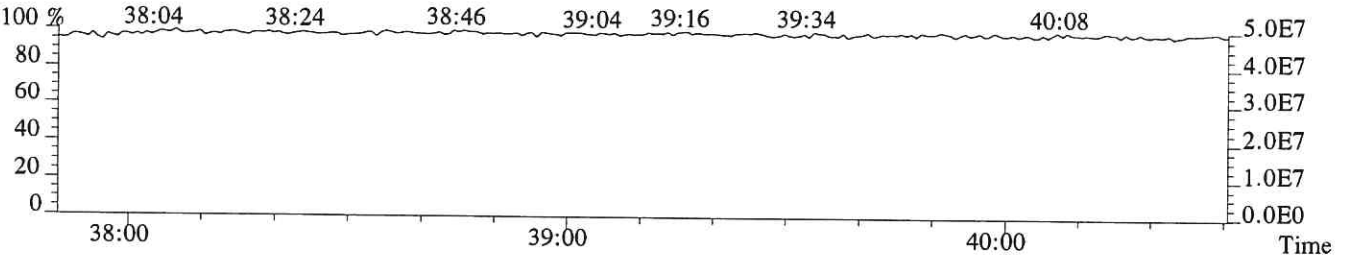
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2628.0,0.50%,F,T)



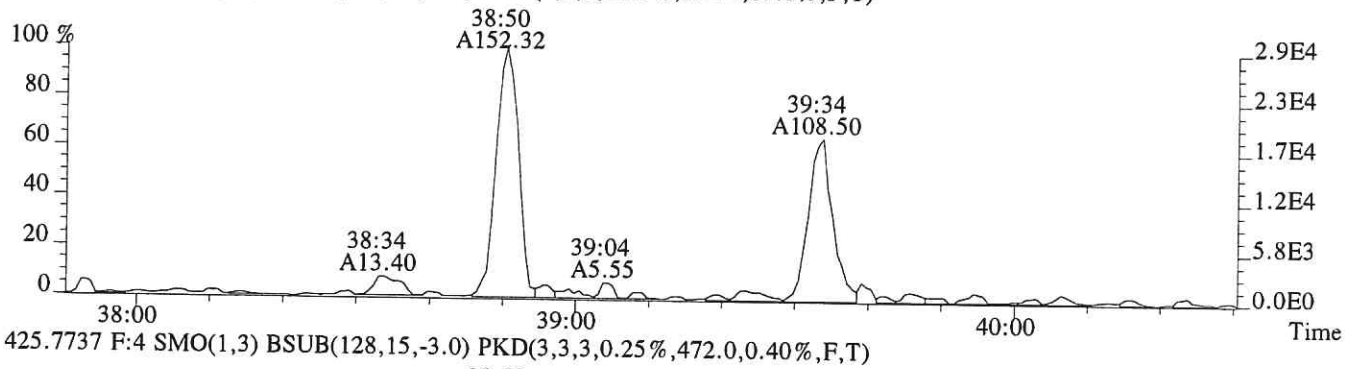
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



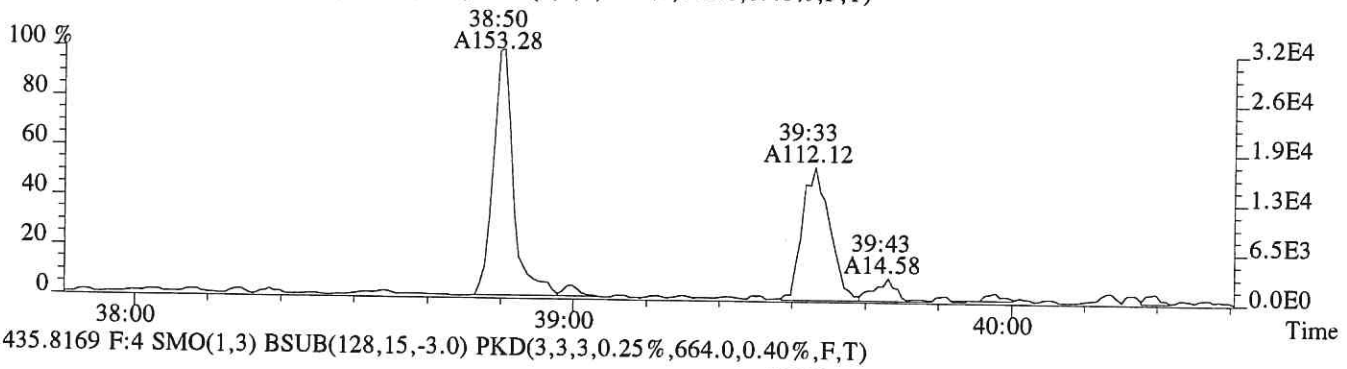
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



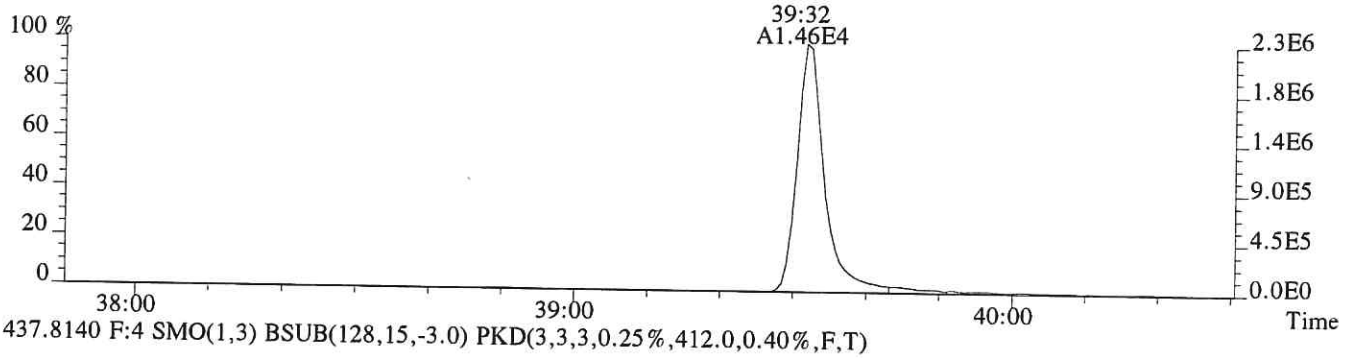
File:P519376 #1-241 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



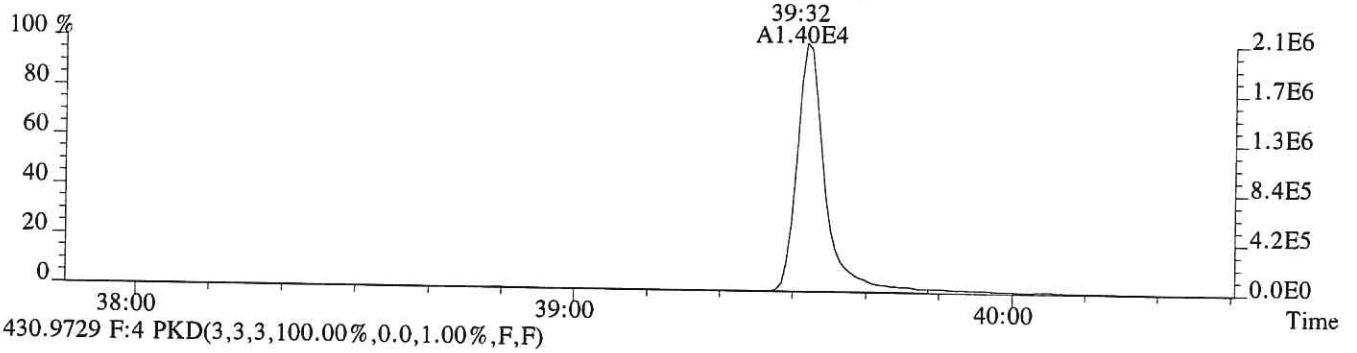
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



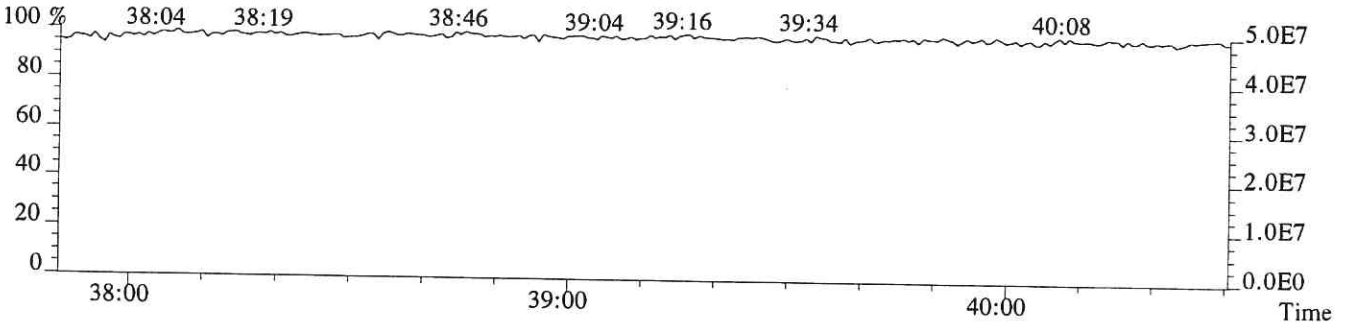
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)

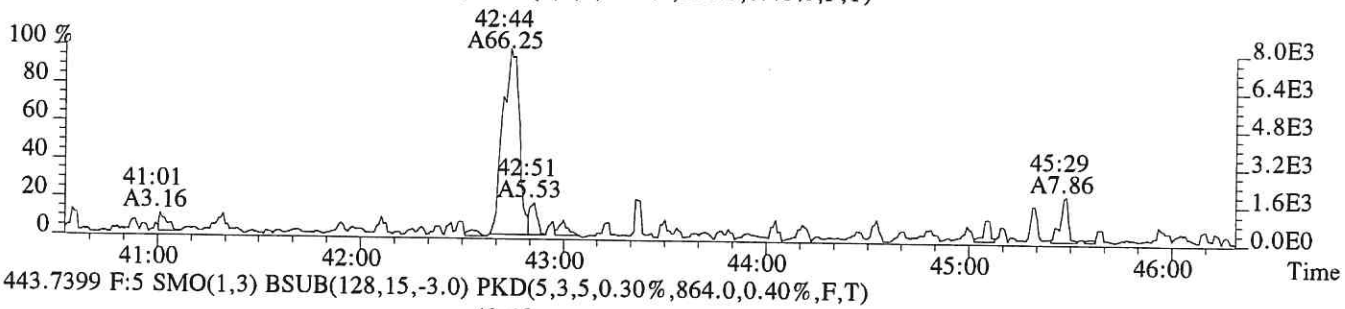


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

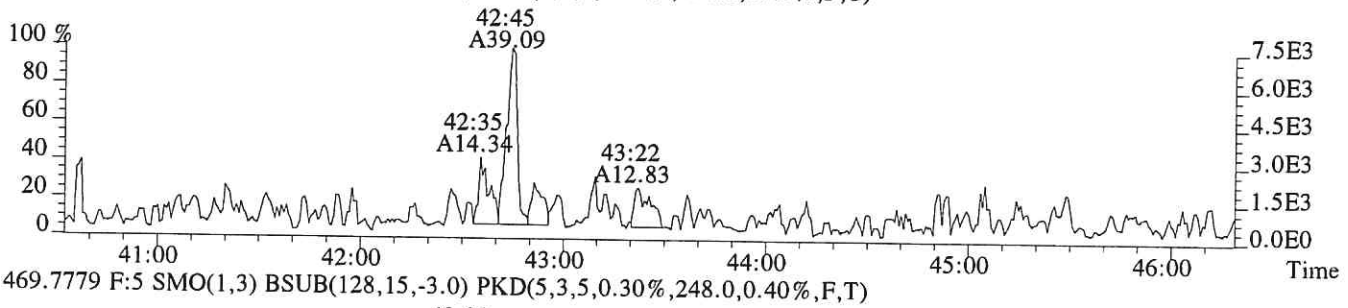


File:P519376 #1-520 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL

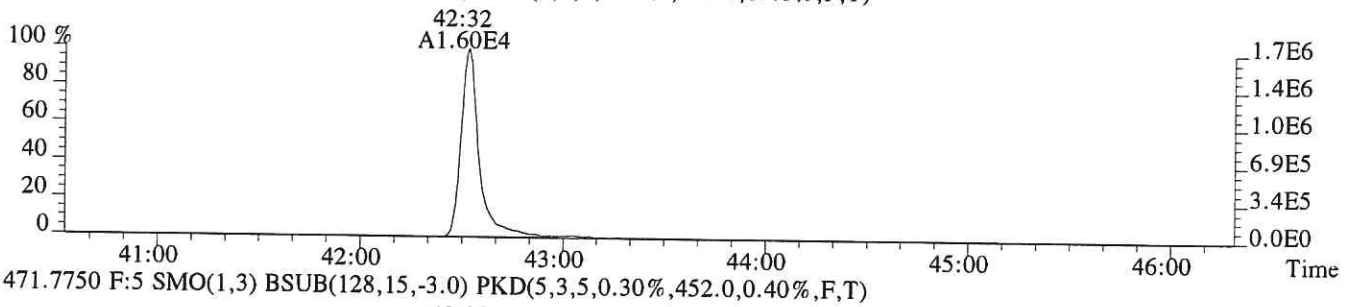
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



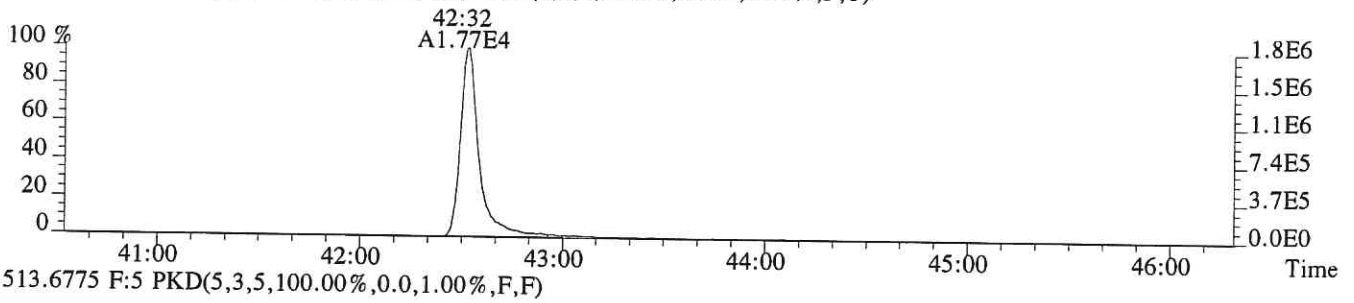
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)



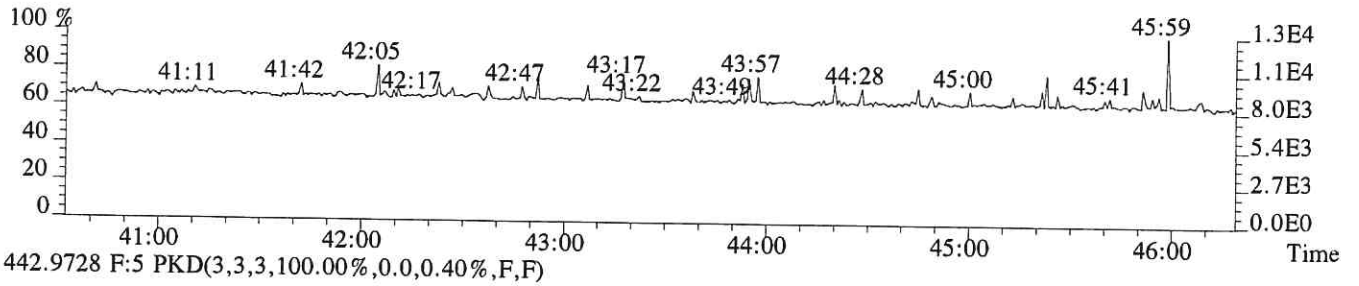
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



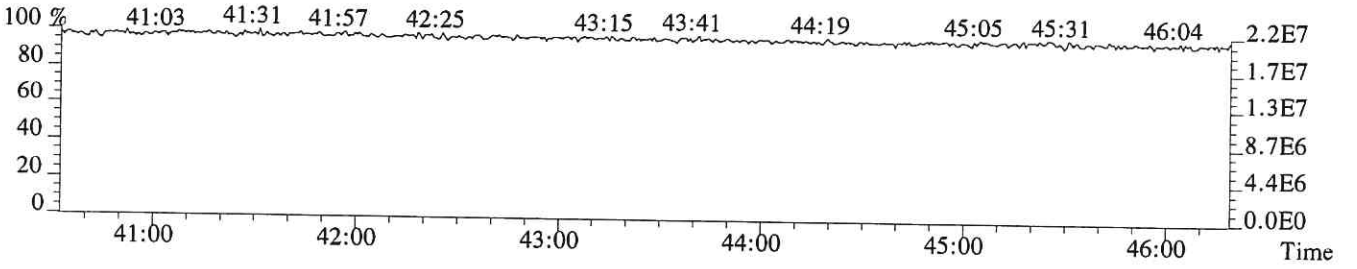
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



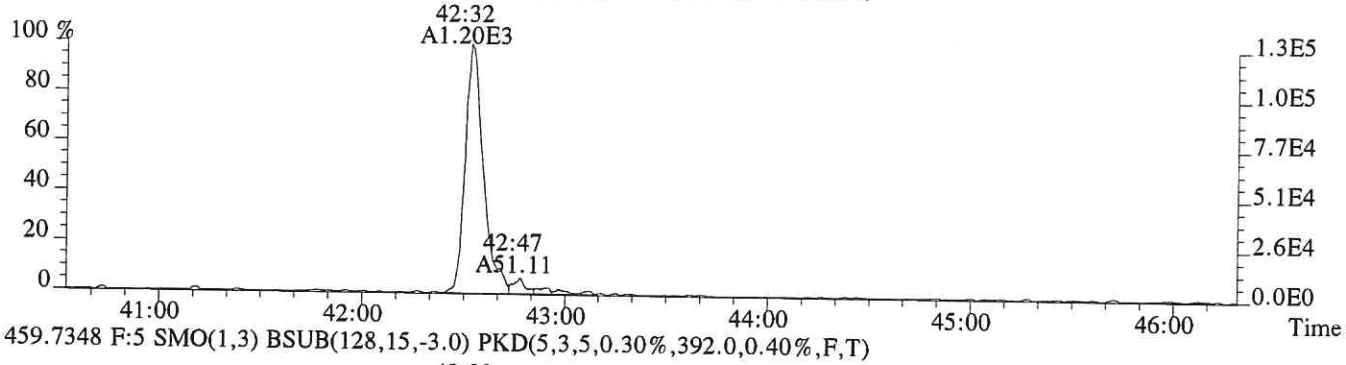
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



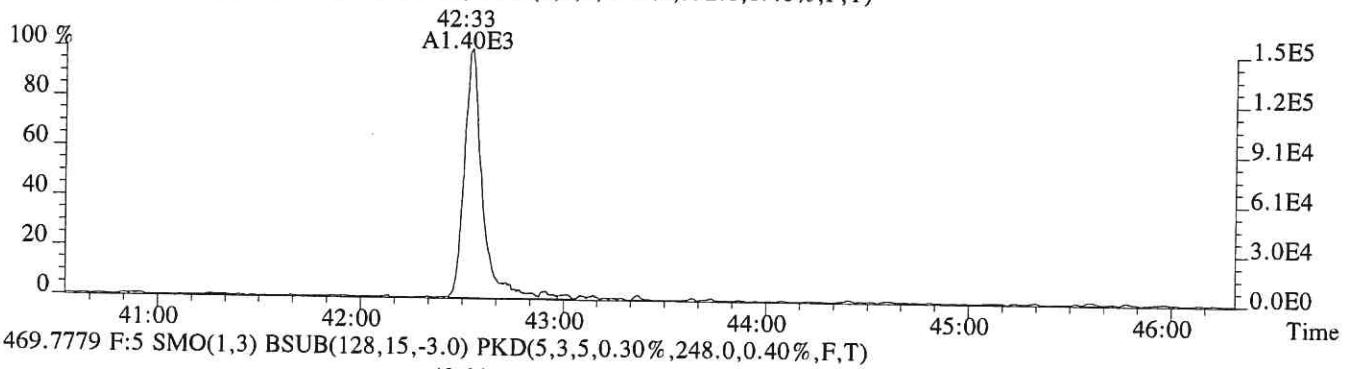
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



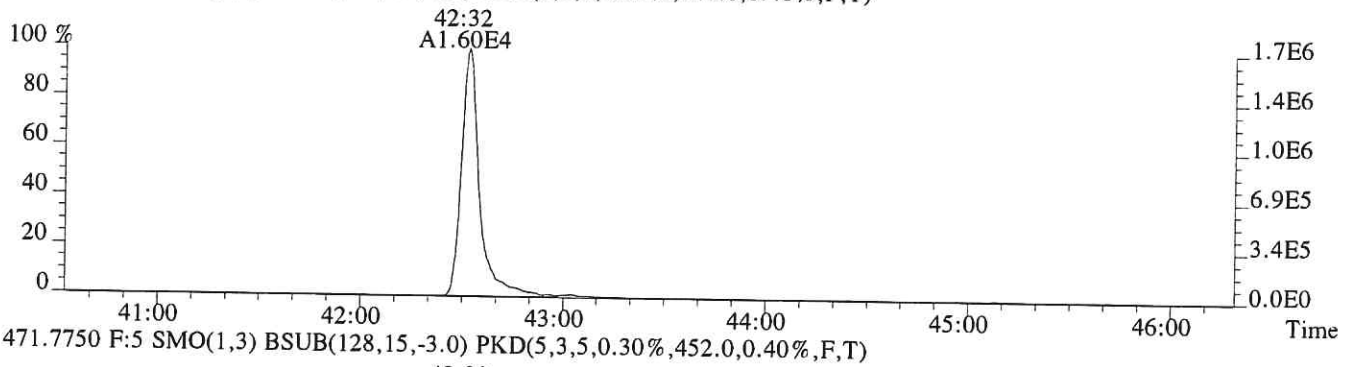
File:P519376 #1-520 Acq:12-DEC-2018 07:54:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-011DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



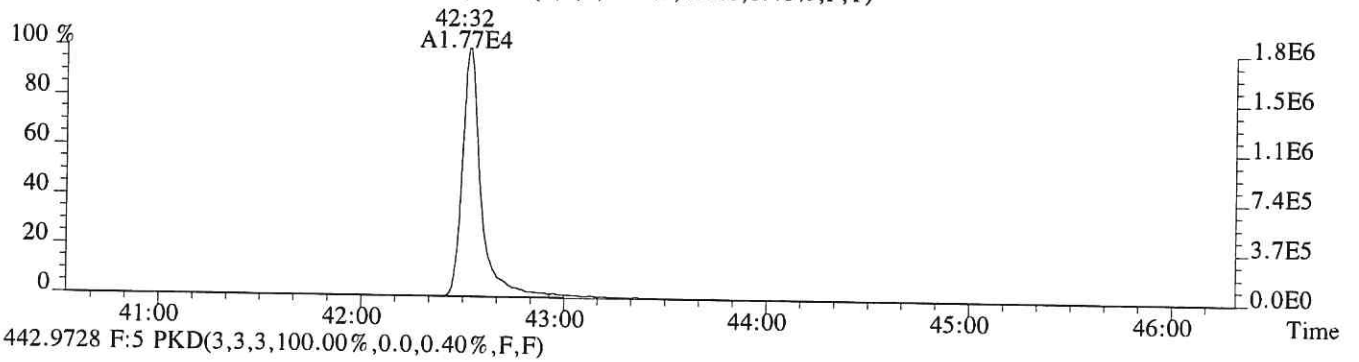
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



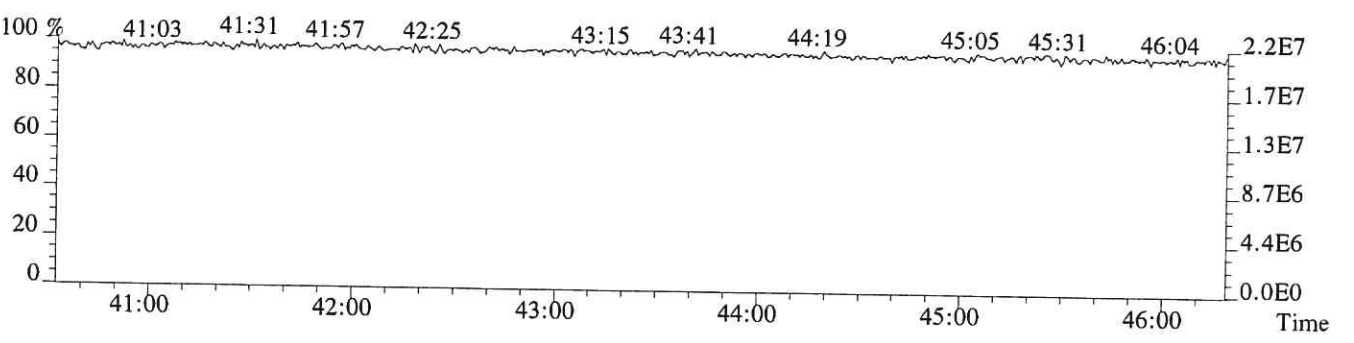
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0561

Run #19 Filename P519316 Samp: 1 Inj: 1 Acquired: 8-DEC-18 18:52:45
Processed: 11-DEC-18 16:57:30 Sample ID: E1801065-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	4.051e+05	5.313e+05	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:11	1.648e+04	1.009e+04	1.63	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	1.514e+04	9.739e+03	1.55	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.666e+04	2.170e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	6.897e+03	5.845e+03	1.18	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	1.025e+03	8.791e+02	1.17	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	1.805e+03	1.333e+03	1.35	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	6.936e+03	6.503e+03	1.07	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.635e+03	1.670e+03	0.98	yes	no	1.258
10	Unk	OCDF	42:50	1.764e+03	2.053e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	8.693e+04	1.097e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	1.234e+03	7.978e+02	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	4.174e+01	3.091e+01	1.35	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	1.908e+02	1.743e+02	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:00	9.921e+01	5.449e+01	1.82	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	5.210e+03	5.216e+03	1.00	yes	no	1.025
17	Unk	OCDD	42:39	4.231e+04	4.793e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:49	2.114e+04	2.671e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.491e+04	1.649e+04	1.51	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	2.859e+04	1.835e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.326e+04	2.514e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.493e+04	2.925e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	1.324e+04	2.579e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.313e+04	2.585e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	8.640e+03	1.941e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	7.015e+03	1.605e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:38	9.206e+03	1.169e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	2.038e+04	1.282e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.829e+04	1.422e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:44	1.708e+04	1.335e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	1.665e+04	1.591e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:38	1.035e+04	1.172e+04	0.88	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:04	2.136e+04	2.677e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	2.876e+04	2.304e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	1.454e+04				no	1.014

$$OCDD = \frac{(4.231e+04 + 4.793e+04) \times 4000\ pg \times 1}{(1.035e+04 + 1.172e+04) \times 10.634\ g \times 84.4/100 \times 1.118} = 1629.9558\ ng/kg$$

LG 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0561

Run #19 Filename P519316 Samp: 1 Inj: 1 Acquired: 8-DEC-18 18:52:45
Processed: 11-DEC-18 16:57:30 LAB. ID: E1801065-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.92e+07	3.92e+02	1.8e+05	9.07e+07	4.96e+02	1.8e+05
2	1,2,3,7,8-PeCDF	3.03e+06	4.73e+03	6.4e+02	1.82e+06	1.18e+03	1.5e+03
3	2,3,4,7,8-PeCDF	2.47e+06	4.73e+03	5.2e+02	1.56e+06	1.18e+03	1.3e+03
4	1,2,3,4,7,8-HxCDF	5.45e+06	1.16e+03	4.7e+03	4.46e+06	1.58e+03	2.8e+03
5	1,2,3,6,7,8-HxCDF	1.26e+06	1.16e+03	1.1e+03	1.07e+06	1.58e+03	6.8e+02
6	2,3,4,6,7,8-HxCDF	2.13e+05	1.16e+03	1.8e+02	1.81e+05	1.58e+03	1.1e+02
7	1,2,3,7,8,9-HxCDF	3.23e+05	1.16e+03	2.8e+02	2.29e+05	1.58e+03	1.4e+02
8	1,2,3,4,6,7,8-HpCDF	1.32e+06	6.76e+02	1.9e+03	1.24e+06	1.32e+02	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	2.64e+05	6.76e+02	3.9e+02	2.88e+05	1.32e+02	2.2e+03
10	OCDF	2.07e+05	2.52e+02	8.2e+02	2.51e+05	2.84e+02	8.8e+02
11	2,3,7,8-TCDD	1.67e+07	1.03e+03	1.6e+04	2.11e+07	4.12e+02	5.1e+04
12	1,2,3,7,8-PeCDD	2.22e+05	2.20e+02	1.0e+03	1.36e+05	3.40e+02	4.0e+02
13	1,2,3,4,7,8-HxCDD	8.97e+03	3.04e+02	2.9e+01	5.75e+03	3.60e+02	1.6e+01
14	1,2,3,6,7,8-HxCDD	3.64e+04	3.04e+02	1.2e+02	3.35e+04	3.60e+02	9.3e+01
15	1,2,3,7,8,9-HxCDD	1.86e+04	3.04e+02	6.1e+01	9.30e+03	3.60e+02	2.6e+01
16	1,2,3,4,6,7,8-HpCDD	8.96e+05	1.88e+02	4.8e+03	8.61e+05	2.36e+02	3.7e+03
17	OCDD	4.88e+06	3.48e+02	1.4e+04	5.44e+06	1.76e+02	3.1e+04
18	13C-2,3,7,8-TCDF	3.90e+06	3.02e+03	1.3e+03	4.85e+06	1.78e+03	2.7e+03
19	13C-1,2,3,7,8-PeCDF	4.59e+06	4.20e+02	1.1e+04	3.03e+06	8.28e+02	3.7e+03
20	13C-2,3,4,7,8-PeCDF	5.61e+06	4.20e+02	1.3e+04	3.57e+06	8.28e+02	4.3e+03
21	13C-1,2,3,4,7,8-HxCDF	2.68e+06	4.16e+02	6.4e+03	5.28e+06	4.48e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.98e+06	4.16e+02	7.2e+03	5.80e+06	4.48e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.63e+06	4.16e+02	6.3e+03	5.16e+06	4.48e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.45e+06	4.16e+02	5.9e+03	4.76e+06	4.48e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.63e+06	2.59e+03	6.3e+02	3.68e+06	3.74e+03	9.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.12e+06	2.59e+03	4.3e+02	2.52e+06	3.74e+03	6.7e+02
27	13C-2,3,7,8-TCDD	1.81e+06	3.15e+03	5.8e+02	2.28e+06	1.19e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	3.86e+06	3.84e+02	1.0e+04	2.45e+06	3.68e+02	6.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.78e+06	9.08e+02	4.2e+03	2.96e+06	2.20e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	3.38e+06	9.08e+02	3.7e+03	2.68e+06	2.20e+02	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.78e+06	3.28e+02	8.5e+03	2.61e+06	2.56e+02	1.0e+04
32	13C-OCDD	1.18e+06	2.84e+02	4.1e+03	1.32e+06	2.96e+02	4.4e+03
33	13C-1,2,3,4-TCDD	3.98e+06	3.15e+03	1.3e+03	5.02e+06	1.19e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.45e+06	9.08e+02	6.0e+03	4.23e+06	2.20e+02	1.9e+04
35	37Cl-2,3,7,8-TCDD	2.80e+06	7.32e+02	3.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.032e{+}03 + 4.120e{+}02\ ) \times 2000}{(1.813e{+}06 + 2.279e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.
SL0561

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P519316 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 303.9020 305.8990 Tot Response: 1.65e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:48	3.08e+03	4.27e+03	0.72	yes	7.35e+03		n	n
2	25:06	1.78e+04	2.31e+04	0.77	yes	4.09e+04		n	n
3	25:31	5.42e+03	7.13e+03	0.76	yes	1.25e+04		n	n
4	25:40	6.43e+02	8.58e+02	0.75	yes	1.50e+03		n	n
5	25:49	1.50e+04	2.00e+04	0.75	yes	3.50e+04		n	n
6	26:13	2.94e+03	3.63e+03	0.81	yes	6.56e+03		n	n
7	26:27	9.91e+03	1.31e+04	0.76	yes	2.30e+04		n	n
8	26:34	1.80e+04	2.38e+04	0.75	yes	4.18e+04		n	n
9	27:01	1.69e+05	2.18e+05	0.78	yes	3.87e+05		n	n
10	27:17	8.02e+03	1.08e+04	0.74	yes	1.88e+04		n	n
11	27:51	4.05e+05	5.31e+05	0.76	yes	9.36e+05	2,3,7,8-TCDF	n	n
12	28:11	2.89e+04	3.78e+04	0.77	yes	6.67e+04		n	n
13	28:26	4.71e+03	6.22e+03	0.76	yes	1.09e+04		n	n
14	29:44	2.91e+04	3.63e+04	0.80	yes	6.55e+04		n	n

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CLIENT ID.
SL0561

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P519316 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 319.8970 321.8940 Tot Response: 2.17e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:05	1.66e+02	2.30e+02	0.72	yes	3.96e+02		n	n
2	28:23	1.10e+03	1.41e+03	0.77	yes	2.51e+03		n	n
3	28:40	8.69e+04	1.10e+05	0.79	yes	1.97e+05	2,3,7,8-TCDD	n	n
4	28:58	7.67e+03	9.48e+03	0.81	yes	1.72e+04		n	n

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Peak List Summary

CLIENT ID.
SL0561

Entry: 38 Totals Name: Total Penta-Furans1

Run: 19 File: P519316 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 339.8600 341.8570 Tot Response: 7.10e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:44	4.39e+02	2.71e+02 1.62	yes	7.10e+02		n	n

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Entry: 39 Totals Name: Total Penta-Furans2

Run: 19 File: P519316 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 339.8600 341.8570 Tot Response: 7.48e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:14	6.92e+03	4.25e+03	1.63	yes	1.12e+04		n	n
2	32:00	1.85e+03	1.14e+03	1.62	yes	3.00e+03		n	n
3	32:11	1.65e+04	1.01e+04	1.63	yes	2.66e+04	1,2,3,7,8-PeCDF	n	n
4	32:26	5.07e+03	3.01e+03	1.68	yes	8.08e+03		n	n
5	33:07	1.51e+04	9.74e+03	1.55	yes	2.49e+04	2,3,4,7,8-PeCDF	n	n
6	34:02	6.88e+02	4.43e+02	1.55	yes	1.13e+03		n	n

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Peak List Summary

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SL0561

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P519316 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 355.8550 357.8520 Tot Response: 2.83e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:16	1.37e+02	7.75e+01	1.77	yes	2.15e+02		n	n
2	32:12	2.09e+02	1.46e+02	1.43	yes	3.55e+02		n	n
3	32:22	8.35e+01	5.60e+01	1.49	yes	1.39e+02		n	n
4	33:00	5.58e+01	3.72e+01	1.50	yes	9.30e+01		n	n
5	33:25	1.23e+03	7.98e+02	1.55	yes	2.03e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0561

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P519316 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 373.8210 375.8180 Tot Response: 7.26e+04 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:44	2.39e+02	2.05e+02	1.17	yes	4.44e+02		
2	34:54	1.98e+03	1.65e+03	1.20	yes	3.63e+03	n	n
3	35:26	1.22e+03	1.05e+03	1.16	yes	2.26e+03	n	n
4	35:48	5.52e+01	4.17e+01	1.32	yes	9.69e+01	n	n
5	35:53	2.67e+04	2.17e+04	1.23	yes	4.84e+04	n	n
6	36:00	6.90e+03	5.85e+03	1.18	yes	1.27e+04	1,2,3,4,7,8-HxCDF	n	n
7	36:31	1.02e+03	8.79e+02	1.17	yes	1.90e+03	1,2,3,6,7,8-HxCDF	n	n
8	37:19	1.80e+03	1.33e+03	1.35	yes	3.14e+03	2,3,4,6,7,8-HxCDF	n	n
							1,2,3,7,8,9-HxCDF	n	n

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SL0561

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P519316 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 389.8160 391.8130 Tot Response: 2.68e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	4.97e+02	4.52e+02	1.10	yes	9.49e+02		n	n
2	35:49	1.72e+02	1.39e+02	1.24	yes	3.11e+02		n	n
3	36:03	5.56e+02	4.26e+02	1.31	yes	9.81e+02		n	n
4	36:40	4.17e+01	3.09e+01	1.35	yes	7.27e+01	1,2,3,4,7,8-HxCDD	n	n
5	36:45	1.91e+02	1.74e+02	1.09	yes	3.65e+02	1,2,3,6,7,8-HxCDD	n	n

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CLIENT ID.
SL0561

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P519316 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 407.7820 409.7790 Tot Response: 2.29e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	6.94e+03	6.50e+03	1.07	yes	1.34e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:03	3.16e+03	3.04e+03	1.04	yes	6.20e+03		n	n
3	40:06	1.64e+03	1.67e+03	0.98	yes	3.31e+03	1,2,3,4,7,8,9-HpCDF	n	n

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SL0561

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P519316 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 18:52:45 Processed: 11-DEC-18 16:57:30

Mass: 423.7770 425.7740 Tot Response: 2.33e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	6.69e+03	6.20e+03	1.08	yes	1.29e+04		n	n
2	39:37	5.21e+03	5.22e+03	1.00	yes	1.04e+04	1,2,3,4,6,7,8-HpCDD	n	n

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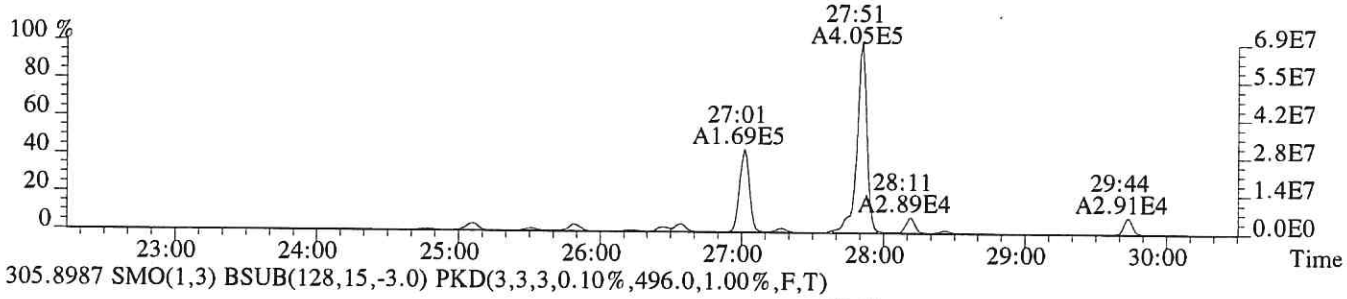
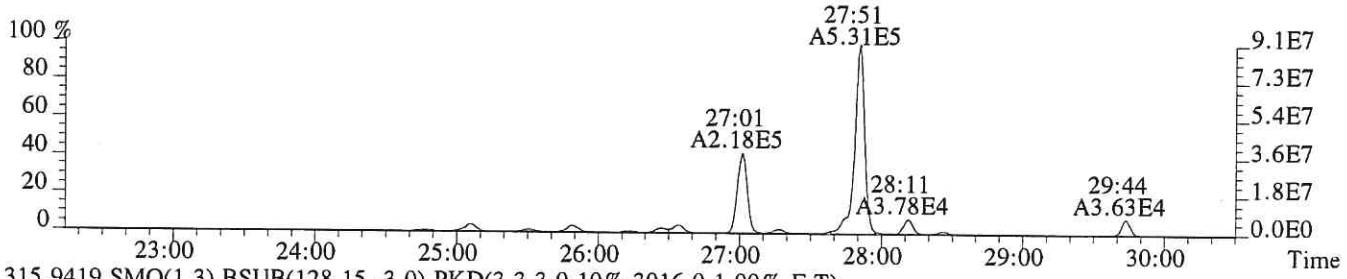
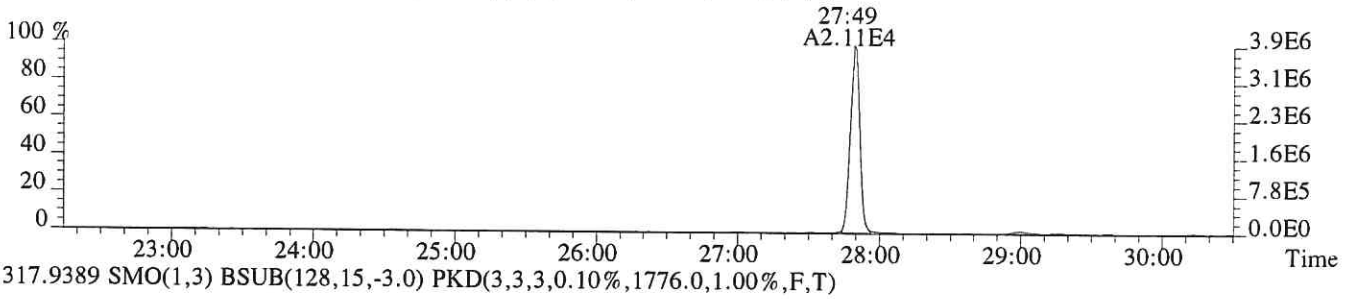
File:P519316 #1-587 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



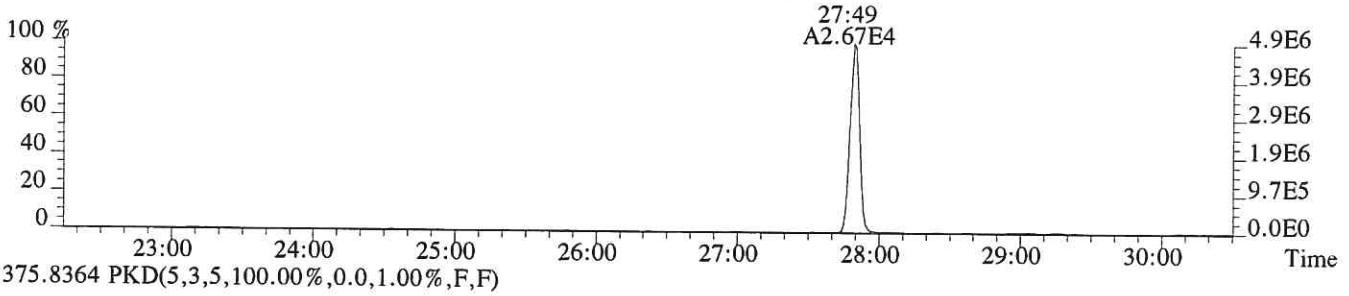
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



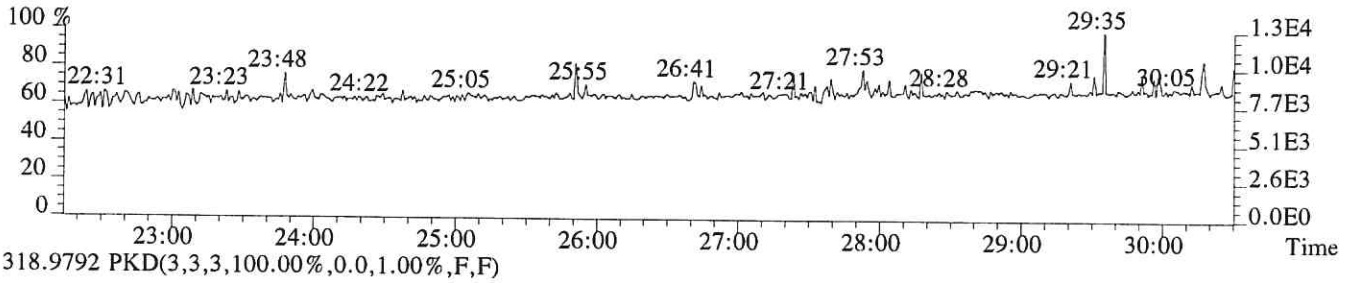
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3016.0,1.00%,F,T)



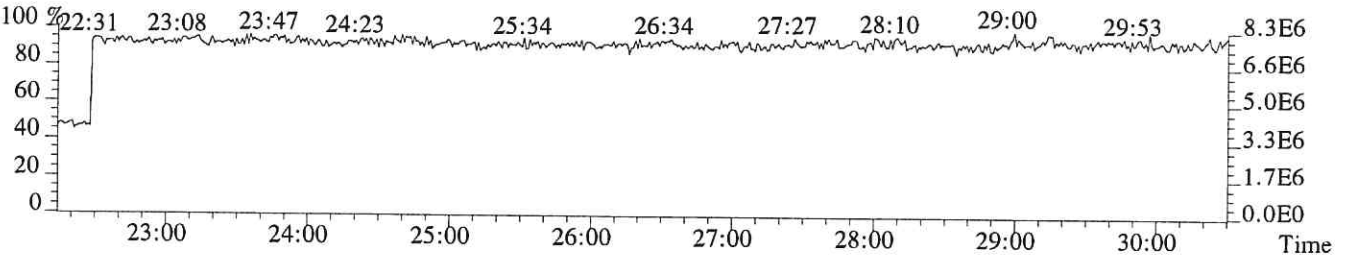
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



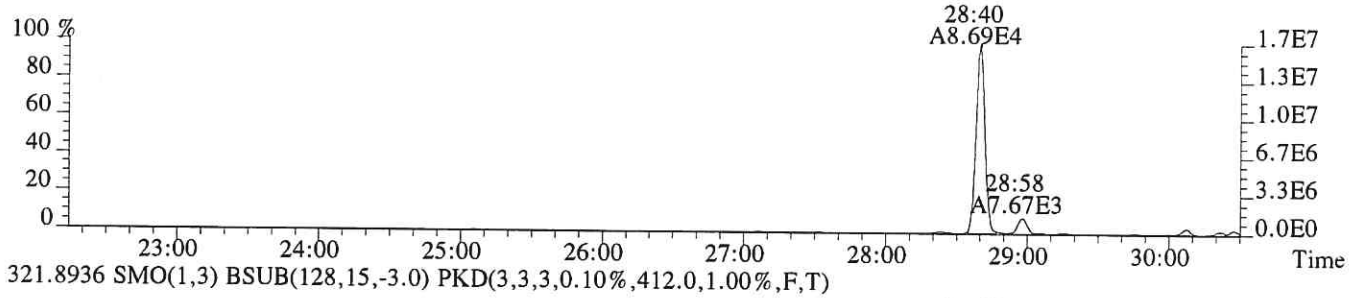
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



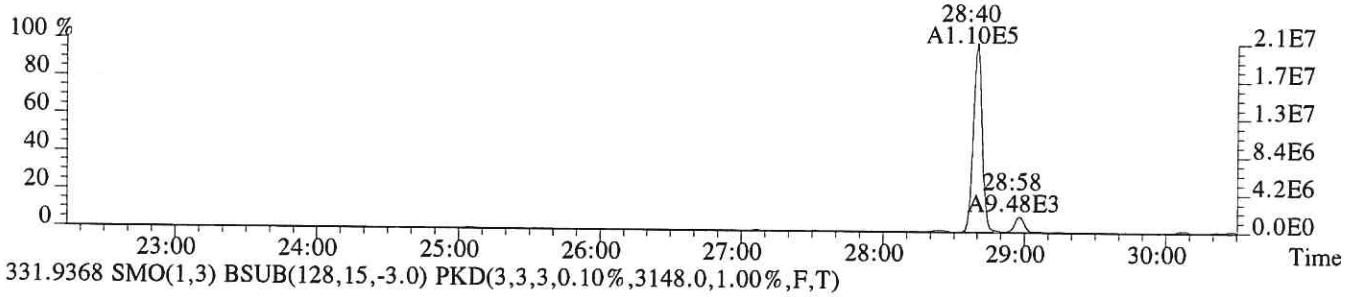
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



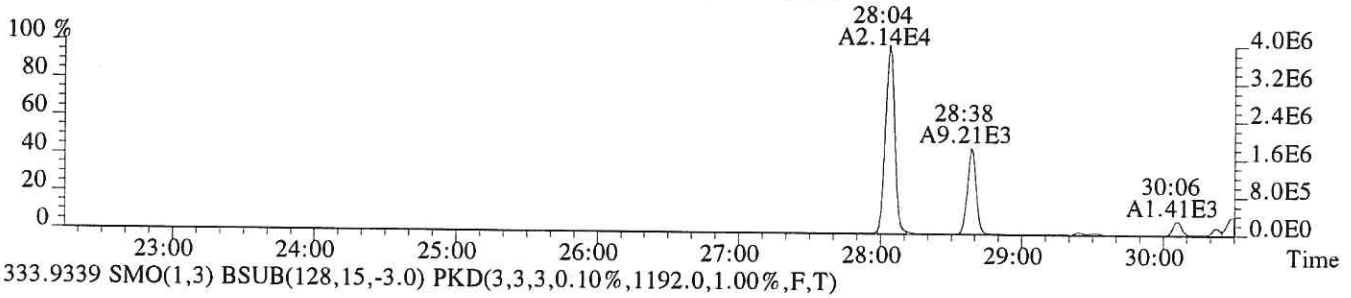
File:P519316 #1-587 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



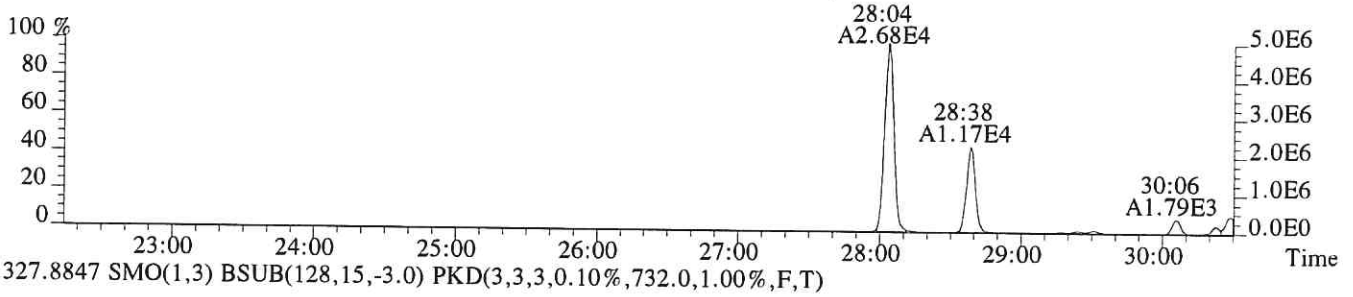
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



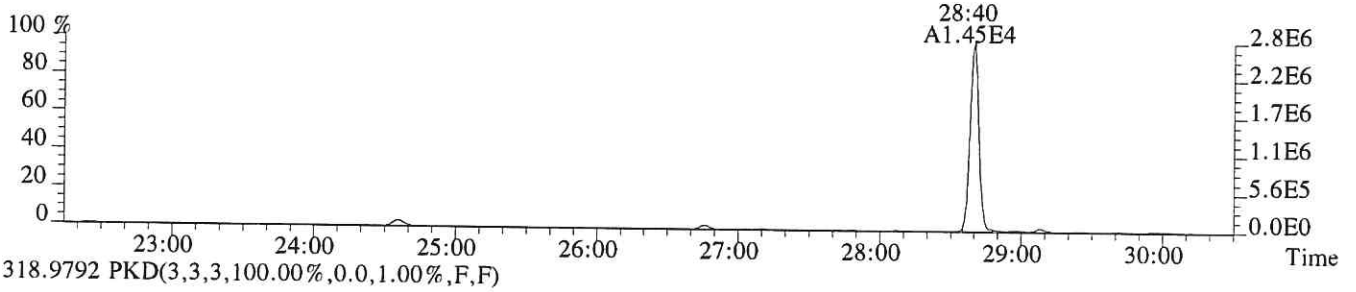
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3148.0,1.00%,F,T)



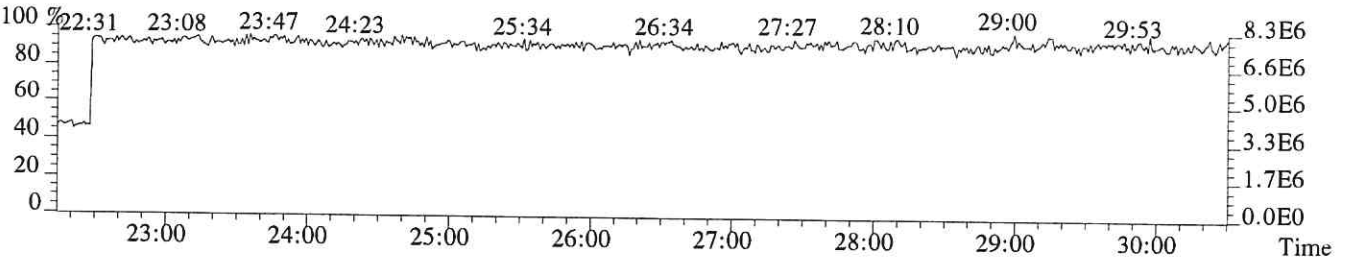
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)

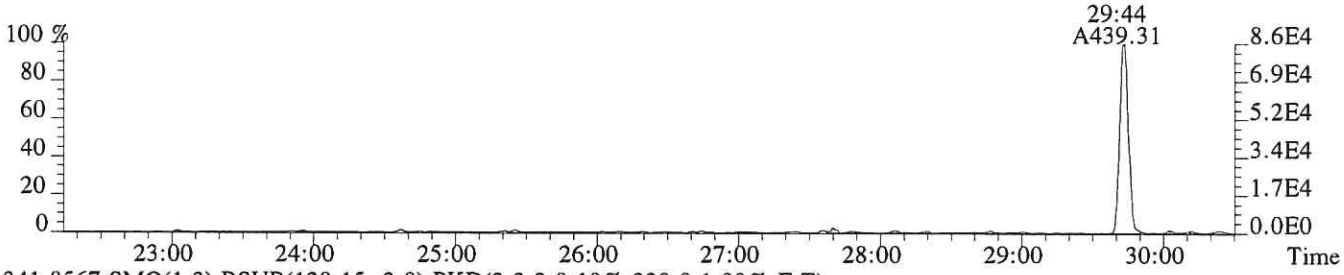


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

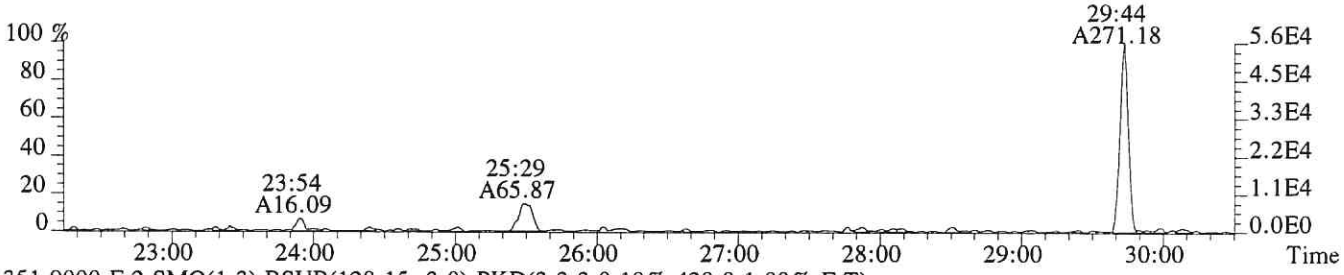


File:P519316 #1-587 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012

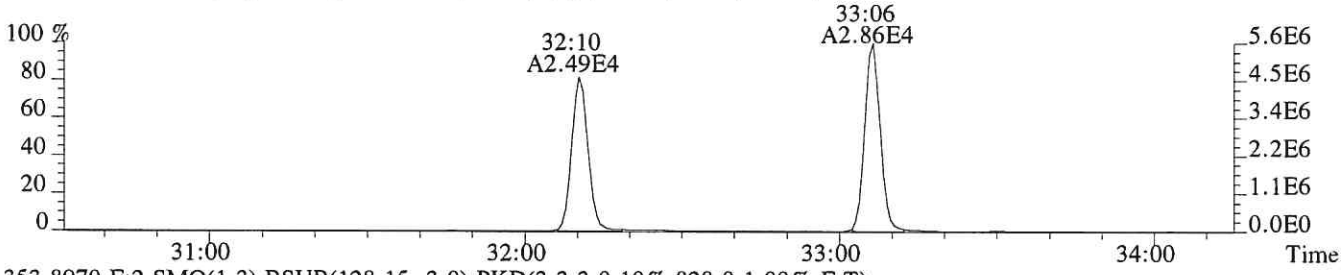
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



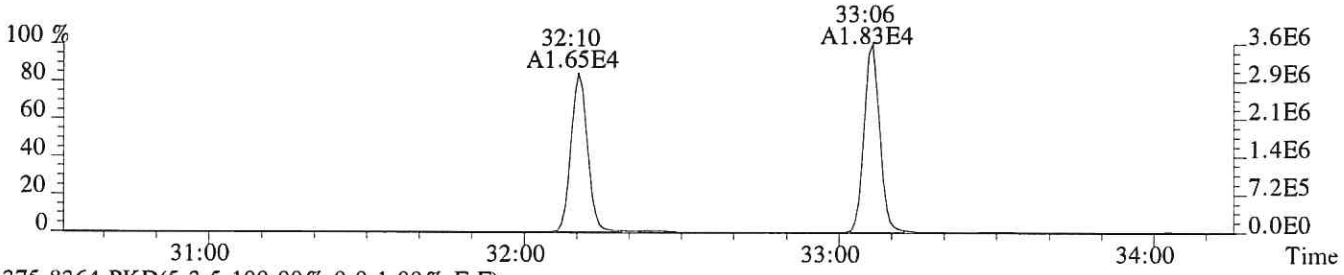
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



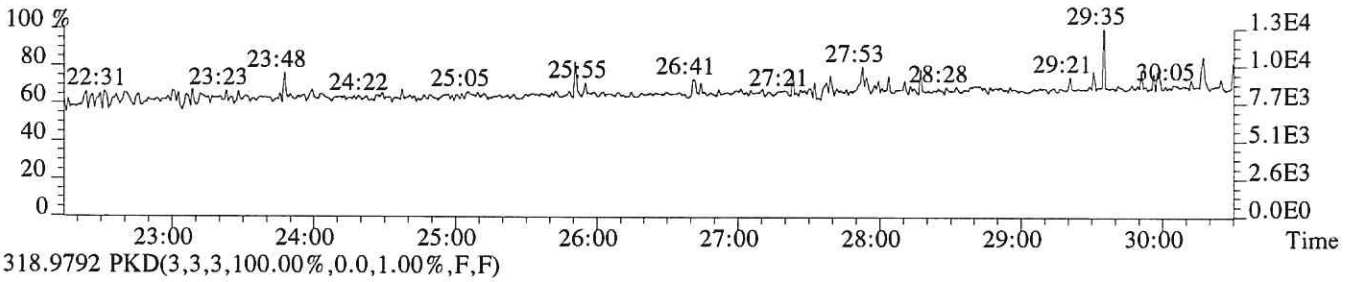
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



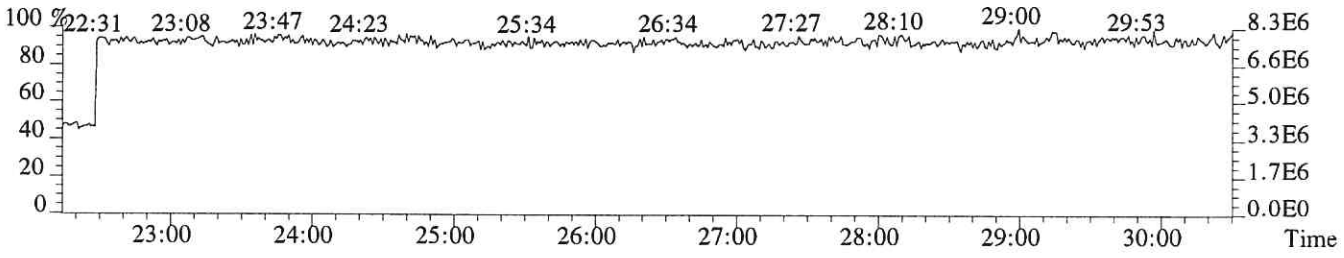
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



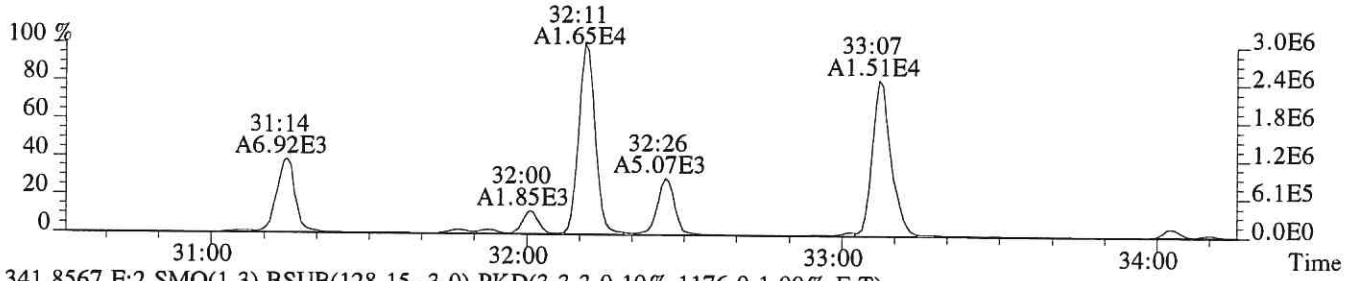
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



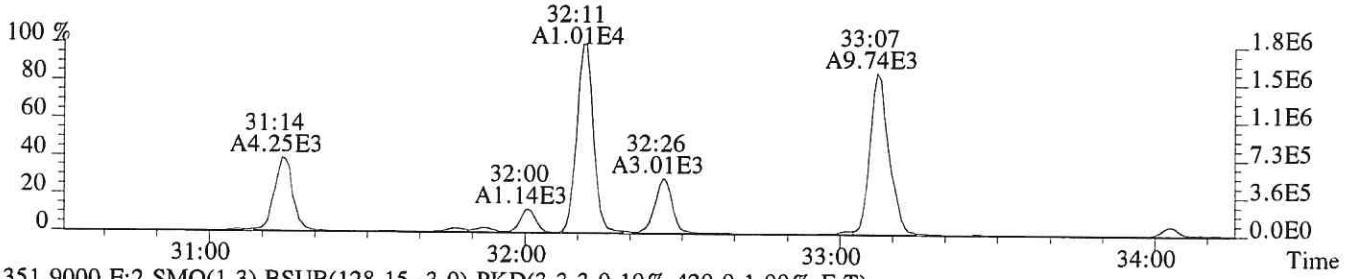
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



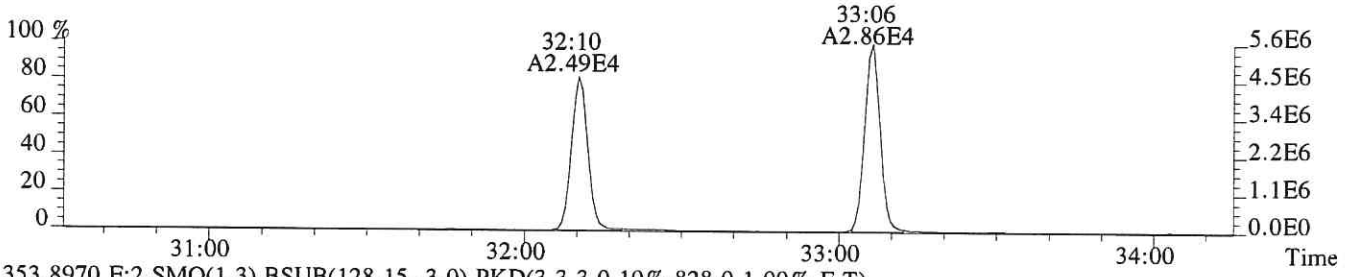
File:P519316 #1-335 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4732.0,1.00%,F,T)



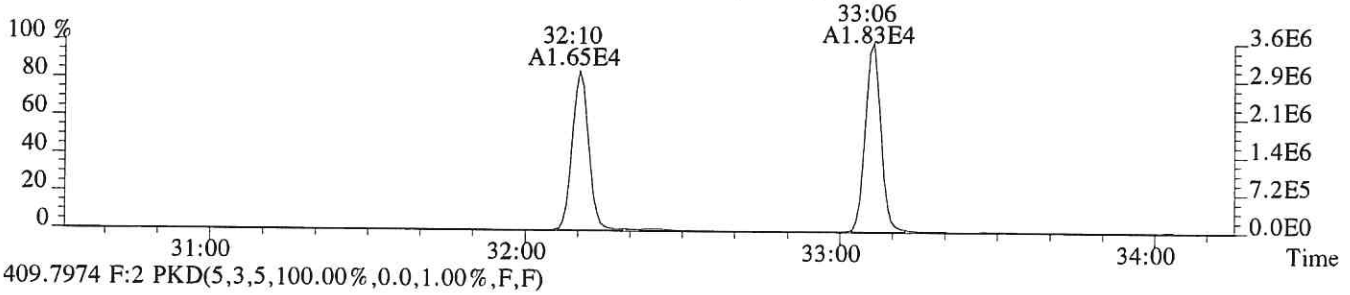
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



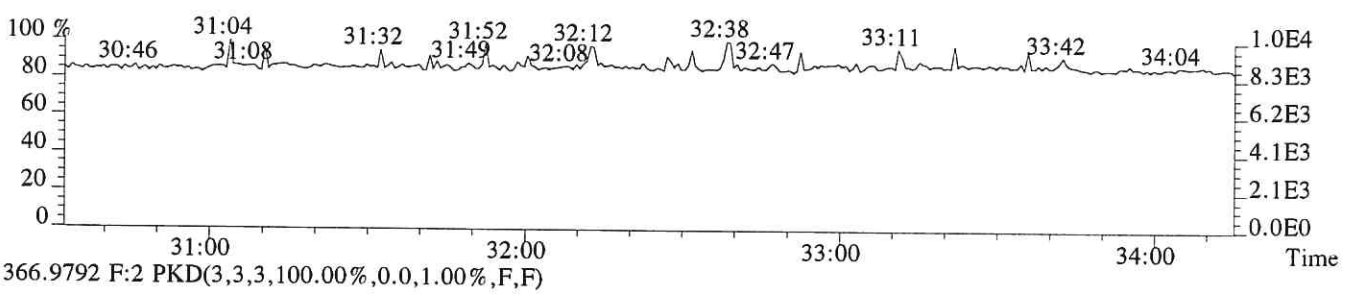
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



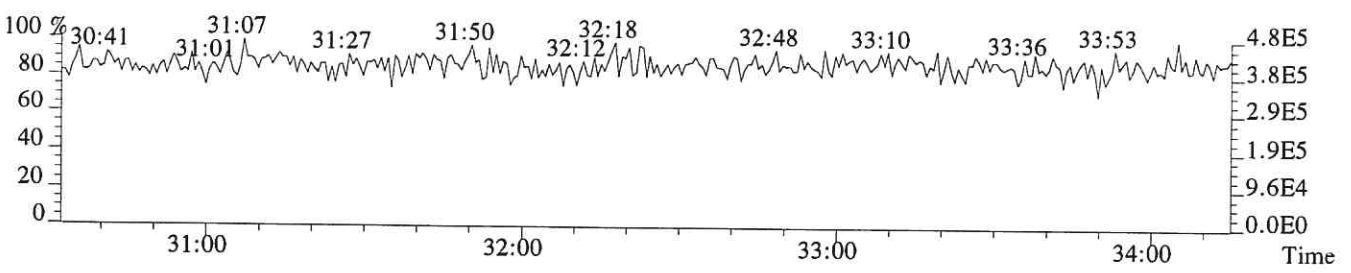
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



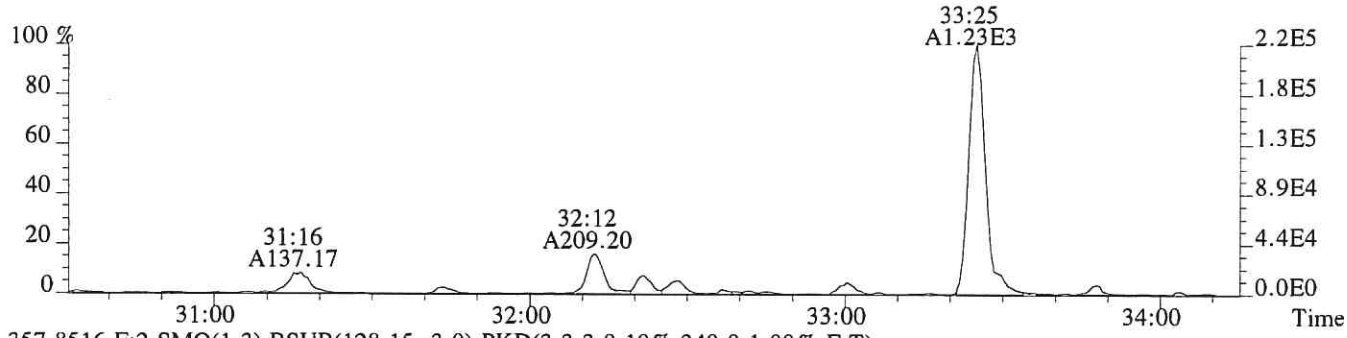
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



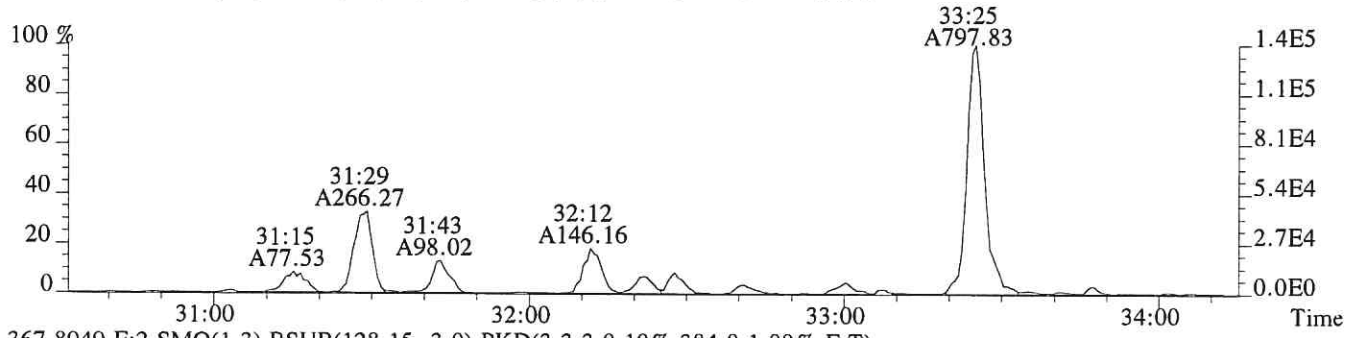
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



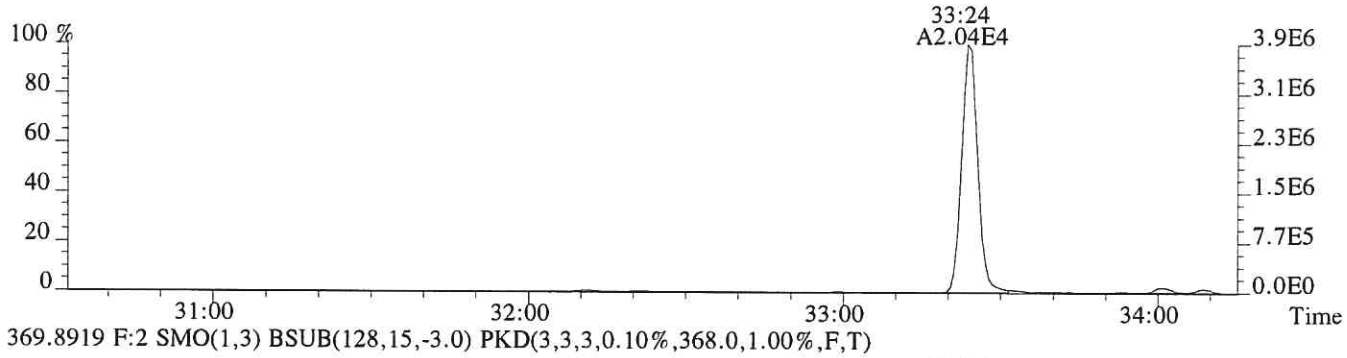
File:P519316 #1-335 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



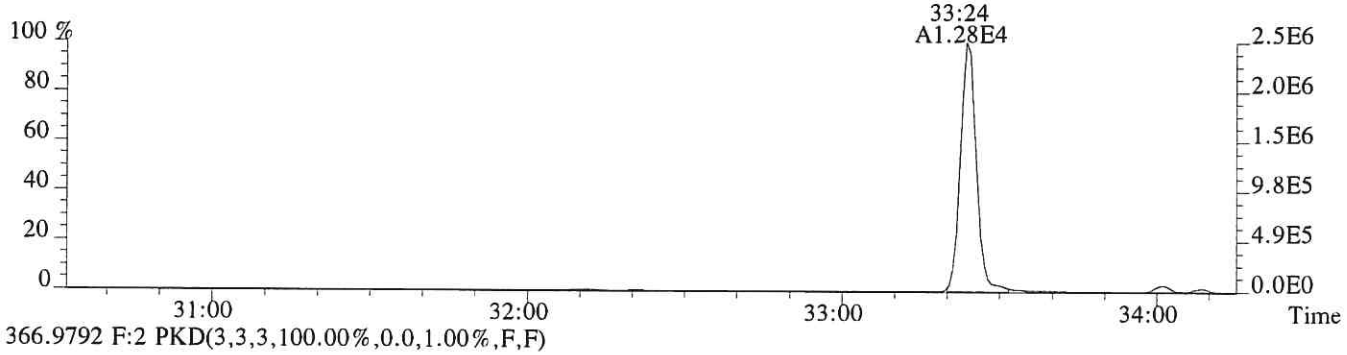
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



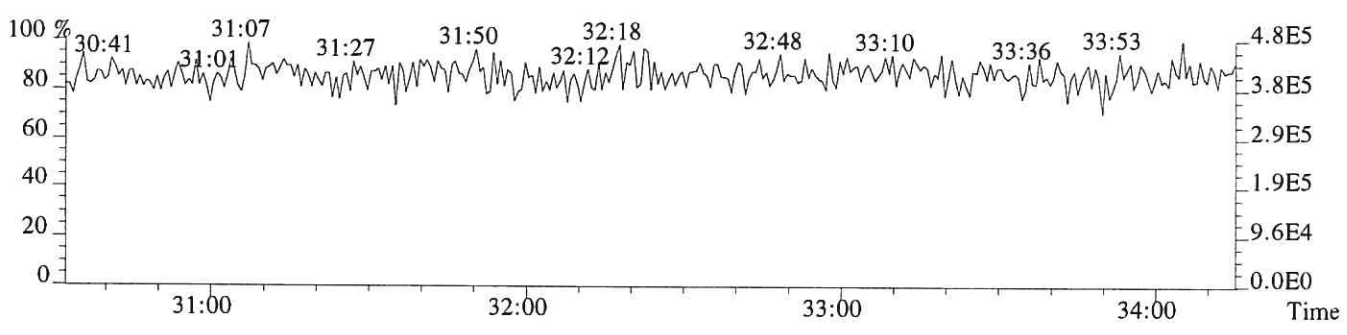
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)

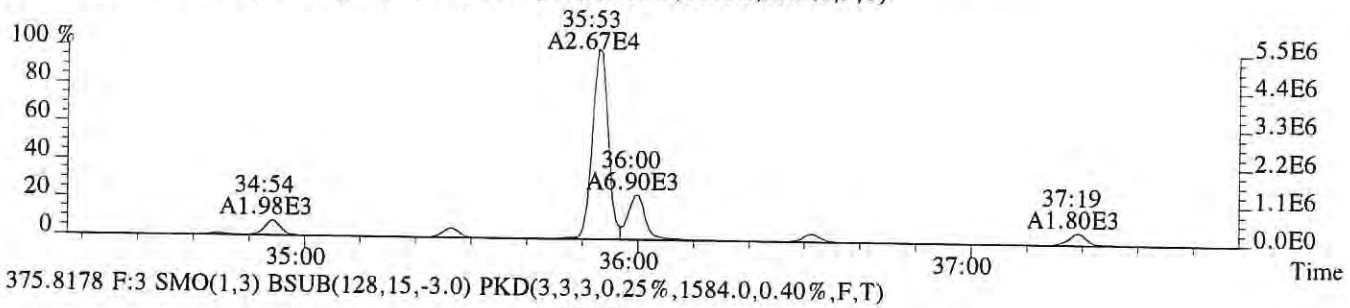


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

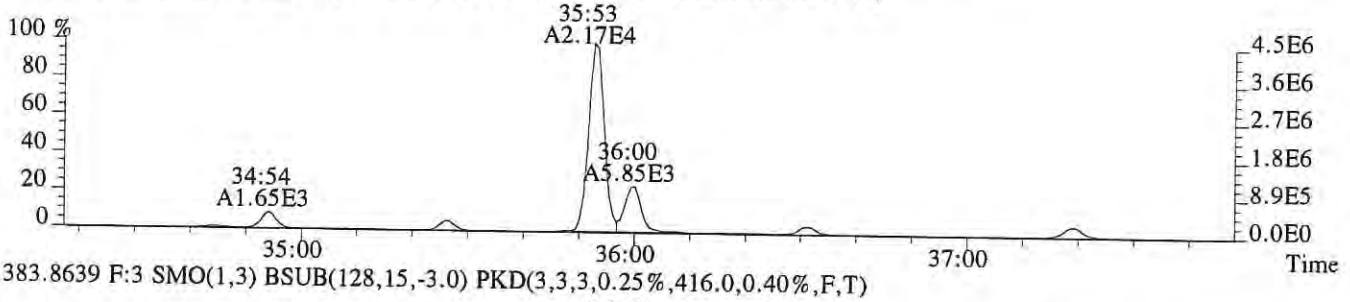


File:P519316 #1-317 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012

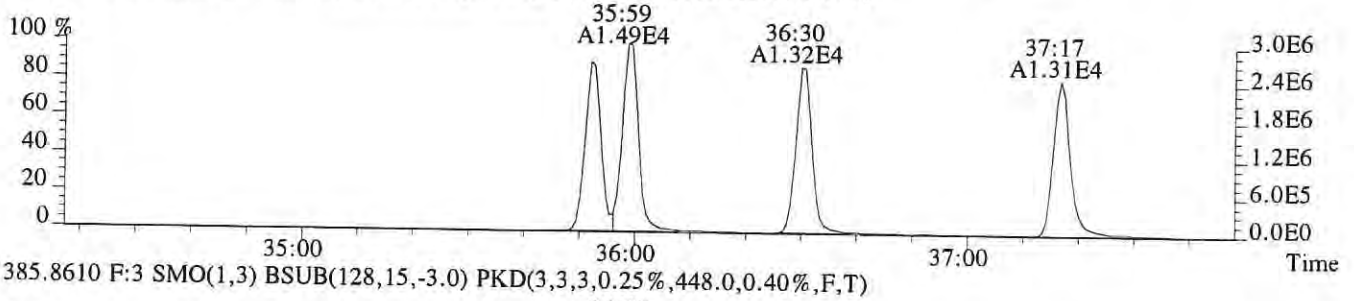
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



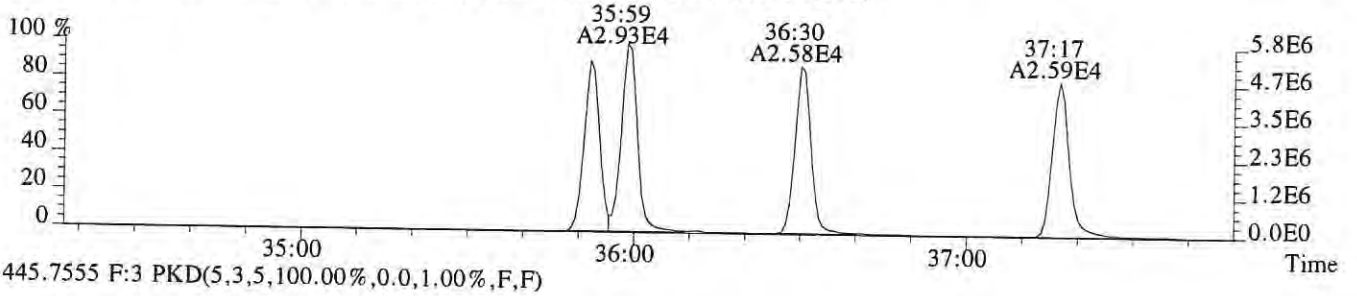
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



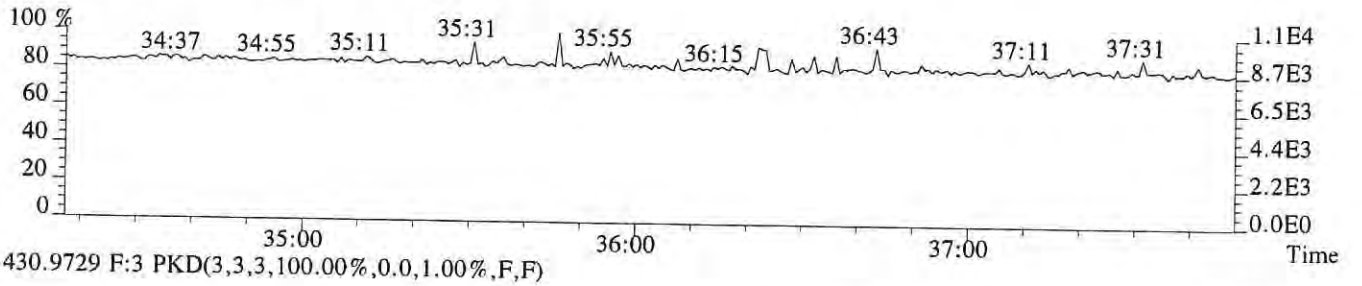
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



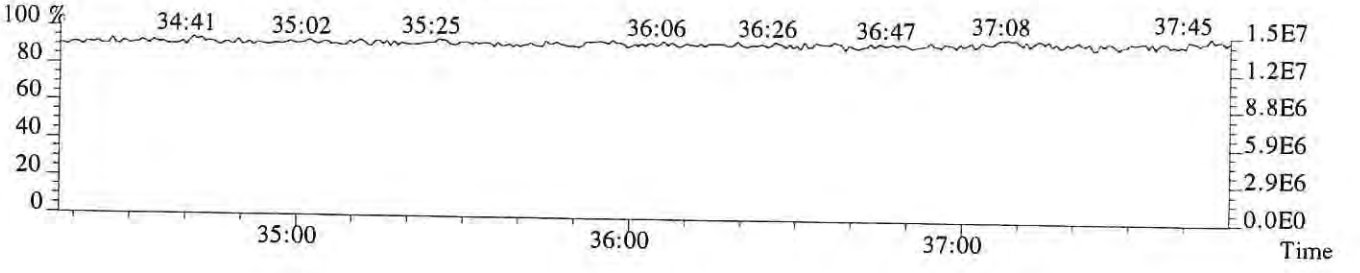
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



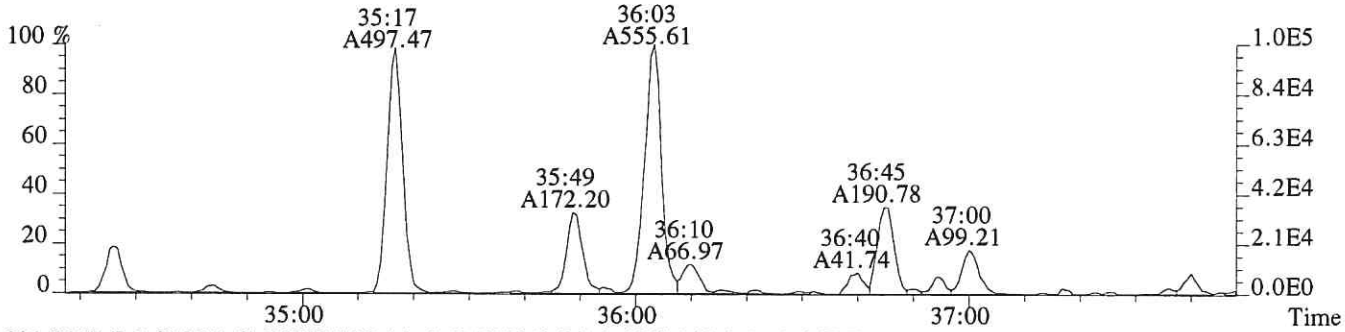
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



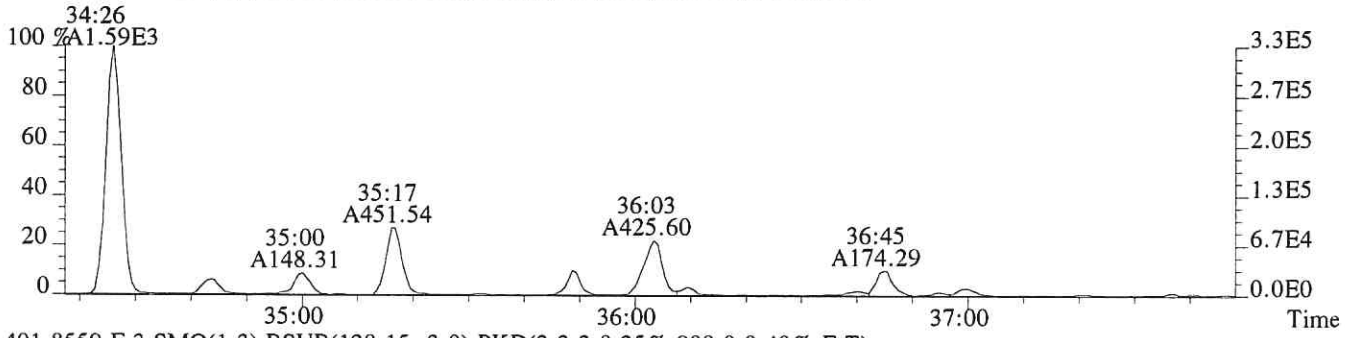
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



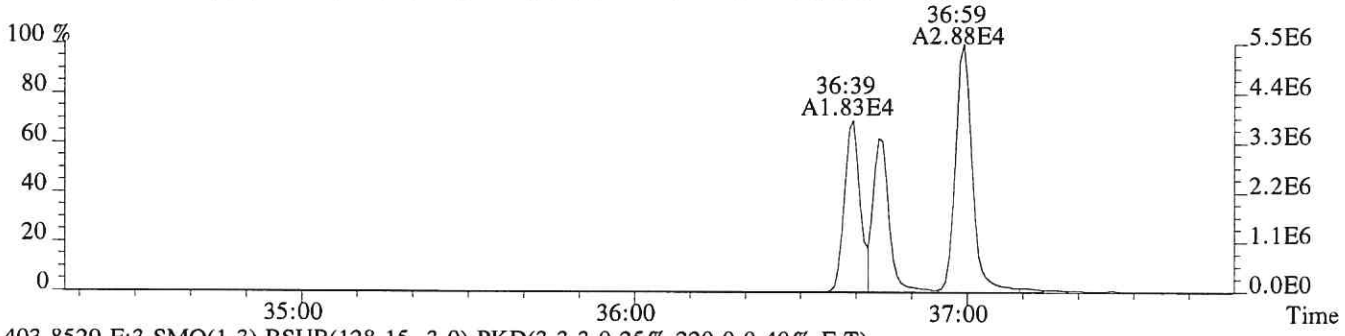
File:P519316 #1-317 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



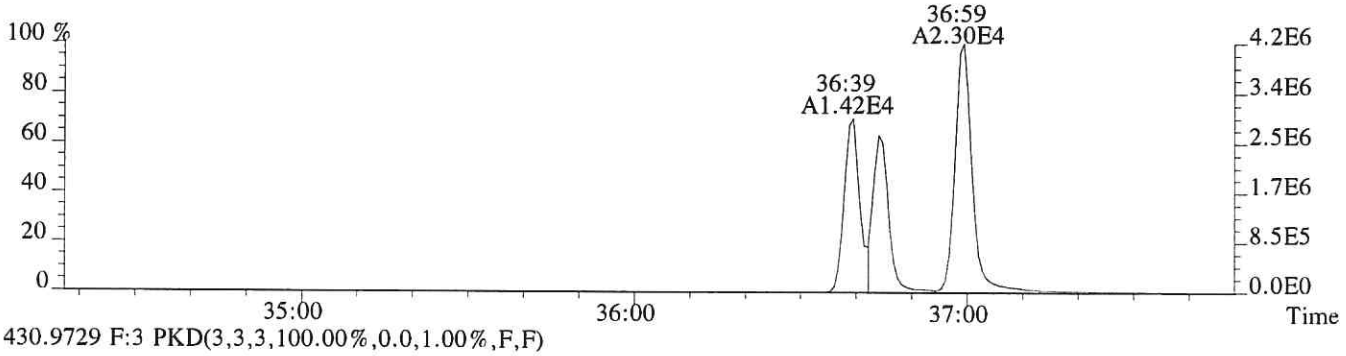
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



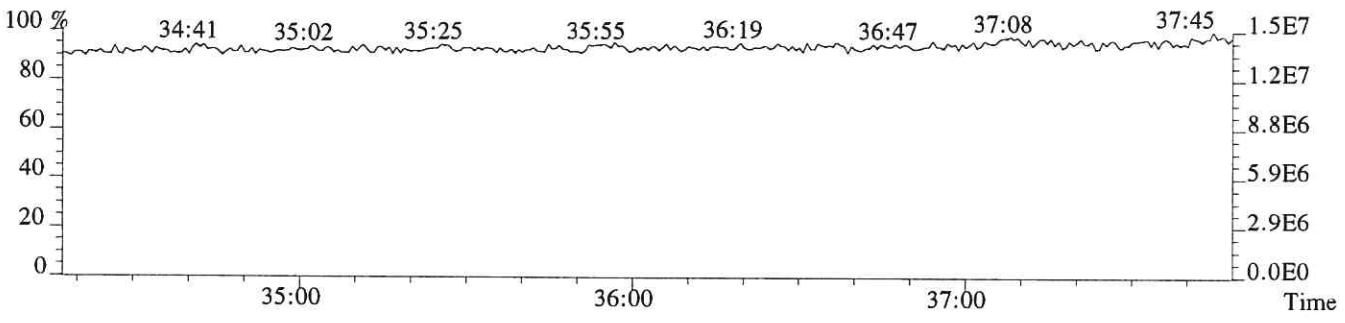
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)

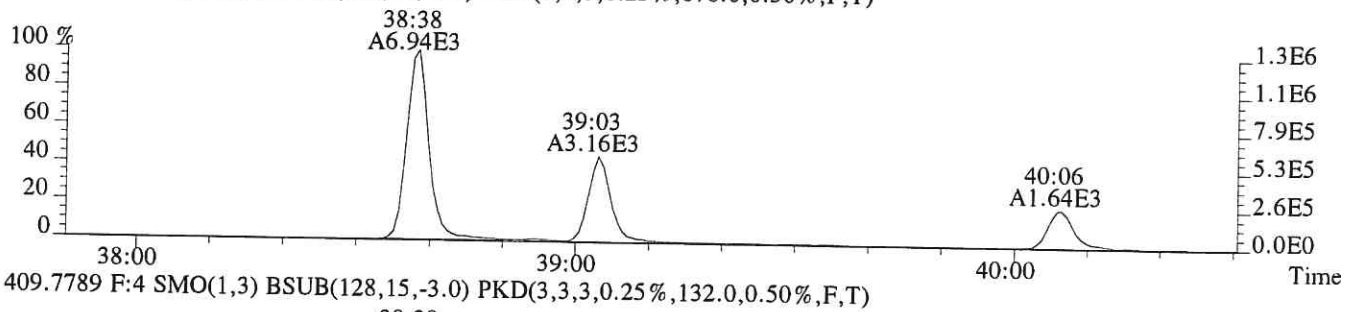


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

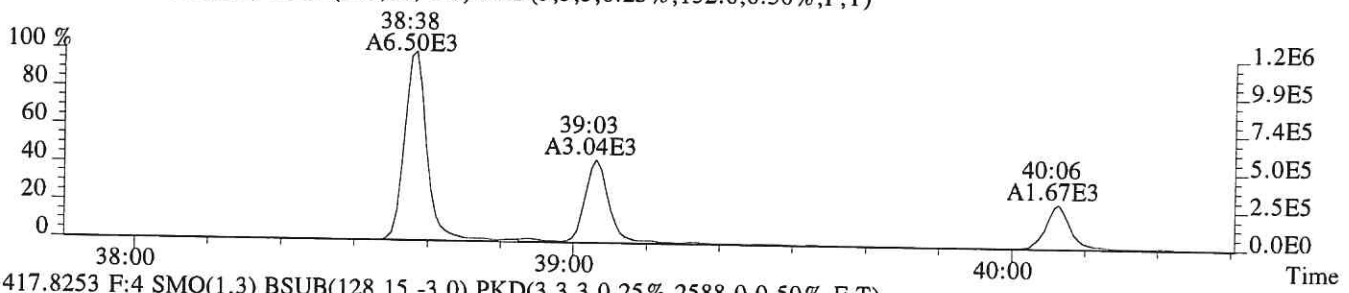


File:P519316 #1-241 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012

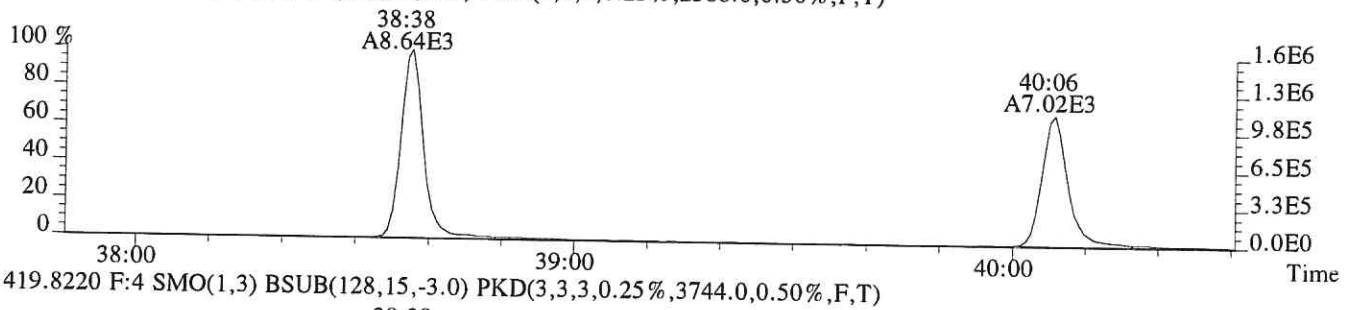
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.50%,F,T)



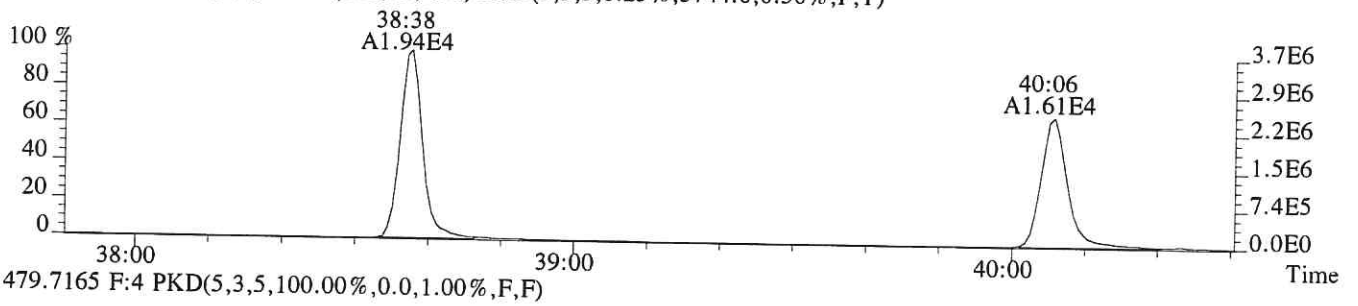
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.50%,F,T)



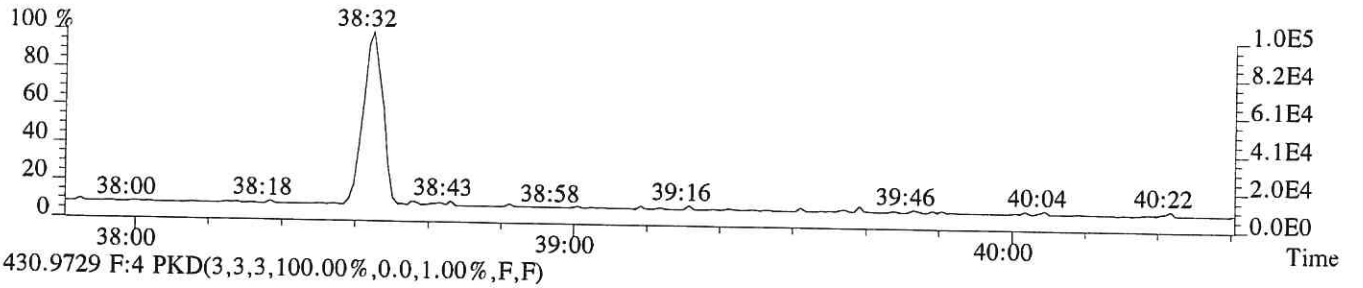
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2588.0,0.50%,F,T)



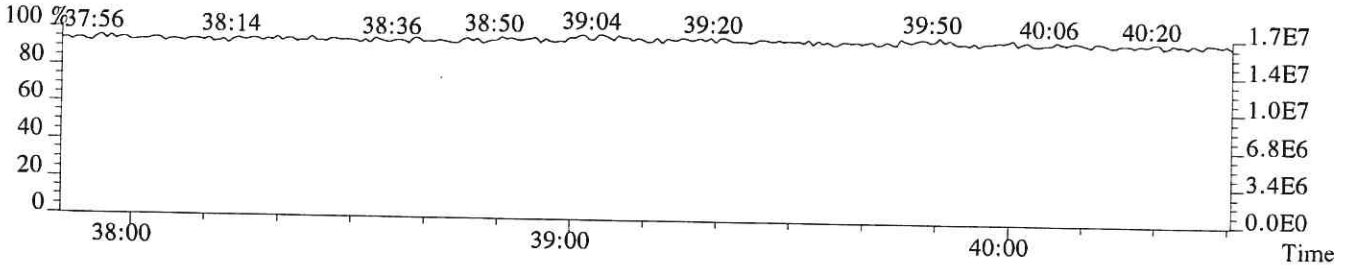
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3744.0,0.50%,F,T)



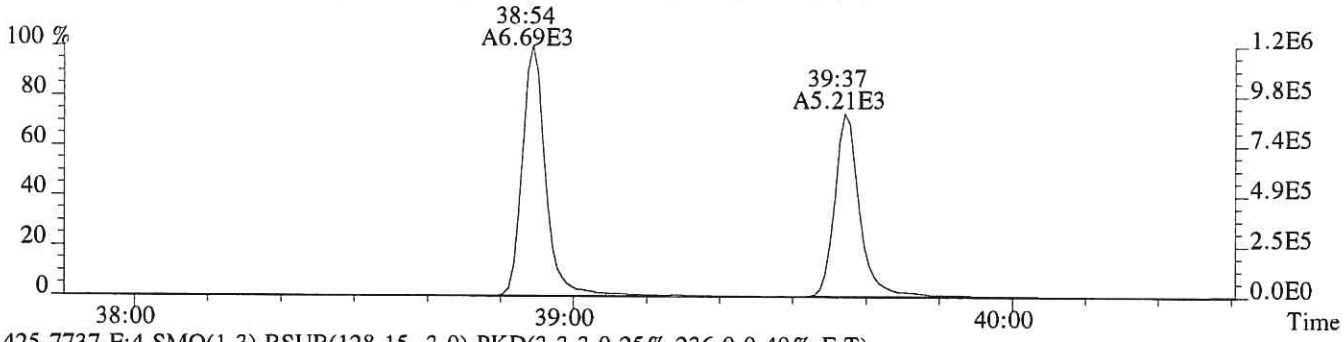
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



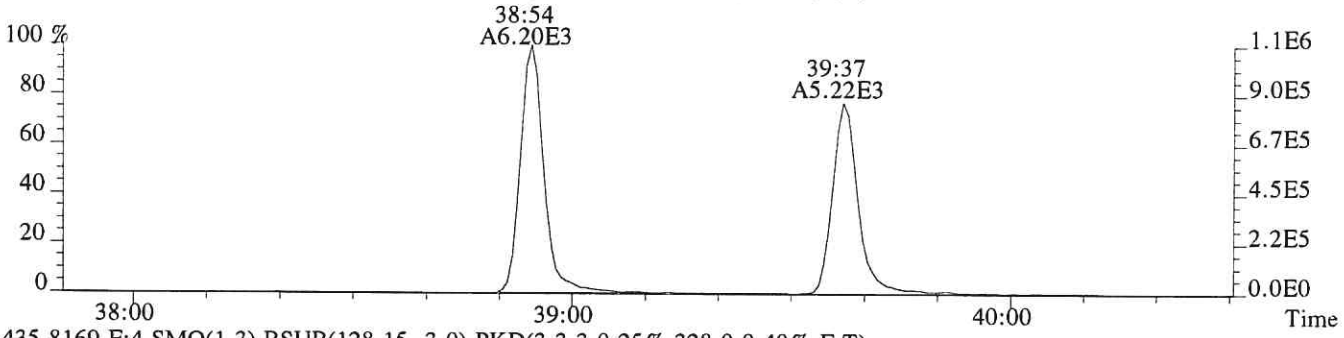
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



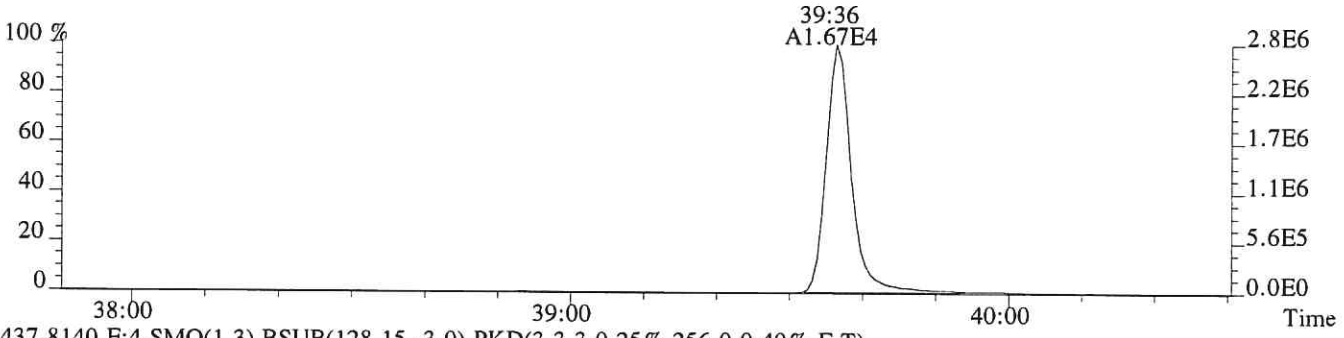
File:P519316 #1-241 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



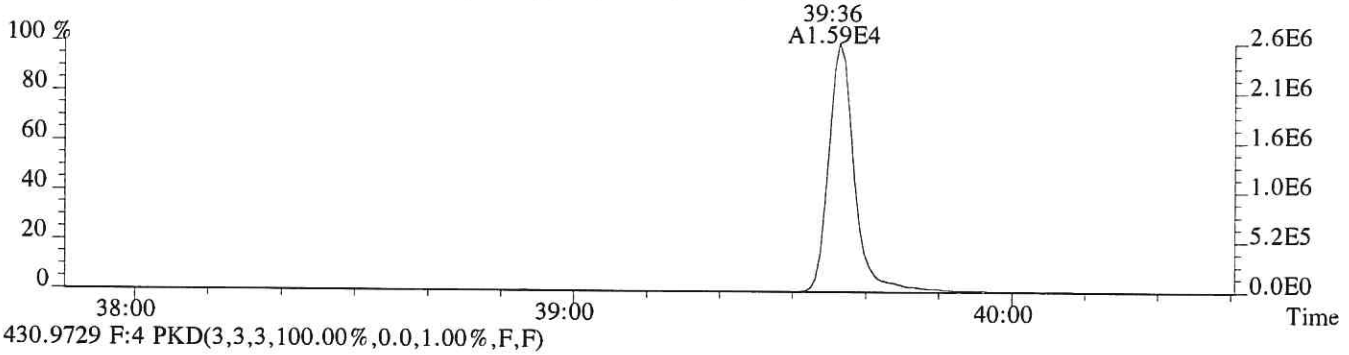
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



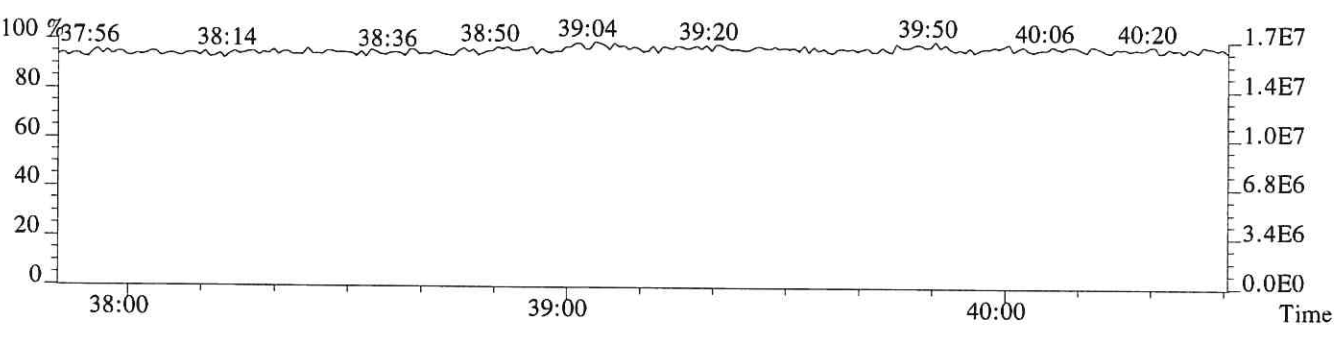
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)

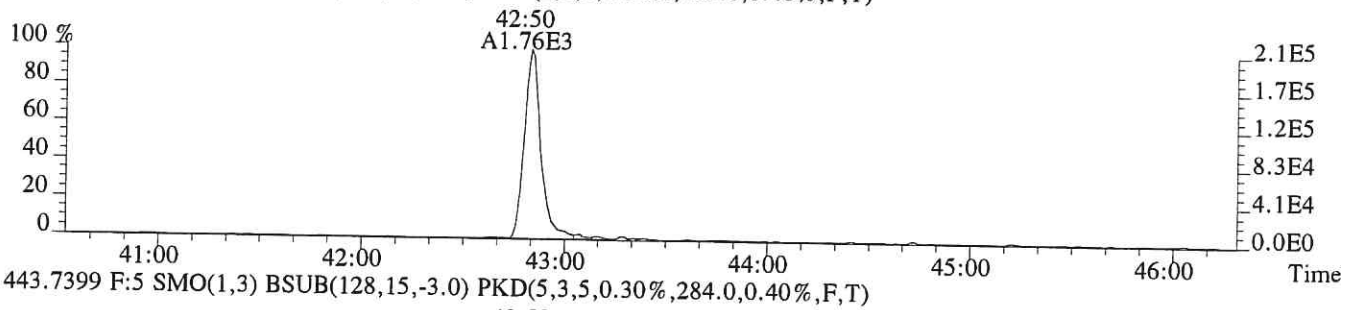


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

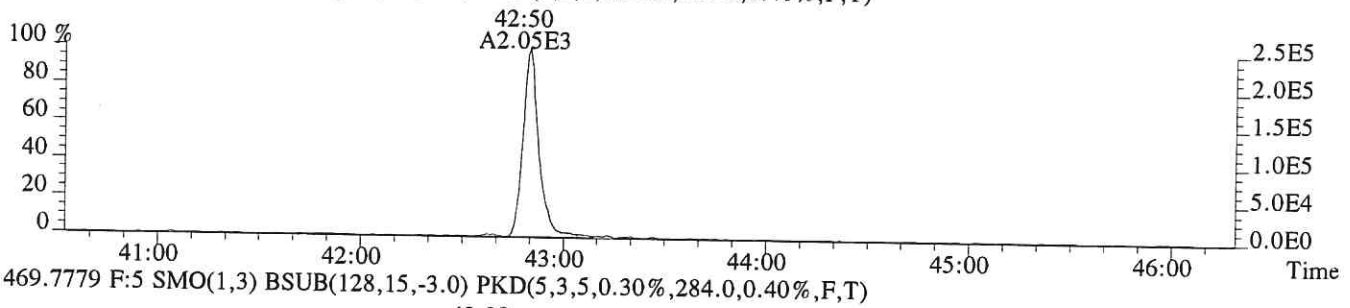


File:P519316 #1-520 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012

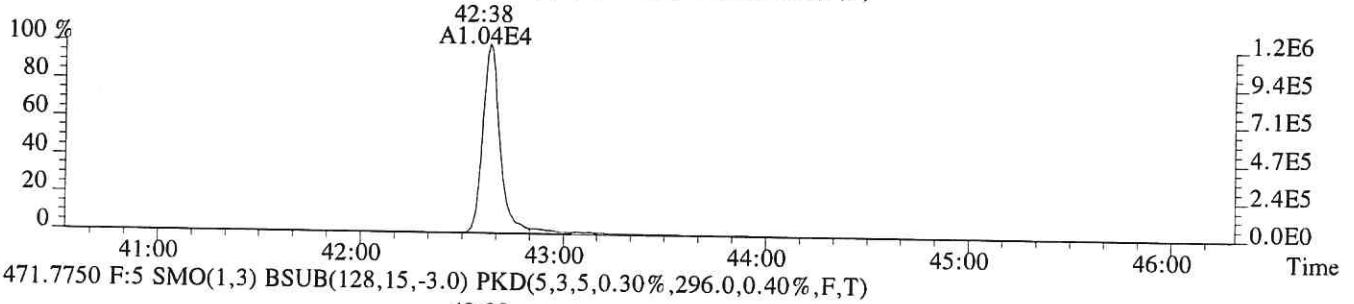
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



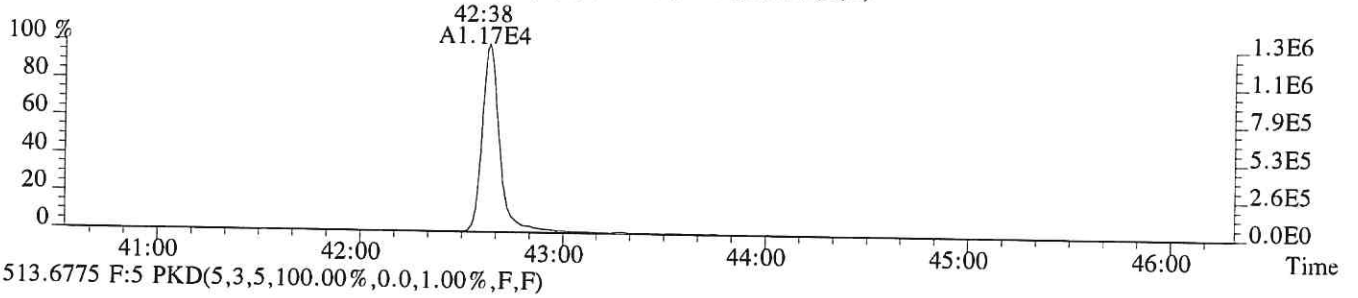
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



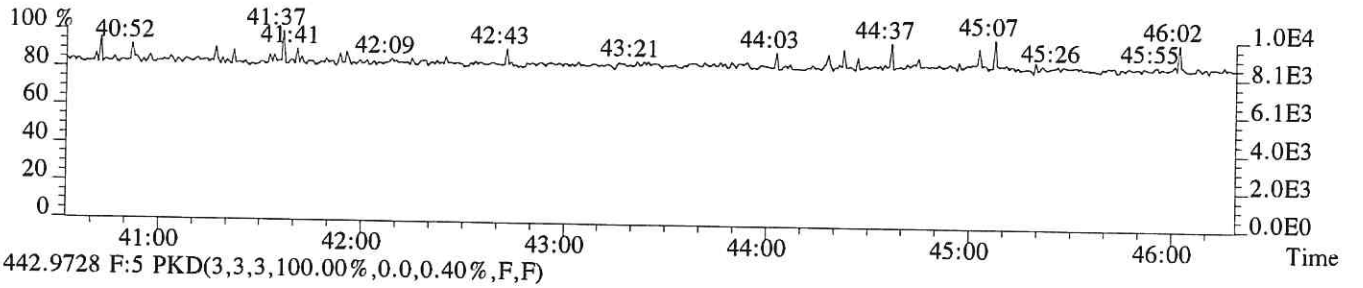
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



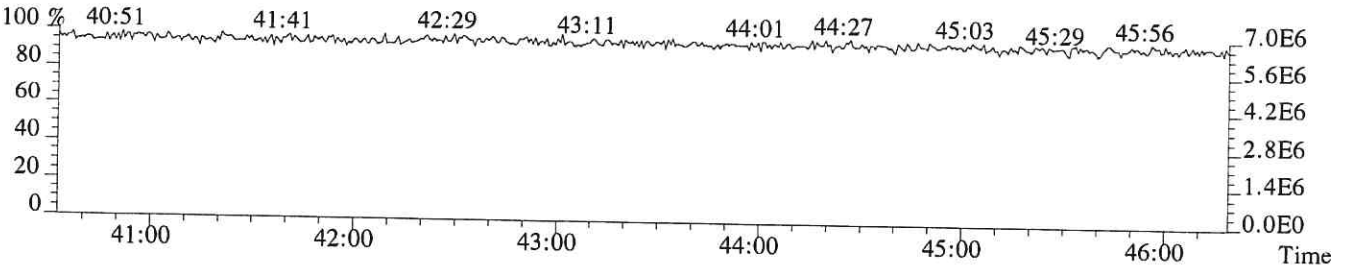
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



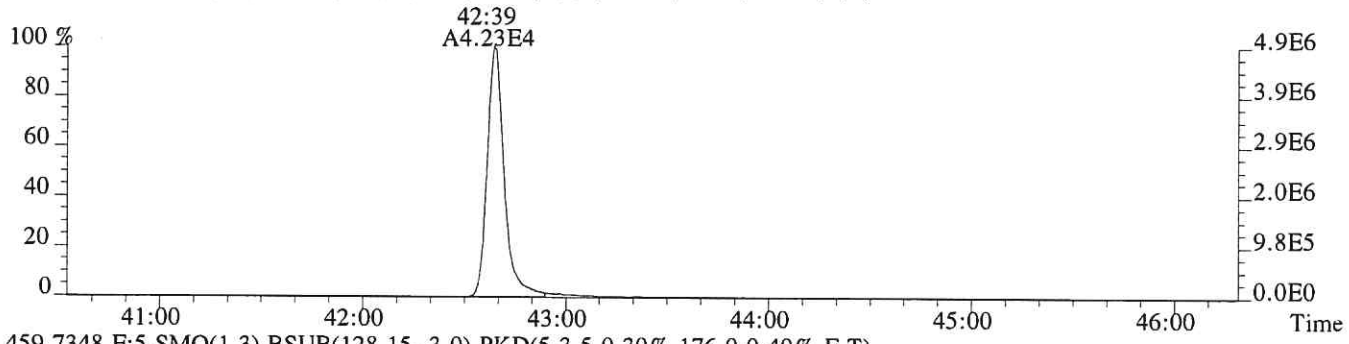
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



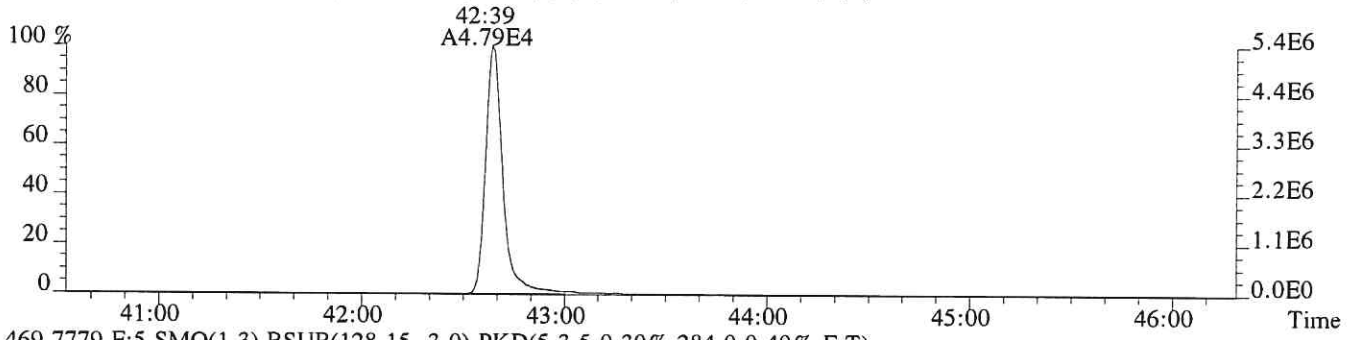
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



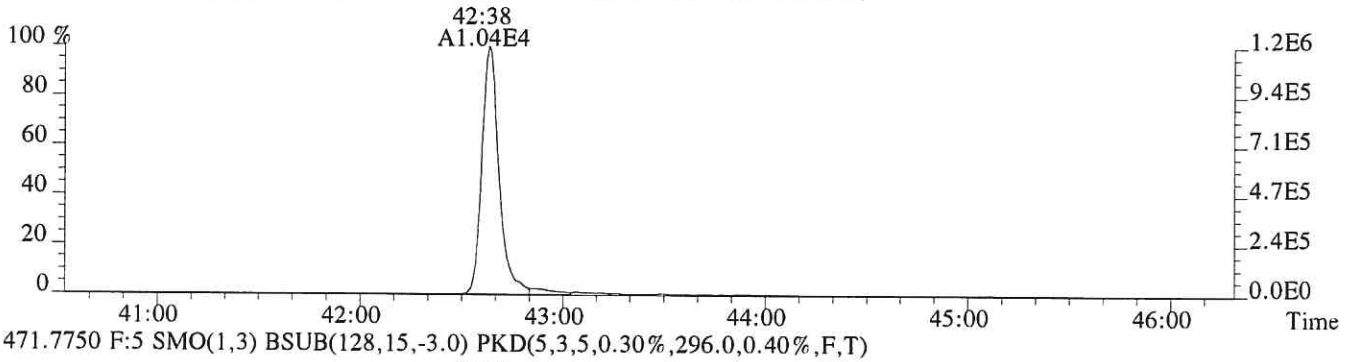
File:P519316 #1-520 Acq: 8-DEC-2018 18:52:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,348.0,0.40%,F,T)



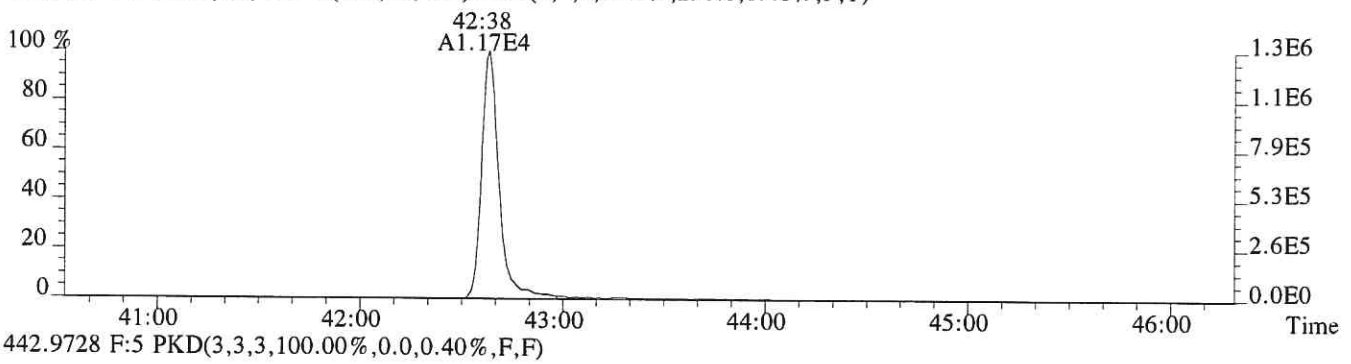
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



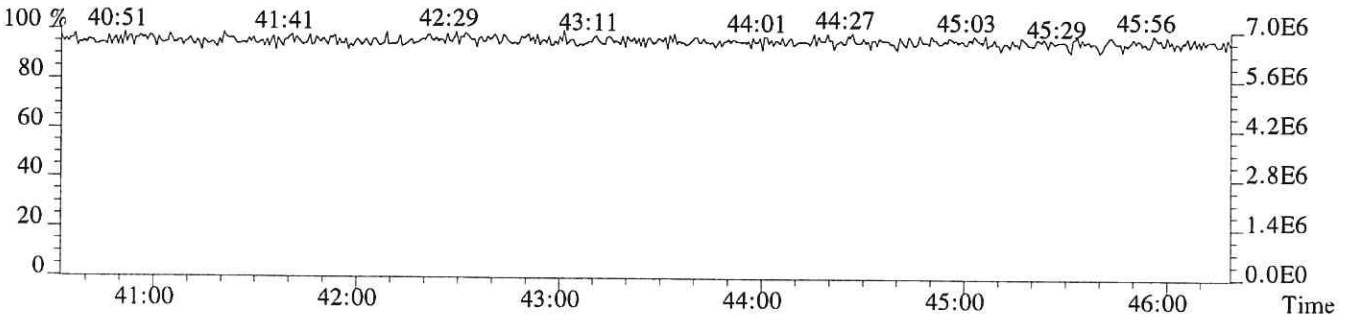
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0561

Run #17 Filename P519377 Samp: 1 Inj: 1 Acquired: 12-DEC-18 08:43:29
Processed: 13-DEC-18 09:36:46 Sample ID: E1801065-012DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	3.931e+03	5.136e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	1.743e+02	1.097e+02	1.59	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	1.414e+02	1.220e+02	1.16	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.934e+02	2.295e+02	1.28	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:56	7.808e+01	8.282e+01	0.94	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.035e+01	5.687e+00	3.58	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	8.800e+00	1.086e+01	0.81	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	6.882e+01	1.075e+02	0.64	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	2.401e+01	1.787e+01	1.34	no	no	1.258
10	Unk	OCDF	42:43	4.609e+01	4.054e+01	1.14	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	8.637e+02	1.095e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	6.799e+01	5.787e+01	1.17	yes	no	1.025
17	Unk	OCDD	42:31	7.081e+02	8.344e+02	0.85	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.392e+04	1.726e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.098e+04	1.333e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.012e+04	1.272e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	8.010e+03	1.585e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.028e+04	1.947e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	9.356e+03	1.795e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	7.771e+03	1.535e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	7.027e+03	1.615e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	6.025e+03	1.359e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	6.657e+03	8.638e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	7.062e+03	4.532e+03	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	1.148e+04	8.918e+03	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:41	1.203e+04	9.525e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	1.315e+04	1.218e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	1.423e+04	1.529e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	9.933e+03	1.242e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	1.333e+04	1.045e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.674e+02				no	1.014

$$OCDD = \frac{(7.081e+02 + 8.344e+02) \times 4000\ pg \times 50}{(1.423e+04 + 1.529e+04) \times 10.634\ g \times 84.4 / 100 \times 1.118} = 28.4.98500\ ng/kg$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0561

Run #17 Filename P519377 Samp: 1 Inj: 1 Acquired: 12-DEC-18 08:43:29
Processed: 13-DEC-18 09:36:46 LAB. ID: E1801065-012DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.44e+05	8.52e+02	7.6e+02	7.93e+05	1.46e+03	5.4e+02
2	1,2,3,7,8-PeCDF	3.26e+04	6.76e+02	4.8e+01	2.54e+04	1.01e+03	2.5e+01
3	2,3,4,7,8-PeCDF	1.98e+04	6.76e+02	2.9e+01	1.90e+04	1.01e+03	1.9e+01
4	1,2,3,4,7,8-HxCDF	5.68e+04	4.80e+02	1.2e+02	4.70e+04	3.16e+02	1.5e+02
5	1,2,3,6,7,8-HxCDF	1.71e+04	4.80e+02	3.6e+01	1.54e+04	3.16e+02	4.9e+01
6	2,3,4,6,7,8-HxCDF	3.86e+03	4.80e+02	8.0e+00	1.07e+03	3.16e+02	3.4e+00
7	1,2,3,7,8,9-HxCDF	2.06e+03	4.80e+02	4.3e+00	2.98e+03	3.16e+02	9.4e+00
8	1,2,3,4,6,7,8-HpCDF	1.18e+04	3.60e+02	3.3e+01	2.33e+04	3.08e+02	7.6e+01
9	1,2,3,4,7,8,9-HpCDF	5.33e+03	3.60e+02	1.5e+01	4.32e+03	3.08e+02	1.4e+01
10	OCDF	7.21e+03	2.32e+02	3.1e+01	3.99e+03	6.28e+02	6.4e+00
11	2,3,7,8-TCDD	1.57e+05	2.18e+03	7.2e+01	1.81e+05	9.52e+02	1.9e+02
12	1,2,3,7,8-PeCDD	*	6.76e+02	*	*	1.88e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.92e+02	*	*	3.72e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.92e+02	*	*	3.72e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.92e+02	*	*	3.72e+02	*
16	1,2,3,4,6,7,8-HpCDD	9.94e+03	2.64e+02	3.8e+01	1.27e+04	3.36e+02	3.8e+01
17	OCDD	8.55e+04	2.36e+02	3.6e+02	8.60e+04	2.04e+02	4.2e+02
18	13C-2,3,7,8-TCDF	2.33e+06	6.58e+03	3.5e+02	2.90e+06	4.91e+03	5.9e+02
19	13C-1,2,3,7,8-PeCDF	3.51e+06	7.96e+02	4.4e+03	2.30e+06	3.72e+02	6.2e+03
20	13C-2,3,4,7,8-PeCDF	3.60e+06	7.96e+02	4.5e+03	2.29e+06	3.72e+02	6.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.62e+06	4.96e+02	3.3e+03	3.26e+06	7.72e+02	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.81e+06	4.96e+02	3.6e+03	3.57e+06	7.72e+02	4.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.75e+06	4.96e+02	3.5e+03	3.42e+06	7.72e+02	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.30e+06	4.96e+02	2.6e+03	2.59e+06	7.72e+02	3.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.25e+06	1.46e+03	8.6e+02	2.89e+06	1.78e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.73e+05	1.46e+03	6.0e+02	1.96e+06	1.78e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.19e+06	5.88e+03	2.0e+02	1.50e+06	2.38e+03	6.3e+02
28	13C-1,2,3,7,8-PeCDD	2.10e+06	7.04e+02	3.0e+03	1.32e+06	6.84e+02	1.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.30e+06	1.07e+03	2.2e+03	1.75e+06	8.68e+02	2.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.20e+06	1.07e+03	2.1e+03	1.72e+06	8.68e+02	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.03e+06	3.00e+02	6.8e+03	1.89e+06	3.24e+02	5.8e+03
32	13C-OCDD	1.51e+06	3.44e+02	4.4e+03	1.72e+06	3.00e+02	5.7e+03
33	13C-1,2,3,4-TCDD	1.78e+06	5.88e+03	3.0e+02	2.22e+06	2.38e+03	9.3e+02
34	13C-1,2,3,7,8,9-HxCDD	2.33e+06	1.07e+03	2.2e+03	1.81e+06	8.68e+02	2.1e+03
35	37Cl-2,3,7,8-TCDD	2.95e+04	9.08e+02	3.3e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.180e{+}03 + 9.520e{+}02) \times 2000}{(1.188e{+}06 + 1.502e{+}06) \times (\quad) \times 1.085} =$$

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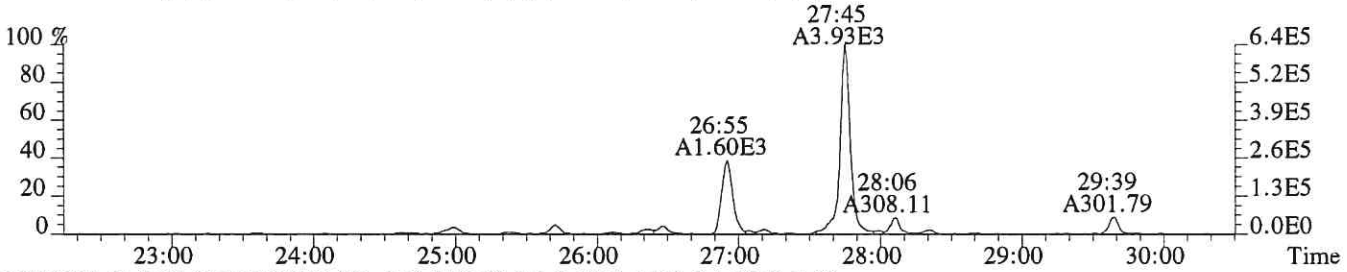
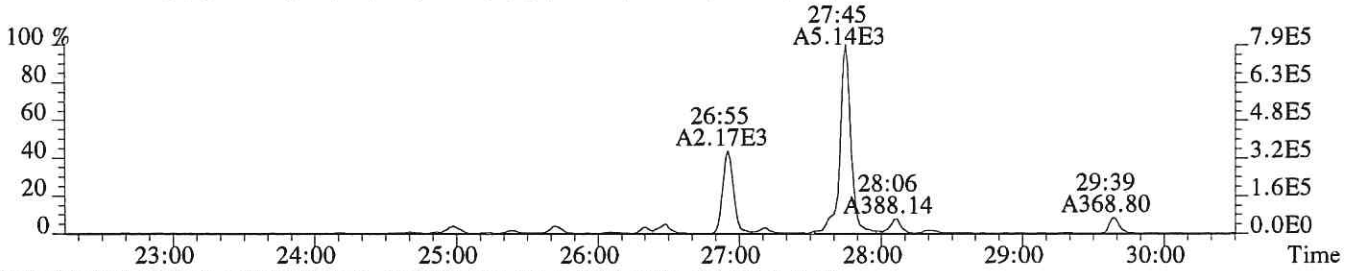
File:P519377 #1-587 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL

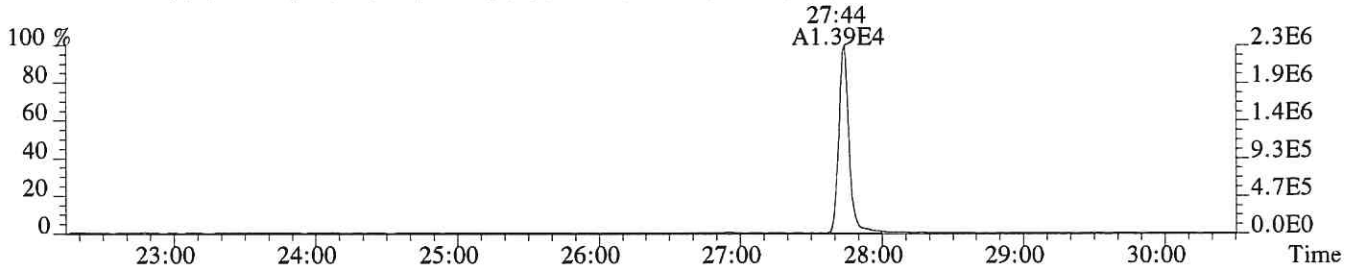
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



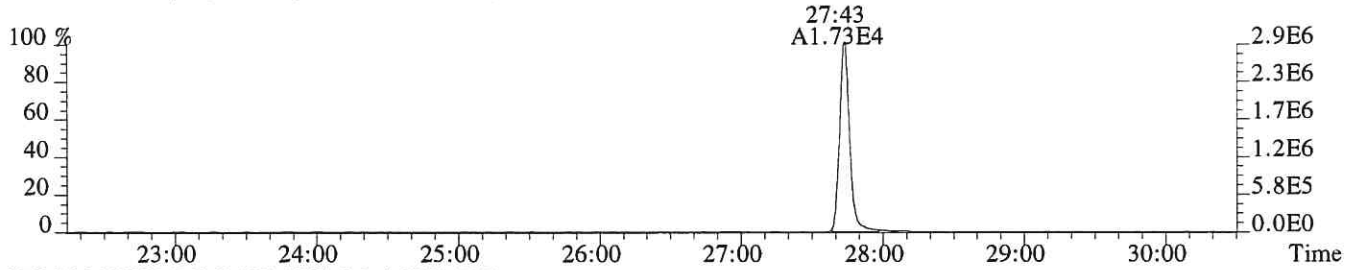
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



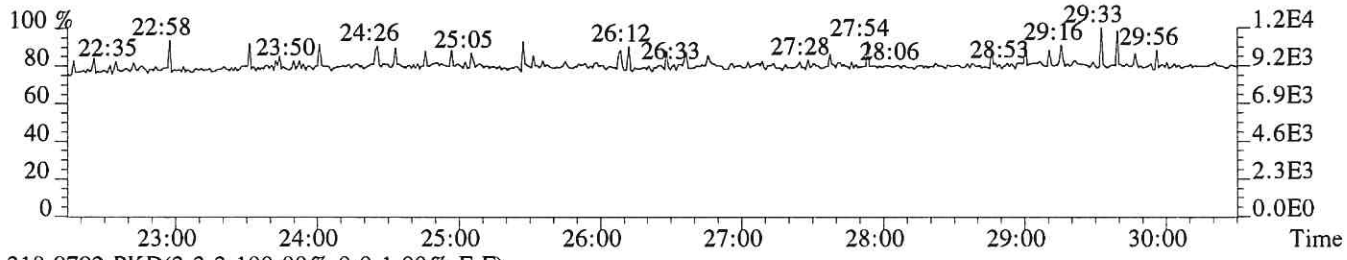
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6580.0,1.00%,F,T)



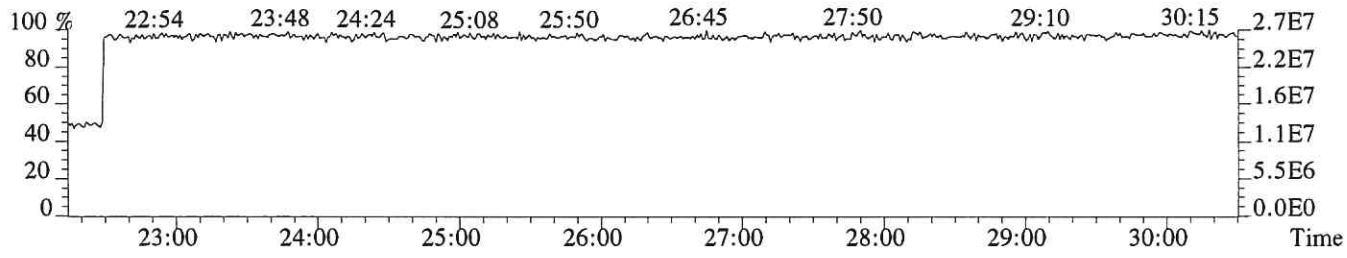
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4908.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

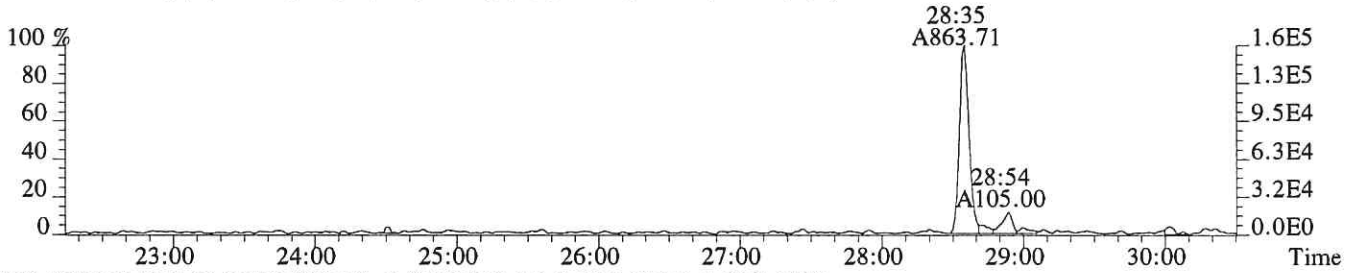


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

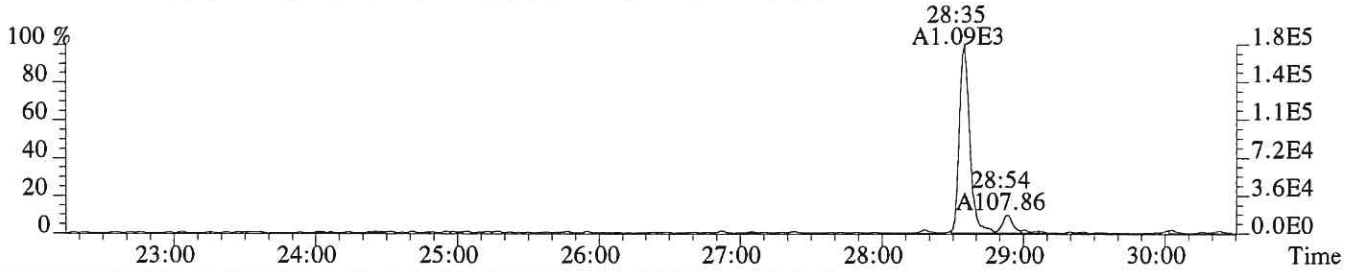


File:P519377 #1-587 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL

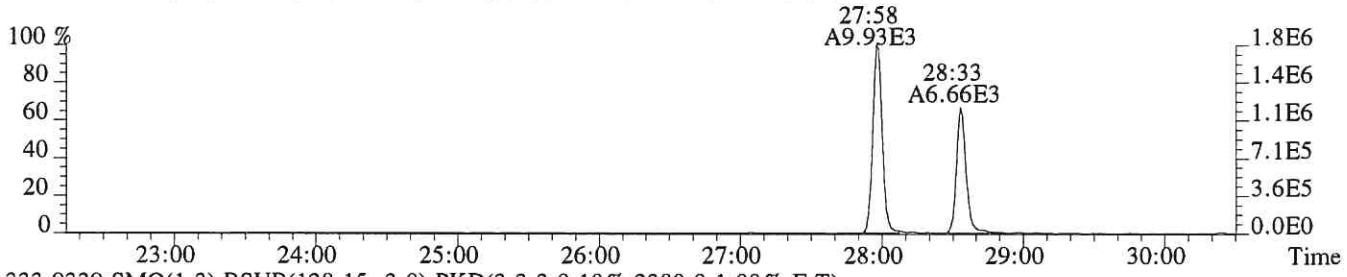
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



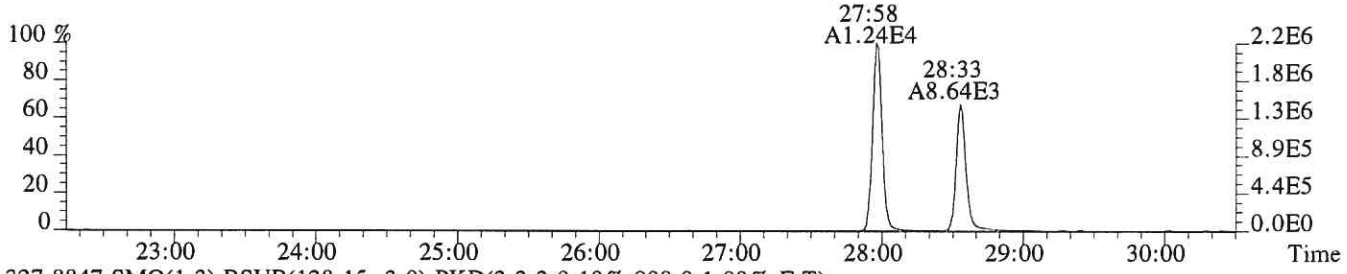
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



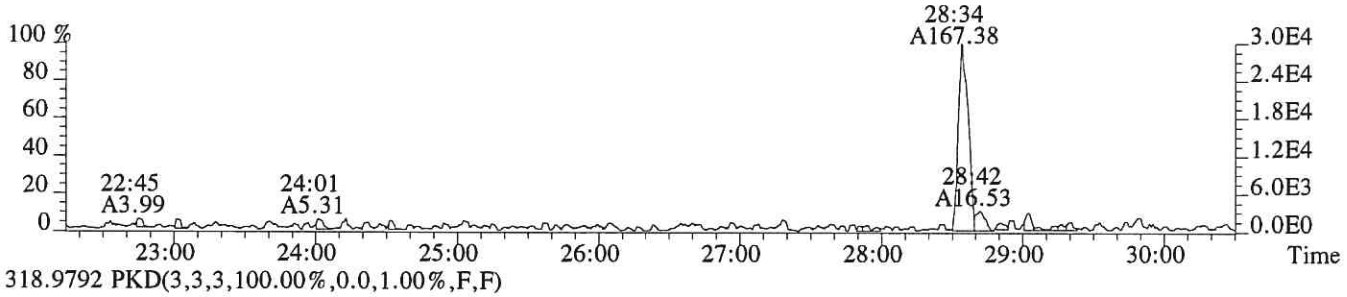
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5884.0,1.00%,F,T)



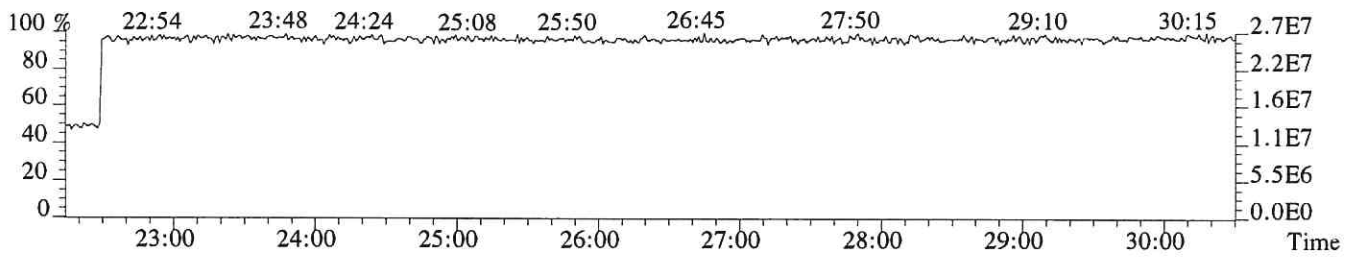
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



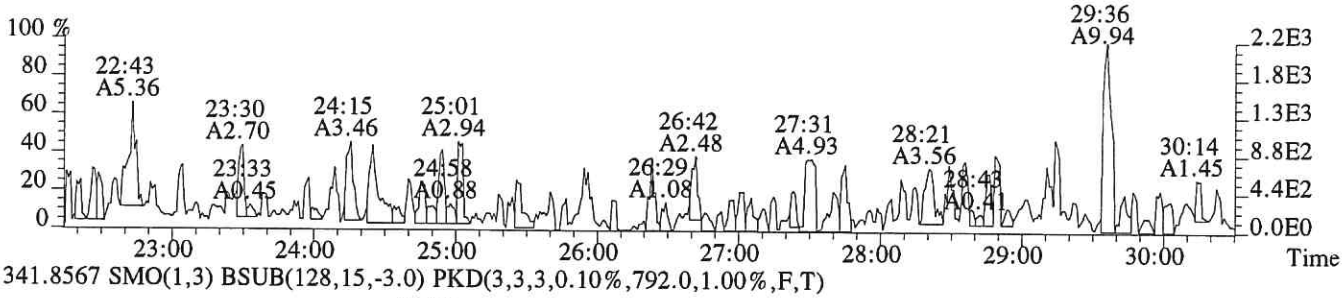
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



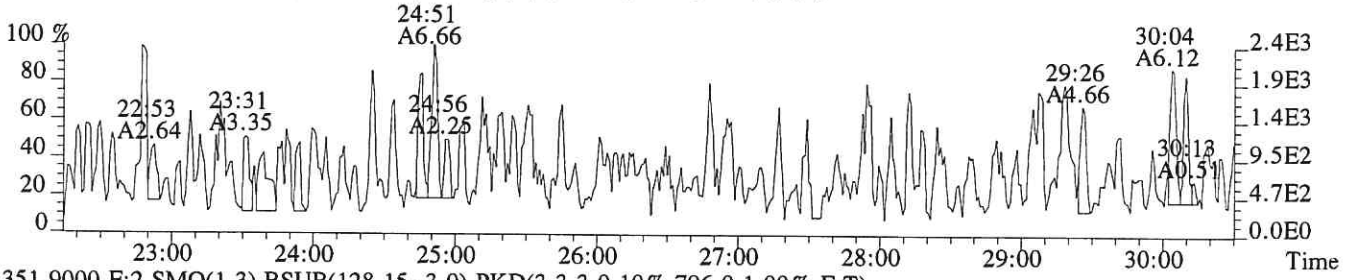
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



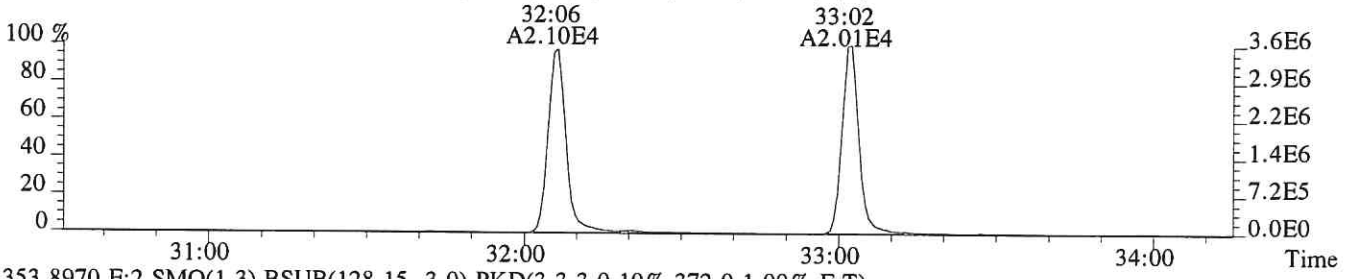
File:P519377 #1-587 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



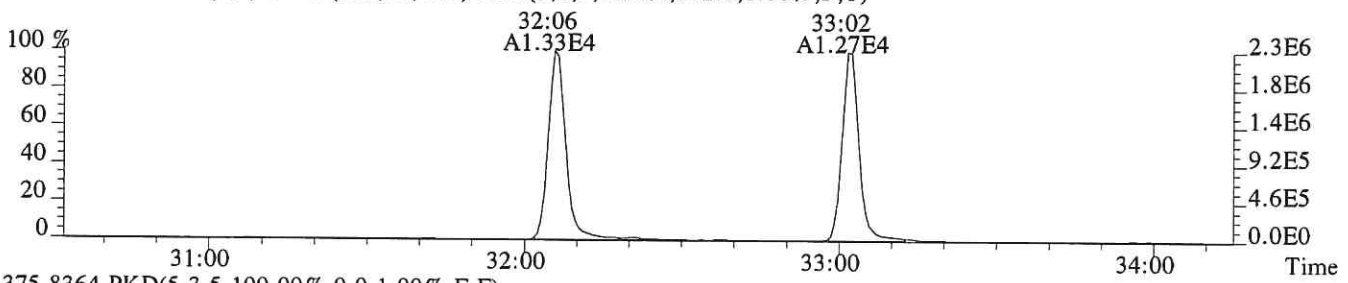
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



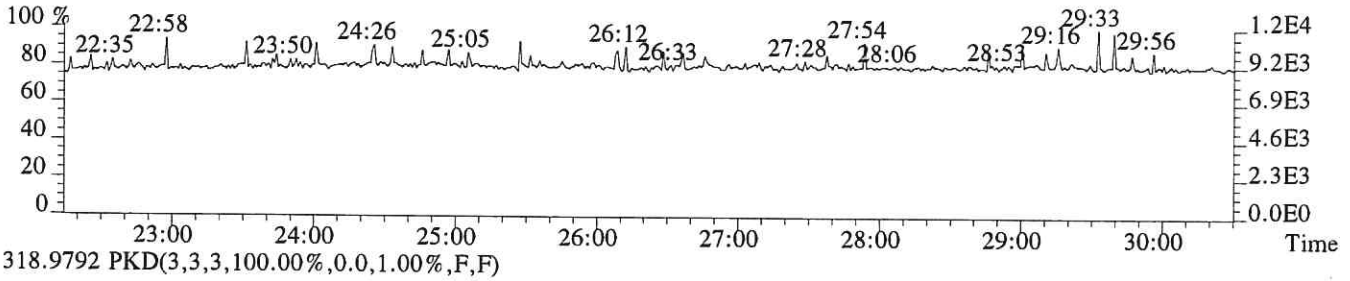
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



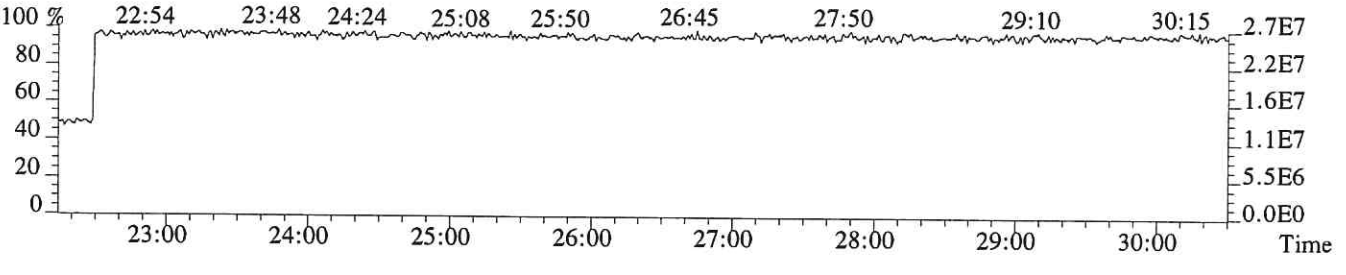
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

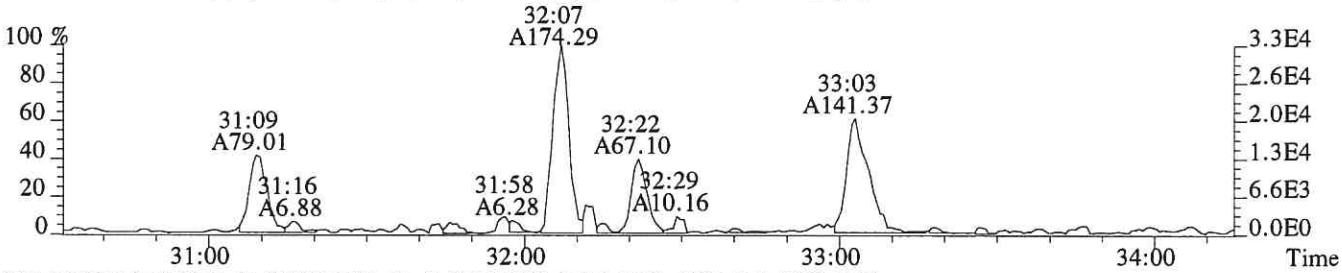


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

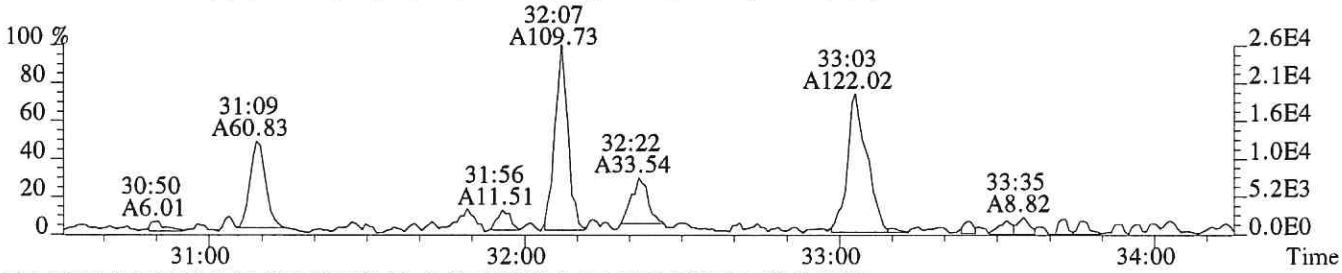


File:P519377 #1-335 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL

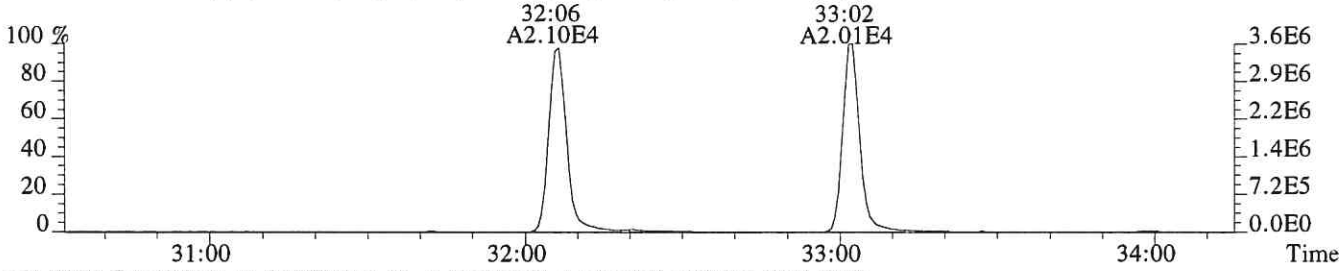
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



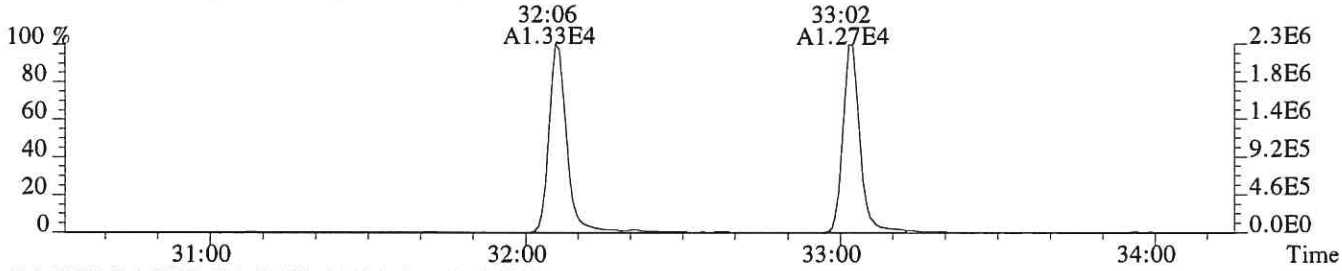
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



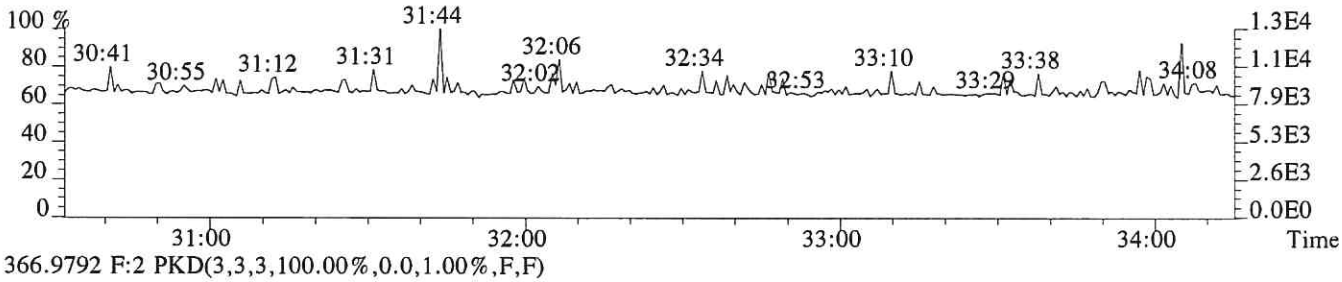
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



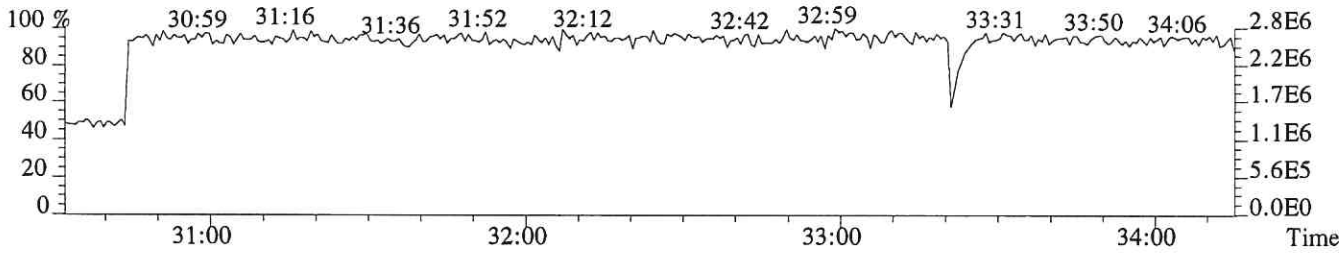
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



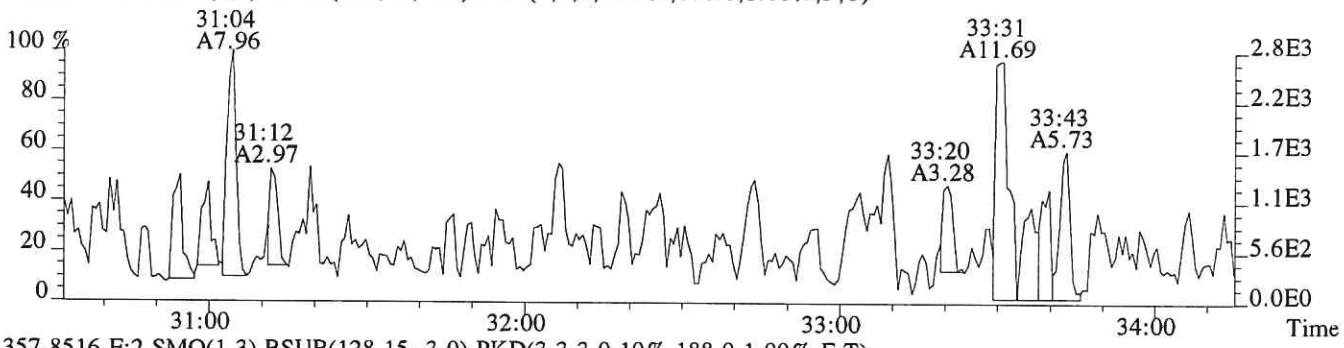
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



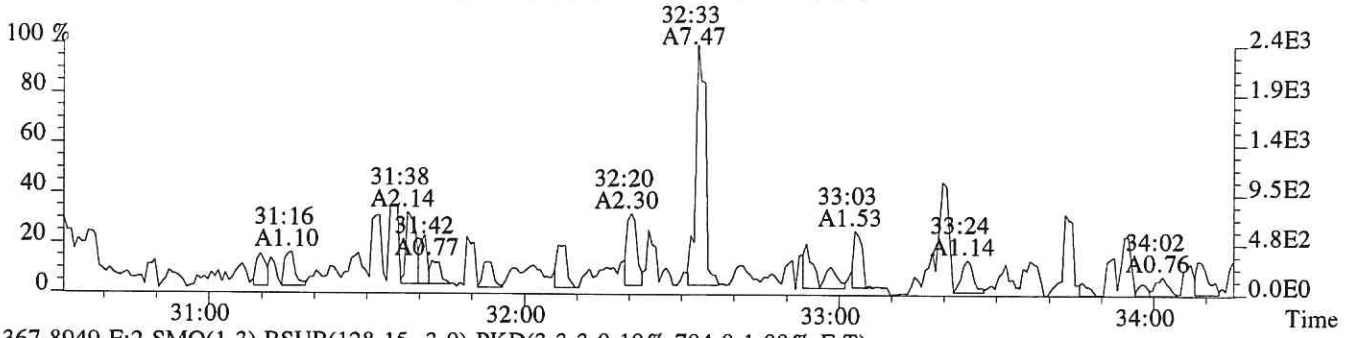
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



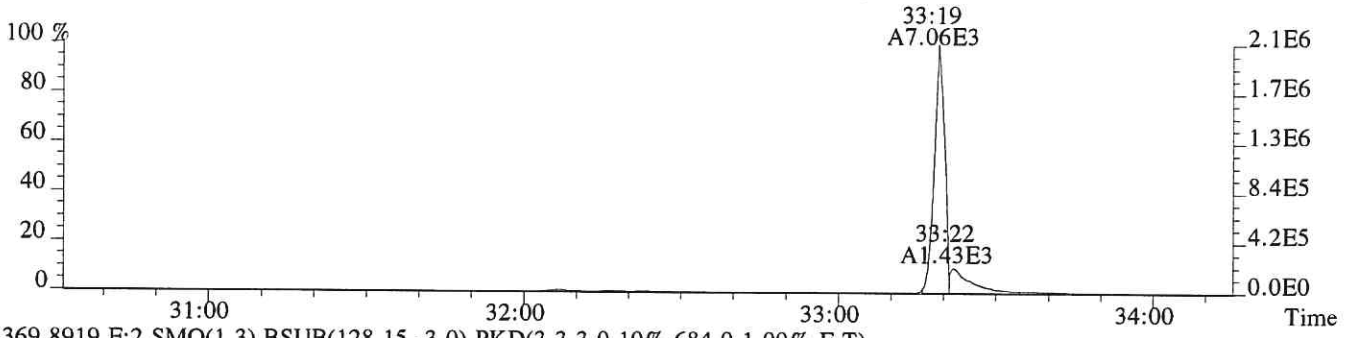
File:P519377 #1-335 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



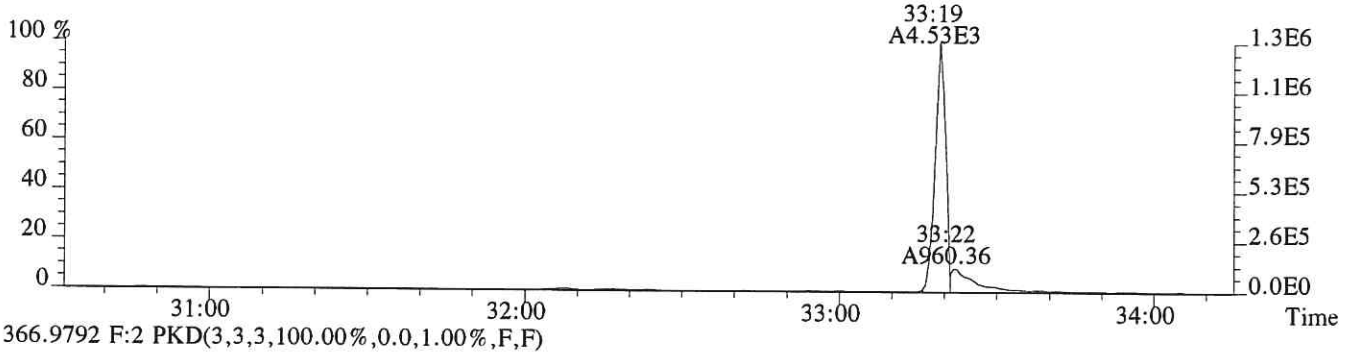
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



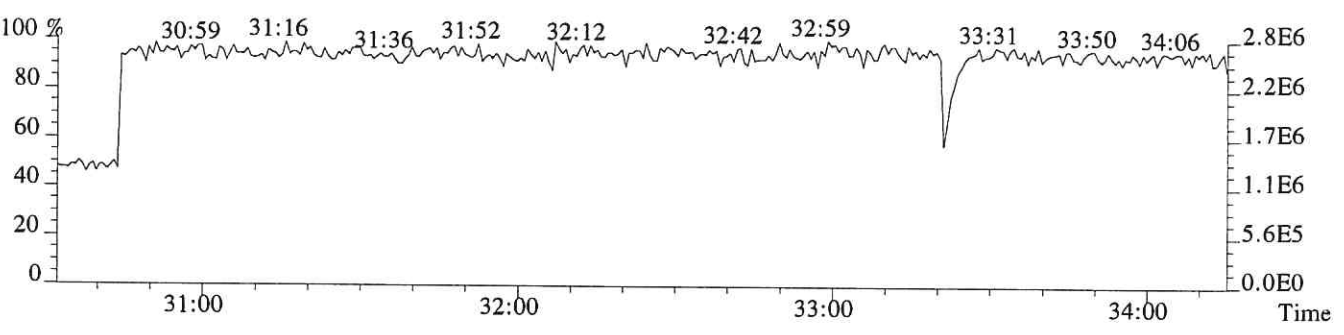
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



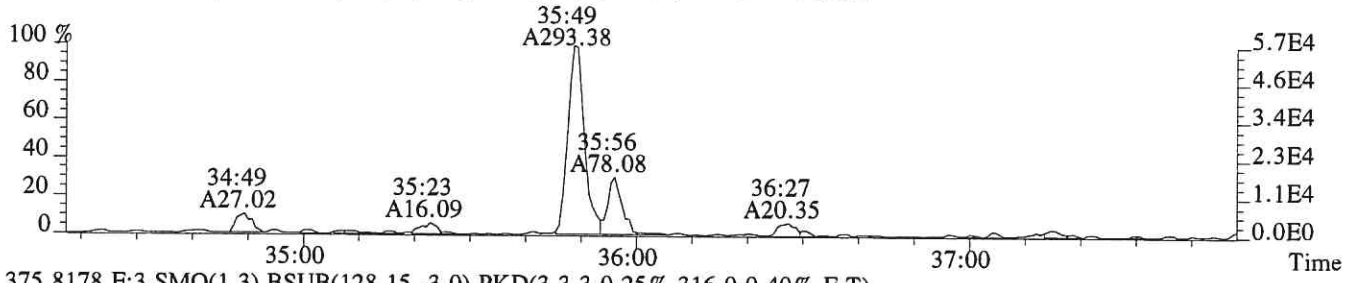
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



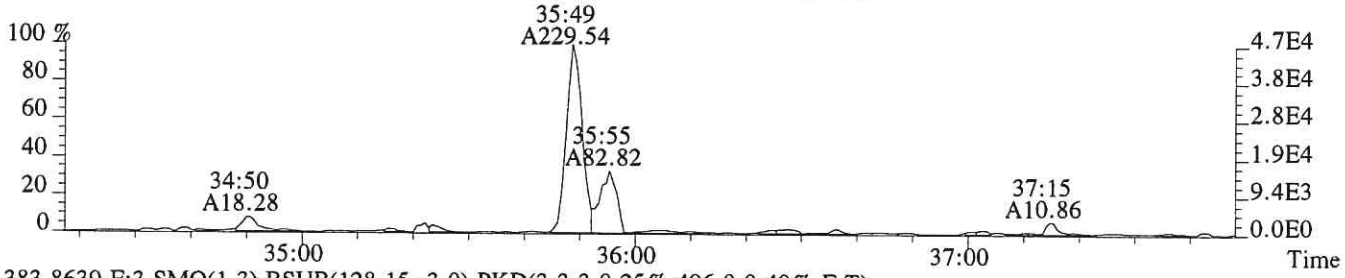
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



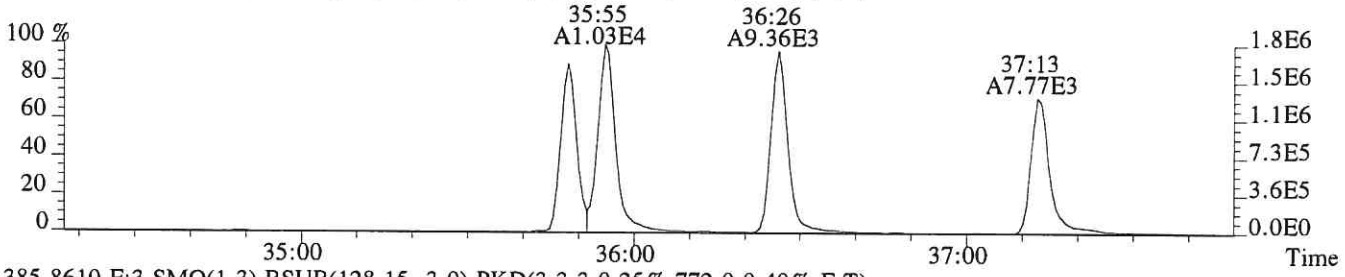
File:P519377 #1-317 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



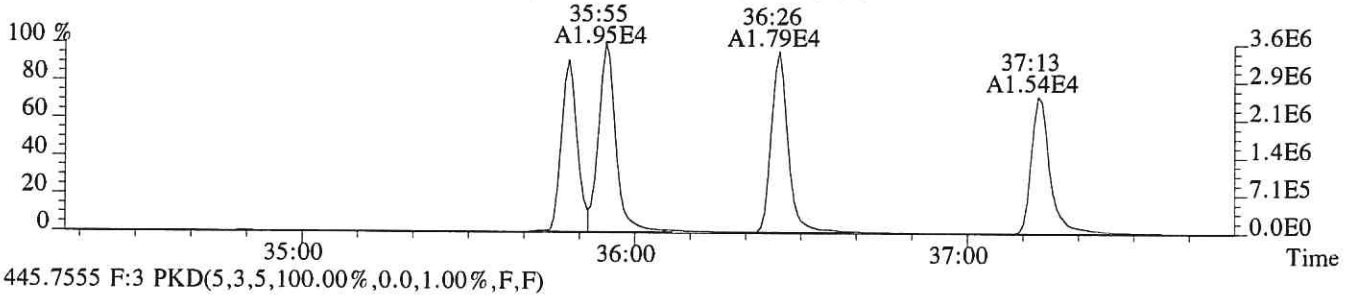
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



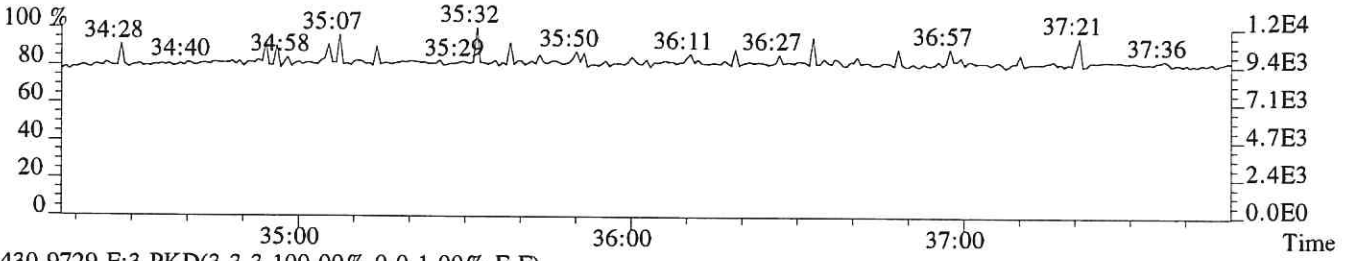
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



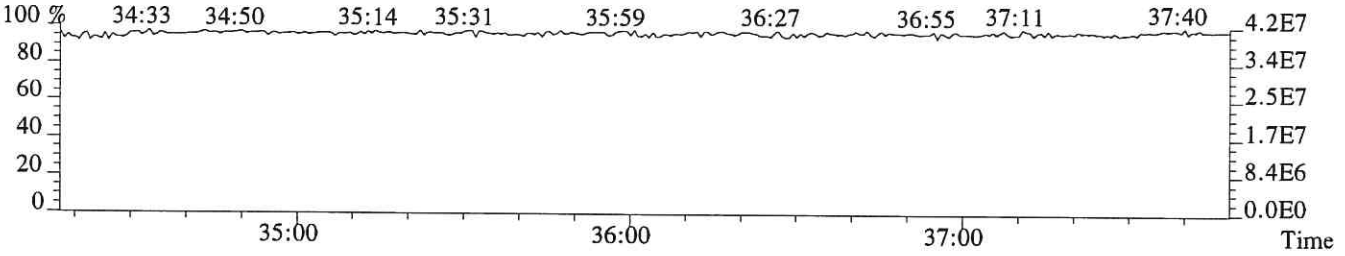
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



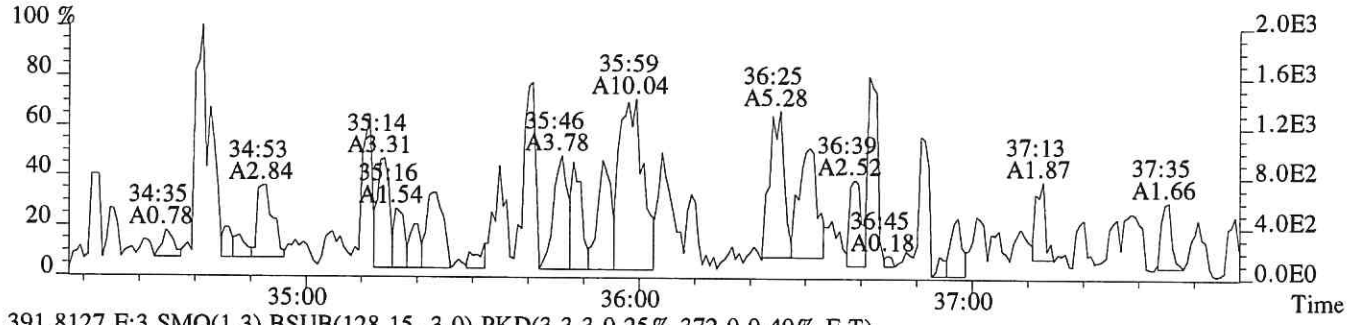
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



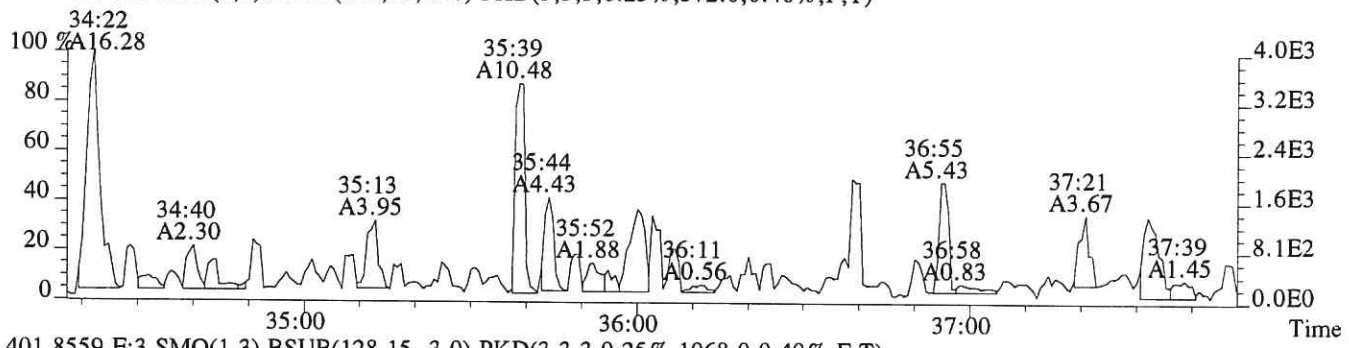
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



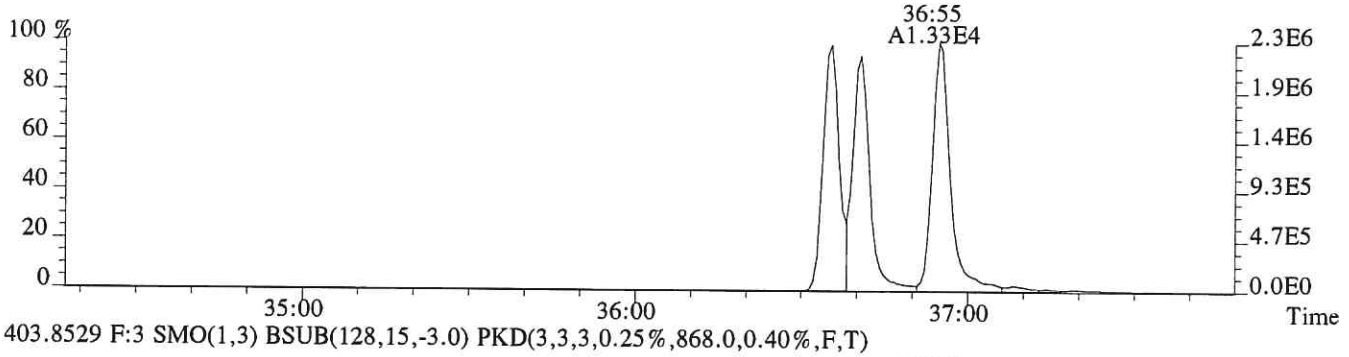
File:P519377 #1-317 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



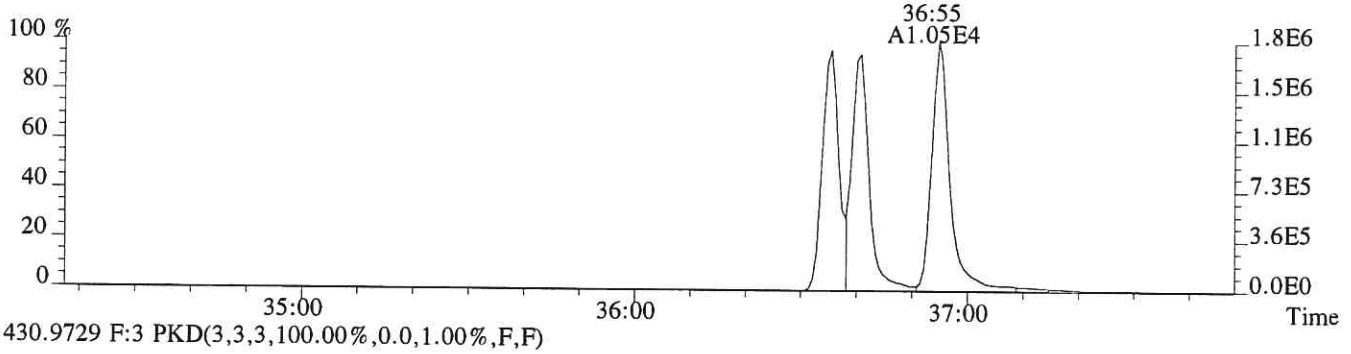
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



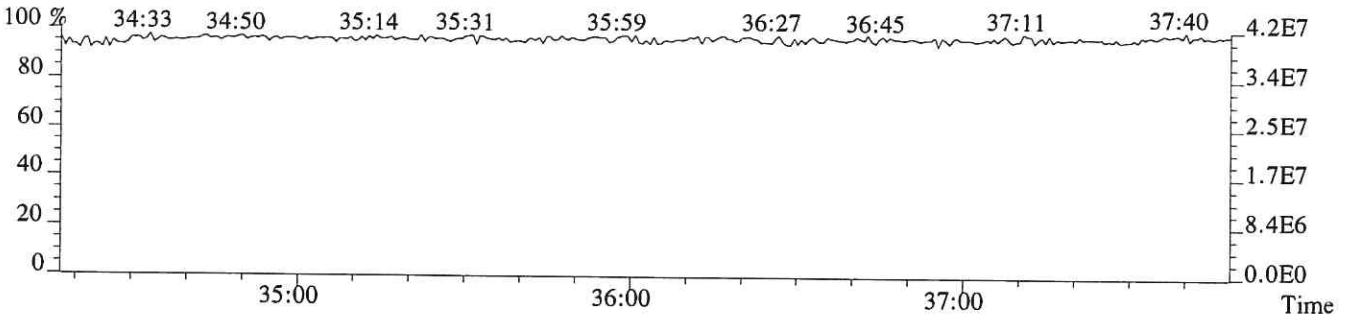
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



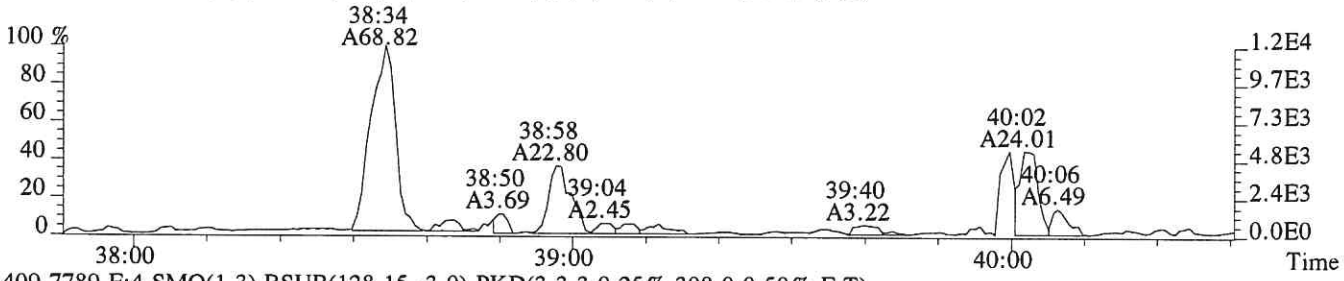
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



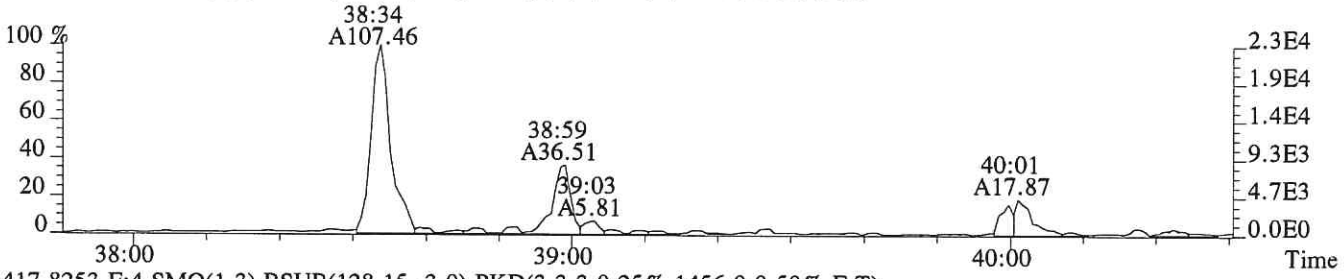
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



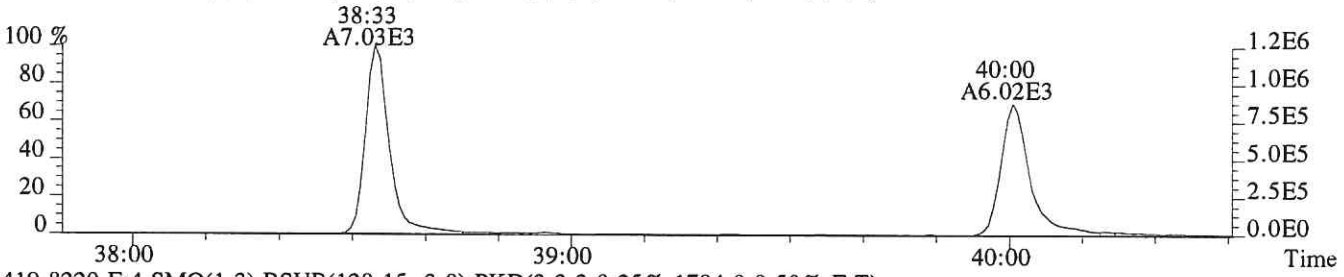
File:P519377 #1-241 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.50%,F,T)



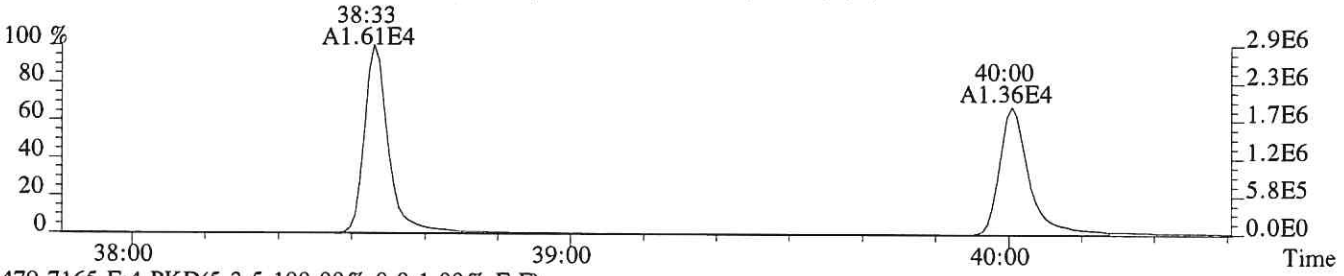
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.50%,F,T)



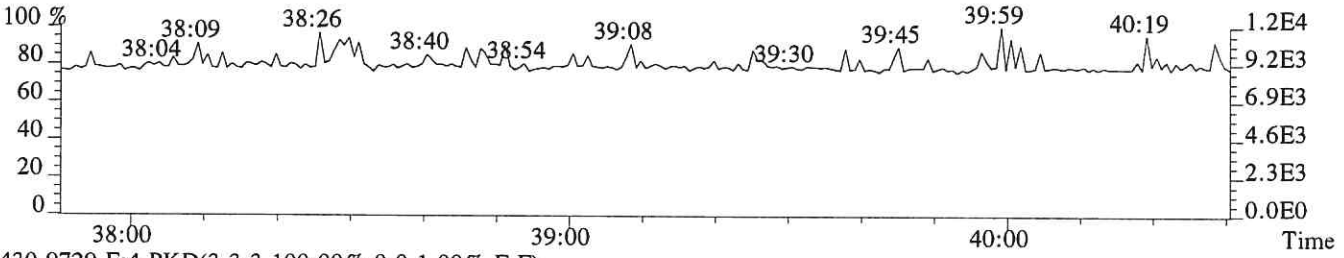
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.50%,F,T)



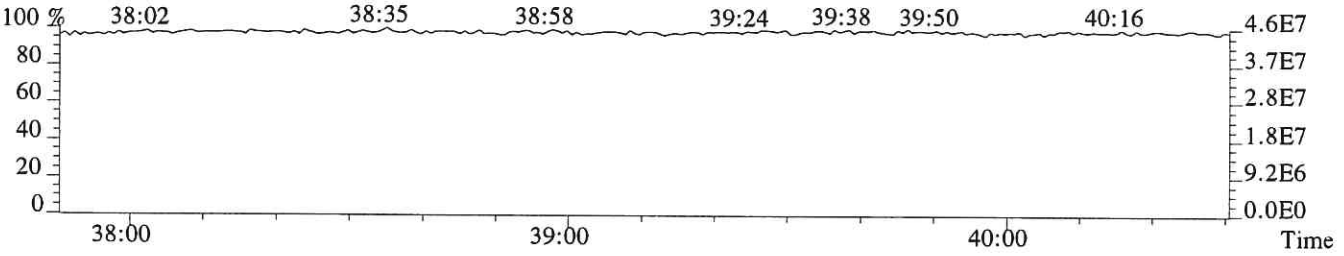
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.50%,F,T)



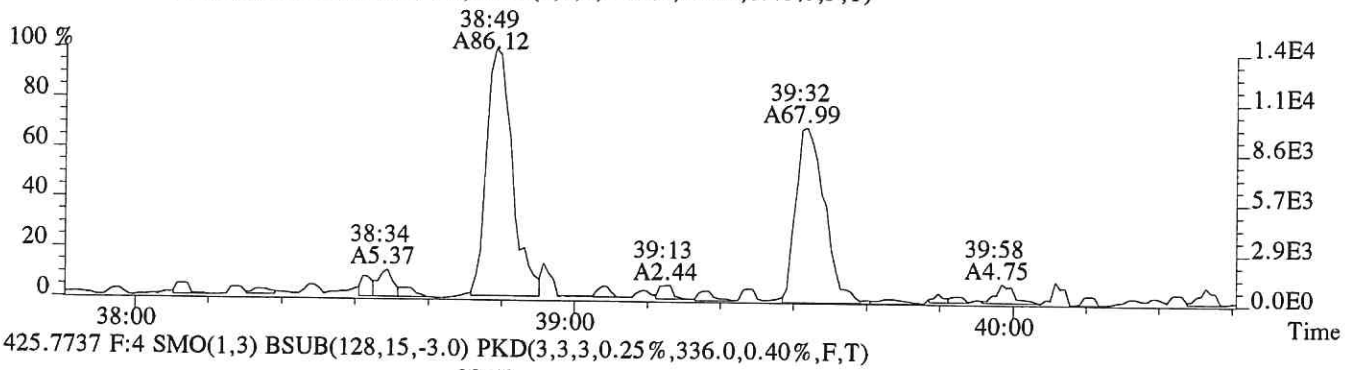
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



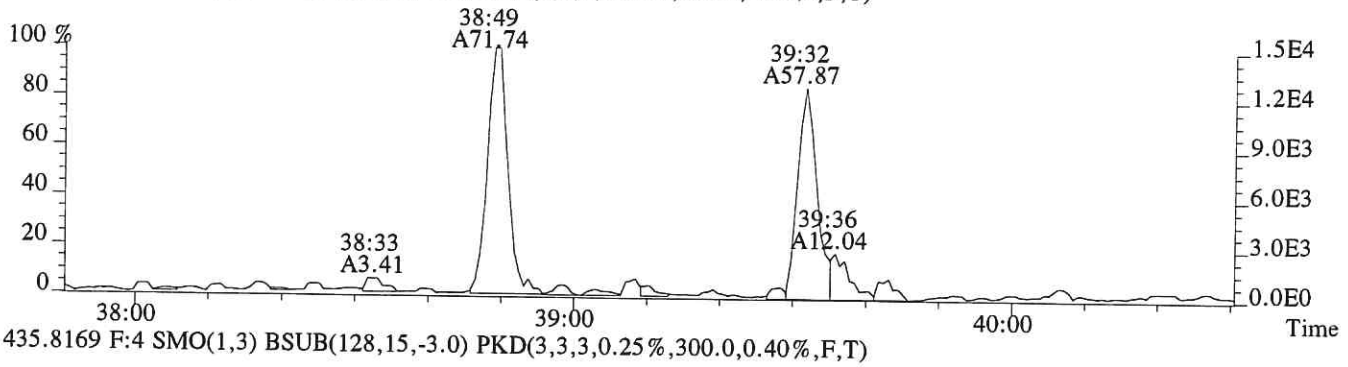
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



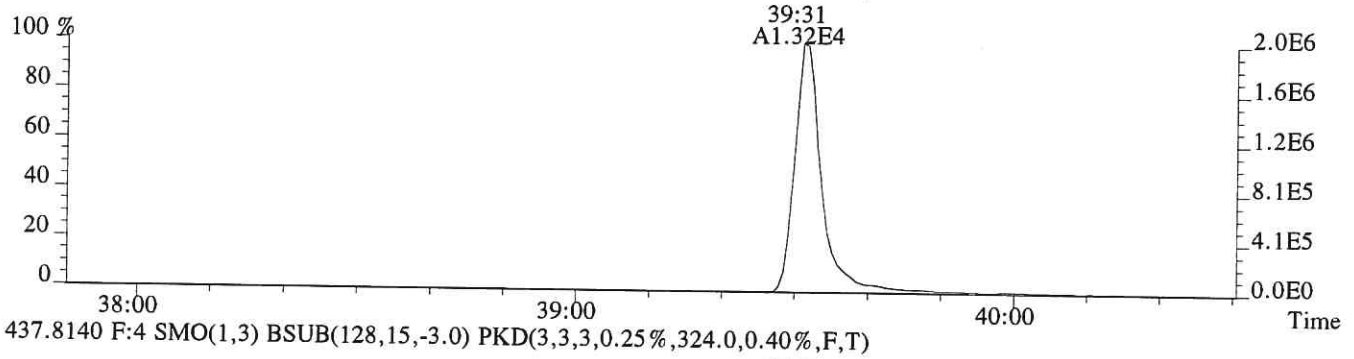
File:P519377 #1-241 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



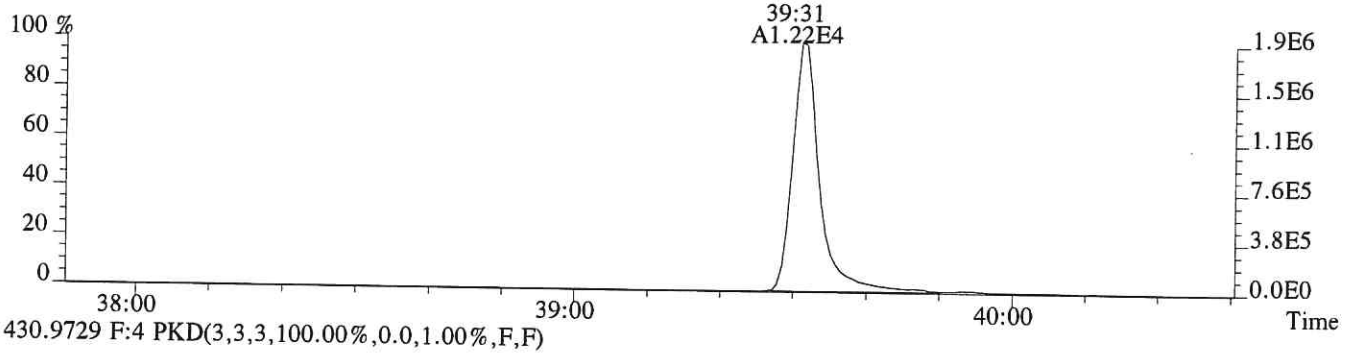
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



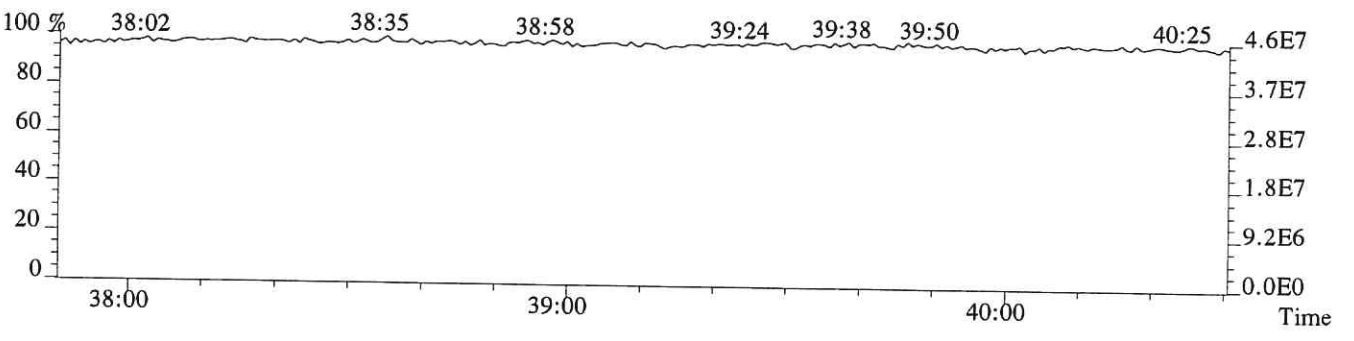
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



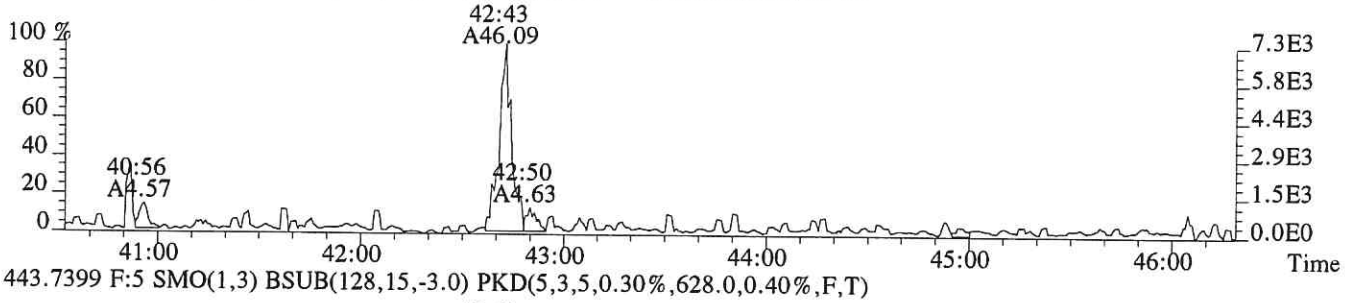
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



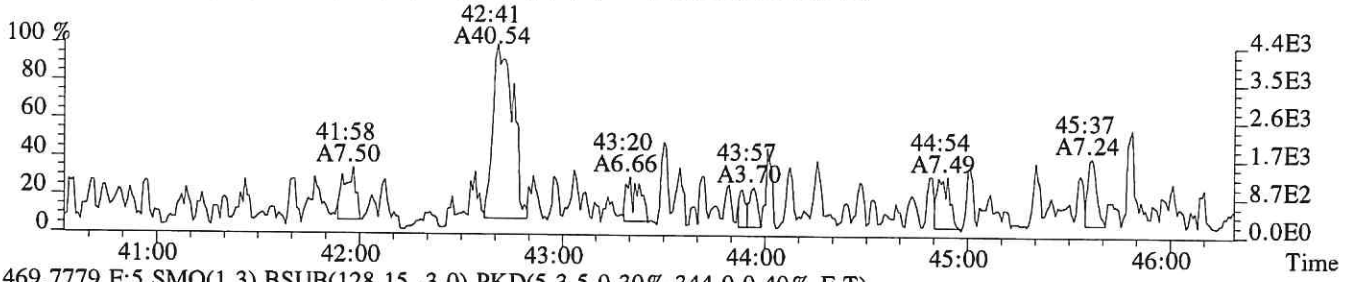
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



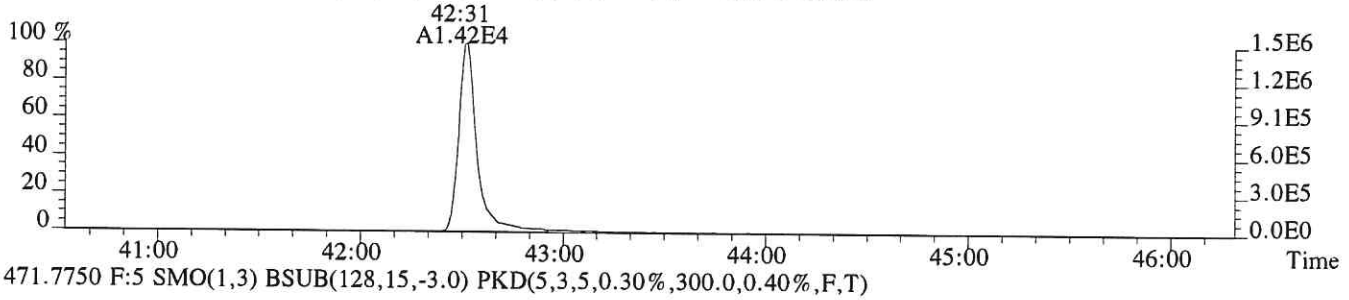
File:P519377 #1-520 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



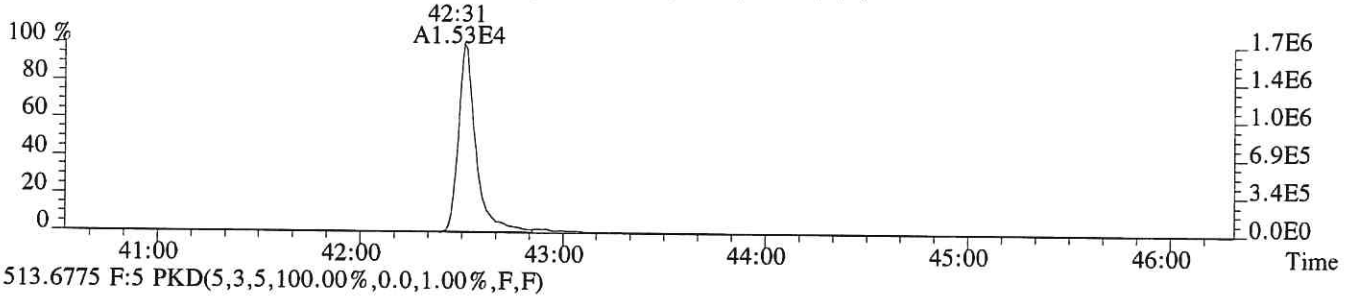
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



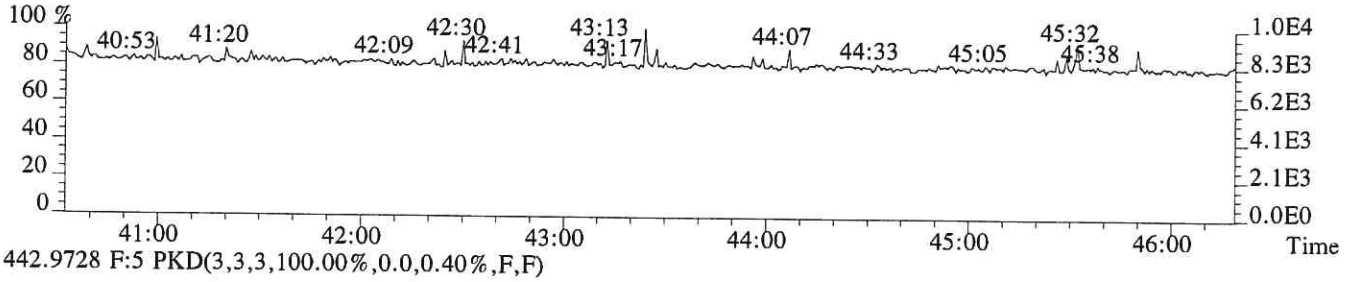
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



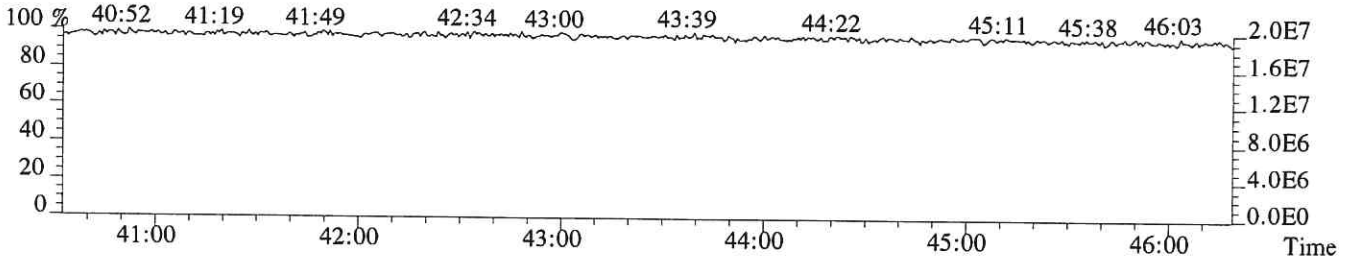
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



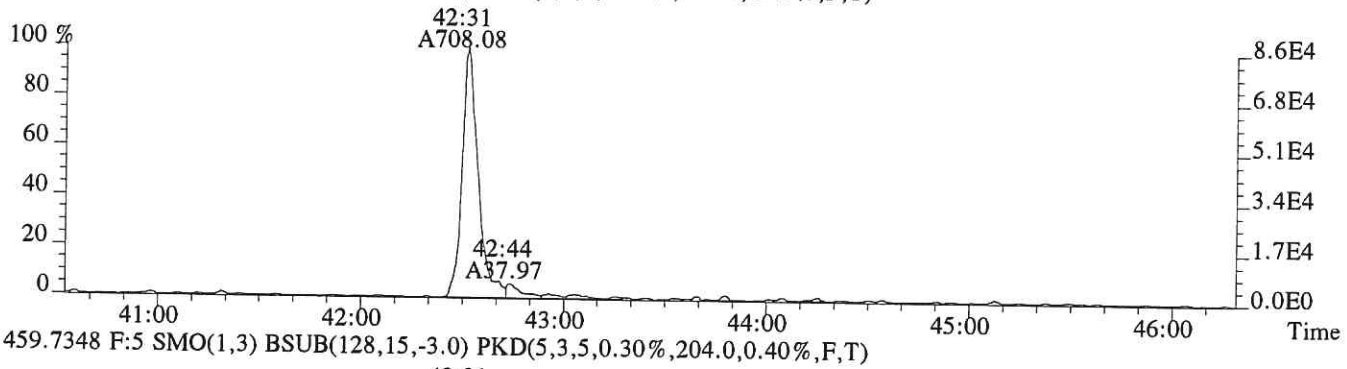
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



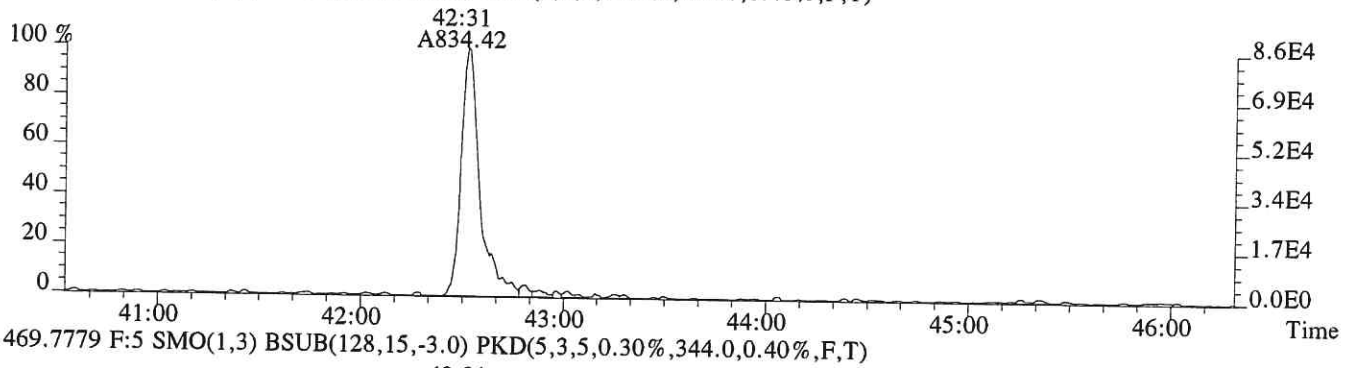
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



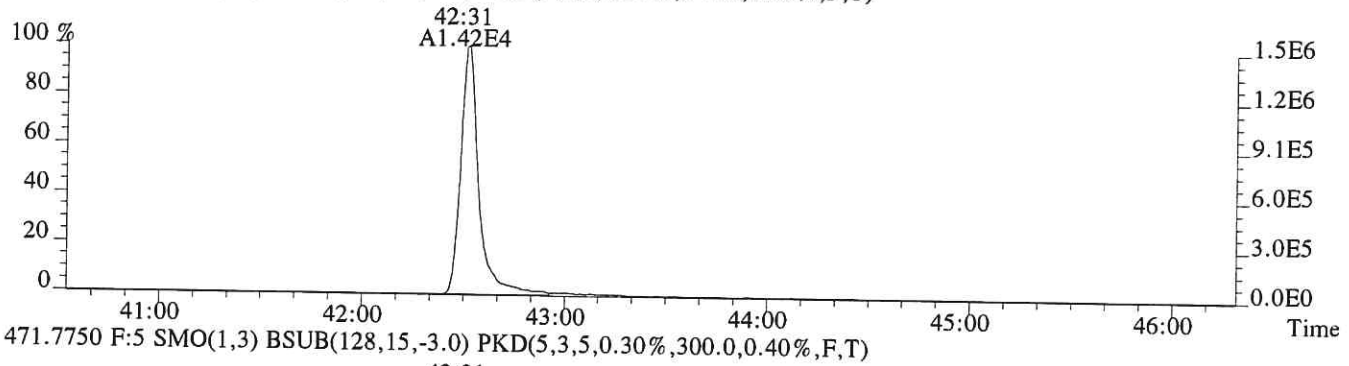
File:P519377 #1-520 Acq:12-DEC-2018 08:43:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-012DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



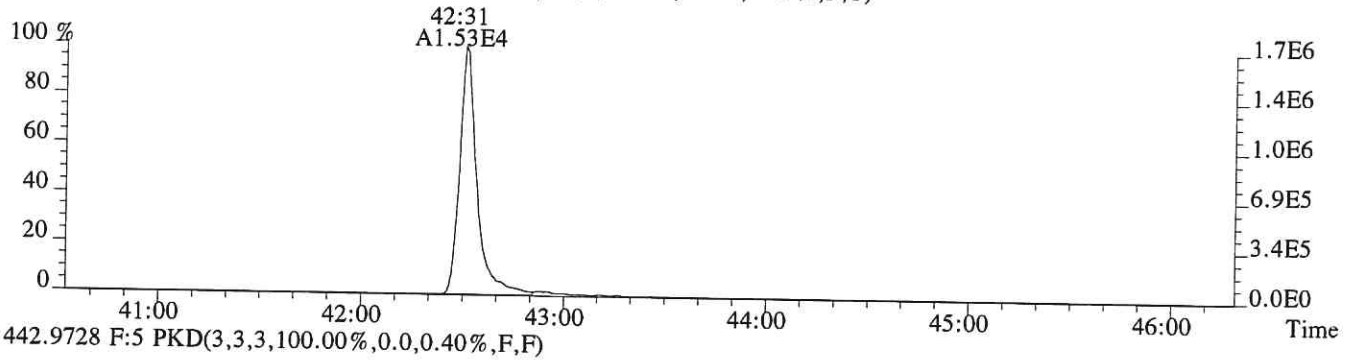
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



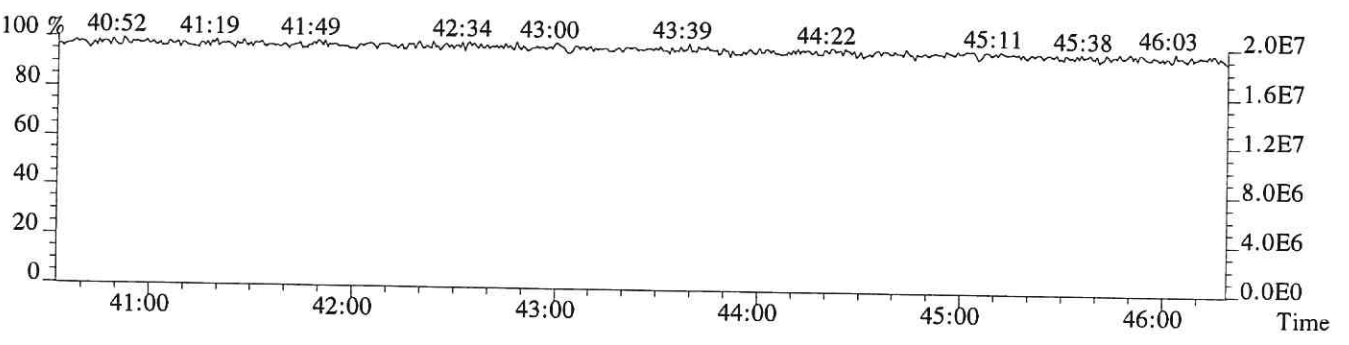
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0562

Run #20 Filename P519317 Samp: 1 Inj: 1 Acquired: 8-DEC-18 19:41:23
Processed: 11-DEC-18 16:59:03 Sample ID: E1801065-013

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:52	8.116e+05	1.044e+06	0.78	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	2.896e+04	1.690e+04	1.71	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.093e+04	2.008e+04	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	4.763e+04	3.887e+04	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	1.203e+04	9.749e+03	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	1.982e+03	1.589e+03	1.25	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:19	2.667e+03	2.457e+03	1.09	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.233e+04	1.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	2.808e+03	2.742e+03	1.02	yes	no	1.258
10	Unk	OCDF	42:51	3.174e+03	3.685e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:40	1.843e+05	2.329e+05	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:25	2.468e+03	1.592e+03	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:40	5.301e+01	4.915e+01	1.08	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:45	3.590e+02	2.832e+02	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:00	1.096e+02	1.090e+02	1.01	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:38	1.052e+04	9.995e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:40	7.134e+04	7.966e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:50	2.354e+04	2.950e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:10	2.769e+04	1.826e+04	1.52	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:06	3.422e+04	2.149e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:52	1.490e+04	2.800e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.672e+04	3.158e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:31	1.539e+04	2.955e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:17	1.478e+04	2.820e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	9.858e+03	2.202e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	7.772e+03	1.785e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:39	1.005e+04	1.258e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:24	2.204e+04	1.370e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:39	1.990e+04	1.535e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	1.951e+04	1.565e+04	1.25	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:37	1.814e+04	1.716e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:39	1.120e+04	1.221e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.264e+04	2.809e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	3.184e+04	2.527e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:40	1.754e+04				no	1.014

$$\text{OCDD} = \frac{(7.134e+04 + 7.966e+04) \times 4000 \text{ pg} \times 1}{(1.120e+04 + 1.221e+04) \times 10.394 \text{ g} \times 81.4 / 100 \times 1.118} = 2727.6372 \text{ ng/kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0562

Run #20 Filename P519317 Samp: 1 Inj: 1 Acquired: 8-DEC-18 19:41:23
Processed: 11-DEC-18 16:59:03 LAB. ID: E1801065-013

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.37e+08	9.08e+02	1.5e+05	1.75e+08	6.16e+02	2.8e+05
2	1,2,3,7,8-PeCDF	5.37e+06	6.80e+03	7.9e+02	3.07e+06	1.86e+03	1.6e+03
3	2,3,4,7,8-PeCDF	5.03e+06	6.80e+03	7.4e+02	3.34e+06	1.86e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	9.47e+06	1.91e+03	5.0e+03	7.88e+06	3.01e+03	2.6e+03
5	1,2,3,6,7,8-HxCDF	2.35e+06	1.91e+03	1.2e+03	1.86e+06	3.01e+03	6.2e+02
6	2,3,4,6,7,8-HxCDF	4.17e+05	1.91e+03	2.2e+02	3.33e+05	3.01e+03	1.1e+02
7	1,2,3,7,8,9-HxCDF	5.08e+05	1.91e+03	2.7e+02	4.59e+05	3.01e+03	1.5e+02
8	1,2,3,4,6,7,8-HpCDF	2.33e+06	1.68e+03	1.4e+03	2.30e+06	2.02e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	4.49e+05	1.68e+03	2.7e+02	4.51e+05	2.02e+03	2.2e+02
10	OCDF	3.86e+05	2.36e+02	1.6e+03	4.10e+05	3.52e+02	1.2e+03
11	2,3,7,8-TCDD	3.44e+07	1.15e+03	3.0e+04	4.37e+07	3.80e+02	1.1e+05
12	1,2,3,7,8-PeCDD	4.77e+05	2.56e+02	1.9e+03	2.93e+05	4.68e+02	6.3e+02
13	1,2,3,4,7,8-HxCDD	1.28e+04	1.23e+03	1.0e+01	1.10e+04	1.66e+03	6.7e+00
14	1,2,3,6,7,8-HxCDD	7.55e+04	1.23e+03	6.2e+01	5.85e+04	1.66e+03	3.5e+01
15	1,2,3,7,8,9-HxCDD	2.54e+04	1.23e+03	2.1e+01	1.86e+04	1.66e+03	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	1.70e+06	1.40e+02	1.2e+04	1.66e+06	3.64e+02	4.6e+03
17	OCDD	8.08e+06	2.08e+02	3.9e+04	8.95e+06	2.92e+02	3.1e+04
18	13C-2,3,7,8-TCDF	4.31e+06	4.68e+03	9.2e+02	5.46e+06	2.28e+03	2.4e+03
19	13C-1,2,3,7,8-PeCDF	5.02e+06	2.44e+03	2.1e+03	3.34e+06	1.48e+03	2.3e+03
20	13C-2,3,4,7,8-PeCDF	6.71e+06	2.44e+03	2.7e+03	4.22e+06	1.48e+03	2.9e+03
21	13C-1,2,3,4,7,8-HxCDF	2.99e+06	2.37e+03	1.3e+03	5.73e+06	1.00e+03	5.7e+03
22	13C-1,2,3,6,7,8-HxCDF	3.26e+06	2.37e+03	1.4e+03	6.13e+06	1.00e+03	6.1e+03
23	13C-2,3,4,6,7,8-HxCDF	3.06e+06	2.37e+03	1.3e+03	5.91e+06	1.00e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.82e+06	2.37e+03	1.2e+03	5.39e+06	1.00e+03	5.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.80e+06	2.22e+03	8.1e+02	4.12e+06	1.78e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.19e+06	2.22e+03	5.4e+02	2.81e+06	1.78e+03	1.6e+03
27	13C-2,3,7,8-TCDD	1.90e+06	2.90e+03	6.6e+02	2.40e+06	1.44e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	4.31e+06	2.04e+02	2.1e+04	2.71e+06	7.24e+02	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	4.28e+06	1.01e+03	4.2e+03	3.24e+06	3.56e+02	9.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.87e+06	1.01e+03	3.8e+03	3.08e+06	3.56e+02	8.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.99e+06	1.96e+02	1.5e+04	2.80e+06	2.08e+02	1.3e+04
32	13C-OCDD	1.28e+06	3.04e+02	4.2e+03	1.38e+06	2.76e+02	5.0e+03
33	13C-1,2,3,4-TCDD	4.18e+06	2.90e+03	1.4e+03	5.12e+06	1.44e+03	3.5e+03
34	13C-1,2,3,7,8,9-HxCDD	5.97e+06	1.01e+03	5.9e+03	4.60e+06	3.56e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.31e+06	6.40e+02	5.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.148e+03 + 3.800e+02) \times 2000}{(1.902e+06 + 2.404e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0562

Entry: 36 Totals Name: Total Tetra-Furans

Run: 20 File: P519317 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 303.9020 305.8990 Tot Response: 3.28e+06 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:48	6.33e+03	8.39e+03	0.75	yes	1.47e+04		n	n
2	25:07	3.66e+04	4.75e+04	0.77	yes	8.41e+04		n	n
3	25:32	9.31e+03	1.23e+04	0.76	yes	2.16e+04		n	n
4	25:50	3.03e+04	3.97e+04	0.76	yes	7.00e+04		n	n
5	26:14	5.34e+03	6.95e+03	0.77	yes	1.23e+04		n	n
6	26:27	2.10e+04	2.78e+04	0.76	yes	4.88e+04		n	n
7	26:35	3.48e+04	4.67e+04	0.75	yes	8.16e+04		n	n
8	27:02	3.26e+05	4.21e+05	0.77	yes	7.47e+05		n	n
9	27:17	1.59e+04	2.02e+04	0.79	yes	3.62e+04		n	n
10	27:52	8.12e+05	1.04e+06	0.78	yes	1.86e+06	2,3,7,8-TCDF	n	n
11	28:12	5.94e+04	7.66e+04	0.78	yes	1.36e+05		n	n
12	28:27	9.66e+03	1.32e+04	0.73	yes	2.29e+04		n	n
13	29:44	6.66e+04	7.79e+04	0.86	yes	1.44e+05		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0562

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 20 File: P519317 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 319.8970 321.8940 Tot Response: 4.60e+05 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:24	2.37e+03	2.81e+03	0.84	yes	5.18e+03		n	n
2	28:40	1.84e+05	2.33e+05	0.79	yes	4.17e+05	2,3,7,8-TCDD	n	n
3	28:59	1.71e+04	2.10e+04	0.81	yes	3.81e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0562

Entry: 38 Totals Name: Total Penta-Furans1

Run: 20 File: P519317 Sample:1 Injection:1 Function:1

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 339.8600 341.8570 Tot Response: 1.01e+03 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:44	6.35e+02	3.76e+02 1.69	yes	1.01e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0562

Entry: 39 Totals Name: Total Penta-Furans2

Run: 20 File: P519317 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 339.8600 341.8570 Tot Response: 1.44e+05 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:08	3.55e+02	2.17e+02	1.64	yes	5.71e+02		n	n
2	31:14	1.34e+04	7.90e+03	1.69	yes	2.13e+04		n	n
3	31:52	7.84e+02	5.18e+02	1.51	yes	1.30e+03		n	n
4	32:01	3.54e+03	2.18e+03	1.62	yes	5.72e+03		n	n
5	32:12	2.90e+04	1.69e+04	1.71	yes	4.59e+04	1,2,3,7,8-PeCDF	n	n
6	32:27	9.76e+03	5.80e+03	1.68	yes	1.56e+04		n	n
7	33:02	4.60e+02	2.83e+02	1.62	yes	7.43e+02		n	n
8	33:07	3.09e+04	2.01e+04	1.54	yes	5.10e+04	2,3,4,7,8-PeCDF	n	n
9	34:03	1.31e+03	7.73e+02	1.69	yes	2.08e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0562

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 20 File: P519317 Sample:1 Injection:1 Function:2

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 355.8550 357.8520 Tot Response: 4.57e+03 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:17	1.40e+02	8.29e+01	1.69	yes	2.23e+02		n	n
2	32:22	1.31e+02	9.82e+01	1.33	yes	2.29e+02		n	n
3	33:25	2.47e+03	1.59e+03	1.55	yes	4.06e+03	1,2,3,7,8-PeCDD	n	n
4	33:48	3.91e+01	2.45e+01	1.60	yes	6.36e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0562

Entry: 41 Totals Name: Total Hexa-Furans

Run: 20 File: P519317 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 373.8210 375.8180 Tot Response: 1.28e+05 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:45	3.95e+02	3.27e+02	1.21	yes	7.22e+02		n	n
2	34:54	3.62e+03	2.85e+03	1.27	yes	6.47e+03		n	n
3	35:26	2.18e+03	1.82e+03	1.20	yes	4.00e+03		n	n
4	35:53	4.76e+04	3.89e+04	1.23	yes	8.65e+04	1,2,3,4,7,8-HxCDF	n	n
5	36:00	1.20e+04	9.75e+03	1.23	yes	2.18e+04	1,2,3,6,7,8-HxCDF	n	n
6	36:31	1.98e+03	1.59e+03	1.25	yes	3.57e+03	2,3,4,6,7,8-HxCDF	n	n
7	37:19	2.67e+03	2.46e+03	1.09	yes	5.12e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0562

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 20 File: P519317 Sample:1 Injection:1 Function:3

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 389.8160 391.8130 Tot Response: 4.35e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	1.05e+03	8.71e+02	1.20	yes	1.92e+03		n	n
2	36:04	9.48e+02	7.36e+02	1.29	yes	1.68e+03		n	n
3	36:40	5.30e+01	4.91e+01	1.08	yes	1.02e+02	1,2,3,4,7,8-HxCDD	n	n
4	36:45	3.59e+02	2.83e+02	1.27	yes	6.42e+02	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0562

Entry: 43 Totals Name: Total Hepta-Furans

Run: 20 File: P519317 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 407.7820 409.7790 Tot Response: 4.11e+04 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:38	1.23e+04	1.21e+04 1.02	yes	2.44e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:04	5.53e+03	5.66e+03 0.98	yes	1.12e+04		n	n
3	40:06	2.81e+03	2.74e+03 1.02	yes	5.55e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0562

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 20 File: P519317 Sample:1 Injection:1 Function:4

Acquired: 8-DEC-18 19:41:23 Processed: 11-DEC-18 16:59:03

Mass: 423.7770 425.7740 Tot Response: 3.95e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:54	9.69e+03	9.27e+03	1.05	yes	1.90e+04		n	n
2	39:38	1.05e+04	9.99e+03	1.05	yes	2.05e+04	1,2,3,4,6,7,8-HpCDD	n	n

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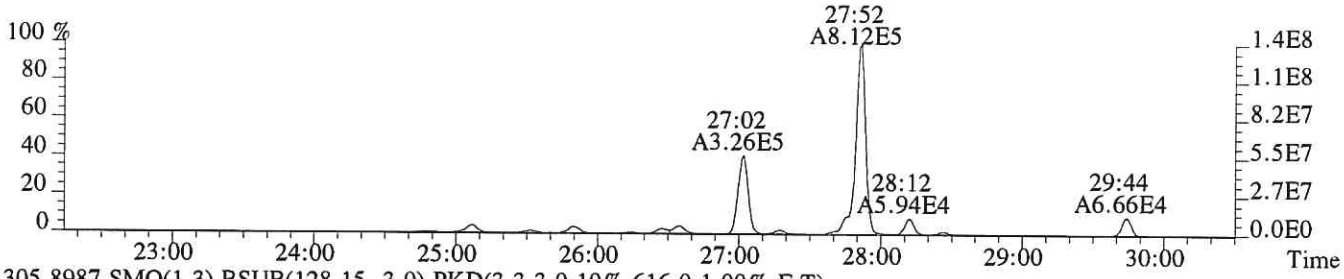
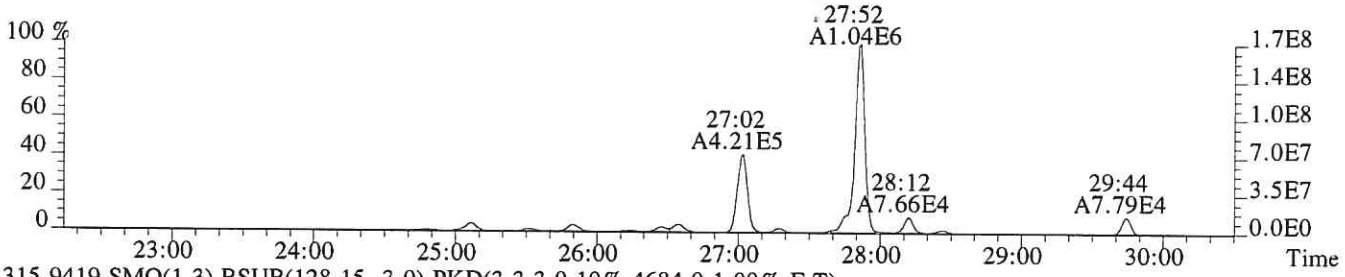
File:P519317 #1-587 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013

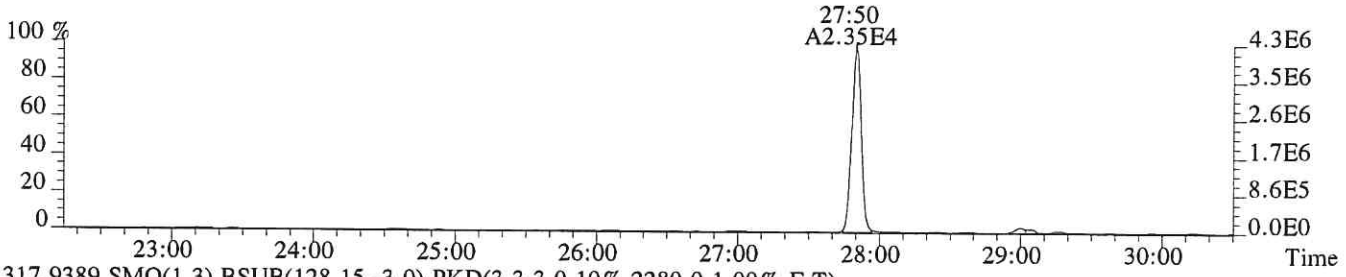
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



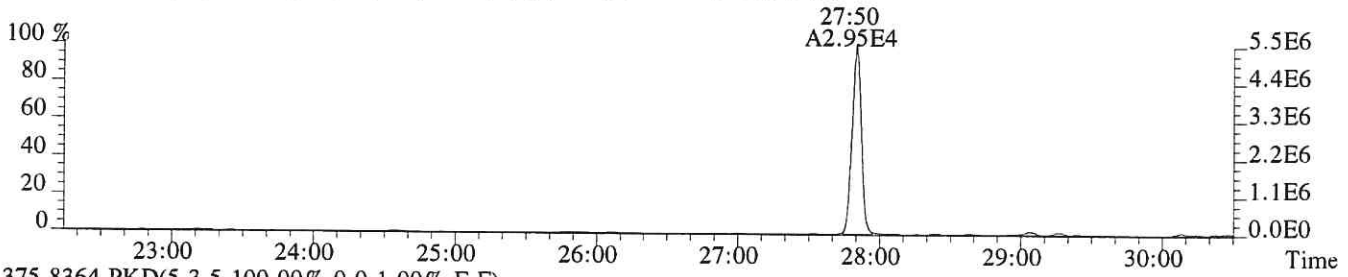
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



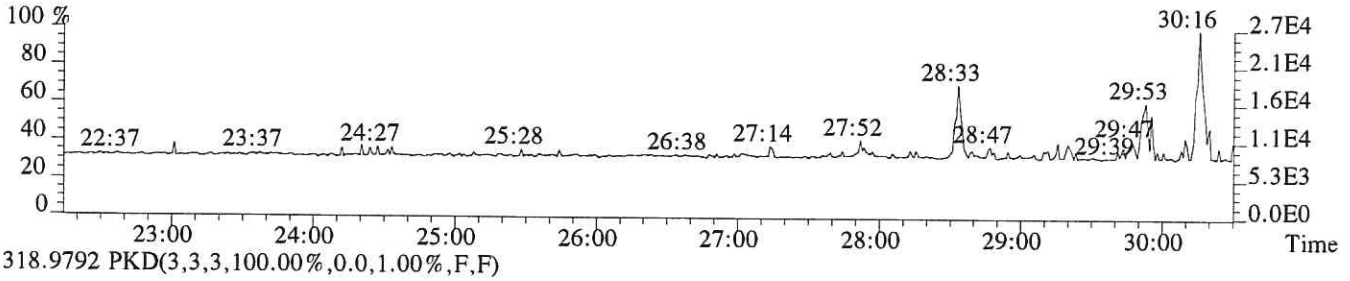
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4684.0,1.00%,F,T)



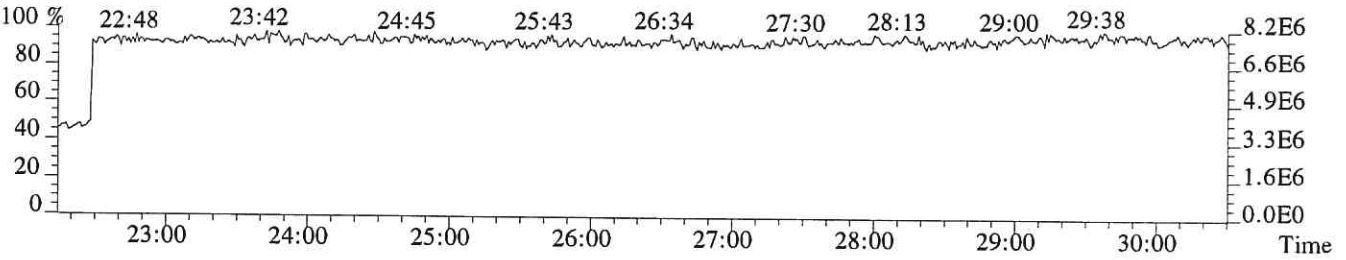
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



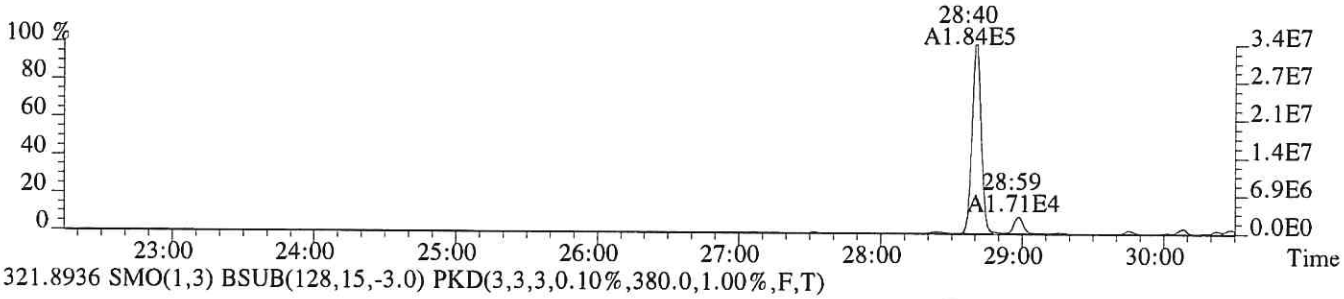
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



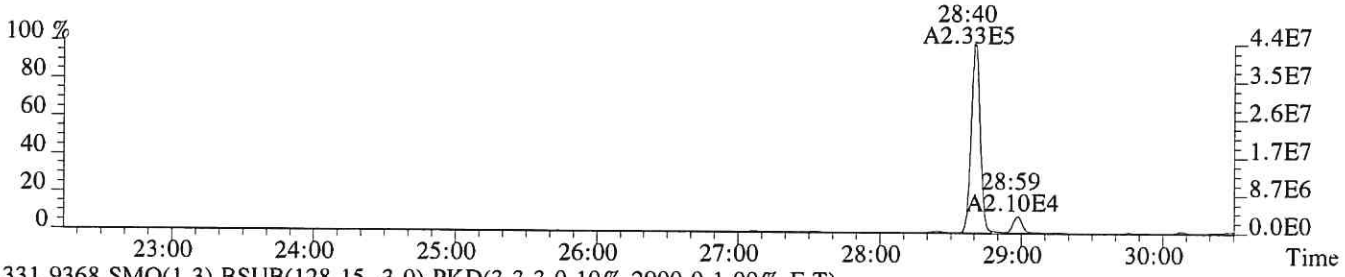
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



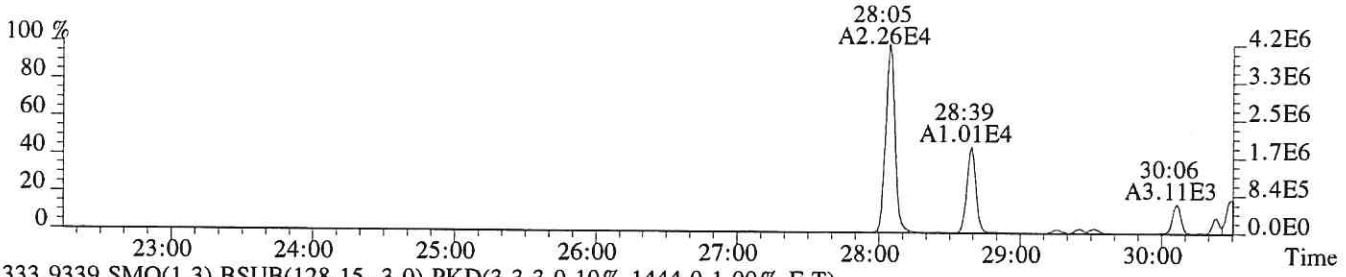
File:P519317 #1-587 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



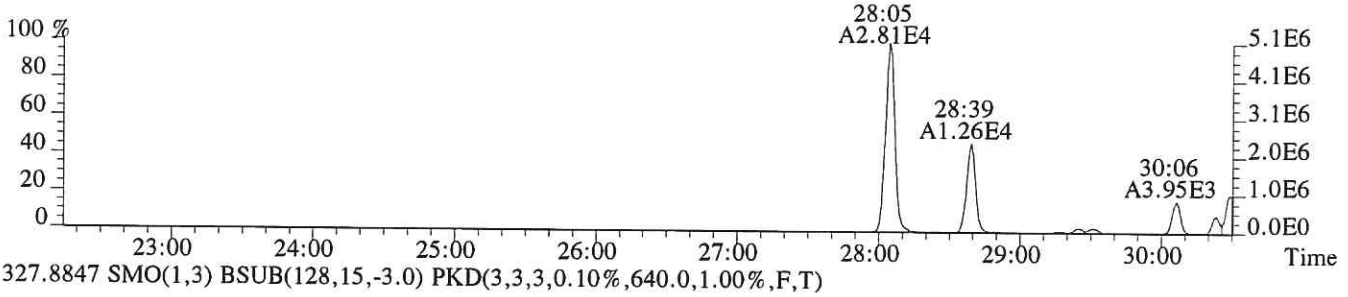
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



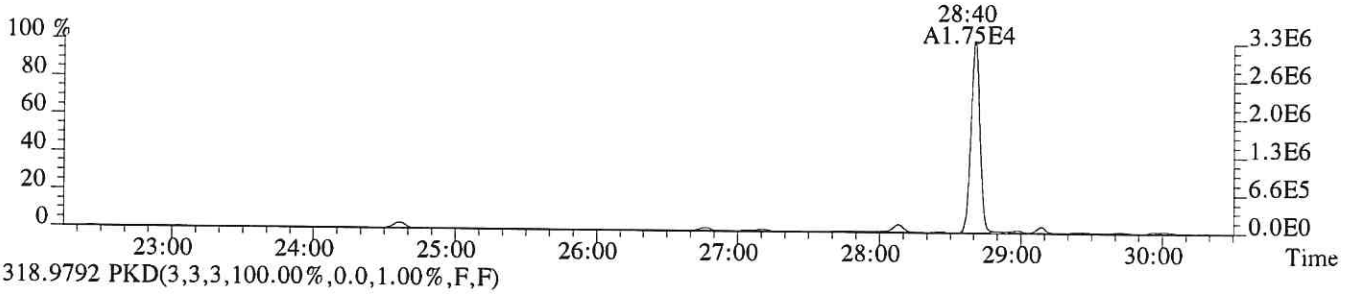
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



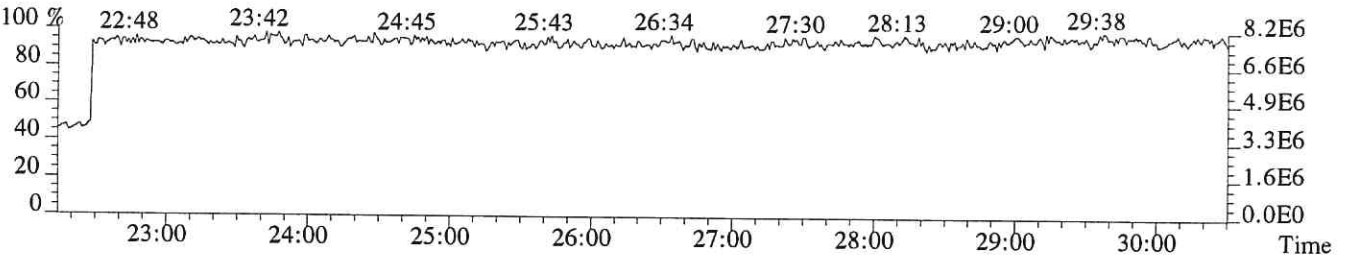
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



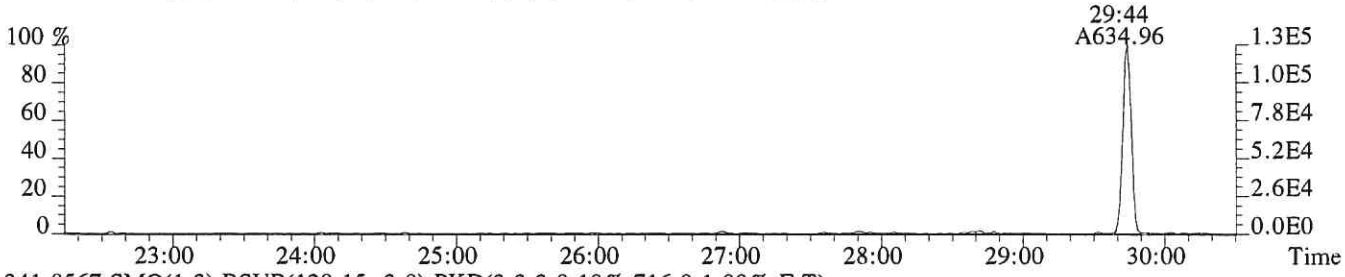
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



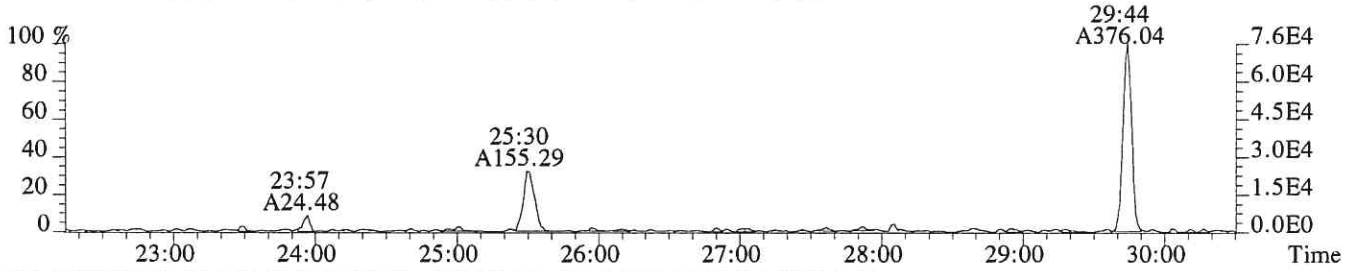
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



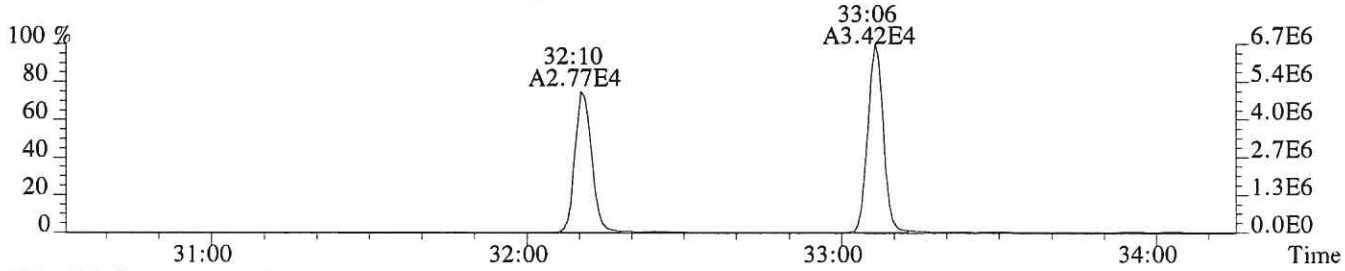
File:P519317 #1-587 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



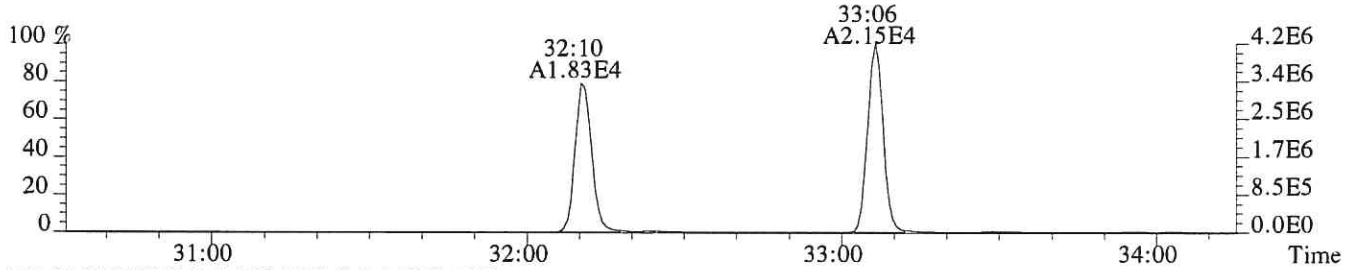
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



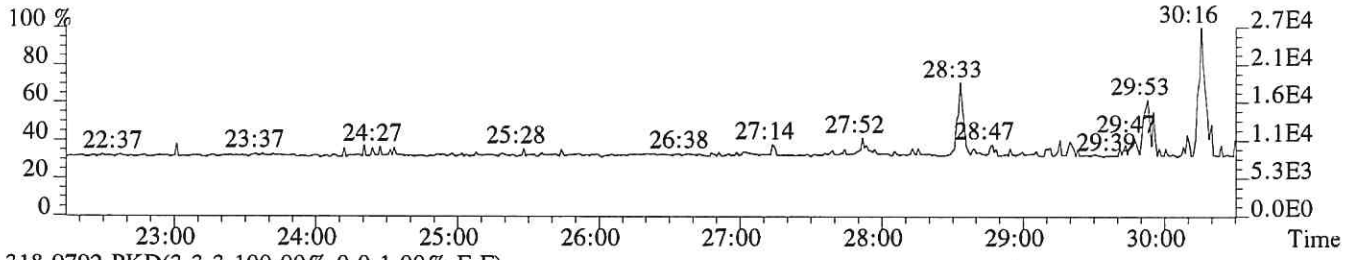
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



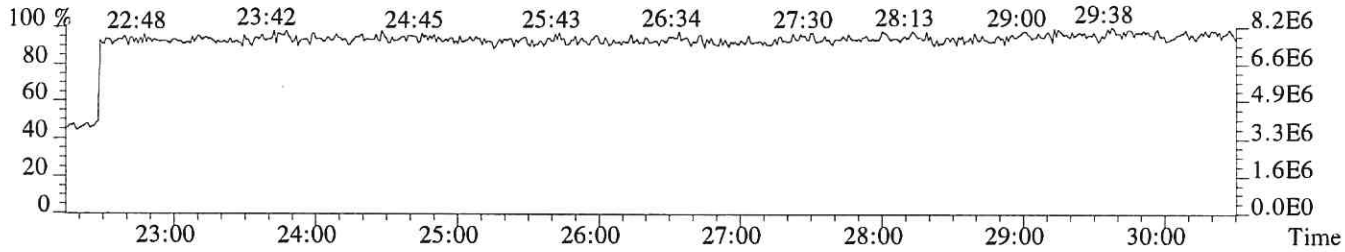
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

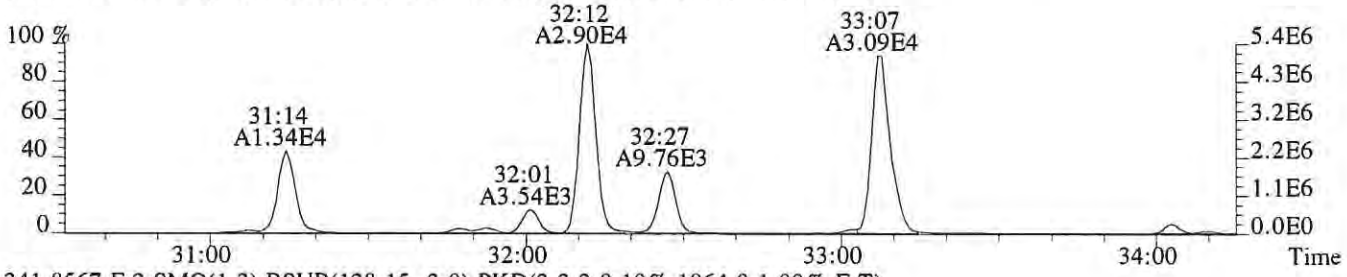


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

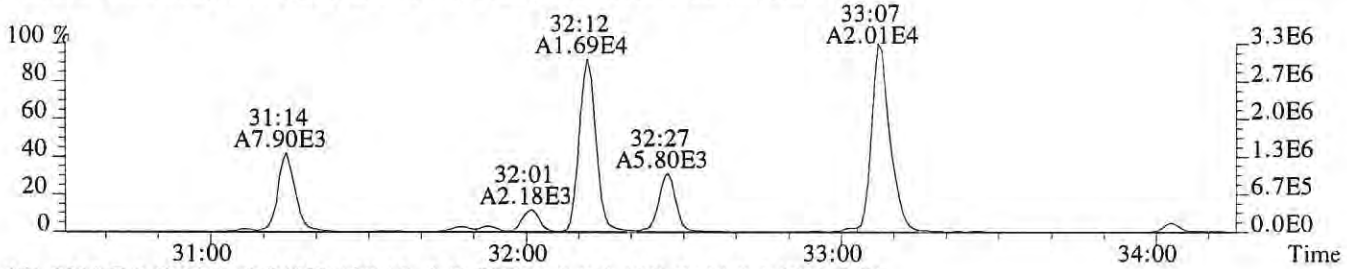


File:P519317 #1-335 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013

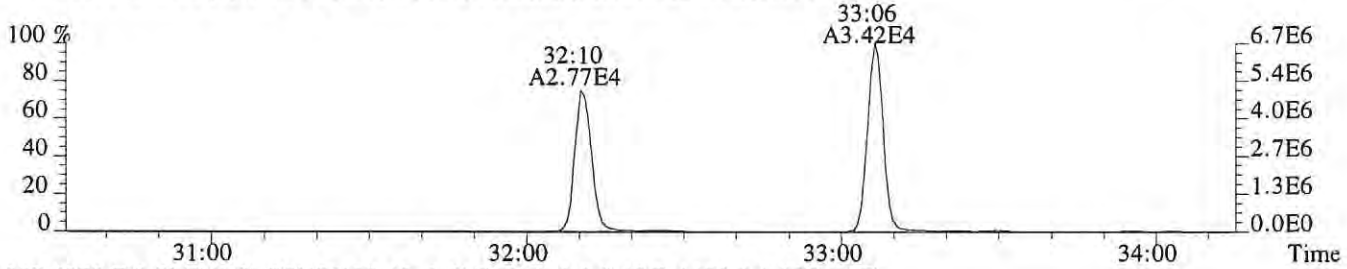
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6804.0,1.00%,F,T)



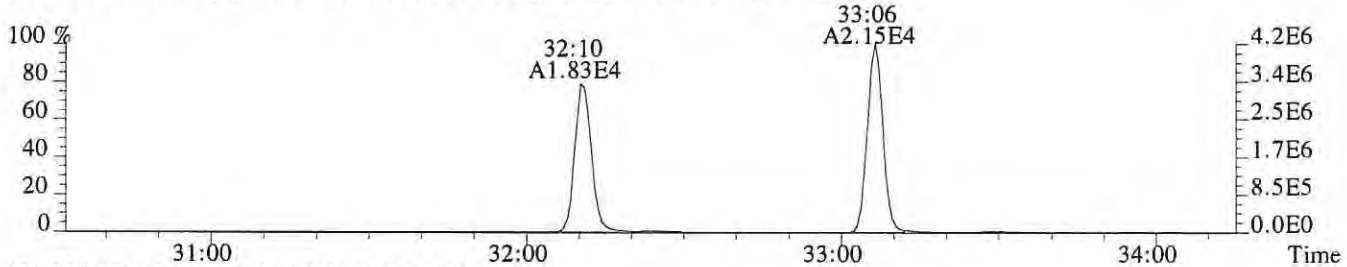
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



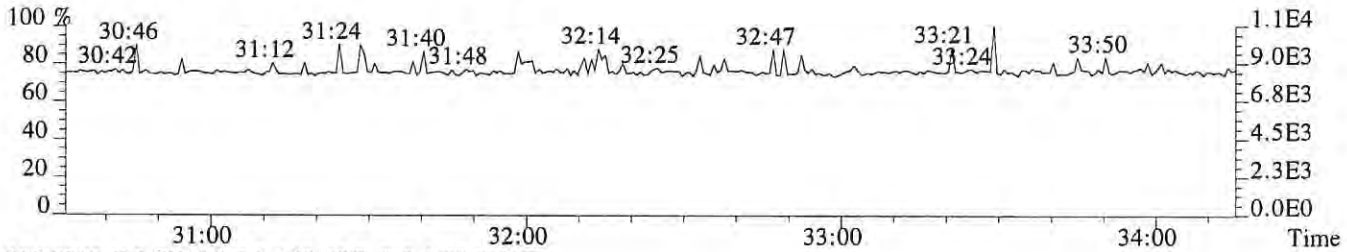
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



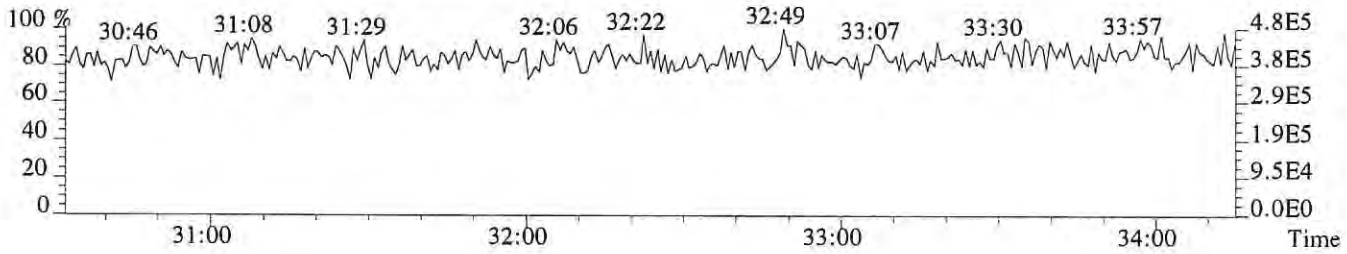
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



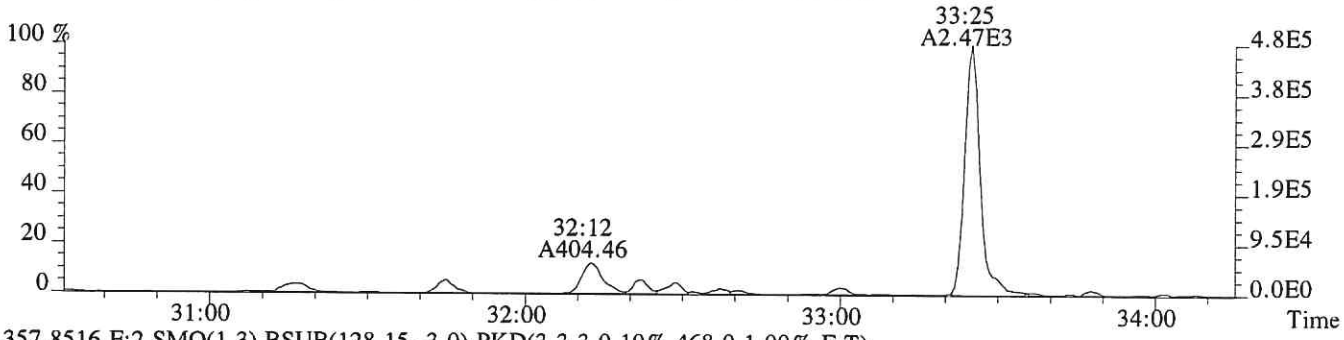
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



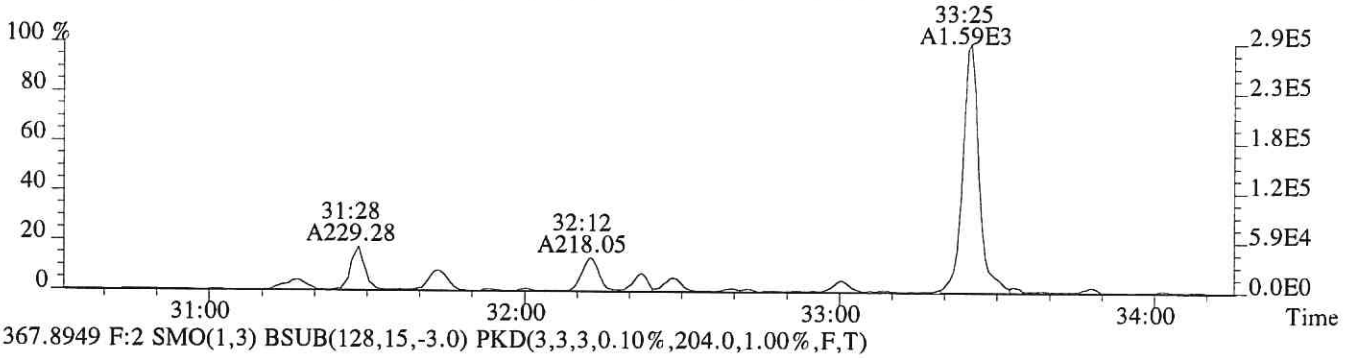
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



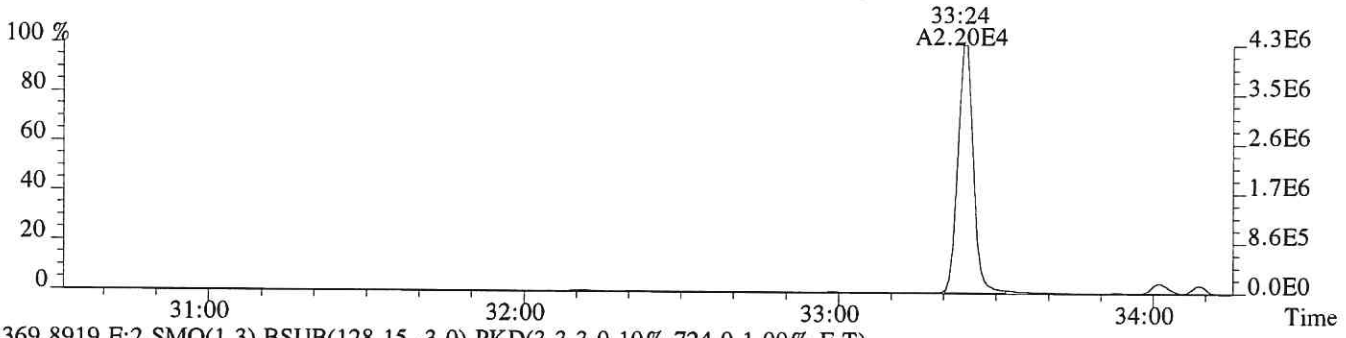
File:P519317 #1-335 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



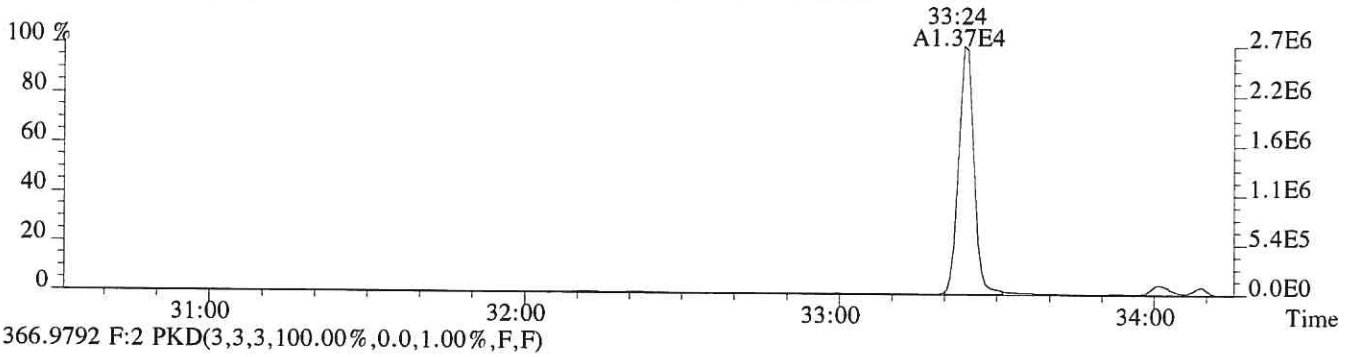
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



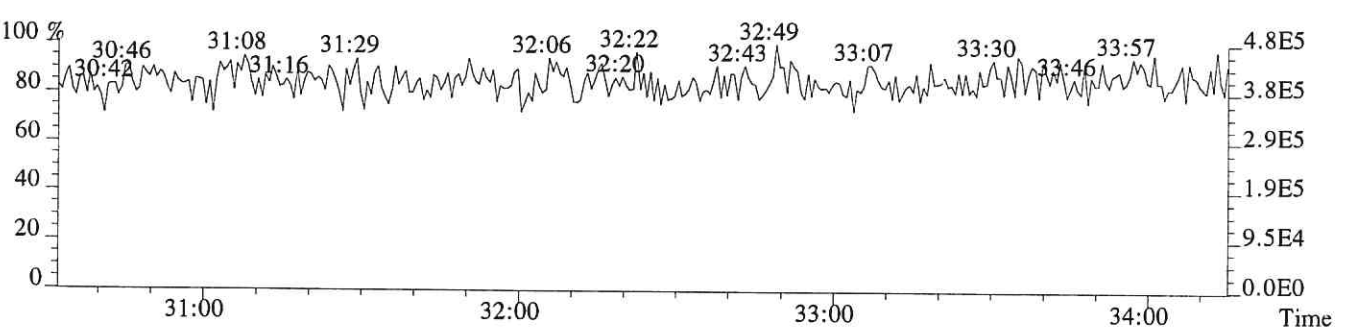
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)

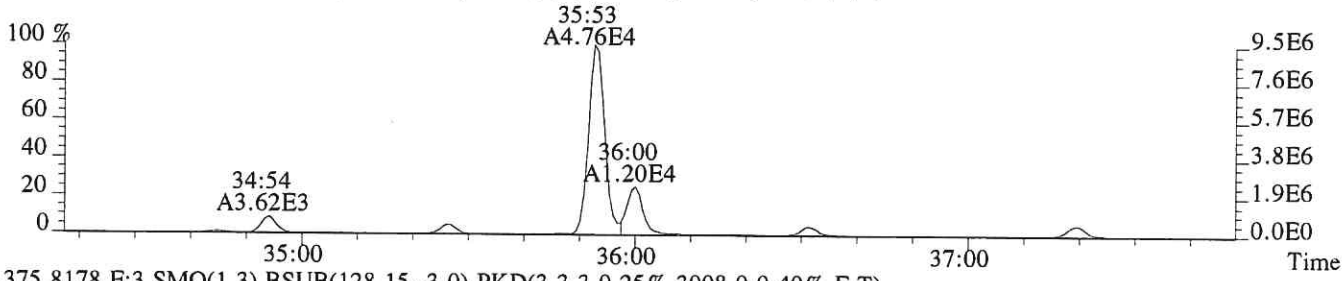


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

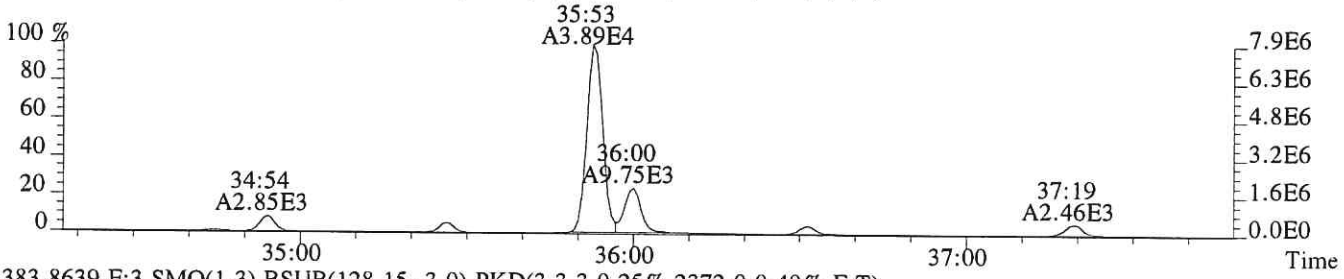


File:P519317 #1-317 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013

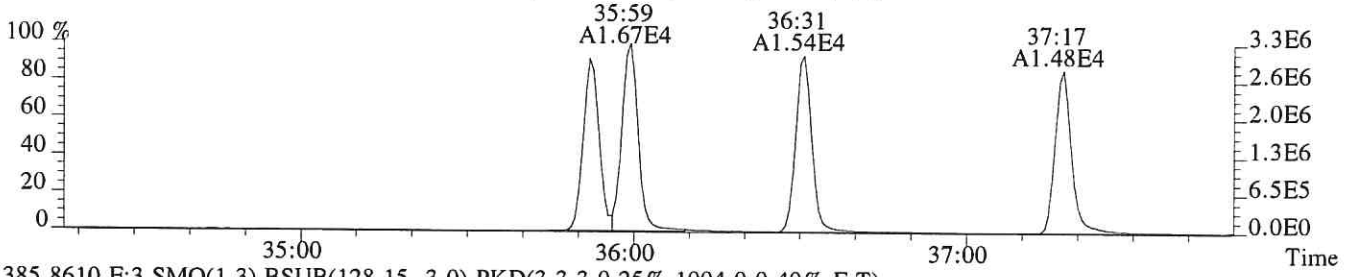
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1912.0,0.40%,F,T)



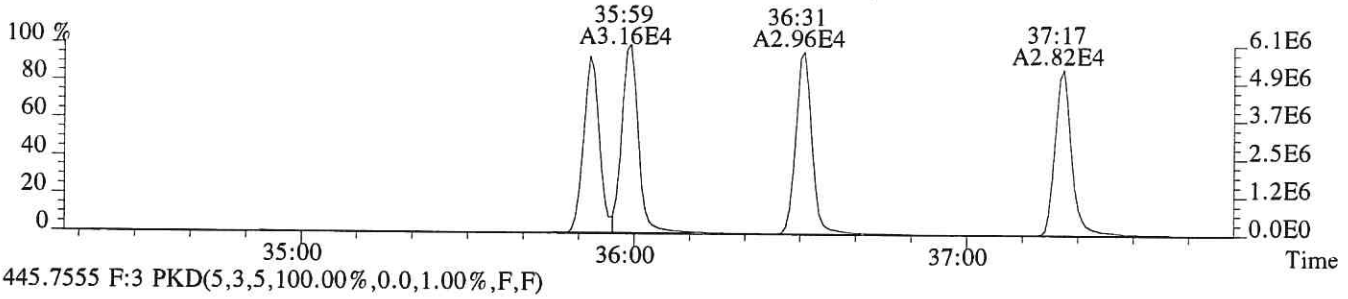
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



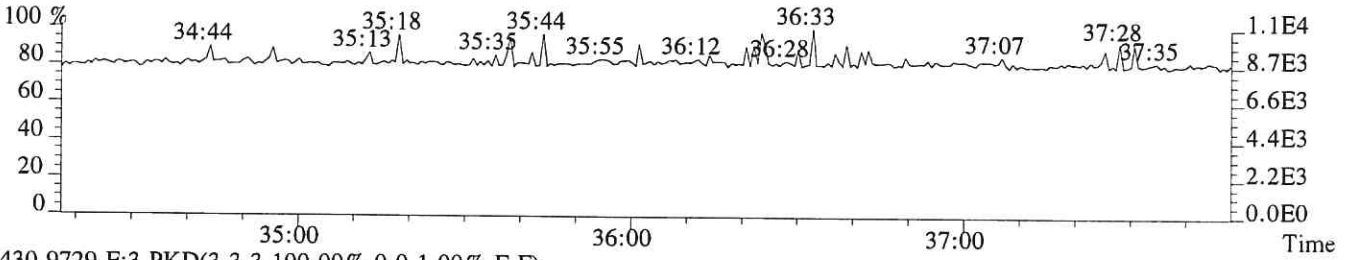
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2372.0,0.40%,F,T)



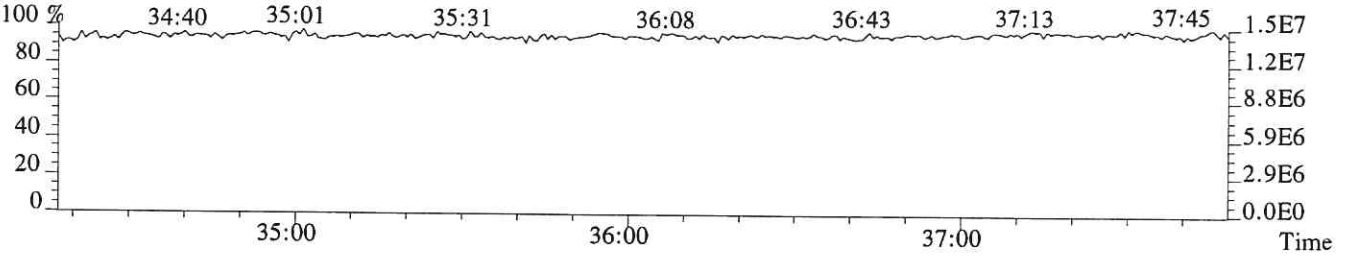
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



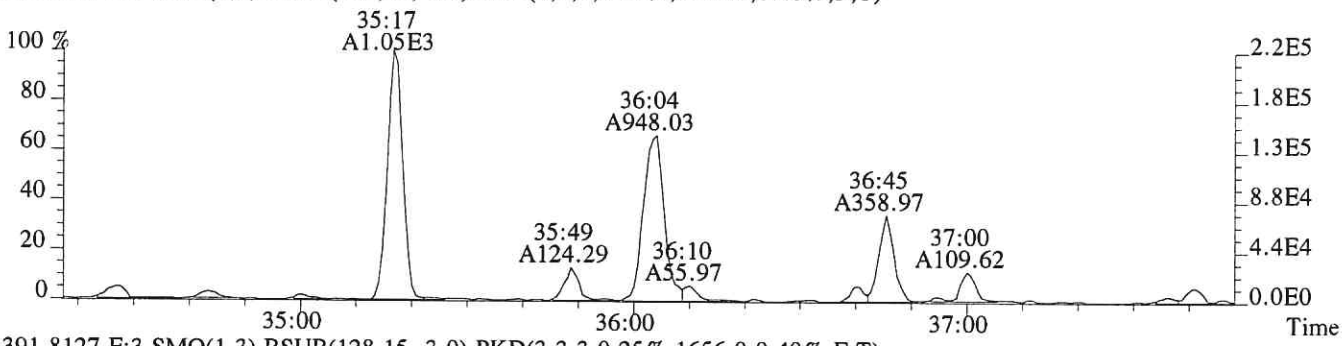
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



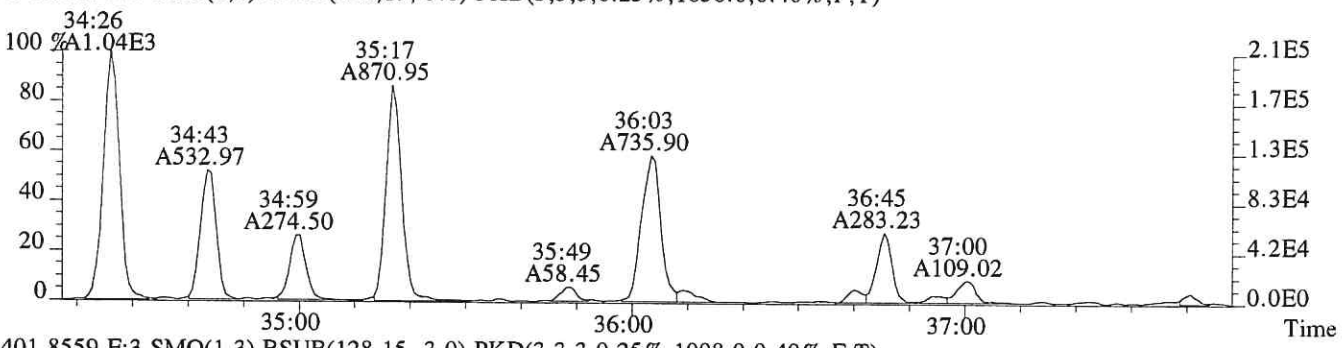
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



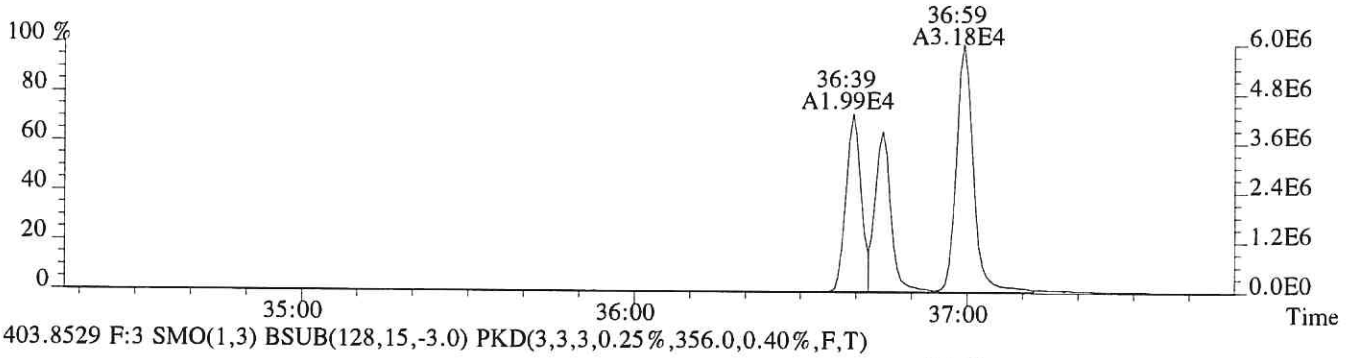
File:P519317 #1-317 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



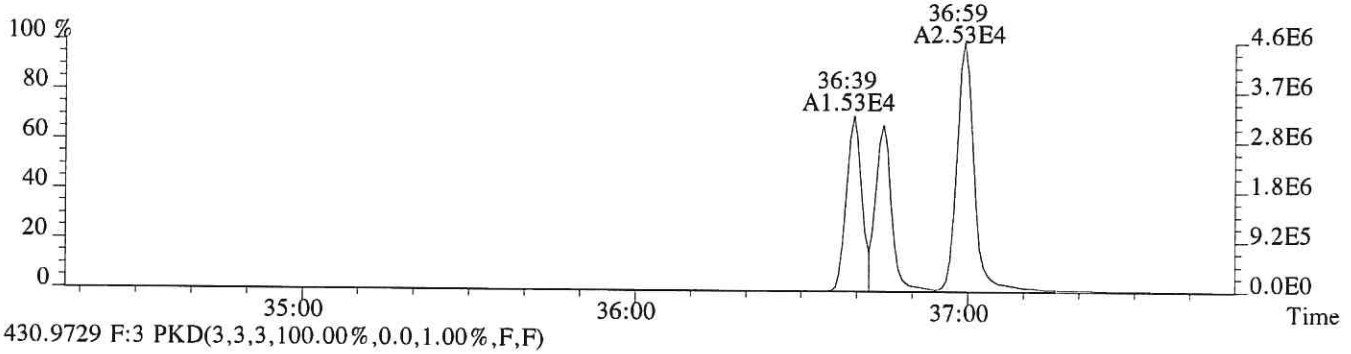
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.40%,F,T)



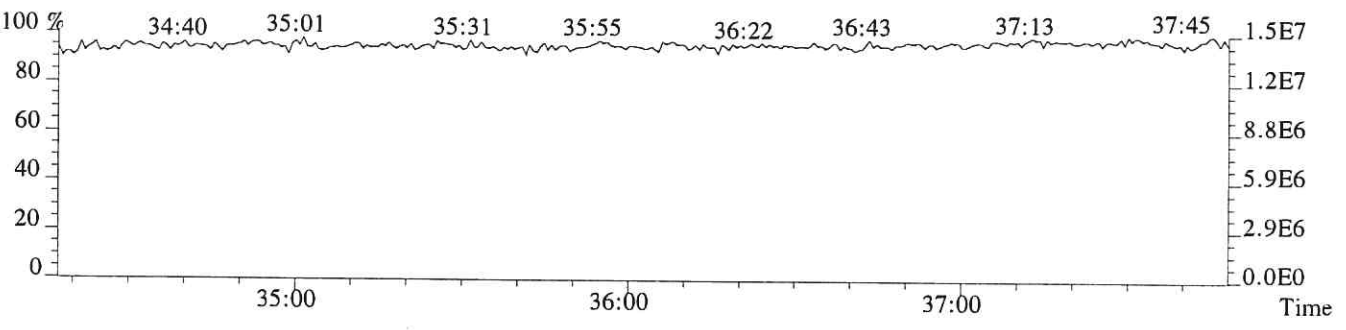
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



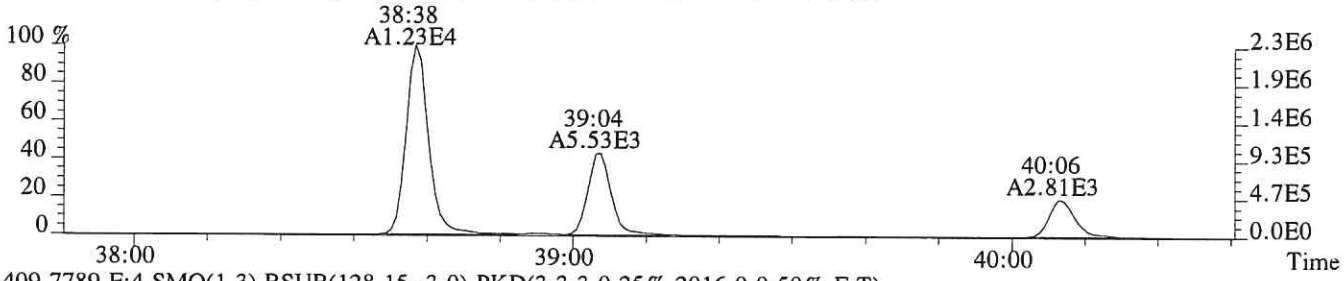
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



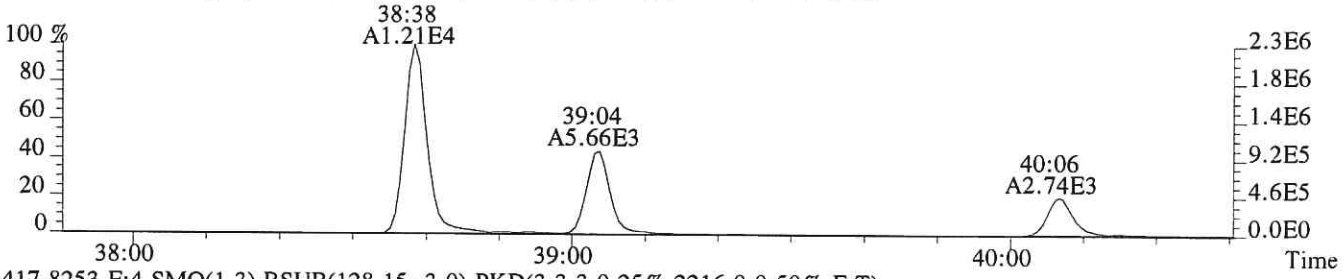
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



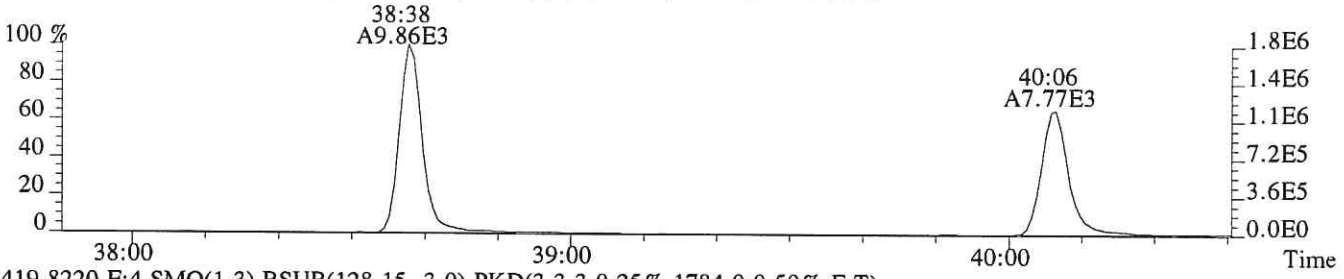
File:P519317 #1-241 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1684.0,0.50%,F,T)



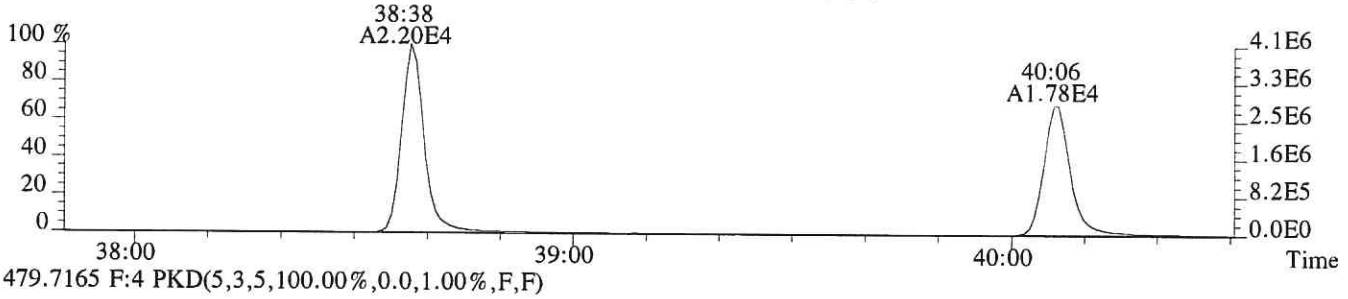
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2016.0,0.50%,F,T)



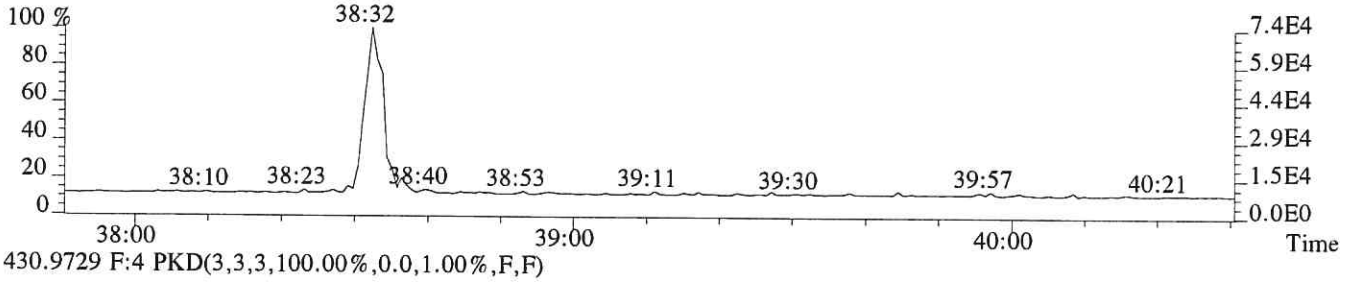
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.50%,F,T)



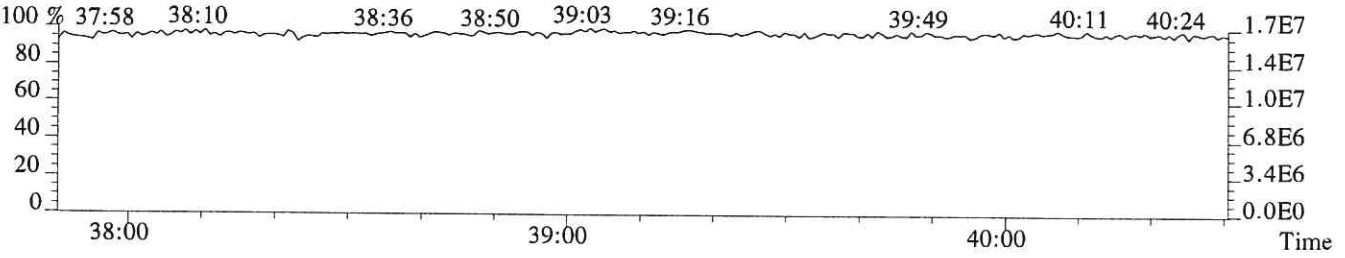
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1784.0,0.50%,F,T)



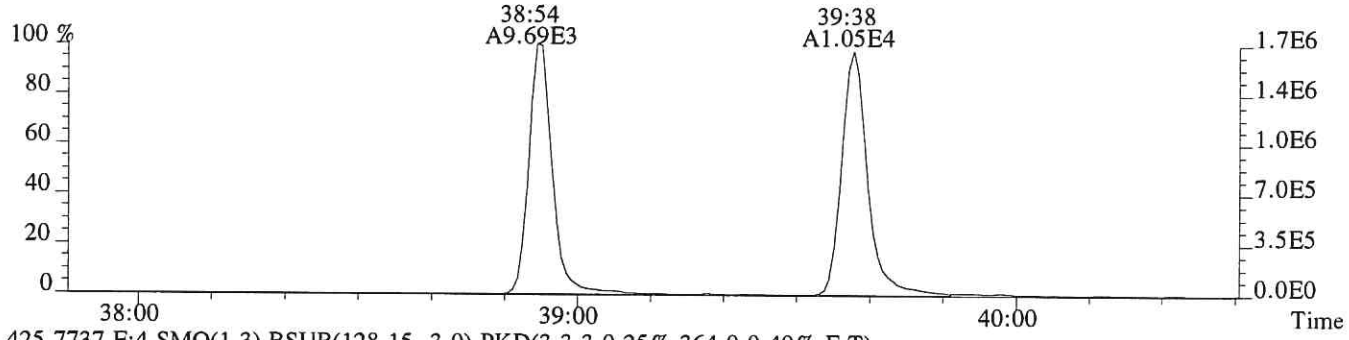
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



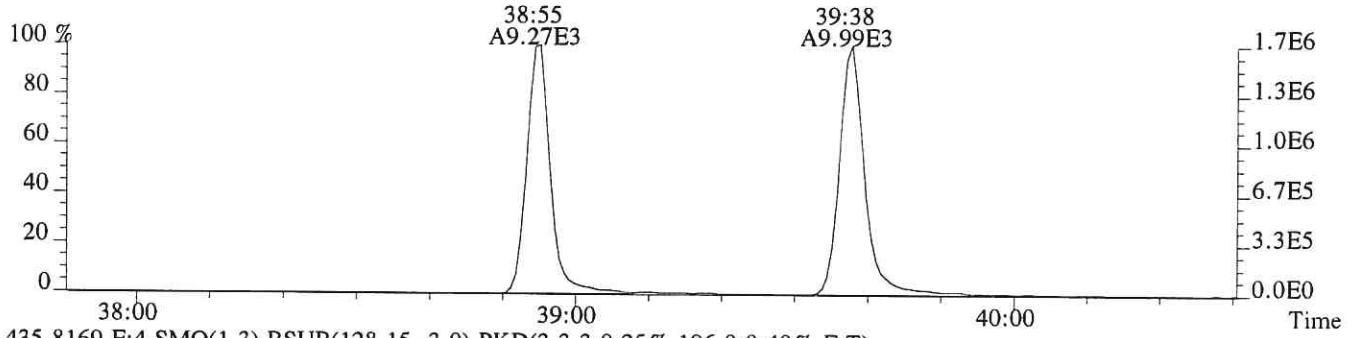
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



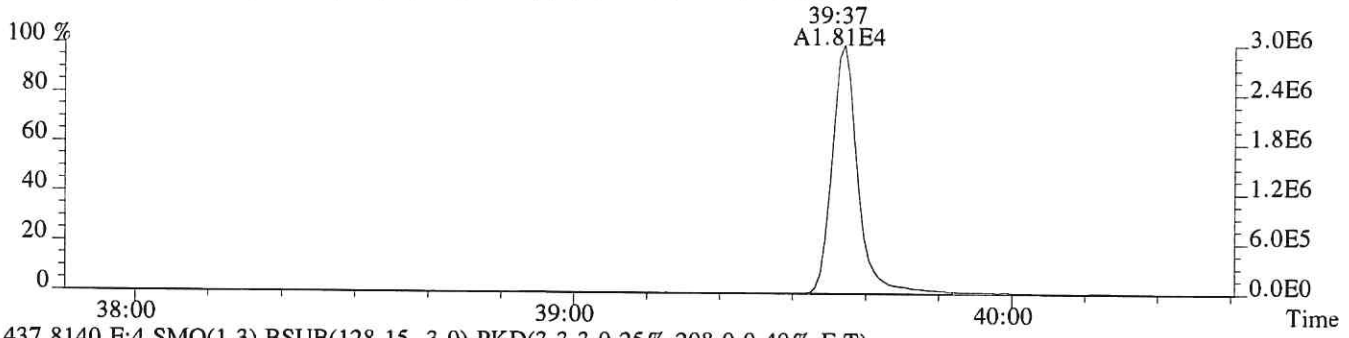
File:P519317 #1-241 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



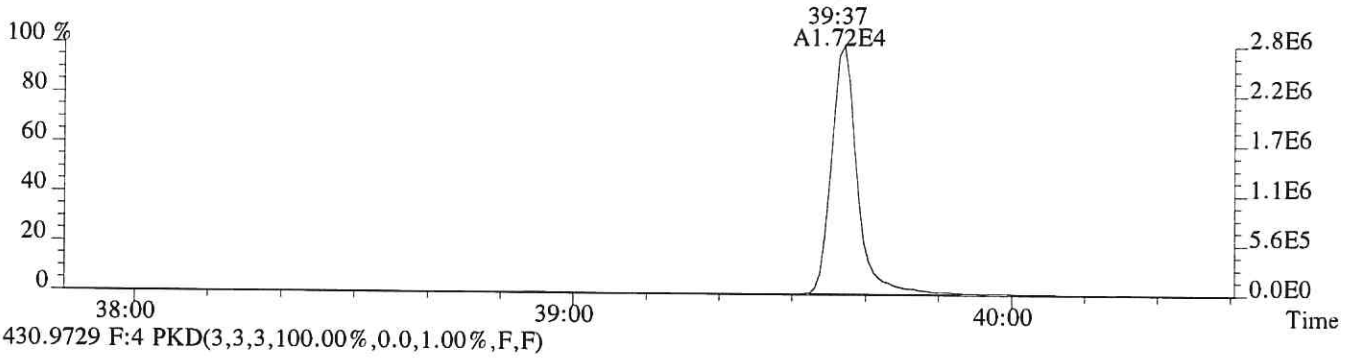
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



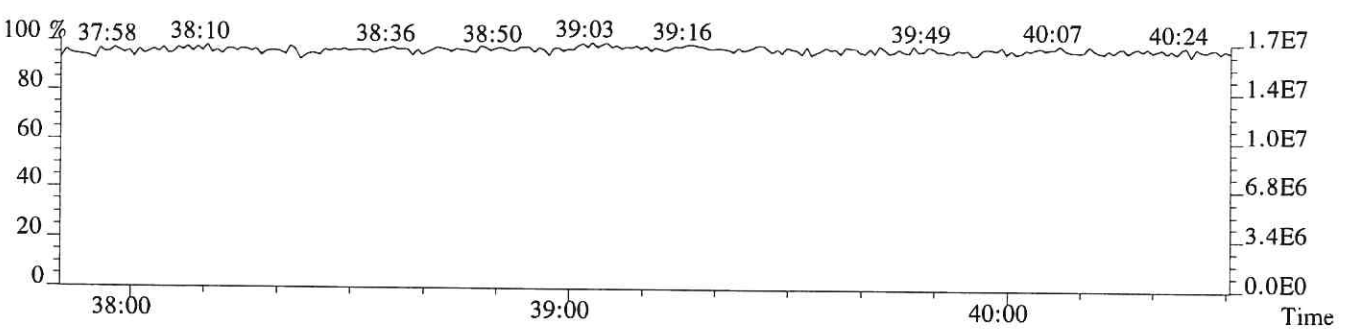
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)

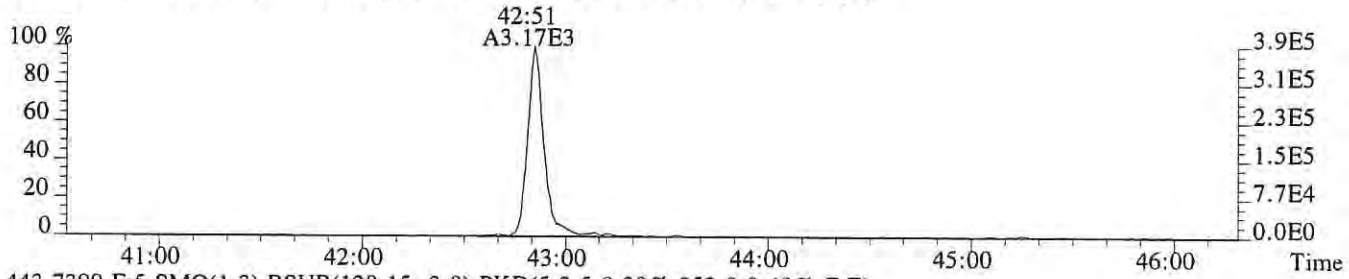


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

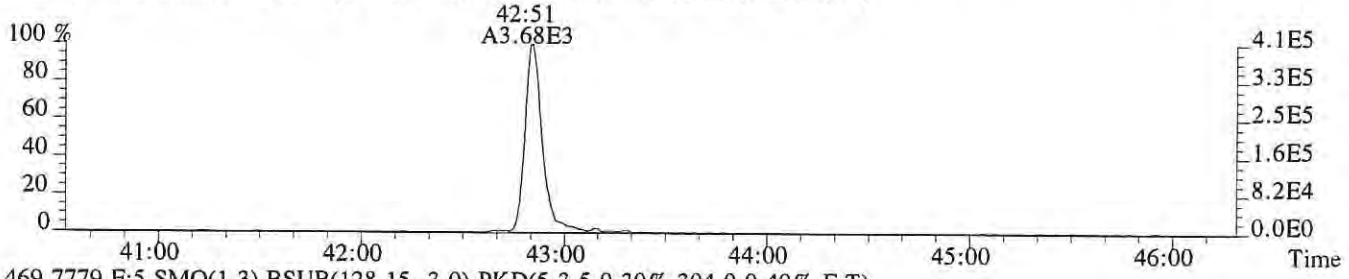


File:P519317 #1-520 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013

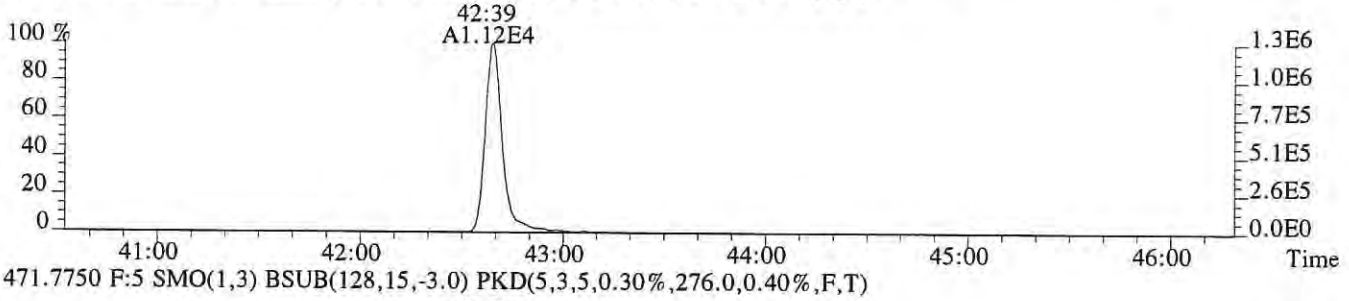
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



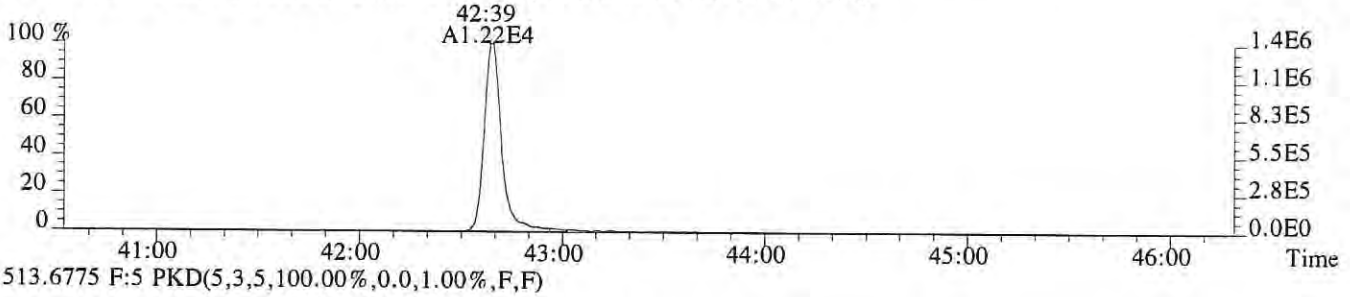
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



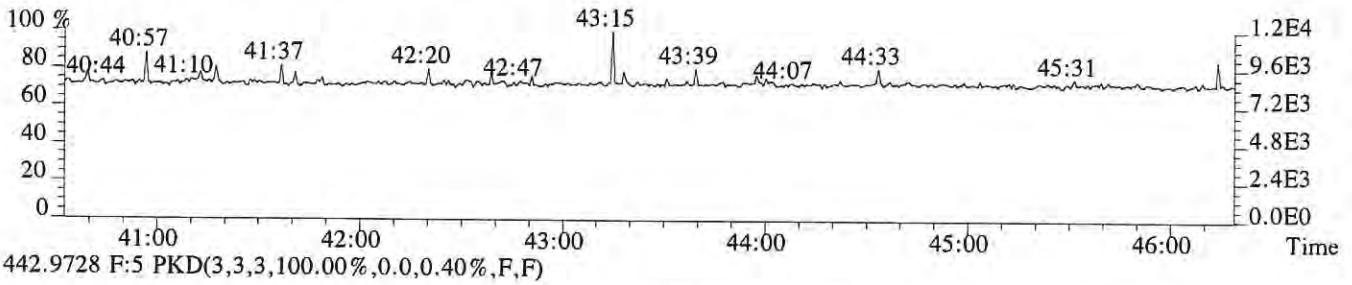
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



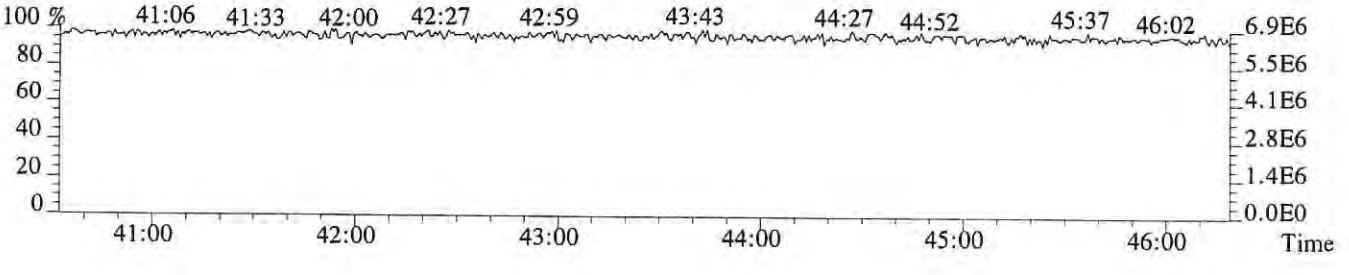
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



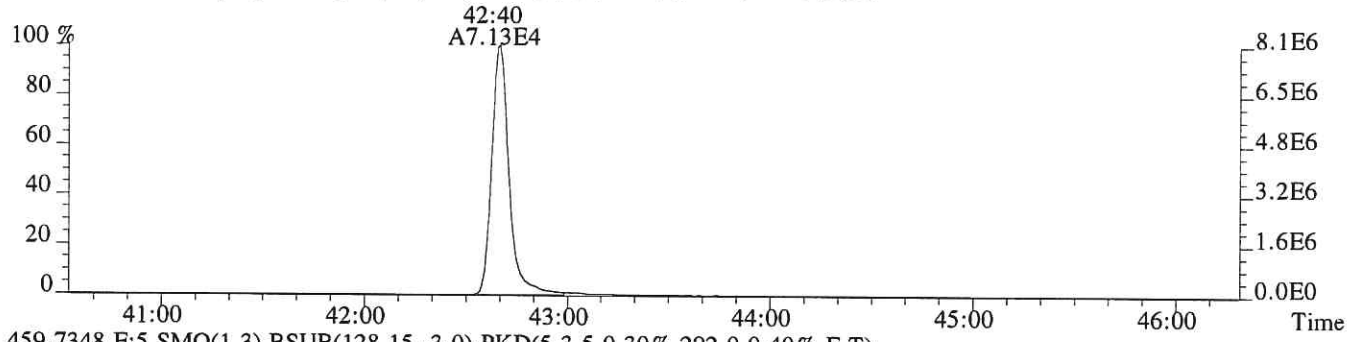
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



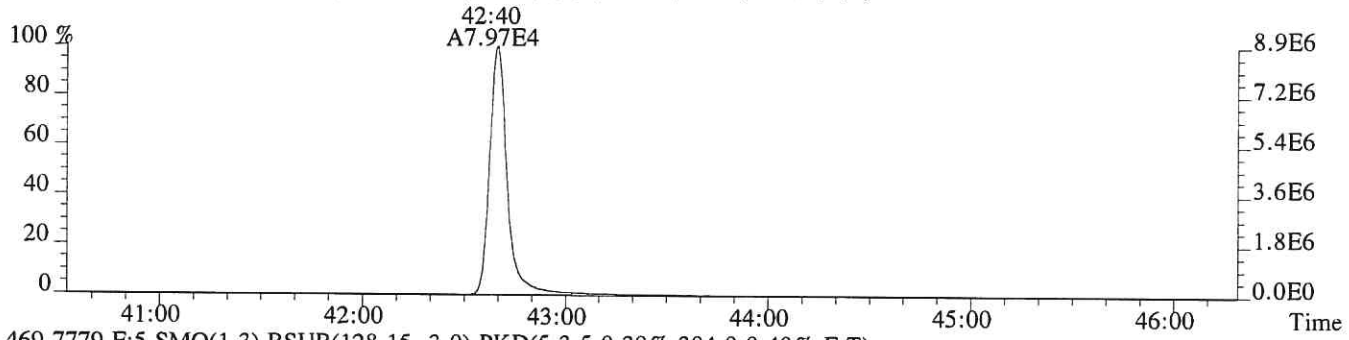
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



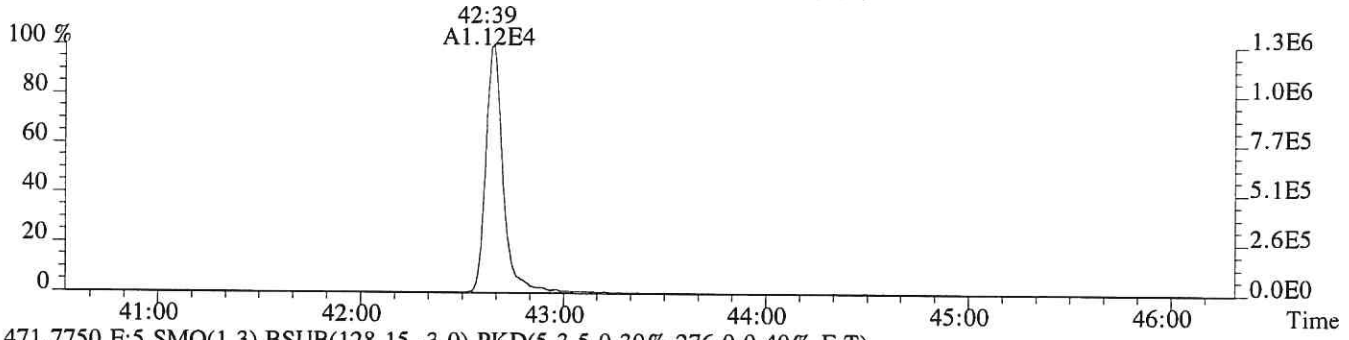
File:P519317 #1-520 Acq: 8-DEC-2018 19:41:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



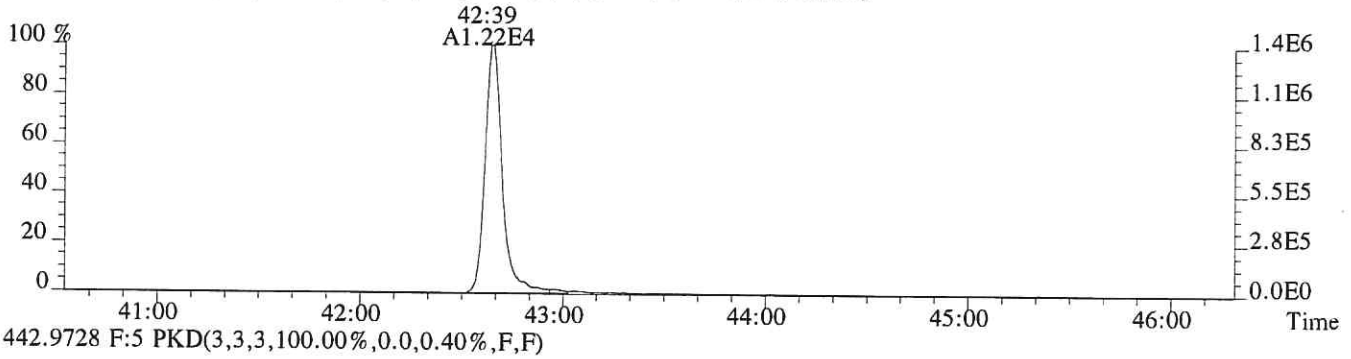
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



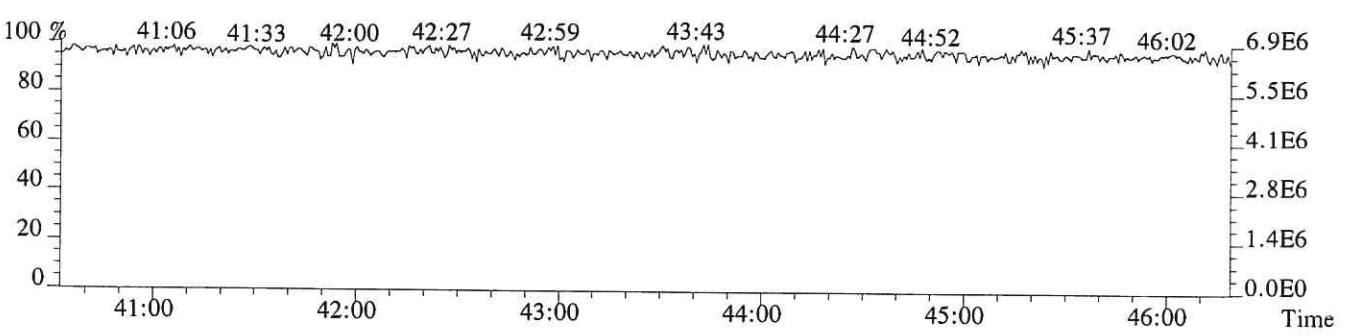
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0562

Run #18 Filename P519378 Samp: 1 Inj: 1 Acquired: 12-DEC-18 09:32:06
Processed: 13-DEC-18 09:37:45 Sample ID: E1801065-013DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:44	6.765e+03	9.306e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	3.093e+02	2.397e+02	1.29	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	2.486e+02	1.776e+02	1.40	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	4.345e+02	3.143e+02	1.38	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.165e+02	1.144e+02	1.02	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.007e+01	2.556e+01	0.79	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	3.106e+01	1.917e+01	1.62	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.229e+02	1.422e+02	0.86	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	3.913e+01	1.150e+01	3.40	no	no	1.258
10	Unk	OCDF	42:40	6.390e+01	6.595e+01	0.97	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	1.691e+03	2.103e+03	0.80	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	2.995e+01	9.779e+00	3.06	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	1.433e+02	1.285e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:29	1.255e+03	1.441e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.212e+04	1.574e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	1.955e+04	1.229e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	1.845e+04	1.171e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	7.446e+03	1.475e+04	0.50	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	9.639e+03	1.826e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	8.905e+03	1.704e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	7.415e+03	1.440e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	7.095e+03	1.589e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	5.952e+03	1.360e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	5.826e+03	7.529e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.373e+04	8.593e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.057e+04	8.302e+03	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.223e+04	9.245e+03	1.32	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	1.270e+04	1.162e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:29	1.412e+04	1.615e+04	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	8.982e+03	1.114e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	1.227e+04	9.968e+03	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.696e+02				no	1.014

$$OCDD = \frac{(1.255e+03 + 1.441e+03) \times 4000\ pg \times 50}{(1.412e+04 + 1.615e+04) \times 10.394\ g \times 81.4 / 100 \times 1.118} = 5380.4735\ ng/kg$$

LG 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0562

Run #18 Filename P519378 Samp: 1 Inj: 1 Acquired: 12-DEC-18 09:32:06
Processed: 13-DEC-18 09:37:45 LAB. ID: E1801065-013DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.05e+06	9.36e+02	1.1e+03	1.44e+06	1.20e+03	1.2e+03
2	1,2,3,7,8-PeCDF	5.44e+04	1.44e+03	3.8e+01	4.21e+04	1.04e+03	4.1e+01
3	2,3,4,7,8-PeCDF	3.81e+04	1.44e+03	2.7e+01	2.54e+04	1.04e+03	2.5e+01
4	1,2,3,4,7,8-HxCDF	8.70e+04	5.04e+02	1.7e+02	6.22e+04	3.08e+02	2.0e+02
5	1,2,3,6,7,8-HxCDF	2.26e+04	5.04e+02	4.5e+01	1.73e+04	3.08e+02	5.6e+01
6	2,3,4,6,7,8-HxCDF	3.98e+03	5.04e+02	7.9e+00	5.66e+03	3.08e+02	1.8e+01
7	1,2,3,7,8,9-HxCDF	5.39e+03	5.04e+02	1.1e+01	3.16e+03	3.08e+02	1.0e+01
8	1,2,3,4,6,7,8-HpCDF	2.36e+04	3.24e+02	7.3e+01	2.58e+04	3.72e+02	6.9e+01
9	1,2,3,4,7,8,9-HpCDF	6.57e+03	3.24e+02	2.0e+01	3.38e+03	3.72e+02	9.1e+00
10	OCDF	7.95e+03	2.56e+02	3.1e+01	1.04e+04	8.00e+02	1.3e+01
11	2,3,7,8-TCDD	2.98e+05	1.72e+03	1.7e+02	3.87e+05	1.10e+03	3.5e+02
12	1,2,3,7,8-PeCDD	6.00e+03	8.08e+02	7.4e+00	1.97e+03	2.80e+02	7.0e+00
13	1,2,3,4,7,8-HxCDD	*	3.92e+02	*	*	4.72e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.92e+02	*	*	4.72e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.92e+02	*	*	4.72e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.72e+04	4.16e+02	6.5e+01	2.24e+04	3.48e+02	6.4e+01
17	OCDD	1.32e+05	2.88e+02	4.6e+02	1.48e+05	3.16e+02	4.7e+02
18	13C-2,3,7,8-TCDF	2.09e+06	8.49e+03	2.5e+02	2.66e+06	4.81e+03	5.5e+02
19	13C-1,2,3,7,8-PeCDF	3.44e+06	6.24e+02	5.5e+03	2.17e+06	1.05e+03	2.1e+03
20	13C-2,3,4,7,8-PeCDF	3.33e+06	6.24e+02	5.3e+03	2.16e+06	1.05e+03	2.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.52e+06	3.20e+02	4.7e+03	3.03e+06	6.60e+02	4.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.80e+06	3.20e+02	5.6e+03	3.42e+06	6.60e+02	5.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.70e+06	3.20e+02	5.3e+03	3.27e+06	6.60e+02	5.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.27e+06	3.20e+02	4.0e+03	2.44e+06	6.60e+02	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.24e+06	8.40e+02	1.5e+03	2.76e+06	8.48e+02	3.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.81e+05	8.40e+02	1.0e+03	2.02e+06	8.48e+02	2.4e+03
27	13C-2,3,7,8-TCDD	1.02e+06	3.90e+03	2.6e+02	1.34e+06	2.31e+03	5.8e+02
28	13C-1,2,3,7,8-PeCDD	2.47e+06	6.56e+02	3.8e+03	1.56e+06	7.92e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.20e+06	7.24e+02	3.0e+03	1.76e+06	4.92e+02	3.6e+03
30	13C-1,2,3,6,7,8-HxCDD	2.27e+06	7.24e+02	3.1e+03	1.73e+06	4.92e+02	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.97e+06	5.56e+02	3.5e+03	1.83e+06	2.80e+02	6.5e+03
32	13C-OCDD	1.59e+06	2.48e+02	6.4e+03	1.75e+06	2.56e+02	6.8e+03
33	13C-1,2,3,4-TCDD	1.63e+06	3.90e+03	4.2e+02	2.01e+06	2.31e+03	8.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.20e+06	7.24e+02	3.0e+03	1.76e+06	4.92e+02	3.6e+03
35	37Cl-2,3,7,8-TCDD	3.04e+04	7.24e+02	4.2e+01			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.724e{+}03 + 1.104e{+}03) \times 2000}{(1.020e{+}06 + 1.341e{+}06) \times (\quad) \times 1.085} =$$

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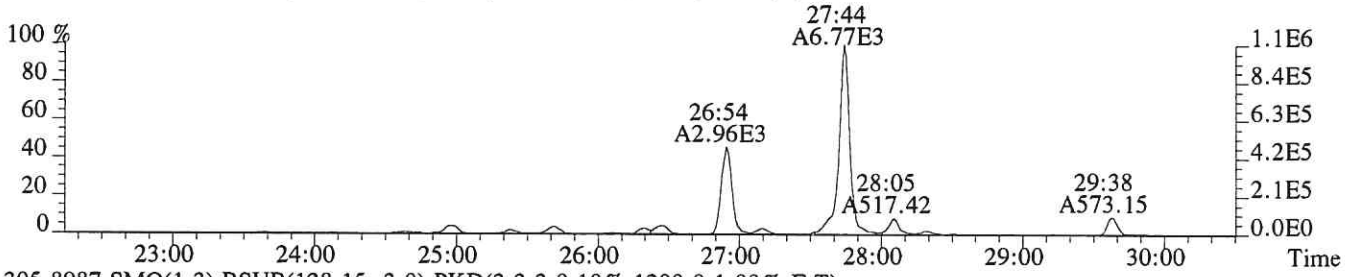
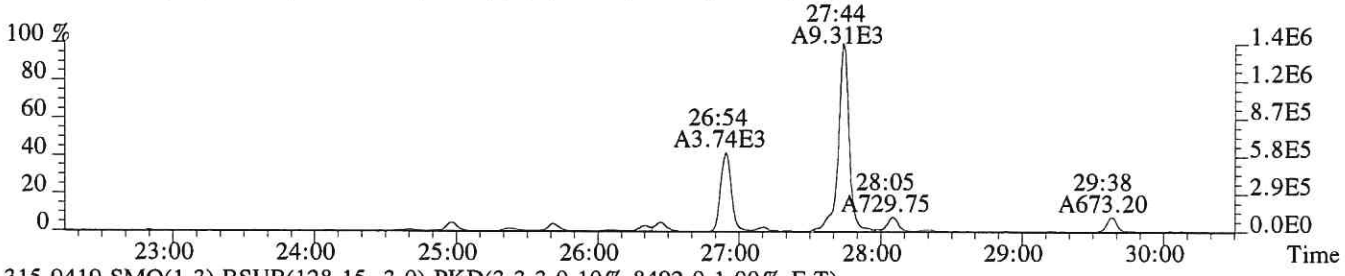
File:P519378 #1-587 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL

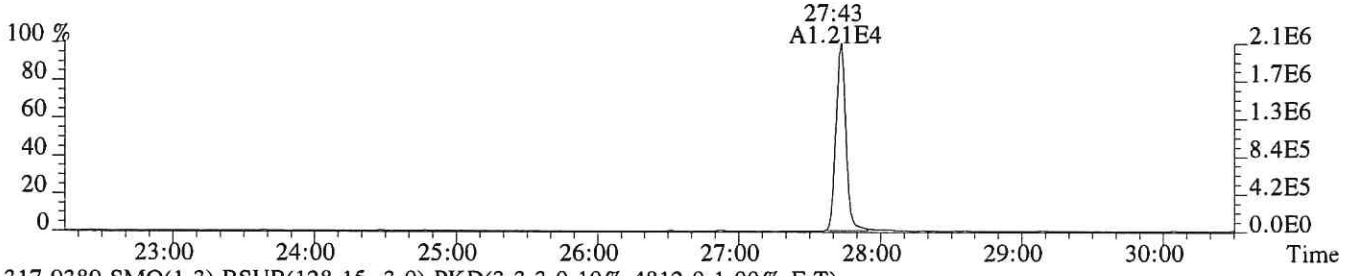
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



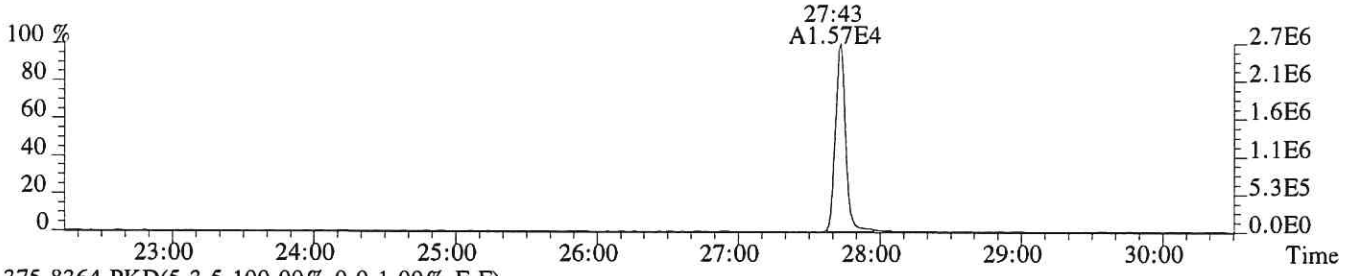
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



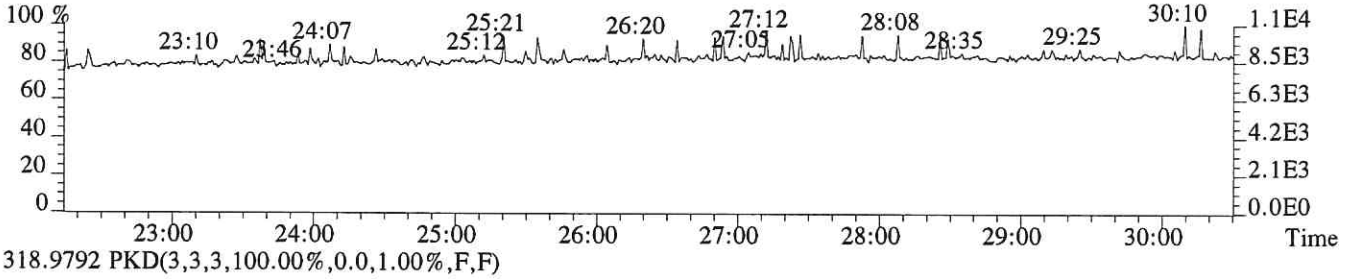
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8492.0,1.00%,F,T)



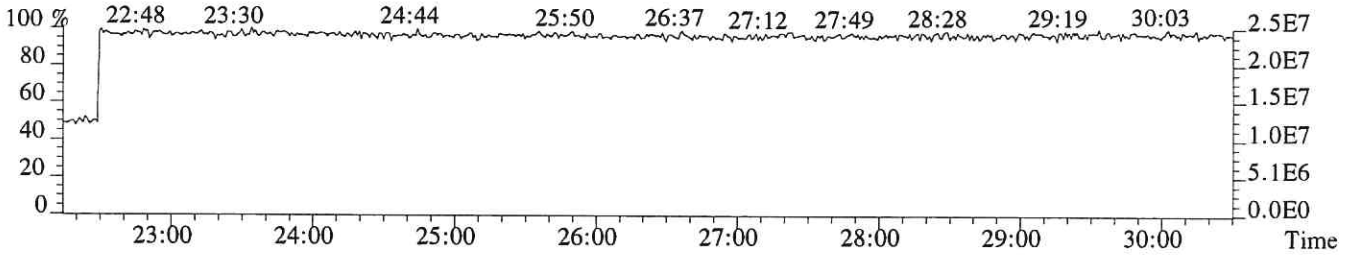
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4812.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

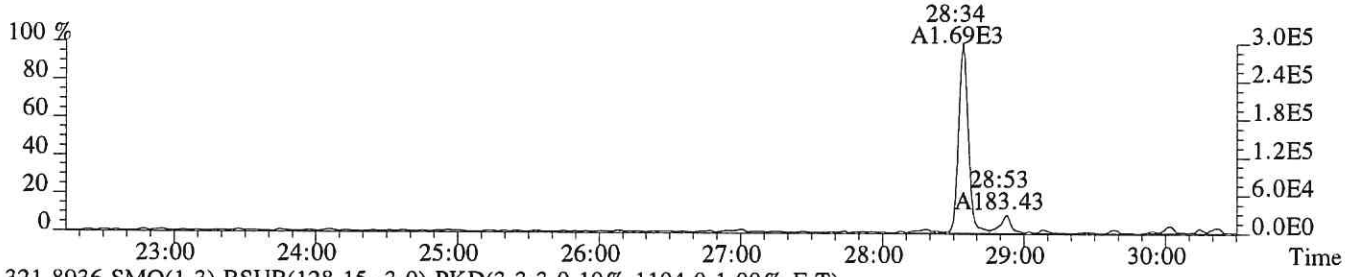


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

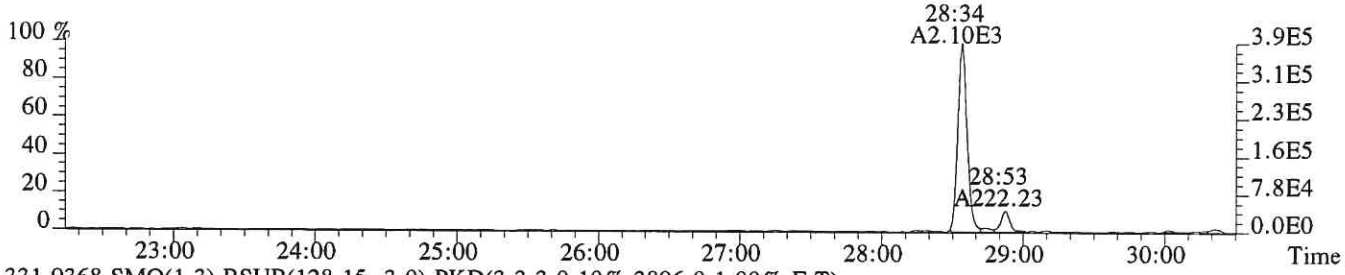


File:P519378 #1-587 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL

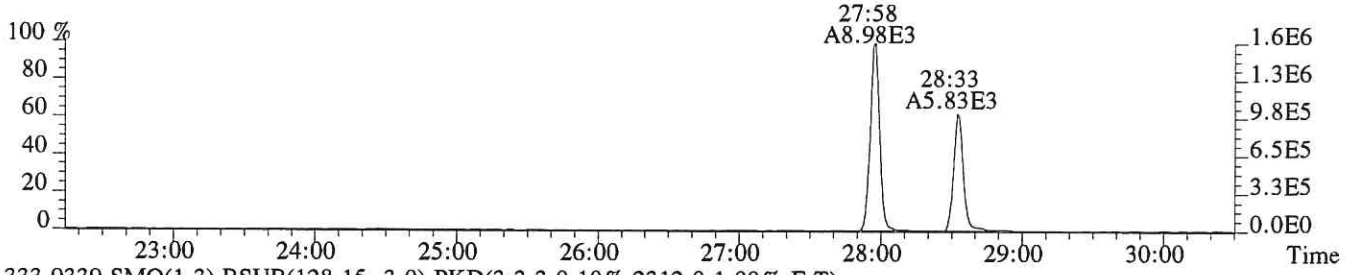
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



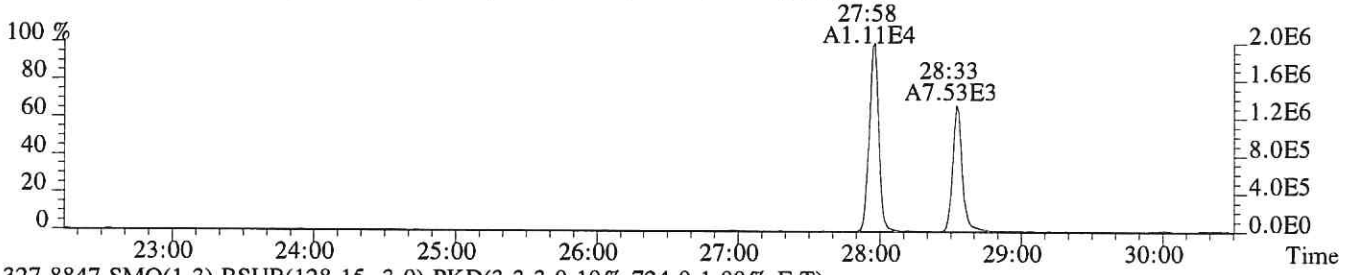
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



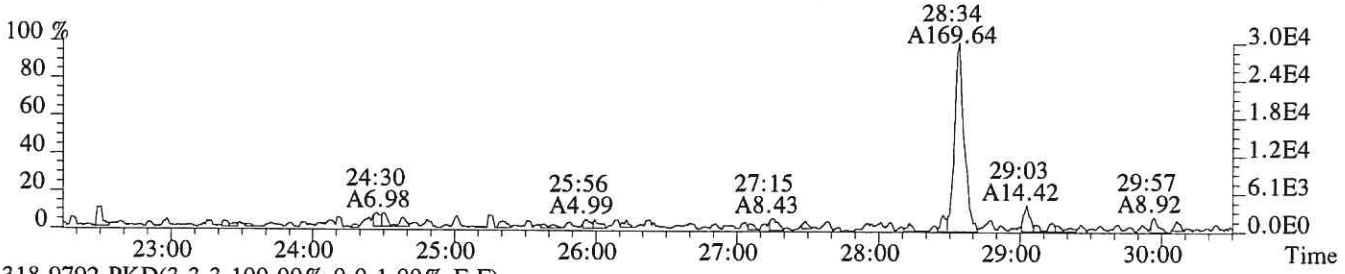
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3896.0,1.00%,F,T)



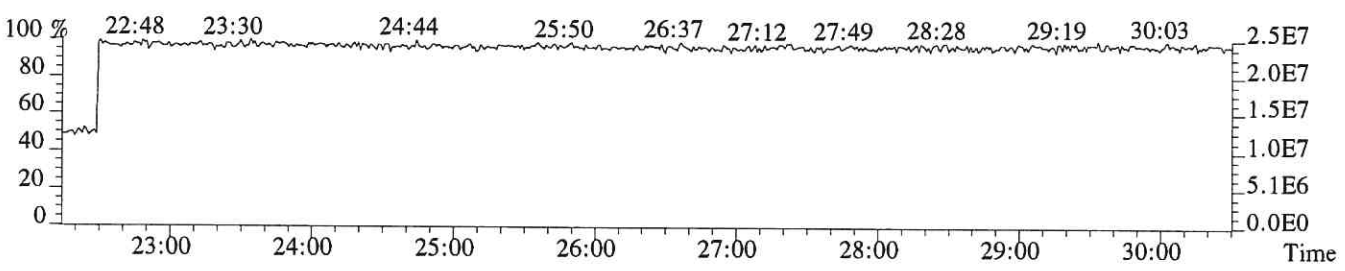
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2312.0,1.00%,F,T)



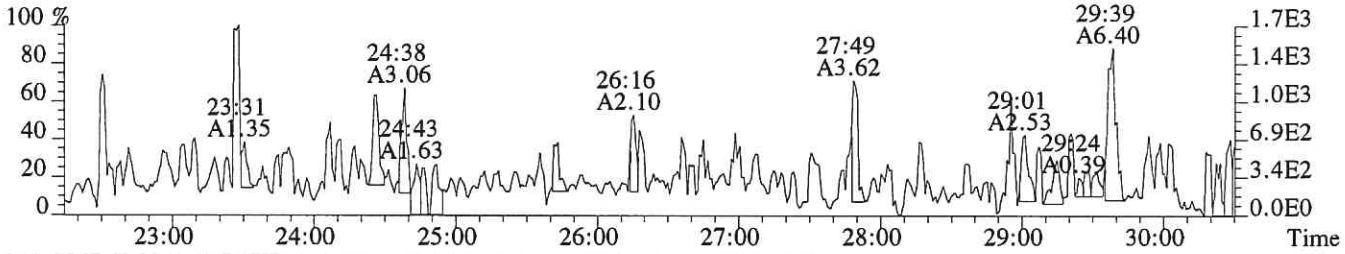
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



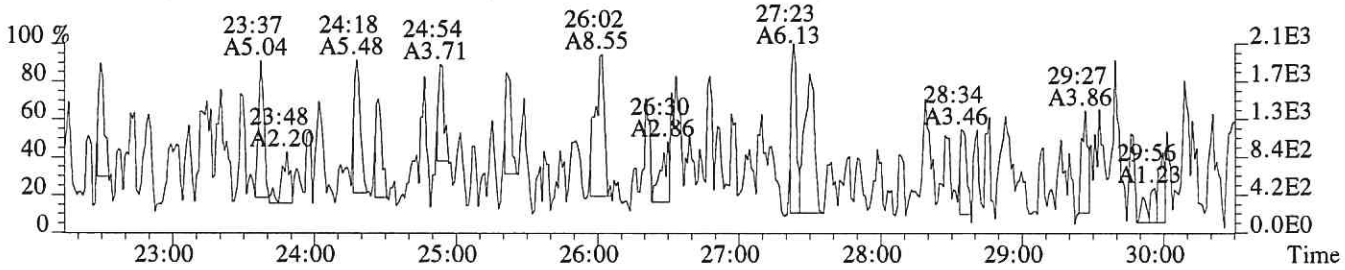
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



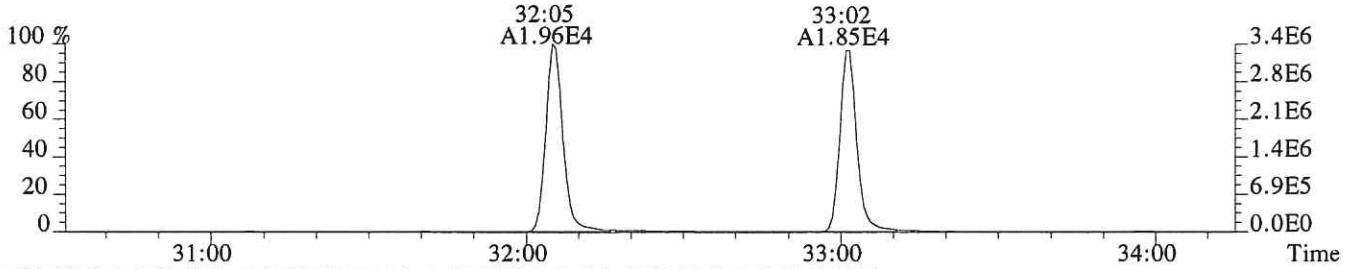
File:P519378 #1-587 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



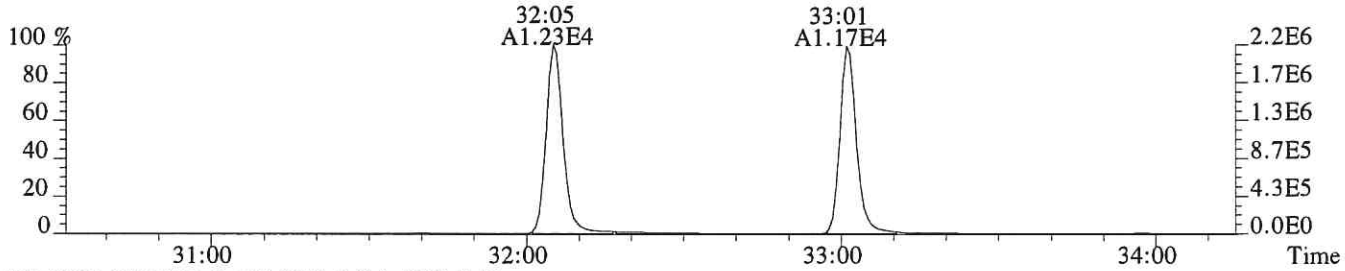
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



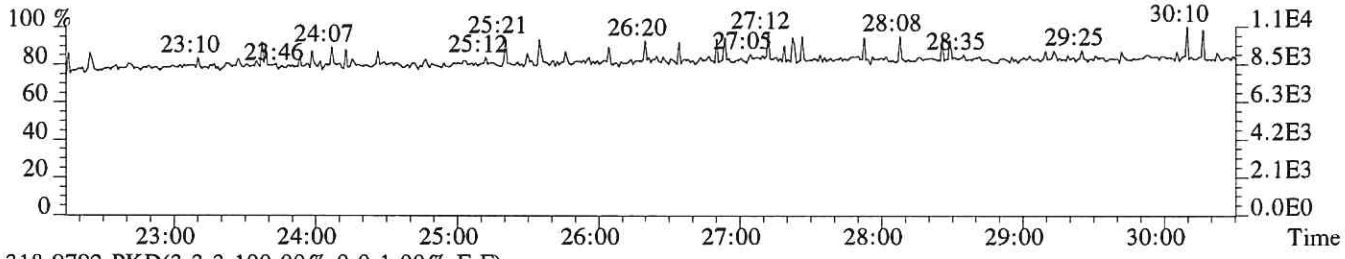
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



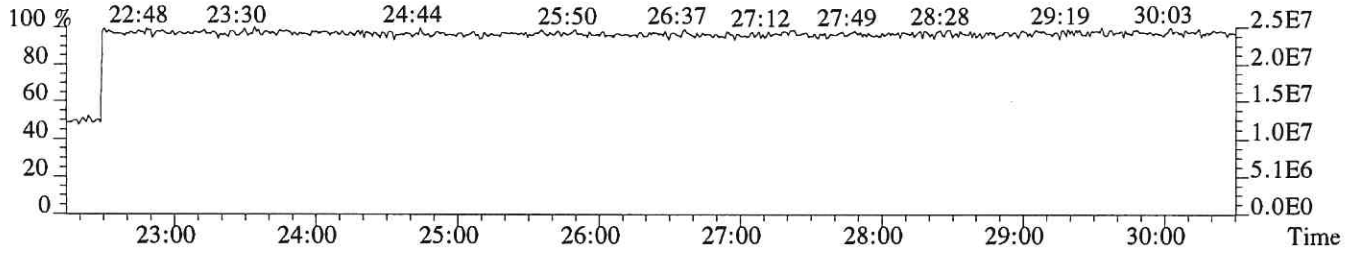
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

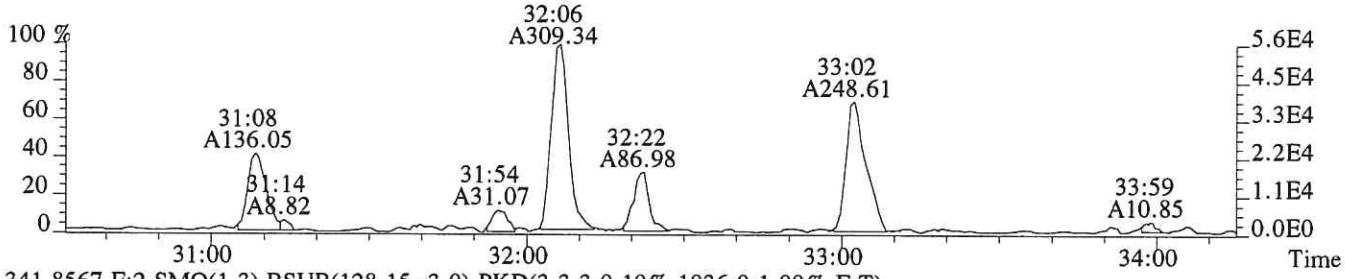


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

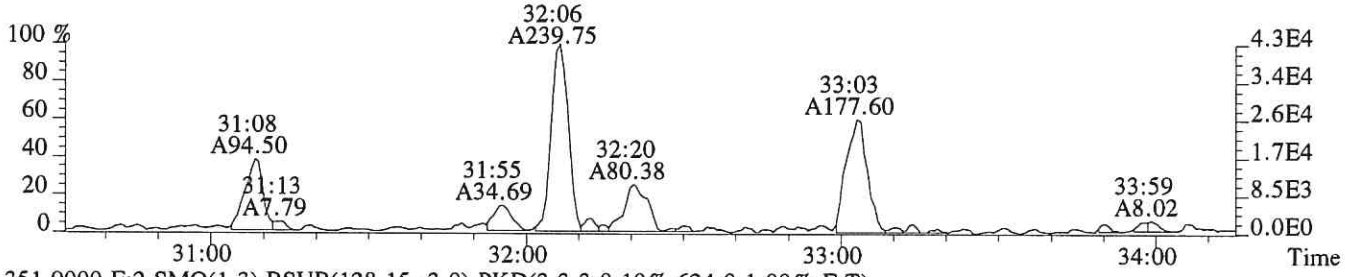


File:P519378 #1-335 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL

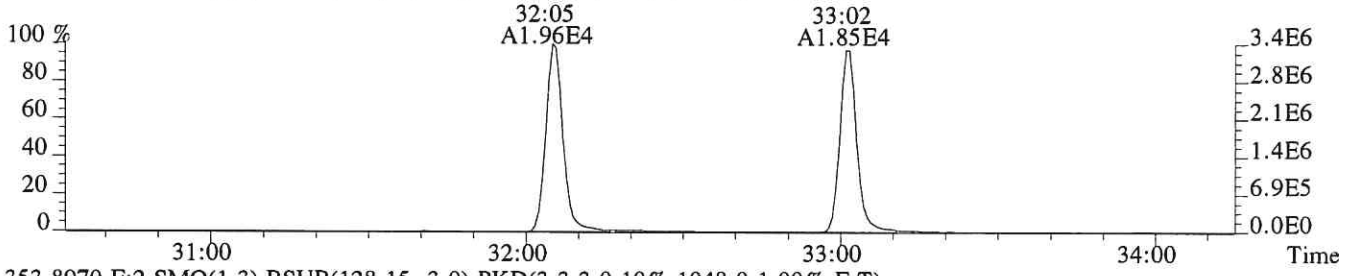
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



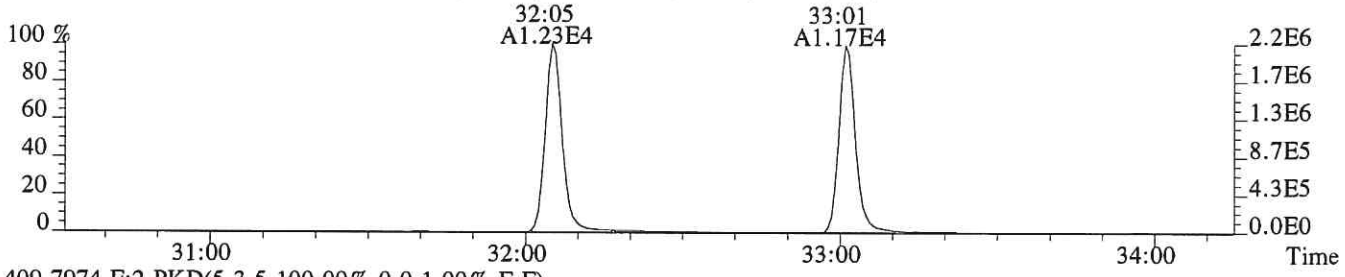
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



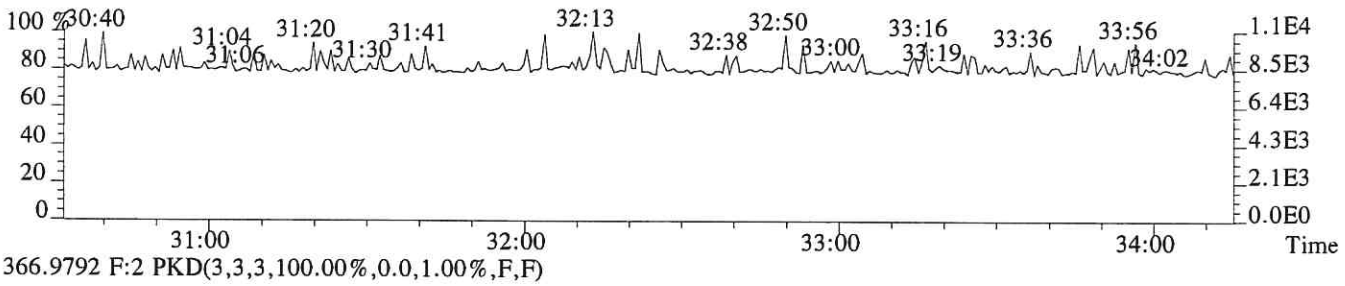
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



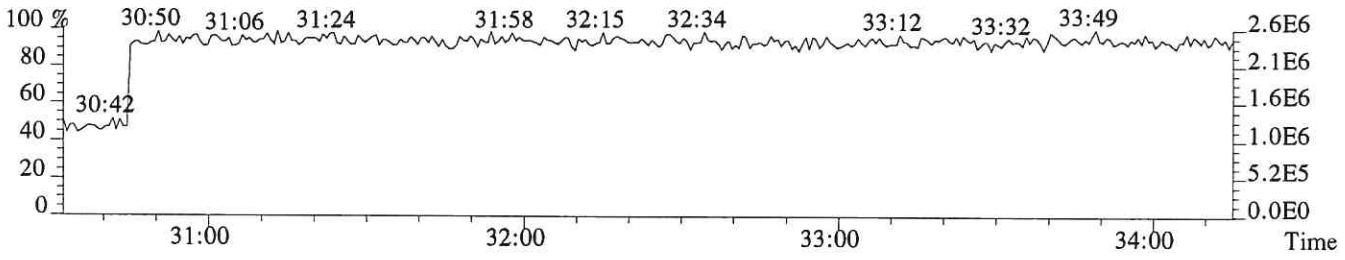
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



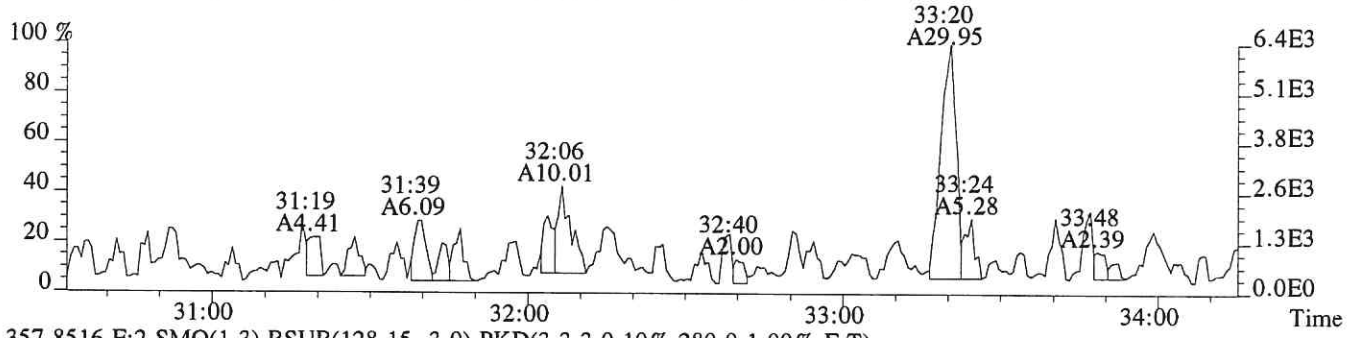
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



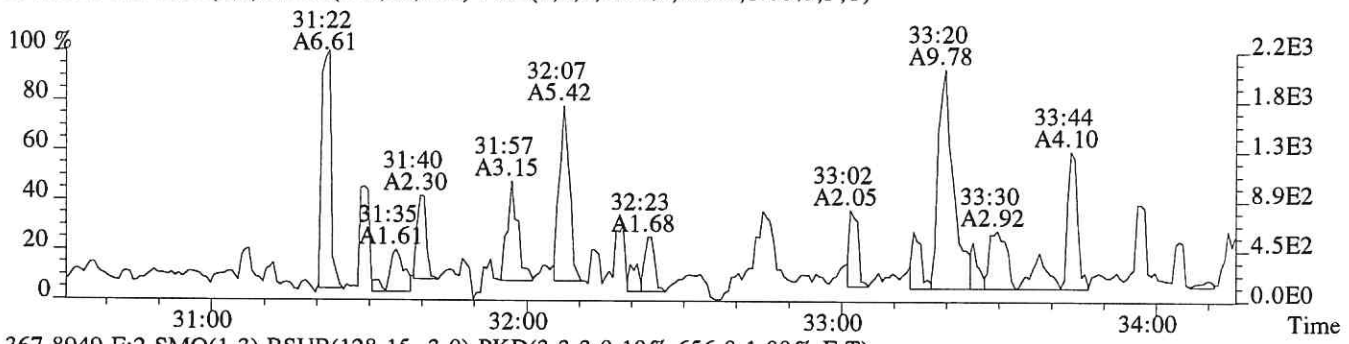
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



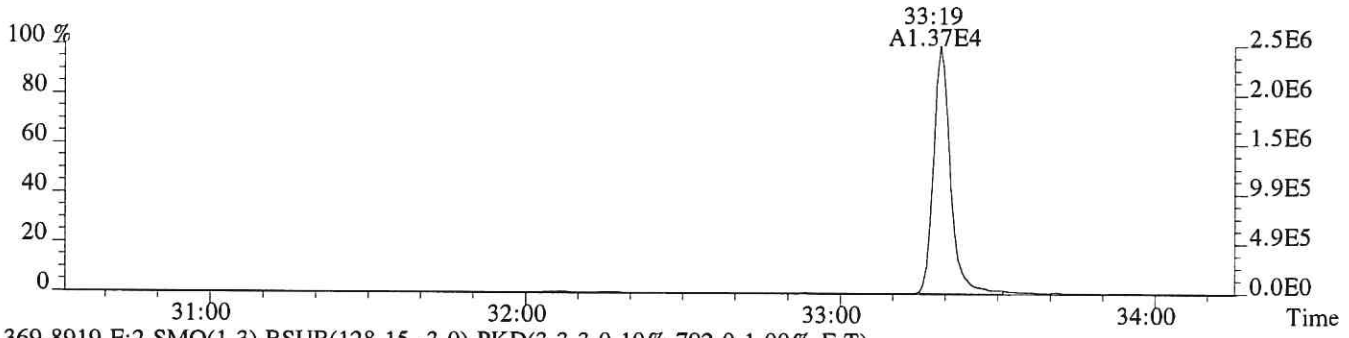
File:P519378 #1-335 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



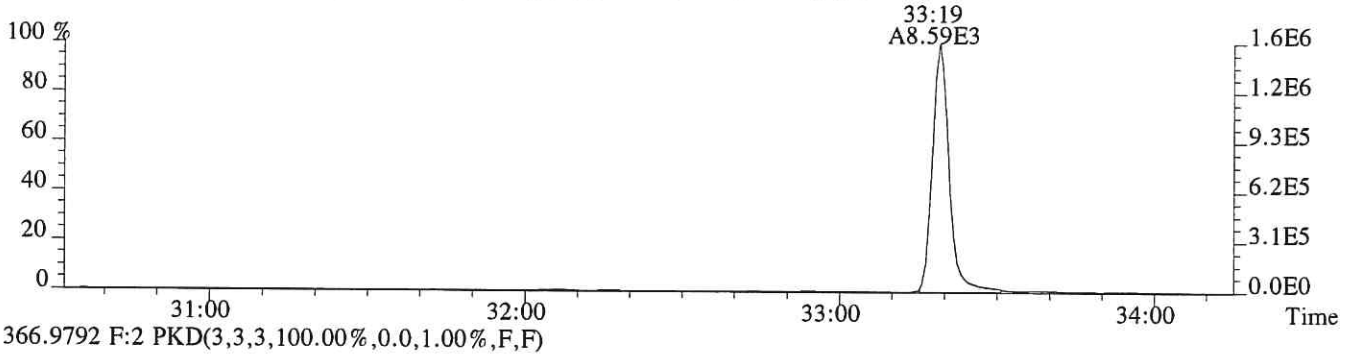
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



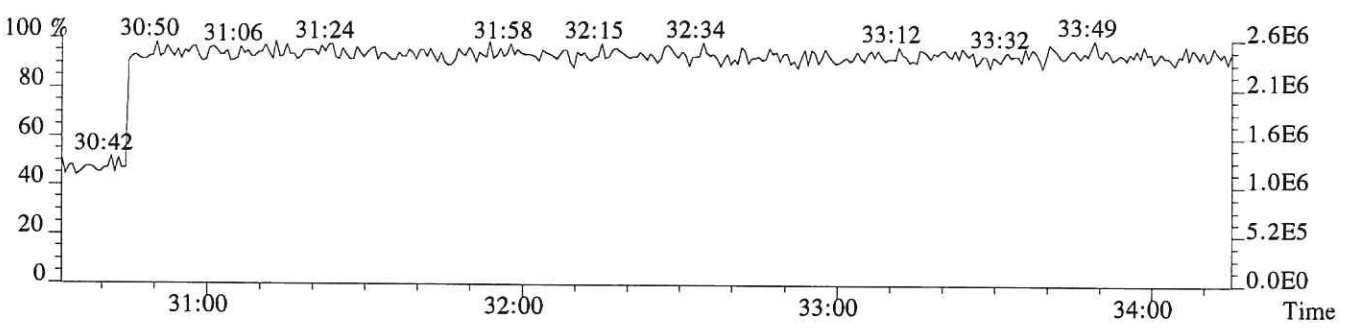
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)

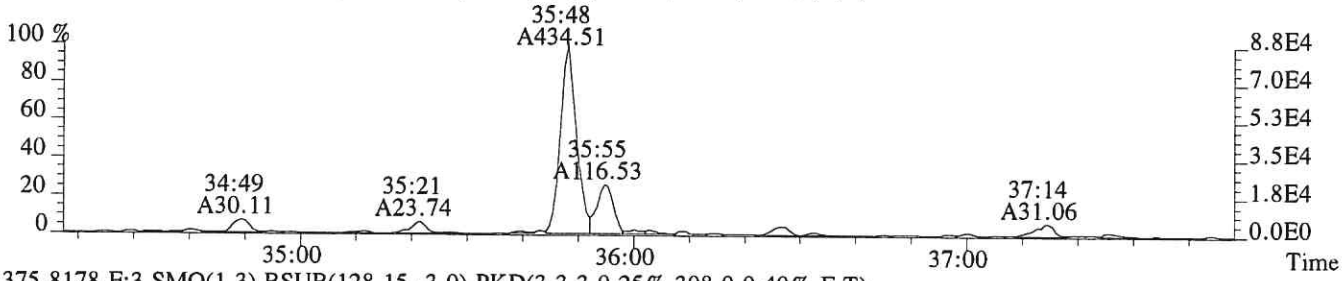


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

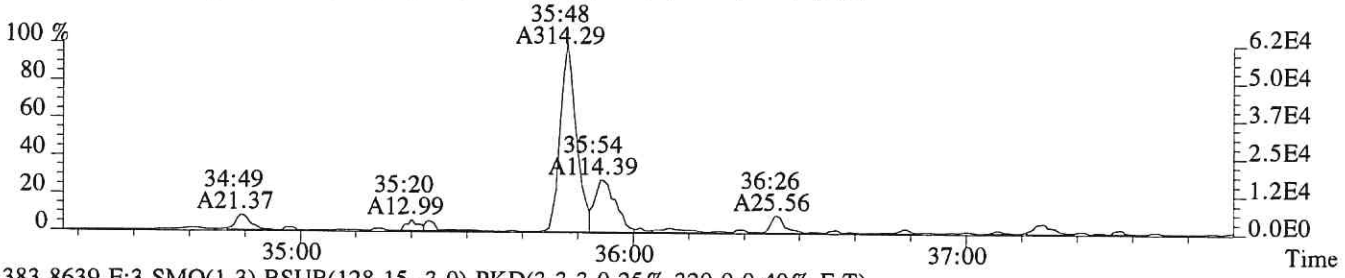


File:P519378 #1-317 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL

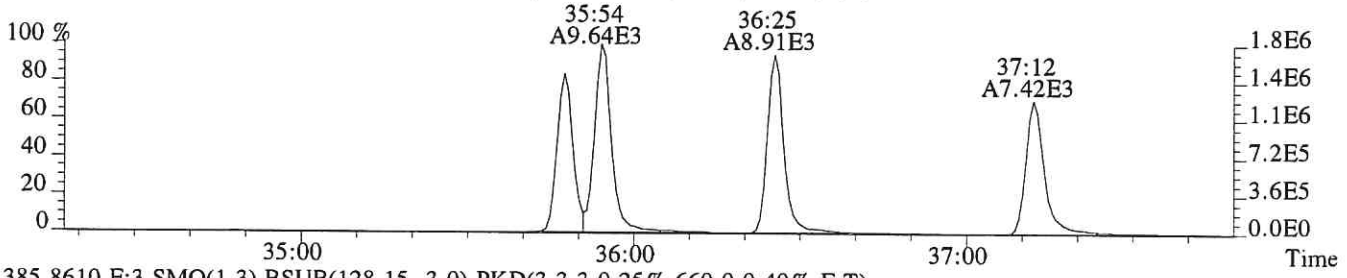
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



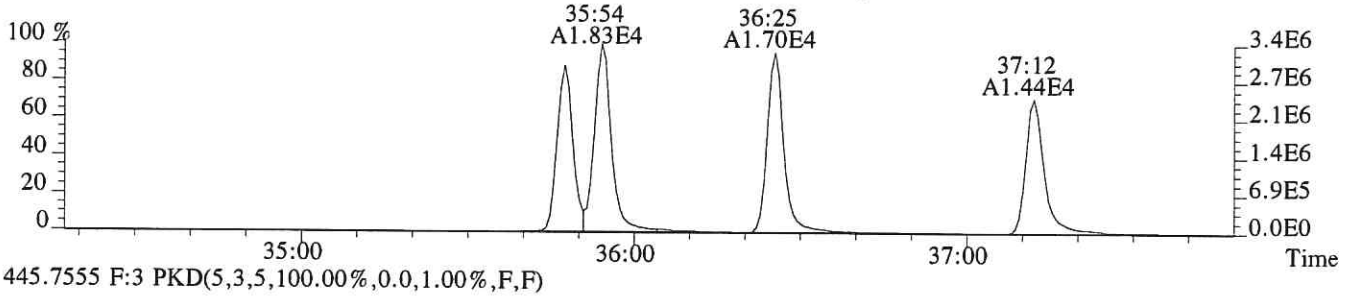
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



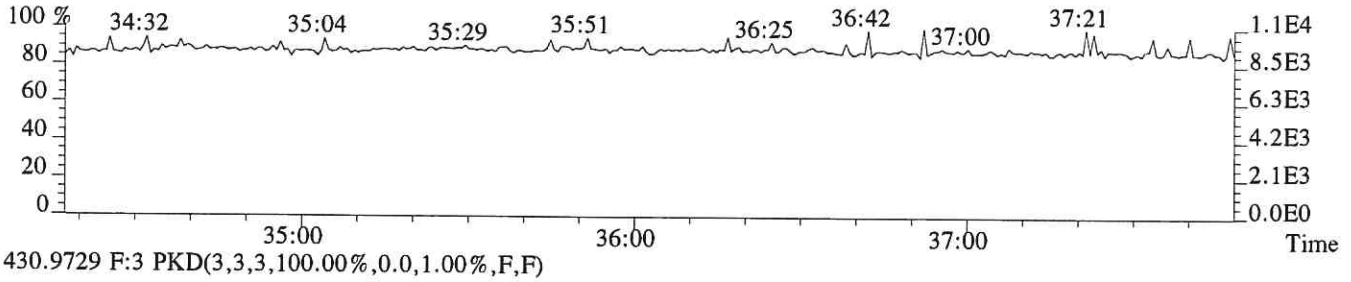
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



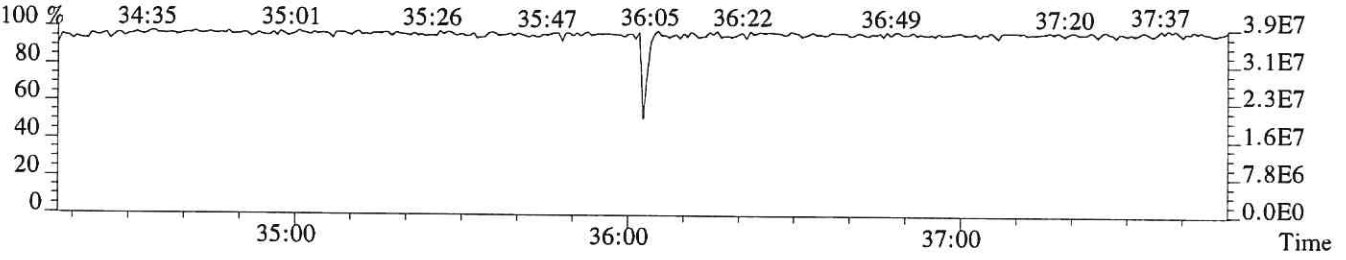
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



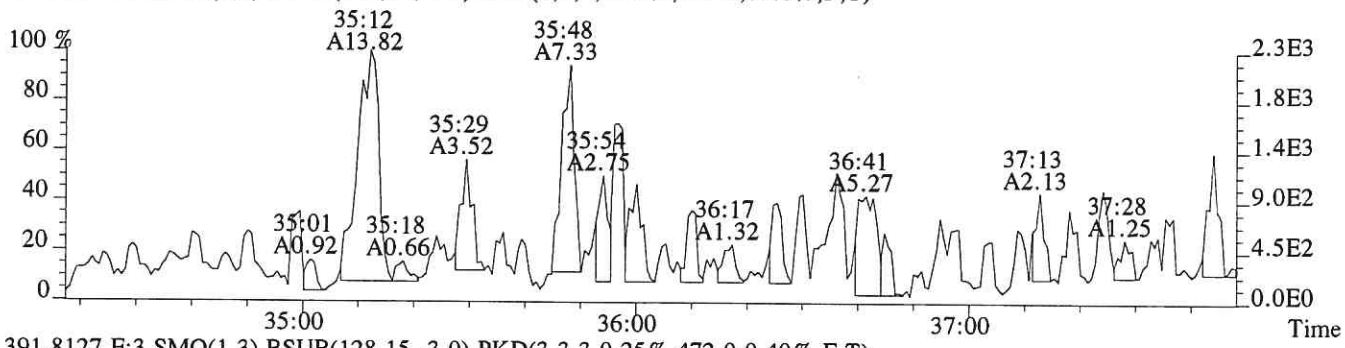
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



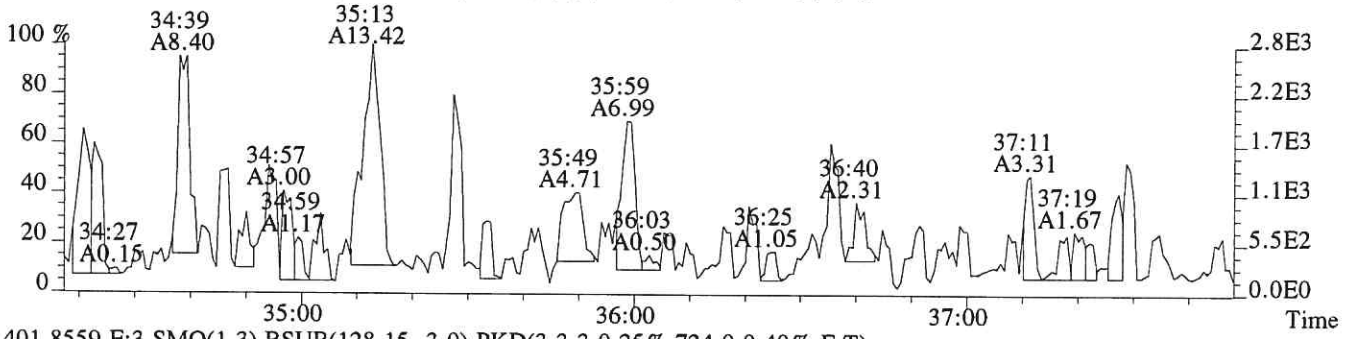
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



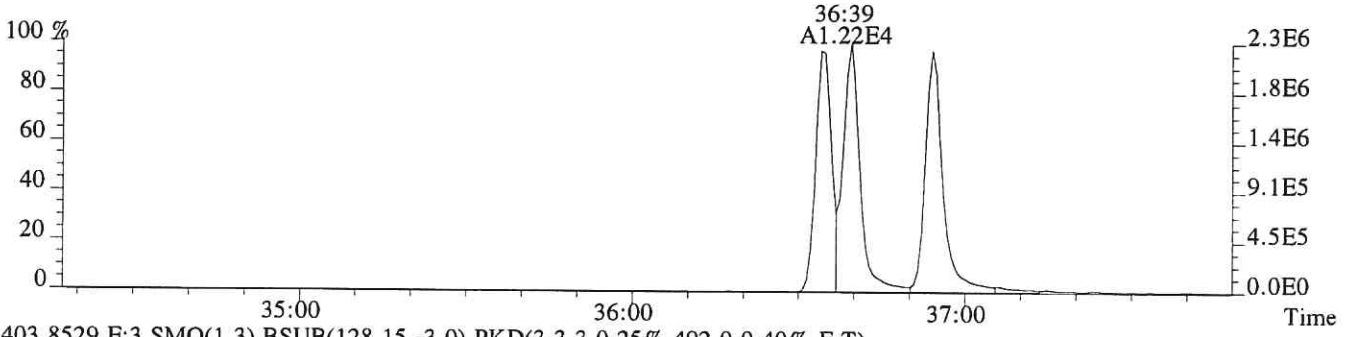
File:P519378 #1-317 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



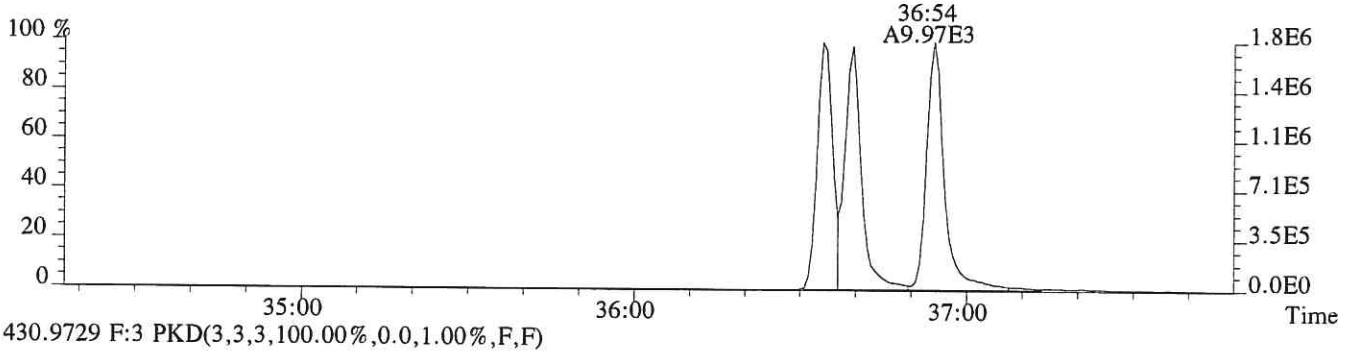
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



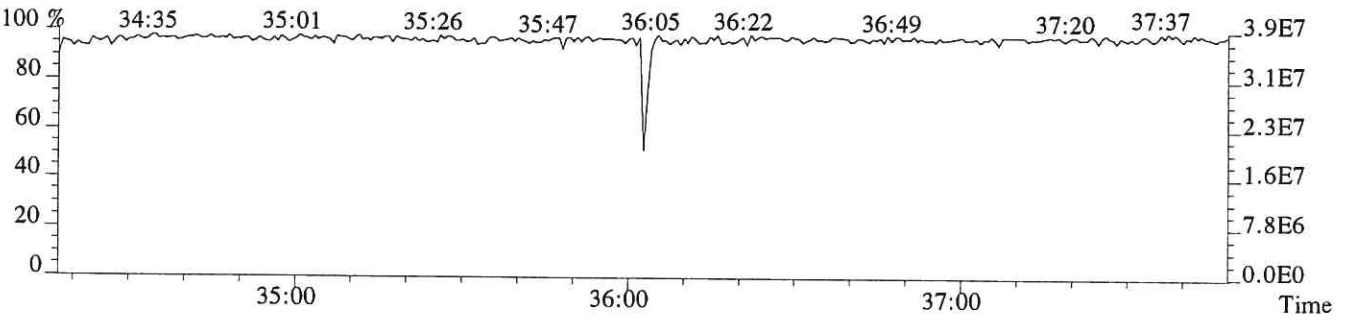
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



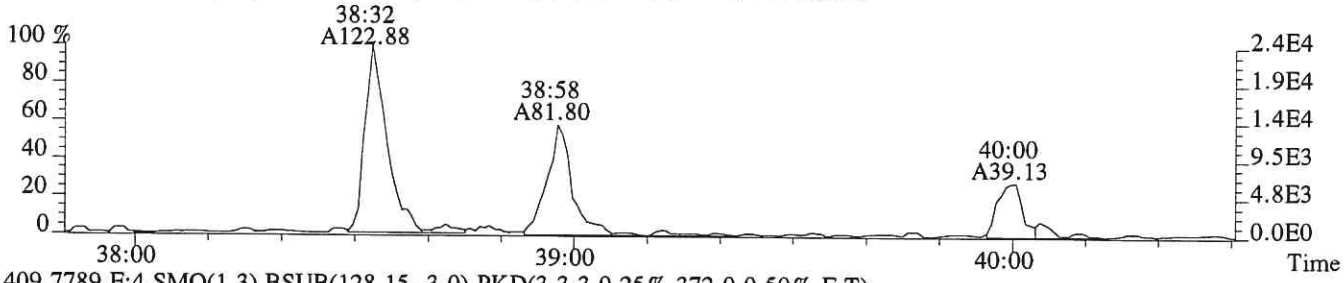
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



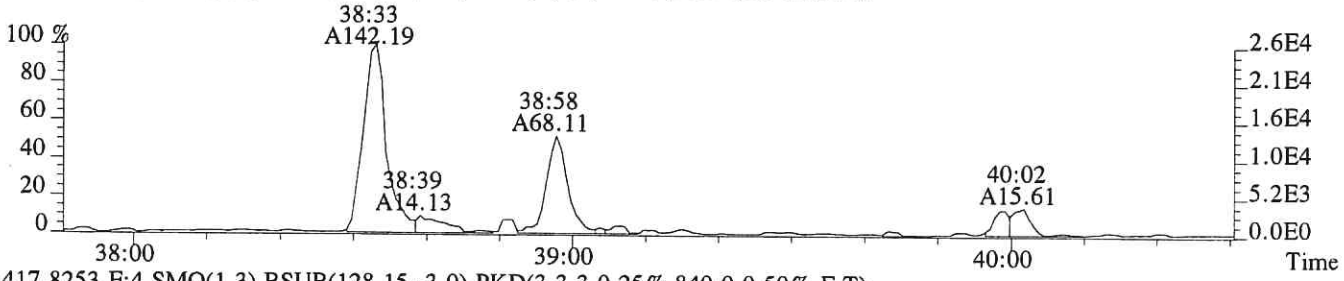
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



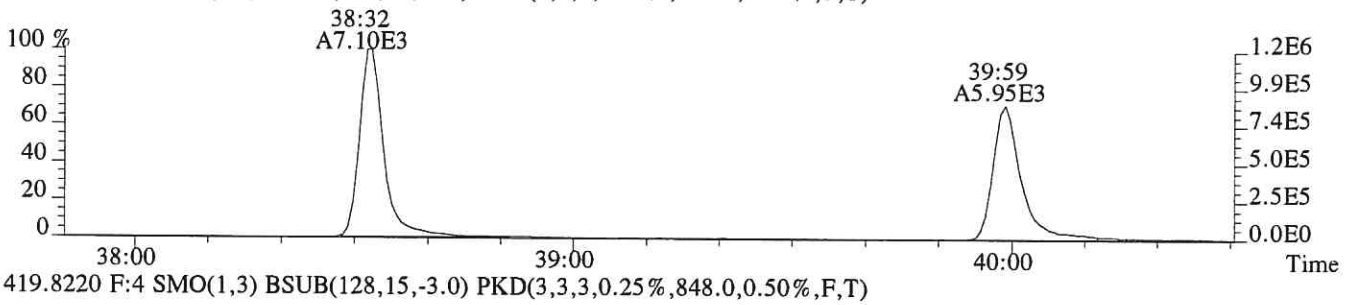
File:P519378 #1-241 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.50%,F,T)



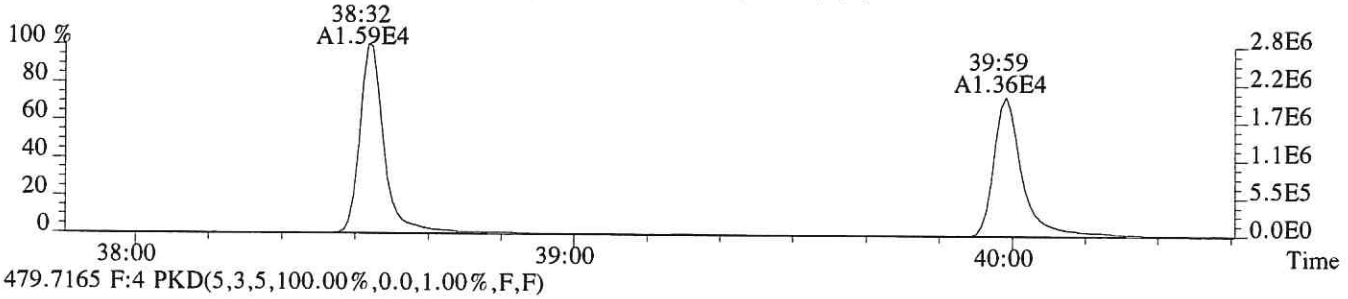
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.50%,F,T)



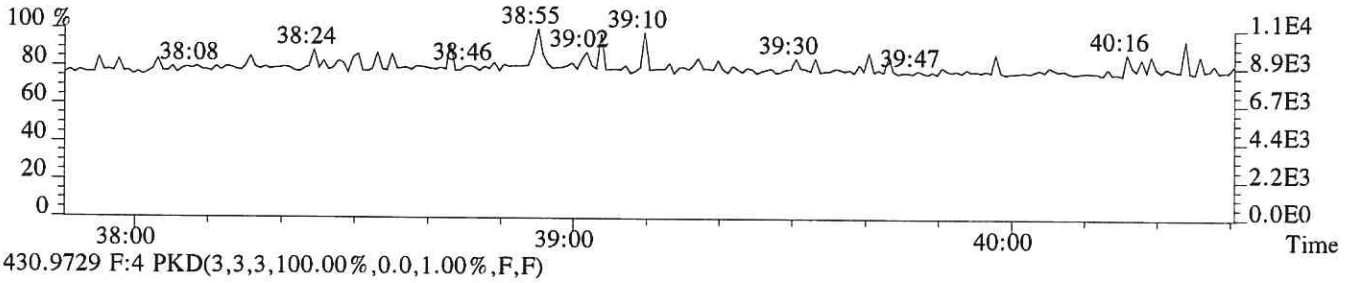
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.50%,F,T)



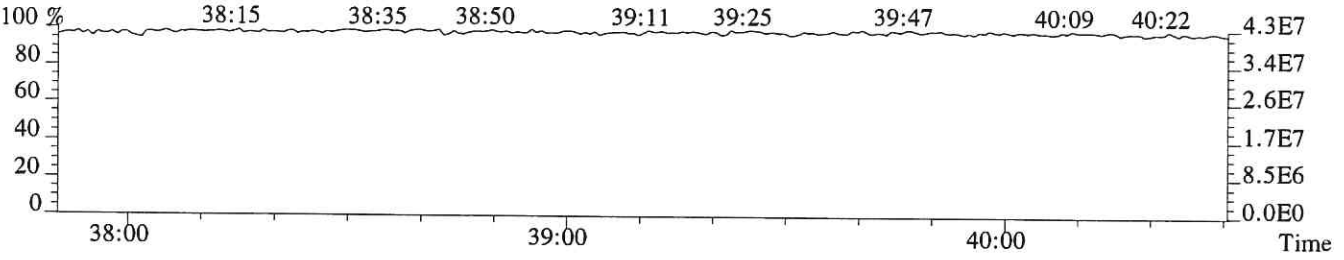
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.50%,F,T)



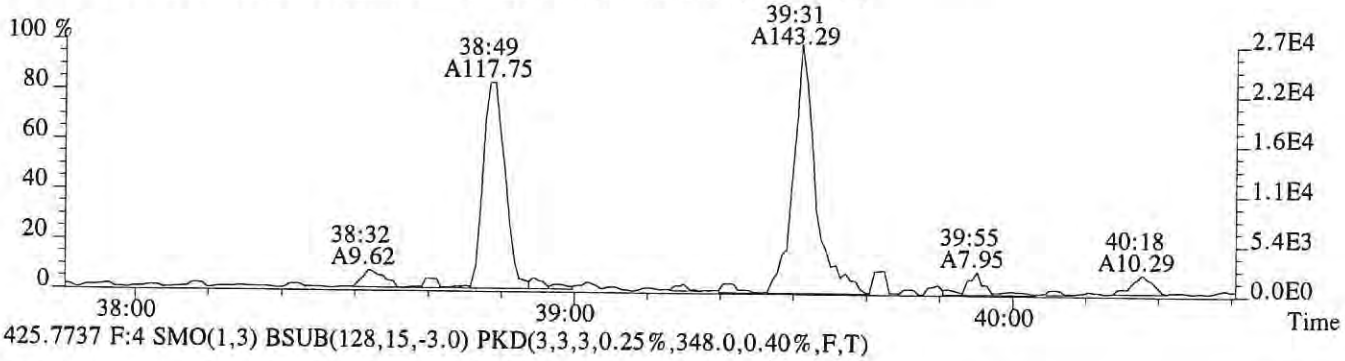
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



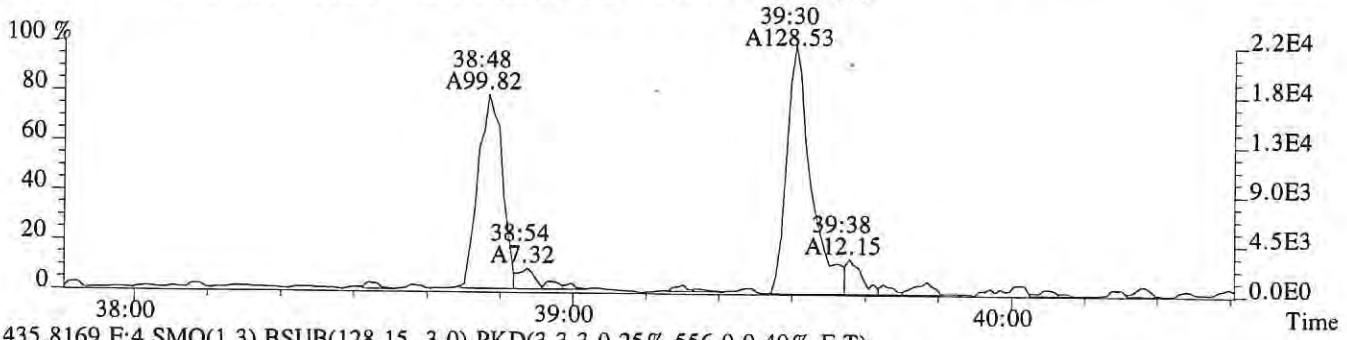
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



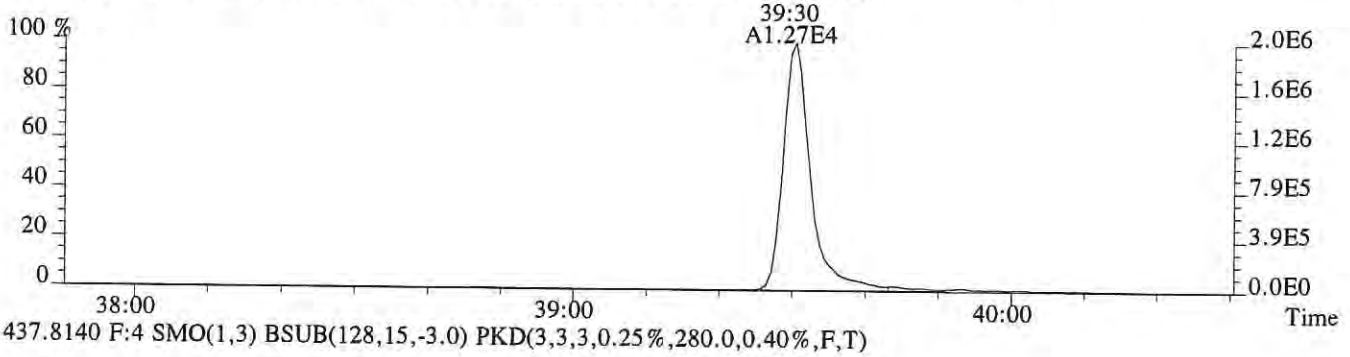
File:P519378 #1-241 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



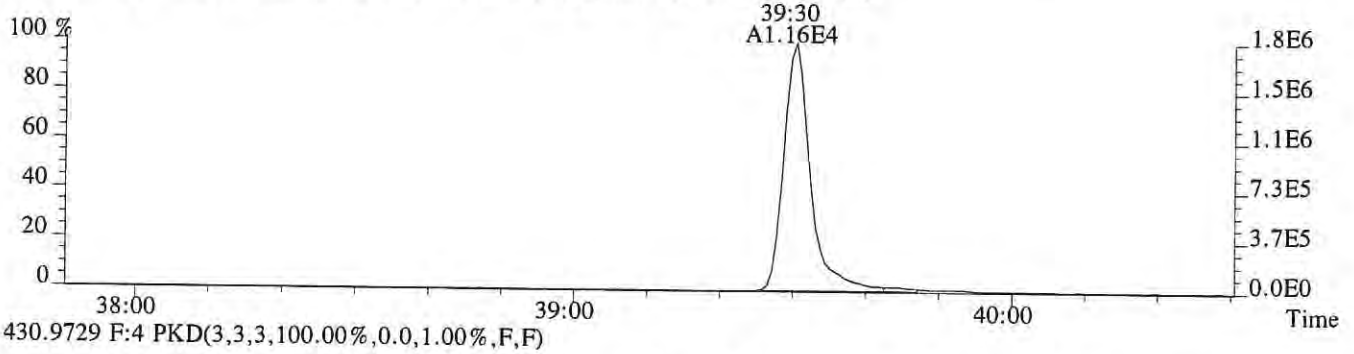
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



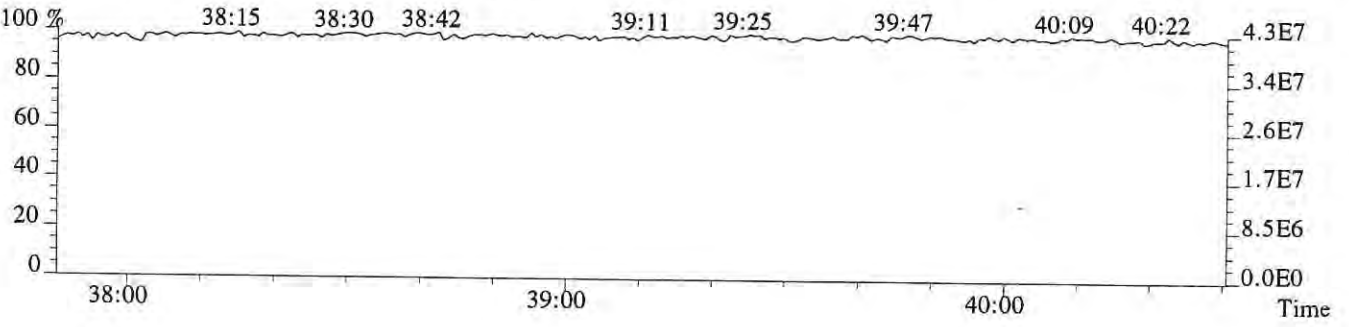
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



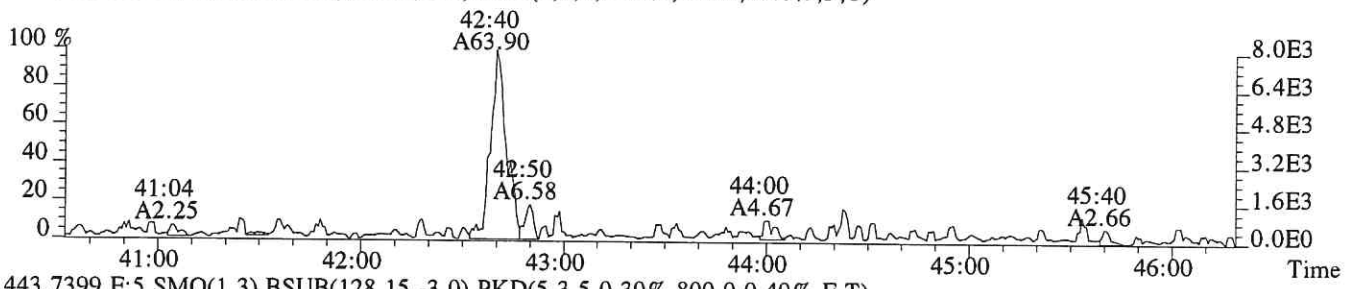
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



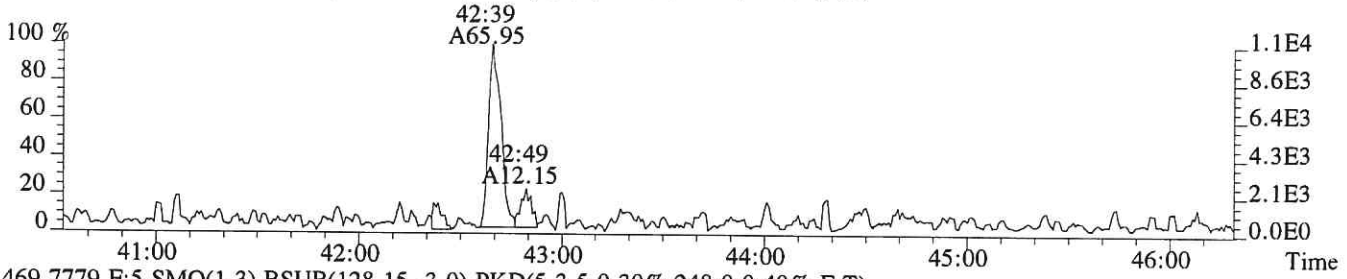
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



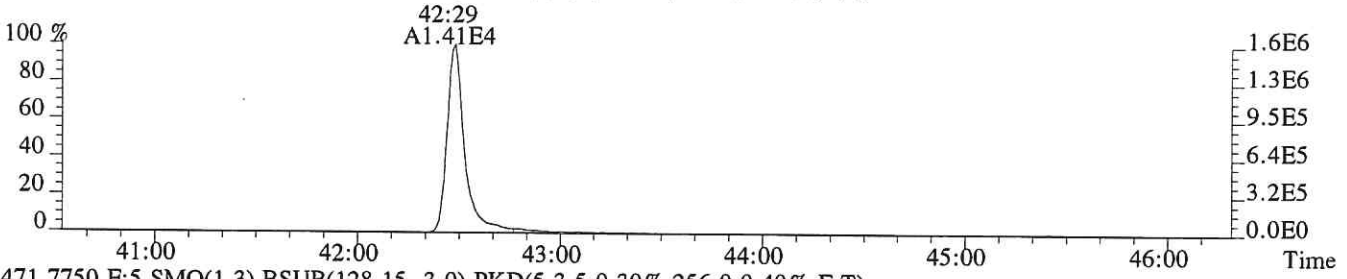
File:P519378 #1-520 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



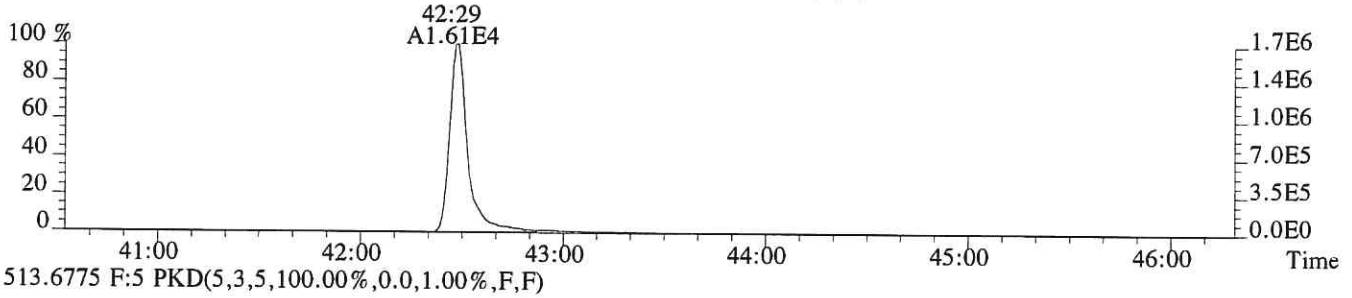
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



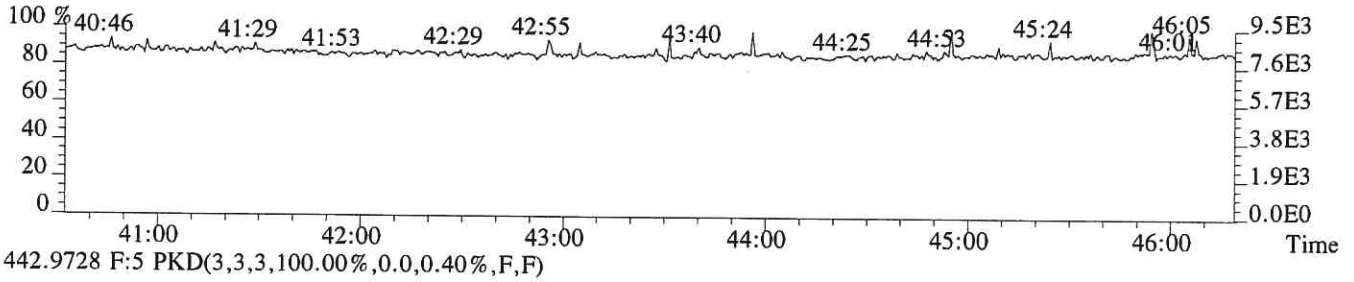
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



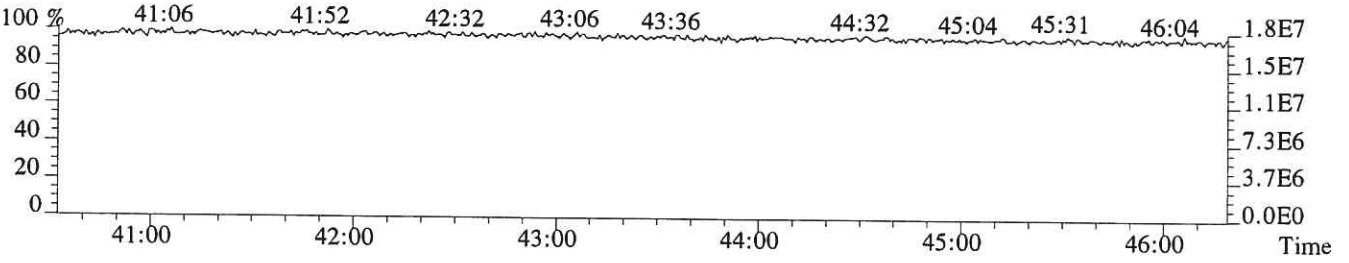
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



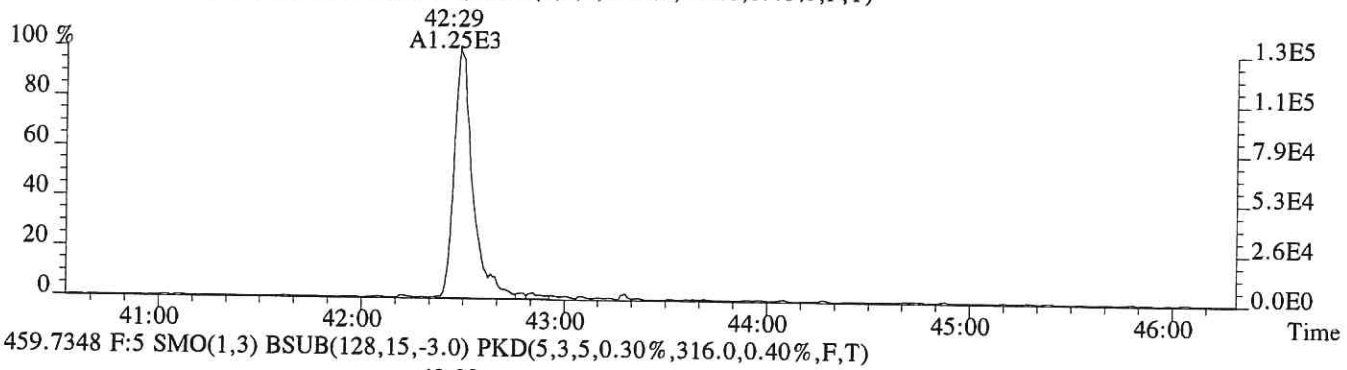
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



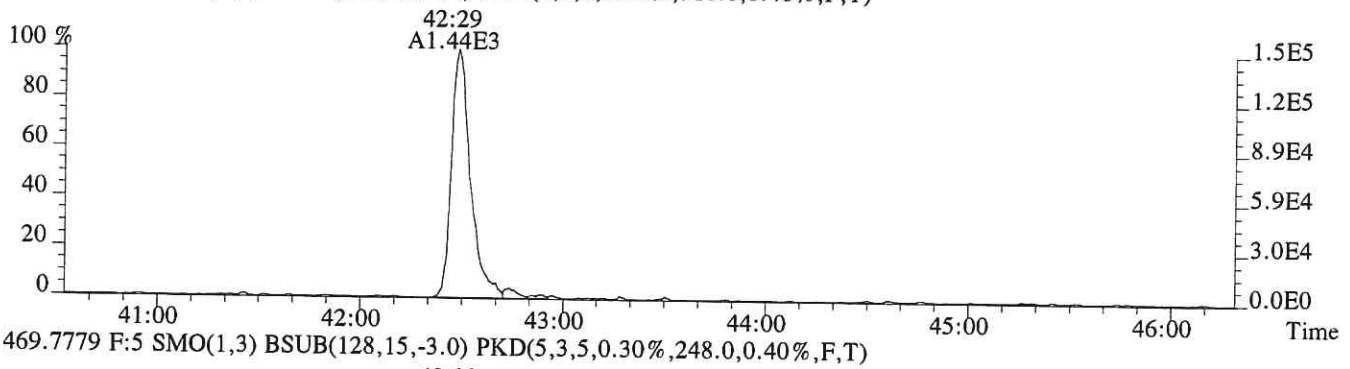
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



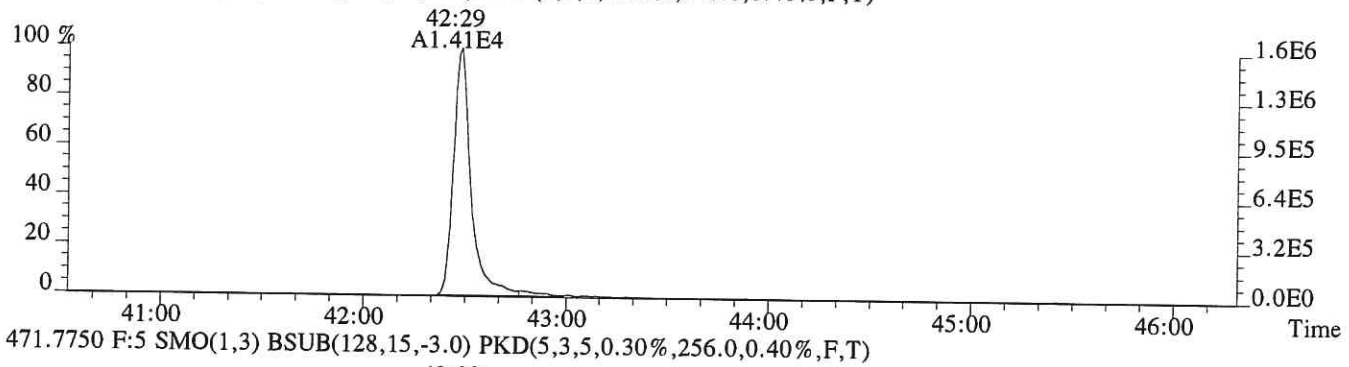
File:P519378 #1-520 Acq:12-DEC-2018 09:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-013DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



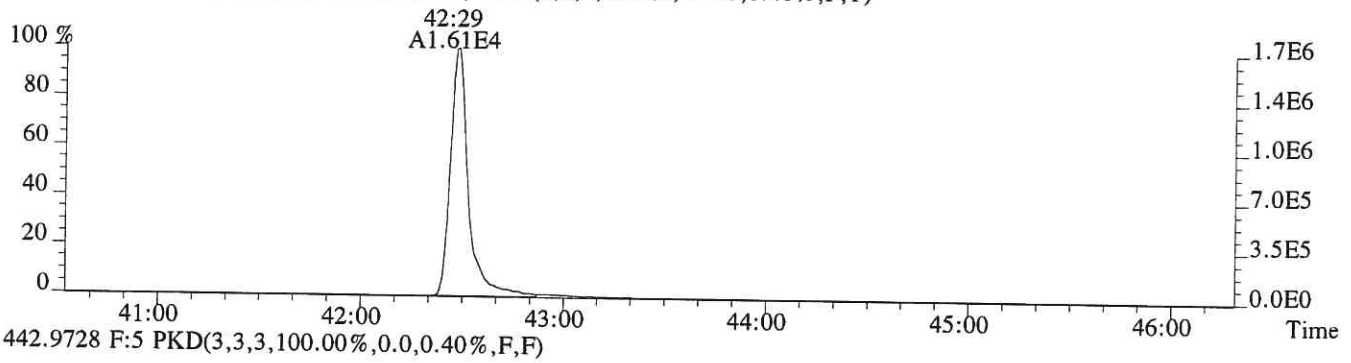
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



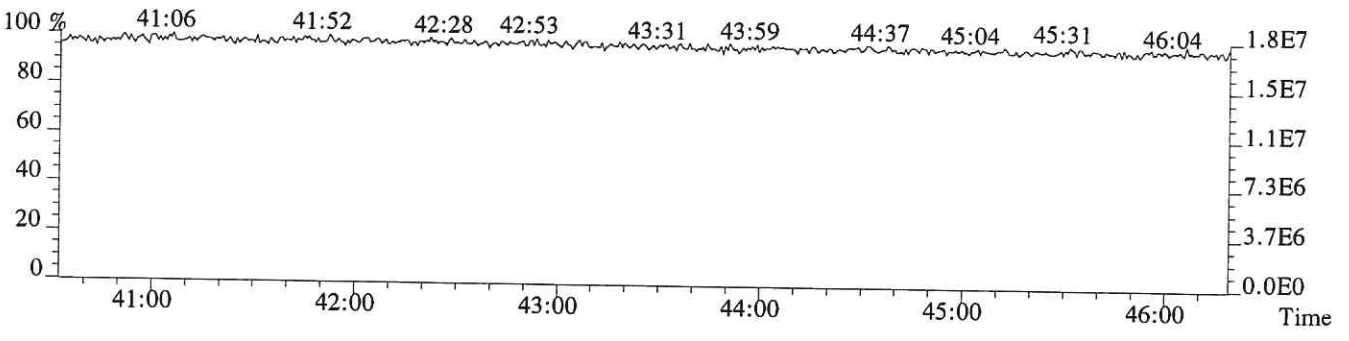
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0563

Run #14 Filename P519342 Samp: 1 Inj: 1 Acquired: 11-DEC-18 03:40:15
Processed: 12-DEC-18 13:50:58 Sample ID: E1801065-014

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.283e+05	1.692e+05	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	1.011e+04	6.527e+03	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	6.924e+03	4.563e+03	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	1.228e+04	1.016e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.781e+03	3.171e+03	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	6.577e+02	5.671e+02	1.16	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	1.181e+03	9.631e+02	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	3.410e+03	3.267e+03	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	9.540e+02	9.795e+02	0.97	yes	no	1.258
10	Unk	OCDF	42:39	1.307e+03	1.536e+03	0.85	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	2.961e+04	3.747e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	4.179e+02	2.525e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	8.770e+01	6.207e+01	1.41	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	5.237e+01	3.297e+01	1.59	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.800e+03	2.673e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:28	3.836e+04	4.285e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.321e+04	1.686e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.508e+04	1.568e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.119e+04	1.332e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.206e+03	1.802e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.201e+04	2.337e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	9.943e+03	1.907e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	9.974e+03	1.908e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	7.414e+03	1.681e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	6.681e+03	1.528e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	5.672e+03	7.427e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.469e+04	9.193e+03	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.256e+04	9.712e+03	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.295e+04	1.016e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	1.542e+04	1.455e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:27	1.453e+04	1.600e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.177e+04	4.013e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.649e+04	3.693e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	8.855e+03				no	1.014

$$\text{OCDD} = \frac{(3.836e+04 + 4.285e+04) \times 4000 \text{ pg} \times 1}{(1.453e+04 + 1.600e+04) \times 10.530 \text{ g} \times 82.9 / 100 \times 1.118} = 1090 \text{ ng/kg}$$

LW 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0563

Run #14 Filename P519342 Samp: 1 Inj: 1 Acquired: 11-DEC-18 03:40:15
Processed: 12-DEC-18 13:50:58 LAB. ID: E1801065-014

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.11e+07	3.68e+02	5.7e+04	2.79e+07	1.08e+03	2.6e+04
2	1,2,3,7,8-PeCDF	1.82e+06	3.75e+03	4.9e+02	1.16e+06	2.63e+03	4.4e+02
3	2,3,4,7,8-PeCDF	1.11e+06	3.75e+03	3.0e+02	7.01e+05	2.63e+03	2.7e+02
4	1,2,3,4,7,8-HxCDF	2.46e+06	1.30e+03	1.9e+03	2.03e+06	2.76e+02	7.4e+03
5	1,2,3,6,7,8-HxCDF	6.92e+05	1.30e+03	5.3e+02	5.64e+05	2.76e+02	2.0e+03
6	2,3,4,6,7,8-HxCDF	1.38e+05	1.30e+03	1.1e+02	1.17e+05	2.76e+02	4.2e+02
7	1,2,3,7,8,9-HxCDF	2.06e+05	1.30e+03	1.6e+02	1.74e+05	2.76e+02	6.3e+02
8	1,2,3,4,6,7,8-HpCDF	6.26e+05	1.08e+03	5.8e+02	5.88e+05	7.32e+02	8.0e+02
9	1,2,3,4,7,8,9-HpCDF	1.44e+05	1.08e+03	1.3e+02	1.54e+05	7.32e+02	2.1e+02
10	OCDF	1.46e+05	1.52e+02	9.6e+02	1.80e+05	7.64e+02	2.4e+02
11	2,3,7,8-TCDD	5.58e+06	1.42e+03	3.9e+03	7.16e+06	9.68e+02	7.4e+03
12	1,2,3,7,8-PeCDD	6.74e+04	8.92e+02	7.6e+01	4.42e+04	6.44e+02	6.9e+01
13	1,2,3,4,7,8-HxCDD	*	6.24e+02	*	*	1.28e+03	*
14	1,2,3,6,7,8-HxCDD	1.60e+04	6.24e+02	2.6e+01	1.23e+04	1.28e+03	9.6e+00
15	1,2,3,7,8,9-HxCDD	1.04e+04	6.24e+02	1.7e+01	6.70e+03	1.28e+03	5.2e+00
16	1,2,3,4,6,7,8-HpCDD	4.60e+05	1.10e+03	4.2e+02	4.25e+05	1.02e+03	4.2e+02
17	OCDD	4.35e+06	2.04e+02	2.1e+04	4.85e+06	2.80e+02	1.7e+04
18	13C-2,3,7,8-TCDF	2.38e+06	3.92e+03	6.1e+02	3.00e+06	2.65e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	4.58e+06	5.56e+02	8.2e+03	2.87e+06	4.88e+02	5.9e+03
20	13C-2,3,4,7,8-PeCDF	4.04e+06	5.56e+02	7.3e+03	2.57e+06	4.88e+02	5.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.88e+06	4.12e+02	4.6e+03	3.71e+06	6.52e+02	5.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.30e+06	4.12e+02	5.6e+03	4.47e+06	6.52e+02	6.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.93e+06	4.12e+02	4.7e+03	3.72e+06	6.52e+02	5.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.70e+06	4.12e+02	4.1e+03	3.30e+06	6.52e+02	5.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.41e+06	1.83e+03	7.7e+02	3.11e+06	1.53e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.02e+06	1.83e+03	5.6e+02	2.34e+06	1.53e+03	1.5e+03
27	13C-2,3,7,8-TCDD	1.07e+06	3.27e+03	3.3e+02	1.40e+06	1.35e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	2.73e+06	2.80e+02	9.7e+03	1.70e+06	5.52e+02	3.1e+03
29	13C-1,2,3,4,7,8-HxCDD	2.70e+06	1.03e+03	2.6e+03	2.09e+06	2.00e+02	1.0e+04
30	13C-1,2,3,6,7,8-HxCDD	2.40e+06	1.03e+03	2.3e+03	1.91e+06	2.00e+02	9.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.44e+06	1.88e+02	1.3e+04	2.31e+06	2.56e+02	9.0e+03
32	13C-OCDD	1.63e+06	2.64e+02	6.2e+03	1.86e+06	2.04e+02	9.1e+03
33	13C-1,2,3,4-TCDD	6.07e+06	3.27e+03	1.9e+03	7.61e+06	1.35e+03	5.6e+03
34	13C-1,2,3,7,8,9-HxCDD	8.49e+06	1.03e+03	8.2e+03	6.73e+06	2.00e+02	3.4e+04
35	37Cl-2,3,7,8-TCDD	1.66e+06	1.48e+03	1.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0563

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P519342 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 03:40:15 Processed: 12-DEC-18 13:50:58

Mass: 303.9020 305.8990 Tot Response: 5.28e+05 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:41	9.78e+02	1.34e+03	0.73	yes	2.32e+03		n	n
2	24:59	5.51e+03	7.32e+03	0.75	yes	1.28e+04		n	n
3	25:24	1.50e+03	1.96e+03	0.77	yes	3.47e+03		n	n
4	25:43	4.53e+03	6.13e+03	0.74	yes	1.07e+04		n	n
5	26:07	8.58e+02	1.14e+03	0.75	yes	2.00e+03		n	n
6	26:21	2.97e+03	4.21e+03	0.71	yes	7.19e+03		n	n
7	26:28	5.60e+03	7.34e+03	0.76	yes	1.29e+04		n	n
8	26:55	5.38e+04	7.13e+04	0.75	yes	1.25e+05		n	n
9	27:11	2.45e+03	3.11e+03	0.79	yes	5.56e+03		n	n
10	27:45	1.28e+05	1.69e+05	0.76	yes	2.97e+05	2,3,7,8-TCDF	n	n
11	28:06	8.87e+03	1.16e+04	0.76	yes	2.05e+04		n	n
12	28:21	1.60e+03	2.12e+03	0.76	yes	3.73e+03		n	n
13	29:39	1.09e+04	1.36e+04	0.80	yes	2.45e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0563

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519342 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 03:40:15 Processed: 12-DEC-18 13:50:58

Mass: 319.8970 321.8940 Tot Response: 7.42e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:19	3.87e+02	5.27e+02	0.73	yes	9.14e+02		n	n
2	28:35	2.96e+04	3.75e+04	0.79	yes	6.71e+04	2,3,7,8-TCDD	n	n
3	28:54	2.66e+03	3.50e+03	0.76	yes	6.16e+03		n	n

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Peak List Summary

CLIENT ID.
SL0563

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P519342 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 03:40:15 Processed: 12-DEC-18 13:50:58

Mass: 339.8600 341.8570 Tot Response: 4.23e+04 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:02	8.75e+01	5.03e+01	1.74	yes	1.38e+02		n	n
2	31:09	3.98e+03	2.66e+03	1.50	yes	6.64e+03		n	n
3	31:48	1.32e+02	9.10e+01	1.45	yes	2.23e+02		n	n
4	31:56	9.50e+02	6.06e+02	1.57	yes	1.56e+03		n	n
5	32:07	1.01e+04	6.53e+03	1.55	yes	1.66e+04	1,2,3,7,8-PeCDF	n	n
6	32:22	3.09e+03	2.04e+03	1.52	yes	5.13e+03		n	n
7	33:03	6.92e+03	4.56e+03	1.52	yes	1.15e+04	2,3,4,7,8-PeCDF	n	n
8	33:58	3.14e+02	1.98e+02	1.58	yes	5.12e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0563

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519342 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 03:40:15 Processed: 12-DEC-18 13:50:58

Mass: 355.8550 357.8520 Tot Response: 7.63e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:24	1.91e+01	1.10e+01 1.74	yes	3.01e+01		n	n
2	32:36	2.14e+01	1.27e+01 1.68	yes	3.42e+01		n	n
3	32:46	1.52e+00	1.15e+00 1.32	yes	2.67e+00		n	n
4	33:21	4.18e+02	2.53e+02 1.66	yes	6.70e+02	1,2,3,7,8-PeCDD	n	n
5	33:42	1.54e+01	1.04e+01 1.49	yes	2.58e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0563

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P519342 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 03:40:15 Processed: 12-DEC-18 13:50:58

Mass: 373.8210 375.8180 Tot Response: 3.55e+04 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	1.07e+02	8.75e+01	1.23	yes	1.95e+02		n	n
2	34:49	9.55e+02	7.63e+02	1.25	yes	1.72e+03		n	n
3	35:21	4.43e+02	3.85e+02	1.15	yes	8.28e+02		n	n
4	35:48	1.23e+04	1.02e+04	1.21	yes	2.24e+04	1,2,3,4,7,8-HxCDF	n	n
5	35:55	3.78e+03	3.17e+03	1.19	yes	6.95e+03	1,2,3,6,7,8-HxCDF	n	n
6	36:26	6.58e+02	5.67e+02	1.16	yes	1.22e+03	2,3,4,6,7,8-HxCDF	n	n
7	37:14	1.18e+03	9.63e+02	1.23	yes	2.14e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0563

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519342 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 03:40:15 Processed: 12-DEC-18 13:50:58

Mass: 389.8160 391.8130 Tot Response: 1.72e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:12	5.54e+02	4.02e+02	1.38	yes	9.56e+02		n	n
2	35:44	4.72e+01	4.19e+01	1.13	yes	8.91e+01		n	n
3	35:59	2.95e+02	2.35e+02	1.25	yes	5.30e+02		n	n
4	36:40	8.77e+01	6.21e+01	1.41	yes	1.50e+02	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0563

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P519342 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 03:40:15 Processed: 12-DEC-18 13:50:58

Mass: 407.7820 409.7790 Tot Response: 1.13e+04 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:32	3.41e+03	3.27e+03	1.04	yes	6.68e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:57	1.33e+03	1.34e+03	1.00	yes	2.67e+03		n	n
3	39:09	2.33e+01	2.35e+01	0.99	yes	4.67e+01		n	n
4	39:59	9.54e+02	9.80e+02	0.97	yes	1.93e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0563

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519342 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 03:40:15 Processed: 12-DEC-18 13:50:58

Mass: 423.7770 425.7740 Tot Response: 1.22e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	3.38e+03	3.37e+03	1.00	yes	6.76e+03		n	n
2	39:30	2.80e+03	2.67e+03	1.05	yes	5.47e+03	1,2,3,4,6,7,8-HpCDD	n	n

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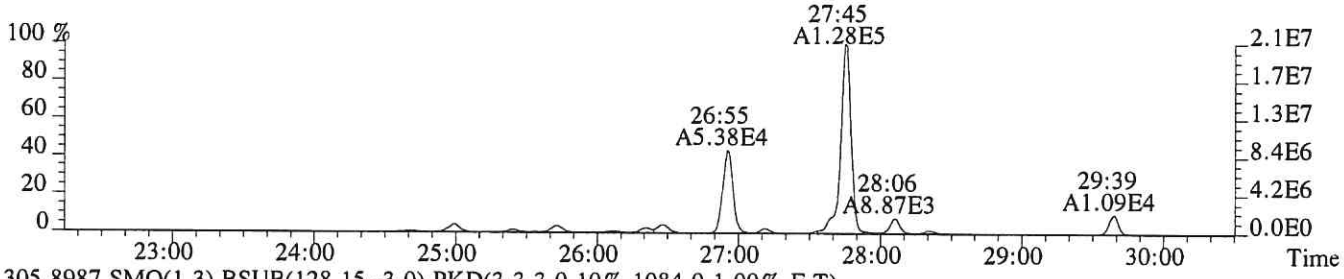
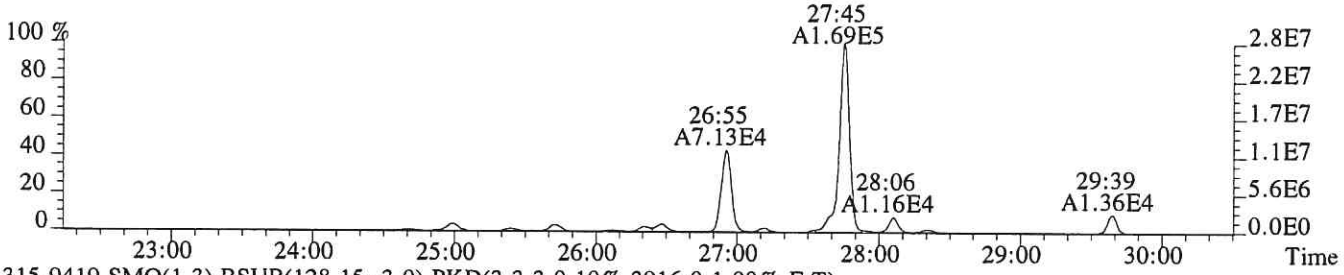
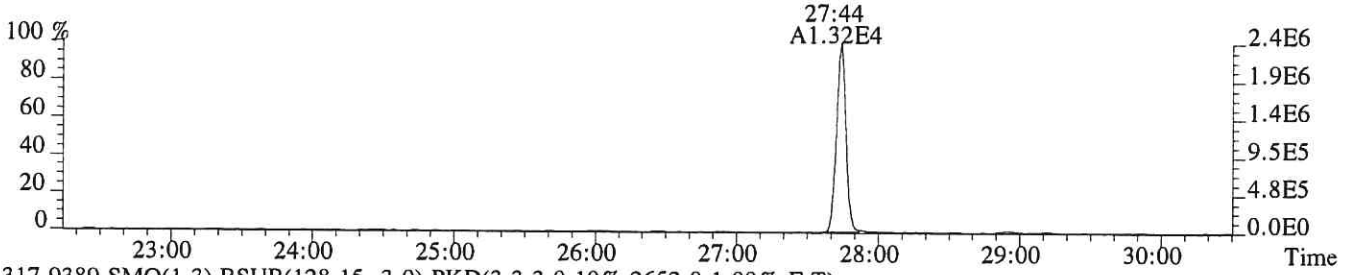
File:P519342 #1-587 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



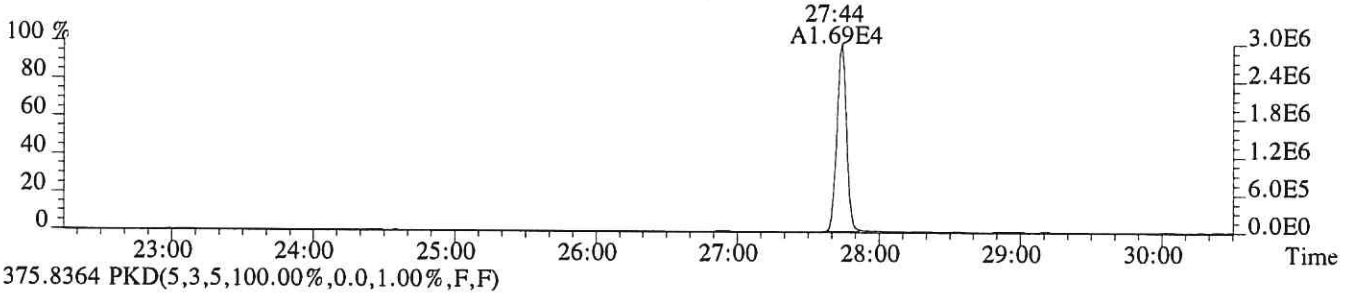
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



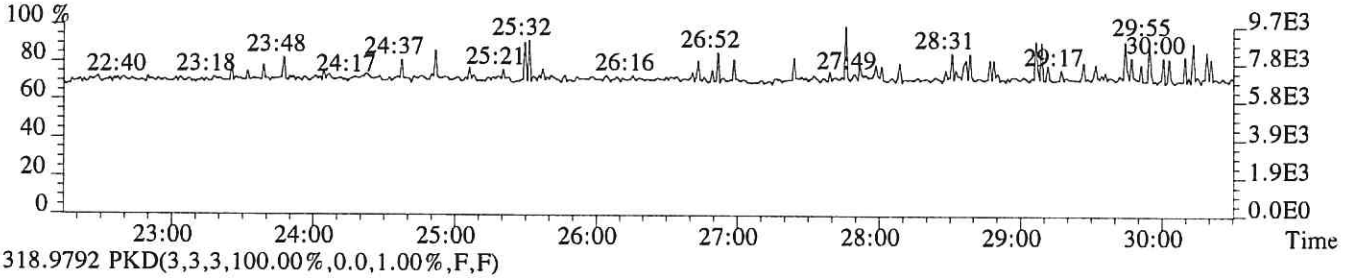
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3916.0,1.00%,F,T)



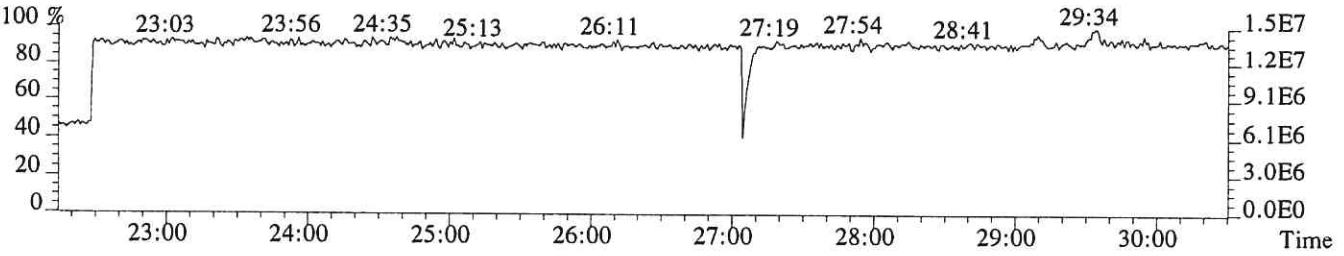
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2652.0,1.00%,F,T)



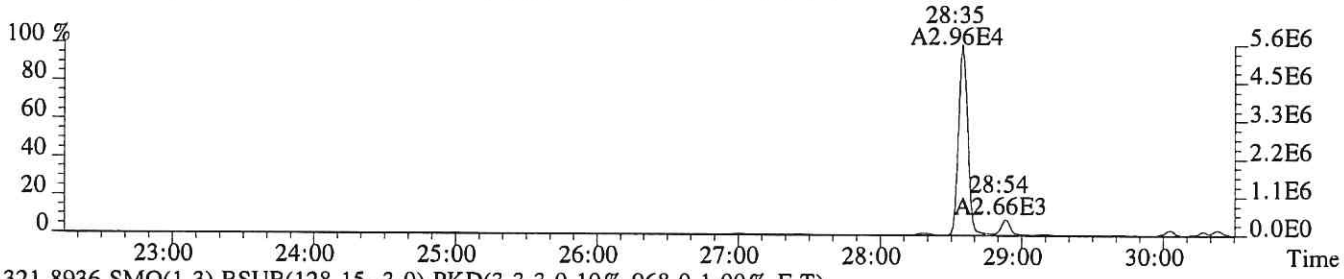
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



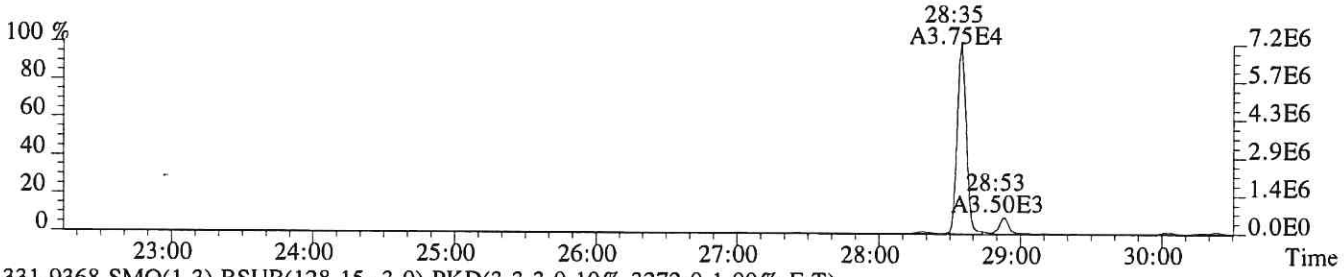
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



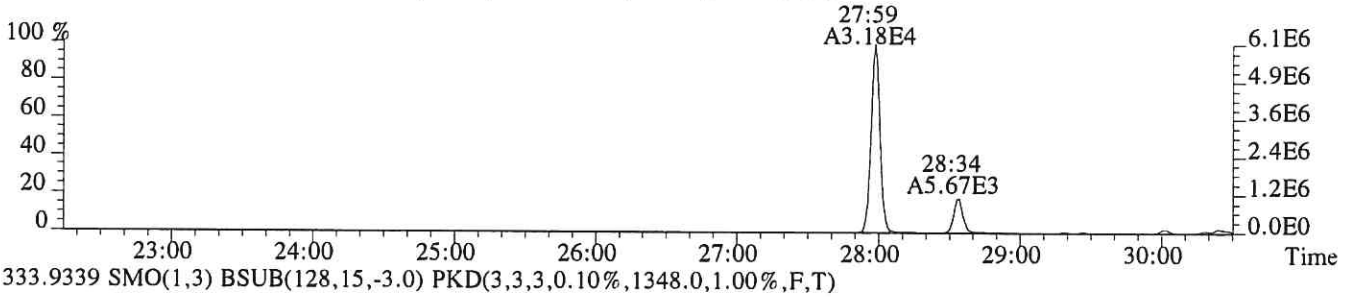
File:P519342 #1-587 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



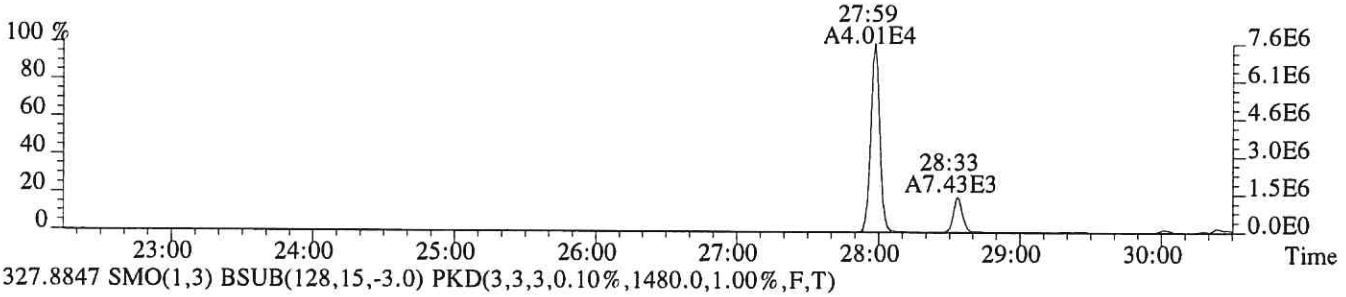
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



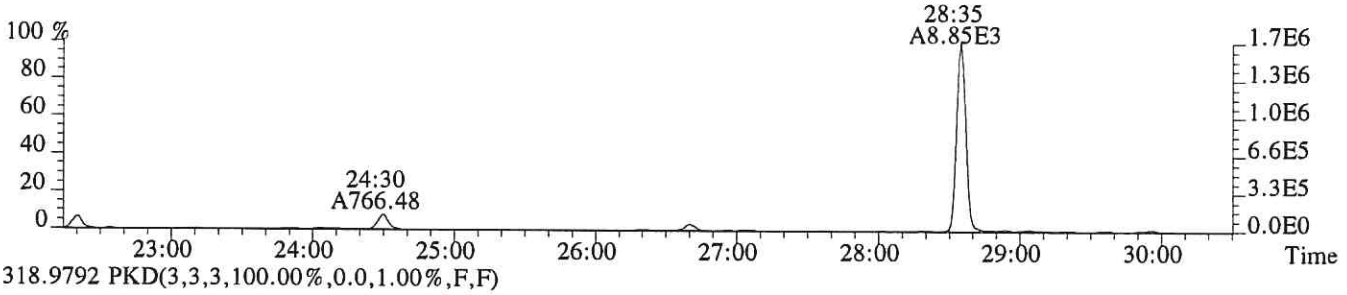
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3272.0,1.00%,F,T)



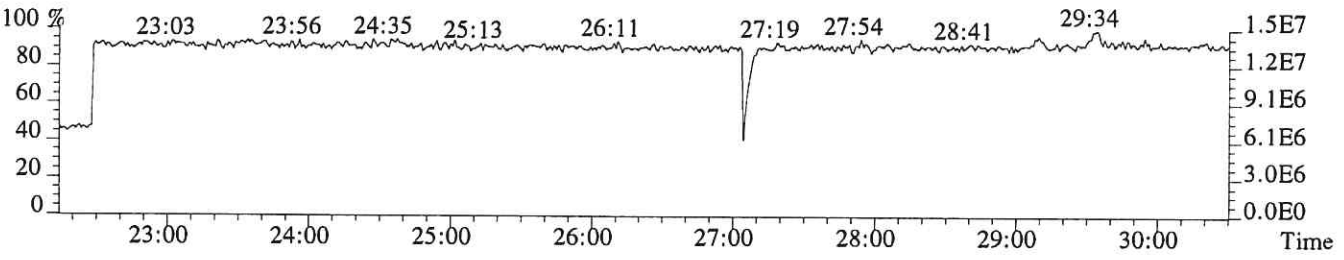
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



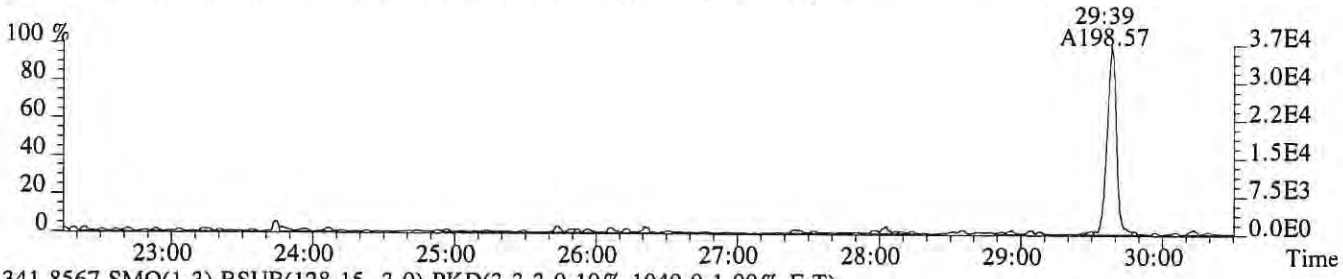
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



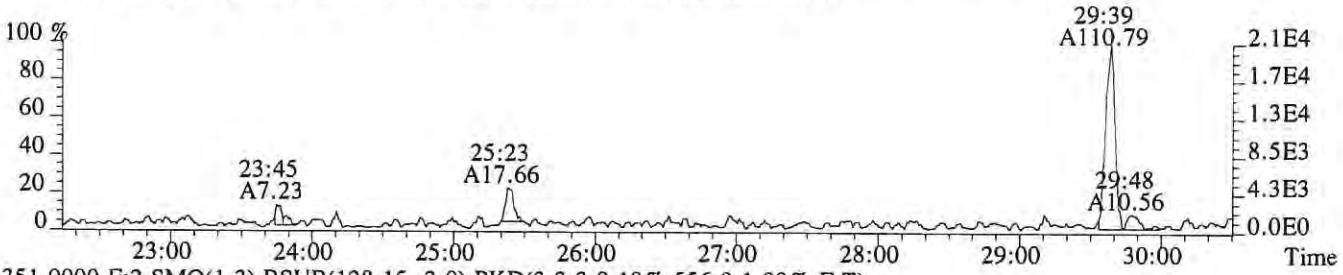
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



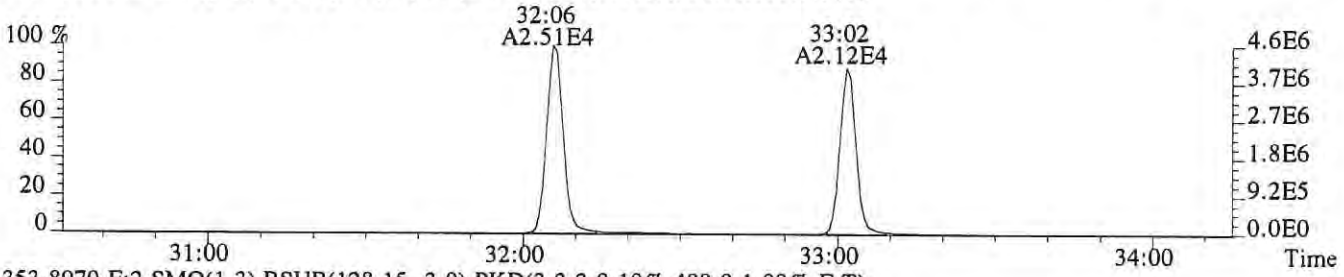
File:P519342 #1-587 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



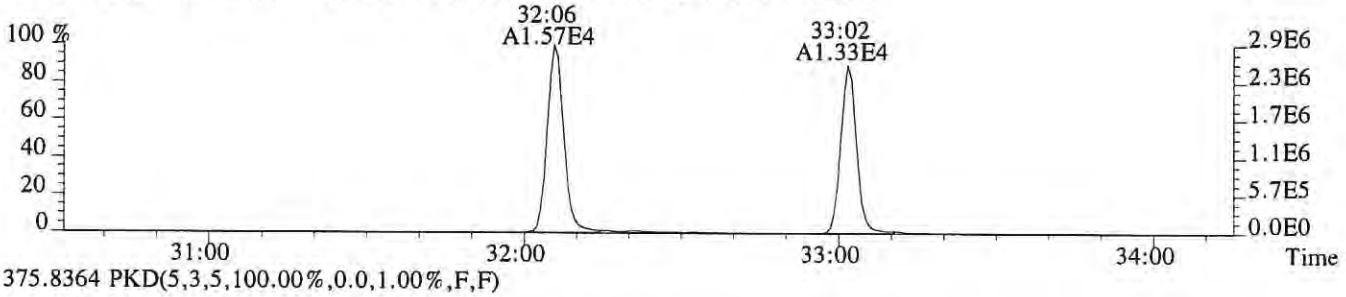
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



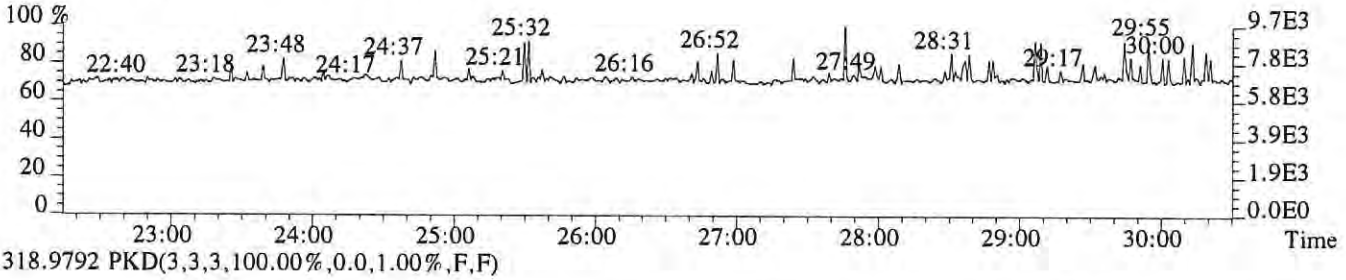
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



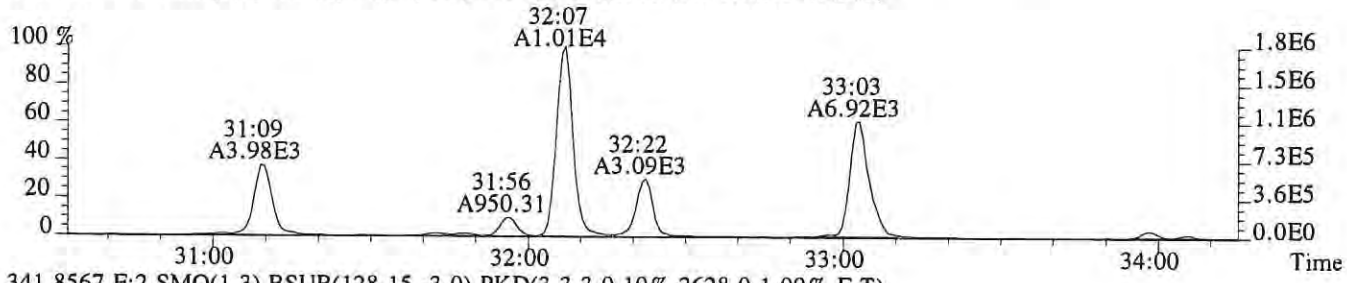
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



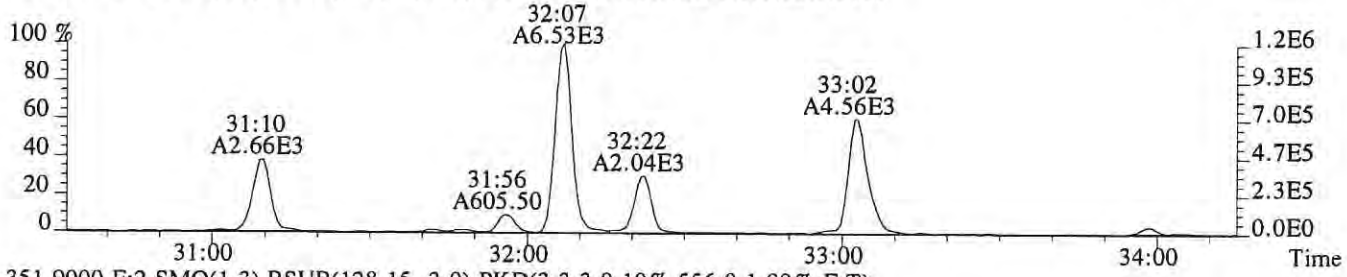
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



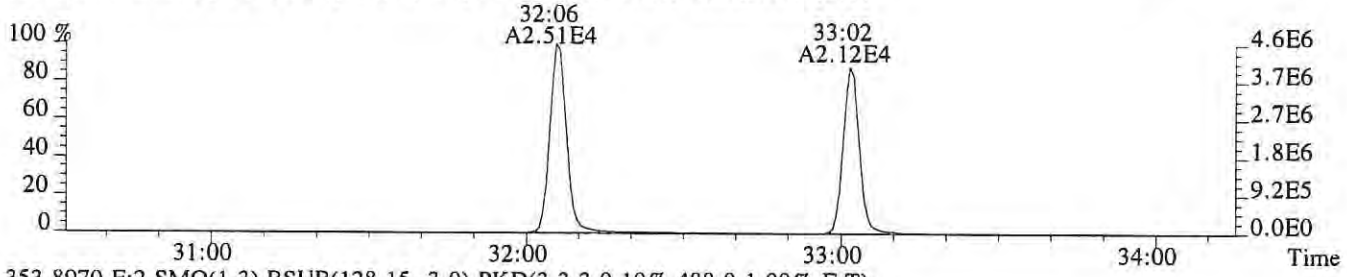
File:P519342 #1-335 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



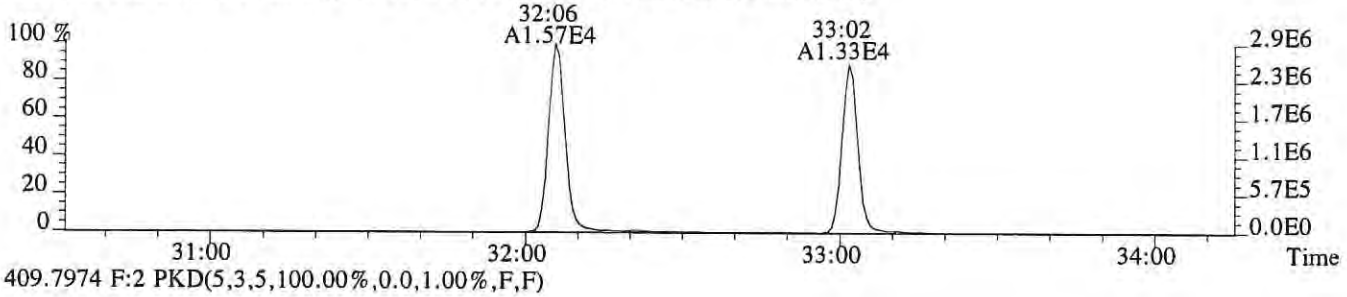
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2628.0,1.00%,F,T)



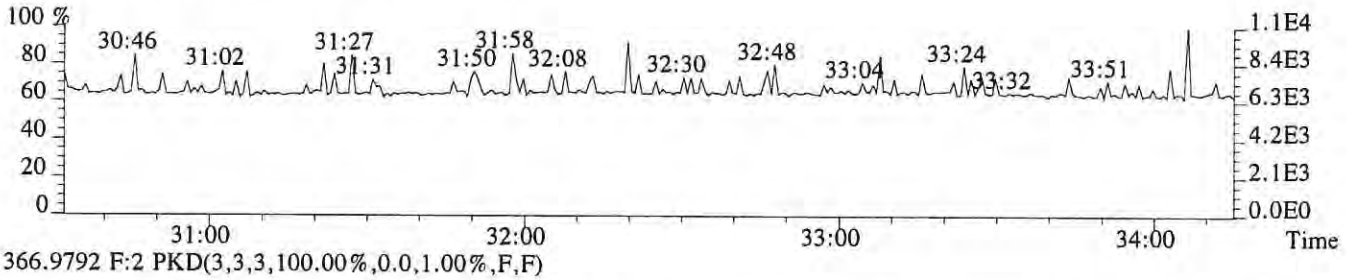
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



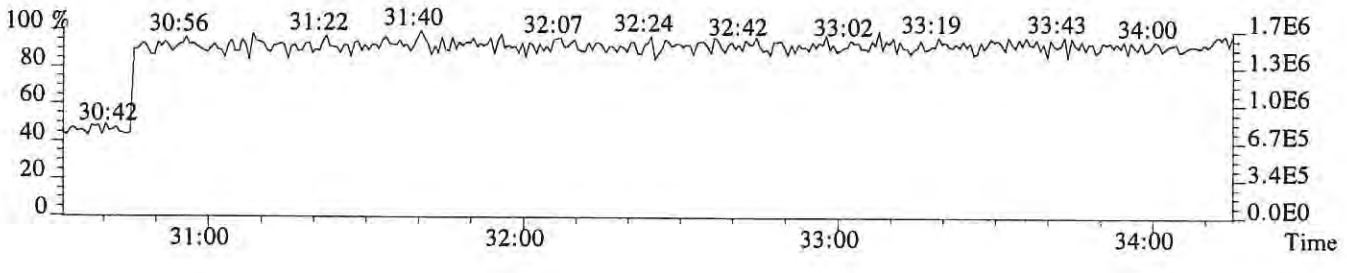
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



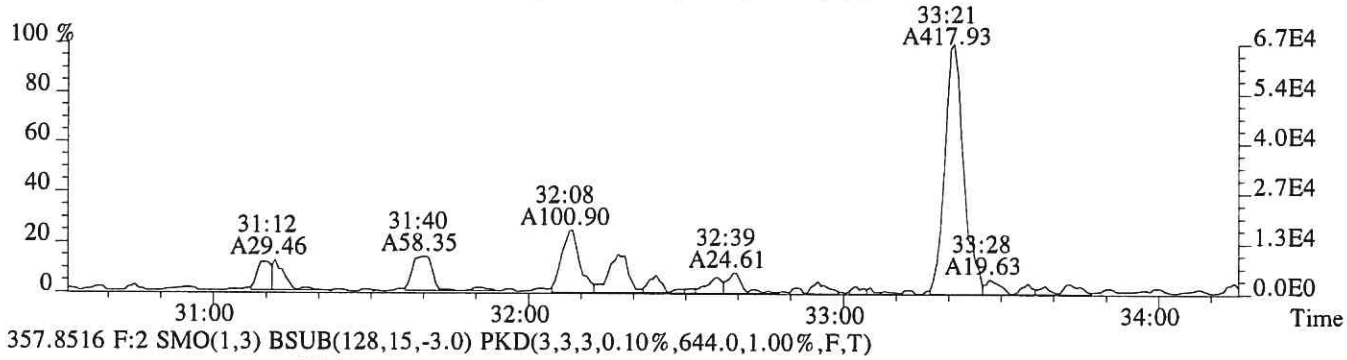
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



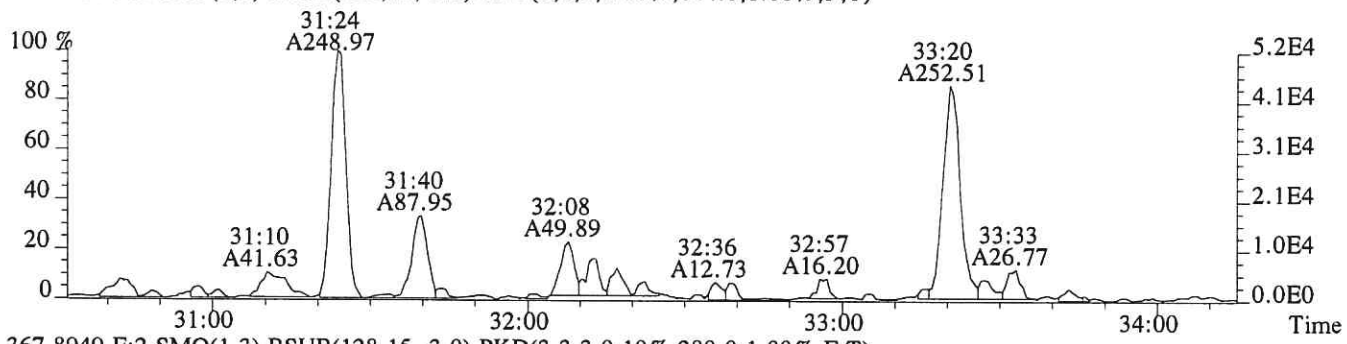
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



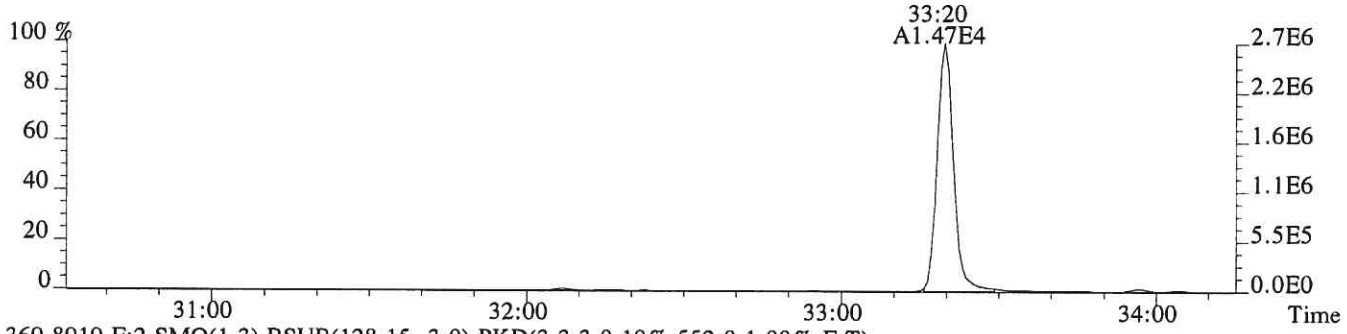
File:P519342 #1-335 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



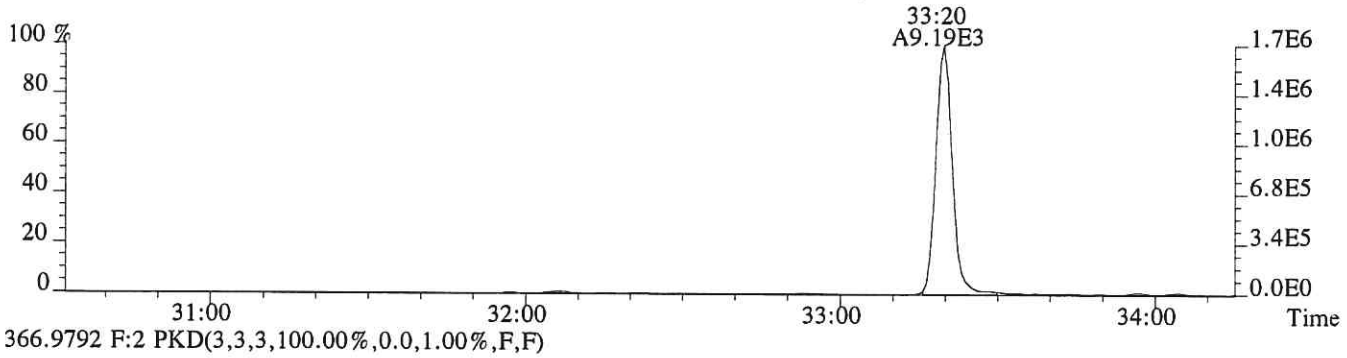
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



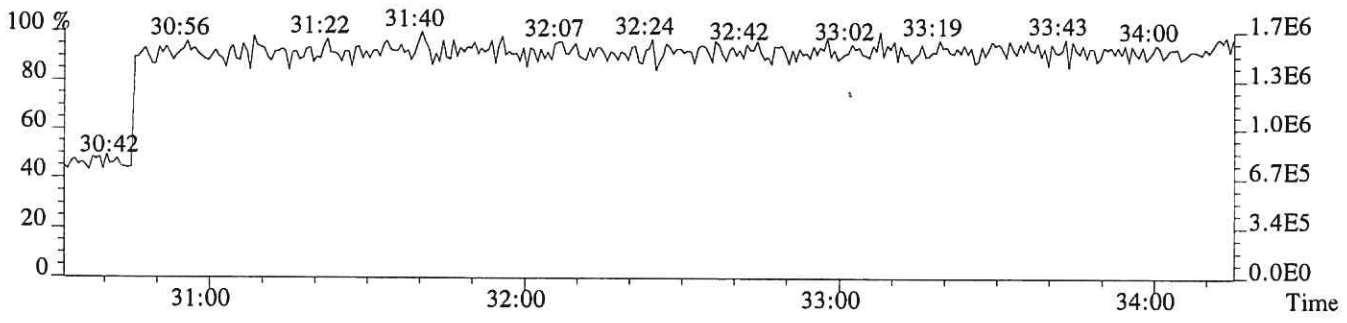
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)

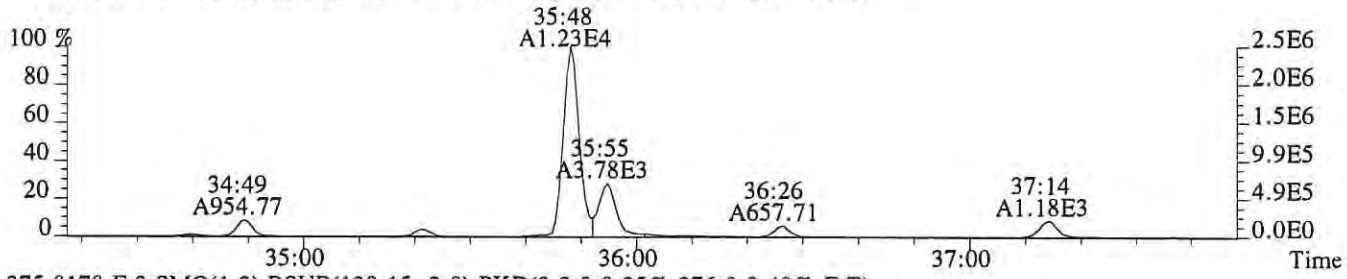


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

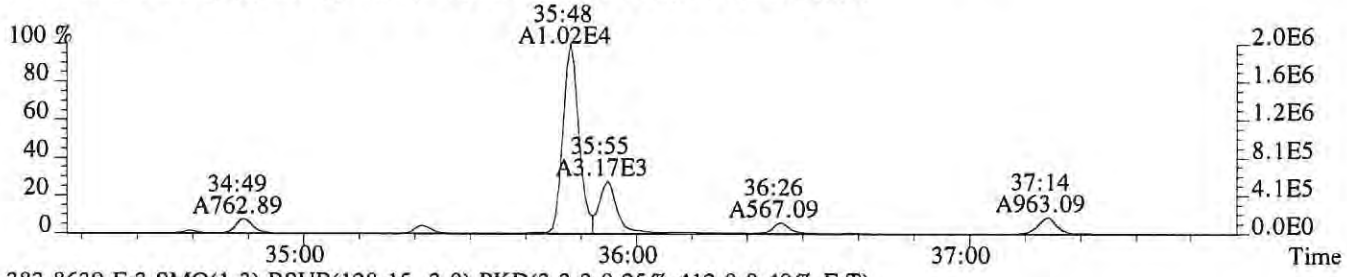


File:P519342 #1-317 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014

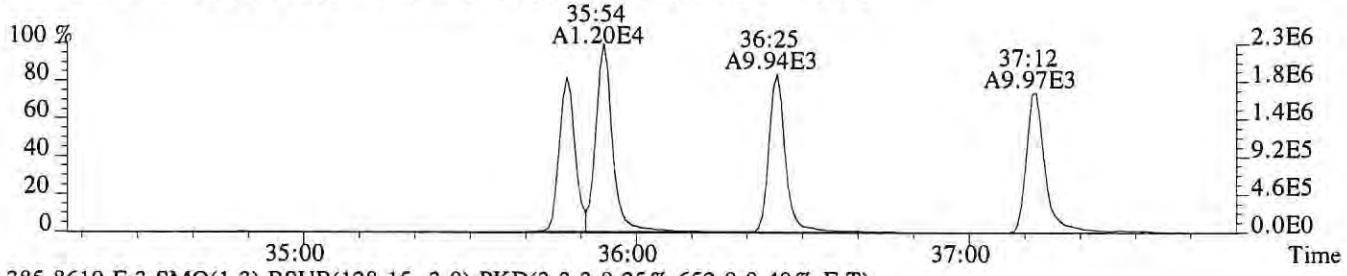
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



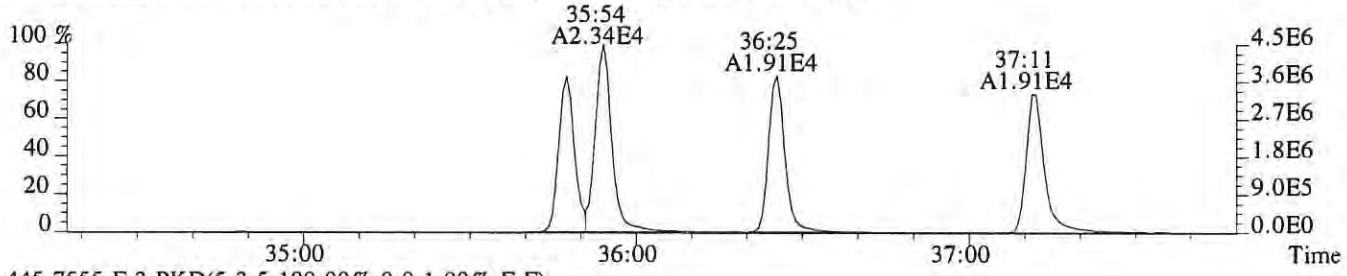
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



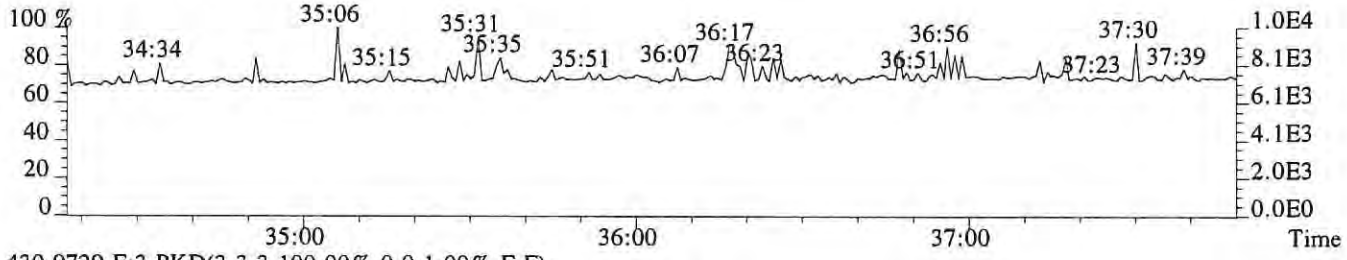
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



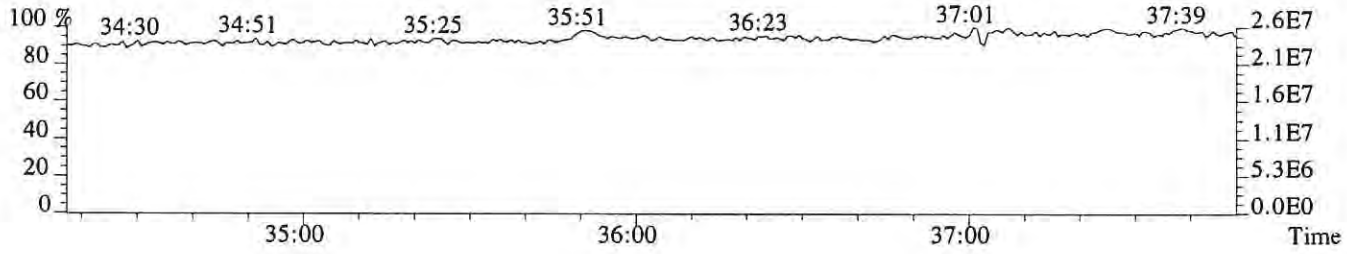
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



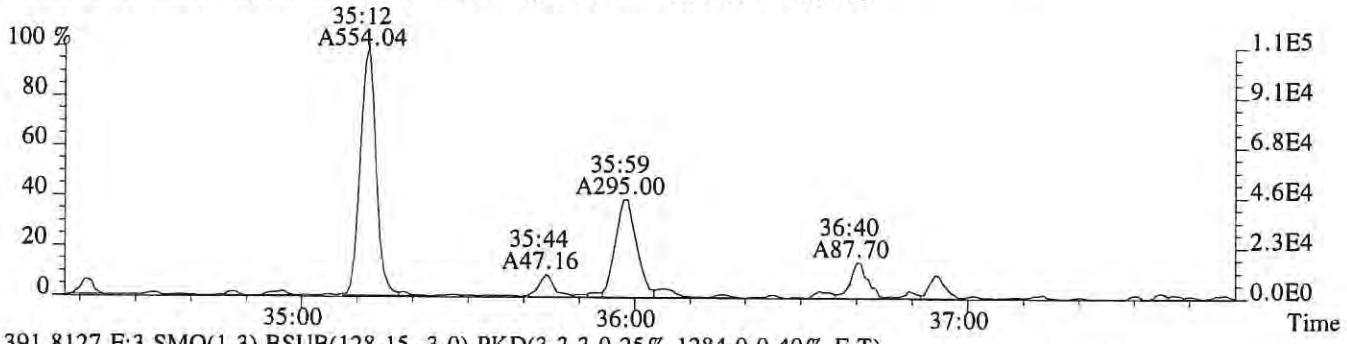
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



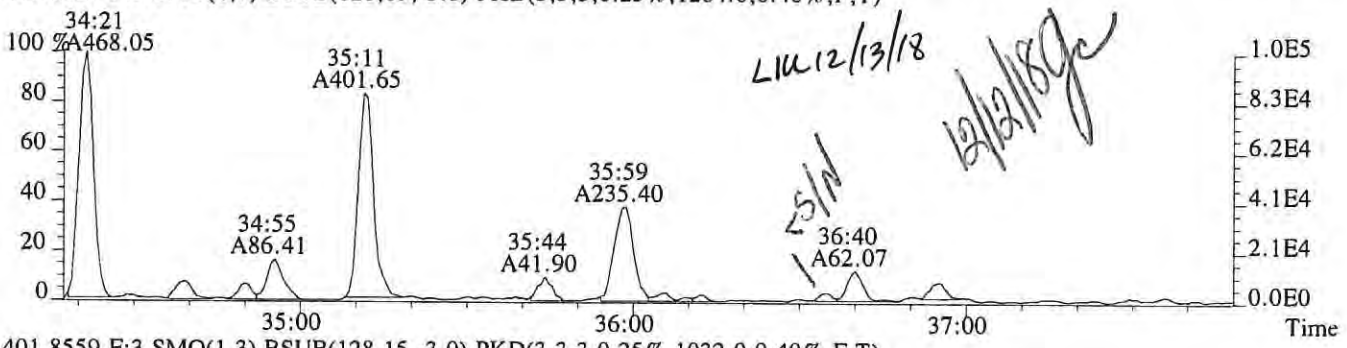
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519342 #1-317 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



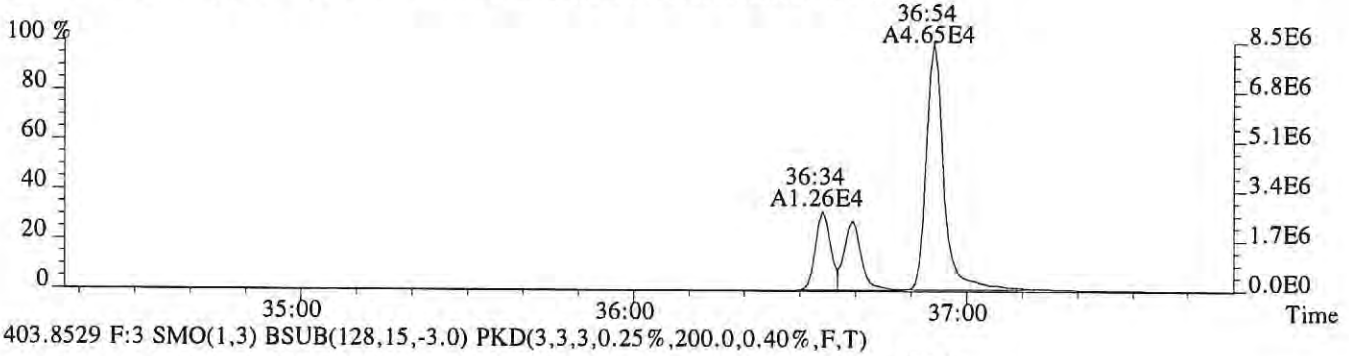
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



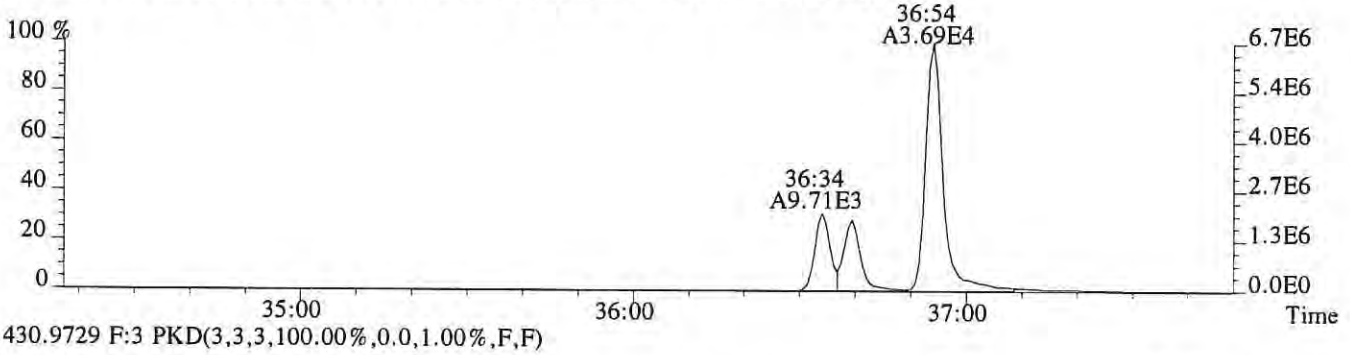
LIK 12/13/18

12/13/18

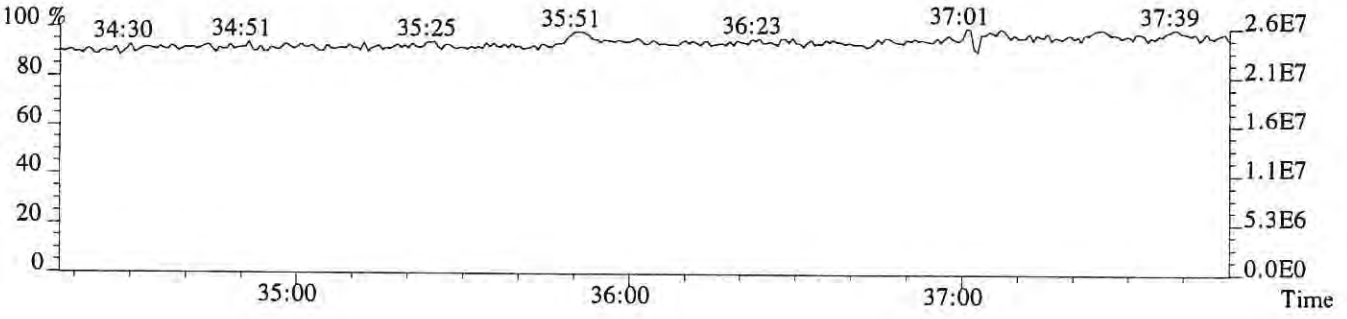
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)

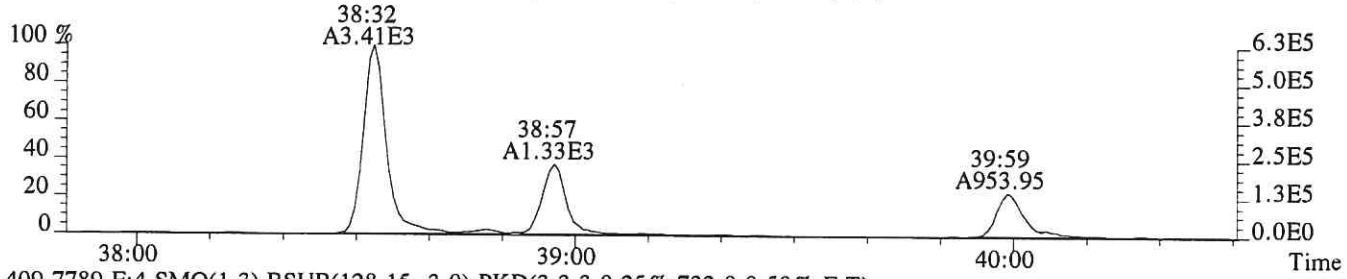


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

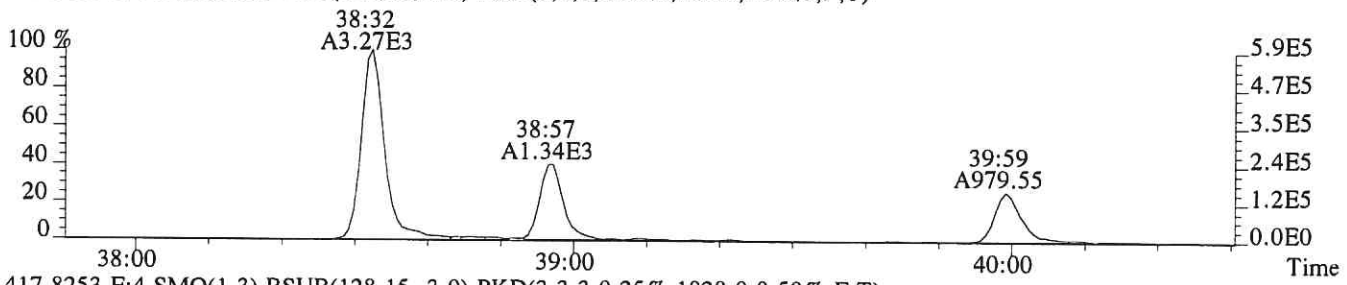


File:P519342 #1-241 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014

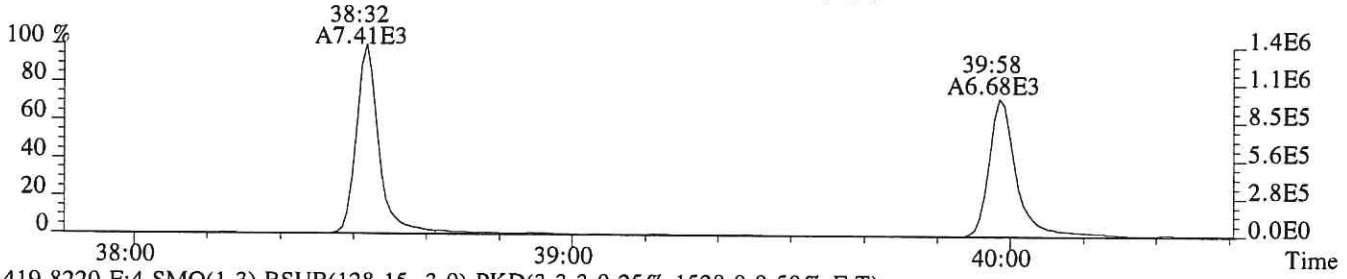
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.50%,F,T)



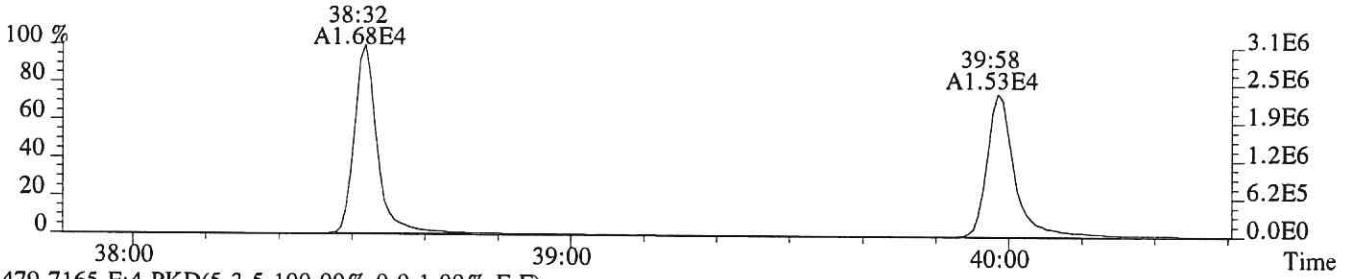
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.50%,F,T)



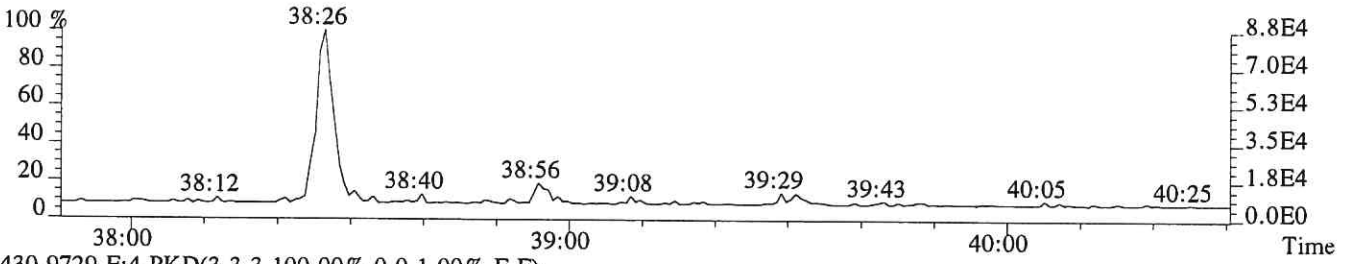
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1828.0,0.50%,F,T)



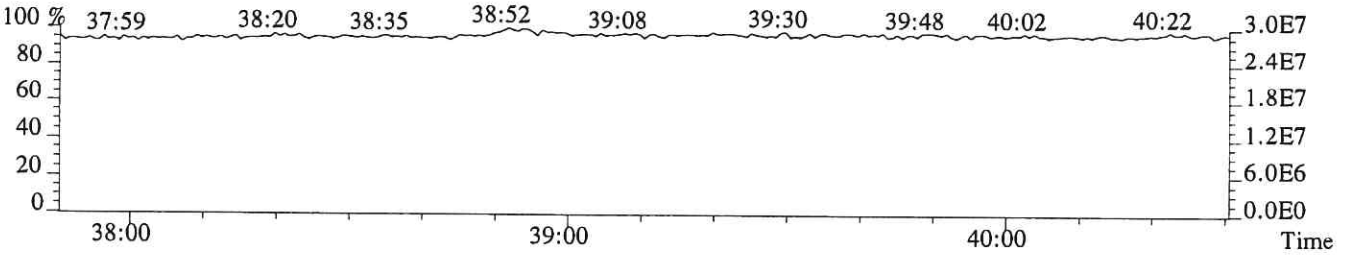
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.50%,F,T)



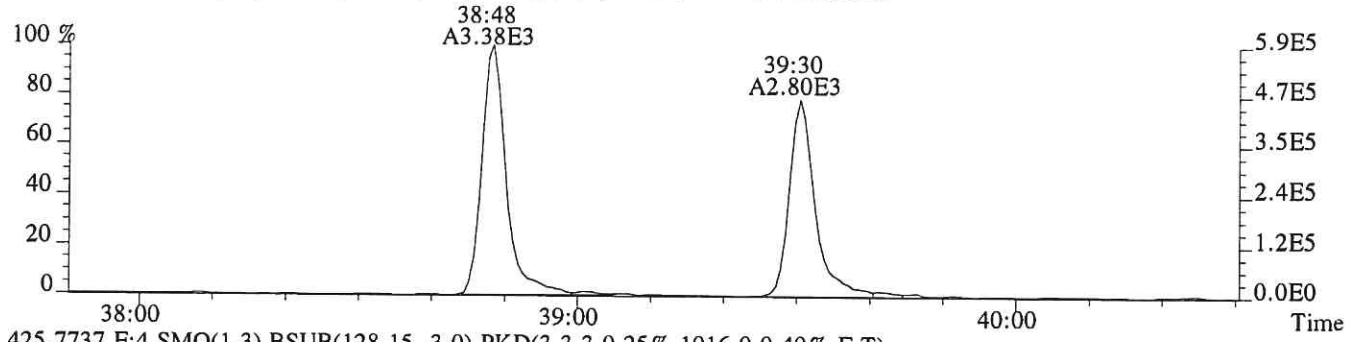
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



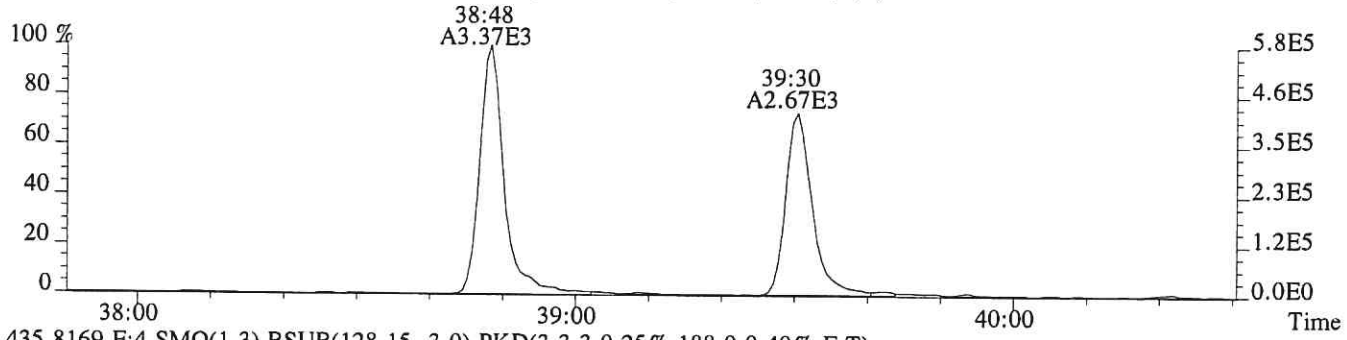
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



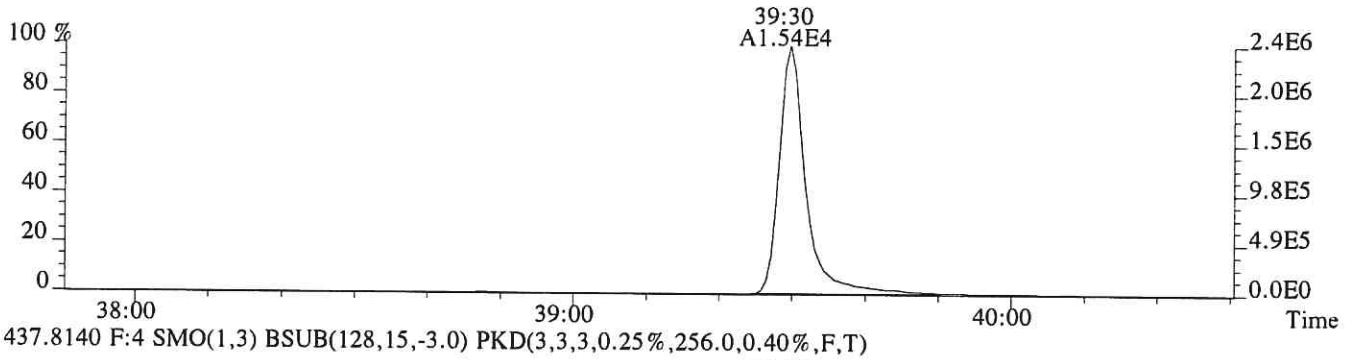
File:P519342 #1-241 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



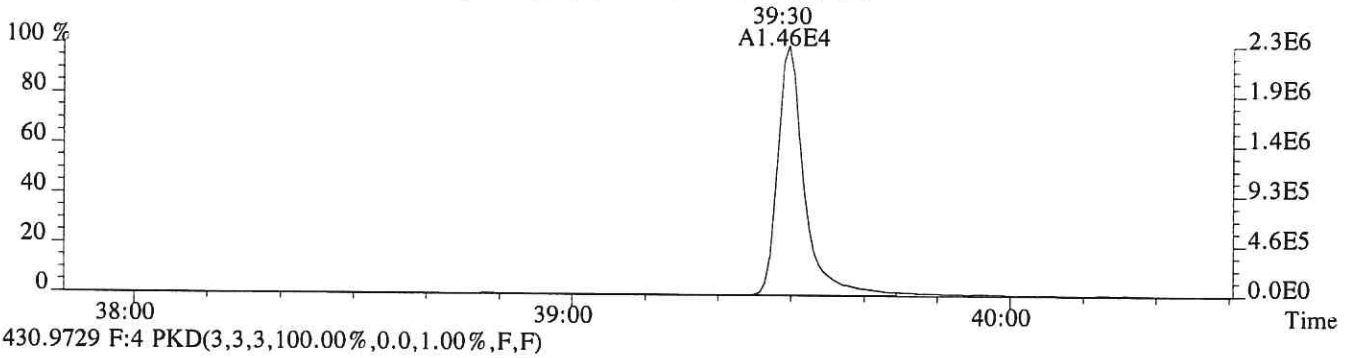
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



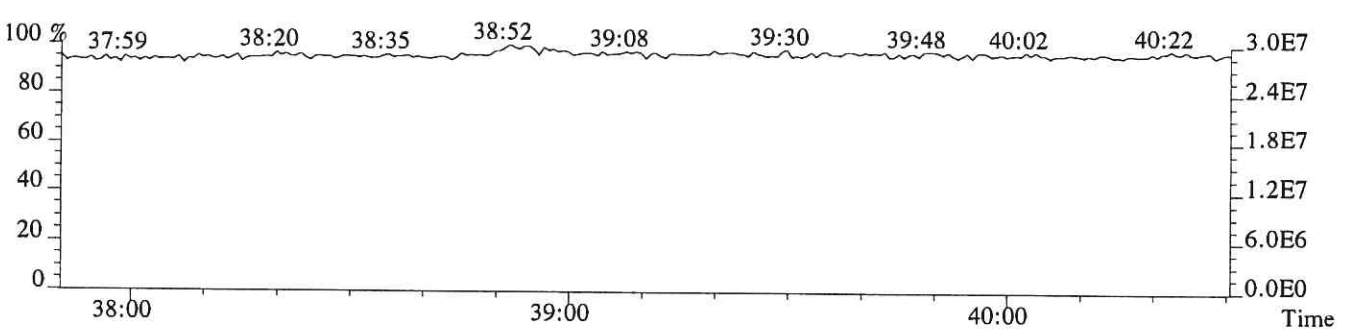
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)

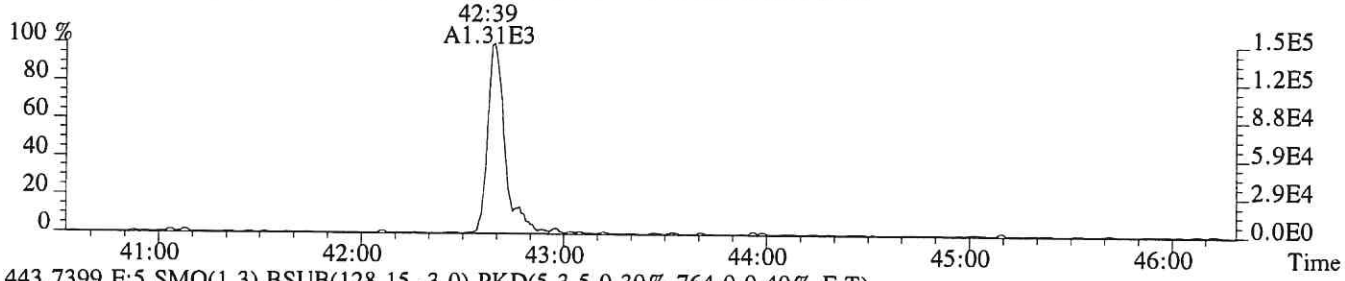


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

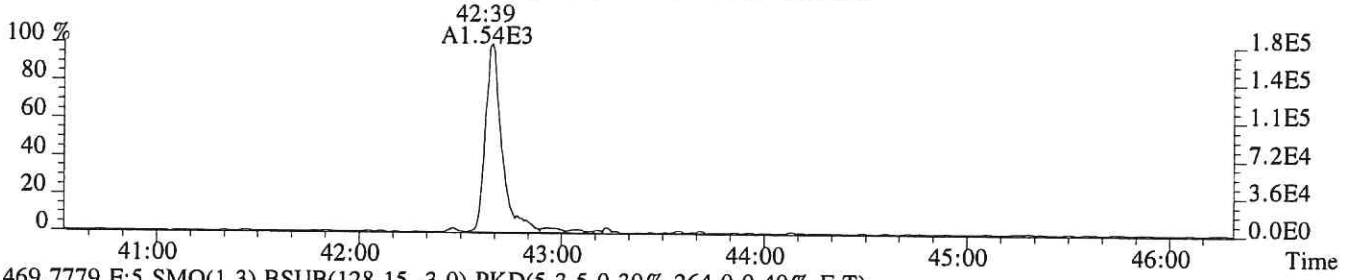


File:P519342 #1-520 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014

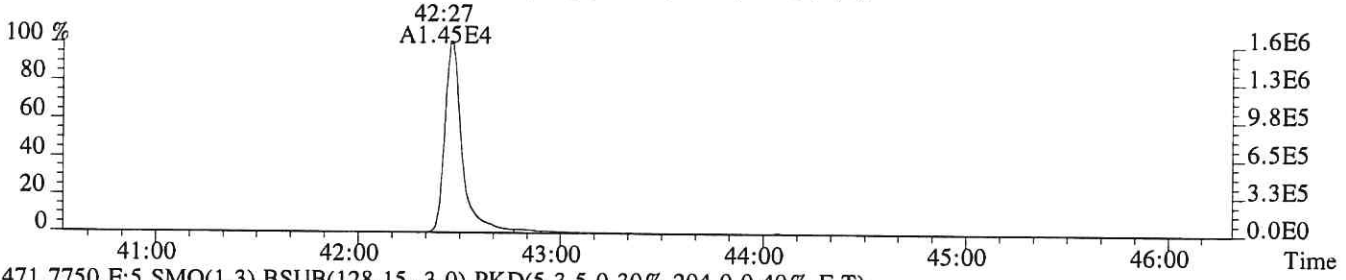
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



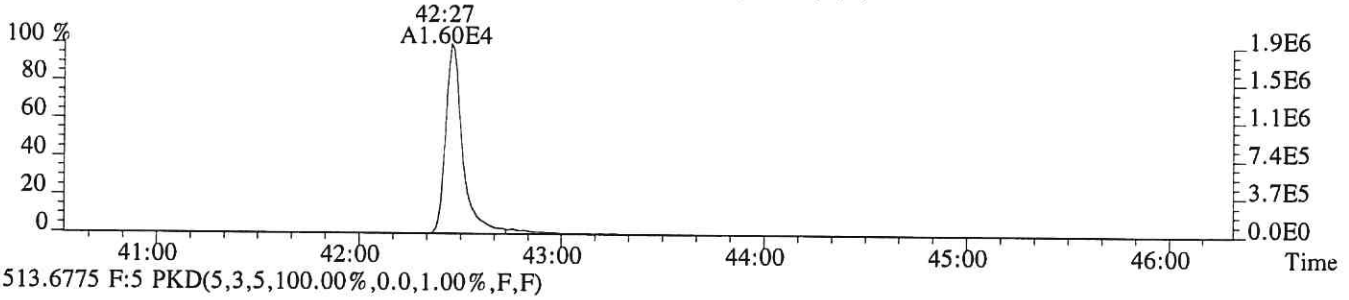
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



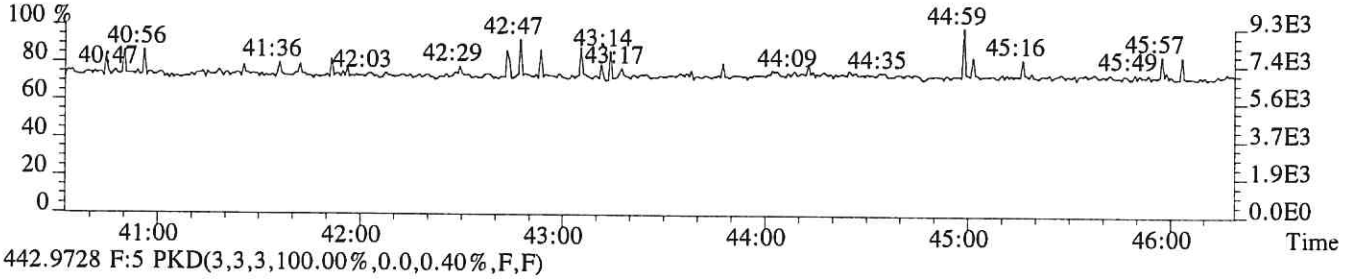
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



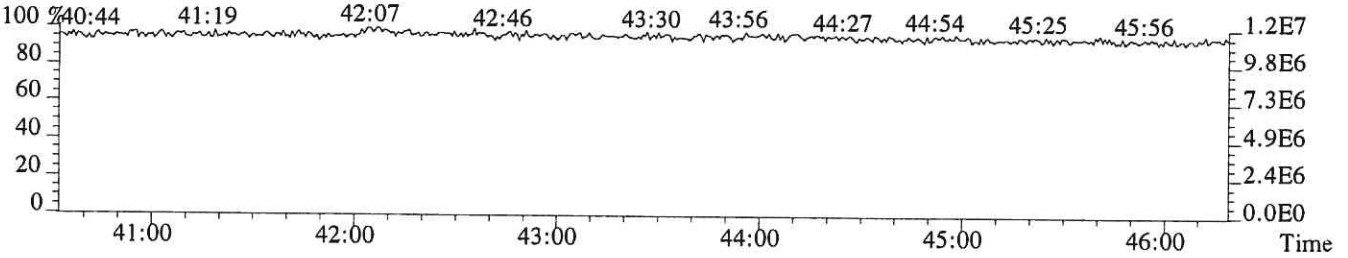
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



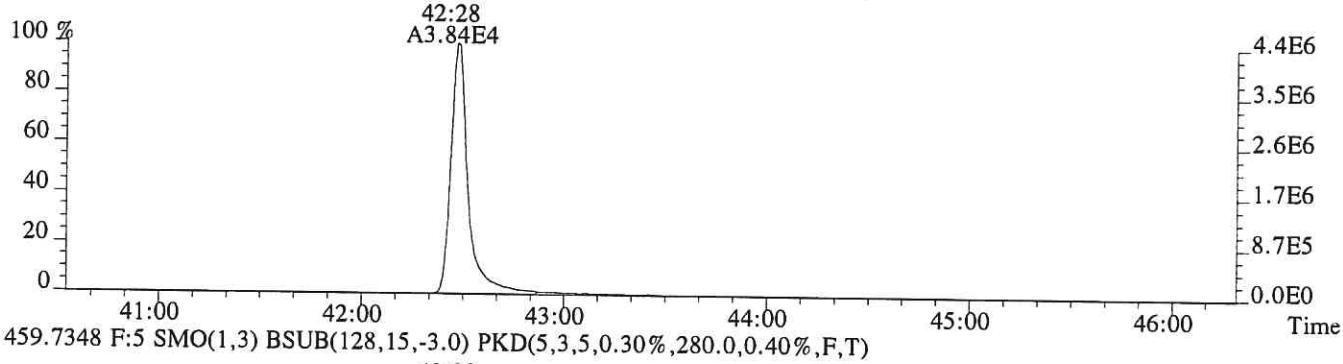
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



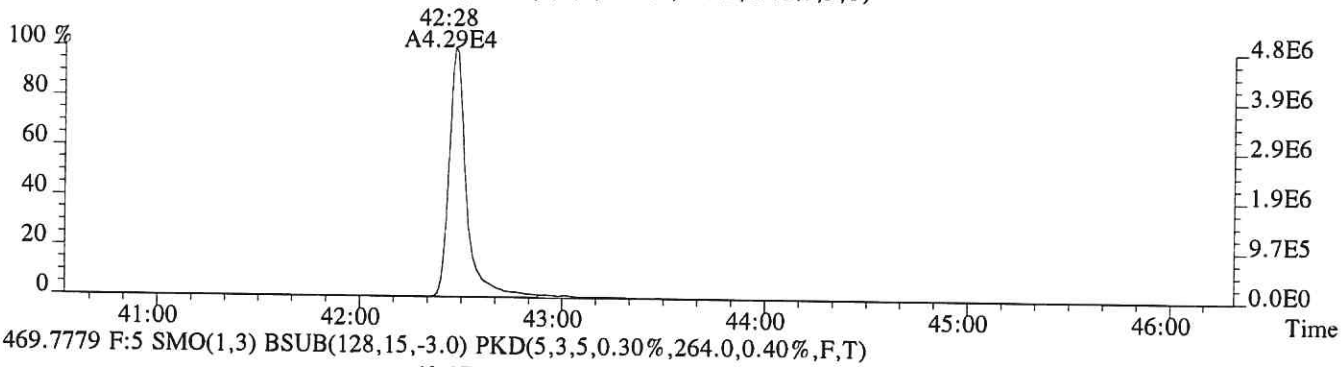
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



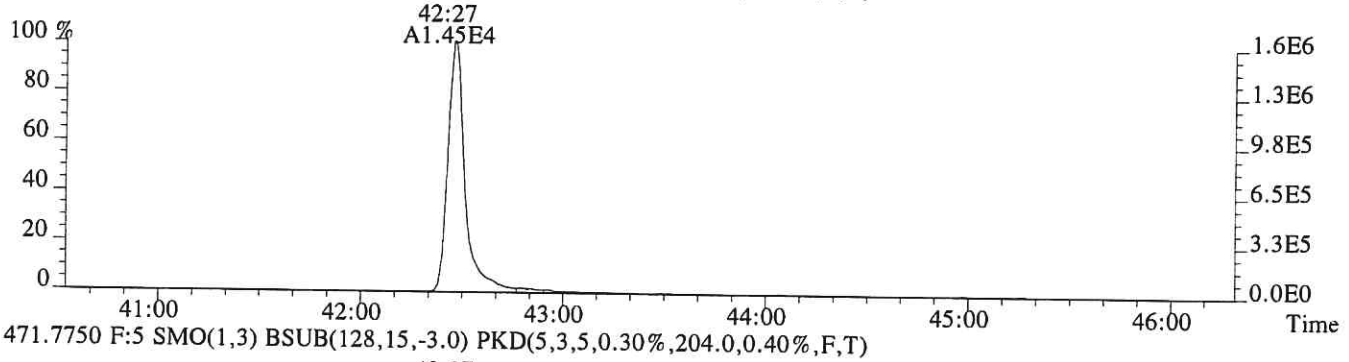
File:P519342 #1-520 Acq:11-DEC-2018 03:40:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-014
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



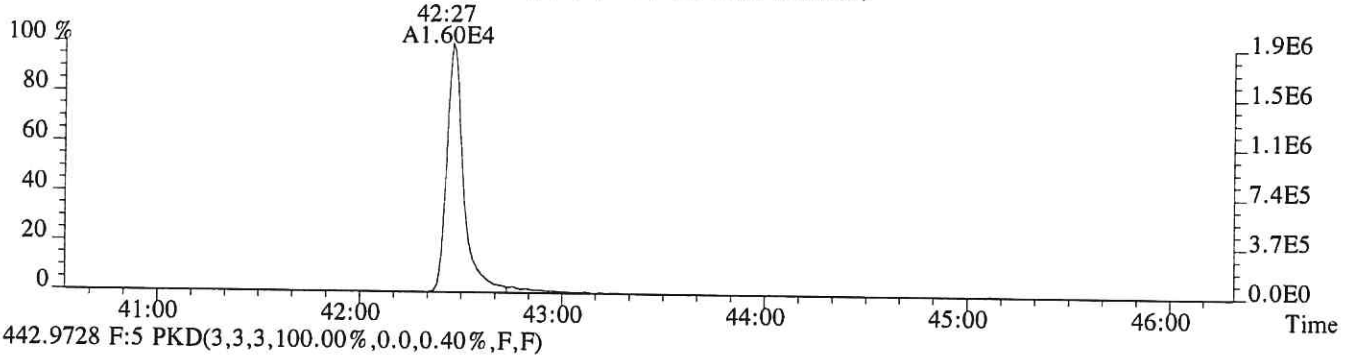
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



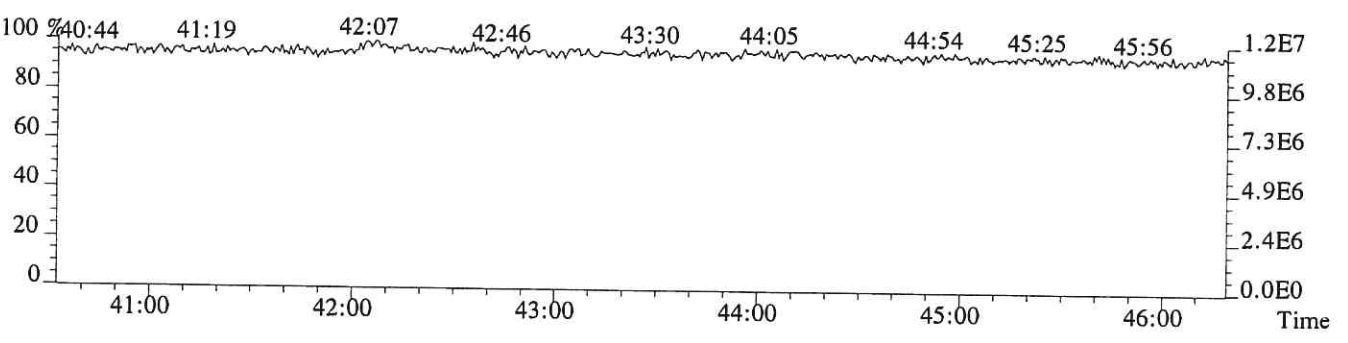
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0563

Run #13 Filename P519403 Samp: 1 Inj: 1 Acquired: 13-DEC-18 06:12:00
Processed: 14-DEC-18 11:06:58 Sample ID: E1801065-014DL

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	2.823e+03	3.788e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	2.089e+02	1.558e+02	1.34	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	1.585e+02	1.109e+02	1.43	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.706e+02	2.185e+02	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:57	5.973e+01	6.784e+01	0.88	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.738e+01	1.561e+01	1.75	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	1.369e+01	1.972e+01	0.69	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	9.857e+01	6.987e+01	1.41	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.612e+01	5.341e+00	3.02	no	no	1.258
10	Unk	OCDF	42:45	3.683e+01	2.827e+01	1.30	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	6.421e+02	7.711e+02	0.83	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.578e+01	9.010e+00	1.75	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.269e+01	4.558e+00	2.78	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	3.805e+00	2.766e+00	1.38	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	5.491e+01	5.211e+01	1.05	yes	no	1.025
17	Unk	OCDD	42:35	6.641e+02	7.939e+02	0.84	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.104e+04	1.380e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	1.645e+04	1.051e+04	1.57	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	1.579e+04	1.004e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	6.298e+03	1.241e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	7.997e+03	1.525e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:27	7.431e+03	1.471e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	6.548e+03	1.246e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	5.885e+03	1.318e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	4.674e+03	1.130e+04	0.41	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	4.933e+03	6.308e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.121e+04	7.043e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	8.563e+03	6.789e+03	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:41	9.694e+03	7.582e+03	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	1.007e+04	9.315e+03	1.08	yes	no	0.858
32	IS	13C-OCDD	42:34	1.100e+04	1.201e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	8.057e+03	1.048e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	1.115e+04	8.949e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	2.434e+02				no	1.014

$$OCDD = \frac{(6.641e+02 + 7.939e+02) \times 4000\ pg \times 20}{(1.100e+04 + 1.201e+04) \times 10.53\ g \times 82\text{-}9 / 100 \times 1.118 \times 0.31} = 1675.5\ ng/kg$$

LM 12/14/18

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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0563

Run #13 Filename P519403 Samp: 1 Inj: 1 Acquired: 13-DEC-18 06:12:00
Processed: 14-DEC-18 11:06:58 LAB. ID: E1801065-014DL

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.47e+05	8.08e+02	5.5e+02	5.91e+05	7.72e+02	7.7e+02
2	1,2,3,7,8-PeCDF	3.47e+04	6.24e+02	5.6e+01	2.68e+04	1.02e+03	2.6e+01
3	2,3,4,7,8-PeCDF	2.14e+04	6.24e+02	3.4e+01	2.23e+04	1.02e+03	2.2e+01
4	1,2,3,4,7,8-HxCDF	5.79e+04	4.00e+02	1.4e+02	4.17e+04	2.24e+02	1.9e+02
5	1,2,3,6,7,8-HxCDF	9.58e+03	4.00e+02	2.4e+01	1.26e+04	2.24e+02	5.6e+01
6	2,3,4,6,7,8-HxCDF	6.61e+03	4.00e+02	1.7e+01	3.81e+03	2.24e+02	1.7e+01
7	1,2,3,7,8,9-HxCDF	2.85e+03	4.00e+02	7.1e+00	4.01e+03	2.24e+02	1.8e+01
8	1,2,3,4,6,7,8-HpCDF	2.10e+04	5.24e+02	4.0e+01	1.30e+04	2.76e+02	4.7e+01
9	1,2,3,4,7,8,9-HpCDF	2.88e+03	5.24e+02	5.5e+00	1.04e+03	2.76e+02	3.8e+00
10	OCDF	4.12e+03	2.28e+02	1.8e+01	3.60e+03	4.60e+02	7.8e+00
11	2,3,7,8-TCDD	1.13e+05	8.92e+02	1.3e+02	1.41e+05	7.24e+02	2.0e+02
12	1,2,3,7,8-PeCDD	3.34e+03	3.40e+02	9.8e+00	1.89e+03	2.08e+02	9.1e+00
13	1,2,3,4,7,8-HxCDD	3.91e+03	2.00e+02	2.0e+01	1.04e+03	3.96e+02	2.6e+00
14	1,2,3,6,7,8-HxCDD	8.23e+02	2.00e+02	4.1e+00	5.88e+02	3.96e+02	1.5e+00
15	1,2,3,7,8,9-HxCDD	*	2.00e+02	*	*	3.96e+02	*
16	1,2,3,4,6,7,8-HpCDD	7.81e+03	2.72e+02	2.9e+01	7.48e+03	2.84e+02	2.6e+01
17	OCDD	7.51e+04	2.20e+02	3.4e+02	8.93e+04	3.16e+02	2.8e+02
18	13C-2,3,7,8-TCDF	1.86e+06	3.26e+03	5.7e+02	2.33e+06	1.86e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	2.86e+06	6.00e+02	4.8e+03	1.83e+06	8.44e+02	2.2e+03
20	13C-2,3,4,7,8-PeCDF	2.85e+06	6.00e+02	4.7e+03	1.83e+06	8.44e+02	2.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.23e+06	7.56e+02	1.6e+03	2.41e+06	2.96e+02	8.1e+03
22	13C-1,2,3,6,7,8-HxCDF	1.46e+06	7.56e+02	1.9e+03	2.79e+06	2.96e+02	9.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.43e+06	7.56e+02	1.9e+03	2.80e+06	2.96e+02	9.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.11e+06	7.56e+02	1.5e+03	2.15e+06	2.96e+02	7.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.05e+06	3.44e+03	3.0e+02	2.34e+06	4.01e+03	5.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	6.71e+05	3.44e+03	2.0e+02	1.52e+06	4.01e+03	3.8e+02
27	13C-2,3,7,8-TCDD	8.59e+05	3.58e+03	2.4e+02	1.10e+06	1.63e+03	6.8e+02
28	13C-1,2,3,7,8-PeCDD	2.01e+06	2.96e+02	6.8e+03	1.24e+06	3.00e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.76e+06	1.14e+03	1.5e+03	1.40e+06	4.40e+02	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.71e+06	1.14e+03	1.5e+03	1.32e+06	4.40e+02	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.46e+06	3.36e+02	4.4e+03	1.34e+06	2.04e+02	6.6e+03
32	13C-OCDD	1.15e+06	2.84e+02	4.0e+03	1.24e+06	2.00e+02	6.2e+03
33	13C-1,2,3,4-TCDD	1.46e+06	3.58e+03	4.1e+02	1.90e+06	1.63e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.90e+06	1.14e+03	1.7e+03	1.52e+06	4.40e+02	3.5e+03
35	37Cl-2,3,7,8-TCDD	4.63e+04	7.92e+02	5.8e+01			

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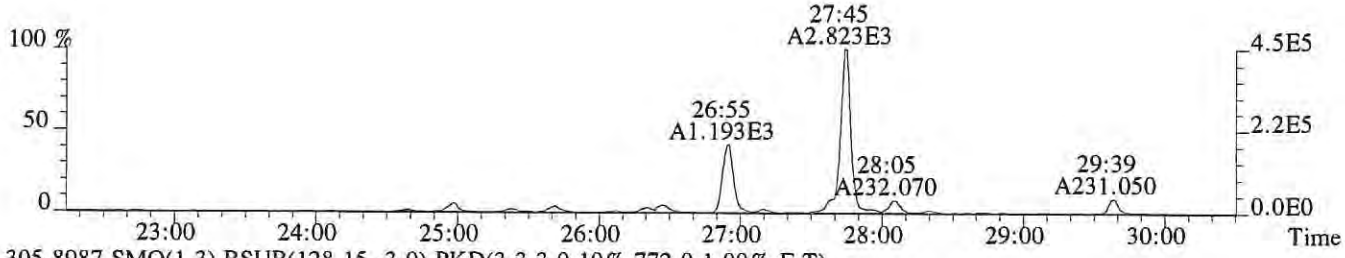
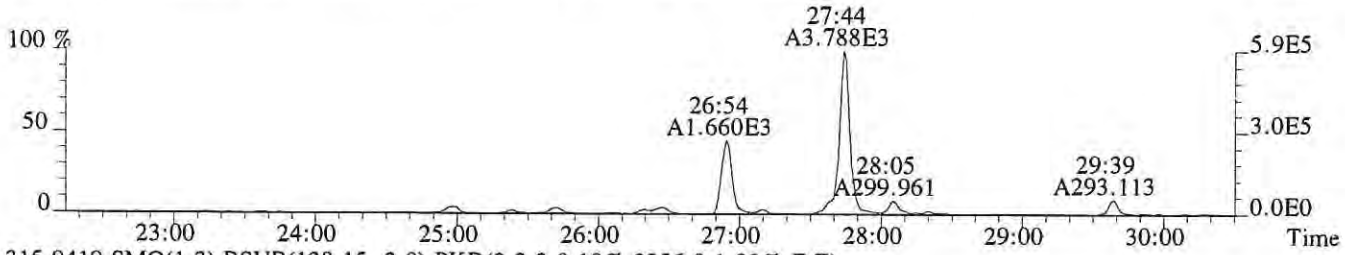
E1801065 12/14/18 gc LKL 12/14/18

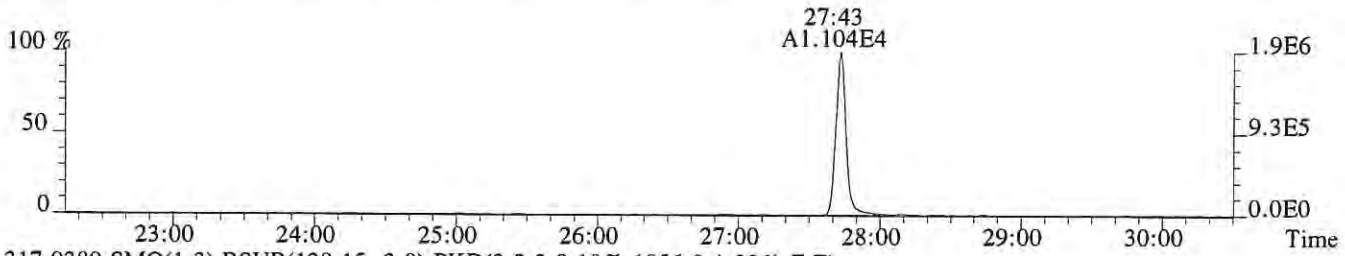
File:P519403 #1-587 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:~~E1801064~~-014DL
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



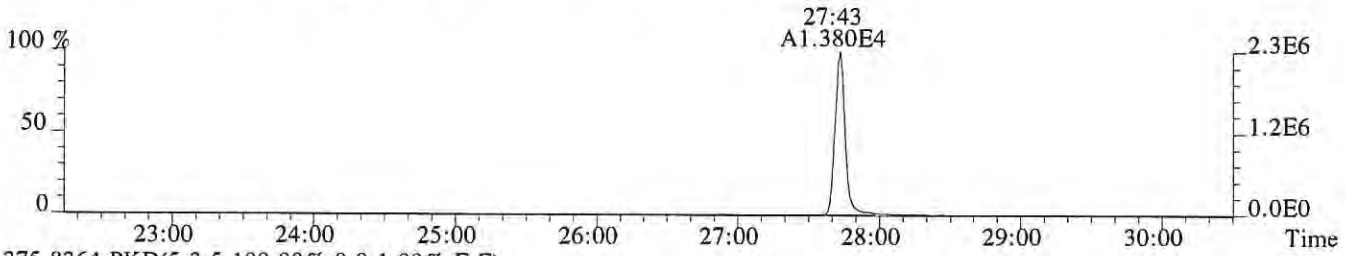
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



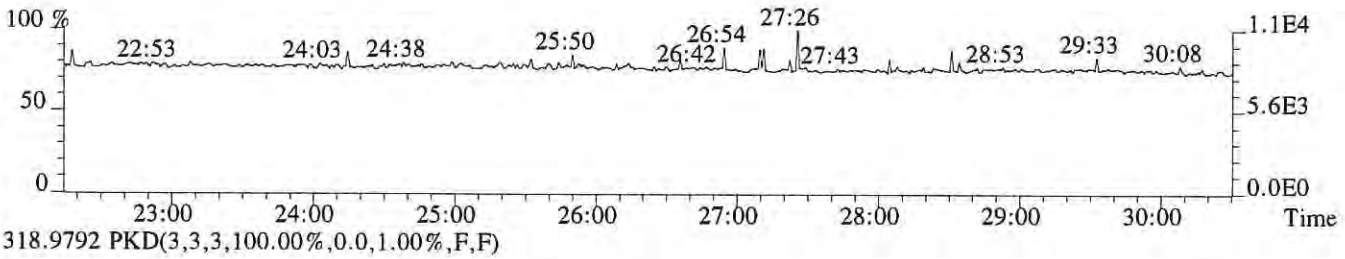
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



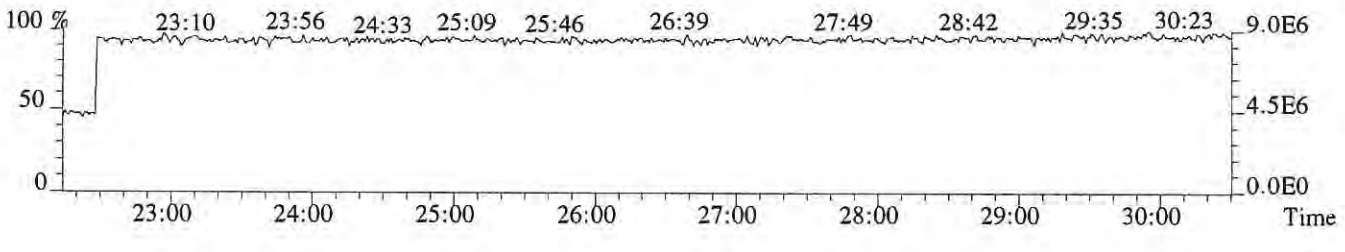
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



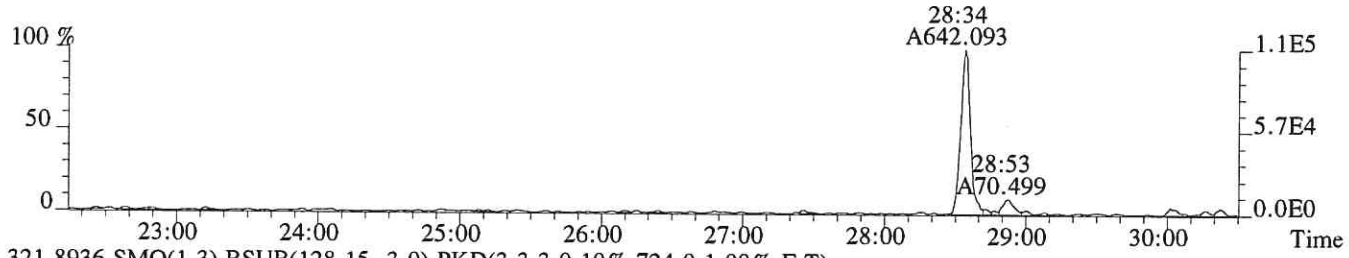
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



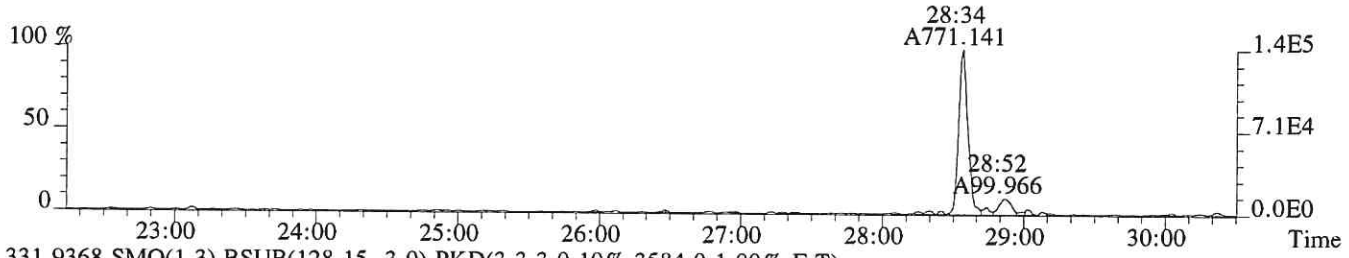
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



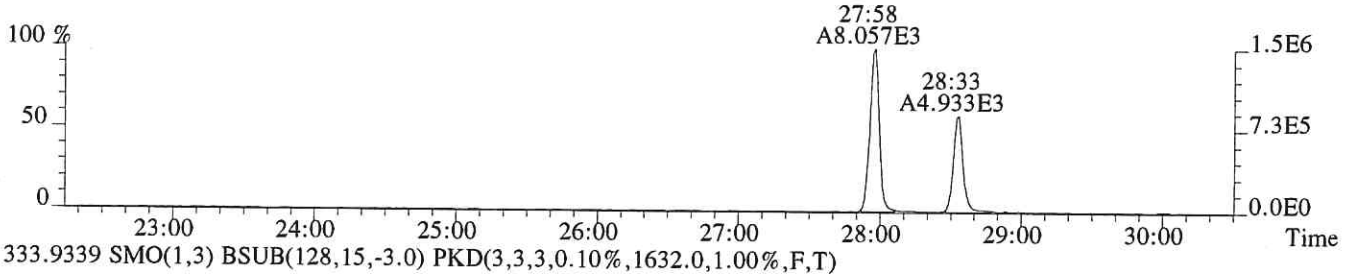
File:P519403 #1-587 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



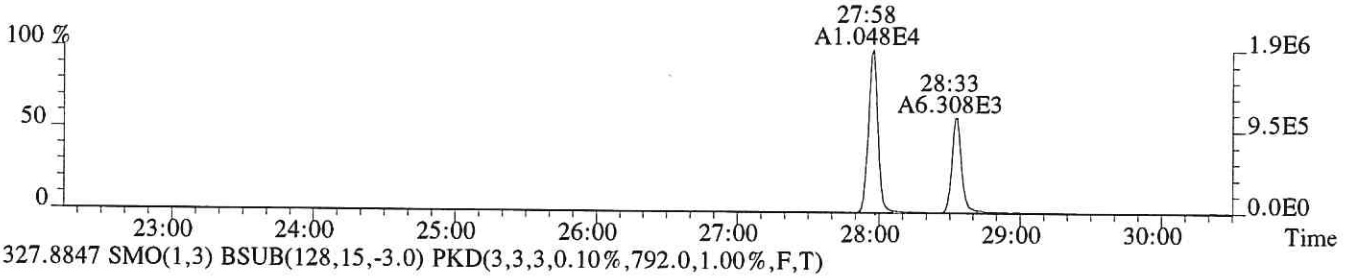
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



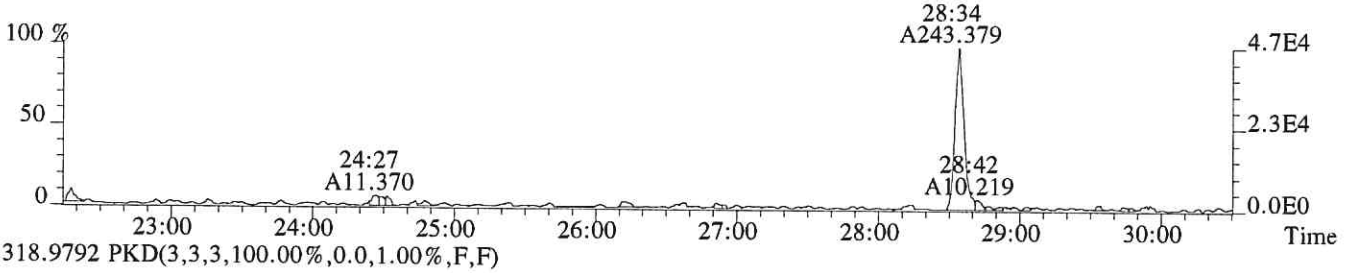
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3584.0,1.00%,F,T)



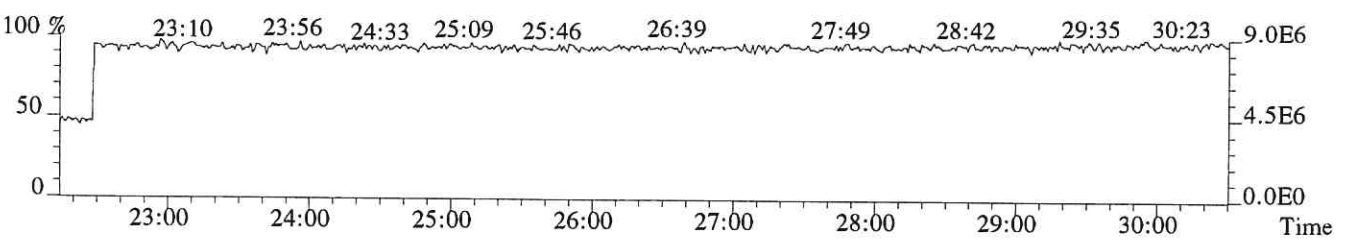
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



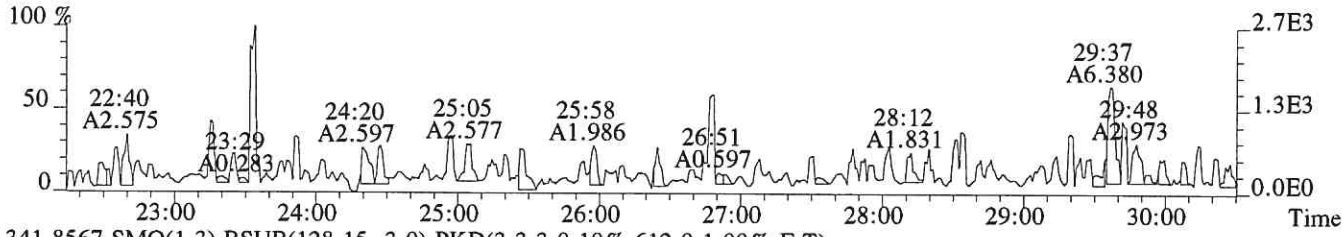
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



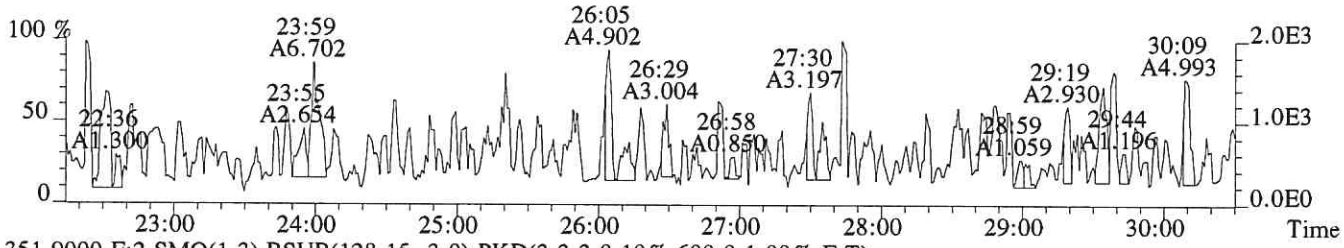
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



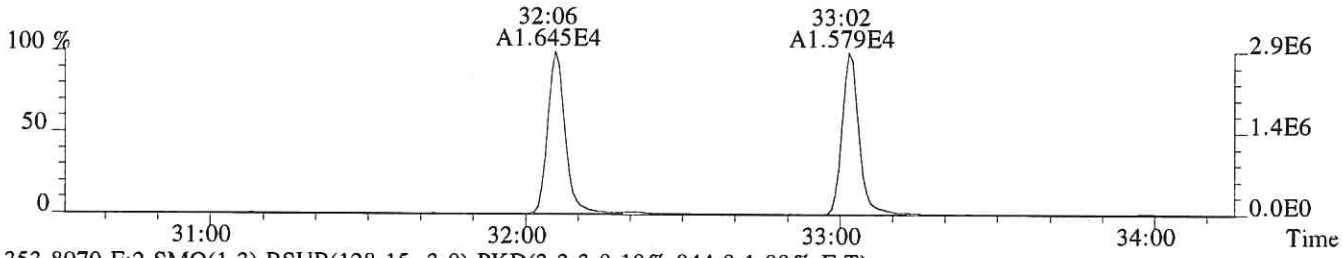
File:P519403 #1-587 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



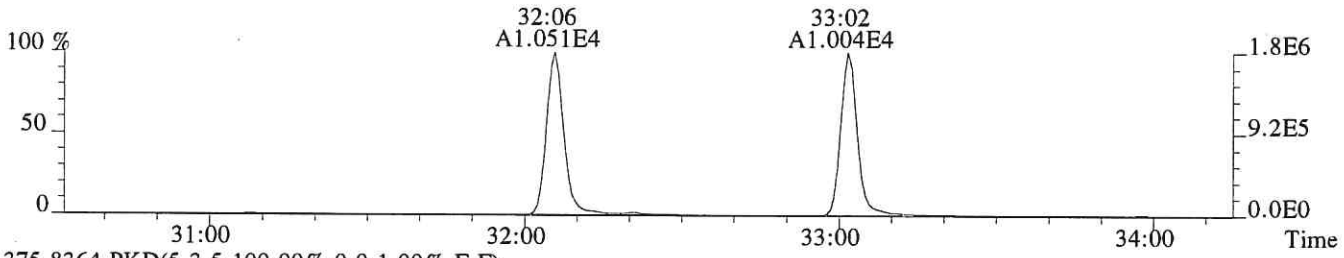
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



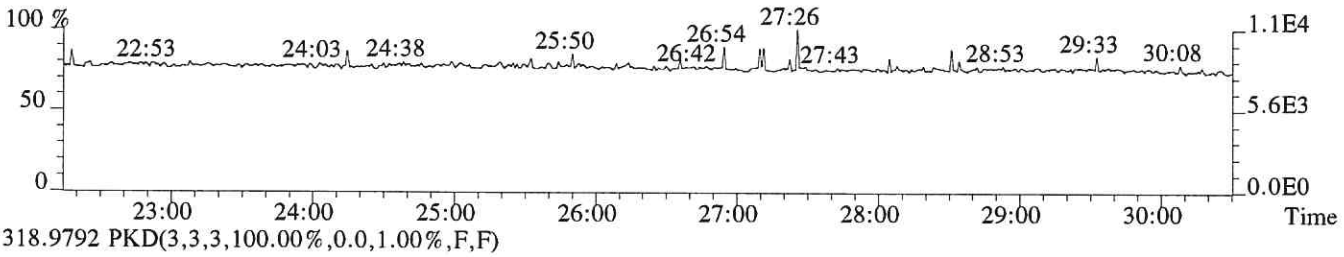
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



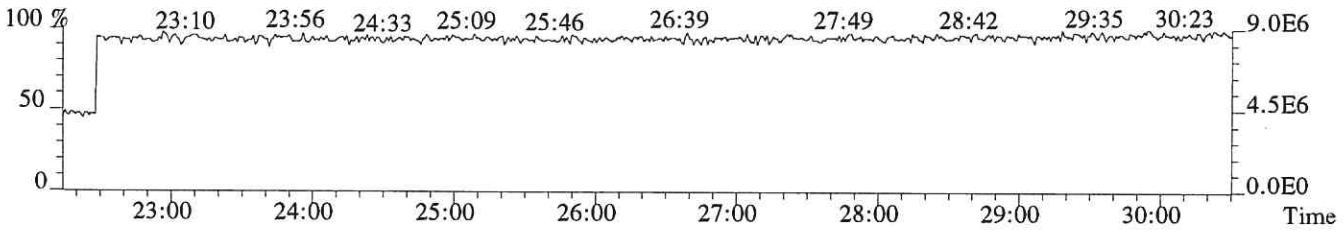
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



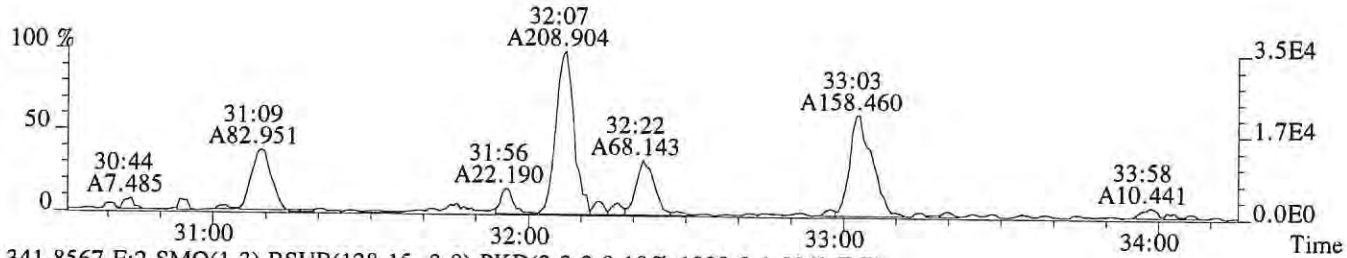
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



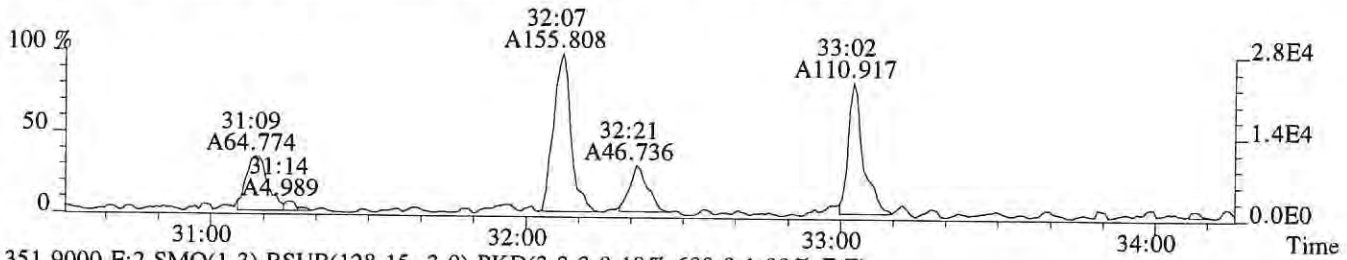
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



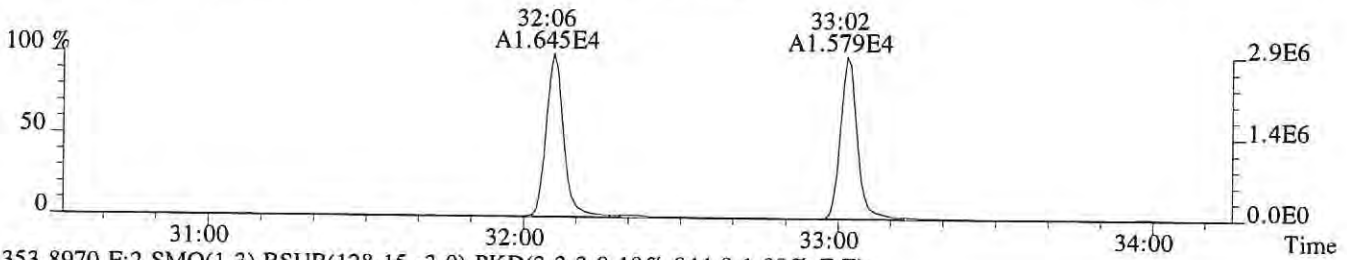
File:P519403 #1-335 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



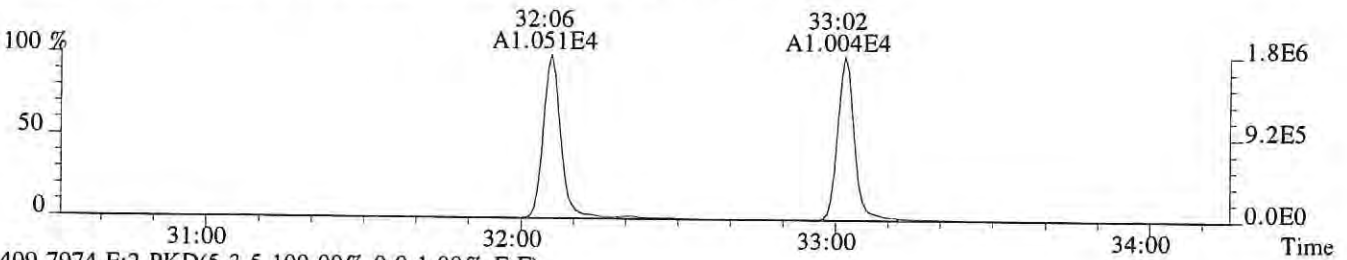
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



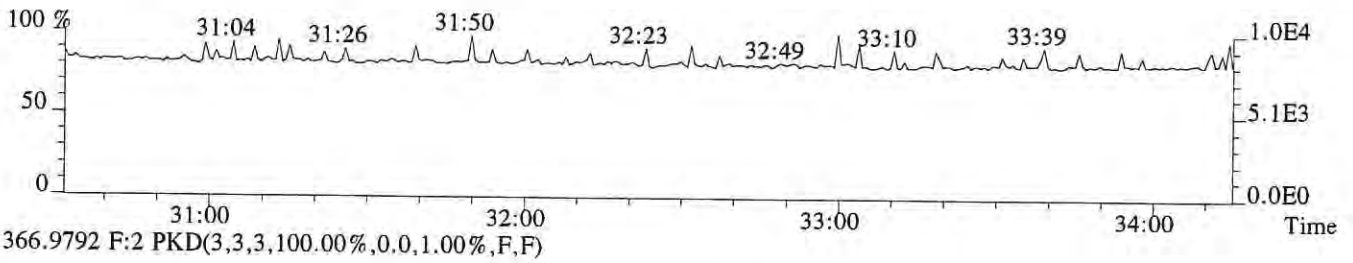
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



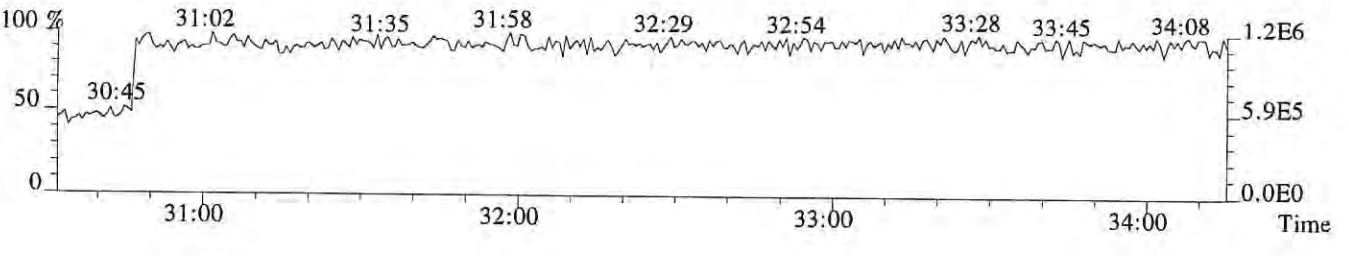
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



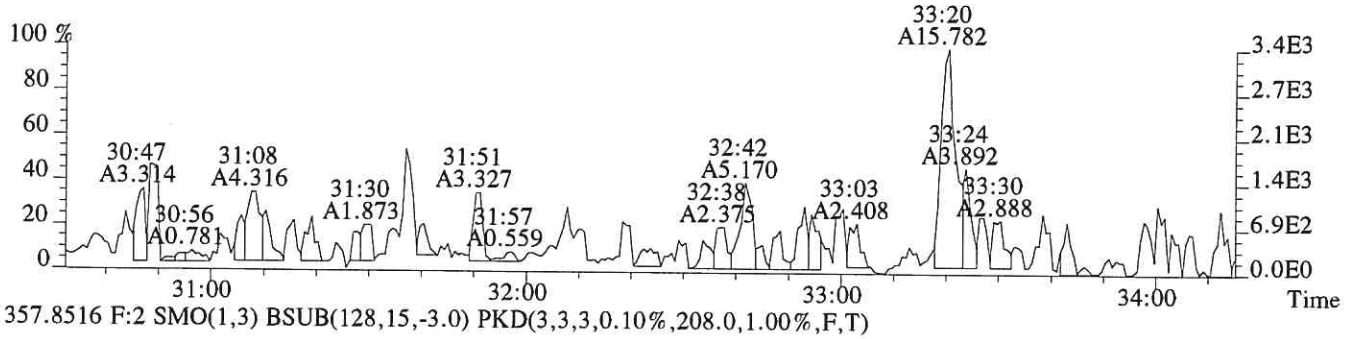
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



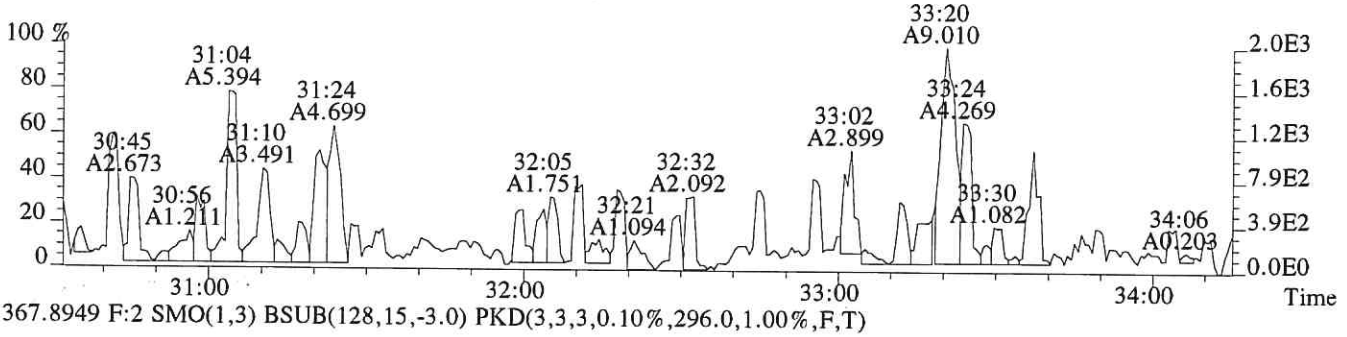
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



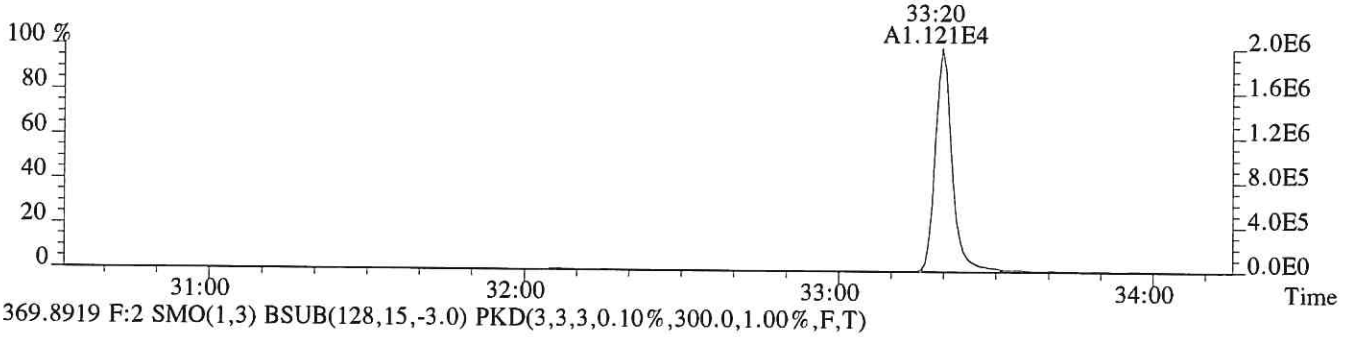
File:P519403 #1-335 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



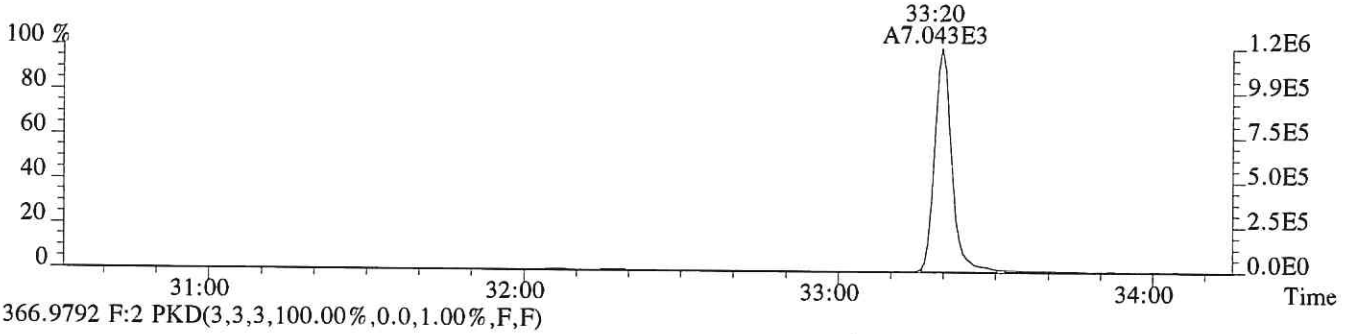
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



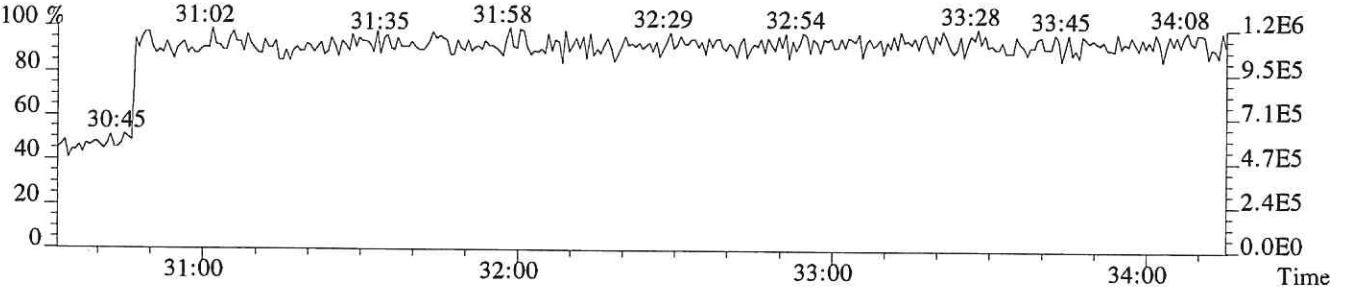
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



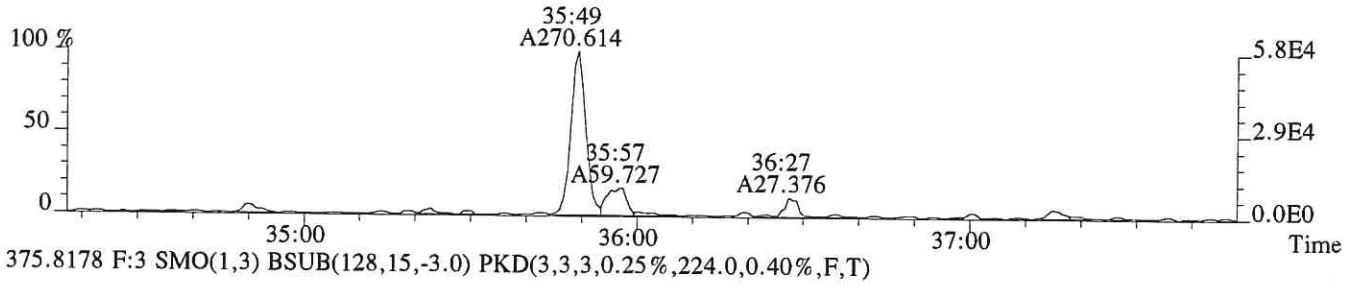
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



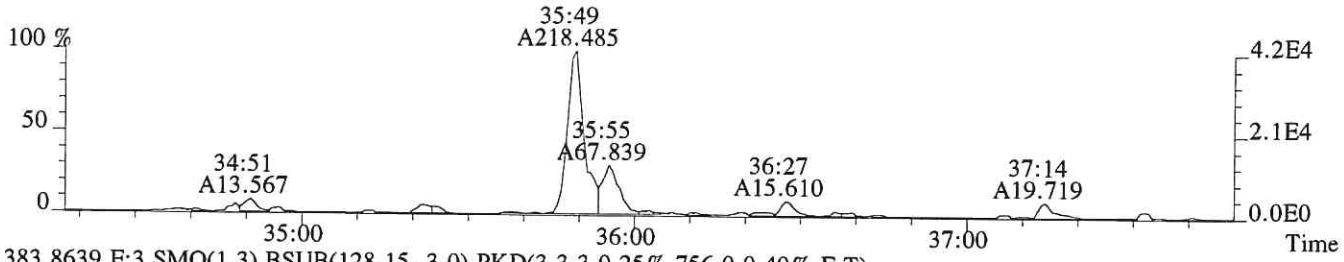
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



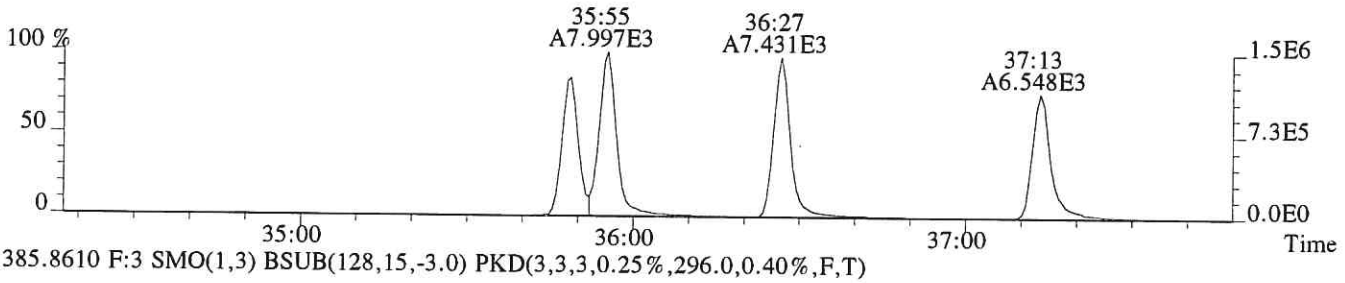
File:P519403 #1-317 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



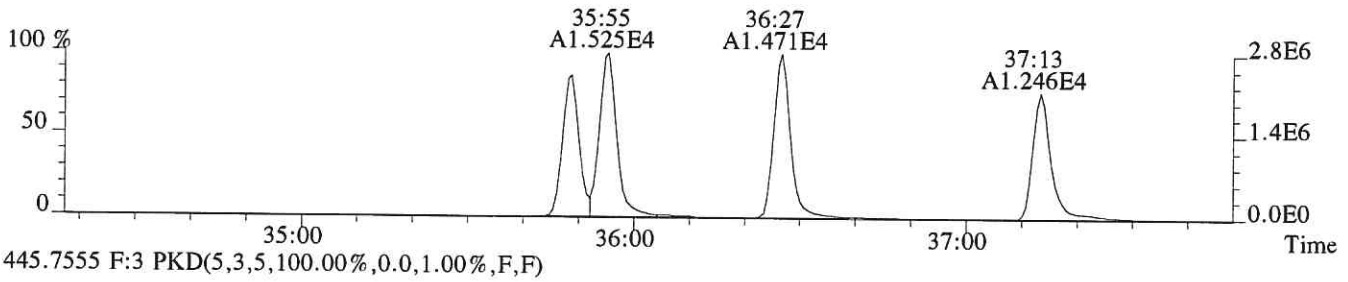
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



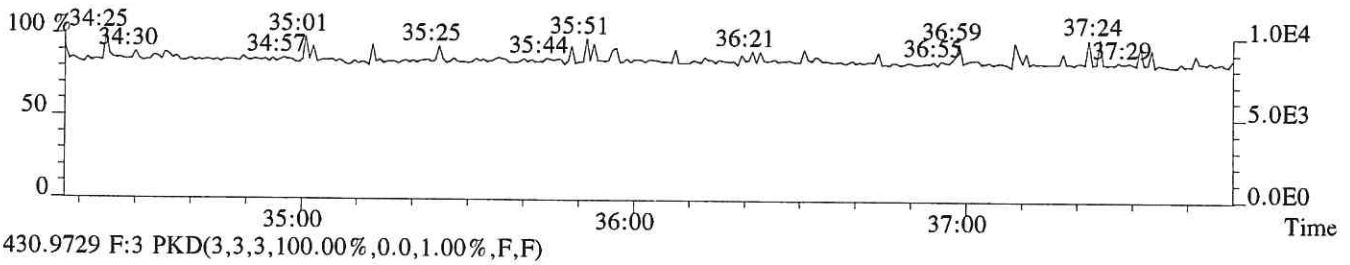
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



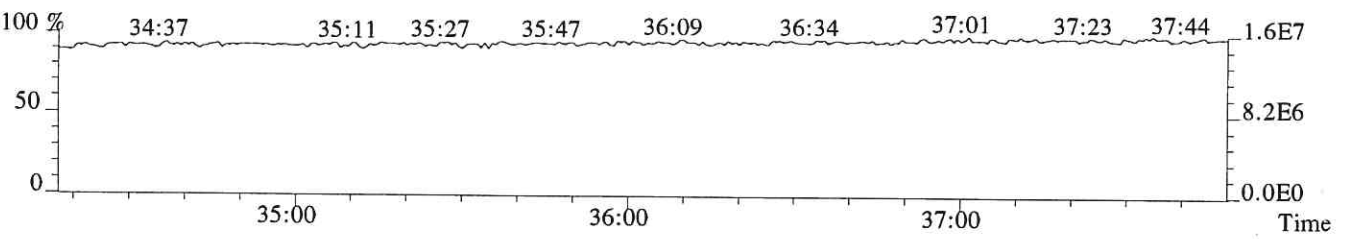
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



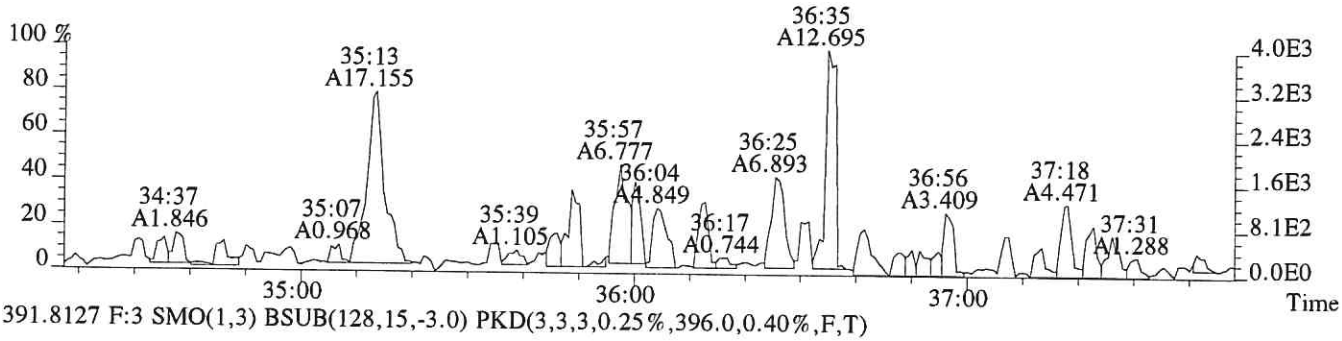
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



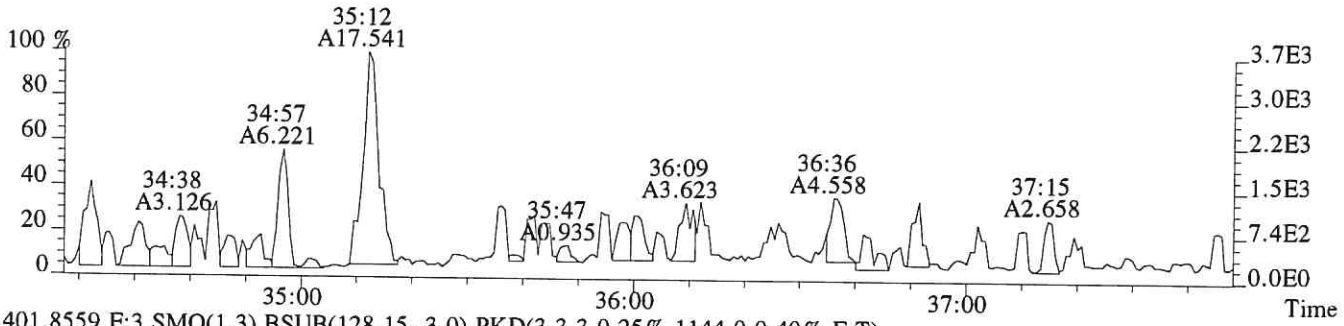
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



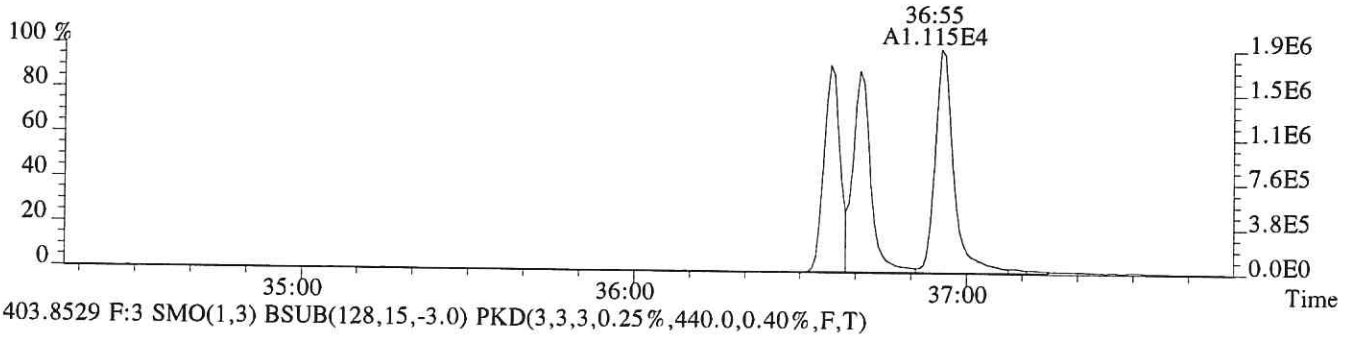
File:P519403 #1-317 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



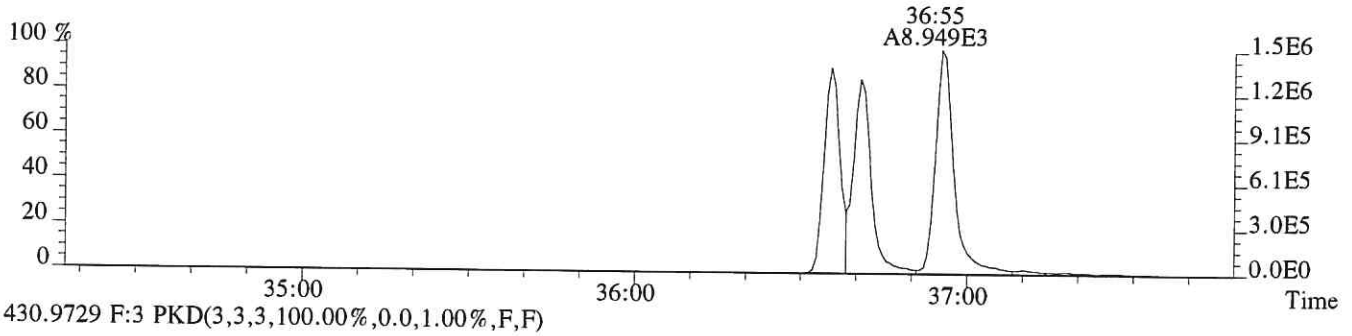
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



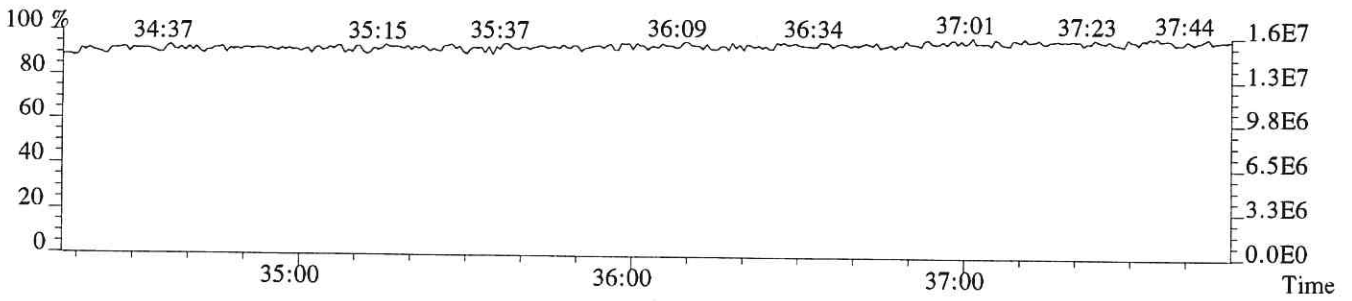
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



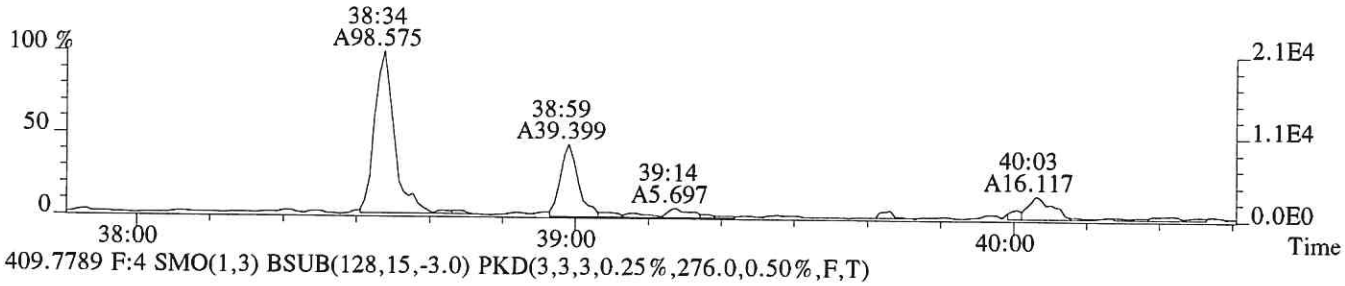
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



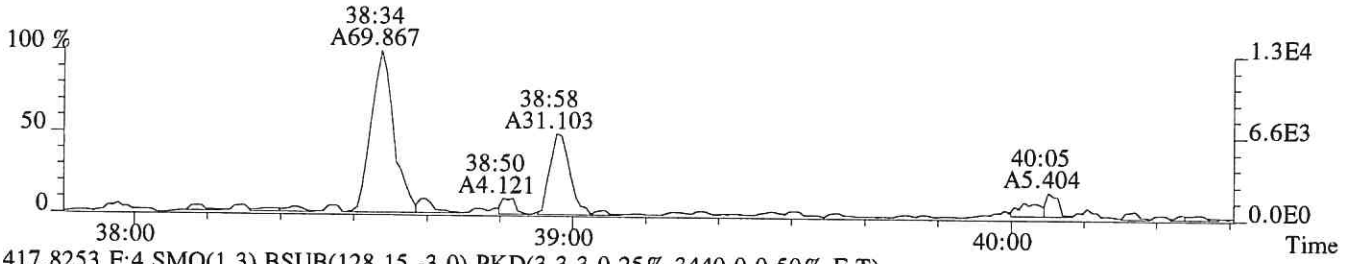
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



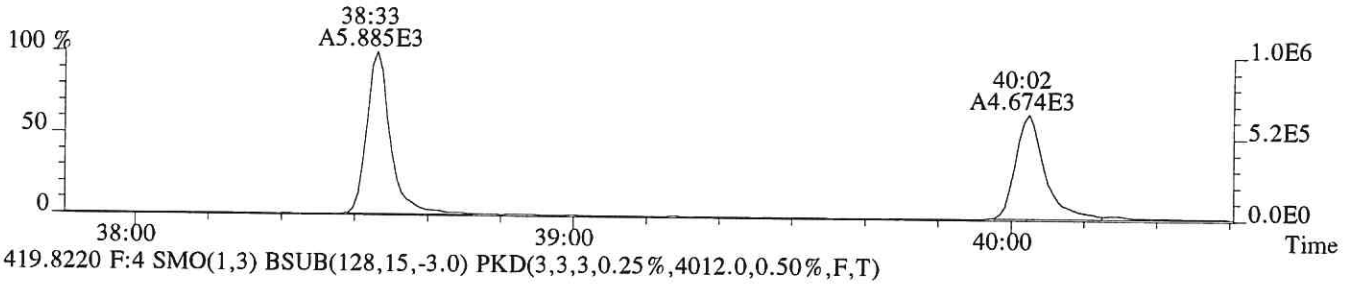
File:P519403 #1-241 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.50%,F,T)



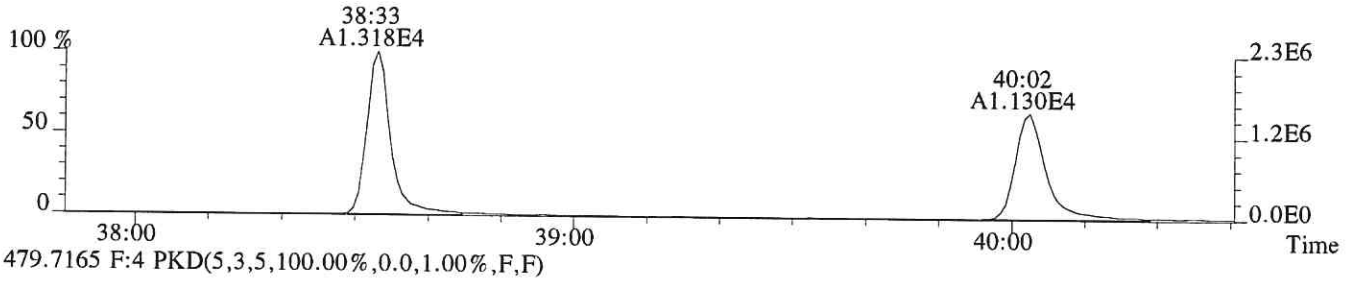
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.50%,F,T)



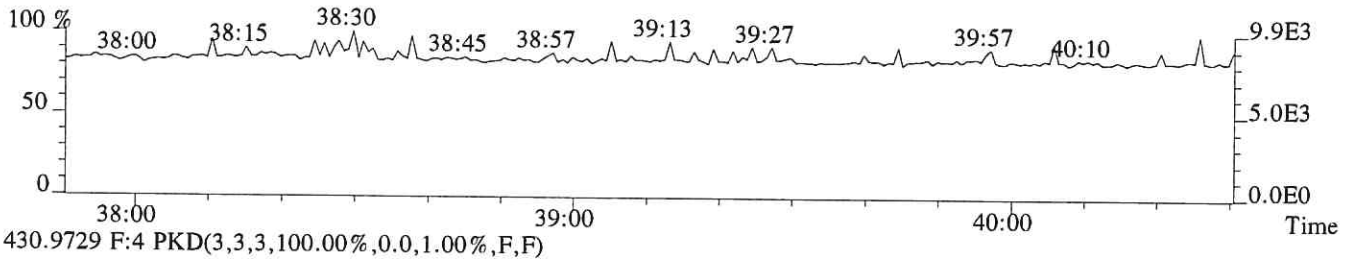
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3440.0,0.50%,F,T)



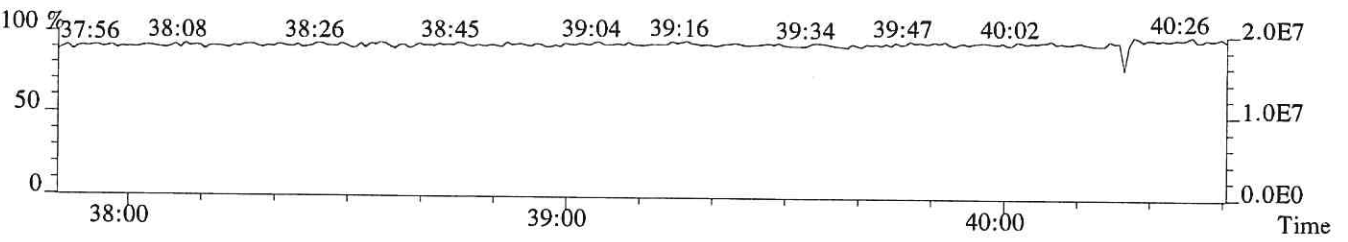
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4012.0,0.50%,F,T)



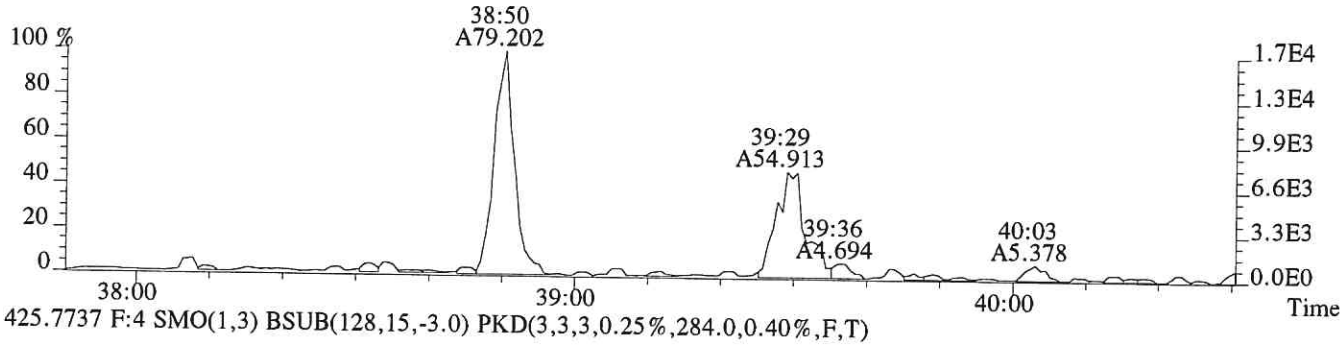
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



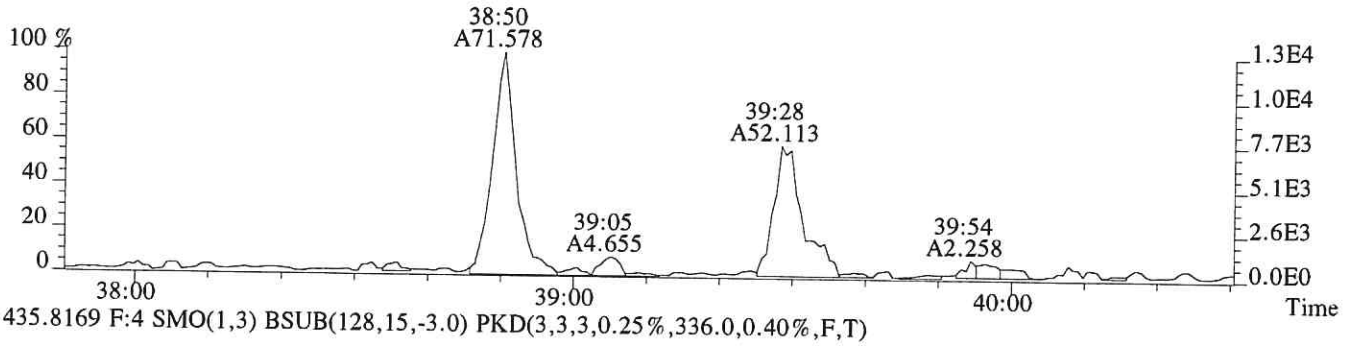
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



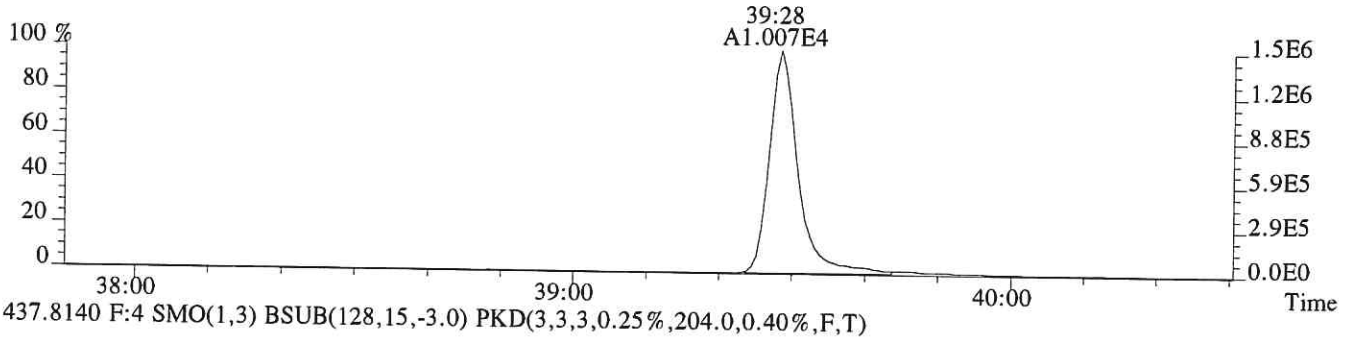
File:P519403 #1-241 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



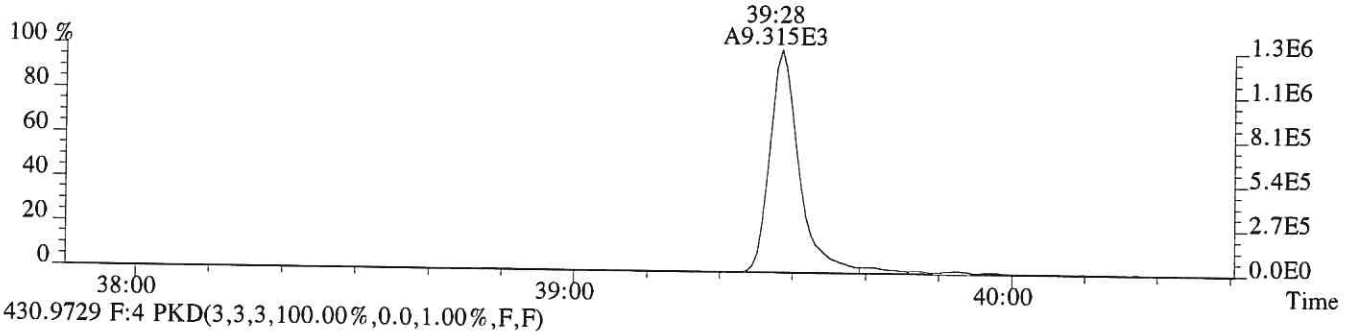
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



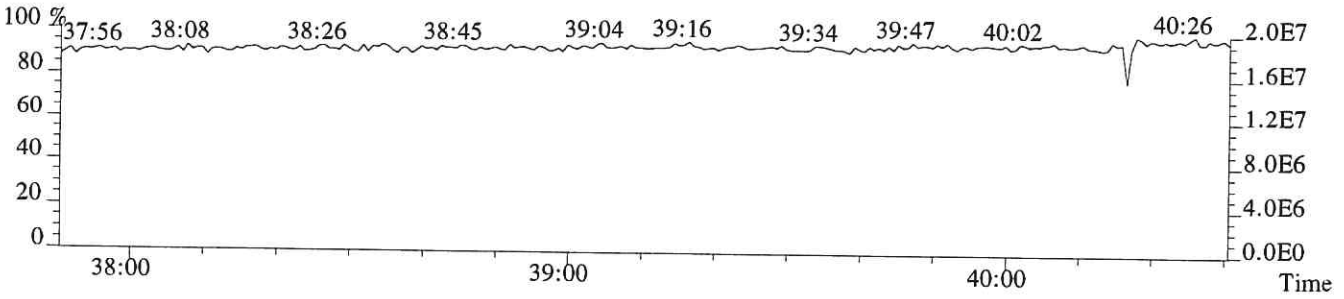
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



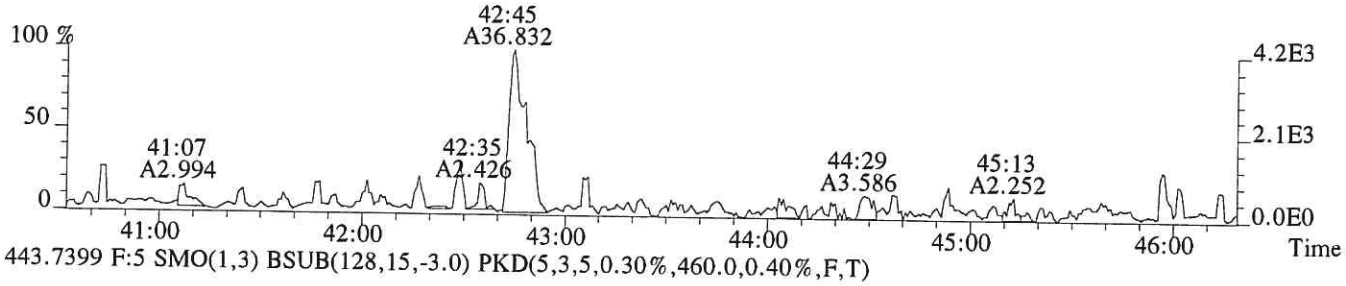
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



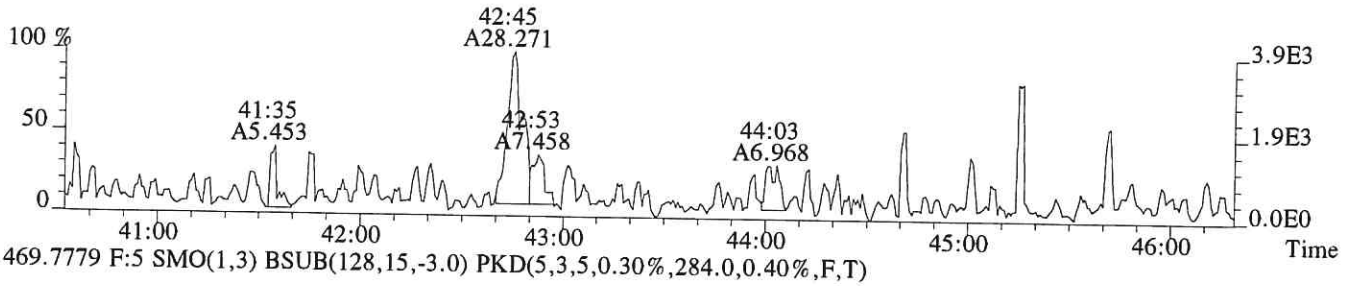
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



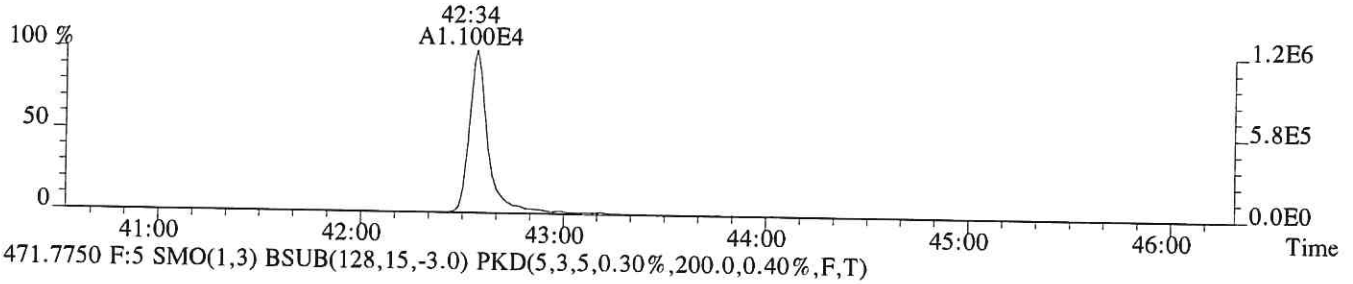
File:P519403 #1-520 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



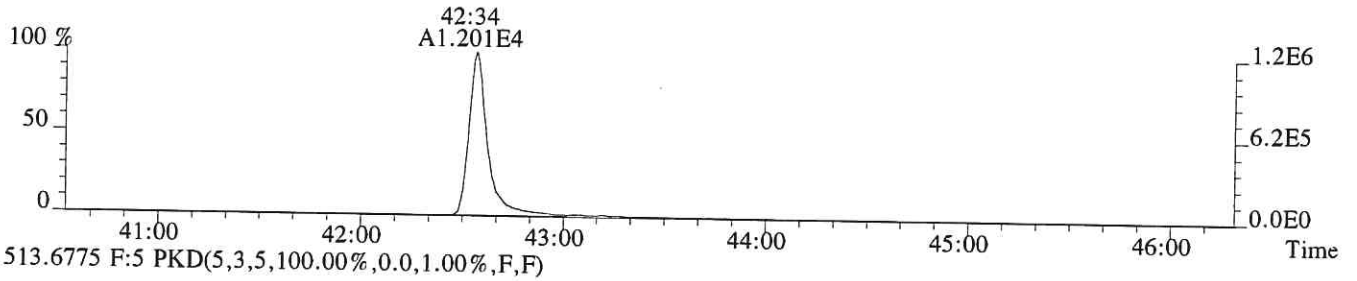
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



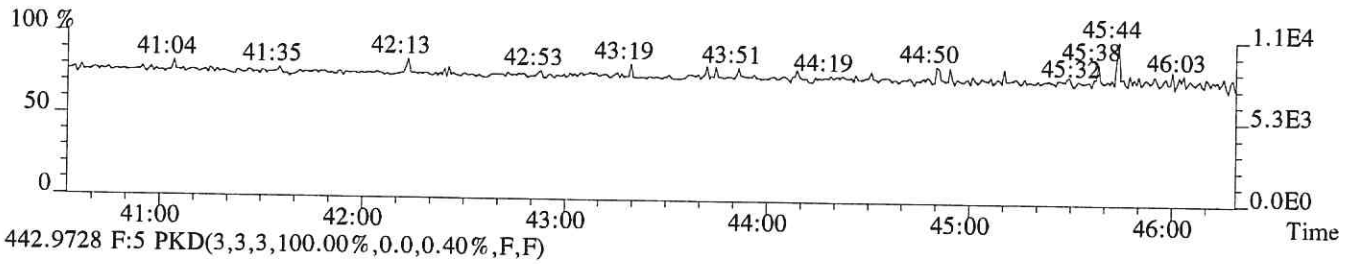
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



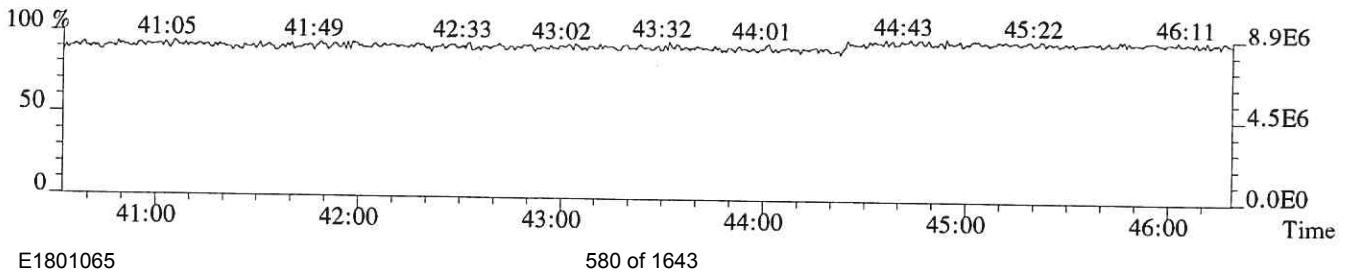
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



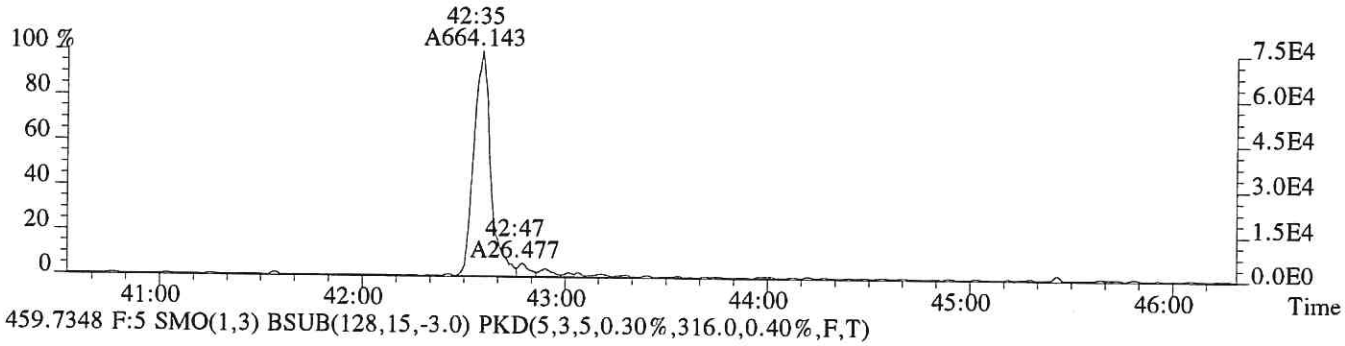
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



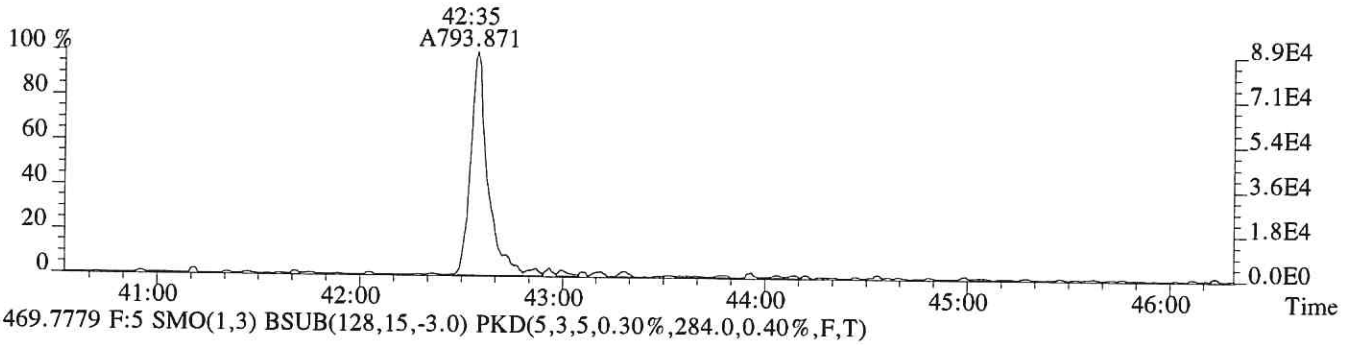
E1801065

12/14/18 LM 12/14/18

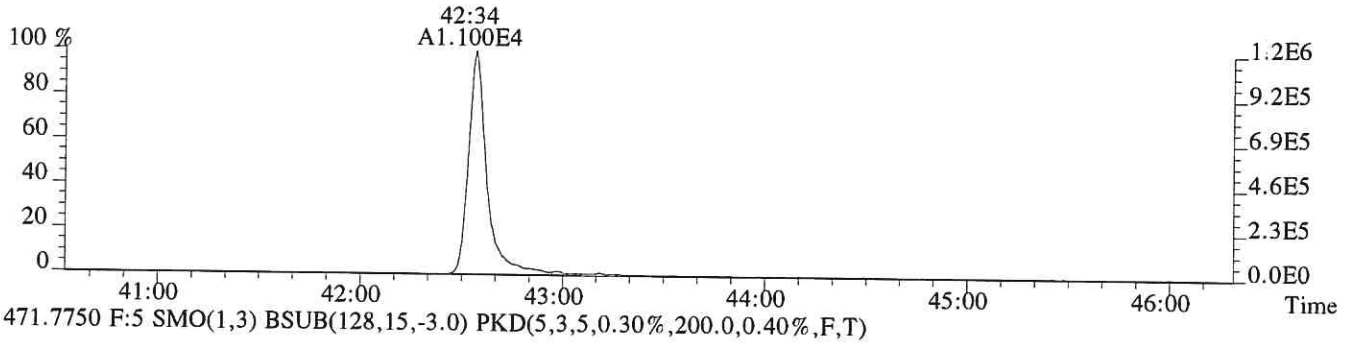
File:P519403 #1-520 Acq:13-DEC-2018 06:12:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801064-014DL
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



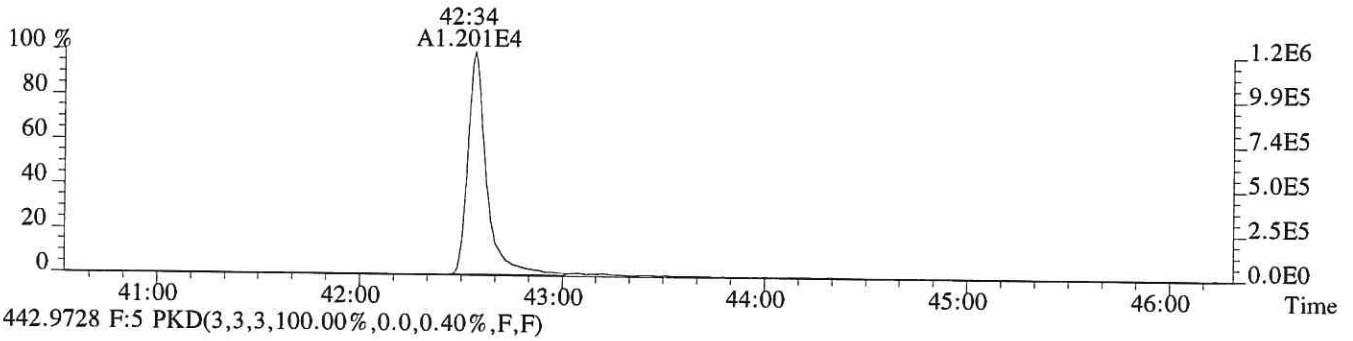
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



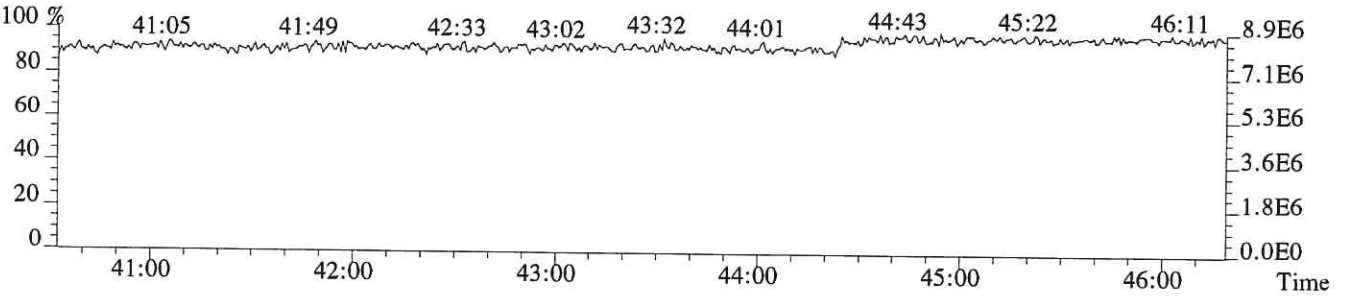
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0564

Run #15 Filename P519343 Samp: 1 Inj: 1 Acquired: 11-DEC-18 04:28:53
Processed: 12-DEC-18 13:50:58 Sample ID: E1801065-015

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	7.657e+02	9.275e+02	0.83	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	4.455e+01	2.807e+01	1.59	yes	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	3.813e+01	5.302e+01	0.72	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	7.876e+01	7.087e+01	1.11	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:54	3.714e+01	3.111e+01	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.390e+01	1.373e+01	1.01	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	8.608e+01	8.751e+01	0.98	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	9.477e+00	1.362e+01	0.70	no	yes	1.258
10	Unk	OCDF	42:38	1.879e+02	2.414e+02	0.78	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	1.902e+02	2.741e+02	0.69	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:22	1.775e+01	1.159e+01	1.53	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:34	2.135e+01	1.265e+01	1.69	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:39	3.695e+01	4.602e+01	0.80	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	5.952e+01	3.562e+01	1.67	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	1.180e+03	1.114e+03	1.06	yes	no	1.025
17	Unk	OCDD	42:27	3.241e+04	3.670e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	2.161e+04	2.727e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.843e+04	2.423e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.672e+04	2.298e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.725e+04	3.337e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	2.069e+04	4.062e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.888e+04	3.621e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.985e+04	3.770e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.460e+04	3.259e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.308e+04	3.012e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	9.498e+03	1.228e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	2.653e+04	1.644e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	2.480e+04	1.914e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.441e+04	1.909e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	3.001e+04	2.820e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:26	3.320e+04	3.653e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	2.797e+04	3.472e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	4.150e+04	3.277e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	1.430e+04				no	1.014

$$\text{OCDD} = \frac{(3.241e+04 + 3.670e+04) \times 4000 \text{ pg} \times 1}{(3.320e+04 + 3.653e+04) \times 10.662 \text{ g} \times 77.0/100 \times 1.118} = 432 \text{ ng/kg}$$

LM 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0564

Run #15 Filename P519343 Samp: 1 Inj: 1 Acquired: 11-DEC-18 04:28:53
Processed: 12-DEC-18 13:50:58 LAB. ID: E1801065-015

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.25e+05	2.00e+02	6.3e+02	1.60e+05	8.36e+02	1.9e+02
2	1,2,3,7,8-PeCDF	7.11e+03	2.96e+02	2.4e+01	5.40e+03	5.48e+02	9.9e+00
3	2,3,4,7,8-PeCDF	7.57e+03	2.96e+02	2.6e+01	7.99e+03	5.48e+02	1.5e+01
4	1,2,3,4,7,8-HxCDF	1.50e+04	6.04e+02	2.5e+01	1.45e+04	3.80e+02	3.8e+01
5	1,2,3,6,7,8-HxCDF	6.31e+03	6.04e+02	1.0e+01	5.23e+03	3.80e+02	1.4e+01
6	2,3,4,6,7,8-HxCDF	3.67e+03	6.04e+02	6.1e+00	2.34e+03	3.80e+02	6.2e+00
7	1,2,3,7,8,9-HxCDF	*	6.04e+02	*	*	3.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.40e+04	5.20e+02	2.7e+01	1.91e+04	2.24e+02	8.5e+01
9	1,2,3,4,7,8,9-HpCDF	2.44e+03	5.20e+02	4.7e+00	2.65e+03	2.24e+02	1.2e+01
10	OCDF	2.24e+04	1.96e+02	1.1e+02	3.13e+04	3.04e+02	1.0e+02
11	2,3,7,8-TCDD	3.32e+04	9.40e+02	3.5e+01	5.20e+04	7.72e+02	6.7e+01
12	1,2,3,7,8-PeCDD	4.03e+03	3.60e+02	1.1e+01	2.82e+03	2.32e+02	1.2e+01
13	1,2,3,4,7,8-HxCDD	5.99e+03	2.72e+02	2.2e+01	3.10e+03	6.52e+02	4.8e+00
14	1,2,3,6,7,8-HxCDD	7.64e+03	2.72e+02	2.8e+01	9.90e+03	6.52e+02	1.5e+01
15	1,2,3,7,8,9-HxCDD	1.14e+04	2.72e+02	4.2e+01	7.11e+03	6.52e+02	1.1e+01
16	1,2,3,4,6,7,8-HpCDD	2.09e+05	1.06e+03	2.0e+02	1.81e+05	2.28e+02	8.0e+02
17	OCDD	3.71e+06	1.84e+02	2.0e+04	4.34e+06	1.88e+02	2.3e+04
18	13C-2,3,7,8-TCDF	3.82e+06	3.71e+03	1.0e+03	4.83e+06	2.01e+03	2.4e+03
19	13C-1,2,3,7,8-PeCDF	6.94e+06	2.32e+02	3.0e+04	4.36e+06	6.72e+02	6.5e+03
20	13C-2,3,4,7,8-PeCDF	7.15e+06	2.32e+02	3.1e+04	4.56e+06	6.72e+02	6.8e+03
21	13C-1,2,3,4,7,8-HxCDF	3.67e+06	1.21e+03	3.0e+03	6.93e+06	4.24e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	4.02e+06	1.21e+03	3.3e+03	7.71e+06	4.24e+02	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.76e+06	1.21e+03	3.1e+03	7.28e+06	4.24e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.59e+06	1.21e+03	3.0e+03	6.98e+06	4.24e+02	1.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.71e+06	2.39e+03	1.1e+03	6.03e+06	3.86e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.08e+06	2.39e+03	8.7e+02	4.60e+06	3.86e+03	1.2e+03
27	13C-2,3,7,8-TCDD	1.74e+06	3.45e+03	5.0e+02	2.26e+06	1.27e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	4.96e+06	2.44e+02	2.0e+04	3.11e+06	5.16e+02	6.0e+03
29	13C-1,2,3,4,7,8-HxCDD	5.23e+06	6.04e+02	8.7e+03	3.96e+06	5.48e+02	7.2e+03
30	13C-1,2,3,6,7,8-HxCDD	4.74e+06	6.04e+02	7.8e+03	3.78e+06	5.48e+02	6.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.84e+06	3.40e+02	1.4e+04	4.61e+06	2.40e+02	1.9e+04
32	13C-OCDD	3.85e+06	2.20e+02	1.8e+04	4.26e+06	2.44e+02	1.7e+04
33	13C-1,2,3,4-TCDD	5.23e+06	3.45e+03	1.5e+03	6.51e+06	1.27e+03	5.1e+03
34	13C-1,2,3,7,8,9-HxCDD	7.41e+06	6.04e+02	1.2e+04	5.86e+06	5.48e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	2.69e+06	2.56e+02	1.1e+04			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0564

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519343 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 303.9020 305.8990 Tot Response: 2.90e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:07	2.67e+01	3.80e+01	0.70	yes	6.47e+01		n	n
2	26:21	3.64e+01	4.27e+01	0.85	yes	7.92e+01		n	n
3	26:56	3.55e+02	4.43e+02	0.80	yes	7.98e+02		n	n
4	27:45	7.66e+02	9.28e+02	0.83	yes	1.69e+03	2,3,7,8-TCDF	n	n
5	28:07	5.97e+01	8.42e+01	0.71	yes	1.44e+02		n	n
6	29:39	5.19e+01	6.69e+01	0.78	yes	1.19e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0564

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P519343 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 319.8970 321.8940 Tot Response: 4.64e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:36	1.90e+02	2.74e+02 0.69	yes	4.64e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0564

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P519343 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 339.8600 341.8570 Tot Response: 9.34e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:39	5.86e+01	3.48e+01 1.68	yes	9.34e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0564

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P519343 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 339.8600 341.8570 Tot Response: 1.09e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:42	2.10e+01	1.49e+01 1.41	yes	3.60e+01		y	n
2	32:06	4.46e+01	2.81e+01 1.59	yes	7.26e+01	1,2,3,7,8-PeCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0564

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P519343 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 355.8550 357.8520 Tot Response: 1.79e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:11	5.53e+01	3.18e+01	1.74	yes	8.71e+01		n	n
2	31:40	3.68e+01	2.58e+01	1.43	yes	6.26e+01		n	n
3	33:22	1.77e+01	1.16e+01	1.53	yes	2.93e+01	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0564

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519343 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 373.8210 375.8180 Tot Response: 3.93e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:49	6.45e+01	5.16e+01	1.25	yes	1.16e+02		n	n
2	35:22	3.34e+01	2.56e+01	1.30	yes	5.90e+01		n	n
3	35:48	7.88e+01	7.09e+01	1.11	yes	1.50e+02	1,2,3,4,7,8-HxCDF	n	n
4	35:54	3.71e+01	3.11e+01	1.19	yes	6.82e+01	1,2,3,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0564

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519343 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 389.8160 391.8130 Tot Response: 1.14e+03 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:11	6.03e+02	4.81e+02 1.25	yes	1.08e+03		n	n
2	36:03	3.02e+01	2.13e+01 1.42	yes	5.15e+01		n	n

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Peak List Summary

CLIENT ID.
SL0564

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519343 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 407.7820 409.7790 Tot Response: 1.74e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:32	8.61e+01	8.75e+01 0.98	yes	1.74e+02	1,2,3,4,6,7,8-HpCDF	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0564

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519343 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 04:28:53 Processed: 12-DEC-18 13:50:58

Mass: 423.7770 425.7740 Tot Response: 7.48e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	2.67e+03	2.51e+03 1.07	yes	5.18e+03		n	n
2	39:30	1.18e+03	1.11e+03 1.06	yes	2.29e+03	1,2,3,4,6,7,8-HpCDD	n	n

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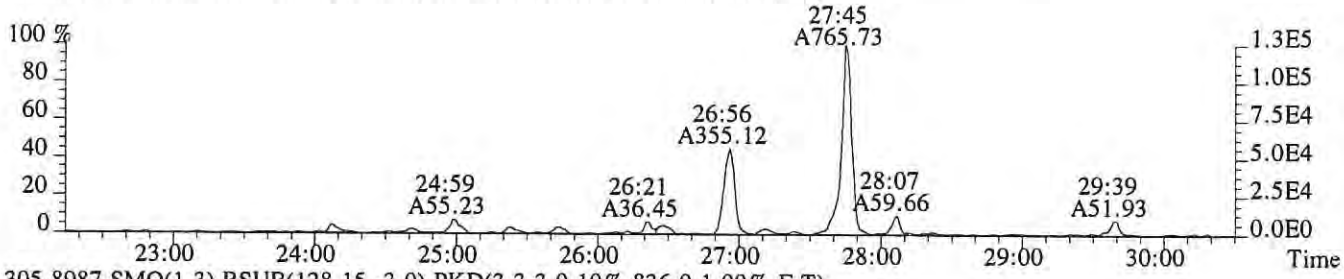
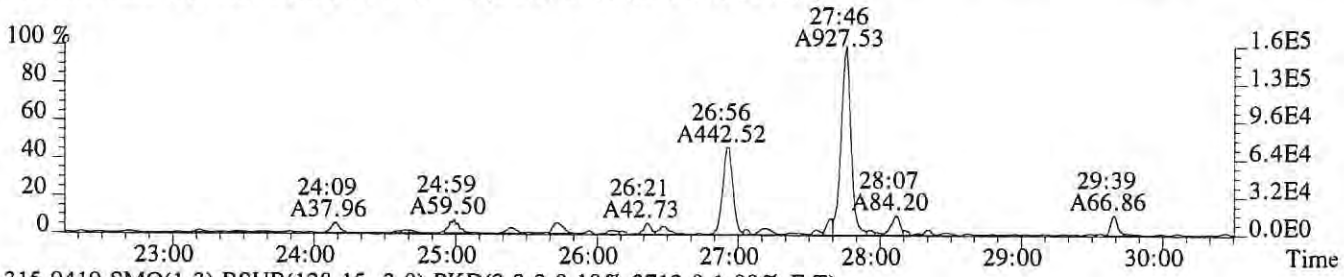
File:P519343 #1-587 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015

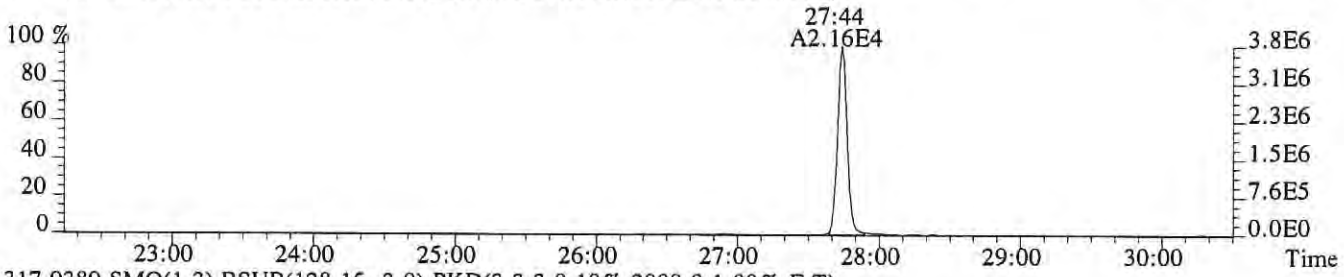
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



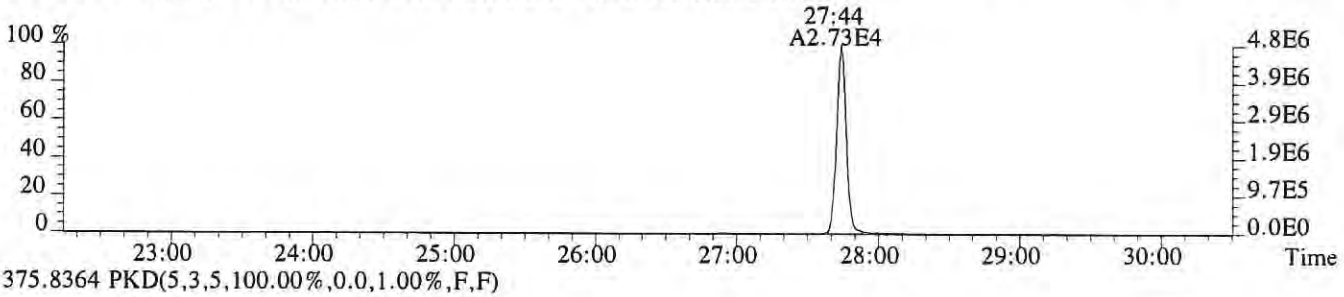
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



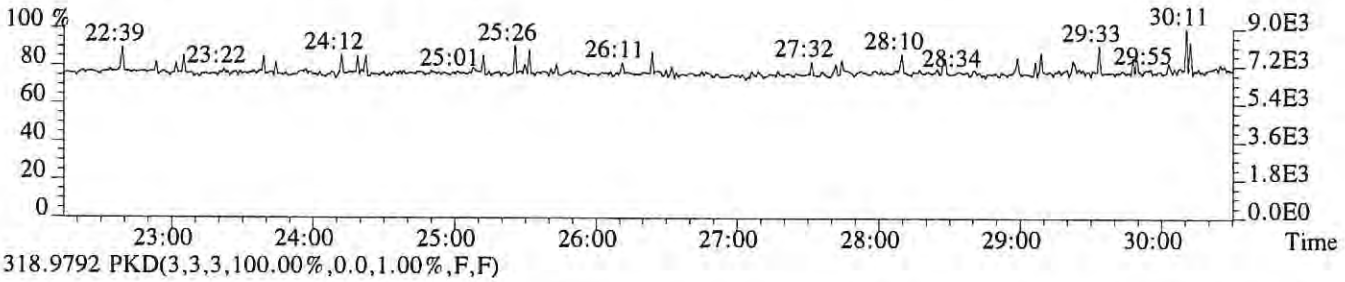
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3712.0,1.00%,F,T)



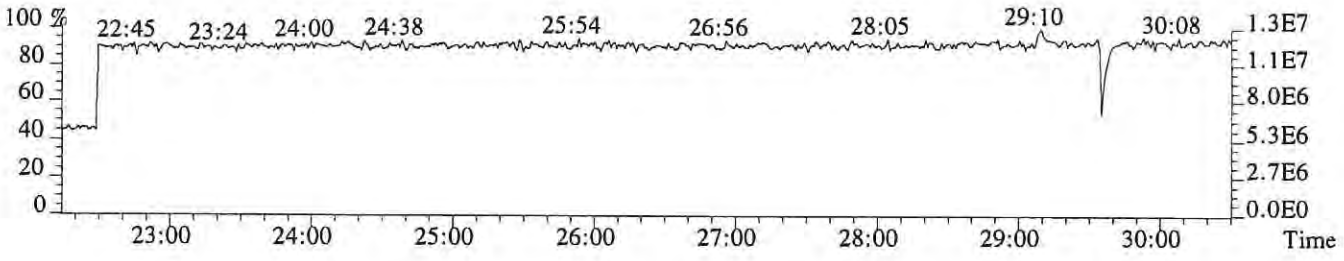
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



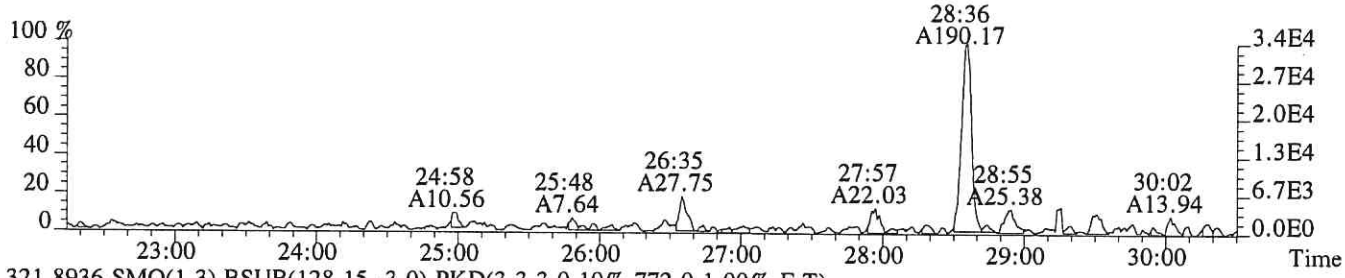
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



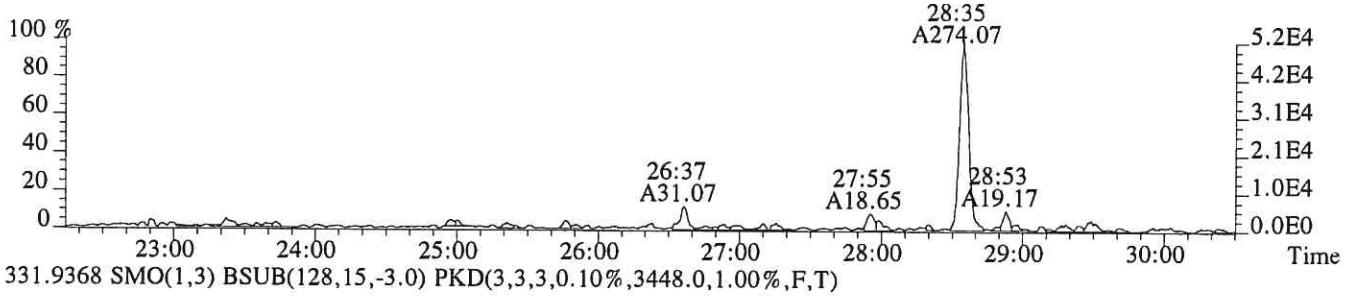
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



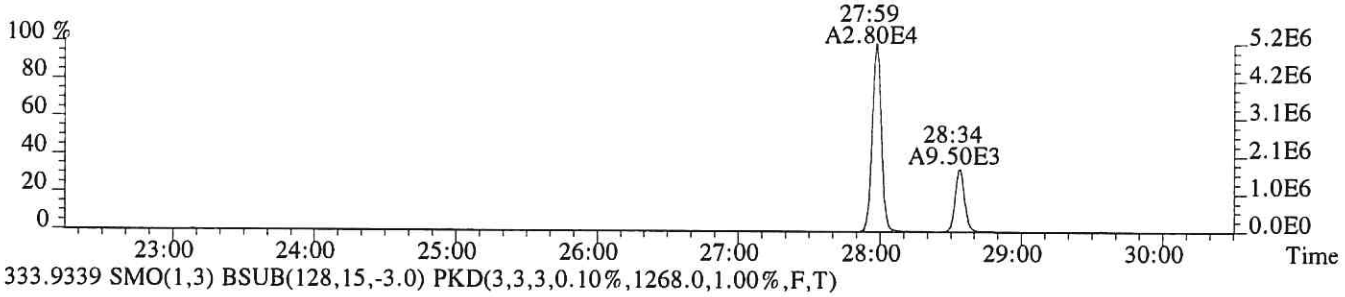
File:P519343 #1-587 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



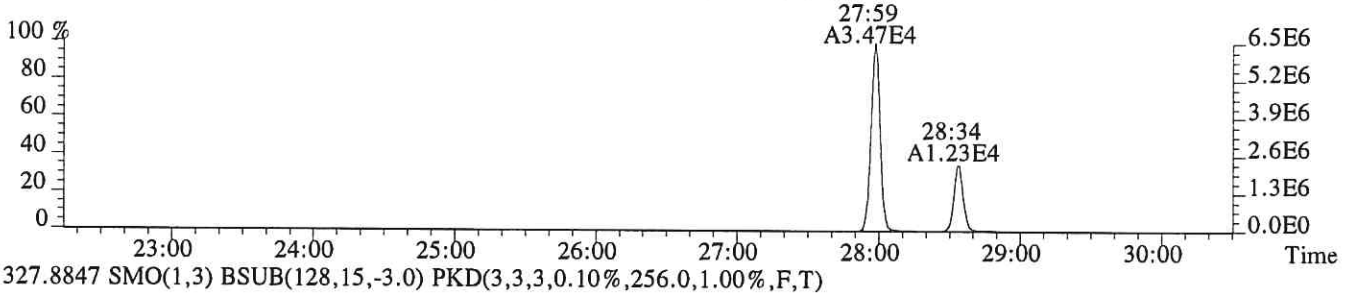
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



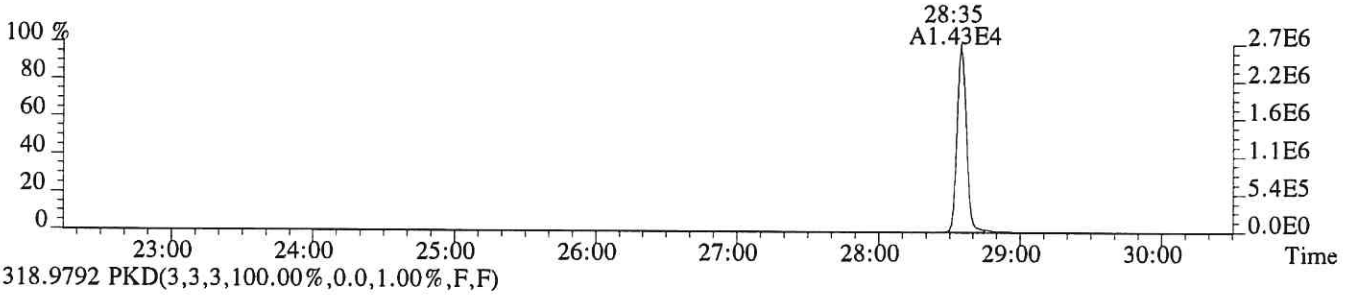
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



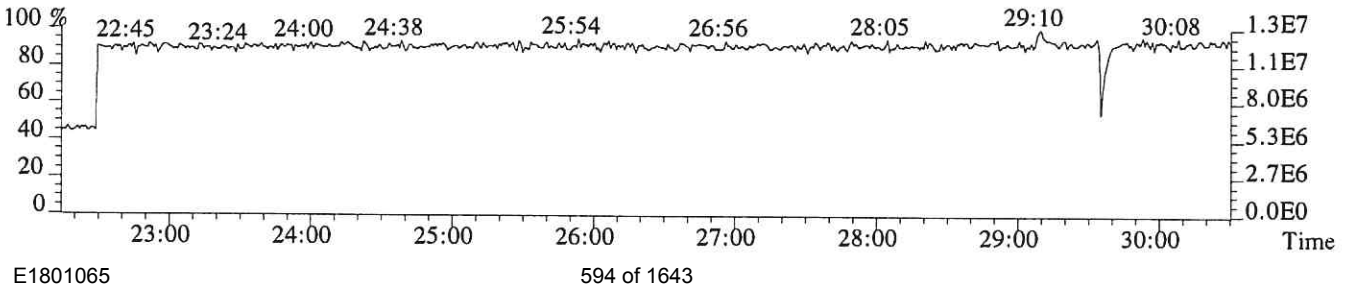
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



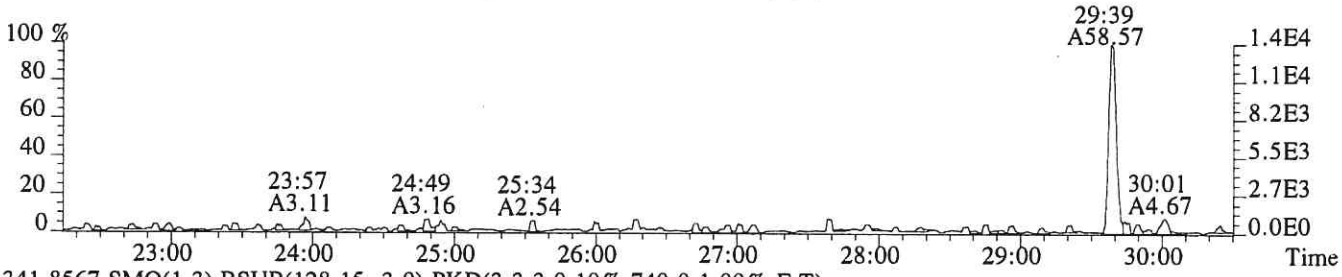
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



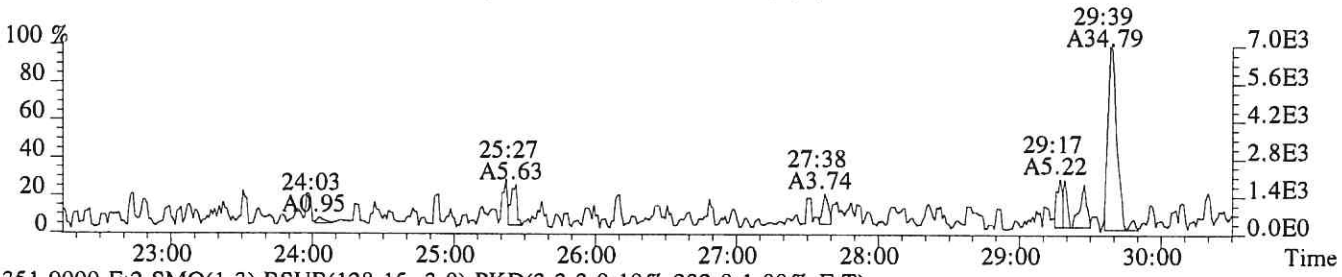
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



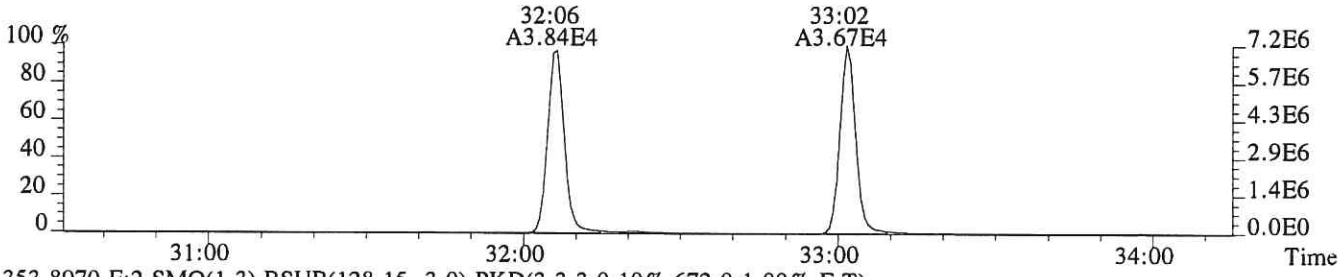
File:P519343 #1-587 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



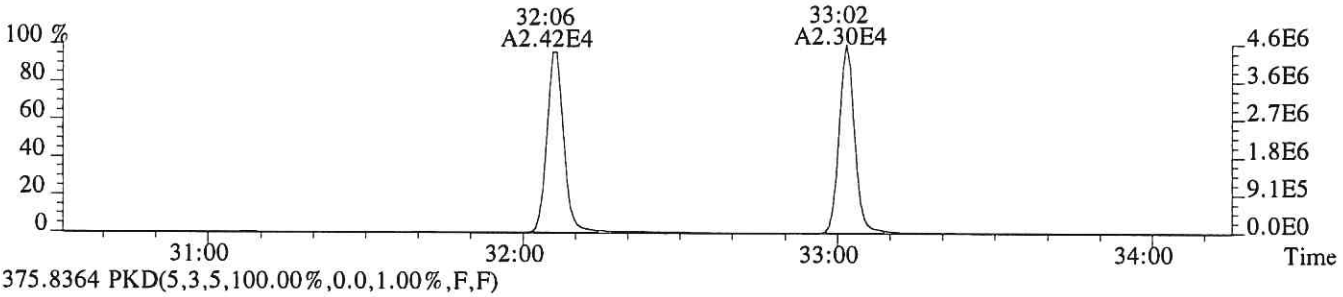
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



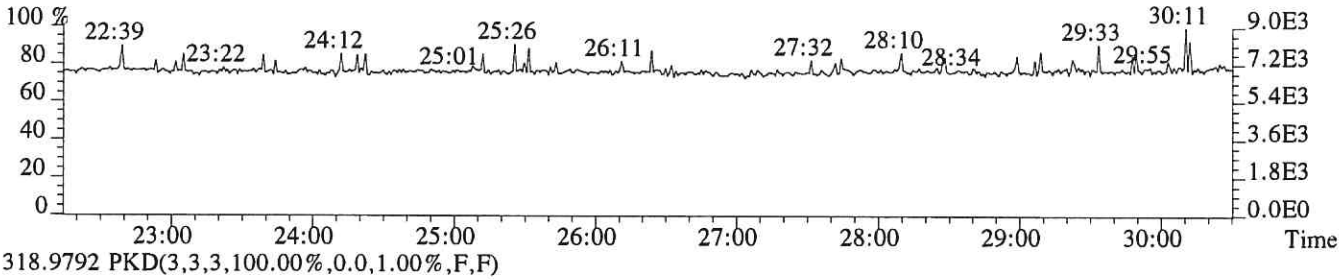
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



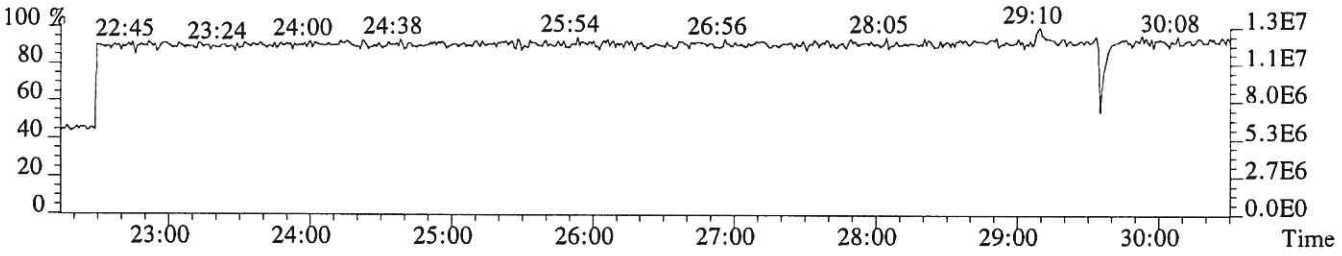
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



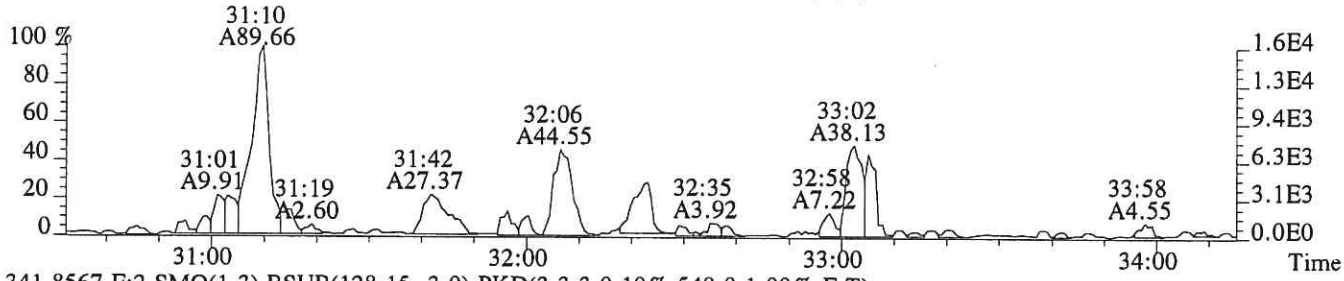
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



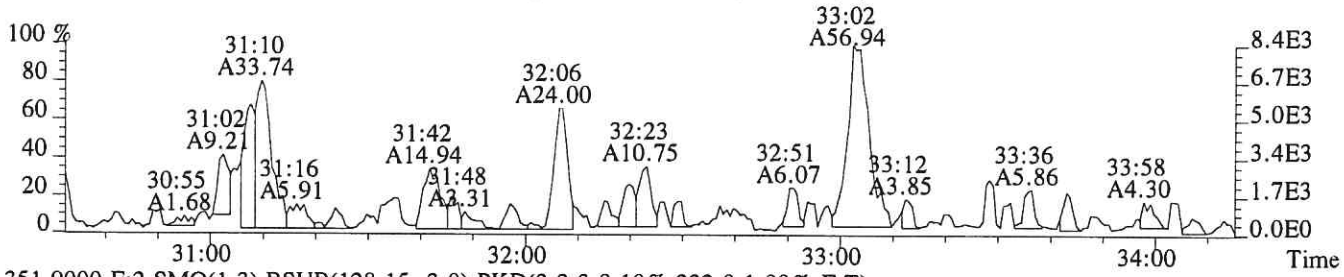
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



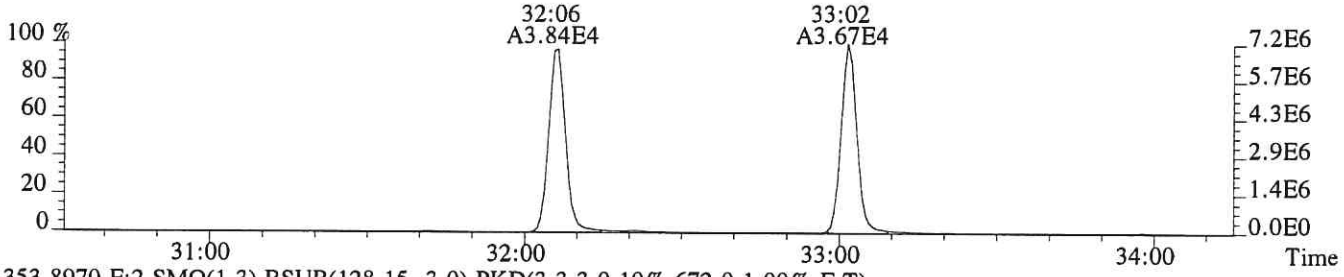
File:P519343 #1-335 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



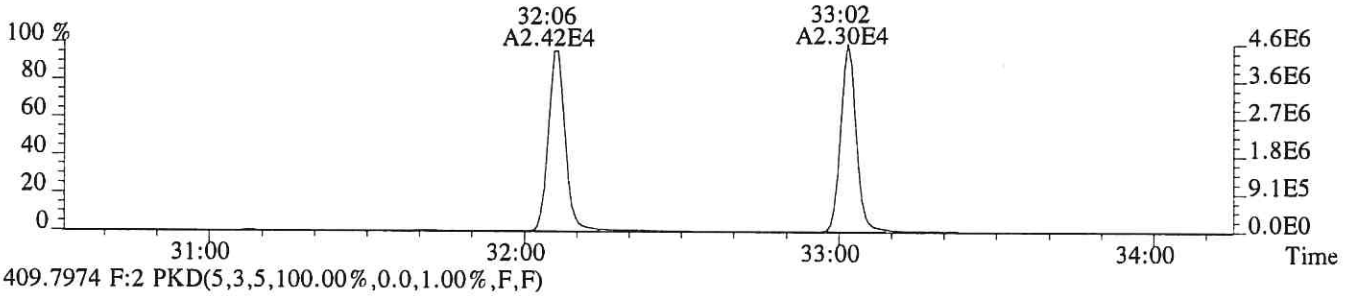
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



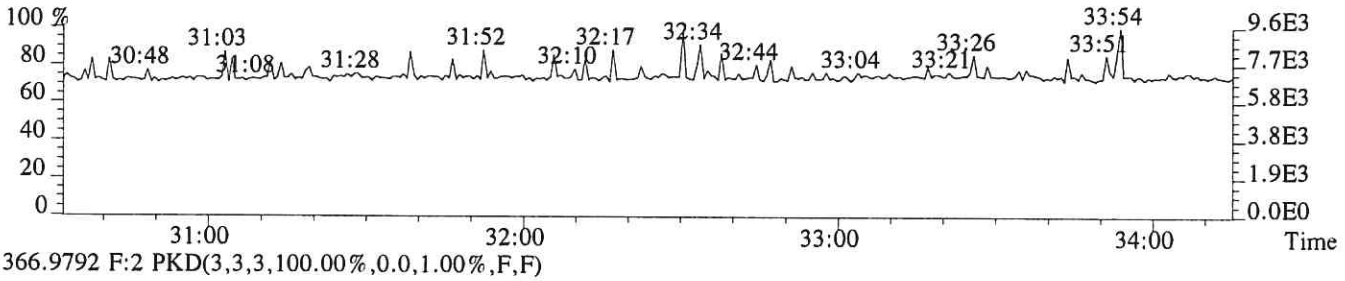
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



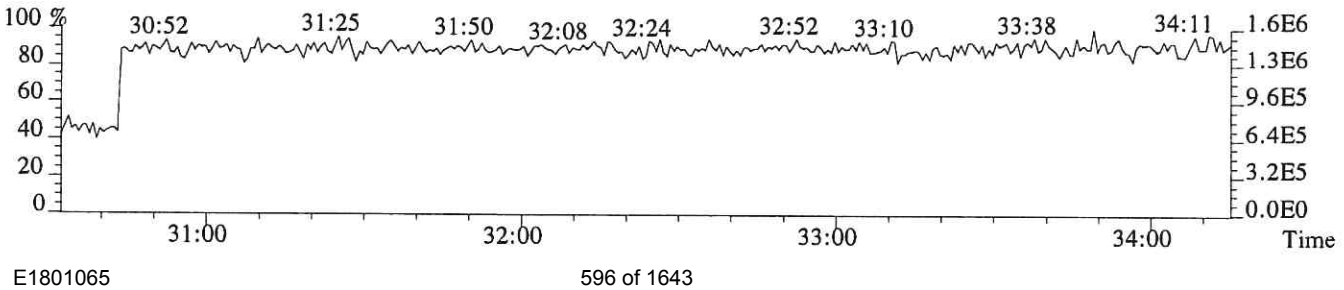
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



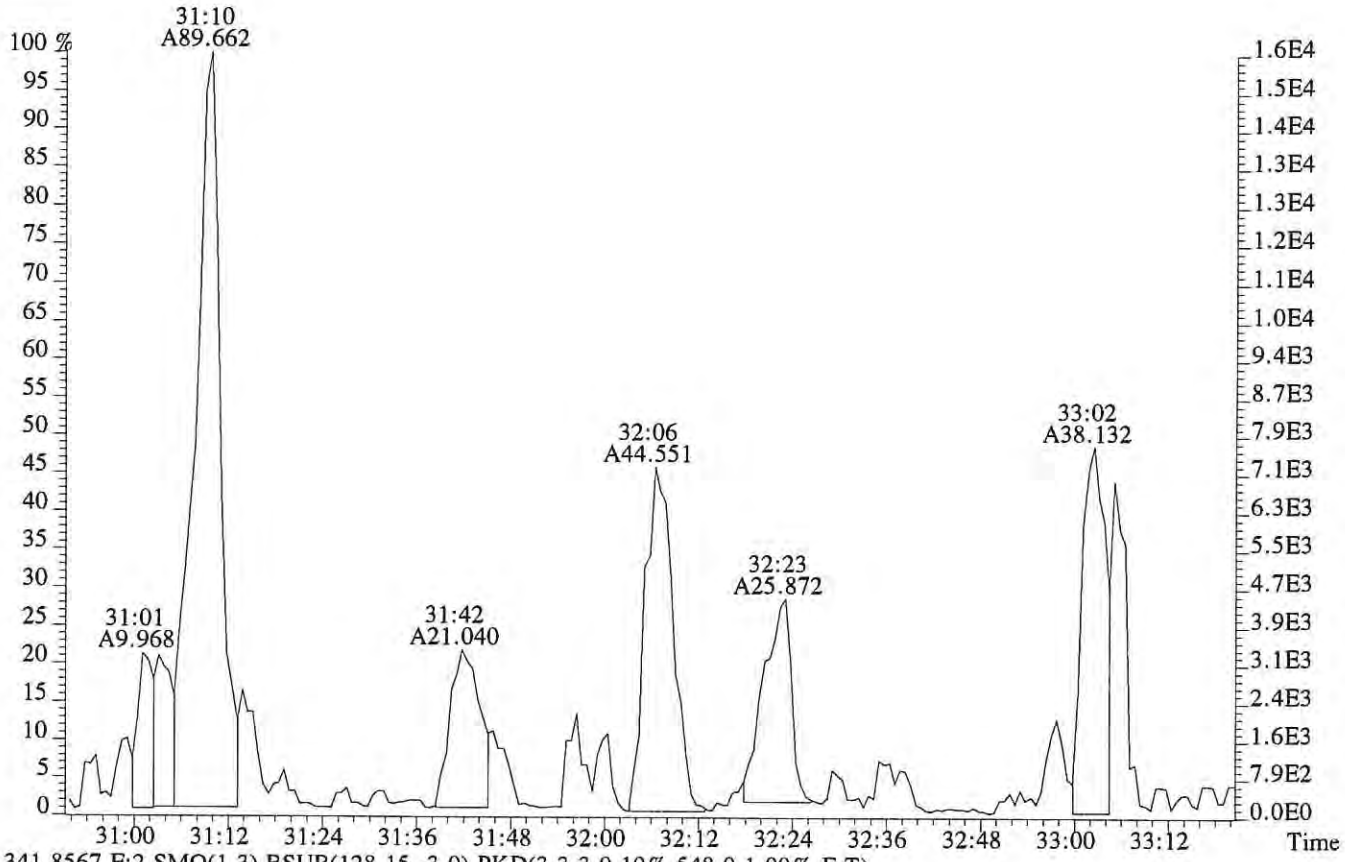
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



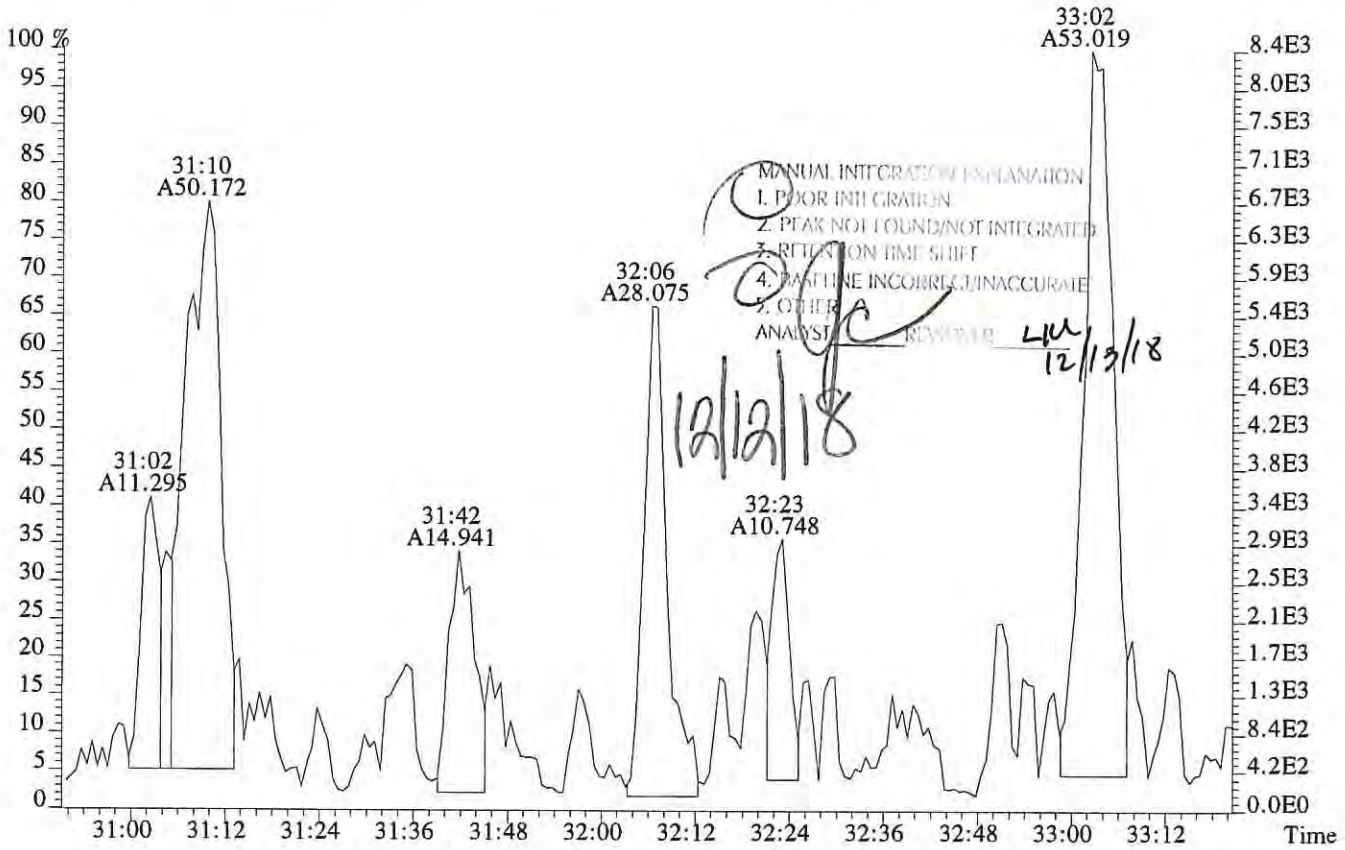
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



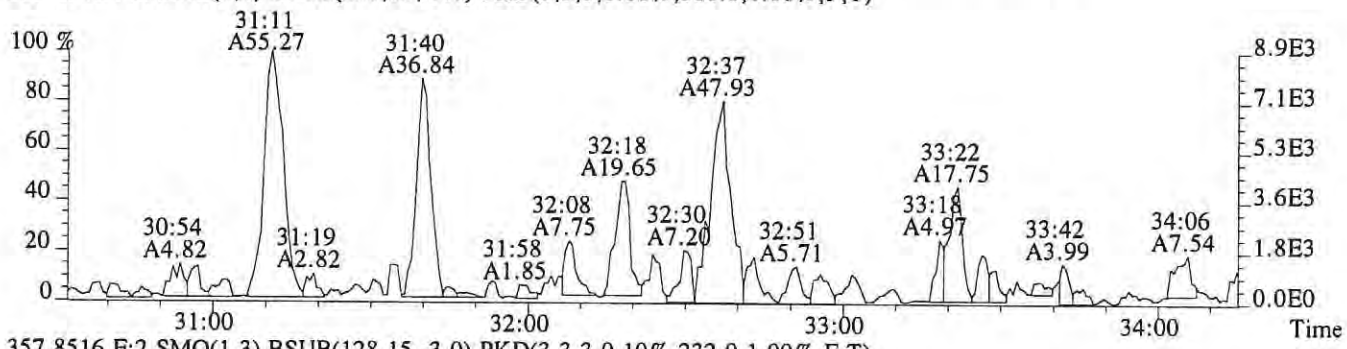
File:P519343 #1-335 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



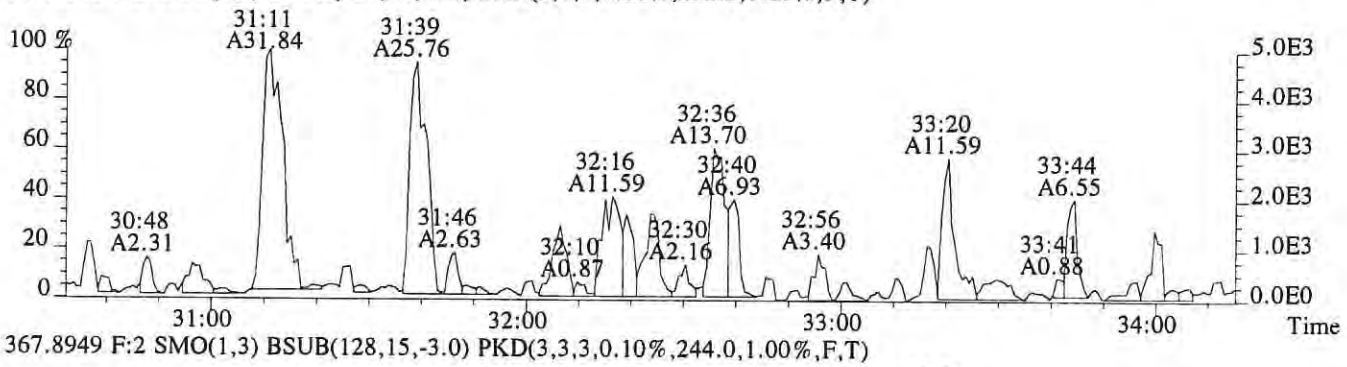
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



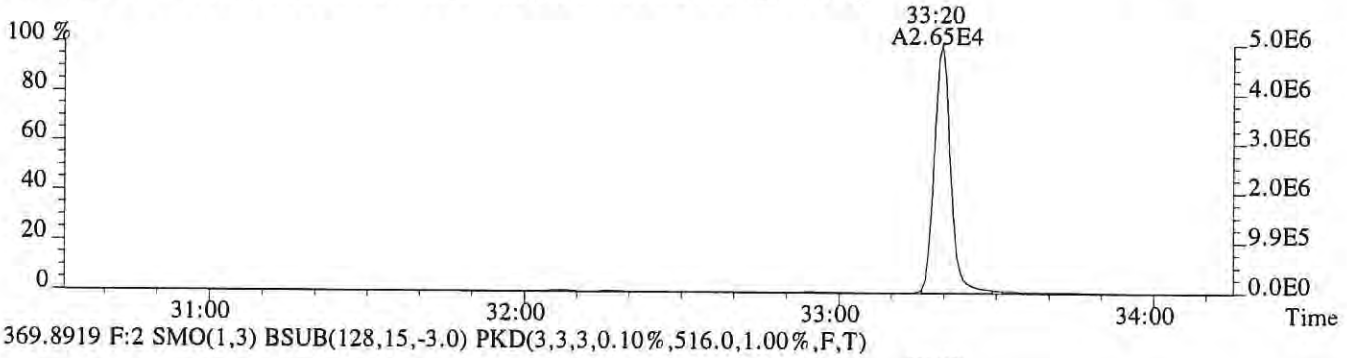
File:P519343 #1-335 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



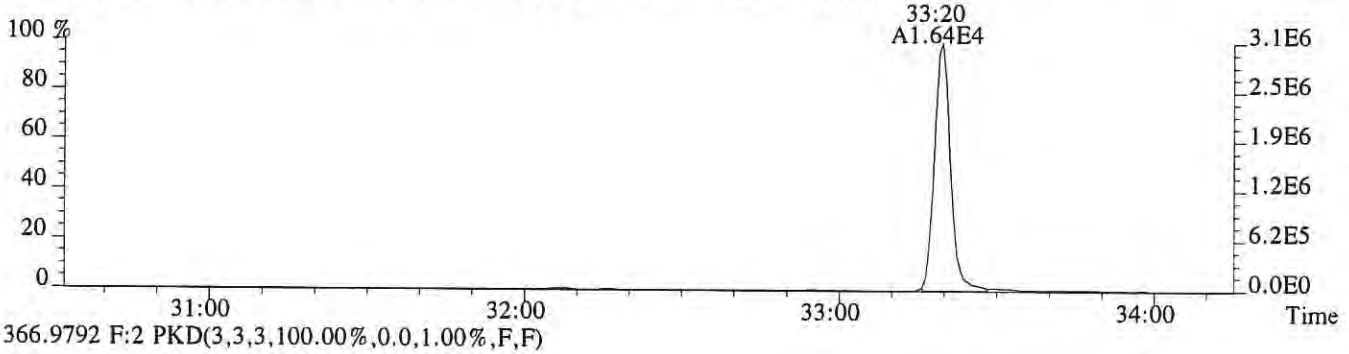
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



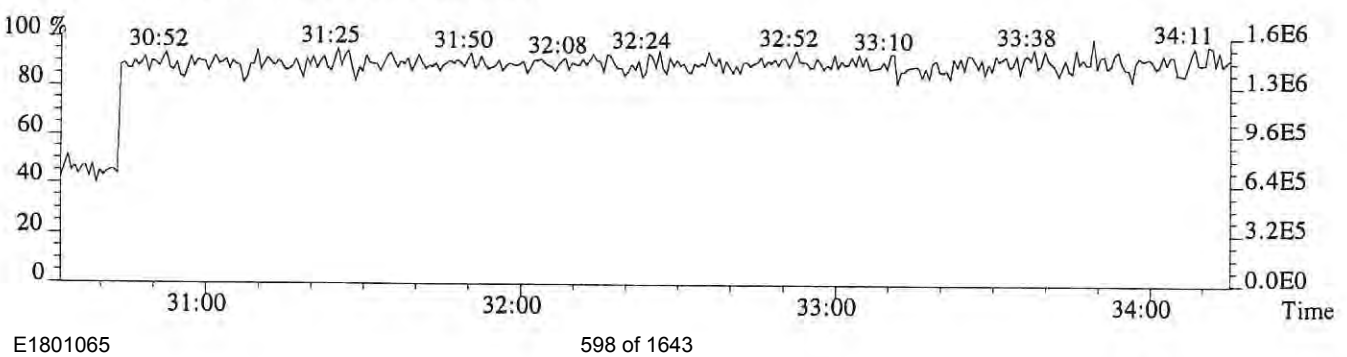
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)

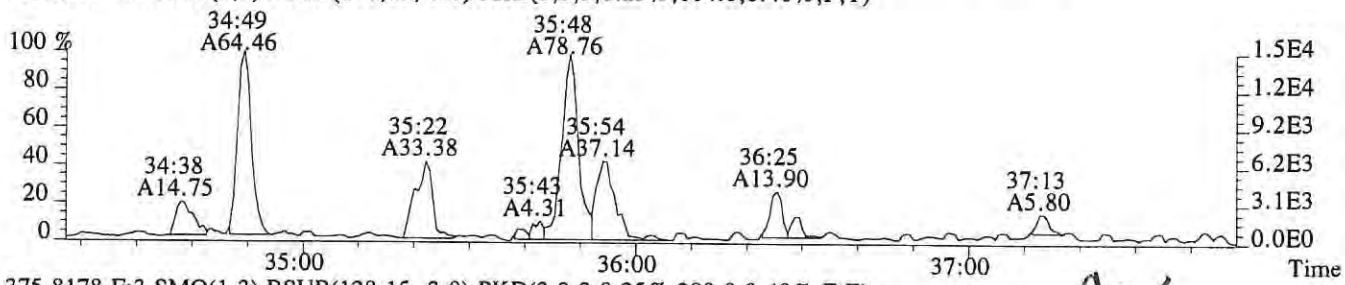


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

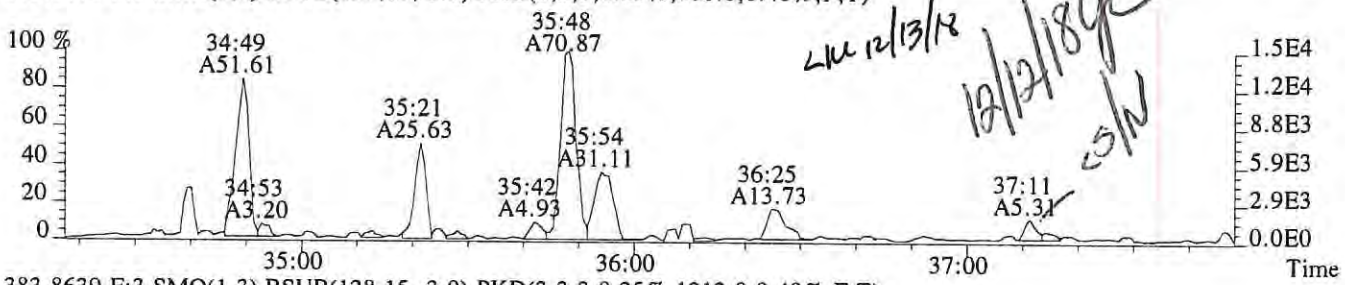


File:P519343 #1-317 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015

373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)

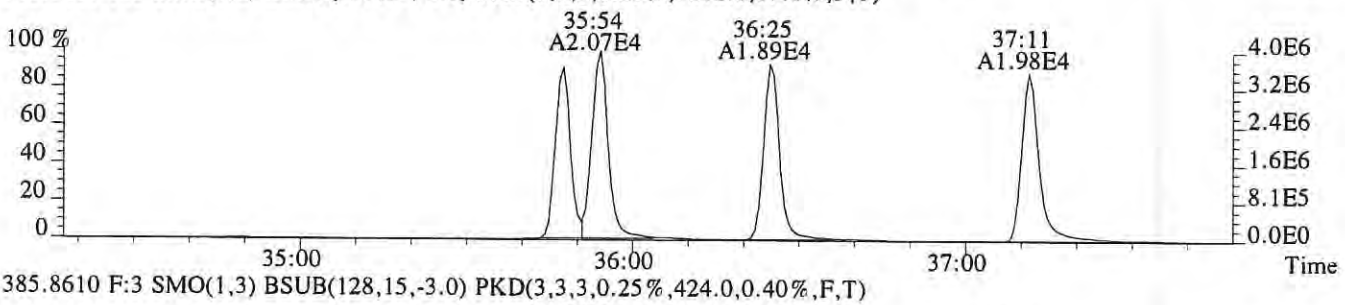


LM 12/13/18

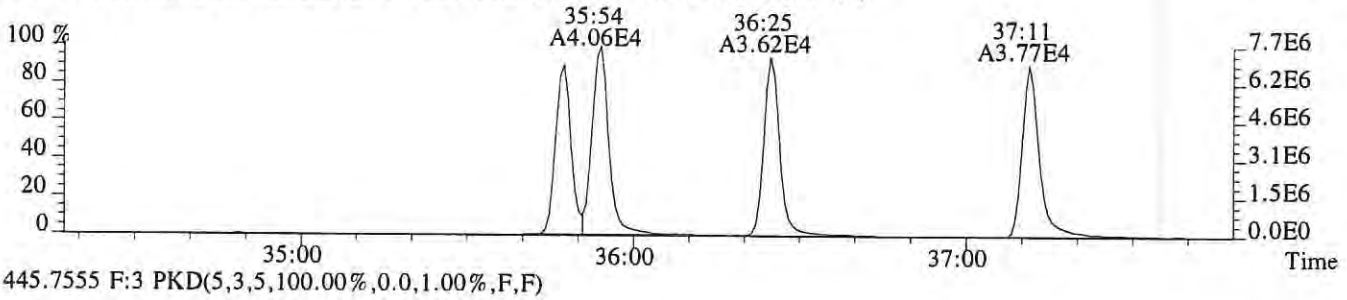
12/12/18 gc

<5/N

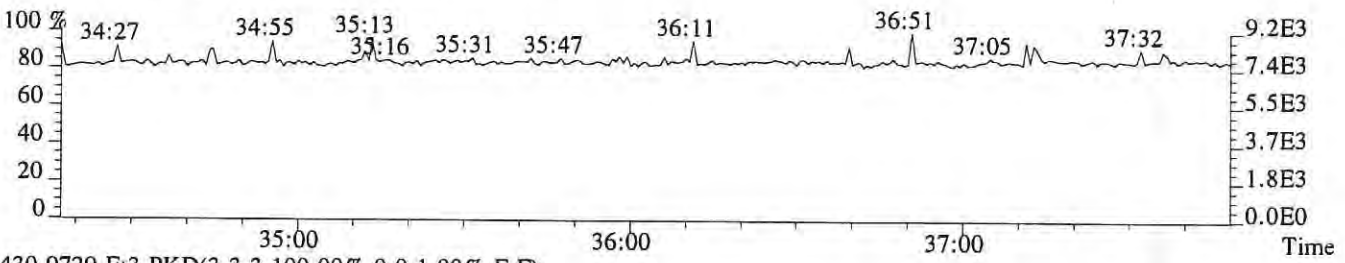
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



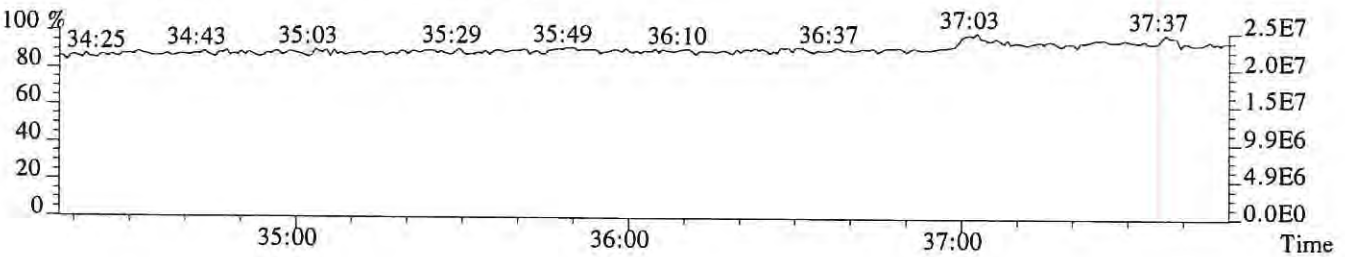
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



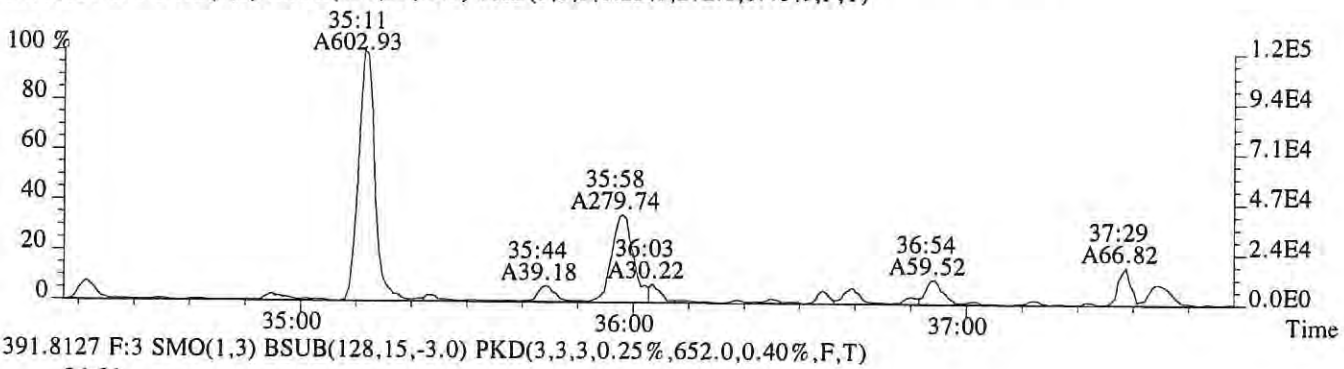
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



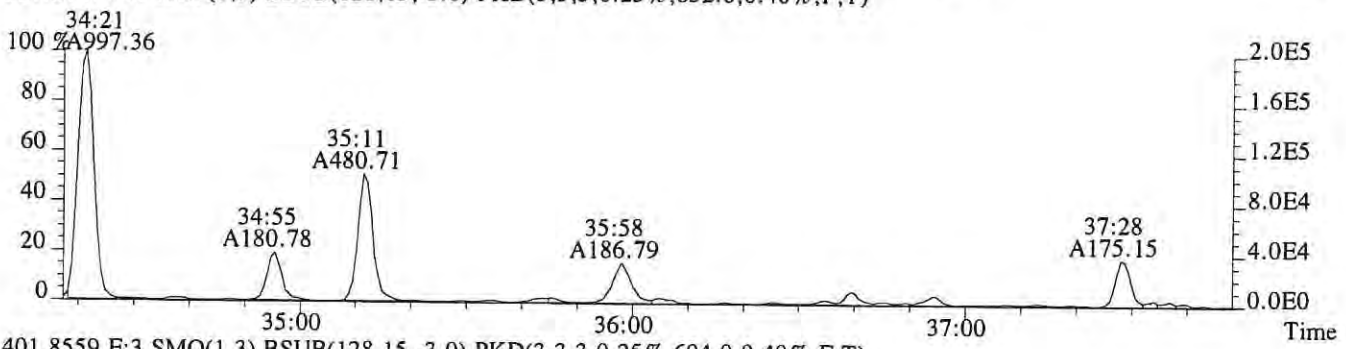
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



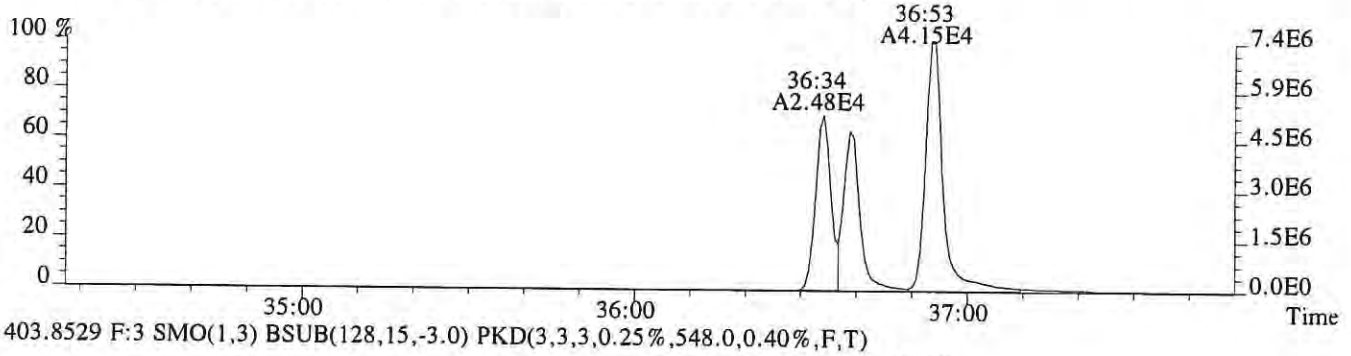
File:P519343 #1-317 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



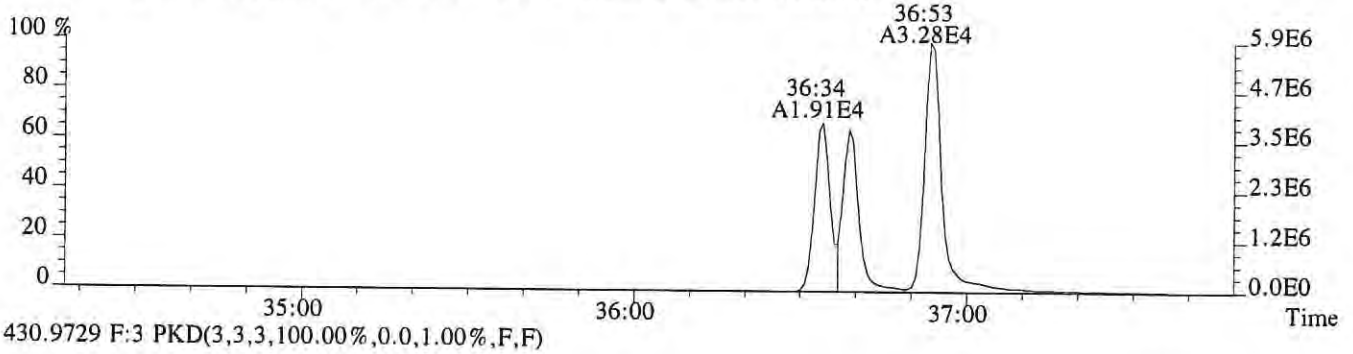
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



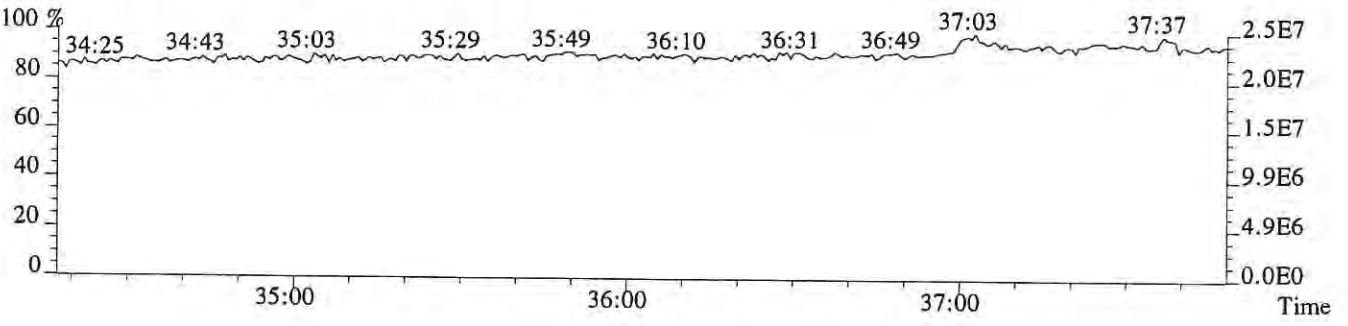
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)

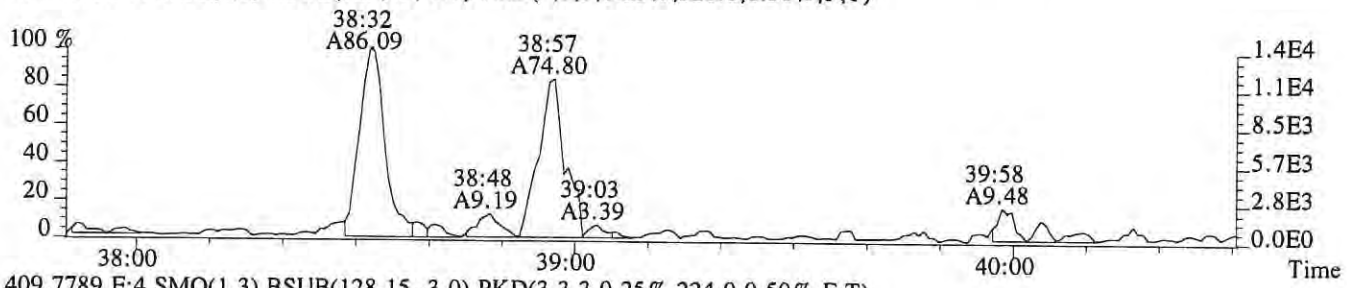


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

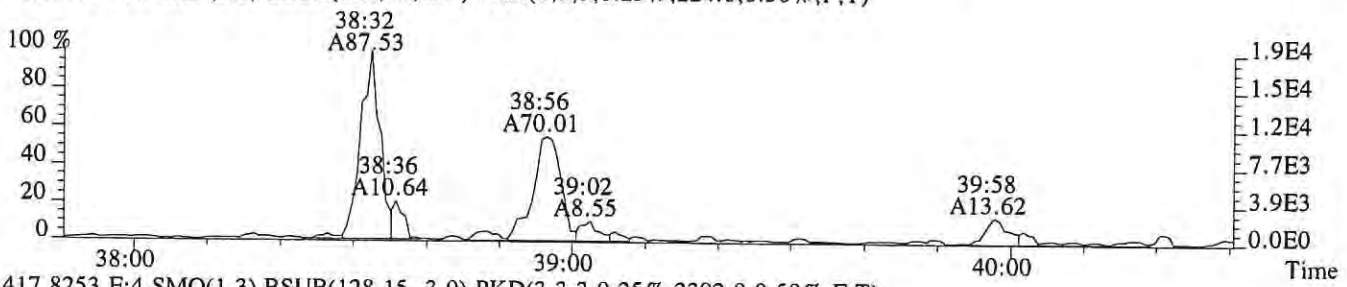


File:P519343 #1-241 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015

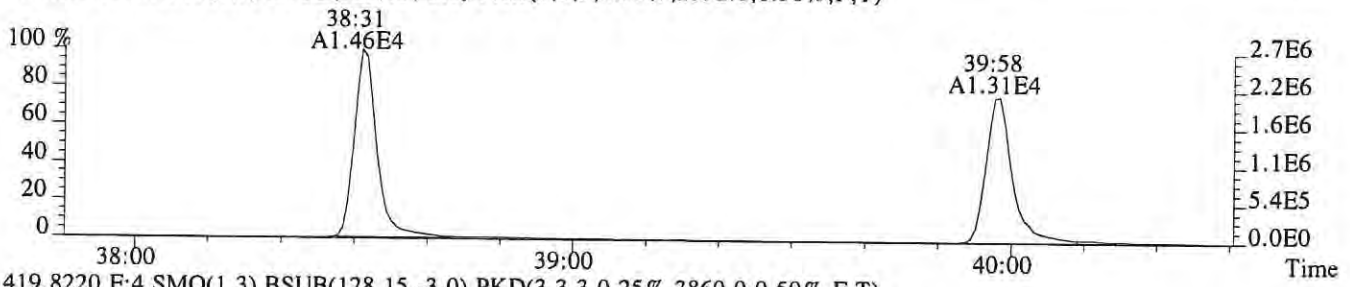
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.50%,F,T)



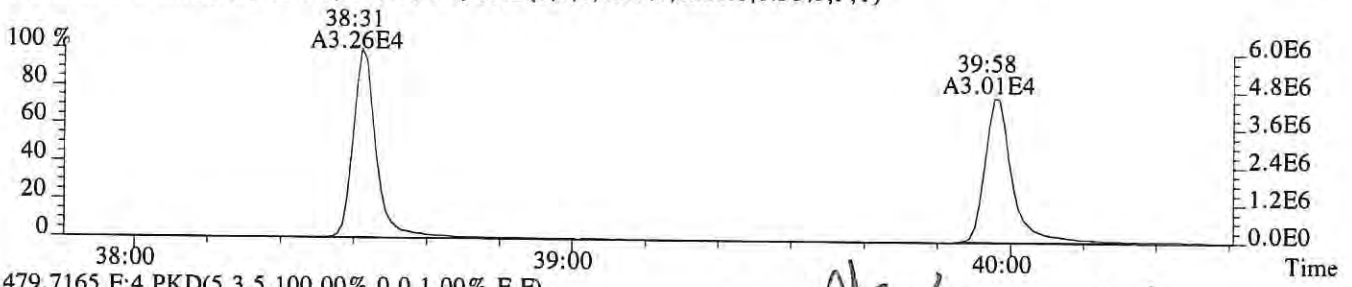
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.50%,F,T)



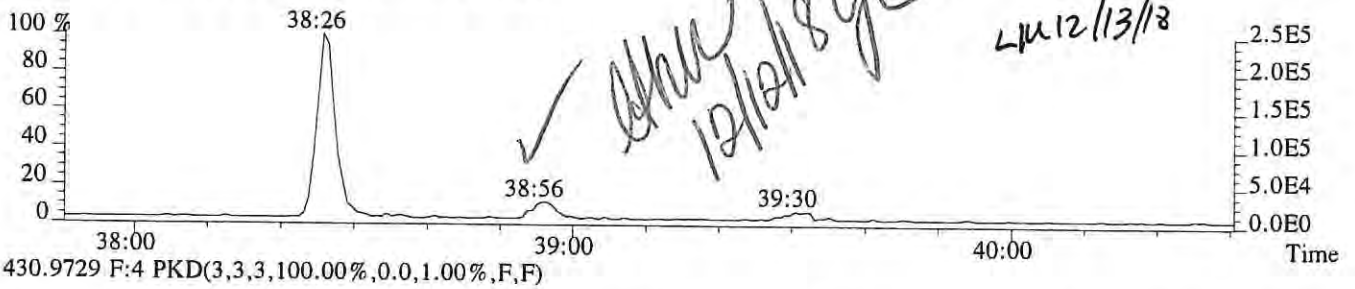
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2392.0,0.50%,F,T)



419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3860.0,0.50%,F,T)

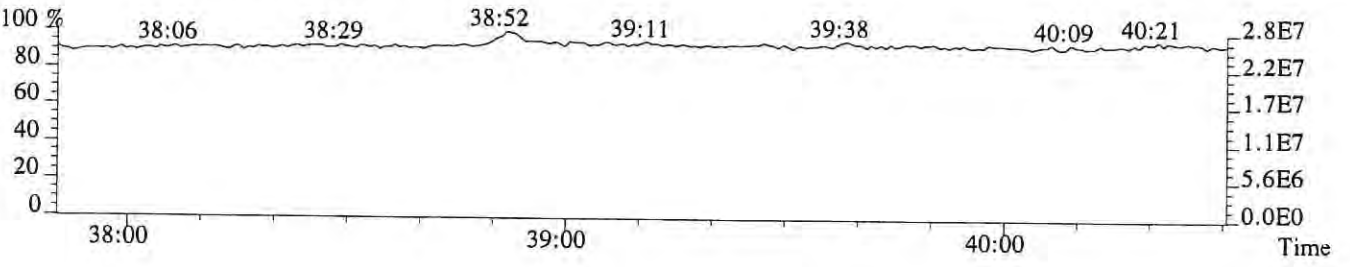


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

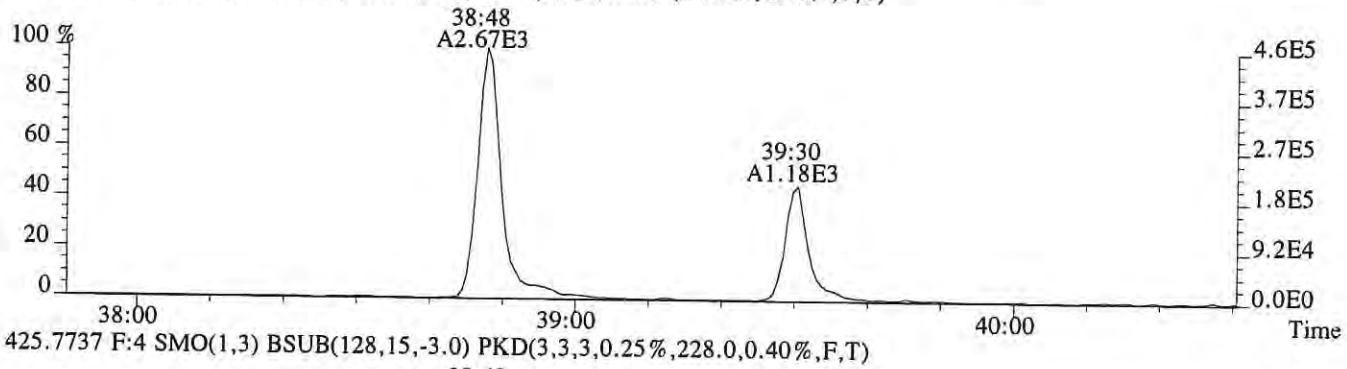


LM 12/13/18

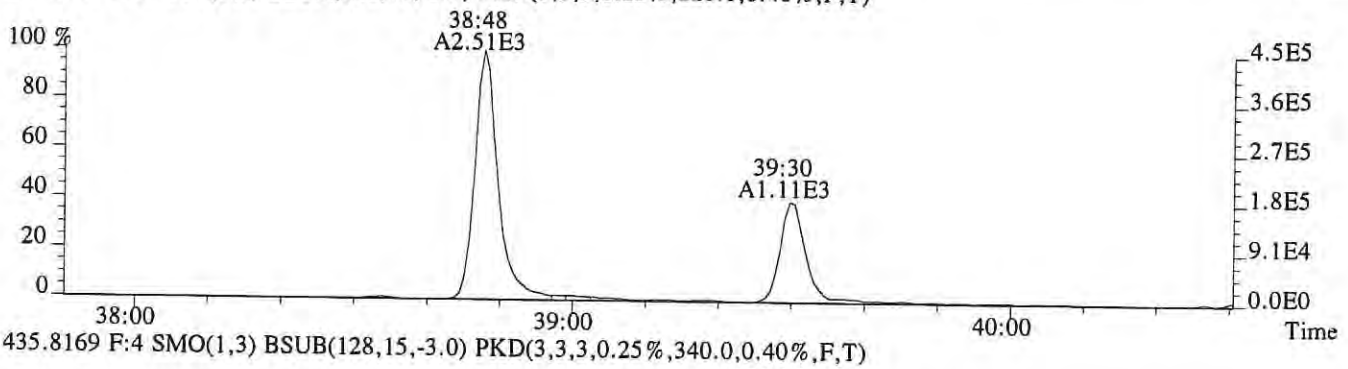
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



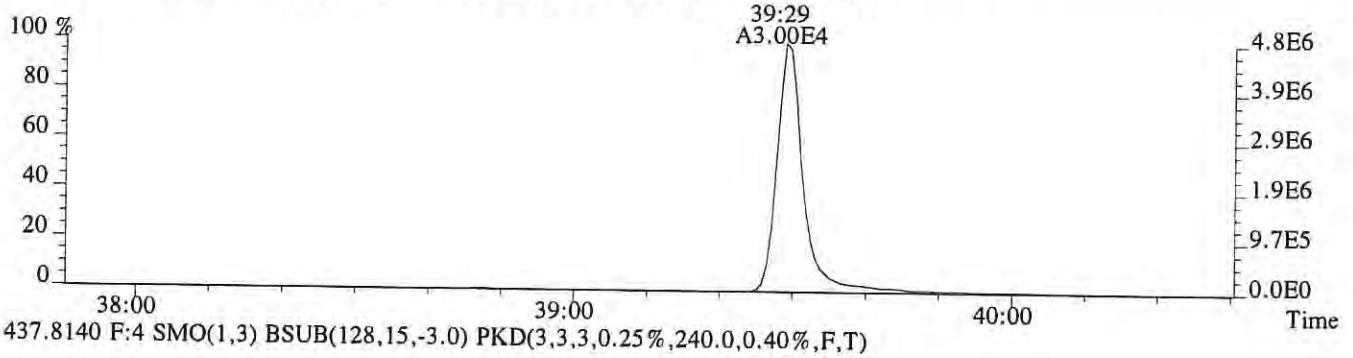
File:P519343 #1-241 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



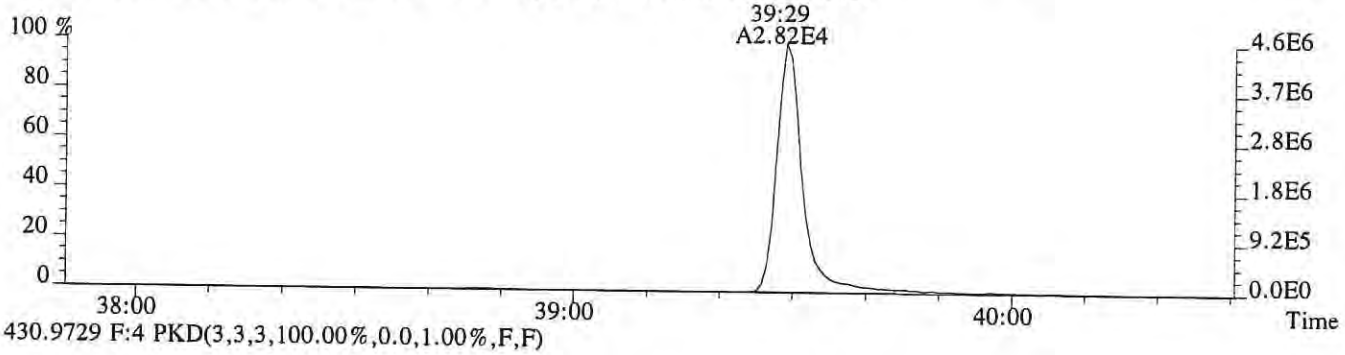
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



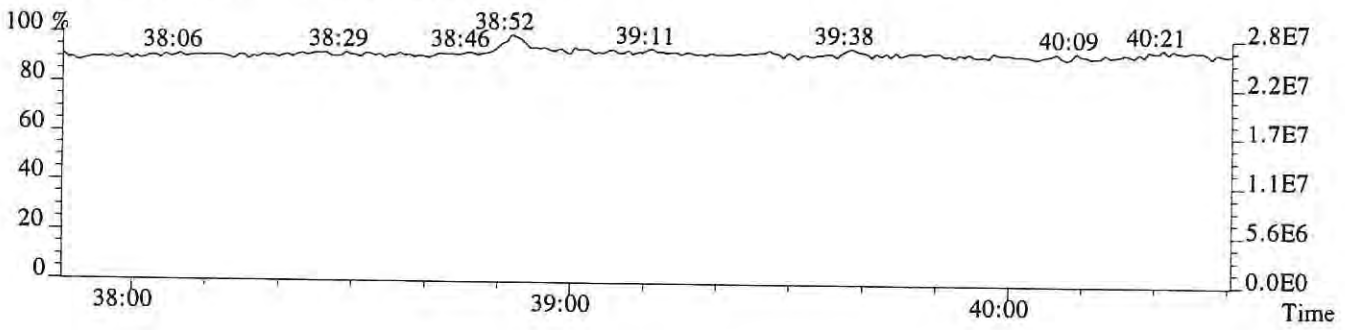
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)

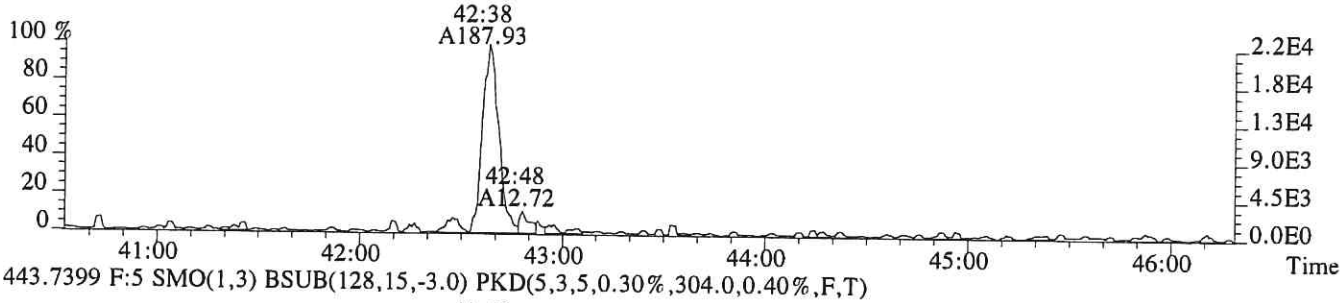


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

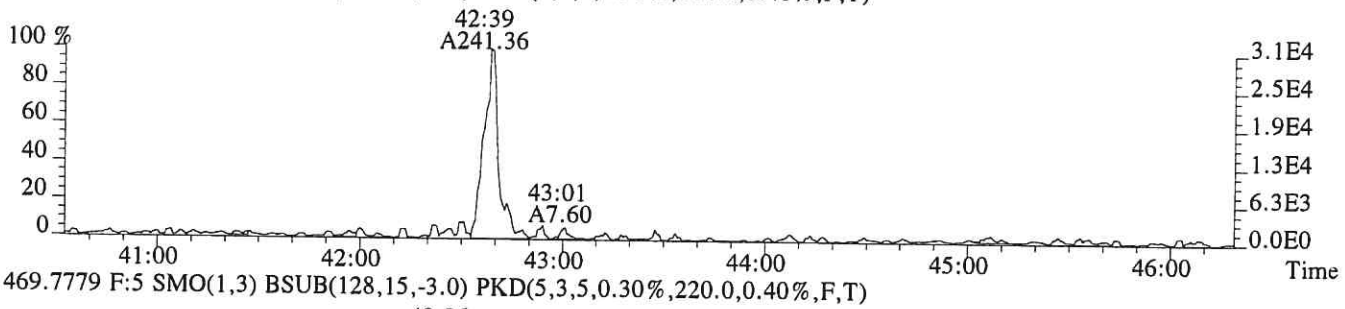


File:P519343 #1-520 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015

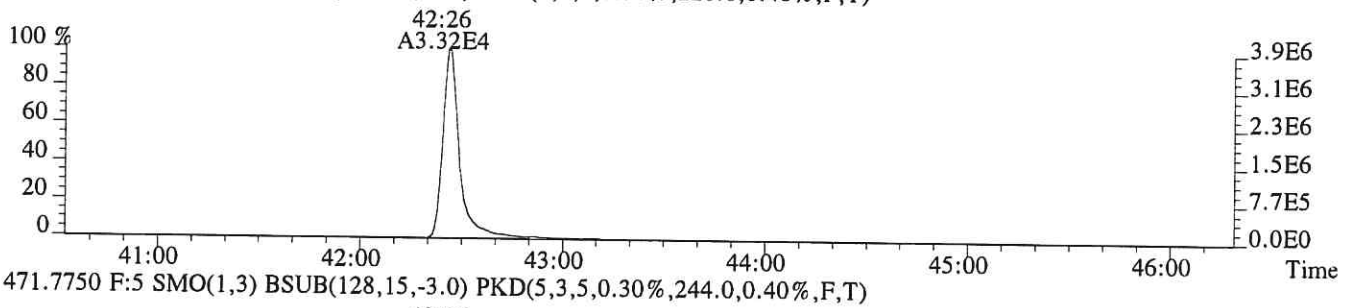
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



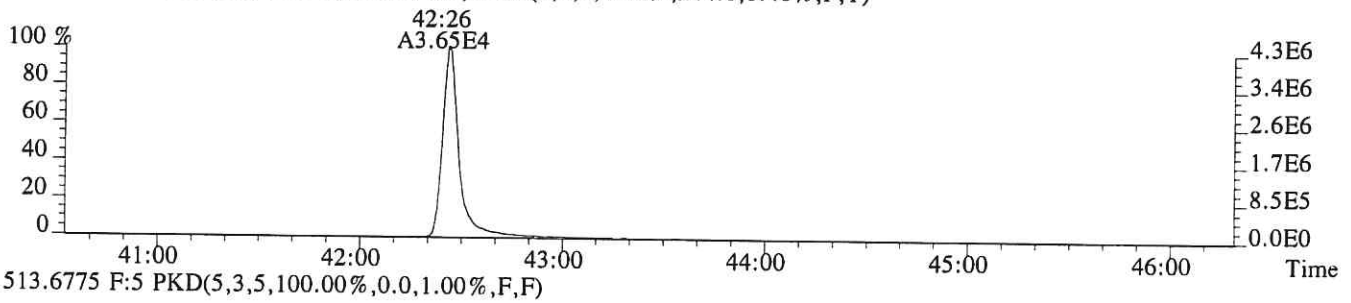
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



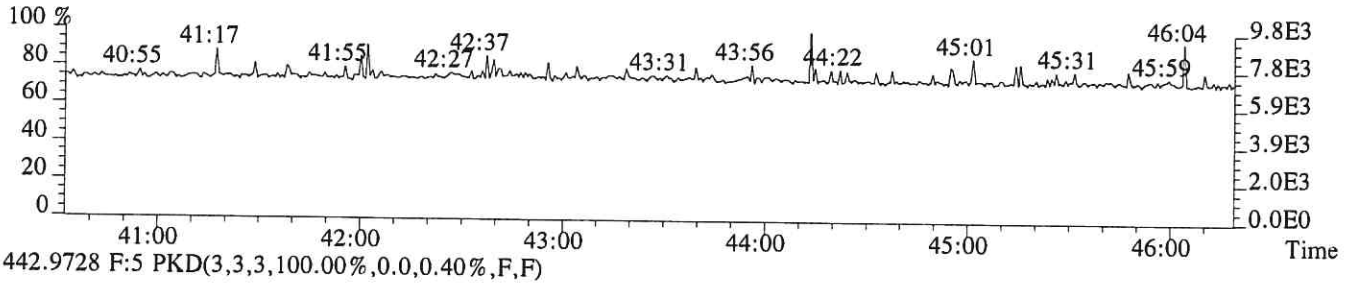
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



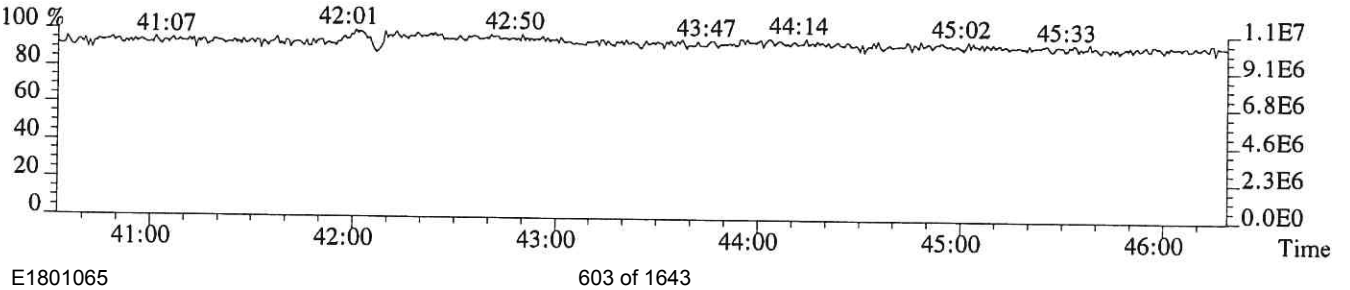
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



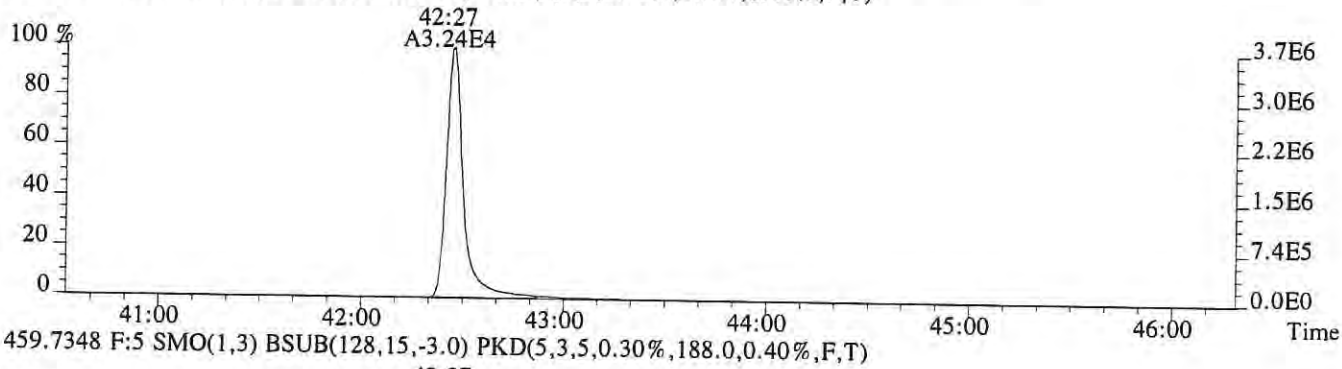
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



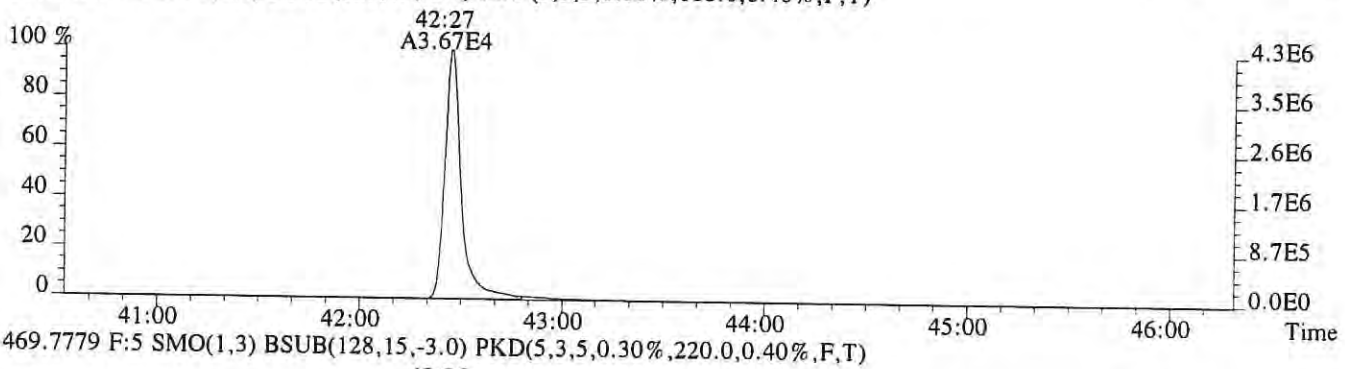
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



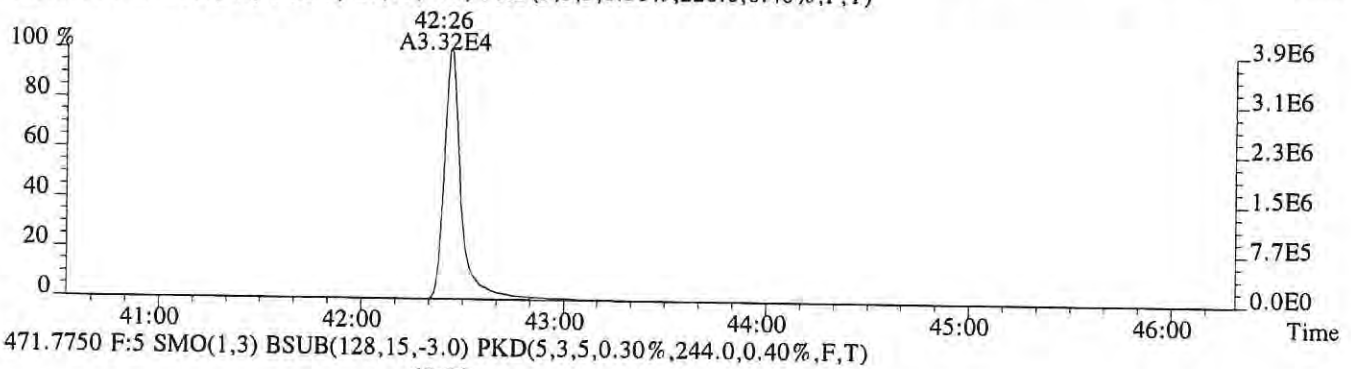
File:P519343 #1-520 Acq:11-DEC-2018 04:28:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-015
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



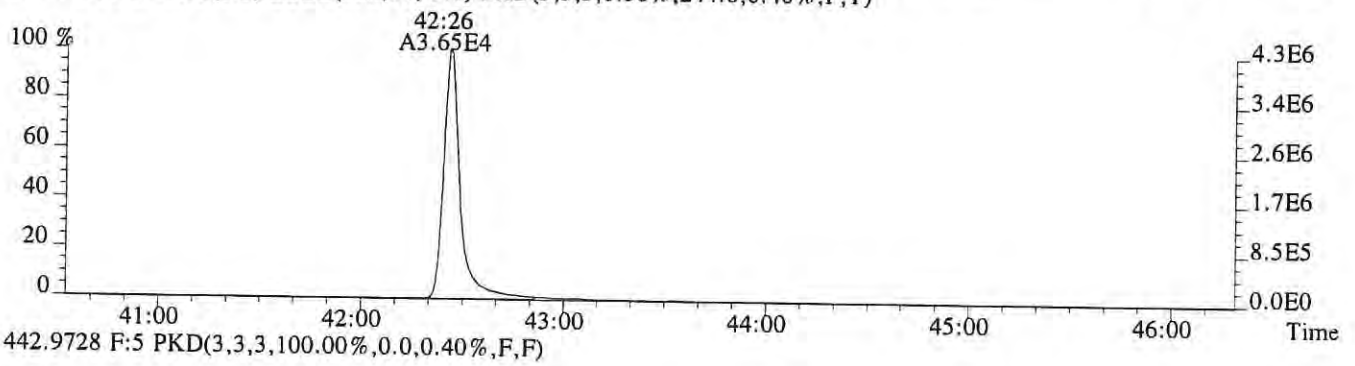
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



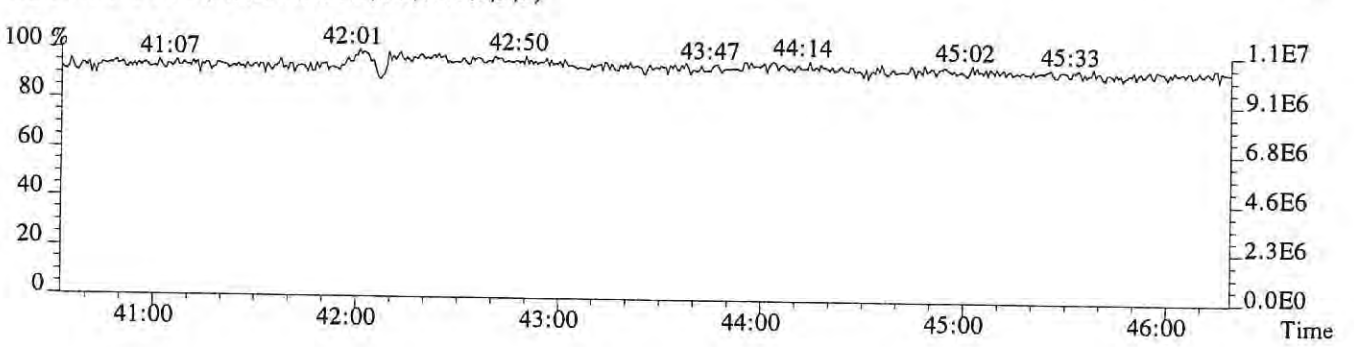
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0565

Run #16 Filename P519344 Samp: 1 Inj: 1 Acquired: 11-DEC-18 05:17:31
Processed: 12-DEC-18 13:50:59 Sample ID: E1801065-016

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.261e+04	1.660e+04	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	6.198e+02	3.810e+02	1.63	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	5.225e+02	3.708e+02	1.41	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:47	8.310e+02	7.115e+02	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:54	2.684e+02	2.163e+02	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	6.591e+01	4.714e+01	1.40	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	9.840e+01	5.559e+01	1.77	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	3.207e+02	3.397e+02	0.94	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	9.432e+01	8.881e+01	1.06	yes	no	1.258
10	Unk	OCDF	42:40	3.112e+02	3.254e+02	0.96	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	2.766e+03	3.684e+03	0.75	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	6.488e+01	4.412e+01	1.47	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	4.068e+01	2.864e+01	1.42	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	5.424e+01	2.981e+01	1.82	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	6.586e+01	5.627e+01	1.17	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	1.537e+03	1.483e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:29	3.834e+04	4.232e+04	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	2.095e+04	2.645e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.677e+04	2.318e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.410e+04	2.114e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.578e+04	2.970e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	2.027e+04	3.993e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.701e+04	3.222e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.733e+04	3.365e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.363e+04	3.146e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.290e+04	3.027e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.417e+03	1.197e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.463e+04	1.553e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.263e+04	1.693e+04	1.34	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.151e+04	1.800e+04	1.19	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	3.014e+04	2.858e+04	1.05	yes	no	0.858
32	IS	13C-OCDD	42:28	3.313e+04	3.675e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.828e+04	3.562e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	4.098e+04	3.037e+04	1.35	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.383e+04				no	1.014

$$\text{OCDD} = \frac{(3.834e+04 + 4.232e+04) \times 4000\ \text{pg} \times 1}{(3.313e+04 + 3.675e+04) \times 10.347\ \text{g} \times 80.5 / 100 \times 1.118} = 495.8\ \text{ng/kg}$$

LM 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0565

Run #16 Filename P519344 Samp: 1 Inj: 1 Acquired: 11-DEC-18 05:17:31
Processed: 12-DEC-18 13:50:59 LAB. ID: E1801065-016

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.04e+06	3.28e+02	6.2e+03	2.75e+06	6.80e+02	4.1e+03
2	1,2,3,7,8-PeCDF	1.18e+05	5.80e+02	2.0e+02	7.31e+04	8.00e+02	9.1e+01
3	2,3,4,7,8-PeCDF	7.78e+04	5.80e+02	1.3e+02	5.71e+04	8.00e+02	7.1e+01
4	1,2,3,4,7,8-HxCDF	1.62e+05	2.60e+02	6.2e+02	1.41e+05	1.76e+02	8.0e+02
5	1,2,3,6,7,8-HxCDF	5.04e+04	2.60e+02	1.9e+02	3.94e+04	1.76e+02	2.2e+02
6	2,3,4,6,7,8-HxCDF	1.20e+04	2.60e+02	4.6e+01	9.18e+03	1.76e+02	5.2e+01
7	1,2,3,7,8,9-HxCDF	1.61e+04	2.60e+02	6.2e+01	7.83e+03	1.76e+02	4.4e+01
8	1,2,3,4,6,7,8-HpCDF	6.07e+04	6.96e+02	8.7e+01	5.64e+04	5.32e+02	1.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.23e+04	6.96e+02	1.8e+01	1.49e+04	5.32e+02	2.8e+01
10	OCDF	3.66e+04	2.60e+02	1.4e+02	4.16e+04	4.36e+02	9.5e+01
11	2,3,7,8-TCDD	5.05e+05	7.44e+02	6.8e+02	6.73e+05	1.01e+03	6.7e+02
12	1,2,3,7,8-PeCDD	9.90e+03	4.96e+02	2.0e+01	9.72e+03	2.36e+02	4.1e+01
13	1,2,3,4,7,8-HxCDD	7.80e+03	2.04e+02	3.8e+01	6.68e+03	9.60e+02	7.0e+00
14	1,2,3,6,7,8-HxCDD	1.06e+04	2.04e+02	5.2e+01	6.67e+03	9.60e+02	6.9e+00
15	1,2,3,7,8,9-HxCDD	1.43e+04	2.04e+02	7.0e+01	1.19e+04	9.60e+02	1.2e+01
16	1,2,3,4,6,7,8-HpCDD	2.57e+05	1.52e+02	1.7e+03	2.41e+05	2.72e+02	8.8e+02
17	OCDD	4.50e+06	2.20e+02	2.0e+04	4.88e+06	2.04e+02	2.4e+04
18	13C-2,3,7,8-TCDF	3.76e+06	4.27e+03	8.8e+02	4.81e+06	1.95e+03	2.5e+03
19	13C-1,2,3,7,8-PeCDF	6.79e+06	5.00e+02	1.4e+04	4.24e+06	2.84e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	6.51e+06	5.00e+02	1.3e+04	4.04e+06	2.84e+02	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.14e+06	3.04e+02	1.0e+04	6.01e+06	3.72e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	3.84e+06	3.04e+02	1.3e+04	7.50e+06	3.72e+02	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.45e+06	3.04e+02	1.1e+04	6.58e+06	3.72e+02	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	3.14e+06	3.04e+02	1.0e+04	6.14e+06	3.72e+02	1.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.58e+06	1.82e+03	1.4e+03	5.78e+06	4.21e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.08e+06	1.82e+03	1.1e+03	4.64e+06	4.21e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.80e+06	4.32e+03	4.2e+02	2.32e+06	1.03e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	4.70e+06	3.00e+02	1.6e+04	2.97e+06	3.68e+02	8.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.56e+06	4.88e+02	9.3e+03	3.62e+06	2.64e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.10e+06	4.88e+02	8.4e+03	3.31e+06	2.64e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.91e+06	3.36e+02	1.5e+04	4.58e+06	2.12e+02	2.2e+04
32	13C-OCDD	3.73e+06	2.00e+02	1.9e+04	4.20e+06	1.96e+02	2.1e+04
33	13C-1,2,3,4-TCDD	5.18e+06	4.32e+03	1.2e+03	6.65e+06	1.03e+03	6.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.26e+06	4.88e+02	1.5e+04	5.63e+06	2.64e+02	2.1e+04
35	37Cl-2,3,7,8-TCDD	2.55e+06	2.36e+02	1.1e+04			

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Peak List Summary

CLIENT ID.
SL0565

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P519344 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 303.9020 305.8990 Tot Response: 5.25e+04 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:39	1.61e+01	2.25e+01	0.71	yes	3.86e+01		n	n
2	24:59	5.66e+02	8.09e+02	0.70	yes	1.37e+03		n	n
3	25:25	1.98e+02	2.49e+02	0.79	yes	4.47e+02		n	n
4	25:43	5.33e+02	6.21e+02	0.86	yes	1.15e+03		n	n
5	26:06	8.76e+01	1.32e+02	0.66	yes	2.19e+02		n	n
6	26:21	3.45e+02	4.33e+02	0.80	yes	7.78e+02		n	n
7	26:27	5.42e+02	7.61e+02	0.71	yes	1.30e+03		n	n
8	26:55	5.27e+03	7.38e+03	0.71	yes	1.27e+04		n	n
9	27:11	2.73e+02	3.69e+02	0.74	yes	6.42e+02		n	n
10	27:45	1.26e+04	1.66e+04	0.76	yes	2.92e+04	2,3,7,8-TCDF	n	n
11	28:05	8.46e+02	1.18e+03	0.72	yes	2.02e+03		n	n
12	28:21	1.60e+02	2.43e+02	0.66	yes	4.03e+02		n	n
13	29:39	9.80e+02	1.22e+03	0.80	yes	2.20e+03		n	n

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Peak List Summary

CLIENT ID.
SL0565

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P519344 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 319.8970 321.8940 Tot Response: 6.57e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:59	1.74e+01	2.16e+01	0.81	yes	3.91e+01		n	n
2	26:34	3.47e+01	4.29e+01	0.81	yes	7.76e+01		n	n
3	28:34	2.77e+03	3.68e+03	0.75	yes	6.45e+03	2,3,7,8-TCDD	n	n

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CLIENT ID.
SL0565

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: P519344 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 339.8600 341.8570 Tot Response: 1.05e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:38	6.28e+01	4.25e+01 1.48	yes	1.05e+02		n	n

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Peak List Summary

CLIENT ID.
SL0565

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P519344 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 339.8600 341.8570 Tot Response: 2.77e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:09	3.44e+02	2.05e+02	1.68	yes	5.50e+02		n	n
2	32:06	6.20e+02	3.81e+02	1.63	yes	1.00e+03	1,2,3,7,8-PeCDF	y	n
3	32:22	1.74e+02	1.08e+02	1.61	yes	2.82e+02		y	n
4	33:02	5.23e+02	3.71e+02	1.41	yes	8.93e+02	2,3,4,7,8-PeCDF	n	n
5	33:58	2.50e+01	1.75e+01	1.42	yes	4.25e+01		y	y

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Peak List Summary

CLIENT ID.
SL0565

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P519344 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 355.8550 357.8520 Tot Response: 1.43e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:07	2.17e+01	1.22e+01 1.78	yes	3.39e+01		n	n
2	33:20	6.49e+01	4.41e+01 1.47	yes	1.09e+02	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0565

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P519344 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 373.8210 375.8180 Tot Response: 2.19e+03 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:40	2.53e+01	2.05e+01	1.23	yes	4.57e+01		n	n
2	35:47	8.31e+02	7.12e+02	1.17	yes	1.54e+03	1,2,3,4,7,8-HxCDF	n	n
3	35:54	2.68e+02	2.16e+02	1.24	yes	4.85e+02	1,2,3,6,7,8-HxCDF	n	n
4	36:26	6.59e+01	4.71e+01	1.40	yes	1.13e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0565

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P519344 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 389.8160 391.8130 Tot Response: 1.84e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:11	6.03e+02	4.65e+02	1.30	yes	1.07e+03		n	n
2	35:43	2.62e+01	2.40e+01	1.09	yes	5.03e+01		n	n
3	35:58	2.75e+02	2.12e+02	1.30	yes	4.87e+02		n	n
4	36:35	4.07e+01	2.86e+01	1.42	yes	6.93e+01	1,2,3,4,7,8-HxCDD	n	n
5	36:49	2.36e+01	1.68e+01	1.41	yes	4.03e+01		n	n
6	36:54	6.59e+01	5.63e+01	1.17	yes	1.22e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

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SL0565

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P519344 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 407.7820 409.7790 Tot Response: 1.21e+03 RRF: 1.308

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:32	3.21e+02	3.40e+02	0.94	yes	6.60e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:57	1.82e+02	1.85e+02	0.99	yes	3.67e+02		n	n
3	39:58	9.43e+01	8.88e+01	1.06	yes	1.83e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.
SL0565

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P519344 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 05:17:31 Processed: 12-DEC-18 13:50:59

Mass: 423.7770 425.7740 Tot Response: 9.37e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	3.10e+03	3.25e+03 0.96	yes	6.35e+03		n	n
2	39:30	1.54e+03	1.48e+03 1.04	yes	3.02e+03	1,2,3,4,6,7,8-HpCDD	n	n

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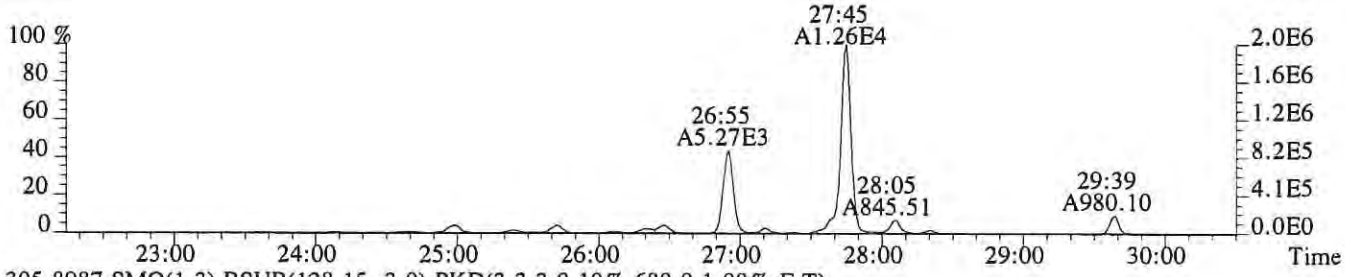
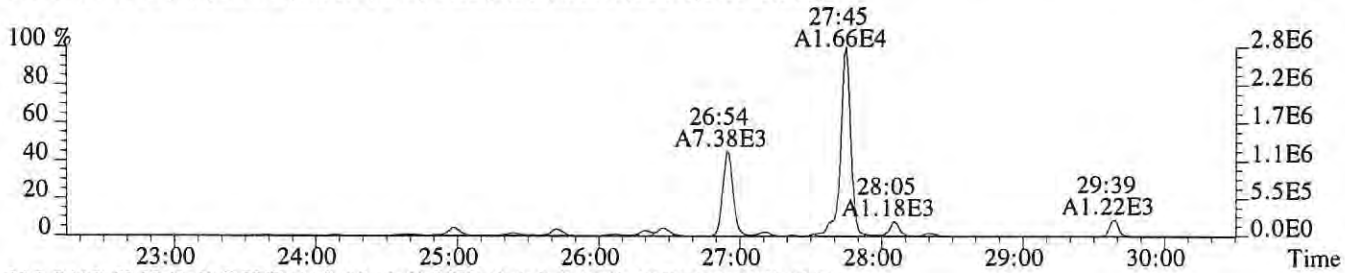
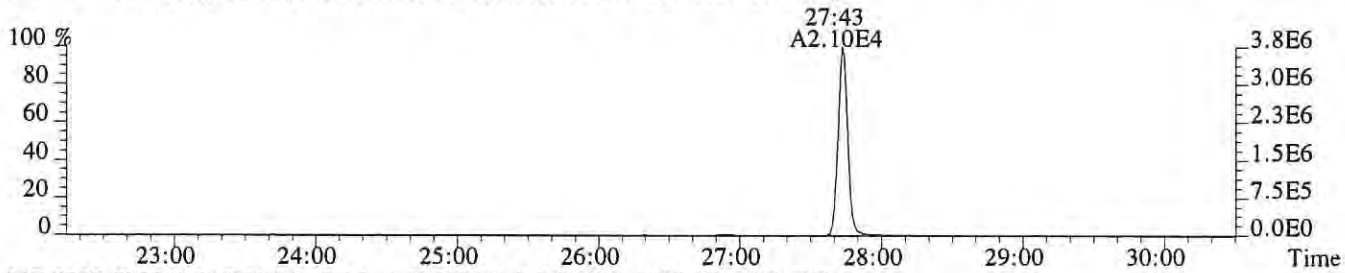
File:P519344 #1-587 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



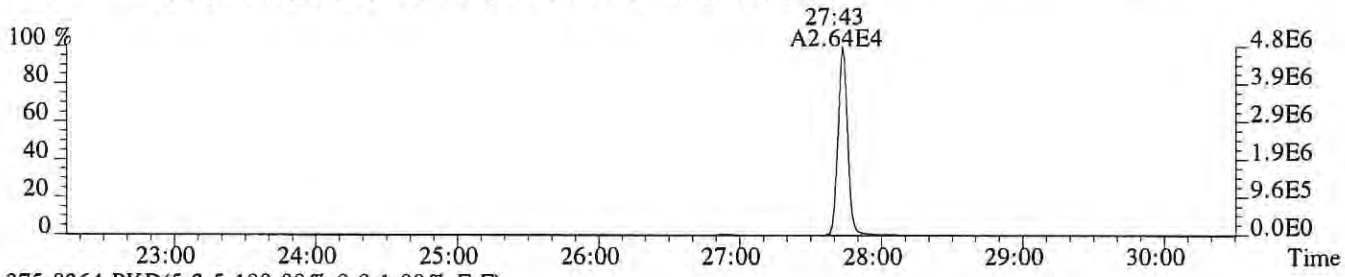
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



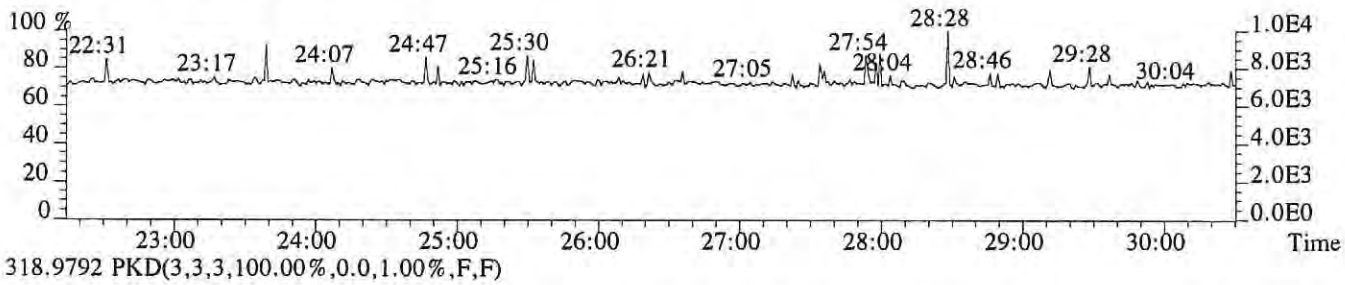
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4272.0,1.00%,F,T)



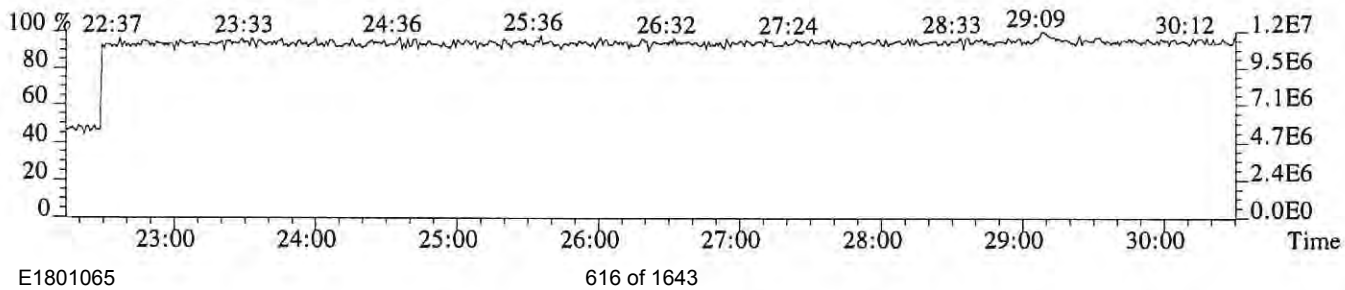
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

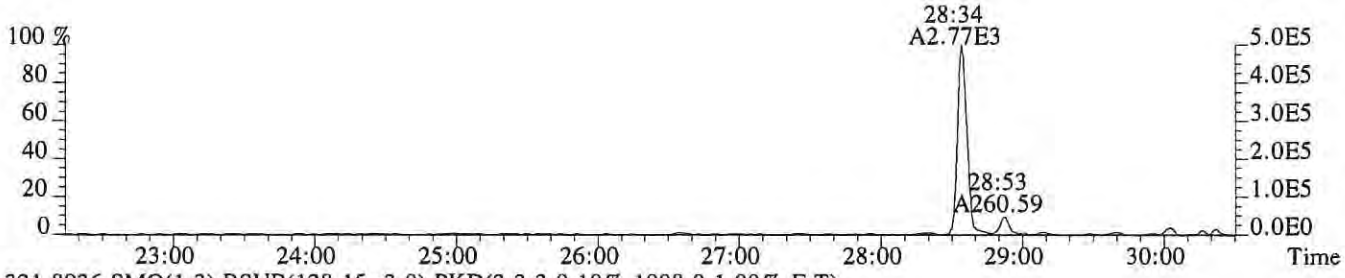


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

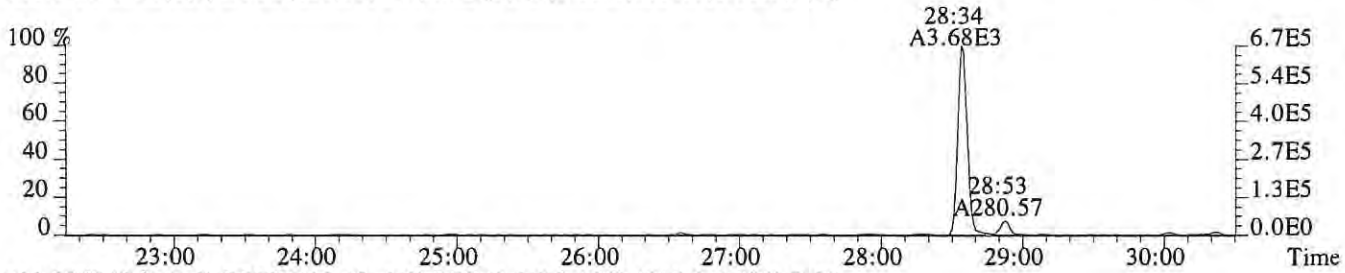


File:P519344 #1-587 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016

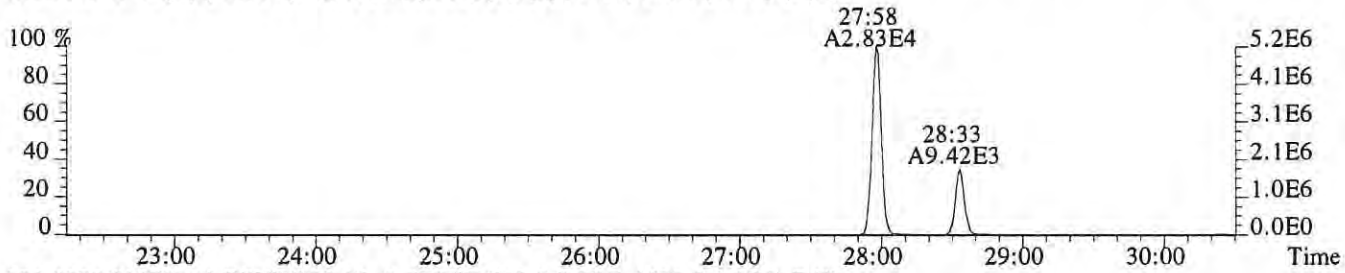
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



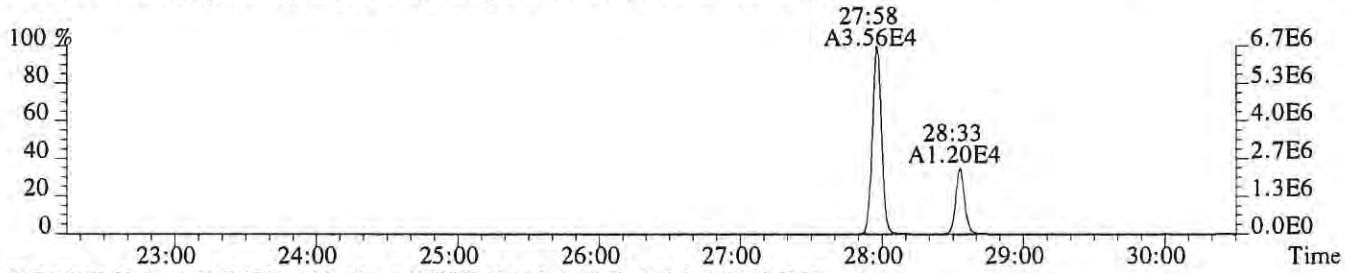
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



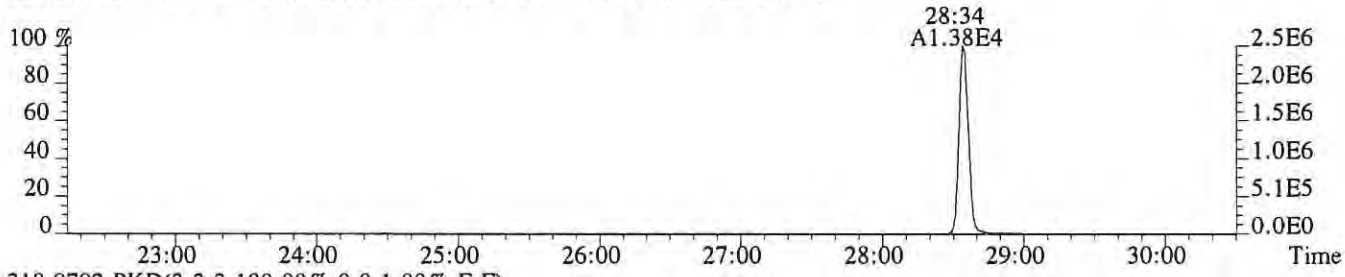
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



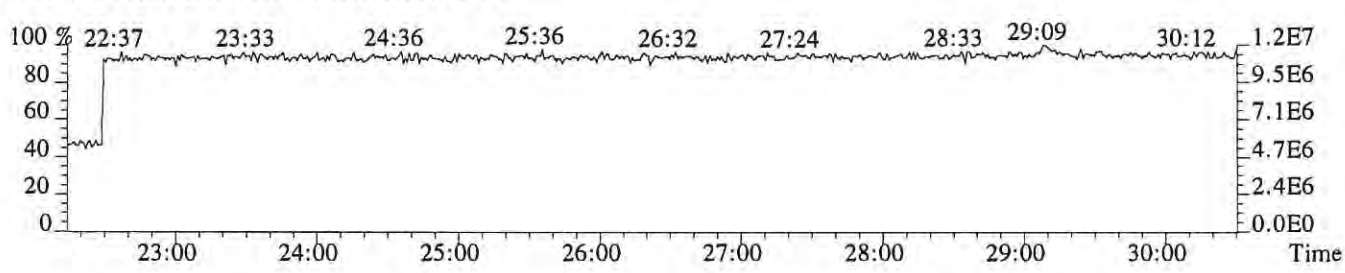
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



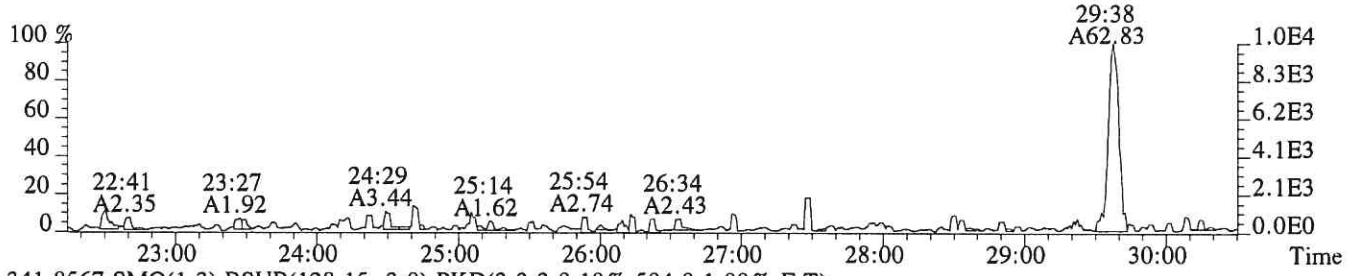
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



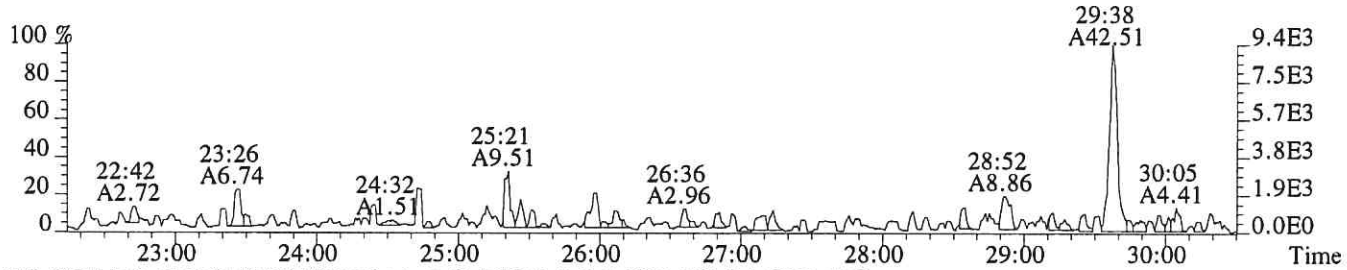
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



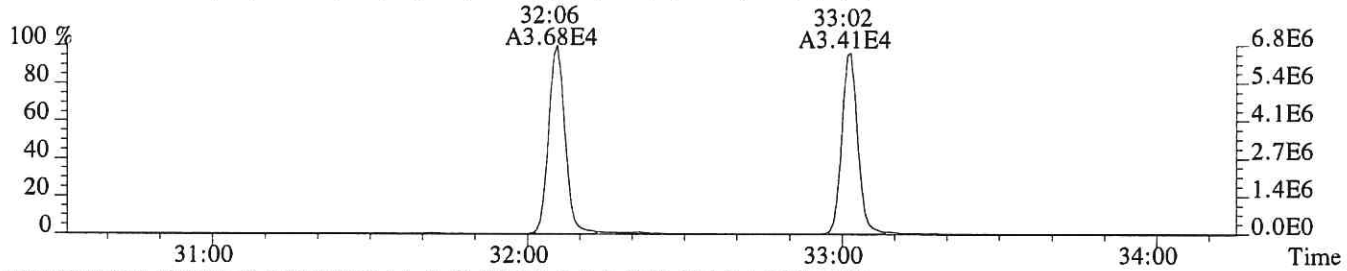
File:P519344 #1-587 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



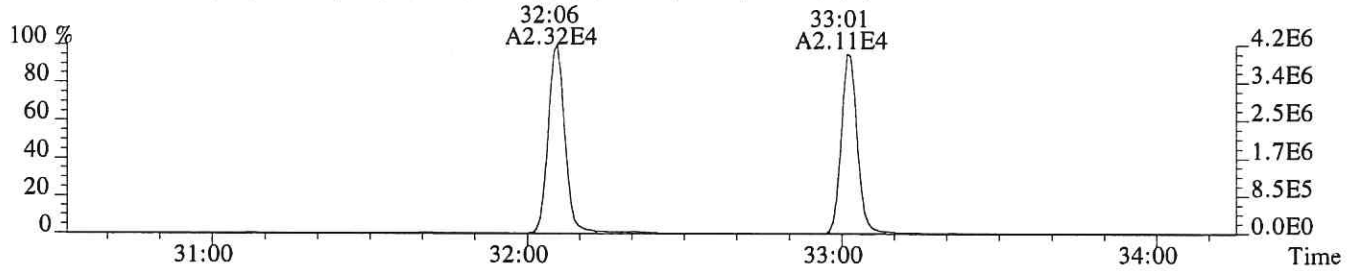
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



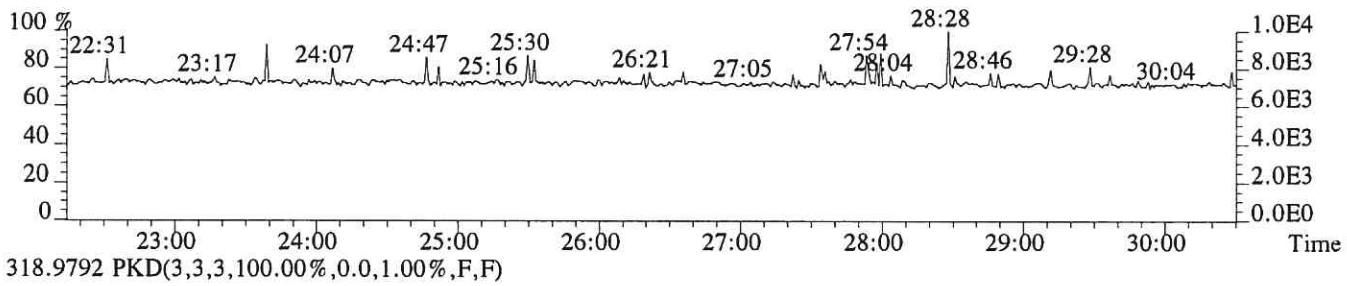
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



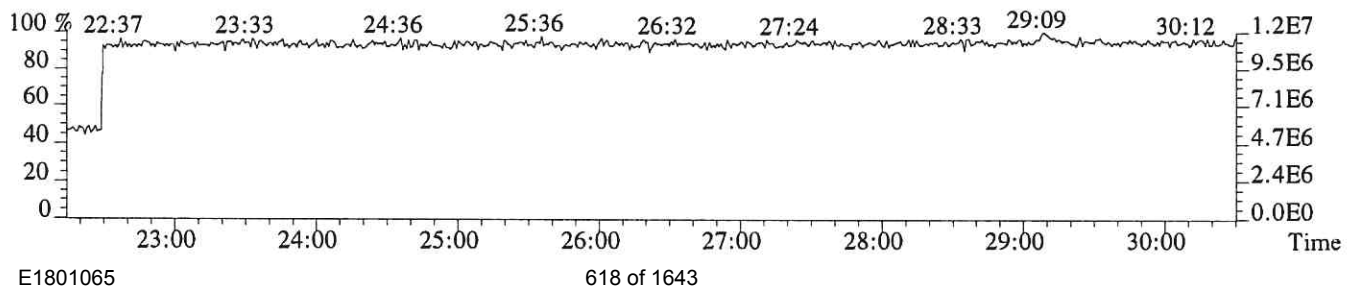
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

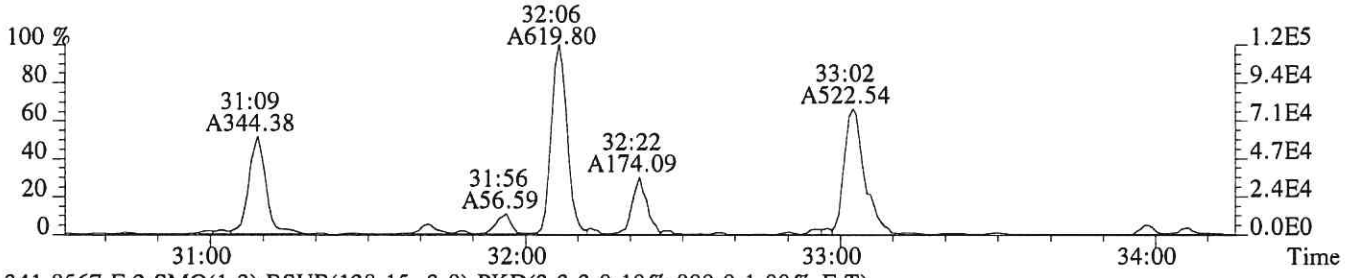


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

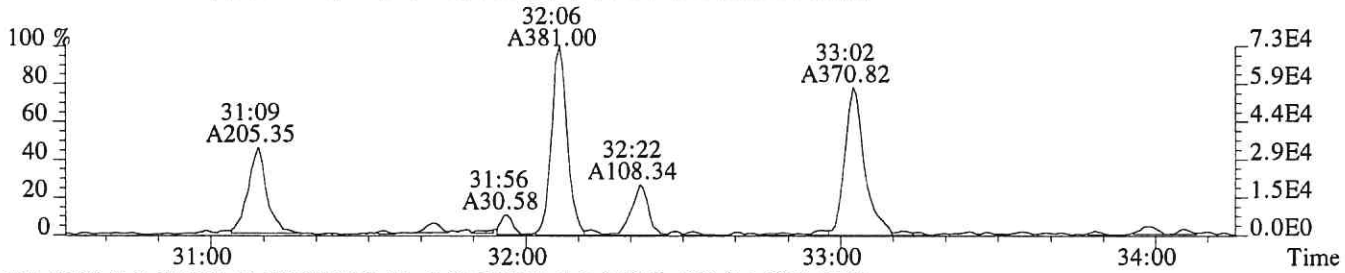


File:P519344 #1-335 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016

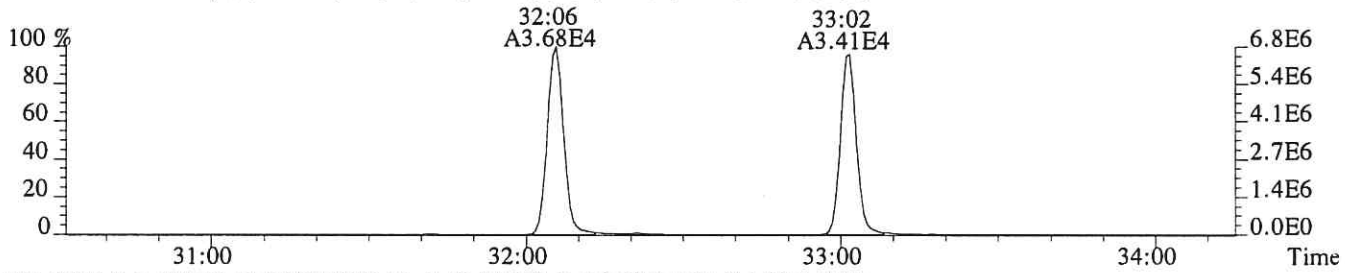
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



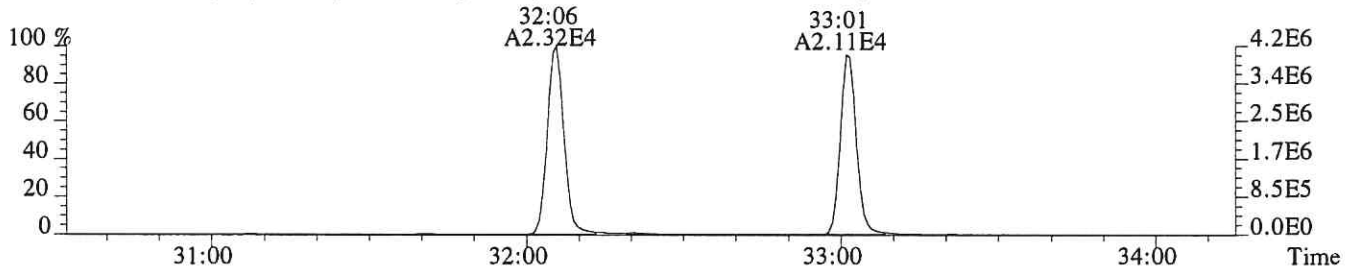
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



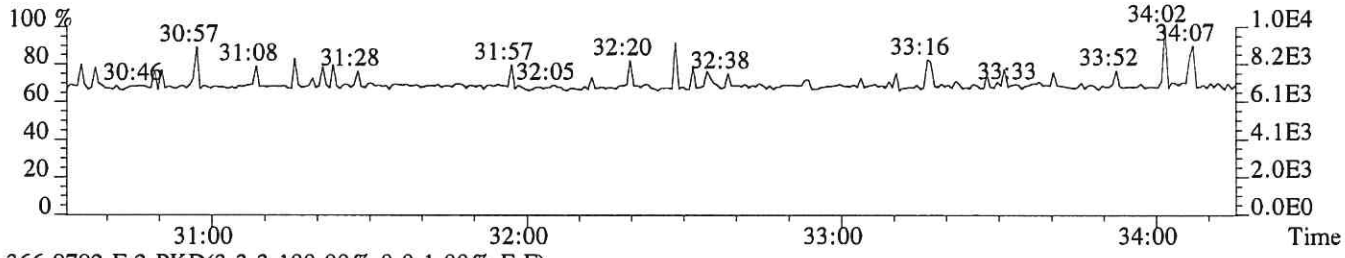
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



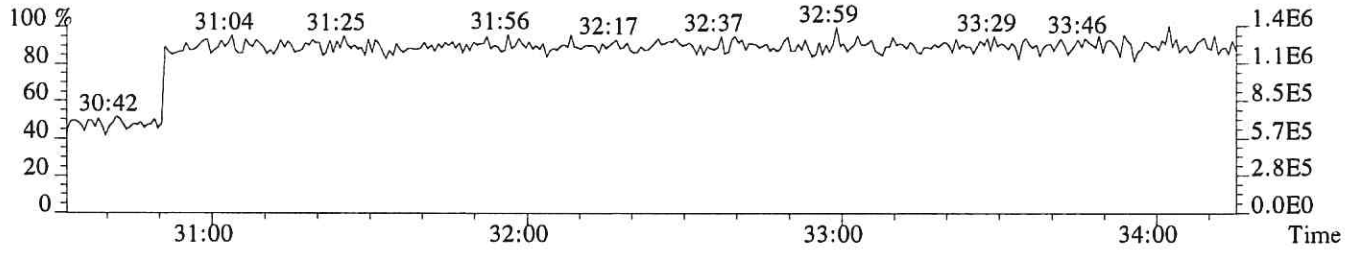
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



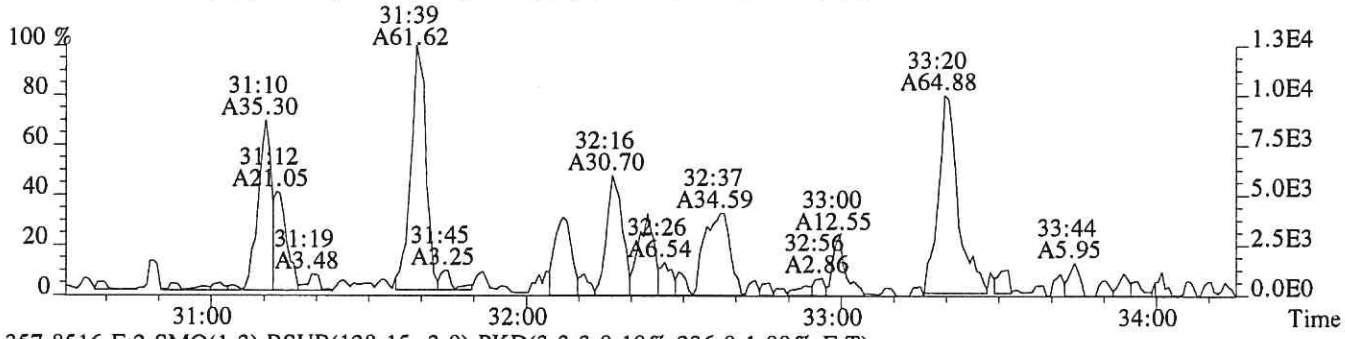
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



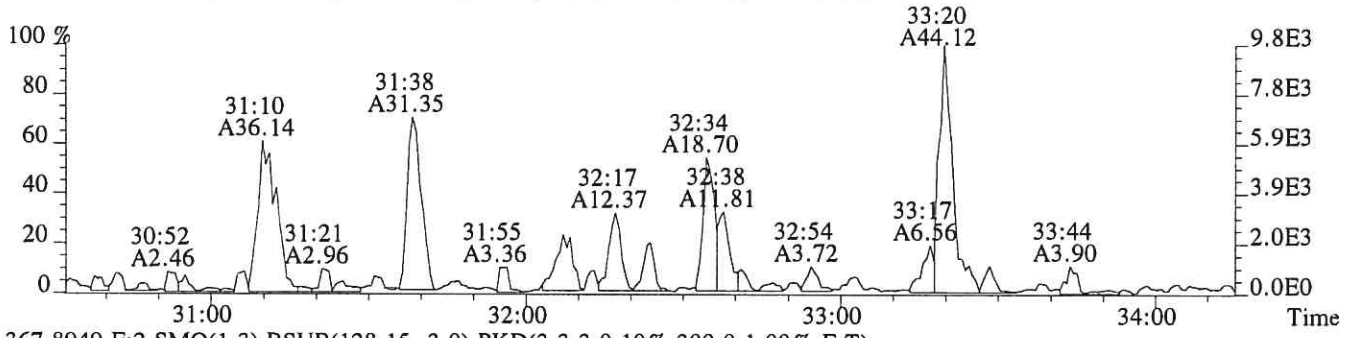
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



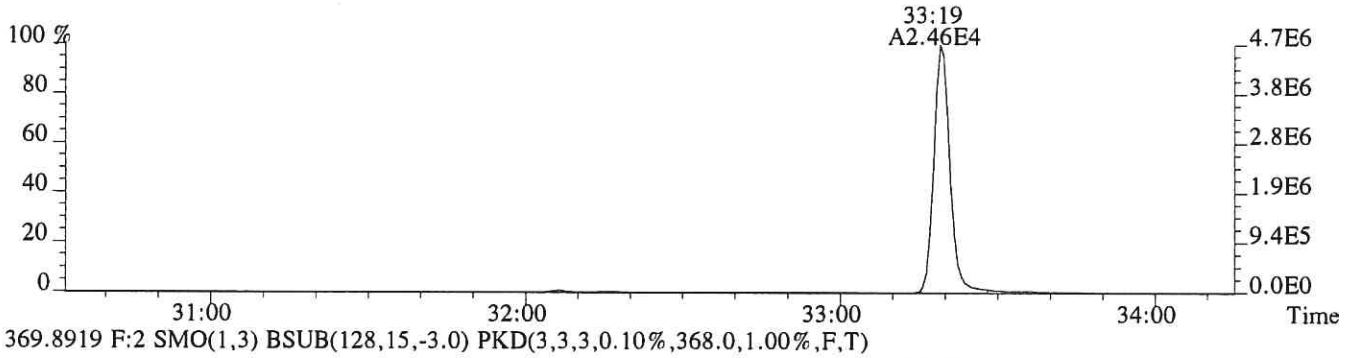
File:P519344 #1-335 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



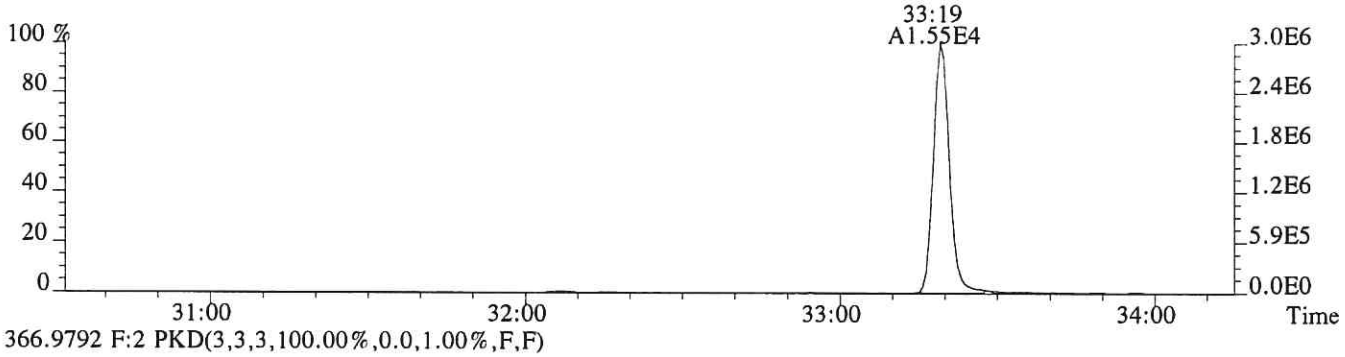
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



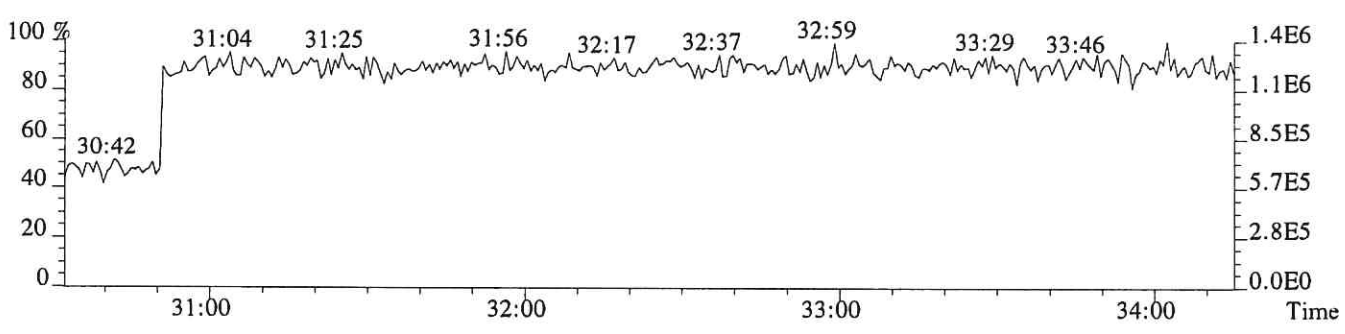
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)

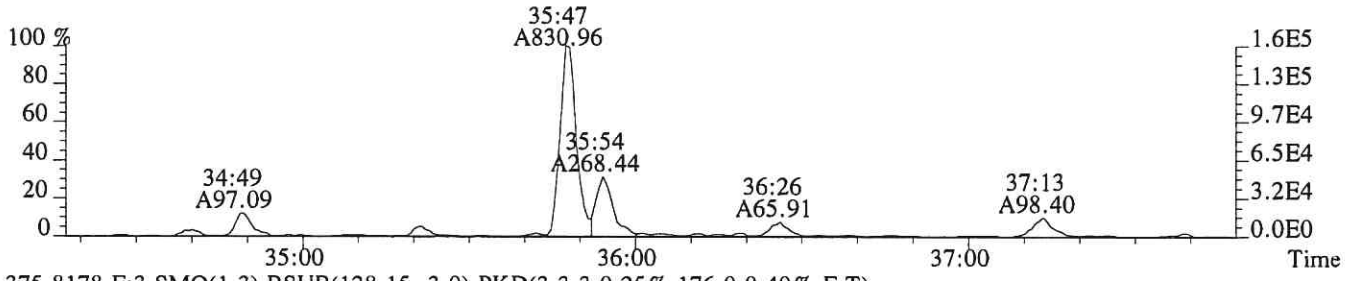


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

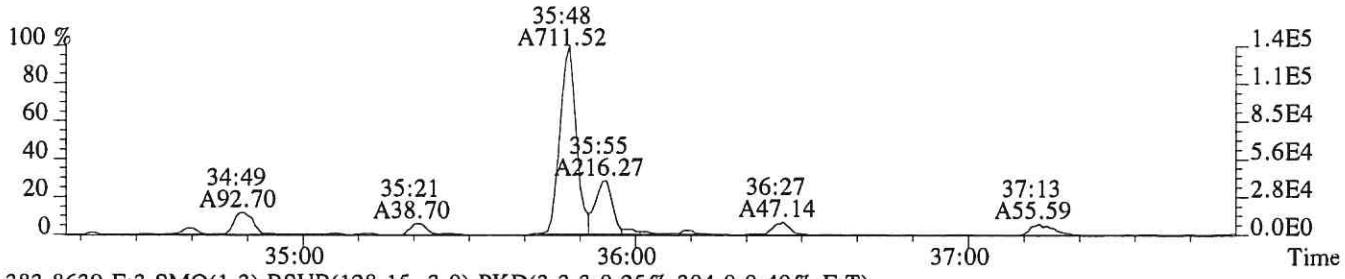


File:P519344 #1-317 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016

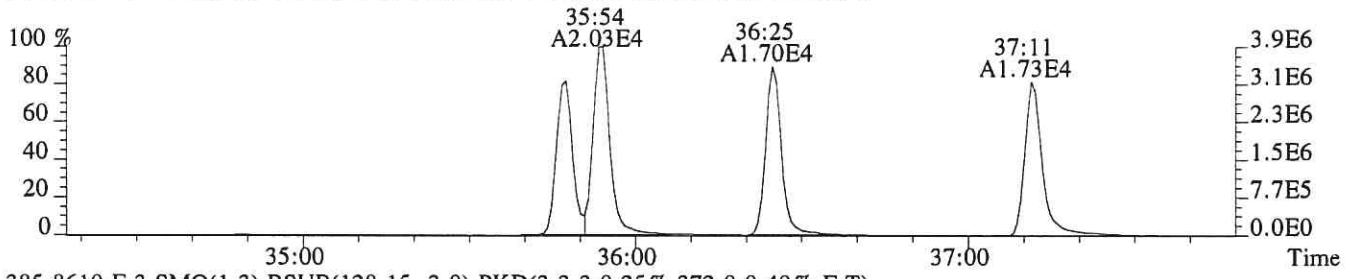
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



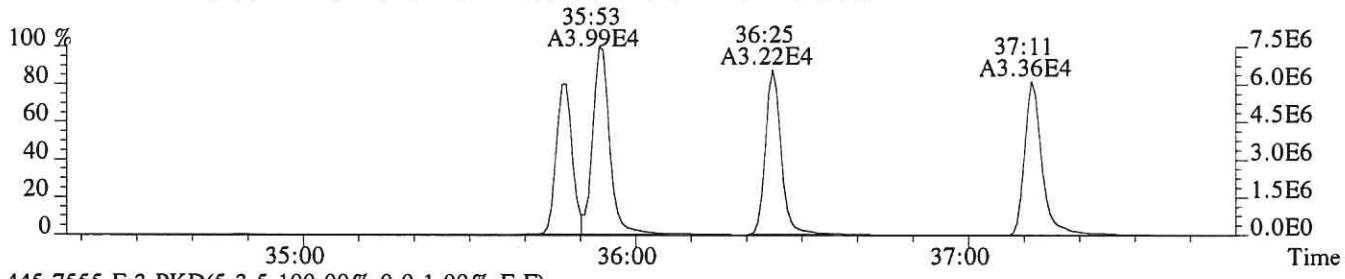
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



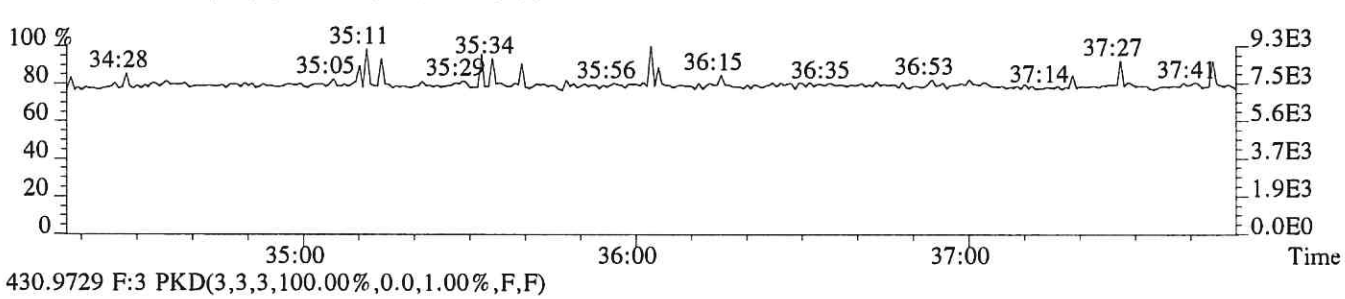
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



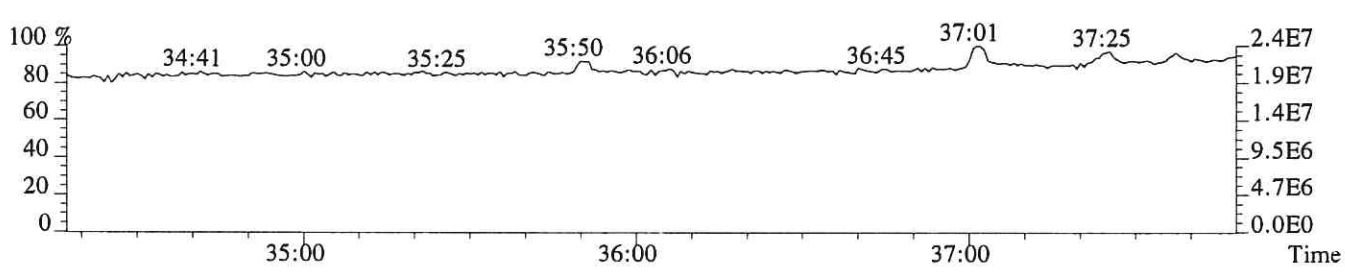
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

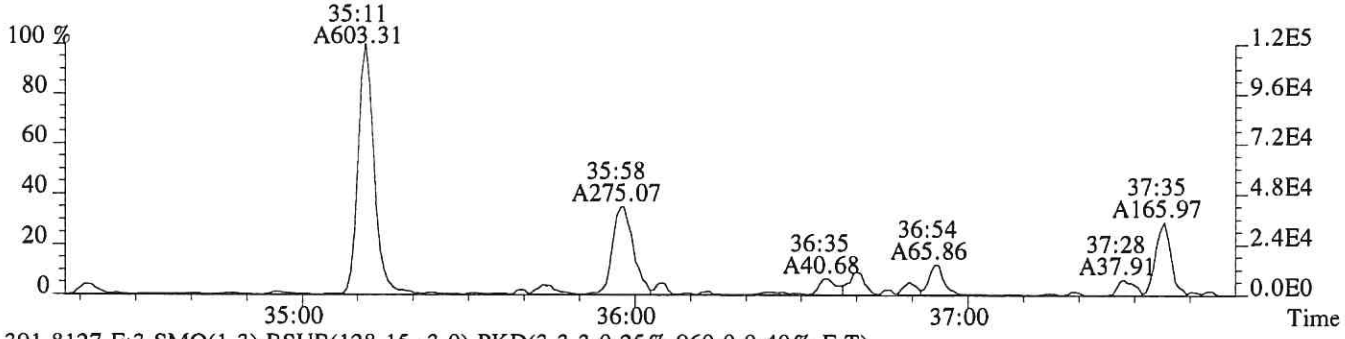


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

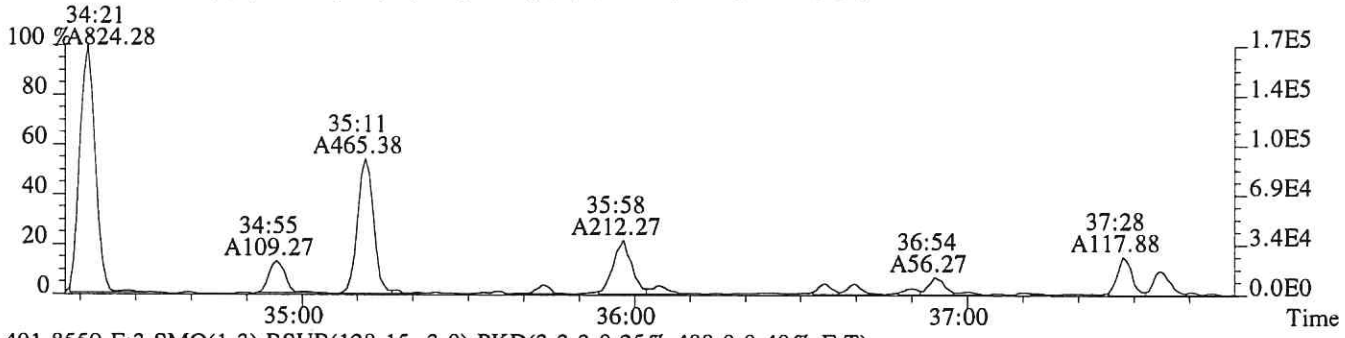


File:P519344 #1-317 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016

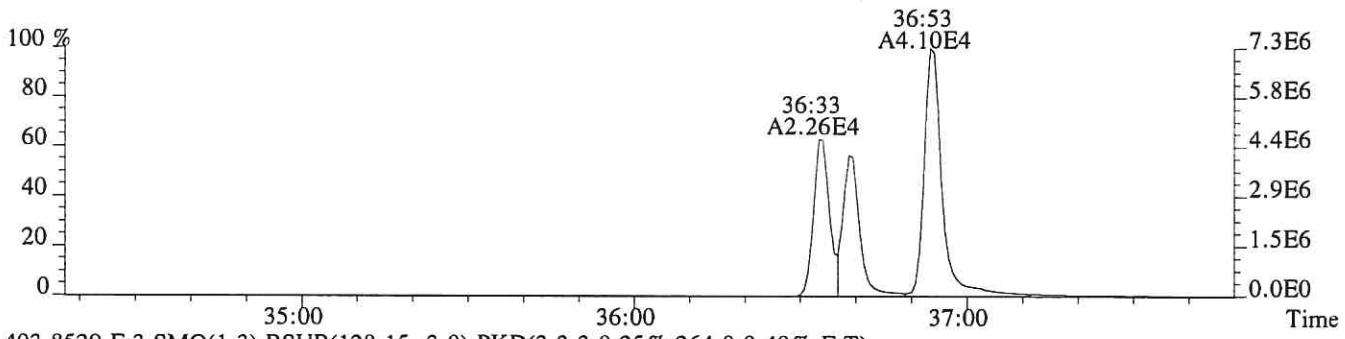
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



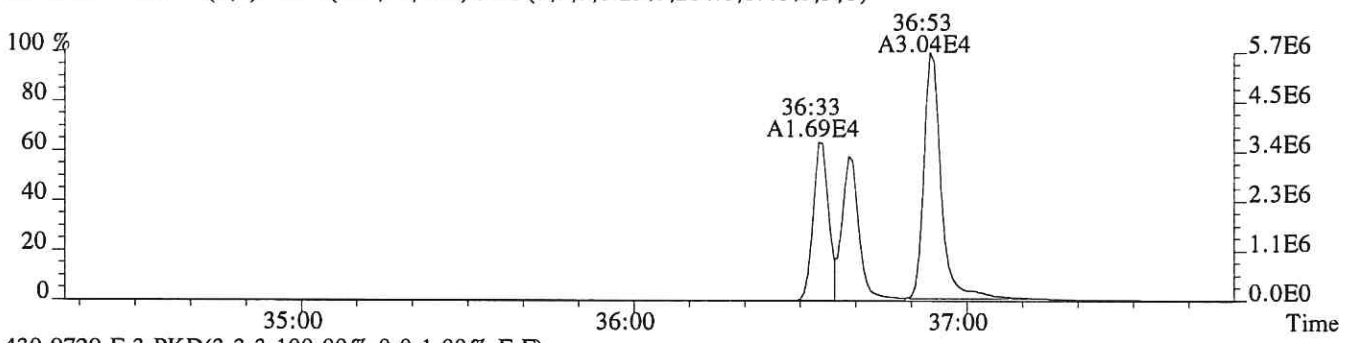
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



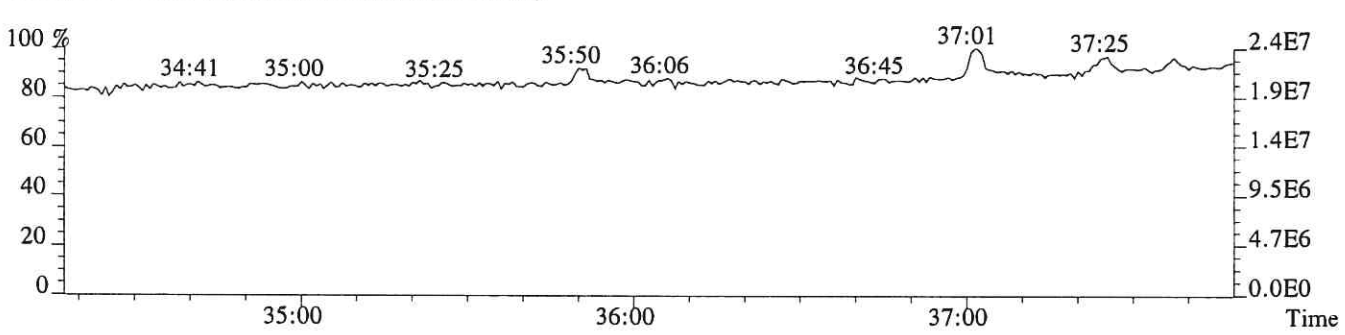
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)

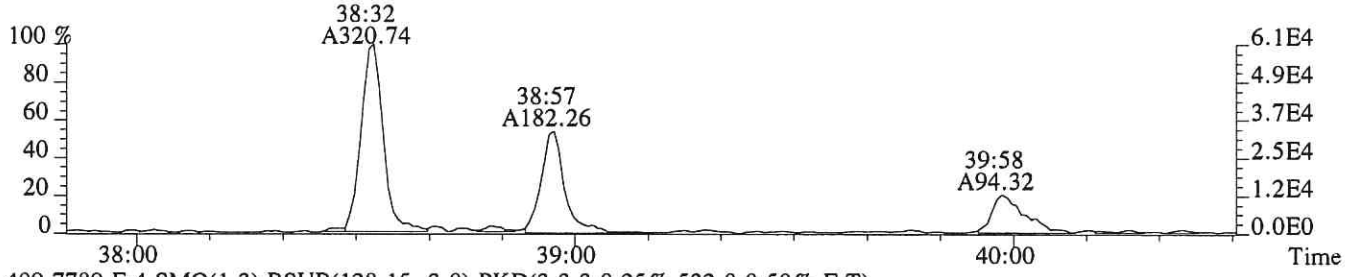


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

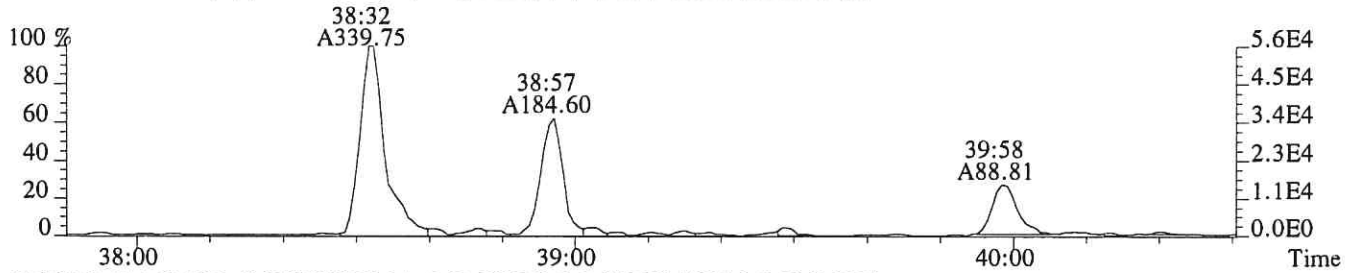


File:P519344 #1-241 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016

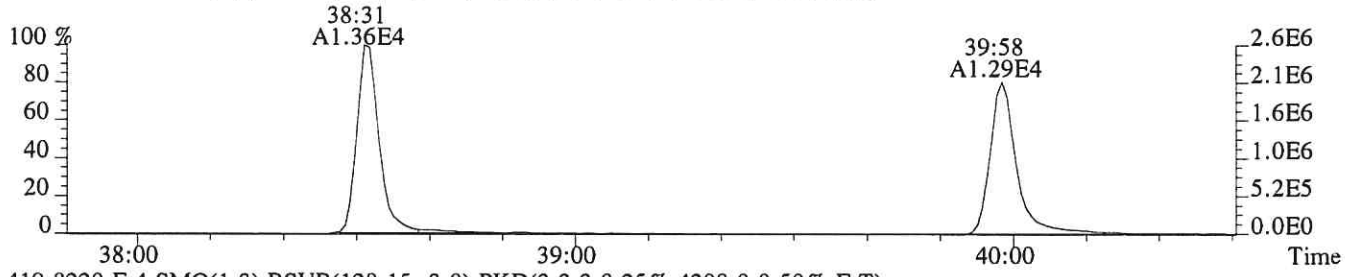
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.50%,F,T)



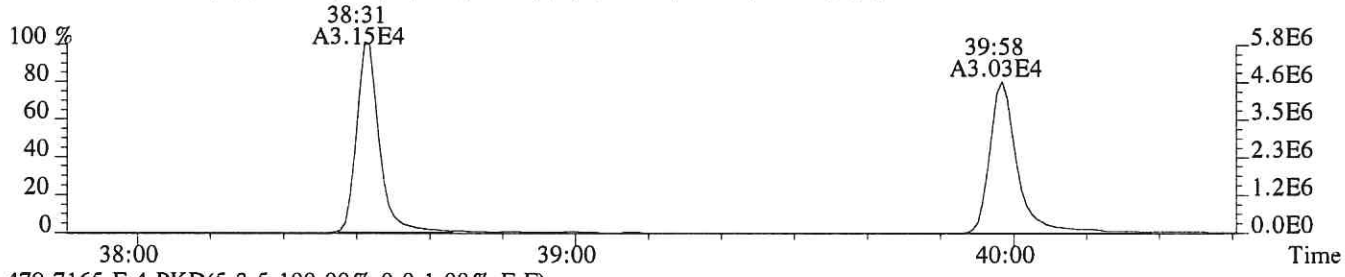
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.50%,F,T)



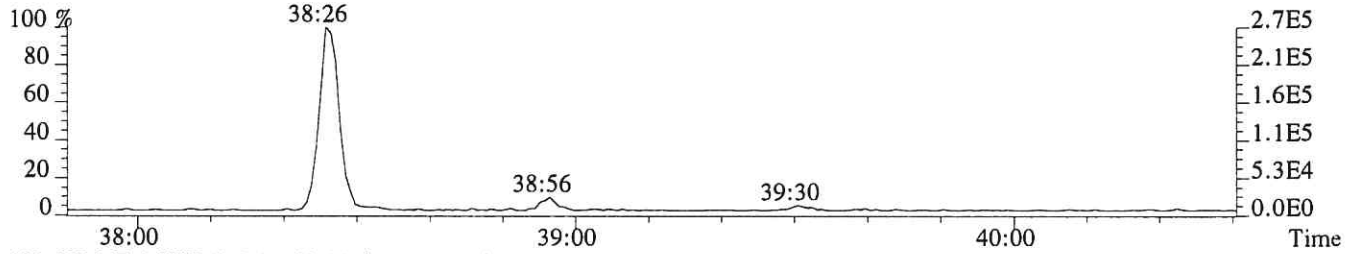
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.50%,F,T)



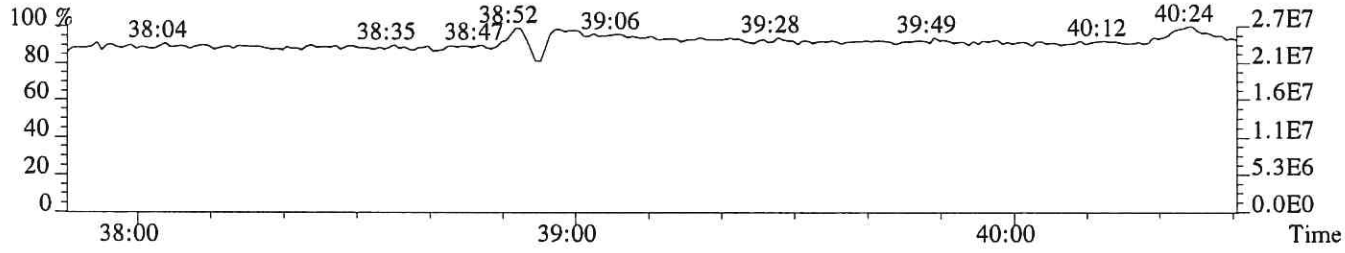
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4208.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

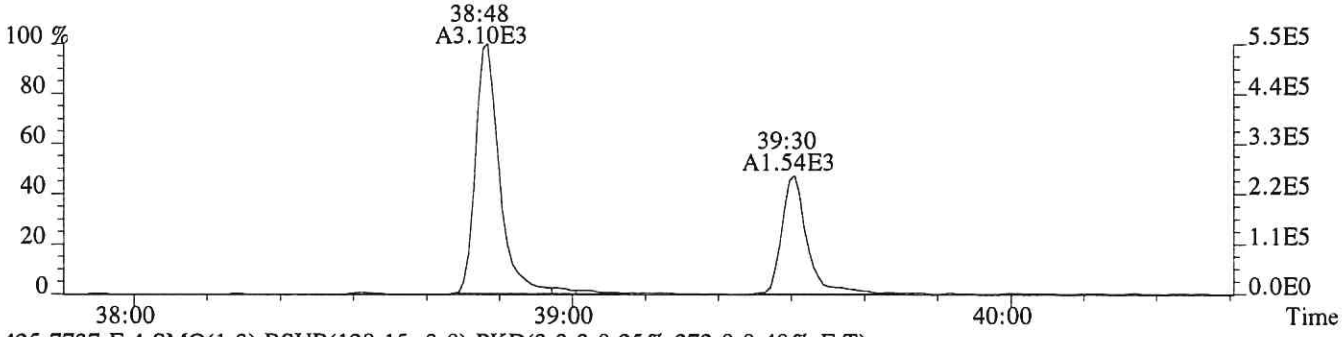


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

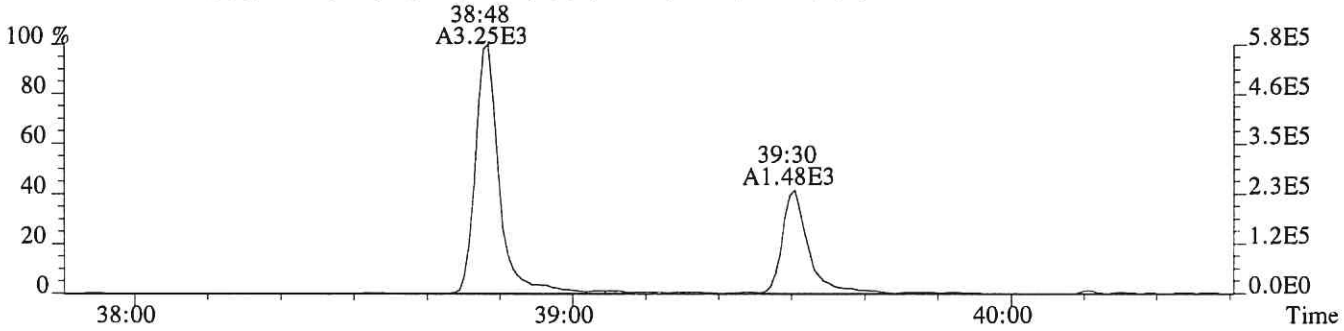


File:P519344 #1-241 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016

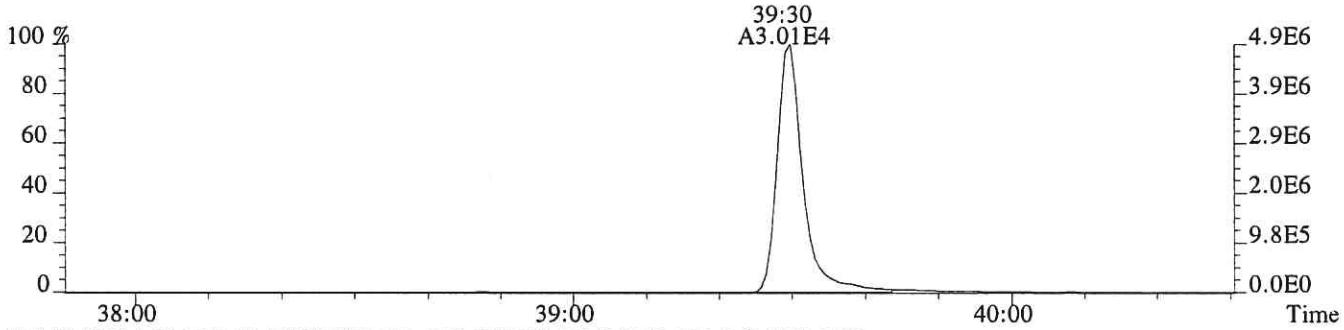
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)



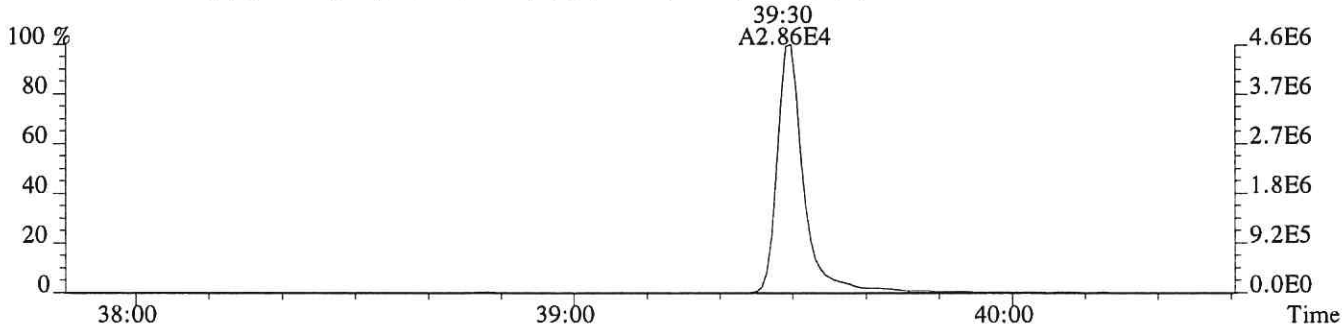
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



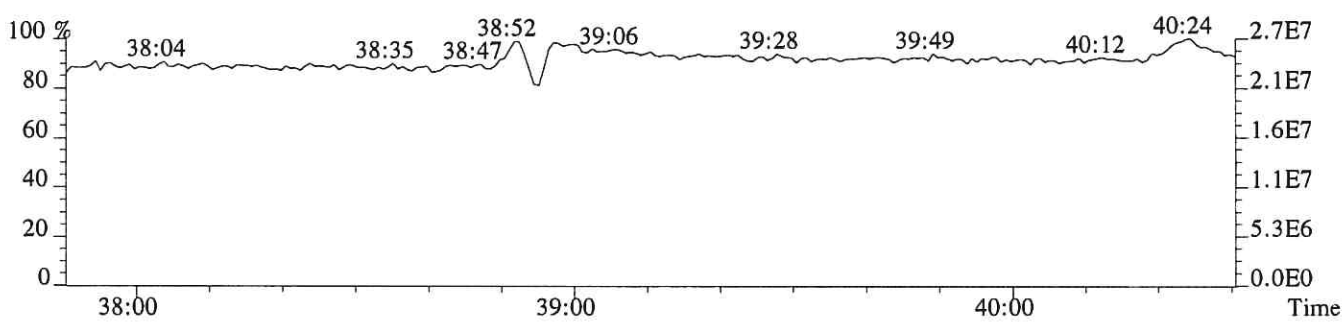
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)

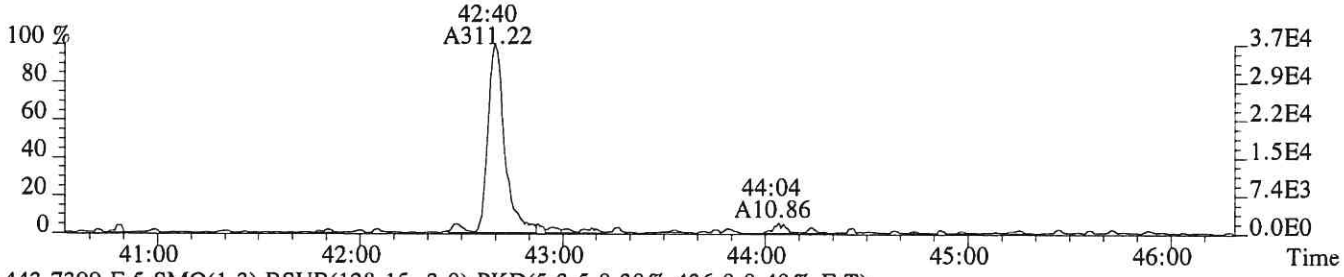


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

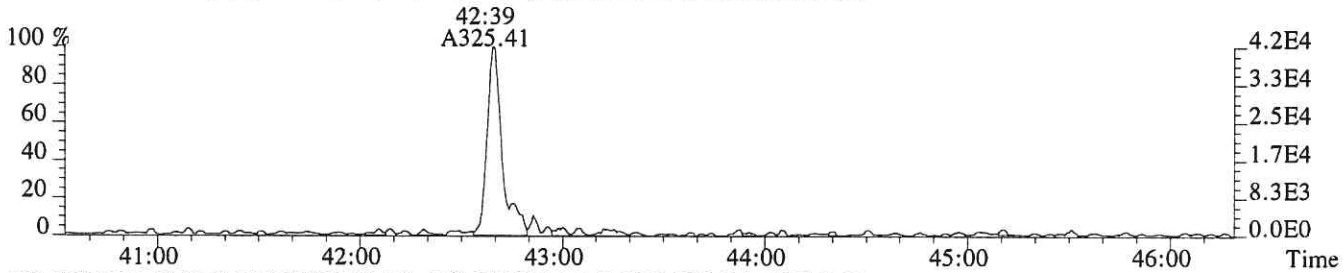


File:P519344 #1-520 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016

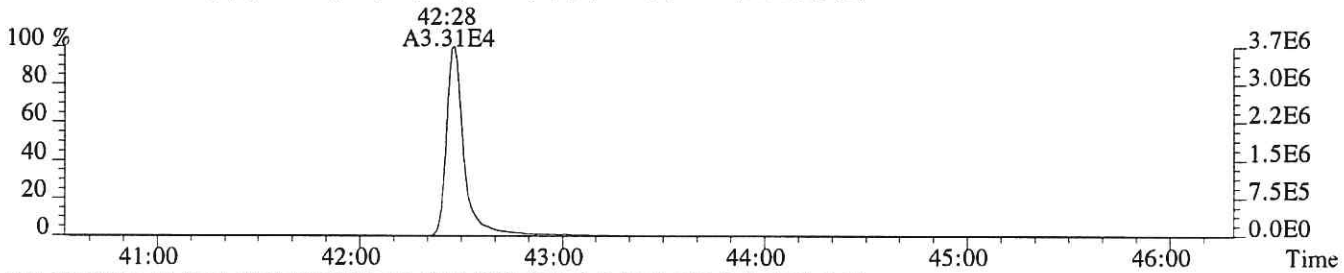
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



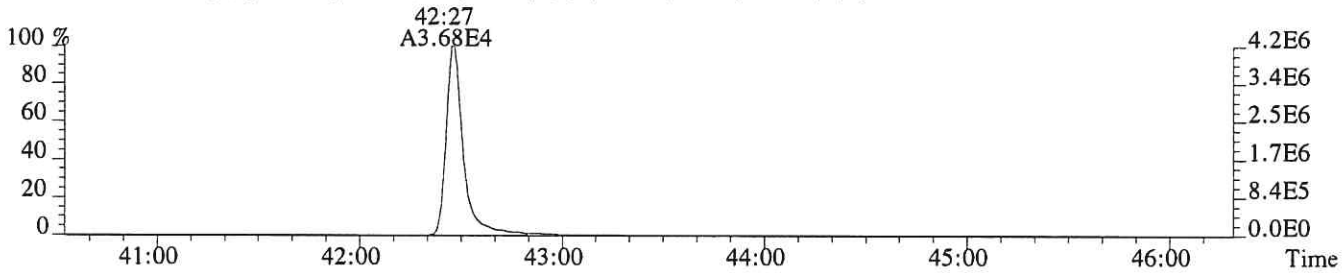
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



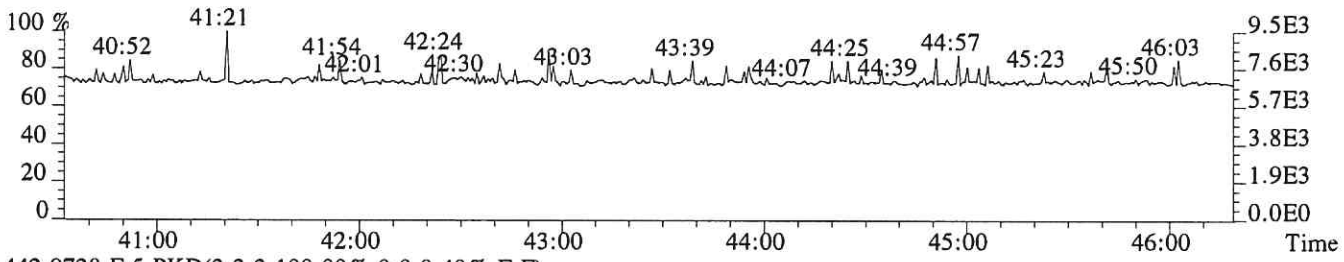
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



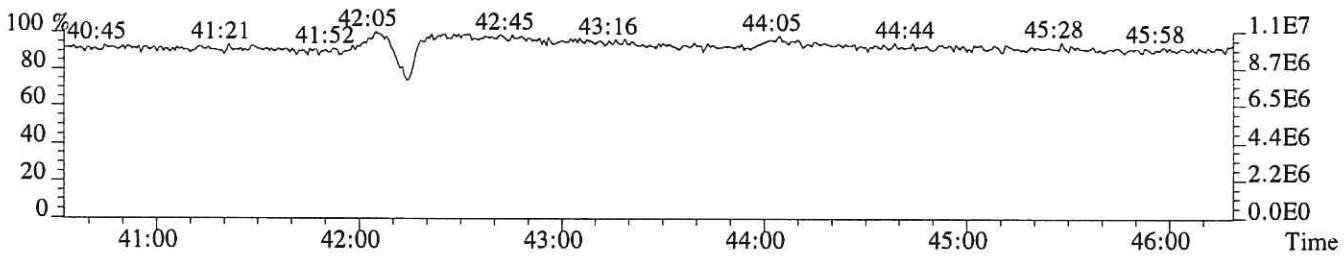
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



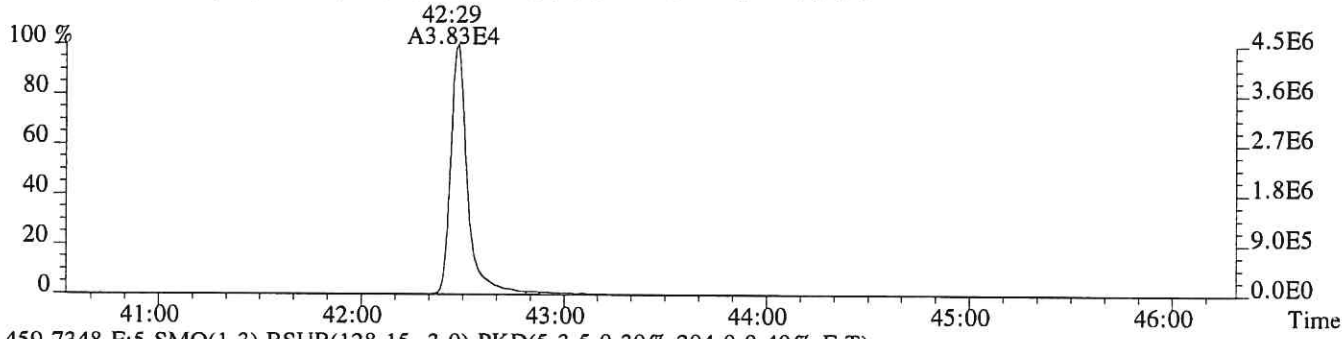
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



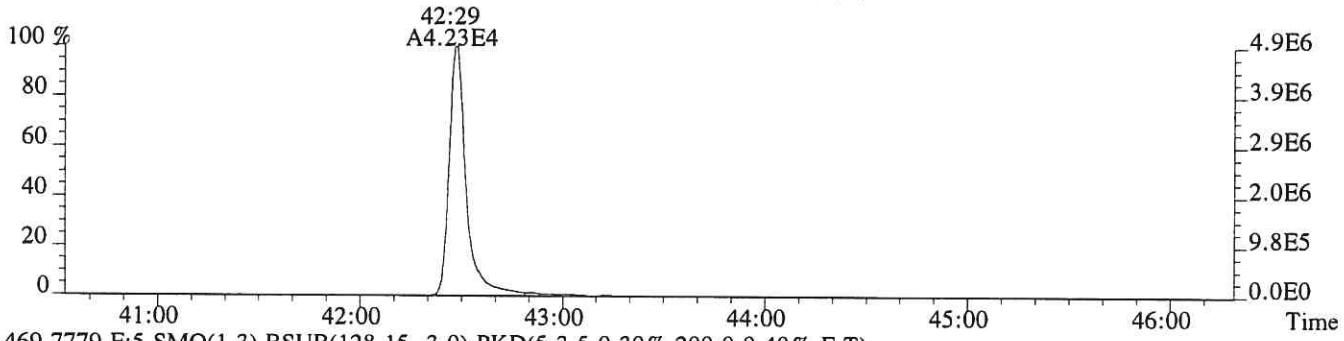
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



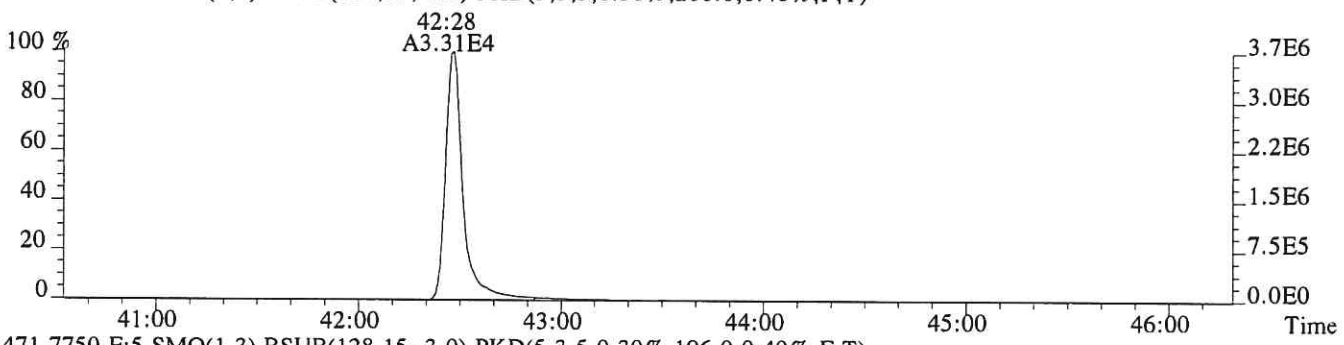
File:P519344 #1-520 Acq:11-DEC-2018 05:17:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-016
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



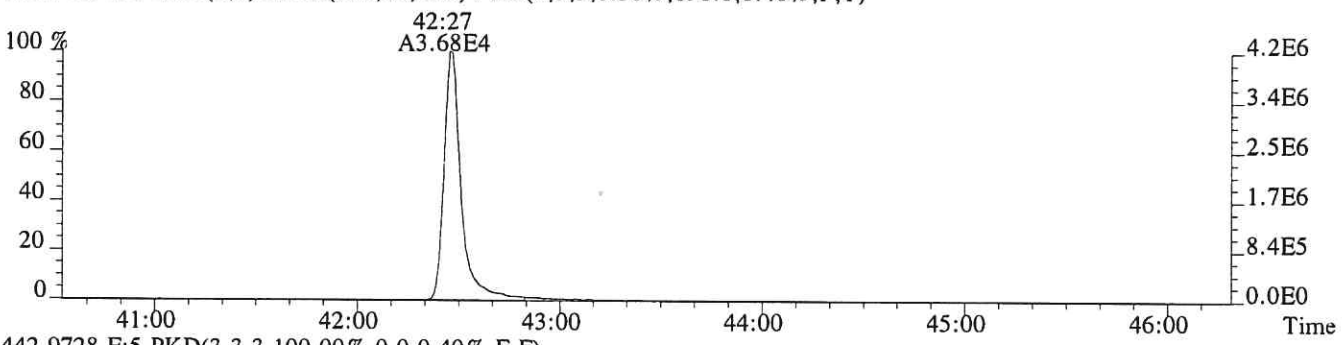
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



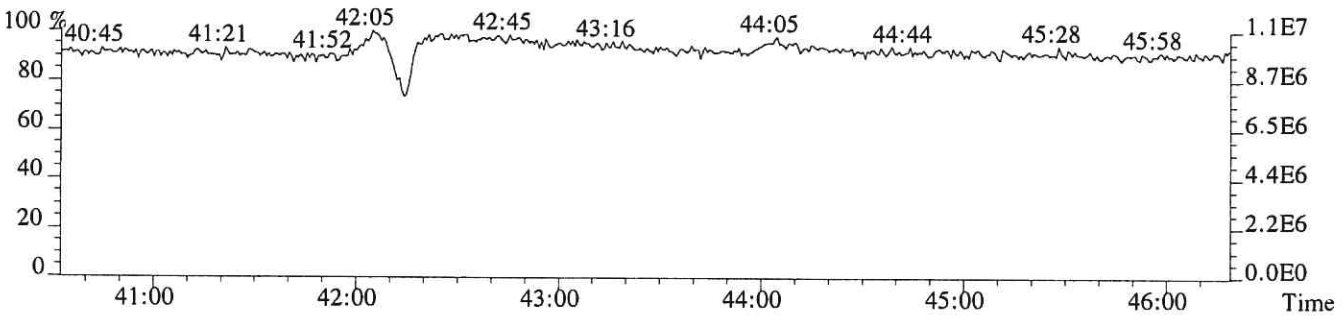
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0566

Run #17 Filename P519345 Samp: 1 Inj: 1 Acquired: 11-DEC-18 06:06:16
Processed: 12-DEC-18 13:51:00 Sample ID: E1801065-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:44	3.657e+03	4.896e+03	0.75	yes	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.853e+02	1.344e+02	1.38	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.485e+02	1.032e+02	1.44	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	2.406e+02	2.396e+02	1.00	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:54	8.917e+01	7.912e+01	1.13	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.465e+01	1.208e+01	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.323e+01	2.073e+01	1.60	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.092e+02	8.941e+01	1.22	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	2.881e+01	2.525e+01	1.14	yes	no	1.258
10	Unk	OCDF	42:40	3.743e+01	5.769e+01	0.65	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	9.482e+02	1.150e+03	0.82	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	2.360e+01	1.410e+01	1.67	yes	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	1.353e+01	7.504e+00	1.80	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	9.222e+00	9.867e+00	0.93	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	3.056e+02	2.736e+02	1.12	yes	no	1.025
17	Unk	OCDD	42:29	5.893e+03	6.343e+03	0.93	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	2.135e+04	2.707e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	3.553e+04	2.220e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	3.277e+04	2.104e+04	1.56	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.509e+04	2.881e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.811e+04	3.479e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.587e+04	3.104e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.570e+04	3.112e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.360e+04	3.018e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.182e+04	2.618e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.210e+03	1.193e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.352e+04	1.511e+04	1.56	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	2.059e+04	1.650e+04	1.25	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.006e+04	1.564e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.609e+04	2.501e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:28	2.526e+04	2.734e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.871e+04	3.559e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	3.858e+04	2.903e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.462e+04				no	1.014

$$\text{OCDD} = \frac{(5.893e+03 + 6.343e+03) \times 4000\ \text{pg} \times 1}{(2.526e+04 + 2.734e+04) \times 10.355\ \text{g} \times 82.5/100 \times 1.118} = 97.4\ \text{ng/kg}$$

LM 11/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0566

Run #17 Filename P519345 Samp: 1 Inj: 1 Acquired: 11-DEC-18 06:06:16
Processed: 12-DEC-18 13:51:00 LAB. ID: E1801065-017

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.26e+05	2.40e+02	2.6e+03	8.35e+05	6.88e+02	1.2e+03
2	1,2,3,7,8-PeCDF	3.22e+04	1.76e+02	1.8e+02	2.35e+04	7.12e+02	3.3e+01
3	2,3,4,7,8-PeCDF	2.39e+04	1.76e+02	1.4e+02	1.61e+04	7.12e+02	2.3e+01
4	1,2,3,4,7,8-HxCDF	4.93e+04	2.32e+02	2.1e+02	4.44e+04	3.08e+02	1.4e+02
5	1,2,3,6,7,8-HxCDF	1.65e+04	2.32e+02	7.1e+01	1.62e+04	3.08e+02	5.3e+01
6	2,3,4,6,7,8-HxCDF	2.58e+03	2.32e+02	1.1e+01	3.86e+03	3.08e+02	1.3e+01
7	1,2,3,7,8,9-HxCDF	4.48e+03	2.32e+02	1.9e+01	3.93e+03	3.08e+02	1.3e+01
8	1,2,3,4,6,7,8-HpCDF	1.86e+04	2.68e+02	6.9e+01	1.82e+04	2.76e+02	6.6e+01
9	1,2,3,4,7,8,9-HpCDF	3.83e+03	2.68e+02	1.4e+01	4.23e+03	2.76e+02	1.5e+01
10	OCDF	5.65e+03	2.12e+02	2.7e+01	7.20e+03	6.60e+02	1.1e+01
11	2,3,7,8-TCDD	1.73e+05	1.00e+03	1.7e+02	2.09e+05	3.76e+02	5.6e+02
12	1,2,3,7,8-PeCDD	3.78e+03	8.80e+02	4.3e+00	2.91e+03	2.52e+02	1.2e+01
13	1,2,3,4,7,8-HxCDD	*	2.36e+02	*	*	3.64e+02	*
14	1,2,3,6,7,8-HxCDD	2.86e+03	2.36e+02	1.2e+01	2.10e+03	3.64e+02	5.8e+00
15	1,2,3,7,8,9-HxCDD	2.04e+03	2.36e+02	8.6e+00	1.73e+03	3.64e+02	4.7e+00
16	1,2,3,4,6,7,8-HpCDD	5.47e+04	3.32e+02	1.6e+02	4.64e+04	1.84e+02	2.5e+02
17	OCDD	6.93e+05	2.24e+02	3.1e+03	7.70e+05	2.00e+02	3.8e+03
18	13C-2,3,7,8-TCDF	3.86e+06	3.60e+03	1.1e+03	4.83e+06	1.77e+03	2.7e+03
19	13C-1,2,3,7,8-PeCDF	6.51e+06	2.96e+02	2.2e+04	4.02e+06	5.28e+02	7.6e+03
20	13C-2,3,4,7,8-PeCDF	6.47e+06	2.96e+02	2.2e+04	4.14e+06	5.28e+02	7.8e+03
21	13C-1,2,3,4,7,8-HxCDF	3.07e+06	1.92e+02	1.6e+04	5.86e+06	5.12e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	3.55e+06	1.92e+02	1.8e+04	6.78e+06	5.12e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	3.19e+06	1.92e+02	1.7e+04	6.17e+06	5.12e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.89e+06	1.92e+02	1.5e+04	5.79e+06	5.12e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.52e+06	9.64e+02	2.6e+03	5.71e+06	3.24e+02	1.8e+04
26	13C-1,2,3,4,7,8,9-HpCDF	1.89e+06	9.64e+02	2.0e+03	4.27e+06	3.24e+02	1.3e+04
27	13C-2,3,7,8-TCDD	1.73e+06	4.28e+03	4.0e+02	2.22e+06	1.42e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	4.55e+06	2.80e+02	1.6e+04	2.92e+06	4.32e+02	6.8e+03
29	13C-1,2,3,4,7,8-HxCDD	4.33e+06	1.10e+03	3.9e+03	3.45e+06	1.56e+02	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.84e+06	1.10e+03	3.5e+03	2.97e+06	1.56e+02	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.34e+06	4.32e+02	1.0e+04	4.10e+06	1.88e+02	2.2e+04
32	13C-OCDD	3.04e+06	2.08e+02	1.5e+04	3.24e+06	2.16e+02	1.5e+04
33	13C-1,2,3,4-TCDD	5.37e+06	4.28e+03	1.3e+03	6.64e+06	1.42e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	7.15e+06	1.10e+03	6.5e+03	5.53e+06	1.56e+02	3.5e+04
35	37Cl-2,3,7,8-TCDD	2.77e+06	8.88e+02	3.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0566

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P519345 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 06:06:16 Processed: 12-DEC-18 13:51:00

Mass: 303.9020 305.8990 Tot Response: 1.67e+04 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:58	1.93e+02	2.77e+02	0.70	yes	4.69e+02		n	n
2	25:24	6.51e+01	8.45e+01	0.77	yes	1.50e+02		n	y
3	25:43	1.48e+02	2.23e+02	0.66	yes	3.70e+02		n	n
4	26:21	1.11e+02	1.41e+02	0.79	yes	2.52e+02		y	y
5	26:27	1.95e+02	2.52e+02	0.77	yes	4.47e+02		y	y
6	26:54	1.73e+03	2.34e+03	0.74	yes	4.07e+03		n	n
7	27:11	1.01e+02	1.38e+02	0.73	yes	2.39e+02		y	y
8	27:38	2.45e+02	3.14e+02	0.78	yes	5.59e+02		y	y
9	27:44	3.66e+03	4.90e+03	0.75	yes	8.55e+03	2,3,7,8-TCDF	y	y
10	28:05	3.04e+02	3.95e+02	0.77	yes	6.99e+02		y	n
11	28:21	5.21e+01	7.74e+01	0.67	yes	1.30e+02		y	n
12	29:38	3.20e+02	4.15e+02	0.77	yes	7.34e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0566

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P519345 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 06:06:16 Processed: 12-DEC-18 13:51:00

Mass: 319.8970 321.8940 Tot Response: 2.10e+03 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:34	9.48e+02	1.15e+03 0.82	yes	2.10e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0566

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: P519345 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 06:06:16 Processed: 12-DEC-18 13:51:00

Mass: 339.8600 341.8570 Tot Response: 5.71e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:06	1.85e+02	1.34e+02 1.38	yes	3.20e+02	1,2,3,7,8-PeCDF	n	n
2	33:02	1.48e+02	1.03e+02 1.44	yes	2.52e+02	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0566

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P519345 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 06:06:16 Processed: 12-DEC-18 13:51:00

Mass: 355.8550 357.8520 Tot Response: 6.66e+01 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:38	1.72e+01	1.16e+01	1.48	yes	2.89e+01		n	n
2	33:20	2.36e+01	1.41e+01	1.67	yes	3.77e+01	1,2,3,7,8-PeCDD	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0566

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P519345 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 06:06:16 Processed: 12-DEC-18 13:51:00

Mass: 373.8210 375.8180 Tot Response: 2.37e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:49	2.29e+01	1.94e+01	1.18	yes	4.23e+01		n	n
2	35:54	8.92e+01	7.91e+01	1.13	yes	1.68e+02	1,2,3,6,7,8-HxCDF	n	n
3	36:26	1.47e+01	1.21e+01	1.21	yes	2.67e+01	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0566

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P519345 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 06:06:16 Processed: 12-DEC-18 13:51:00

Mass: 389.8160 391.8130 Tot Response: 4.38e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:11	1.82e+02	1.68e+02 1.09	yes	3.50e+02		n	n
2	35:58	4.67e+01	4.08e+01 1.14	yes	8.75e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0566

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P519345 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 06:06:16 Processed: 12-DEC-18 13:51:00

Mass: 407.7820 409.7790 Tot Response: 5.41e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:58	2.88e+01	2.52e+01 1.14	yes	5.41e+01	1,2,3,4,7,8,9-HpCDF	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0566

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P519345 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 06:06:16 Processed: 12-DEC-18 13:51:00

Mass: 423.7770 425.7740 Tot Response: 2.40e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	9.28e+02	8.90e+02	1.04	yes	1.82e+03		n	n
2	39:30	3.06e+02	2.74e+02	1.12	yes	5.79e+02	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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Houston, TX 77099
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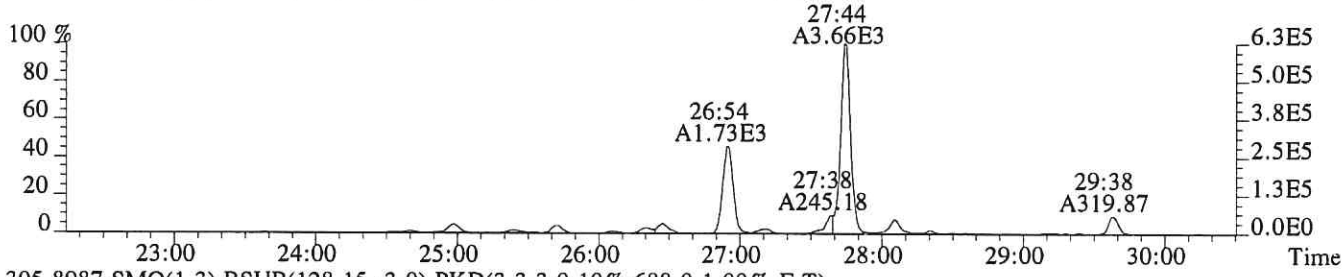
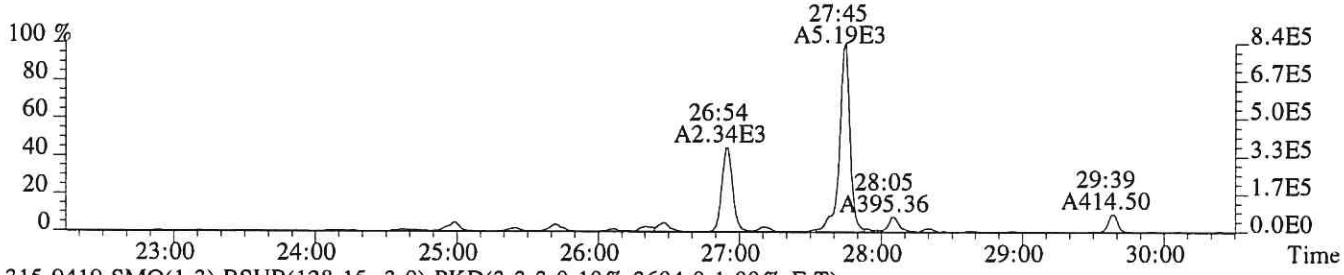
File:P519345 #1-587 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017

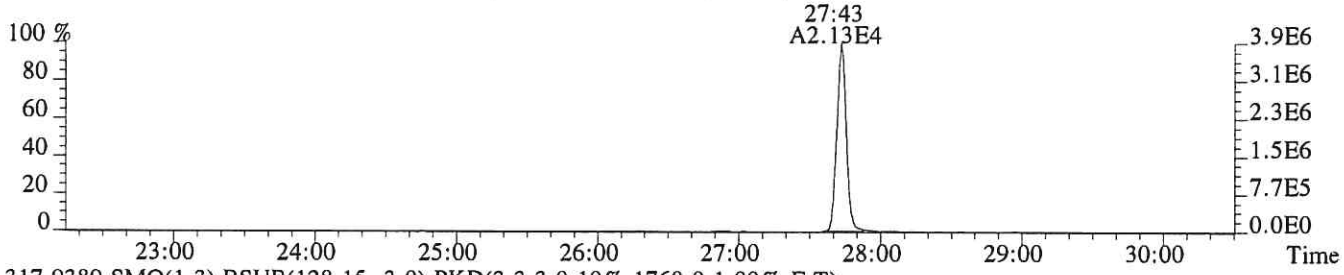
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



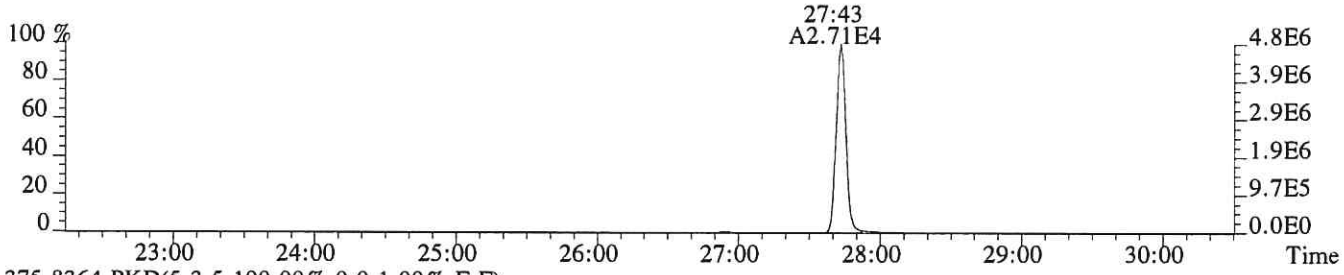
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



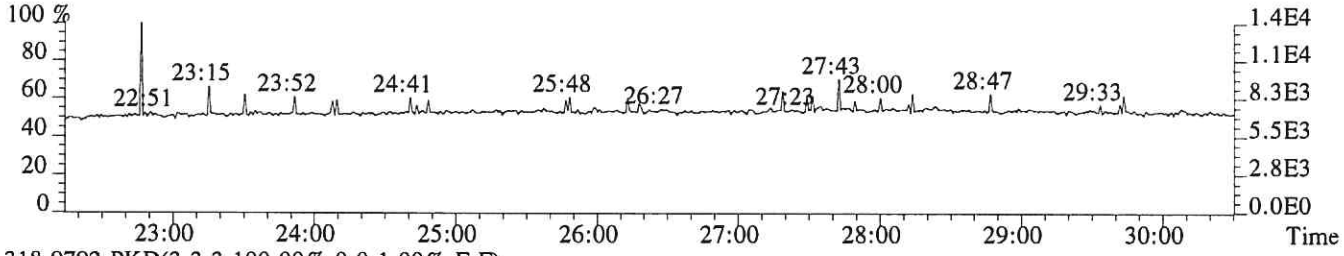
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3604.0,1.00%,F,T)



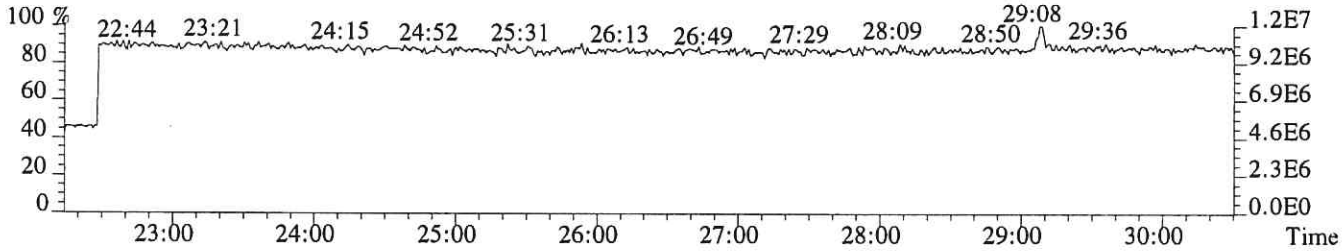
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



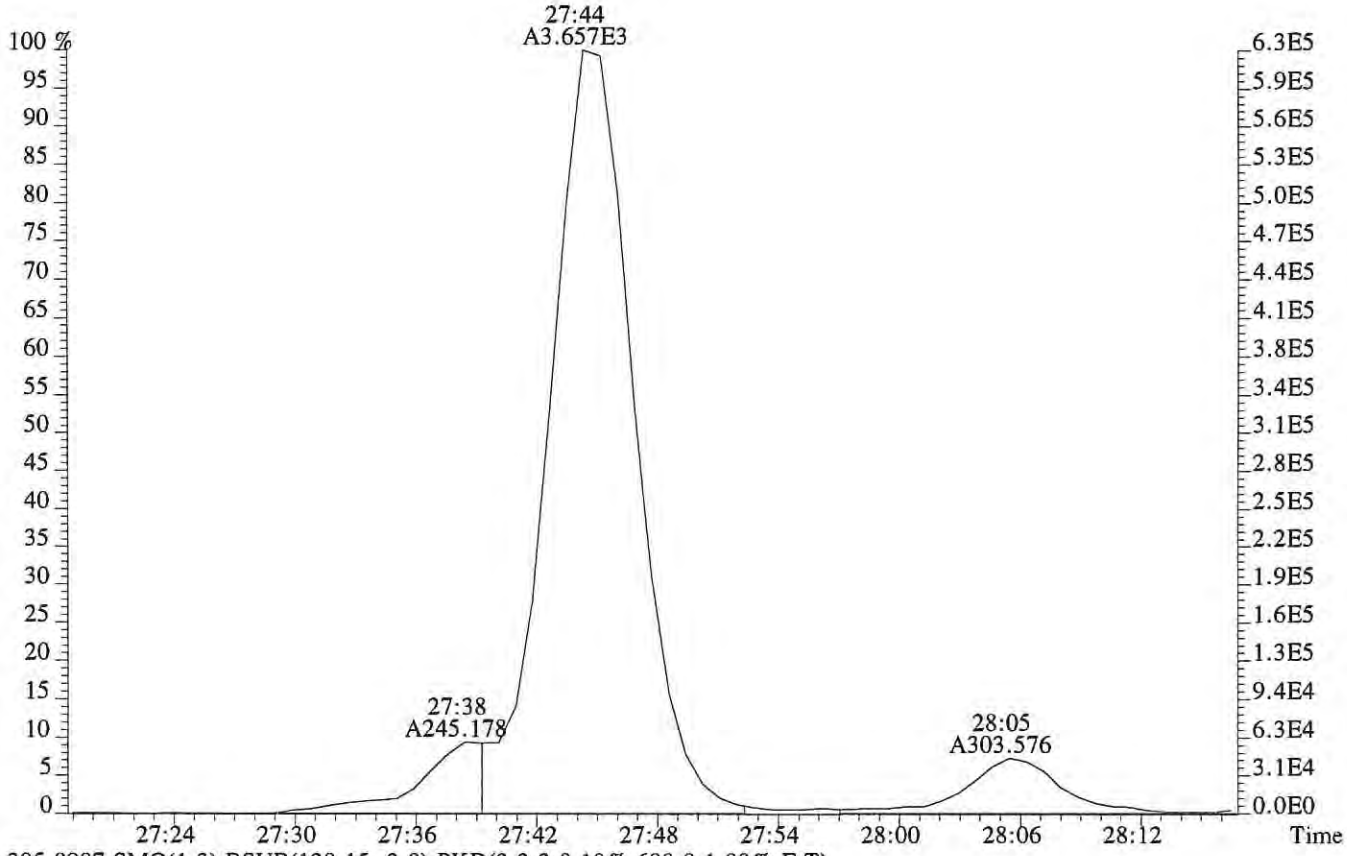
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



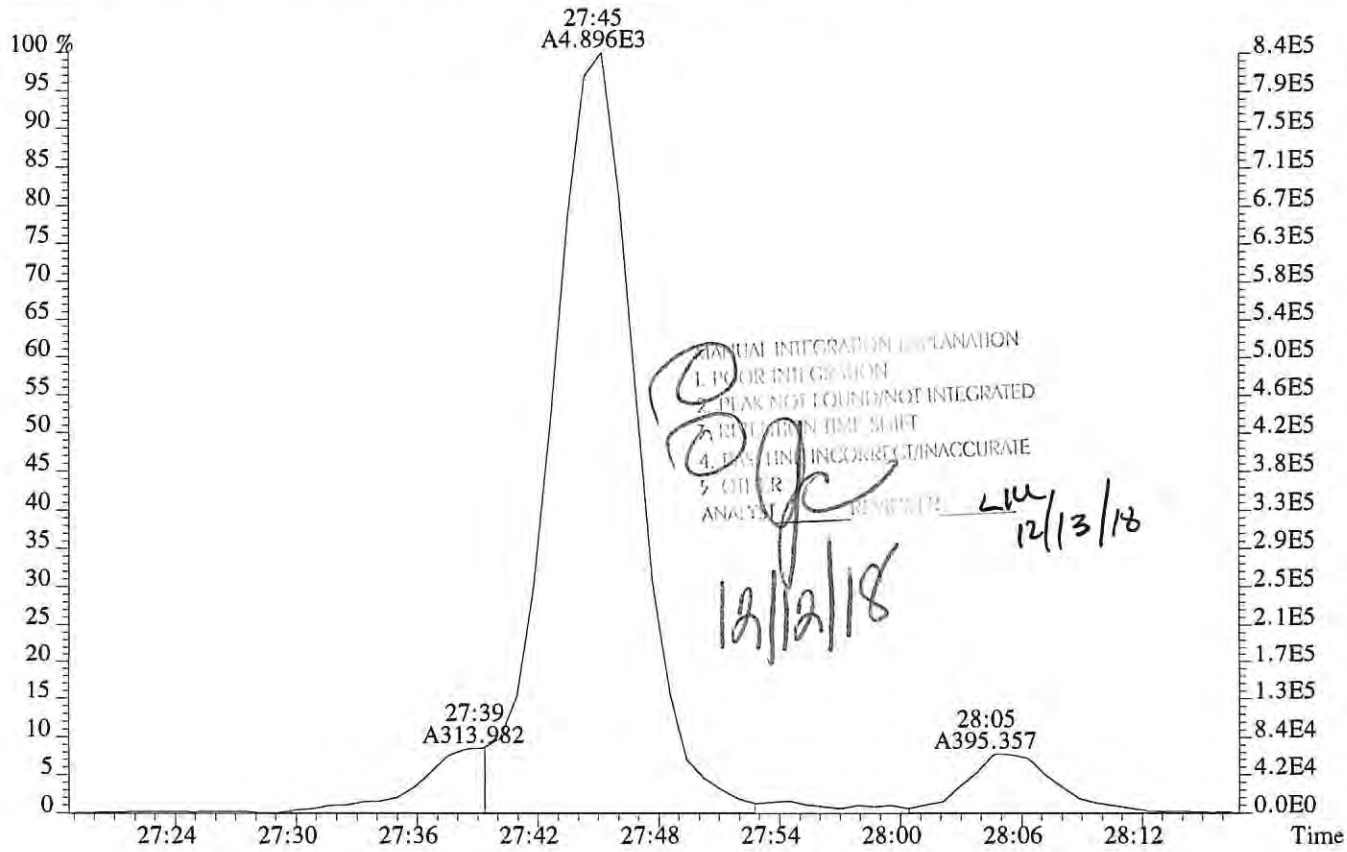
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519345 #1-587 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)

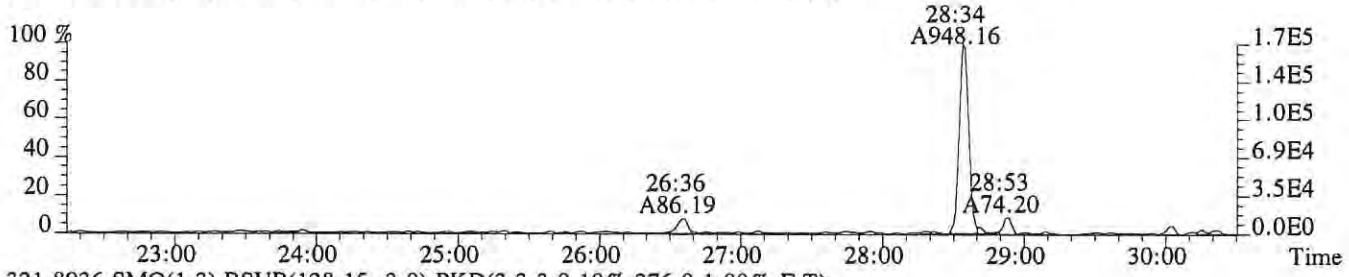


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)

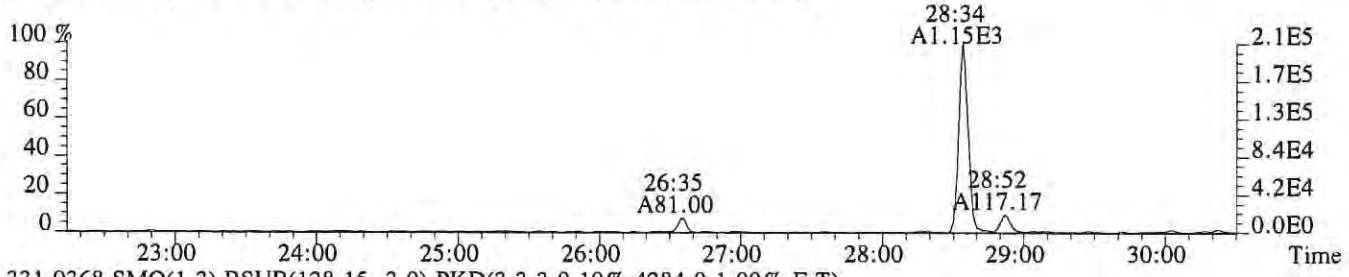


File:P519345 #1-587 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017

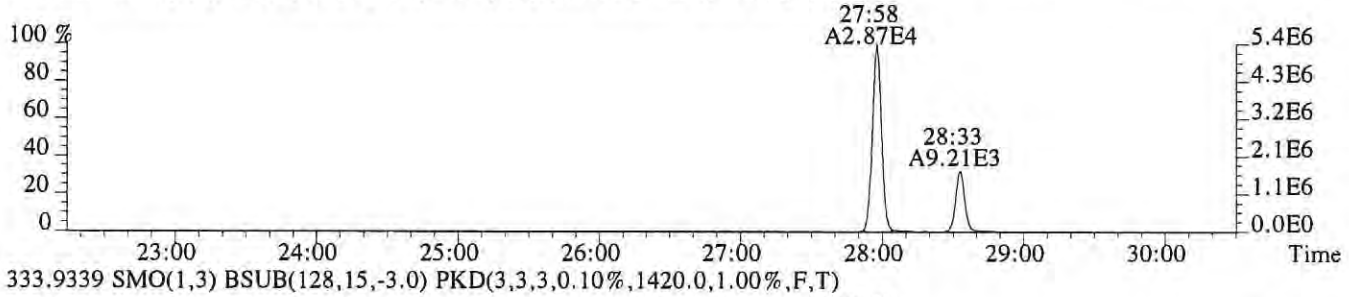
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



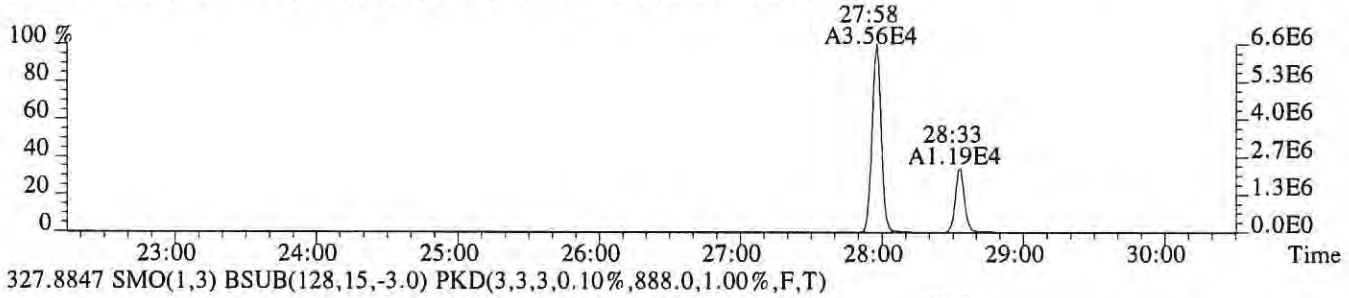
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



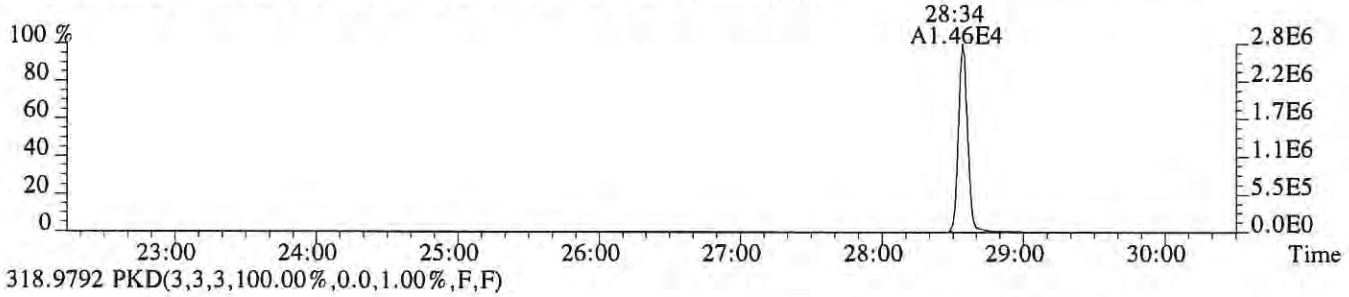
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4284.0,1.00%,F,T)



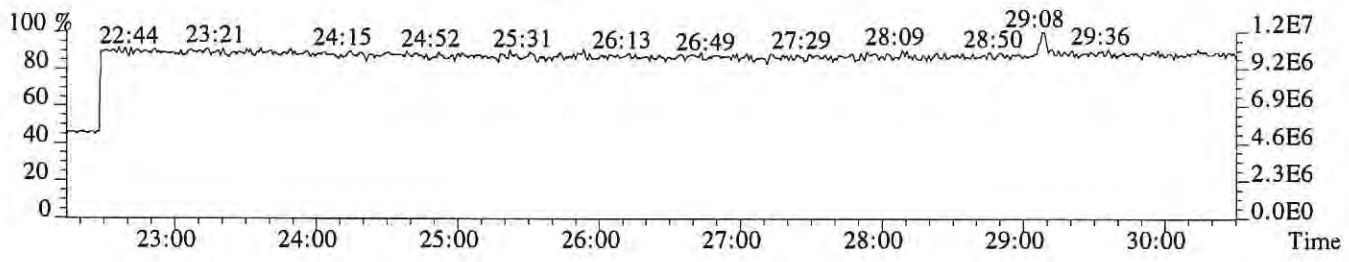
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



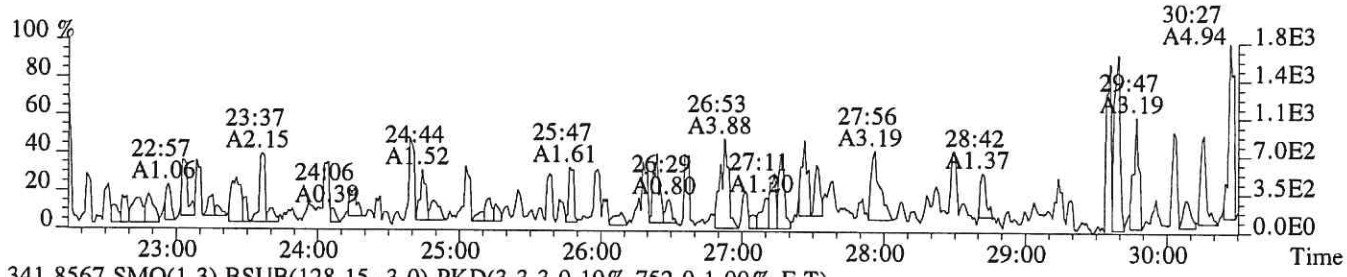
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



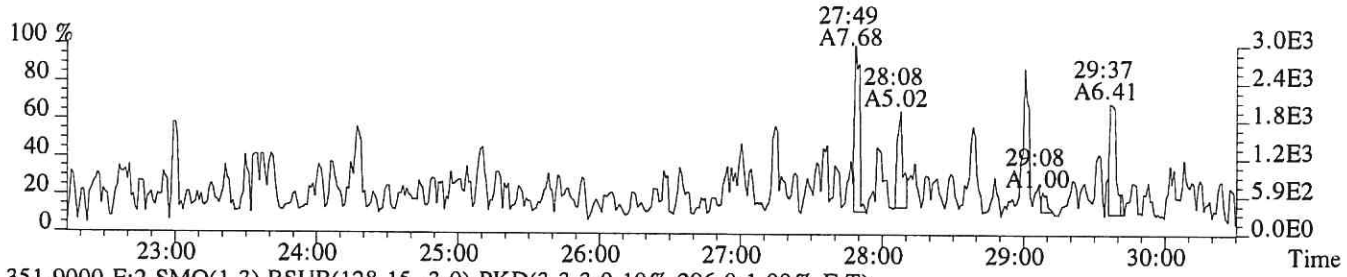
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



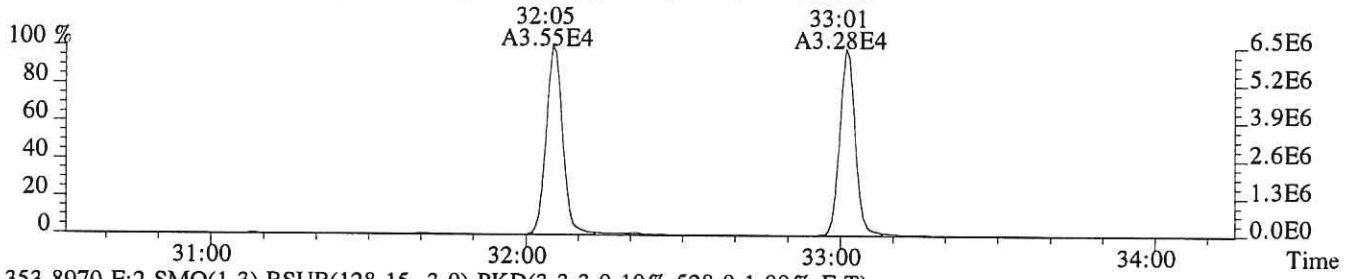
File:P519345 #1-587 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



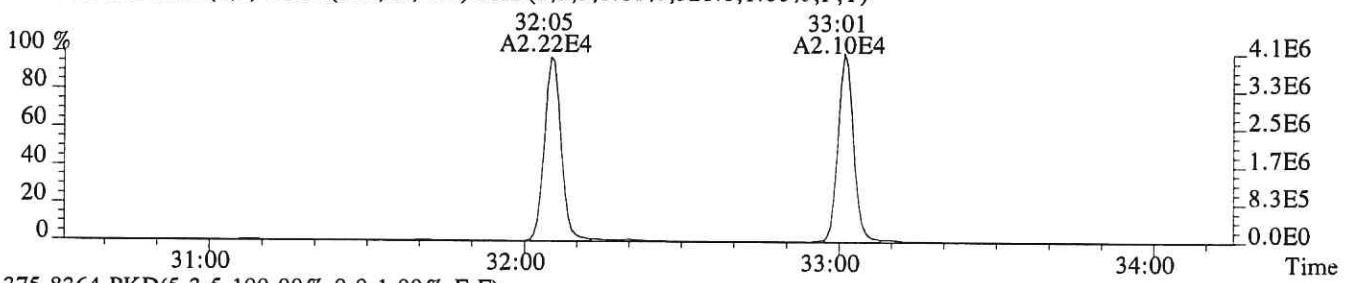
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



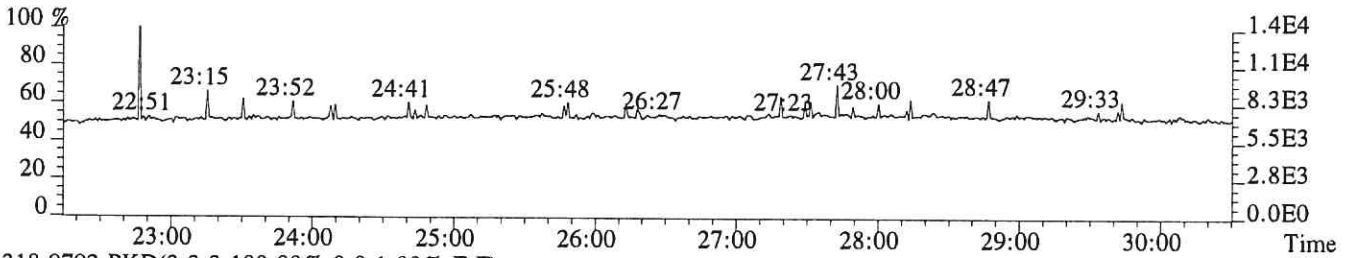
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



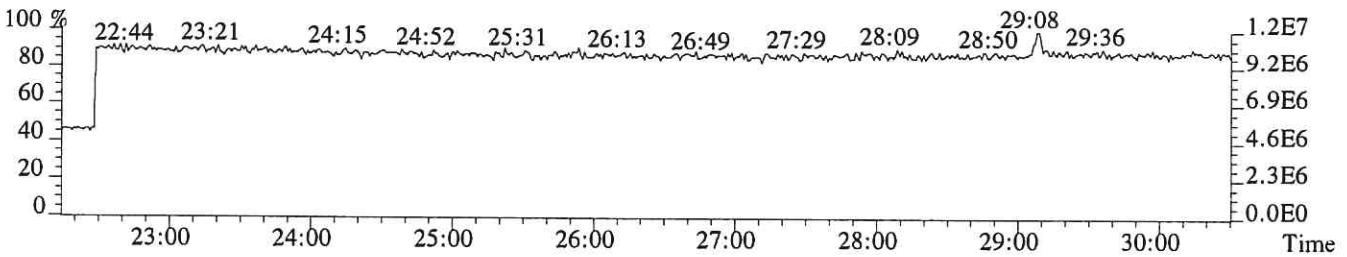
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



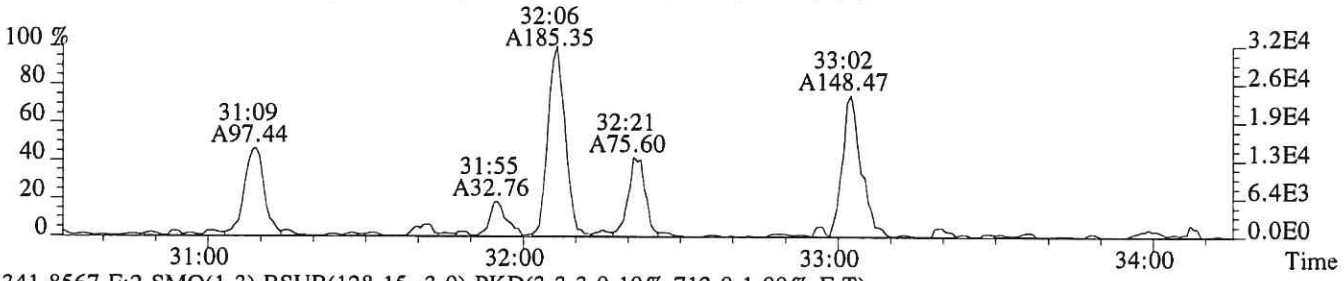
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



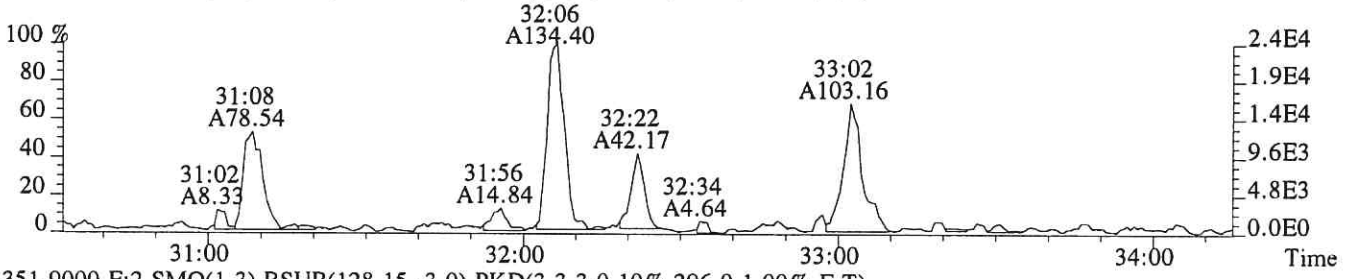
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



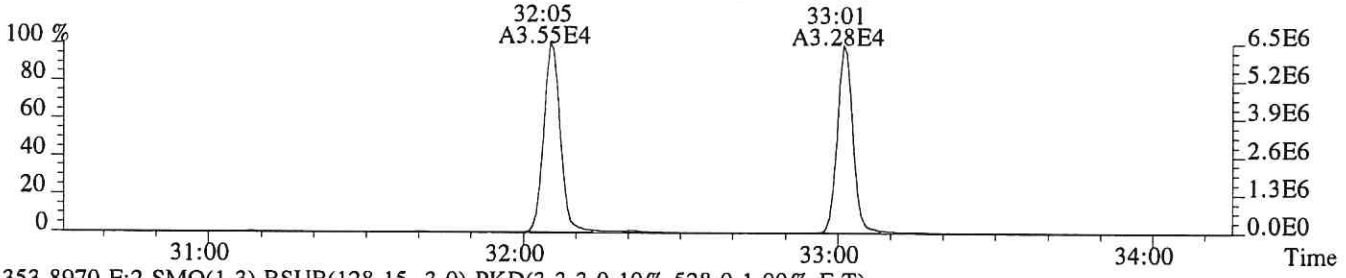
File:P519345 #1-335 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,176.0,1.00%,F,T)



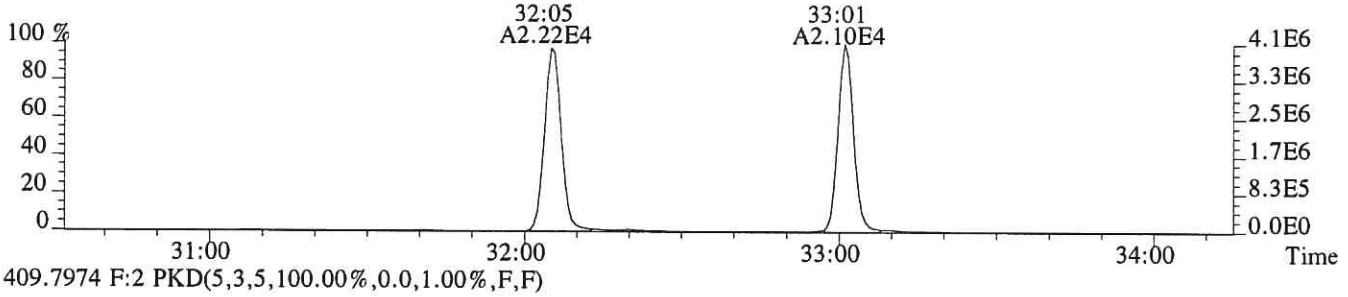
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



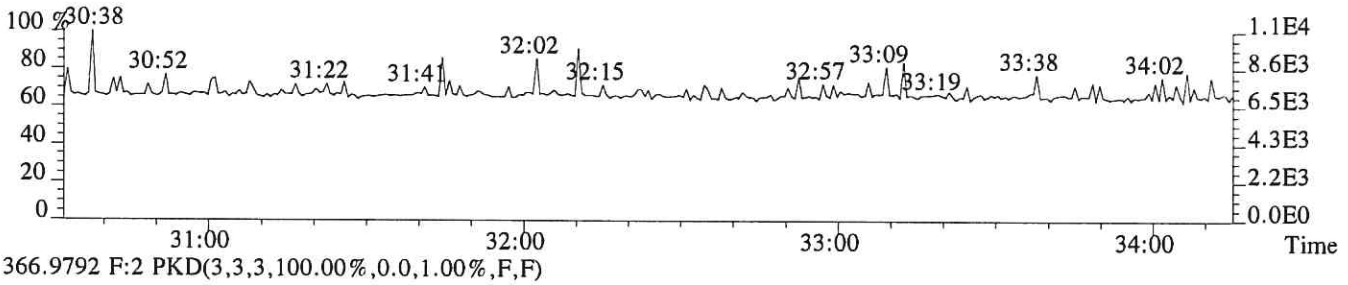
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



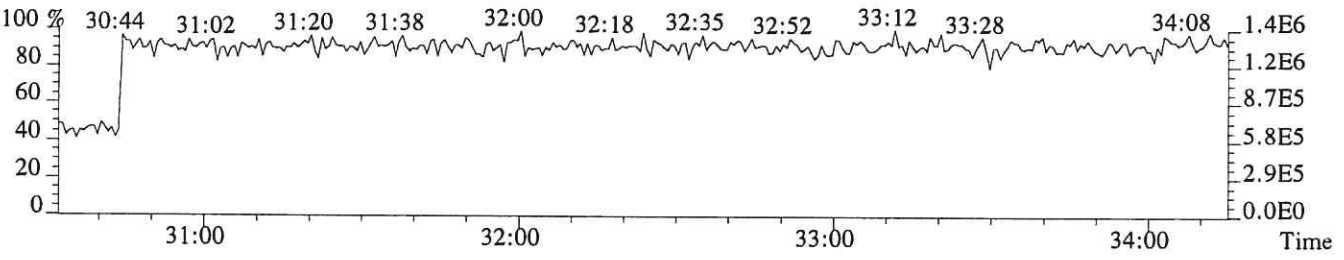
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



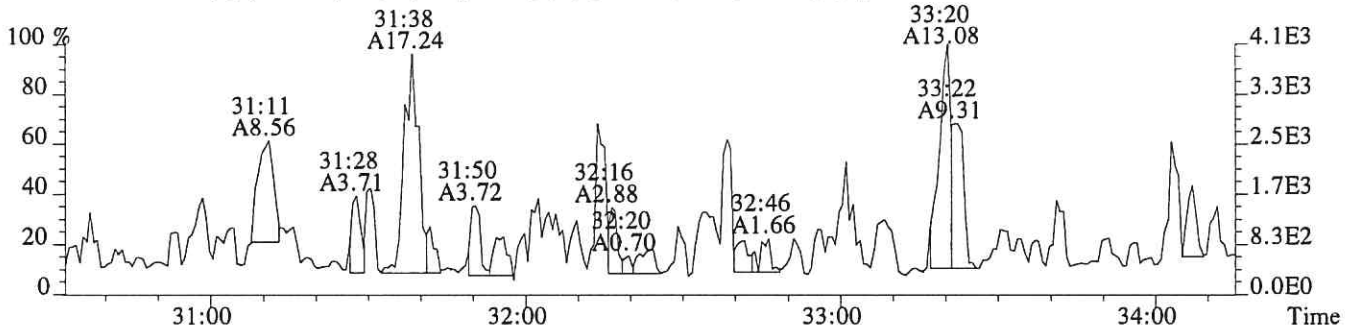
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



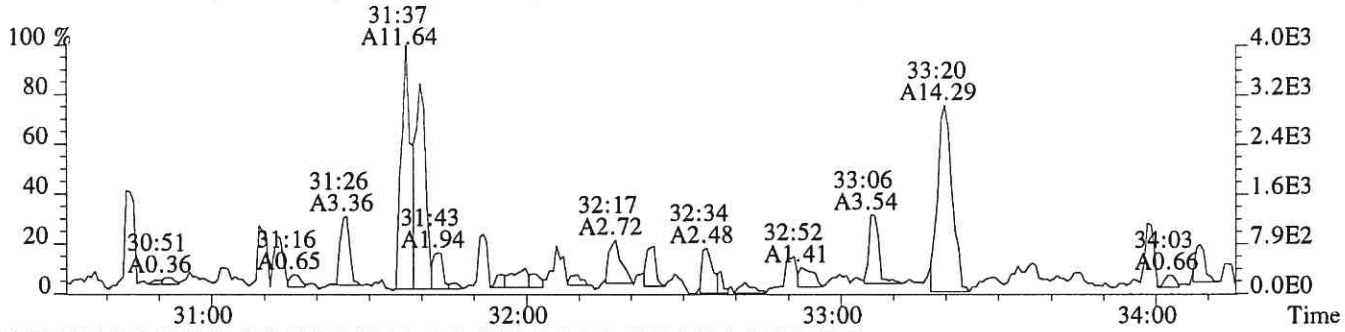
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



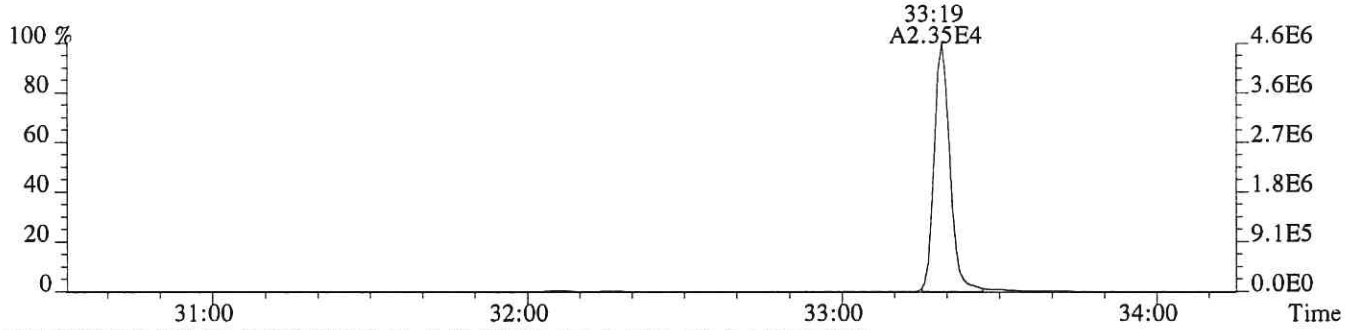
File:P519345 #1-335 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



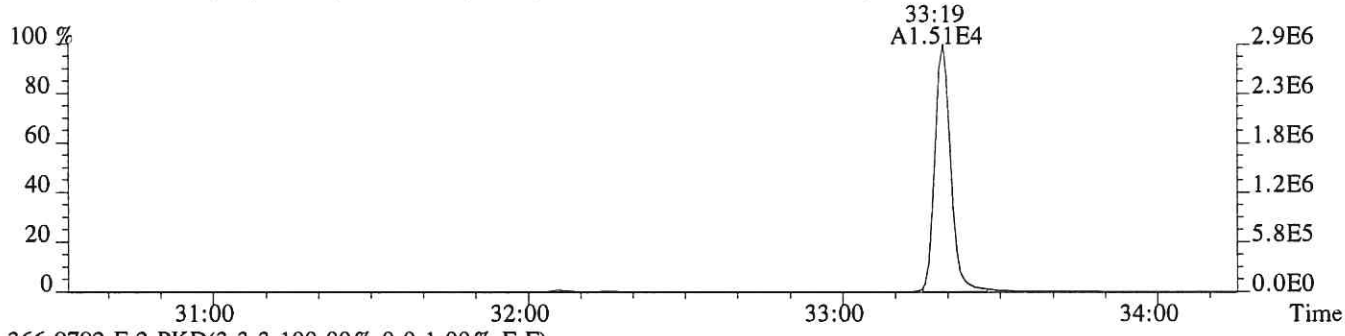
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



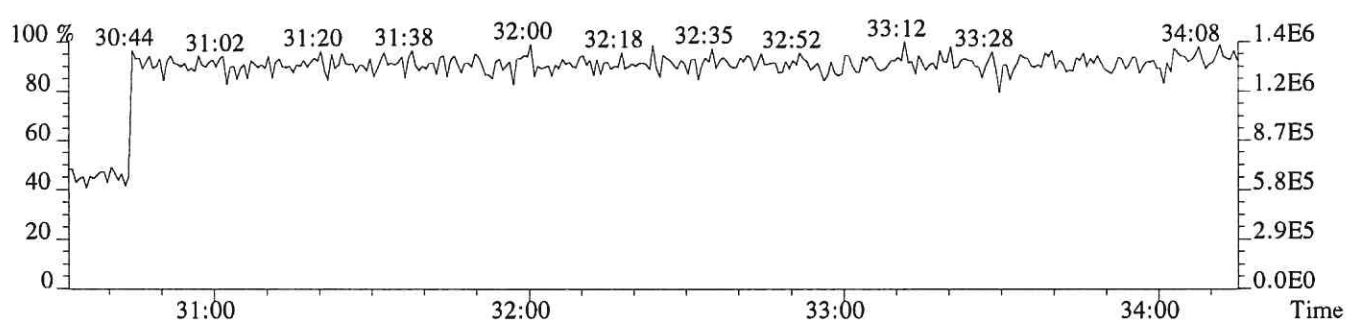
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



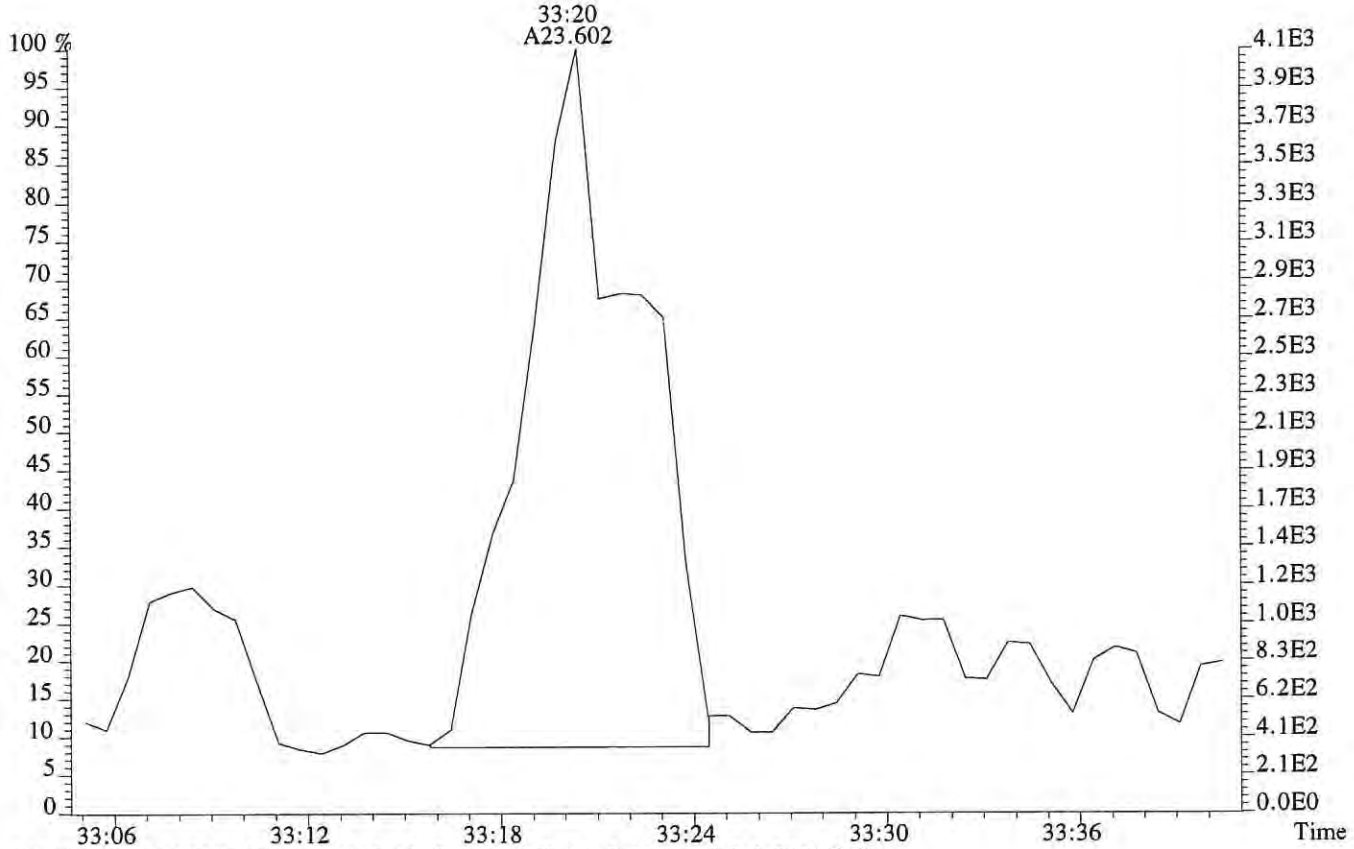
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



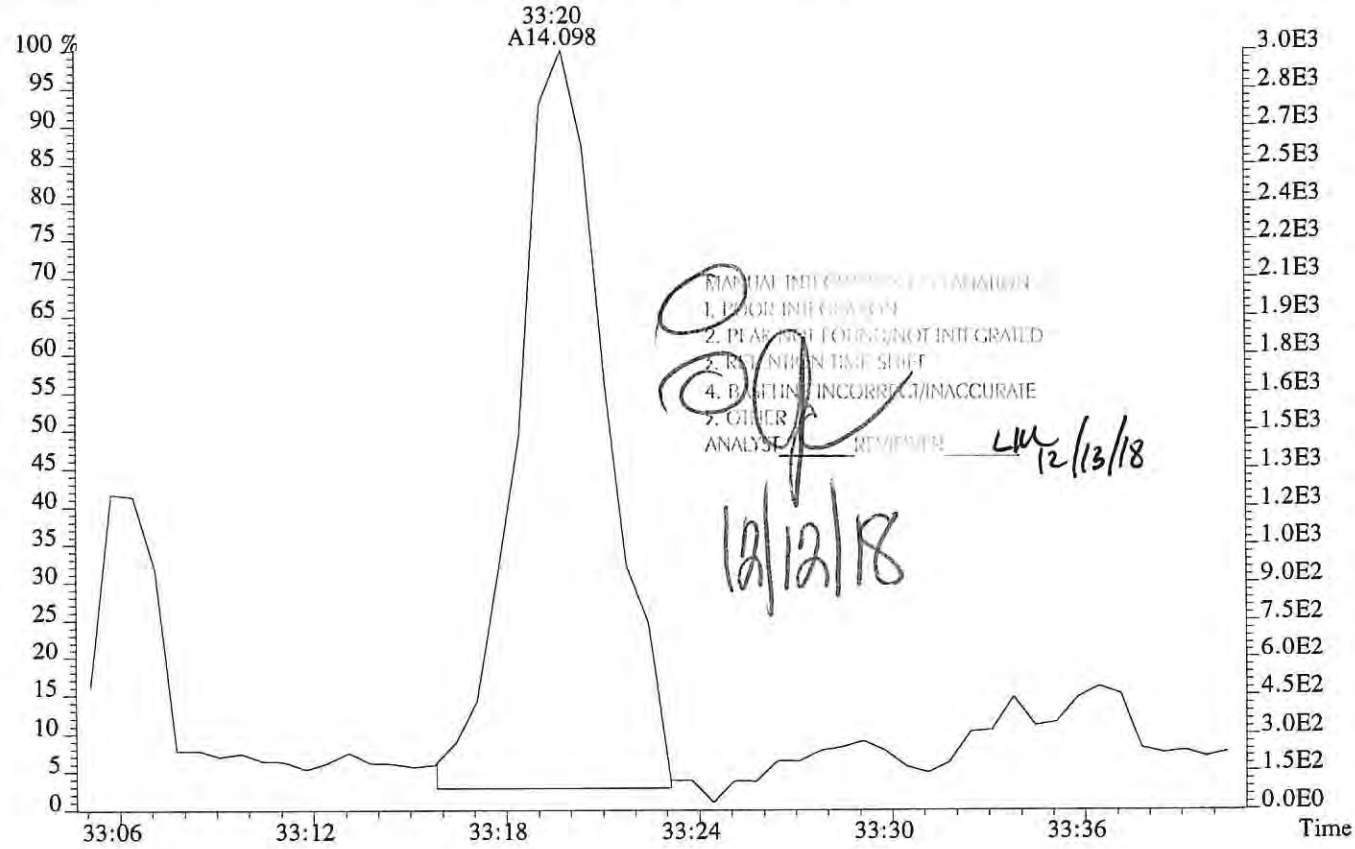
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519345 #1-335 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)

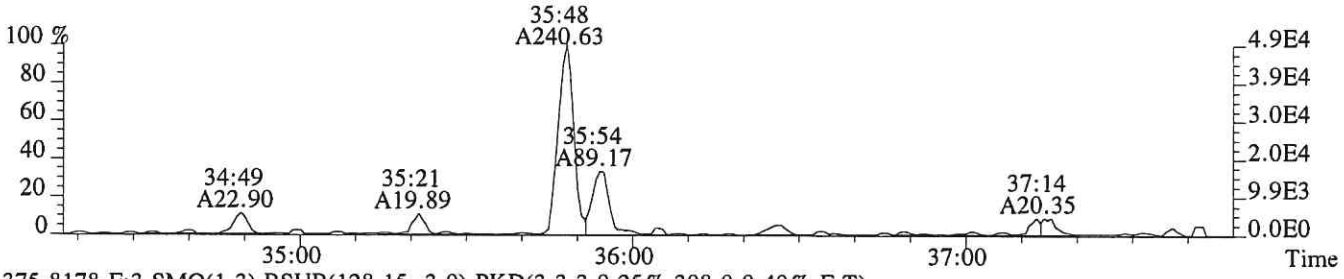


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RECONSTRUCTED TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER LM 12/13/18

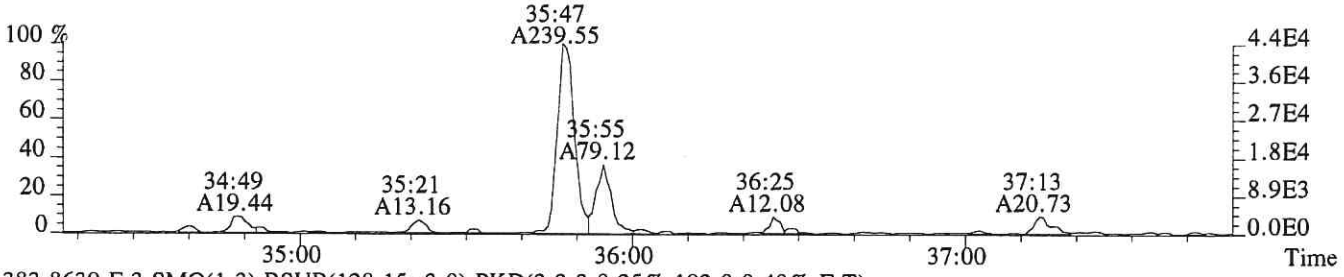
12/12/18

File:P519345 #1-317 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017

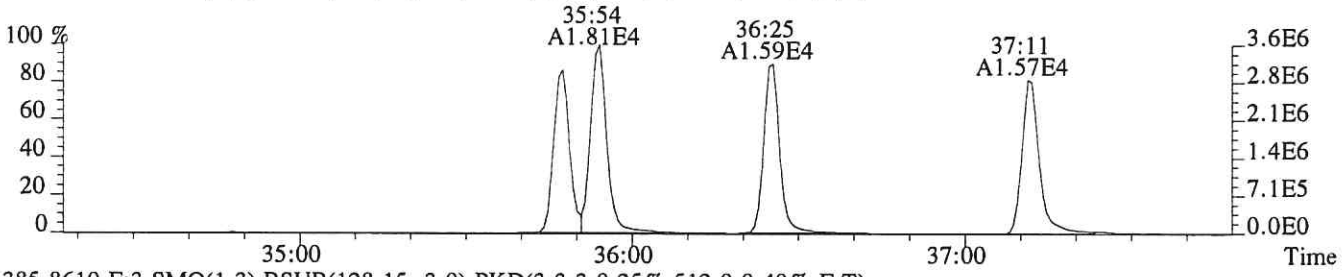
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



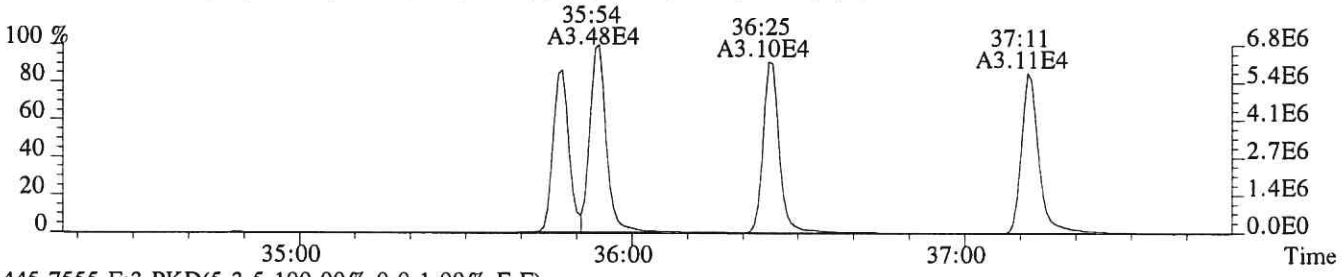
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



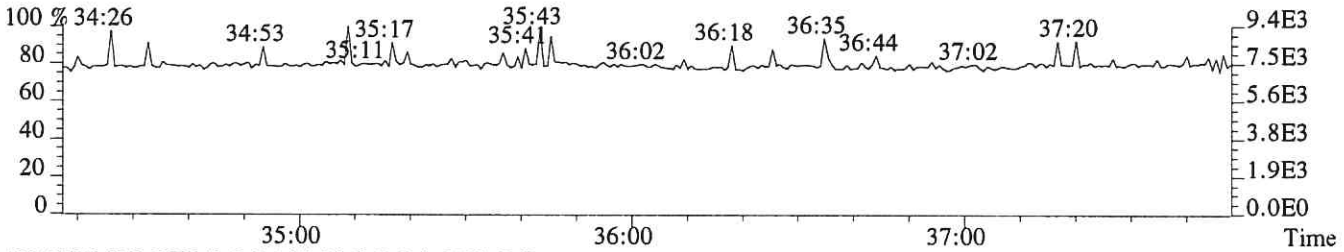
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



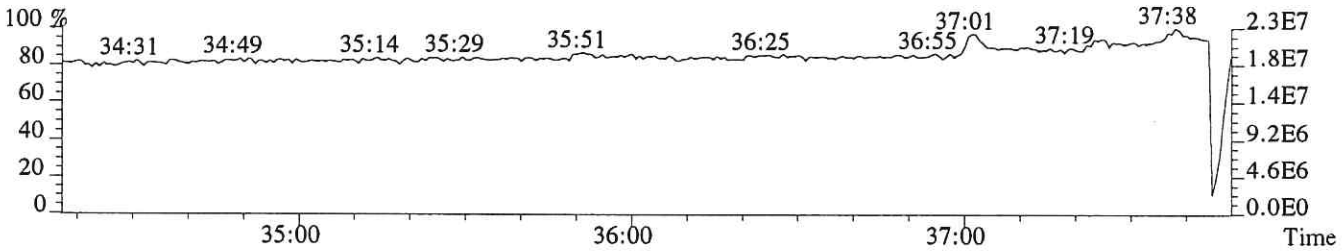
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



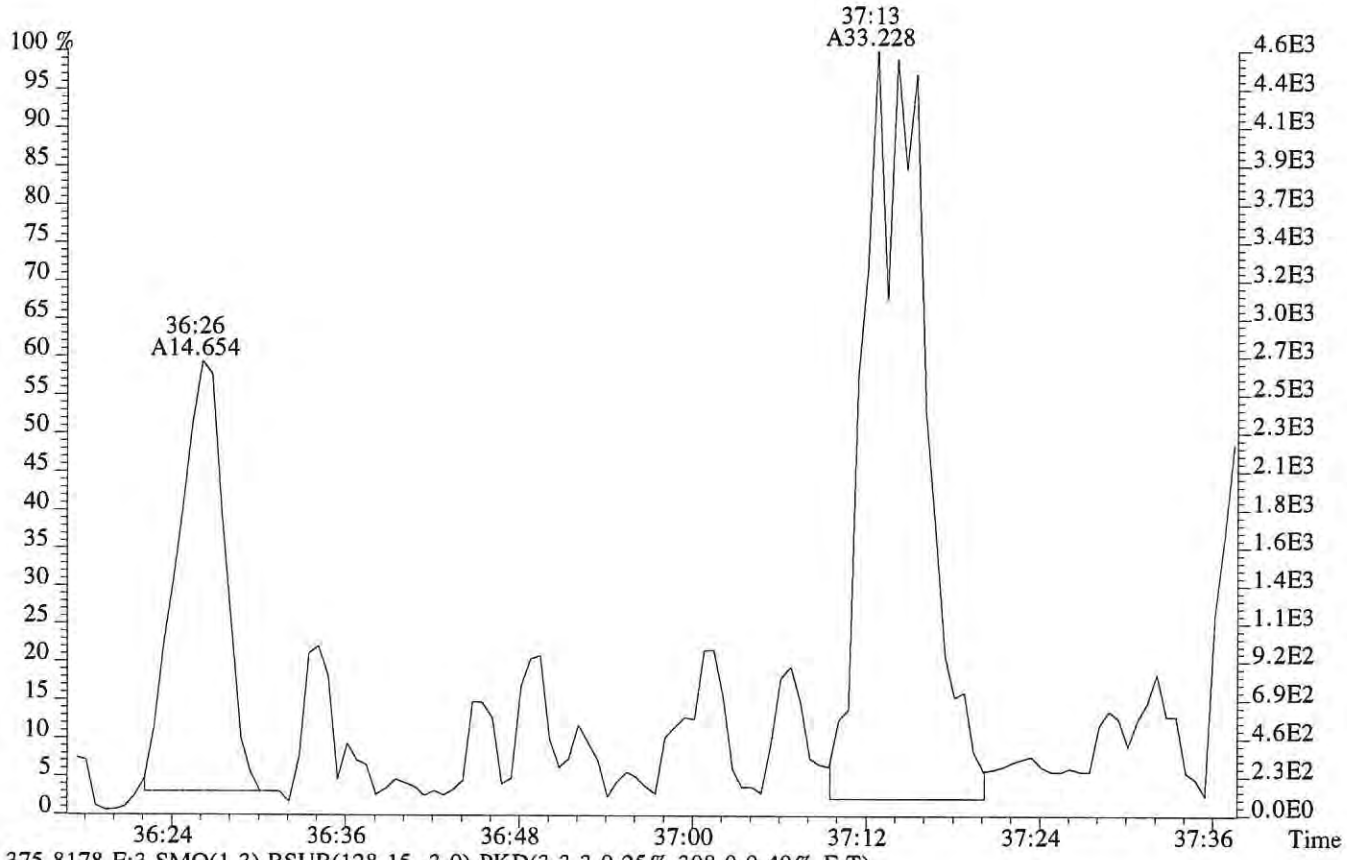
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



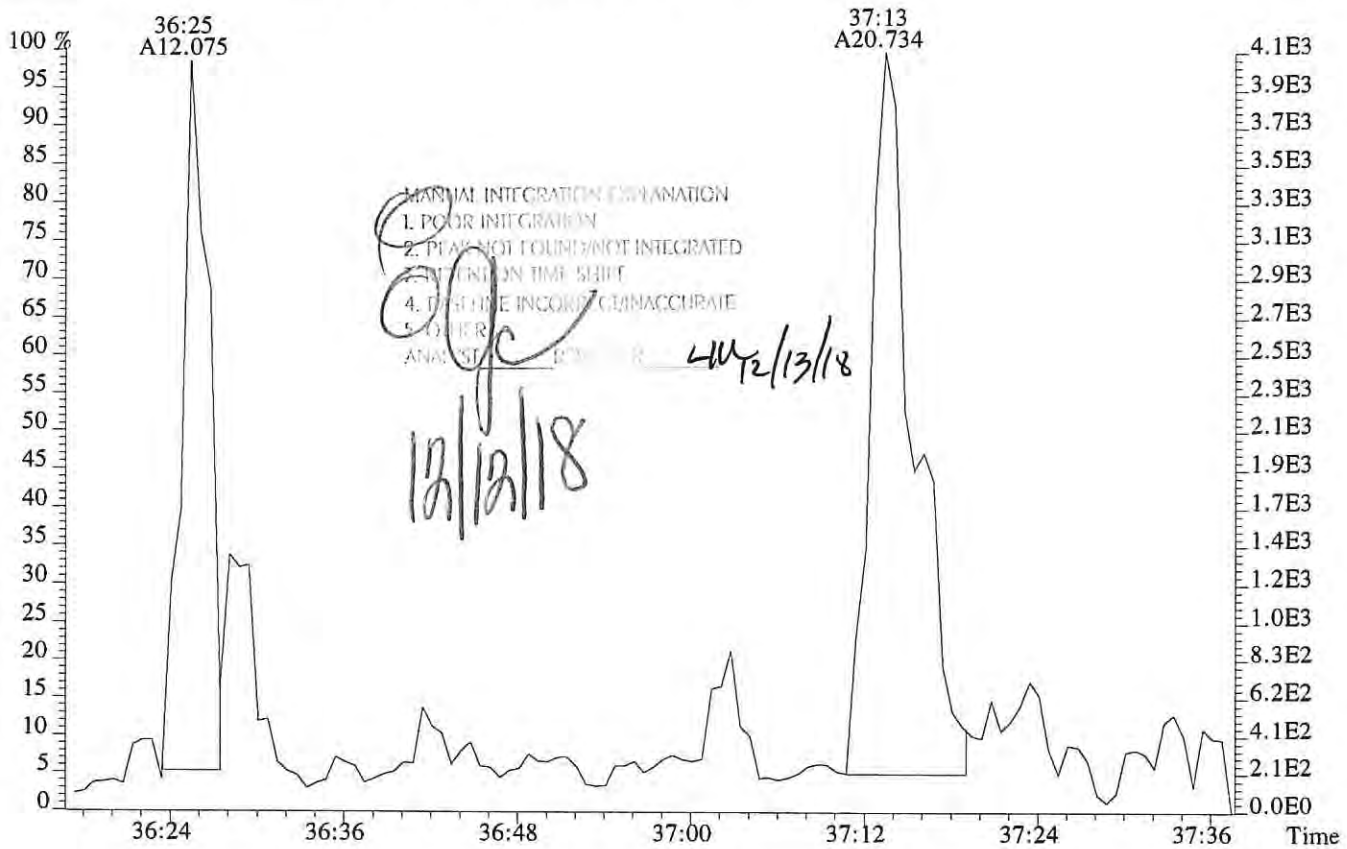
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519345 #1-317 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)

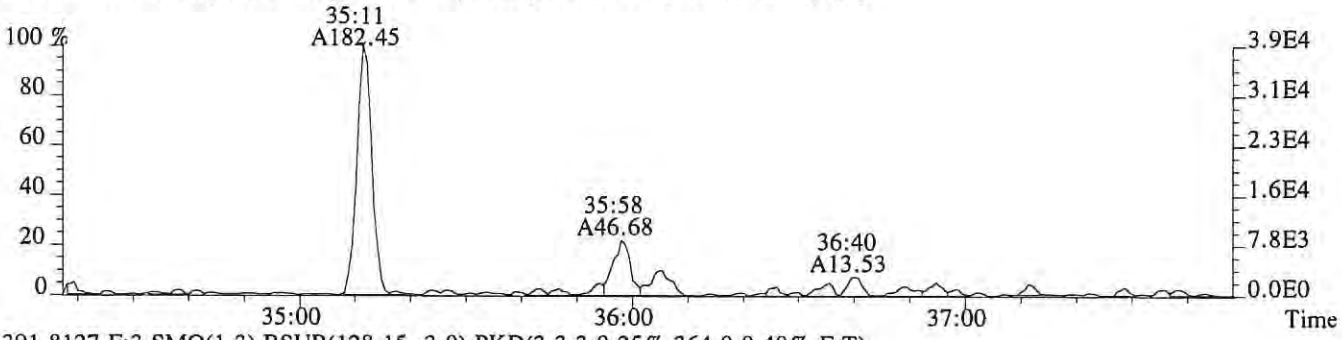


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)

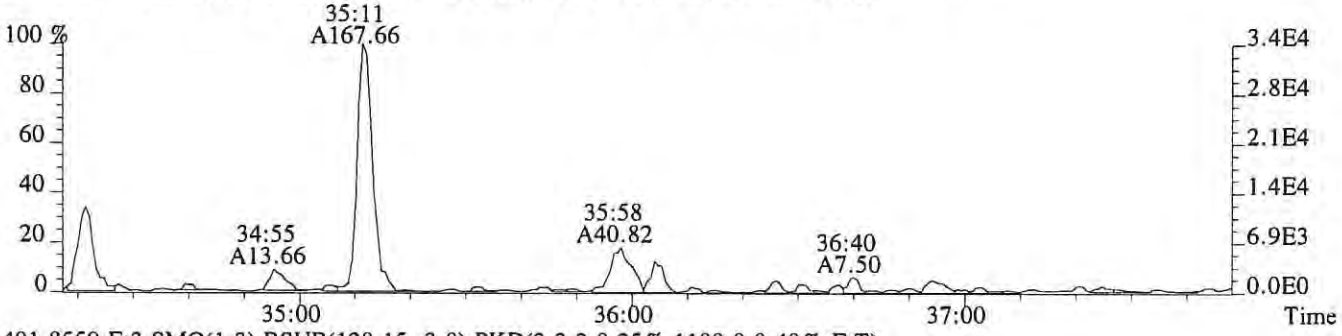


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. DATA FILE INCORRECT/INACCURATE
5. OTHER
ANALYST [illegible] DATE 12/13/18
12/13/18

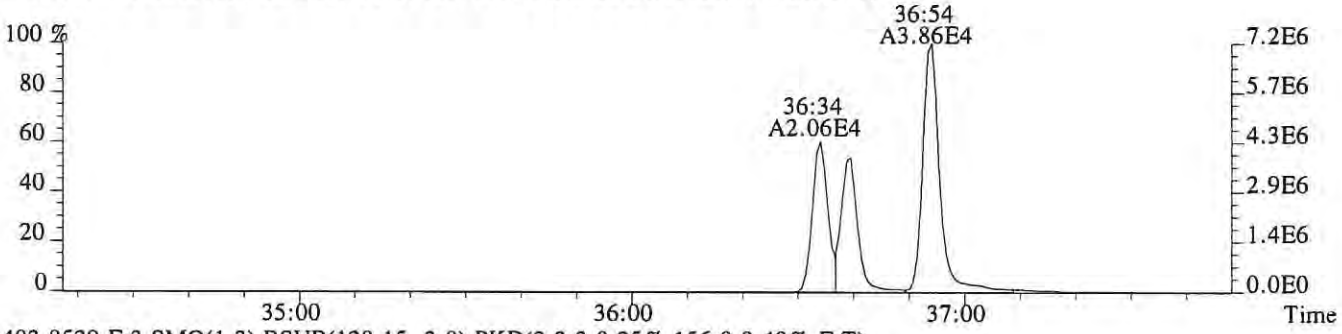
File:P519345 #1-317 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



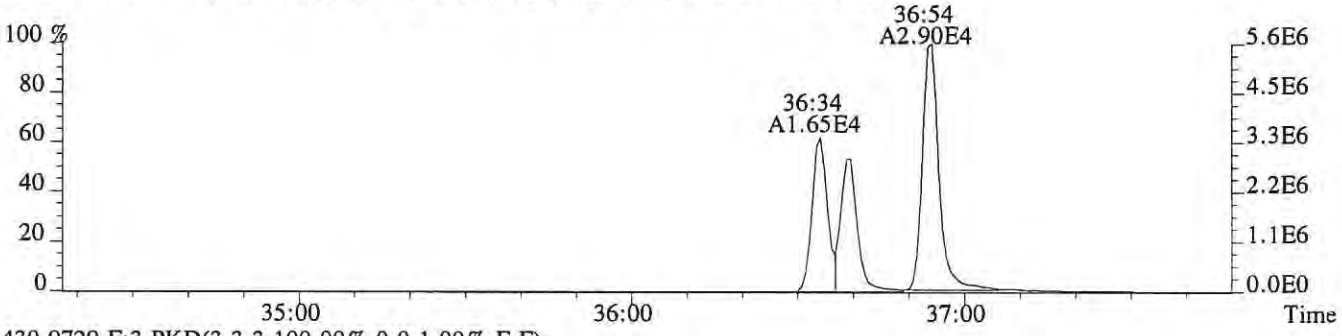
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



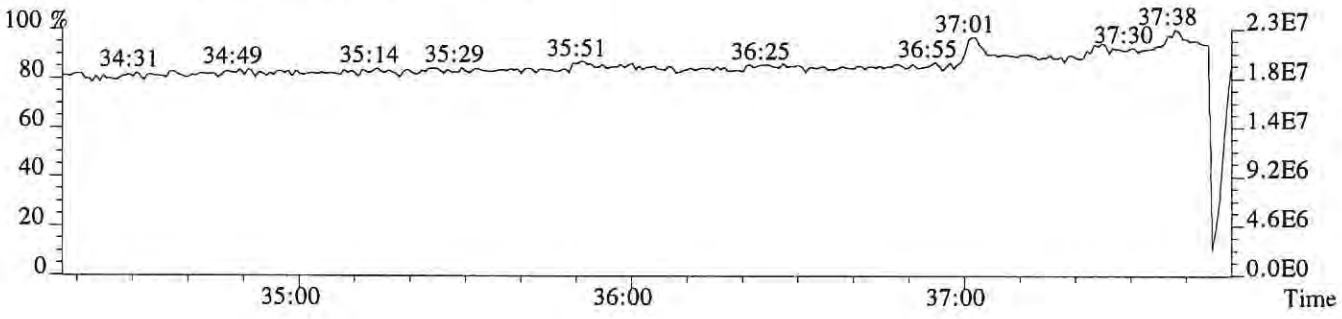
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



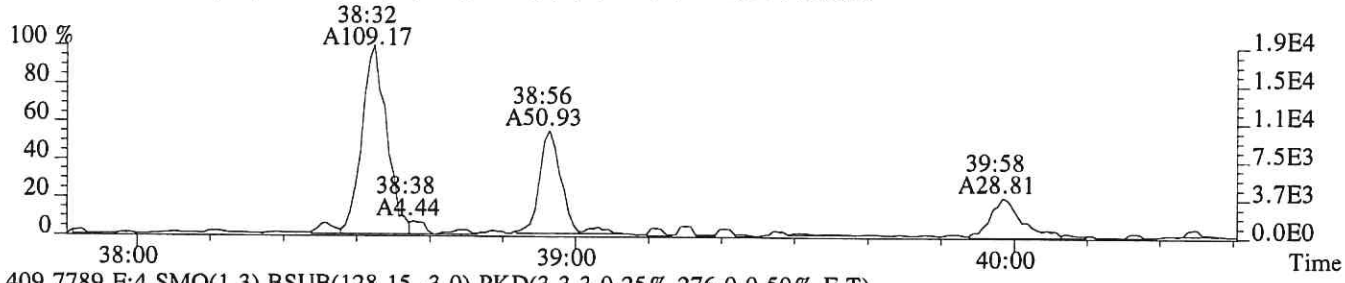
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)



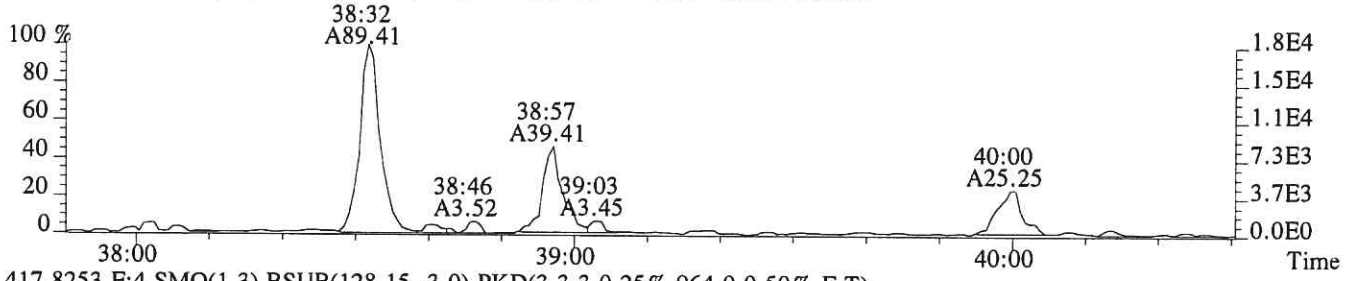
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



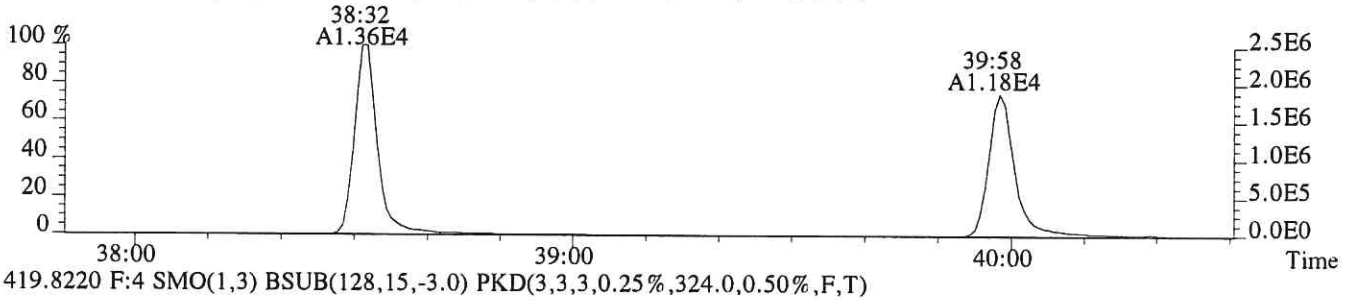
File:P519345 #1-241 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.50%,F,T)



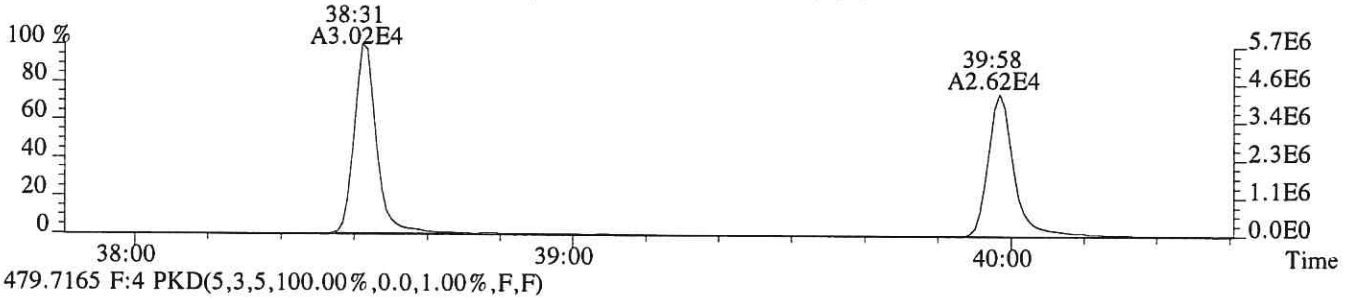
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.50%,F,T)



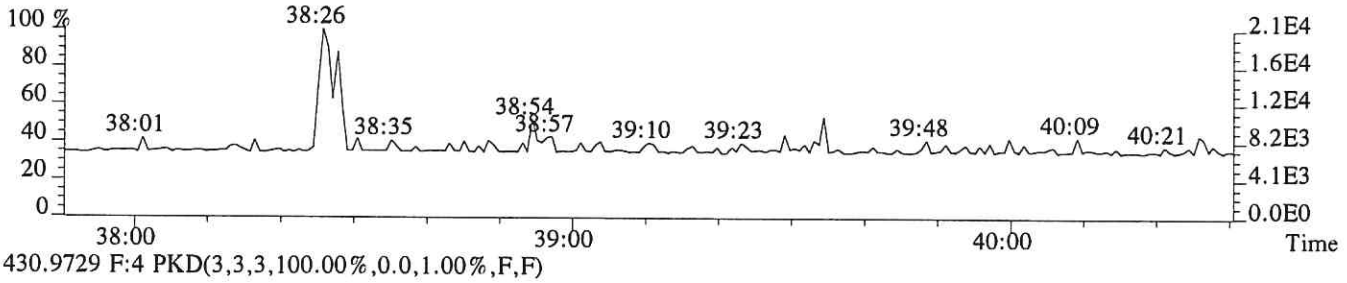
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.50%,F,T)



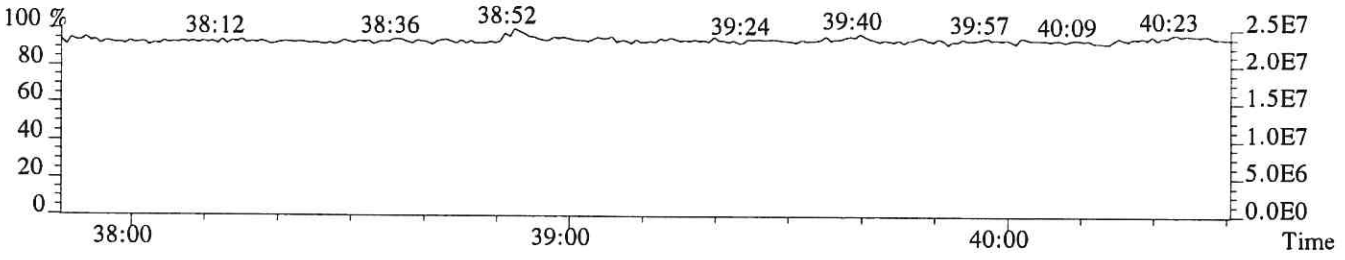
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.50%,F,T)



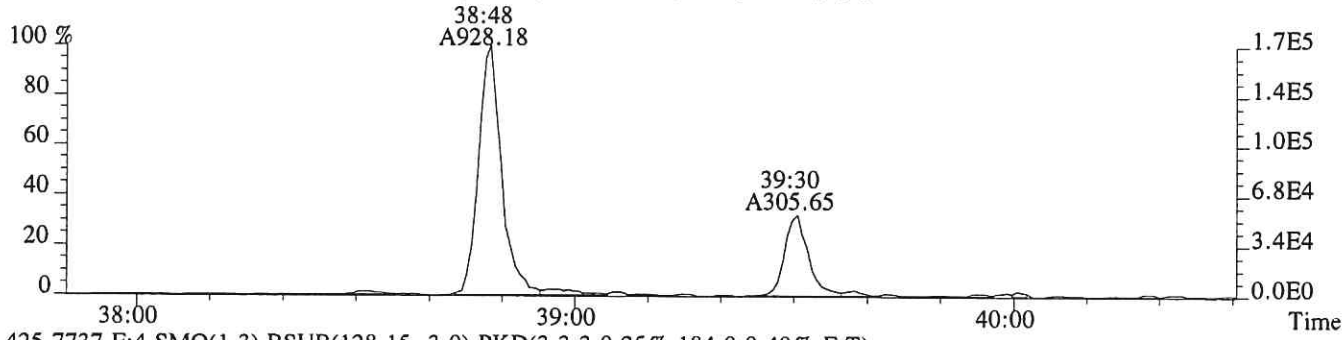
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



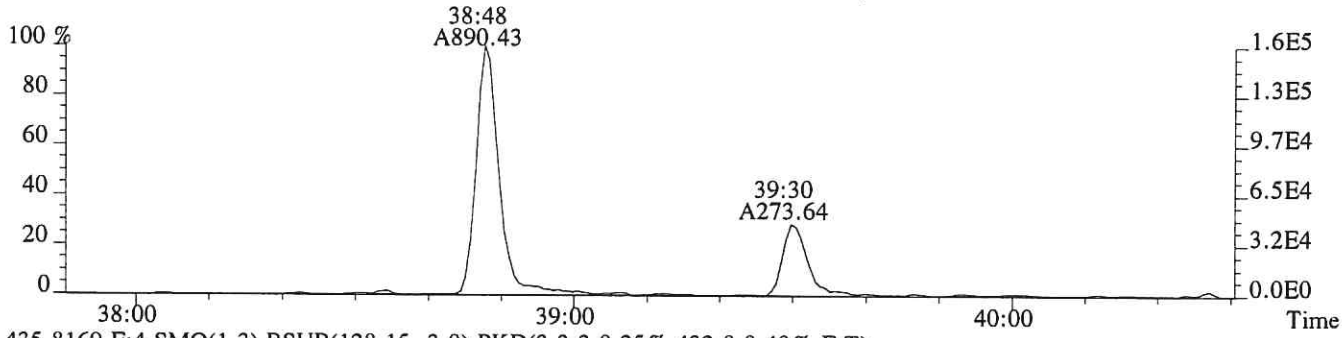
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



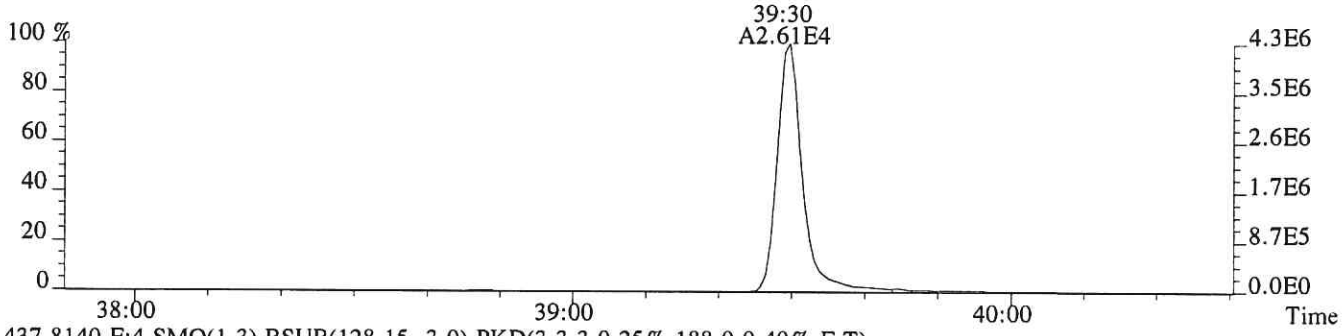
File:P519345 #1-241 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



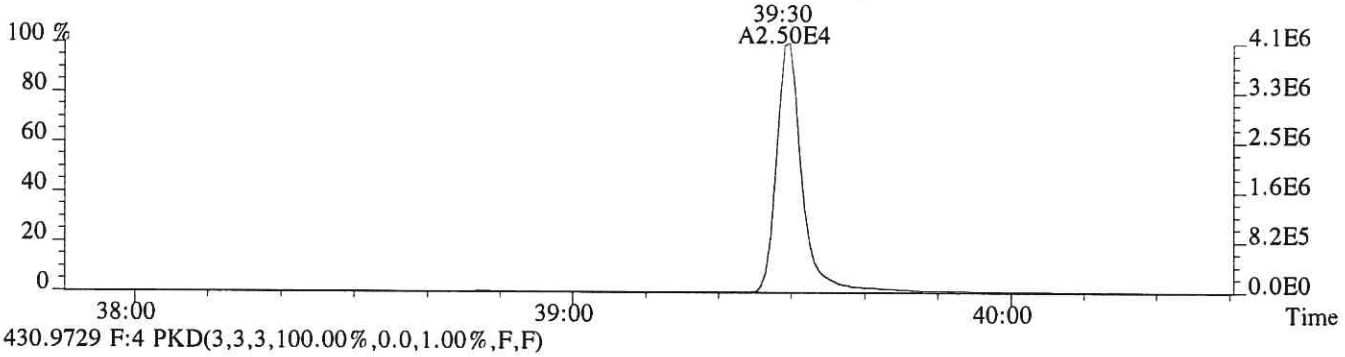
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



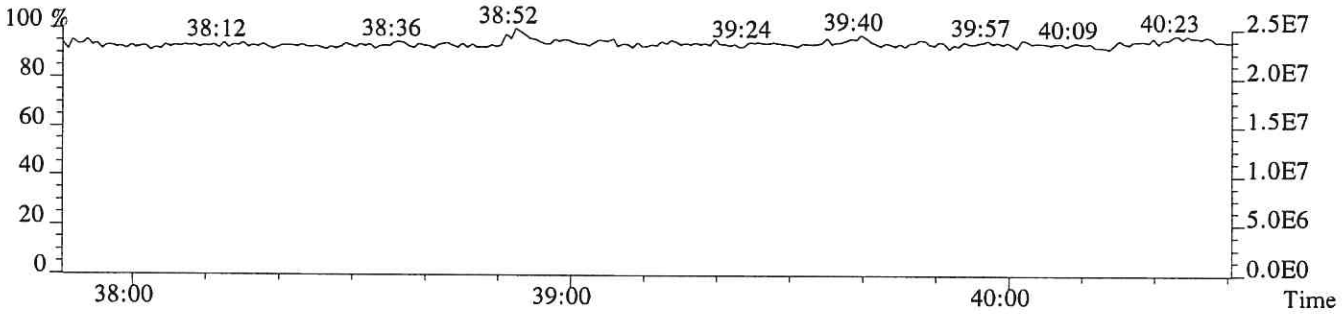
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)

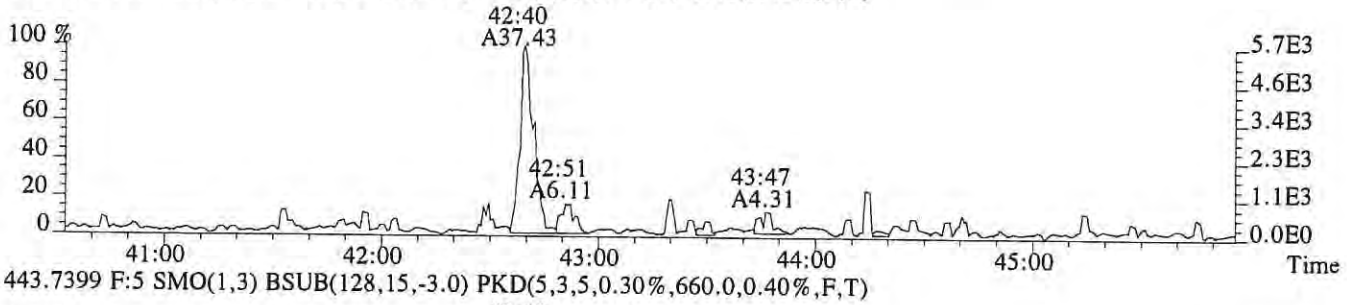


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

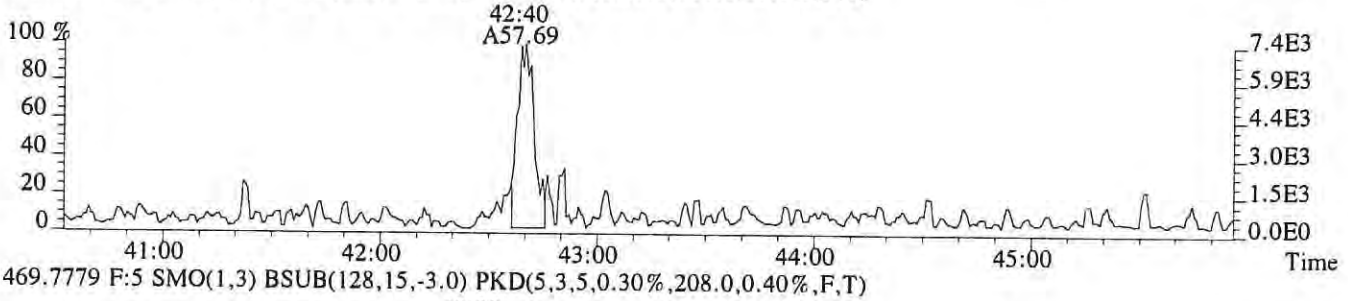


File:P519345 #1-485 Acq:11-DEC-2018 06:06:16 Probe El+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017

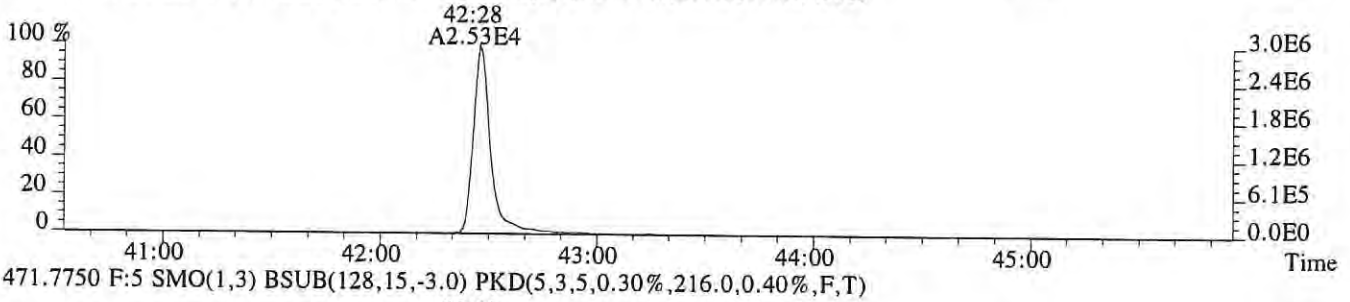
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



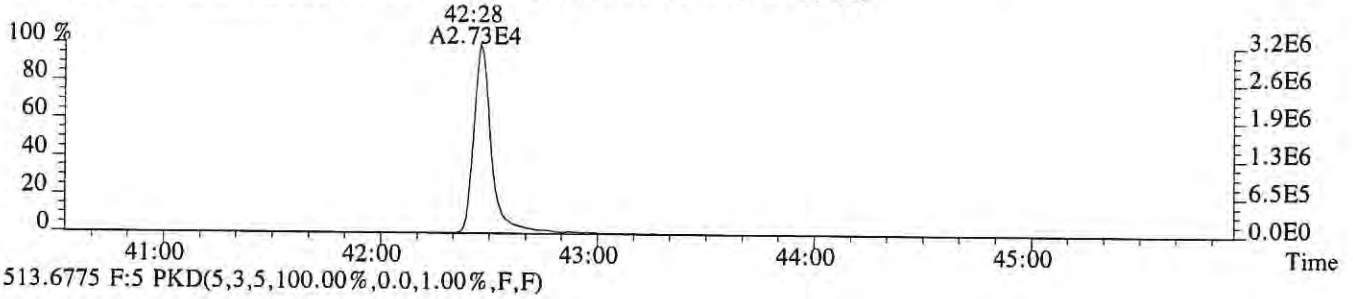
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



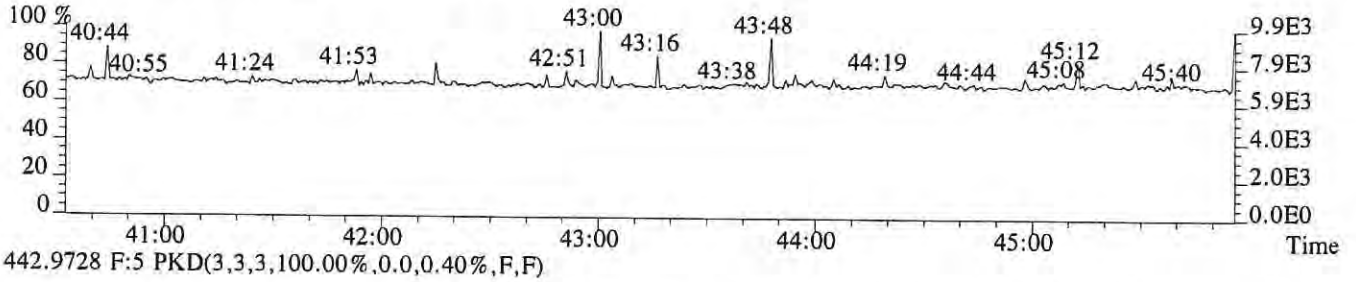
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



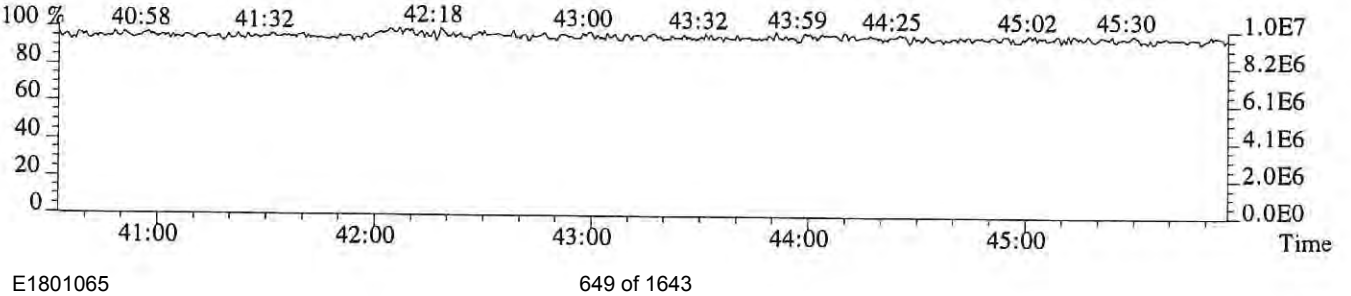
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



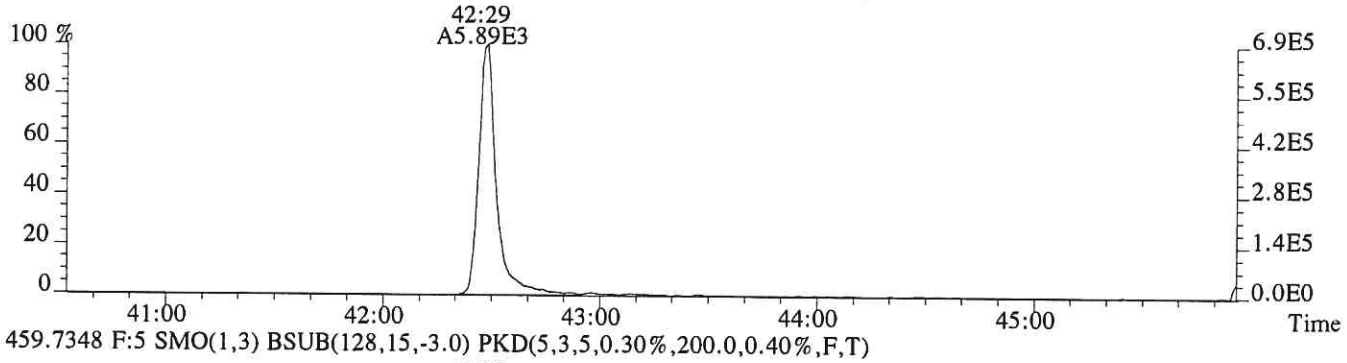
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



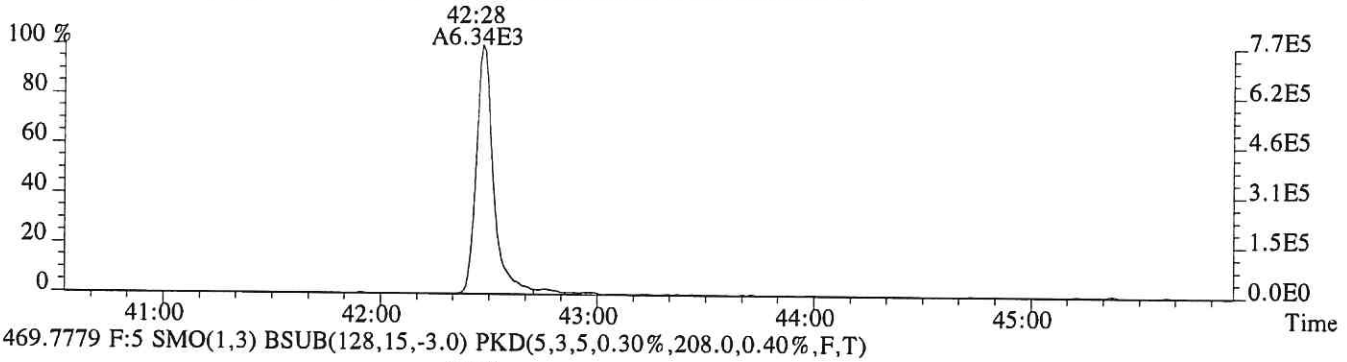
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



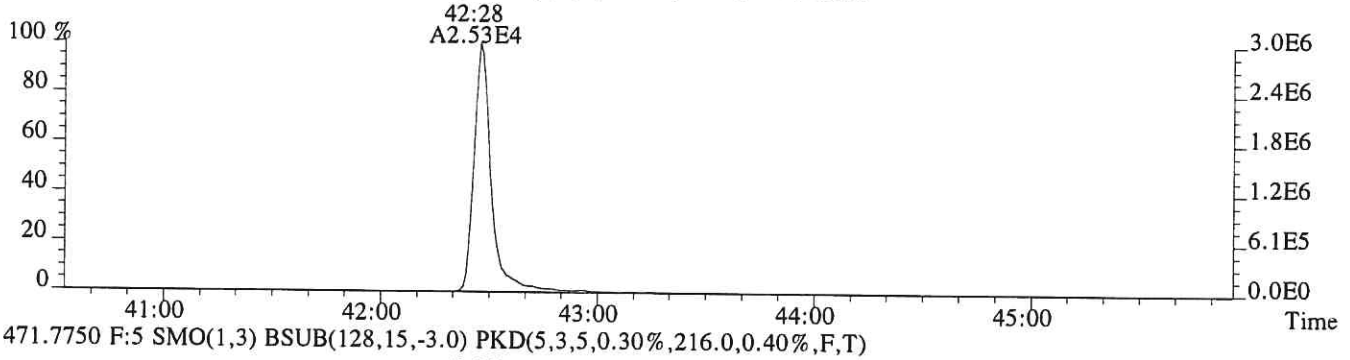
File:P519345 #1-485 Acq:11-DEC-2018 06:06:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



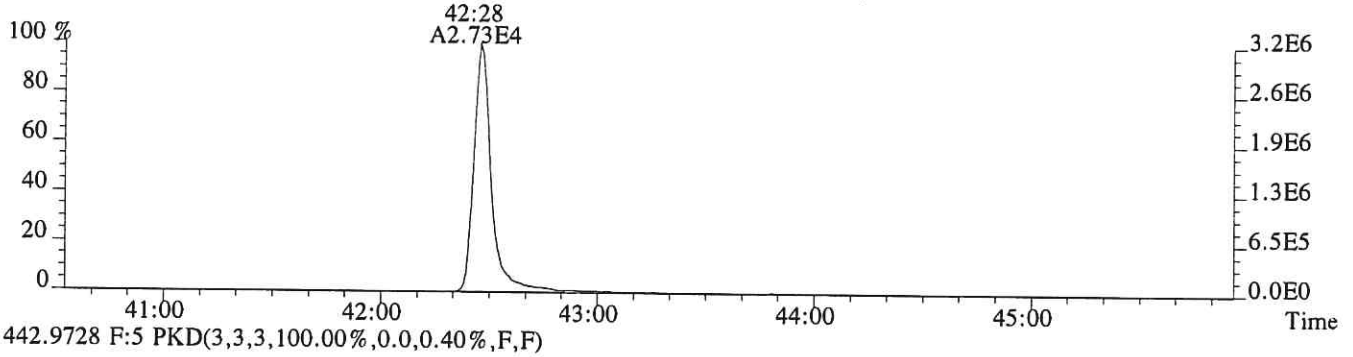
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



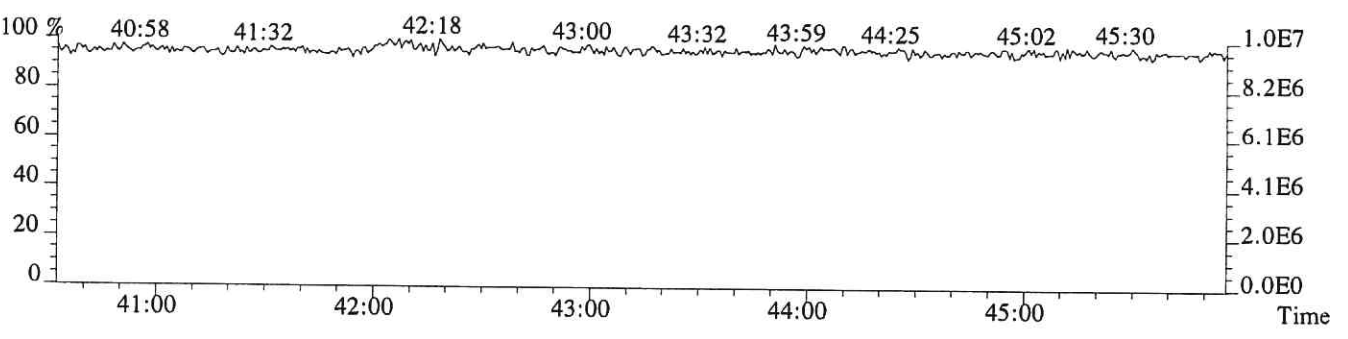
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0567

Run #18 Filename P519346 Samp: 1 Inj: 1 Acquired: 11-DEC-18 06:56:26
Processed: 12-DEC-18 13:51:01 Sample ID: E1801065-018

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	2.273e+03	3.050e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.617e+02	1.170e+02	1.38	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.270e+02	1.065e+02	1.19	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:47	2.437e+02	1.762e+02	1.38	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:54	6.380e+01	5.857e+01	1.09	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	8.911e+00	1.745e+01	0.51	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	1.256e+01	1.248e+01	1.01	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	6.499e+01	7.421e+01	0.88	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	1.971e+01	1.509e+01	1.31	no	no	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	5.596e+02	7.398e+02	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.984e+01	1.262e+01	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.545e+01	6.573e+00	2.35	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	2.887e+01	8.307e+00	3.48	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	3.565e+02	3.466e+02	1.03	yes	no	1.025
17	Unk	OCDD	42:28	6.321e+03	7.243e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	2.117e+04	2.679e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	4.432e+04	2.785e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	4.231e+04	2.671e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.019e+04	3.899e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:53	2.542e+04	4.857e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.283e+04	4.370e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	2.289e+04	4.351e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	1.717e+04	3.879e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.560e+04	3.529e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.675e+03	1.219e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	3.085e+04	1.951e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.880e+04	2.282e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.924e+04	2.272e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	3.391e+04	3.180e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:27	3.307e+04	3.632e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	3.083e+04	3.869e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	4.437e+04	3.507e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.444e+04				no	1.014

$$\text{OCDD} = \frac{(6.321e+03 + 7.243e+03) \times 4000\ \text{pg} \times 1}{(3.307e+04 + 3.632e+04) \times 10.722\ \text{g} \times 80.6/100 \times 1.118} = 80.9\ \text{ng/kg}$$

LMW 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0567

Run #18 Filename P519346 Samp: 1 Inj: 1 Acquired: 11-DEC-18 06:56:26
Processed: 12-DEC-18 13:51:01 LAB. ID: E1801065-018

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.51e+05	4.28e+02	8.2e+02	4.86e+05	1.66e+03	2.9e+02
2	1,2,3,7,8-PeCDF	3.27e+04	4.64e+02	7.1e+01	2.28e+04	6.48e+02	3.5e+01
3	2,3,4,7,8-PeCDF	2.06e+04	4.64e+02	4.4e+01	1.69e+04	6.48e+02	2.6e+01
4	1,2,3,4,7,8-HxCDF	4.81e+04	3.76e+02	1.3e+02	3.25e+04	3.16e+02	1.0e+02
5	1,2,3,6,7,8-HxCDF	1.08e+04	3.76e+02	2.9e+01	9.53e+03	3.16e+02	3.0e+01
6	2,3,4,6,7,8-HxCDF	2.31e+03	3.76e+02	6.1e+00	4.15e+03	3.16e+02	1.3e+01
7	1,2,3,7,8,9-HxCDF	3.96e+03	3.76e+02	1.1e+01	2.70e+03	3.16e+02	8.5e+00
8	1,2,3,4,6,7,8-HpCDF	1.22e+04	5.08e+02	2.4e+01	1.51e+04	3.60e+02	4.2e+01
9	1,2,3,4,7,8,9-HpCDF	3.28e+03	5.08e+02	6.4e+00	3.04e+03	3.60e+02	8.4e+00
10	OCDF	*	2.96e+02	*	*	4.84e+02	*
11	2,3,7,8-TCDD	1.08e+05	2.30e+03	4.7e+01	1.38e+05	9.44e+02	1.5e+02
12	1,2,3,7,8-PeCDD	2.95e+03	5.24e+02	5.6e+00	2.56e+03	2.48e+02	1.0e+01
13	1,2,3,4,7,8-HxCDD	*	1.44e+02	*	*	4.80e+02	*
14	1,2,3,6,7,8-HxCDD	3.12e+03	1.44e+02	2.2e+01	2.01e+03	4.80e+02	4.2e+00
15	1,2,3,7,8,9-HxCDD	5.86e+03	1.44e+02	4.1e+01	1.57e+03	4.80e+02	3.3e+00
16	1,2,3,4,6,7,8-HpCDD	5.86e+04	2.04e+02	2.9e+02	5.83e+04	1.96e+02	3.0e+02
17	OCDD	7.26e+05	1.92e+02	3.8e+03	8.04e+05	2.48e+02	3.2e+03
18	13C-2,3,7,8-TCDF	3.79e+06	9.16e+03	4.1e+02	4.80e+06	6.62e+03	7.3e+02
19	13C-1,2,3,7,8-PeCDF	8.02e+06	5.88e+02	1.4e+04	5.17e+06	6.16e+02	8.4e+03
20	13C-2,3,4,7,8-PeCDF	8.20e+06	5.88e+02	1.4e+04	5.21e+06	6.16e+02	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.25e+06	6.76e+02	6.3e+03	8.22e+06	1.12e+03	7.3e+03
22	13C-1,2,3,6,7,8-HxCDF	4.90e+06	6.76e+02	7.3e+03	9.39e+06	1.12e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	4.67e+06	6.76e+02	6.9e+03	8.83e+06	1.12e+03	7.9e+03
24	13C-1,2,3,7,8,9-HxCDF	4.13e+06	6.76e+02	6.1e+03	7.99e+06	1.12e+03	7.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.11e+06	5.47e+03	5.7e+02	6.98e+06	6.58e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.49e+06	5.47e+03	4.5e+02	5.59e+06	6.58e+03	8.5e+02
27	13C-2,3,7,8-TCDD	1.80e+06	7.50e+03	2.4e+02	2.27e+06	1.83e+03	1.2e+03
28	13C-1,2,3,7,8-PeCDD	5.98e+06	1.02e+03	5.9e+03	3.74e+06	4.56e+02	8.2e+03
29	13C-1,2,3,4,7,8-HxCDD	6.10e+06	1.50e+03	4.1e+03	4.81e+06	5.36e+02	9.0e+03
30	13C-1,2,3,6,7,8-HxCDD	5.72e+06	1.50e+03	3.8e+03	4.46e+06	5.36e+02	8.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.59e+06	4.20e+02	1.3e+04	5.23e+06	3.36e+02	1.6e+04
32	13C-OCDD	3.71e+06	5.60e+02	6.6e+03	4.17e+06	2.44e+02	1.7e+04
33	13C-1,2,3,4-TCDD	5.78e+06	7.50e+03	7.7e+02	7.36e+06	1.83e+03	4.0e+03
34	13C-1,2,3,7,8,9-HxCDD	8.32e+06	1.50e+03	5.6e+03	6.52e+06	5.36e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	2.73e+06	5.60e+02	4.9e+03			

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Peak List Summary

CLIENT ID.
SL0567

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P519346 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 06:56:26 Processed: 12-DEC-18 13:51:01

Mass: 303.9020 305.8990 Tot Response: 9.02e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:58	1.14e+02	1.36e+02	0.84	yes	2.49e+02		n	n
2	26:21	5.12e+01	5.94e+01	0.86	yes	1.11e+02		n	n
3	26:55	9.96e+02	1.29e+03	0.77	yes	2.28e+03		n	n
4	27:11	5.67e+01	8.03e+01	0.71	yes	1.37e+02		n	n
5	27:45	2.27e+03	3.05e+03	0.75	yes	5.32e+03	2,3,7,8-TCDF	n	n
6	28:06	1.93e+02	2.32e+02	0.83	yes	4.25e+02		n	n
7	29:39	2.22e+02	2.72e+02	0.82	yes	4.94e+02		n	n

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Peak List Summary

CLIENT ID.
SL0567

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P519346 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 06:56:26 Processed: 12-DEC-18 13:51:01

Mass: 319.8970 321.8940 Tot Response: 1.92e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:35	1.93e+02	2.57e+02	0.75	yes	4.50e+02		n	n
2	28:34	5.60e+02	7.40e+02	0.76	yes	1.30e+03	2,3,7,8-TCDD	n	n
3	28:53	7.95e+01	9.26e+01	0.86	yes	1.72e+02		n	n

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Peak List Summary

CLIENT ID.
SL0567

Entry: 39 Totals Name: Total Penta-Furans2

Run: 18 File: P519346 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 06:56:26 Processed: 12-DEC-18 13:51:01

Mass: 339.8600 341.8570 Tot Response: 5.12e+02 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:09	6.85e+01	4.73e+01	1.45	yes	1.16e+02		n	n
2	31:56	2.86e+01	1.68e+01	1.70	yes	4.55e+01		n	n
3	32:06	1.62e+02	1.17e+02	1.38	yes	2.79e+02	1,2,3,7,8-PeCDF	n	n
4	32:22	4.30e+01	2.87e+01	1.50	yes	7.17e+01		n	n

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Peak List Summary

CLIENT ID.
SL0567

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P519346 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 06:56:26 Processed: 12-DEC-18 13:51:01

Mass: 355.8550 357.8520 Tot Response: 1.34e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:10	1.09e+01	8.04e+00	1.35	yes	1.89e+01		n	n
2	31:39	4.99e+01	3.27e+01	1.53	yes	8.26e+01		n	n
3	33:20	1.98e+01	1.26e+01	1.57	yes	3.25e+01	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.
SL0567

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P519346 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 06:56:26 Processed: 12-DEC-18 13:51:01

Mass: 373.8210 375.8180 Tot Response: 5.42e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:47	2.44e+02	1.76e+02 1.38	yes	4.20e+02	1,2,3,4,7,8-HxCDF	n	n
2	35:54	6.38e+01	5.86e+01 1.09	yes	1.22e+02	1,2,3,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0567

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P519346 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 06:56:26 Processed: 12-DEC-18 13:51:01

Mass: 389.8160 391.8130 Tot Response: 7.15e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:11	4.05e+02	2.92e+02 1.39	yes	6.97e+02		n	n
2	36:50	1.02e+01	7.27e+00 1.40	yes	1.74e+01		n	n

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Peak List Summary

CLIENT ID.
SL0567

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P519346 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 06:56:26 Processed: 12-DEC-18 13:51:01

Mass: 423.7770 425.7740 Tot Response: 2.90e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	1.13e+03	1.07e+03 1.05	yes	2.20e+03		n	n
2	39:30	3.56e+02	3.47e+02 1.03	yes	7.03e+02	1,2,3,4,6,7,8-HpCDD	n	n

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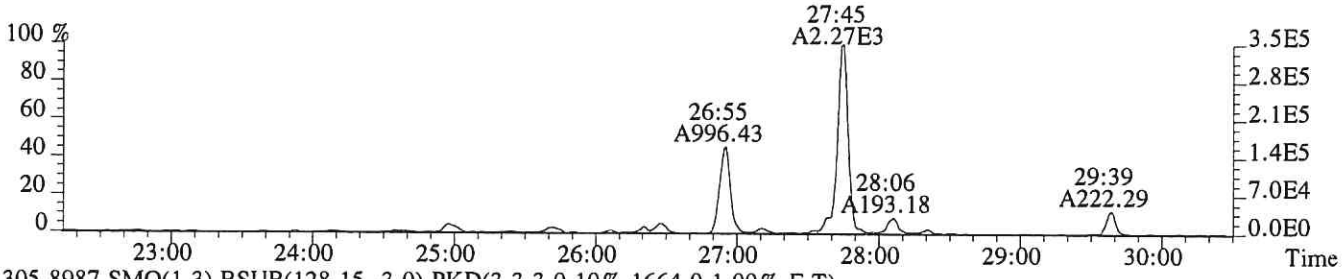
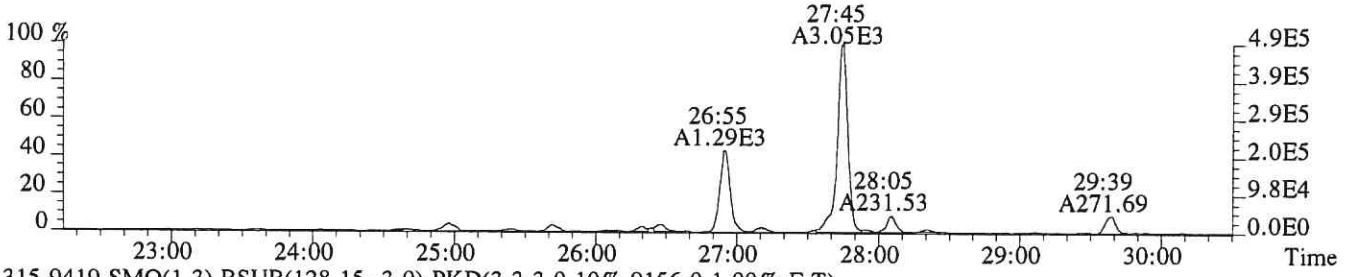
File:P519346 #1-587 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018

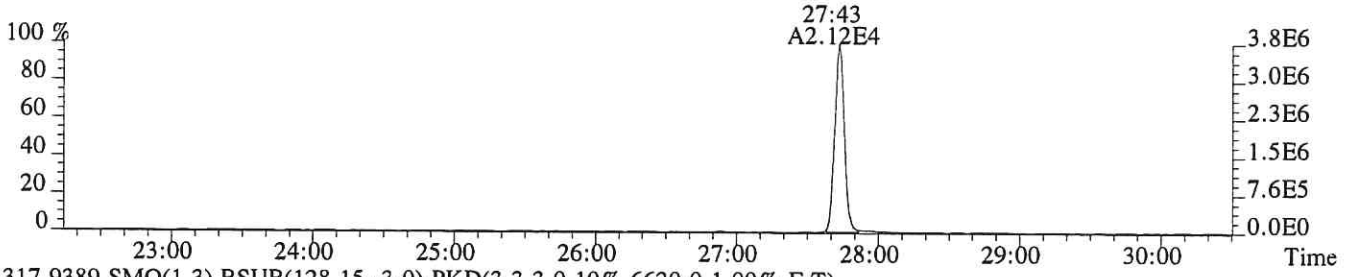
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



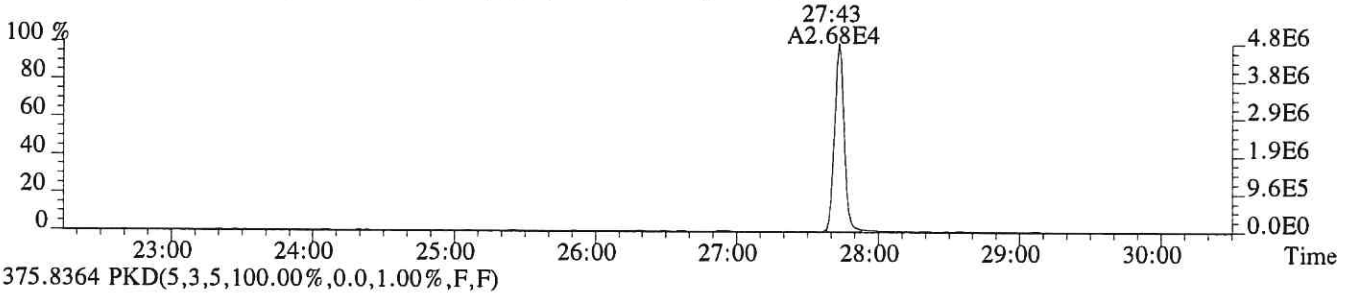
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



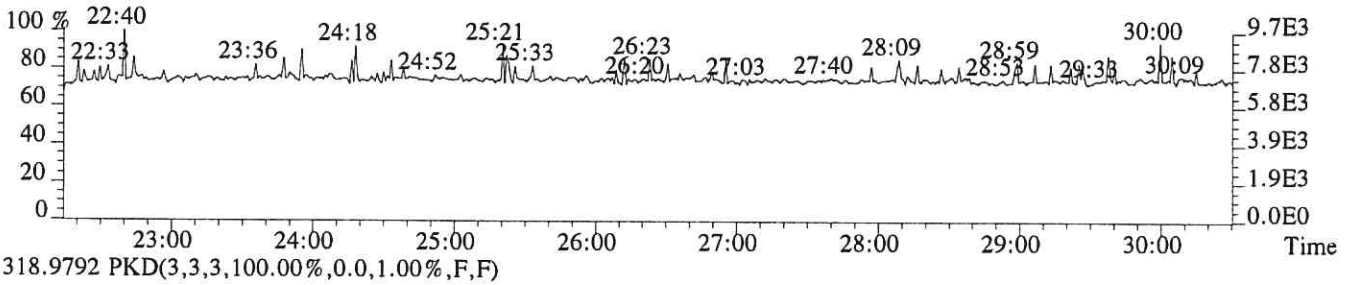
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9156.0,1.00%,F,T)



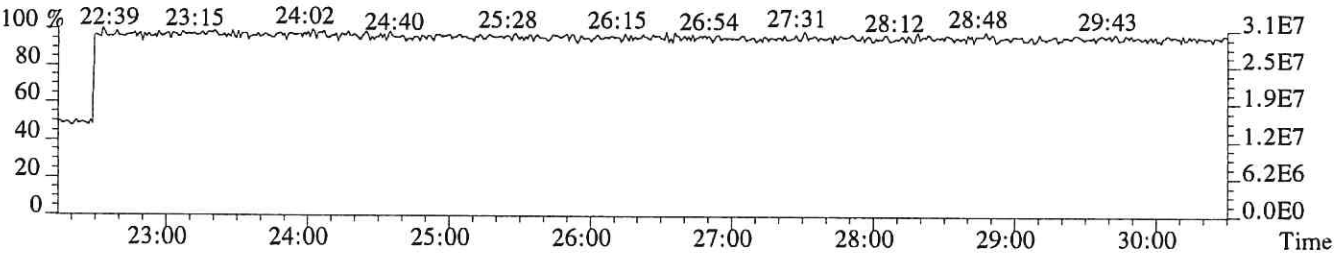
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6620.0,1.00%,F,T)



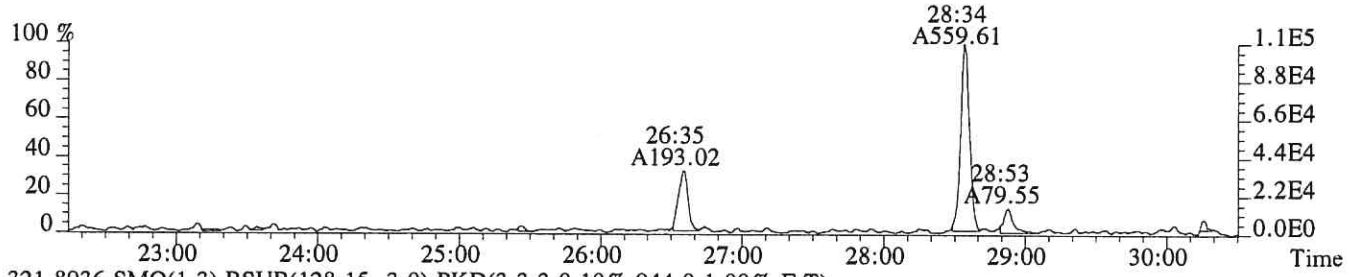
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



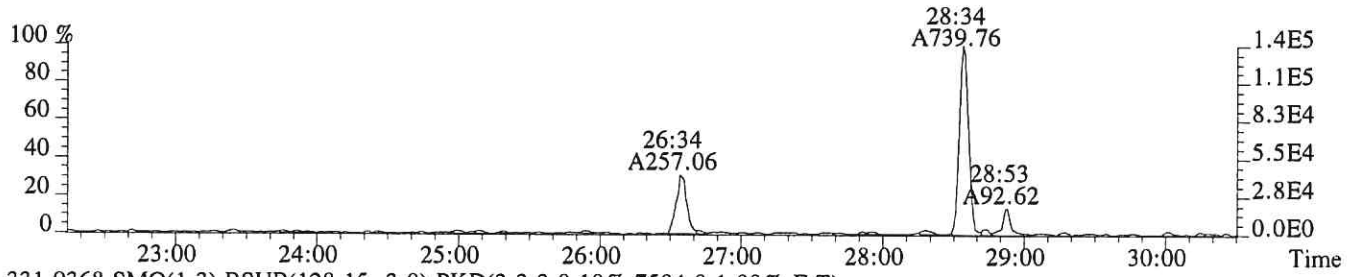
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



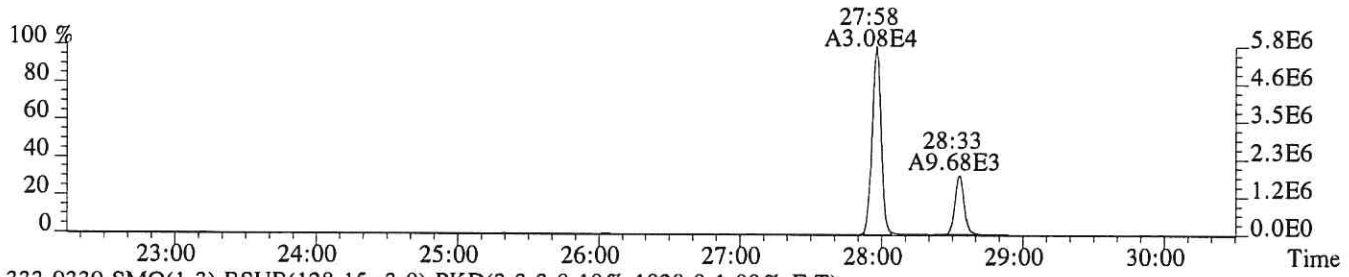
File:P519346 #1-587 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



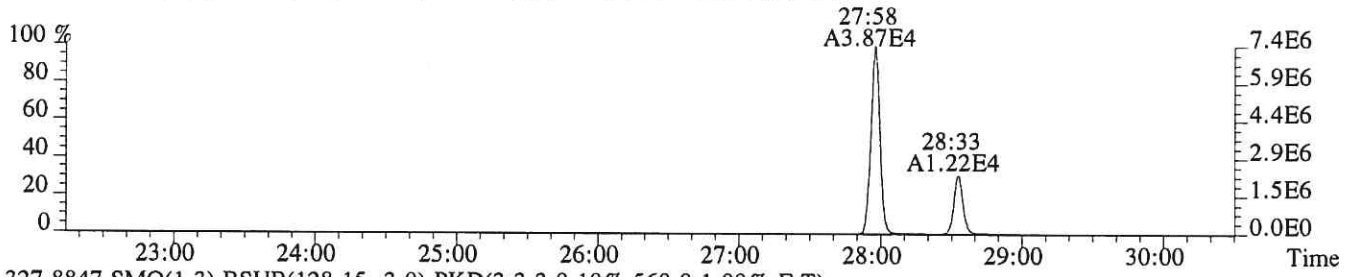
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



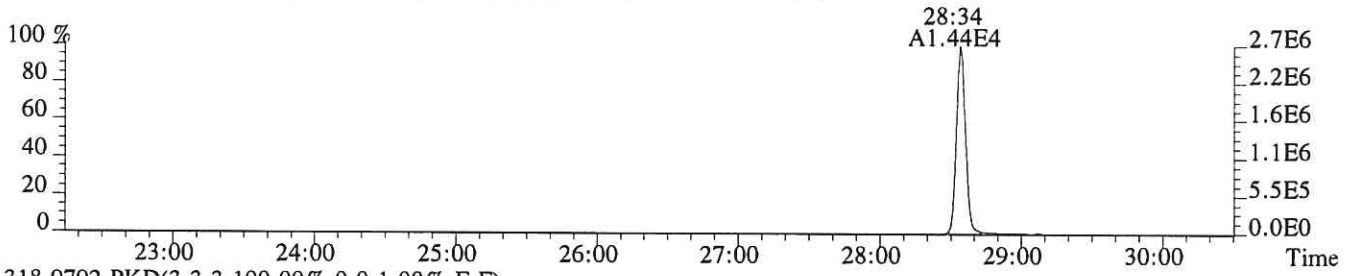
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7504.0,1.00%,F,T)



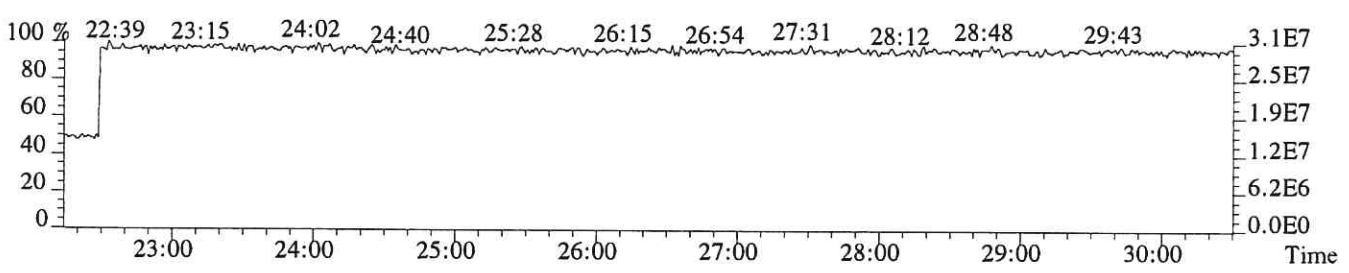
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



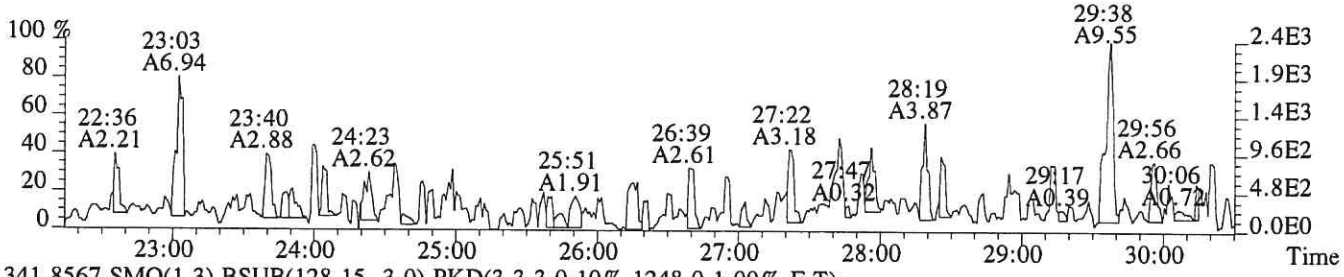
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



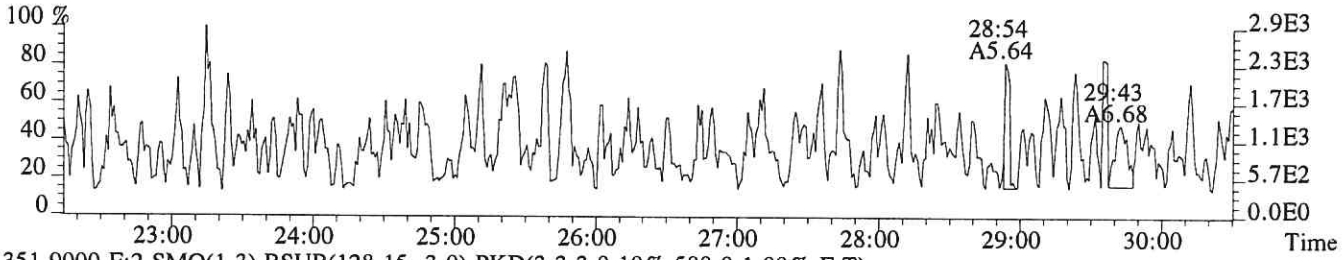
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



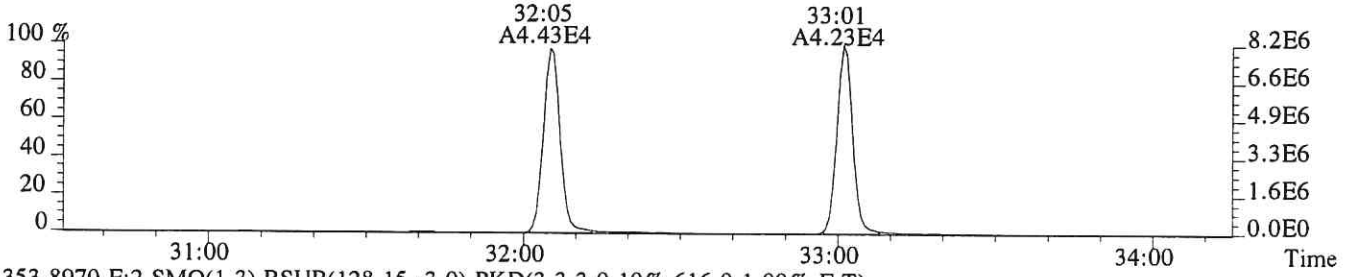
File:P519346 #1-587 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



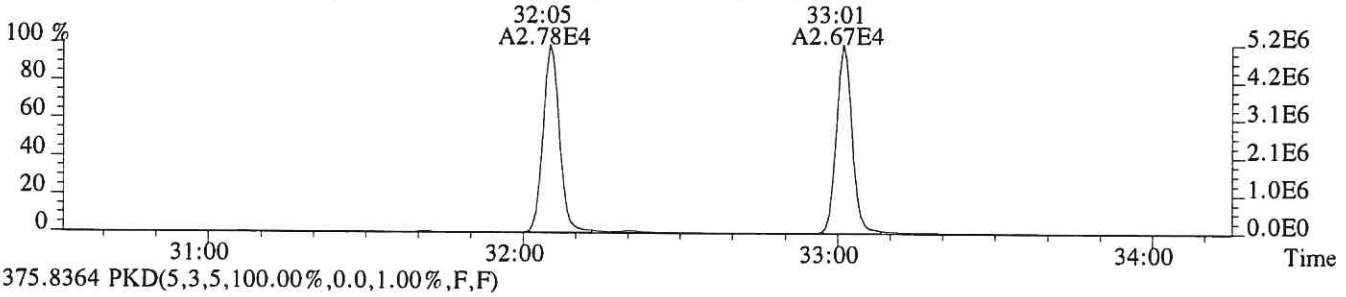
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



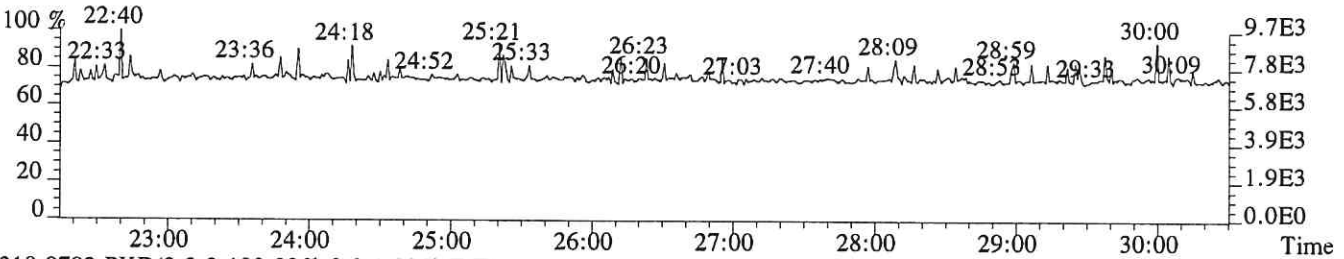
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



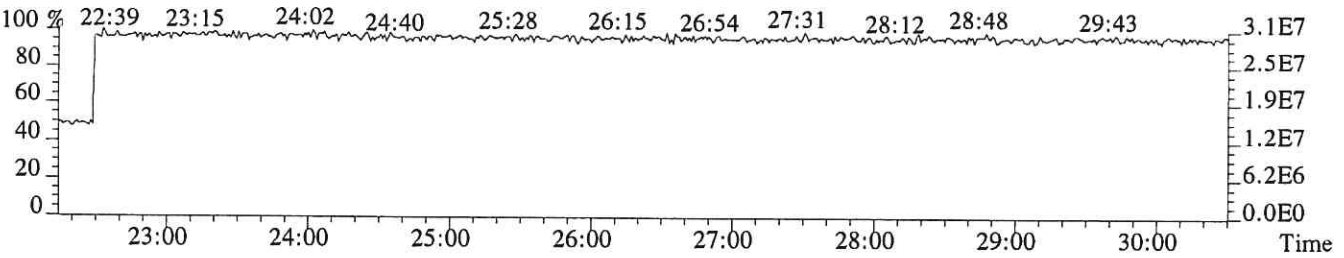
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

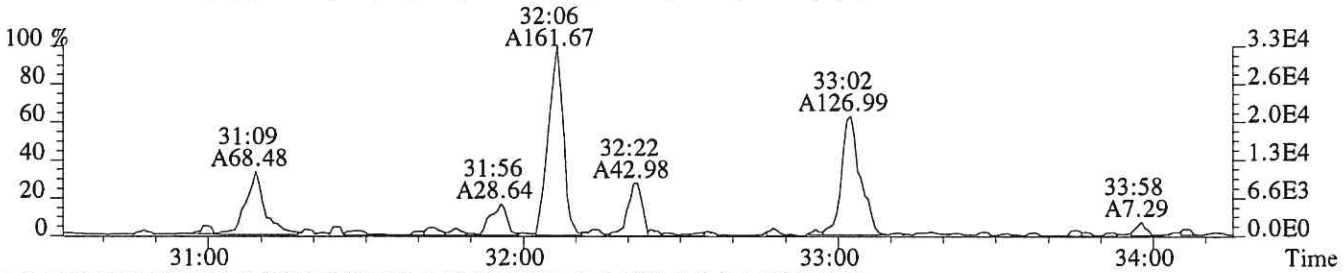


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

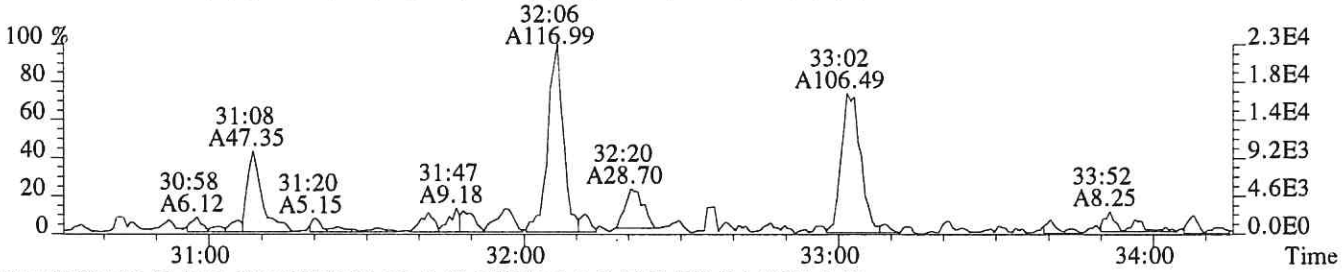


File:P519346 #1-335 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018

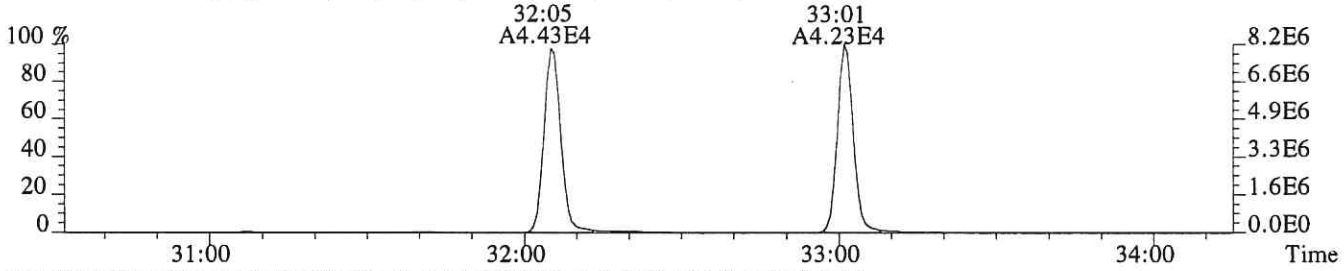
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



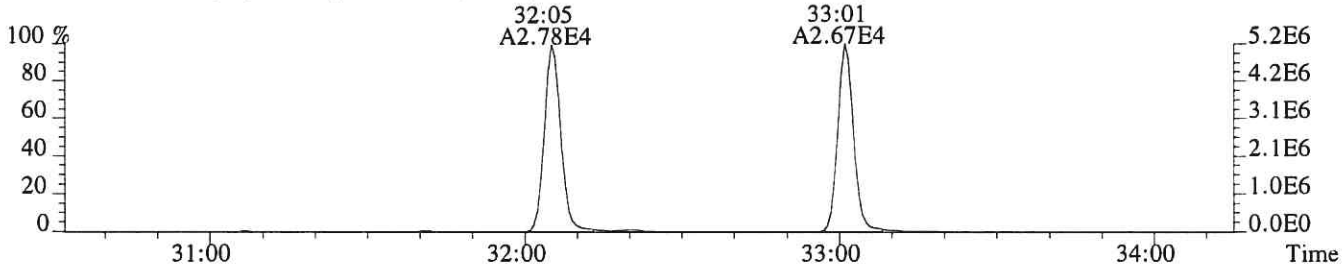
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



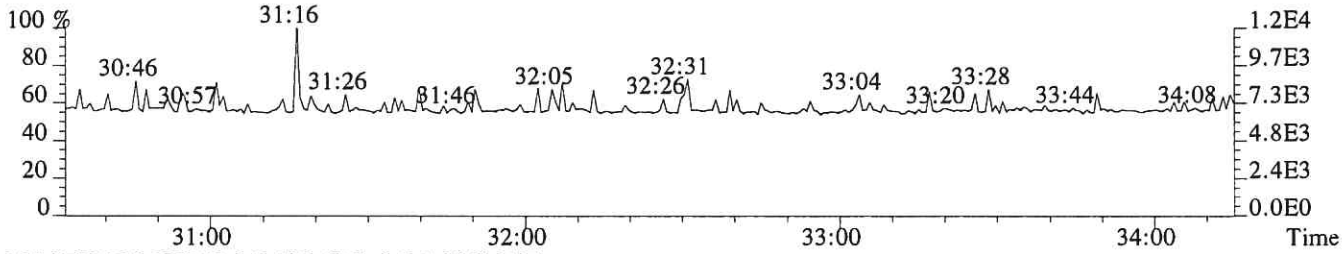
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



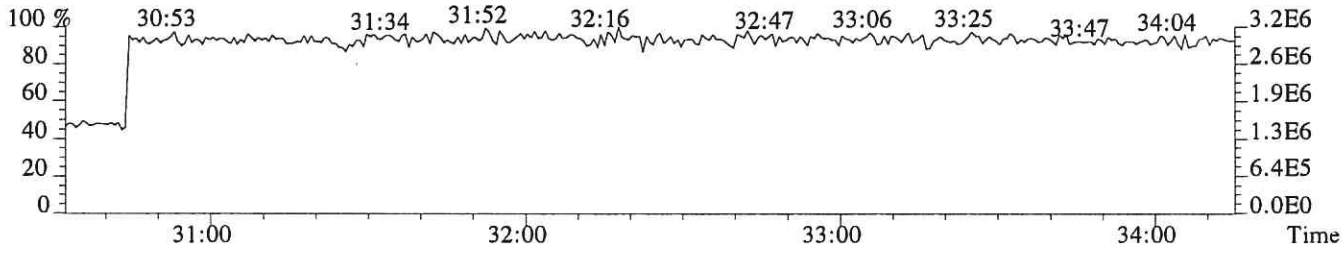
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



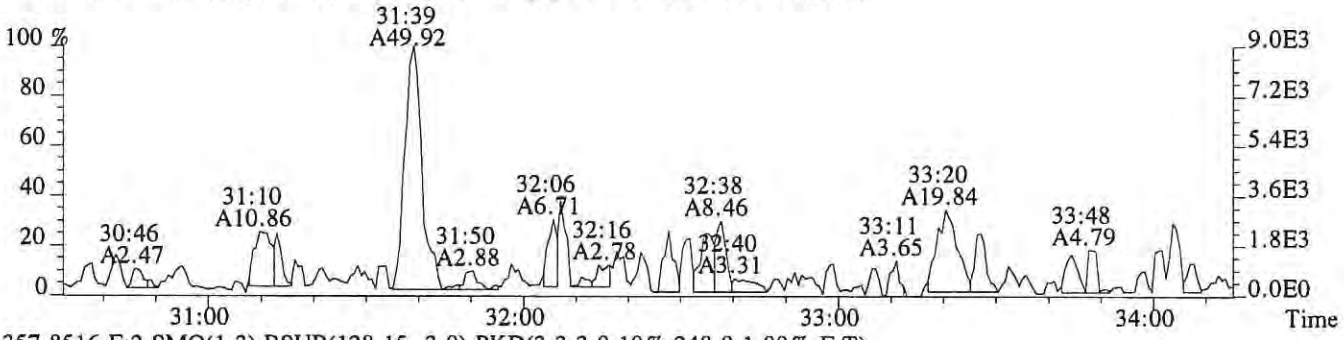
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



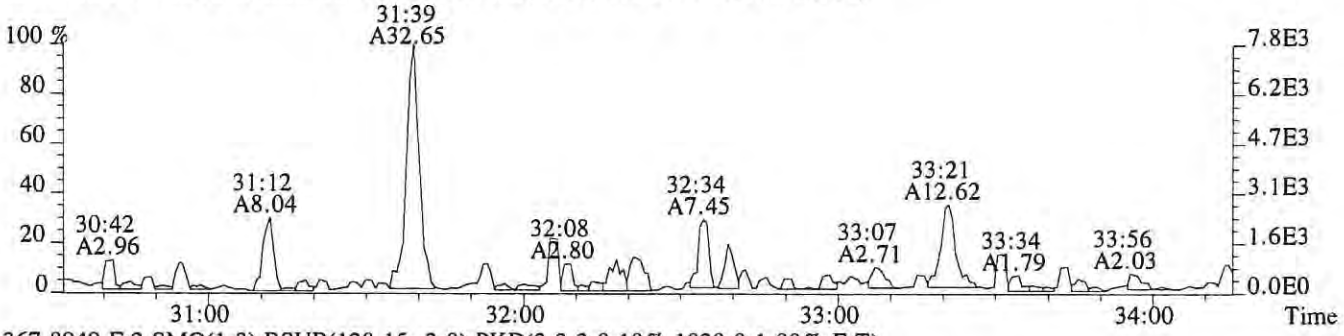
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



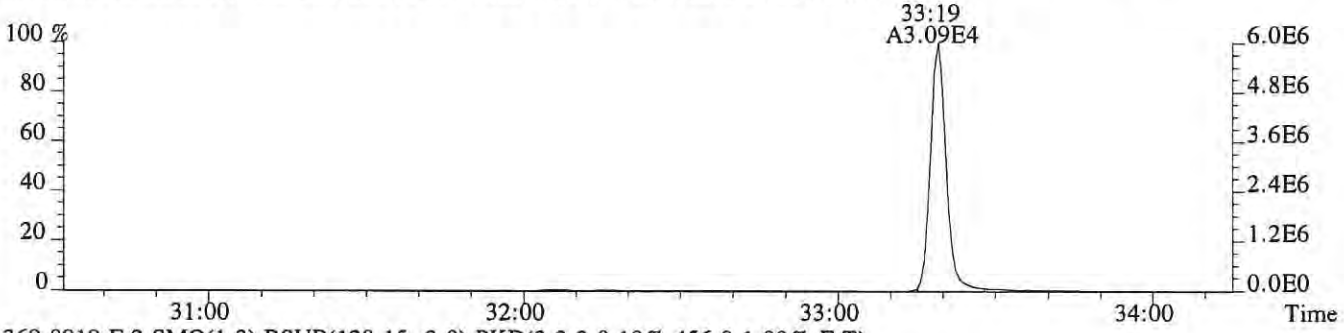
File:P519346 #1-335 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



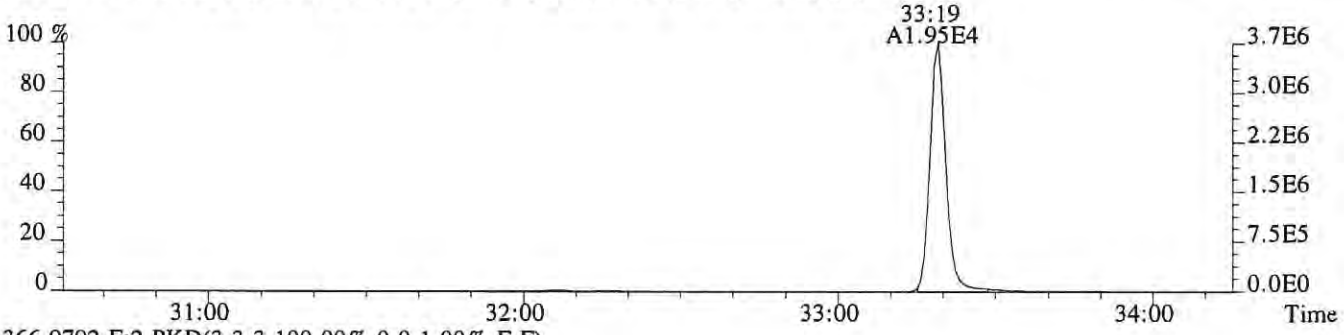
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



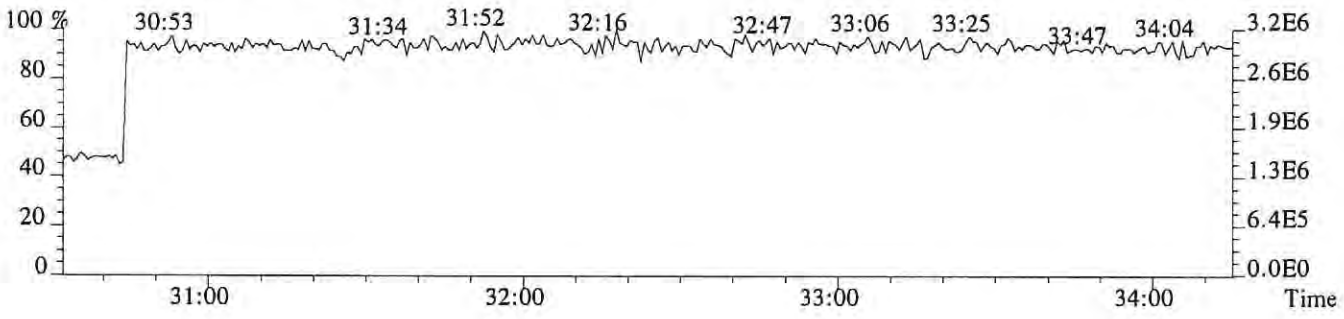
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)

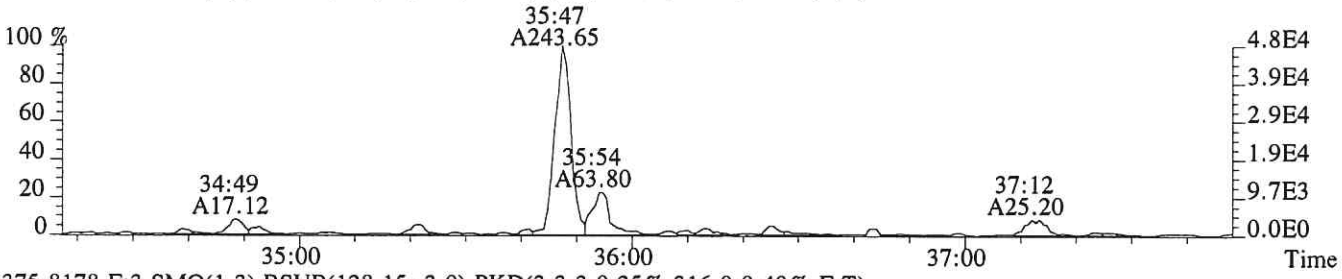


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

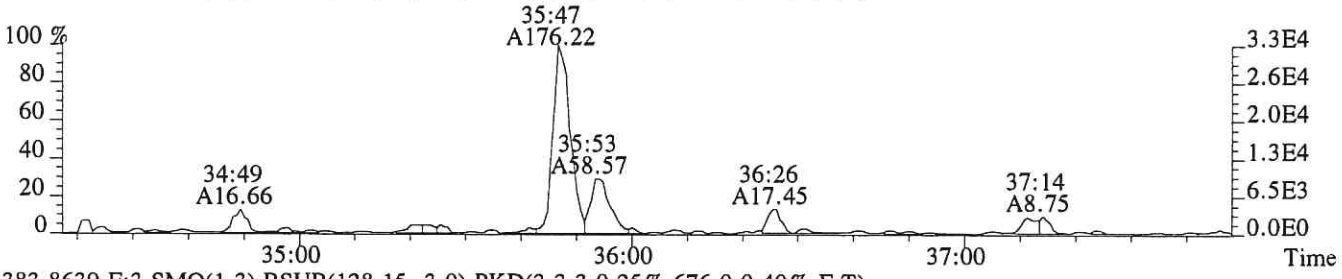


File:P519346 #1-317 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018

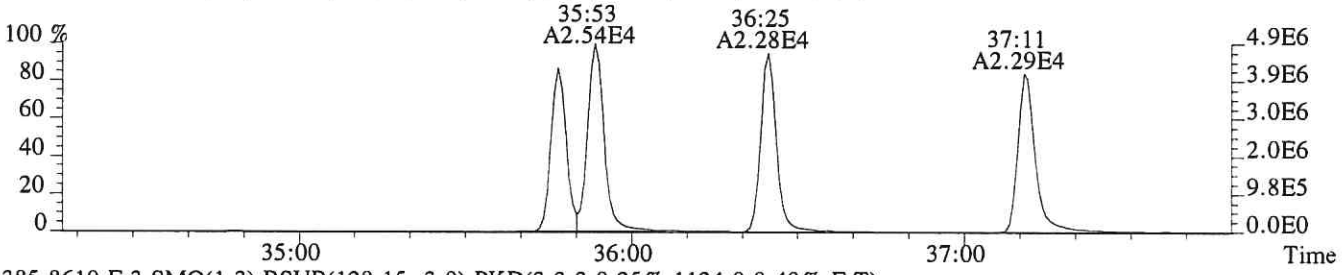
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



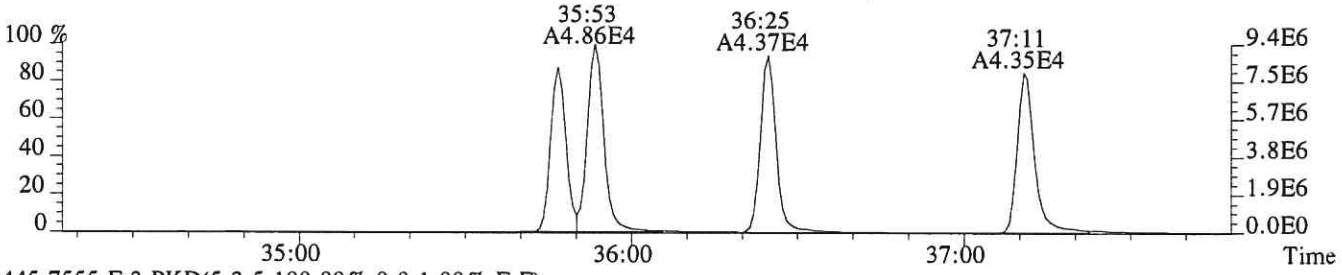
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



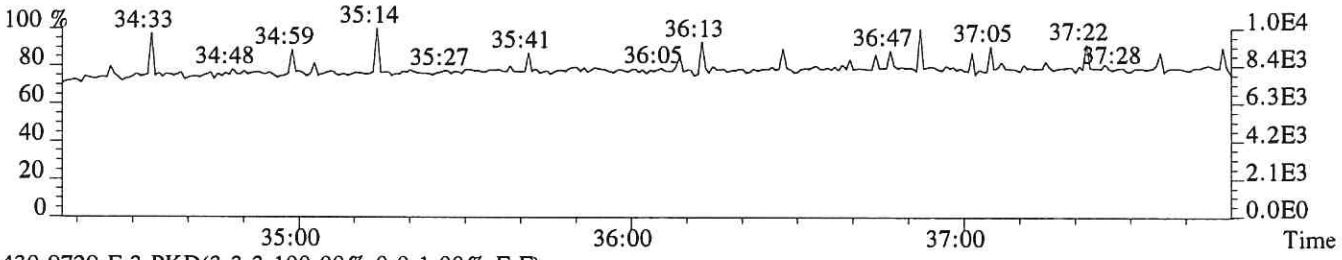
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



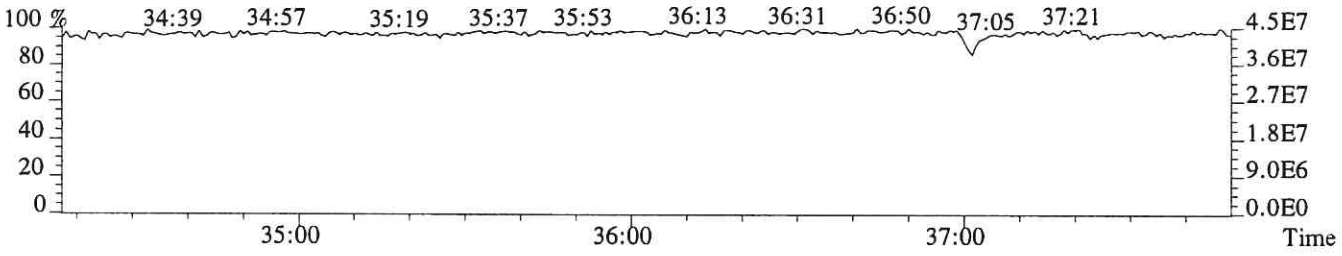
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



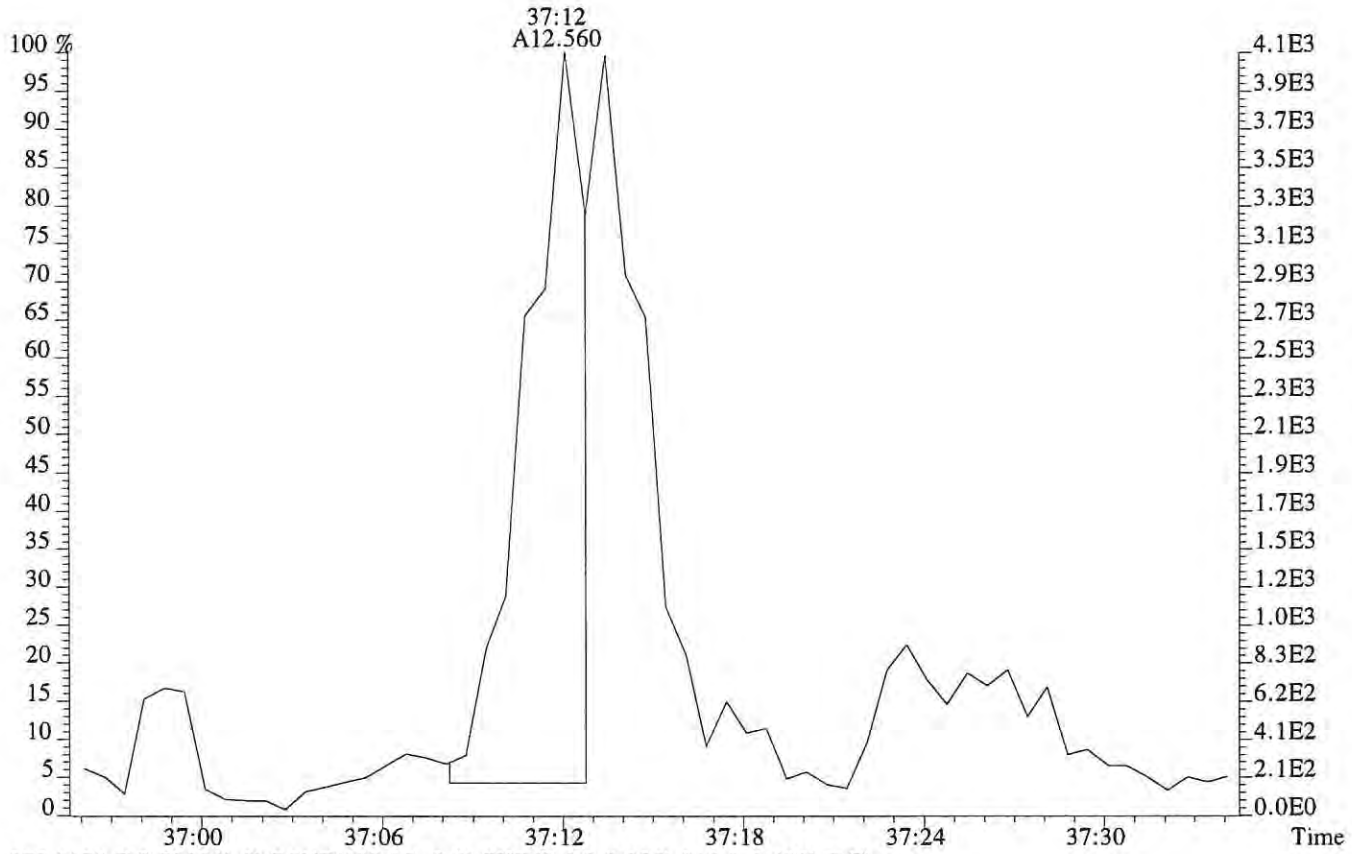
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



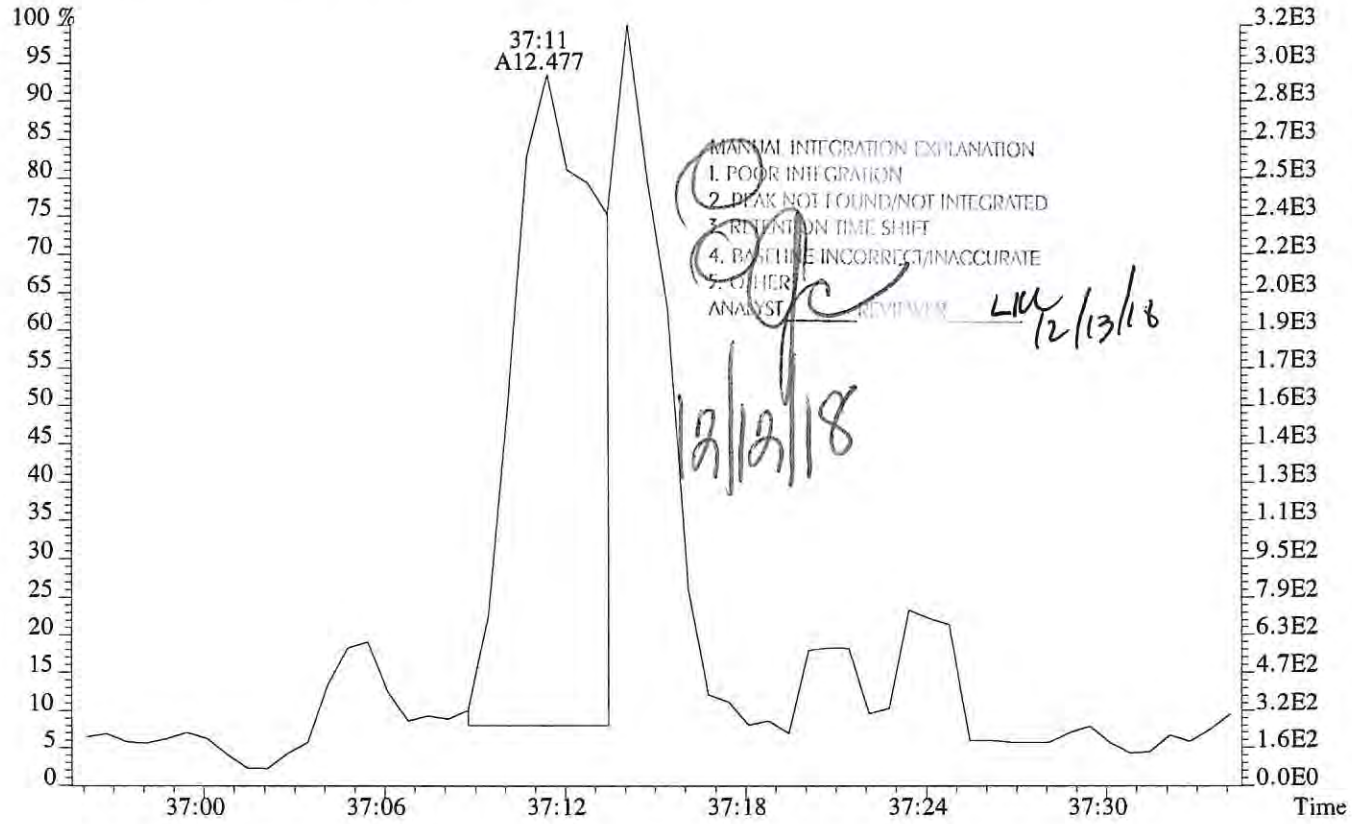
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519346 #1-317 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)

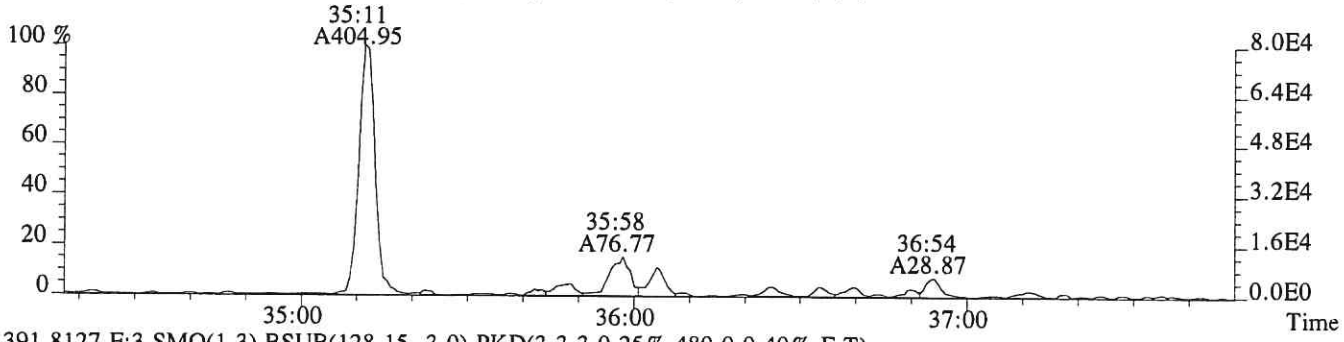


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)

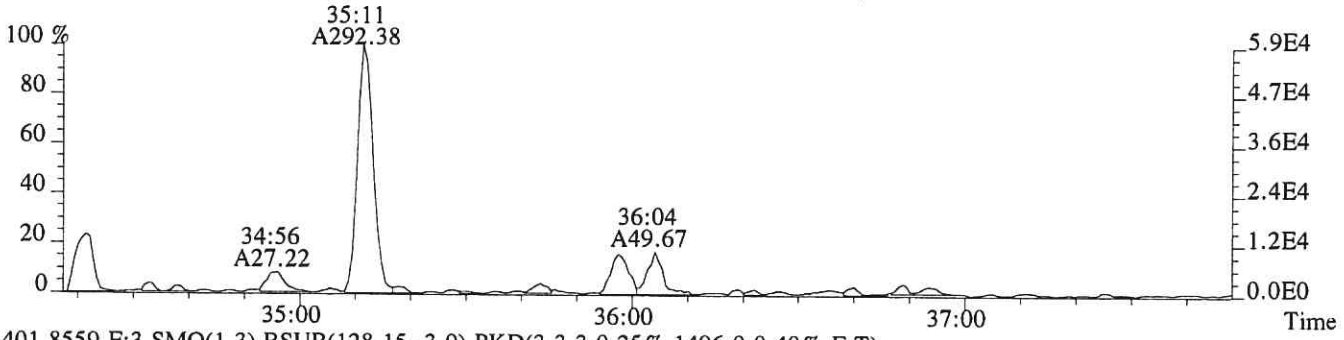


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LM 12/13/18
12/12/18

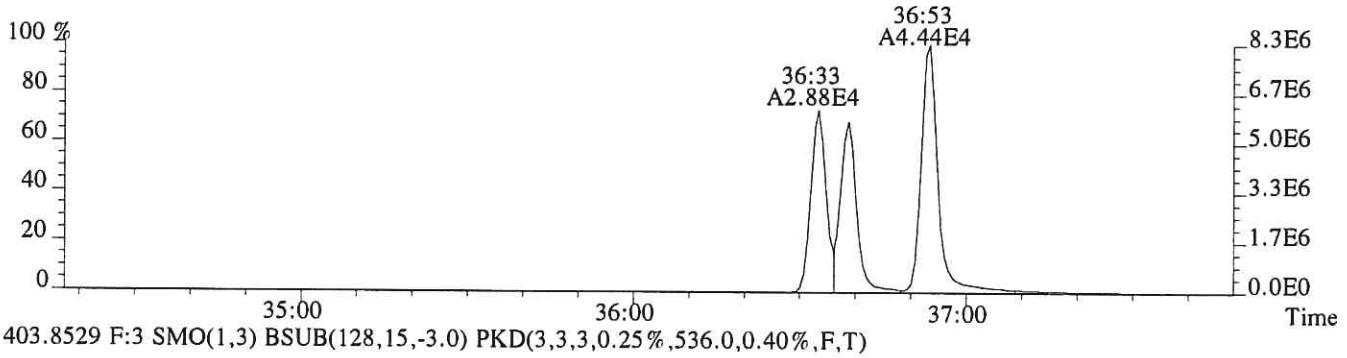
File:P519346 #1-317 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,144.0,0.40%,F,T)



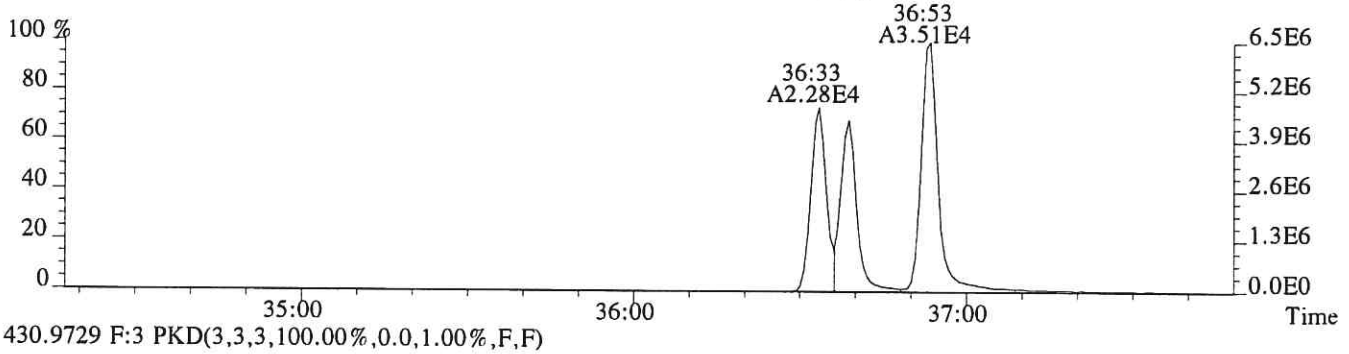
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



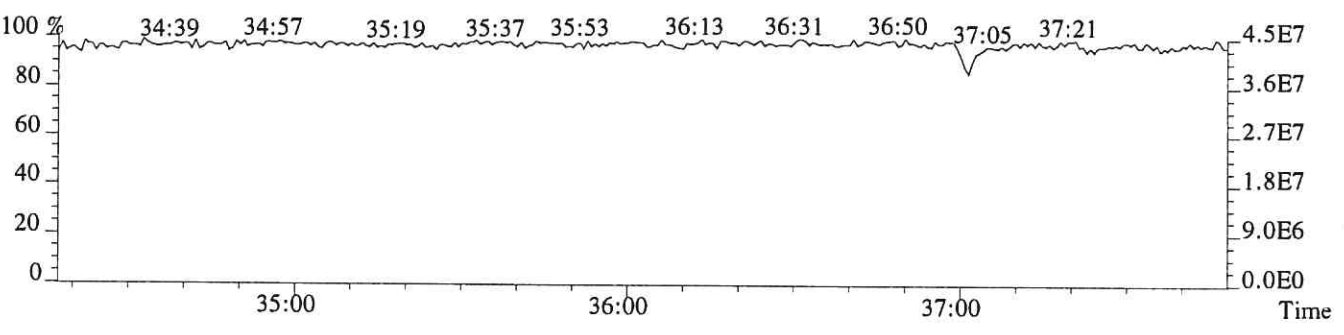
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)

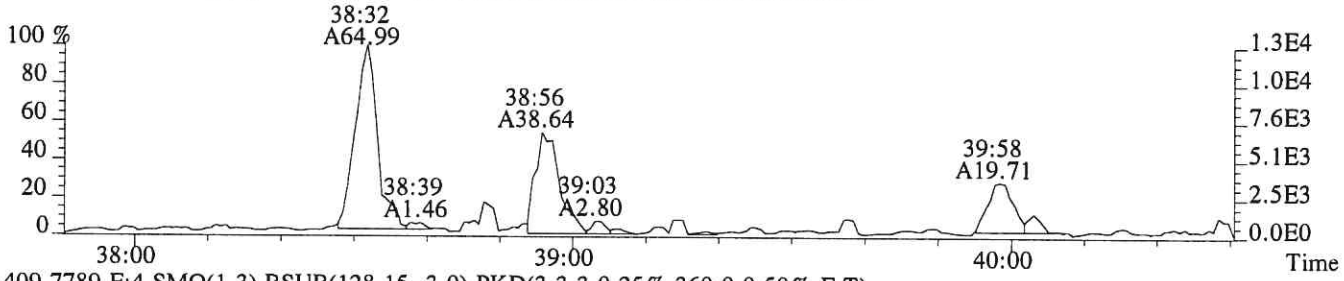


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

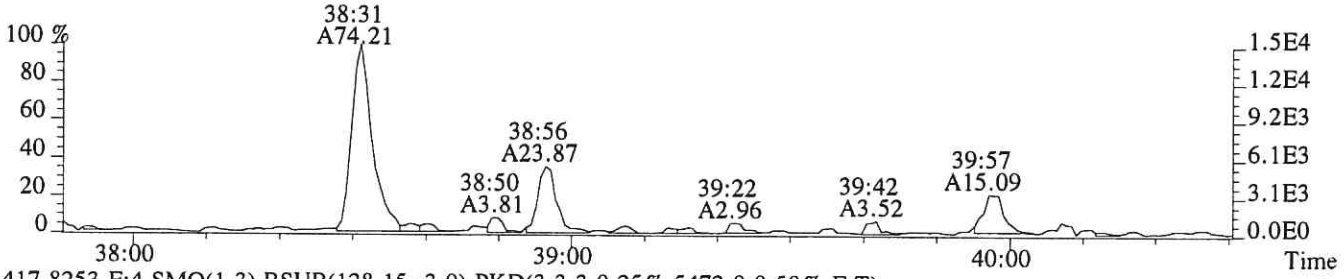


File:P519346 #1-241 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018

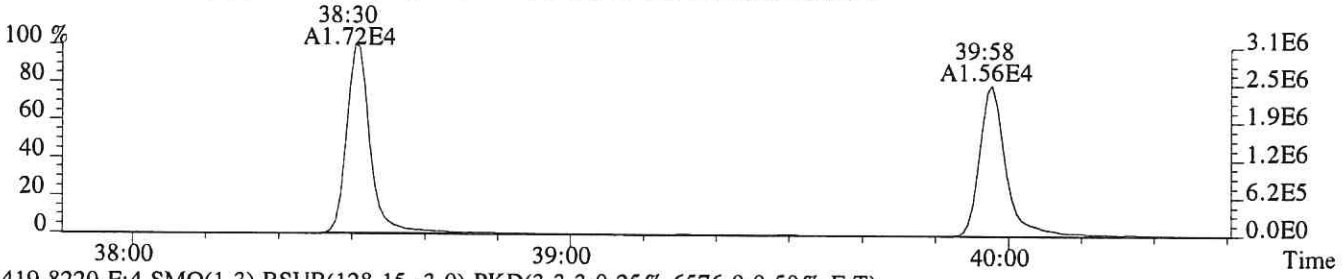
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.50%,F,T)



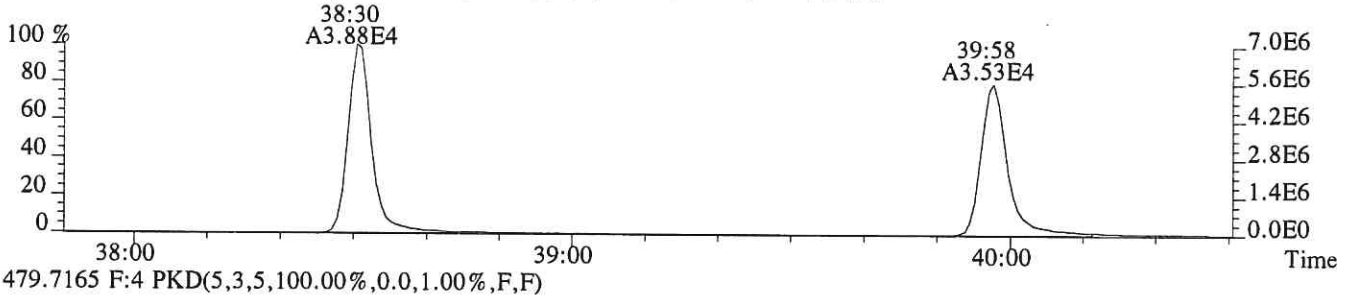
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.50%,F,T)



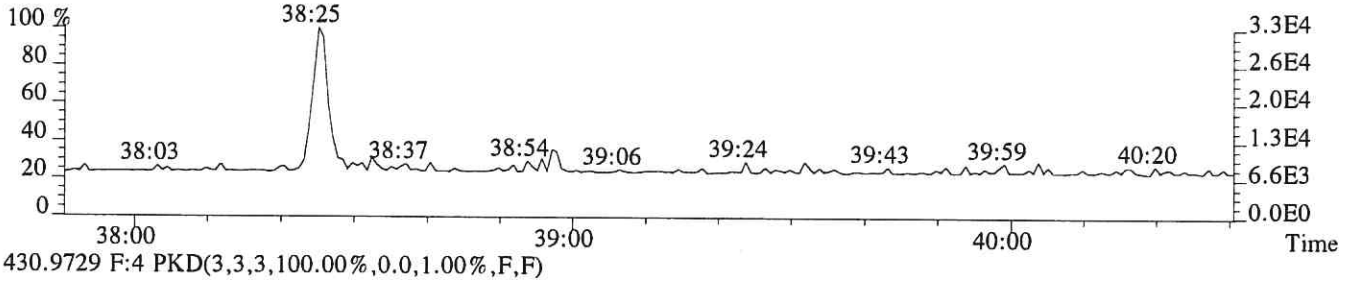
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5472.0,0.50%,F,T)



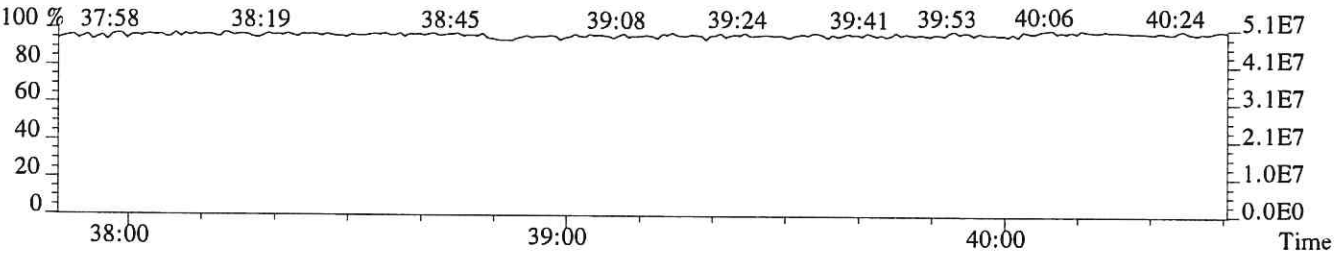
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6576.0,0.50%,F,T)



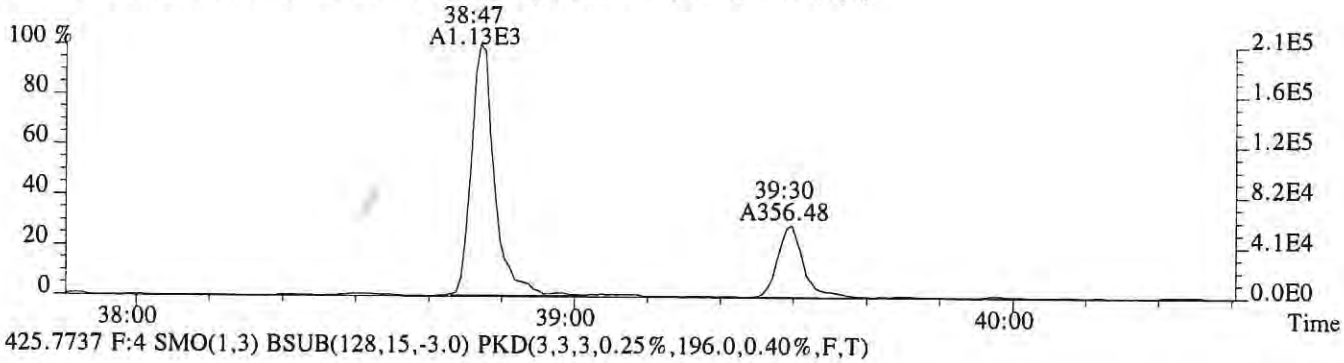
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



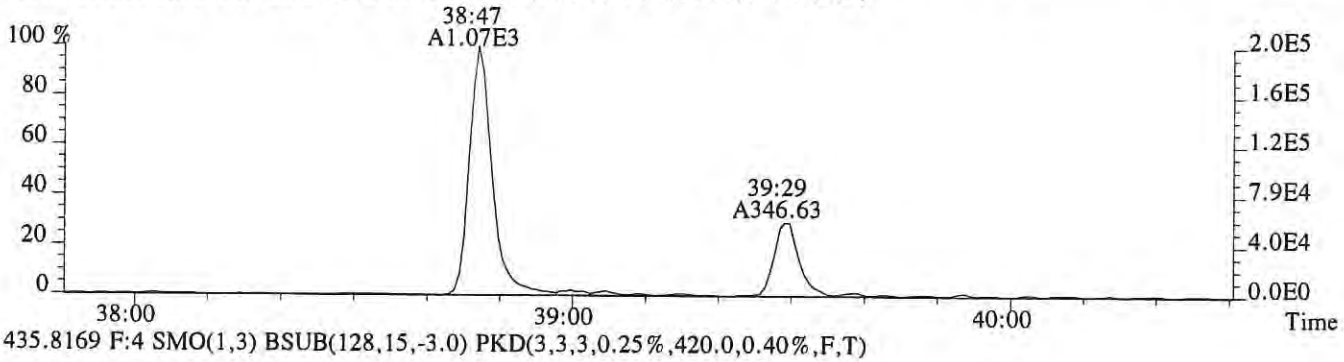
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



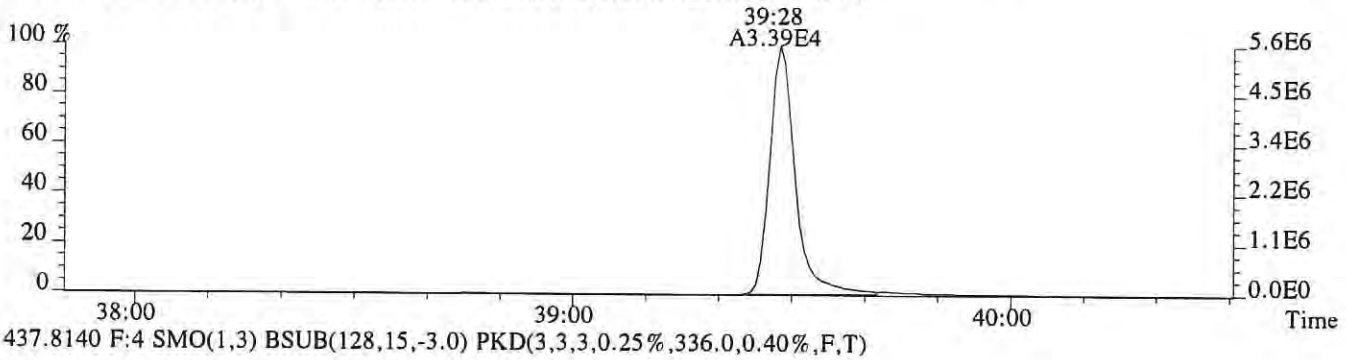
File:P519346 #1-241 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



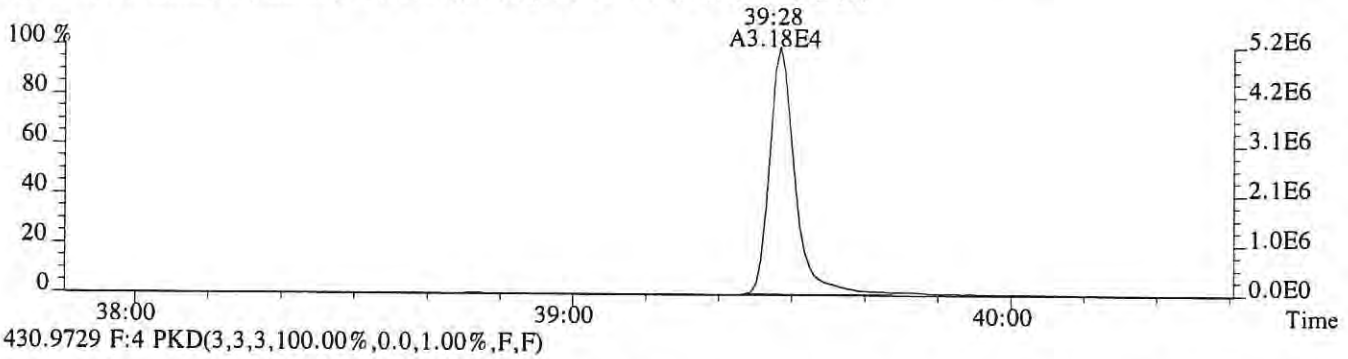
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



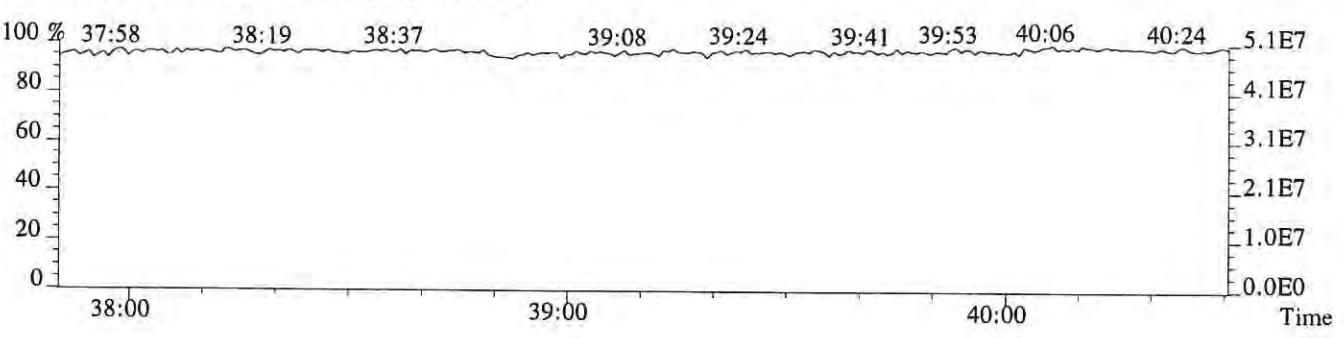
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)

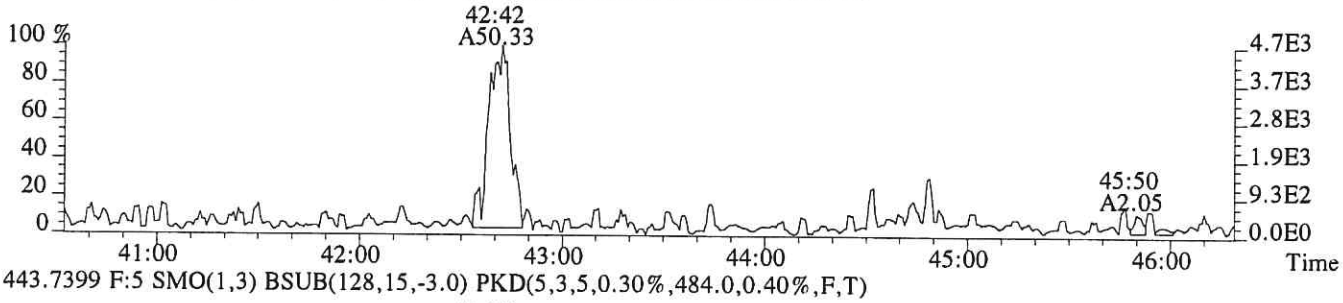


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

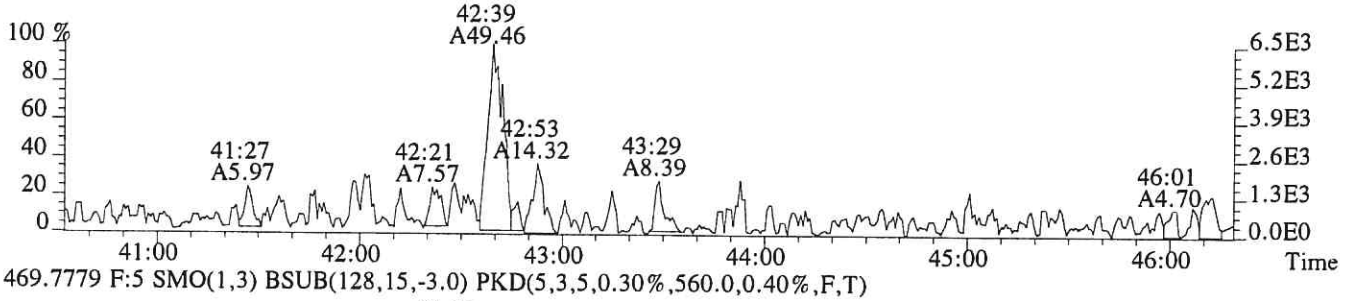


File:P519346 #1-520 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018

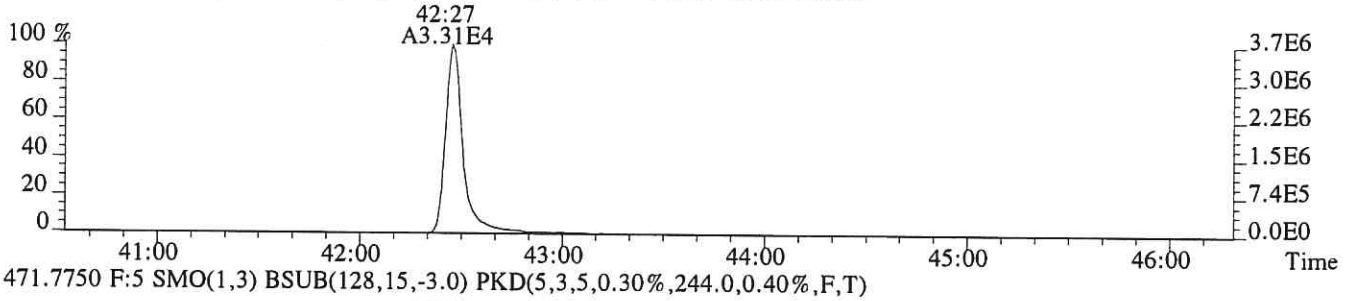
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



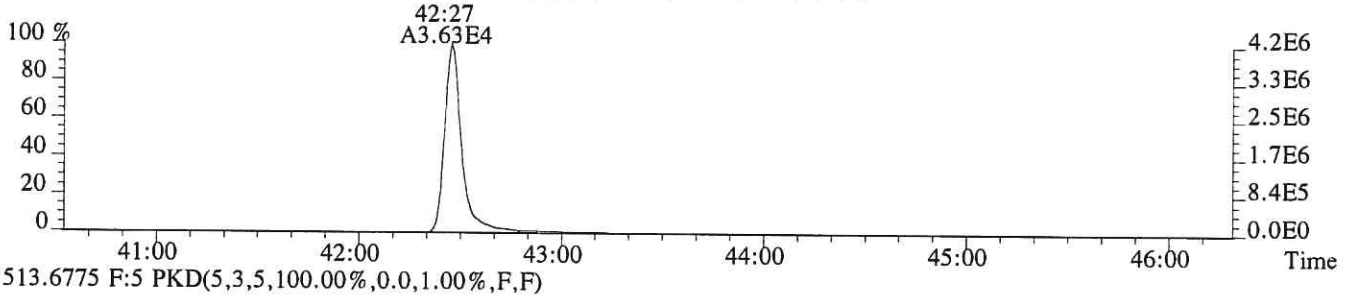
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)



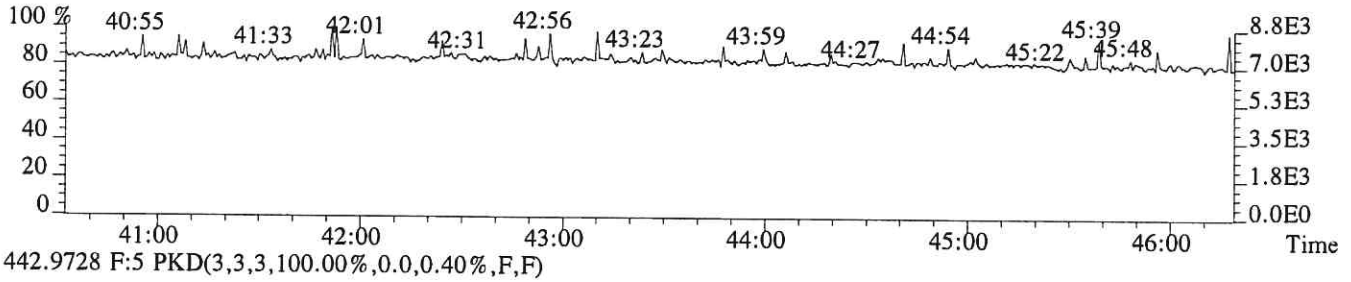
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



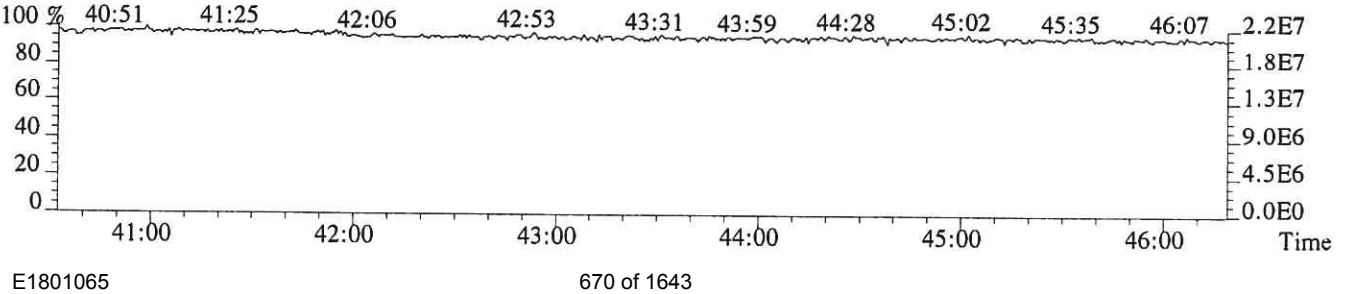
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



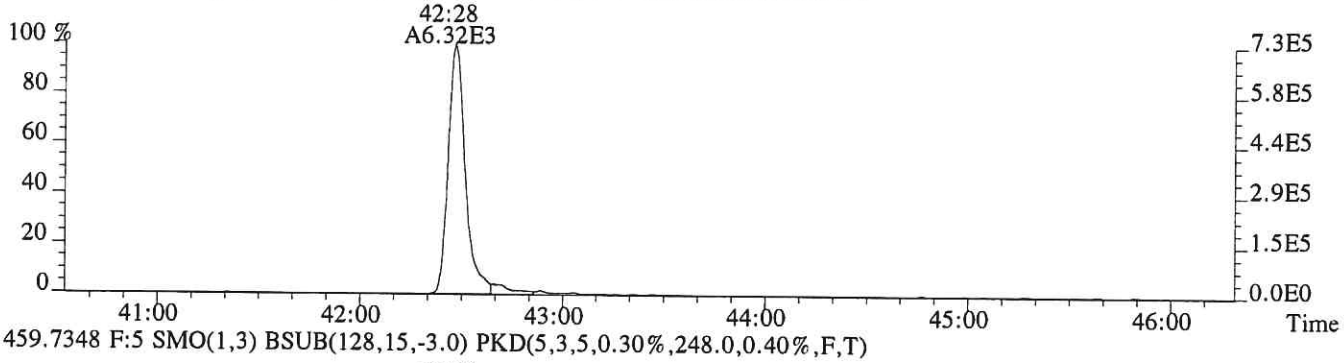
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



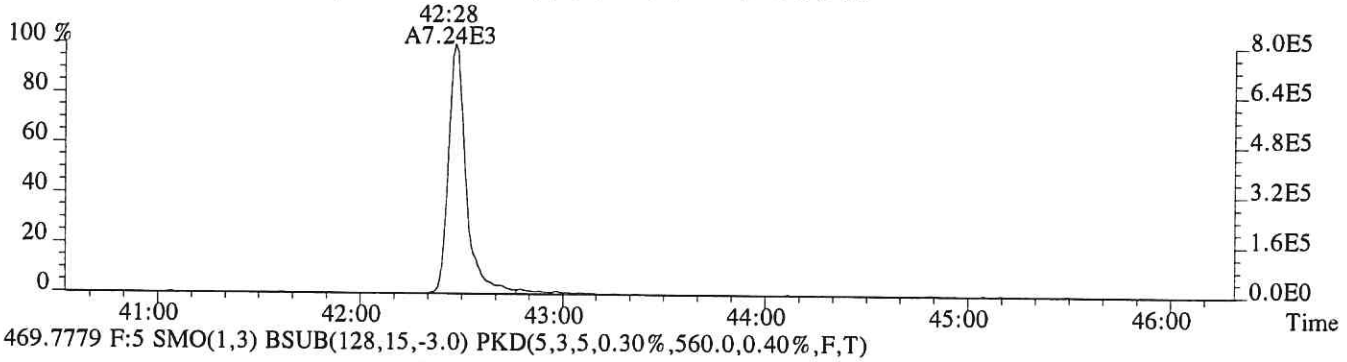
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



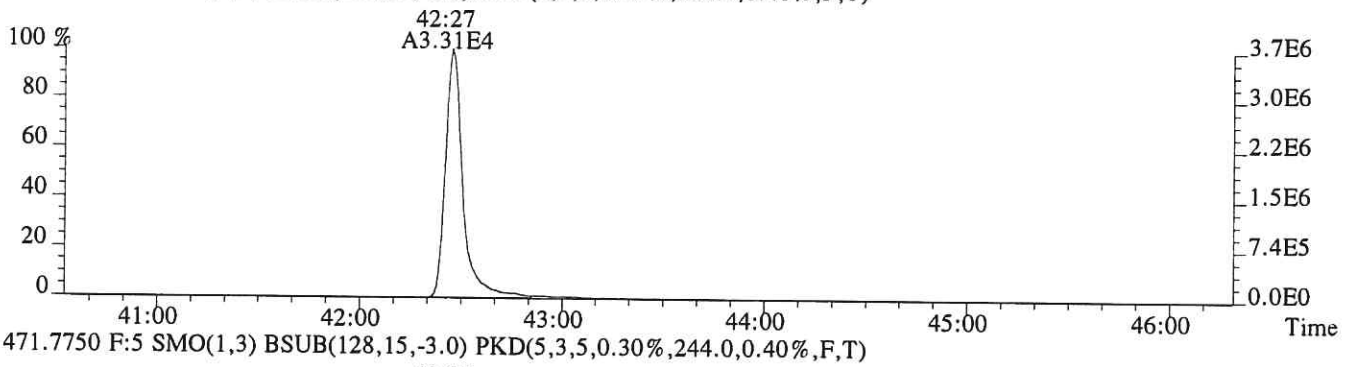
File:P519346 #1-520 Acq:11-DEC-2018 06:56:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-018
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



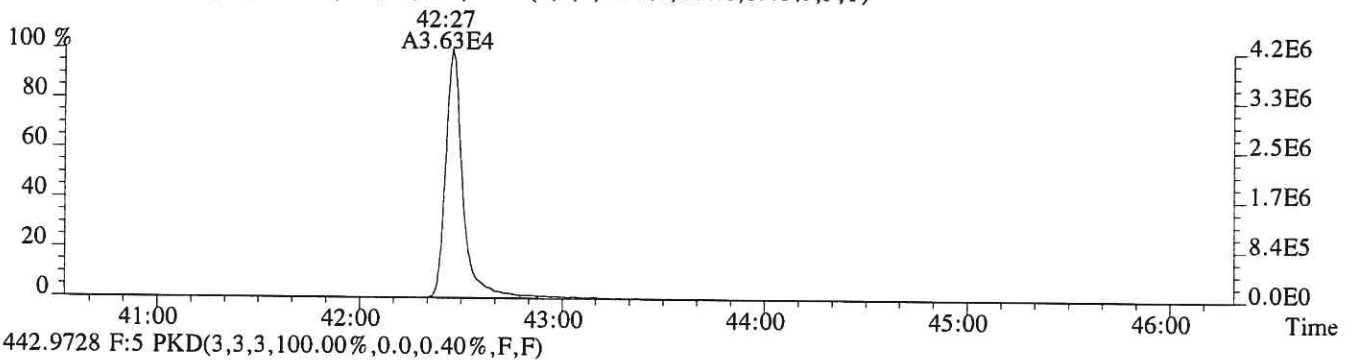
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



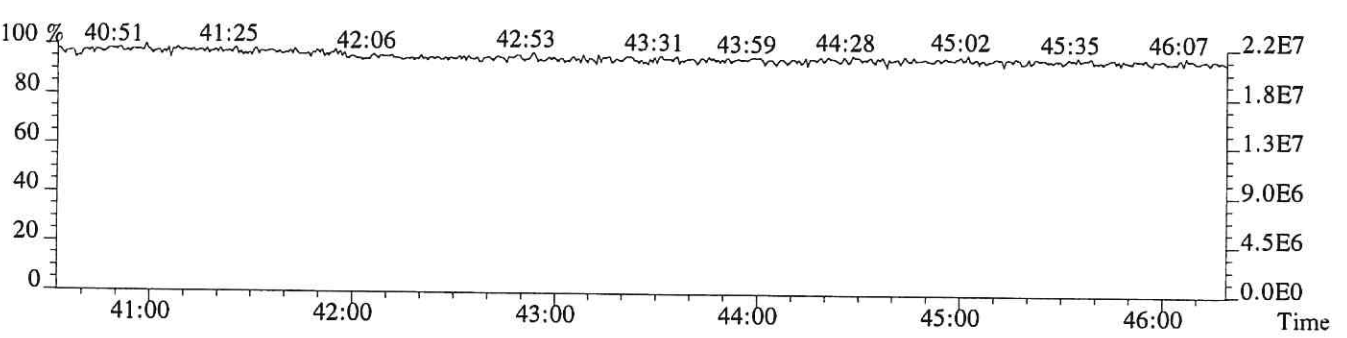
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0568

Run #19 Filename P519347 Samp: 1 Inj: 1 Acquired: 11-DEC-18 07:44:14
Processed: 12-DEC-18 13:51:02 Sample ID: E1801065-019

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.718e+02	2.528e+02	0.68	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:47	2.548e+01	1.603e+01	1.59	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	5.214e+00	4.890e+00	1.07	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:11	5.063e+00	5.101e+00	0.99	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	8.562e+00	7.700e+00	1.11	yes	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	42:39	2.385e+01	2.587e+01	0.92	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	4.956e+01	7.522e+01	0.66	yes	yes	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.462e+01	8.137e+00	1.80	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.260e+01	1.529e+01	1.48	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	1.887e+02	1.688e+02	1.12	yes	no	1.025
17	Unk	OCDD	42:29	2.793e+03	3.258e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.642e+04	2.108e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.521e+04	2.181e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.549e+04	2.191e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.603e+04	3.094e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.961e+04	3.741e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.799e+04	3.445e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.771e+04	3.345e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.356e+04	3.036e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	1.190e+04	2.682e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	7.373e+03	9.534e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	2.488e+04	1.559e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	2.240e+04	1.772e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.203e+04	1.744e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.621e+04	2.471e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:28	2.587e+04	2.868e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	3.243e+04	4.016e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	3.822e+04	3.098e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	1.095e+04				no	1.014

$$\text{OCDD} = \frac{(2.793e+03 + 3.258e+03) \times 4000 \text{ pg} \times 1}{(2.587e+04 + 2.868e+04) \times 10.822 \text{ g} \times 74.5 / 100 \times 1.118} = 49.2 \text{ ng/kg}$$

LM 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0568

Run #19 Filename P519347 Samp: 1 Inj: 1 Acquired: 11-DEC-18 07:44:14
Processed: 12-DEC-18 13:51:02 LAB. ID: E1801065-019

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.10e+04	5.92e+02	5.2e+01	5.25e+04	1.30e+03	4.1e+01
2	1,2,3,7,8-PeCDF	*	2.72e+02	*	*	1.14e+03	*
3	2,3,4,7,8-PeCDF	*	2.72e+02	*	*	1.14e+03	*
4	1,2,3,4,7,8-HxCDF	6.52e+03	3.04e+02	2.1e+01	3.80e+03	2.40e+02	1.6e+01
5	1,2,3,6,7,8-HxCDF	1.45e+03	3.04e+02	4.8e+00	1.15e+03	2.40e+02	4.8e+00
6	2,3,4,6,7,8-HxCDF	*	3.04e+02	*	*	2.40e+02	*
7	1,2,3,7,8,9-HxCDF	1.18e+03	3.04e+02	3.9e+00	8.37e+02	2.40e+02	3.5e+00
8	1,2,3,4,6,7,8-HpCDF	1.42e+03	3.28e+02	4.3e+00	1.61e+03	2.28e+02	7.1e+00
9	1,2,3,4,7,8,9-HpCDF	*	3.28e+02	*	*	2.28e+02	*
10	OCDF	3.37e+03	1.84e+02	1.8e+01	3.70e+03	7.08e+02	5.2e+00
11	2,3,7,8-TCDD	8.68e+03	2.52e+03	3.4e+00	1.46e+04	1.07e+03	1.4e+01
12	1,2,3,7,8-PeCDD	2.64e+03	5.64e+02	4.7e+00	2.59e+03	1.72e+02	1.5e+01
13	1,2,3,4,7,8-HxCDD	*	3.72e+02	*	*	4.28e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.72e+02	*	*	4.28e+02	*
15	1,2,3,7,8,9-HxCDD	5.36e+03	3.72e+02	1.4e+01	2.77e+03	4.28e+02	6.5e+00
16	1,2,3,4,6,7,8-HpCDD	3.29e+04	2.80e+02	1.2e+02	2.81e+04	2.40e+02	1.2e+02
17	OCDD	3.15e+05	2.04e+02	1.5e+03	3.68e+05	4.12e+02	8.9e+02
18	13C-2,3,7,8-TCDF	2.93e+06	8.92e+03	3.3e+02	3.79e+06	4.24e+03	8.9e+02
19	13C-1,2,3,7,8-PeCDF	6.37e+06	3.92e+02	1.6e+04	3.98e+06	1.14e+03	3.5e+03
20	13C-2,3,4,7,8-PeCDF	6.83e+06	3.92e+02	1.7e+04	4.27e+06	1.14e+03	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	3.39e+06	5.32e+02	6.4e+03	6.47e+06	8.48e+02	7.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.87e+06	5.32e+02	7.3e+03	7.33e+06	8.48e+02	8.6e+03
23	13C-2,3,4,6,7,8-HxCDF	3.62e+06	5.32e+02	6.8e+03	6.96e+06	8.48e+02	8.2e+03
24	13C-1,2,3,7,8,9-HxCDF	3.07e+06	5.32e+02	5.8e+03	5.95e+06	8.48e+02	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.45e+06	1.51e+03	1.6e+03	5.56e+06	1.53e+03	3.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.81e+06	1.51e+03	1.2e+03	4.10e+06	1.53e+03	2.7e+03
27	13C-2,3,7,8-TCDD	1.37e+06	6.00e+03	2.3e+02	1.75e+06	1.56e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.82e+06	7.60e+02	6.3e+03	3.01e+06	1.15e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	4.77e+06	1.01e+03	4.7e+03	3.78e+06	4.80e+02	7.9e+03
30	13C-1,2,3,6,7,8-HxCDD	4.31e+06	1.01e+03	4.3e+03	3.36e+06	4.80e+02	7.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.27e+06	3.80e+02	1.1e+04	4.05e+06	3.16e+02	1.3e+04
32	13C-OCDD	3.02e+06	1.80e+02	1.7e+04	3.27e+06	1.56e+02	2.1e+04
33	13C-1,2,3,4-TCDD	6.11e+06	6.00e+03	1.0e+03	7.58e+06	1.56e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	7.39e+06	1.01e+03	7.3e+03	5.80e+06	4.80e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	2.09e+06	9.04e+02	2.3e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0568

Entry: 36 Totals Name: Total Tetra-Furans

Run: 19 File: P519347 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 07:44:14 Processed: 12-DEC-18 13:51:02

Mass: 303.9020 305.8990 Tot Response: 4.68e+02 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:45	1.72e+02	2.53e+02	0.68	yes	4.25e+02	2,3,7,8-TCDF	n	n
2	29:37	1.71e+01	2.59e+01	0.66	yes	4.30e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0568

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 19 File: P519347 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 07:44:14 Processed: 12-DEC-18 13:51:02

Mass: 319.8970 321.8940 Tot Response: 2.55e+02 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:37	5.96e+01	7.01e+01	0.85	yes	1.30e+02		y	y
2	28:36	4.96e+01	7.52e+01	0.66	yes	1.25e+02	2,3,7,8-TCDD	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0568

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 19 File: P519347 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 07:44:14 Processed: 12-DEC-18 13:51:02

Mass: 355.8550 357.8520 Tot Response: 1.01e+02 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:40	5.82e+01	4.24e+01 1.37	yes	1.01e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0568

Entry: 41 Totals Name: Total Hexa-Furans

Run: 19 File: P519347 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 07:44:14 Processed: 12-DEC-18 13:51:02

Mass: 373.8210 375.8180 Tot Response: 1.01e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:55	5.21e+00	4.89e+00 1.07	yes	1.01e+01	1,2,3,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0568

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 19 File: P519347 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 07:44:14 Processed: 12-DEC-18 13:51:02

Mass: 389.8160 391.8130 Tot Response: 5.35e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:12	2.92e+02	2.43e+02 1.20	yes	5.35e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0568

Entry: 43 Totals Name: Total Hepta-Furans

Run: 19 File: P519347 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 07:44:14 Processed: 12-DEC-18 13:51:02

Mass: 407.7820 409.7790 Tot Response: 1.63e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:33	8.56e+00	7.70e+00 1.11	yes	1.63e+01	1,2,3,4,6,7,8-HpCDF	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0568

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 19 File: P519347 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 07:44:14 Processed: 12-DEC-18 13:51:02

Mass: 423.7770 425.7740 Tot Response: 1.32e+03 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:49	5.01e+02	4.58e+02 1.09	yes	9.59e+02		n	n
2	39:31	1.89e+02	1.69e+02 1.12	yes	3.58e+02	1,2,3,4,6,7,8-HpCDD	n	n

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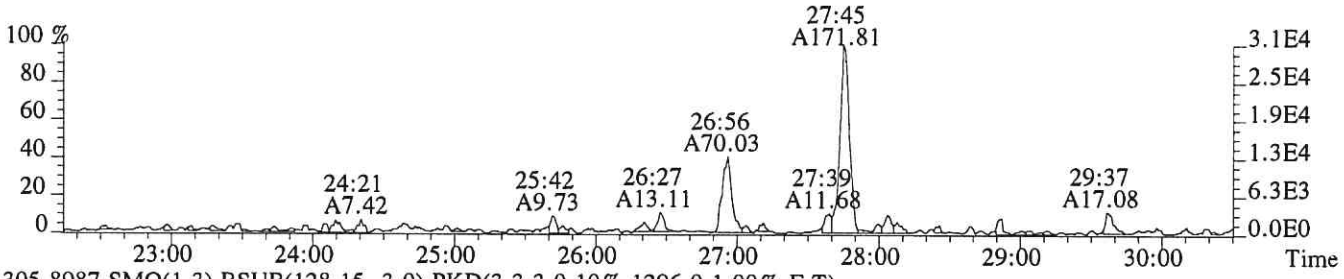
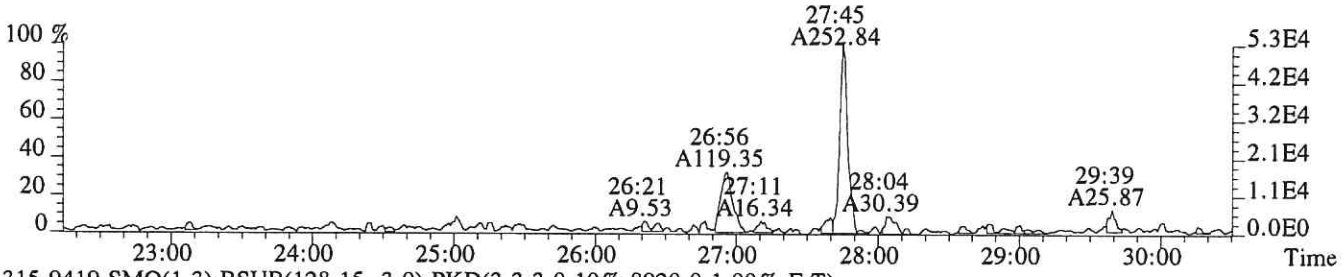
File:P519347 #1-587 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019

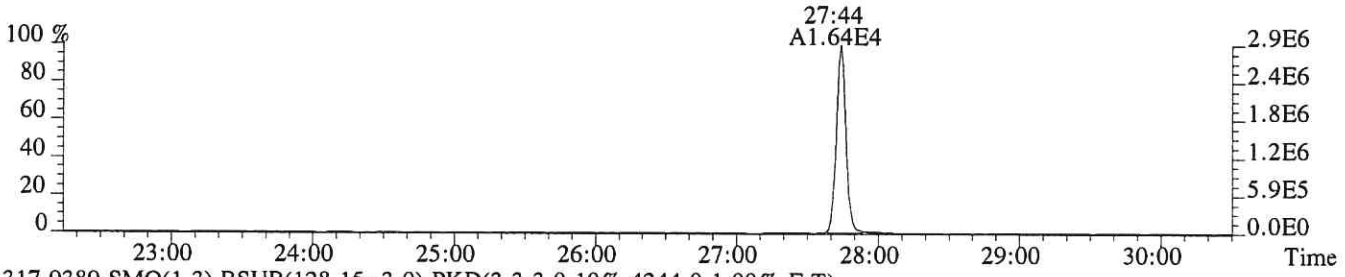
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



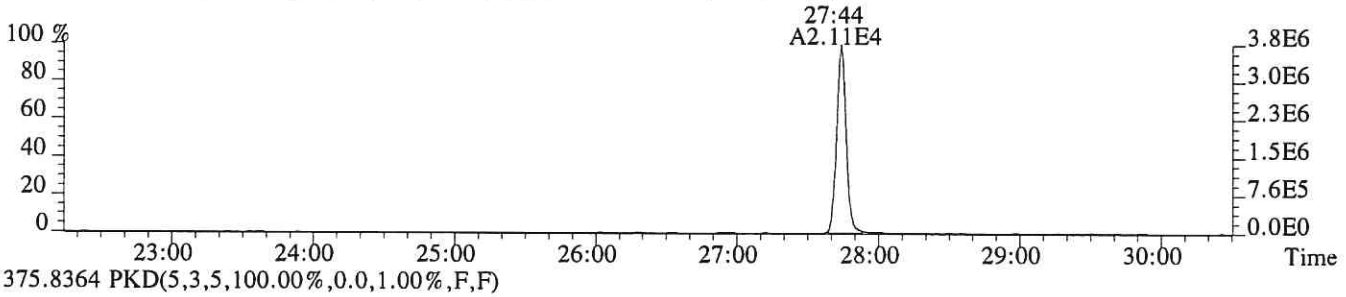
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



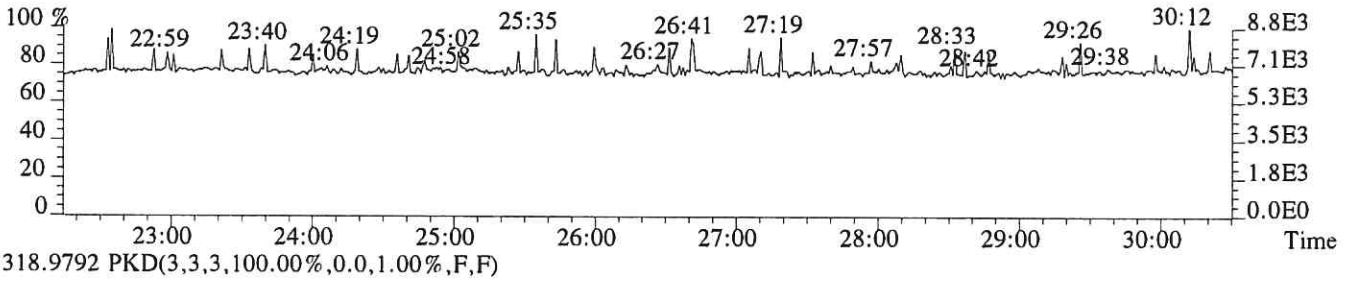
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8920.0,1.00%,F,T)



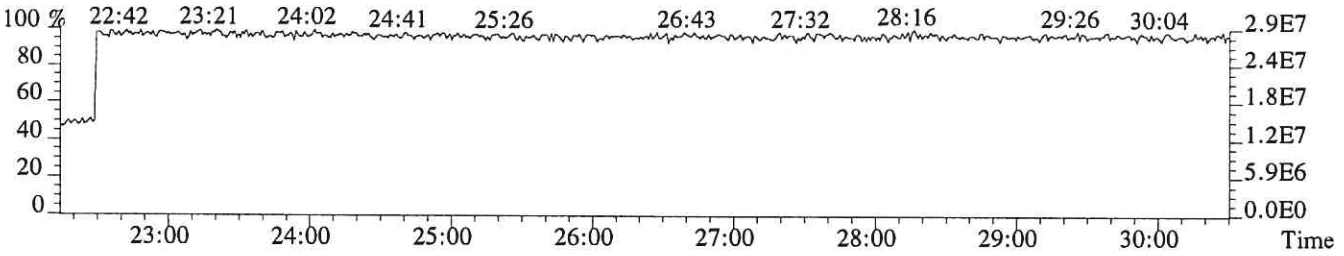
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

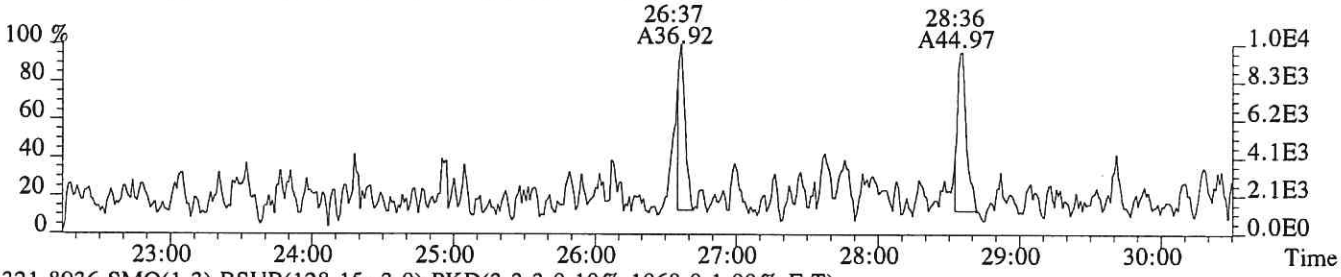


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

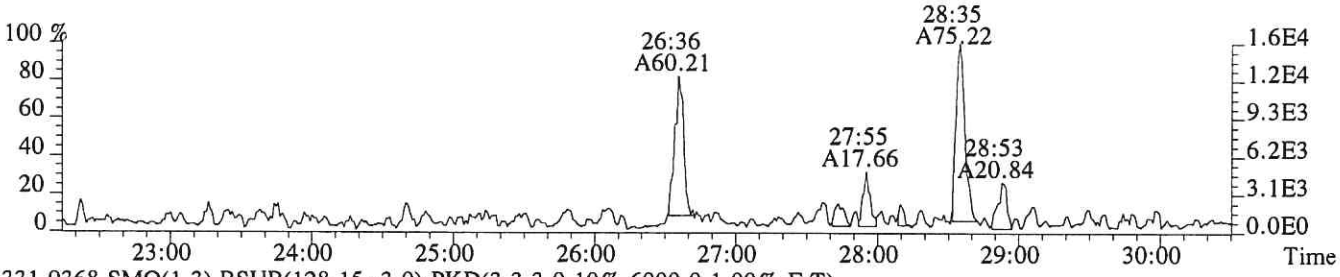


File:P519347 #1-587 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019

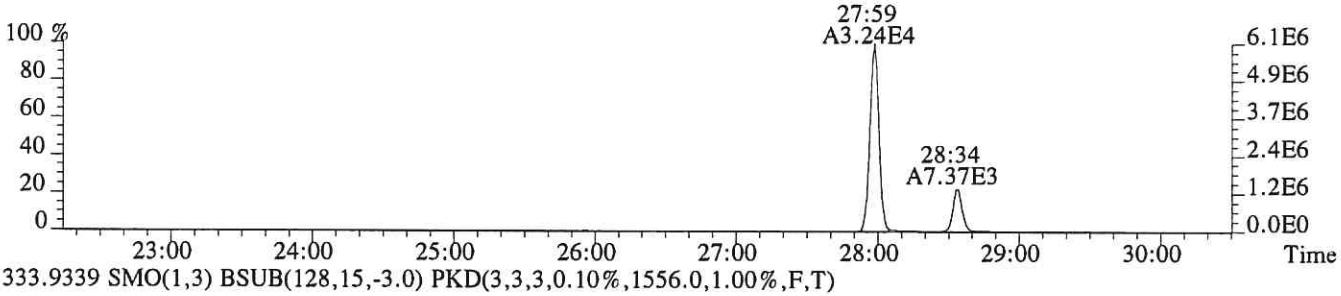
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



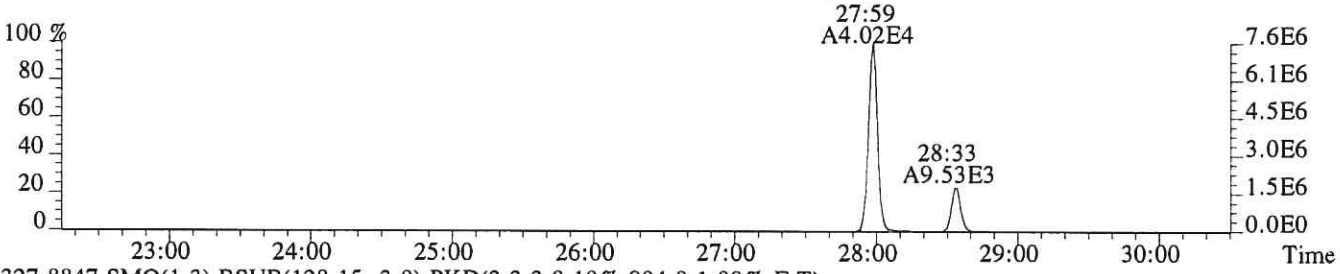
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



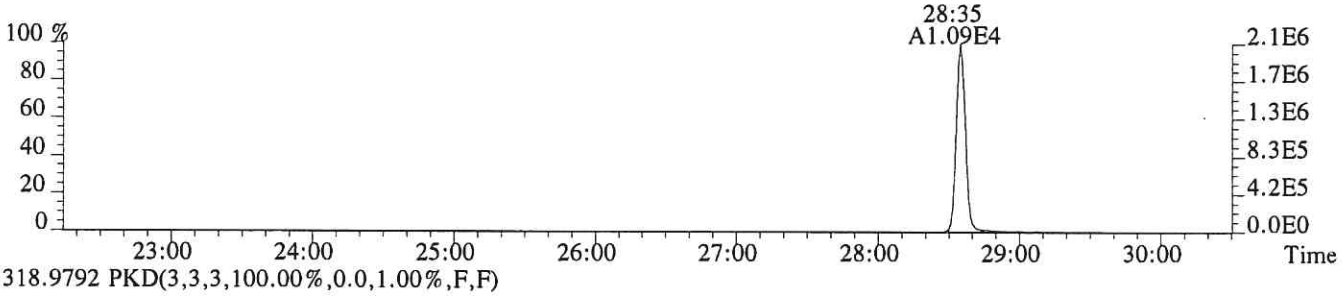
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6000.0,1.00%,F,T)



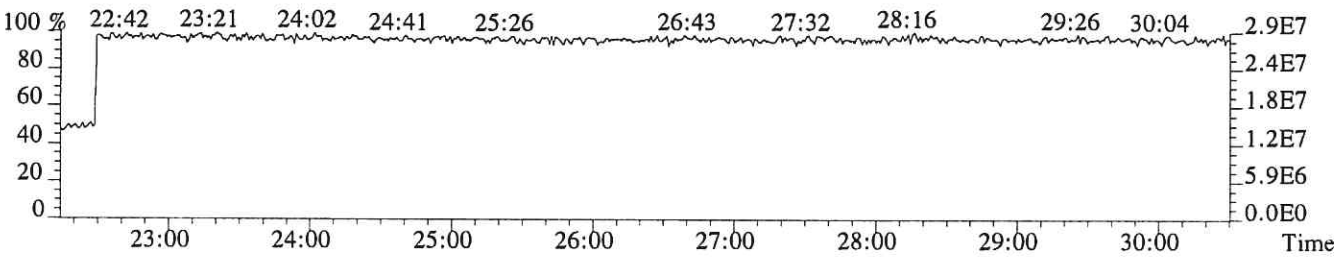
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



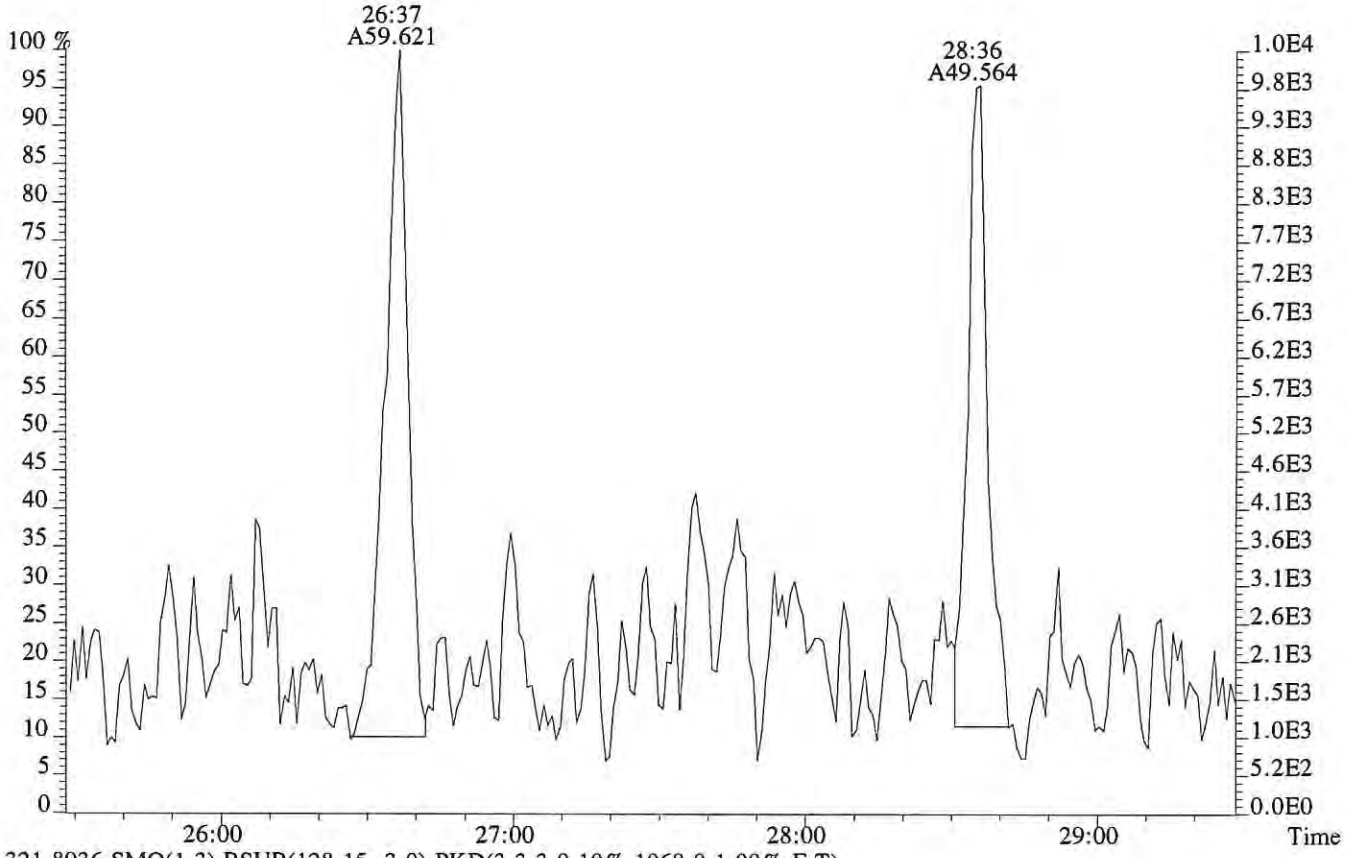
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



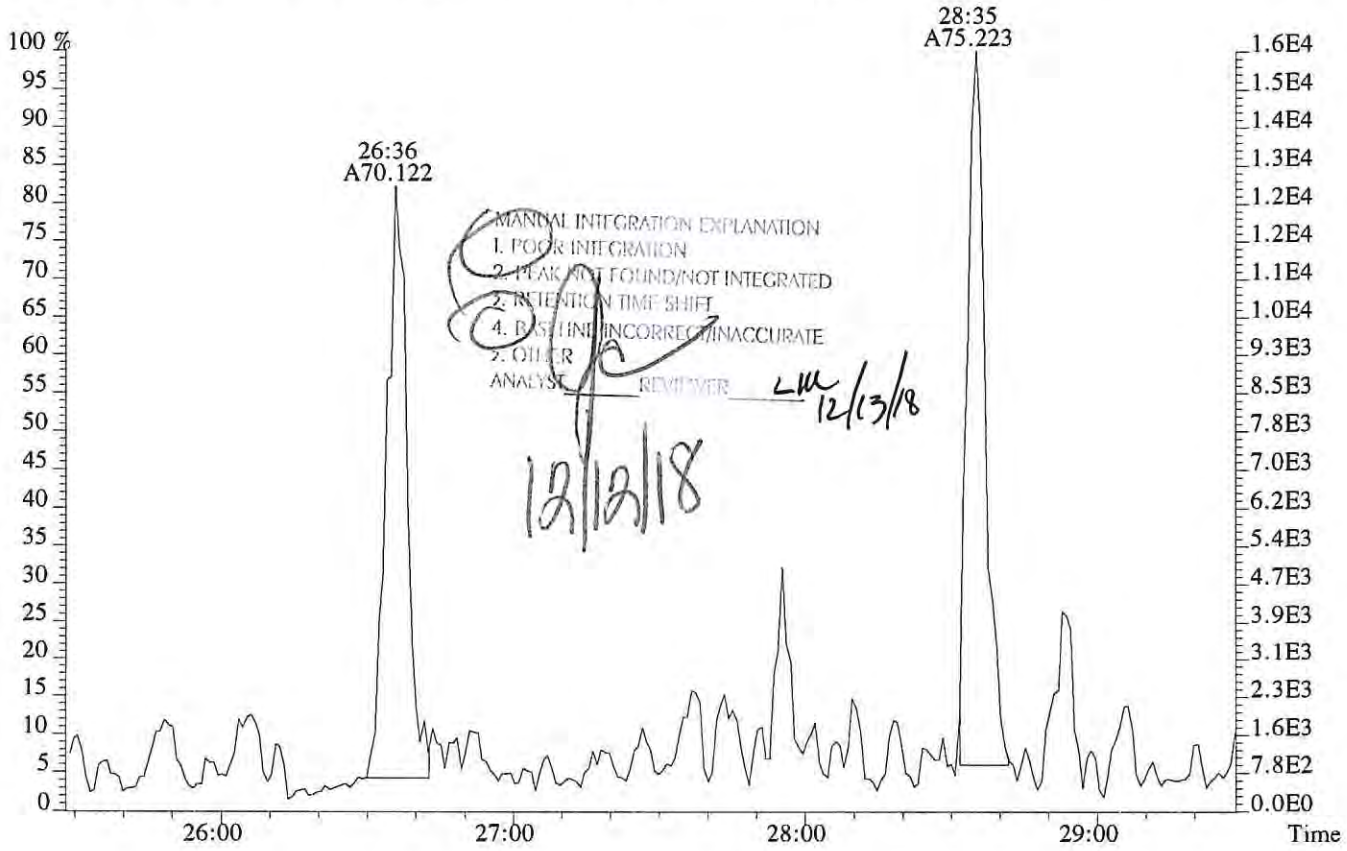
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519347 #1-587 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)

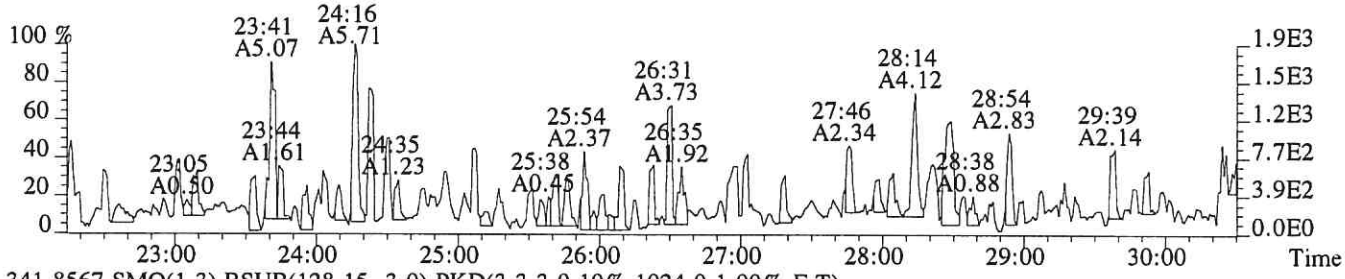


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)

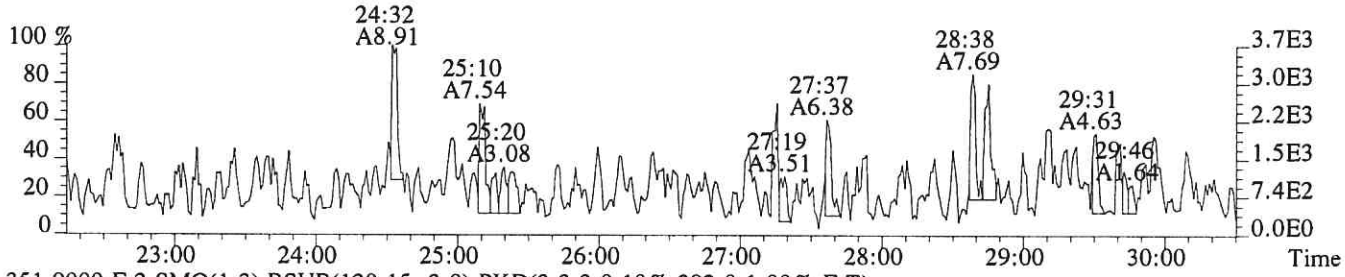


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER LM 12/13/18
12/12/18

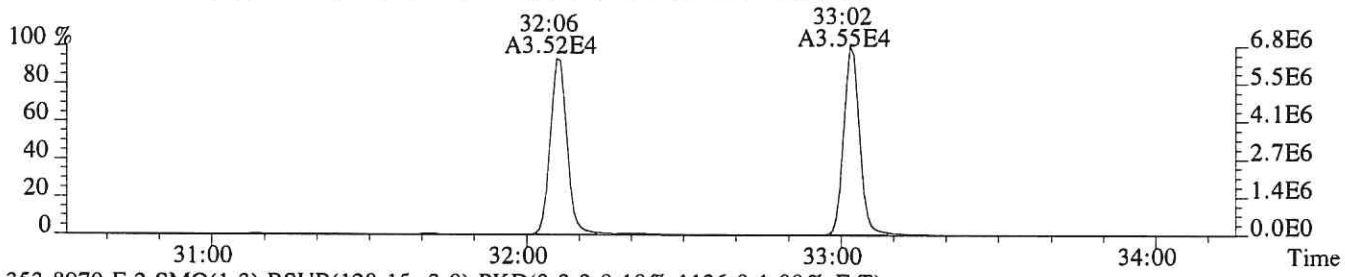
File:P519347 #1-587 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



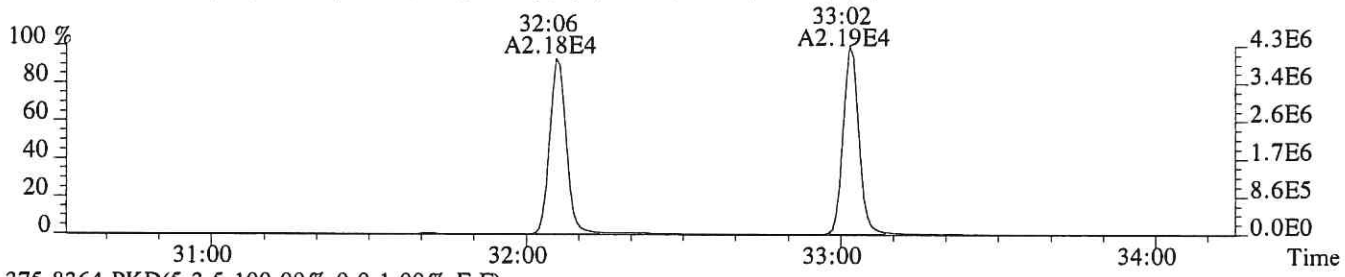
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



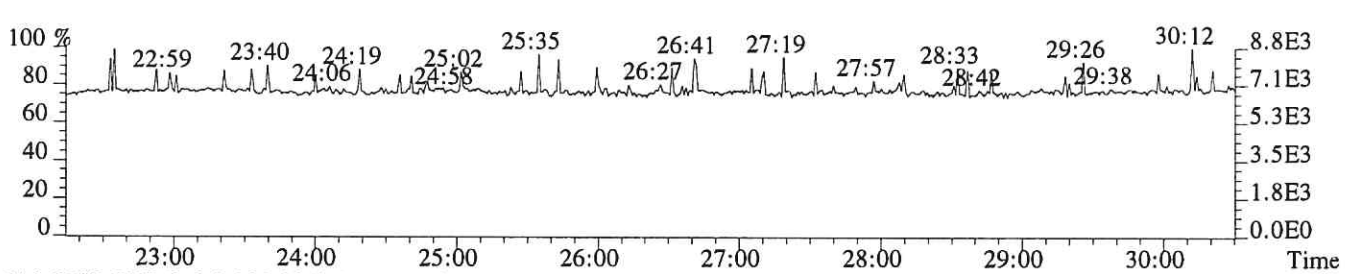
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



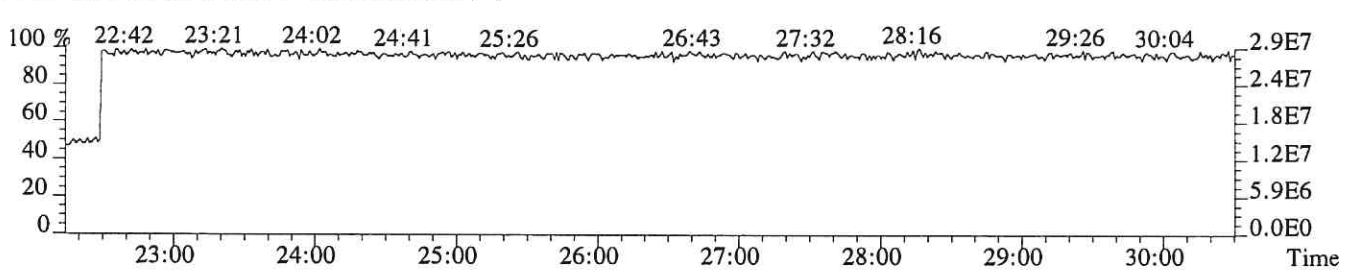
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



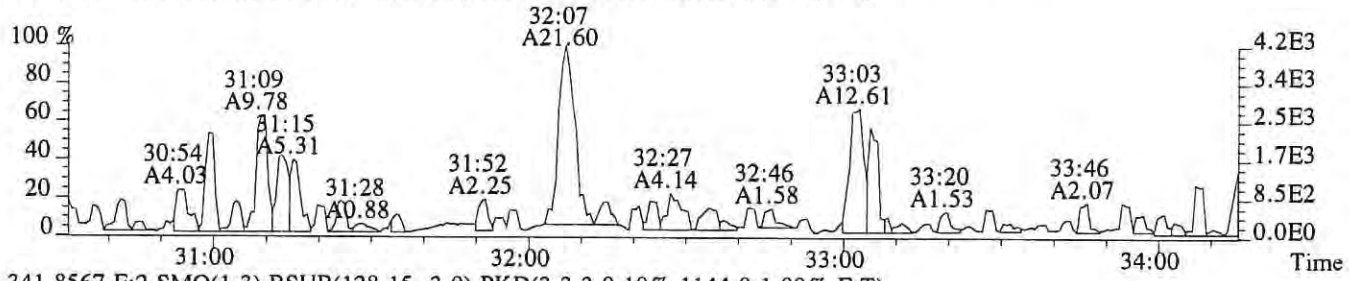
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



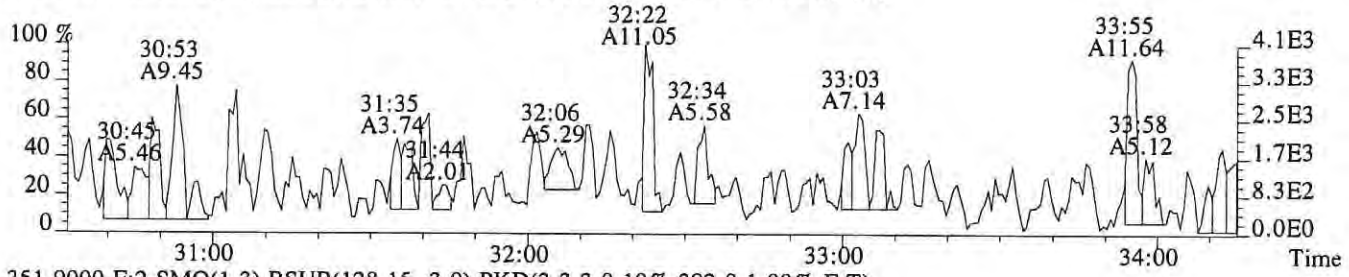
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



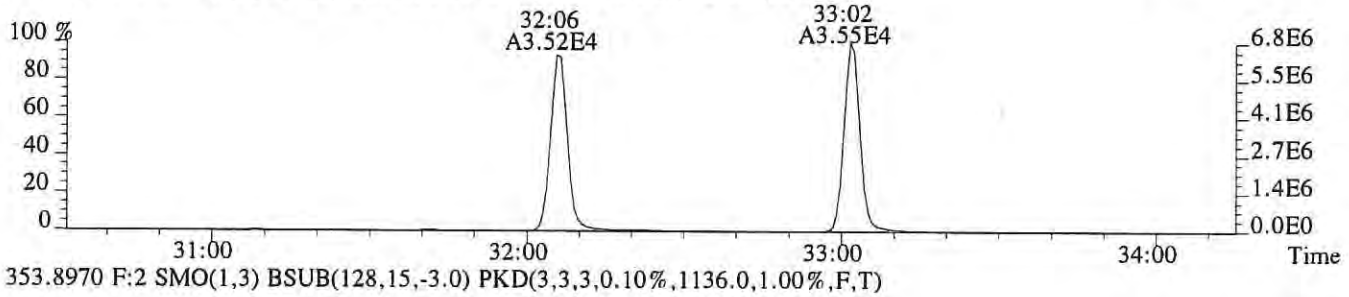
File:P519347 #1-335 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



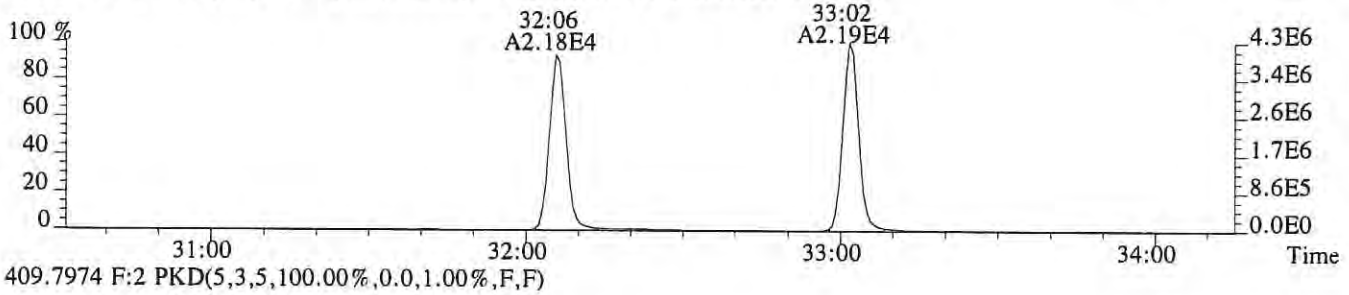
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



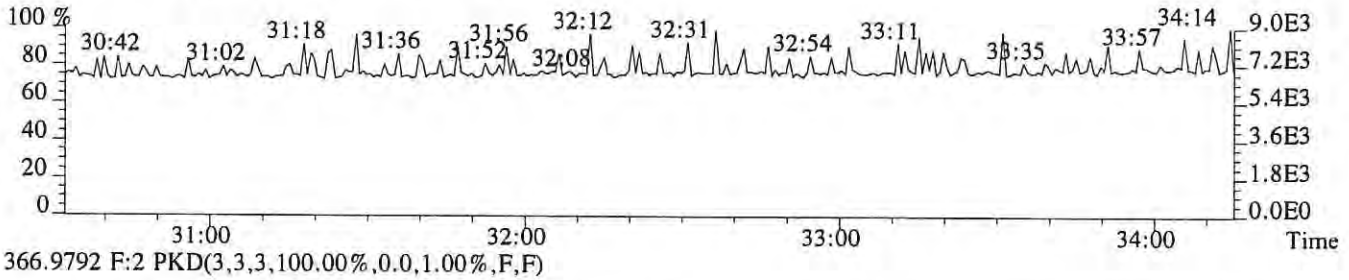
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



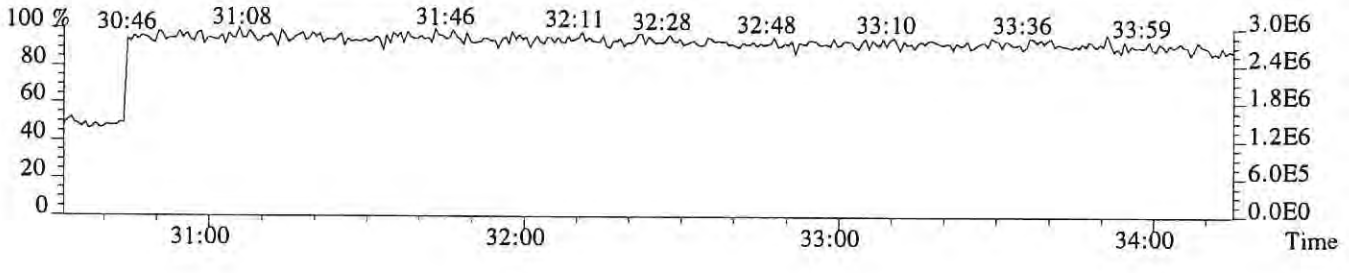
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



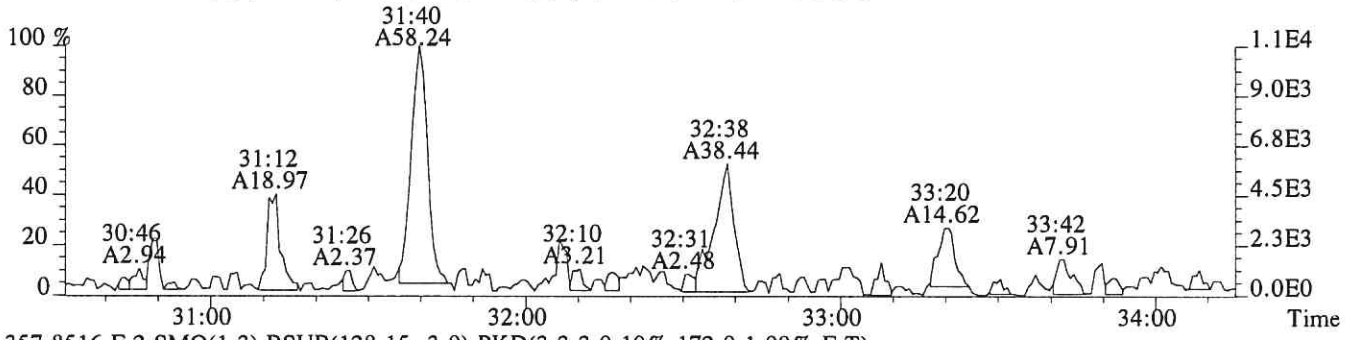
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



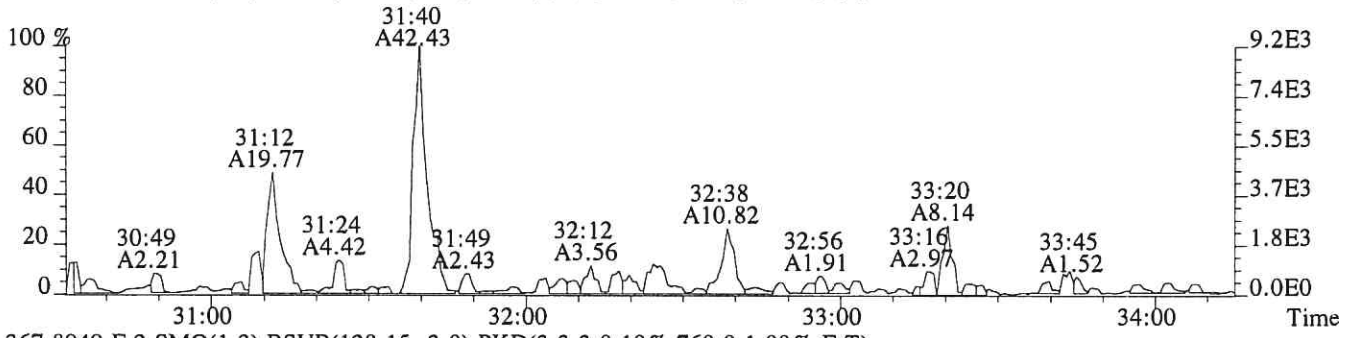
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



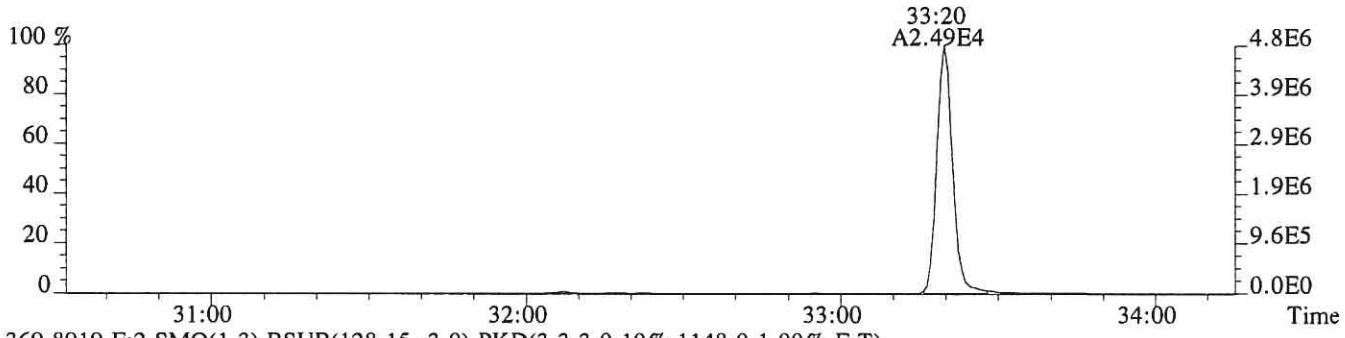
File:P519347 #1-335 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



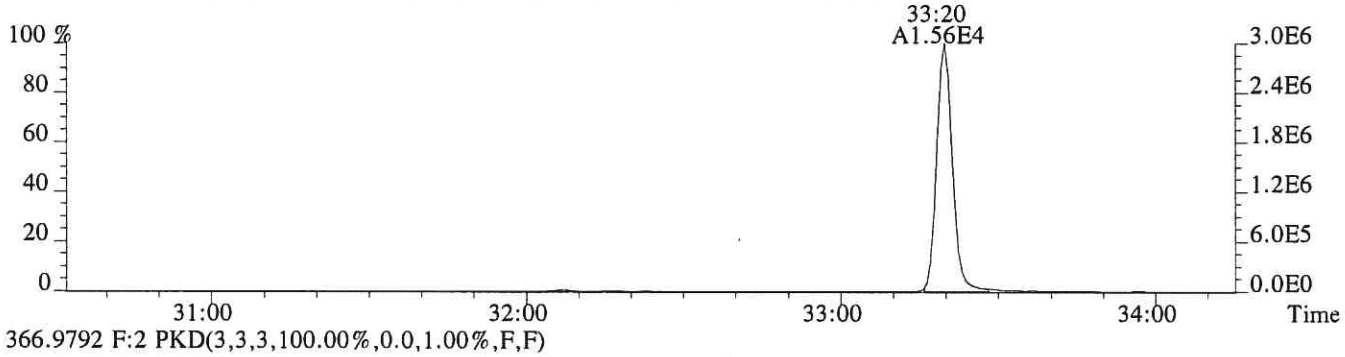
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



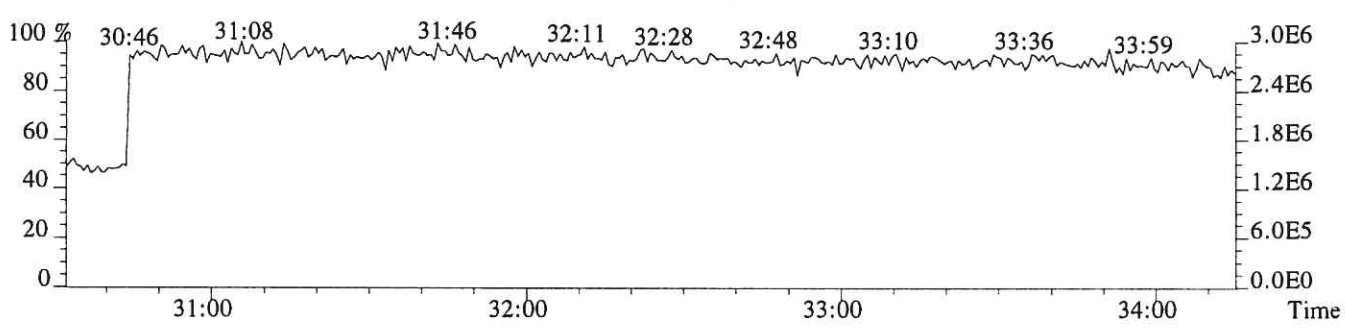
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)

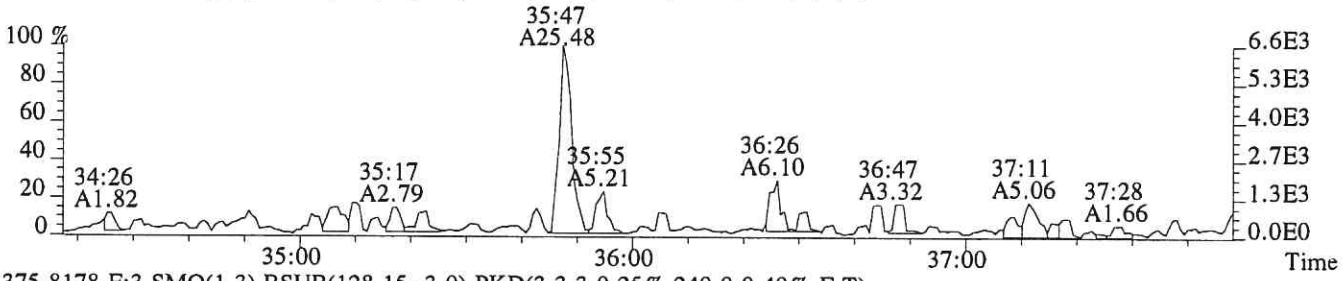


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

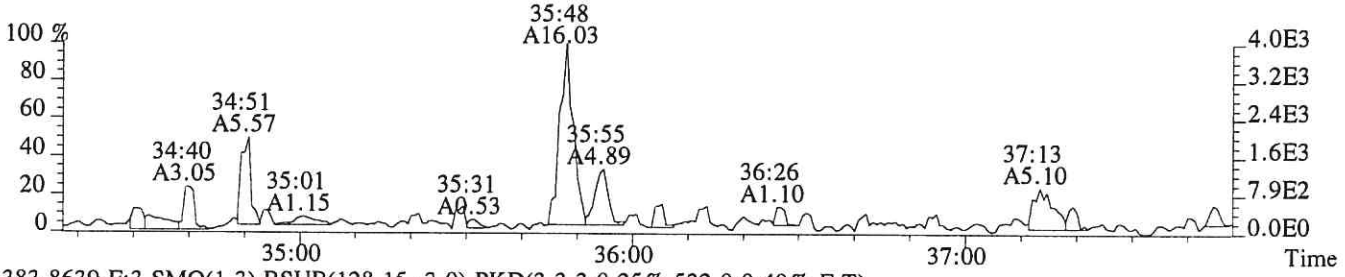


File:P519347 #1-317 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019

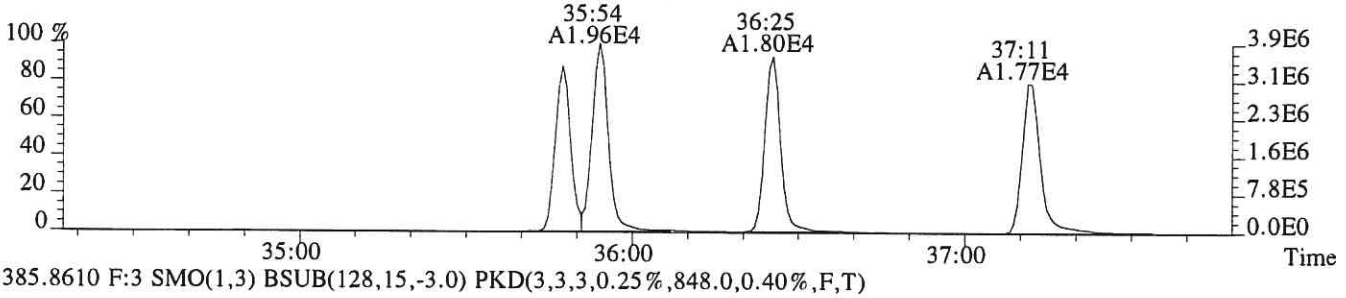
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



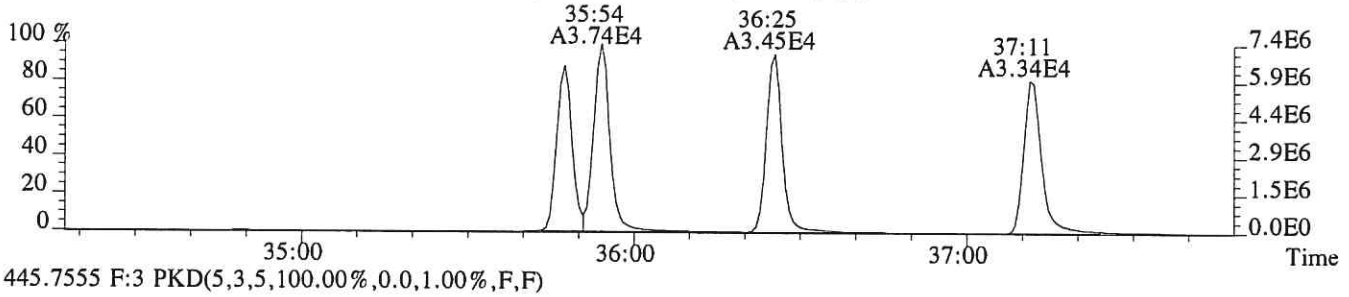
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



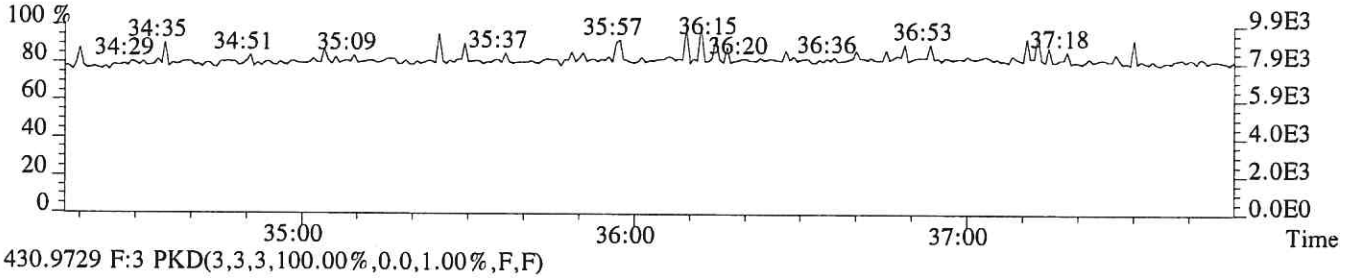
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



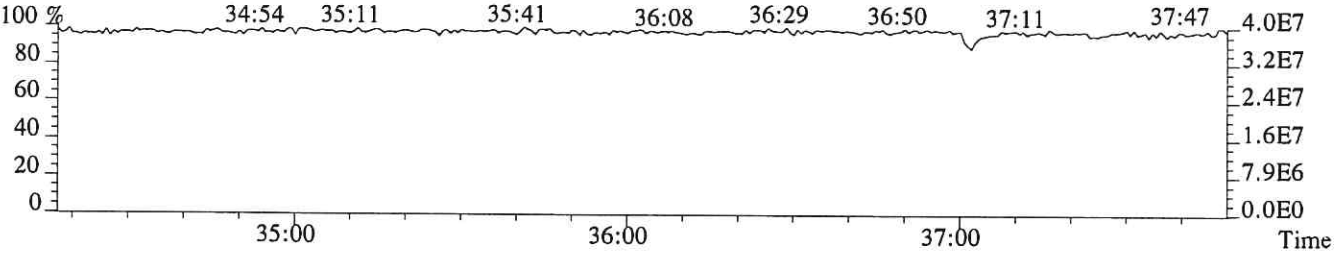
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



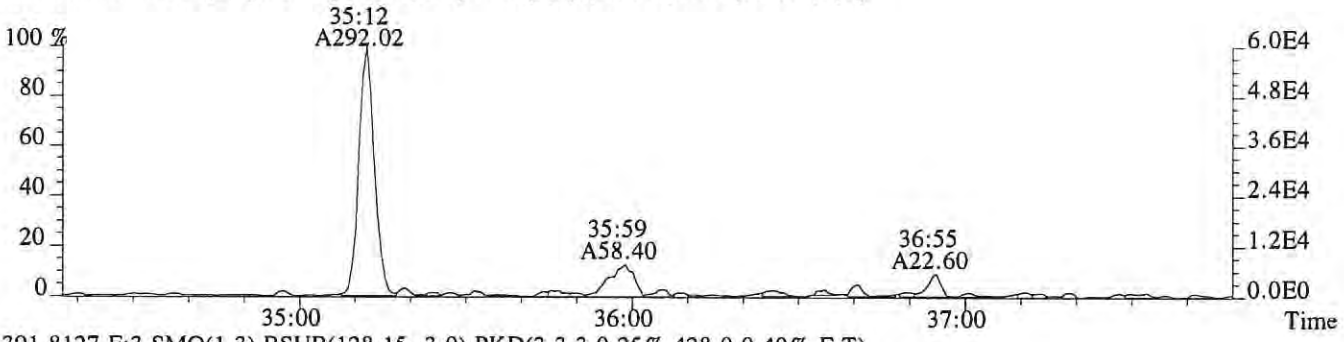
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



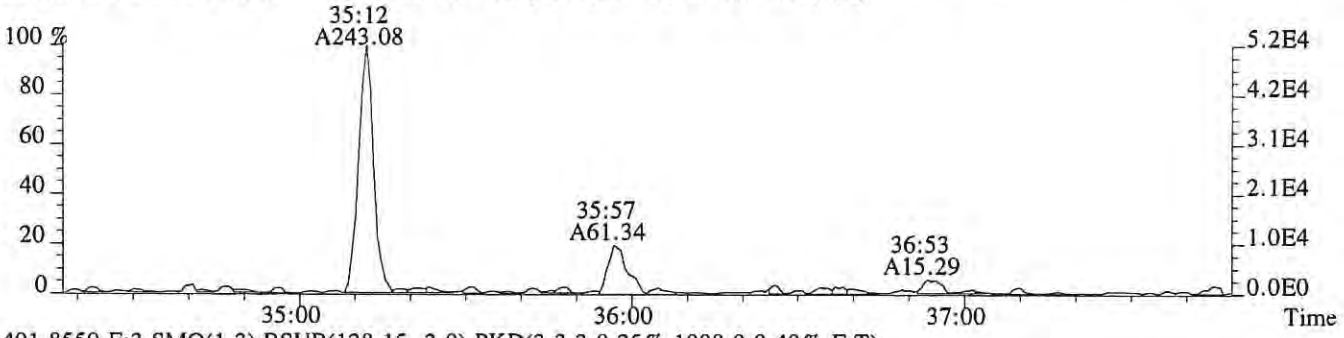
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



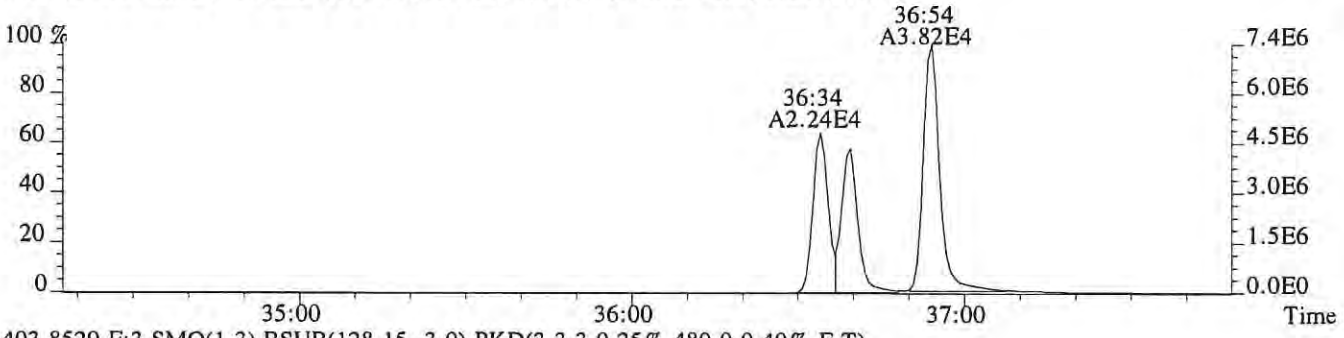
File:P519347 #1-317 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



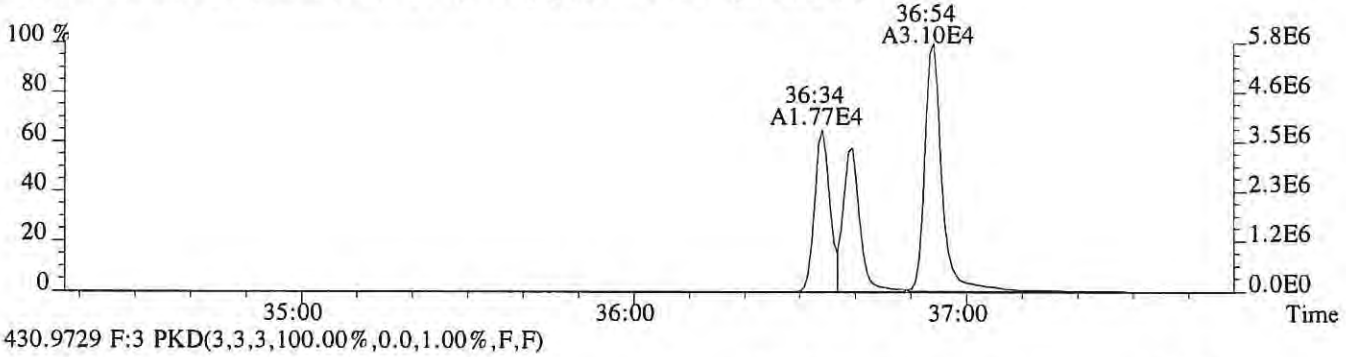
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



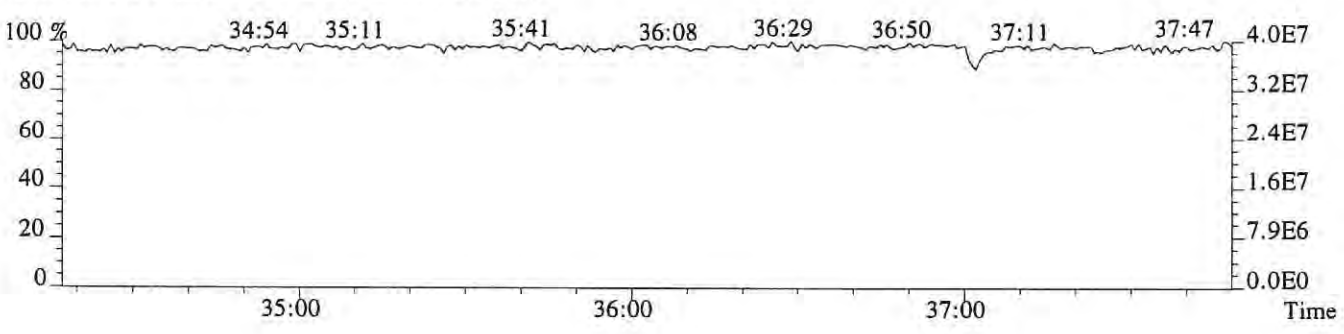
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)

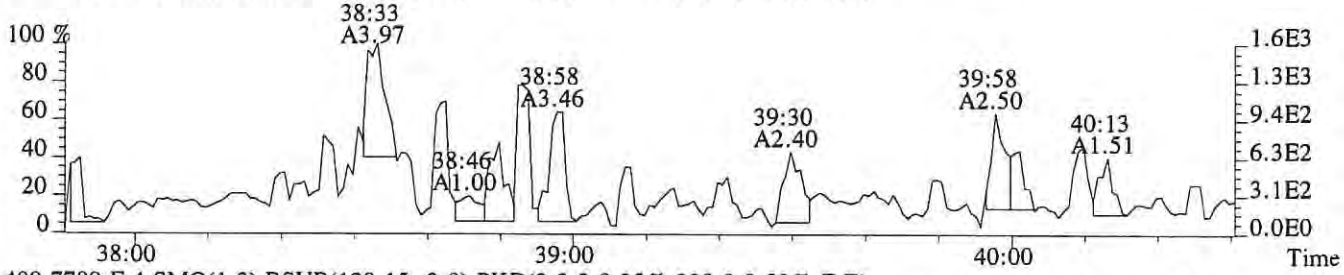


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

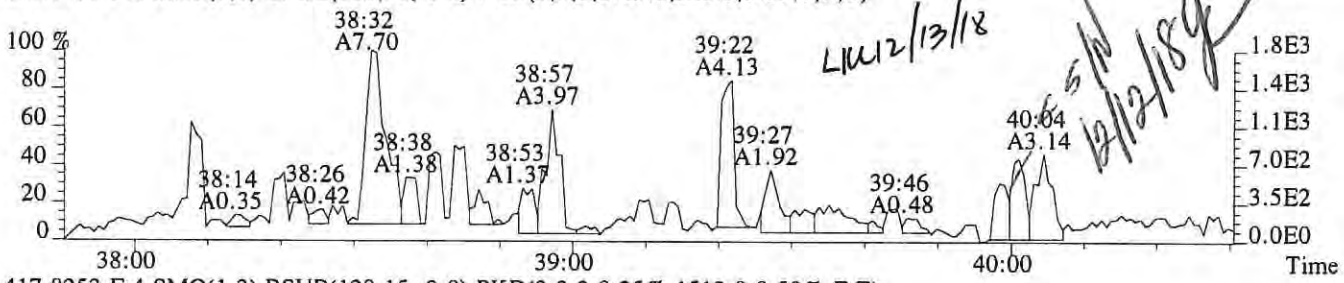


File:P519347 #1-241 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019

407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.50%,F,T)

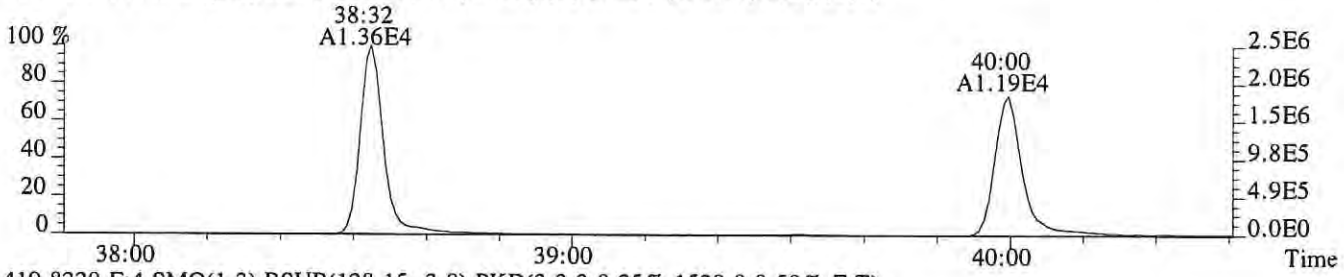


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.50%,F,T)

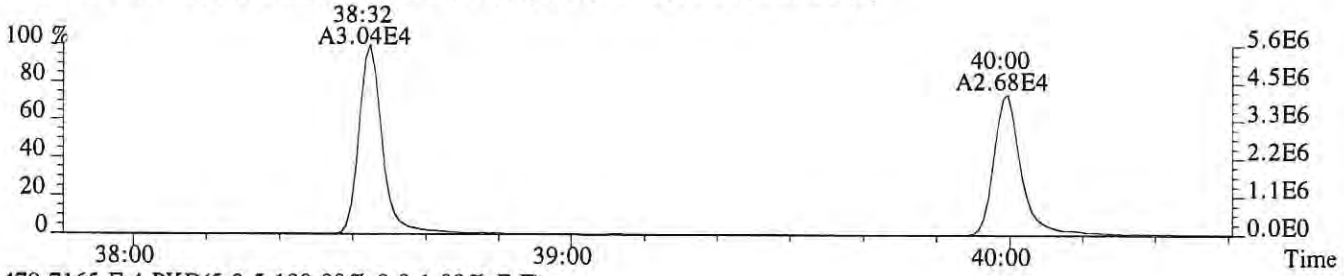


LW 12/13/18

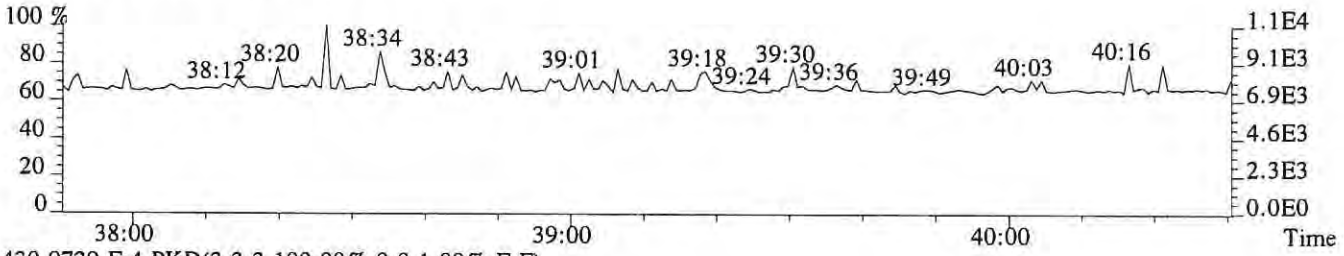
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.50%,F,T)



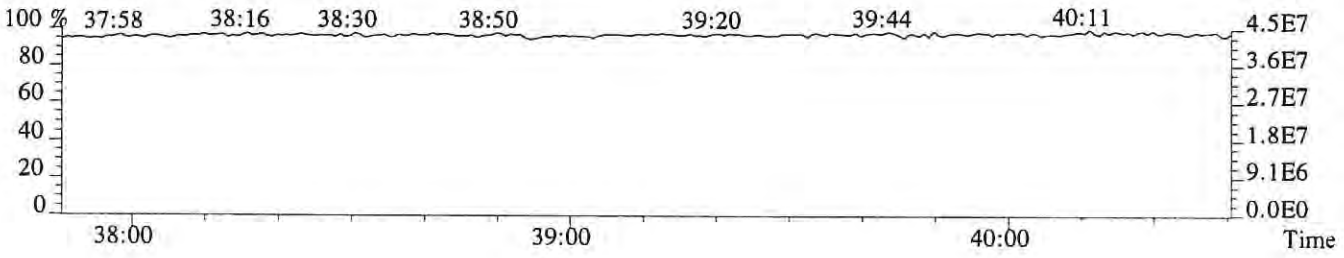
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.50%,F,T)



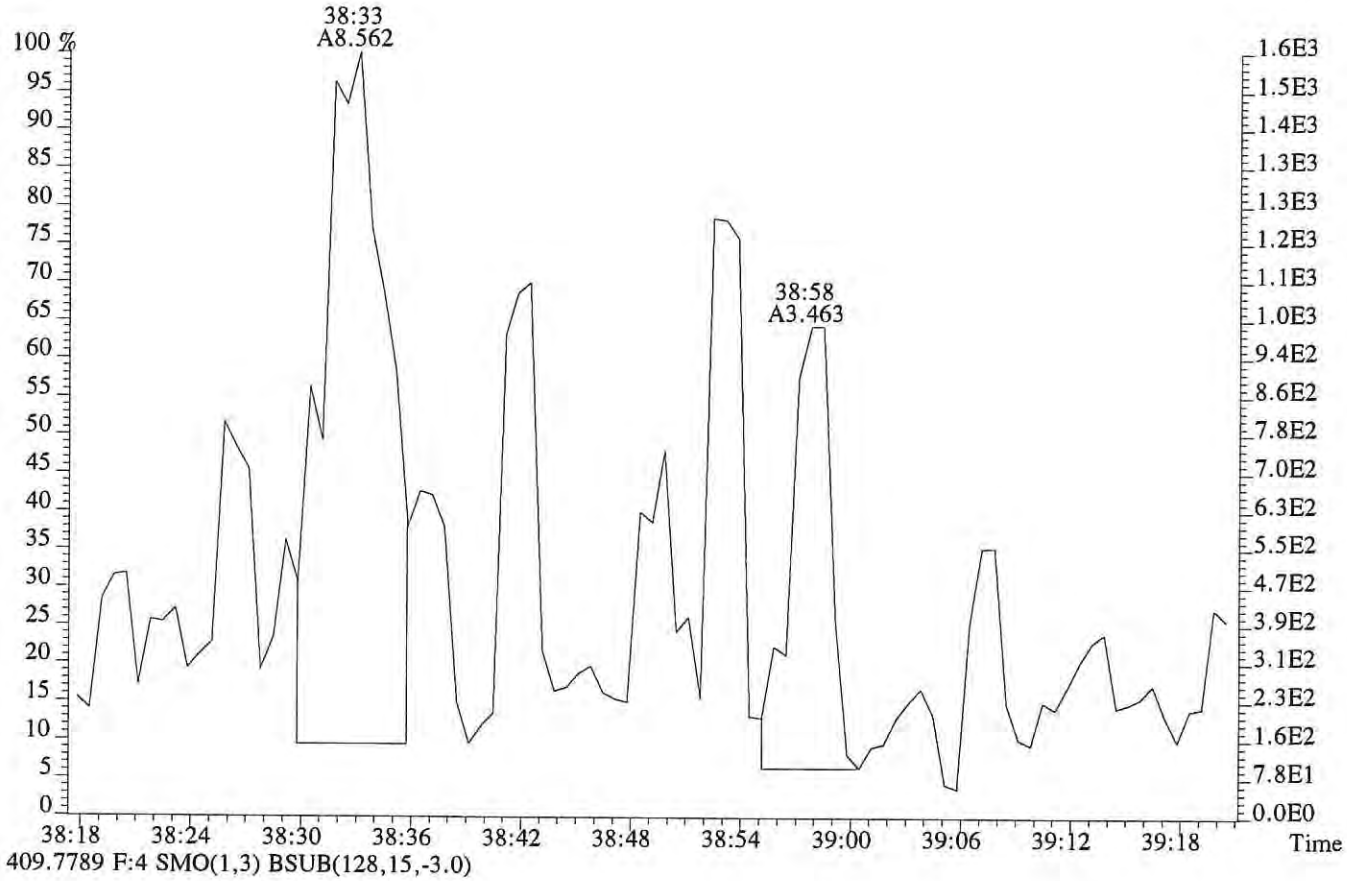
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



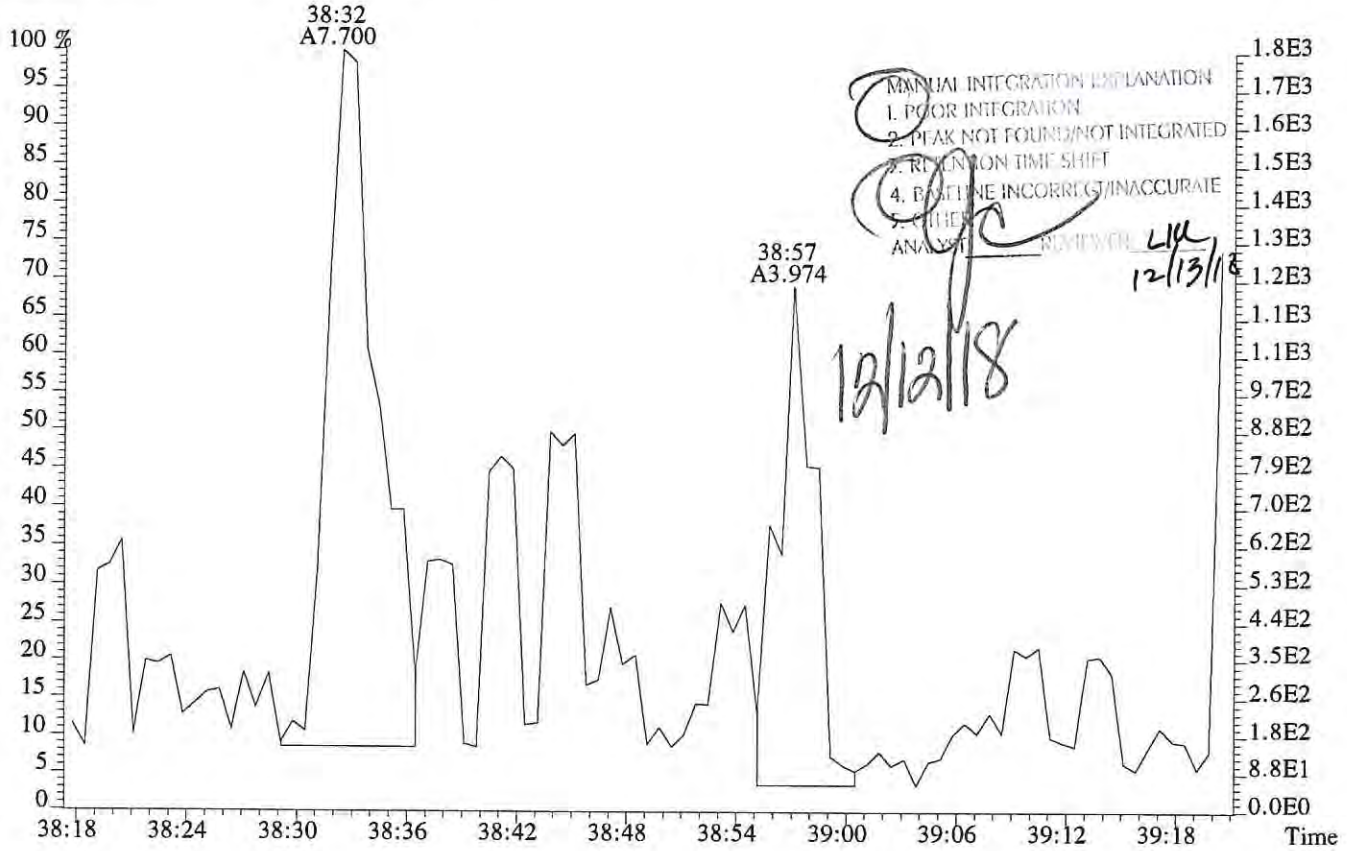
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



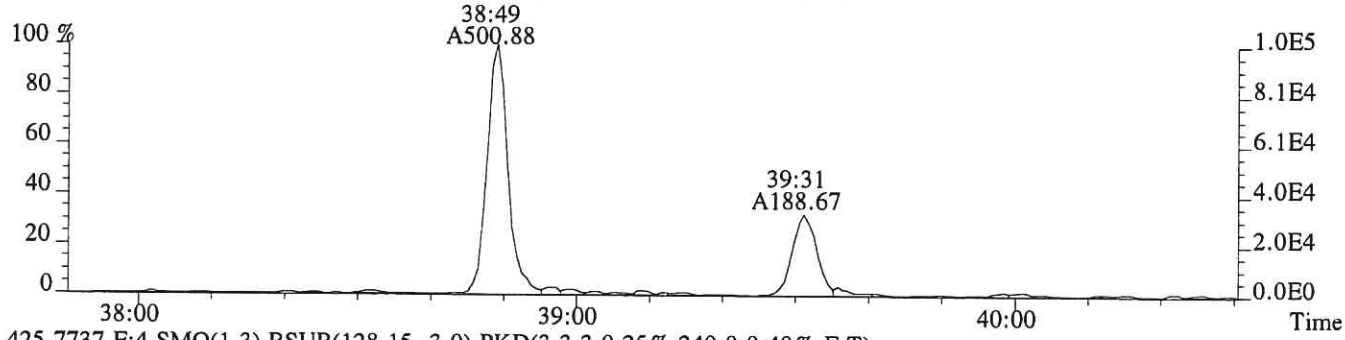
File:P519347 #1-241 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0)



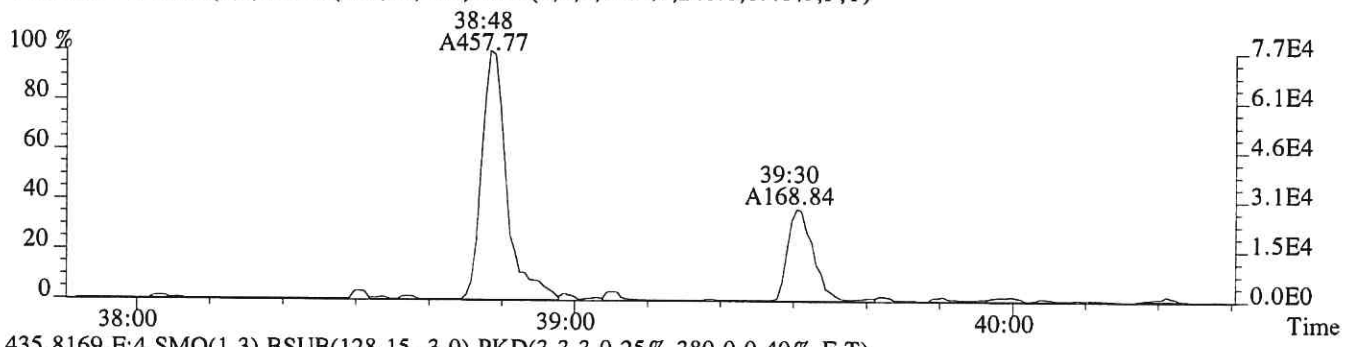
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0)



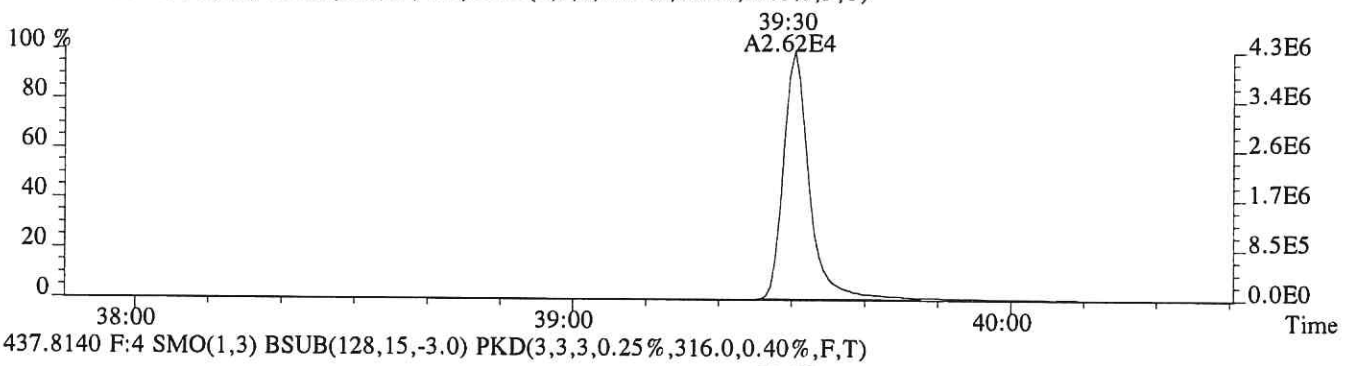
File:P519347 #1-241 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



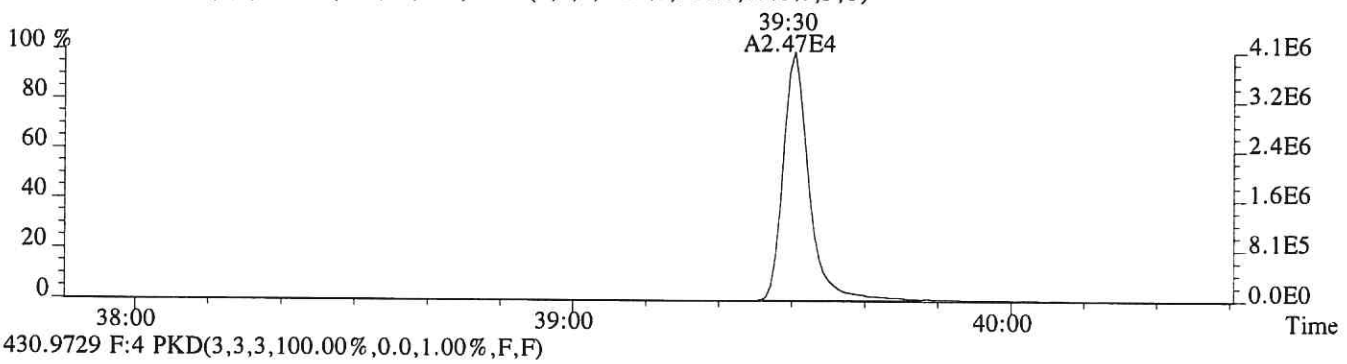
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



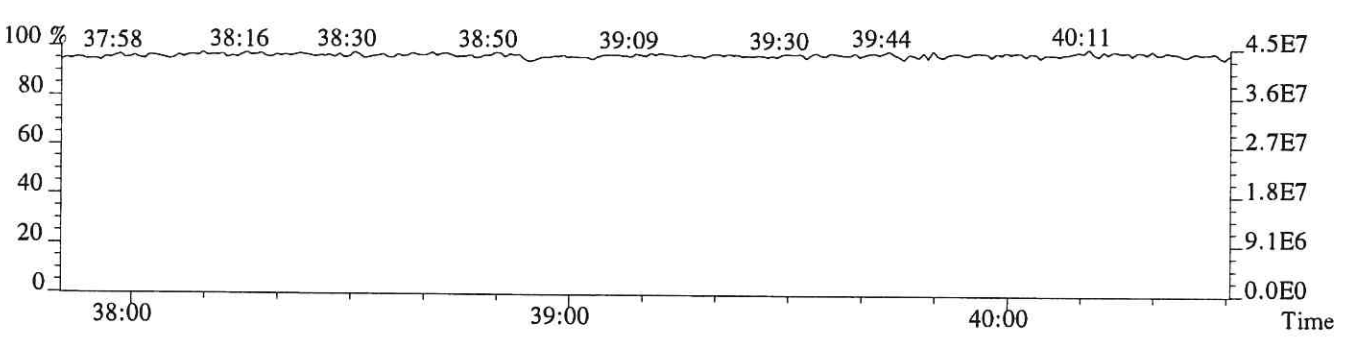
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)

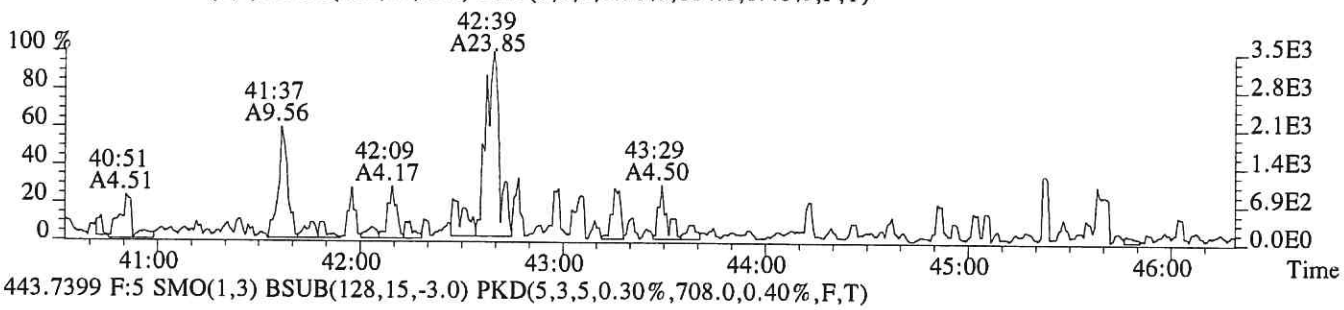


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

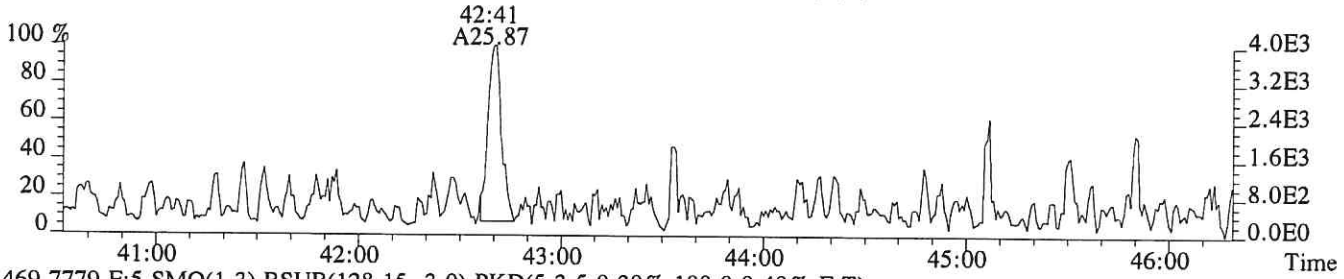


File:P519347 #1-520 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019

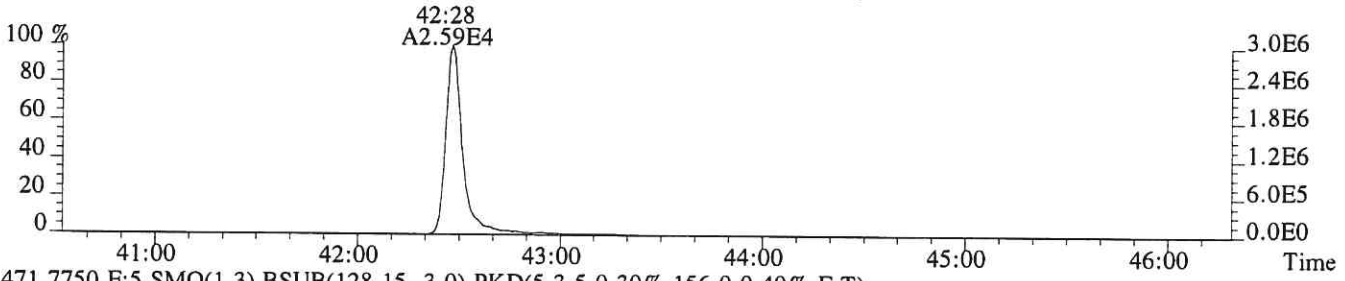
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



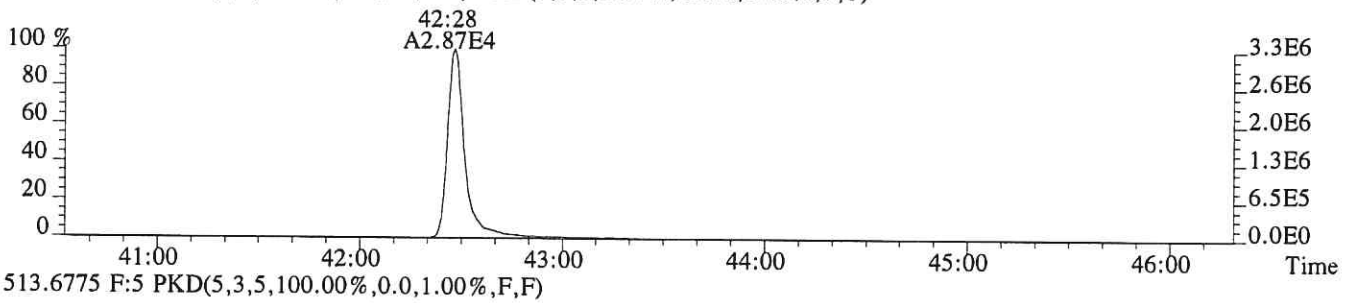
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,708.0,0.40%,F,T)



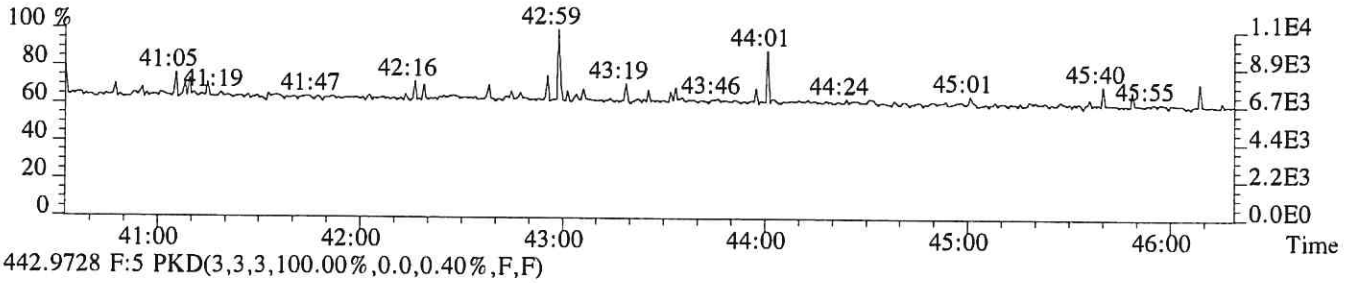
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



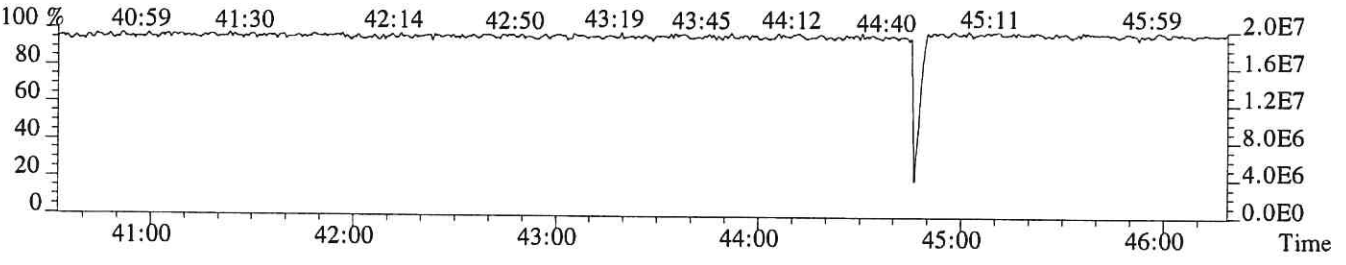
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



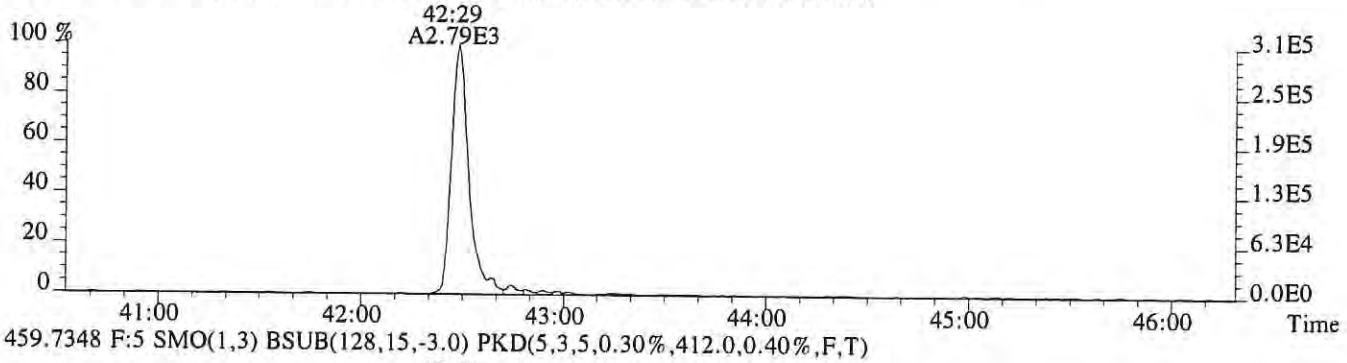
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



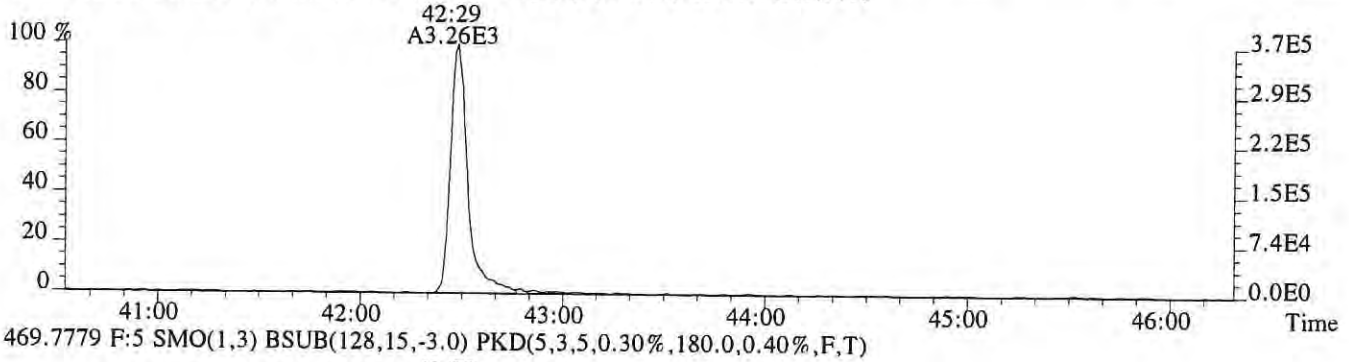
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



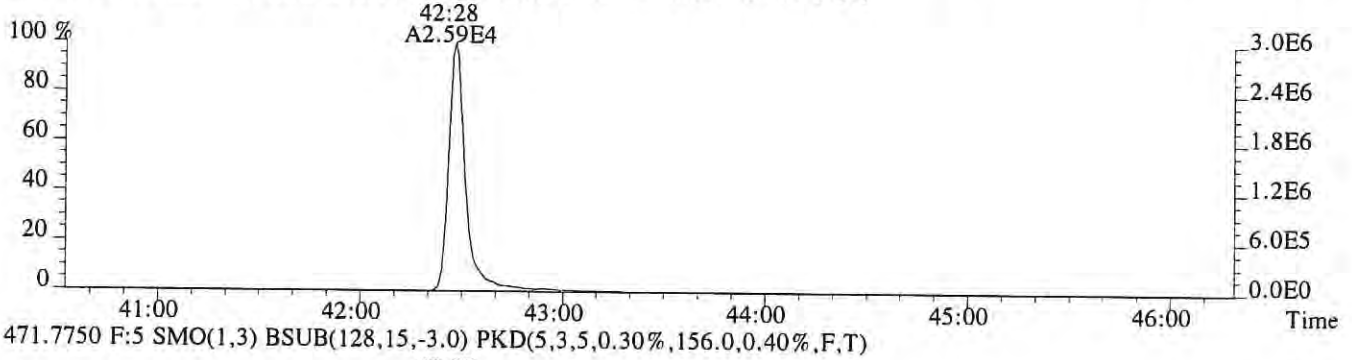
File:P519347 #1-520 Acq:11-DEC-2018 07:44:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-019
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



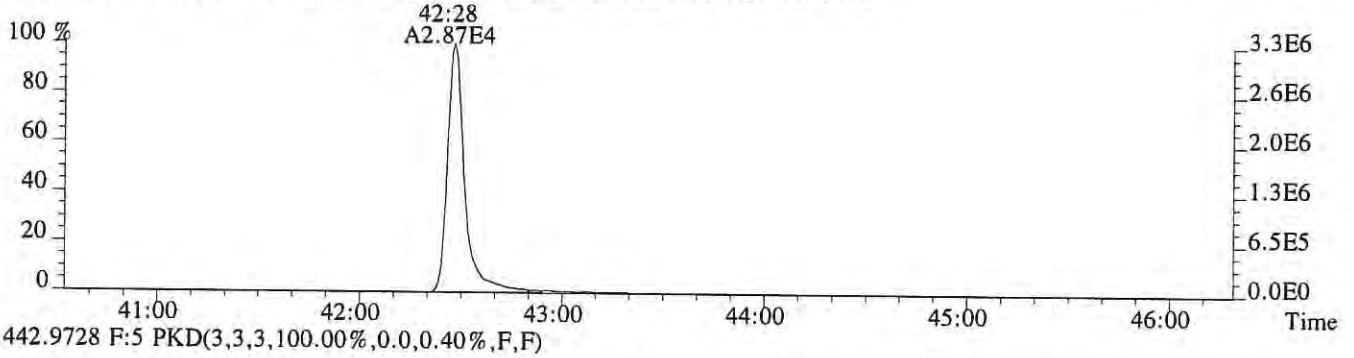
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



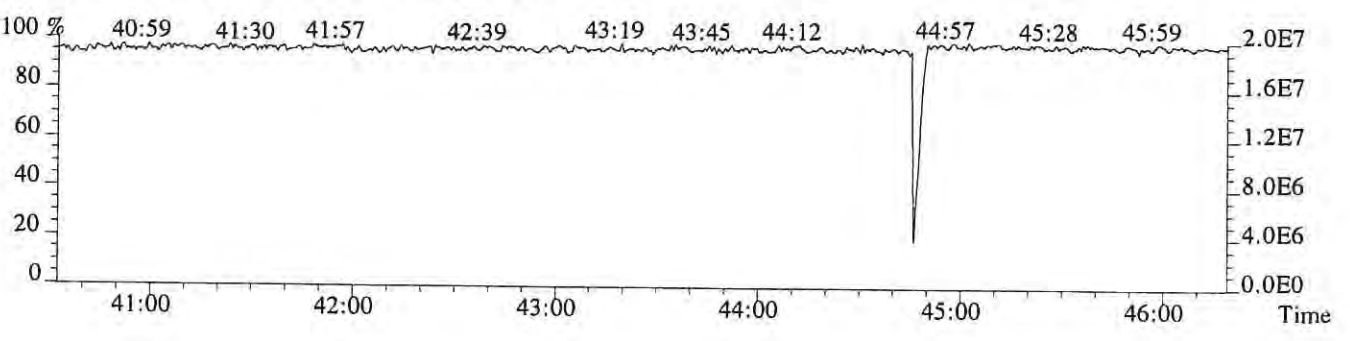
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,156.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0569

Run #20 Filename P519348 Samp: 1 Inj: 1 Acquired: 11-DEC-18 08:32:58
Processed: 12-DEC-18 13:51:03 Sample ID: E1801065-020

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.005e+03	1.372e+03	0.73	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	6.923e+01	8.493e+01	0.82	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	8.050e+01	4.413e+01	1.82	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	1.644e+02	1.450e+02	1.13	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	5.227e+01	3.628e+01	1.44	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:15	2.985e+01	7.226e+00	4.13	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	4.148e+01	6.119e+01	0.68	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	1.876e+01	1.348e+01	1.39	no	no	1.258
10	Unk	OCDF	42:40	5.358e+01	7.247e+01	0.74	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	2.652e+02	3.033e+02	0.87	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.620e+01	1.396e+01	1.16	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	1.045e+01	9.524e+00	1.10	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	1.504e+02	1.427e+02	1.05	yes	no	1.025
17	Unk	OCDD	42:29	1.837e+03	2.159e+03	0.85	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.274e+04	1.580e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	3.259e+04	2.051e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.471e+04	2.186e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.651e+04	3.192e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	2.099e+04	3.944e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.828e+04	3.603e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.764e+04	3.467e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.417e+04	3.190e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.233e+04	2.828e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	5.618e+03	7.057e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.483e+04	1.544e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	2.444e+04	1.887e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.392e+04	1.887e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.790e+04	2.584e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:28	2.572e+04	2.788e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	3.276e+04	4.056e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.267e+04	3.406e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	8.462e+03				no	1.014

$$\text{OCDD} = \frac{(1.837e+03 + 2.159e+03) \times 4000 \text{ pg} \times 1}{(2.572e+04 + 2.788e+04) \times 10.05 \text{ g} \times 79.5 / 100 \times 1.118} = 32.9 \text{ ng/kg}$$

LM 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0569

Run #20 Filename P519348 Samp: 1 Inj: 1 Acquired: 11-DEC-18 08:32:58
Processed: 12-DEC-18 13:51:03 LAB. ID: E1801065-020

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.61e+05	5.24e+02	3.1e+02	2.20e+05	1.18e+03	1.9e+02
2	1,2,3,7,8-PeCDF	1.37e+04	5.28e+02	2.6e+01	1.37e+04	1.30e+03	1.1e+01
3	2,3,4,7,8-PeCDF	1.74e+04	5.28e+02	3.3e+01	9.30e+03	1.30e+03	7.2e+00
4	1,2,3,4,7,8-HxCDF	3.61e+04	4.64e+02	7.8e+01	3.15e+04	3.96e+02	8.0e+01
5	1,2,3,6,7,8-HxCDF	1.07e+04	4.64e+02	2.3e+01	7.05e+03	3.96e+02	1.8e+01
6	2,3,4,6,7,8-HxCDF	*	4.64e+02	*	*	3.96e+02	*
7	1,2,3,7,8,9-HxCDF	3.81e+03	4.64e+02	8.2e+00	1.82e+03	3.96e+02	4.6e+00
8	1,2,3,4,6,7,8-HpCDF	8.38e+03	2.72e+02	3.1e+01	1.39e+04	2.60e+02	5.4e+01
9	1,2,3,4,7,8,9-HpCDF	3.00e+03	2.72e+02	1.1e+01	2.23e+03	2.60e+02	8.6e+00
10	OCDF	7.95e+03	1.92e+02	4.1e+01	1.00e+04	6.48e+02	1.5e+01
11	2,3,7,8-TCDD	5.38e+04	2.04e+03	2.6e+01	5.37e+04	5.96e+02	9.0e+01
12	1,2,3,7,8-PeCDD	3.15e+03	7.68e+02	4.1e+00	2.74e+03	3.24e+02	8.4e+00
13	1,2,3,4,7,8-HxCDD	*	3.40e+02	*	*	5.84e+02	*
14	1,2,3,6,7,8-HxCDD	2.83e+03	3.40e+02	8.3e+00	2.21e+03	5.84e+02	3.8e+00
15	1,2,3,7,8,9-HxCDD	*	3.40e+02	*	*	5.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	3.02e+04	3.64e+02	8.3e+01	2.56e+04	3.60e+02	7.1e+01
17	OCDD	2.29e+05	2.00e+02	1.1e+03	2.66e+05	1.52e+02	1.8e+03
18	13C-2,3,7,8-TCDF	2.25e+06	7.68e+03	2.9e+02	2.81e+06	4.53e+03	6.2e+02
19	13C-1,2,3,7,8-PeCDF	5.99e+06	8.60e+02	7.0e+03	3.76e+06	1.04e+03	3.6e+03
20	13C-2,3,4,7,8-PeCDF	6.70e+06	8.60e+02	7.8e+03	4.22e+06	1.04e+03	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	3.45e+06	9.28e+02	3.7e+03	6.63e+06	1.19e+03	5.6e+03
22	13C-1,2,3,6,7,8-HxCDF	4.20e+06	9.28e+02	4.5e+03	7.82e+06	1.19e+03	6.6e+03
23	13C-2,3,4,6,7,8-HxCDF	3.69e+06	9.28e+02	4.0e+03	7.11e+06	1.19e+03	6.0e+03
24	13C-1,2,3,7,8,9-HxCDF	3.11e+06	9.28e+02	3.4e+03	6.09e+06	1.19e+03	5.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.78e+06	1.71e+03	1.6e+03	6.19e+06	3.01e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.94e+06	1.71e+03	1.1e+03	4.40e+06	3.01e+03	1.5e+03
27	13C-2,3,7,8-TCDD	1.07e+06	6.70e+03	1.6e+02	1.32e+06	2.30e+03	5.7e+02
28	13C-1,2,3,7,8-PeCDD	4.77e+06	5.68e+02	8.4e+03	2.92e+06	5.00e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	5.35e+06	6.76e+02	7.9e+03	4.14e+06	5.88e+02	7.0e+03
30	13C-1,2,3,6,7,8-HxCDD	4.57e+06	6.76e+02	6.8e+03	3.67e+06	5.88e+02	6.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.77e+06	2.84e+02	1.7e+04	4.40e+06	2.88e+02	1.5e+04
32	13C-OCDD	3.02e+06	1.40e+02	2.2e+04	3.37e+06	2.36e+02	1.4e+04
33	13C-1,2,3,4-TCDD	6.08e+06	6.70e+03	9.1e+02	7.59e+06	2.30e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	8.22e+06	6.76e+02	1.2e+04	6.34e+06	5.88e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	1.58e+06	9.20e+02	1.7e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0569

Entry: 36 Totals Name: Total Tetra-Furans

Run: 20 File: P519348 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 08:32:58 Processed: 12-DEC-18 13:51:03

Mass: 303.9020 305.8990 Tot Response: 3.65e+03 RRF: 0.9417

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:55	3.34e+02	4.87e+02	0.69	yes	8.21e+02		n	n
2	27:11	2.51e+01	3.26e+01	0.77	yes	5.77e+01		n	n
3	27:45	1.01e+03	1.37e+03	0.73	yes	2.38e+03	2,3,7,8-TCDF	n	n
4	28:05	8.59e+01	1.04e+02	0.83	yes	1.90e+02		n	n
5	29:38	9.14e+01	1.10e+02	0.83	yes	2.01e+02		n	n

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0569

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 20 File: P519348 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 08:32:58 Processed: 12-DEC-18 13:51:03

Mass: 319.8970 321.8940 Tot Response: 5.69e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:35	2.65e+02	3.03e+02 0.87	yes	5.69e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0569

Entry: 39 Totals Name: Total Penta-Furans2

Run: 20 File: P519348 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 08:32:58 Processed: 12-DEC-18 13:51:03

Mass: 339.8600 341.8570 Tot Response: 6.28e+01 RRF: 0.9857

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:08	3.98e+01	2.30e+01 1.73	yes	6.28e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0569

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 20 File: P519348 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 08:32:58 Processed: 12-DEC-18 13:51:03

Mass: 355.8550 357.8520 Tot Response: 5.75e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:40	3.57e+01	2.18e+01 1.64	yes	5.75e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0569

Entry: 41 Totals Name: Total Hexa-Furans

Run: 20 File: P519348 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 08:32:58 Processed: 12-DEC-18 13:51:03

Mass: 373.8210 375.8180 Tot Response: 3.39e+02 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:49	8.29e+00	7.00e+00	1.18	yes	1.53e+01		n	n
2	35:22	7.73e+00	6.27e+00	1.23	yes	1.40e+01		n	n
3	35:48	1.64e+02	1.45e+02	1.13	yes	3.09e+02	1,2,3,4,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0569

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 20 File: P519348 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 08:32:58 Processed: 12-DEC-18 13:51:03

Mass: 389.8160 391.8130 Tot Response: 1.02e+02 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:57	2.24e+01	2.09e+01	1.07	yes	4.32e+01		n	y
2	36:00	2.27e+01	1.62e+01	1.40	yes	3.88e+01		n	y
3	36:40	1.05e+01	9.52e+00	1.10	yes	2.00e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0569

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 20 File: P519348 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 08:32:58 Processed: 12-DEC-18 13:51:03

Mass: 423.7770 425.7740 Tot Response: 9.26e+02 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	3.27e+02	3.06e+02 1.07	yes	6.33e+02		n	n
2	39:30	1.50e+02	1.43e+02 1.05	yes	2.93e+02	1,2,3,4,6,7,8-HpCDD	n	n

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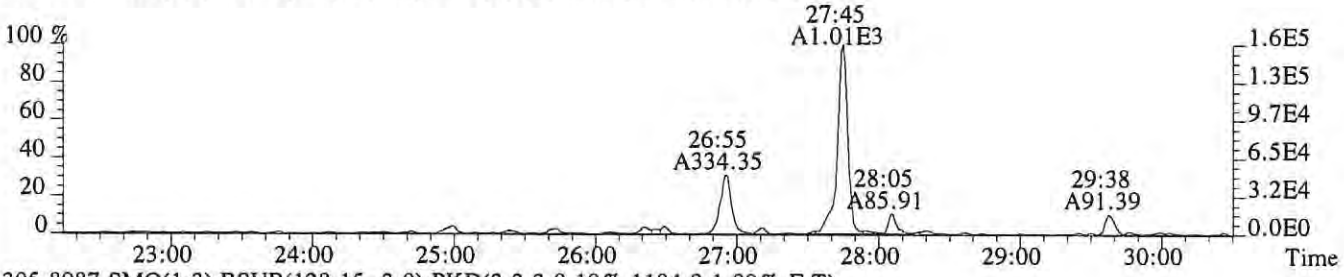
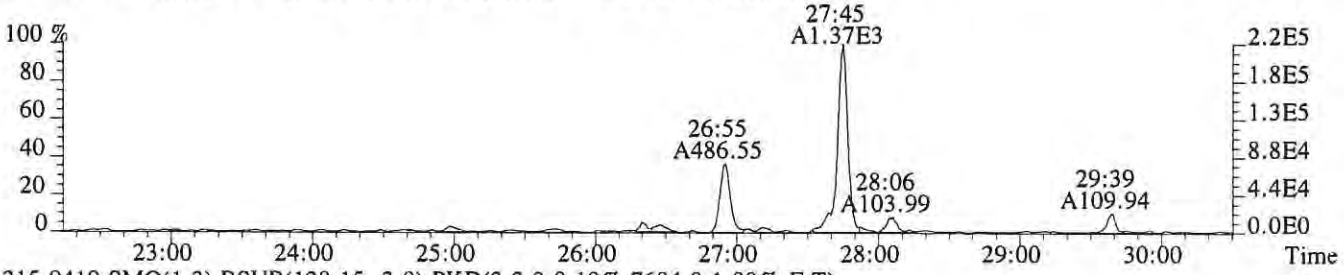
File:P519348 #1-587 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020

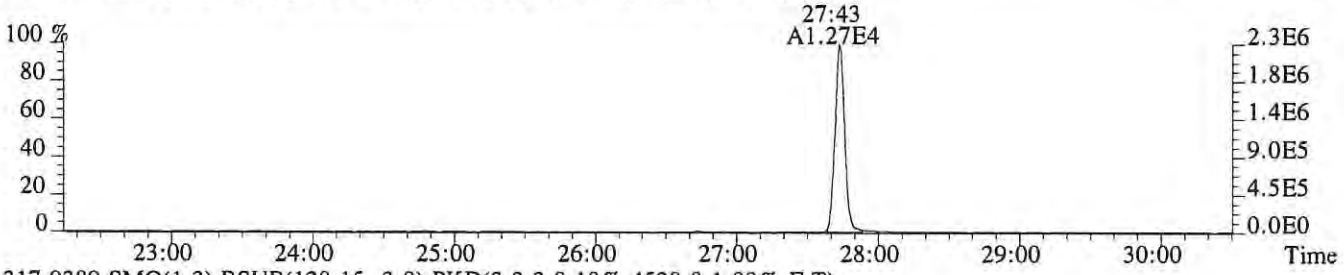
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



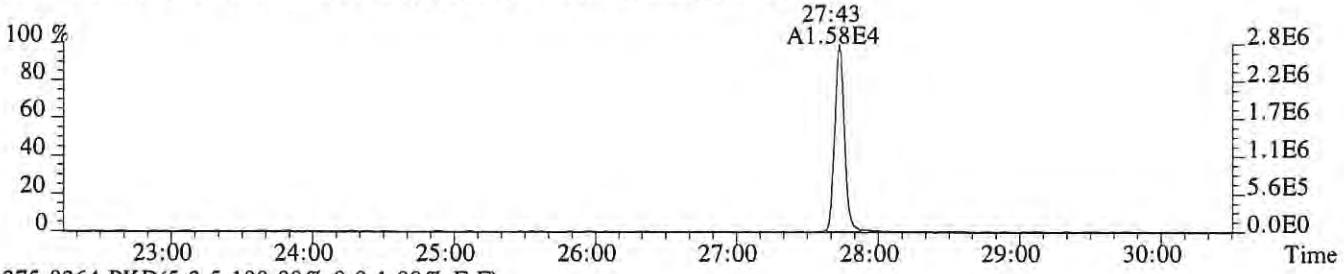
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



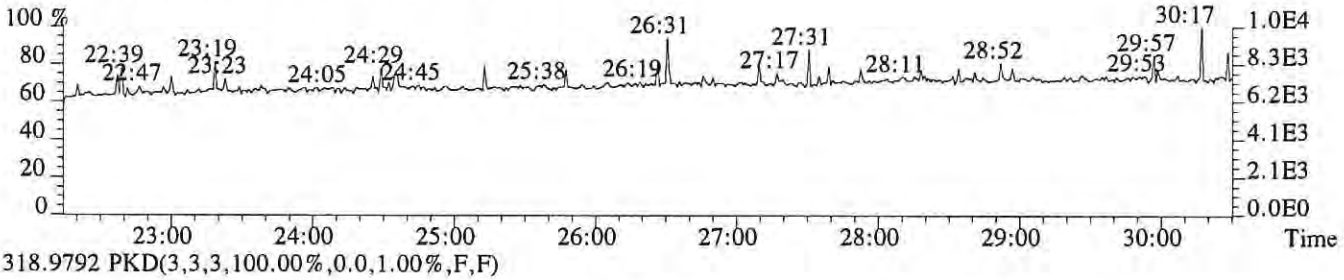
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7684.0,1.00%,F,T)



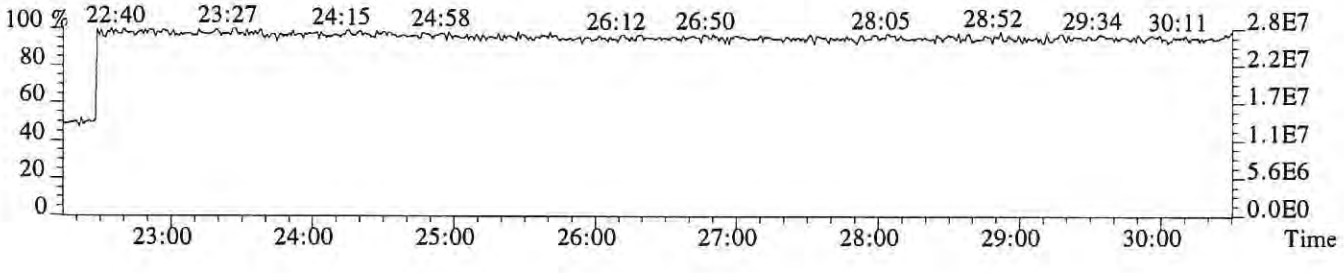
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4528.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

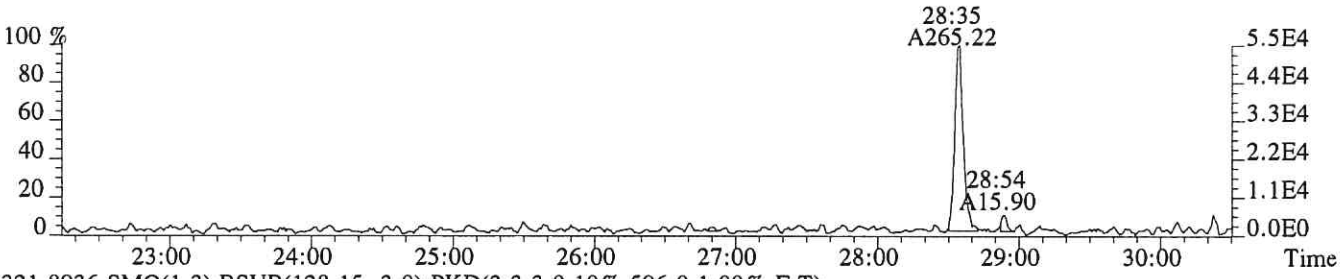


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

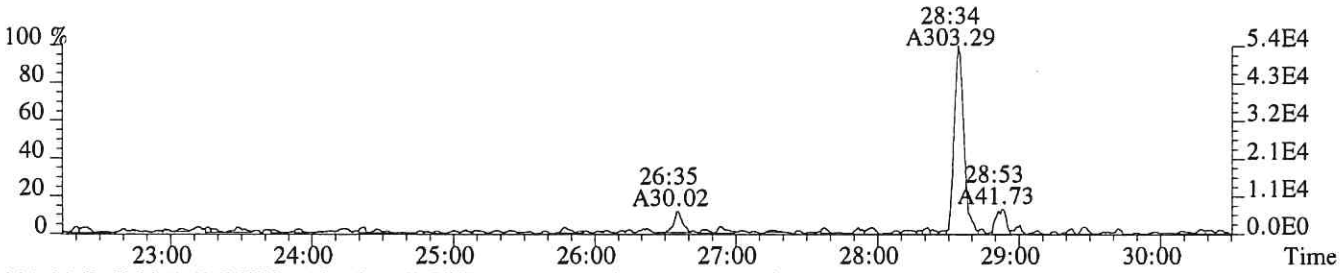


File:P519348 #1-587 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020

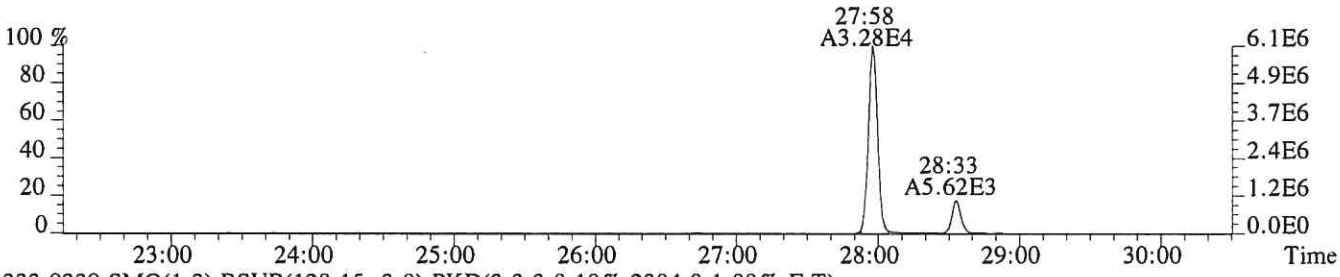
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2040.0,1.00%,F,T)



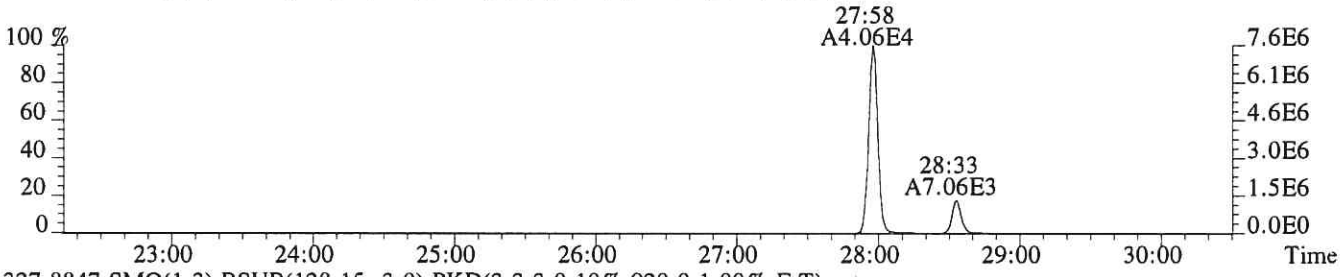
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



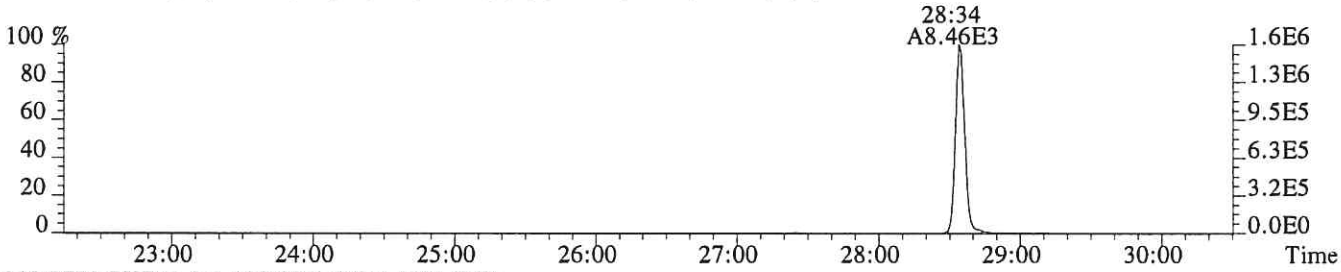
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6704.0,1.00%,F,T)



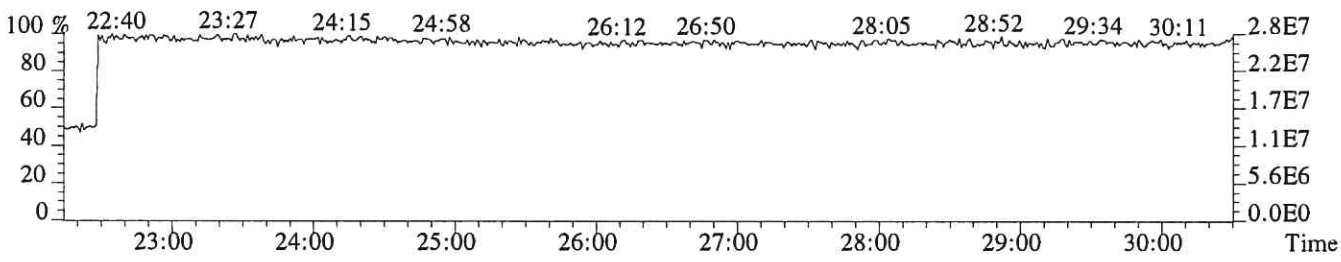
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



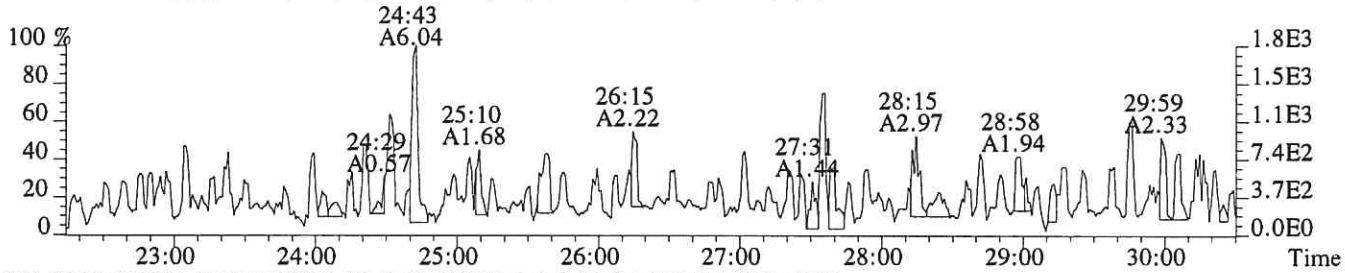
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



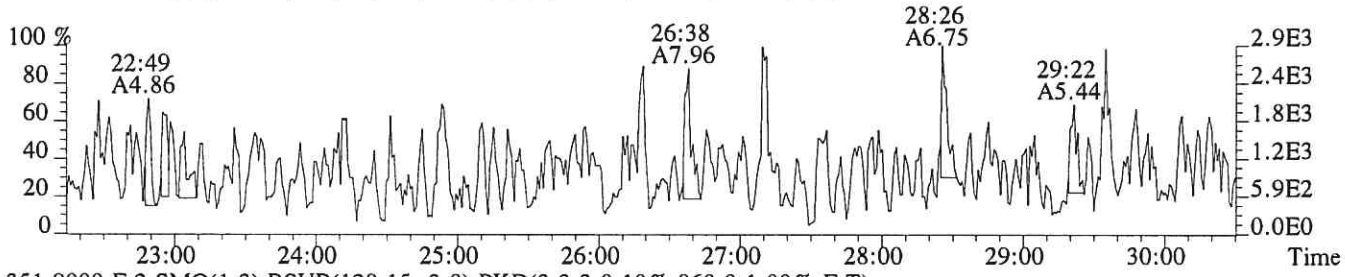
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



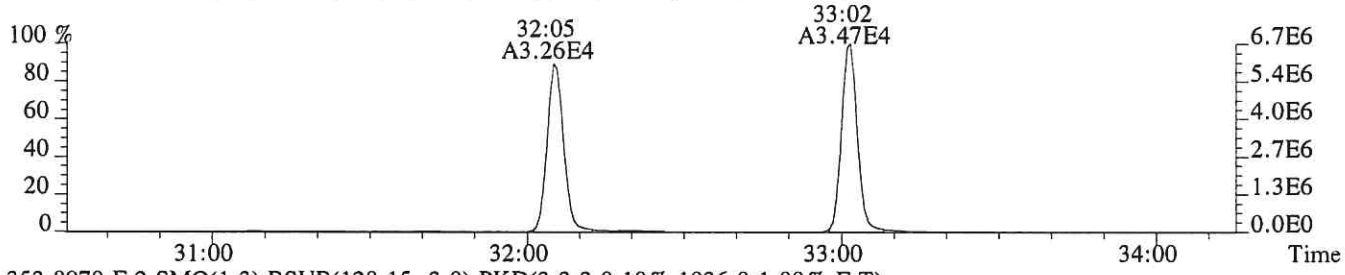
File:P519348 #1-587 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



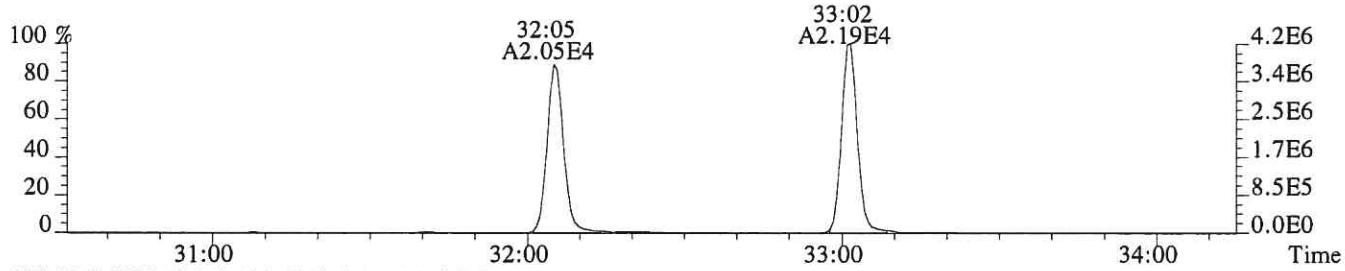
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



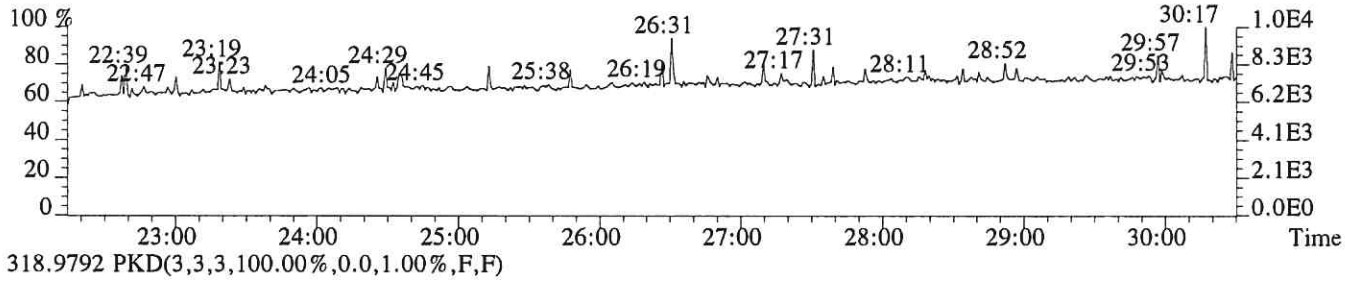
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



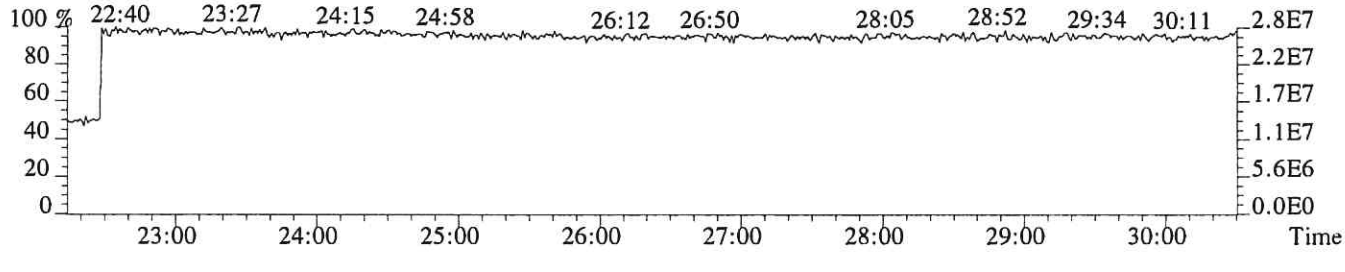
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

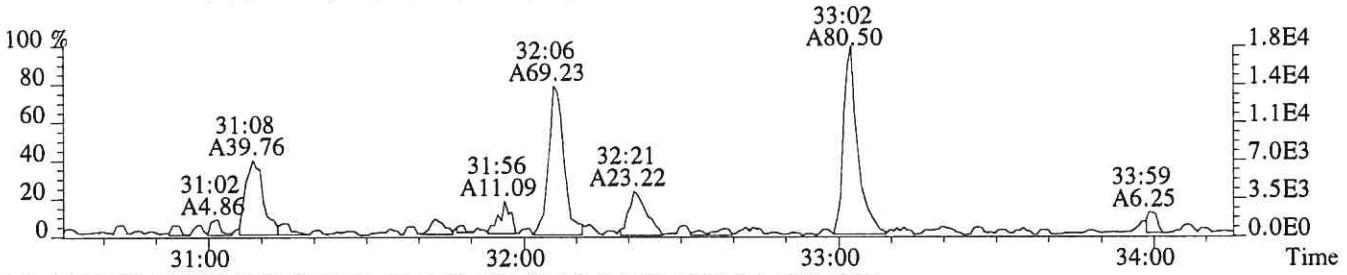


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

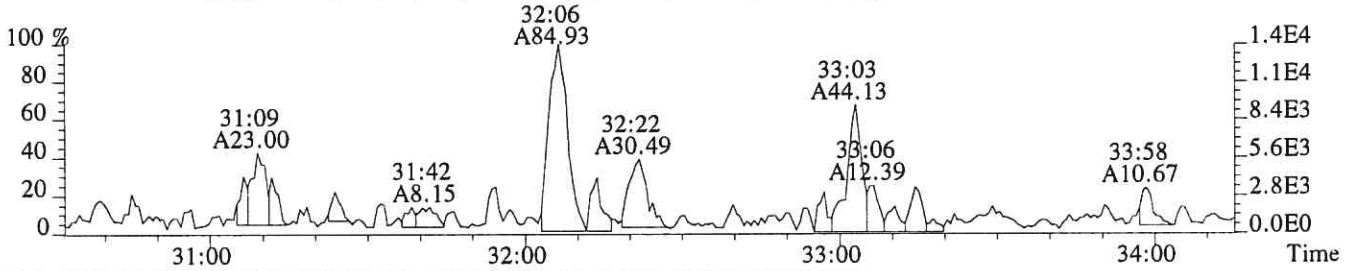


File:P519348 #1-335 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020

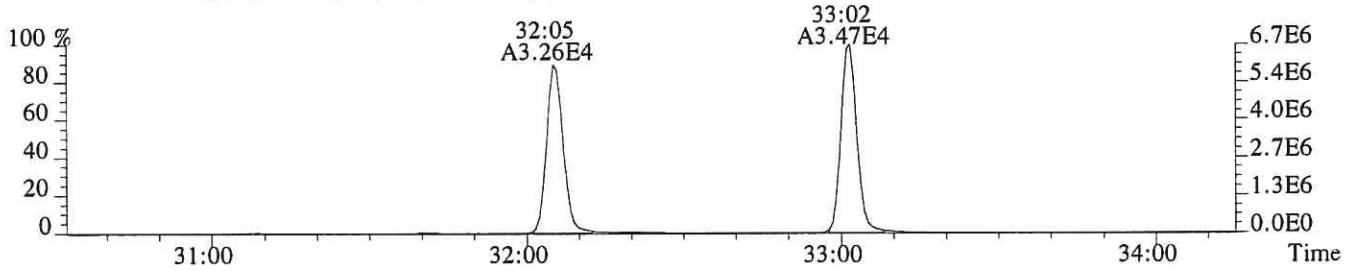
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



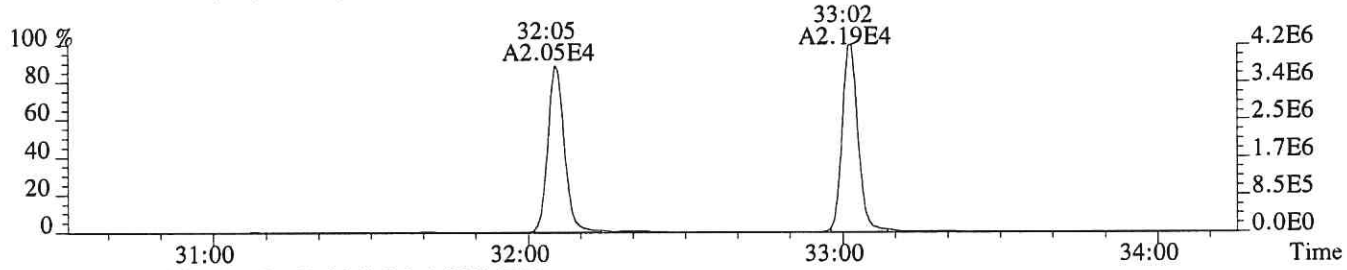
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



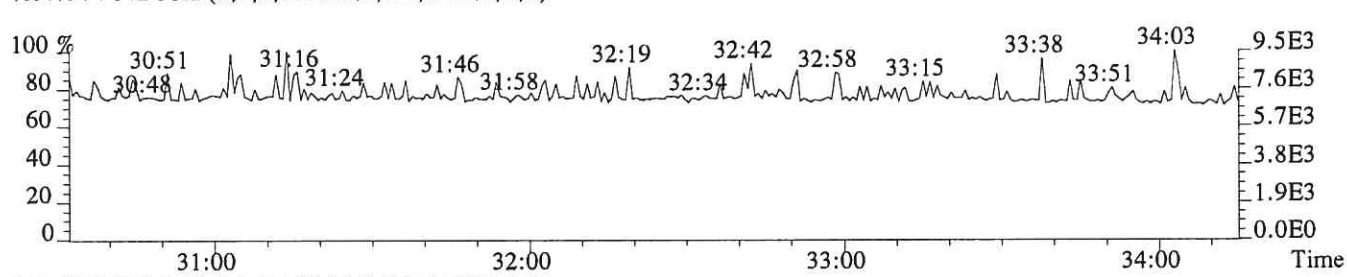
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



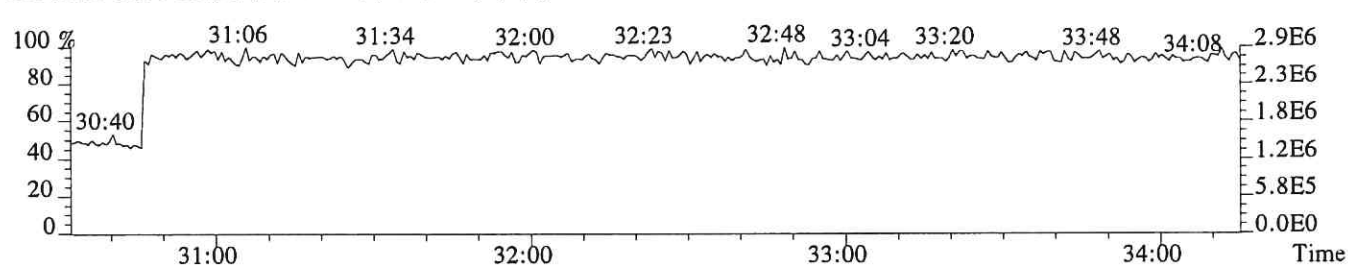
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



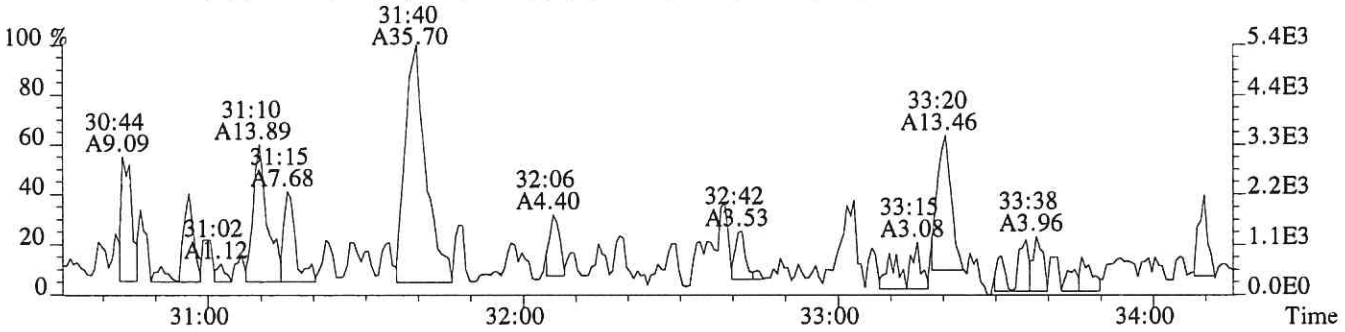
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



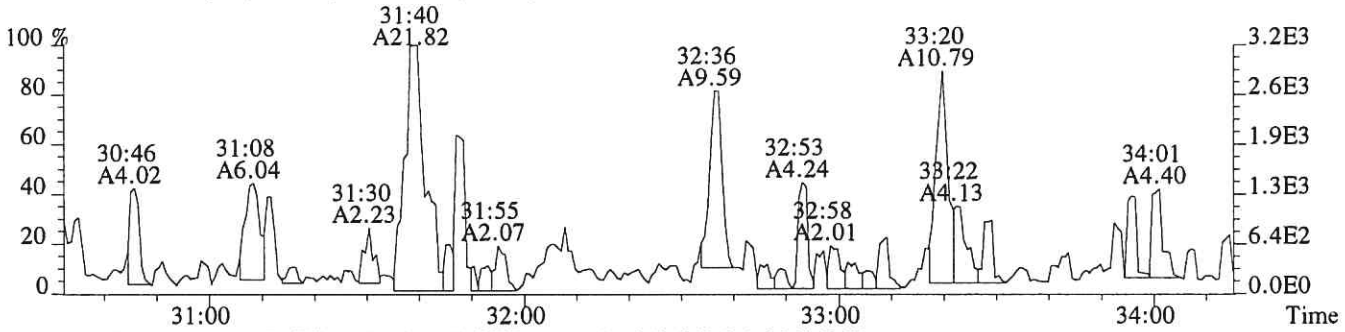
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



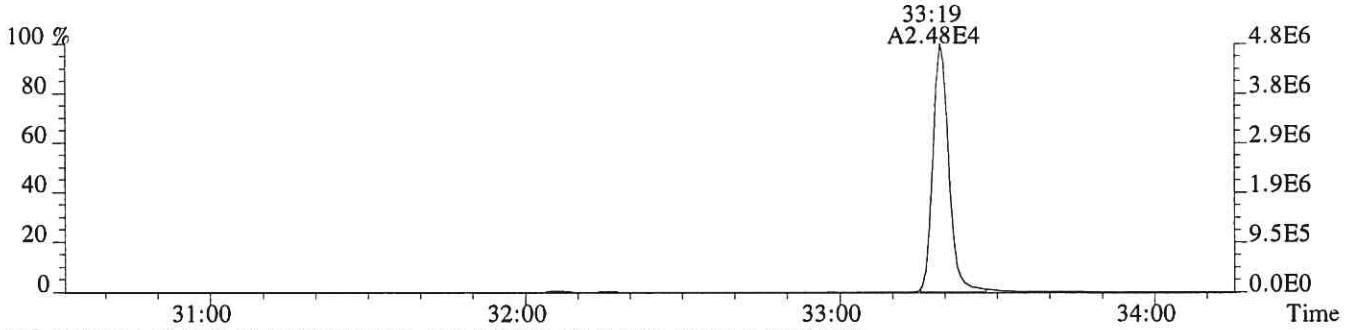
File:P519348 #1-335 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



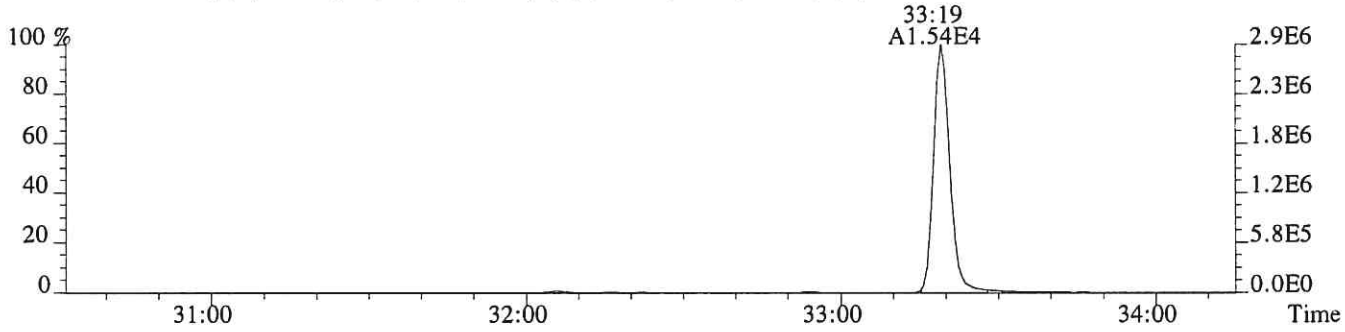
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



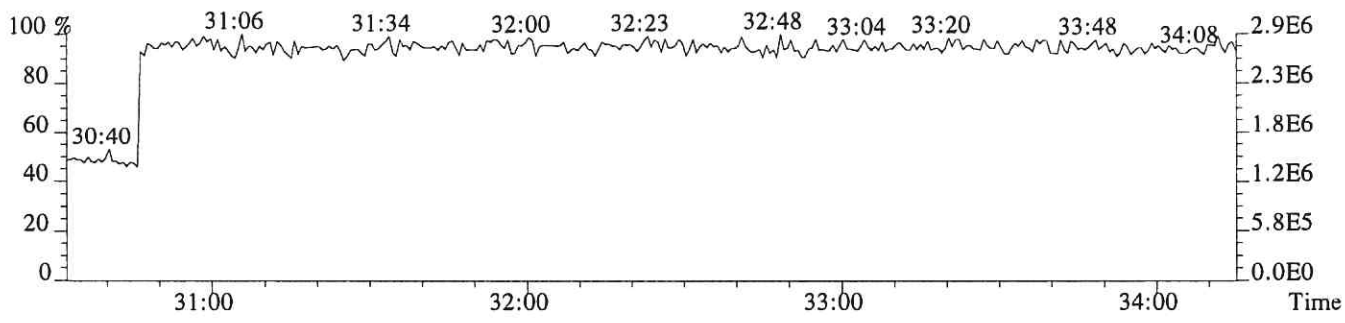
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



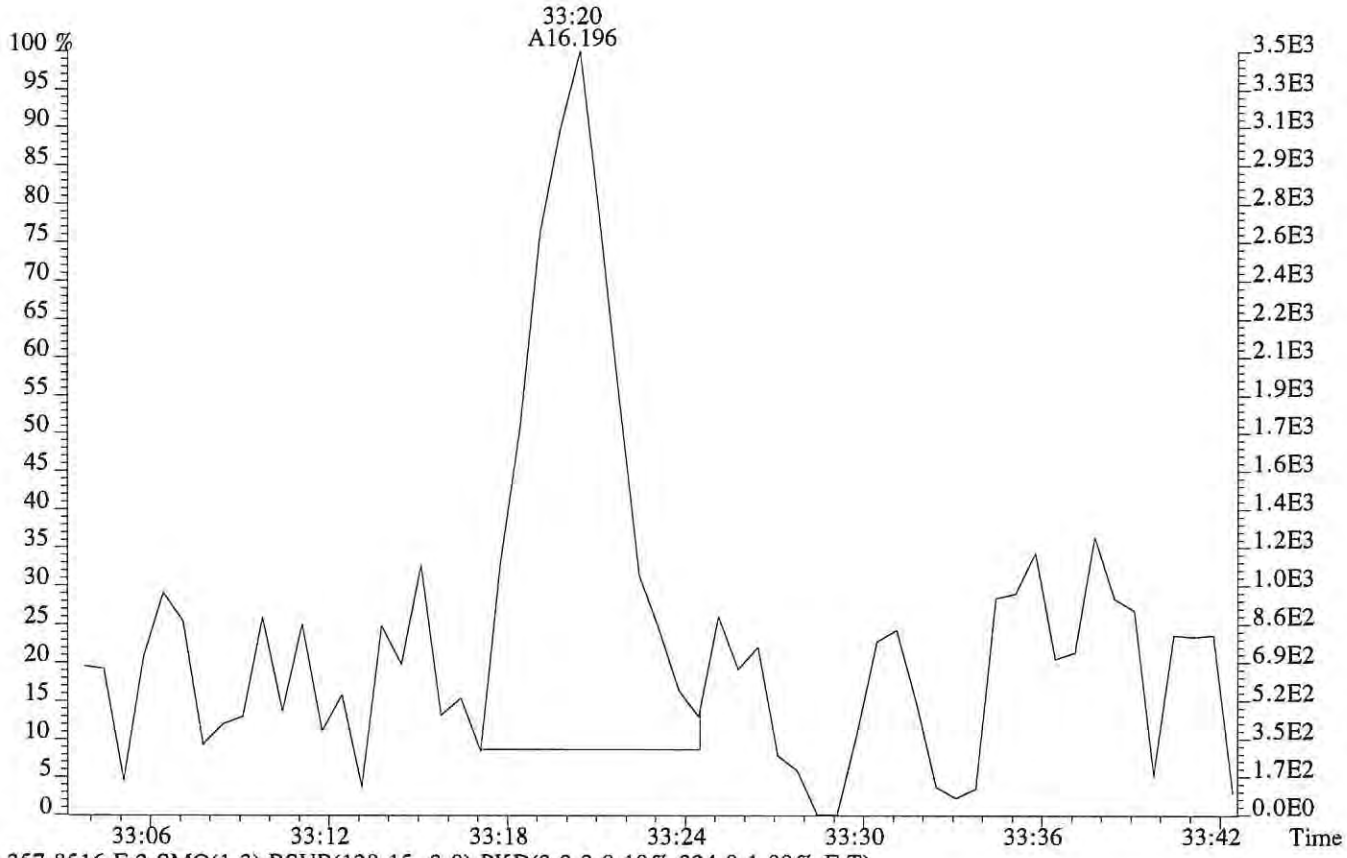
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



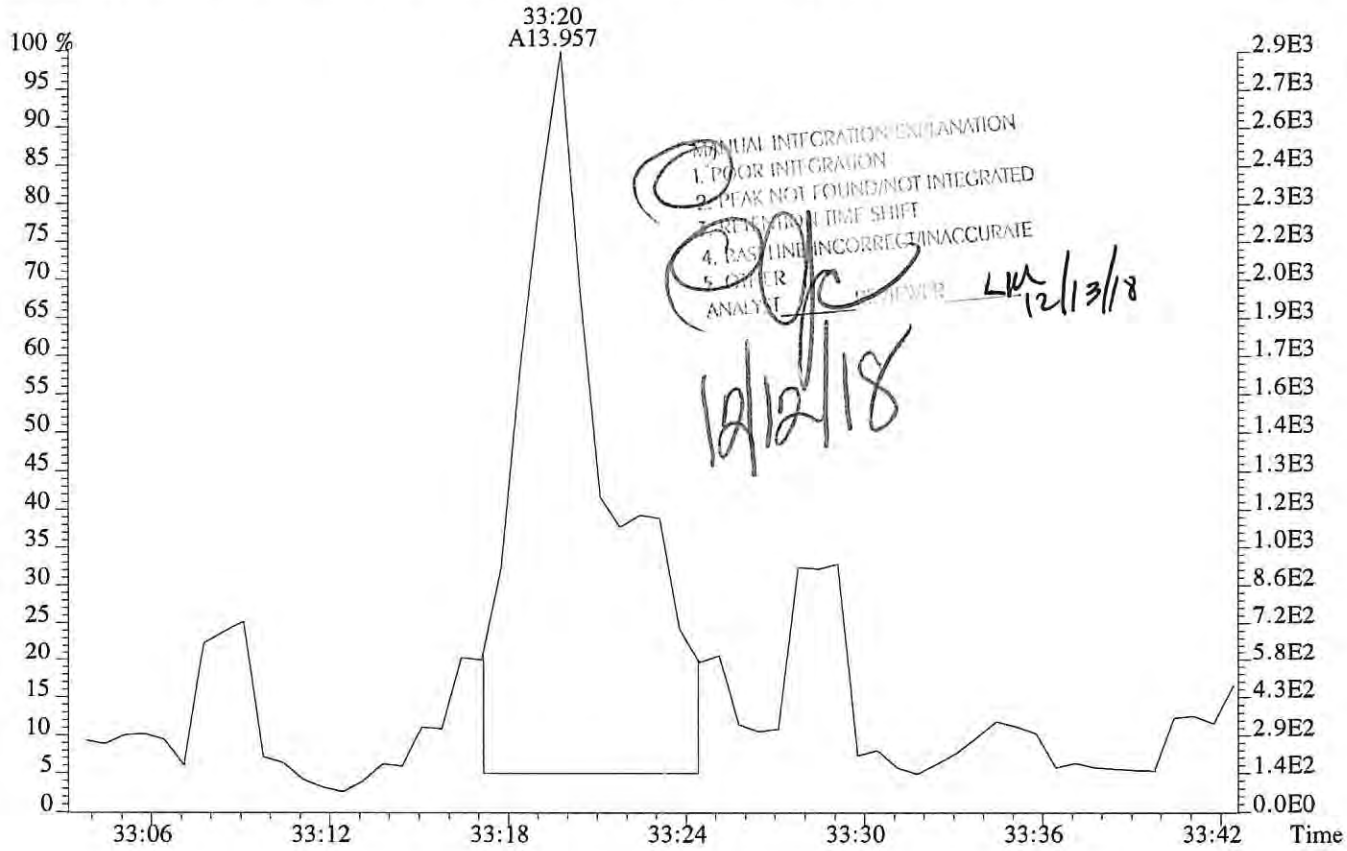
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519348 #1-335 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



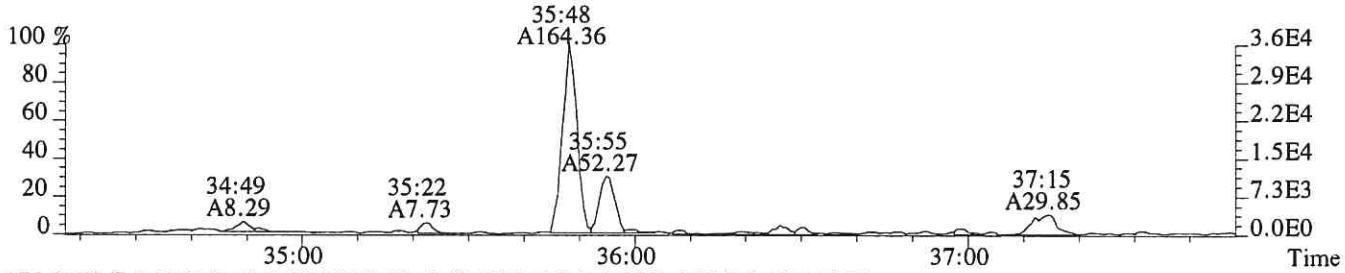
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



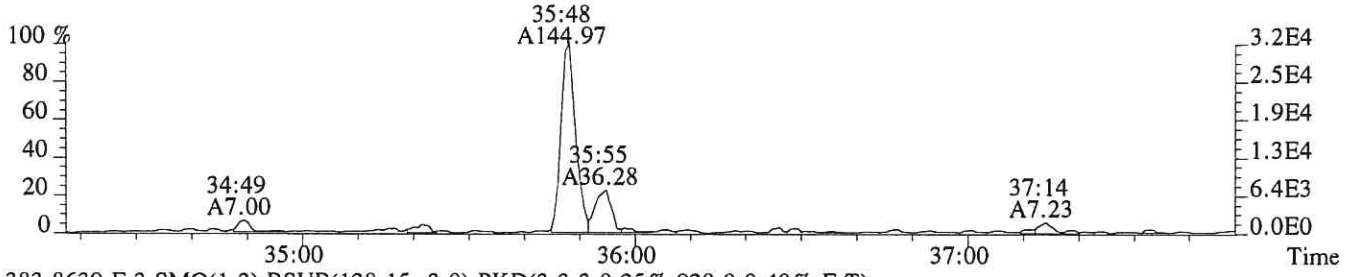
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST
LM 12/13/18
12/12/18

File:P519348 #1-317 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020

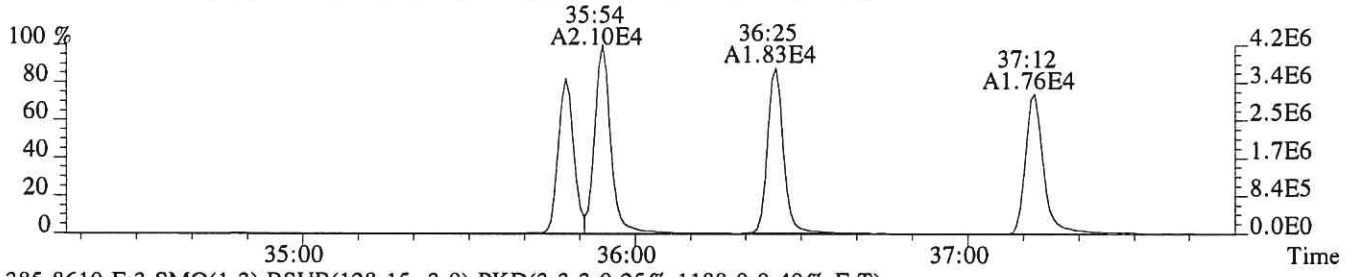
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



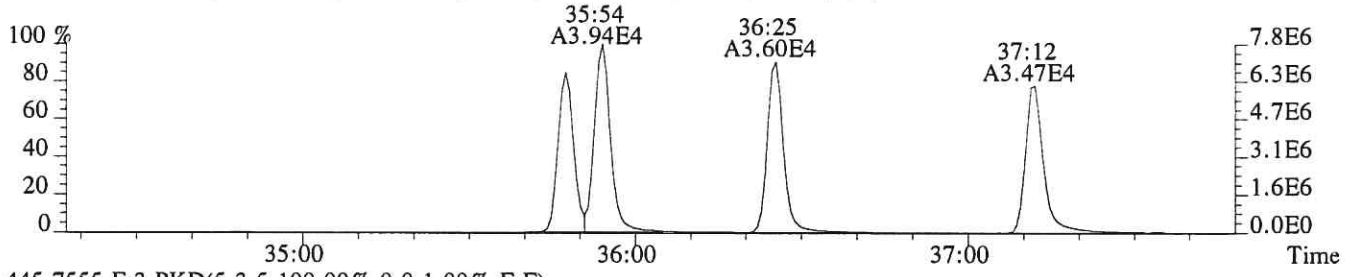
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



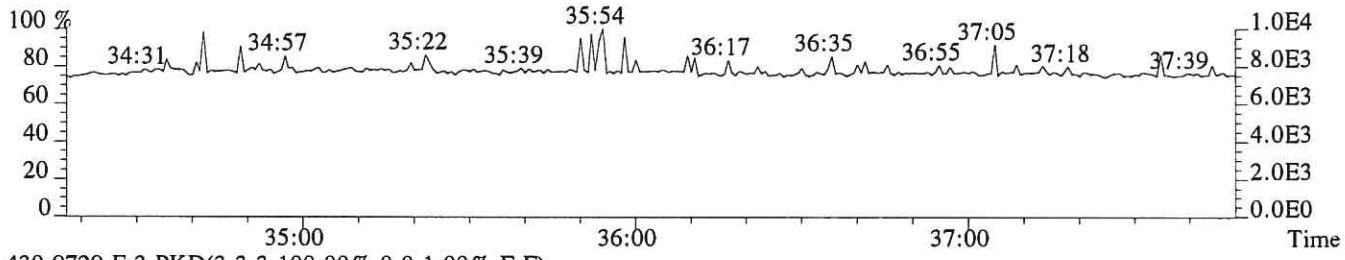
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



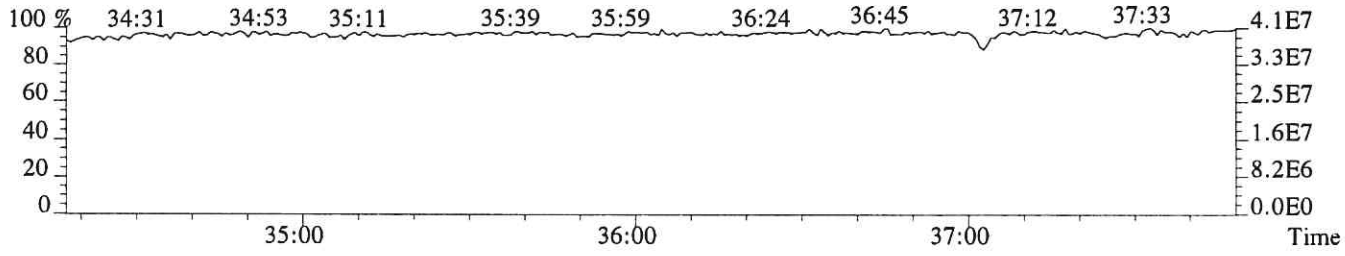
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



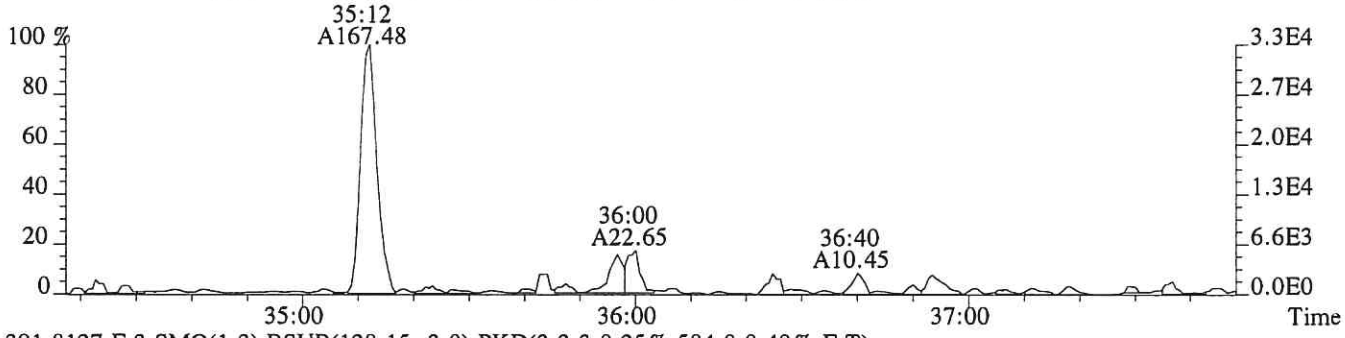
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



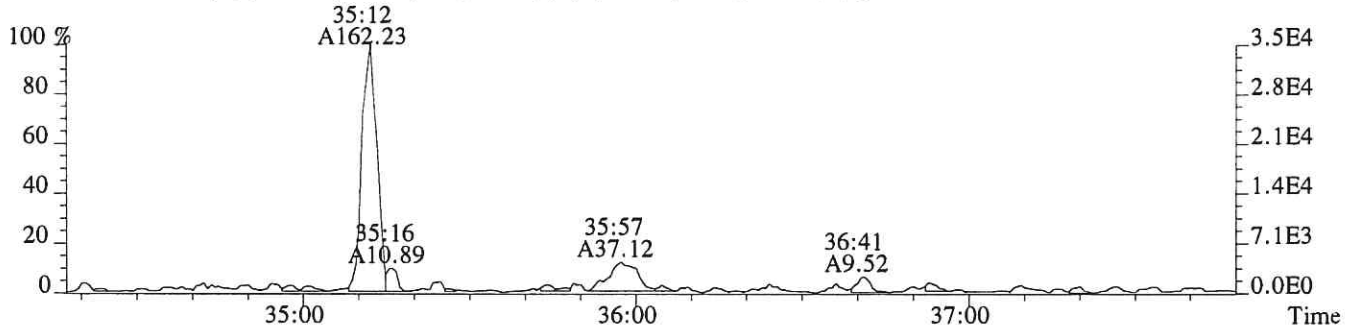
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



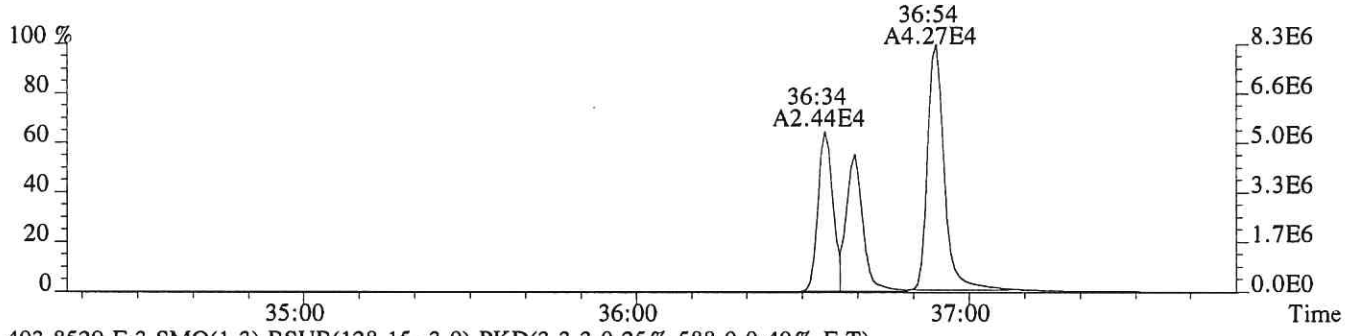
File:P519348 #1-317 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



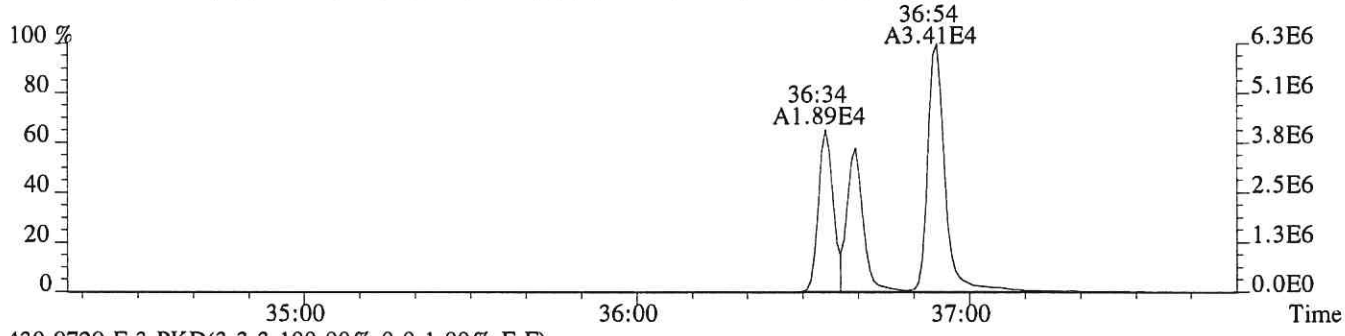
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



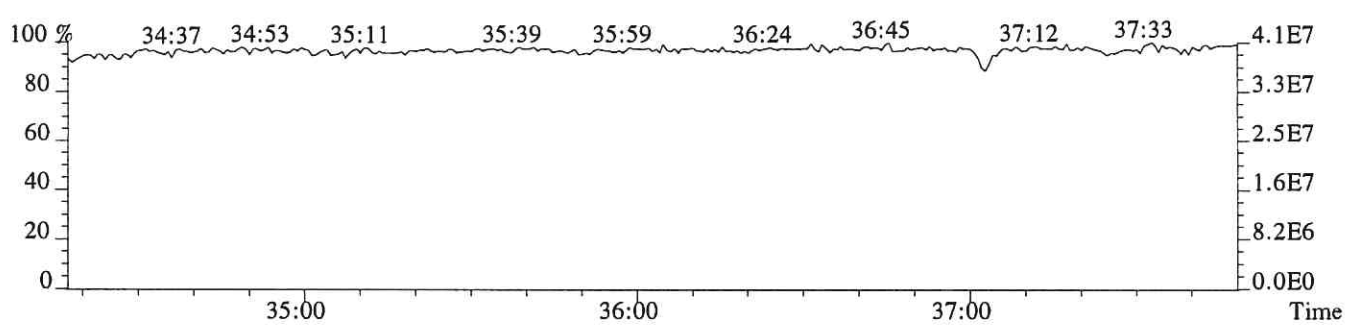
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



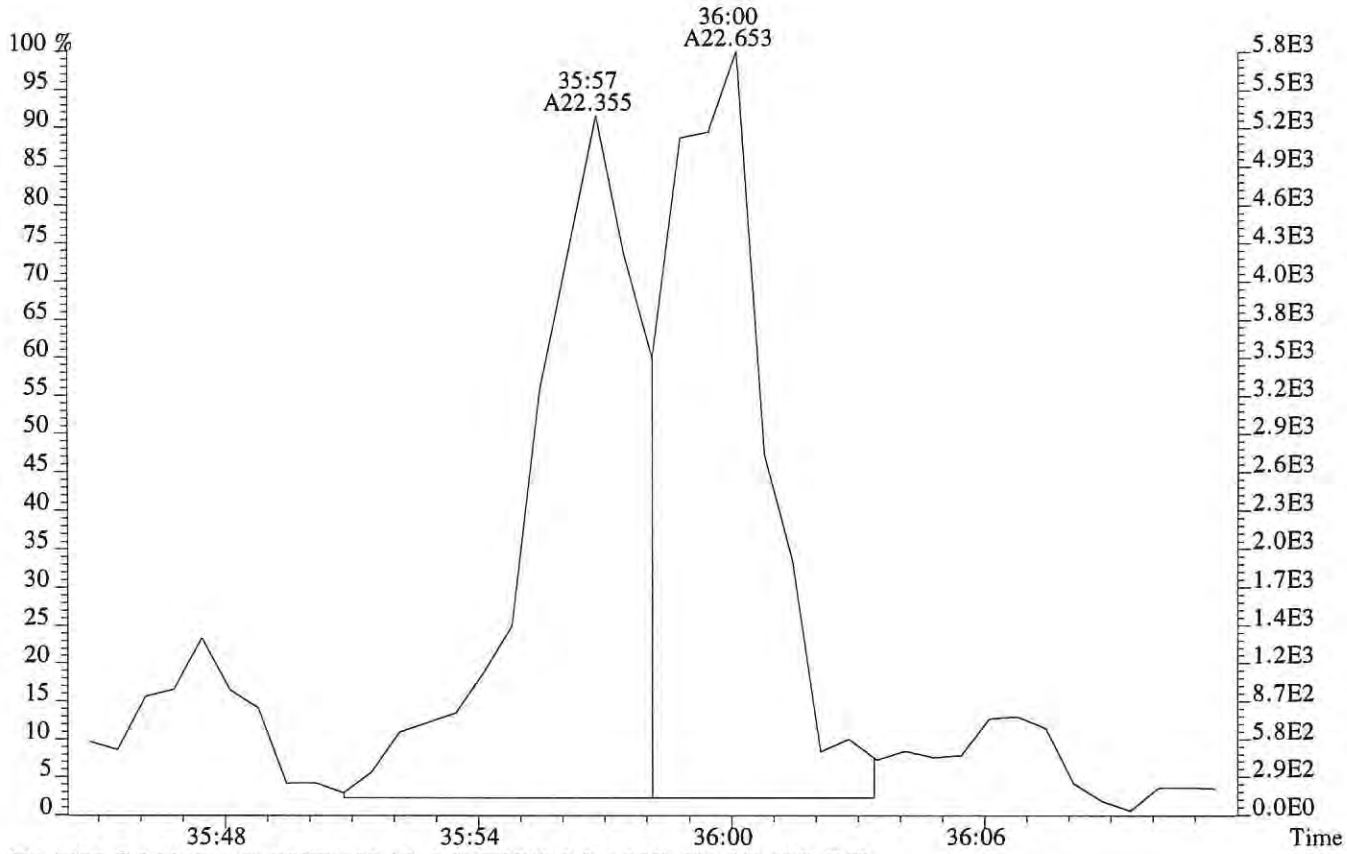
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



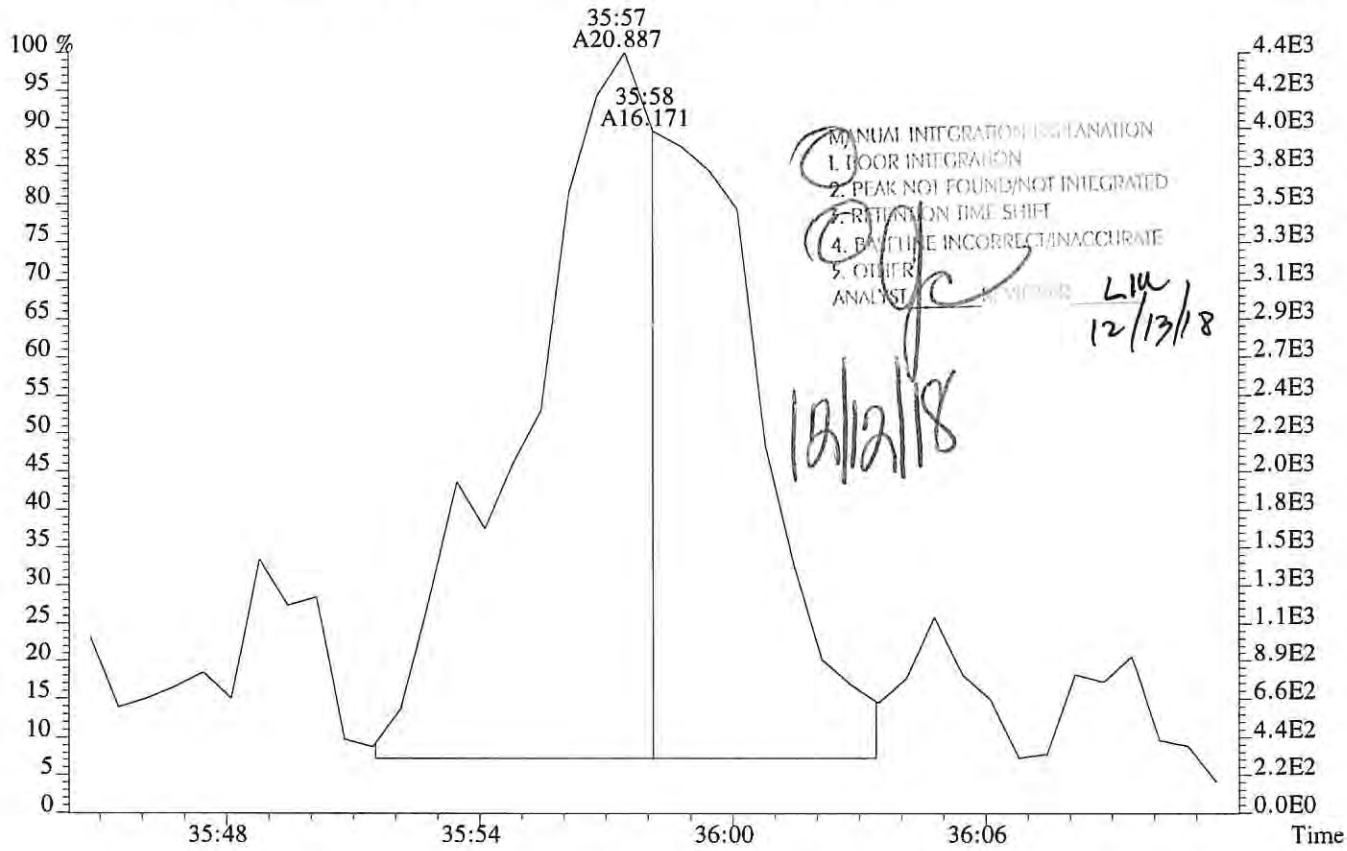
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519348 #1-317 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



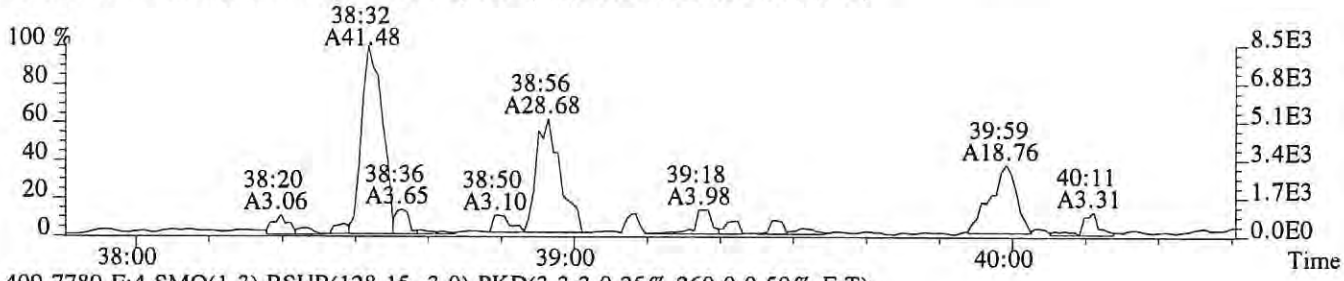
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST

LM 12/13/18

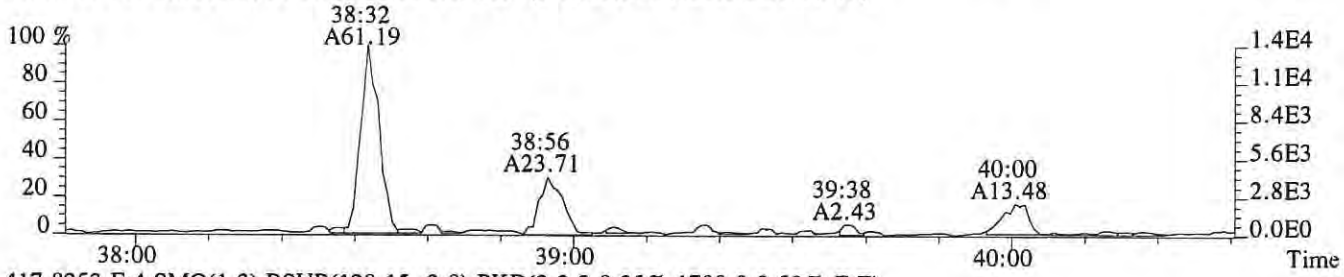
18/12/18

File:P519348 #1-241 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020

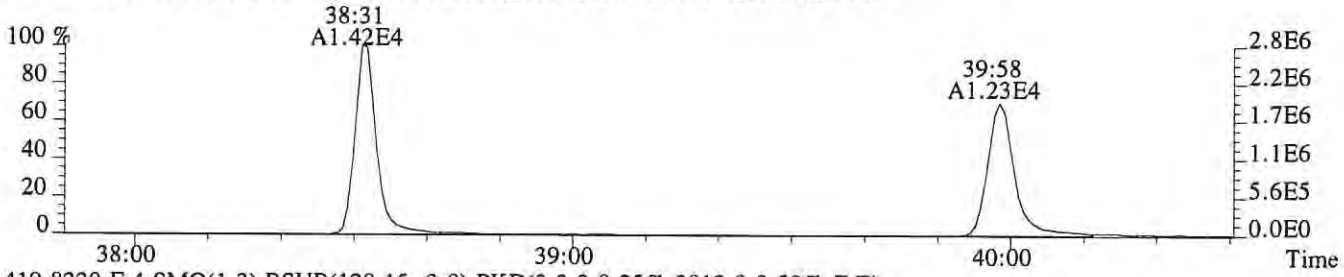
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.50%,F,T)



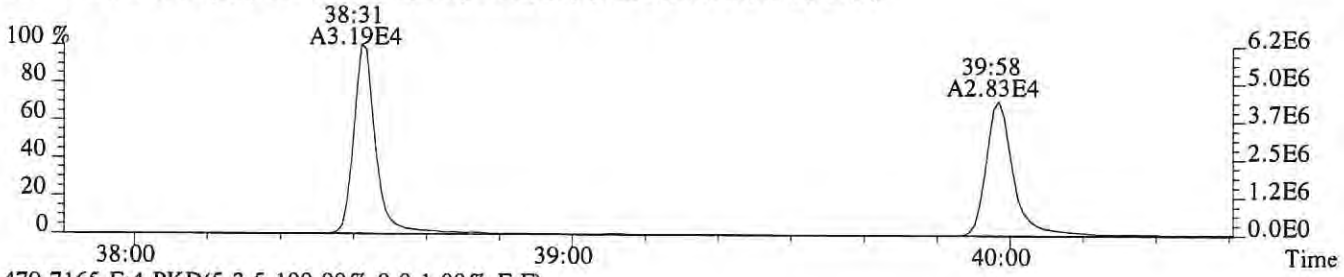
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.50%,F,T)



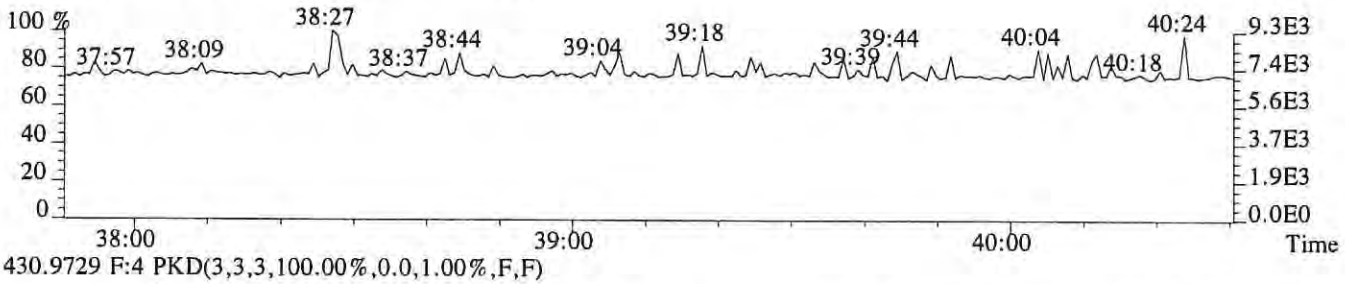
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1708.0,0.50%,F,T)



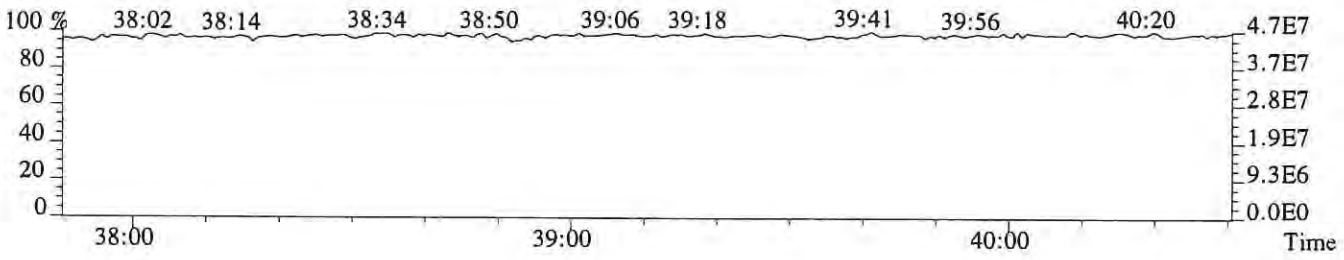
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3012.0,0.50%,F,T)



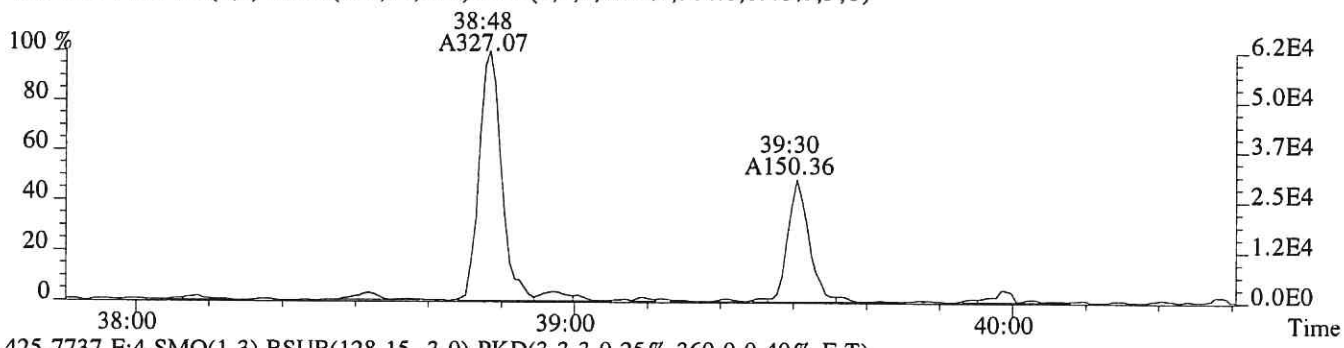
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



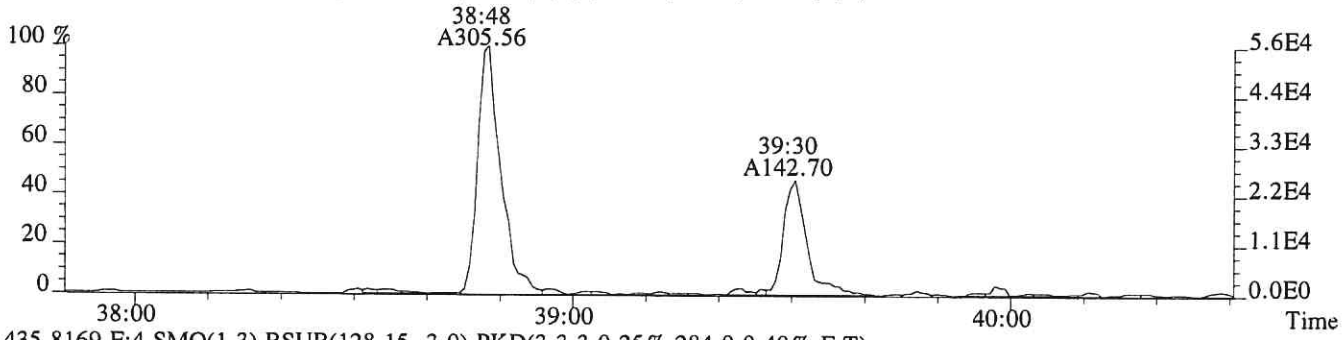
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



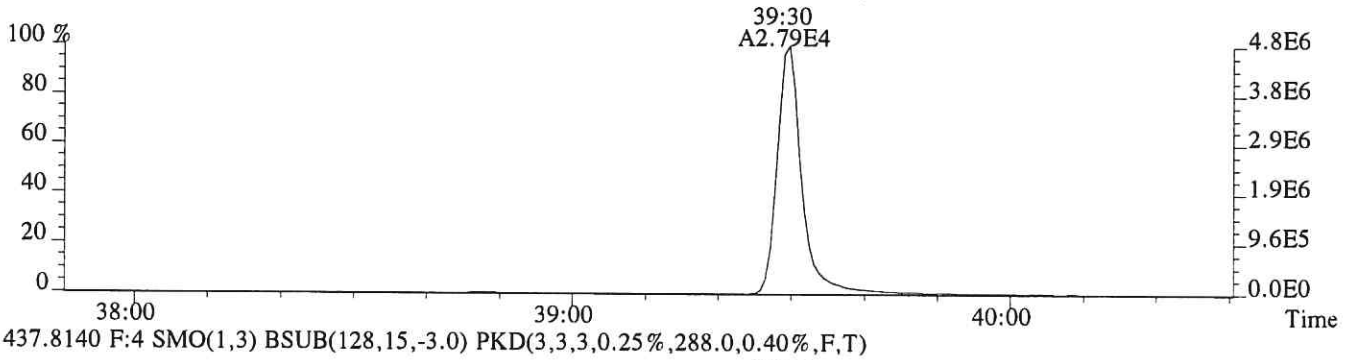
File:P519348 #1-241 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



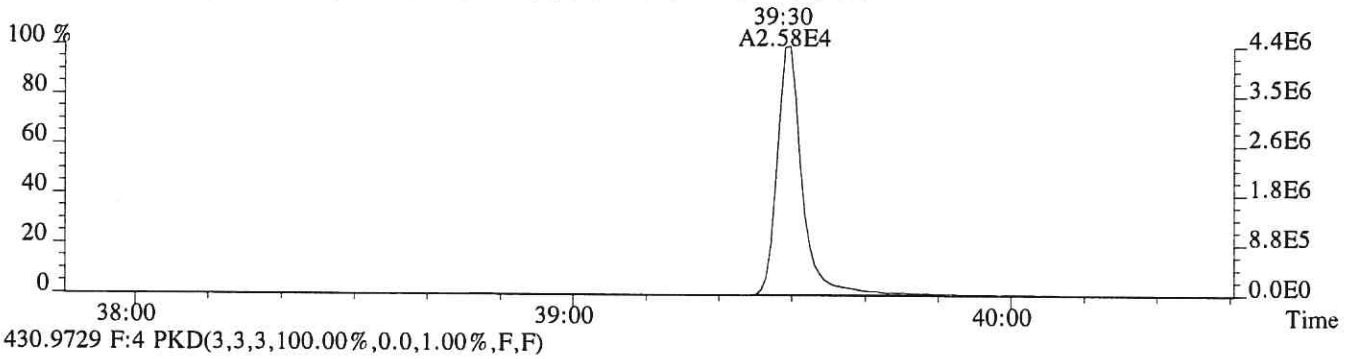
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



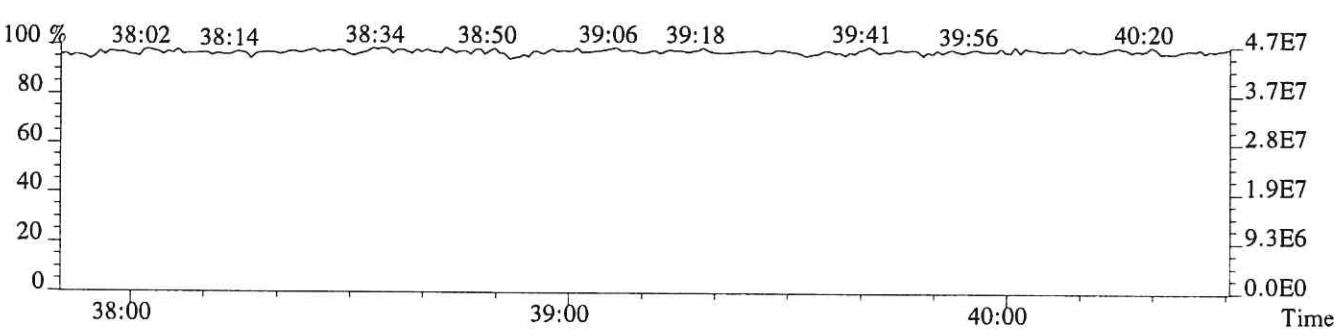
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



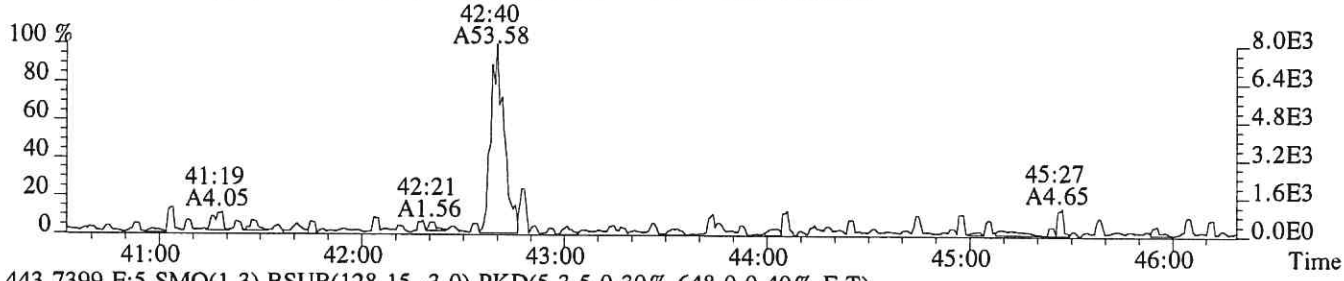
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



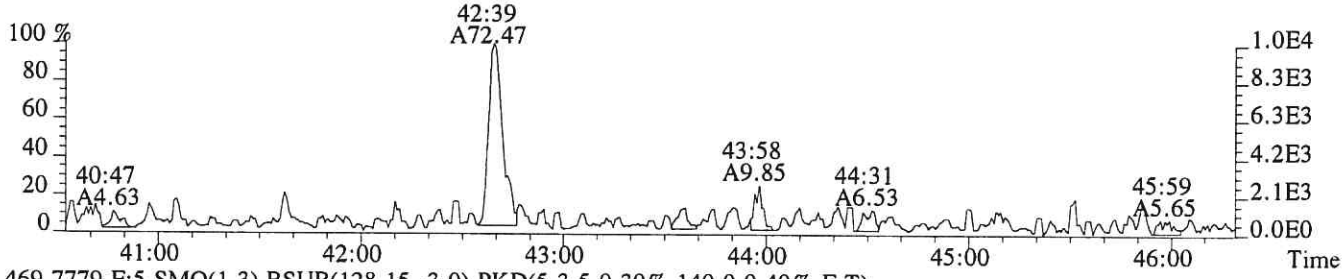
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



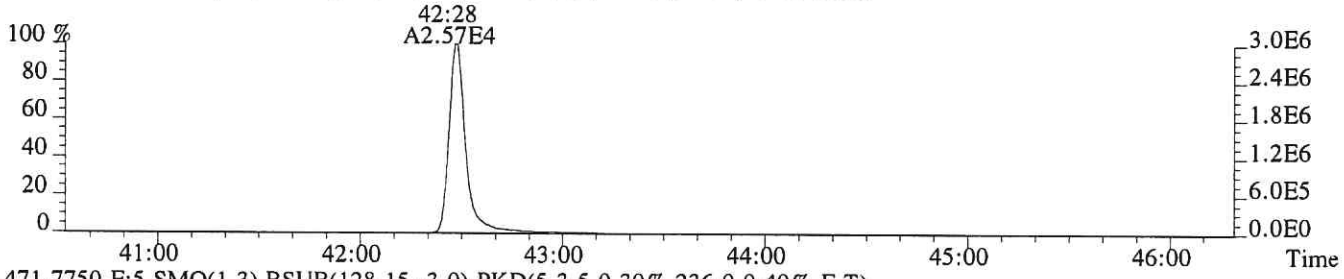
File:P519348 #1-520 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



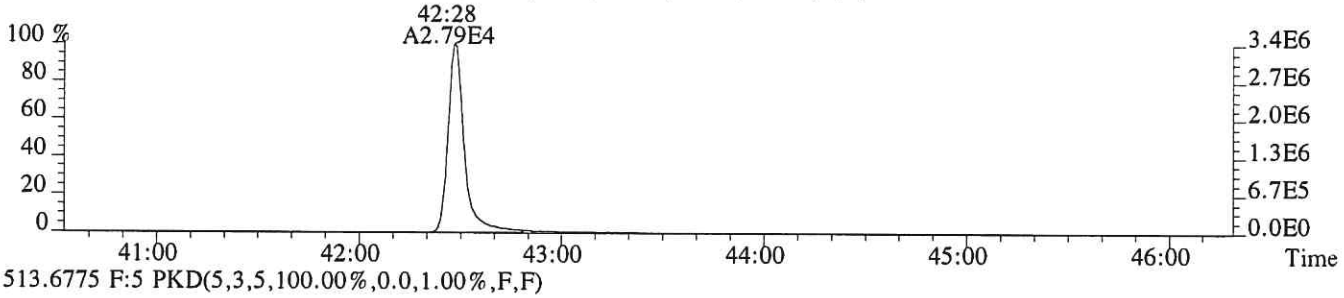
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



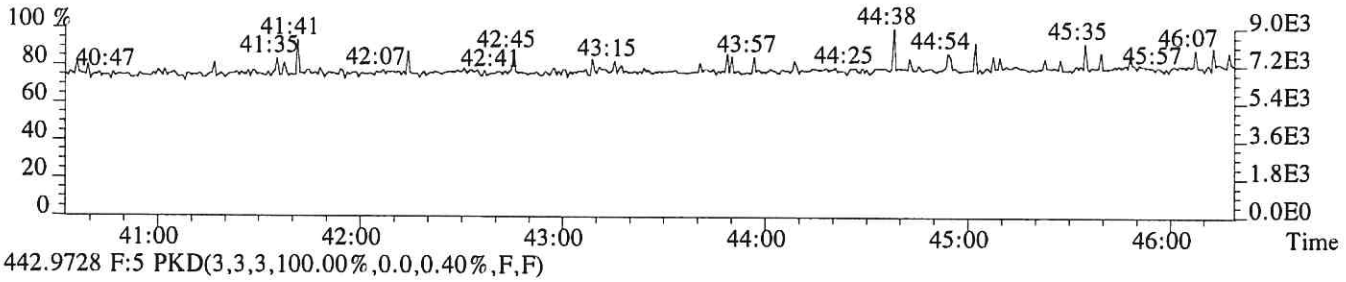
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



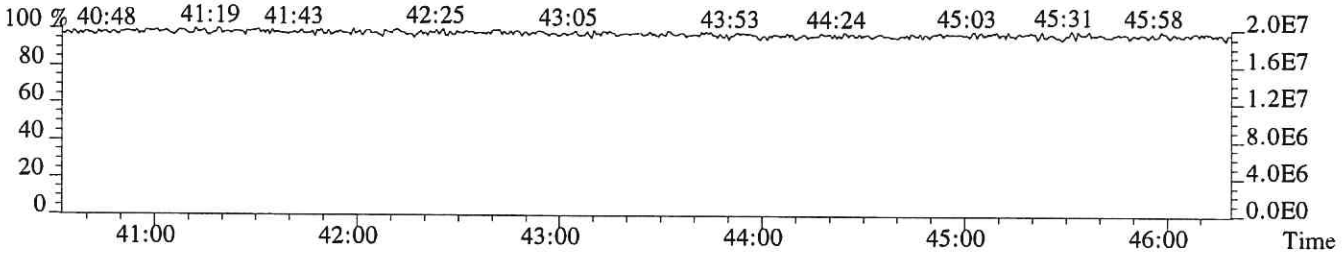
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



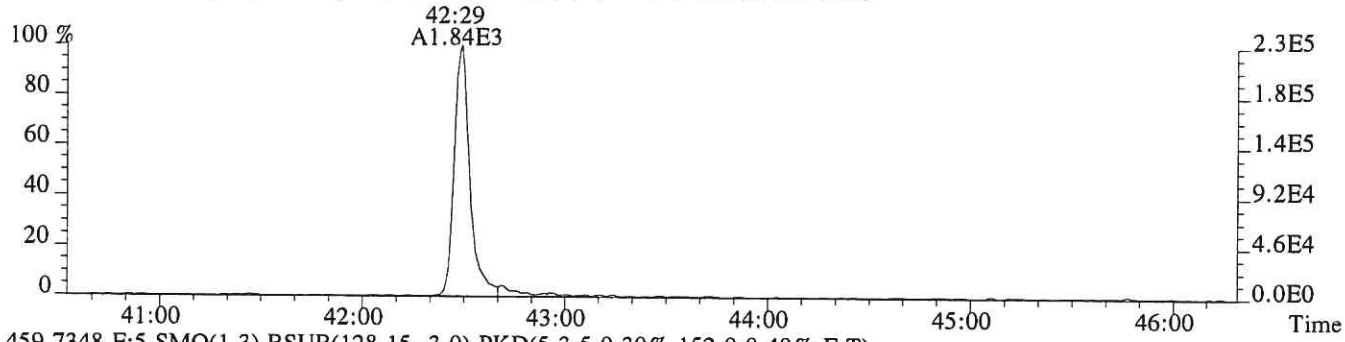
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



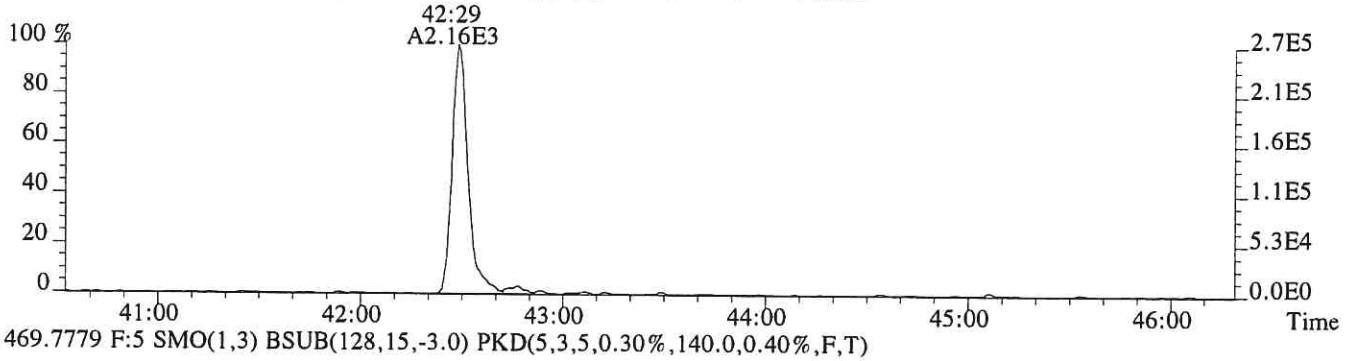
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



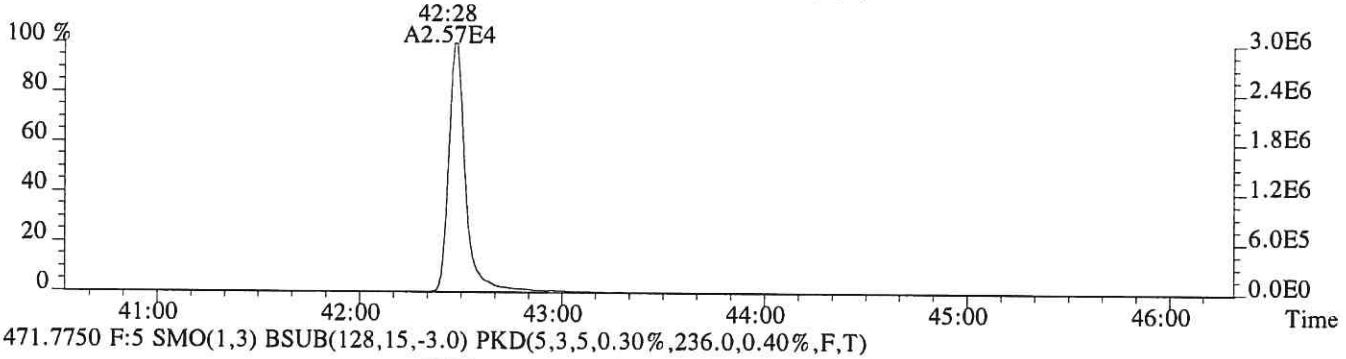
File:P519348 #1-520 Acq:11-DEC-2018 08:32:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-020
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



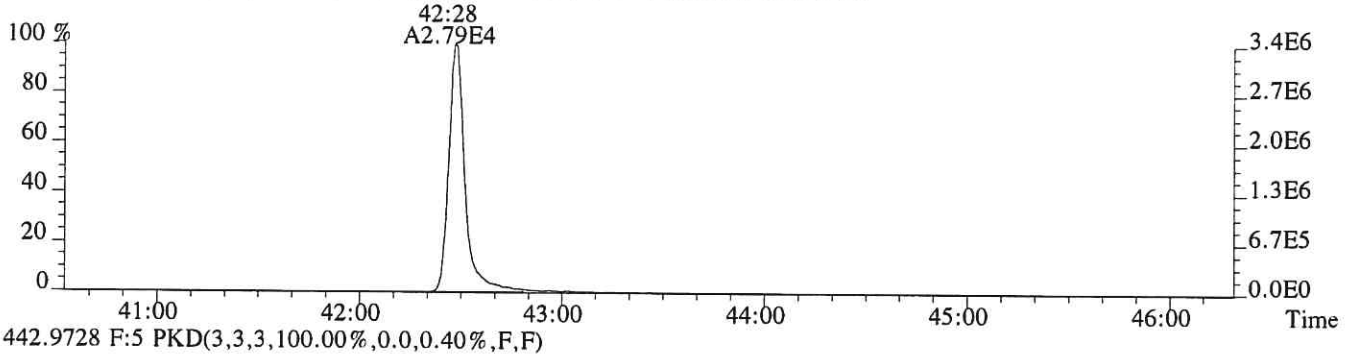
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



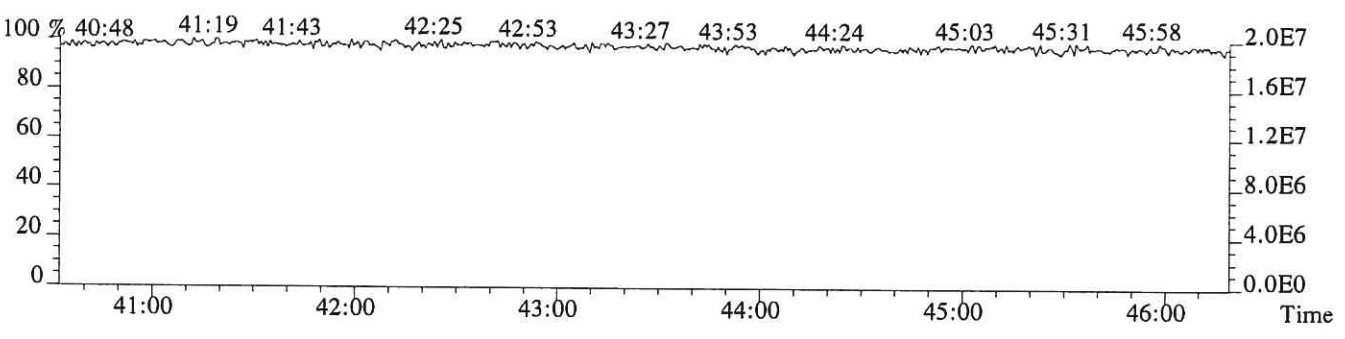
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SL0571

Run #21 Filename P519349 Samp: 1 Inj: 1 Acquired: 11-DEC-18 09:21:38
Processed: 12-DEC-18 13:54:32 Sample ID: E1801065-021

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.269e+03	1.827e+03	0.69	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	2.330e+02	1.381e+02	1.69	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	2.696e+02	1.634e+02	1.65	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:47	2.582e+02	2.058e+02	1.25	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.528e+02	1.143e+02	1.34	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.046e+02	8.541e+01	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	2.657e+01	4.011e+01	0.66	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.163e+03	1.221e+03	0.95	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	9.381e+01	7.854e+01	1.19	yes	yes	1.258
10	Unk	OCDF	42:41	2.669e+03	3.221e+03	0.83	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	2.869e+02	3.185e+02	0.90	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	3.456e+01	2.967e+01	1.17	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.560e+01	2.348e+01	2.37	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:39	2.370e+02	1.828e+02	1.30	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.281e+02	1.049e+02	1.22	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	7.388e+03	7.013e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:29	5.286e+04	5.973e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	3.086e+04	3.848e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	4.881e+04	3.079e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	4.557e+04	2.803e+04	1.63	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.937e+04	3.762e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:53	2.332e+04	4.406e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.010e+04	3.894e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.873e+04	3.638e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.363e+04	3.116e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.108e+04	2.562e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	1.333e+04	1.707e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	3.163e+04	2.012e+04	1.57	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.536e+04	2.008e+04	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.613e+04	2.025e+04	1.29	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	2.489e+04	2.347e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	1.725e+04	1.926e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.868e+04	3.546e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	3.863e+04	3.055e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	2.040e+04				no	1.014

$$\text{OCDD} = \frac{(5.286e+04 + 5.973e+04) \times 4000 \text{ pg} \times 1}{(1.725e+04 + 1.926e+04) \times 10.039 \text{ g} \times 85.0/100 \times 1.118} = 1292.9 \text{ ng/kg}$$

LM 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0571

Run #21 Filename P519349 Samp: 1 Inj: 1 Acquired: 11-DEC-18 09:21:38
Processed: 12-DEC-18 13:54:32 LAB. ID: E1801065-021

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.95e+05	9.24e+02	2.1e+02	2.94e+05	1.40e+03	2.1e+02
2	1,2,3,7,8-PeCDF	4.18e+04	8.56e+02	4.9e+01	2.94e+04	2.50e+03	1.2e+01
3	2,3,4,7,8-PeCDF	3.28e+04	8.56e+02	3.8e+01	1.99e+04	2.50e+03	8.0e+00
4	1,2,3,4,7,8-HxCDF	4.76e+04	1.92e+03	2.5e+01	4.15e+04	8.64e+02	4.8e+01
5	1,2,3,6,7,8-HxCDF	2.68e+04	1.92e+03	1.4e+01	1.92e+04	8.64e+02	2.2e+01
6	2,3,4,6,7,8-HxCDF	2.24e+04	1.92e+03	1.2e+01	1.77e+04	8.64e+02	2.1e+01
7	1,2,3,7,8,9-HxCDF	7.09e+03	1.92e+03	3.7e+00	8.50e+03	8.64e+02	9.8e+00
8	1,2,3,4,6,7,8-HpCDF	2.20e+05	1.82e+03	1.2e+02	2.39e+05	7.12e+02	3.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.52e+04	1.82e+03	8.3e+00	1.14e+04	7.12e+02	1.6e+01
10	OCDF	3.11e+05	2.48e+02	1.3e+03	3.55e+05	6.64e+02	5.3e+02
11	2,3,7,8-TCDD	5.84e+04	1.91e+03	3.1e+01	5.73e+04	1.18e+03	4.9e+01
12	1,2,3,7,8-PeCDD	7.63e+03	6.08e+02	1.3e+01	7.15e+03	1.72e+02	4.2e+01
13	1,2,3,4,7,8-HxCDD	1.26e+04	6.52e+02	1.9e+01	6.07e+03	2.14e+03	2.8e+00
14	1,2,3,6,7,8-HxCDD	4.11e+04	6.52e+02	6.3e+01	3.82e+04	2.14e+03	1.8e+01
15	1,2,3,7,8,9-HxCDD	2.56e+04	6.52e+02	3.9e+01	2.21e+04	2.14e+03	1.0e+01
16	1,2,3,4,6,7,8-HpCDD	1.18e+06	2.03e+03	5.8e+02	1.15e+06	2.92e+02	3.9e+03
17	OCDD	5.91e+06	2.96e+02	2.0e+04	6.68e+06	3.04e+02	2.2e+04
18	13C-2,3,7,8-TCDF	5.53e+06	6.13e+03	9.0e+02	6.93e+06	3.68e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	8.85e+06	2.20e+02	4.0e+04	5.63e+06	9.80e+02	5.7e+03
20	13C-2,3,4,7,8-PeCDF	8.79e+06	2.20e+02	4.0e+04	5.44e+06	9.80e+02	5.6e+03
21	13C-1,2,3,4,7,8-HxCDF	4.06e+06	5.60e+02	7.3e+03	7.81e+06	1.12e+03	7.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.36e+06	5.60e+02	7.8e+03	8.37e+06	1.12e+03	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	4.06e+06	5.60e+02	7.3e+03	7.72e+06	1.12e+03	6.9e+03
24	13C-1,2,3,7,8,9-HxCDF	3.43e+06	5.60e+02	6.1e+03	6.75e+06	1.12e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.52e+06	4.04e+02	6.2e+03	5.83e+06	6.01e+03	9.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.73e+06	4.04e+02	4.3e+03	3.98e+06	6.01e+03	6.6e+02
27	13C-2,3,7,8-TCDD	2.49e+06	5.32e+03	4.7e+02	3.25e+06	1.48e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	6.13e+06	7.04e+02	8.7e+03	3.87e+06	5.44e+02	7.1e+03
29	13C-1,2,3,4,7,8-HxCDD	5.49e+06	9.56e+02	5.7e+03	4.42e+06	6.16e+02	7.2e+03
30	13C-1,2,3,6,7,8-HxCDD	4.83e+06	9.56e+02	5.0e+03	3.74e+06	6.16e+02	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.06e+06	4.40e+02	9.2e+03	3.80e+06	3.20e+02	1.2e+04
32	13C-OCDD	1.96e+06	4.32e+02	4.5e+03	2.11e+06	2.48e+02	8.5e+03
33	13C-1,2,3,4-TCDD	5.47e+06	5.32e+03	1.0e+03	6.72e+06	1.48e+03	4.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.95e+06	9.56e+02	7.3e+03	5.45e+06	6.16e+02	8.8e+03
35	37Cl-2,3,7,8-TCDD	3.84e+06	9.32e+02	4.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0571

Entry: 36 Totals Name: Total Tetra-Furans

Run: 21 File: P519349 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 09:21:38 Processed: 12-DEC-18 13:54:32

Mass: 303.9020 305.8990 Tot Response: 6.18e+03 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:10	3.42e+01	4.91e+01	0.70	yes	8.33e+01		n	n
2	23:39	4.56e+01	5.90e+01	0.77	yes	1.05e+02		n	n
3	24:59	1.86e+02	2.18e+02	0.85	yes	4.04e+02		n	n
4	25:24	6.41e+01	9.22e+01	0.70	yes	1.56e+02		n	n
5	25:33	1.05e+02	1.32e+02	0.80	yes	2.37e+02		n	n
6	26:54	6.07e+02	8.11e+02	0.75	yes	1.42e+03		n	n
7	27:45	1.27e+03	1.83e+03	0.69	yes	3.10e+03	2,3,7,8-TCDF	n	n
8	28:05	2.54e+02	3.38e+02	0.75	yes	5.91e+02		n	n
9	28:20	3.65e+01	5.25e+01	0.70	yes	8.90e+01		n	n

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Peak List Summary

CLIENT ID.
SL0571

Entry: 39 Totals Name: Total Penta-Furans2

Run: 21 File: P519349 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 09:21:38 Processed: 12-DEC-18 13:54:32

Mass: 339.8600 341.8570 Tot Response: 2.36e+03 RRF: 0.9857

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:02	2.13e+02	1.24e+02	1.71	yes	3.37e+02		n	n
2	31:08	5.70e+02	4.14e+02	1.38	yes	9.84e+02		n	n
3	32:06	2.33e+02	1.38e+02	1.69	yes	3.71e+02	1,2,3,7,8-PeCDF	n	n
4	32:21	1.44e+02	9.30e+01	1.55	yes	2.37e+02		n	n
5	33:02	2.70e+02	1.63e+02	1.65	yes	4.33e+02	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.
SL0571

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 21 File: P519349 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 09:21:38 Processed: 12-DEC-18 13:54:32

Mass: 355.8550 357.8520 Tot Response: 3.02e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:12	1.05e+02	7.72e+01	1.36	yes	1.82e+02		n	n
2	32:22	2.67e+01	1.72e+01	1.55	yes	4.39e+01		n	n
3	32:35	4.46e+01	3.18e+01	1.40	yes	7.65e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0571

Entry: 41 Totals Name: Total Hexa-Furans

Run: 21 File: P519349 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 09:21:38 Processed: 12-DEC-18 13:54:32

Mass: 373.8210 375.8180 Tot Response: 3.77e+03 RRF: 1.141

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:39	1.47e+02	1.27e+02	1.16	yes	2.74e+02		n	n
2	34:49	6.42e+02	5.26e+02	1.22	yes	1.17e+03		n	n
3	35:21	7.56e+02	6.53e+02	1.16	yes	1.41e+03		n	n
4	35:47	2.58e+02	2.06e+02	1.25	yes	4.64e+02	1,2,3,4,7,8-HxCDF	n	n
5	35:55	1.53e+02	1.14e+02	1.34	yes	2.67e+02	1,2,3,6,7,8-HxCDF	n	n
6	36:25	1.05e+02	8.54e+01	1.22	yes	1.90e+02	2,3,4,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SL0571

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 21 File: P519349 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 09:21:38 Processed: 12-DEC-18 13:54:32

Mass: 389.8160 391.8130 Tot Response: 4.14e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:11	9.31e+02	7.21e+02	1.29	yes	1.65e+03		n	n
2	35:43	1.84e+02	1.37e+02	1.35	yes	3.20e+02		n	n
3	35:58	8.73e+02	6.36e+02	1.37	yes	1.51e+03		n	n
4	36:39	2.37e+02	1.83e+02	1.30	yes	4.20e+02	1,2,3,6,7,8-HxCDD	n	n
5	36:55	1.28e+02	1.05e+02	1.22	yes	2.33e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0571

Entry: 43 Totals Name: Total Hepta-Furans

Run: 21 File: P519349 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 09:21:38 Processed: 12-DEC-18 13:54:32

Mass: 407.7820 409.7790 Tot Response: 8.33e+03 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:32	1.16e+03	1.22e+03	0.95	yes	2.38e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:48	4.30e+01	4.54e+01	0.95	yes	8.84e+01		n	n
3	38:56	2.82e+03	2.87e+03	0.98	yes	5.69e+03		n	n
4	39:58	9.38e+01	7.85e+01	1.19	yes	1.72e+02	1,2,3,4,7,8,9-HpCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0571

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 21 File: P519349 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 09:21:38 Processed: 12-DEC-18 13:54:32

Mass: 423.7770 425.7740 Tot Response: 3.38e+04 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	9.88e+03	9.49e+03	1.04	yes	1.94e+04		n	n
2	39:30	7.39e+03	7.01e+03	1.05	yes	1.44e+04	1,2,3,4,6,7,8-HpCDD	n	n

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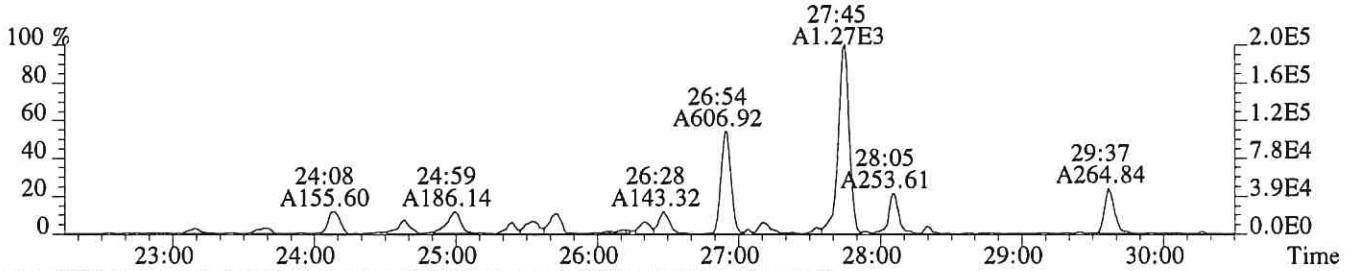
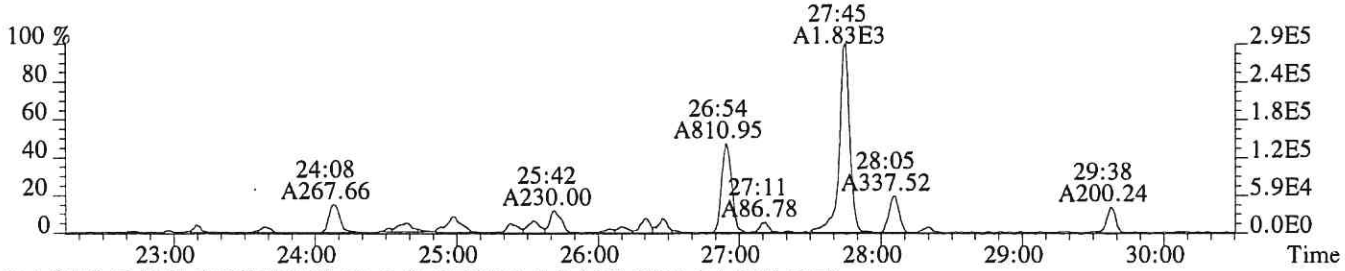
File:P519349 #1-587 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021

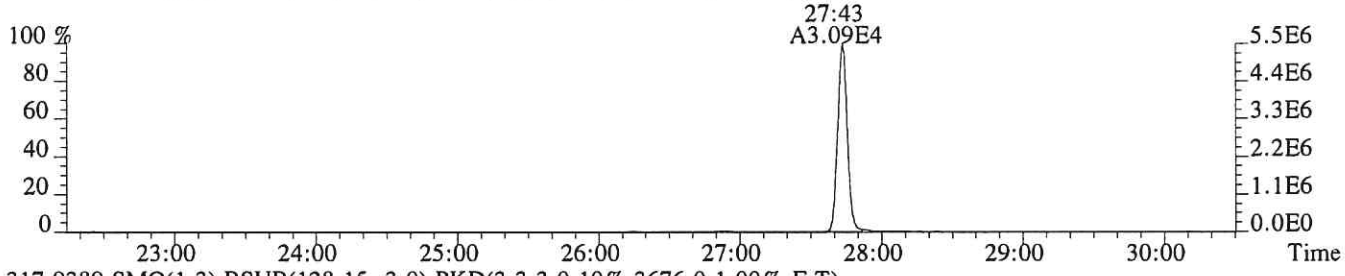
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



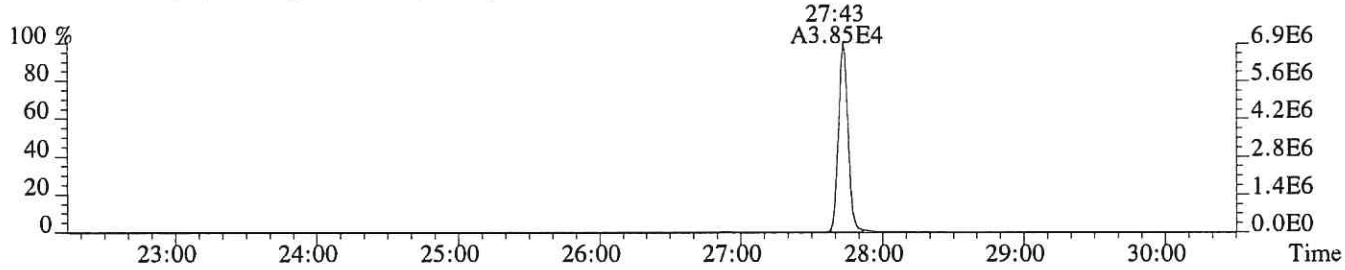
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



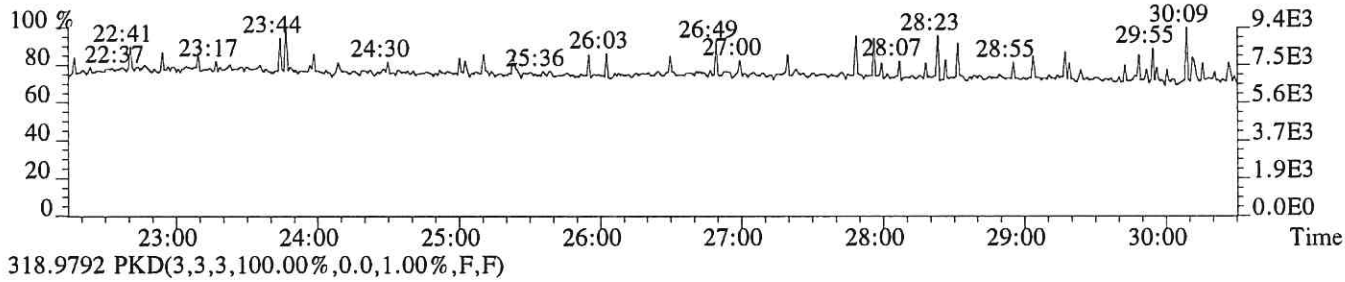
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6132.0,1.00%,F,T)



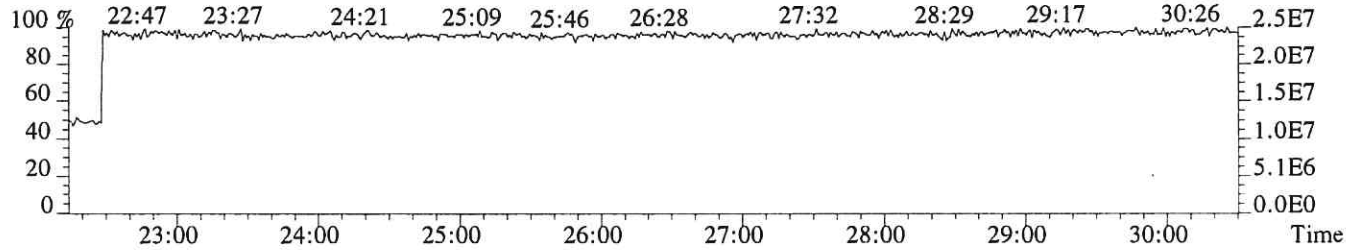
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3676.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

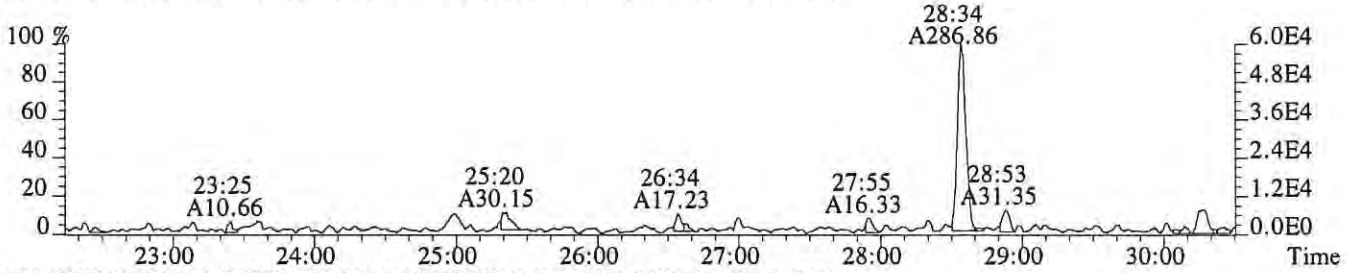


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

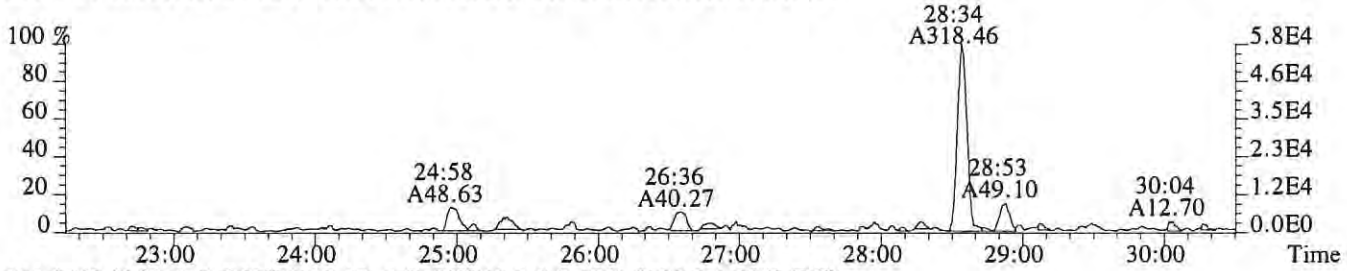


File:P519349 #1-587 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801065-021

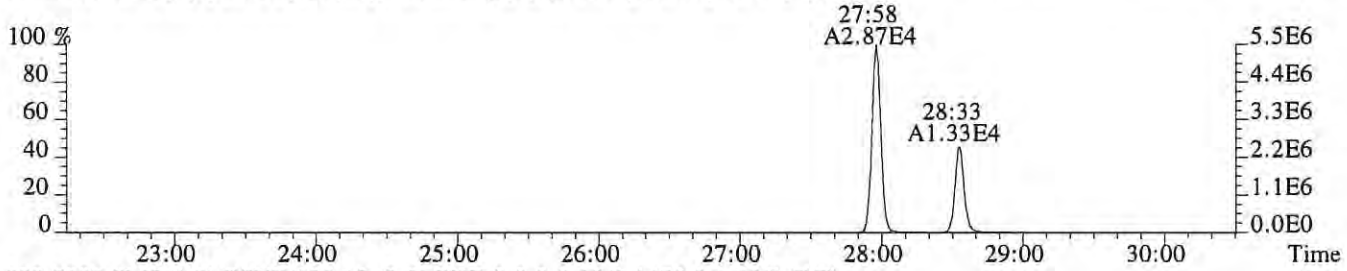
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



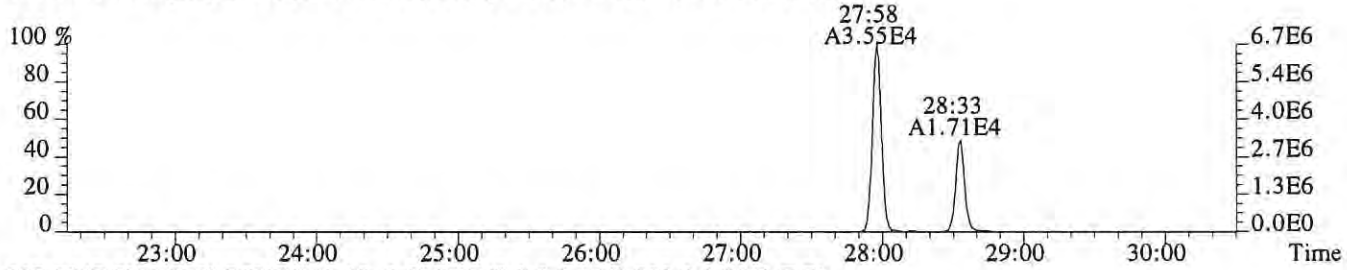
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



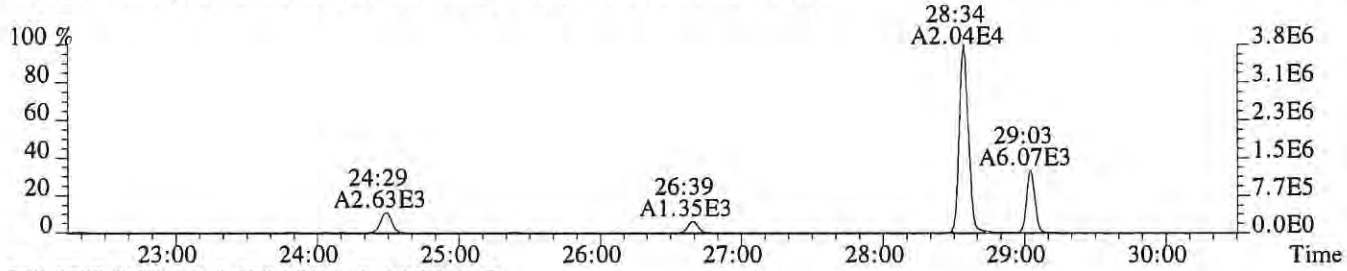
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5320.0,1.00%,F,T)



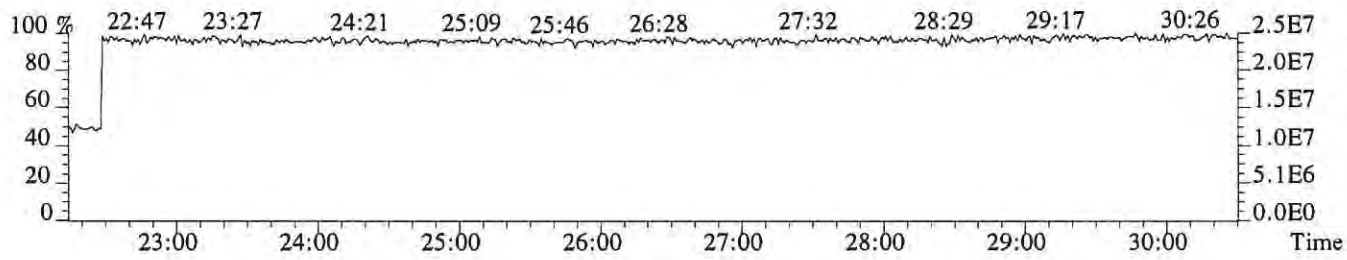
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



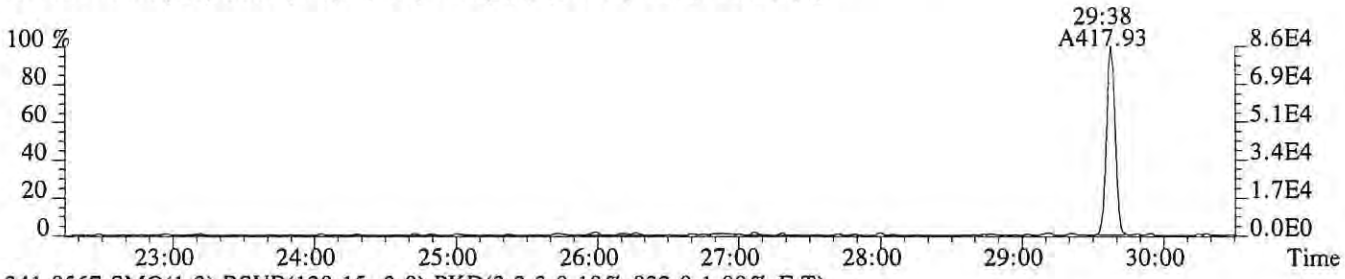
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



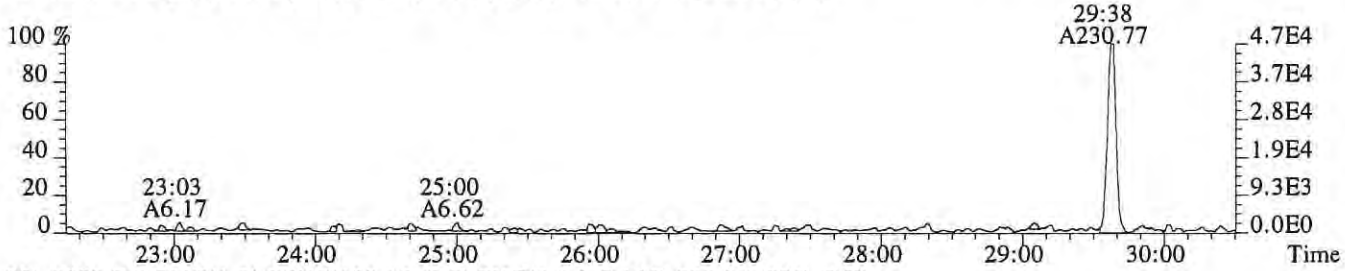
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



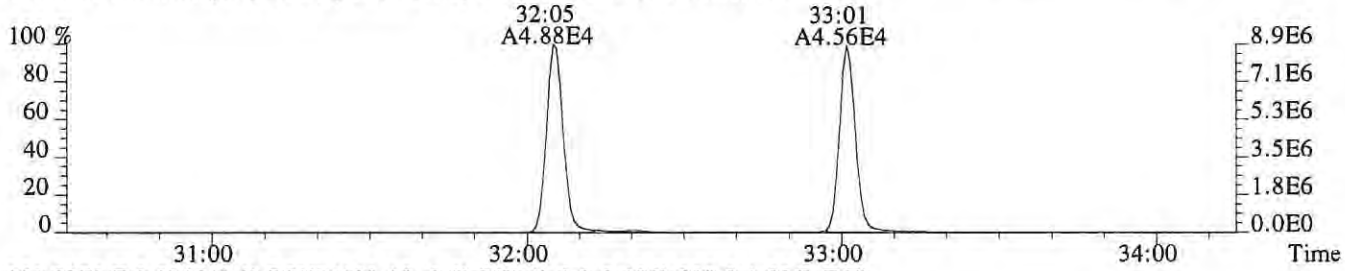
File:P519349 #1-587 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



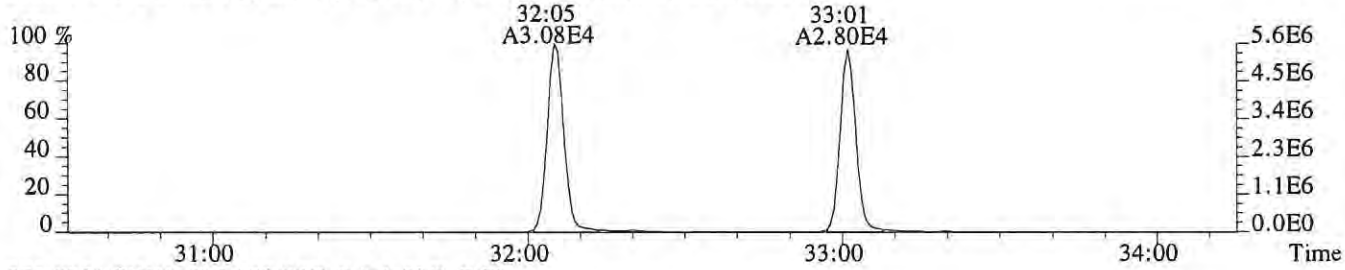
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



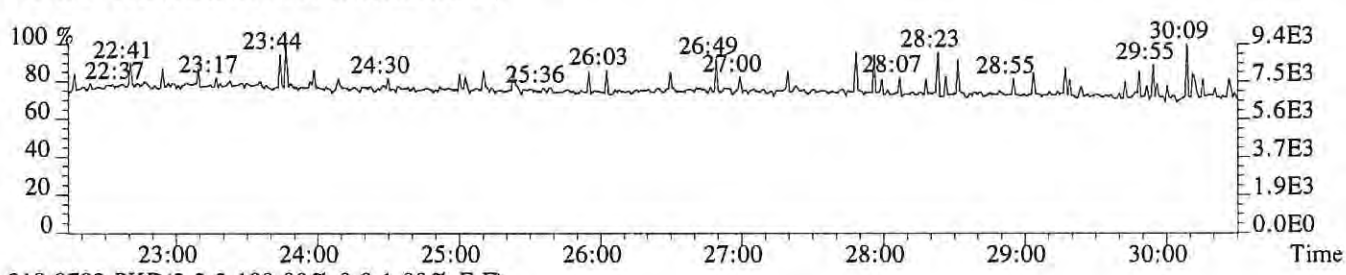
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



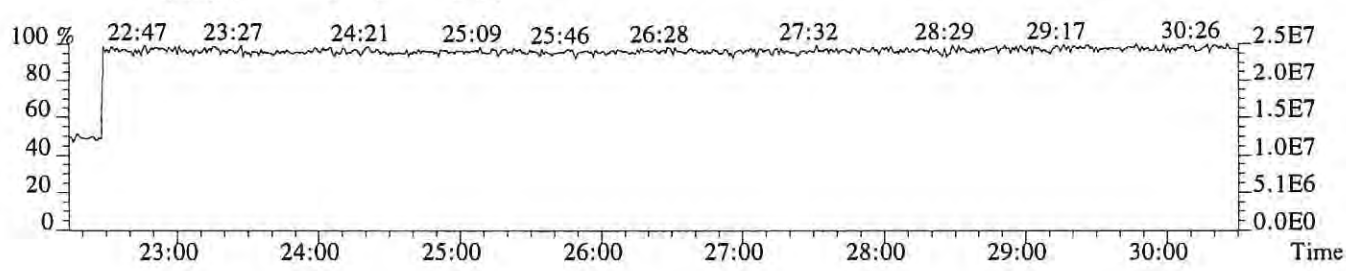
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

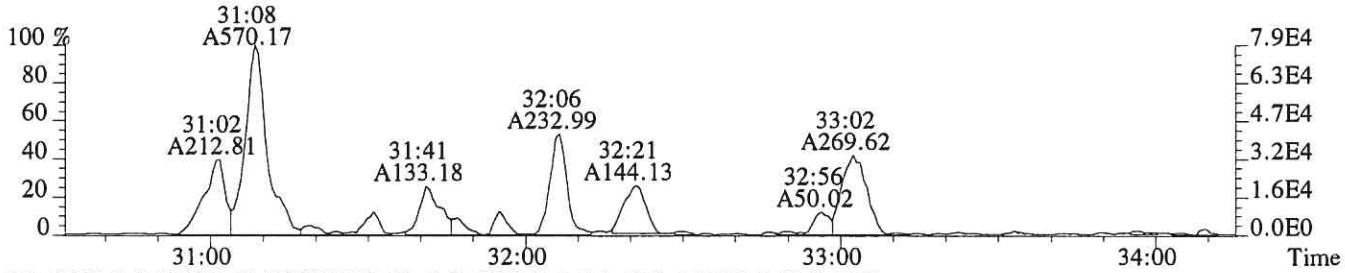


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

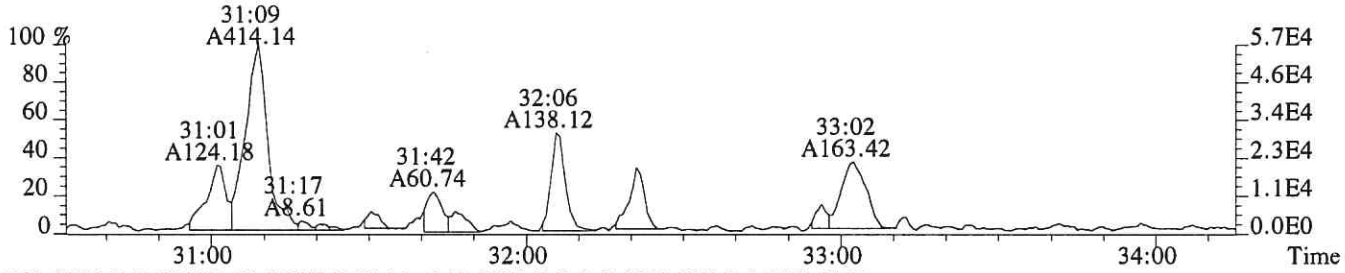


File:P519349 #1-335 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021

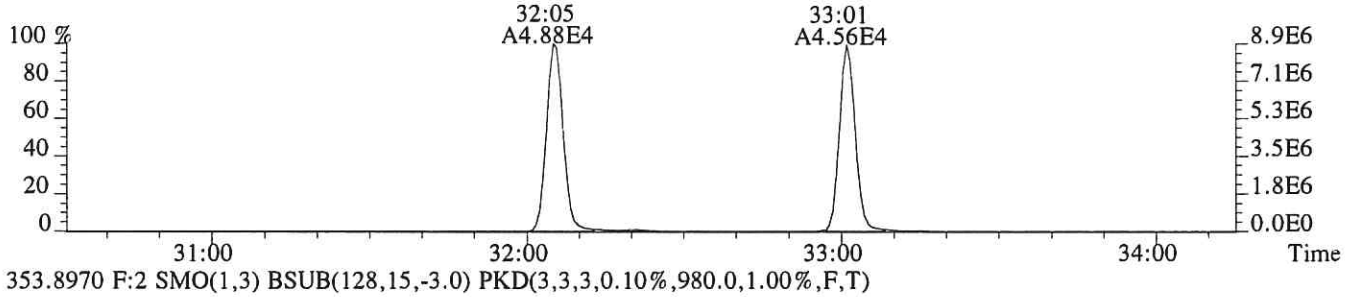
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



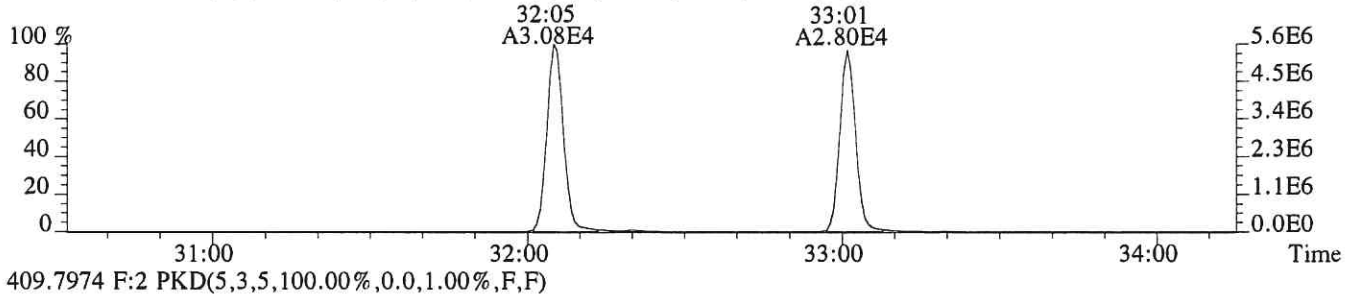
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



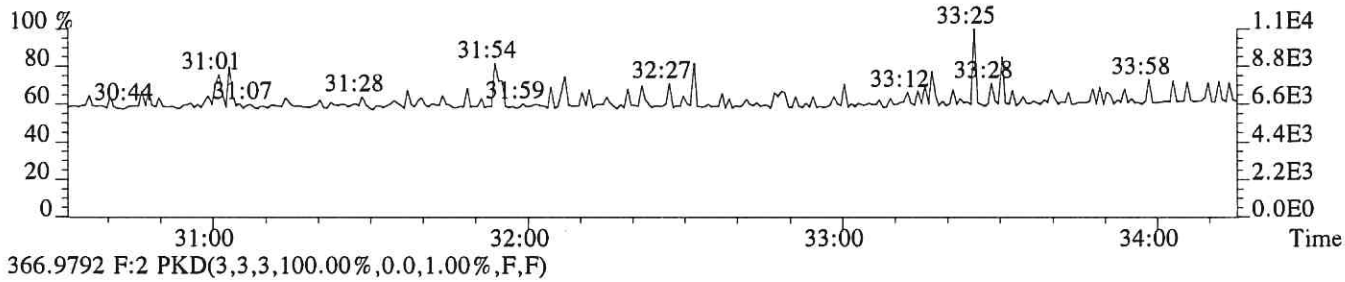
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



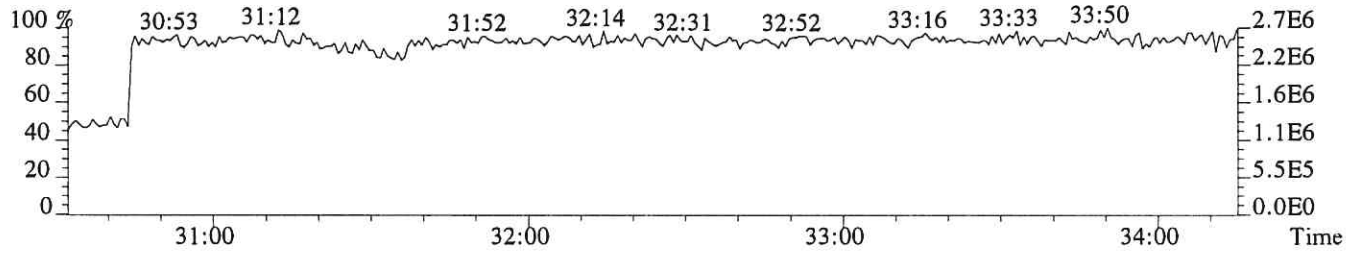
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



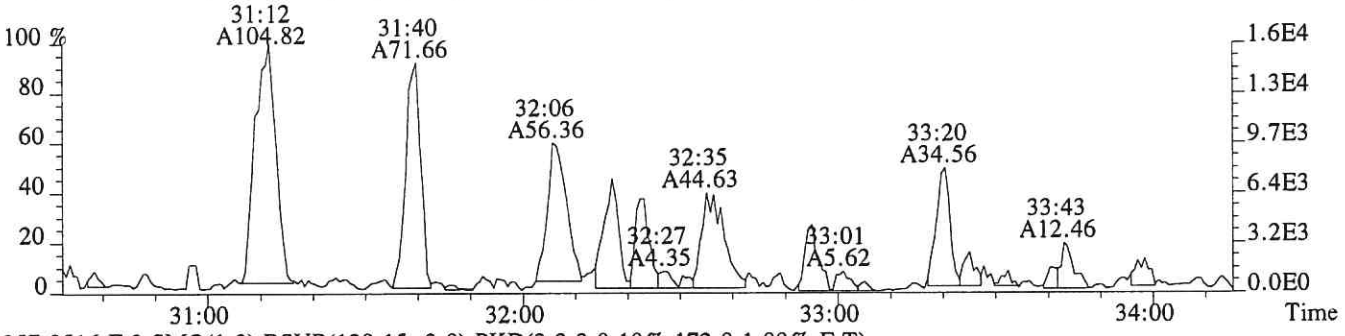
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



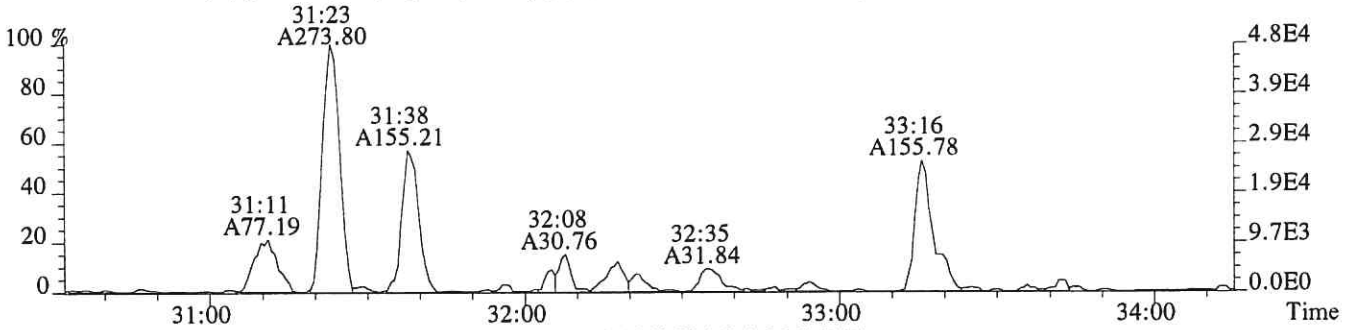
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



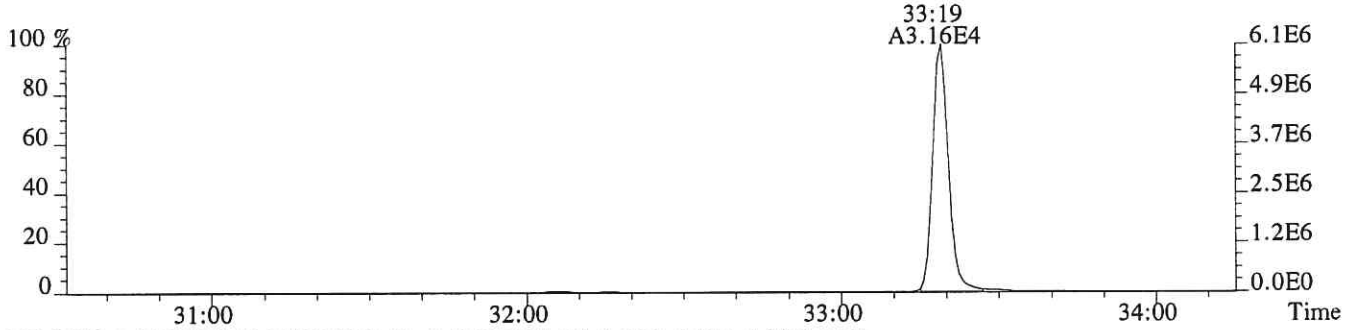
File:P519349 #1-335 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



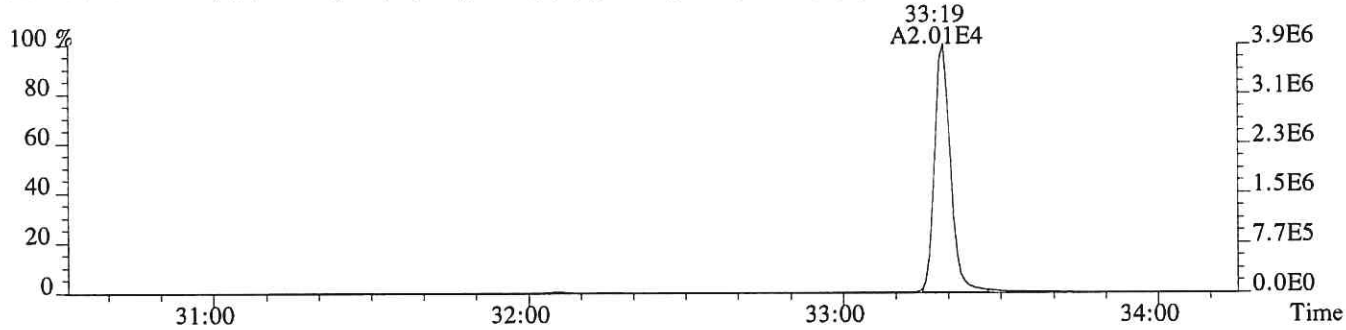
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



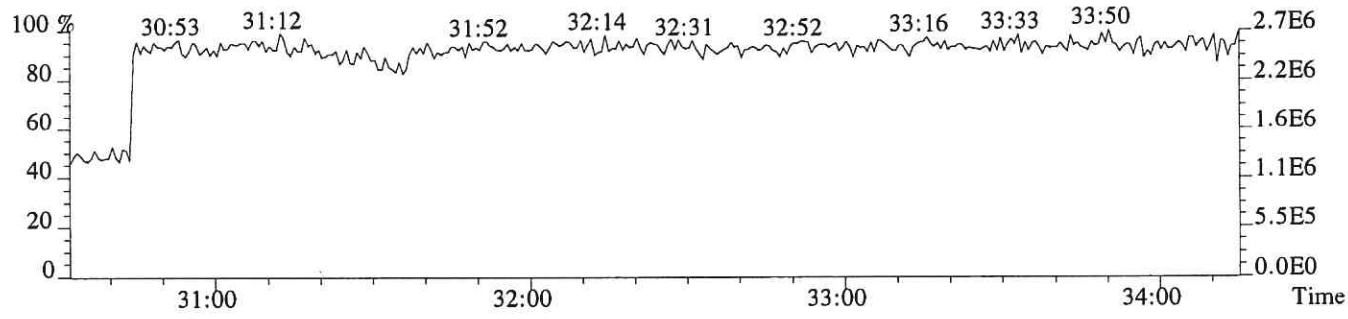
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



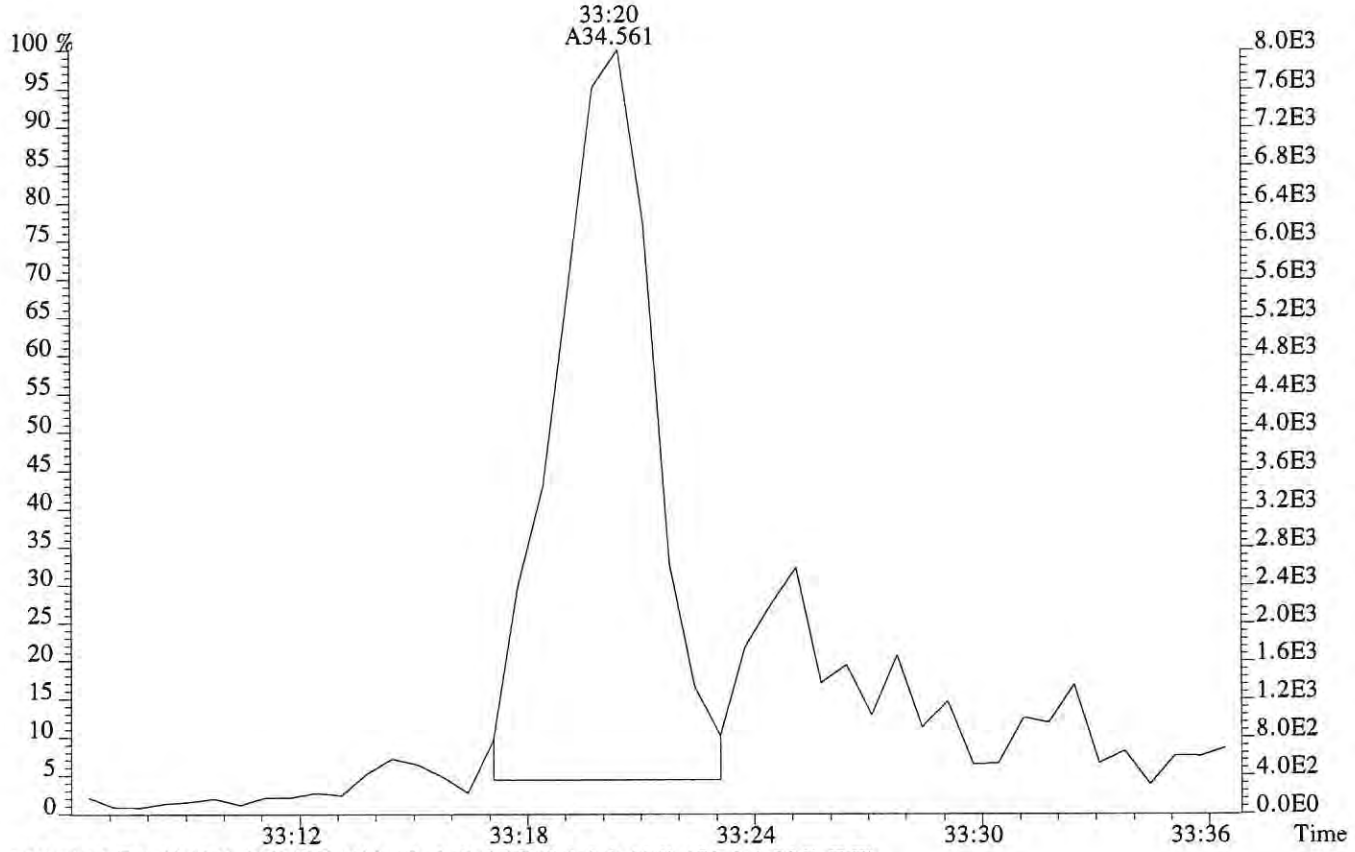
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



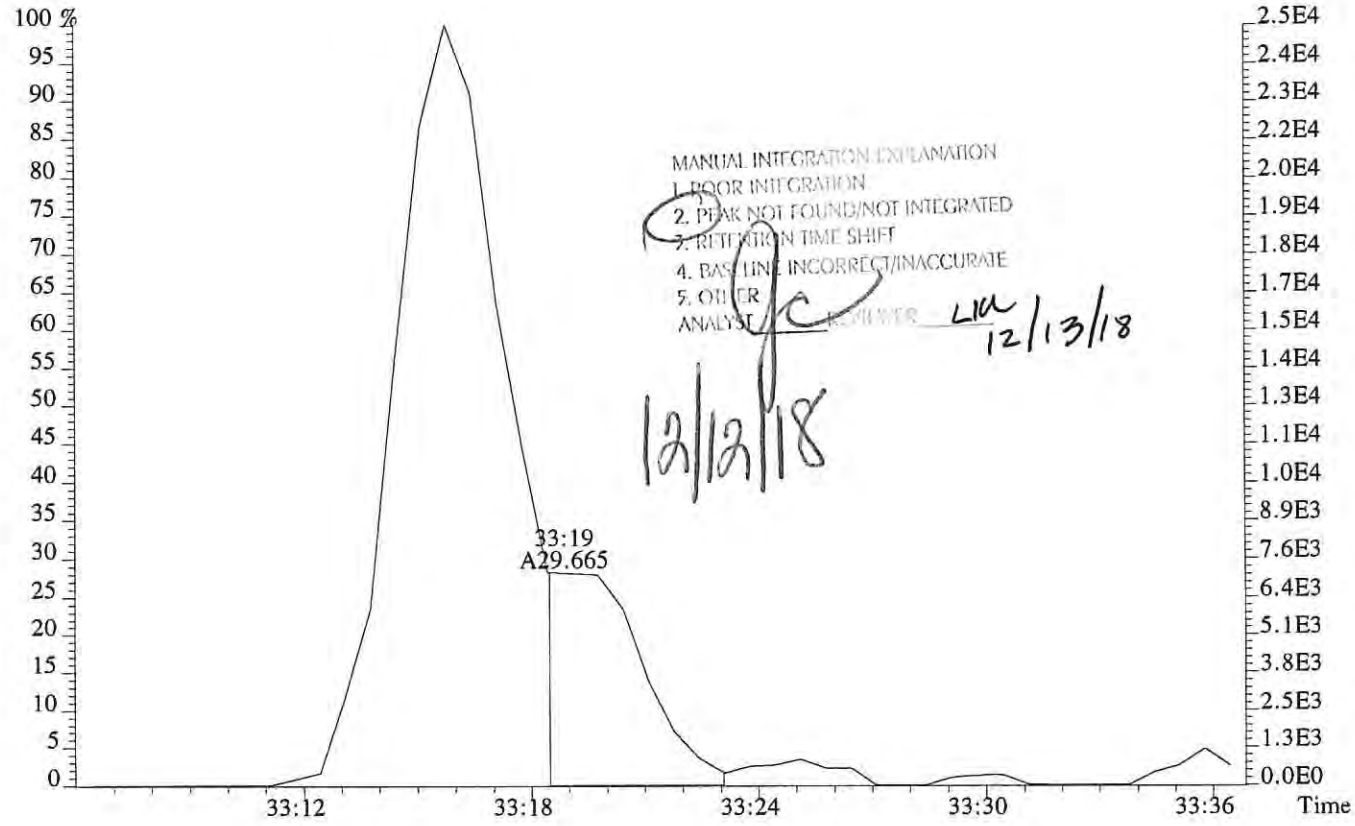
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519349 #1-335 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



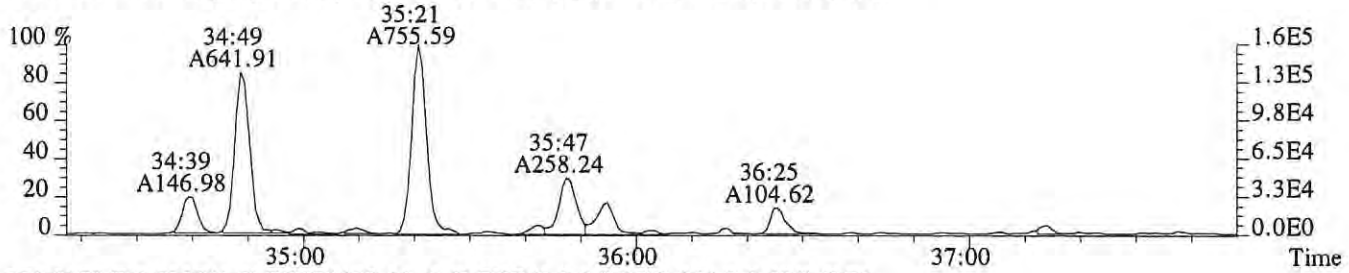
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



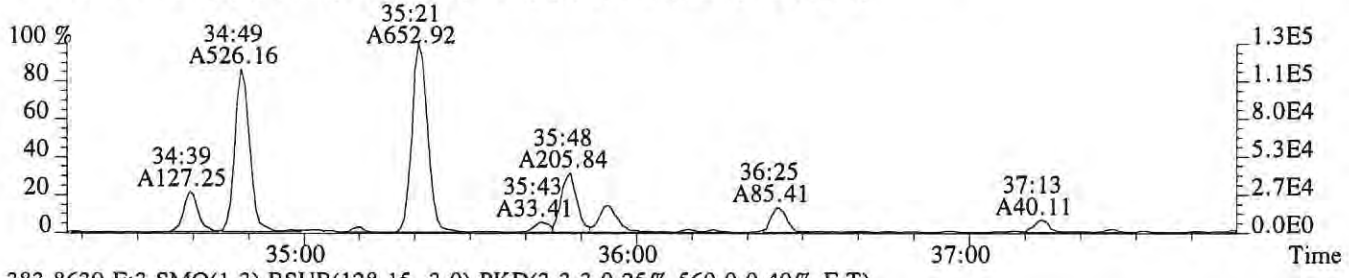
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST C REVIEWER LM 12/13/18
12/12/18

File:P519349 #1-317 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021

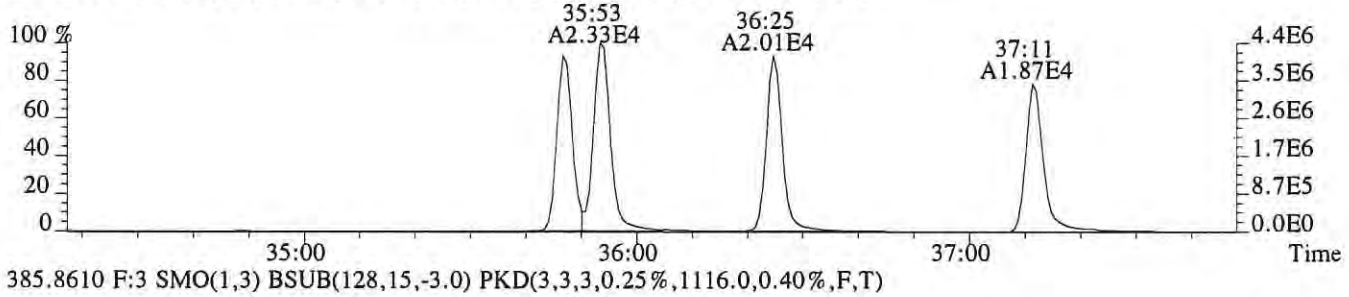
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1924.0,0.40%,F,T)



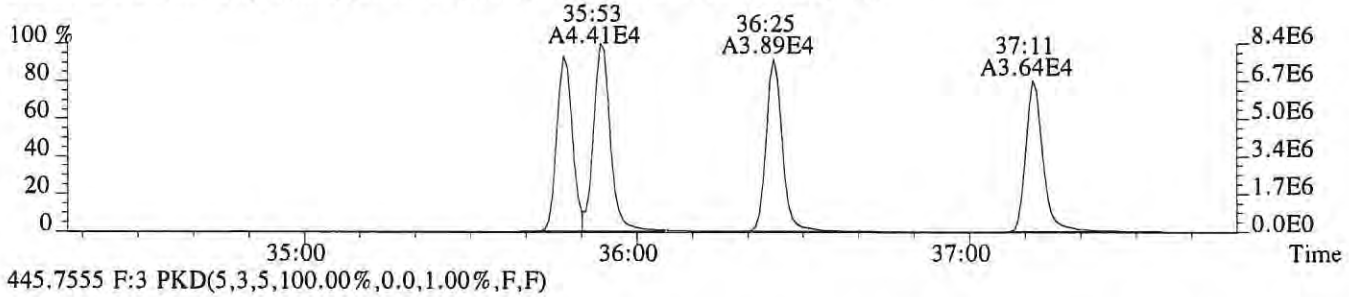
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



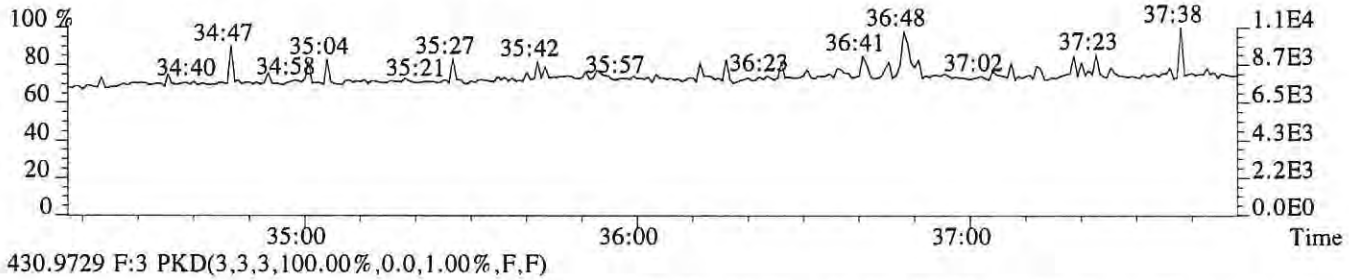
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



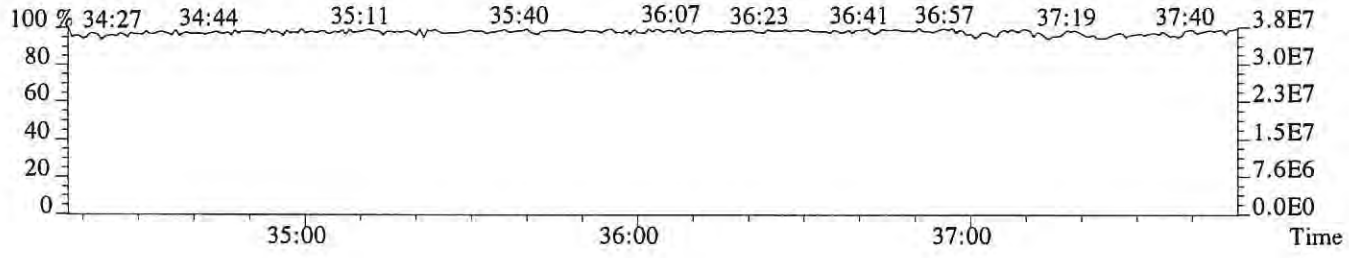
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



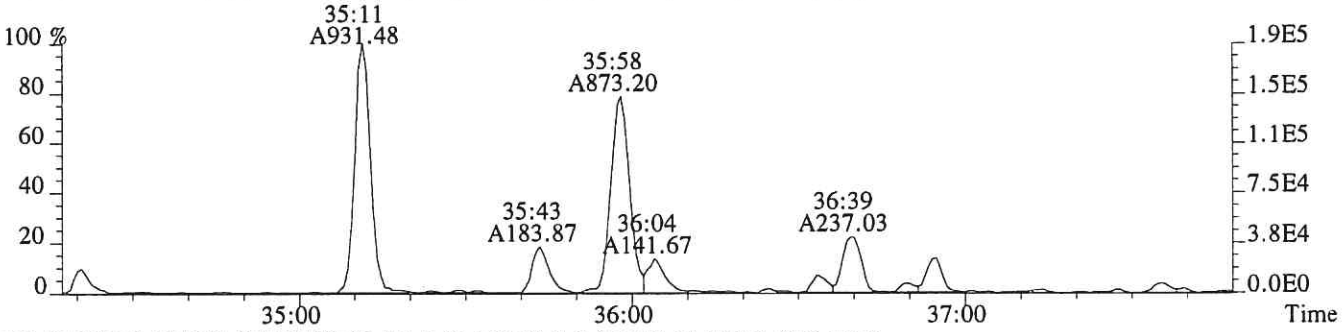
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



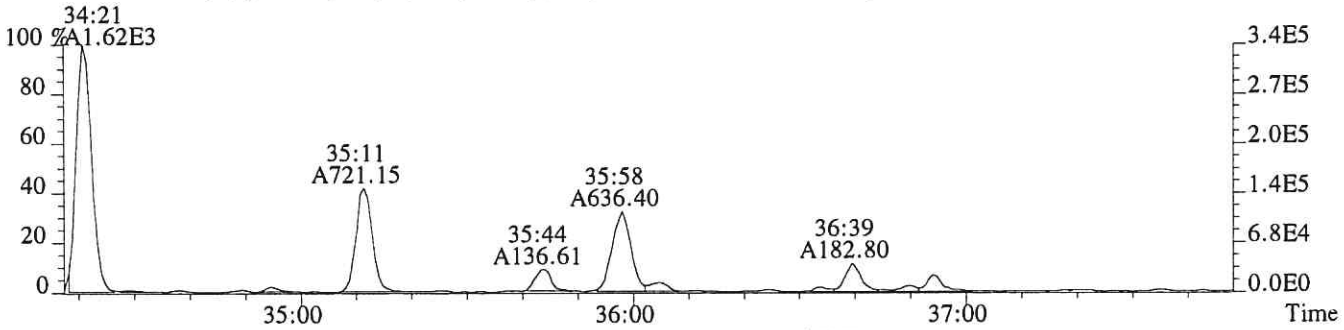
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



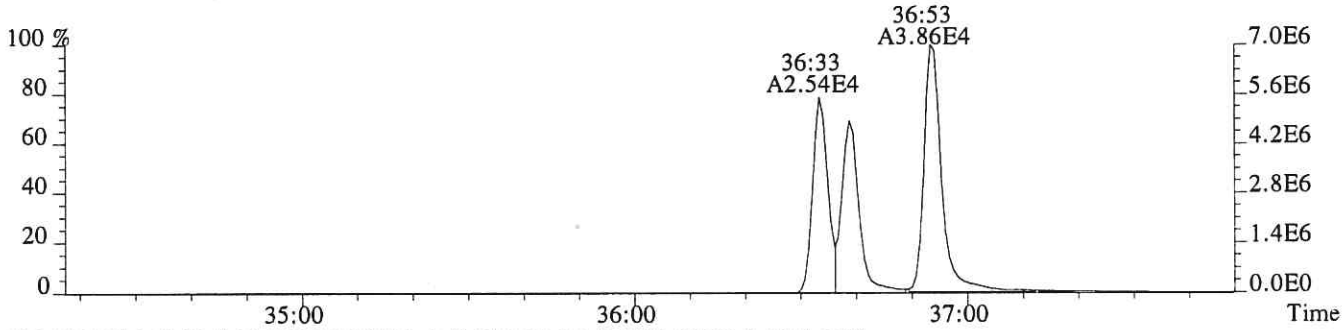
File:P519349 #1-317 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



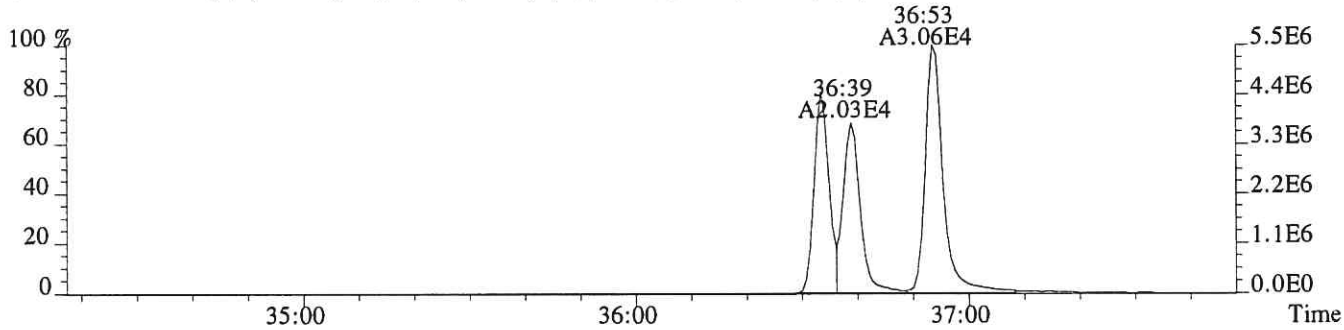
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2140.0,0.40%,F,T)



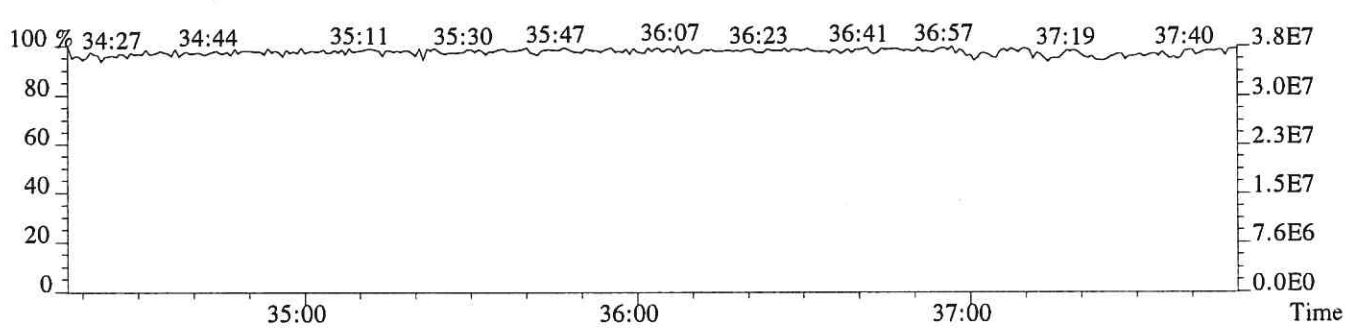
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)

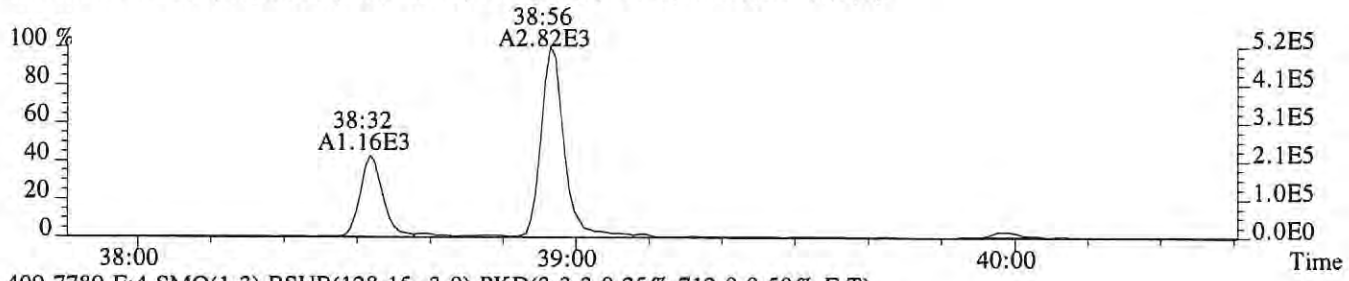


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

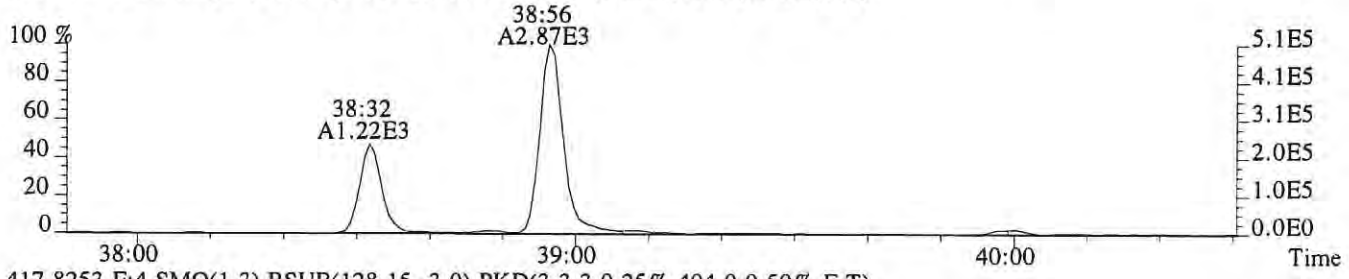


File:P519349 #1-241 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021

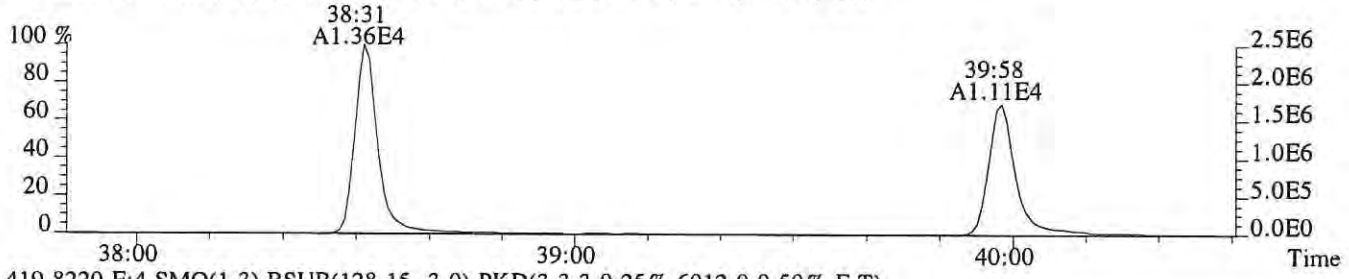
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1820.0,0.50%,F,T)



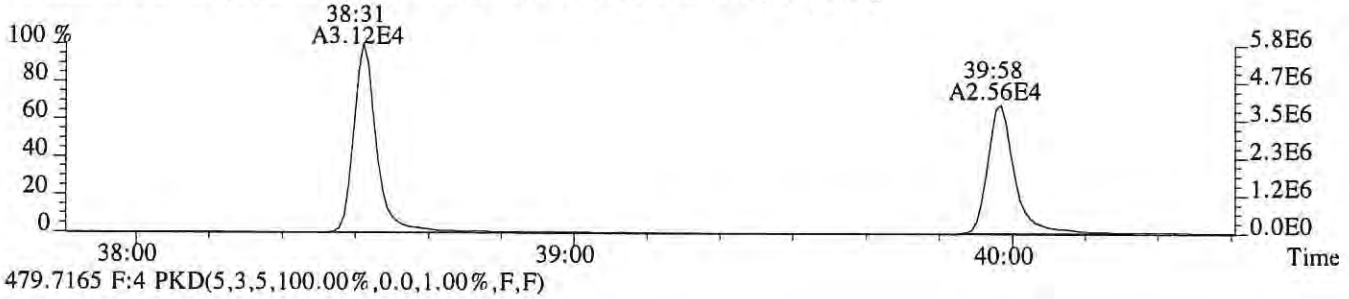
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



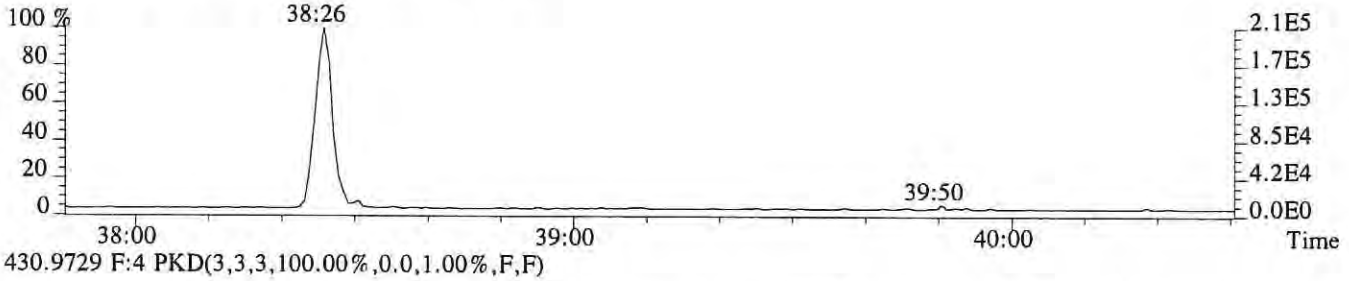
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.50%,F,T)



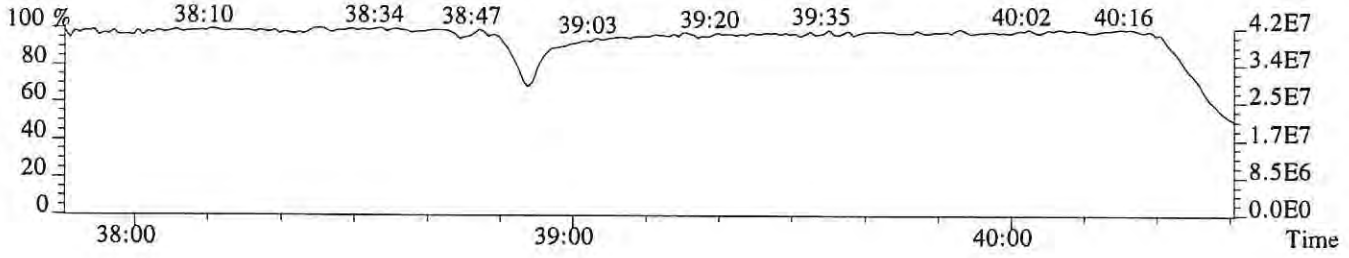
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6012.0,0.50%,F,T)



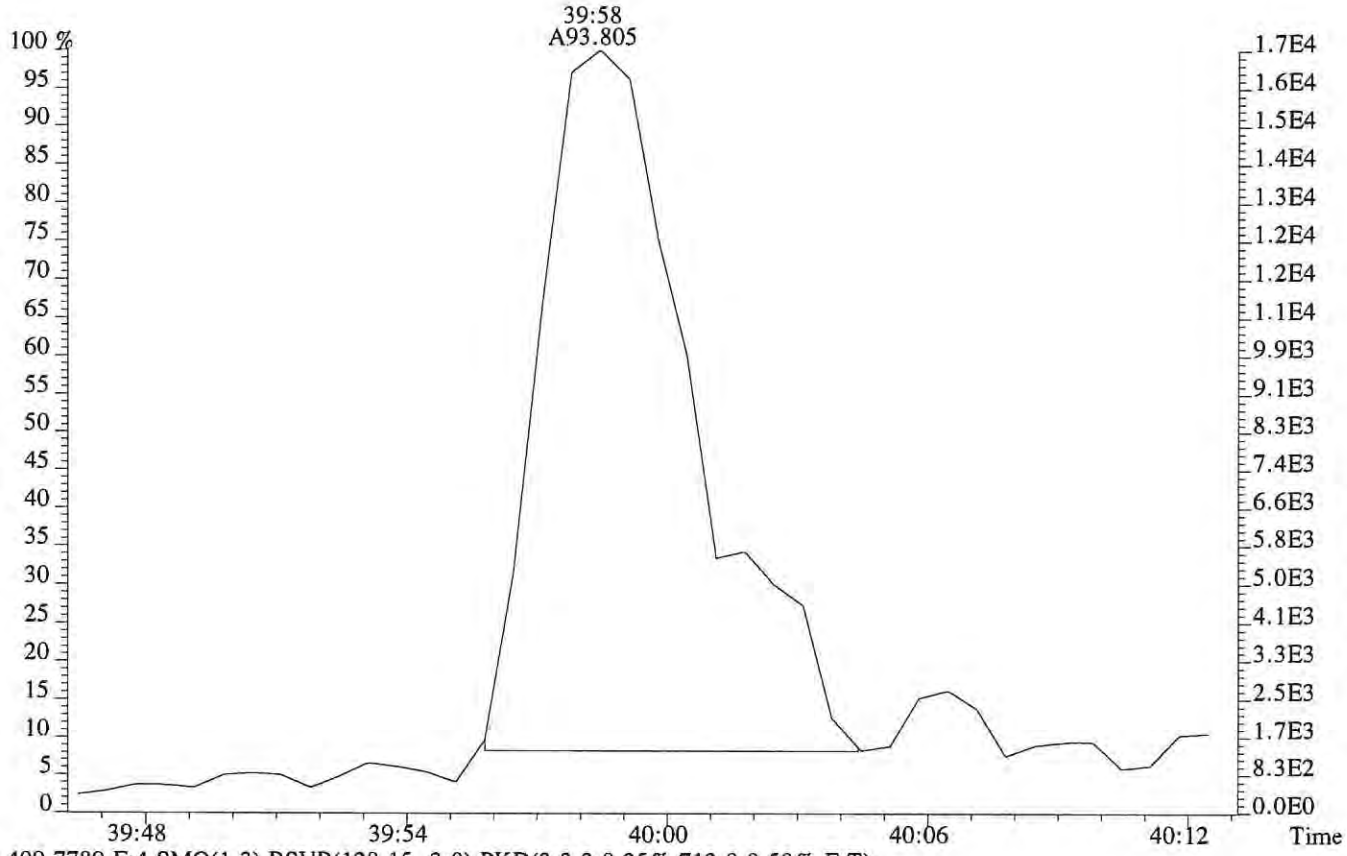
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



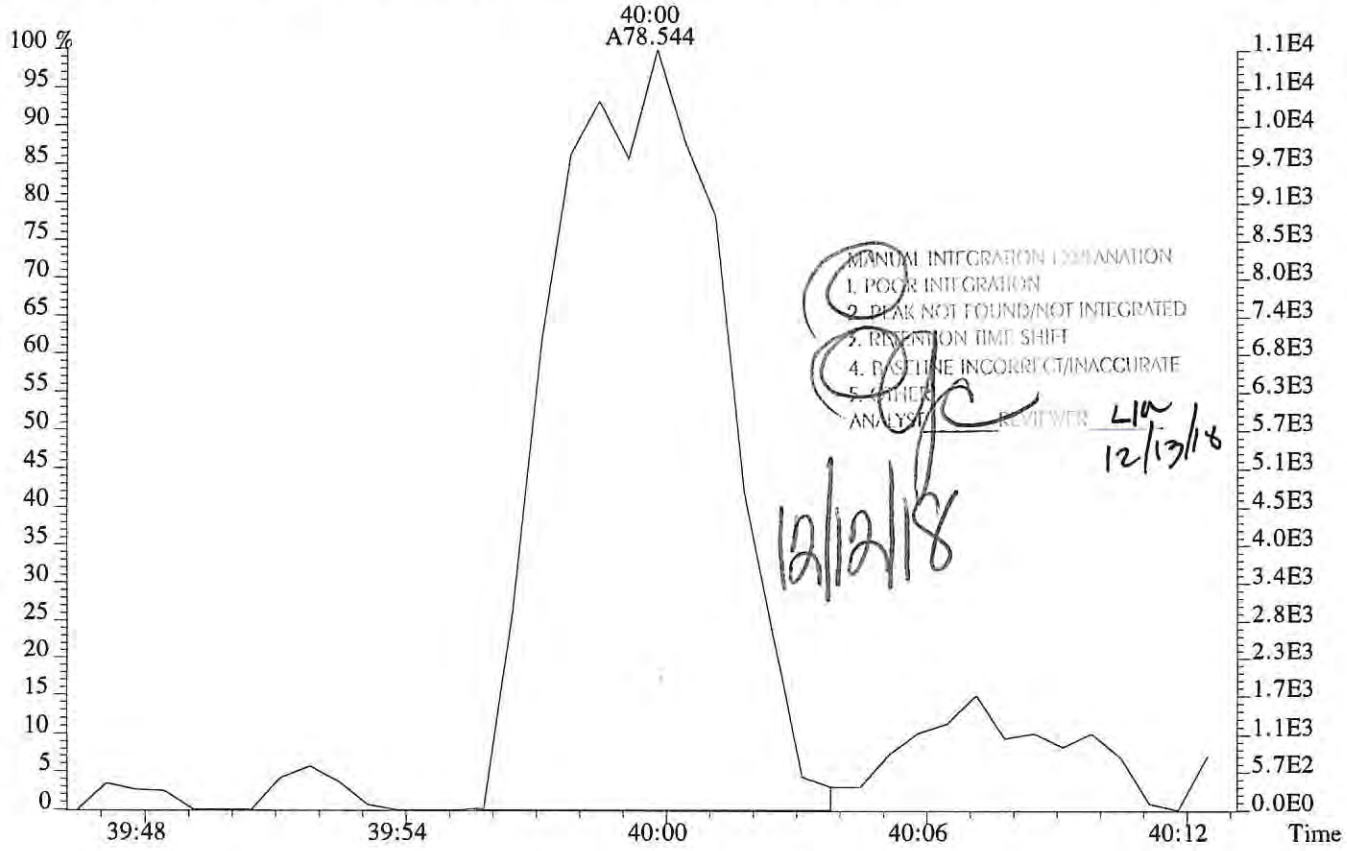
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519349 #1-241 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1820.0,0.50%,F,T)

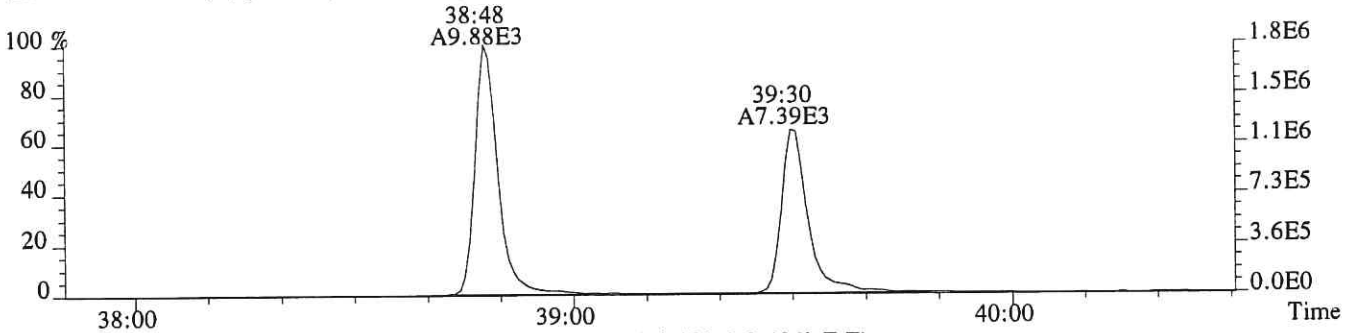


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)

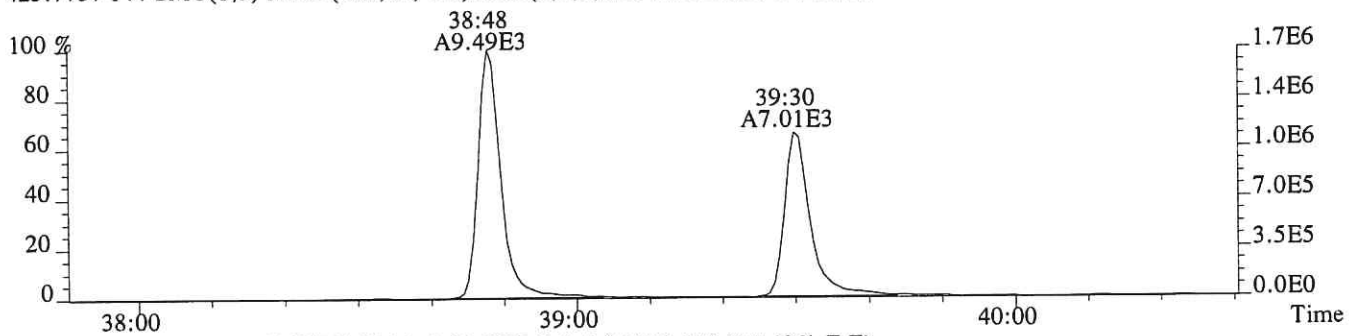


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LH 12/13/18
12/12/18

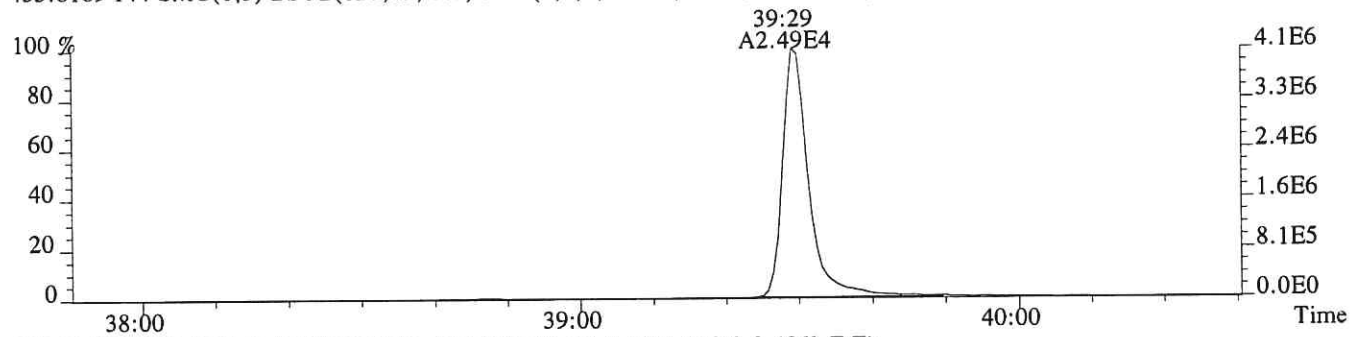
File:P519349 #1-241 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2028.0,0.40%,F,T)



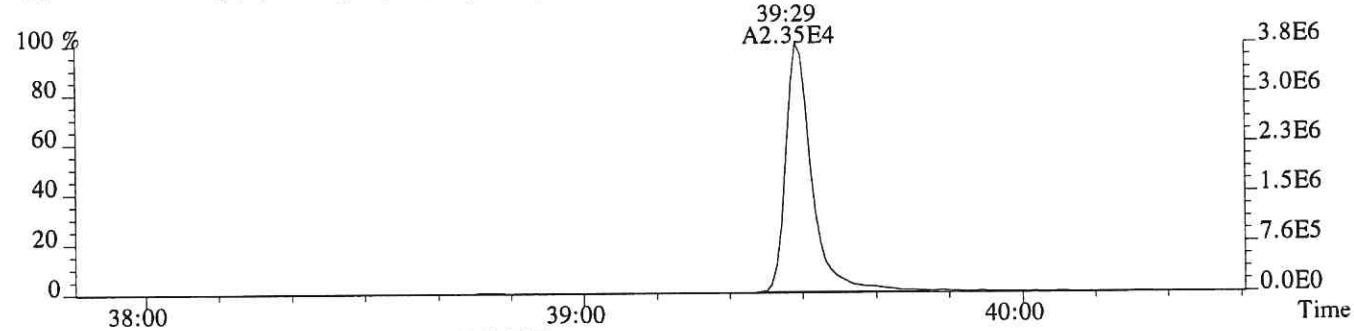
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



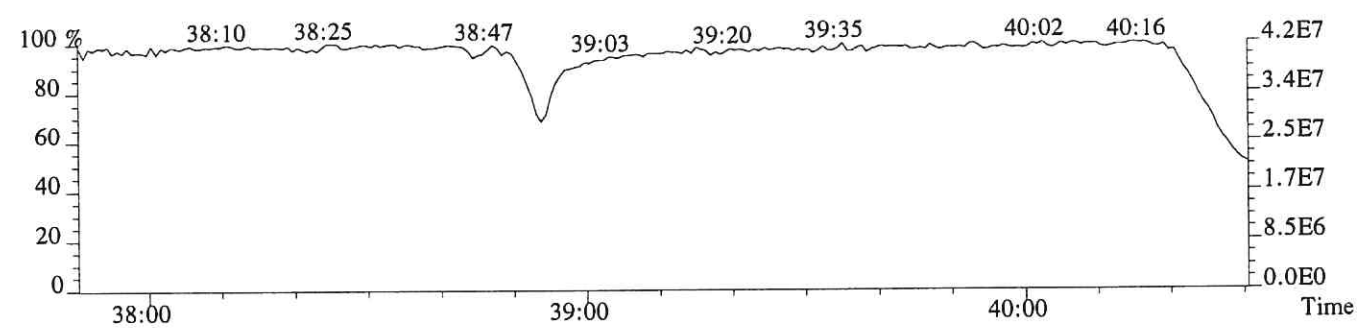
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)

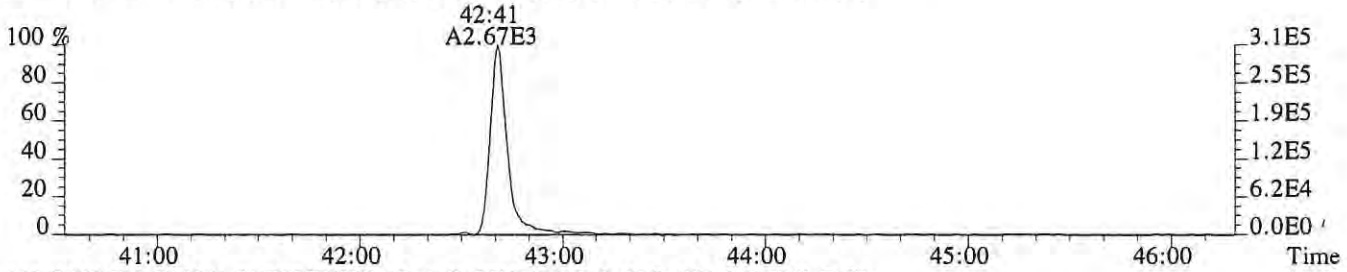


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

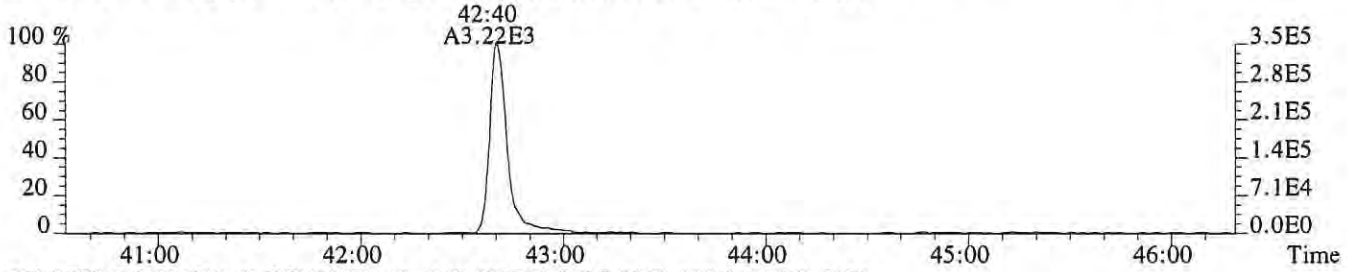


File:P519349 #1-520 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021

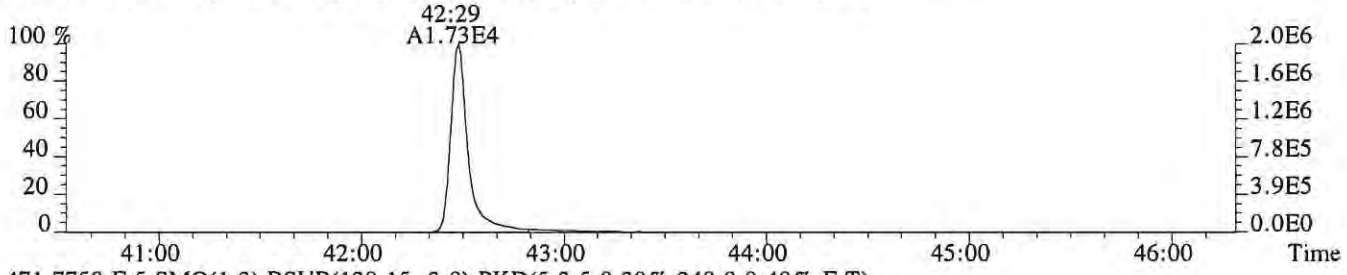
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



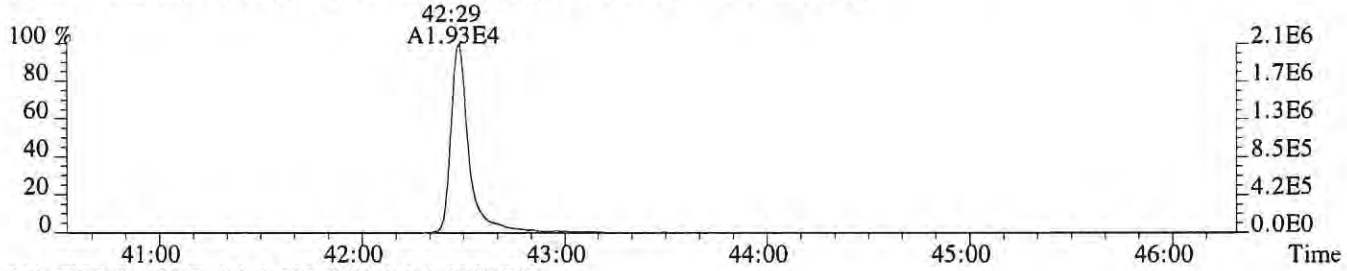
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



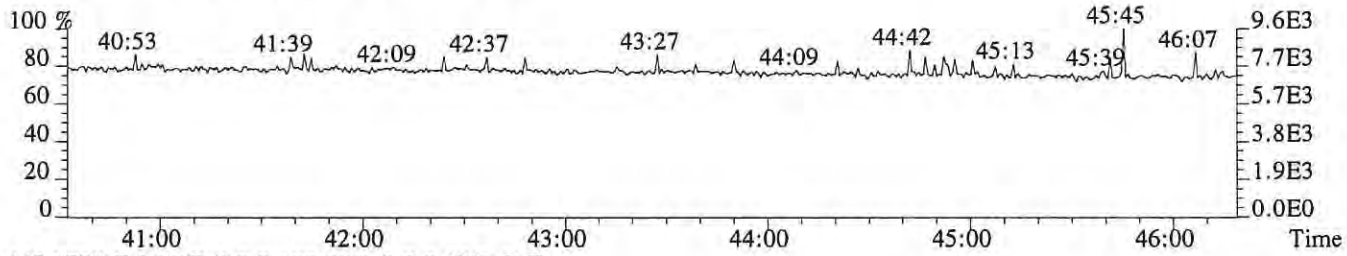
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



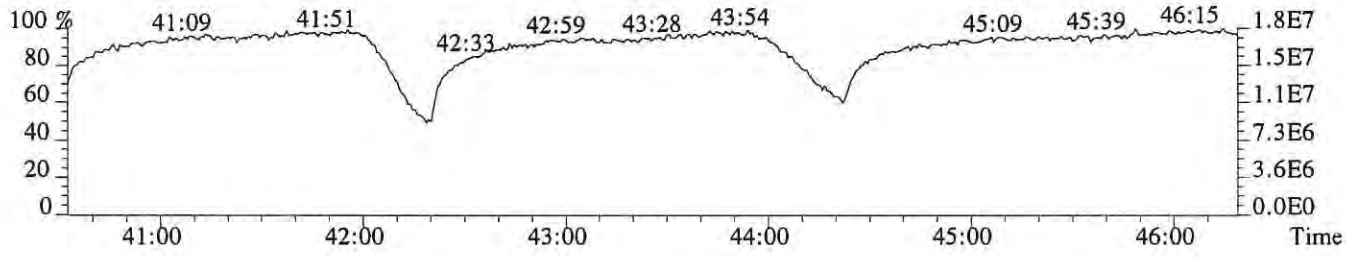
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



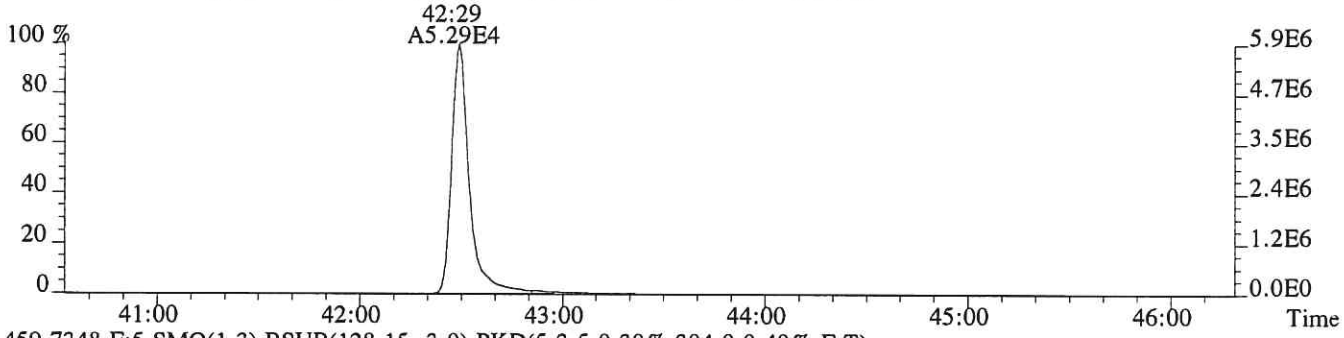
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



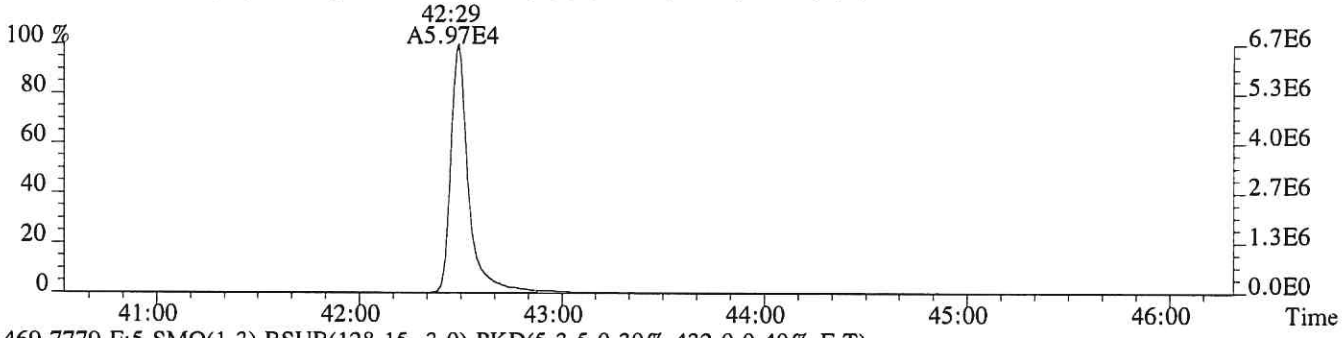
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



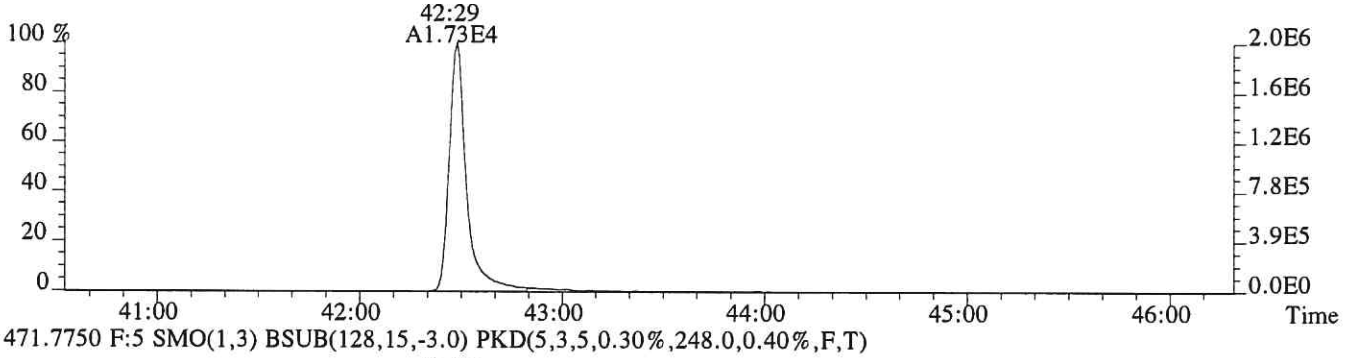
File:P519349 #1-520 Acq:11-DEC-2018 09:21:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-021
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



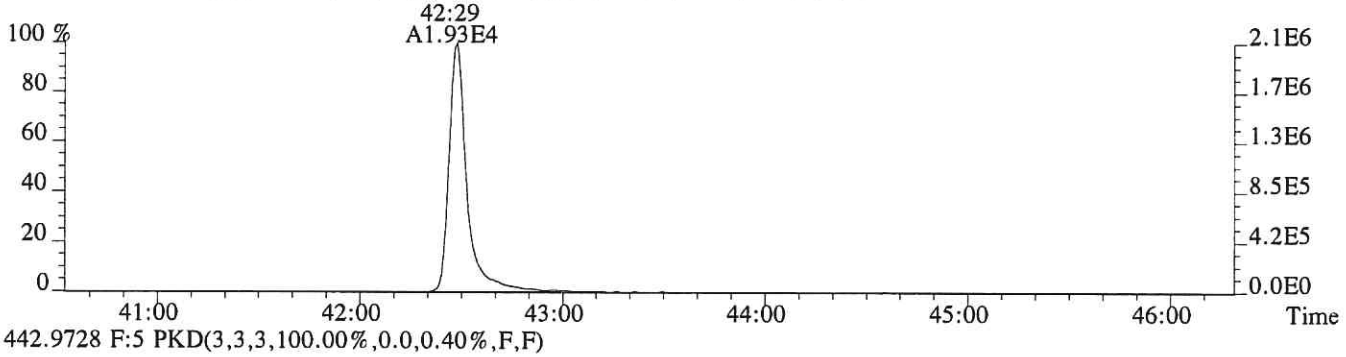
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



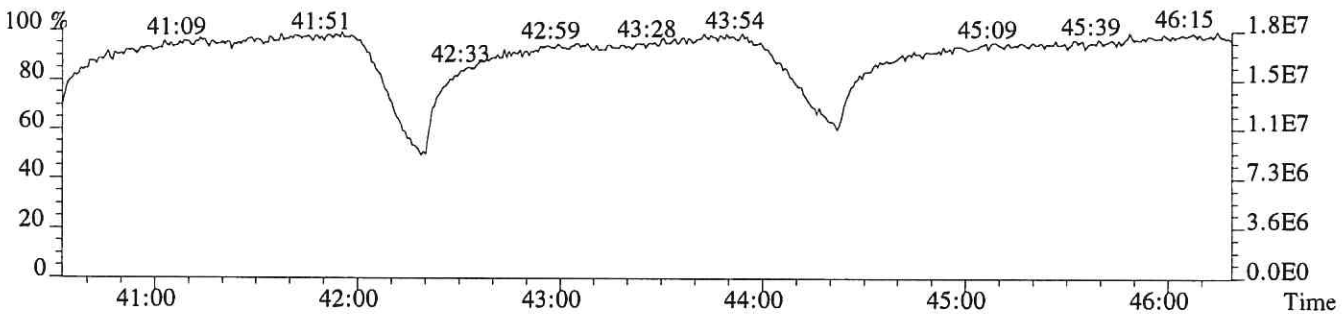
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0572

Run #12 Filename P519355 Samp: 1 Inj: 1 Acquired: 11-DEC-18 14:36:26
Processed: 12-DEC-18 09:58:26 Sample ID: E1801065-022

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.924e+02	2.774e+02	0.69	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	3.316e+01	2.539e+01	1.31	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:47	3.065e+01	3.290e+01	0.93	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:53	2.037e+01	2.092e+01	0.97	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	2.554e+01	1.393e+01	1.83	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	1.225e+01	1.518e+01	0.81	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	1.006e+02	9.462e+01	1.06	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:42	2.991e+02	2.858e+02	1.05	no	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	3.979e+01	7.180e+01	0.55	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	3.252e+01	1.179e+01	2.76	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	8.662e+01	7.748e+01	1.12	yes	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	1.554e+02	1.026e+02	1.51	no	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	3.576e+03	3.412e+03	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.574e+05	1.768e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	2.121e+04	2.700e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	3.693e+04	2.333e+04	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	3.322e+04	2.022e+04	1.64	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.570e+04	2.998e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	2.130e+04	4.116e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.671e+04	3.236e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.761e+04	3.363e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	1.397e+04	3.154e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.267e+04	2.863e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.682e+03	1.230e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.385e+04	1.470e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	2.253e+04	1.759e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	2.166e+04	1.749e+04	1.24	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	2.795e+04	2.676e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:30	3.022e+04	3.312e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.205e+04	2.796e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	3.545e+04	2.807e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.394e+04				no	1.014

$$\text{OCDD} = \frac{(1.574e+05 + 1.768e+05) \times 4000\ \text{pg} \times 1}{(3.022e+04 + 3.312e+04) \times 10.225\ \text{g} \times 86.5 / 100 \times 1.118} = 2134\ \text{ng/kg}$$

LM 12/12/18

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0572

Run #12 Filename P519355 Samp: 1 Inj: 1 Acquired: 11-DEC-18 14:36:26
Processed: 12-DEC-18 09:58:26 LAB. ID: E1801065-022

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.25e+04	4.44e+02	7.3e+01	4.06e+04	9.44e+02	4.3e+01
2	1,2,3,7,8-PeCDF	6.23e+03	8.84e+02	7.0e+00	4.98e+03	1.48e+03	3.4e+00
3	2,3,4,7,8-PeCDF	*	8.84e+02	*	*	1.48e+03	*
4	1,2,3,4,7,8-HxCDF	6.76e+03	3.36e+02	2.0e+01	6.06e+03	4.68e+02	1.3e+01
5	1,2,3,6,7,8-HxCDF	3.86e+03	3.36e+02	1.1e+01	5.07e+03	4.68e+02	1.1e+01
6	2,3,4,6,7,8-HxCDF	5.62e+03	3.36e+02	1.7e+01	4.27e+03	4.68e+02	9.1e+00
7	1,2,3,7,8,9-HxCDF	3.58e+03	3.36e+02	1.1e+01	3.65e+03	4.68e+02	7.8e+00
8	1,2,3,4,6,7,8-HpCDF	2.14e+04	3.09e+03	6.9e+00	1.70e+04	3.88e+02	4.4e+01
9	1,2,3,4,7,8,9-HpCDF	*	3.09e+03	*	*	3.88e+02	*
10	OCDF	3.02e+04	5.16e+02	5.9e+01	3.36e+04	7.84e+02	4.3e+01
11	2,3,7,8-TCDD	5.72e+03	8.40e+02	6.8e+00	1.25e+04	5.24e+02	2.4e+01
12	1,2,3,7,8-PeCDD	7.61e+03	5.64e+02	1.4e+01	3.89e+03	1.84e+02	2.1e+01
13	1,2,3,4,7,8-HxCDD	*	4.84e+02	*	*	4.41e+03	*
14	1,2,3,6,7,8-HxCDD	1.73e+04	4.84e+02	3.6e+01	1.16e+04	4.41e+03	2.6e+00
15	1,2,3,7,8,9-HxCDD	2.83e+04	4.84e+02	5.8e+01	1.70e+04	4.41e+03	3.9e+00
16	1,2,3,4,6,7,8-HpCDD	5.88e+05	7.44e+02	7.9e+02	5.58e+05	1.29e+03	4.3e+02
17	OCDD	1.82e+07	2.20e+02	8.3e+04	2.03e+07	2.68e+02	7.6e+04
18	13C-2,3,7,8-TCDF	3.79e+06	5.76e+03	6.6e+02	4.83e+06	2.33e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	6.91e+06	5.36e+02	1.3e+04	4.44e+06	4.08e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	6.51e+06	5.36e+02	1.2e+04	3.94e+06	4.08e+02	9.6e+03
21	13C-1,2,3,4,7,8-HxCDF	3.26e+06	3.60e+02	9.1e+03	6.13e+06	5.72e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	4.10e+06	3.60e+02	1.1e+04	7.82e+06	5.72e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	3.32e+06	3.60e+02	9.2e+03	6.42e+06	5.72e+02	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	3.15e+06	3.60e+02	8.7e+03	6.06e+06	5.72e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.61e+06	2.17e+03	1.2e+03	5.99e+06	1.40e+03	4.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+06	2.17e+03	9.0e+02	4.30e+06	1.40e+03	3.1e+03
27	13C-2,3,7,8-TCDD	1.79e+06	4.84e+03	3.7e+02	2.29e+06	1.46e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	4.51e+06	5.16e+02	8.7e+03	2.81e+06	5.92e+02	4.7e+03
29	13C-1,2,3,4,7,8-HxCDD	4.70e+06	1.36e+03	3.4e+03	3.67e+06	1.72e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	4.06e+06	1.36e+03	3.0e+03	3.32e+06	1.72e+02	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.52e+06	9.96e+02	4.5e+03	4.31e+06	6.00e+02	7.2e+03
32	13C-OCDD	3.40e+06	1.88e+02	1.8e+04	3.88e+06	1.88e+02	2.1e+04
33	13C-1,2,3,4-TCDD	4.12e+06	4.84e+03	8.5e+02	5.23e+06	1.46e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.47e+06	1.36e+03	4.7e+03	5.03e+06	1.72e+02	2.9e+04
35	37Cl-2,3,7,8-TCDD	2.65e+06	5.56e+02	4.8e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0572

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P519355 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 14:36:26 Processed: 12-DEC-18 09:58:26

Mass: 303.9020 305.8990 Tot Response: 7.76e+02 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:10	2.09e+01	2.44e+01	0.86	yes	4.53e+01		n	n
2	26:27	1.44e+01	1.80e+01	0.80	yes	3.24e+01		n	n
3	26:55	1.05e+02	1.23e+02	0.85	yes	2.28e+02		n	n
4	27:45	1.92e+02	2.77e+02	0.69	yes	4.70e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0572

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P519355 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 14:36:26 Processed: 12-DEC-18 09:58:26

Mass: 319.8970 321.8940 Tot Response: 8.45e+01 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:36	3.75e+01	4.70e+01 0.80	yes	8.45e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0572

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P519355 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 14:36:26 Processed: 12-DEC-18 09:58:26

Mass: 355.8550 357.8520 Tot Response: 8.69e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:37	5.10e+01	3.59e+01 1.42	yes	8.69e+01		n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0572

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P519355 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 14:36:26 Processed: 12-DEC-18 09:58:26

Mass: 373.8210 375.8180 Tot Response: 1.32e+02 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:38	2.15e+01	1.88e+01 1.15	yes	4.03e+01		n	n
2	35:21	5.36e+01	3.85e+01 1.39	yes	9.21e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0572

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P519355 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 14:36:26 Processed: 12-DEC-18 09:58:26

Mass: 389.8160 391.8130 Tot Response: 3.12e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:11	1.13e+03	8.59e+02	1.31	yes	1.99e+03		n	n
2	35:58	5.02e+02	3.94e+02	1.27	yes	8.96e+02		n	y
3	36:40	8.66e+01	7.75e+01	1.12	yes	1.64e+02	1,2,3,6,7,8-HxCDD	n	y
4	36:50	3.90e+01	2.87e+01	1.36	yes	6.77e+01		n	y

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Peak List Summary

CLIENT ID.
SL0572

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P519355 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 14:36:26 Processed: 12-DEC-18 09:58:26

Mass: 407.7820 409.7790 Tot Response: 5.02e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:32	1.01e+02	9.46e+01 1.06	yes	1.95e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:57	1.62e+02	1.45e+02 1.12	yes	3.07e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0572

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P519355 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 14:36:26 Processed: 12-DEC-18 09:58:26

Mass: 423.7770 425.7740 Tot Response: 2.15e+04 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	7.54e+03	6.95e+03 1.08	yes	1.45e+04		n	n
2	39:30	3.58e+03	3.41e+03 1.05	yes	6.99e+03	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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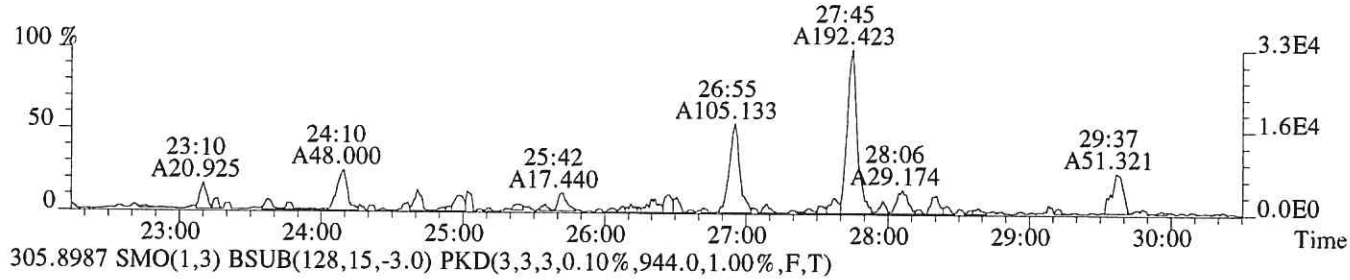
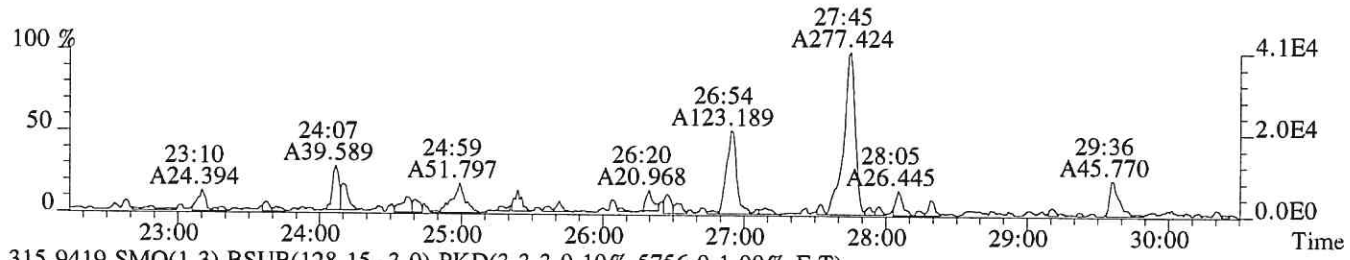
File:P519355 #1-587 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022

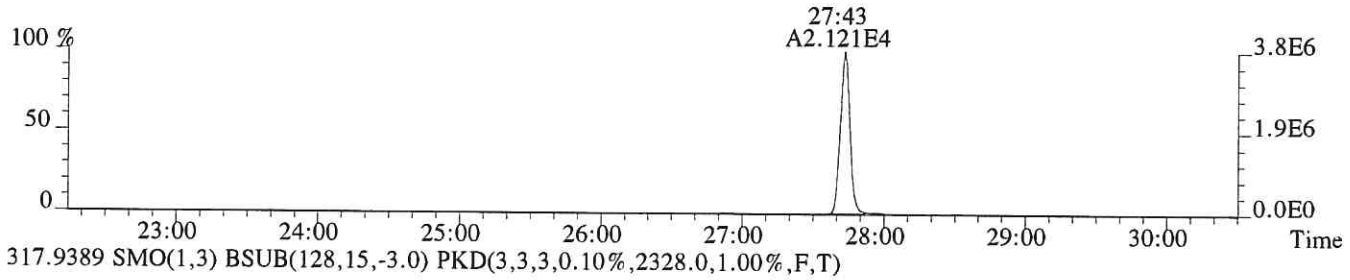
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



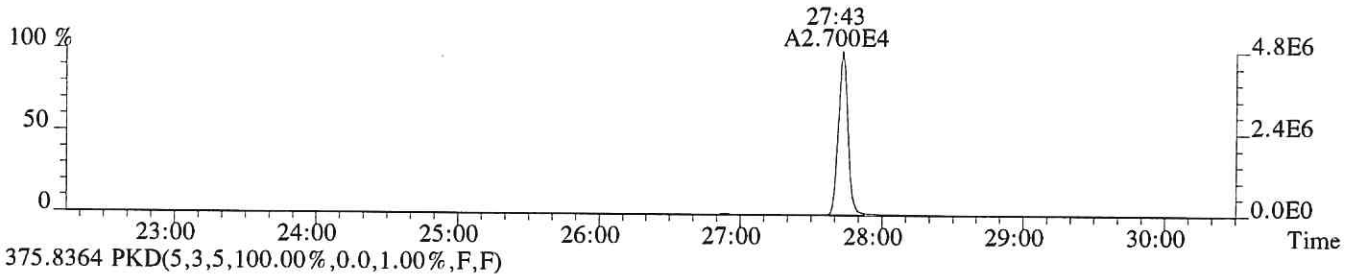
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



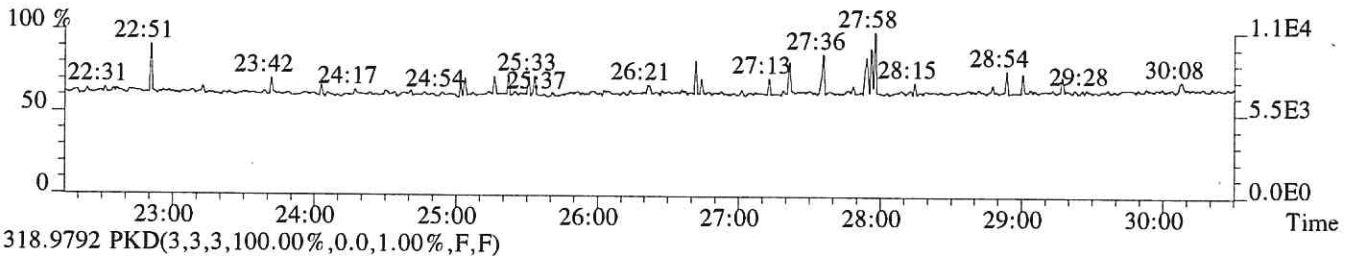
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5756.0,1.00%,F,T)



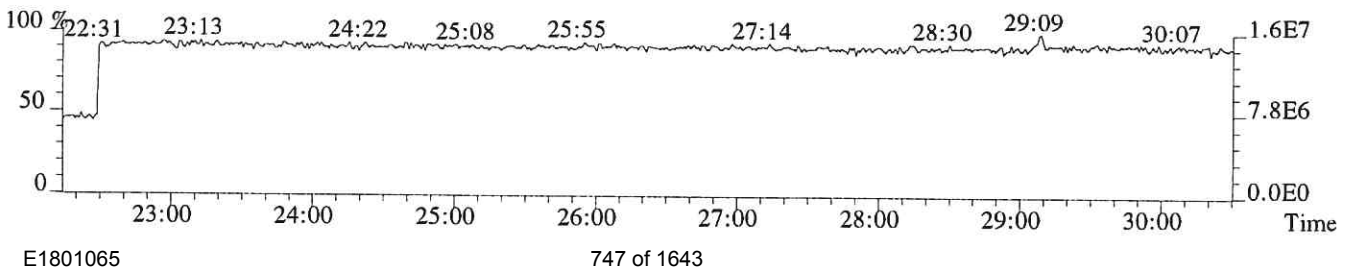
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2328.0,1.00%,F,T)



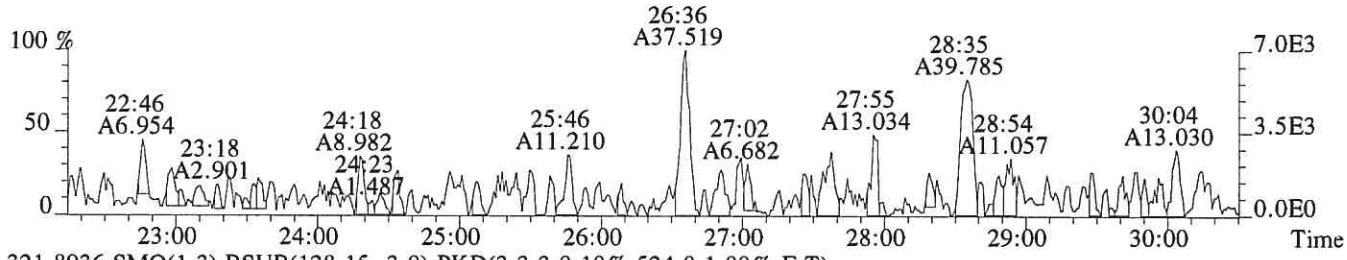
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



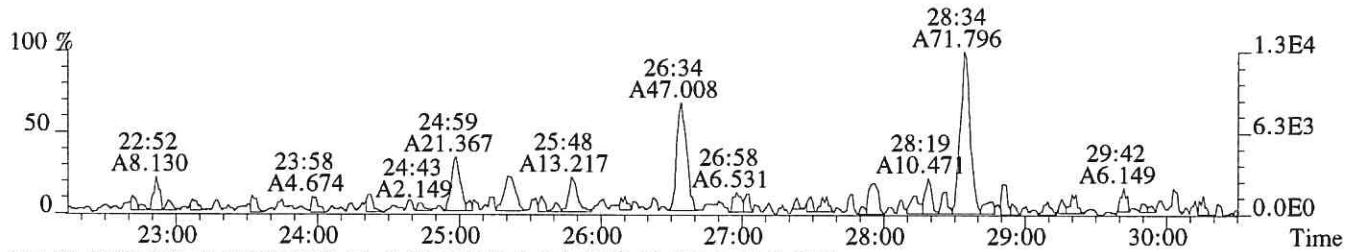
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



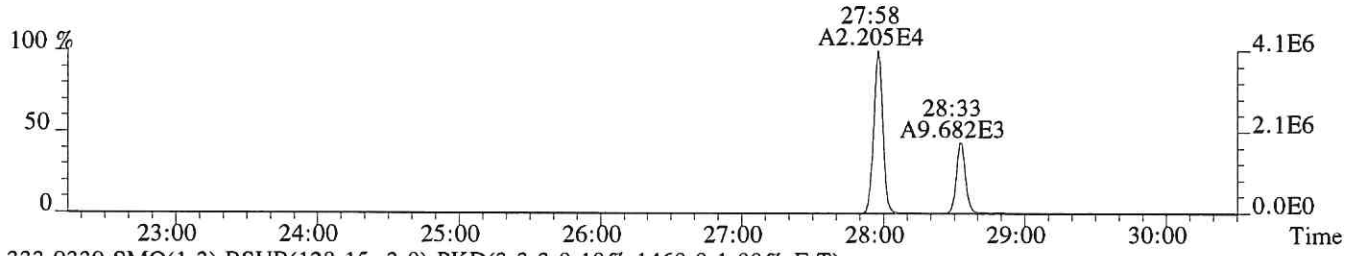
File:P519355 #1-587 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



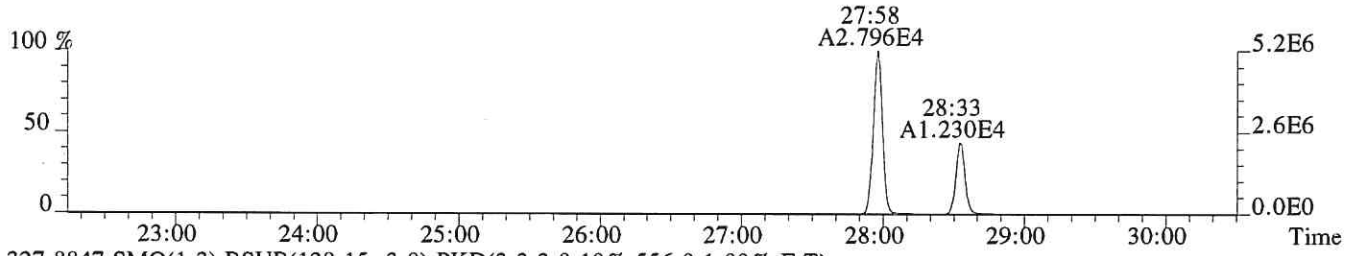
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



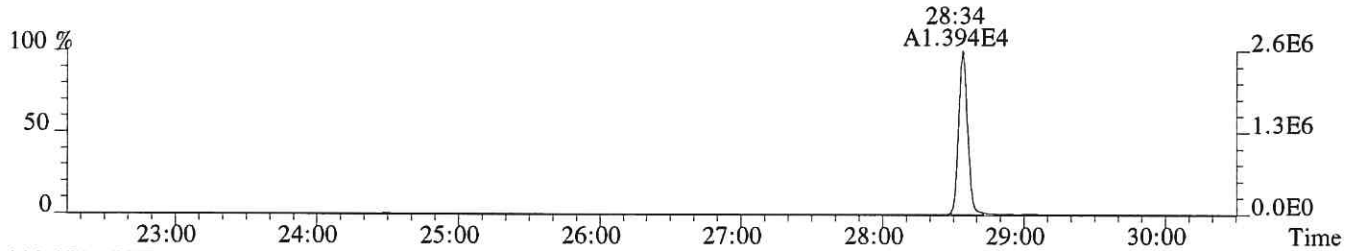
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4840.0,1.00%,F,T)



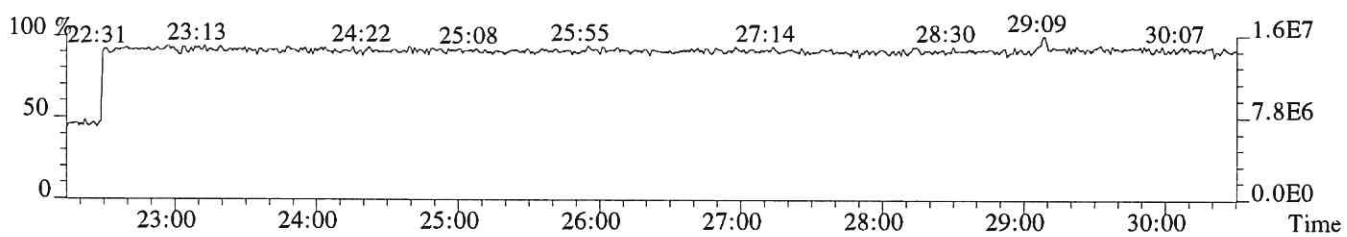
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



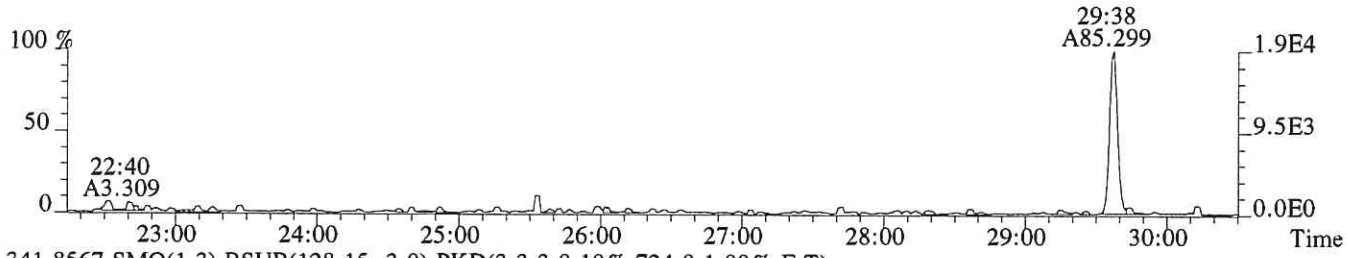
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



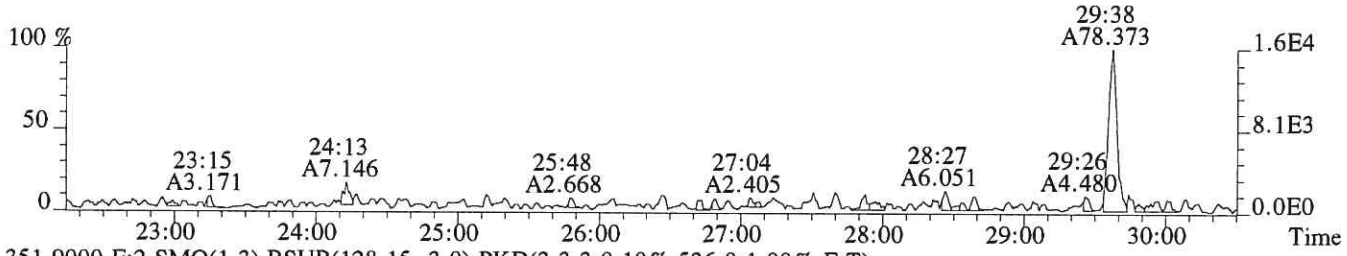
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



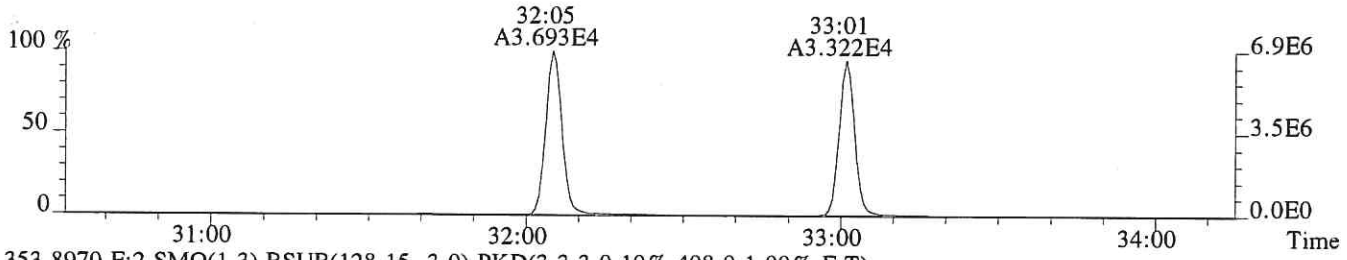
File:P519355 #1-587 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



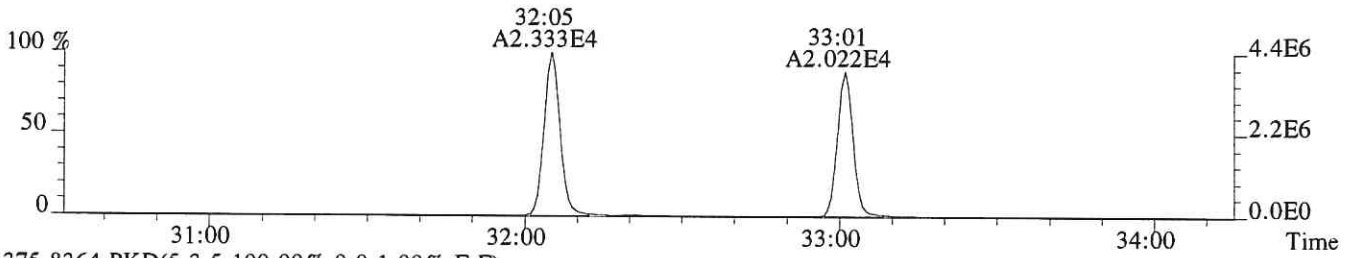
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



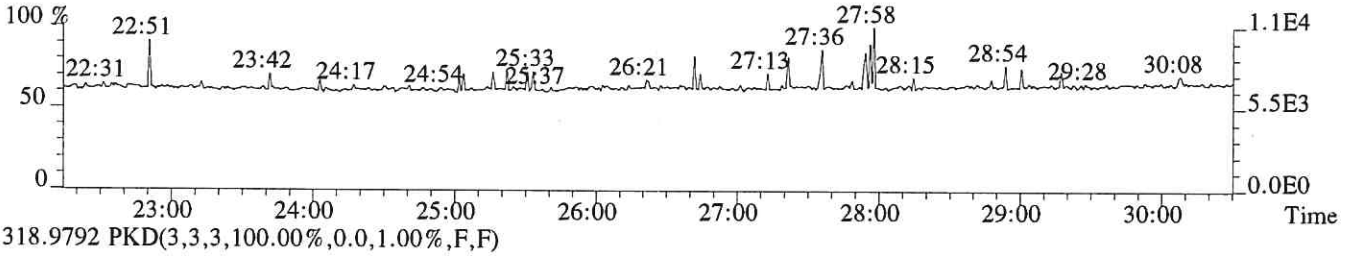
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



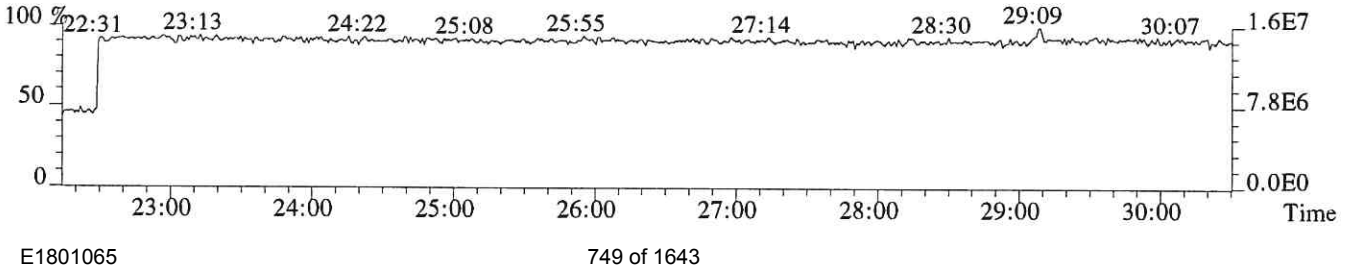
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



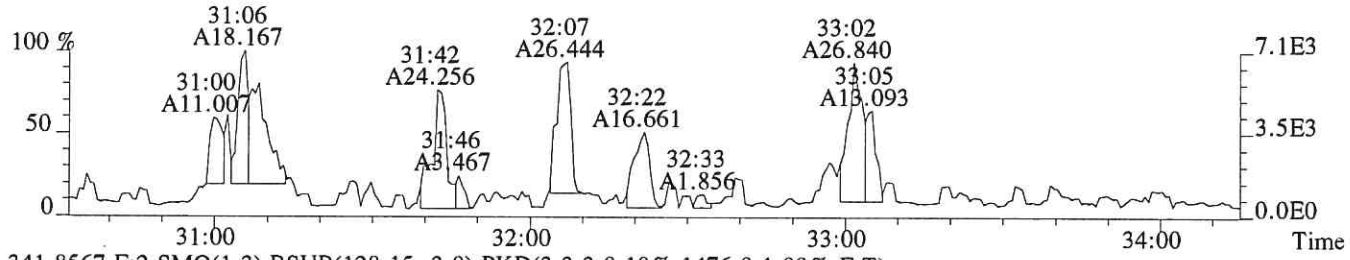
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



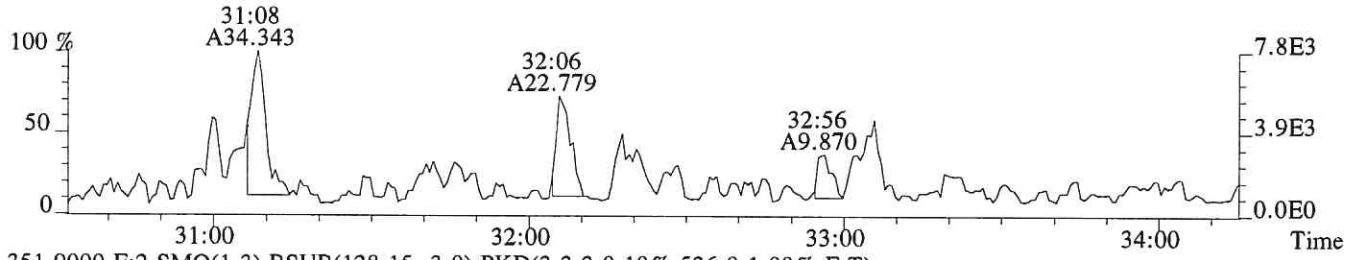
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



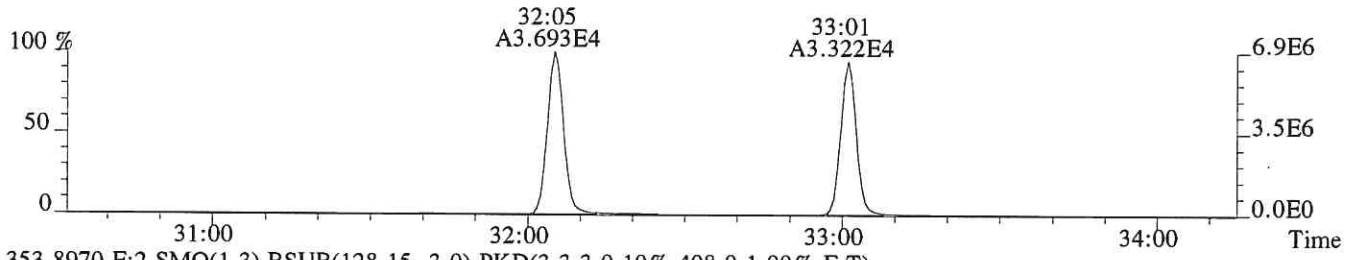
File:P519355 #1-335 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



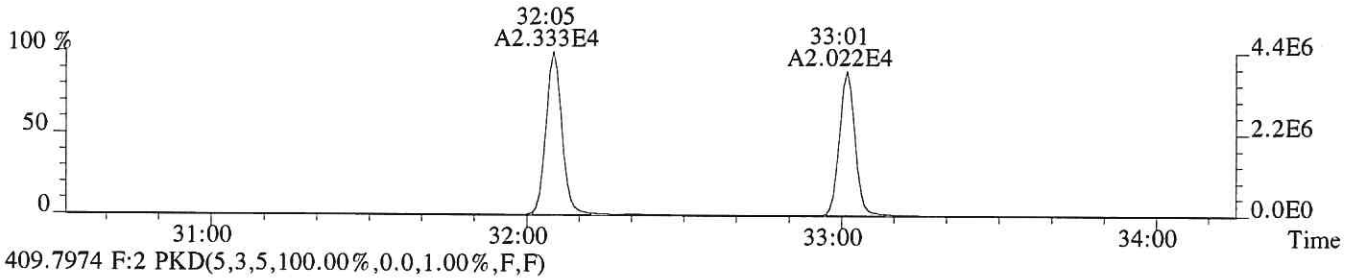
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



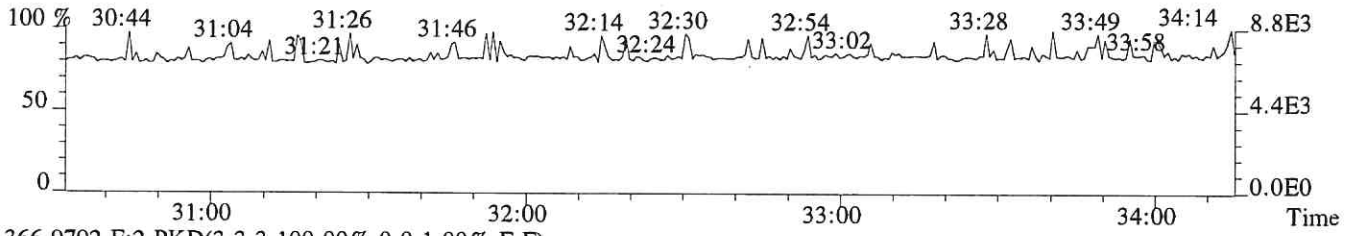
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



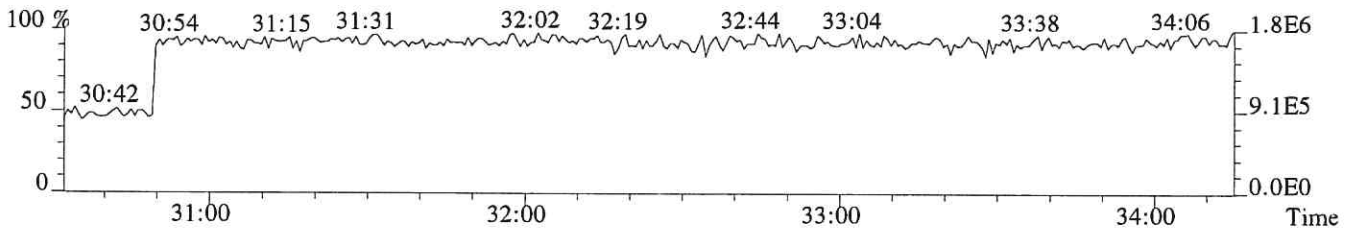
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



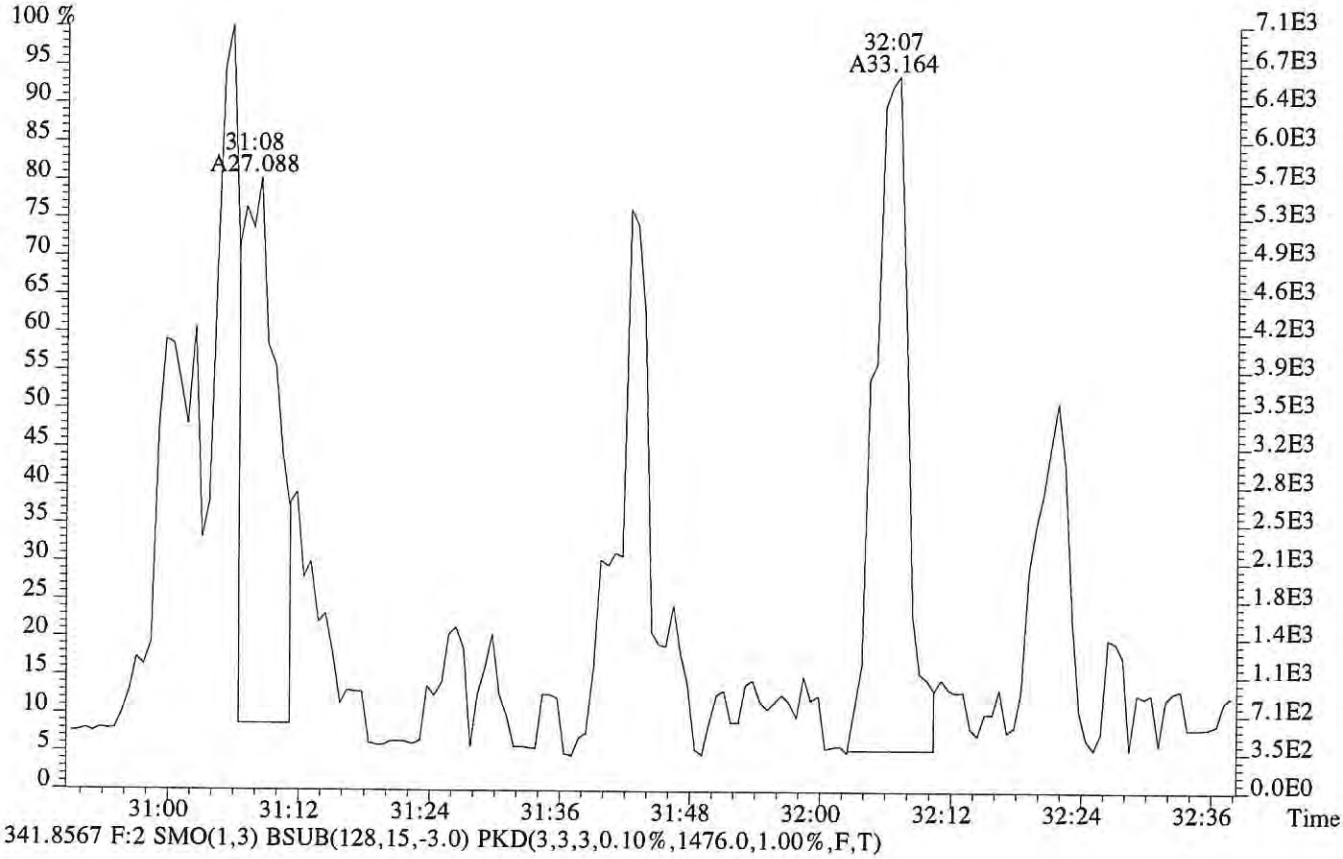
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



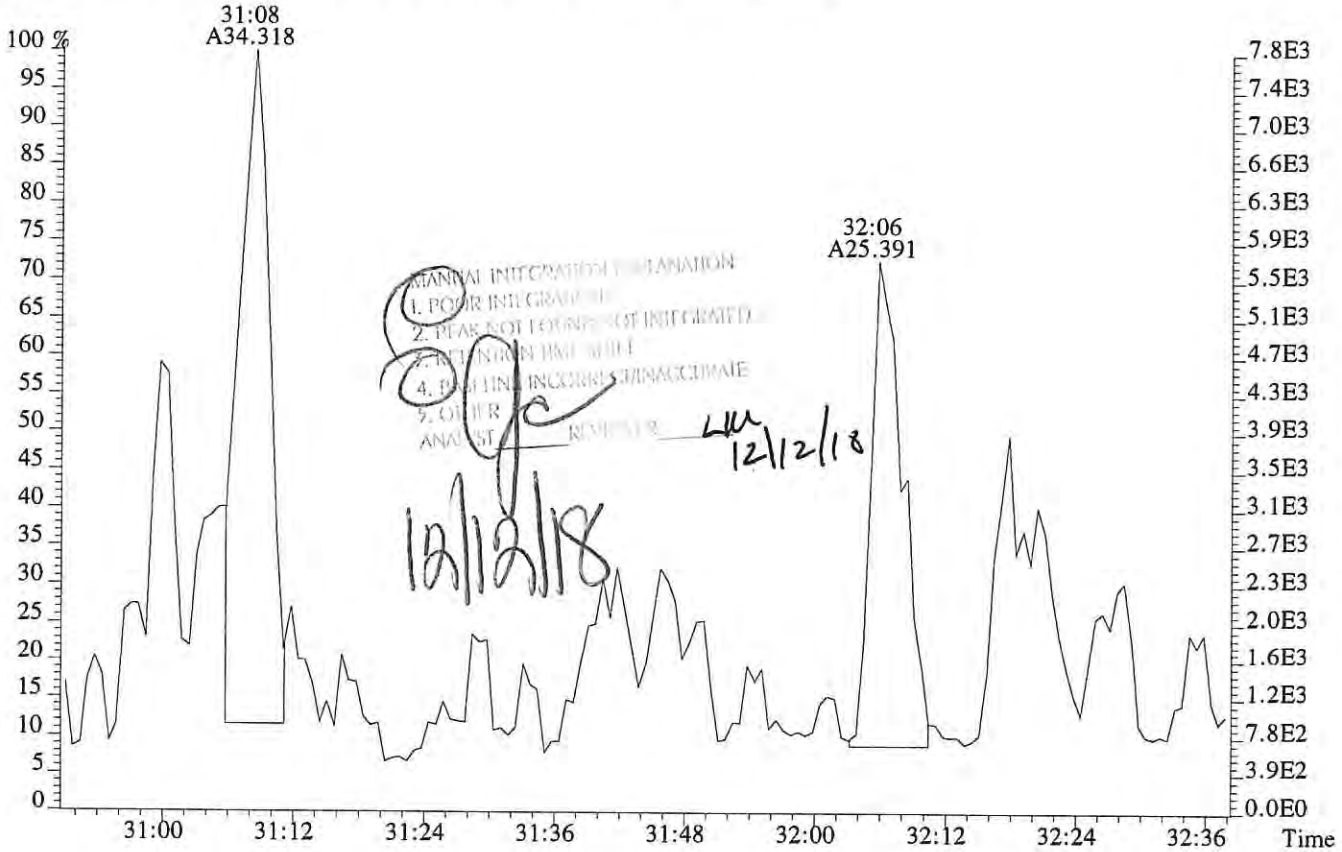
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519355 #1-335 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)

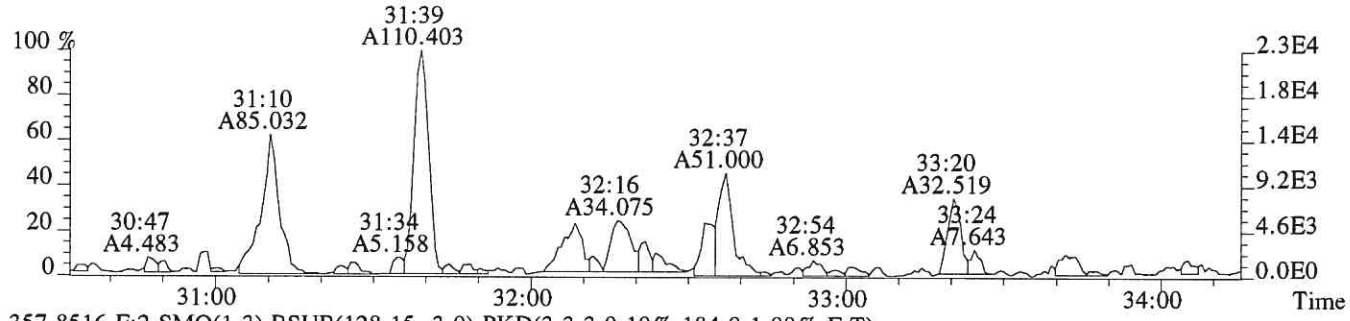


341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)

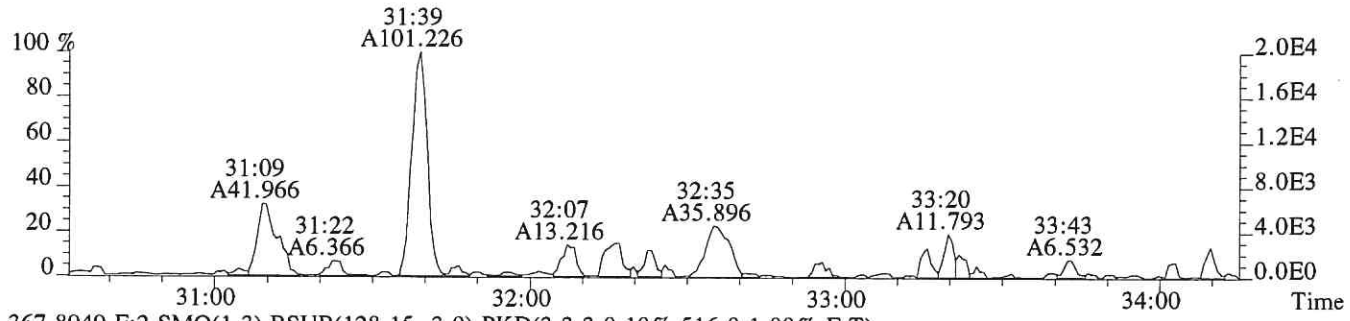


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER
12/12/18
12/12/18

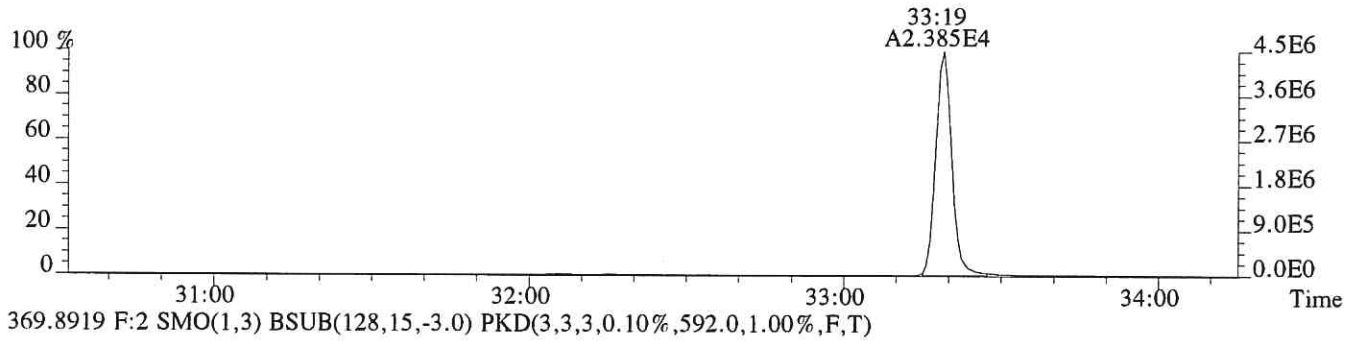
File:P519355 #1-335 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



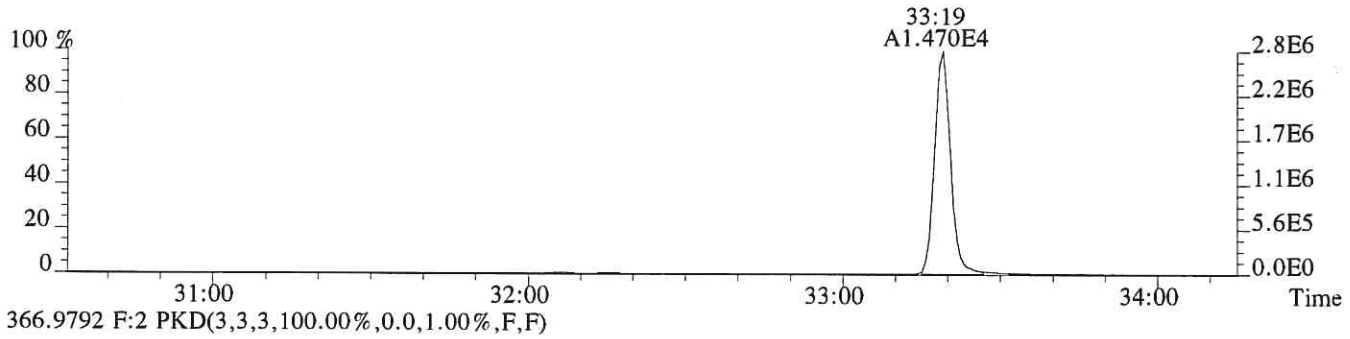
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



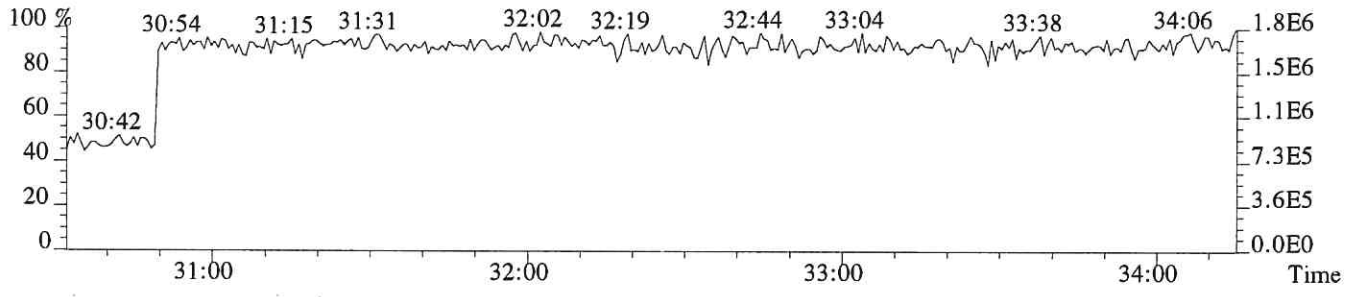
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



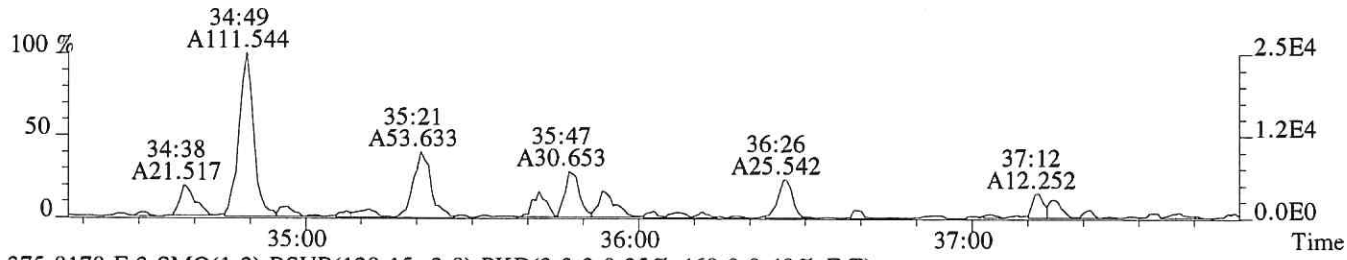
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



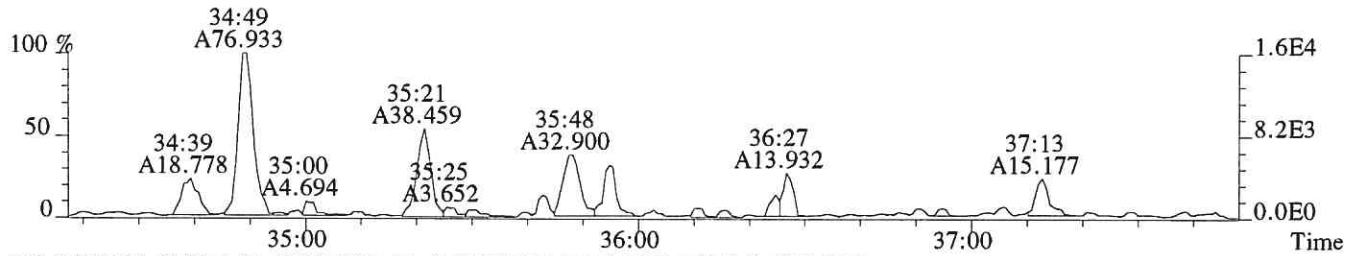
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



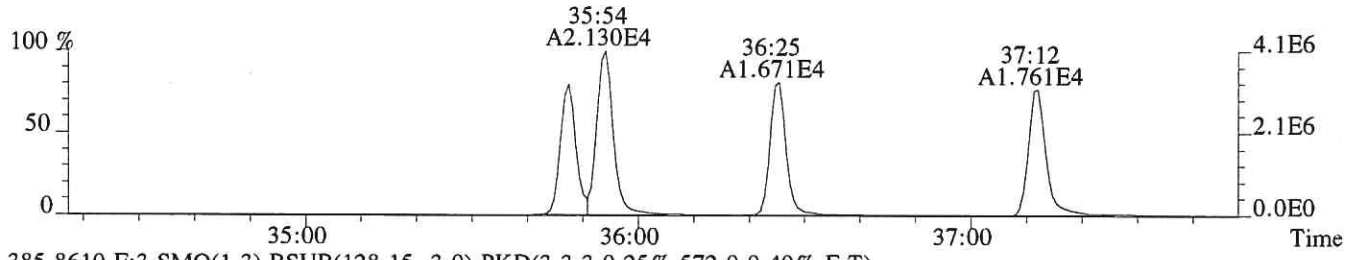
File:P519355 #1-317 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



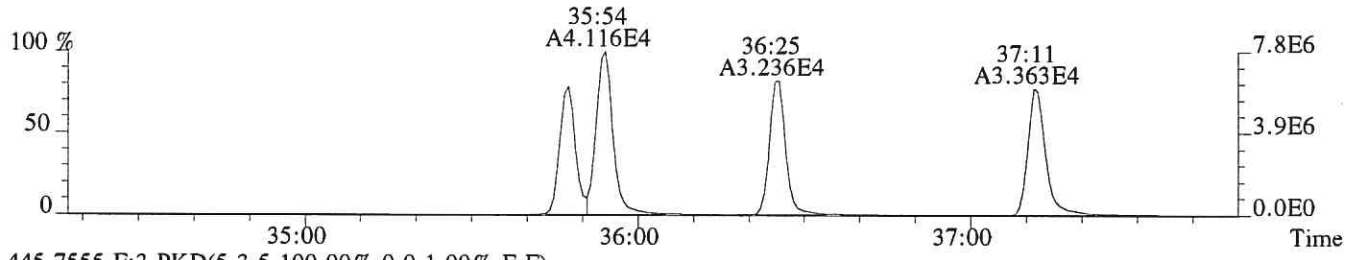
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



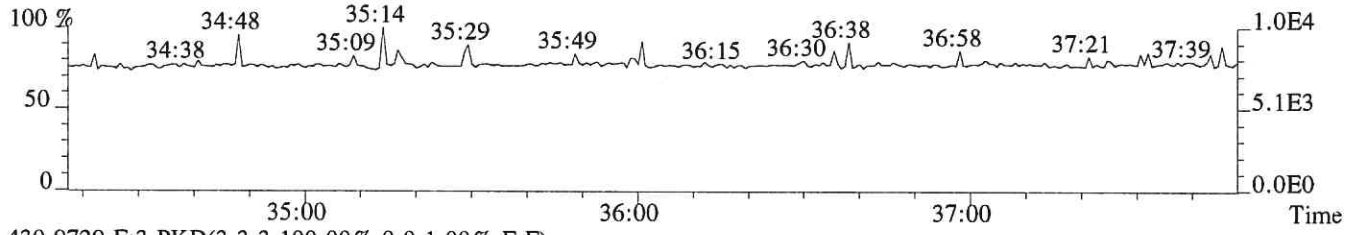
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



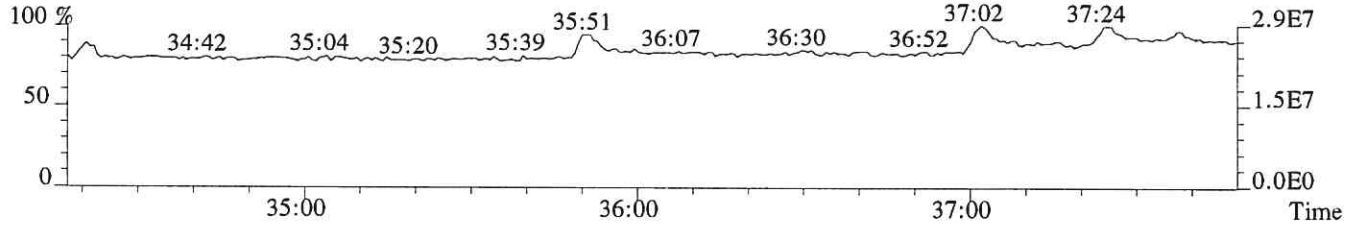
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



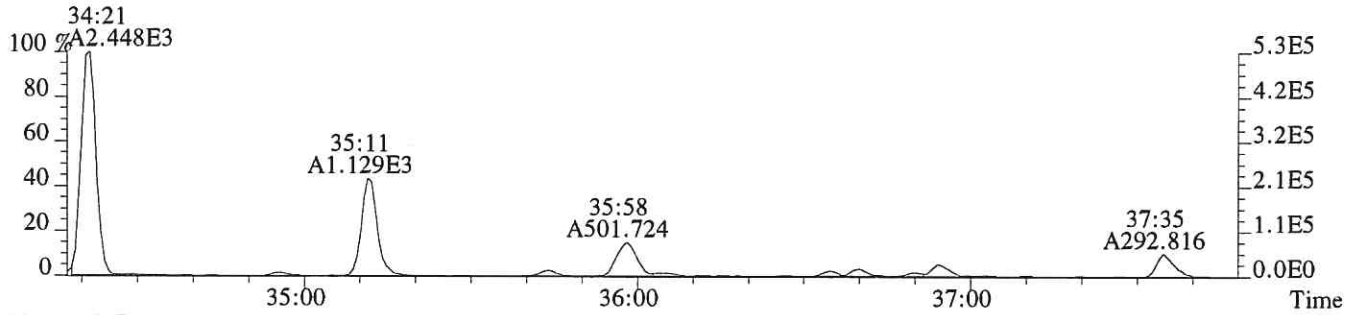
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



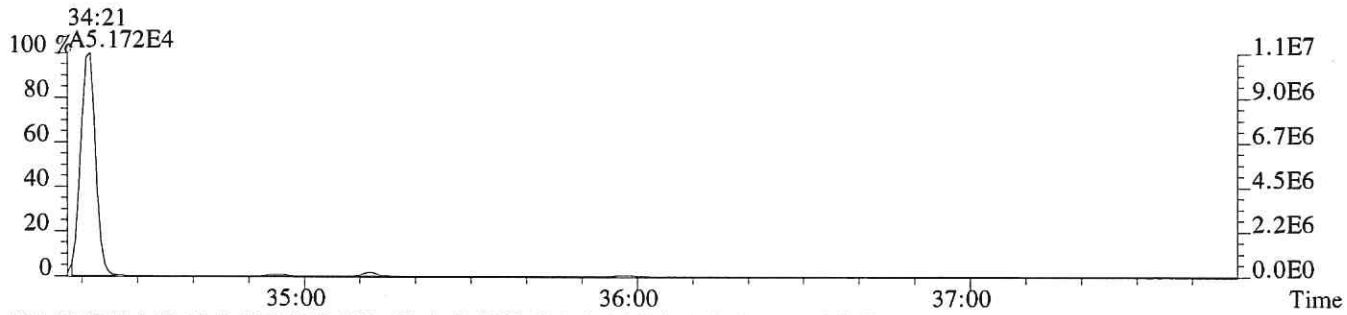
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



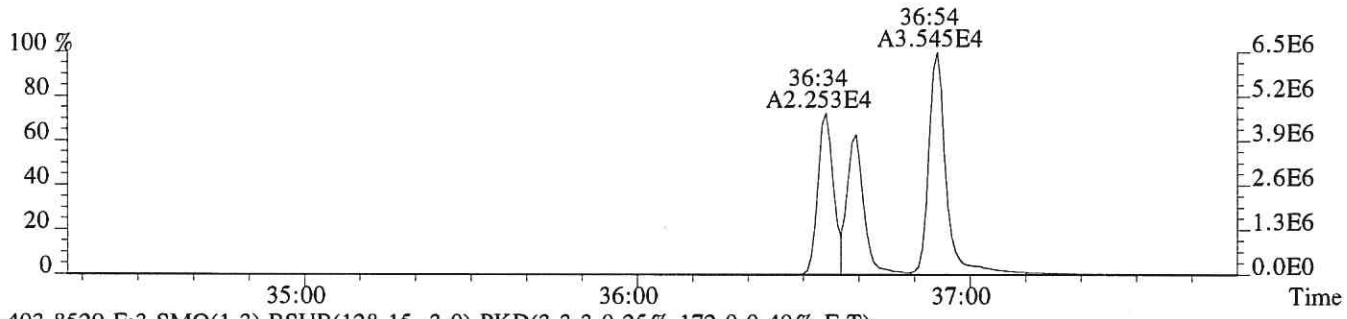
File:P519355 #1-317 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



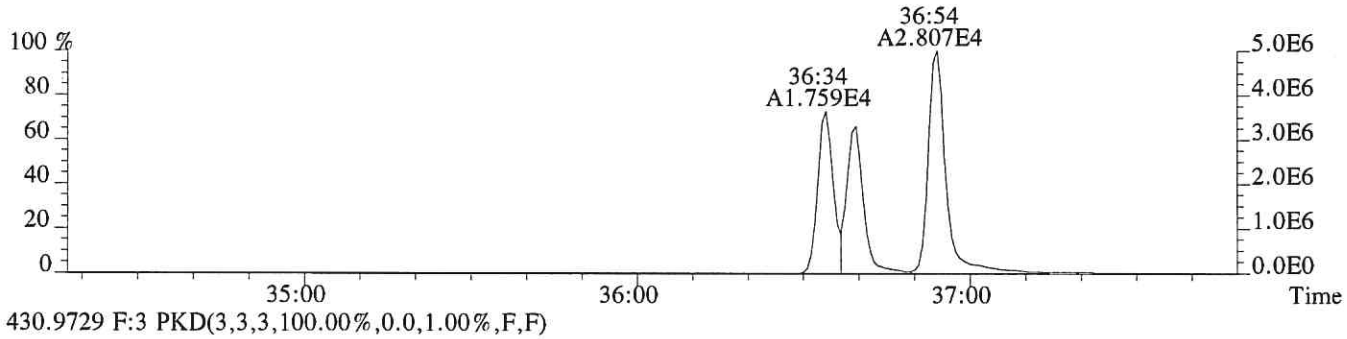
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4412.0,0.40%,F,T)



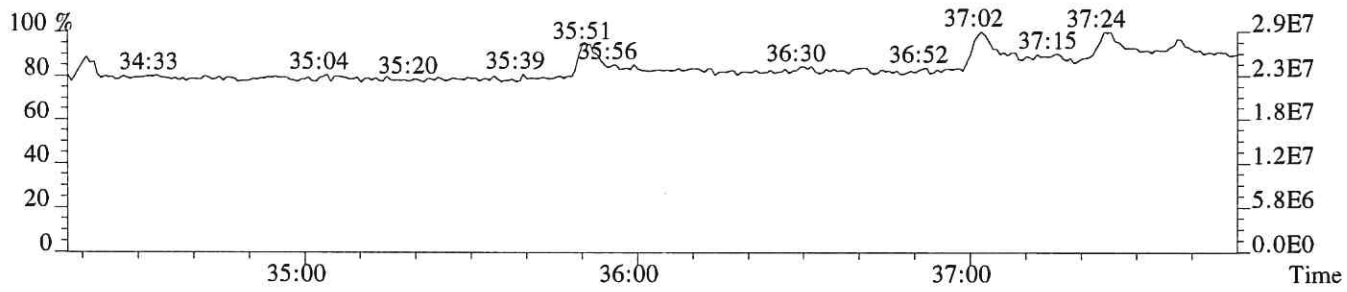
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



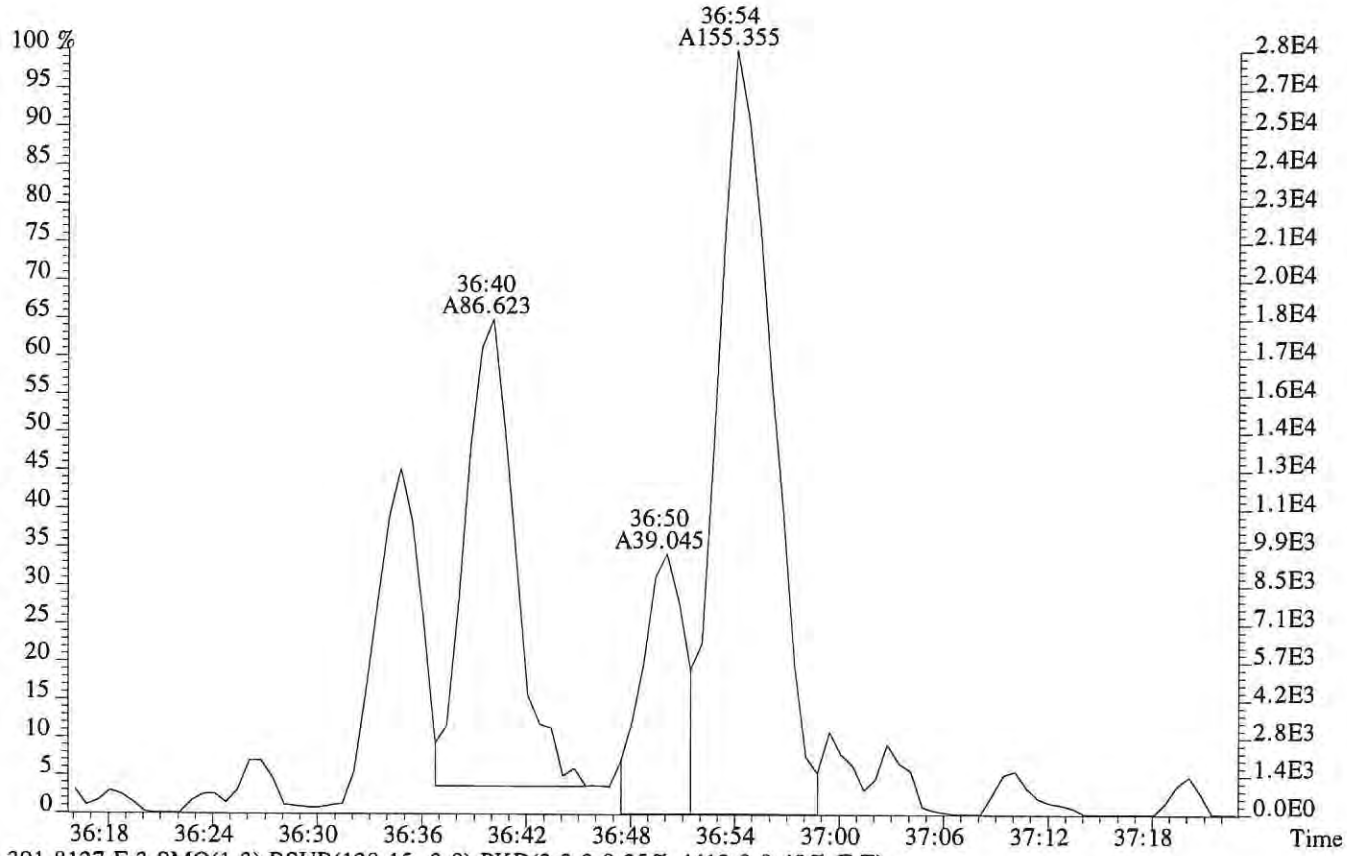
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



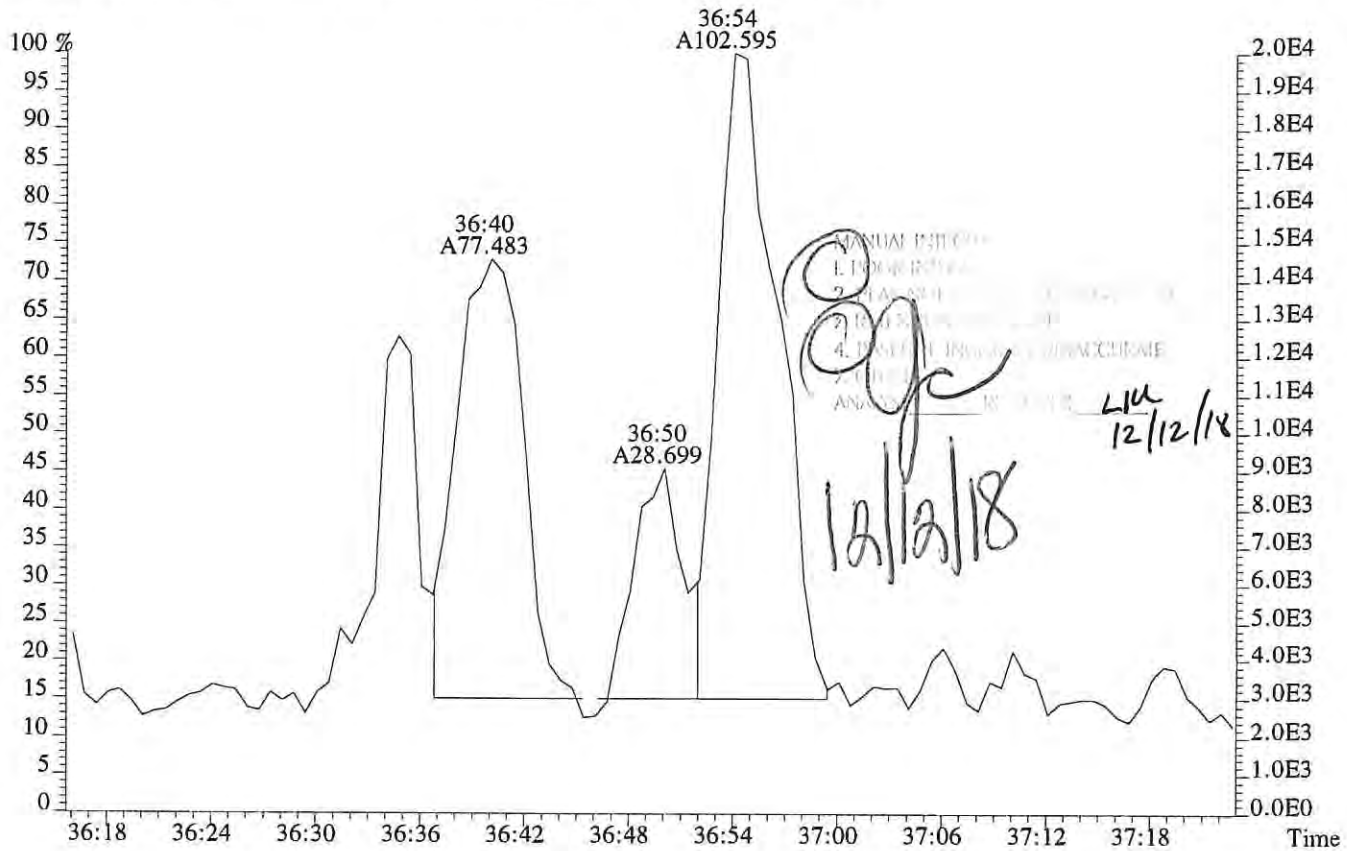
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



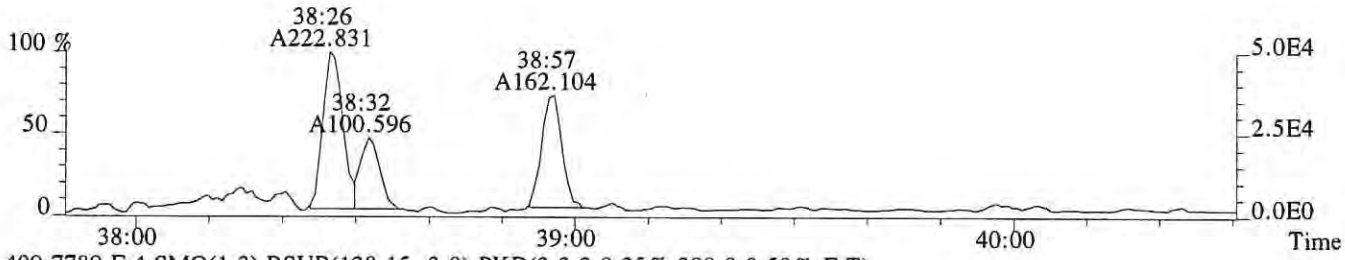
File:P519355 #1-317 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



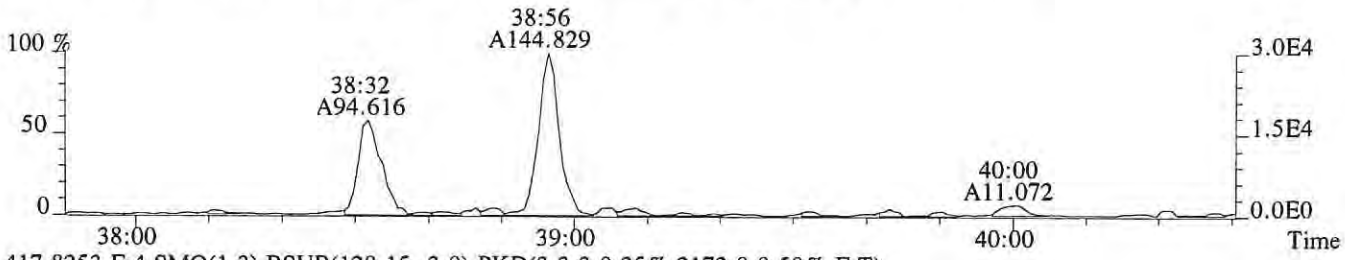
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4412.0,0.40%,F,T)



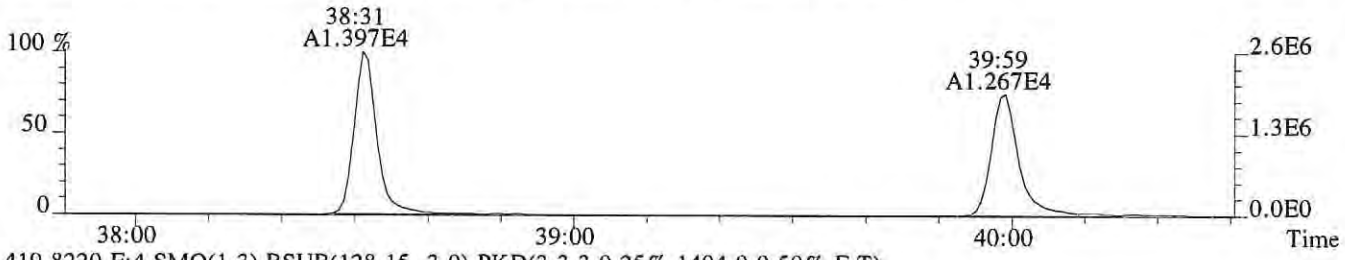
File:P519355 #1-241 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3092.0,0.50%,F,T)



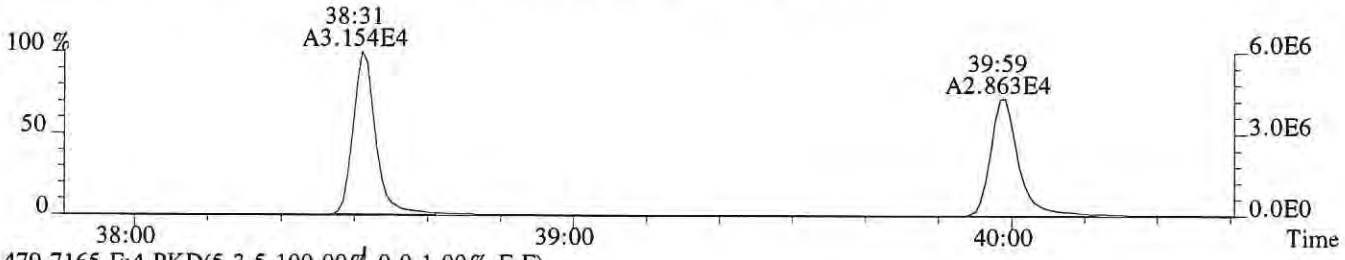
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.50%,F,T)



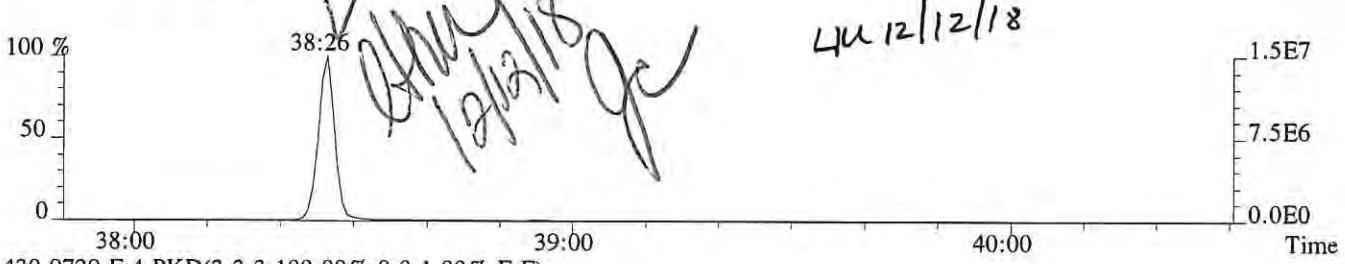
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.50%,F,T)



419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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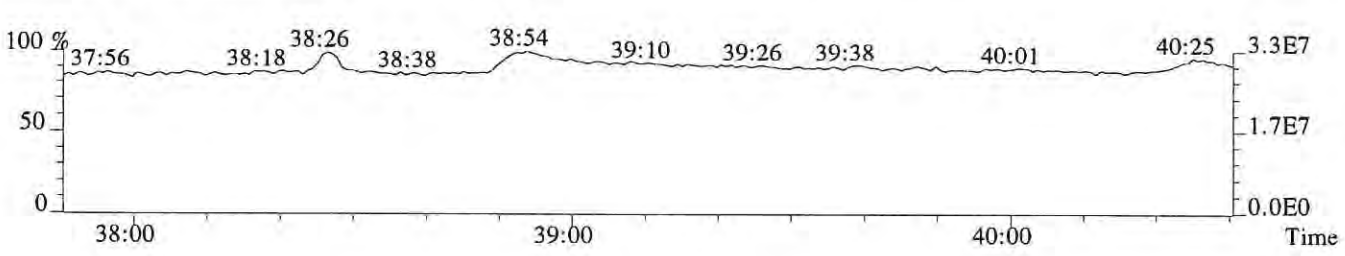
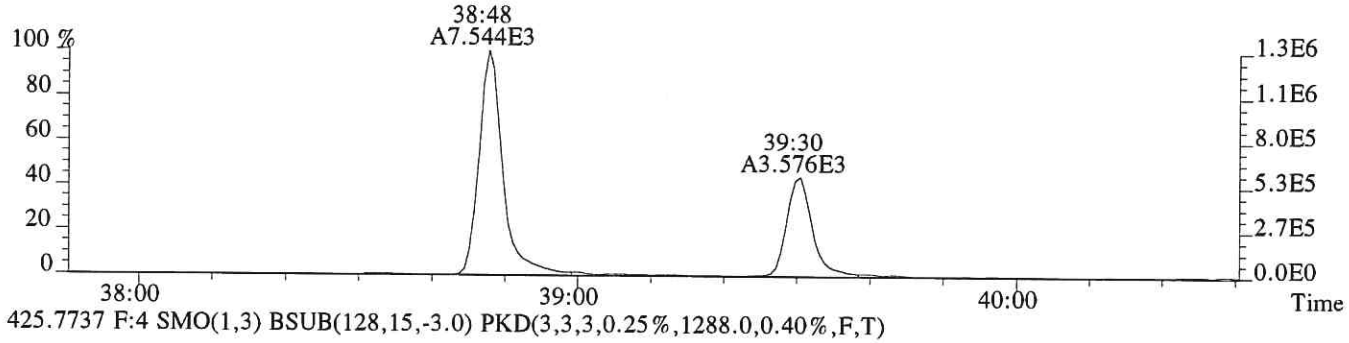
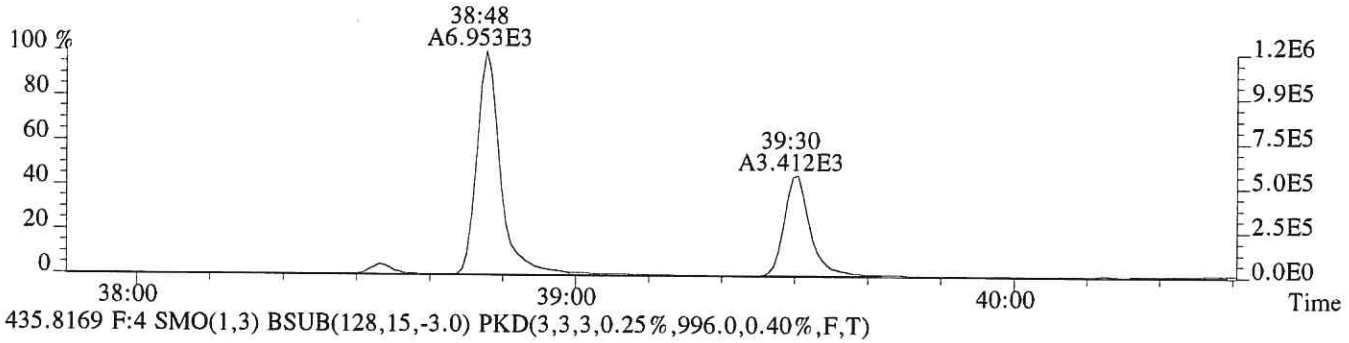
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



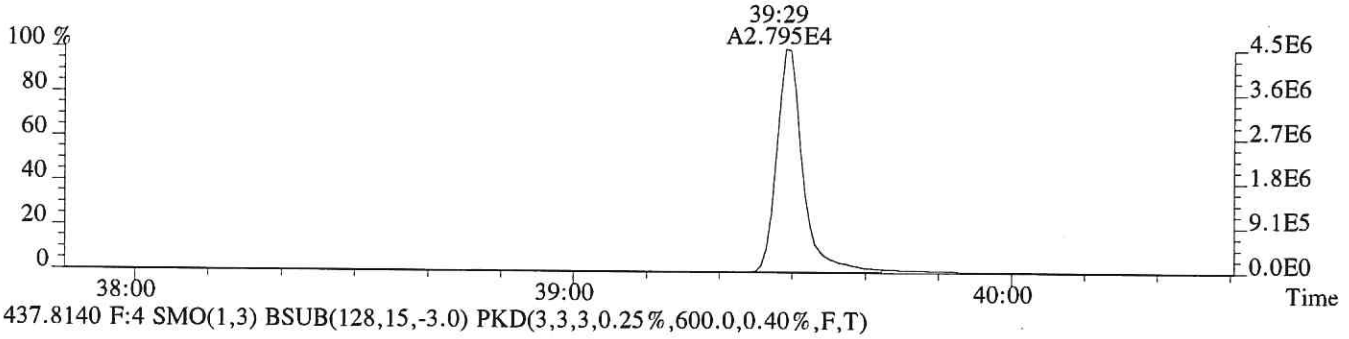
File:P519355 #1-241 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



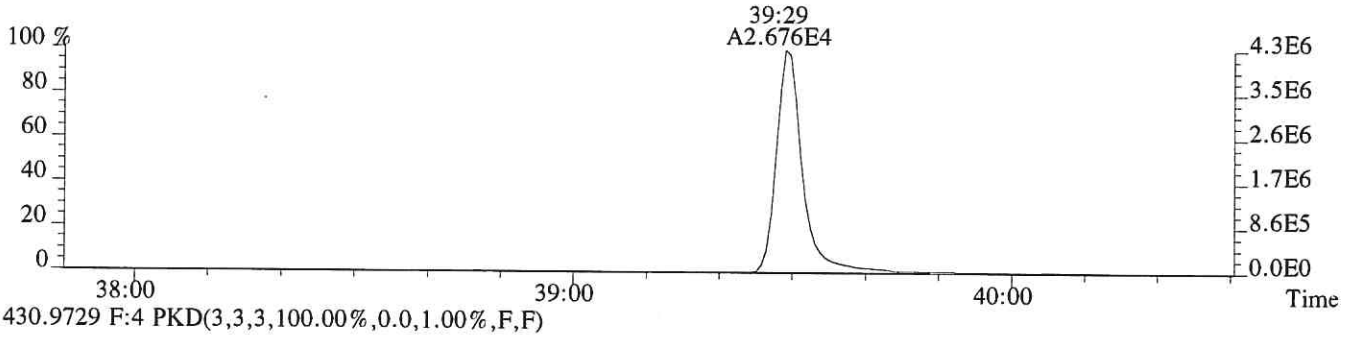
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)



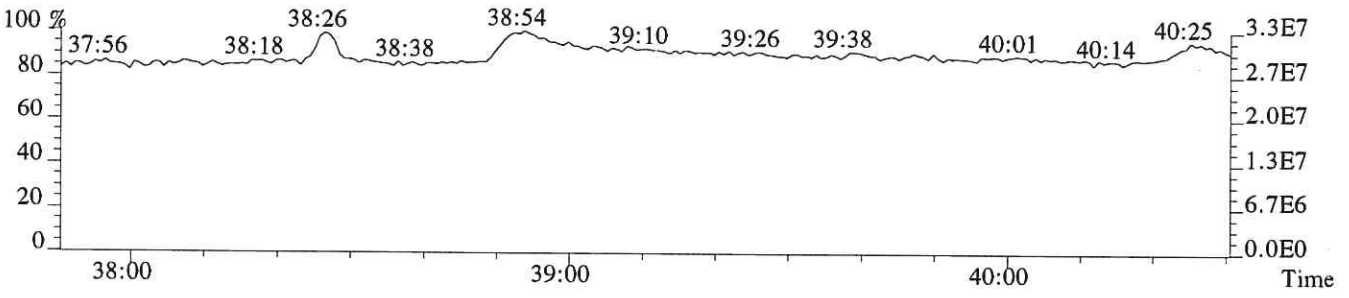
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



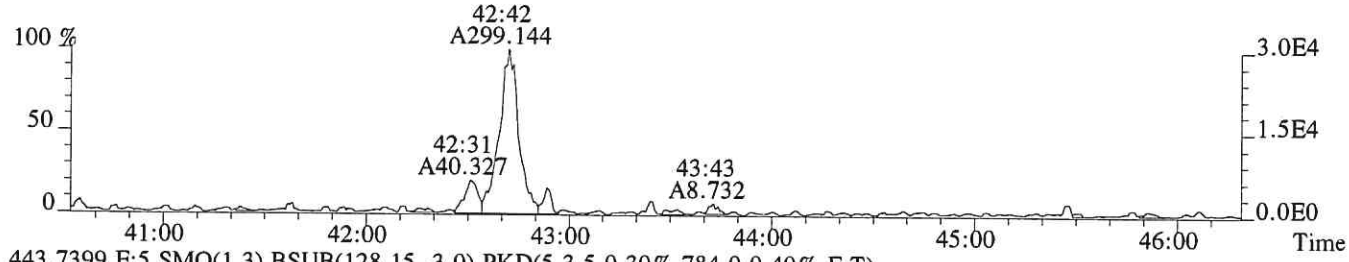
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



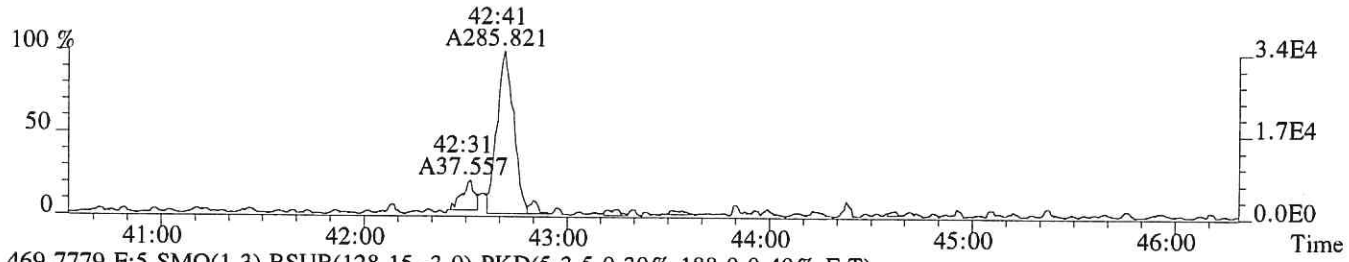
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



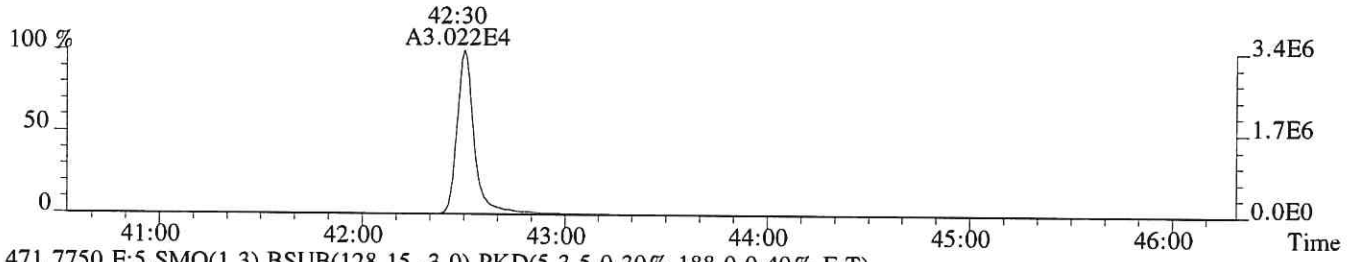
File:P519355 #1-520 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



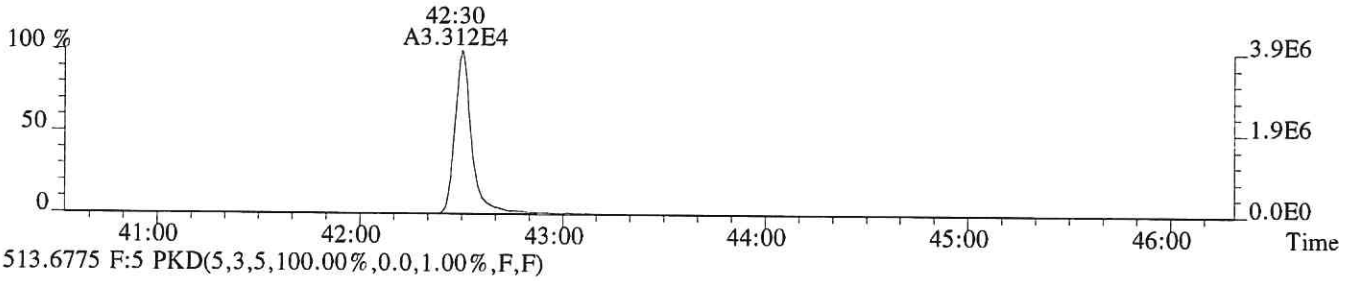
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



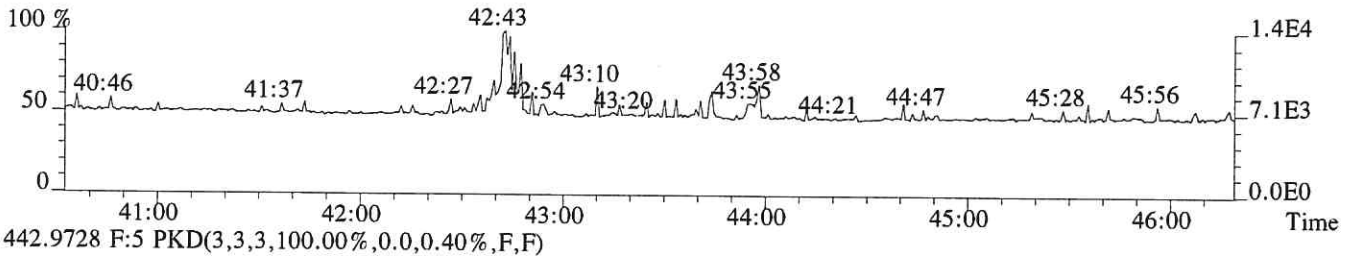
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



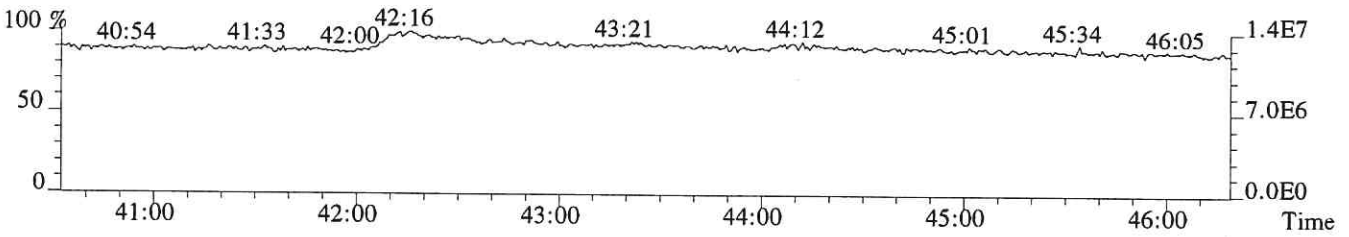
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



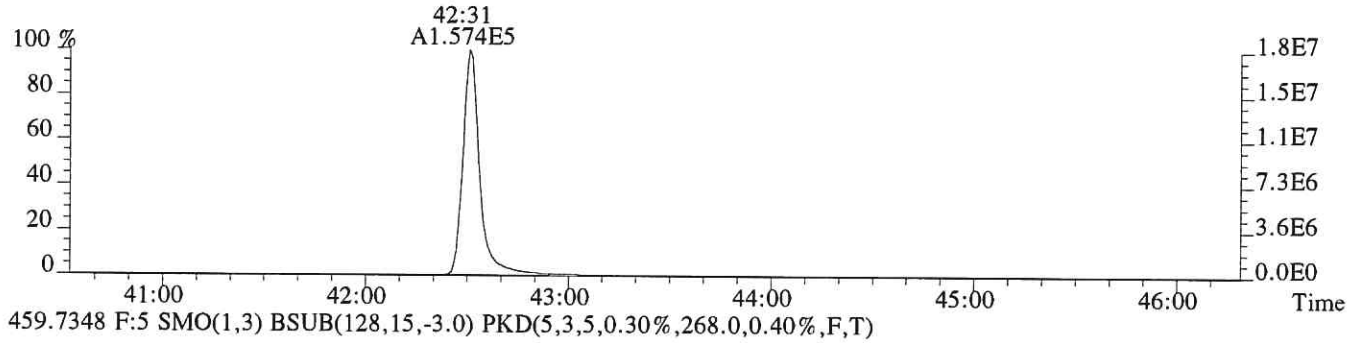
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



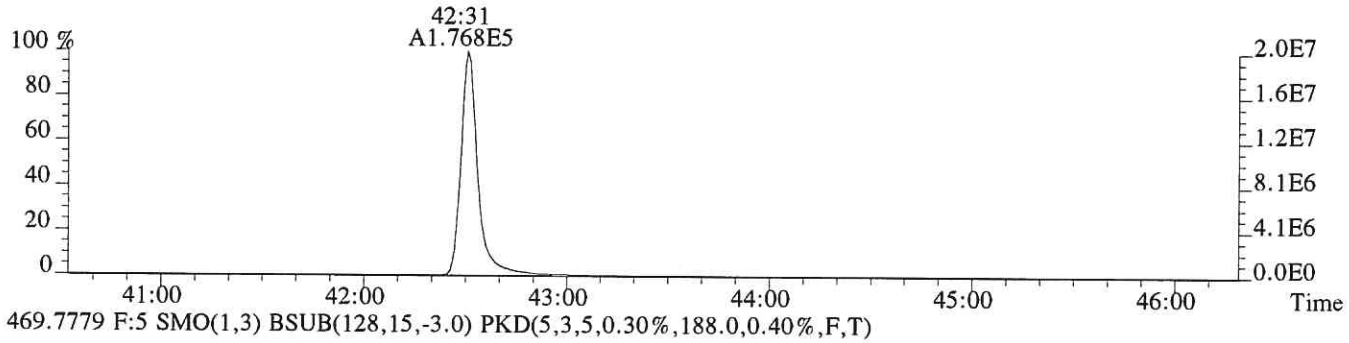
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



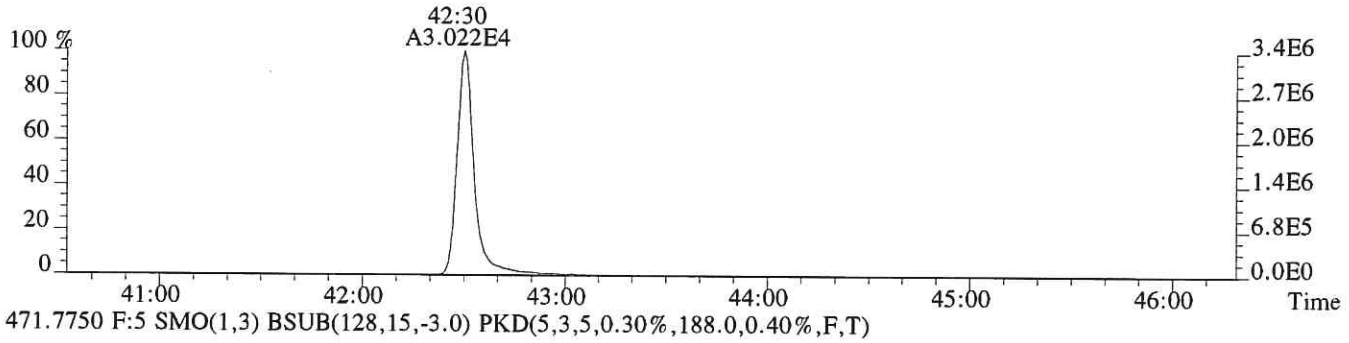
File:P519355 #1-520 Acq:11-DEC-2018 14:36:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-022
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



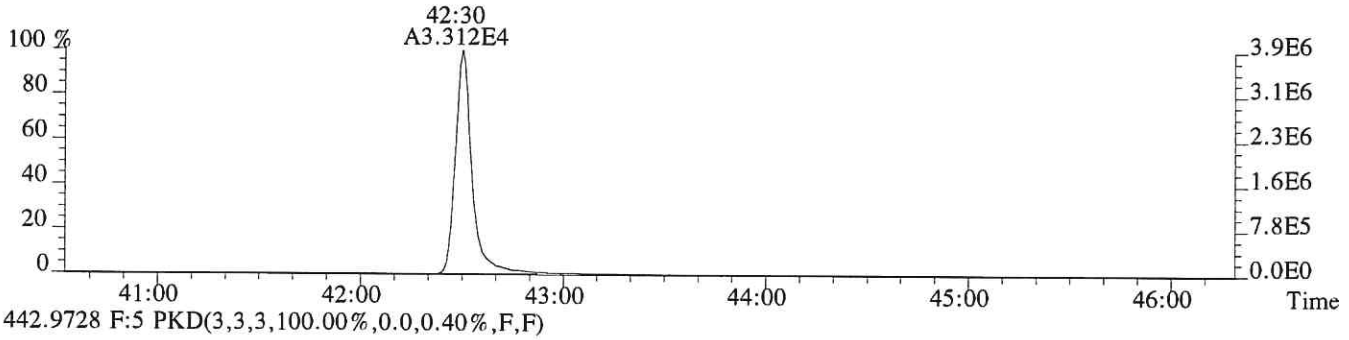
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



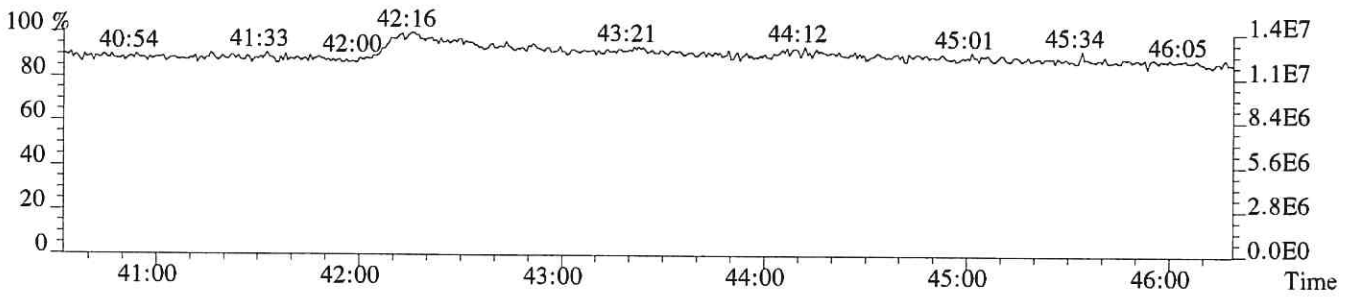
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0573

Run #14 Filename P616032 Samp: 1 Inj: 1 Acquired: 11-DEC-18 02:34:13
Processed: 13-DEC-18 08:53:27 Sample ID: E1801065-023

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:31	2.431e+02	3.320e+02	0.73	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	2.264e+01	2.318e+01	0.98	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	1.645e+01	1.837e+01	0.90	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:08	3.349e+01	9.976e+00	3.36	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:54	2.267e+01	2.872e+01	0.79	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	7.608e+01	4.371e+01	1.74	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	41:54	1.244e+02	1.402e+02	0.89	yes	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:21	8.165e+01	4.855e+01	1.68	no	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:36	9.896e+01	7.376e+01	1.34	yes	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.687e+03	1.531e+03	1.10	yes	no	1.112
17	Unk	OCDD	41:42	3.645e+04	4.156e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	5.074e+04	6.376e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	8.711e+04	5.511e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:49	8.228e+04	5.107e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	3.867e+04	7.309e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	4.446e+04	8.557e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	4.184e+04	7.811e+04	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:53	3.892e+04	7.353e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	2.879e+04	6.349e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	2.486e+04	5.577e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	2.552e+04	3.266e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	6.397e+04	4.124e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:15	5.359e+04	4.201e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	5.461e+04	4.233e+04	1.29	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	5.563e+04	5.334e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	41:41	4.737e+04	5.216e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:42	7.616e+04	9.610e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	9.614e+04	7.425e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:21	3.884e+04				no	1.086

$$\text{OCDD} = \frac{(3.645e+04 + 4.156e+04) \times 4000\ \text{pg} \times 1}{(4.737e+04 + 5.216e+04) \times 10.068\ \text{g} \times 81.8 / 100 \times 1.157} = 329.023\ \text{ng/kg}$$

LG 12/13/18

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0573

Run #14 Filename P616032 Samp: 1 Inj: 1 Acquired: 11-DEC-18 02:34:13
Processed: 13-DEC-18 08:53:27 LAB. ID: E1801065-023

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.82e+04	1.78e+03	2.1e+01	5.19e+04	3.55e+03	1.5e+01
2	1,2,3,7,8-PeCDF	*	1.69e+03	*	*	3.86e+03	*
3	2,3,4,7,8-PeCDF	*	1.69e+03	*	*	3.86e+03	*
4	1,2,3,4,7,8-HxCDF	4.53e+03	1.04e+03	4.3e+00	6.91e+03	4.92e+02	1.4e+01
5	1,2,3,6,7,8-HxCDF	3.21e+03	1.04e+03	3.1e+00	5.10e+03	4.92e+02	1.0e+01
6	2,3,4,6,7,8-HxCDF	8.02e+03	1.04e+03	7.7e+00	1.86e+03	4.92e+02	3.8e+00
7	1,2,3,7,8,9-HxCDF	4.96e+03	1.04e+03	4.7e+00	6.31e+03	4.92e+02	1.3e+01
8	1,2,3,4,6,7,8-HpCDF	1.61e+04	1.14e+03	1.4e+01	9.96e+03	6.32e+02	1.6e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.14e+03	*	*	6.32e+02	*
10	OCDF	2.07e+04	5.20e+02	4.0e+01	2.09e+04	2.18e+03	9.6e+00
11	2,3,7,8-TCDD	*	4.12e+03	*	*	1.93e+03	*
12	1,2,3,7,8-PeCDD	*	2.72e+03	*	*	1.20e+03	*
13	1,2,3,4,7,8-HxCDD	*	1.14e+03	*	*	2.72e+03	*
14	1,2,3,6,7,8-HxCDD	1.16e+04	1.14e+03	1.0e+01	6.89e+03	2.72e+03	2.5e+00
15	1,2,3,7,8,9-HxCDD	2.01e+04	1.14e+03	1.8e+01	1.49e+04	2.72e+03	5.5e+00
16	1,2,3,4,6,7,8-HpCDD	3.30e+05	1.66e+03	2.0e+02	2.90e+05	2.03e+03	1.4e+02
17	OCDD	6.13e+06	9.84e+02	6.2e+03	6.91e+06	1.44e+03	4.8e+03
18	13C-2,3,7,8-TCDF	7.80e+06	1.10e+04	7.1e+02	9.82e+06	6.26e+03	1.6e+03
19	13C-1,2,3,7,8-PeCDF	1.54e+07	2.02e+03	7.6e+03	9.74e+06	2.07e+03	4.7e+03
20	13C-2,3,4,7,8-PeCDF	1.43e+07	2.02e+03	7.1e+03	8.90e+06	2.07e+03	4.3e+03
21	13C-1,2,3,4,7,8-HxCDF	8.30e+06	1.29e+03	6.4e+03	1.55e+07	2.47e+03	6.3e+03
22	13C-1,2,3,6,7,8-HxCDF	8.51e+06	1.29e+03	6.6e+03	1.63e+07	2.47e+03	6.6e+03
23	13C-2,3,4,6,7,8-HxCDF	8.32e+06	1.29e+03	6.4e+03	1.57e+07	2.47e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	7.04e+06	1.29e+03	5.5e+03	1.31e+07	2.47e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.09e+06	4.22e+03	1.4e+03	1.35e+07	1.16e+04	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.43e+06	4.22e+03	1.1e+03	1.00e+07	1.16e+04	8.7e+02
27	13C-2,3,7,8-TCDD	4.30e+06	1.73e+04	2.5e+02	5.57e+06	7.42e+03	7.5e+02
28	13C-1,2,3,7,8-PeCDD	1.11e+07	1.91e+03	5.8e+03	7.18e+06	2.38e+03	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.15e+07	2.98e+03	3.9e+03	8.99e+06	1.63e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.06e+07	2.98e+03	3.5e+03	8.28e+06	1.63e+03	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.07e+07	1.26e+03	8.5e+03	1.02e+07	6.20e+02	1.6e+04
32	13C-OCDD	8.00e+06	1.26e+03	6.4e+03	8.60e+06	1.00e+03	8.6e+03
33	13C-1,2,3,4-TCDD	1.31e+07	1.73e+04	7.6e+02	1.67e+07	7.42e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.82e+07	2.98e+03	6.1e+03	1.44e+07	1.63e+03	8.9e+03
35	37Cl-2,3,7,8-TCDD	6.54e+06	2.32e+03	2.8e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (4.120e{+}03 + 1.928e{+}03) \times 2000}{(4.295e{+}06 + 5.569e{+}06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0573

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P616032 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 02:34:13 Processed: 13-DEC-18 08:53:27

Mass: 303.9020 305.8990 Tot Response: 8.15e+02 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:38	1.01e+02	1.39e+02	0.73	yes	2.40e+02		n	n
2	27:31	2.43e+02	3.32e+02	0.73	yes	5.75e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.
SL0573

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P616032 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 02:34:13 Processed: 13-DEC-18 08:53:27

Mass: 355.8550 357.8520 Tot Response: 2.57e+02 RRF: 0.9288

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:25	1.43e+02	8.61e+01 1.66	yes	2.29e+02		n	n
2	33:29	1.70e+01	1.08e+01 1.58	yes	2.79e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0573

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P616032 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 02:34:13 Processed: 13-DEC-18 08:53:27

Mass: 389.8160 391.8130 Tot Response: 3.35e+03 RRF: 1.092

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:54	1.36e+03	1.13e+03 1.21	yes	2.50e+03		n	n
2	35:40	3.92e+02	2.89e+02 1.36	yes	6.80e+02		n	n
3	36:36	9.90e+01	7.38e+01 1.34	yes	1.73e+02	1,2,3,7,8,9-HxCDD	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0573

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P616032 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 02:34:13 Processed: 13-DEC-18 08:53:27

Mass: 407.7820 409.7790 Tot Response: 1.48e+02 RRF: 1.495

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:31	7.33e+01	7.43e+01 0.99	yes	1.48e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0573

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P616032 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 02:34:13 Processed: 13-DEC-18 08:53:27

Mass: 423.7770 425.7740 Tot Response: 1.20e+04 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:22	4.46e+03	4.36e+03	1.03	yes	8.82e+03		n	n
2	39:01	1.69e+03	1.53e+03	1.10	yes	3.22e+03	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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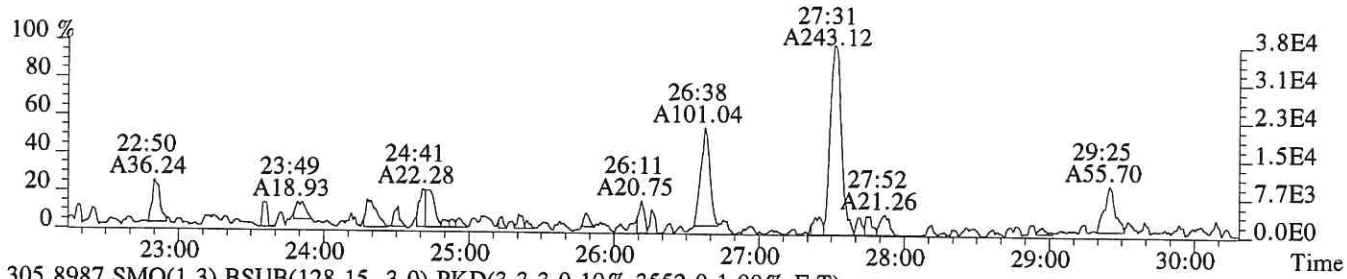
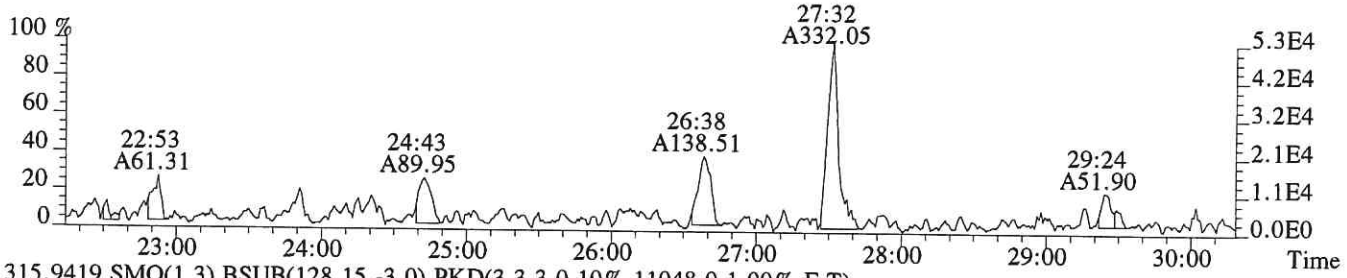
File:P616032 #1-573 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023

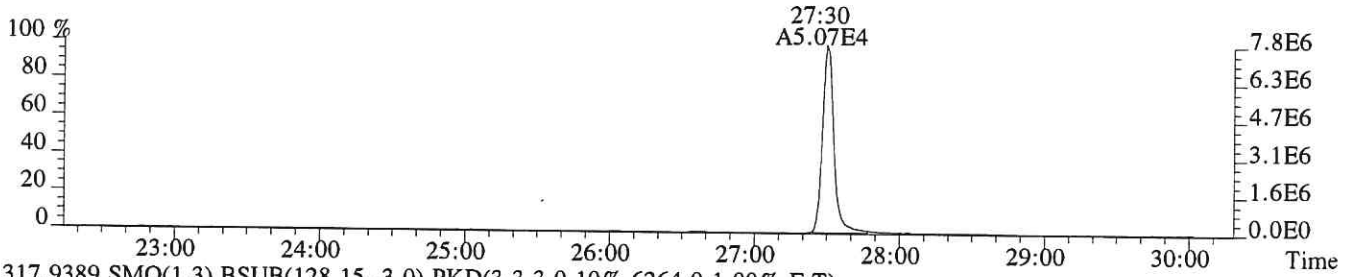
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



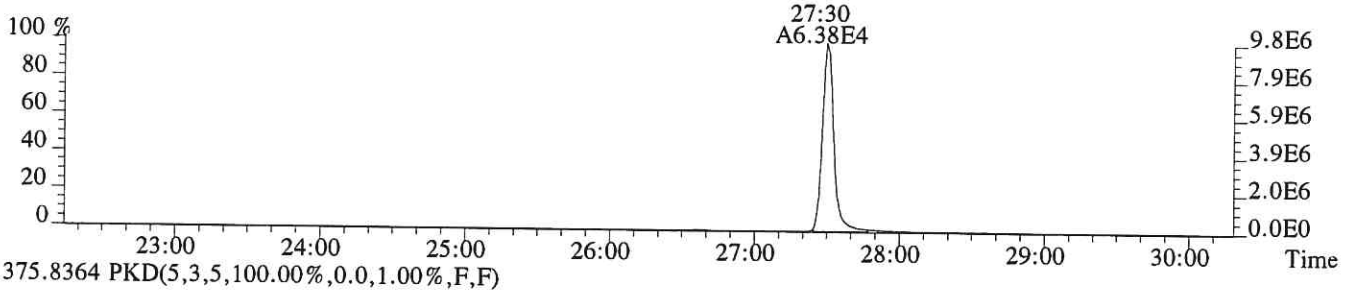
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3552.0,1.00%,F,T)



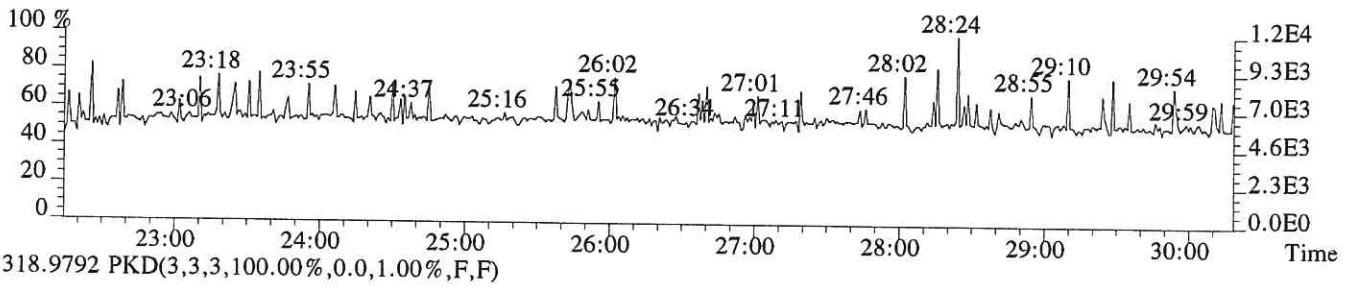
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11048.0,1.00%,F,T)



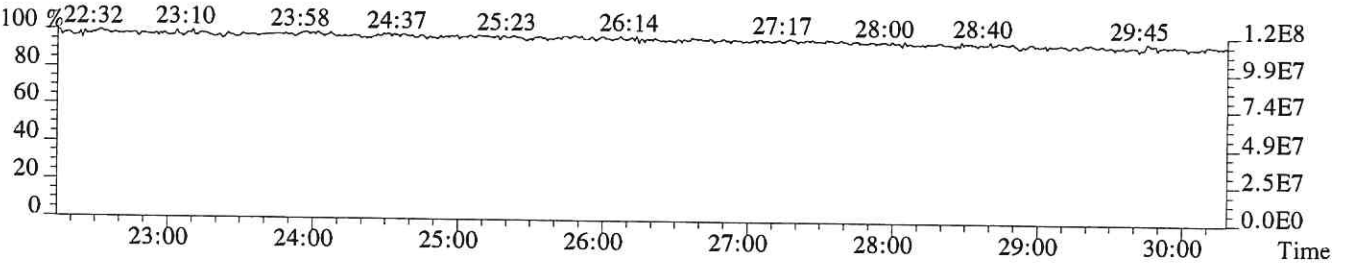
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6264.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

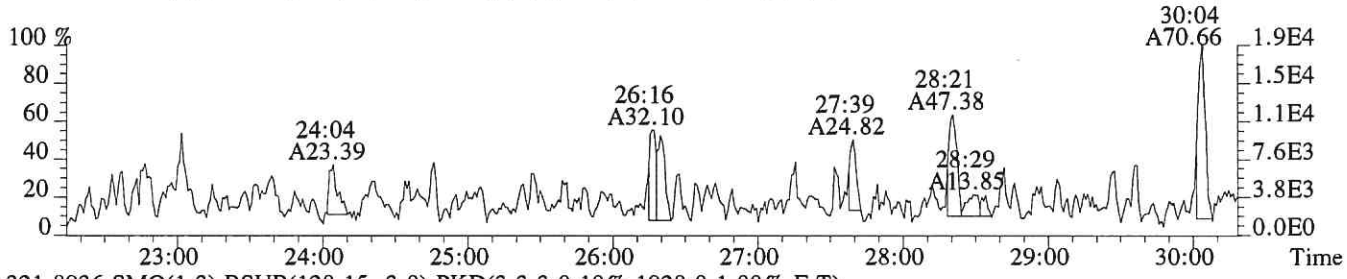


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

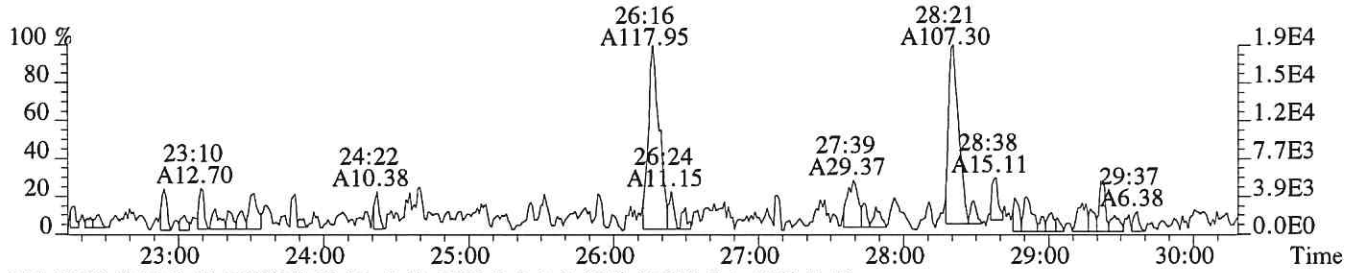


File:P616032 #1-573 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023

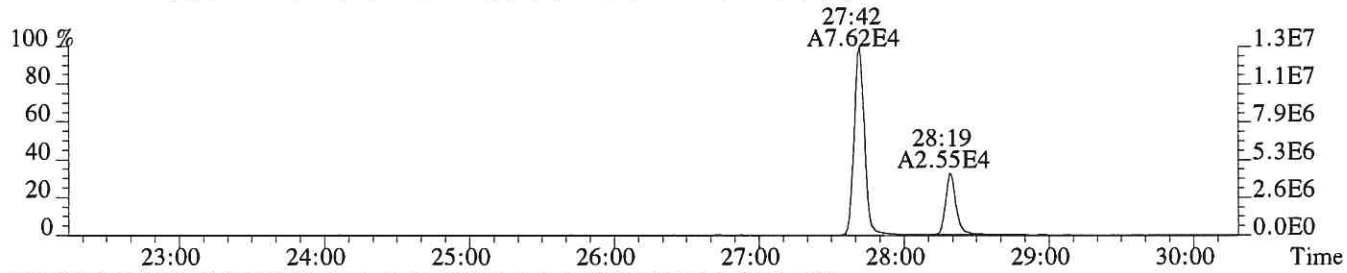
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



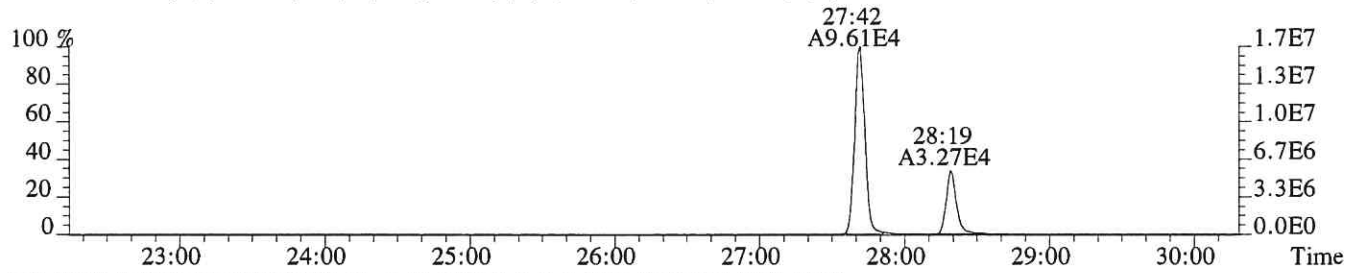
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



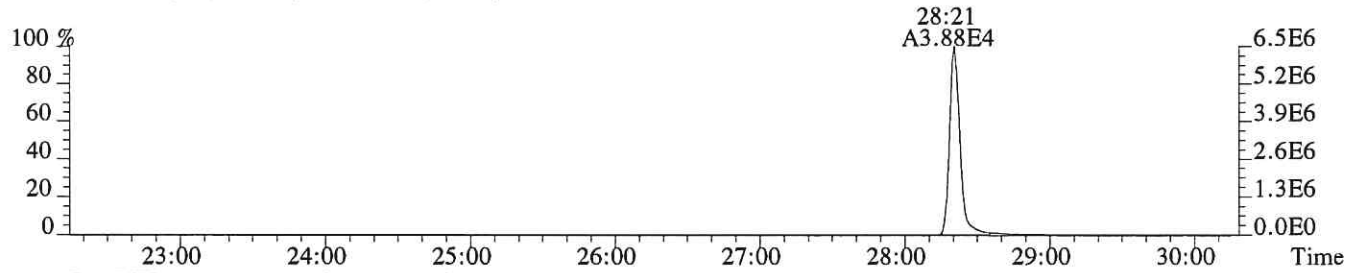
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17252.0,1.00%,F,T)



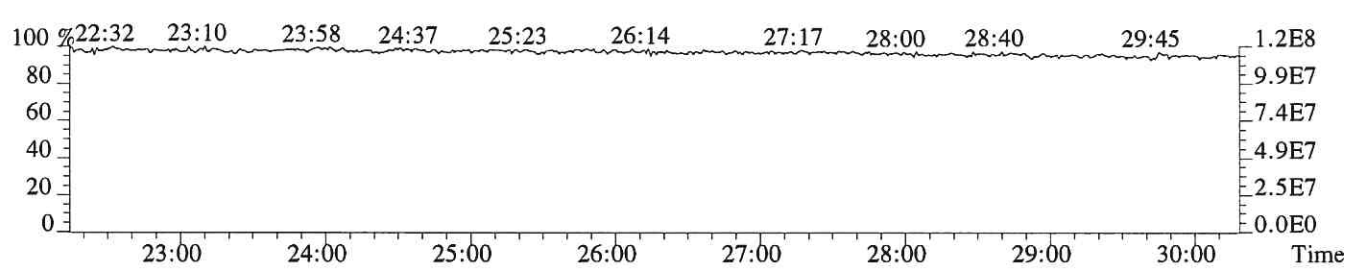
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7424.0,1.00%,F,T)



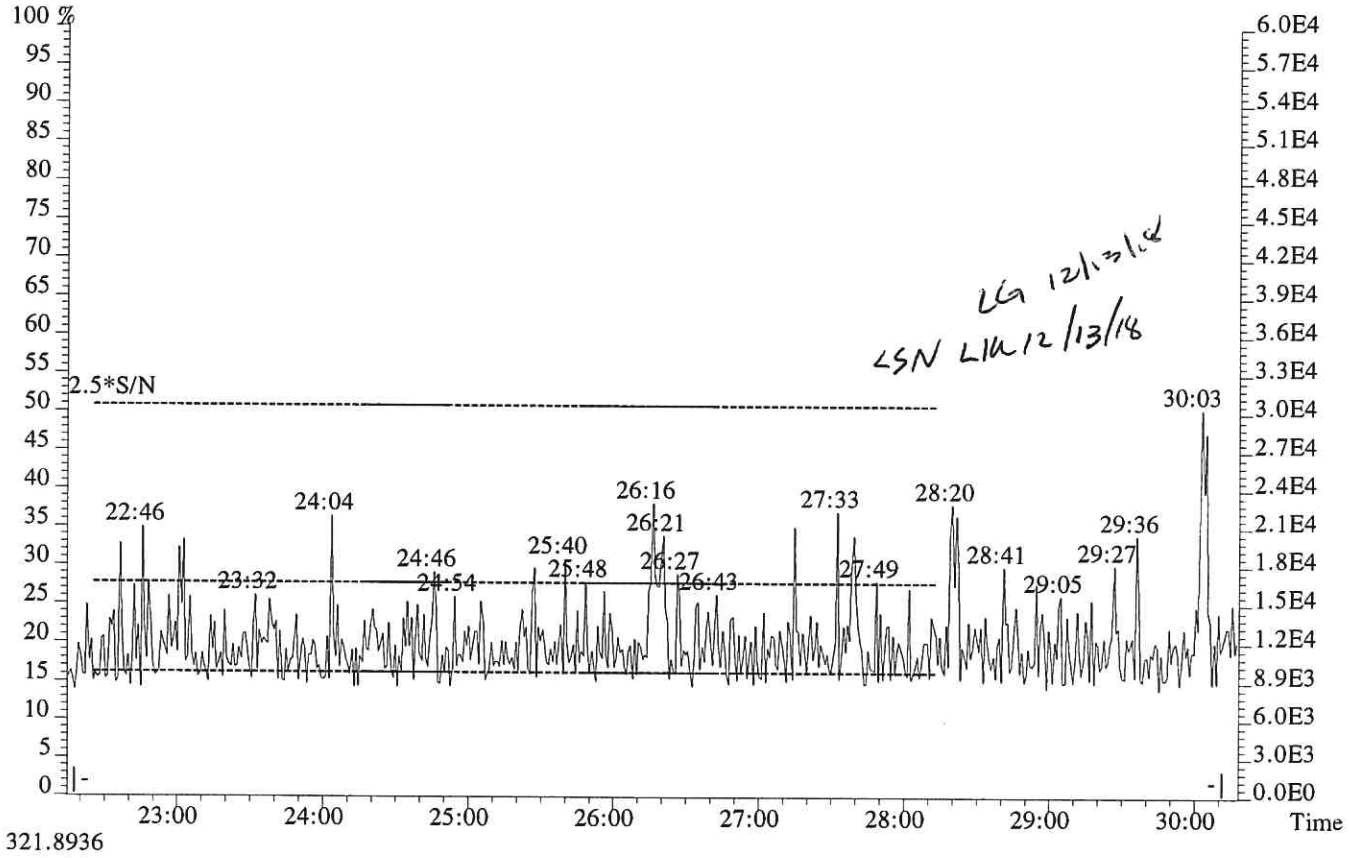
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



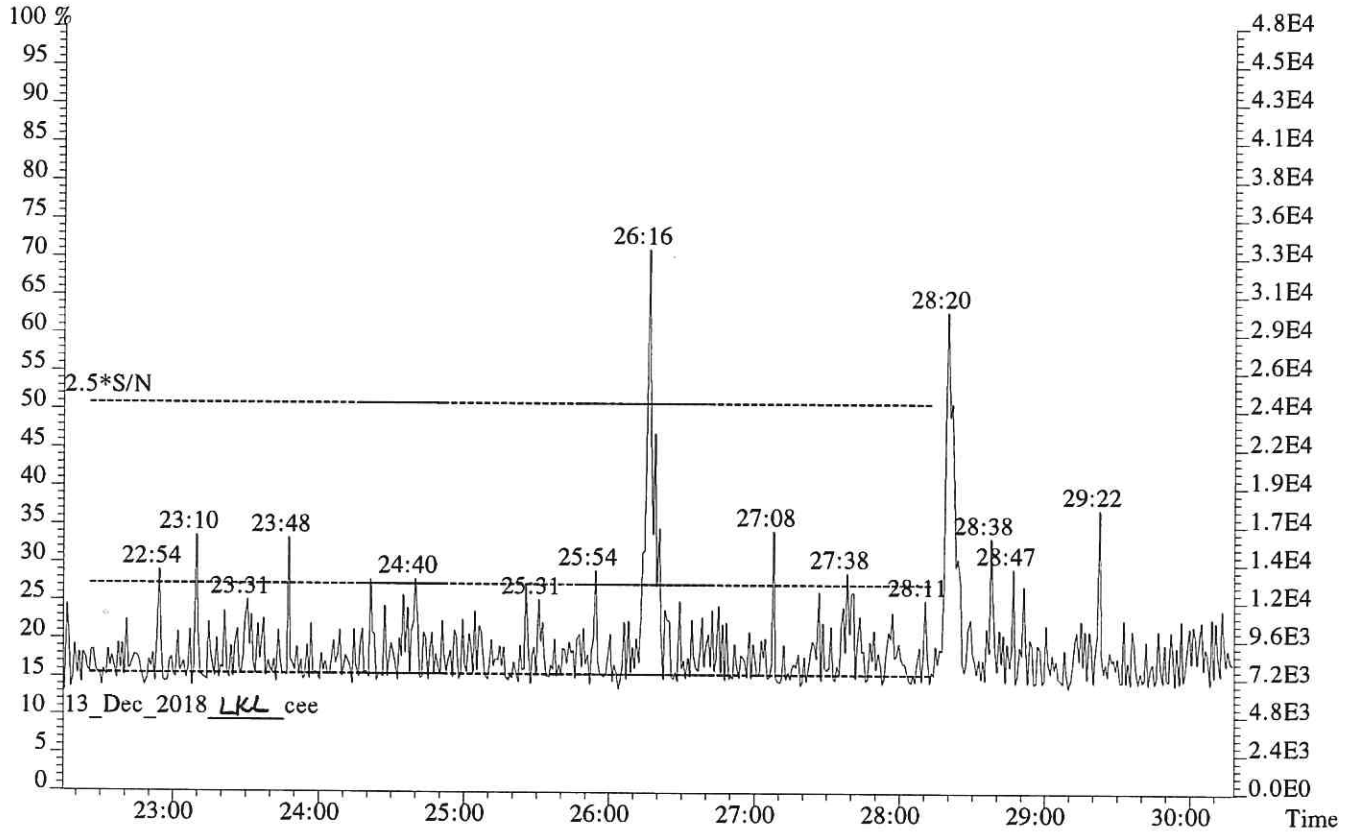
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



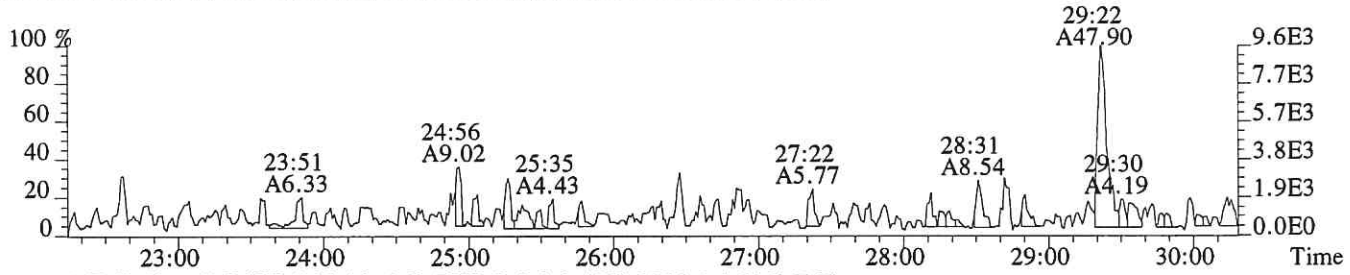
File:P616032 #1-573 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023
319.8965



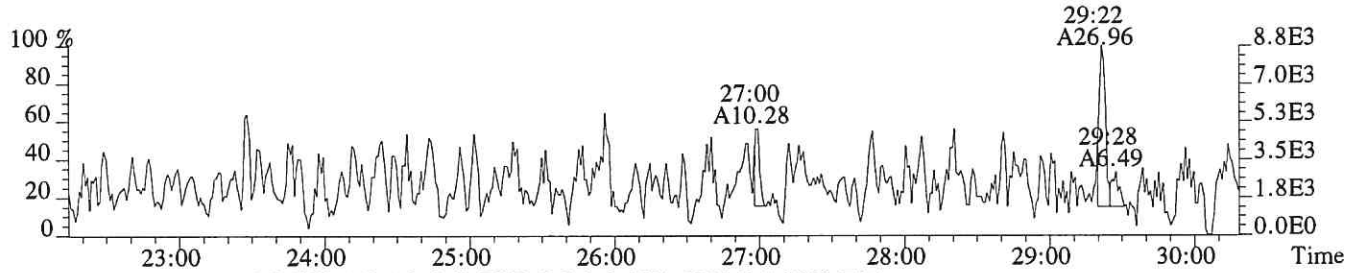
321.8936



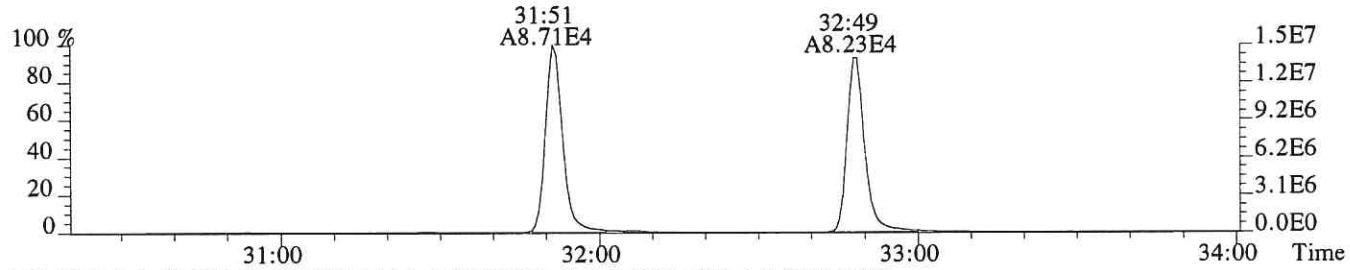
File:P616032 #1-573 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



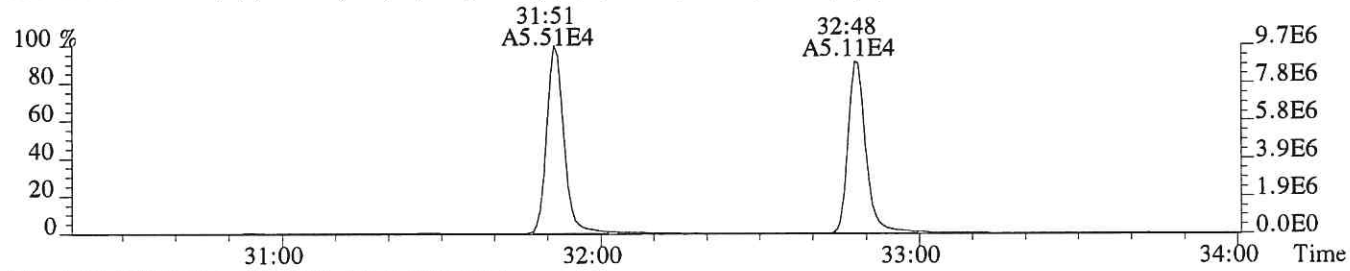
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



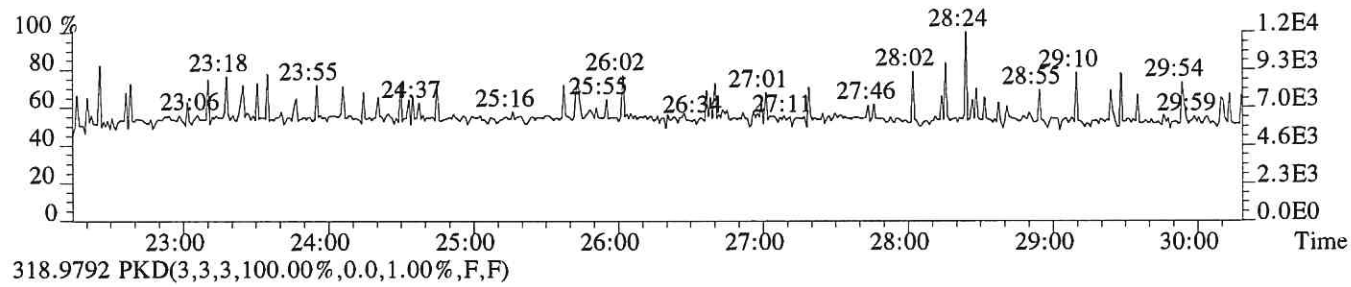
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



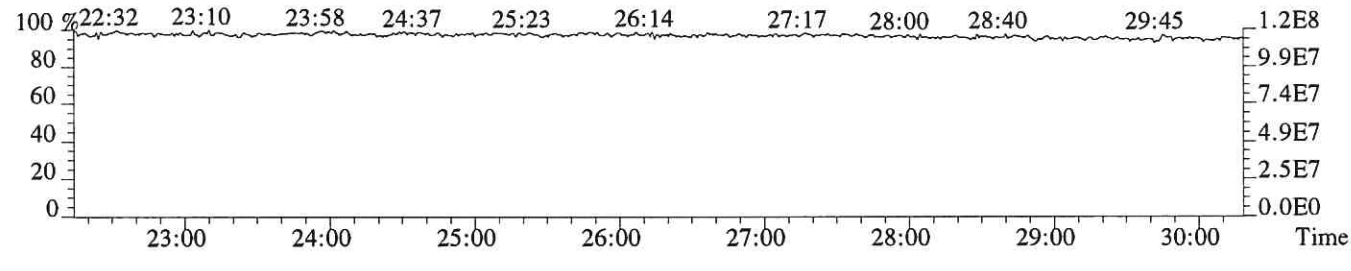
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2072.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

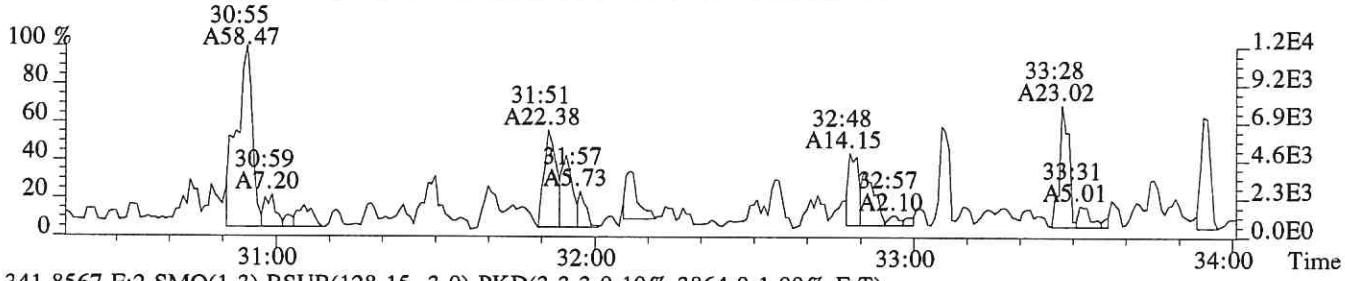


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

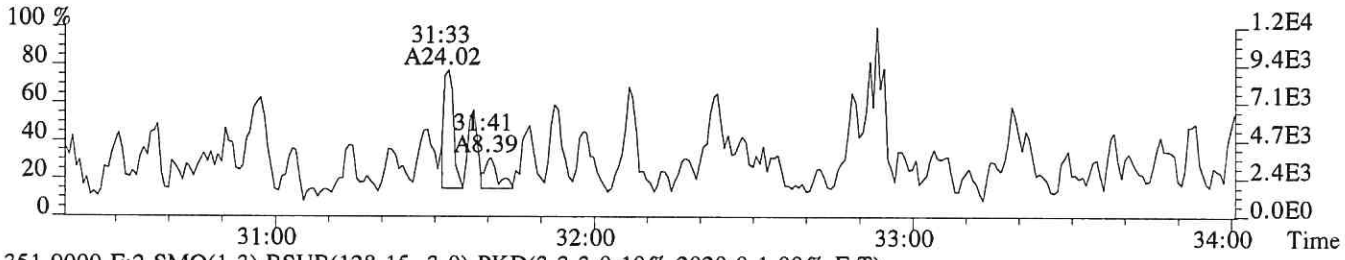


File:P616032 #1-331 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023

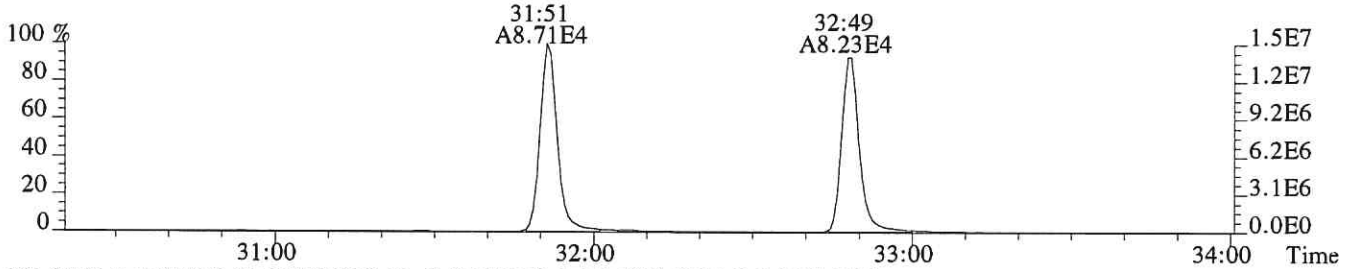
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



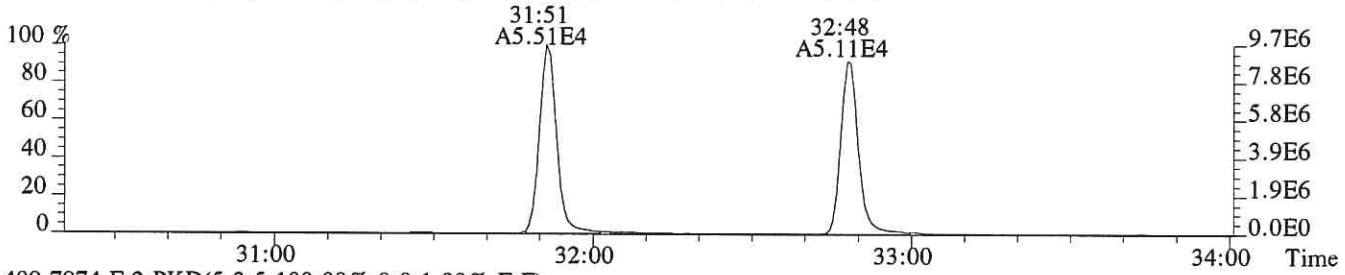
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3864.0,1.00%,F,T)



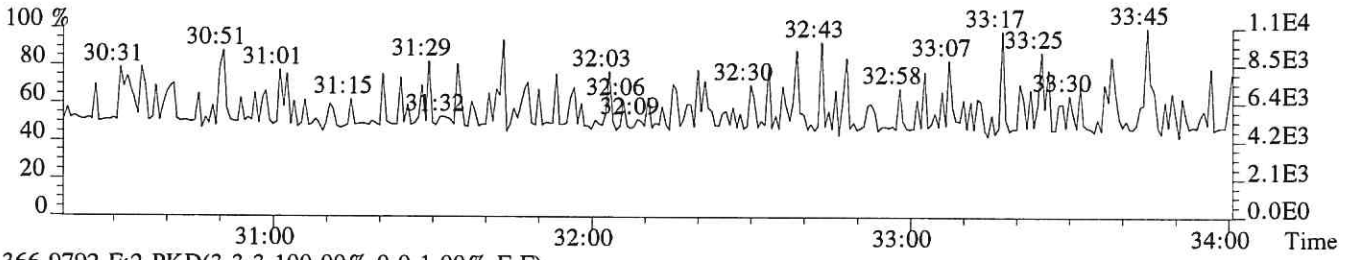
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



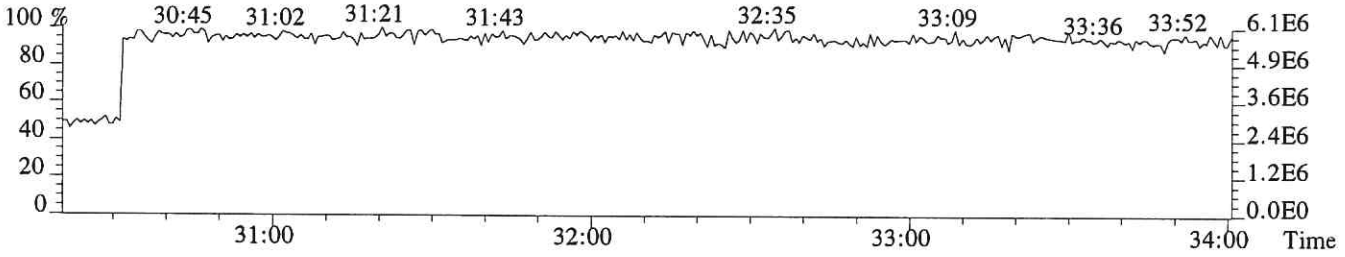
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2072.0,1.00%,F,T)



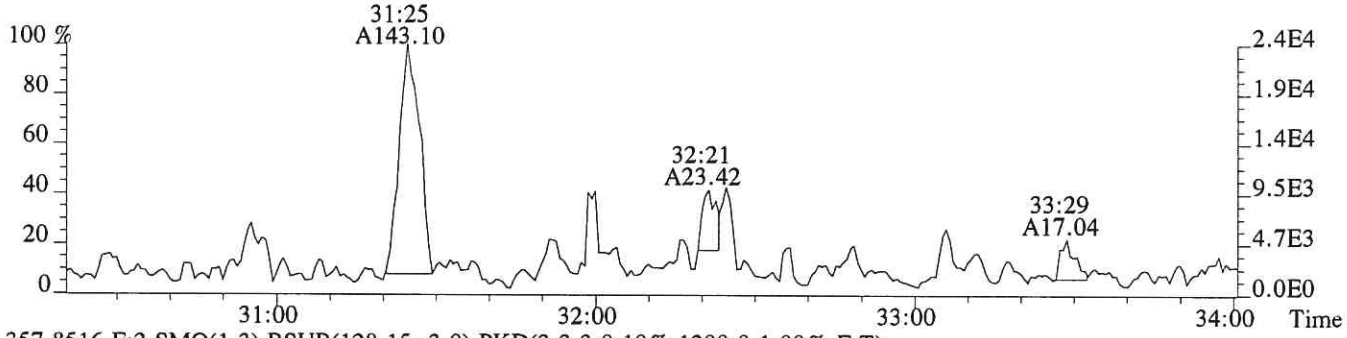
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



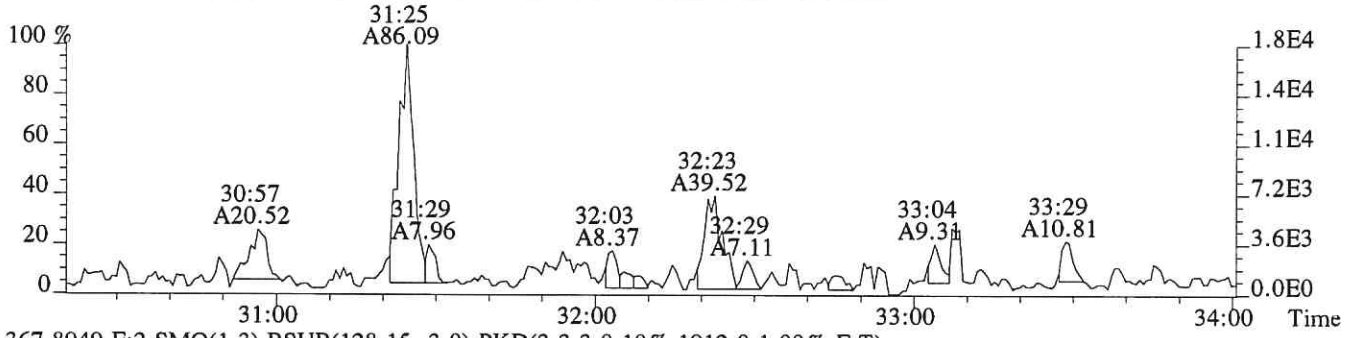
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



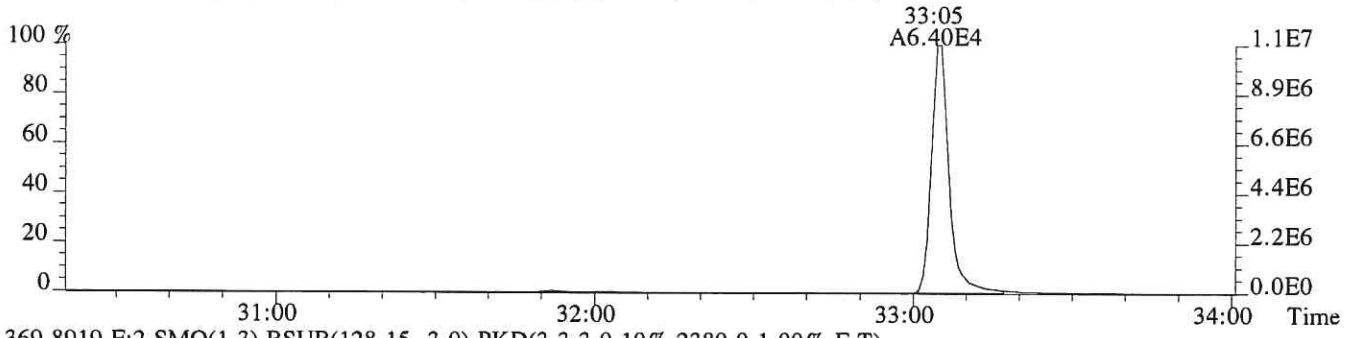
File:P616032 #1-331 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



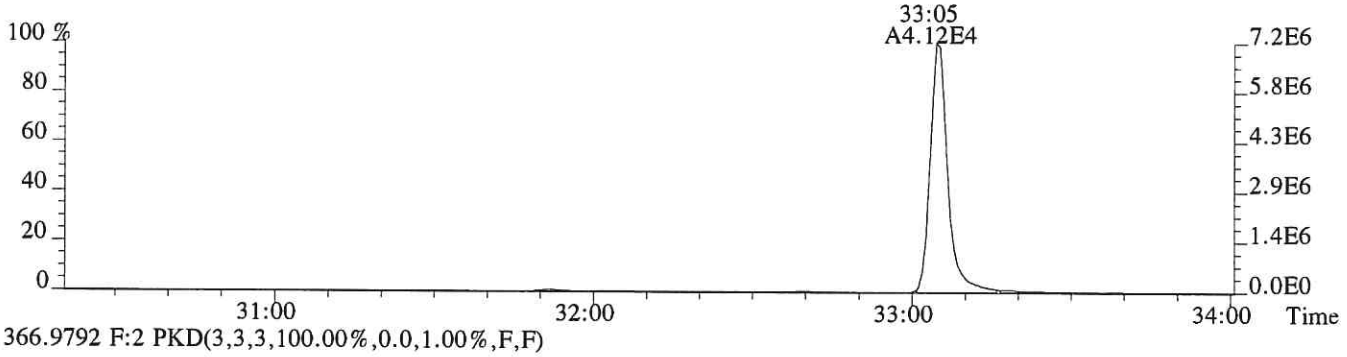
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



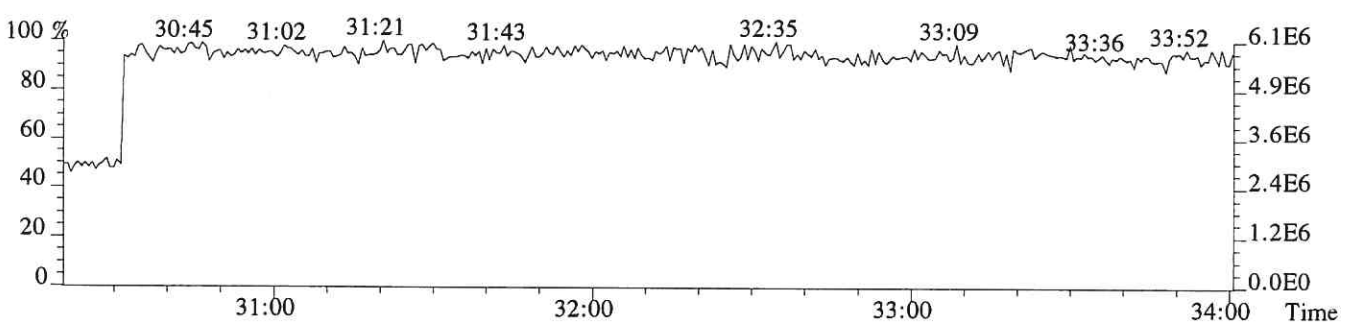
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)

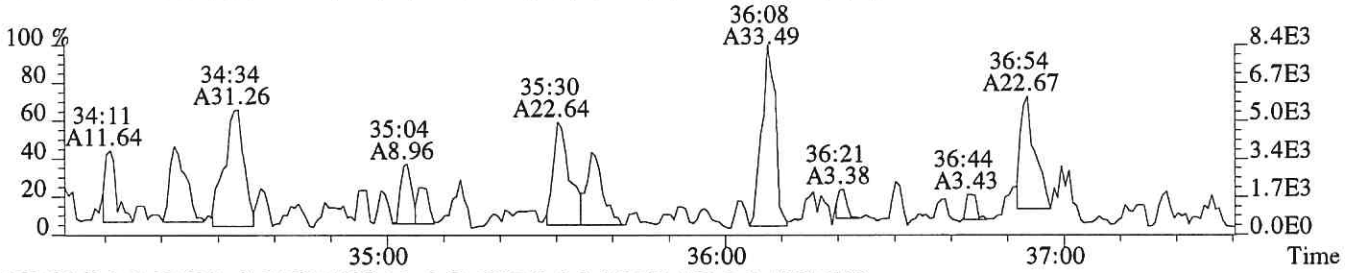


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

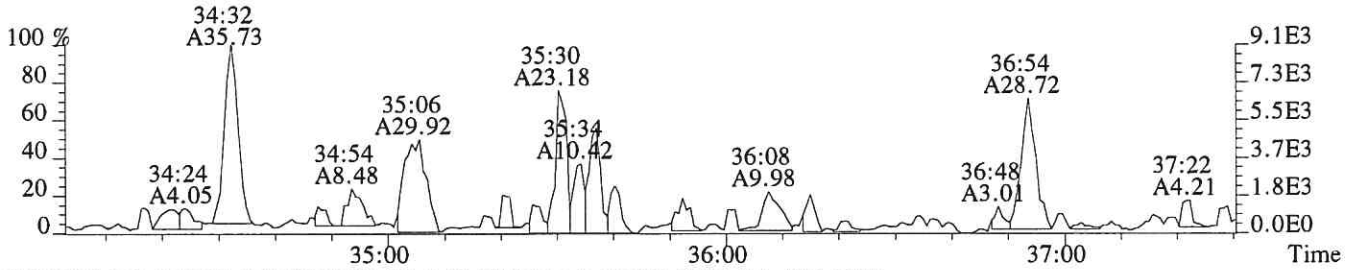


File:P616032 #1-312 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023

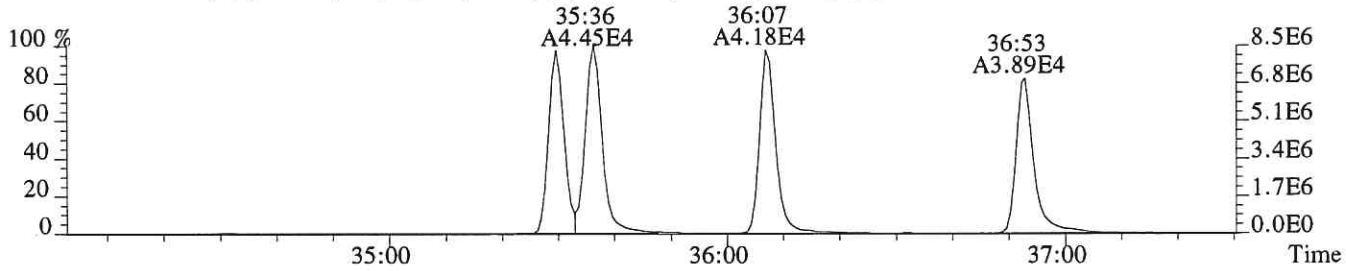
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



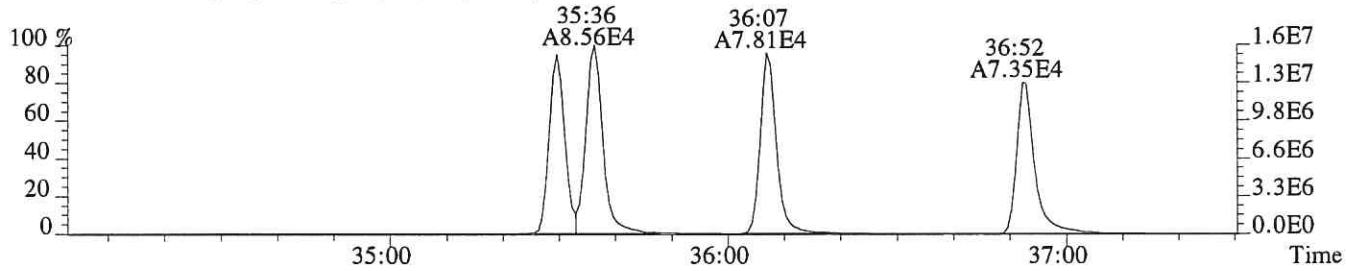
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



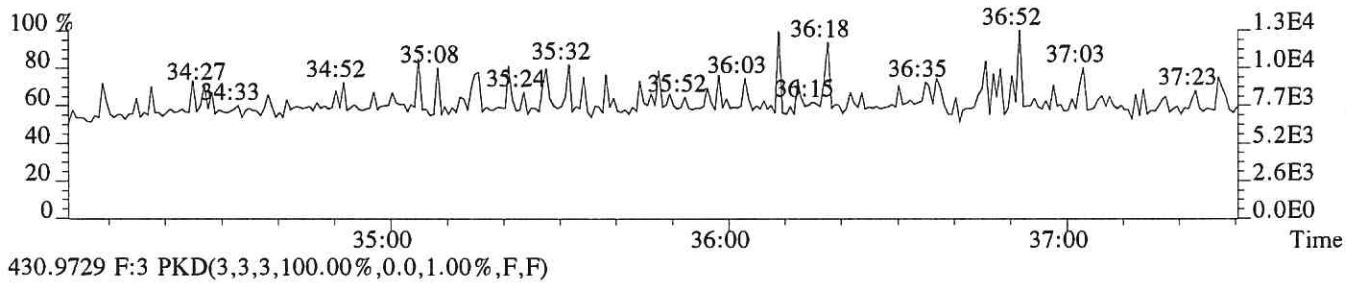
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



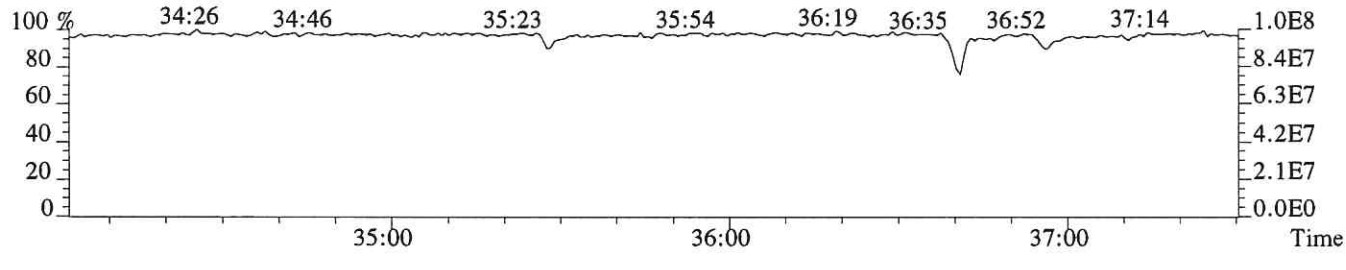
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2472.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

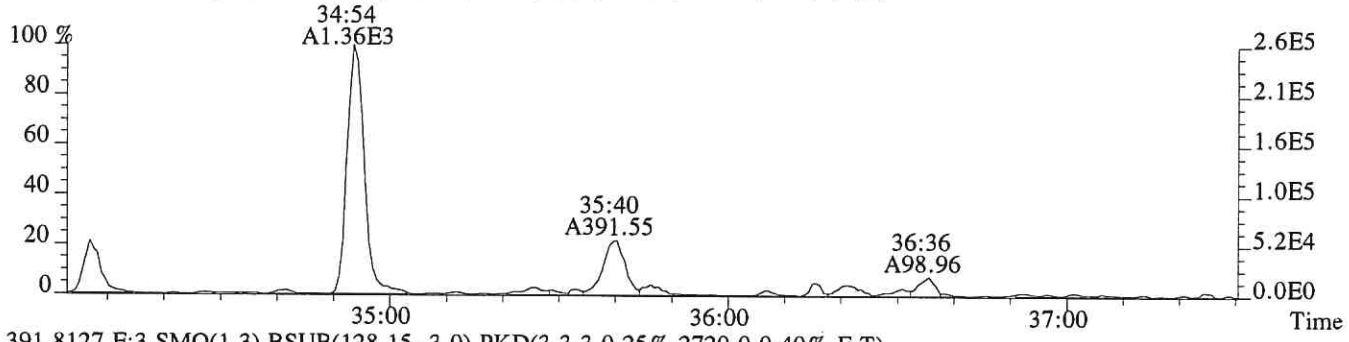


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

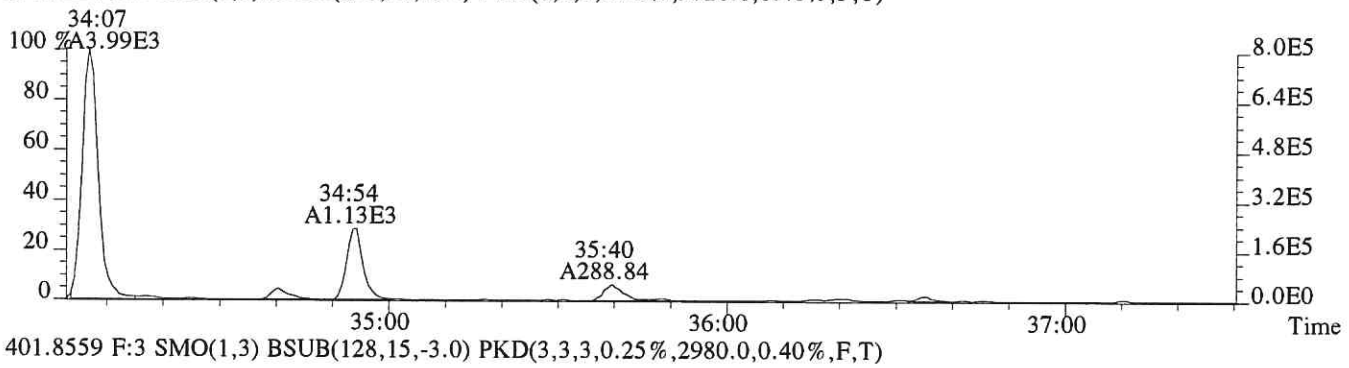


File:P616032 #1-312 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023

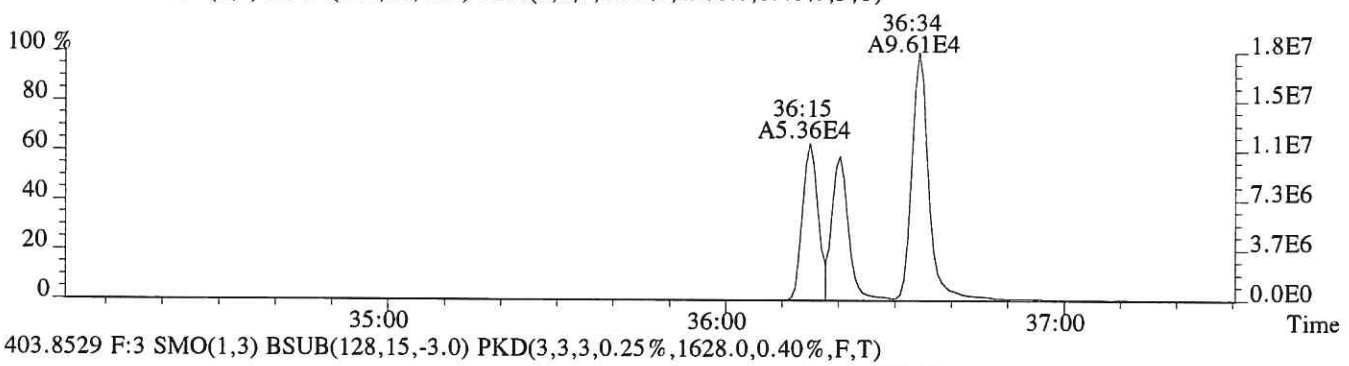
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



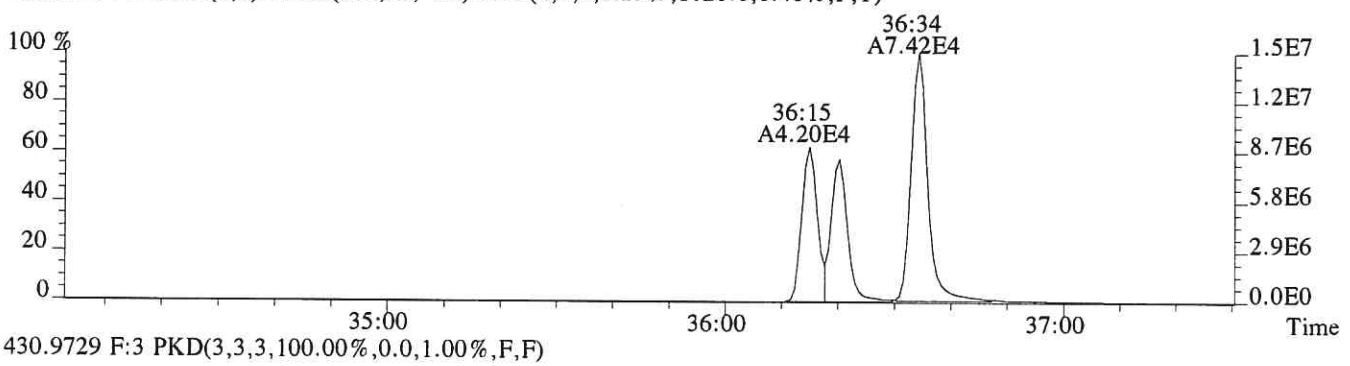
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2720.0,0.40%,F,T)



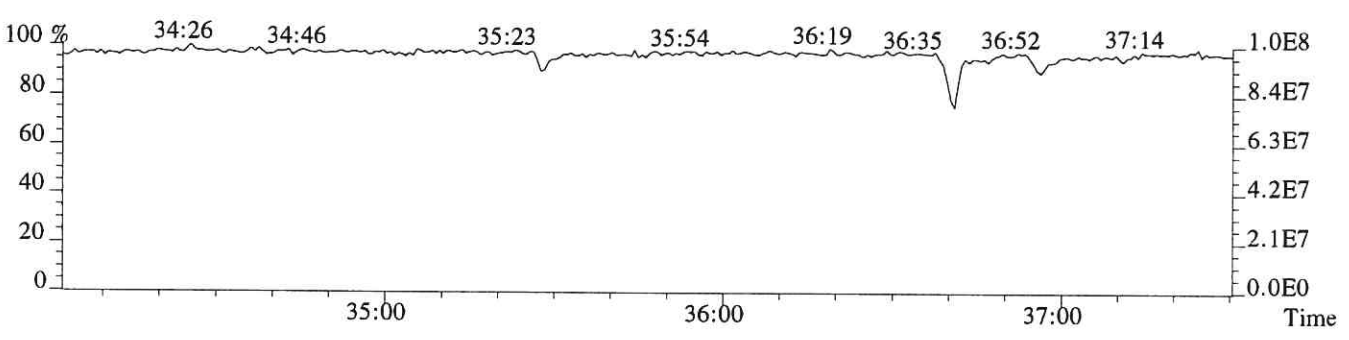
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2980.0,0.40%,F,T)



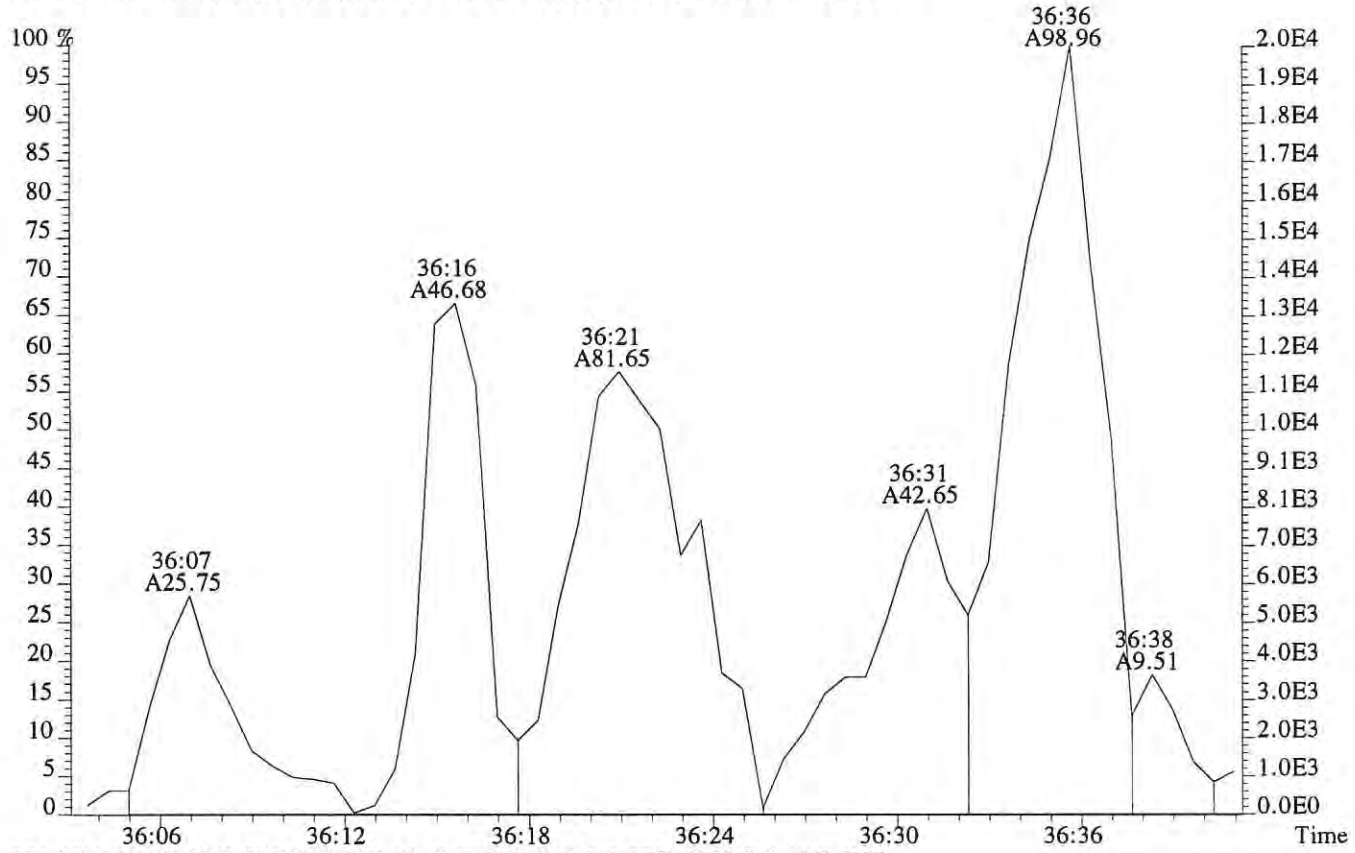
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



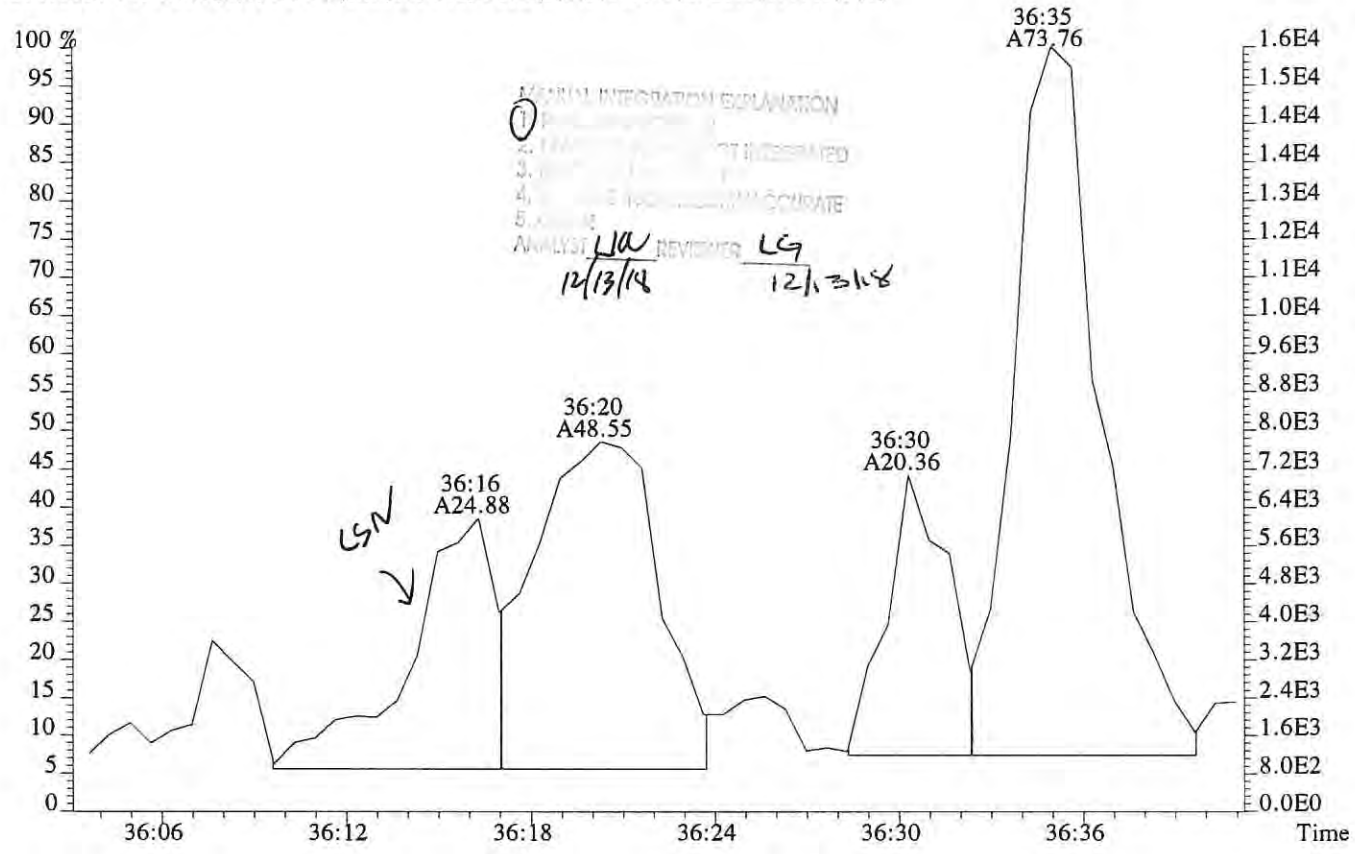
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616032 #1-312 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)

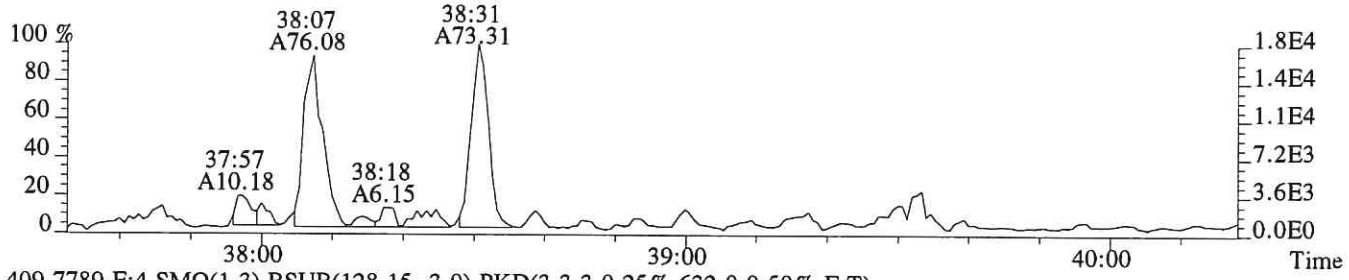


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2720.0,0.40%,F,T)

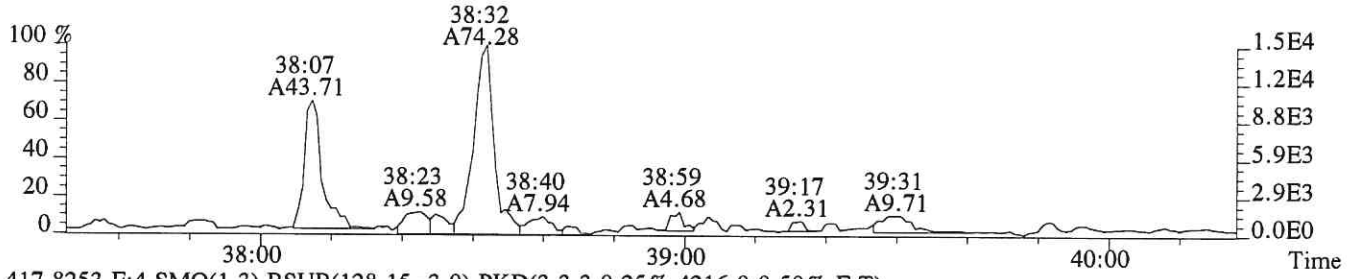


File:P616032 #1-249 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023

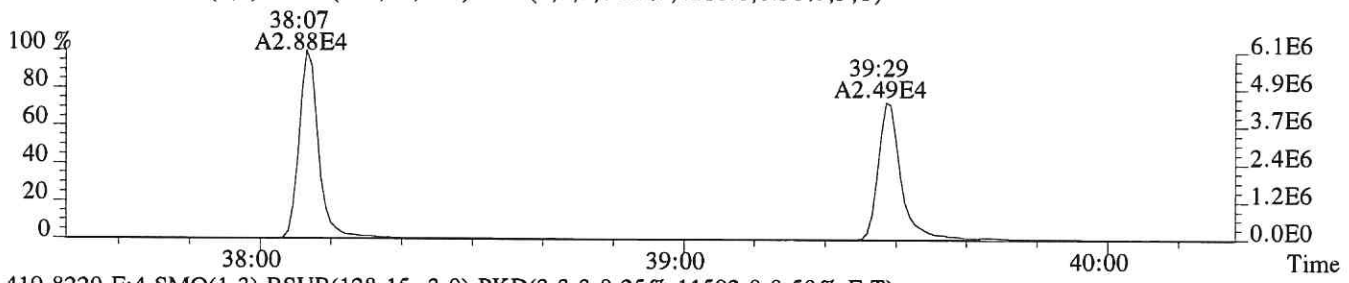
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.50%,F,T)



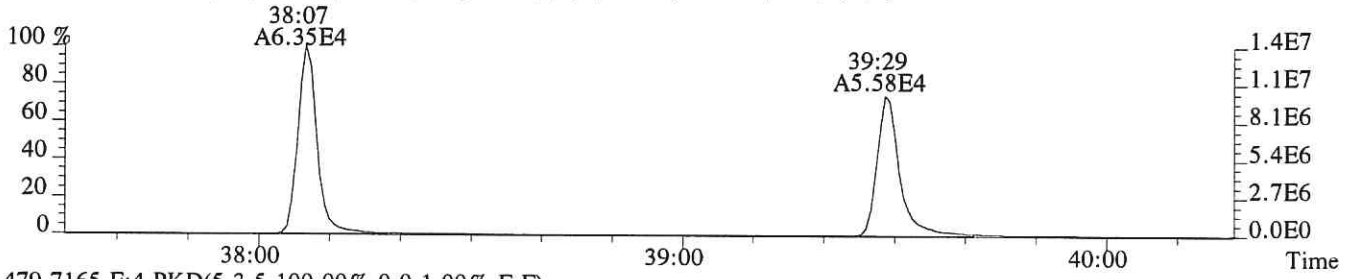
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.50%,F,T)



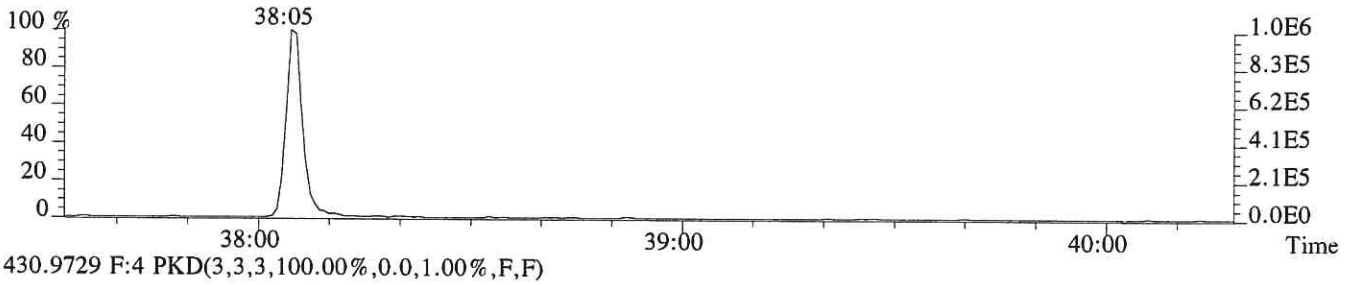
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4216.0,0.50%,F,T)



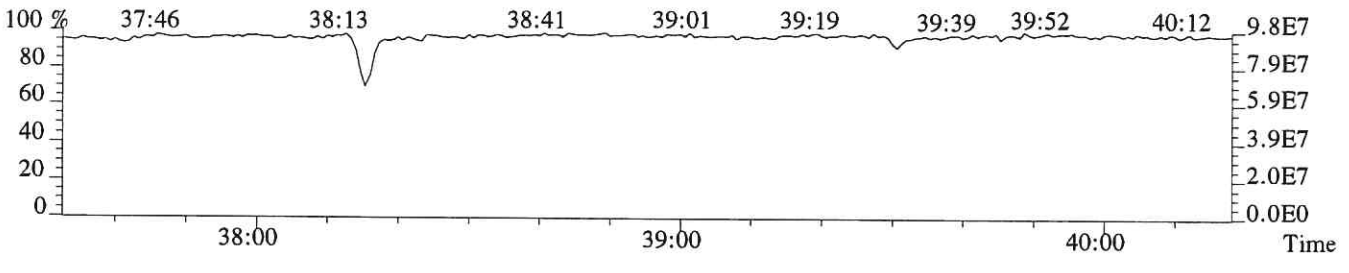
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11592.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

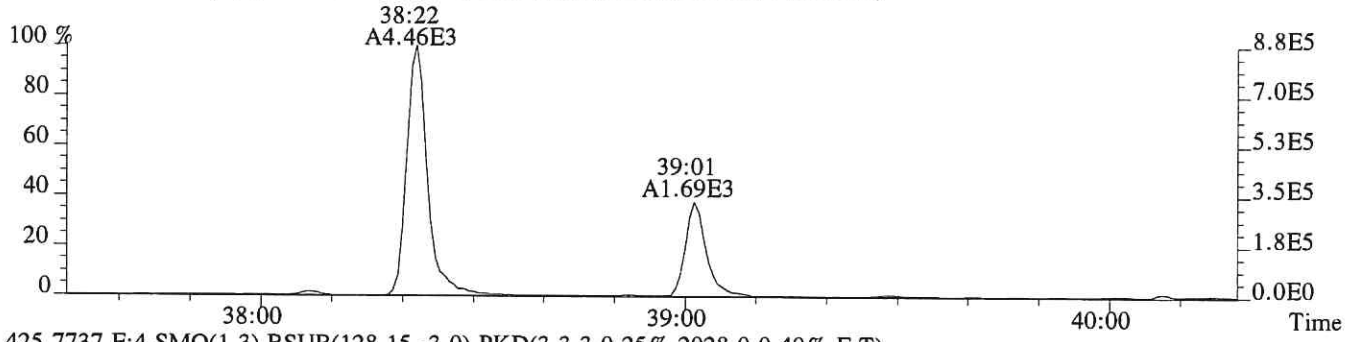


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

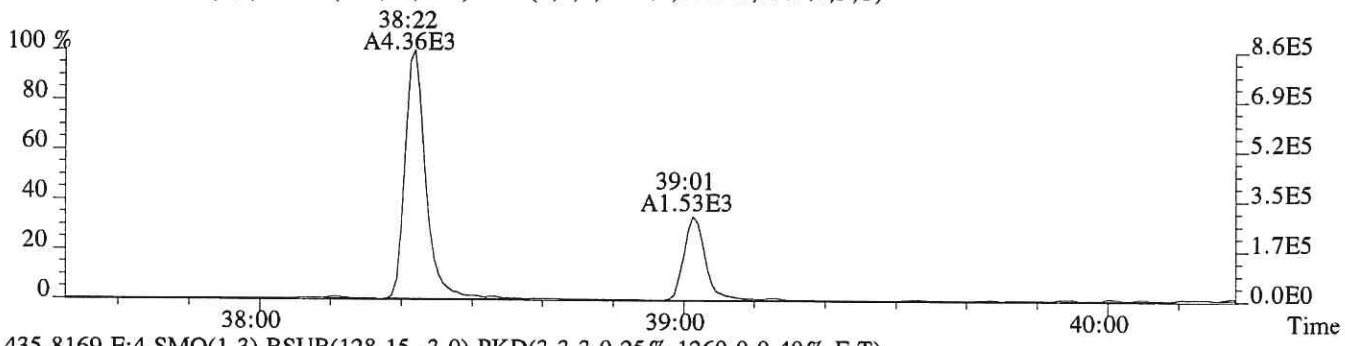


File:P616032 #1-249 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023

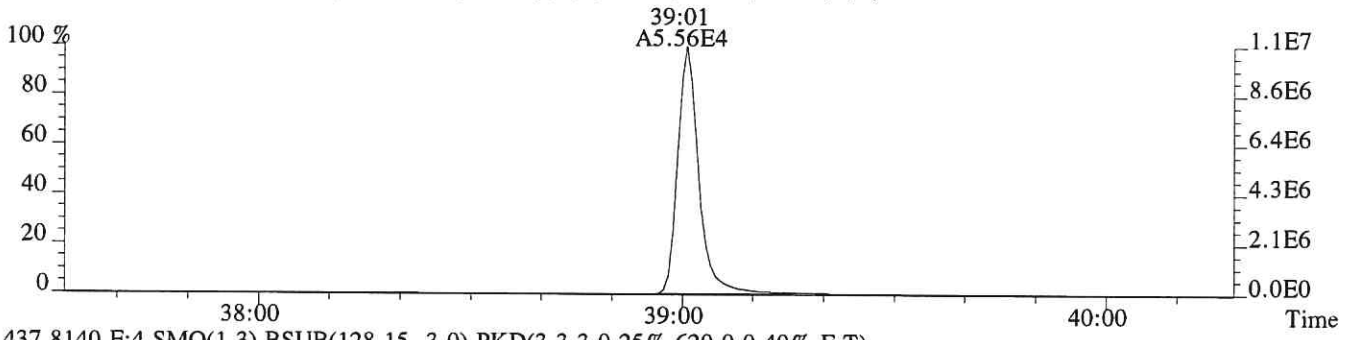
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.40%,F,T)



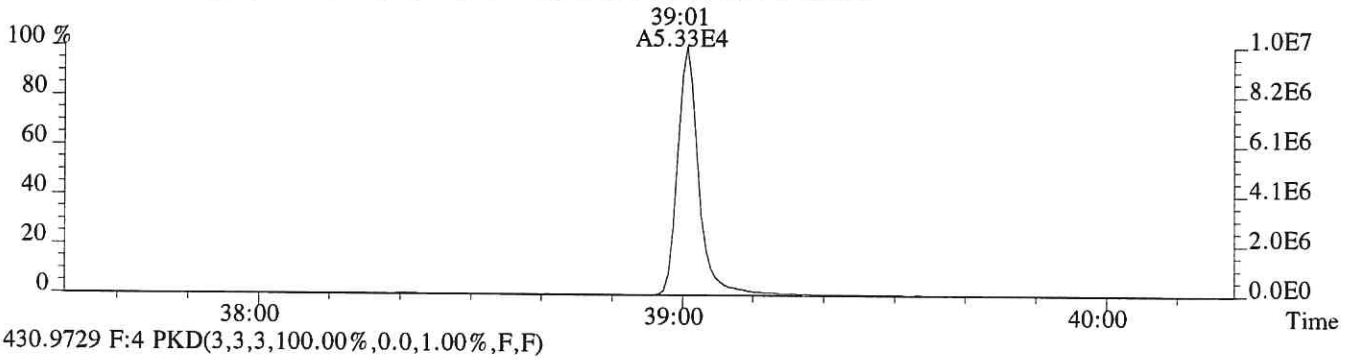
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2028.0,0.40%,F,T)



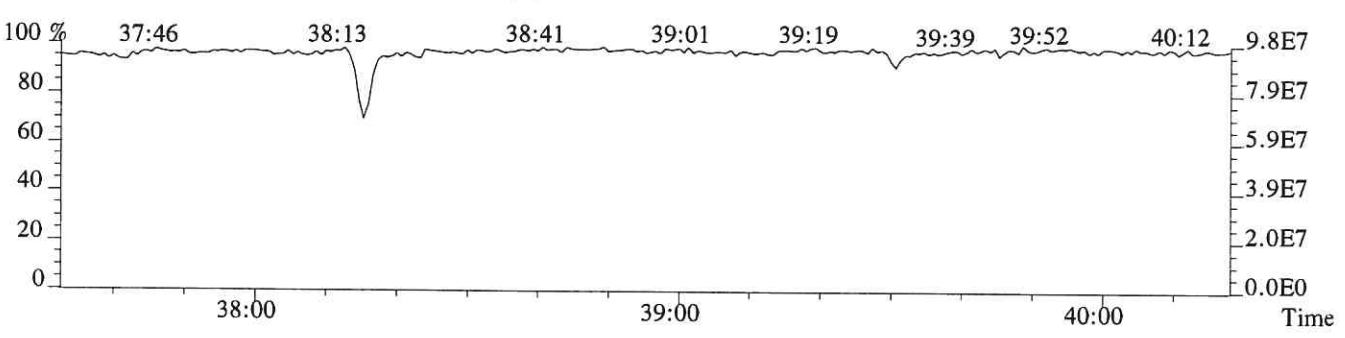
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)

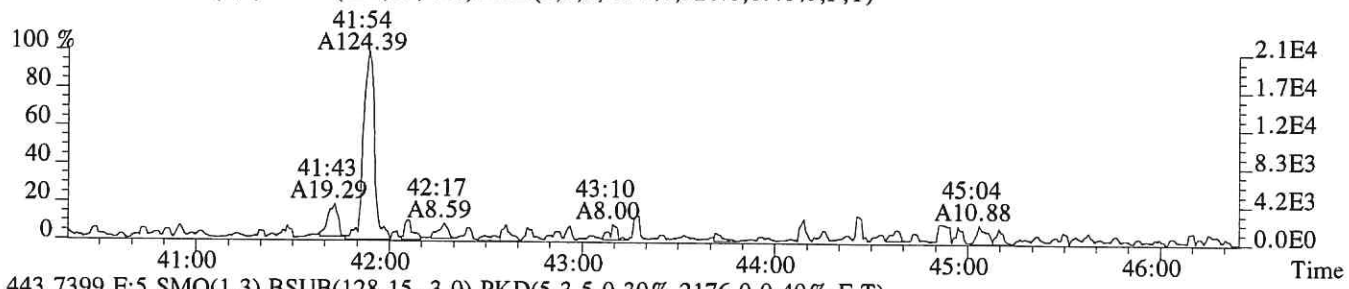


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

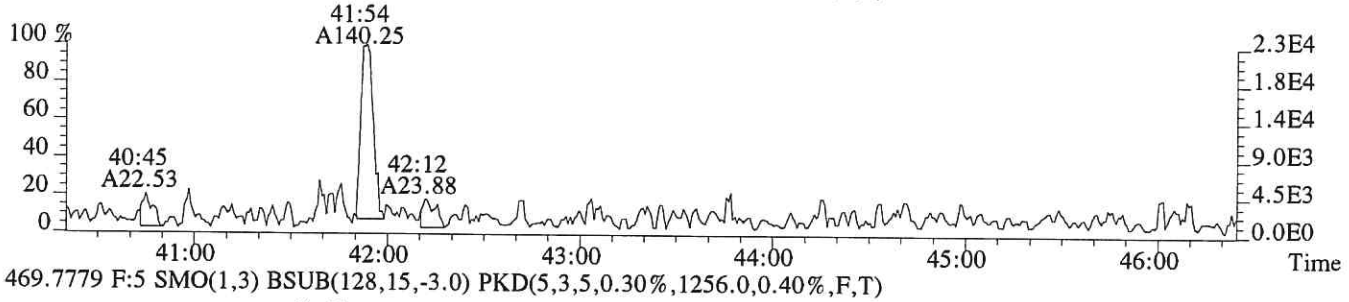


File:P616032 #1-547 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023

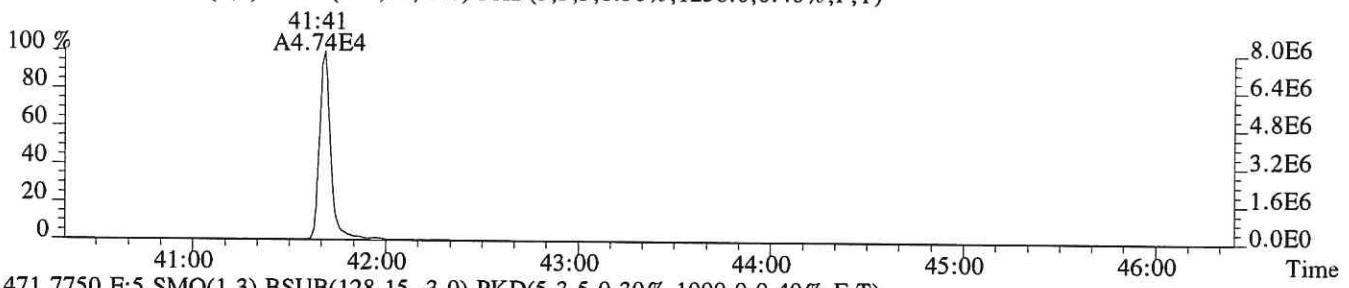
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



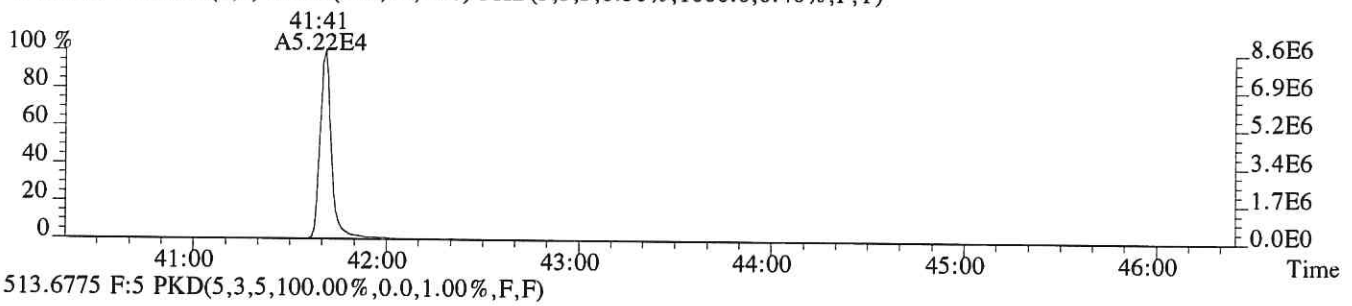
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2176.0,0.40%,F,T)



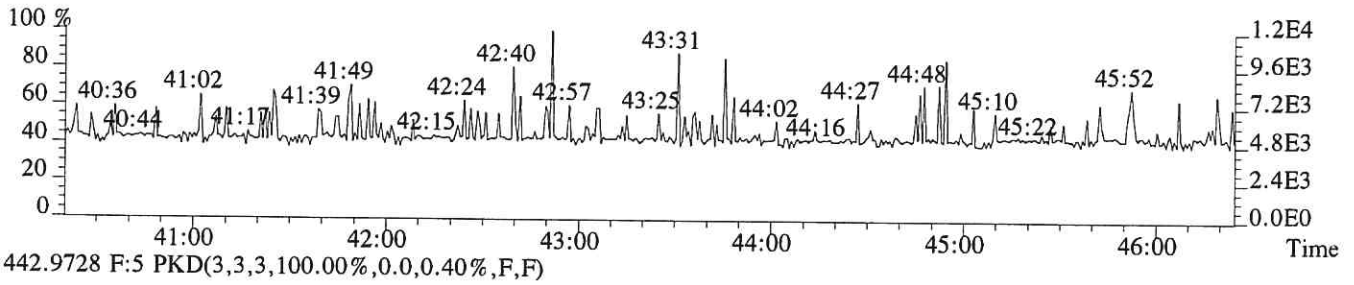
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1256.0,0.40%,F,T)



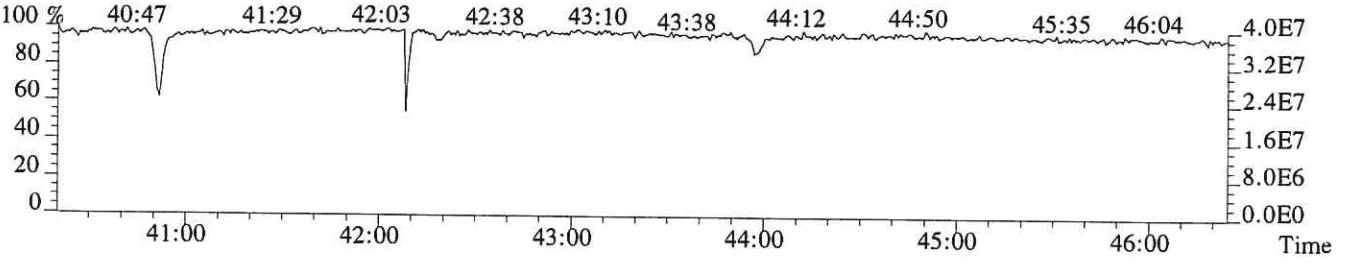
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1000.0,0.40%,F,T)



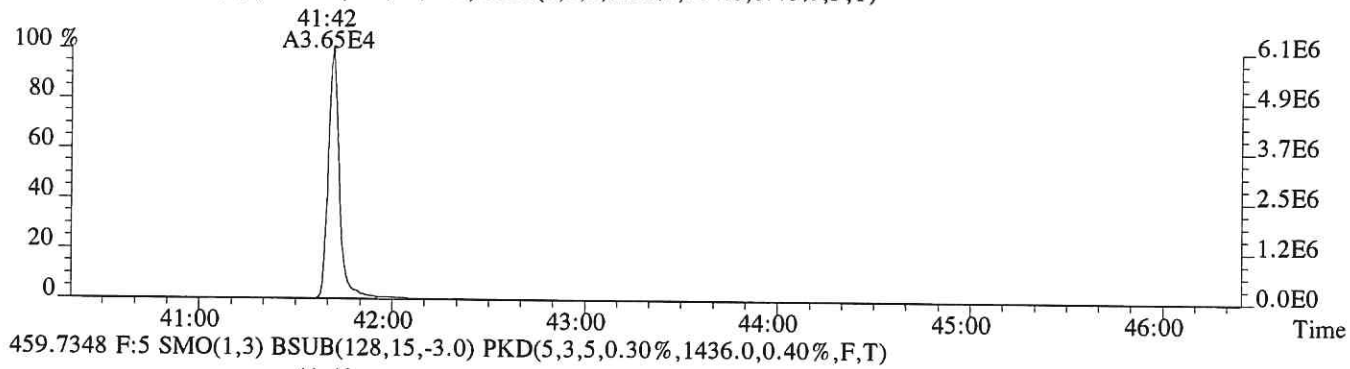
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



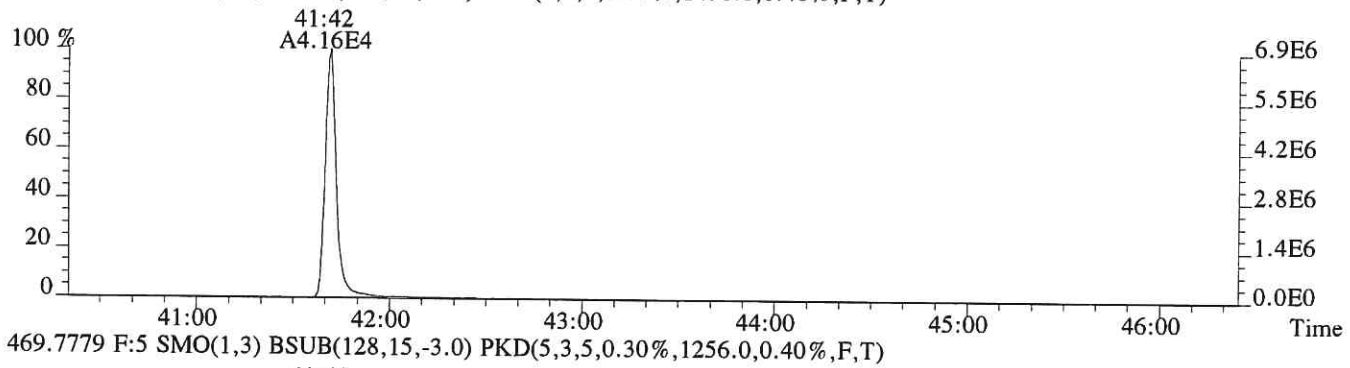
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



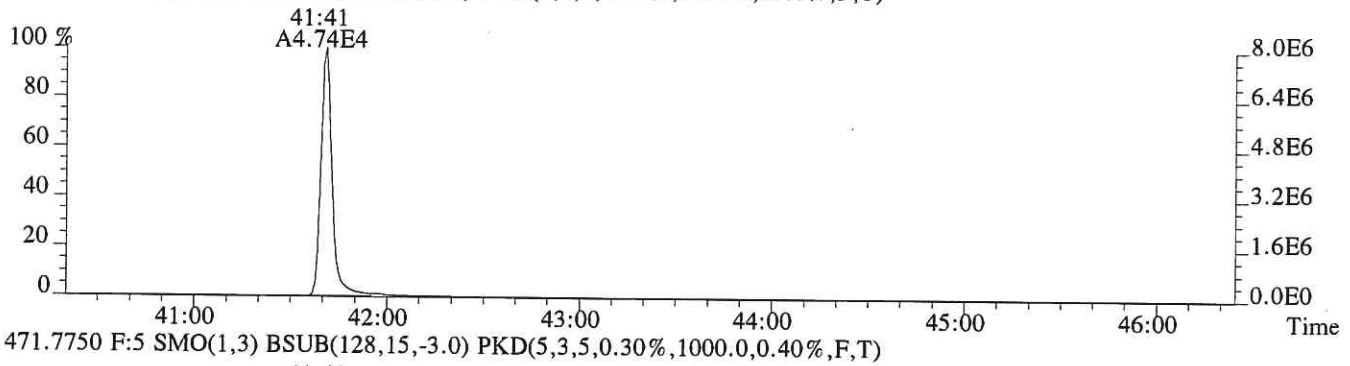
File:P616032 #1-547 Acq:11-DEC-2018 02:34:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-023
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,984.0,0.40%,F,T)



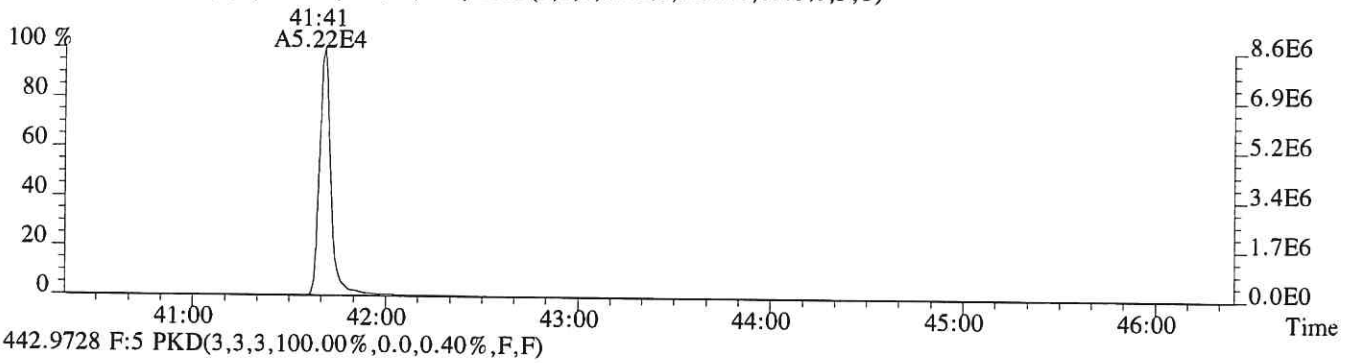
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1436.0,0.40%,F,T)



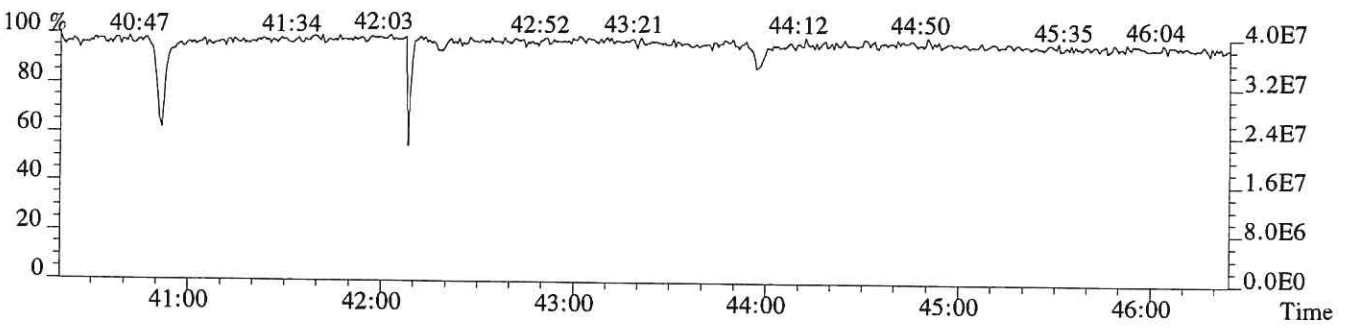
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1256.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1000.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0574

Run #15 Filename P616033 Samp: 1 Inj: 1 Acquired: 11-DEC-18 03:23:22
Processed: 13-DEC-18 08:54:25 Sample ID: E1801065-024

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:32	7.539e+02	8.914e+02	0.85	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:52	9.735e+01	9.242e+01	1.05	no	yes	1.156
3	Unk	2,3,4,7,8-PeCDF	32:50	6.919e+01	7.012e+01	0.99	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	2.038e+02	2.118e+02	0.96	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:37	6.163e+01	8.223e+01	0.75	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:08	8.053e+01	5.924e+01	1.36	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:54	9.015e+01	4.904e+01	1.84	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	8.008e+02	7.357e+02	1.09	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	6.358e+01	5.263e+01	1.21	no	no	1.463
10	Unk	OCDF	41:54	1.833e+03	1.997e+03	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:21	2.100e+02	2.989e+02	0.70	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:05	5.835e+01	5.435e+01	1.07	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:16	8.502e+01	7.554e+01	1.13	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:21	1.366e+02	1.073e+02	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:35	2.130e+02	1.687e+02	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	4.950e+03	4.641e+03	1.07	yes	no	1.112
17	Unk	OCDD	41:42	1.039e+05	1.162e+05	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	5.354e+04	6.769e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	9.980e+04	6.205e+04	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:48	1.025e+05	6.405e+04	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	4.789e+04	9.038e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	5.392e+04	1.030e+05	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	5.042e+04	9.564e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	4.828e+04	9.189e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	3.398e+04	7.636e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	3.018e+04	6.673e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	2.665e+04	3.315e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	7.563e+04	4.862e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:15	6.518e+04	5.155e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	6.426e+04	4.990e+04	1.29	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	6.670e+04	6.315e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:41	5.478e+04	6.043e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	7.293e+04	9.179e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	9.615e+04	7.755e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:21	3.696e+04				no	1.086

$$\text{OCDD} = \frac{(1.039e+05 + 1.162e+05) \times 4000\ \text{pg} \times 1}{(5.478e+04 + 6.043e+04) \times 10.70\text{g} \times 829 / 100 \times 1.157} = 744.5221\ \text{ng/kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0574

Run #15 Filename P616033 Samp: 1 Inj: 1 Acquired: 11-DEC-18 03:23:22
Processed: 13-DEC-18 08:54:25 LAB. ID: E1801065-024

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.81e+04	1.81e+03	5.4e+01	1.31e+05	3.65e+03	3.6e+01
2	1,2,3,7,8-PeCDF	2.03e+04	2.00e+03	1.0e+01	1.53e+04	2.99e+03	5.1e+00
3	2,3,4,7,8-PeCDF	1.24e+04	2.00e+03	6.2e+00	1.19e+04	2.99e+03	4.0e+00
4	1,2,3,4,7,8-HxCDF	5.07e+04	2.30e+03	2.2e+01	4.68e+04	1.60e+03	2.9e+01
5	1,2,3,6,7,8-HxCDF	1.48e+04	2.30e+03	6.4e+00	1.47e+04	1.60e+03	9.2e+00
6	2,3,4,6,7,8-HxCDF	1.72e+04	2.30e+03	7.5e+00	1.34e+04	1.60e+03	8.4e+00
7	1,2,3,7,8,9-HxCDF	1.60e+04	2.30e+03	6.9e+00	8.19e+03	1.60e+03	5.1e+00
8	1,2,3,4,6,7,8-HpCDF	1.76e+05	1.80e+03	9.8e+01	1.51e+05	1.09e+03	1.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.17e+04	1.80e+03	6.5e+00	1.14e+04	1.09e+03	1.0e+01
10	OCDF	3.00e+05	6.68e+02	4.5e+02	3.25e+05	1.82e+03	1.8e+02
11	2,3,7,8-TCDD	4.27e+04	3.55e+03	1.2e+01	4.56e+04	2.00e+03	2.3e+01
12	1,2,3,7,8-PeCDD	8.27e+03	2.36e+03	3.5e+00	6.44e+03	1.22e+03	5.3e+00
13	1,2,3,4,7,8-HxCDD	1.75e+04	1.01e+03	1.7e+01	1.89e+04	2.44e+03	7.8e+00
14	1,2,3,6,7,8-HxCDD	3.16e+04	1.01e+03	3.1e+01	1.92e+04	2.44e+03	7.9e+00
15	1,2,3,7,8,9-HxCDD	4.05e+04	1.01e+03	4.0e+01	3.51e+04	2.44e+03	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	9.46e+05	9.72e+02	9.7e+02	9.29e+05	2.16e+03	4.3e+02
17	OCDD	1.78e+07	4.92e+02	3.6e+04	2.00e+07	1.19e+03	1.7e+04
18	13C-2,3,7,8-TCDF	8.37e+06	8.02e+03	1.0e+03	1.06e+07	6.48e+03	1.6e+03
19	13C-1,2,3,7,8-PeCDF	1.75e+07	1.63e+03	1.1e+04	1.09e+07	1.50e+03	7.3e+03
20	13C-2,3,4,7,8-PeCDF	1.89e+07	1.63e+03	1.2e+04	1.18e+07	1.50e+03	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.01e+07	2.06e+03	4.9e+03	1.90e+07	2.67e+03	7.1e+03
22	13C-1,2,3,6,7,8-HxCDF	1.06e+07	2.06e+03	5.2e+03	2.02e+07	2.67e+03	7.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.04e+07	2.06e+03	5.0e+03	1.95e+07	2.67e+03	7.3e+03
24	13C-1,2,3,7,8,9-HxCDF	9.17e+06	2.06e+03	4.5e+03	1.74e+07	2.67e+03	6.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.27e+06	2.80e+03	2.6e+03	1.65e+07	9.05e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.47e+06	2.80e+03	2.0e+03	1.22e+07	9.05e+03	1.3e+03
27	13C-2,3,7,8-TCDD	4.47e+06	1.35e+04	3.3e+02	5.59e+06	7.07e+03	7.9e+02
28	13C-1,2,3,7,8-PeCDD	1.36e+07	2.28e+03	6.0e+03	8.78e+06	2.08e+03	4.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.42e+07	3.98e+03	3.6e+03	1.12e+07	2.13e+03	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.29e+07	3.98e+03	3.3e+03	1.01e+07	2.13e+03	4.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.32e+07	2.42e+03	5.4e+03	1.25e+07	7.04e+02	1.8e+04
32	13C-OCDD	9.14e+06	1.30e+03	7.0e+03	1.02e+07	6.44e+02	1.6e+04
33	13C-1,2,3,4-TCDD	1.28e+07	1.35e+04	9.4e+02	1.63e+07	7.07e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.91e+07	3.98e+03	4.8e+03	1.52e+07	2.13e+03	7.1e+03
35	37Cl-2,3,7,8-TCDD	6.09e+06	3.59e+03	1.7e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.552e{+}03 + 2.004e{+}03) \times 2000}{(4.470e{+}06 + 5.588e{+}06) \times (\quad) \times 1.049} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0574

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P616033 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 03:23:22 Processed: 13-DEC-18 08:54:25

Mass: 303.9020 305.8990 Tot Response: 2.32e+03 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:38	2.83e+02	3.91e+02	0.72	yes	6.74e+02		n	n
2	27:32	7.54e+02	8.91e+02	0.85	yes	1.65e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0574

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P616033 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 03:23:22 Processed: 13-DEC-18 08:54:25

Mass: 319.8970 321.8940 Tot Response: 6.63e+02 RRF: 1.049

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:18	4.40e+01	5.56e+01	0.79	yes	9.96e+01		n	n
2	28:21	2.10e+02	2.99e+02	0.70	yes	5.09e+02	2,3,7,8-TCDD	n	n
3	28:38	2.31e+01	3.12e+01	0.74	yes	5.44e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0574

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P616033 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 03:23:22 Processed: 13-DEC-18 08:54:25

Mass: 339.8600 341.8570 Tot Response: 2.02e+02 RRF: 1.130

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:22	1.24e+02	7.82e+01	1.59	yes	2.02e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0574

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P616033 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 03:23:22 Processed: 13-DEC-18 08:54:25

Mass: 355.8550 357.8520 Tot Response: 6.58e+02 RRF: 0.9288

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:57	9.41e+01	6.98e+01	1.35	yes	1.64e+02		n	n
2	31:24	1.74e+02	1.10e+02	1.59	yes	2.84e+02		n	n
3	32:03	1.75e+01	1.28e+01	1.37	yes	3.04e+01		n	n
4	32:23	1.13e+02	6.65e+01	1.70	yes	1.79e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0574

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P616033 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 03:23:22 Processed: 13-DEC-18 08:54:25

Mass: 373.8210 375.8180 Tot Response: 9.52e+02 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:32	2.34e+02	1.70e+02	1.37	yes	4.04e+02		n	n
2	35:04	2.28e+02	1.80e+02	1.26	yes	4.08e+02		n	n
3	36:08	8.05e+01	5.92e+01	1.36	yes	1.40e+02	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0574

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P616033 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 03:23:22 Processed: 13-DEC-18 08:54:25

Mass: 389.8160 391.8130 Tot Response: 6.20e+03 RRF: 1.092

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:54	2.18e+03	1.73e+03	1.26	yes	3.91e+03		n	n
2	35:26	9.82e+01	7.69e+01	1.28	yes	1.75e+02		n	n
3	35:40	7.21e+02	6.01e+02	1.20	yes	1.32e+03		n	n
4	36:16	8.50e+01	7.55e+01	1.13	yes	1.61e+02	1,2,3,4,7,8-HxCDD	n	n
5	36:21	1.37e+02	1.07e+02	1.27	yes	2.44e+02	1,2,3,6,7,8-HxCDD	n	n
6	36:35	2.13e+02	1.69e+02	1.26	yes	3.82e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0574

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P616033 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 03:23:22 Processed: 13-DEC-18 08:54:25

Mass: 407.7820 409.7790 Tot Response: 3.53e+03 RRF: 1.495

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:07	8.01e+02	7.36e+02	1.09	yes	1.54e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:31	1.08e+03	9.14e+02	1.18	yes	2.00e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0574

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P616033 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 03:23:22 Processed: 13-DEC-18 08:54:25

Mass: 423.7770 425.7740 Tot Response: 2.86e+04 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:22	9.61e+03	9.39e+03	1.02	yes	1.90e+04		n	n
2	39:01	4.95e+03	4.64e+03	1.07	yes	9.59e+03	1,2,3,4,6,7,8-HpCDD	n	n

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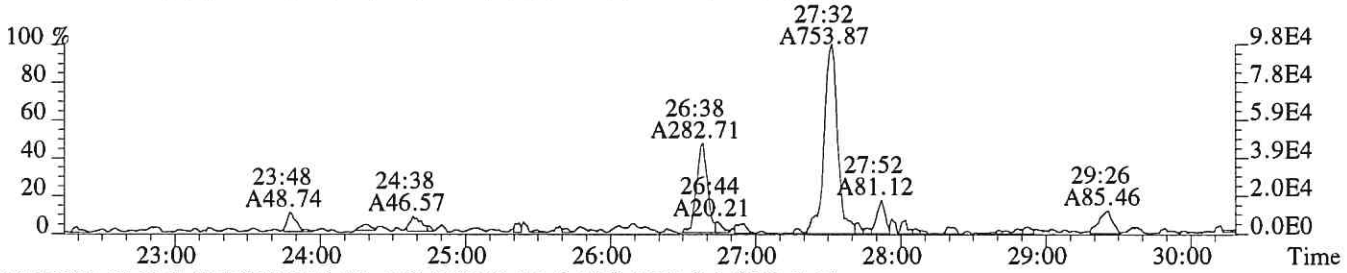
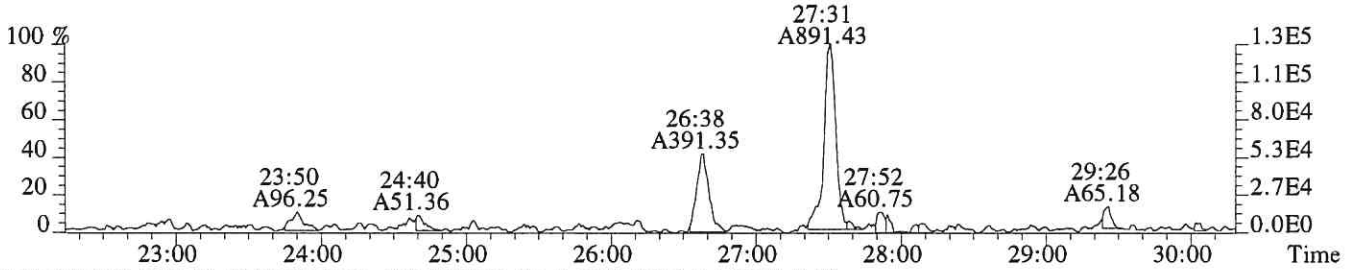
File:P616033 #1-573 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024

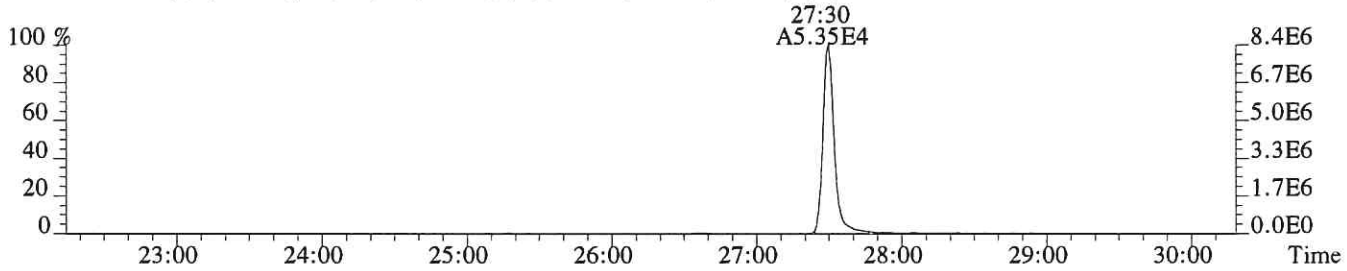
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



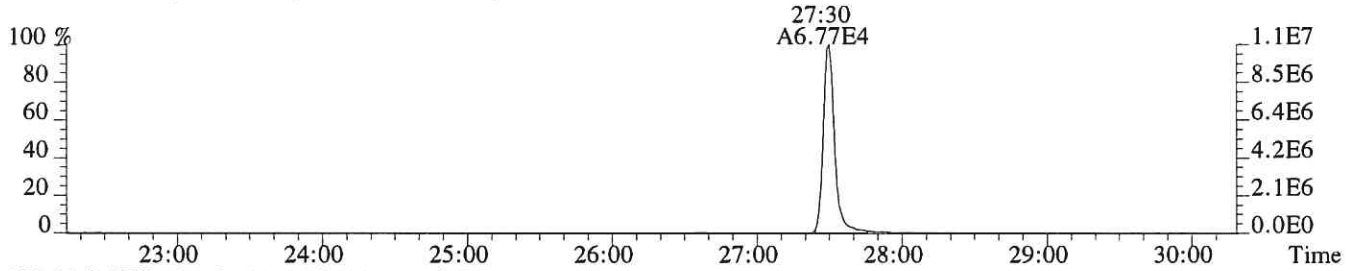
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3652.0,1.00%,F,T)



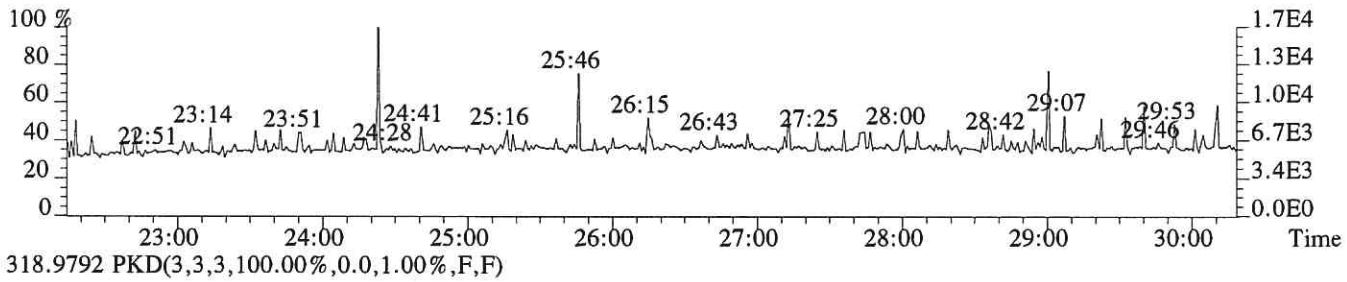
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8016.0,1.00%,F,T)



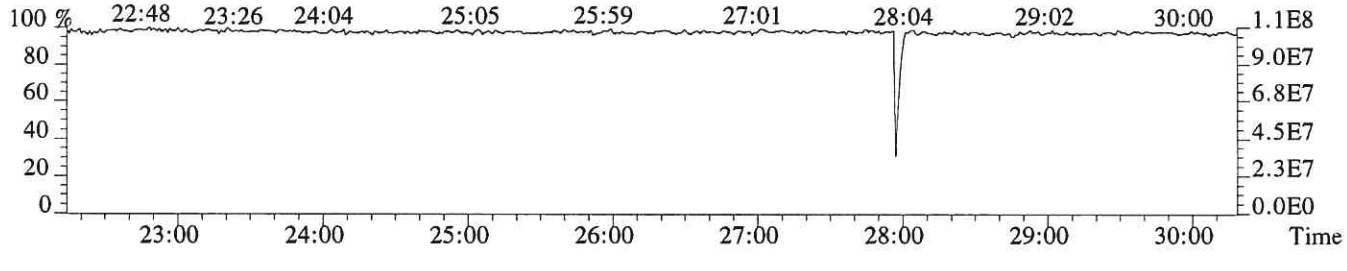
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6476.0,1.00%,F,T)



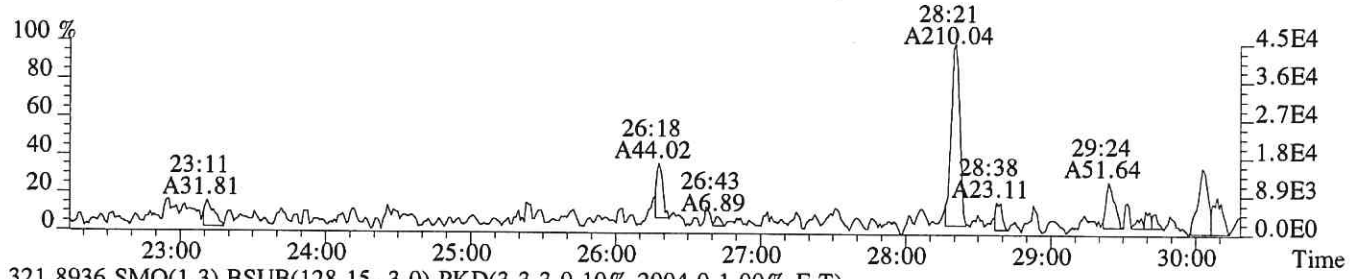
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



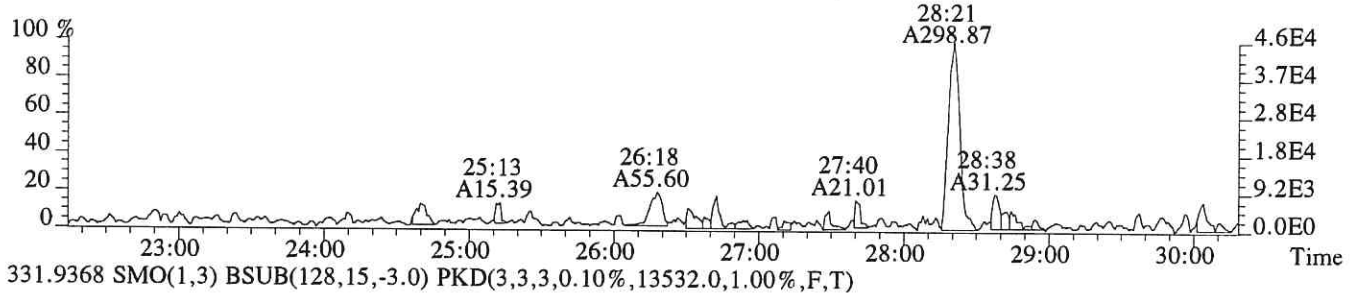
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



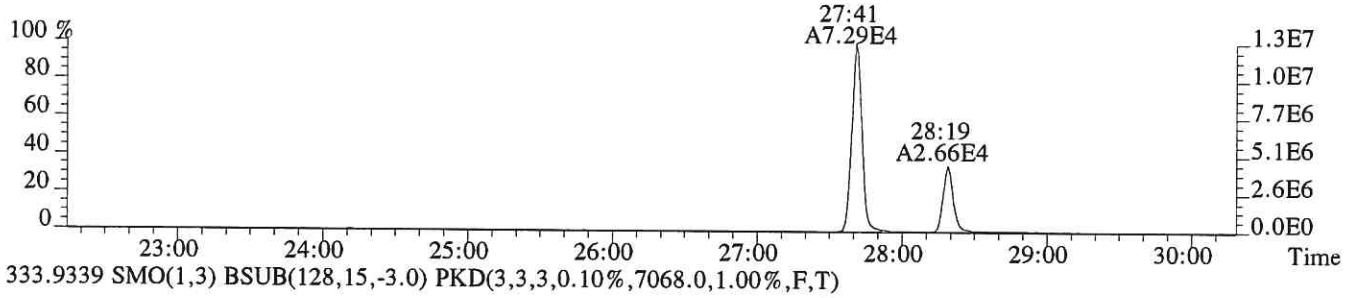
File:P616033 #1-573 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3552.0,1.00%,F,T)



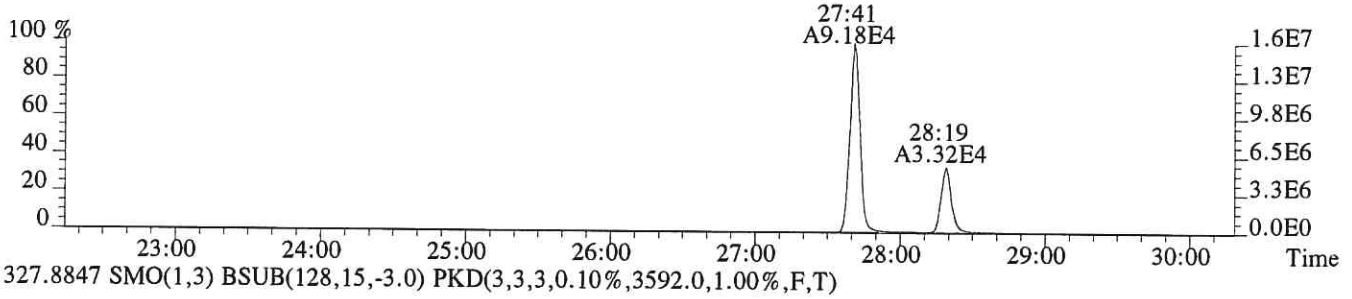
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



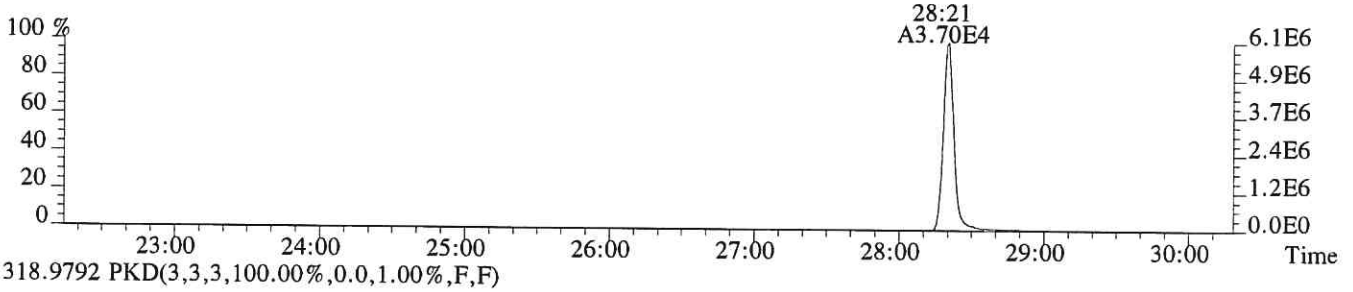
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13532.0,1.00%,F,T)



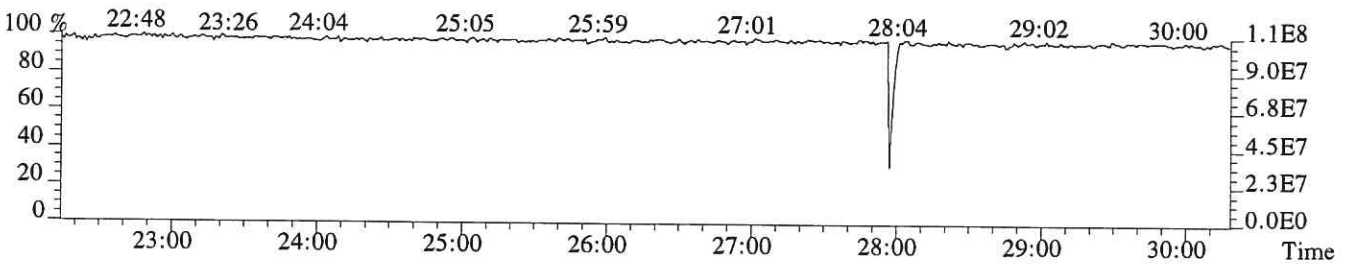
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7068.0,1.00%,F,T)



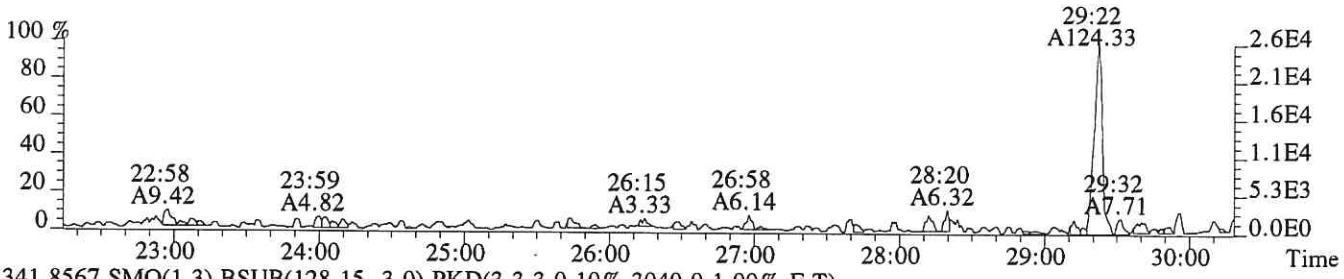
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



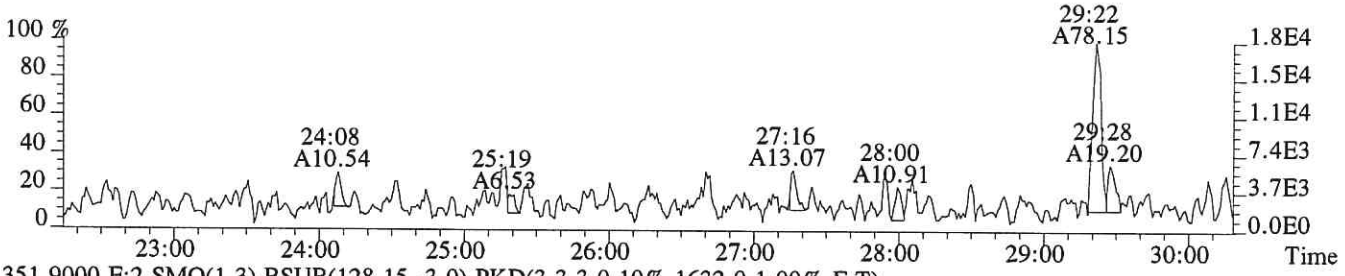
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



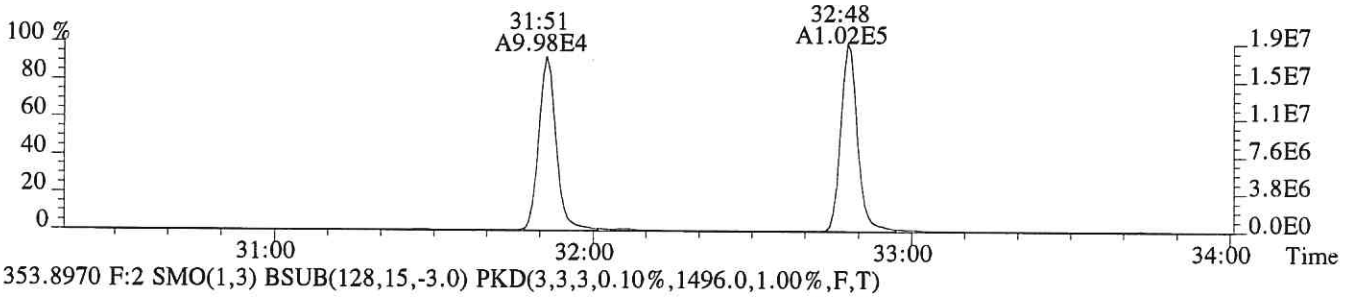
File:P616033 #1-573 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



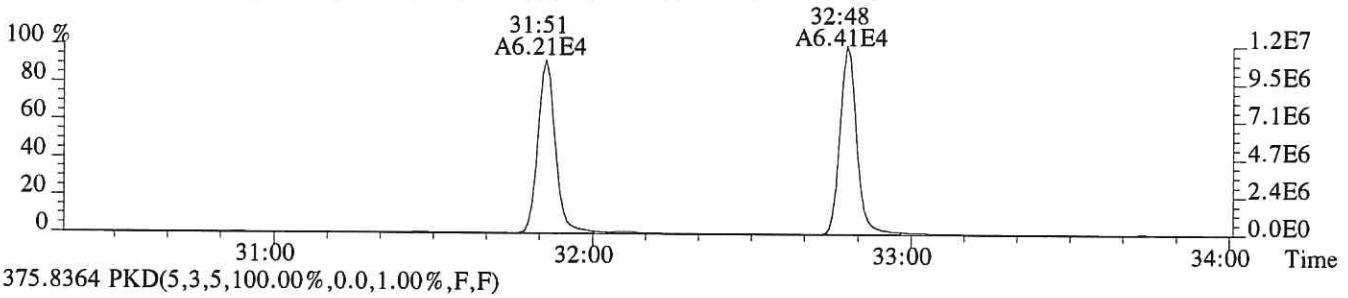
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3040.0,1.00%,F,T)



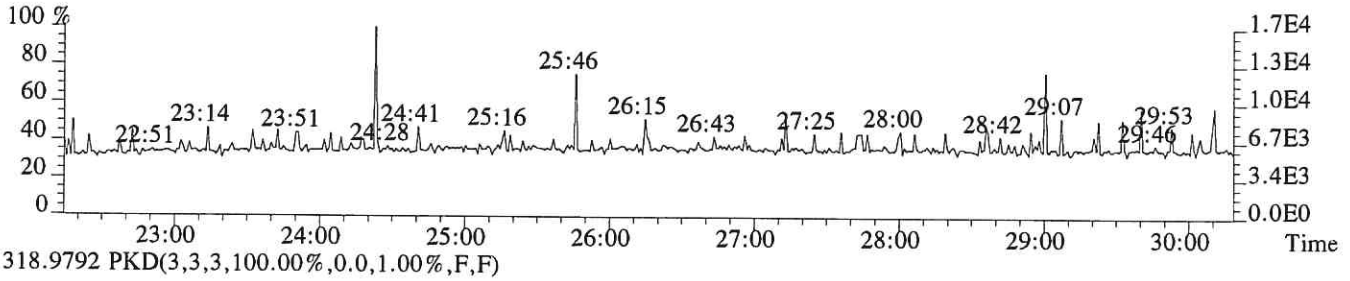
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



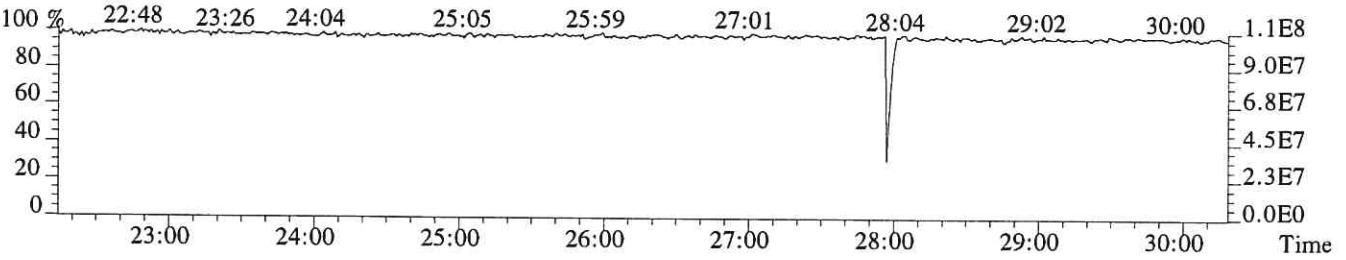
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



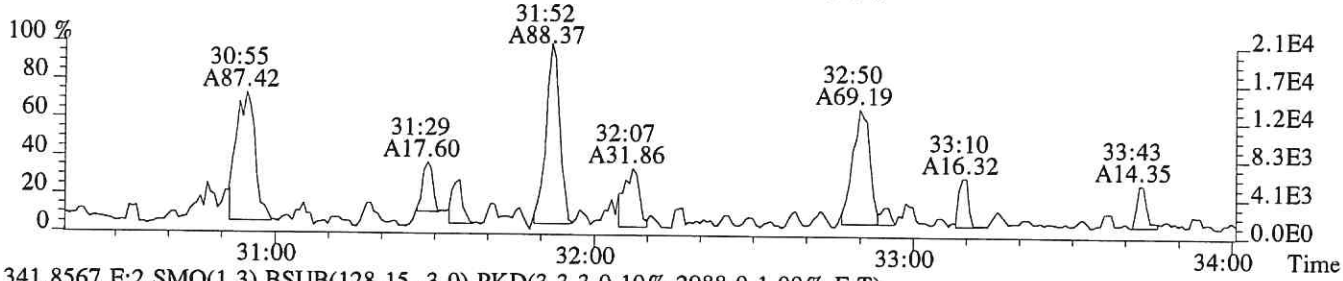
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



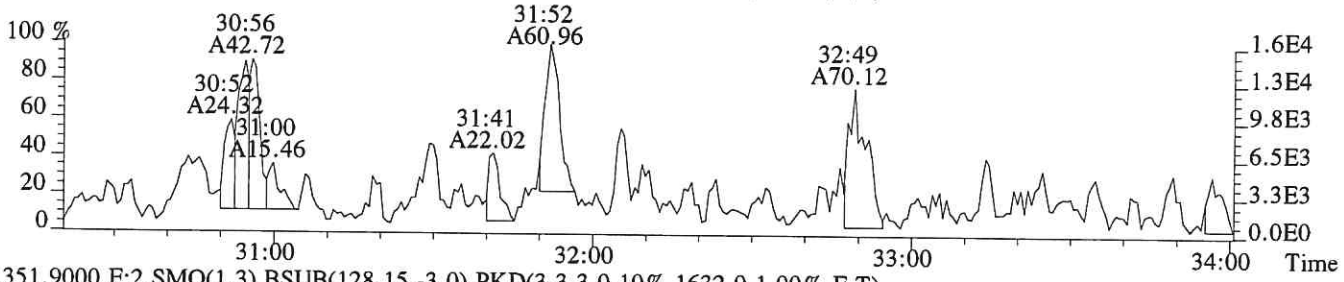
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



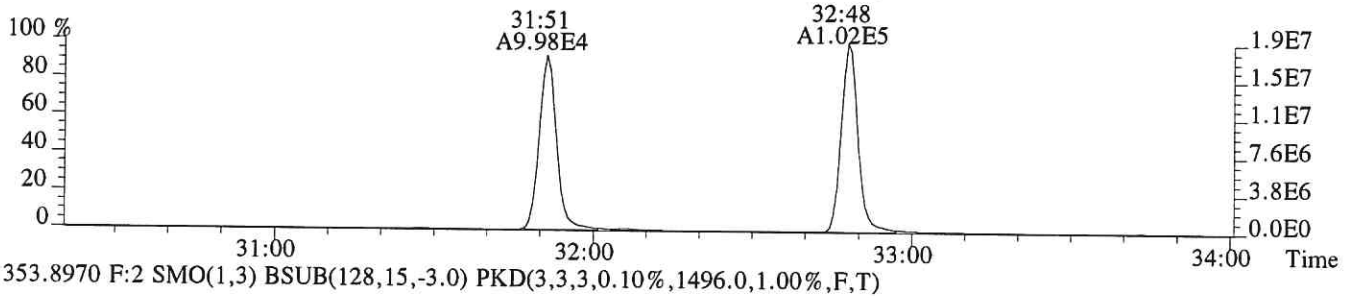
File:P616033 #1-331 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



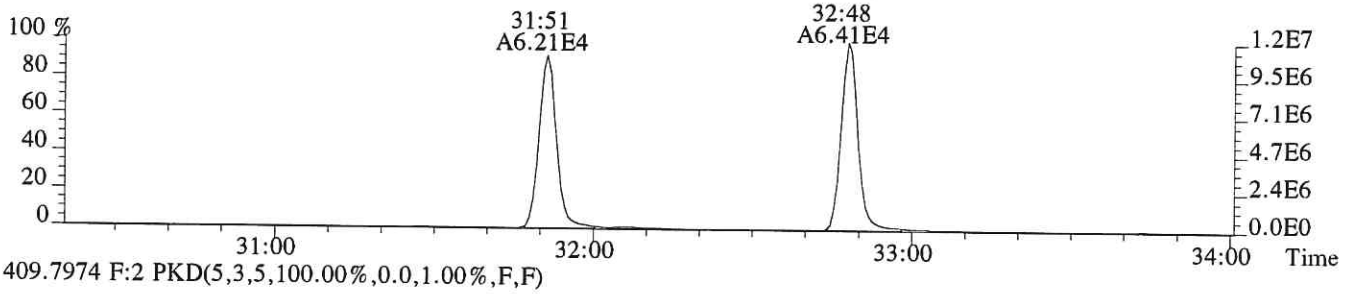
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



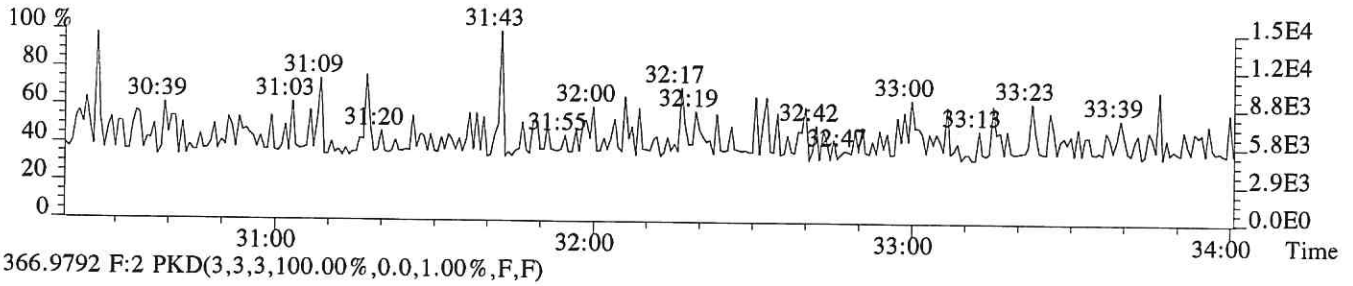
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



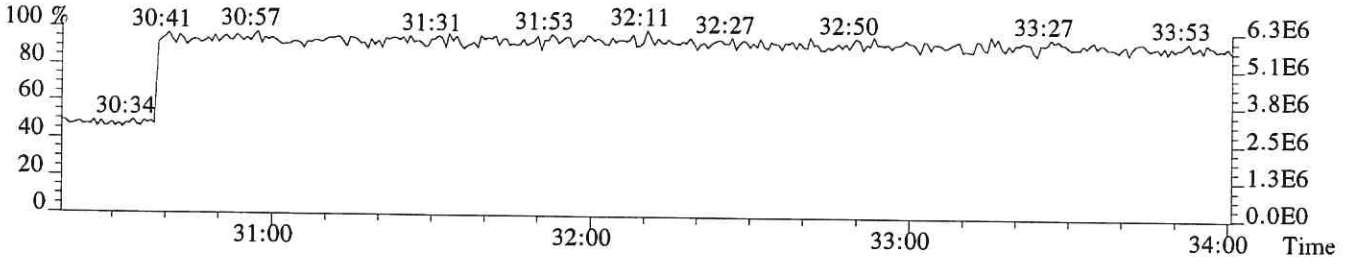
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



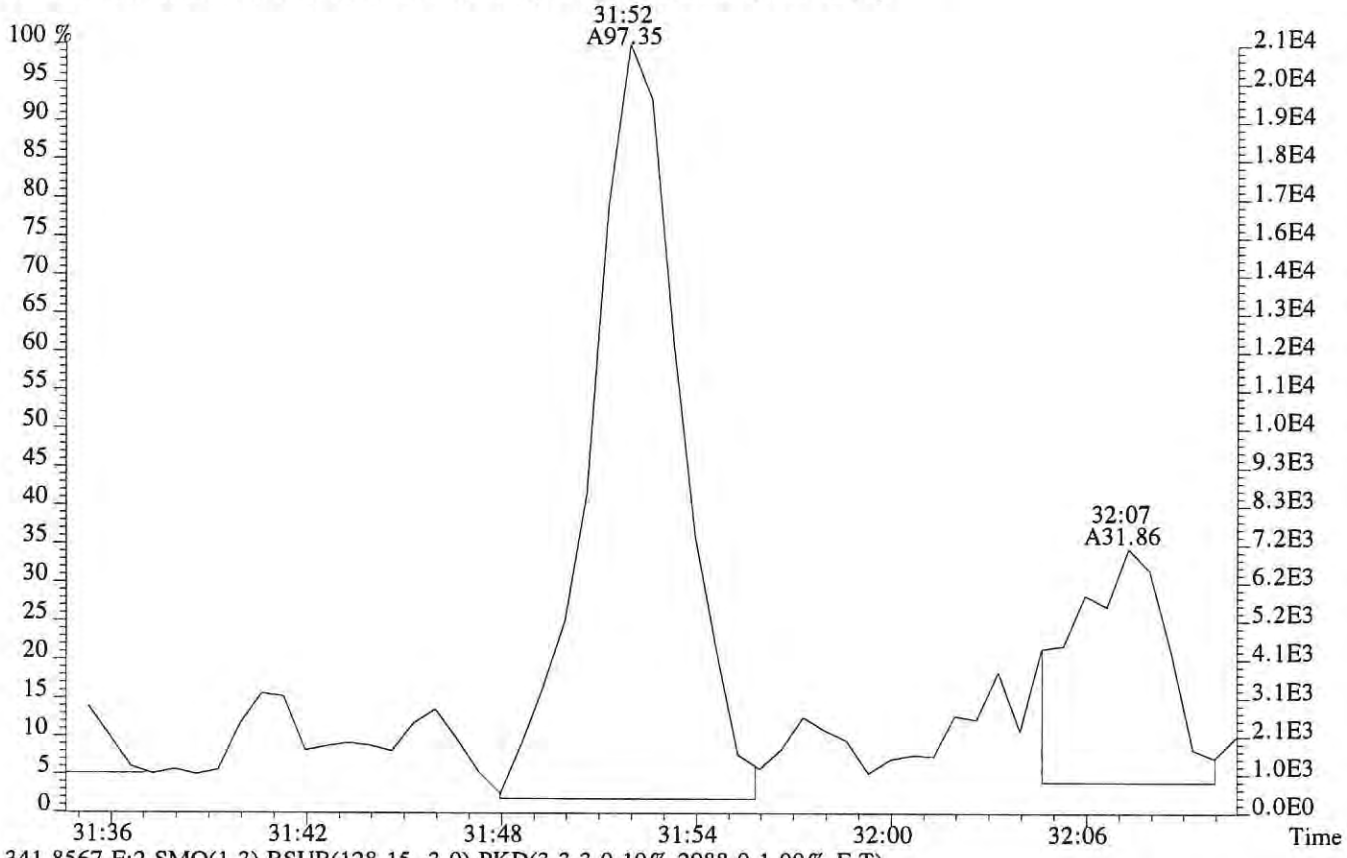
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



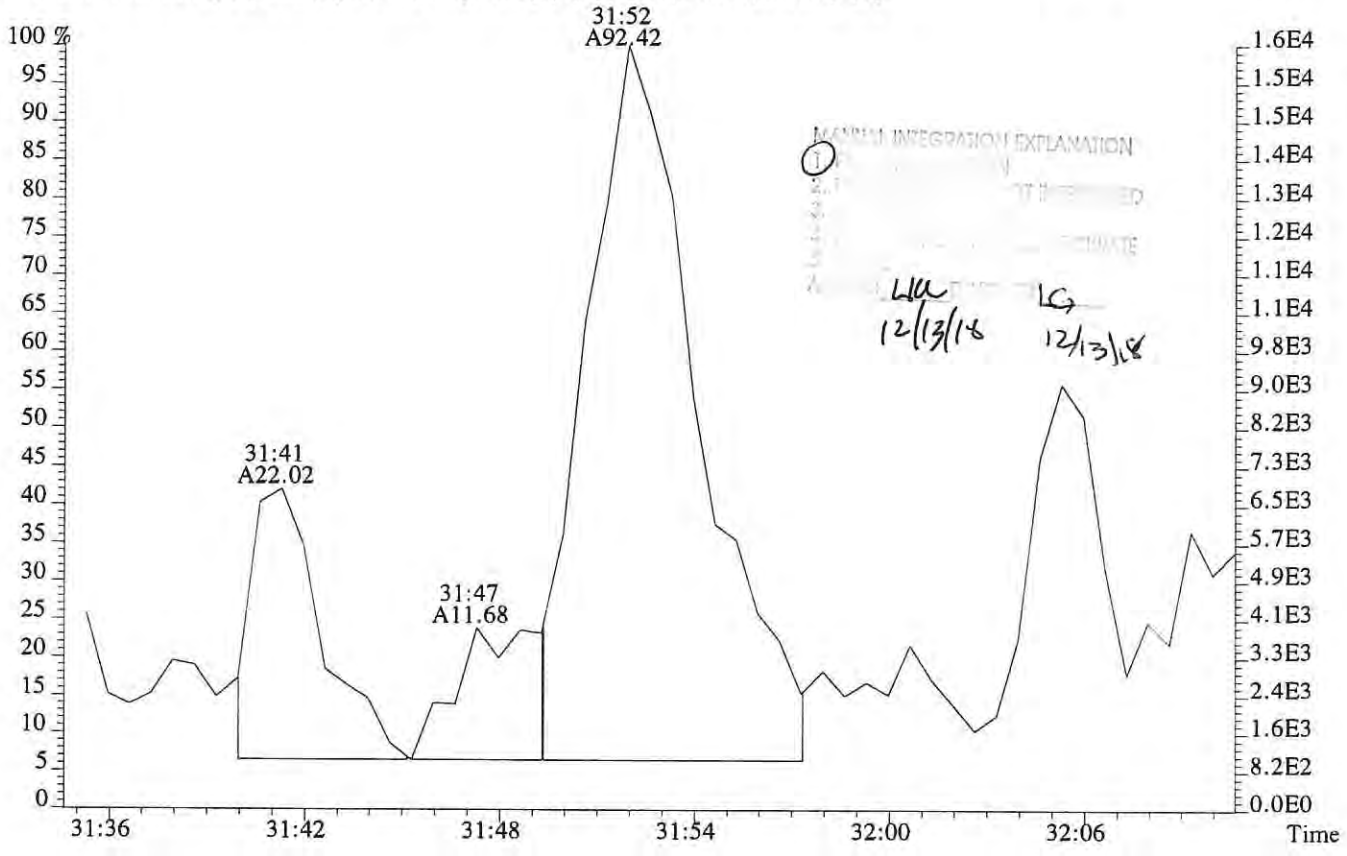
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



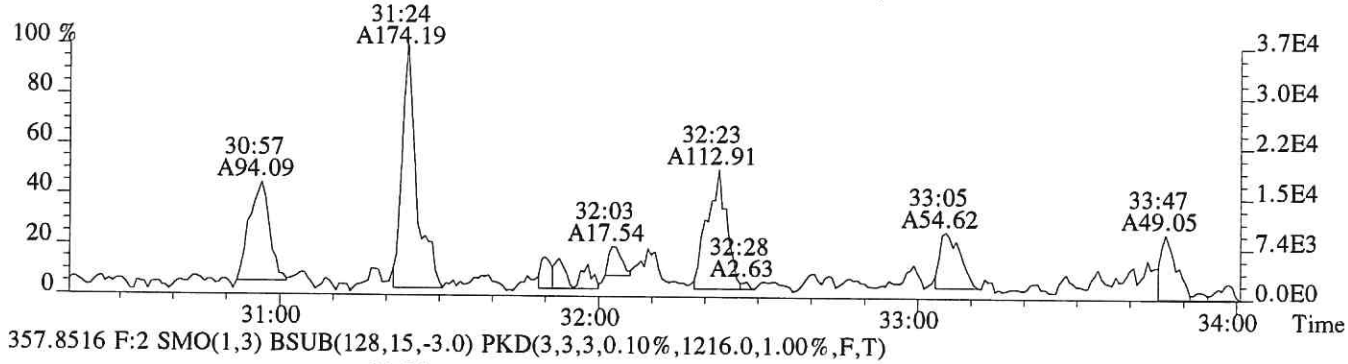
File:P616033 #1-331 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



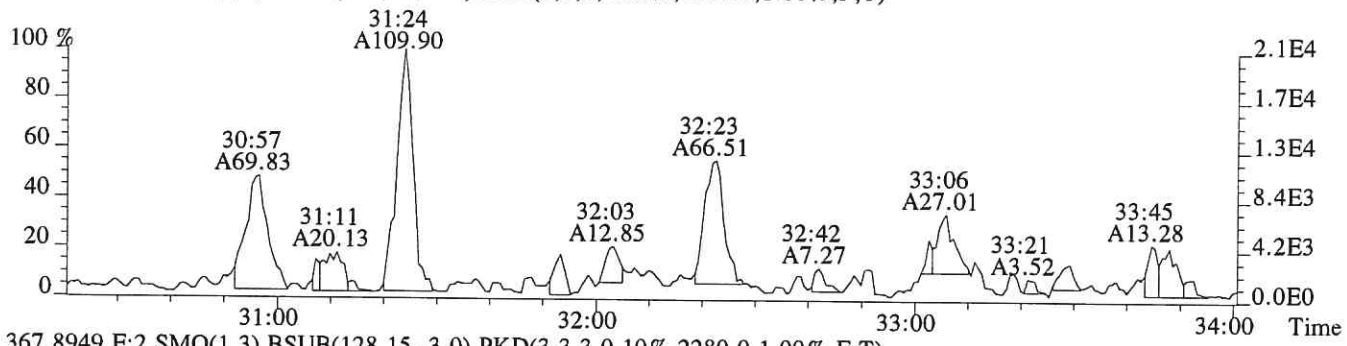
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



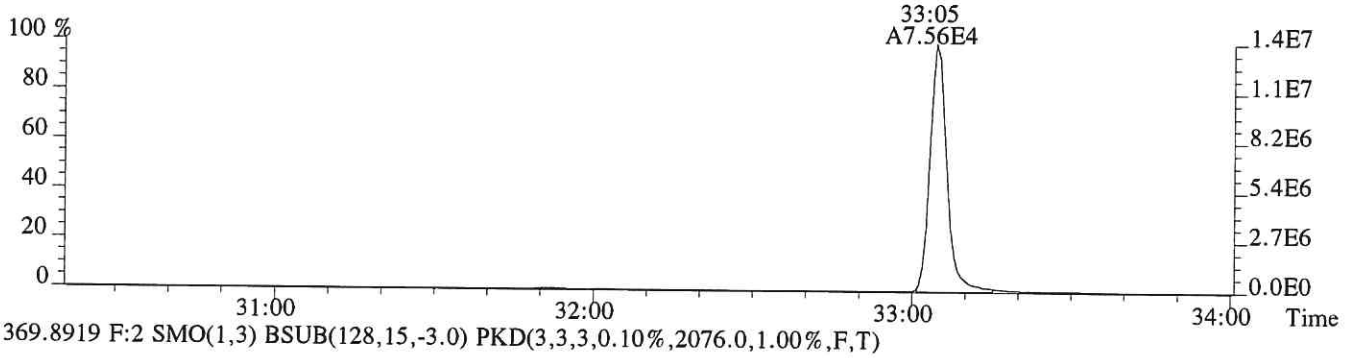
File:P616033 #1-331 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



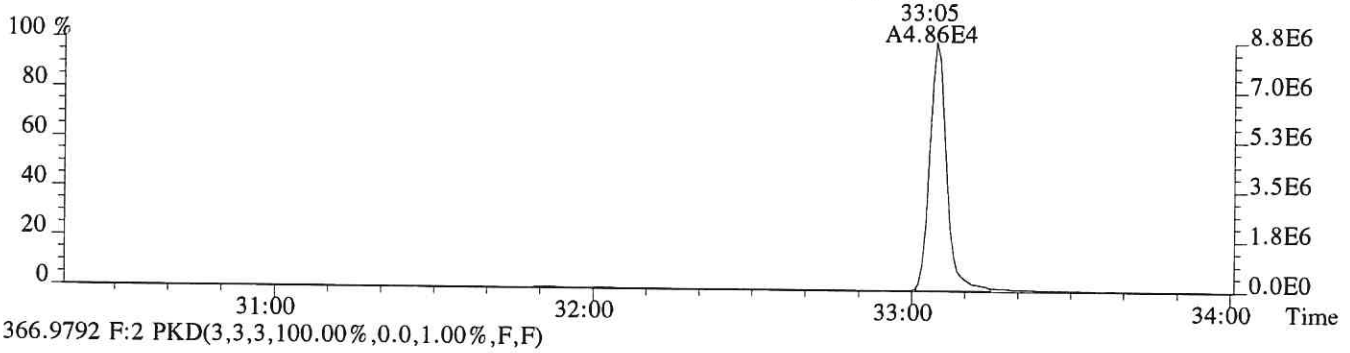
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



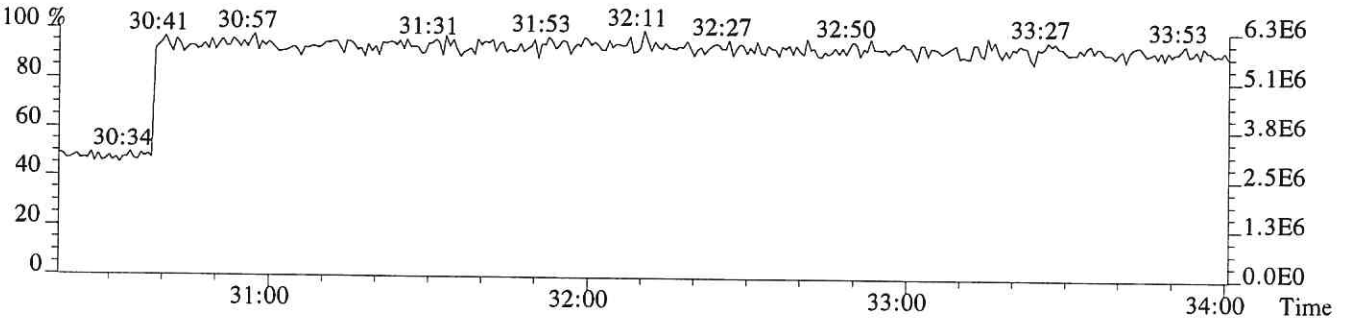
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



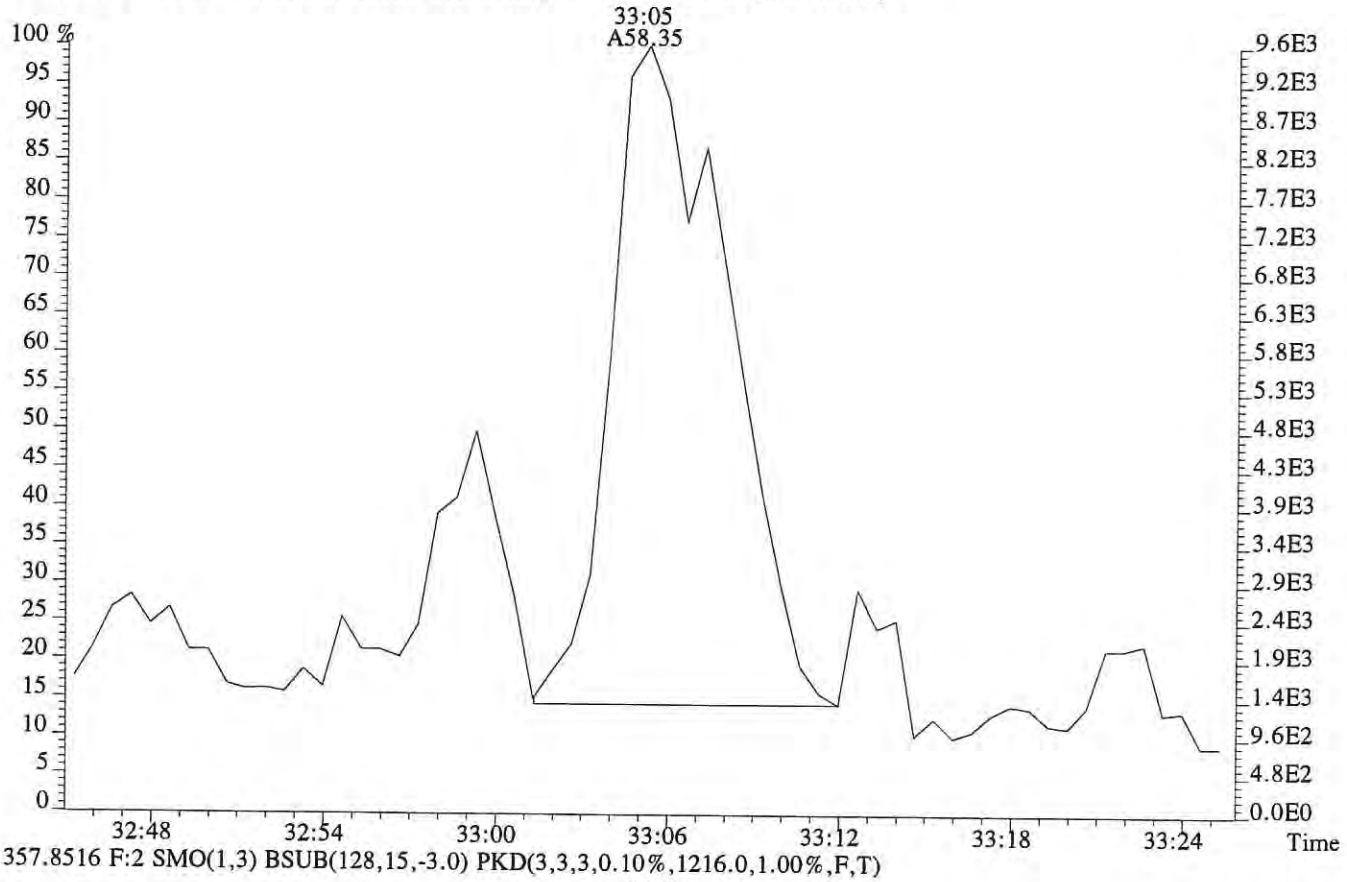
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



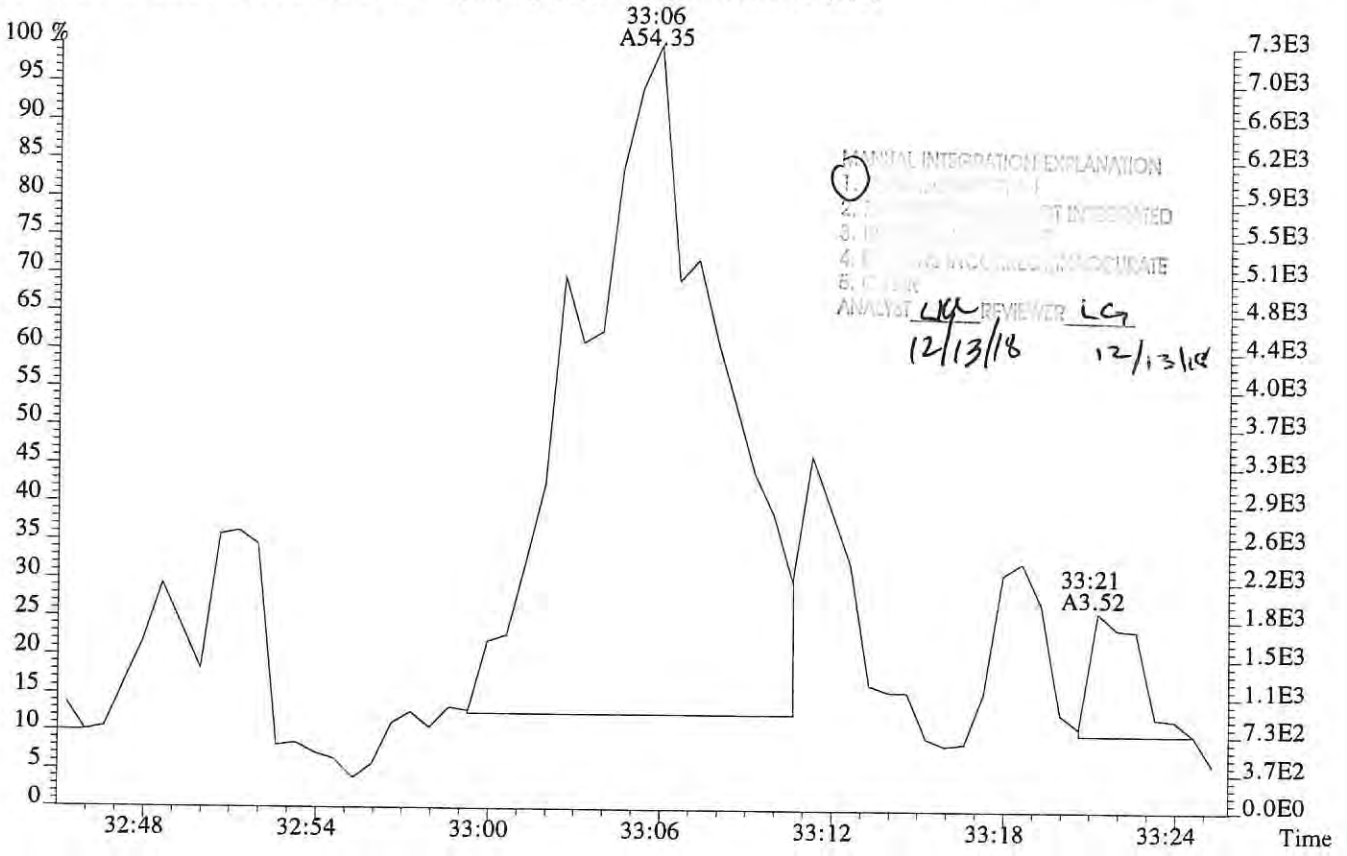
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616033 #1-331 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



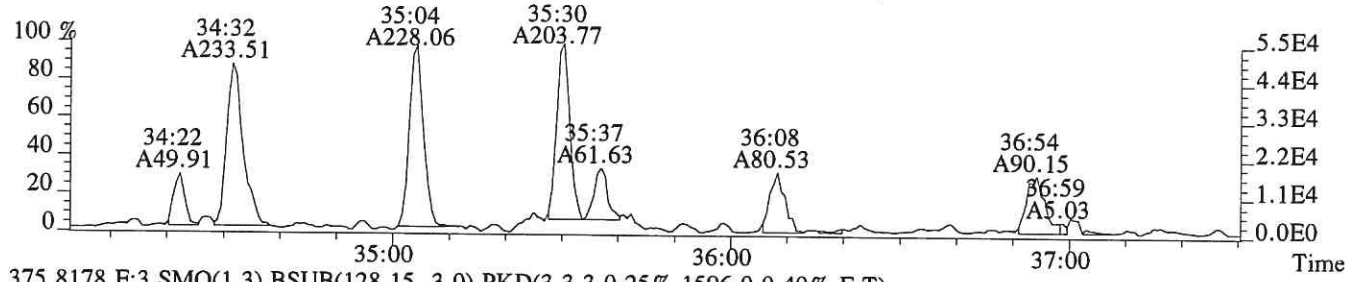
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



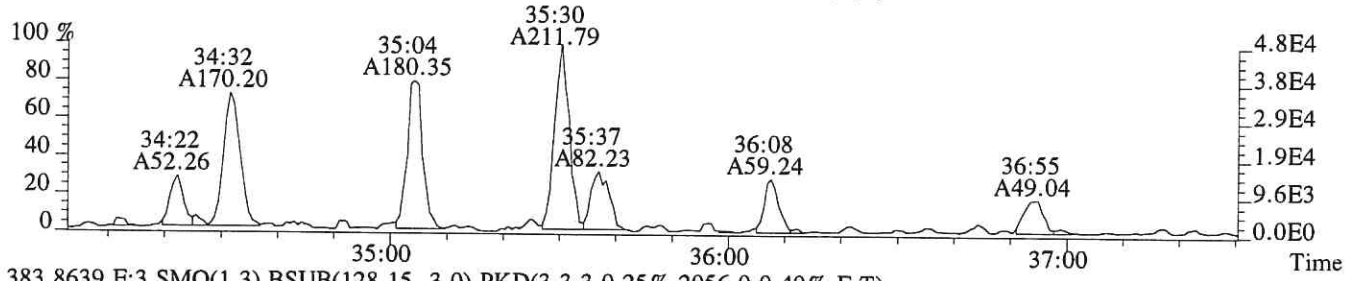
MANUAL INTEGRATION EXPLANATION
1.
2.
3.
4.
5.
ANALYST LKC REVIEWER LG
12/13/18 12/13/18

File:P616033 #1-312 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024

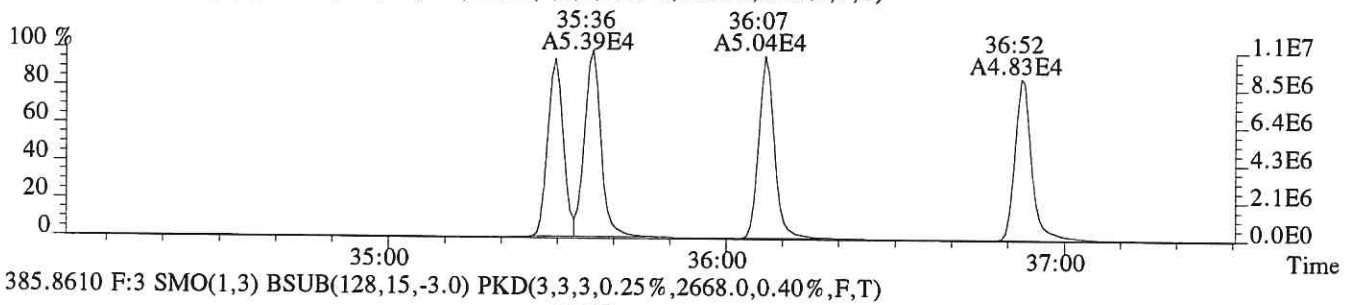
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2304.0,0.40%,F,T)



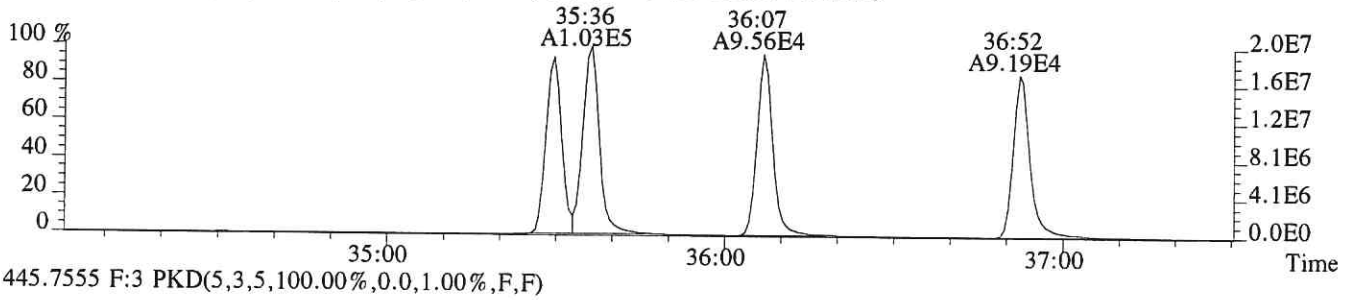
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



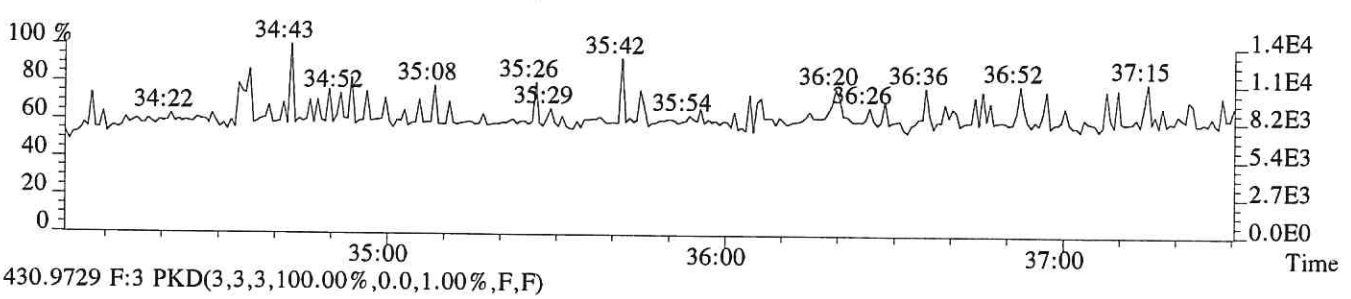
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2056.0,0.40%,F,T)



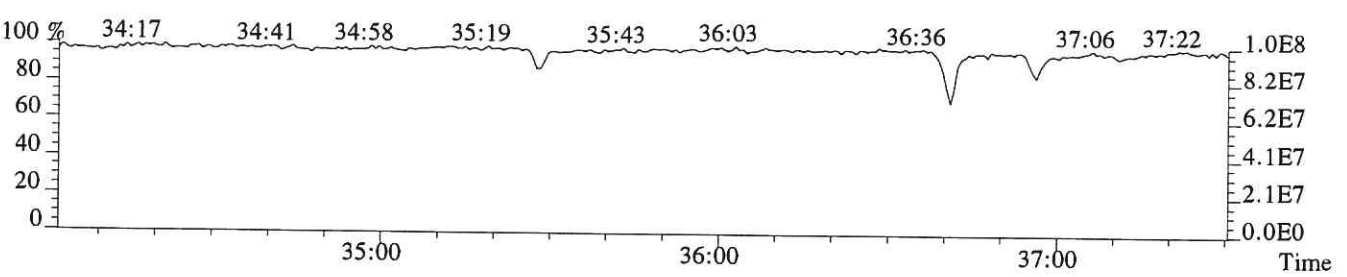
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2668.0,0.40%,F,T)



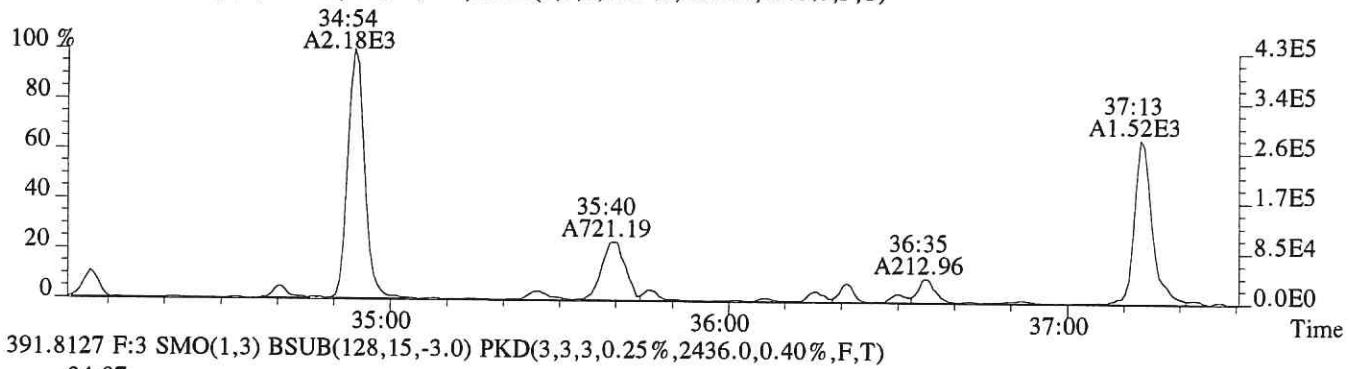
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



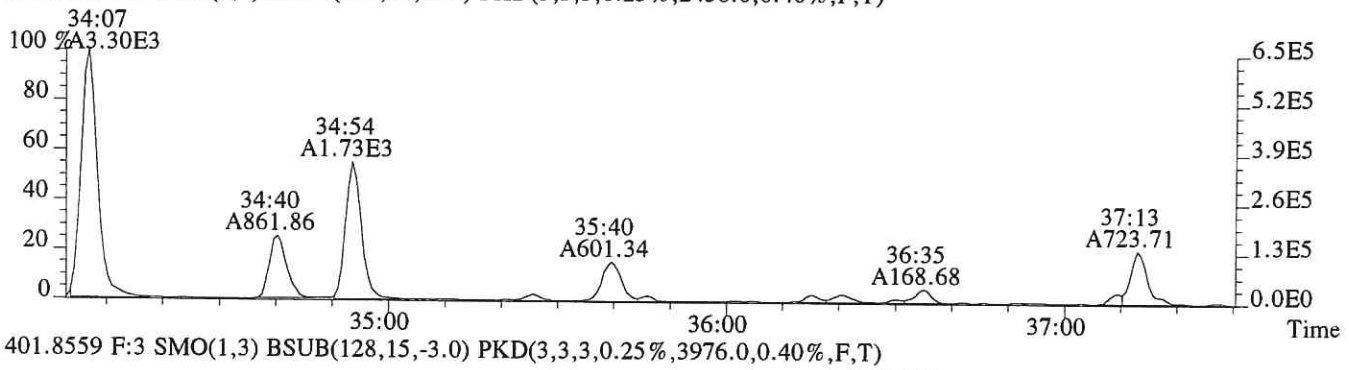
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



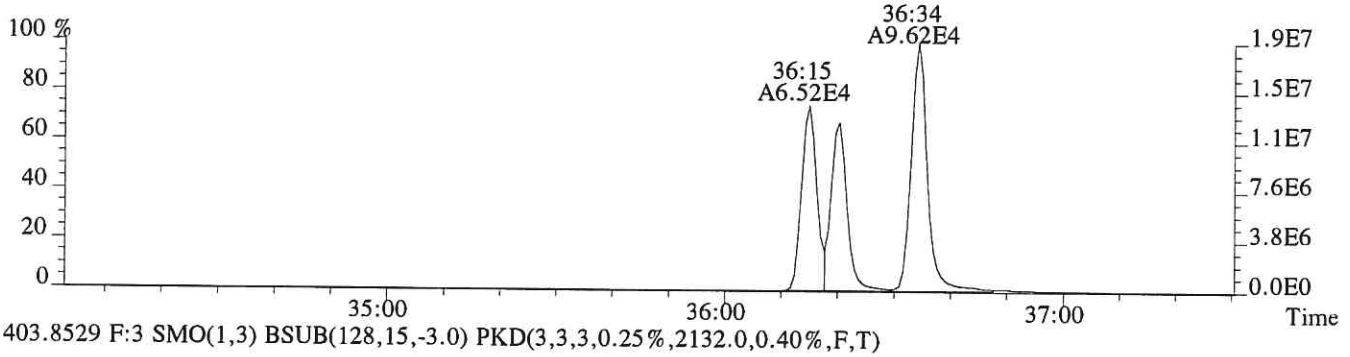
File:P616033 #1-312 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



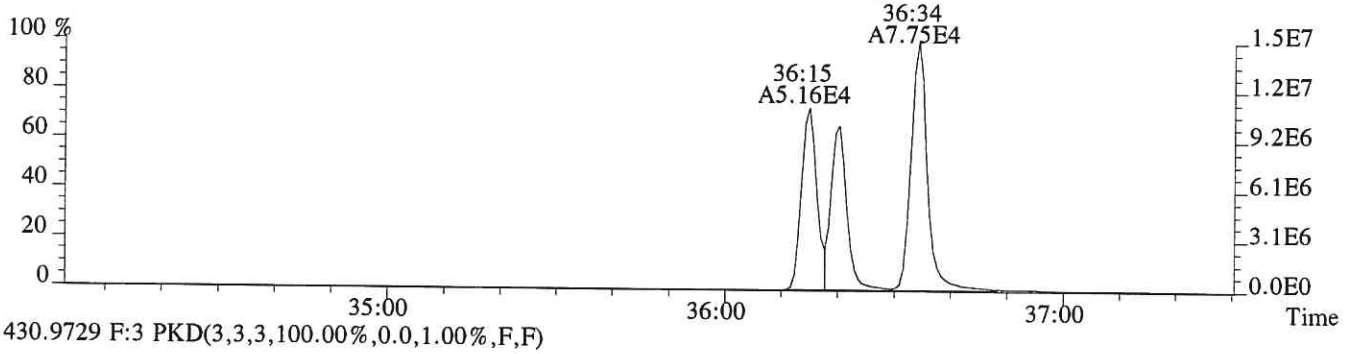
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2436.0,0.40%,F,T)



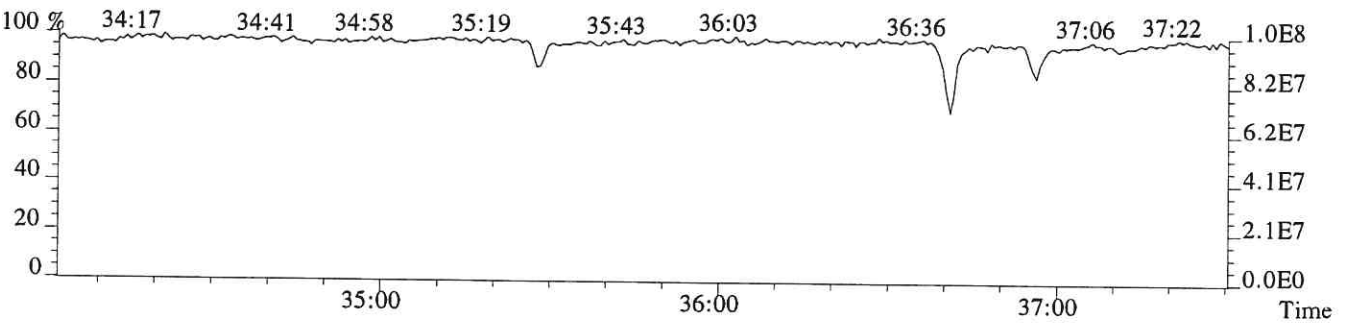
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3976.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2132.0,0.40%,F,T)

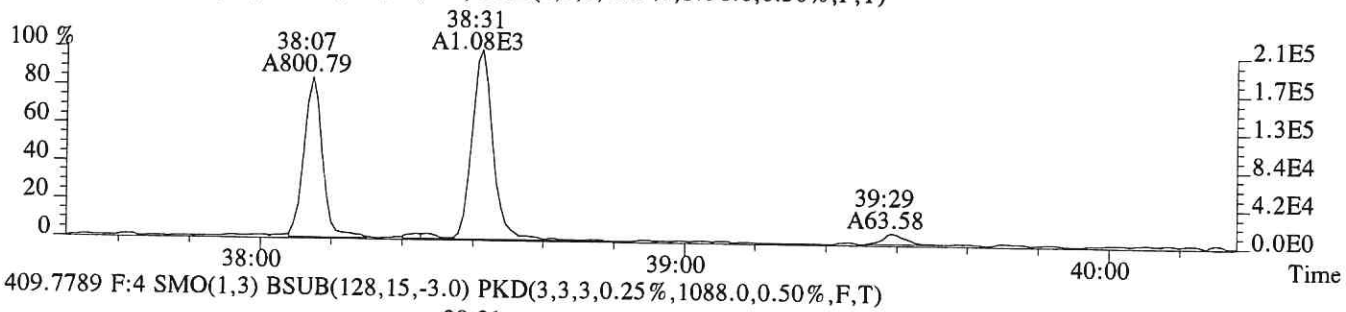


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

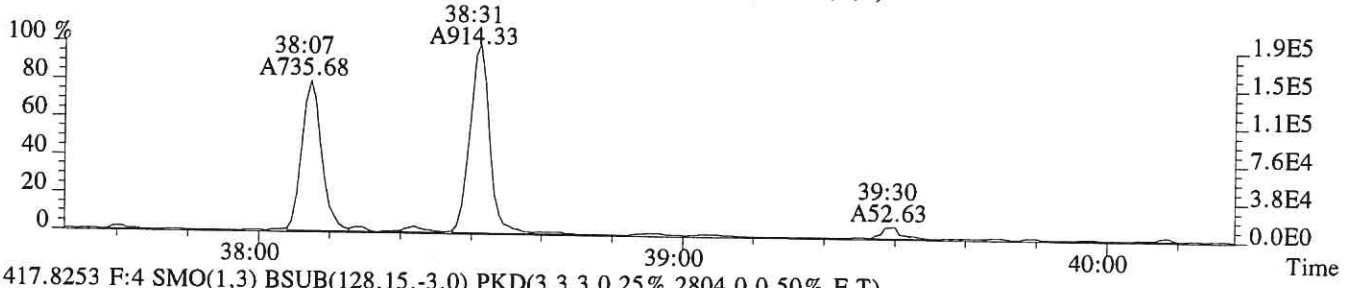


File:P616033 #1-249 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024

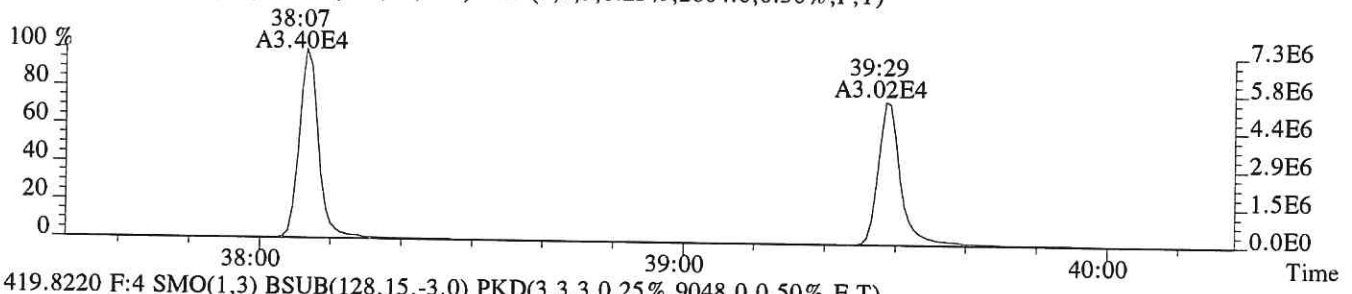
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.50%,F,T)



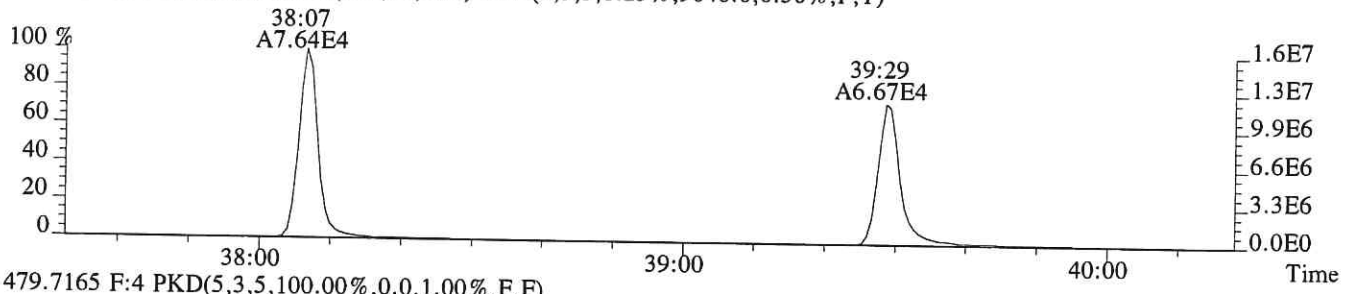
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.50%,F,T)



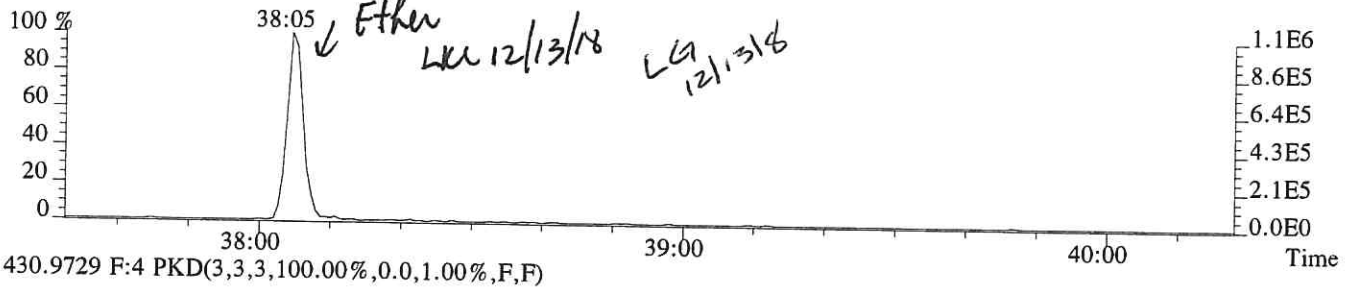
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2804.0,0.50%,F,T)



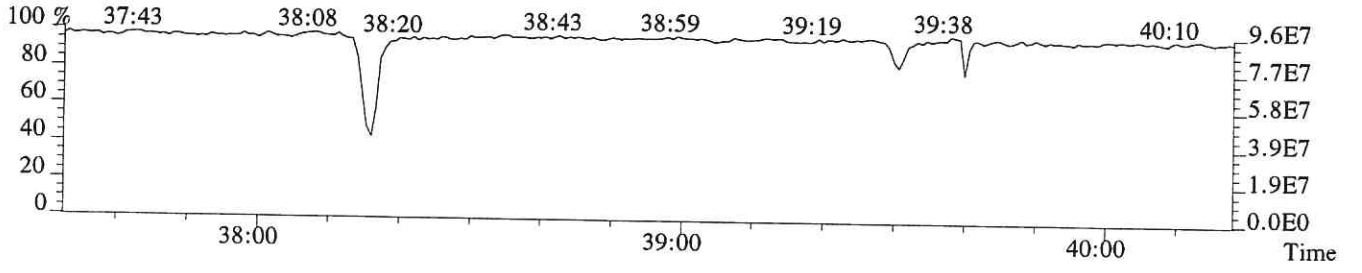
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9048.0,0.50%,F,T)



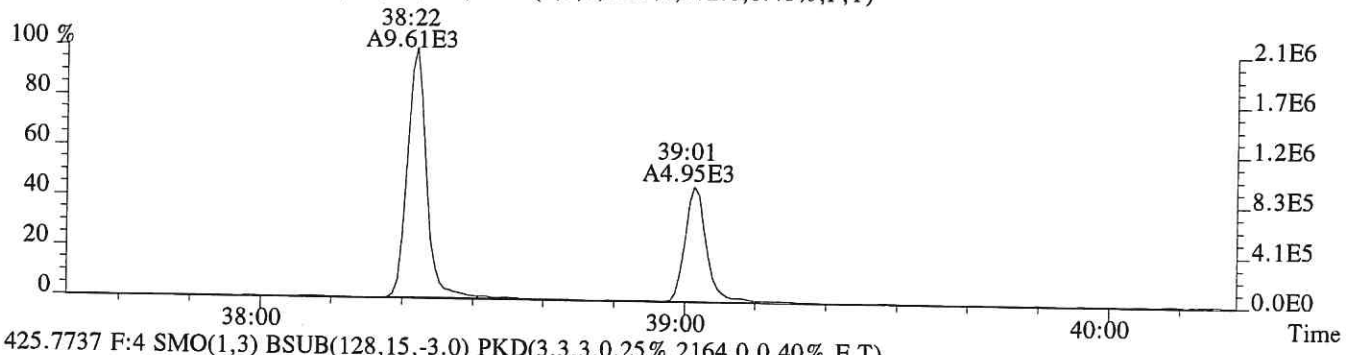
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



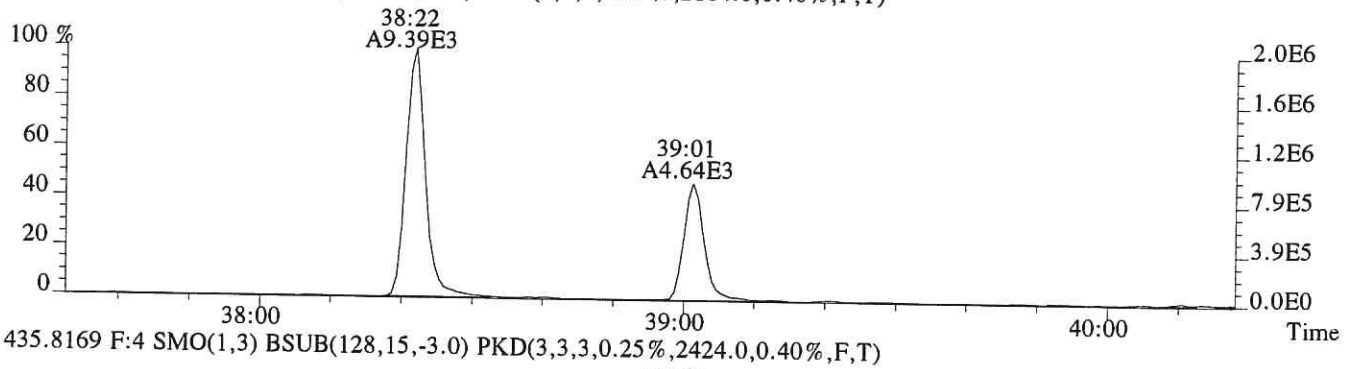
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



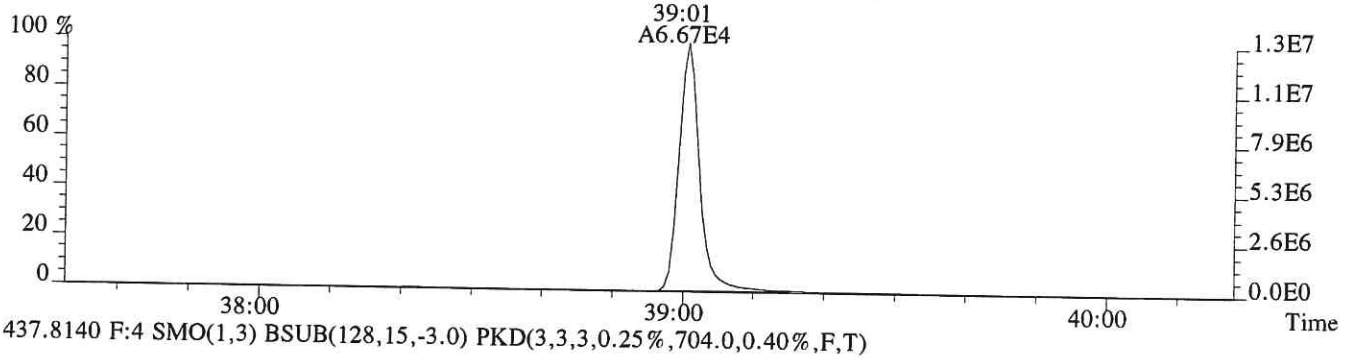
File:P616033 #1-249 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



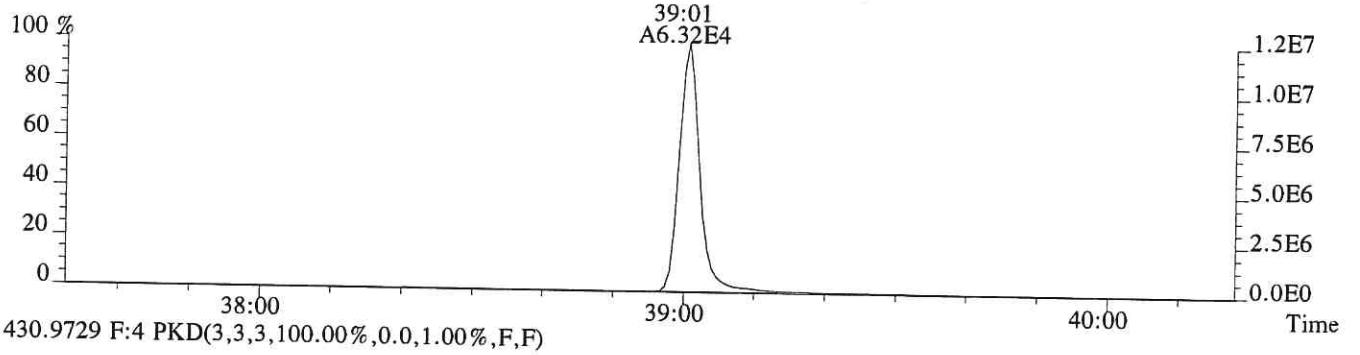
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



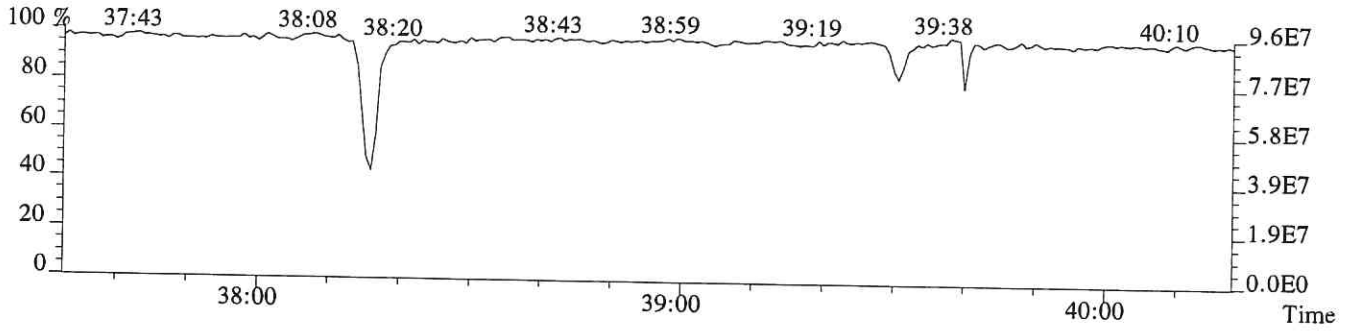
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2424.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)

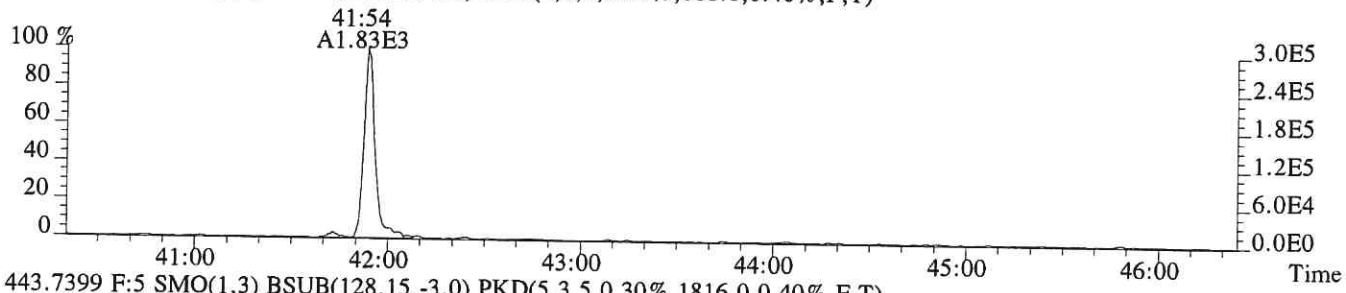


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

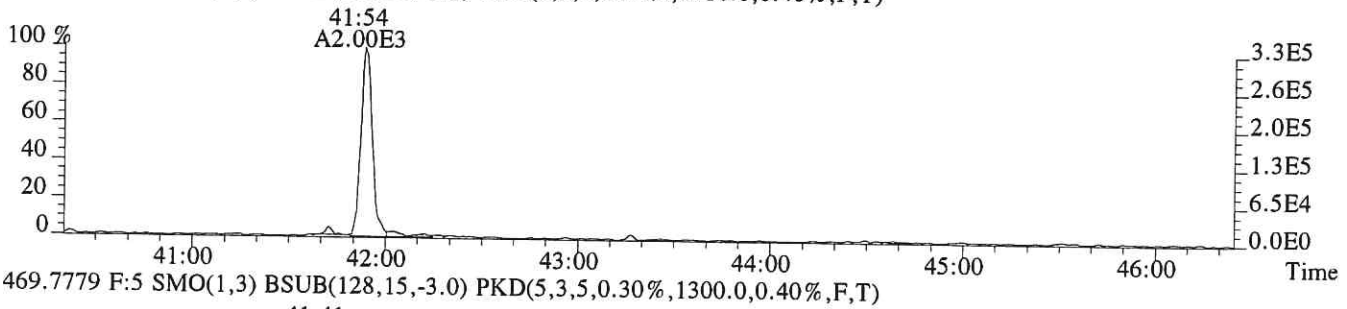


File:P616033 #1-547 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024

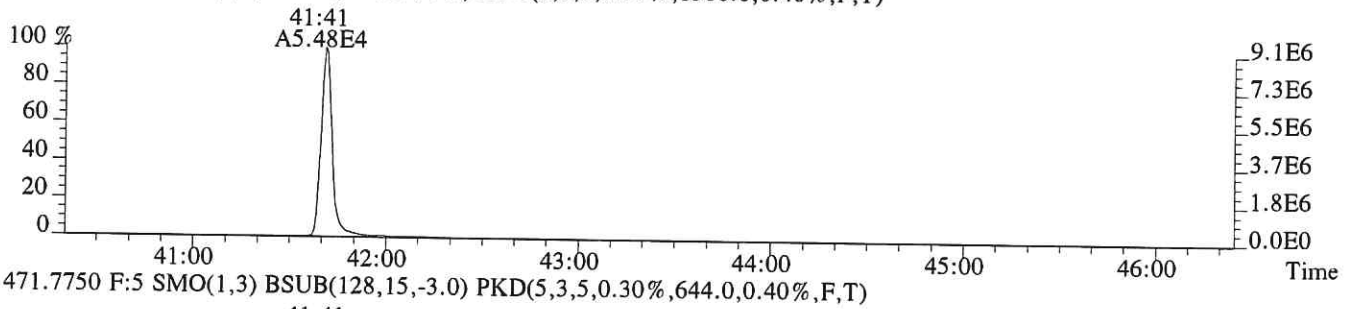
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



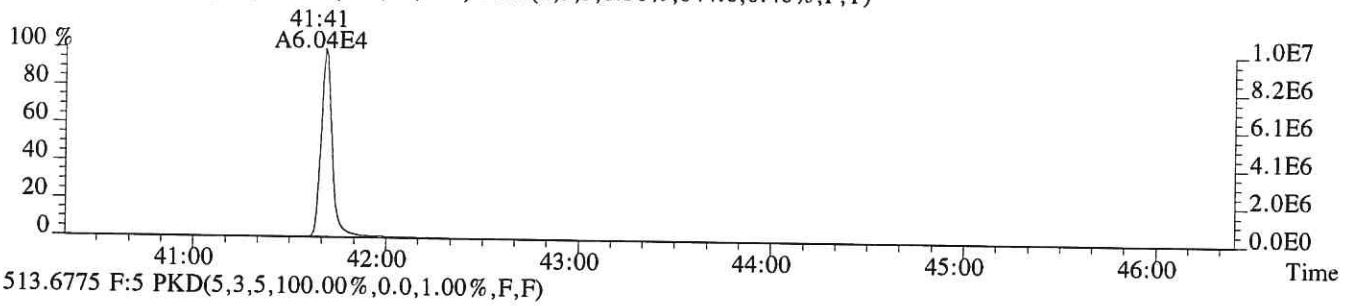
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1816.0,0.40%,F,T)



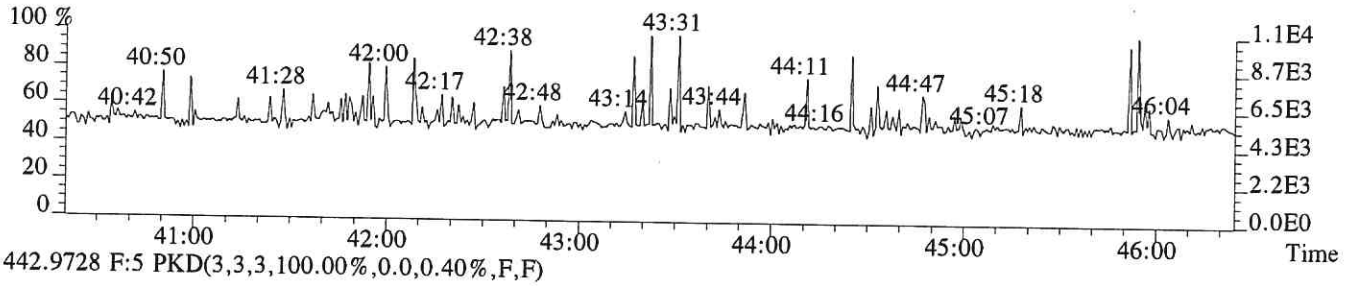
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



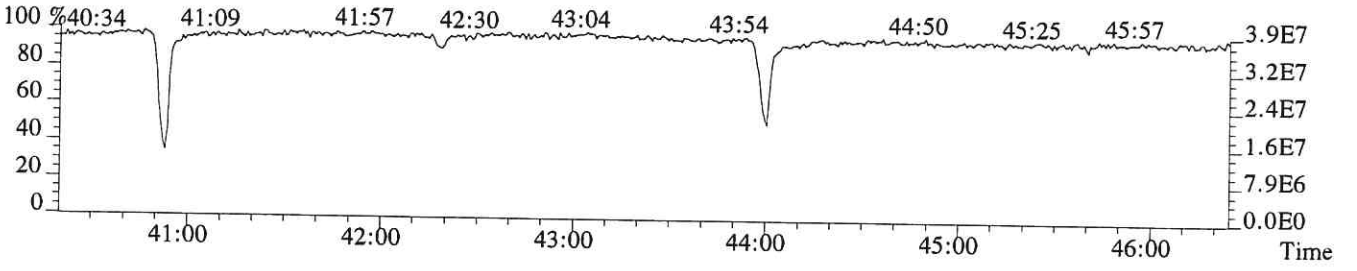
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



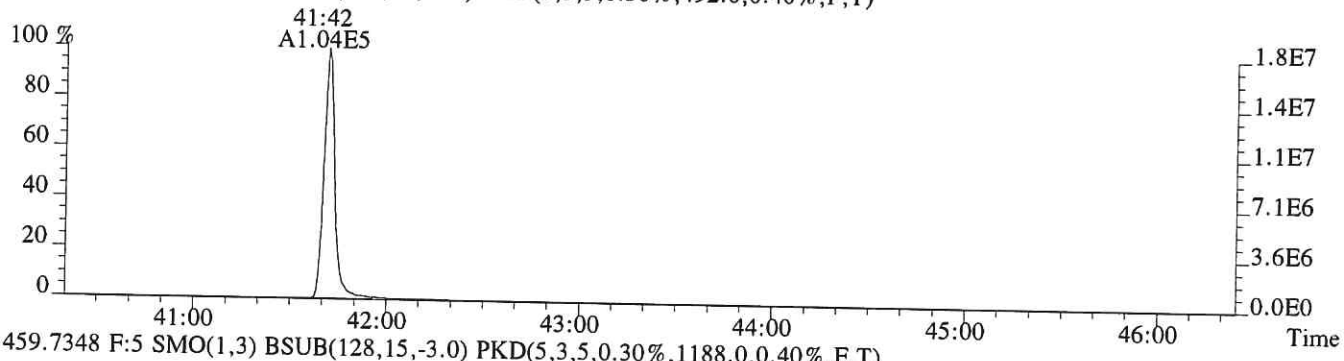
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



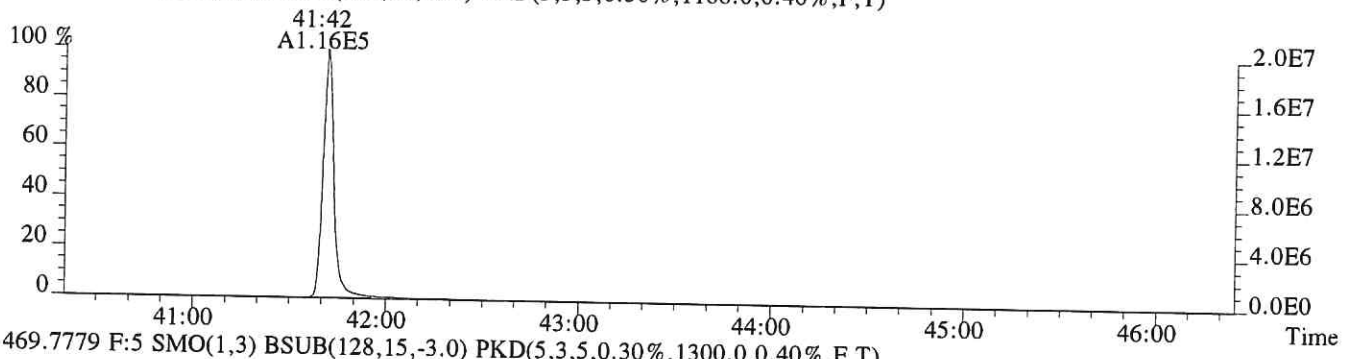
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



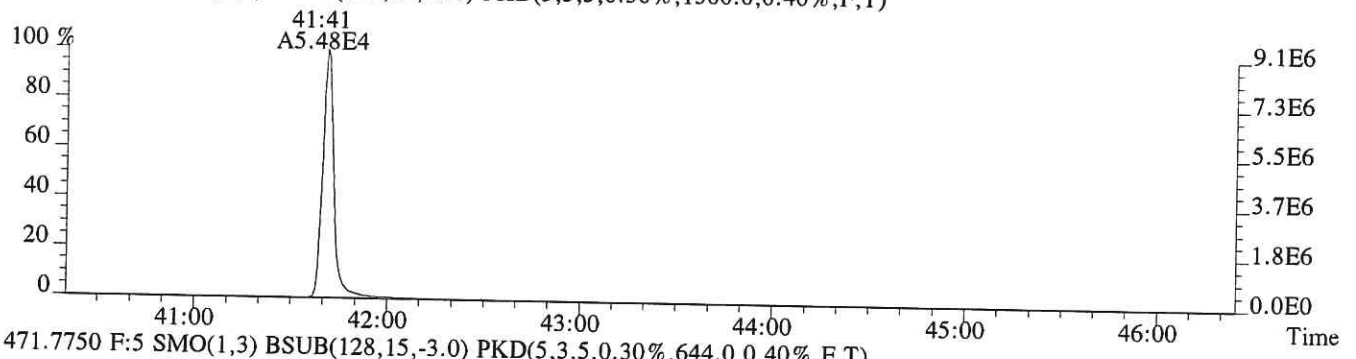
File:P616033 #1-547 Acq:11-DEC-2018 03:23:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-024
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



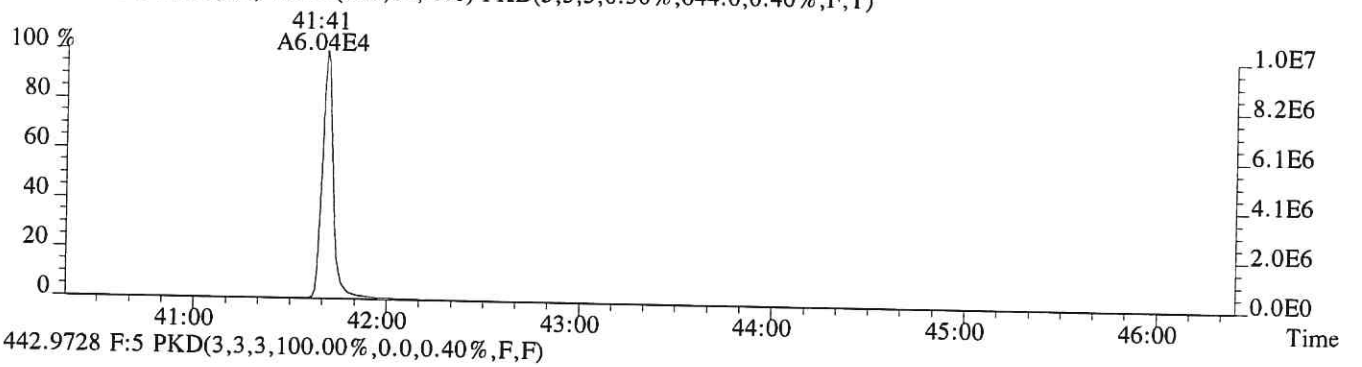
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1188.0,0.40%,F,T)



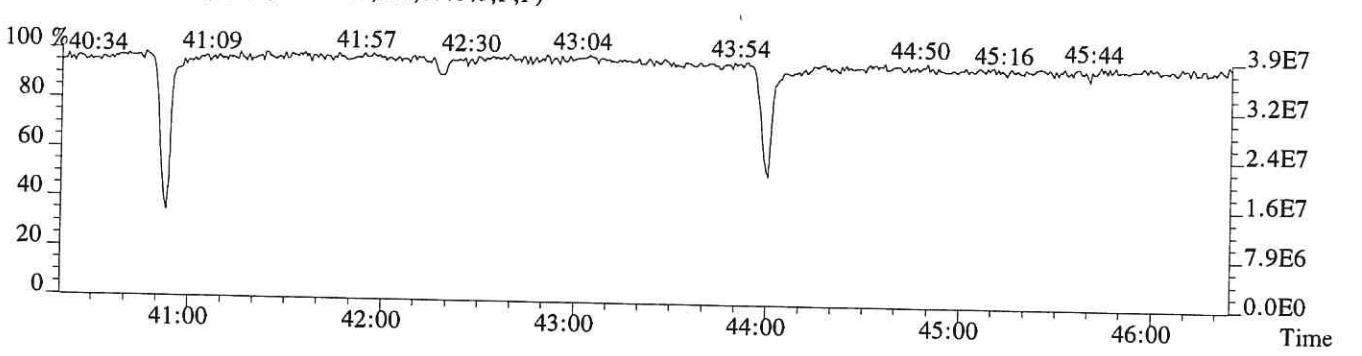
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0575

Run #16 Filename P616034 Samp: 1 Inj: 1 Acquired: 11-DEC-18 04:12:33
Processed: 13-DEC-18 08:55:12 Sample ID: E1801065-025

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:32	2.772e+02	2.933e+02	0.95	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:31	1.080e+01	1.496e+01	0.72	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	8.451e+00	8.937e+00	0.95	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:54	9.562e+00	1.571e+01	0.61	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	2.461e+01	1.530e+01	1.61	no	yes	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.571
11	Unk	2,3,7,8-TCDD	28:20	5.008e+01	8.689e+01	0.58	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:16	3.002e+01	2.330e+01	1.29	yes	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:21	4.575e+01	3.908e+01	1.17	yes	yes	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:34	4.133e+01	5.830e+01	0.71	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.001e+03	9.863e+02	1.01	yes	no	1.112
17	Unk	OCDD	41:42	2.336e+04	2.590e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	4.936e+04	6.321e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	9.331e+04	5.872e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:48	9.898e+04	6.229e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	4.724e+04	8.823e+04	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	5.121e+04	9.661e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	4.776e+04	9.099e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	4.755e+04	9.061e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	3.360e+04	7.362e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	2.985e+04	6.500e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	2.396e+04	3.081e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	7.353e+04	4.657e+04	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:15	6.259e+04	4.910e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	6.048e+04	4.791e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	6.279e+04	5.942e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:41	5.262e+04	5.756e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:42	6.857e+04	8.620e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	9.448e+04	7.368e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:21	3.503e+04				no	1.086

$$\text{OCDD} = \frac{(2.336e+04 + 2.590e+04) \times 4000\ \text{pg} \times 1}{(5.262e+04 + 5.756e+04) \times 10.85\ \text{g} \times 81.7 / 100 \times 1.157} = 144.9322\ \text{ng/kg}$$

LG 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0575

Run #16 Filename P616034 Samp: 1 Inj: 1 Acquired: 11-DEC-18 04:12:33
Processed: 13-DEC-18 08:55:12 LAB. ID: E1801065-025

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.45e+04	7.80e+02	5.7e+01	5.54e+04	3.60e+03	1.5e+01
2	1,2,3,7,8-PeCDF	*	7.00e+02	*	*	3.18e+03	*
3	2,3,4,7,8-PeCDF	*	7.00e+02	*	*	3.18e+03	*
4	1,2,3,4,7,8-HxCDF	3.49e+03	4.20e+02	8.3e+00	3.39e+03	6.52e+02	5.2e+00
5	1,2,3,6,7,8-HxCDF	2.07e+03	4.20e+02	4.9e+00	2.49e+03	6.52e+02	3.8e+00
6	2,3,4,6,7,8-HxCDF	*	4.20e+02	*	*	6.52e+02	*
7	1,2,3,7,8,9-HxCDF	2.60e+03	4.20e+02	6.2e+00	4.16e+03	6.52e+02	6.4e+00
8	1,2,3,4,6,7,8-HpCDF	6.16e+03	8.24e+02	7.5e+00	2.56e+03	5.48e+02	4.7e+00
9	1,2,3,4,7,8,9-HpCDF	*	8.24e+02	*	*	5.48e+02	*
10	OCDF	*	9.24e+02	*	*	2.02e+03	*
11	2,3,7,8-TCDD	1.08e+04	2.54e+03	4.2e+00	1.68e+04	2.44e+03	6.9e+00
12	1,2,3,7,8-PeCDD	*	1.18e+03	*	*	1.07e+03	*
13	1,2,3,4,7,8-HxCDD	6.30e+03	2.00e+03	3.1e+00	4.28e+03	1.53e+03	2.8e+00
14	1,2,3,6,7,8-HxCDD	8.94e+03	2.00e+03	4.5e+00	7.19e+03	1.53e+03	4.7e+00
15	1,2,3,7,8,9-HxCDD	8.89e+03	2.00e+03	4.4e+00	1.11e+04	1.53e+03	7.2e+00
16	1,2,3,4,6,7,8-HpCDD	1.95e+05	7.04e+02	2.8e+02	1.90e+05	1.05e+03	1.8e+02
17	OCDD	3.95e+06	5.56e+02	7.1e+03	4.30e+06	1.25e+03	3.4e+03
18	13C-2,3,7,8-TCDF	7.96e+06	1.05e+04	7.6e+02	1.04e+07	7.00e+03	1.5e+03
19	13C-1,2,3,7,8-PeCDF	1.68e+07	8.44e+02	2.0e+04	1.05e+07	7.76e+02	1.4e+04
20	13C-2,3,4,7,8-PeCDF	1.79e+07	8.44e+02	2.1e+04	1.13e+07	7.76e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	9.98e+06	1.60e+03	6.2e+03	1.87e+07	2.20e+03	8.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.01e+07	1.60e+03	6.3e+03	1.92e+07	2.20e+03	8.7e+03
23	13C-2,3,4,6,7,8-HxCDF	9.67e+06	1.60e+03	6.0e+03	1.84e+07	2.20e+03	8.4e+03
24	13C-1,2,3,7,8,9-HxCDF	8.78e+06	1.60e+03	5.5e+03	1.67e+07	2.20e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.15e+06	4.31e+03	1.7e+03	1.57e+07	5.73e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.29e+06	4.31e+03	1.2e+03	1.16e+07	5.73e+03	2.0e+03
27	13C-2,3,7,8-TCDD	4.05e+06	1.12e+04	3.6e+02	5.31e+06	6.87e+03	7.7e+02
28	13C-1,2,3,7,8-PeCDD	1.29e+07	1.69e+03	7.6e+03	8.22e+06	1.50e+03	5.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.36e+07	3.08e+03	4.4e+03	1.08e+07	1.79e+03	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.22e+07	3.08e+03	4.0e+03	9.70e+06	1.79e+03	5.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.23e+07	8.36e+02	1.5e+04	1.16e+07	7.68e+02	1.5e+04
32	13C-OCDD	8.79e+06	1.36e+03	6.5e+03	9.69e+06	8.36e+02	1.2e+04
33	13C-1,2,3,4-TCDD	1.20e+07	1.12e+04	1.1e+03	1.50e+07	6.87e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.85e+07	3.08e+03	6.0e+03	1.46e+07	1.79e+03	8.1e+03
35	37Cl-2,3,7,8-TCDD	5.89e+06	2.47e+03	2.4e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.540e+03 + 2.444e+03) \times 2000}{(4.045e+06 + 5.314e+06) \times (\quad) \times 1.049} =$$

ALS ENVIRONMENTAL
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Peak List Summary

CLIENT ID.
SL0575

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P616034 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 04:12:33 Processed: 13-DEC-18 08:55:12

Mass: 303.9020 305.8990 Tot Response: 2.46e+02 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:38	1.01e+02	1.45e+02 0.70	yes	2.46e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0575

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P616034 Sample:1 Injection:1 Function:2

Acquired: 11-DEC-18 04:12:33 Processed: 13-DEC-18 08:55:12

Mass: 355.8550 357.8520 Tot Response: 4.34e+01 RRF: 0.9288

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:25	2.61e+01	1.73e+01	1.51	yes	4.34e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0575

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P616034 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 04:12:33 Processed: 13-DEC-18 08:55:12

Mass: 389.8160 391.8130 Tot Response: 1.22e+03 RRF: 1.092

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:54	6.05e+02	4.81e+02	1.26	yes	1.09e+03		n	n
2	36:16	3.00e+01	2.33e+01	1.29	yes	5.33e+01	1,2,3,4,7,8-HxCDD	y	n
3	36:21	4.57e+01	3.91e+01	1.17	yes	8.48e+01	1,2,3,6,7,8-HxCDD	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0575

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P616034 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 04:12:33 Processed: 13-DEC-18 08:55:12

Mass: 423.7770 425.7740 Tot Response: 7.51e+03 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:22	2.80e+03	2.73e+03	1.03	yes	5.53e+03		n	n
2	39:01	1.00e+03	9.86e+02	1.01	yes	1.99e+03	1,2,3,4,6,7,8-HpCDD	n	n

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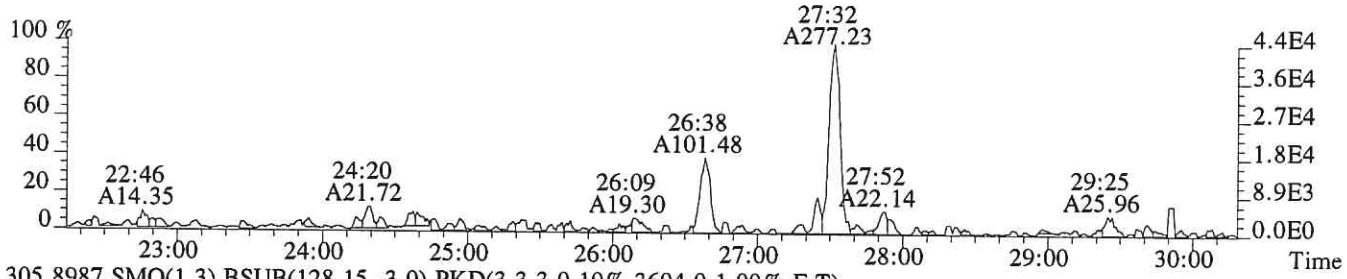
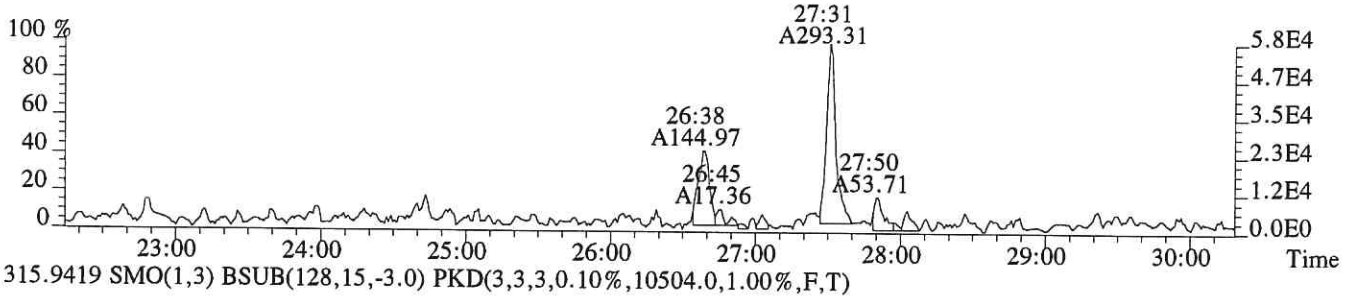
File:P616034 #1-573 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025

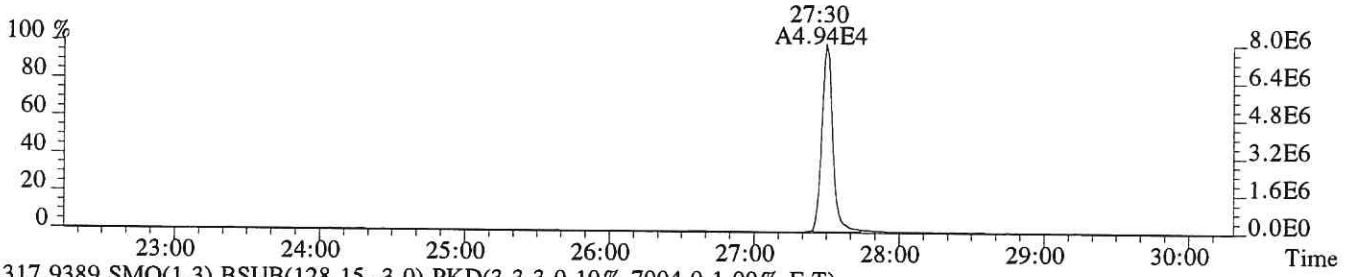
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



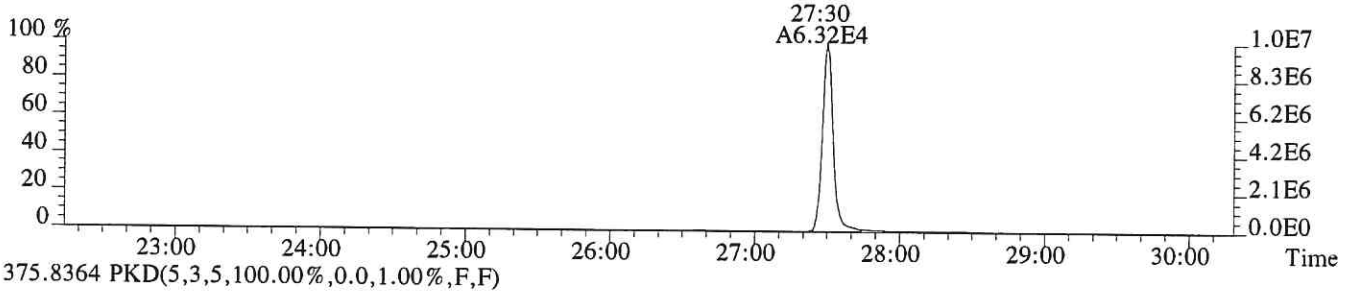
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3604.0,1.00%,F,T)



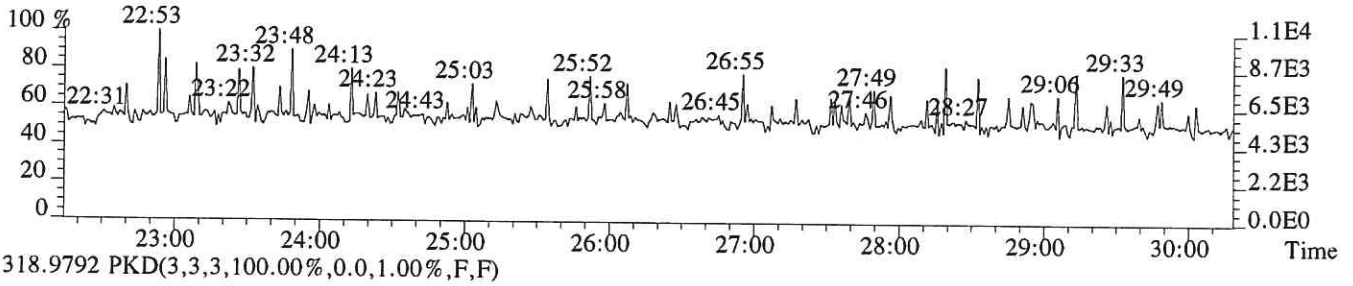
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10504.0,1.00%,F,T)



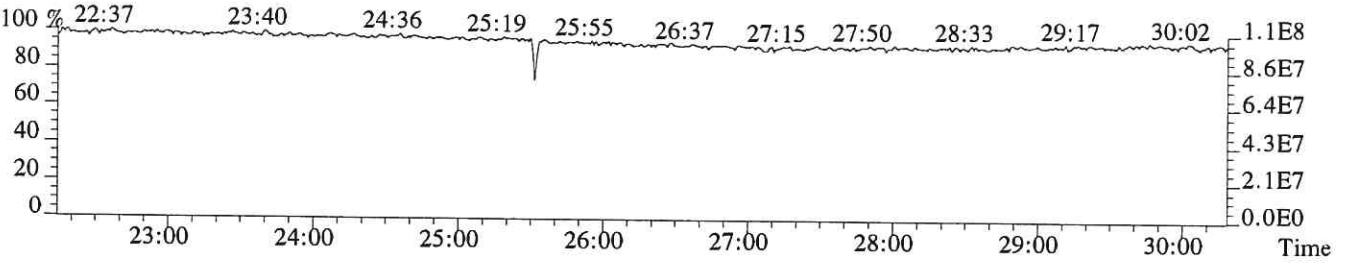
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7004.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

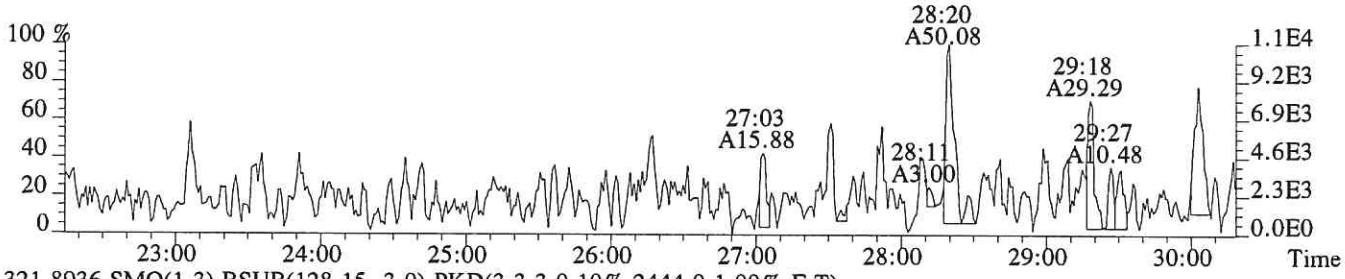


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

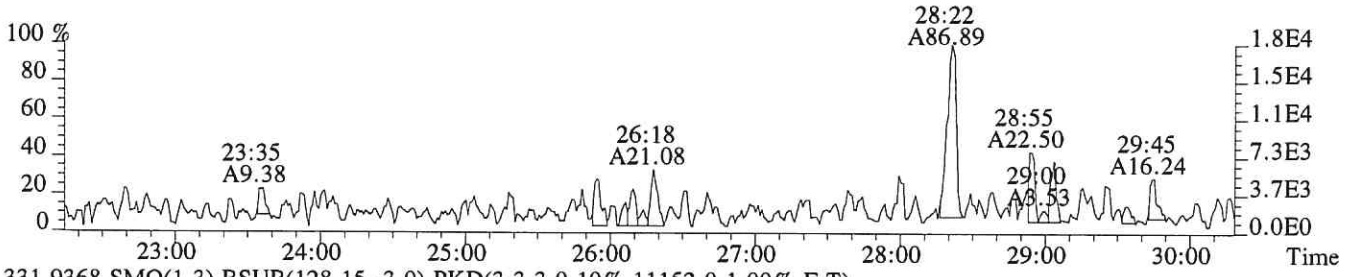


File:P616034 #1-573 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025

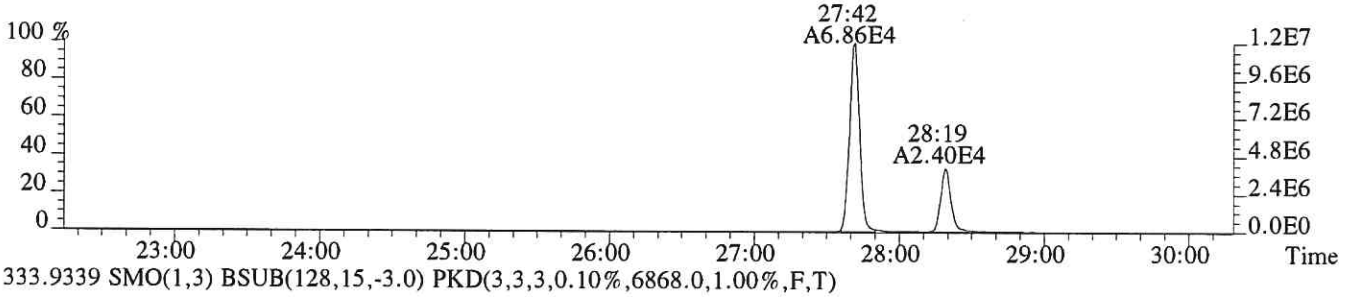
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)



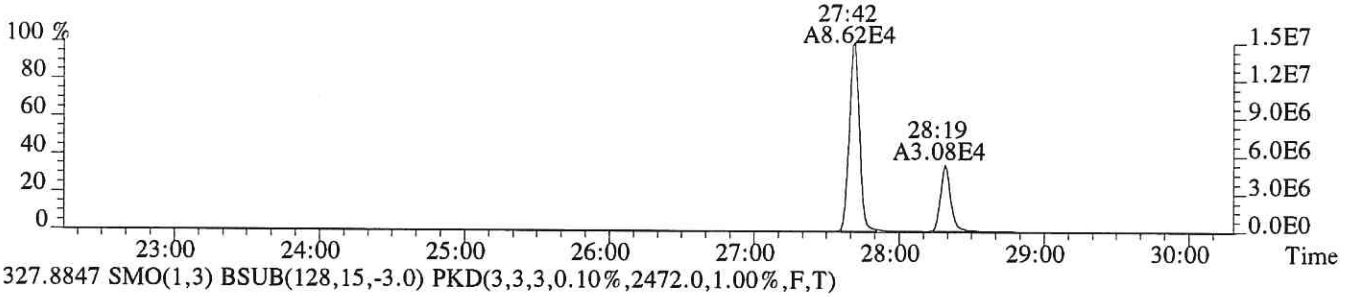
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



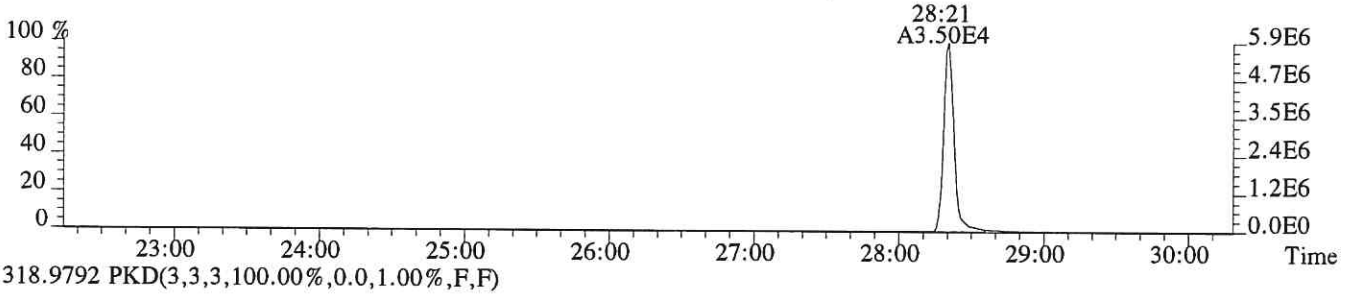
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11152.0,1.00%,F,T)



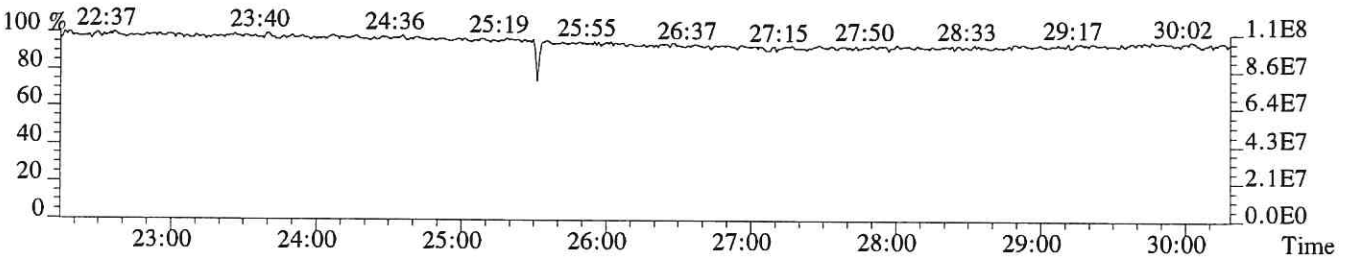
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6868.0,1.00%,F,T)



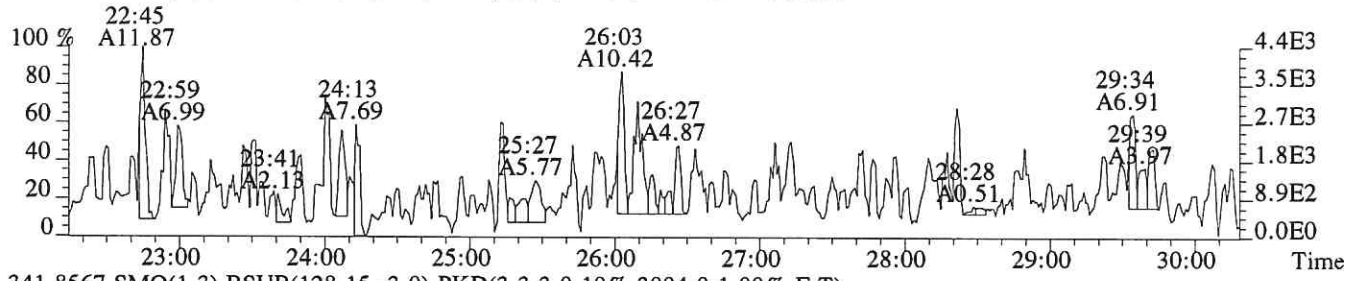
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2472.0,1.00%,F,T)



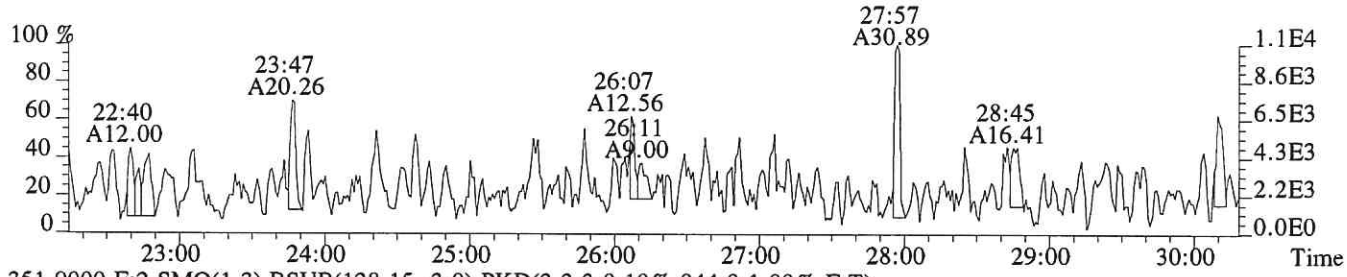
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



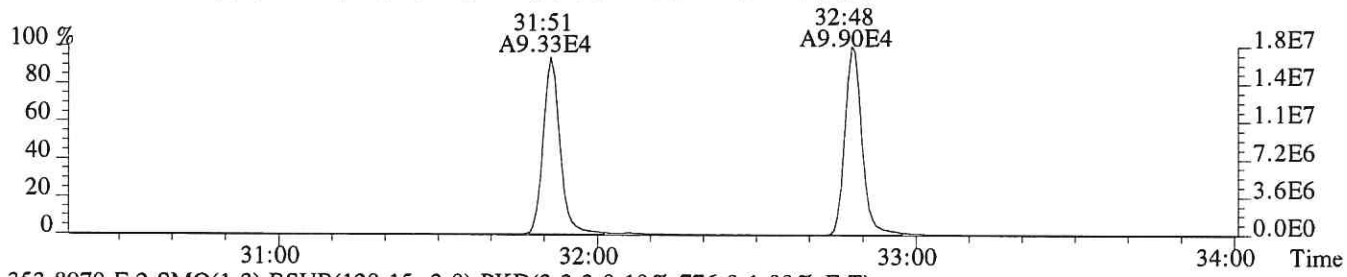
File:P616034 #1-573 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



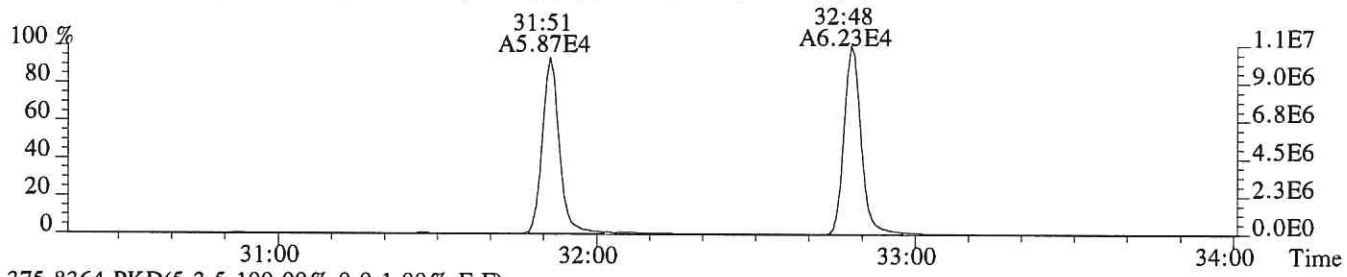
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3004.0,1.00%,F,T)



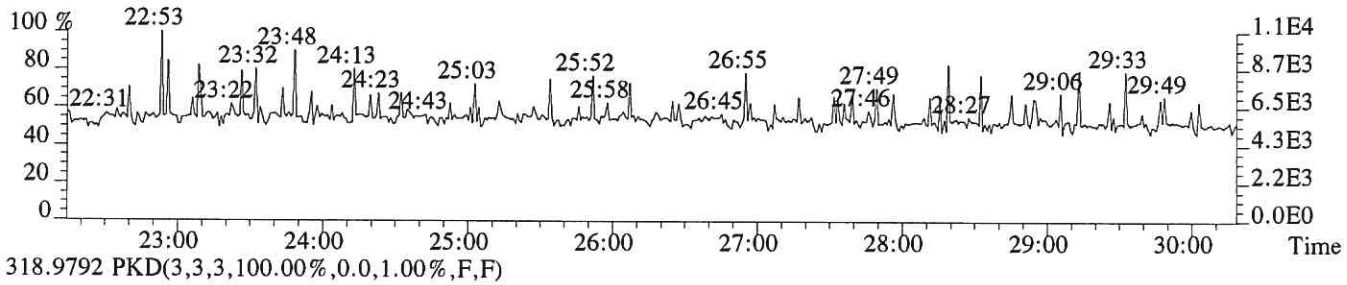
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



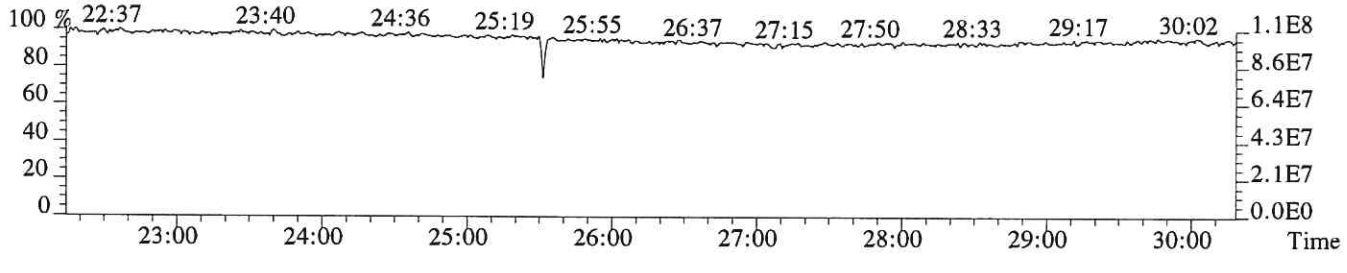
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



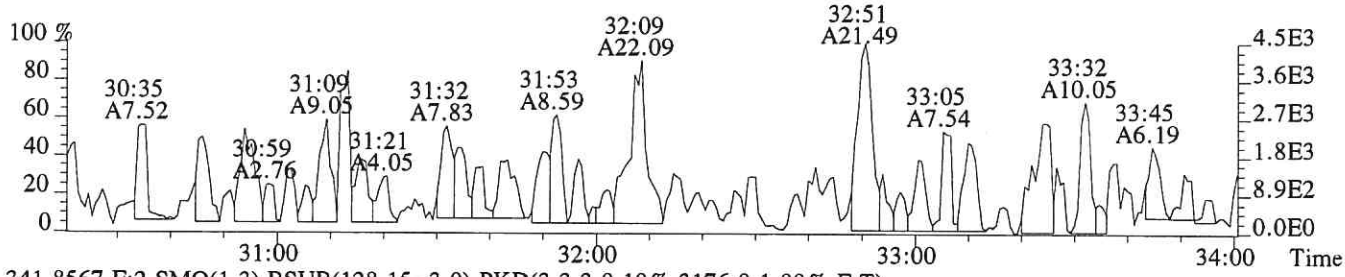
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



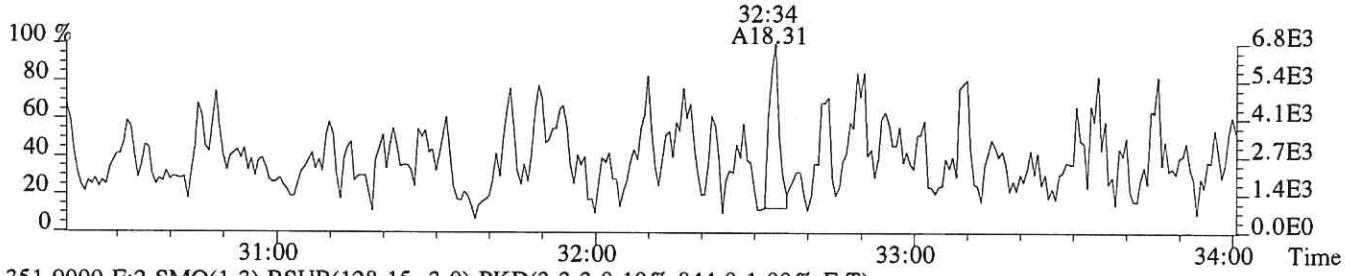
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



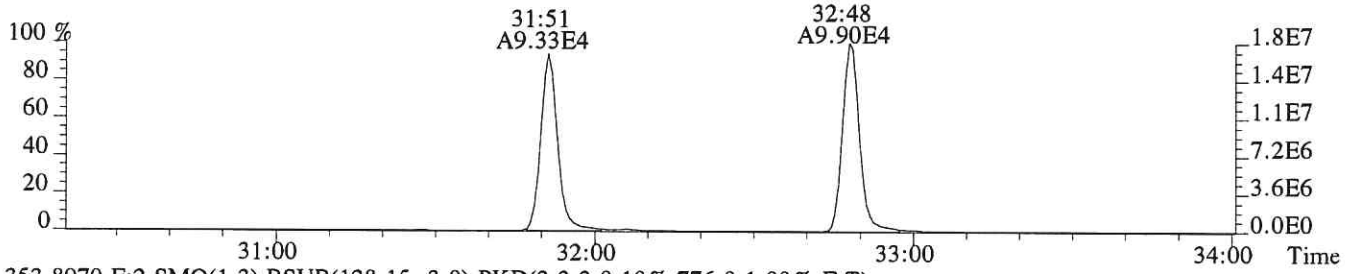
File:P616034 #1-331 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



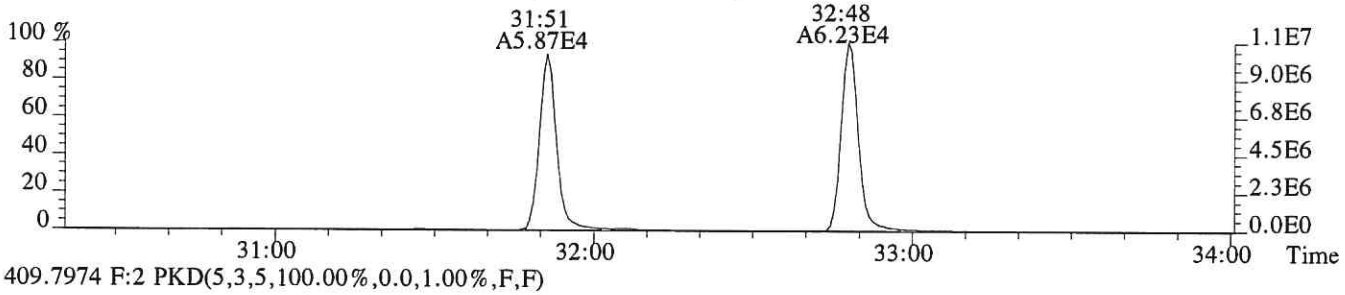
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3176.0,1.00%,F,T)



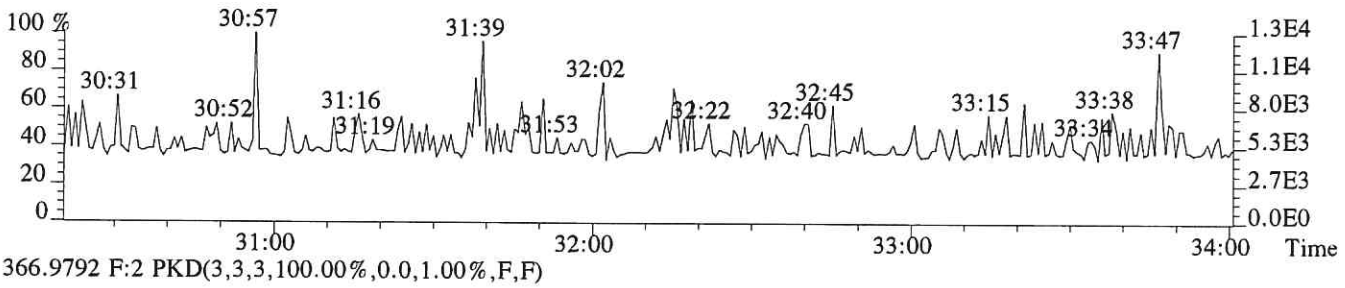
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



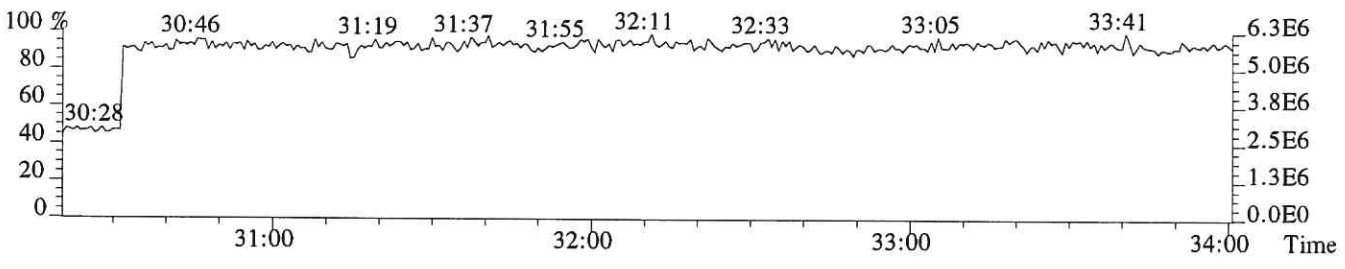
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



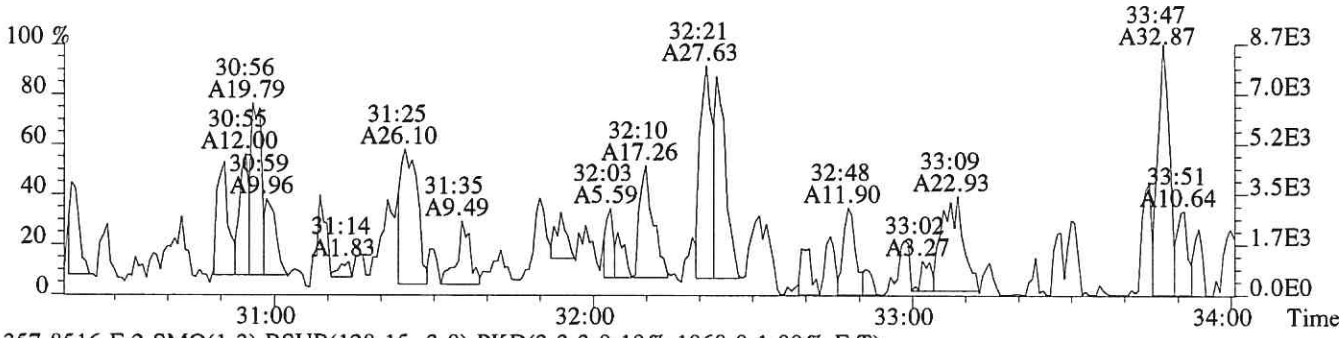
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



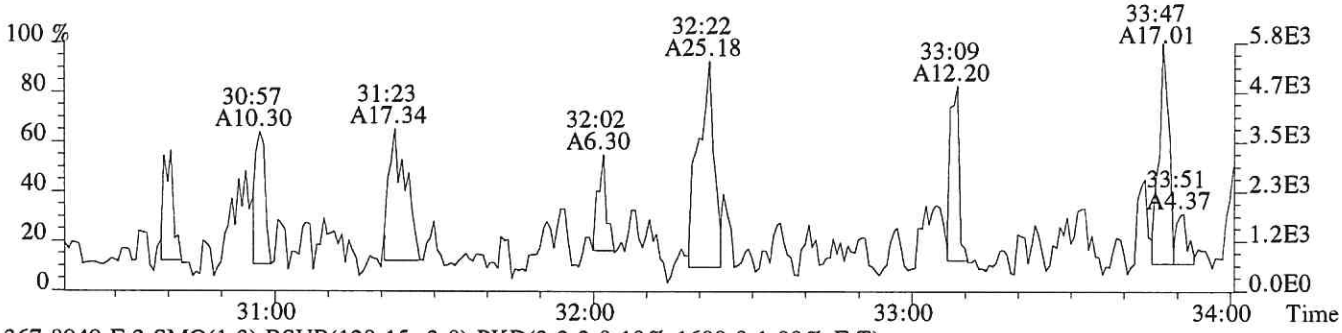
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



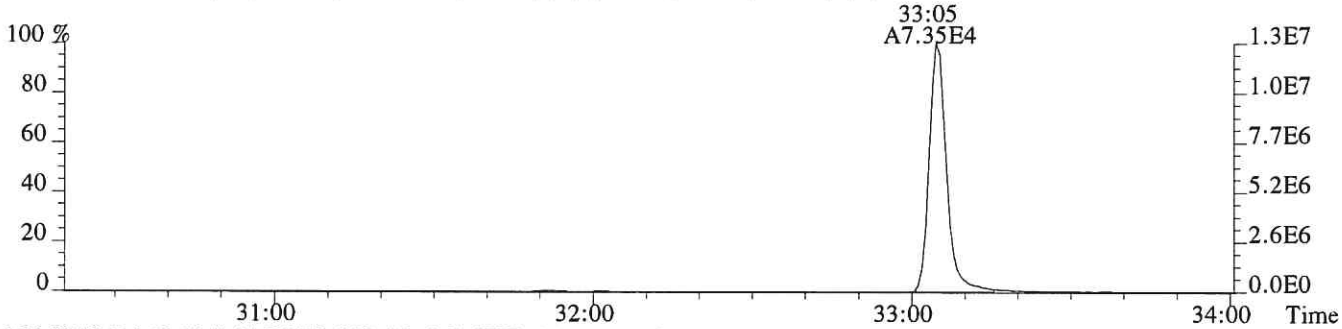
File:P616034 #1-331 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



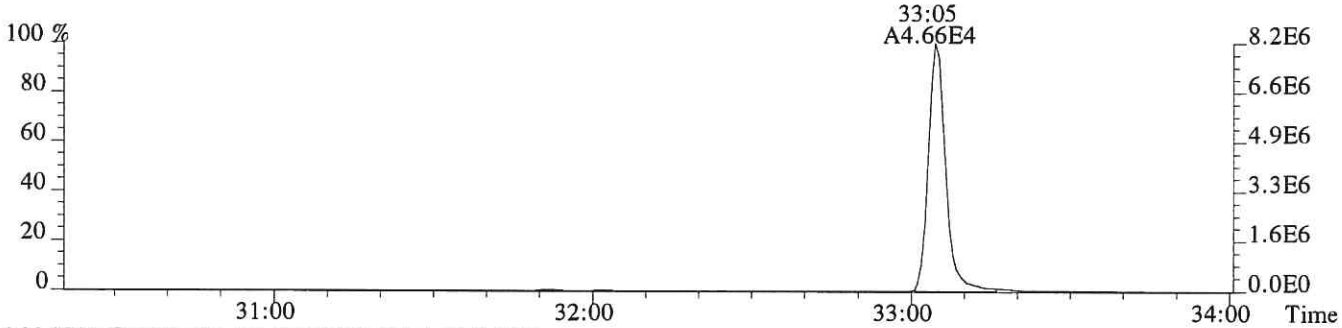
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



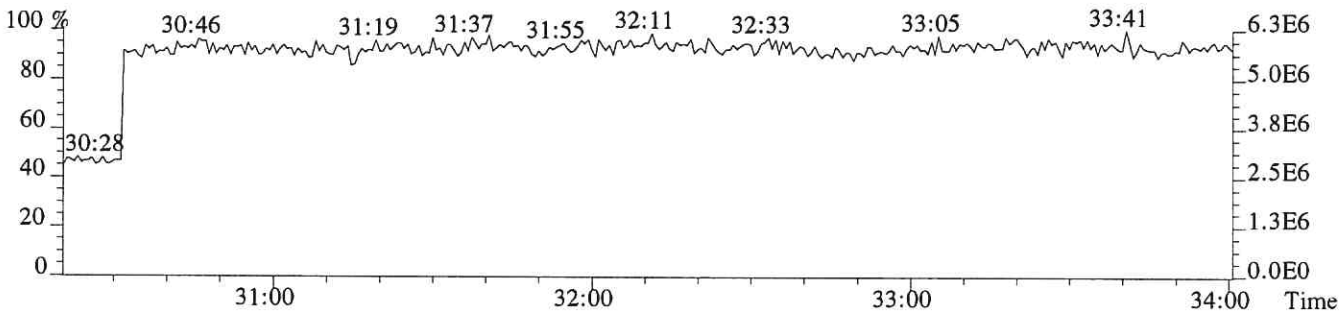
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)

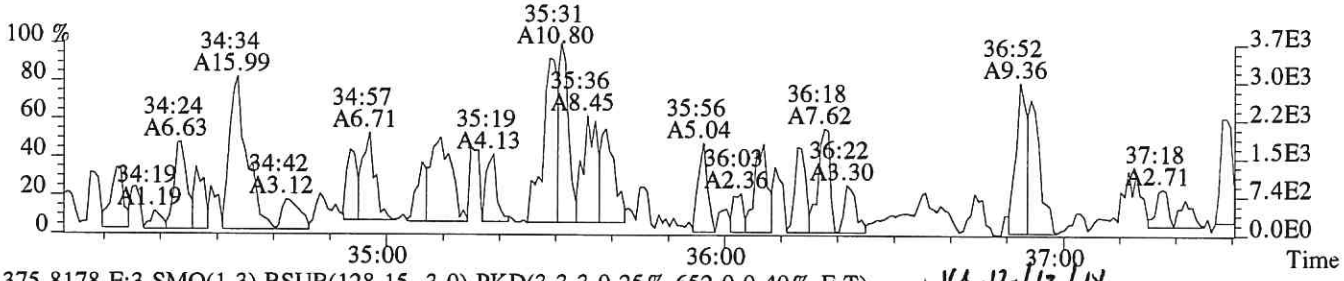


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616034 #1-312 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025

373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)

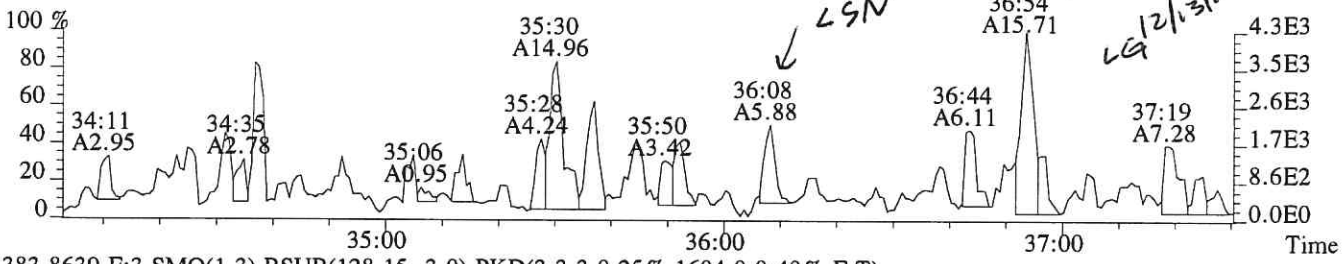


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)

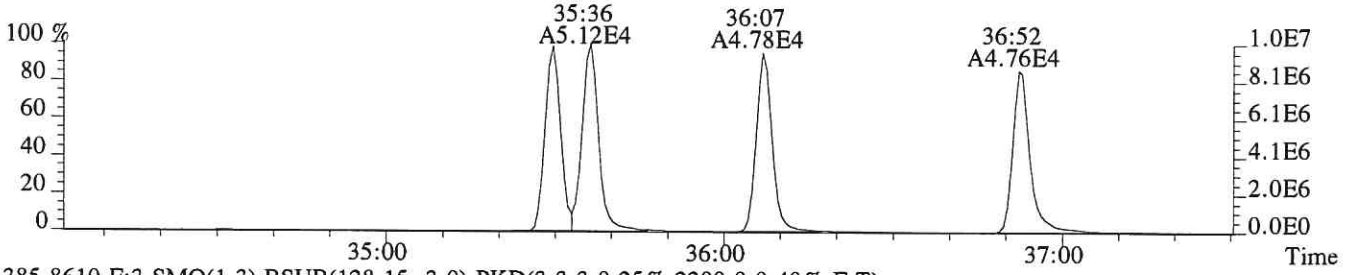
LCW 12/13/18

LSN

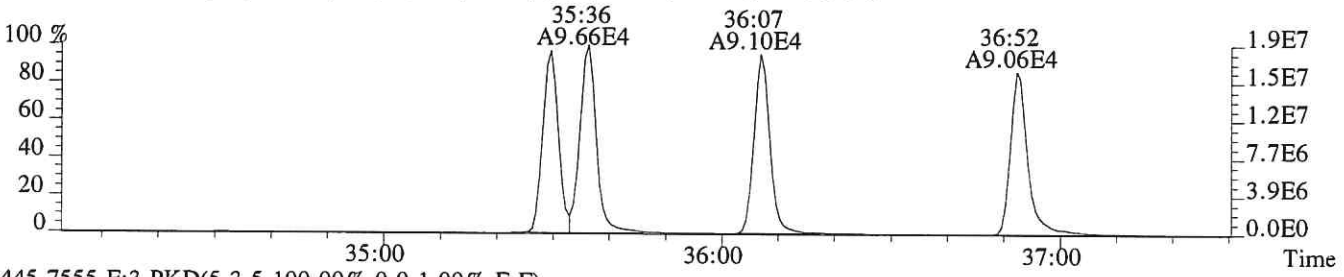
LG 12/13/18



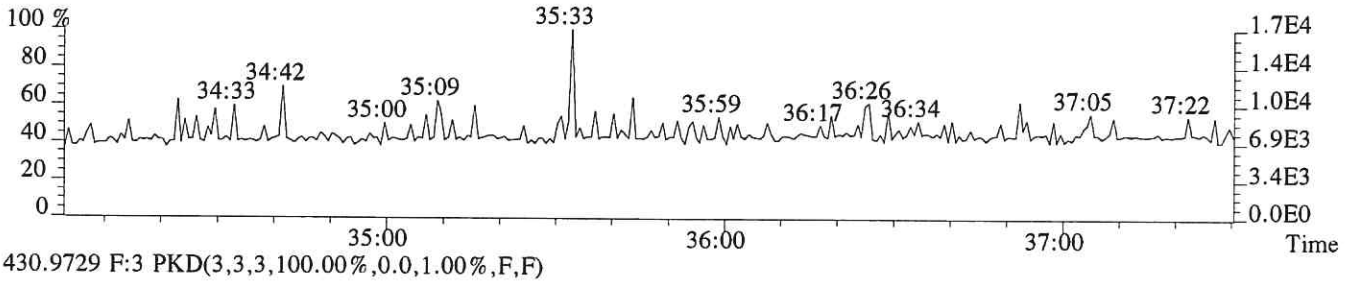
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)



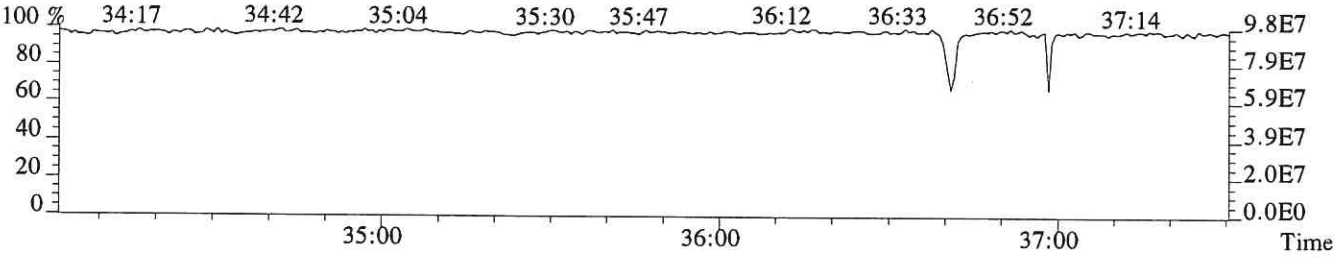
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.40%,F,T)



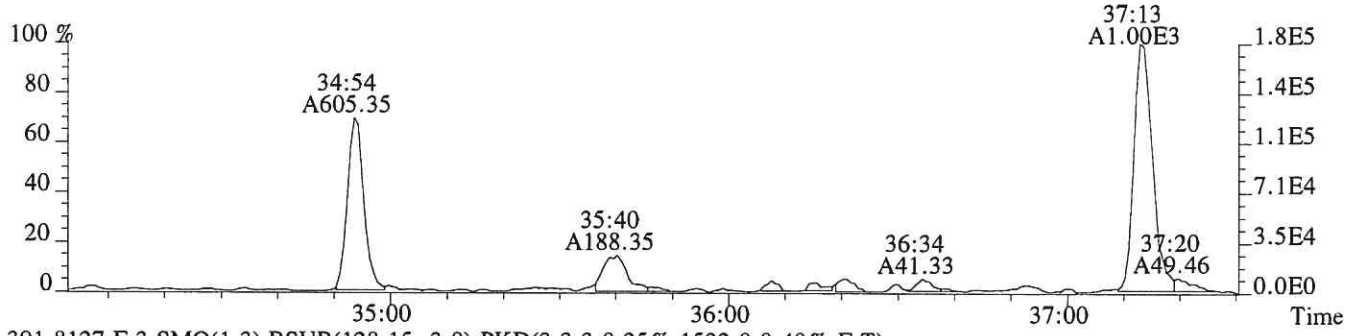
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



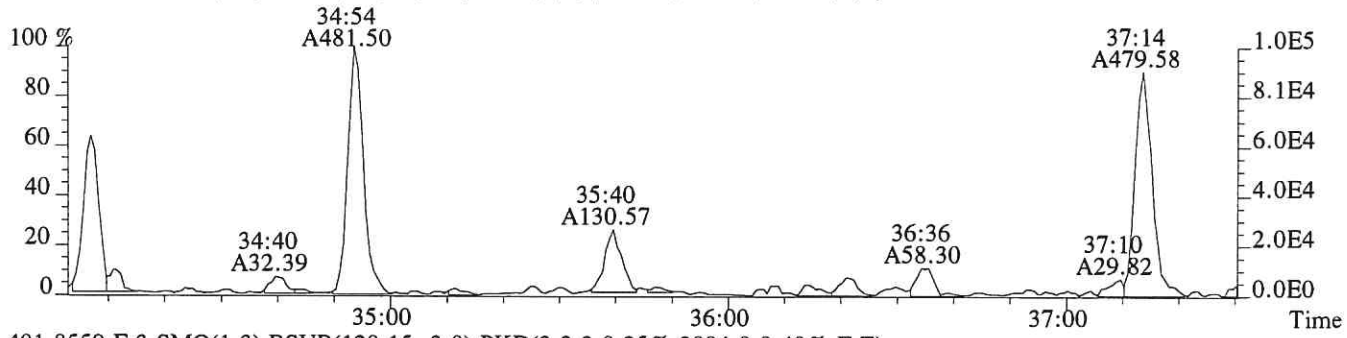
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



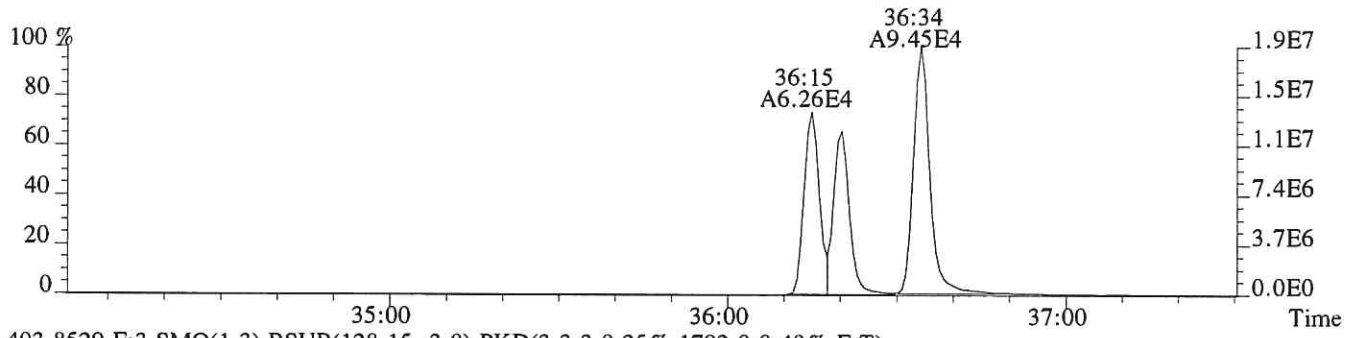
File:P616034 #1-312 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2000.0,0.40%,F,T)



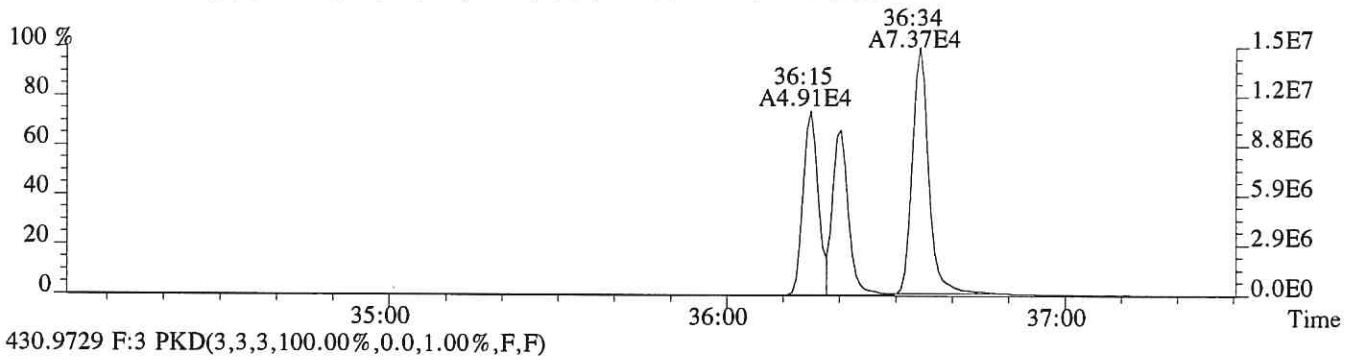
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)



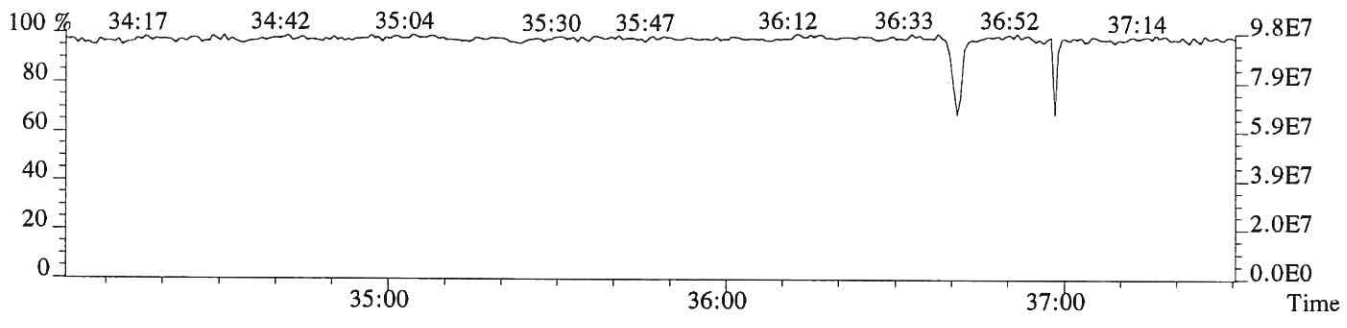
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



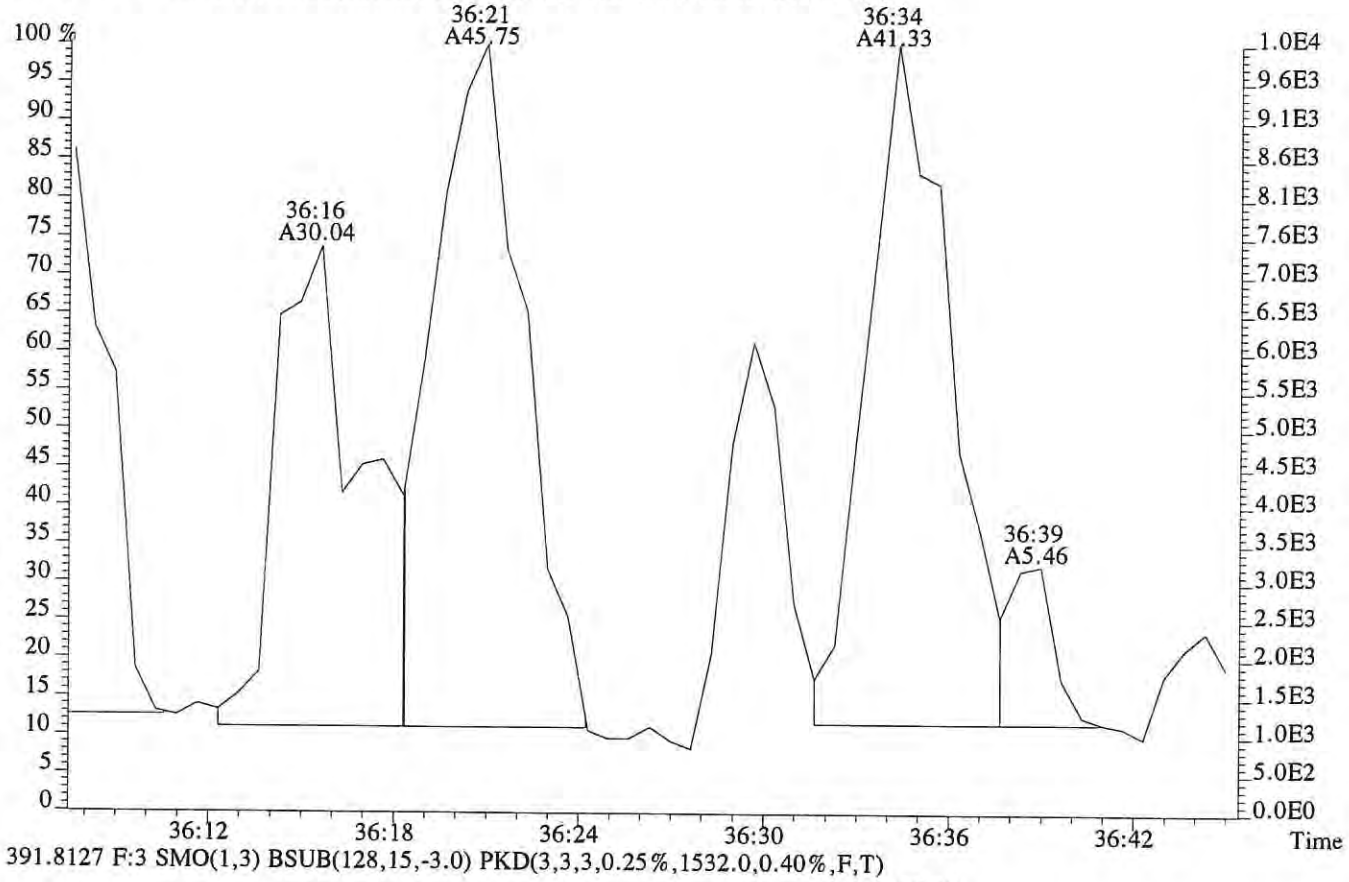
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.40%,F,T)



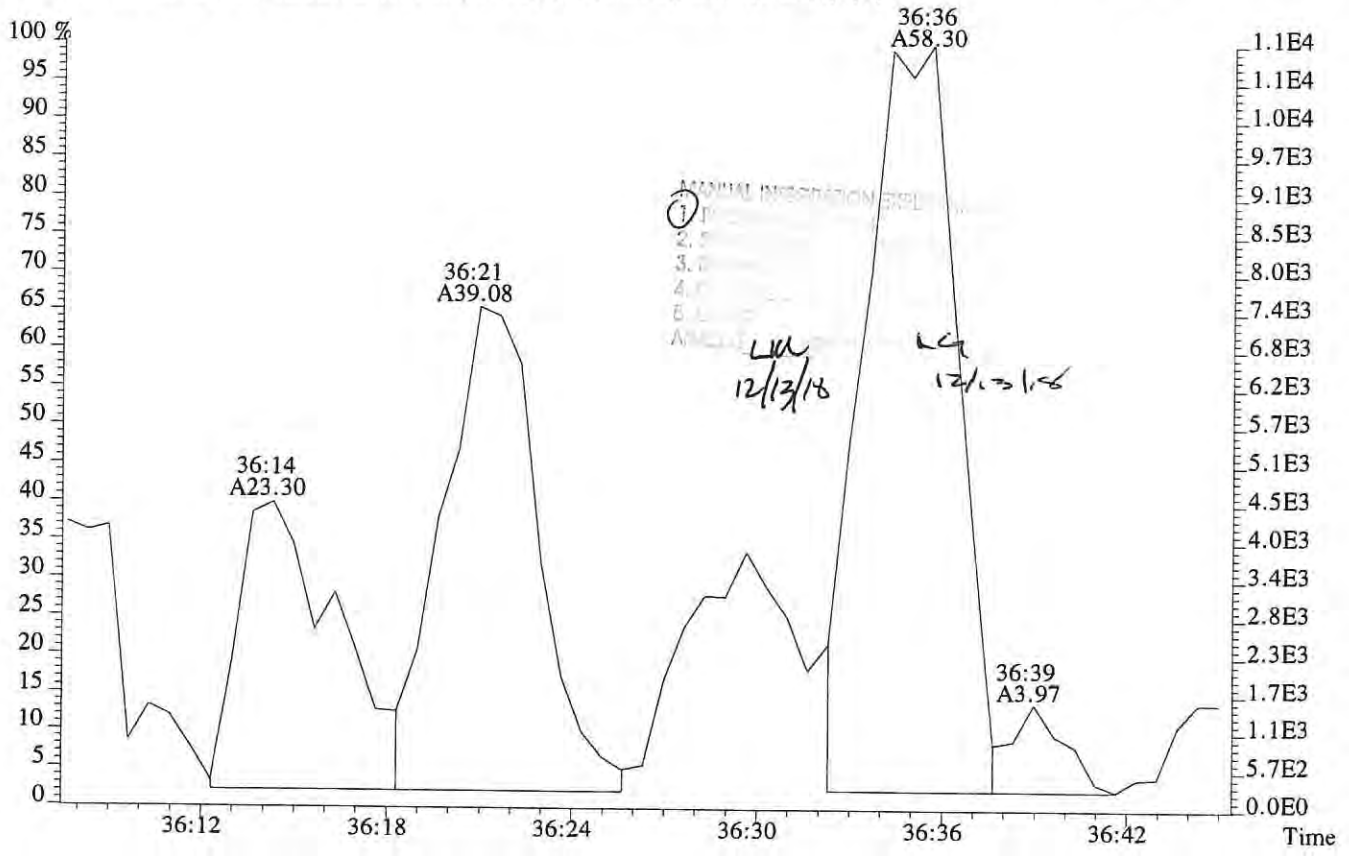
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616034 #1-312 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2000.0,0.40%,F,T)

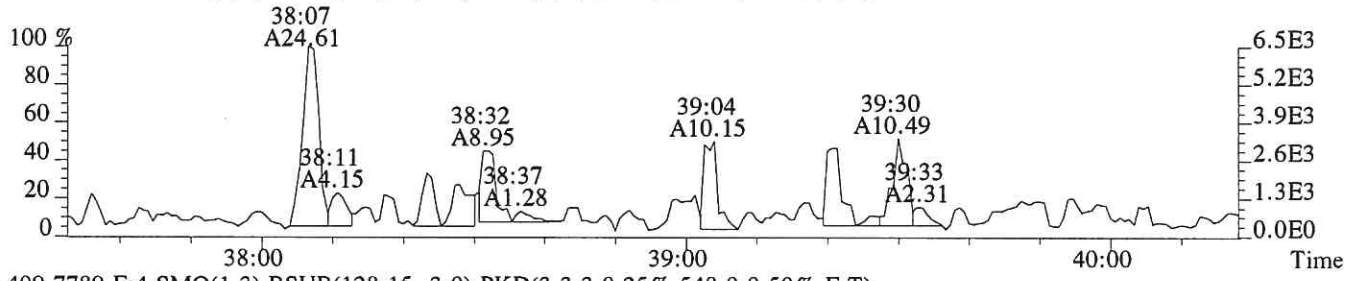


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)

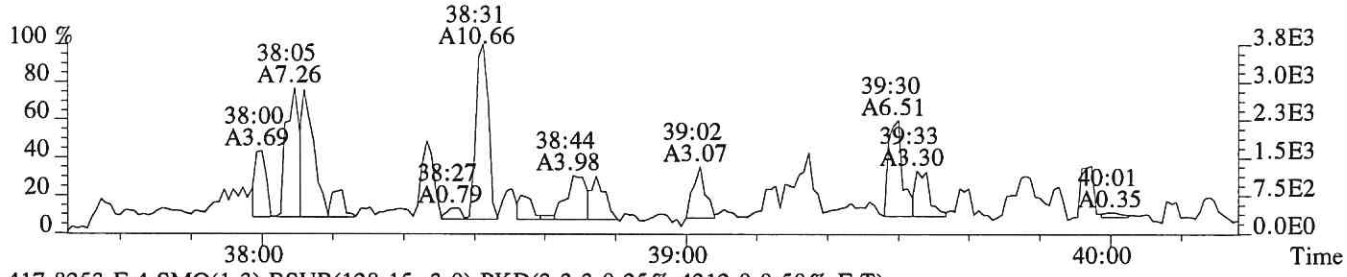


File:P616034 #1-249 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025

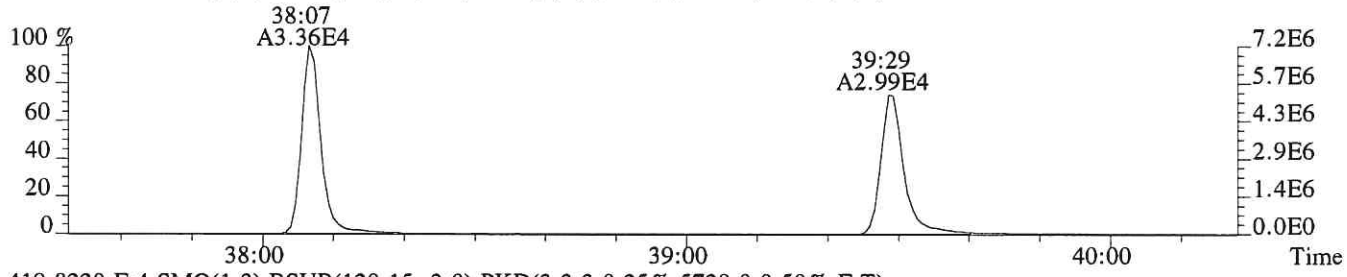
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.50%,F,T)



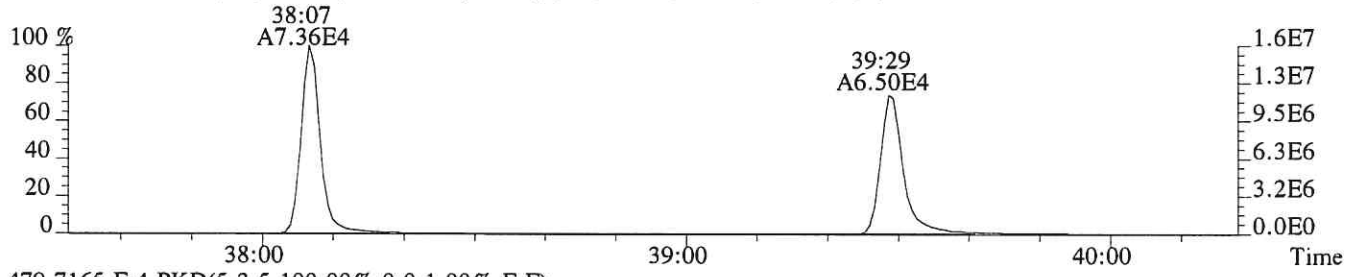
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.50%,F,T)



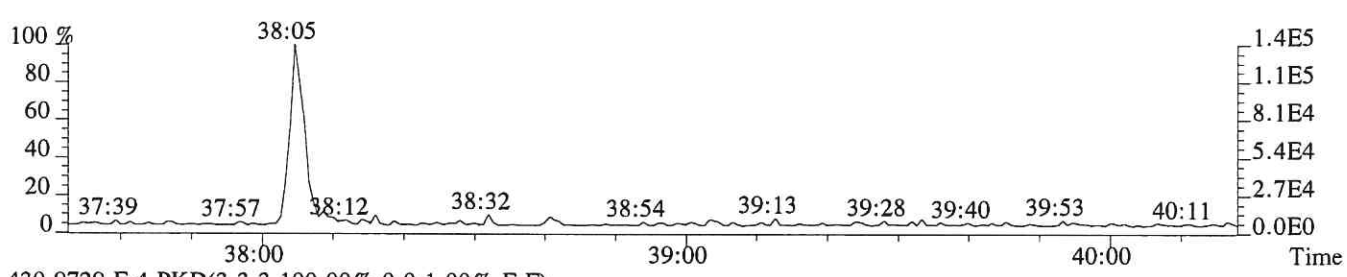
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4312.0,0.50%,F,T)



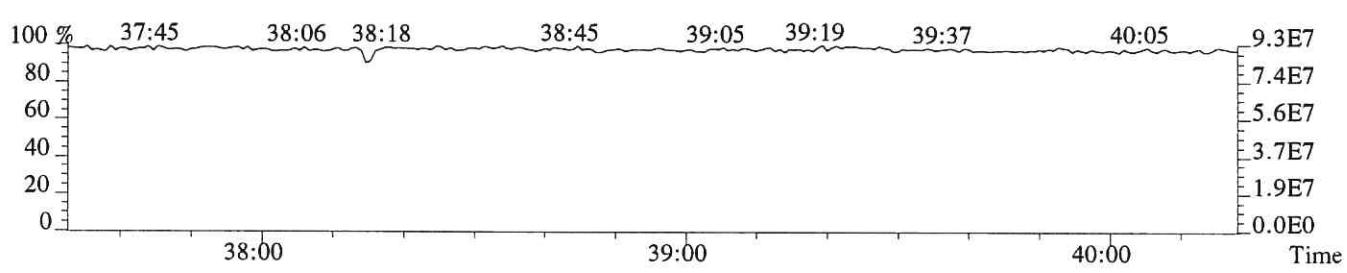
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5728.0,0.50%,F,T)



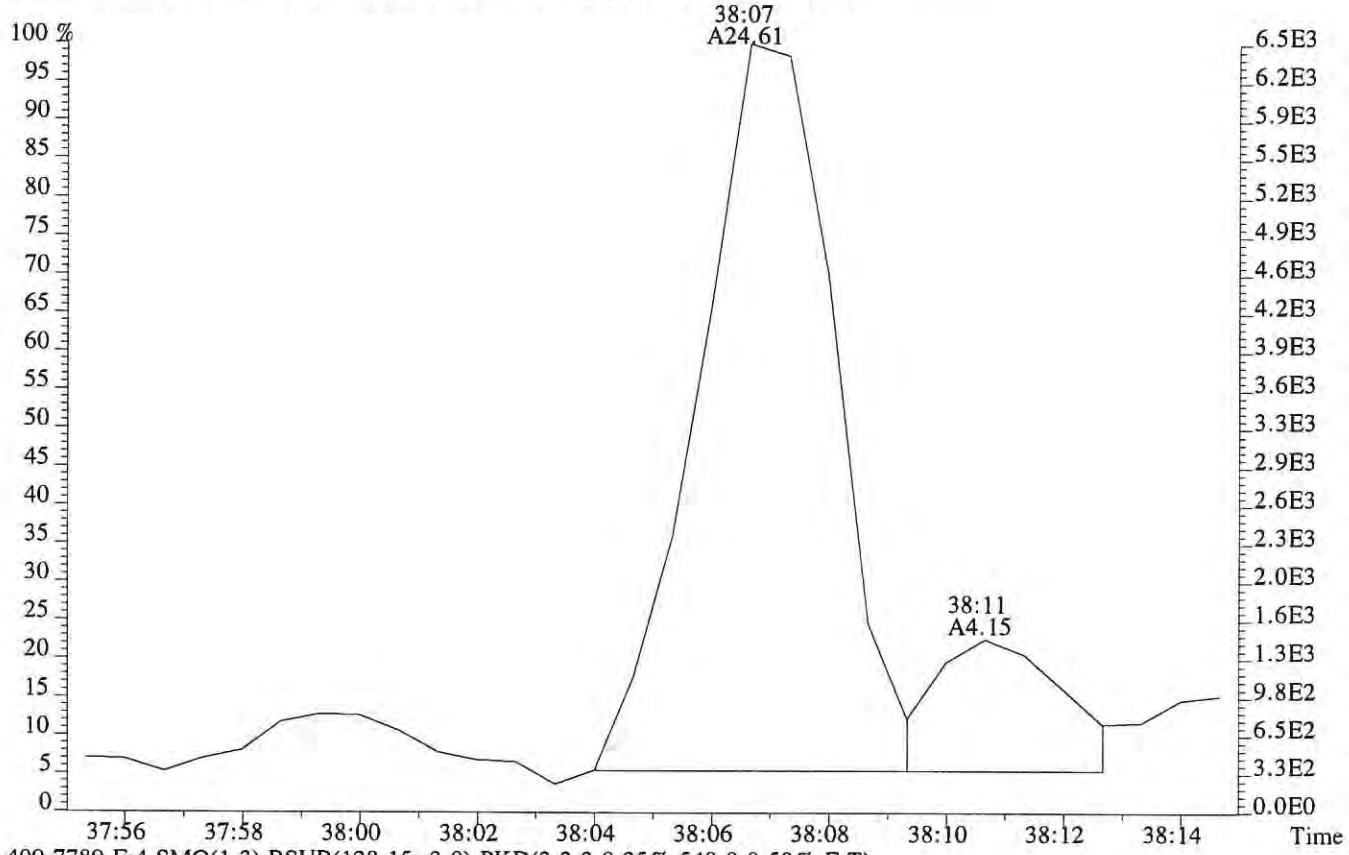
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



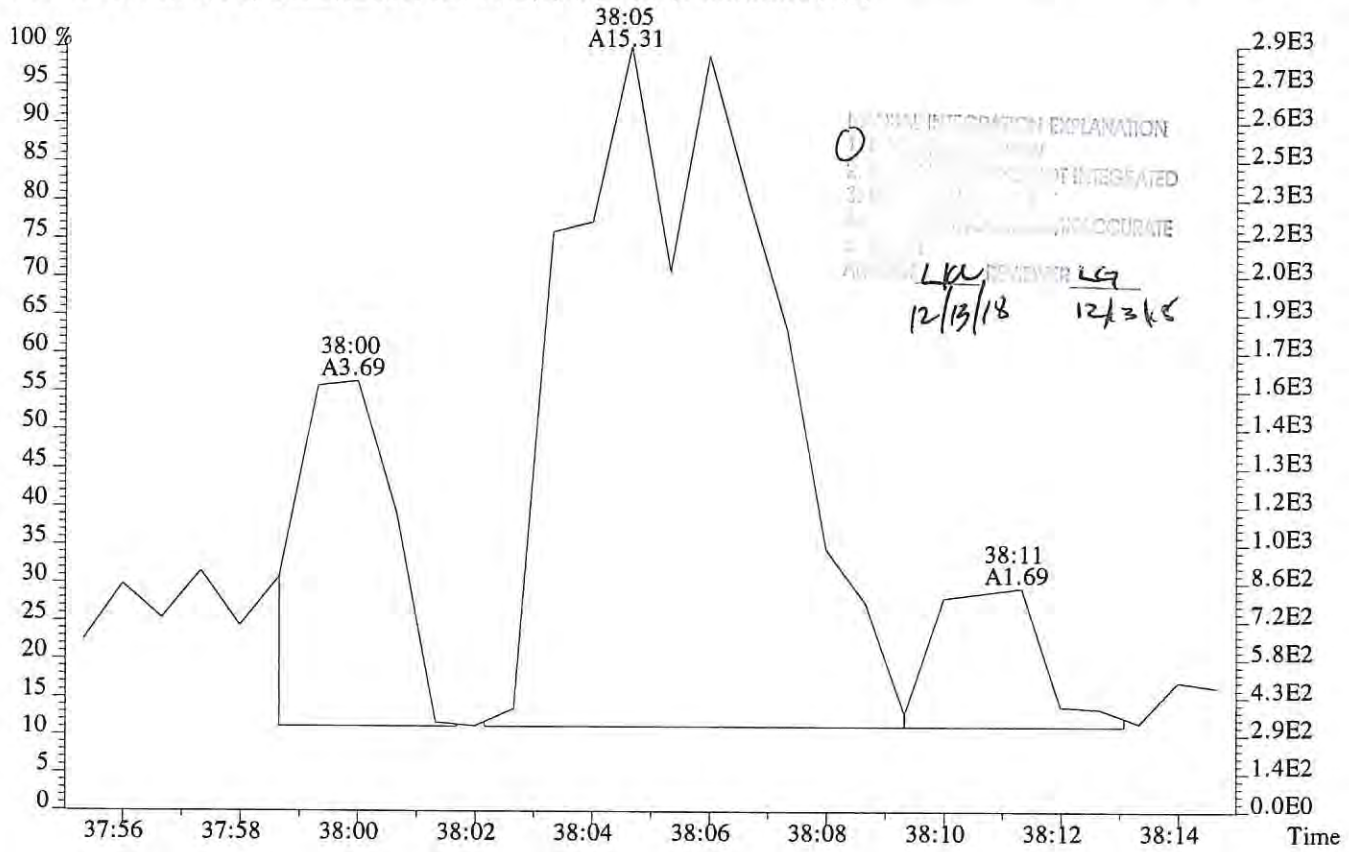
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



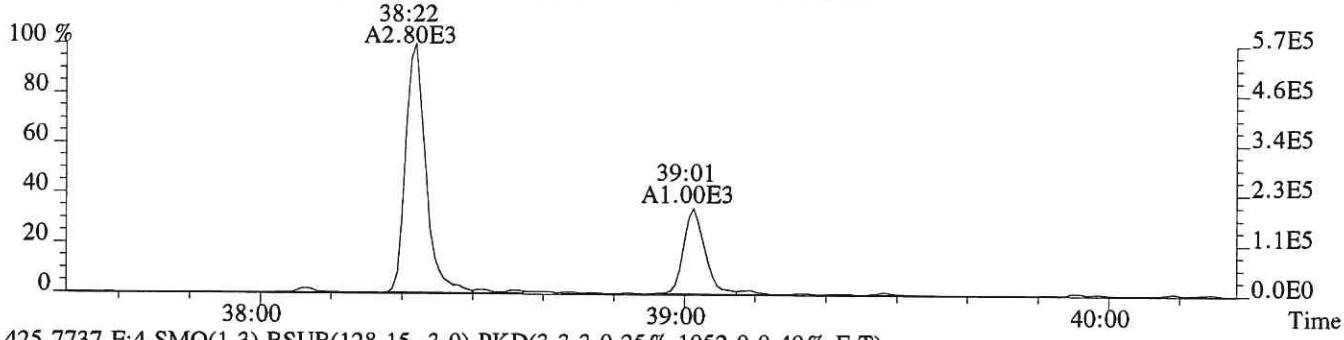
File:P616034 #1-249 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.50%,F,T)



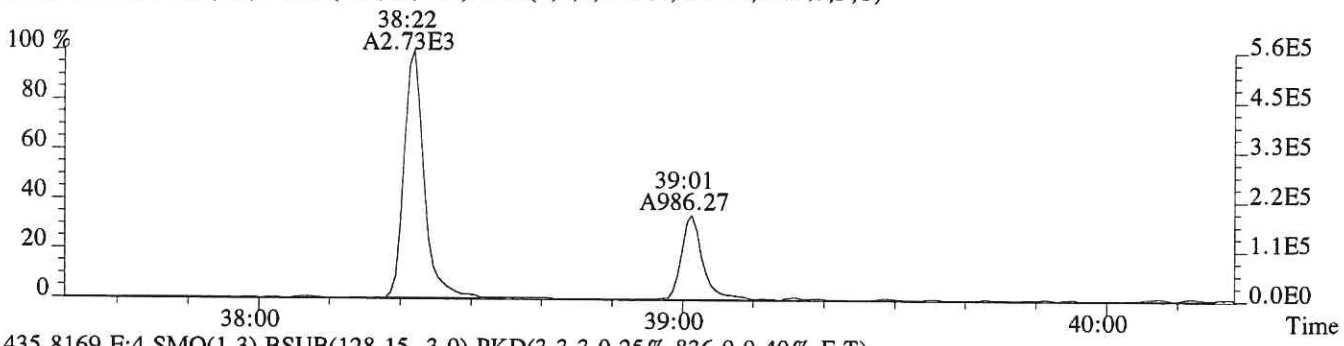
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.50%,F,T)



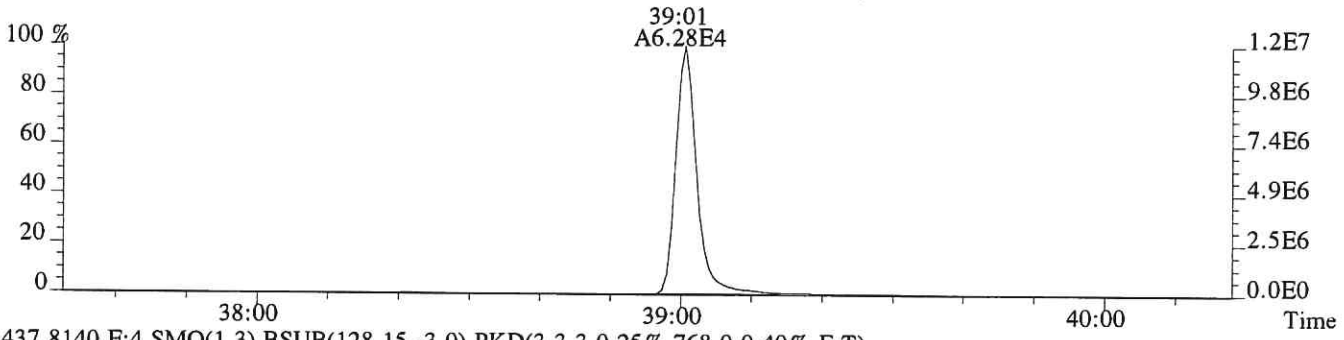
File:P616034 #1-249 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



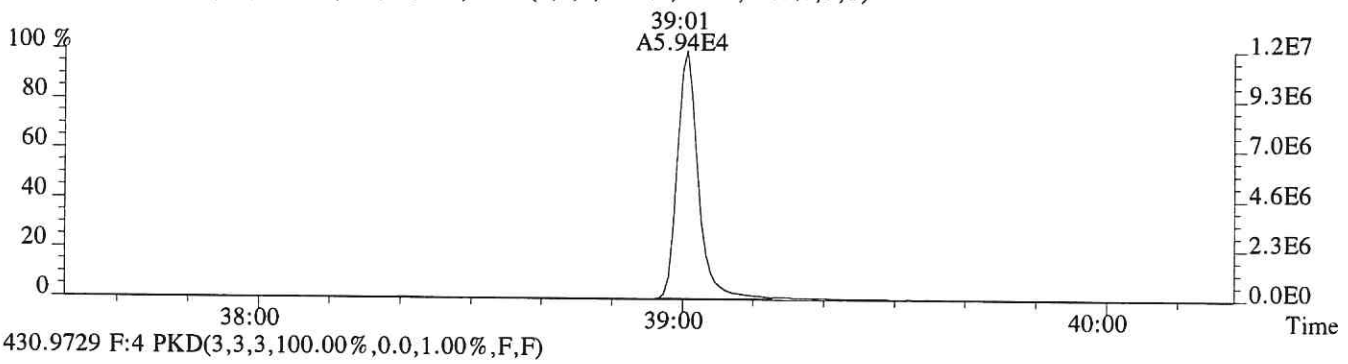
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



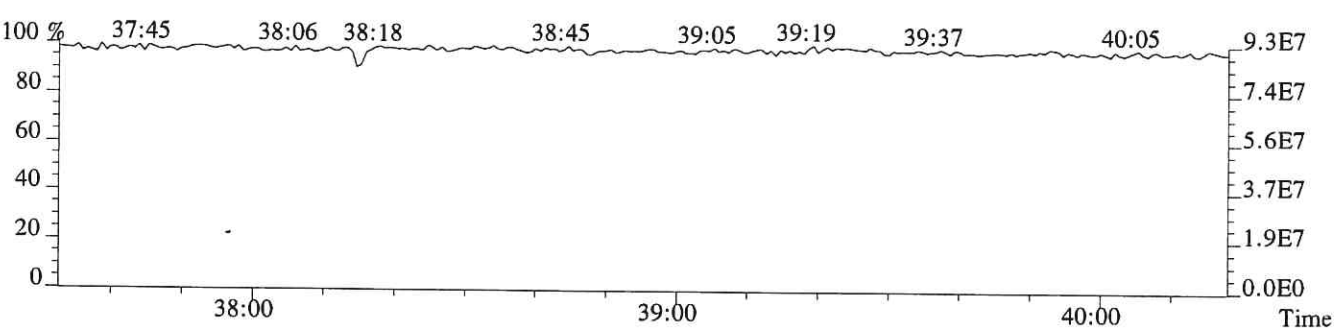
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)

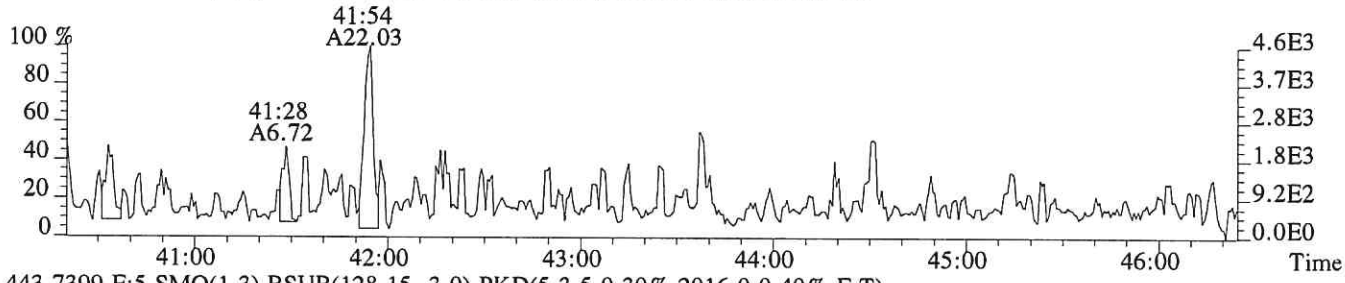


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

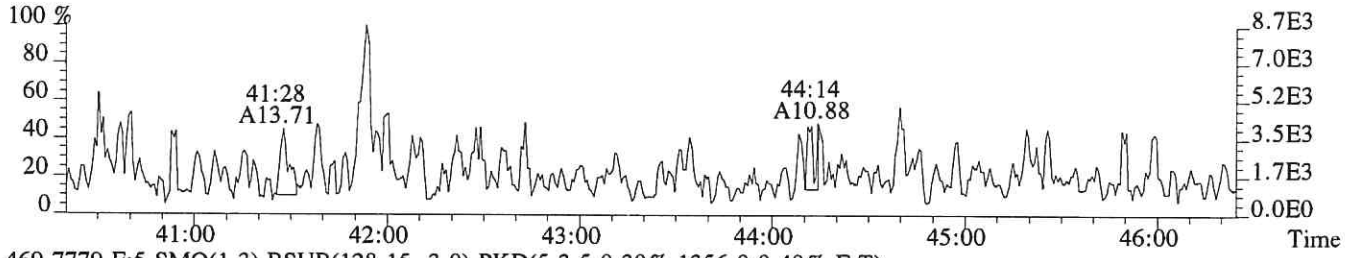


File:P616034 #1-547 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025

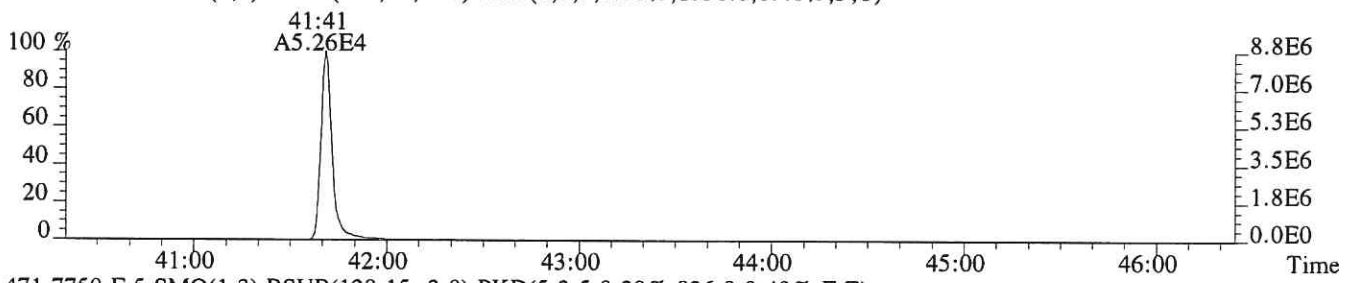
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



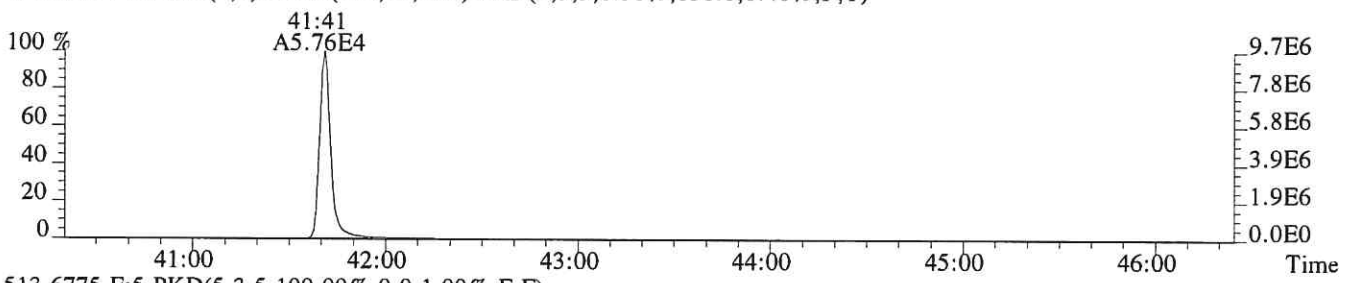
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2016.0,0.40%,F,T)



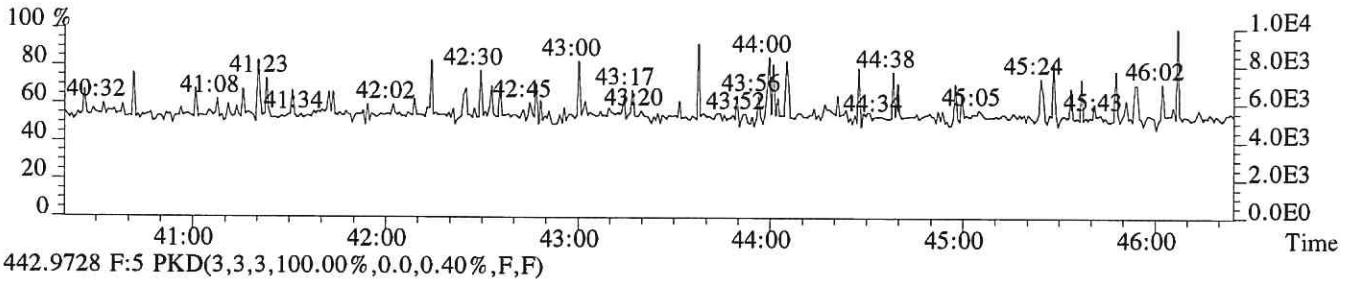
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1356.0,0.40%,F,T)



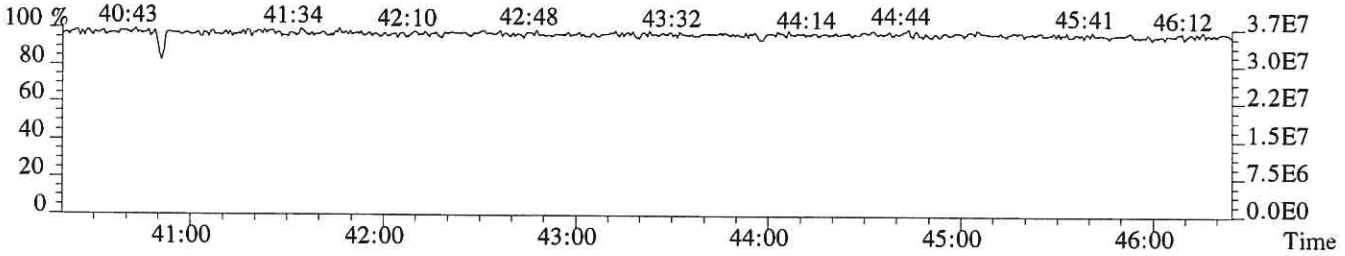
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



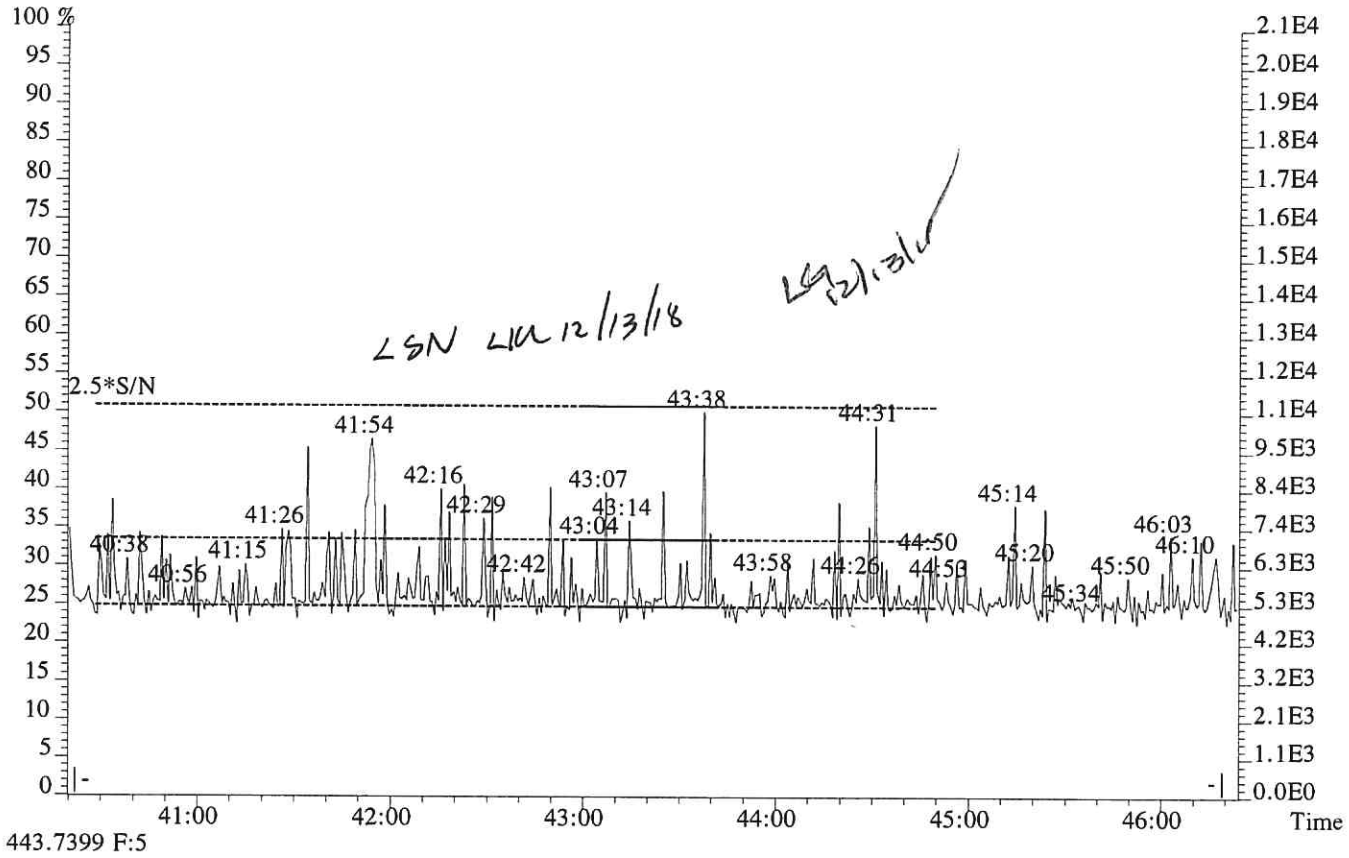
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



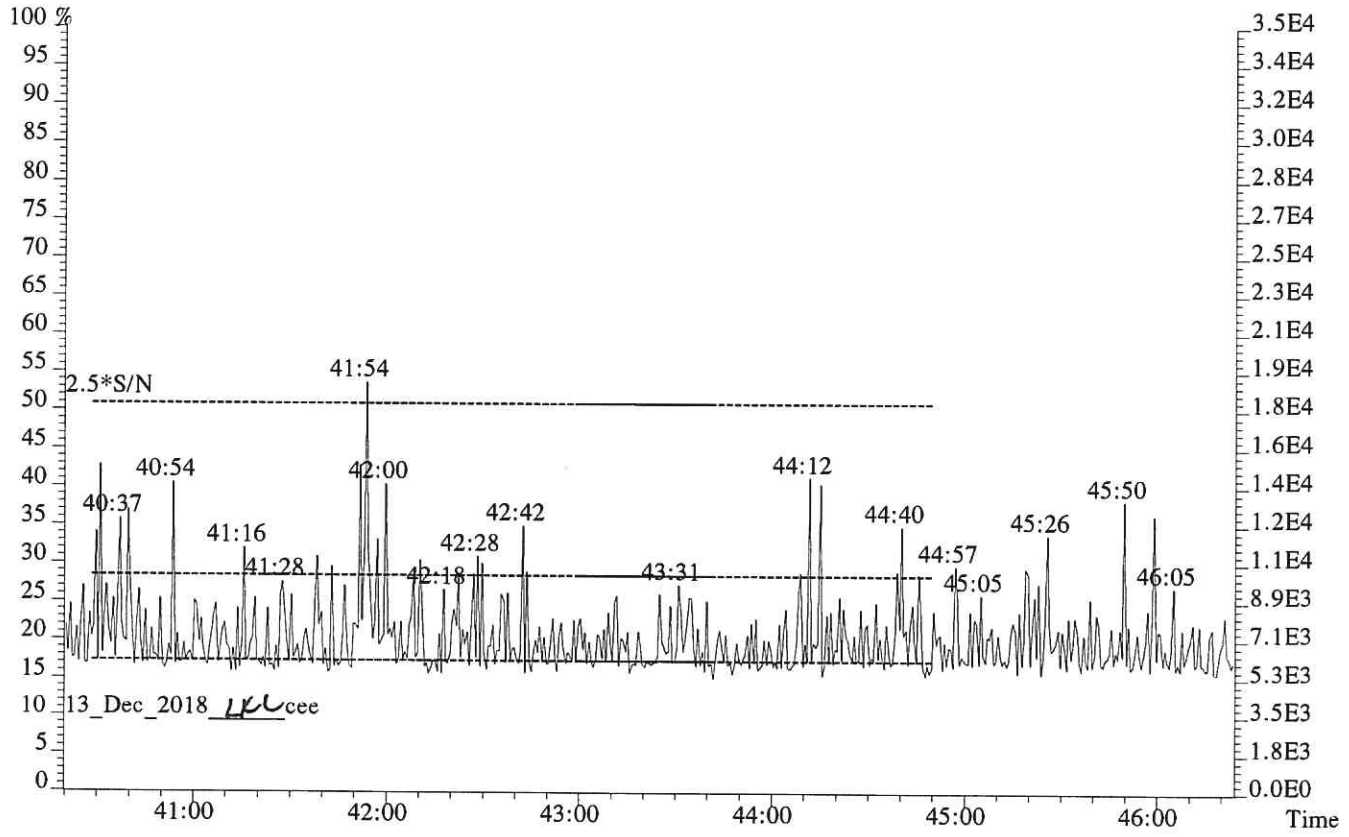
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



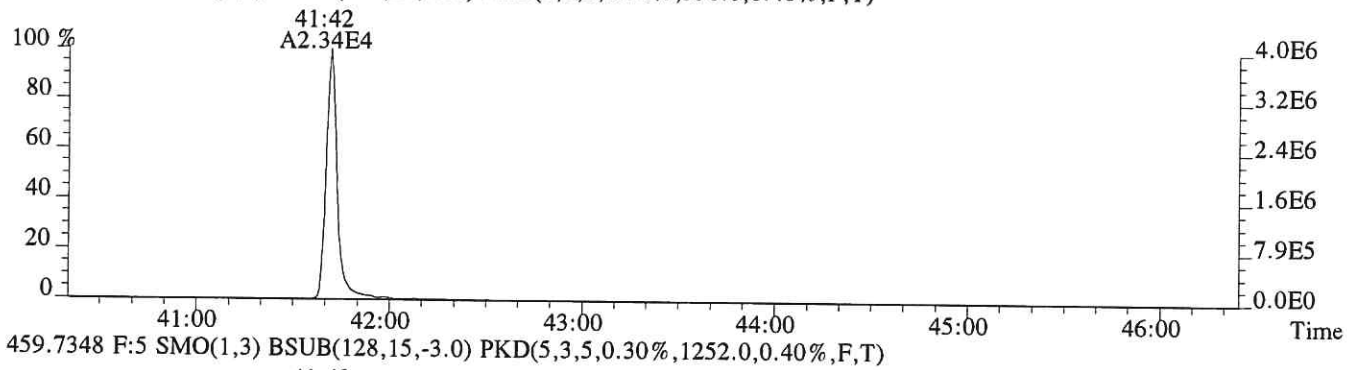
File:P616034 #1-547 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801065-025
441.7428 F:5



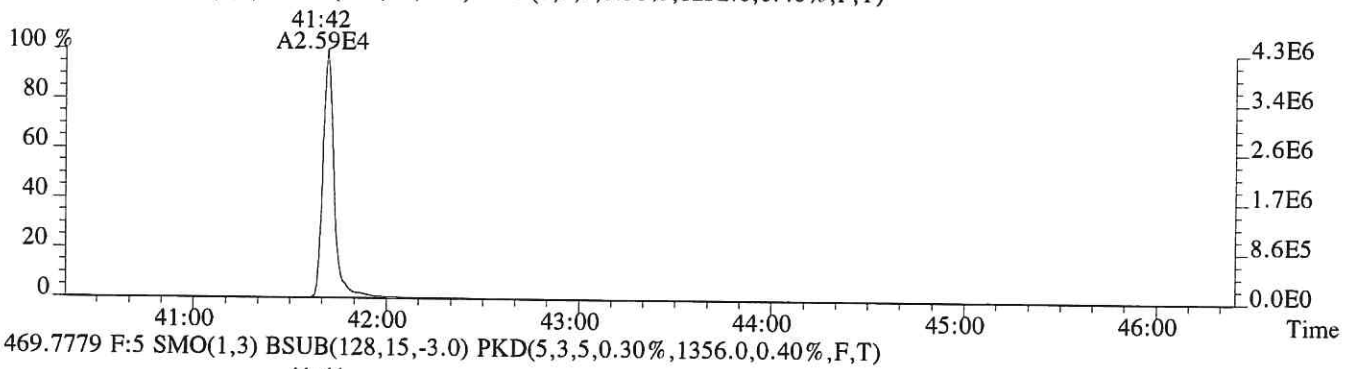
443.7399 F:5



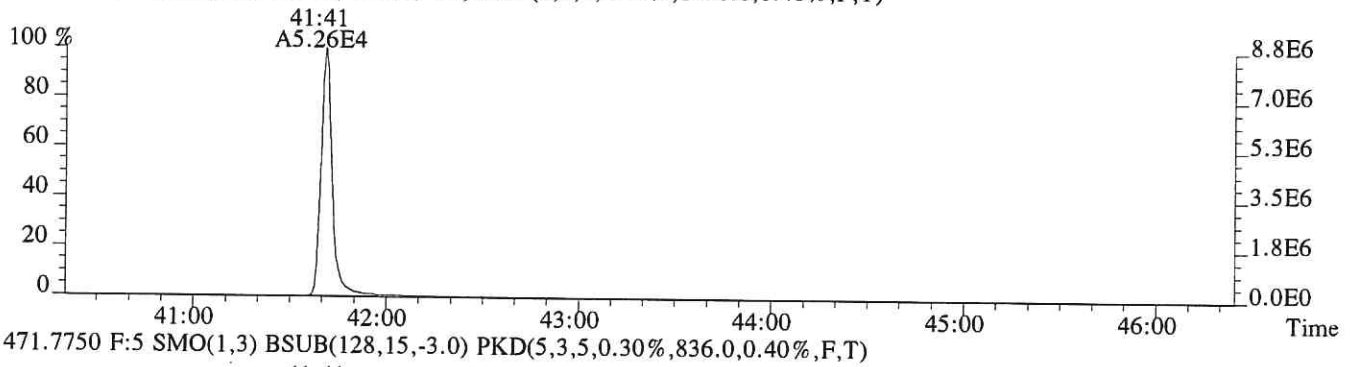
File:P616034 #1-547 Acq:11-DEC-2018 04:12:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-025
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



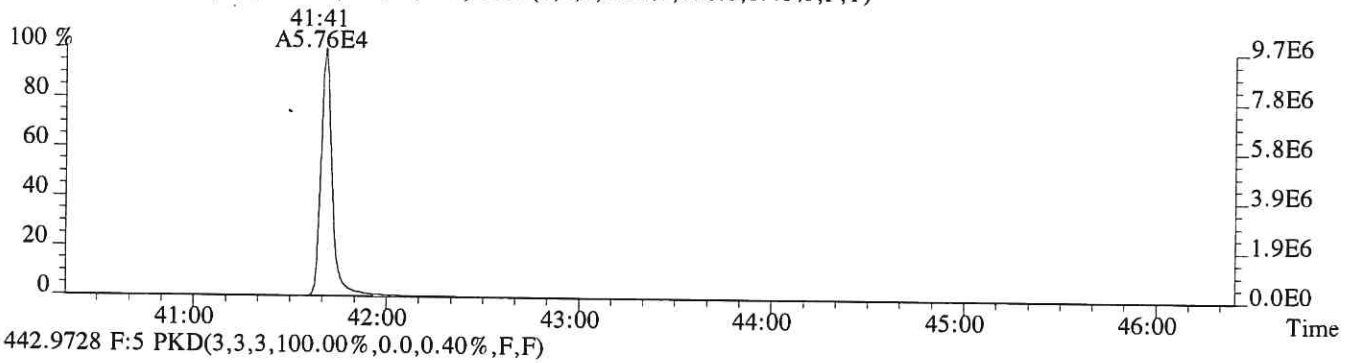
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



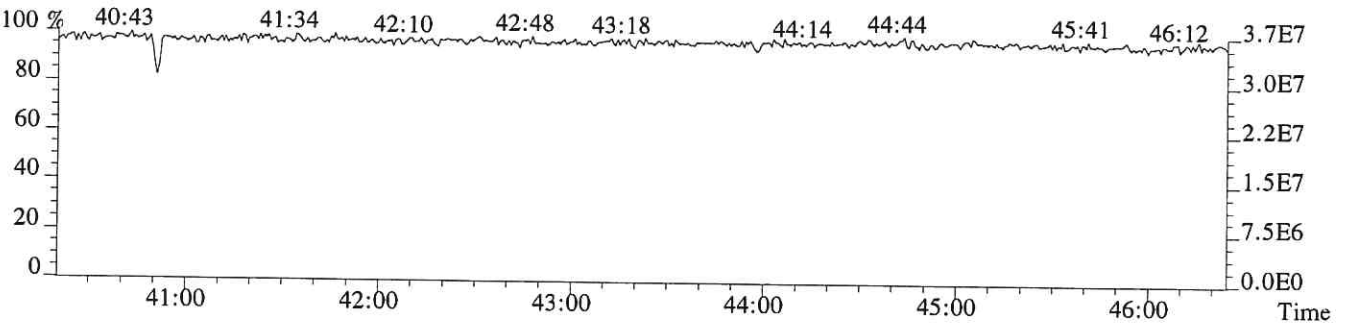
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1356.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0576

Run #17 Filename P616035 Samp: 1 Inj: 1 Acquired: 11-DEC-18 05:01:42
Processed: 13-DEC-18 08:56:11 Sample ID: E1801065-026

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:31	1.461e+02	1.638e+02	0.89	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:32	1.218e+01	2.088e+01	0.58	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:37	2.675e+01	1.019e+01	2.63	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	1.907e+01	1.463e+01	1.30	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	41:53	4.861e+01	5.743e+01	0.85	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:21	5.006e+01	7.502e+01	0.67	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:16	3.048e+01	2.632e+01	1.16	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:20	2.616e+01	2.042e+01	1.28	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:36	8.270e+01	7.167e+01	1.15	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	6.533e+02	5.677e+02	1.15	yes	no	1.112
17	Unk	OCDD	41:42	1.393e+04	1.492e+04	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	4.082e+04	5.246e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	8.105e+04	5.092e+04	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:48	8.091e+04	5.134e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	4.100e+04	7.779e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	4.703e+04	8.798e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	4.375e+04	8.215e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:53	4.280e+04	8.093e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	3.160e+04	7.042e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	2.764e+04	6.257e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	1.966e+04	2.601e+04	0.76	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	6.141e+04	3.965e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:15	5.541e+04	4.339e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	5.471e+04	4.313e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	5.892e+04	5.601e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:41	5.013e+04	5.523e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	6.038e+04	7.671e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	8.577e+04	6.826e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:20	2.941e+04				no	1.086

$$\text{OCDD} = \frac{(1.393e+04 + 1.492e+04) \times 4000\ \text{pg} \times 1}{(5.013e+04 + 5.523e+04) \times 10.594\ \text{g} \times 82.4 / 100 \times 1.157} = 108.4245\ \text{ng/kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0576

Run #17 Filename P616035 Samp: 1 Inj: 1 Acquired: 11-DEC-18 05:01:42
Processed: 13-DEC-18 08:56:11 LAB. ID: E1801065-026

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.63e+04	1.35e+03	1.9e+01	2.27e+04	2.56e+03	8.8e+00
2	1,2,3,7,8-PeCDF	*	6.12e+02	*	*	2.80e+03	*
3	2,3,4,7,8-PeCDF	*	6.12e+02	*	*	2.80e+03	*
4	1,2,3,4,7,8-HxCDF	2.37e+03	8.44e+02	2.8e+00	5.76e+03	6.56e+02	8.8e+00
5	1,2,3,6,7,8-HxCDF	6.32e+03	8.44e+02	7.5e+00	2.71e+03	6.56e+02	4.1e+00
6	2,3,4,6,7,8-HxCDF	*	8.44e+02	*	*	6.56e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.44e+02	*	*	6.56e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.74e+03	4.32e+02	8.6e+00	3.06e+03	7.16e+02	4.3e+00
9	1,2,3,4,7,8,9-HpCDF	*	4.32e+02	*	*	7.16e+02	*
10	OCDF	5.16e+03	4.24e+02	1.2e+01	8.03e+03	1.56e+03	5.1e+00
11	2,3,7,8-TCDD	1.10e+04	3.70e+03	3.0e+00	1.63e+04	2.47e+03	6.6e+00
12	1,2,3,7,8-PeCDD	*	1.36e+03	*	*	7.04e+02	*
13	1,2,3,4,7,8-HxCDD	9.24e+03	1.05e+03	8.8e+00	6.04e+03	1.16e+03	5.2e+00
14	1,2,3,6,7,8-HxCDD	5.66e+03	1.05e+03	5.4e+00	4.87e+03	1.16e+03	4.2e+00
15	1,2,3,7,8,9-HxCDD	1.34e+04	1.05e+03	1.3e+01	1.48e+04	1.16e+03	1.3e+01
16	1,2,3,4,6,7,8-HpCDD	1.31e+05	5.20e+02	2.5e+02	1.08e+05	1.62e+03	6.7e+01
17	OCDD	2.29e+06	4.92e+02	4.6e+03	2.57e+06	8.72e+02	2.9e+03
18	13C-2,3,7,8-TCDF	6.31e+06	1.17e+04	5.4e+02	7.86e+06	5.85e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	1.41e+07	1.66e+03	8.5e+03	8.82e+06	1.02e+03	8.6e+03
20	13C-2,3,4,7,8-PeCDF	1.42e+07	1.66e+03	8.5e+03	9.02e+06	1.02e+03	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	8.74e+06	1.84e+03	4.7e+03	1.65e+07	1.86e+03	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	8.99e+06	1.84e+03	4.9e+03	1.71e+07	1.86e+03	9.2e+03
23	13C-2,3,4,6,7,8-HxCDF	8.61e+06	1.84e+03	4.7e+03	1.65e+07	1.86e+03	8.9e+03
24	13C-1,2,3,7,8,9-HxCDF	7.60e+06	1.84e+03	4.1e+03	1.44e+07	1.86e+03	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.45e+06	4.46e+03	1.4e+03	1.46e+07	7.19e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.84e+06	4.46e+03	1.1e+03	1.09e+07	7.19e+03	1.5e+03
27	13C-2,3,7,8-TCDD	3.29e+06	1.77e+04	1.9e+02	4.33e+06	6.53e+03	6.6e+02
28	13C-1,2,3,7,8-PeCDD	1.08e+07	1.63e+03	6.6e+03	6.92e+06	1.32e+03	5.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.24e+07	3.15e+03	3.9e+03	9.67e+06	1.96e+03	4.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.10e+07	3.15e+03	3.5e+03	8.60e+06	1.96e+03	4.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.14e+07	1.96e+03	5.8e+03	1.08e+07	8.24e+02	1.3e+04
32	13C-OCDD	8.24e+06	1.36e+03	6.0e+03	9.19e+06	7.76e+02	1.2e+04
33	13C-1,2,3,4-TCDD	1.03e+07	1.77e+04	5.8e+02	1.31e+07	6.53e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.65e+07	3.15e+03	5.2e+03	1.32e+07	1.96e+03	6.7e+03
35	37Cl-2,3,7,8-TCDD	4.81e+06	1.91e+03	2.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (3.704e{+}03 + 2.468e{+}03) \times 2000}{(3.294e{+}06 + 4.332e{+}06) \times (\quad) \times 1.049} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0576

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P616035 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 05:01:42 Processed: 13-DEC-18 08:56:11

Mass: 303.9020 305.8990 Tot Response: 1.73e+02 RRF: 1.081

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:38	7.40e+01	9.91e+01 0.75	yes	1.73e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0576

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P616035 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 05:01:42 Processed: 13-DEC-18 08:56:11

Mass: 319.8970 321.8940 Tot Response: 1.25e+02 RRF: 1.049

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:21	5.01e+01	7.50e+01 0.67	yes	1.25e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0576

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P616035 Sample:1 Injection:1 Function:3

Acquired: 11-DEC-18 05:01:42 Processed: 13-DEC-18 08:56:11

Mass: 389.8160 391.8130 Tot Response: 1.01e+03 RRF: 1.092

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:54	2.89e+02	2.48e+02	1.16	yes	5.37e+02		n	n
2	35:38	1.19e+02	1.00e+02	1.19	yes	2.19e+02		n	n
3	36:16	3.05e+01	2.63e+01	1.16	yes	5.68e+01	1,2,3,4,7,8-HxCDD	n	n
4	36:20	2.62e+01	2.04e+01	1.28	yes	4.66e+01	1,2,3,6,7,8-HxCDD	n	n
5	36:36	8.27e+01	7.17e+01	1.15	yes	1.54e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0576

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P616035 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 05:01:42 Processed: 13-DEC-18 08:56:11

Mass: 407.7820 409.7790 Tot Response: 3.69e+01 RRF: 1.495

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:30	1.98e+01	1.71e+01 1.16	yes	3.69e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0576

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P616035 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 05:01:42 Processed: 13-DEC-18 08:56:11

Mass: 423.7770 425.7740 Tot Response: 4.86e+03 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:22	1.75e+03	1.89e+03	0.92	yes	3.64e+03		n	n
2	39:01	6.53e+02	5.68e+02	1.15	yes	1.22e+03	1,2,3,4,6,7,8-HpCDD	n	n

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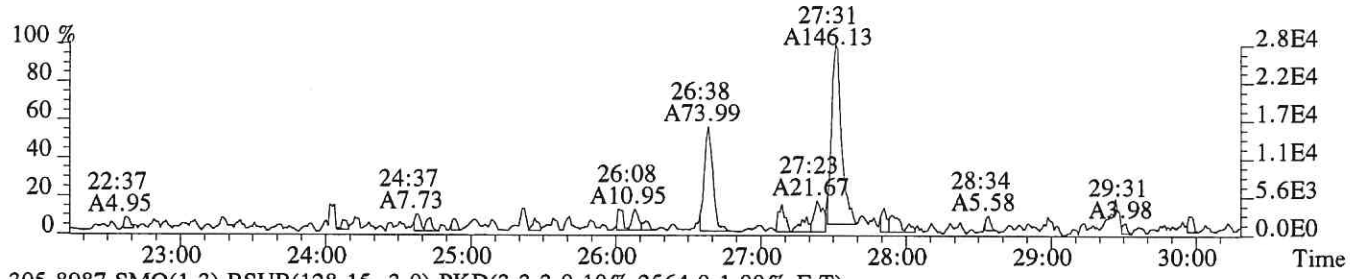
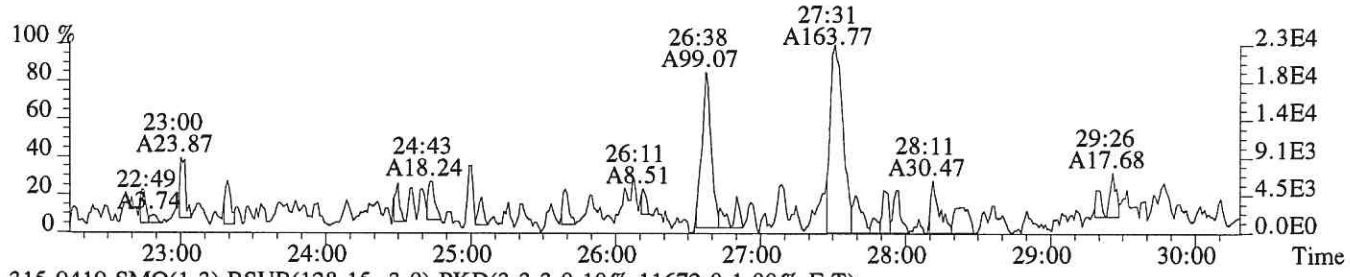
File:P616035 #1-573 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026

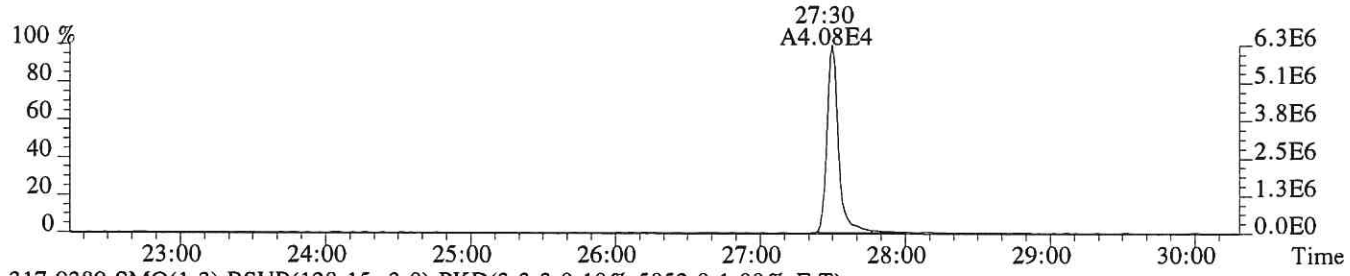
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



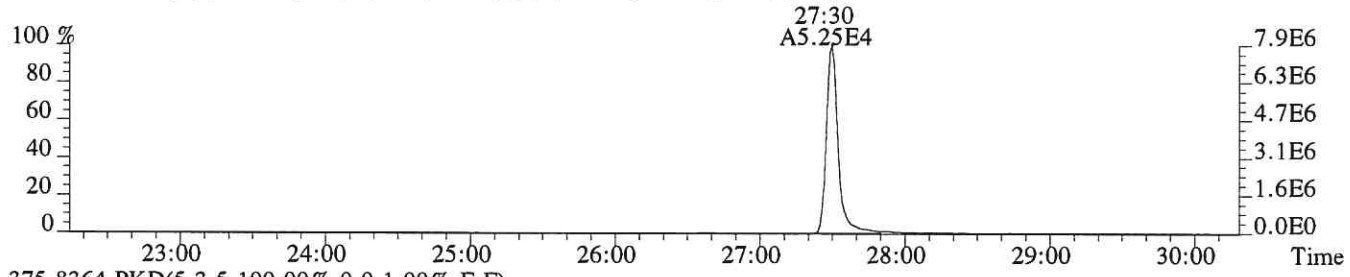
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2564.0,1.00%,F,T)



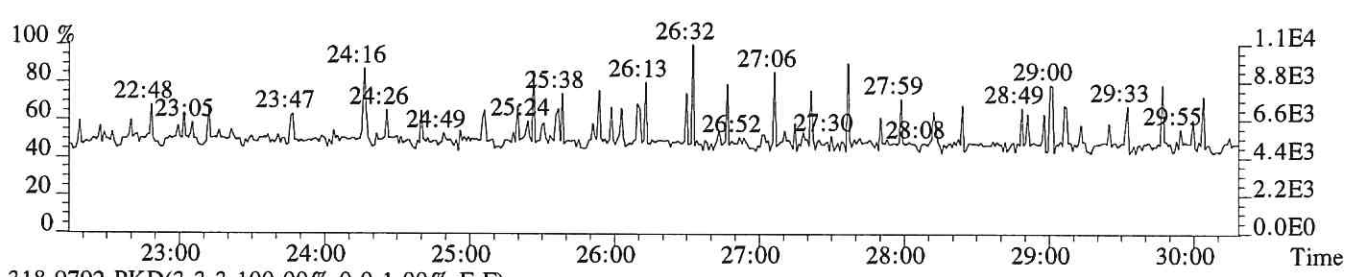
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11672.0,1.00%,F,T)



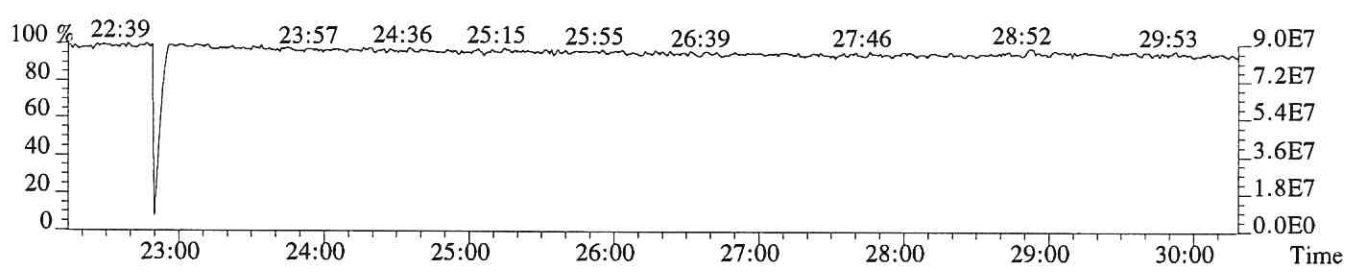
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5852.0,1.00%,F,T)



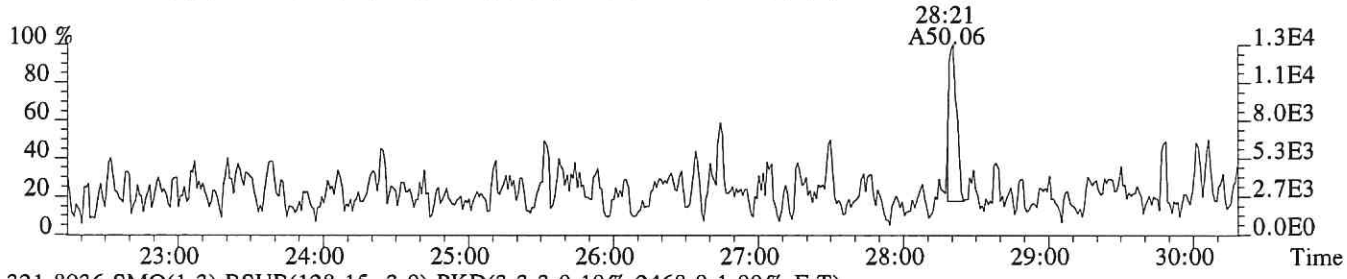
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



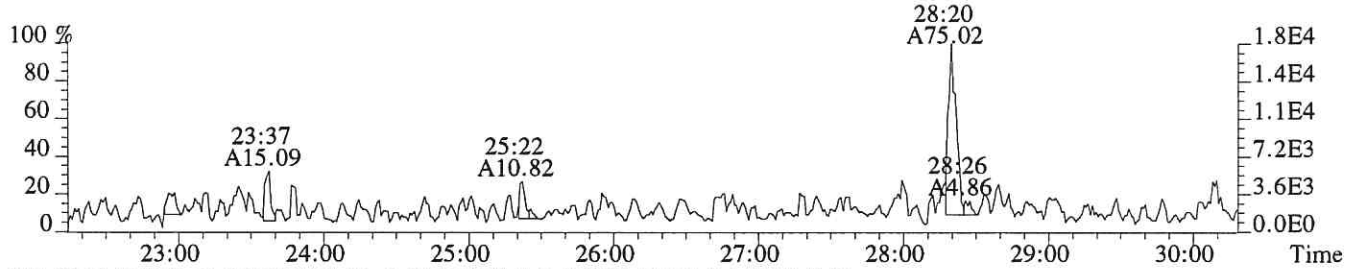
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



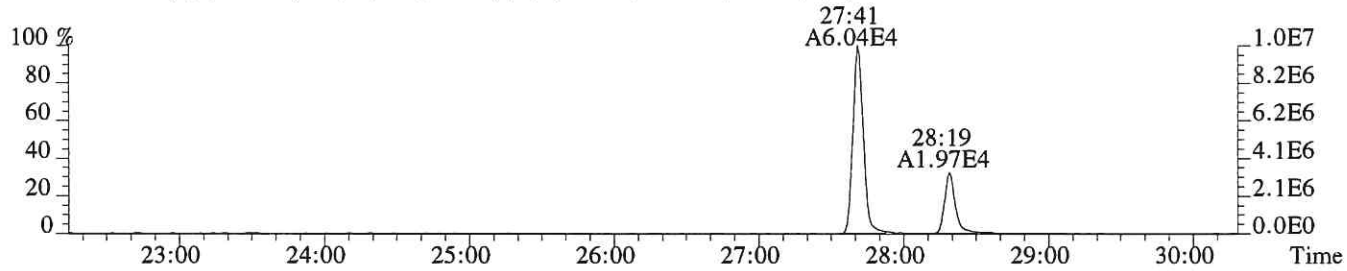
File:P616035 #1-573 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3704.0,1.00%,F,T)



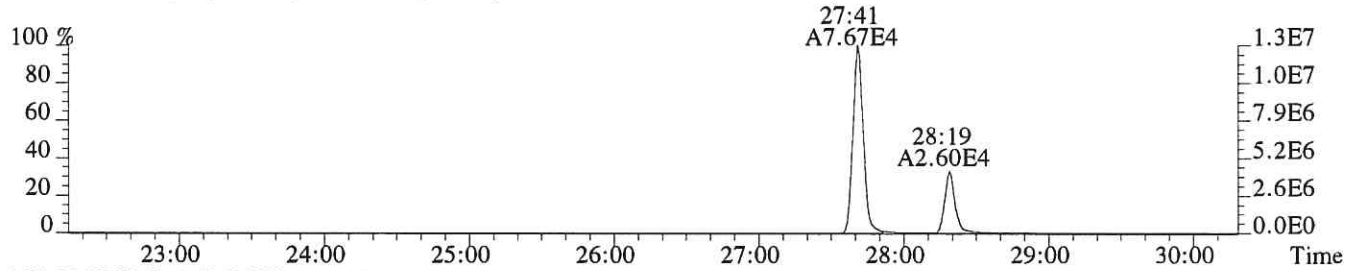
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



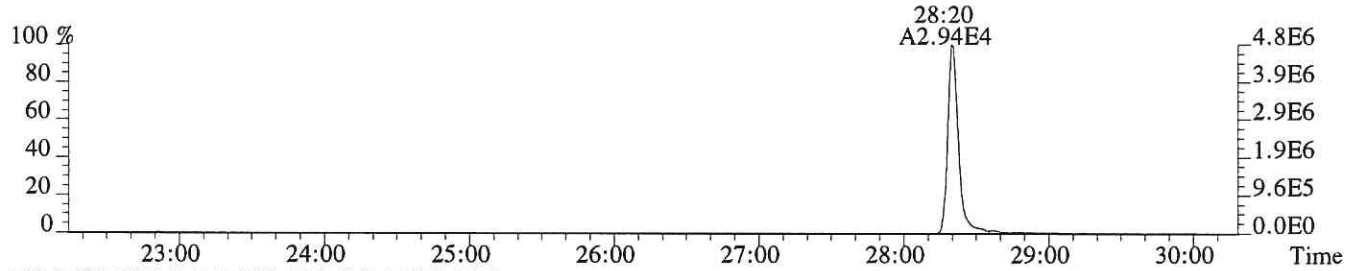
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17716.0,1.00%,F,T)



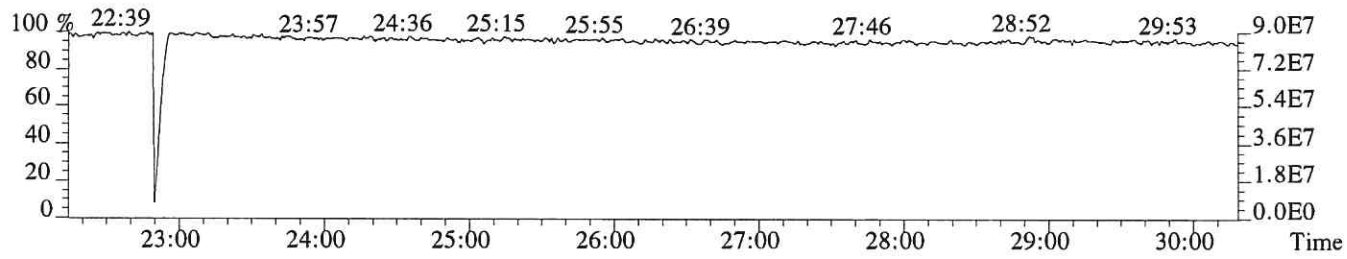
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6532.0,1.00%,F,T)



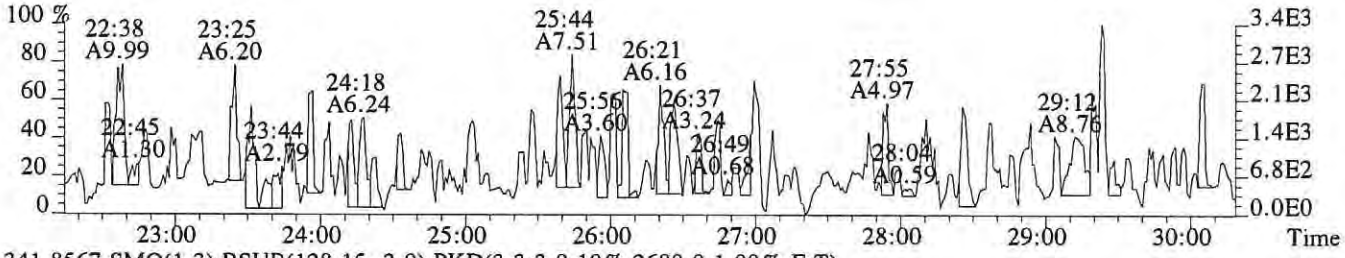
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



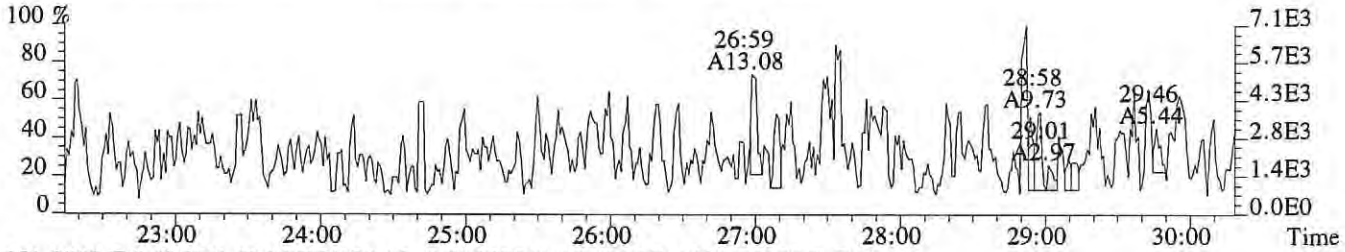
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



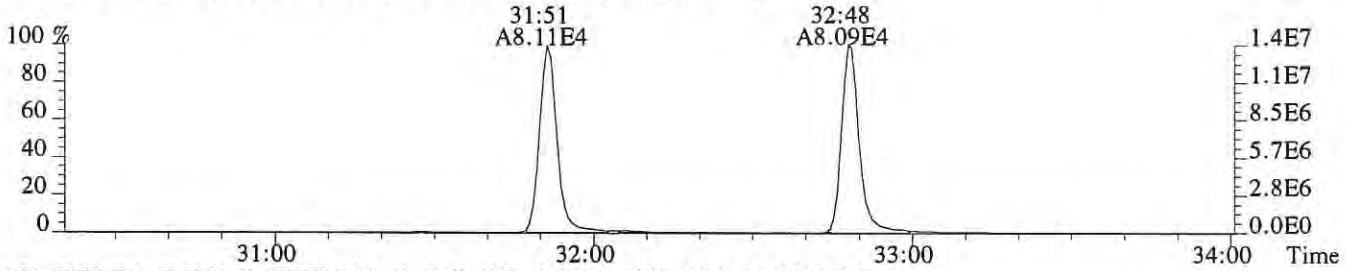
File:P616035 #1-573 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



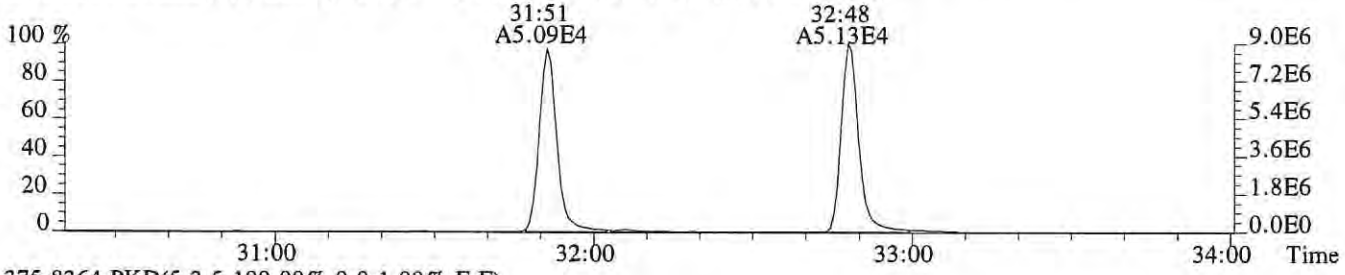
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2688.0,1.00%,F,T)



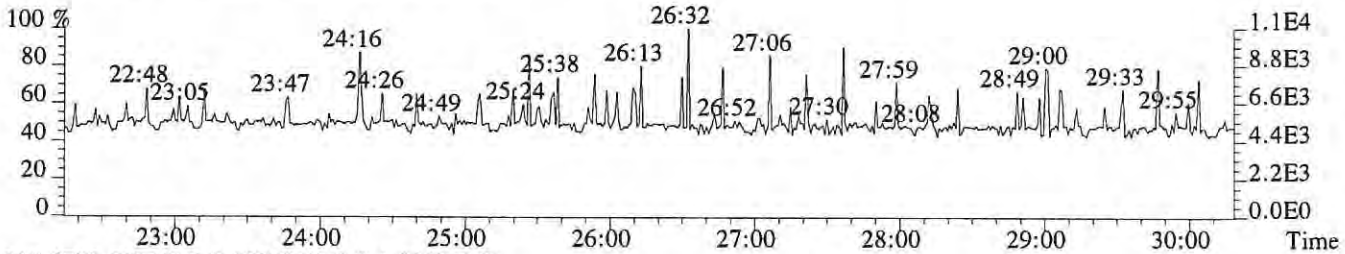
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



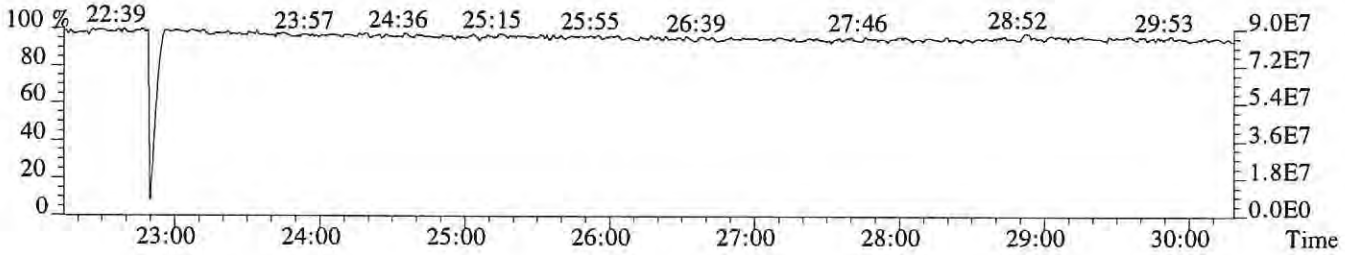
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



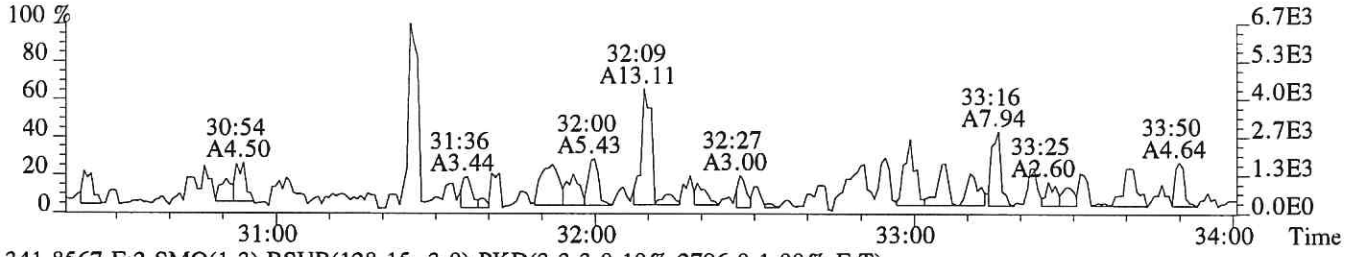
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



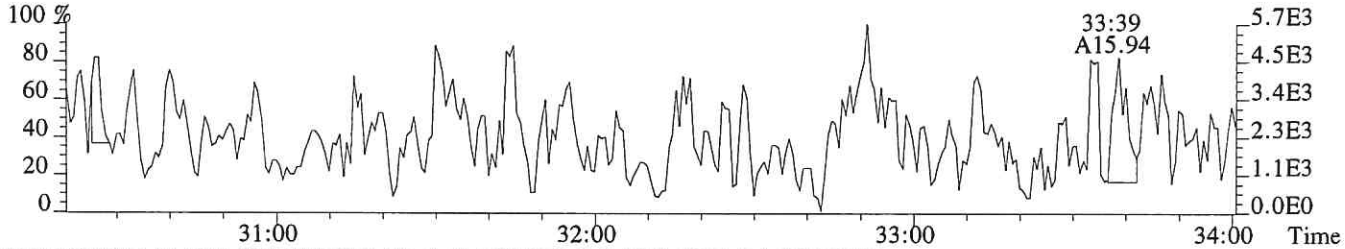
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



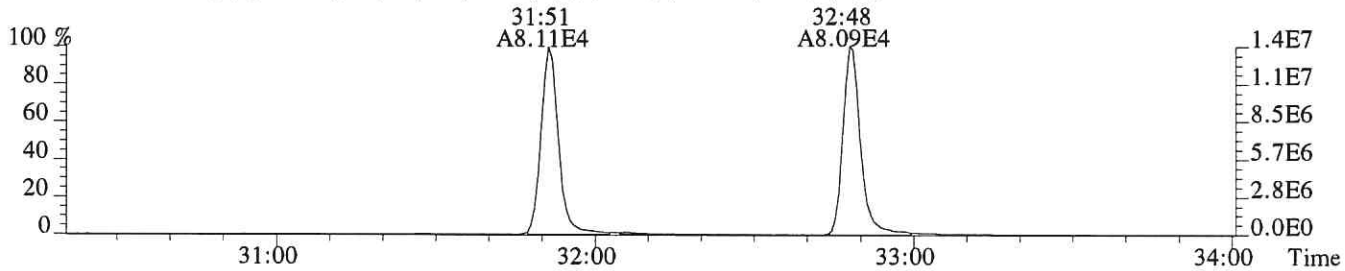
File:P616035 #1-331 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



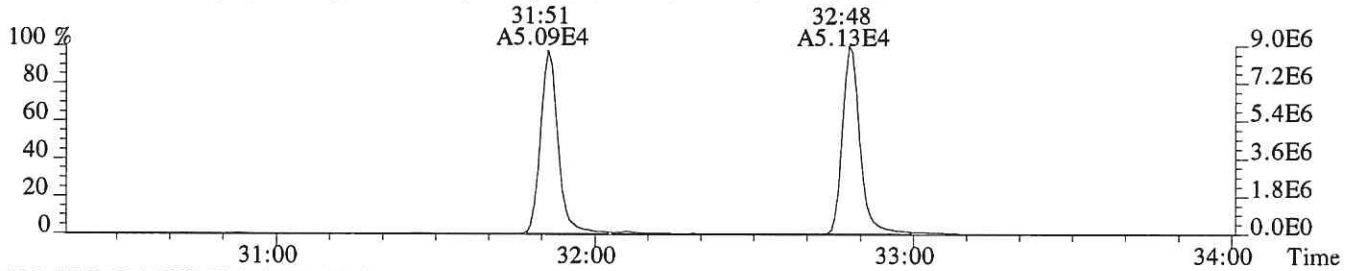
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2796.0,1.00%,F,T)



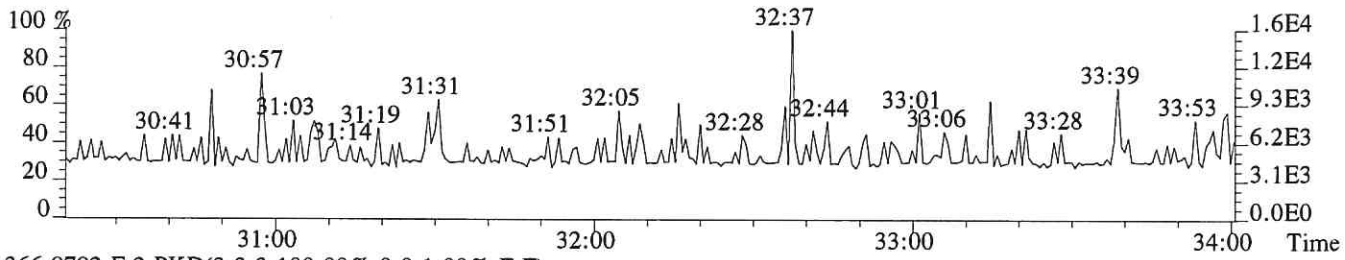
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



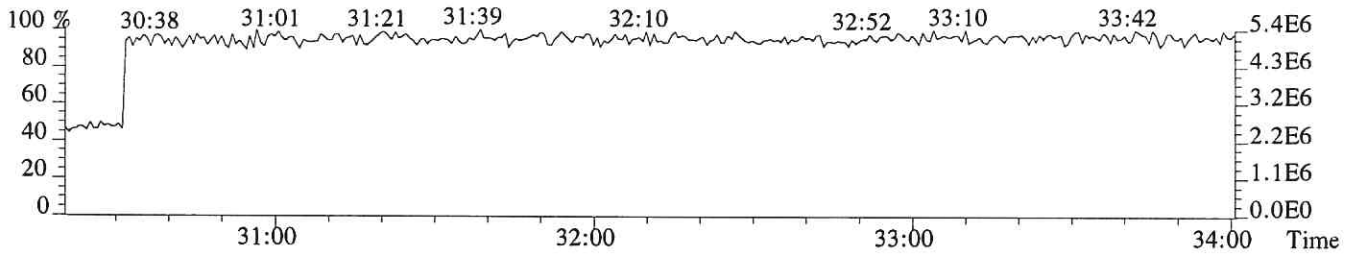
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



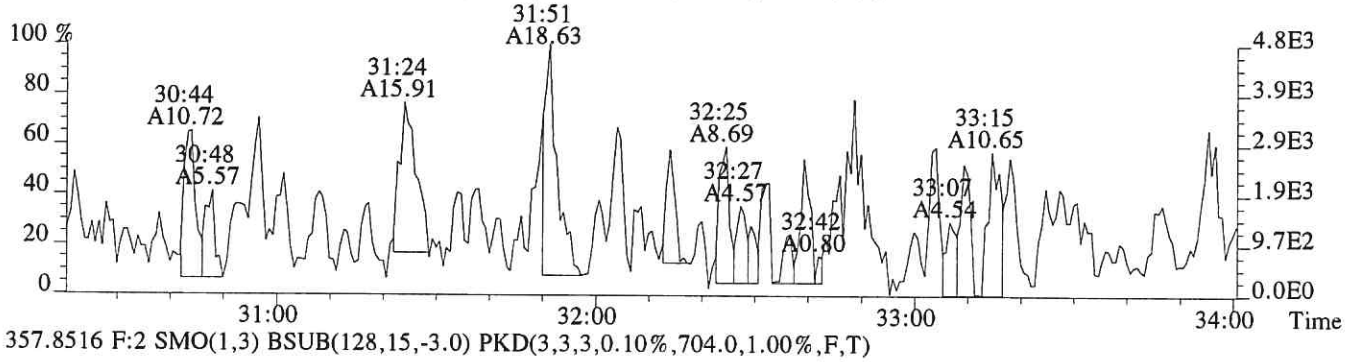
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



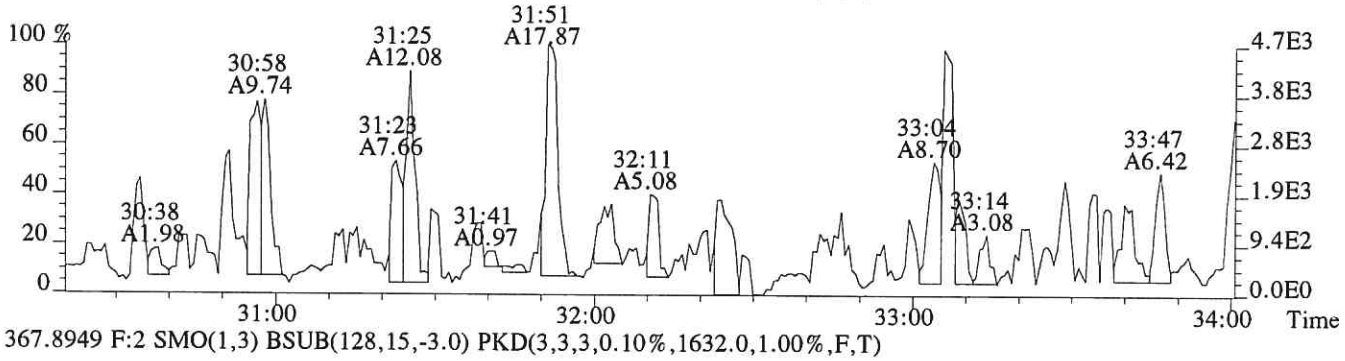
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



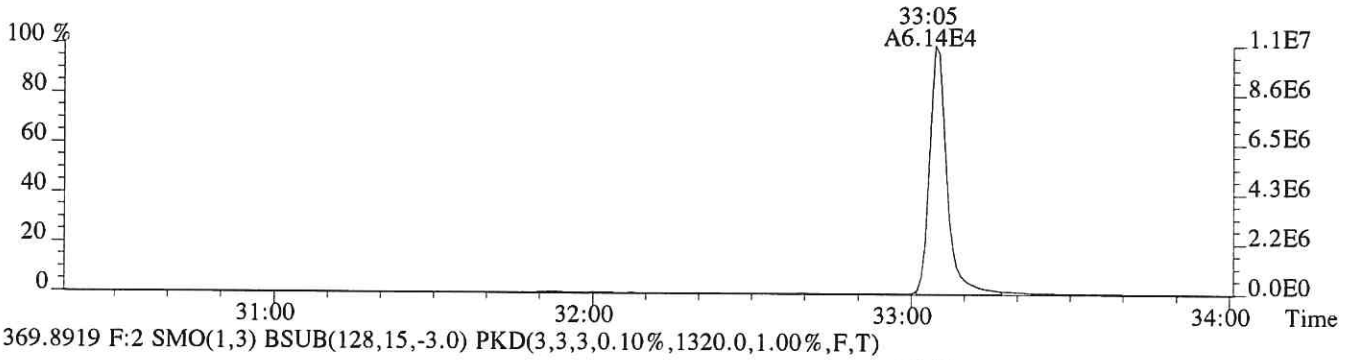
File:P616035 #1-331 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



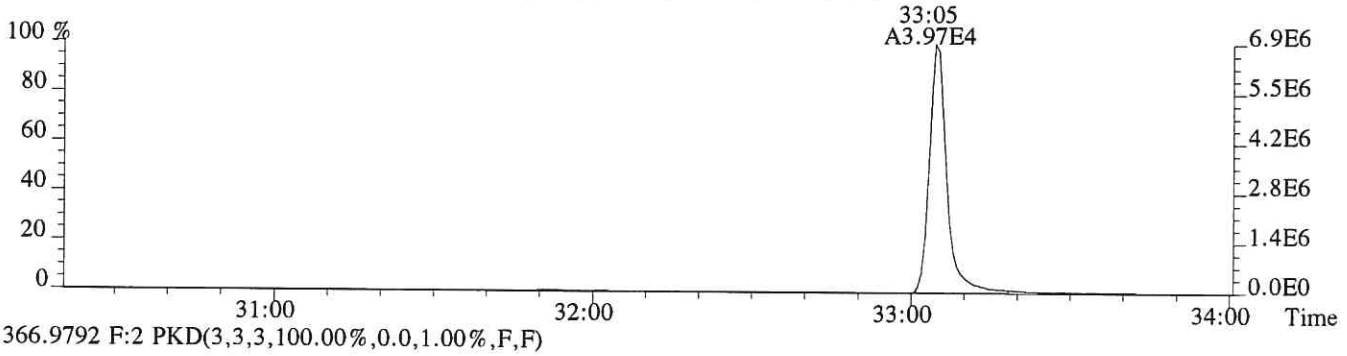
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



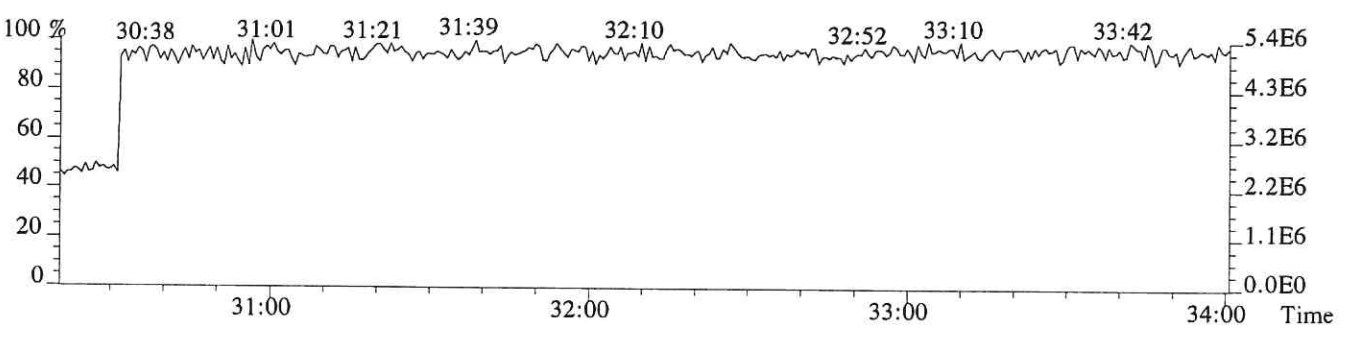
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)

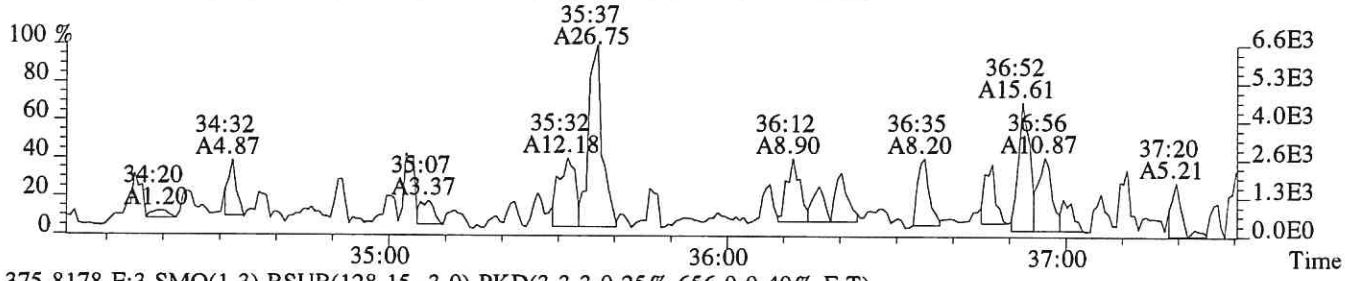


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

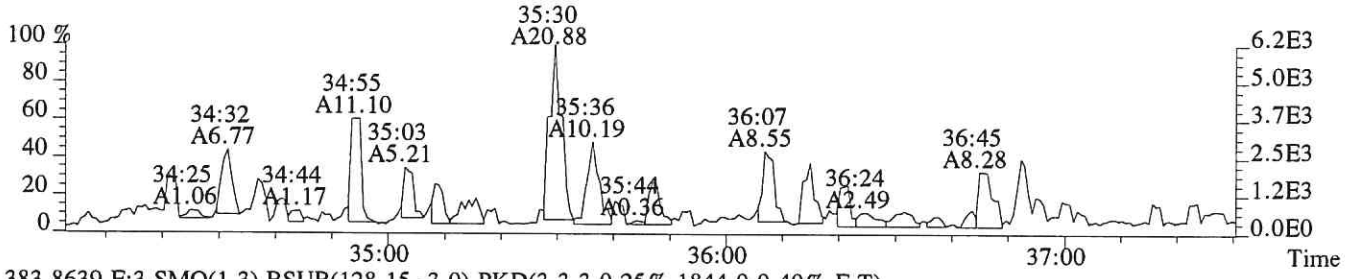


File:P616035 #1-312 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026

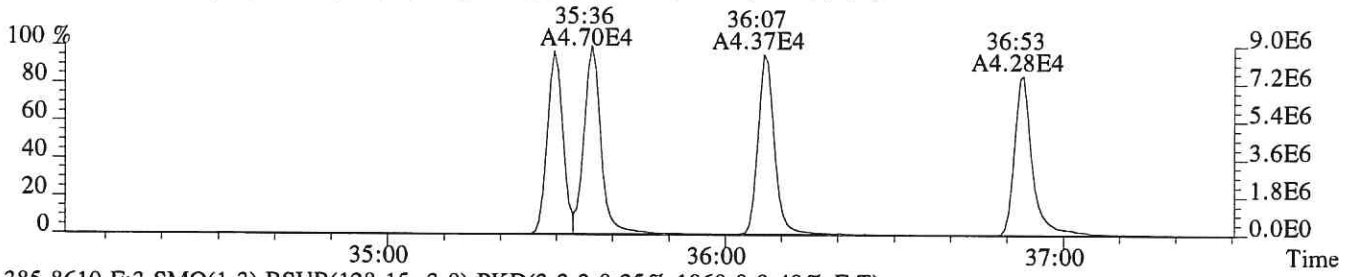
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



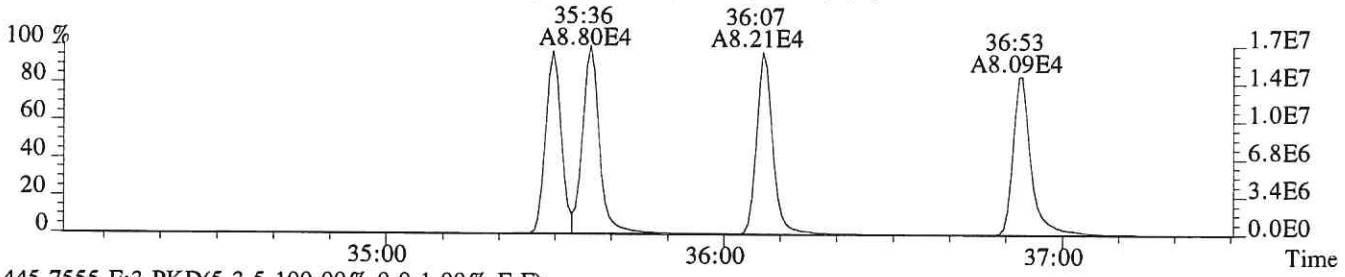
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



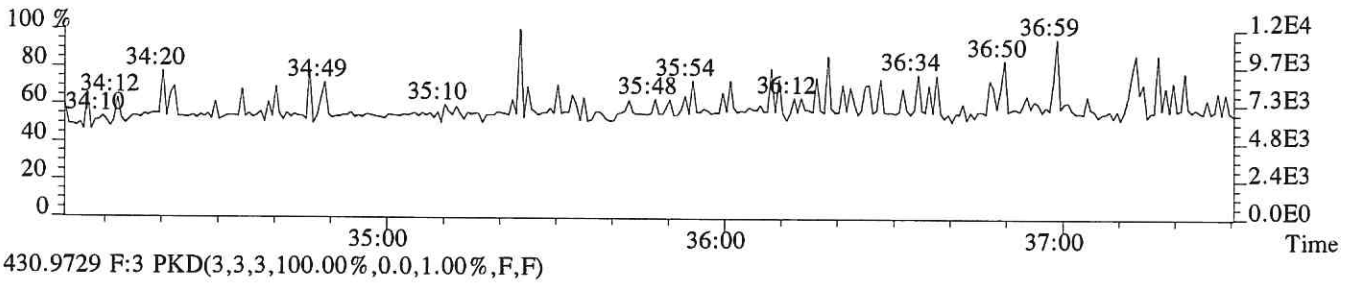
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.40%,F,T)



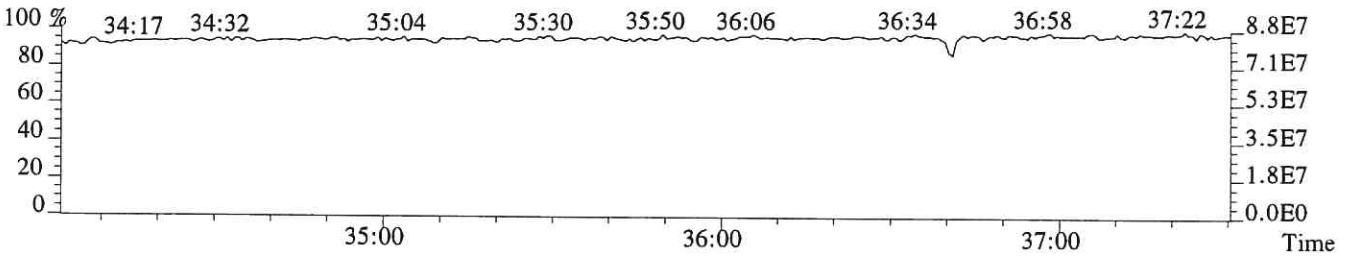
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1860.0,0.40%,F,T)



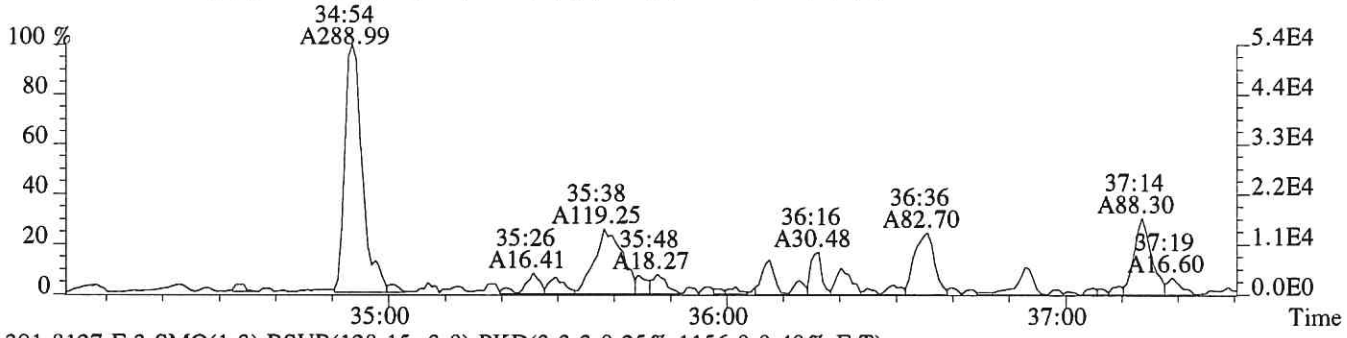
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



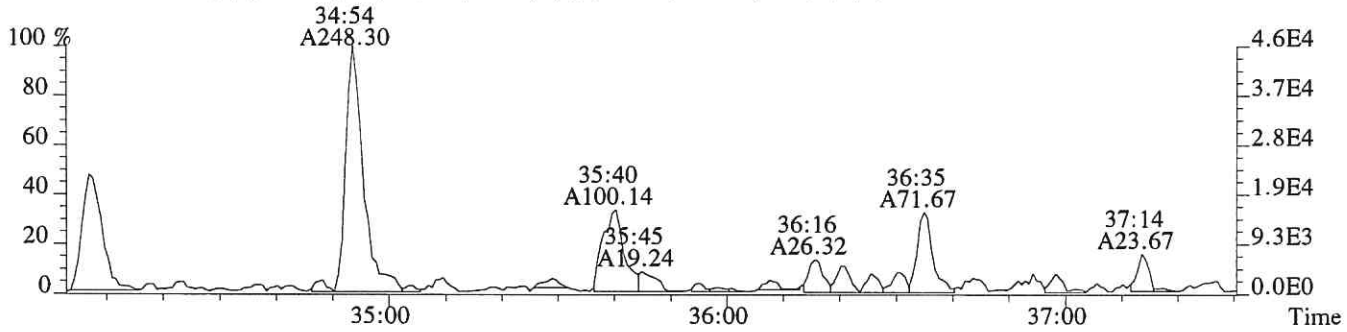
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



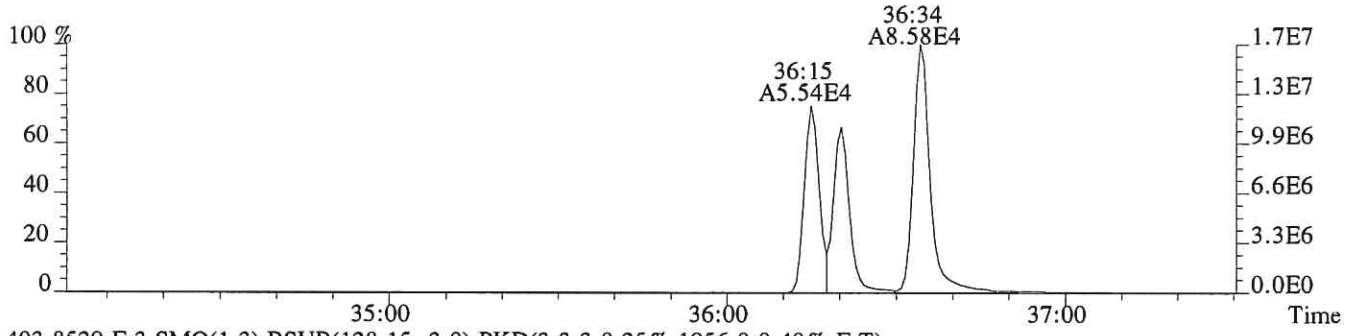
File:P616035 #1-312 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



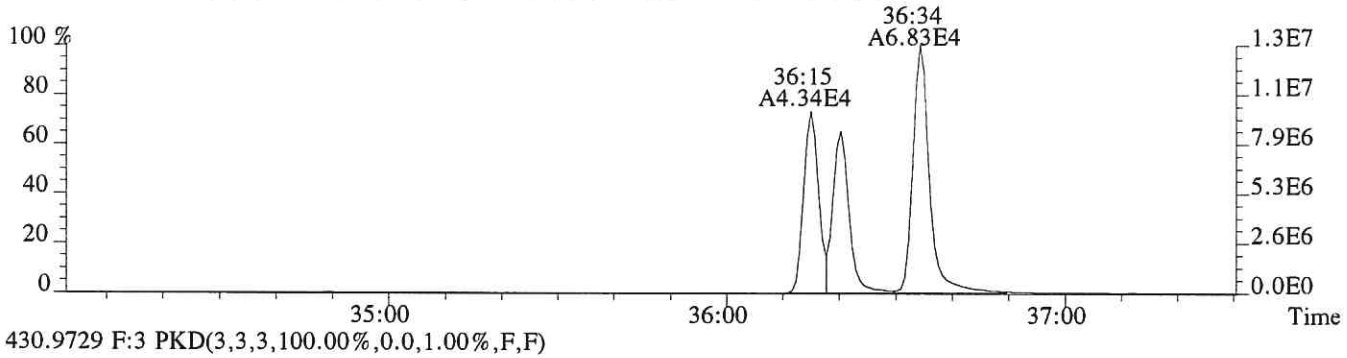
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



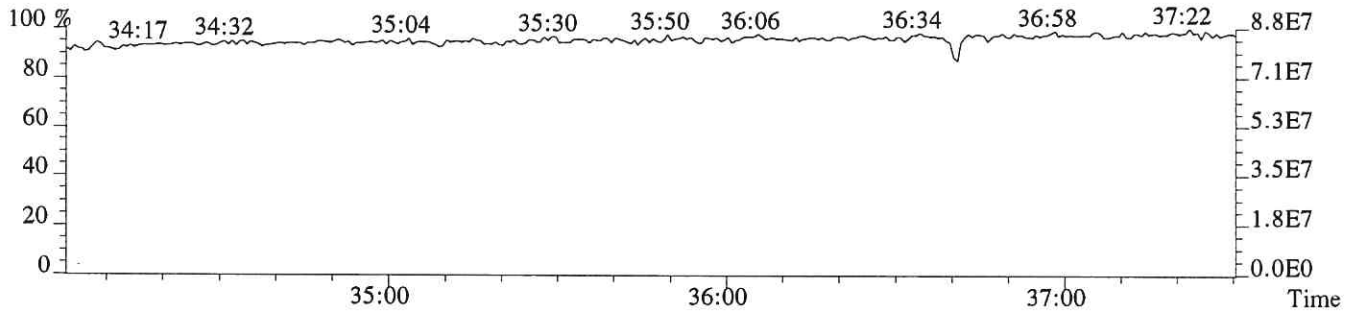
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3148.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1956.0,0.40%,F,T)

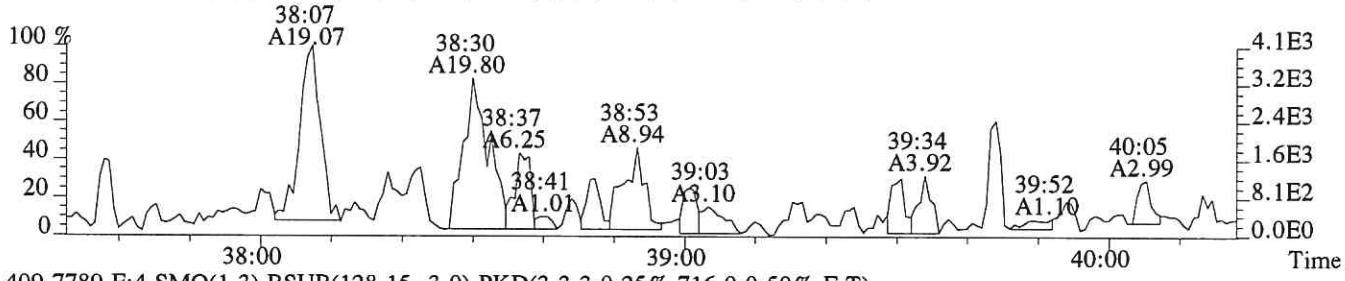


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

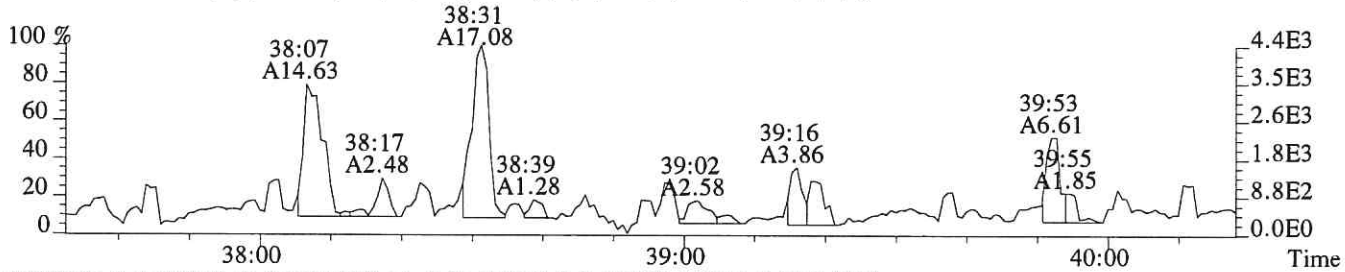


File:P616035 #1-249 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026

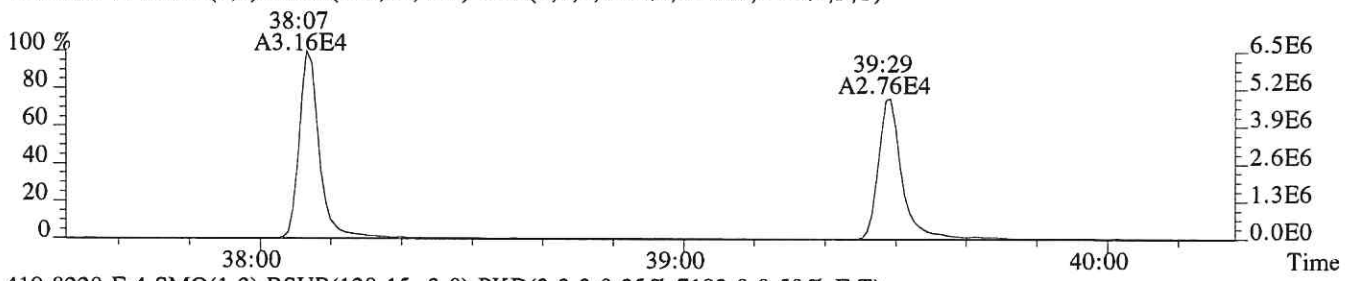
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.50%,F,T)



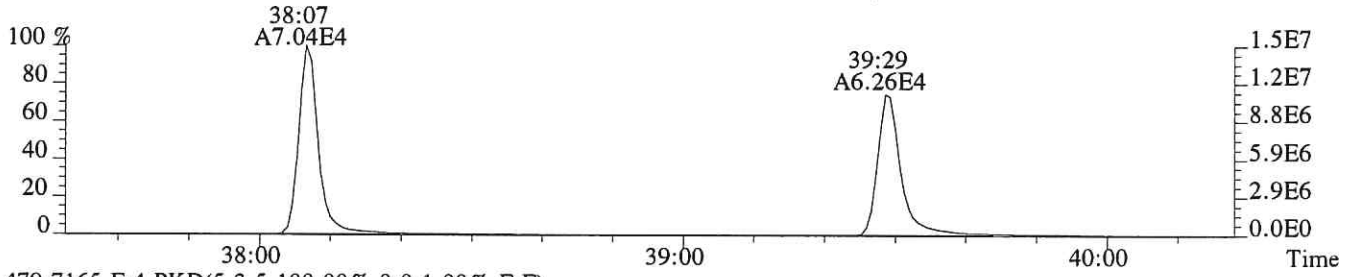
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.50%,F,T)



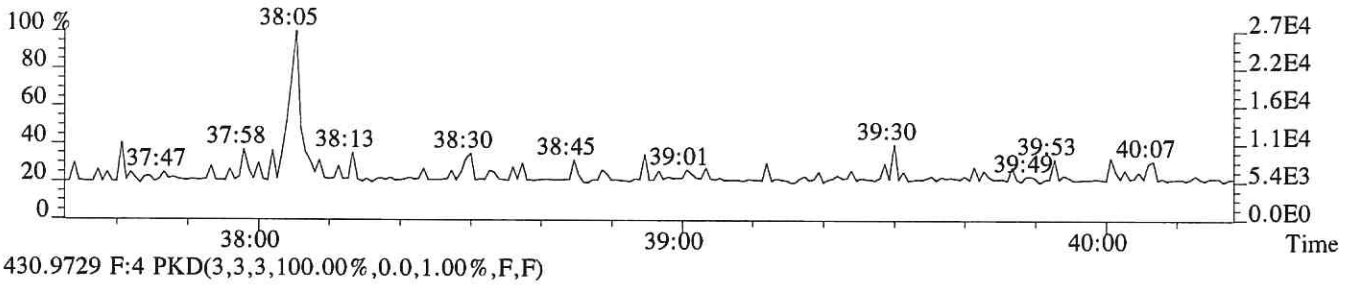
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4464.0,0.50%,F,T)



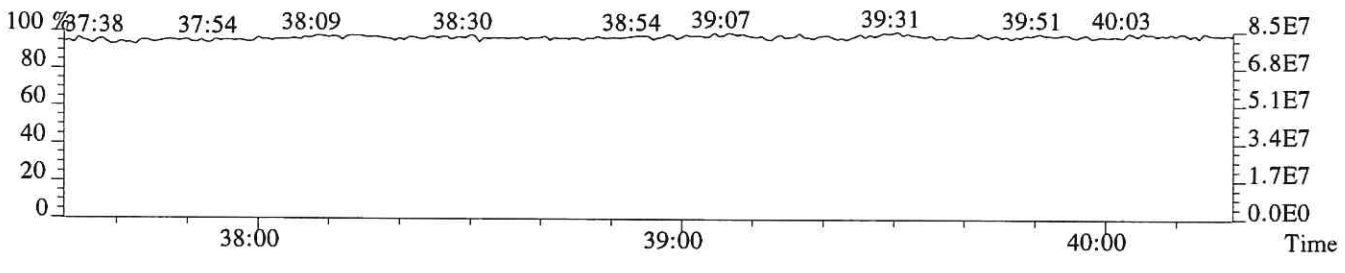
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7192.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

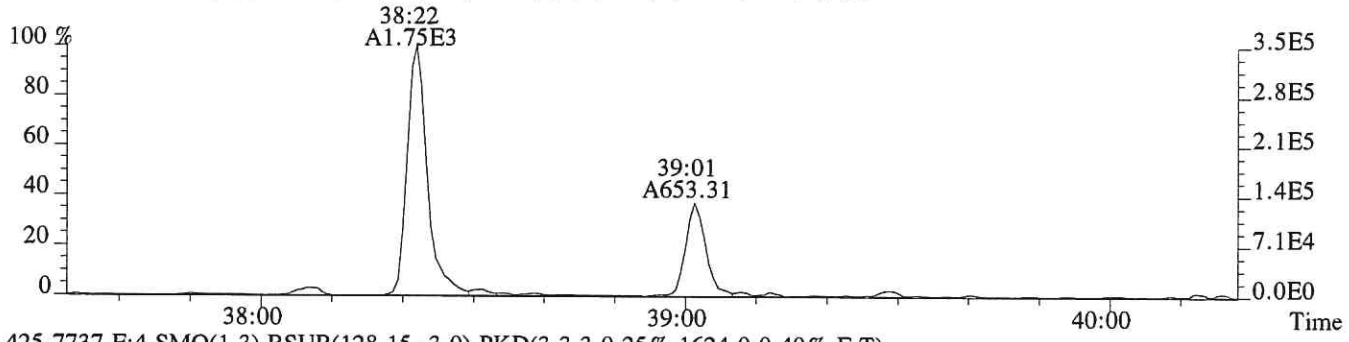


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

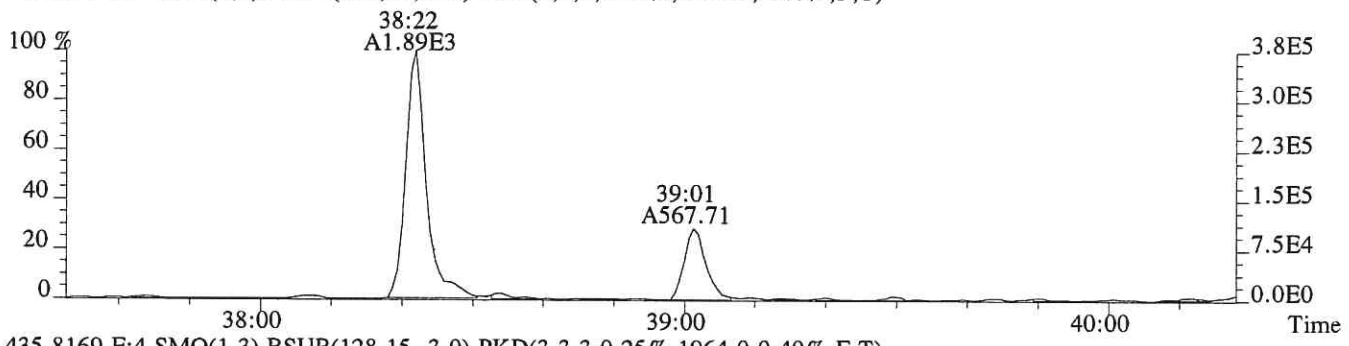


File:P616035 #1-249 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026

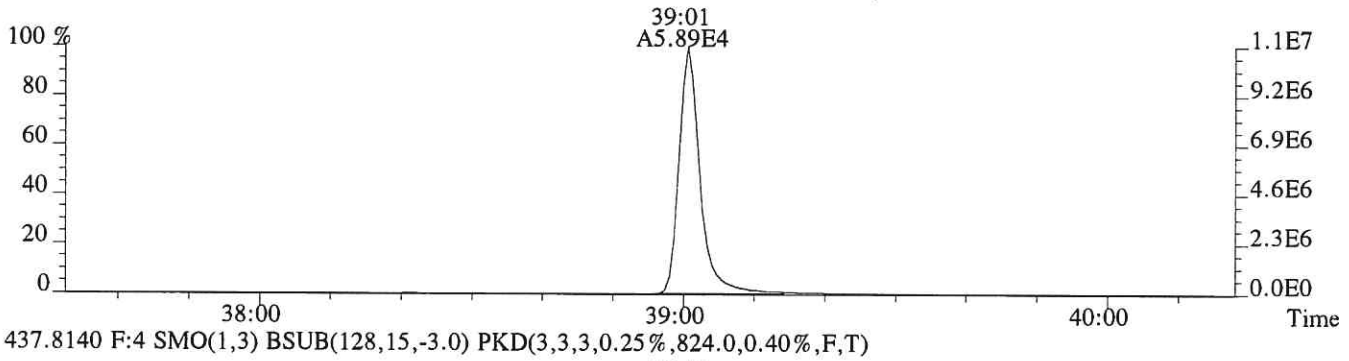
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



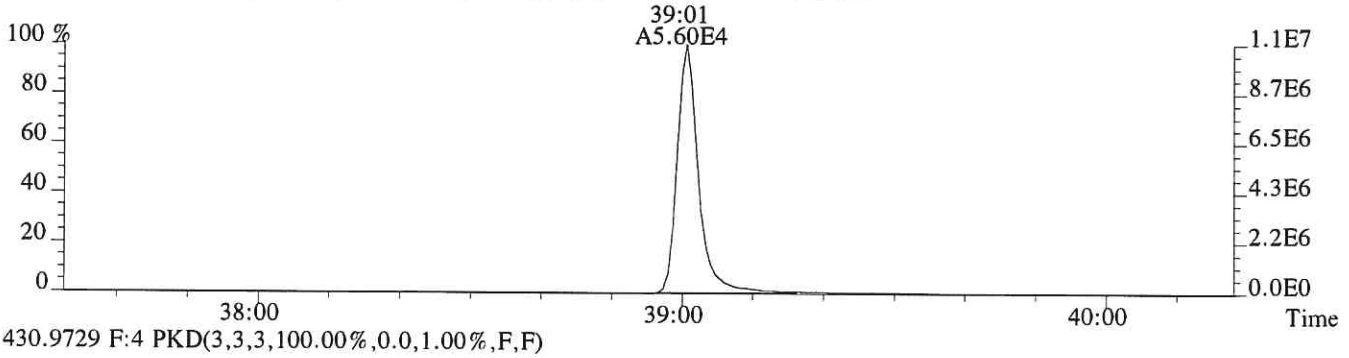
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



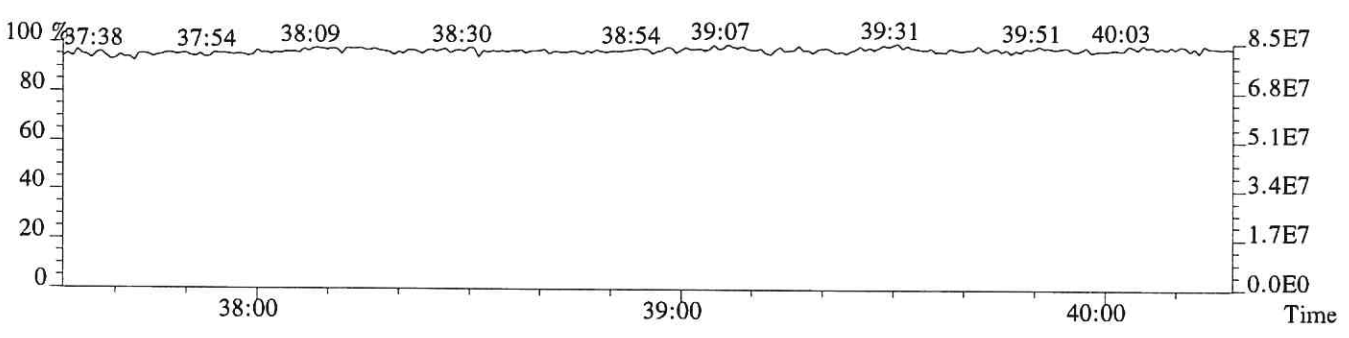
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1964.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)

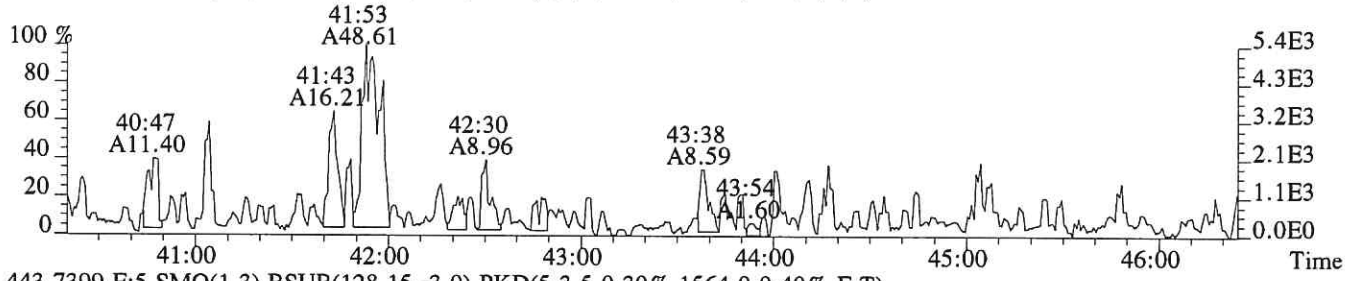


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

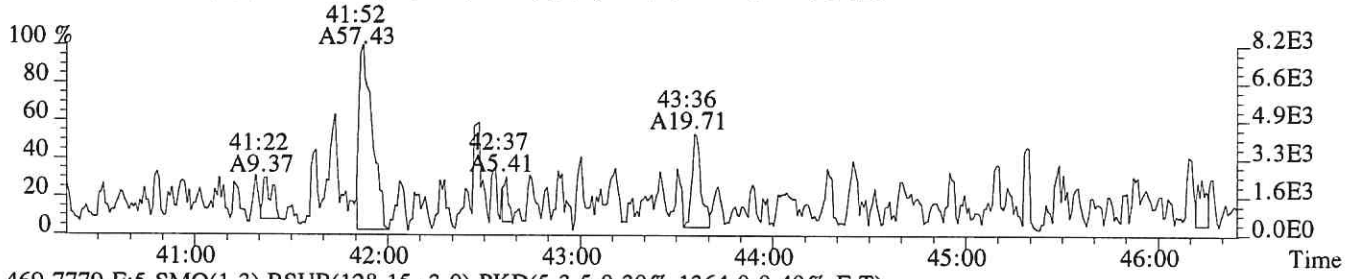


File:P616035 #1-547 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026

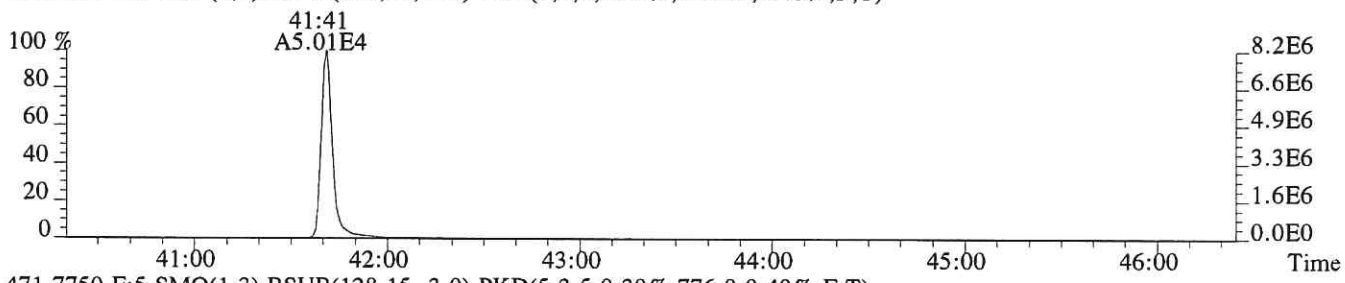
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



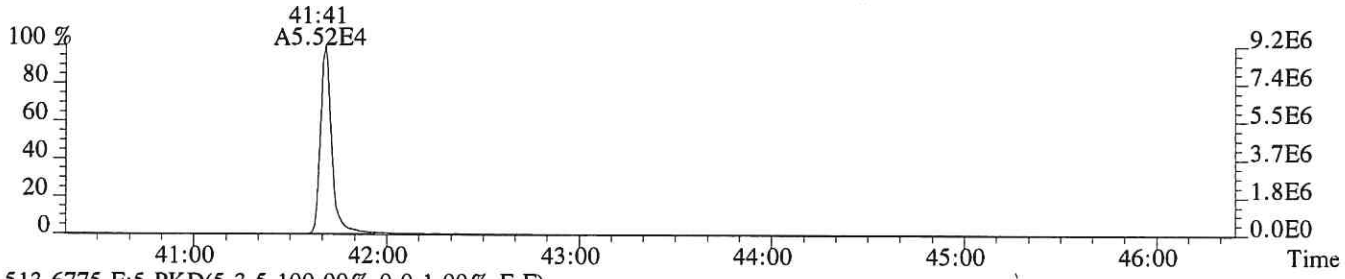
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1564.0,0.40%,F,T)



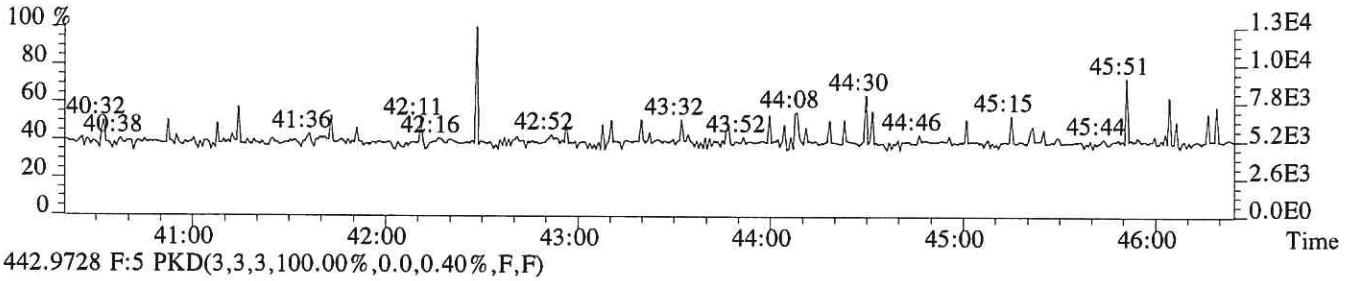
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1364.0,0.40%,F,T)



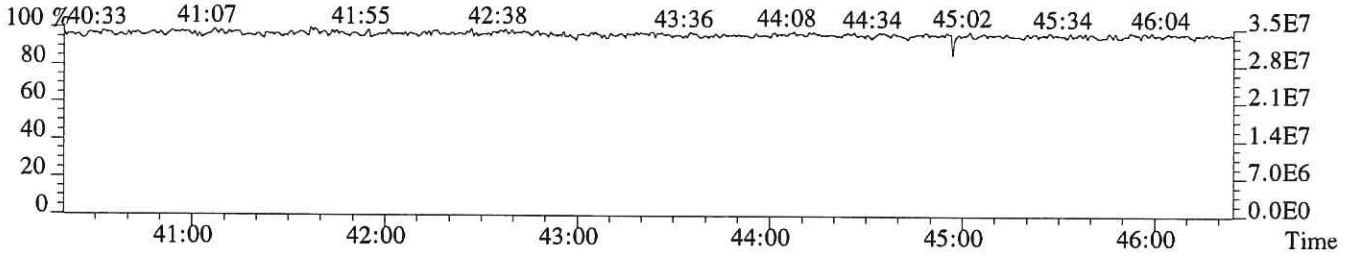
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



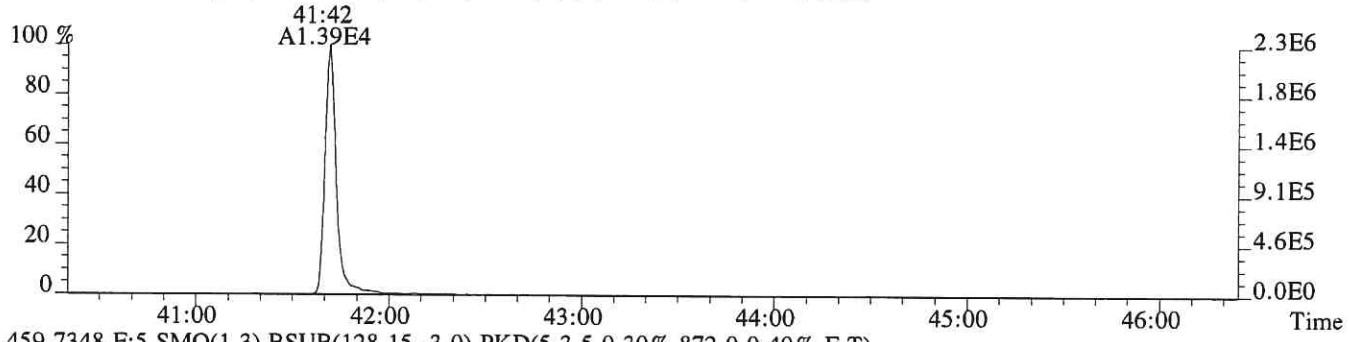
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



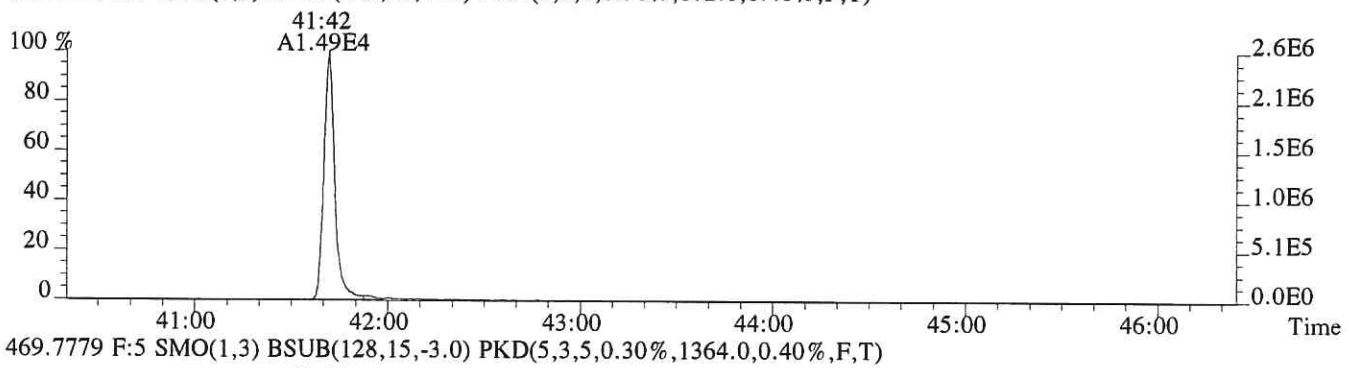
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



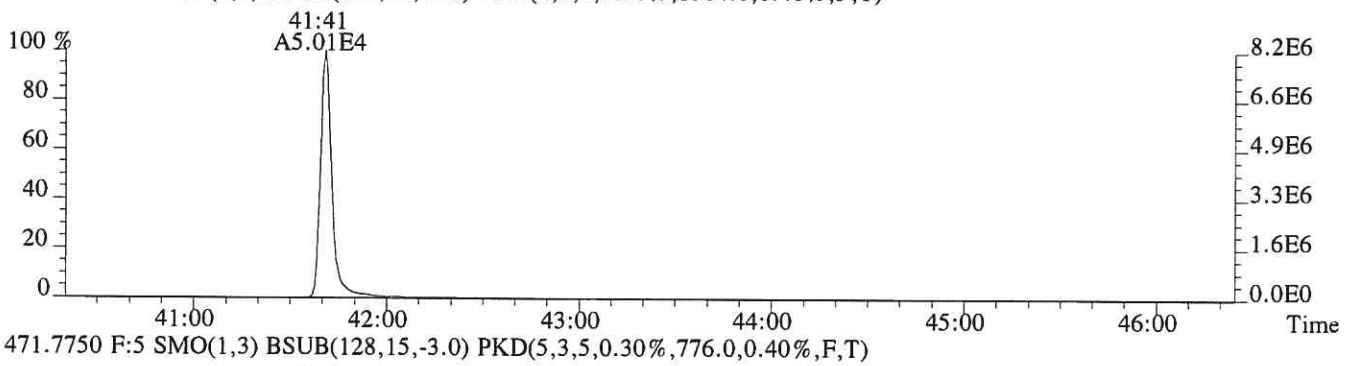
File:P616035 #1-547 Acq:11-DEC-2018 05:01:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-026
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



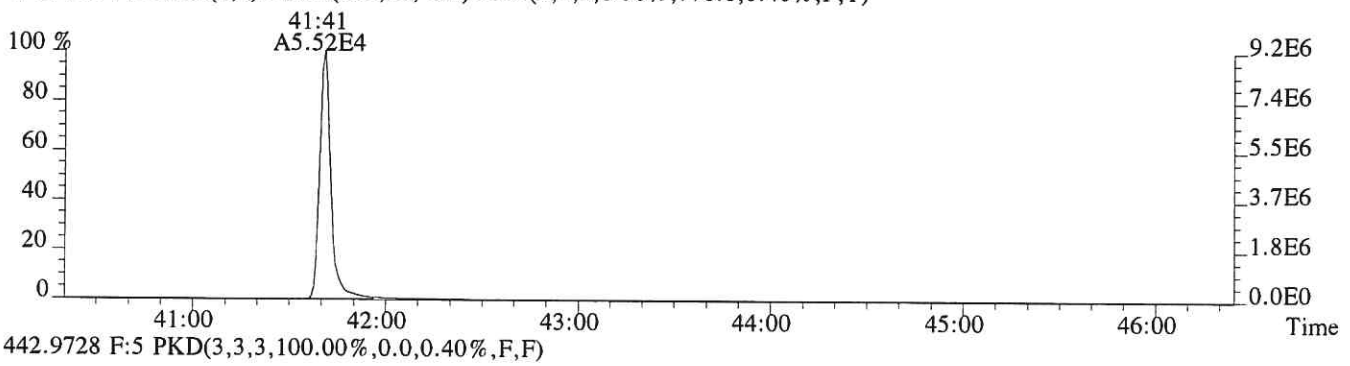
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



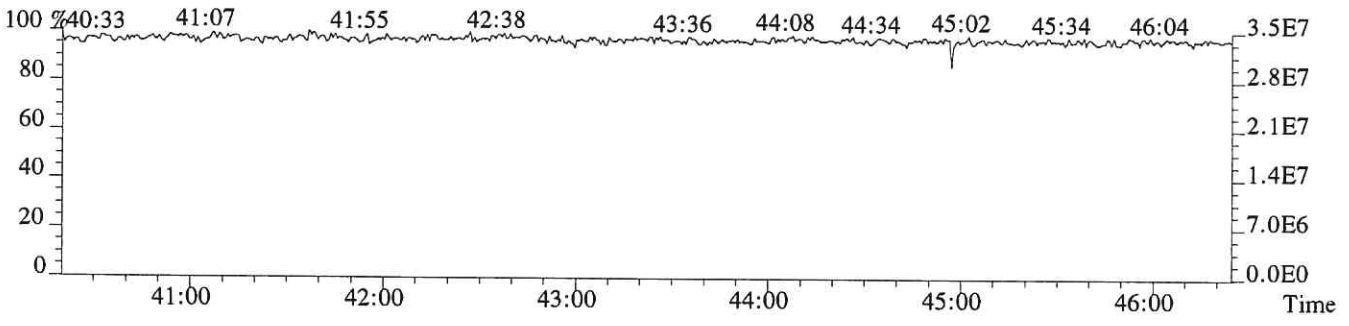
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1364.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
SL0577

Run #13 Filename P519373 Samp: 1 Inj: 1 Acquired: 12-DEC-18 05:28:45
Processed: 13-DEC-18 09:32:59 Sample ID: E1801065-027

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.175e+01	1.254e+01	0.94	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	2.802e+01	2.297e+01	1.22	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:54	8.092e+00	9.396e+00	0.86	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	7.928e+01	7.194e+01	1.10	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:01	1.063e+01	6.866e+00	1.55	no	yes	1.258
10	Unk	OCDF	42:43	4.471e+02	4.695e+02	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:38	7.658e+00	6.517e+00	1.18	yes	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.272e+01	9.841e+00	1.29	yes	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.827e+01	1.649e+01	1.11	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	2.117e+02	1.894e+02	1.12	yes	no	1.025
17	Unk	OCDD	42:32	5.919e+03	6.769e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.403e+04	1.763e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	2.418e+04	1.503e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	2.286e+04	1.418e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.007e+04	1.958e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.228e+04	2.296e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.113e+04	2.126e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	9.692e+03	1.906e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	8.216e+03	1.804e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	7.048e+03	1.614e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	6.357e+03	8.062e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.669e+04	1.044e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	1.459e+04	1.132e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.437e+04	1.123e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	1.680e+04	1.557e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	1.555e+04	1.723e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	1.879e+04	2.351e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	2.846e+04	2.254e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	9.530e+03				no	1.014

$$\text{OCDD} = \frac{(5.919e+03 + 6.769e+03) \times 4000\ \text{pg} \times 1}{(1.555e+04 + 1.723e+04) \times 10.446\ \text{g} \times 81 / 100 \times 1.118} = 163.4675\ \text{ng/kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0577

Run #13 Filename P519373 Samp: 1 Inj: 1 Acquired: 12-DEC-18 05:28:45
Processed: 13-DEC-18 09:32:59 LAB. ID: E1801065-027

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	2.48e+02	*	*	9.92e+02	*
2	1,2,3,7,8-PeCDF	*	5.68e+02	*	*	5.76e+02	*
3	2,3,4,7,8-PeCDF	2.51e+03	5.68e+02	4.4e+00	2.45e+03	5.76e+02	4.3e+00
4	1,2,3,4,7,8-HxCDF	5.82e+03	2.44e+02	2.4e+01	4.48e+03	2.48e+02	1.8e+01
5	1,2,3,6,7,8-HxCDF	1.98e+03	2.44e+02	8.1e+00	1.53e+03	2.48e+02	6.2e+00
6	2,3,4,6,7,8-HxCDF	*	2.44e+02	*	*	2.48e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.44e+02	*	*	2.48e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.60e+04	5.16e+02	3.1e+01	1.34e+04	2.28e+02	5.9e+01
9	1,2,3,4,7,8,9-HpCDF	1.30e+03	5.16e+02	2.5e+00	1.29e+03	2.28e+02	5.7e+00
10	OCDF	5.57e+04	2.64e+02	2.1e+02	5.56e+04	5.28e+02	1.1e+02
11	2,3,7,8-TCDD	*	1.31e+03	*	*	4.08e+02	*
12	1,2,3,7,8-PeCDD	*	6.08e+02	*	*	4.88e+02	*
13	1,2,3,4,7,8-HxCDD	1.38e+03	3.60e+02	3.8e+00	1.48e+03	2.24e+02	6.6e+00
14	1,2,3,6,7,8-HxCDD	2.88e+03	3.60e+02	8.0e+00	3.20e+03	2.24e+02	1.4e+01
15	1,2,3,7,8,9-HxCDD	4.84e+03	3.60e+02	1.3e+01	3.65e+03	2.24e+02	1.6e+01
16	1,2,3,4,6,7,8-HpCDD	3.62e+04	3.08e+02	1.2e+02	3.38e+04	2.84e+02	1.2e+02
17	OCDD	6.35e+05	2.80e+02	2.3e+03	7.44e+05	5.92e+02	1.3e+03
18	13C-2,3,7,8-TCDF	2.47e+06	3.66e+03	6.8e+02	3.12e+06	1.64e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	4.27e+06	5.16e+02	8.3e+03	2.66e+06	5.08e+02	5.2e+03
20	13C-2,3,4,7,8-PeCDF	4.28e+06	5.16e+02	8.3e+03	2.62e+06	5.08e+02	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.99e+06	1.44e+02	1.4e+04	3.92e+06	2.00e+02	2.0e+04
22	13C-1,2,3,6,7,8-HxCDF	2.24e+06	1.44e+02	1.6e+04	4.23e+06	2.00e+02	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	2.12e+06	1.44e+02	1.5e+04	4.13e+06	2.00e+02	2.1e+04
24	13C-1,2,3,7,8,9-HxCDF	1.77e+06	1.44e+02	1.2e+04	3.42e+06	2.00e+02	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.44e+06	2.80e+03	5.1e+02	3.22e+06	1.41e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+06	2.80e+03	3.7e+02	2.37e+06	1.41e+03	1.7e+03
27	13C-2,3,7,8-TCDD	1.14e+06	3.60e+03	3.2e+02	1.45e+06	1.38e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+06	5.48e+02	5.7e+03	1.94e+06	4.16e+02	4.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.95e+06	5.56e+02	5.3e+03	2.29e+06	5.96e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.66e+06	5.56e+02	4.8e+03	2.07e+06	5.96e+02	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.56e+06	3.84e+02	6.7e+03	2.46e+06	3.00e+02	8.2e+03
32	13C-OCDD	1.67e+06	2.96e+02	5.6e+03	1.85e+06	5.20e+02	3.6e+03
33	13C-1,2,3,4-TCDD	3.46e+06	3.60e+03	9.6e+02	4.33e+06	1.38e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.08e+06	5.56e+02	9.1e+03	3.98e+06	5.96e+02	6.7e+03
35	37Cl-2,3,7,8-TCDD	1.75e+06	4.04e+02	4.3e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.312e{+}03 + 4.080e{+}02\ ) \times 2000}{(1.139e{+}06 + 1.455e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0577

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P519373 Sample:1 Injection:1 Function:3

Acquired: 12-DEC-18 05:28:45 Processed: 13-DEC-18 09:32:59

Mass: 373.8210 375.8180 Tot Response: 5.10e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:48	2.80e+01	2.30e+01 1.22	yes	5.10e+01	1,2,3,4,7,8-HxCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0577

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P519373 Sample:1 Injection:1 Function:3

Acquired: 12-DEC-18 05:28:45 Processed: 13-DEC-18 09:32:59

Mass: 389.8160 391.8130 Tot Response: 7.15e+01 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:38	7.66e+00	6.52e+00	1.18	yes	1.42e+01	1,2,3,4,7,8-HxCDD	n	y
2	36:41	1.27e+01	9.84e+00	1.29	yes	2.26e+01	1,2,3,6,7,8-HxCDD	n	y
3	36:55	1.83e+01	1.65e+01	1.11	yes	3.48e+01	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0577

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P519373 Sample:1 Injection:1 Function:4

Acquired: 12-DEC-18 05:28:45 Processed: 13-DEC-18 09:32:59

Mass: 407.7820 409.7790 Tot Response: 1.51e+02 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:34	7.93e+01	7.19e+01 1.10	yes	1.51e+02	1,2,3,4,6,7,8-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0577

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P519373 Sample:1 Injection:1 Function:4

Acquired: 12-DEC-18 05:28:45 Processed: 13-DEC-18 09:32:59

Mass: 423.7770 425.7740 Tot Response: 1.55e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:50	5.79e+02	5.68e+02	1.02	yes	1.15e+03		n	n
2	39:32	2.12e+02	1.89e+02	1.12	yes	4.01e+02	1,2,3,4,6,7,8-HpCDD	n	n

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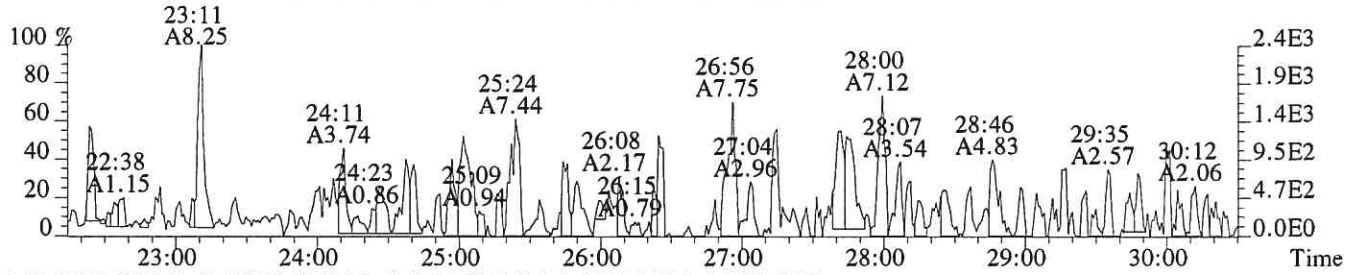
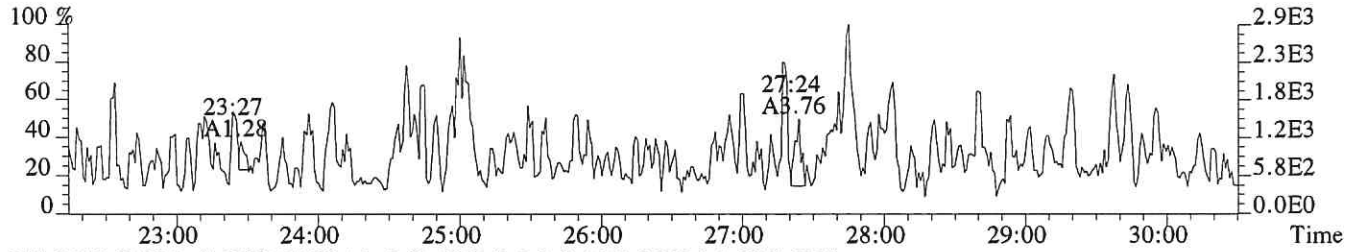
File:P519373 #1-587 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027

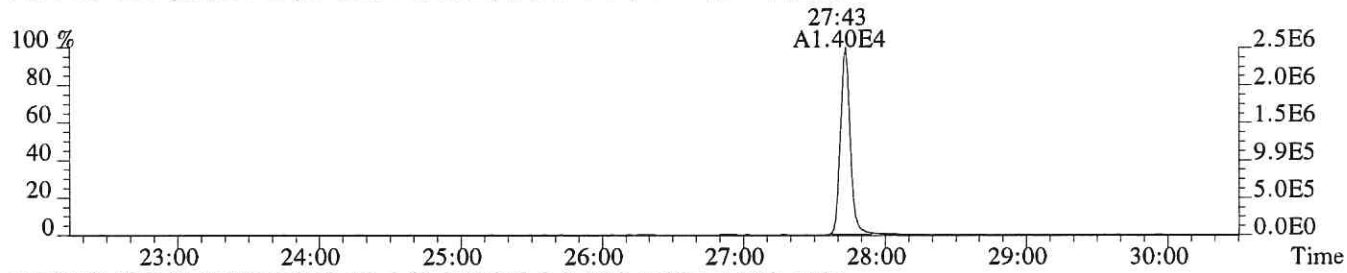
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



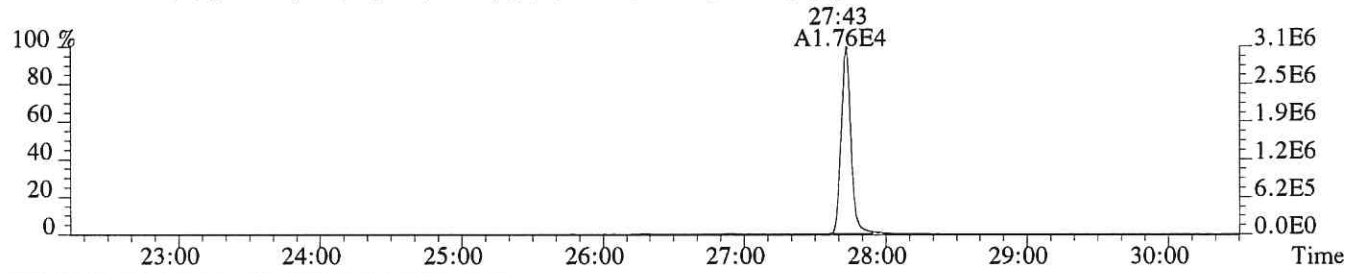
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



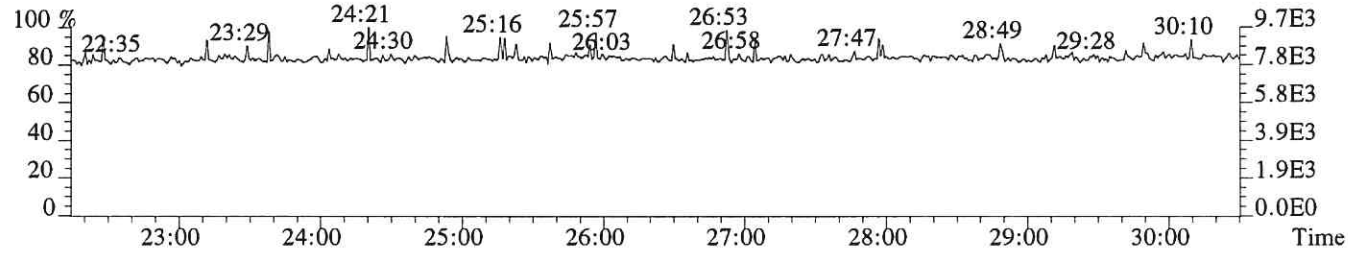
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3656.0,1.00%,F,T)



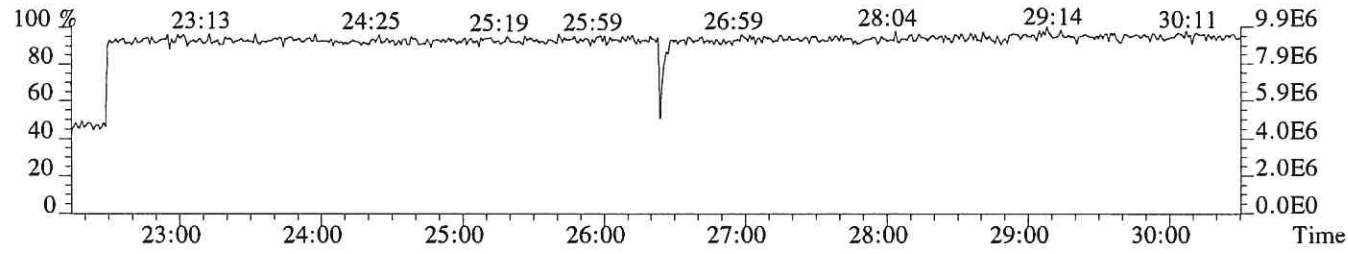
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

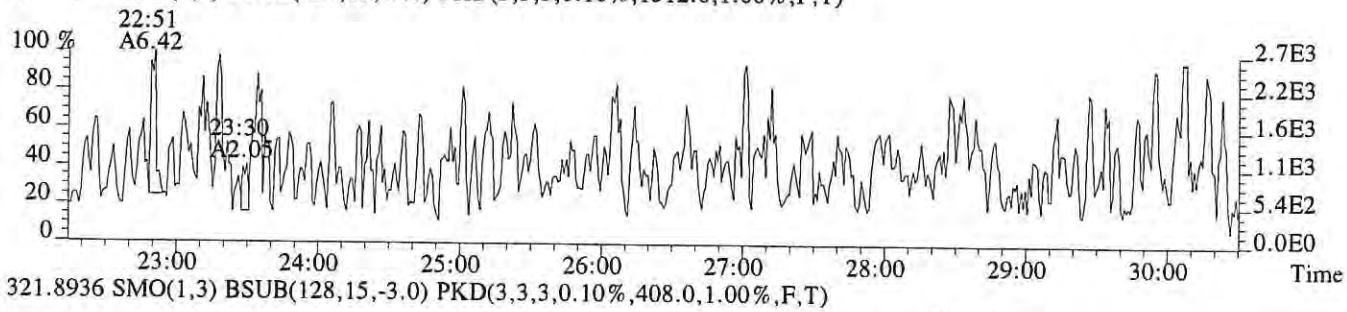


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

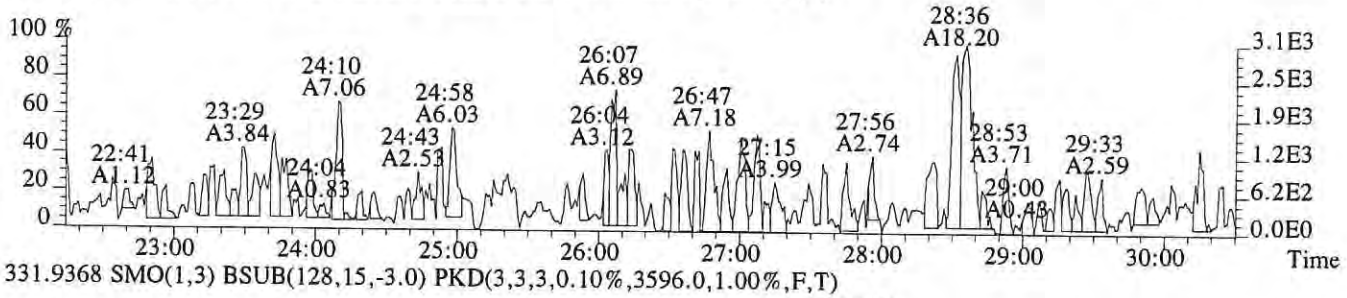


File:P519373 #1-587 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027

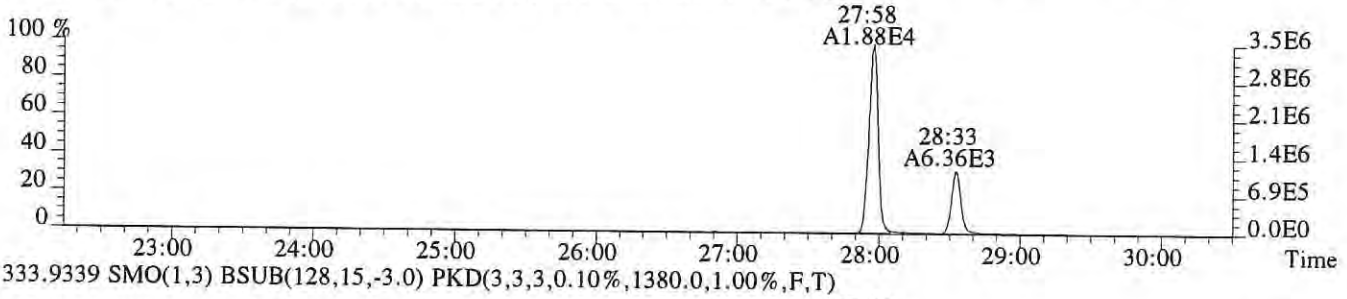
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



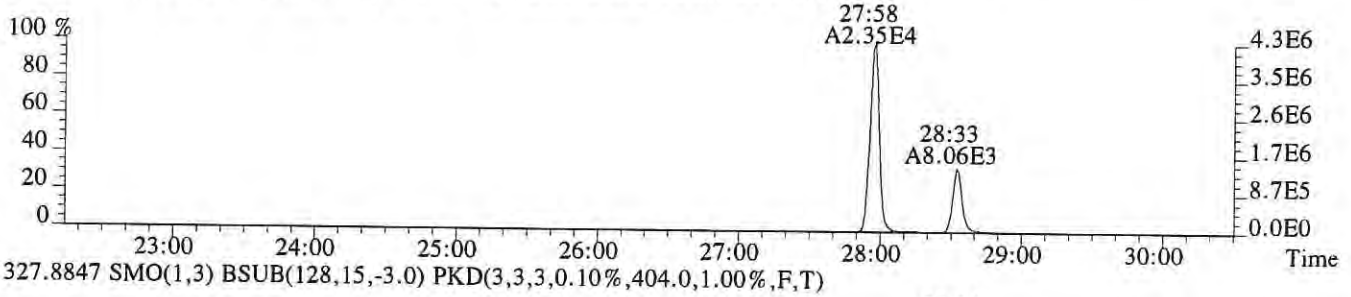
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



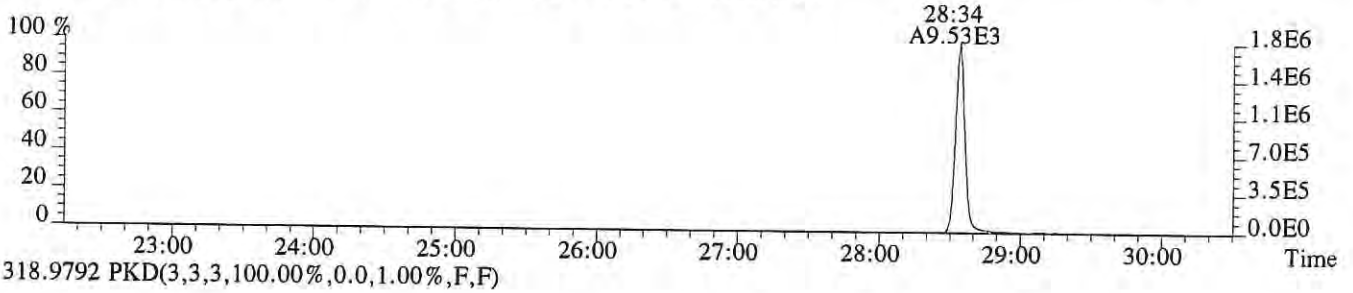
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3596.0,1.00%,F,T)



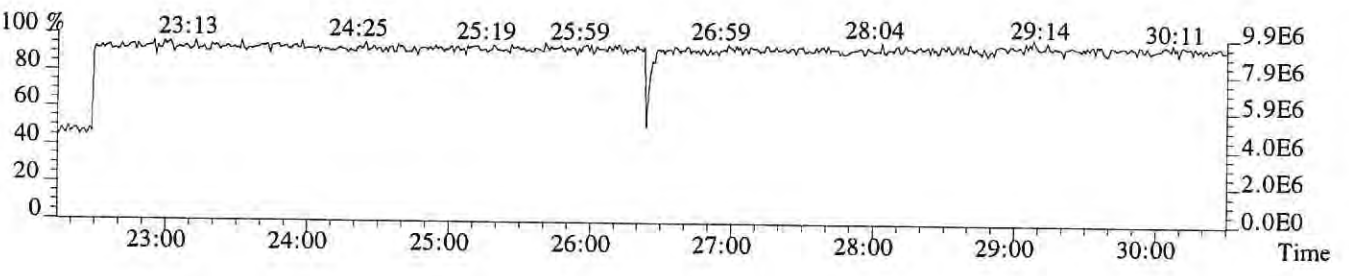
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



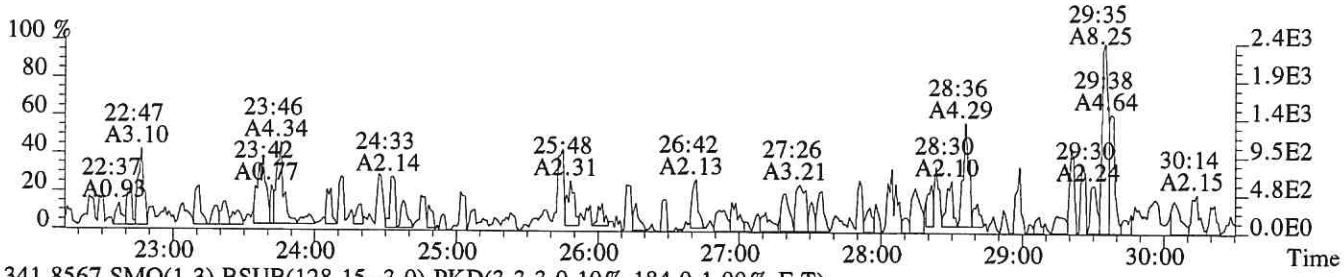
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



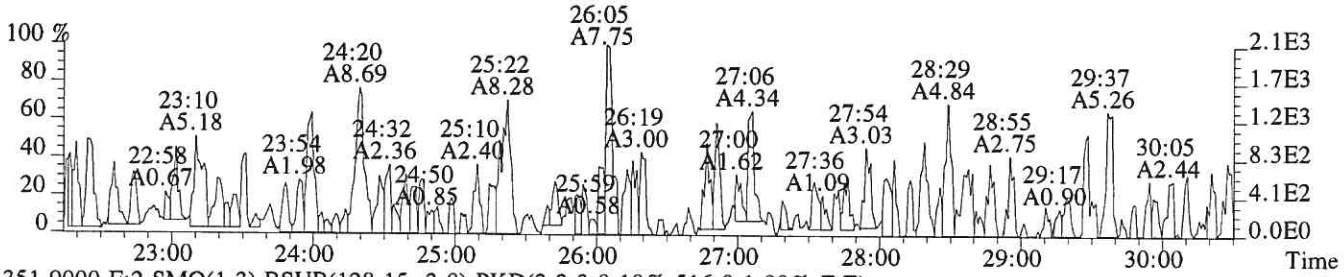
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



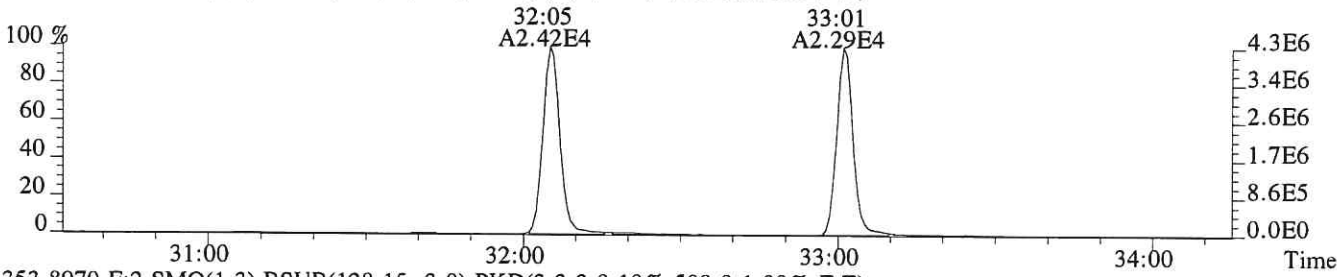
File:P519373 #1-587 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,176.0,1.00%,F,T)



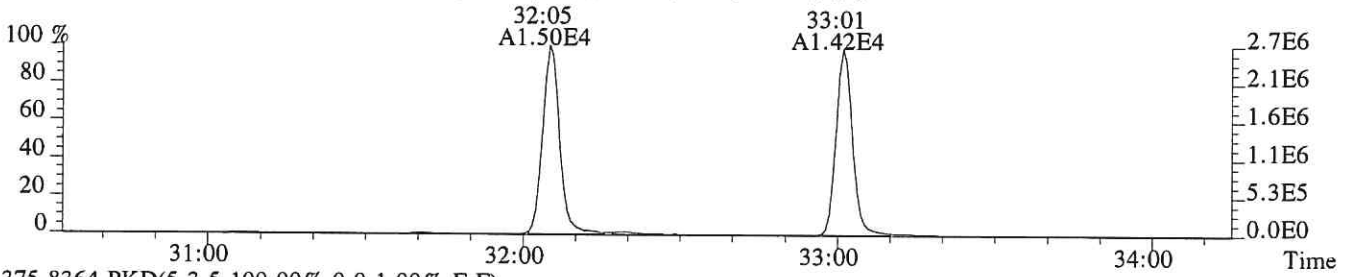
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



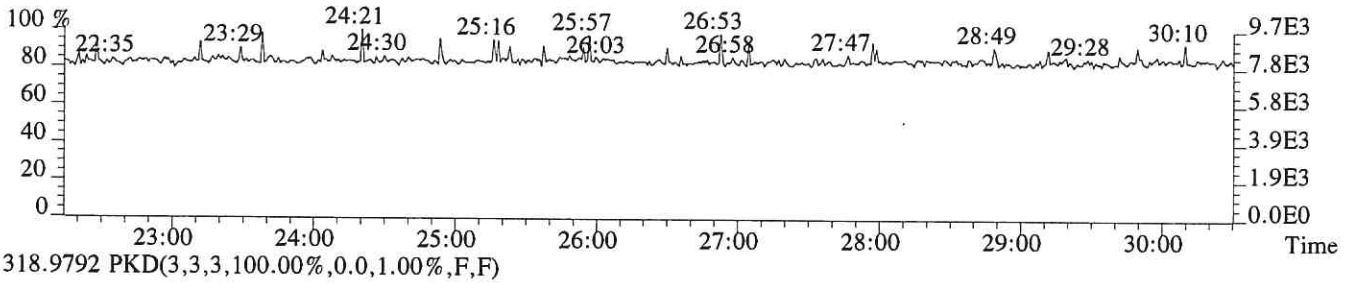
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



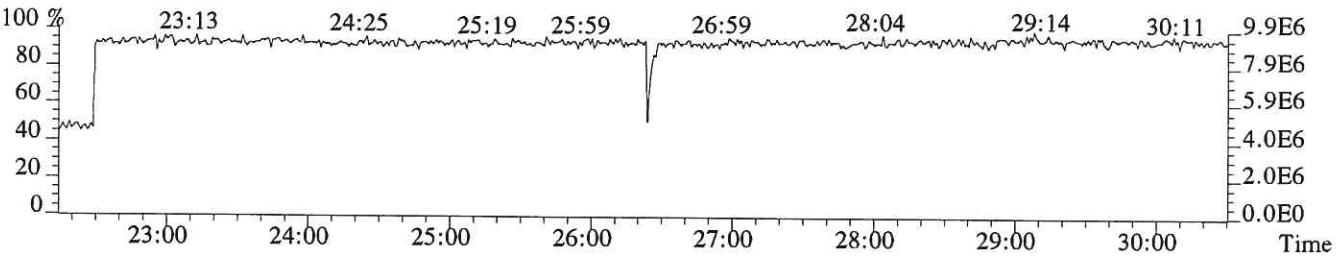
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

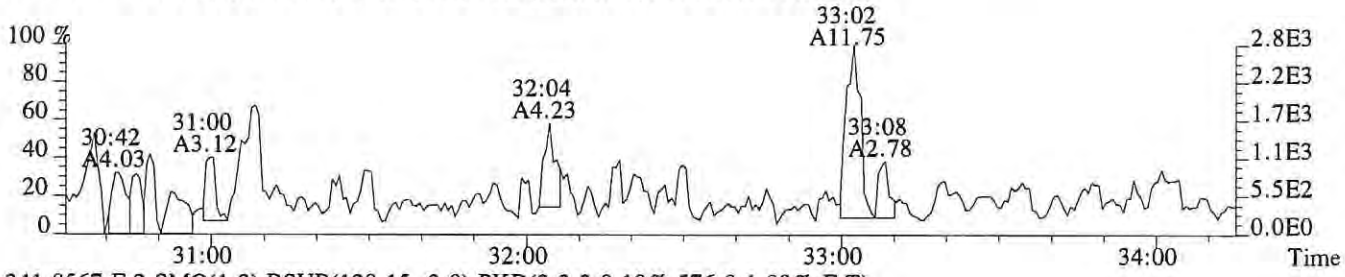


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

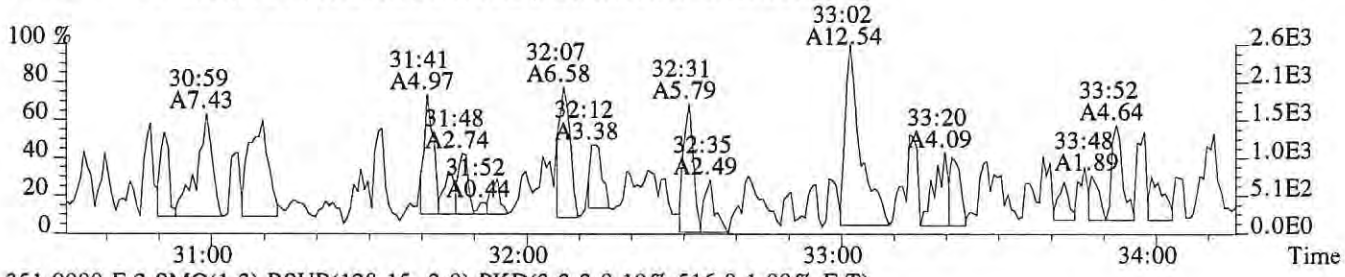


File:P519373 #1-335 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027

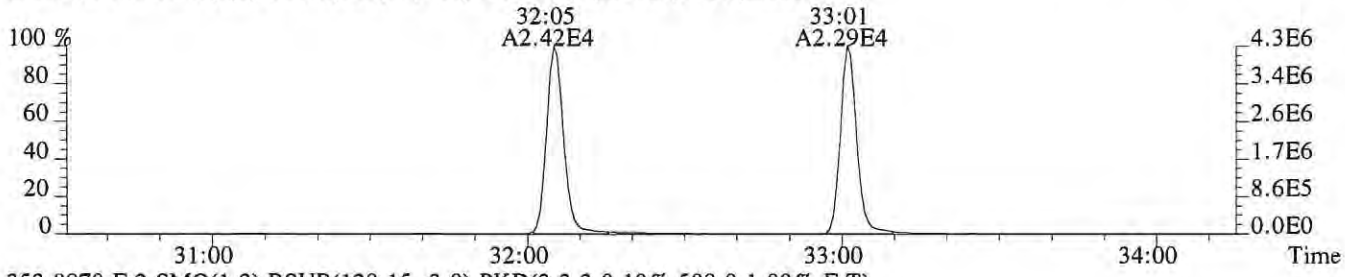
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



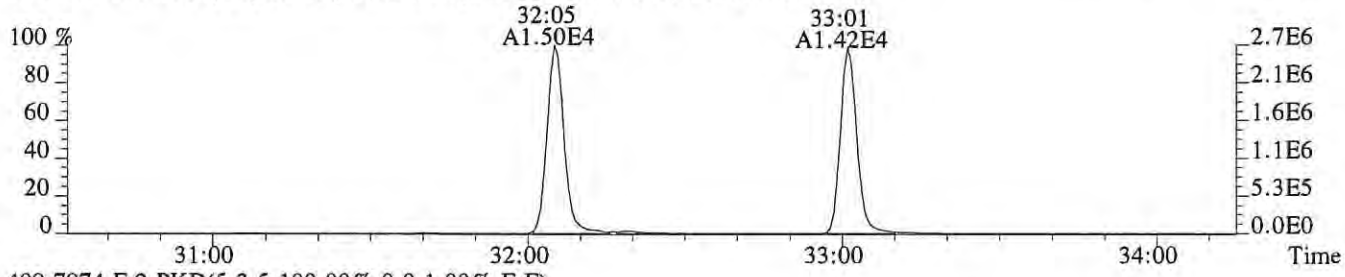
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



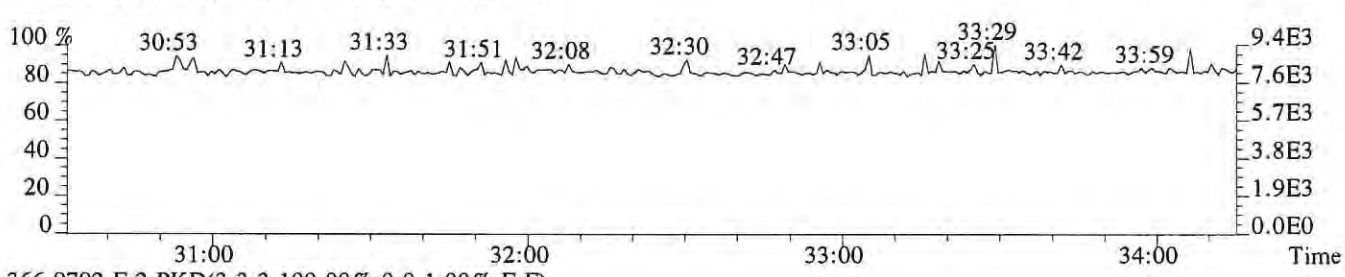
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



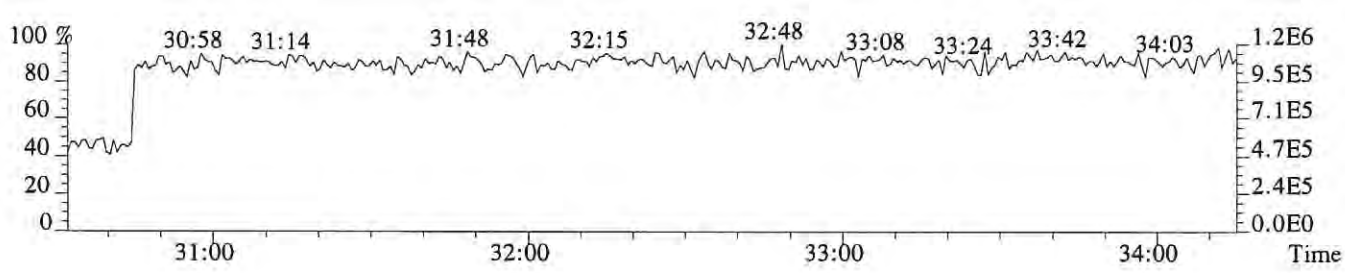
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



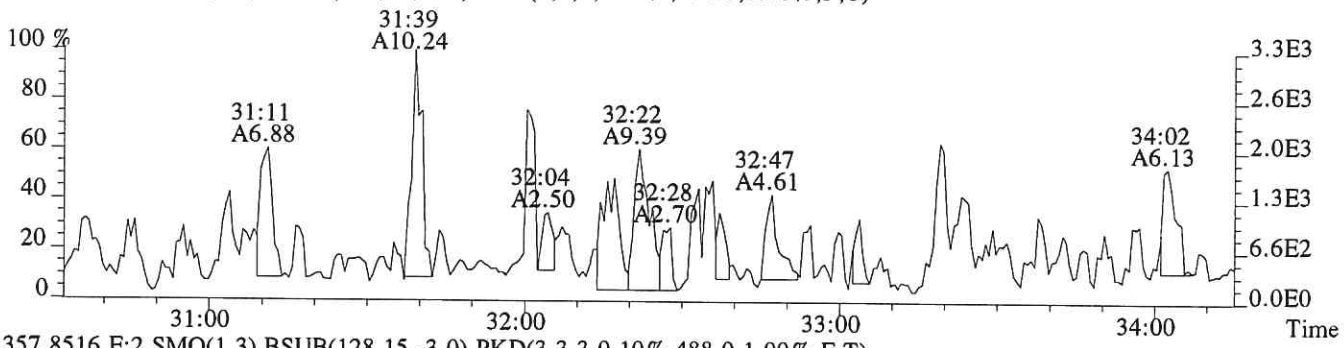
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



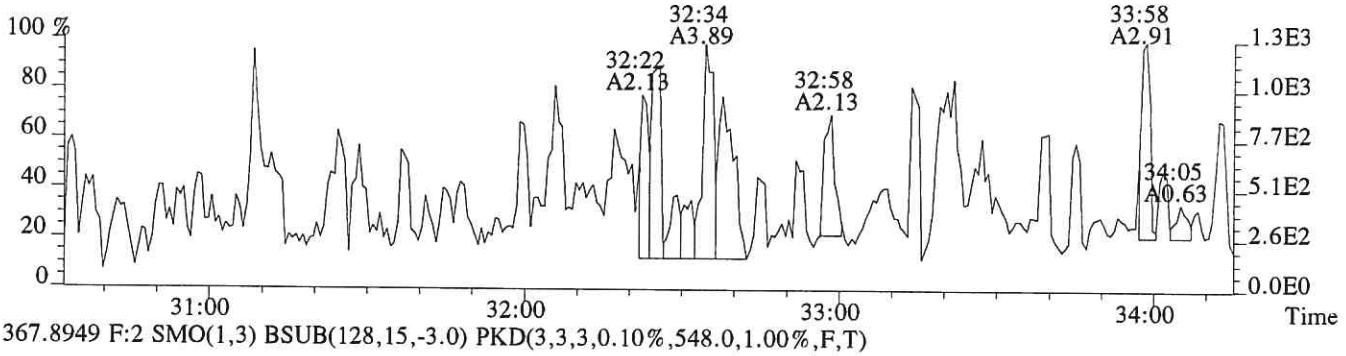
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



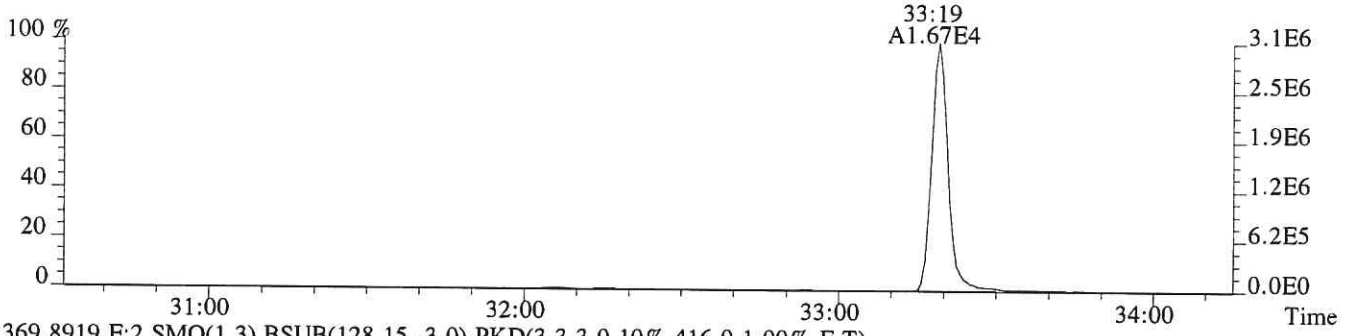
File:P519373 #1-335 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



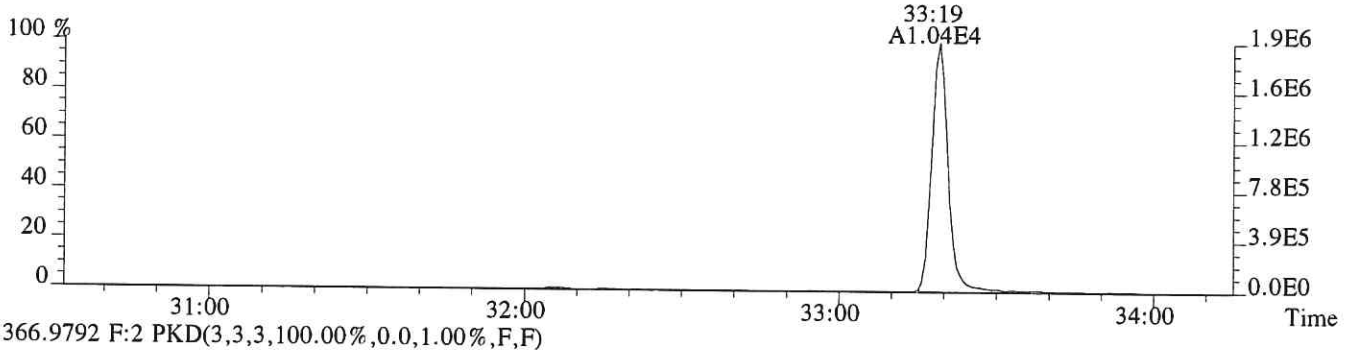
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



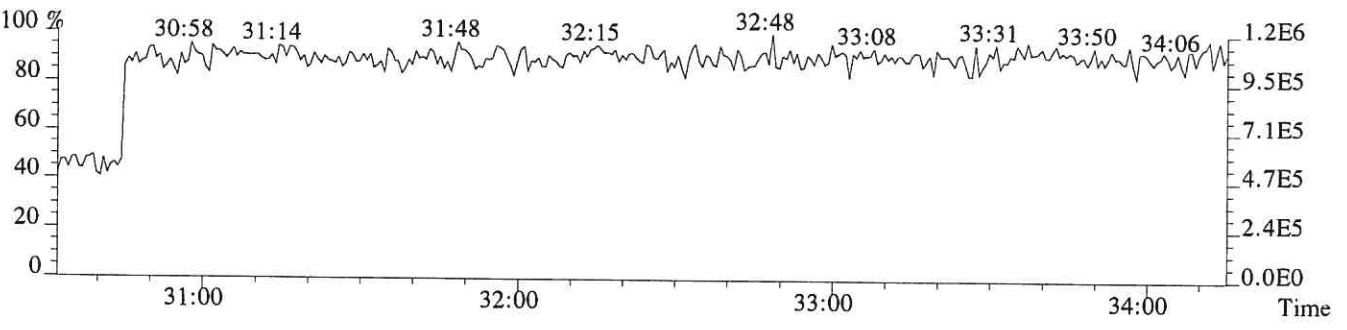
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)

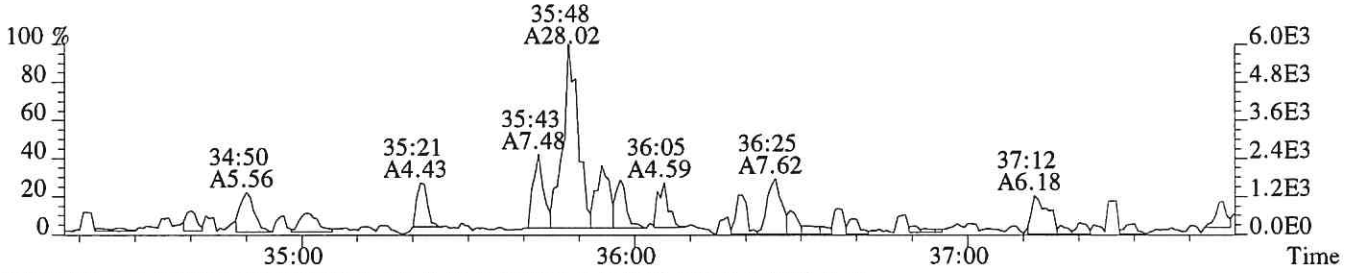


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

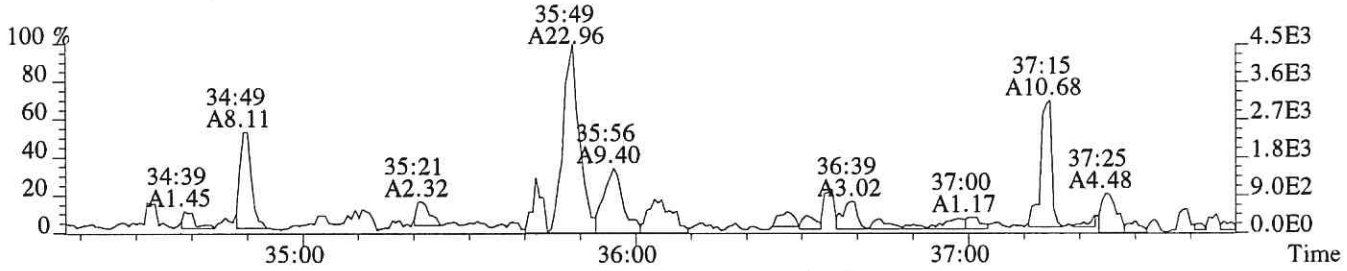


File:P519373 #1-317 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027

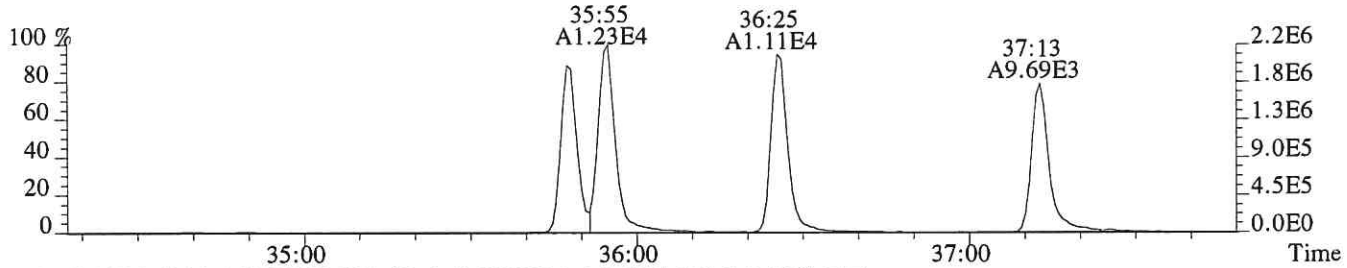
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



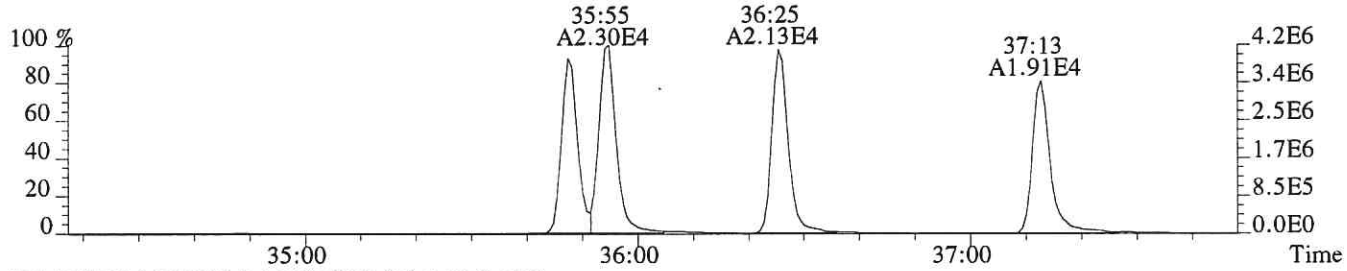
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



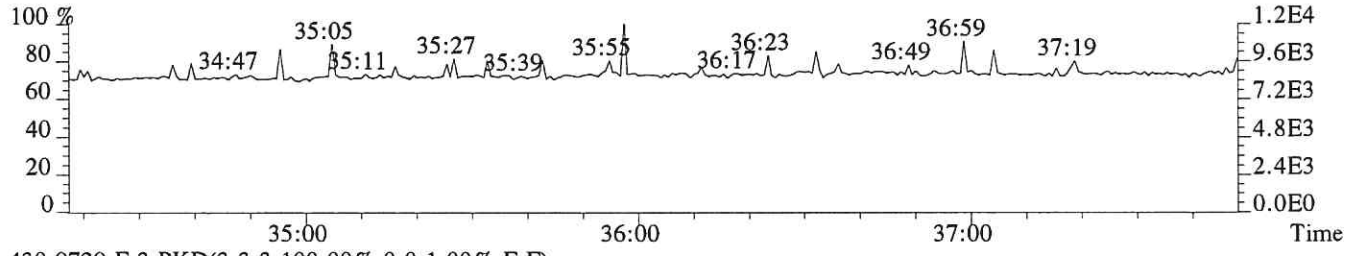
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,144.0,0.40%,F,T)



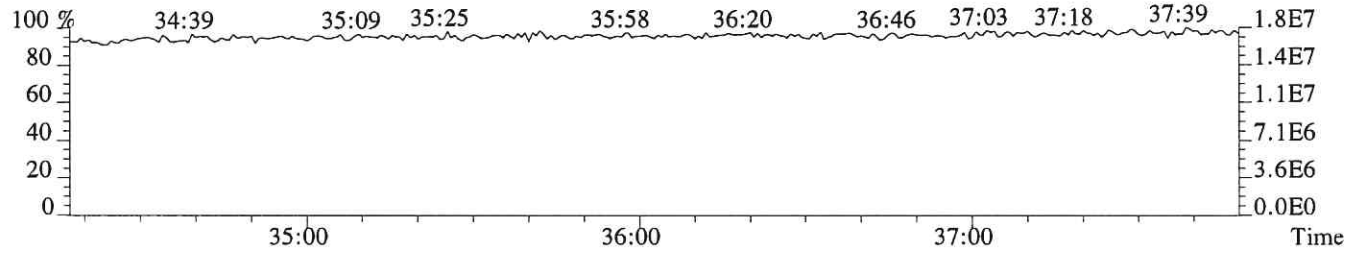
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



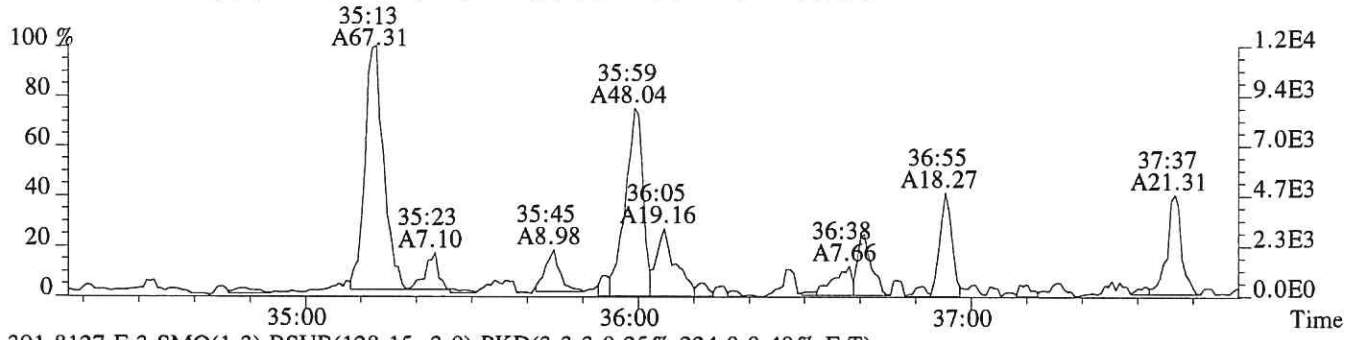
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



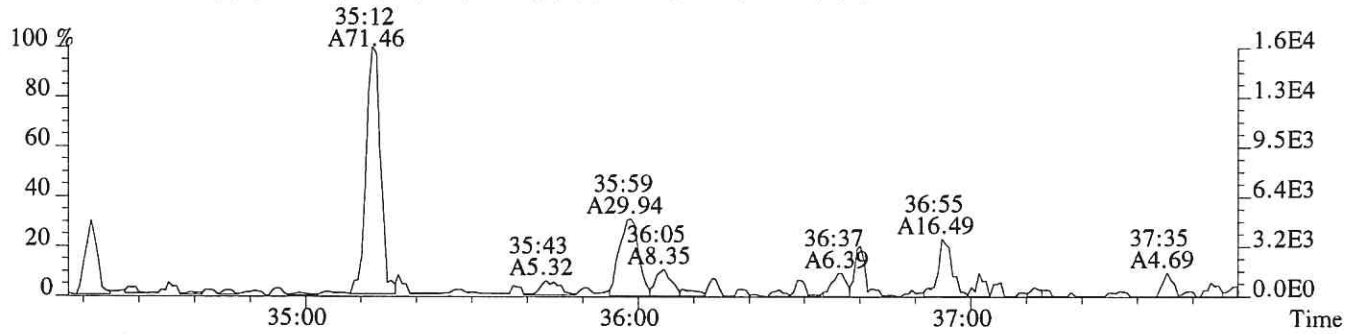
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



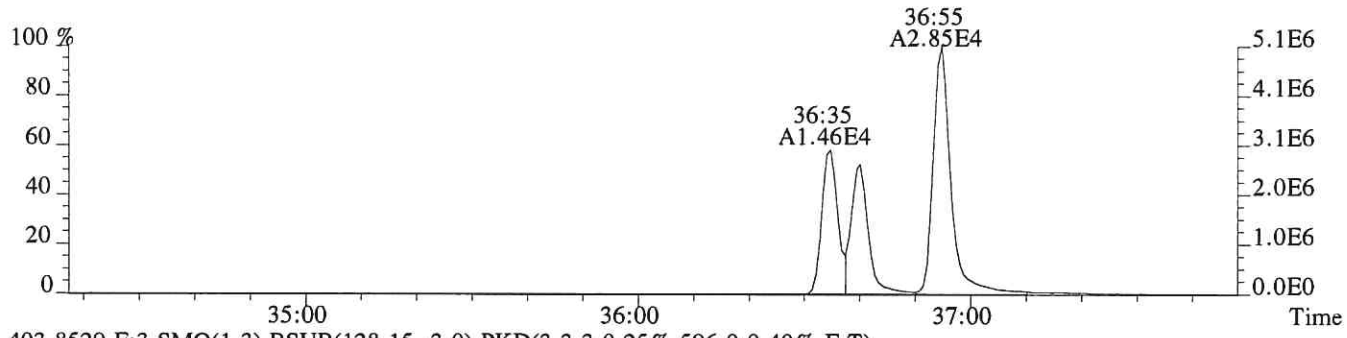
File:P519373 #1-317 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



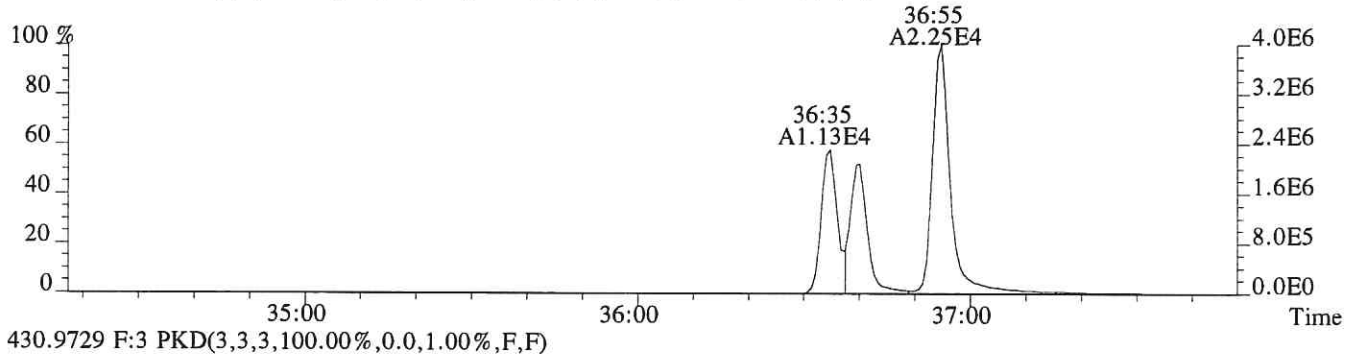
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



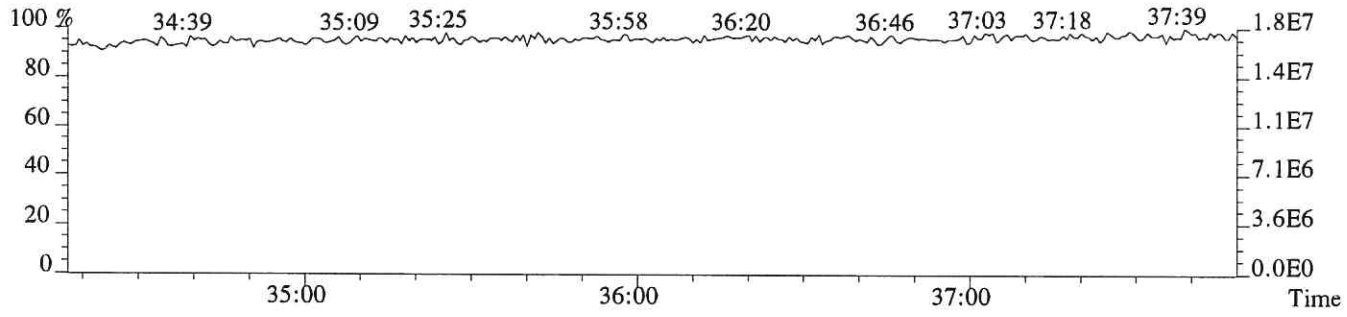
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



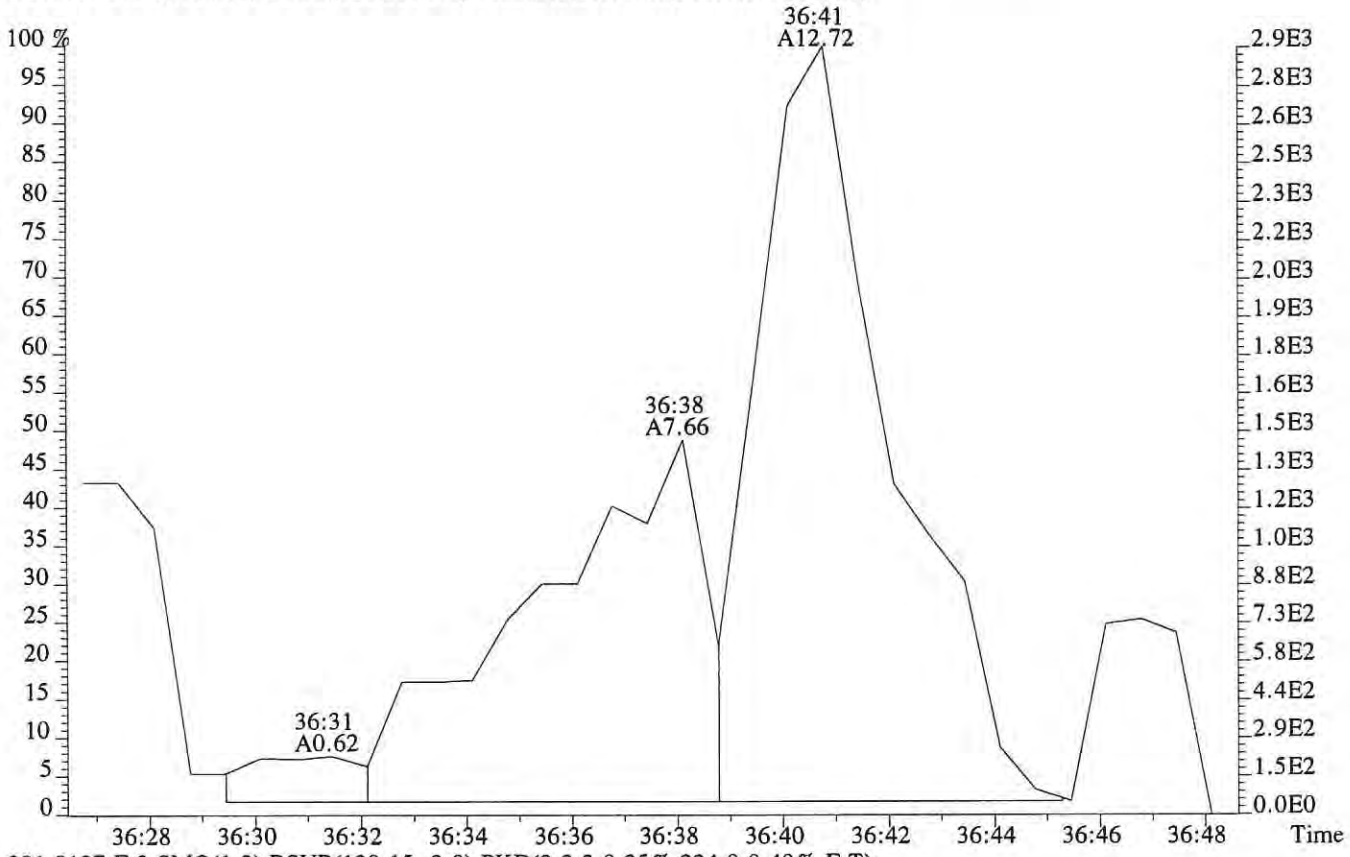
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



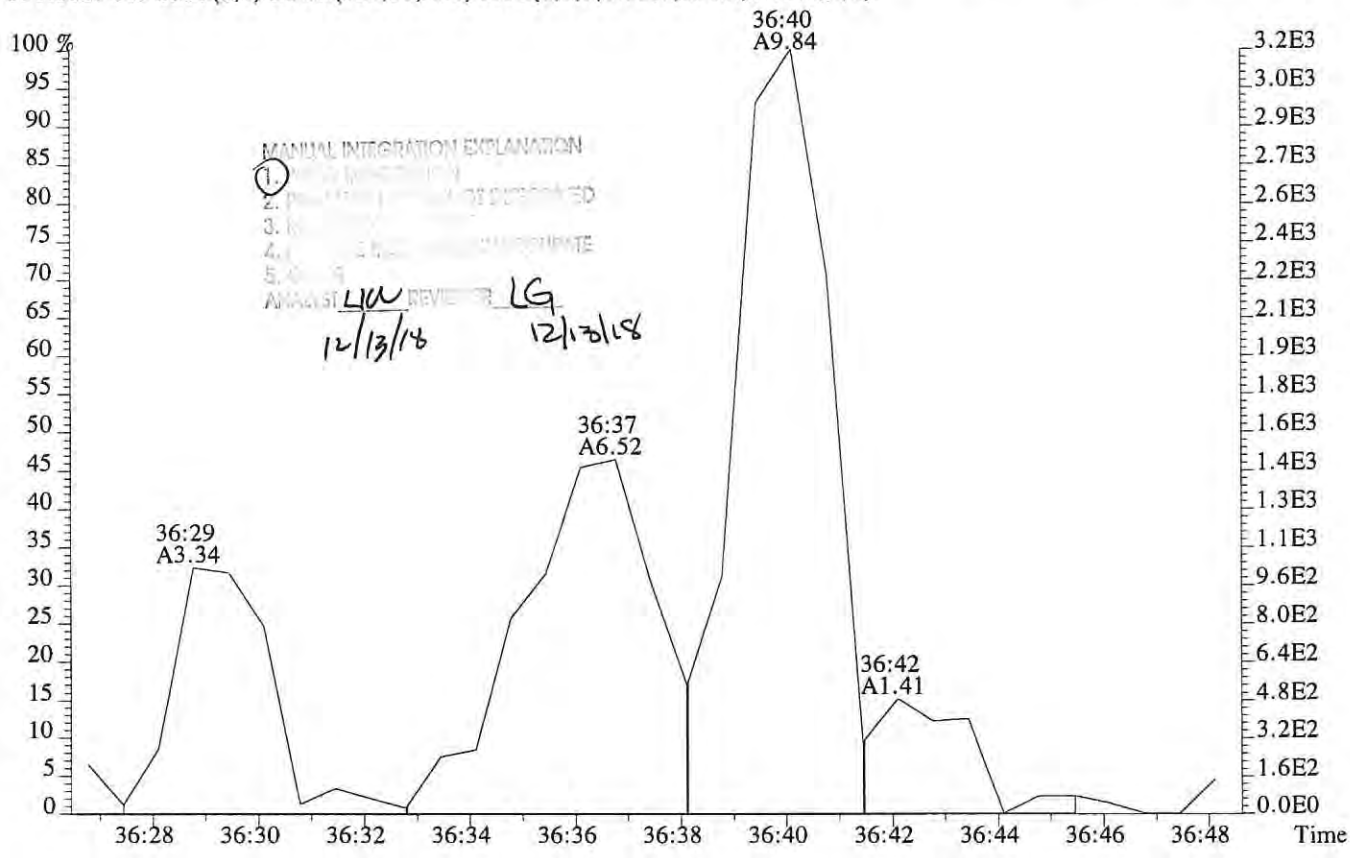
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519373 #1-317 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)

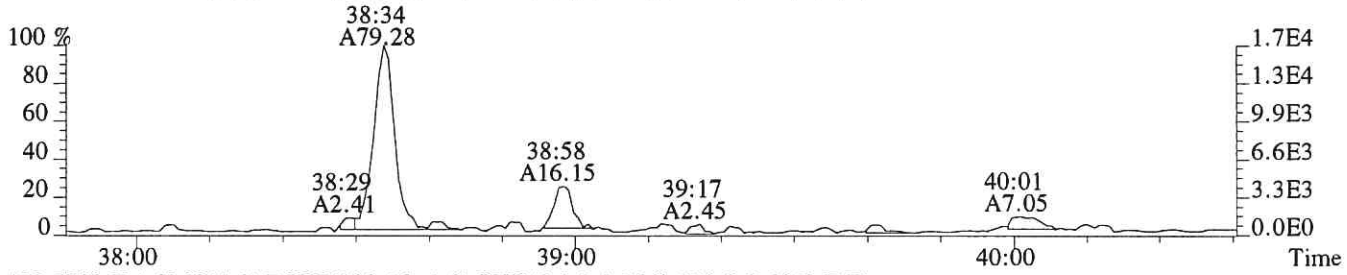


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)

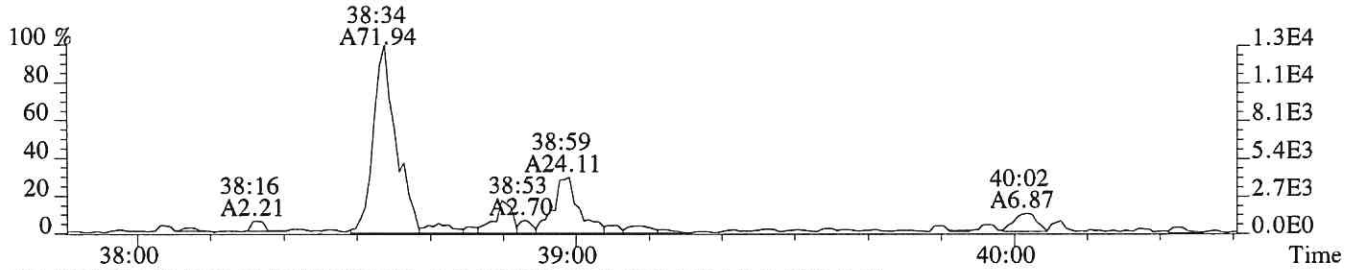


File:P519373 #1-241 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027

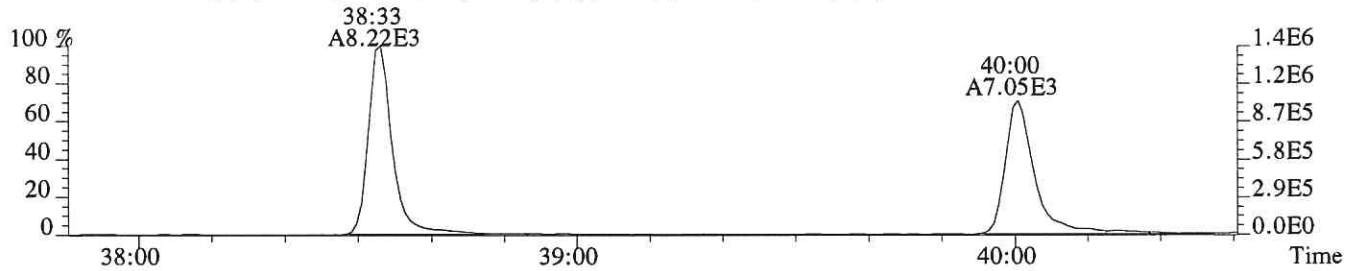
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.50%,F,T)



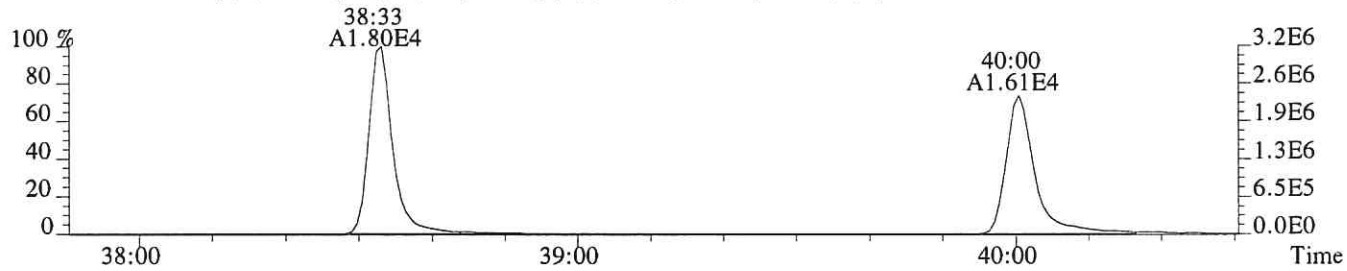
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.50%,F,T)



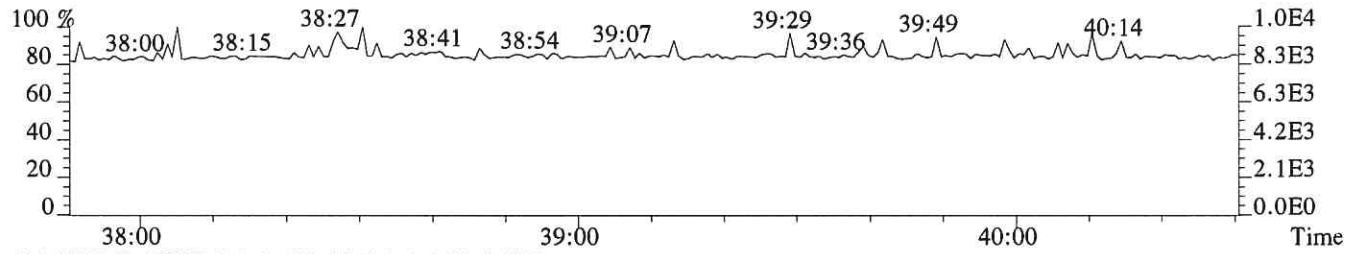
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2804.0,0.50%,F,T)



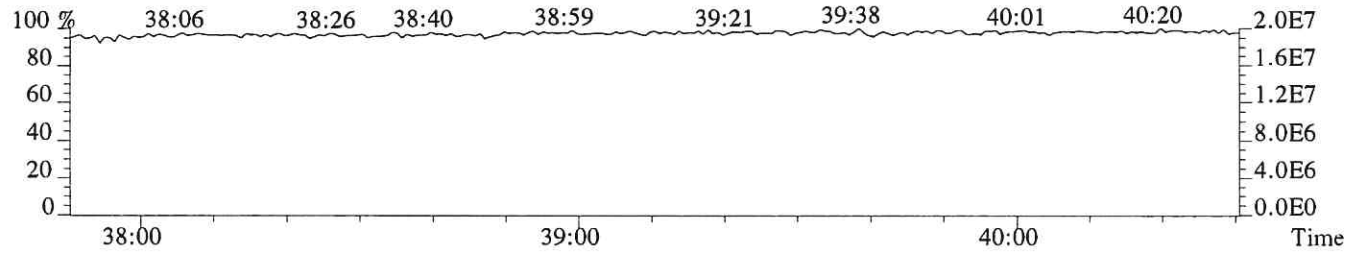
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.50%,F,T)



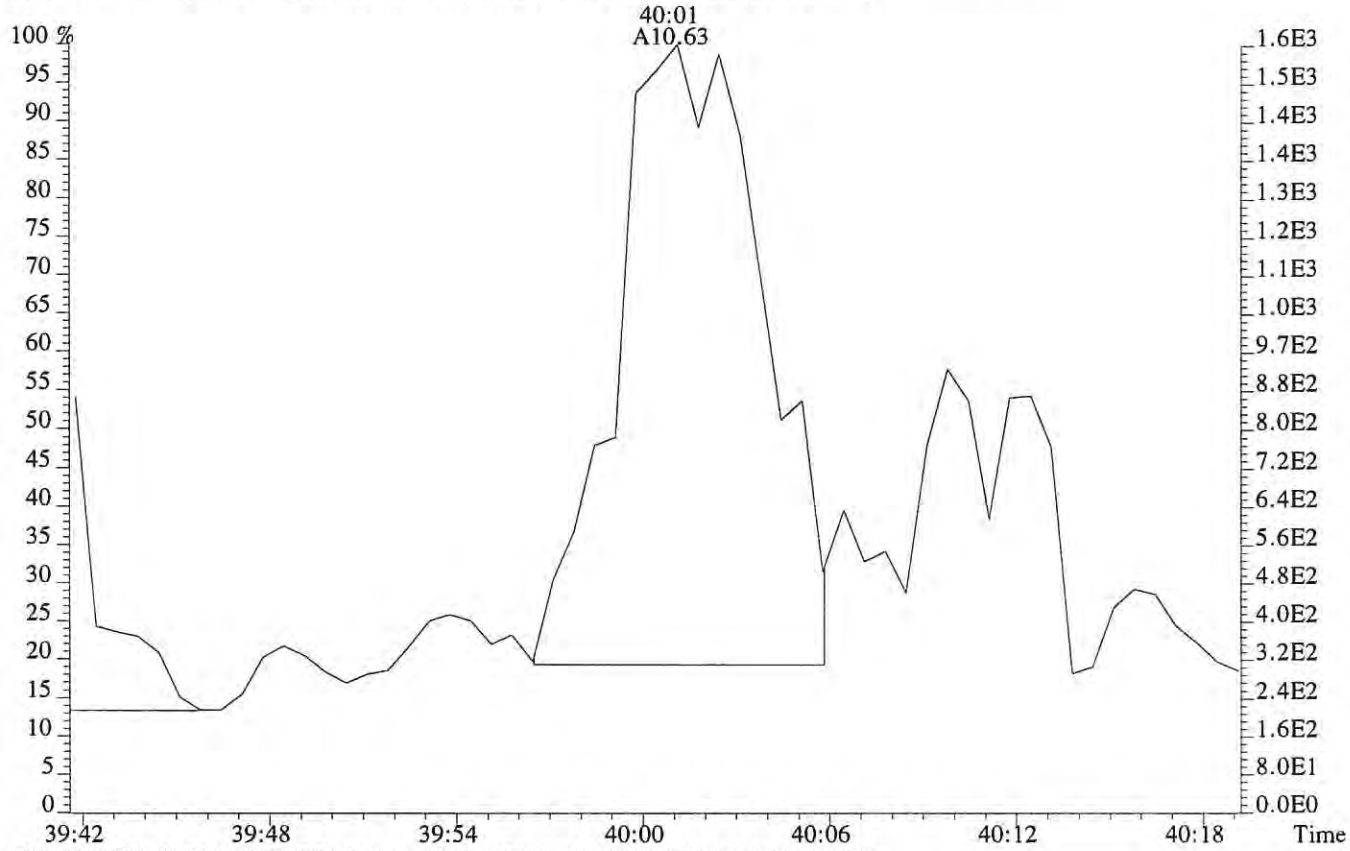
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



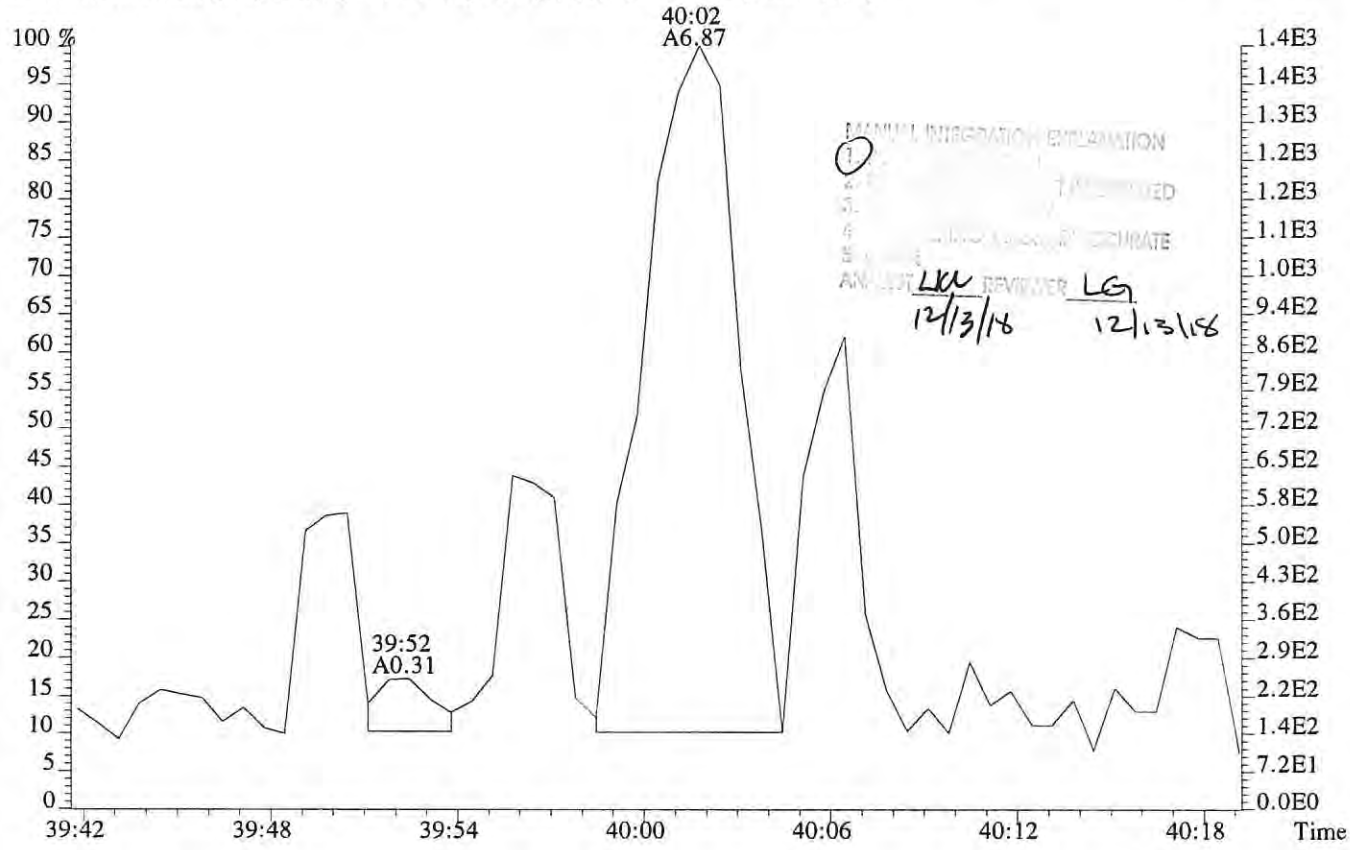
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519373 #1-241 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.50%,F,T)

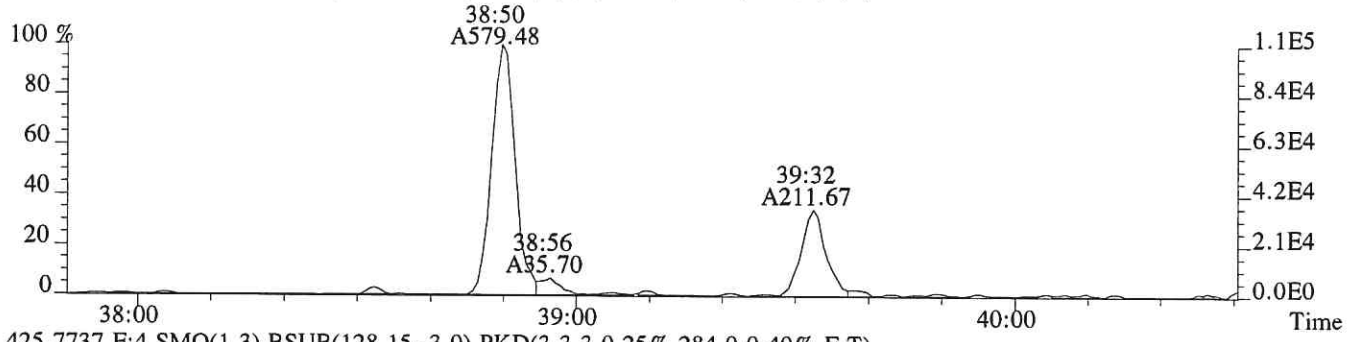


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.50%,F,T)

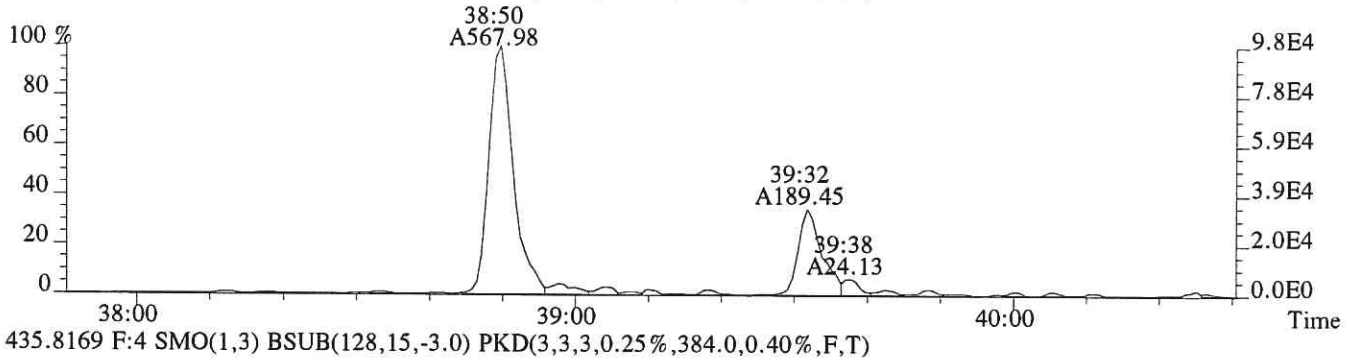


MANUAL INTEGRATION EXPLANATION
1.
2.
3.
4.
5.
ANALYST LKW 12/13/18 REVIEWER LG 12/13/18

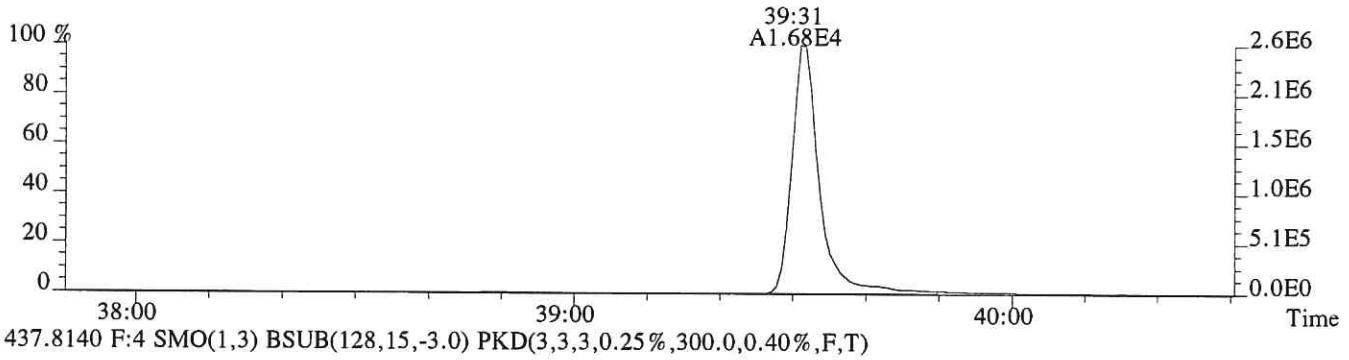
File:P519373 #1-241 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



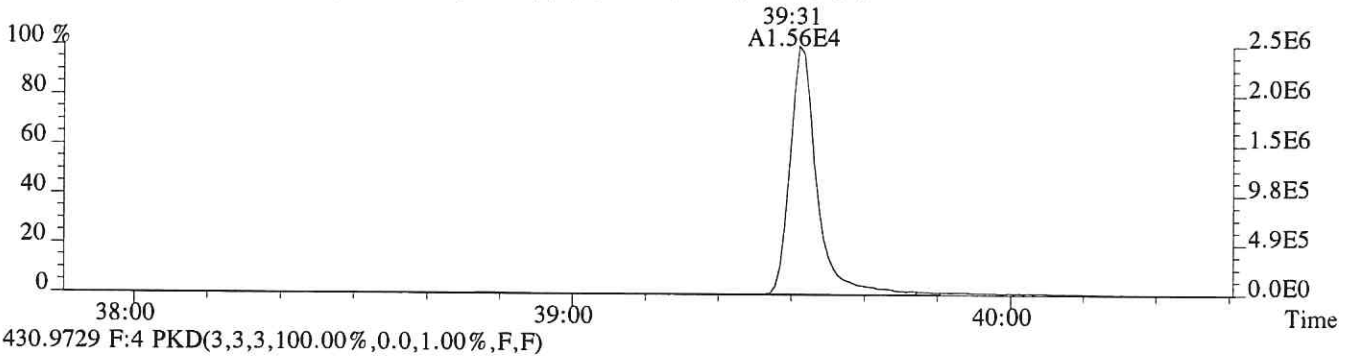
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



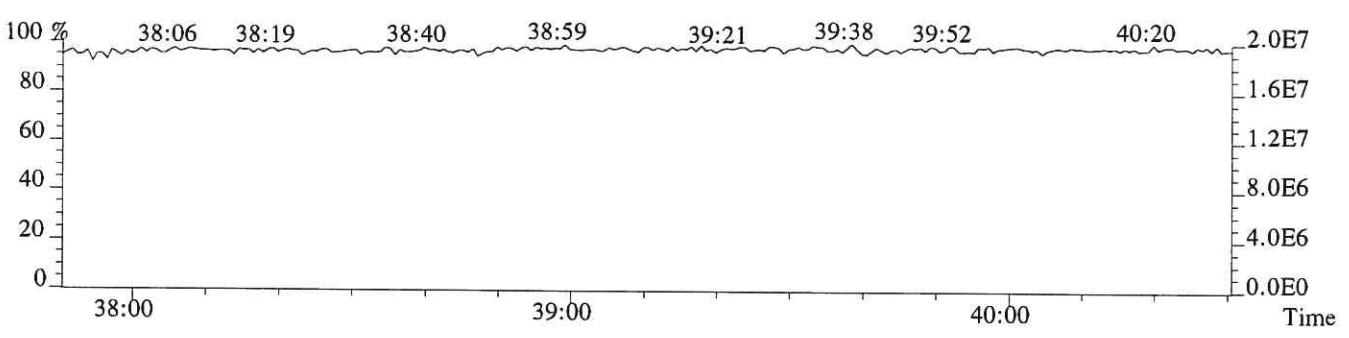
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



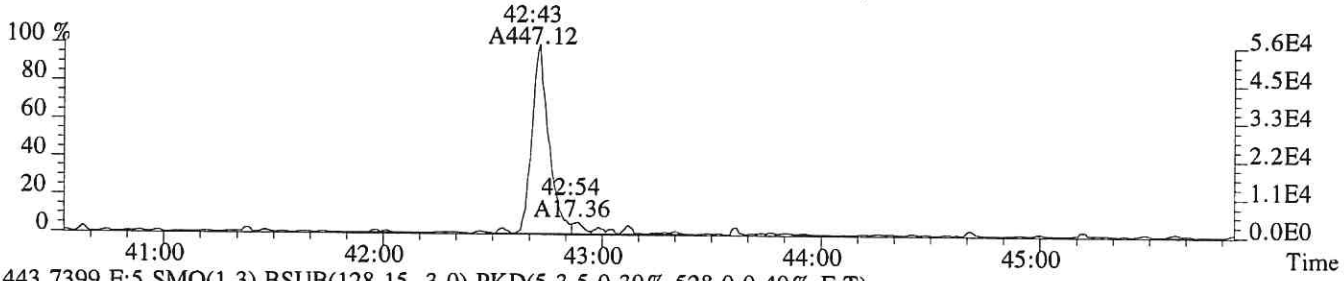
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



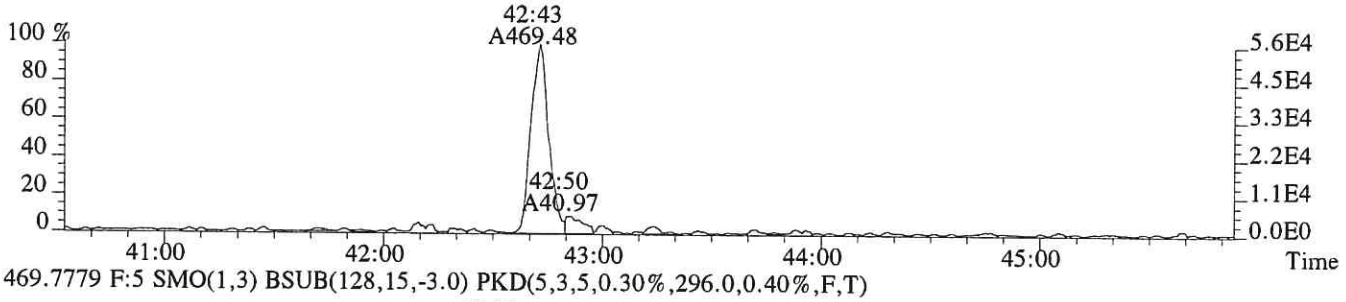
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



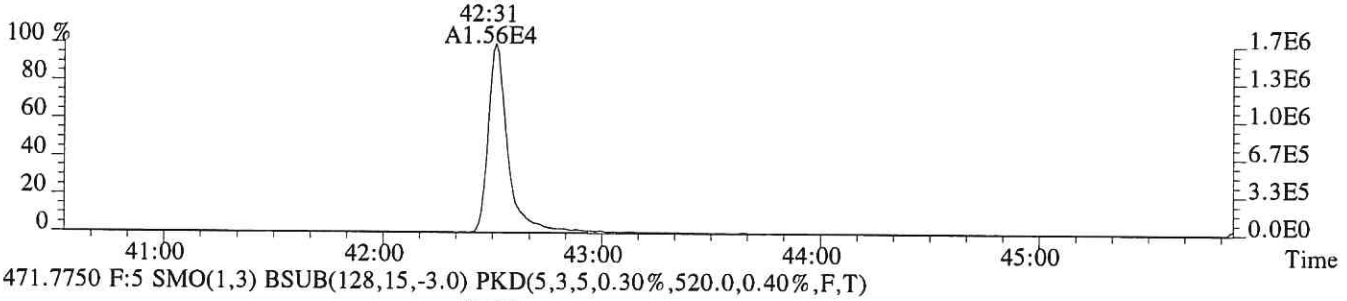
File:P519373 #1-481 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



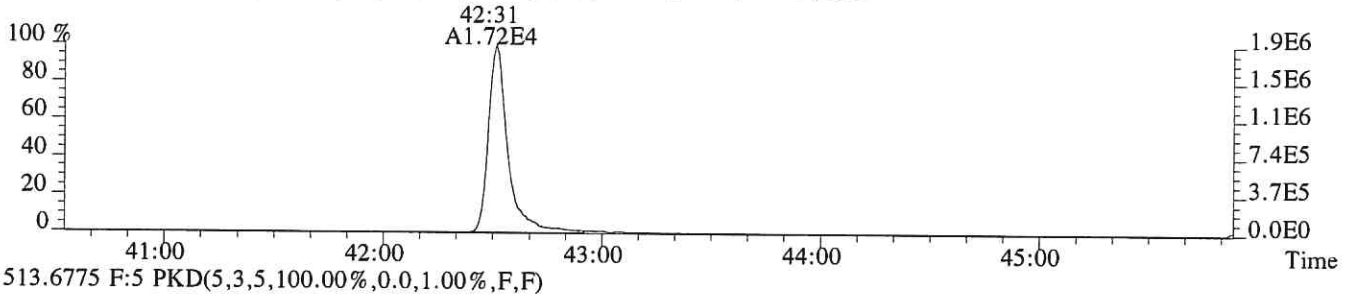
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



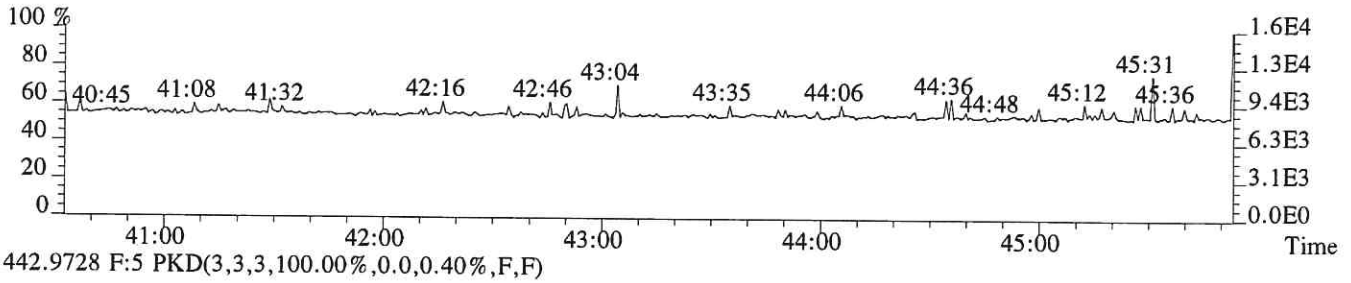
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



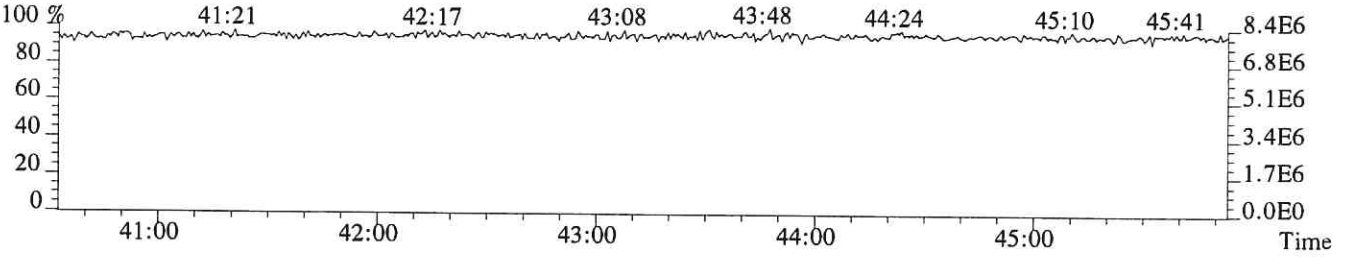
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



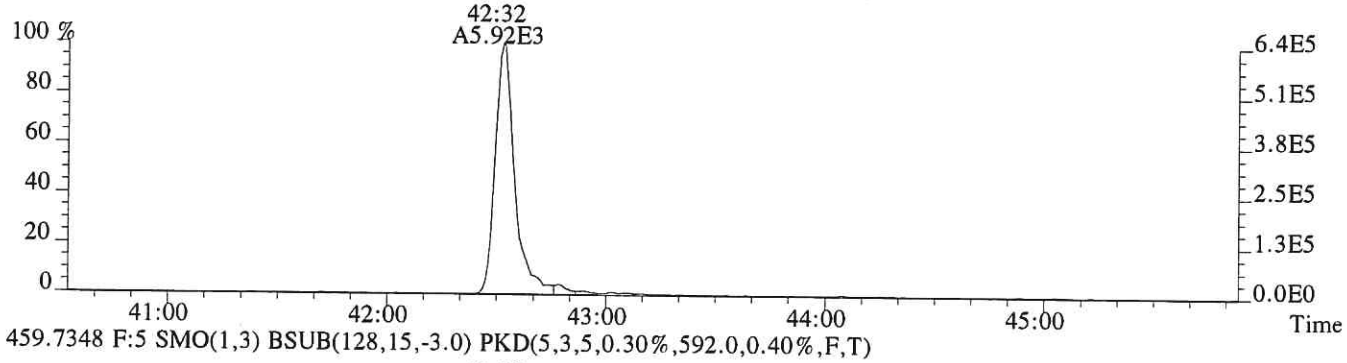
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



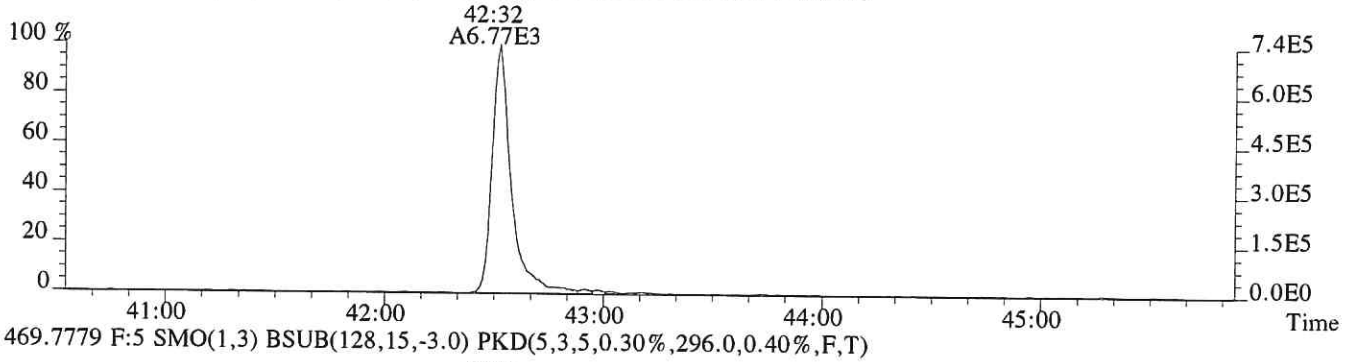
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



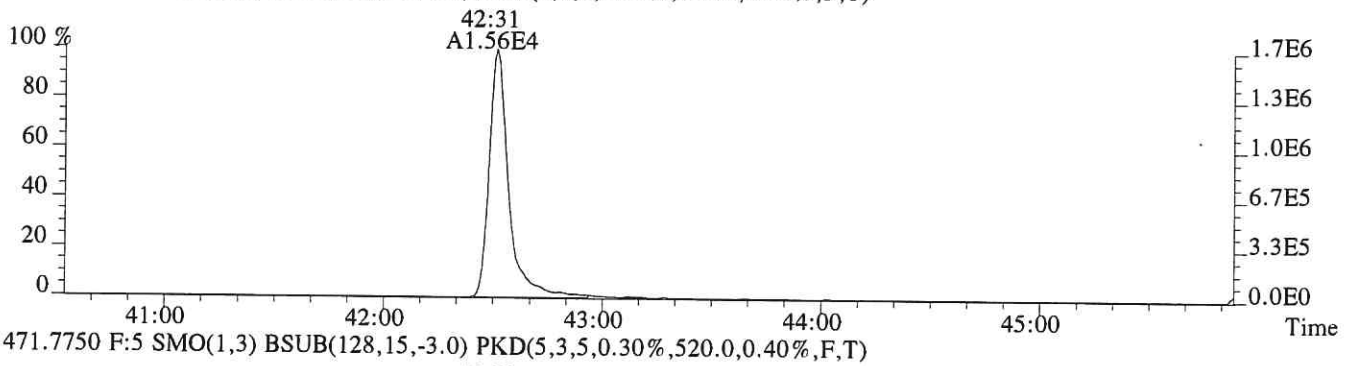
File:P519373 #1-481 Acq:12-DEC-2018 05:28:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-027
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



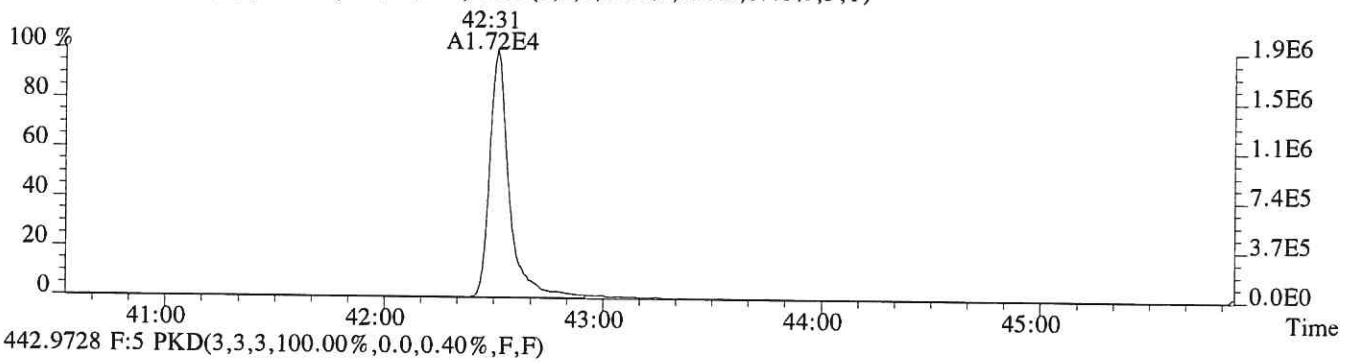
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



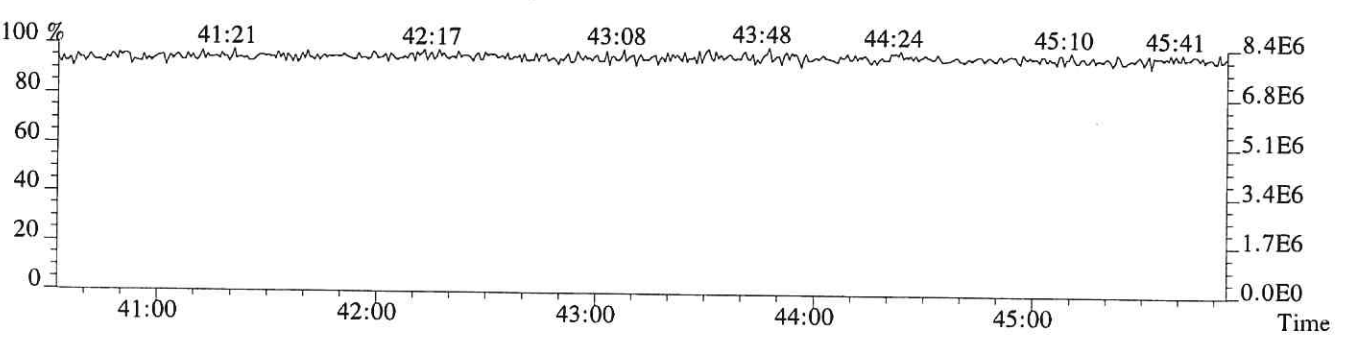
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0578

Run #14 Filename P519374 Samp: 1 Inj: 1 Acquired: 12-DEC-18 06:18:14
Processed: 13-DEC-18 09:34:02 Sample ID: E1801065-028

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	8.725e+00	1.158e+01	0.75	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:43	3.121e+01	5.837e+01	0.53	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.441e+01	9.880e+00	1.46	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	3.175e+01	1.696e+01	1.87	no	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.664e+01	2.718e+01	0.98	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	3.308e+02	3.411e+02	0.97	yes	no	1.025
17	Unk	OCDD	42:31	5.261e+03	5.660e+03	0.93	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.580e+04	2.027e+04	0.78	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.849e+04	1.791e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.740e+04	1.702e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.102e+04	2.173e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.363e+04	2.643e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	1.189e+04	2.361e+04	0.50	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	1.042e+04	2.087e+04	0.50	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	7.187e+03	1.635e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	7.228e+03	1.626e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	7.625e+03	9.410e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.995e+04	1.263e+04	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	1.644e+04	1.286e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.667e+04	1.279e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	1.516e+04	1.457e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	1.162e+04	1.252e+04	0.93	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.110e+04	2.632e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	2.927e+04	2.345e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.090e+04				no	1.014

$$\text{OCDD} = \frac{(5.261e+03 + 5.660e+03) \times 4000\ \text{pg} \times 1}{(1.162e+04 + 1.252e+04) \times 10.27\text{g} \times 80.4/100 \times 1.118} = 195.42685\ \text{ng/kg}$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0578

Run #14 Filename P519374 Samp: 1 Inj: 1 Acquired: 12-DEC-18 06:18:14
Processed: 13-DEC-18 09:34:02 LAB. ID: E1801065-028

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.29e+03	*	*	1.46e+03	*
2	1,2,3,7,8-PeCDF	*	8.24e+02	*	*	7.72e+02	*
3	2,3,4,7,8-PeCDF	*	8.24e+02	*	*	7.72e+02	*
4	1,2,3,4,7,8-HxCDF	*	7.68e+02	*	*	6.24e+02	*
5	1,2,3,6,7,8-HxCDF	*	7.68e+02	*	*	6.24e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.68e+02	*	*	6.24e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.68e+02	*	*	6.24e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.95e+03	3.92e+02	5.0e+00	2.76e+03	4.36e+02	6.3e+00
9	1,2,3,4,7,8,9-HpCDF	*	3.92e+02	*	*	4.36e+02	*
10	OCDF	6.00e+03	3.44e+02	1.7e+01	6.41e+03	8.76e+02	7.3e+00
11	2,3,7,8-TCDD	*	2.14e+03	*	*	9.44e+02	*
12	1,2,3,7,8-PeCDD	*	1.04e+03	*	*	1.92e+02	*
13	1,2,3,4,7,8-HxCDD	3.03e+03	4.52e+02	6.7e+00	2.76e+03	4.24e+02	6.5e+00
14	1,2,3,6,7,8-HxCDD	5.36e+03	4.52e+02	1.2e+01	3.82e+03	4.24e+02	9.0e+00
15	1,2,3,7,8,9-HxCDD	4.51e+03	4.52e+02	1.0e+01	6.58e+03	4.24e+02	1.6e+01
16	1,2,3,4,6,7,8-HpCDD	5.45e+04	1.09e+03	5.0e+01	6.14e+04	5.04e+02	1.2e+02
17	OCDD	5.85e+05	3.04e+02	1.9e+03	6.20e+05	2.72e+02	2.3e+03
18	13C-2,3,7,8-TCDF	2.78e+06	7.98e+03	3.5e+02	3.52e+06	7.11e+03	5.0e+02
19	13C-1,2,3,7,8-PeCDF	5.11e+06	9.88e+02	5.2e+03	3.17e+06	8.56e+02	3.7e+03
20	13C-2,3,4,7,8-PeCDF	5.13e+06	9.88e+02	5.2e+03	3.18e+06	8.56e+02	3.7e+03
21	13C-1,2,3,4,7,8-HxCDF	2.24e+06	5.64e+02	4.0e+03	4.34e+06	7.60e+02	5.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.57e+06	5.64e+02	4.5e+03	4.93e+06	7.60e+02	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.30e+06	5.64e+02	4.1e+03	4.58e+06	7.60e+02	6.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.92e+06	5.64e+02	3.4e+03	3.73e+06	7.60e+02	4.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.26e+06	1.98e+03	6.3e+02	2.89e+06	3.18e+03	9.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.05e+06	1.98e+03	5.3e+02	2.42e+06	3.18e+03	7.6e+02
27	13C-2,3,7,8-TCDD	1.34e+06	6.76e+03	2.0e+02	1.69e+06	1.83e+03	9.2e+02
28	13C-1,2,3,7,8-PeCDD	3.69e+06	8.20e+02	4.5e+03	2.36e+06	1.25e+03	1.9e+03
29	13C-1,2,3,4,7,8-HxCDD	3.49e+06	9.12e+02	3.8e+03	2.74e+06	4.84e+02	5.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.11e+06	9.12e+02	3.4e+03	2.38e+06	4.84e+02	4.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.49e+06	6.68e+02	3.7e+03	2.35e+06	4.20e+02	5.6e+03
32	13C-OCDD	1.30e+06	5.72e+02	2.3e+03	1.38e+06	3.24e+02	4.3e+03
33	13C-1,2,3,4-TCDD	3.91e+06	6.76e+03	5.8e+02	4.86e+06	1.83e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	5.52e+06	9.12e+02	6.0e+03	4.41e+06	4.84e+02	9.1e+03
35	37Cl-2,3,7,8-TCDD	2.01e+06	6.88e+02	2.9e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.144e+03 + 9.440e+02) \times 2000}{(1.337e+06 + 1.694e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0578

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P519374 Sample:1 Injection:1 Function:1

Acquired: 12-DEC-18 06:18:14 Processed: 13-DEC-18 09:34:02

Mass: 319.8970 321.8940 Tot Response: 2.53e+02 RRF: 1.085

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:35	1.02e+02	1.51e+02	0.67	yes	2.53e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0578

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P519374 Sample:1 Injection:1 Function:2

Acquired: 12-DEC-18 06:18:14 Processed: 13-DEC-18 09:34:02

Mass: 355.8550 357.8520 Tot Response: 2.93e+02 RRF: 0.9565

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:11	3.79e+01	2.24e+01	1.69	yes	6.03e+01		y	n
2	31:40	1.15e+02	7.32e+01	1.57	yes	1.88e+02		n	n
3	32:36	2.80e+01	1.74e+01	1.60	yes	4.54e+01		y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0578

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P519374 Sample:1 Injection:1 Function:3

Acquired: 12-DEC-18 06:18:14 Processed: 13-DEC-18 09:34:02

Mass: 389.8160 391.8130 Tot Response: 2.91e+02 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:21	1.33e+01	1.22e+01 1.09	yes	2.55e+01		n	n
2	35:58	1.27e+02	1.15e+02 1.10	yes	2.42e+02		n	n
3	36:51	1.26e+01	1.05e+01 1.20	yes	2.31e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0578

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P519374 Sample:1 Injection:1 Function:4

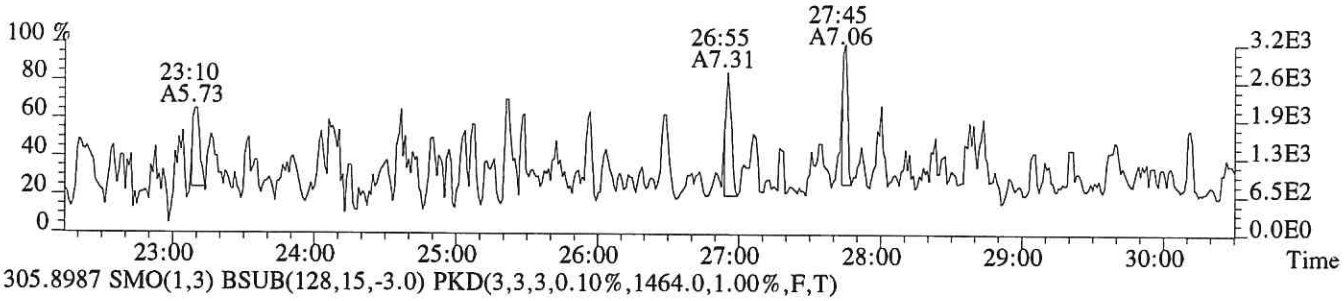
Acquired: 12-DEC-18 06:18:14 Processed: 13-DEC-18 09:34:02

Mass: 423.7770 425.7740 Tot Response: 3.11e+03 RRF: 1.025

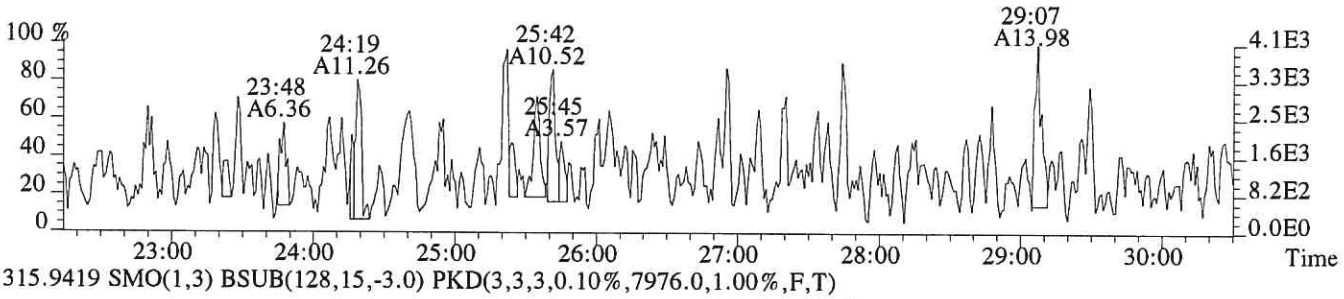
#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:50	1.17e+03	1.27e+03	0.93	yes	2.44e+03		n	n
2	39:32	3.31e+02	3.41e+02	0.97	yes	6.72e+02	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

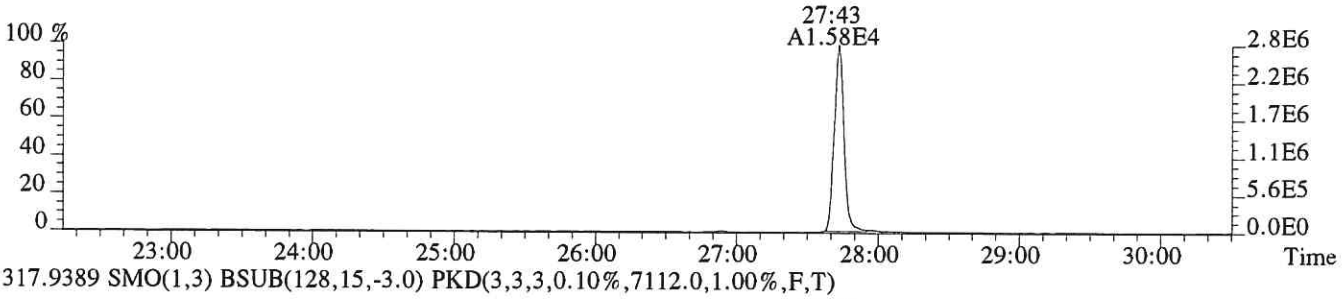
File:P519374 #1-587 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



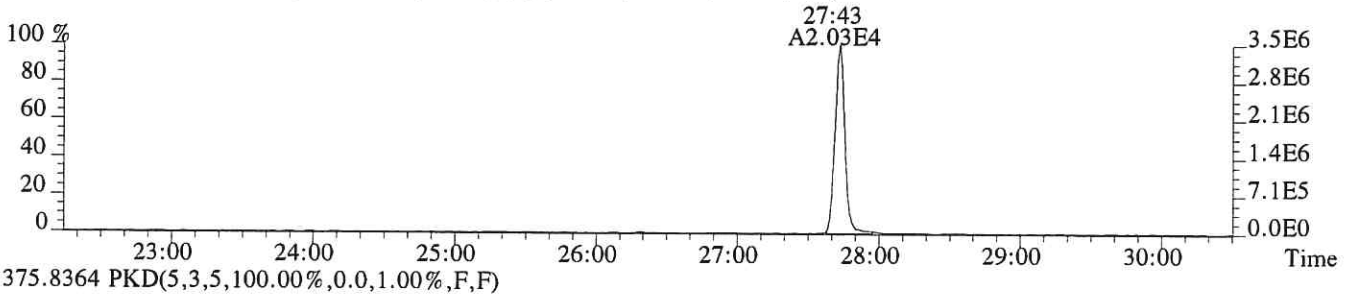
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



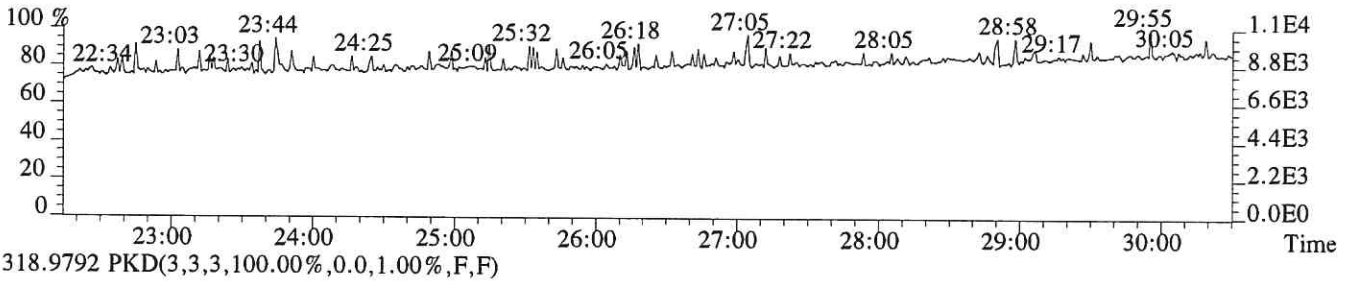
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7976.0,1.00%,F,T)



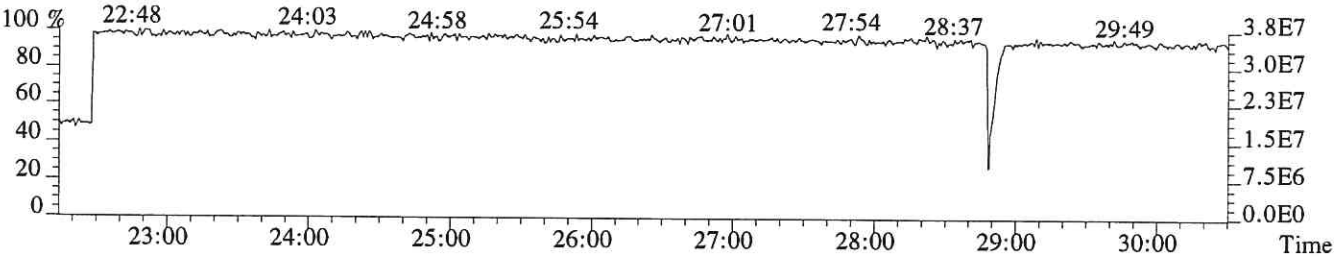
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7112.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

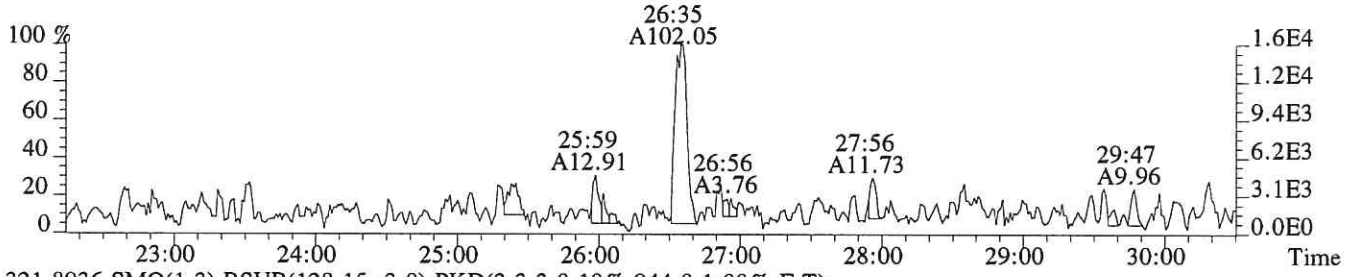


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

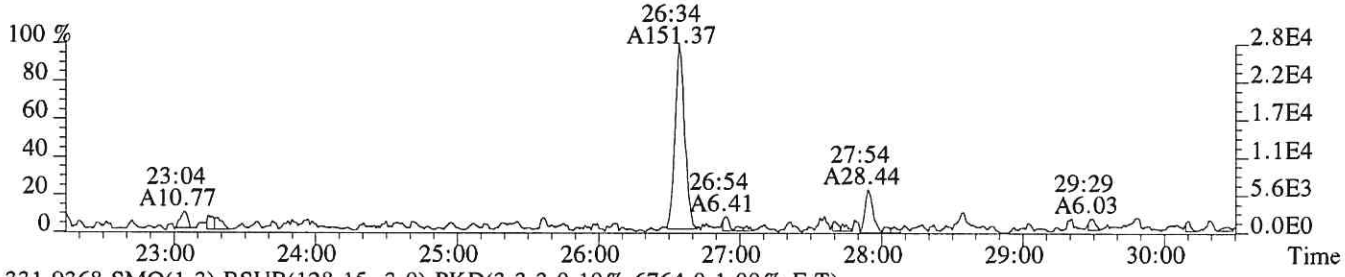


File:P519374 #1-587 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028

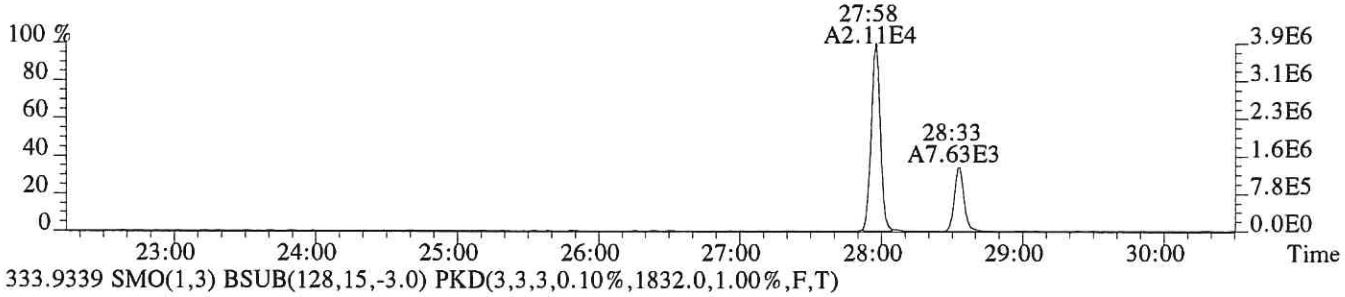
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



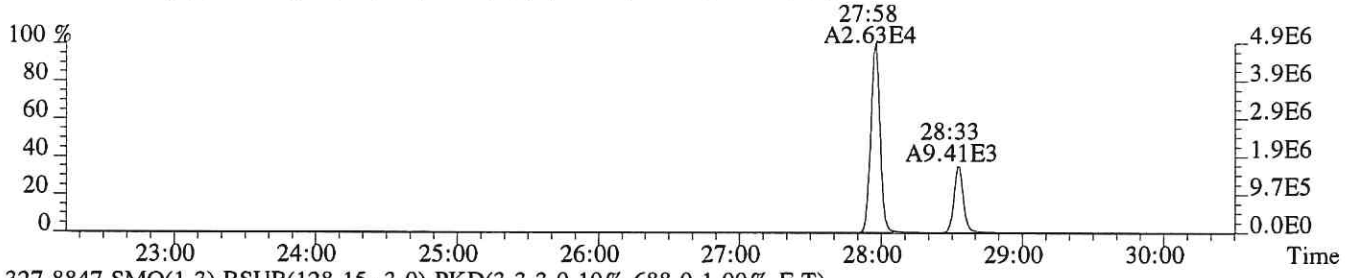
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



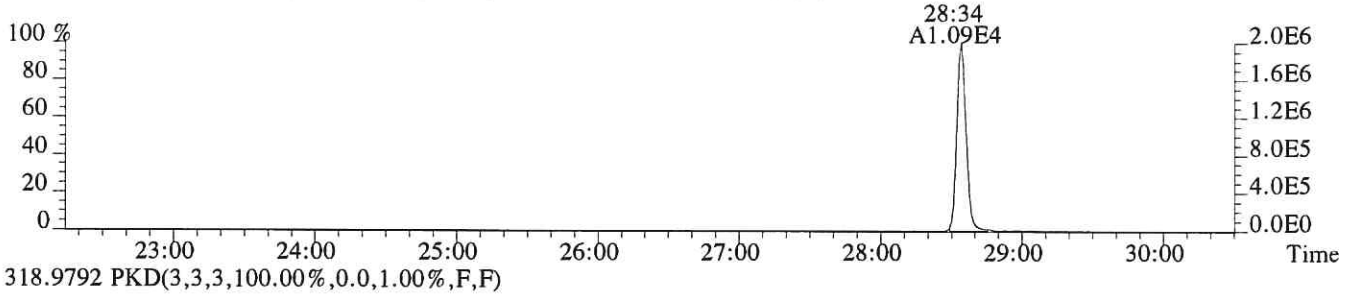
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6764.0,1.00%,F,T)



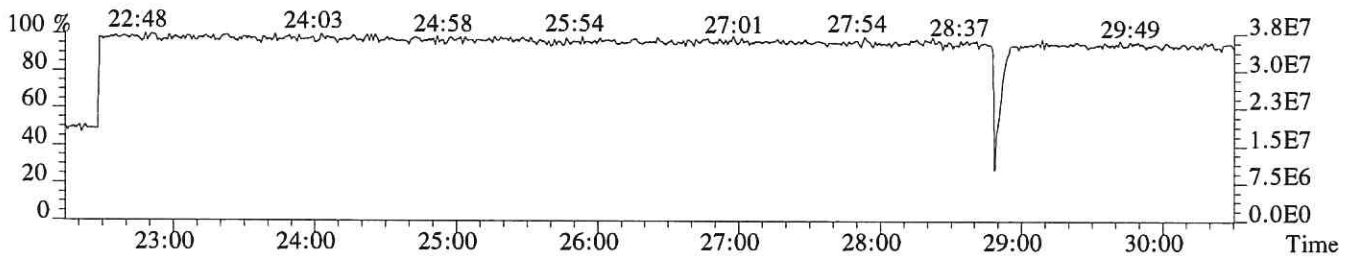
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)

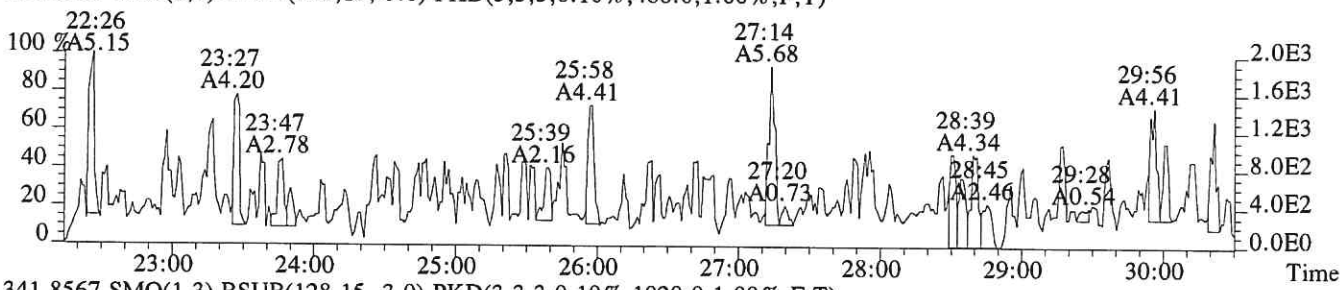


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

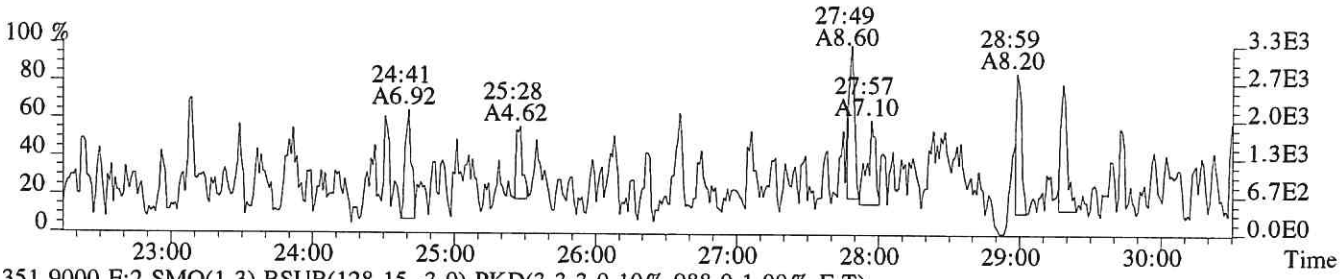


File:P519374 #1-587 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028

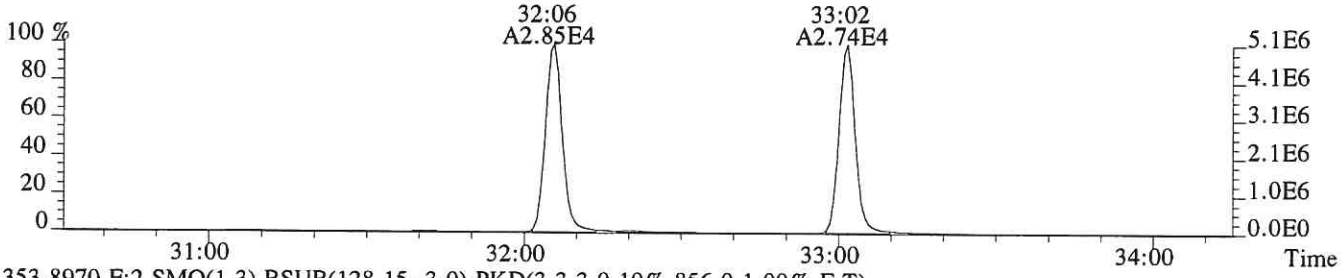
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



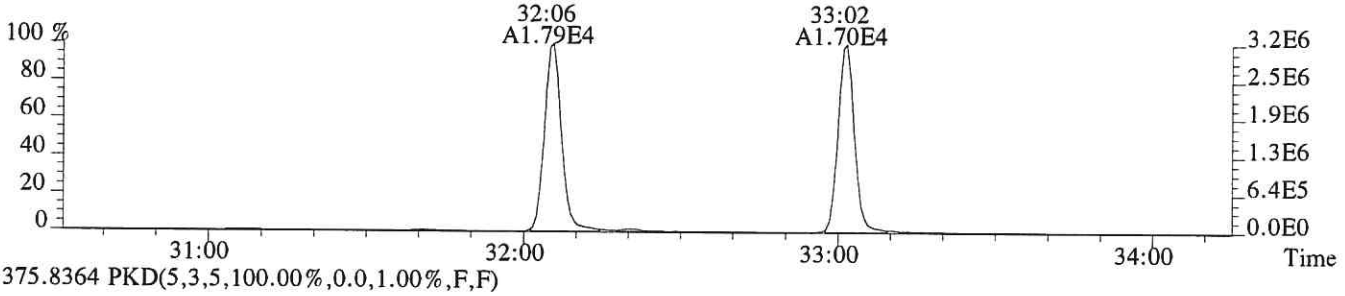
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



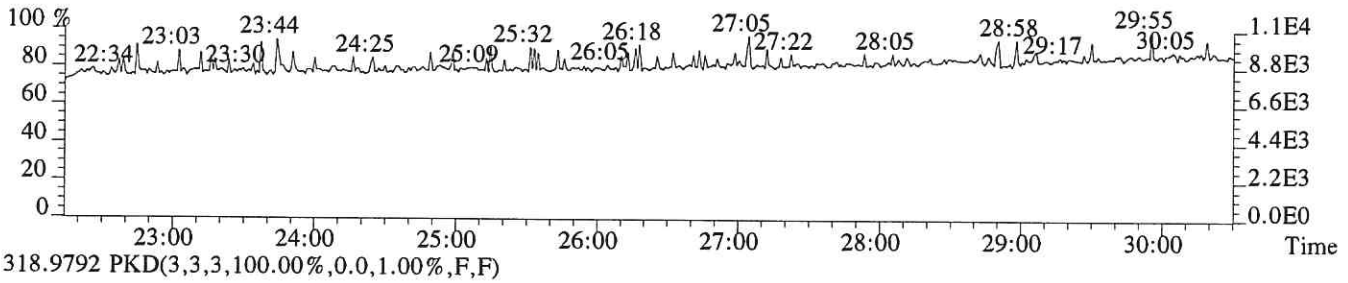
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



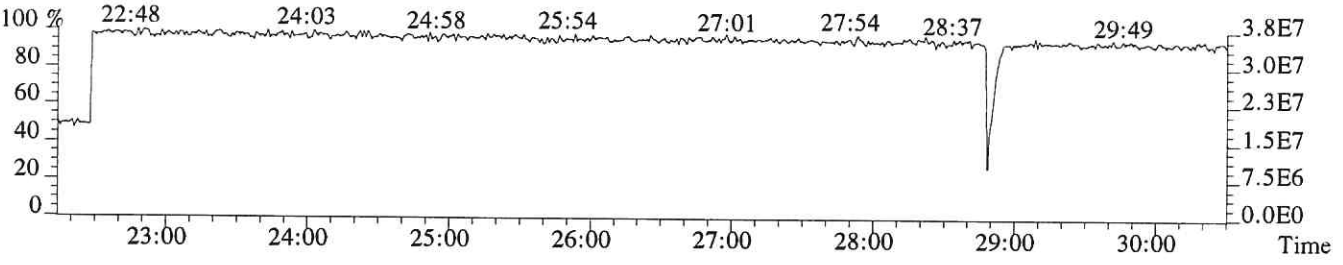
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



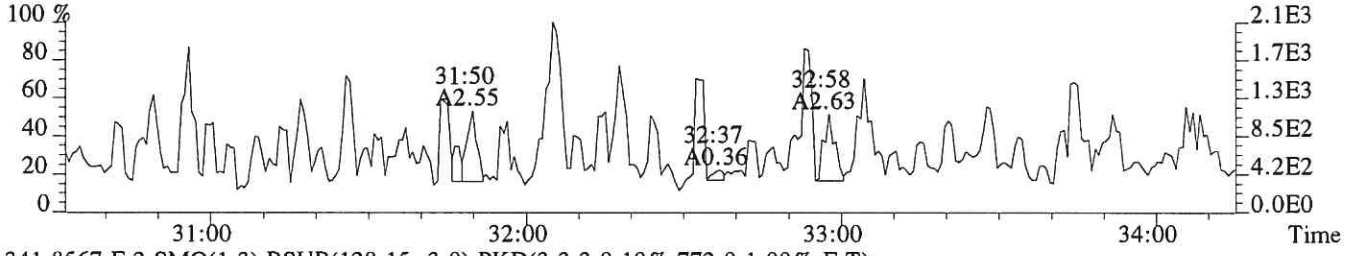
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



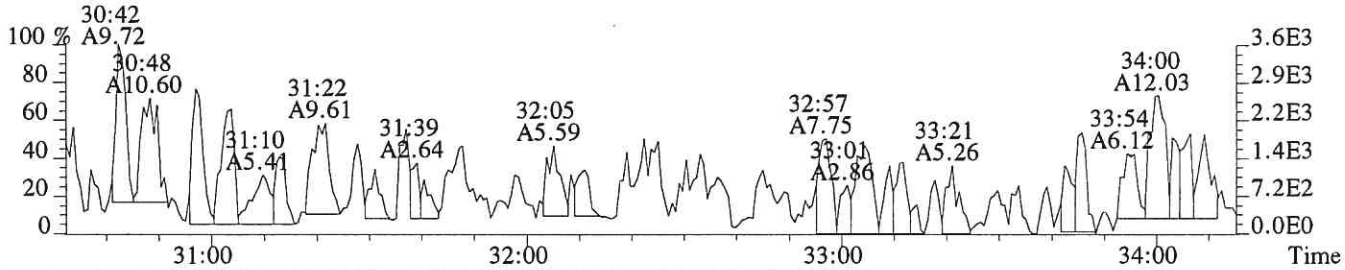
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



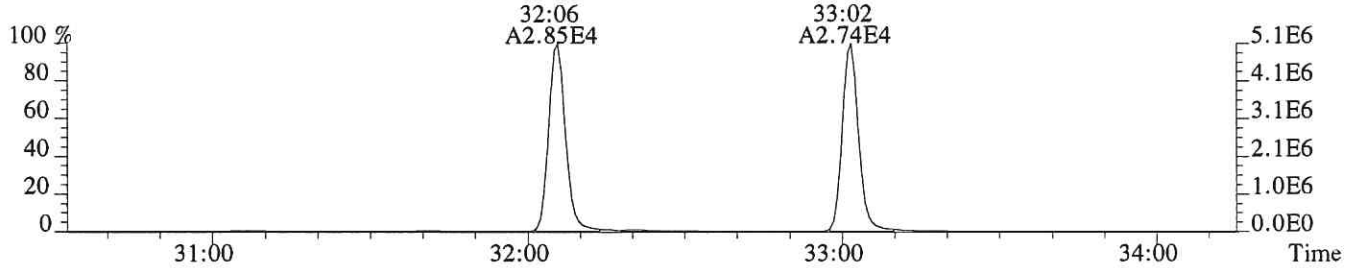
File:P519374 #1-335 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



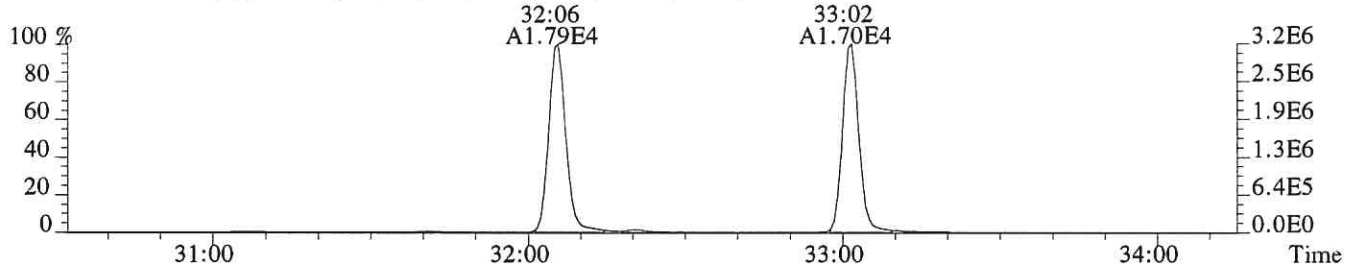
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



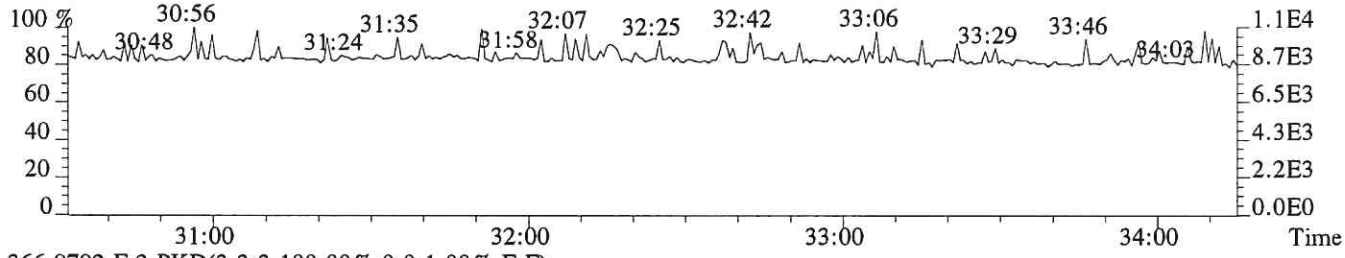
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



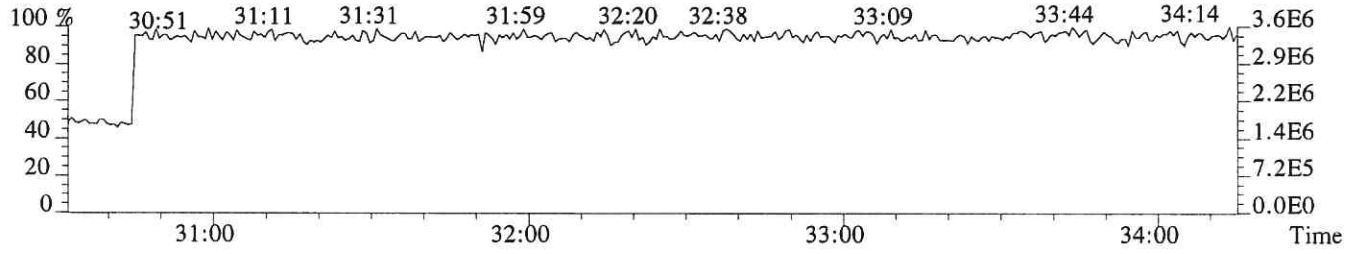
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

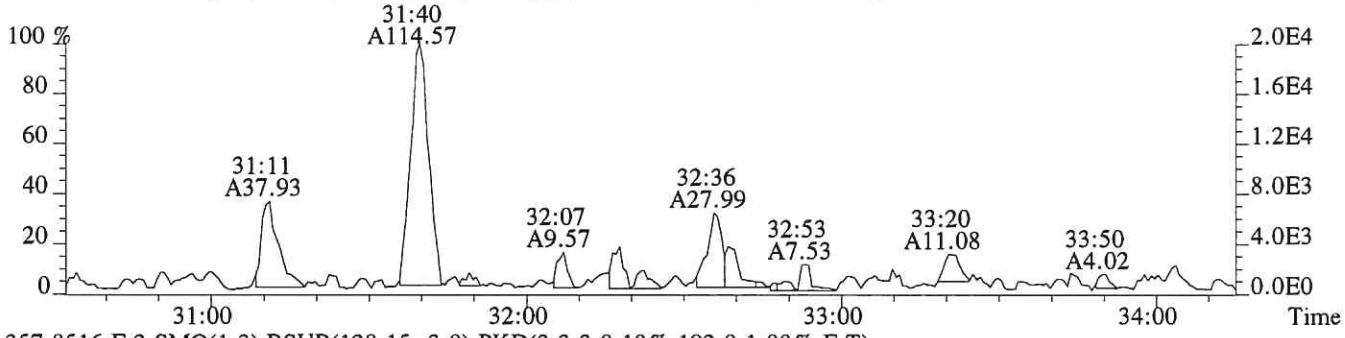


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

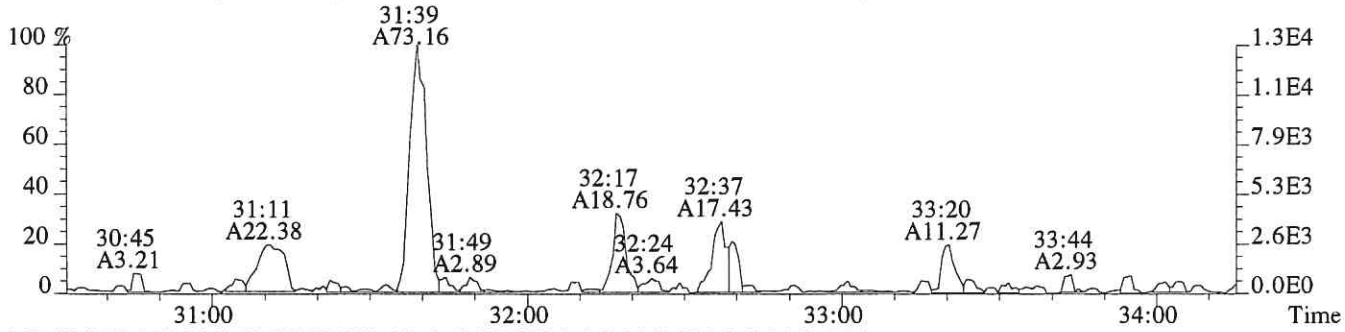


File:P519374 #1-335 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028

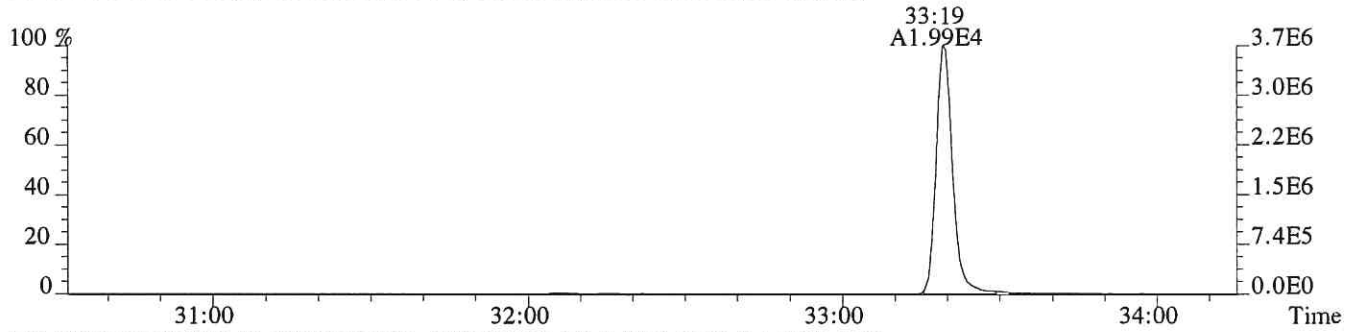
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



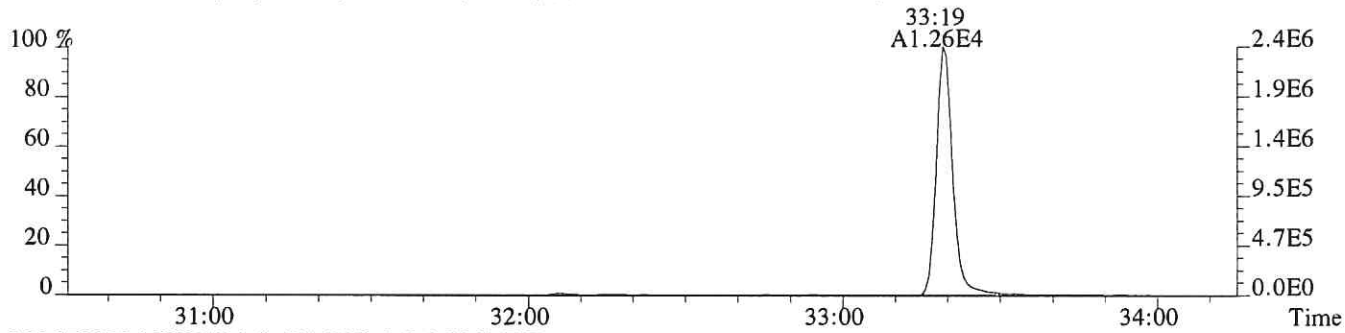
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



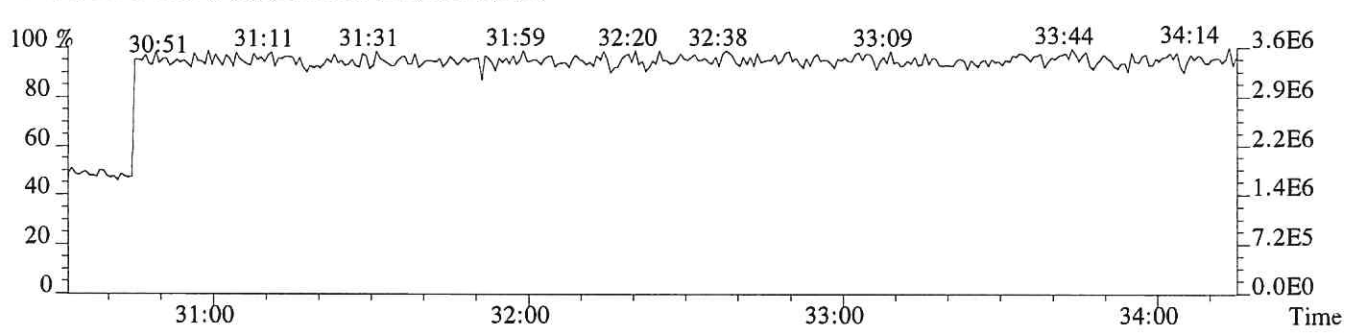
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



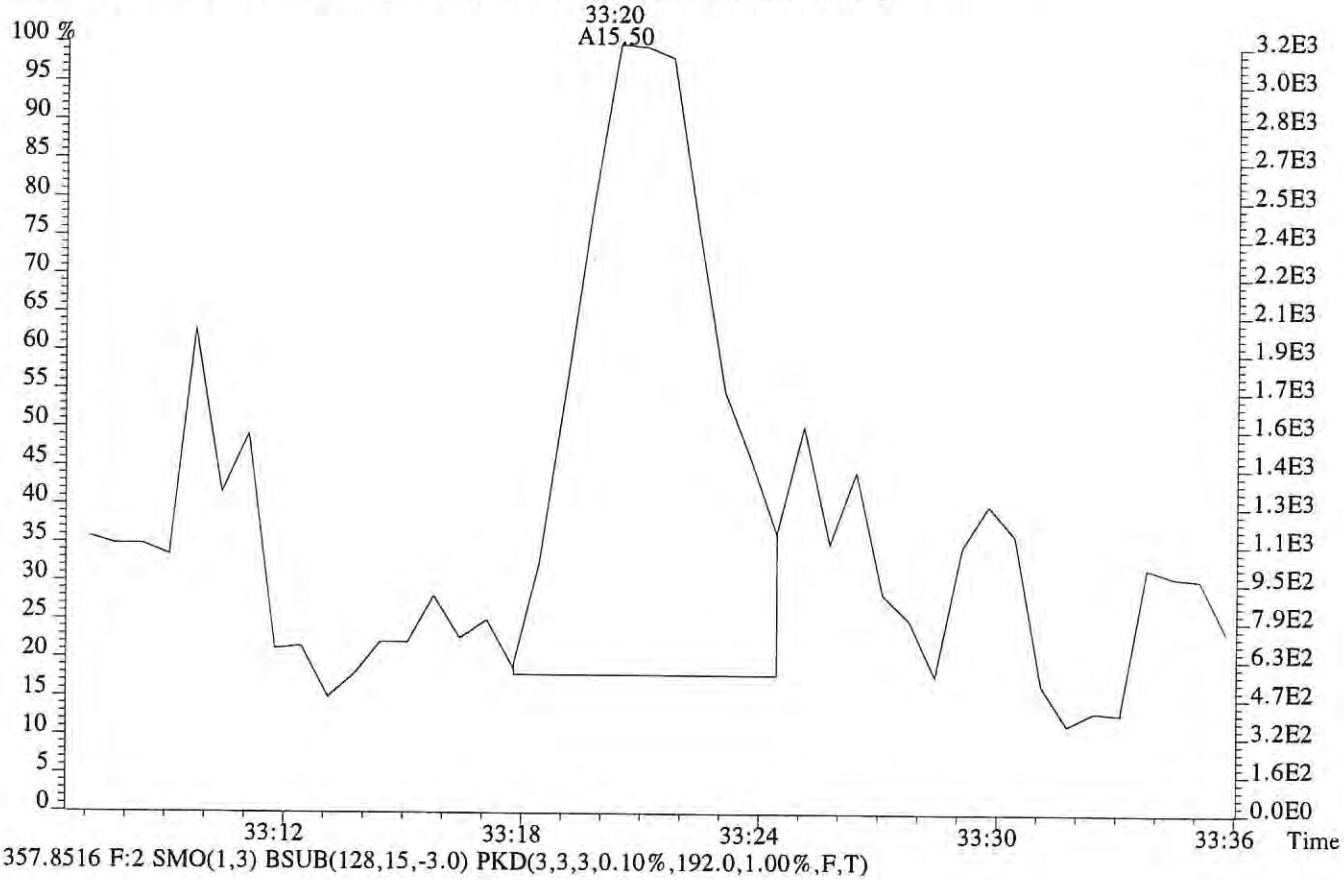
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



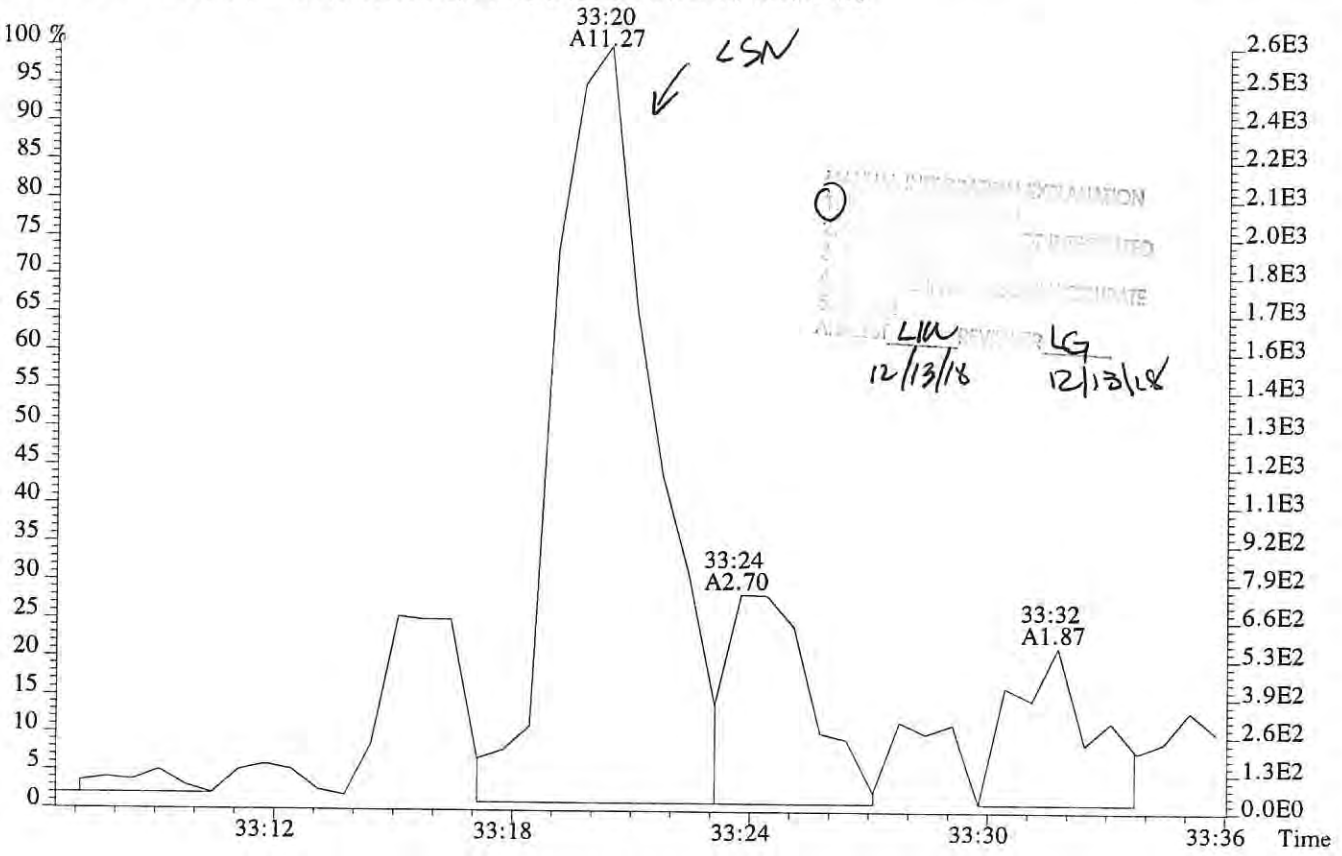
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519374 #1-335 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



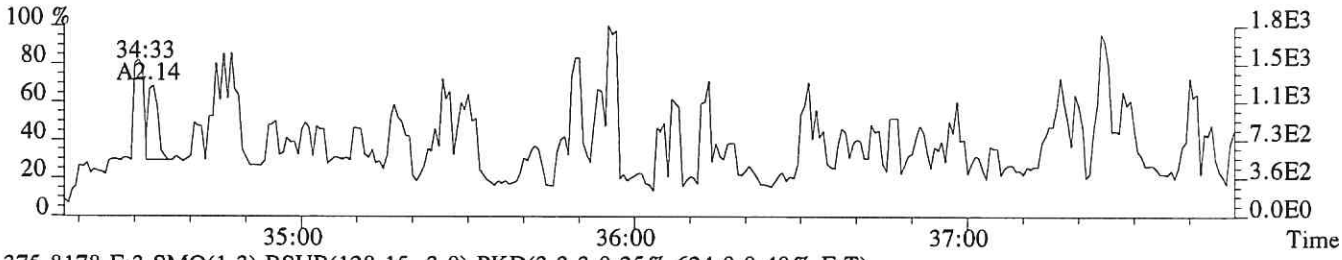
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



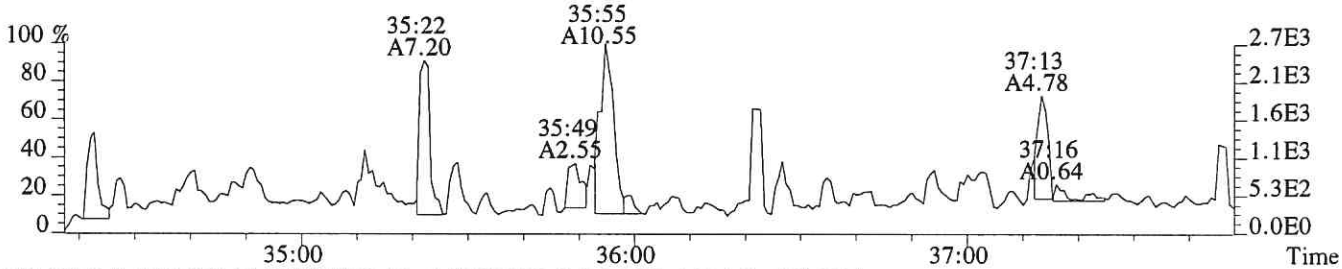
LW 12/13/18 LG 12/13/18

File:P519374 #1-317 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028

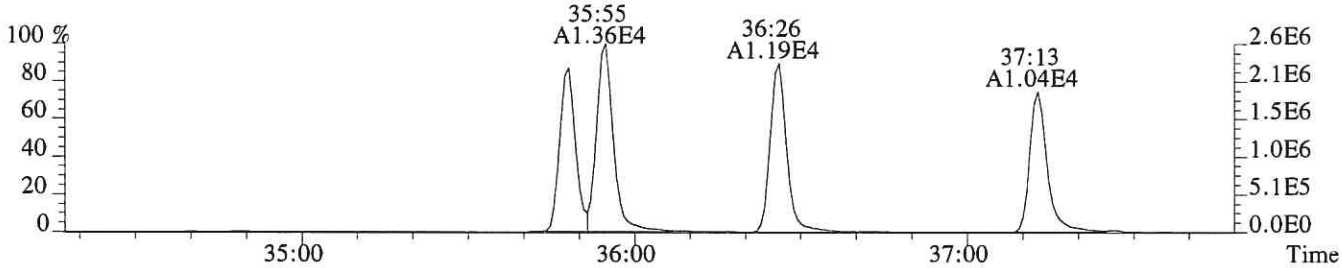
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



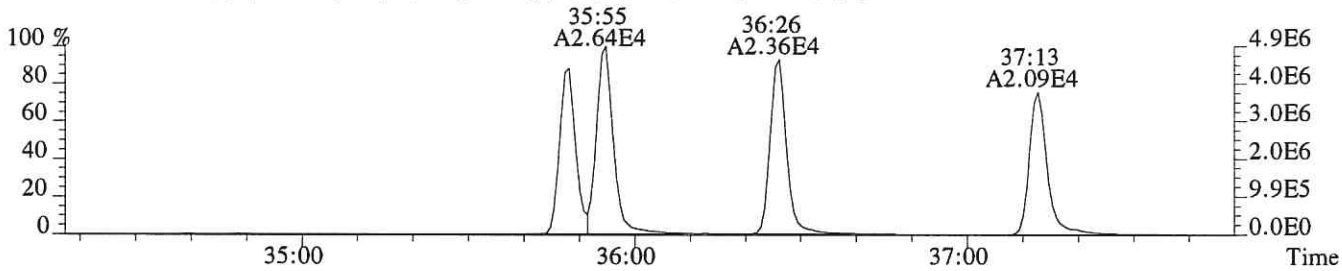
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



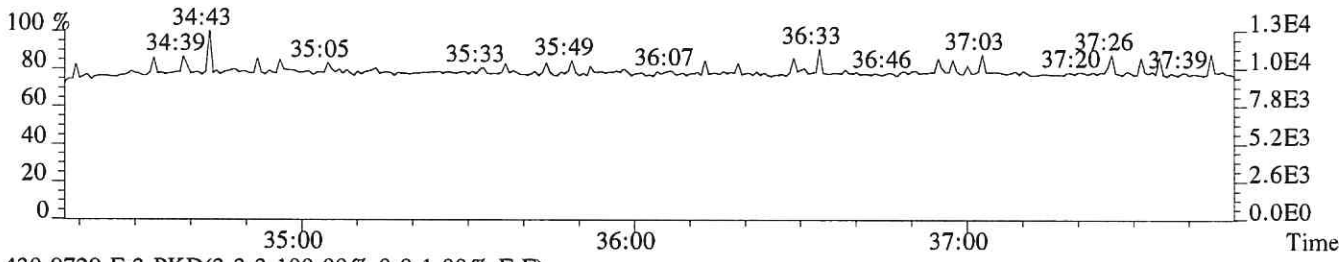
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



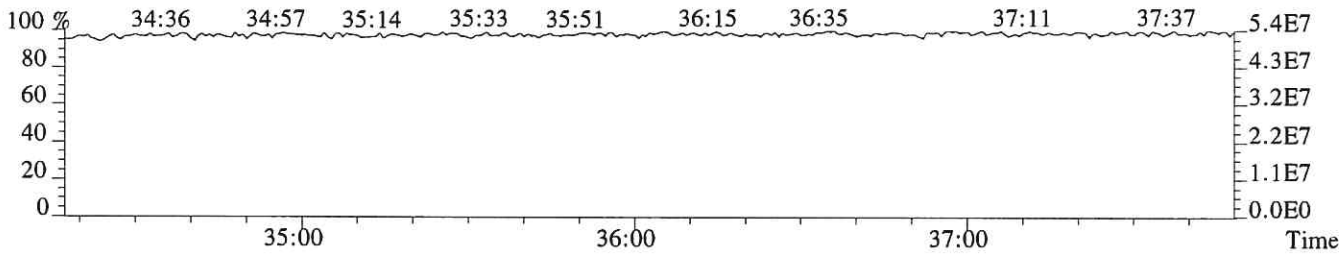
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

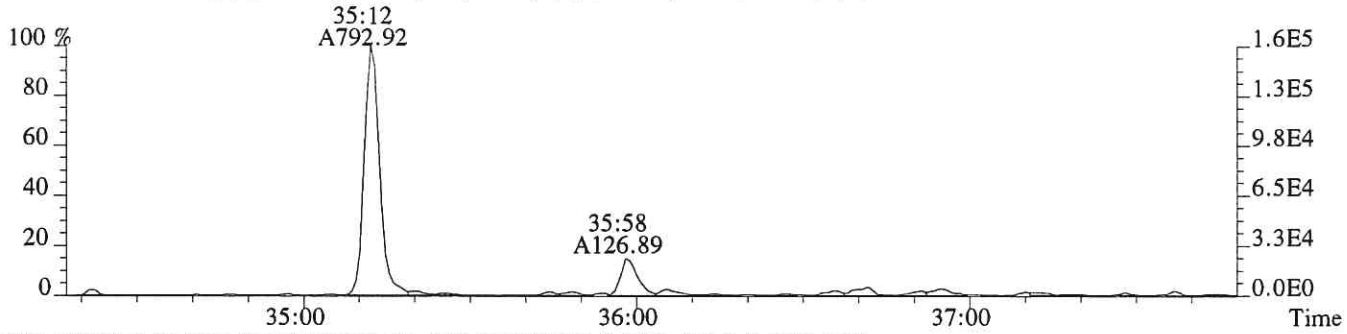


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

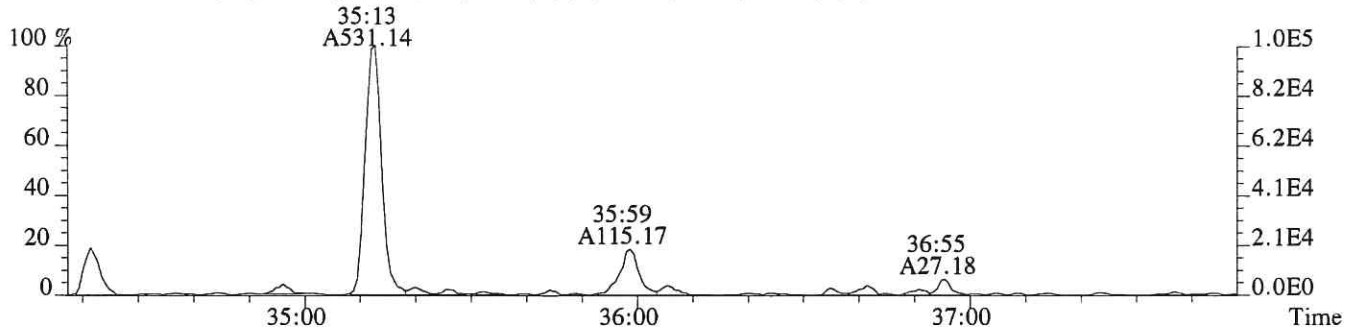


File:P519374 #1-317 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028

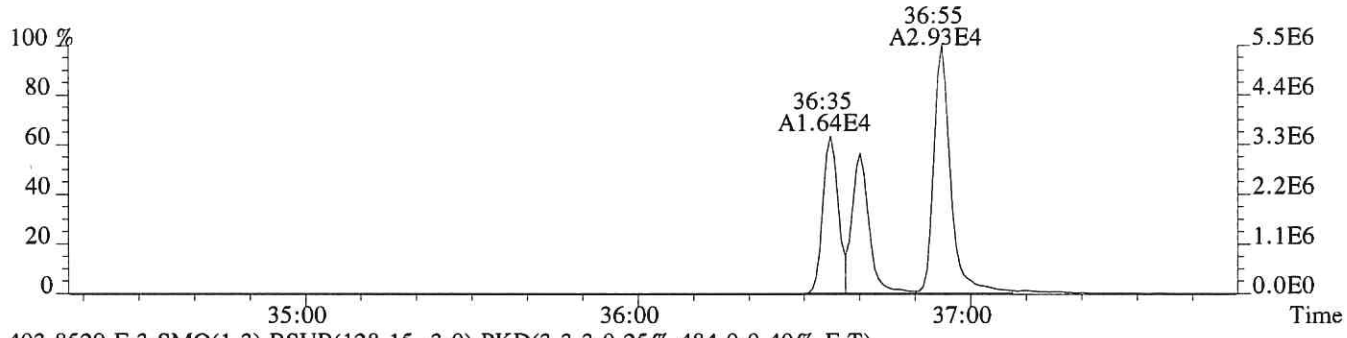
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



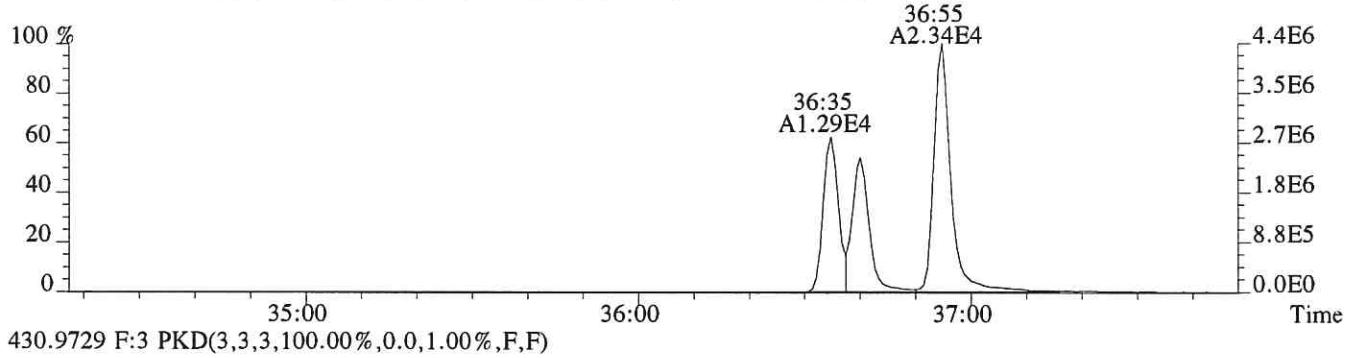
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



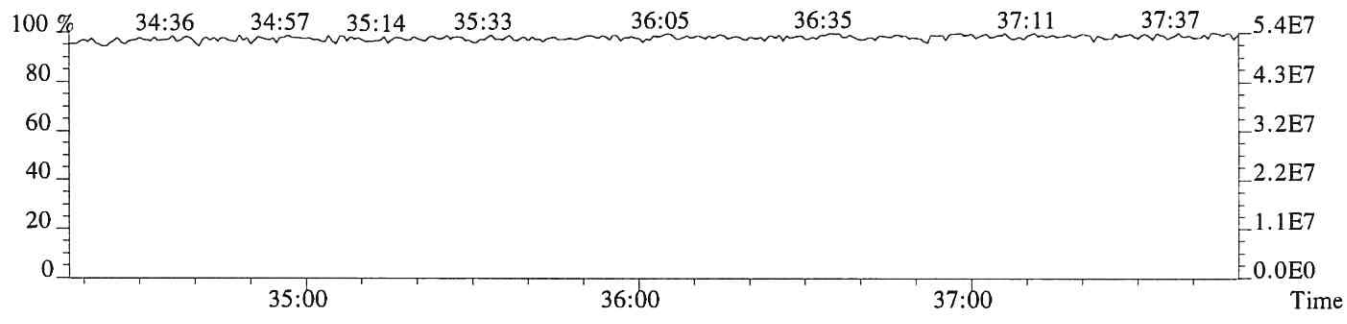
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)

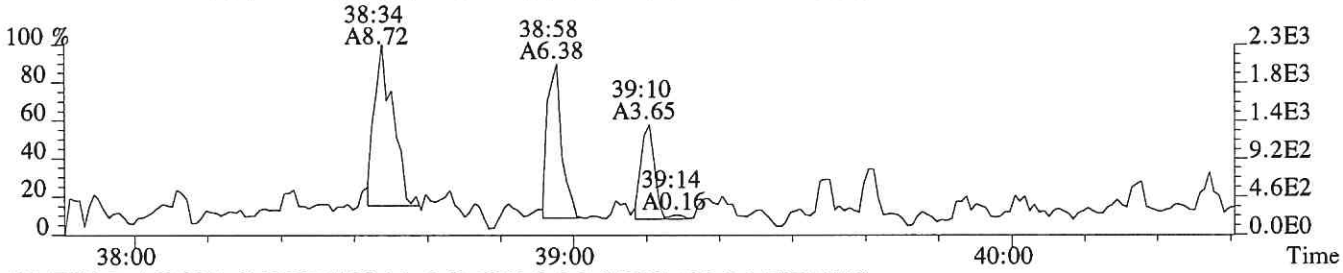


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

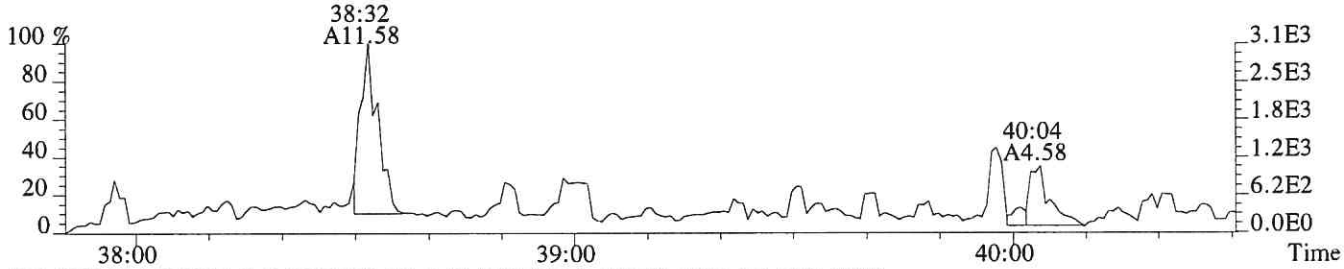


File:P519374 #1-241 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
Sample#1 Exp:E1801065-028

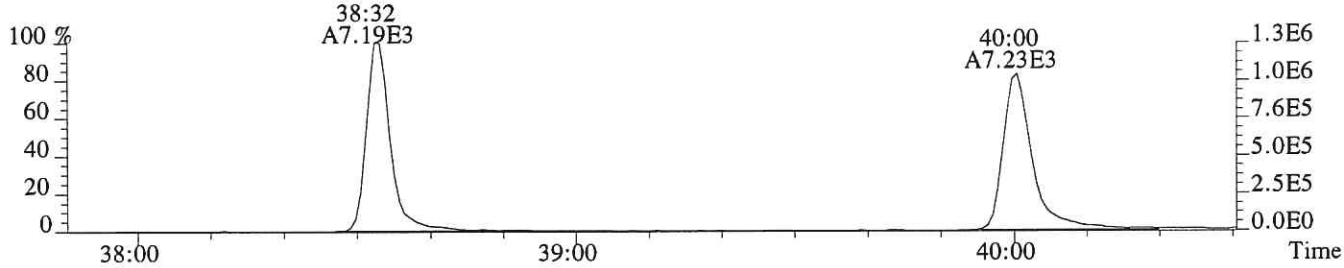
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.50%,F,T)



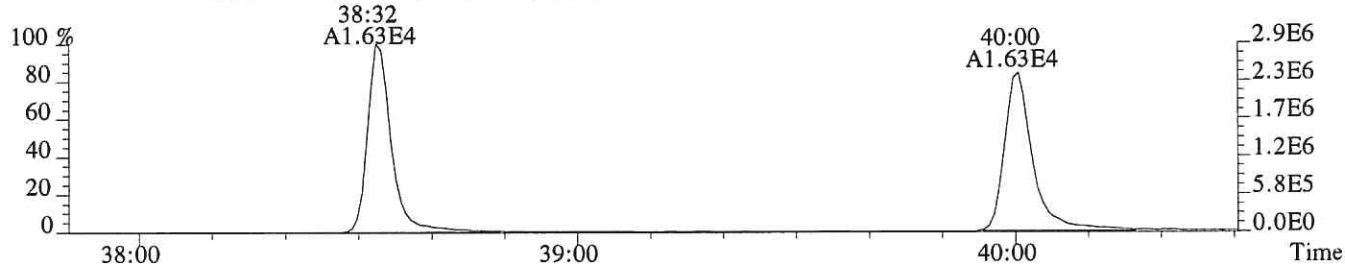
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.50%,F,T)



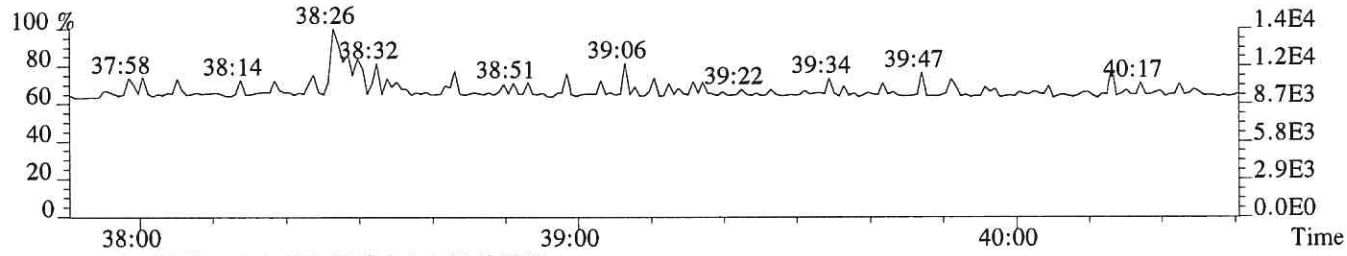
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1980.0,0.50%,F,T)



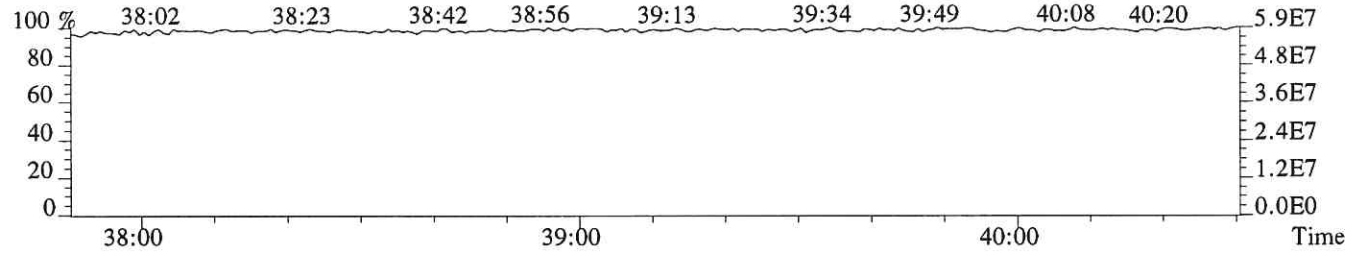
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.50%,F,T)



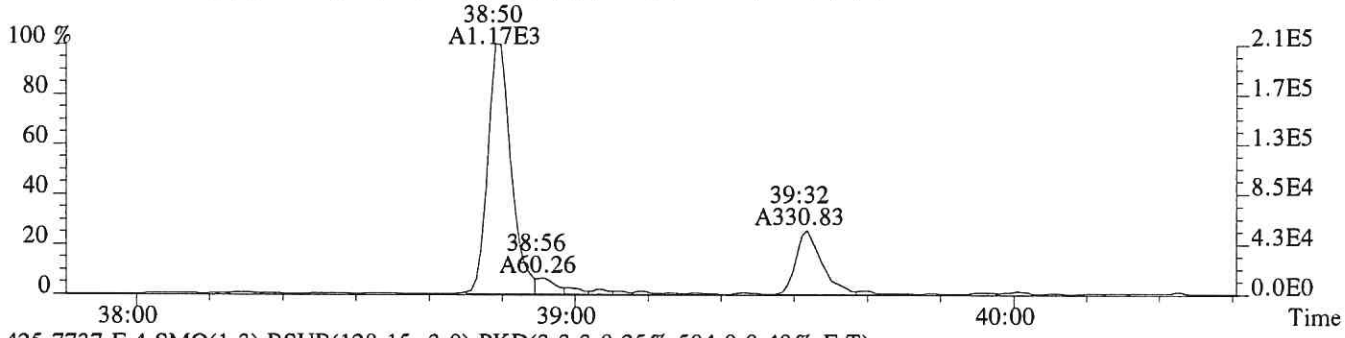
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



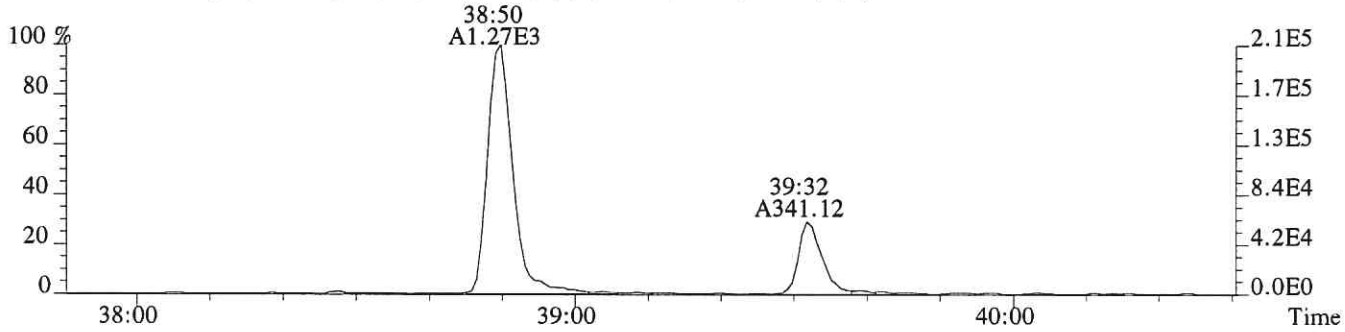
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



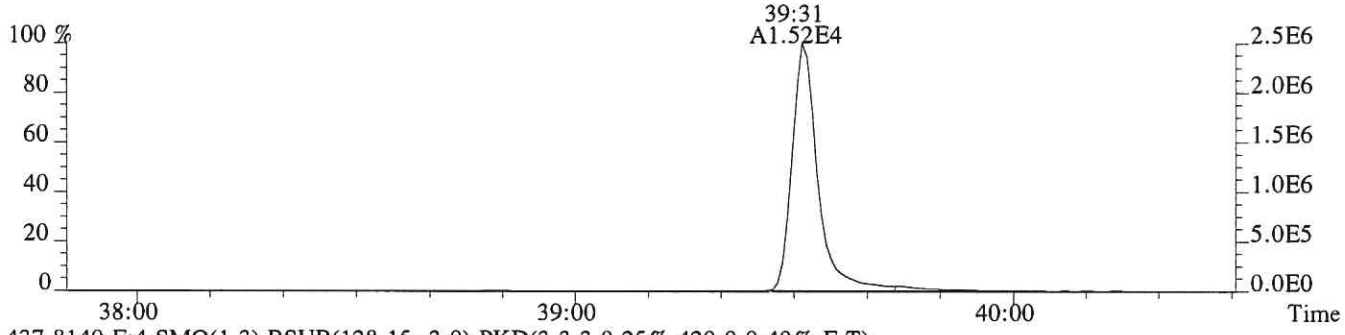
File:P519374 #1-241 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.40%,F,T)



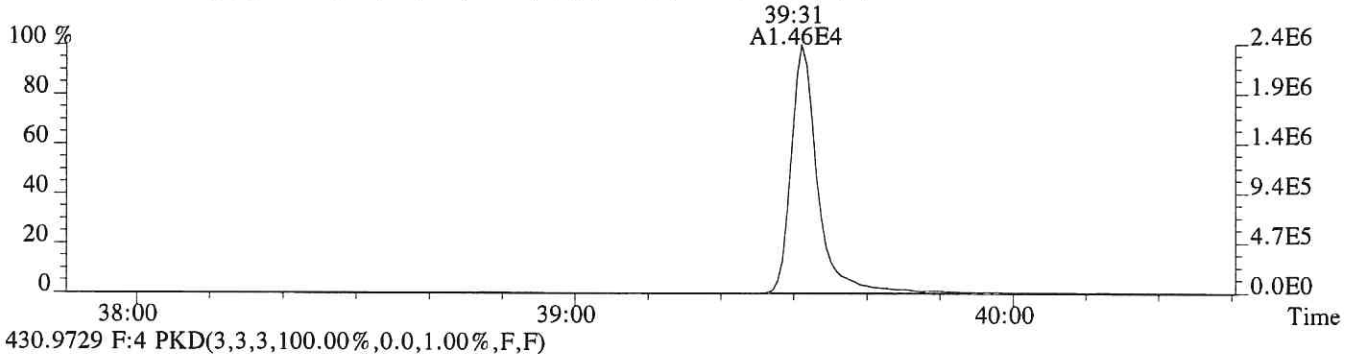
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



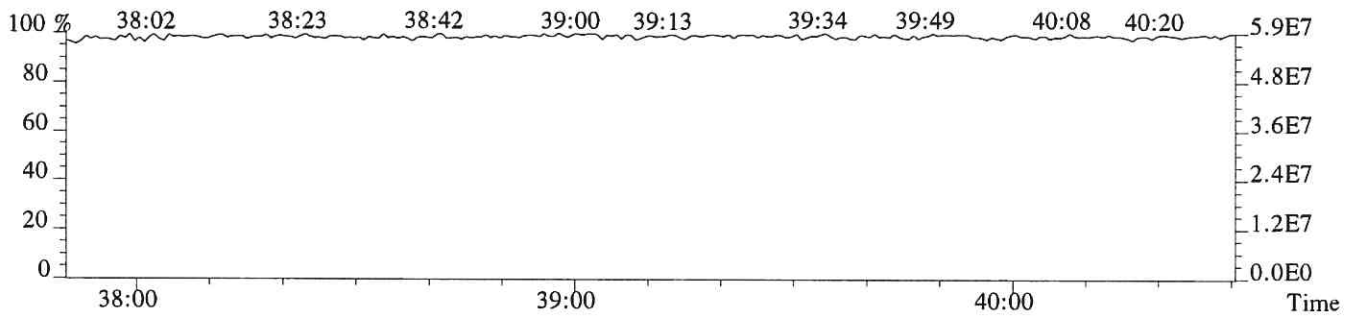
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)

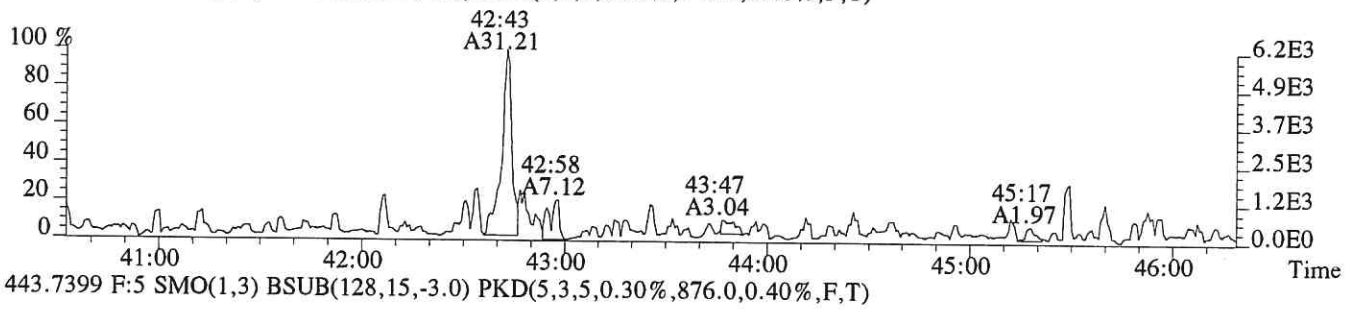


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

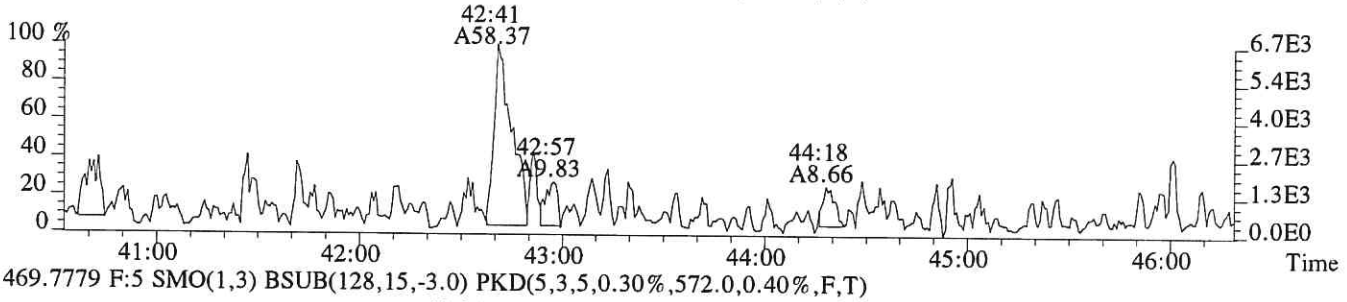


File:P519374 #1-520 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028

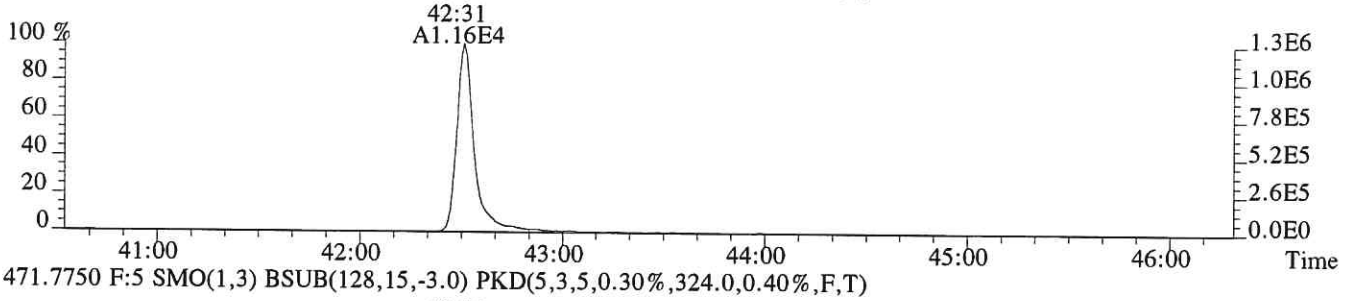
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



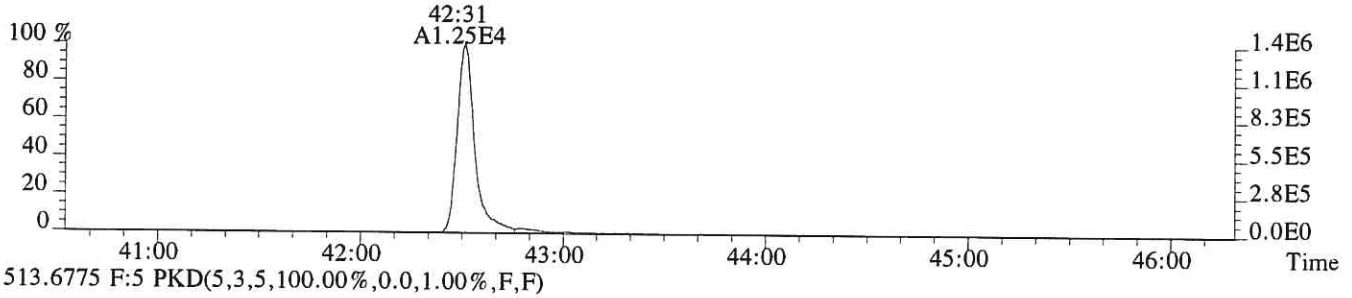
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,876.0,0.40%,F,T)



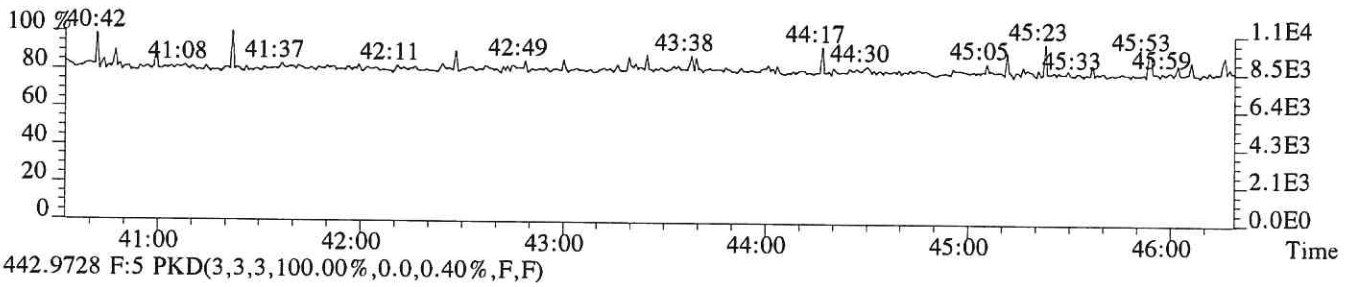
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



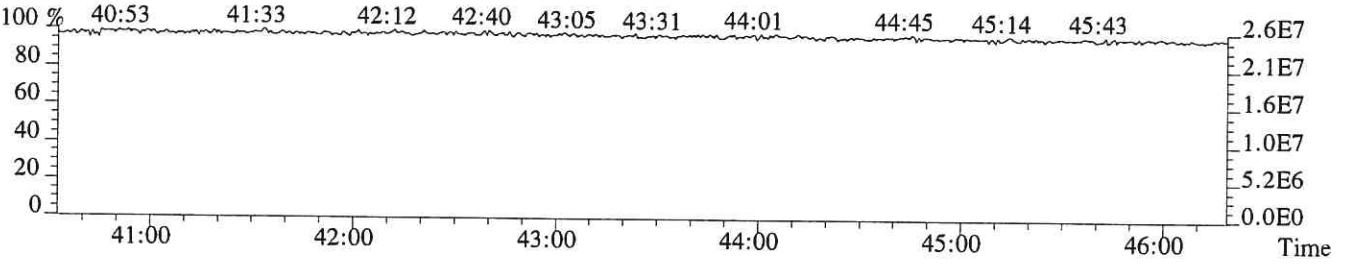
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

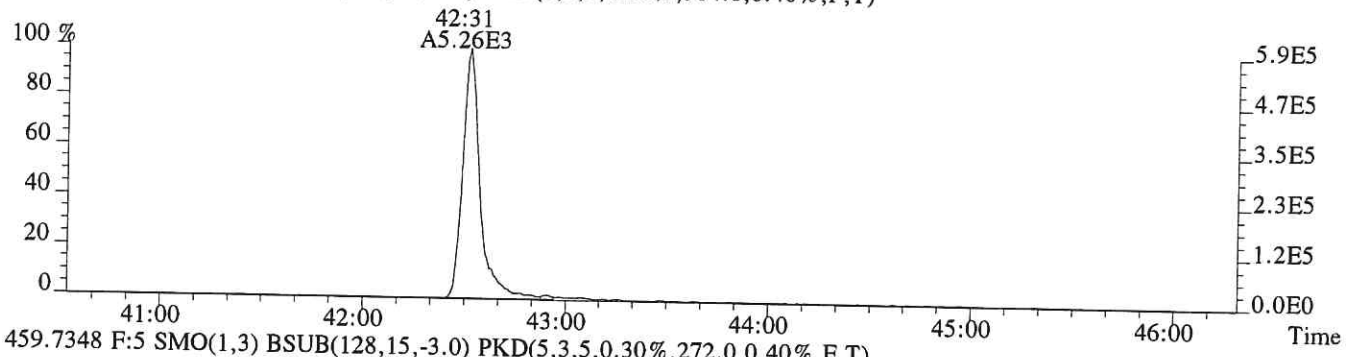


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

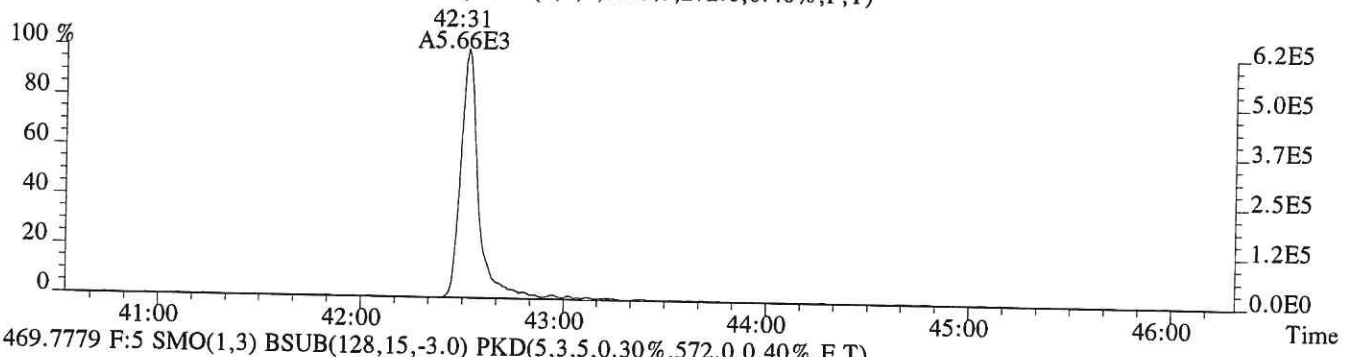


File:P519374 #1-520 Acq:12-DEC-2018 06:18:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-028

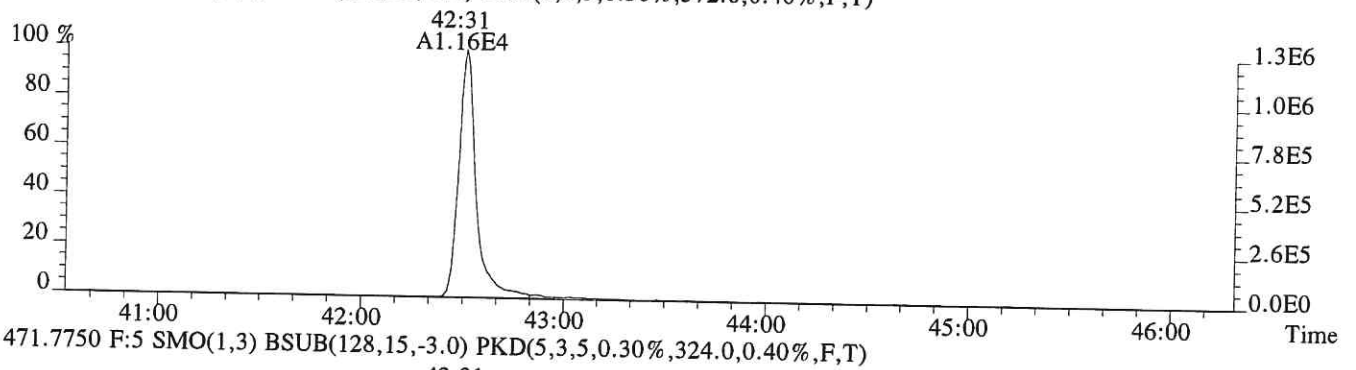
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



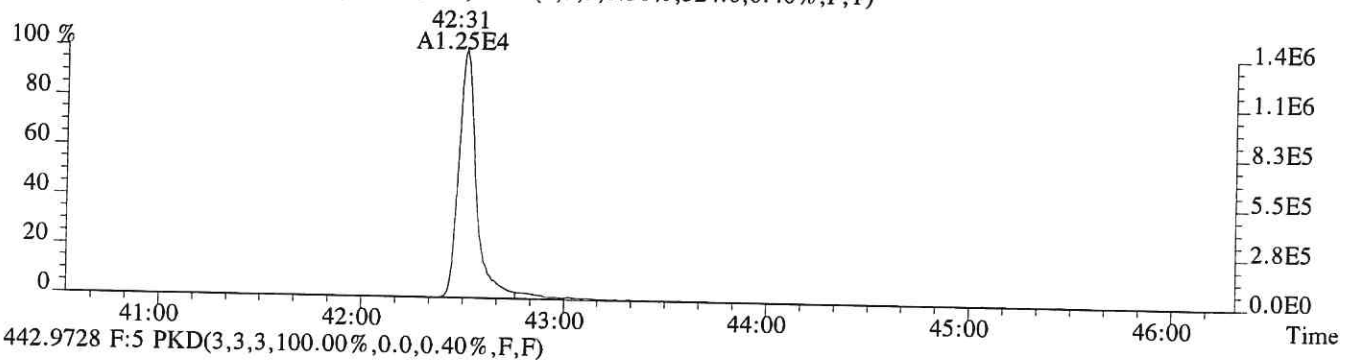
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



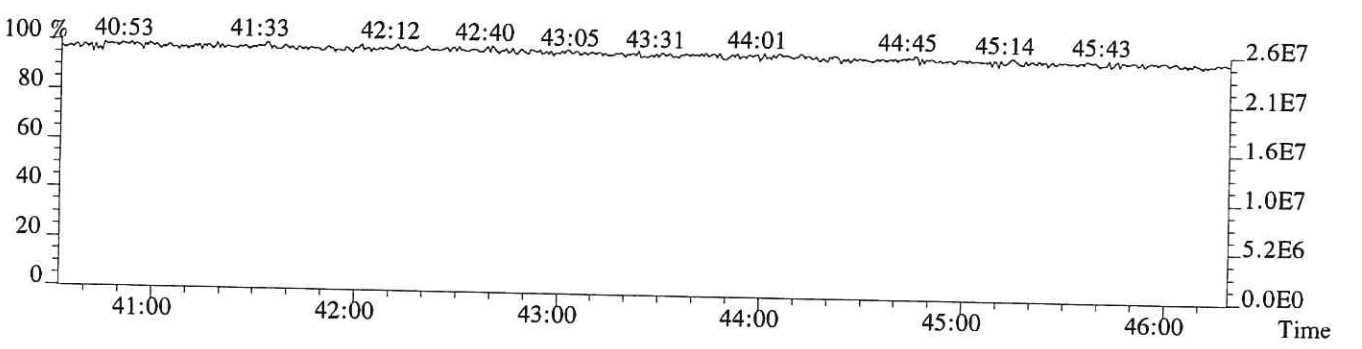
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
SL0579

Run #15 Filename P519375 Samp: 1 Inj: 1 Acquired: 12-DEC-18 07:06:39
Processed: 13-DEC-18 09:34:46 Sample ID: E1801065-029

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.534e+01	2.381e+01	1.06	yes	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:56	1.070e+01	1.379e+01	0.78	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	1.120e+01	1.358e+01	0.82	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	6.532e+01	4.752e+01	1.37	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	6.004e+00	1.094e+01	0.55	no	yes	1.258
10	Unk	OCDF	42:44	5.295e+01	6.113e+01	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	2.233e+01	1.088e+01	2.05	no	yes	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:36	2.375e+01	2.581e+01	0.92	no	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	4.911e+01	4.646e+01	1.06	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	8.763e+01	7.111e+01	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	1.220e+03	1.175e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:32	1.483e+04	1.657e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.936e+04	2.440e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.363e+04	2.078e+04	1.62	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	3.049e+04	1.883e+04	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.362e+04	2.659e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.630e+04	3.224e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	1.478e+04	2.830e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	1.324e+04	2.513e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	1.038e+04	2.339e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	9.151e+03	2.038e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.013e+03	1.140e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	2.291e+04	1.418e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	2.006e+04	1.492e+04	1.34	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.957e+04	1.646e+04	1.19	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	2.166e+04	1.981e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:31	1.630e+04	1.769e+04	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.233e+04	2.776e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	3.309e+04	2.615e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.333e+04				no	1.014

$$\text{OCDD} = \frac{(1.483e+04 + 1.657e+04) \times 4000\ \text{pg} \times 1}{(1.630e+04 + 1.769e+04) \times 10.58\text{g} \times \text{MH} / 100 \times 1.118} = 423.9252\ \text{ng/kg}$$

LG 12/13/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SL0579

Run #15 Filename P519375 Samp: 1 Inj: 1 Acquired: 12-DEC-18 07:06:39
Processed: 13-DEC-18 09:34:46 LAB. ID: E1801065-029

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	7.24e+02	*	*	1.78e+03	*
2	1,2,3,7,8-PeCDF	*	4.68e+02	*	*	1.83e+03	*
3	2,3,4,7,8-PeCDF	*	4.68e+02	*	*	1.83e+03	*
4	1,2,3,4,7,8-HxCDF	7.11e+03	6.04e+02	1.2e+01	6.58e+03	4.08e+02	1.6e+01
5	1,2,3,6,7,8-HxCDF	2.80e+03	6.04e+02	4.6e+00	2.57e+03	4.08e+02	6.3e+00
6	2,3,4,6,7,8-HxCDF	2.21e+03	6.04e+02	3.7e+00	3.81e+03	4.08e+02	9.3e+00
7	1,2,3,7,8,9-HxCDF	*	6.04e+02	*	*	4.08e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.04e+04	2.32e+02	4.5e+01	8.70e+03	4.36e+02	2.0e+01
9	1,2,3,4,7,8,9-HpCDF	1.06e+03	2.32e+02	4.6e+00	2.11e+03	4.36e+02	4.8e+00
10	OCDF	6.88e+03	2.92e+02	2.4e+01	8.61e+03	9.76e+02	8.8e+00
11	2,3,7,8-TCDD	*	1.97e+03	*	*	1.31e+03	*
12	1,2,3,7,8-PeCDD	4.81e+03	9.64e+02	5.0e+00	3.28e+03	3.88e+02	8.4e+00
13	1,2,3,4,7,8-HxCDD	4.69e+03	4.28e+02	1.1e+01	5.46e+03	2.48e+02	2.2e+01
14	1,2,3,6,7,8-HxCDD	1.06e+04	4.28e+02	2.5e+01	1.03e+04	2.48e+02	4.1e+01
15	1,2,3,7,8,9-HxCDD	1.41e+04	4.28e+02	3.3e+01	1.59e+04	2.48e+02	6.4e+01
16	1,2,3,4,6,7,8-HpCDD	1.81e+05	9.88e+02	1.8e+02	1.77e+05	2.52e+02	7.0e+02
17	OCDD	1.58e+06	2.64e+02	6.0e+03	1.77e+06	4.08e+02	4.3e+03
18	13C-2,3,7,8-TCDF	3.43e+06	7.03e+03	4.9e+02	4.30e+06	7.76e+03	5.5e+02
19	13C-1,2,3,7,8-PeCDF	6.00e+06	5.00e+02	1.2e+04	3.74e+06	4.52e+02	8.3e+03
20	13C-2,3,4,7,8-PeCDF	5.73e+06	5.00e+02	1.1e+04	3.56e+06	4.52e+02	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	2.79e+06	9.16e+02	3.0e+03	5.43e+06	8.08e+02	6.7e+03
22	13C-1,2,3,6,7,8-HxCDF	3.04e+06	9.16e+02	3.3e+03	5.88e+06	8.08e+02	7.3e+03
23	13C-2,3,4,6,7,8-HxCDF	2.90e+06	9.16e+02	3.2e+03	5.55e+06	8.08e+02	6.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.31e+06	9.16e+02	2.5e+03	4.37e+06	8.08e+02	5.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.78e+06	1.81e+03	9.8e+02	4.09e+06	2.20e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.31e+06	1.81e+03	7.2e+02	2.95e+06	2.20e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.70e+06	6.10e+03	2.8e+02	2.14e+06	2.39e+03	8.9e+02
28	13C-1,2,3,7,8-PeCDD	4.30e+06	8.88e+02	4.8e+03	2.68e+06	8.24e+02	3.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.95e+06	1.63e+03	2.4e+03	3.13e+06	8.24e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.66e+06	1.63e+03	2.2e+03	2.94e+06	8.24e+02	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.23e+06	3.08e+02	1.0e+04	3.07e+06	2.76e+02	1.1e+04
32	13C-OCDD	1.74e+06	1.03e+03	1.7e+03	1.84e+06	3.72e+02	5.0e+03
33	13C-1,2,3,4-TCDD	4.09e+06	6.10e+03	6.7e+02	5.06e+06	2.39e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.56e+06	1.63e+03	3.4e+03	4.47e+06	8.24e+02	5.4e+03
35	37Cl-2,3,7,8-TCDD	2.41e+06	1.15e+03	2.1e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.972e+03 + 1.308e+03) \times 2000}{(1.702e+06 + 2.139e+06) \times (\quad) \times 1.085} =$$

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0579

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P519375 Sample:1 Injection:1 Function:1

Acquired: 12-DEC-18 07:06:39 Processed: 13-DEC-18 09:34:46

Mass: 303.9020 305.8990 Tot Response: 7.24e+01 RRF: 0.9417

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:09	2.94e+01	4.30e+01 0.68	yes	7.24e+01		n	n

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Peak List Summary

CLIENT ID.
SL0579

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P519375 Sample:1 Injection:1 Function:3

Acquired: 12-DEC-18 07:06:39 Processed: 13-DEC-18 09:34:46

Mass: 373.8210 375.8180 Tot Response: 4.92e+01 RRF: 1.141

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:49	2.53e+01	2.38e+01 1.06	yes	4.92e+01	1,2,3,4,7,8-HxCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0579

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P519375 Sample:1 Injection:1 Function:3

Acquired: 12-DEC-18 07:06:39 Processed: 13-DEC-18 09:34:46

Mass: 389.8160 391.8130 Tot Response: 2.38e+03 RRF: 1.047

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:13	7.89e+02	6.42e+02	1.23	yes	1.43e+03		n	n
2	35:45	2.47e+01	2.07e+01	1.19	yes	4.54e+01		n	n
3	35:59	3.31e+02	2.56e+02	1.29	yes	5.87e+02		n	n
4	36:05	3.63e+01	3.04e+01	1.19	yes	6.67e+01		n	n
5	36:41	4.91e+01	4.65e+01	1.06	yes	9.56e+01	1,2,3,6,7,8-HxCDD	n	n
6	36:55	8.76e+01	7.11e+01	1.23	yes	1.59e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SL0579

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P519375 Sample:1 Injection:1 Function:4

Acquired: 12-DEC-18 07:06:39 Processed: 13-DEC-18 09:34:46

Mass: 407.7820 409.7790 Tot Response: 3.36e+01 RRF: 1.308

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:58	1.81e+01	1.55e+01 1.17	yes	3.36e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SL0579

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P519375 Sample:1 Injection:1 Function:4

Acquired: 12-DEC-18 07:06:39 Processed: 13-DEC-18 09:34:46

Mass: 423.7770 425.7740 Tot Response: 8.21e+03 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:50	3.06e+03	2.75e+03	1.11	yes	5.82e+03		n	n
2	39:32	1.22e+03	1.17e+03	1.04	yes	2.40e+03	1,2,3,4,6,7,8-HpCDD	n	n

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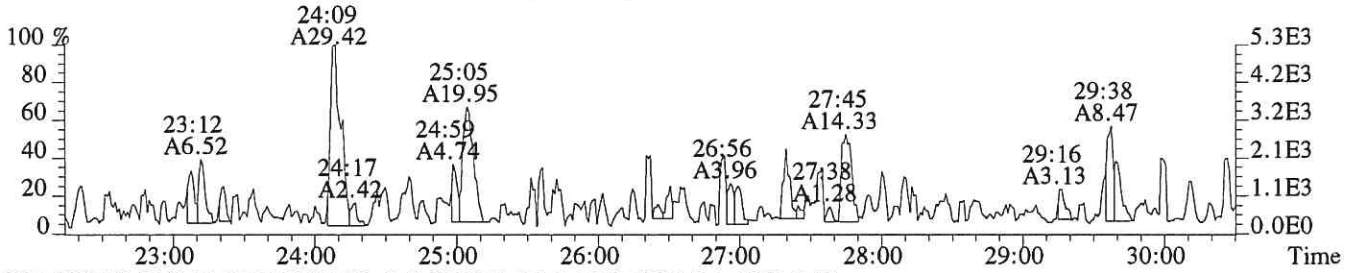
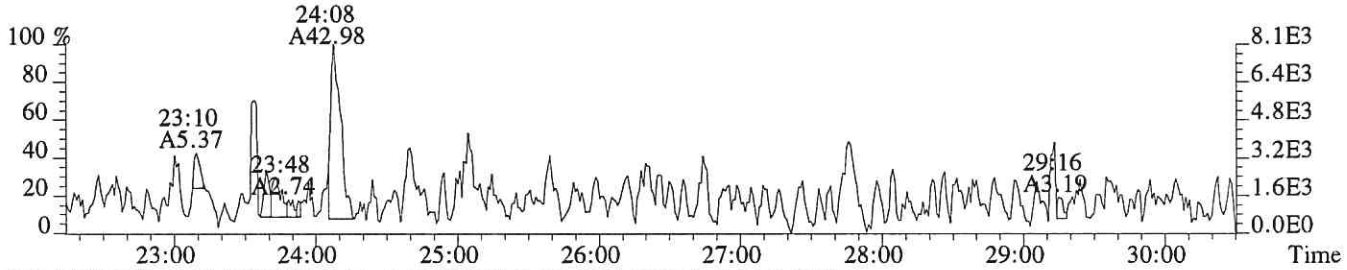
File:P519375 #1-587 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029

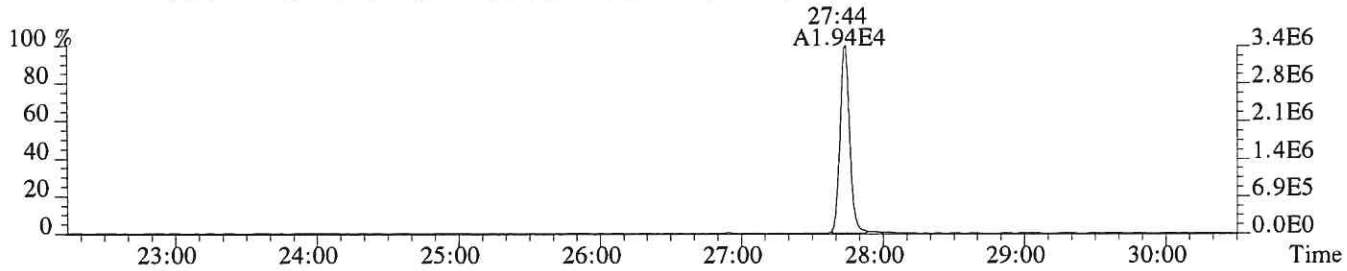
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



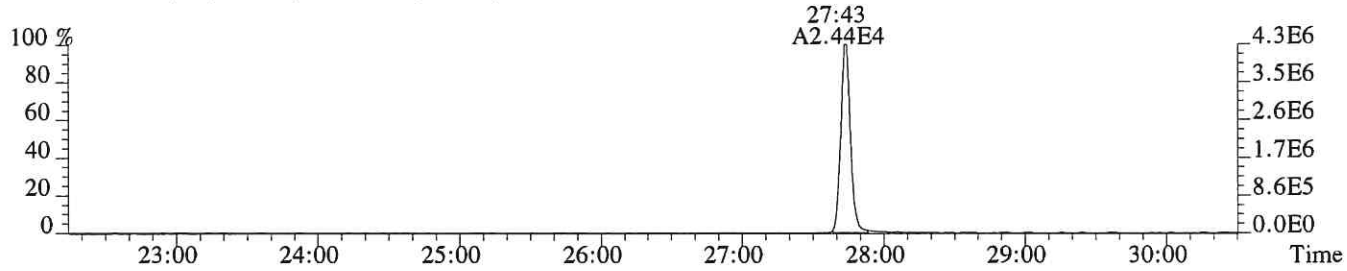
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



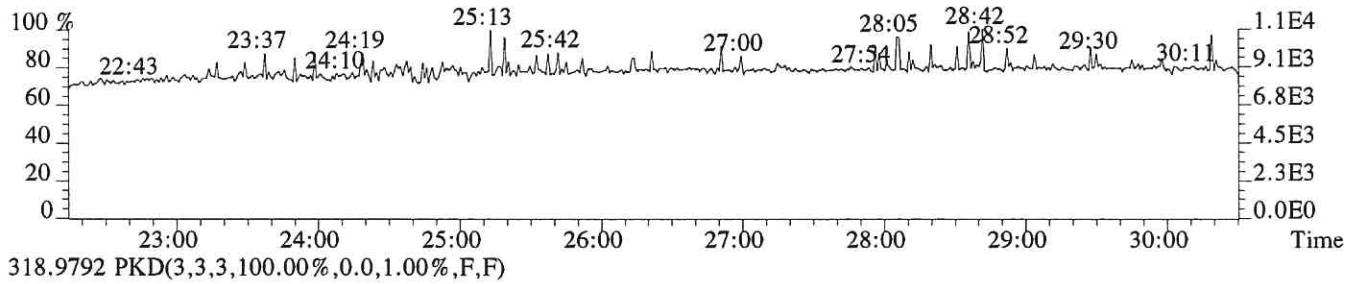
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7032.0,1.00%,F,T)



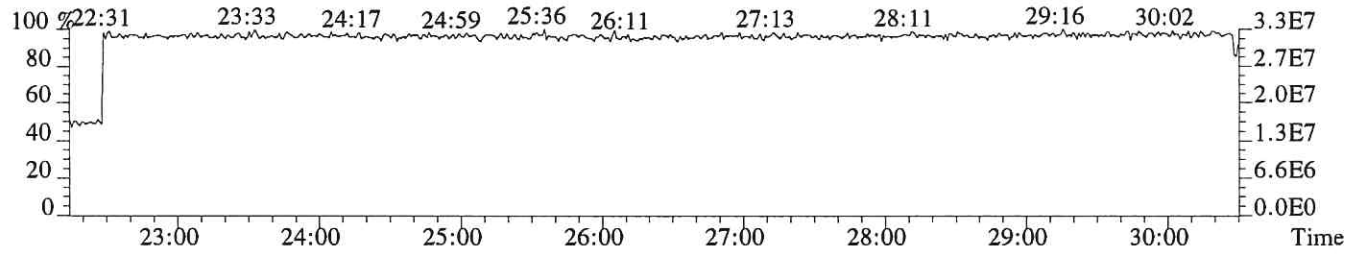
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7756.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

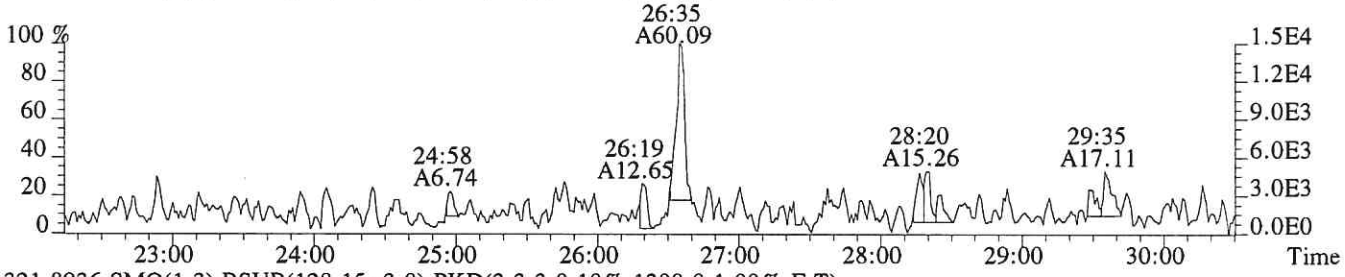


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

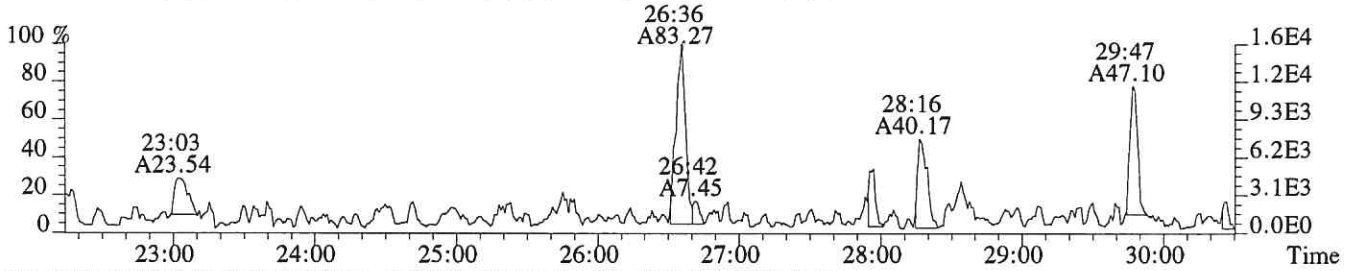


File:P519375 #1-587 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029

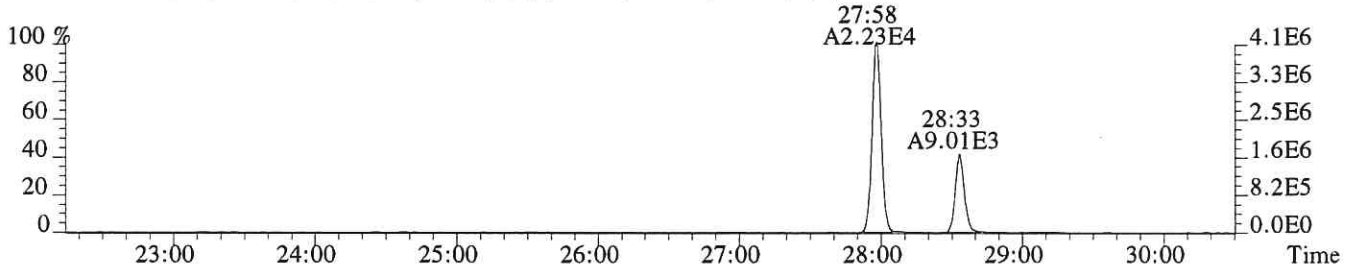
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



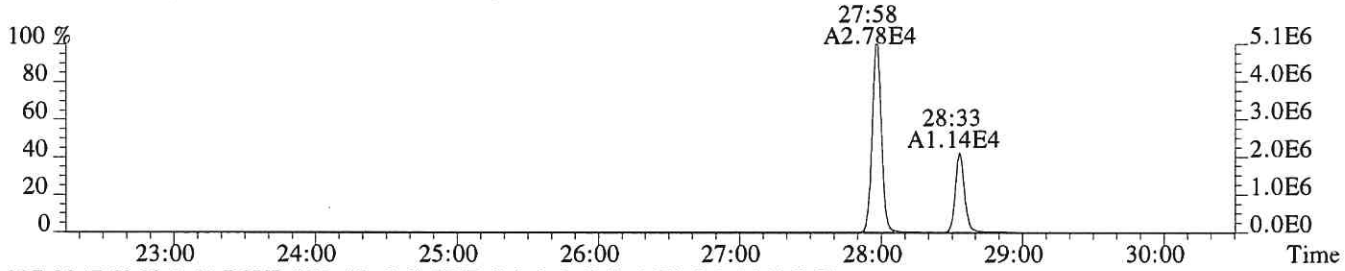
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



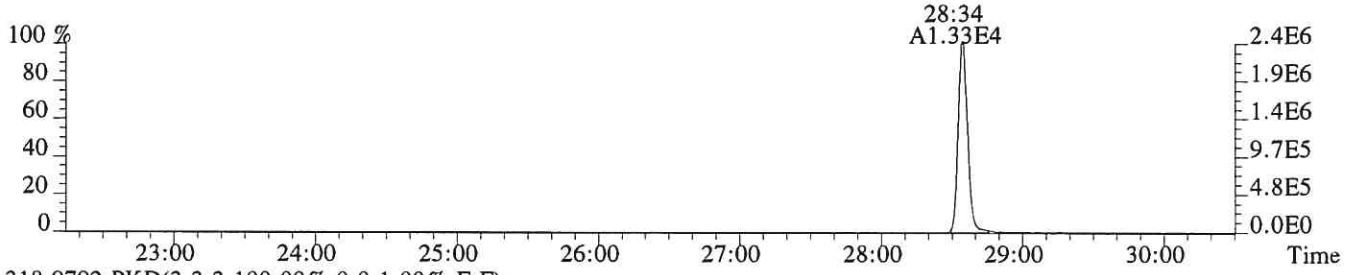
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6096.0,1.00%,F,T)



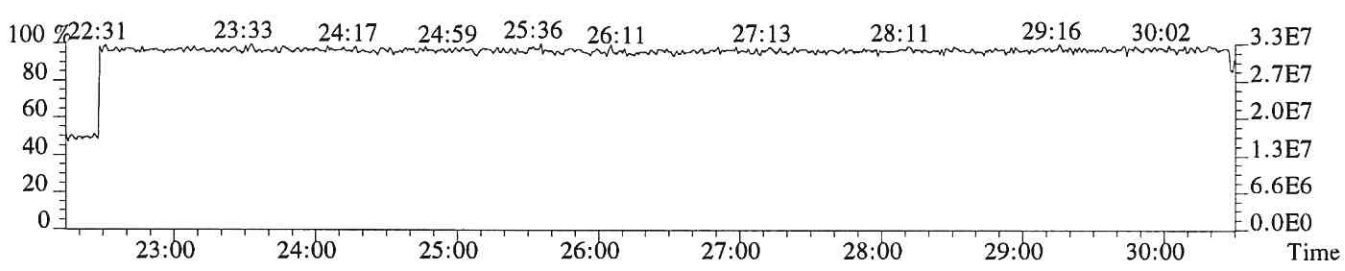
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



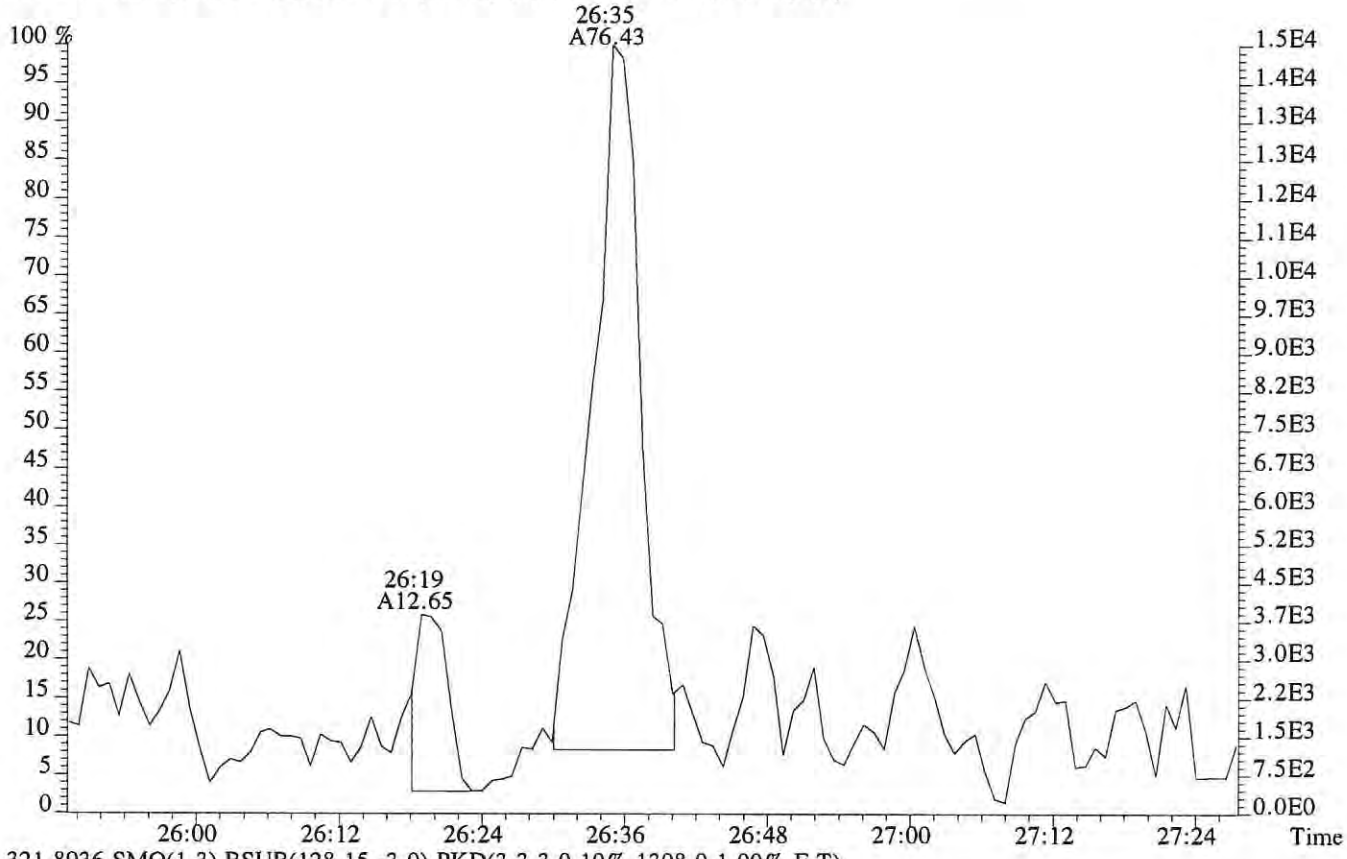
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



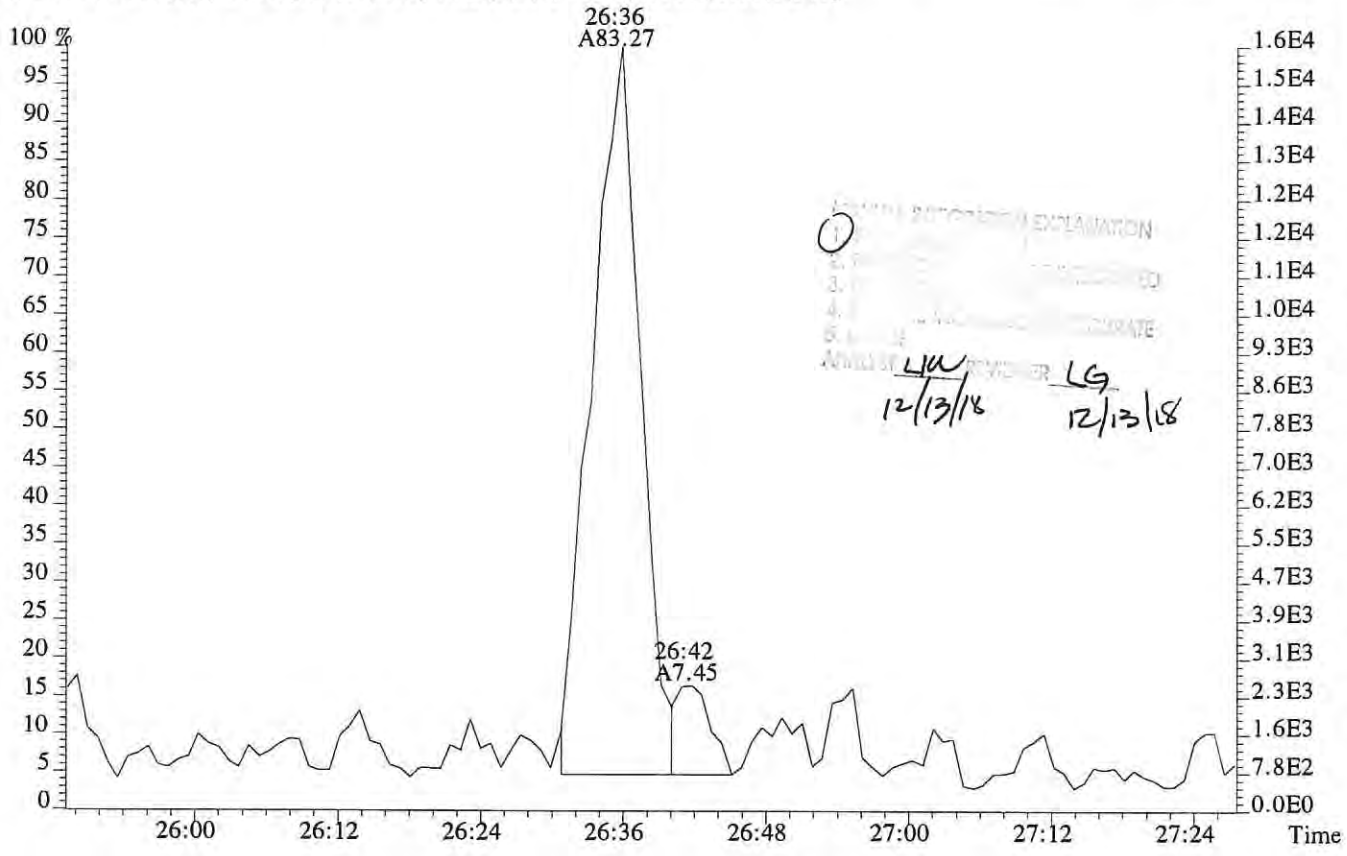
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519375 #1-587 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)

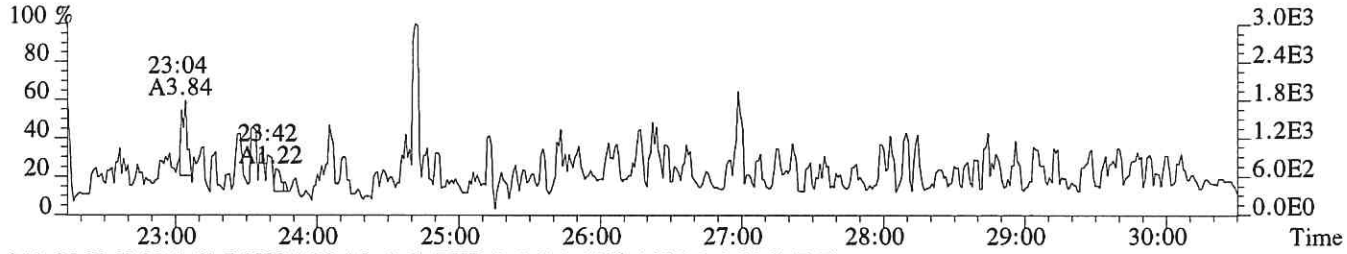


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)

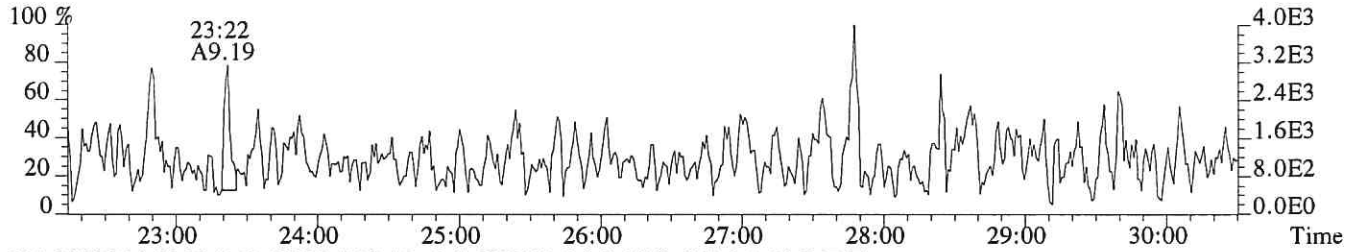


12/13/18 12/13/18

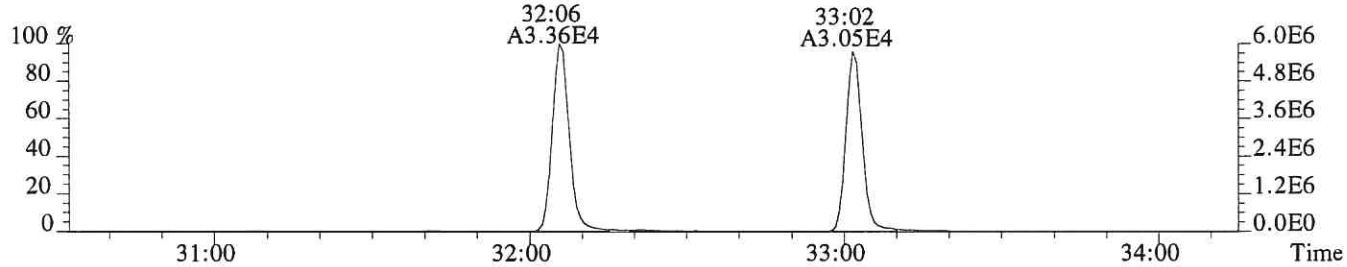
File:P519375 #1-587 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



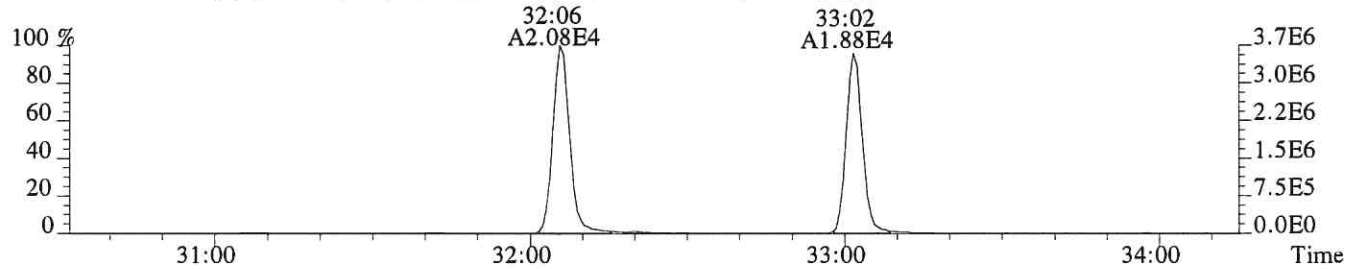
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



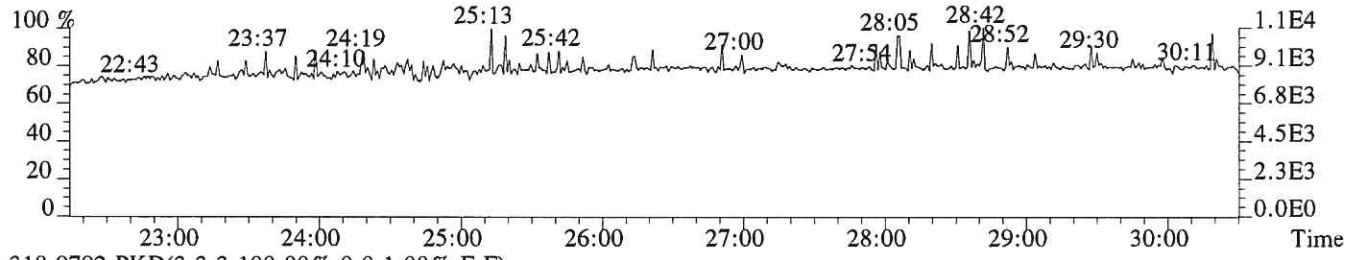
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



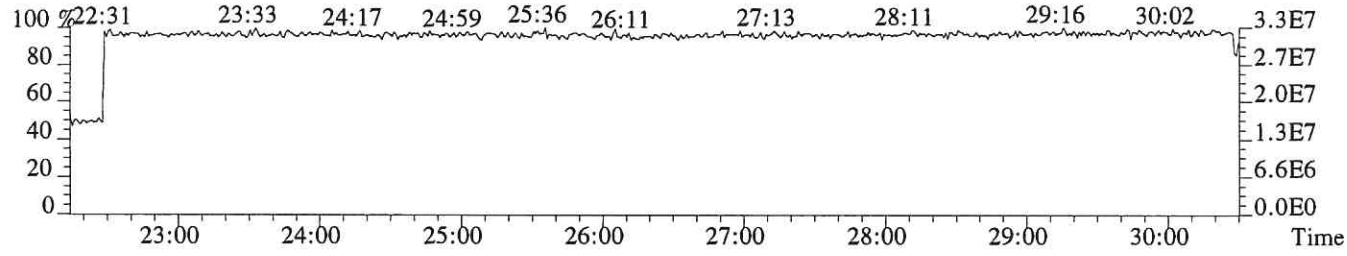
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

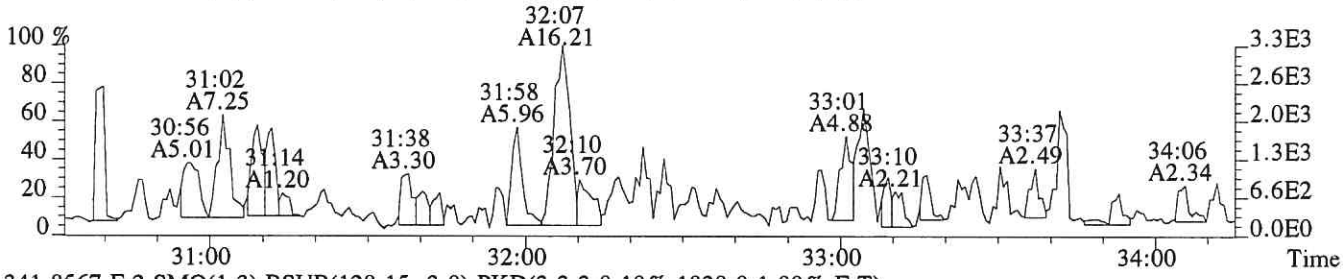


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

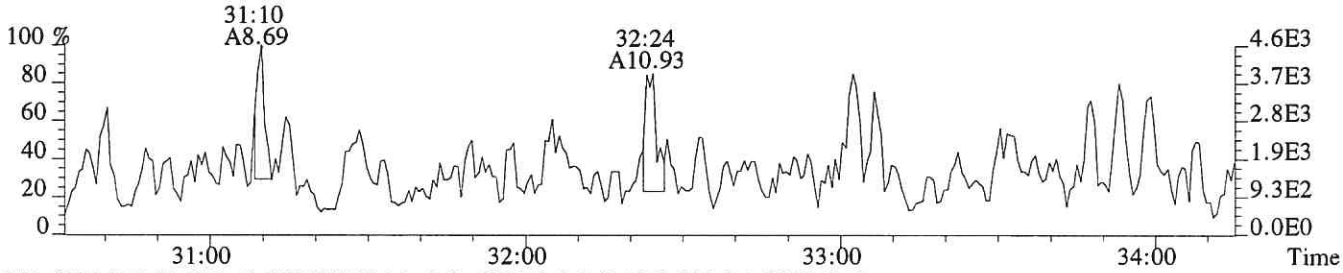


File:P519375 #1-335 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029

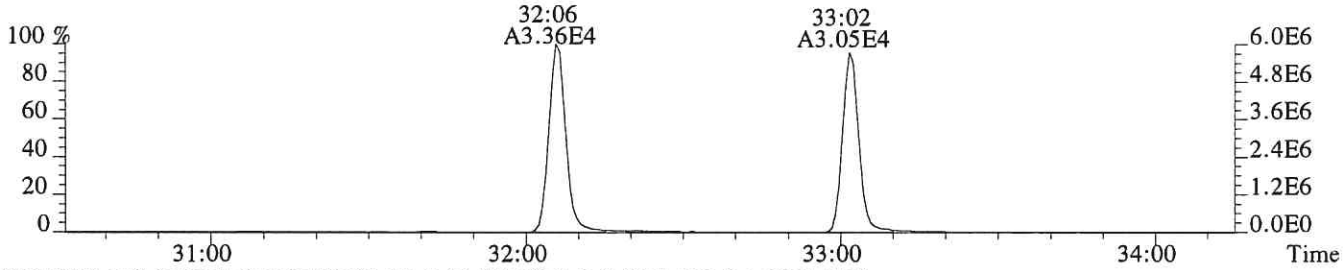
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



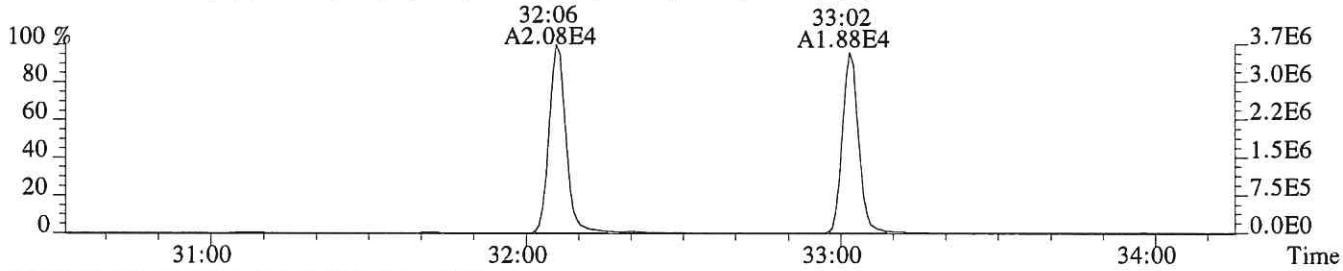
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



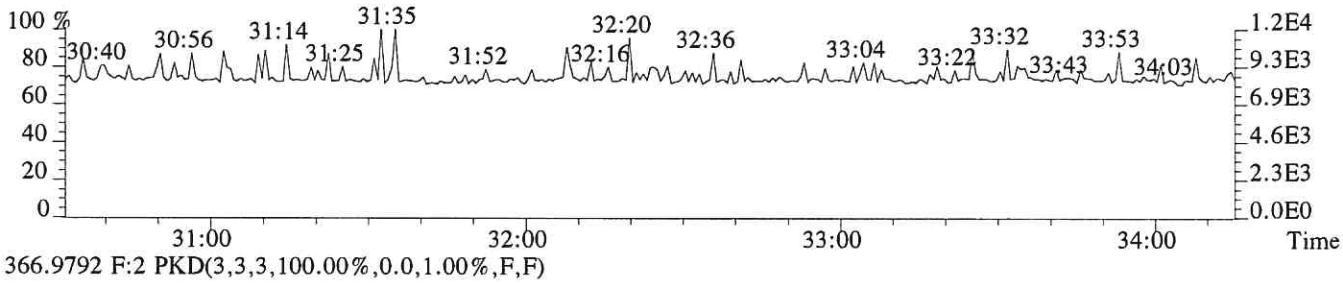
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



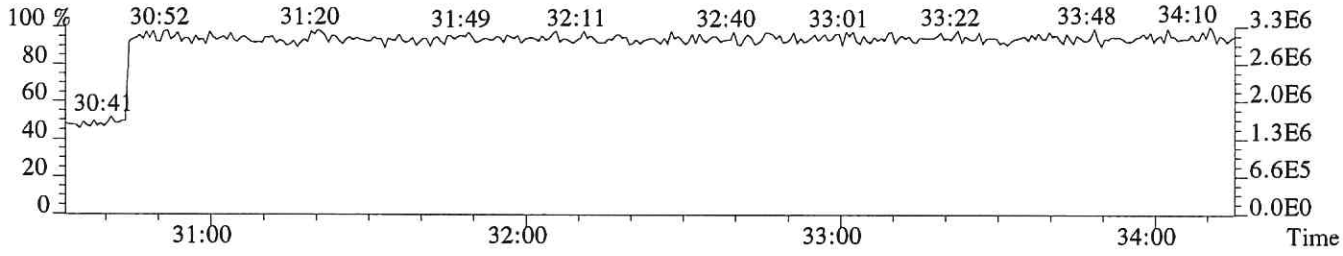
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



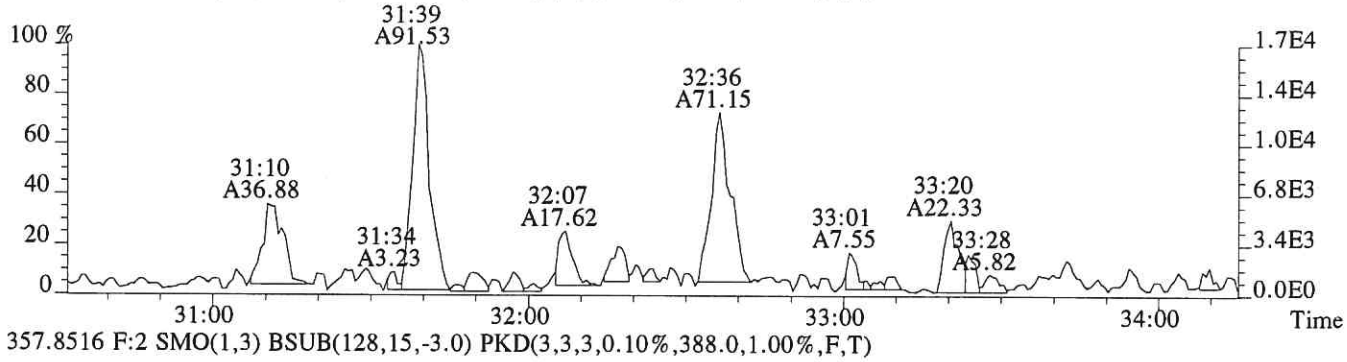
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



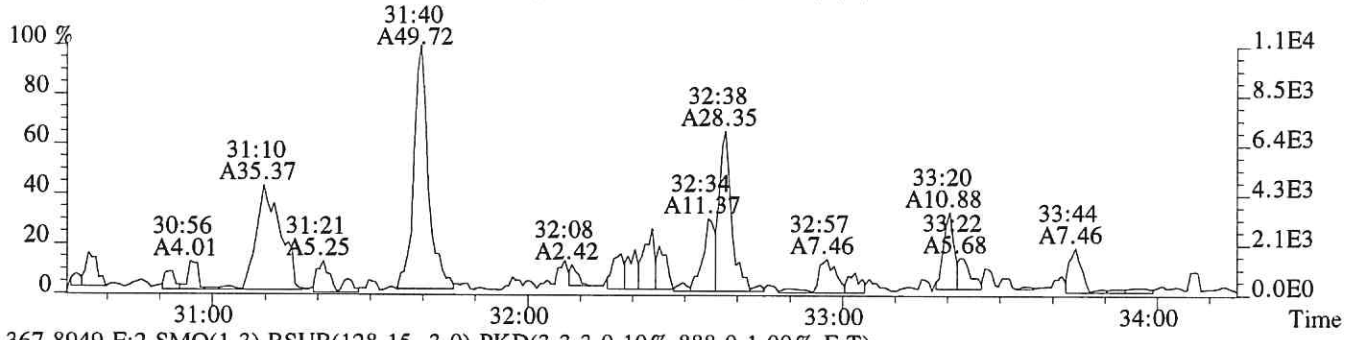
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



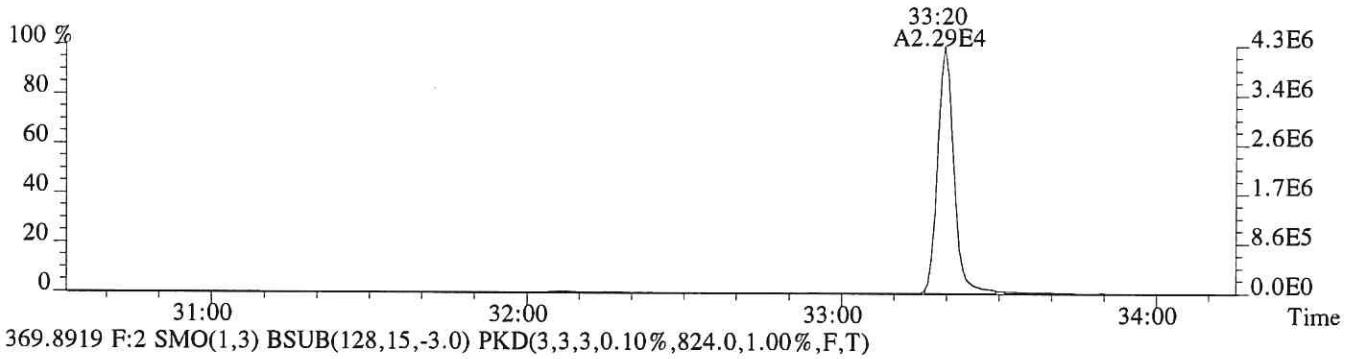
File:P519375 #1-335 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



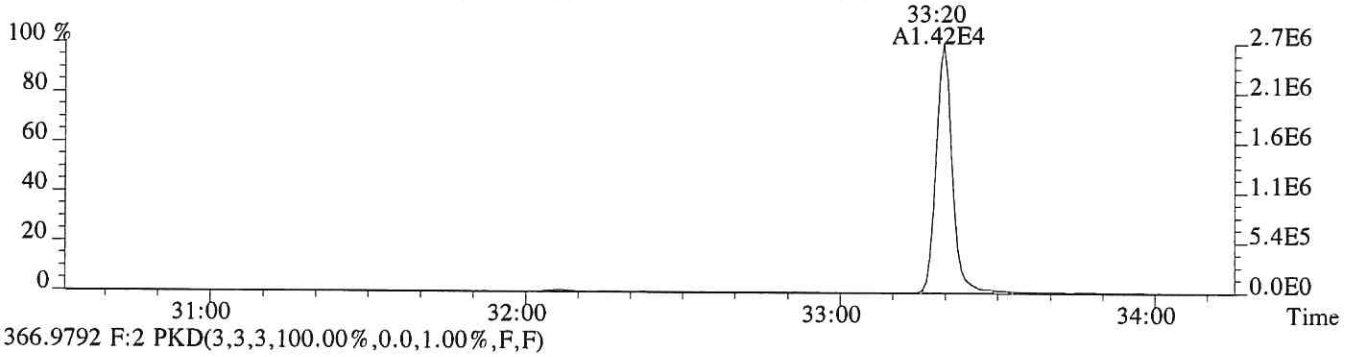
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



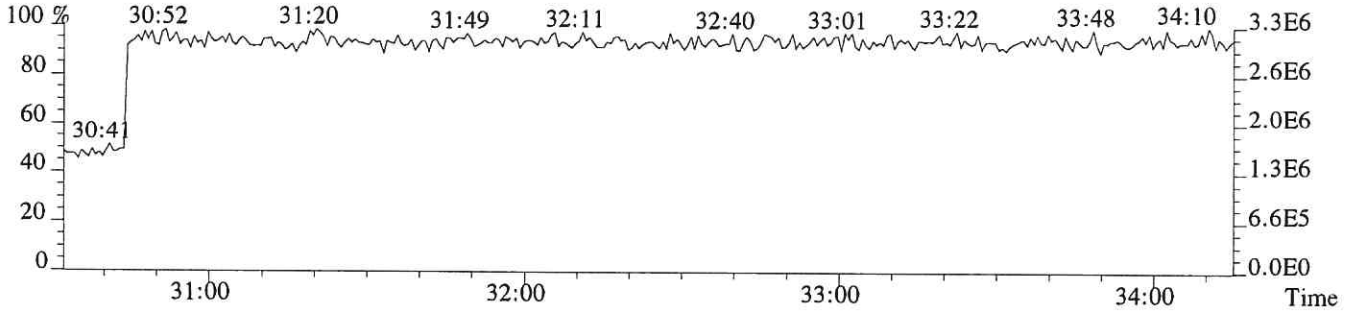
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)

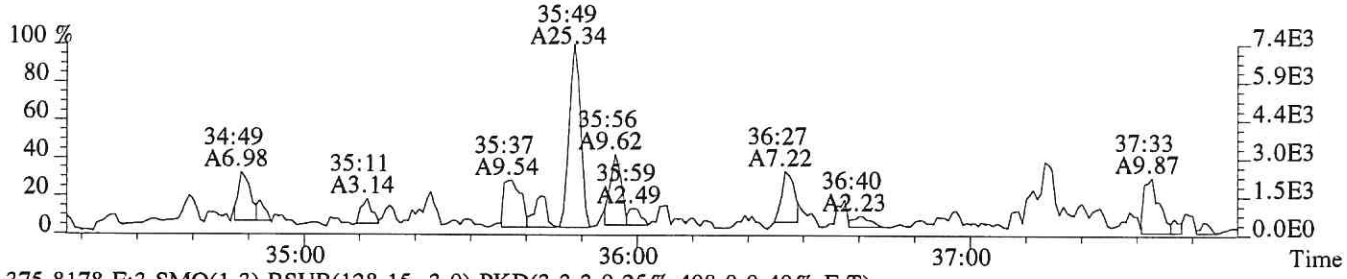


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

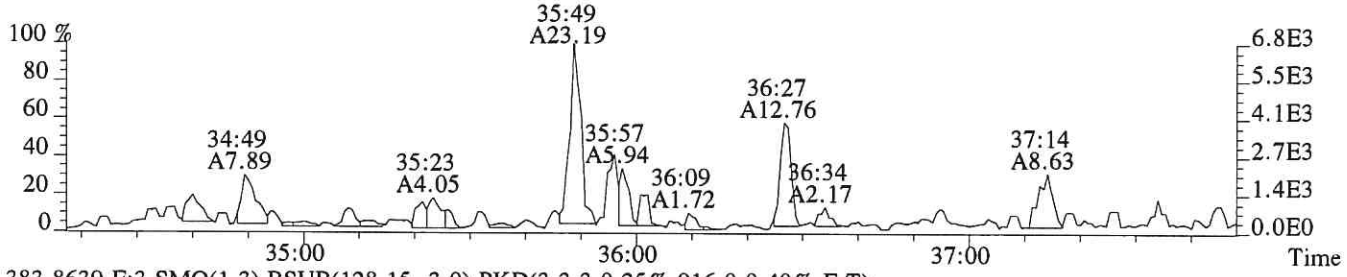


File:P519375 #1-317 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029

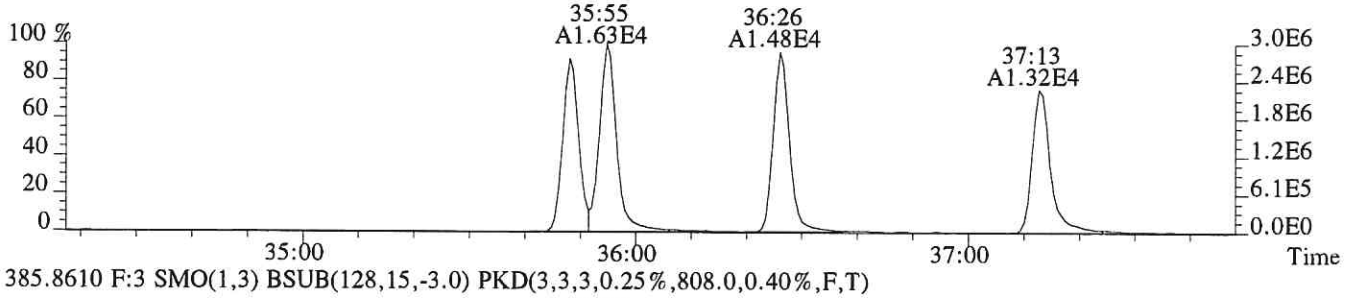
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



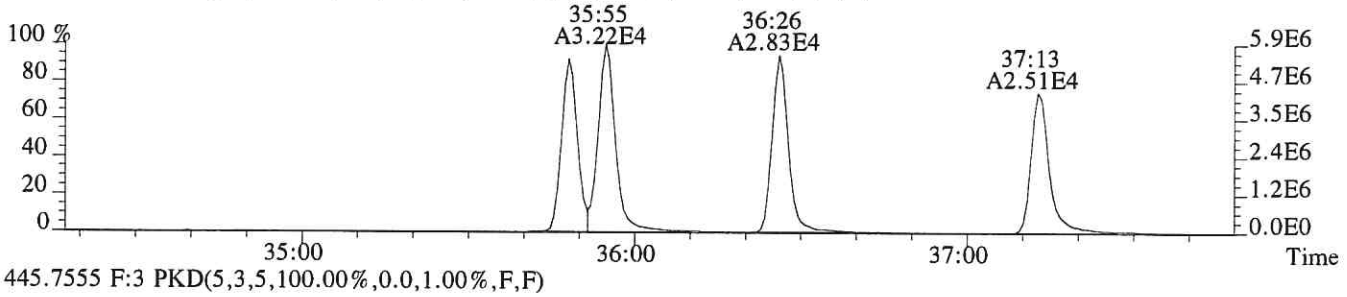
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



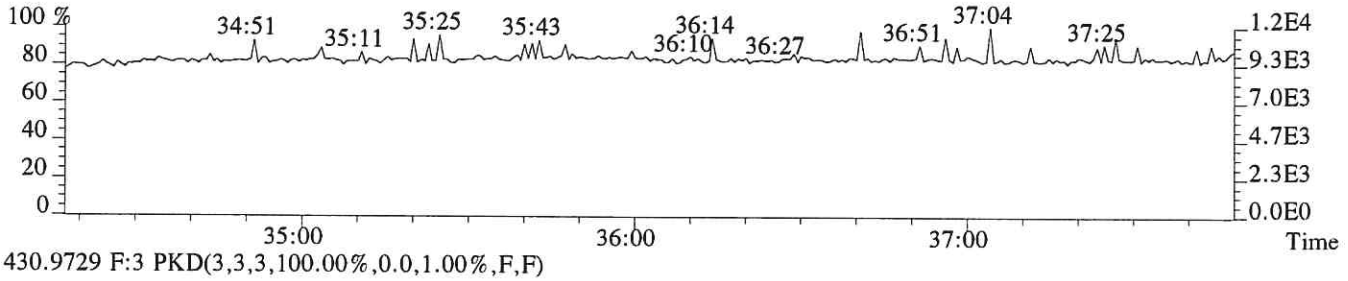
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



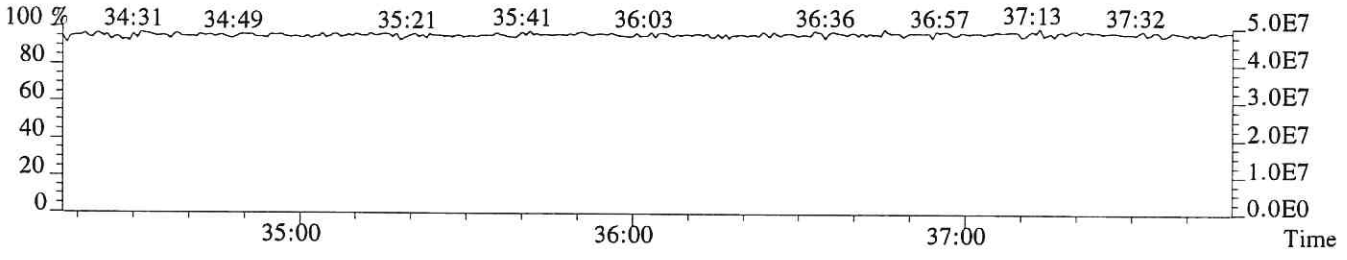
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



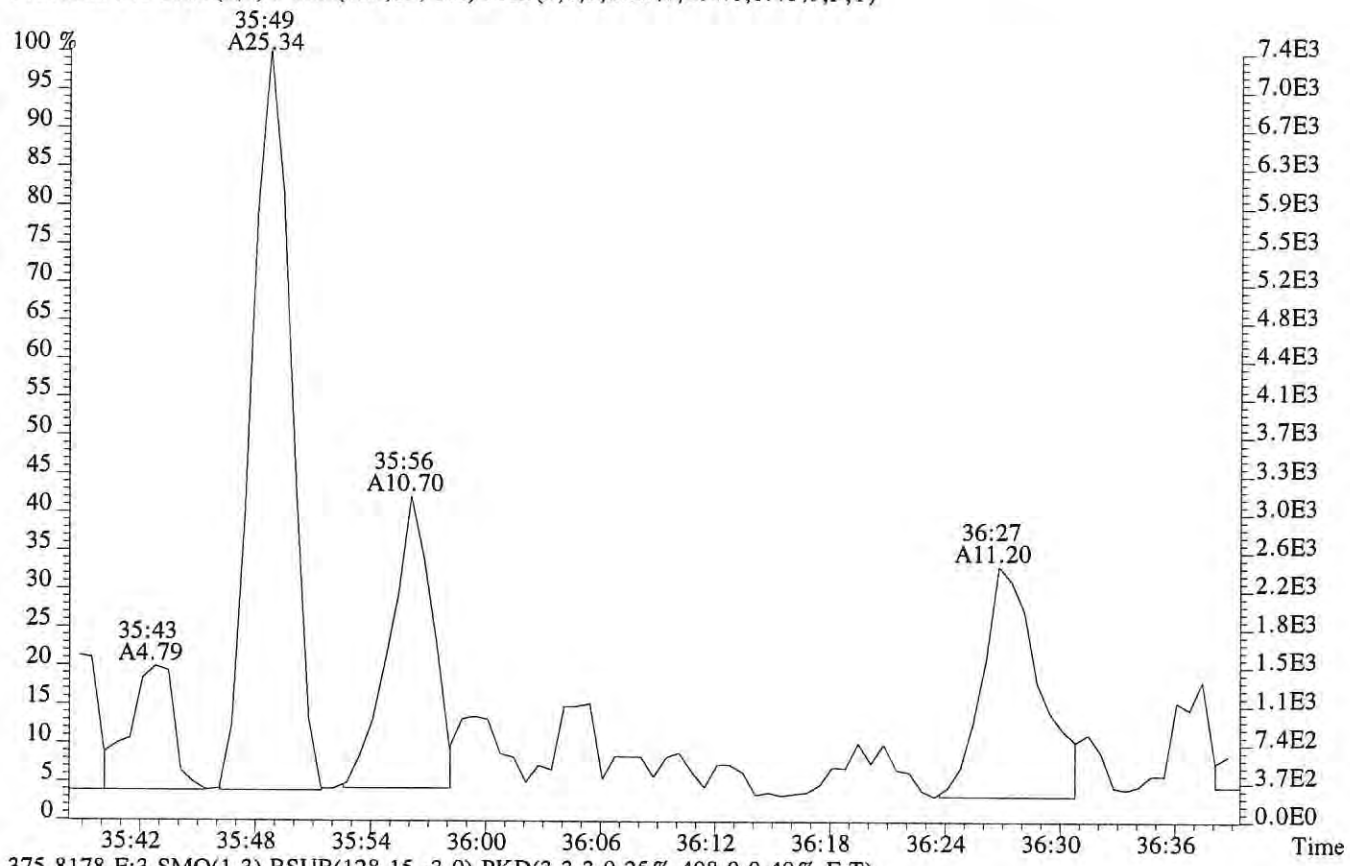
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



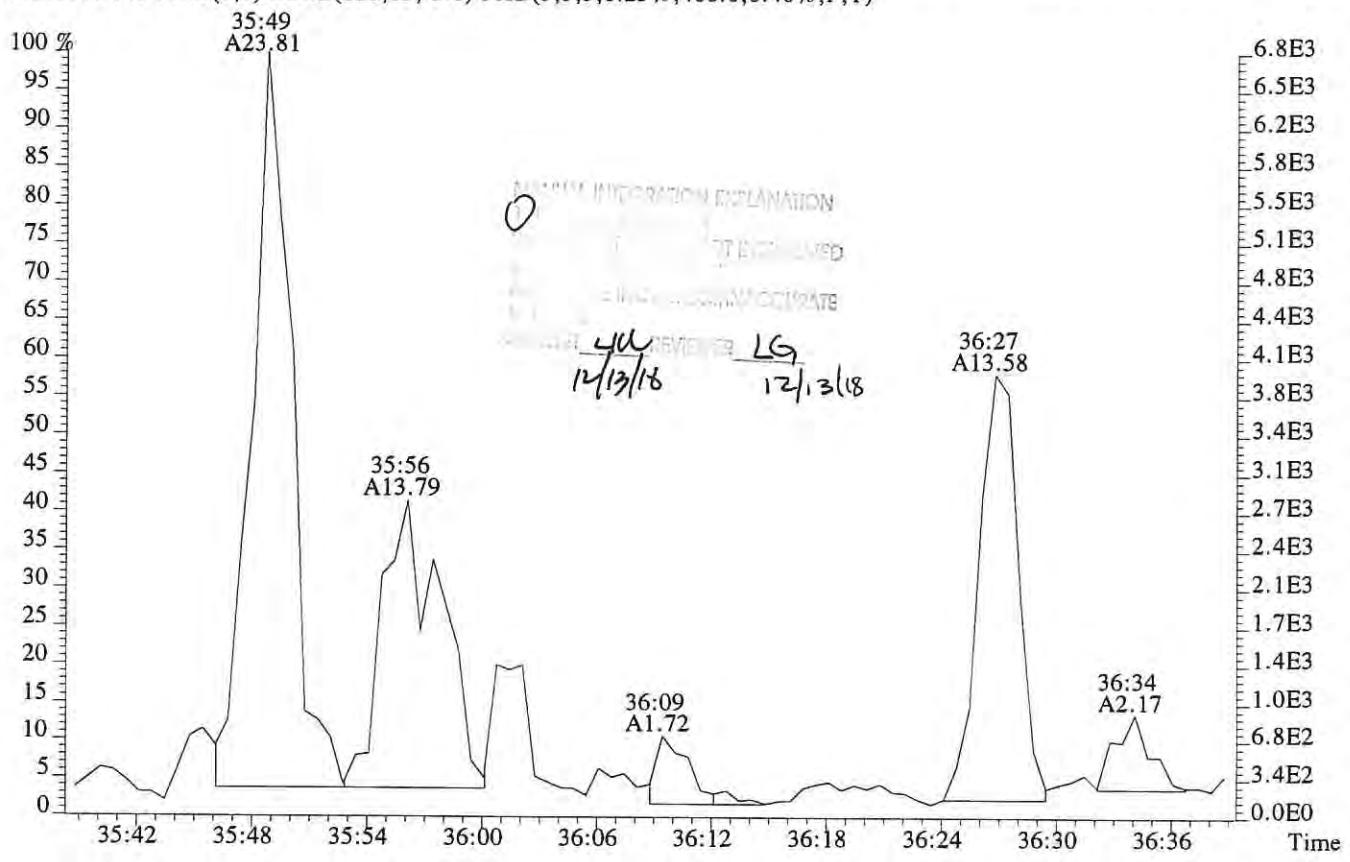
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519375 #1-317 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



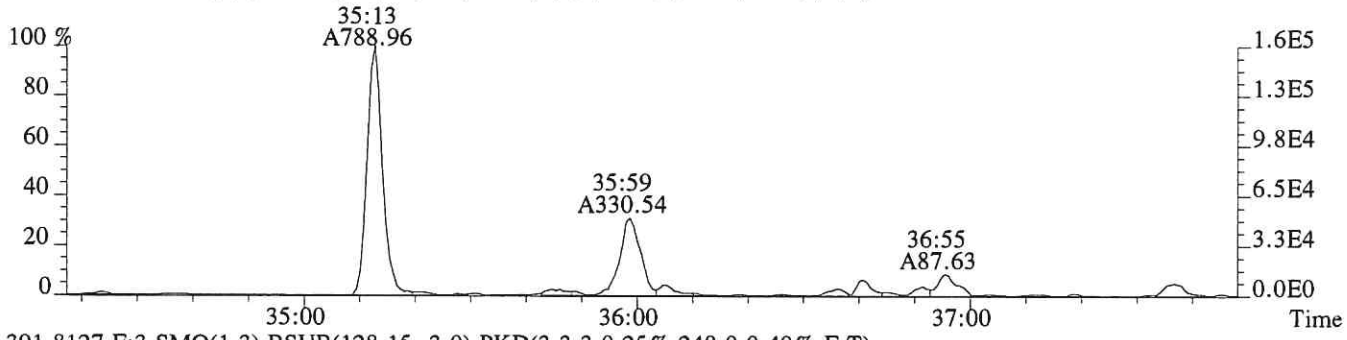
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



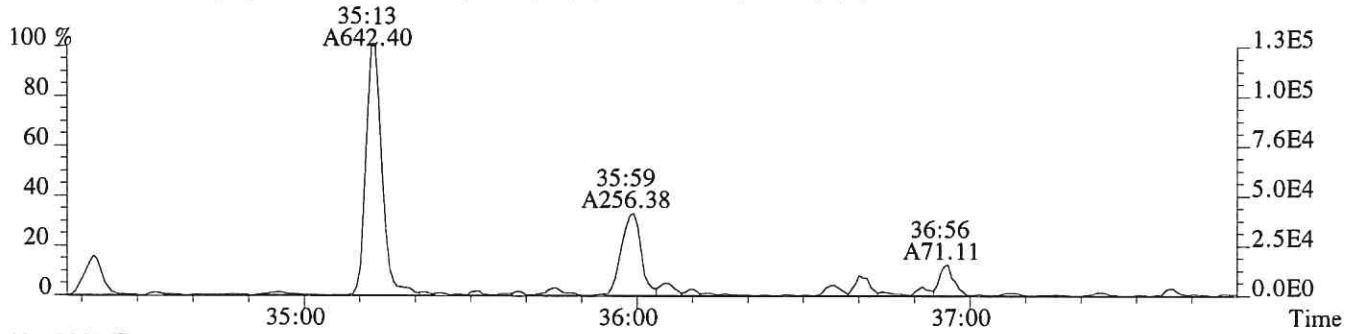
INFORMATION EXPLANATION
12/13/18
12/13/18

File:P519375 #1-317 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029

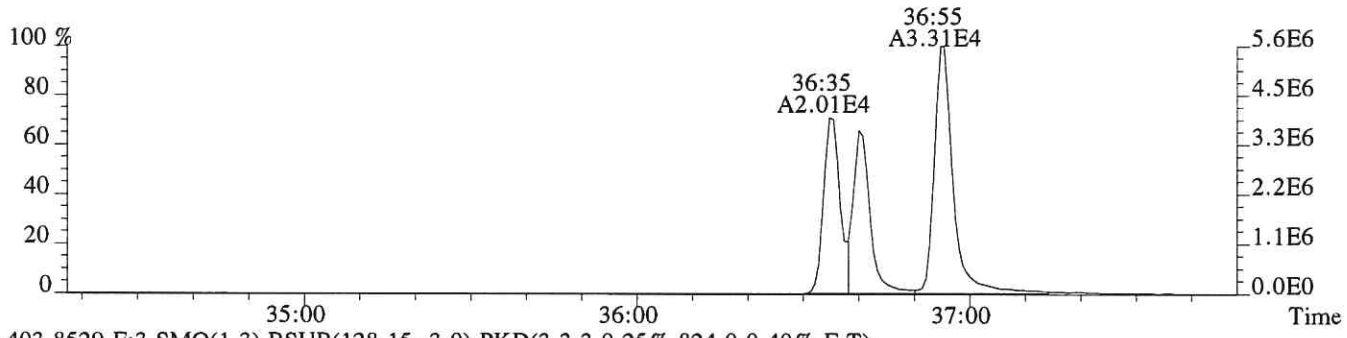
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



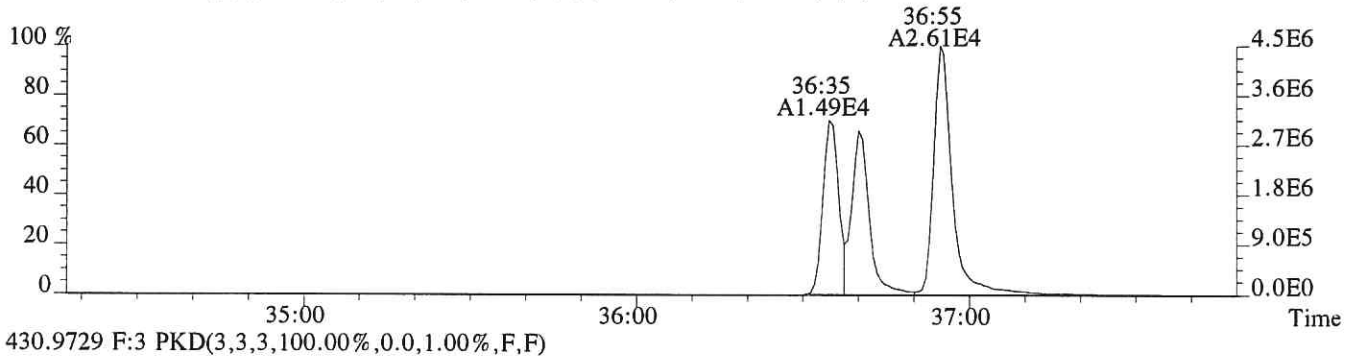
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



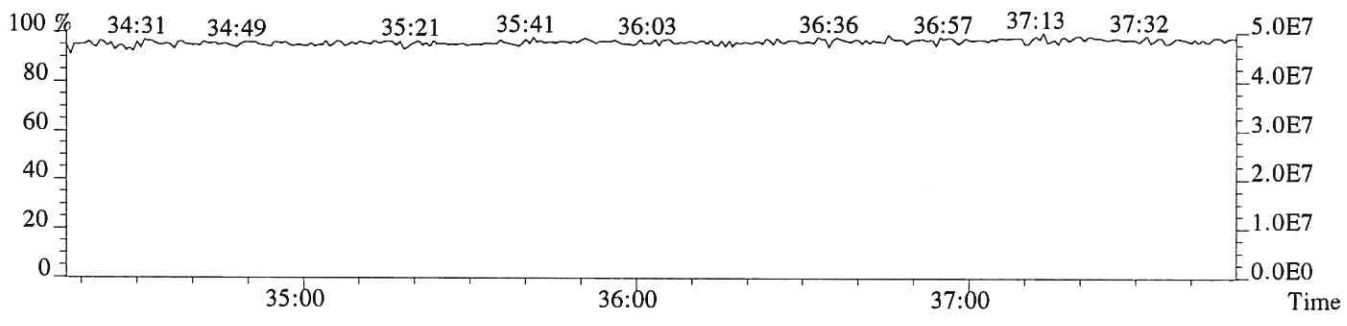
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)

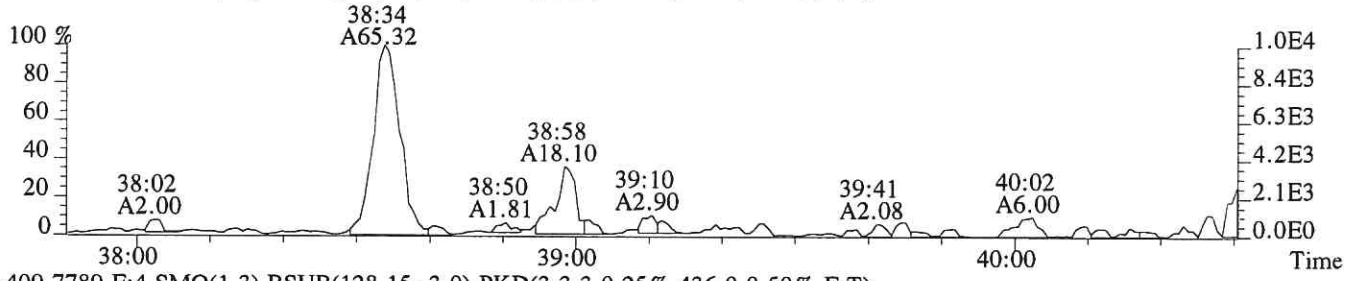


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

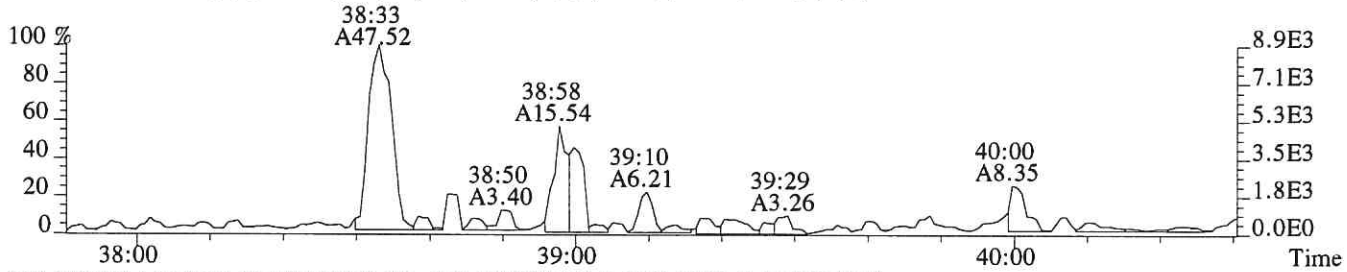


File:P519375 #1-241 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029

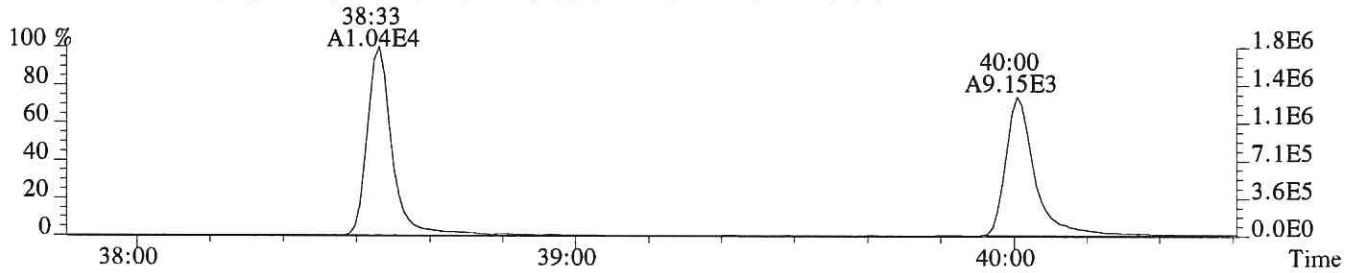
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



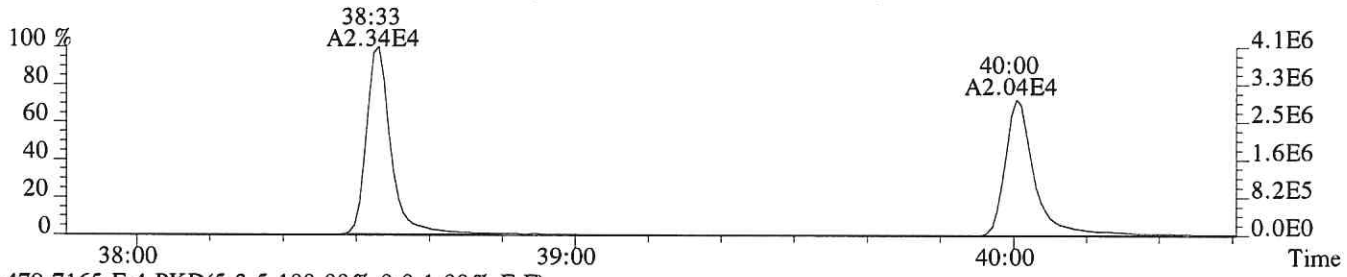
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.50%,F,T)



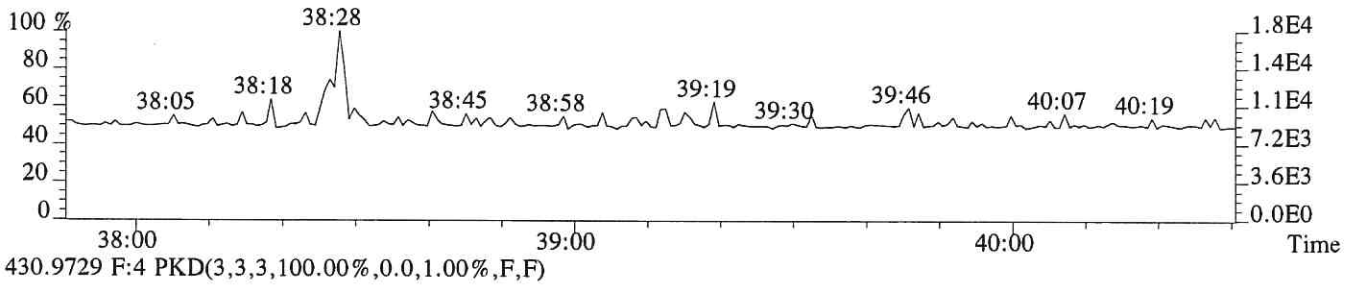
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.50%,F,T)



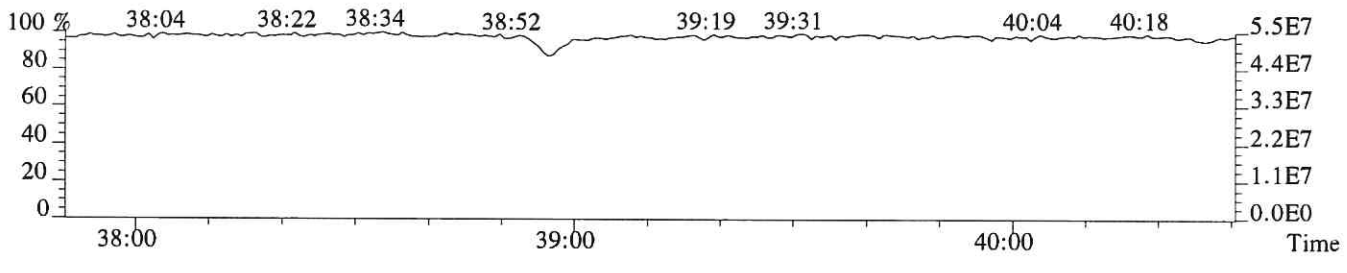
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2196.0,0.50%,F,T)



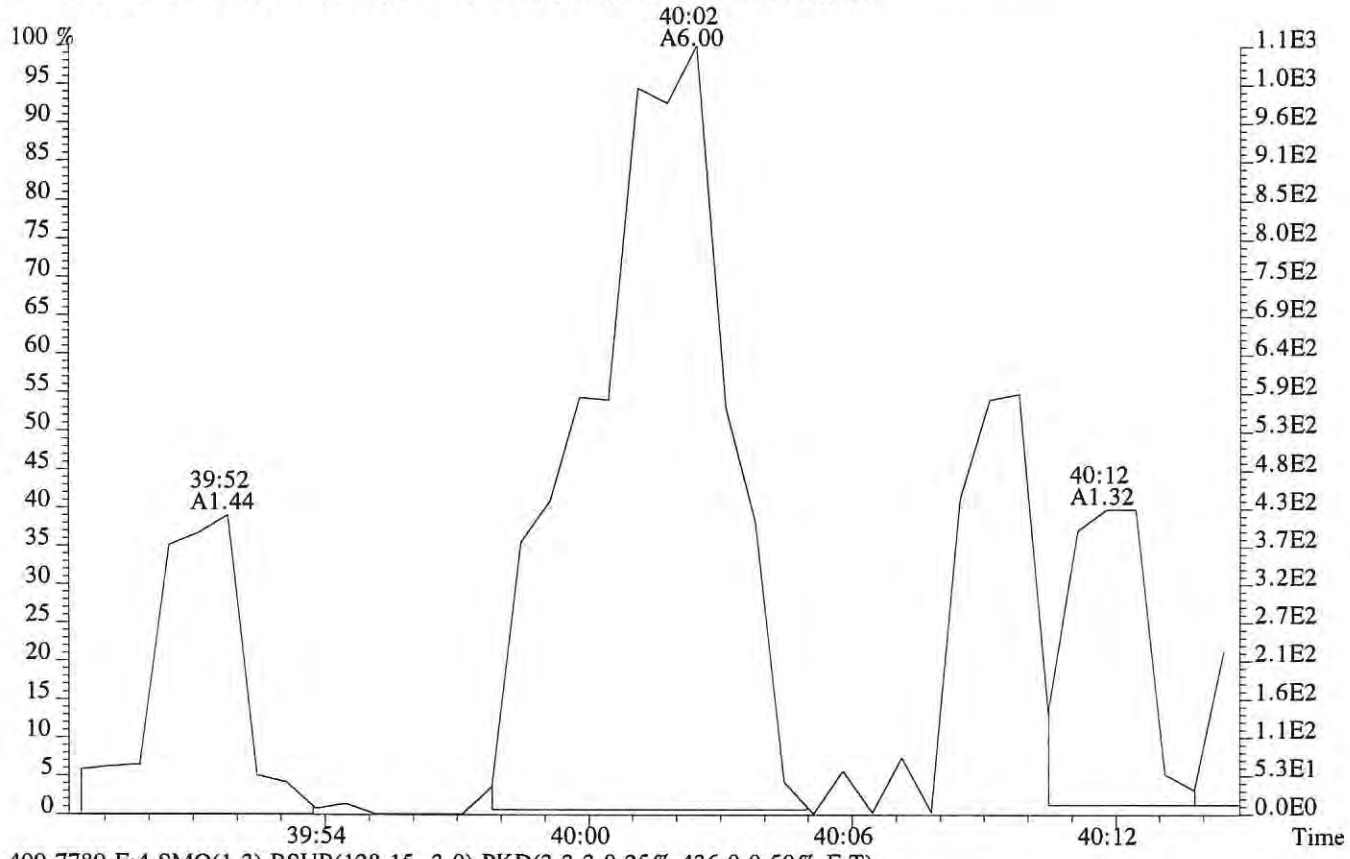
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



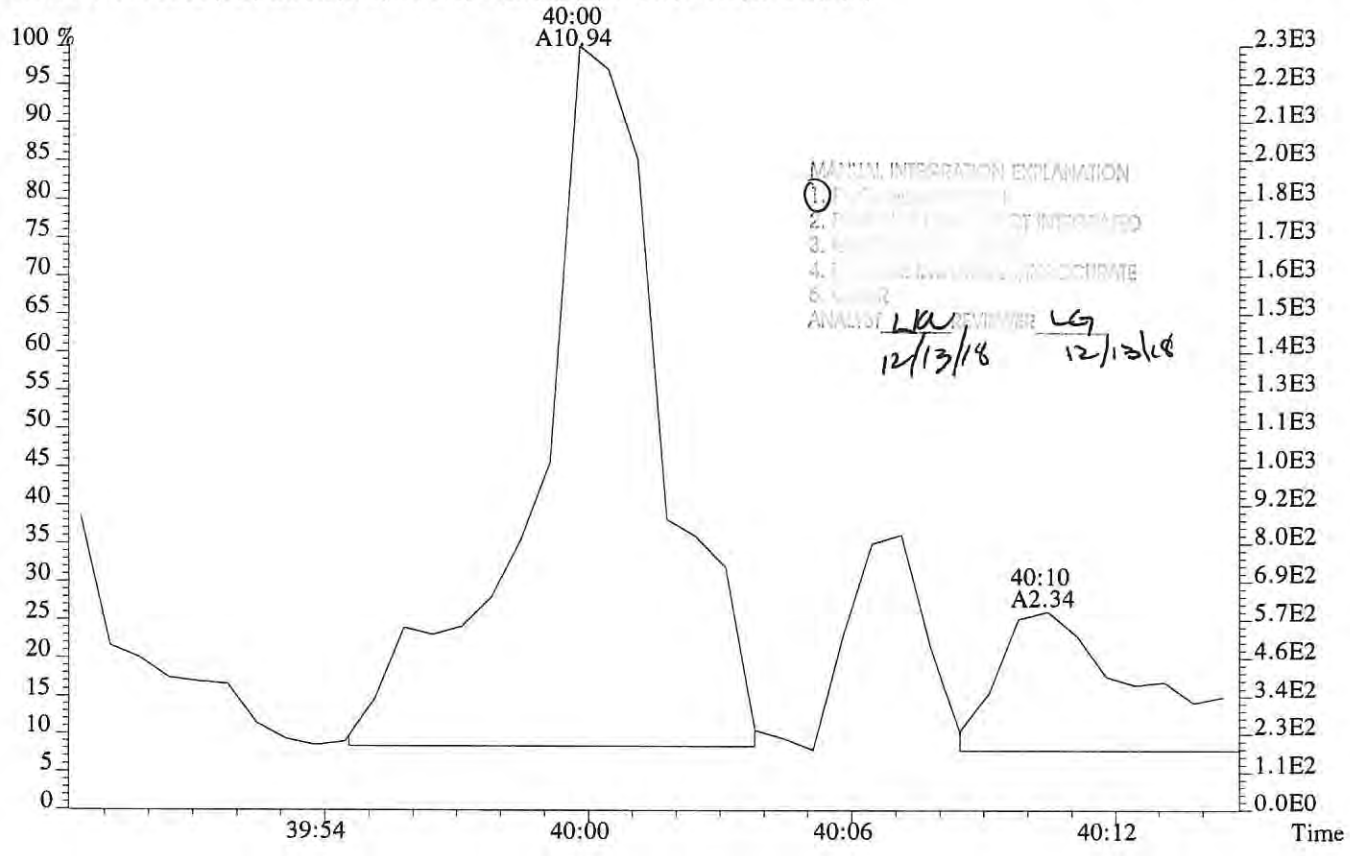
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519375 #1-241 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1801065-029
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



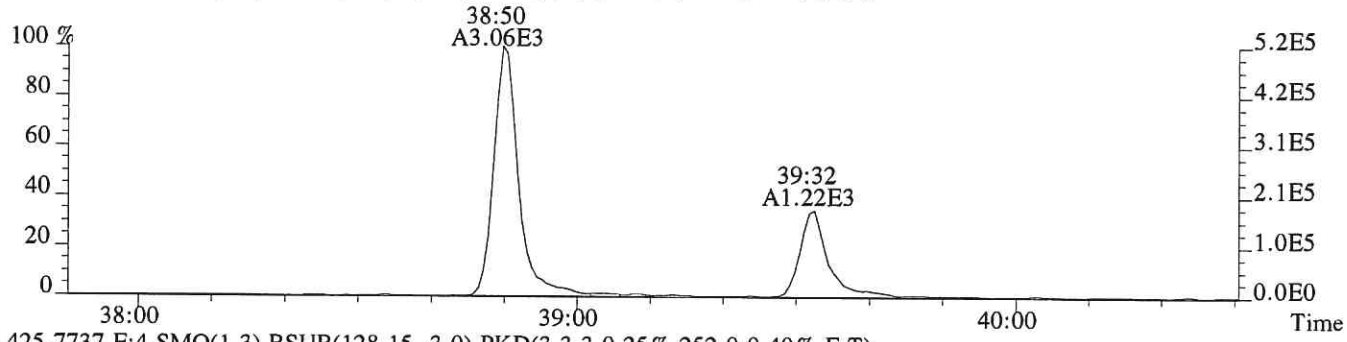
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.50%,F,T)



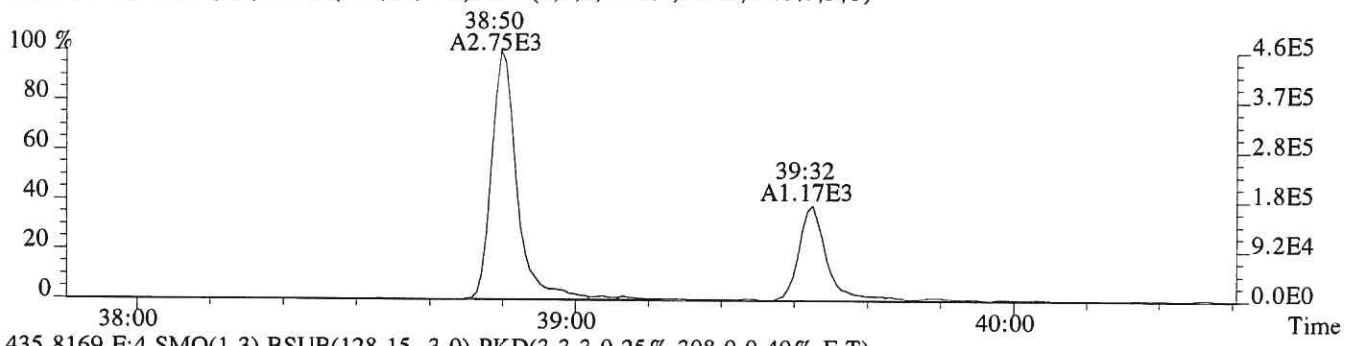
MANUAL INTEGRATION EXPLANATION
1.
2. NOT INTEGRATED
3.
4. INACCURATE
5. OTHER
ANALYST LKW 12/13/18 REVIEWER LG 12/13/18

File:P519375 #1-241 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029

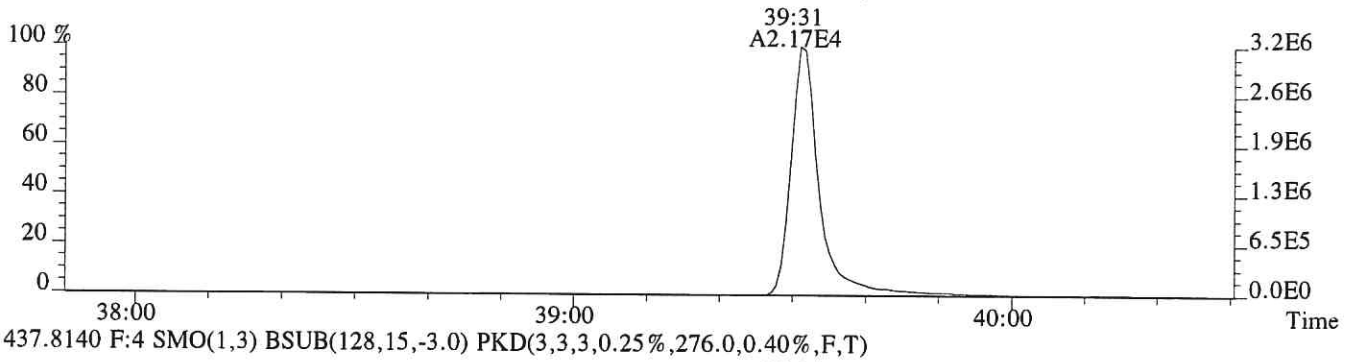
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



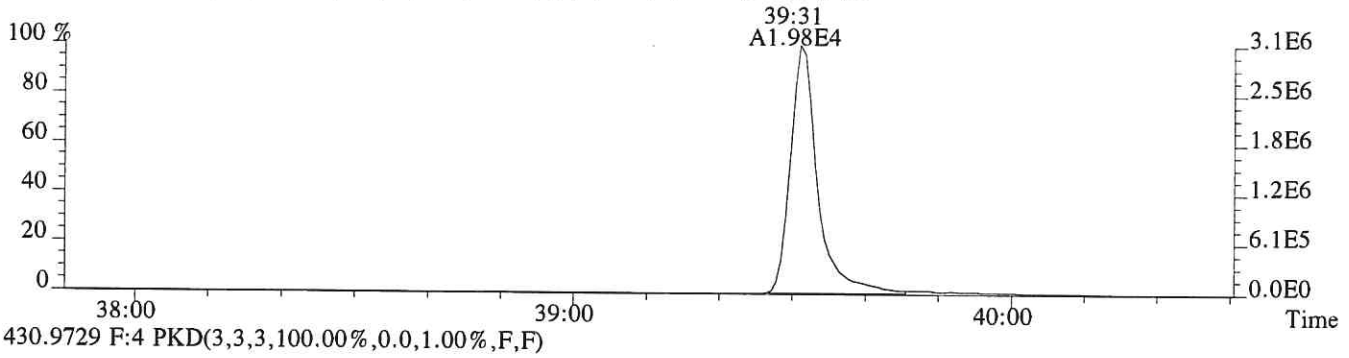
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



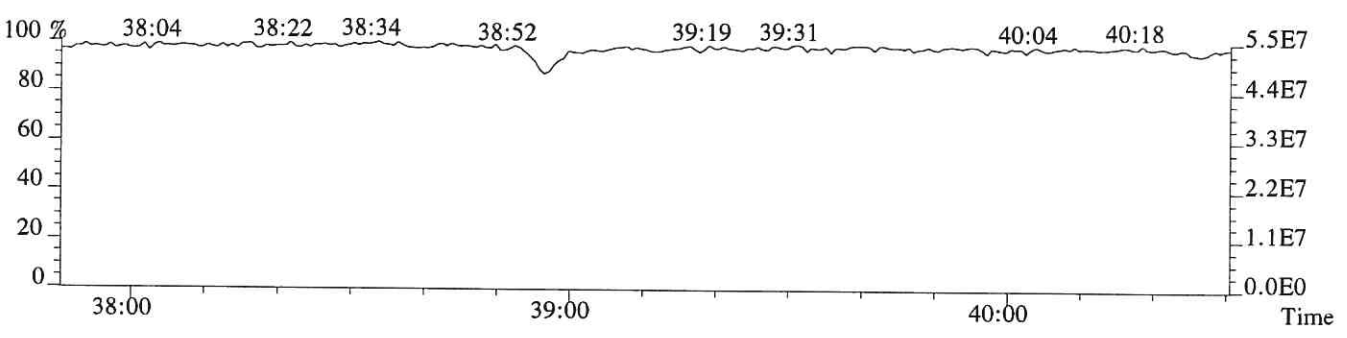
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)

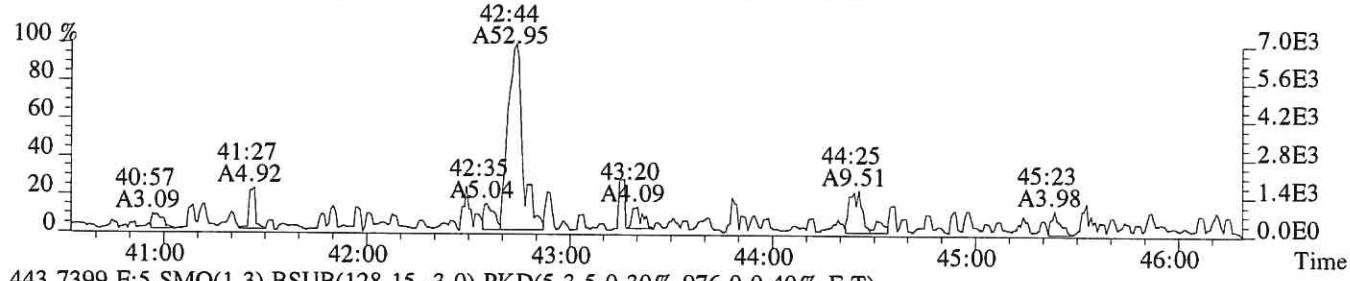


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

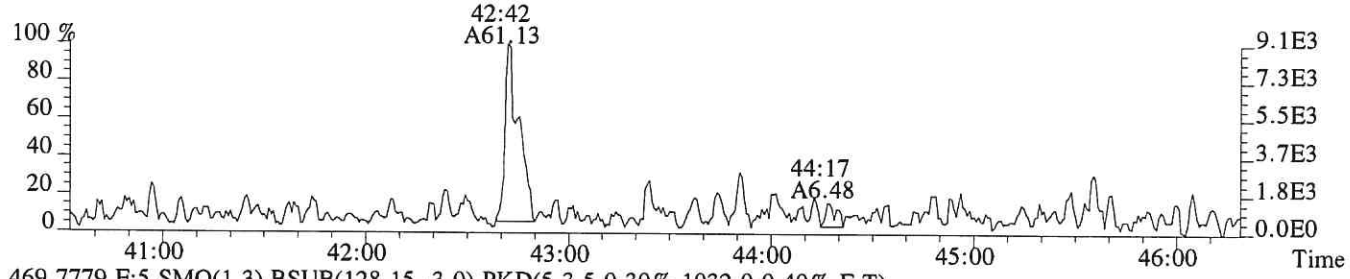


File:P519375 #1-520 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029

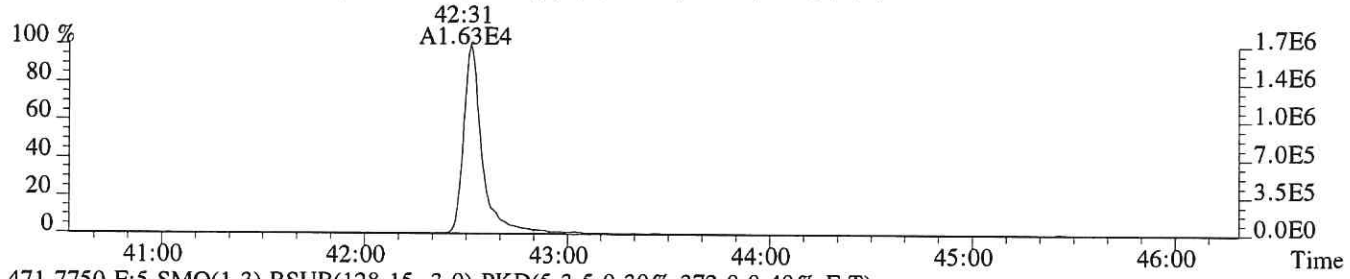
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



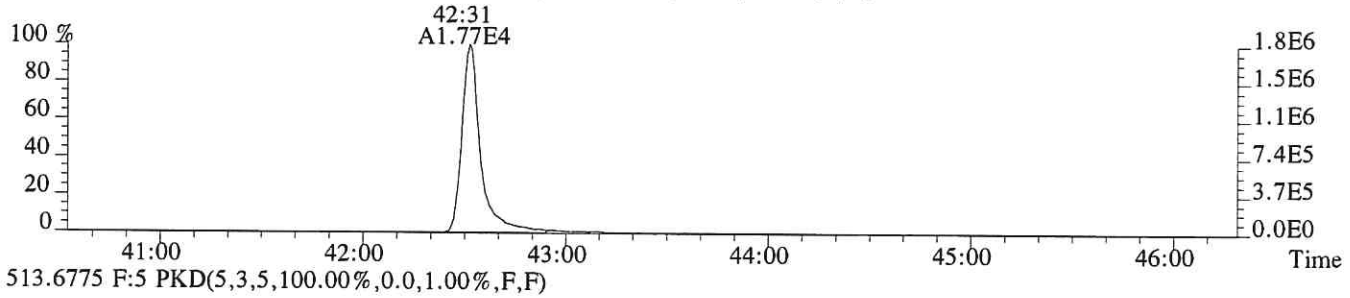
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



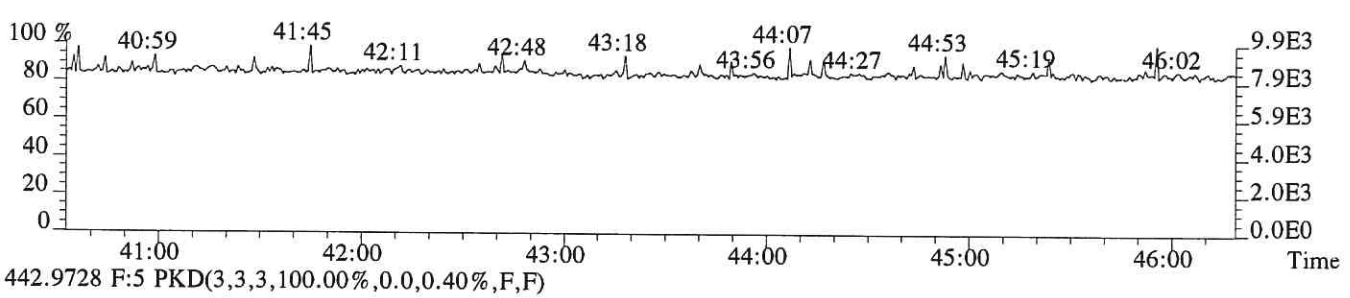
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1032.0,0.40%,F,T)



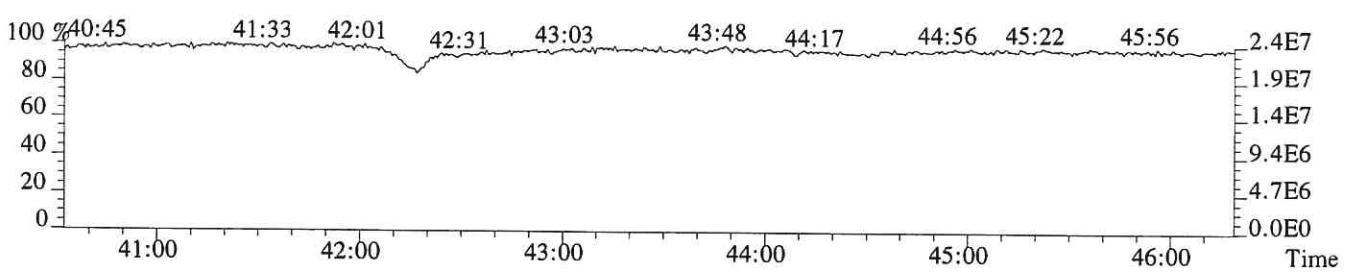
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



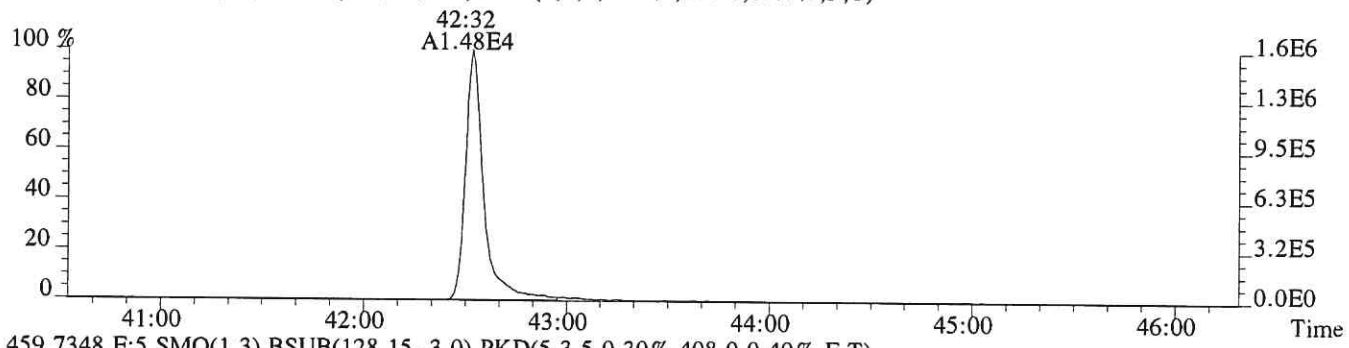
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



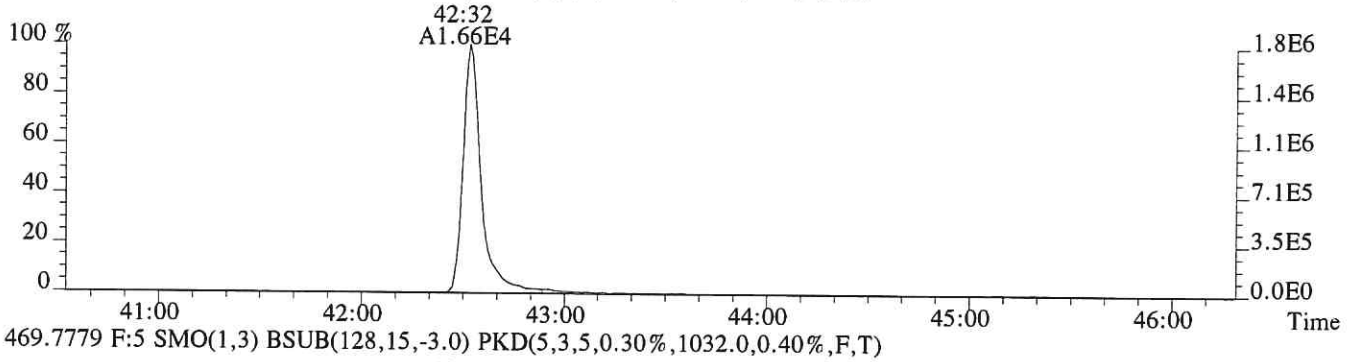
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



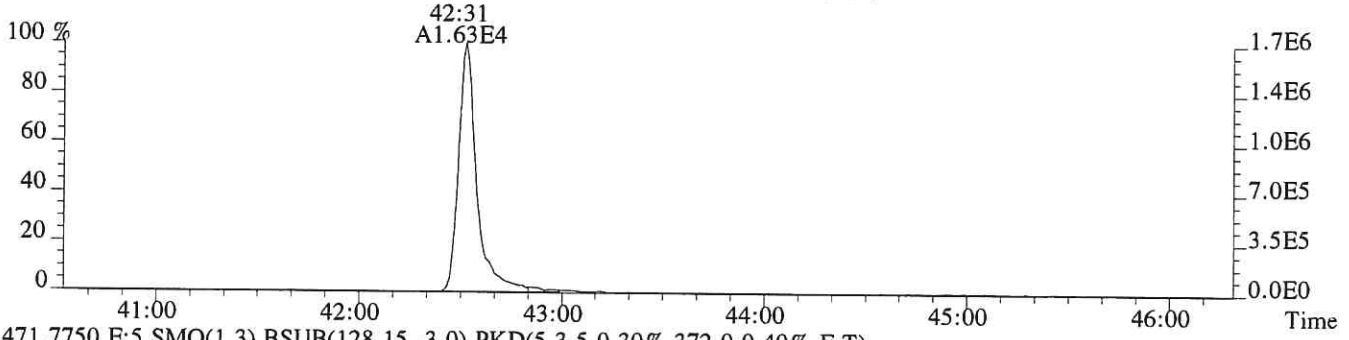
File:P519375 #1-520 Acq:12-DEC-2018 07:06:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-029
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



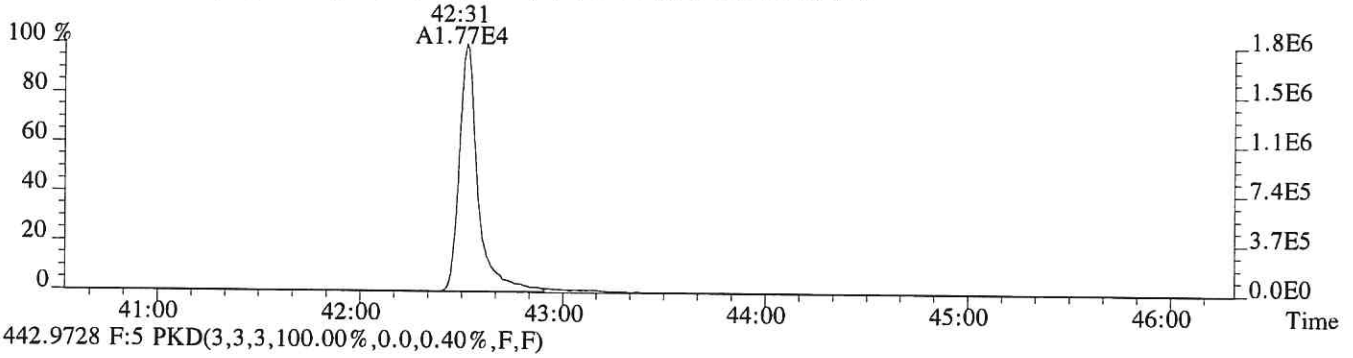
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



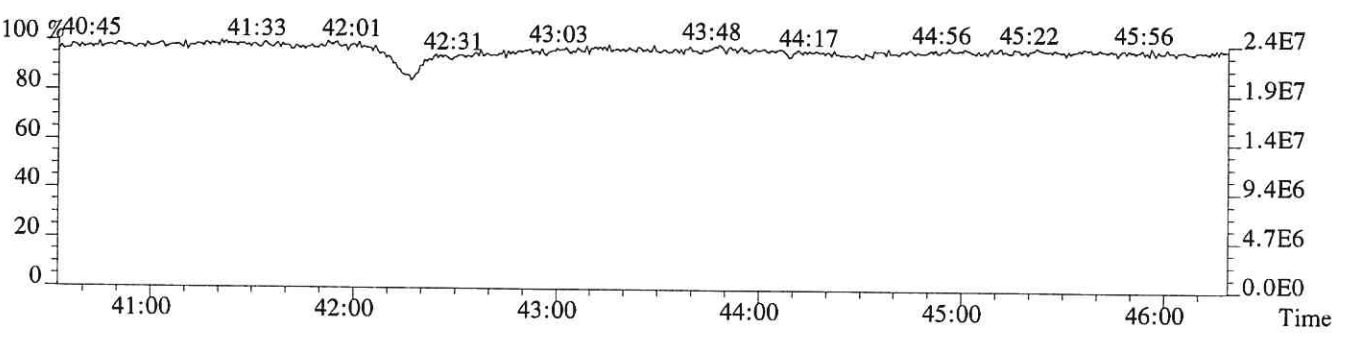
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1032.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
FW0052

Run #16 Filename P616049 Samp: 1 Inj: 1 Acquired: 11-DEC-18 18:06:47
Processed: 12-DEC-18 16:11:39 Sample ID: E1801065-030

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	7.936e+01	9.361e+01	0.85	yes	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.112
17	Unk	OCDD	41:41	6.738e+01	9.130e+01	0.74	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:29	3.070e+04	3.873e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	6.008e+04	3.848e+04	1.56	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	5.850e+04	3.681e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	2.818e+04	5.399e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.318e+04	6.282e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	3.050e+04	5.861e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.685e+04	5.254e+04	0.51	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.250e+04	4.951e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.866e+04	4.186e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	1.660e+04	2.206e+04	0.75	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	4.787e+04	3.067e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	4.269e+04	3.380e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	4.158e+04	3.340e+04	1.24	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	4.384e+04	4.149e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:40	3.552e+04	3.944e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:40	4.269e+04	5.404e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.734e+04	4.526e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:19	2.302e+04				no	1.086

$$\text{OCDD} = \frac{(6.738e{+}01 + 9.130e{+}01) \times 4000 \text{ pg} \times 1}{(3.552e{+}04 + 3.944e{+}04) \times \text{g} \times .5 \;/\; 100 \times 1.157} = 13.1989 \text{ pg}$$

LG 12/13/18

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0052

Run #16 Filename P616049 Samp: 1 Inj: 1 Acquired: 11-DEC-18 18:06:47
Processed: 12-DEC-18 16:11:39 LAB. ID: E1801065-030

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.72e+04	2.37e+03	7.2e+00	1.21e+04	4.34e+03	2.8e+00
2	1,2,3,7,8-PeCDF	*	6.72e+02	*	*	3.05e+03	*
3	2,3,4,7,8-PeCDF	*	6.72e+02	*	*	3.05e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.19e+03	*	*	1.13e+03	*
5	1,2,3,6,7,8-HxCDF	*	1.19e+03	*	*	1.13e+03	*
6	2,3,4,6,7,8-HxCDF	*	1.19e+03	*	*	1.13e+03	*
7	1,2,3,7,8,9-HxCDF	*	1.19e+03	*	*	1.13e+03	*
8	1,2,3,4,6,7,8-HpCDF	*	6.40e+02	*	*	1.03e+03	*
9	1,2,3,4,7,8,9-HpCDF	*	6.40e+02	*	*	1.03e+03	*
10	OCDF	*	9.80e+02	*	*	2.00e+03	*
11	2,3,7,8-TCDD	*	4.56e+03	*	*	1.96e+03	*
12	1,2,3,7,8-PeCDD	*	1.86e+03	*	*	4.60e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.36e+03	*	*	1.52e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.36e+03	*	*	1.52e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.36e+03	*	*	1.52e+03	*
16	1,2,3,4,6,7,8-HpCDD	*	7.36e+02	*	*	9.32e+02	*
17	OCDD	1.42e+04	1.09e+03	1.3e+01	1.31e+04	1.13e+03	1.2e+01
18	13C-2,3,7,8-TCDF	4.71e+06	1.18e+04	4.0e+02	5.98e+06	1.06e+04	5.7e+02
19	13C-1,2,3,7,8-PeCDF	1.06e+07	1.02e+03	1.0e+04	6.85e+06	2.66e+03	2.6e+03
20	13C-2,3,4,7,8-PeCDF	1.06e+07	1.02e+03	1.0e+04	6.81e+06	2.66e+03	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	5.88e+06	2.06e+03	2.9e+03	1.13e+07	2.30e+03	4.9e+03
22	13C-1,2,3,6,7,8-HxCDF	6.46e+06	2.06e+03	3.1e+03	1.23e+07	2.30e+03	5.4e+03
23	13C-2,3,4,6,7,8-HxCDF	6.22e+06	2.06e+03	3.0e+03	1.21e+07	2.30e+03	5.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.02e+06	2.06e+03	2.4e+03	1.00e+07	2.30e+03	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.75e+06	2.66e+03	1.8e+03	1.05e+07	4.85e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.55e+06	2.66e+03	1.3e+03	7.96e+06	4.85e+03	1.6e+03
27	13C-2,3,7,8-TCDD	2.80e+06	1.98e+04	1.4e+02	3.64e+06	7.30e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	8.74e+06	2.12e+03	4.1e+03	5.58e+06	3.31e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	9.25e+06	3.24e+03	2.9e+03	7.28e+06	1.72e+03	4.2e+03
30	13C-1,2,3,6,7,8-HxCDD	8.18e+06	3.24e+03	2.5e+03	6.57e+06	1.72e+03	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.58e+06	1.60e+03	5.4e+03	8.00e+06	1.07e+03	7.5e+03
32	13C-OCDD	5.96e+06	8.28e+02	7.2e+03	6.65e+06	8.48e+02	7.8e+03
33	13C-1,2,3,4-TCDD	7.33e+06	1.98e+04	3.7e+02	9.26e+06	7.30e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.16e+07	3.24e+03	3.6e+03	9.07e+06	1.72e+03	5.3e+03
35	37Cl-2,3,7,8-TCDD	3.77e+06	2.96e+03	1.3e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
FW0052

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P616049 Sample:1 Injection:1 Function:1

Acquired: 11-DEC-18 18:06:47 Processed: 12-DEC-18 16:11:39

Mass: 303.9020 305.8990 Tot Response: 1.73e+02 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:30	7.94e+01	9.36e+01	0.85	yes	1.73e+02	2,3,7,8-TCDF	y	y

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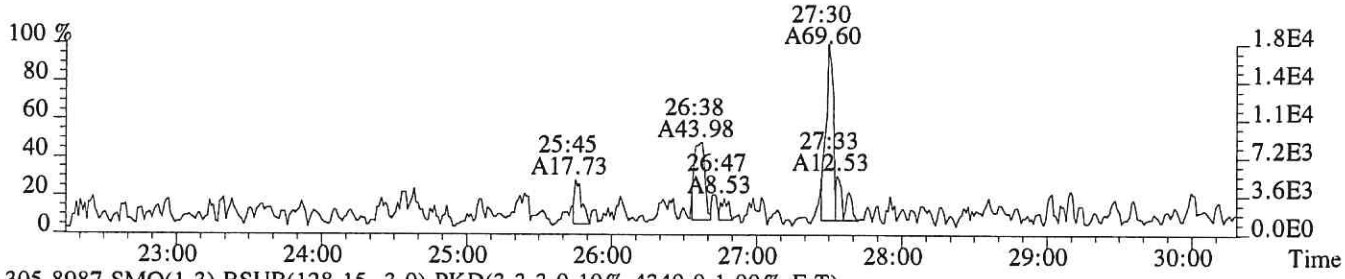
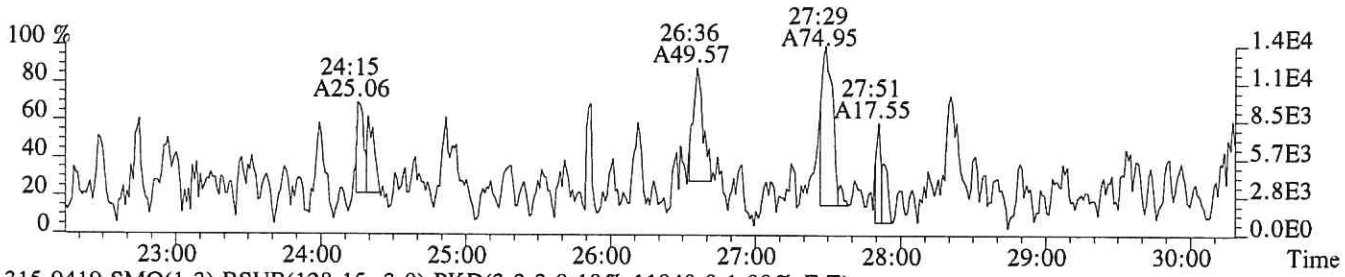
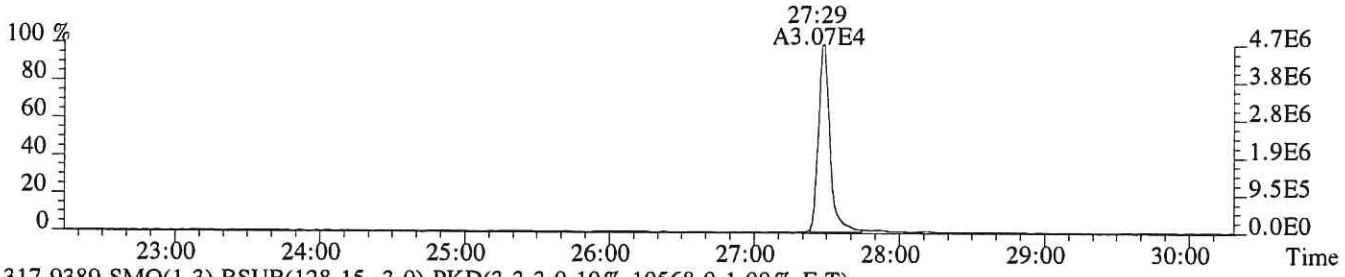
File:P616049 #1-573 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



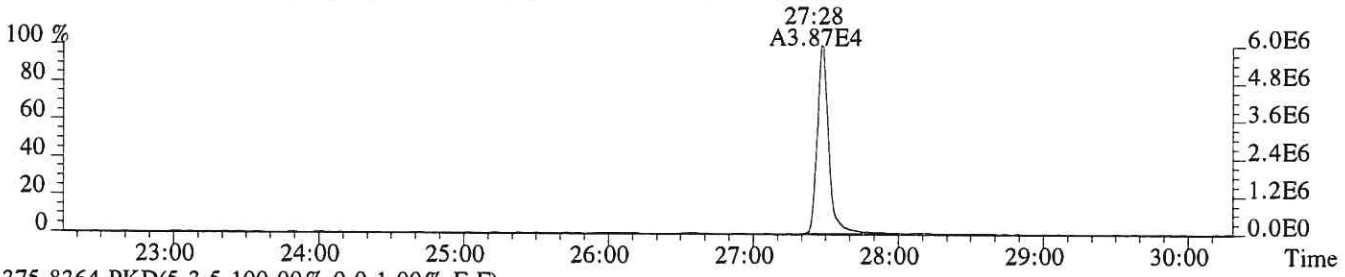
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4340.0,1.00%,F,T)



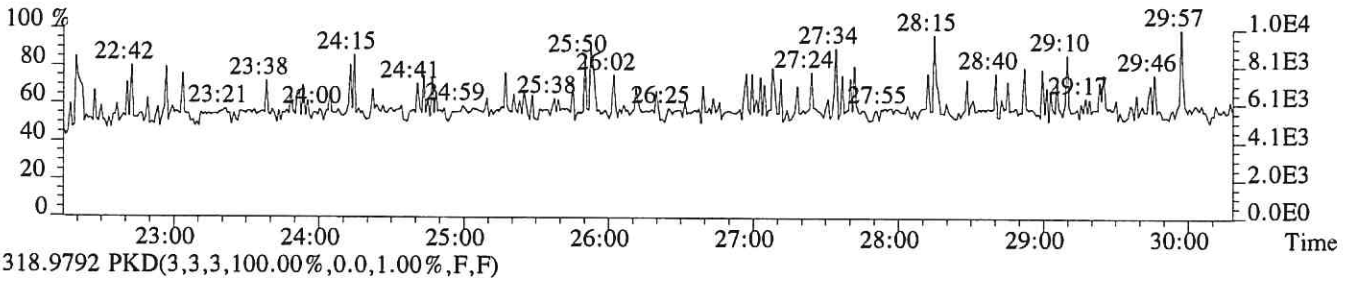
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11840.0,1.00%,F,T)



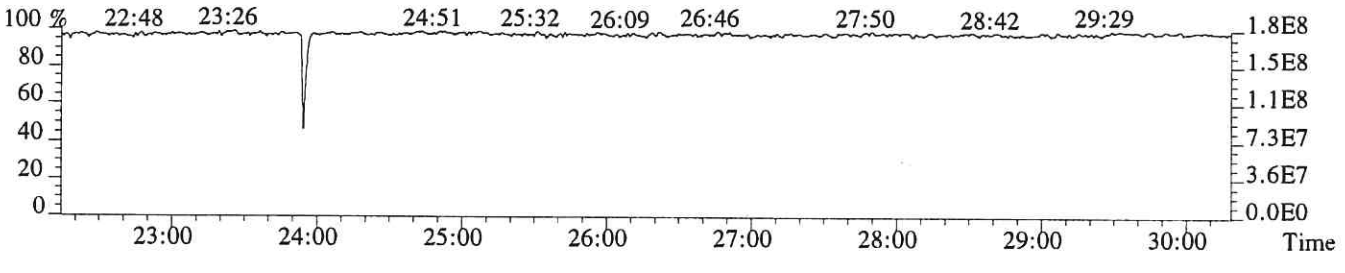
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10568.0,1.00%,F,T)



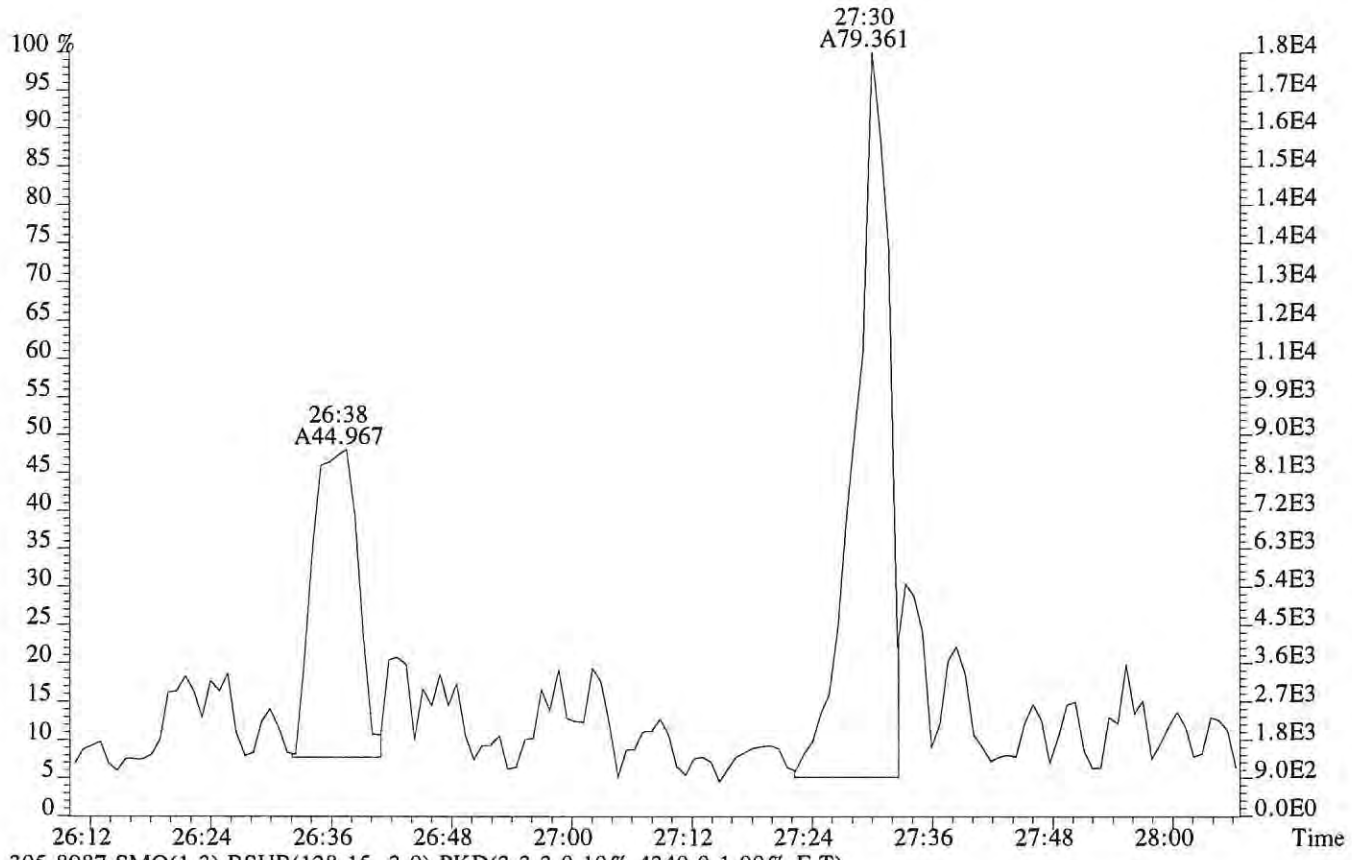
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



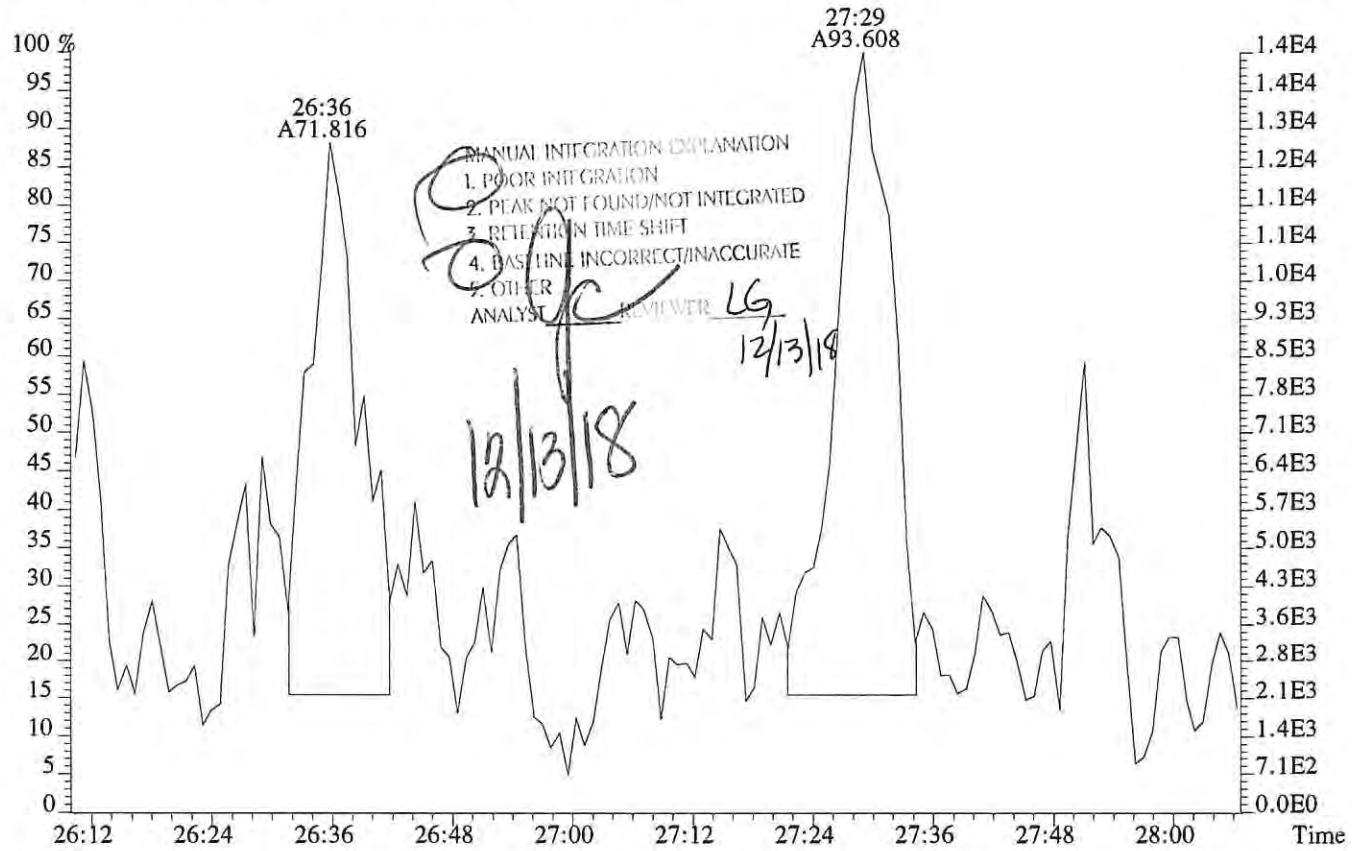
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



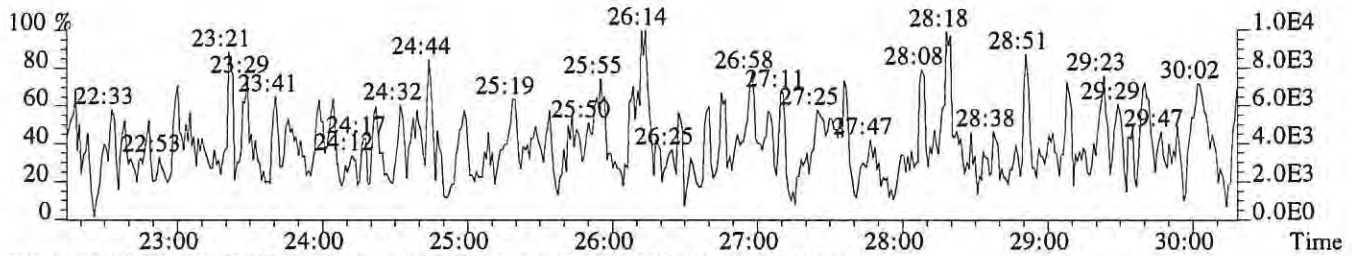
File:P616049 #1-573 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



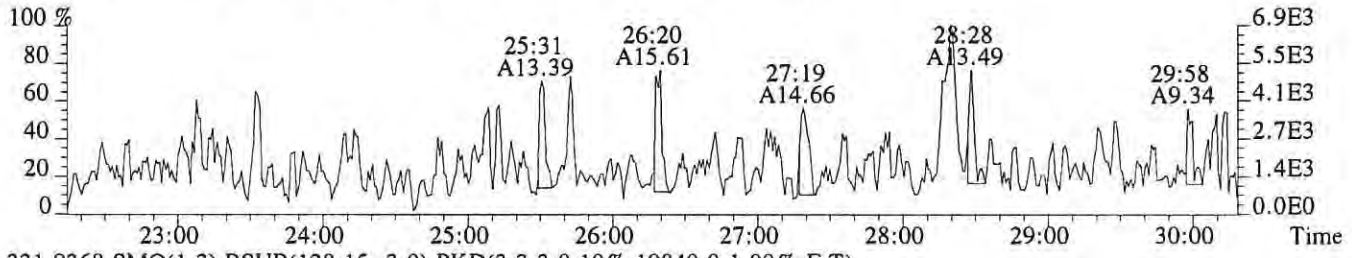
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4340.0,1.00%,F,T)



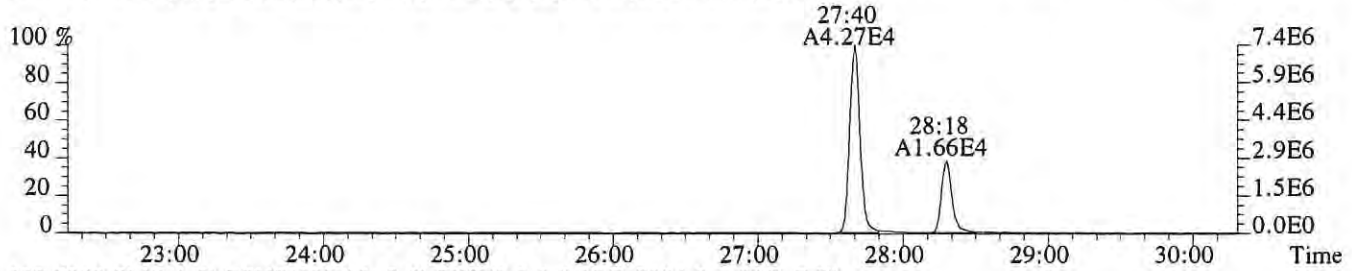
File:P616049 #1-573 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4560.0,1.00%,F,T)



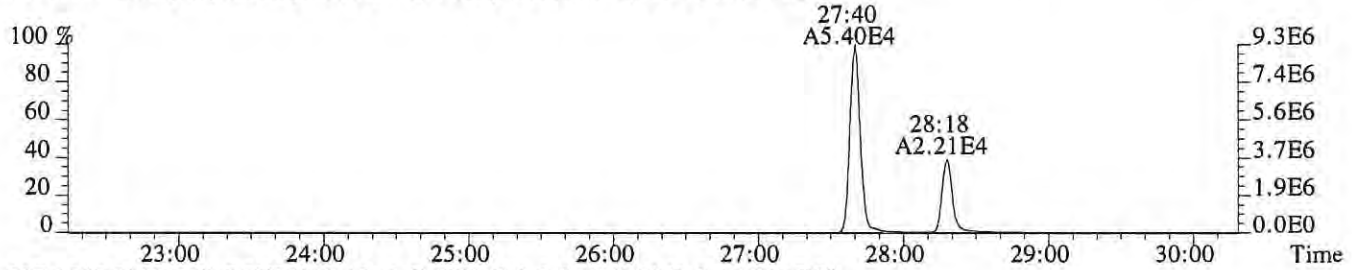
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



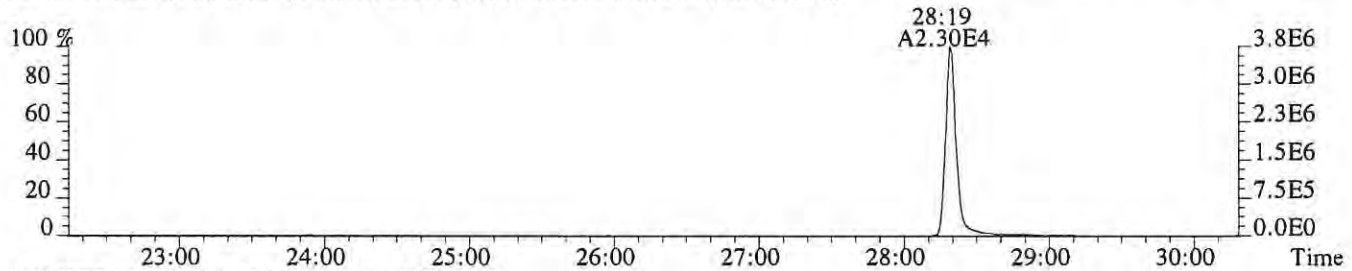
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19840.0,1.00%,F,T)



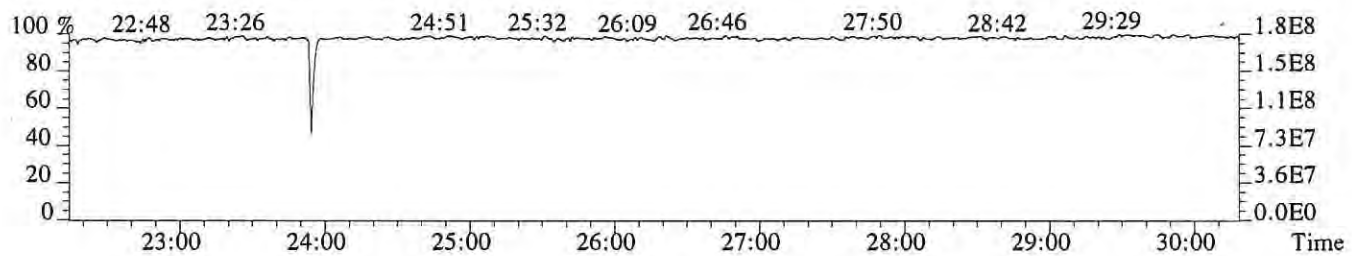
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7304.0,1.00%,F,T)



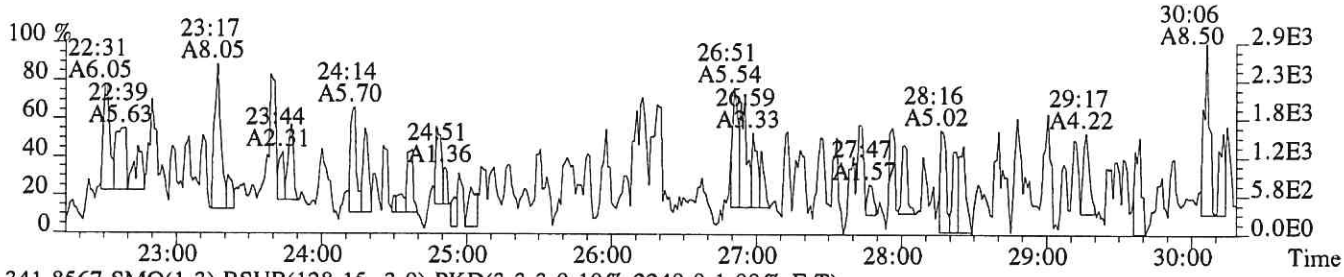
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2960.0,1.00%,F,T)



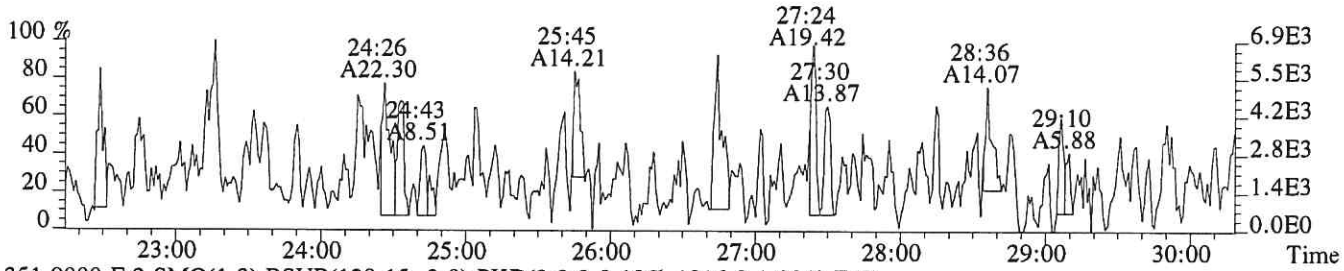
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



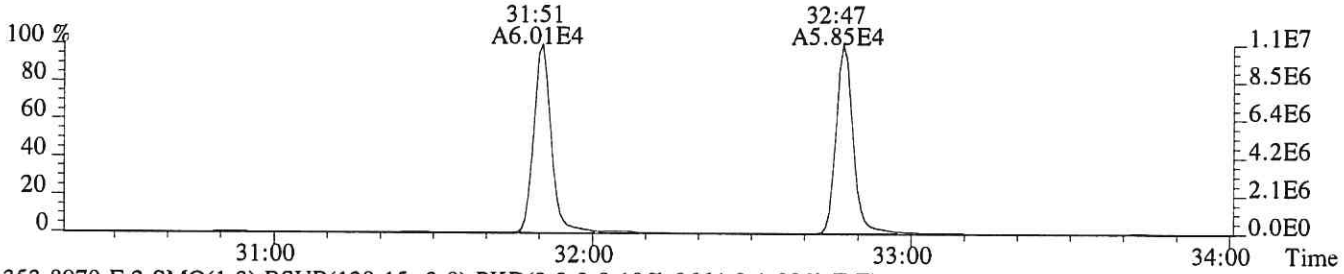
File:P616049 #1-573 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



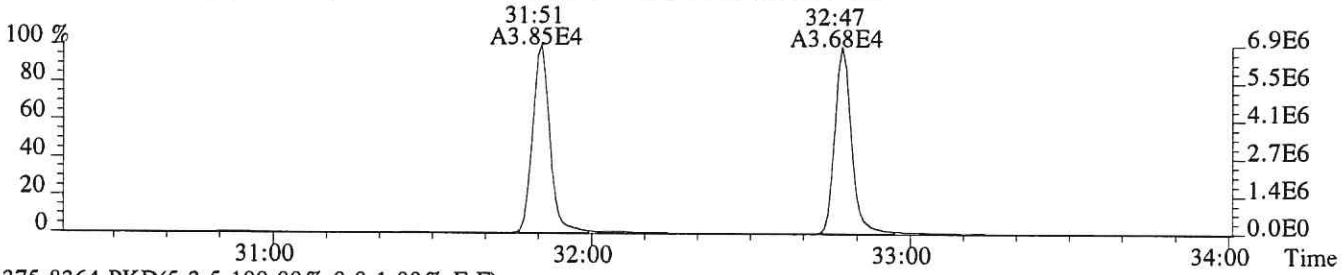
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2240.0,1.00%,F,T)



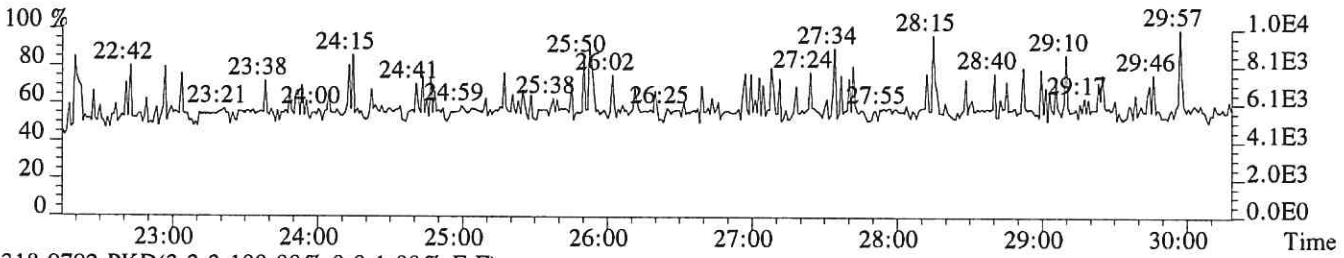
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



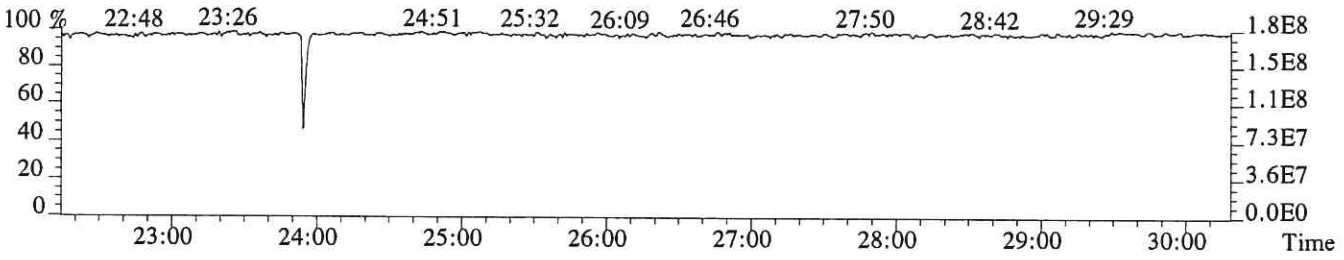
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2664.0,1.00%,F,T)



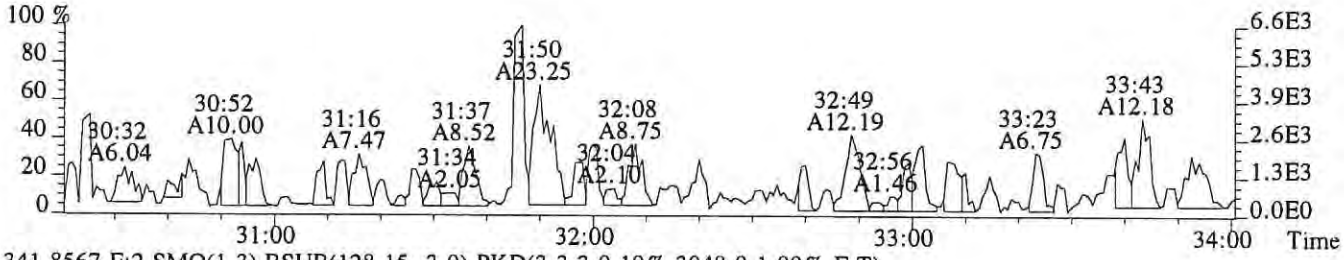
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



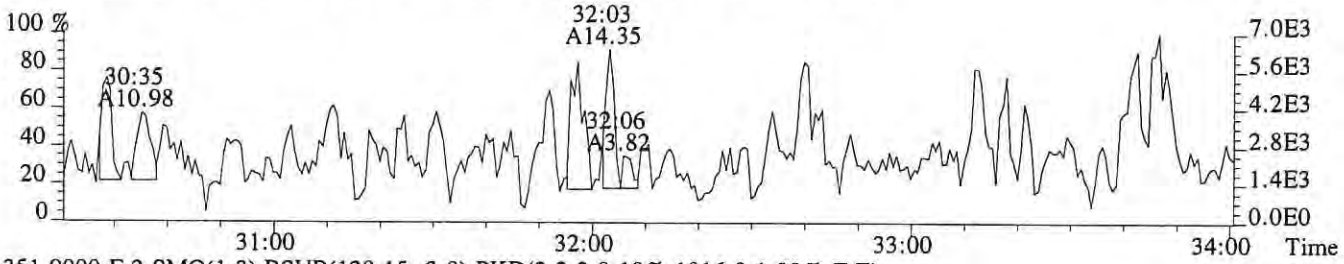
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



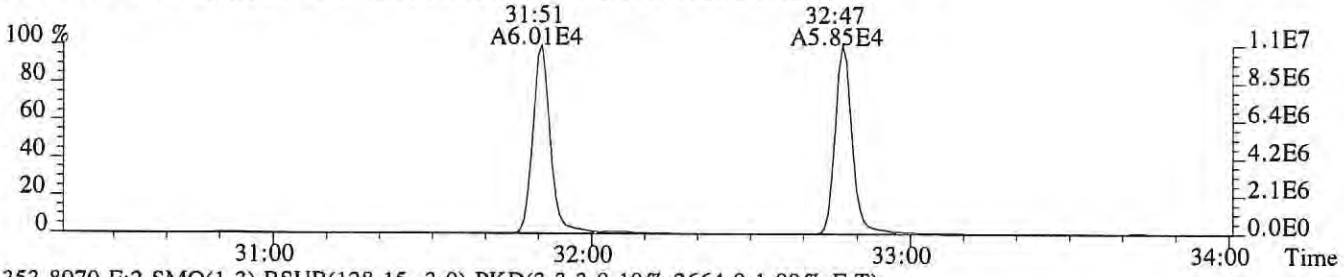
File:P616049 #1-331 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



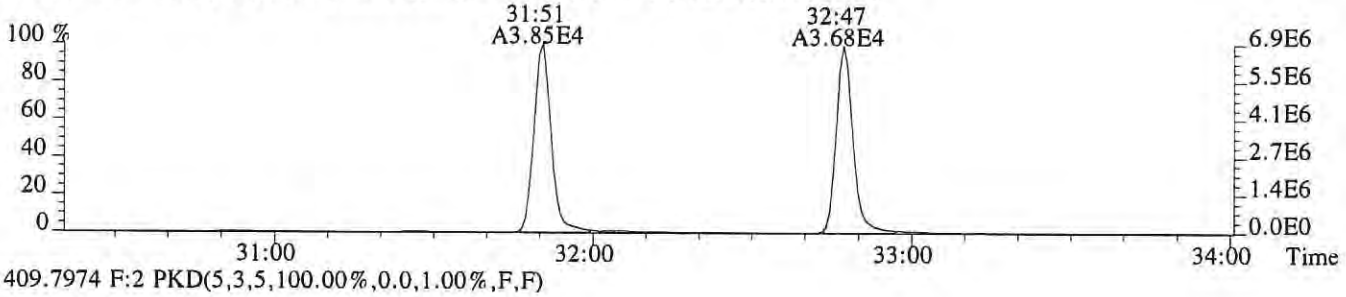
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



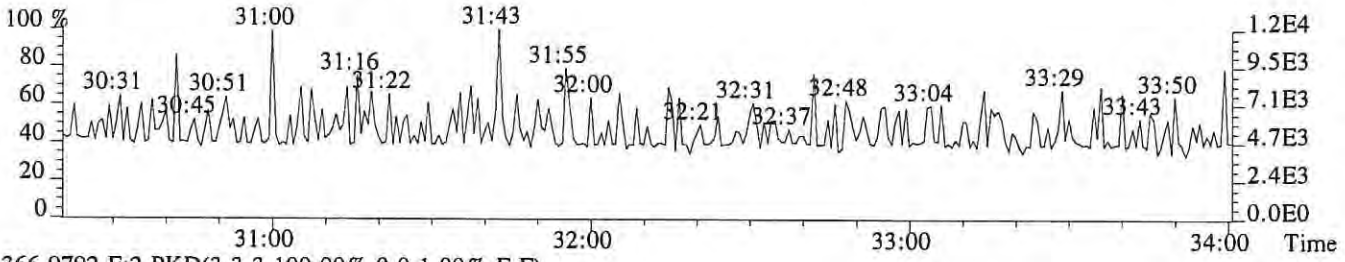
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



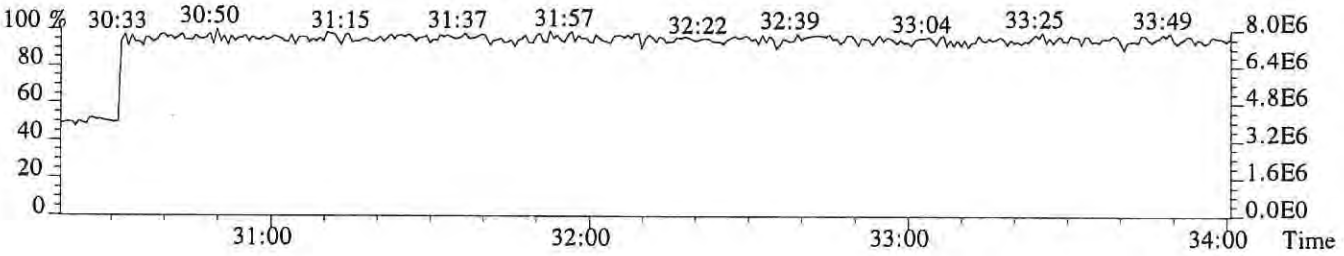
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2664.0,1.00%,F,T)



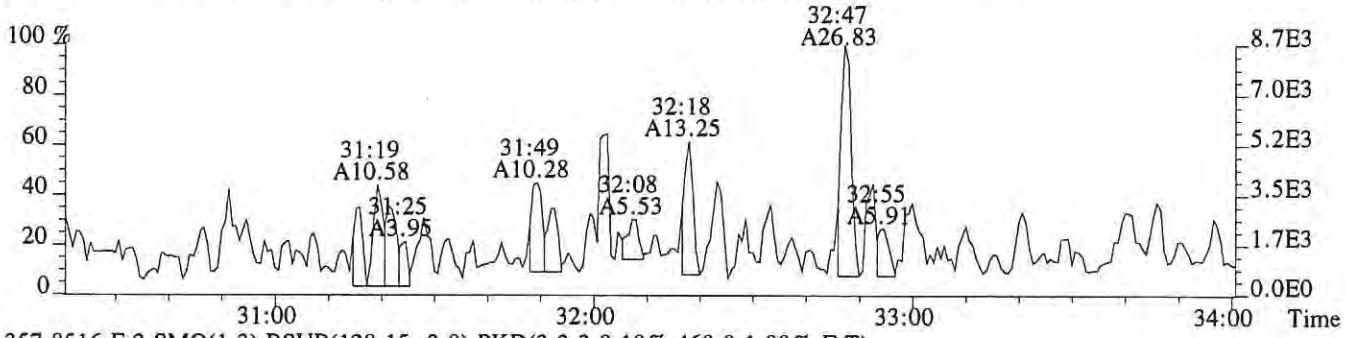
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



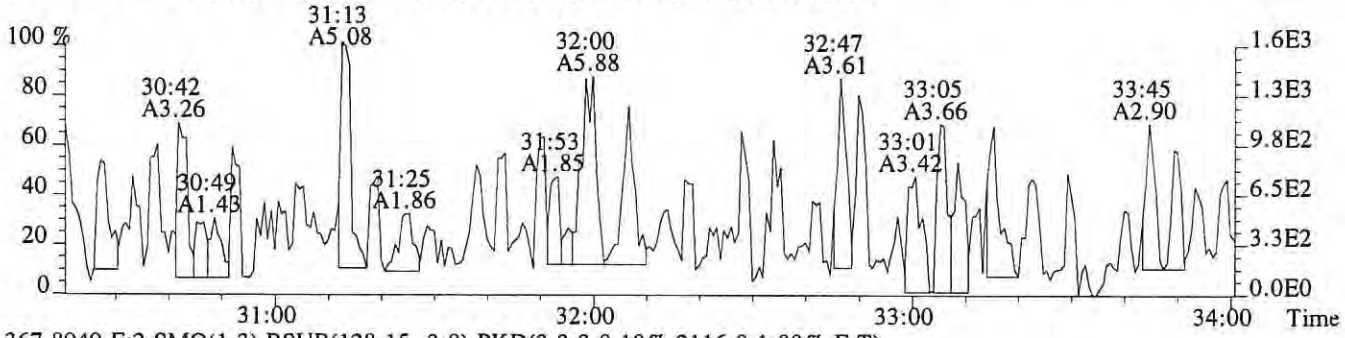
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



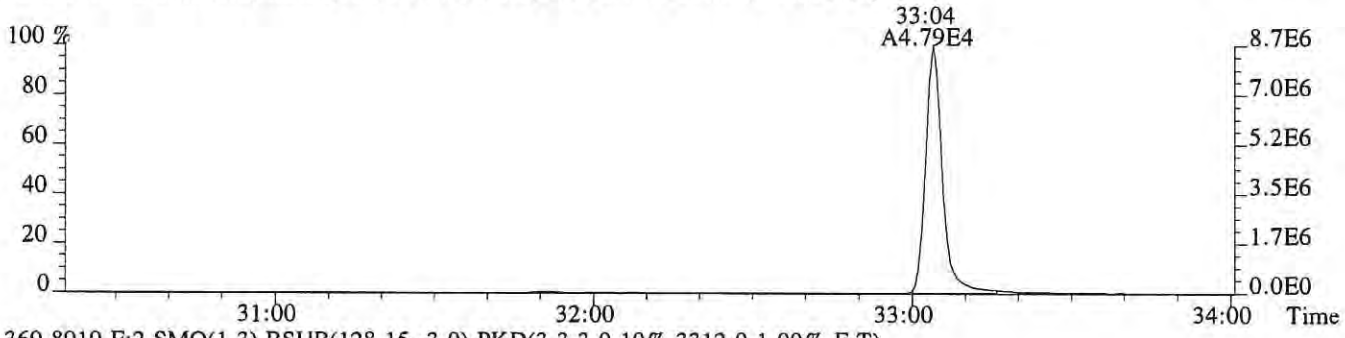
File:P616049 #1-331 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



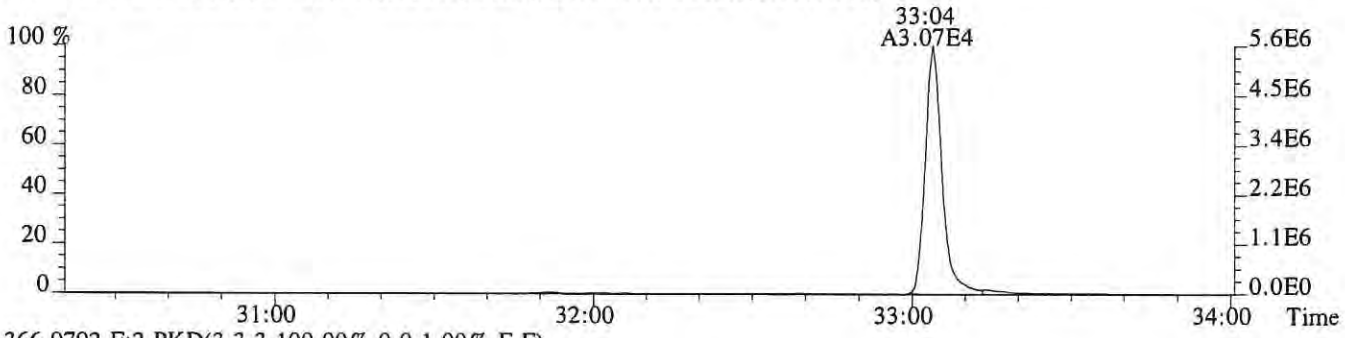
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



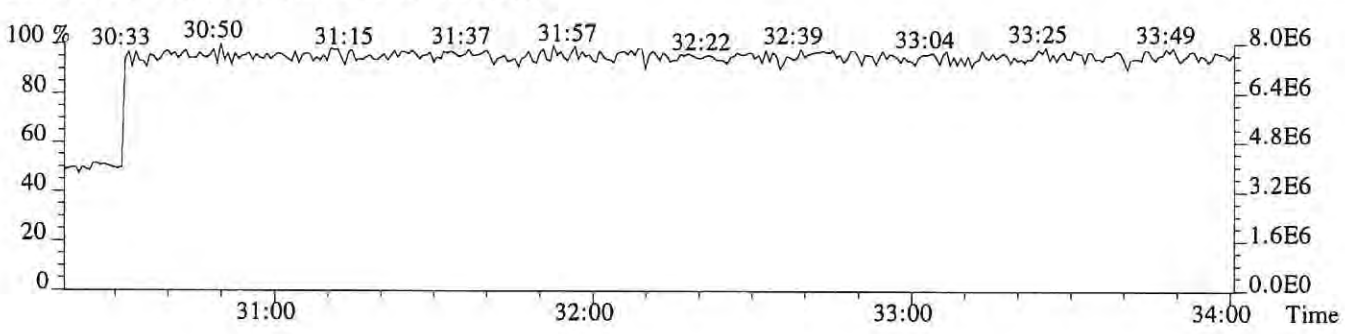
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



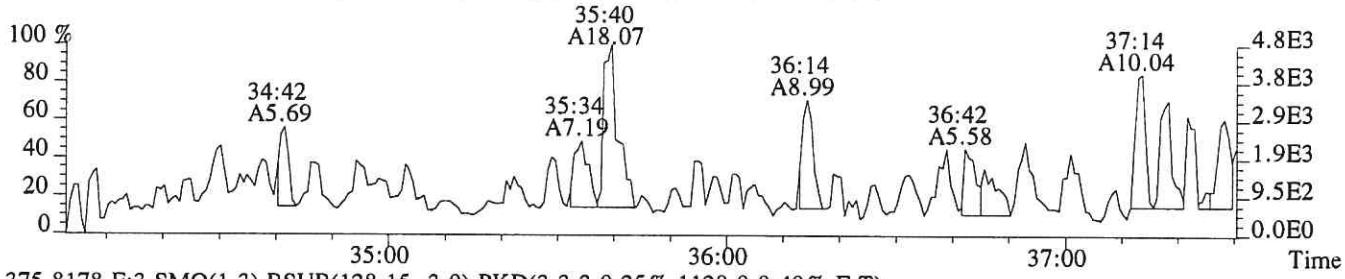
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



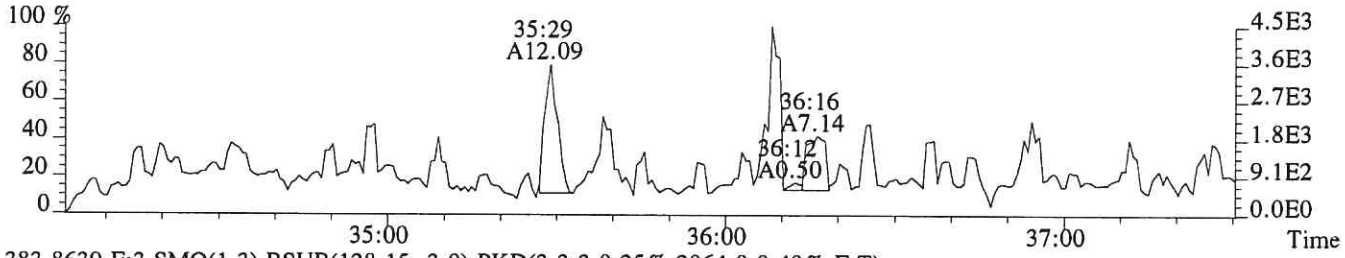
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



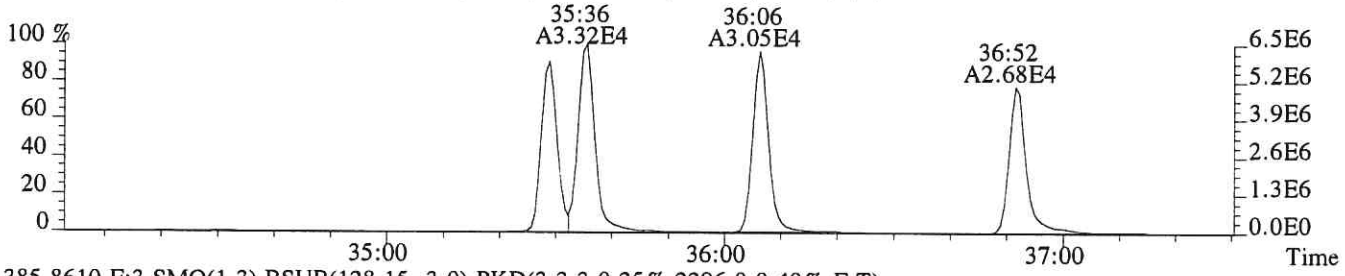
File:P616049 #1-312 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



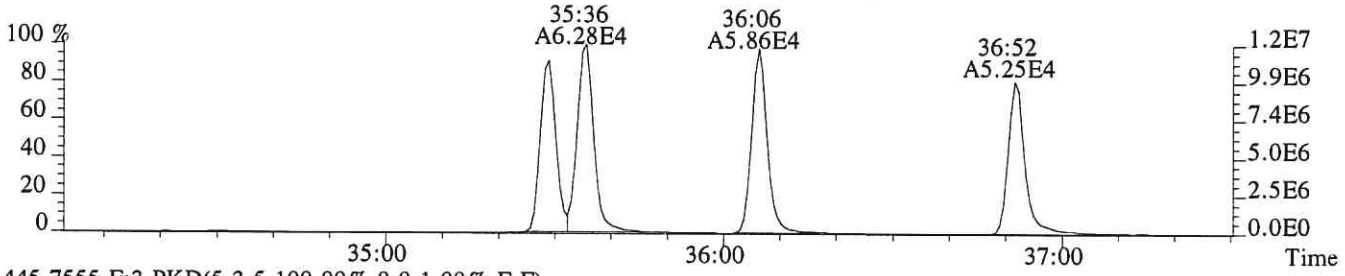
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



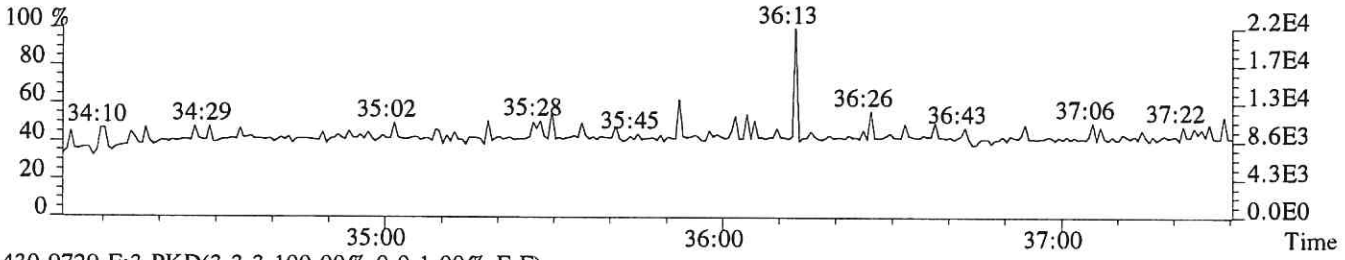
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2064.0,0.40%,F,T)



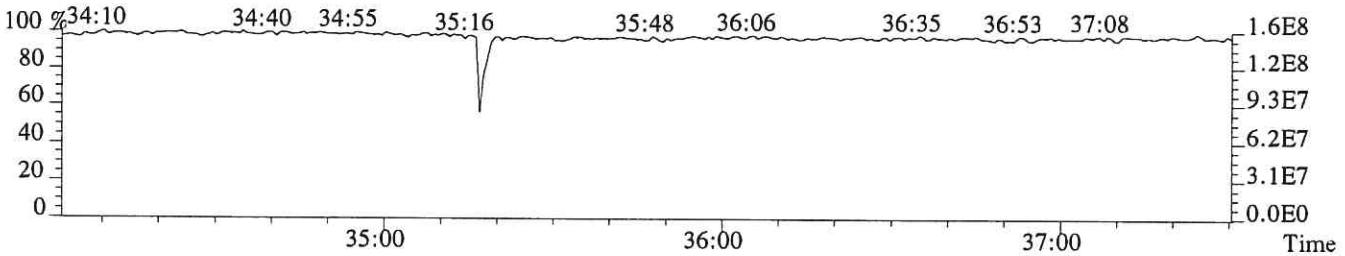
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2296.0,0.40%,F,T)



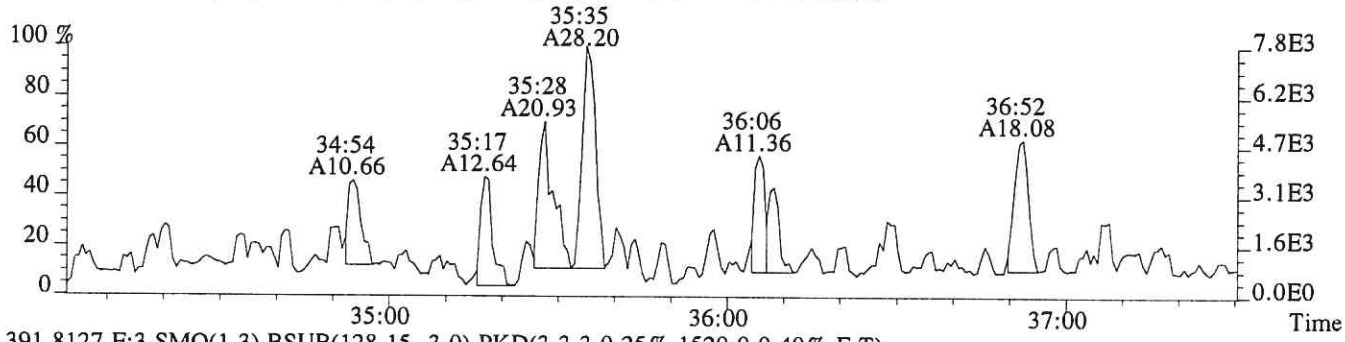
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



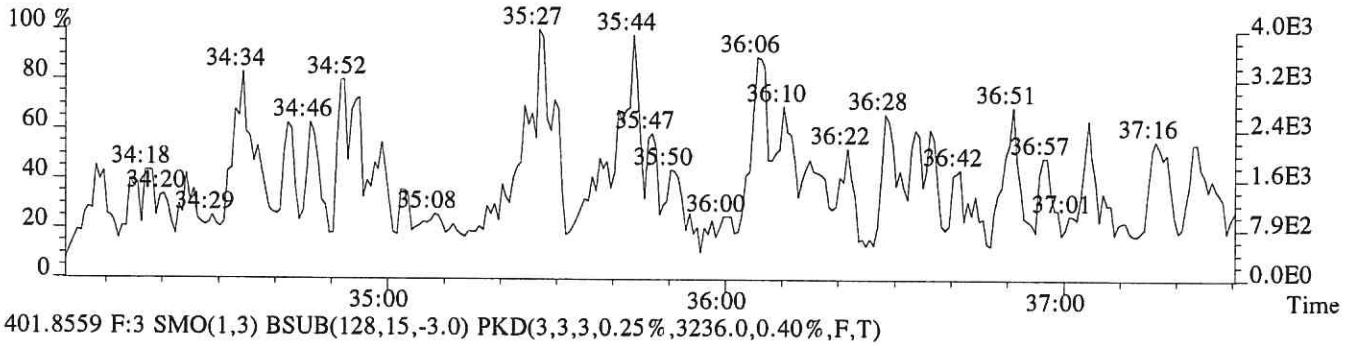
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



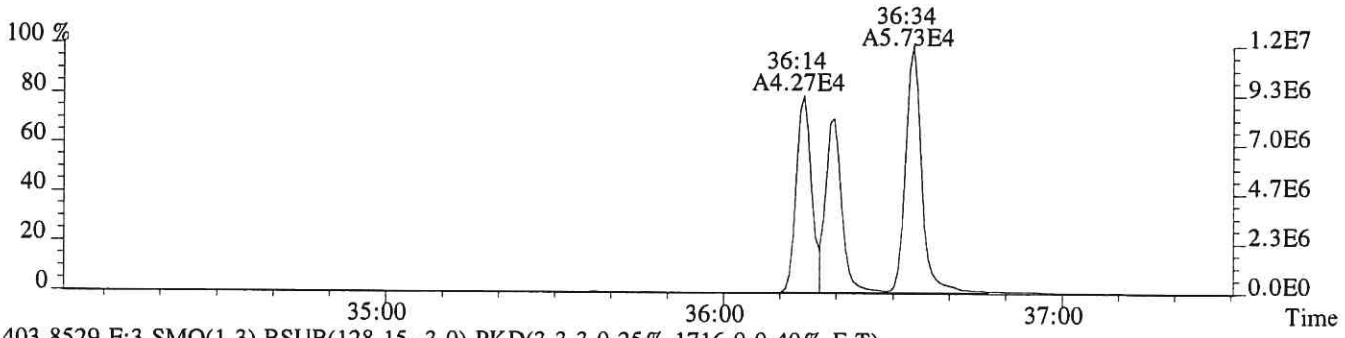
File:P616049 #1-312 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.40%,F,T)



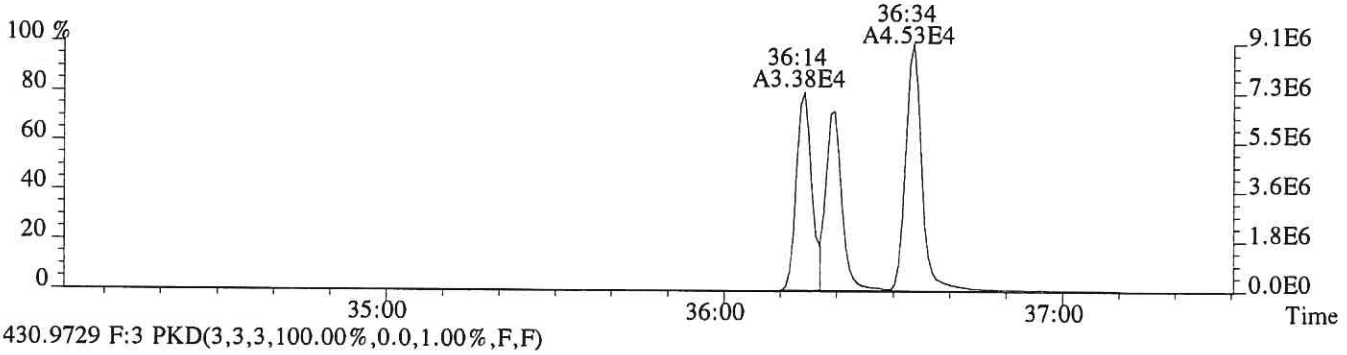
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.40%,F,T)



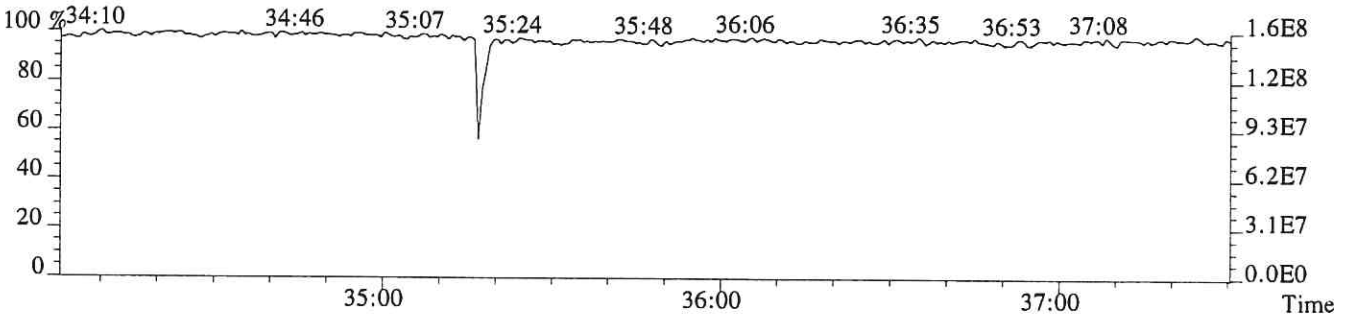
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3236.0,0.40%,F,T)



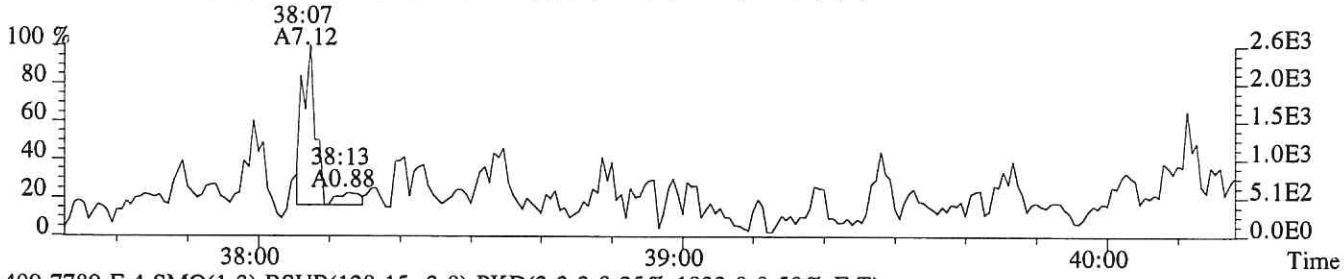
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1716.0,0.40%,F,T)



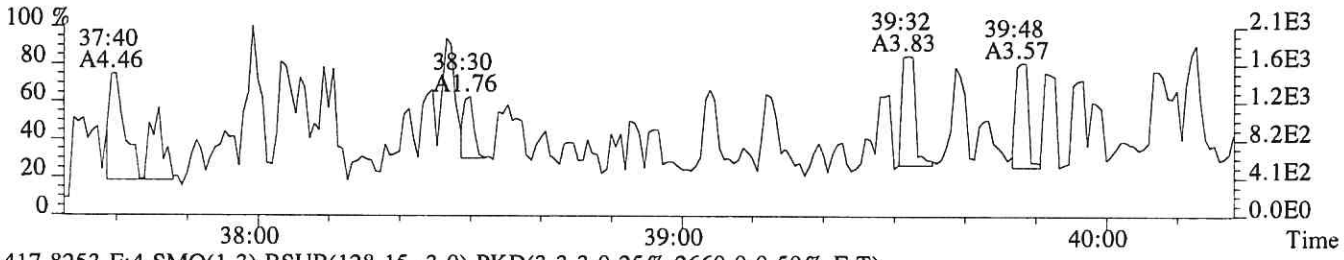
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



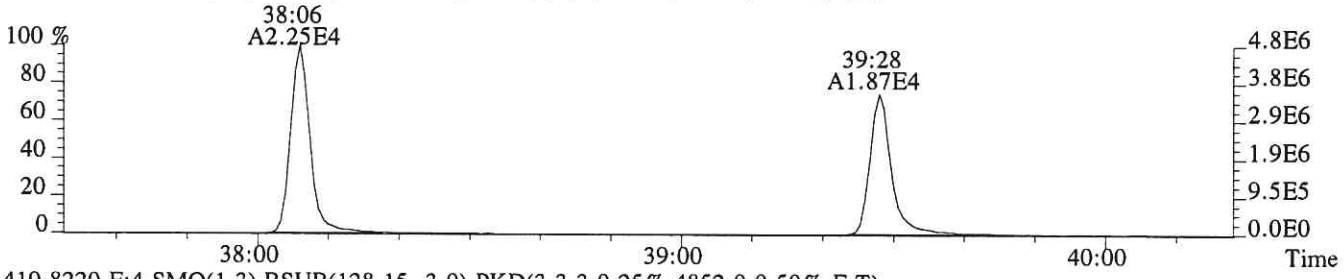
File:P616049 #1-249 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.50%,F,T)



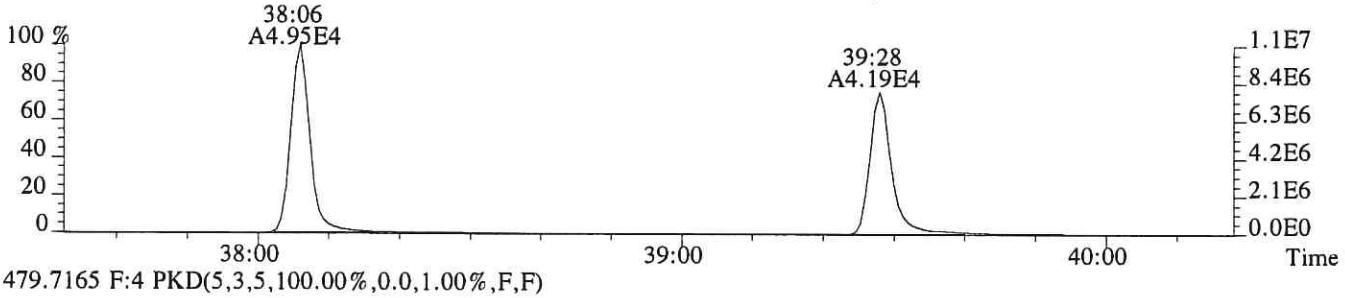
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.50%,F,T)



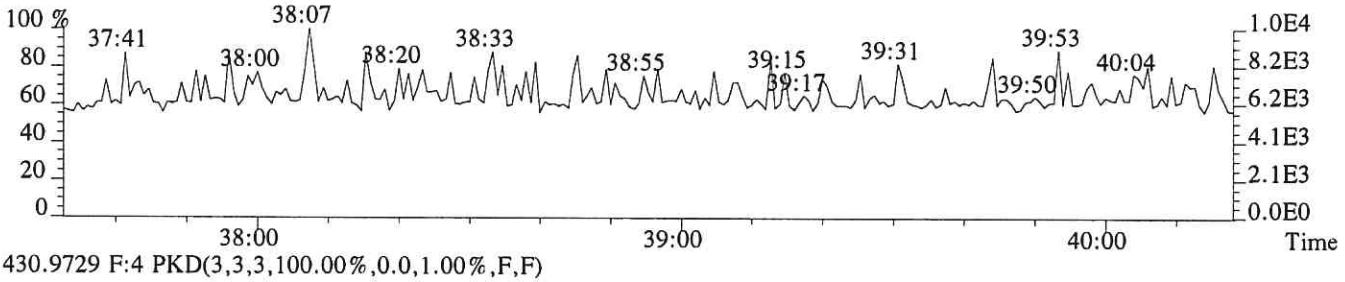
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.50%,F,T)



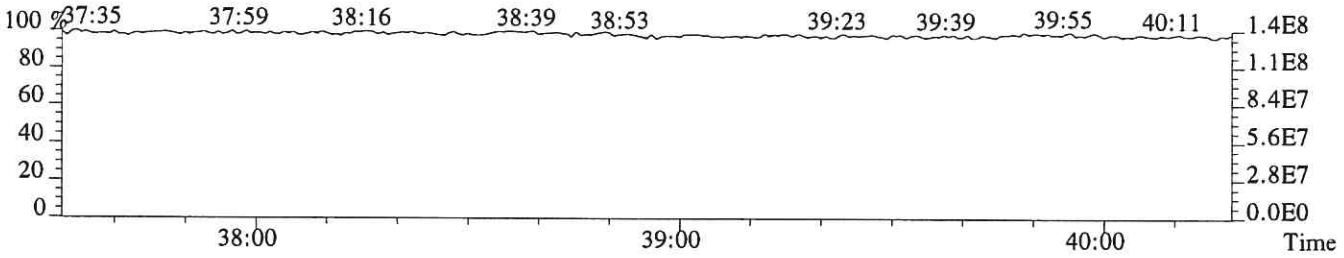
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4852.0,0.50%,F,T)



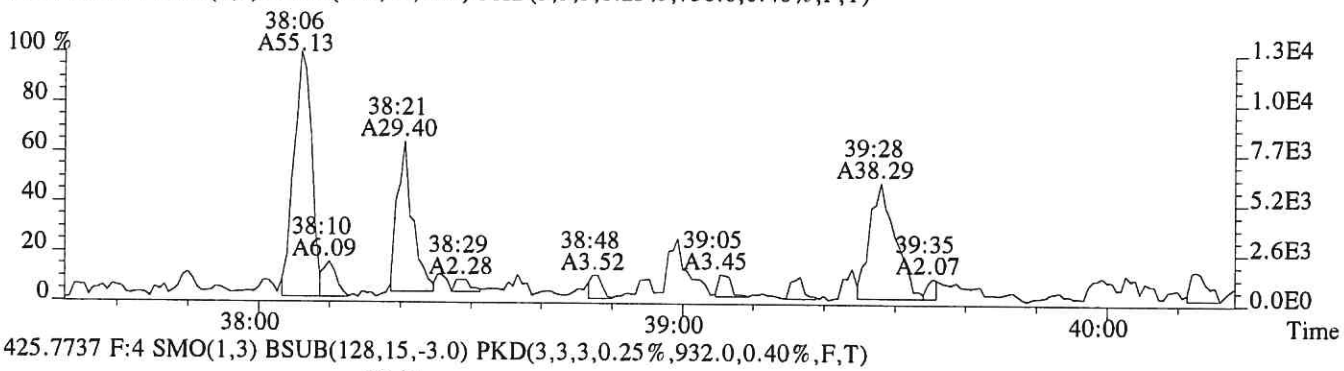
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



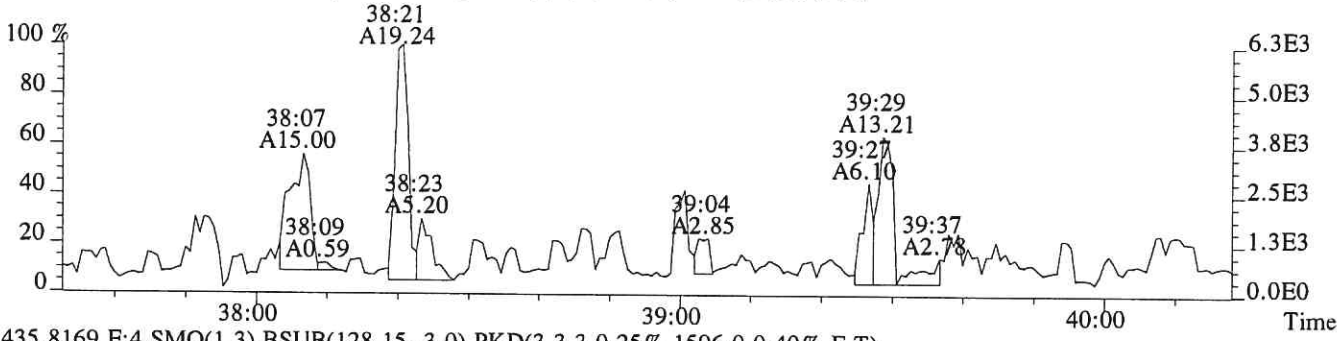
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



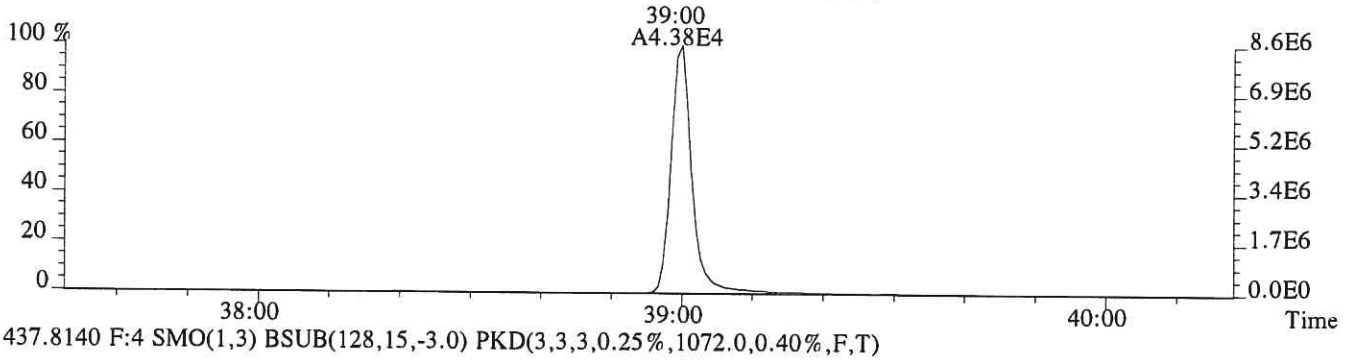
File:P616049 #1-249 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



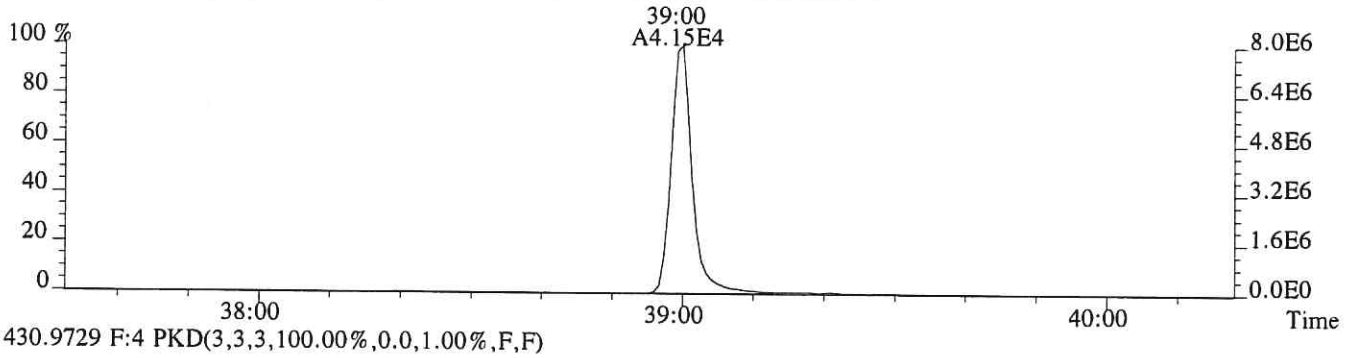
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



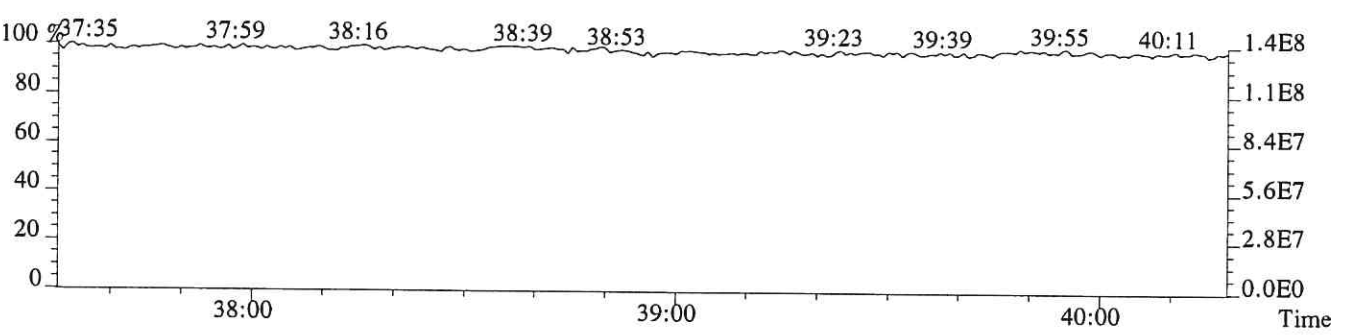
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)

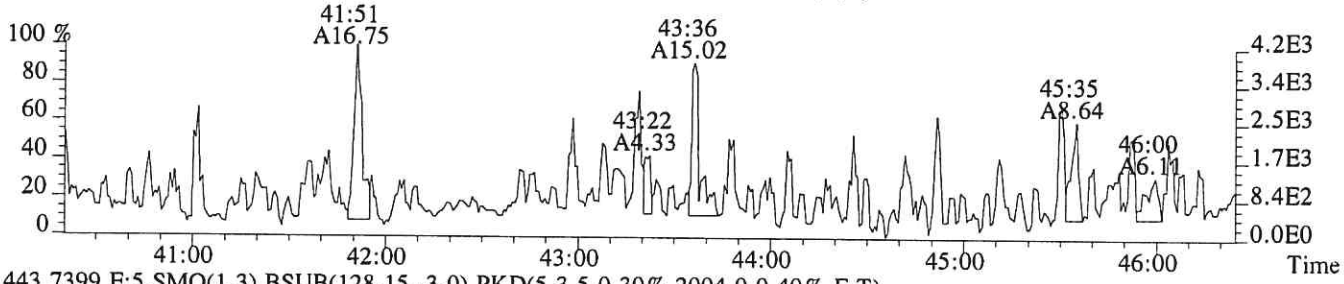


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

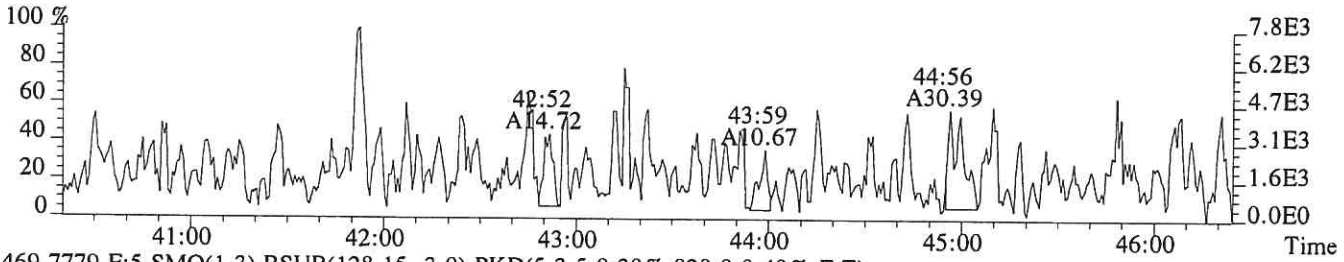


File:P616049 #1-547 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030

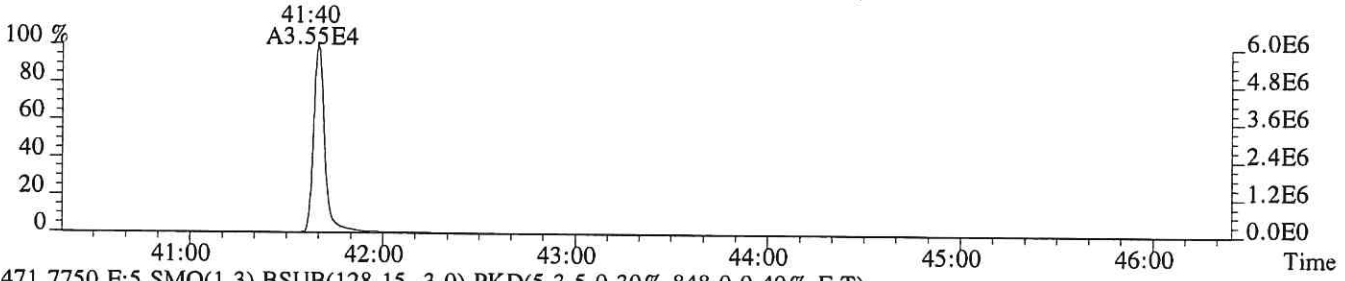
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,980.0,0.40%,F,T)



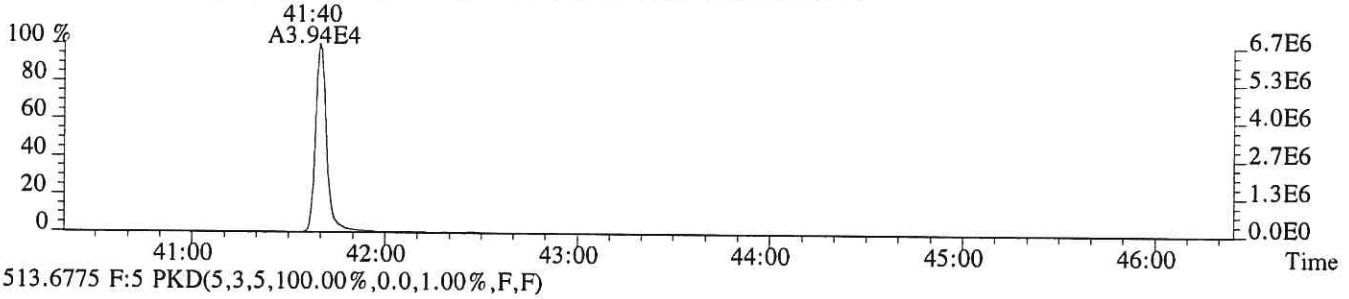
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2004.0,0.40%,F,T)



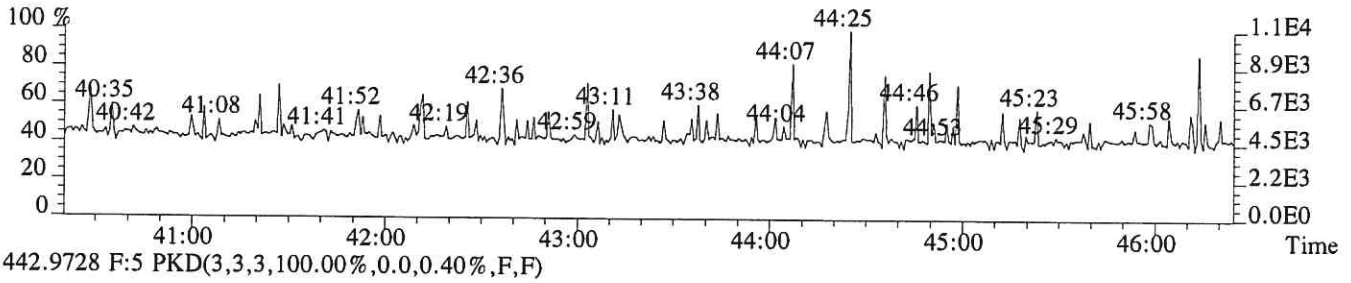
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



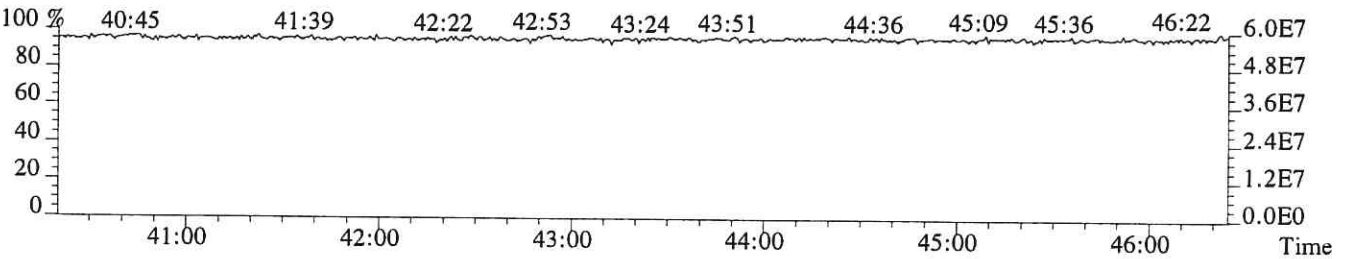
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



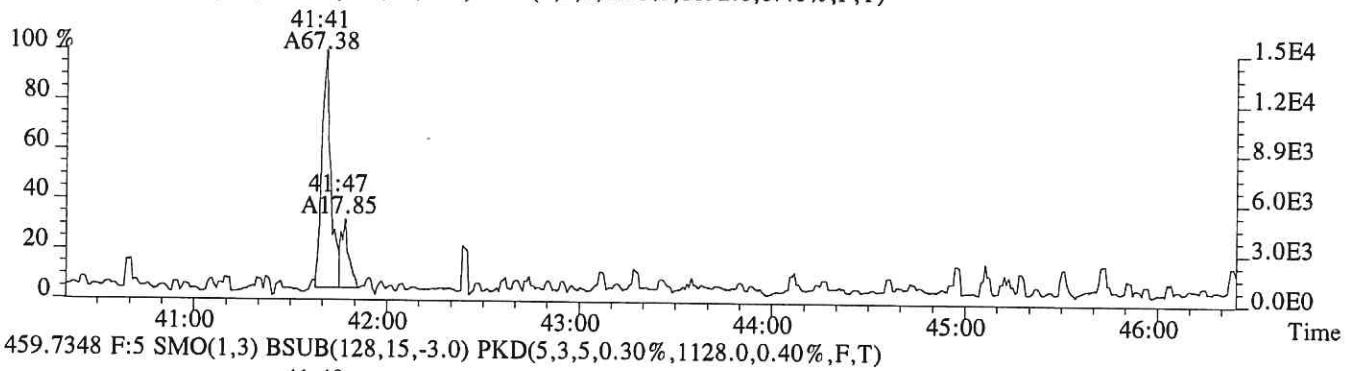
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



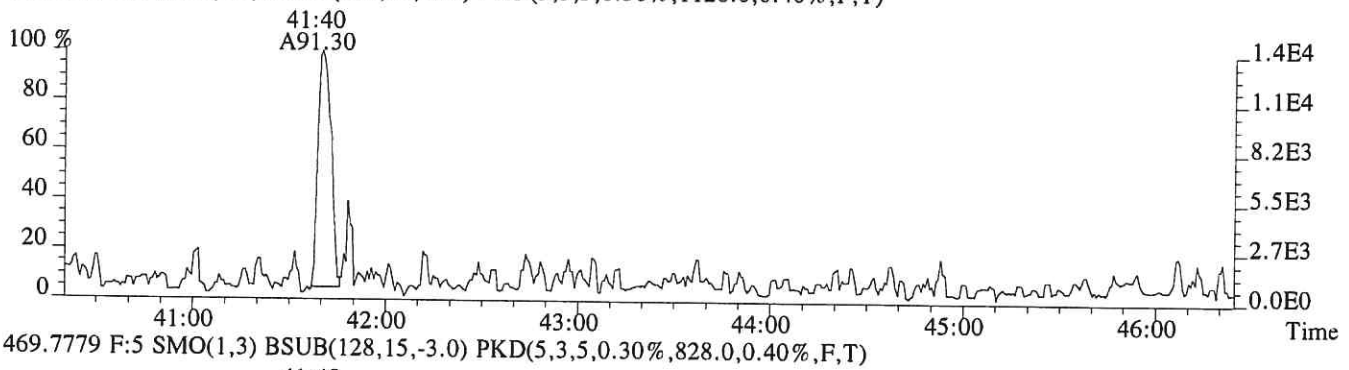
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



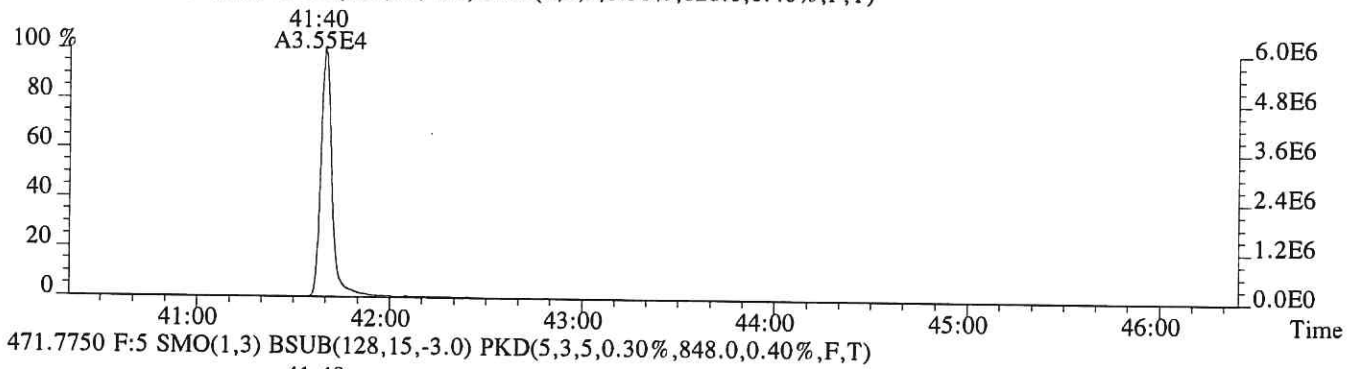
File:P616049 #1-547 Acq:11-DEC-2018 18:06:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-030
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



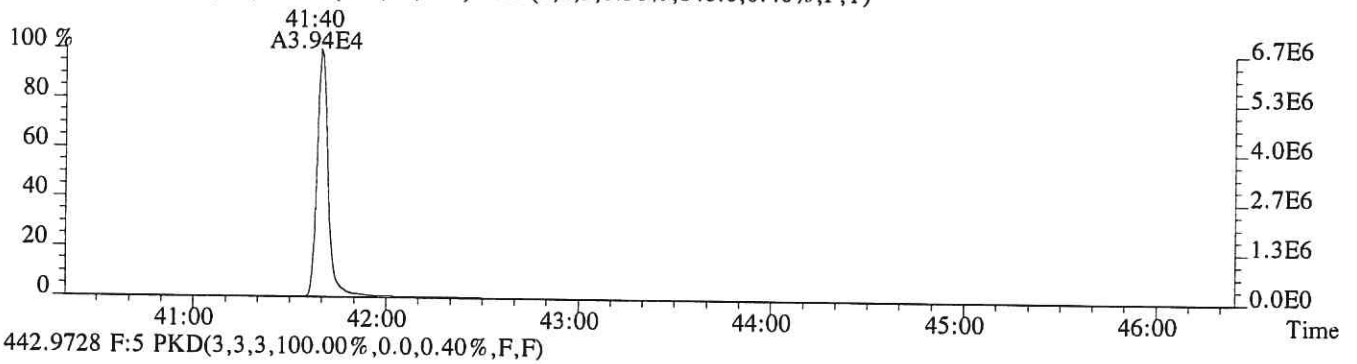
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1128.0,0.40%,F,T)



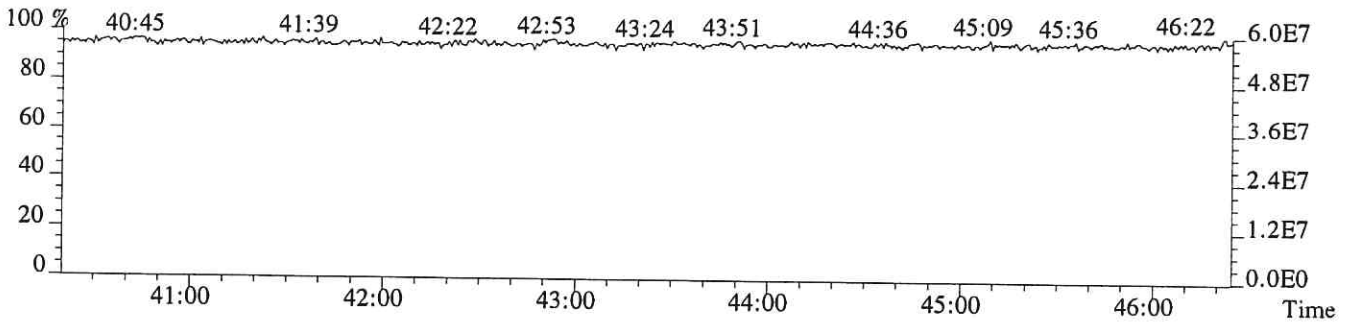
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
FW0053

Run #17 Filename P616050 Samp: 1 Inj: 1 Acquired: 11-DEC-18 18:55:56
Processed: 12-DEC-18 16:11:40 Sample ID: E1801065-031

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:06	1.293e+01	1.231e+01	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	5.134e+01	1.988e+01	2.58	no	no	1.112
17	Unk	OCDD	41:40	2.596e+02	2.524e+02	1.03	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:28	3.312e+04	4.195e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	6.013e+04	3.752e+04	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	5.666e+04	3.473e+04	1.63	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	2.603e+04	4.897e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.031e+04	5.734e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	2.726e+04	5.149e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.465e+04	4.779e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	1.952e+04	4.325e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.641e+04	3.718e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	1.775e+04	2.319e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	4.465e+04	2.852e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	3.857e+04	3.084e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	3.769e+04	2.998e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	3.762e+04	3.537e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:40	2.805e+04	3.019e+04	0.93	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:40	4.426e+04	5.550e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.840e+04	4.685e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:19	2.581e+04				no	1.086

$$\text{OCDD} = \frac{(2.596e+02 + 2.524e+02) \times 4000 \text{ pg} \times 1}{(2.805e+04 + 3.019e+04) \times \text{g} \times 5 / 100 \times 1.157} = 56.60397$$

LG 12/13/18

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
FW0053

Run #17 Filename P616050 Samp: 1 Inj: 1 Acquired: 11-DEC-18 18:55:56
Processed: 12-DEC-18 16:11:40 LAB. ID: E1801065-031

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.13e+03	*	*	3.48e+03	*
2	1,2,3,7,8-PeCDF	*	7.44e+02	*	*	3.16e+03	*
3	2,3,4,7,8-PeCDF	*	7.44e+02	*	*	3.16e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.66e+03	*	*	1.14e+03	*
5	1,2,3,6,7,8-HxCDF	*	1.66e+03	*	*	1.14e+03	*
6	2,3,4,6,7,8-HxCDF	*	1.66e+03	*	*	1.14e+03	*
7	1,2,3,7,8,9-HxCDF	*	1.66e+03	*	*	1.14e+03	*
8	1,2,3,4,6,7,8-HpCDF	2.40e+03	6.32e+02	3.8e+00	2.16e+03	6.04e+02	3.6e+00
9	1,2,3,4,7,8,9-HpCDF	*	6.32e+02	*	*	6.04e+02	*
10	OCDF	*	5.48e+02	*	*	2.84e+03	*
11	2,3,7,8-TCDD	*	3.40e+03	*	*	2.40e+03	*
12	1,2,3,7,8-PeCDD	*	2.04e+03	*	*	9.36e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.60e+02	*	*	9.24e+02	*
14	1,2,3,6,7,8-HxCDD	*	9.60e+02	*	*	9.24e+02	*
15	1,2,3,7,8,9-HxCDD	*	9.60e+02	*	*	9.24e+02	*
16	1,2,3,4,6,7,8-HpCDD	8.07e+03	6.84e+02	1.2e+01	4.03e+03	8.56e+02	4.7e+00
17	OCDD	4.27e+04	5.52e+02	7.7e+01	4.75e+04	1.33e+03	3.6e+01
18	13C-2,3,7,8-TCDF	5.22e+06	1.03e+04	5.1e+02	6.48e+06	6.33e+03	1.0e+03
19	13C-1,2,3,7,8-PeCDF	1.06e+07	1.37e+03	7.8e+03	6.53e+06	1.59e+03	4.1e+03
20	13C-2,3,4,7,8-PeCDF	1.02e+07	1.37e+03	7.4e+03	6.21e+06	1.59e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	5.32e+06	1.73e+03	3.1e+03	9.84e+06	2.58e+03	3.8e+03
22	13C-1,2,3,6,7,8-HxCDF	5.67e+06	1.73e+03	3.3e+03	1.08e+07	2.58e+03	4.2e+03
23	13C-2,3,4,6,7,8-HxCDF	5.59e+06	1.73e+03	3.2e+03	1.03e+07	2.58e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	4.65e+06	1.73e+03	2.7e+03	9.06e+06	2.58e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.00e+06	2.39e+03	1.7e+03	8.87e+06	4.67e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.01e+06	2.39e+03	1.3e+03	6.77e+06	4.67e+03	1.5e+03
27	13C-2,3,7,8-TCDD	2.96e+06	1.33e+04	2.2e+02	3.86e+06	6.50e+03	5.9e+02
28	13C-1,2,3,7,8-PeCDD	7.86e+06	1.72e+03	4.6e+03	5.12e+06	2.22e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	8.15e+06	2.73e+03	3.0e+03	6.40e+06	2.22e+03	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	7.45e+06	2.73e+03	2.7e+03	6.04e+06	2.22e+03	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.24e+06	1.75e+03	4.1e+03	6.92e+06	6.04e+02	1.1e+04
32	13C-OCDD	4.73e+06	7.68e+02	6.2e+03	5.17e+06	7.44e+02	7.0e+03
33	13C-1,2,3,4-TCDD	7.63e+06	1.33e+04	5.7e+02	9.52e+06	6.50e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.14e+07	2.73e+03	4.2e+03	9.02e+06	2.22e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	4.26e+06	2.95e+03	1.4e+03			

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Peak List Summary

CLIENT ID.
FW0053

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P616050 Sample:1 Injection:1 Function:4

Acquired: 11-DEC-18 18:55:56 Processed: 12-DEC-18 16:11:40

Mass: 407.7820 409.7790 Tot Response: 2.52e+01 RRF: 1.495

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:06	1.29e+01	1.23e+01 1.05	yes	2.52e+01	1,2,3,4,6,7,8-HpCDF	n	n

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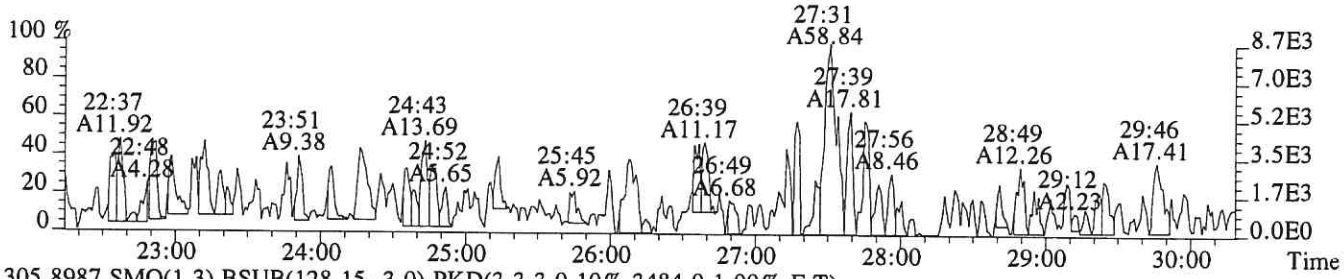
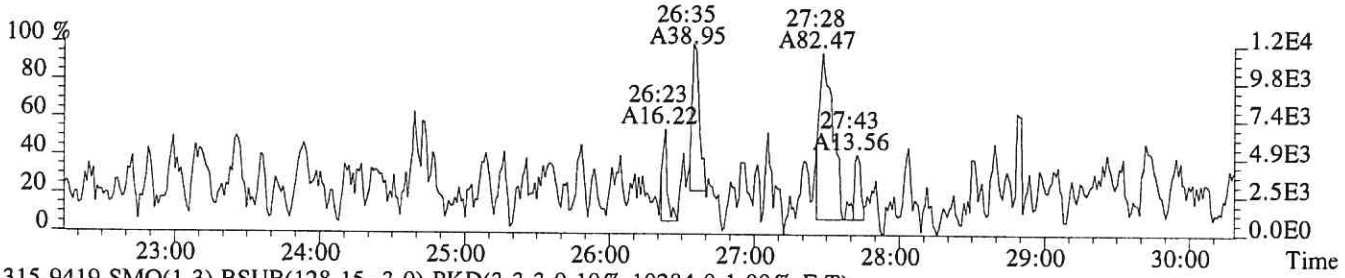
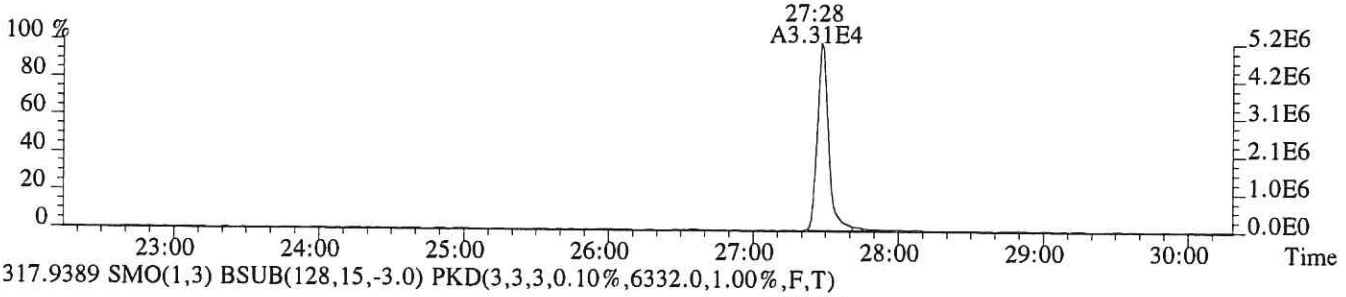
File:P616050 #1-573 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



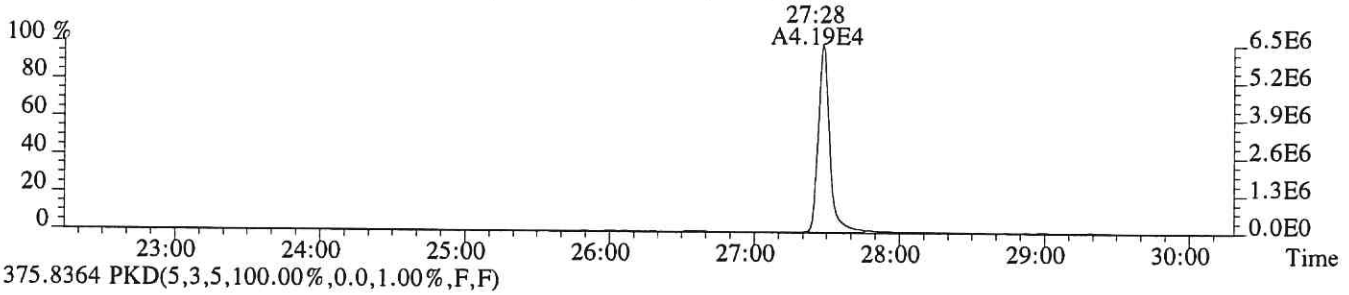
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3484.0,1.00%,F,T)



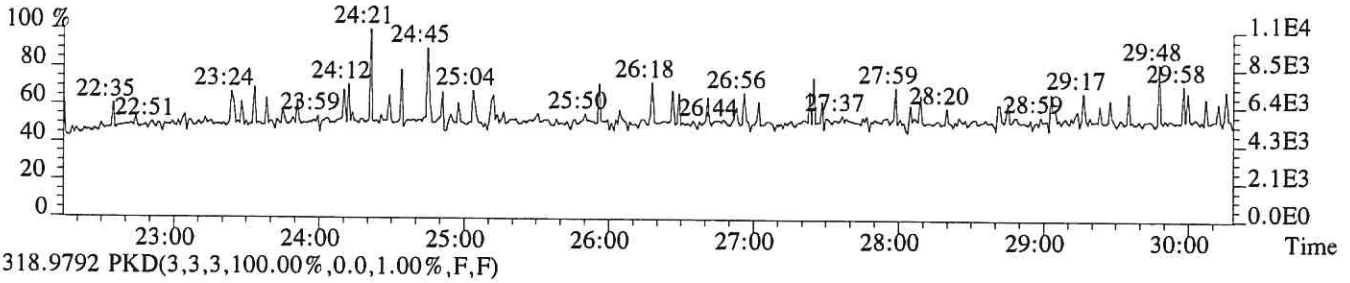
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10284.0,1.00%,F,T)



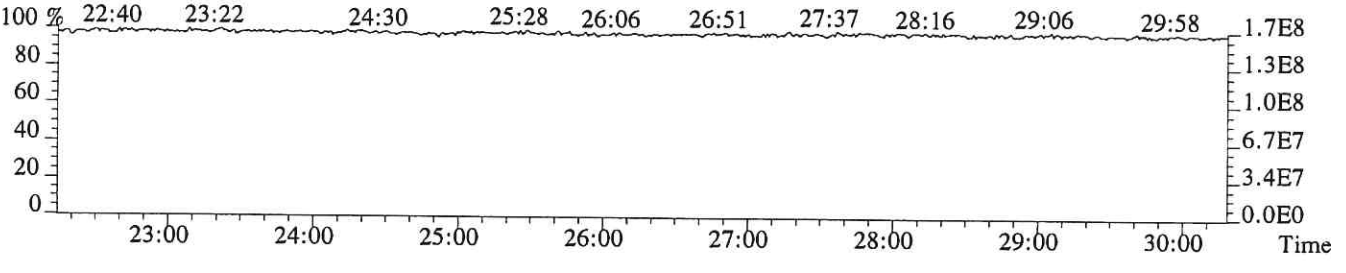
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6332.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

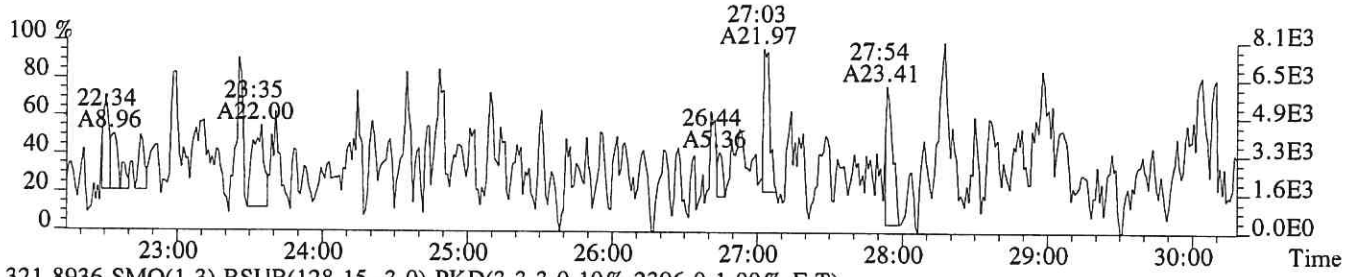


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

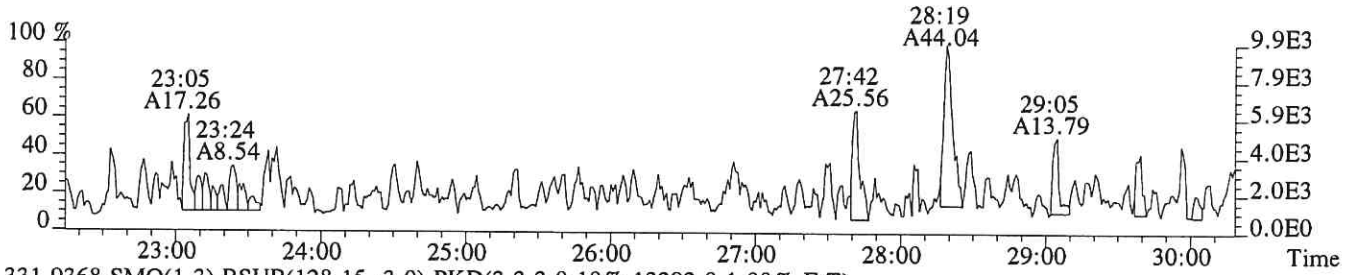


File:P616050 #1-573 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031

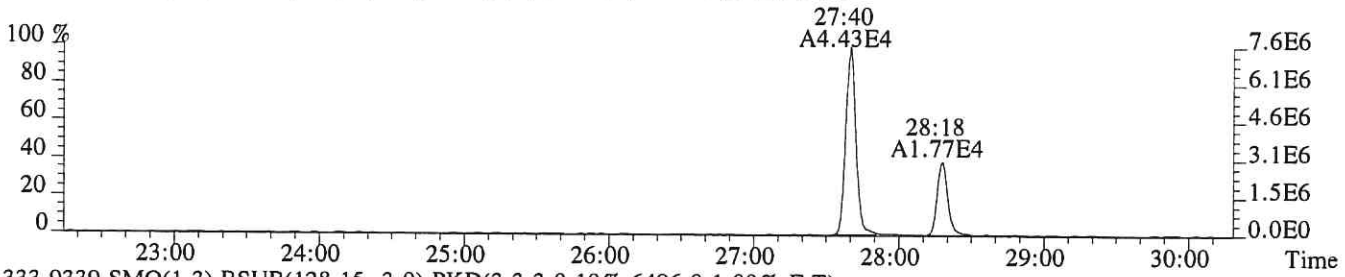
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3404.0,1.00%,F,T)



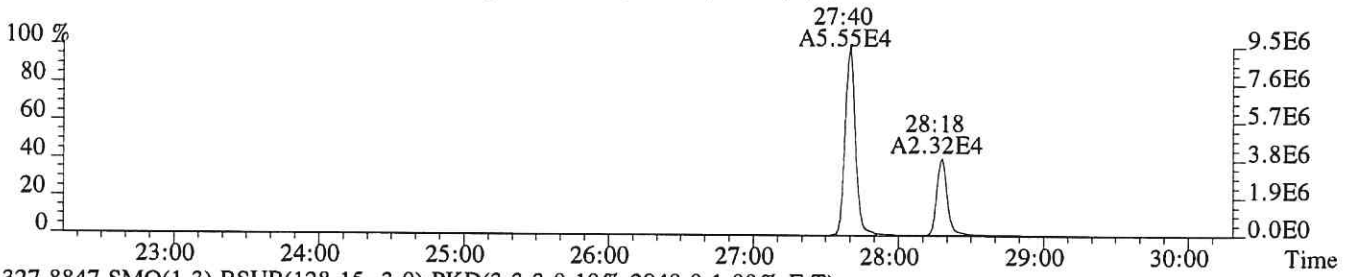
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)



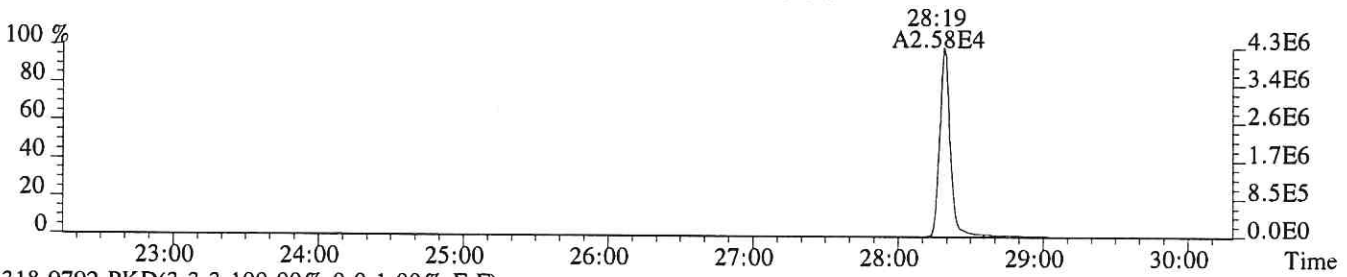
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13292.0,1.00%,F,T)



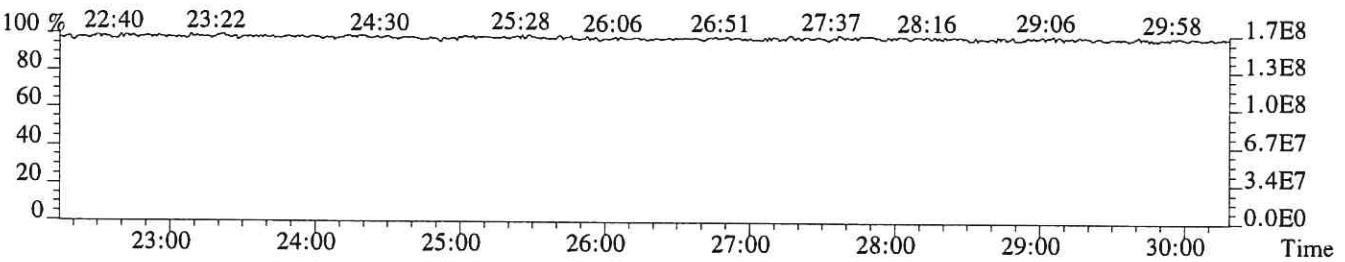
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6496.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)

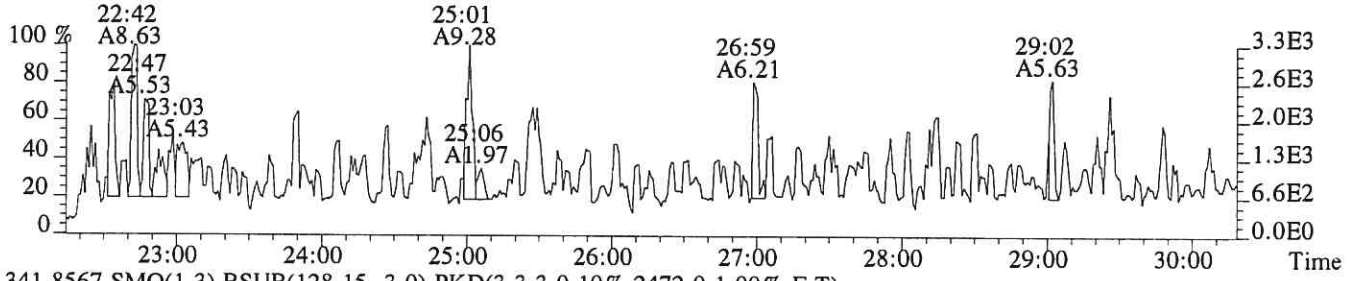


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

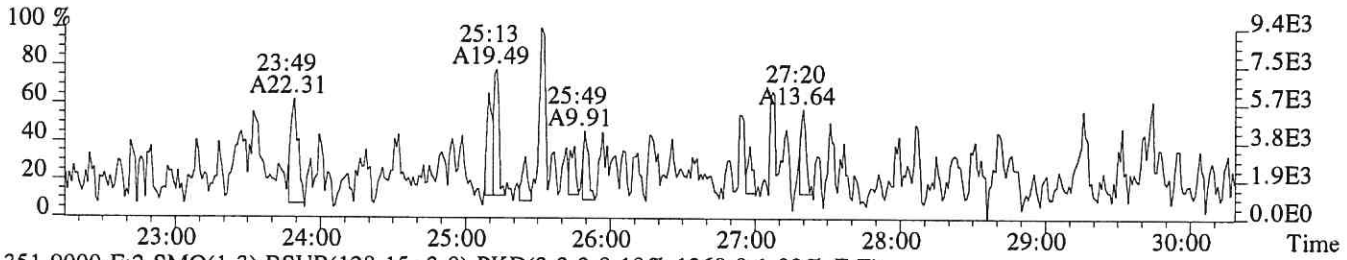


File:P616050 #1-573 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031

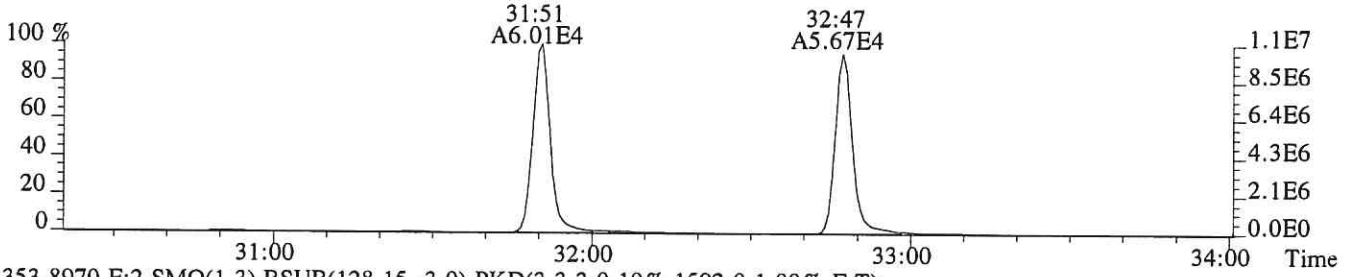
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



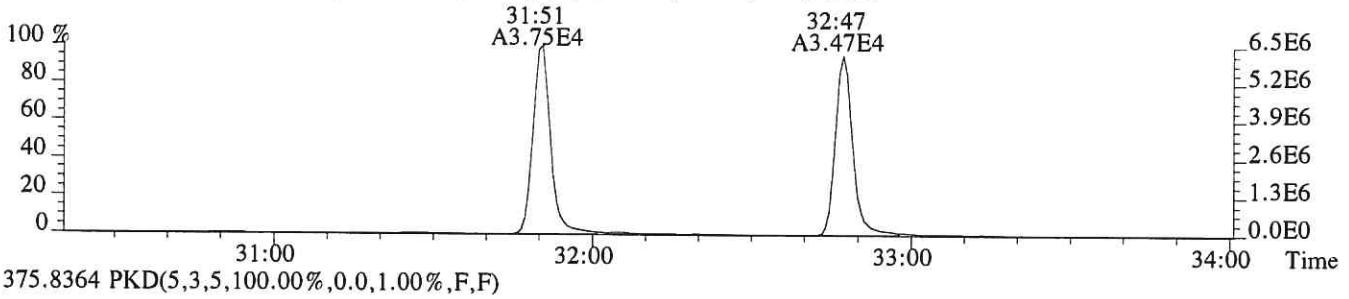
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2472.0,1.00%,F,T)



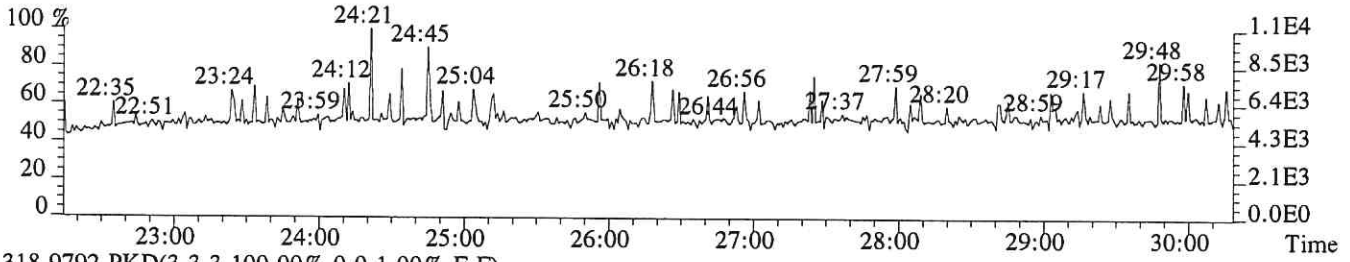
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



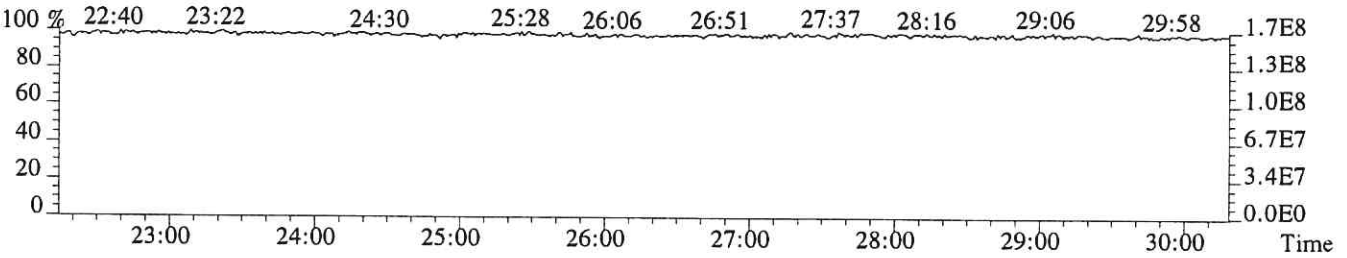
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



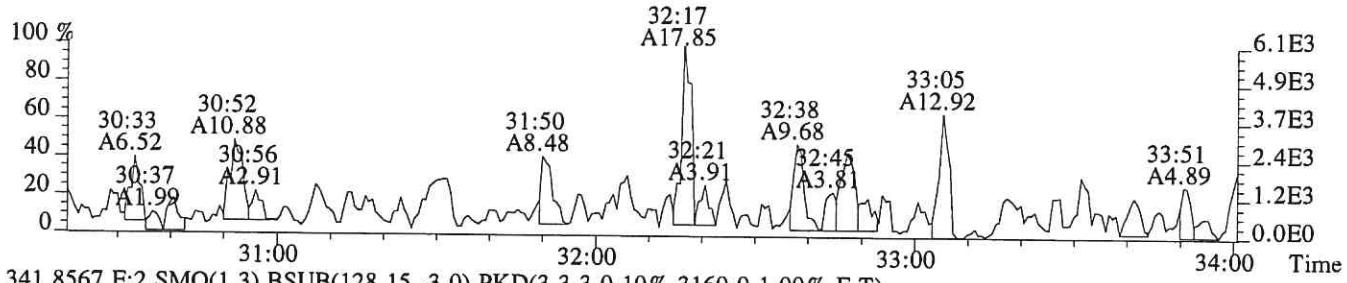
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



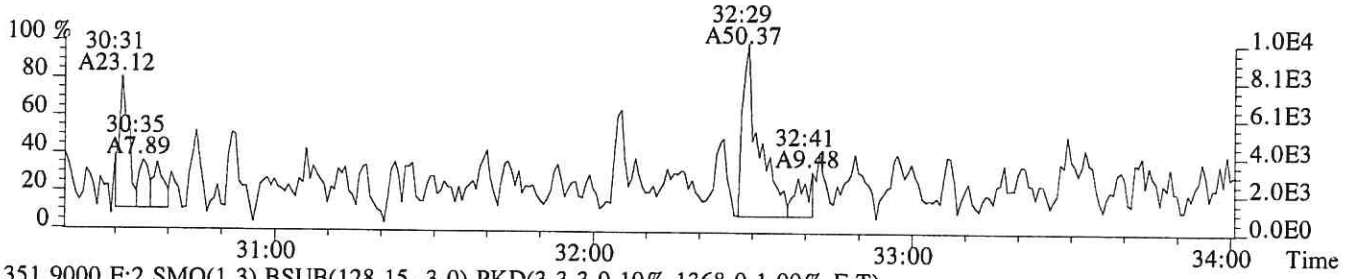
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



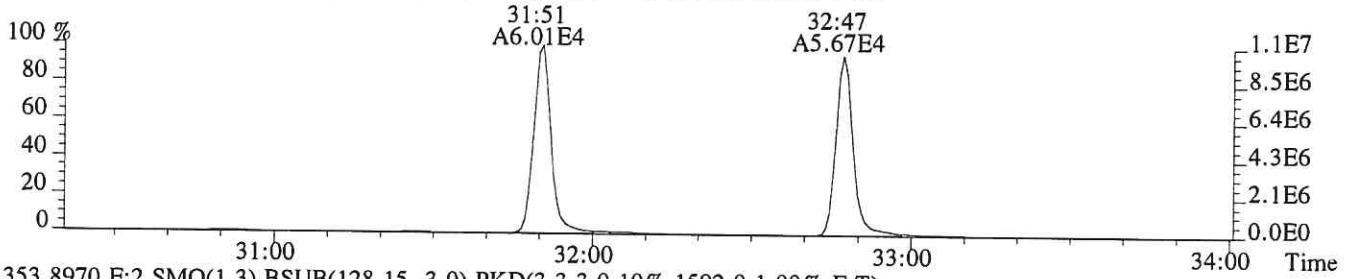
File:P616050 #1-331 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



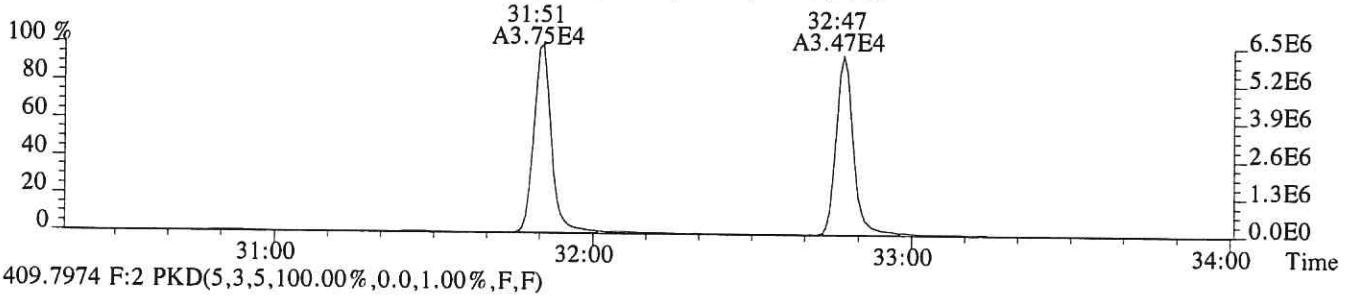
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3160.0,1.00%,F,T)



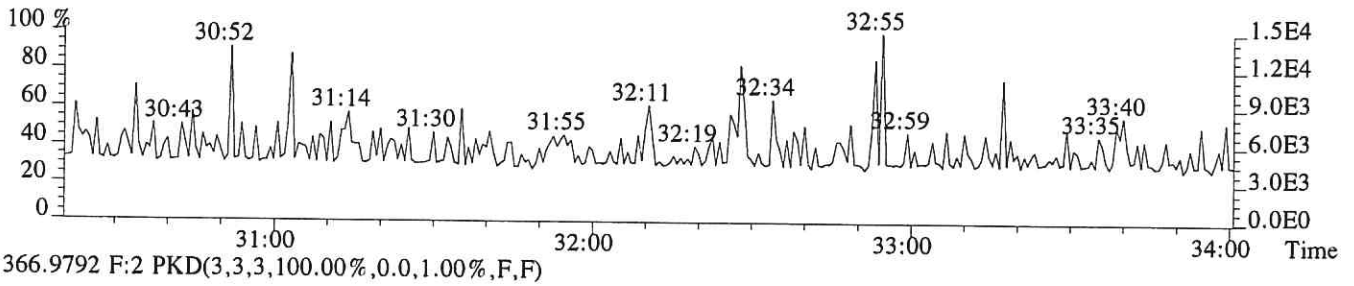
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



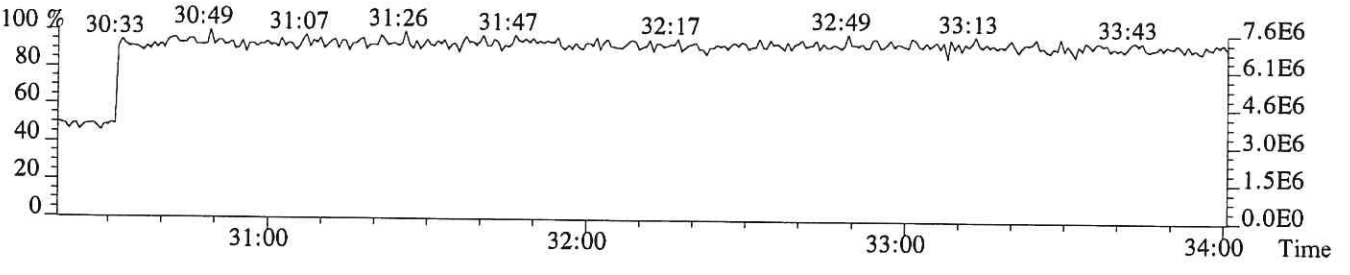
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



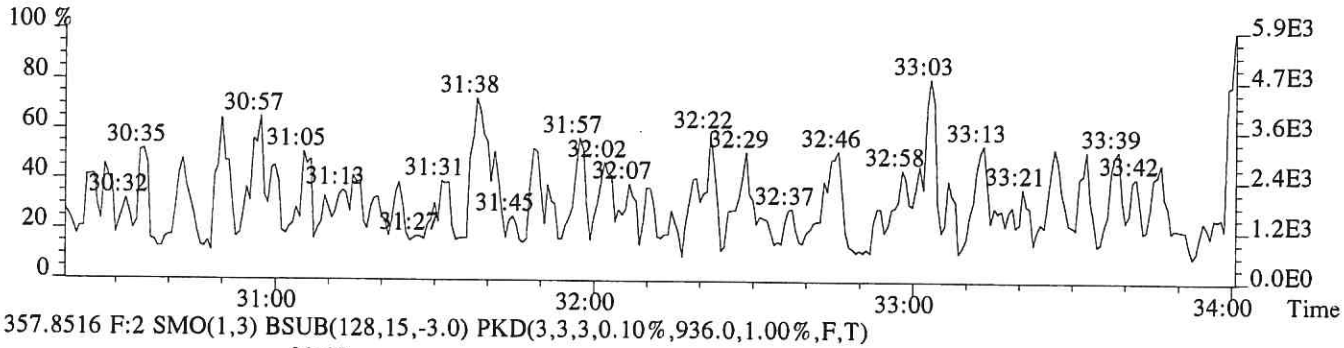
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



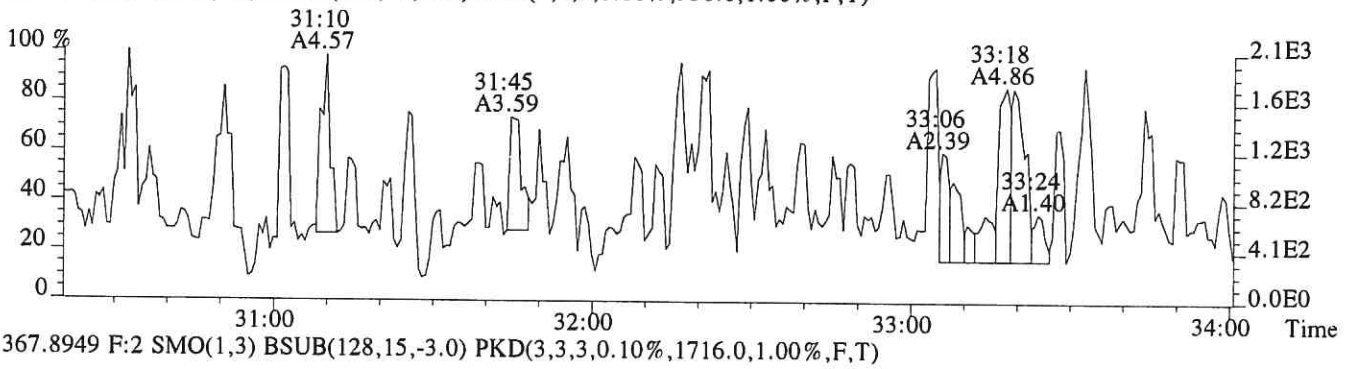
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



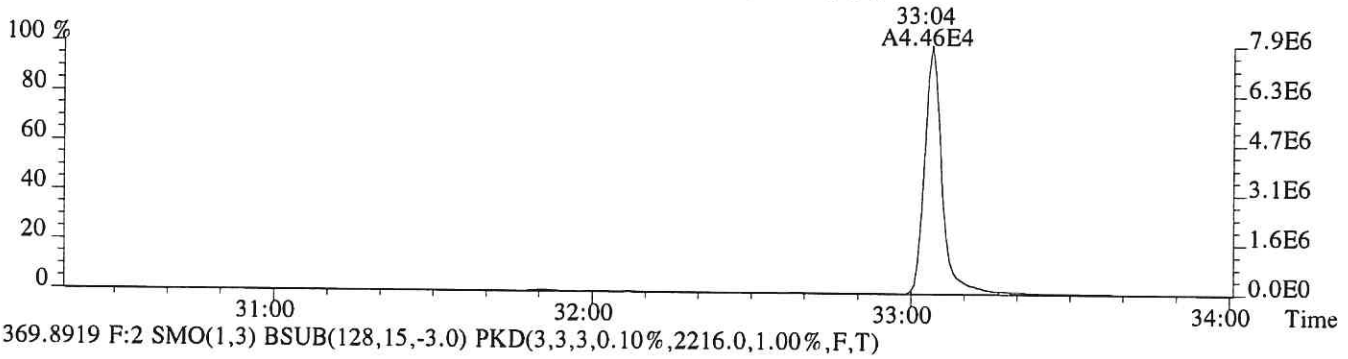
File:P616050 #1-331 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



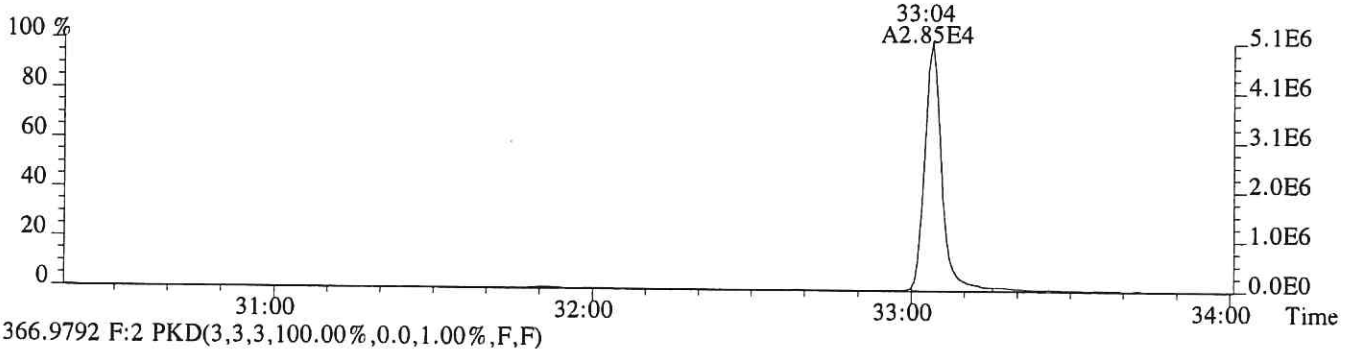
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



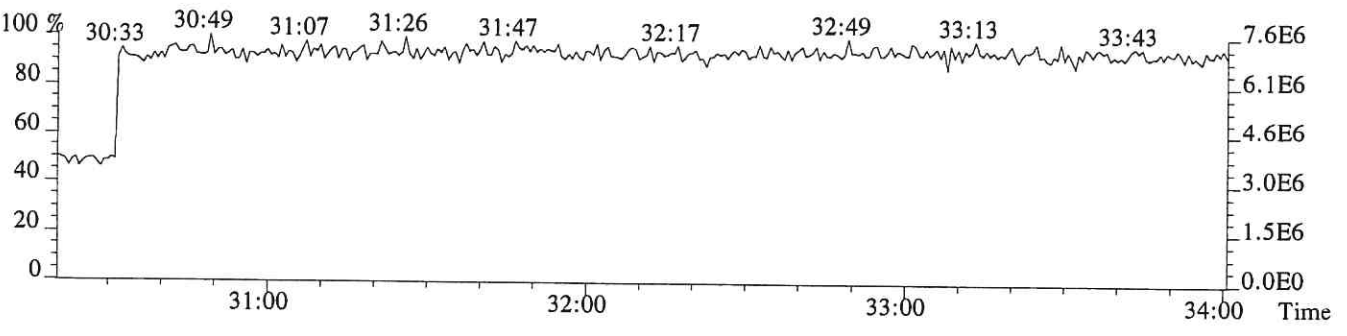
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



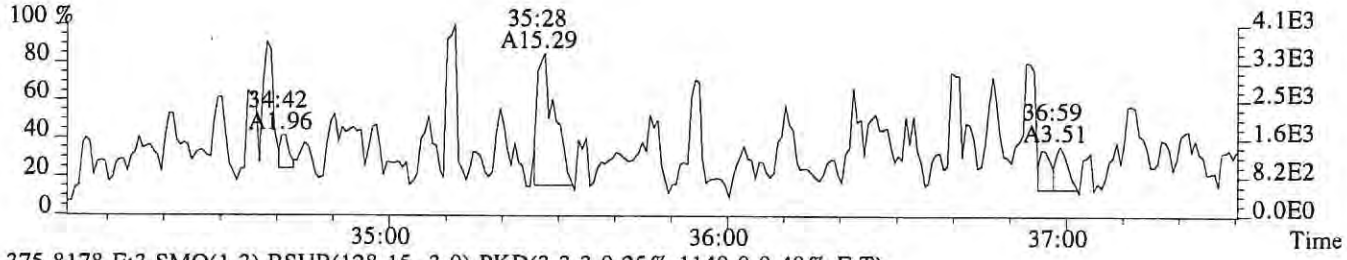
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



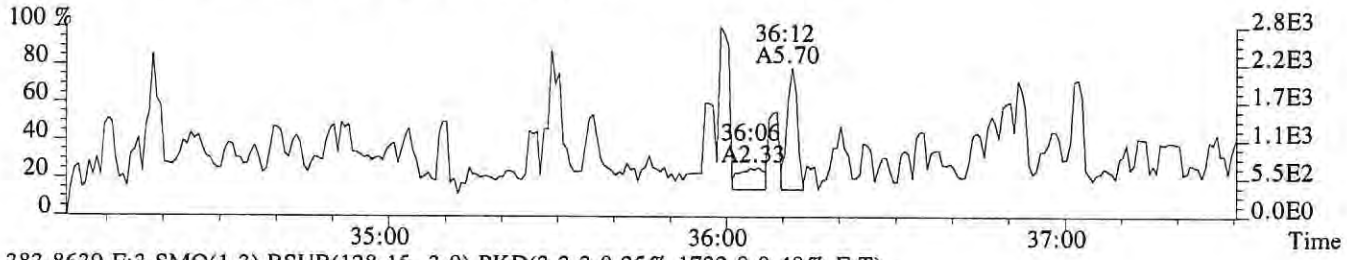
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



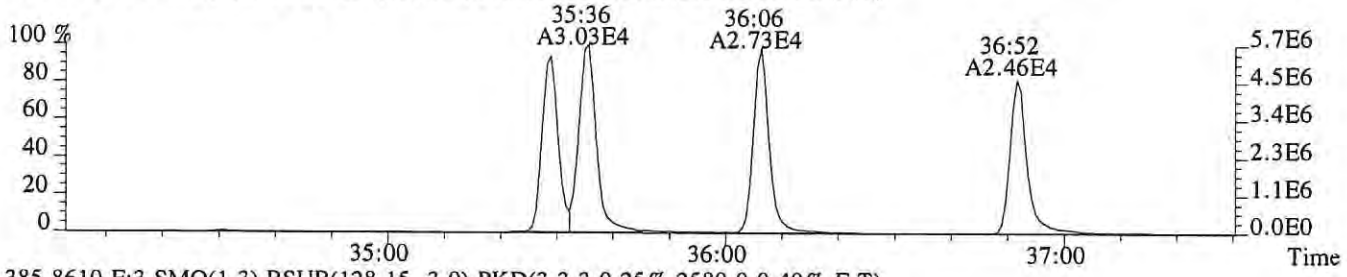
File:P616050 #1-312 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



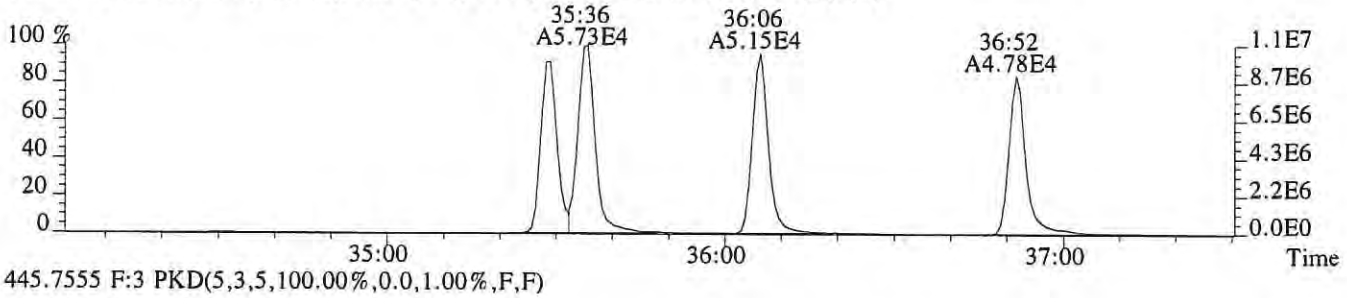
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



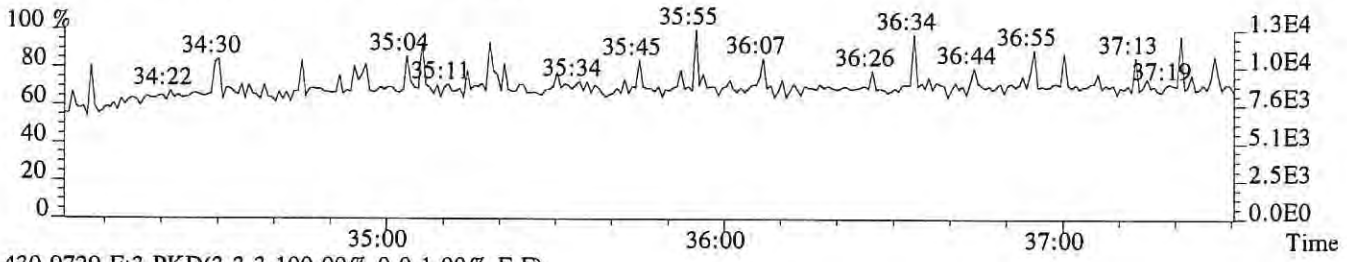
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1732.0,0.40%,F,T)



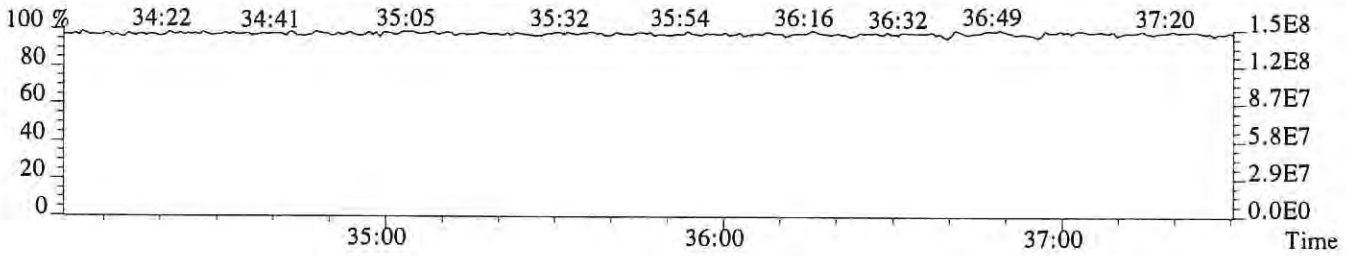
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2580.0,0.40%,F,T)



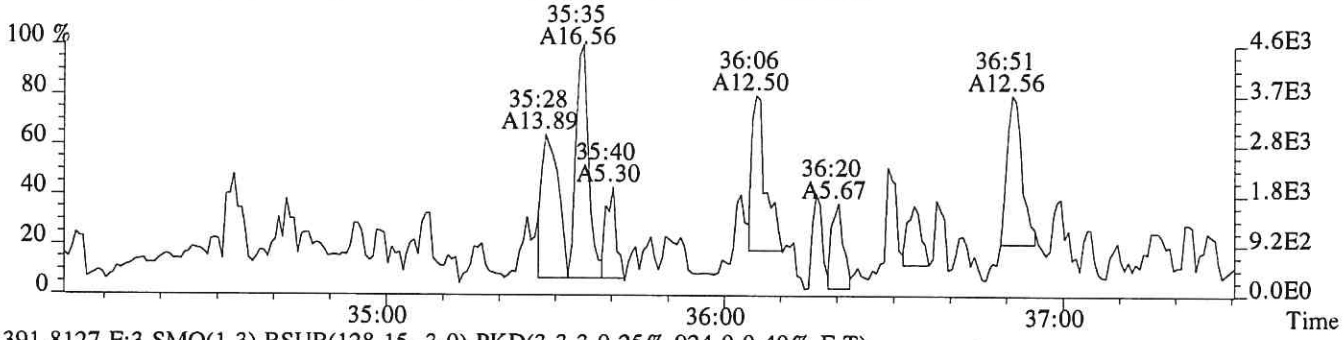
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



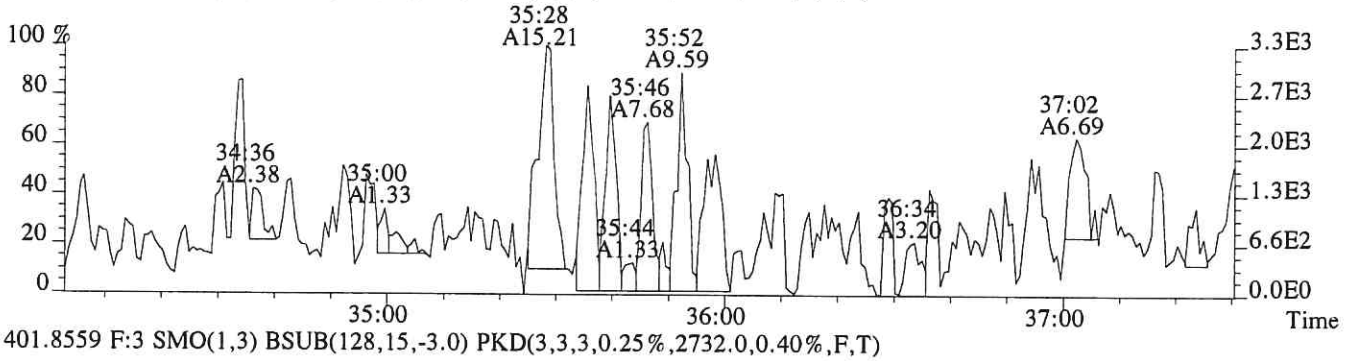
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



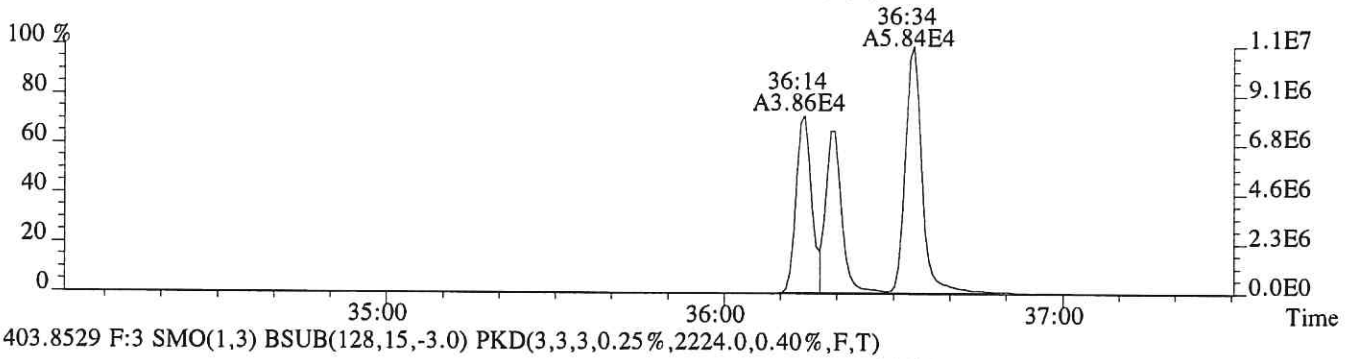
File:P616050 #1-312 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



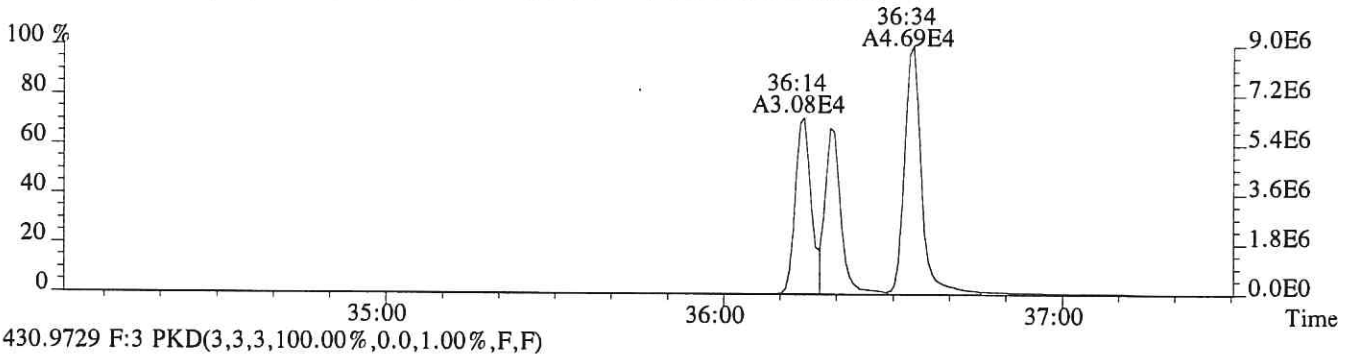
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



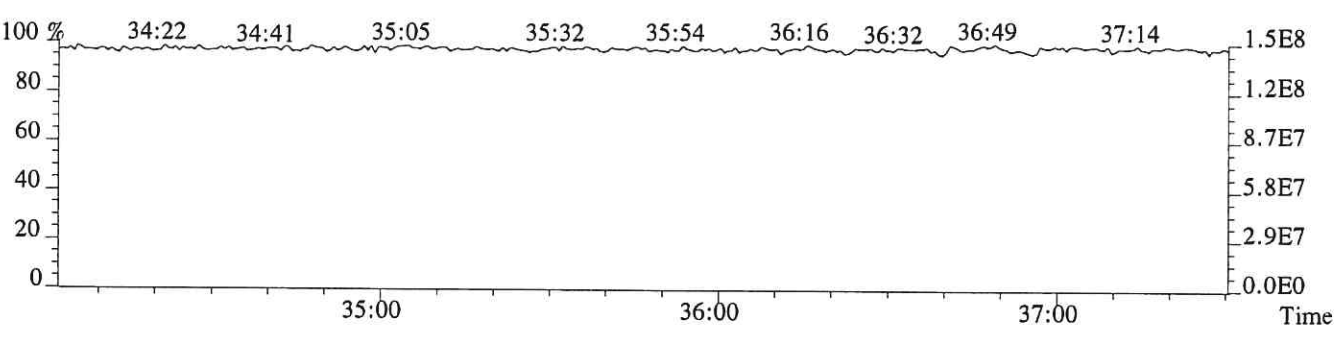
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2732.0,0.40%,F,T)



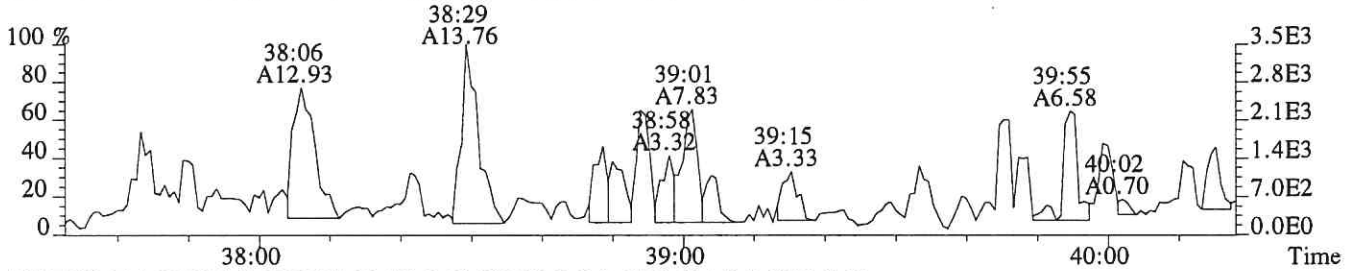
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.40%,F,T)



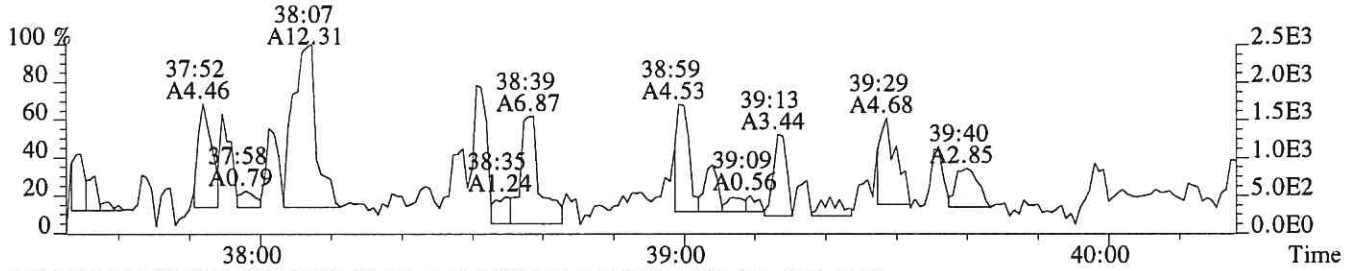
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



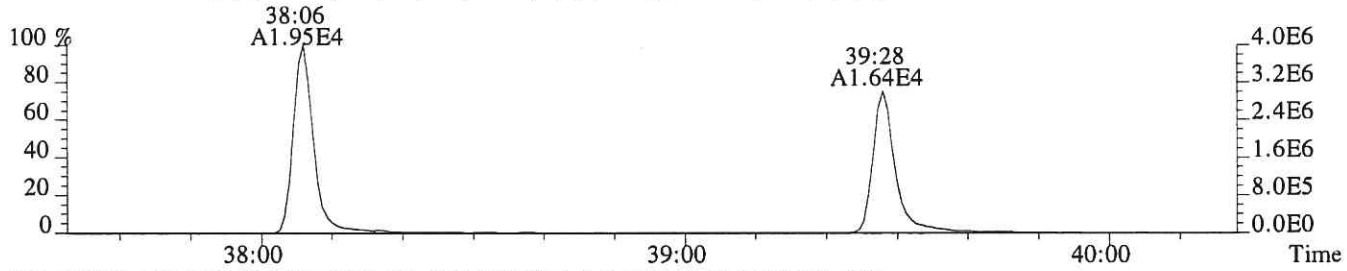
File:P616050 #1-249 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.50%,F,T)



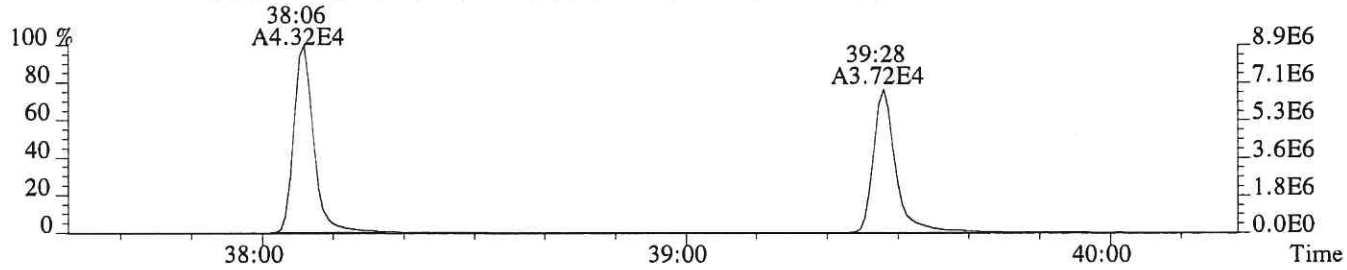
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.50%,F,T)



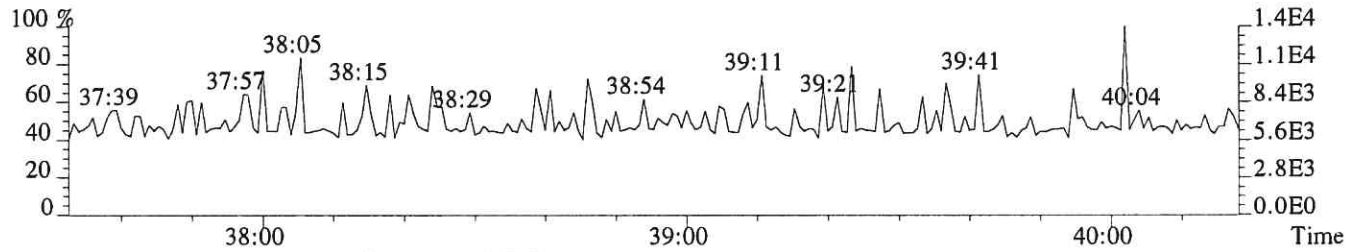
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2392.0,0.50%,F,T)



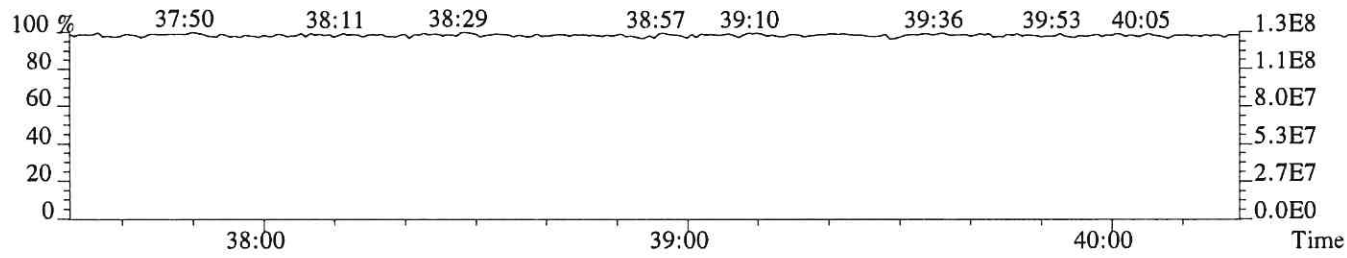
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4668.0,0.50%,F,T)



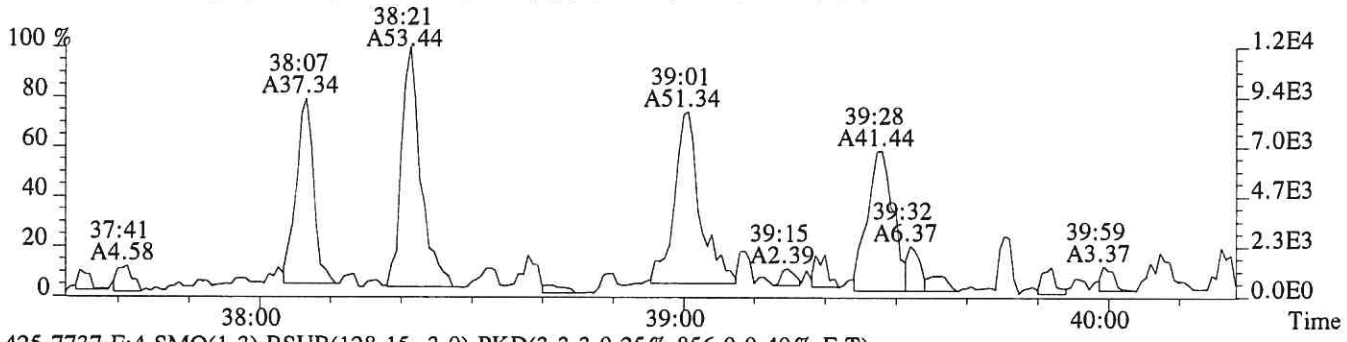
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



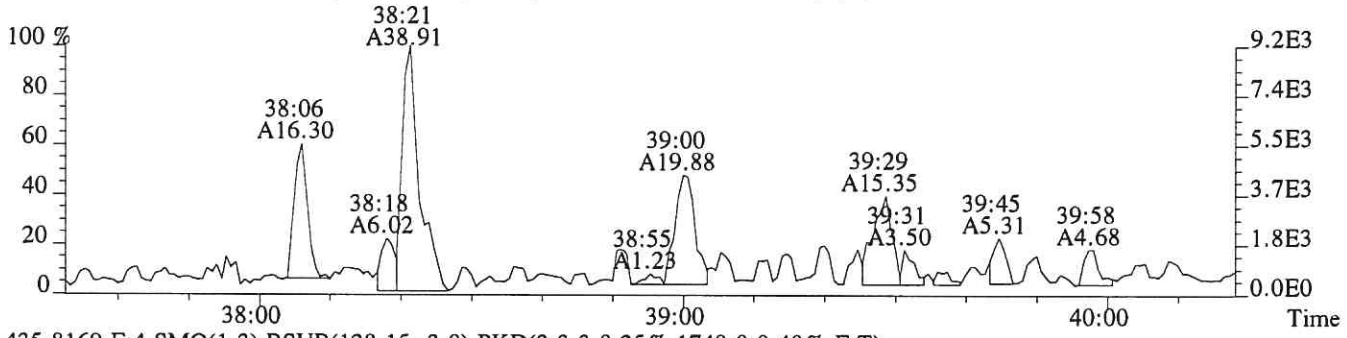
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



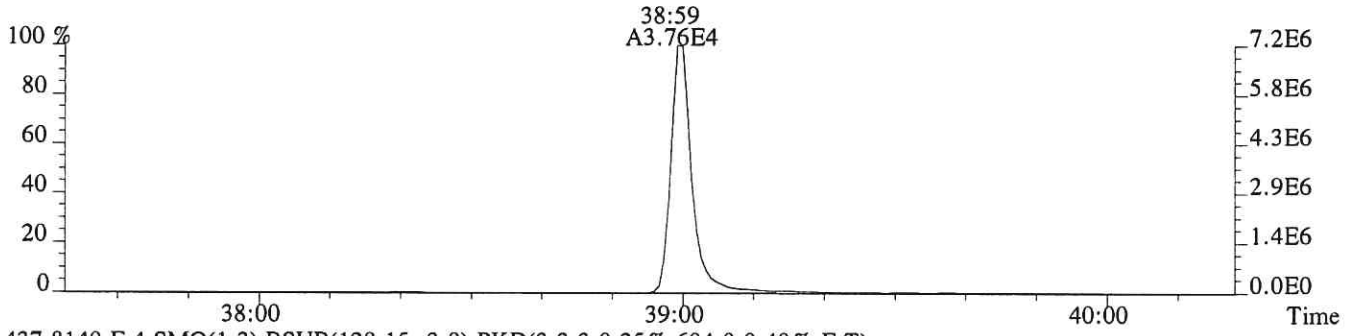
File:P616050 #1-249 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



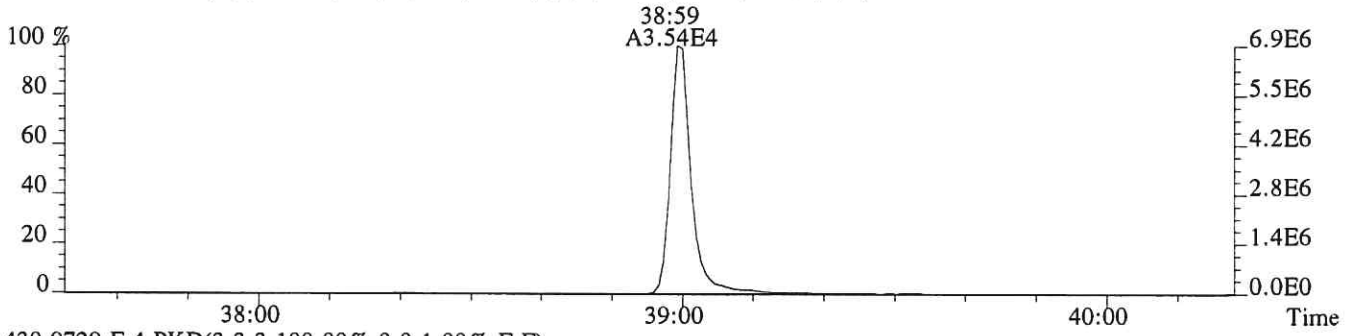
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



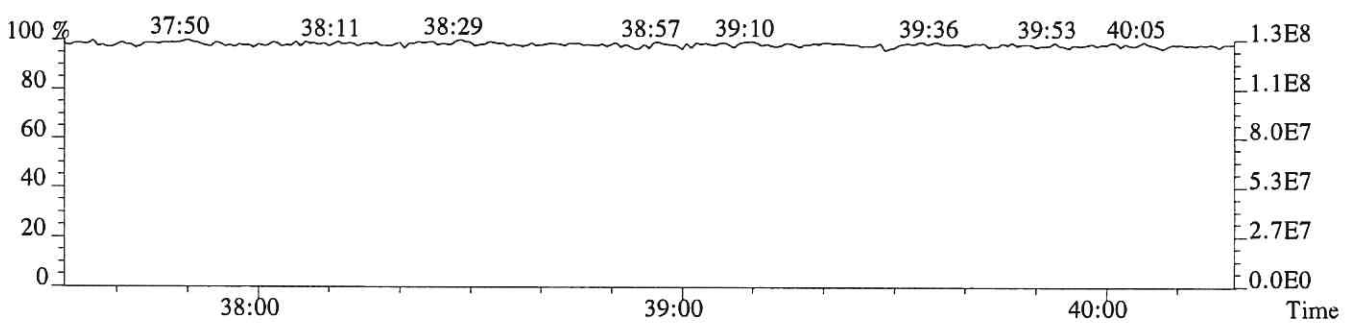
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1748.0,0.40%,F,T)



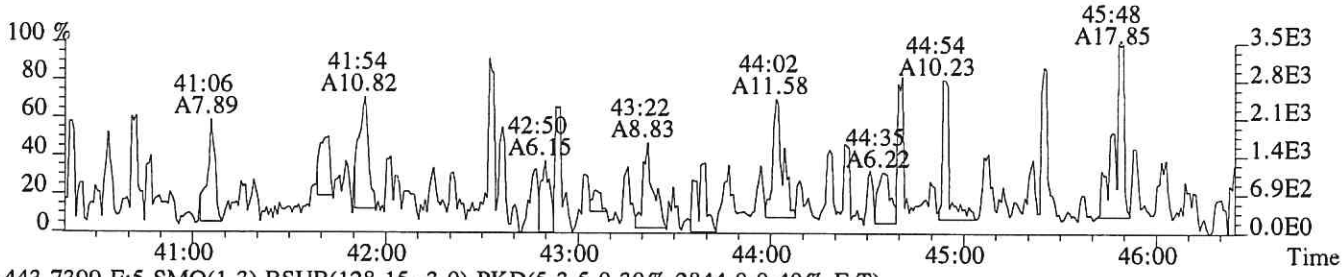
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



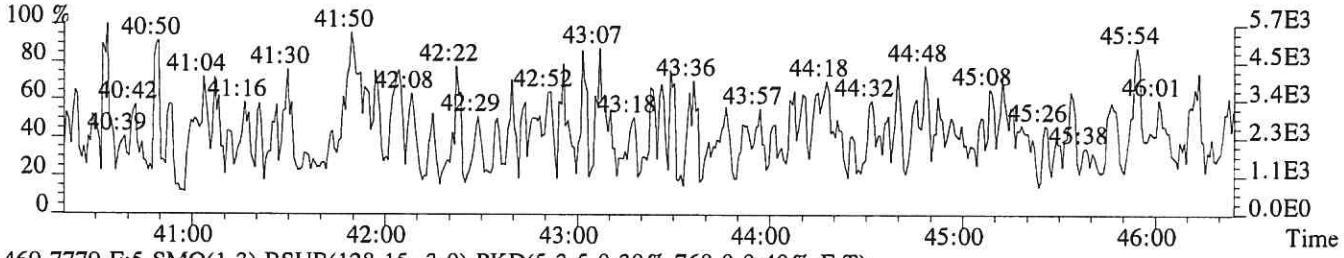
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



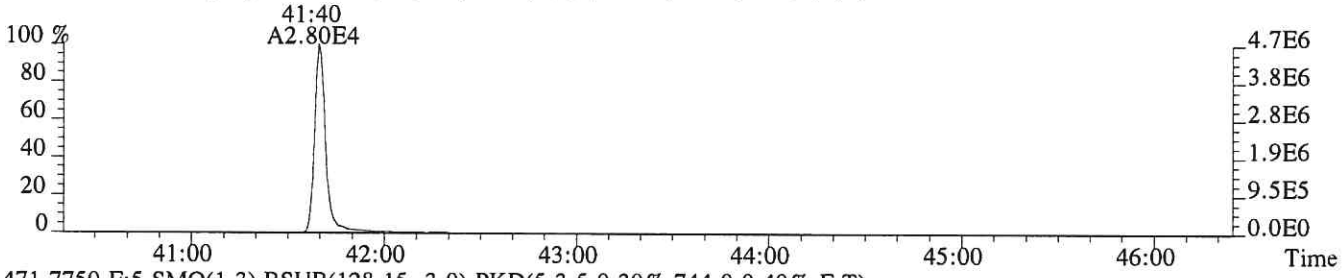
File:P616050 #1-547 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



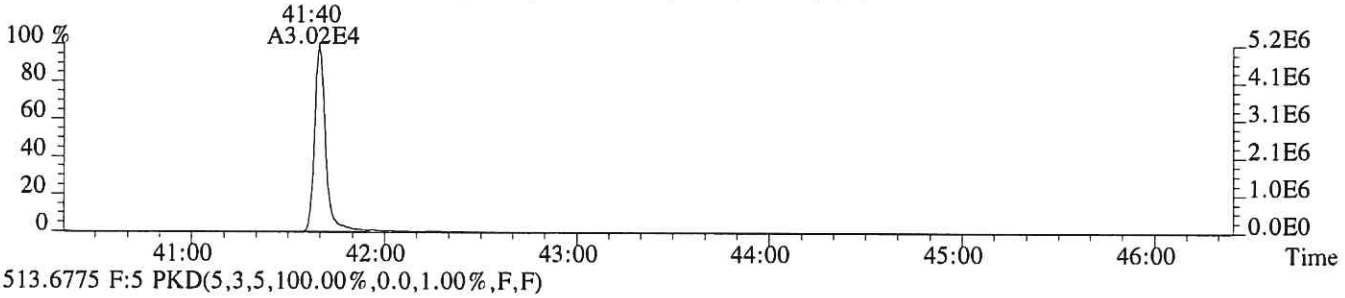
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2844.0,0.40%,F,T)



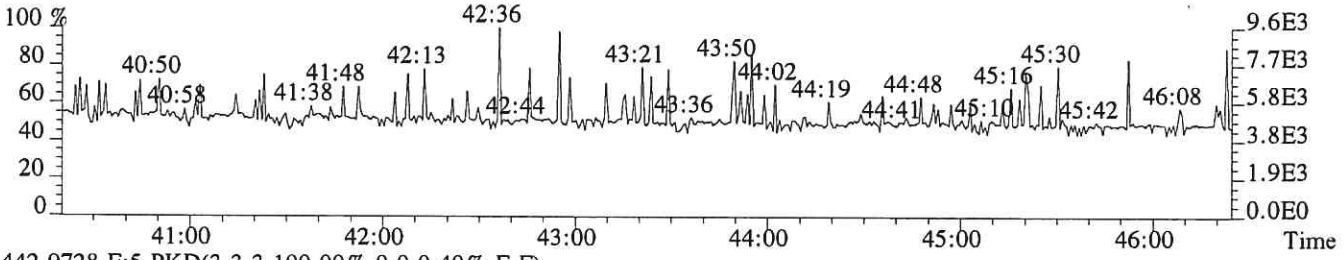
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



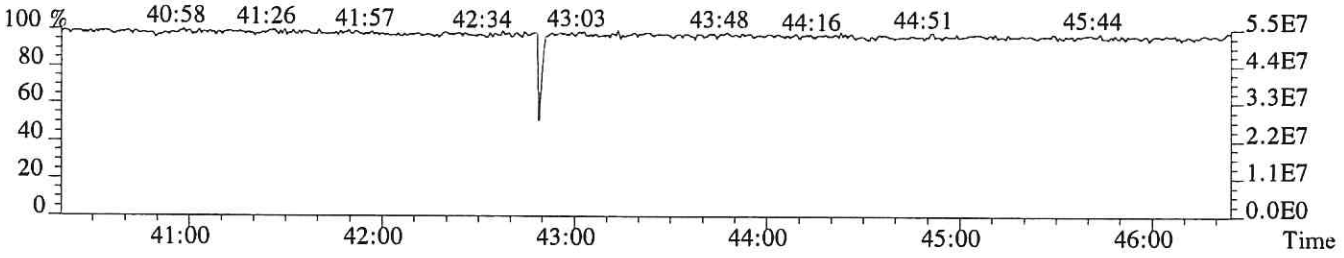
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

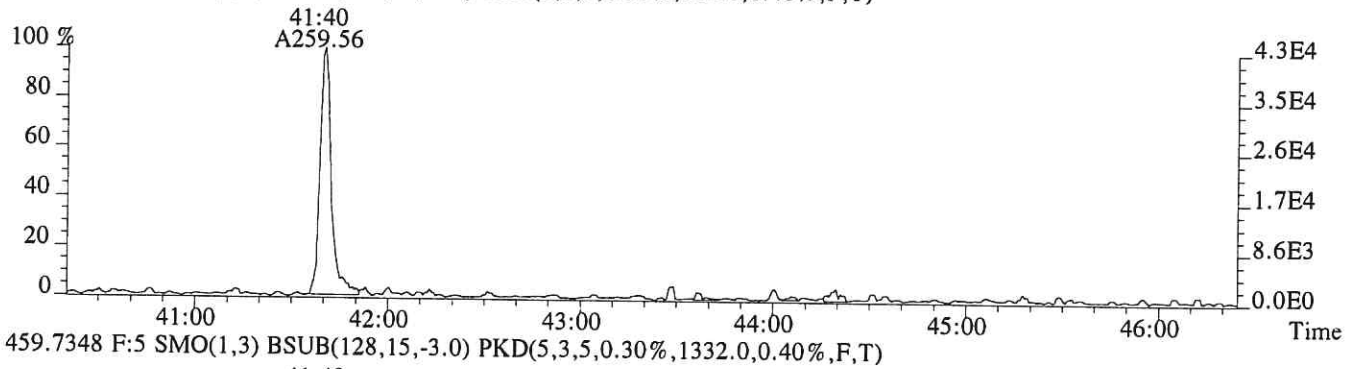


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

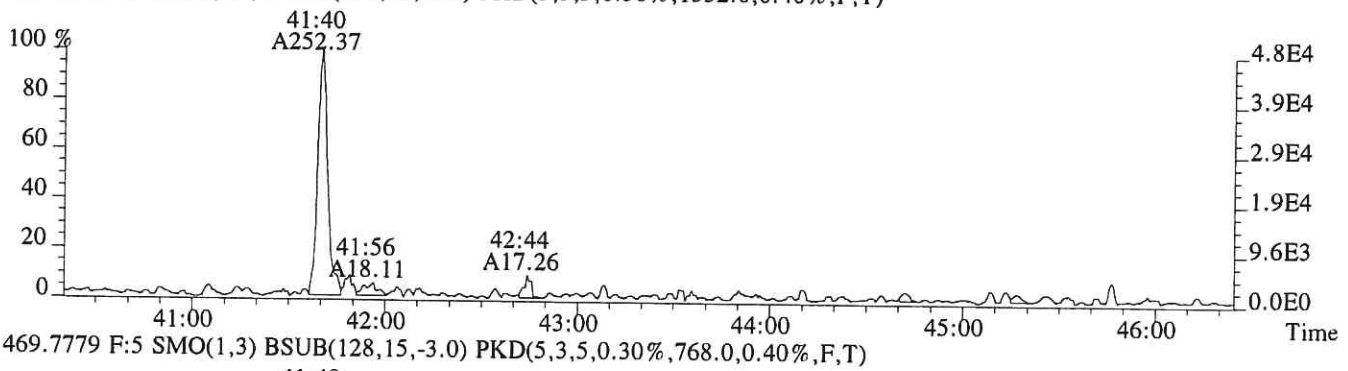


File:P616050 #1-547 Acq:11-DEC-2018 18:55:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801065-031

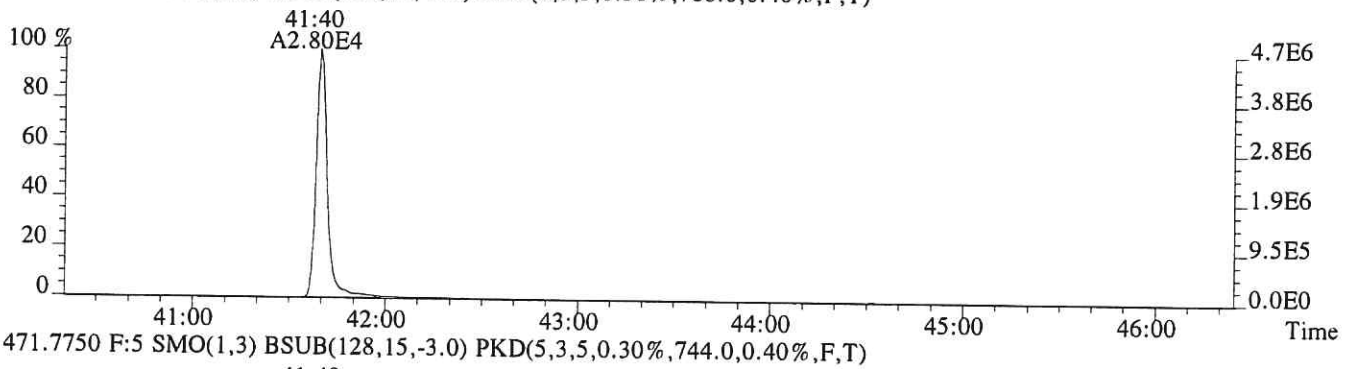
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



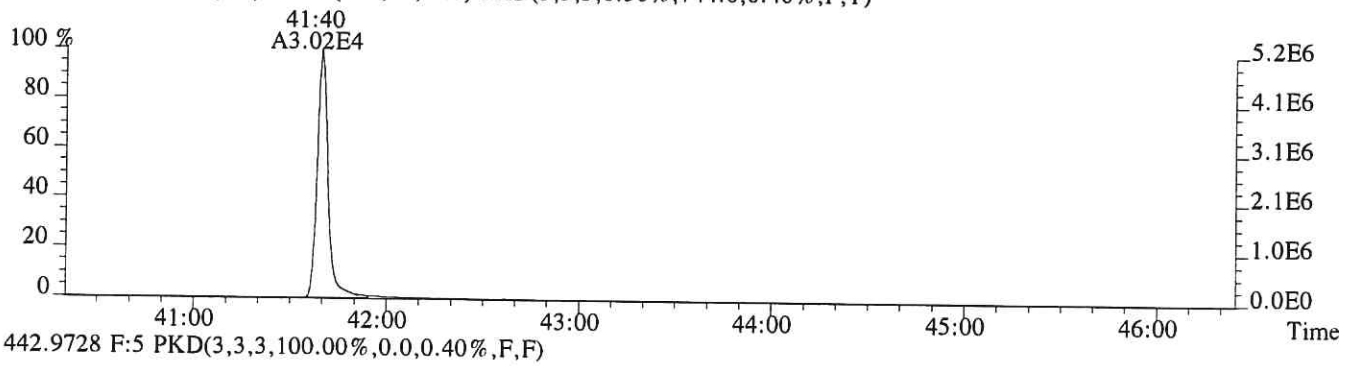
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1332.0,0.40%,F,T)



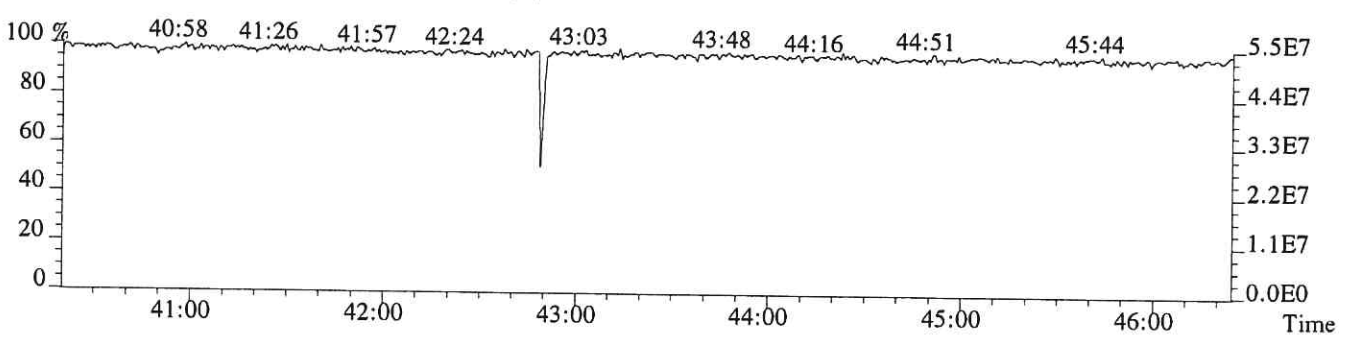
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P615971 Samp: 1 Inj: 1 Acquired: 7-DEC-18 13:07:22
Processed: 10-DEC-18 16:28:10 Sample ID: EQ1800494-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	4.553e+01	6.763e+01	0.67	yes	yes	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	1.107e+01	9.412e+00	1.18	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	1.793e+01	1.384e+01	1.30	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.919e+01	2.173e+01	0.88	no	no	1.112
17	Unk	OCDD	41:43	8.721e+01	1.235e+02	0.71	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:35	4.833e+04	6.116e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:55	8.433e+04	5.327e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	7.514e+04	4.772e+04	1.57	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:32	3.465e+04	6.571e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.976e+04	7.666e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:09	3.532e+04	6.719e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	3.190e+04	6.140e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.473e+04	5.548e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.204e+04	4.745e+04	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	2.506e+04	3.218e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	6.004e+04	3.832e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.919e+04	3.904e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	4.719e+04	3.821e+04	1.23	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.844e+04	4.618e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	3.880e+04	4.299e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	7.709e+04	9.815e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	9.710e+04	7.903e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:25	3.408e+04				no	1.086

$$\text{OCDD} = \frac{(8.721e+01 + 1.235e+02) \times 4000\ \text{pg} \times 1}{(3.880e+04 + 4.299e+04) \times \text{g} \times / 100 \times 1.157}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P615971 Samp: 1 Inj: 1 Acquired: 7-DEC-18 13:07:22
Processed: 10-DEC-18 16:28:10 LAB. ID: EQ1800494-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.29e+03	1.16e+03	8.0e+00	1.32e+04	2.65e+03	5.0e+00
2	1,2,3,7,8-PeCDF	*	1.22e+03	*	*	2.52e+03	*
3	2,3,4,7,8-PeCDF	*	1.22e+03	*	*	2.52e+03	*
4	1,2,3,4,7,8-HxCDF	3.23e+03	9.36e+02	3.5e+00	2.33e+03	4.48e+02	5.2e+00
5	1,2,3,6,7,8-HxCDF	*	9.36e+02	*	*	4.48e+02	*
6	2,3,4,6,7,8-HxCDF	*	9.36e+02	*	*	4.48e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.36e+02	*	*	4.48e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.19e+03	5.04e+02	6.3e+00	3.64e+03	4.76e+02	7.7e+00
9	1,2,3,4,7,8,9-HpCDF	*	5.04e+02	*	*	4.76e+02	*
10	OCDF	*	6.68e+02	*	*	2.44e+03	*
11	2,3,7,8-TCDD	*	3.50e+03	*	*	1.80e+03	*
12	1,2,3,7,8-PeCDD	*	1.13e+03	*	*	8.40e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.48e+02	*	*	1.32e+03	*
14	1,2,3,6,7,8-HxCDD	*	3.48e+02	*	*	1.32e+03	*
15	1,2,3,7,8,9-HxCDD	*	3.48e+02	*	*	1.32e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.95e+03	5.16e+02	7.7e+00	6.24e+03	4.48e+02	1.4e+01
17	OCDD	1.57e+04	5.76e+02	2.7e+01	2.22e+04	8.60e+02	2.6e+01
18	13C-2,3,7,8-TCDF	7.38e+06	1.00e+04	7.4e+02	9.25e+06	5.16e+03	1.8e+03
19	13C-1,2,3,7,8-PeCDF	1.48e+07	8.72e+02	1.7e+04	9.52e+06	2.29e+03	4.2e+03
20	13C-2,3,4,7,8-PeCDF	1.38e+07	8.72e+02	1.6e+04	8.64e+06	2.29e+03	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	7.29e+06	1.19e+03	6.1e+03	1.42e+07	2.37e+03	6.0e+03
22	13C-1,2,3,6,7,8-HxCDF	8.02e+06	1.19e+03	6.7e+03	1.51e+07	2.37e+03	6.4e+03
23	13C-2,3,4,6,7,8-HxCDF	7.39e+06	1.19e+03	6.2e+03	1.39e+07	2.37e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	6.11e+06	1.19e+03	5.1e+03	1.18e+07	2.37e+03	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.47e+06	3.26e+03	1.7e+03	1.21e+07	2.63e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.26e+06	3.26e+03	1.3e+03	9.26e+06	2.63e+03	3.5e+03
27	13C-2,3,7,8-TCDD	4.22e+06	1.55e+04	2.7e+02	5.32e+06	6.76e+03	7.9e+02
28	13C-1,2,3,7,8-PeCDD	1.09e+07	1.50e+03	7.3e+03	6.88e+06	1.84e+03	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.10e+07	2.78e+03	4.0e+03	8.67e+06	1.57e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.94e+06	2.78e+03	3.6e+03	8.06e+06	1.57e+03	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.56e+06	1.07e+03	9.0e+03	9.25e+06	7.96e+02	1.2e+04
32	13C-OCDD	6.74e+06	1.24e+03	5.5e+03	7.46e+06	4.12e+02	1.8e+04
33	13C-1,2,3,4-TCDD	1.30e+07	1.55e+04	8.4e+02	1.64e+07	6.76e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.06e+07	2.78e+03	7.4e+03	1.64e+07	1.57e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	5.62e+06	2.82e+03	2.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P615971 Sample:1 Injection:1 Function:1

Acquired: 7-DEC-18 13:07:22 Processed: 10-DEC-18 16:28:10

Mass: 303.9020 305.8990 Tot Response: 1.13e+02 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:37	4.55e+01	6.76e+01	0.67	yes	1.13e+02	2,3,7,8-TCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P615971 Sample:1 Injection:1 Function:3

Acquired: 7-DEC-18 13:07:22 Processed: 10-DEC-18 16:28:10

Mass: 373.8210 375.8180 Tot Response: 2.05e+01 RRF: 1.324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:33	1.11e+01	9.41e+00 1.18	yes	2.05e+01	1,2,3,4,7,8-HxCDF	n	n

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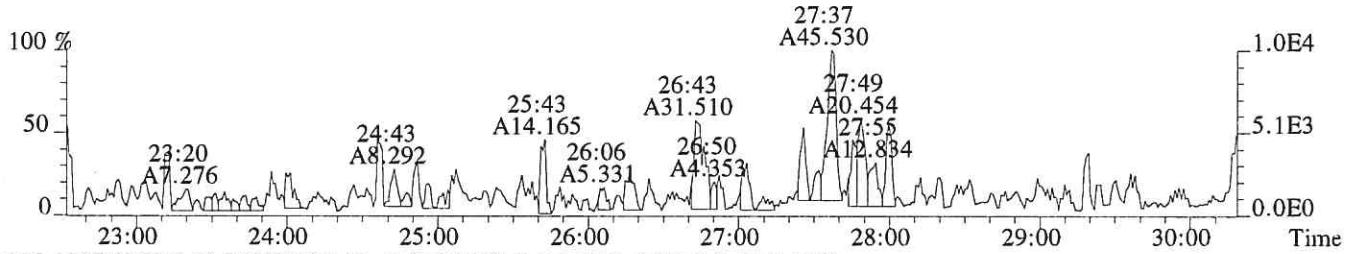
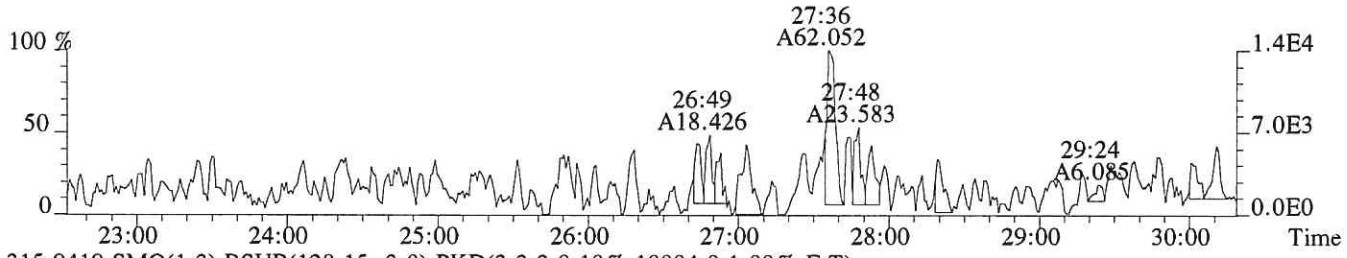
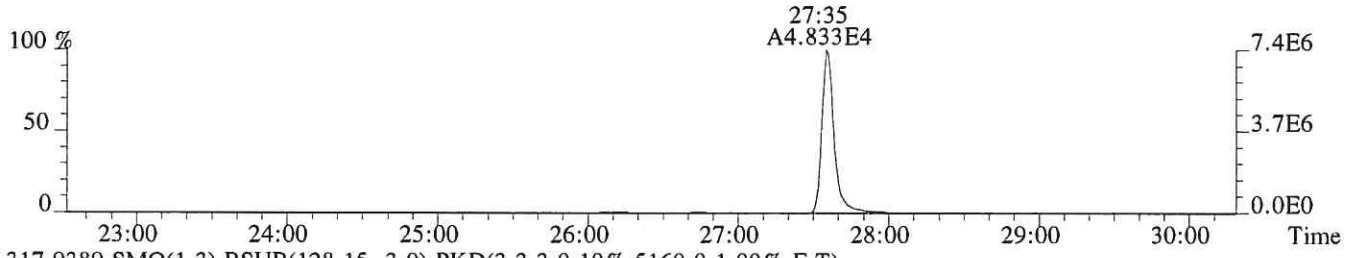
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



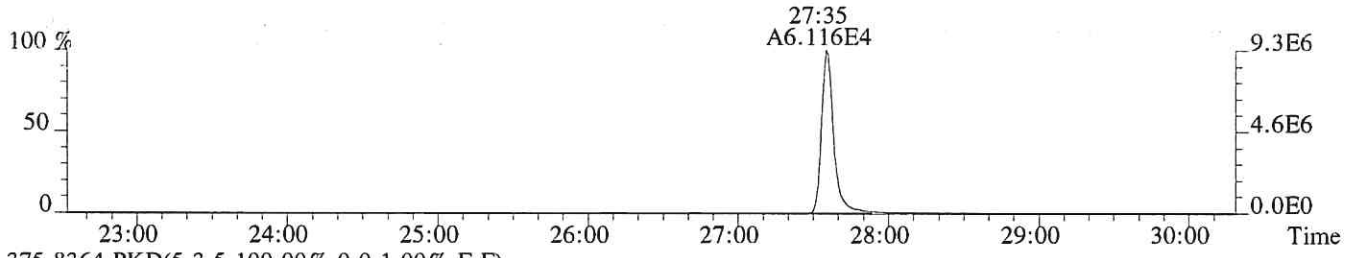
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



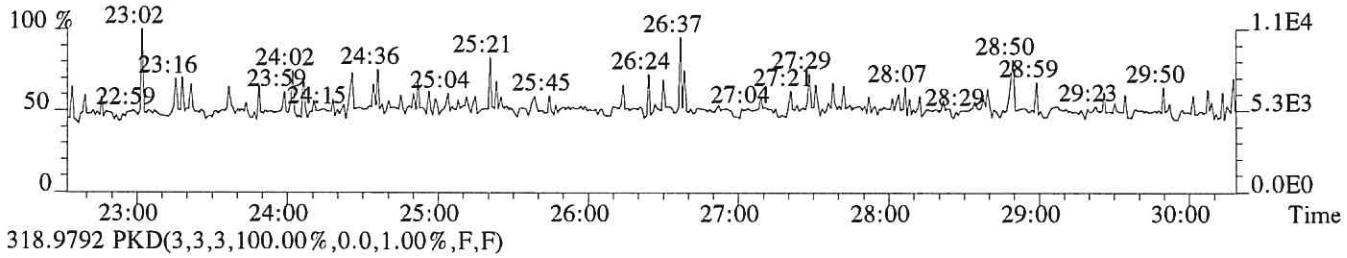
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10004.0,1.00%,F,T)



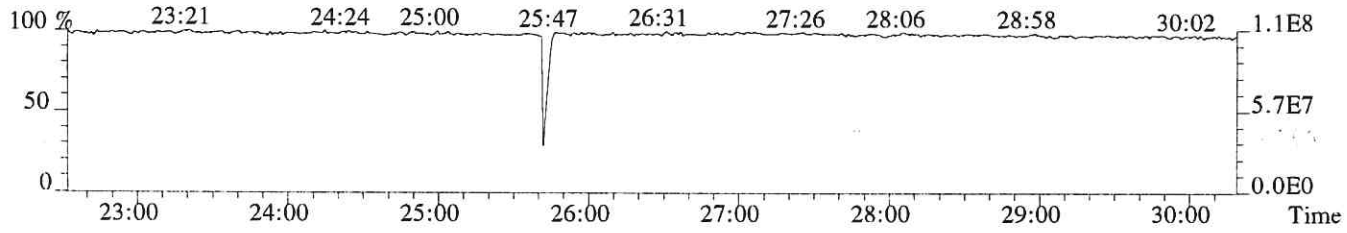
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5160.0,1.00%,F,T)



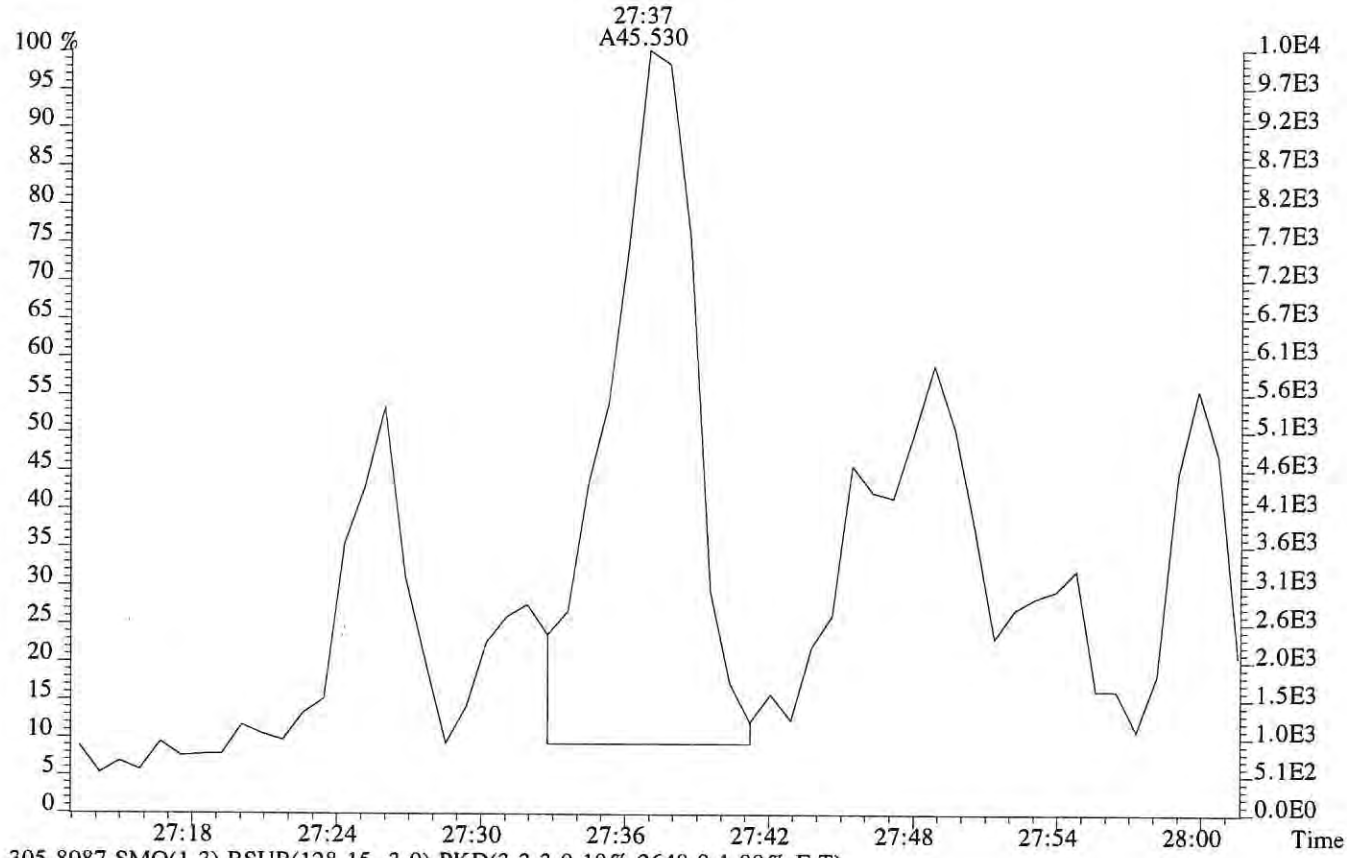
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



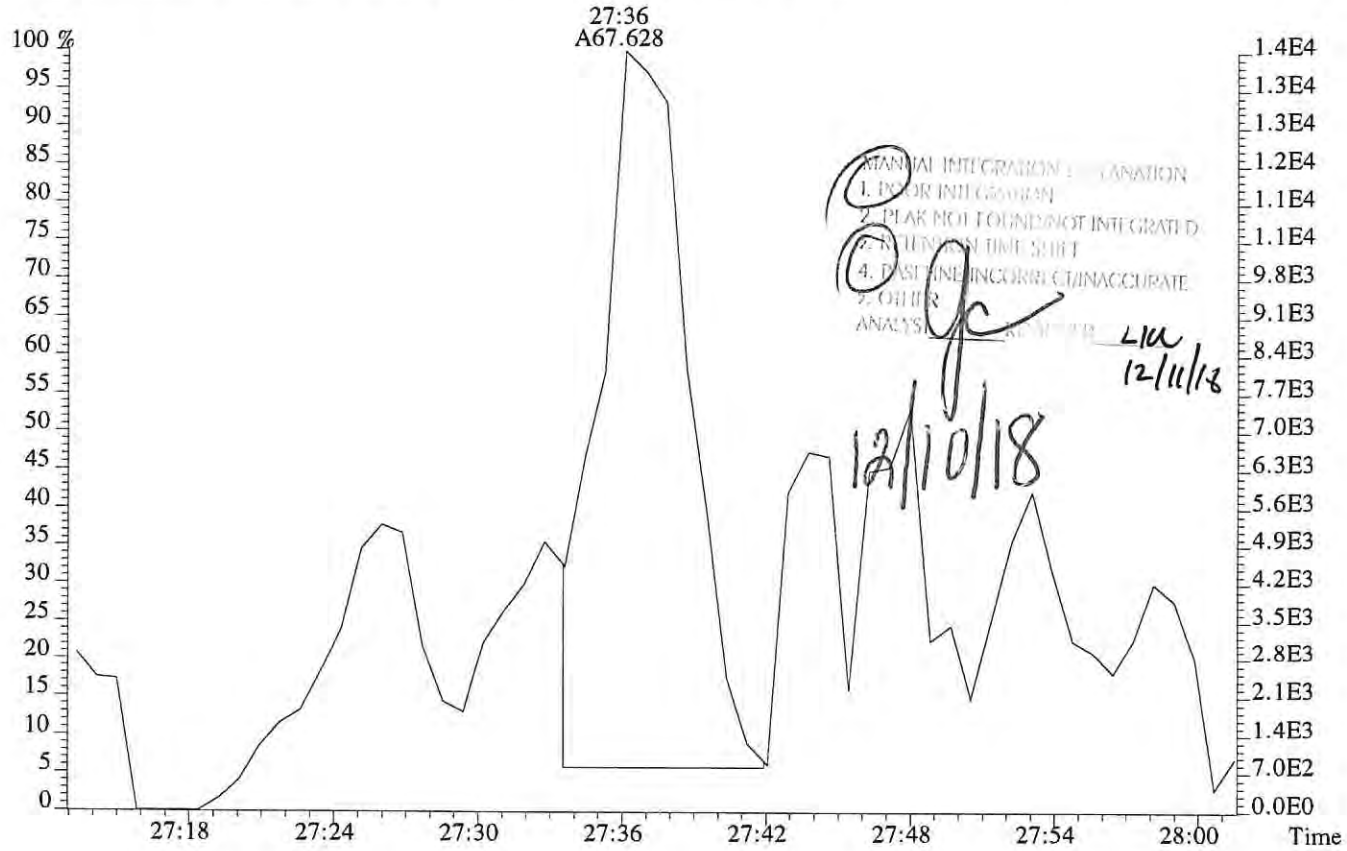
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



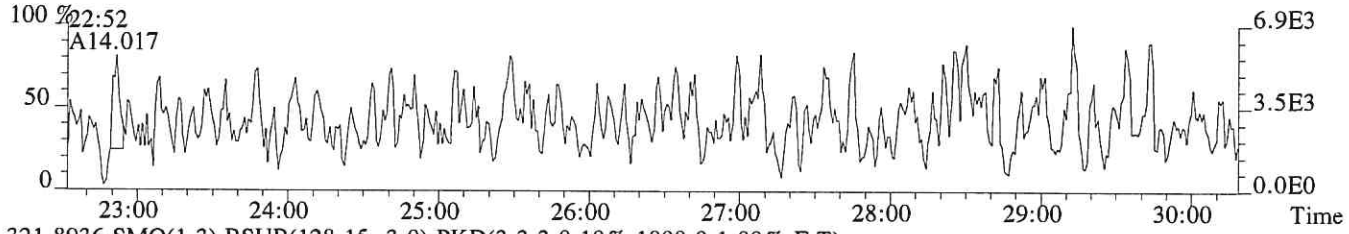
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



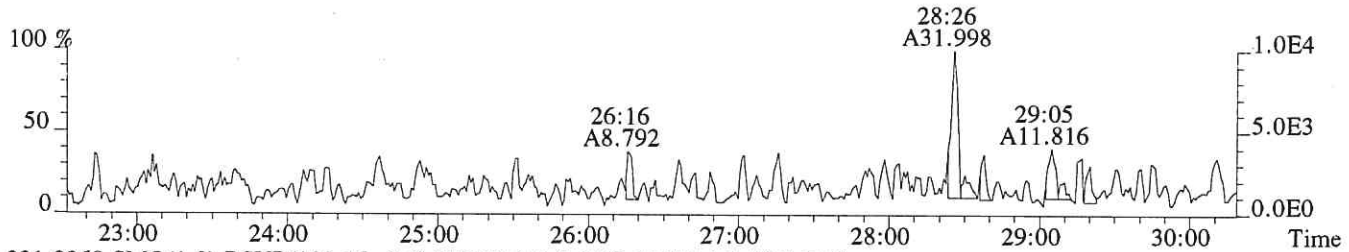
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER

LW 12/11/18
12/10/18

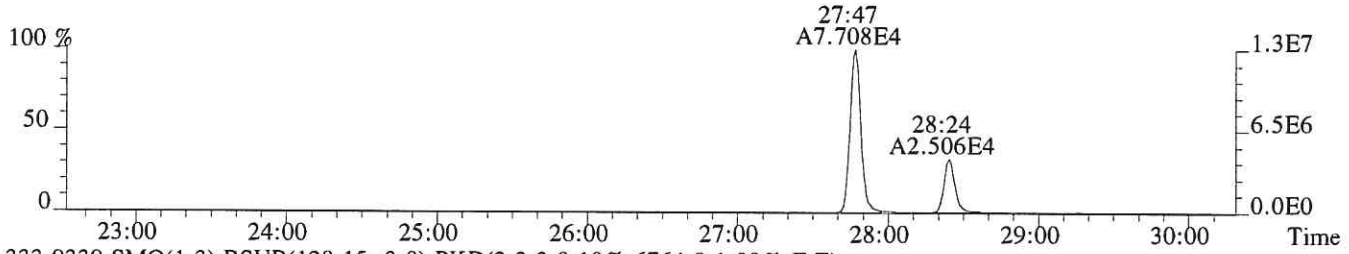
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



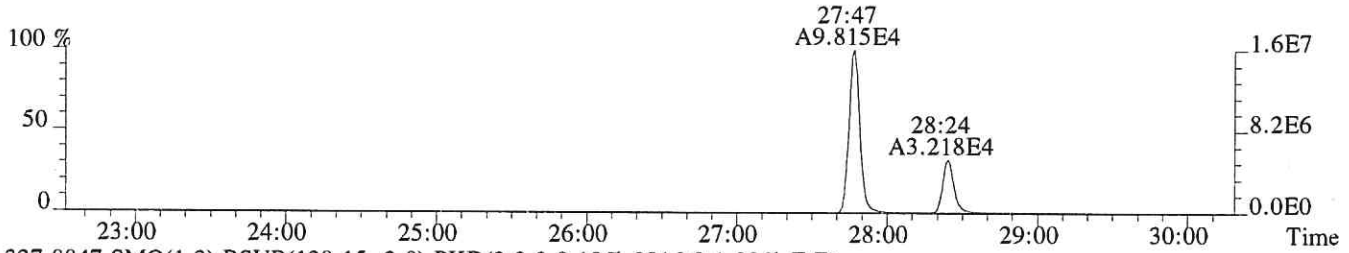
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



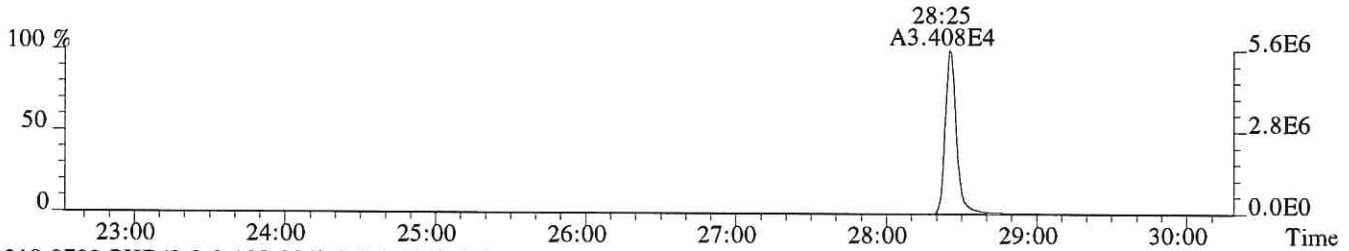
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15472.0,1.00%,F,T)



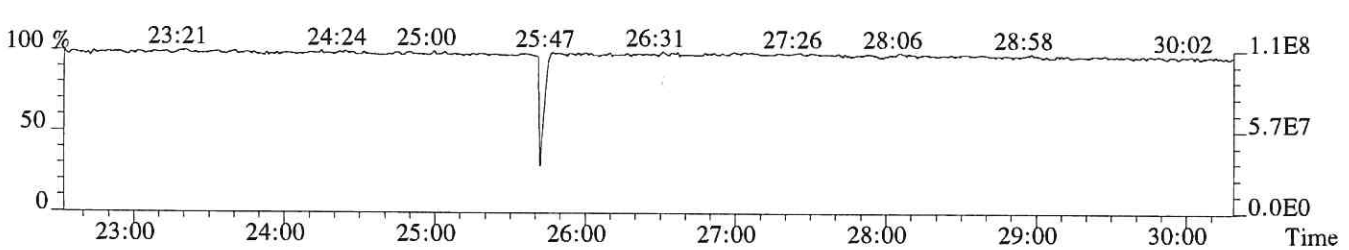
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6764.0,1.00%,F,T)



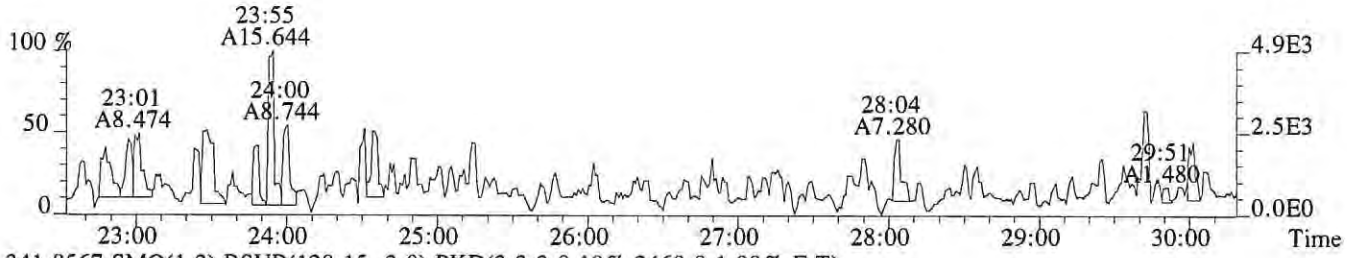
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2816.0,1.00%,F,T)



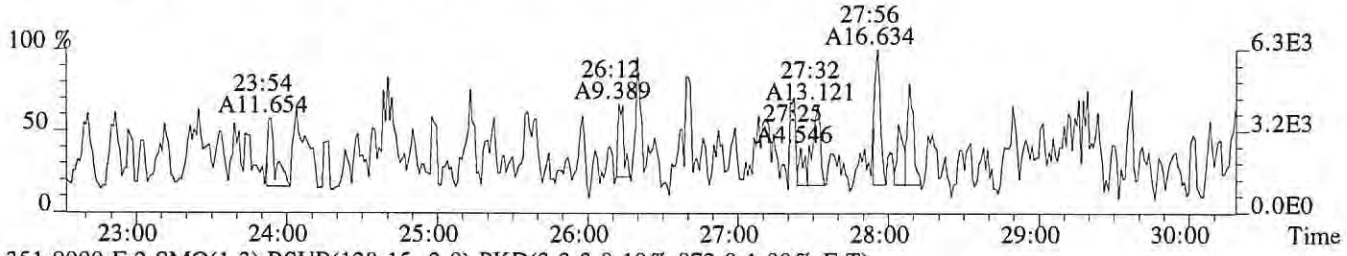
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



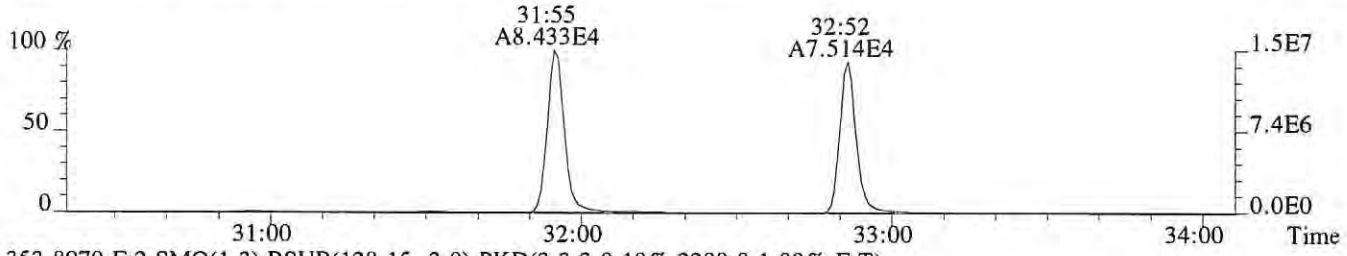
File:P615971 #1-552 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



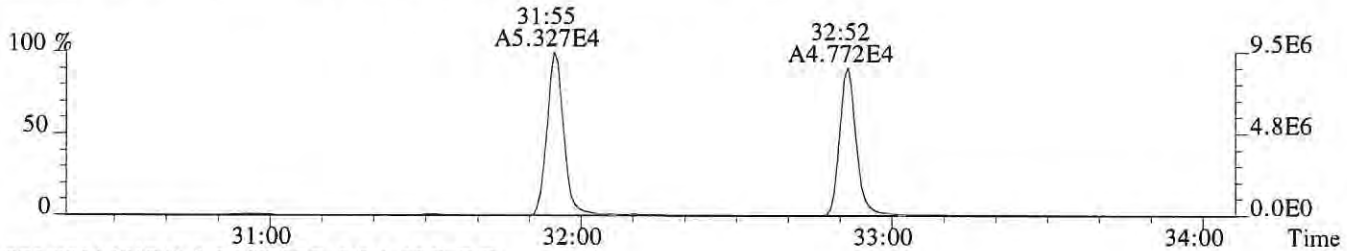
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



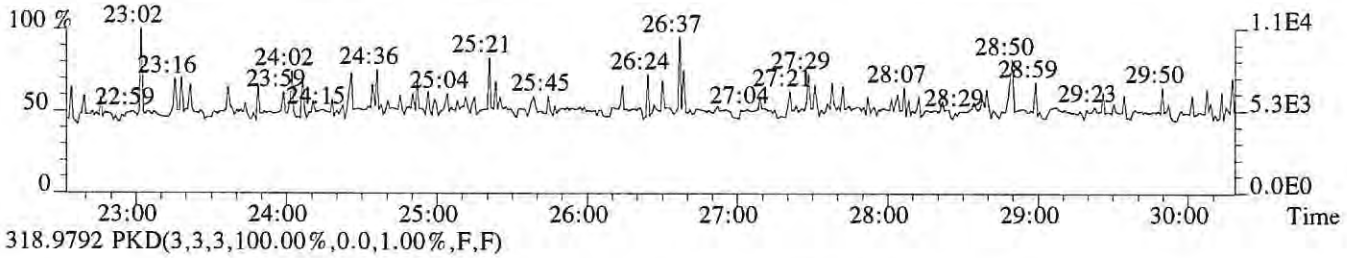
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



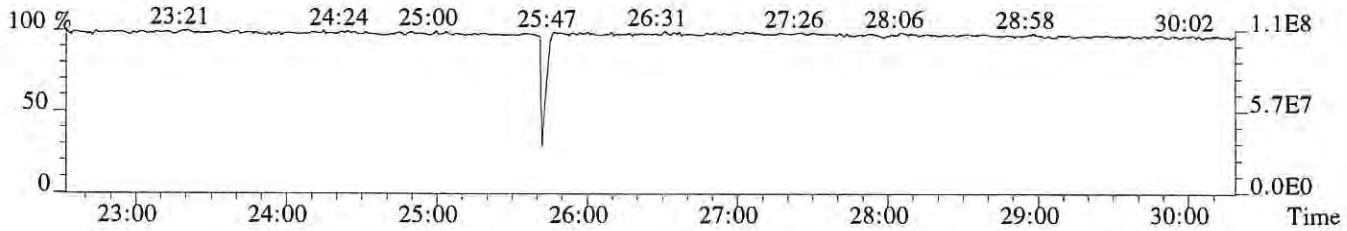
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



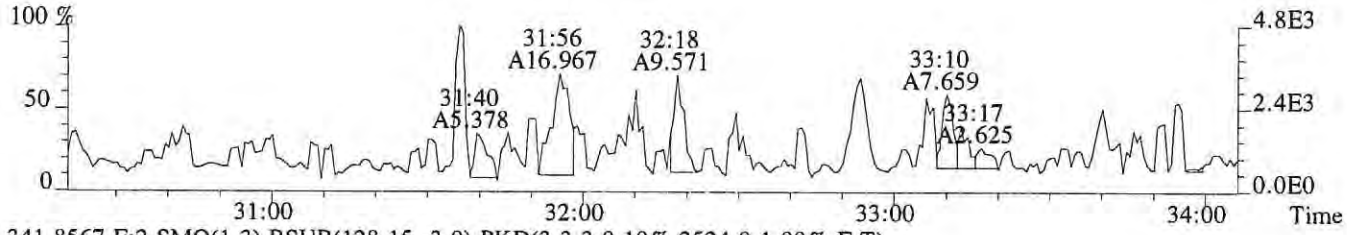
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



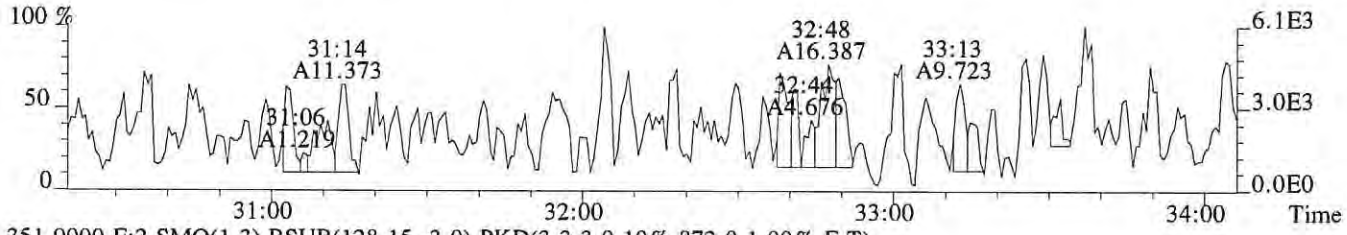
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



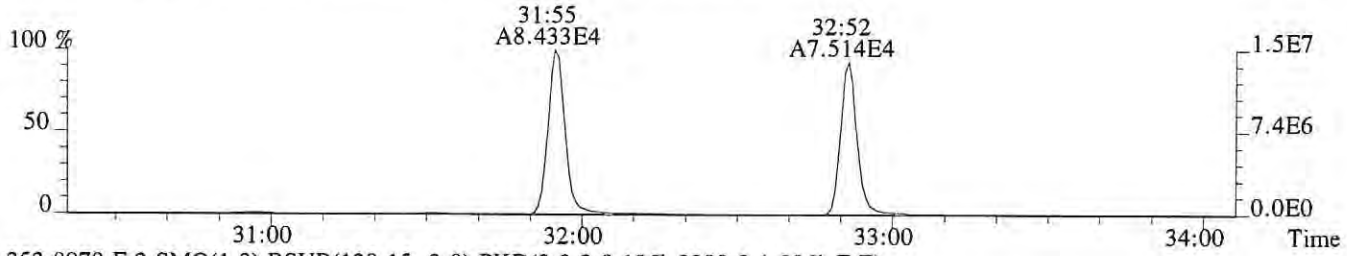
File:P615971 #1-339 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



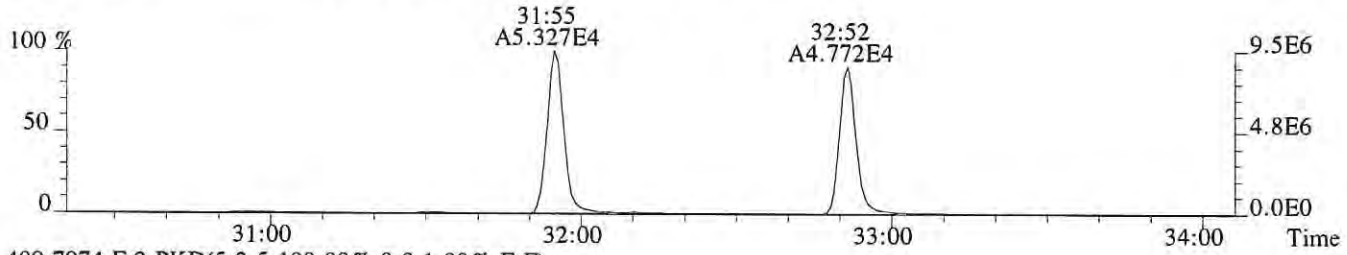
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



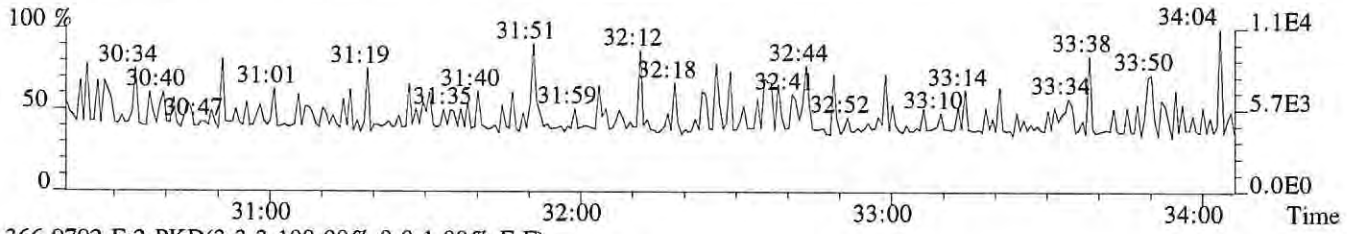
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



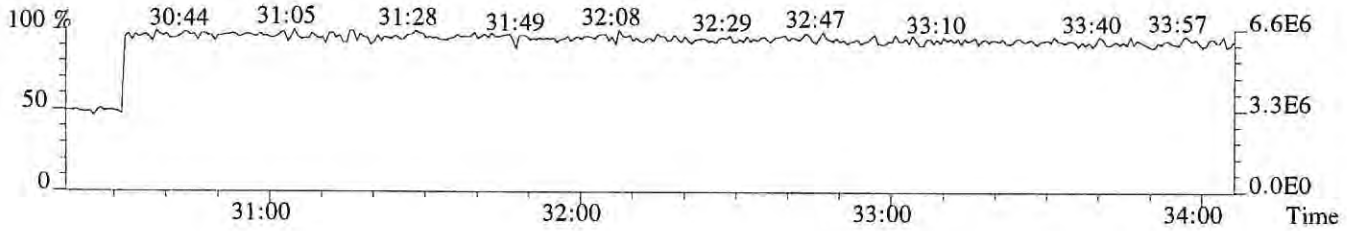
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



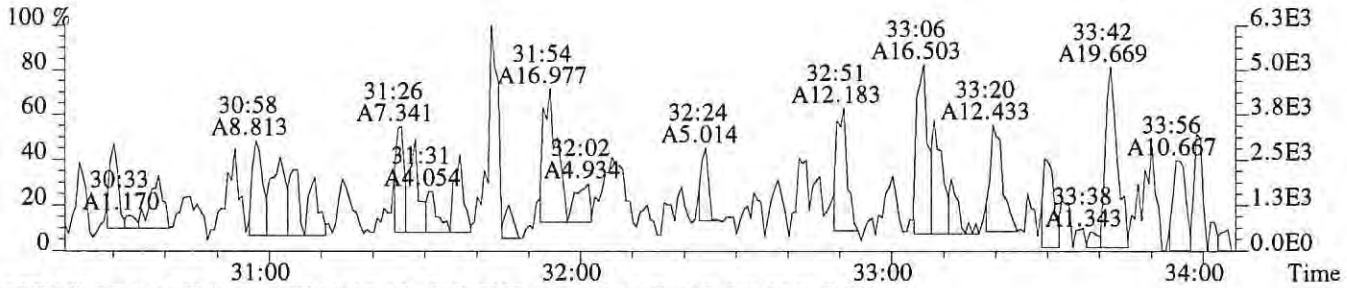
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



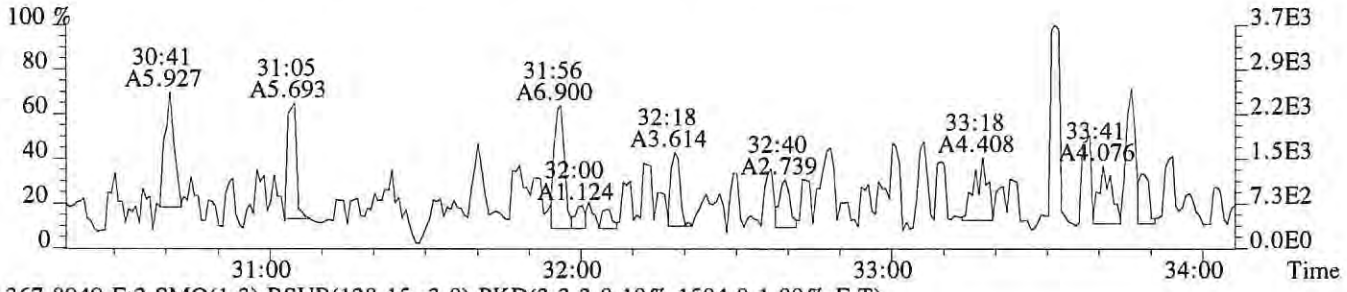
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



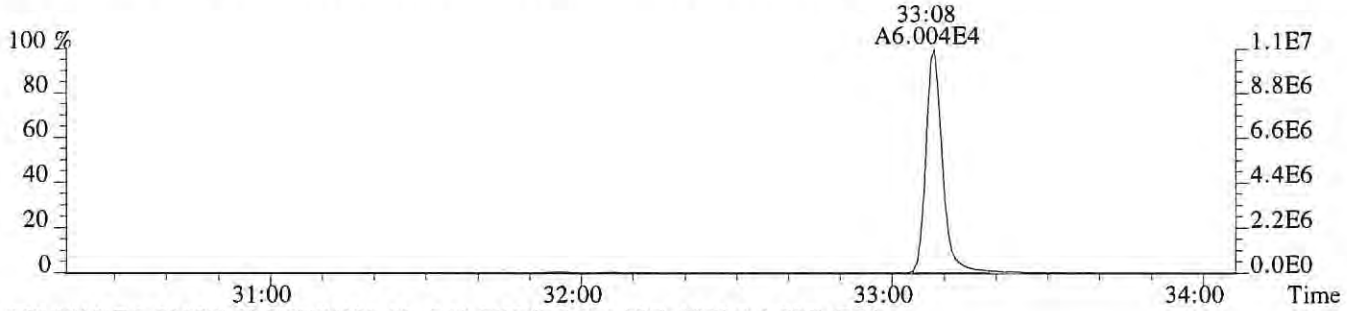
File:P615971 #1-339 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



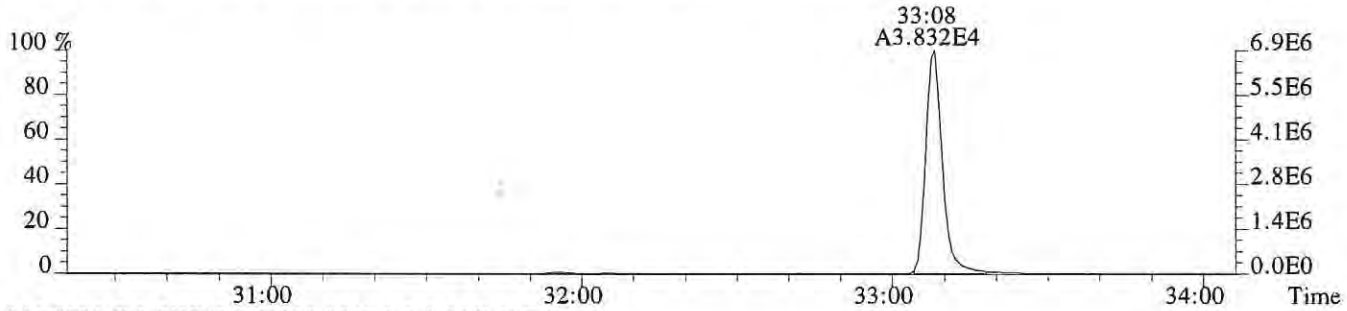
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



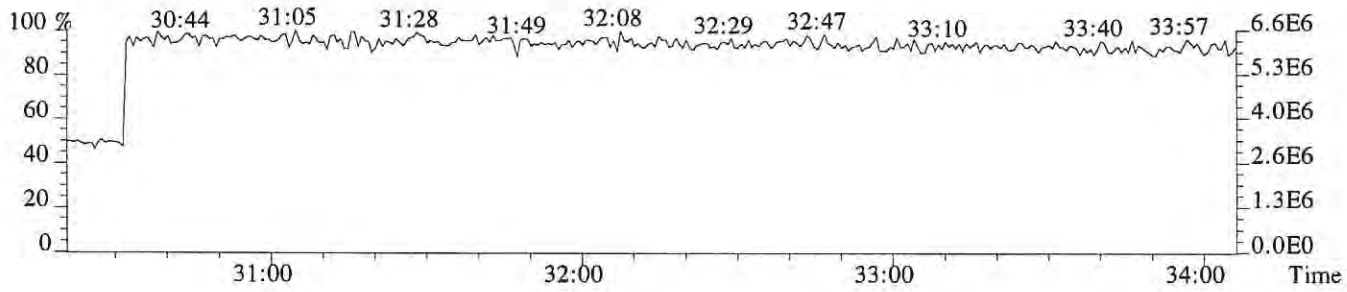
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)

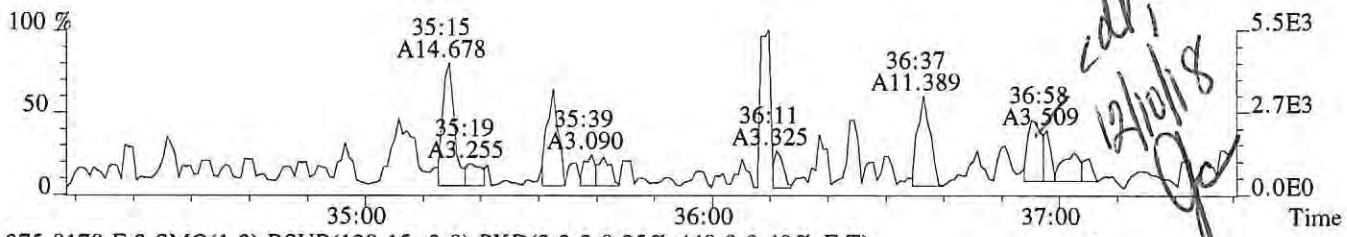


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

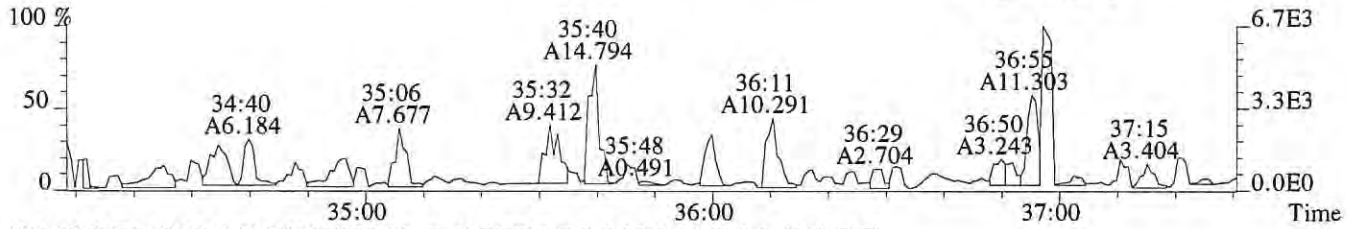


File:P615971 #1-304 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

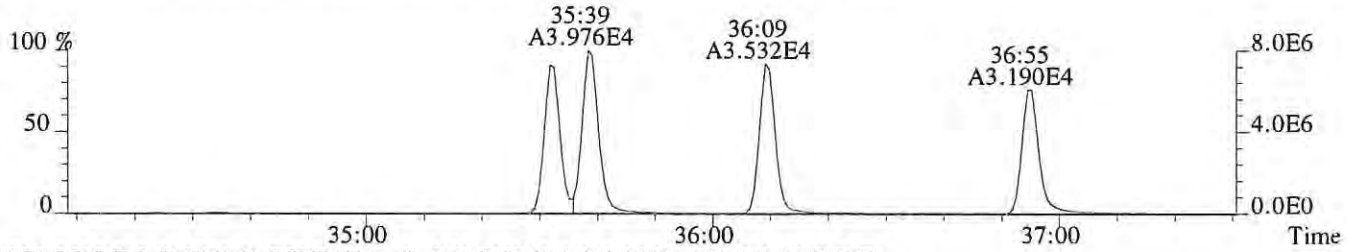
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



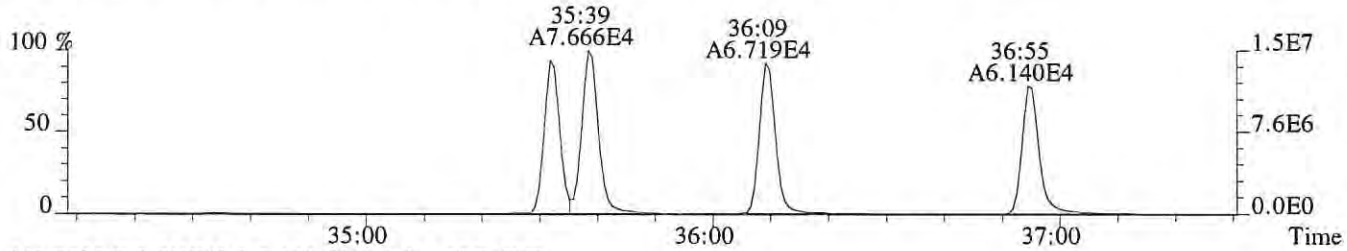
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



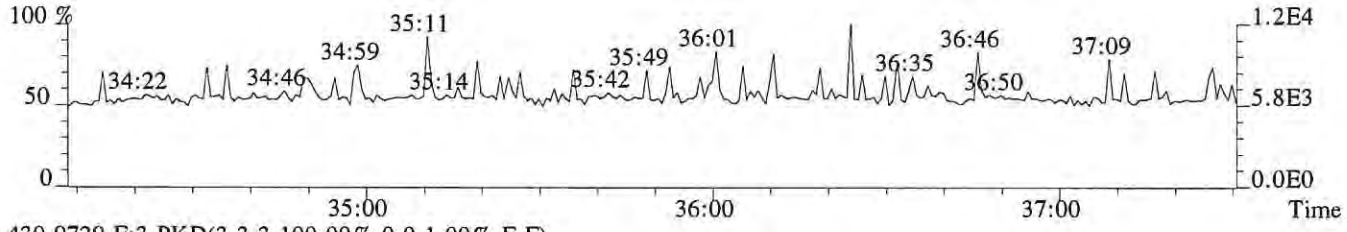
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



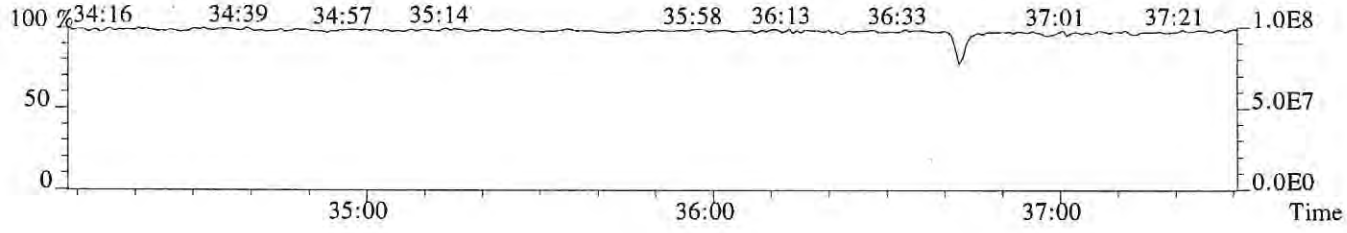
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2372.0,0.40%,F,T)



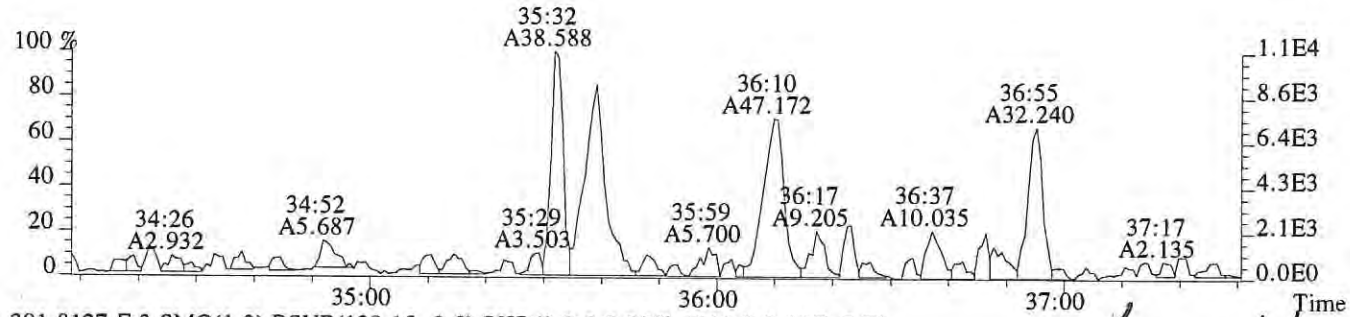
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

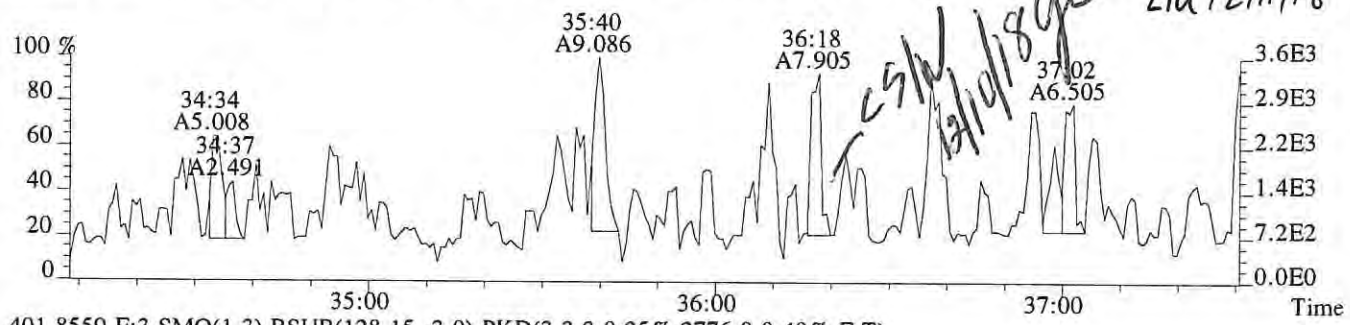


File:P615971 #1-304 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)

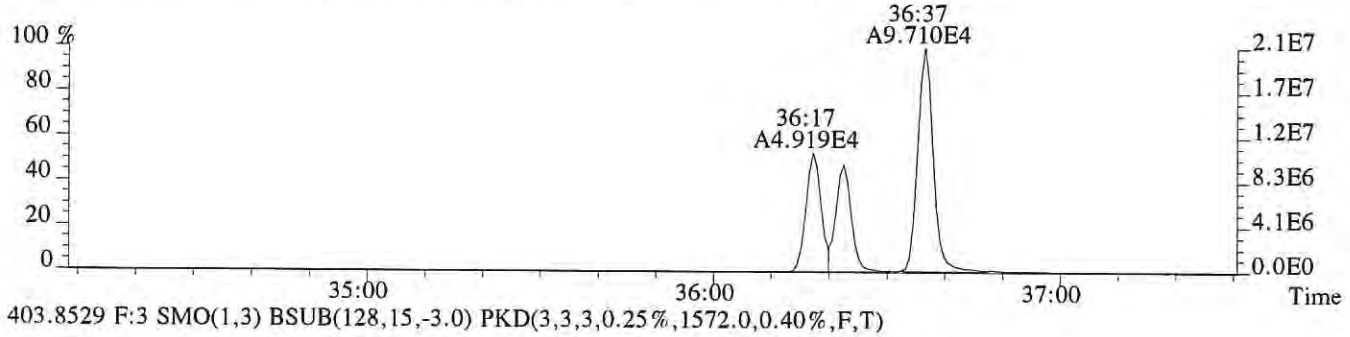


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)

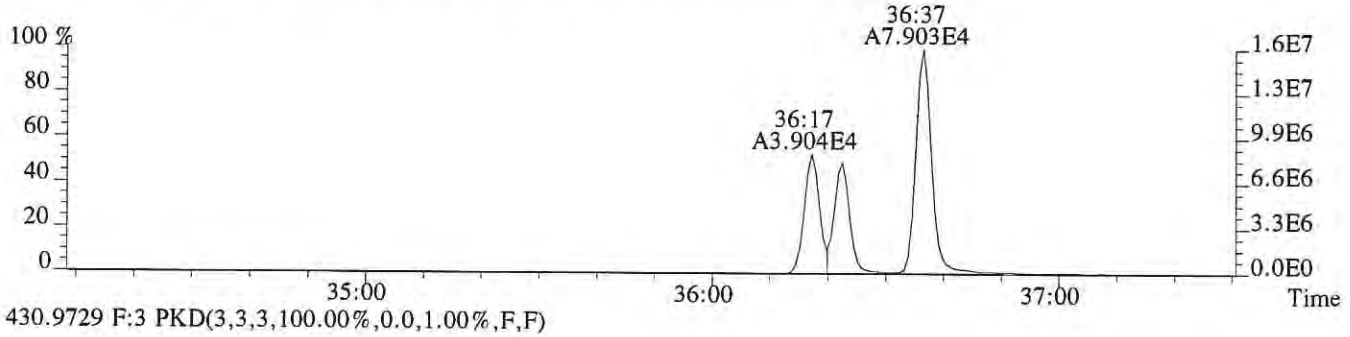
LHA 12/11/18



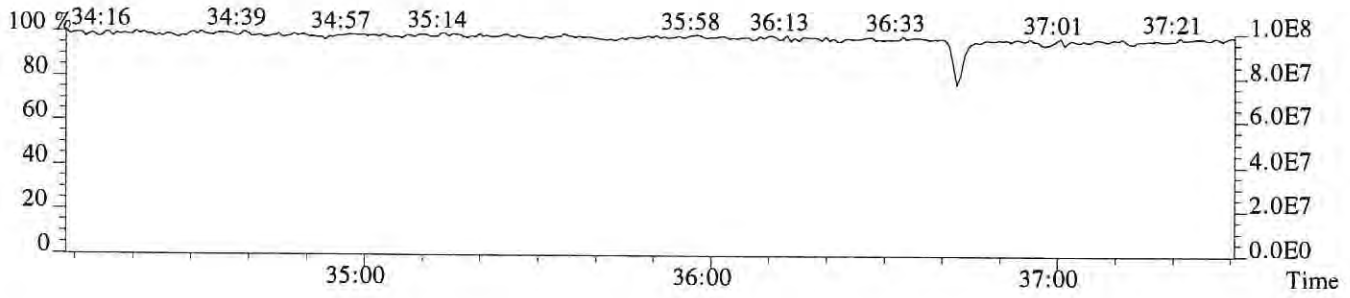
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2776.0,0.40%,F,T)



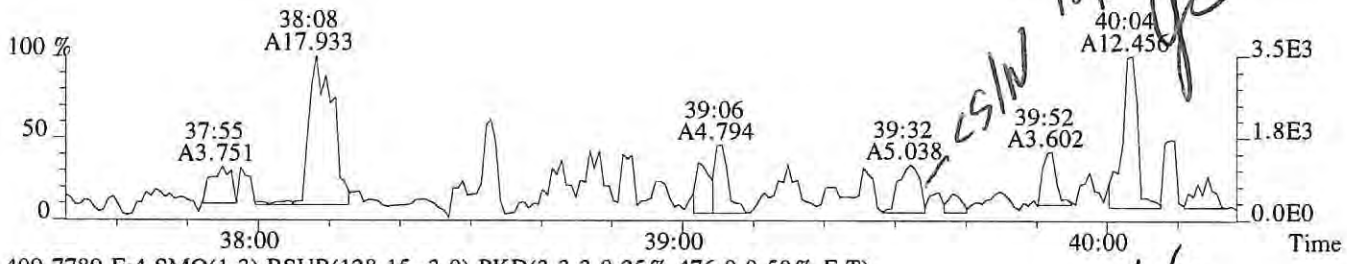
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



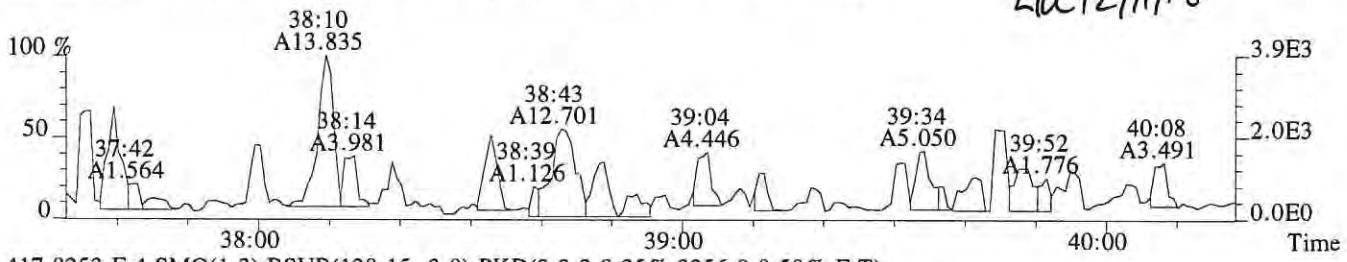
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



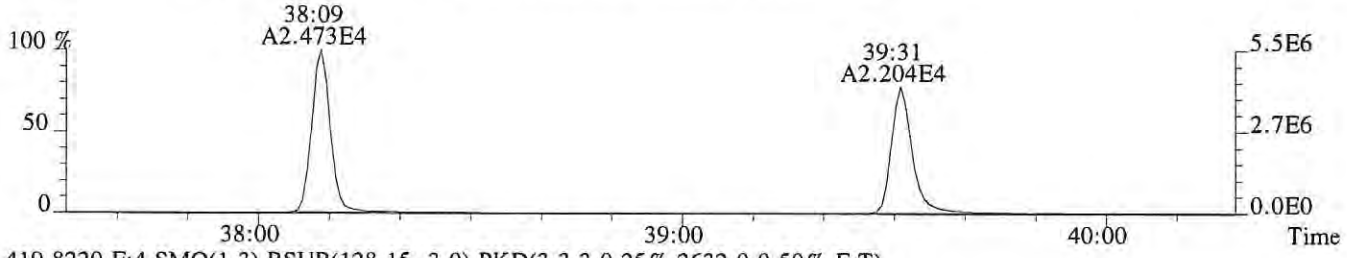
File:P615971 #1-249 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.50%,F,T)



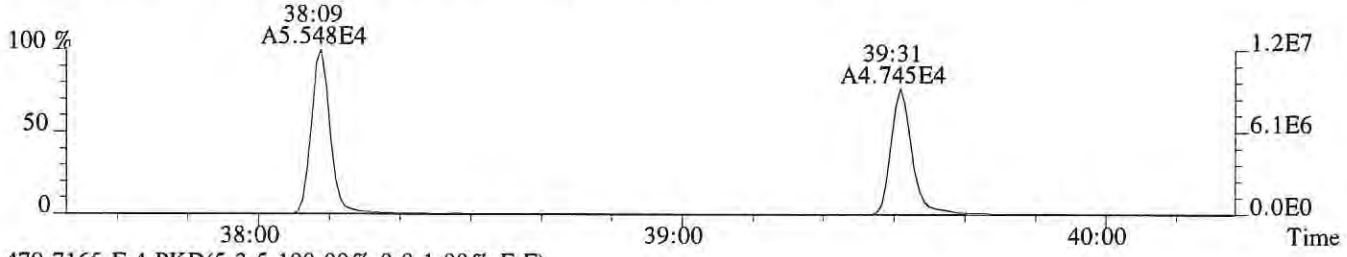
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.50%,F,T)



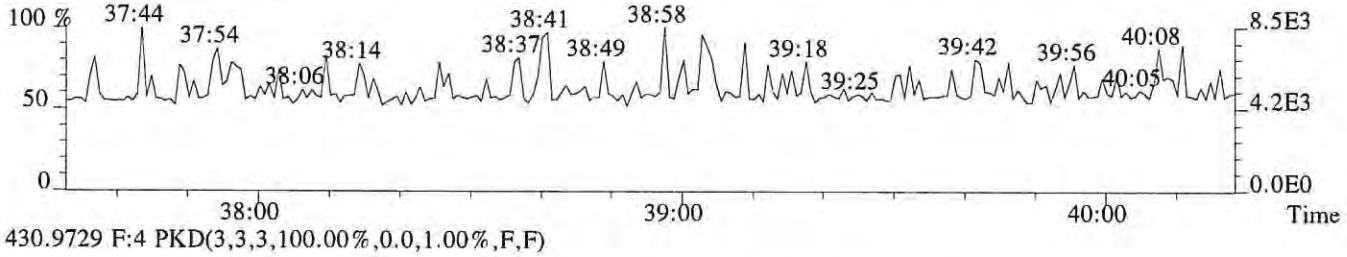
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3256.0,0.50%,F,T)



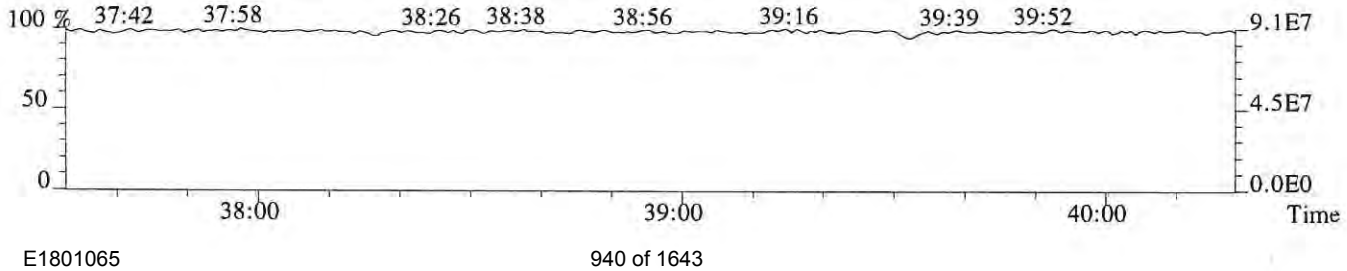
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.50%,F,T)



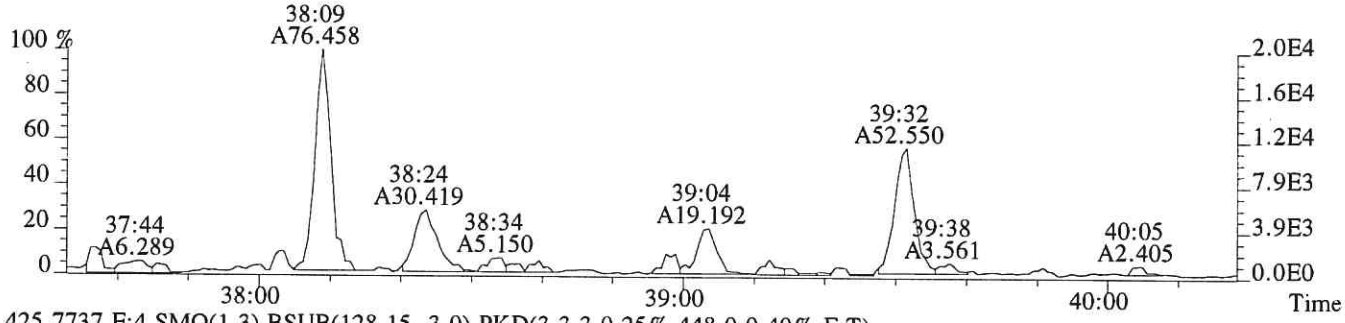
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



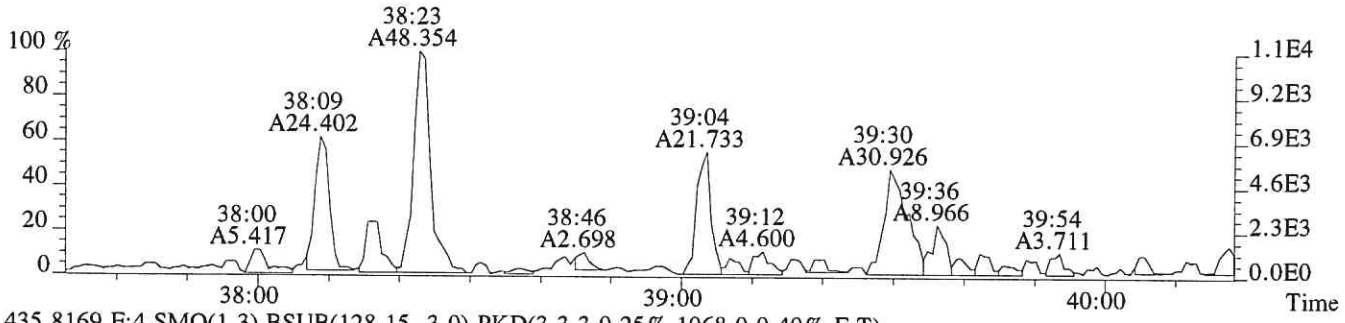
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



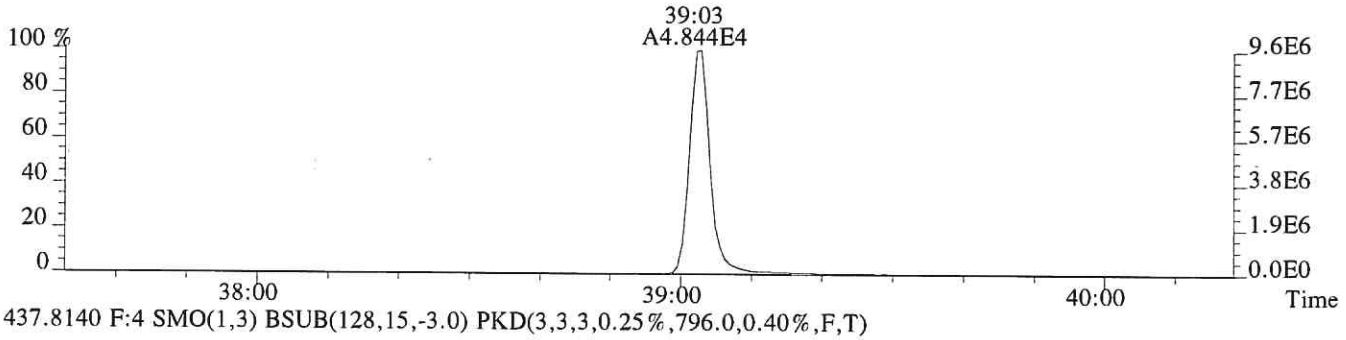
File:P615971 #1-249 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



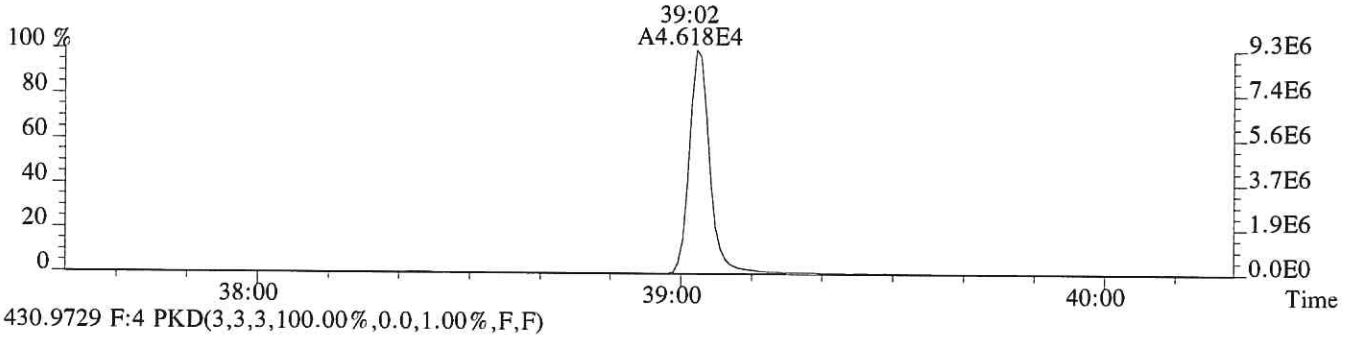
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



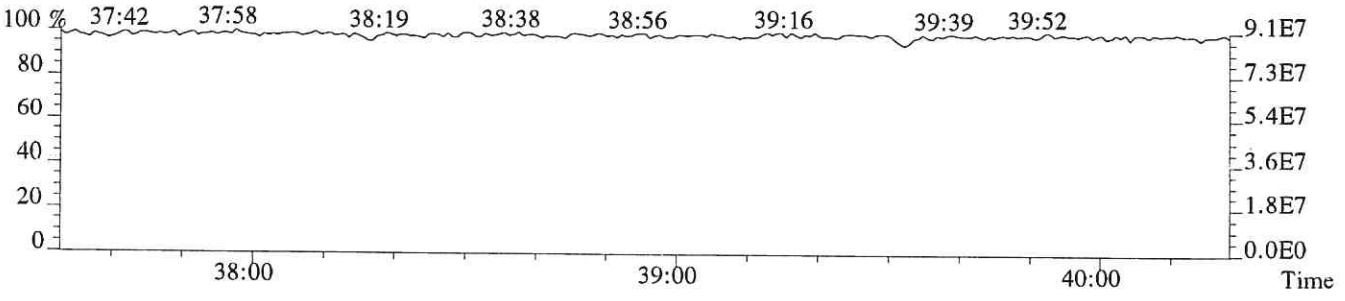
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



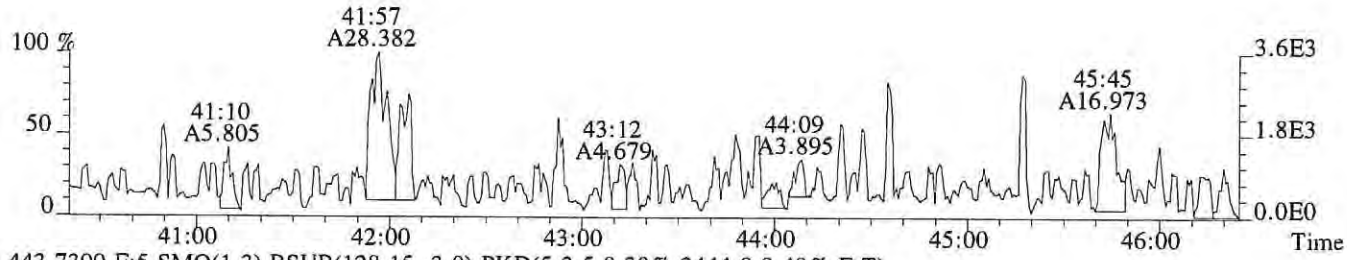
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

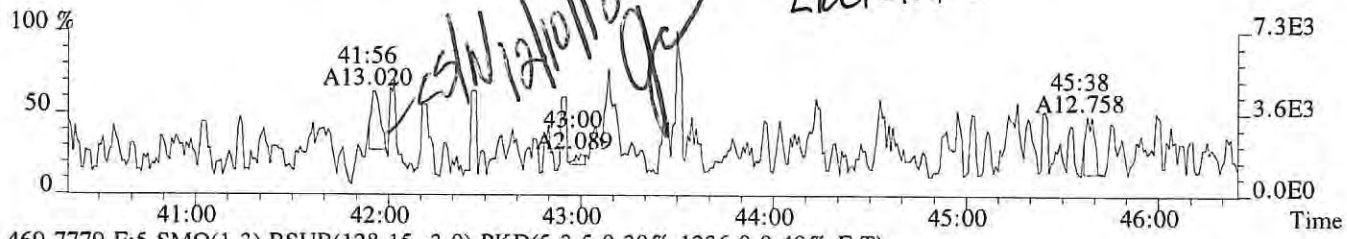


File:P615971 #1-547 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)

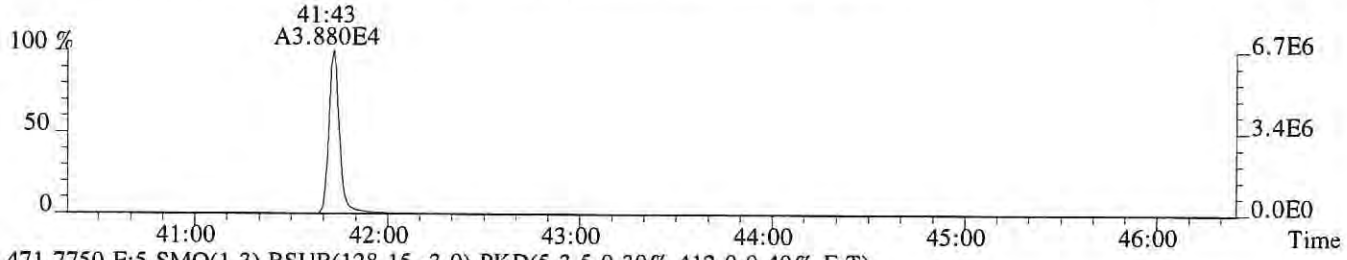


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)

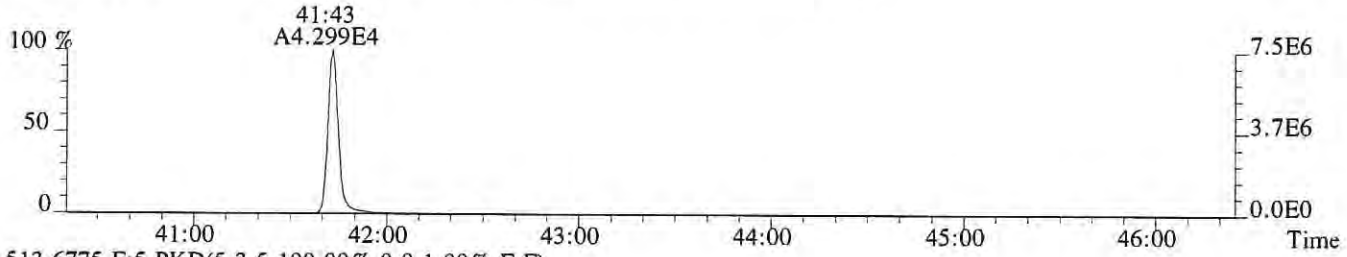
LKU 12/11/18



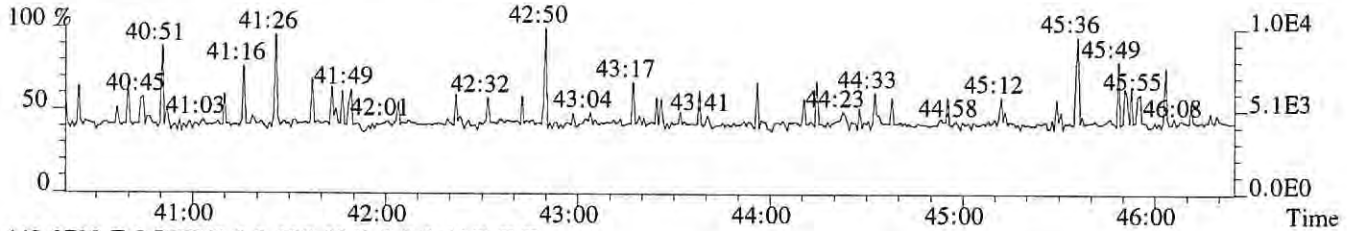
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



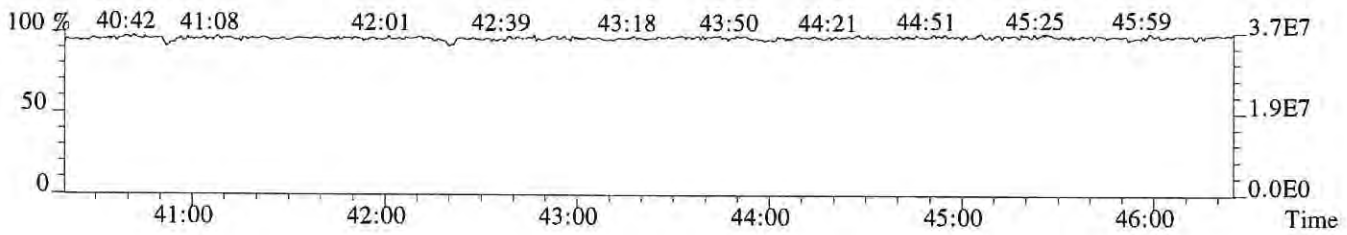
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



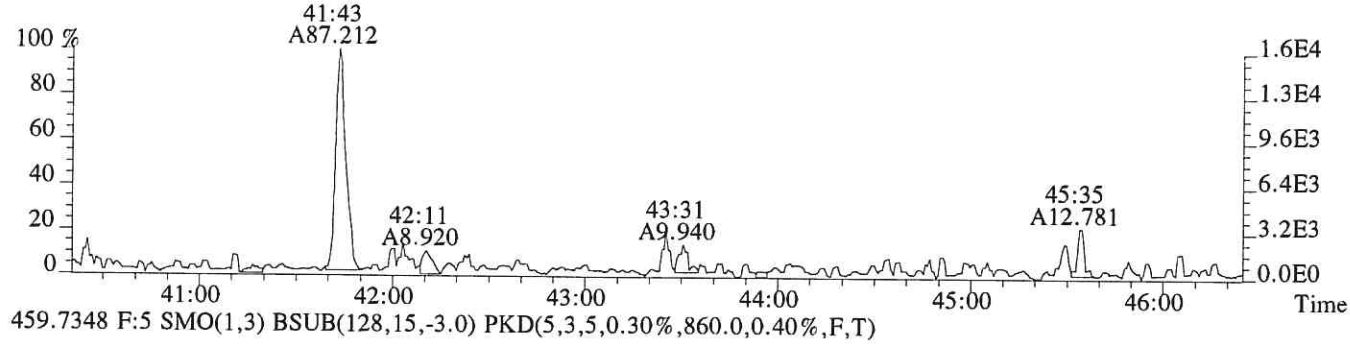
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



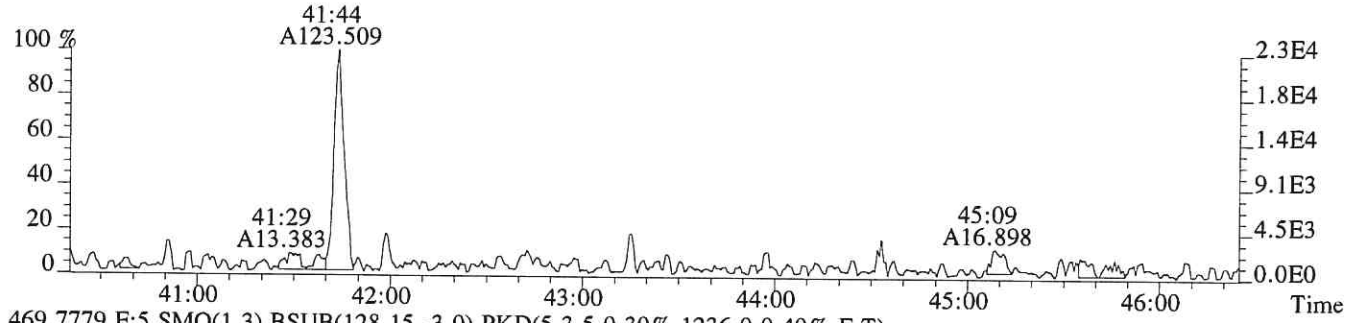
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



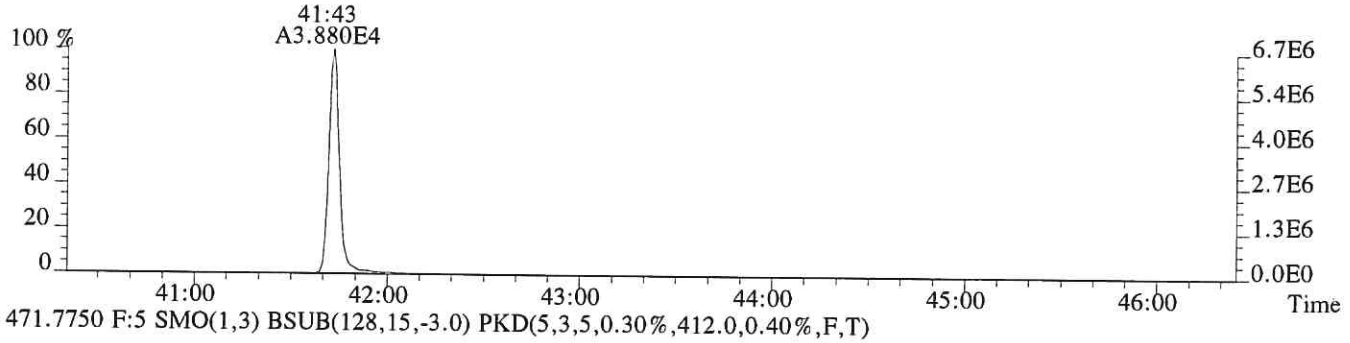
File:P615971 #1-547 Acq: 7-DEC-2018 13:07:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



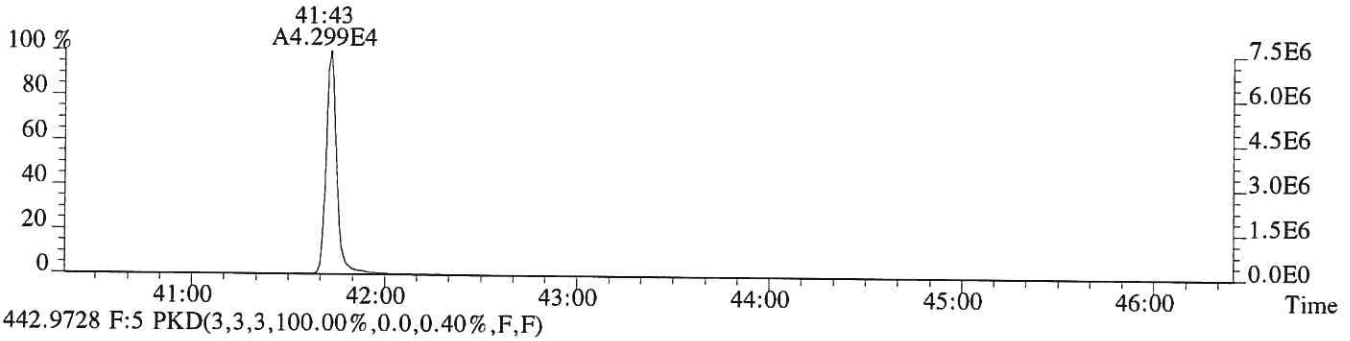
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



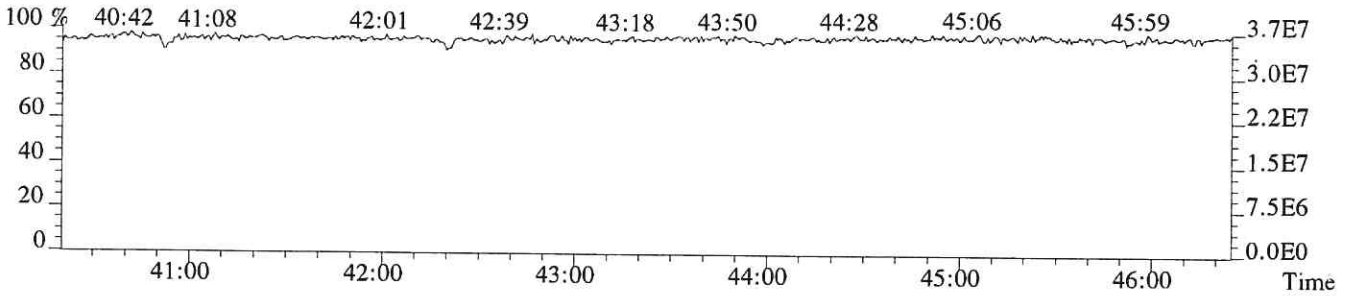
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P615980 Samp: 1 Inj: 1 Acquired: 7-DEC-18 20:30:09
Processed: 10-DEC-18 16:28:27 Sample ID: EQ1800494-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	1.956e+03	2.499e+03	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	2.583e+04	1.652e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	2.492e+04	1.621e+04	1.54	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	2.645e+04	2.104e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	2.847e+04	2.283e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.637e+04	2.113e+04	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	2.511e+04	1.981e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	2.361e+04	2.260e+04	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	1.910e+04	1.829e+04	1.04	yes	no	1.463
10	Unk	OCDF	41:57	2.453e+04	2.760e+04	0.89	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	1.660e+03	2.192e+03	0.76	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	1.961e+04	1.281e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:19	1.901e+04	1.548e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	2.006e+04	1.571e+04	1.28	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:38	2.075e+04	1.665e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.571e+04	1.521e+04	1.03	yes	no	1.112
17	Unk	OCDD	41:45	1.965e+04	2.164e+04	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	2.010e+04	2.525e+04	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	5.335e+04	3.388e+04	1.57	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.025e+04	3.177e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	2.606e+04	4.958e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.020e+04	5.764e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	2.773e+04	5.287e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.655e+04	5.006e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.074e+04	4.557e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.740e+04	3.931e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.145e+04	1.460e+04	0.78	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	4.234e+04	2.700e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:18	4.082e+04	3.209e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	3.829e+04	3.015e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.095e+04	3.885e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:44	3.423e+04	3.781e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	5.965e+04	7.474e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	7.543e+04	6.043e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	1.709e+04				no	1.086

$$\text{OCDD} = \frac{(1.965e+04 + 2.164e+04) \times 4000\ \text{pg} \times 1}{(3.423e+04 + 3.781e+04) \times \quad \text{g} \times \quad / 100 \times 1.157}$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P615980 Samp: 1 Inj: 1 Acquired: 7-DEC-18 20:30:09
Processed: 10-DEC-18 16:28:27 LAB. ID: EQ1800494-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.20e+05	2.29e+03	1.4e+02	3.79e+05	4.02e+03	9.4e+01
2	1,2,3,7,8-PeCDF	4.64e+06	1.27e+03	3.7e+03	2.92e+06	3.16e+03	9.2e+02
3	2,3,4,7,8-PeCDF	4.60e+06	1.27e+03	3.6e+03	2.92e+06	3.16e+03	9.2e+02
4	1,2,3,4,7,8-HxCDF	5.73e+06	1.58e+03	3.6e+03	4.47e+06	1.66e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	5.74e+06	1.58e+03	3.6e+03	4.63e+06	1.66e+03	2.8e+03
6	2,3,4,6,7,8-HxCDF	5.50e+06	1.58e+03	3.5e+03	4.41e+06	1.66e+03	2.7e+03
7	1,2,3,7,8,9-HxCDF	5.04e+06	1.58e+03	3.2e+03	3.95e+06	1.66e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	5.07e+06	2.50e+03	2.0e+03	4.93e+06	4.10e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	3.64e+06	2.50e+03	1.5e+03	3.56e+06	4.10e+03	8.7e+02
10	OCDF	4.30e+06	7.60e+02	5.7e+03	4.76e+06	2.88e+03	1.7e+03
11	2,3,7,8-TCDD	2.87e+05	5.42e+03	5.3e+01	3.68e+05	2.08e+03	1.8e+02
12	1,2,3,7,8-PeCDD	3.61e+06	1.61e+03	2.2e+03	2.33e+06	6.04e+02	3.9e+03
13	1,2,3,4,7,8-HxCDD	4.21e+06	1.10e+03	3.8e+03	3.42e+06	1.86e+03	1.8e+03
14	1,2,3,6,7,8-HxCDD	4.16e+06	1.10e+03	3.8e+03	3.25e+06	1.86e+03	1.8e+03
15	1,2,3,7,8,9-HxCDD	4.40e+06	1.10e+03	4.0e+03	3.40e+06	1.86e+03	1.8e+03
16	1,2,3,4,6,7,8-HpCDD	3.23e+06	9.04e+02	3.6e+03	3.13e+06	1.22e+03	2.6e+03
17	OCDD	3.41e+06	3.04e+02	1.1e+04	3.85e+06	1.04e+03	3.7e+03
18	13C-2,3,7,8-TCDF	2.94e+06	8.12e+03	3.6e+02	3.81e+06	9.54e+03	4.0e+02
19	13C-1,2,3,7,8-PeCDF	9.40e+06	1.30e+03	7.3e+03	5.90e+06	3.31e+03	1.8e+03
20	13C-2,3,4,7,8-PeCDF	8.95e+06	1.30e+03	6.9e+03	5.64e+06	3.31e+03	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	5.62e+06	1.81e+03	3.1e+03	1.06e+07	3.34e+03	3.2e+03
22	13C-1,2,3,6,7,8-HxCDF	6.16e+06	1.81e+03	3.4e+03	1.17e+07	3.34e+03	3.5e+03
23	13C-2,3,4,6,7,8-HxCDF	5.81e+06	1.81e+03	3.2e+03	1.10e+07	3.34e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.27e+06	1.81e+03	2.9e+03	9.94e+06	3.34e+03	3.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.44e+06	3.94e+03	1.1e+03	9.84e+06	3.48e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.41e+06	3.94e+03	8.7e+02	7.69e+06	3.48e+03	2.2e+03
27	13C-2,3,7,8-TCDD	1.86e+06	1.54e+04	1.2e+02	2.38e+06	6.33e+03	3.8e+02
28	13C-1,2,3,7,8-PeCDD	7.64e+06	3.03e+03	2.5e+03	4.89e+06	2.11e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.01e+06	2.33e+03	3.9e+03	6.97e+06	2.04e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	7.96e+06	2.33e+03	3.4e+03	6.21e+06	2.04e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.42e+06	1.58e+03	5.3e+03	7.98e+06	1.54e+03	5.2e+03
32	13C-OCDD	6.01e+06	1.60e+03	3.8e+03	6.62e+06	9.08e+02	7.3e+03
33	13C-1,2,3,4-TCDD	1.01e+07	1.54e+04	6.6e+02	1.26e+07	6.33e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.60e+07	2.33e+03	6.9e+03	1.26e+07	2.04e+03	6.2e+03
35	37Cl-2,3,7,8-TCDD	2.79e+06	4.09e+03	6.8e+02			

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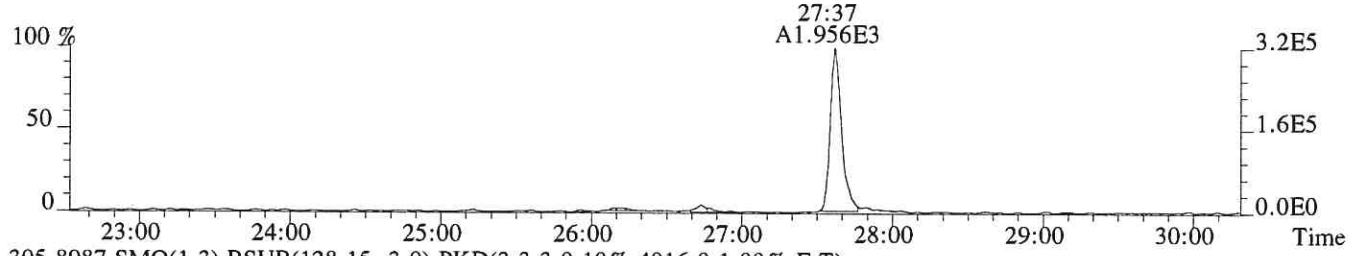
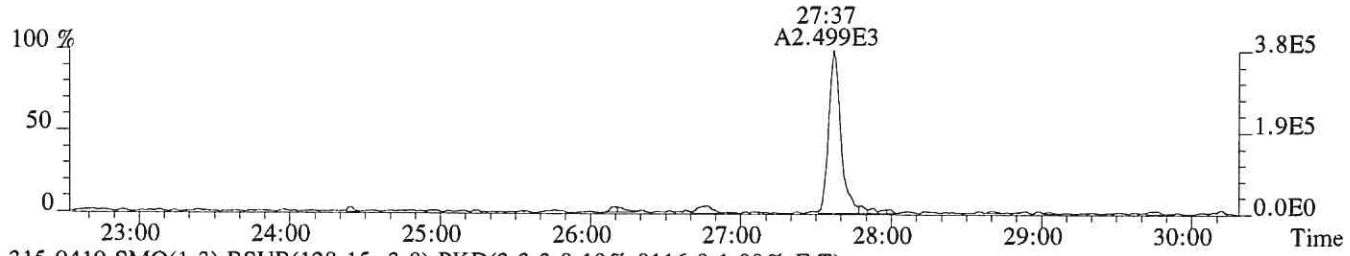
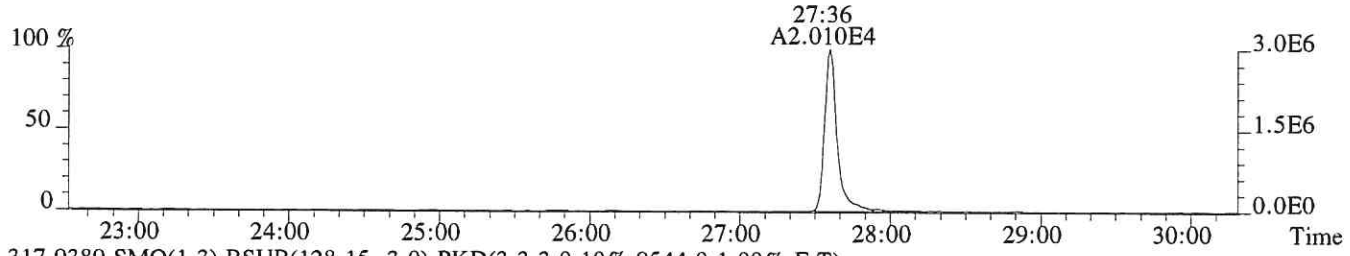
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



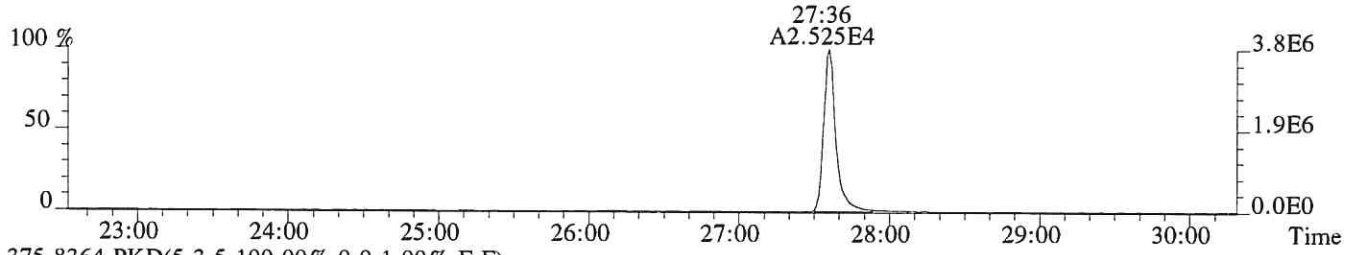
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4016.0,1.00%,F,T)



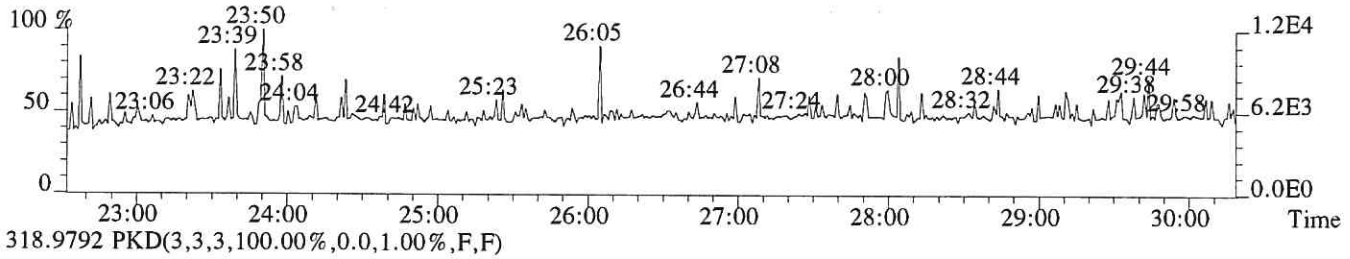
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8116.0,1.00%,F,T)



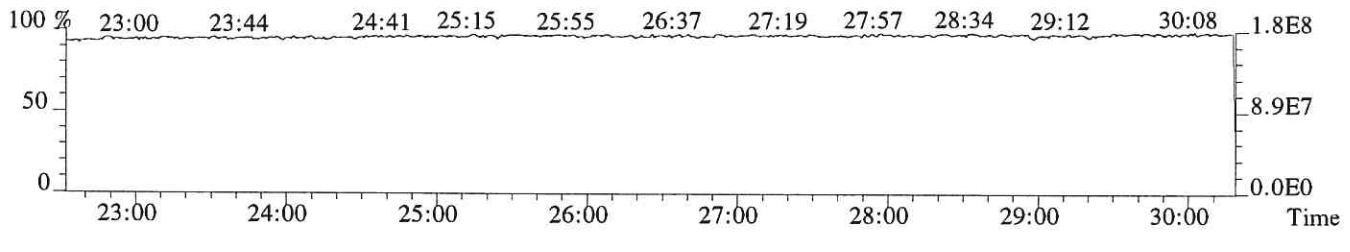
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9544.0,1.00%,F,T)



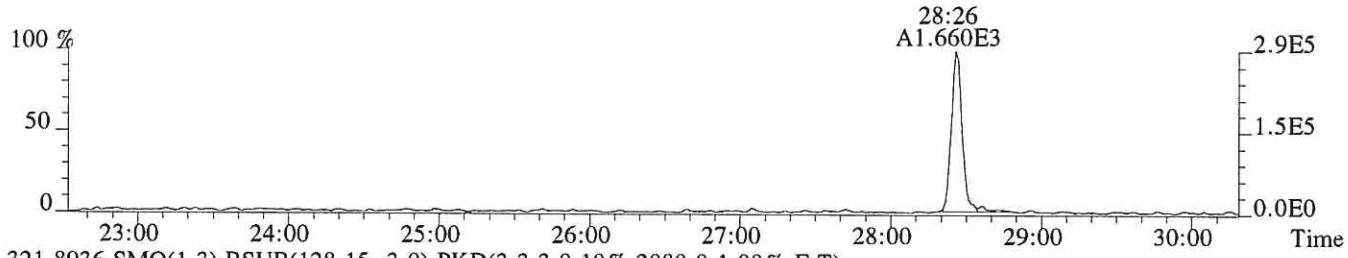
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



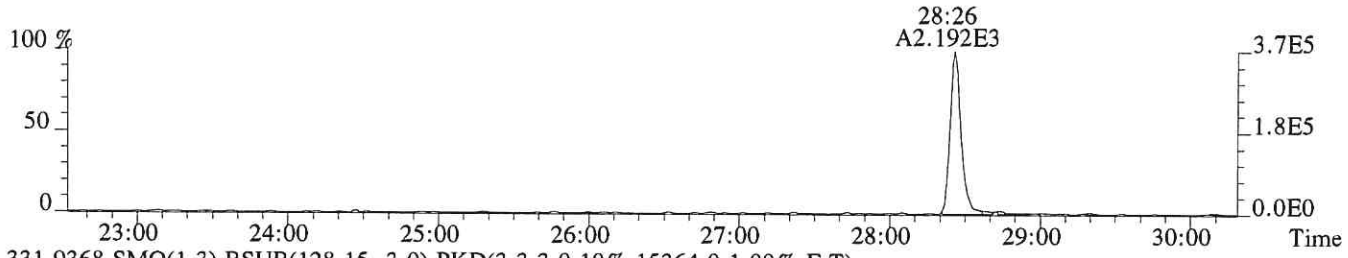
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



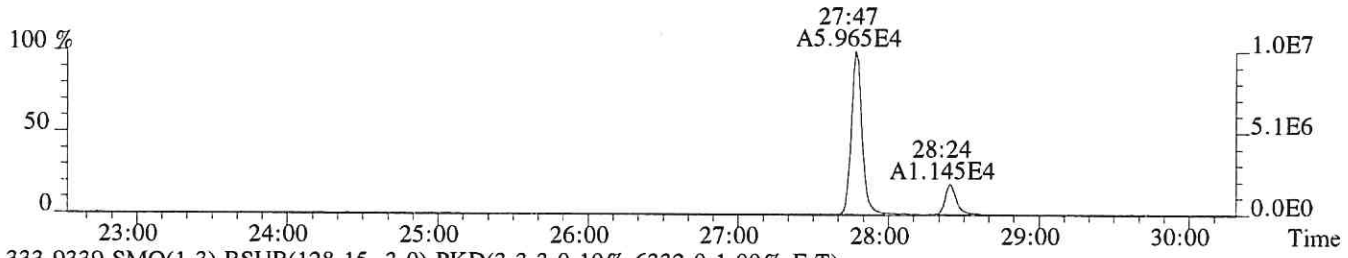
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



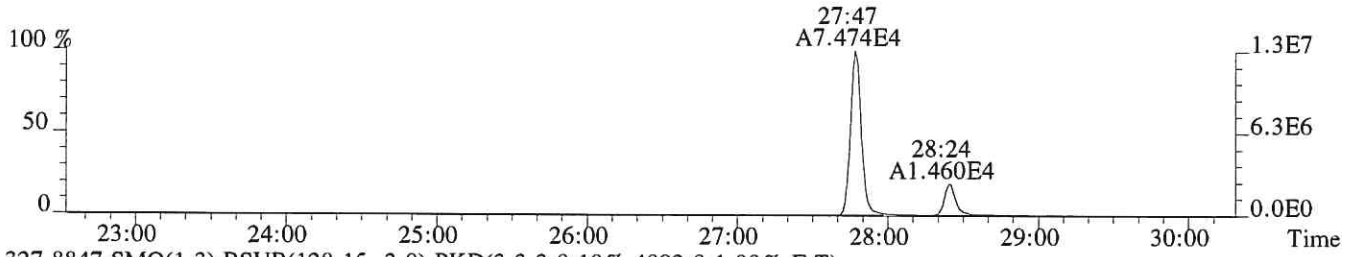
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



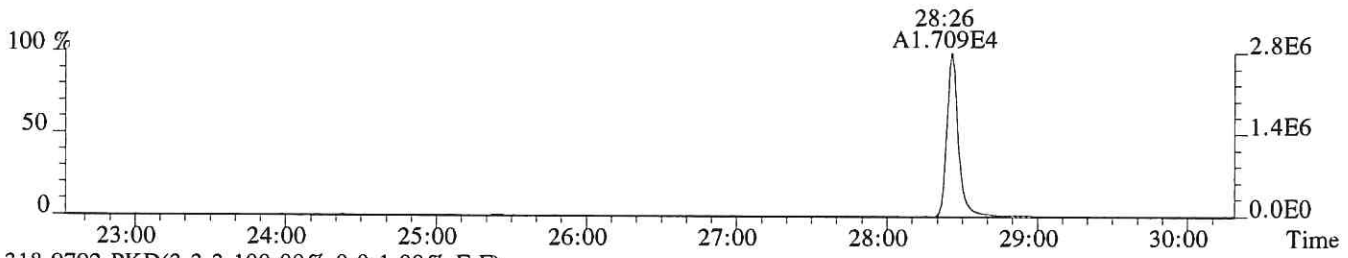
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15364.0,1.00%,F,T)



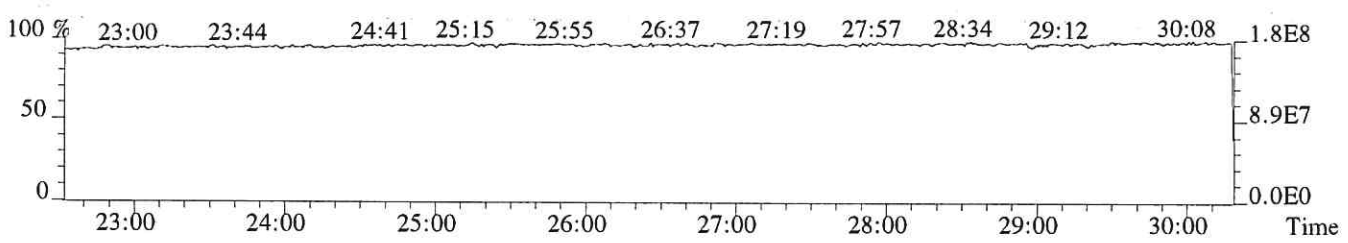
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6332.0,1.00%,F,T)



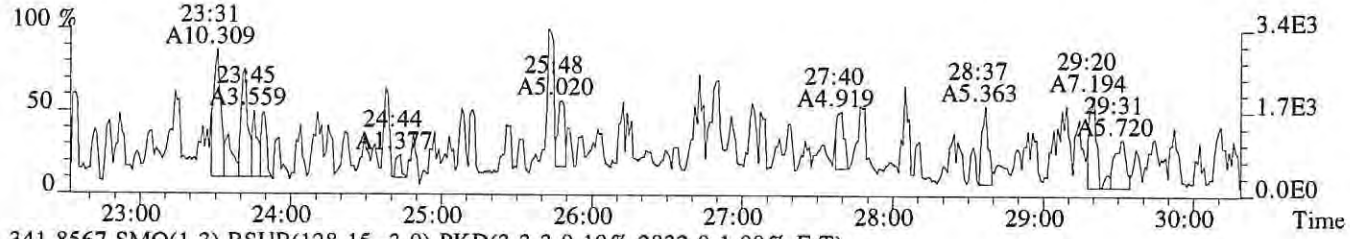
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4092.0,1.00%,F,T)



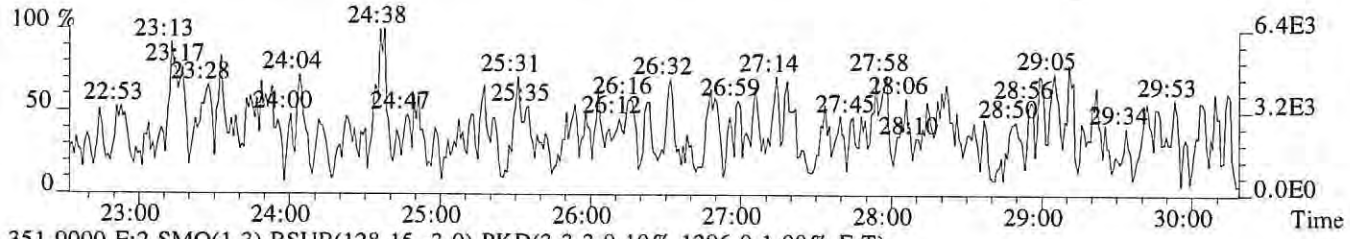
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



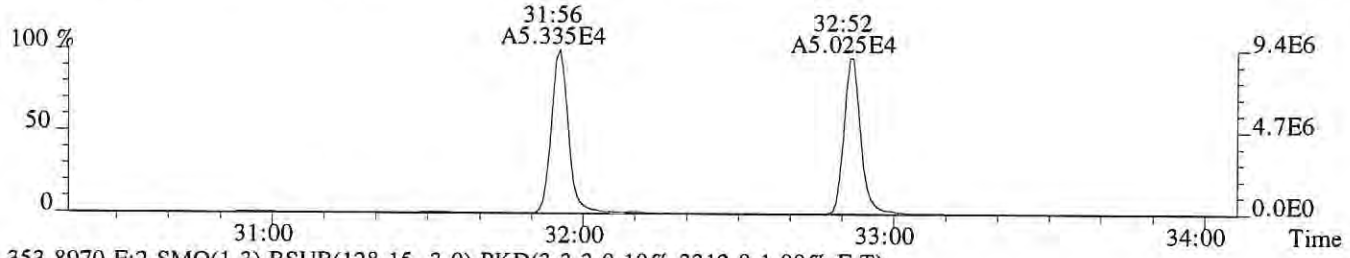
File:P615980 #1-552 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



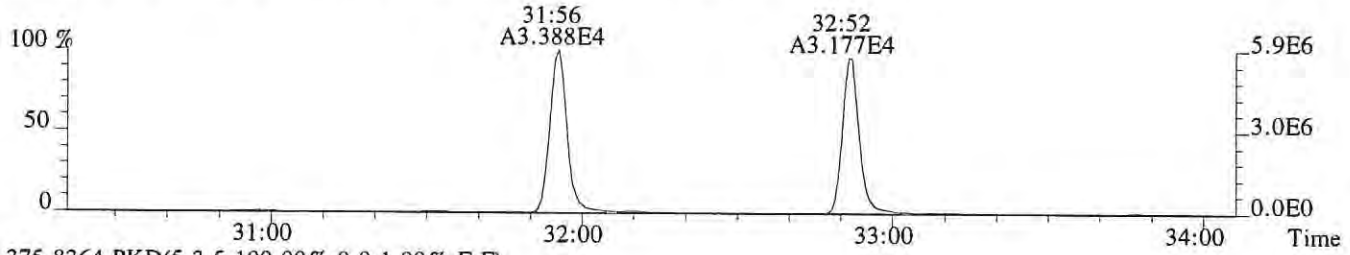
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2832.0,1.00%,F,T)



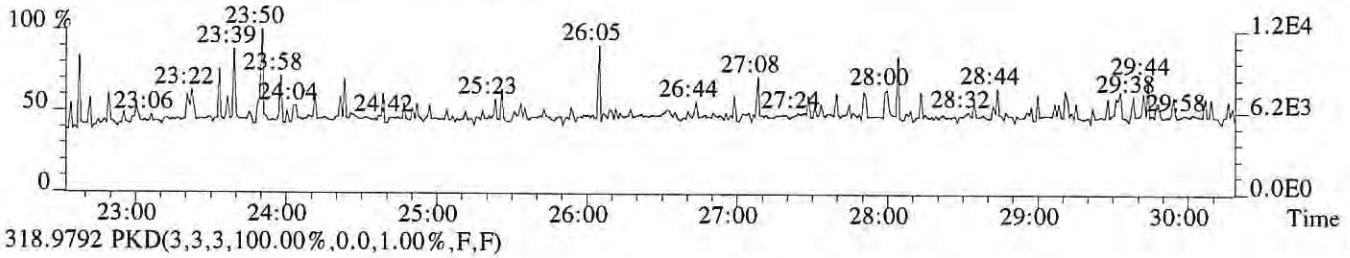
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



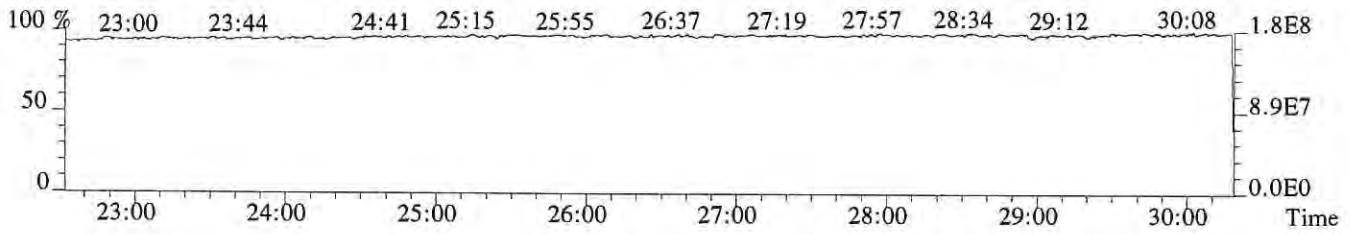
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



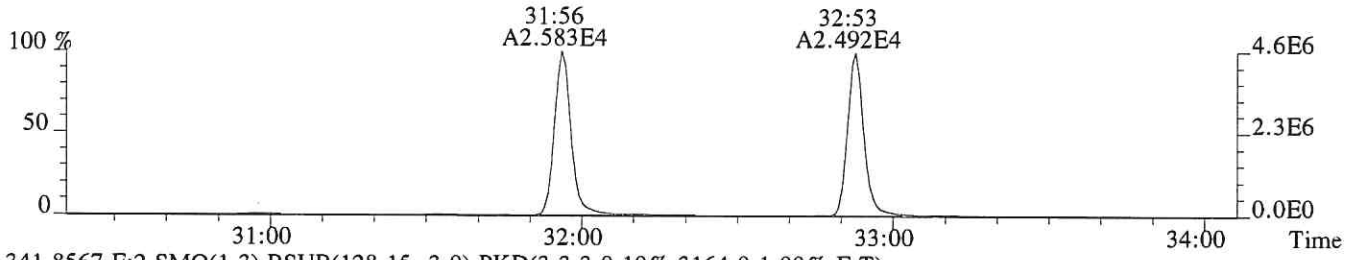
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



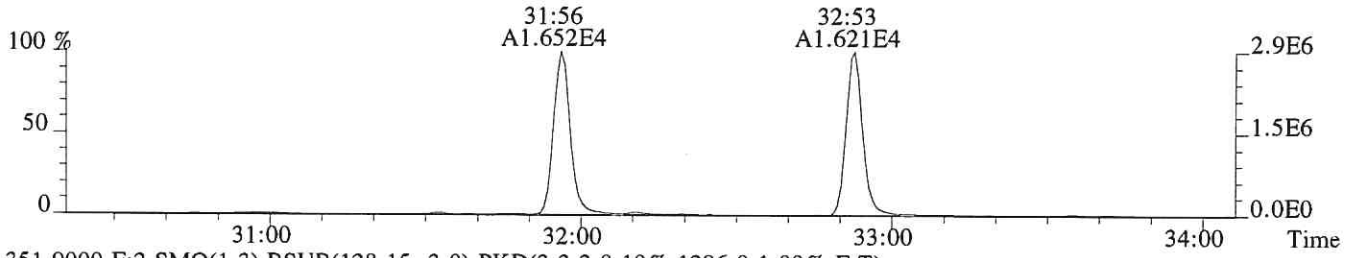
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



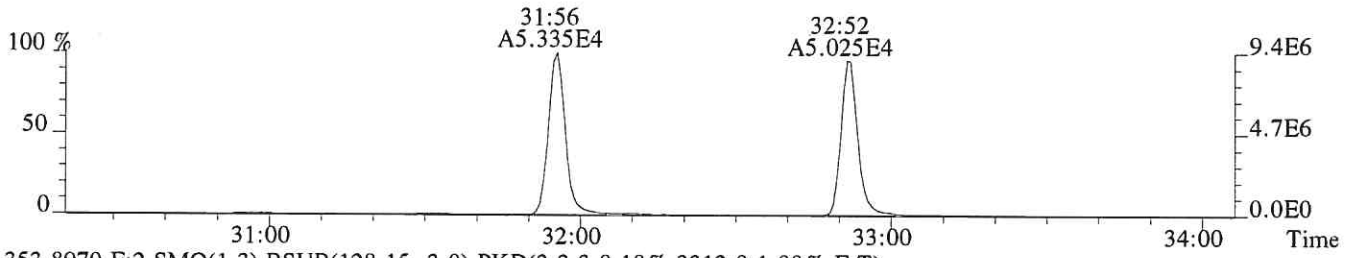
File:P615980 #1-339 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



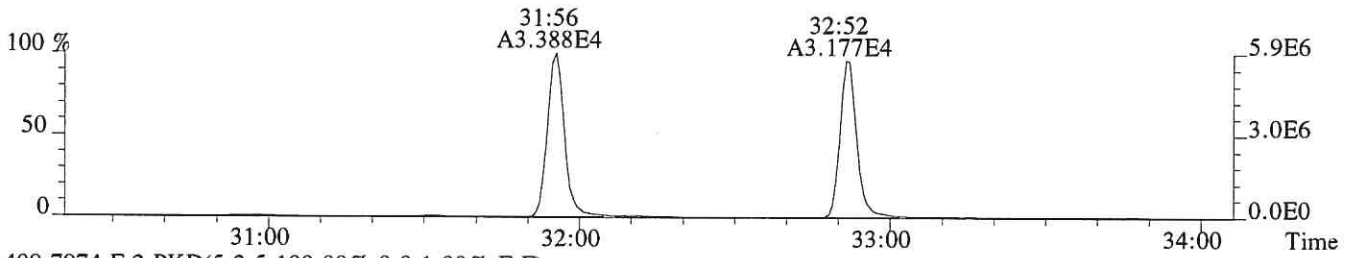
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3164.0,1.00%,F,T)



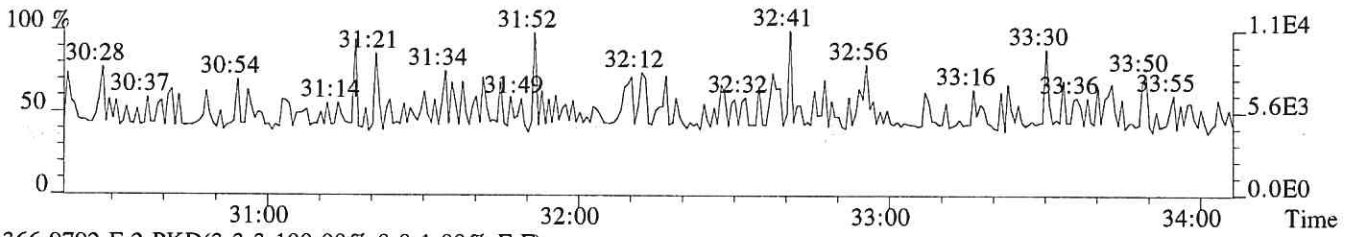
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



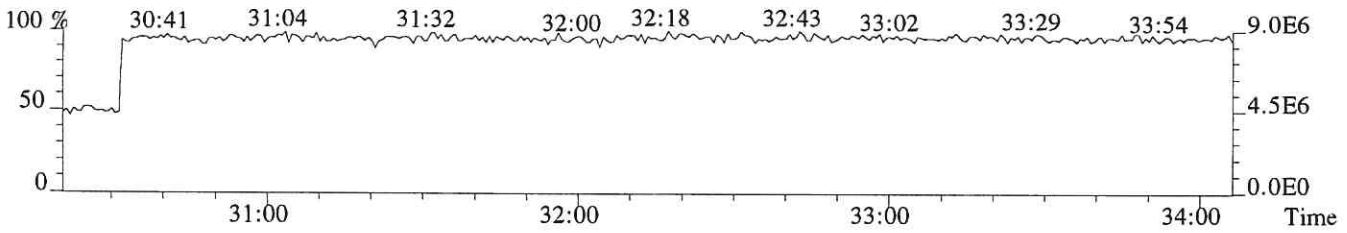
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3312.0,1.00%,F,T)



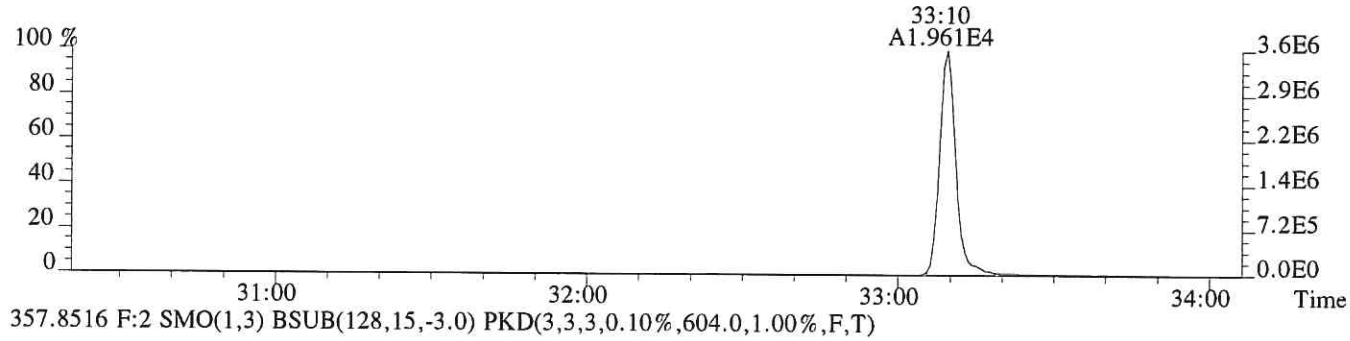
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



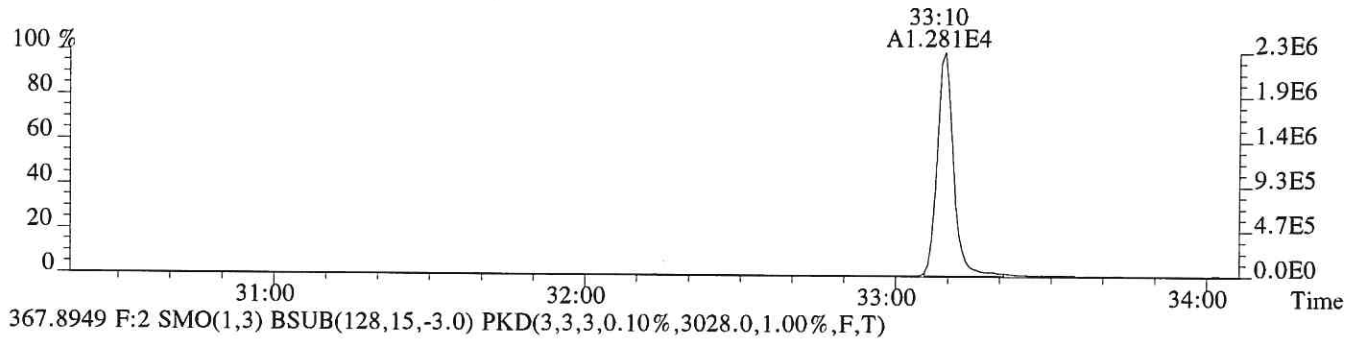
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



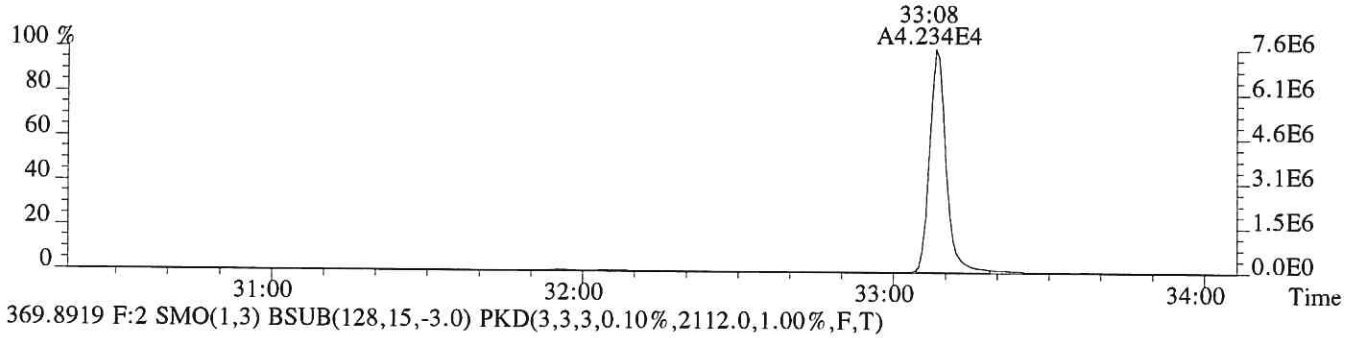
File:P615980 #1-339 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



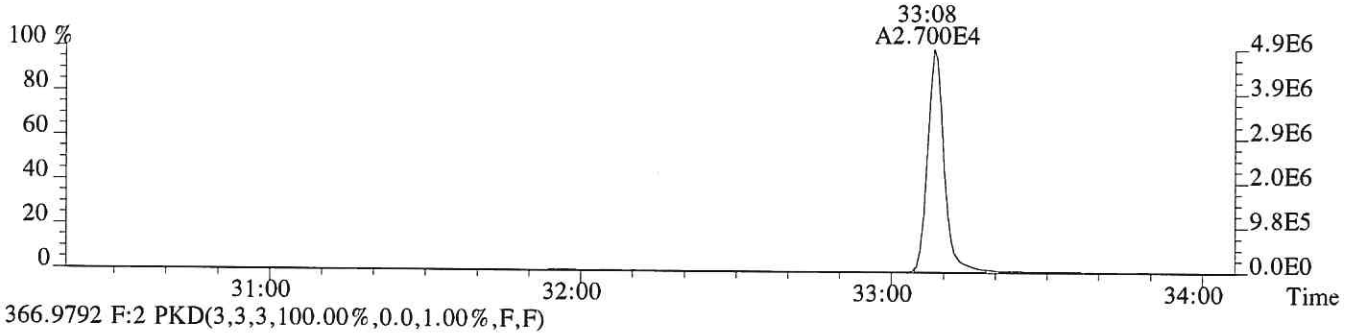
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



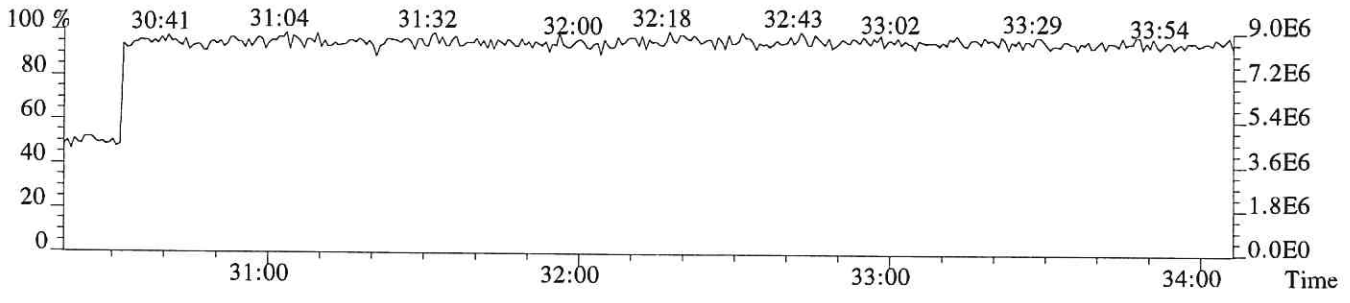
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3028.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2112.0,1.00%,F,T)

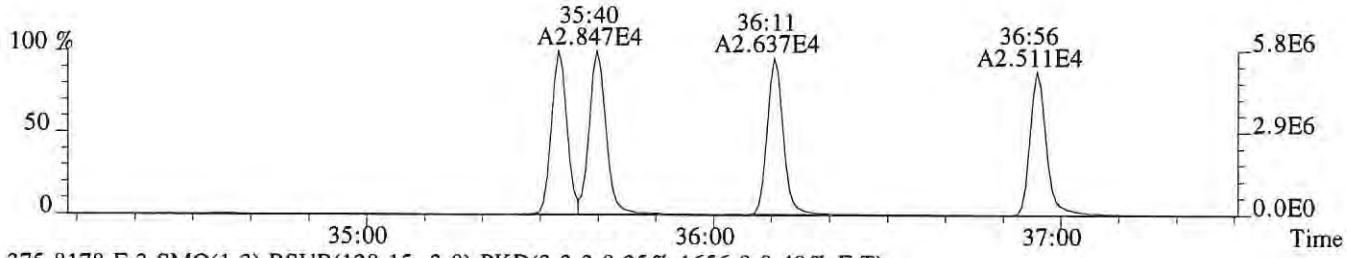


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

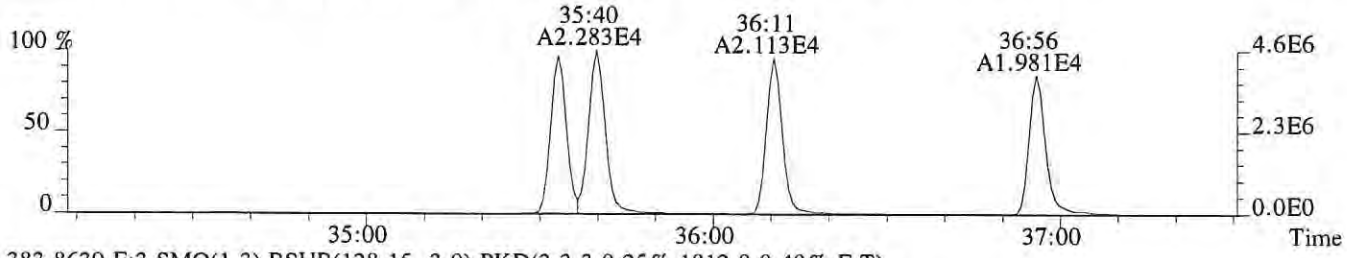


File:P615980 #1-304 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

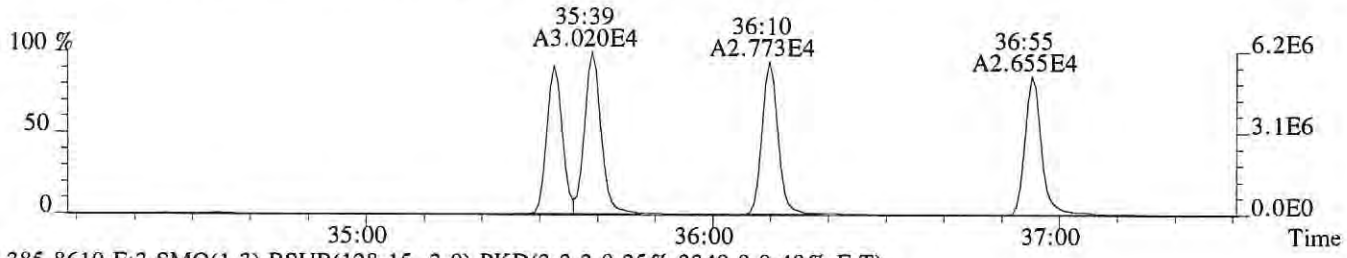
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



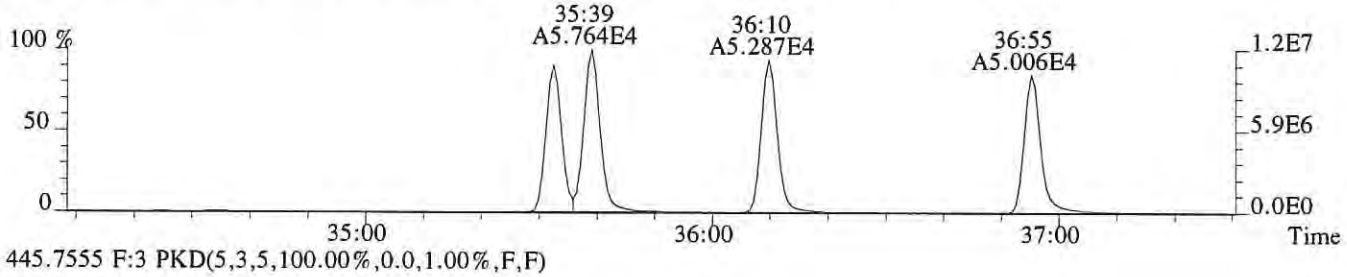
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.40%,F,T)



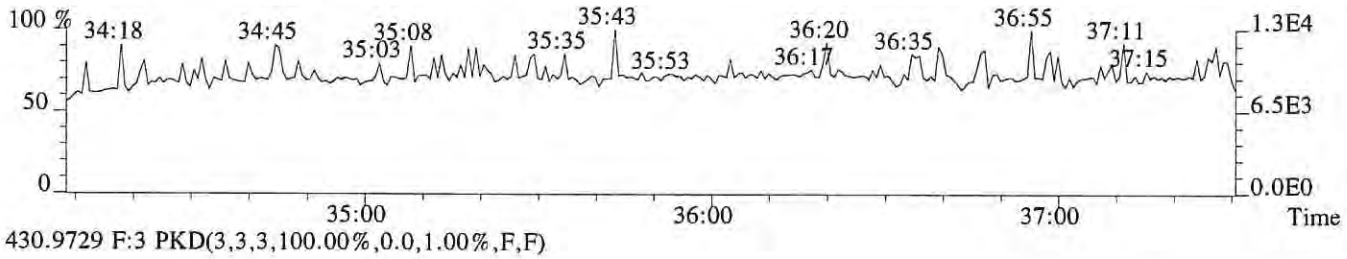
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.40%,F,T)



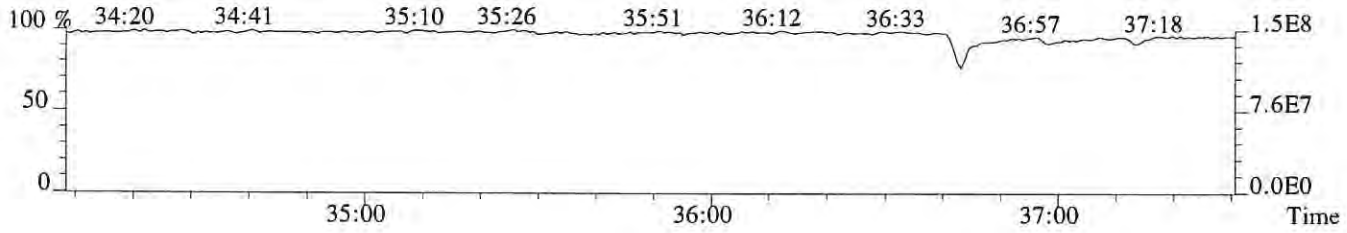
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3340.0,0.40%,F,T)



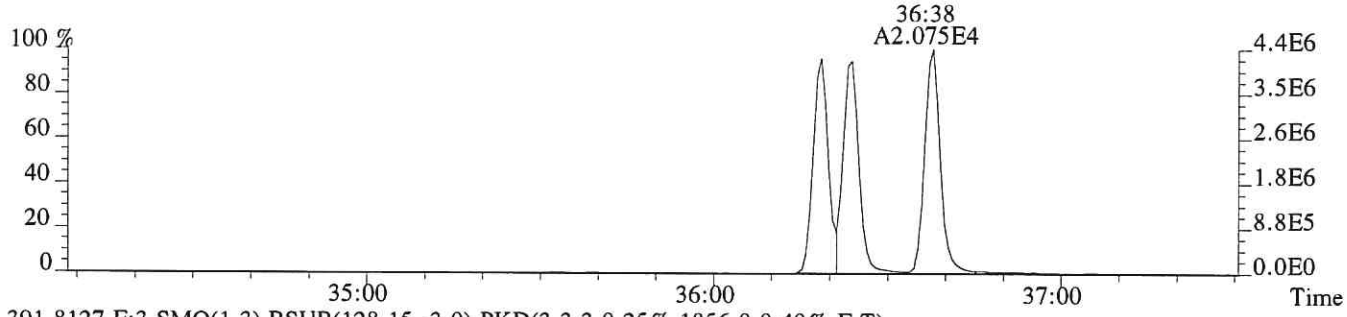
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



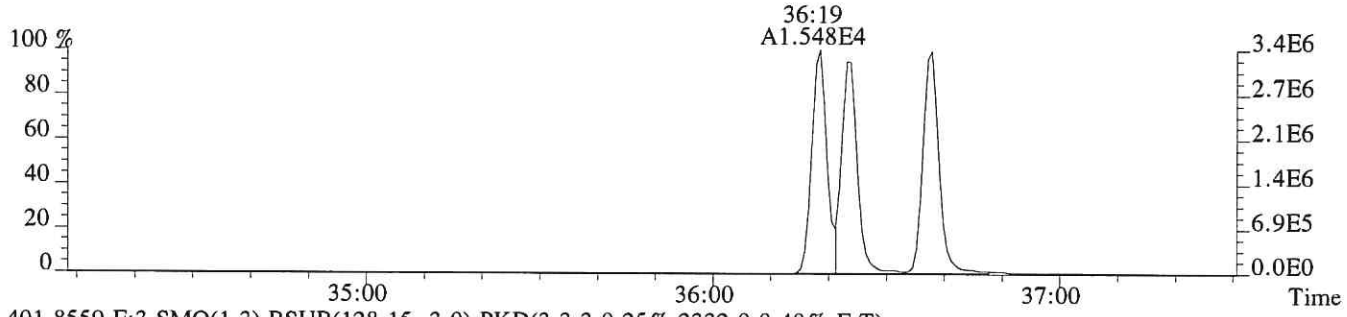
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



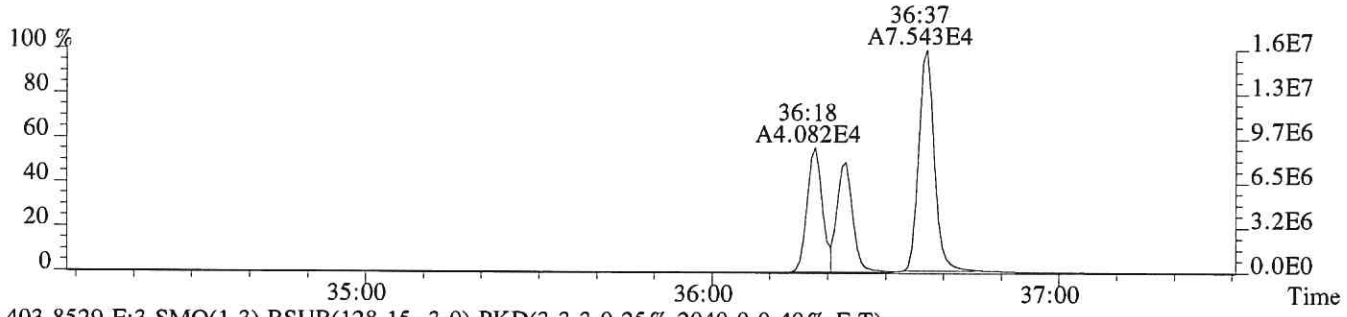
File:P615980 #1-304 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



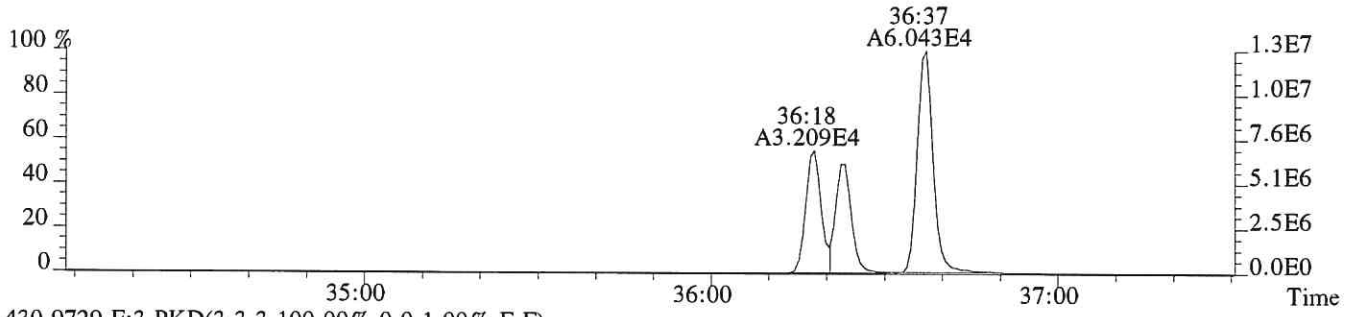
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



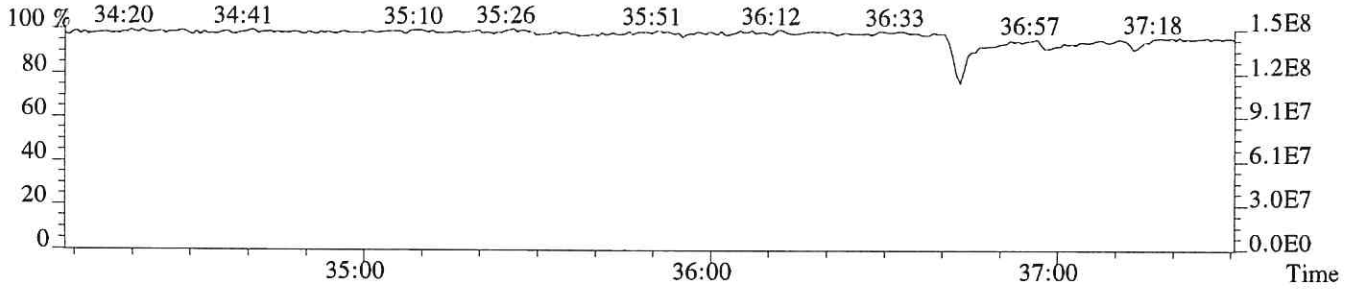
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)



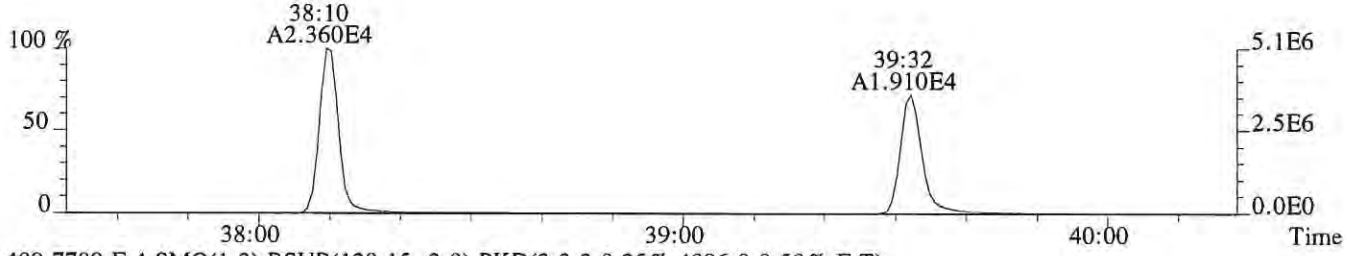
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



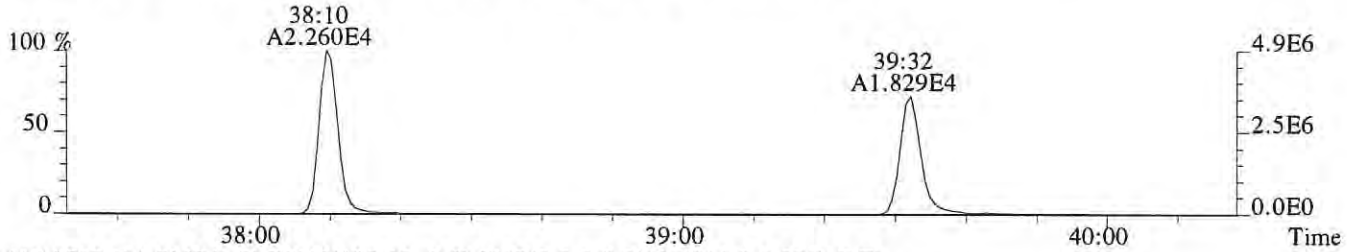
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



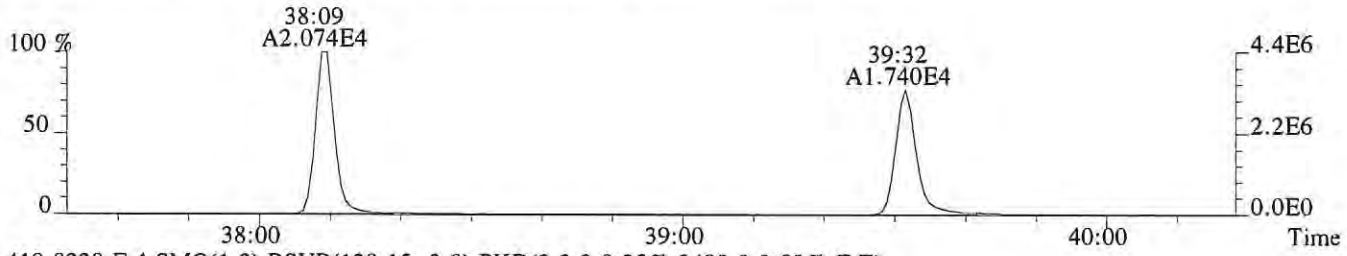
File:P615980 #1-249 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2504.0,0.50%,F,T)



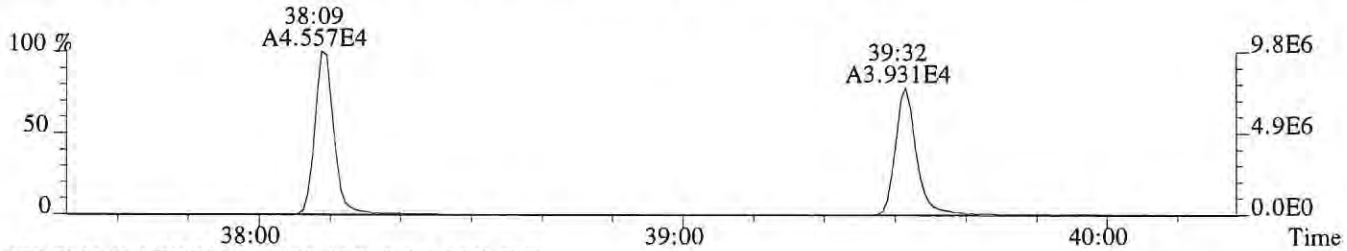
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4096.0,0.50%,F,T)



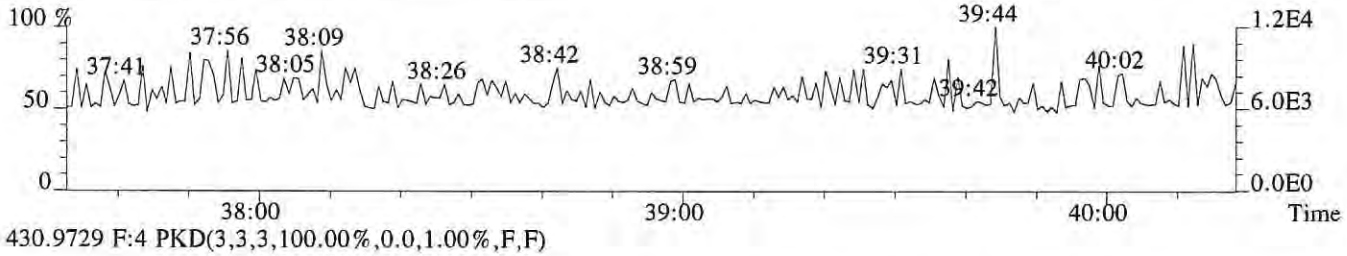
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.50%,F,T)



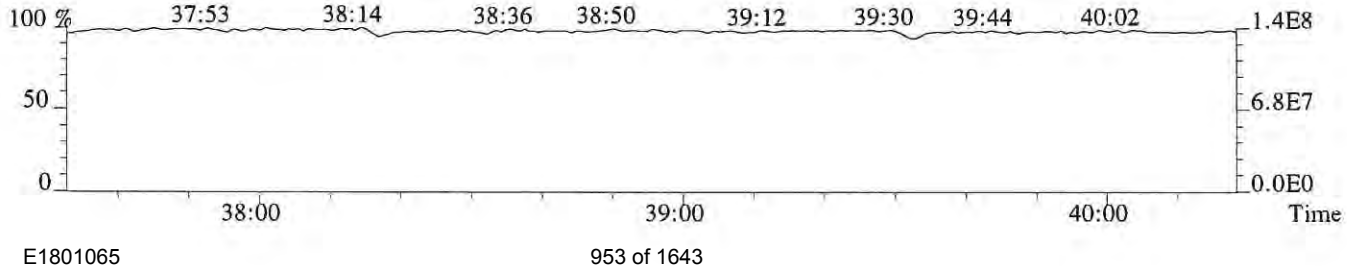
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3480.0,0.50%,F,T)



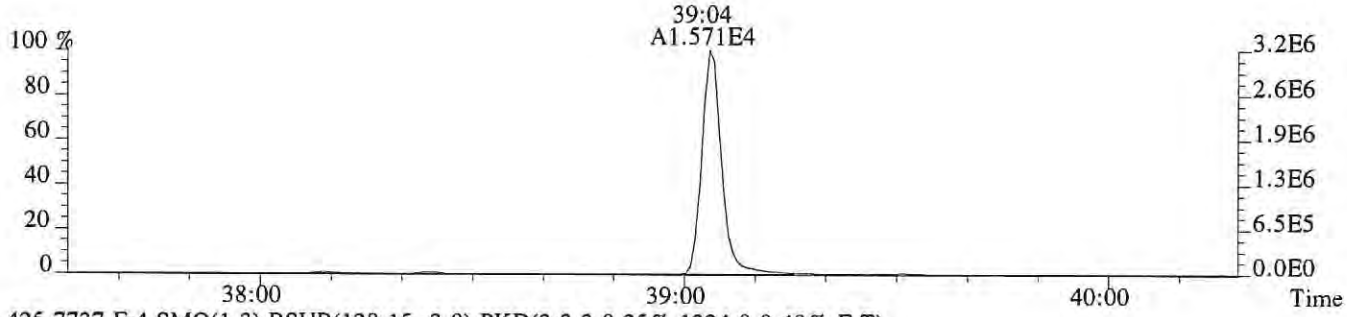
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



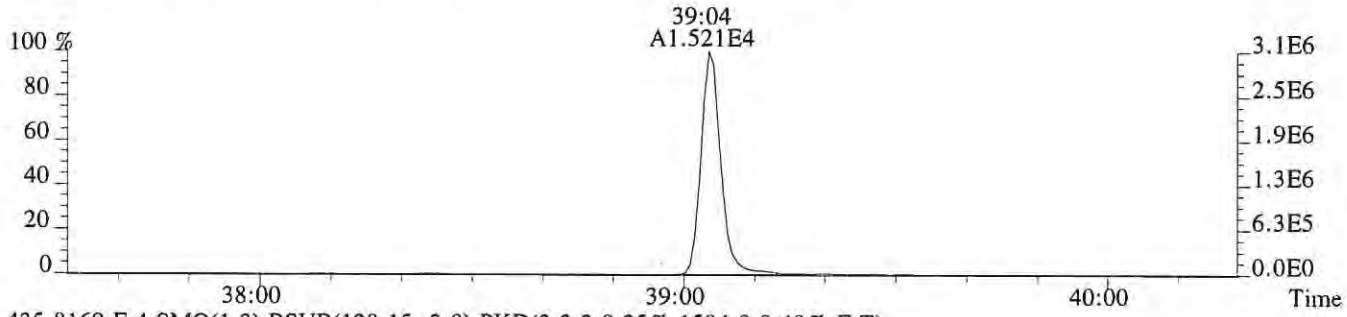
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



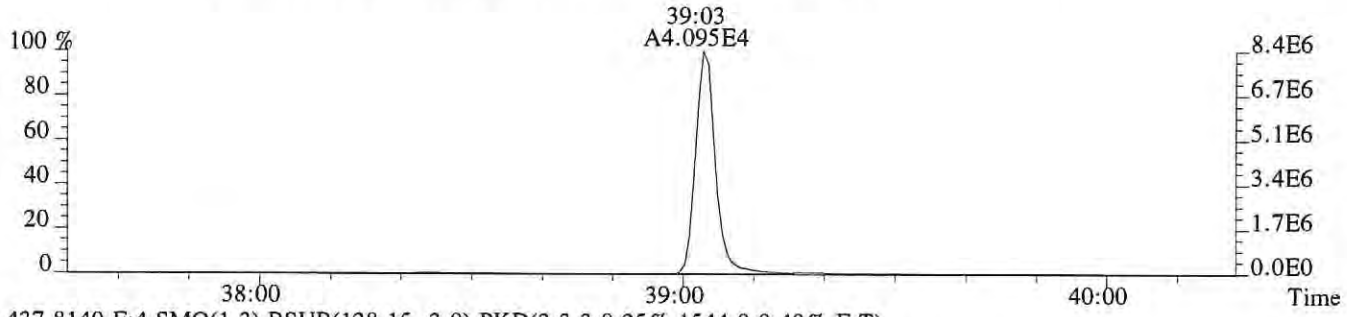
File:P615980 #1-249 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



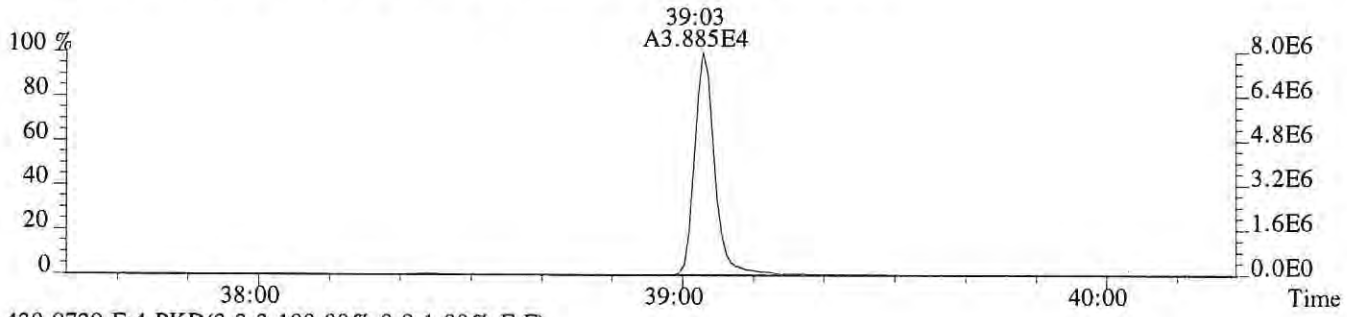
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



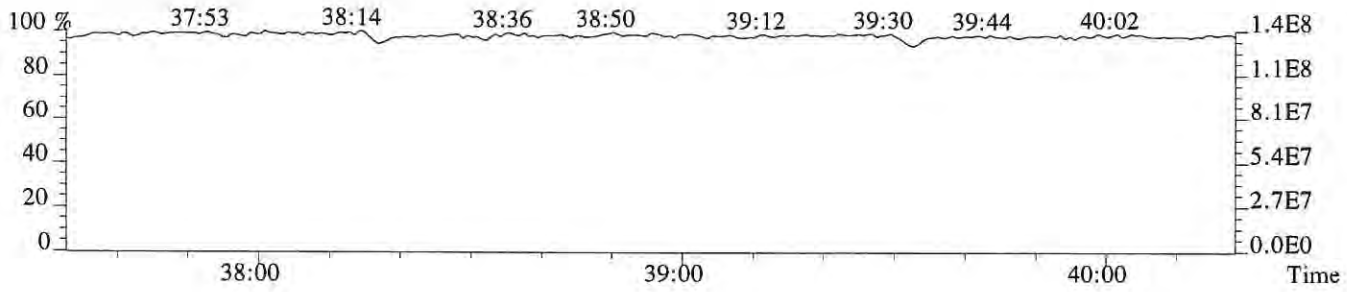
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



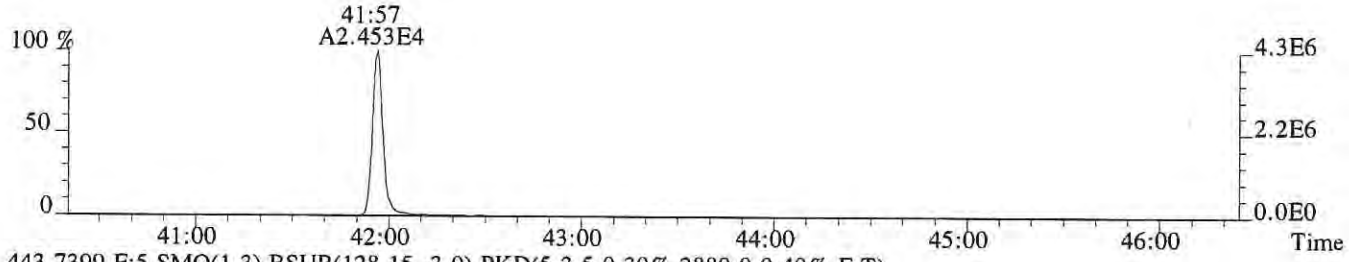
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



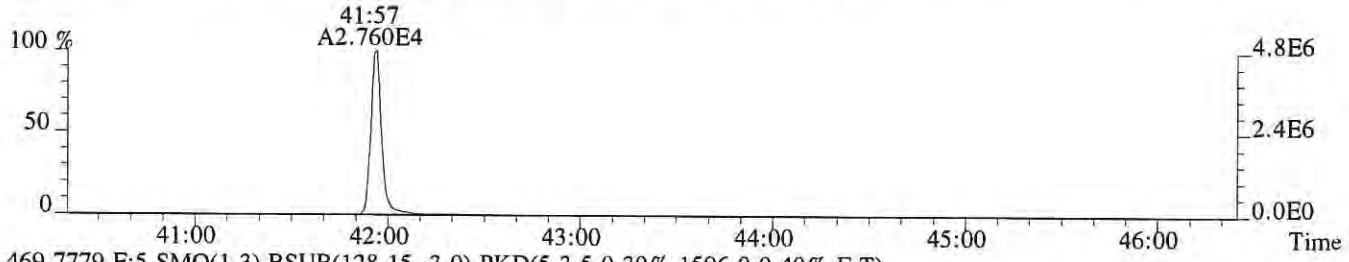
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



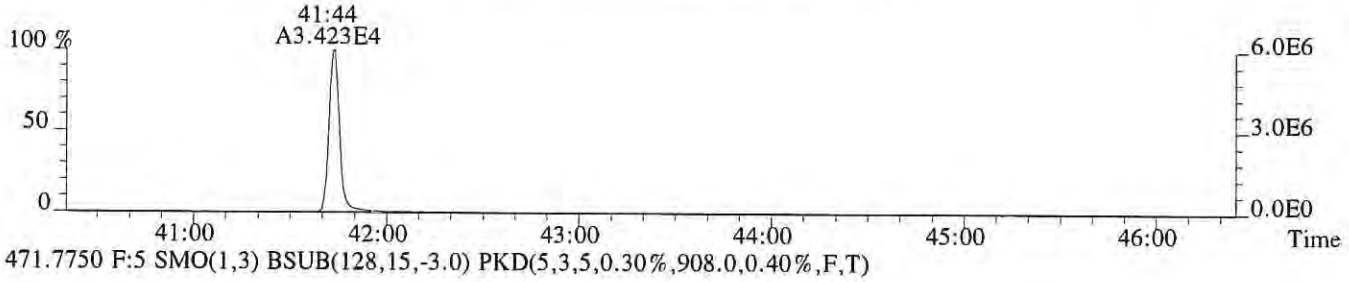
File:P615980 #1-547 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



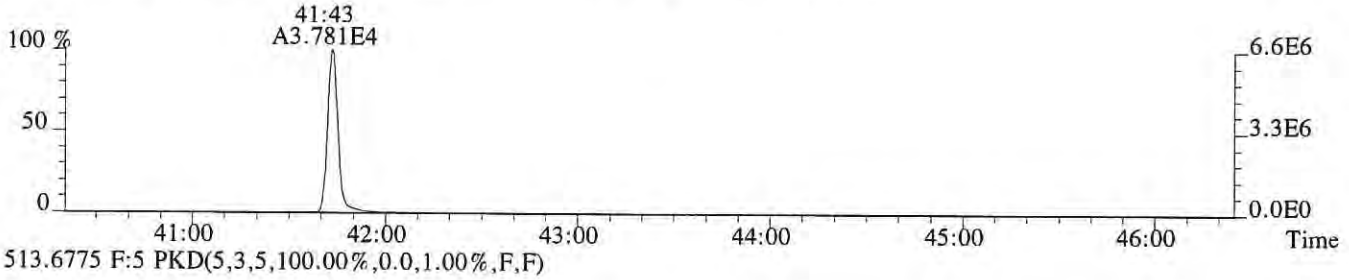
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2880.0,0.40%,F,T)



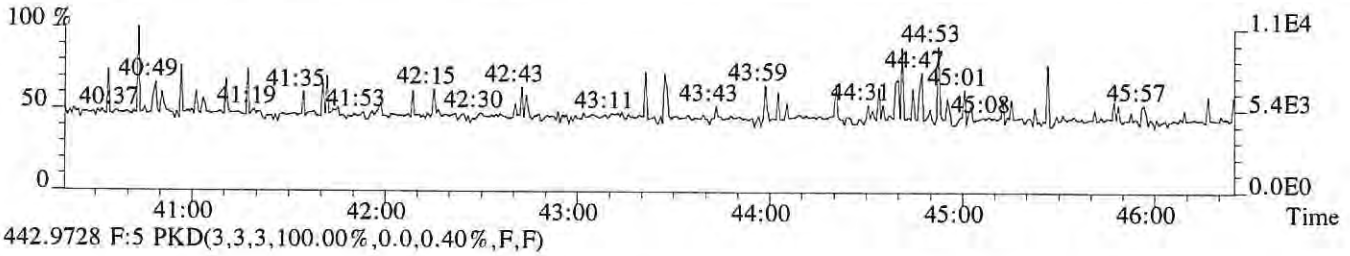
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1596.0,0.40%,F,T)



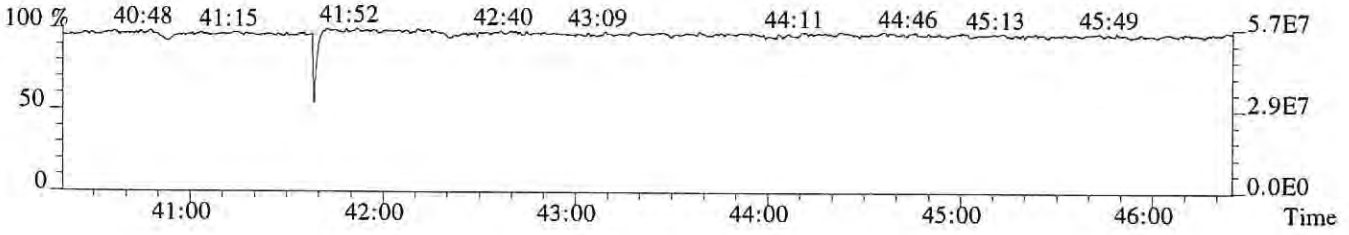
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



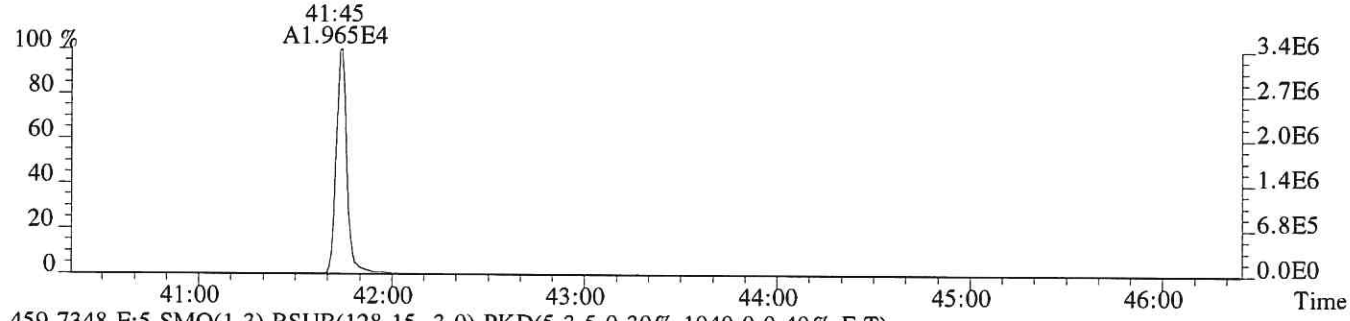
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



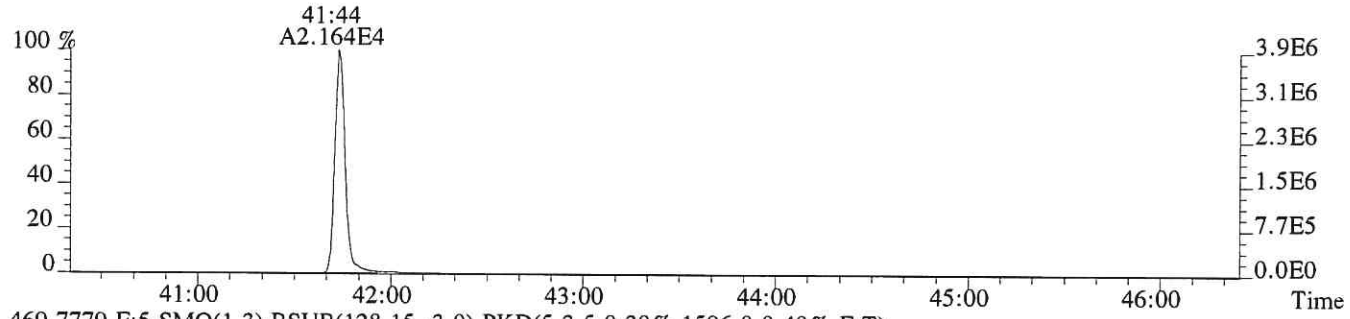
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



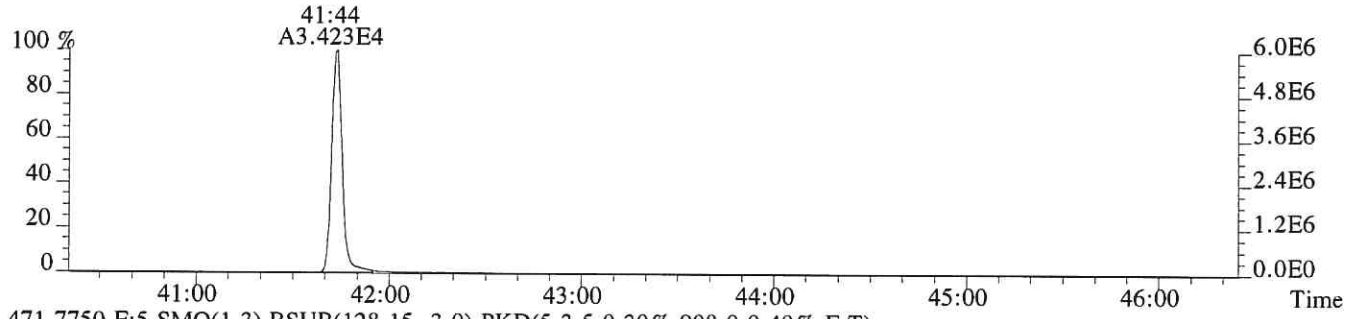
File:P615980 #1-547 Acq: 7-DEC-2018 20:30:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



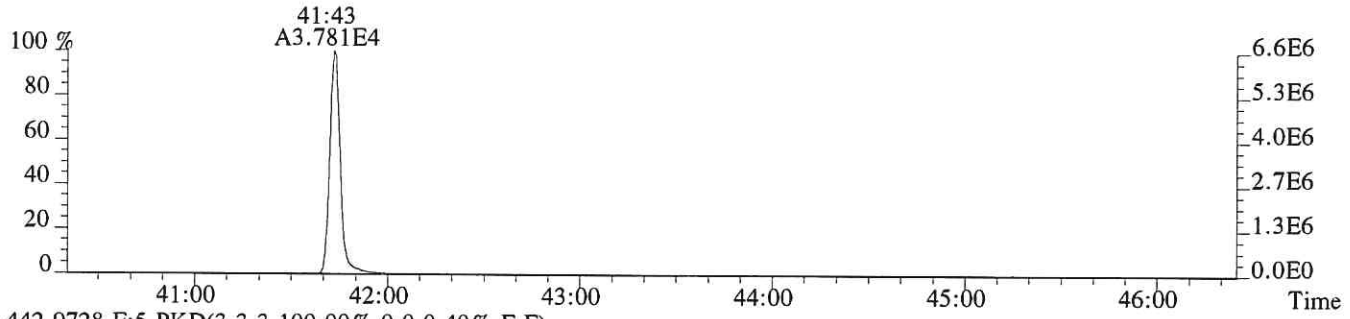
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1040.0,0.40%,F,T)



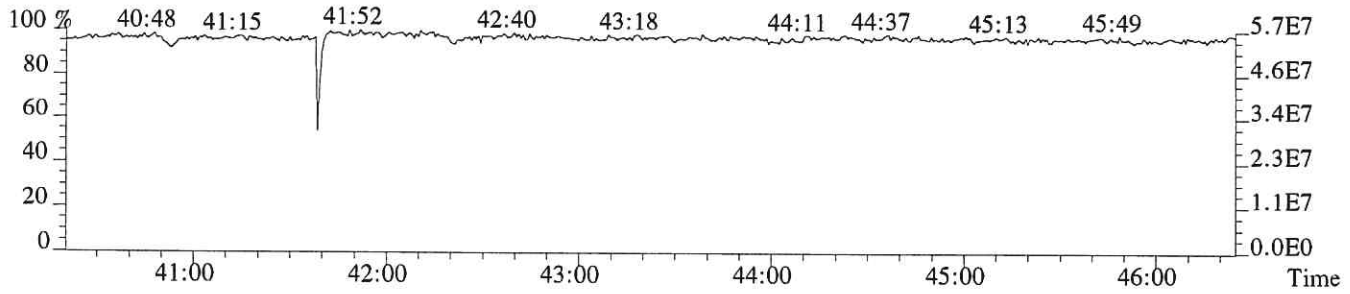
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1596.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P615981 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:19:19
Processed: 10-DEC-18 16:28:28 Sample ID: EQ1800494-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:37	2.884e+03	3.848e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:56	3.053e+04	1.965e+04	1.55	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	2.906e+04	1.919e+04	1.51	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	2.978e+04	2.333e+04	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	3.228e+04	2.555e+04	1.26	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	2.905e+04	2.362e+04	1.23	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	2.708e+04	2.181e+04	1.24	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	2.487e+04	2.414e+04	1.03	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	2.017e+04	1.963e+04	1.03	yes	no	1.463
10	Unk	OCDF	41:57	2.475e+04	2.776e+04	0.89	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:26	2.716e+03	3.228e+03	0.84	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	2.377e+04	1.498e+04	1.59	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:18	2.050e+04	1.715e+04	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:23	2.232e+04	1.783e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:37	2.345e+04	1.861e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.716e+04	1.612e+04	1.06	yes	no	1.112
17	Unk	OCDD	41:44	1.826e+04	2.042e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:36	2.774e+04	3.555e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	6.495e+04	4.037e+04	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	5.977e+04	3.777e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	2.992e+04	5.754e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	3.402e+04	6.491e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	3.137e+04	5.863e+04	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	2.890e+04	5.478e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.188e+04	4.927e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:32	1.857e+04	4.181e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:24	1.704e+04	2.132e+04	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:08	5.169e+04	3.304e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:17	4.378e+04	3.487e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	4.264e+04	3.347e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.287e+04	4.085e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:43	3.314e+04	3.672e+04	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:47	6.842e+04	8.502e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	8.497e+04	6.680e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:26	2.416e+04				no	1.086

$$\text{OCDD} = \frac{(1.826e+04 + 2.042e+04) \times 4000\ \text{pg} \times 1}{(3.314e+04 + 3.672e+04) \times \quad \text{g} \times \quad / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P615981 Samp: 1 Inj: 1 Acquired: 7-DEC-18 21:19:19
Processed: 10-DEC-18 16:28:28 LAB. ID: EQ1800494-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.71e+05	1.78e+03	2.7e+02	6.30e+05	3.40e+03	1.9e+02
2	1,2,3,7,8-PeCDF	5.49e+06	1.42e+03	3.9e+03	3.51e+06	2.54e+03	1.4e+03
3	2,3,4,7,8-PeCDF	5.45e+06	1.42e+03	3.8e+03	3.52e+06	2.54e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	6.39e+06	2.16e+03	3.0e+03	4.94e+06	8.72e+02	5.7e+03
5	1,2,3,6,7,8-HxCDF	6.62e+06	2.16e+03	3.1e+03	5.20e+06	8.72e+02	6.0e+03
6	2,3,4,6,7,8-HxCDF	6.19e+06	2.16e+03	2.9e+03	4.94e+06	8.72e+02	5.7e+03
7	1,2,3,7,8,9-HxCDF	5.47e+06	2.16e+03	2.5e+03	4.38e+06	8.72e+02	5.0e+03
8	1,2,3,4,6,7,8-HpCDF	5.60e+06	1.90e+03	2.9e+03	5.38e+06	5.03e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.90e+06	1.90e+03	2.0e+03	3.84e+06	5.03e+03	7.6e+02
10	OCDF	4.45e+06	6.88e+02	6.5e+03	4.88e+06	3.00e+03	1.6e+03
11	2,3,7,8-TCDD	4.62e+05	4.40e+03	1.0e+02	5.60e+05	1.82e+03	3.1e+02
12	1,2,3,7,8-PeCDD	4.30e+06	1.81e+03	2.4e+03	2.67e+06	5.28e+02	5.1e+03
13	1,2,3,4,7,8-HxCDD	4.58e+06	1.02e+03	4.5e+03	3.90e+06	9.84e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	4.62e+06	1.02e+03	4.5e+03	3.70e+06	9.84e+02	3.8e+03
15	1,2,3,7,8,9-HxCDD	4.85e+06	1.02e+03	4.8e+03	3.88e+06	9.84e+02	3.9e+03
16	1,2,3,4,6,7,8-HpCDD	3.61e+06	5.04e+02	7.2e+03	3.36e+06	9.32e+02	3.6e+03
17	OCDD	3.24e+06	7.12e+02	4.5e+03	3.68e+06	8.72e+02	4.2e+03
18	13C-2,3,7,8-TCDF	4.50e+06	1.07e+04	4.2e+02	5.73e+06	1.06e+04	5.4e+02
19	13C-1,2,3,7,8-PeCDF	1.14e+07	2.17e+03	5.3e+03	7.16e+06	1.98e+03	3.6e+03
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.17e+03	5.1e+03	7.10e+06	1.98e+03	3.6e+03
21	13C-1,2,3,4,7,8-HxCDF	6.40e+06	1.69e+03	3.8e+03	1.22e+07	1.84e+03	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	7.02e+06	1.69e+03	4.2e+03	1.32e+07	1.84e+03	7.2e+03
23	13C-2,3,4,6,7,8-HxCDF	6.70e+06	1.69e+03	4.0e+03	1.23e+07	1.84e+03	6.7e+03
24	13C-1,2,3,7,8,9-HxCDF	5.72e+06	1.69e+03	3.4e+03	1.10e+07	1.84e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.87e+06	2.42e+03	2.0e+03	1.11e+07	2.98e+03	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.56e+06	2.42e+03	1.5e+03	8.07e+06	2.98e+03	2.7e+03
27	13C-2,3,7,8-TCDD	2.79e+06	1.38e+04	2.0e+02	3.63e+06	7.26e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	9.67e+06	2.25e+03	4.3e+03	6.13e+06	2.38e+03	2.6e+03
29	13C-1,2,3,4,7,8-HxCDD	9.91e+06	3.85e+03	2.6e+03	7.93e+06	2.06e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	8.84e+06	3.85e+03	2.3e+03	6.98e+06	2.06e+03	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.96e+06	1.31e+03	6.8e+03	8.39e+06	5.08e+02	1.7e+04
32	13C-OCDD	5.94e+06	1.66e+03	3.6e+03	6.61e+06	1.16e+03	5.7e+03
33	13C-1,2,3,4-TCDD	1.21e+07	1.38e+04	8.7e+02	1.50e+07	7.26e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.80e+07	3.85e+03	4.7e+03	1.41e+07	2.06e+03	6.8e+03
35	37Cl-2,3,7,8-TCDD	4.13e+06	2.77e+03	1.5e+03			

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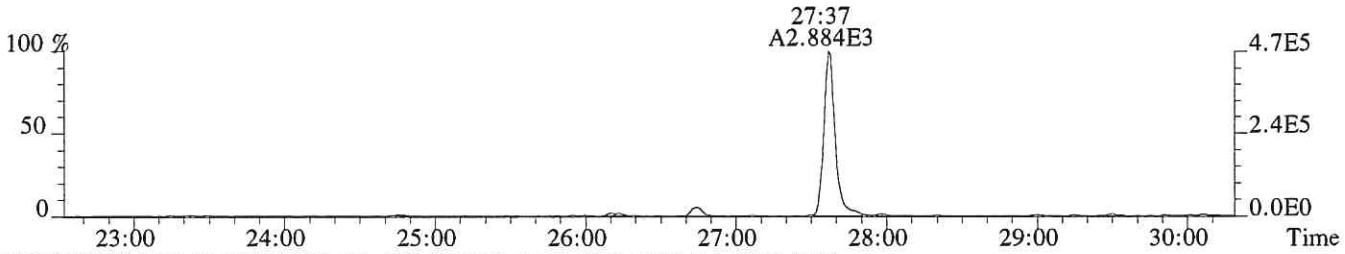
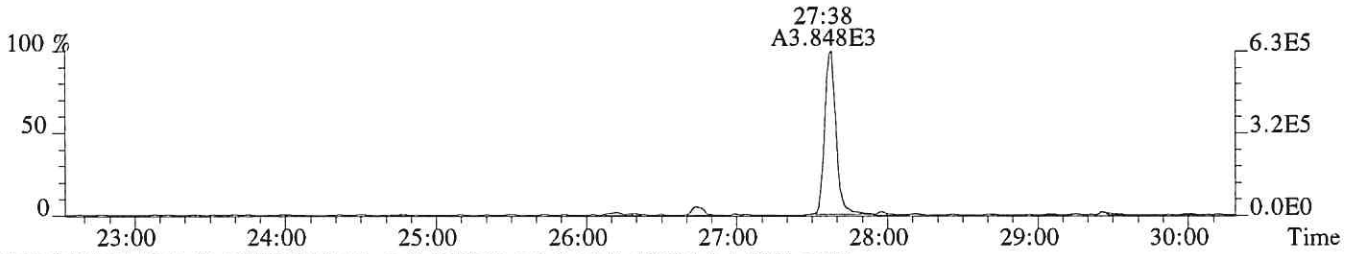
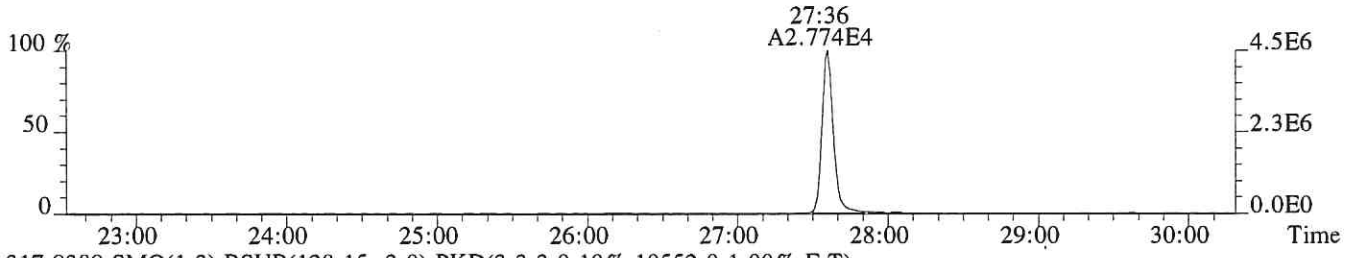
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



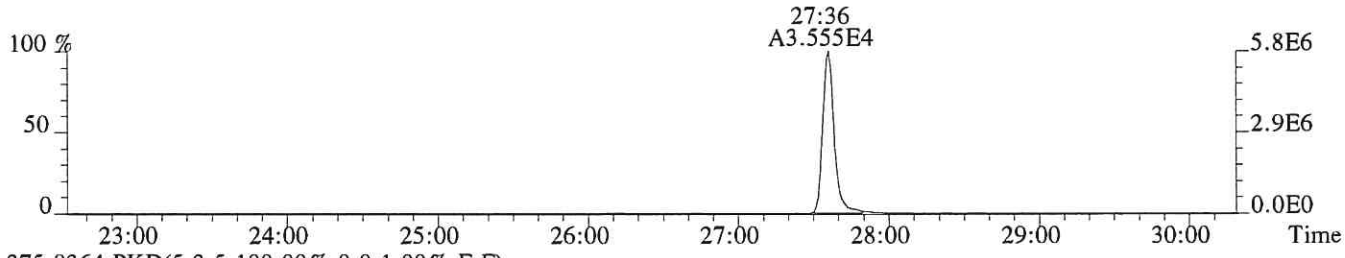
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



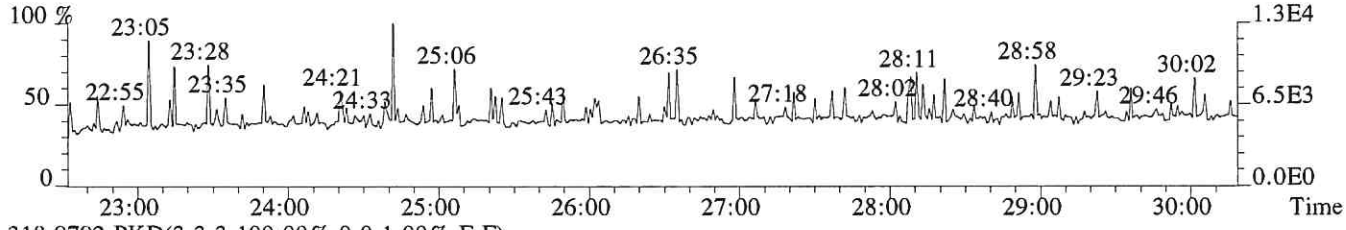
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10684.0,1.00%,F,T)



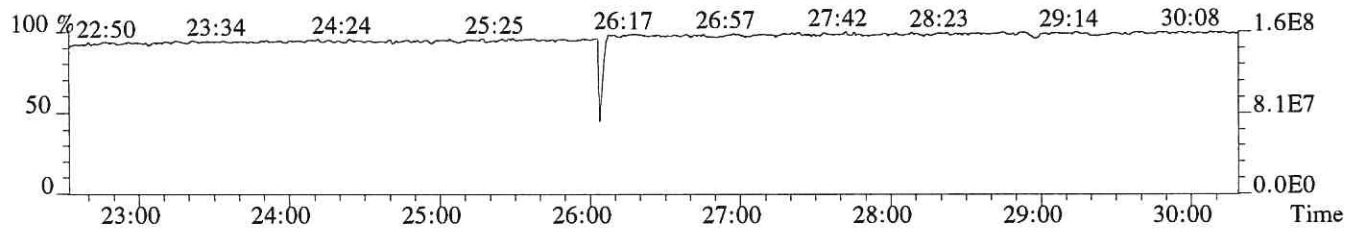
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



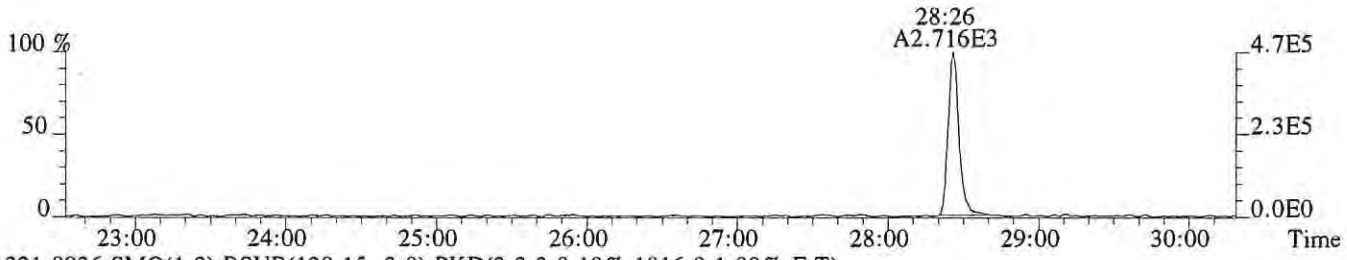
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



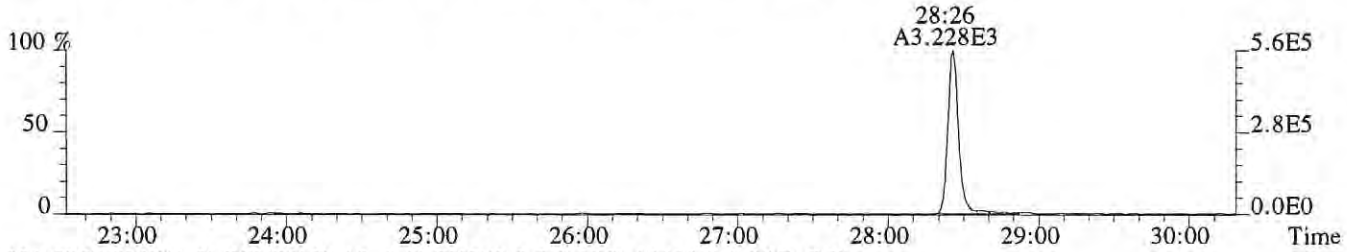
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



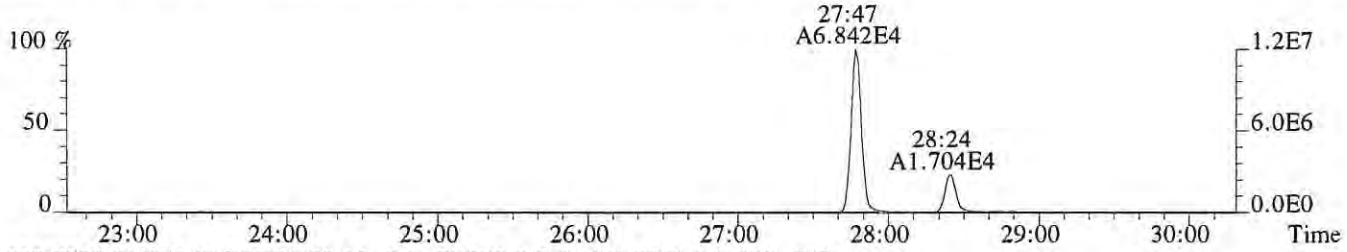
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4400.0,1.00%,F,T)



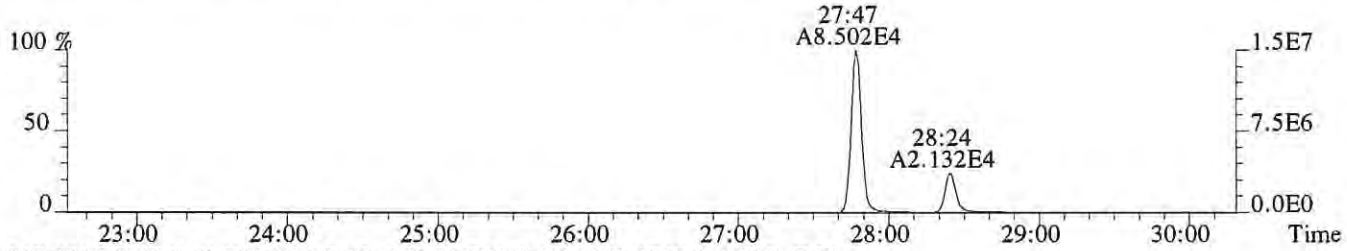
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



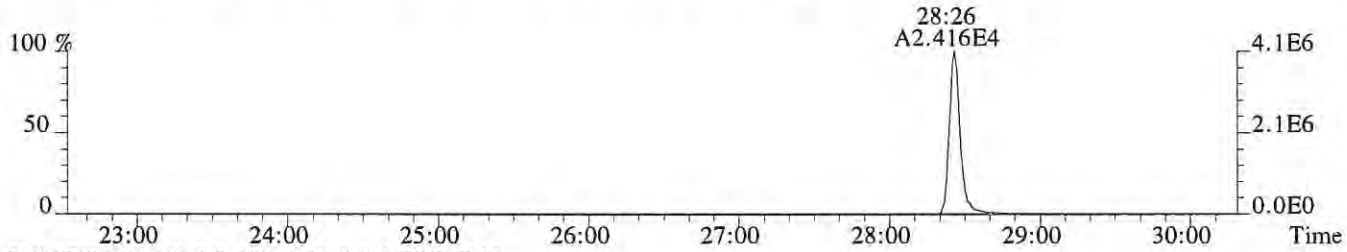
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13832.0,1.00%,F,T)



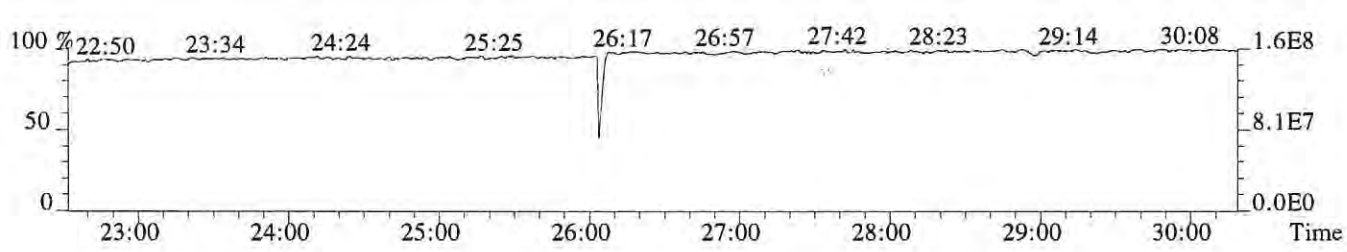
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7260.0,1.00%,F,T)



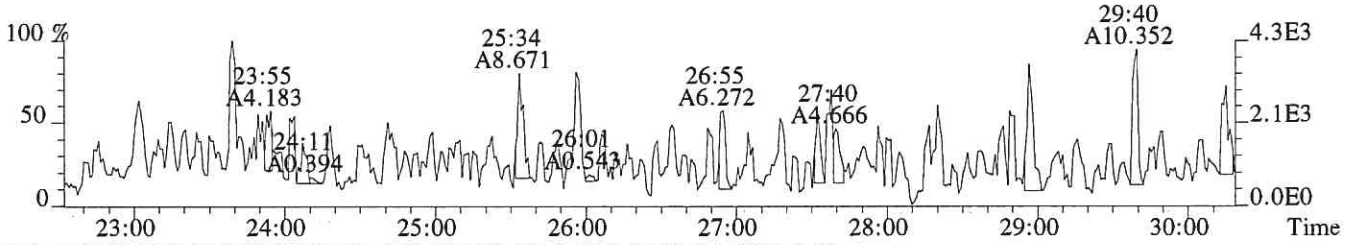
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



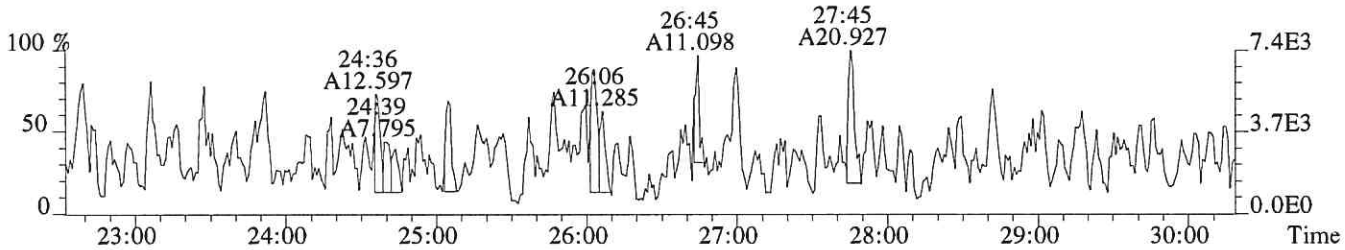
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



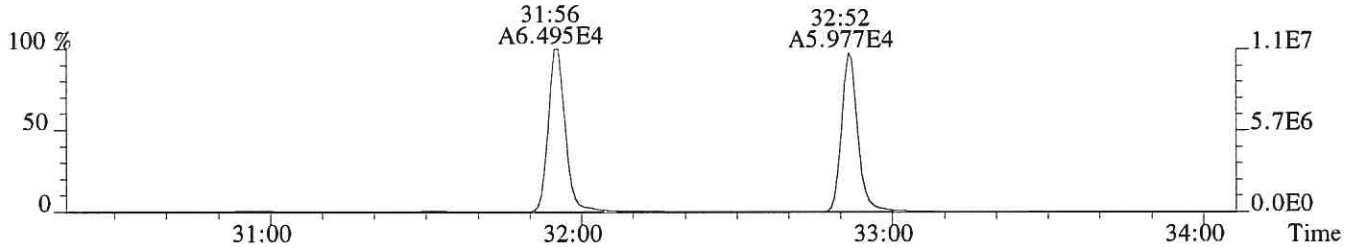
File:P615981 #1-552 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



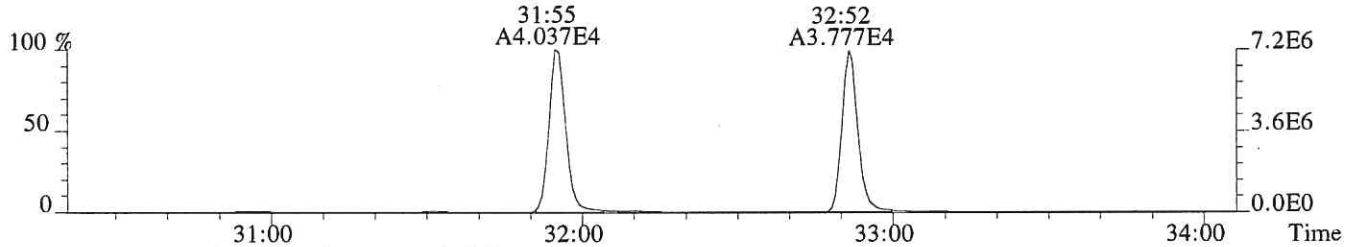
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3120.0,1.00%,F,T)



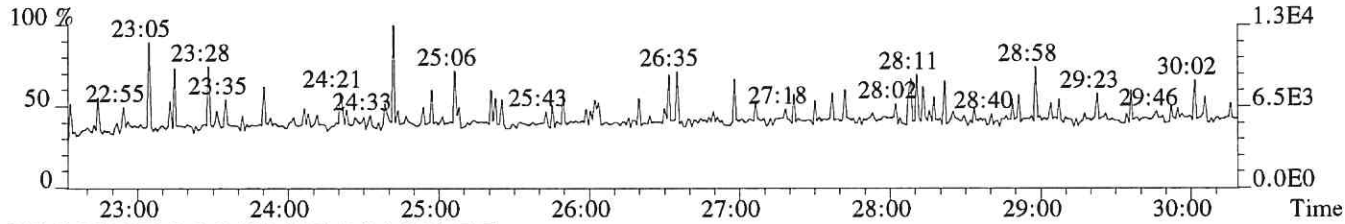
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



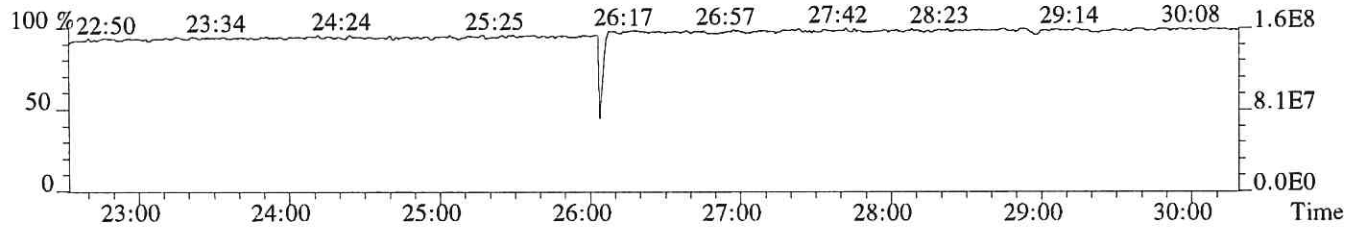
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

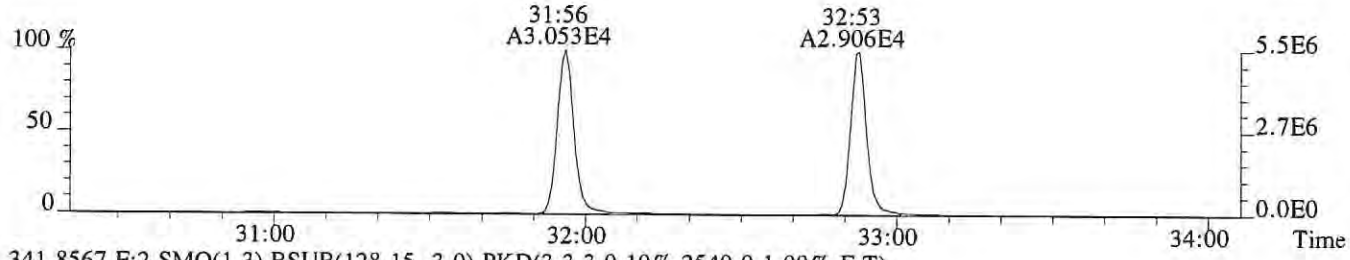


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

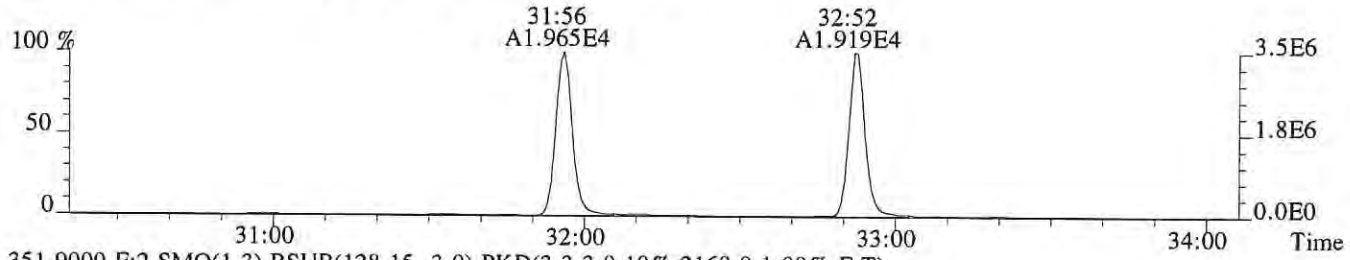


File:P615981 #1-339 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

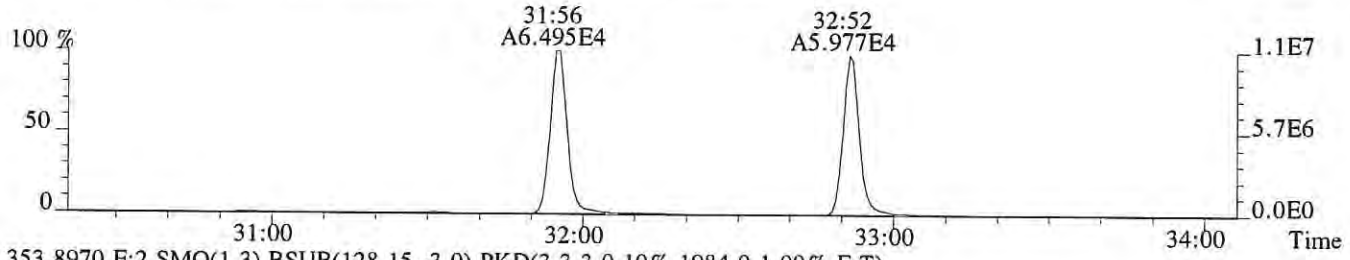
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



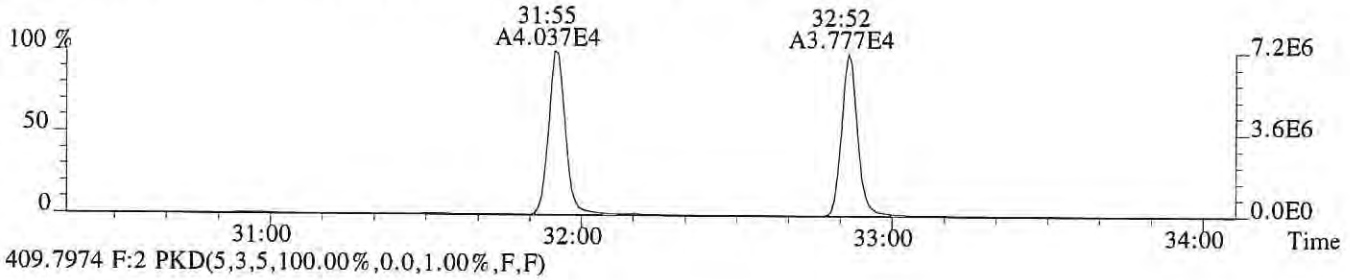
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)



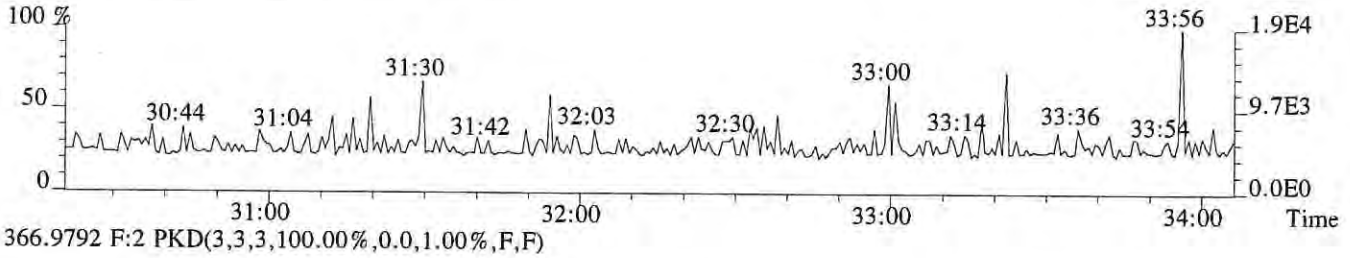
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



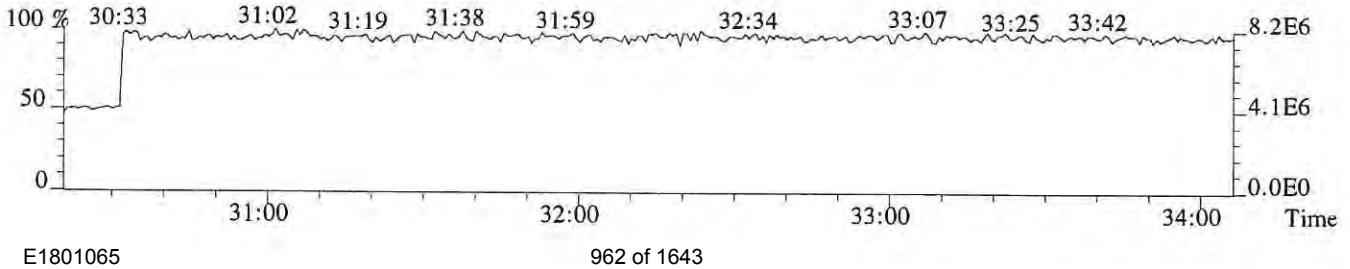
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



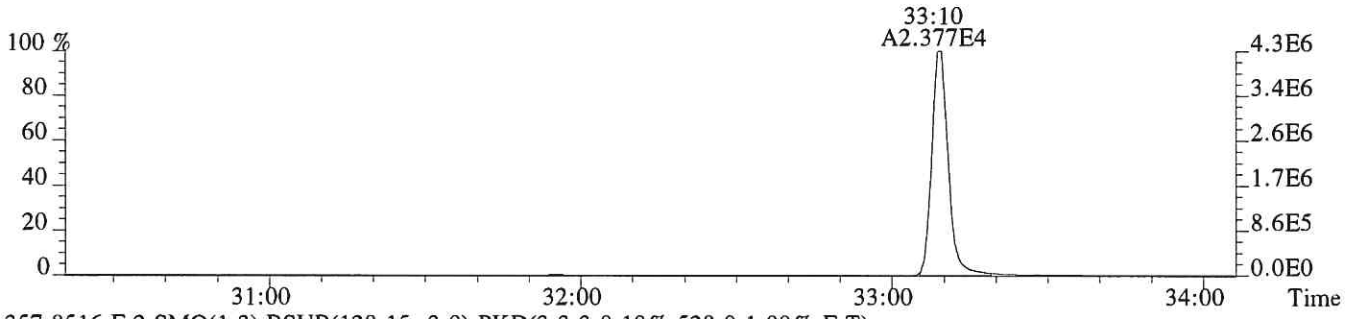
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



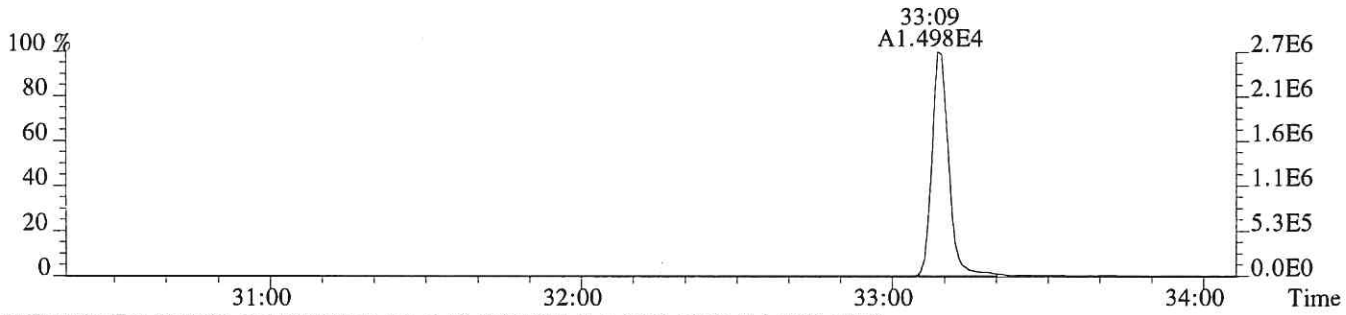
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



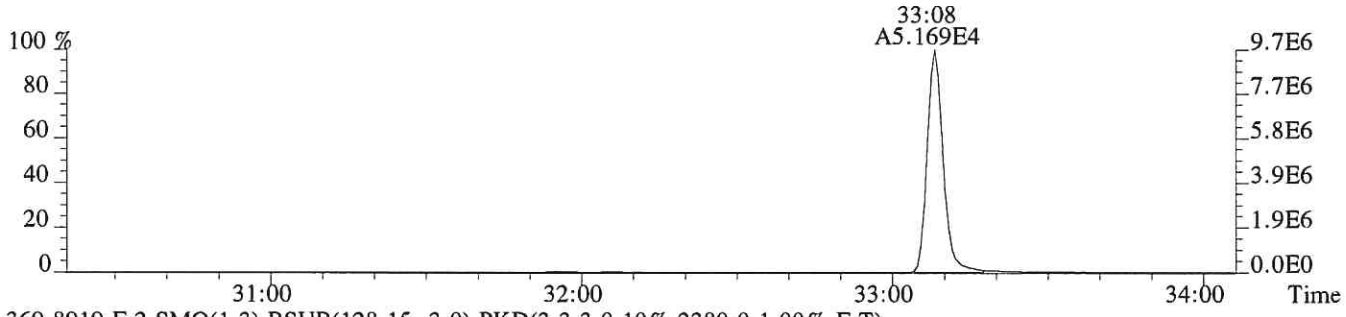
File:P615981 #1-339 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



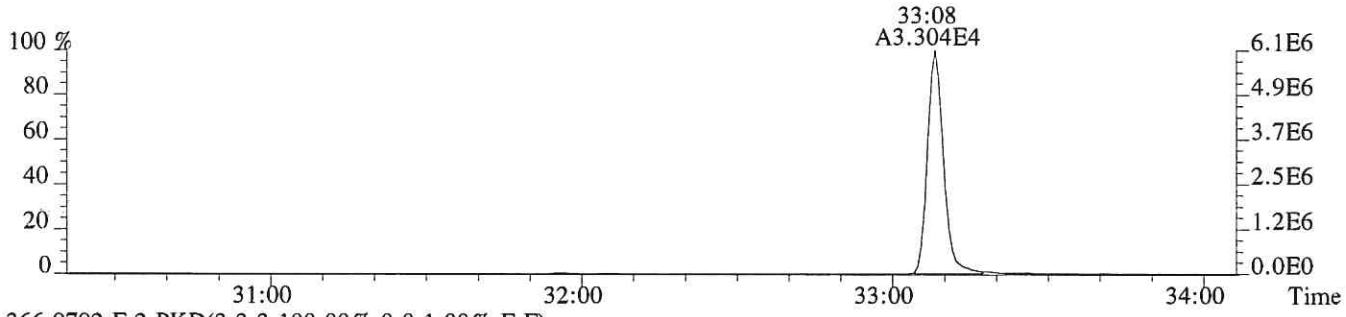
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



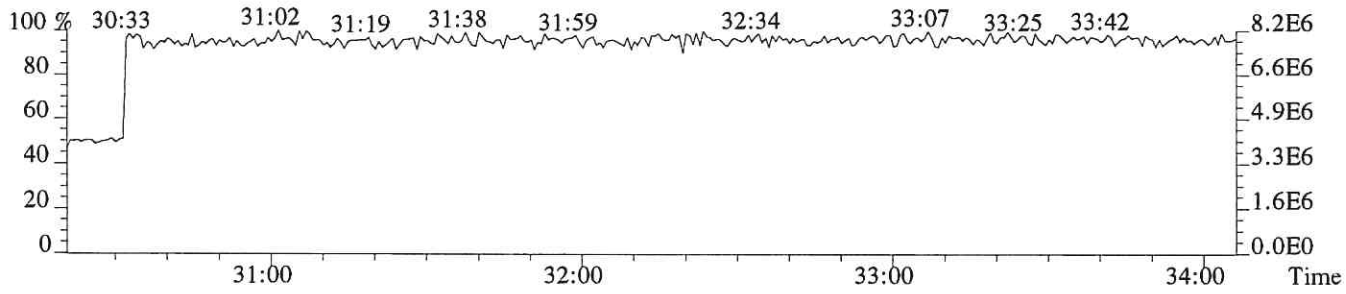
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



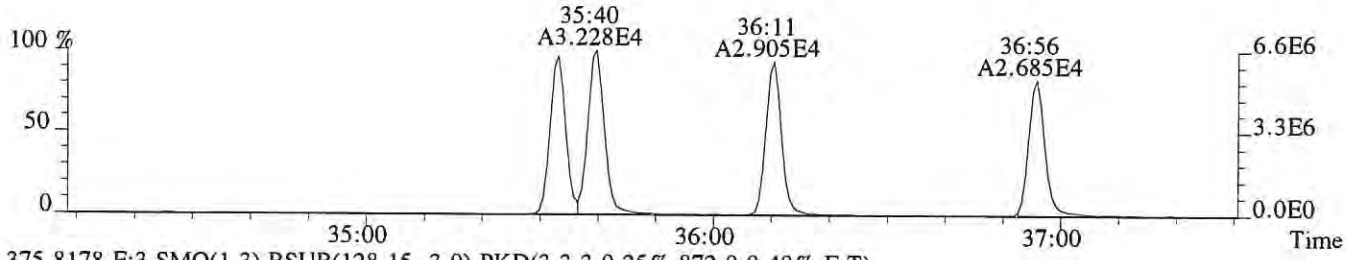
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



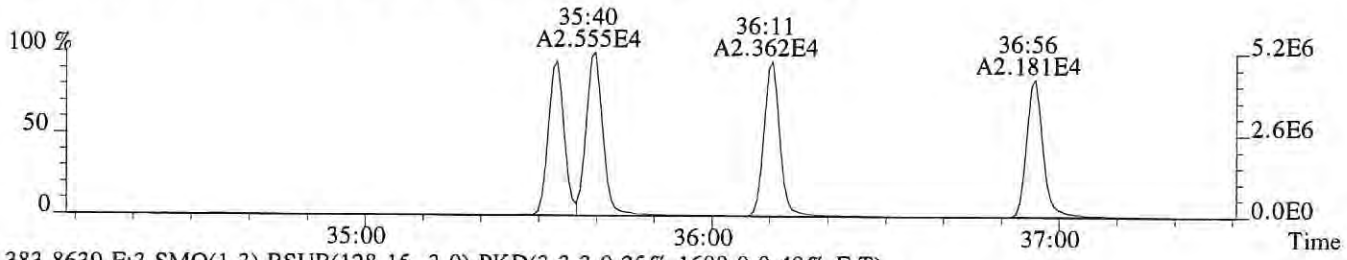
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



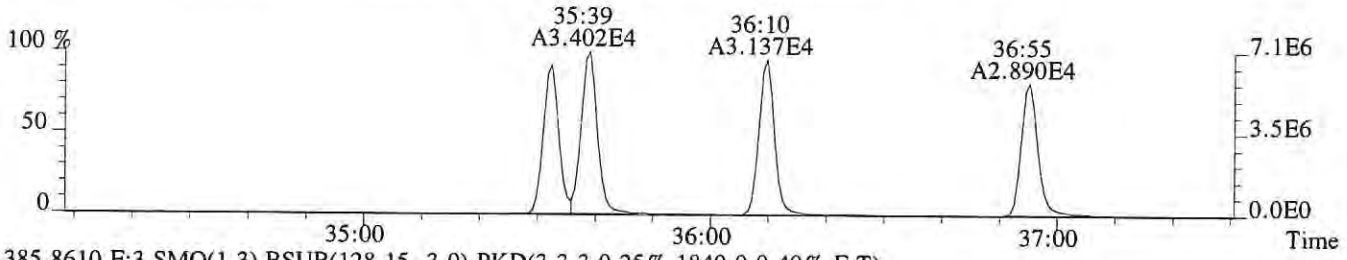
File:P615981 #1-304 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.40%,F,T)



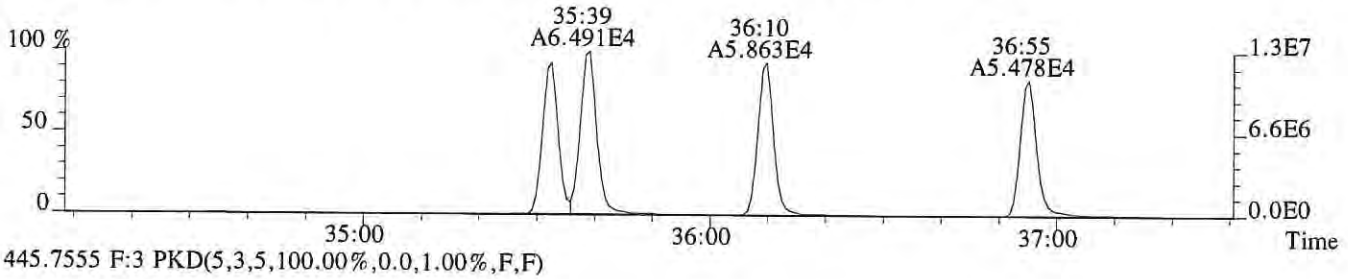
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



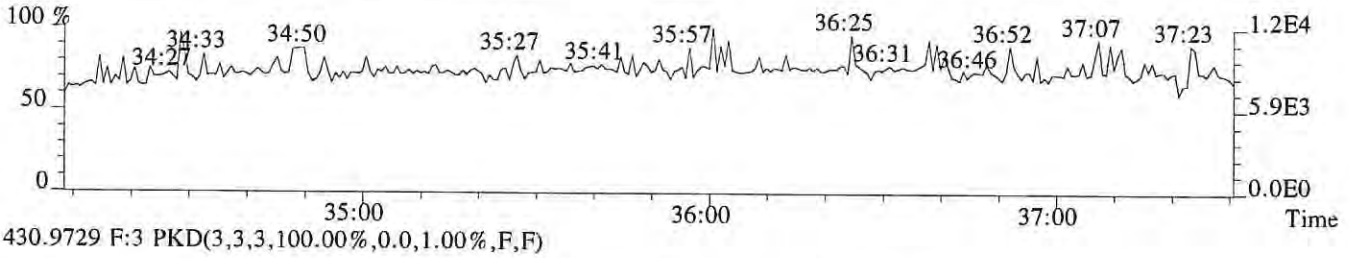
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



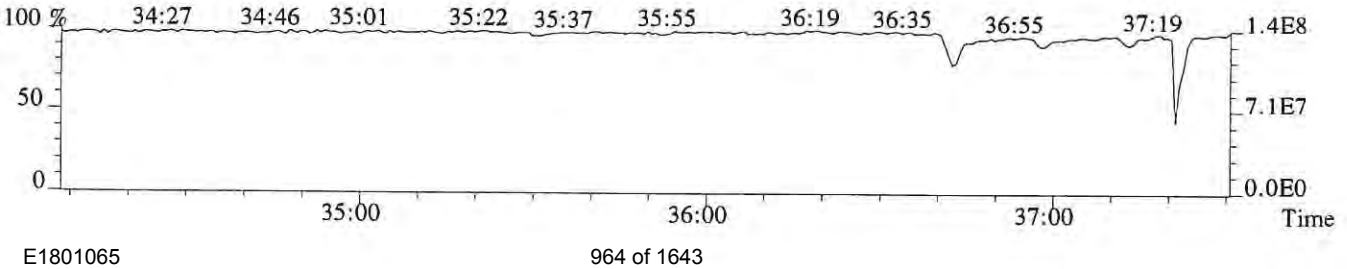
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



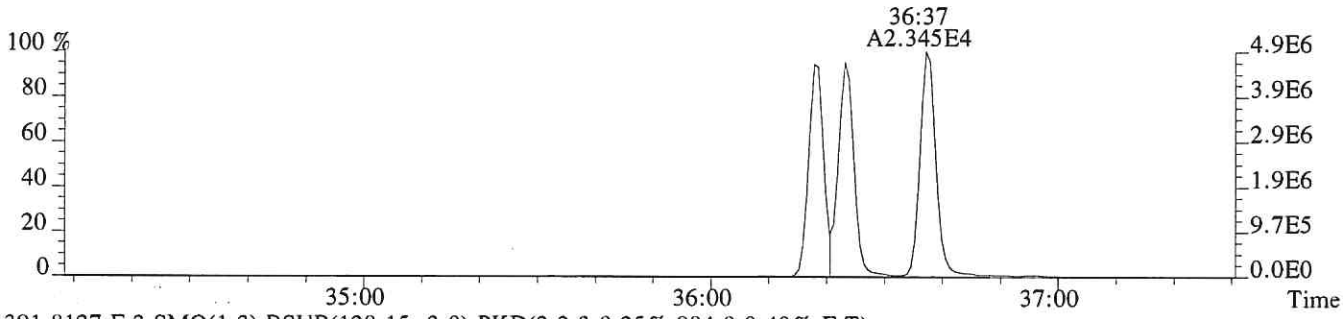
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



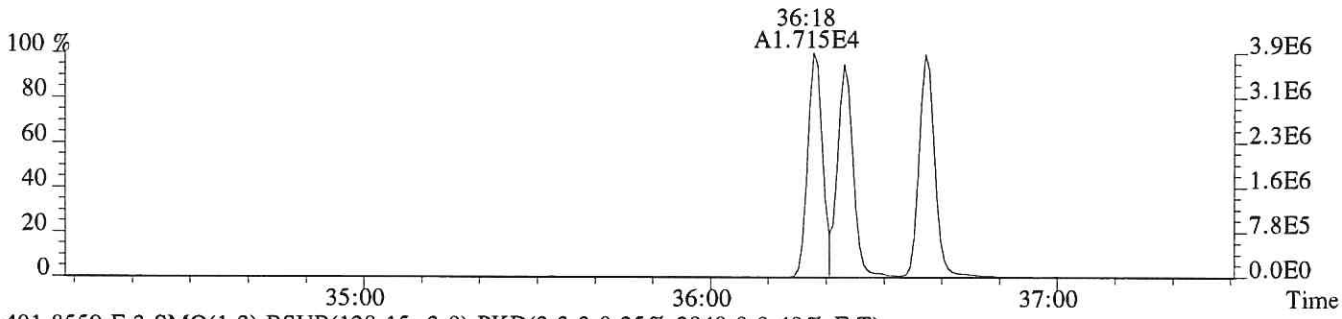
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



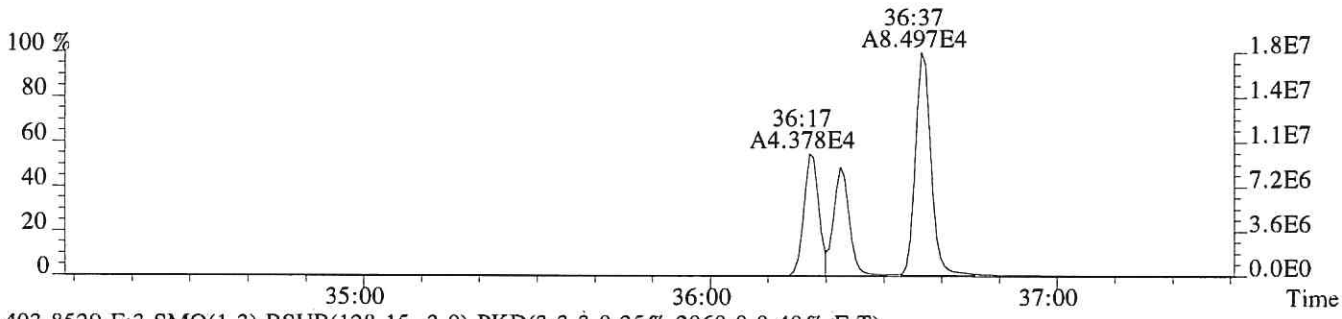
File:P615981 #1-304 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



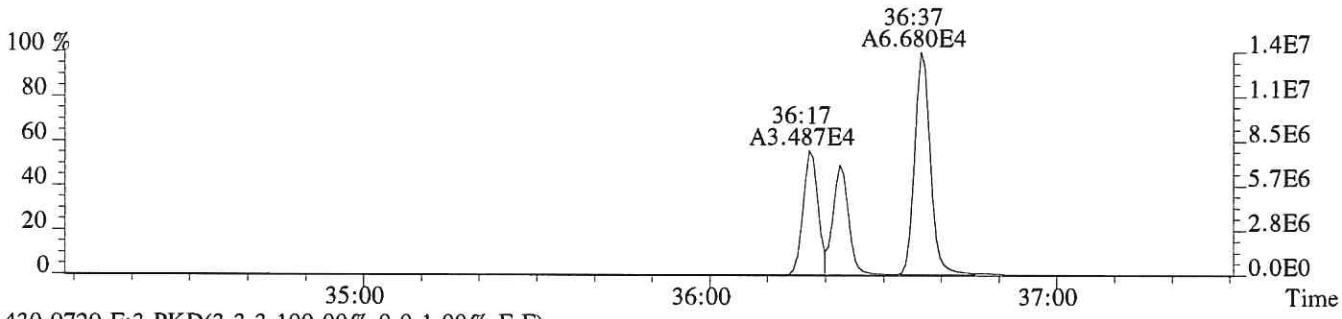
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



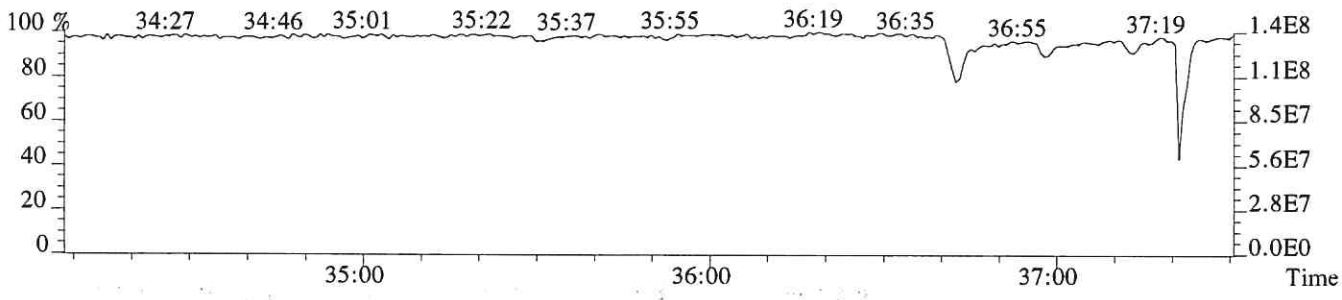
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3848.0,0.40%,F,T)



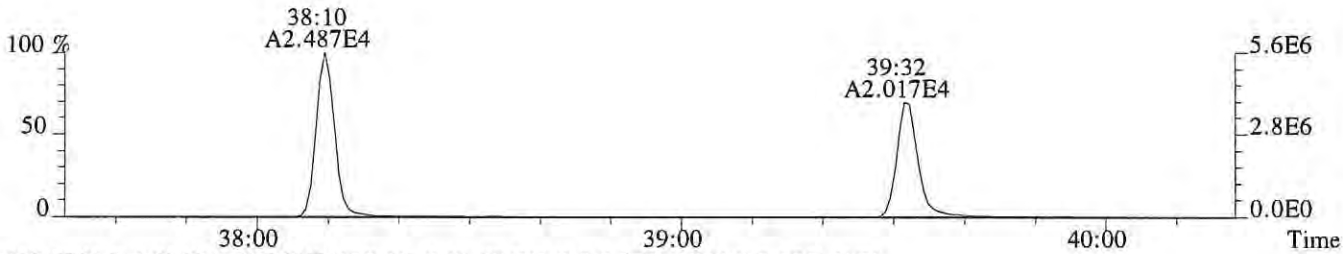
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.40%,F,T)



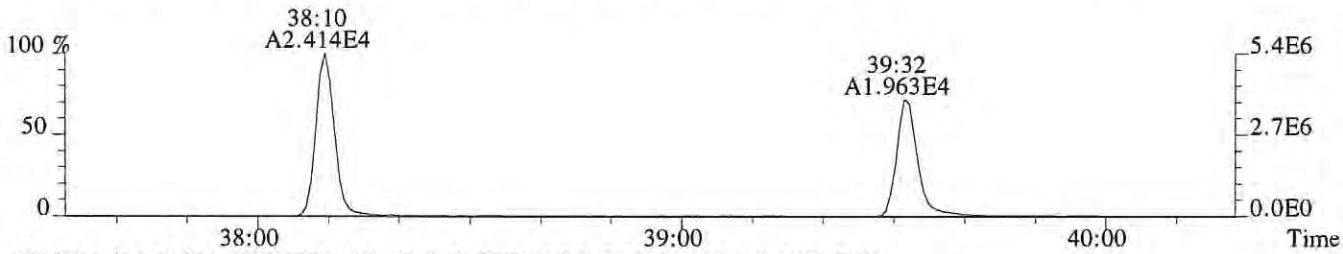
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



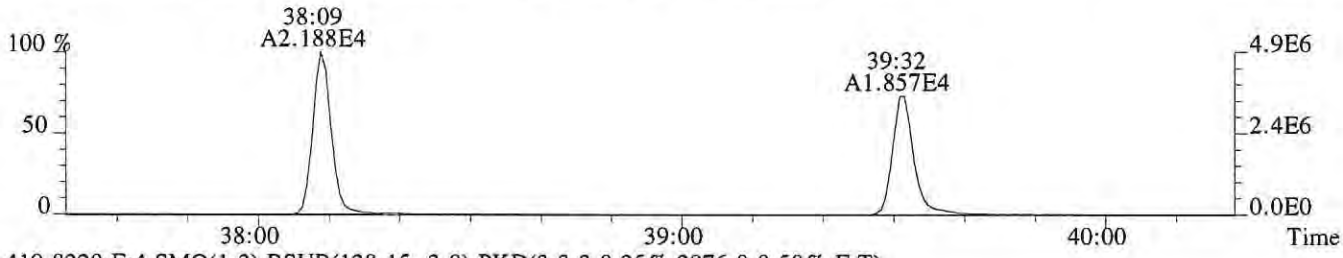
File:P615981 #1-249 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.50%,F,T)



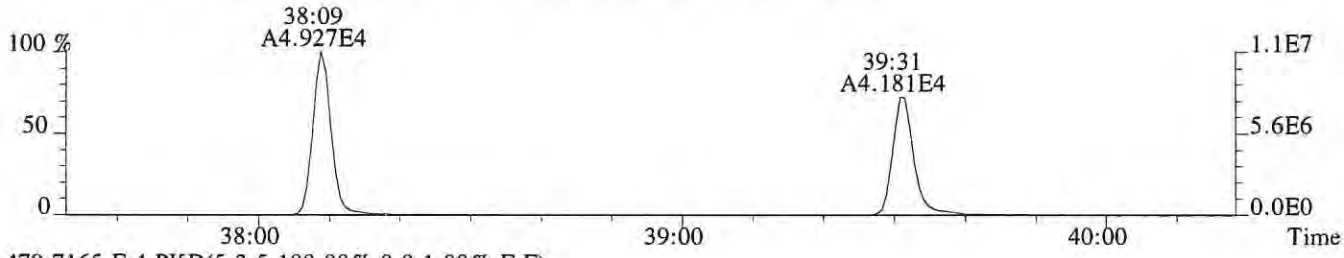
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5028.0,0.50%,F,T)



417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.50%,F,T)



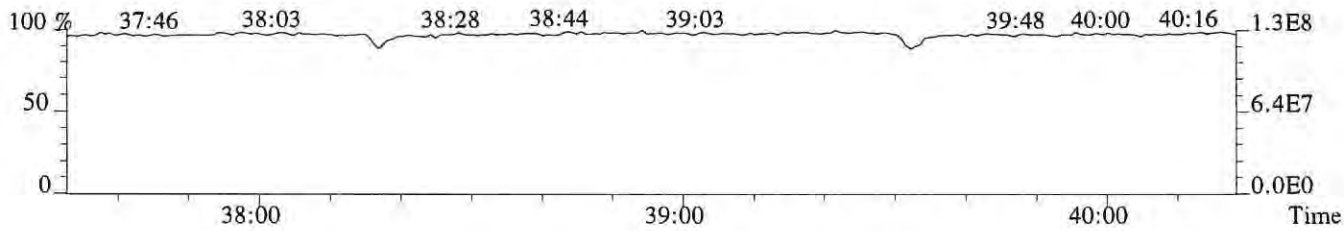
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2976.0,0.50%,F,T)



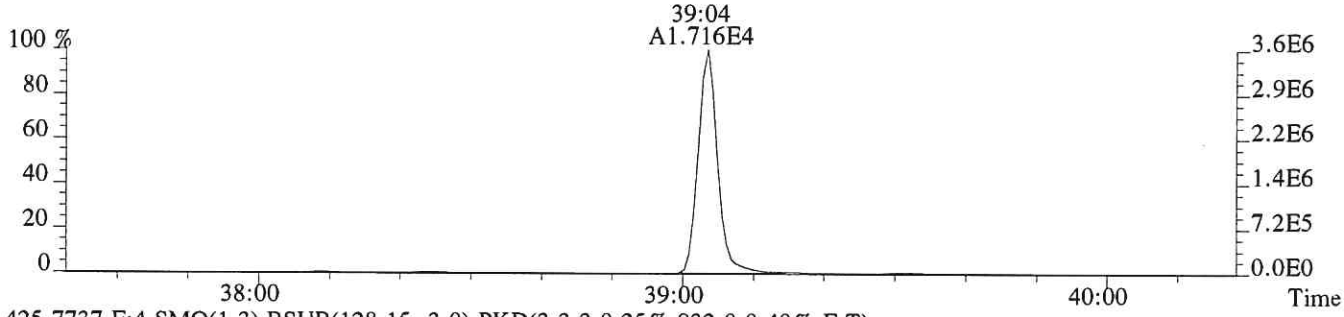
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



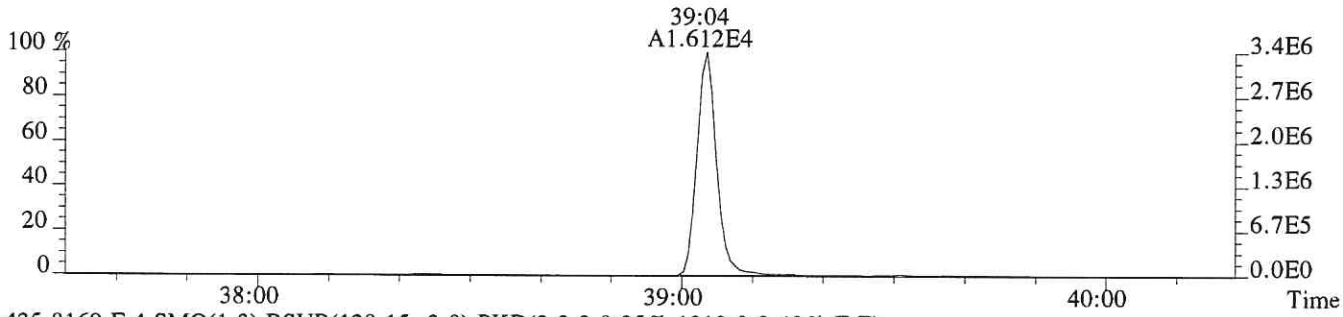
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



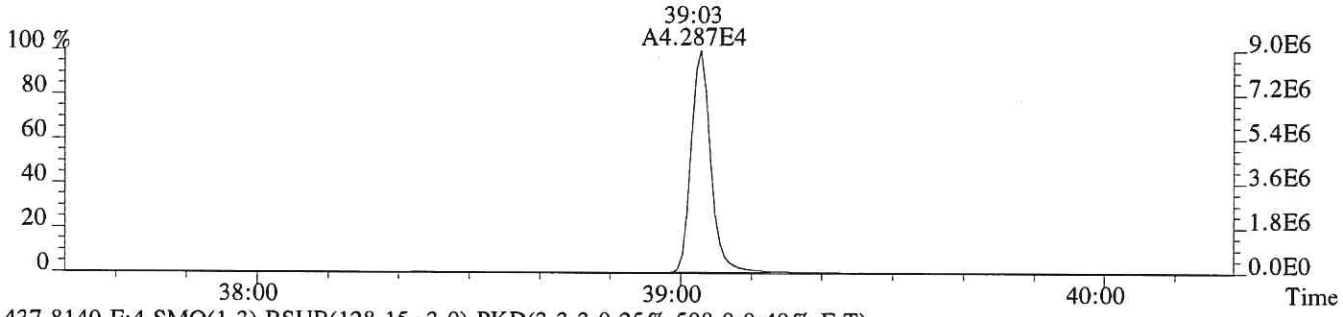
File:P615981 #1-249 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



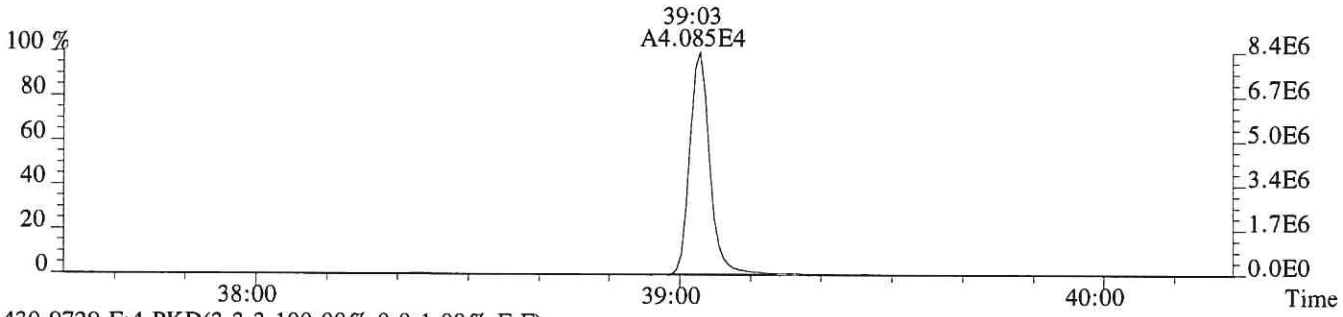
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



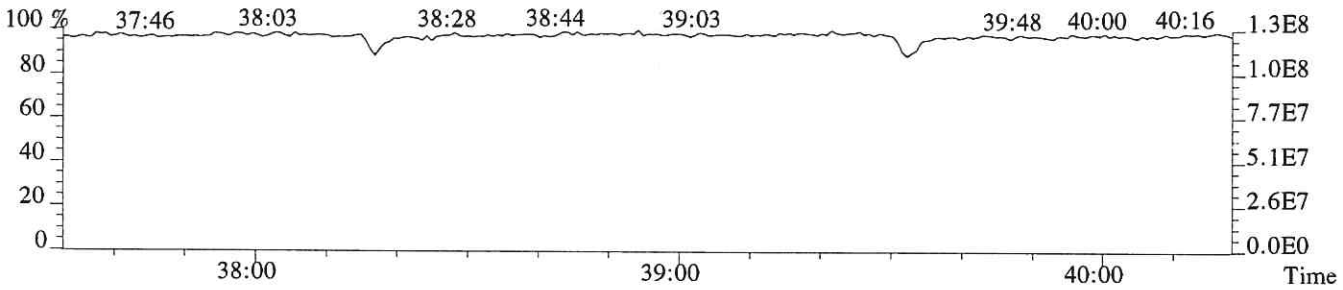
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



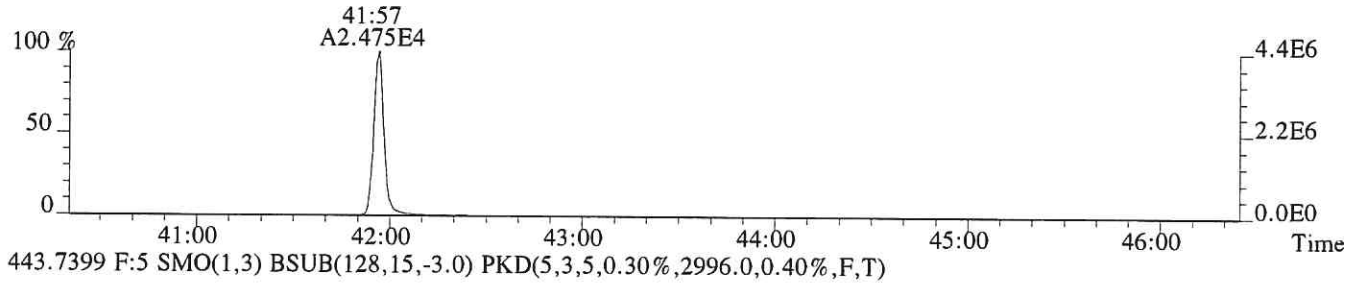
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



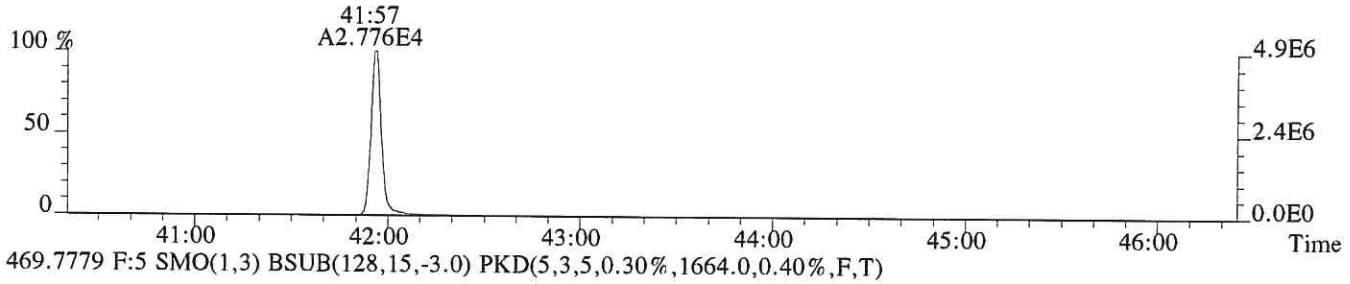
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



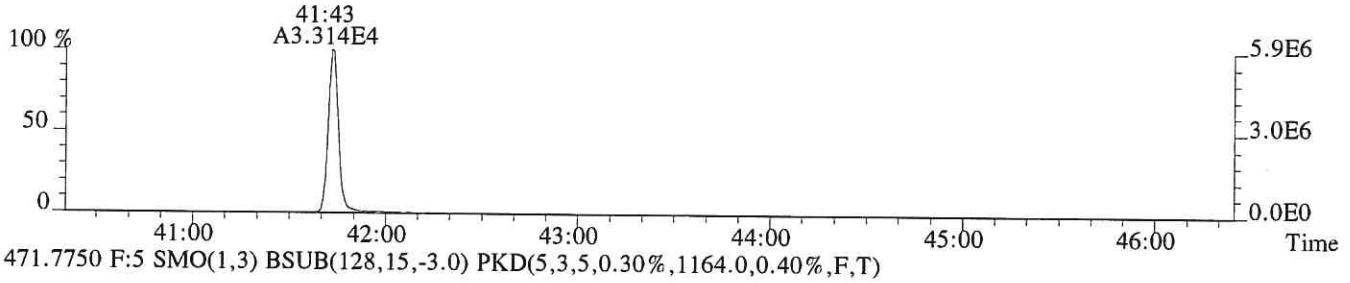
File:P615981 #1-547 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



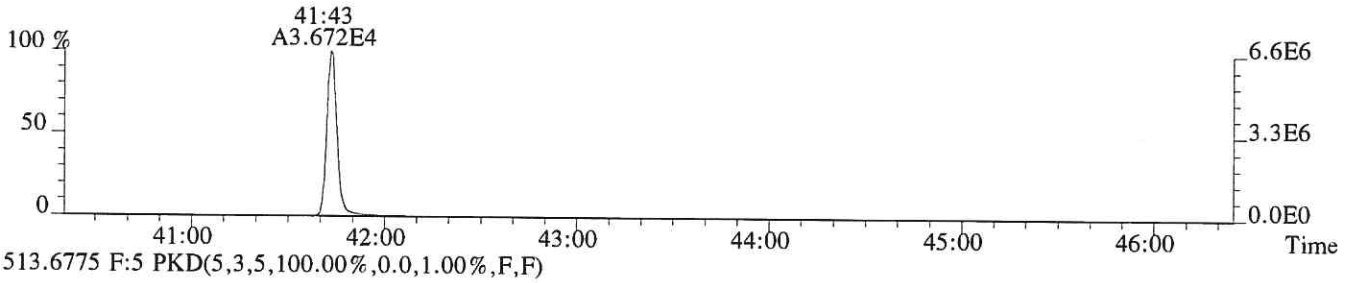
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



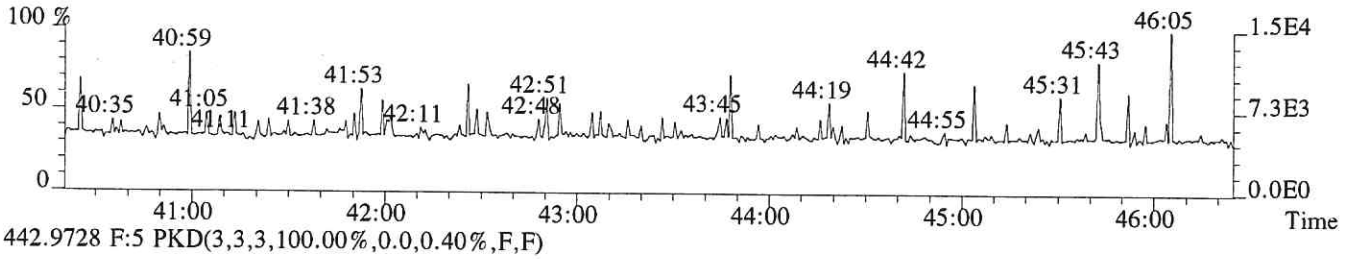
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1664.0,0.40%,F,T)



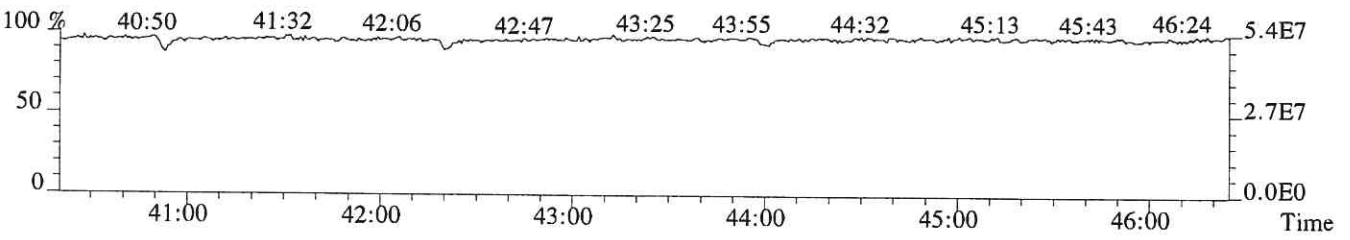
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



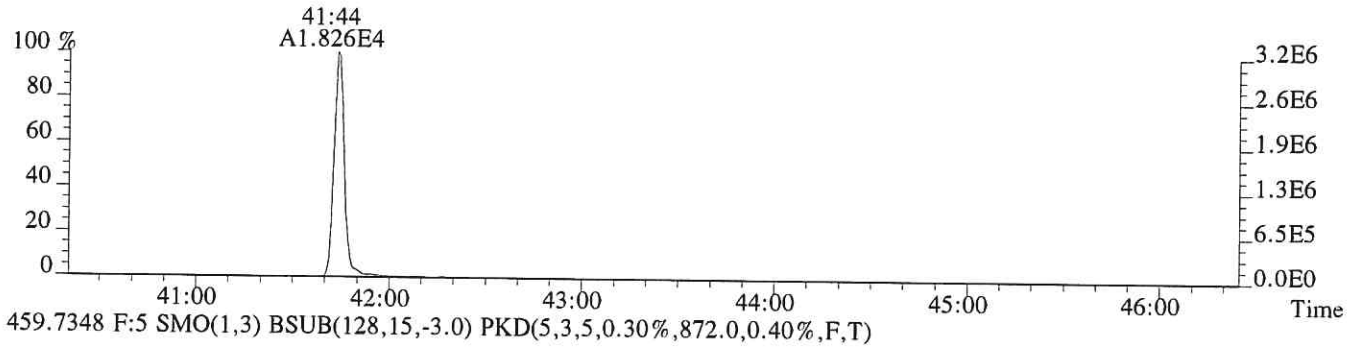
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



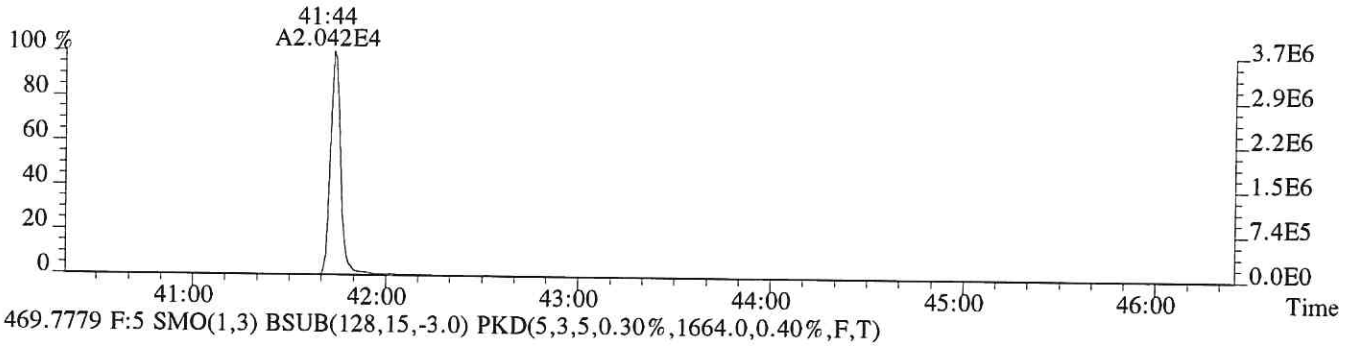
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



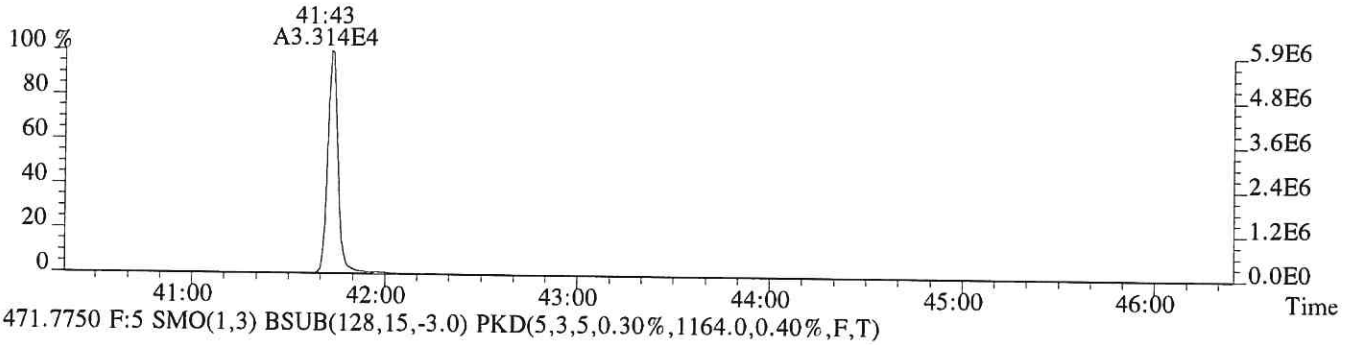
File:P615981 #1-547 Acq: 7-DEC-2018 21:19:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



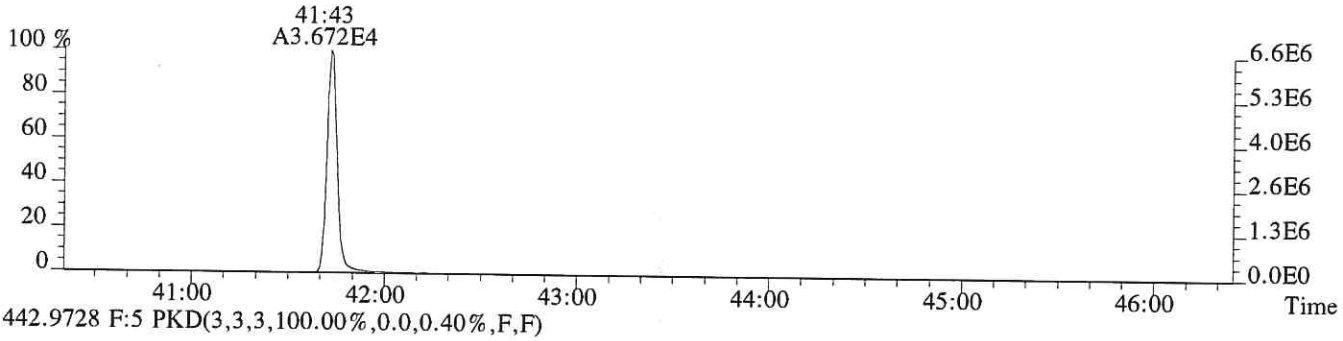
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



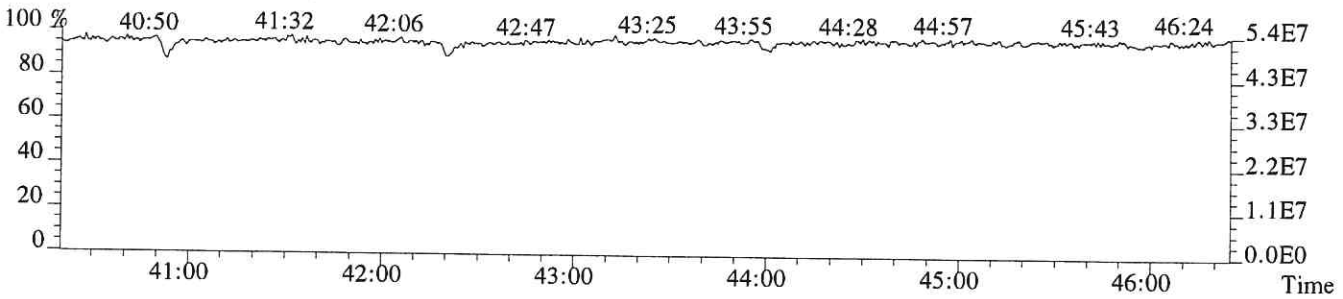
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1664.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P519371 Samp: 1 Inj: 1 Acquired: 12-DEC-18 03:51:29
Processed: 13-DEC-18 09:30:57 Sample ID: EQ1800498-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.258
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	8.122e+00	5.399e+00	1.50	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	8.989e+00	8.781e+00	1.02	yes	yes	1.025
17	Unk	OCDD	42:29	1.783e+01	1.794e+01	0.99	yes	yes	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	2.003e+04	2.551e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	4.653e+04	2.904e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	4.708e+04	2.928e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.268e+04	4.329e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:53	2.662e+04	5.367e+04	0.50	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.459e+04	4.623e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	2.363e+04	4.583e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.757e+04	4.037e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.647e+04	3.788e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.394e+03	1.225e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:18	3.485e+04	2.143e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	3.285e+04	2.584e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	3.208e+04	2.550e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	3.617e+04	3.428e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:29	3.089e+04	3.419e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.439e+04	3.080e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	3.791e+04	2.938e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	7.637e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #11 Filename P519371 Samp: 1 Inj: 1 Acquired: 12-DEC-18 03:51:29
Processed: 13-DEC-18 09:30:57 LAB. ID: EQ1800498-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	3.04e+02	*	*	5.76e+02	*
2	1,2,3,7,8-PeCDF	*	2.52e+02	*	*	7.68e+02	*
3	2,3,4,7,8-PeCDF	*	2.52e+02	*	*	7.68e+02	*
4	1,2,3,4,7,8-HxCDF	*	3.00e+02	*	*	2.80e+02	*
5	1,2,3,6,7,8-HxCDF	*	3.00e+02	*	*	2.80e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.00e+02	*	*	2.80e+02	*
7	1,2,3,7,8,9-HxCDF	*	3.00e+02	*	*	2.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	2.32e+02	*	*	2.68e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	2.32e+02	*	*	2.68e+02	*
10	OCDF	*	2.72e+02	*	*	2.84e+02	*
11	2,3,7,8-TCDD	*	1.17e+03	*	*	4.76e+02	*
12	1,2,3,7,8-PeCDD	2.31e+03	5.28e+02	4.4e+00	1.40e+03	2.68e+02	5.2e+00
13	1,2,3,4,7,8-HxCDD	*	2.28e+02	*	*	1.92e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.28e+02	*	*	1.92e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.28e+02	*	*	1.92e+02	*
16	1,2,3,4,6,7,8-HpCDD	1.53e+03	2.60e+02	5.9e+00	1.47e+03	1.52e+02	9.7e+00
17	OCDD	2.95e+03	2.76e+02	1.1e+01	2.73e+03	3.68e+02	7.4e+00
18	13C-2,3,7,8-TCDF	3.48e+06	3.55e+03	9.8e+02	4.46e+06	2.16e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	8.43e+06	4.08e+02	2.1e+04	5.29e+06	1.08e+03	4.9e+03
20	13C-2,3,4,7,8-PeCDF	9.00e+06	4.08e+02	2.2e+04	5.58e+06	1.08e+03	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	4.59e+06	4.56e+02	1.0e+04	8.97e+06	7.16e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	5.04e+06	4.56e+02	1.1e+04	9.78e+06	7.16e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	4.80e+06	4.56e+02	1.1e+04	9.19e+06	7.16e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	4.10e+06	4.56e+02	9.0e+03	7.88e+06	7.16e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.19e+06	2.38e+03	1.3e+03	7.24e+06	2.82e+03	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.55e+06	2.38e+03	1.1e+03	5.72e+06	2.82e+03	2.0e+03
27	13C-2,3,7,8-TCDD	1.73e+06	3.75e+03	4.6e+02	2.27e+06	1.56e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	6.38e+06	3.04e+02	2.1e+04	3.99e+06	2.16e+02	1.8e+04
29	13C-1,2,3,4,7,8-HxCDD	6.62e+06	4.88e+02	1.4e+04	5.18e+06	2.80e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	6.01e+06	4.88e+02	1.2e+04	4.85e+06	2.80e+02	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+06	2.56e+02	2.2e+04	5.34e+06	4.08e+02	1.3e+04
32	13C-OCDD	3.37e+06	3.20e+02	1.1e+04	3.71e+06	3.28e+02	1.1e+04
33	13C-1,2,3,4-TCDD	4.44e+06	3.75e+03	1.2e+03	5.58e+06	1.56e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.62e+06	4.88e+02	1.4e+04	5.06e+06	2.80e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.43e+06	4.12e+02	3.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.168e+03 + 4.760e+02) \times 2000}{(1.728e+06 + 2.266e+06) \times (\quad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 11 File: P519371 Sample:1 Injection:1 Function:2

Acquired: 12-DEC-18 03:51:29 Processed: 13-DEC-18 09:30:57

Mass: 355.8550 357.8520 Tot Response: 1.35e+01 RRF: 0.9565

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:20	8.12e+00	5.40e+00 1.50	yes	1.35e+01	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P519371 Sample:1 Injection:1 Function:4

Acquired: 12-DEC-18 03:51:29 Processed: 13-DEC-18 09:30:57

Mass: 423.7770 425.7740 Tot Response: 1.78e+01 RRF: 1.025

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:32	8.99e+00	8.78e+00 1.02	yes	1.78e+01	1,2,3,4,6,7,8-HpCDD	y	n

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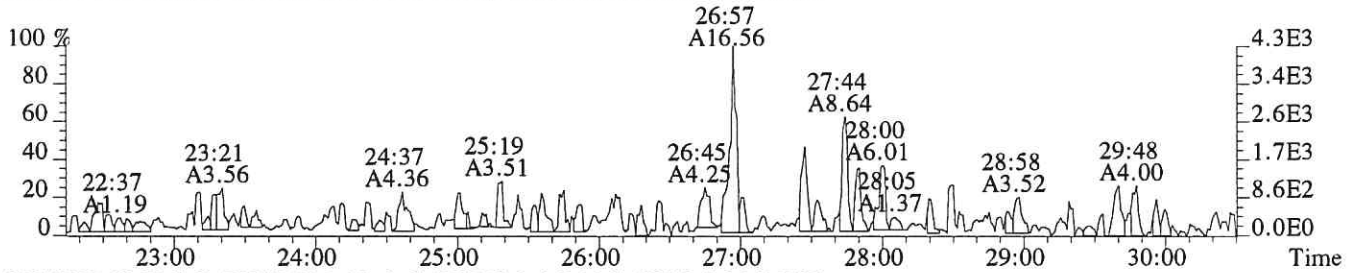
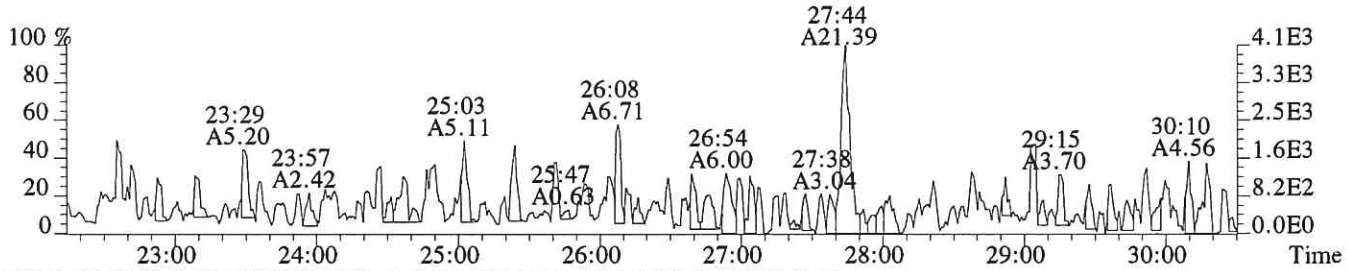
File:P519371 #1-587 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01

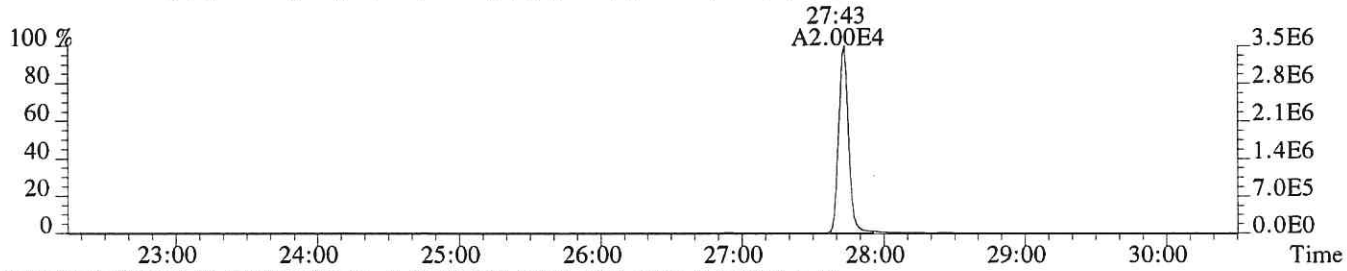
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



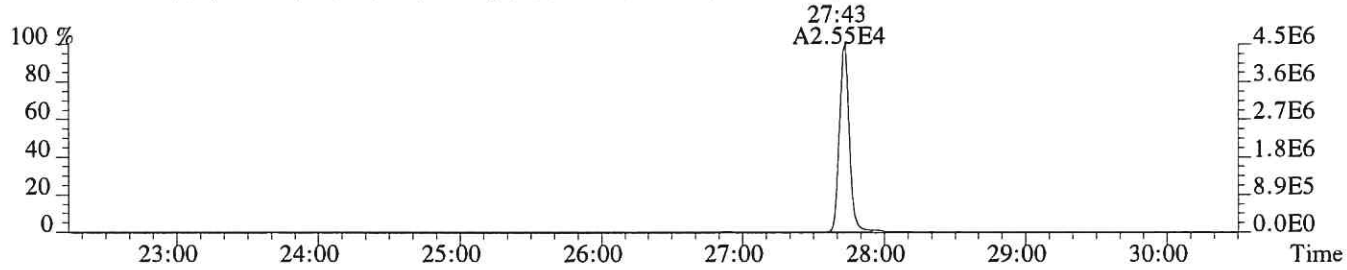
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



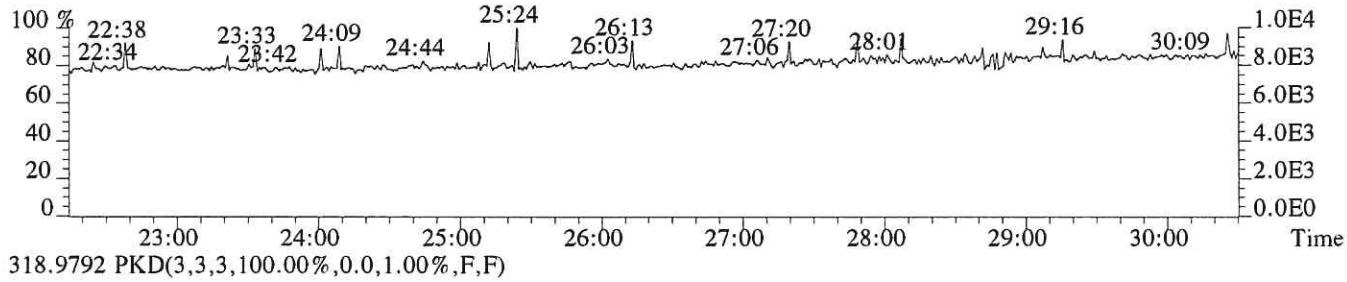
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3552.0,1.00%,F,T)



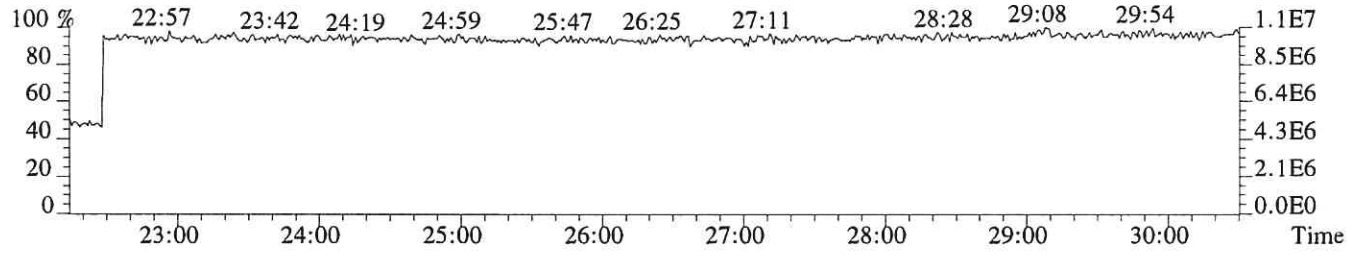
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



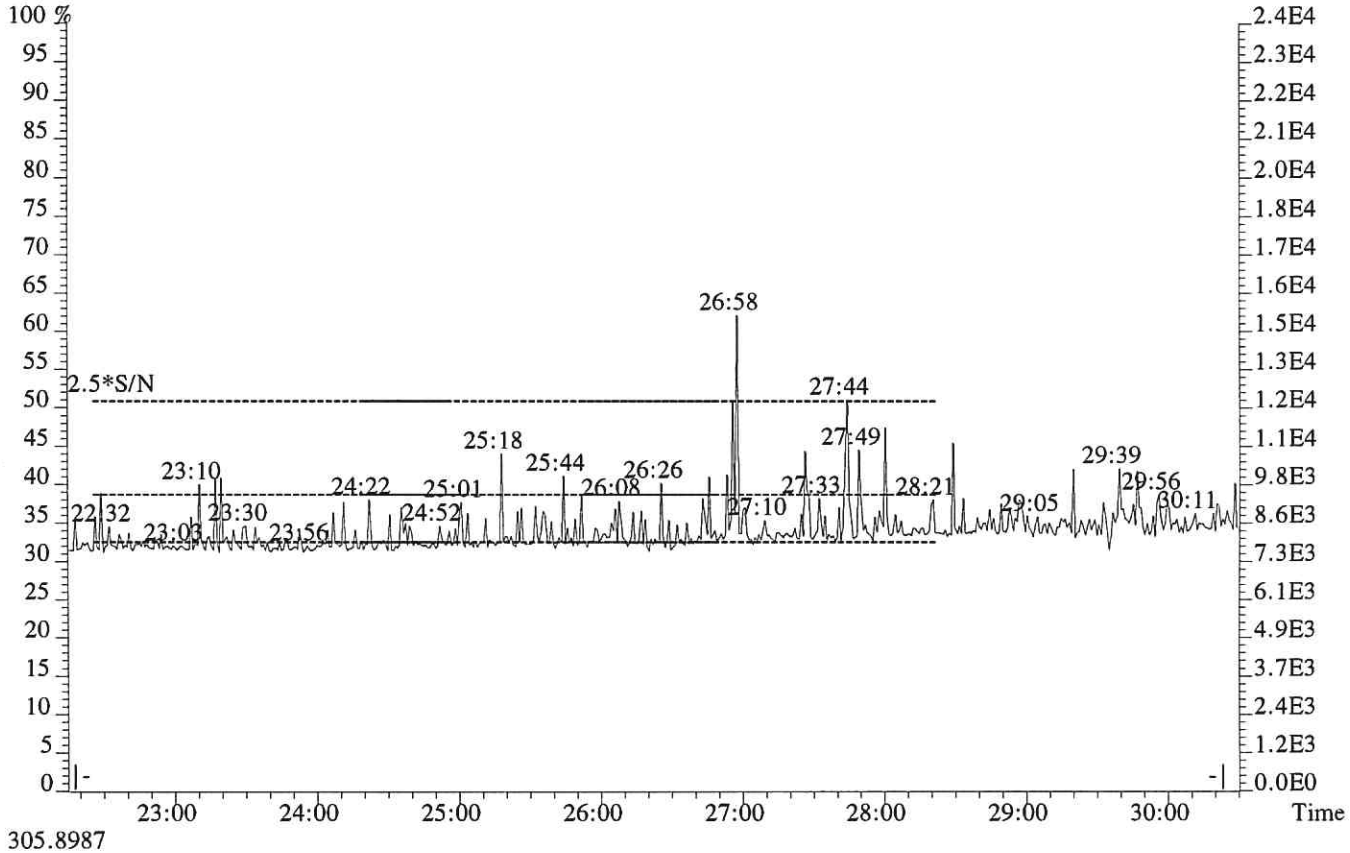
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



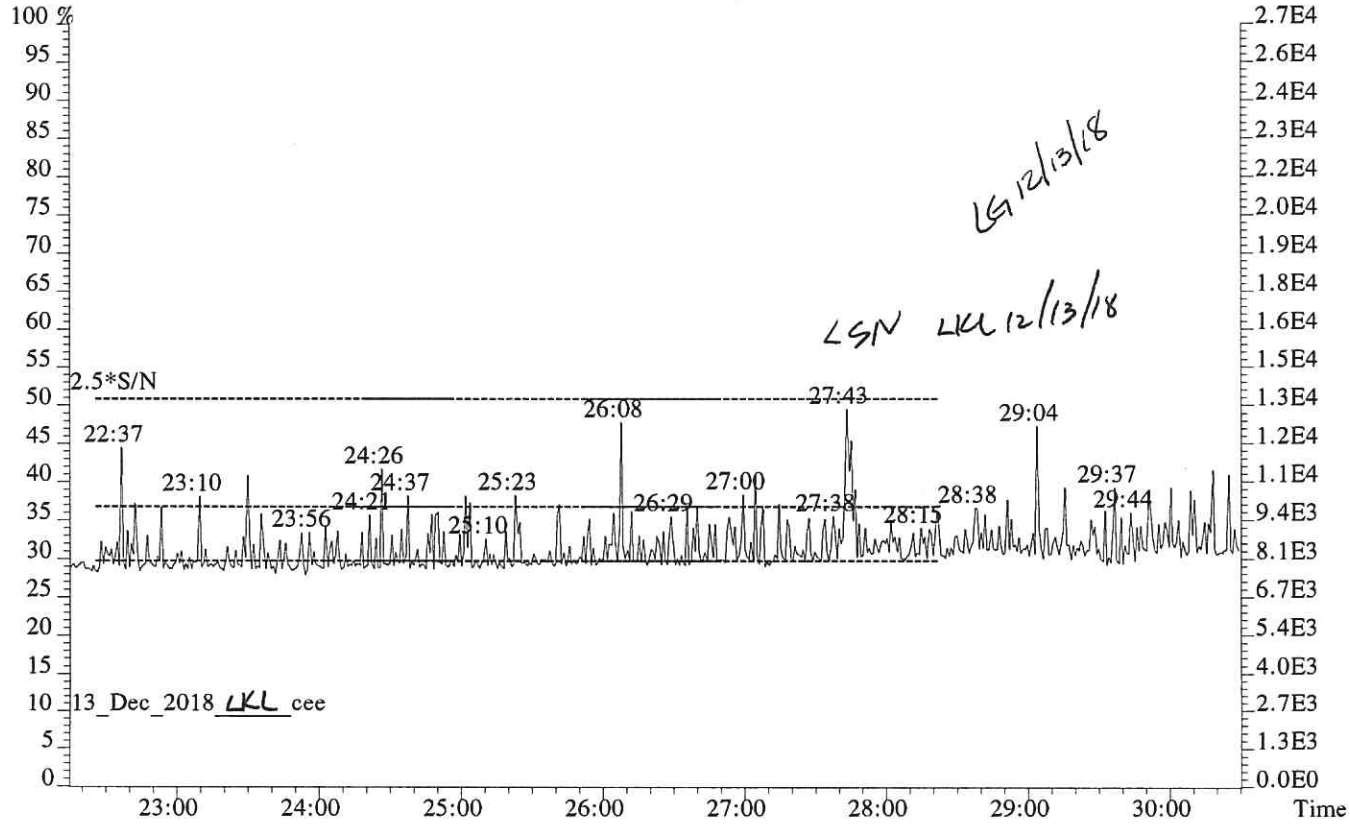
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519371 #1-587 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
303.9016



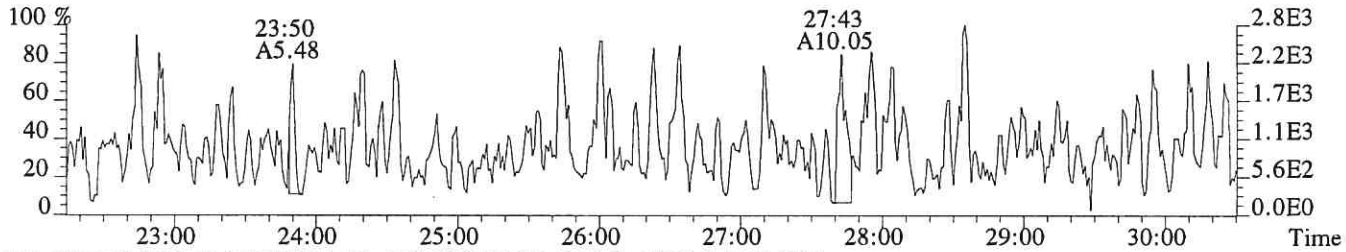
305.8987



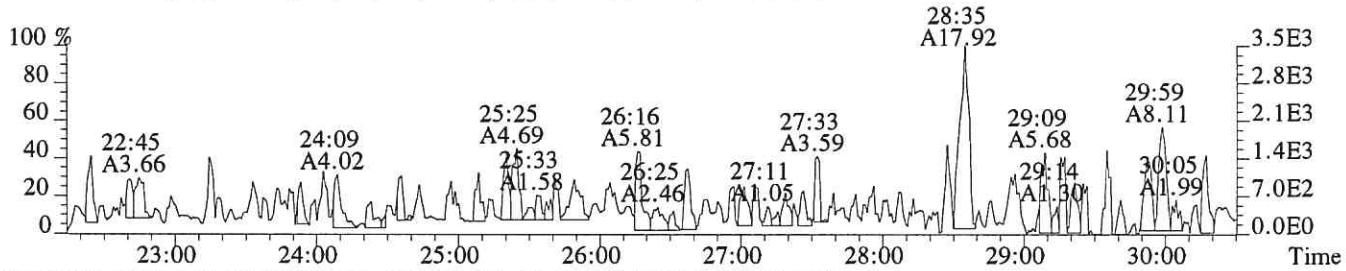
LG 12/13/18

LSN LKL 12/13/18

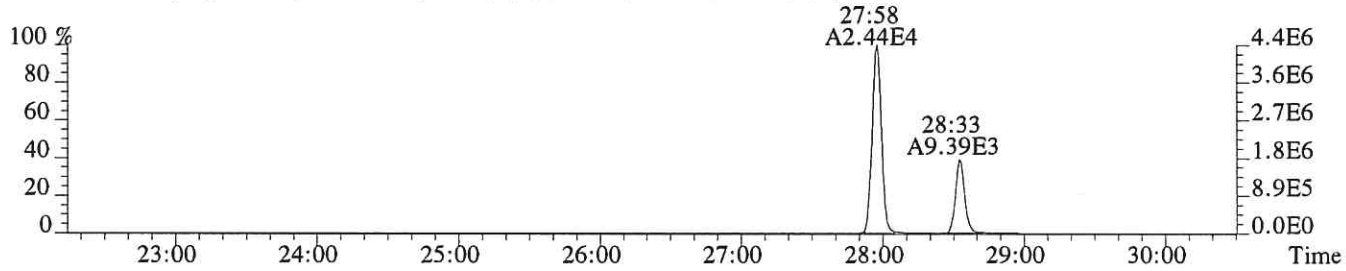
File:P519371 #1-587 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



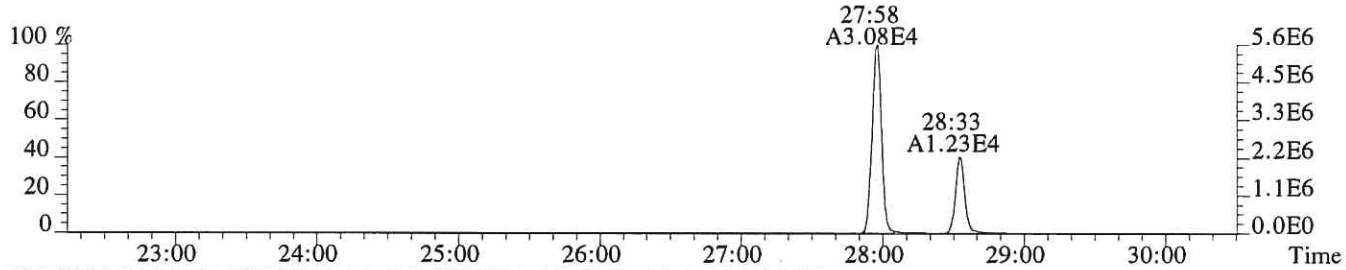
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



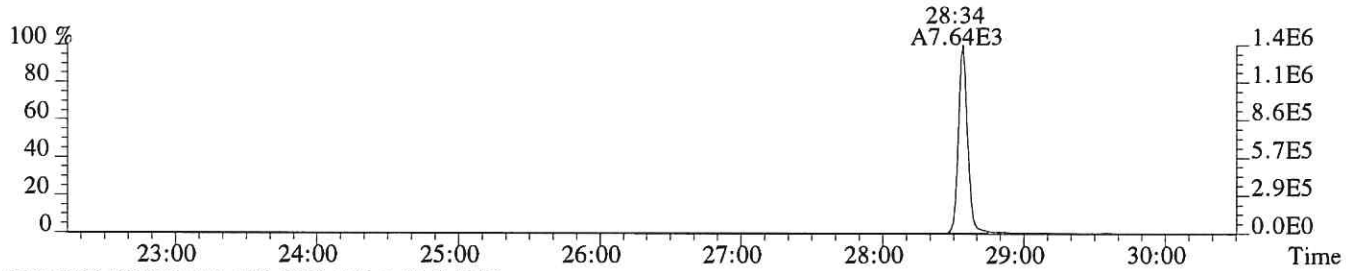
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3748.0,1.00%,F,T)



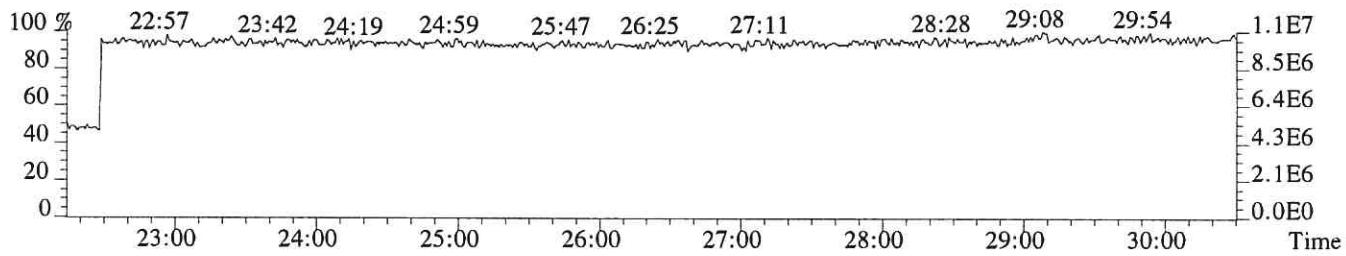
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



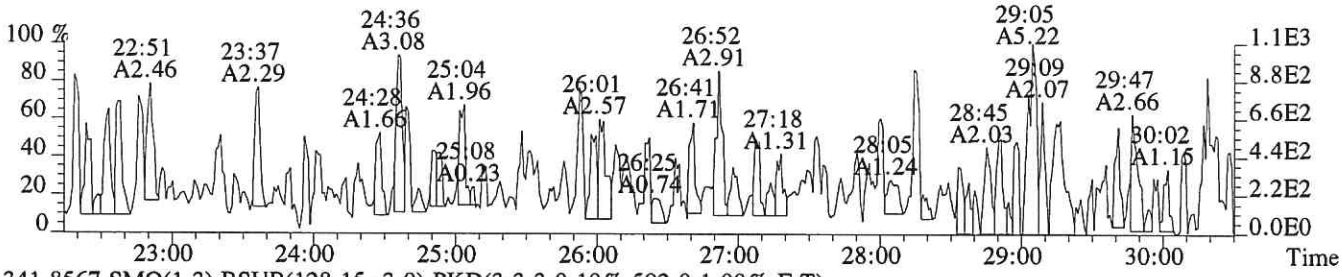
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



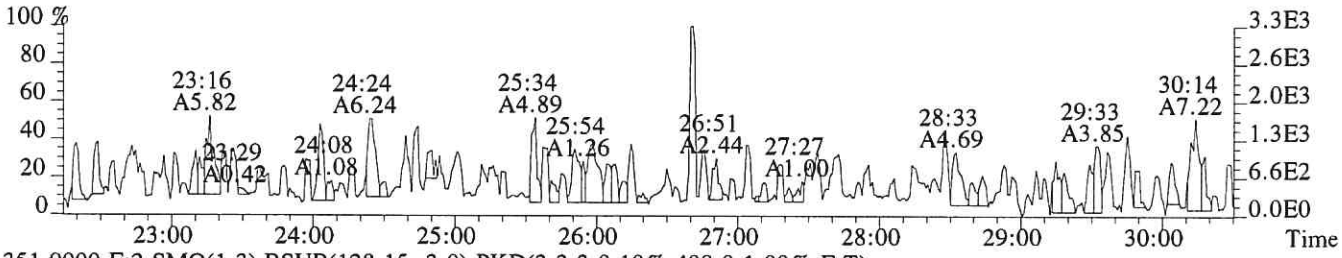
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



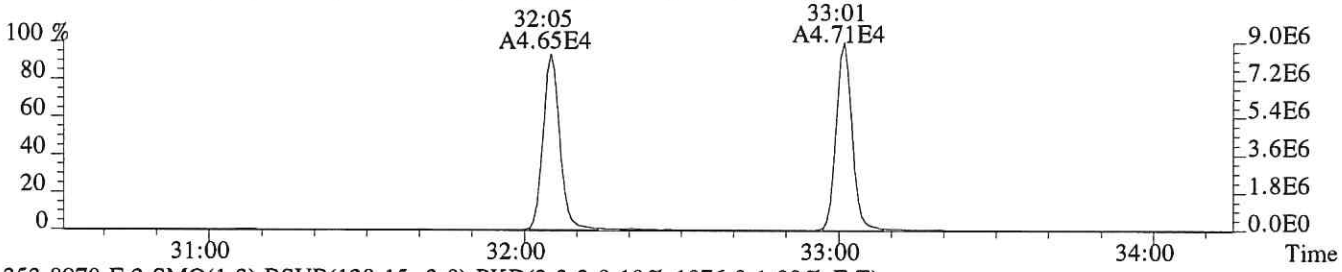
File:P519371 #1-587 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



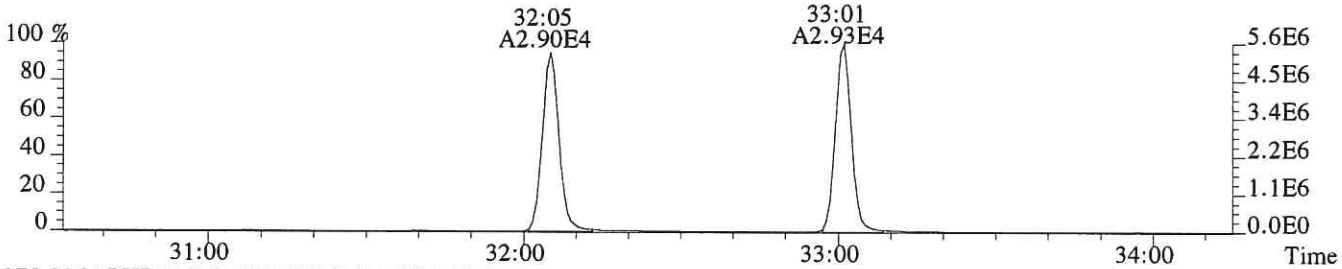
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



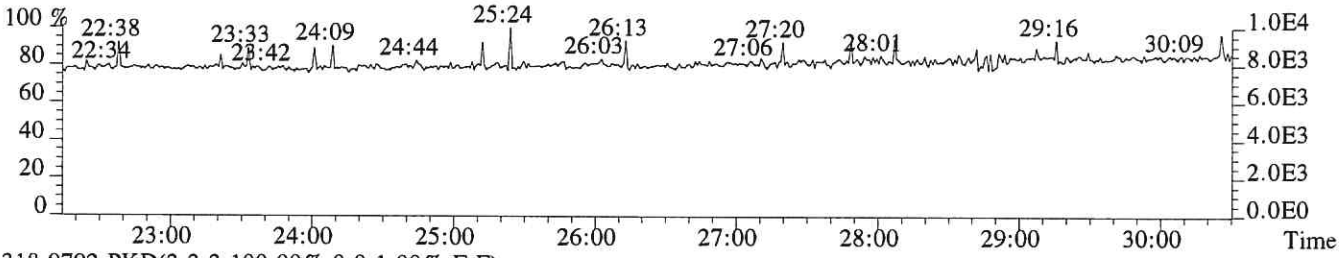
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



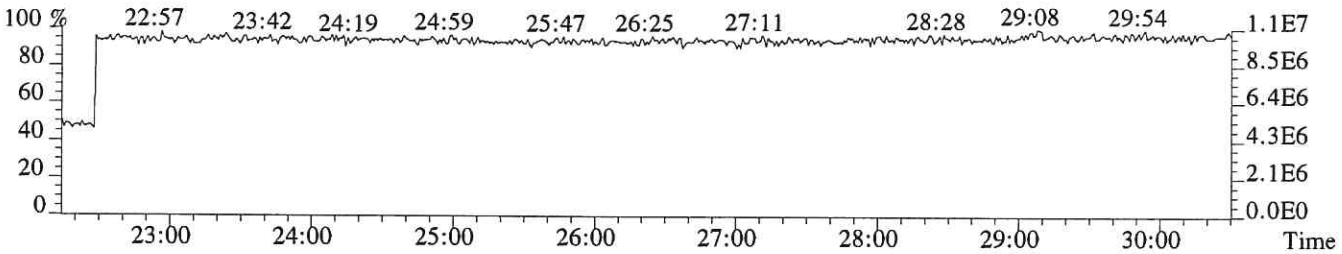
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

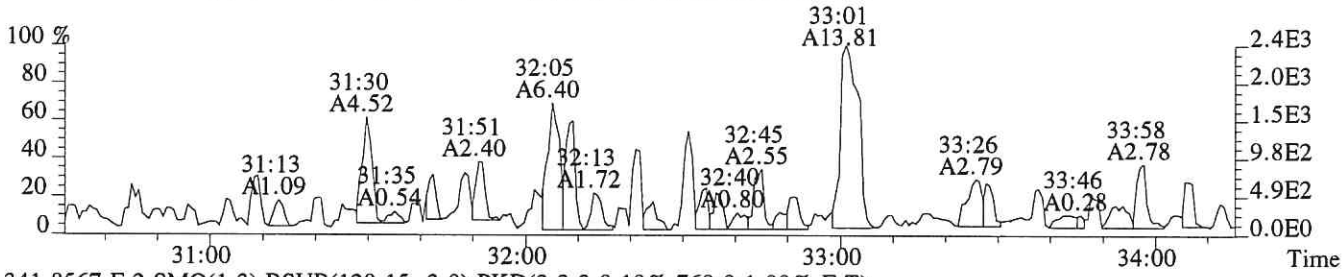


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

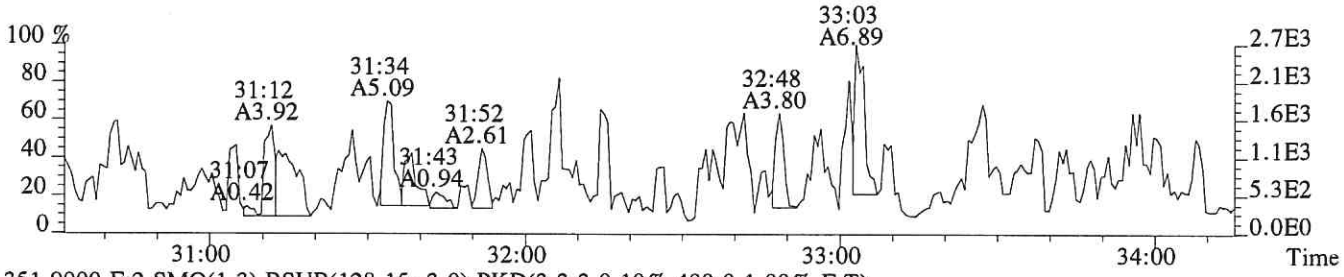


File:P519371 #1-335 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01

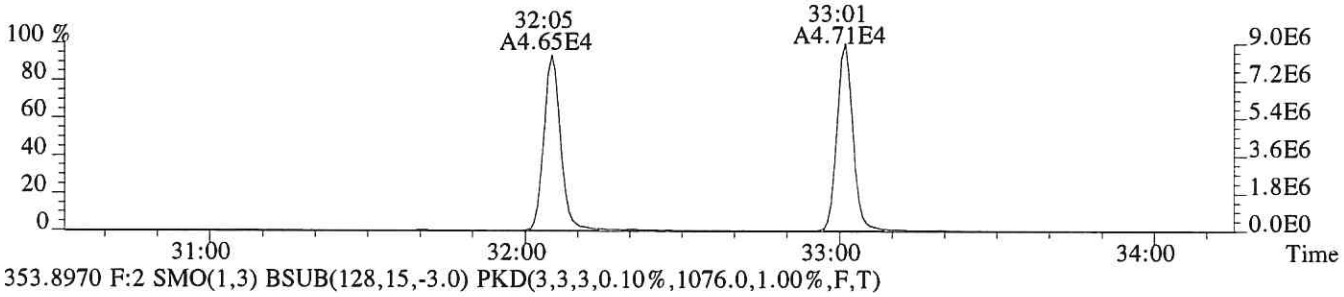
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



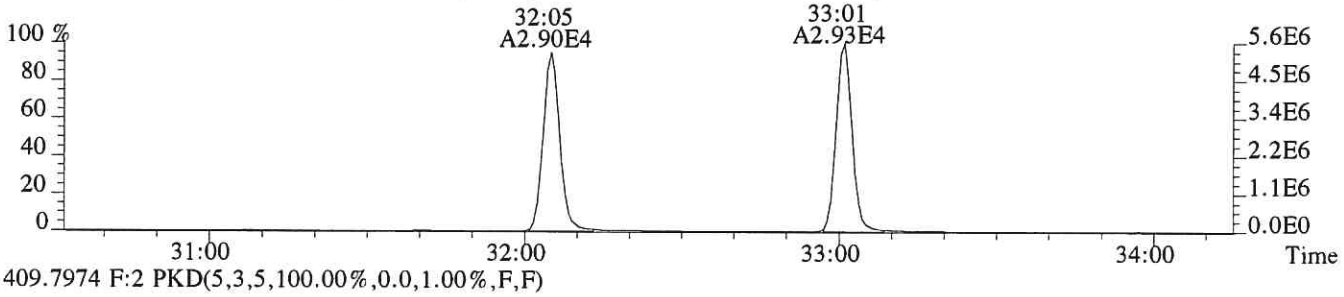
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



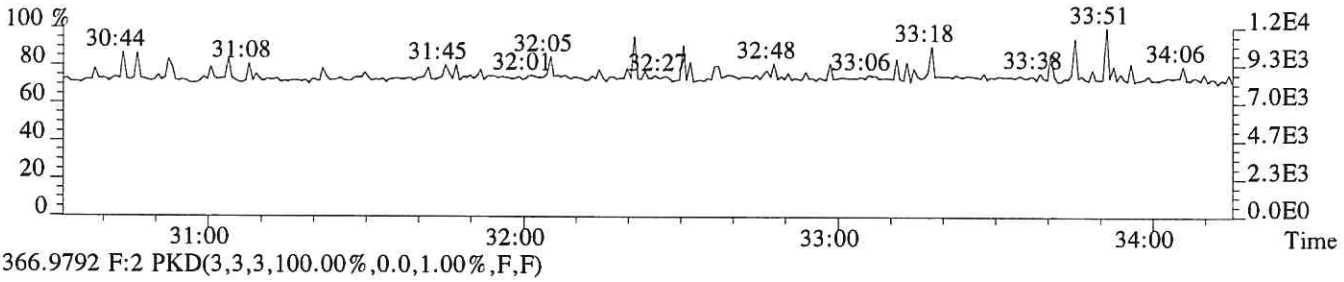
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



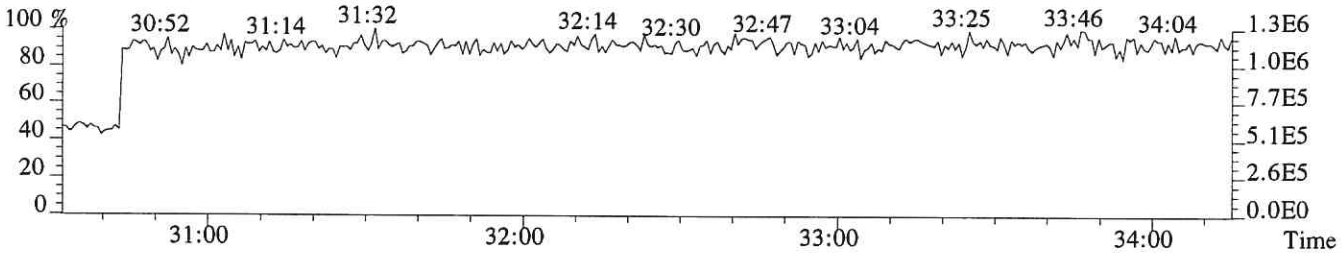
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



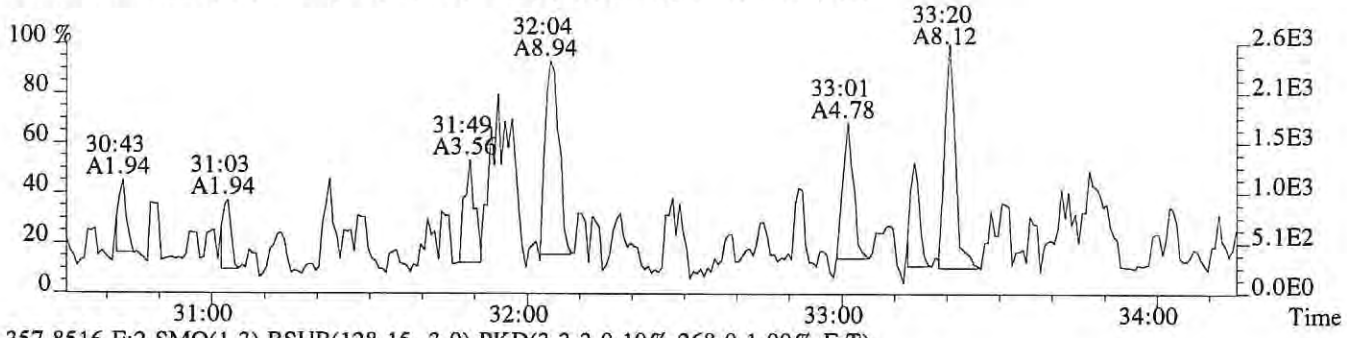
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



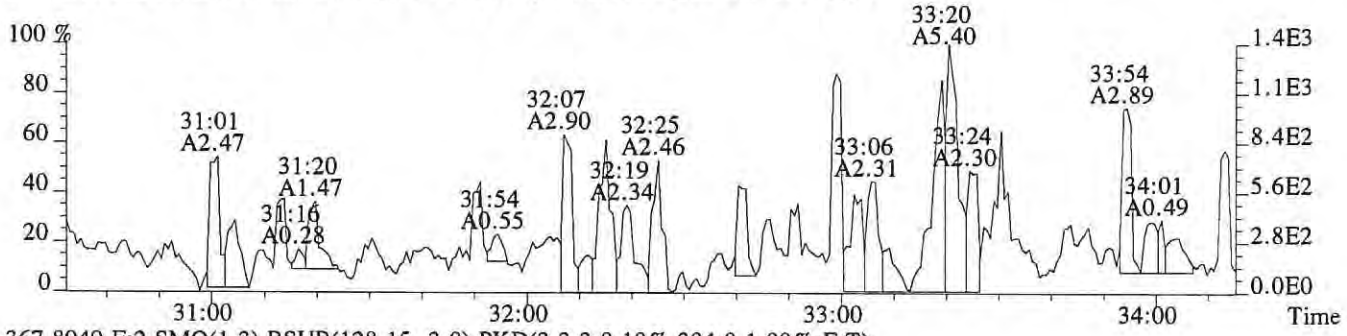
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



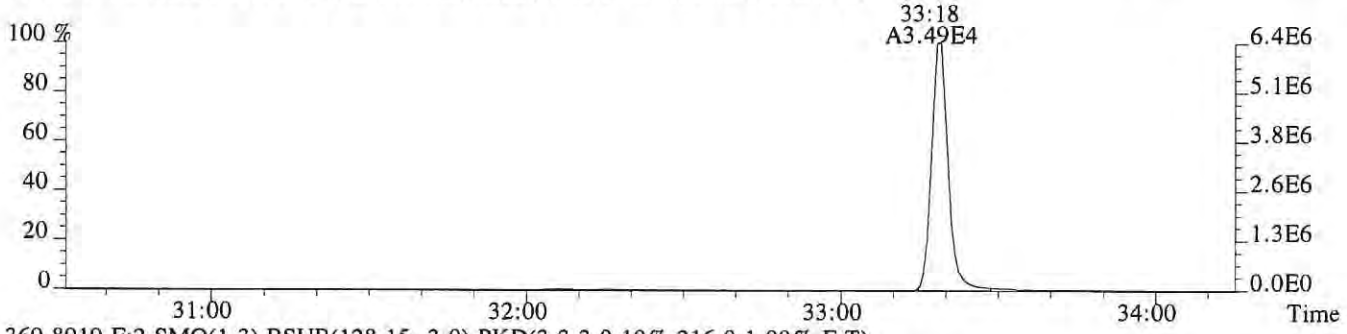
File:P519371 #1-335 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



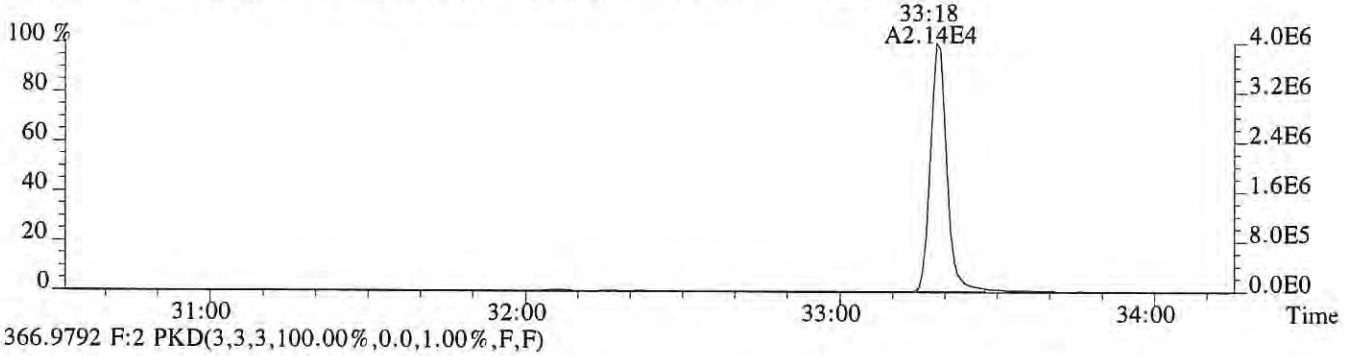
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



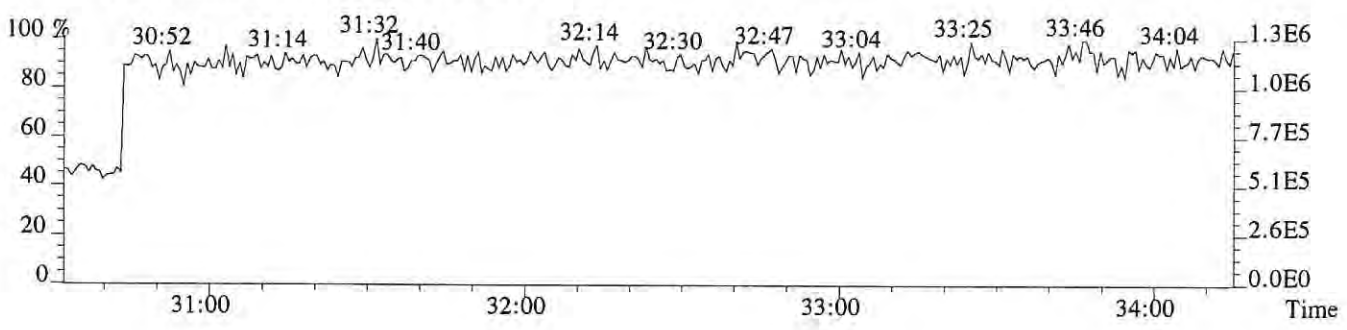
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



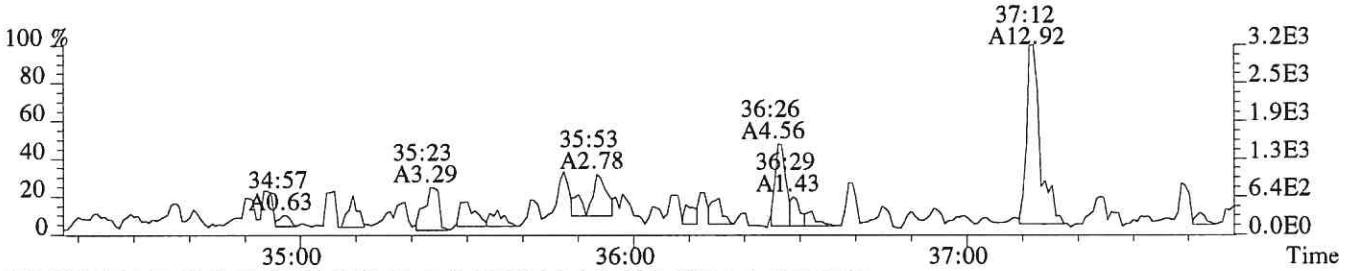
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



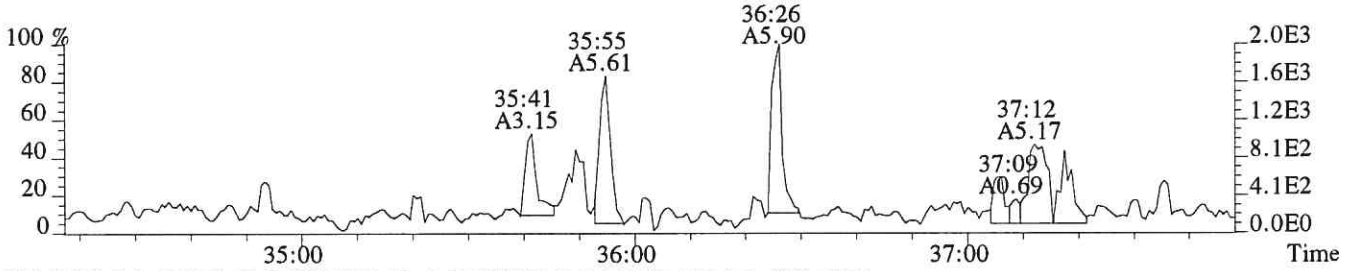
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



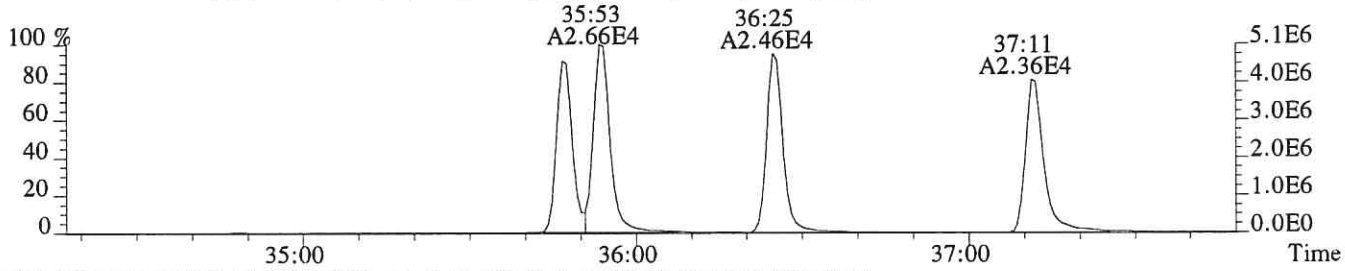
File:P519371 #1-317 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



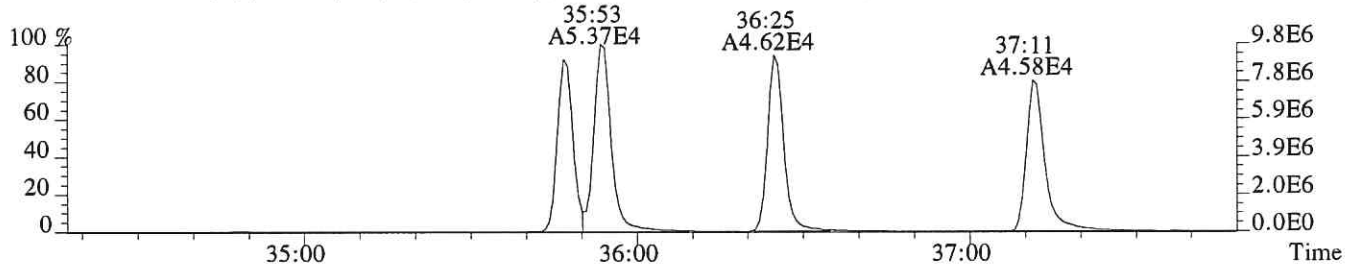
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



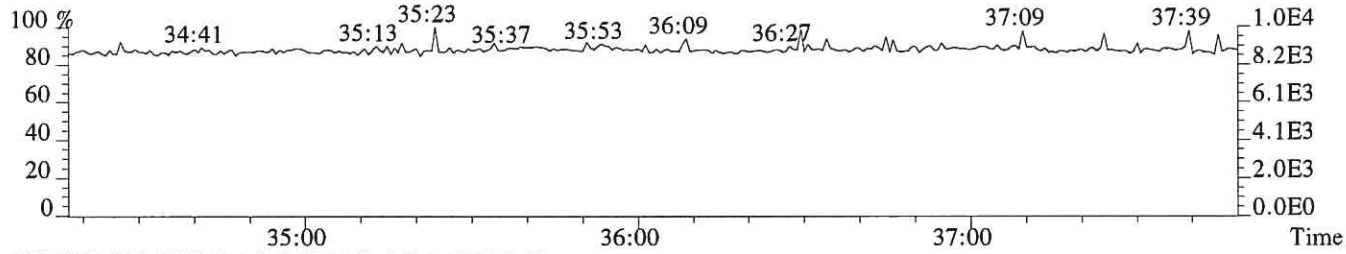
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



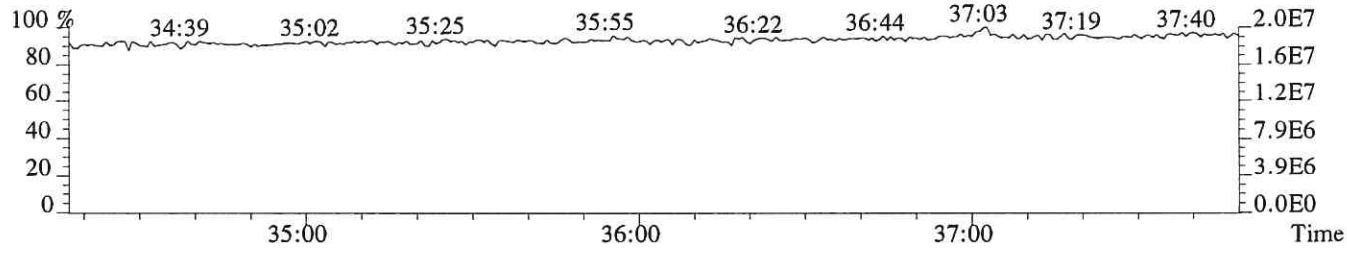
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



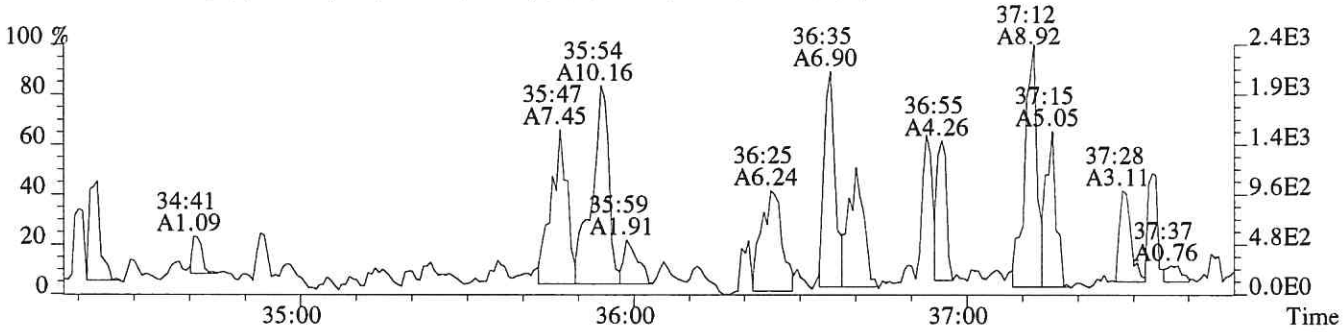
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



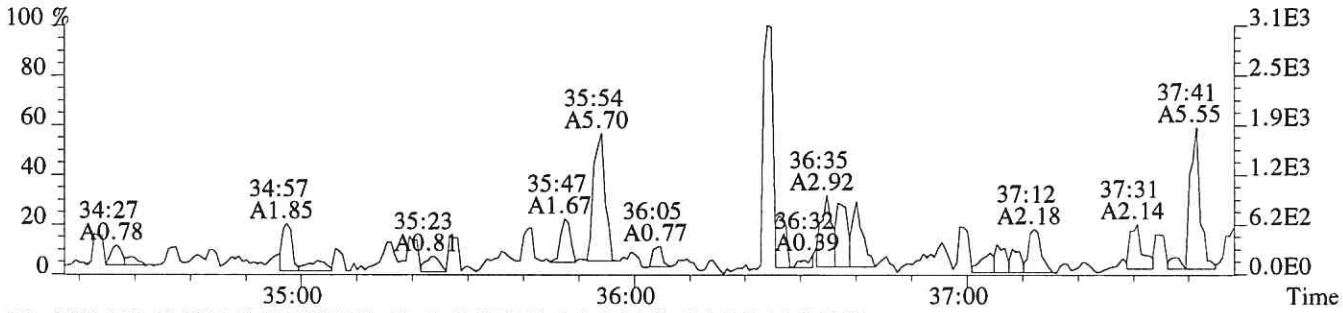
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



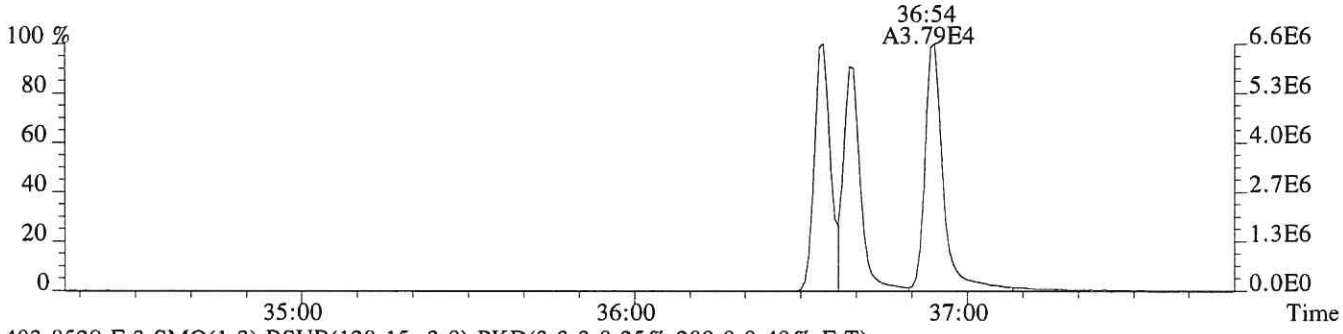
File:P519371 #1-317 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



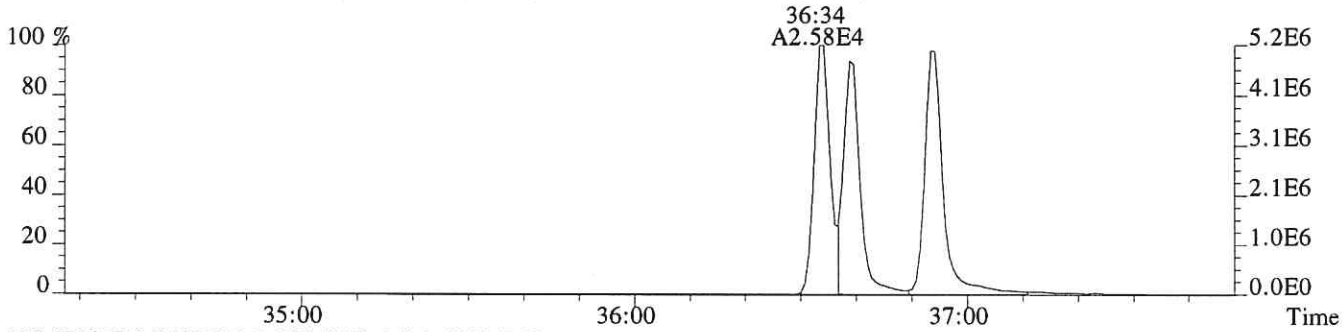
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



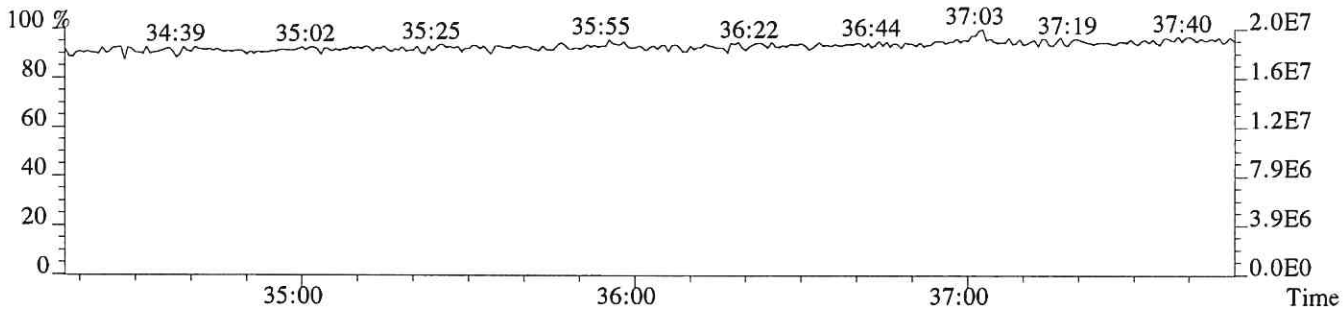
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



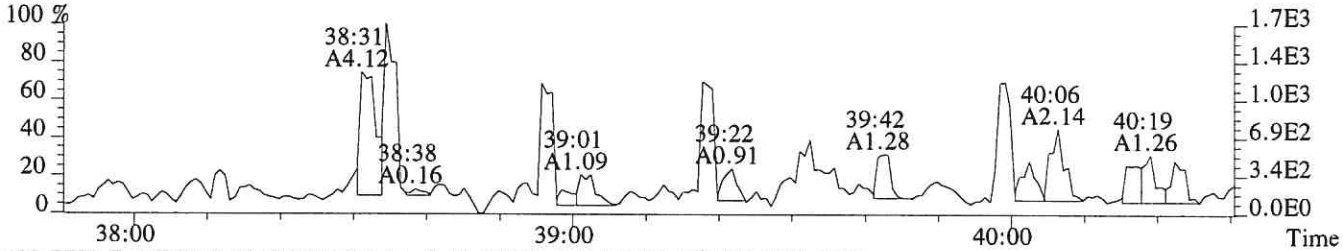
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



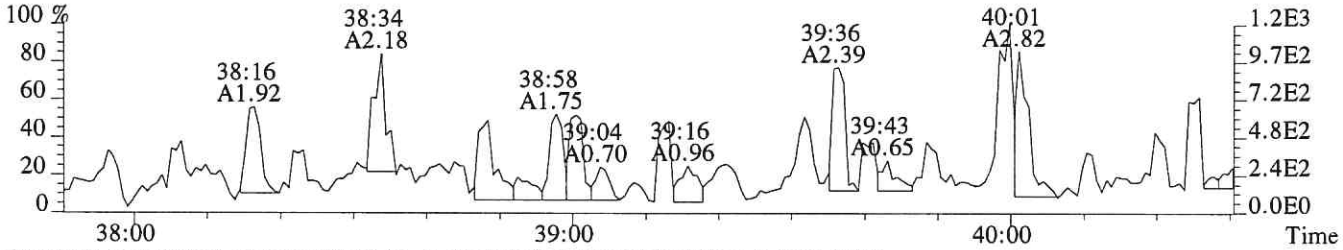
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



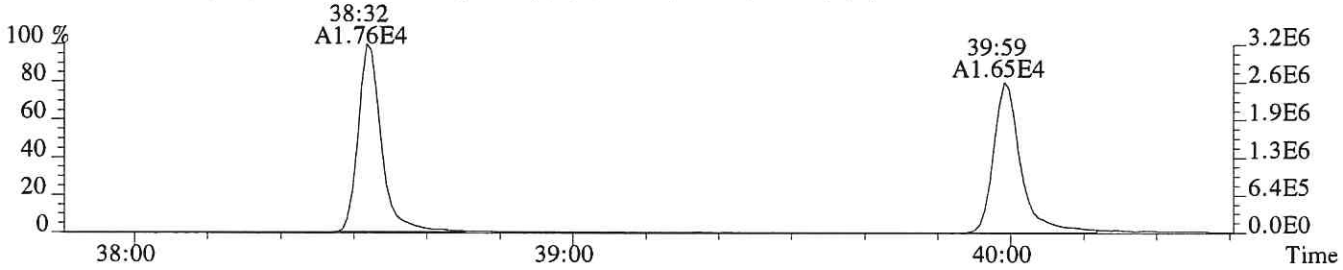
File:P519371 #1-241 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.50%,F,T)



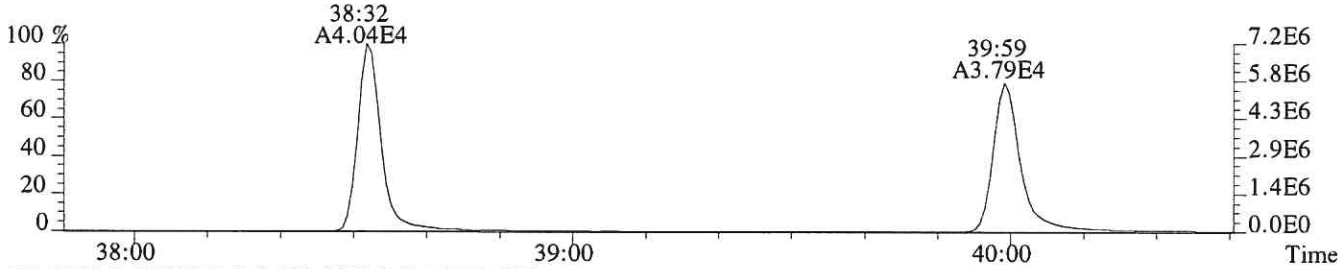
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.50%,F,T)



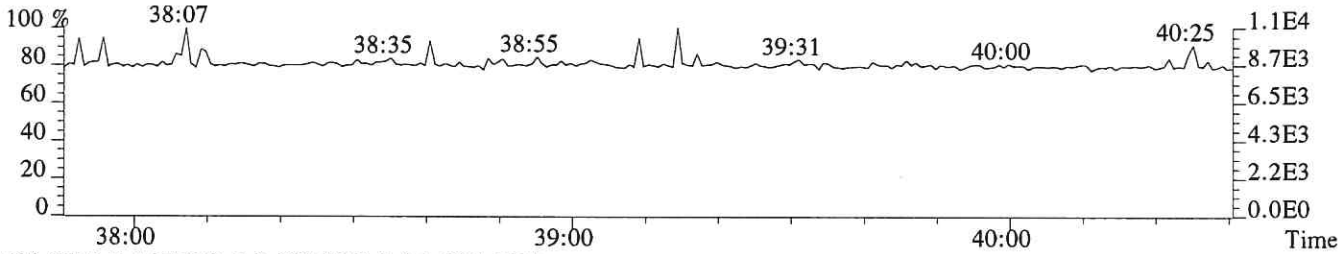
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2376.0,0.50%,F,T)



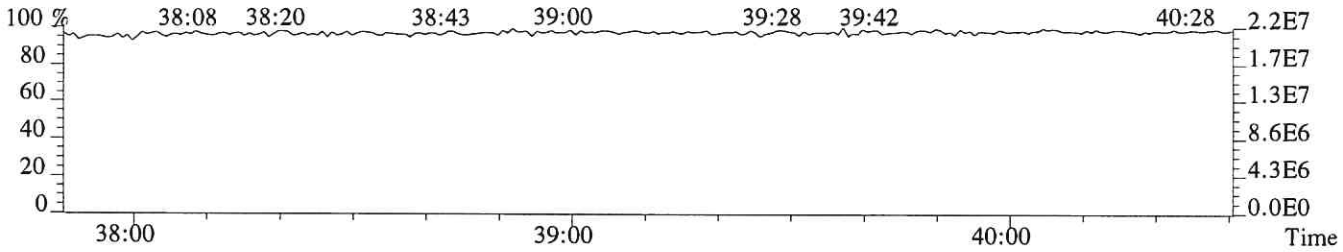
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2816.0,0.50%,F,T)



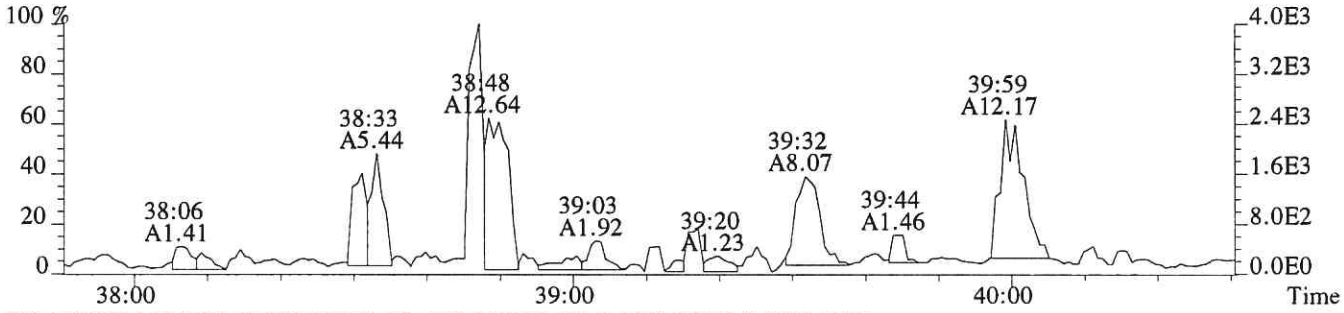
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



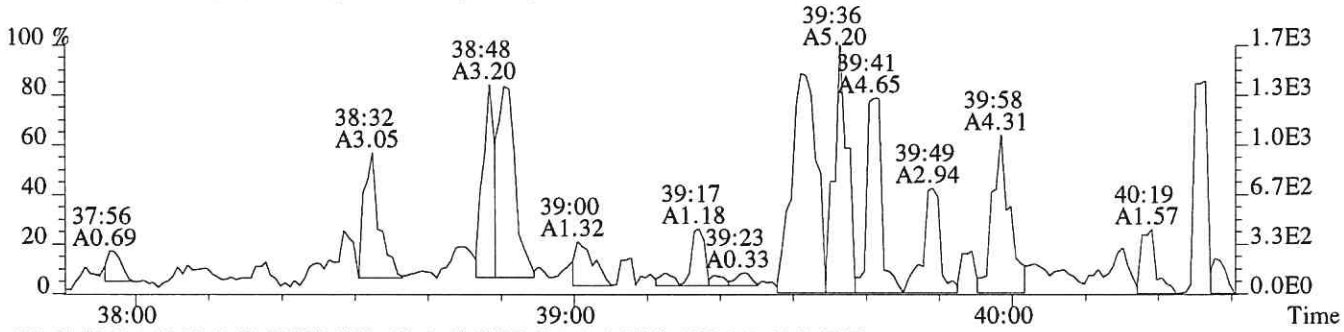
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



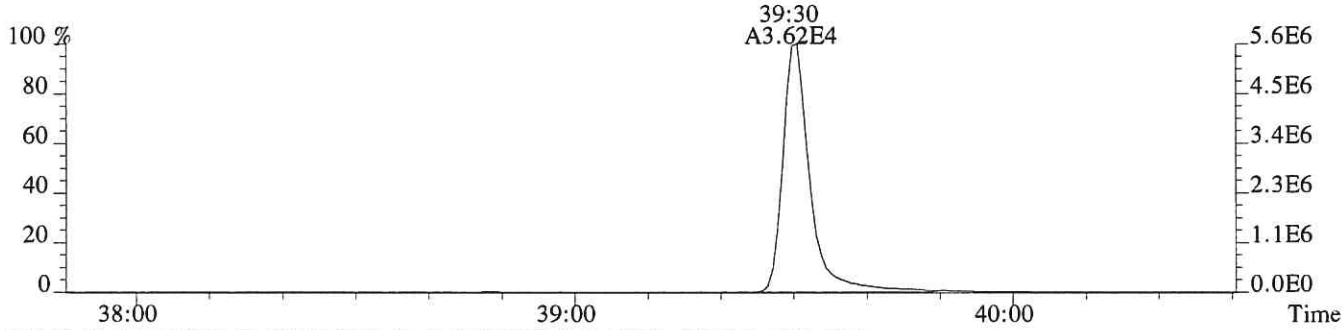
File:P519371 #1-241 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



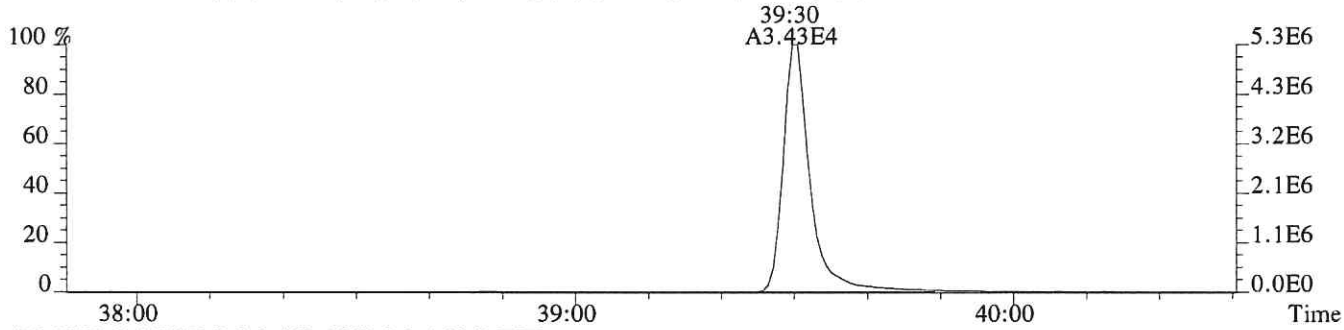
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)



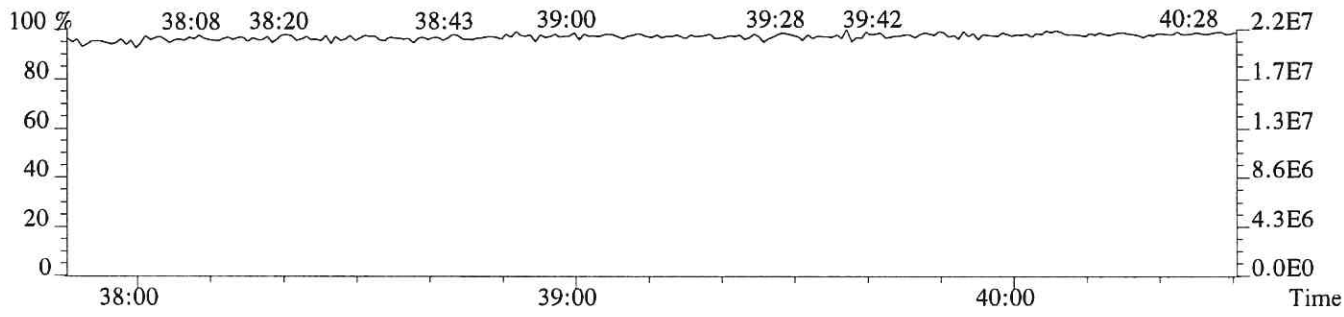
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



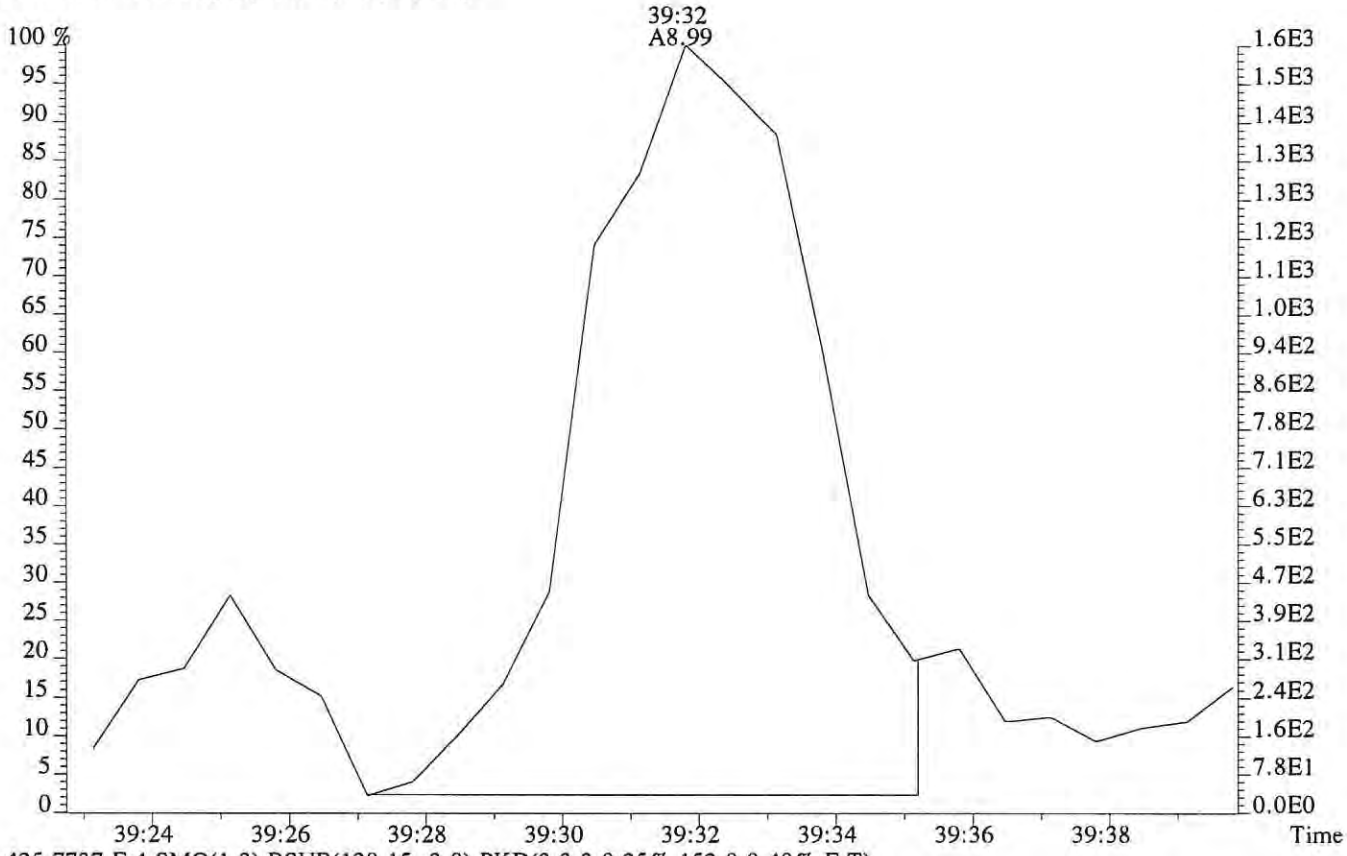
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



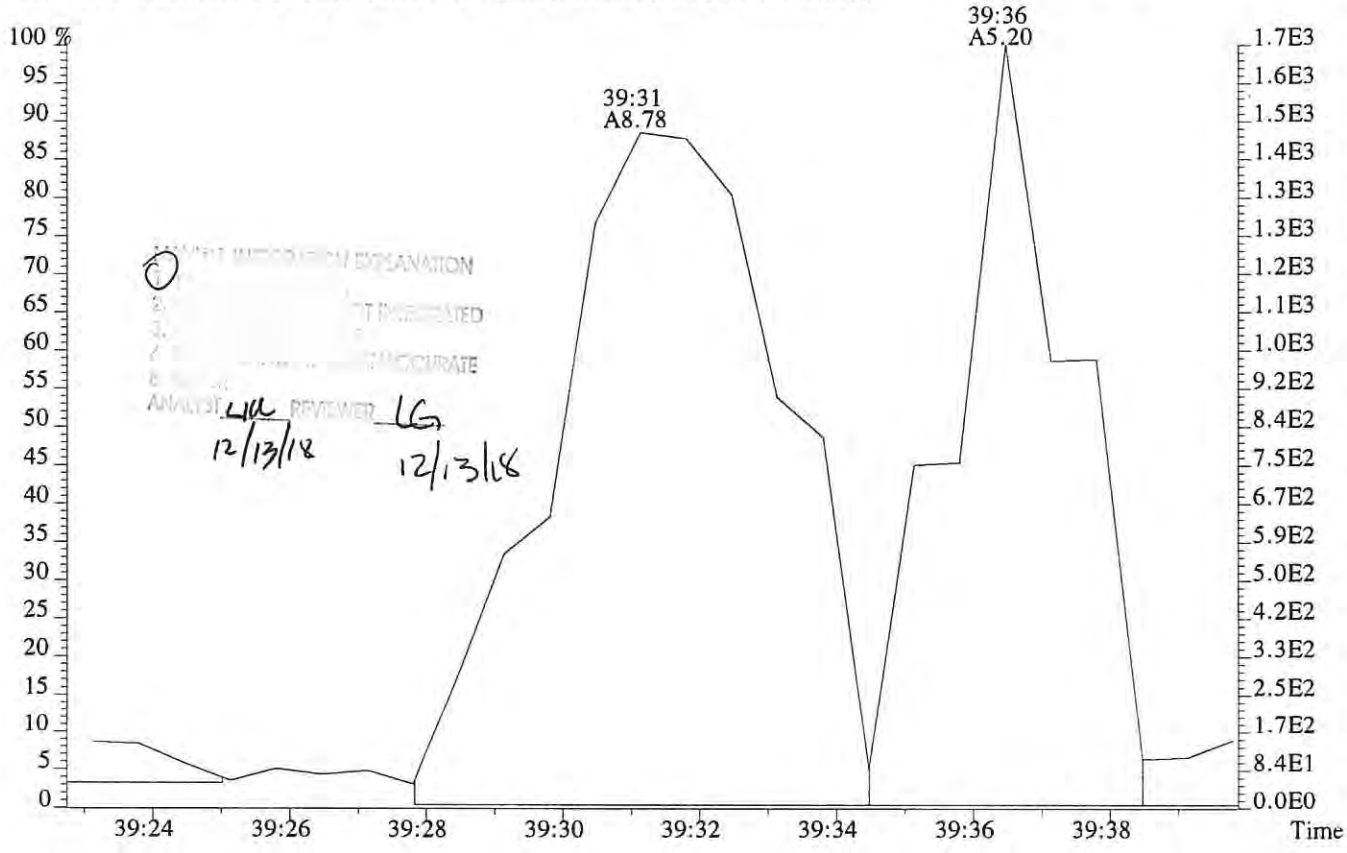
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519371 #1-241 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0)

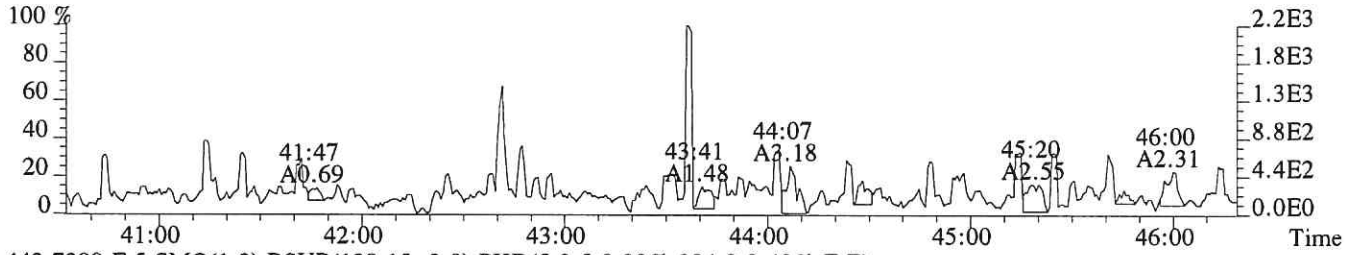


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)

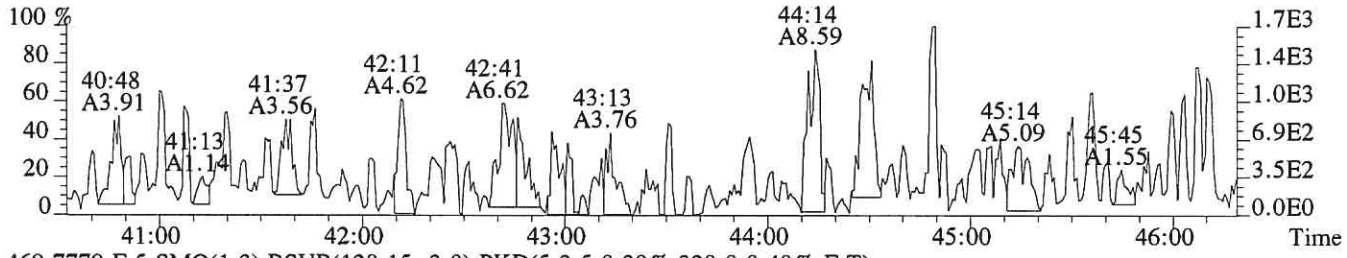


ANALYST [illegible] REVIEWER LG
12/13/18 12/13/18

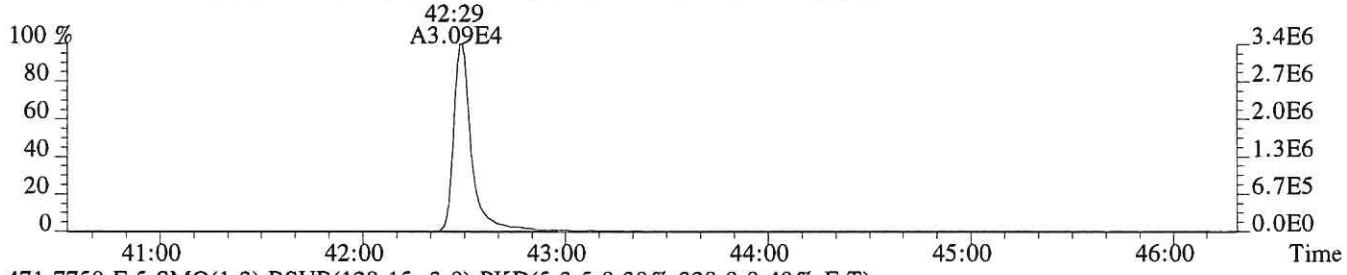
File:P519371 #1-520 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



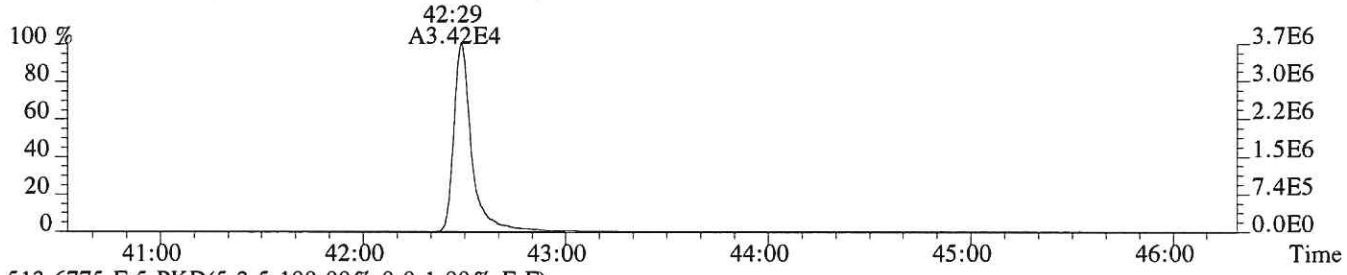
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



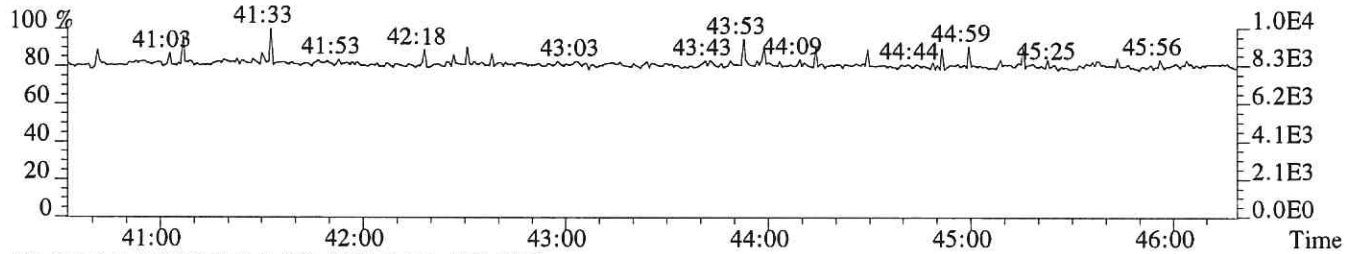
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



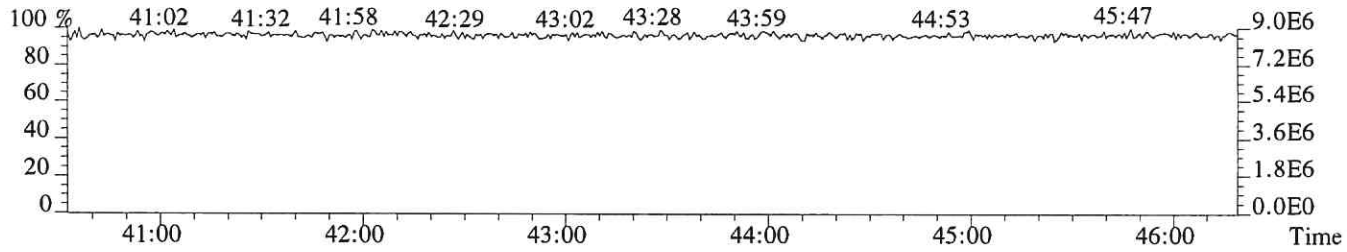
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



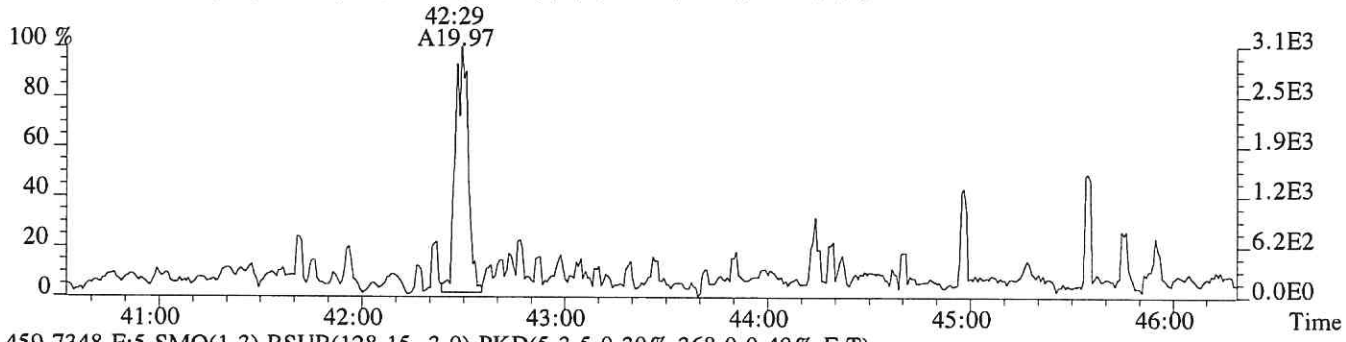
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



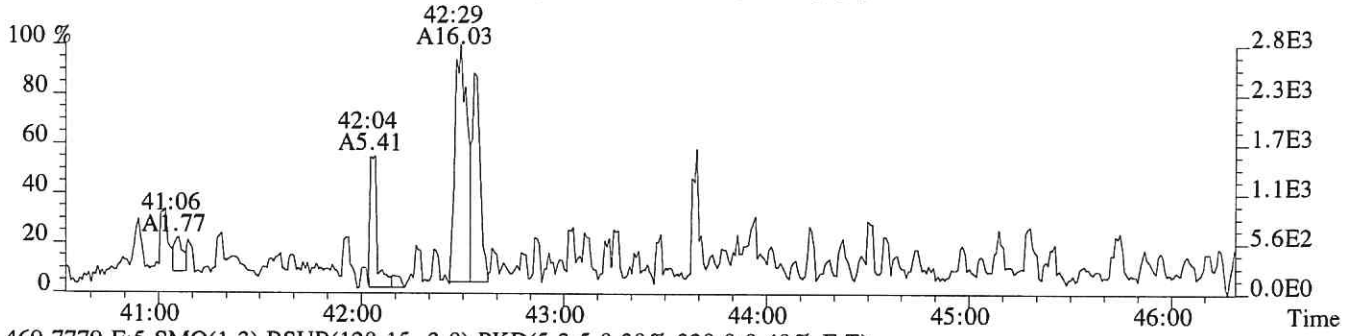
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



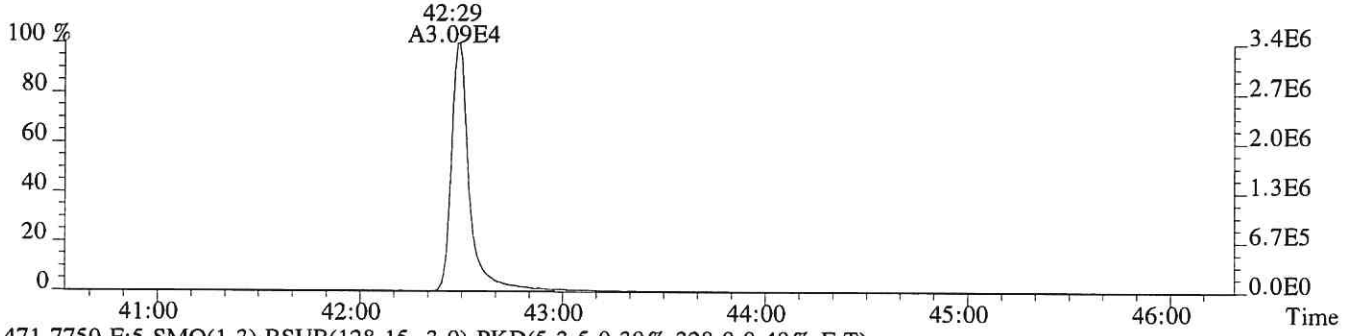
File:P519371 #1-520 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



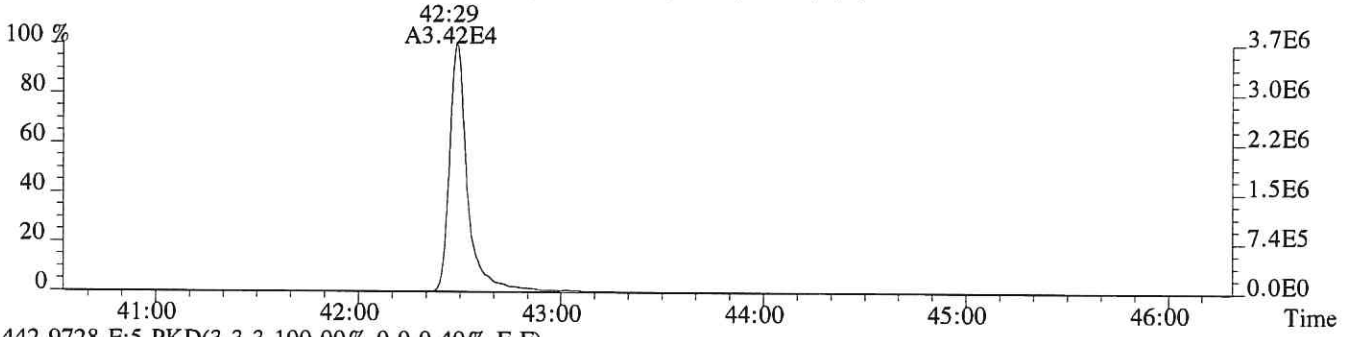
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



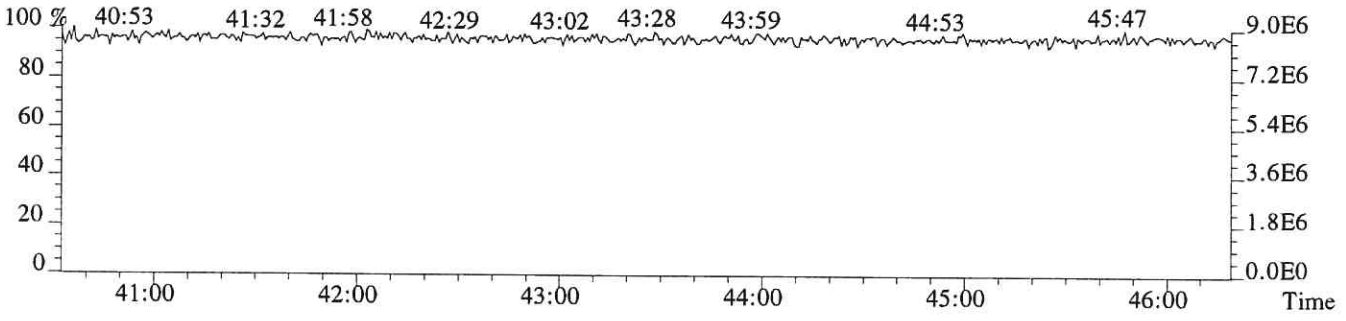
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



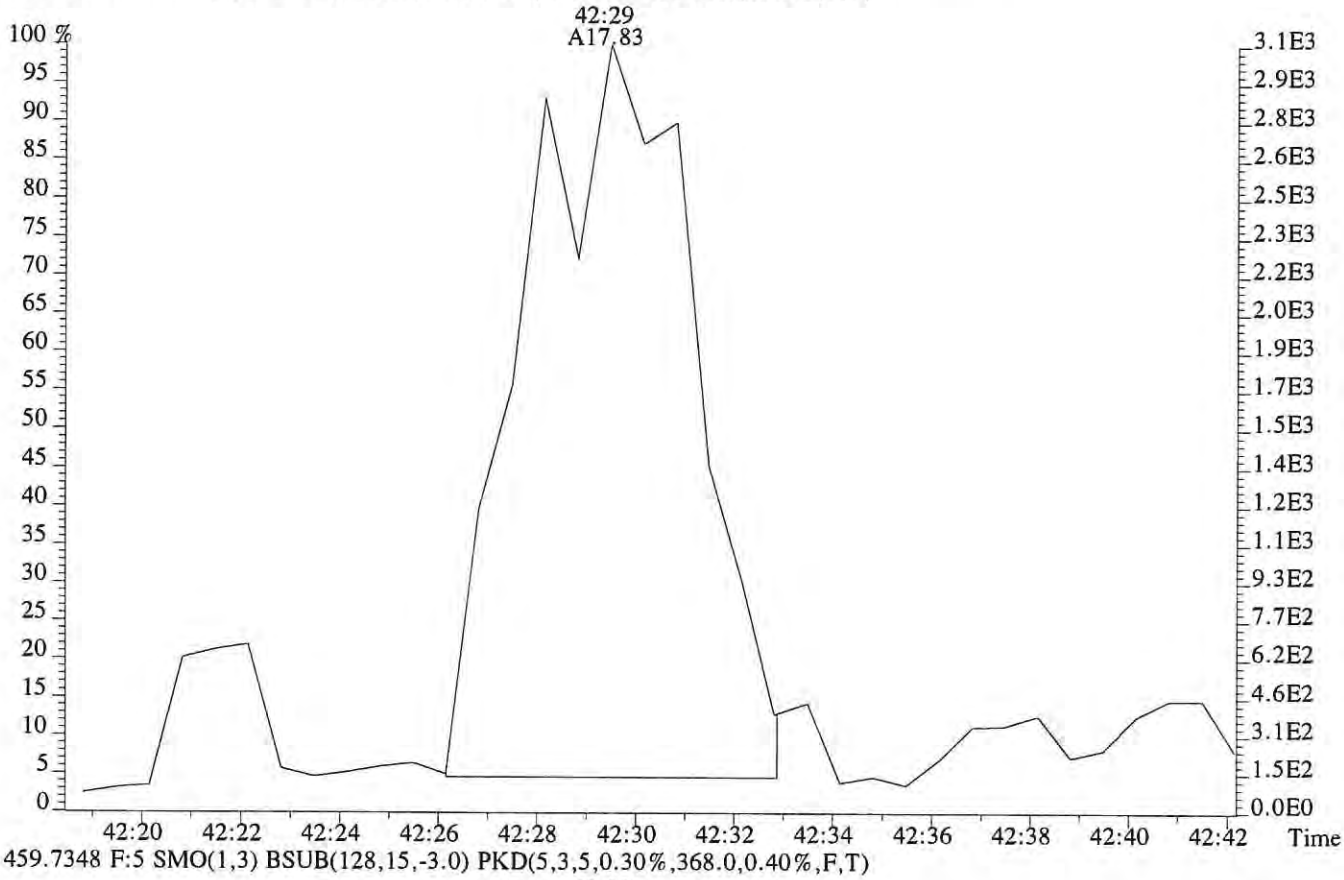
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



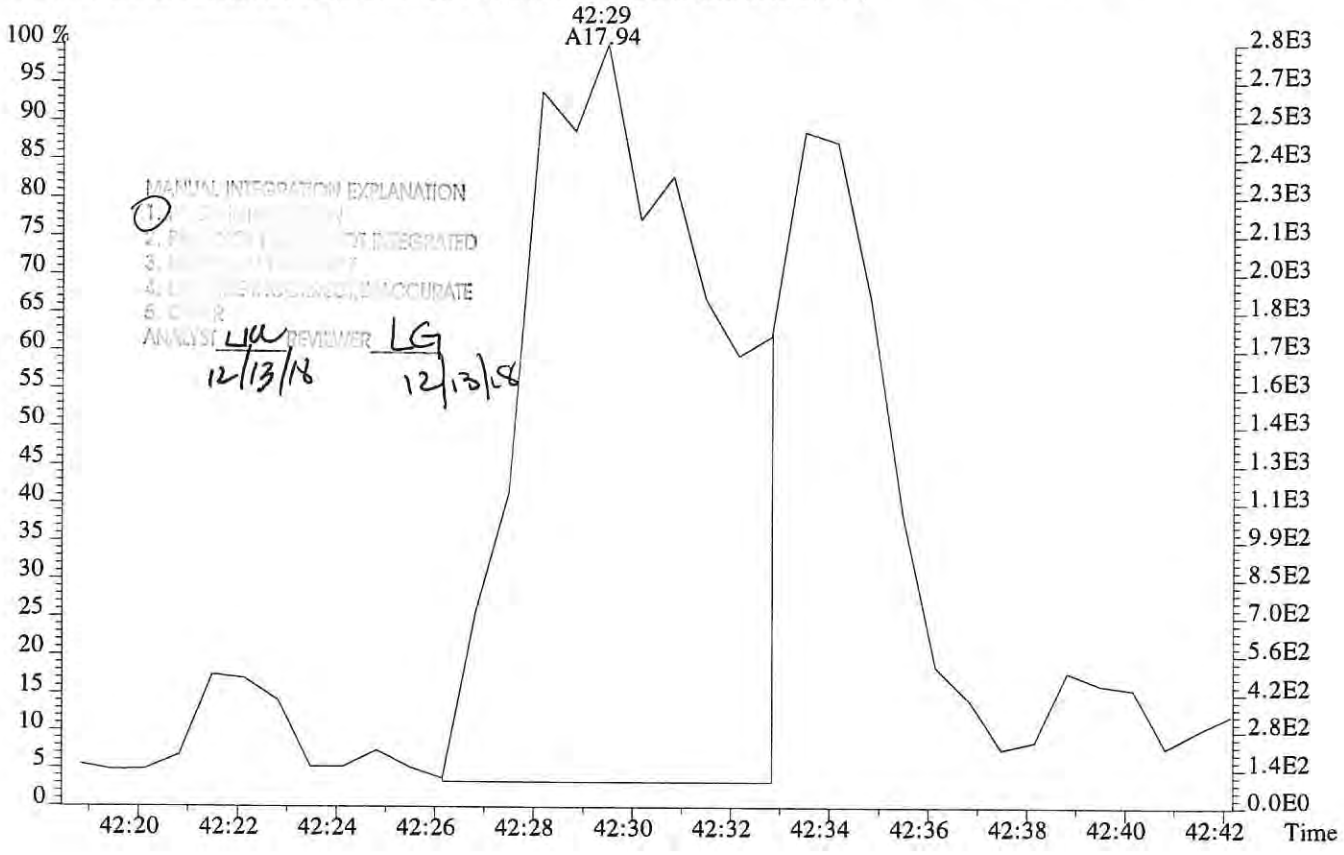
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P519371 #1-520 Acq:12-DEC-2018 03:51:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



MANUAL INTEGRATION EXPLANATION
1.
2. [illegible] INTEGRATED
3. [illegible]
4. [illegible] ACCURATE
5. OTHER
ANALYST LW REVIEWER LG
12/13/18 12/13/18

ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
LCS

Run #20 Filename P519332 Samp: 1 Inj: 1 Acquired: 10-DEC-18 19:19:11
Processed: 11-DEC-18 15:18:41 Sample ID: EQ1800498-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	2.852e+03	3.593e+03	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:08	2.581e+04	1.649e+04	1.56	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	2.529e+04	1.673e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.274e+04	1.875e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.643e+04	2.133e+04	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.169e+04	1.855e+04	1.17	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	2.109e+04	1.768e+04	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	1.760e+04	1.745e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	1.575e+04	1.508e+04	1.04	yes	no	1.258
10	Unk	OCDF	42:38	2.054e+04	2.364e+04	0.87	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	2.073e+03	2.807e+03	0.74	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	1.876e+04	1.200e+04	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.569e+04	1.221e+04	1.29	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.726e+04	1.363e+04	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.817e+04	1.416e+04	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	1.268e+04	1.174e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:27	1.599e+04	1.840e+04	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	3.198e+04	4.072e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	5.492e+04	3.436e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	5.257e+04	3.306e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.356e+04	4.530e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.946e+04	5.538e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	2.430e+04	4.651e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	2.360e+04	4.553e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	1.638e+04	3.770e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	1.496e+04	3.468e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:35	1.420e+04	1.753e+04	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	3.944e+04	2.465e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	3.203e+04	2.506e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	3.390e+04	2.574e+04	1.32	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	3.319e+04	3.063e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:25	2.801e+04	3.202e+04	0.87	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.629e+04	4.522e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	5.419e+04	4.221e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	2.005e+04				no	1.014

$$\text{OCDD} = \frac{(1.599e+04 + 1.840e+04) \times 4000\ \text{pg} \times 1}{(2.801e+04 + 3.202e+04) \times \quad \text{g} \times \quad / 100 \times 1.118} =$$

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #20 Filename P519332 Samp: 1 Inj: 1 Acquired: 10-DEC-18 19:19:11
Processed: 11-DEC-18 15:18:41 LAB. ID: EQ1800498-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.06e+05	2.64e+02	1.9e+03	6.60e+05	7.12e+02	9.3e+02
2	1,2,3,7,8-PeCDF	4.65e+06	3.00e+02	1.6e+04	2.93e+06	1.84e+03	1.6e+03
3	2,3,4,7,8-PeCDF	4.93e+06	3.00e+02	1.6e+04	3.30e+06	1.84e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	4.73e+06	7.64e+02	6.2e+03	3.91e+06	2.64e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	4.96e+06	7.64e+02	6.5e+03	3.96e+06	2.64e+02	1.5e+04
6	2,3,4,6,7,8-HxCDF	4.39e+06	7.64e+02	5.7e+03	3.68e+06	2.64e+02	1.4e+04
7	1,2,3,7,8,9-HxCDF	3.76e+06	7.64e+02	4.9e+03	3.13e+06	2.64e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	3.27e+06	1.64e+03	2.0e+03	3.21e+06	2.10e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	2.59e+06	1.64e+03	1.6e+03	2.51e+06	2.10e+03	1.2e+03
10	OCDF	2.57e+06	3.20e+02	8.0e+03	2.90e+06	9.92e+02	2.9e+03
11	2,3,7,8-TCDD	3.84e+05	1.87e+03	2.1e+02	5.22e+05	9.48e+02	5.5e+02
12	1,2,3,7,8-PeCDD	3.54e+06	9.32e+02	3.8e+03	2.28e+06	2.48e+02	9.2e+03
13	1,2,3,4,7,8-HxCDD	3.41e+06	1.80e+02	1.9e+04	2.64e+06	3.04e+02	8.7e+03
14	1,2,3,6,7,8-HxCDD	3.22e+06	1.80e+02	1.8e+04	2.58e+06	3.04e+02	8.5e+03
15	1,2,3,7,8,9-HxCDD	3.18e+06	1.80e+02	1.8e+04	2.54e+06	3.04e+02	8.4e+03
16	1,2,3,4,6,7,8-HpCDD	2.10e+06	4.76e+02	4.4e+03	1.94e+06	3.44e+02	5.6e+03
17	OCDD	1.83e+06	3.24e+02	5.6e+03	2.05e+06	4.36e+02	4.7e+03
18	13C-2,3,7,8-TCDF	5.73e+06	8.71e+03	6.6e+02	7.30e+06	5.78e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	9.98e+06	7.68e+02	1.3e+04	6.25e+06	1.01e+03	6.2e+03
20	13C-2,3,4,7,8-PeCDF	1.03e+07	7.68e+02	1.3e+04	6.55e+06	1.01e+03	6.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.92e+06	6.84e+02	7.2e+03	9.47e+06	8.32e+02	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	5.54e+06	6.84e+02	8.1e+03	1.06e+07	8.32e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	4.86e+06	6.84e+02	7.1e+03	9.18e+06	8.32e+02	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	4.13e+06	6.84e+02	6.0e+03	8.03e+06	8.32e+02	9.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.07e+06	4.72e+03	6.5e+02	7.04e+06	4.48e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.45e+06	4.72e+03	5.2e+02	5.64e+06	4.48e+03	1.3e+03
27	13C-2,3,7,8-TCDD	2.59e+06	5.20e+03	5.0e+02	3.25e+06	2.15e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	7.35e+06	1.00e+03	7.3e+03	4.57e+06	7.12e+02	6.4e+03
29	13C-1,2,3,4,7,8-HxCDD	6.83e+06	1.10e+03	6.2e+03	5.34e+06	5.56e+02	9.6e+03
30	13C-1,2,3,6,7,8-HxCDD	6.35e+06	1.10e+03	5.8e+03	4.85e+06	5.56e+02	8.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.36e+06	3.72e+02	1.4e+04	4.94e+06	2.60e+02	1.9e+04
32	13C-OCDD	3.25e+06	4.68e+02	7.0e+03	3.61e+06	2.76e+02	1.3e+04
33	13C-1,2,3,4-TCDD	6.77e+06	5.20e+03	1.3e+03	8.44e+06	2.15e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	9.61e+06	1.10e+03	8.7e+03	7.58e+06	5.56e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.71e+06	8.64e+02	4.3e+03			

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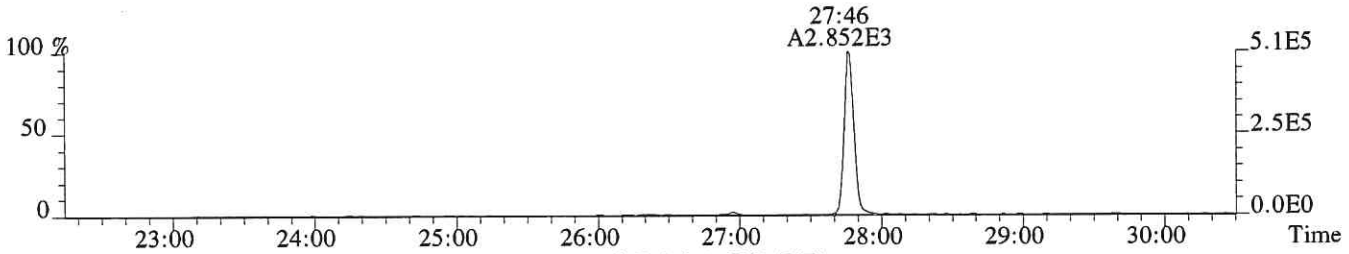
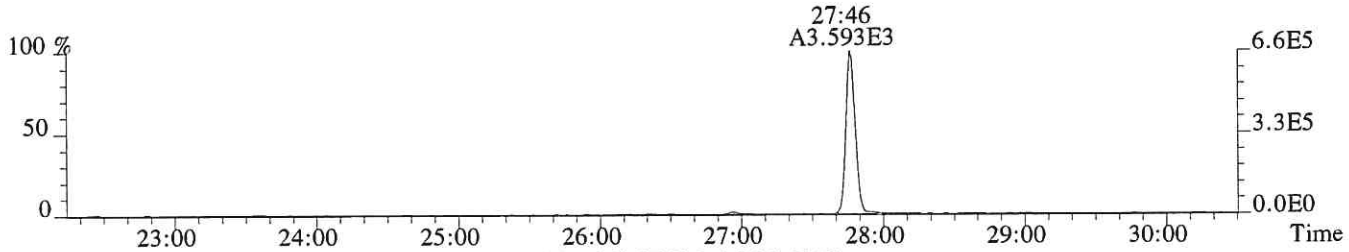
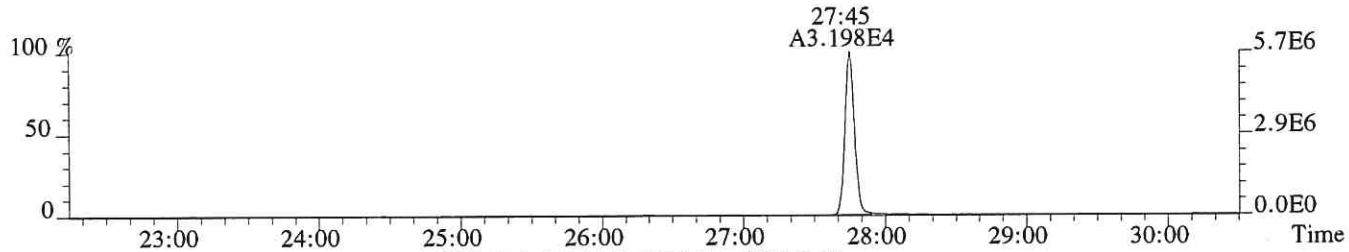
File:P519332 #1-587 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



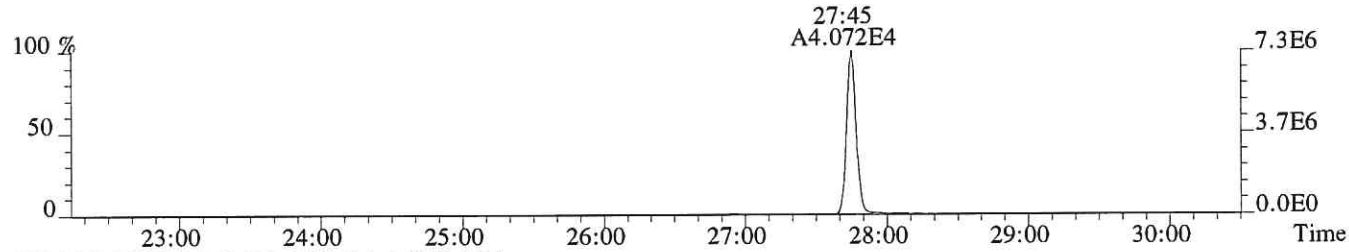
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



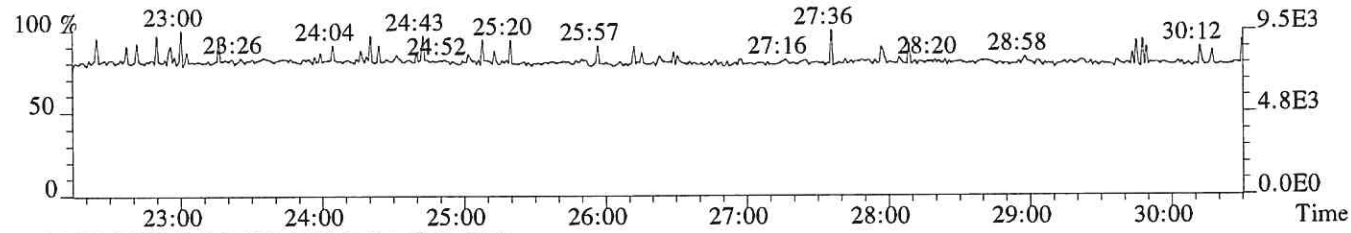
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8712.0,1.00%,F,T)



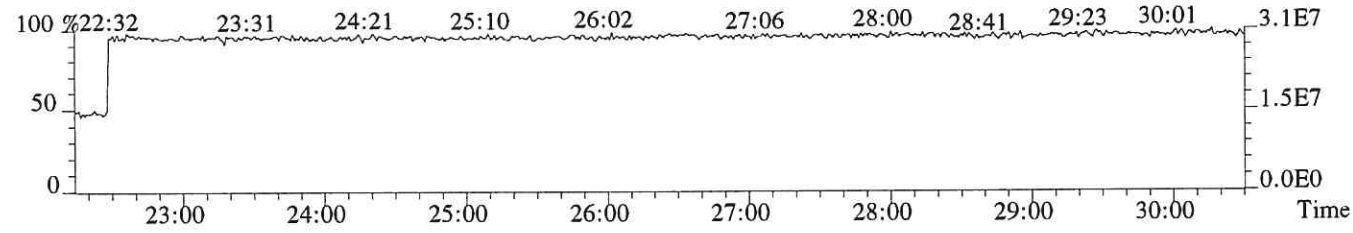
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5776.0,1.00%,F,T)



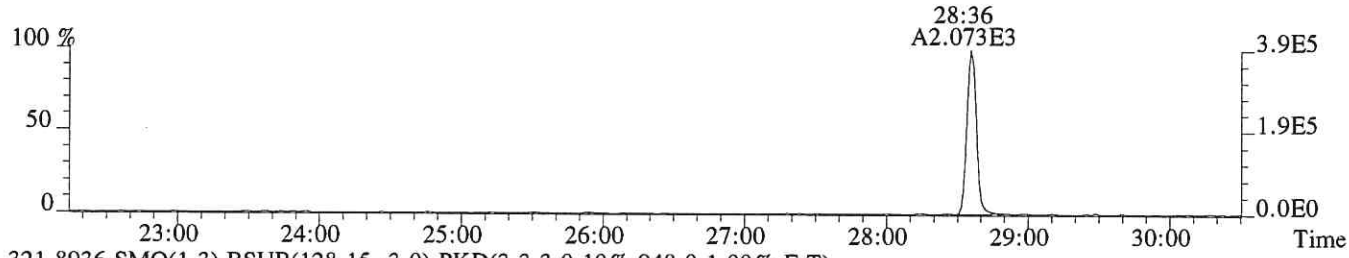
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



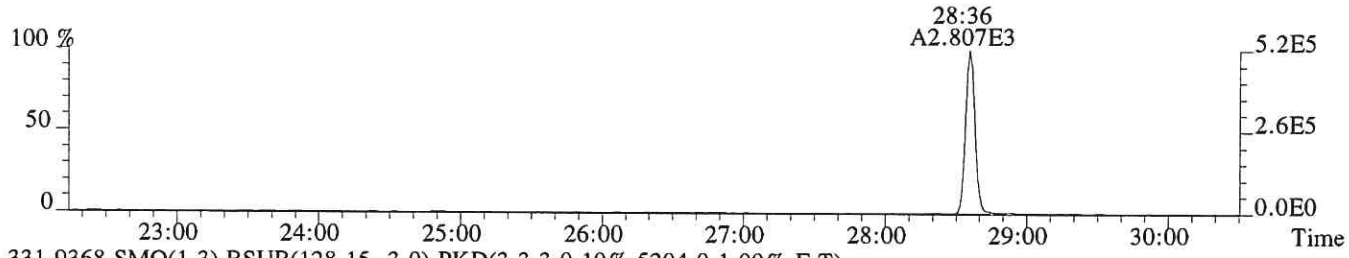
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



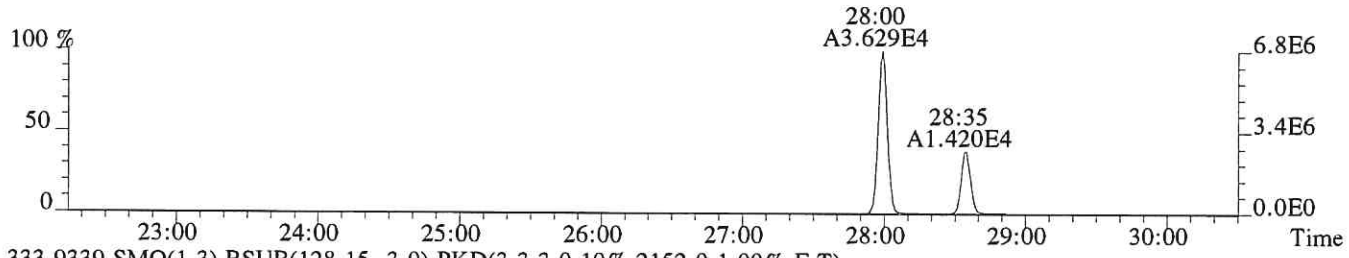
File:P519332 #1-587 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1868.0,1.00%,F,T)



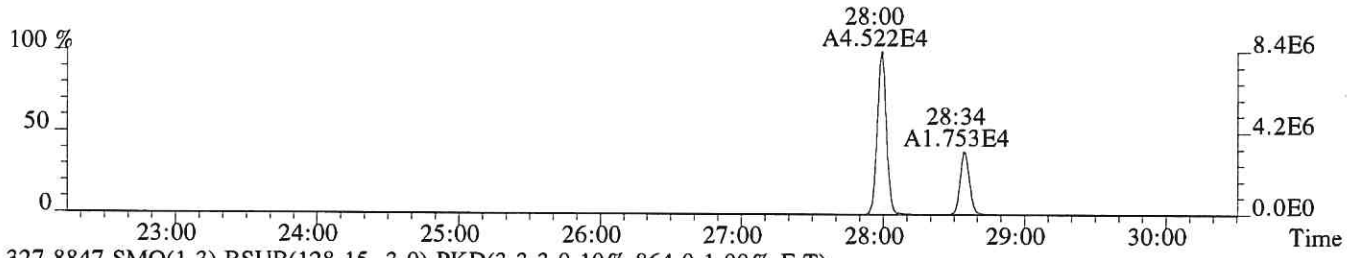
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



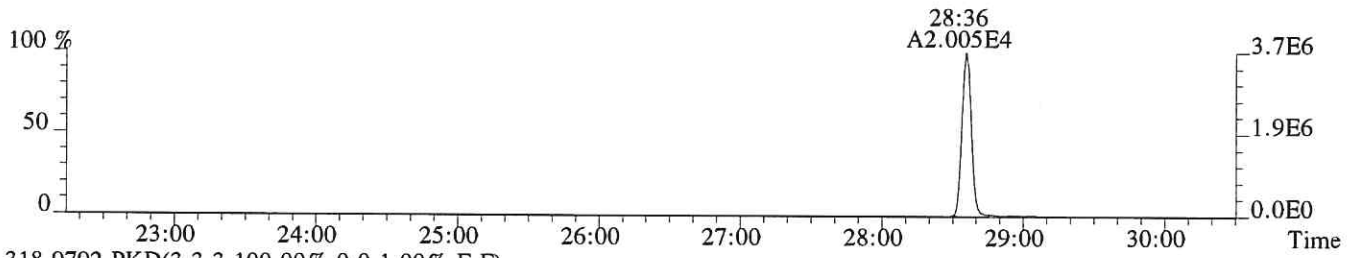
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5204.0,1.00%,F,T)



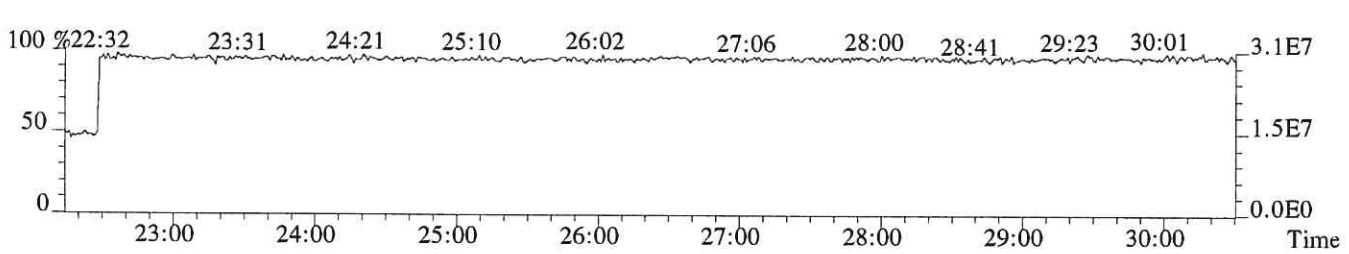
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



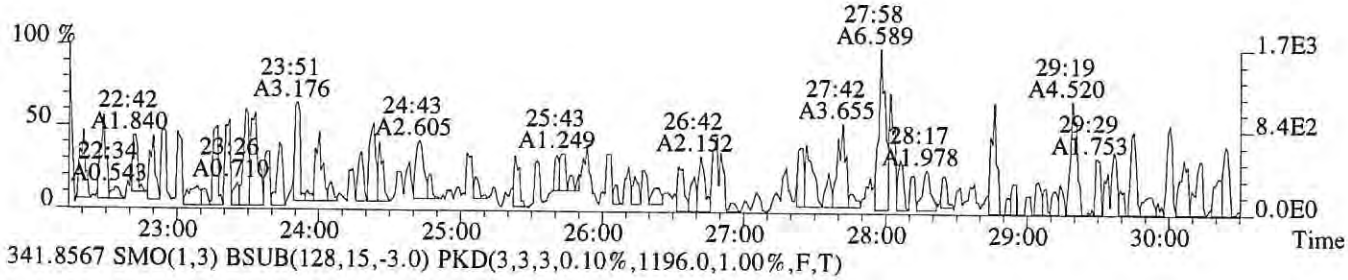
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



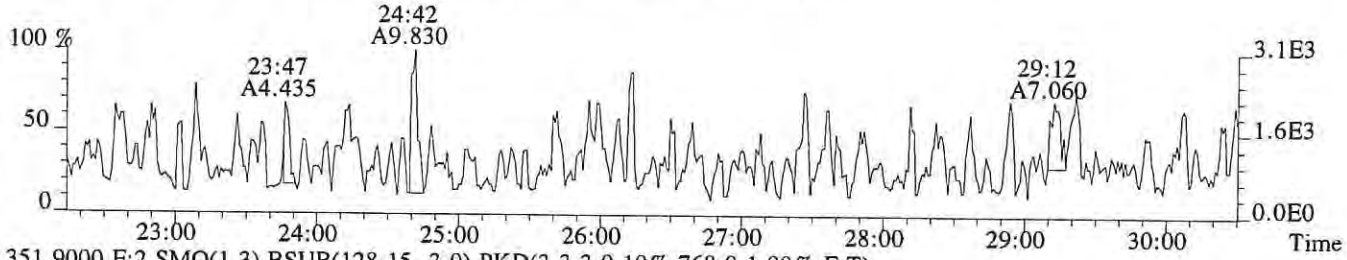
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



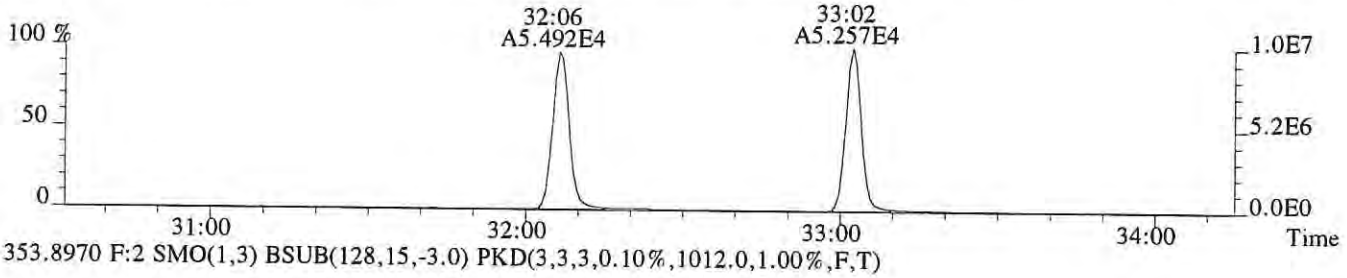
File:P519332 #1-587 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



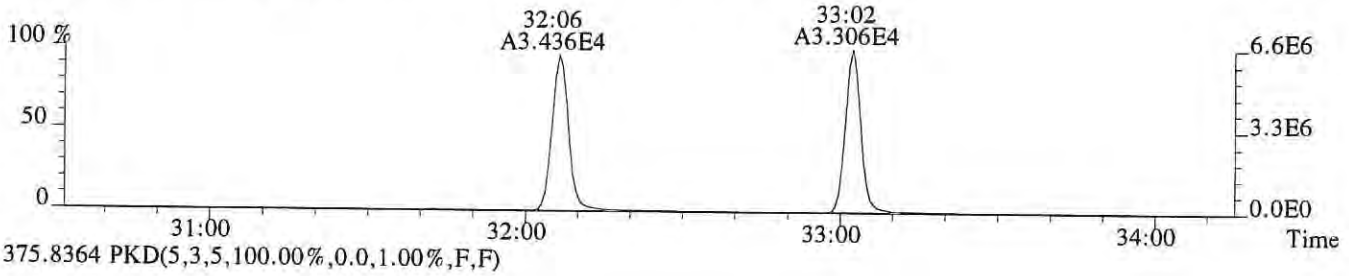
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



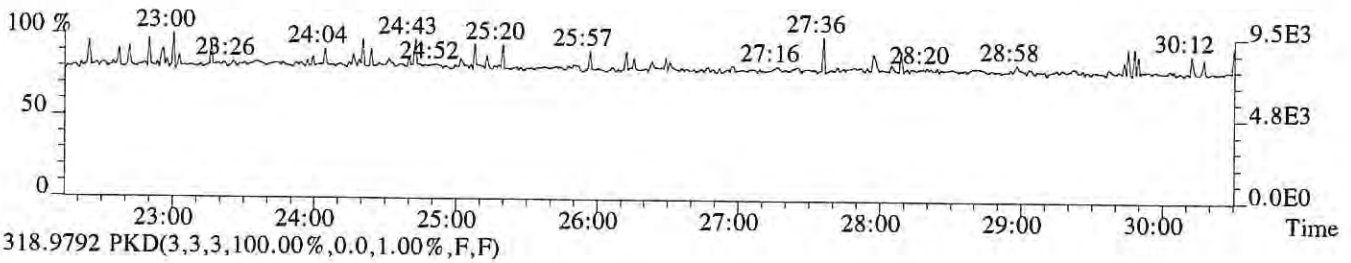
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



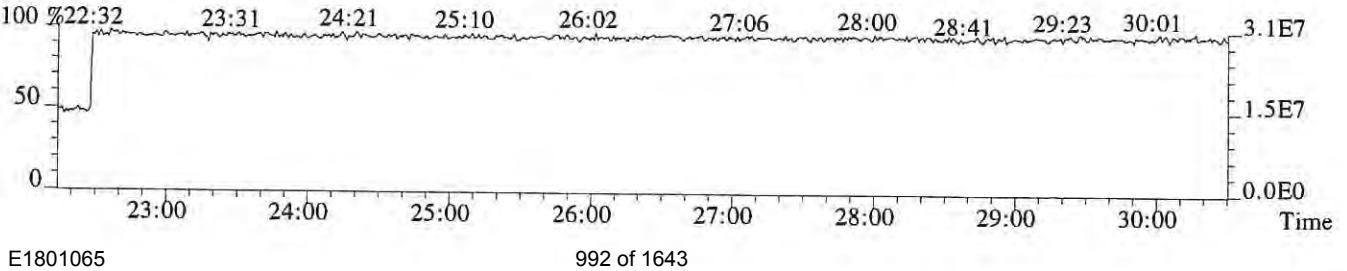
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



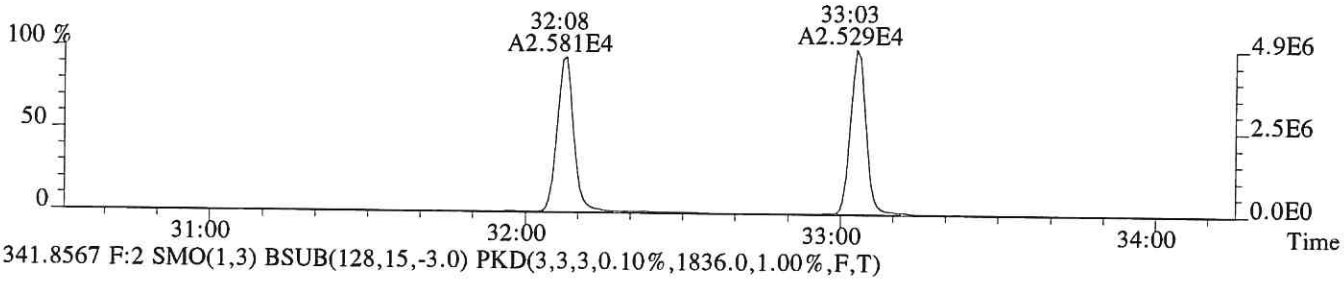
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



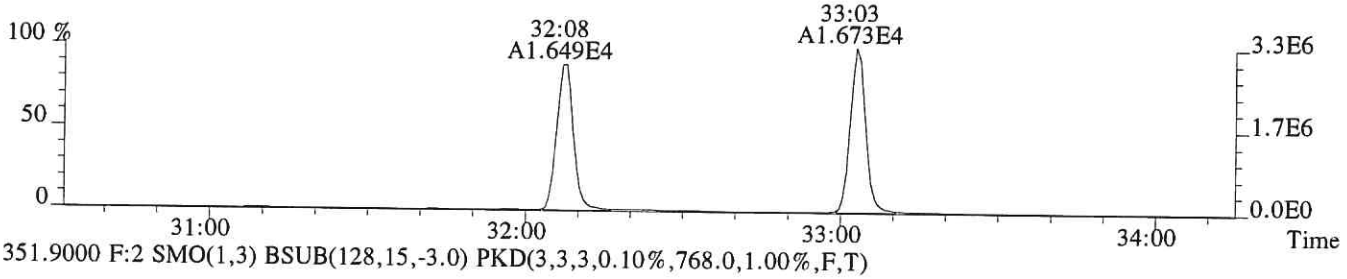
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



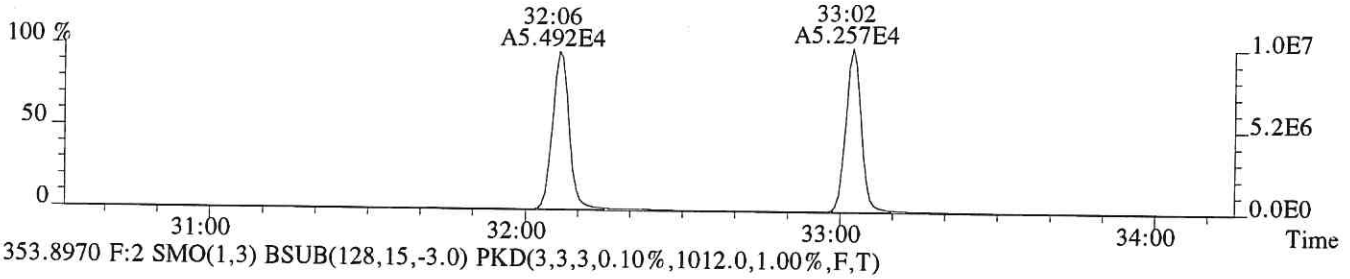
File:P519332 #1-335 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



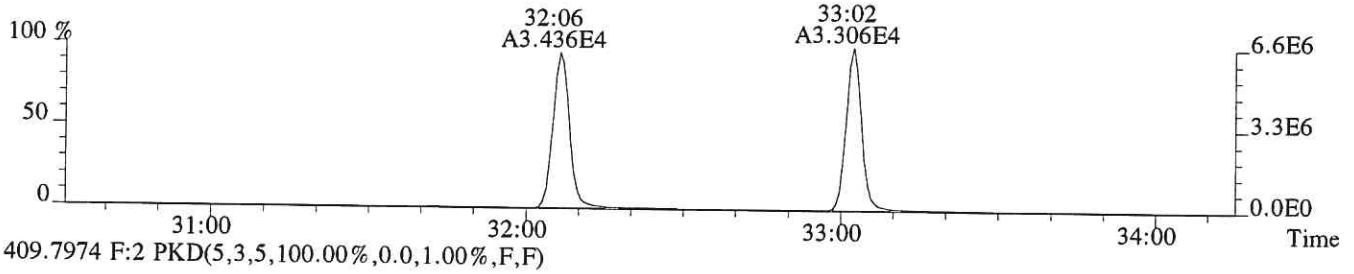
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)



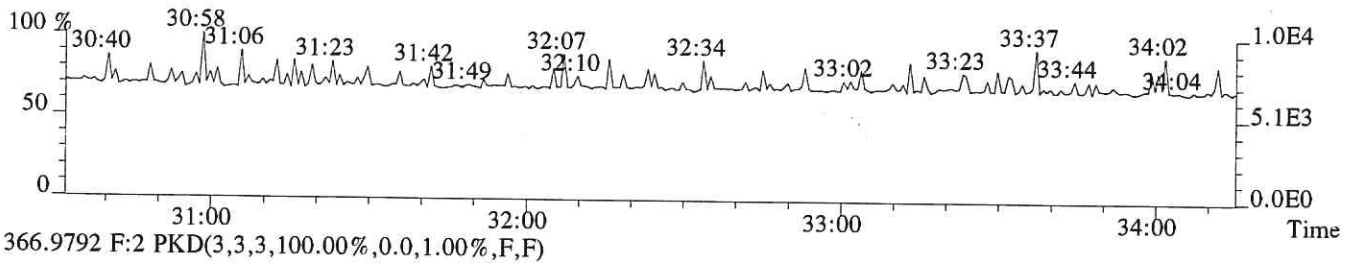
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



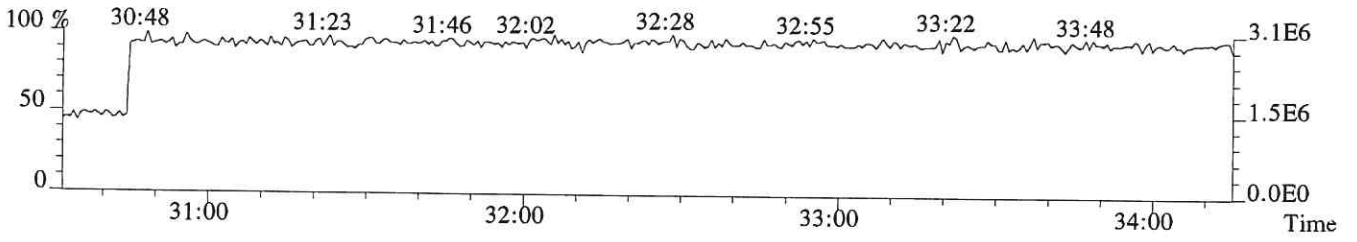
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



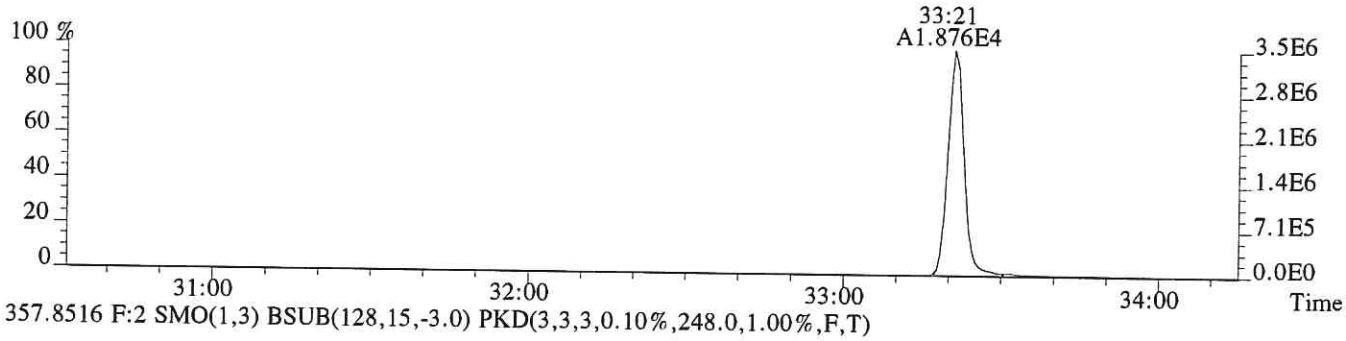
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



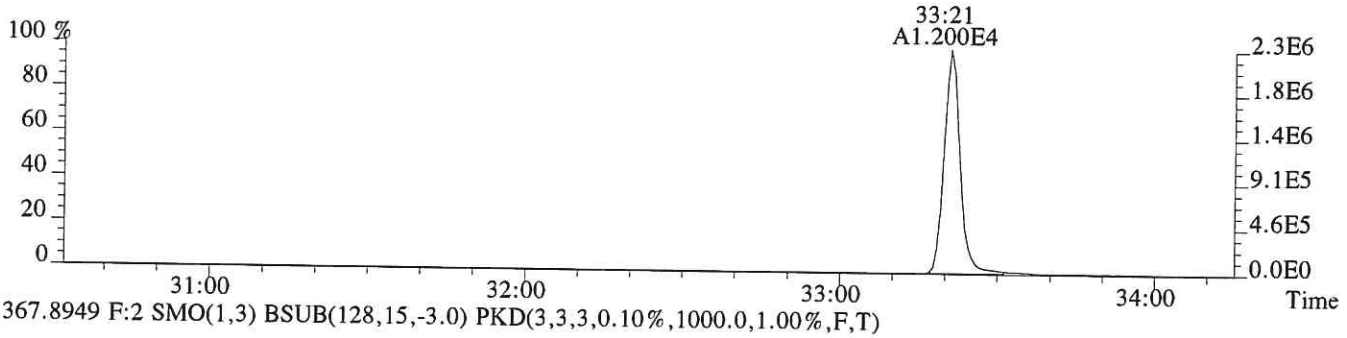
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



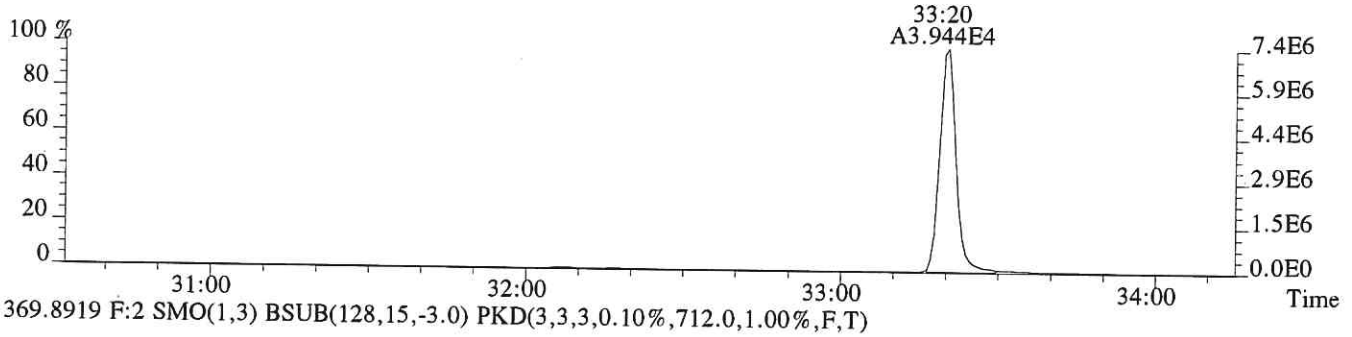
File:P519332 #1-335 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



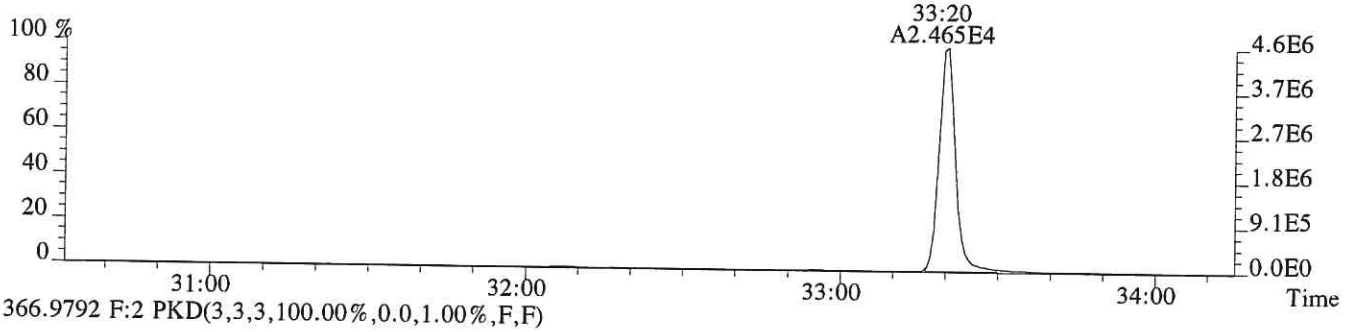
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



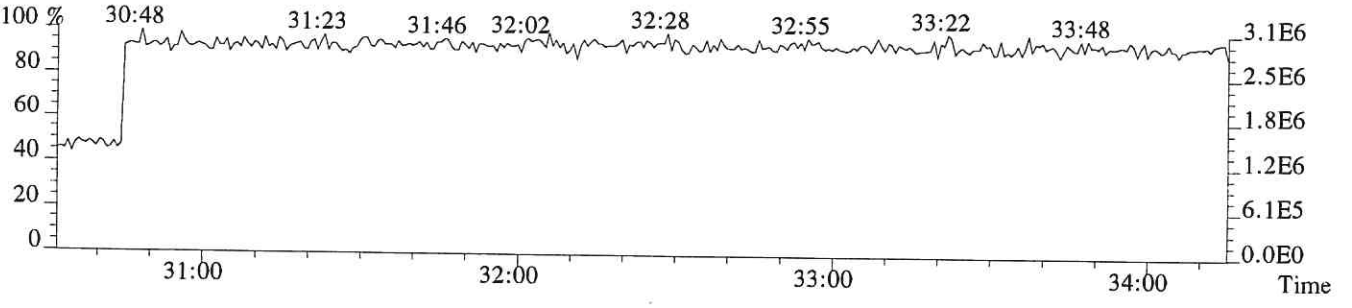
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



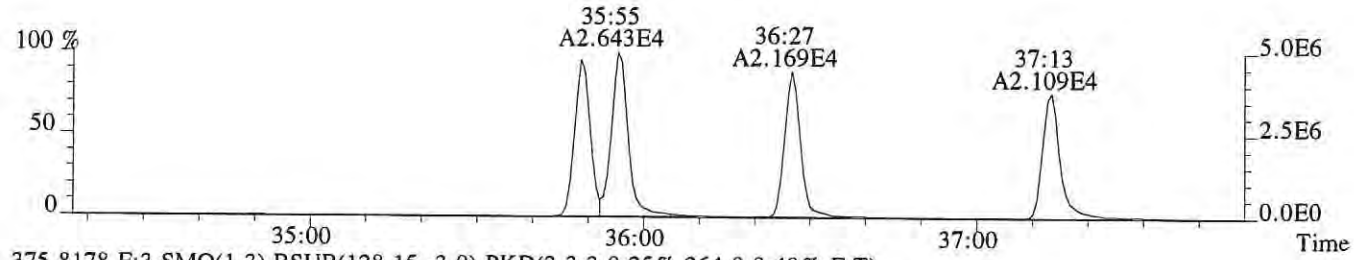
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



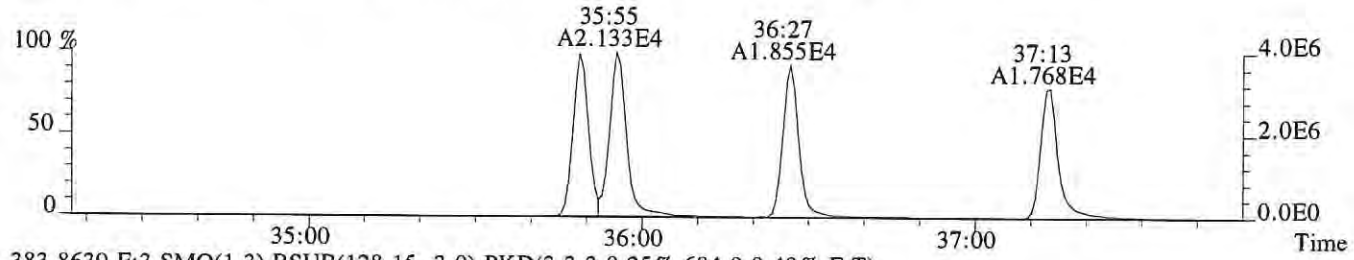
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



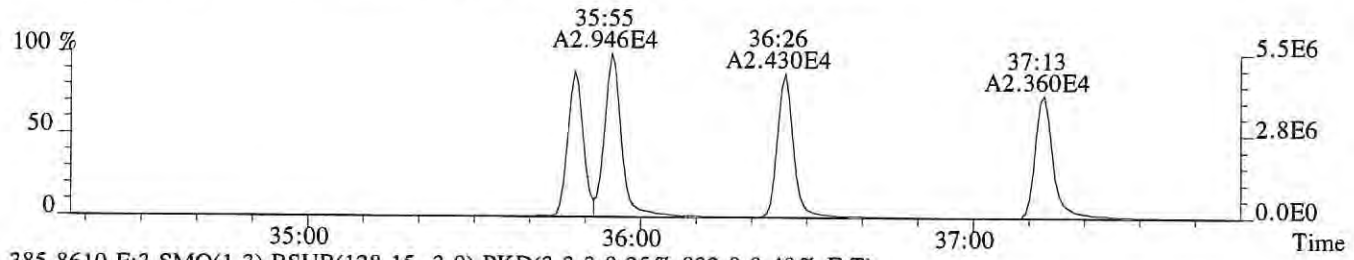
File:P519332 #1-317 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



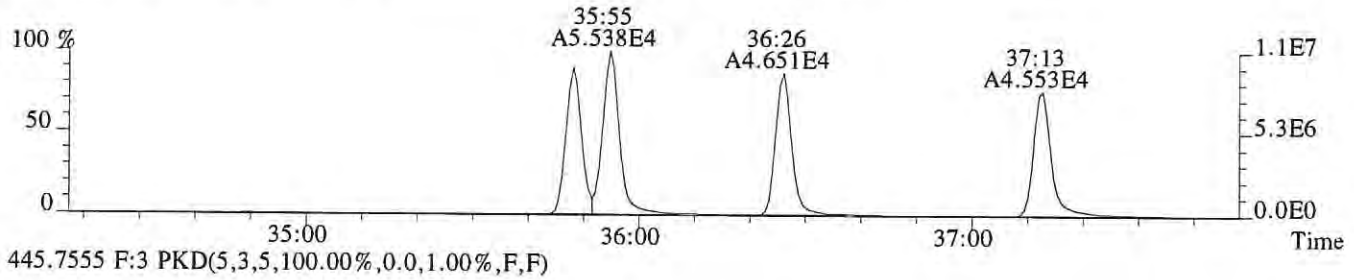
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



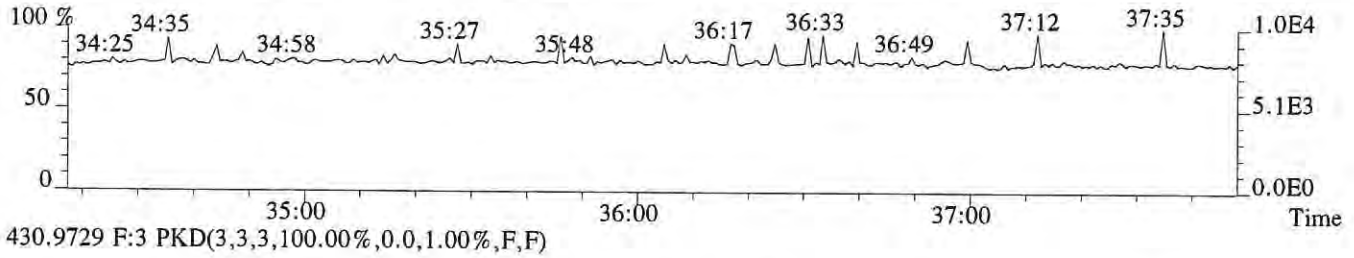
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



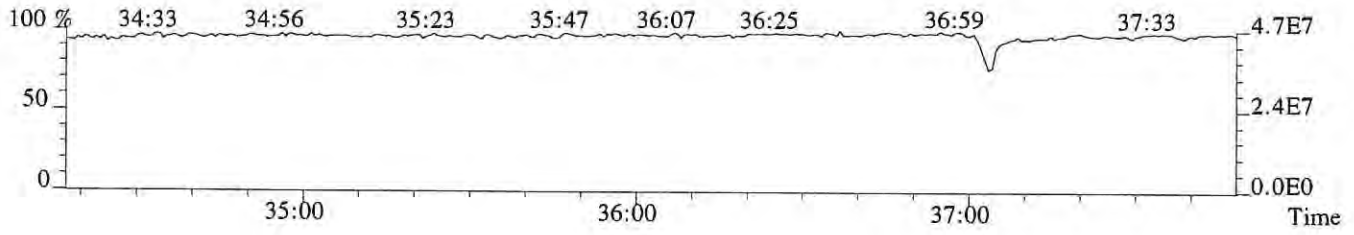
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



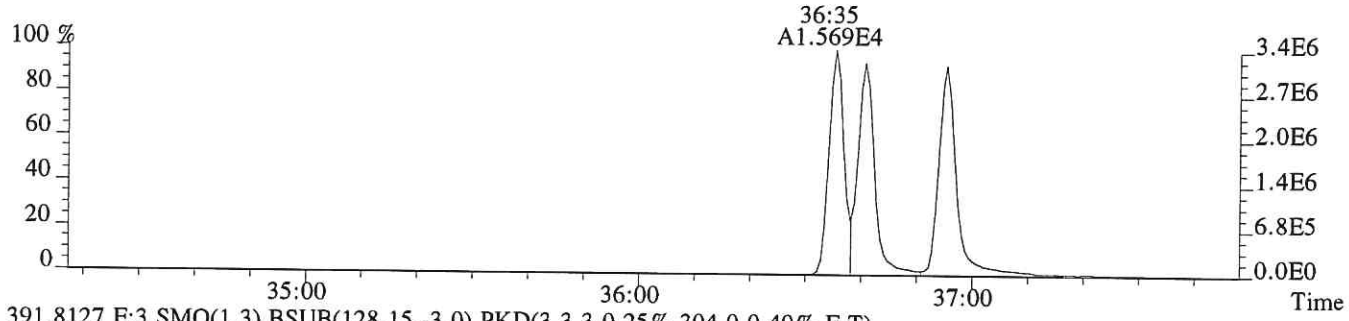
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



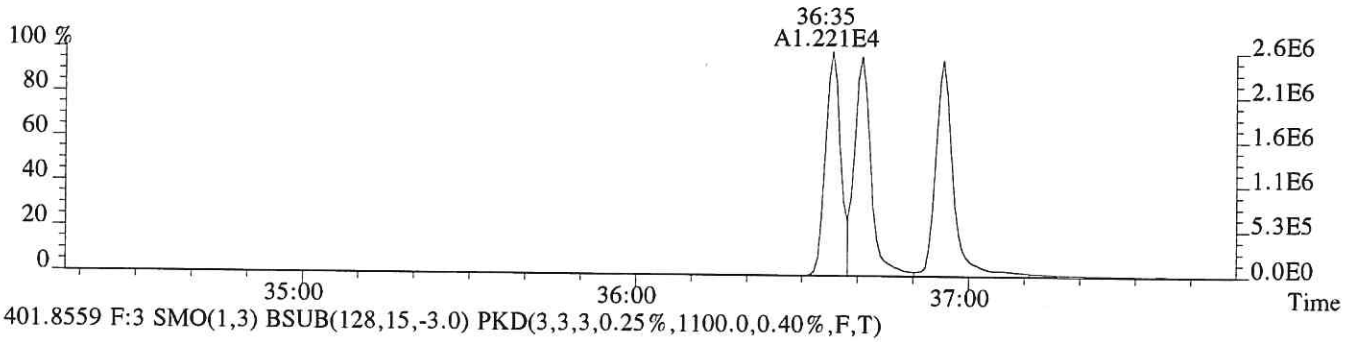
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



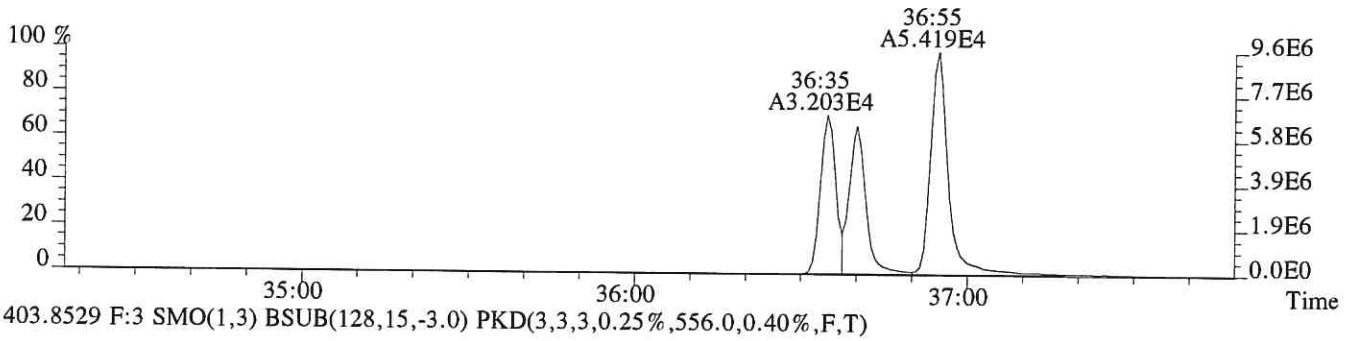
File:P519332 #1-317 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



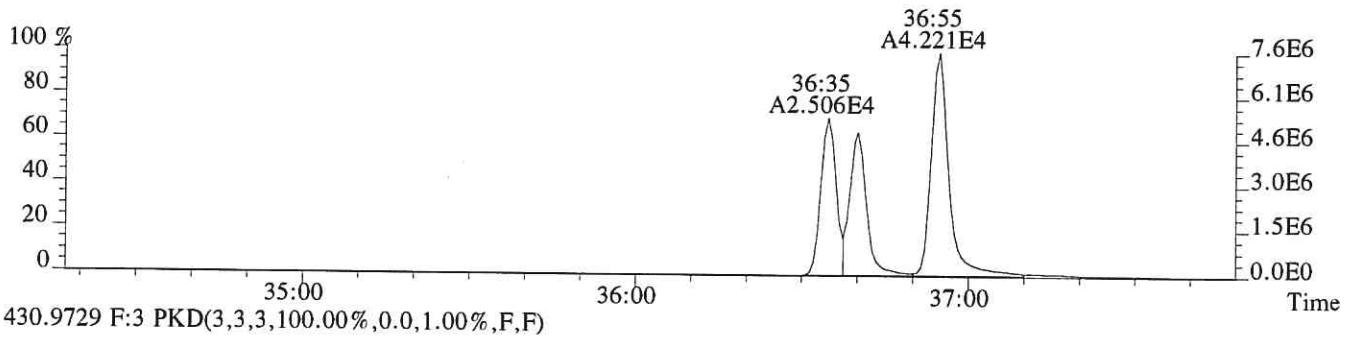
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



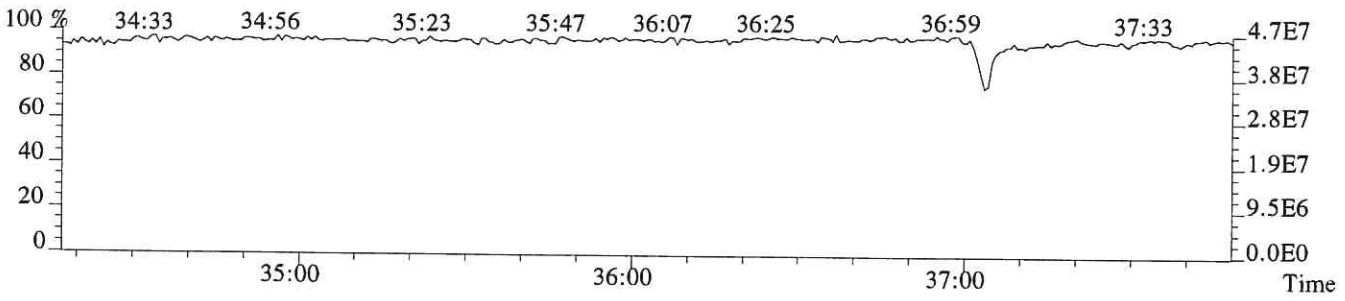
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



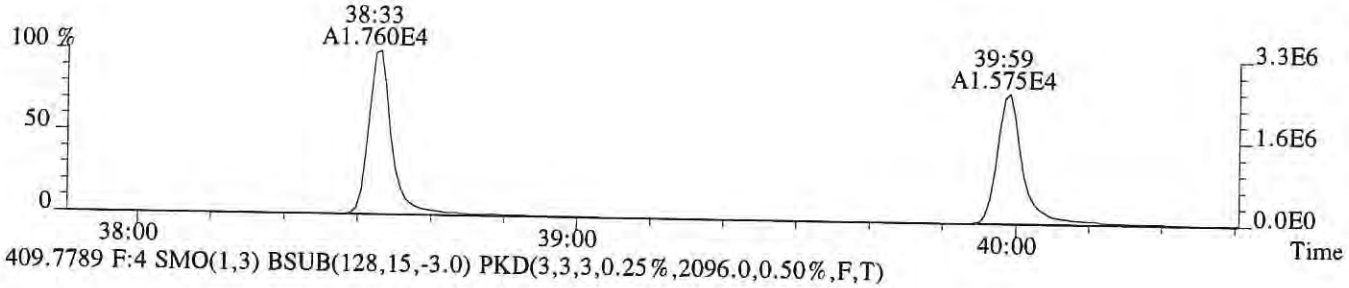
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



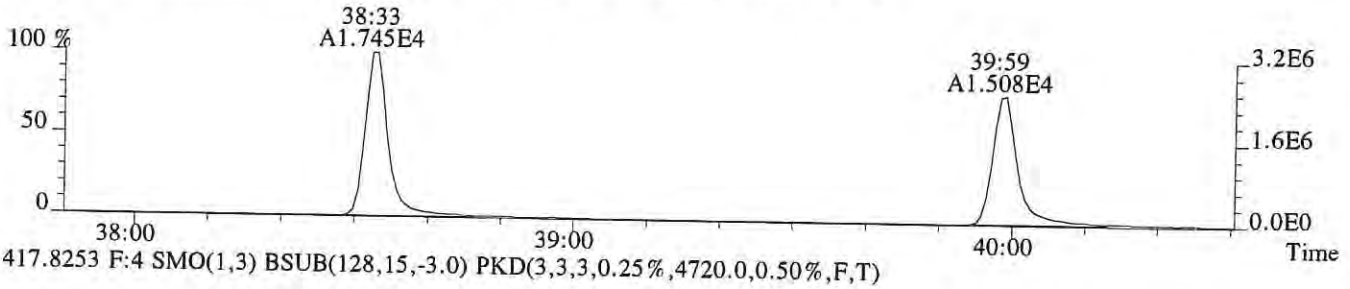
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



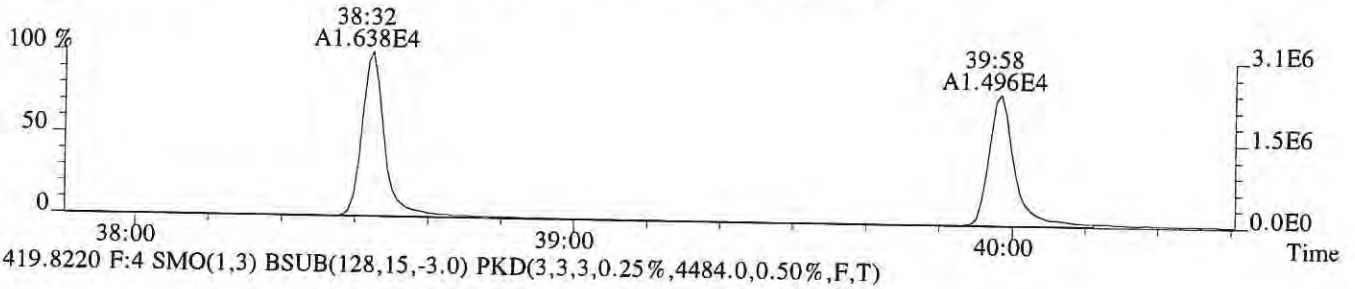
File:P519332 #1-241 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.50%,F,T)



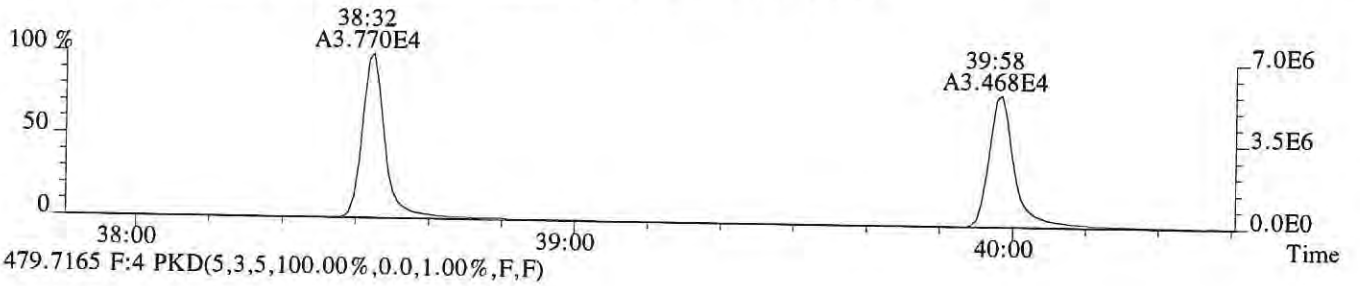
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.50%,F,T)



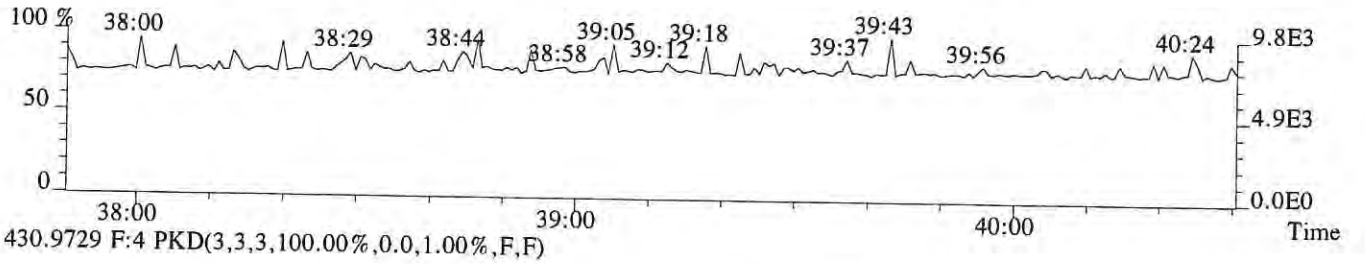
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.50%,F,T)



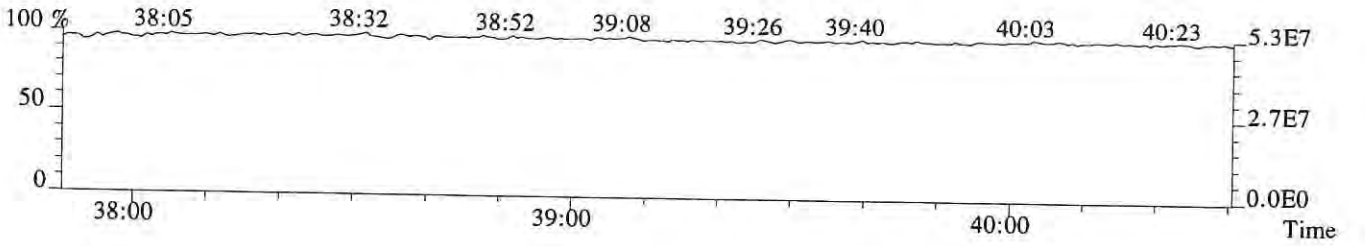
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4484.0,0.50%,F,T)



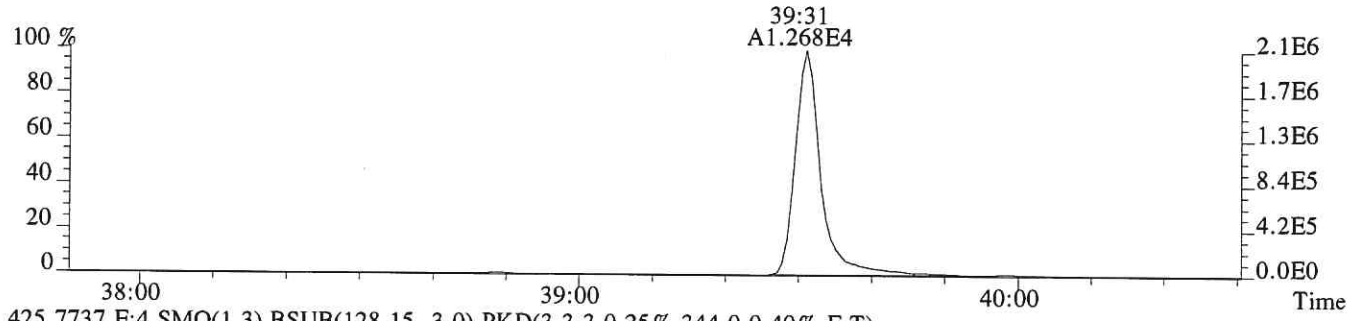
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



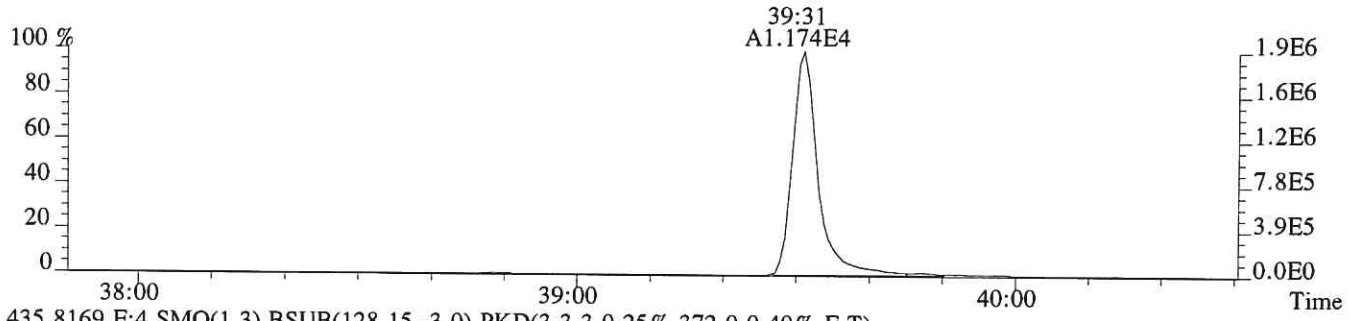
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



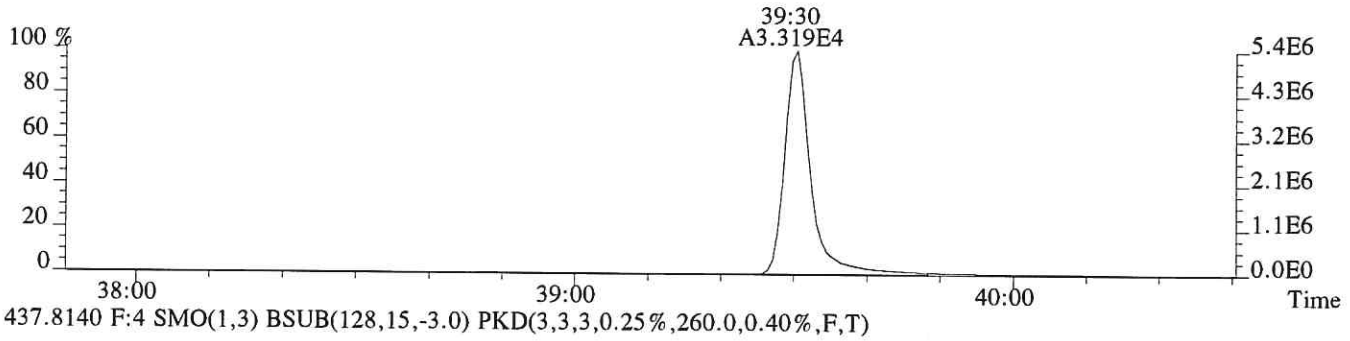
File:P519332 #1-241 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



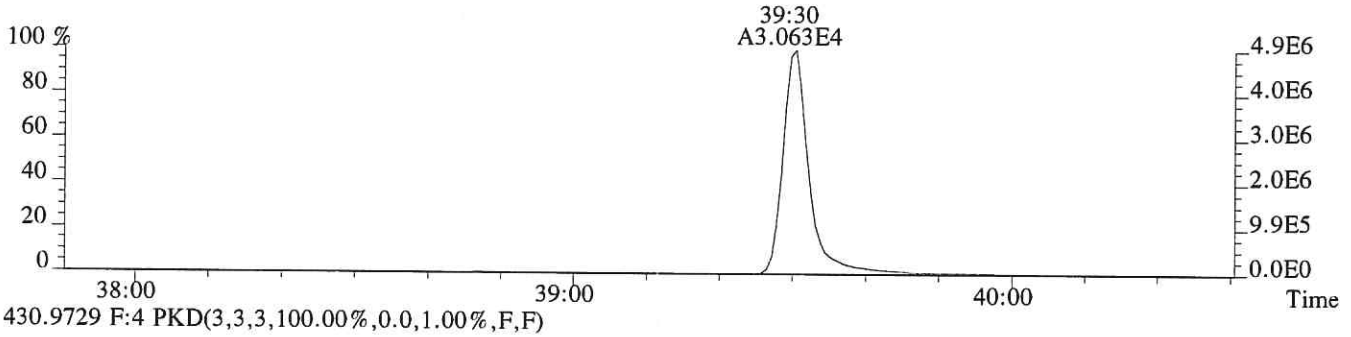
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



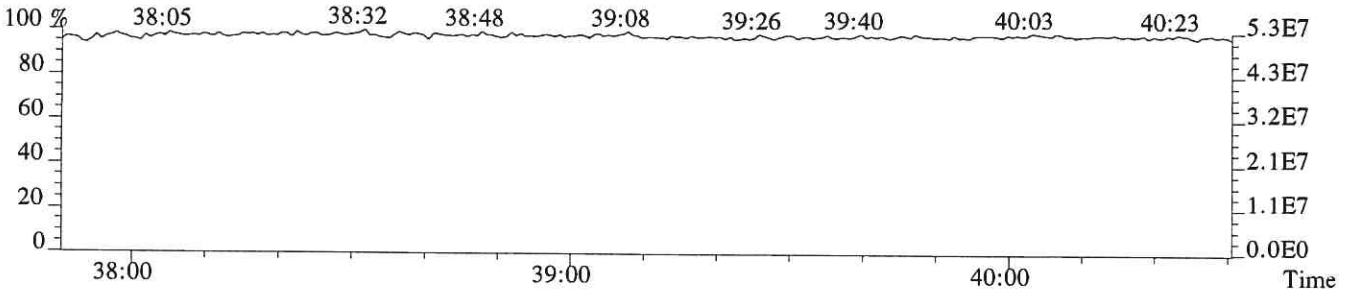
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



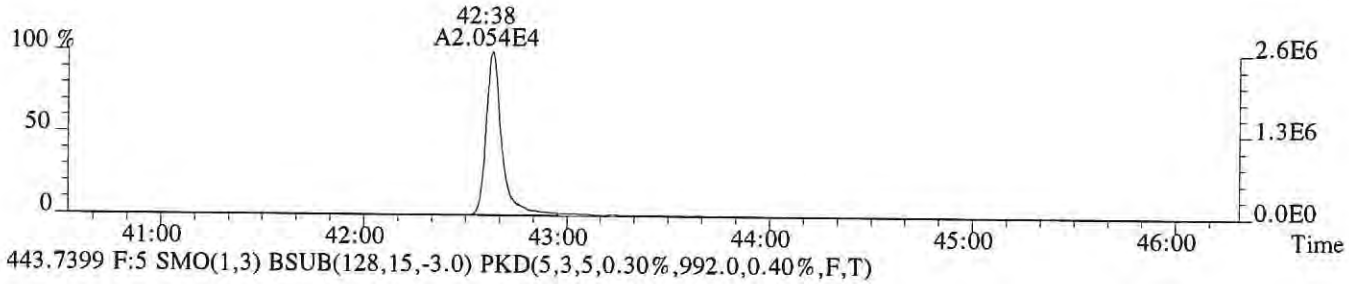
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



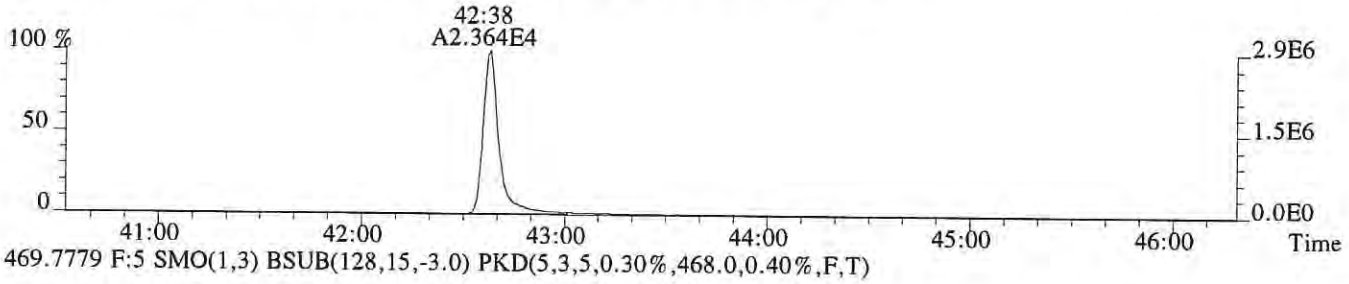
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



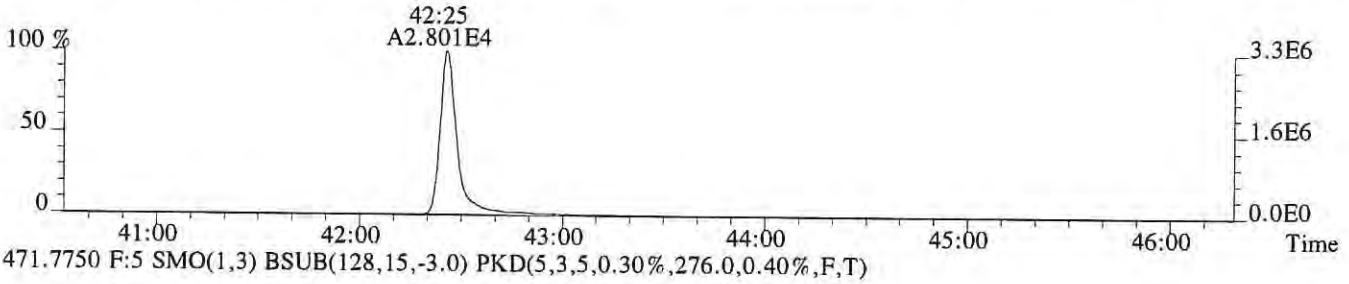
File:P519332 #1-520 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



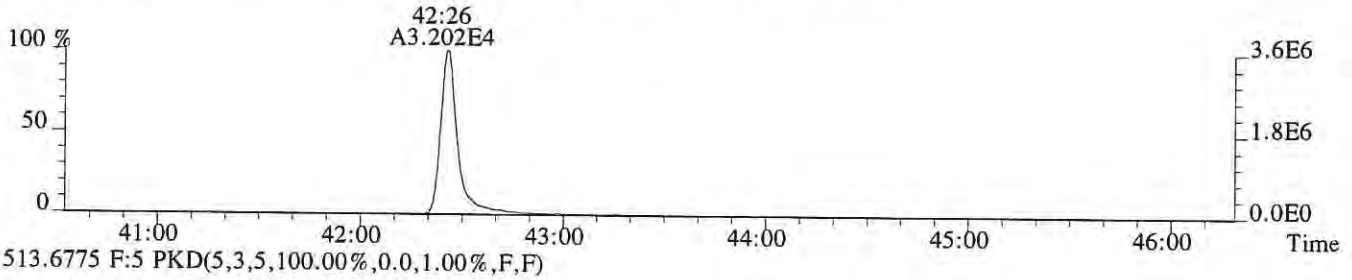
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,992.0,0.40%,F,T)



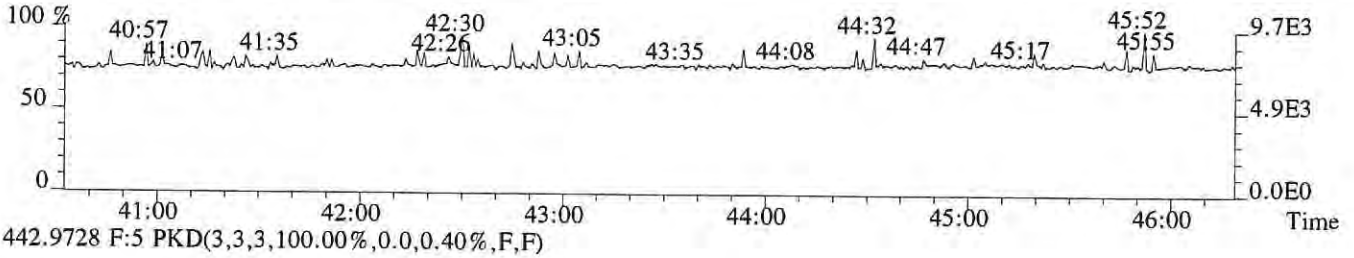
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



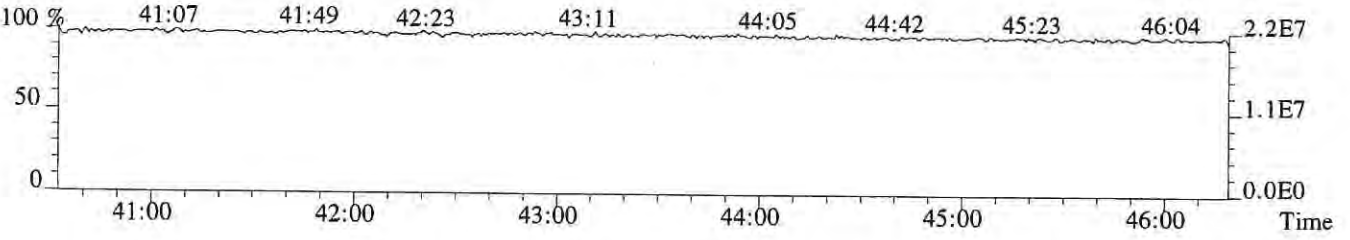
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



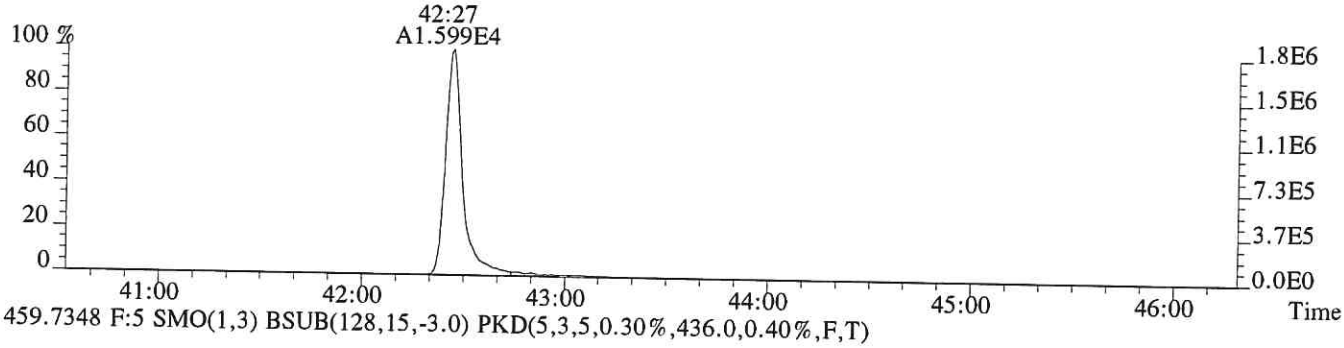
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



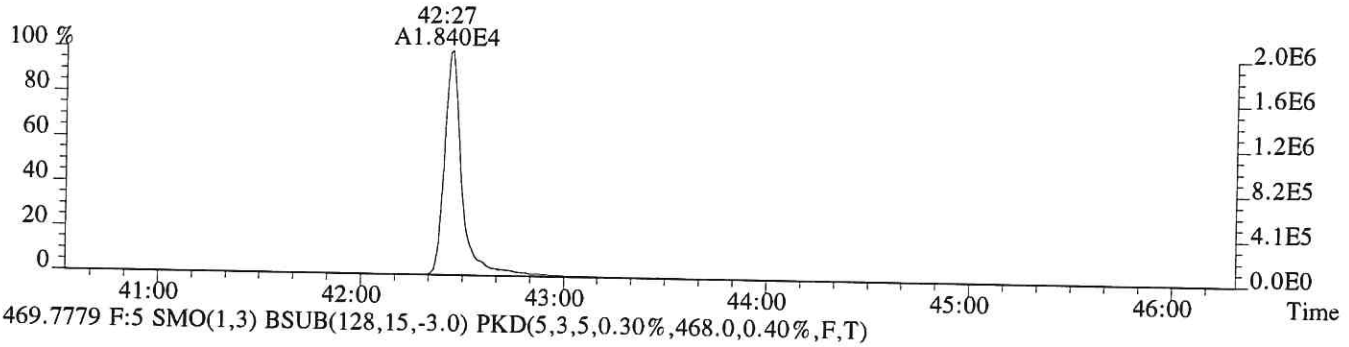
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



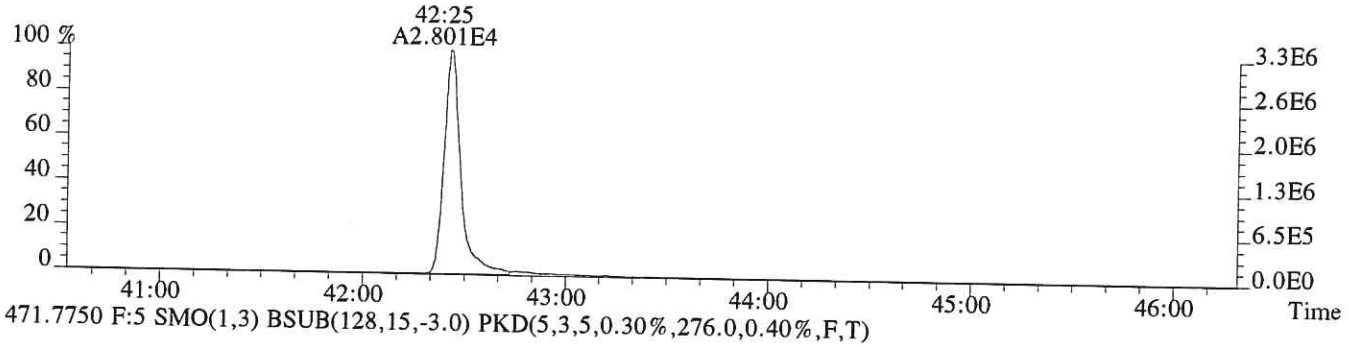
File:P519332 #1-520 Acq:10-DEC-2018 19:19:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



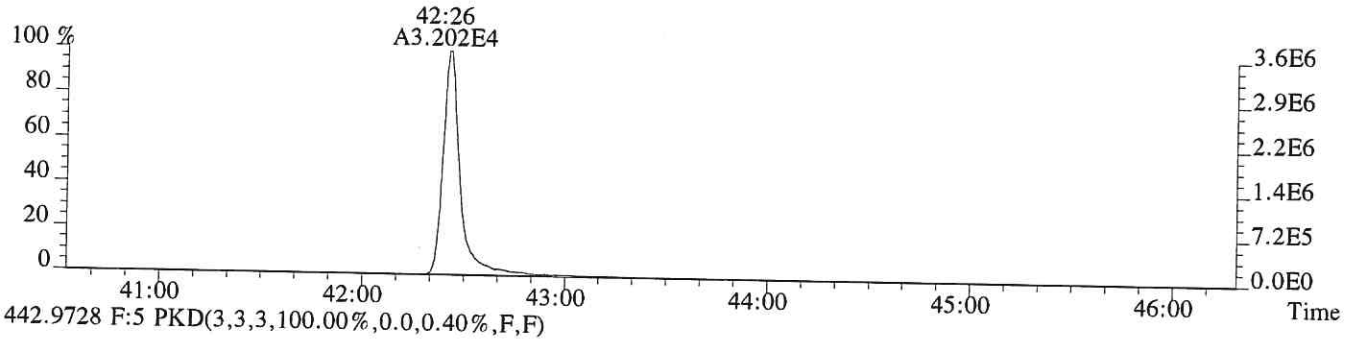
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



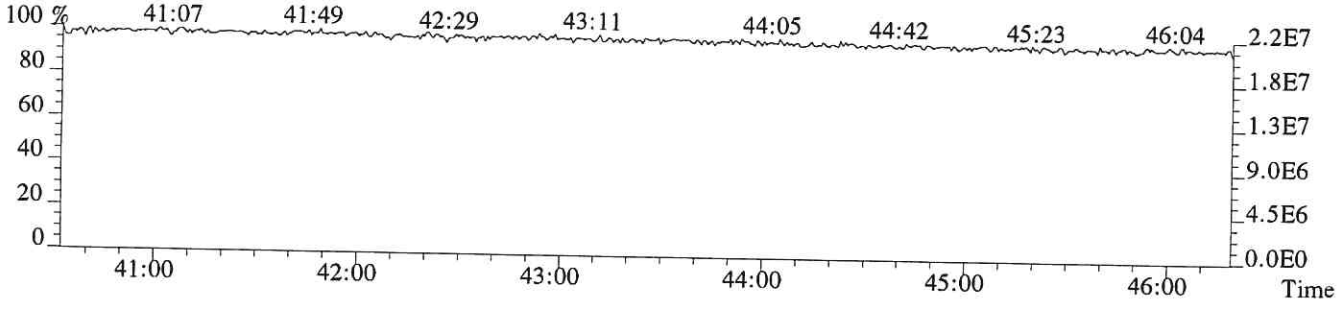
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL

Sample Response Summary

CLIENT ID.
DLCS

Run #21 Filename P519333 Samp: 1 Inj: 1 Acquired: 10-DEC-18 20:07:48
Processed: 11-DEC-18 15:18:42 Sample ID: EQ1800498-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.973e+03	2.551e+03	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.550e+04	1.019e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.623e+04	1.051e+04	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	1.242e+04	1.002e+04	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.350e+04	1.117e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.118e+04	9.598e+03	1.16	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	1.046e+04	8.548e+03	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	8.134e+03	8.127e+03	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	7.053e+03	6.835e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:38	7.796e+03	9.102e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	1.530e+03	1.950e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.146e+04	7.300e+03	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	8.576e+03	6.723e+03	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:39	9.154e+03	7.331e+03	1.25	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	8.745e+03	7.229e+03	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	5.731e+03	5.035e+03	1.14	yes	no	1.025
17	Unk	OCDD	42:27	5.402e+03	6.241e+03	0.87	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	2.172e+04	2.806e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	3.332e+04	2.093e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	3.337e+04	2.086e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.292e+04	2.491e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.550e+04	2.984e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.257e+04	2.415e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.142e+04	2.246e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	7.414e+03	1.721e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	6.753e+03	1.563e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	9.285e+03	1.168e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	2.426e+04	1.480e+04	1.64	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.778e+04	1.301e+04	1.37	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.769e+04	1.461e+04	1.21	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.456e+04	1.351e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:26	9.537e+03	1.045e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	2.896e+04	3.632e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	4.119e+04	3.417e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.358e+04				no	1.014

$$\text{OCDD} = \frac{(5.402e+03 + 6.241e+03) \times 4000\ \text{pg} \times 1}{(9.537e+03 + 1.045e+04) \times \text{g} \times / 100 \times 1.118} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #21 Filename P519333 Samp: 1 Inj: 1 Acquired: 10-DEC-18 20:07:48
Processed: 11-DEC-18 15:18:42 LAB. ID: EQ1800498-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.43e+05	7.04e+02	4.9e+02	4.66e+05	1.27e+03	3.7e+02
2	1,2,3,7,8-PeCDF	2.85e+06	4.72e+02	6.0e+03	1.87e+06	1.34e+03	1.4e+03
3	2,3,4,7,8-PeCDF	3.13e+06	4.72e+02	6.6e+03	2.01e+06	1.34e+03	1.5e+03
4	1,2,3,4,7,8-HxCDF	2.56e+06	6.16e+02	4.2e+03	2.04e+06	3.72e+02	5.5e+03
5	1,2,3,6,7,8-HxCDF	2.58e+06	6.16e+02	4.2e+03	2.12e+06	3.72e+02	5.7e+03
6	2,3,4,6,7,8-HxCDF	2.22e+06	6.16e+02	3.6e+03	1.88e+06	3.72e+02	5.1e+03
7	1,2,3,7,8,9-HxCDF	1.89e+06	6.16e+02	3.1e+03	1.53e+06	3.72e+02	4.1e+03
8	1,2,3,4,6,7,8-HpCDF	1.52e+06	1.30e+03	1.2e+03	1.51e+06	3.28e+03	4.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.14e+06	1.30e+03	8.8e+02	1.10e+06	3.28e+03	3.4e+02
10	OCDF	9.48e+05	2.20e+02	4.3e+03	1.09e+06	8.80e+02	1.2e+03
11	2,3,7,8-TCDD	2.66e+05	2.46e+03	1.1e+02	3.61e+05	1.23e+03	2.9e+02
12	1,2,3,7,8-PeCDD	2.11e+06	6.36e+02	3.3e+03	1.33e+06	2.20e+02	6.0e+03
13	1,2,3,4,7,8-HxCDD	1.74e+06	3.16e+02	5.5e+03	1.36e+06	3.76e+02	3.6e+03
14	1,2,3,6,7,8-HxCDD	1.76e+06	3.16e+02	5.6e+03	1.43e+06	3.76e+02	3.8e+03
15	1,2,3,7,8,9-HxCDD	1.54e+06	3.16e+02	4.9e+03	1.26e+06	3.76e+02	3.3e+03
16	1,2,3,4,6,7,8-HpCDD	9.27e+05	3.52e+02	2.6e+03	8.48e+05	2.68e+02	3.2e+03
17	OCDD	6.31e+05	1.92e+02	3.3e+03	7.48e+05	3.32e+02	2.3e+03
18	13C-2,3,7,8-TCDF	3.79e+06	8.16e+03	4.6e+02	4.88e+06	5.87e+03	8.3e+02
19	13C-1,2,3,7,8-PeCDF	6.02e+06	4.64e+02	1.3e+04	3.82e+06	3.40e+02	1.1e+04
20	13C-2,3,4,7,8-PeCDF	6.34e+06	4.64e+02	1.4e+04	4.02e+06	3.40e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	2.66e+06	1.06e+03	2.5e+03	5.00e+06	6.52e+02	7.7e+03
22	13C-1,2,3,6,7,8-HxCDF	2.93e+06	1.06e+03	2.8e+03	5.53e+06	6.52e+02	8.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.49e+06	1.06e+03	2.4e+03	4.78e+06	6.52e+02	7.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.06e+06	1.06e+03	2.0e+03	4.01e+06	6.52e+02	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.38e+06	1.54e+03	9.0e+02	3.18e+06	3.26e+03	9.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.07e+06	1.54e+03	7.0e+02	2.46e+06	3.26e+03	7.5e+02
27	13C-2,3,7,8-TCDD	1.74e+06	6.17e+03	2.8e+02	2.17e+06	2.07e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	4.59e+06	9.96e+02	4.6e+03	2.81e+06	7.12e+02	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	3.64e+06	8.52e+02	4.3e+03	2.77e+06	6.76e+02	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.34e+06	8.52e+02	3.9e+03	2.67e+06	6.76e+02	4.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.40e+06	4.24e+02	5.7e+03	2.19e+06	2.76e+02	7.9e+03
32	13C-OCDD	1.10e+06	3.52e+02	3.1e+03	1.26e+06	2.68e+02	4.7e+03
33	13C-1,2,3,4-TCDD	5.35e+06	6.17e+03	8.7e+02	6.75e+06	2.07e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	7.60e+06	8.52e+02	8.9e+03	5.99e+06	6.76e+02	8.9e+03
35	37Cl-2,3,7,8-TCDD	2.50e+06	5.28e+02	4.7e+03			

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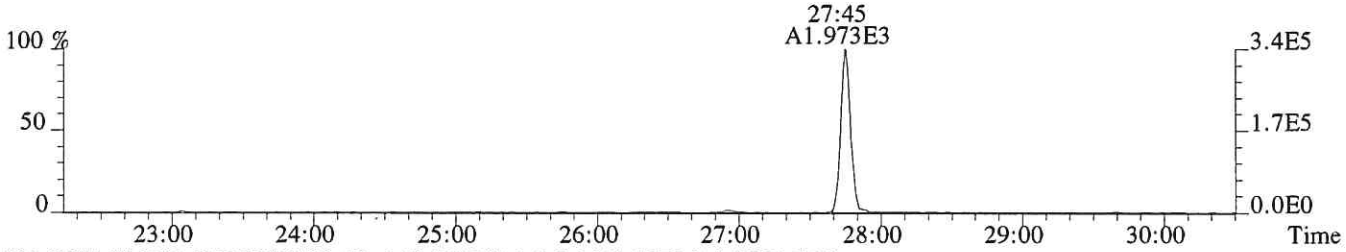
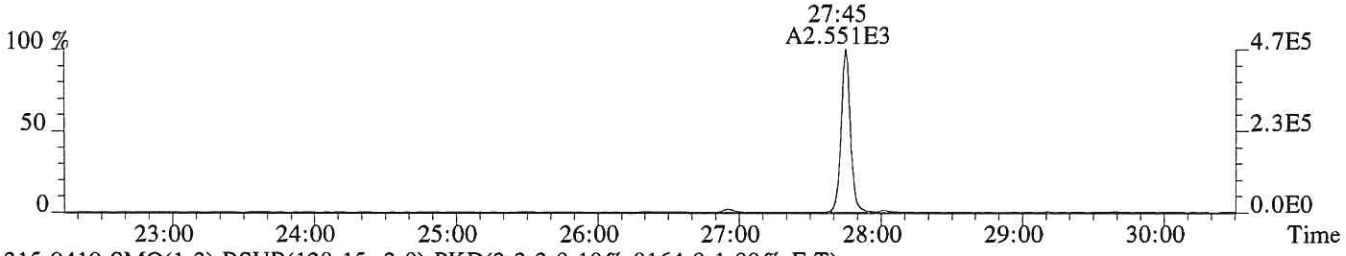
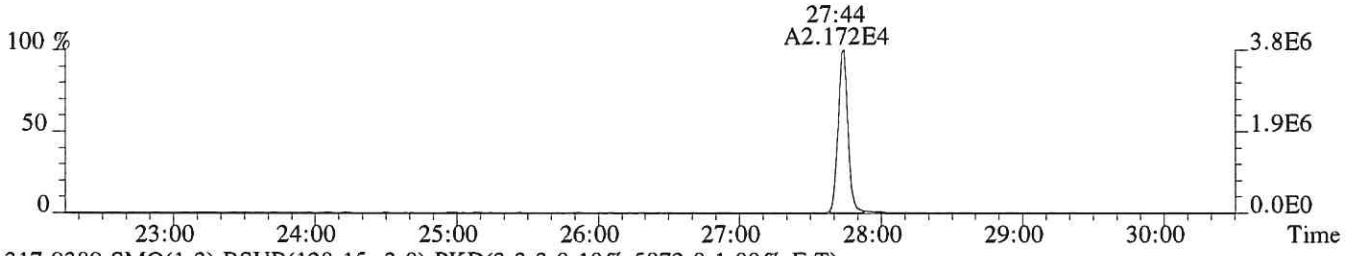
File:P519333 #1-587 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



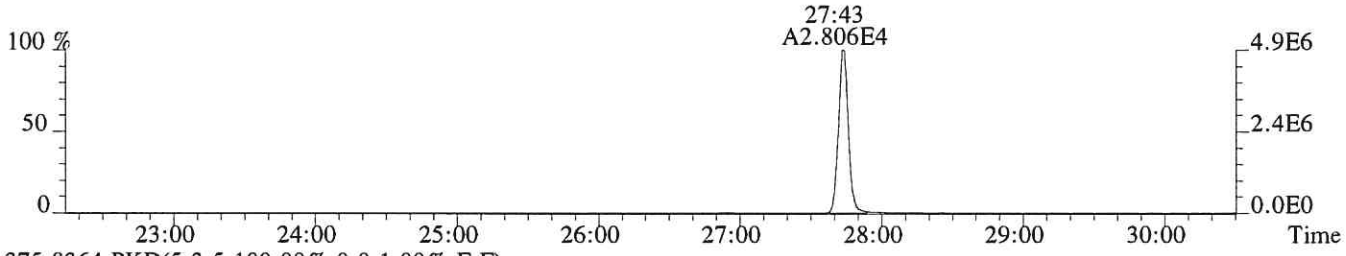
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



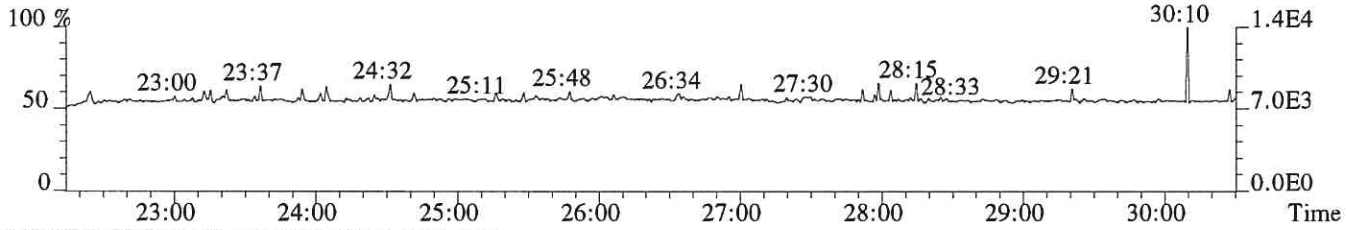
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8164.0,1.00%,F,T)



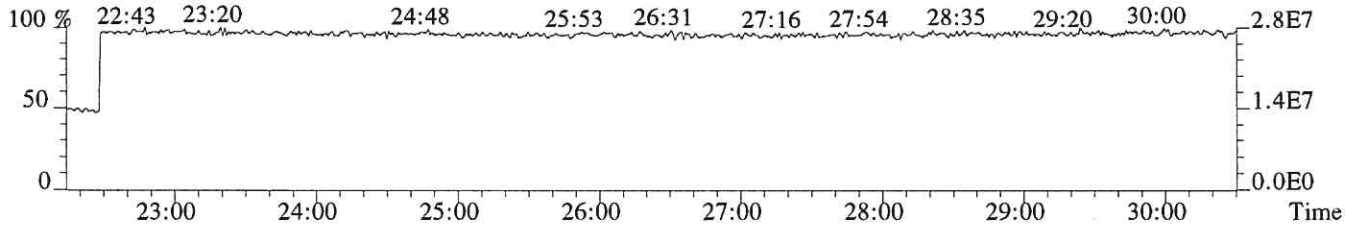
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



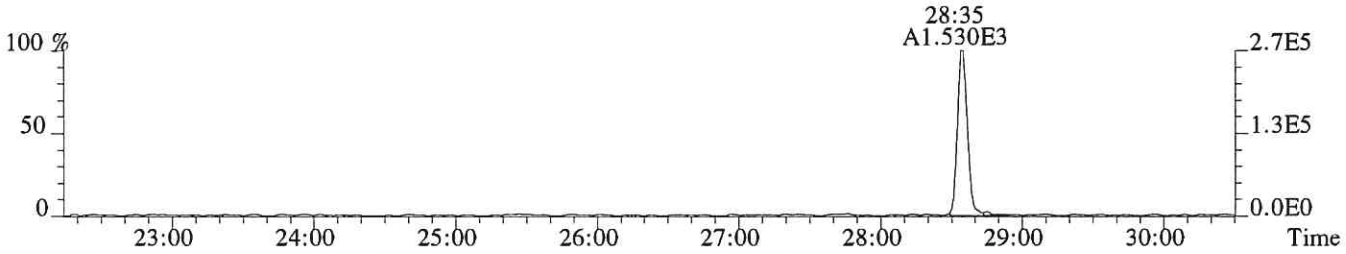
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



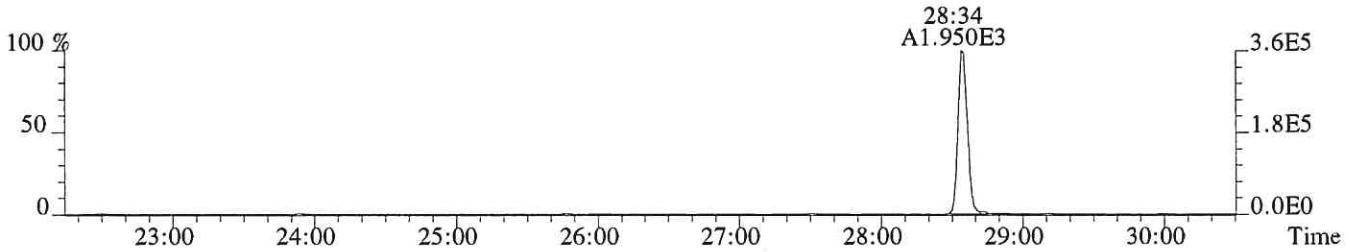
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



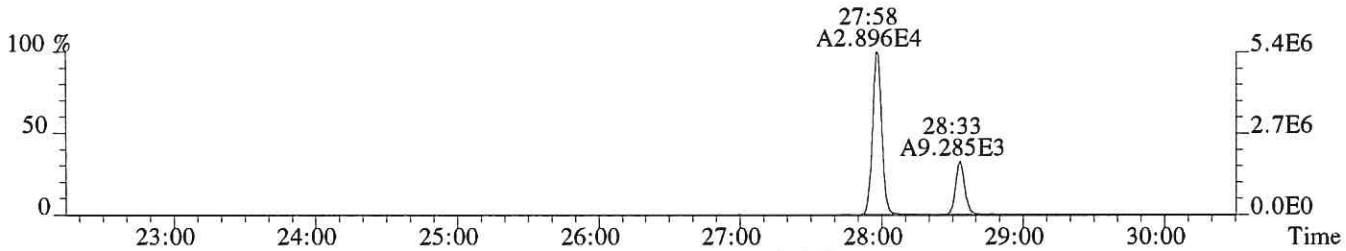
File:P519333 #1-587 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



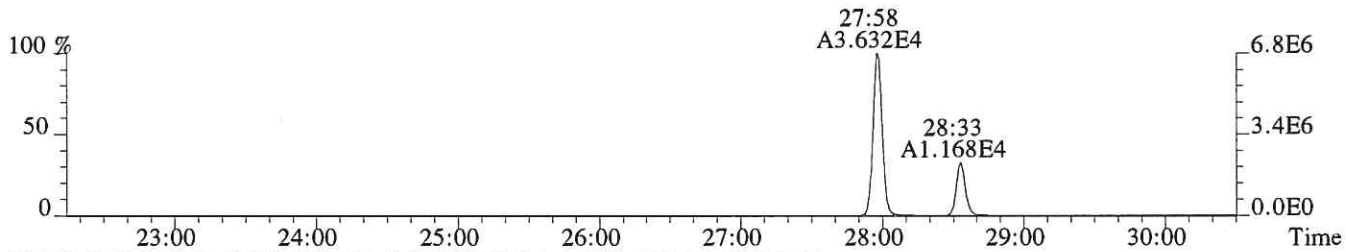
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



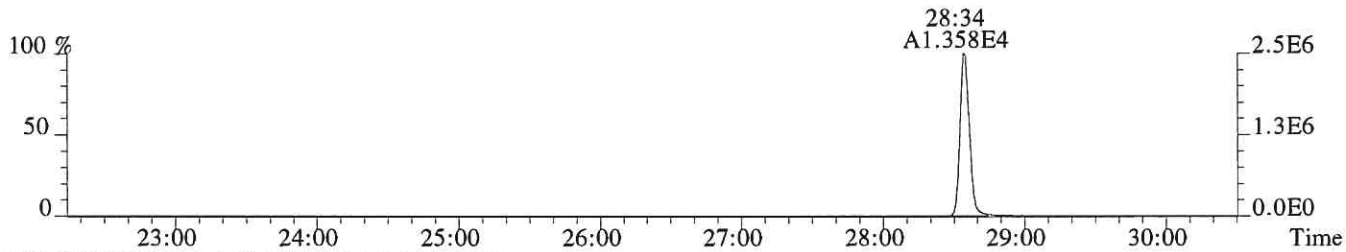
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6168.0,1.00%,F,T)



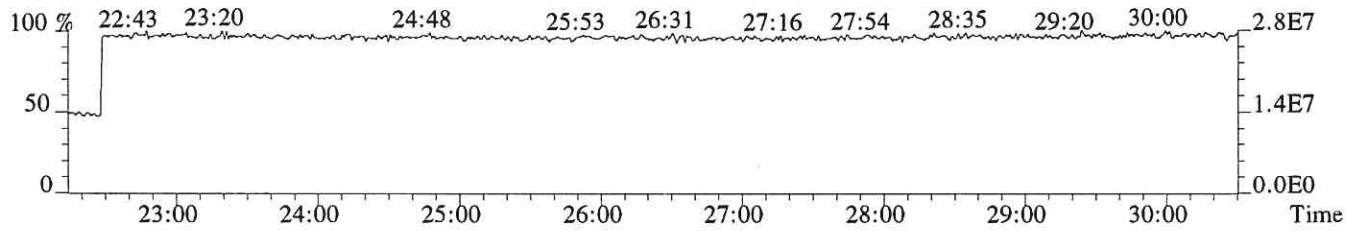
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2072.0,1.00%,F,T)



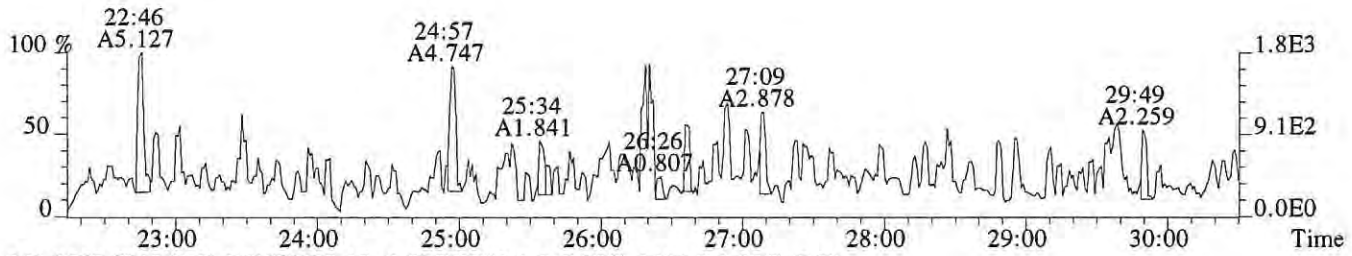
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



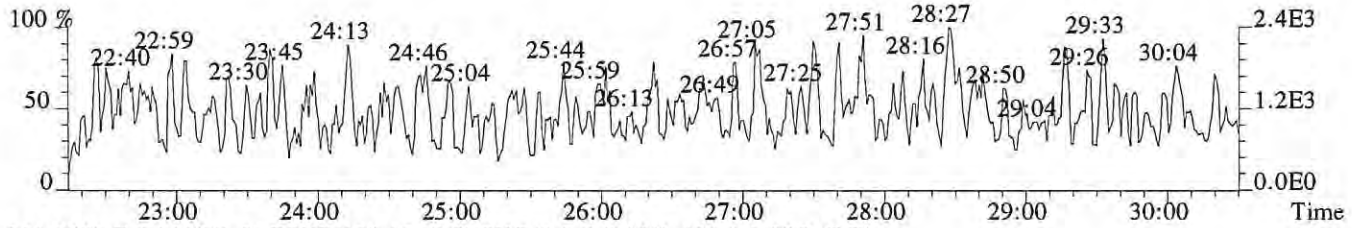
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



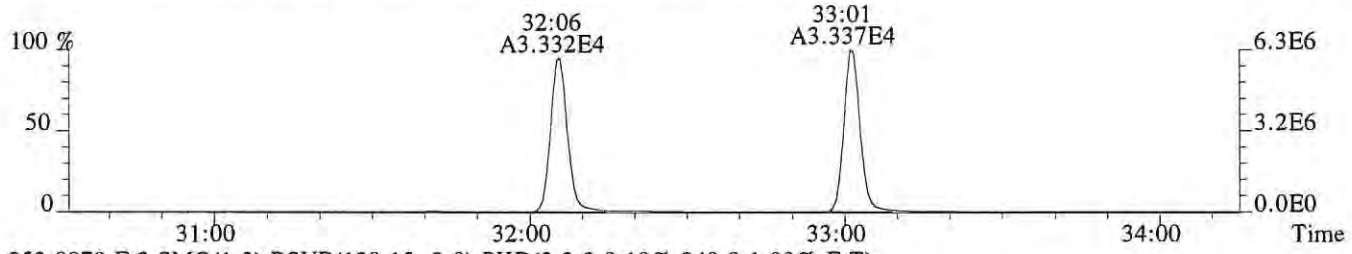
File:P519333 #1-587 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,512.0,1.00%,F,T)



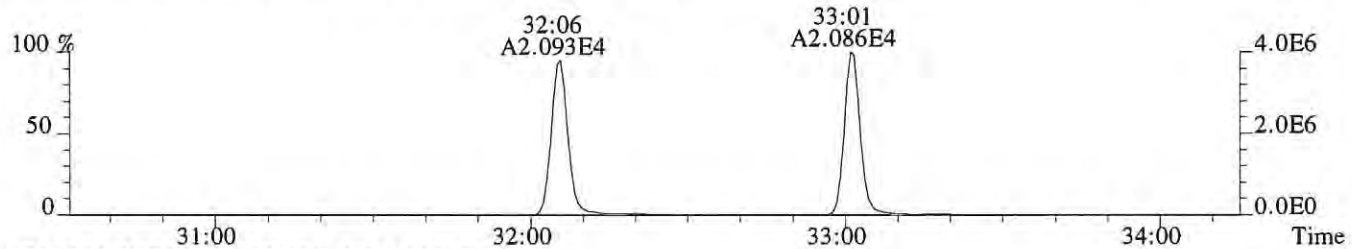
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



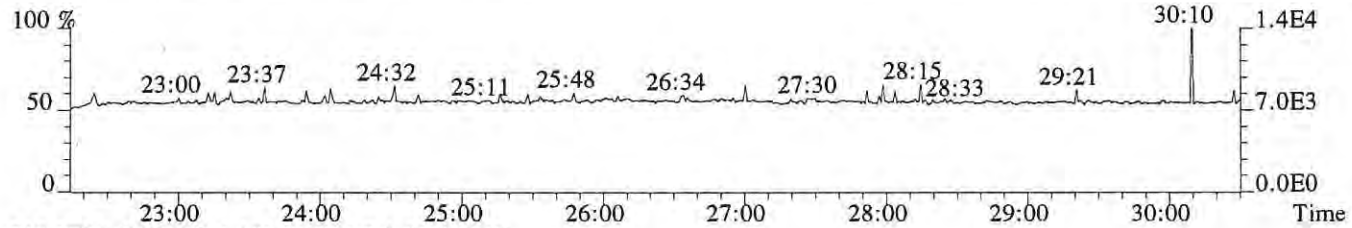
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



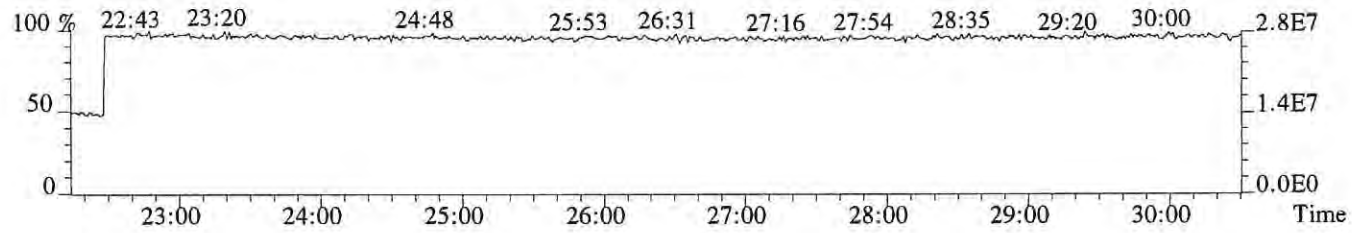
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



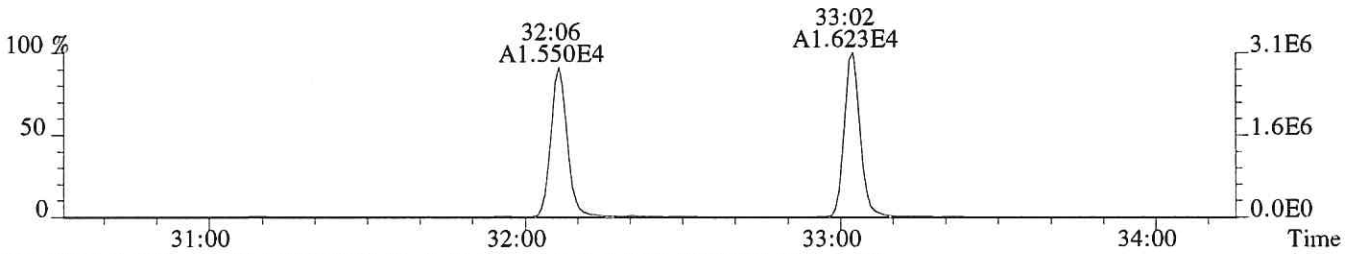
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



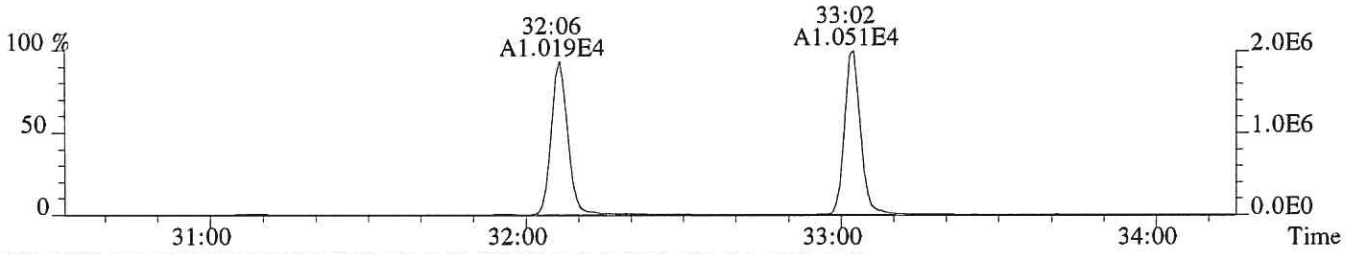
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



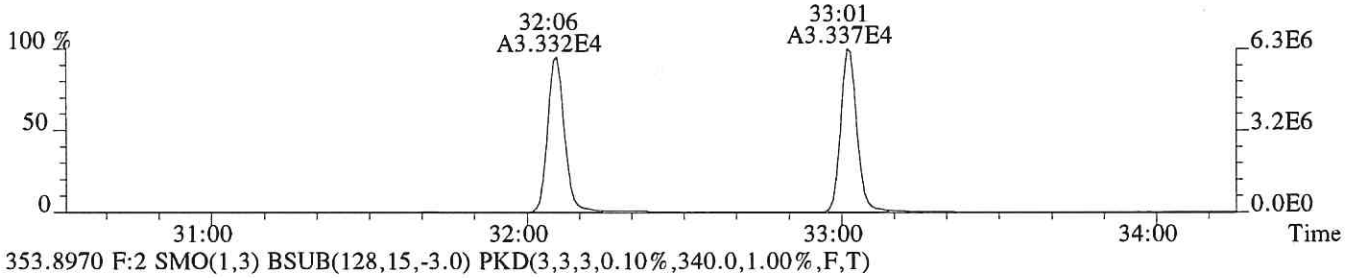
File:P519333 #1-335 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



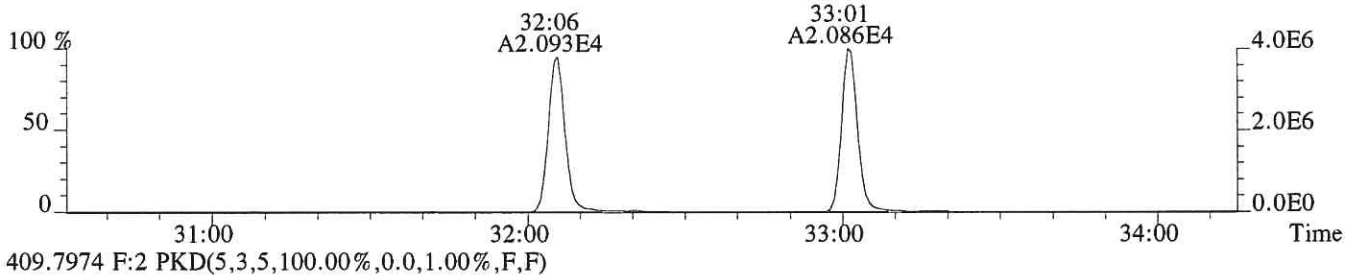
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



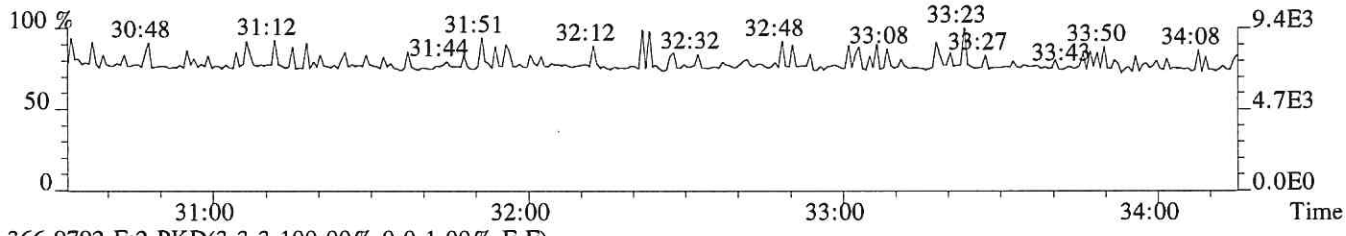
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



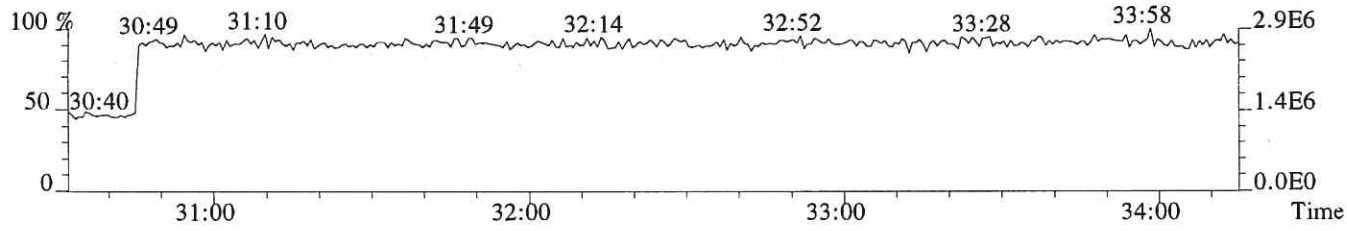
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



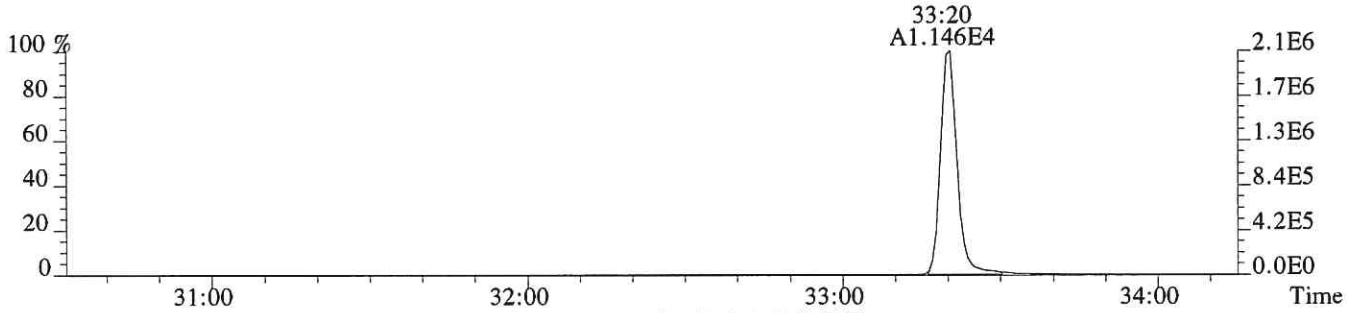
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



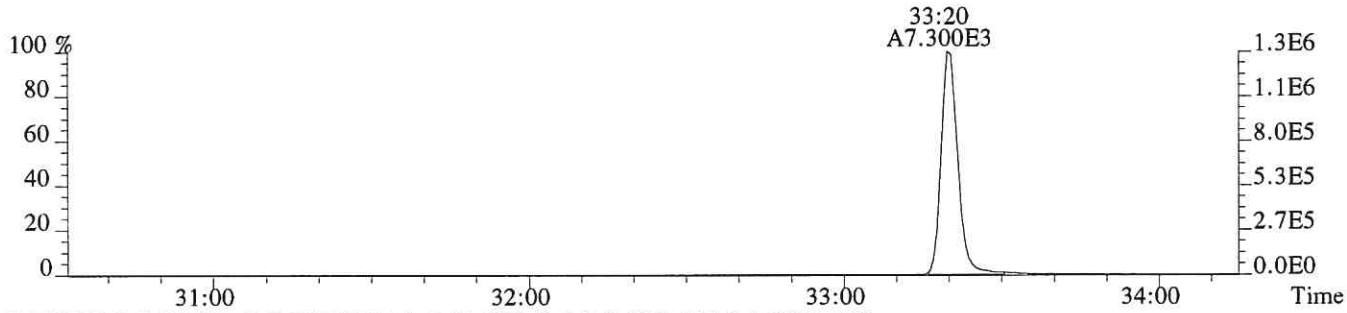
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



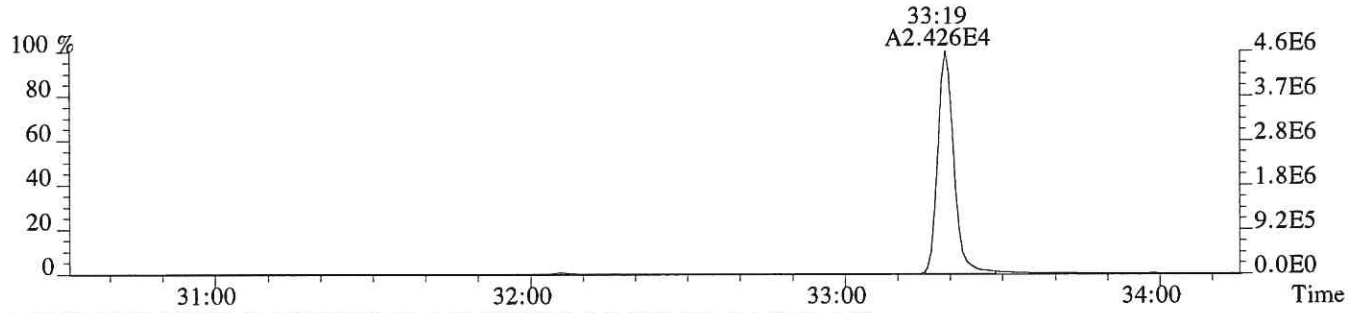
File:P519333 #1-335 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



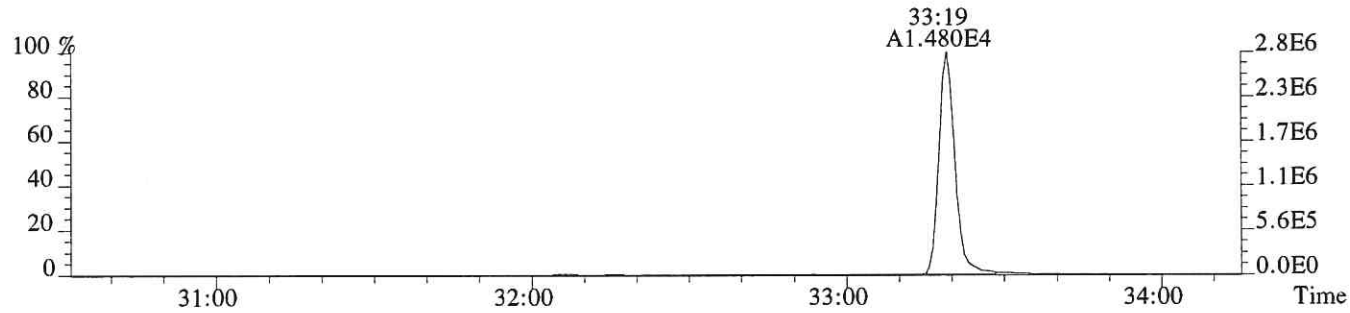
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



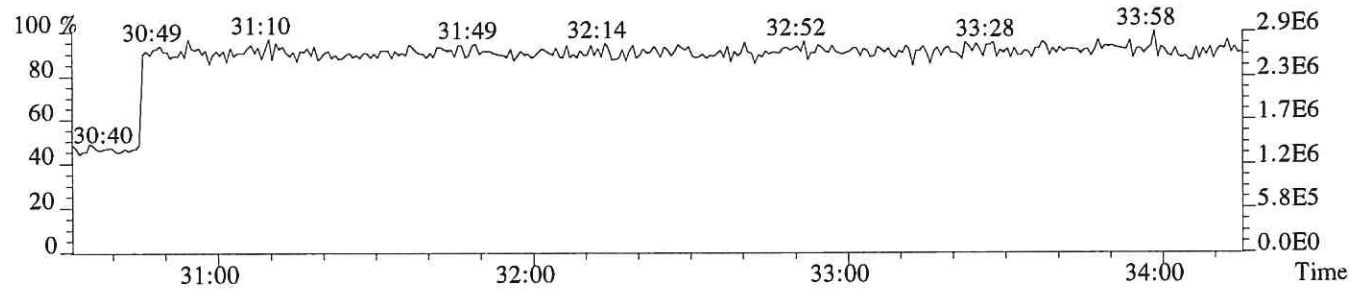
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



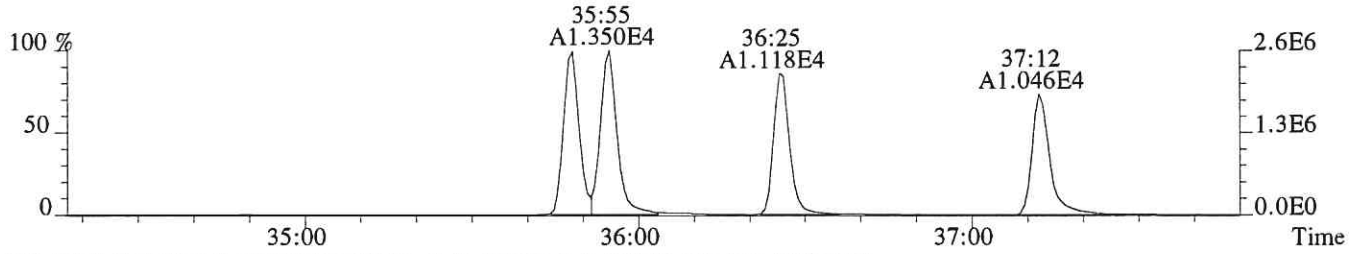
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



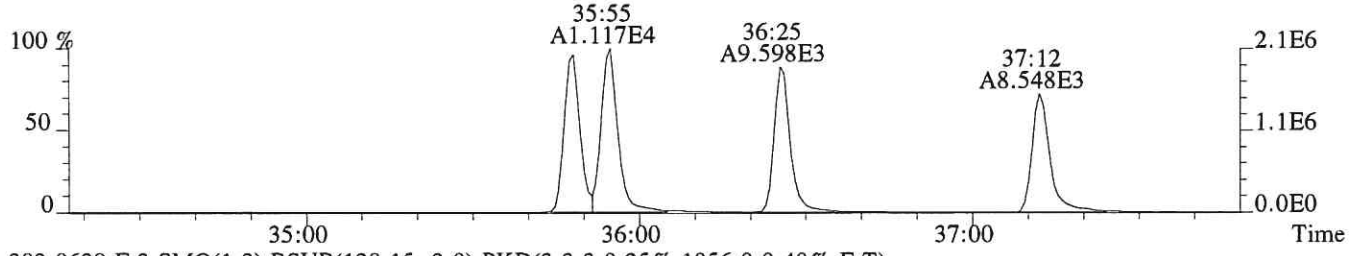
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



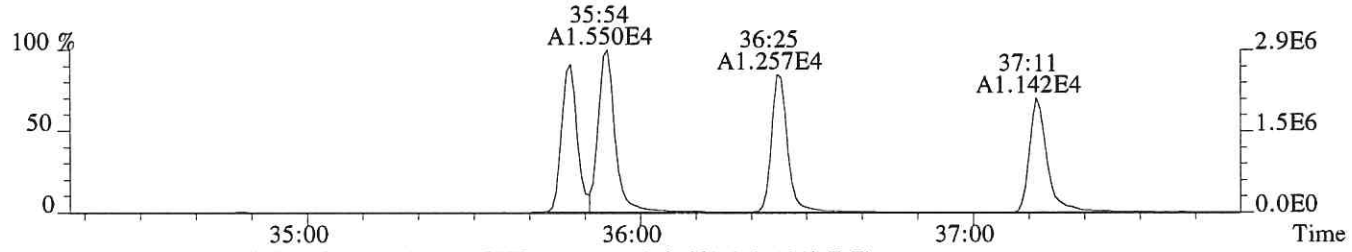
File:P519333 #1-317 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



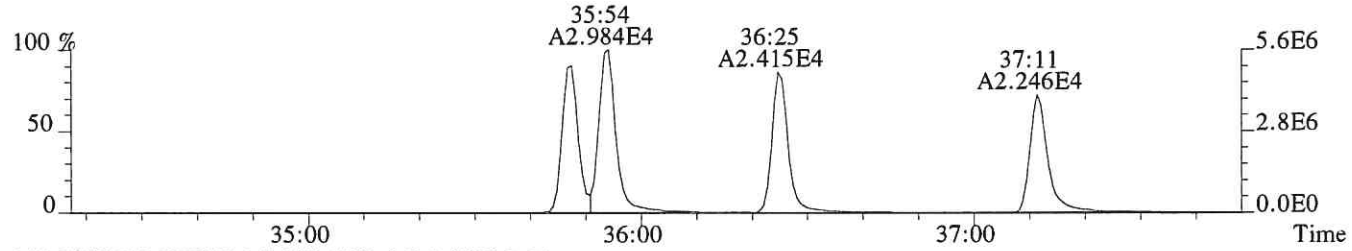
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



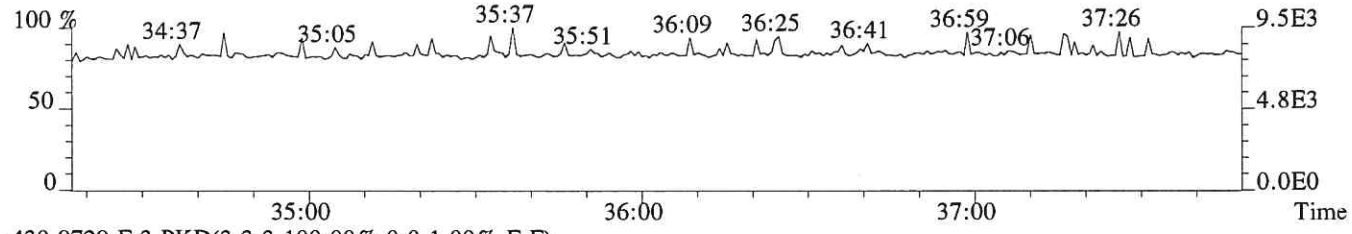
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



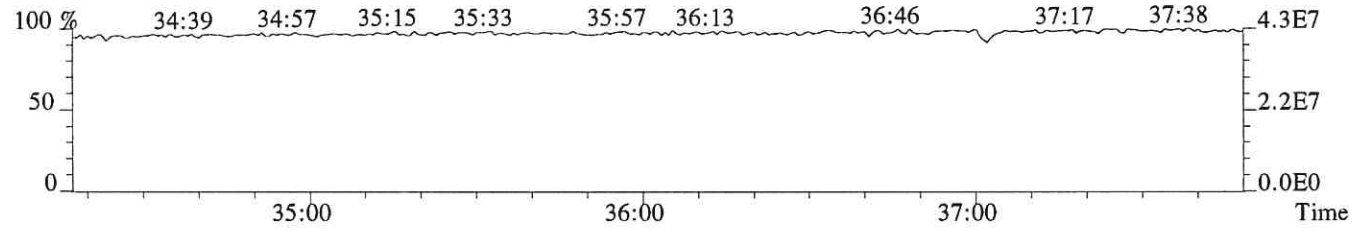
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



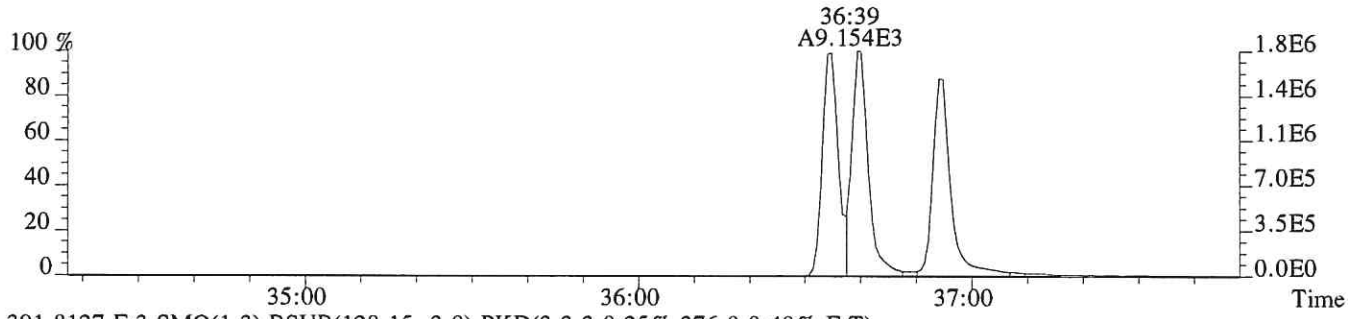
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



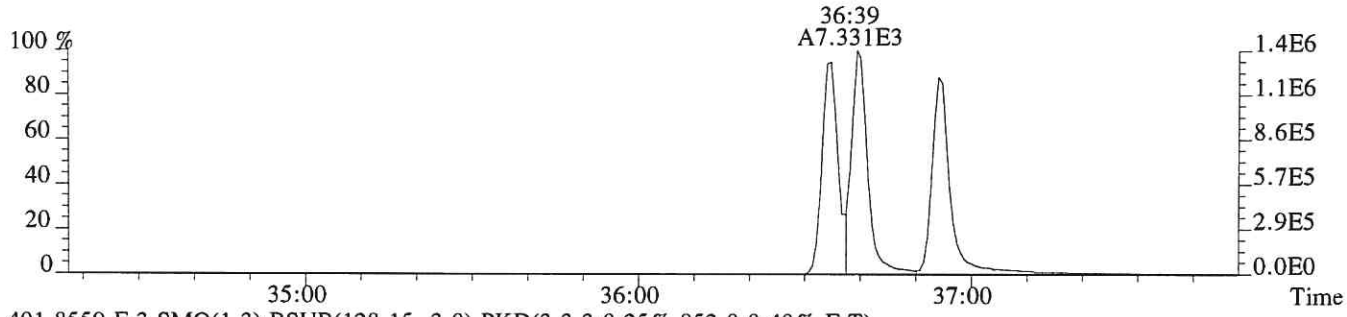
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



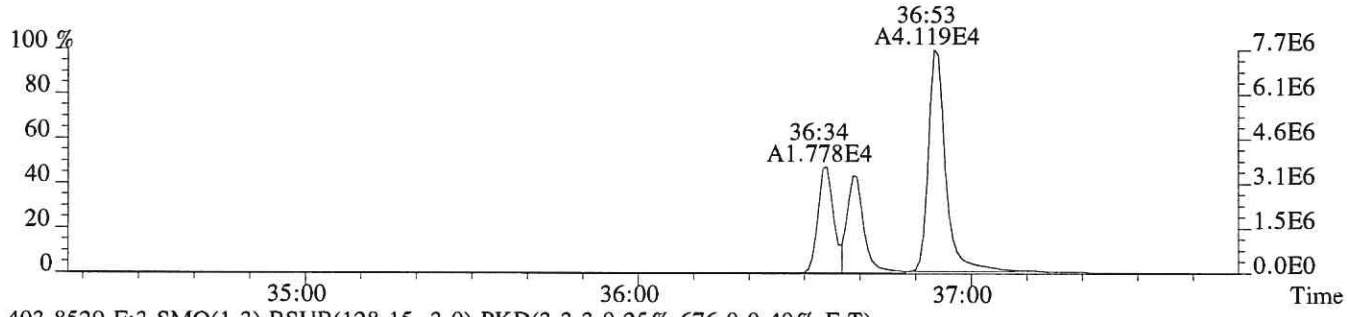
File:P519333 #1-317 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



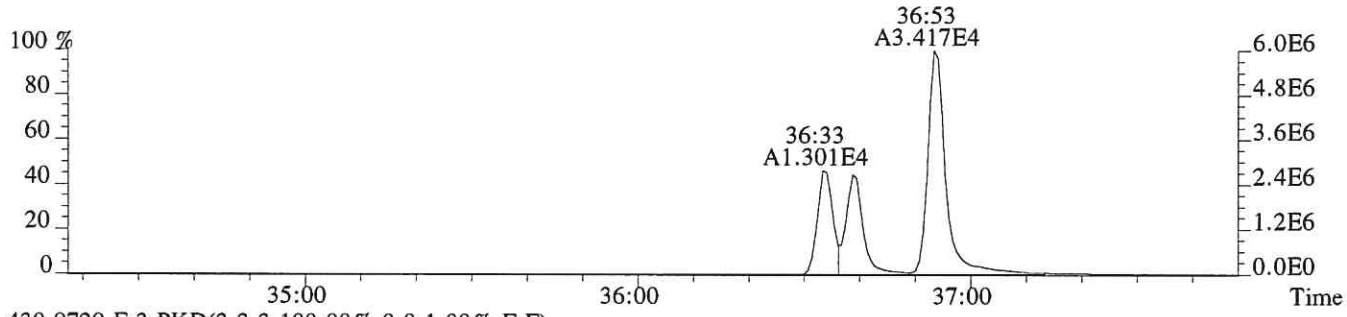
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



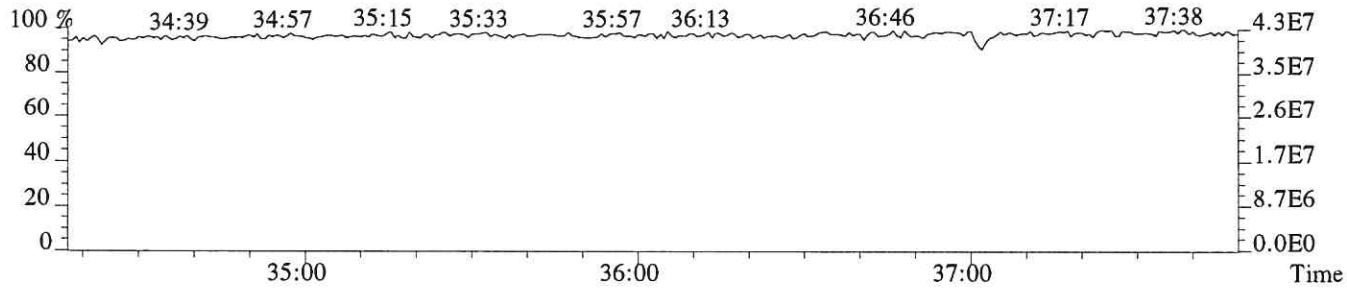
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



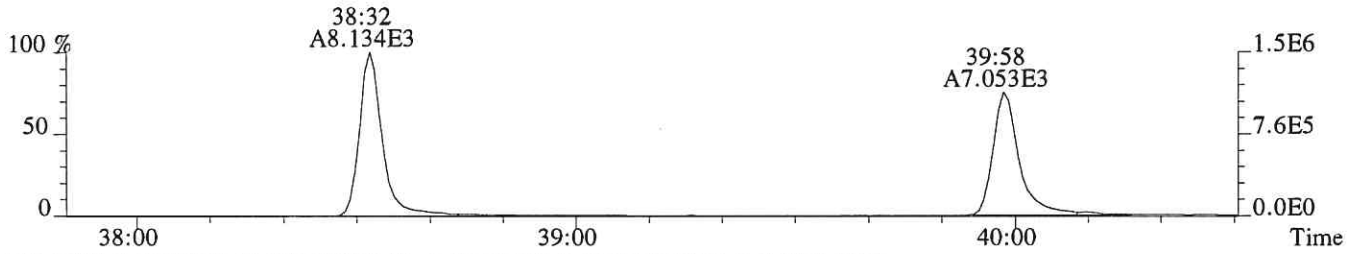
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



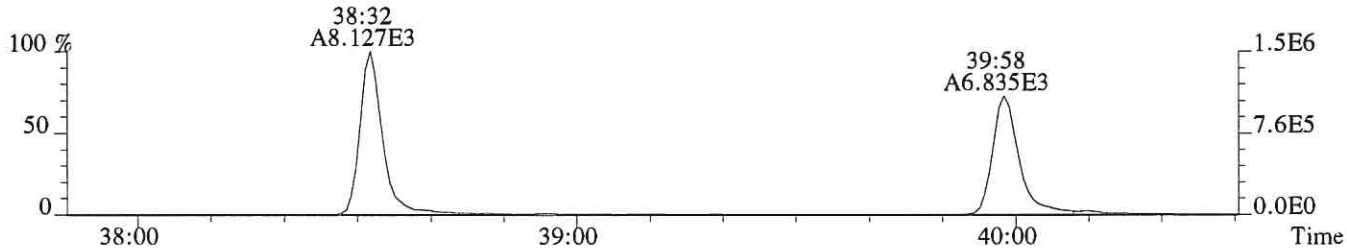
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



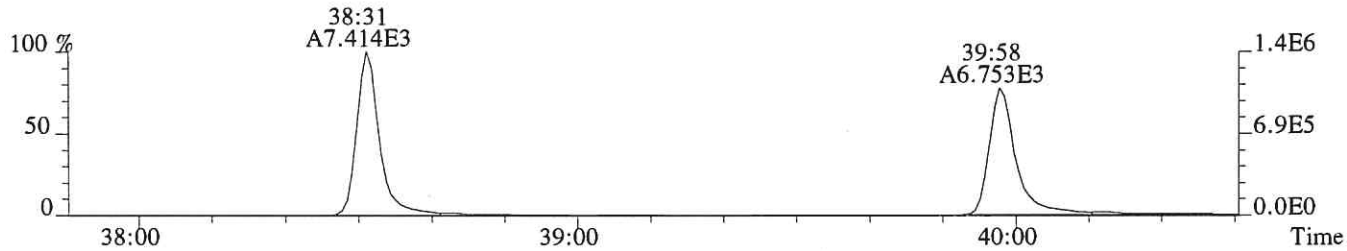
File:P519333 #1-241 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.50%,F,T)



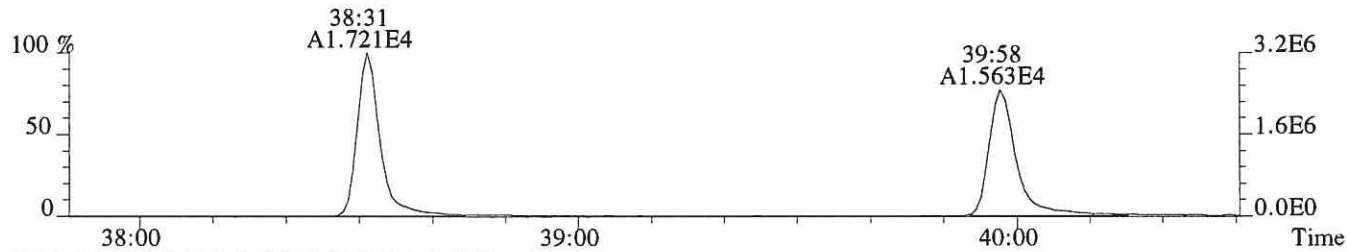
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3284.0,0.50%,F,T)



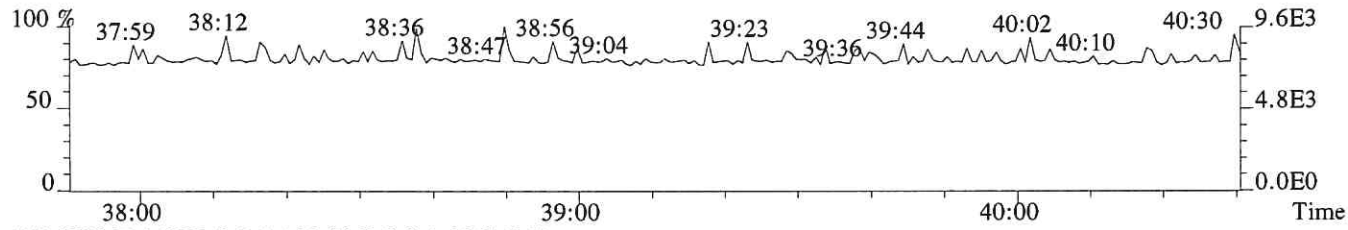
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.50%,F,T)



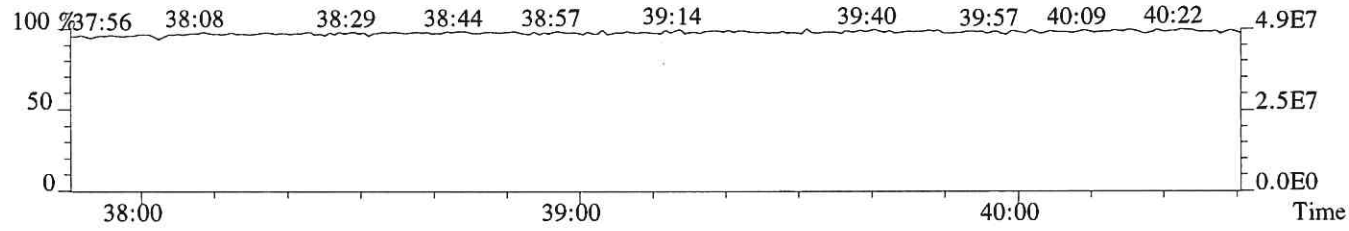
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3264.0,0.50%,F,T)



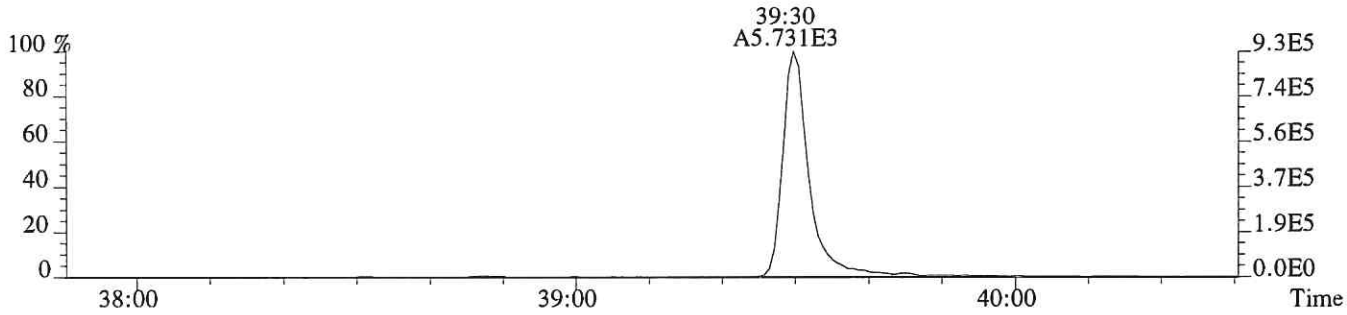
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



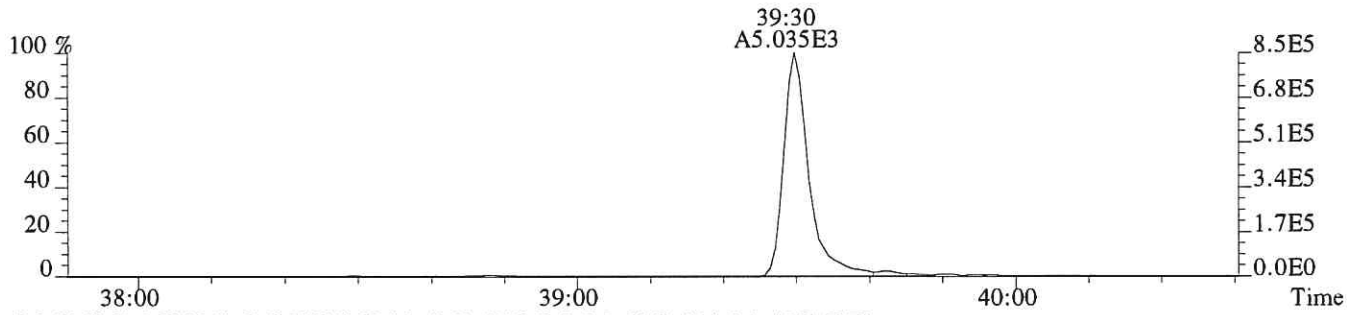
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



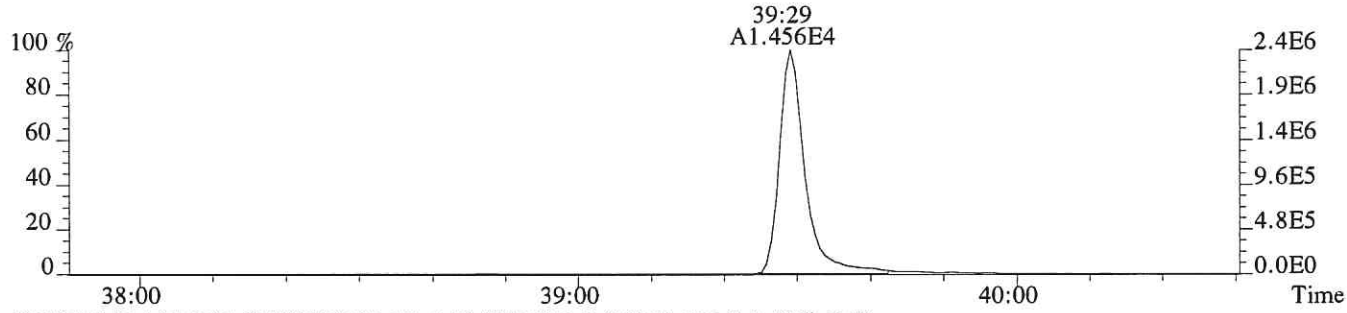
File:P519333 #1-241 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



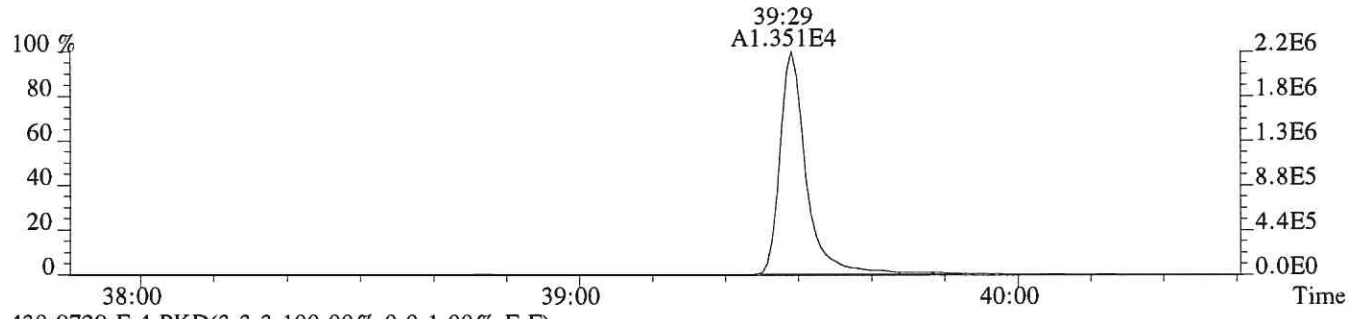
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



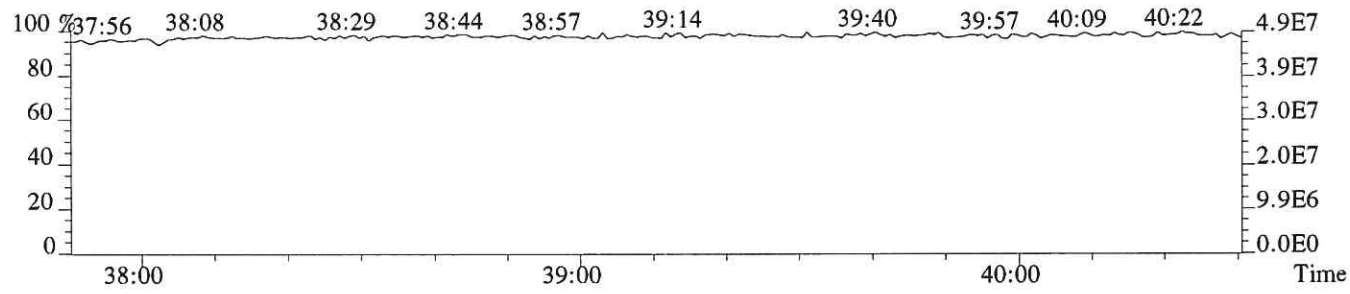
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



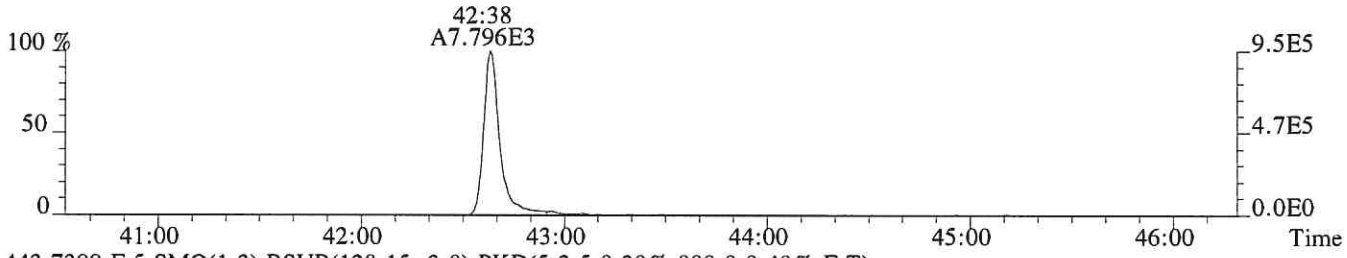
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



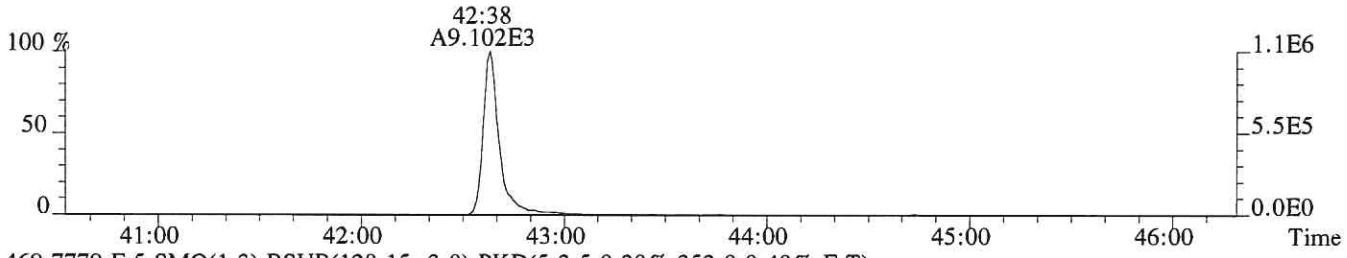
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



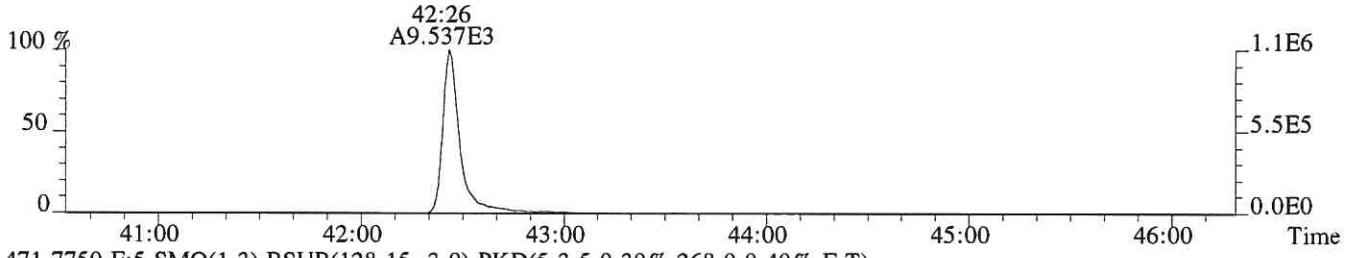
File:P519333 #1-520 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



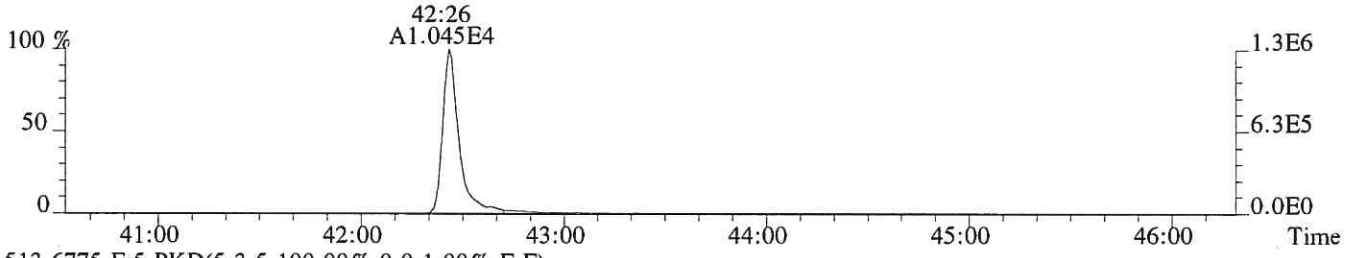
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



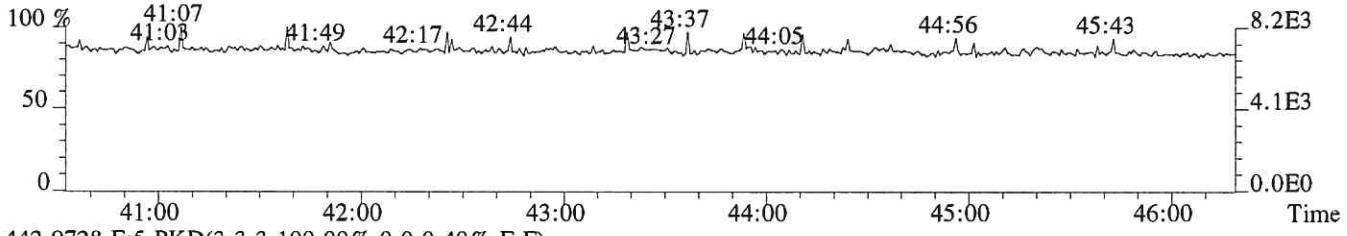
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



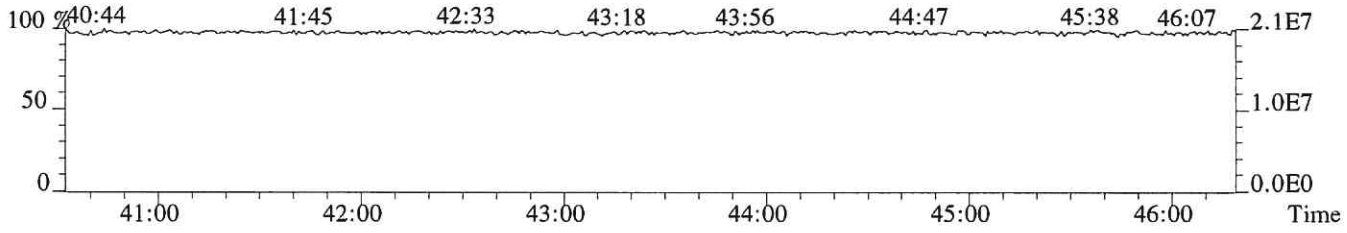
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



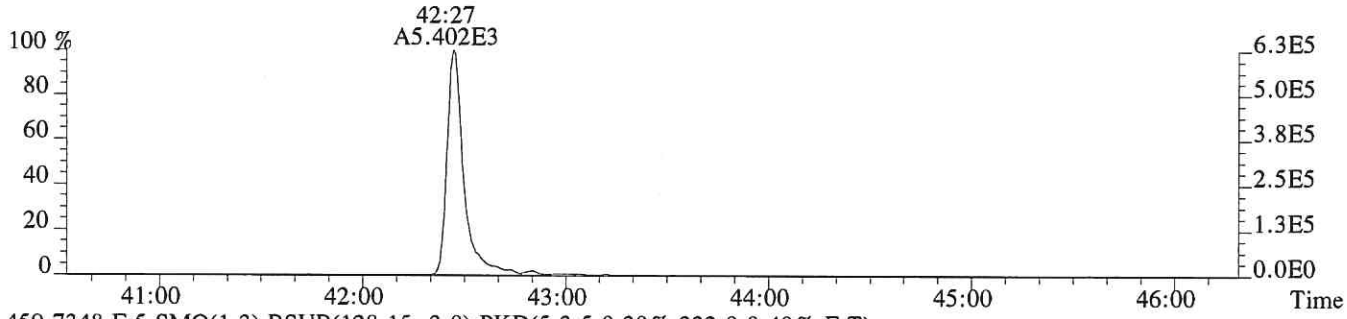
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



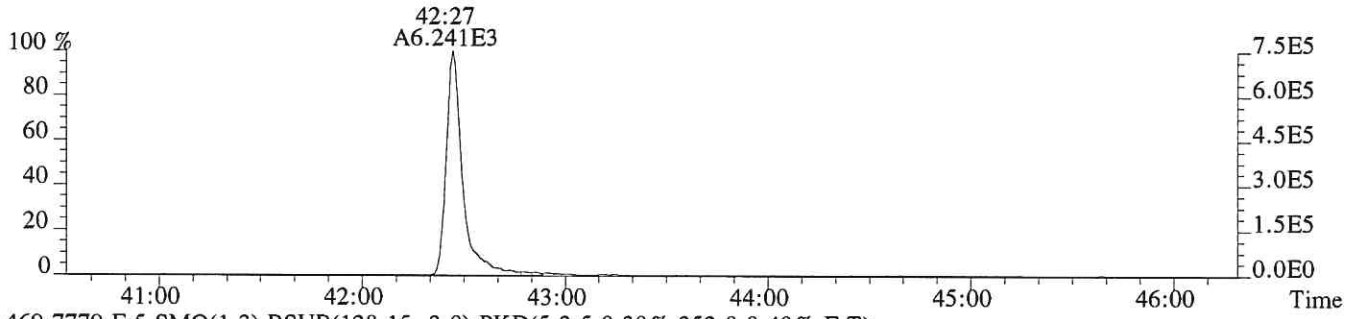
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



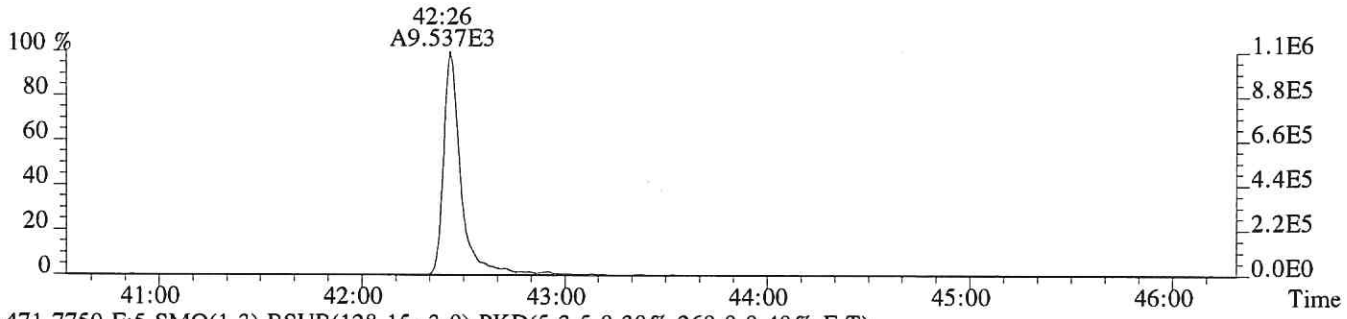
File:P519333 #1-520 Acq:10-DEC-2018 20:07:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800498-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



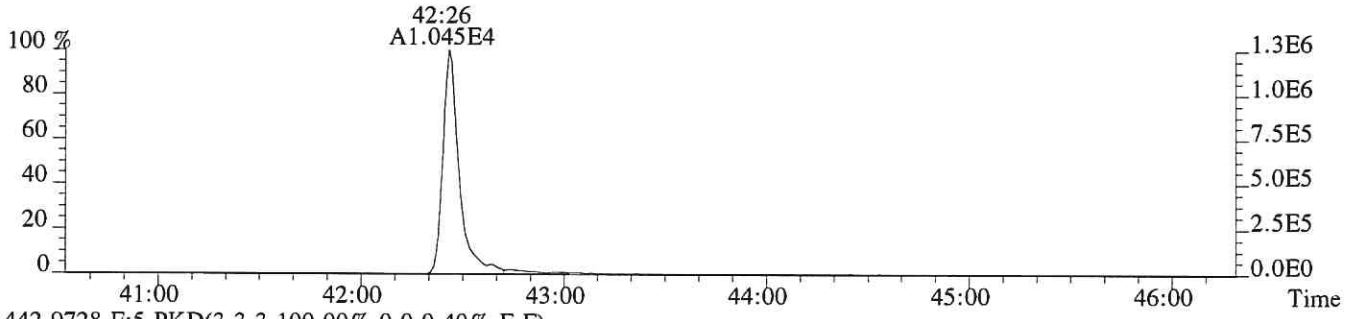
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



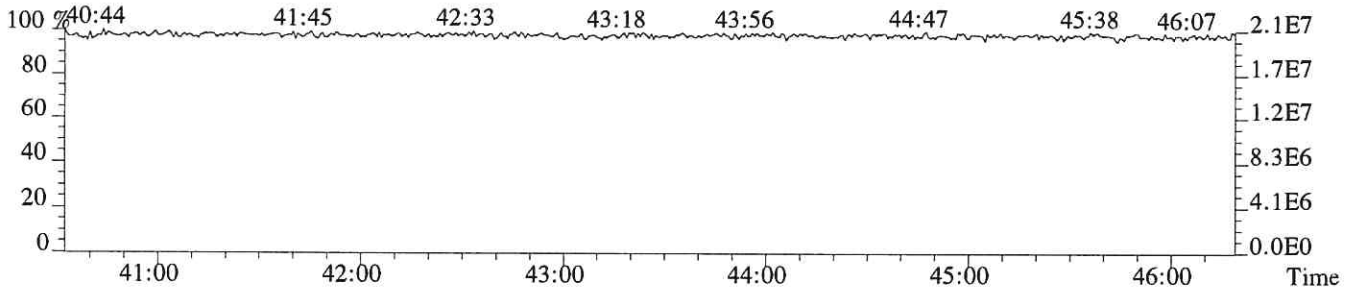
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



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Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P616043 Samp: 1 Inj: 1 Acquired: 11-DEC-18 12:27:41
Processed: 12-DEC-18 16:11:27 Sample ID: EQ1800499-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.081
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.156
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.293
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.463
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.571
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.049
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.001e+01	8.252e+00	1.21	no	yes	1.112
17	Unk	OCDD	41:42	3.477e+01	5.631e+01	0.62	no	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:30	1.477e+04	1.886e+04	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	2.829e+04	1.792e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:49	2.645e+04	1.677e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	1.254e+04	2.391e+04	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	1.500e+04	2.734e+04	0.55	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:07	1.123e+04	2.178e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	1.095e+04	2.163e+04	0.51	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	9.248e+03	1.999e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	7.635e+03	1.720e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:19	8.050e+03	1.075e+04	0.75	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:05	2.175e+04	1.442e+04	1.51	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:15	1.828e+04	1.465e+04	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	1.791e+04	1.402e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	1.664e+04	1.628e+04	1.02	yes	no	0.857
32	IS	13C-OCDD	41:41	1.180e+04	1.330e+04	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	2.703e+04	3.456e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	3.937e+04	3.054e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:21	1.144e+04				no	1.086

$$\text{OCDD} = \frac{(3.477e+01 + 5.631e+01) \times 4000\ \text{pg} \times 1}{(1.180e+04 + 1.330e+04) \times \quad \text{g} \times \quad / 100 \times 1.157} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P616043 Samp: 1 Inj: 1 Acquired: 11-DEC-18 12:27:41
Processed: 12-DEC-18 16:11:27 LAB. ID: EQ1800499-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.45e+03	*	*	4.19e+03	*
2	1,2,3,7,8-PeCDF	*	8.92e+02	*	*	1.86e+03	*
3	2,3,4,7,8-PeCDF	*	8.92e+02	*	*	1.86e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.64e+03	*	*	9.20e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.64e+03	*	*	9.20e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	8.68e+02	*	*	5.76e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.68e+02	*	*	5.76e+02	*
10	OCDF	*	9.72e+02	*	*	2.94e+03	*
11	2,3,7,8-TCDD	*	4.27e+03	*	*	1.78e+03	*
12	1,2,3,7,8-PeCDD	*	1.80e+03	*	*	8.08e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.24e+02	*	*	1.27e+03	*
14	1,2,3,6,7,8-HxCDD	*	9.24e+02	*	*	1.27e+03	*
15	1,2,3,7,8,9-HxCDD	*	9.24e+02	*	*	1.27e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.12e+03	6.00e+02	5.2e+00	2.49e+03	6.20e+02	4.0e+00
17	OCDD	5.96e+03	6.08e+02	9.8e+00	1.10e+04	4.16e+02	2.6e+01
18	13C-2,3,7,8-TCDF	2.35e+06	1.06e+04	2.2e+02	2.98e+06	1.02e+04	2.9e+02
19	13C-1,2,3,7,8-PeCDF	4.84e+06	1.86e+03	2.6e+03	3.09e+06	5.84e+02	5.3e+03
20	13C-2,3,4,7,8-PeCDF	4.68e+06	1.86e+03	2.5e+03	2.98e+06	5.84e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.64e+06	9.36e+02	2.8e+03	5.02e+06	2.52e+03	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	2.94e+06	9.36e+02	3.1e+03	5.22e+06	2.52e+03	2.1e+03
23	13C-2,3,4,6,7,8-HxCDF	2.26e+06	9.36e+02	2.4e+03	4.44e+06	2.52e+03	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.04e+06	9.36e+02	2.2e+03	3.91e+06	2.52e+03	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.89e+06	4.73e+03	4.0e+02	4.15e+06	3.78e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+06	4.73e+03	3.0e+02	3.13e+06	3.78e+03	8.3e+02
27	13C-2,3,7,8-TCDD	1.35e+06	1.38e+04	9.8e+01	1.78e+06	5.92e+03	3.0e+02
28	13C-1,2,3,7,8-PeCDD	3.84e+06	2.64e+03	1.5e+03	2.50e+06	2.18e+03	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	3.95e+06	1.54e+03	2.6e+03	3.20e+06	1.14e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	3.59e+06	1.54e+03	2.3e+03	2.80e+06	1.14e+03	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.25e+06	1.64e+03	2.0e+03	3.17e+06	7.56e+02	4.2e+03
32	13C-OCDD	1.99e+06	6.60e+02	3.0e+03	2.21e+06	6.64e+02	3.3e+03
33	13C-1,2,3,4-TCDD	4.62e+06	1.38e+04	3.3e+02	5.96e+06	5.92e+03	1.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.78e+06	1.54e+03	5.0e+03	6.00e+06	1.14e+03	5.3e+03
35	37Cl-2,3,7,8-TCDD	1.93e+06	1.23e+03	1.6e+03			

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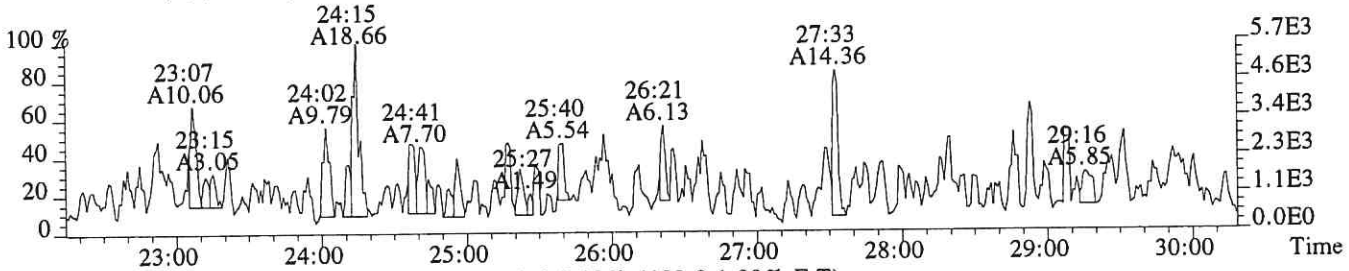
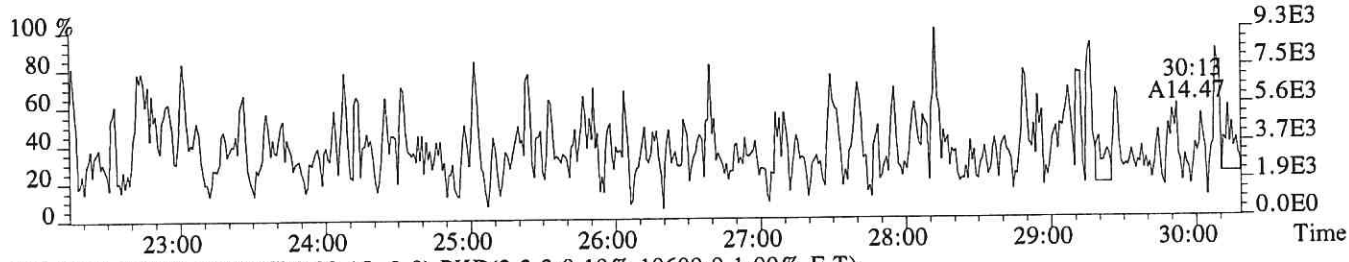
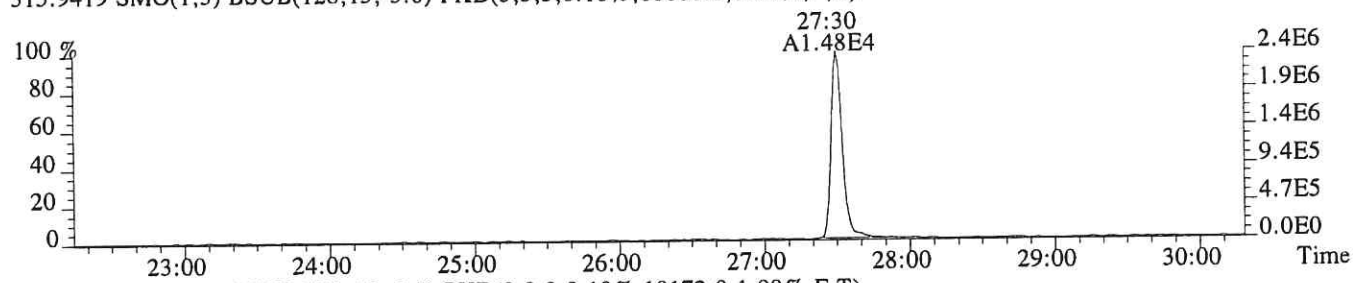
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



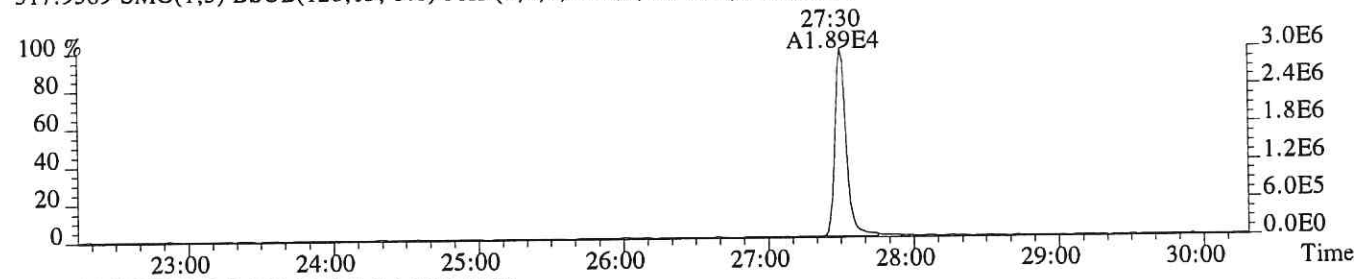
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4192.0,1.00%,F,T)



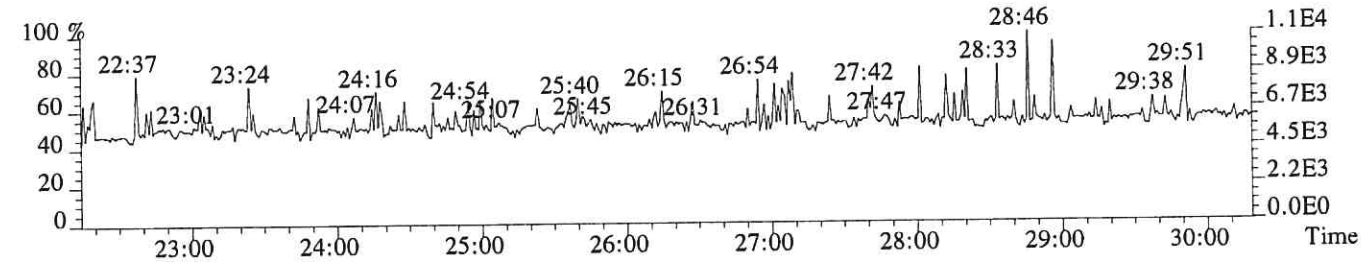
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10600.0,1.00%,F,T)



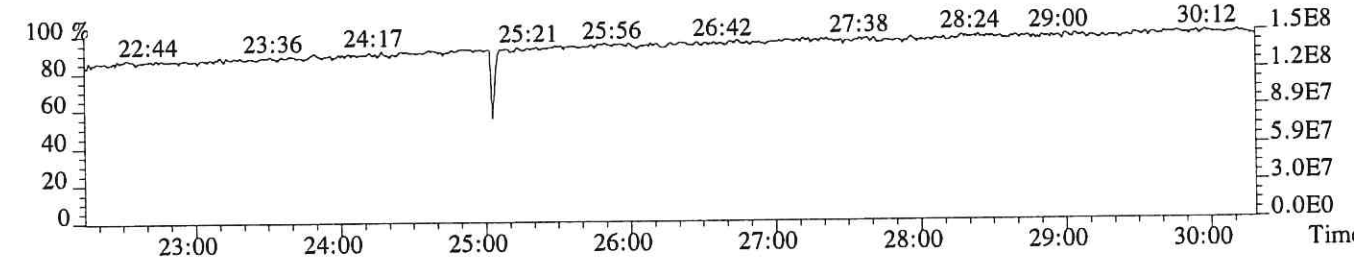
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10172.0,1.00%,F,T)



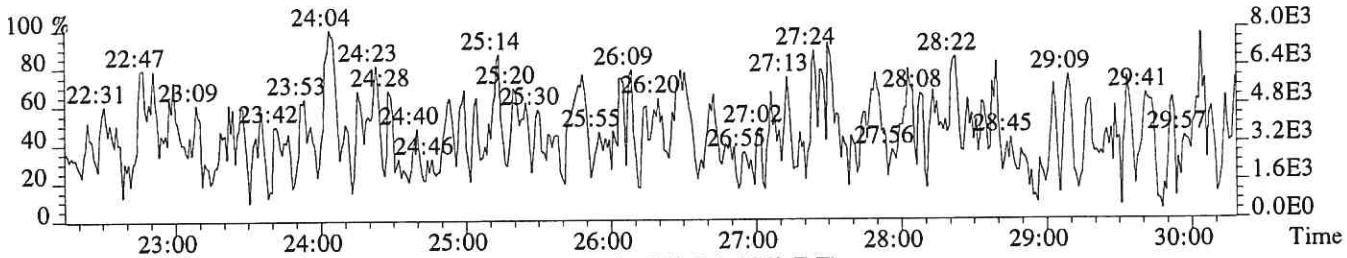
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



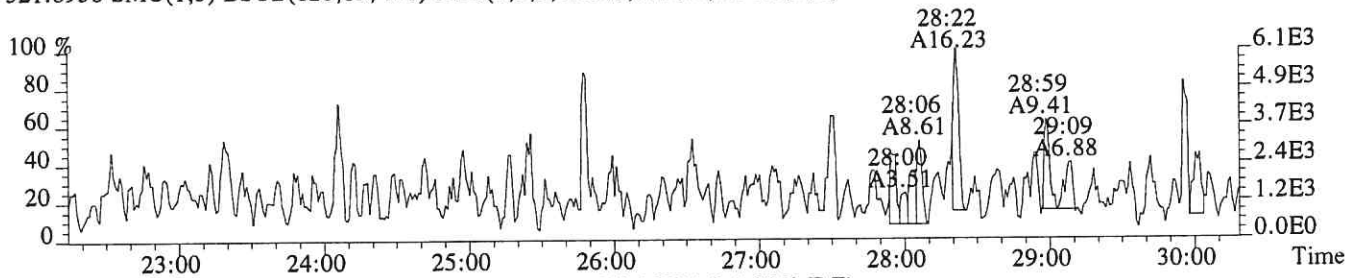
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



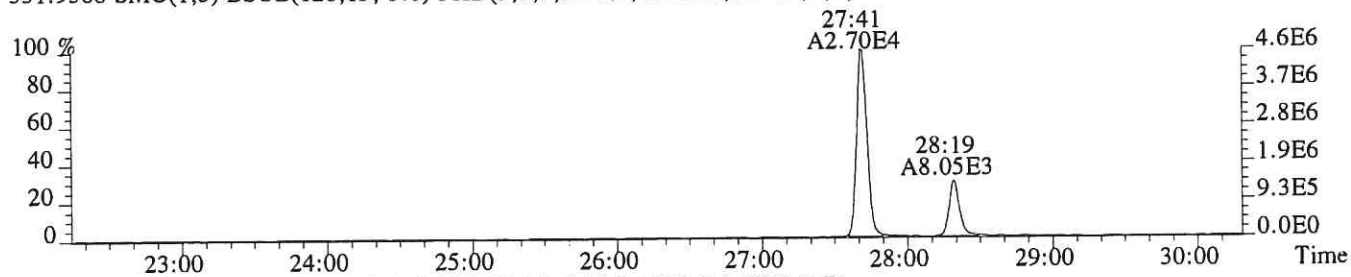
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4268.0,1.00%,F,T)



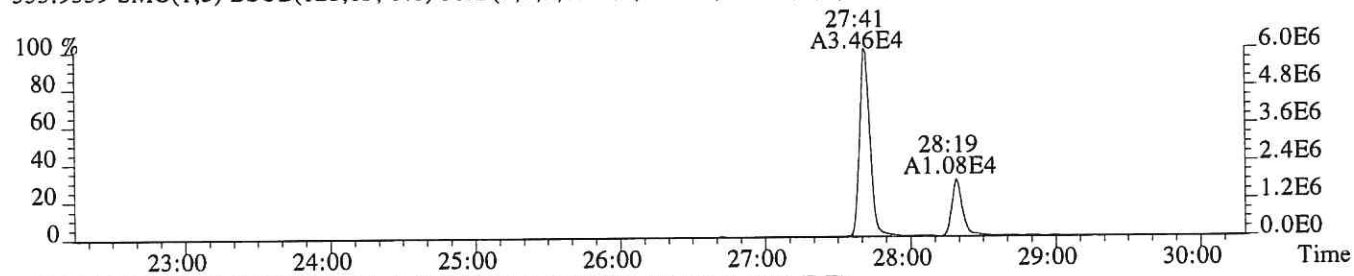
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



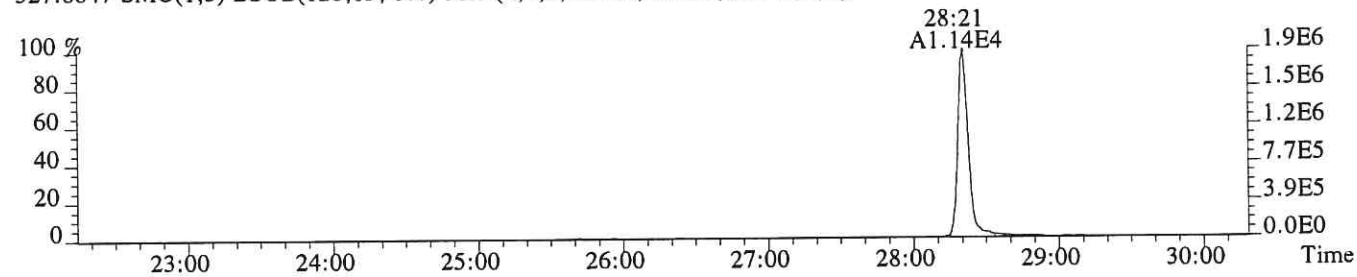
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13780.0,1.00%,F,T)



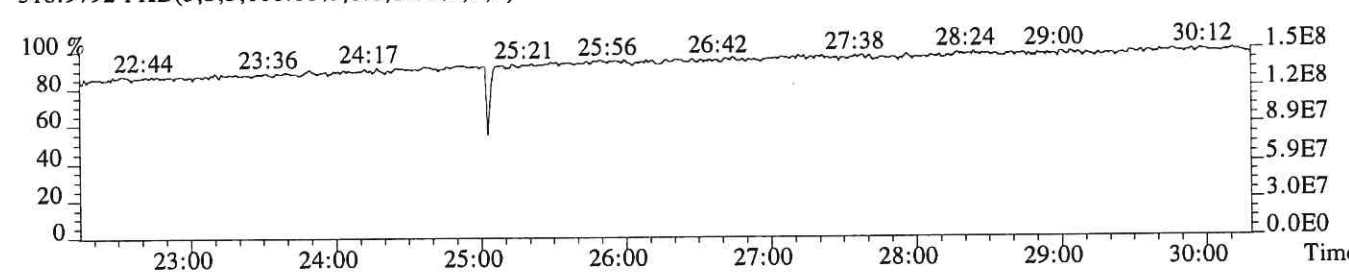
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5920.0,1.00%,F,T)



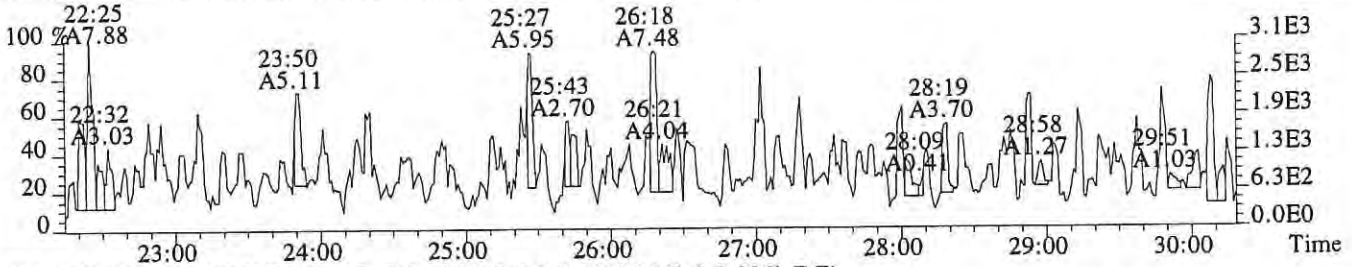
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



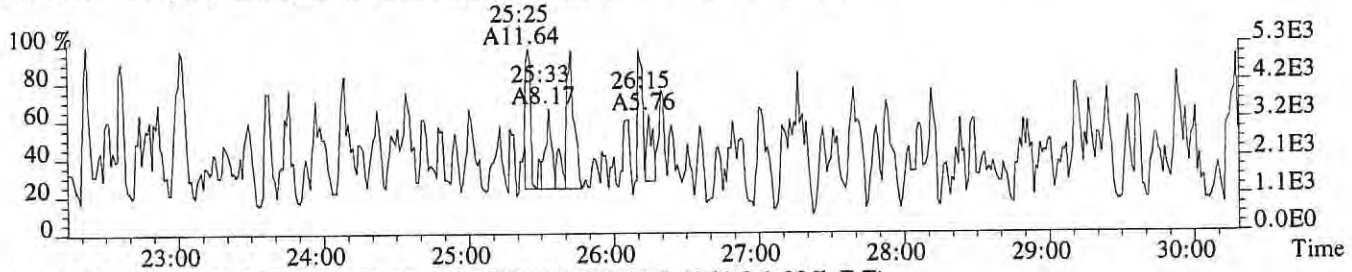
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



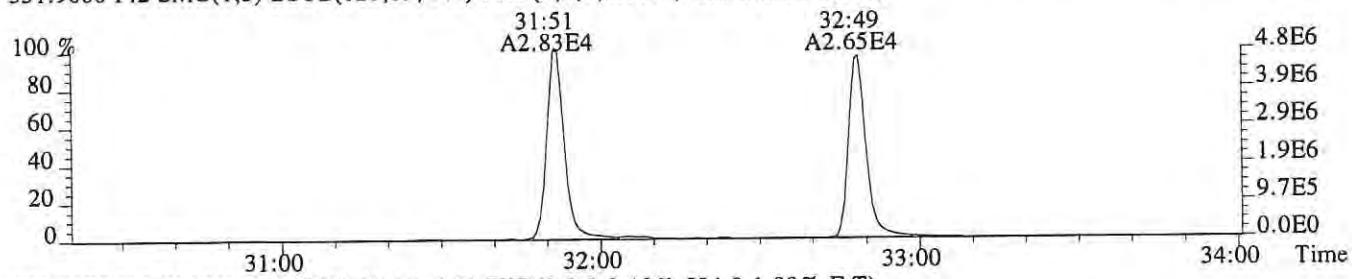
File:P616043 #1-573 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



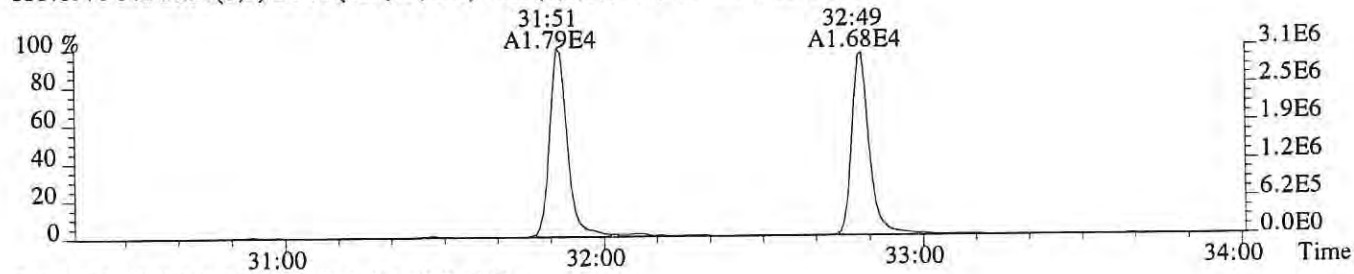
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



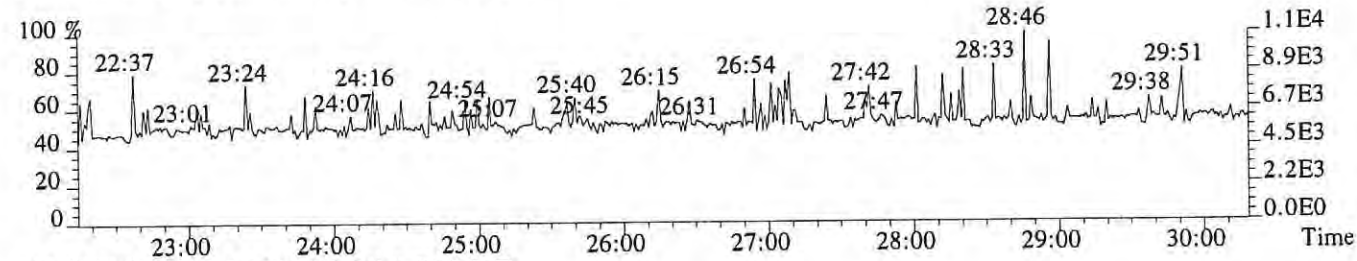
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



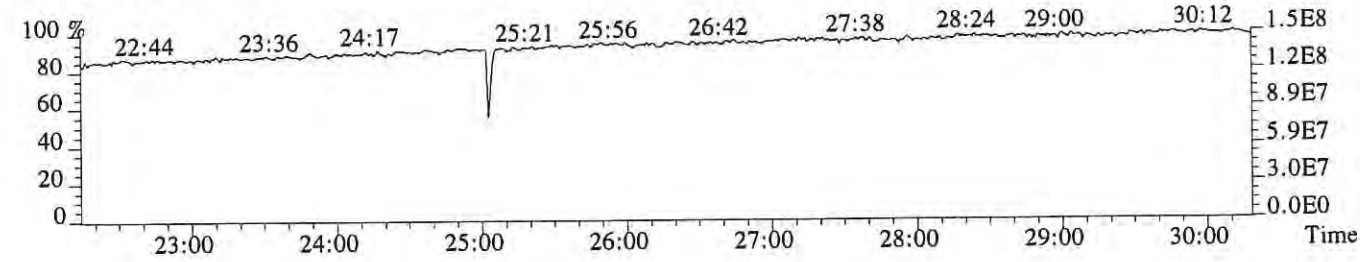
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

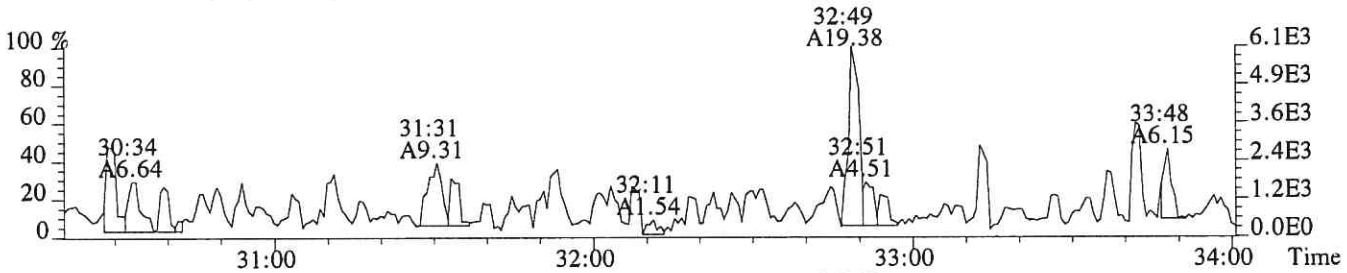


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

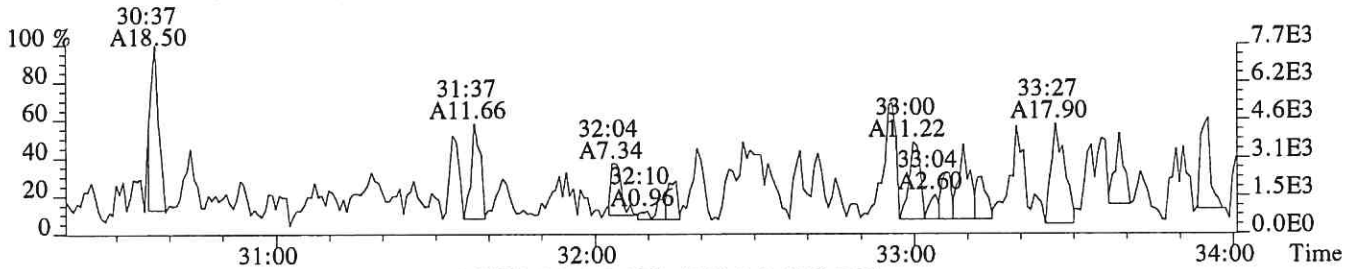


File:P616043 #1-331 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

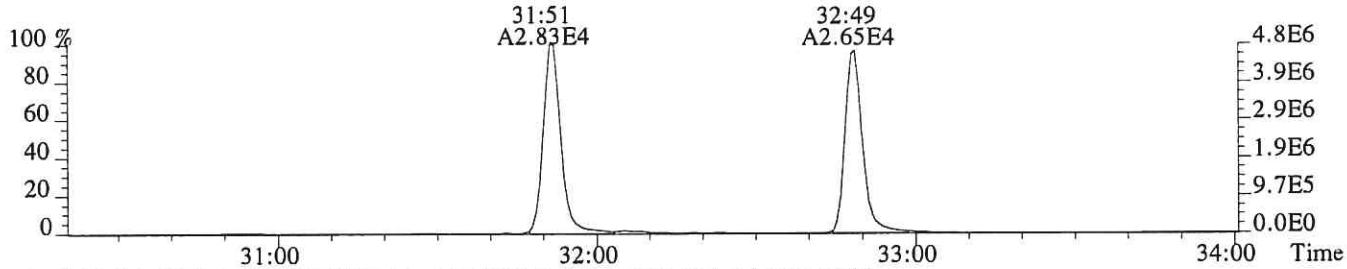
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



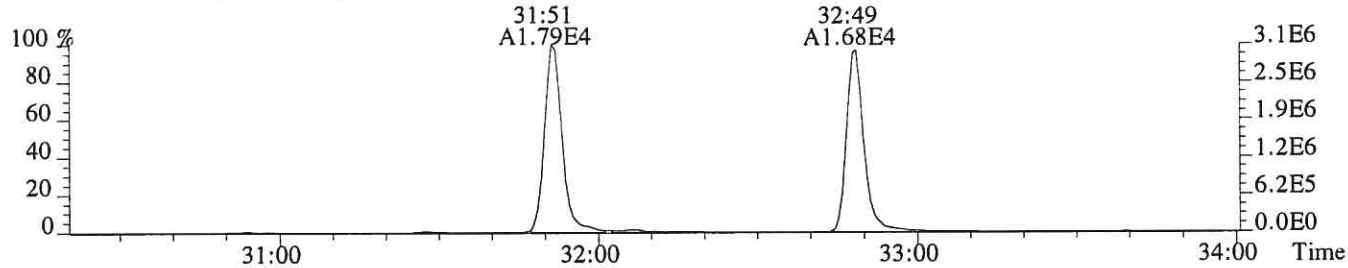
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



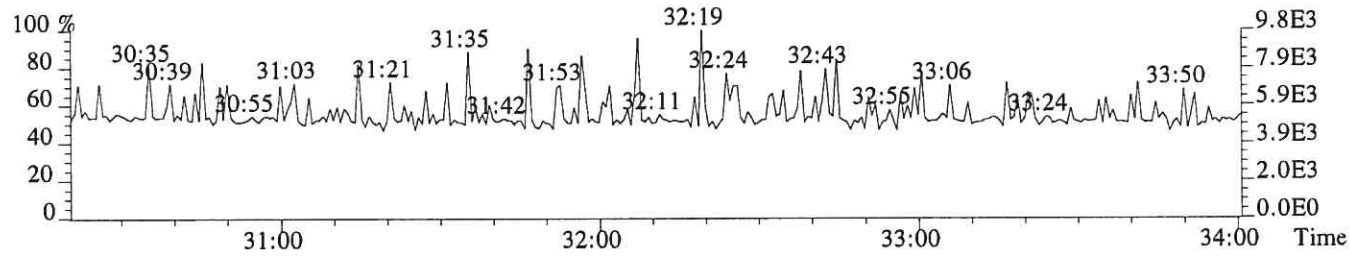
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



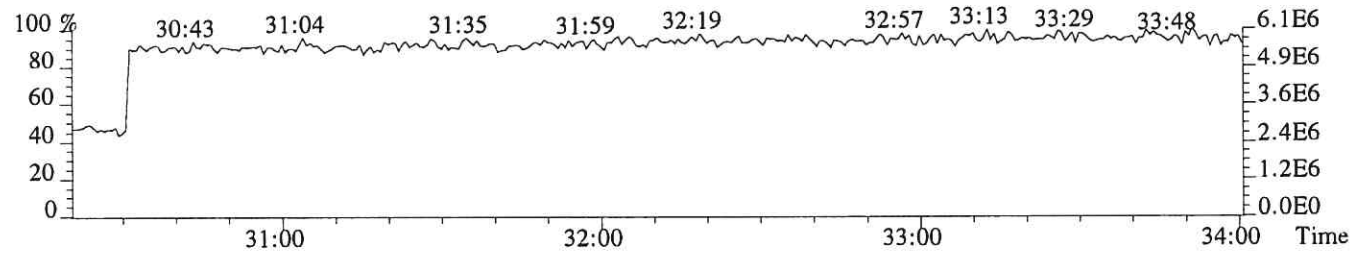
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



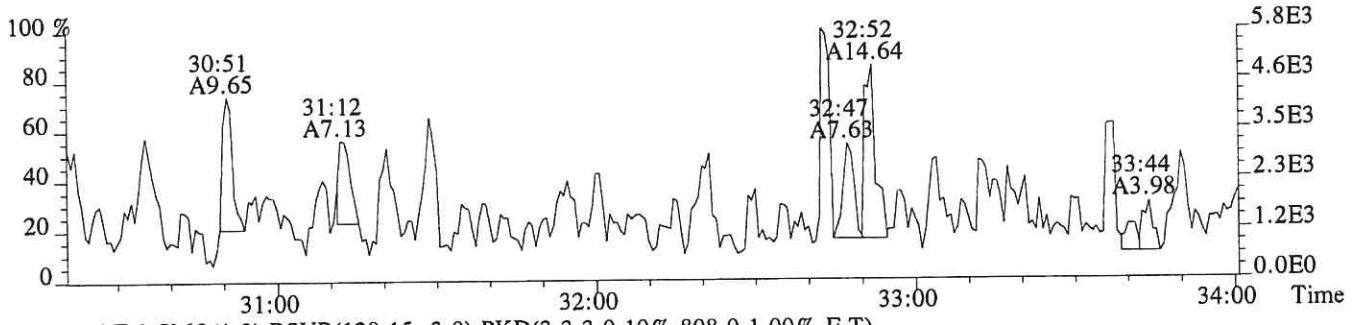
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



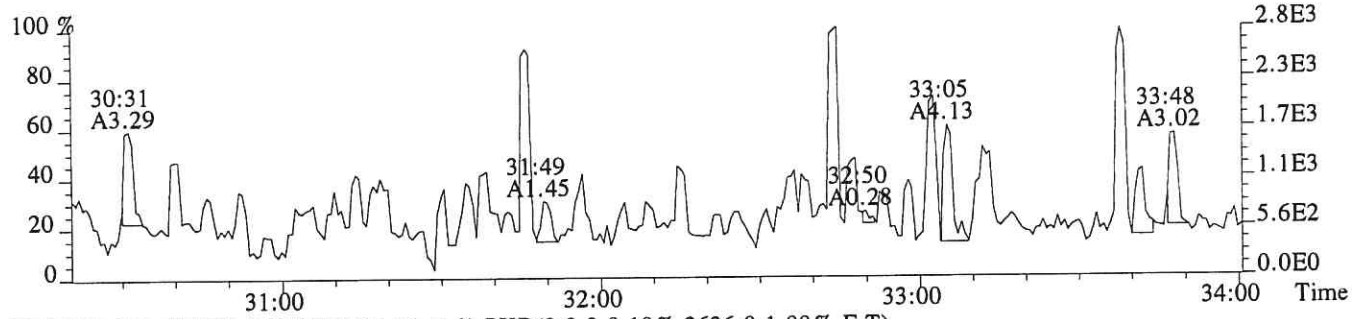
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



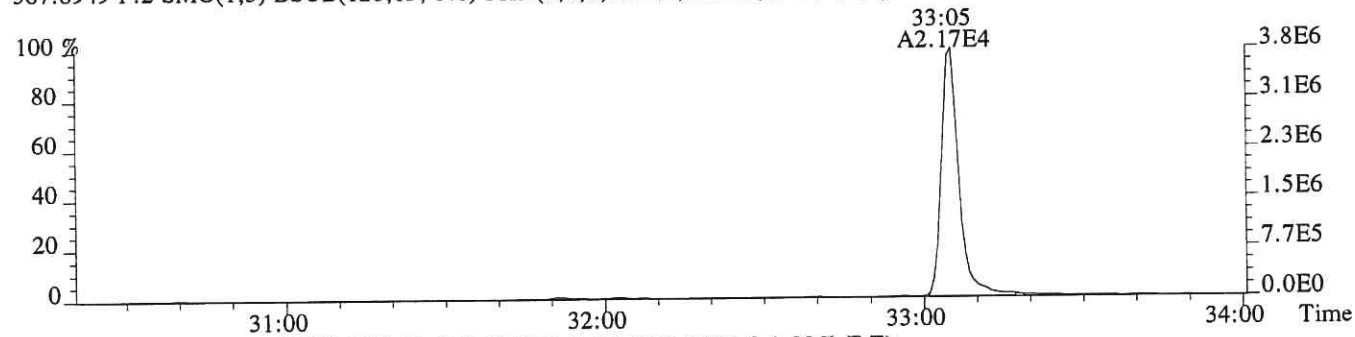
File:P616043 #1-331 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



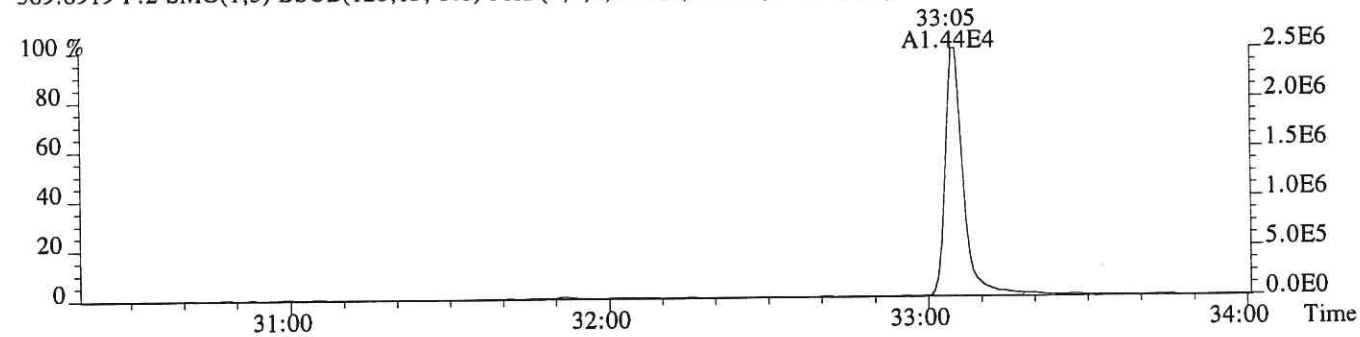
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



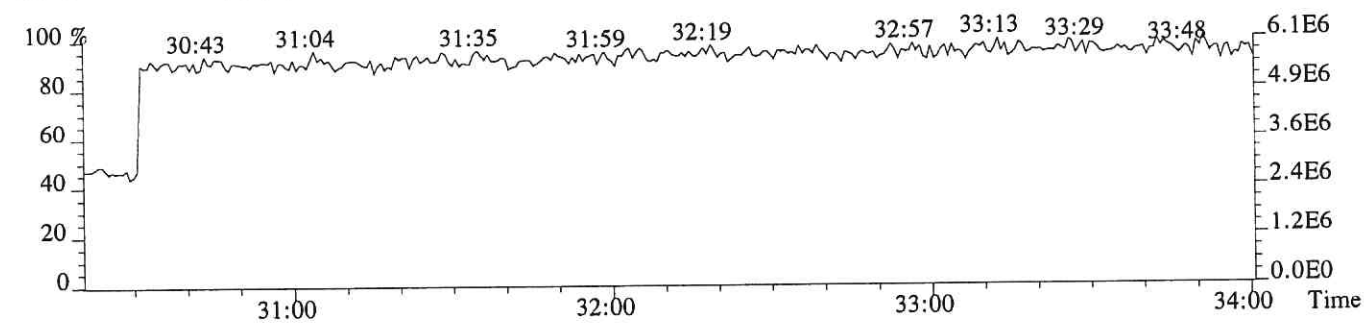
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



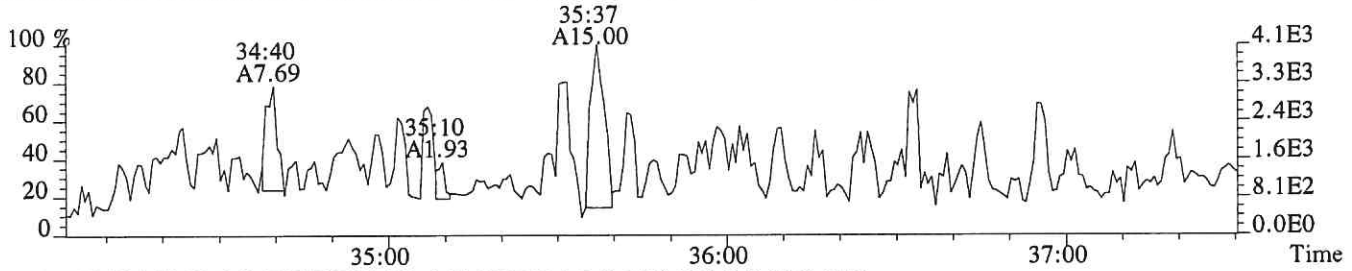
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2184.0,1.00%,F,T)



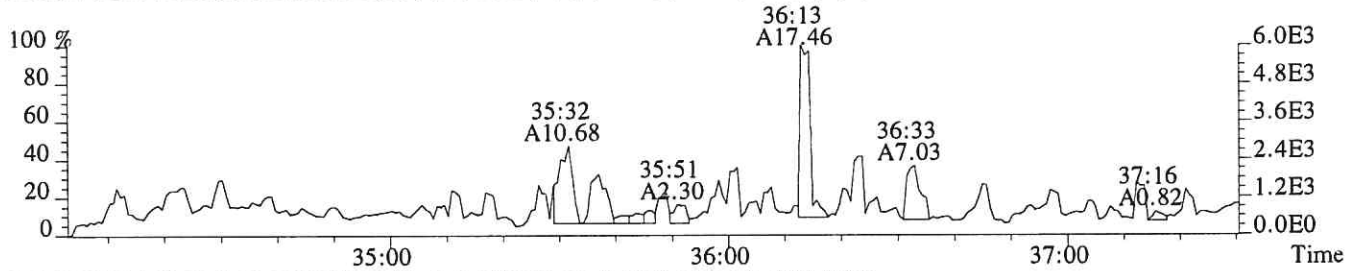
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



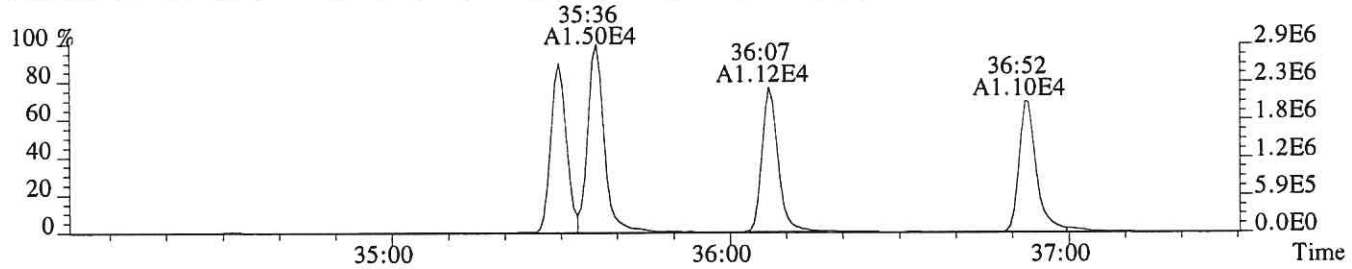
File:P616043 #1-312 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



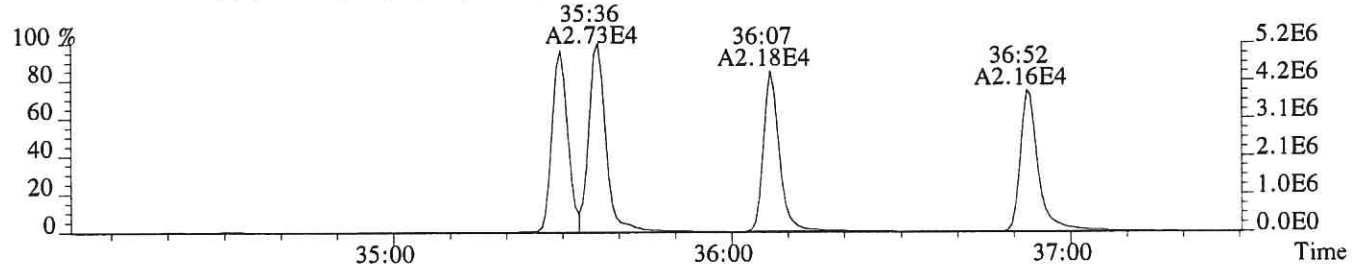
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



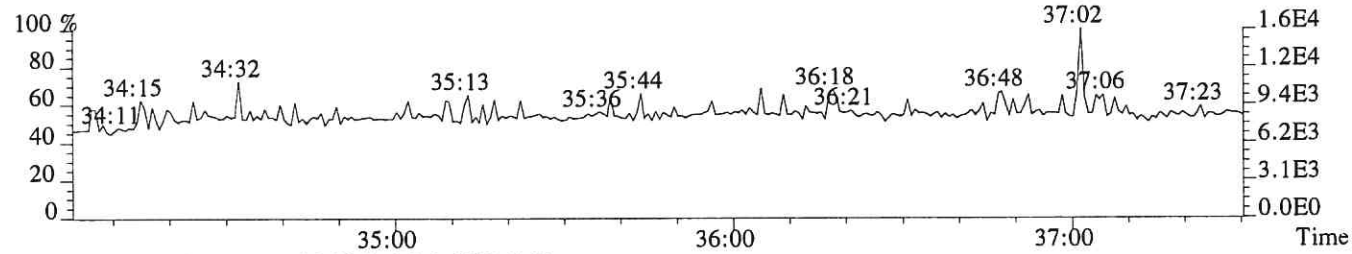
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



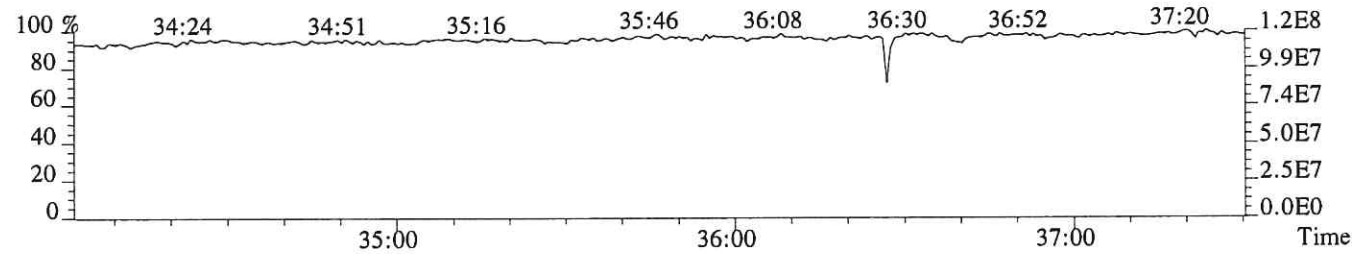
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2524.0,0.40%,F,T)



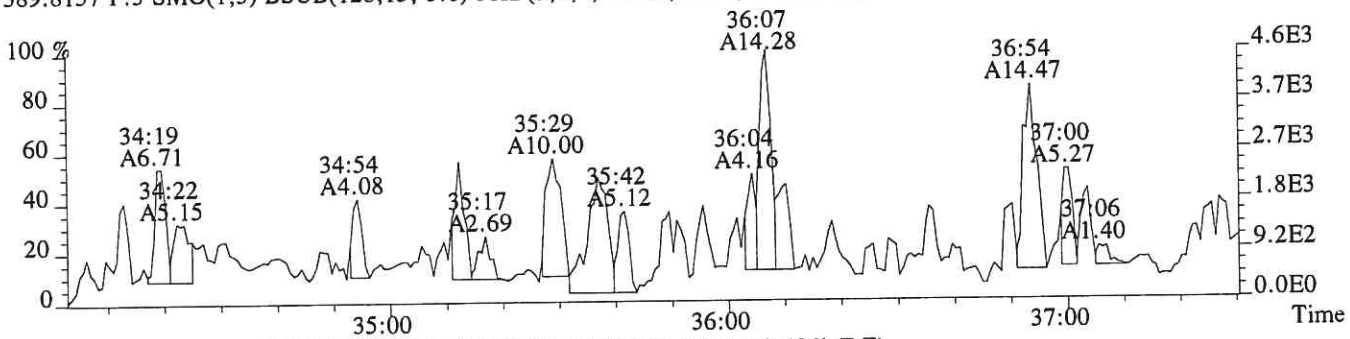
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



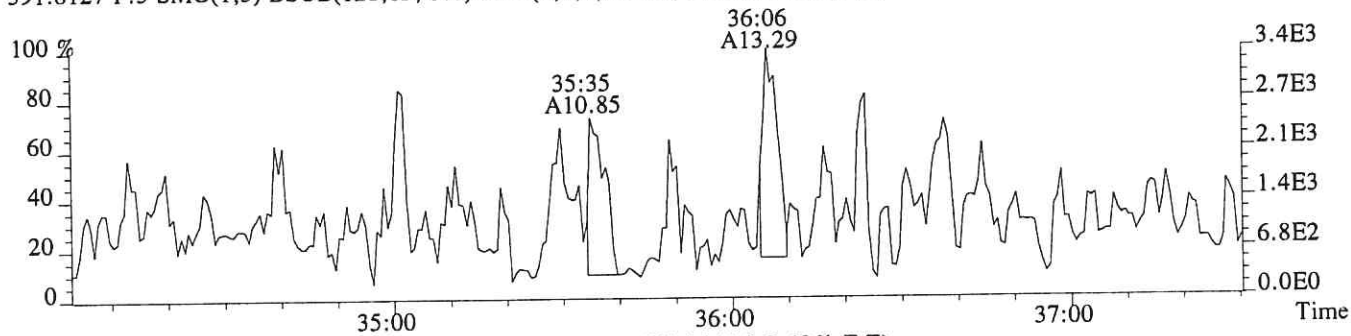
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



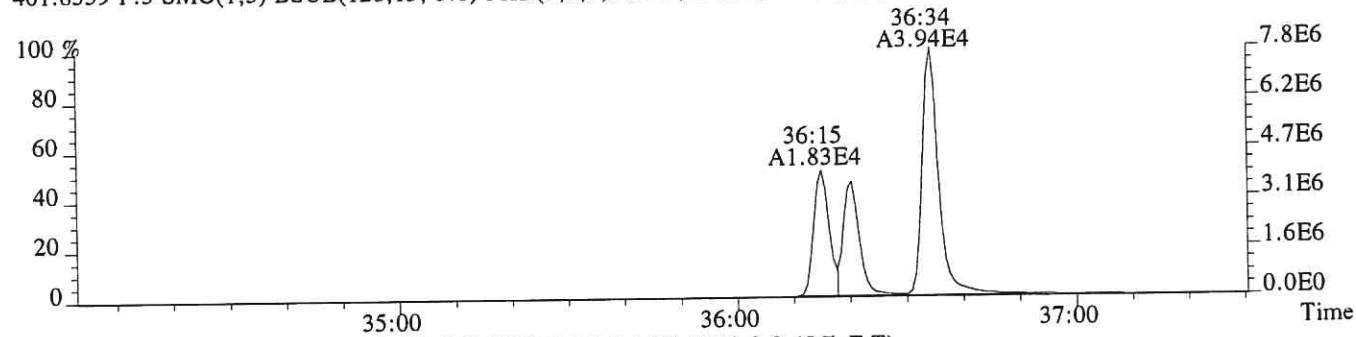
File:P616043 #1-312 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



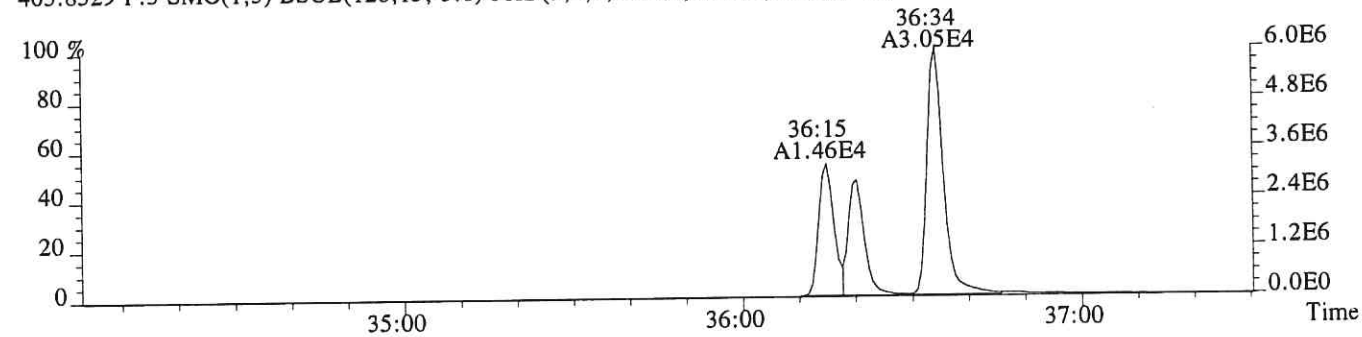
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



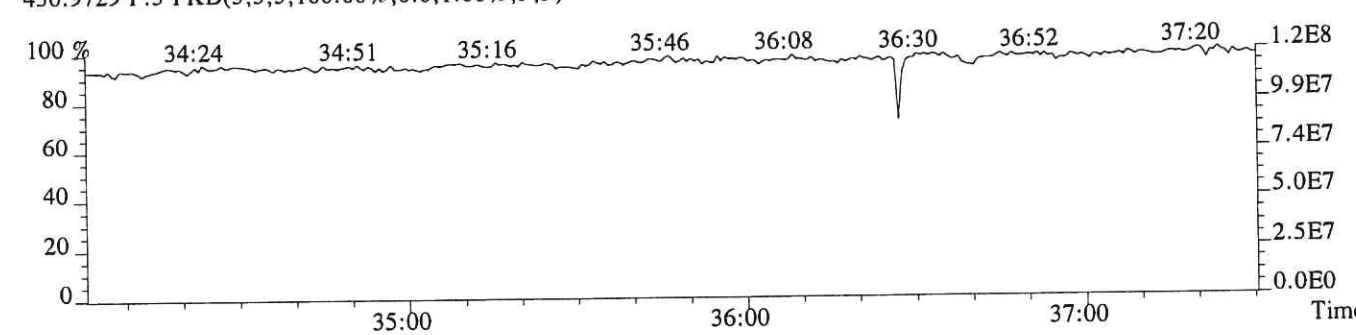
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



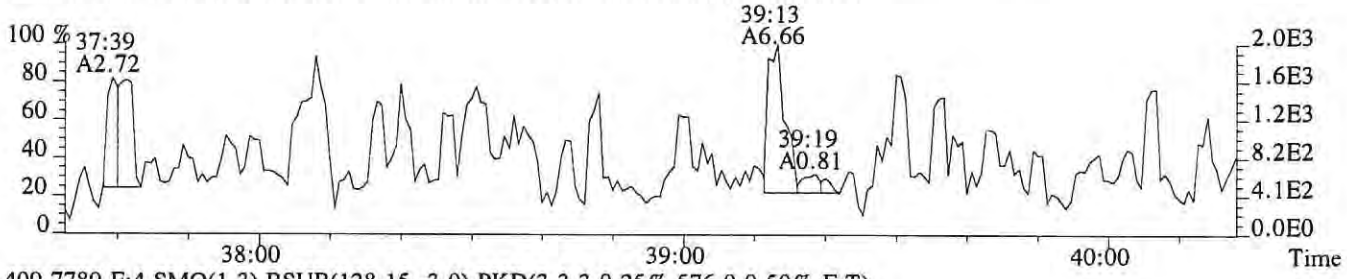
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



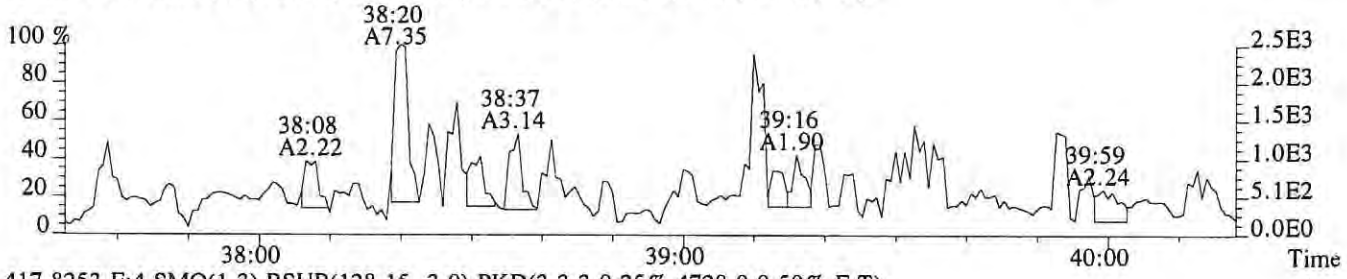
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



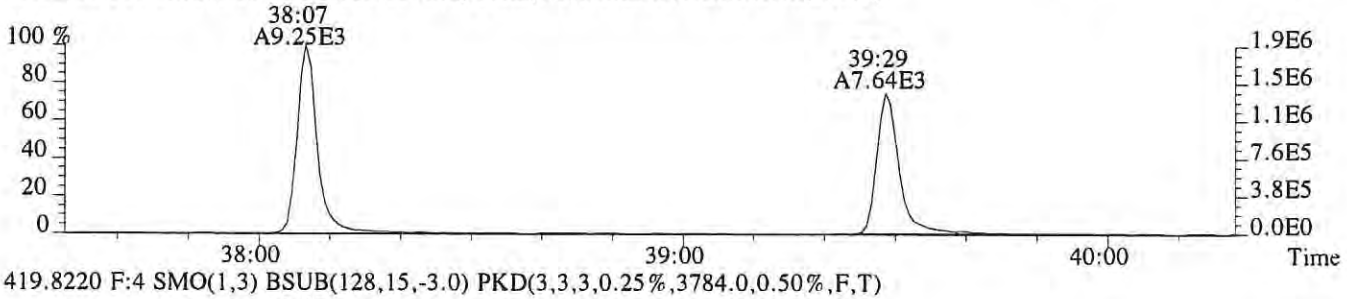
File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.50%,F,T)



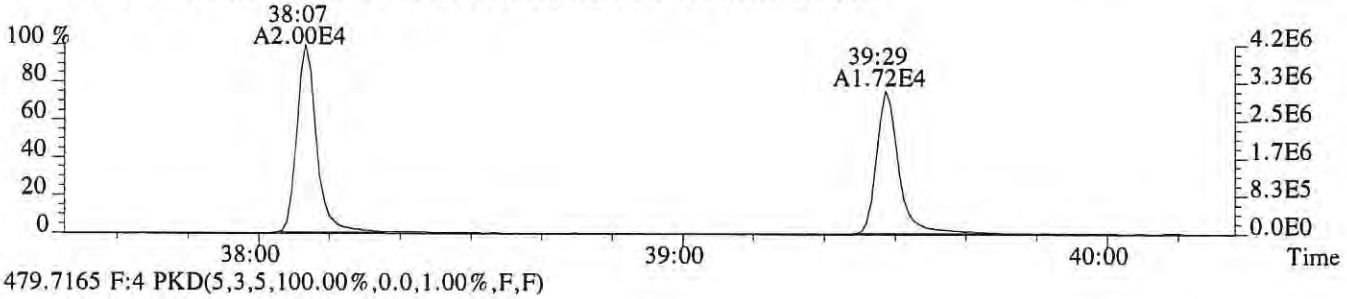
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.50%,F,T)



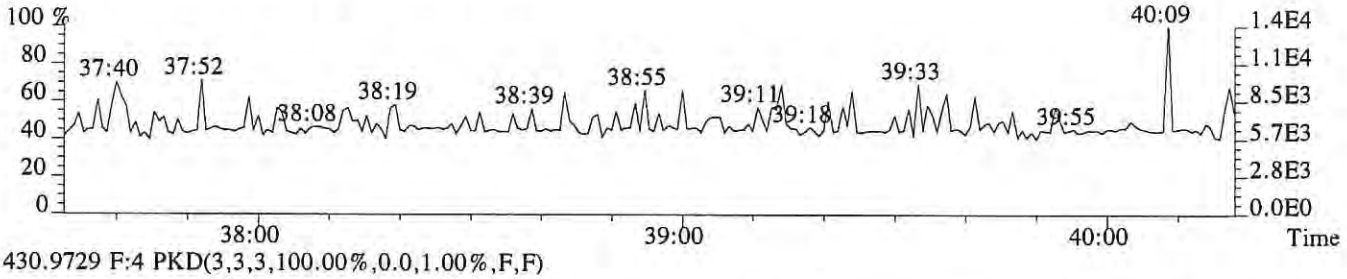
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4728.0,0.50%,F,T)



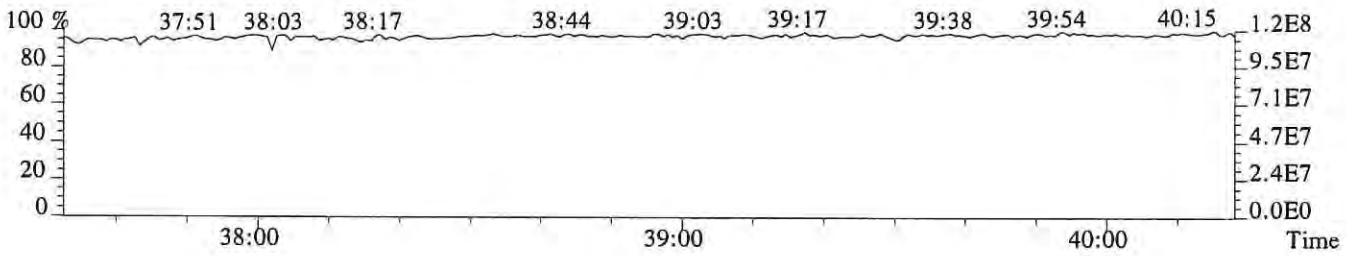
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3784.0,0.50%,F,T)



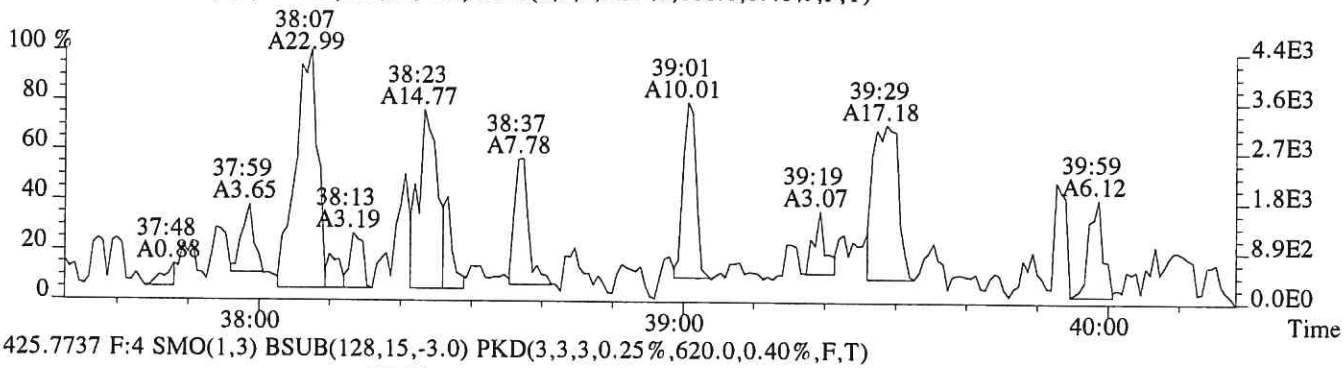
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



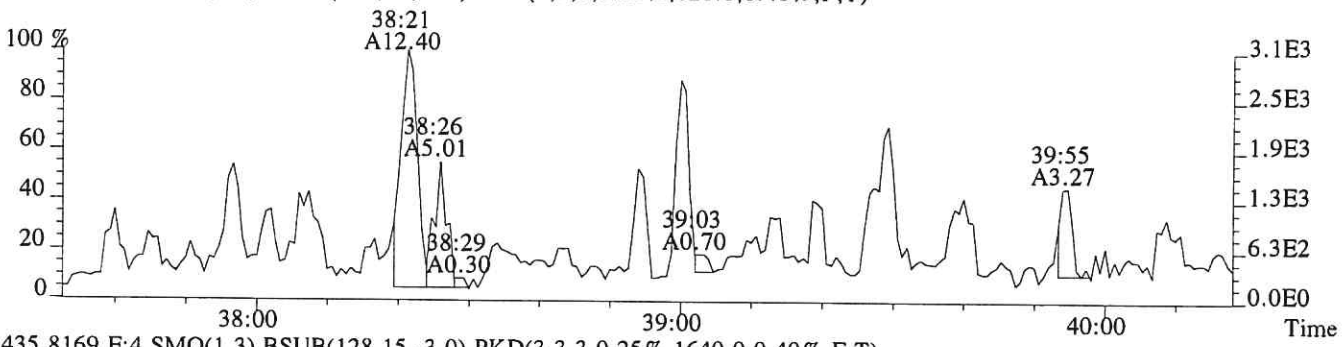
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



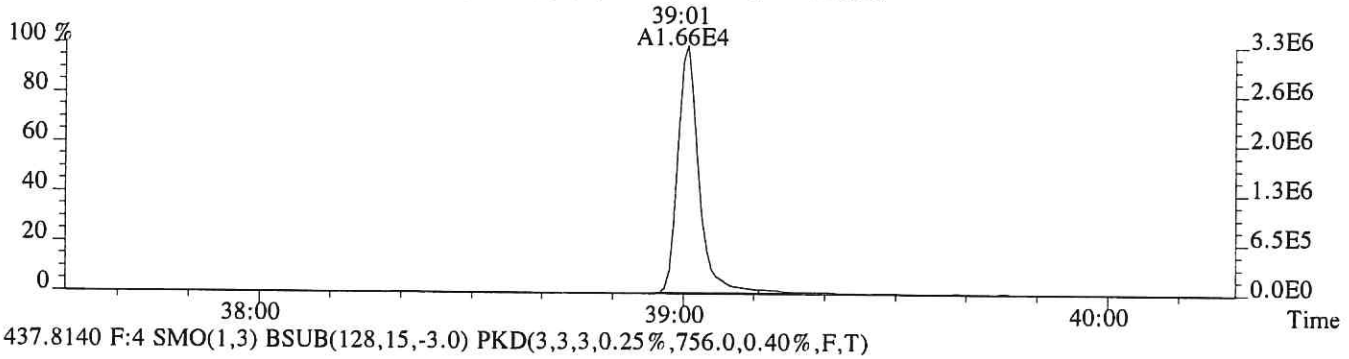
File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



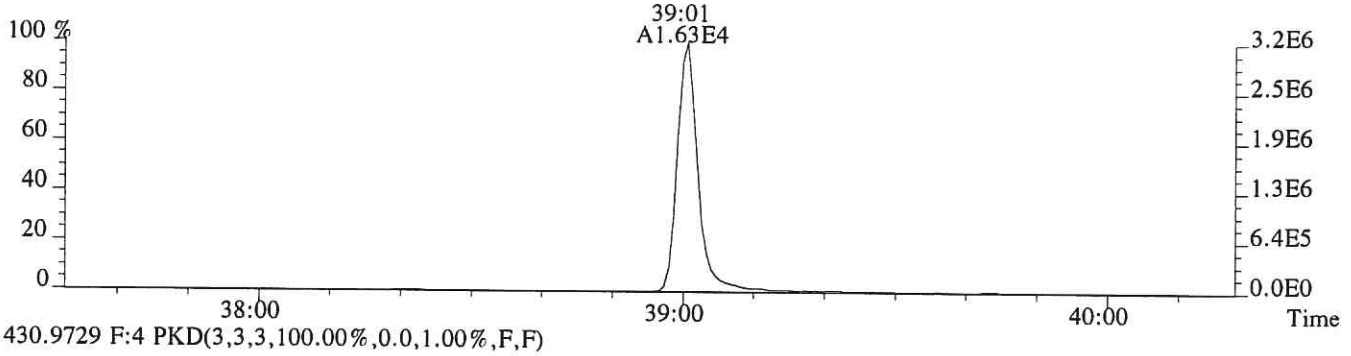
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



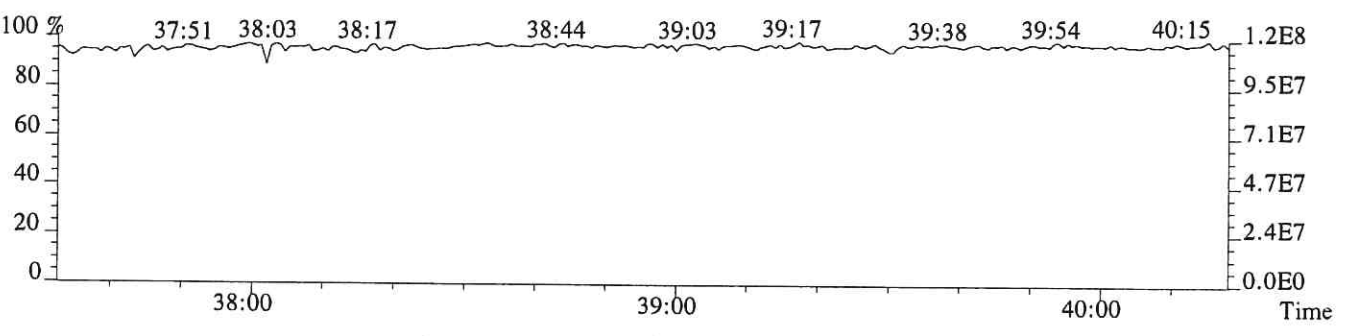
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



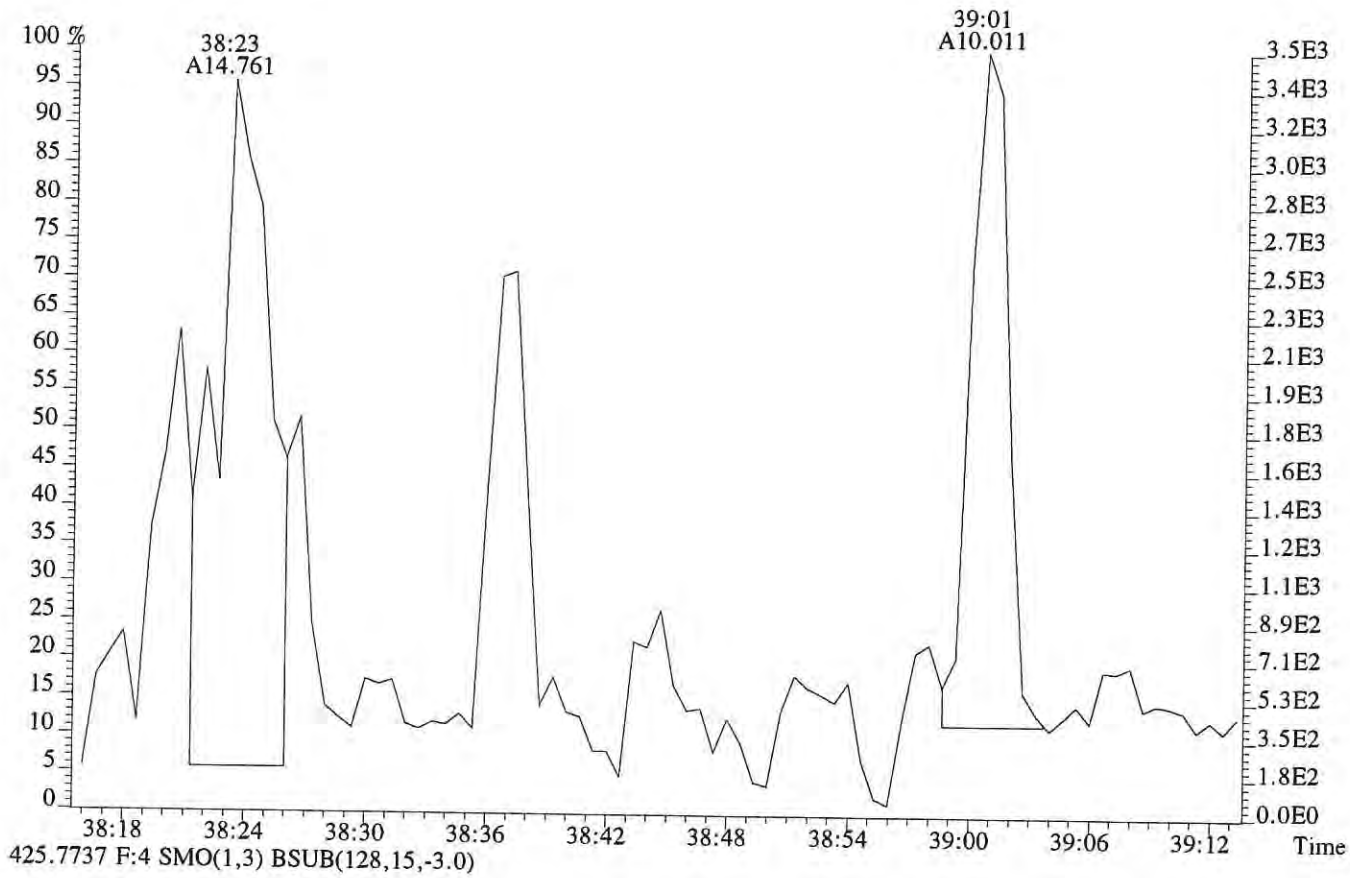
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



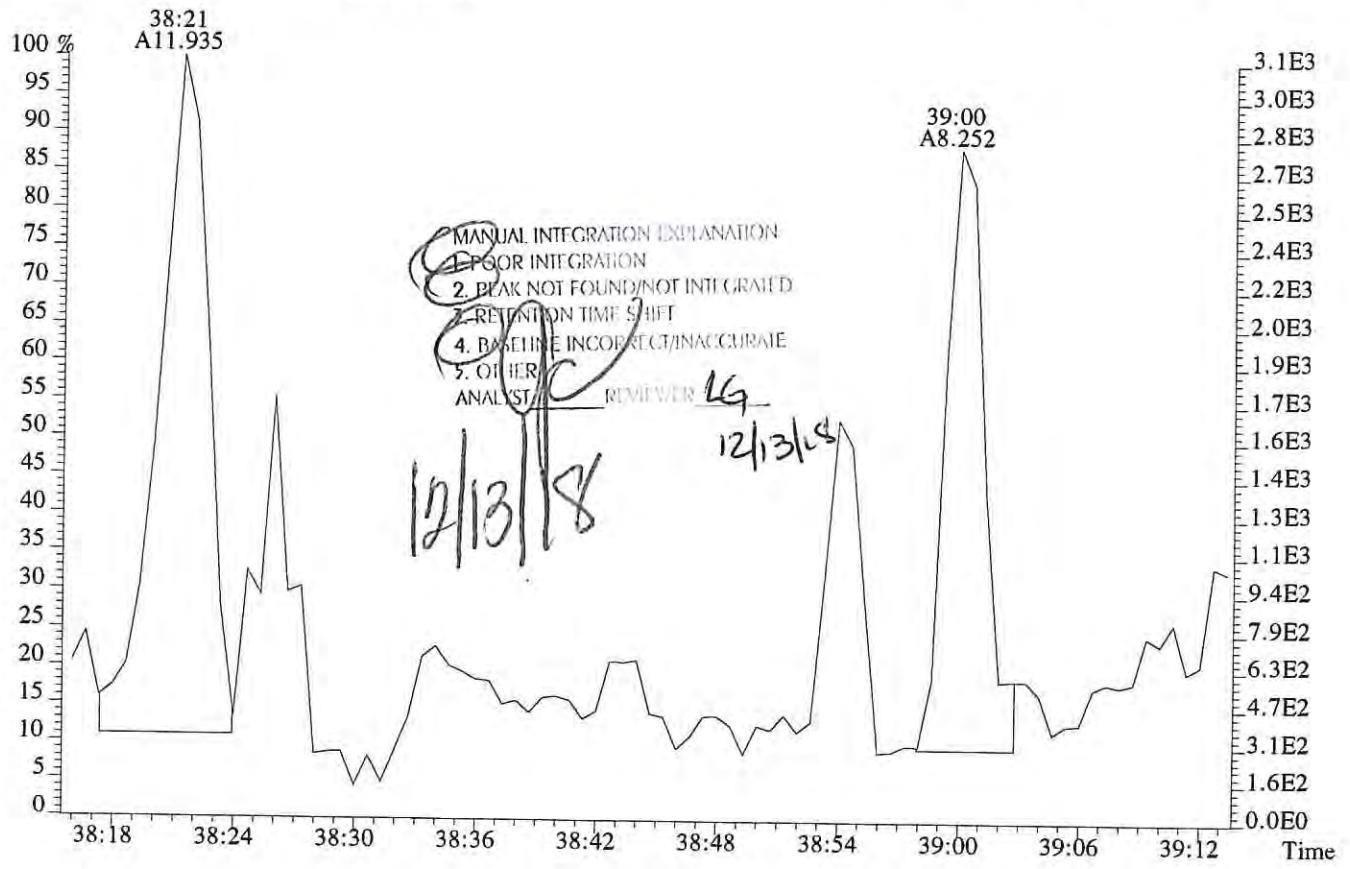
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P616043 #1-249 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0)



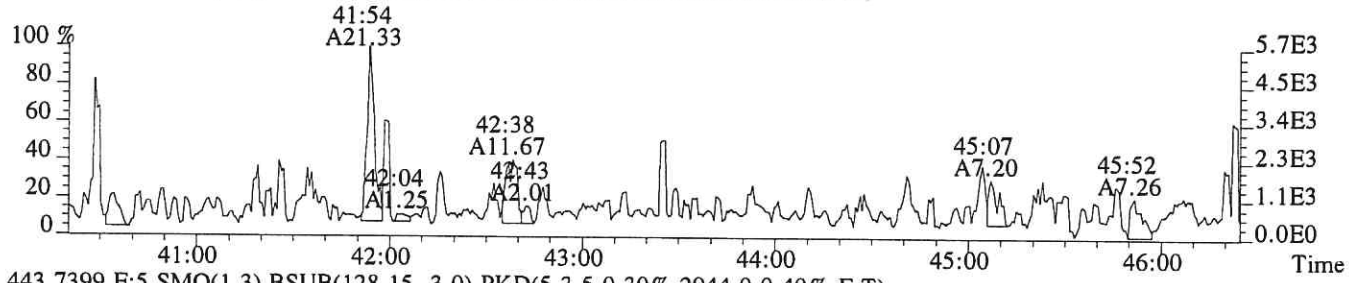
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0)



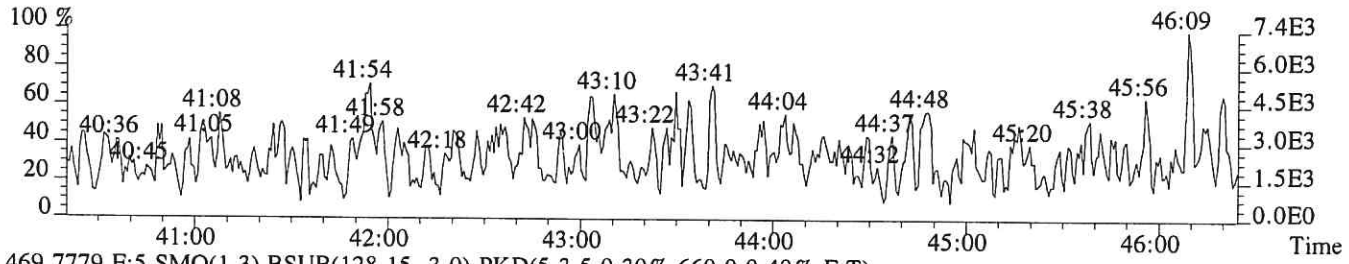
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST RC REVIEWER LG
12/13/18 12/13/18

File:P616043 #1-547 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB

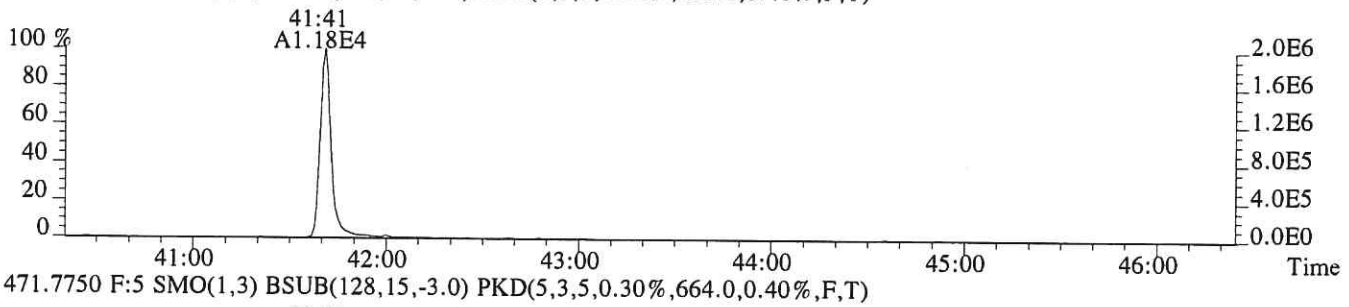
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,972.0,0.40%,F,T)



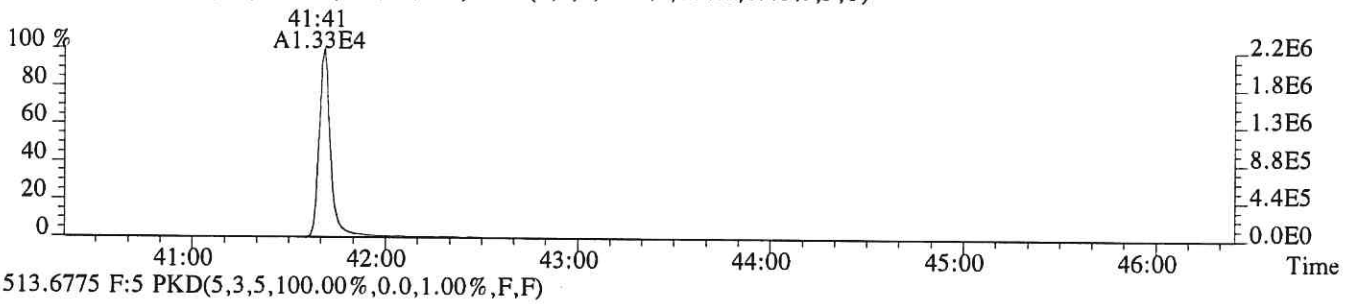
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2944.0,0.40%,F,T)



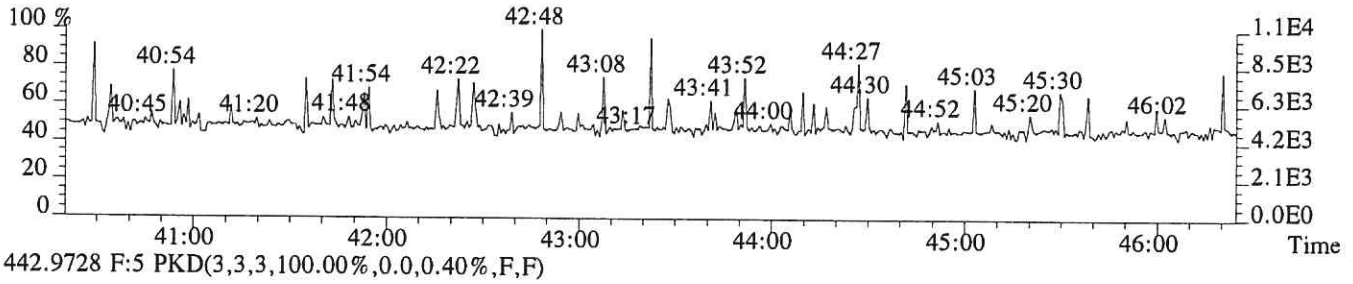
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



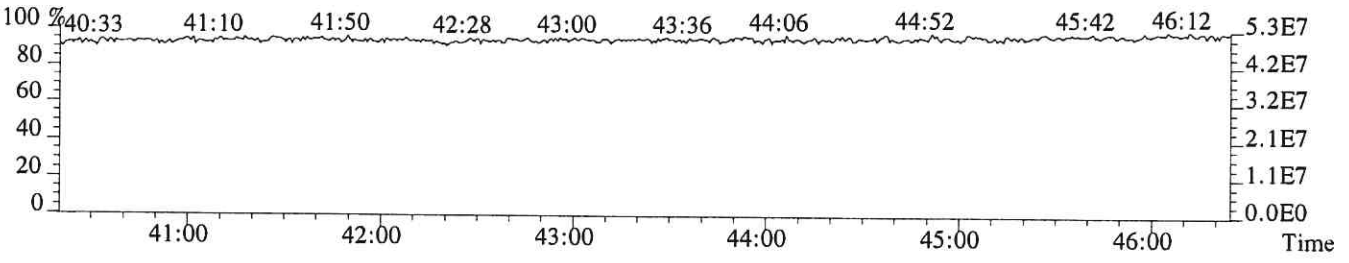
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



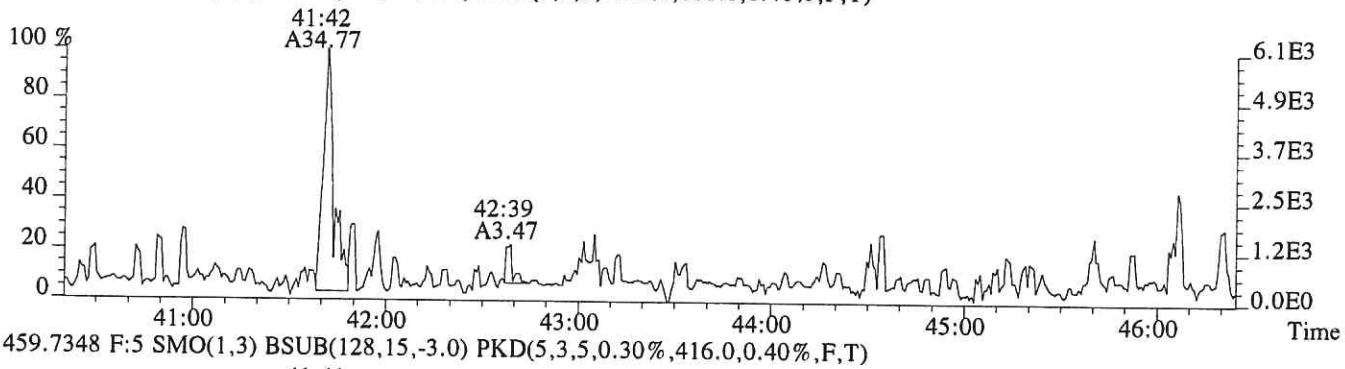
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



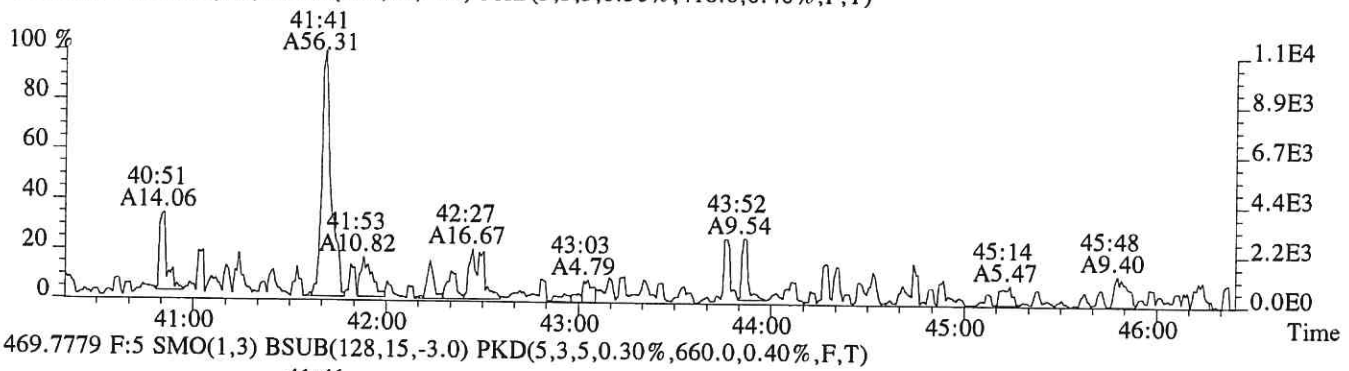
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



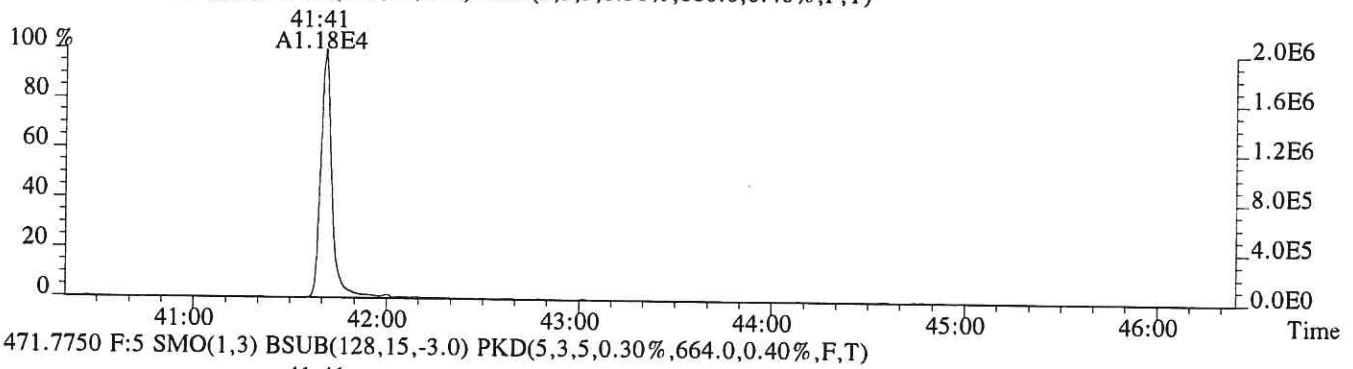
File:P616043 #1-547 Acq:11-DEC-2018 12:27:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



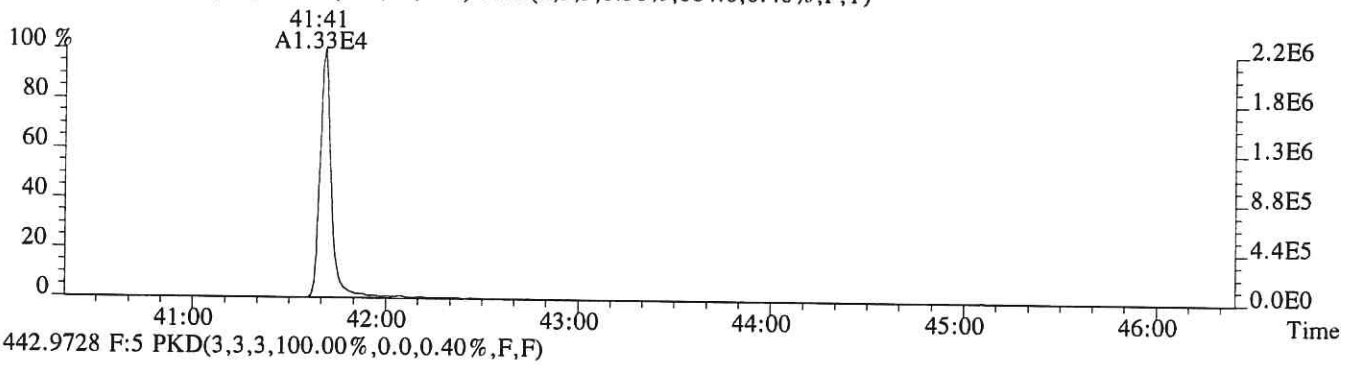
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



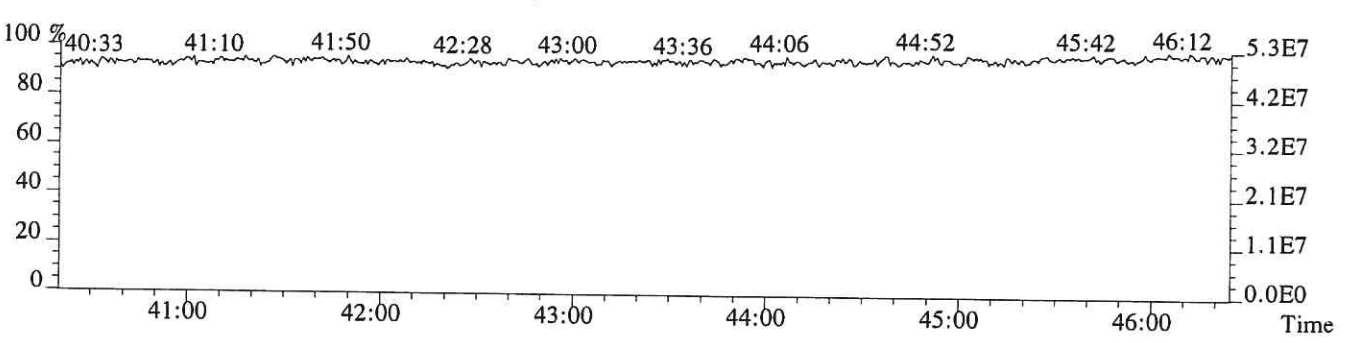
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename P616051 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:45:05
Processed: 12-DEC-18 16:11:42 Sample ID: EQ1800499-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	3.949e+03	5.314e+03	0.74	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	3.305e+04	2.161e+04	1.53	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:48	3.202e+04	2.105e+04	1.52	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	3.219e+04	2.506e+04	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.317e+04	2.702e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	3.002e+04	2.507e+04	1.20	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	2.711e+04	2.164e+04	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	2.500e+04	2.452e+04	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	2.050e+04	2.068e+04	0.99	yes	no	1.463
10	Unk	OCDF	41:52	2.423e+04	2.681e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:20	3.272e+03	4.124e+03	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:05	2.468e+04	1.608e+04	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:15	2.165e+04	1.757e+04	1.23	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:20	2.252e+04	1.815e+04	1.24	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:34	2.360e+04	1.858e+04	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	1.658e+04	1.545e+04	1.07	yes	no	1.112
17	Unk	OCDD	41:40	1.860e+04	2.074e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:28	4.281e+04	5.403e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	7.131e+04	4.568e+04	1.56	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	6.777e+04	4.268e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	3.166e+04	6.005e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.559e+04	6.687e+04	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	3.189e+04	6.126e+04	0.52	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.912e+04	5.633e+04	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.232e+04	4.915e+04	0.45	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.904e+04	4.361e+04	0.44	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	2.292e+04	2.918e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	5.480e+04	3.506e+04	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	4.674e+04	3.643e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	4.391e+04	3.493e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	4.332e+04	4.070e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:40	3.289e+04	3.626e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:38	3.371e+04	4.319e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.990e+04	4.928e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:19	3.064e+04				no	1.086

$$\text{OCDD} = \frac{(1.860e+04 + 2.074e+04) \times 4000\ \text{pg} \times 1}{(3.289e+04 + 3.626e+04) \times \quad \text{g} \times \quad / 100 \times 1.157}$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename P616051 Samp: 1 Inj: 1 Acquired: 11-DEC-18 19:45:05
Processed: 12-DEC-18 16:11:42 LAB. ID: EQ1800499-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.53e+05	1.89e+03	3.5e+02	8.69e+05	3.57e+03	2.4e+02
2	1,2,3,7,8-PeCDF	5.93e+06	8.40e+02	7.1e+03	3.88e+06	3.68e+03	1.1e+03
3	2,3,4,7,8-PeCDF	5.86e+06	8.40e+02	7.0e+03	3.91e+06	3.68e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	6.79e+06	1.01e+03	6.7e+03	5.26e+06	8.16e+02	6.4e+03
5	1,2,3,6,7,8-HxCDF	6.72e+06	1.01e+03	6.7e+03	5.35e+06	8.16e+02	6.6e+03
6	2,3,4,6,7,8-HxCDF	6.37e+06	1.01e+03	6.3e+03	5.25e+06	8.16e+02	6.4e+03
7	1,2,3,7,8,9-HxCDF	5.30e+06	1.01e+03	5.3e+03	4.30e+06	8.16e+02	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	5.40e+06	3.58e+03	1.5e+03	5.15e+06	2.17e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	3.95e+06	3.58e+03	1.1e+03	3.91e+06	2.17e+03	1.8e+03
10	OCDF	4.15e+06	4.08e+02	1.0e+04	4.55e+06	2.44e+03	1.9e+03
11	2,3,7,8-TCDD	5.63e+05	3.44e+03	1.6e+02	6.92e+05	2.10e+03	3.3e+02
12	1,2,3,7,8-PeCDD	4.40e+06	1.08e+03	4.1e+03	2.91e+06	5.16e+02	5.6e+03
13	1,2,3,4,7,8-HxCDD	4.68e+06	9.60e+02	4.9e+03	3.76e+06	1.63e+03	2.3e+03
14	1,2,3,6,7,8-HxCDD	4.56e+06	9.60e+02	4.8e+03	3.71e+06	1.63e+03	2.3e+03
15	1,2,3,7,8,9-HxCDD	4.74e+06	9.60e+02	4.9e+03	3.69e+06	1.63e+03	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	3.37e+06	7.36e+02	4.6e+03	3.17e+06	4.72e+02	6.7e+03
17	OCDD	3.21e+06	3.80e+02	8.5e+03	3.60e+06	1.06e+03	3.4e+03
18	13C-2,3,7,8-TCDF	6.79e+06	8.50e+03	8.0e+02	8.68e+06	7.20e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	1.27e+07	1.59e+03	8.0e+03	8.10e+06	2.44e+03	3.3e+03
20	13C-2,3,4,7,8-PeCDF	1.28e+07	1.59e+03	8.1e+03	7.98e+06	2.44e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	6.62e+06	9.12e+02	7.3e+03	1.26e+07	2.06e+03	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	7.24e+06	9.12e+02	7.9e+03	1.35e+07	2.06e+03	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	6.81e+06	9.12e+02	7.5e+03	1.30e+07	2.06e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.73e+06	9.12e+02	6.3e+03	1.10e+07	2.06e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.81e+06	5.04e+03	9.5e+02	1.06e+07	6.10e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.63e+06	5.04e+03	7.2e+02	8.26e+06	6.10e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.88e+06	1.57e+04	2.5e+02	5.03e+06	7.22e+03	7.0e+02
28	13C-1,2,3,7,8-PeCDD	1.02e+07	2.14e+03	4.8e+03	6.57e+06	2.87e+03	2.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.02e+07	2.95e+03	3.5e+03	7.83e+06	1.30e+03	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	9.06e+06	2.95e+03	3.1e+03	7.21e+06	1.30e+03	5.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.69e+06	1.42e+03	6.1e+03	8.35e+06	7.68e+02	1.1e+04
32	13C-OCDD	5.68e+06	1.31e+03	4.3e+03	6.32e+06	6.28e+02	1.0e+04
33	13C-1,2,3,4-TCDD	5.53e+06	1.57e+04	3.5e+02	7.14e+06	7.22e+03	9.9e+02
34	13C-1,2,3,7,8,9-HxCDD	1.22e+07	2.95e+03	4.1e+03	9.92e+06	1.30e+03	7.7e+03
35	37Cl-2,3,7,8-TCDD	5.27e+06	3.39e+03	1.6e+03			

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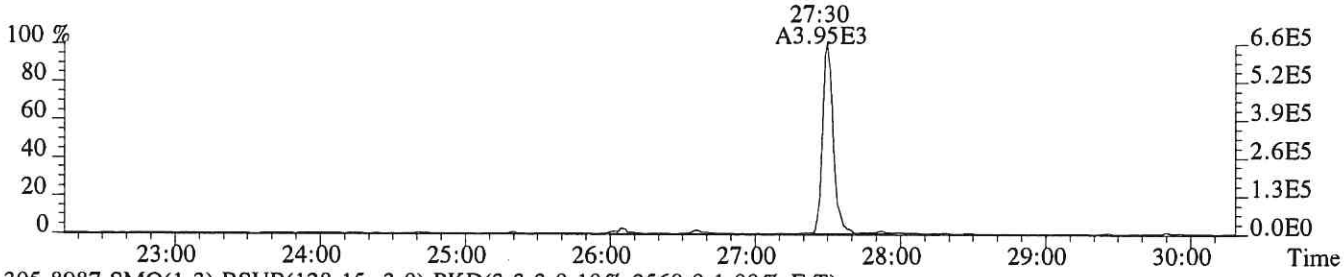
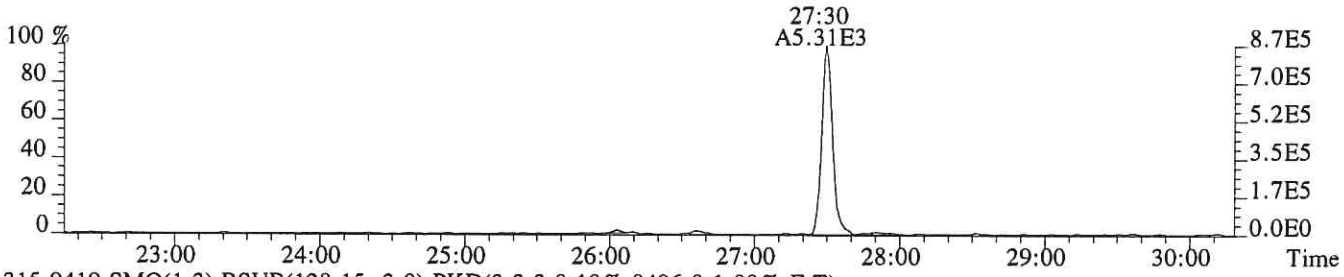
File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

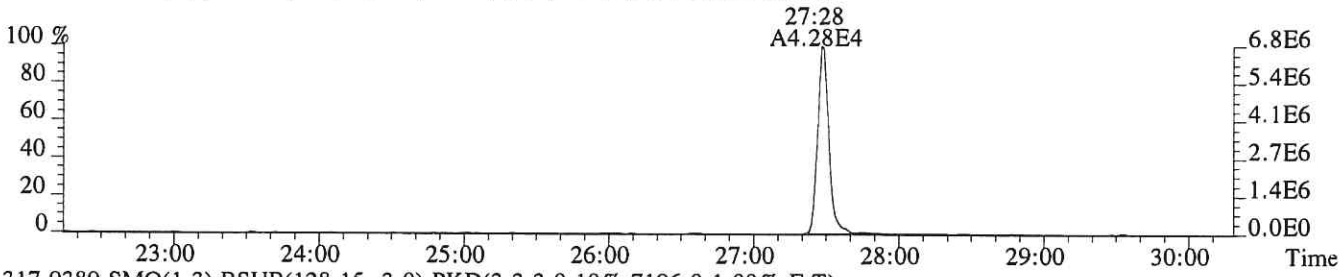
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



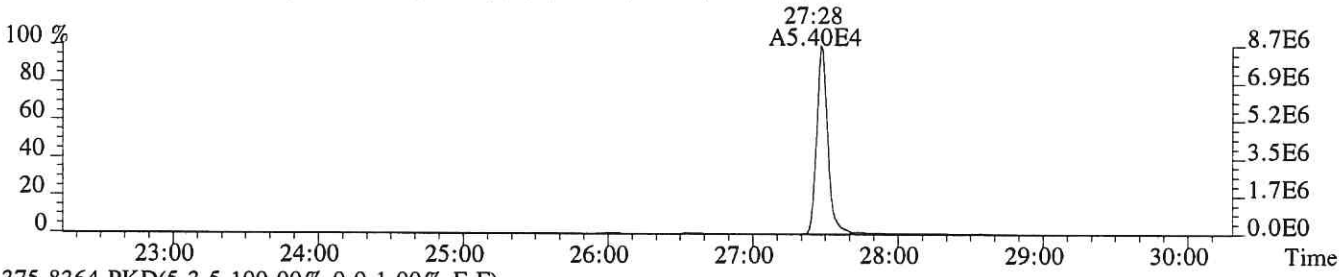
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3568.0,1.00%,F,T)



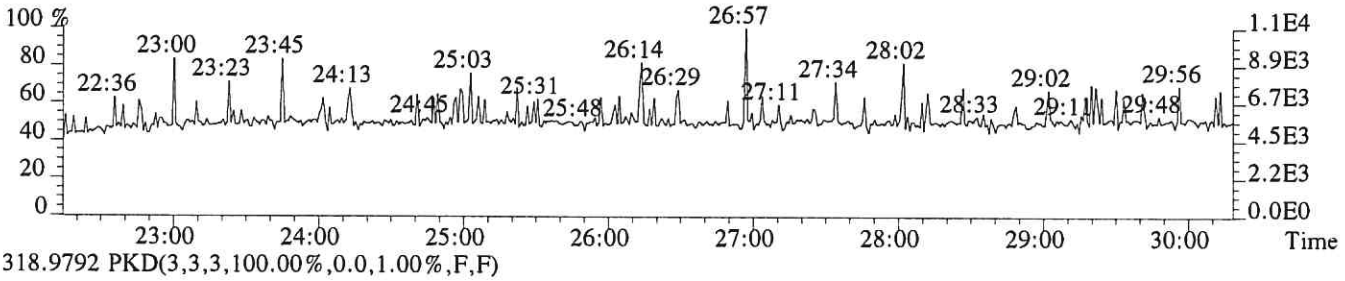
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8496.0,1.00%,F,T)



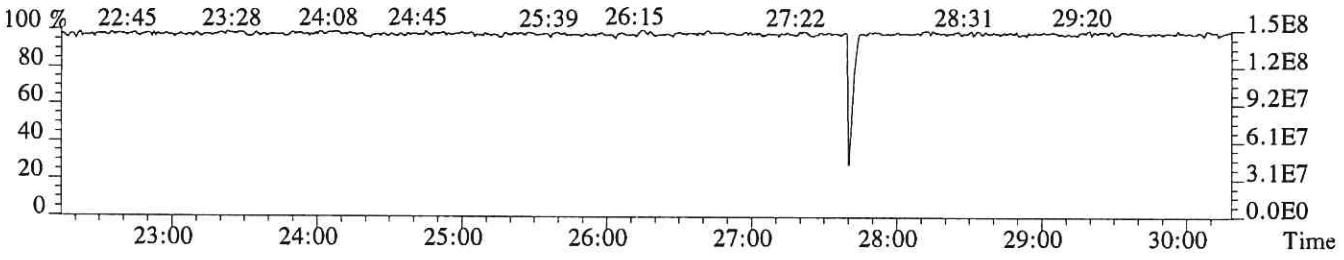
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7196.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

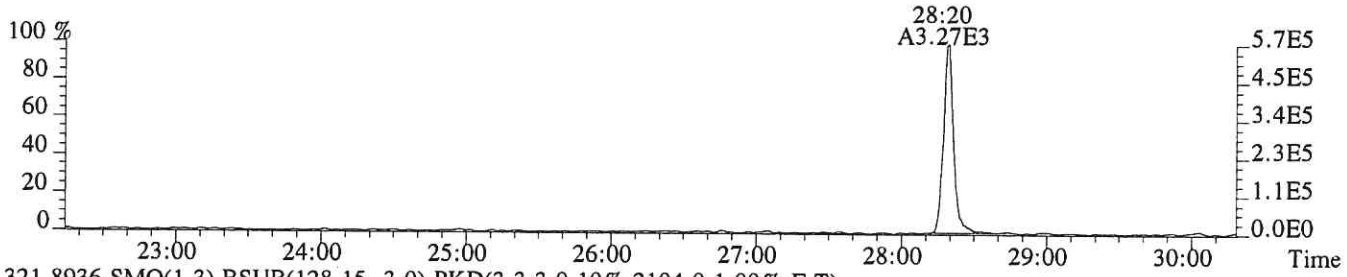


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

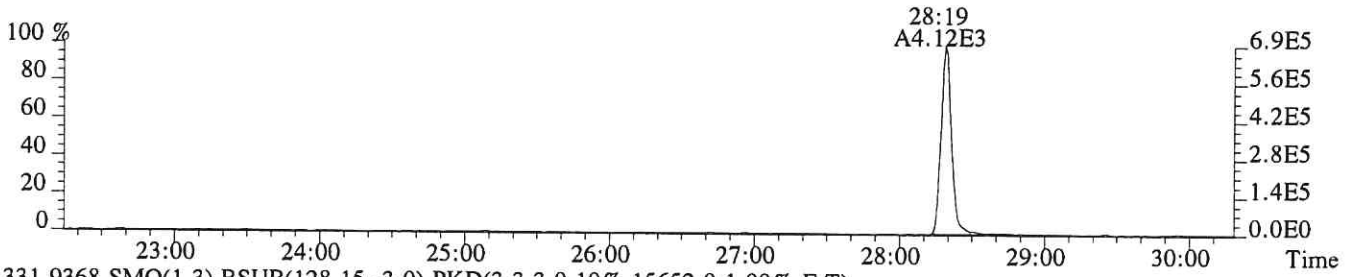


File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

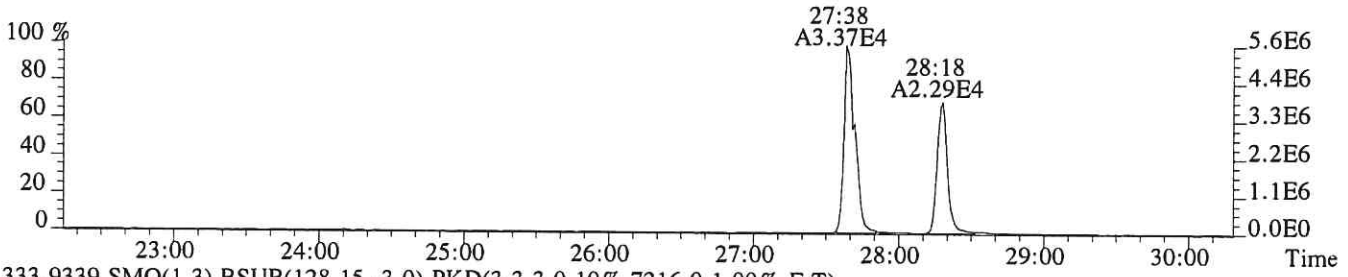
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3444.0,1.00%,F,T)



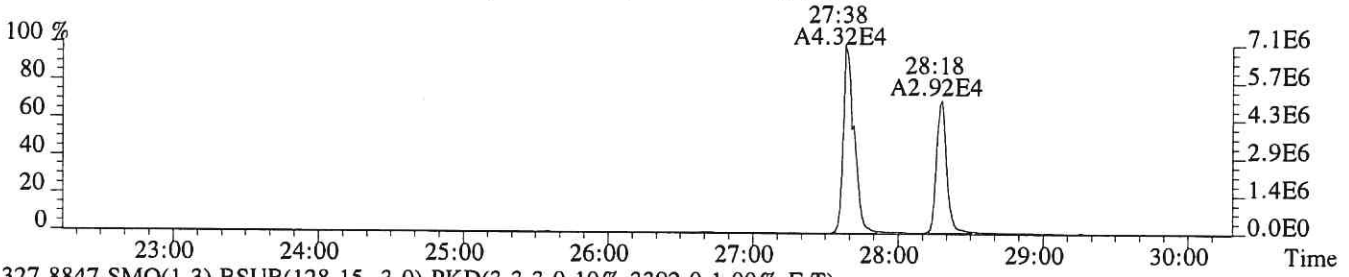
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



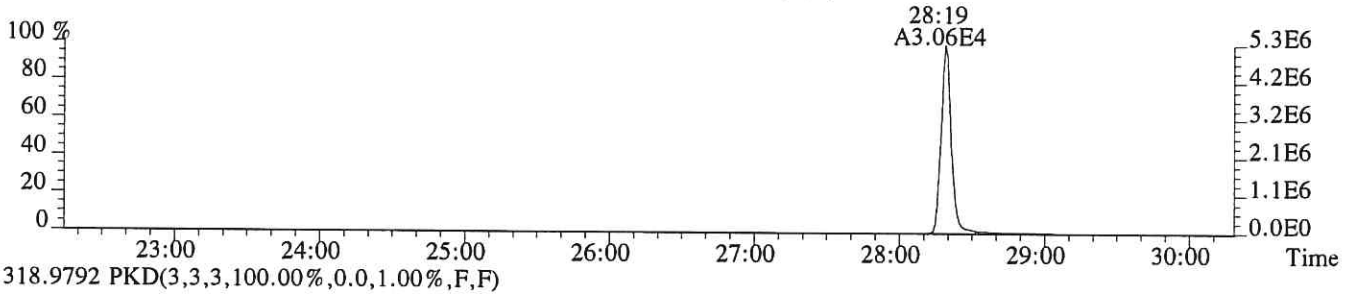
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15652.0,1.00%,F,T)



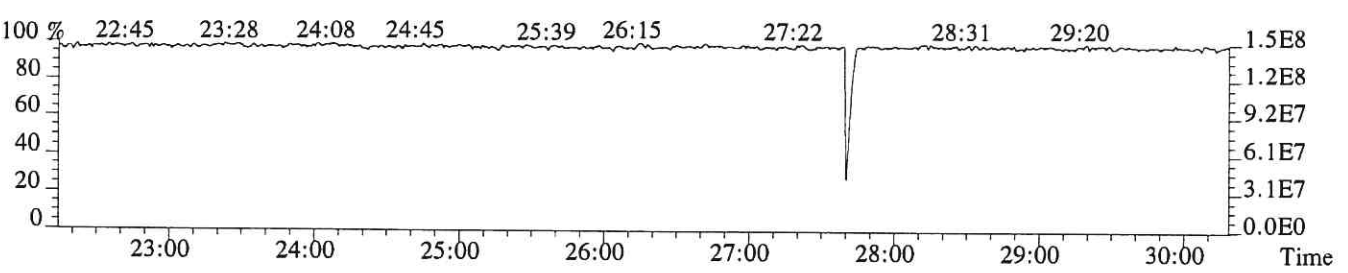
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7216.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3392.0,1.00%,F,T)

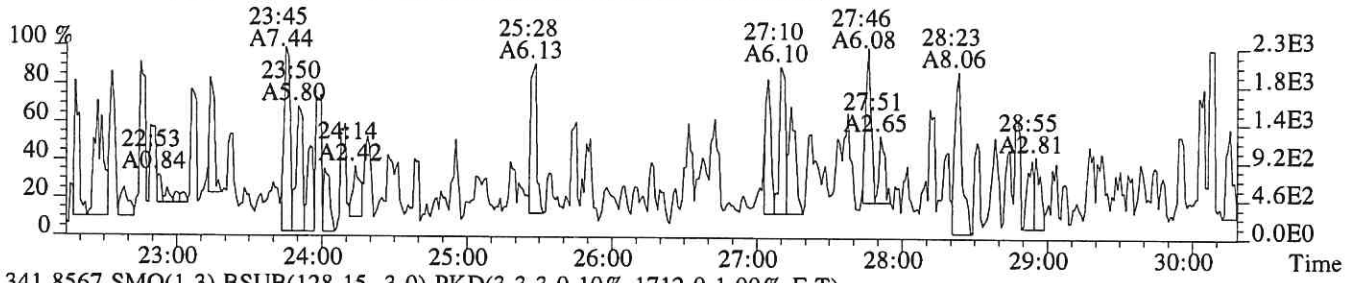


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

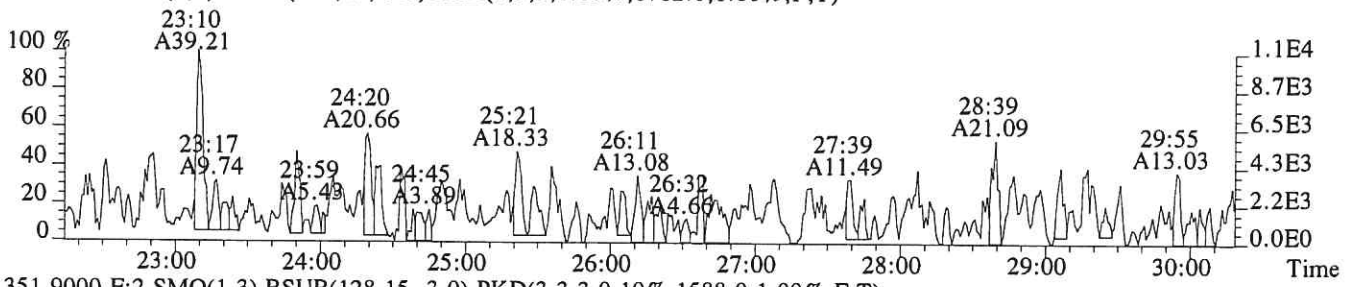


File:P616051 #1-573 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

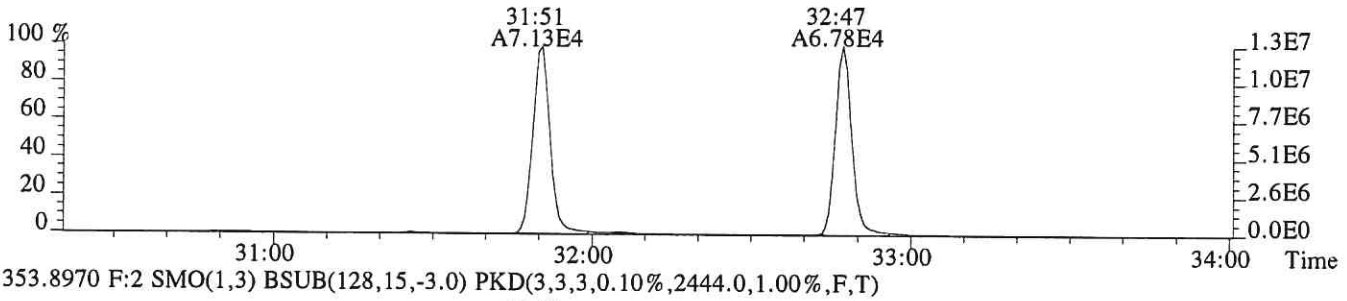
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



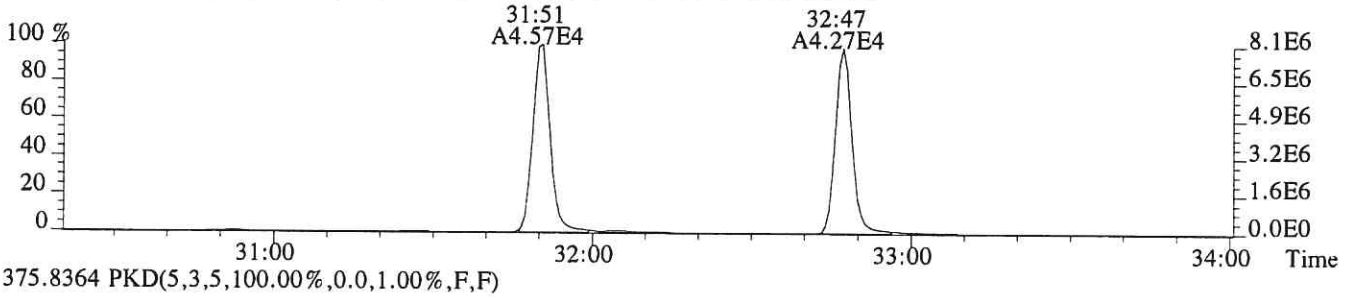
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



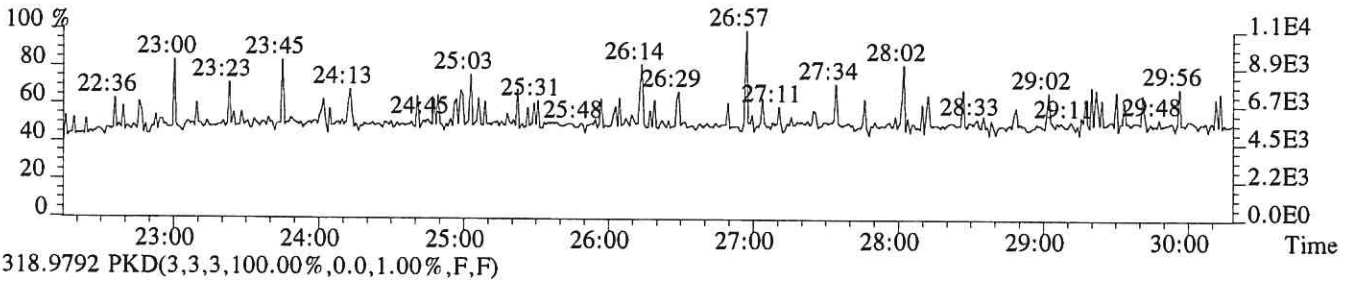
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



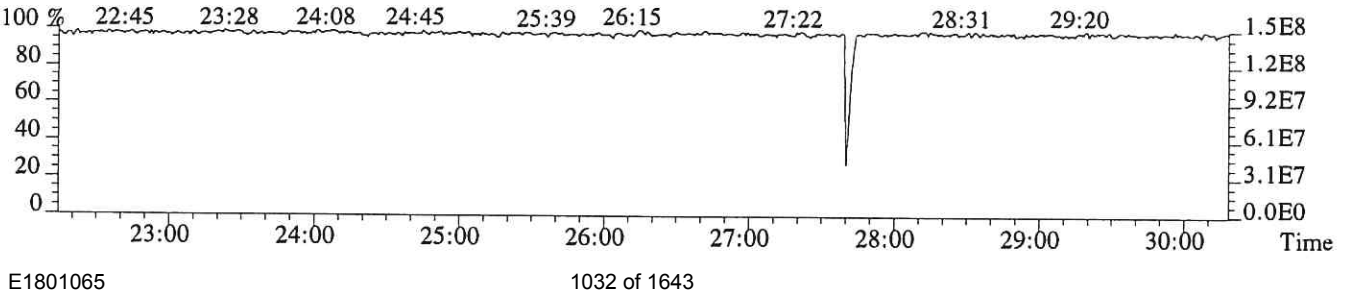
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

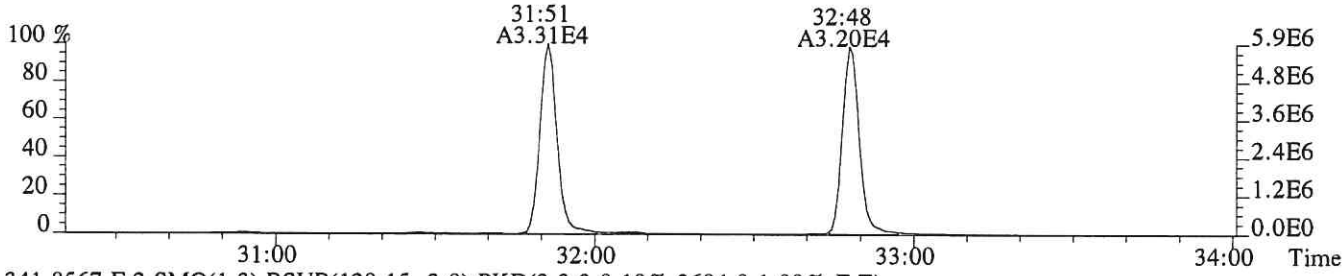


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

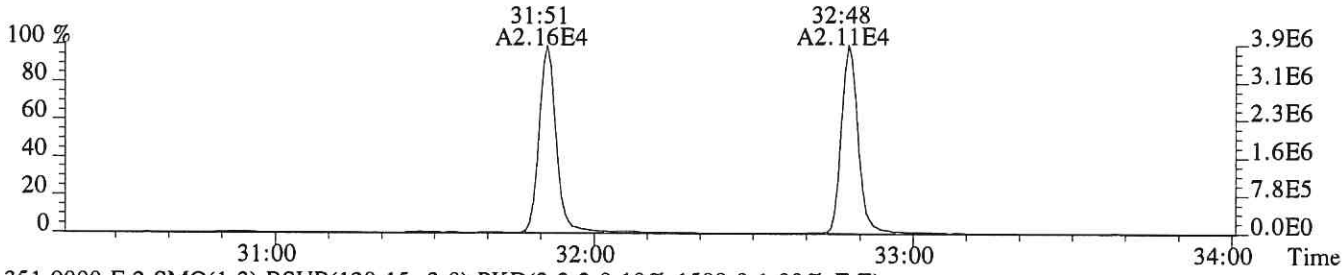


File:P616051 #1-331 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

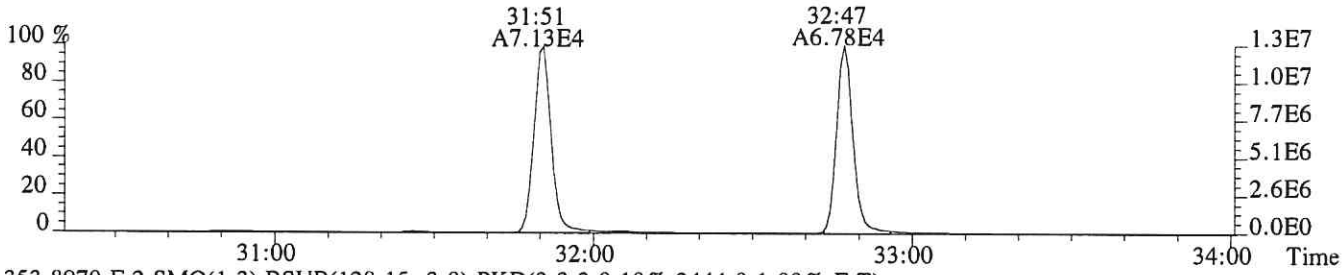
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



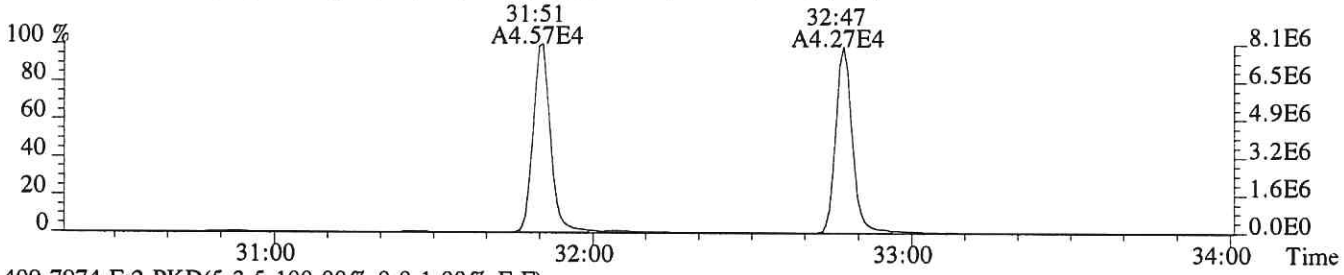
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3684.0,1.00%,F,T)



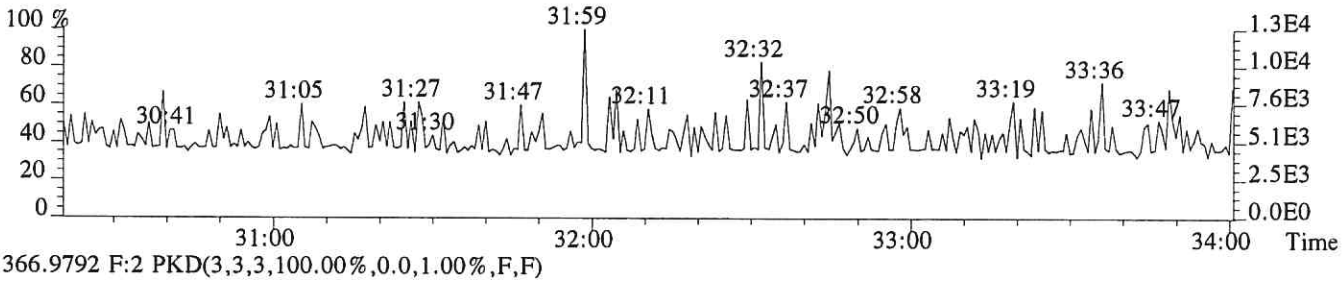
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



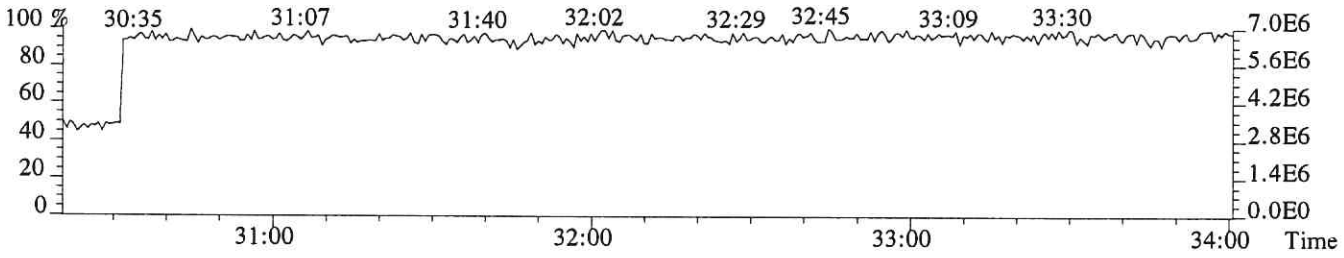
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2444.0,1.00%,F,T)



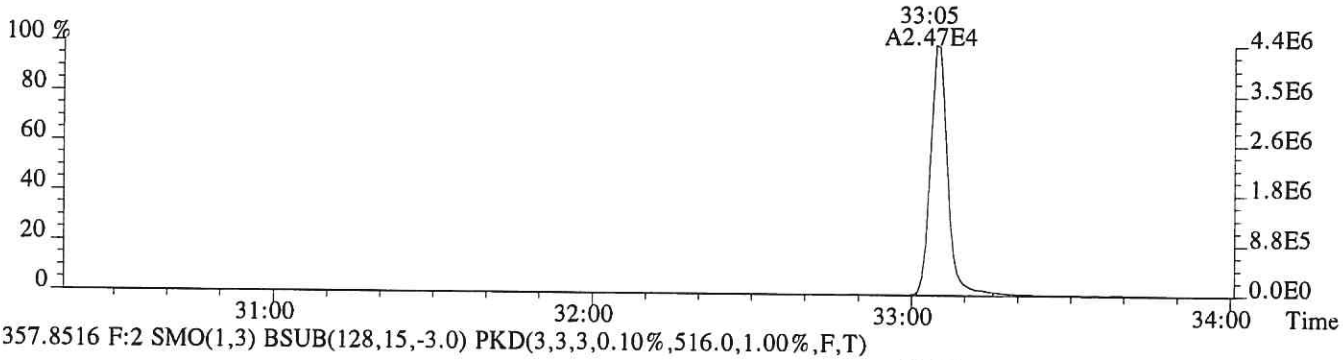
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



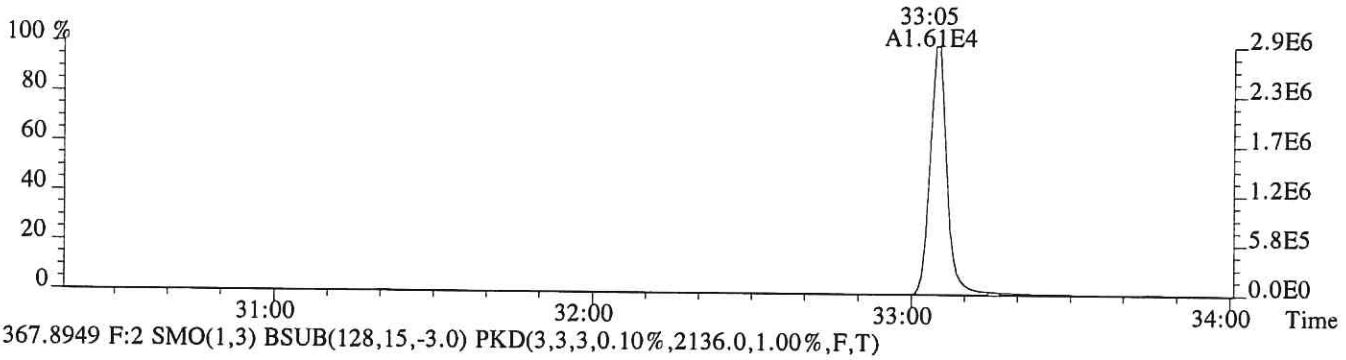
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



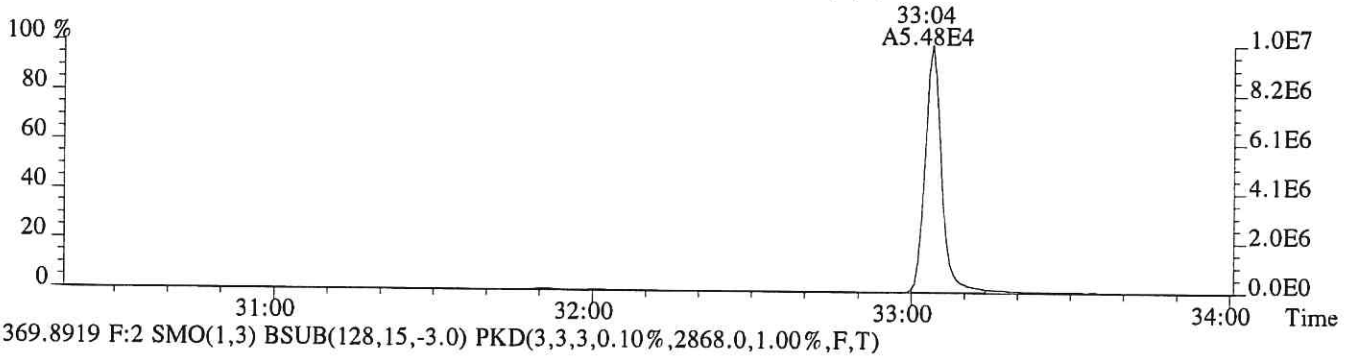
File:P616051 #1-331 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



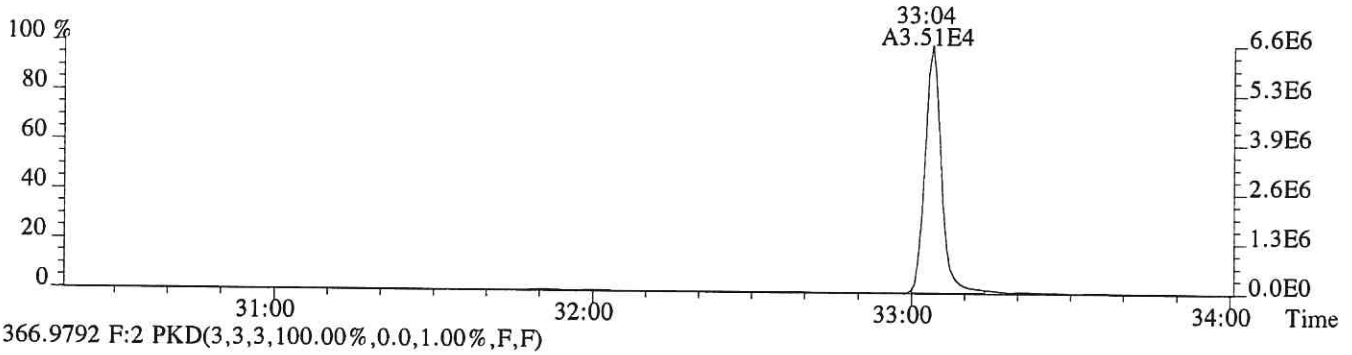
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



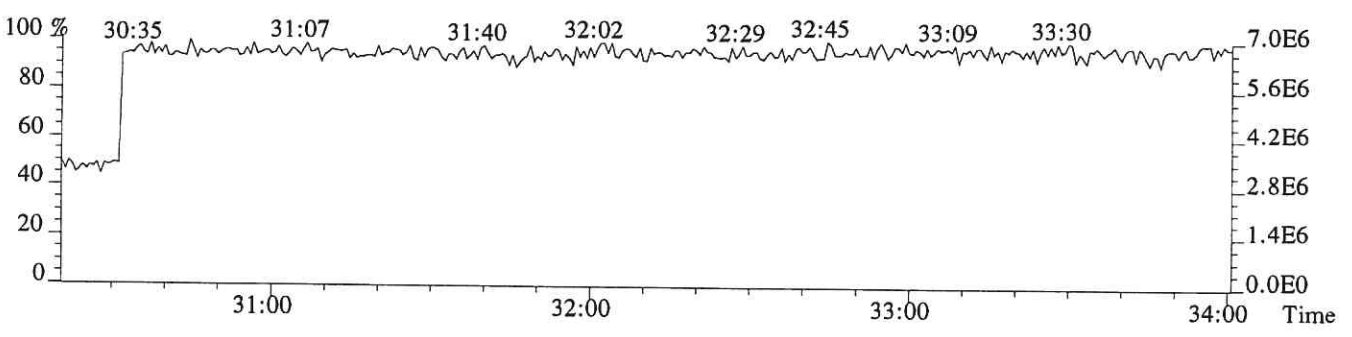
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)

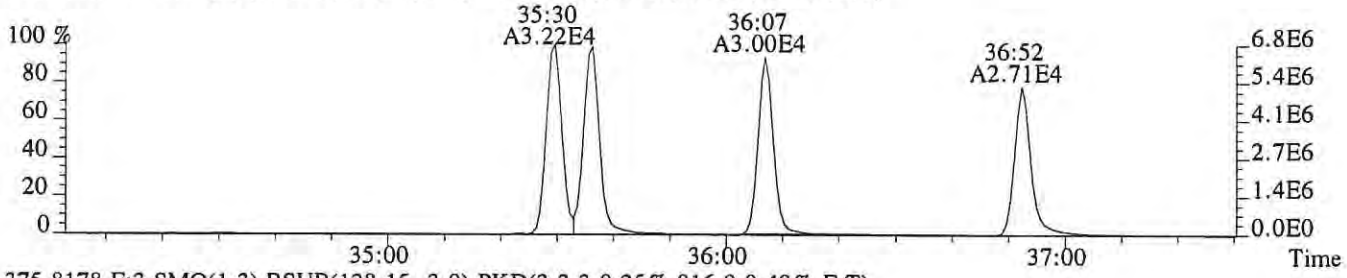


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

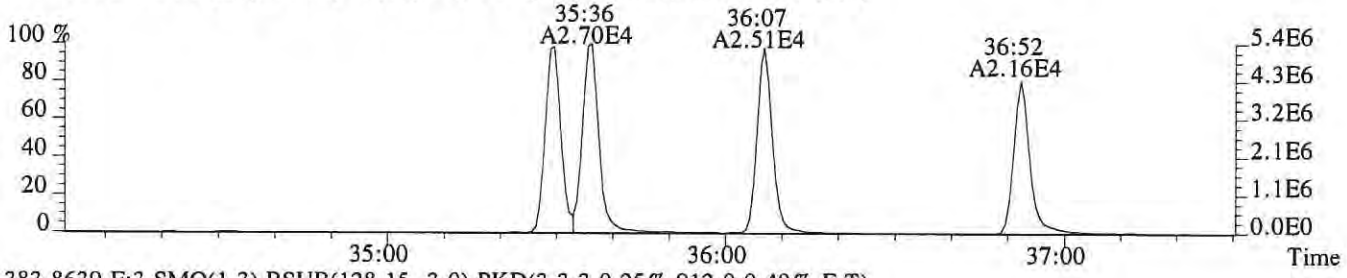


File:P616051 #1-312 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

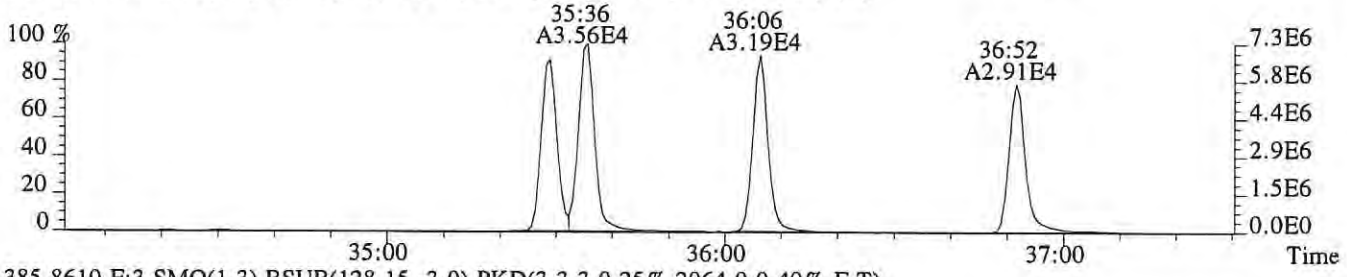
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



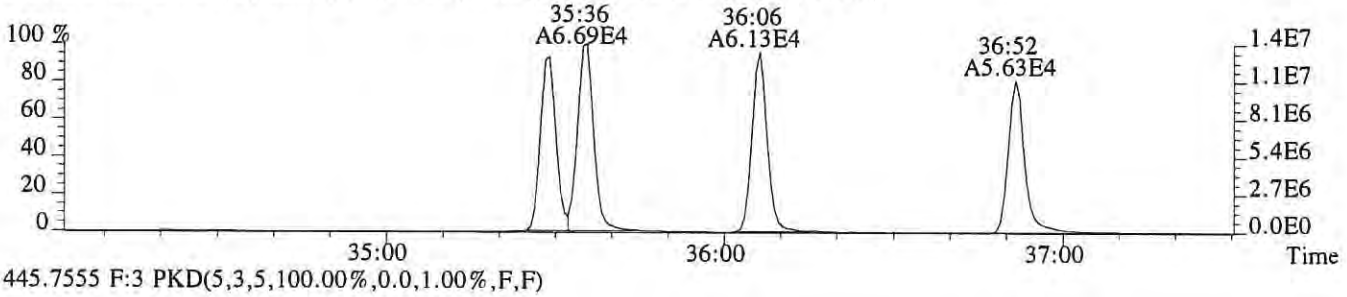
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



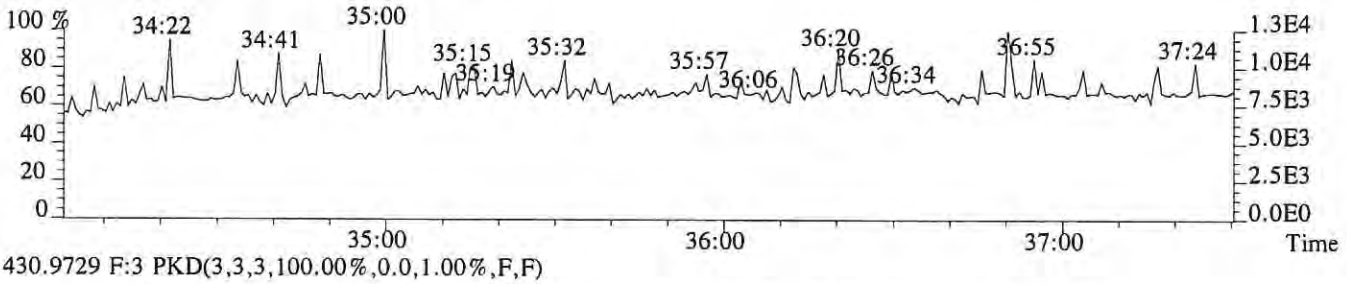
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



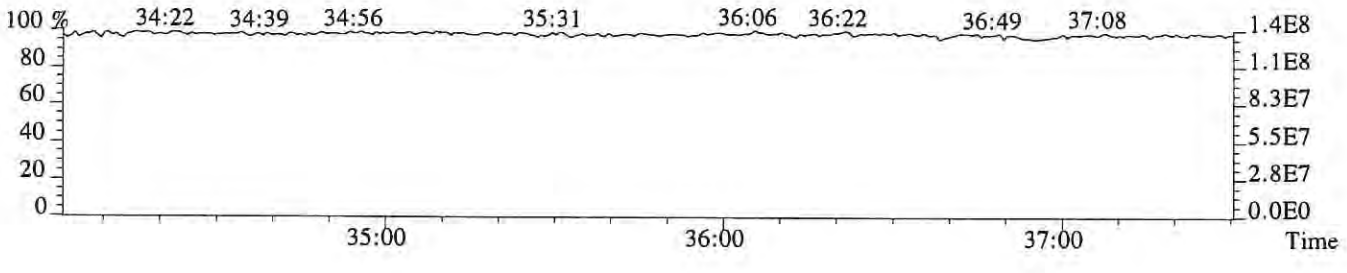
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2064.0,0.40%,F,T)



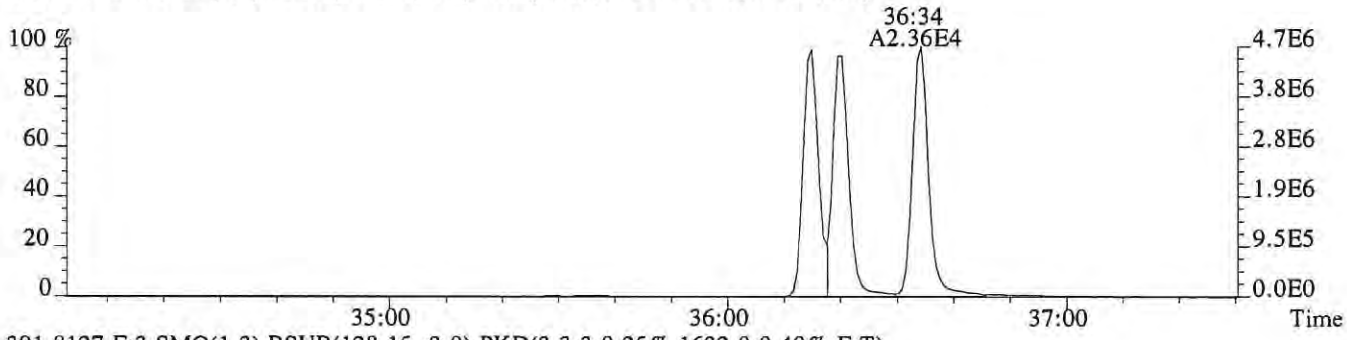
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



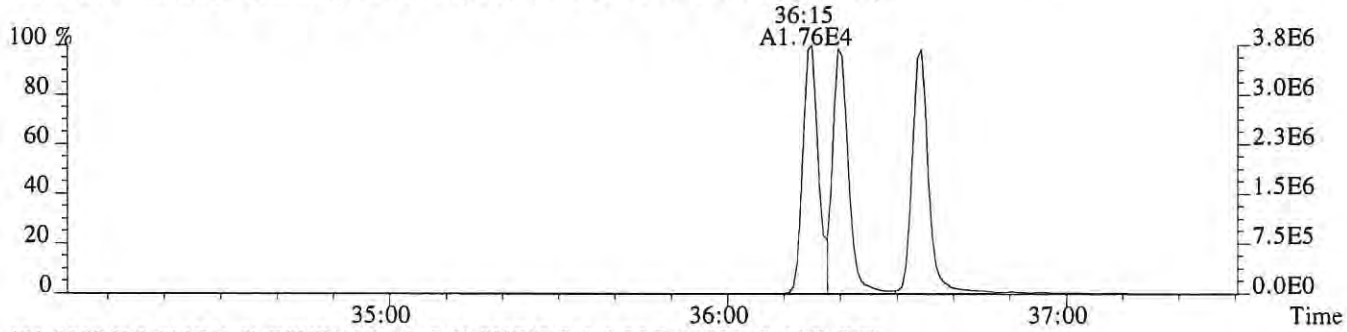
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



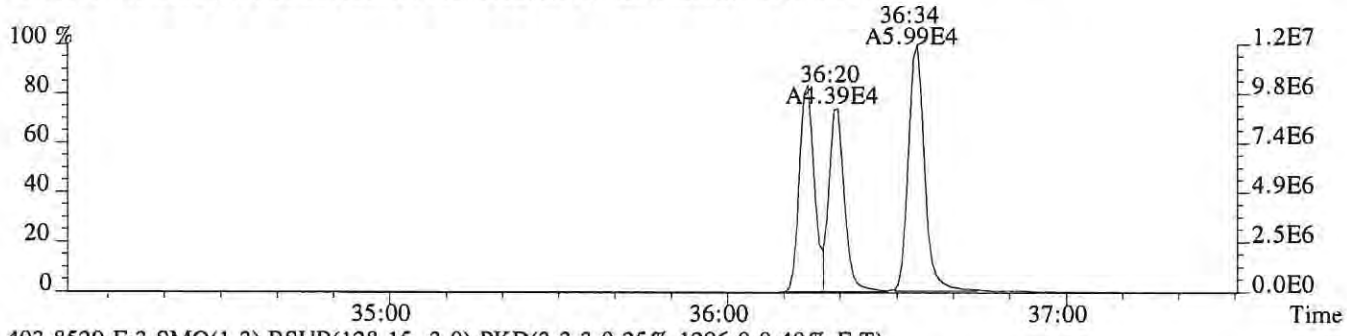
File:P616051 #1-312 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



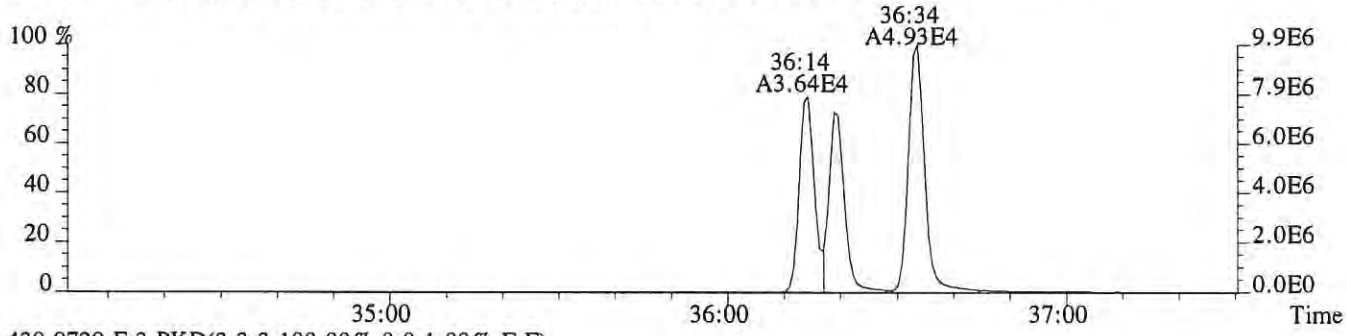
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



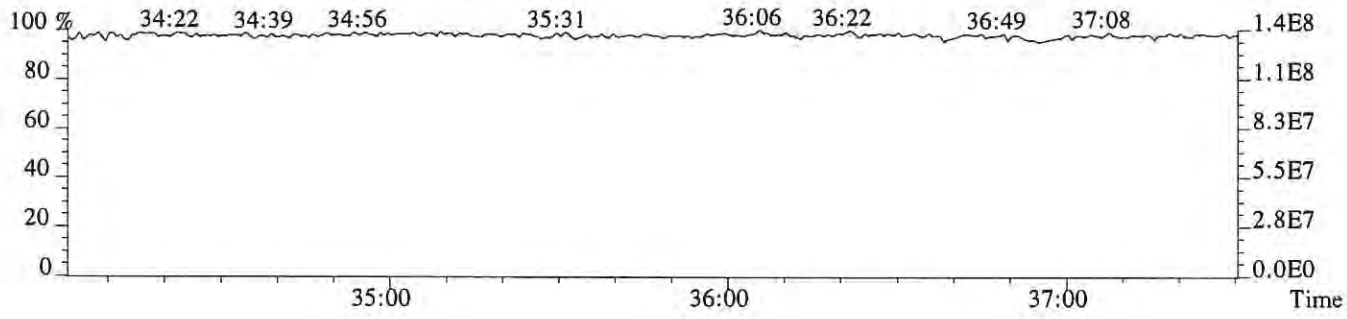
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2952.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)

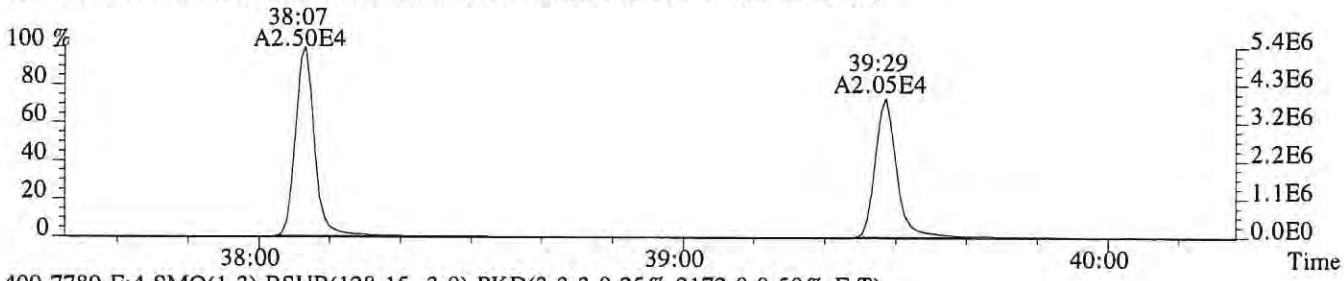


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

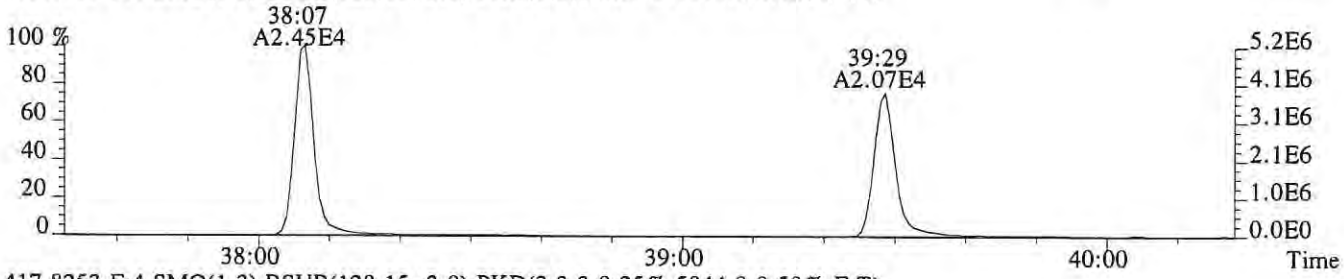


File:P616051 #1-249 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

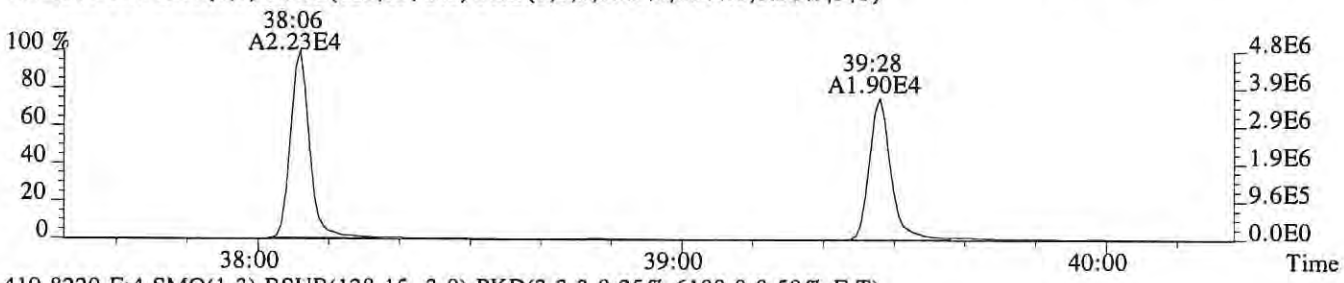
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3584.0,0.50%,F,T)



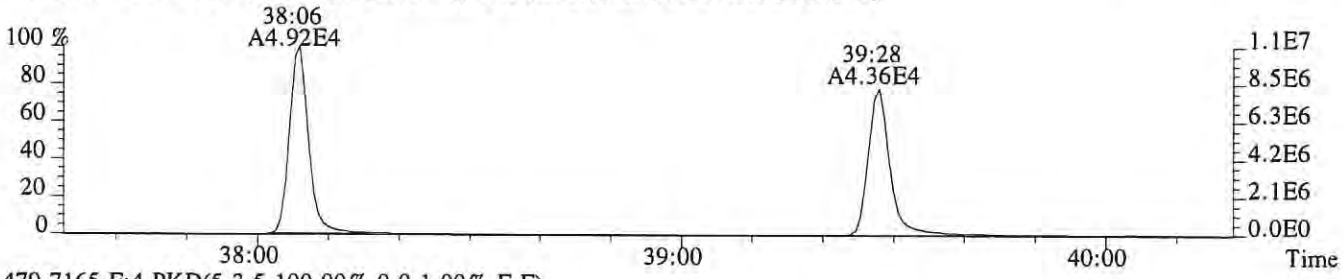
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.50%,F,T)



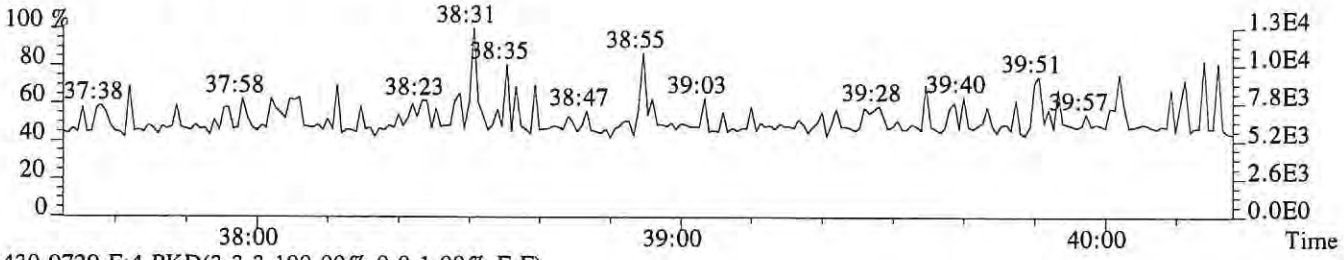
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5044.0,0.50%,F,T)



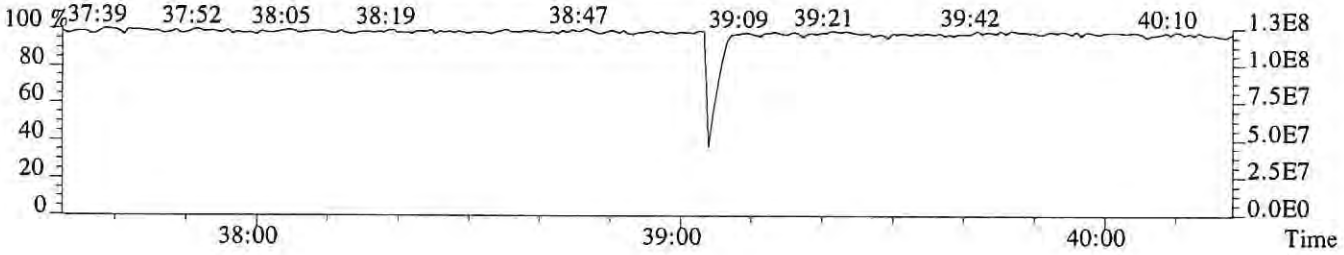
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6100.0,0.50%,F,T)



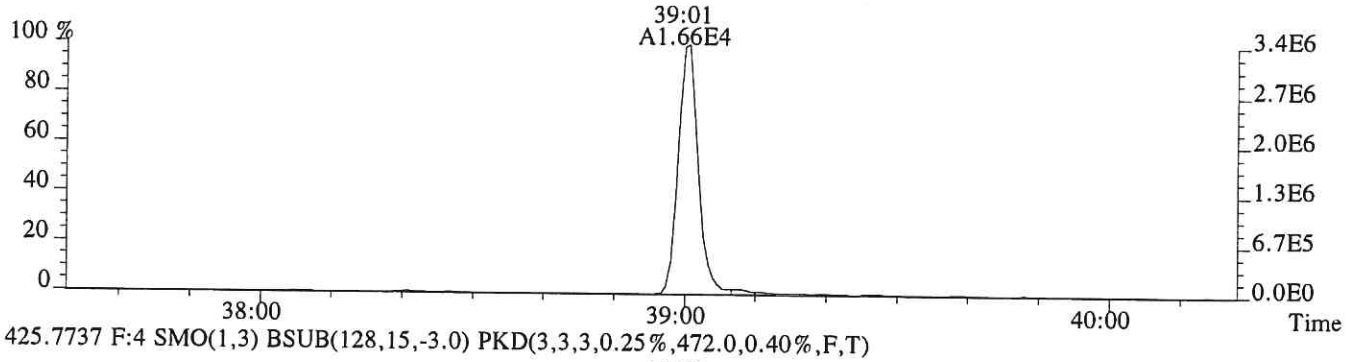
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



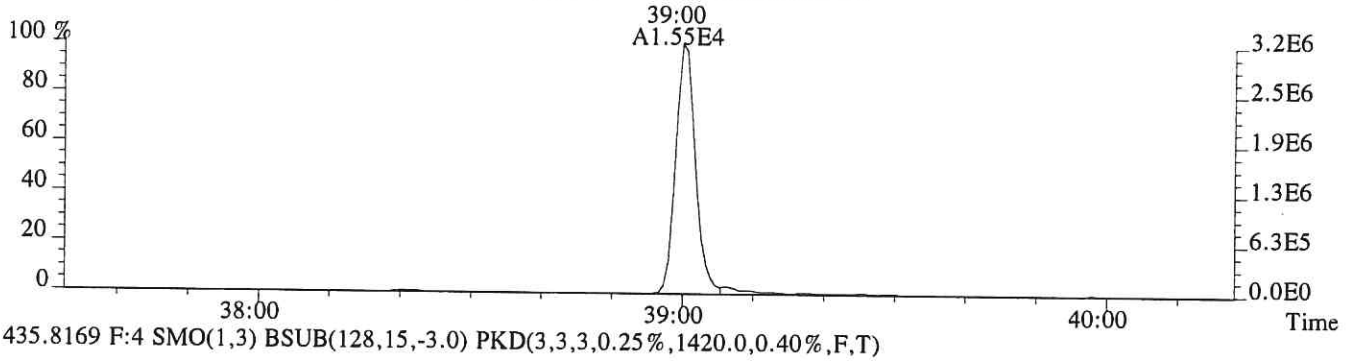
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



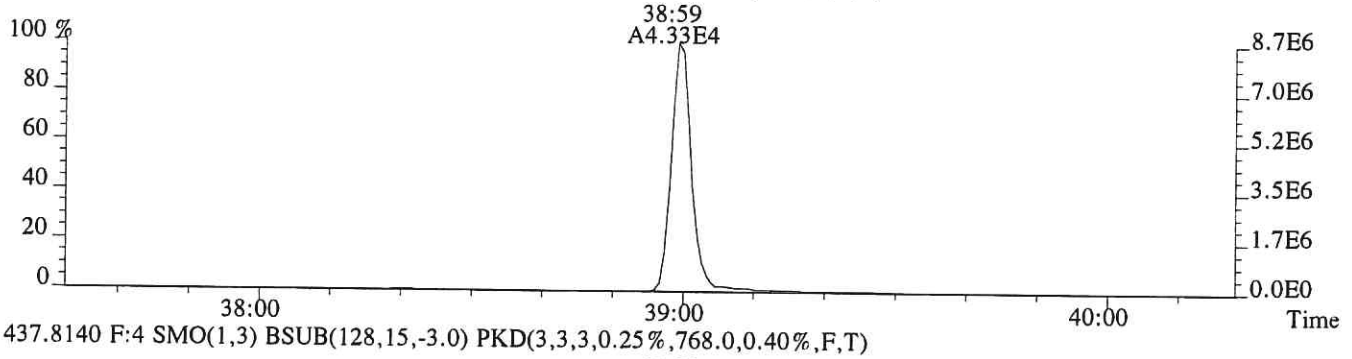
File:P616051 #1-249 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



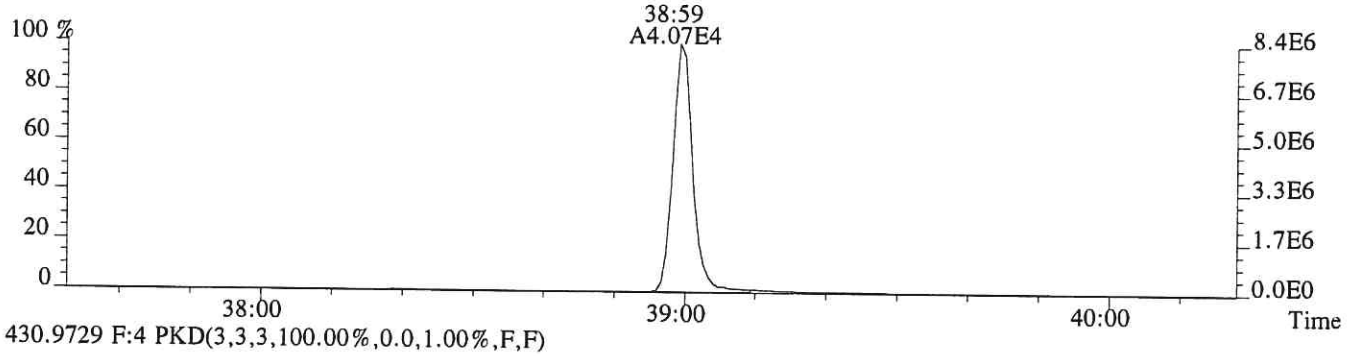
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



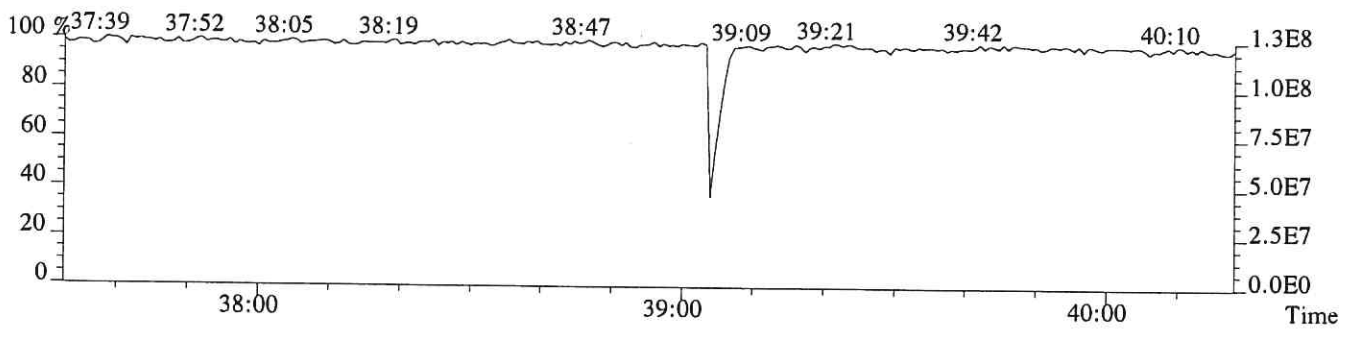
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)

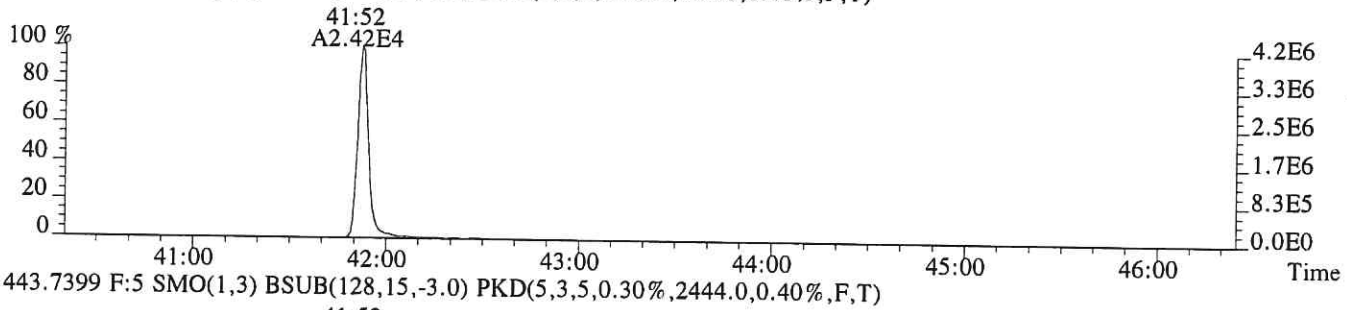


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

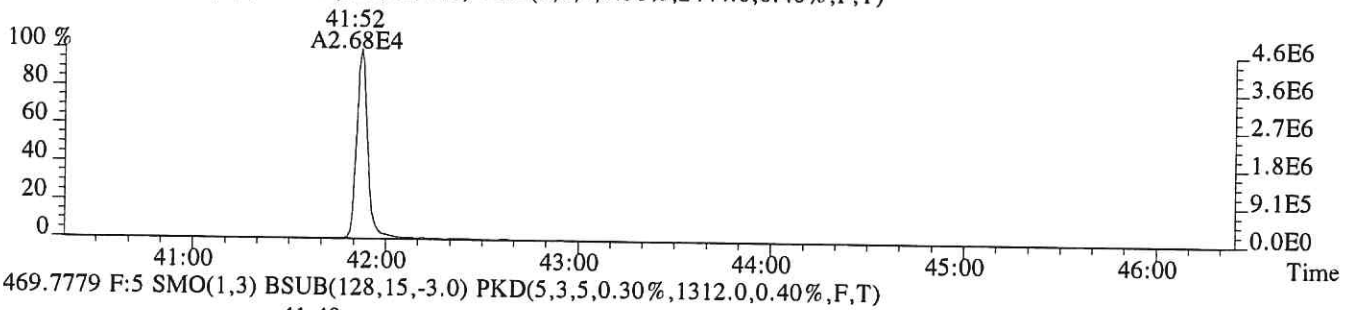


File:P616051 #1-547 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

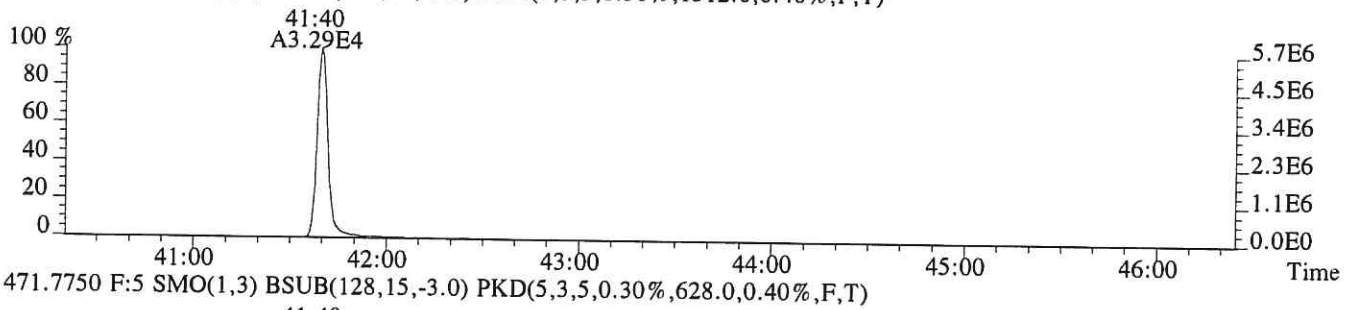
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



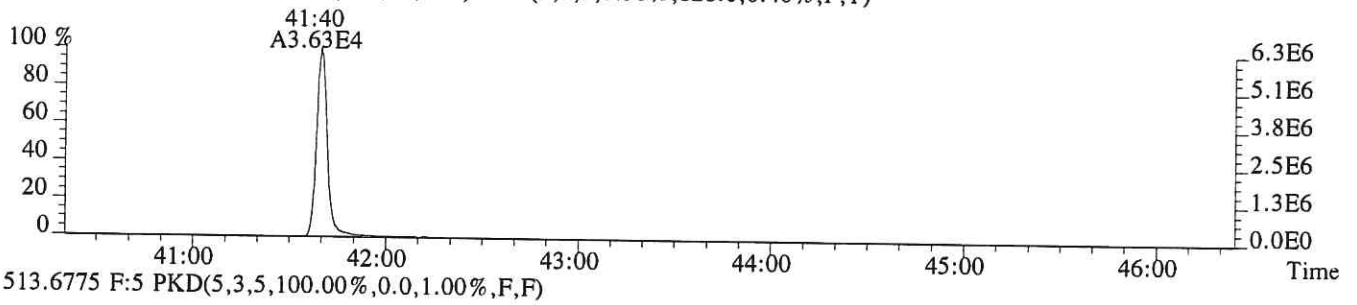
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)



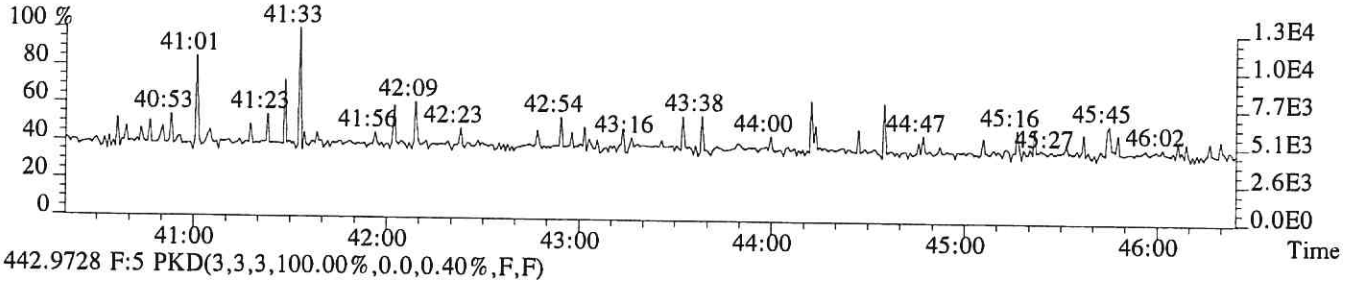
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



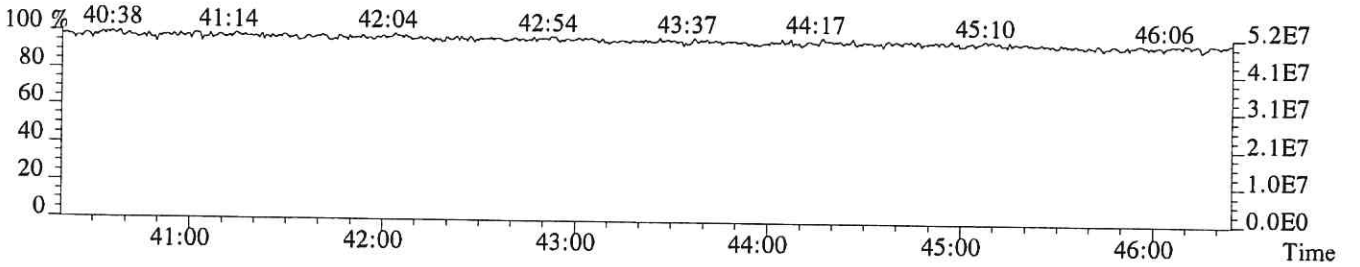
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

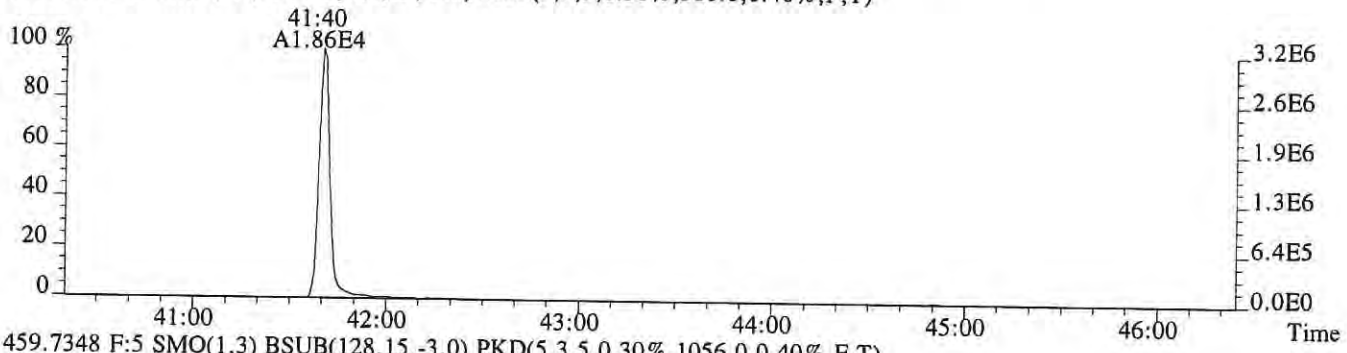


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

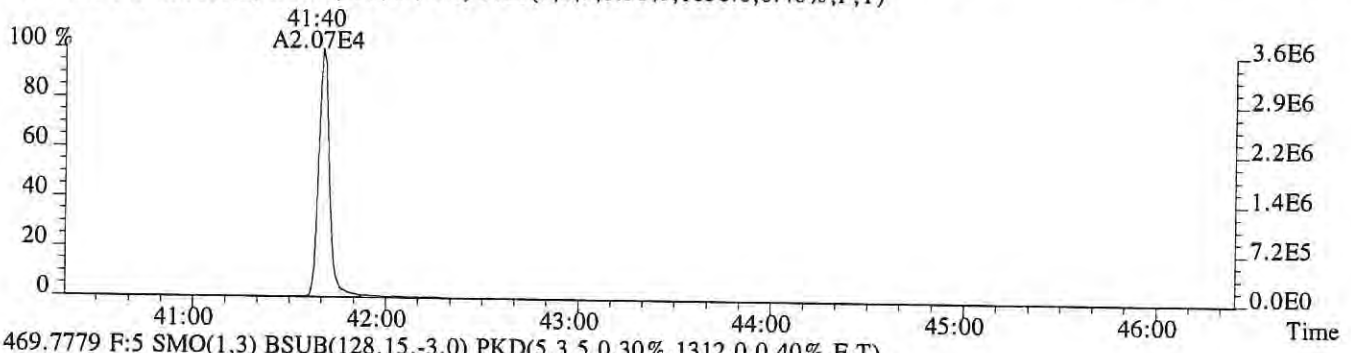


File:P616051 #1-547 Acq:11-DEC-2018 19:45:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

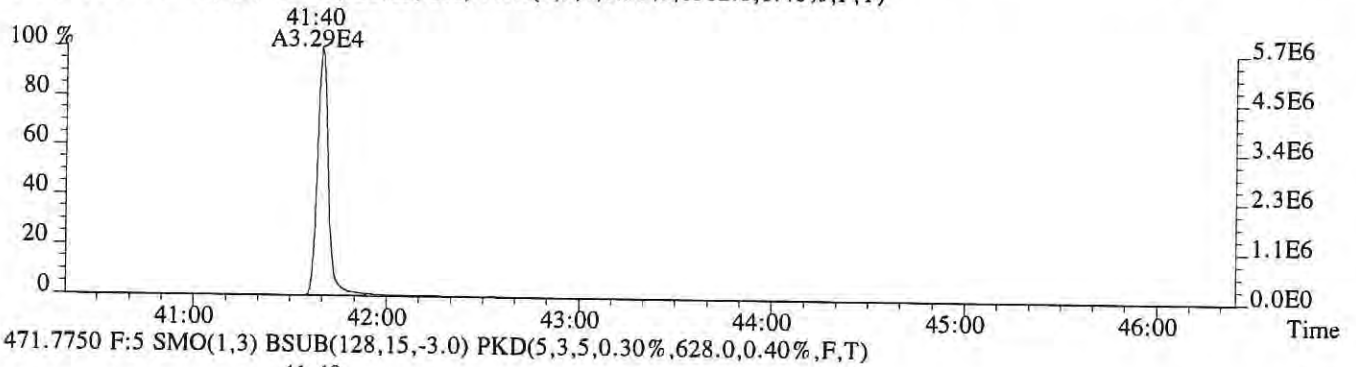
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,380.0,0.40%,F,T)



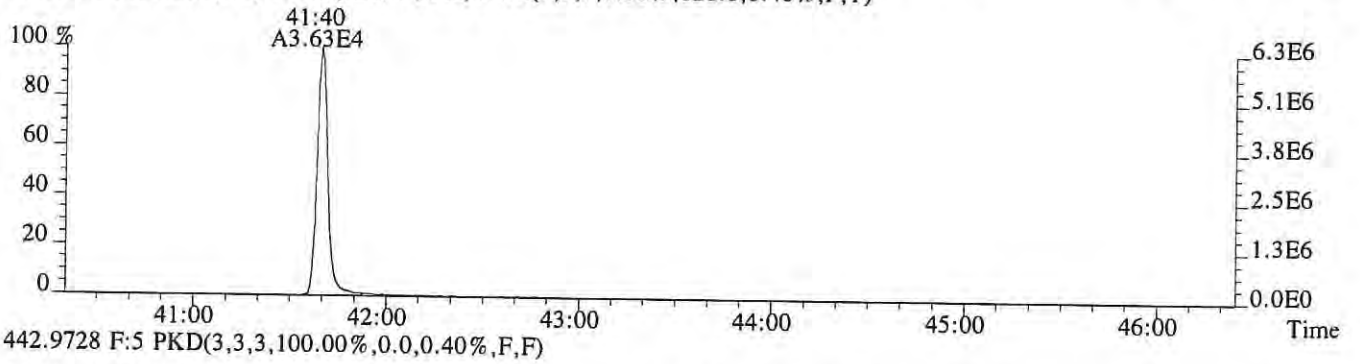
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



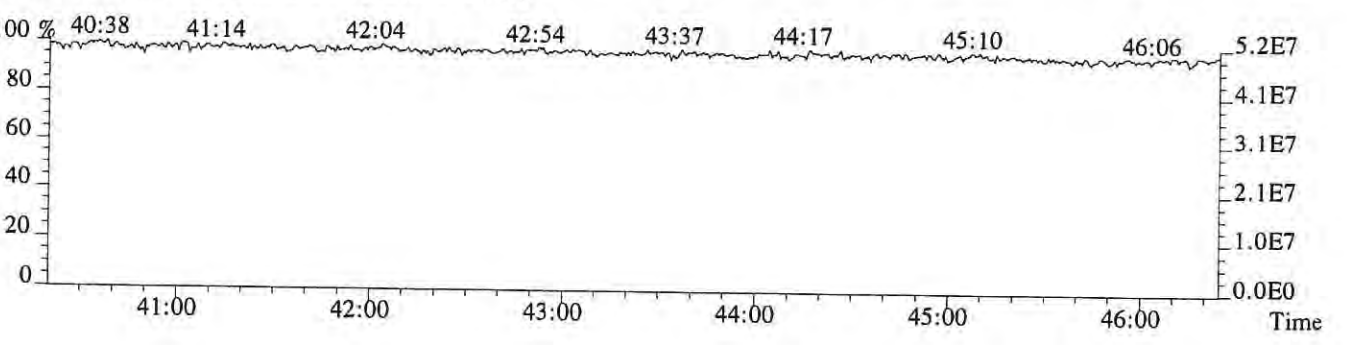
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

un #19 Filename P616052 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:34:15
rocessed: 12-DEC-18 16:11:44 Sample ID: EQ1800499-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:30	3.213e+03	3.891e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	2.960e+04	1.904e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:48	2.810e+04	1.842e+04	1.53	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:29	2.764e+04	2.202e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.077e+04	2.498e+04	1.23	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	2.646e+04	2.181e+04	1.21	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	2.461e+04	1.938e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:06	2.291e+04	2.287e+04	1.00	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	1.904e+04	1.874e+04	1.02	yes	no	1.463
0	Unk	OCDF	41:52	2.393e+04	2.585e+04	0.93	yes	no	1.571
1	Unk	2,3,7,8-TCDD	28:19	2.630e+03	3.565e+03	0.74	yes	no	1.049
2	Unk	1,2,3,7,8-PeCDD	33:05	2.244e+04	1.413e+04	1.59	yes	no	0.929
3	Unk	1,2,3,4,7,8-HxCDD	36:14	1.911e+04	1.545e+04	1.24	yes	no	1.071
4	Unk	1,2,3,6,7,8-HxCDD	36:20	2.081e+04	1.665e+04	1.25	yes	no	1.060
5	Unk	1,2,3,7,8,9-HxCDD	36:34	2.125e+04	1.670e+04	1.27	yes	no	1.145
6	Unk	1,2,3,4,6,7,8-HpCDD	39:00	1.562e+04	1.501e+04	1.04	yes	no	1.112
7	Unk	OCDD	41:40	1.837e+04	2.049e+04	0.90	yes	no	1.157
8	IS	13C-2,3,7,8-TCDF	27:28	3.525e+04	4.407e+04	0.80	yes	no	1.417
9	IS	13C-1,2,3,7,8-PeCDF	31:50	6.336e+04	4.040e+04	1.57	yes	no	1.596
0	IS	13C-2,3,4,7,8-PeCDF	32:47	5.895e+04	3.601e+04	1.64	yes	no	1.571
1	IS	13C-1,2,3,4,7,8-HxCDF	35:28	2.759e+04	5.309e+04	0.52	yes	no	1.160
2	IS	13C-1,2,3,6,7,8-HxCDF	35:35	3.241e+04	6.190e+04	0.52	yes	no	1.336
3	IS	13C-2,3,4,6,7,8-HxCDF	36:06	2.893e+04	5.397e+04	0.54	yes	no	1.250
4	IS	13C-1,2,3,7,8,9-HxCDF	36:52	2.519e+04	4.985e+04	0.51	yes	no	1.131
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:05	2.073e+04	4.584e+04	0.45	yes	no	1.029
6	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	1.764e+04	3.964e+04	0.45	yes	no	0.907
7	IS	13C-2,3,7,8-TCDD	28:17	1.841e+04	2.415e+04	0.76	yes	no	0.983
8	IS	13C-1,2,3,7,8-PeCDD	33:04	4.723e+04	3.069e+04	1.54	yes	no	1.125
9	IS	13C-1,2,3,4,7,8-HxCDD	36:14	3.967e+04	3.187e+04	1.24	yes	no	0.903
0	IS	13C-1,2,3,6,7,8-HxCDD	36:19	4.018e+04	3.179e+04	1.26	yes	no	0.903
1	IS	13C-1,2,3,4,6,7,8-HpCDD	38:59	3.986e+04	3.773e+04	1.06	yes	no	0.857
2	IS	13C-OCDD	41:40	3.220e+04	3.629e+04	0.89	yes	no	0.659
3	RS/RT	13C-1,2,3,4-TCDD	27:40	4.523e+04	5.761e+04	0.79	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:33	5.878e+04	4.730e+04	1.24	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:19	2.634e+04				no	1.086

$$\text{OCDD} = \frac{(1.837e+04 + 2.049e+04) \times 4000\ \text{pg} \times 1}{(3.220e+04 + 3.629e+04) \times \quad \text{g} \times \quad / 100 \times 1.157} =$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

un #19 Filename P616052 Samp: 1 Inj: 1 Acquired: 11-DEC-18 20:34:15
rocessed: 12-DEC-18 16:11:44 LAB. ID: EQ1800499-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	4.98e+05	1.91e+03	2.6e+02	6.00e+05	3.12e+03	1.9e+02
	1,2,3,7,8-PeCDF	5.27e+06	9.88e+02	5.3e+03	3.37e+06	4.39e+03	7.7e+02
	2,3,4,7,8-PeCDF	5.19e+06	9.88e+02	5.2e+03	3.37e+06	4.39e+03	7.7e+02
	1,2,3,4,7,8-HxCDF	5.98e+06	6.64e+02	9.0e+03	4.74e+06	1.30e+03	3.7e+03
	1,2,3,6,7,8-HxCDF	5.99e+06	6.64e+02	9.0e+03	4.90e+06	1.30e+03	3.8e+03
	2,3,4,6,7,8-HxCDF	5.39e+06	6.64e+02	8.1e+03	4.36e+06	1.30e+03	3.4e+03
	1,2,3,7,8,9-HxCDF	4.63e+06	6.64e+02	7.0e+03	3.74e+06	1.30e+03	2.9e+03
	1,2,3,4,6,7,8-HpCDF	4.69e+06	1.85e+03	2.5e+03	4.74e+06	1.85e+03	2.6e+03
	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.85e+03	1.9e+03	3.32e+06	1.85e+03	1.8e+03
.0	OCDF	4.07e+06	9.04e+02	4.5e+03	4.38e+06	1.94e+03	2.3e+03
.1	2,3,7,8-TCDD	4.62e+05	3.86e+03	1.2e+02	6.13e+05	2.40e+03	2.6e+02
.2	1,2,3,7,8-PeCDD	4.09e+06	2.00e+03	2.0e+03	2.57e+06	9.12e+02	2.8e+03
.3	1,2,3,4,7,8-HxCDD	4.28e+06	7.12e+02	6.0e+03	3.41e+06	9.88e+02	3.5e+03
.4	1,2,3,6,7,8-HxCDD	4.28e+06	7.12e+02	6.0e+03	3.36e+06	9.88e+02	3.4e+03
.5	1,2,3,7,8,9-HxCDD	4.20e+06	7.12e+02	5.9e+03	3.33e+06	9.88e+02	3.4e+03
.6	1,2,3,4,6,7,8-HpCDD	3.05e+06	5.44e+02	5.6e+03	2.95e+06	6.72e+02	4.4e+03
.7	OCDD	3.26e+06	3.92e+02	8.3e+03	3.55e+06	6.24e+02	5.7e+03
18	13C-2,3,7,8-TCDF	5.50e+06	9.40e+03	5.8e+02	6.79e+06	6.86e+03	9.9e+02
19	13C-1,2,3,7,8-PeCDF	1.13e+07	1.12e+03	1.0e+04	7.17e+06	1.19e+03	6.0e+03
20	13C-2,3,4,7,8-PeCDF	1.05e+07	1.12e+03	9.4e+03	6.46e+06	1.19e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	5.82e+06	1.37e+03	4.2e+03	1.15e+07	2.30e+03	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	6.36e+06	1.37e+03	4.6e+03	1.23e+07	2.30e+03	5.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.63e+06	1.37e+03	4.1e+03	1.07e+07	2.30e+03	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	4.81e+06	1.37e+03	3.5e+03	9.38e+06	2.30e+03	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.27e+06	2.47e+03	1.7e+03	9.45e+06	6.68e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.22e+06	2.47e+03	1.3e+03	7.09e+06	6.68e+03	1.1e+03
27	13C-2,3,7,8-TCDD	3.08e+06	1.85e+04	1.7e+02	4.05e+06	5.16e+03	7.8e+02
28	13C-1,2,3,7,8-PeCDD	8.36e+06	2.00e+03	4.2e+03	5.35e+06	1.80e+03	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	8.86e+06	2.53e+03	3.5e+03	7.13e+06	1.50e+03	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	8.20e+06	2.53e+03	3.2e+03	6.40e+06	1.50e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.89e+06	8.52e+02	9.3e+03	7.48e+06	9.56e+02	7.8e+03
32	13C-OCDD	5.59e+06	1.28e+03	4.4e+03	6.29e+06	6.32e+02	9.9e+03
33	13C-1,2,3,4-TCDD	7.67e+06	1.85e+04	4.1e+02	9.73e+06	5.16e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.19e+07	2.53e+03	4.7e+03	9.40e+06	1.50e+03	6.3e+03
35	37Cl-2,3,7,8-TCDD	4.52e+06	3.52e+03	1.3e+03			

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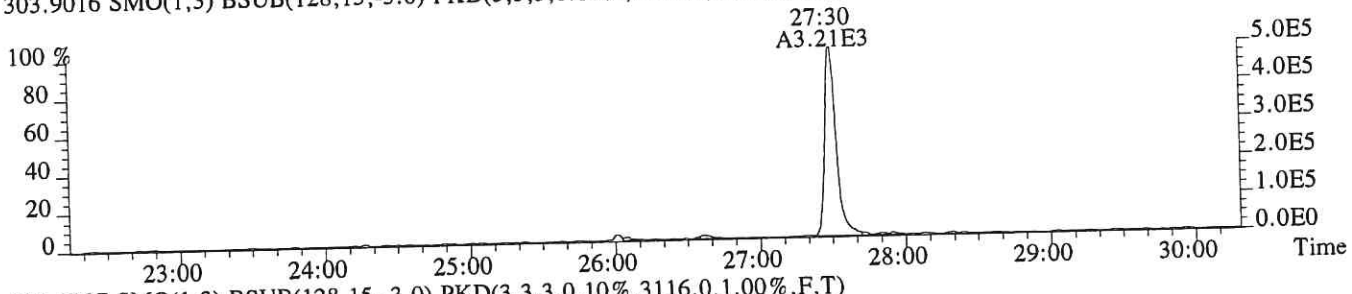
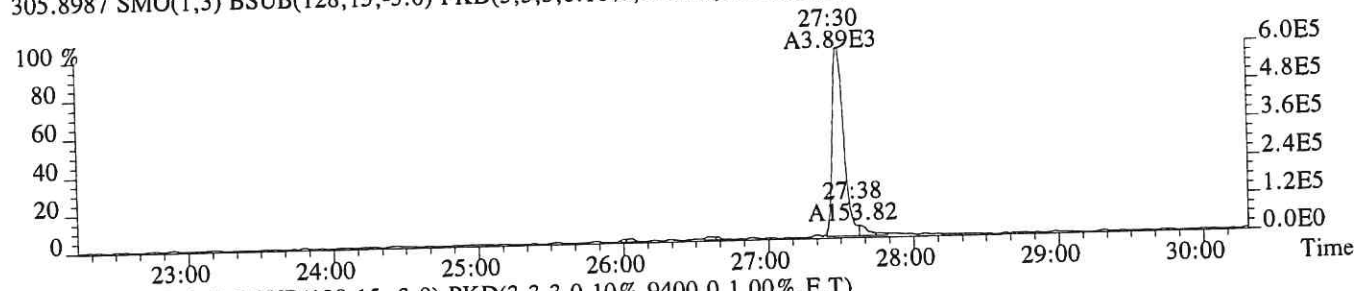
File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:DLCS

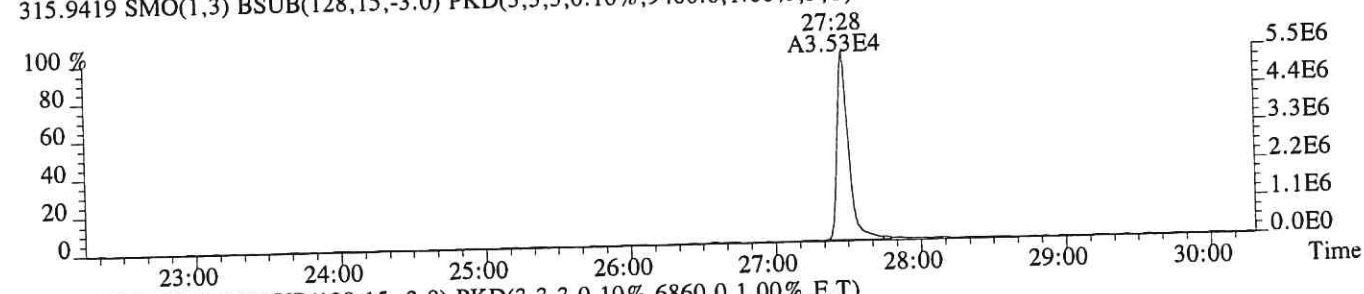
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



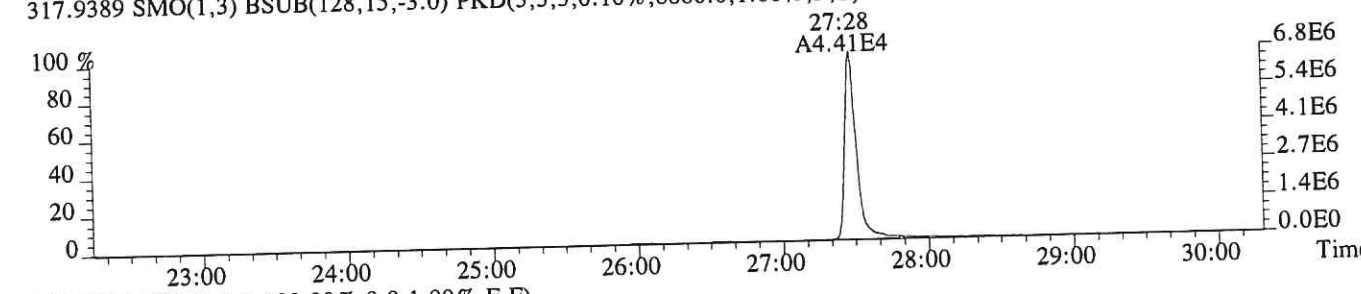
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3116.0,1.00%,F,T)



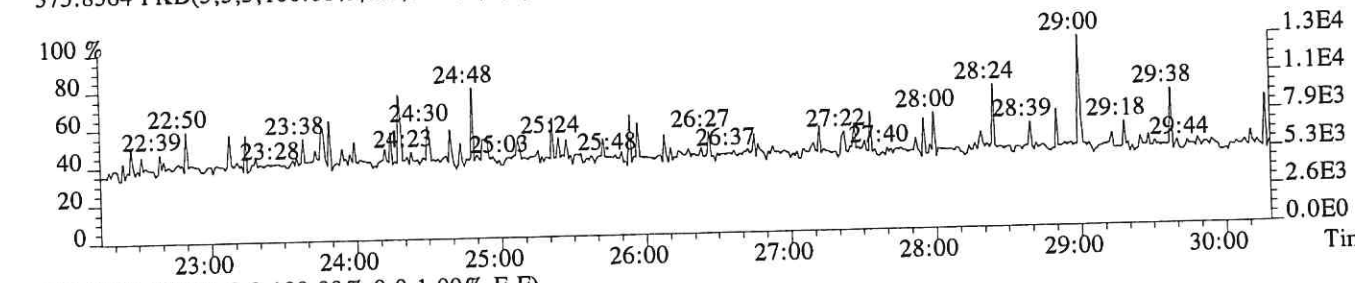
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9400.0,1.00%,F,T)



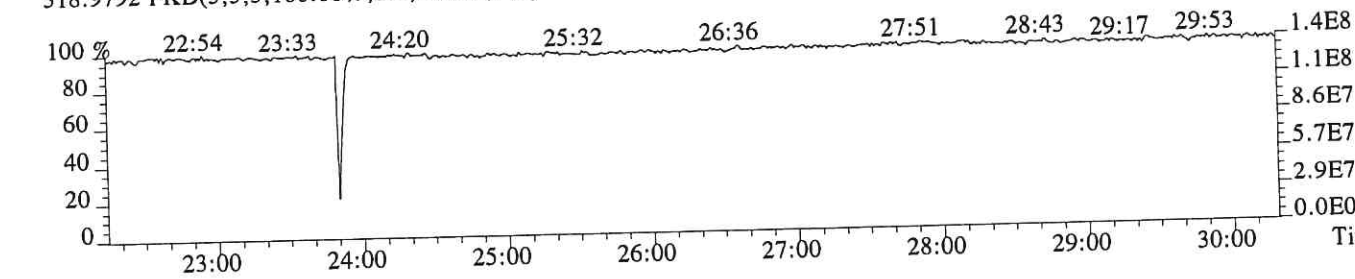
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6860.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

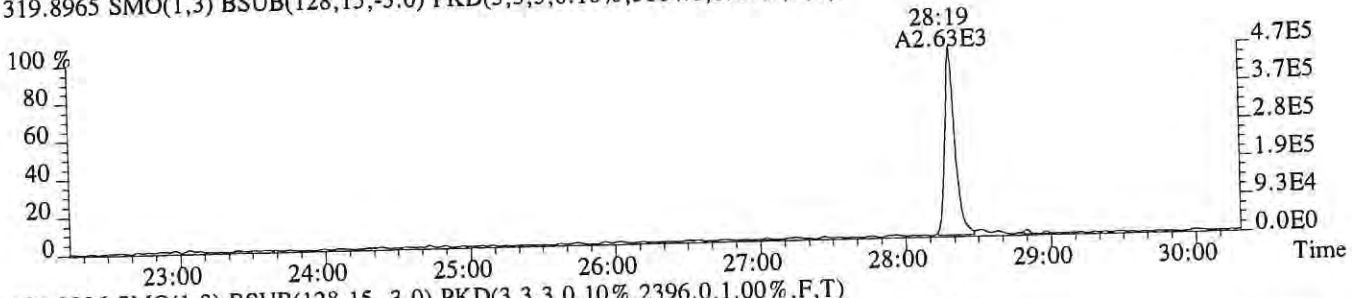


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

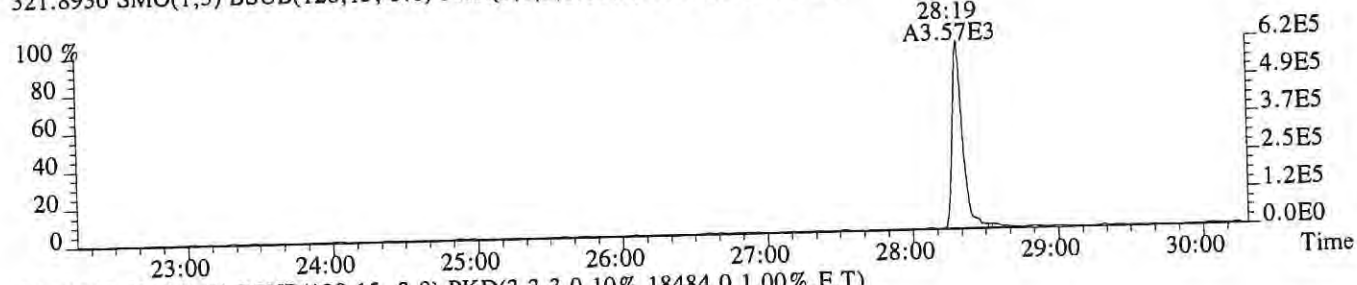


File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

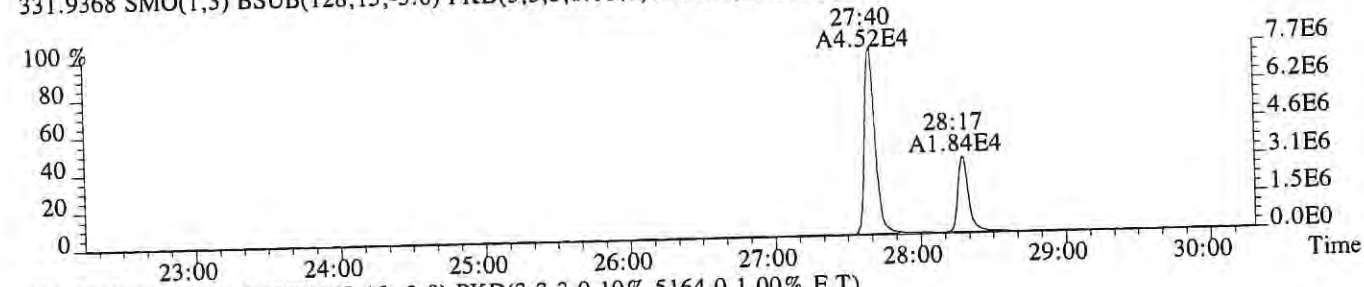
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3864.0,1.00%,F,T)



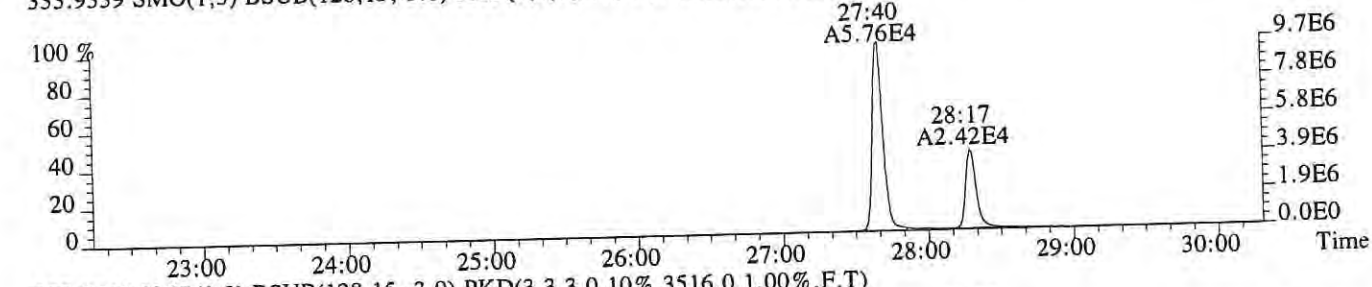
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)



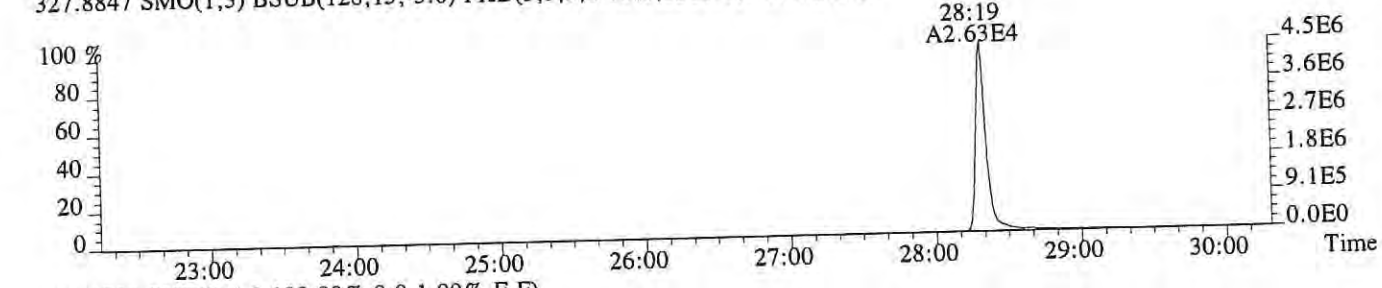
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18484.0,1.00%,F,T)



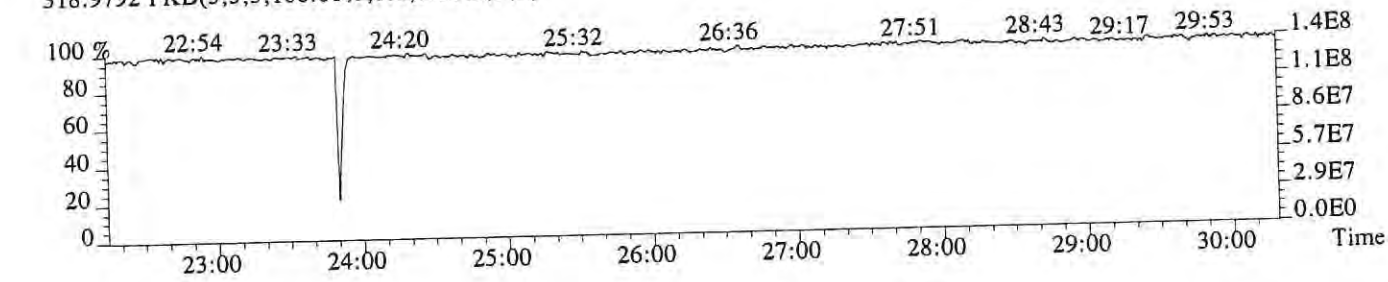
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5164.0,1.00%,F,T)



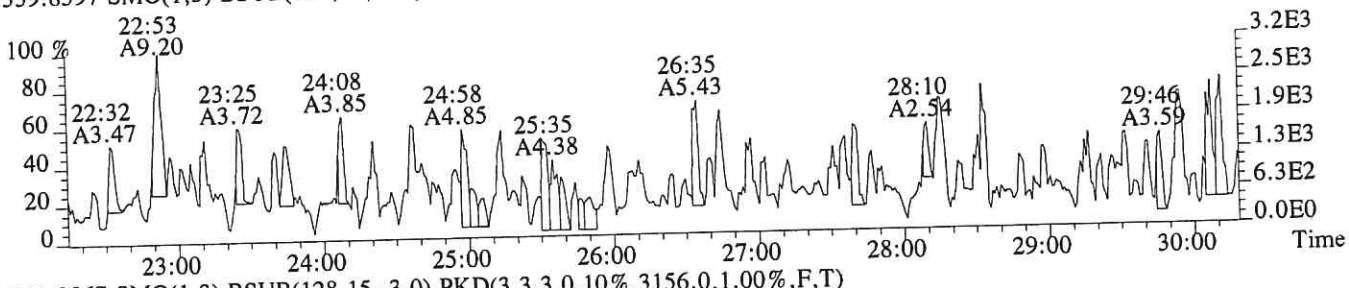
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3516.0,1.00%,F,T)



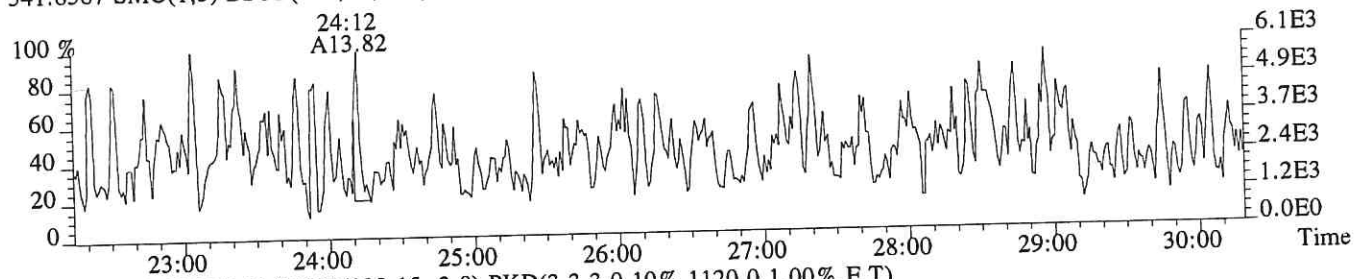
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



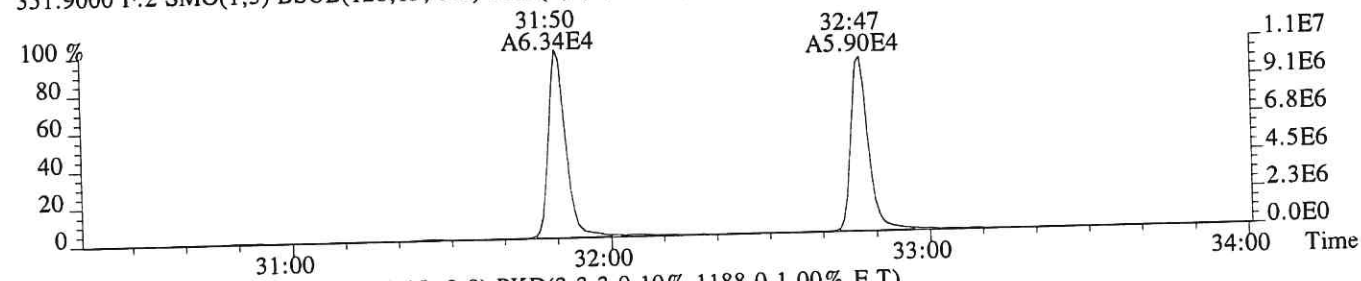
File:P616052 #1-573 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



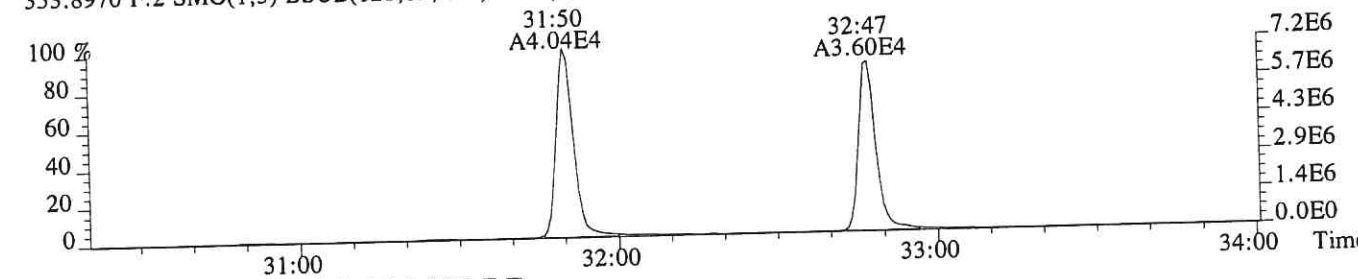
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3156.0,1.00%,F,T)



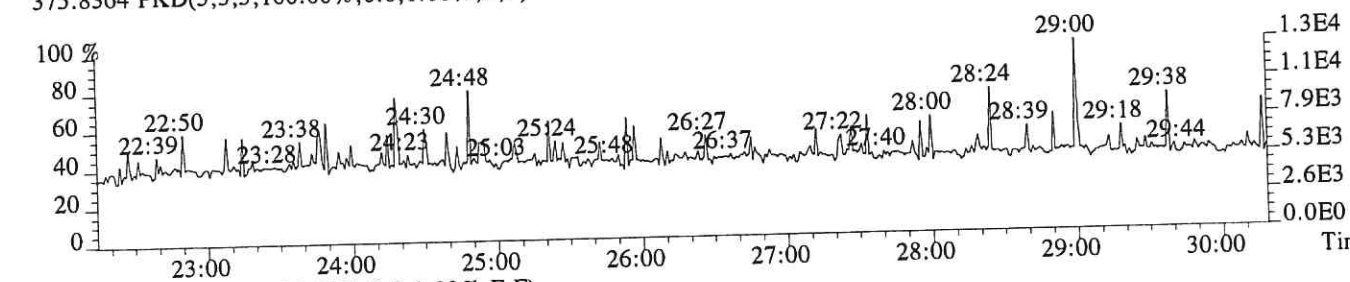
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



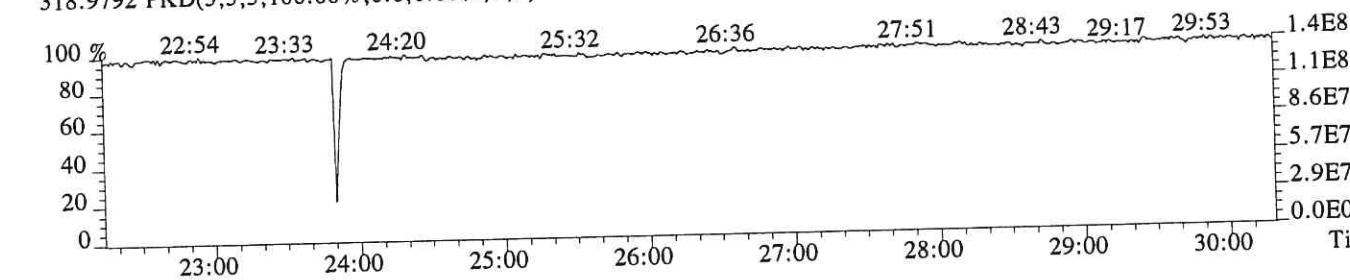
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

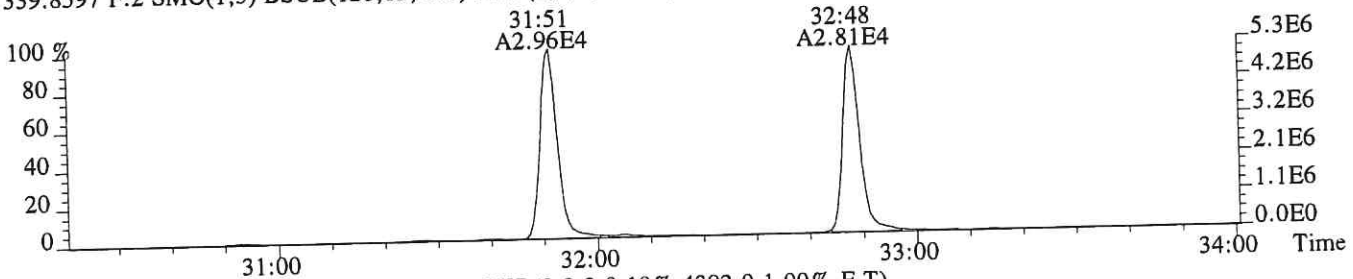


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

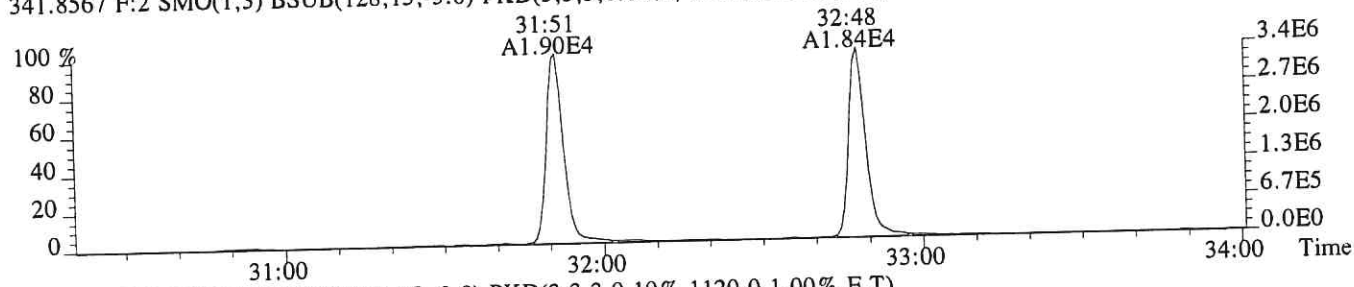


File:P616052 #1-331 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

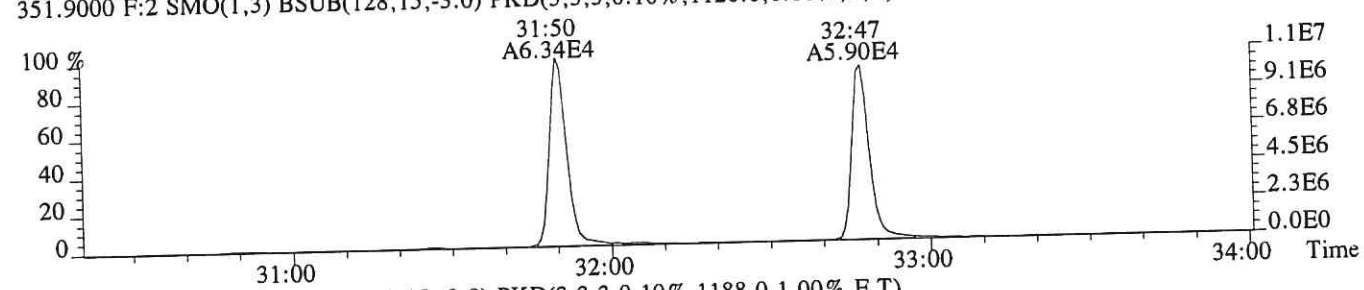
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



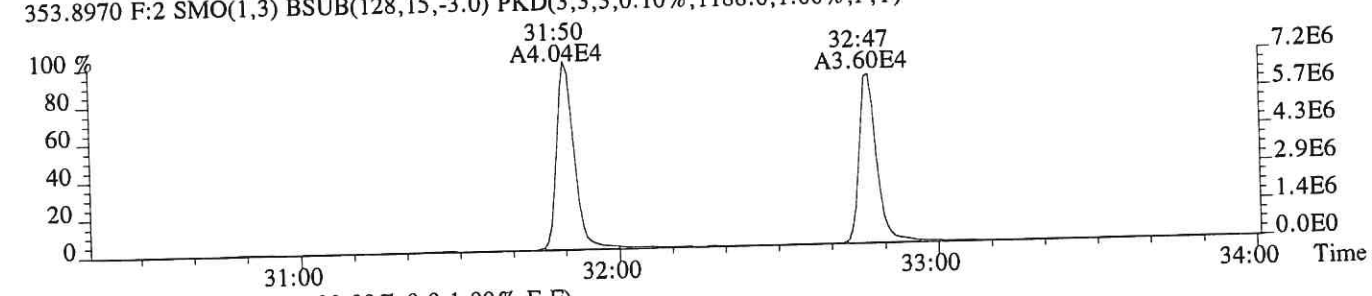
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



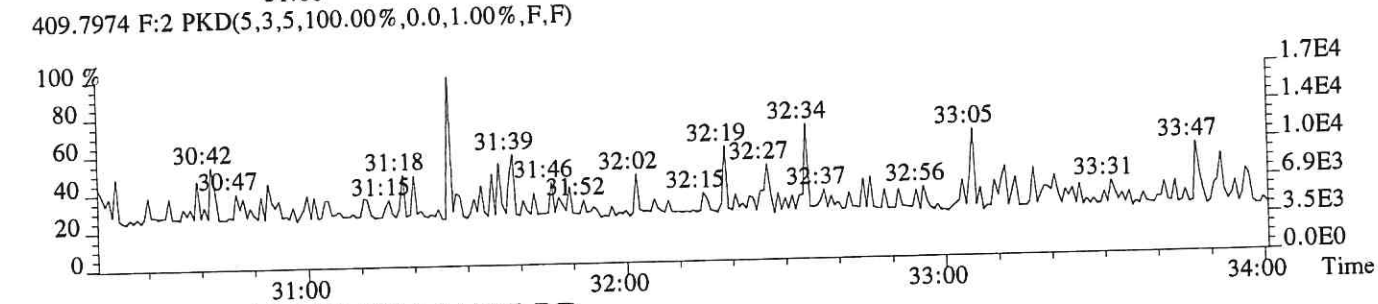
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



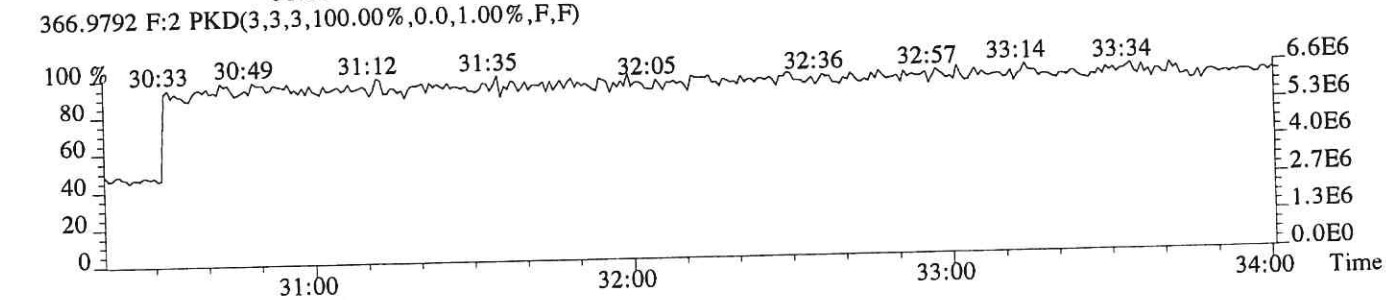
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

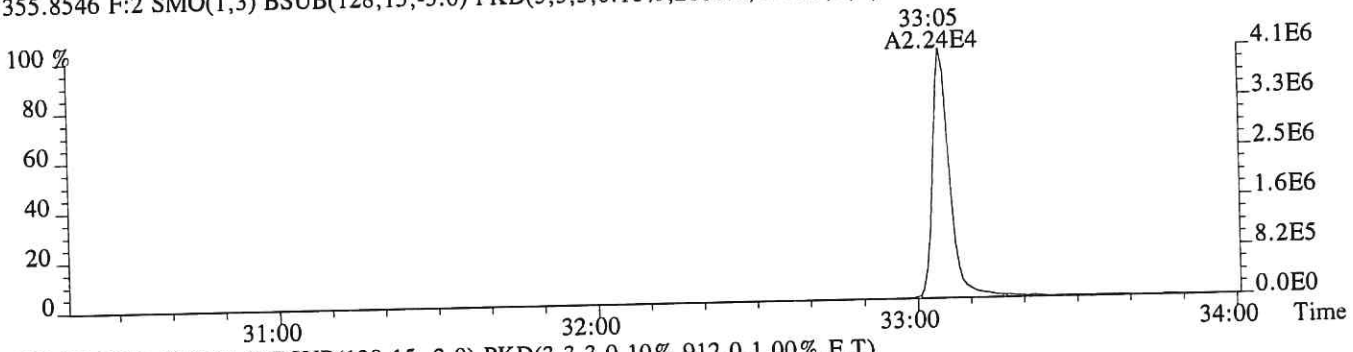


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

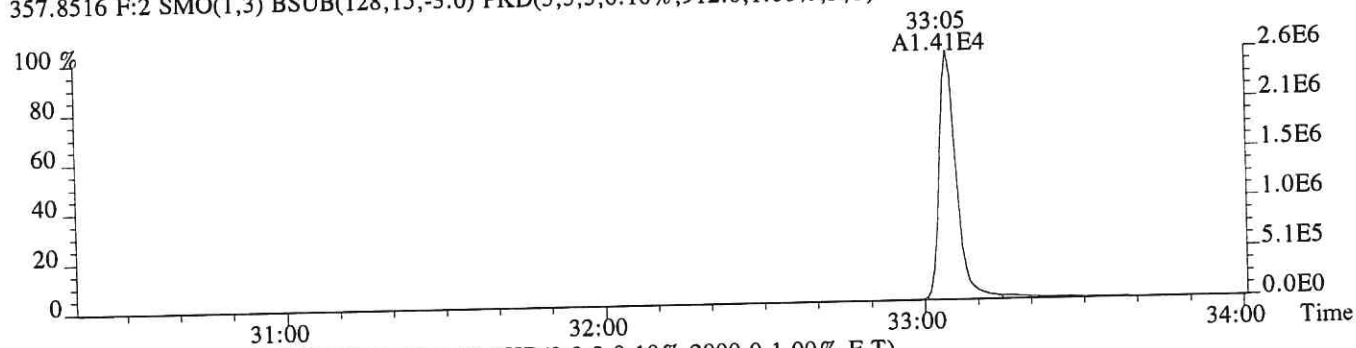


File:P616052 #1-331 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

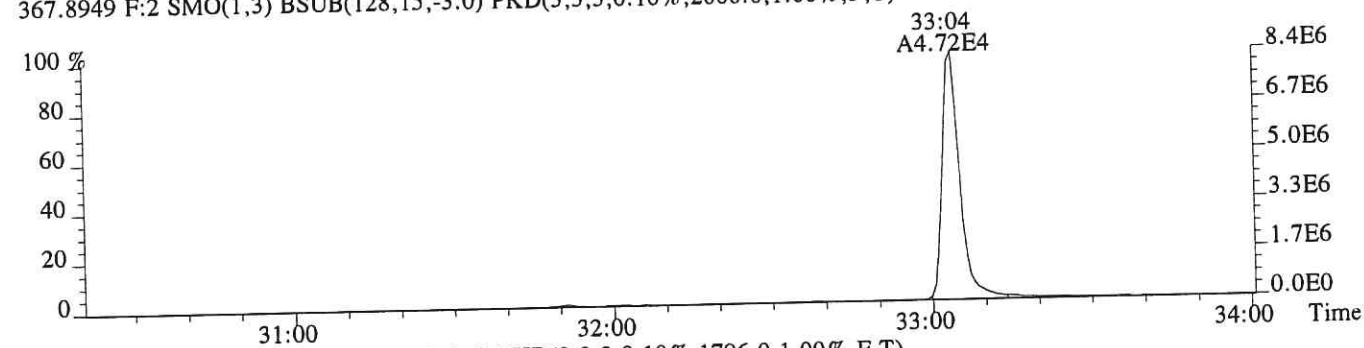
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



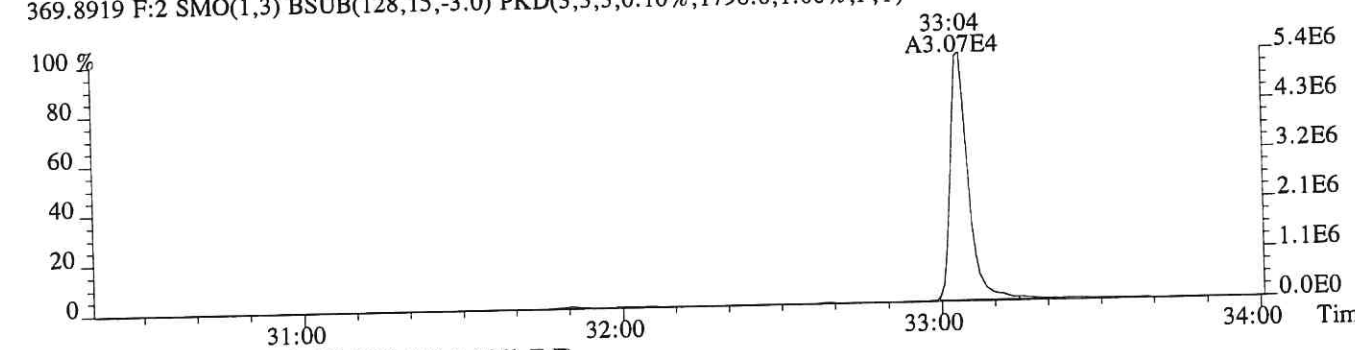
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



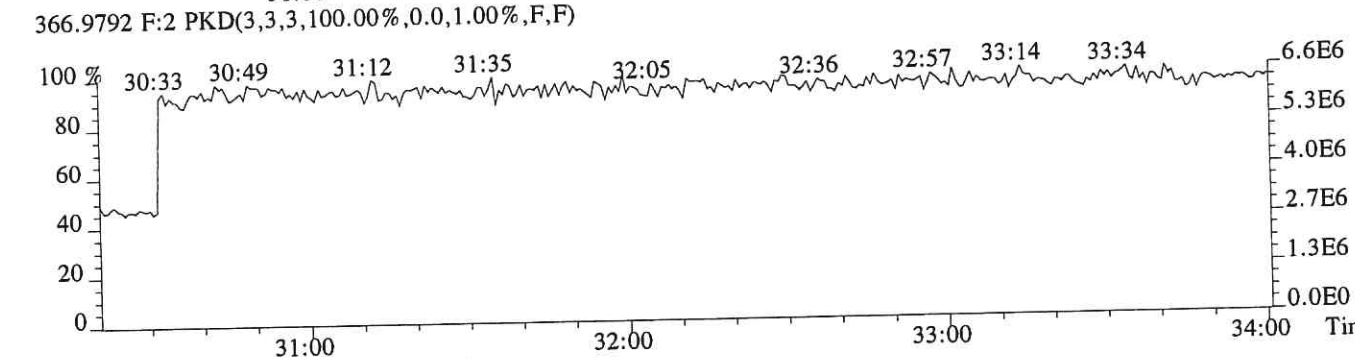
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)

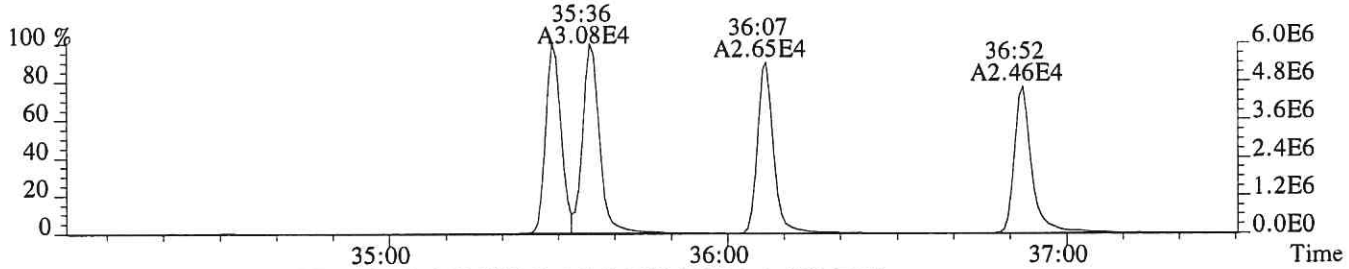


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

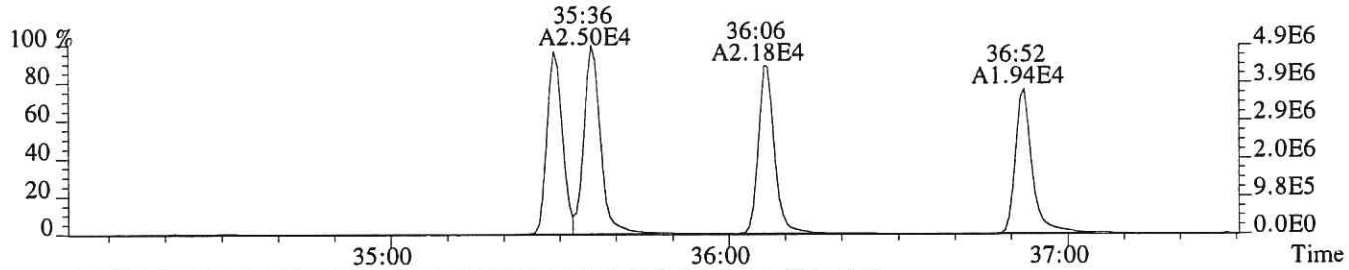


File:P616052 #1-312 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

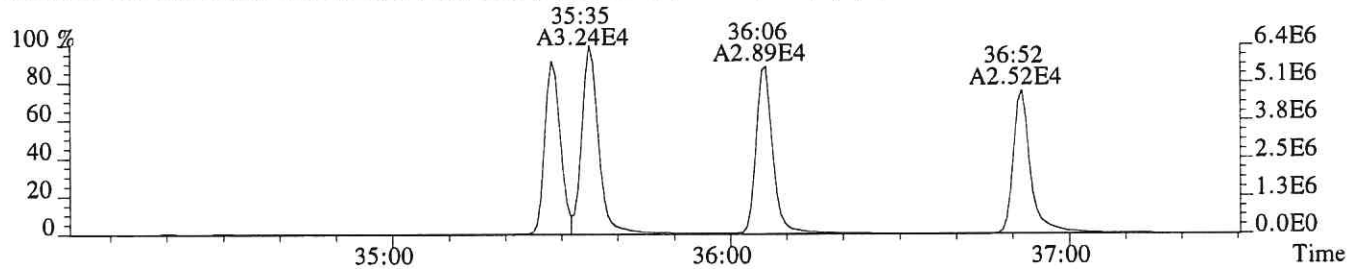
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



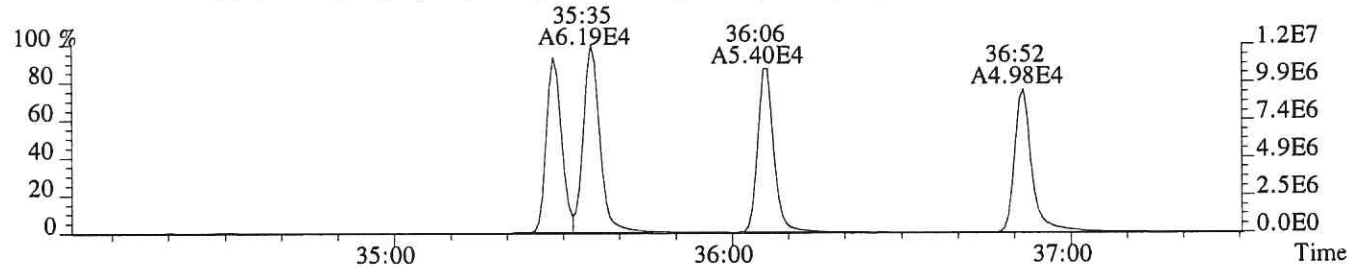
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



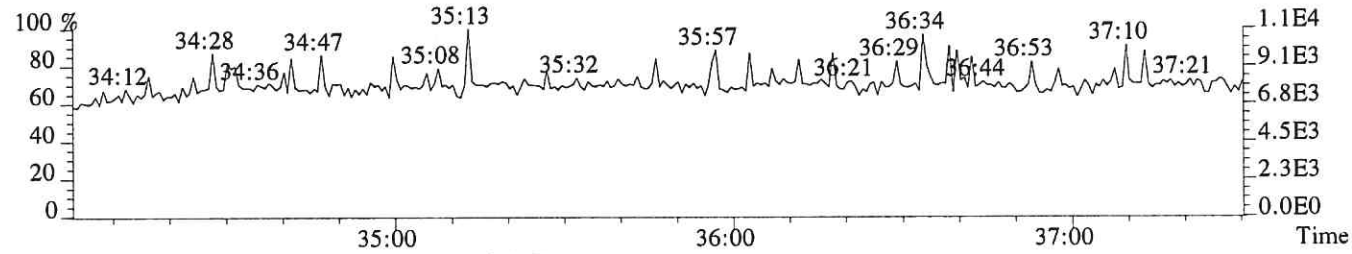
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



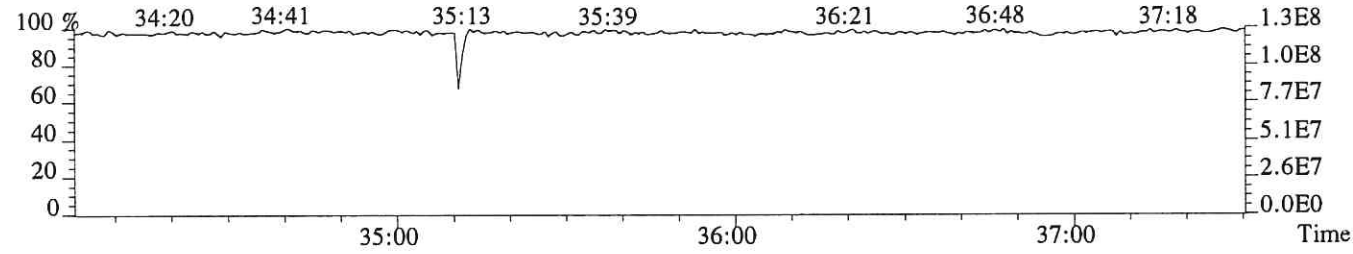
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

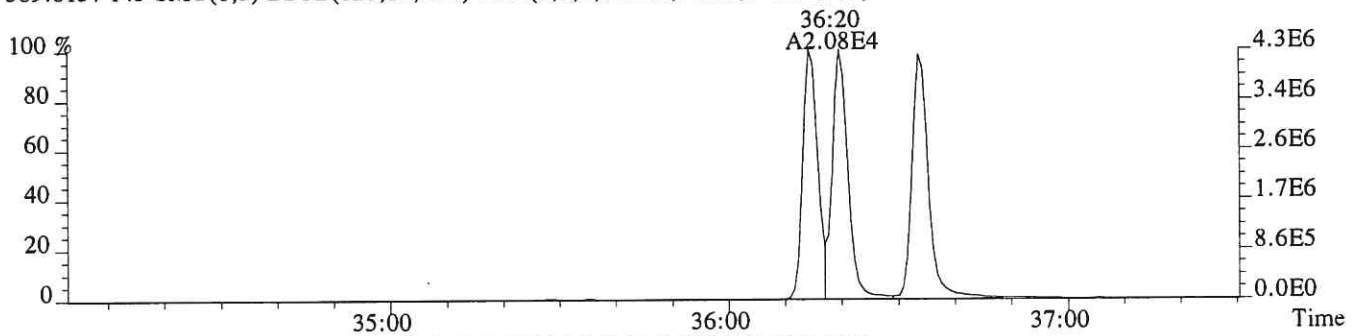


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

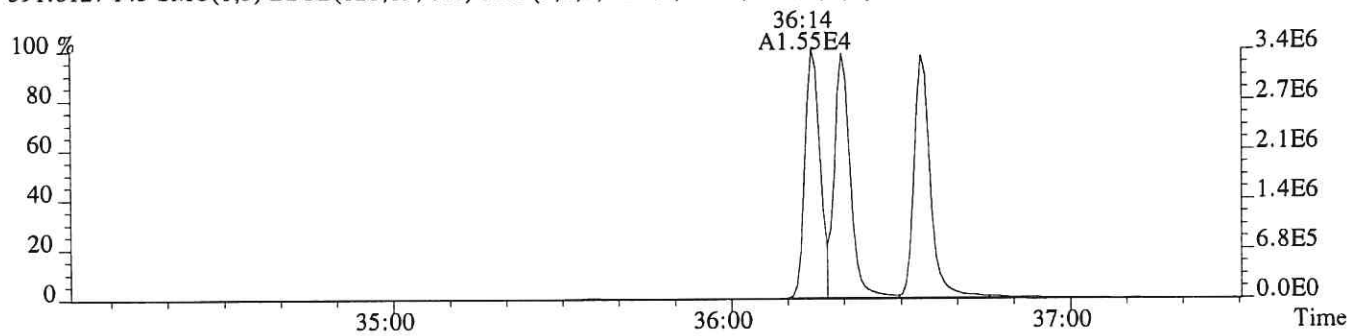


File:P616052 #1-312 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

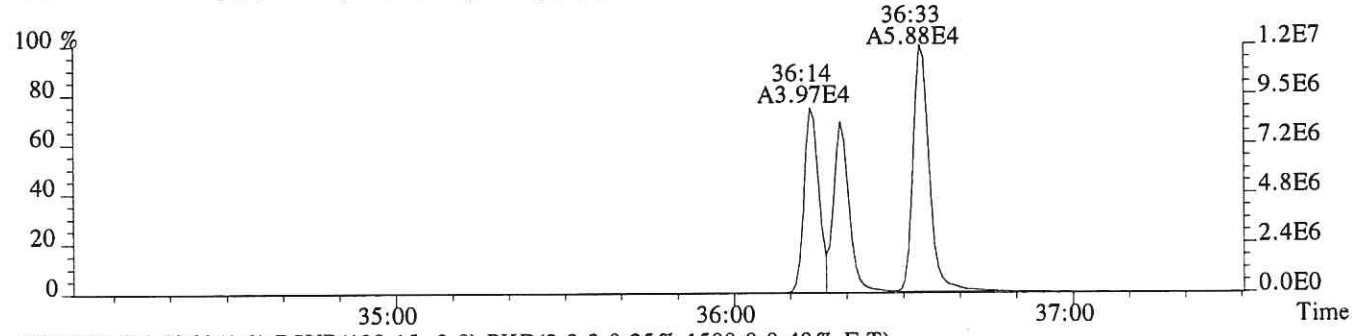
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



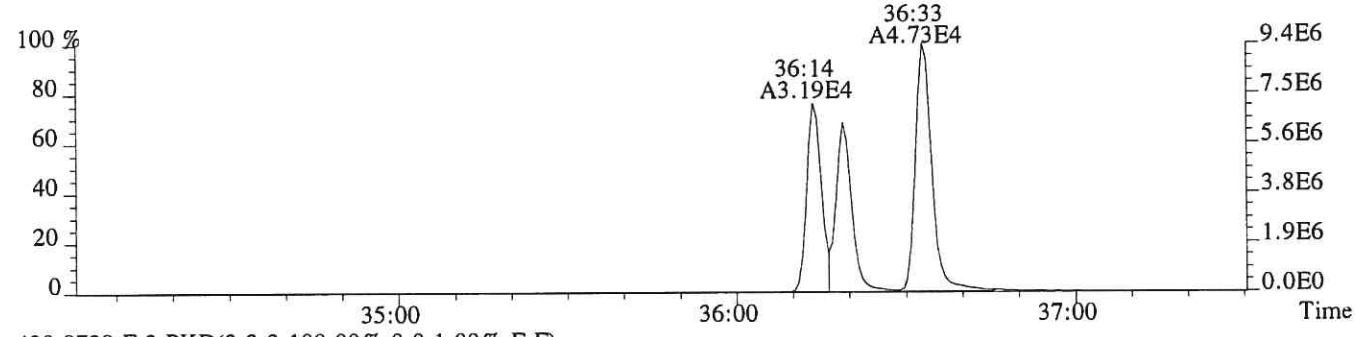
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



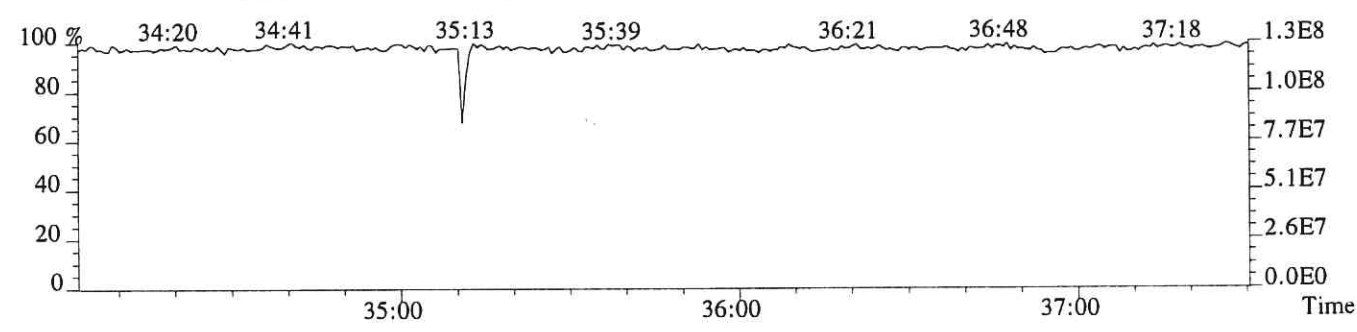
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2532.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)

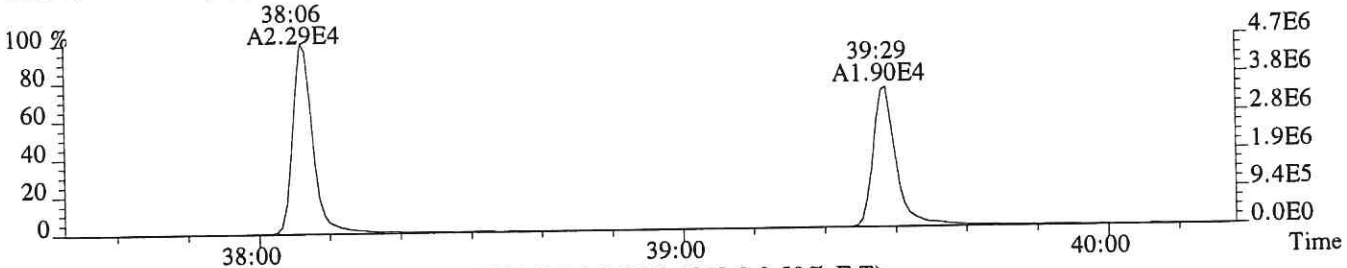


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

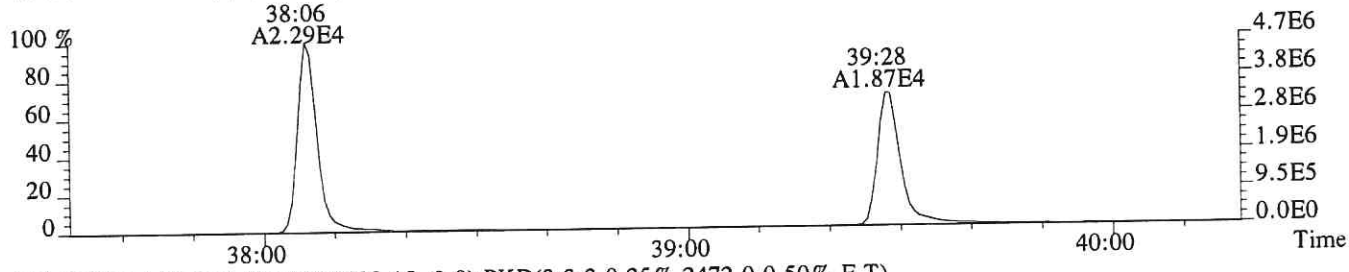


File:P616052 #1-249 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

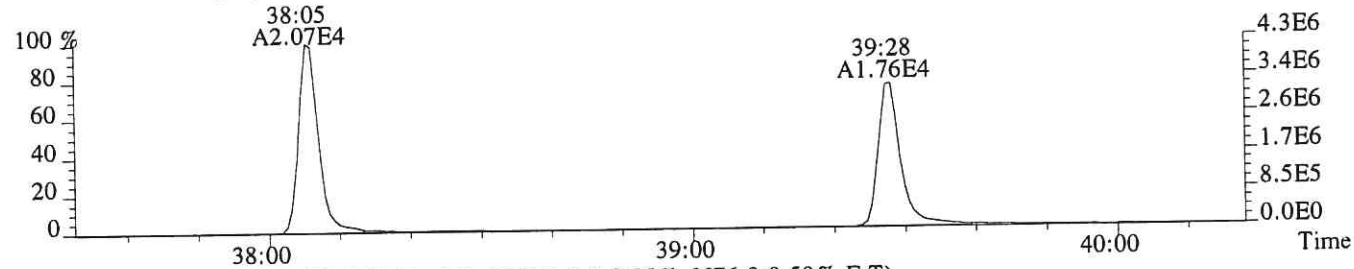
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.50%,F,T)



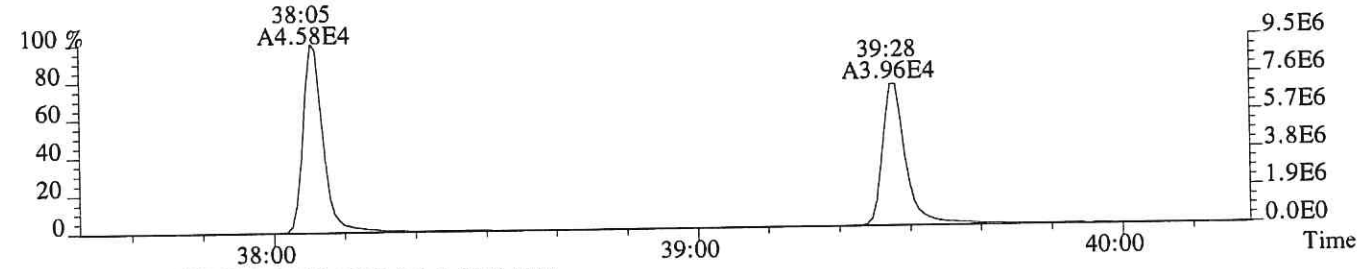
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.50%,F,T)



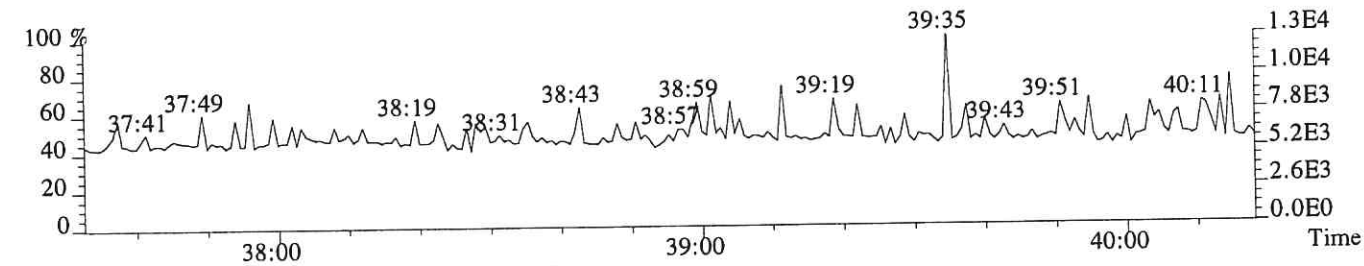
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2472.0,0.50%,F,T)



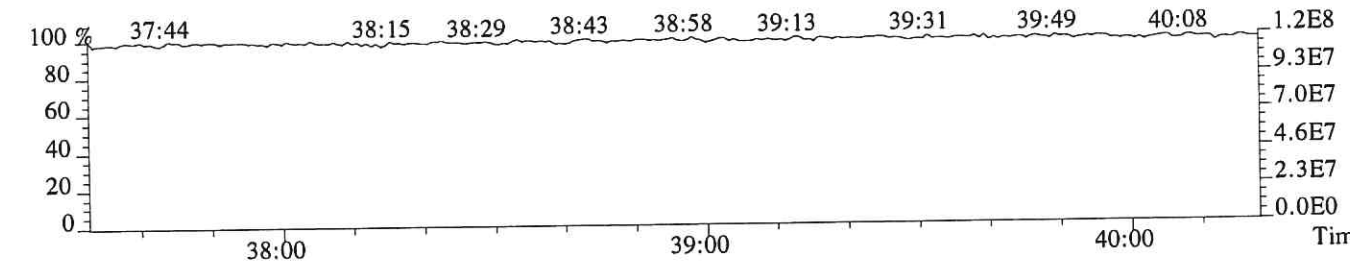
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6676.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

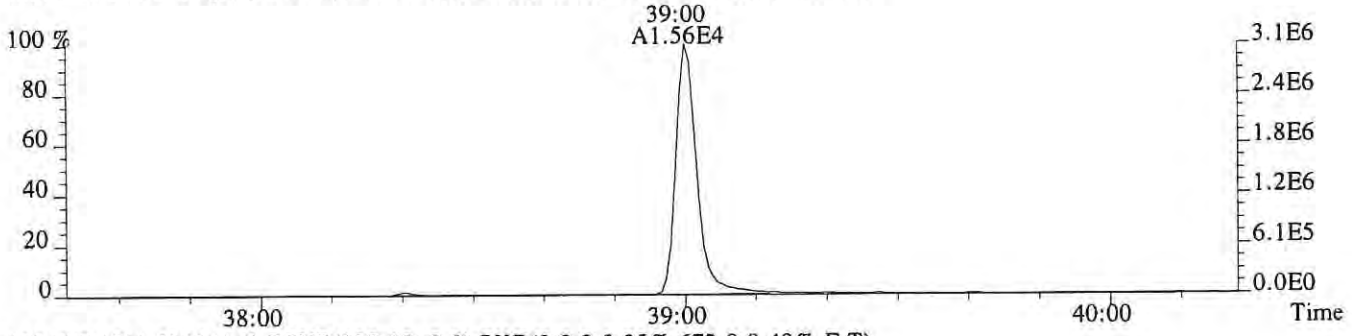


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

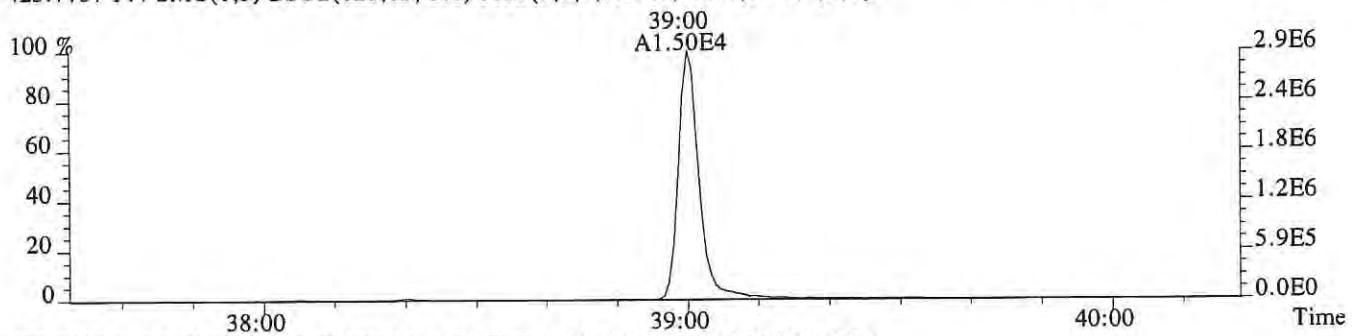


File:P616052 #1-249 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

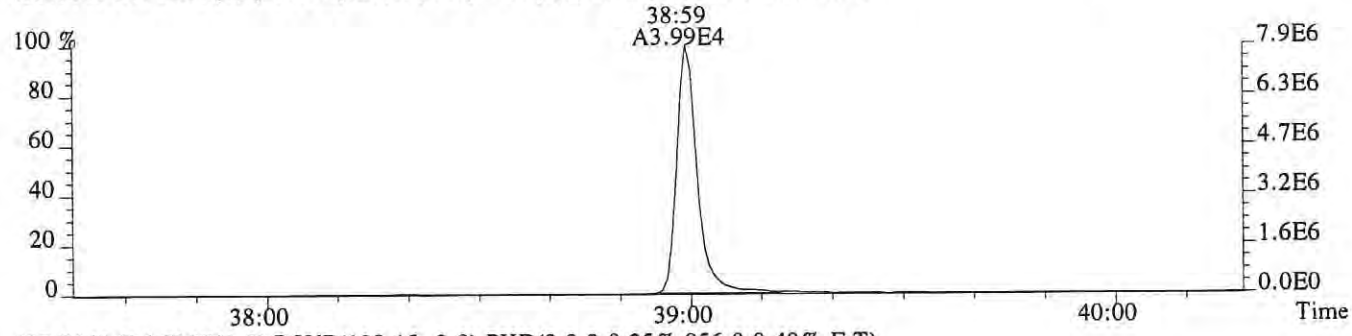
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



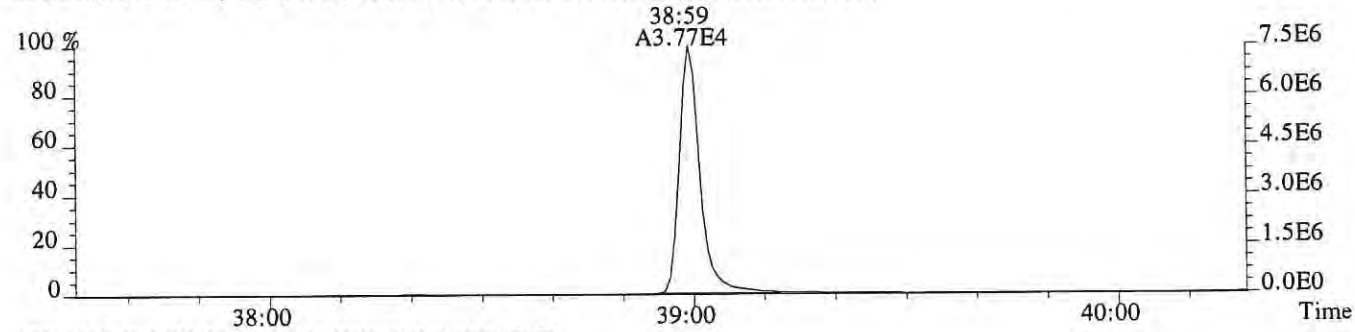
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



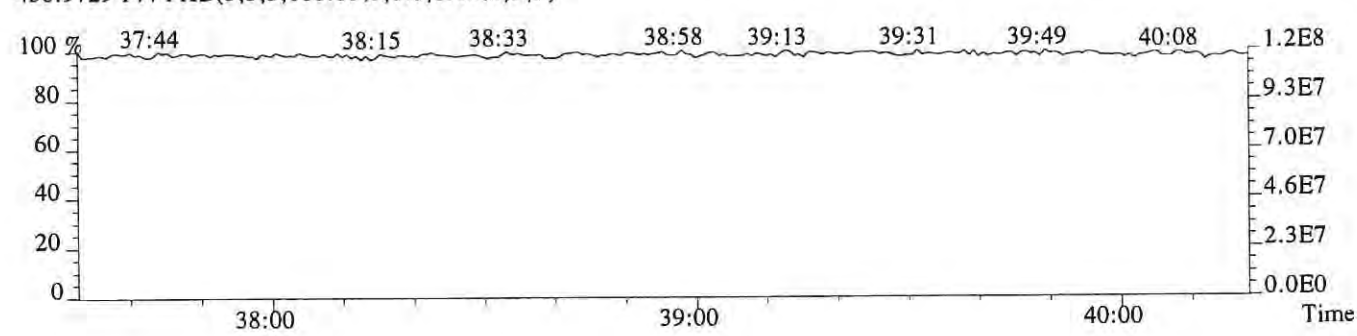
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



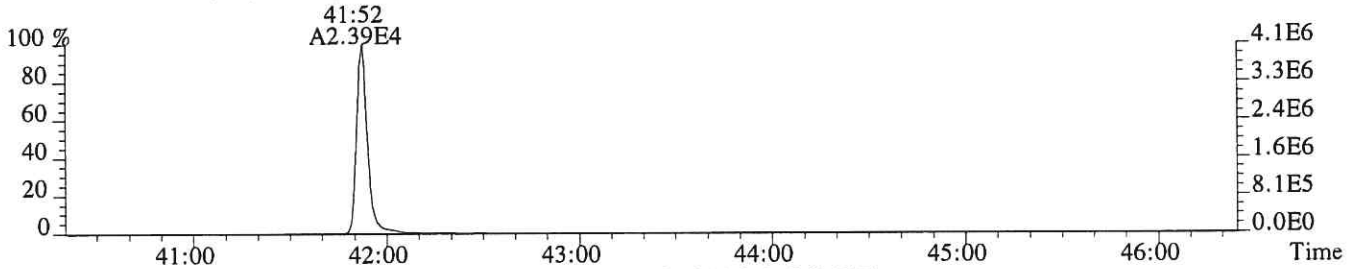
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



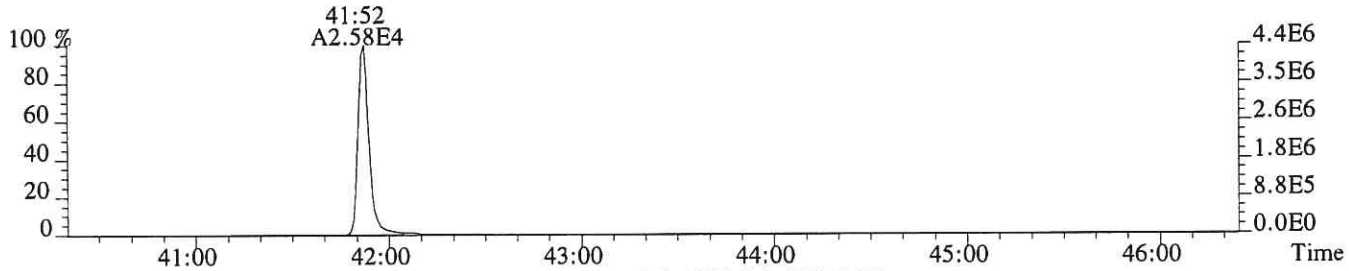
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



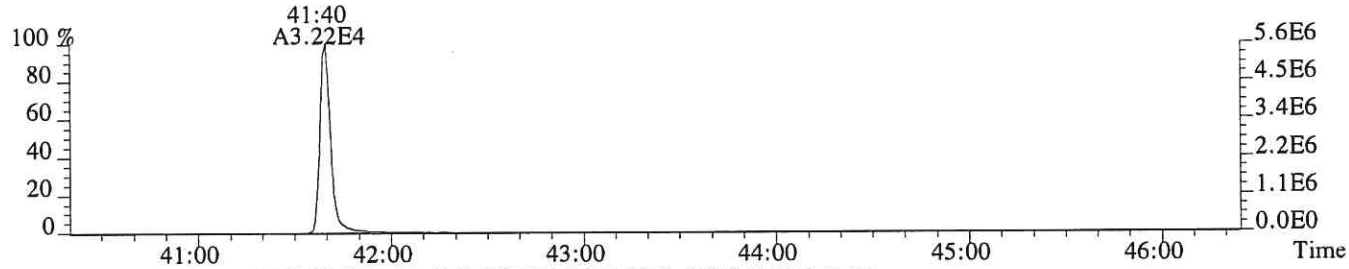
File:P616052 #1-547 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,904.0,0.40%,F,T)



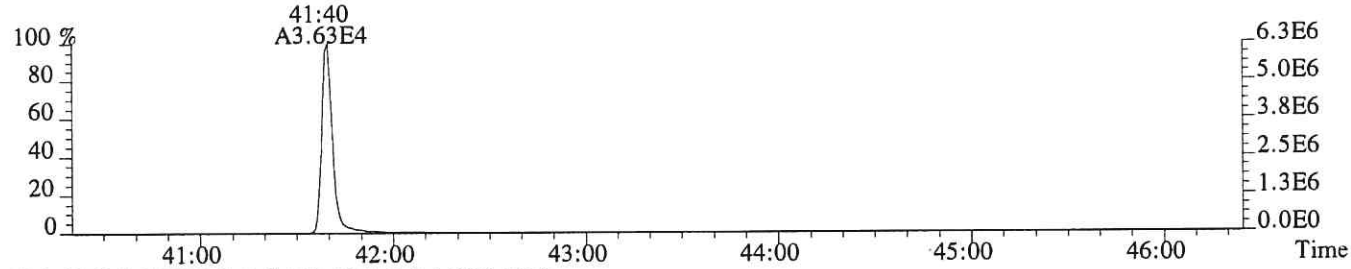
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1944.0,0.40%,F,T)



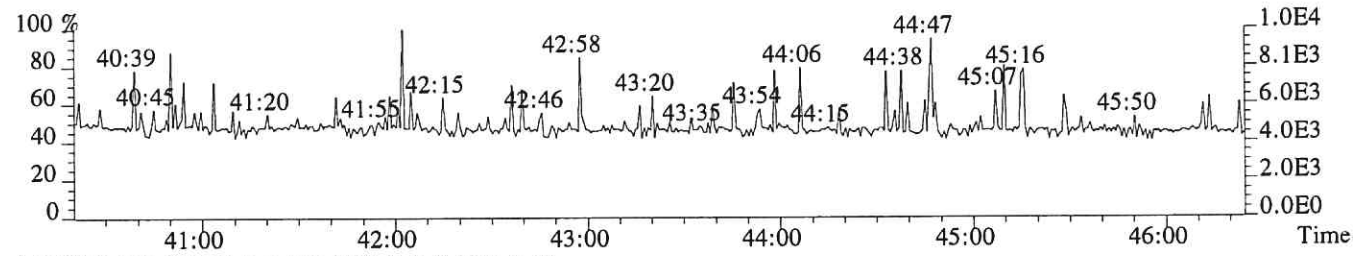
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



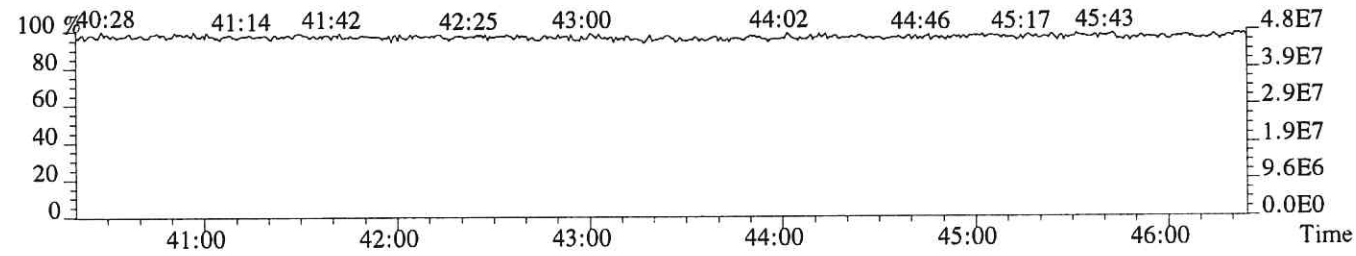
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



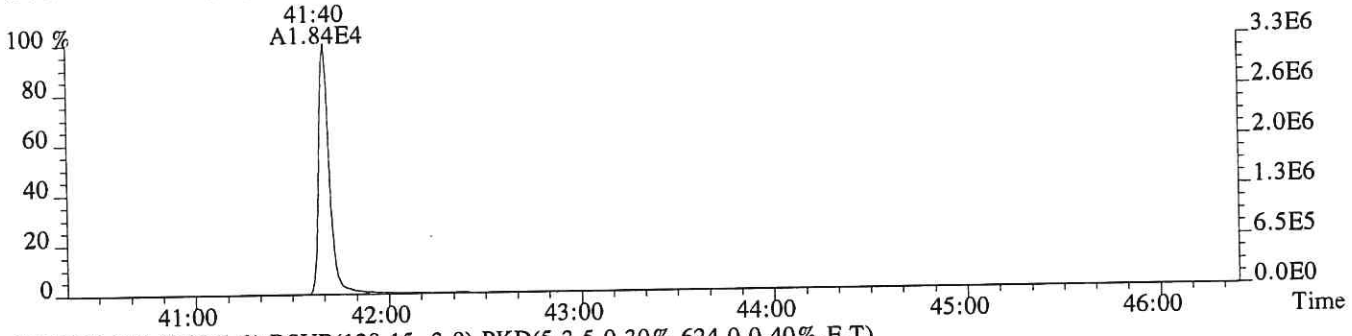
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



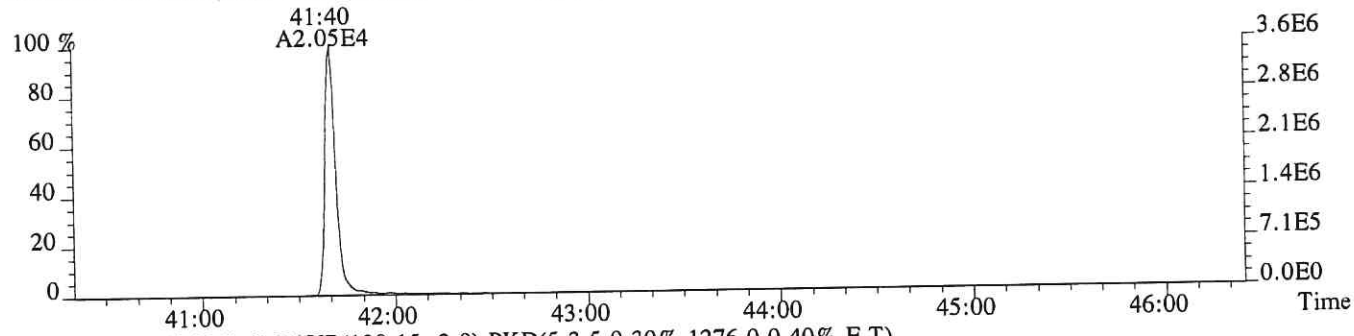
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



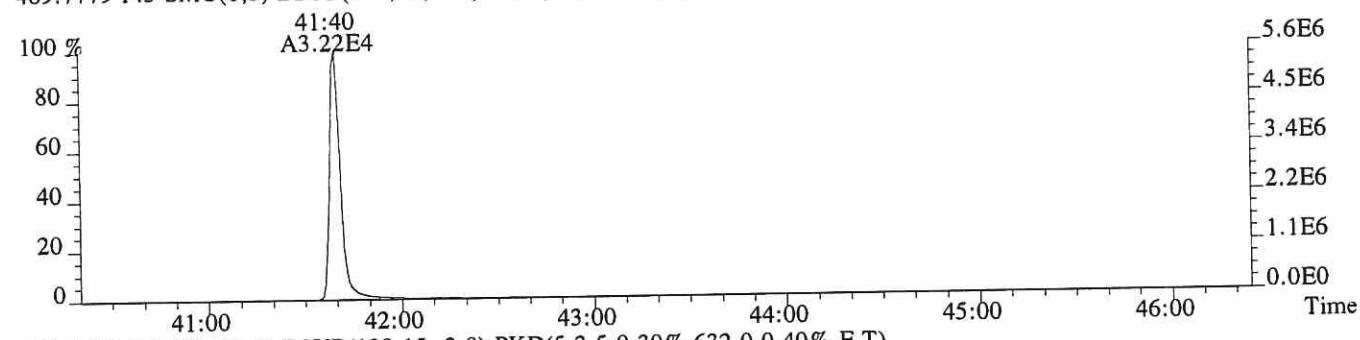
File:P616052 #1-547 Acq:11-DEC-2018 20:34:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



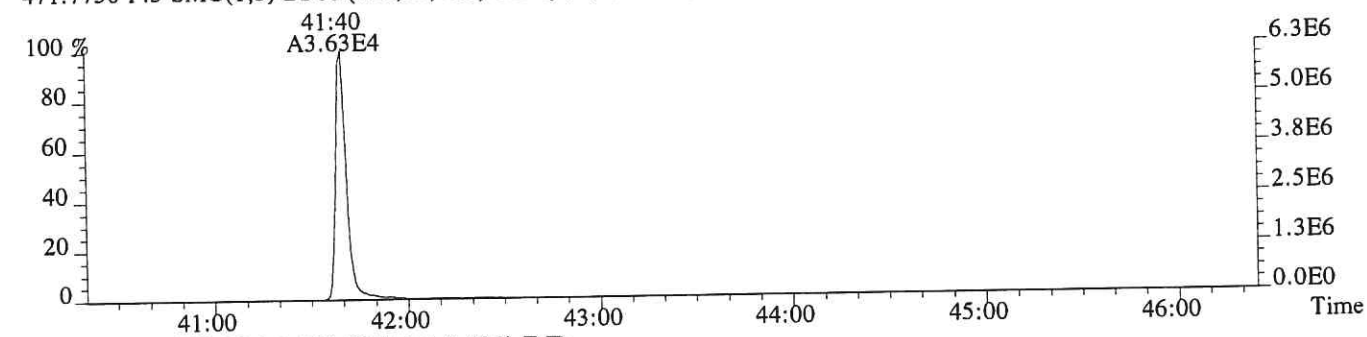
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



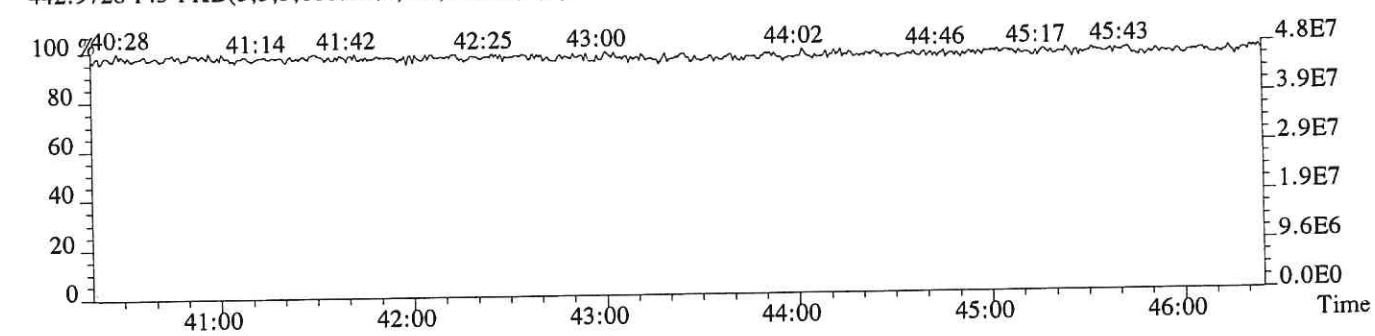
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519370 Samp: 1 Inj: 1 Acquired: 12-DEC-18 03:02:53
Processed: 13-DEC-18 09:30:11 Sample ID: EQ1800500-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.942
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.012
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.959
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.190
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.123
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.139e+01	5.339e+00	2.13	no	yes	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.258
10	Unk	OCDF	42:41	1.113e+01	1.512e+01	0.74	no	no	1.359
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.085
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	5.878e+00	5.619e+00	1.05	no	yes	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	5.153e+00	4.605e+00	1.12	yes	yes	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:54	3.993e+00	3.156e+00	1.27	yes	yes	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	9.333e+00	1.038e+01	0.90	yes	no	1.025
17	Unk	OCDD	42:31	4.870e+01	4.444e+01	1.10	no	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	1.322e+04	1.710e+04	0.77	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.497e+04	1.553e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	2.430e+04	1.523e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.035e+04	2.018e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.240e+04	2.408e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	1.140e+04	2.200e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	1.138e+04	2.203e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	7.168e+03	1.660e+04	0.43	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	7.028e+03	1.638e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	6.117e+03	7.855e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	1.748e+04	1.070e+04	1.63	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	1.531e+04	1.198e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	1.505e+04	1.176e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	1.514e+04	1.393e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:29	1.087e+04	1.209e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	2.118e+04	2.638e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	3.146e+04	2.474e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	8.717e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P519370 Samp: 1 Inj: 1 Acquired: 12-DEC-18 03:02:53
Processed: 13-DEC-18 09:30:11 LAB. ID: EQ1800500-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.12e+02	*	*	6.56e+02	*
2	1,2,3,7,8-PeCDF	*	2.60e+02	*	*	4.32e+02	*
3	2,3,4,7,8-PeCDF	*	2.60e+02	*	*	4.32e+02	*
4	1,2,3,4,7,8-HxCDF	*	2.64e+02	*	*	2.56e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.64e+02	*	*	2.56e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.64e+02	*	*	2.56e+02	*
7	1,2,3,7,8,9-HxCDF	2.39e+03	2.64e+02	9.1e+00	1.55e+03	2.56e+02	6.1e+00
8	1,2,3,4,6,7,8-HpCDF	*	3.08e+02	*	*	2.12e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.08e+02	*	*	2.12e+02	*
10	OCDF	1.49e+03	2.24e+02	6.6e+00	2.34e+03	3.40e+02	6.9e+00
11	2,3,7,8-TCDD	*	1.33e+03	*	*	8.20e+02	*
12	1,2,3,7,8-PeCDD	*	3.72e+02	*	*	2.80e+02	*
13	1,2,3,4,7,8-HxCDD	1.11e+03	2.28e+02	4.9e+00	1.16e+03	2.56e+02	4.5e+00
14	1,2,3,6,7,8-HxCDD	1.02e+03	2.28e+02	4.5e+00	7.71e+02	2.56e+02	3.0e+00
15	1,2,3,7,8,9-HxCDD	1.23e+03	2.28e+02	5.4e+00	7.03e+02	2.56e+02	2.7e+00
16	1,2,3,4,6,7,8-HpCDD	1.83e+03	2.40e+02	7.6e+00	2.00e+03	2.40e+02	8.3e+00
17	OCDD	5.60e+03	2.00e+02	2.8e+01	6.75e+03	2.80e+02	2.4e+01
18	13C-2,3,7,8-TCDF	2.31e+06	3.45e+03	6.7e+02	2.99e+06	1.76e+03	1.7e+03
19	13C-1,2,3,7,8-PeCDF	4.47e+06	2.28e+02	2.0e+04	2.80e+06	4.44e+02	6.3e+03
20	13C-2,3,4,7,8-PeCDF	4.64e+06	2.28e+02	2.0e+04	2.94e+06	4.44e+02	6.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.11e+06	1.24e+02	1.7e+04	4.13e+06	3.24e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.37e+06	1.24e+02	1.9e+04	4.58e+06	3.24e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.19e+06	1.24e+02	1.8e+04	4.29e+06	3.24e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.97e+06	1.24e+02	1.6e+04	3.72e+06	3.24e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.33e+06	2.52e+03	5.3e+02	2.98e+06	1.55e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.05e+06	2.52e+03	4.2e+02	2.42e+06	1.55e+03	1.6e+03
27	13C-2,3,7,8-TCDD	1.07e+06	4.16e+03	2.6e+02	1.41e+06	1.31e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	3.25e+06	5.80e+02	5.6e+03	1.96e+06	4.36e+02	4.5e+03
29	13C-1,2,3,4,7,8-HxCDD	3.15e+06	1.10e+03	2.9e+03	2.44e+06	2.92e+02	8.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.76e+06	1.10e+03	2.5e+03	2.16e+06	2.92e+02	7.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.36e+06	2.96e+02	8.0e+03	2.17e+06	2.44e+02	8.9e+03
32	13C-OCDD	1.18e+06	2.60e+02	4.5e+03	1.33e+06	2.92e+02	4.6e+03
33	13C-1,2,3,4-TCDD	3.90e+06	4.16e+03	9.4e+02	4.84e+06	1.31e+03	3.7e+03
34	13C-1,2,3,7,8,9-HxCDD	5.56e+06	1.10e+03	5.1e+03	4.24e+06	2.92e+02	1.5e+04
35	37Cl-2,3,7,8-TCDD	1.58e+06	4.52e+02	3.5e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.332e{+}03 + 8.200e{+}02\ ) \times 2000}{(1.069e{+}06 + 1.407e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P519370 Sample:1 Injection:1 Function:3

Acquired: 12-DEC-18 03:02:53 Processed: 13-DEC-18 09:30:11

Mass: 389.8160 391.8130 Tot Response: 1.69e+01 RRF: 1.047

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:41	5.15e+00	4.60e+00 1.12	yes	9.76e+00	1,2,3,6,7,8-HxCDD	y	n
2	36:54	3.99e+00	3.16e+00 1.27	yes	7.15e+00	1,2,3,7,8,9-HxCDD	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P519370 Sample:1 Injection:1 Function:4

Acquired: 12-DEC-18 03:02:53 Processed: 13-DEC-18 09:30:11

Mass: 423.7770 425.7740 Tot Response: 5.14e+01 RRF: 1.025

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:49	1.62e+01	1.54e+01	1.05	yes	3.17e+01		n	n
2	39:33	9.33e+00	1.04e+01	0.90	yes	1.97e+01	1,2,3,4,6,7,8-HpCDD	n	n

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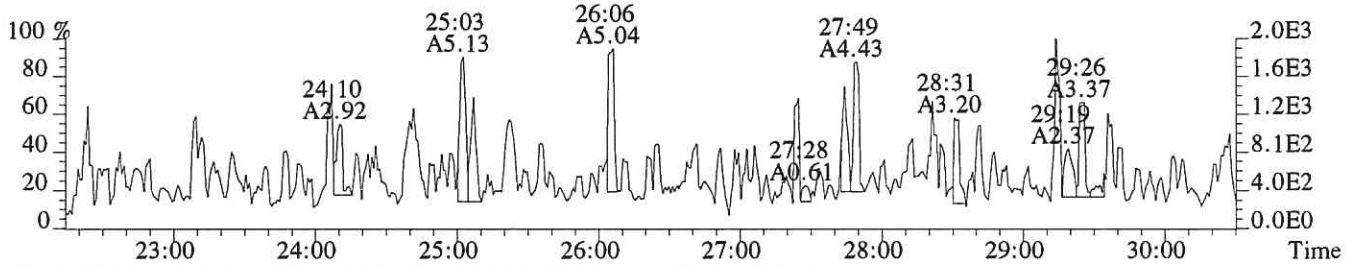
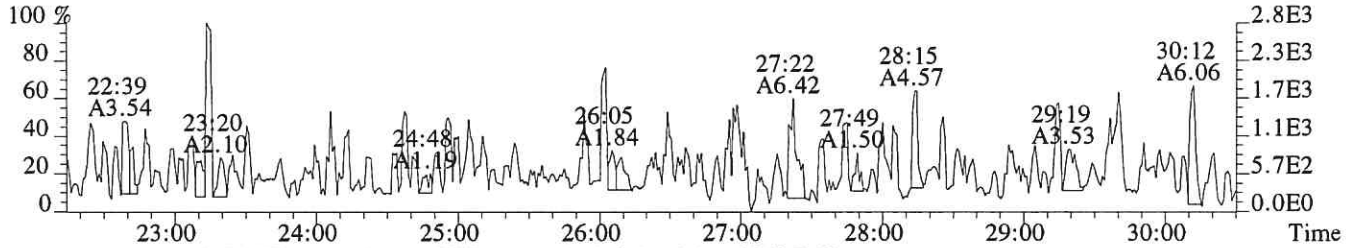
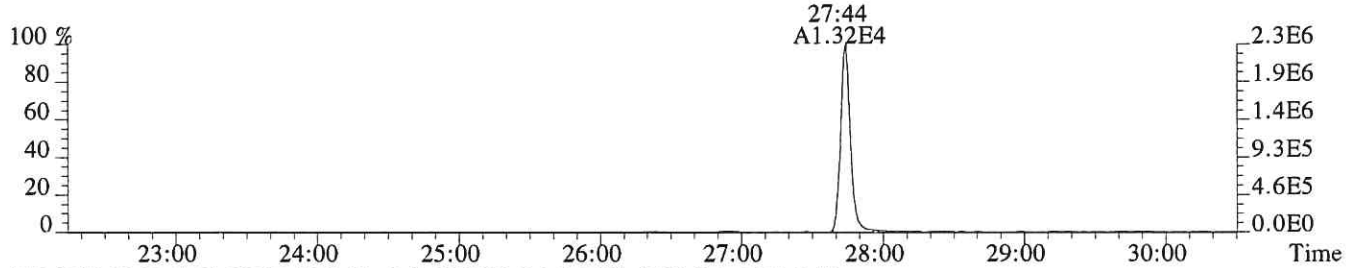
File:P519370 #1-587 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



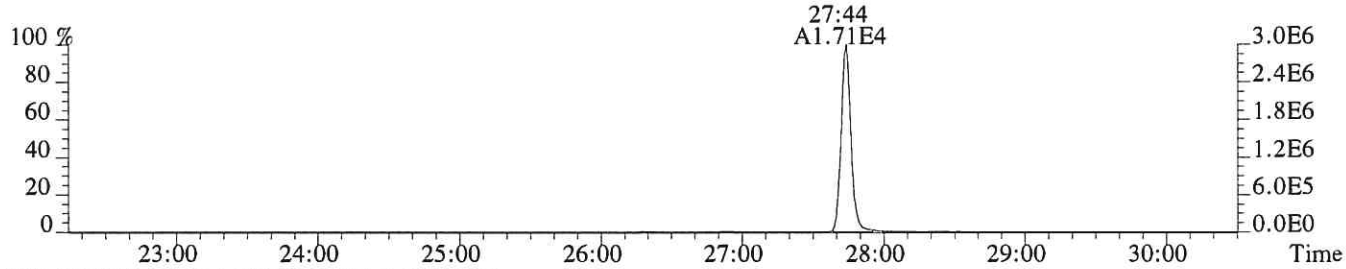
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



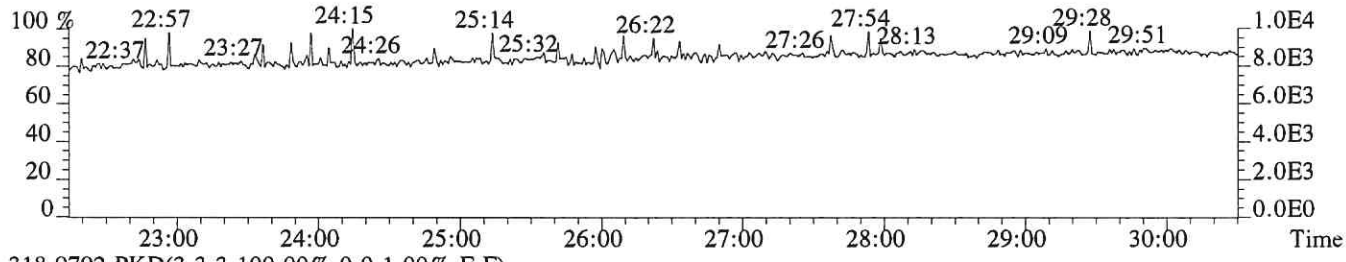
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



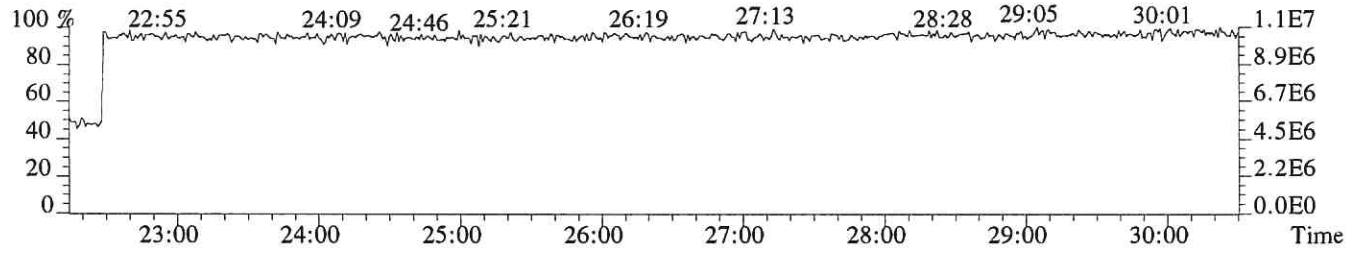
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



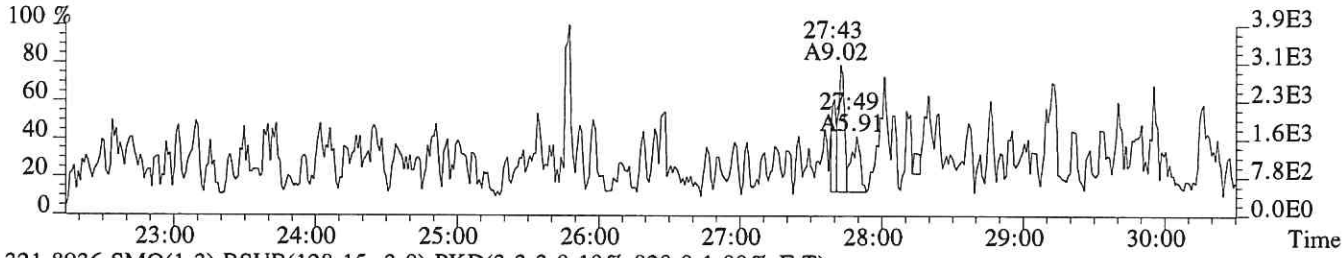
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



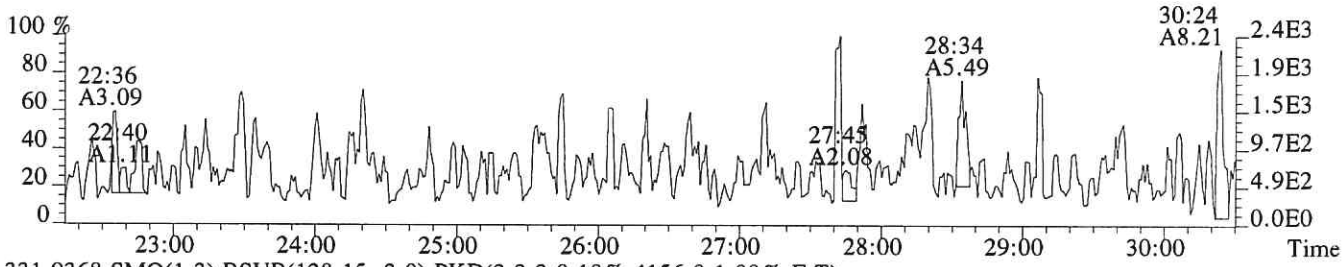
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



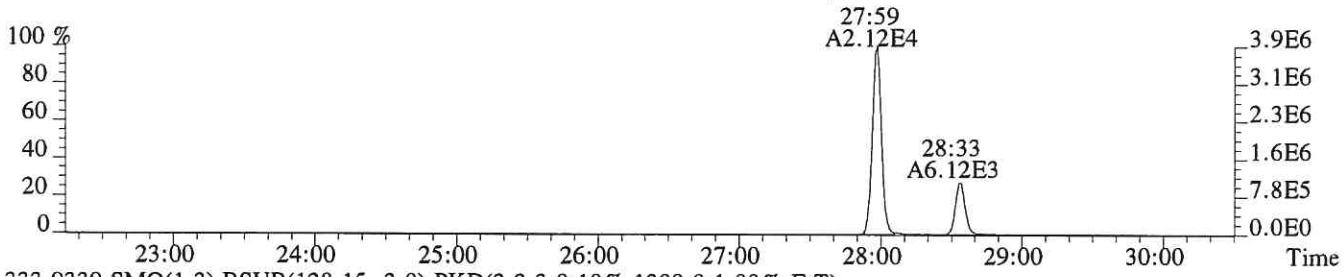
File:P519370 #1-587 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



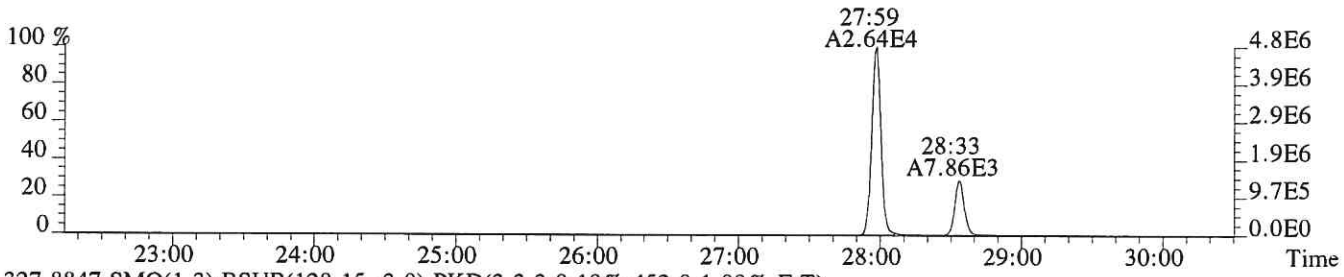
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



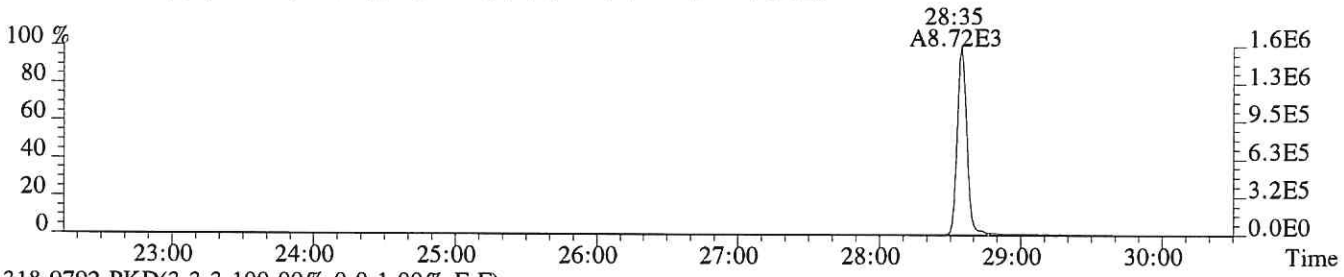
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4156.0,1.00%,F,T)



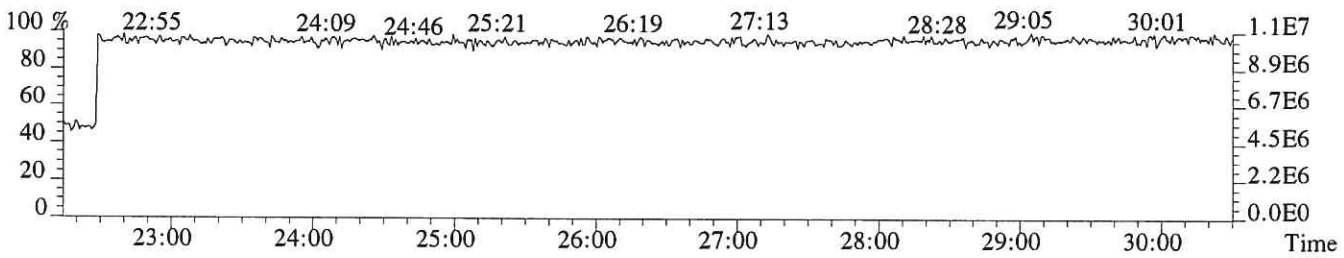
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)

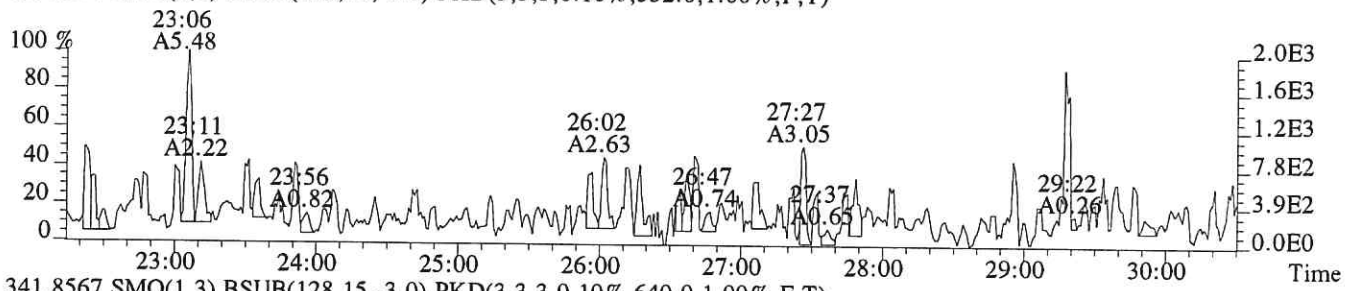


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

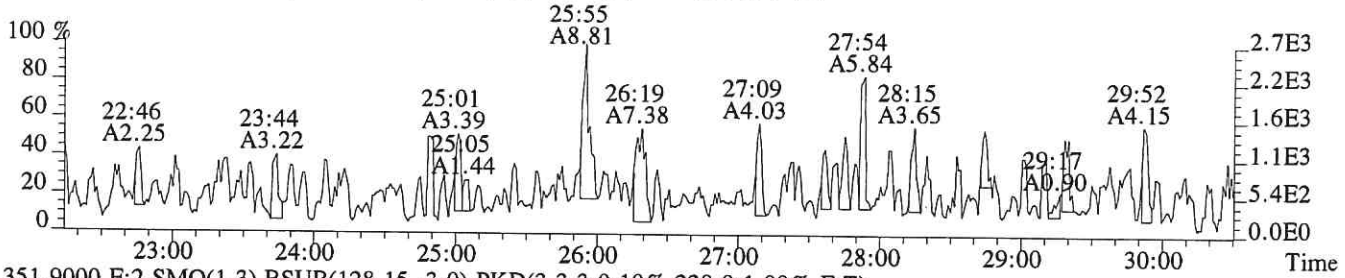


File:P519370 #1-587 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01

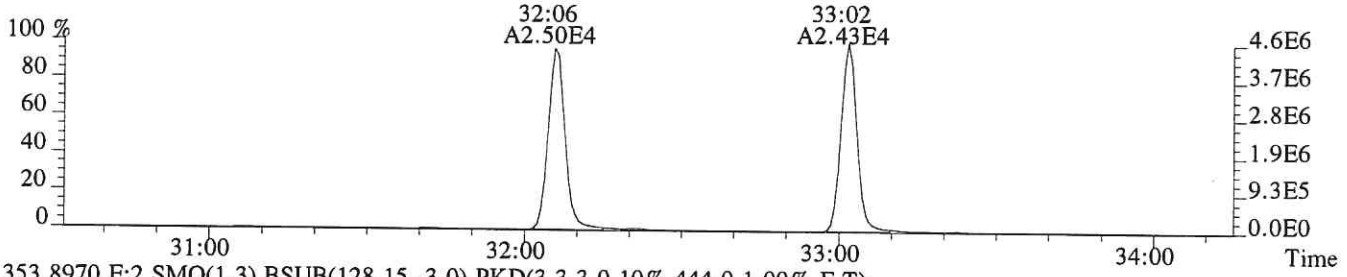
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



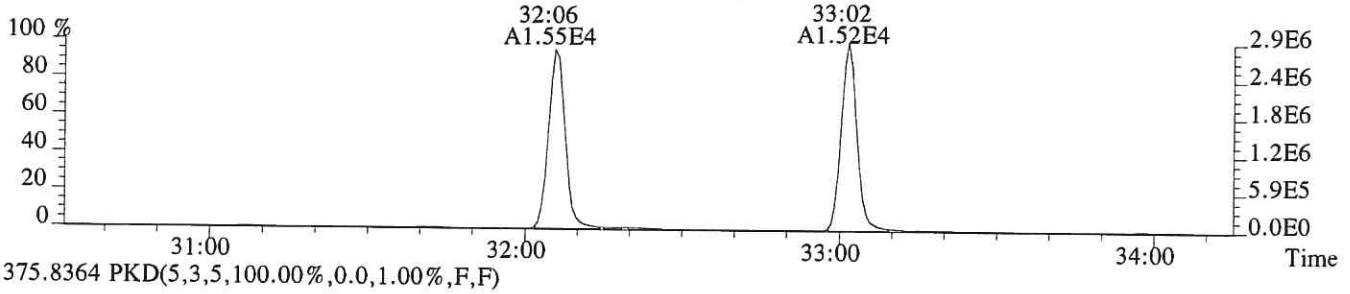
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



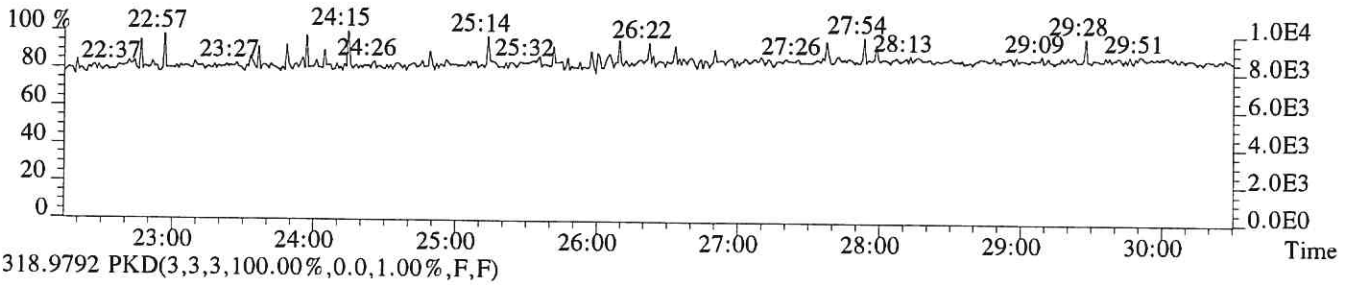
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



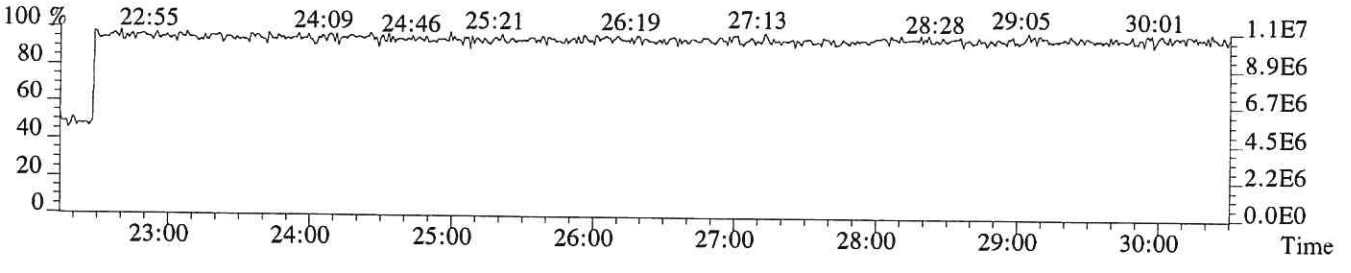
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

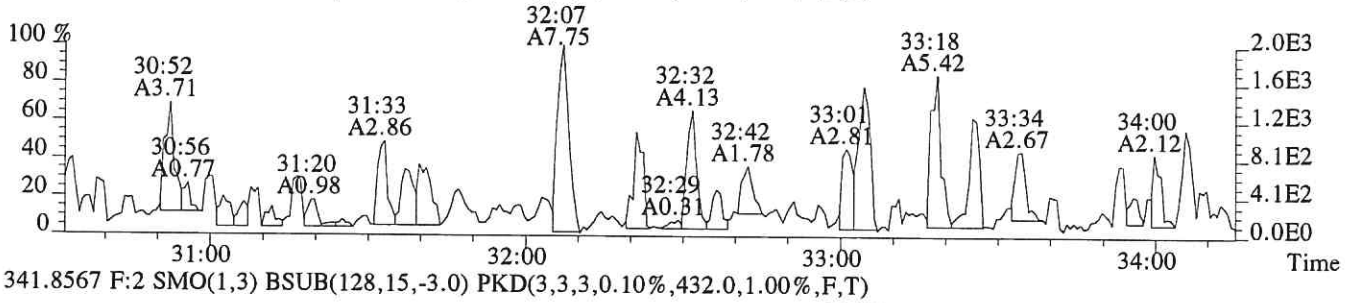


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

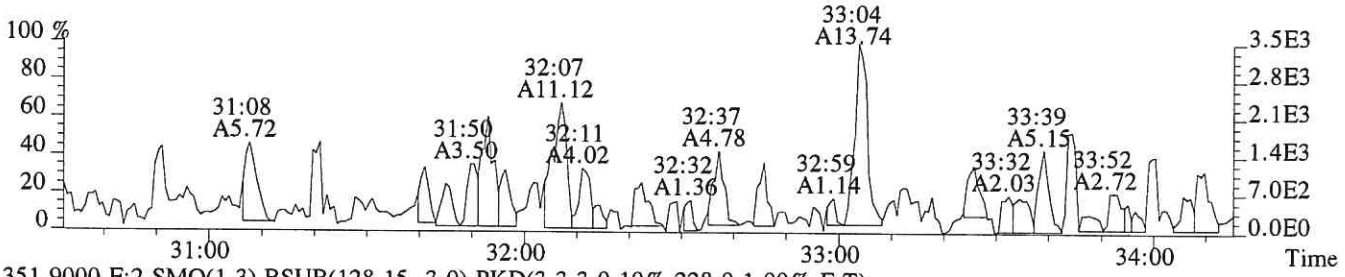


File:P519370 #1-335 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01

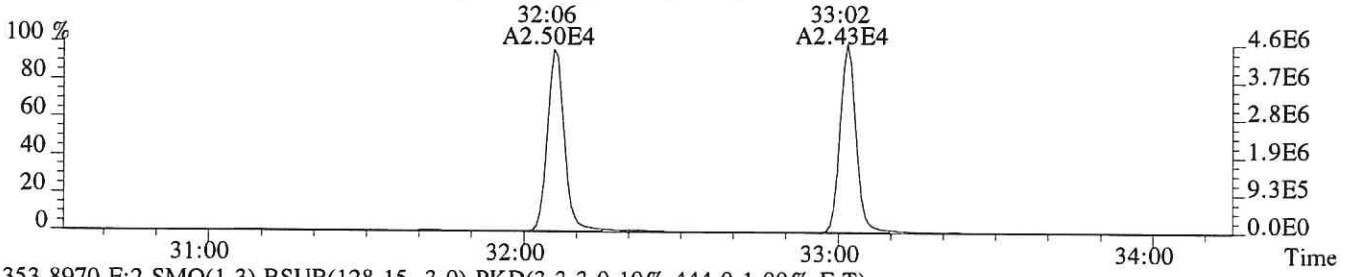
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



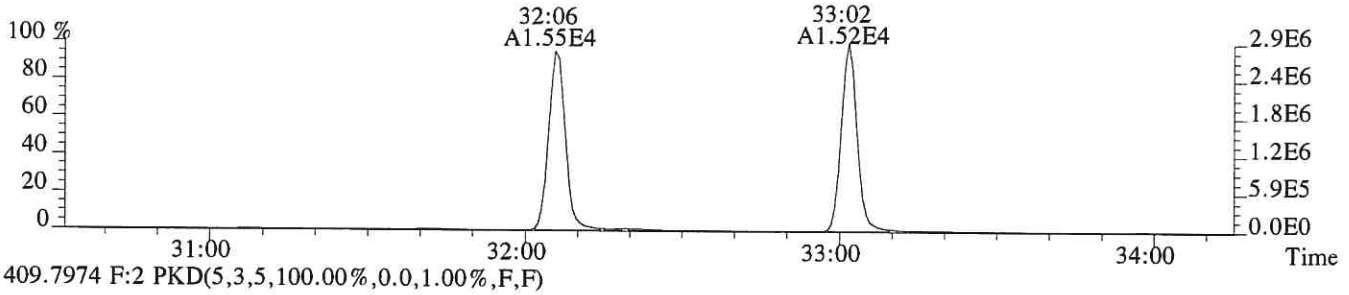
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



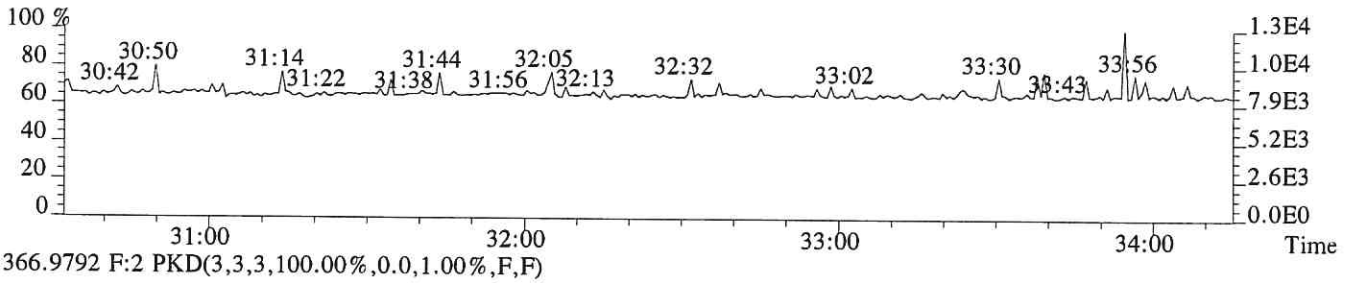
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



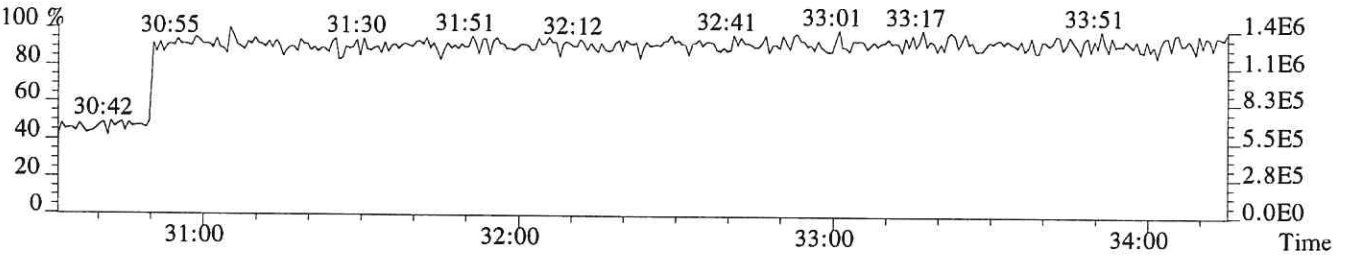
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



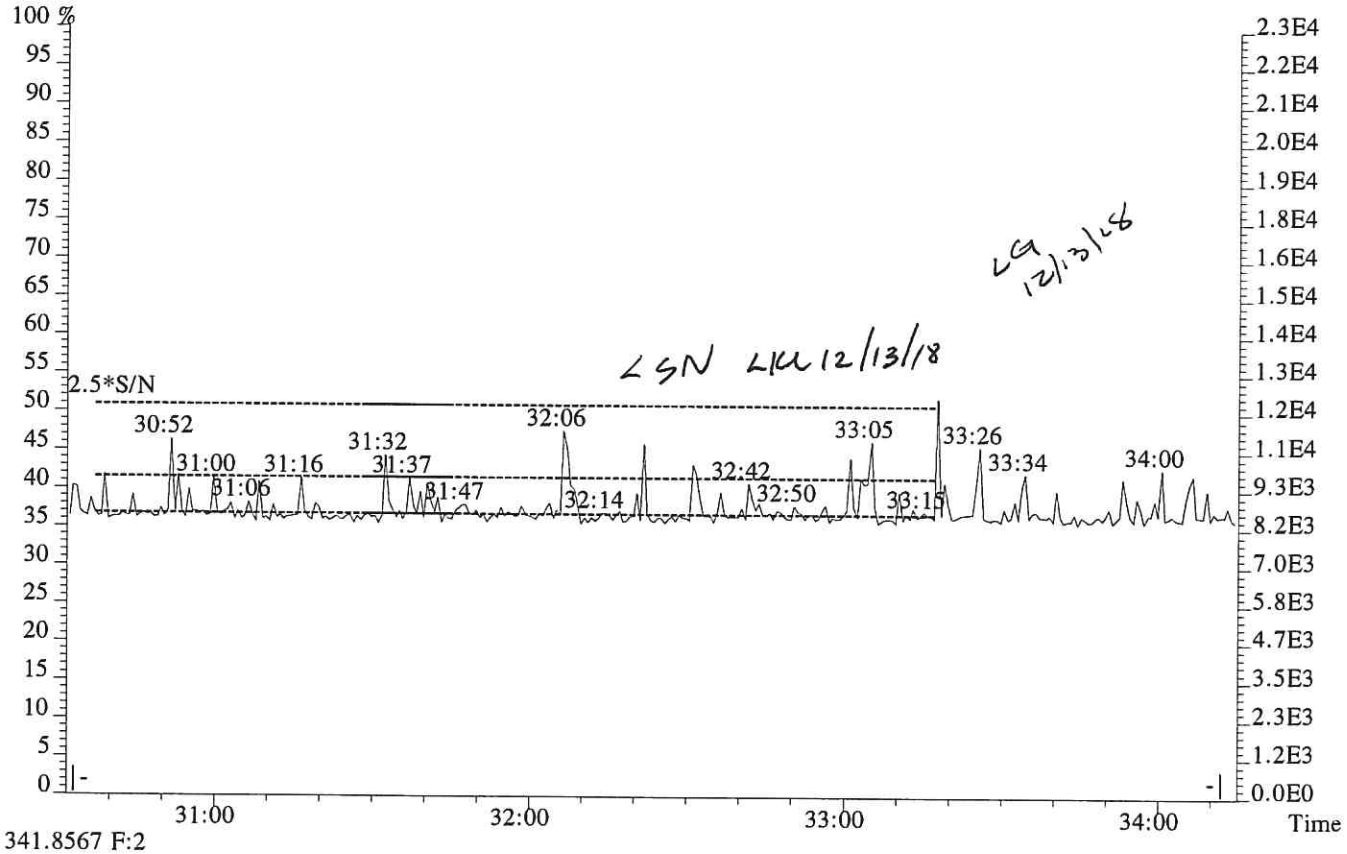
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



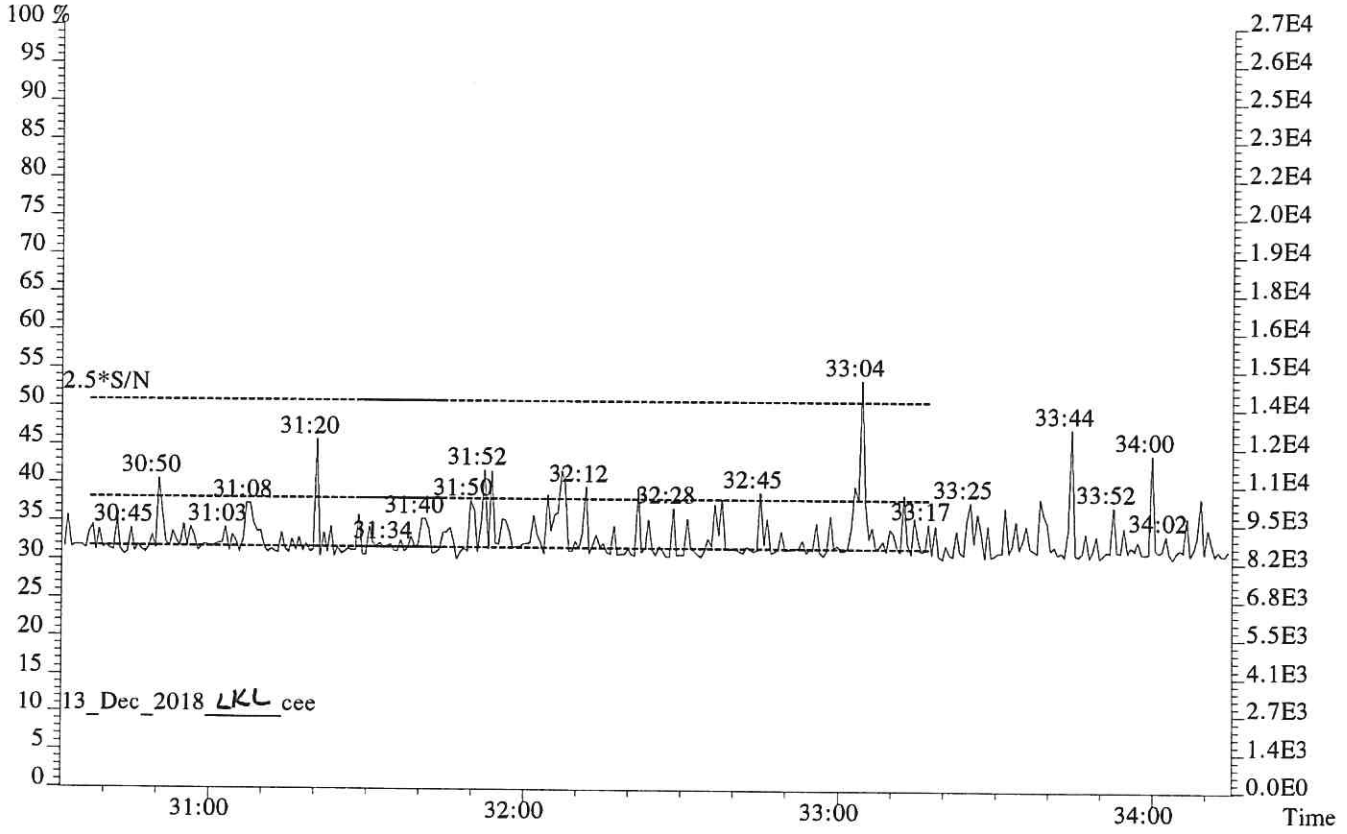
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



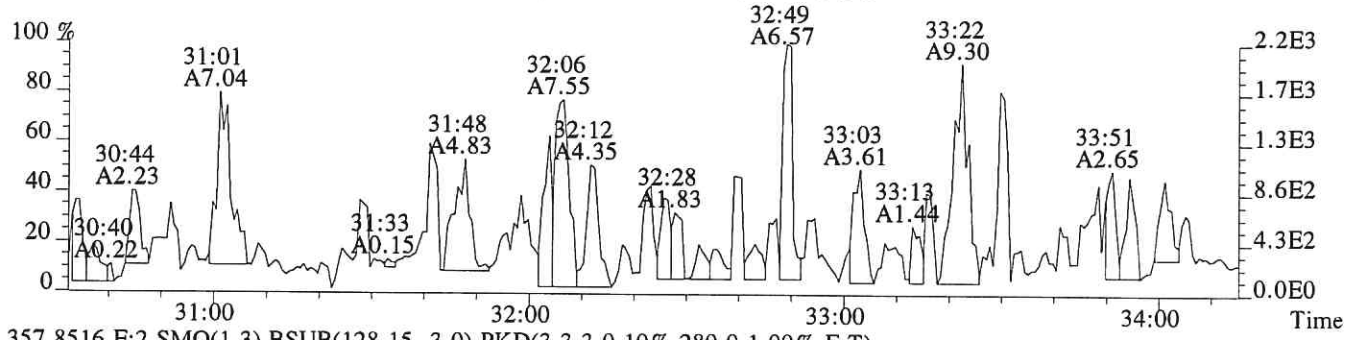
File:P519370 #1-335 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
339.8597 F:2



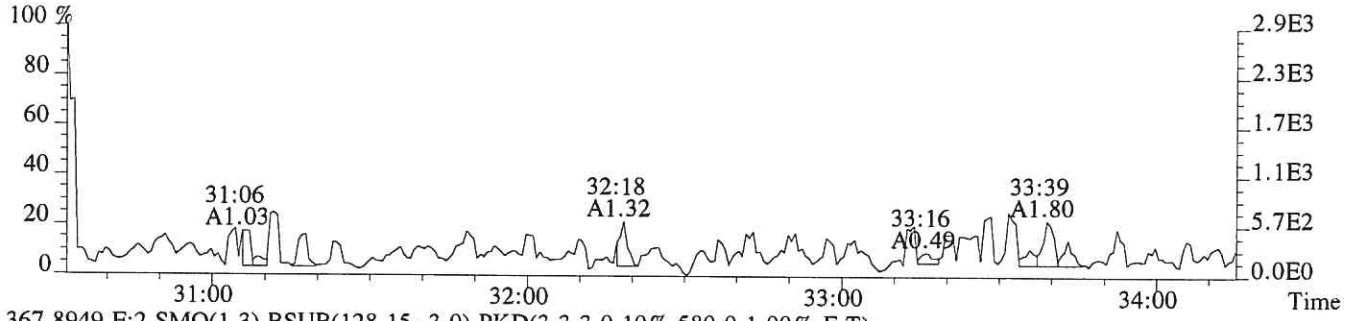
341.8567 F:2



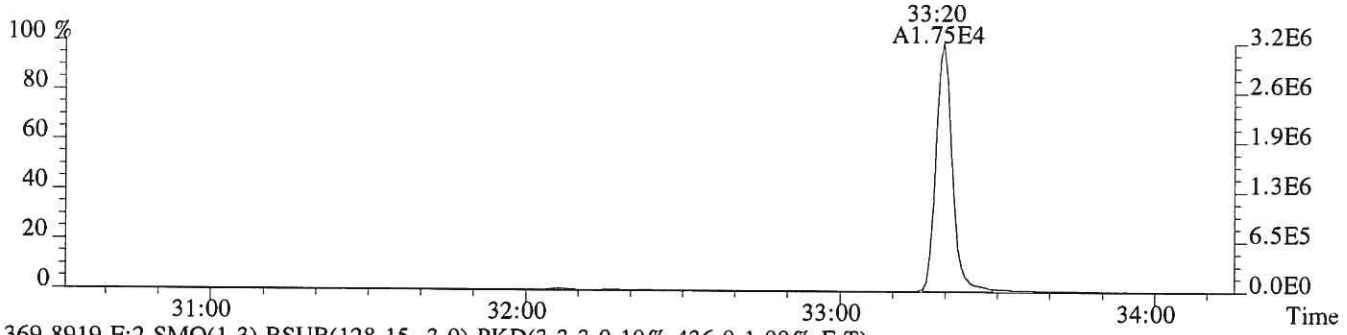
File:P519370 #1-335 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



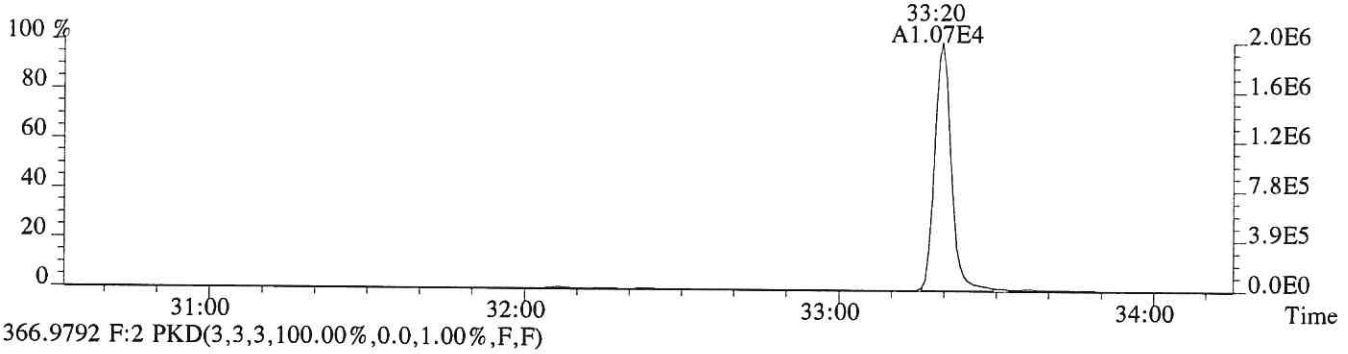
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



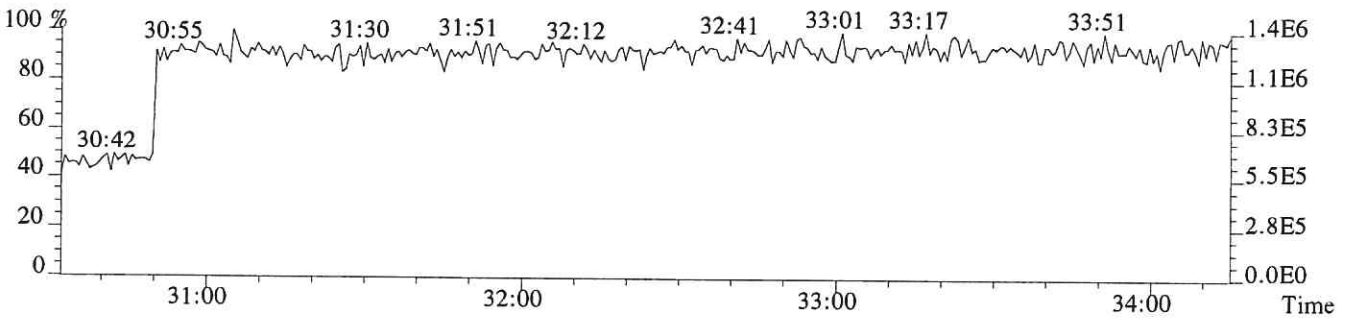
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



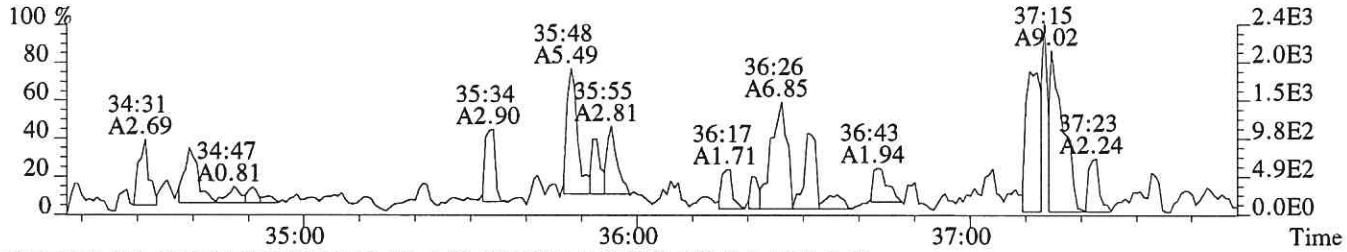
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



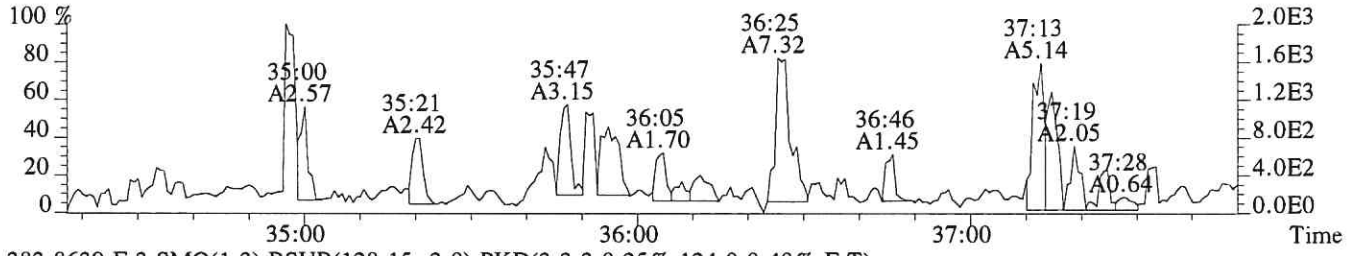
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



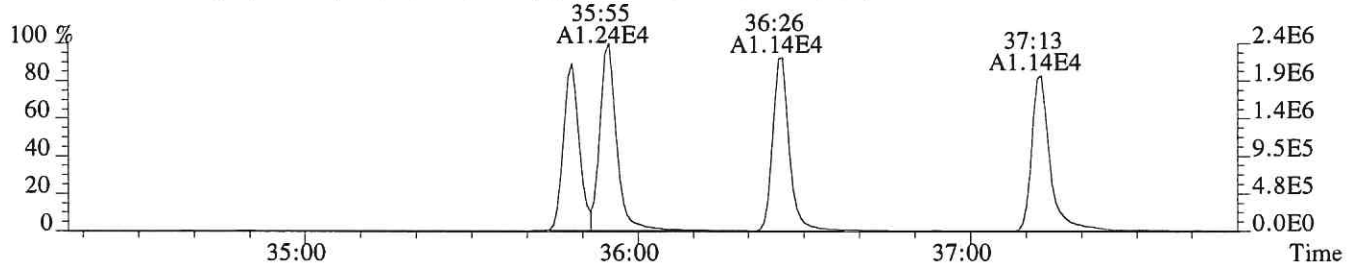
File:P519370 #1-317 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



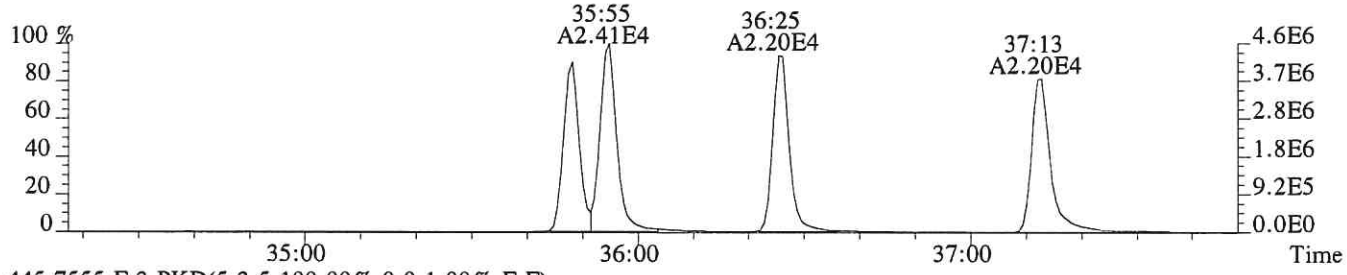
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



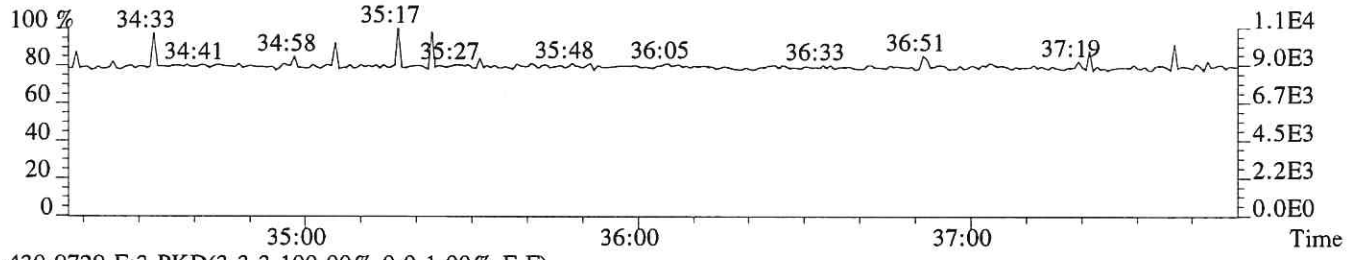
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,124.0,0.40%,F,T)



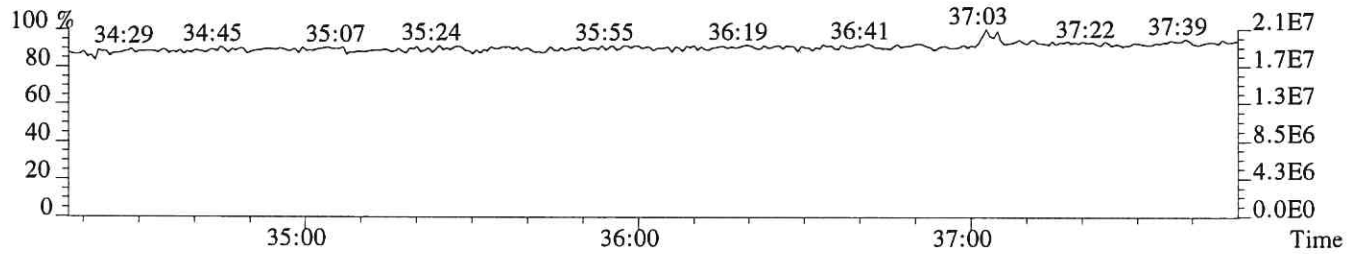
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



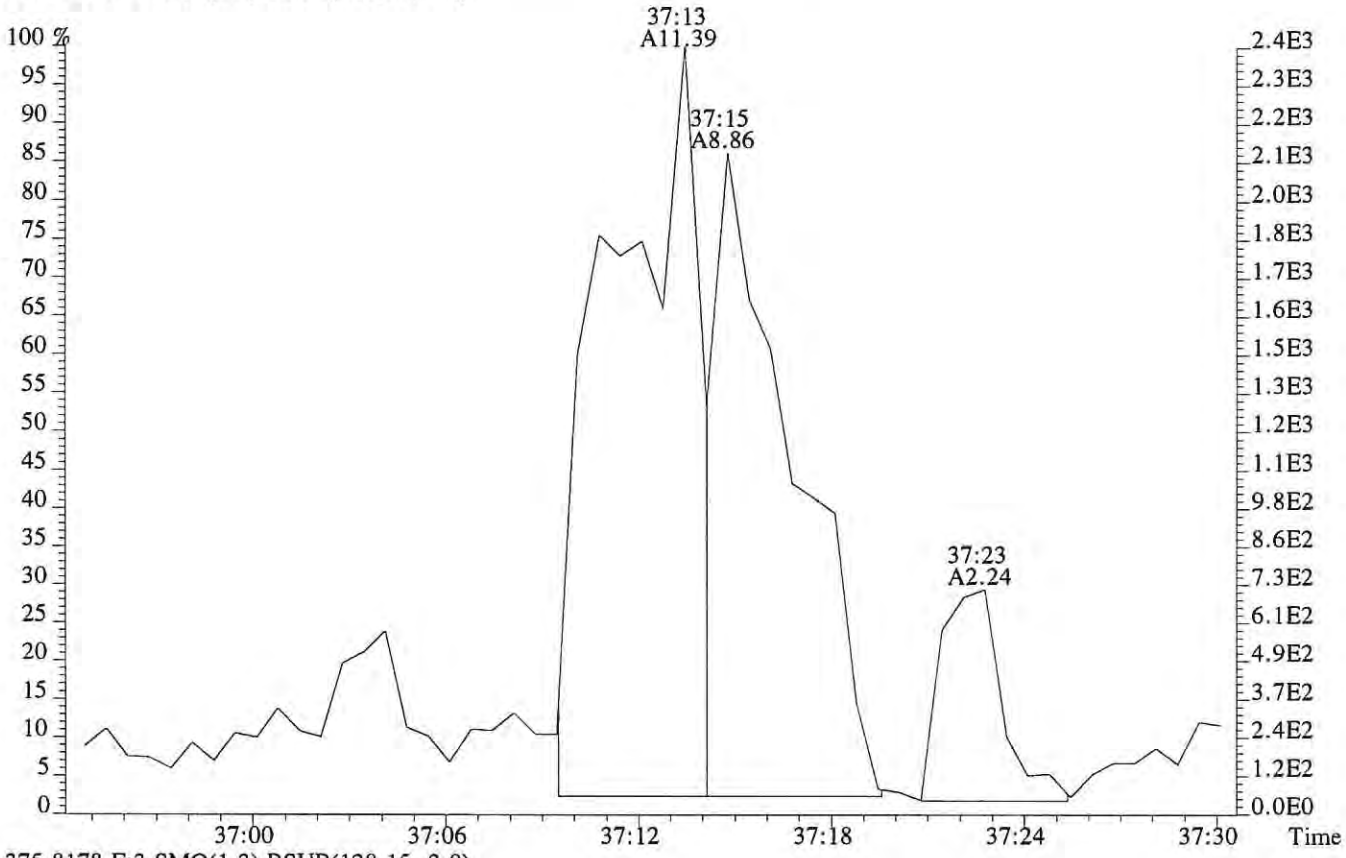
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



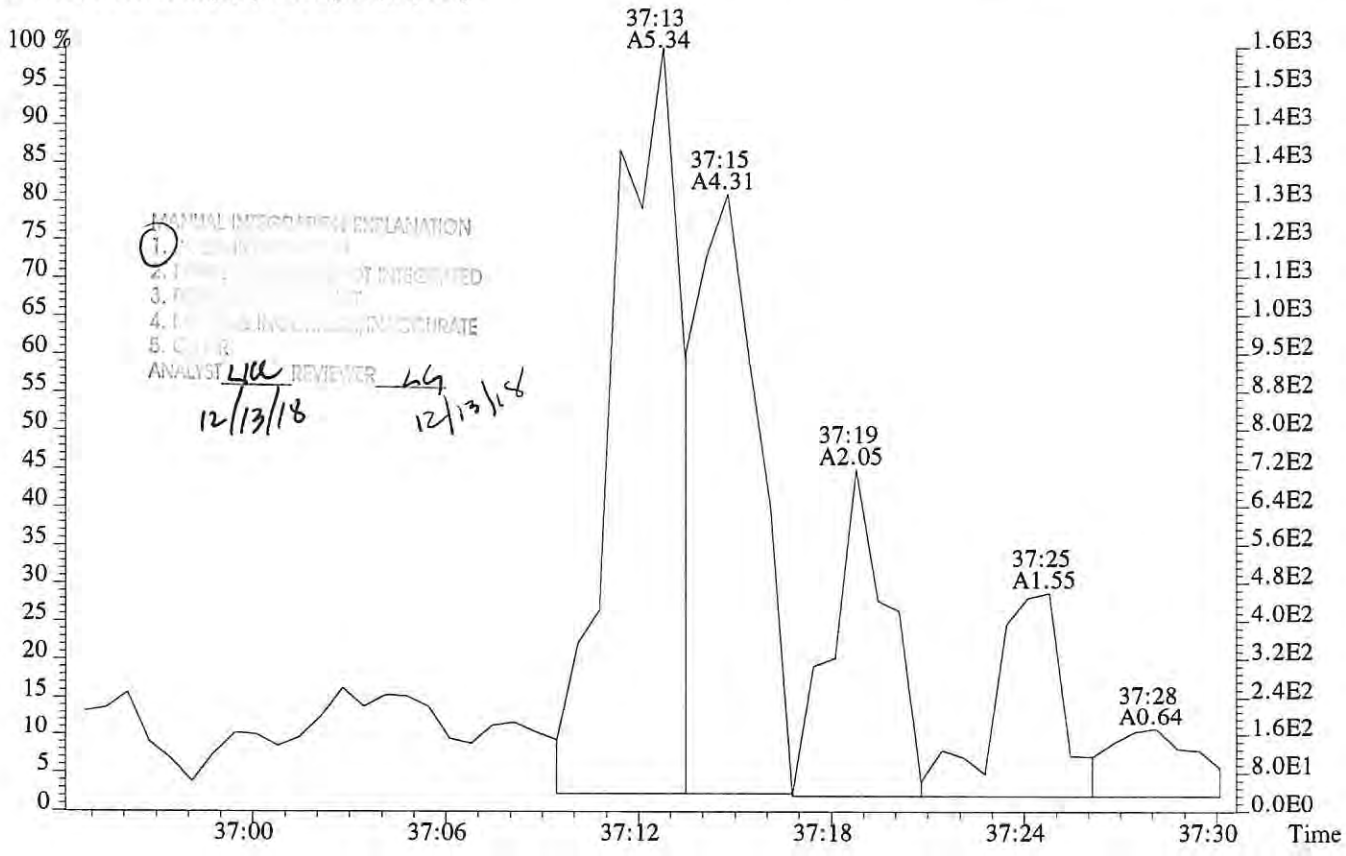
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519370 #1-317 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0)

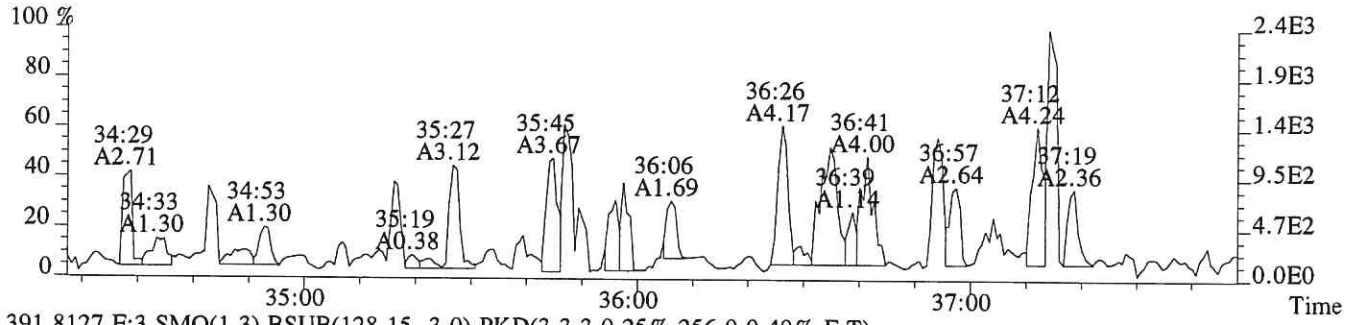


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0)

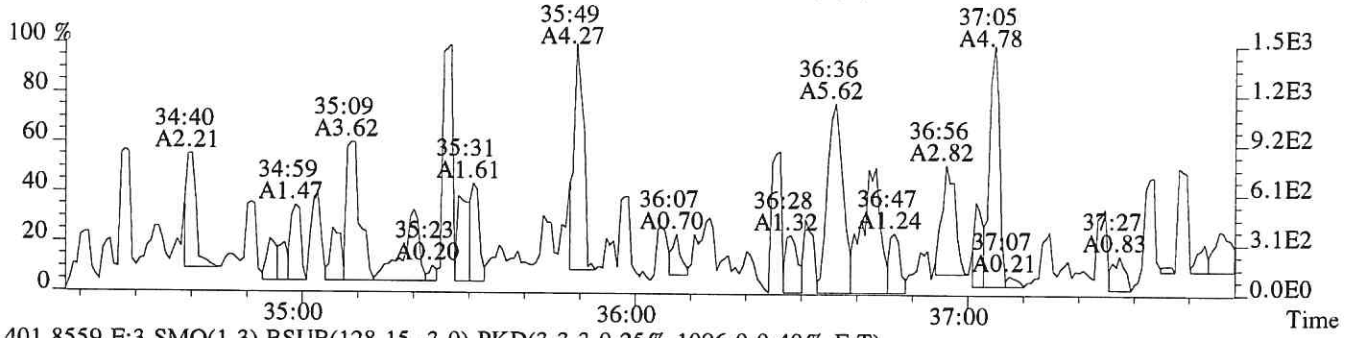


MANUAL INTEGRATION EXPLANATION
1.
2. ... NOT INTEGRATED
3.
4. ... INCORRECT/INACCURATE
5. OTHER
ANALYST LW 12/13/18 REVIEWER LG 12/13/18

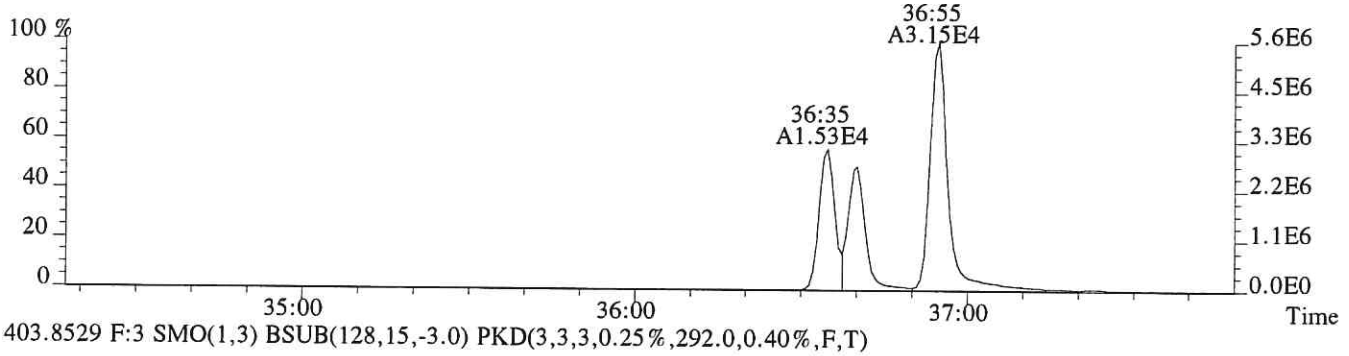
File:P519370 #1-317 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



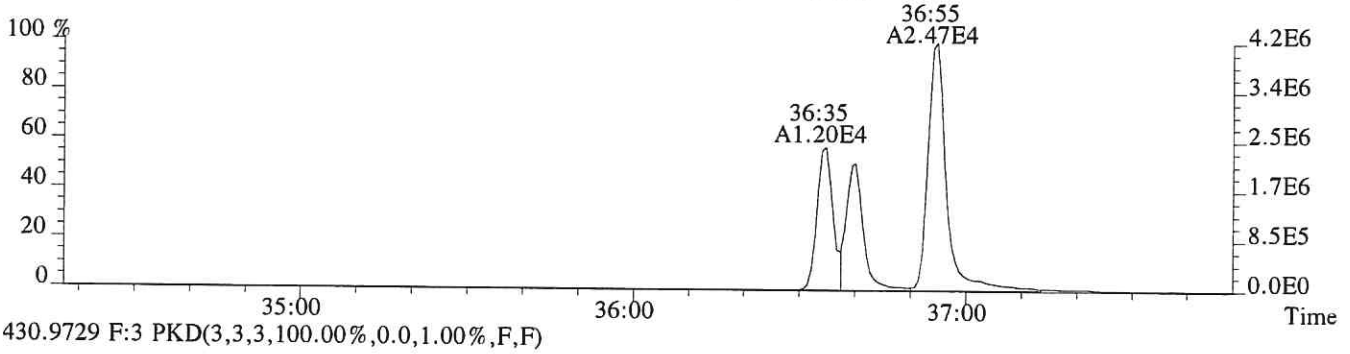
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



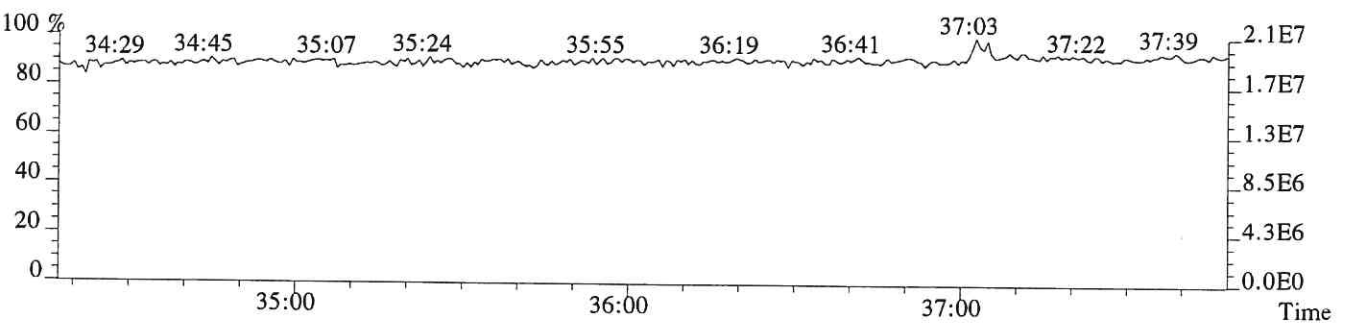
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



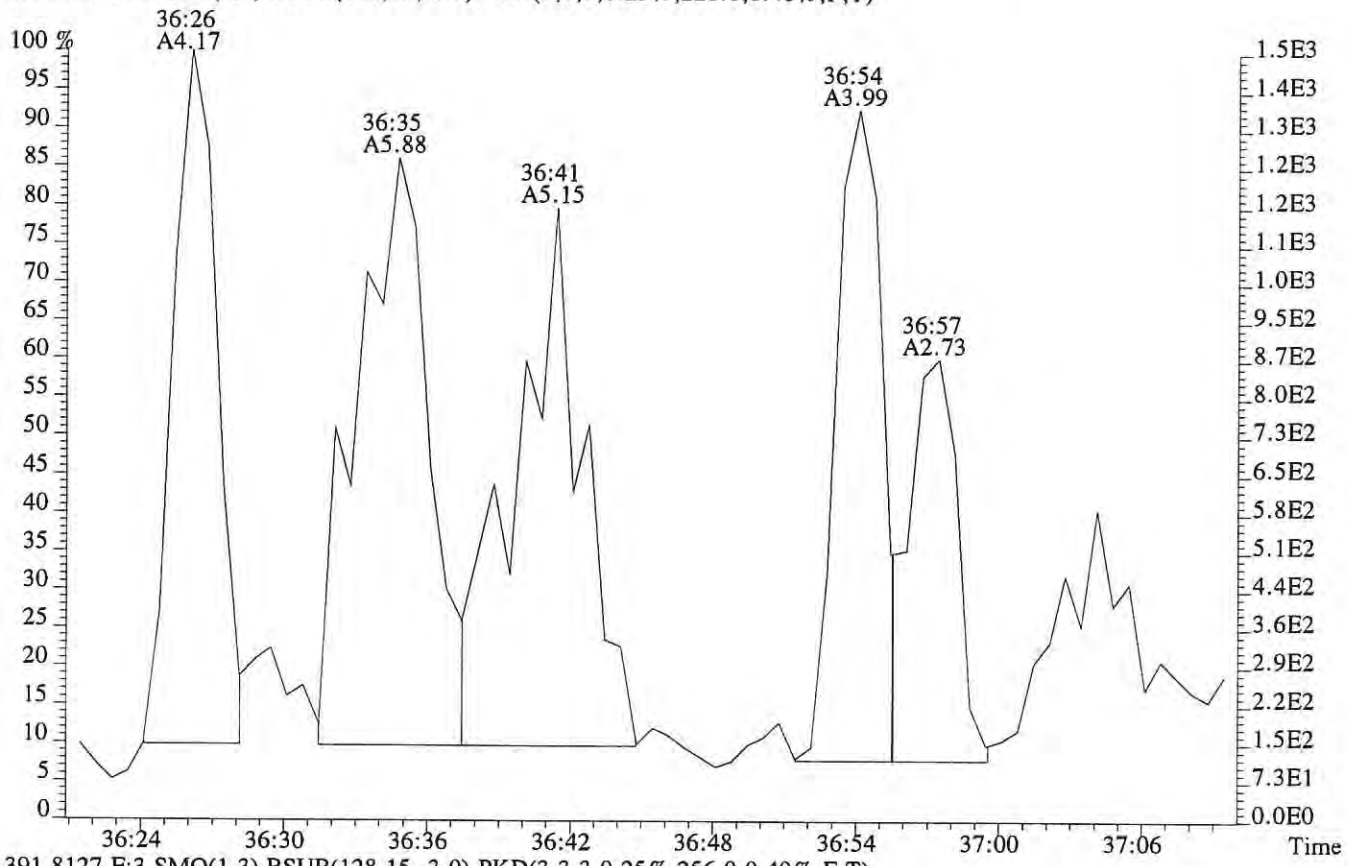
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



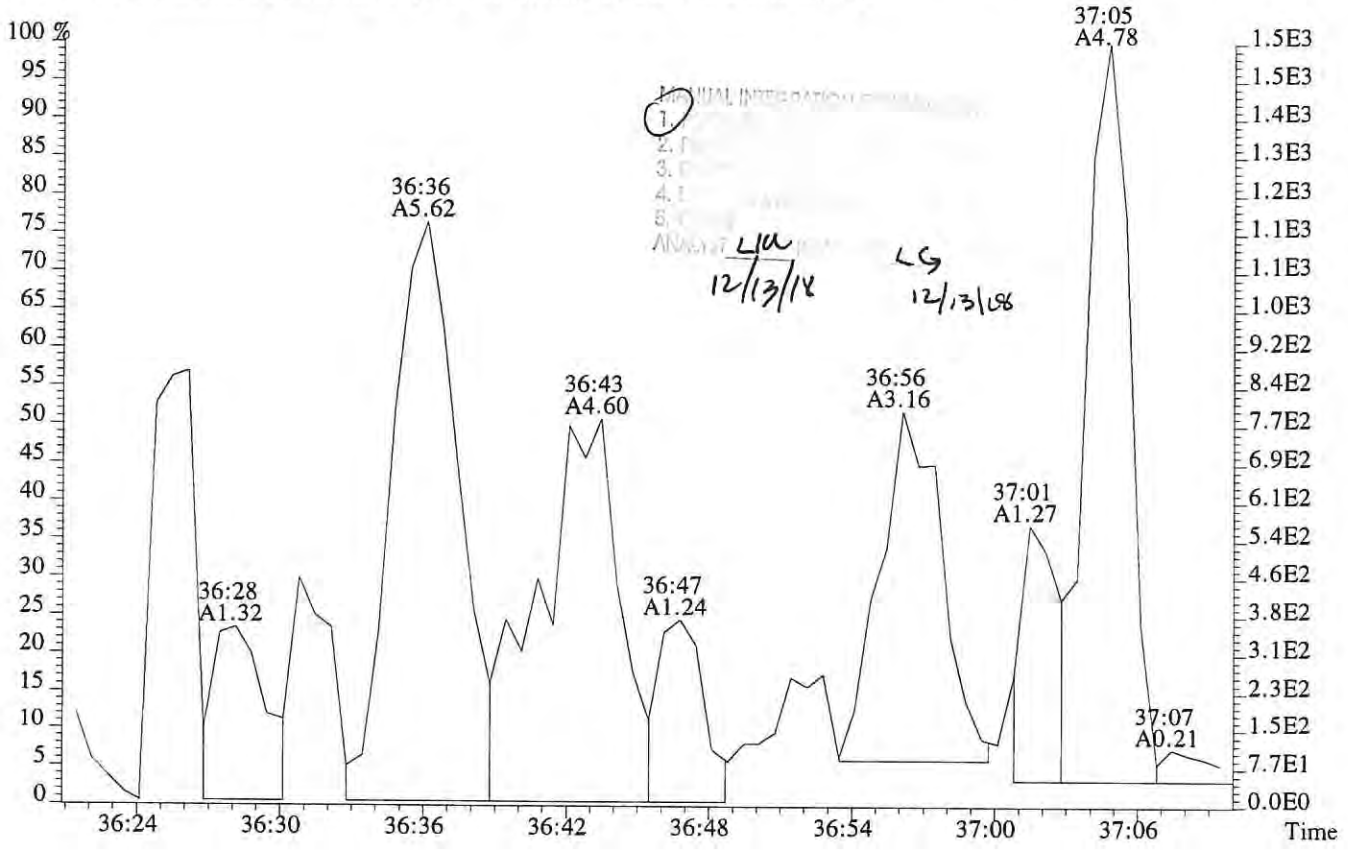
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



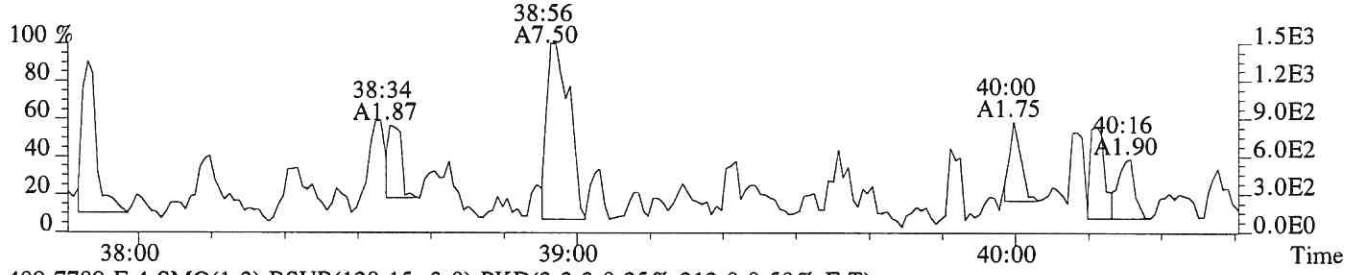
File:P519370 #1-317 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



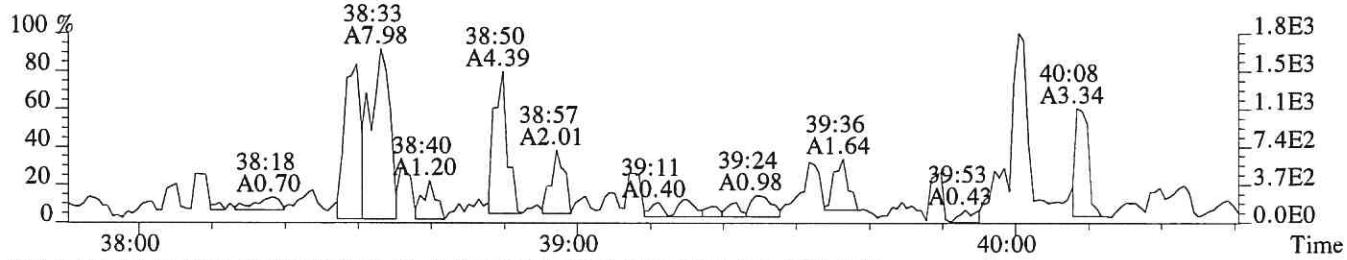
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



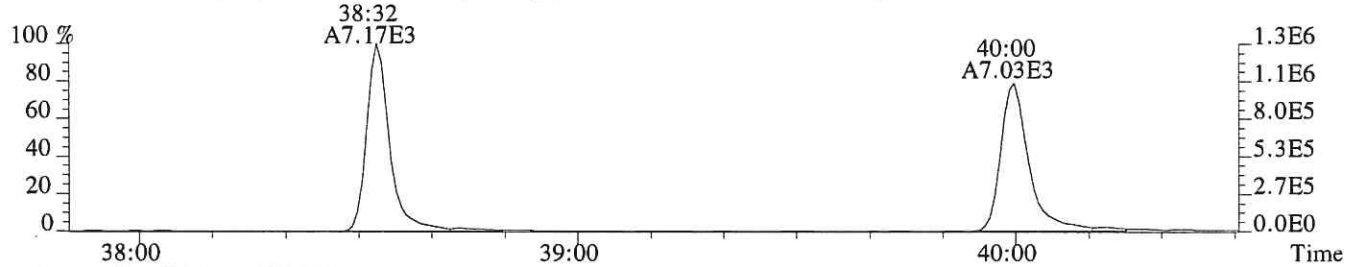
File:P519370 #1-241 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.50%,F,T)



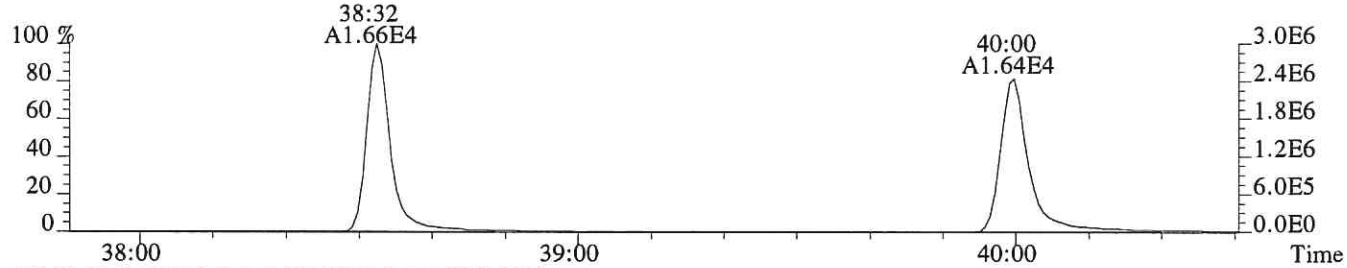
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.50%,F,T)



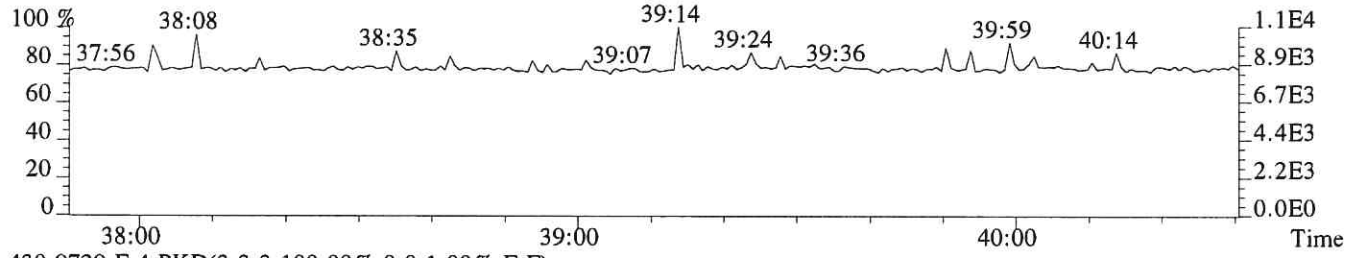
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2520.0,0.50%,F,T)



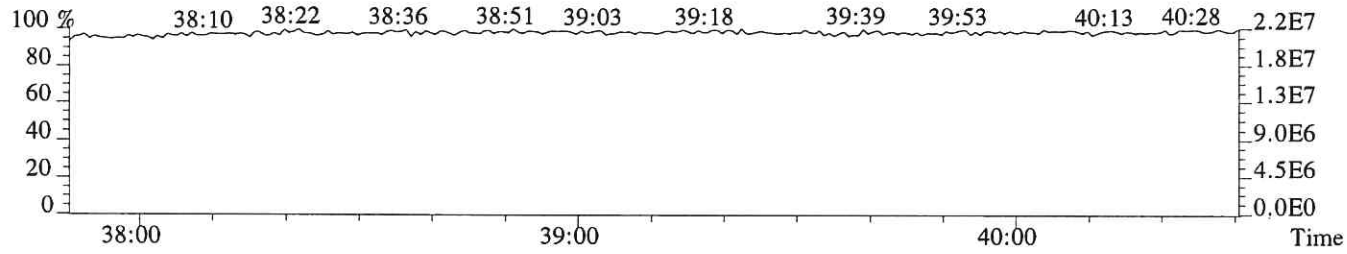
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.50%,F,T)



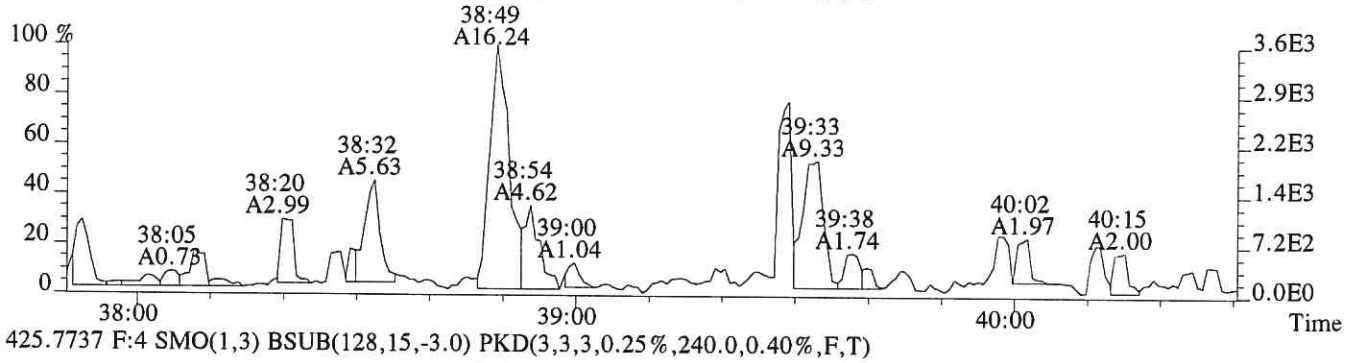
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



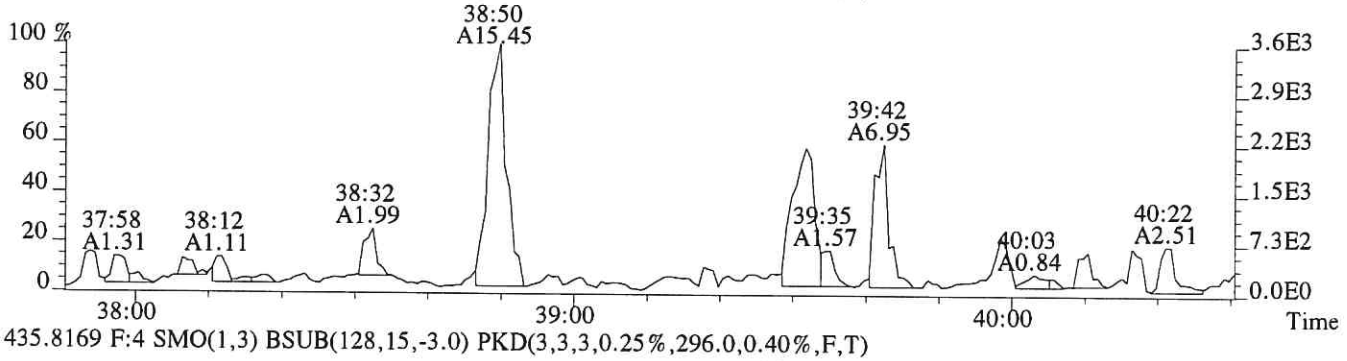
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



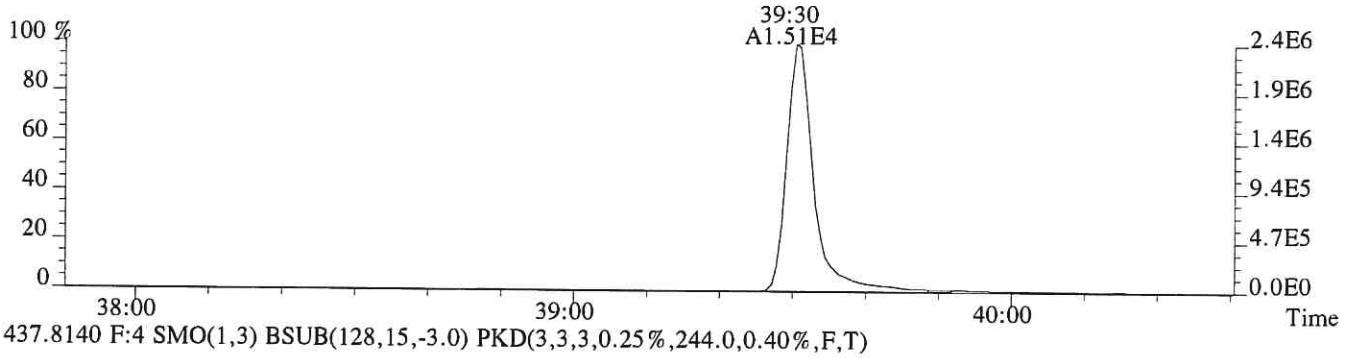
File:P519370 #1-241 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



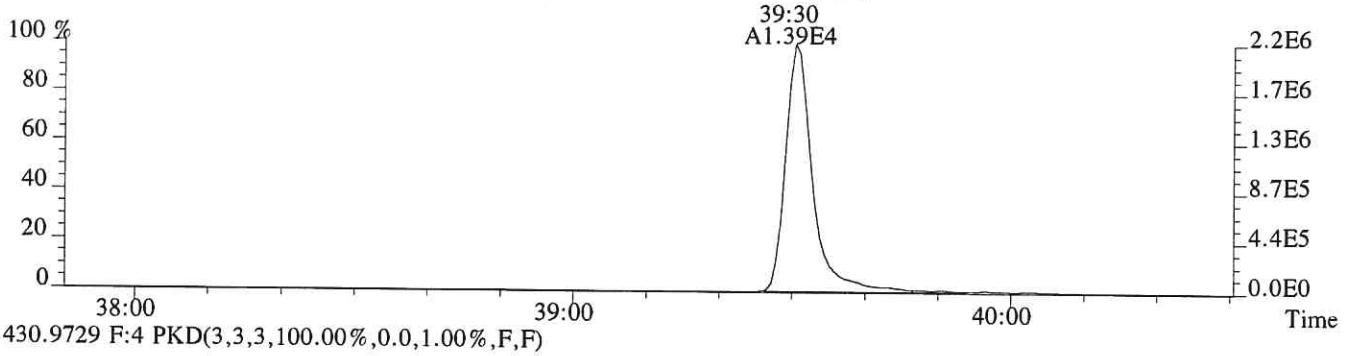
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



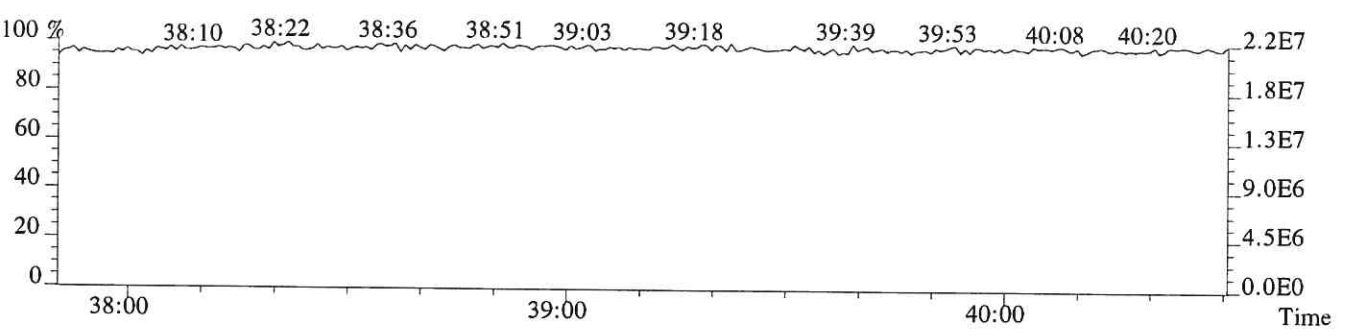
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



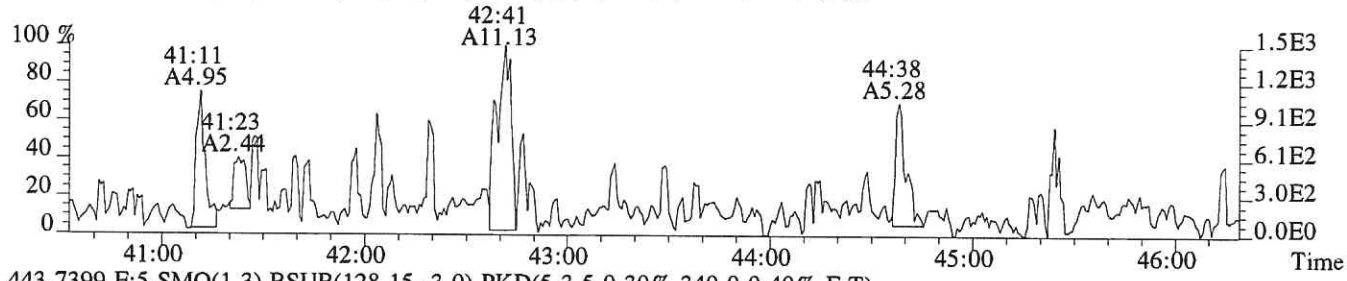
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



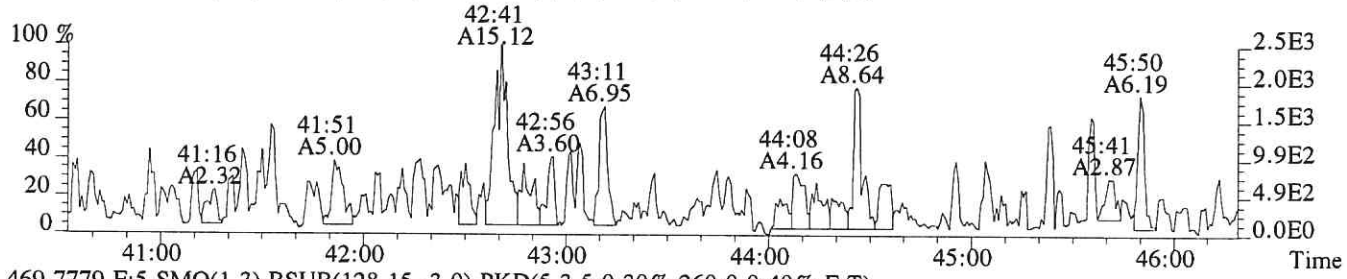
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



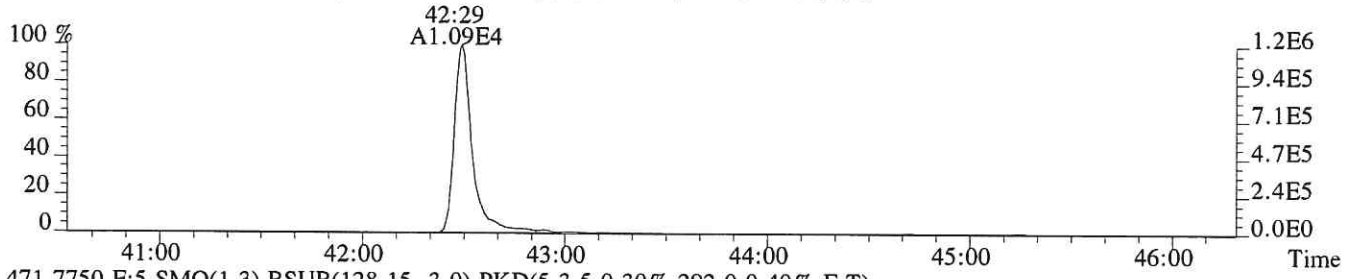
File:P519370 #1-520 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



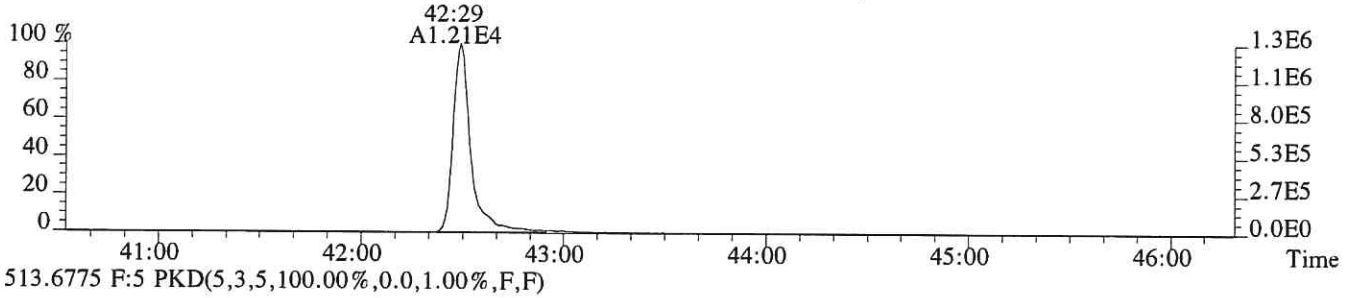
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



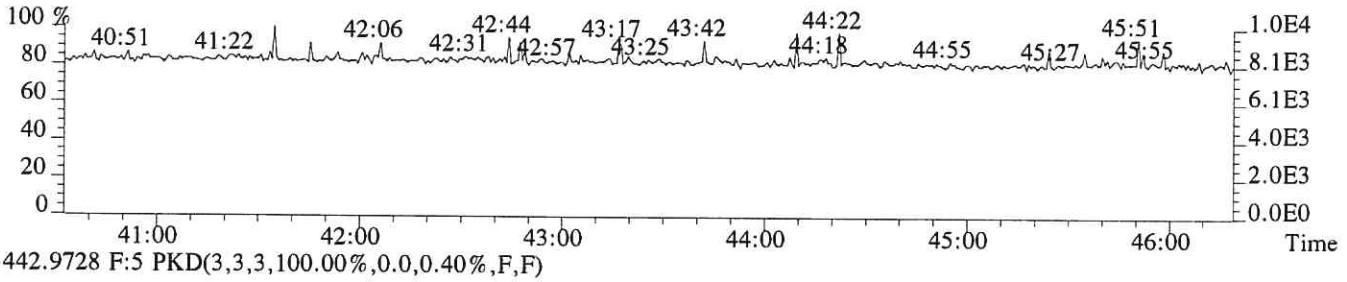
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



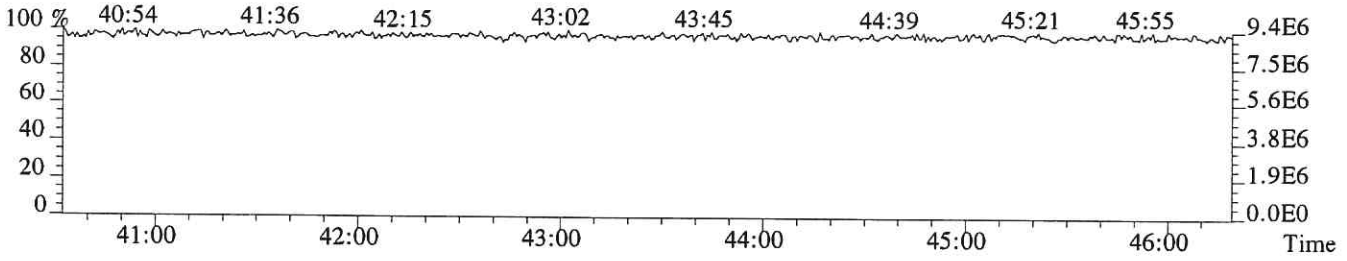
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



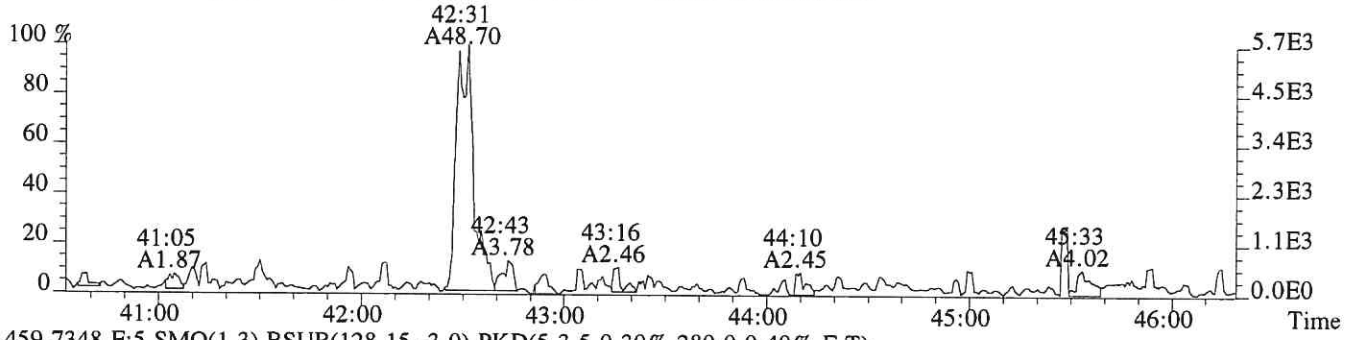
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



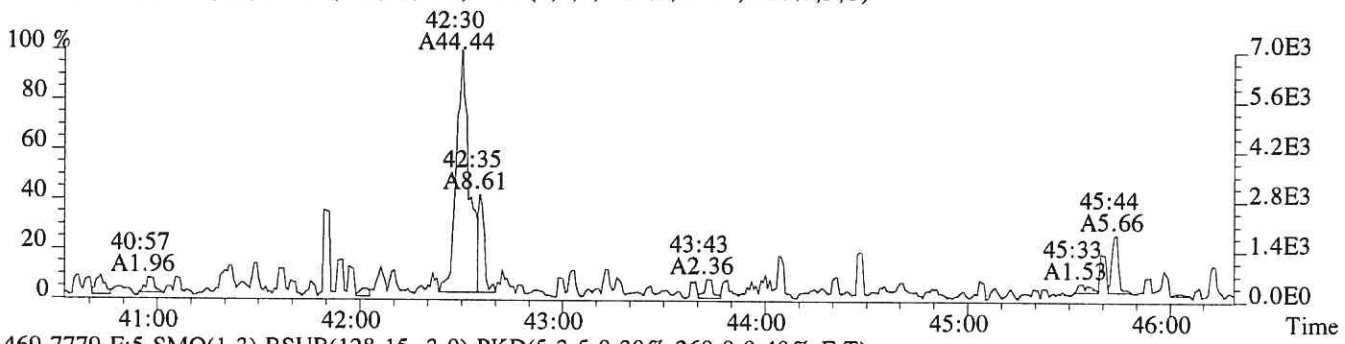
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



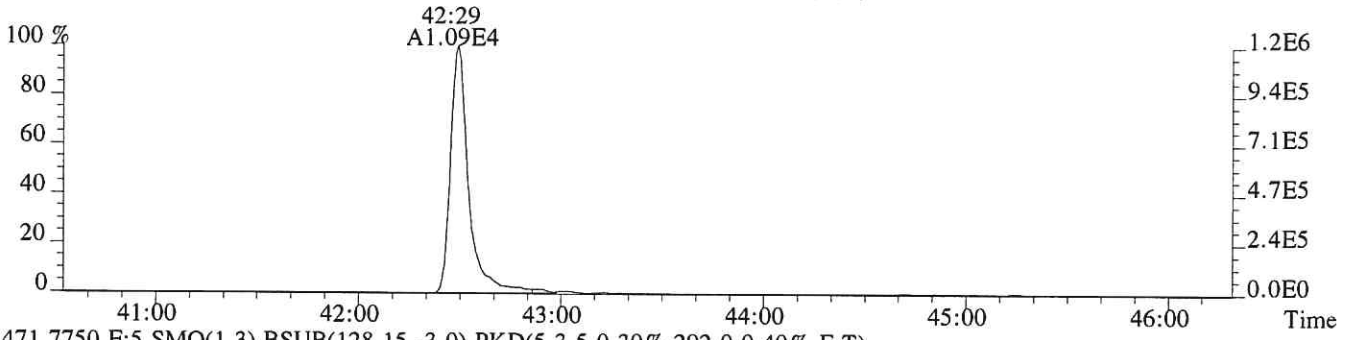
File:P519370 #1-520 Acq:12-DEC-2018 03:02:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



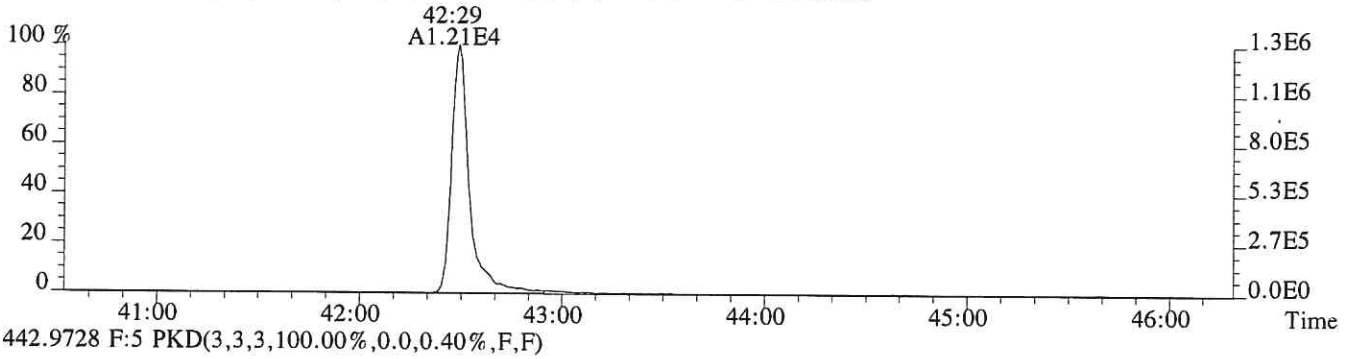
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



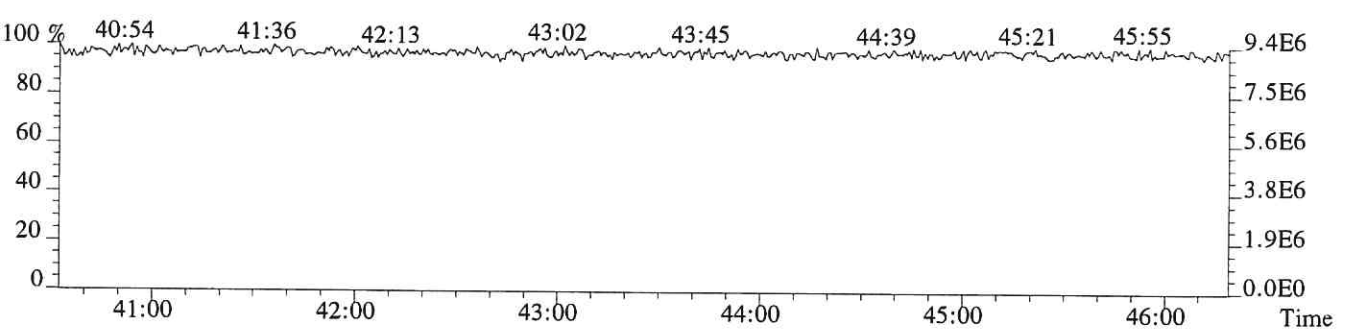
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #19 Filename P519379 Samp: 1 Inj: 1 Acquired: 12-DEC-18 10:20:34
Processed: 13-DEC-18 09:38:41 Sample ID: EQ1800500-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:44	8.170e+02	1.037e+03	0.79	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	6.706e+03	4.582e+03	1.46	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	6.638e+03	4.466e+03	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	5.866e+03	4.817e+03	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	6.630e+03	5.521e+03	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	6.053e+03	4.912e+03	1.23	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	5.054e+03	4.203e+03	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	5.001e+03	4.937e+03	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	4.246e+03	4.334e+03	0.98	yes	no	1.258
10	Unk	OCDF	42:41	5.722e+03	6.686e+03	0.86	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	6.052e+02	8.587e+02	0.70	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	5.041e+03	3.250e+03	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	4.232e+03	3.320e+03	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	4.721e+03	3.720e+03	1.27	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	4.616e+03	3.733e+03	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	3.554e+03	3.405e+03	1.04	yes	no	1.025
17	Unk	OCDD	42:31	4.670e+03	5.078e+03	0.92	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	8.650e+03	1.081e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:05	1.460e+04	9.204e+03	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	1.408e+04	8.685e+03	1.62	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	6.211e+03	1.198e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	7.395e+03	1.438e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	6.733e+03	1.297e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	5.687e+03	1.117e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	4.647e+03	1.049e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	4.039e+03	9.117e+03	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	4.105e+03	5.178e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.027e+04	6.443e+03	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	8.664e+03	6.707e+03	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	8.748e+03	6.924e+03	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	9.311e+03	8.544e+03	1.09	yes	no	0.858
32	IS	13C-OCDD	42:30	8.104e+03	8.851e+03	0.92	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:57	1.164e+04	1.484e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	1.567e+04	1.220e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	5.786e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P519379 Samp: 1 Inj: 1 Acquired: 12-DEC-18 10:20:34
Processed: 13-DEC-18 09:38:41 LAB. ID: EQ1800500-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.41e+05	5.72e+02	2.5e+02	1.71e+05	1.14e+03	1.5e+02
2	1,2,3,7,8-PeCDF	1.20e+06	6.48e+02	1.9e+03	8.07e+05	1.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	1.24e+06	6.48e+02	1.9e+03	8.19e+05	1.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	1.21e+06	6.64e+02	1.8e+03	9.91e+05	1.92e+02	5.2e+03
5	1,2,3,6,7,8-HxCDF	1.26e+06	6.64e+02	1.9e+03	1.05e+06	1.92e+02	5.4e+03
6	2,3,4,6,7,8-HxCDF	1.17e+06	6.64e+02	1.8e+03	9.31e+05	1.92e+02	4.8e+03
7	1,2,3,7,8,9-HxCDF	8.64e+05	6.64e+02	1.3e+03	7.41e+05	1.92e+02	3.9e+03
8	1,2,3,4,6,7,8-HpCDF	9.17e+05	4.72e+02	1.9e+03	8.85e+05	1.42e+03	6.2e+02
9	1,2,3,4,7,8,9-HpCDF	6.71e+05	4.72e+02	1.4e+03	6.41e+05	1.42e+03	4.5e+02
10	OCDF	6.11e+05	2.32e+02	2.6e+03	7.39e+05	5.56e+02	1.3e+03
11	2,3,7,8-TCDD	1.04e+05	1.66e+03	6.3e+01	1.51e+05	8.36e+02	1.8e+02
12	1,2,3,7,8-PeCDD	9.30e+05	1.32e+03	7.1e+02	5.97e+05	2.12e+02	2.8e+03
13	1,2,3,4,7,8-HxCDD	8.82e+05	2.60e+02	3.4e+03	6.90e+05	2.28e+02	3.0e+03
14	1,2,3,6,7,8-HxCDD	8.55e+05	2.60e+02	3.3e+03	6.93e+05	2.28e+02	3.0e+03
15	1,2,3,7,8,9-HxCDD	8.64e+05	2.60e+02	3.3e+03	6.74e+05	2.28e+02	3.0e+03
16	1,2,3,4,6,7,8-HpCDD	5.75e+05	2.72e+02	2.1e+03	5.36e+05	4.32e+02	1.2e+03
17	OCDD	5.15e+05	2.04e+02	2.5e+03	5.45e+05	2.36e+02	2.3e+03
18	13C-2,3,7,8-TCDF	1.48e+06	5.30e+03	2.8e+02	1.85e+06	4.48e+03	4.1e+02
19	13C-1,2,3,7,8-PeCDF	2.59e+06	7.28e+02	3.6e+03	1.63e+06	7.12e+02	2.3e+03
20	13C-2,3,4,7,8-PeCDF	2.65e+06	7.28e+02	3.6e+03	1.66e+06	7.12e+02	2.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.28e+06	4.12e+02	3.1e+03	2.42e+06	8.68e+02	2.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.39e+06	4.12e+02	3.4e+03	2.77e+06	8.68e+02	3.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.28e+06	4.12e+02	3.1e+03	2.42e+06	8.68e+02	2.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.01e+06	4.12e+02	2.4e+03	1.92e+06	8.68e+02	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.08e+05	1.04e+03	7.7e+02	1.88e+06	8.48e+02	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.05e+05	1.04e+03	5.8e+02	1.35e+06	8.48e+02	1.6e+03
27	13C-2,3,7,8-TCDD	7.31e+05	4.61e+03	1.6e+02	9.35e+05	1.42e+03	6.6e+02
28	13C-1,2,3,7,8-PeCDD	1.87e+06	6.64e+02	2.8e+03	1.14e+06	9.72e+02	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.82e+06	8.64e+02	2.1e+03	1.41e+06	3.92e+02	3.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.61e+06	8.64e+02	1.9e+03	1.29e+06	3.92e+02	3.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.48e+06	4.08e+02	3.6e+03	1.33e+06	2.68e+02	5.0e+03
32	13C-OCDD	8.62e+05	2.00e+02	4.3e+03	9.46e+05	1.96e+02	4.8e+03
33	13C-1,2,3,4-TCDD	2.08e+06	4.61e+03	4.5e+02	2.65e+06	1.42e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	2.92e+06	8.64e+02	3.4e+03	2.28e+06	3.92e+02	5.8e+03
35	37Cl-2,3,7,8-TCDD	1.02e+06	1.06e+03	9.7e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.664e{+}03 + 8.360e{+}02\ ) \times 2000}{(7.309e{+}05 + 9.346e{+}05\ ) \times (\qquad\qquad\qquad\qquad) \times 1.085} =$$

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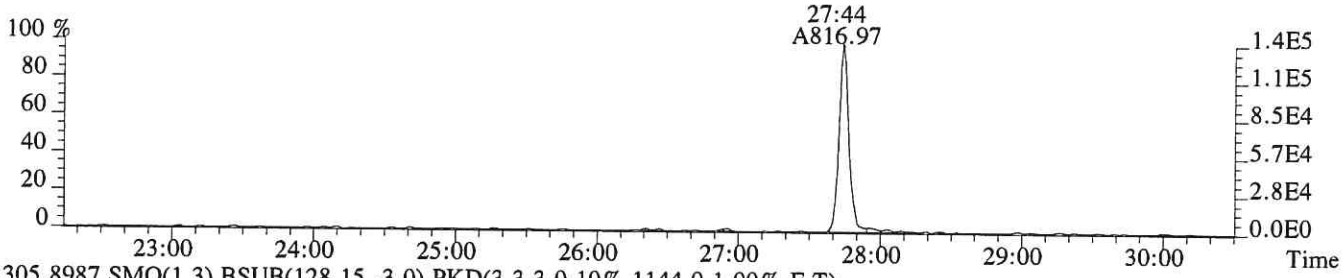
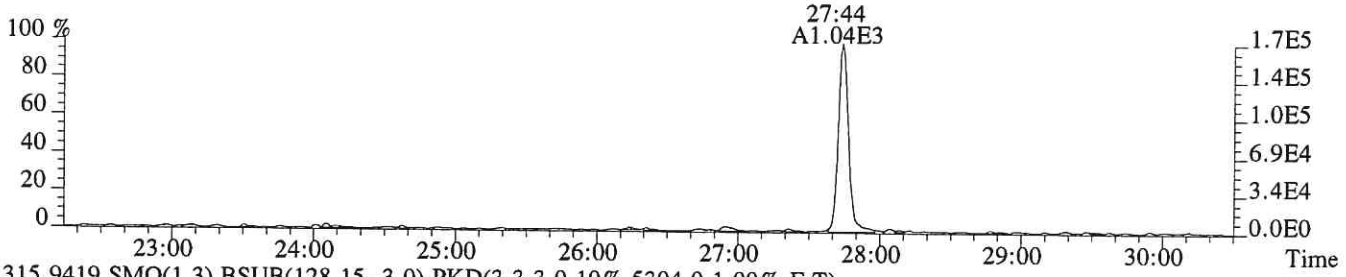
File:P519379 #1-587 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02

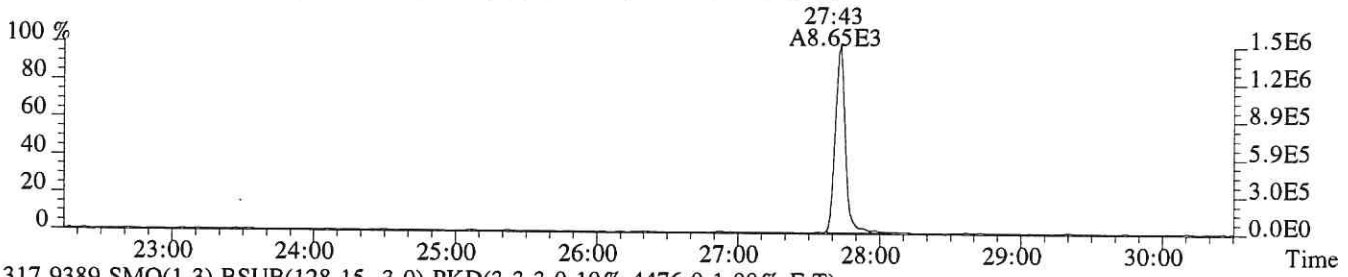
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



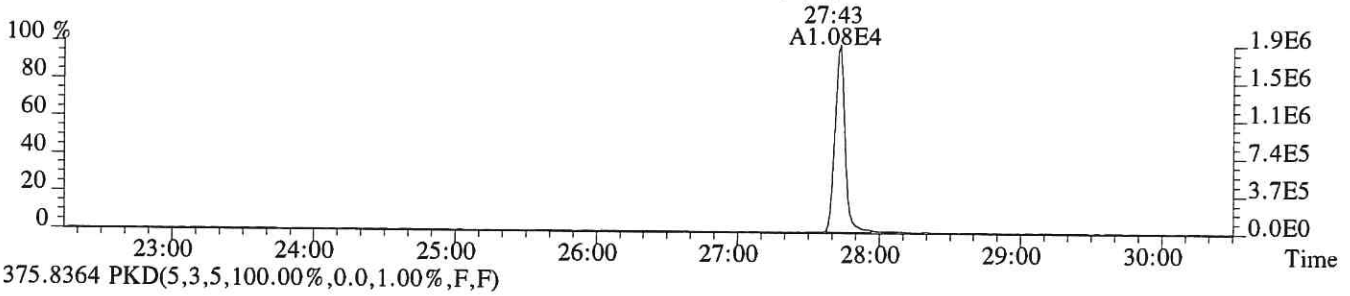
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



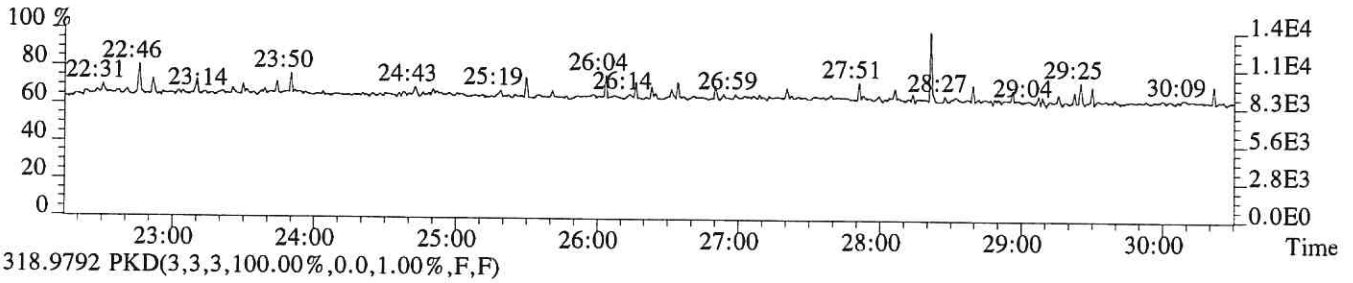
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5304.0,1.00%,F,T)



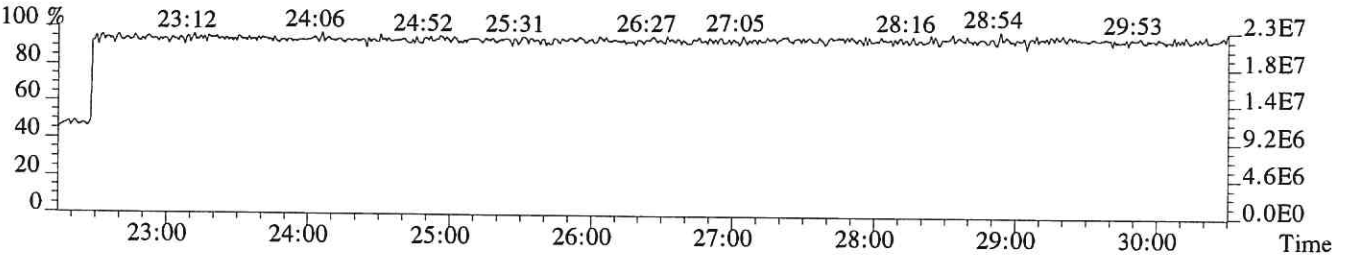
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4476.0,1.00%,F,T)



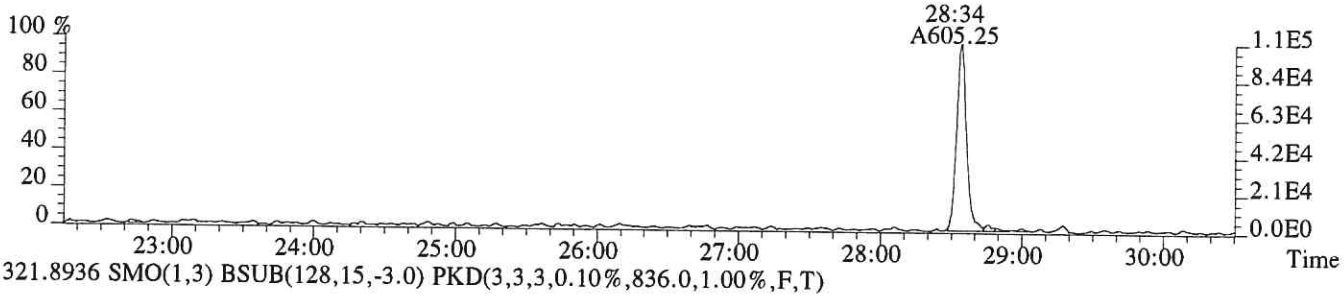
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



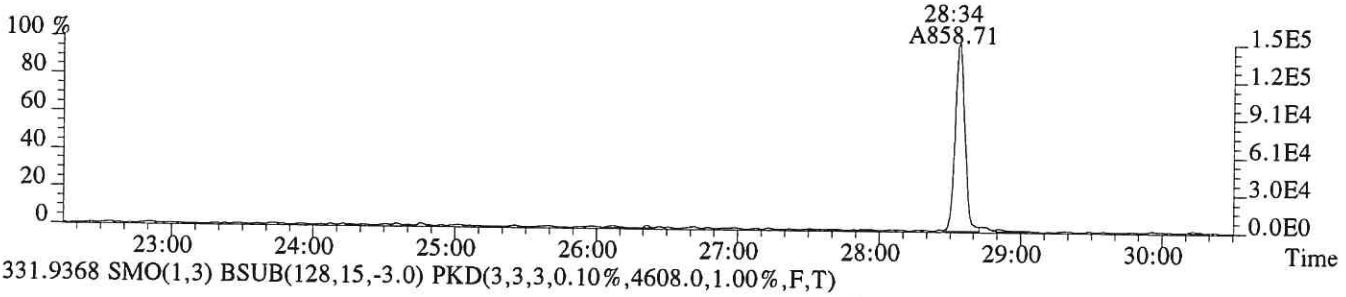
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



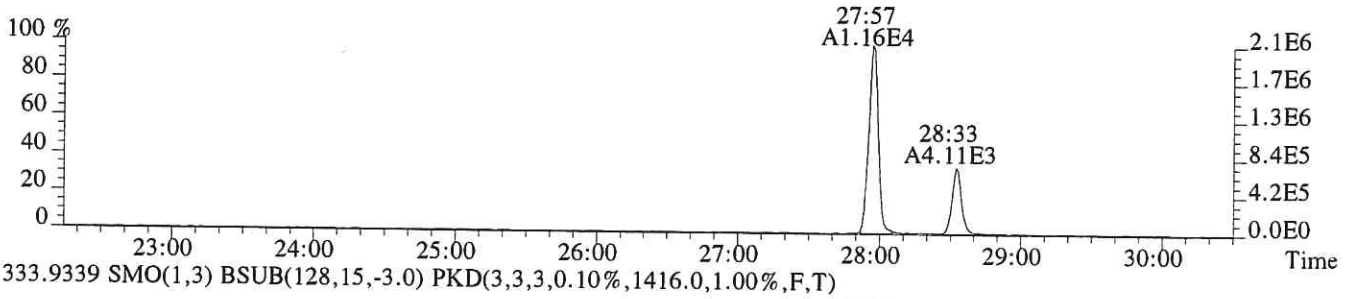
File:P519379 #1-587 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



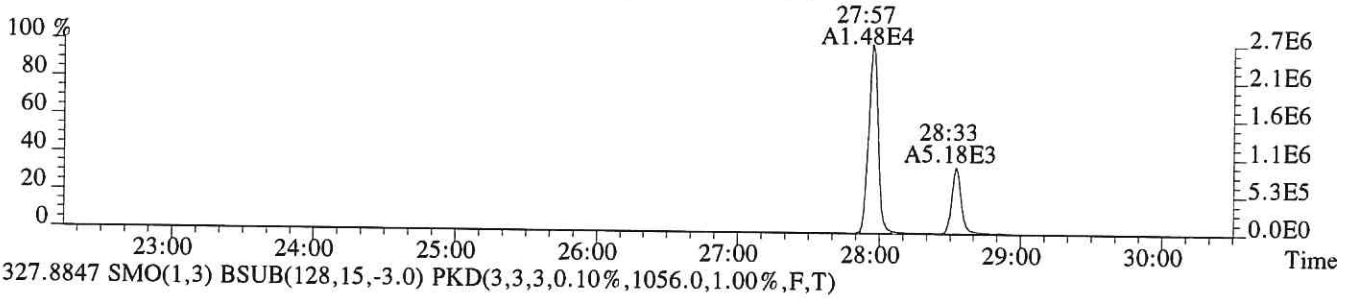
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



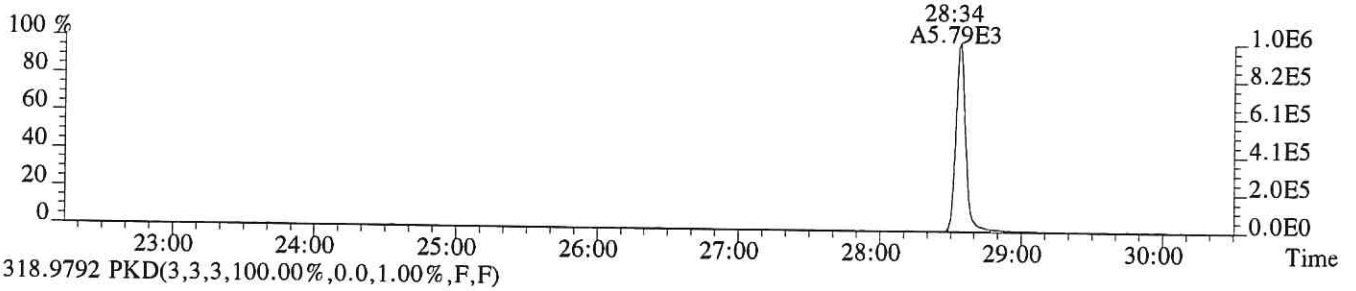
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4608.0,1.00%,F,T)



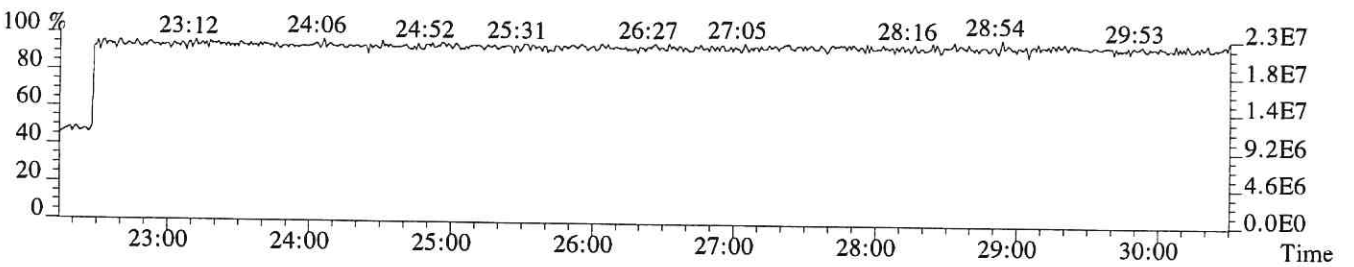
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



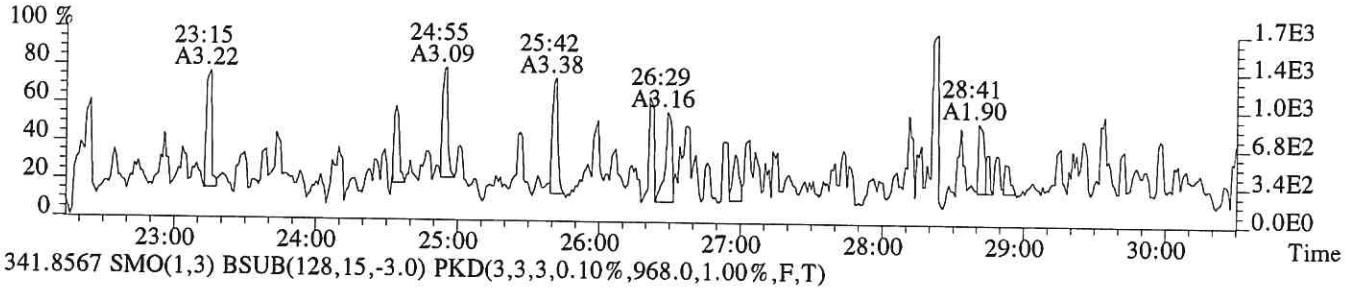
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)



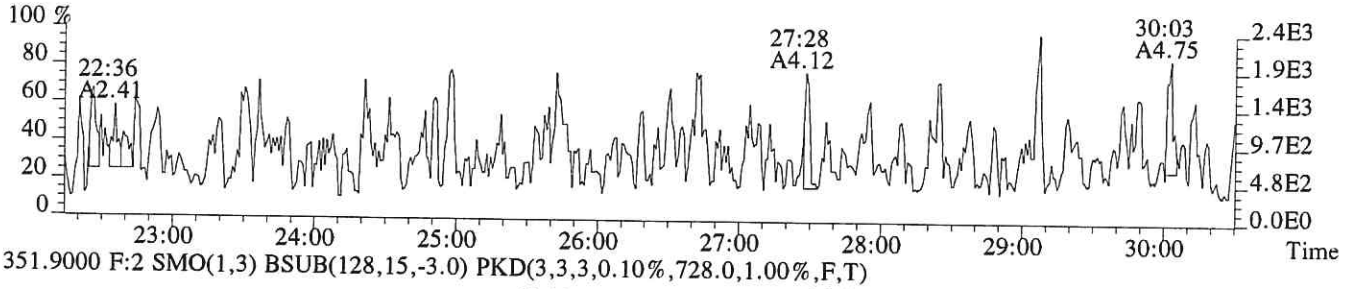
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



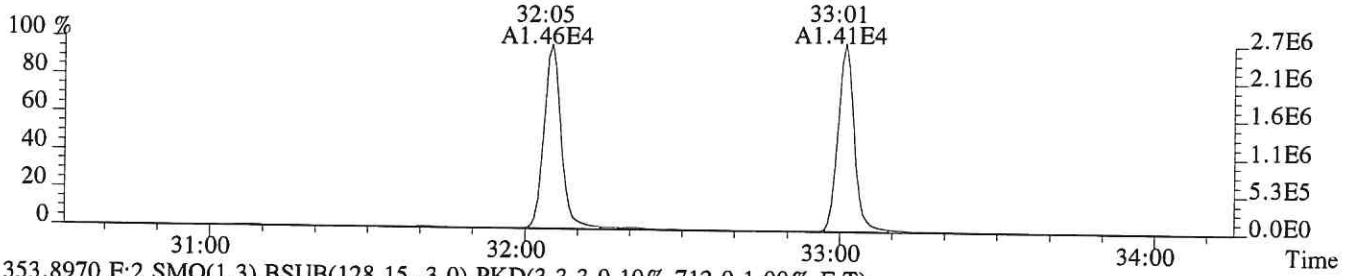
File:P519379 #1-587 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



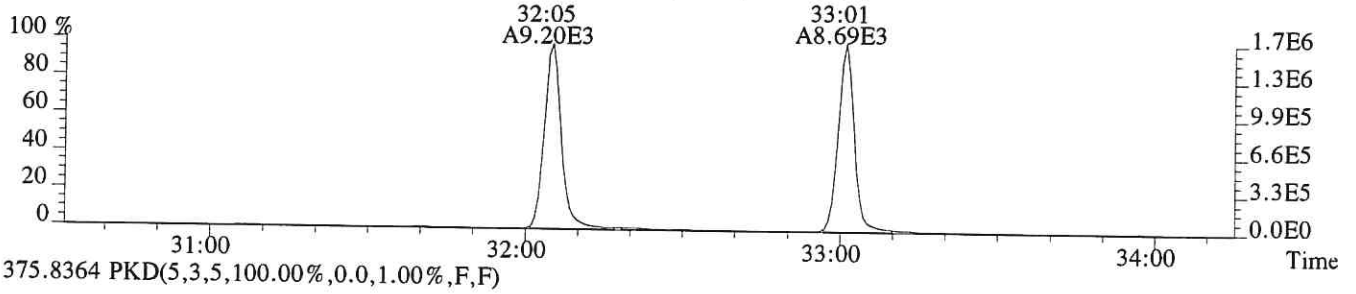
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



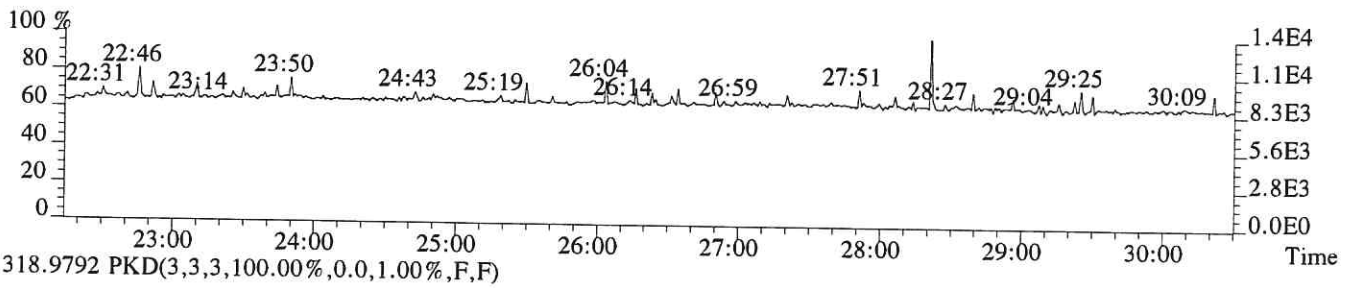
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



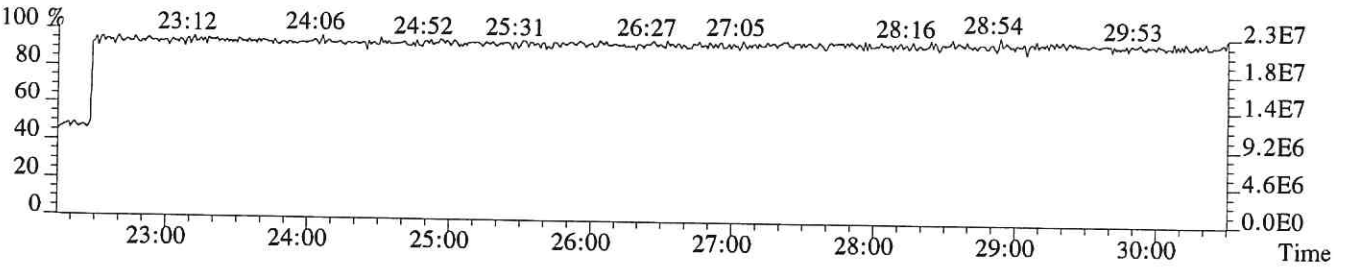
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

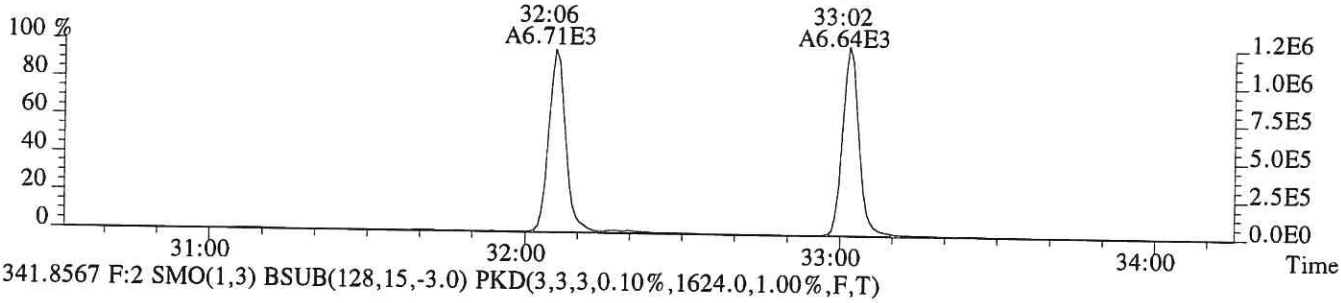


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

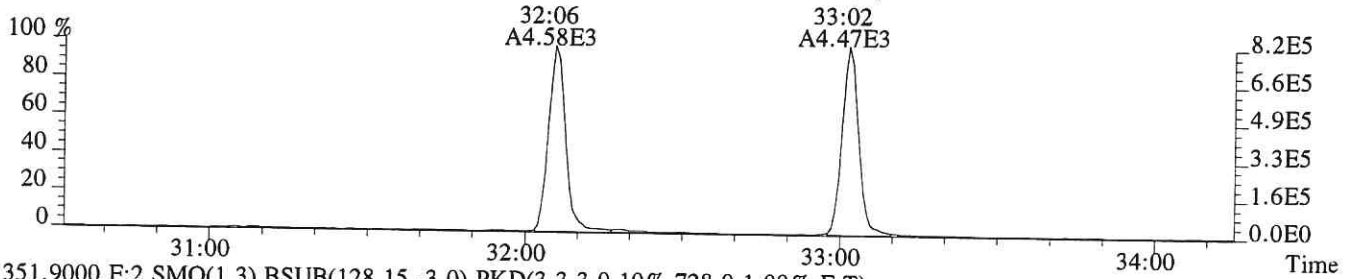


File:P519379 #1-335 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02

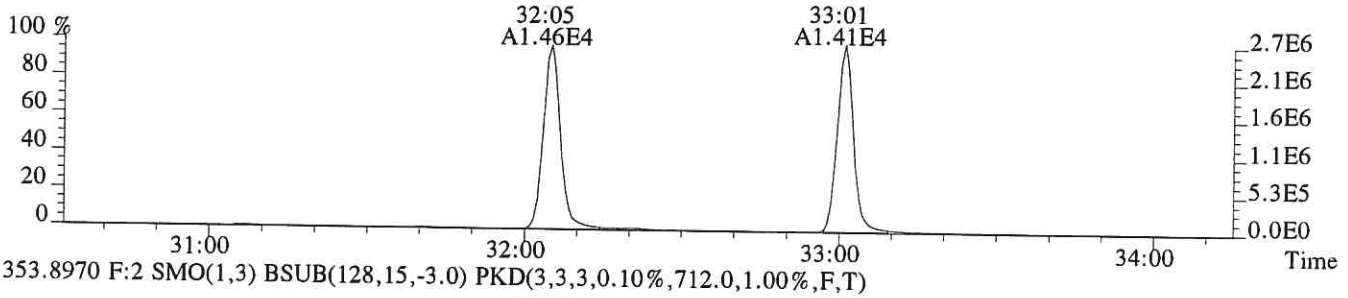
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



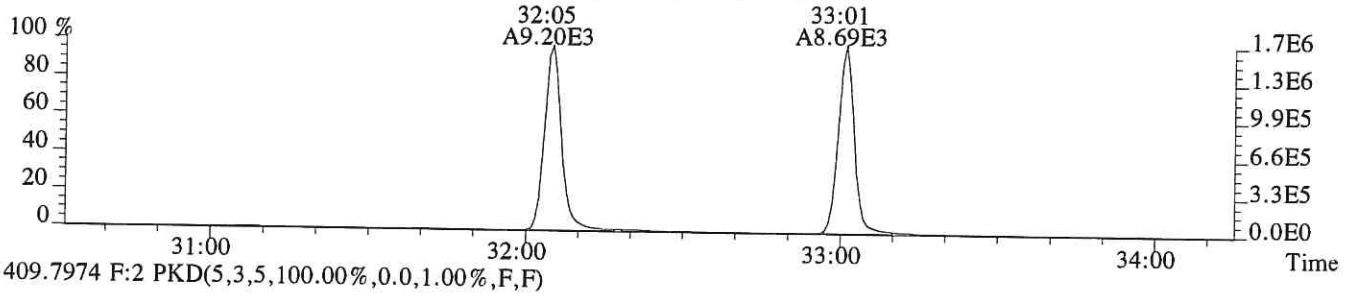
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



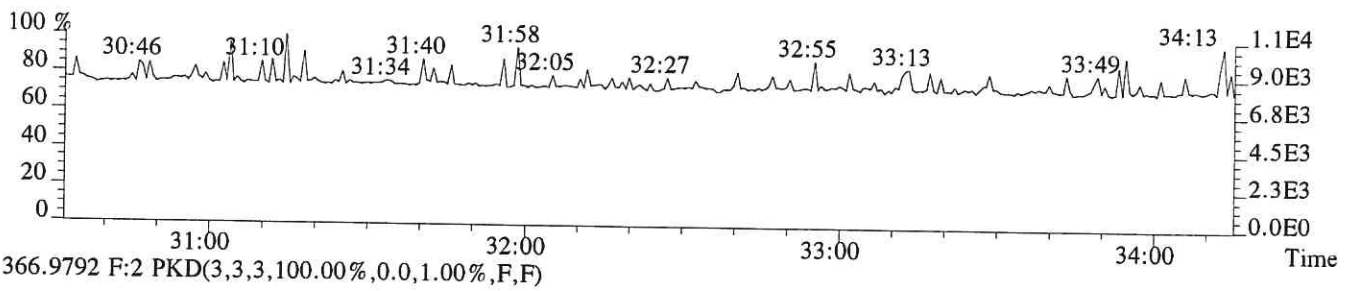
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



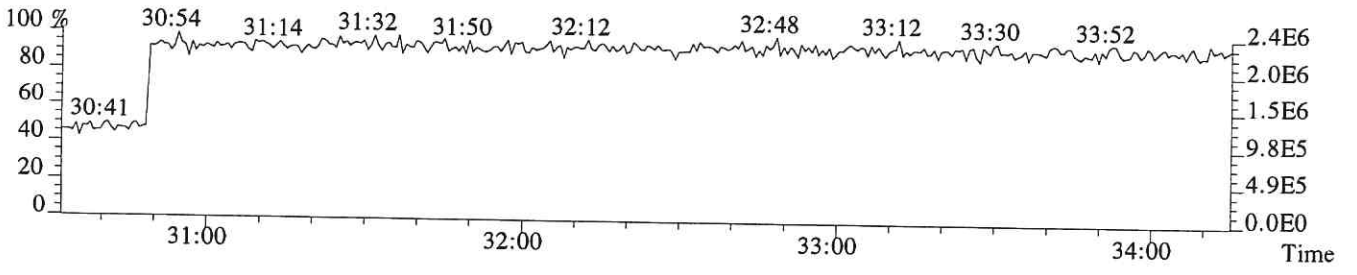
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



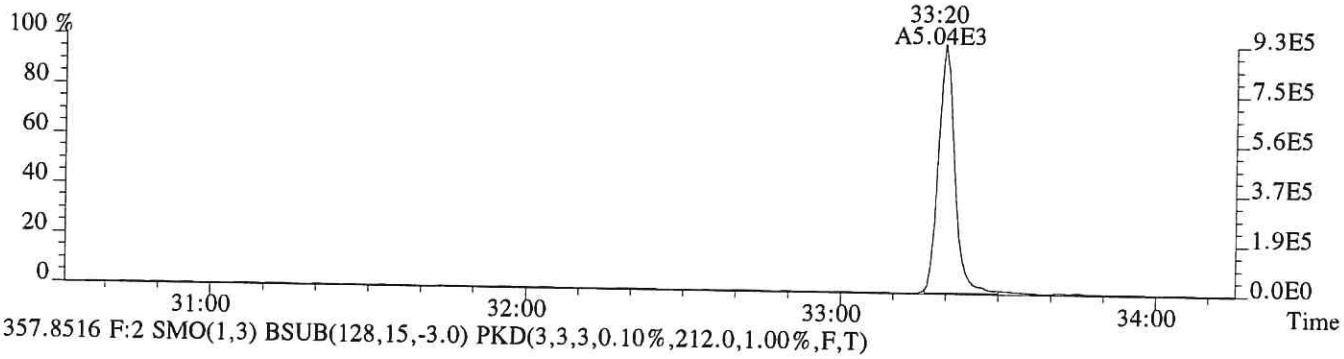
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



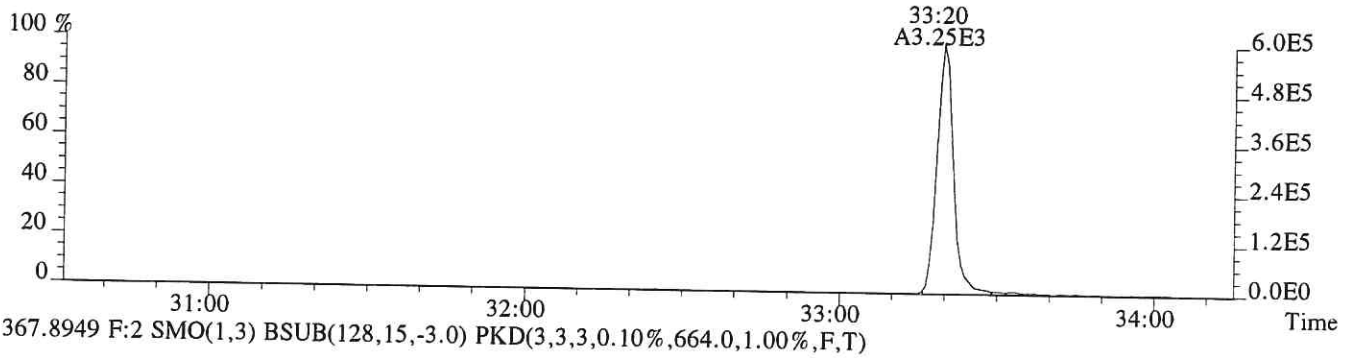
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



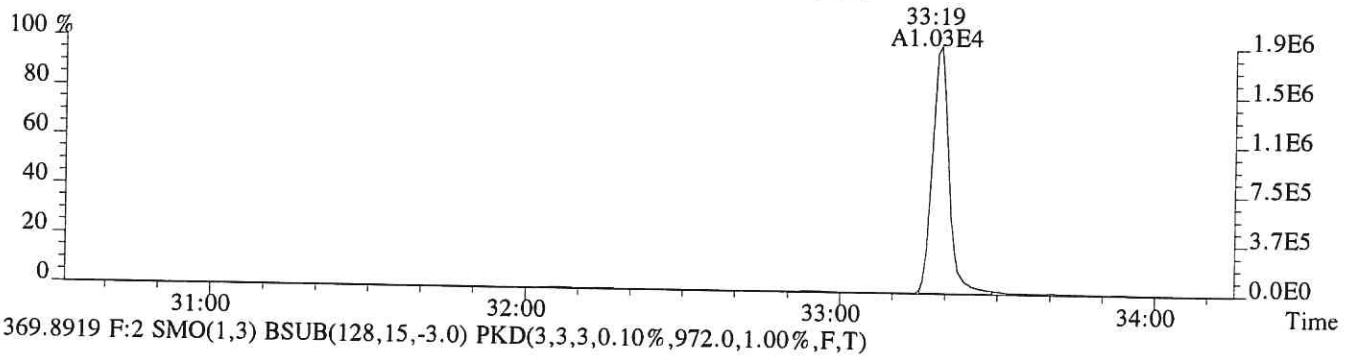
File:P519379 #1-335 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



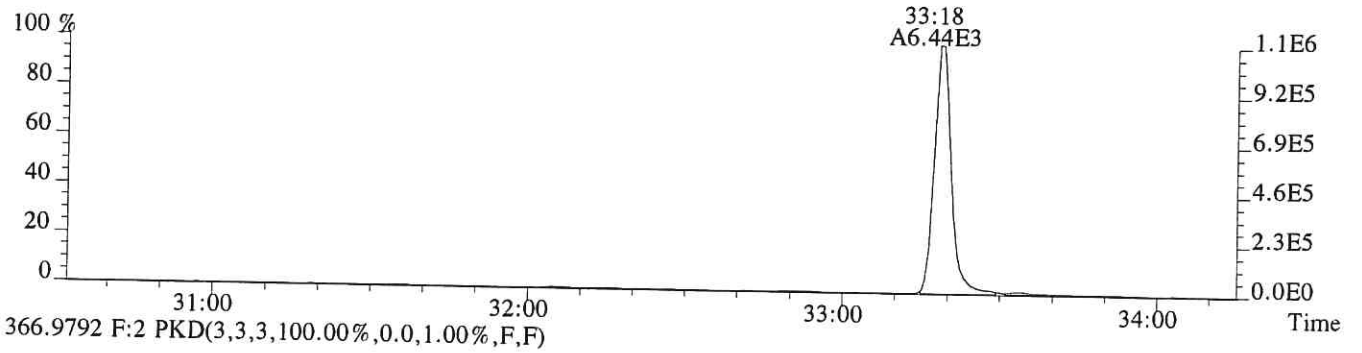
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



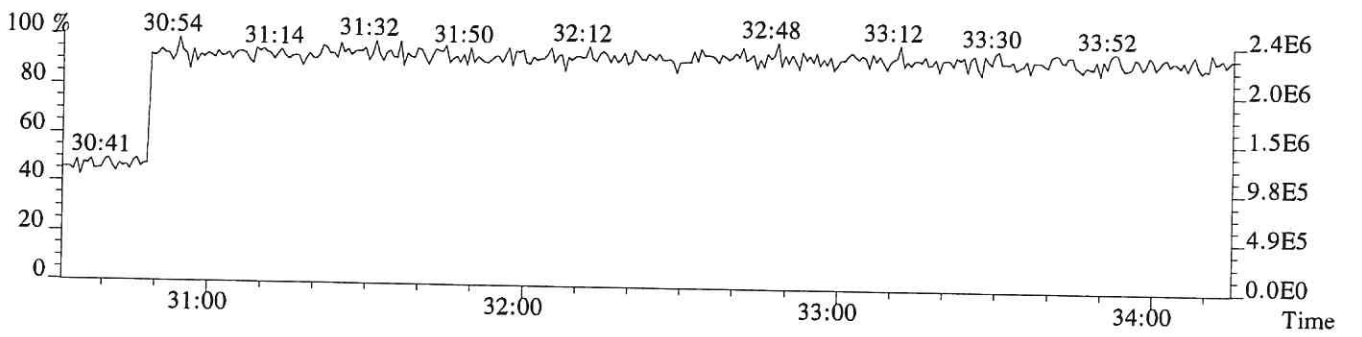
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)

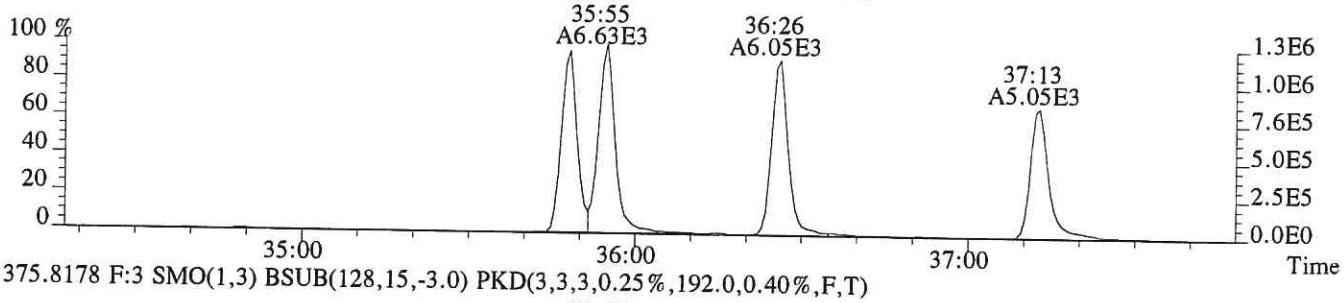


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

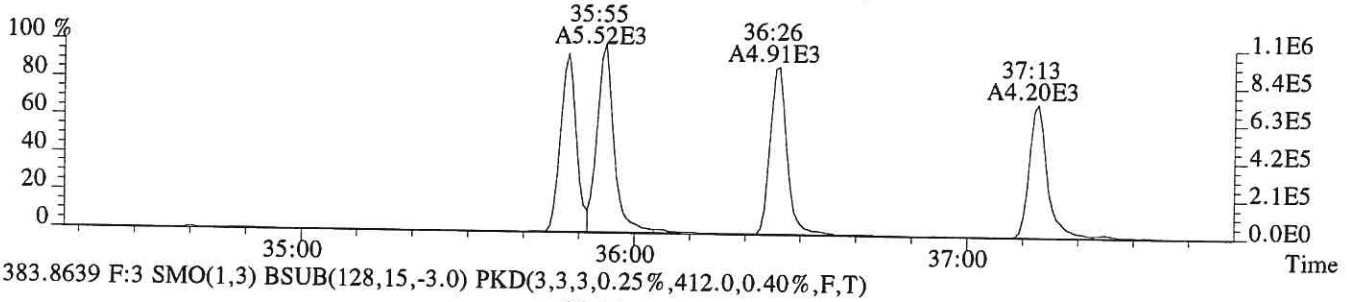


File:P519379 #1-317 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02

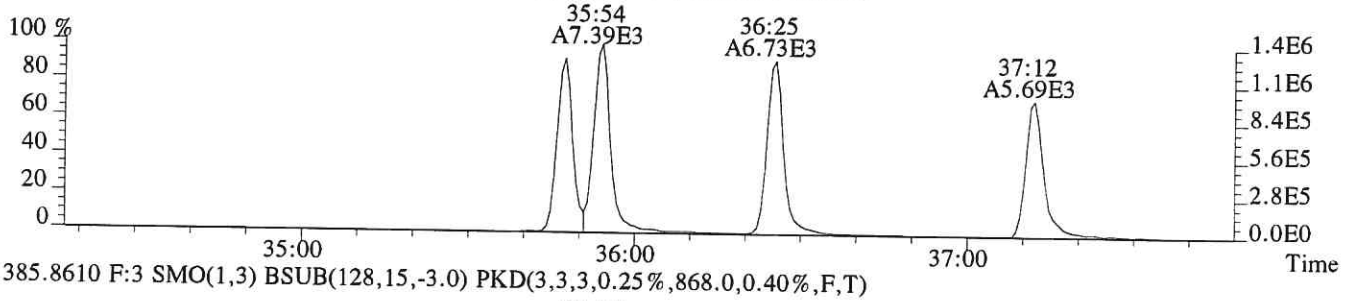
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



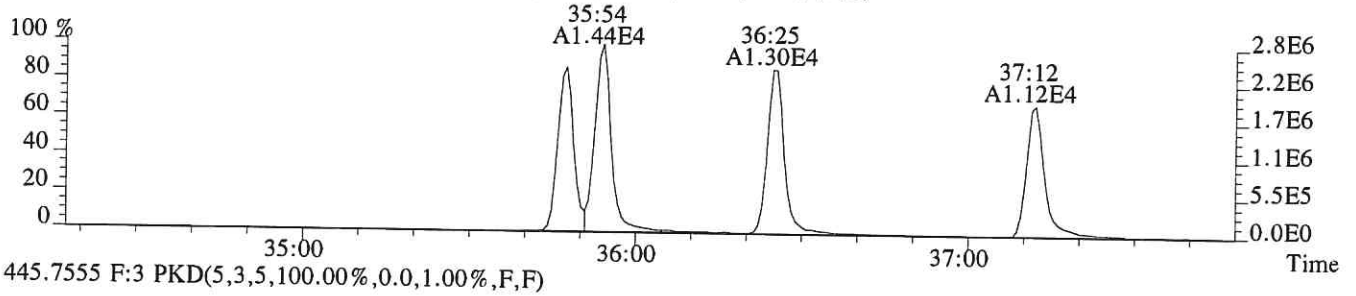
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



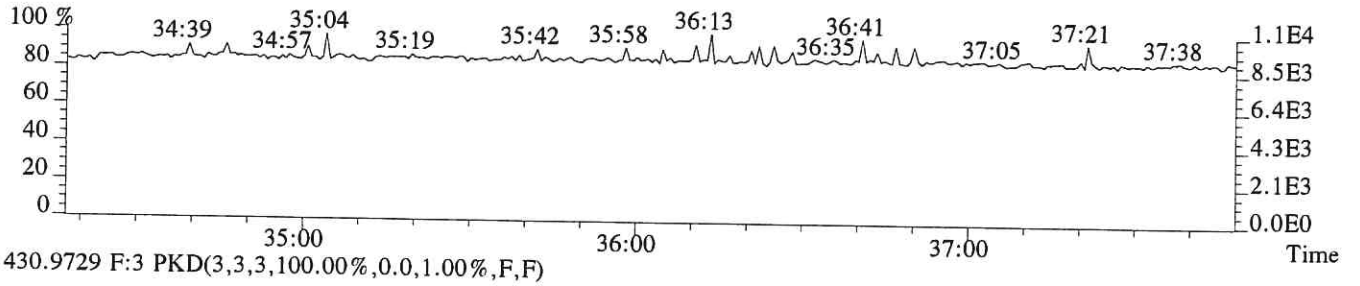
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



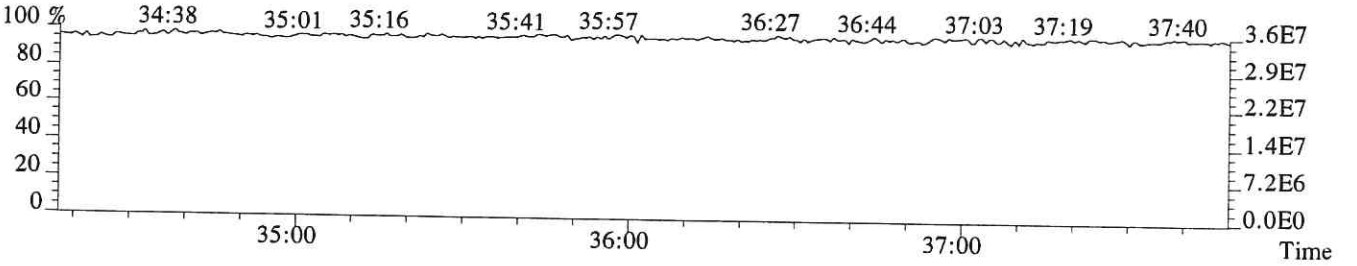
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



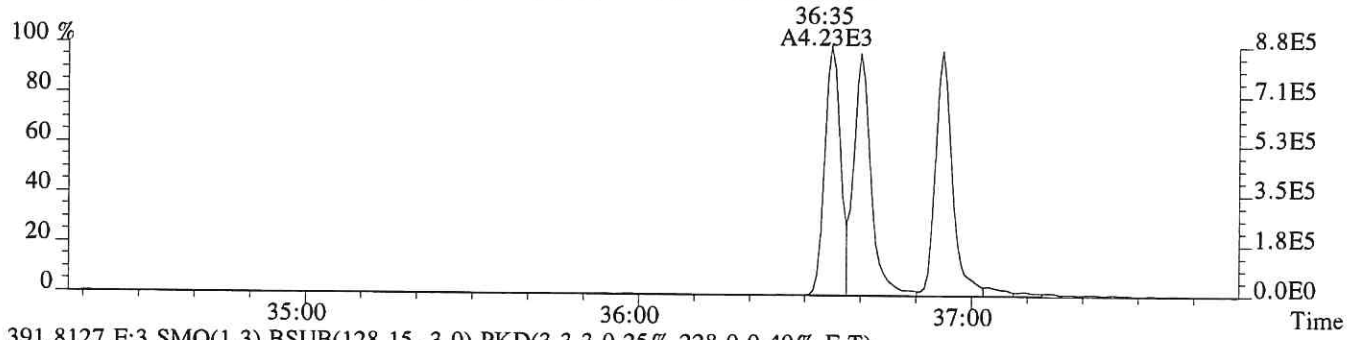
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



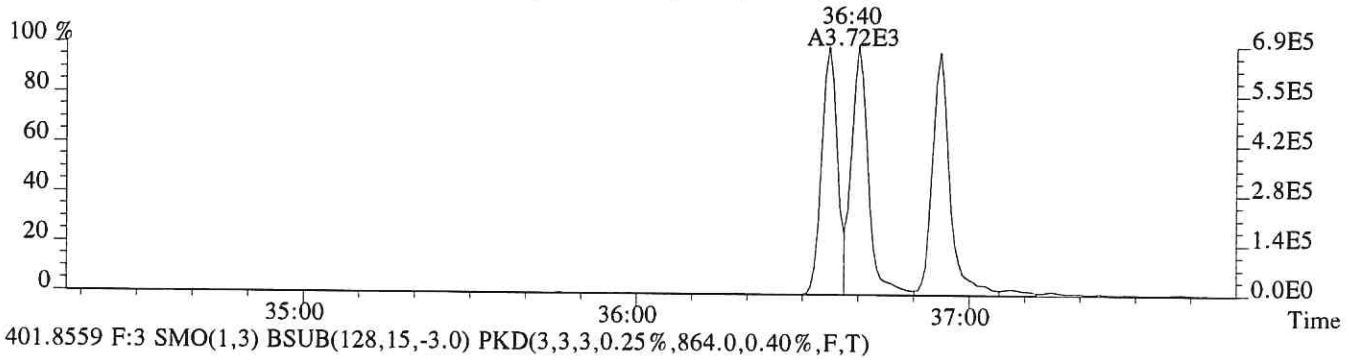
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



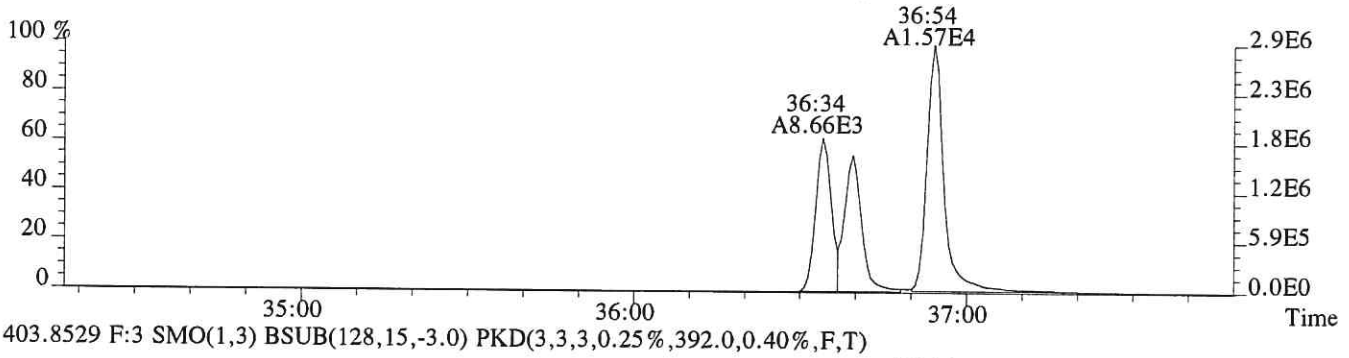
File:P519379 #1-317 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



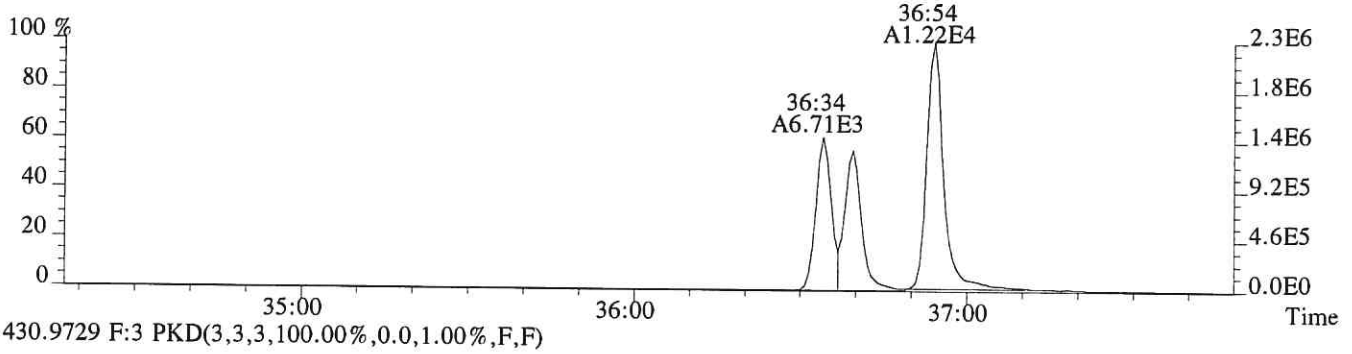
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



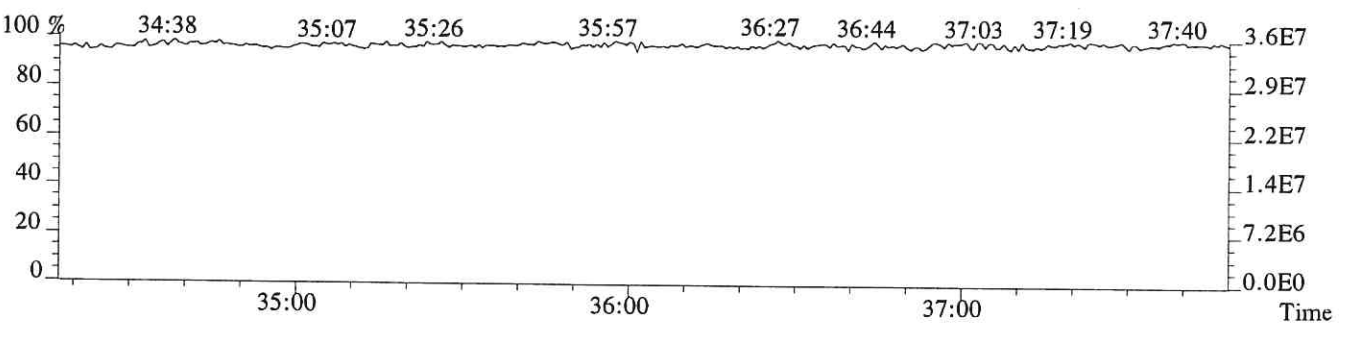
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)

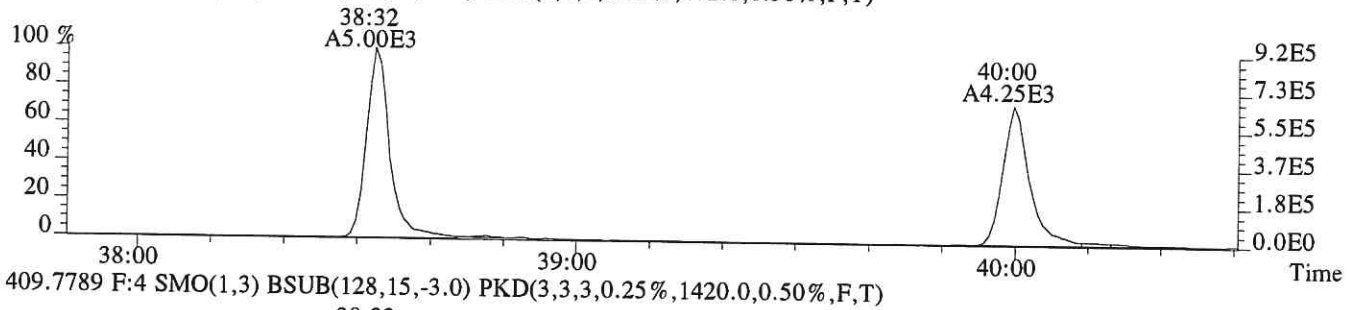


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

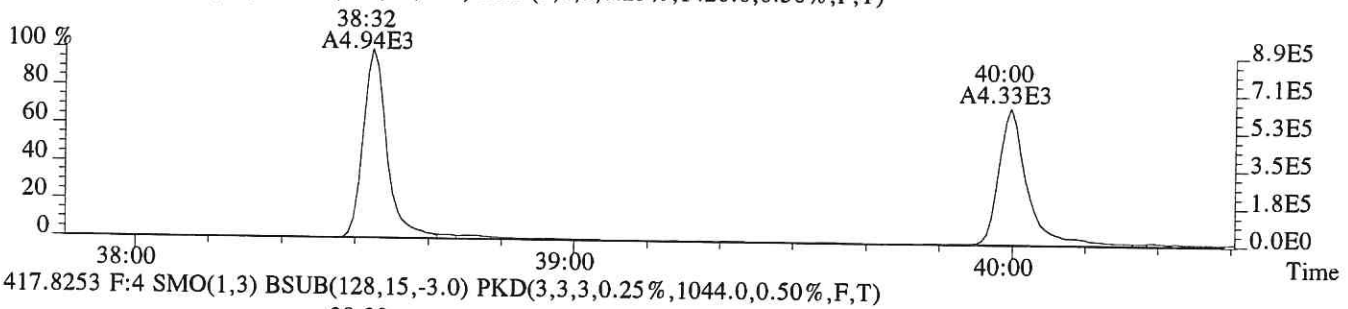


File:P519379 #1-241 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02

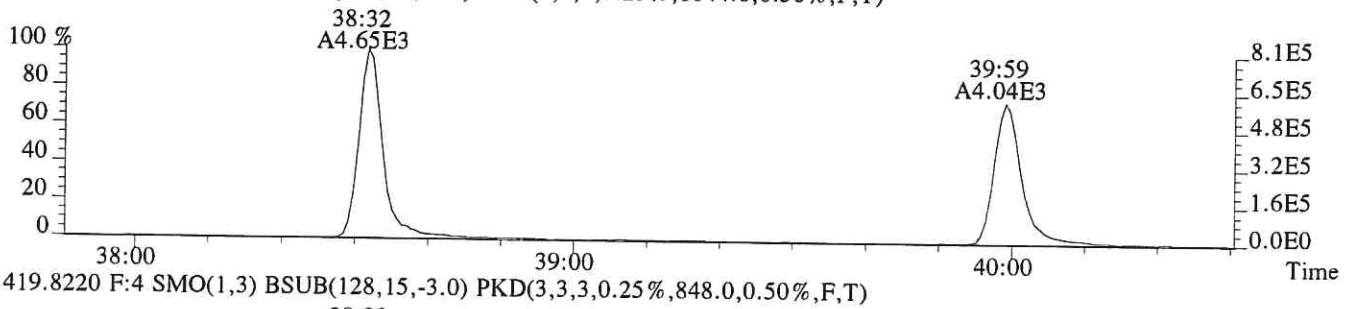
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.50%,F,T)



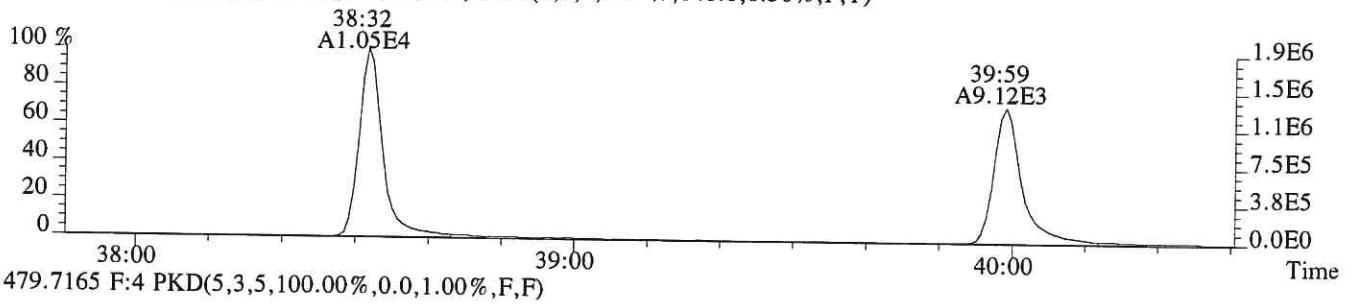
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.50%,F,T)



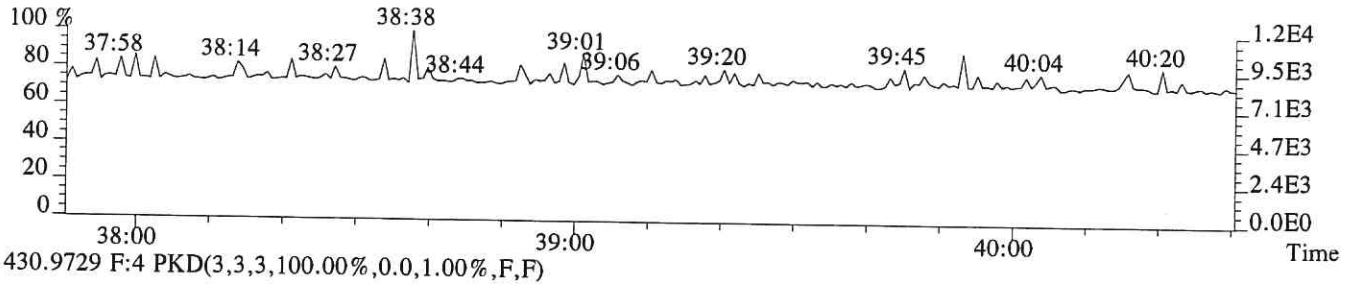
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.50%,F,T)



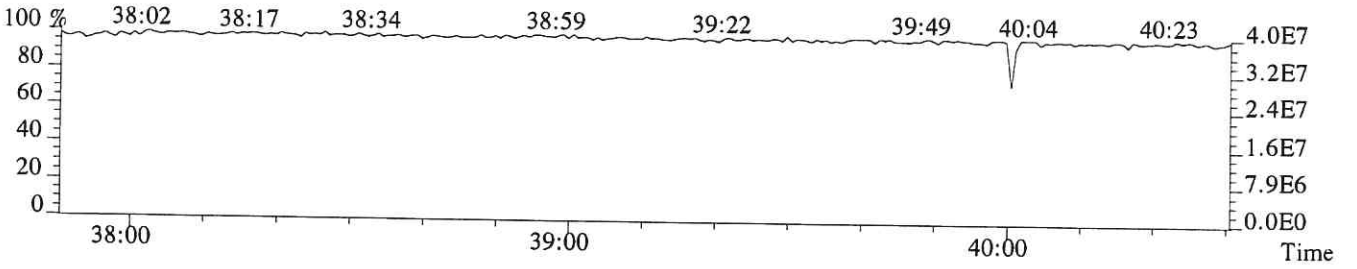
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.50%,F,T)



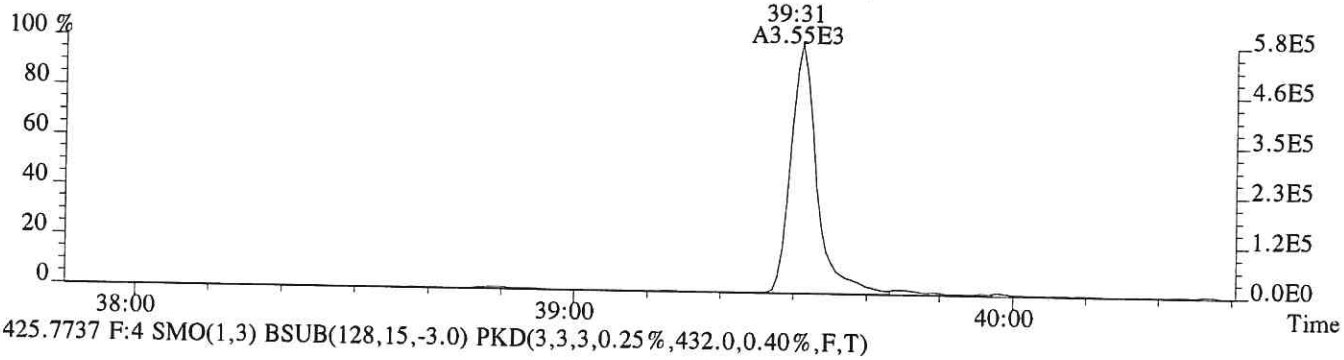
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



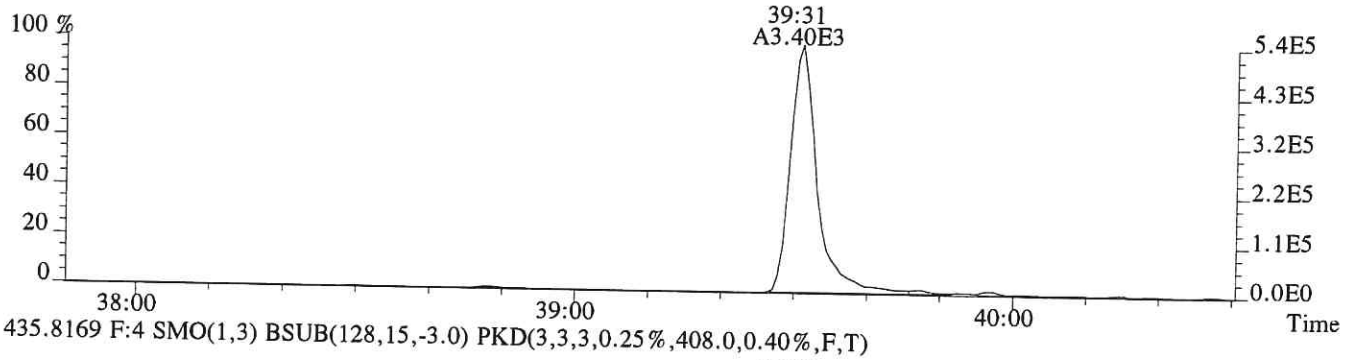
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



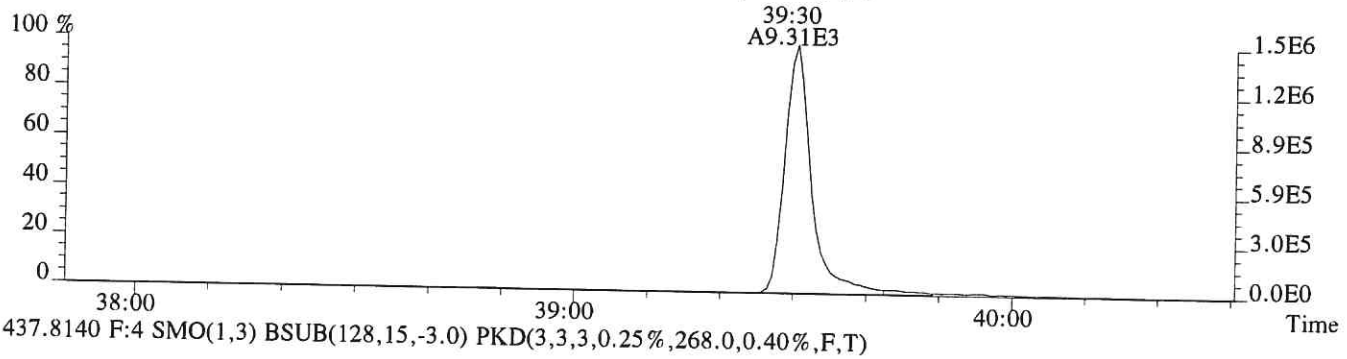
File:P519379 #1-241 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



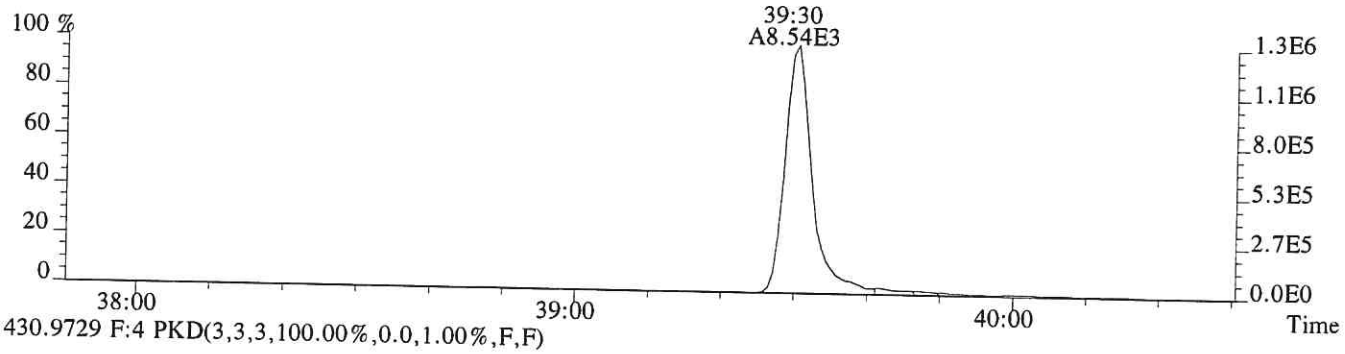
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



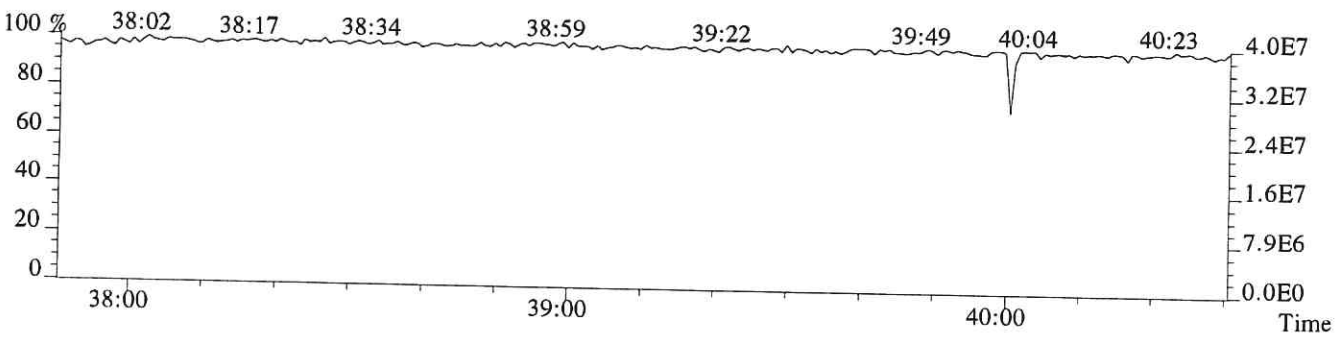
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)

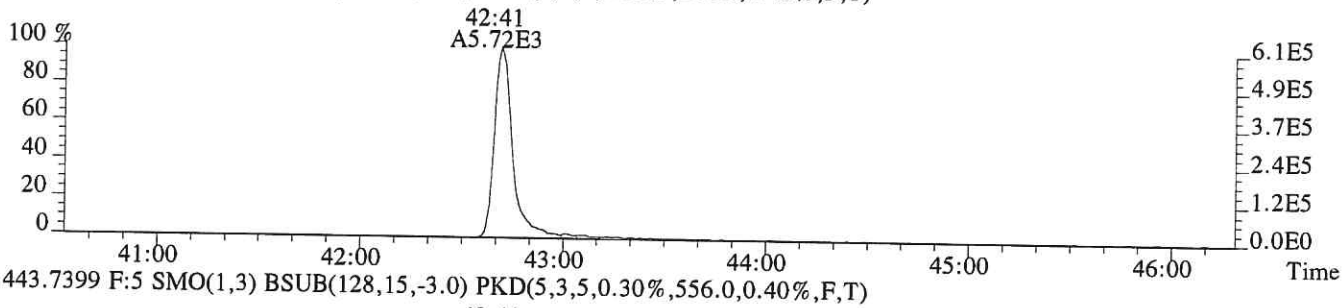


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

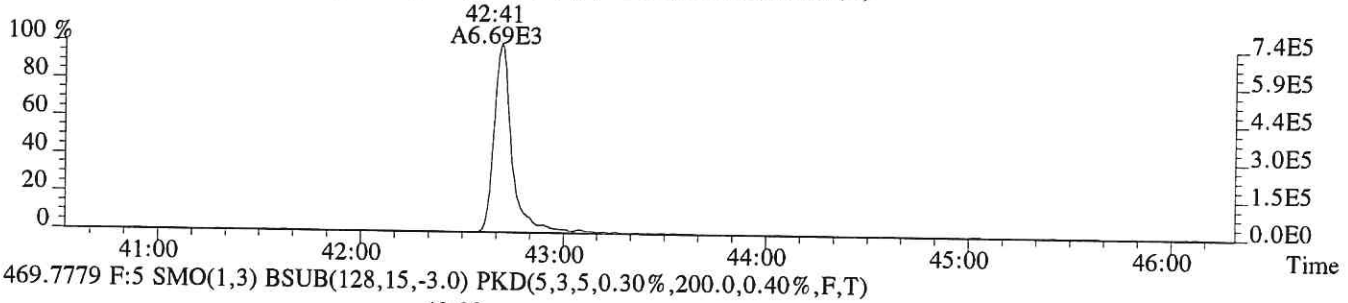


File:P519379 #1-520 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02

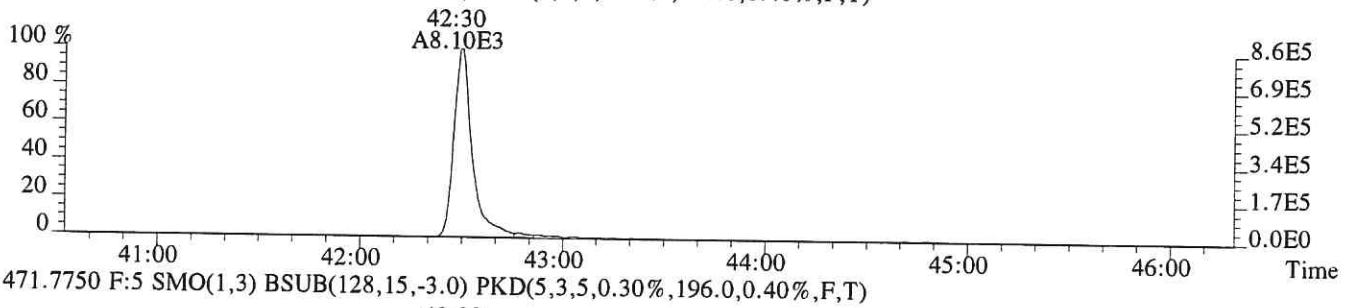
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



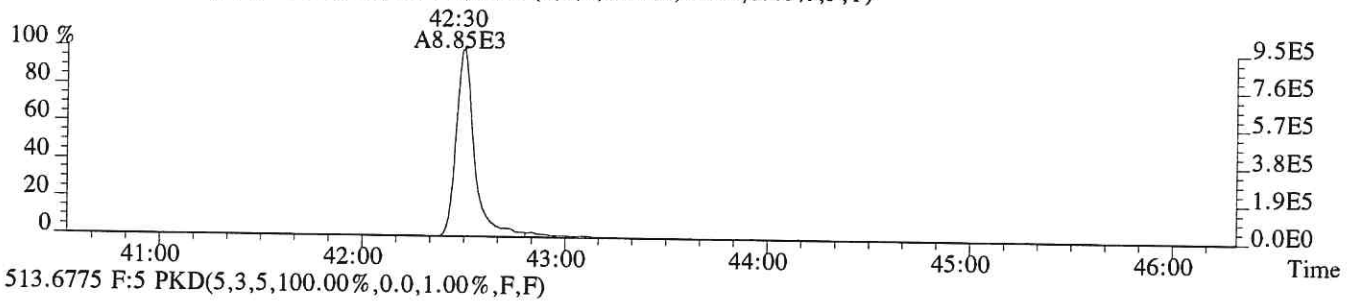
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



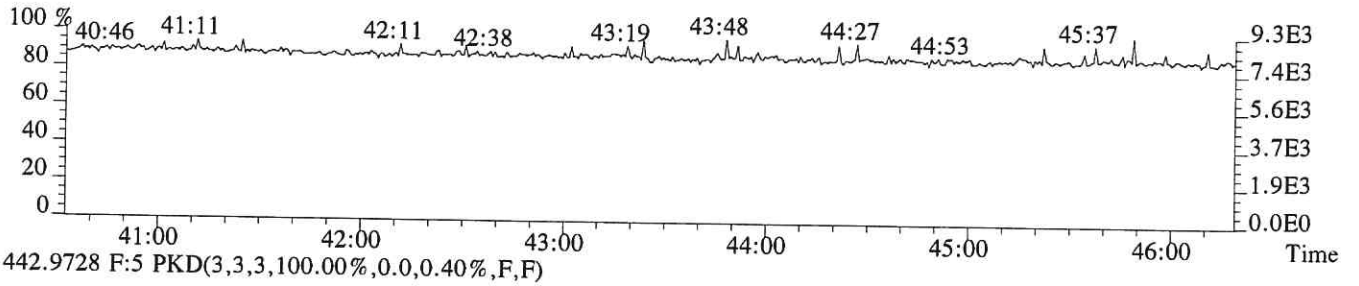
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



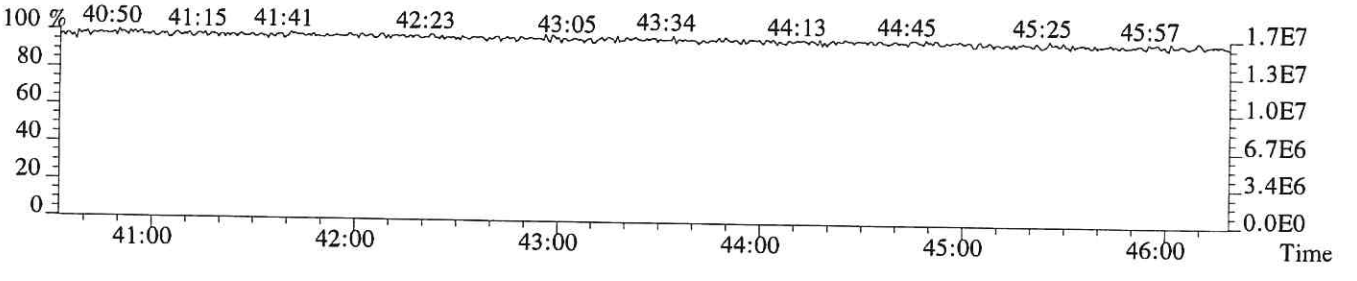
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



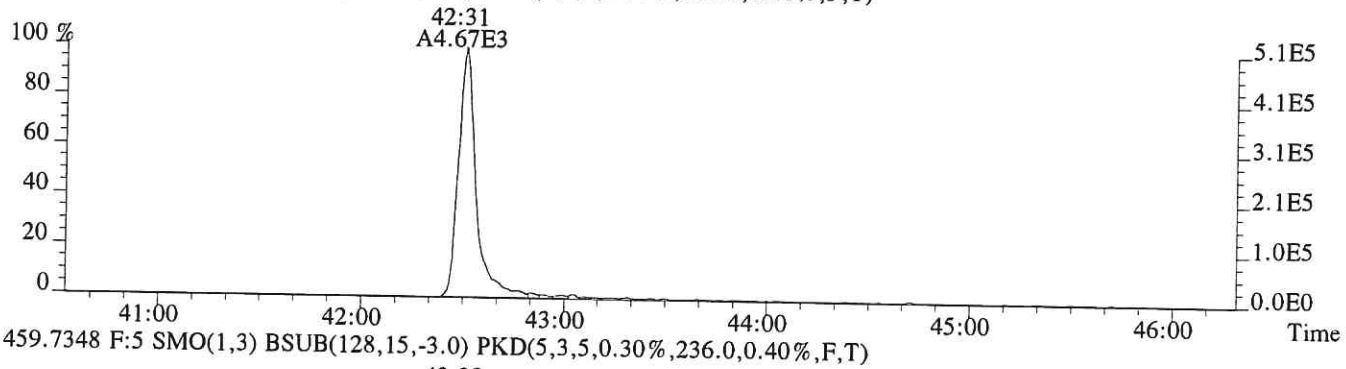
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



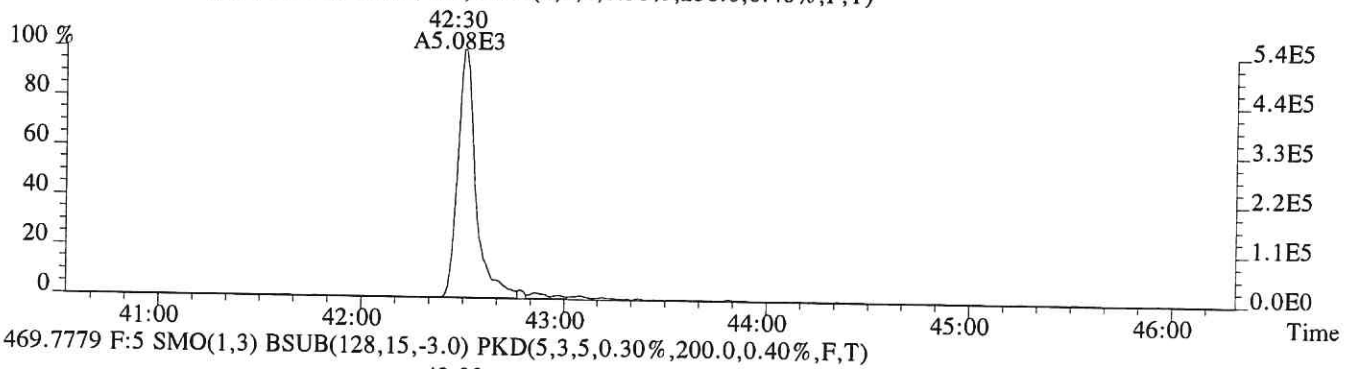
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



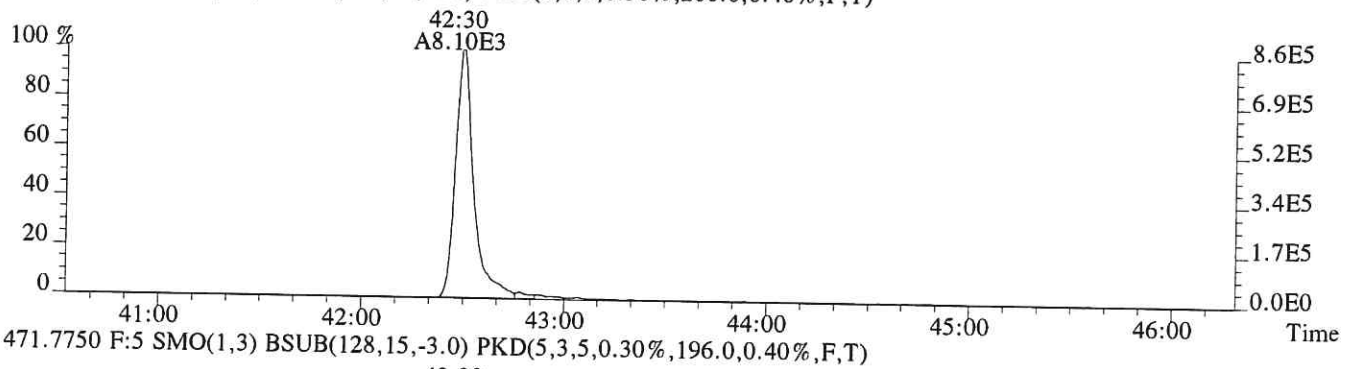
File:P519379 #1-520 Acq:12-DEC-2018 10:20:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



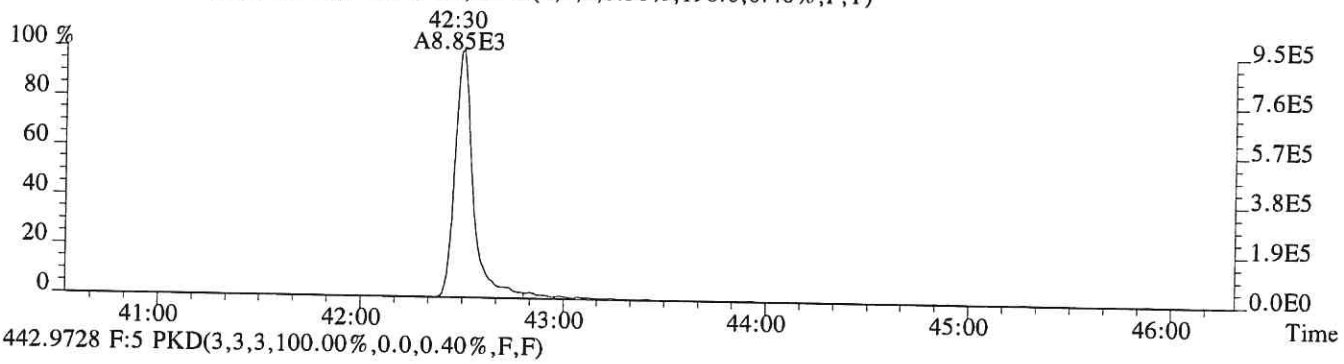
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



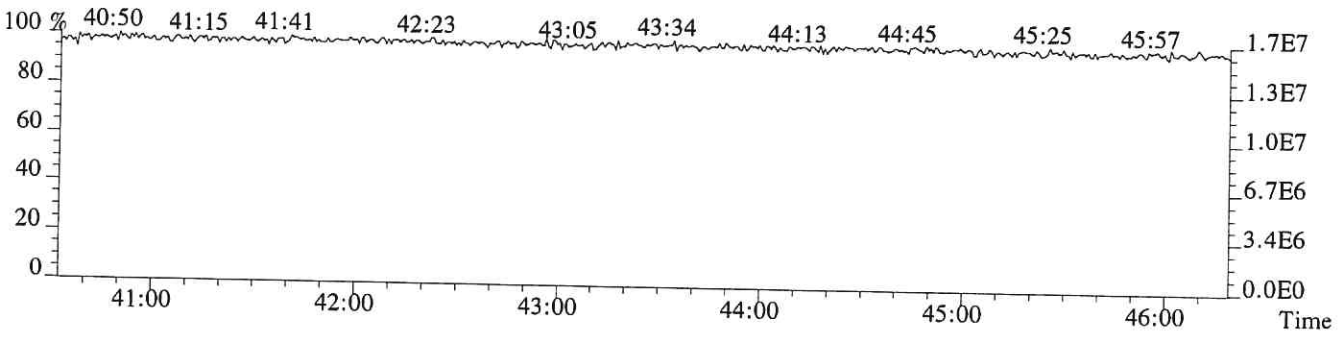
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,196.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #20 Filename P519380 Samp: 1 Inj: 1 Acquired: 12-DEC-18 11:09:11
Processed: 13-DEC-18 09:39:37 Sample ID: EQ1800500-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	1.364e+03	1.810e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:06	1.278e+04	8.564e+03	1.49	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	1.271e+04	8.255e+03	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	1.079e+04	8.782e+03	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.209e+04	9.801e+03	1.23	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	1.062e+04	8.942e+03	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	9.367e+03	7.732e+03	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	7.829e+03	7.670e+03	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:00	7.682e+03	7.468e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:42	8.043e+03	9.005e+03	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:34	1.169e+03	1.382e+03	0.85	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	9.472e+03	5.737e+03	1.65	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	7.459e+03	5.938e+03	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	8.837e+03	6.989e+03	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	8.519e+03	6.510e+03	1.31	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:32	5.854e+03	5.715e+03	1.02	yes	no	1.025
17	Unk	OCDD	42:31	5.988e+03	6.558e+03	0.91	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	1.551e+04	1.912e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	2.796e+04	1.750e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:01	2.687e+04	1.673e+04	1.61	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	1.108e+04	2.126e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.339e+04	2.616e+04	0.51	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.185e+04	2.309e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	1.058e+04	2.037e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	7.356e+03	1.673e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:00	7.090e+03	1.648e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	7.198e+03	8.968e+03	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	1.942e+04	1.222e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.561e+04	1.215e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.679e+04	1.321e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:31	1.569e+04	1.442e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:31	1.088e+04	1.191e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	1.998e+04	2.481e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	2.760e+04	2.094e+04	1.32	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	1.032e+04				no	1.014

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #20 Filename P519380 Samp: 1 Inj: 1 Acquired: 12-DEC-18 11:09:11
Processed: 13-DEC-18 09:39:37 LAB. ID: EQ1800500-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.32e+05	6.04e+02	3.8e+02	2.99e+05	1.14e+03	2.6e+02
2	1,2,3,7,8-PeCDF	2.23e+06	2.32e+02	9.6e+03	1.51e+06	1.18e+03	1.3e+03
3	2,3,4,7,8-PeCDF	2.37e+06	2.32e+02	1.0e+04	1.54e+06	1.18e+03	1.3e+03
4	1,2,3,4,7,8-HxCDF	2.15e+06	6.24e+02	3.5e+03	1.72e+06	4.24e+02	4.1e+03
5	1,2,3,6,7,8-HxCDF	2.27e+06	6.24e+02	3.6e+03	1.78e+06	4.24e+02	4.2e+03
6	2,3,4,6,7,8-HxCDF	2.16e+06	6.24e+02	3.5e+03	1.74e+06	4.24e+02	4.1e+03
7	1,2,3,7,8,9-HxCDF	1.66e+06	6.24e+02	2.7e+03	1.35e+06	4.24e+02	3.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.42e+06	1.18e+03	1.2e+03	1.38e+06	3.00e+03	4.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.13e+06	1.18e+03	9.5e+02	1.06e+06	3.00e+03	3.5e+02
10	OCDF	8.76e+05	3.76e+02	2.3e+03	1.04e+06	6.96e+02	1.5e+03
11	2,3,7,8-TCDD	2.06e+05	1.40e+03	1.5e+02	2.50e+05	1.08e+03	2.3e+02
12	1,2,3,7,8-PeCDD	1.75e+06	4.80e+02	3.6e+03	1.04e+06	2.04e+02	5.1e+03
13	1,2,3,4,7,8-HxCDD	1.58e+06	3.28e+02	4.8e+03	1.26e+06	3.16e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	1.59e+06	3.28e+02	4.9e+03	1.27e+06	3.16e+02	4.0e+03
15	1,2,3,7,8,9-HxCDD	1.50e+06	3.28e+02	4.6e+03	1.18e+06	3.16e+02	3.7e+03
16	1,2,3,4,6,7,8-HpCDD	9.02e+05	6.16e+02	1.5e+03	8.68e+05	2.84e+02	3.1e+03
17	OCDD	6.26e+05	3.32e+02	1.9e+03	7.22e+05	3.16e+02	2.3e+03
18	13C-2,3,7,8-TCDF	2.68e+06	6.06e+03	4.4e+02	3.28e+06	4.72e+03	6.9e+02
19	13C-1,2,3,7,8-PeCDF	4.88e+06	1.52e+02	3.2e+04	3.05e+06	3.72e+02	8.2e+03
20	13C-2,3,4,7,8-PeCDF	4.89e+06	1.52e+02	3.2e+04	3.08e+06	3.72e+02	8.3e+03
21	13C-1,2,3,4,7,8-HxCDF	2.22e+06	4.76e+02	4.7e+03	4.32e+06	9.64e+02	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.41e+06	4.76e+02	5.1e+03	4.81e+06	9.64e+02	5.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.34e+06	4.76e+02	4.9e+03	4.54e+06	9.64e+02	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.85e+06	4.76e+02	3.9e+03	3.66e+06	9.64e+02	3.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.30e+06	1.85e+03	7.0e+02	2.94e+06	1.45e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+06	1.85e+03	5.6e+02	2.38e+06	1.45e+03	1.6e+03
27	13C-2,3,7,8-TCDD	1.34e+06	5.05e+03	2.6e+02	1.63e+06	1.82e+03	9.0e+02
28	13C-1,2,3,7,8-PeCDD	3.60e+06	7.52e+02	4.8e+03	2.24e+06	6.76e+02	3.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.31e+06	7.08e+02	4.7e+03	2.61e+06	5.64e+02	4.6e+03
30	13C-1,2,3,6,7,8-HxCDD	3.07e+06	7.08e+02	4.3e+03	2.36e+06	5.64e+02	4.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.34e+06	3.20e+02	7.3e+03	2.18e+06	3.76e+02	5.8e+03
32	13C-OCDD	1.16e+06	3.64e+02	3.2e+03	1.29e+06	2.76e+02	4.7e+03
33	13C-1,2,3,4-TCDD	3.61e+06	5.05e+03	7.1e+02	4.56e+06	1.82e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	4.89e+06	7.08e+02	6.9e+03	3.77e+06	5.64e+02	6.7e+03
35	37Cl-2,3,7,8-TCDD	1.86e+06	1.16e+03	1.6e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.404e{+}03 + 1.084e{+}03) \times 2000}{(1.338e{+}06 + 1.628e{+}06) \times (\quad) \times 1.085} =$$

ALS ENVIRONMENTAL
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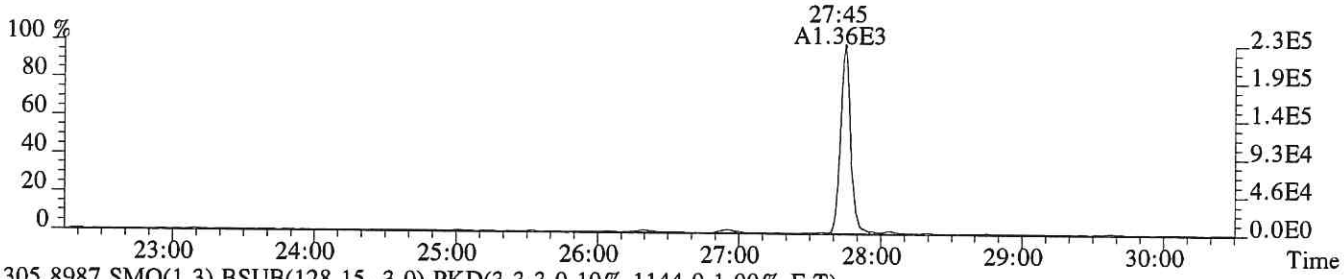
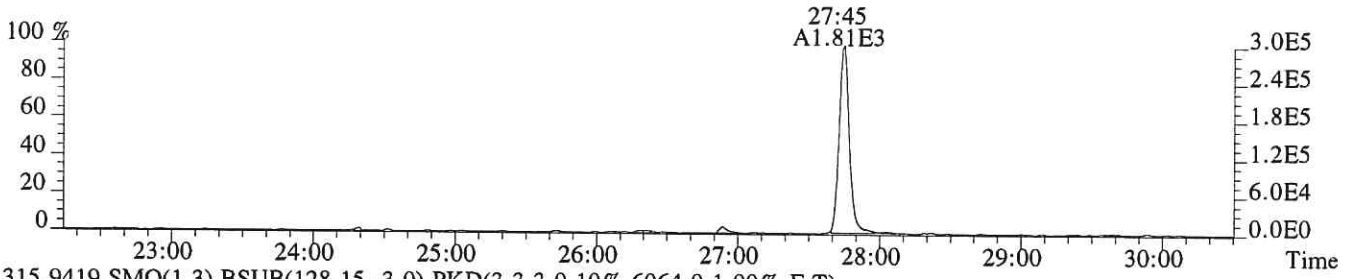
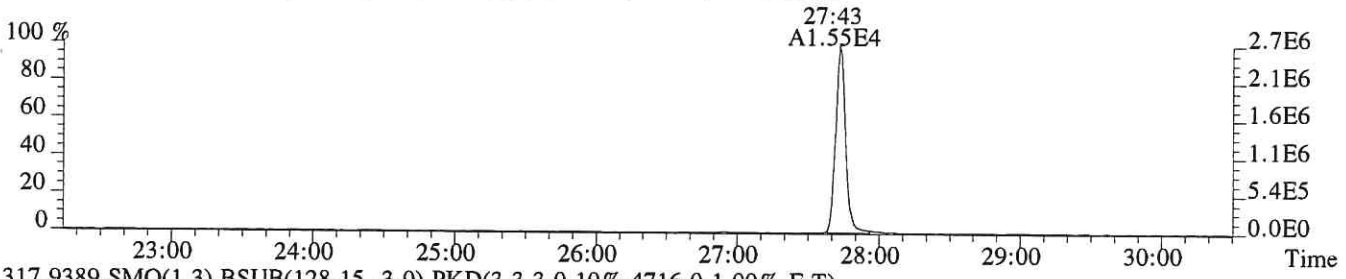
File:P519380 #1-587 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



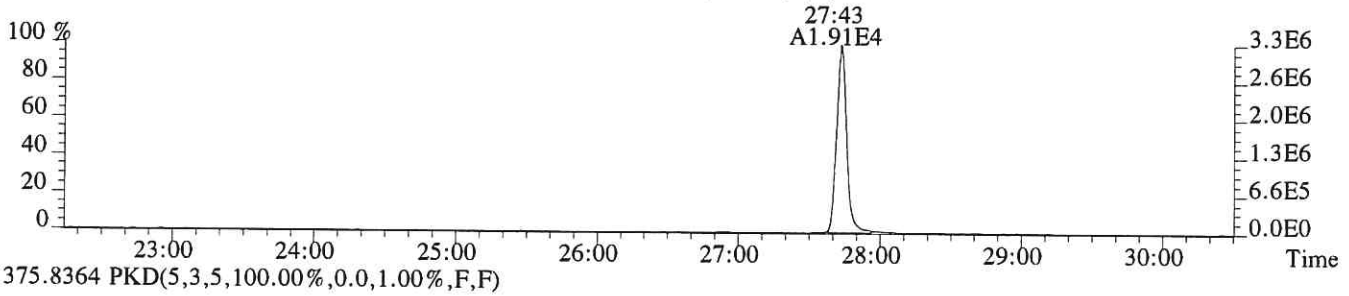
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



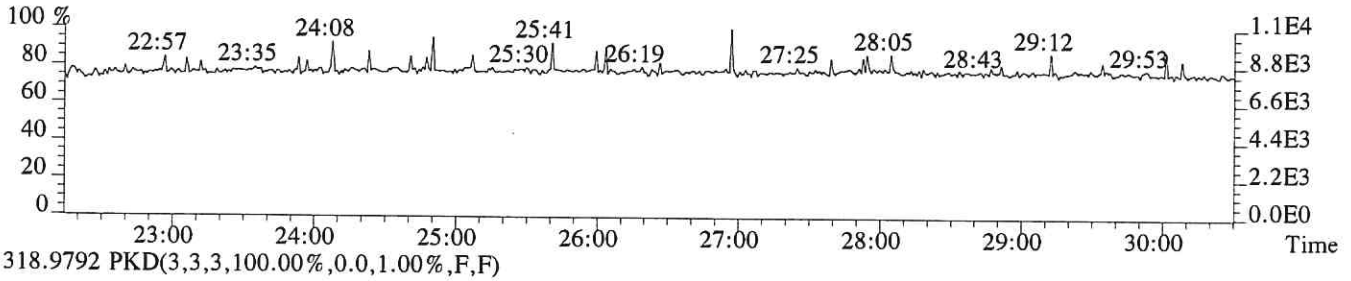
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6064.0,1.00%,F,T)



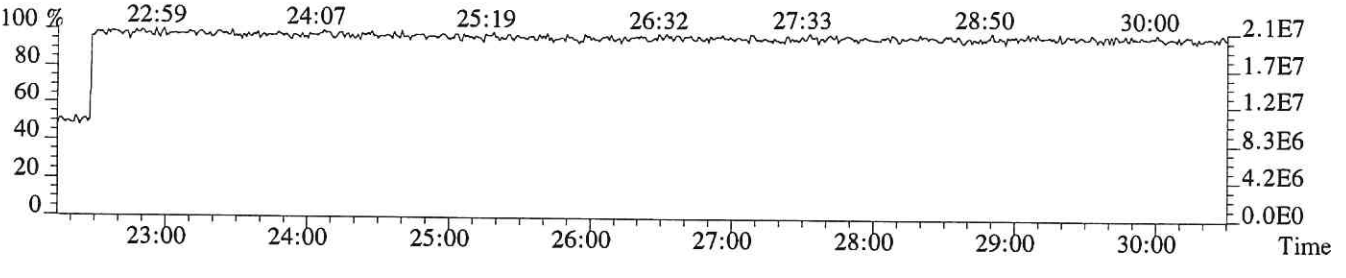
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4716.0,1.00%,F,T)



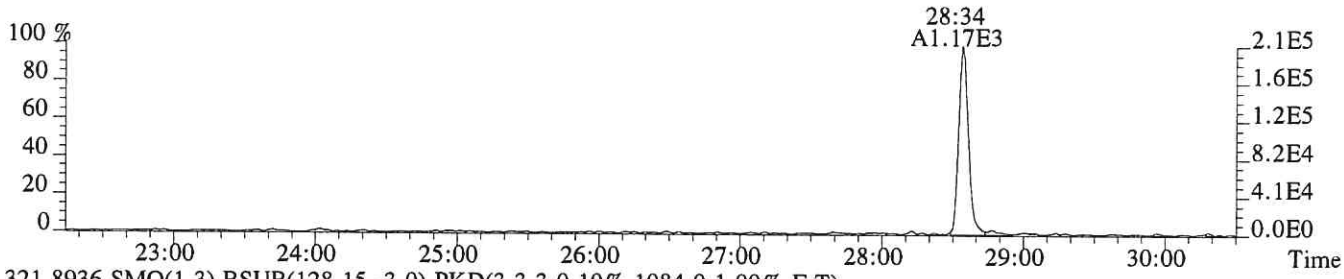
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



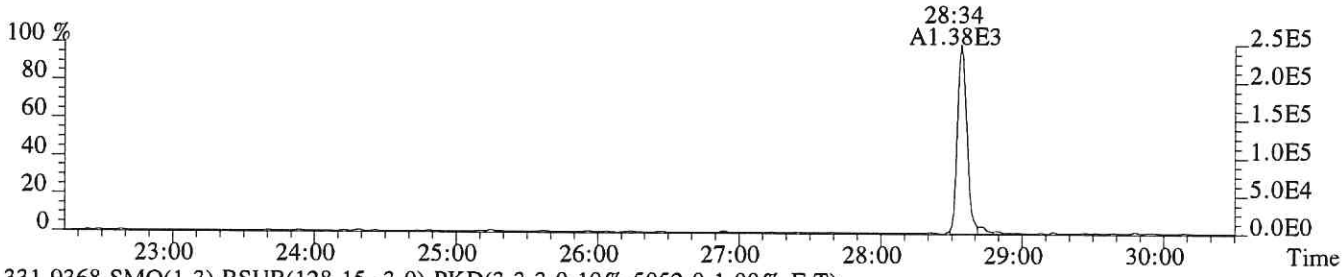
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



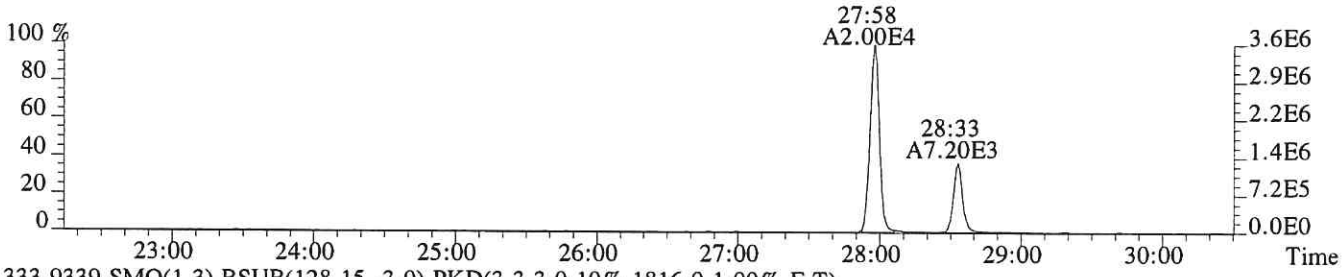
File:P519380 #1-587 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



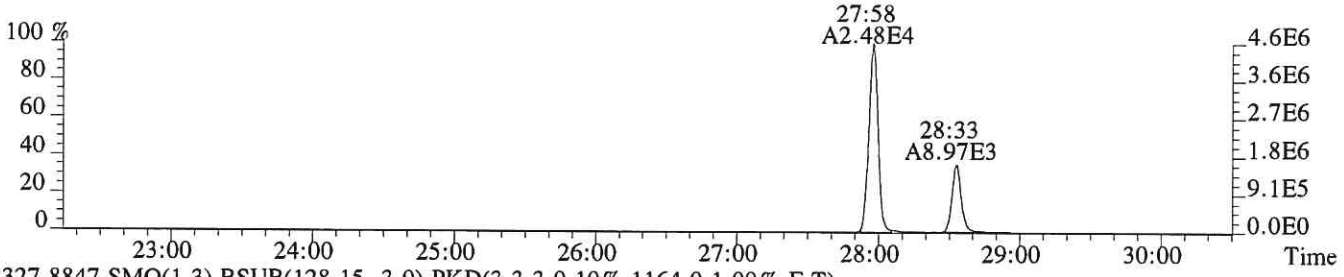
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



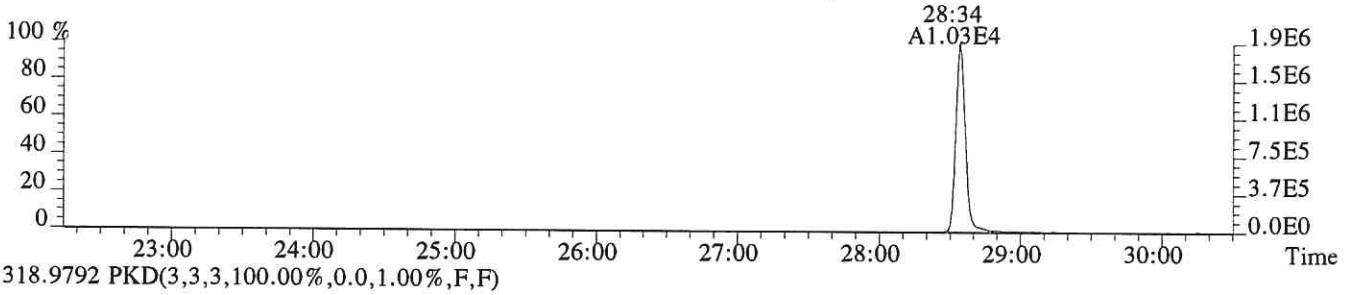
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5052.0,1.00%,F,T)



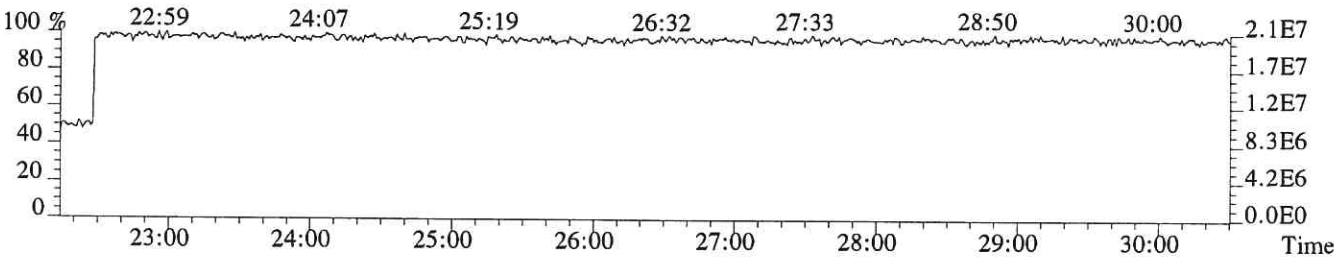
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



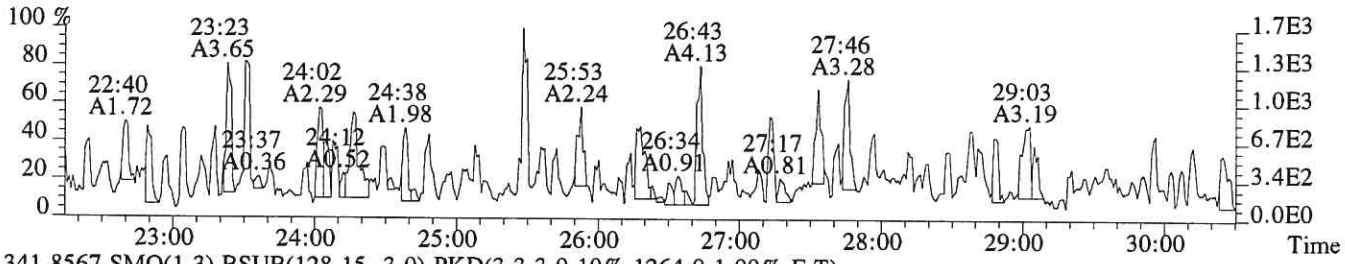
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



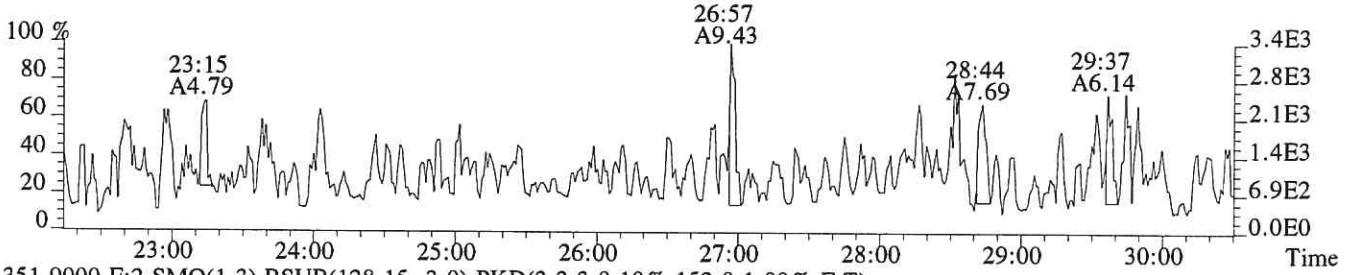
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



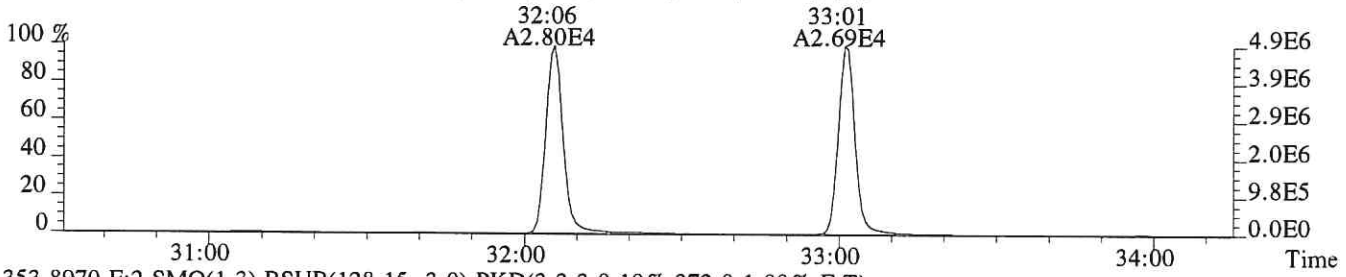
File:P519380 #1-587 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



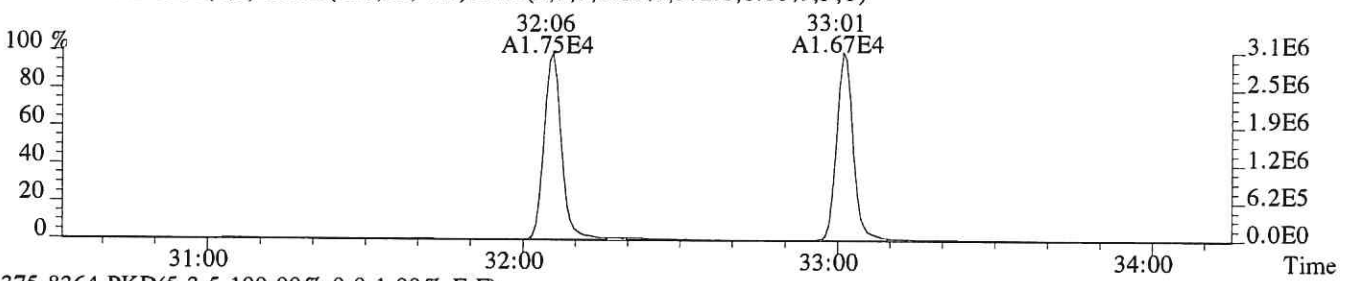
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



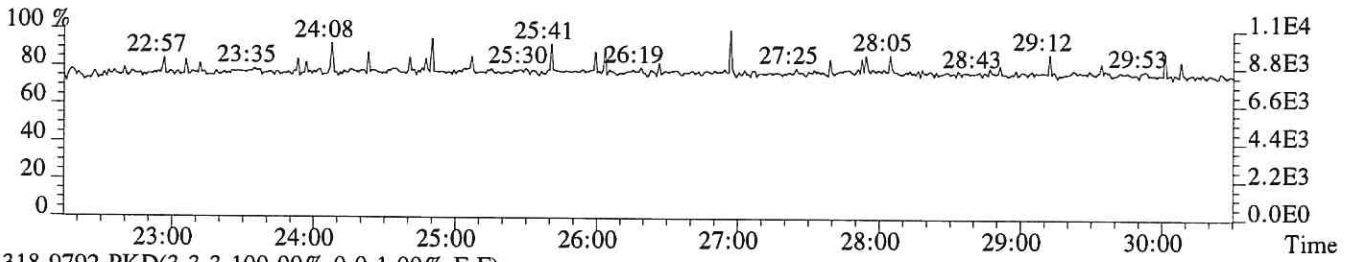
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,152.0,1.00%,F,T)



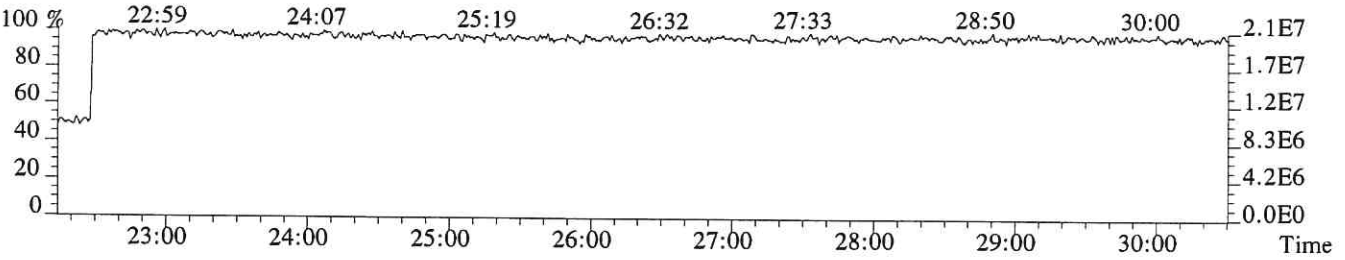
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

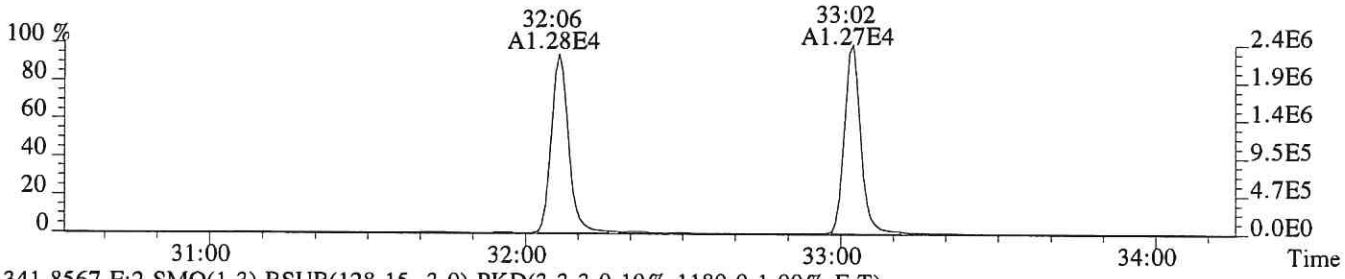


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

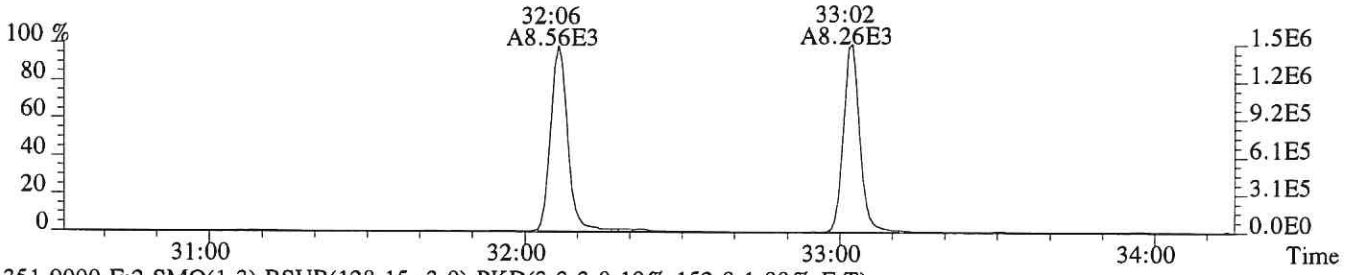


File:P519380 #1-335 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03

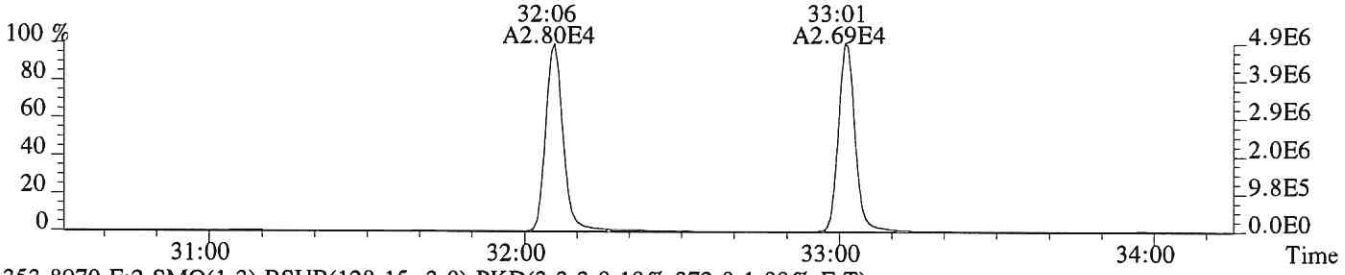
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



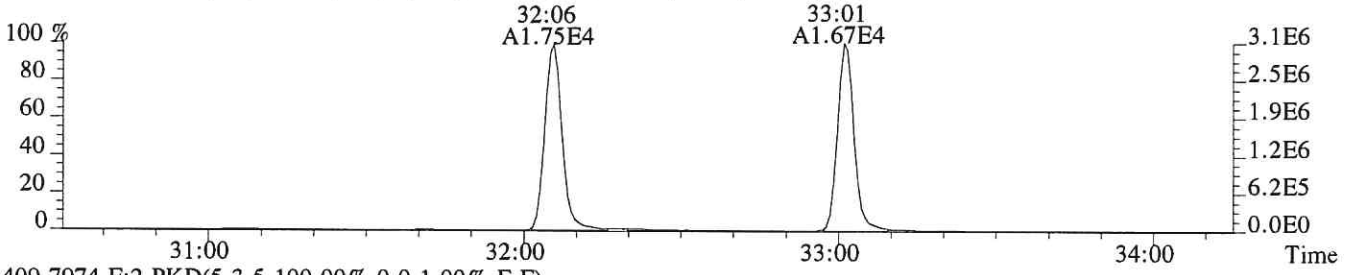
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



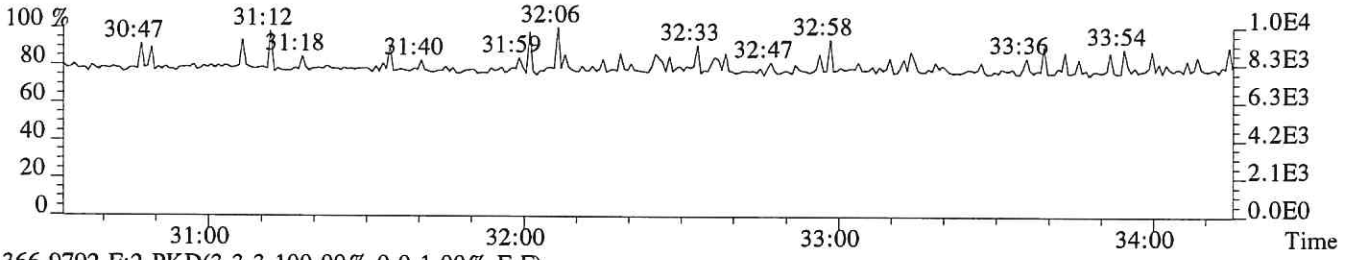
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,152.0,1.00%,F,T)



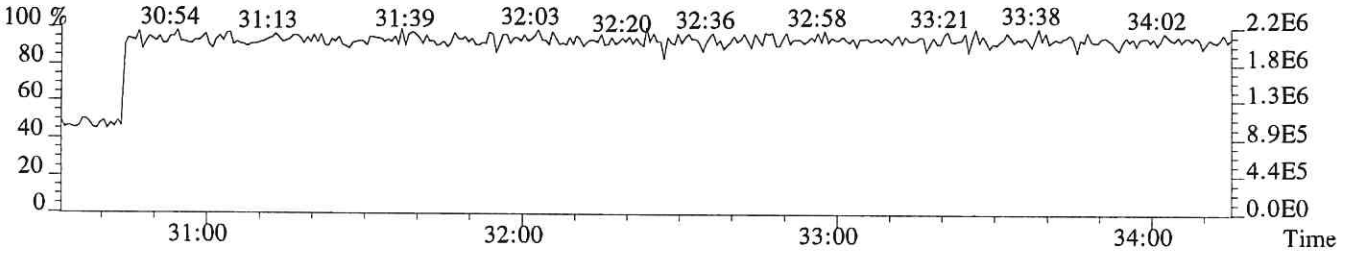
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

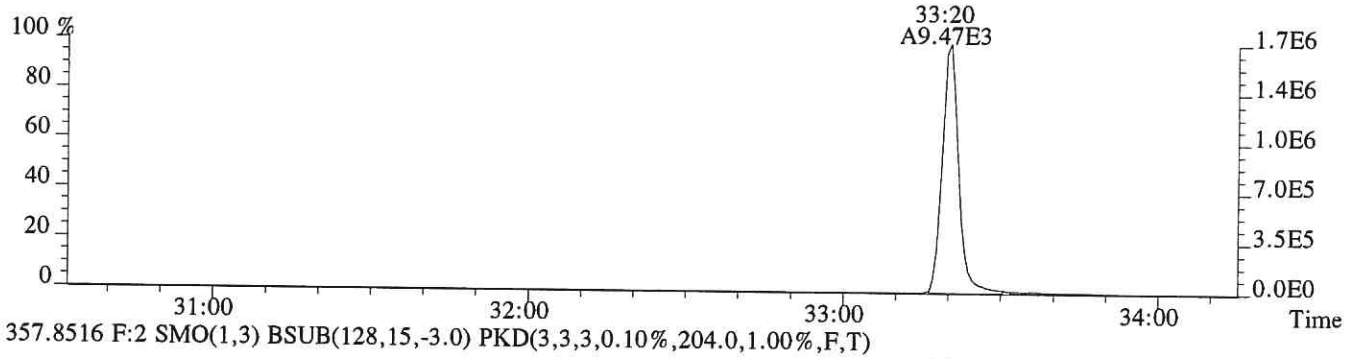


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

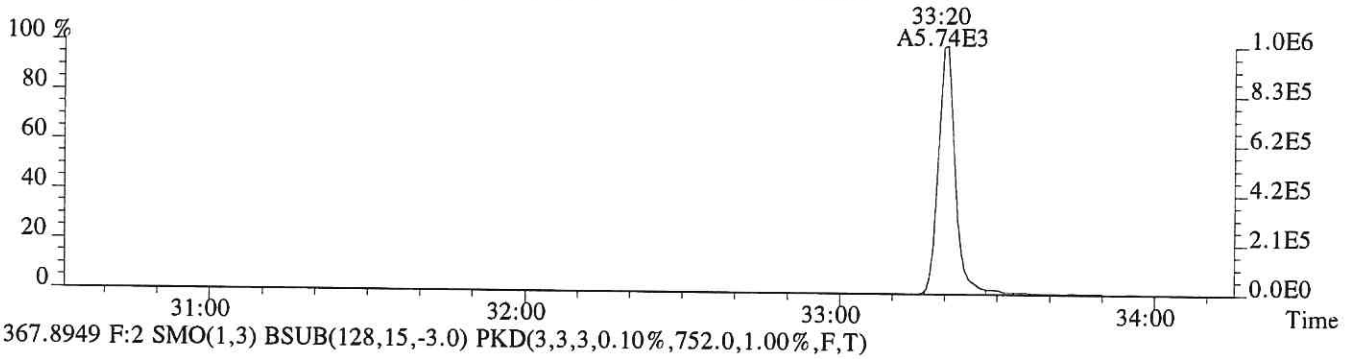


File:P519380 #1-335 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03

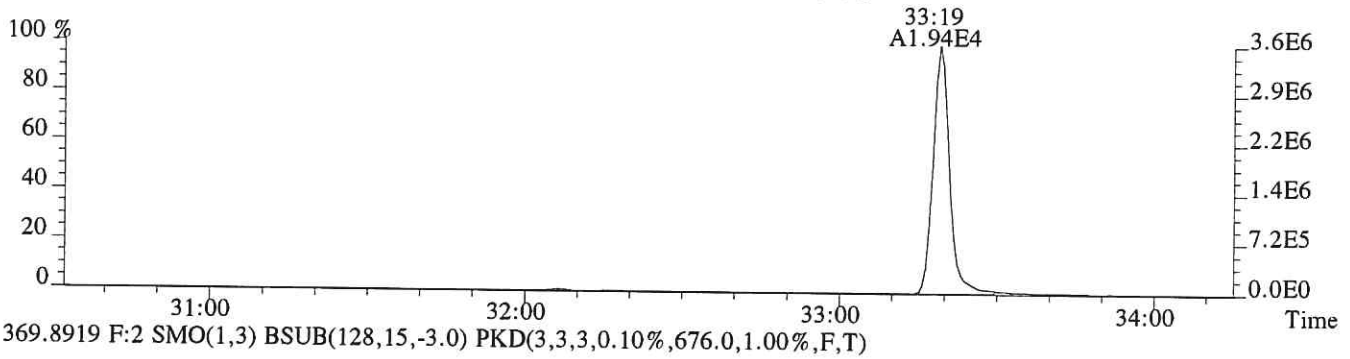
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



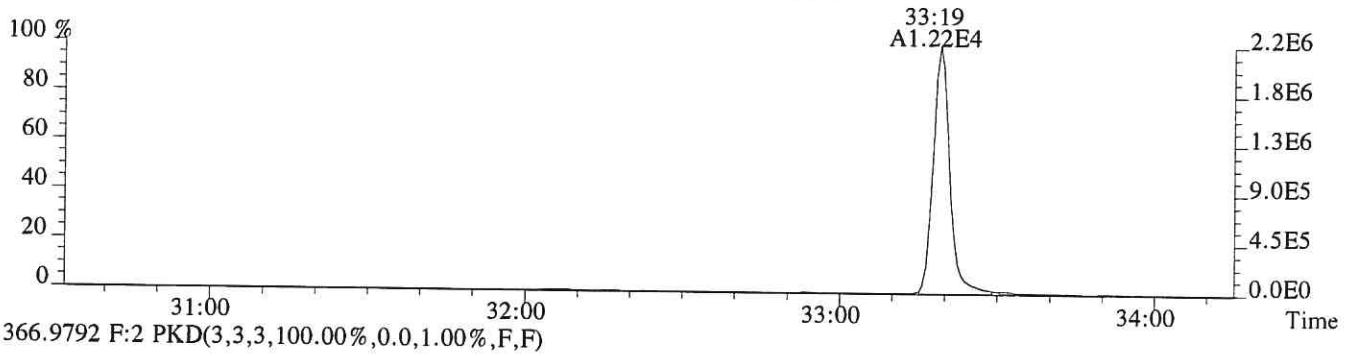
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



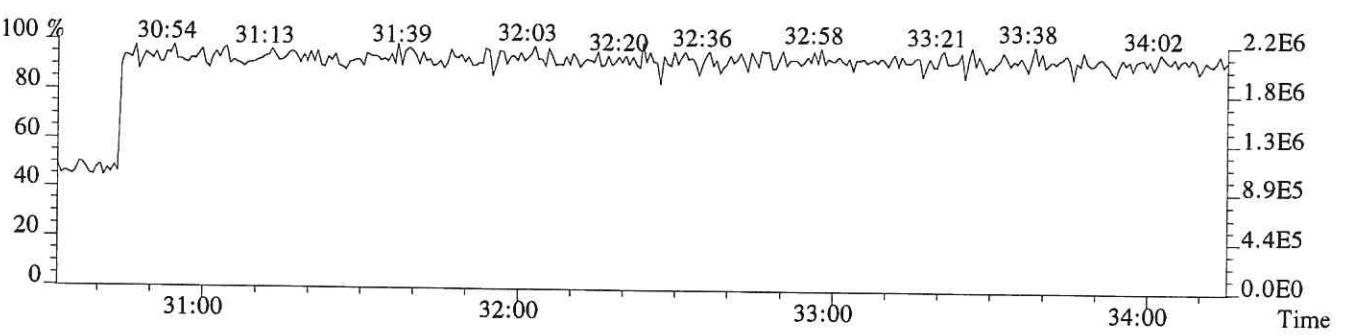
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)

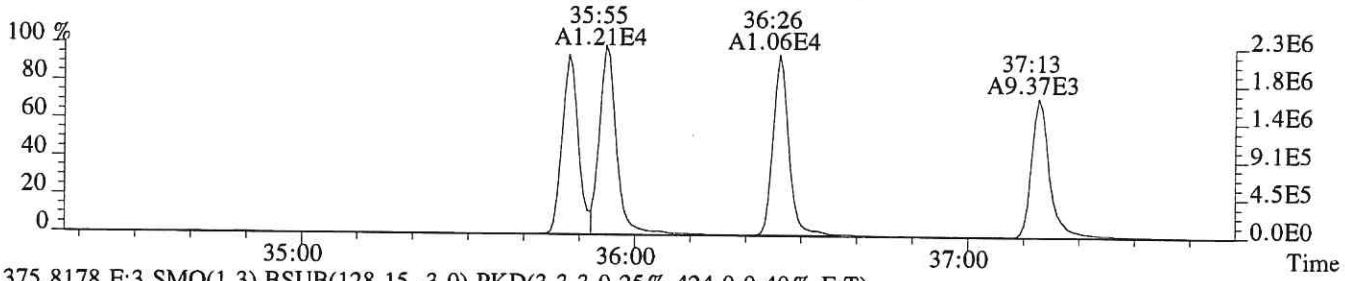


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

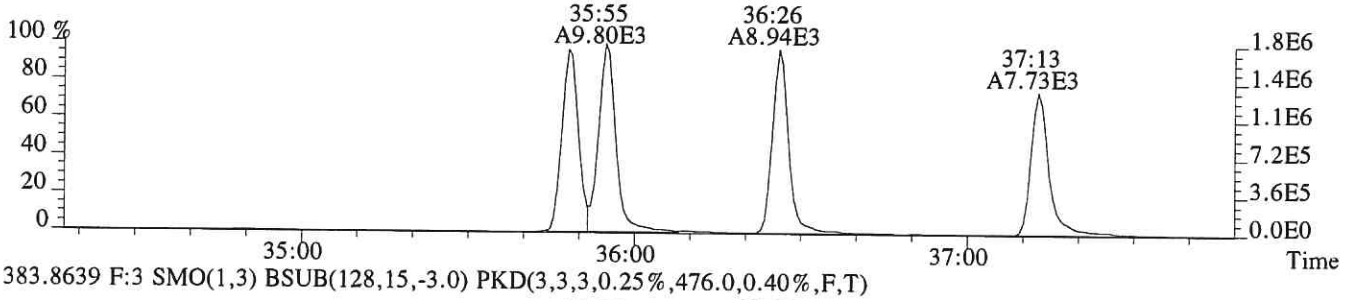


File:P519380 #1-317 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03

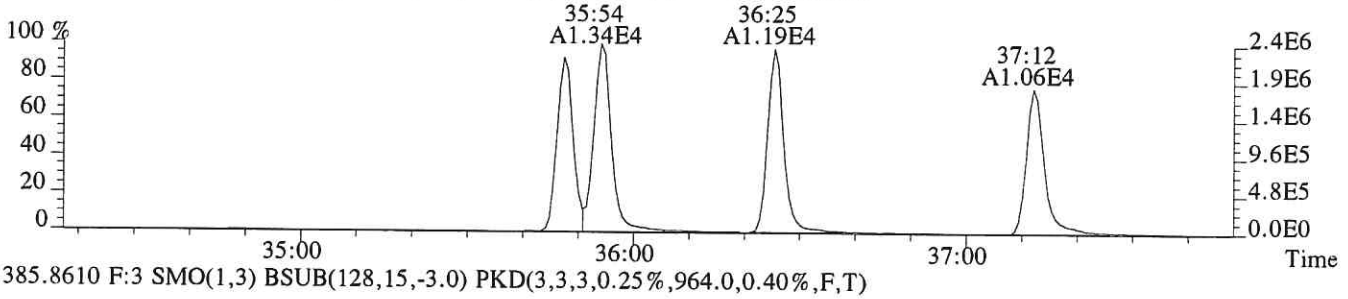
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



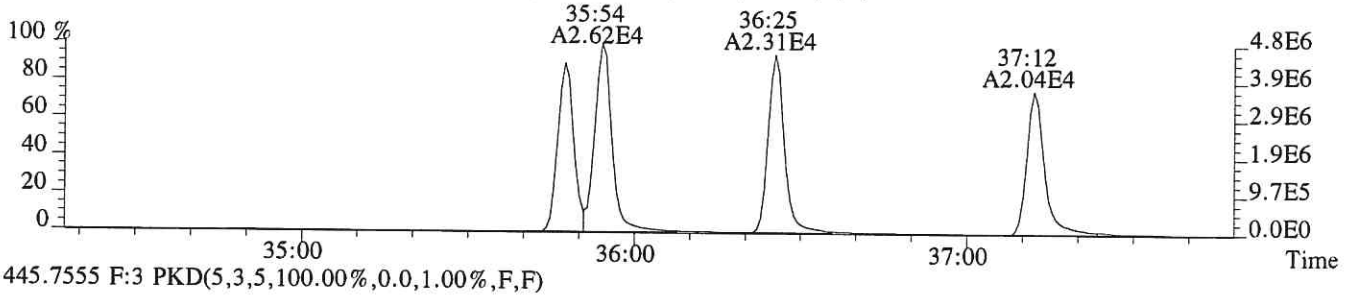
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



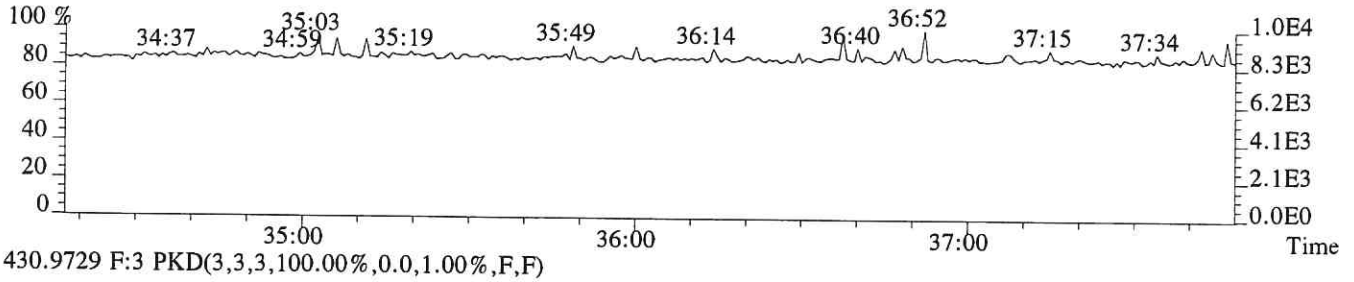
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



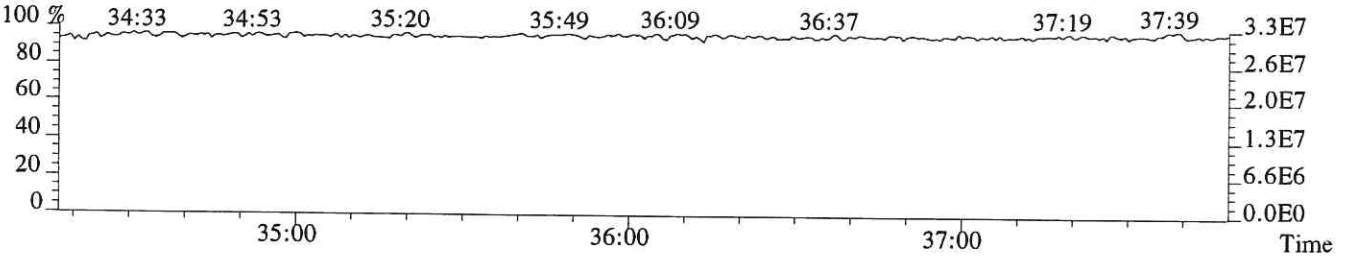
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



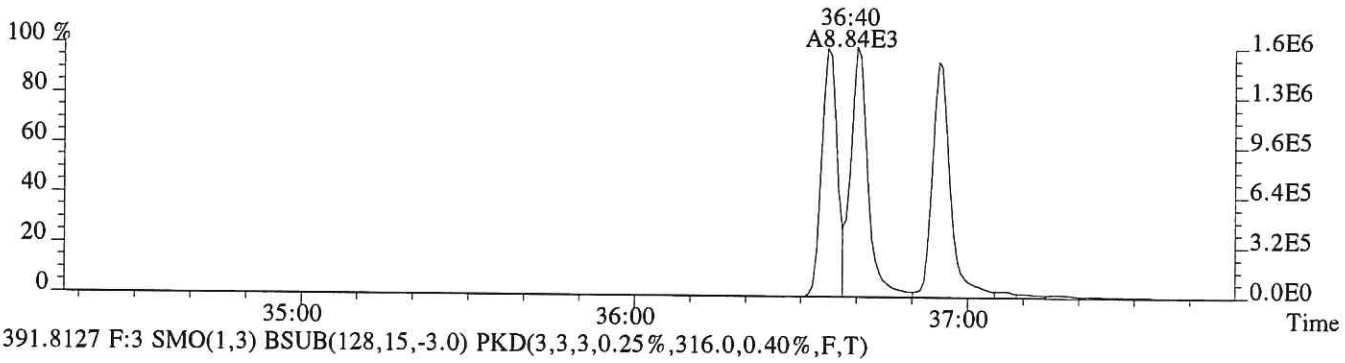
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



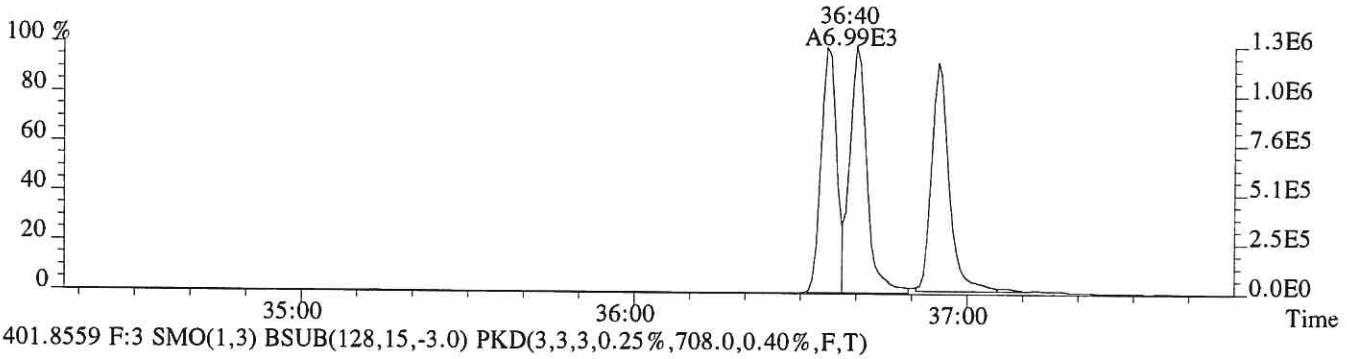
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



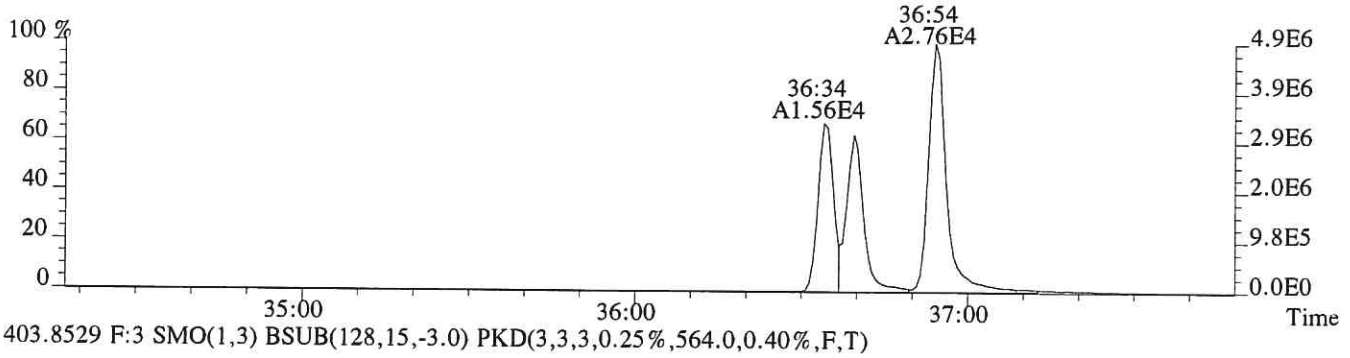
File:P519380 #1-317 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



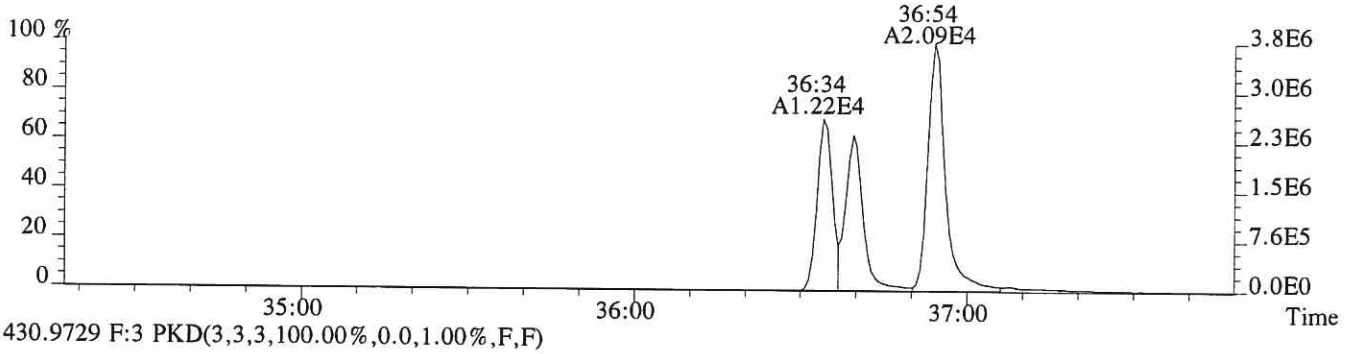
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



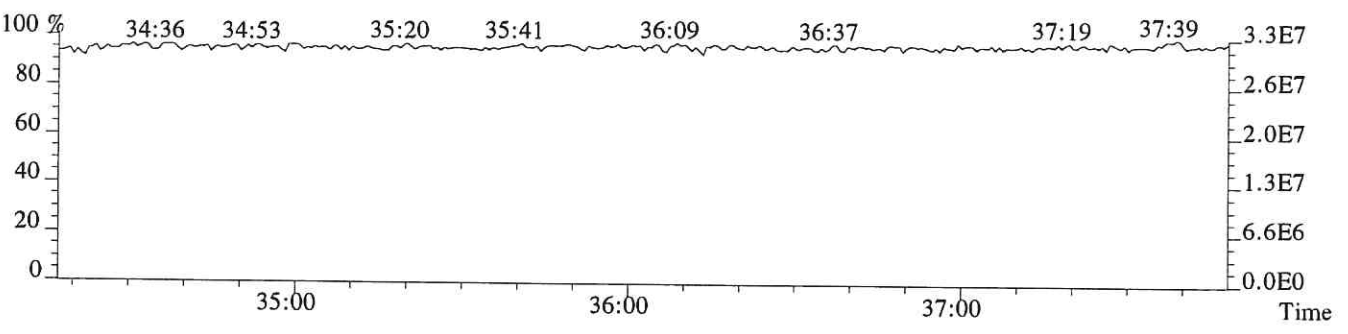
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)

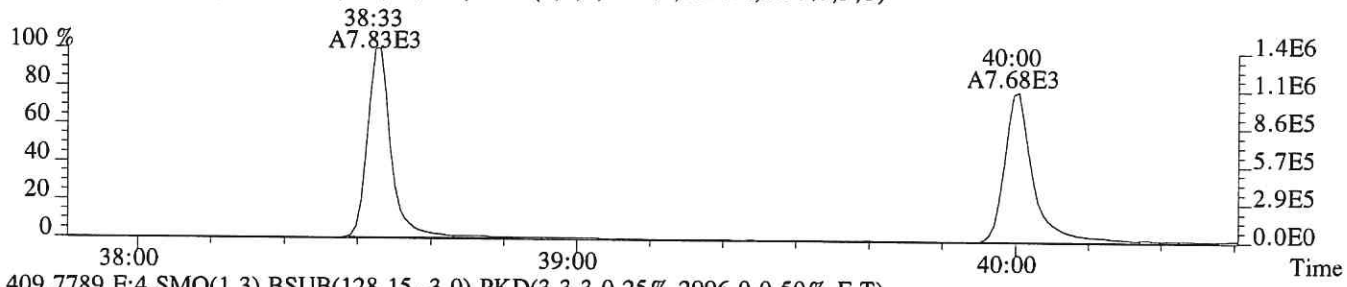


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

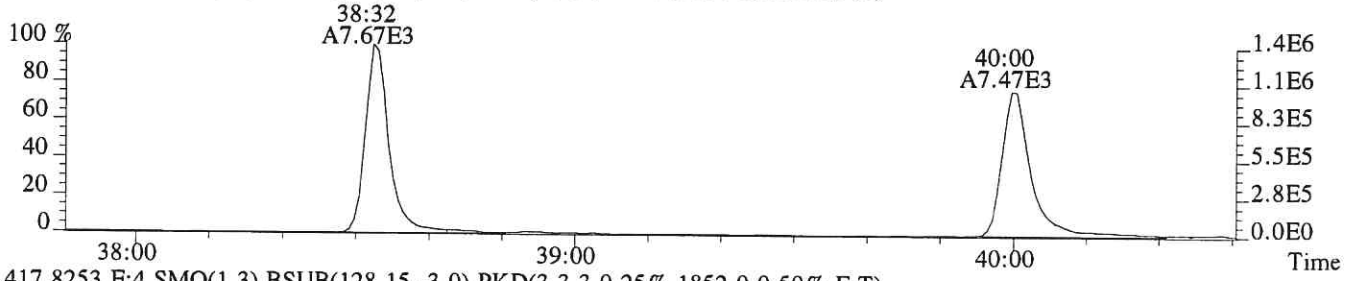


File:P519380 #1-241 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03

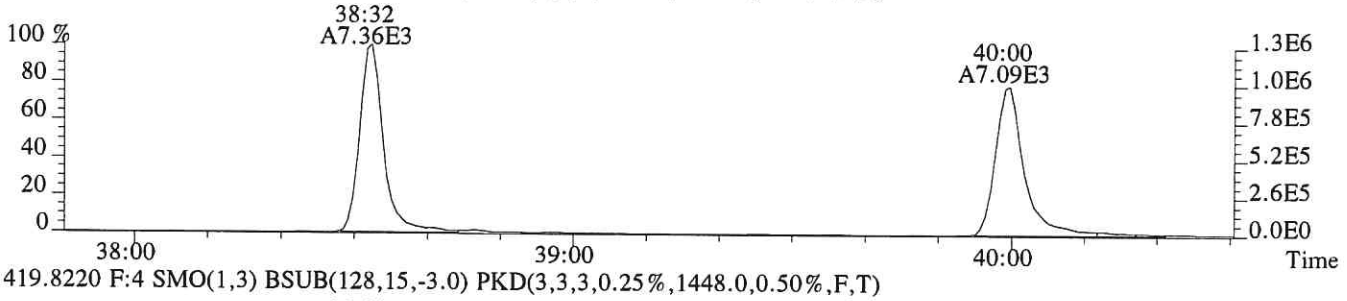
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.50%,F,T)



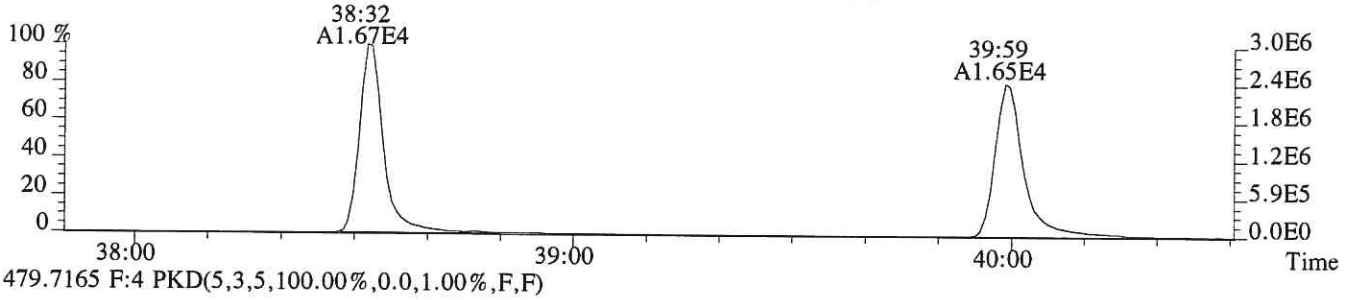
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2996.0,0.50%,F,T)



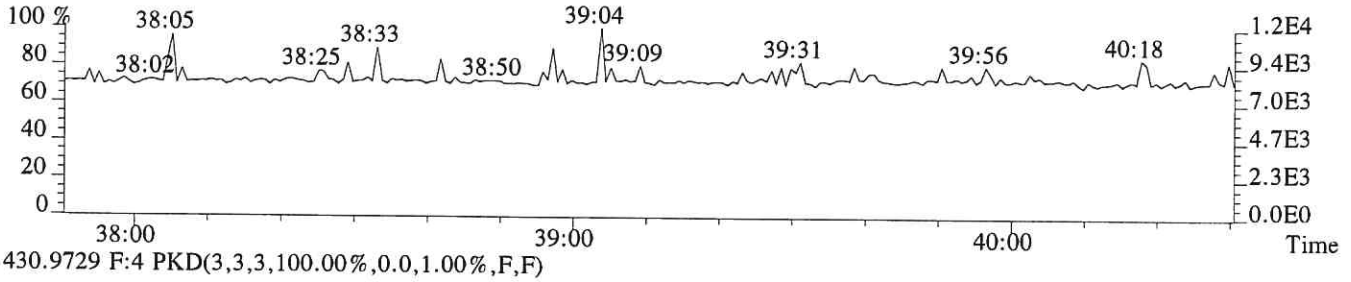
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.50%,F,T)



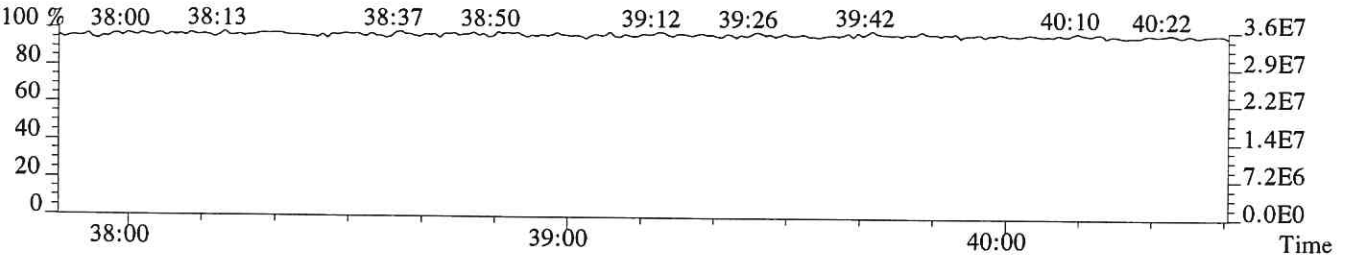
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.50%,F,T)



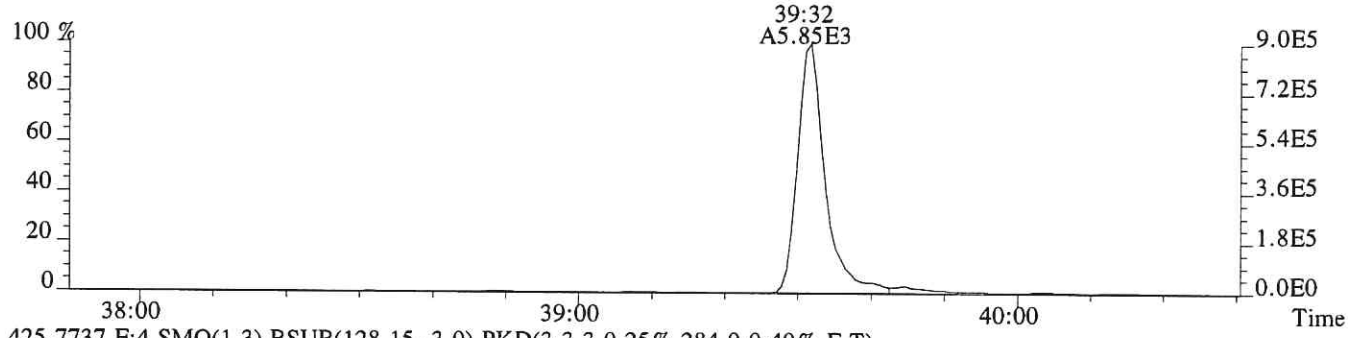
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



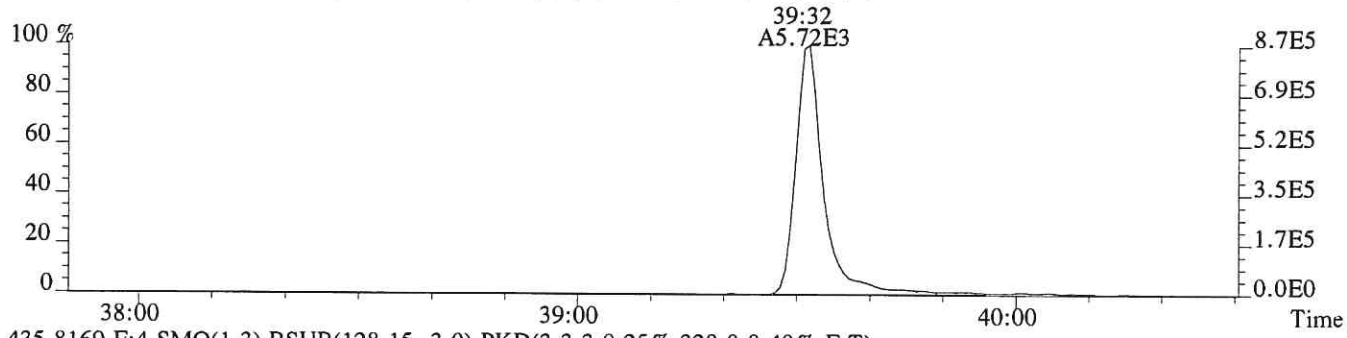
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



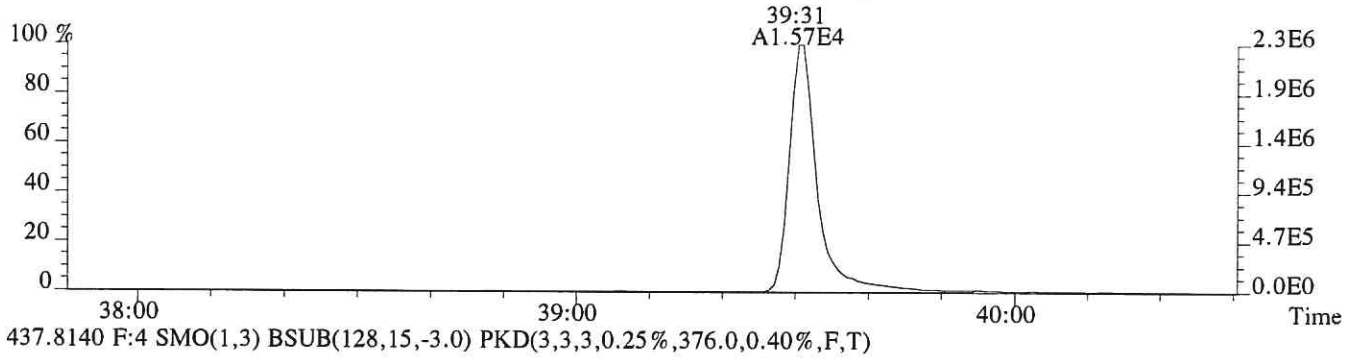
File:P519380 #1-241 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



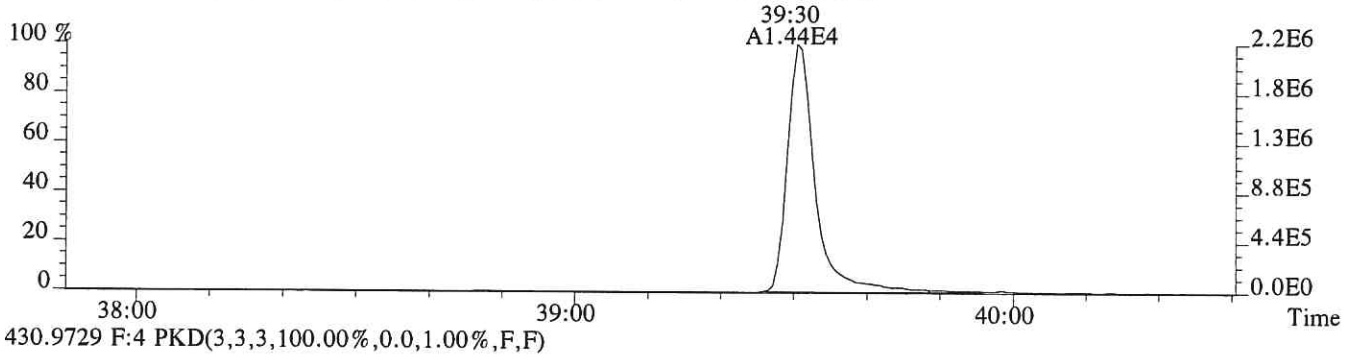
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



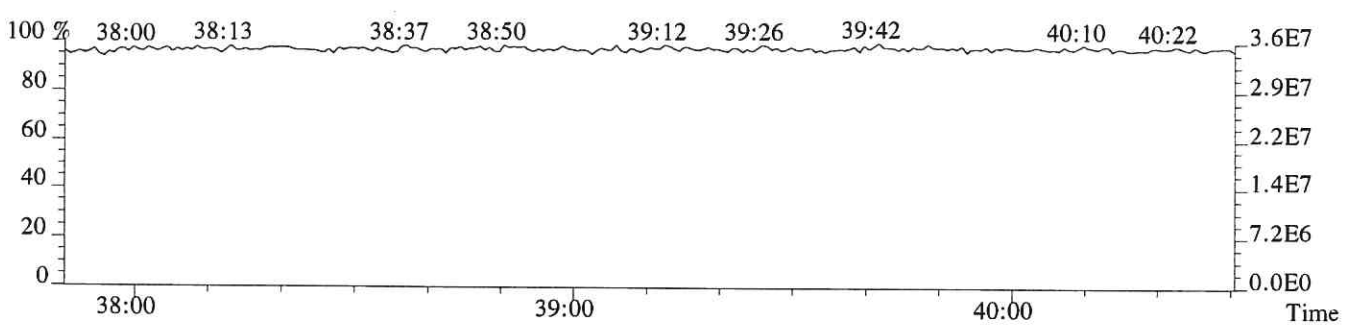
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)

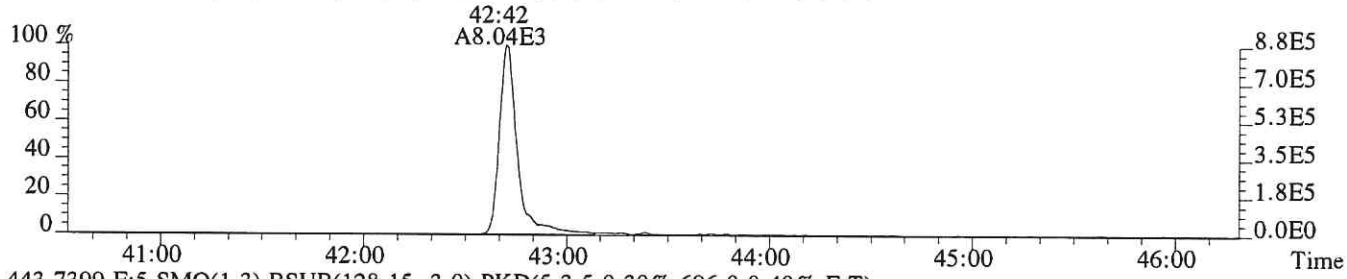


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

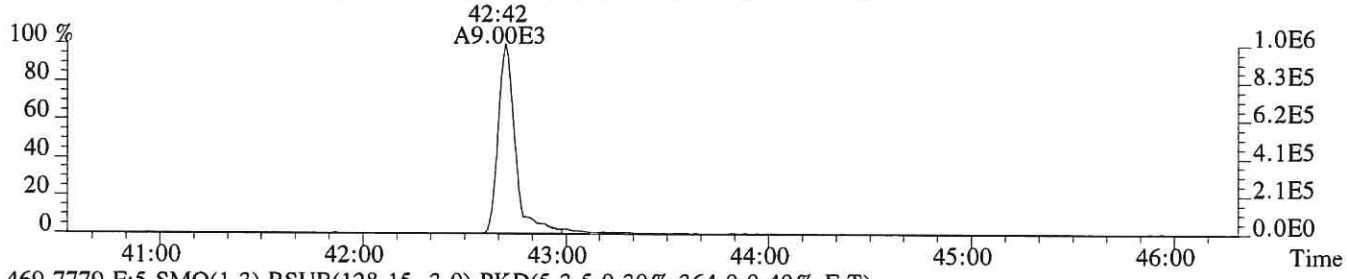


File:P519380 #1-520 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03

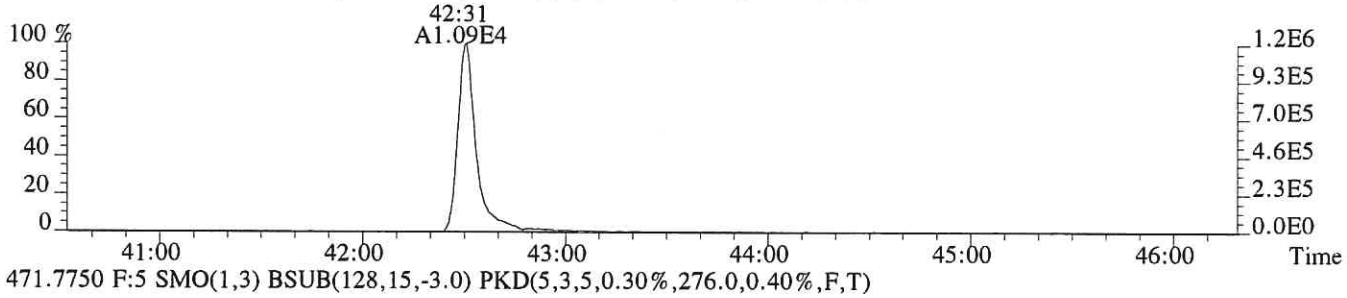
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,376.0,0.40%,F,T)



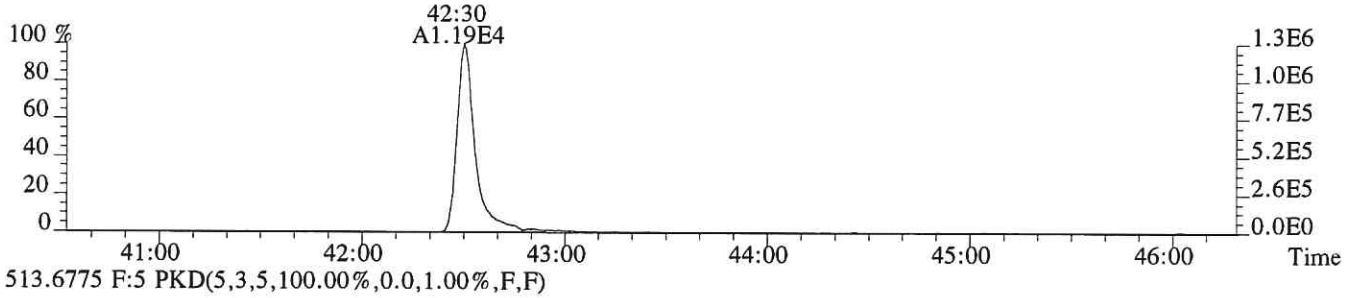
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



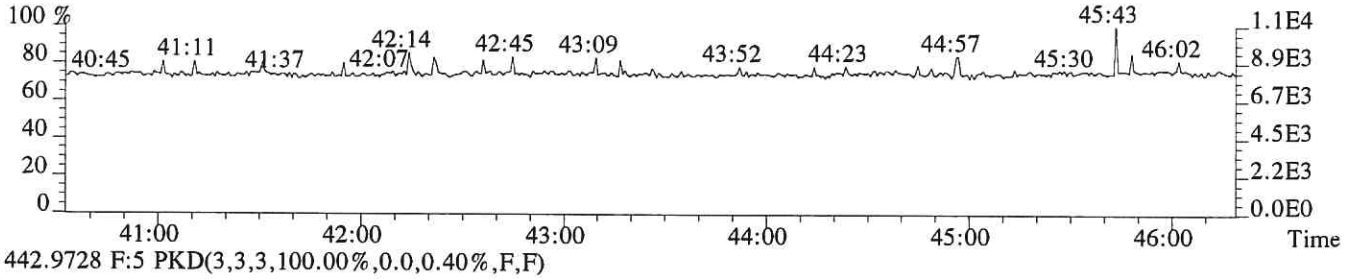
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



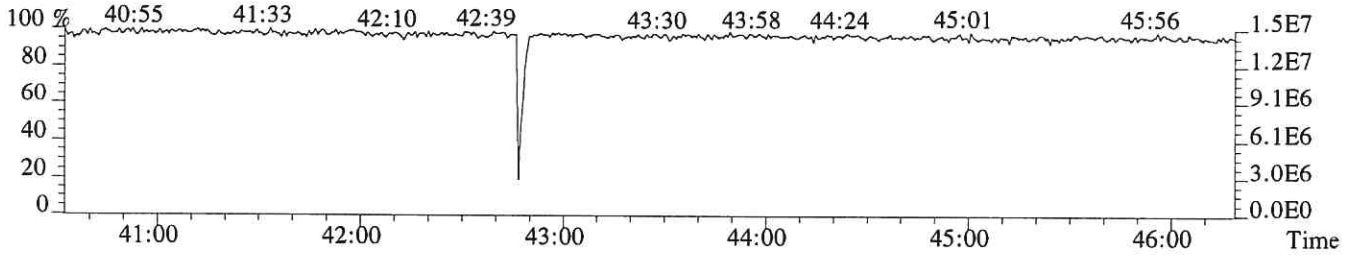
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



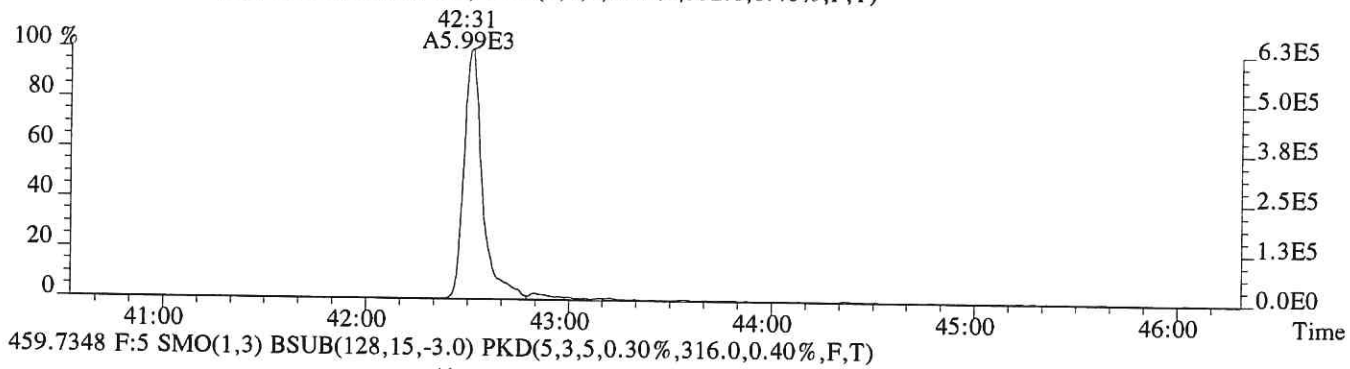
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



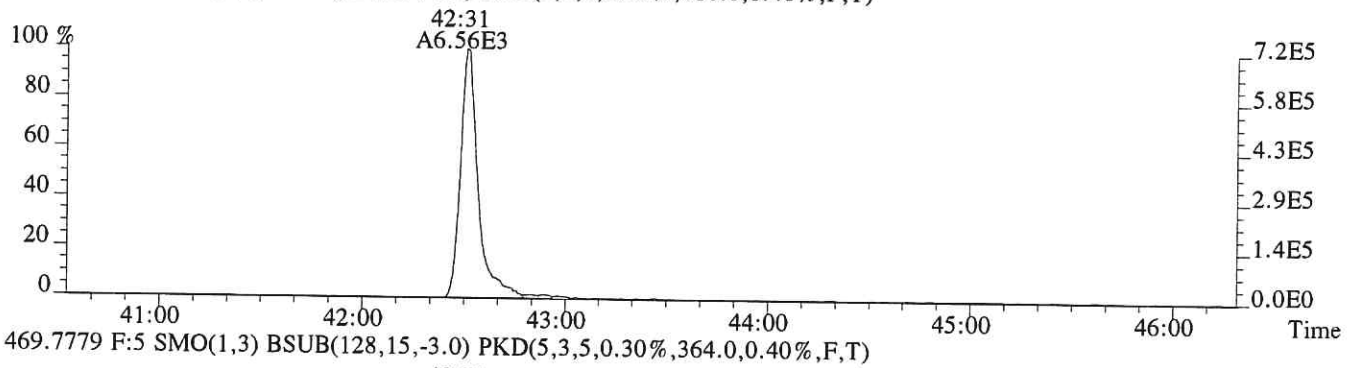
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



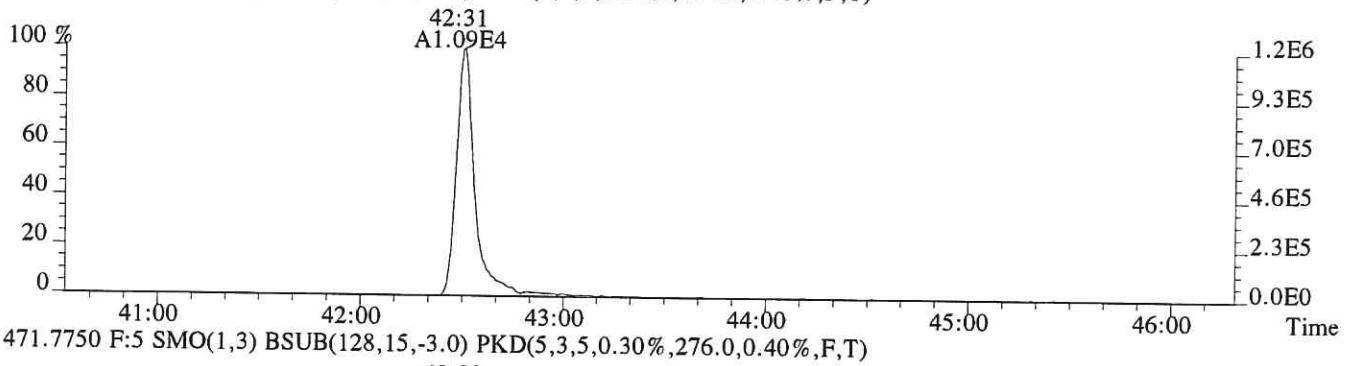
File:P519380 #1-520 Acq:12-DEC-2018 11:09:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1800500-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,332.0,0.40%,F,T)



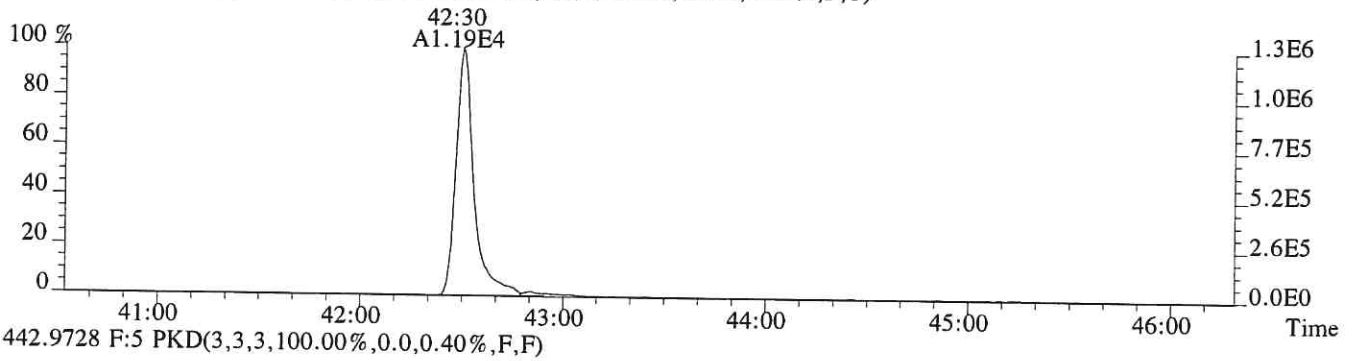
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,316.0,0.40%,F,T)



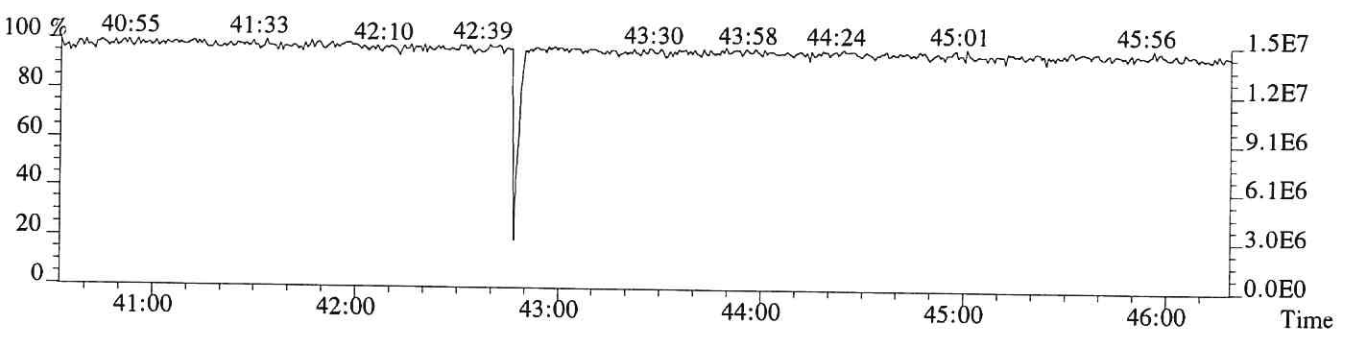
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,364.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519287

Date: 12/07/18-12/08/18 (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: qc

Second QC: LKL

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519287	7-DEC-18	19:08:16
192977	WINDOW DEFINE	P519288	7-DEC-18	19:56:03
METHOD BLANK	EQ1800469-01	P519289	7-DEC-18	20:44:48
METHOD BLANK	EQ1800488-01	P519290	7-DEC-18	21:33:23
SL0539	E1801046-001DL	P519291	7-DEC-18	22:22:00
SL0540	E1801046-002DL	P519292	7-DEC-18	23:10:38
SL0541	E1801046-003DL	P519293	7-DEC-18	23:59:16
SL0542	E1801046-004DL	P519294	8-DEC-18	00:47:53
SL0552	E1801055-008	P519295	8-DEC-18	01:36:30
SL0558	E1801057-006	P519296	8-DEC-18	02:25:08
SL0559	E1801057-007	P519297	8-DEC-18	03:13:44
SL0560	E1801057-008	P519298	8-DEC-18	04:02:22
SL0580	E1801065-001	P519299	8-DEC-18	04:50:59
SL0581	E1801065-002	P519300	8-DEC-18	05:39:44
SL0582	E1801065-003	P519301	8-DEC-18	06:28:20

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207B.SPL
Last Modified: Monday, December 10, 2018 07:32:15 Central Standard Time
Printed: Monday, December 10, 2018 07:32:17 Central Standard Time

Page Position (1, 1)

OPR54: P519287res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	19:08	P519287	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 19:08
2		19:56	P519288	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		20:44	P519289	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		21:32	P519290	MB	EQ1800488-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		22:22	P519291	E1801046-001DL	E1801046-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		23:10	P519292	E1801046-002DL	E1801046-002DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		23:59	P519293	E1801046-003DL	E1801046-003DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8	12/8/18	00:47	P519294	E1801046-004DL	E1801046-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		01:36	P519295	E1801055-008	E1801055-008	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		02:25	P519296	E1801057-006	E1801057-006	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		03:13	P519297	E1801057-007	E1801057-007	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		04:02	P519298	E1801057-008	E1801057-008	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		04:50	P519299	E1801065-001	E1801065-001	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		05:39	P519300	E1801065-002	E1801065-002	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		06:28	P519301	E1801065-003	E1801065-003	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		07:25	P519302	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	✓	HRMS check 07:25
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/10/18

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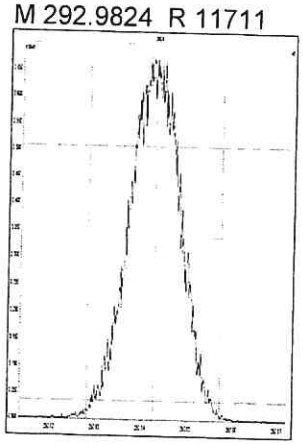

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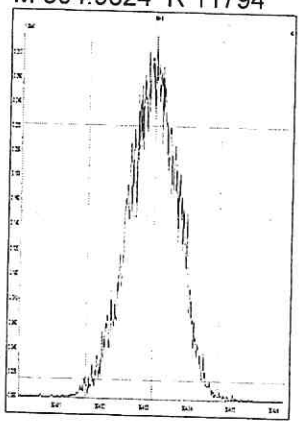

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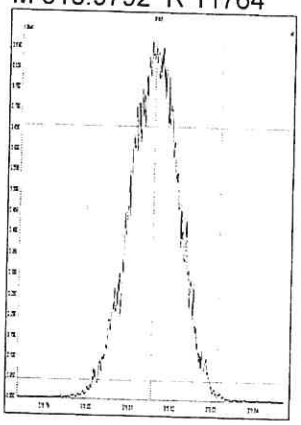

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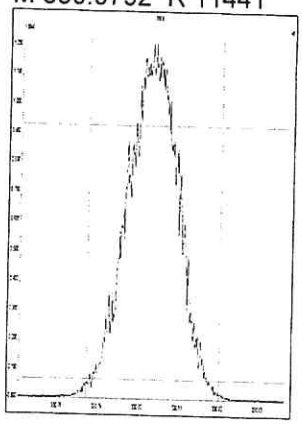

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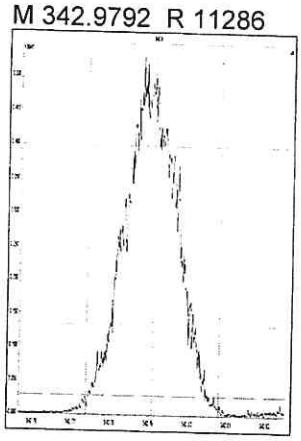

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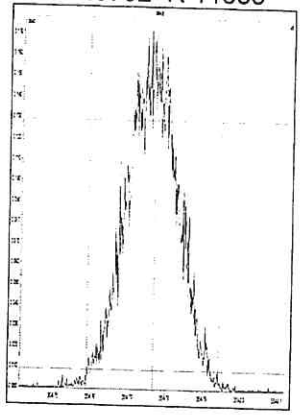

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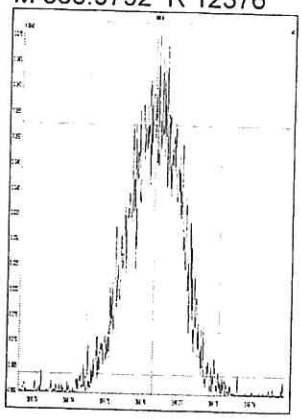

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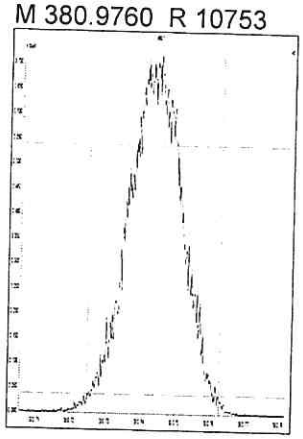

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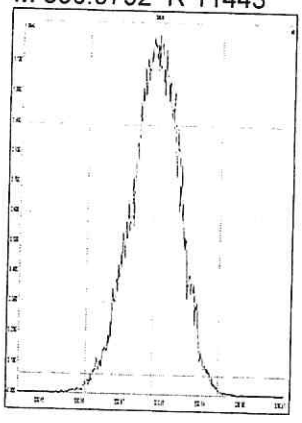

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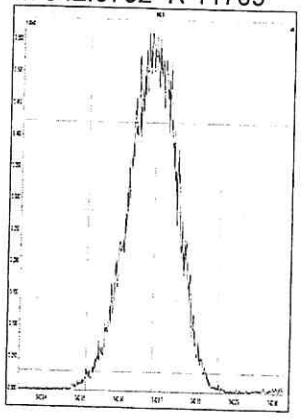

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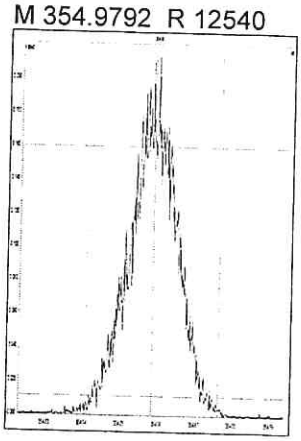

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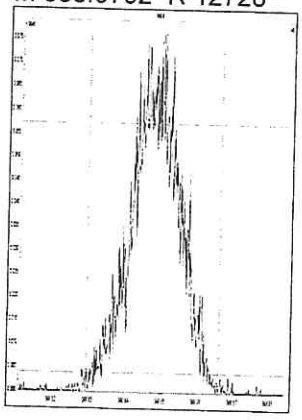

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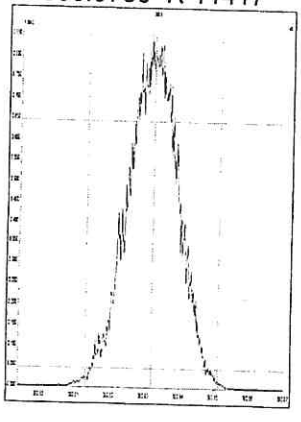

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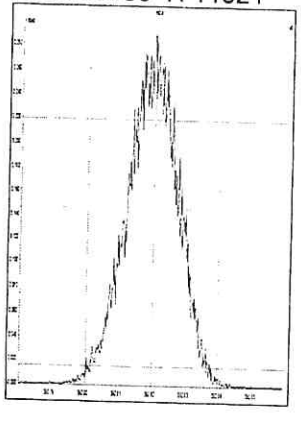

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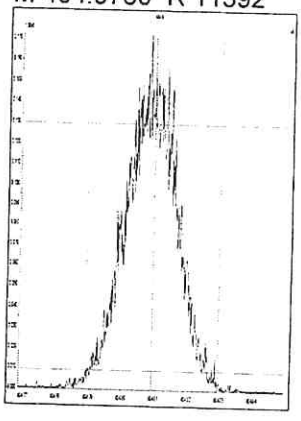

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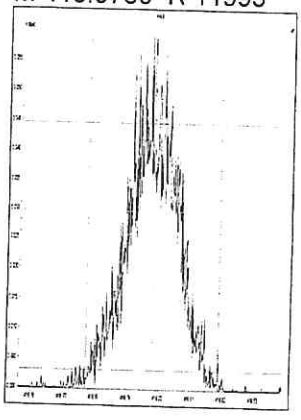

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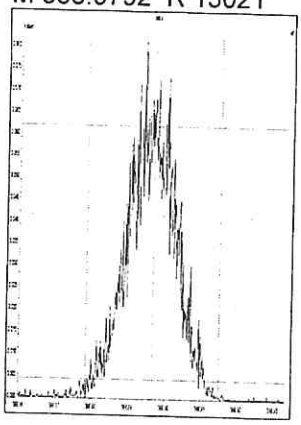

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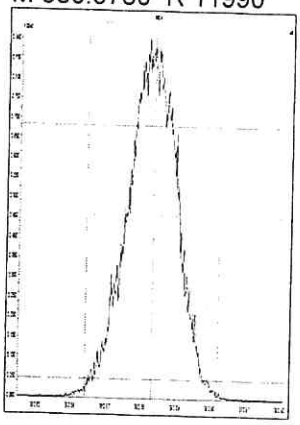

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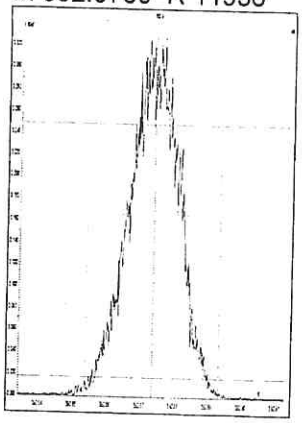

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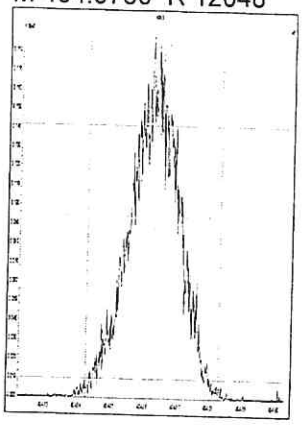

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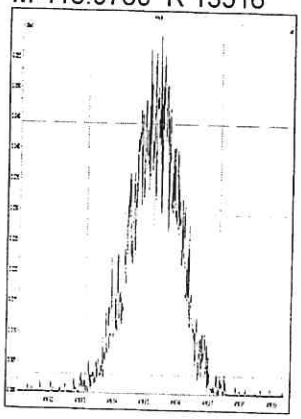

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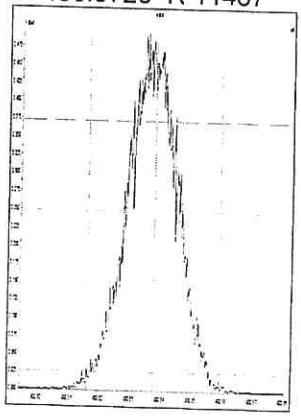

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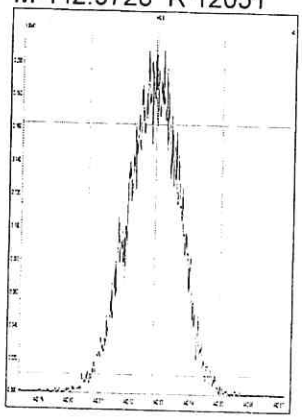

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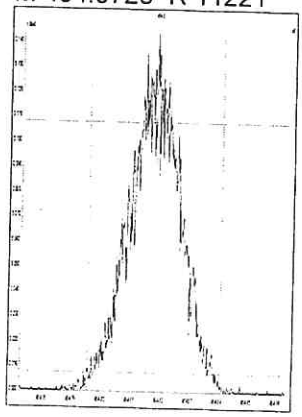

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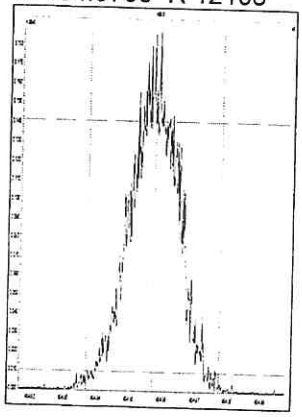

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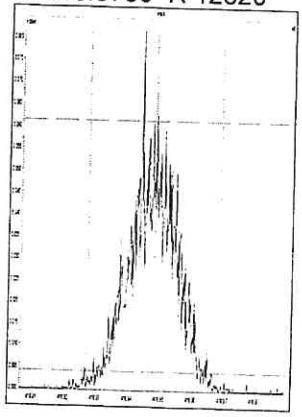

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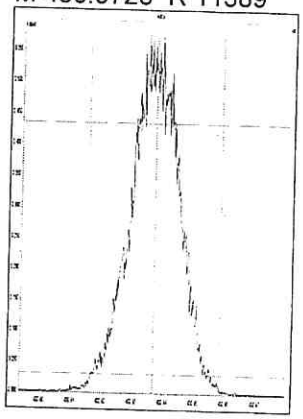

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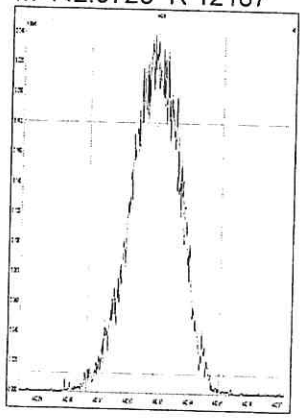

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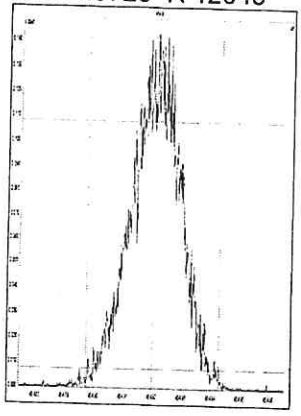

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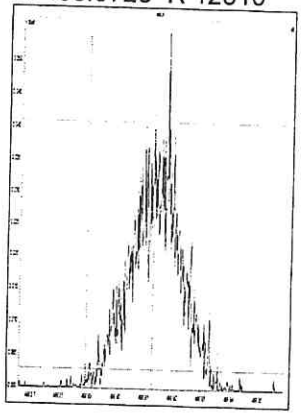

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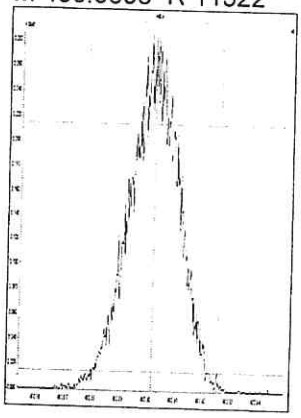

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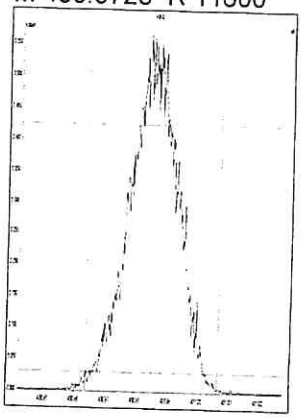

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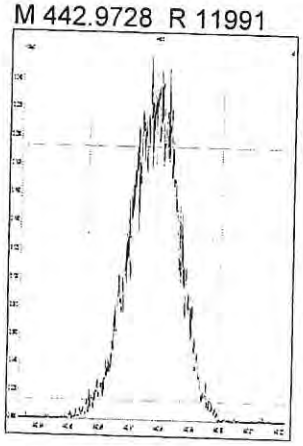

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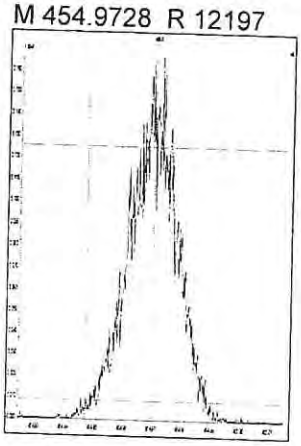

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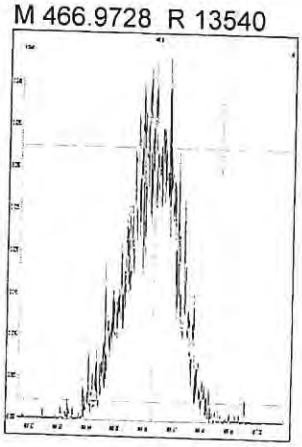

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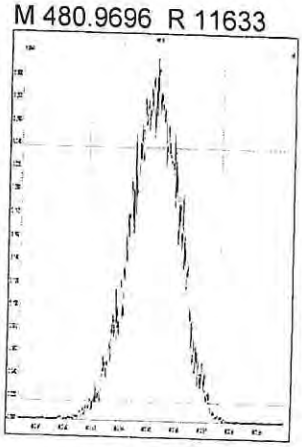

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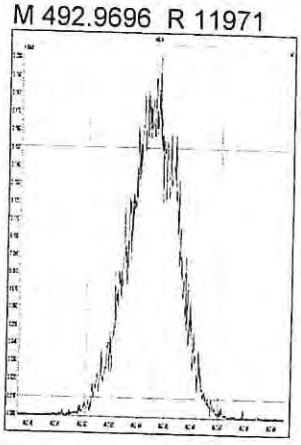

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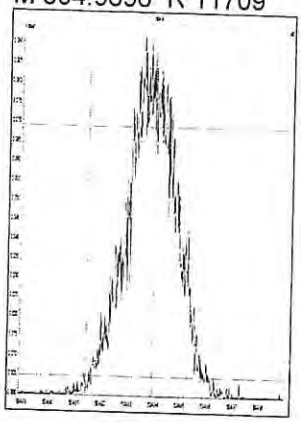

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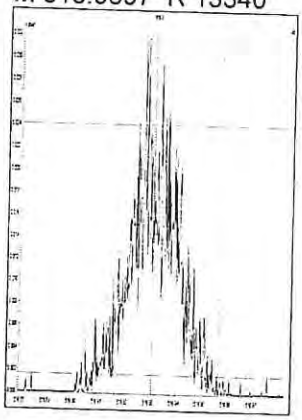

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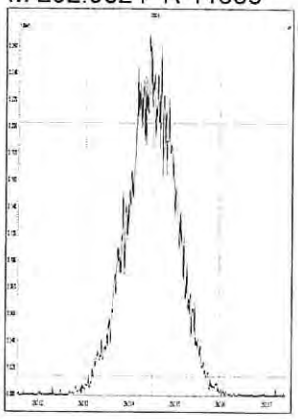

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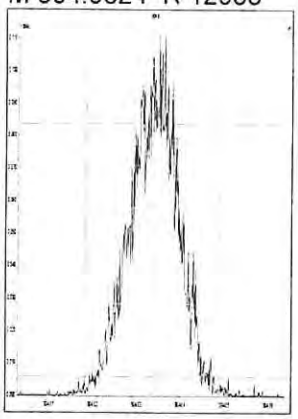

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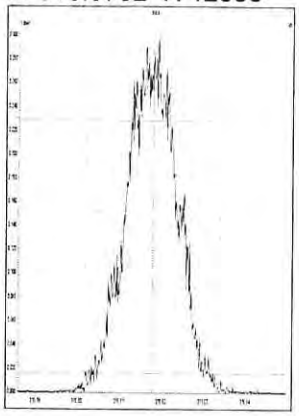
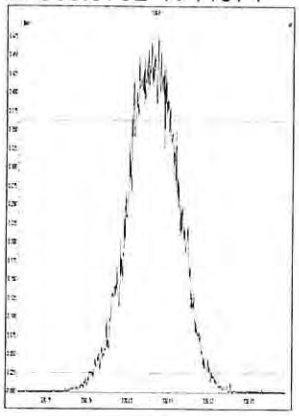
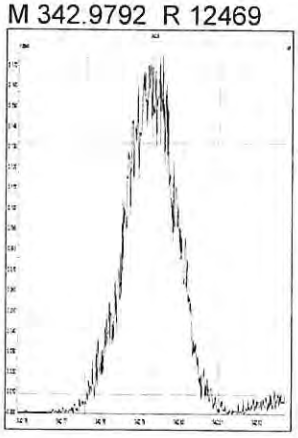


M 330.9792 R 11574



M 342.9792 R 12469



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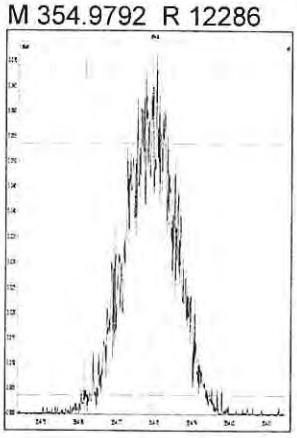

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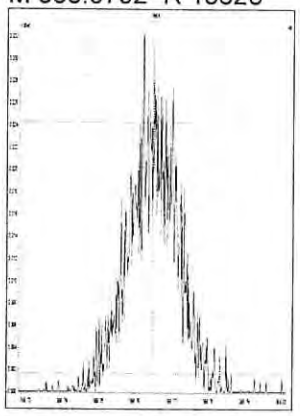
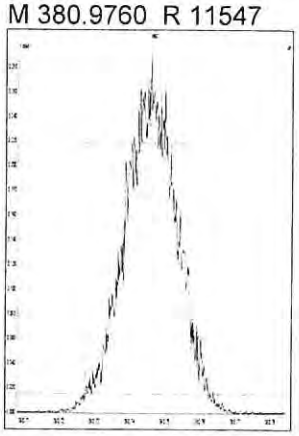


M 380.9760 R 11547



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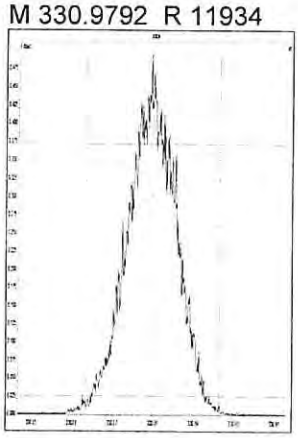

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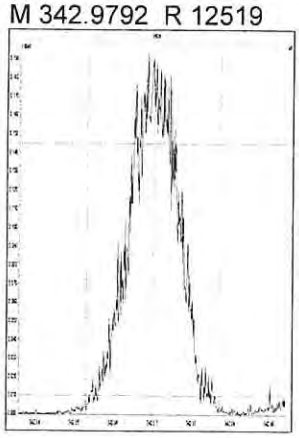

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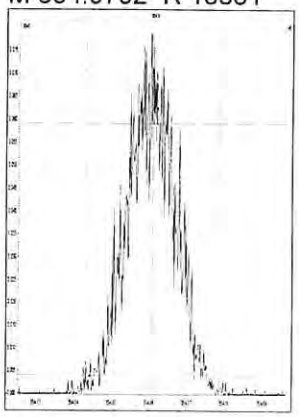

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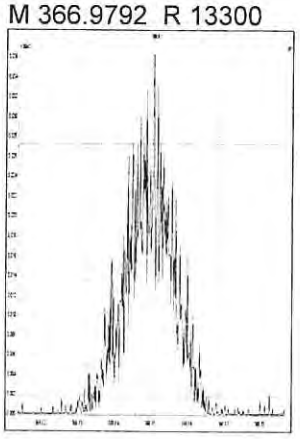

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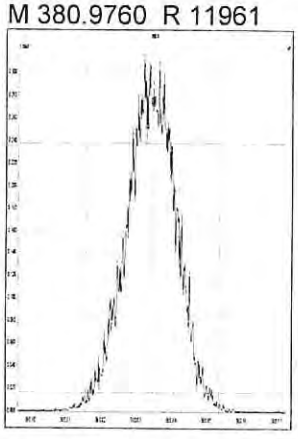

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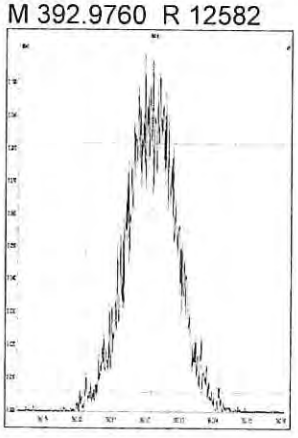

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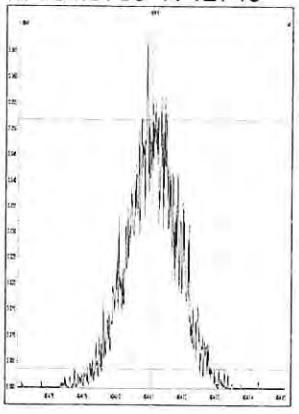

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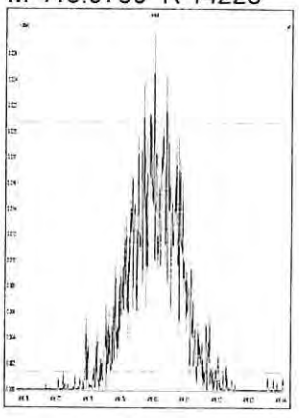

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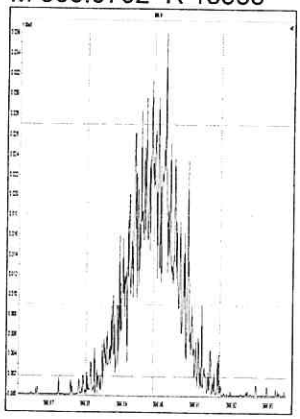

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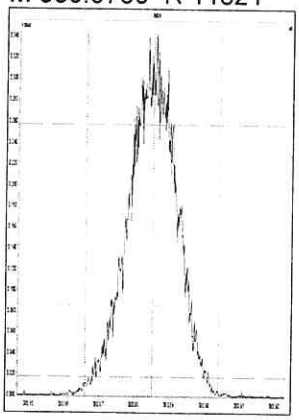
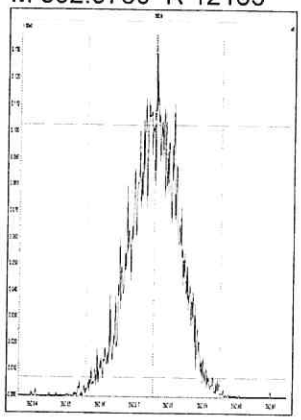


M 392.9760 R 12165



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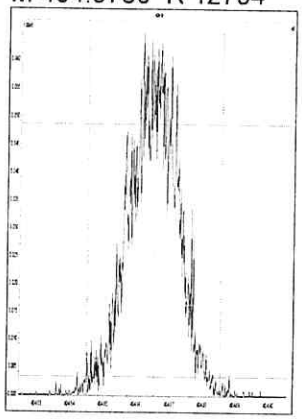

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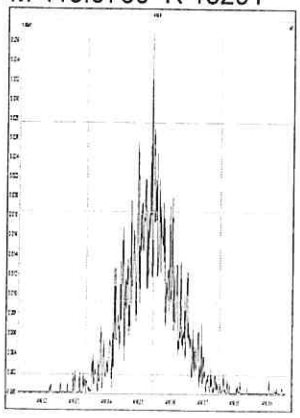
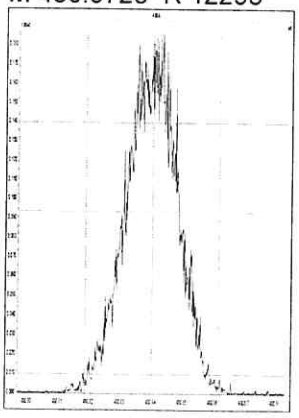


M 430.9728 R 12293



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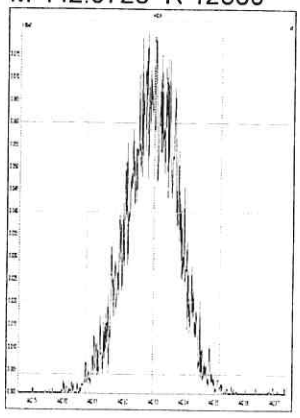

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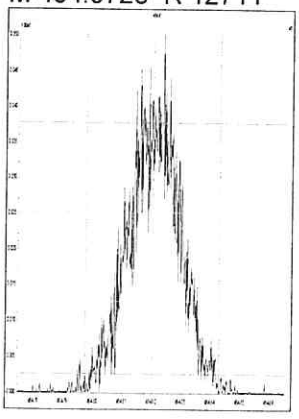

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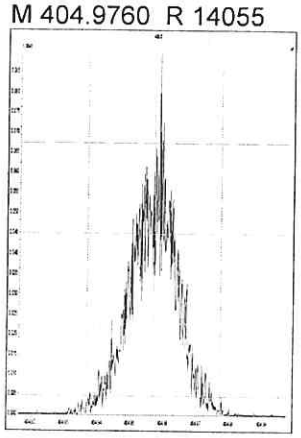

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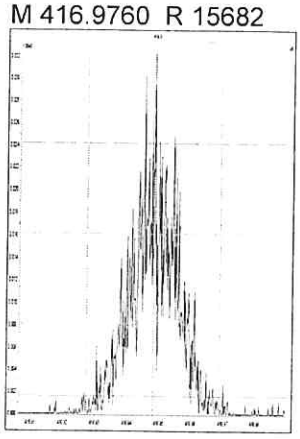

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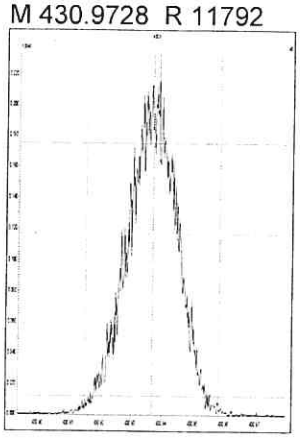

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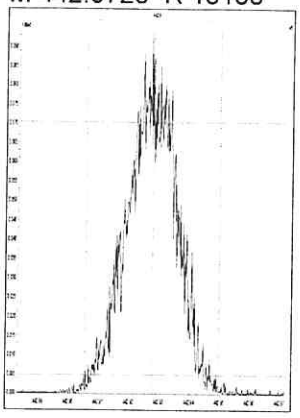
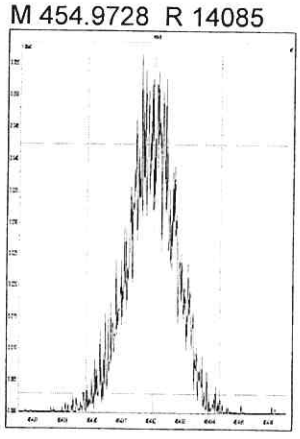
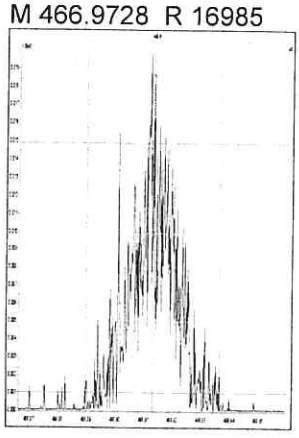


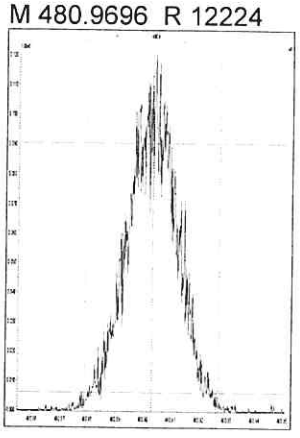
M 454.9728 R 14085



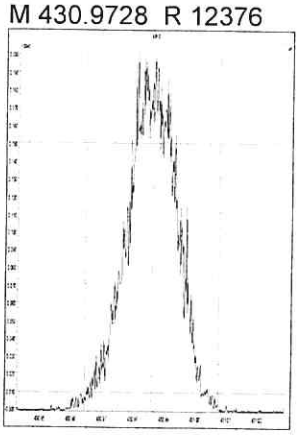
M 466.9728 R 16985



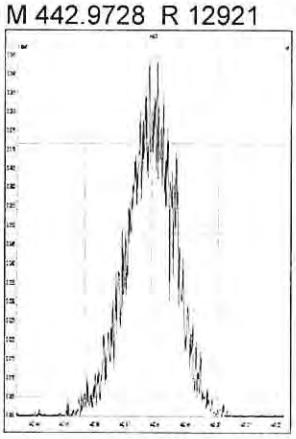
M 480.9696 R 12224



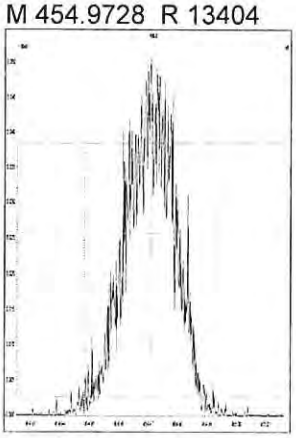
M 430.9728 R 12376



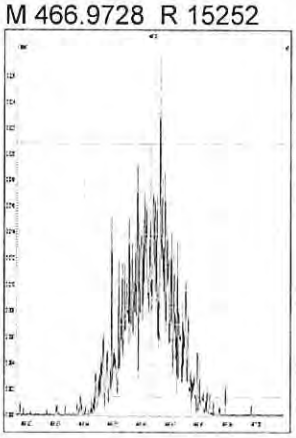
M 442.9728 R 12921



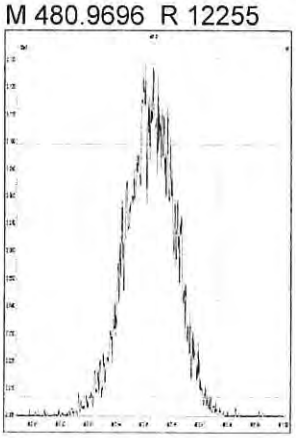
M 454.9728 R 13404



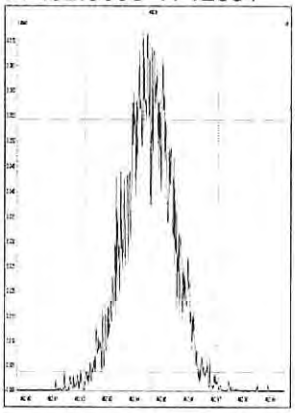
M 466.9728 R 15252



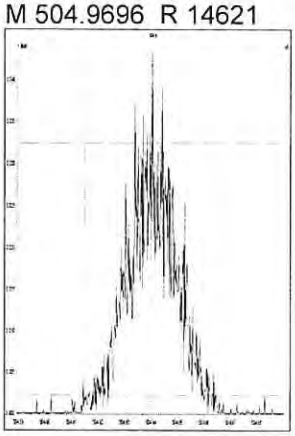
M 480.9696 R 12255



M 492.9696 R 12531



M 504.9696 R 14621



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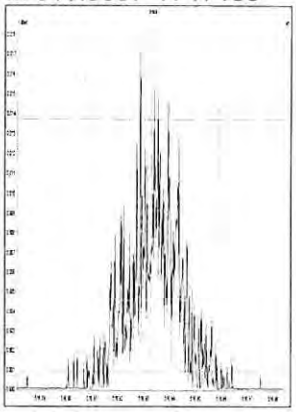


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

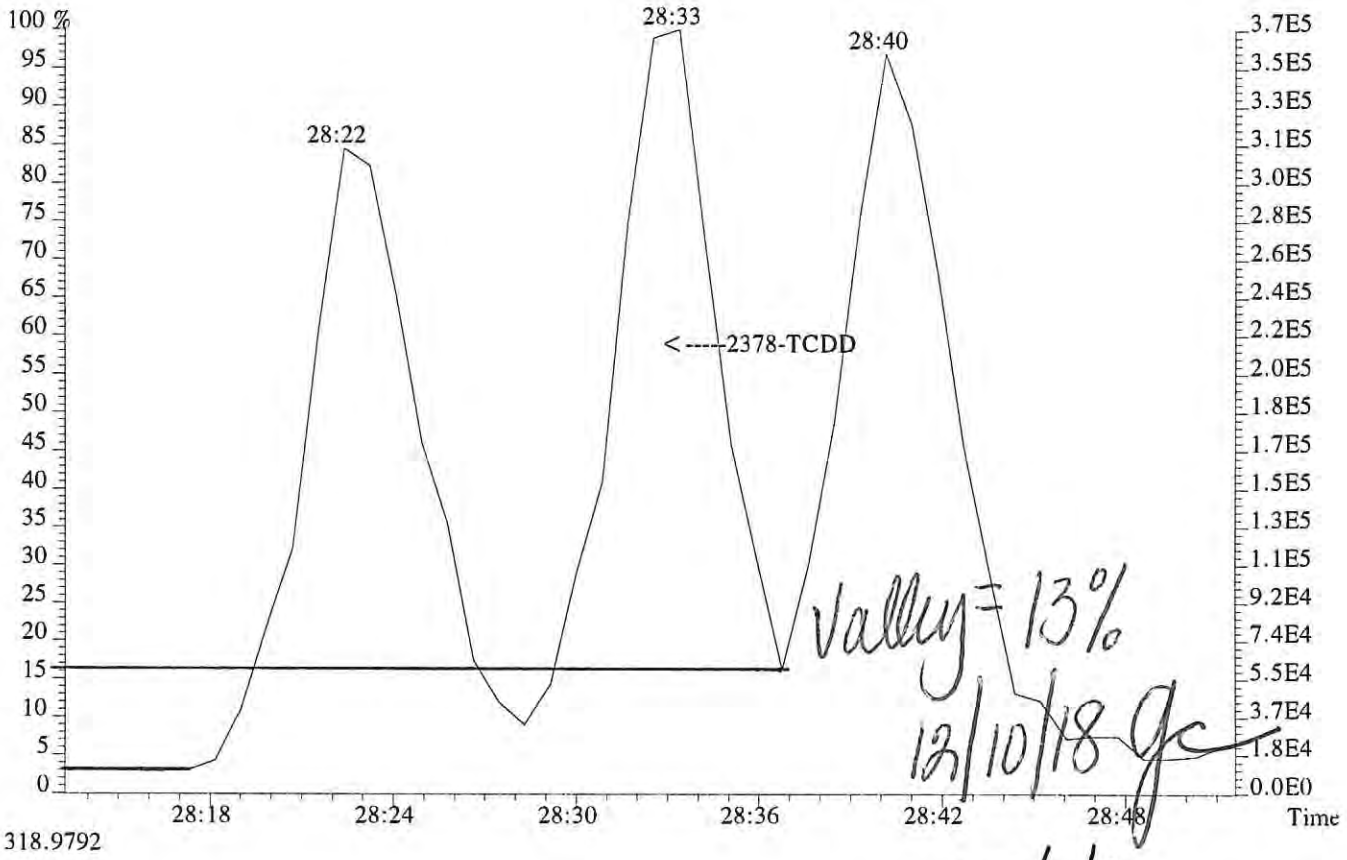
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519288
Date Analyzed: 7-DEC-2018
Time Analyzed: 19:56:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:17	29:44
TCDD	25:06	29:34
PeCDF	29:42	34:03
PeCDD	31:17	33:48
HxCDF	34:44	37:19
HxCDD	35:16	36:54
HpCDF	38:36	40:04
HpCDD	38:52	39:34

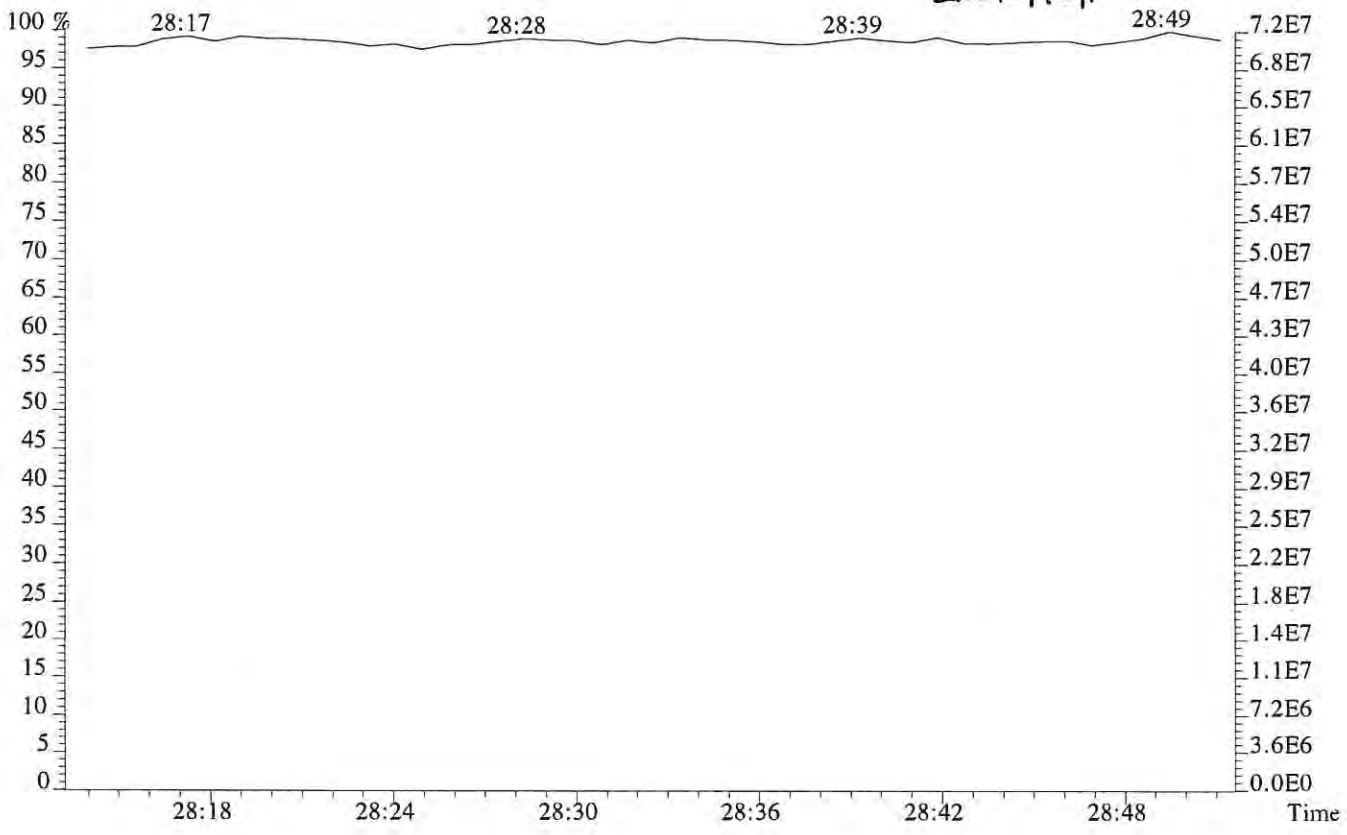
% Valley 2378-TCDD: 13 %

File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LMK 12/10/18



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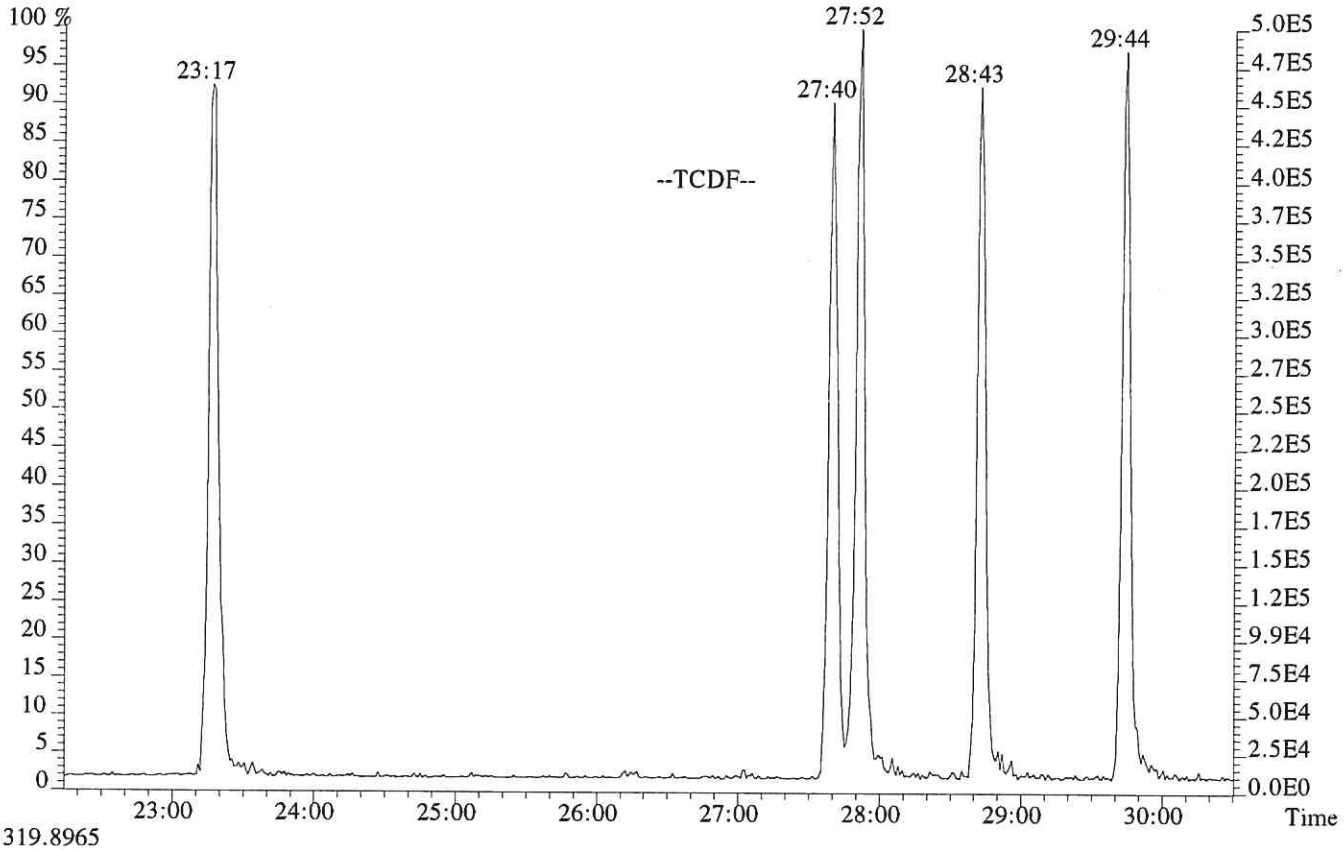
303.9016



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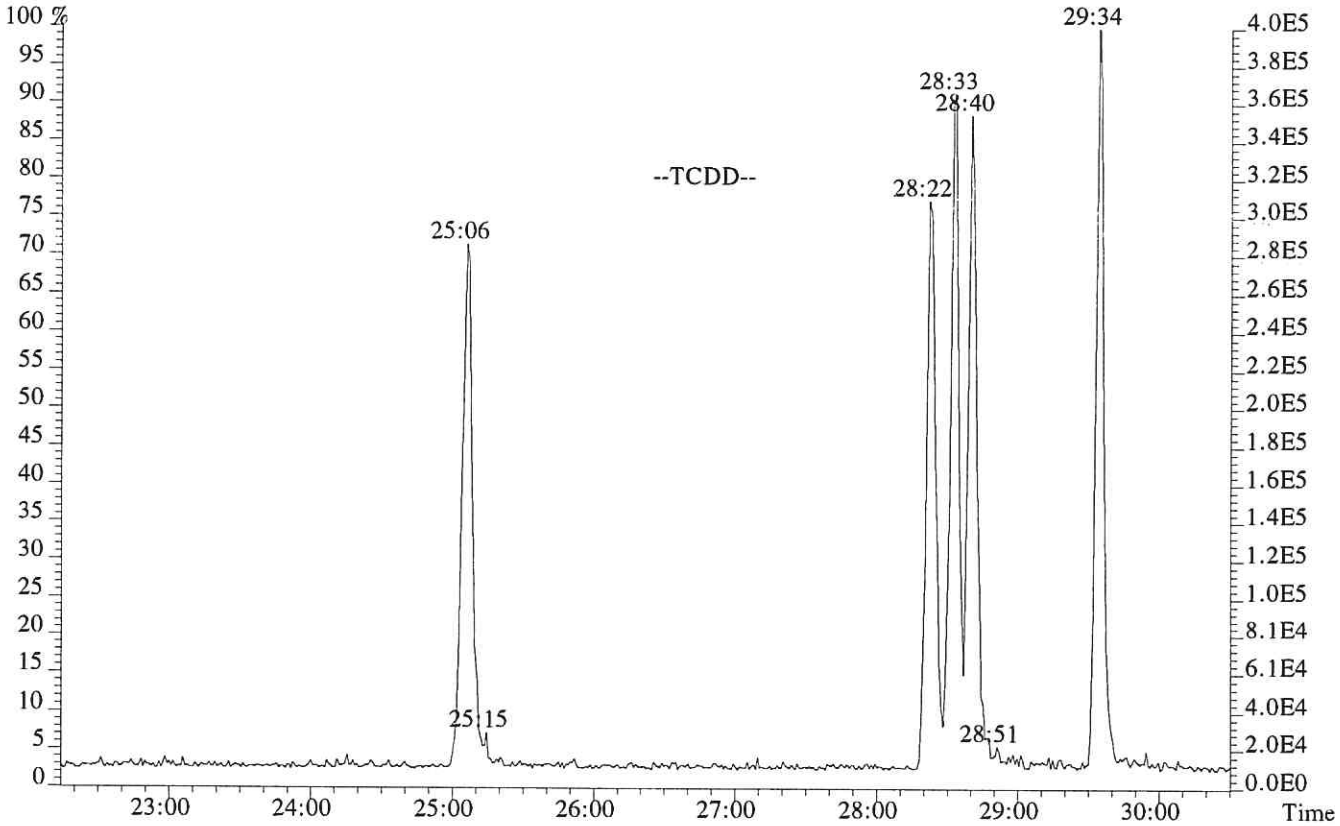
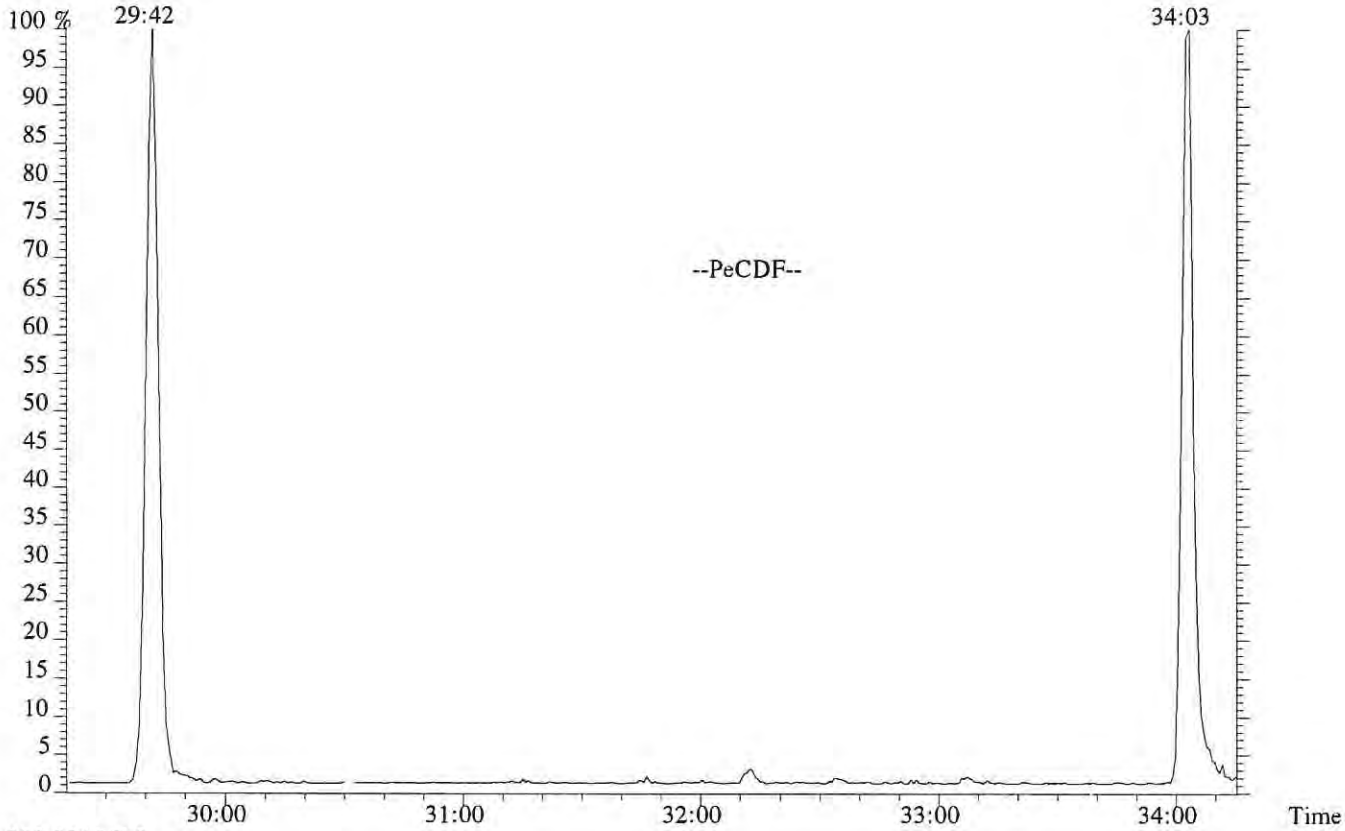
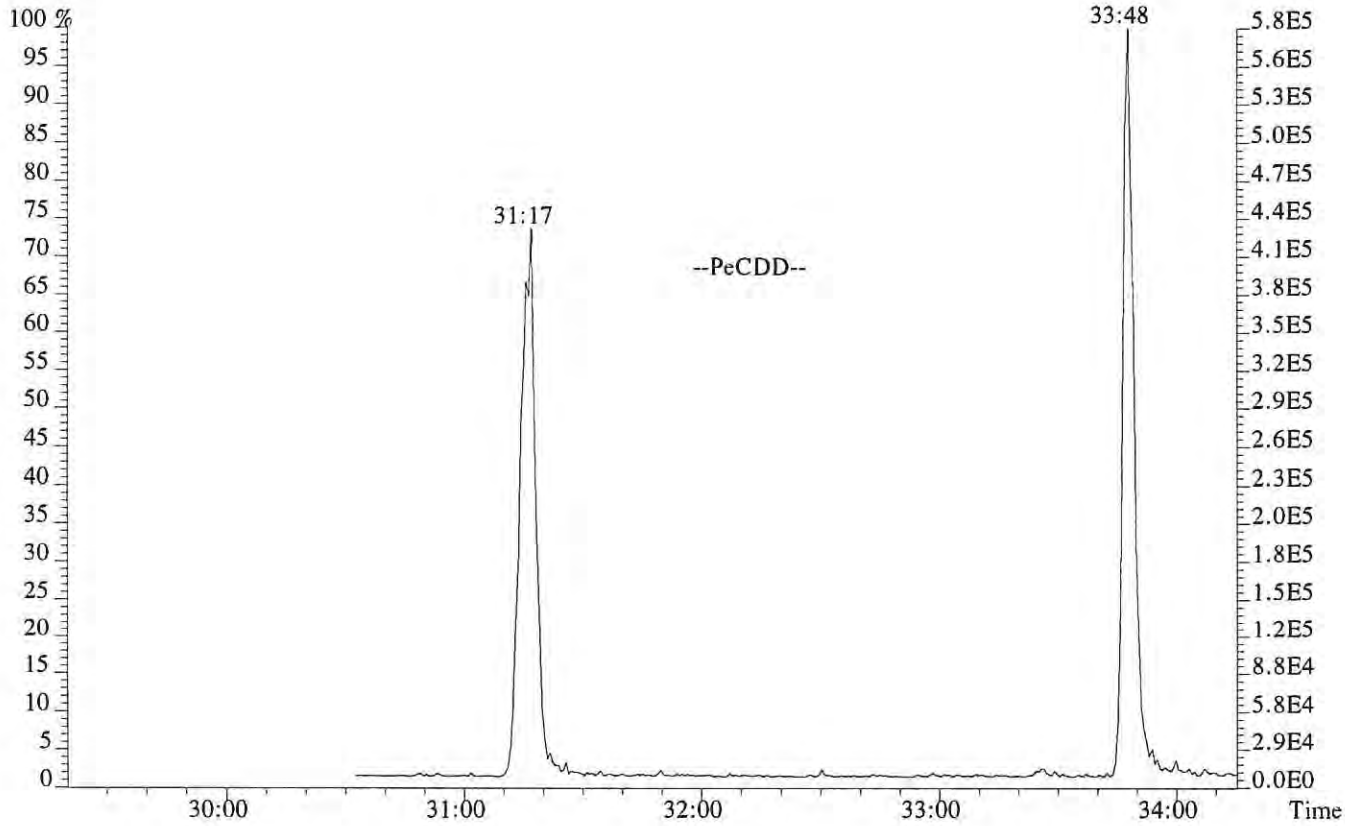


File:P519288 #1-587 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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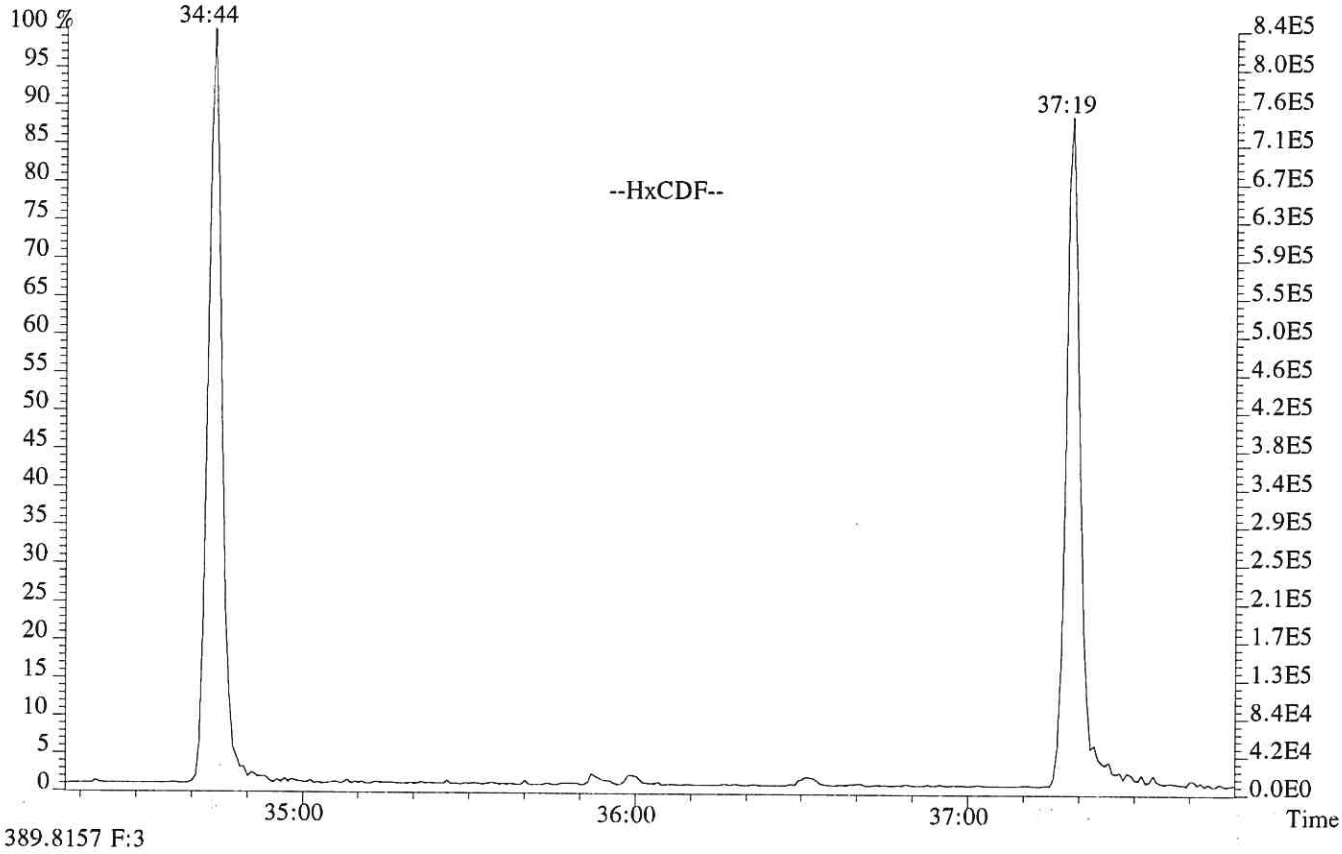
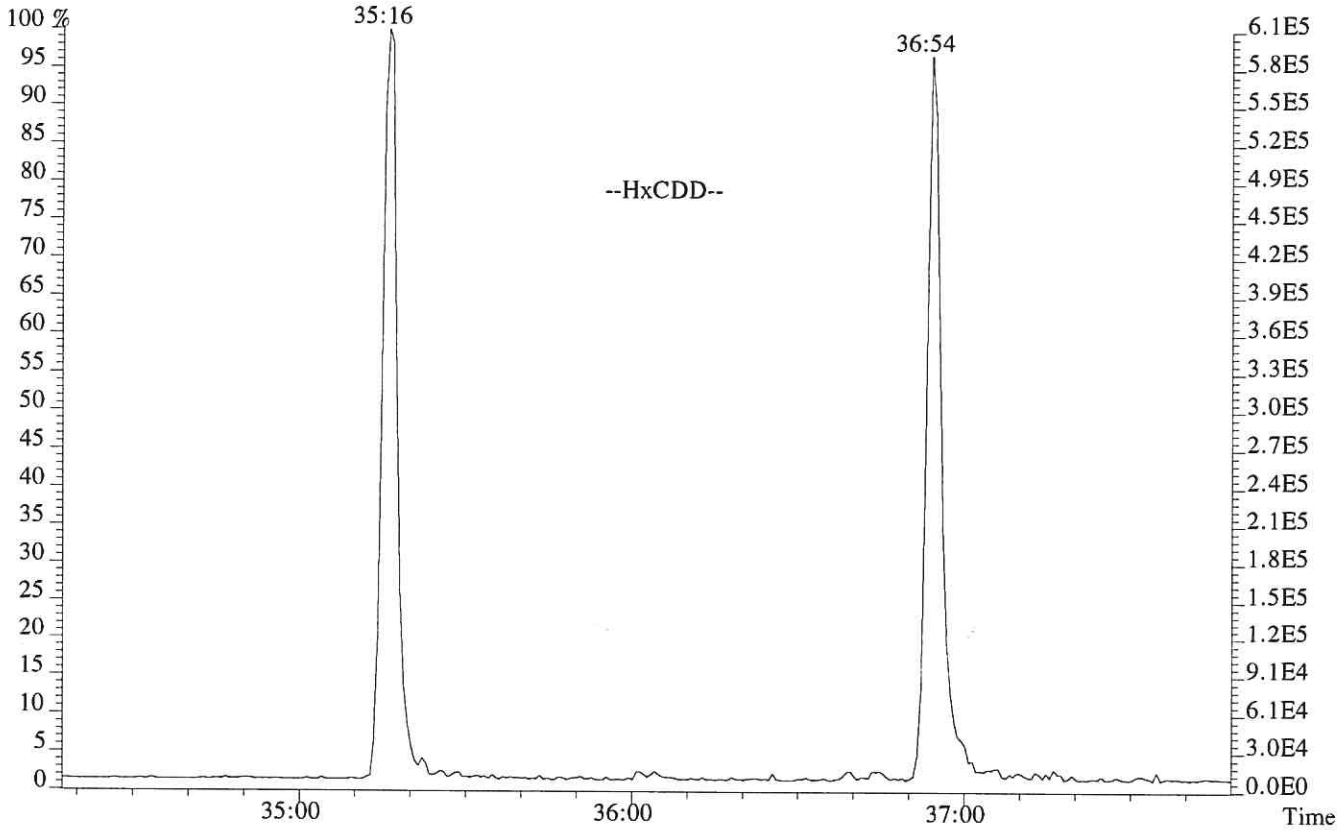
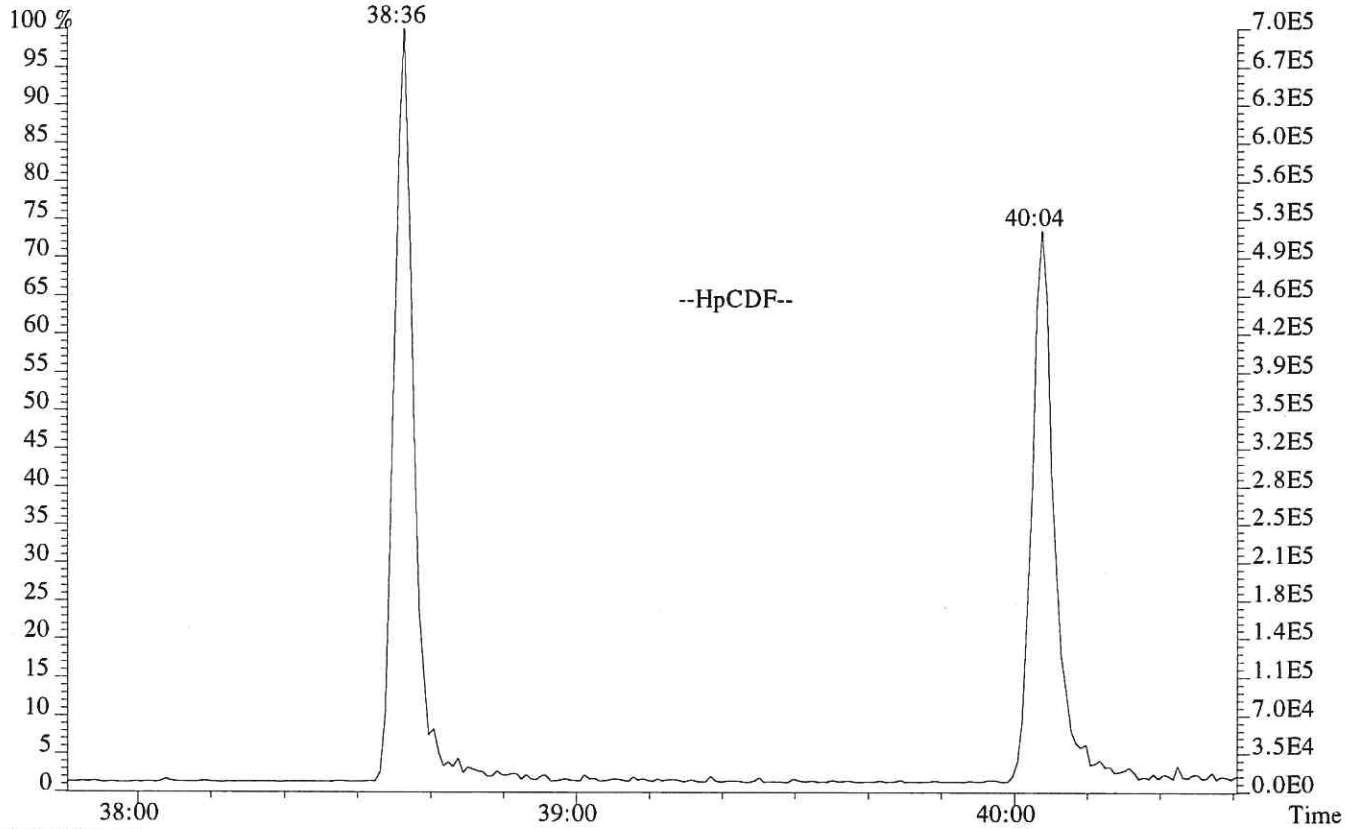
Sample#1 Exp:192977
373.8208 F:3



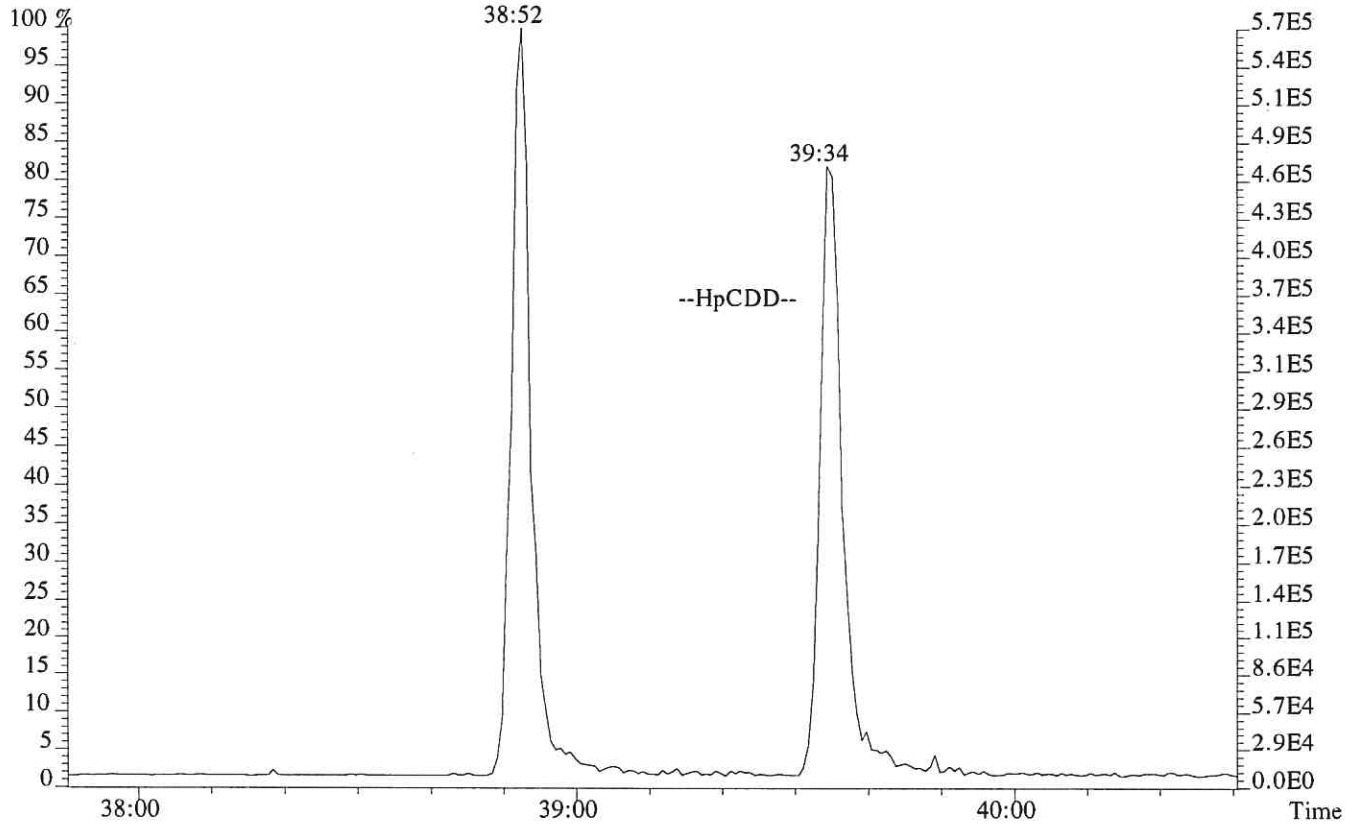
389.8157 F:3



File:P519288 #1-241 Acq: 7-DEC-2018 19:56:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	52	39 - 65	3.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	51	39 - 64	2.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	4.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	55	41 - 61	10.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.0
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	0.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	51	43 - 58	1.9
OCDF	M+2/M+4	0.88	0.76-1.02	101	63 - 159	1.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519287 Analysis Date: 7-DEC-18 Time: 19:08:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	104	82 - 121	3.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	117	62 - 160	16.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	94	85 - 117	-5.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	93	85 - 118	-6.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	109	72 - 138	8.6
13C-OCDD	M+2/M+4	0.89	0.76-1.02	260	96 - 415	29.8
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-2.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	115	76 - 130	15.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	116	77 - 130	15.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-0.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	73 - 137	-6.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	111	77 - 129	11.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	1.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:51	3.651e+03	4.952e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	3.206e+04	2.107e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:07	3.080e+04	1.981e+04	1.56	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:52	2.691e+04	2.245e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:59	3.028e+04	2.509e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:30	2.724e+04	2.254e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.554e+04	2.123e+04	1.20	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:36	2.572e+04	2.571e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.196e+04	2.194e+04	1.00	yes	no	1.258
0	Unk	OCDF	42:45	3.662e+04	4.163e+04	0.88	yes	no	1.359
1	Unk	2,3,7,8-TCDD	28:41	2.761e+03	3.479e+03	0.79	yes	no	1.085
2	Unk	1,2,3,7,8-PeCDD	33:24	2.121e+04	1.333e+04	1.59	yes	no	0.956
3	Unk	1,2,3,4,7,8-HxCDD	36:39	1.971e+04	1.514e+04	1.30	yes	no	1.038
4	Unk	1,2,3,6,7,8-HxCDD	36:44	2.027e+04	1.584e+04	1.28	yes	no	1.038
5	Unk	1,2,3,7,8,9-HxCDD	36:59	2.150e+04	1.714e+04	1.25	yes	no	1.063
6	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.894e+04	1.774e+04	1.07	yes	no	1.025
7	Unk	OCDD	42:33	3.068e+04	3.415e+04	0.90	yes	no	1.118
8	IS	13C-2,3,7,8-TCDF	27:50	4.040e+04	5.052e+04	0.80	yes	no	1.513
9	IS	13C-1,2,3,7,8-PeCDF	32:10	6.382e+04	4.020e+04	1.59	yes	no	1.471
0	IS	13C-2,3,4,7,8-PeCDF	33:06	6.314e+04	3.999e+04	1.58	yes	no	1.457
1	IS	13C-1,2,3,4,7,8-HxCDF	35:51	2.765e+04	5.368e+04	0.52	yes	no	1.234
2	IS	13C-1,2,3,6,7,8-HxCDF	35:58	3.358e+04	6.345e+04	0.53	yes	no	1.399
3	IS	13C-2,3,4,6,7,8-HxCDF	36:29	3.020e+04	5.826e+04	0.52	yes	no	1.257
4	IS	13C-1,2,3,7,8,9-HxCDF	37:16	2.797e+04	5.320e+04	0.53	yes	no	1.086
5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:36	2.344e+04	5.212e+04	0.45	yes	no	0.966
6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	2.114e+04	4.735e+04	0.45	yes	no	0.820
7	IS	13C-2,3,7,8-TCDD	28:39	2.623e+04	3.259e+04	0.80	yes	no	0.924
8	IS	13C-1,2,3,7,8-PeCDD	33:24	4.289e+04	2.696e+04	1.59	yes	no	0.975
9	IS	13C-1,2,3,4,7,8-HxCDD	36:38	3.687e+04	2.852e+04	1.29	yes	no	0.925
0	IS	13C-1,2,3,6,7,8-HxCDD	36:43	3.742e+04	2.911e+04	1.29	yes	no	0.949
1	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	3.637e+04	3.368e+04	1.08	yes	no	0.858
2	IS	13C-OCDD	42:33	5.342e+04	6.023e+04	0.89	yes	no	0.582
3	RS/RT	13C-1,2,3,4-TCDD	28:05	2.717e+04	3.412e+04	0.80	yes	no	-
4	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	4.200e+04	3.318e+04	1.27	yes	no	-
5	C/Up	37Cl-2,3,7,8-TCDD	28:40	6.279e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

un #7 Filename P519287 Samp: 1 Inj: 1 Acquired: 7-DEC-18 19:08:16
rocessed: 10-DEC-18 09:24:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.34e+05	5.32e+02	1.2e+03	8.78e+05	1.42e+03	6.2e+02
	1,2,3,7,8-PeCDF	5.87e+06	4.76e+02	1.2e+04	3.87e+06	1.20e+03	3.2e+03
	2,3,4,7,8-PeCDF	6.08e+06	4.76e+02	1.3e+04	3.82e+06	1.20e+03	3.2e+03
	1,2,3,4,7,8-HxCDF	5.87e+06	7.00e+02	8.4e+03	4.99e+06	6.00e+02	8.3e+03
	1,2,3,6,7,8-HxCDF	6.14e+06	7.00e+02	8.8e+03	5.11e+06	6.00e+02	8.5e+03
	2,3,4,6,7,8-HxCDF	5.95e+06	7.00e+02	8.5e+03	4.93e+06	6.00e+02	8.2e+03
	1,2,3,7,8,9-HxCDF	4.77e+06	7.00e+02	6.8e+03	3.97e+06	6.00e+02	6.6e+03
	1,2,3,4,6,7,8-HpCDF	5.16e+06	2.04e+02	2.5e+04	5.11e+06	1.60e+02	3.2e+04
	1,2,3,4,7,8,9-HpCDF	3.49e+06	2.04e+02	1.7e+04	3.55e+06	1.60e+02	2.2e+04
0	OCDF	4.67e+06	2.52e+02	1.9e+04	5.34e+06	1.02e+03	5.2e+03
1	2,3,7,8-TCDD	5.32e+05	2.04e+03	2.6e+02	6.56e+05	1.17e+03	5.6e+02
2	1,2,3,7,8-PeCDD	4.13e+06	7.76e+02	5.3e+03	2.61e+06	2.92e+02	8.9e+03
3	1,2,3,4,7,8-HxCDD	4.25e+06	3.72e+02	1.1e+04	3.20e+06	6.84e+02	4.7e+03
4	1,2,3,6,7,8-HxCDD	3.99e+06	3.72e+02	1.1e+04	3.10e+06	6.84e+02	4.5e+03
5	1,2,3,7,8,9-HxCDD	4.16e+06	3.72e+02	1.1e+04	3.22e+06	6.84e+02	4.7e+03
6	1,2,3,4,6,7,8-HpCDD	3.45e+06	4.48e+02	7.7e+03	3.25e+06	4.96e+02	6.6e+03
7	OCDD	3.99e+06	2.52e+02	1.6e+04	4.42e+06	3.00e+02	1.5e+04
8	13C-2,3,7,8-TCDF	7.22e+06	6.64e+03	1.1e+03	9.07e+06	6.70e+03	1.4e+03
9	13C-1,2,3,7,8-PeCDF	1.17e+07	8.12e+02	1.4e+04	7.35e+06	5.40e+02	1.4e+04
0	13C-2,3,4,7,8-PeCDF	1.23e+07	8.12e+02	1.5e+04	7.92e+06	5.40e+02	1.5e+04
1	13C-1,2,3,4,7,8-HxCDF	6.00e+06	9.16e+02	6.6e+03	1.18e+07	8.96e+02	1.3e+04
2	13C-1,2,3,6,7,8-HxCDF	6.90e+06	9.16e+02	7.5e+03	1.30e+07	8.96e+02	1.5e+04
3	13C-2,3,4,6,7,8-HxCDF	6.46e+06	9.16e+02	7.1e+03	1.24e+07	8.96e+02	1.4e+04
4	13C-1,2,3,7,8,9-HxCDF	5.21e+06	9.16e+02	5.7e+03	9.73e+06	8.96e+02	1.1e+04
5	13C-1,2,3,4,6,7,8-HpCDF	4.61e+06	2.22e+03	2.1e+03	1.02e+07	1.12e+03	9.2e+03
6	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	2.22e+03	1.5e+03	7.57e+06	1.12e+03	6.8e+03
7	13C-2,3,7,8-TCDD	4.99e+06	4.20e+03	1.2e+03	6.26e+06	1.75e+03	3.6e+03
8	13C-1,2,3,7,8-PeCDD	8.63e+06	1.40e+03	6.2e+03	5.45e+06	1.18e+03	4.6e+03
9	13C-1,2,3,4,7,8-HxCDD	7.82e+06	7.08e+02	1.1e+04	5.99e+06	7.16e+02	8.4e+03
0	13C-1,2,3,6,7,8-HxCDD	7.35e+06	7.08e+02	1.0e+04	5.72e+06	7.16e+02	8.0e+03
1	13C-1,2,3,4,6,7,8-HpCDD	6.49e+06	6.00e+02	1.1e+04	6.06e+06	5.16e+02	1.2e+04
2	13C-OCDD	6.87e+06	4.92e+02	1.4e+04	7.75e+06	2.76e+02	2.8e+04
3	13C-1,2,3,4-TCDD	5.19e+06	4.20e+03	1.2e+03	6.52e+06	1.75e+03	3.7e+03
4	13C-1,2,3,7,8,9-HxCDD	7.95e+06	7.08e+02	1.1e+04	6.19e+06	7.16e+02	8.6e+03
5	37Cl-2,3,7,8-TCDD	1.17e+06	1.10e+03	1.1e+03			

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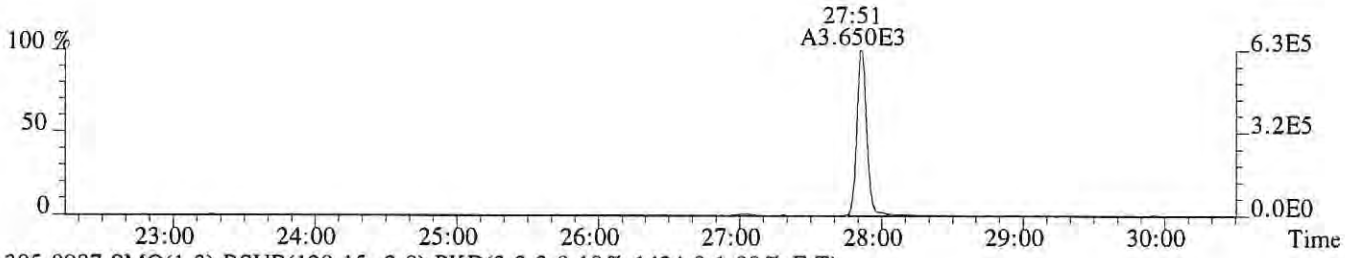
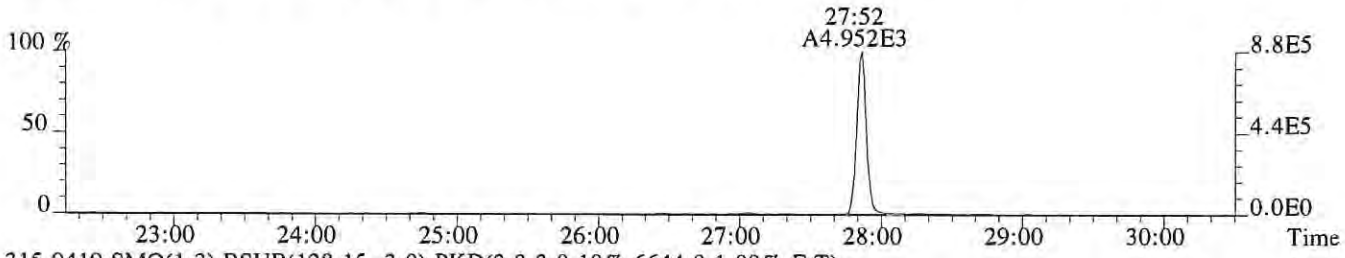
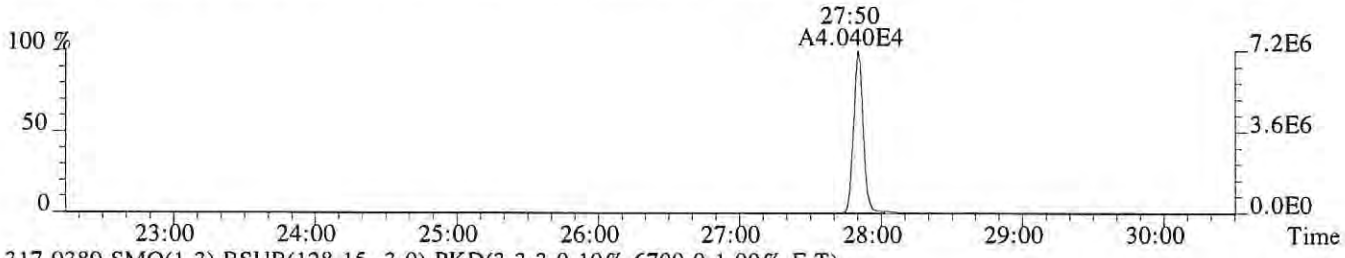
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



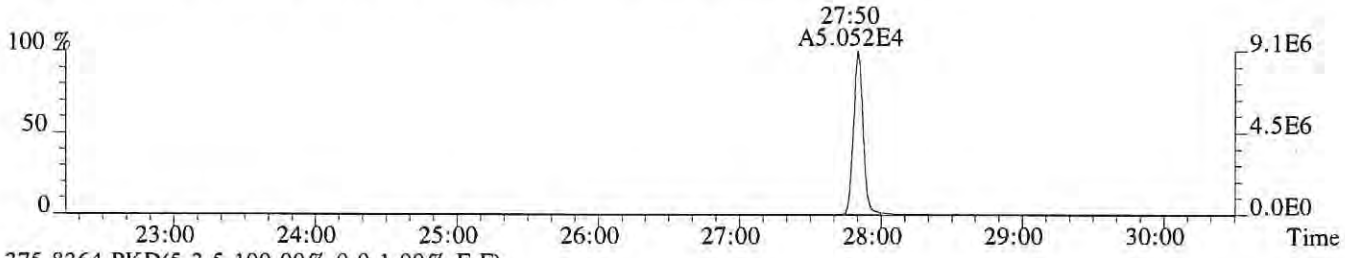
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



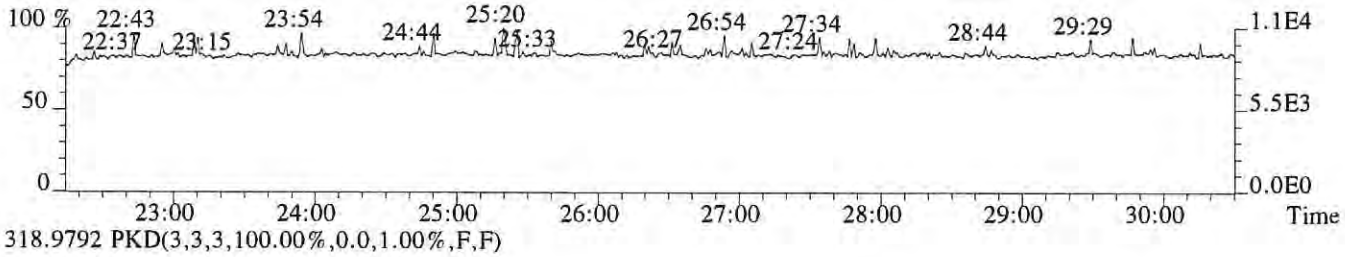
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



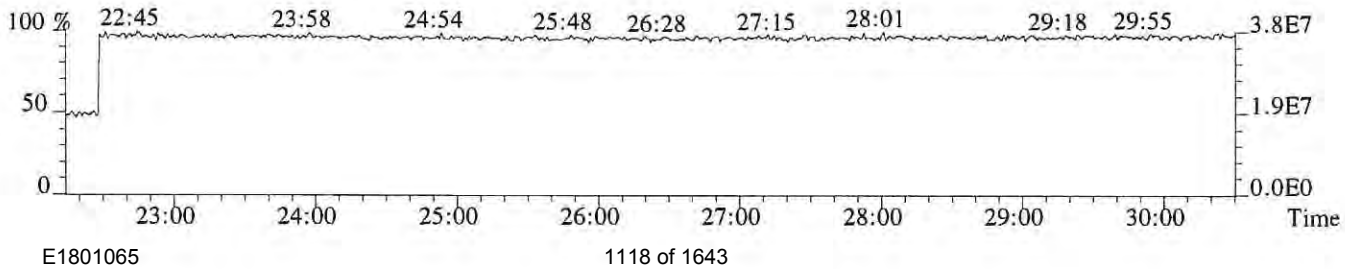
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6700.0,1.00%,F,T)



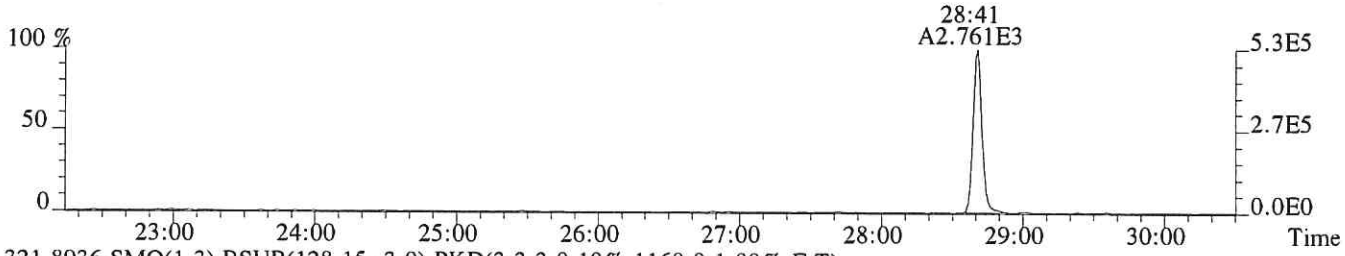
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



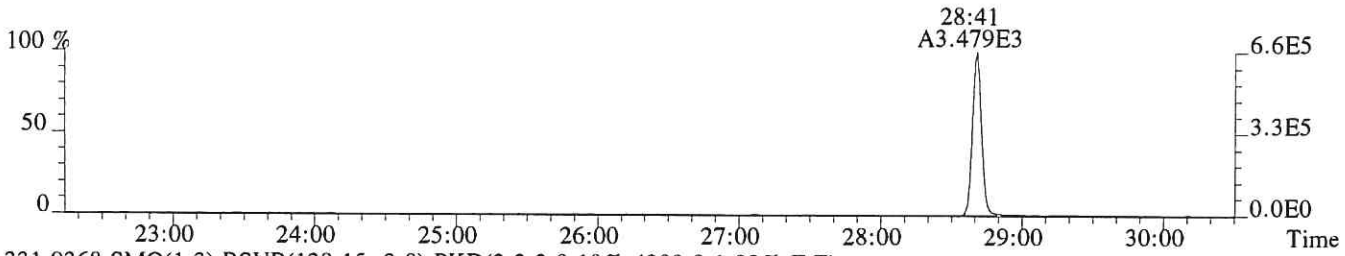
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



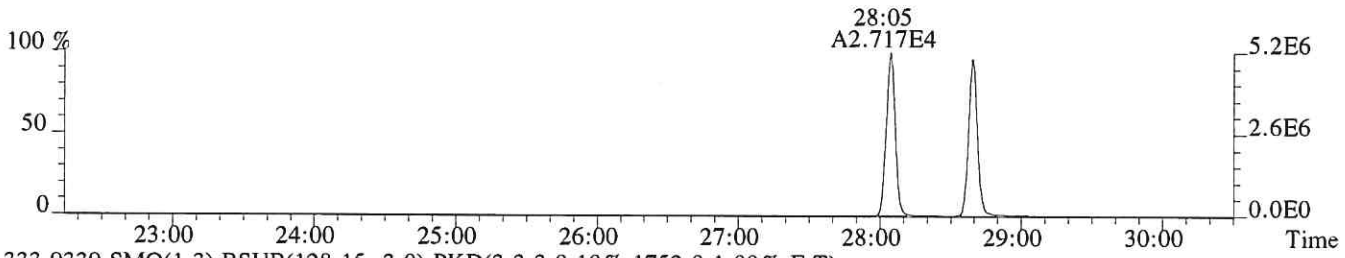
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



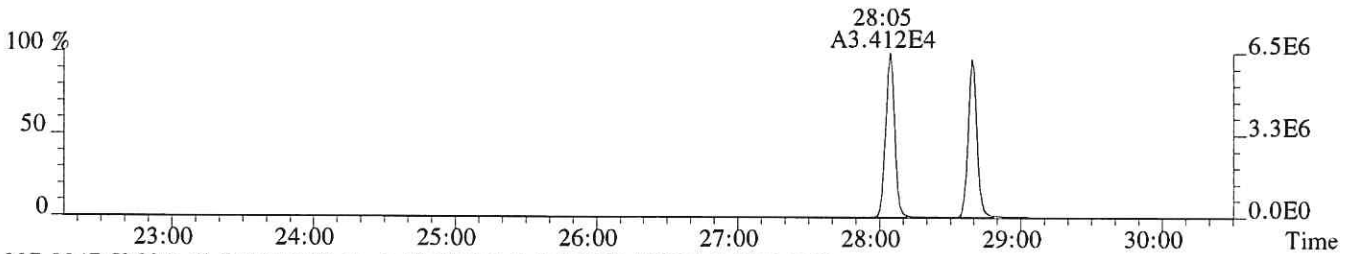
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



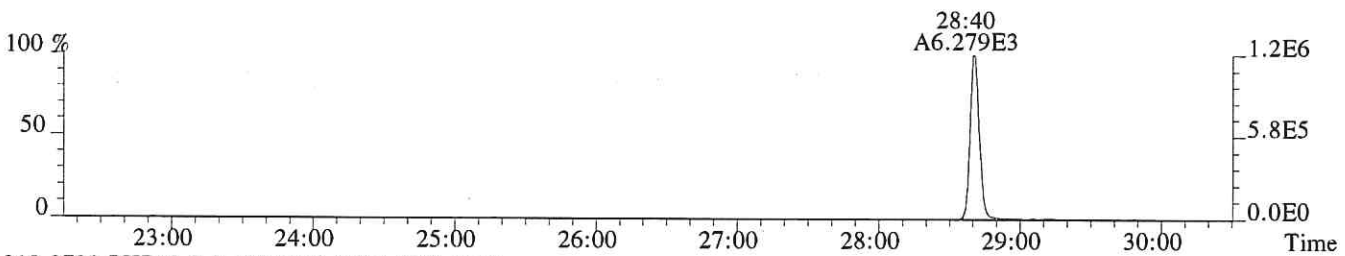
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4200.0,1.00%,F,T)



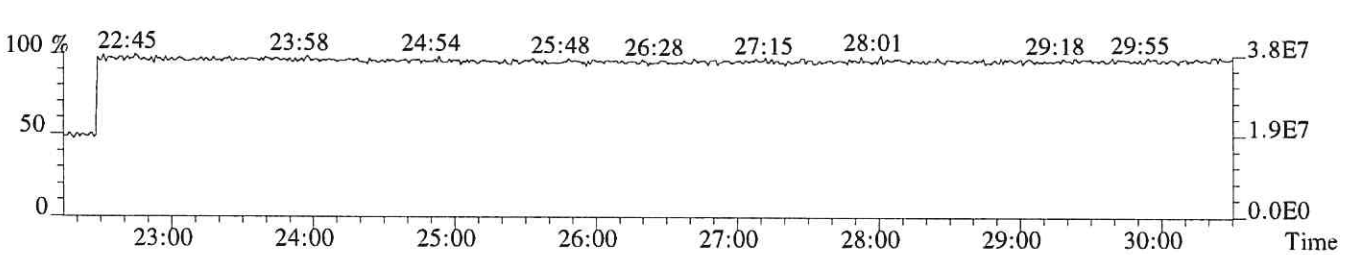
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



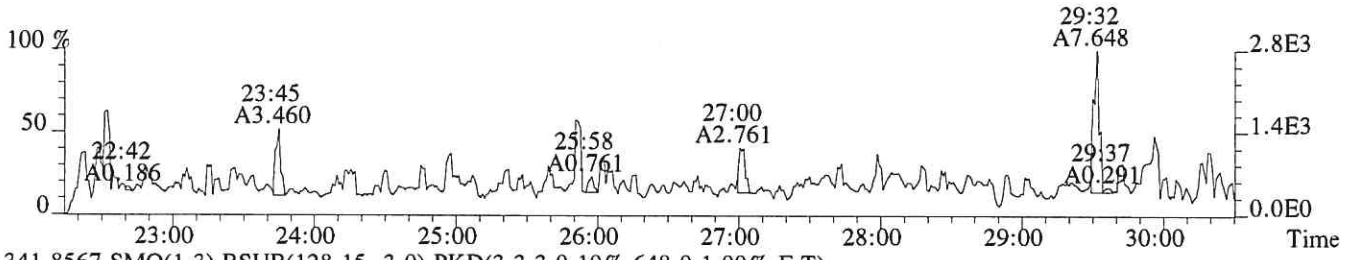
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



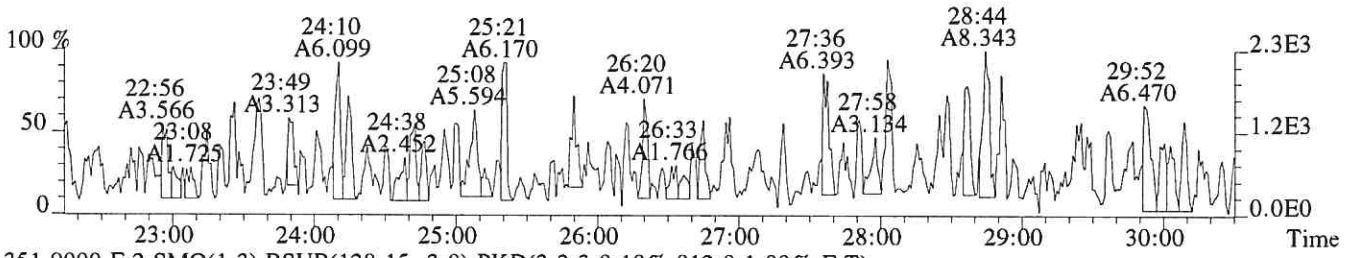
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



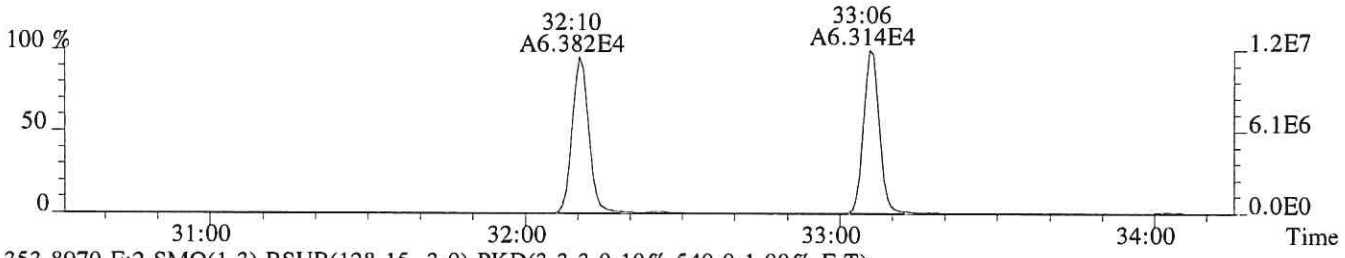
File:P519287 #1-587 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



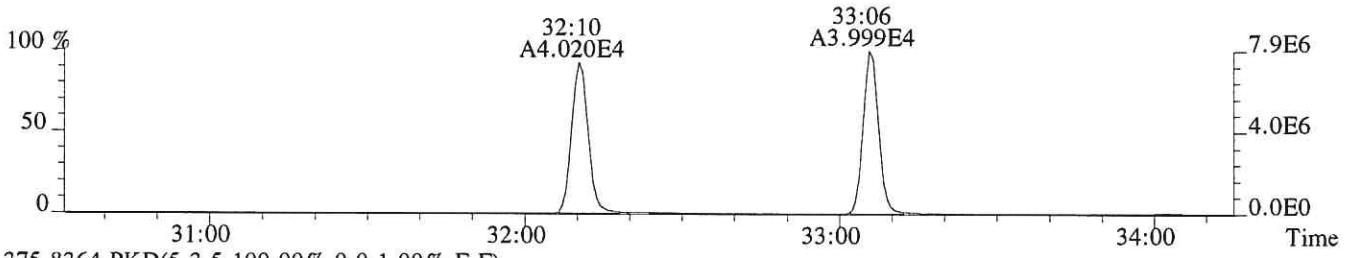
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



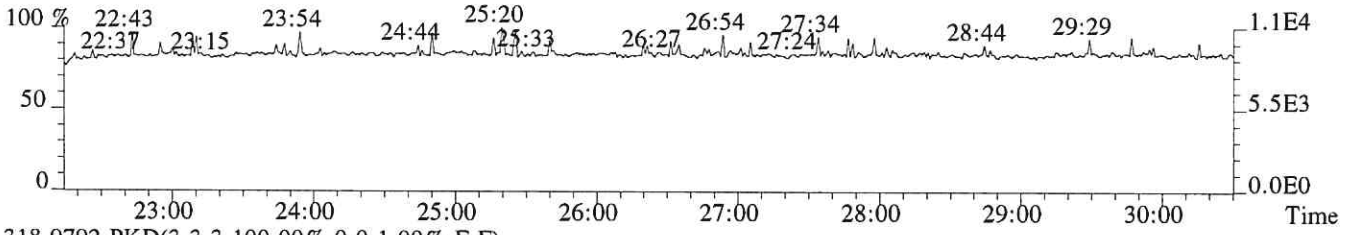
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



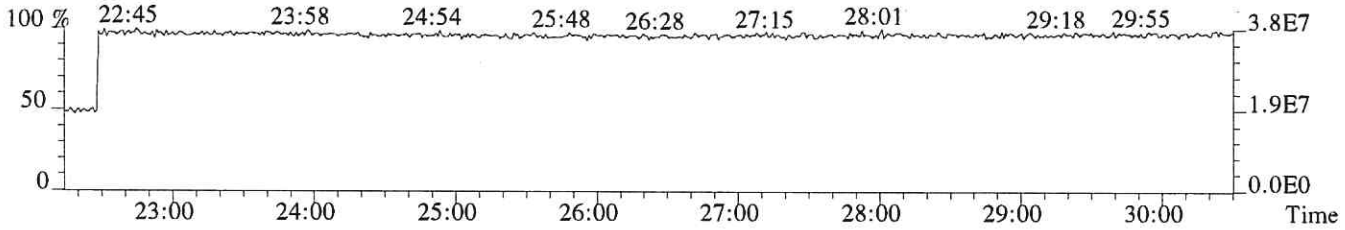
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



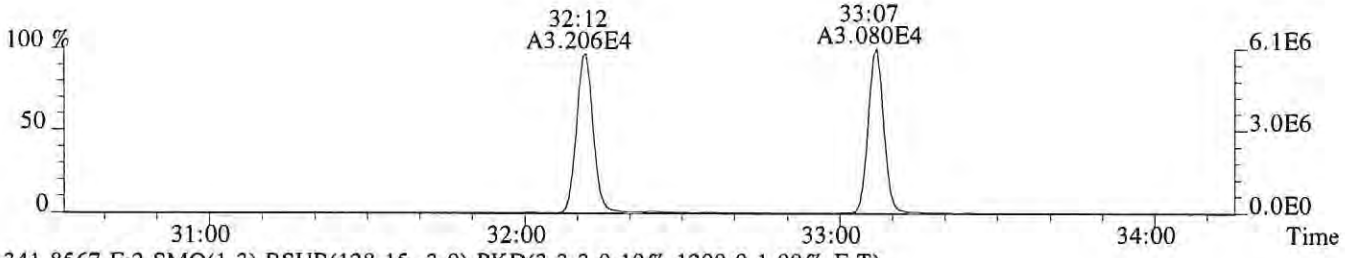
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



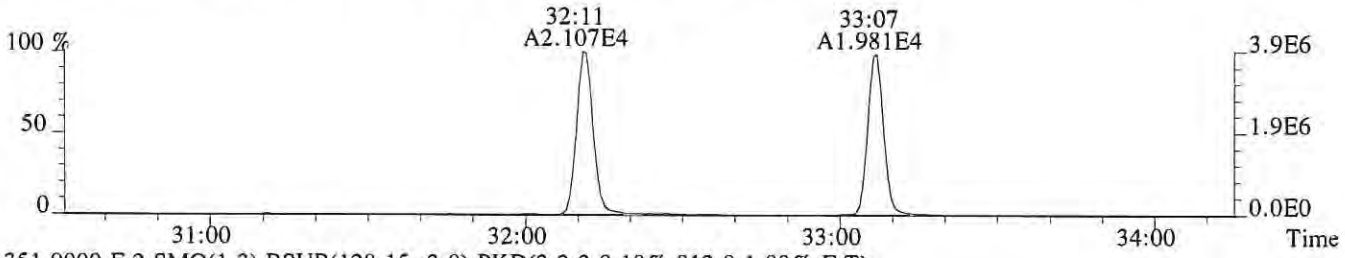
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



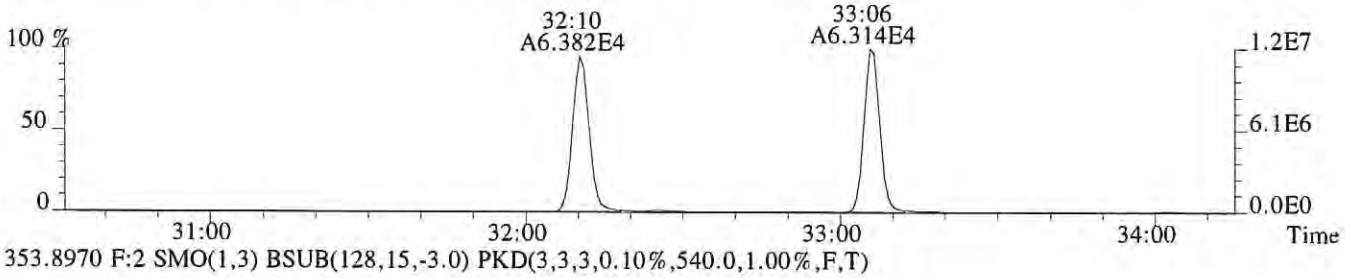
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



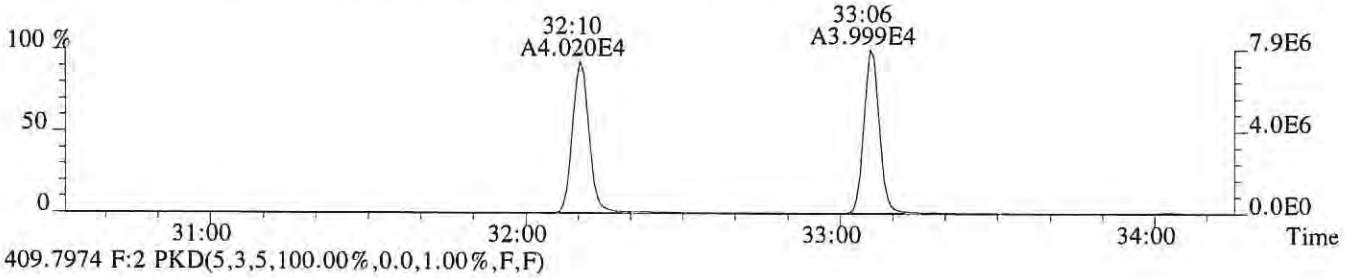
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



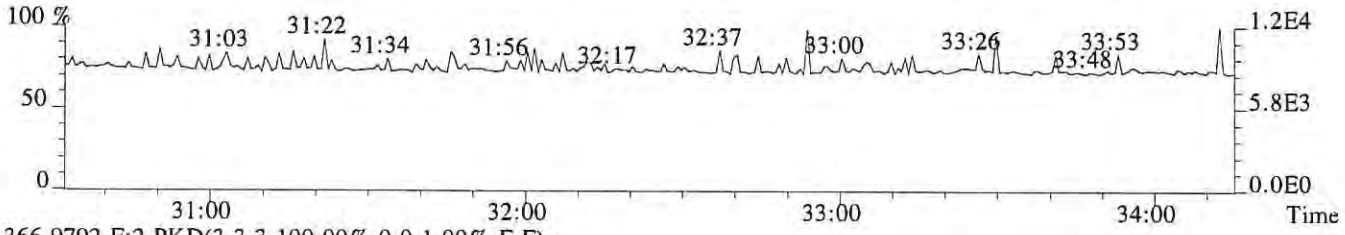
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



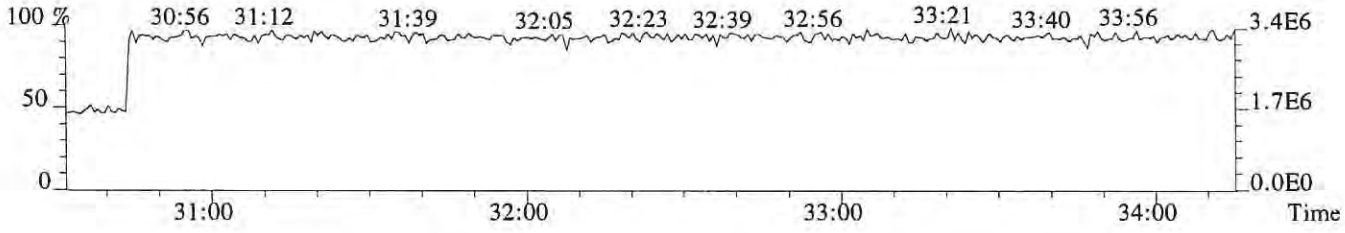
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



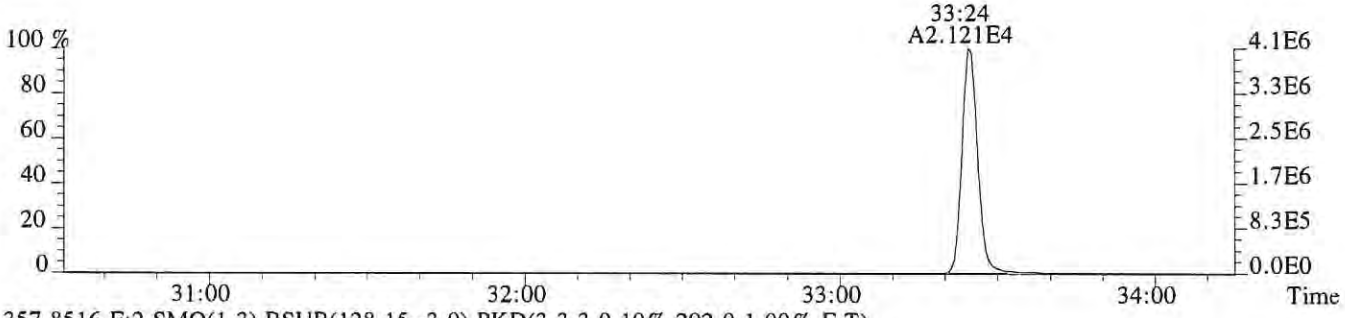
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



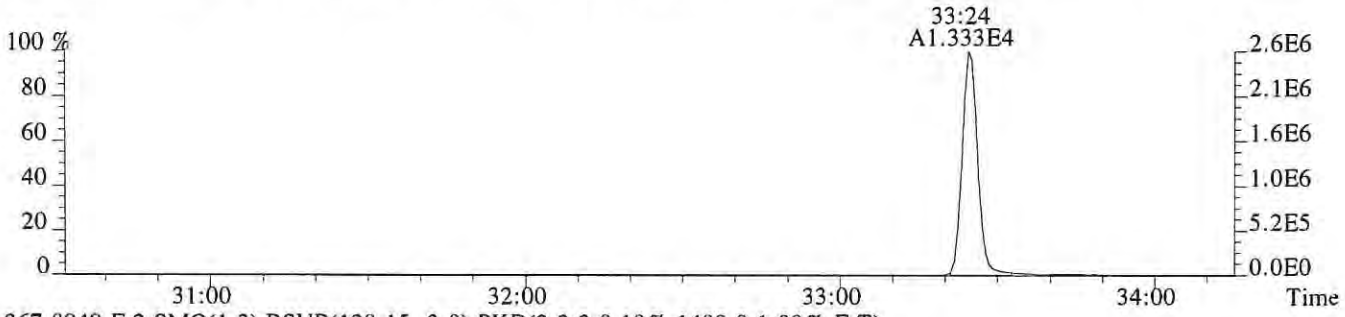
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



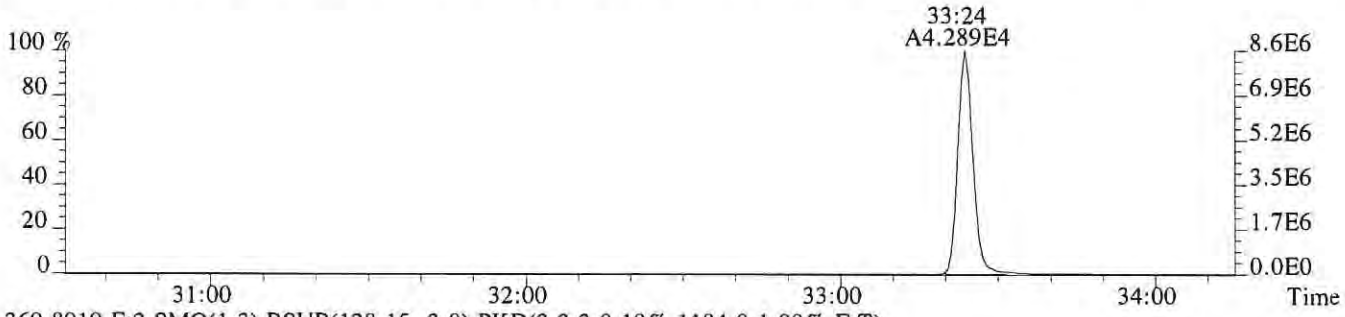
File:P519287 #1-335 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



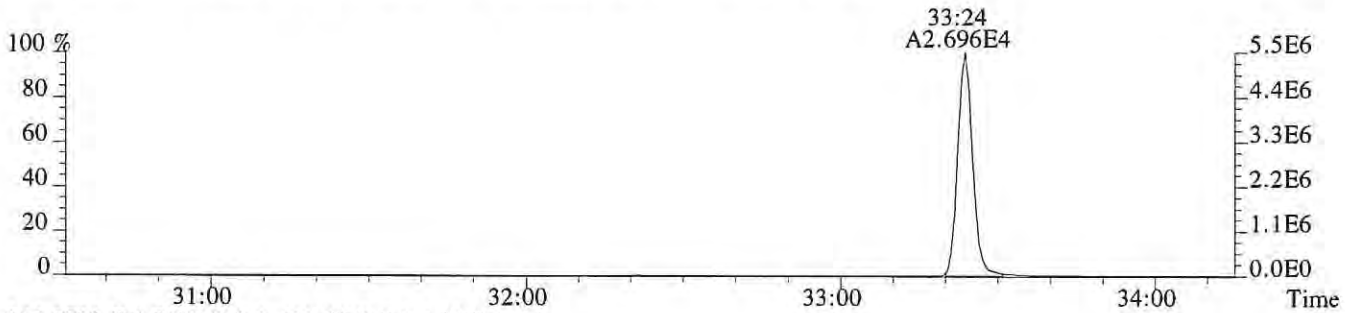
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



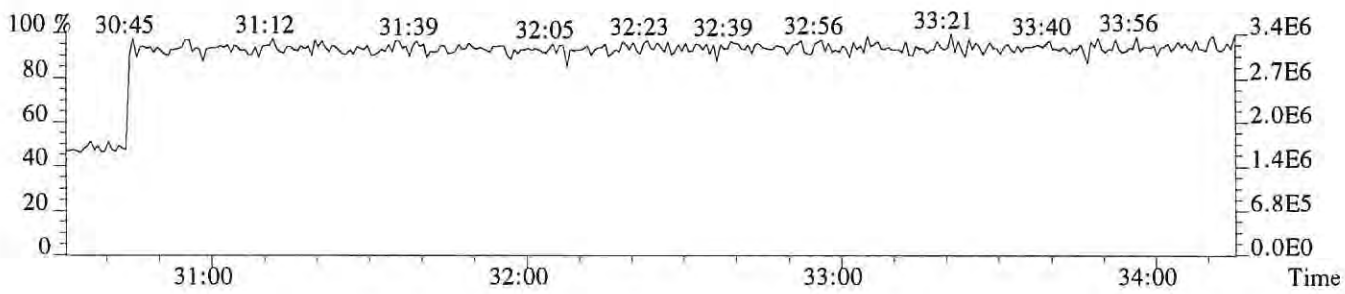
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



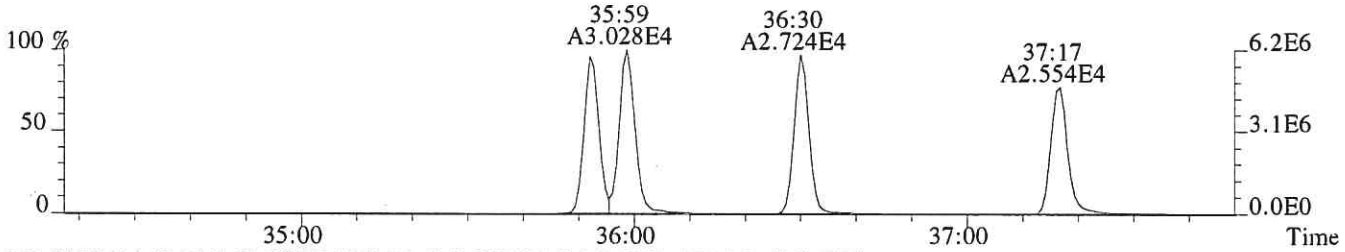
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



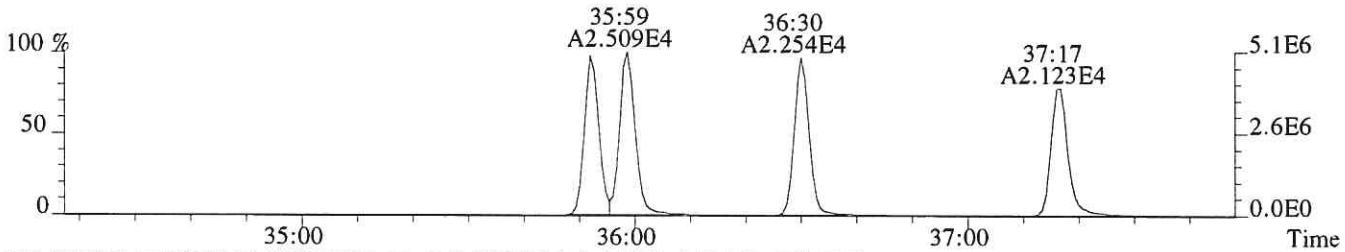
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



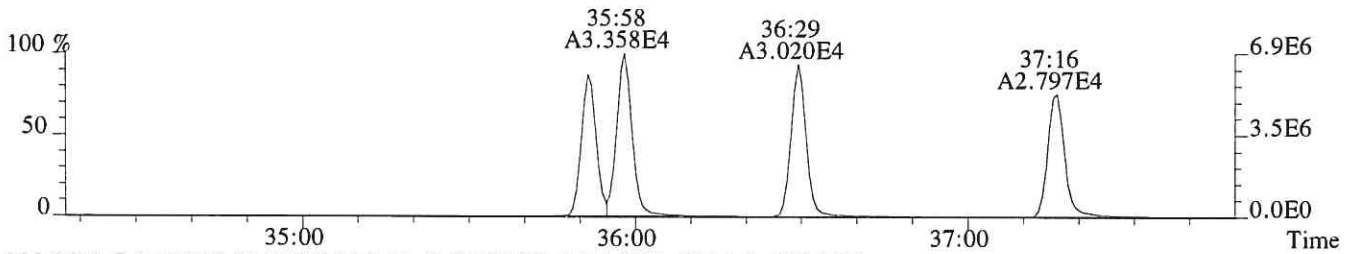
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



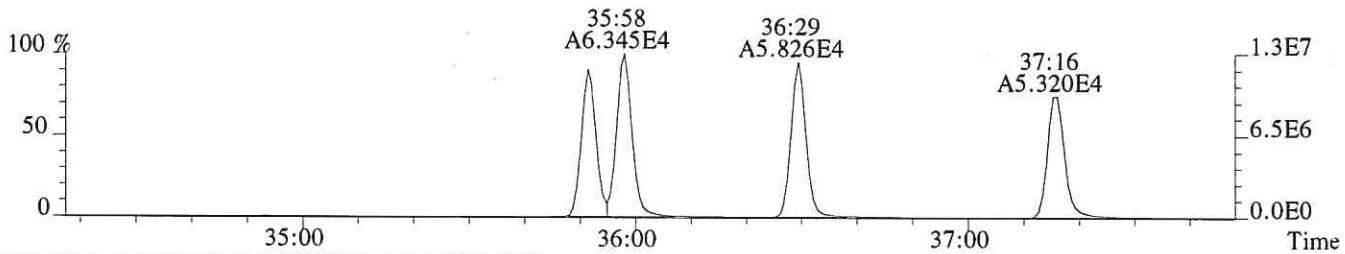
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



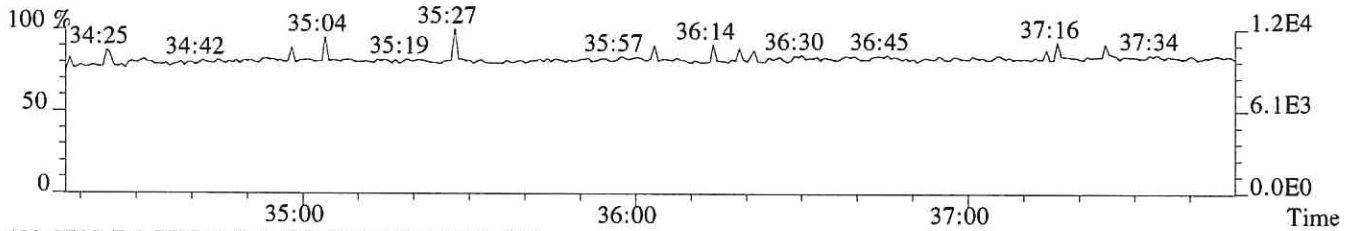
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



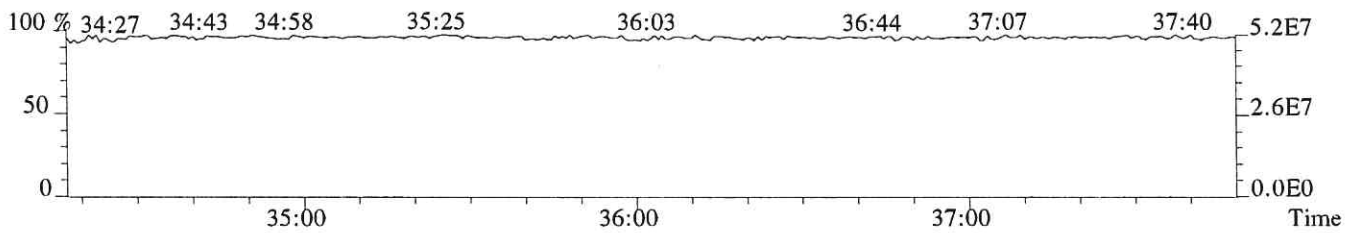
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



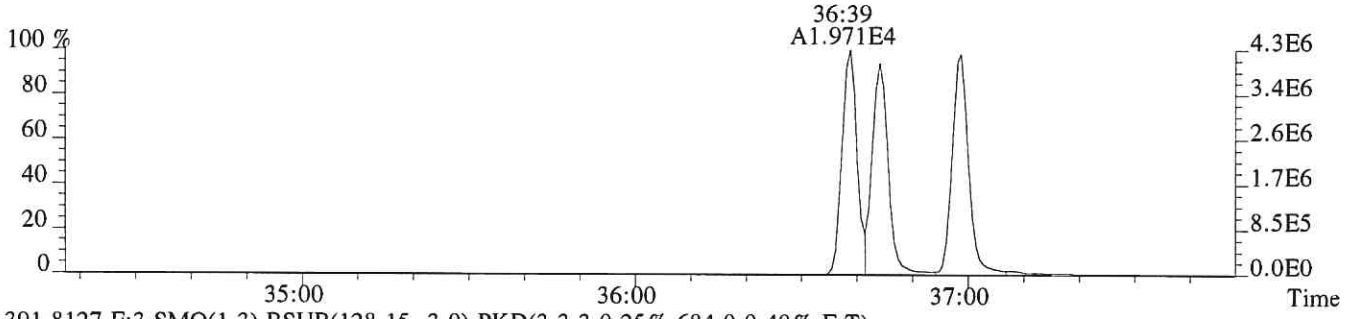
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



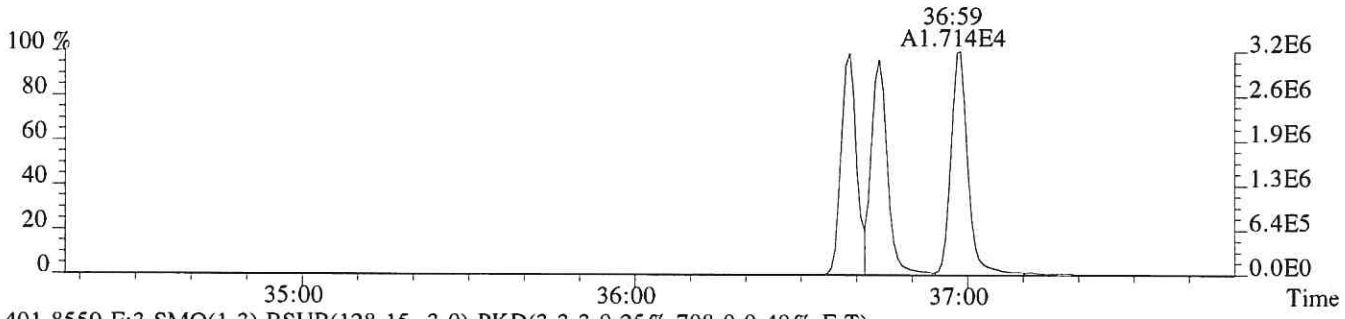
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



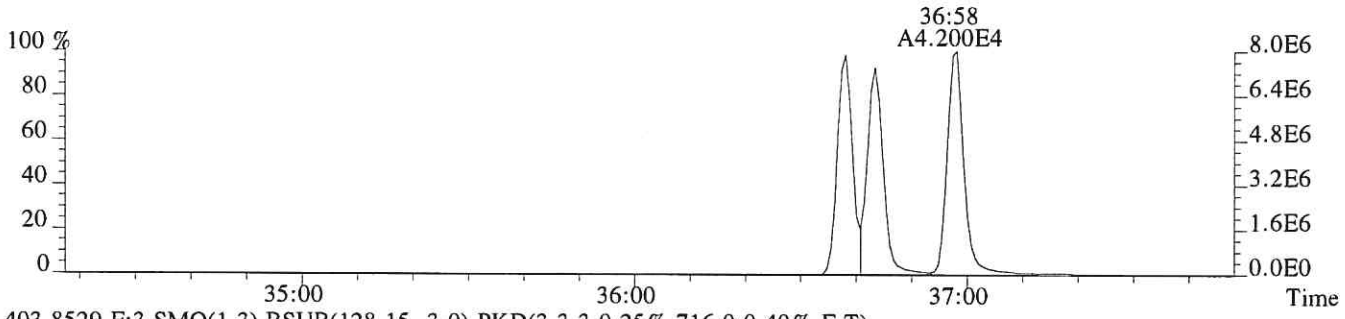
File:P519287 #1-317 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



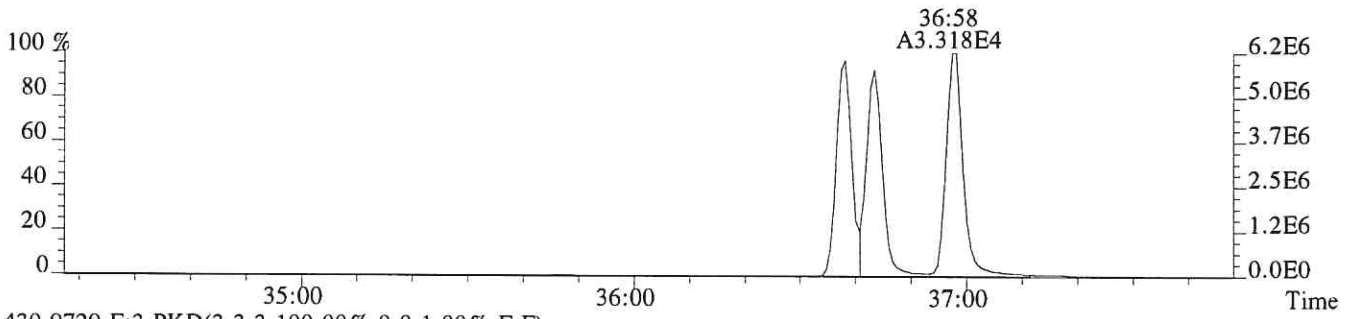
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



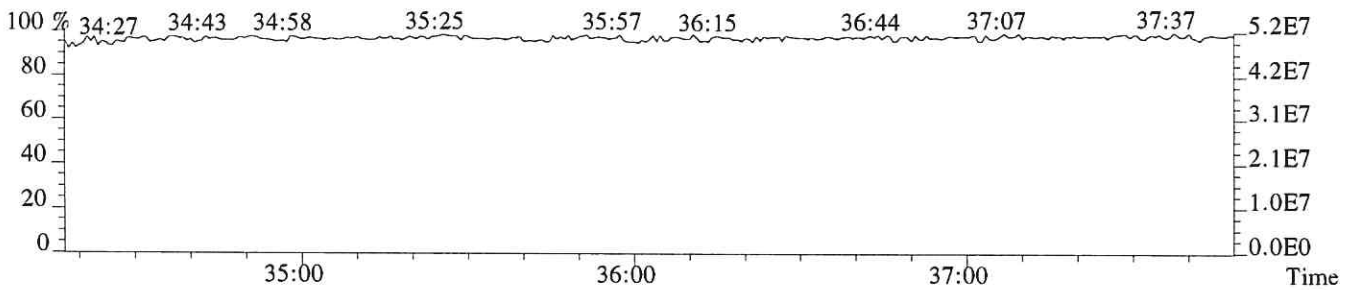
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



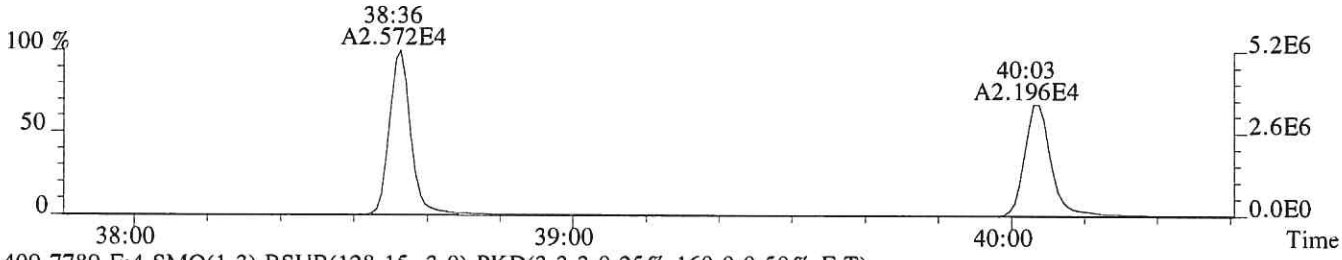
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



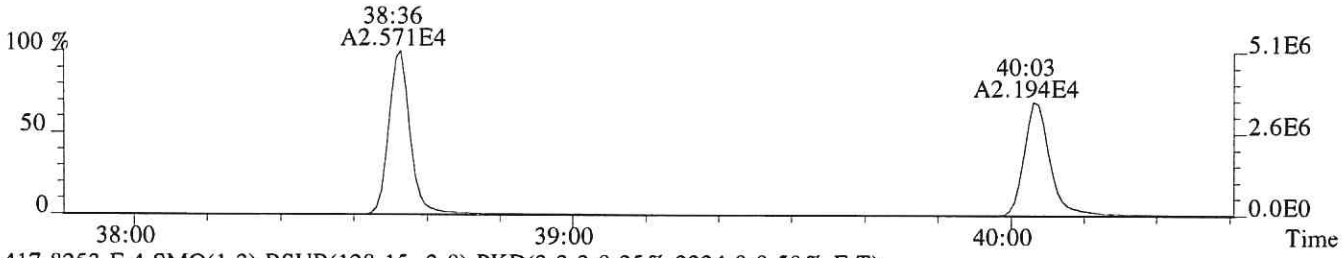
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



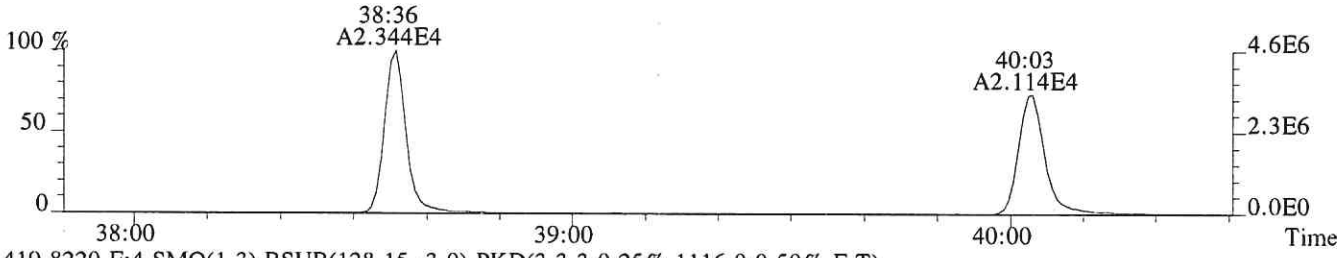
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.50%,F,T)



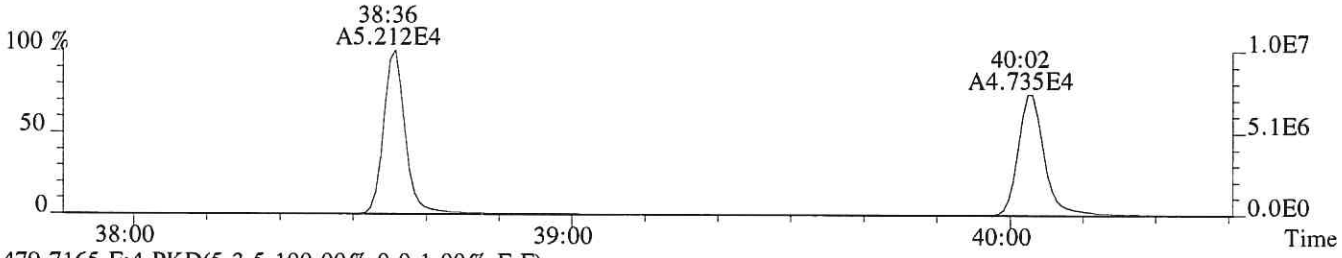
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.50%,F,T)



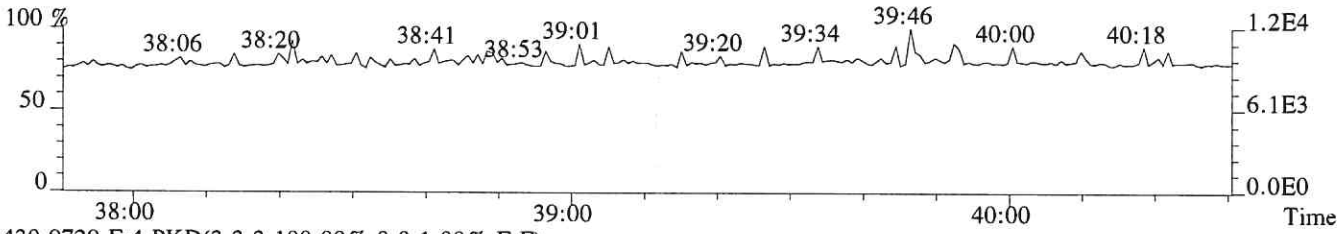
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



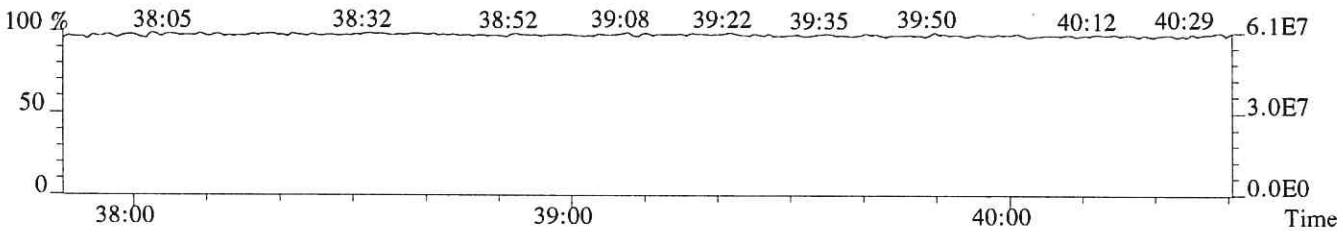
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.50%,F,T)



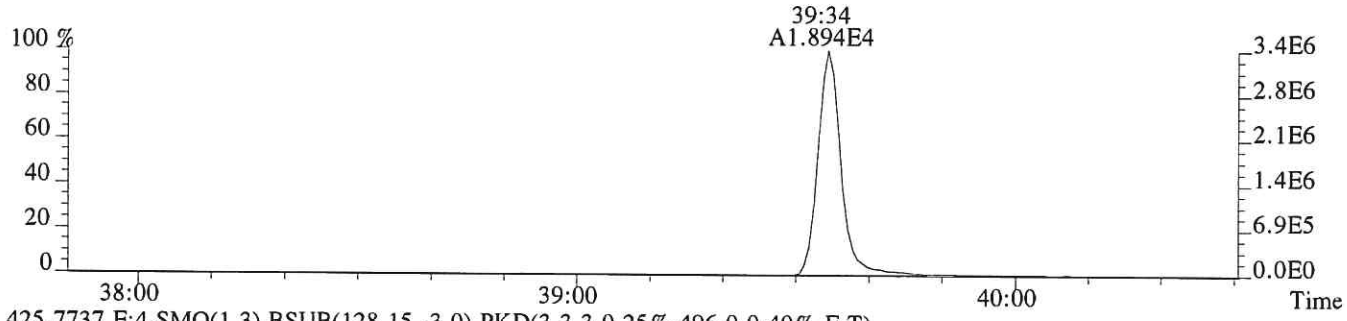
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



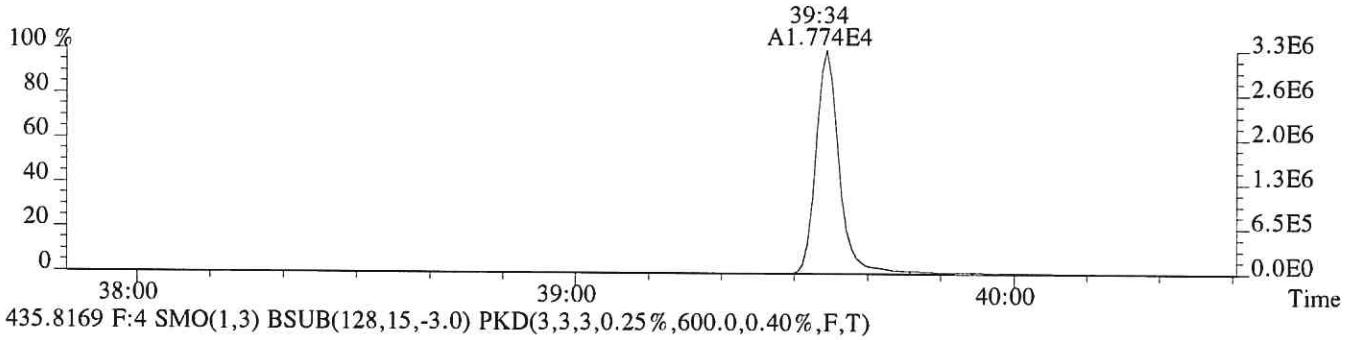
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



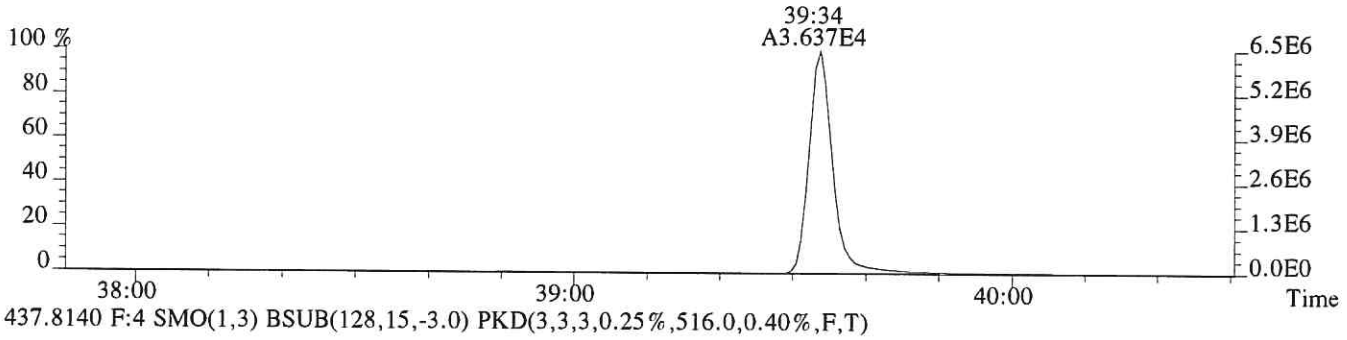
File:P519287 #1-241 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



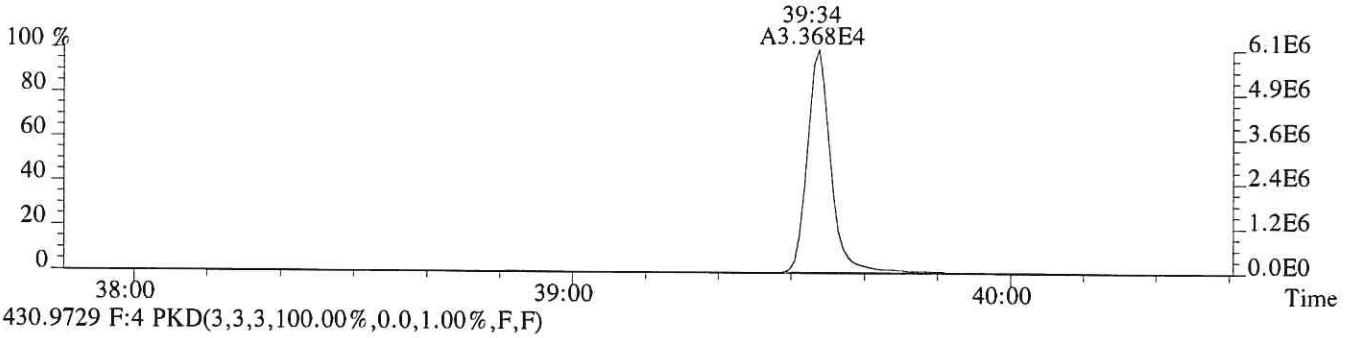
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



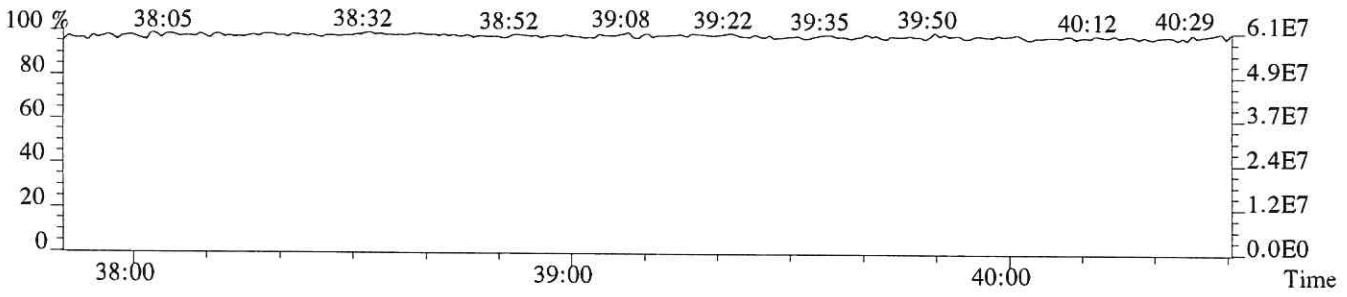
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



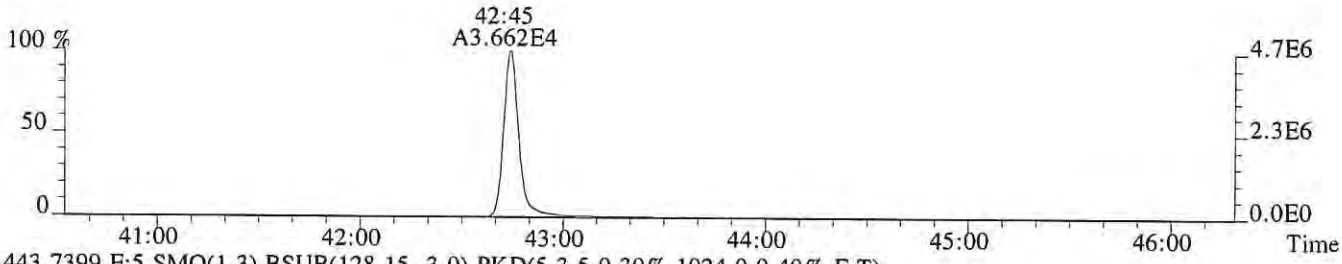
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



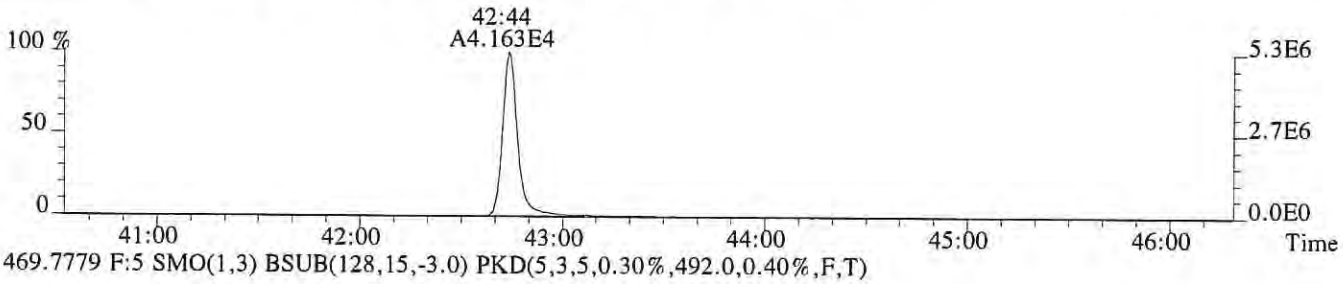
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



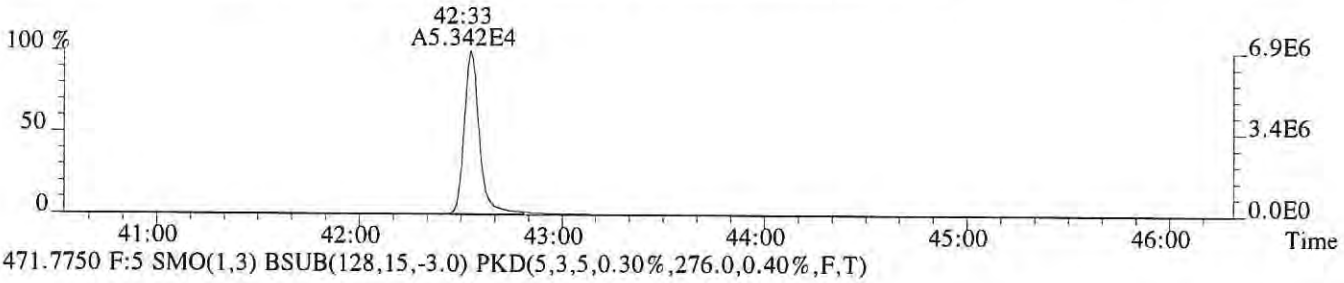
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



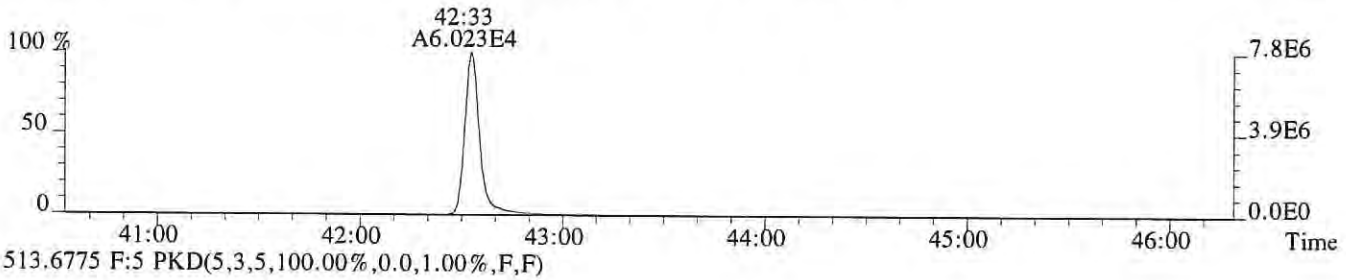
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



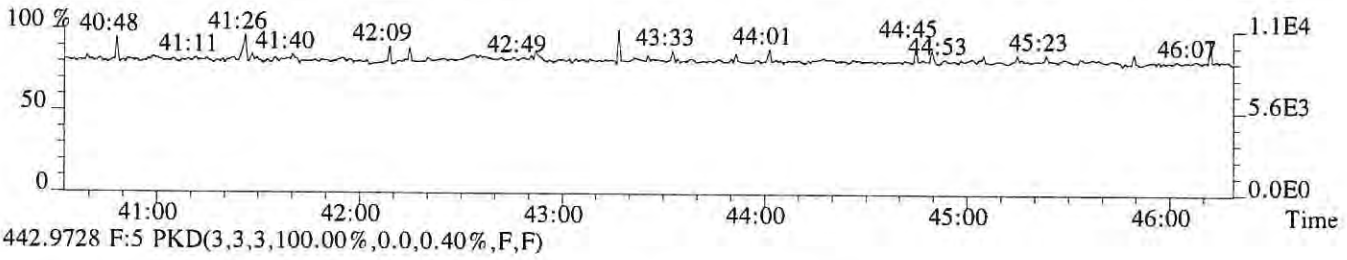
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



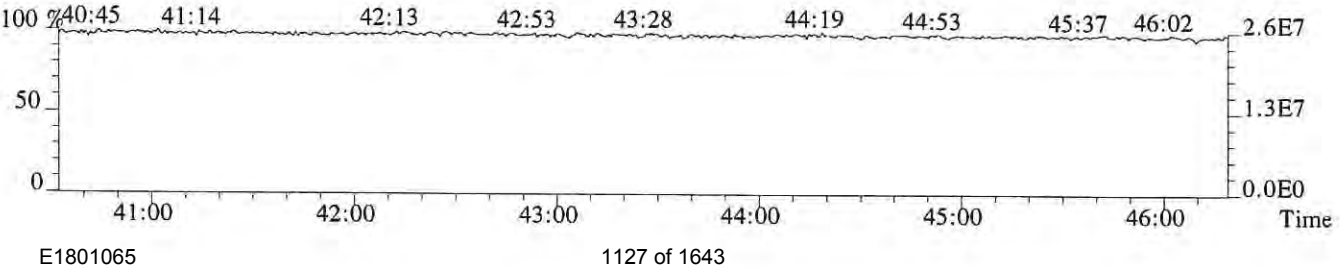
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



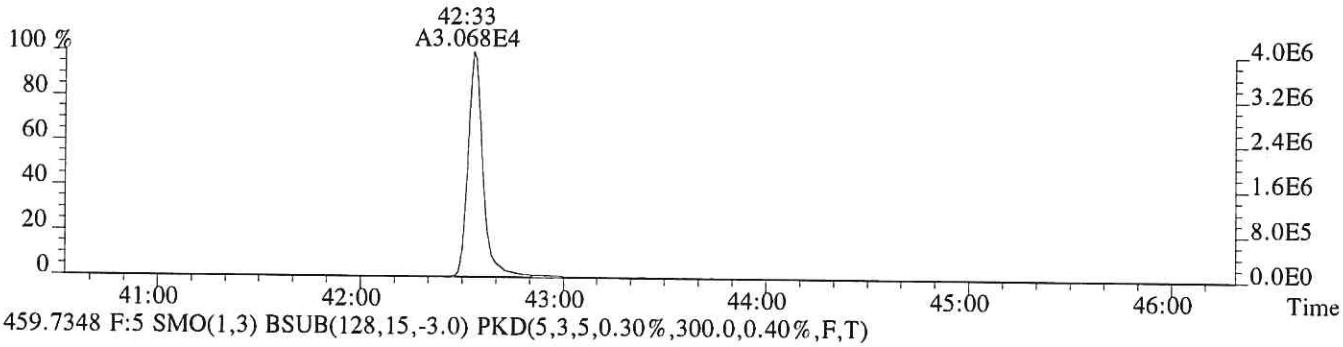
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



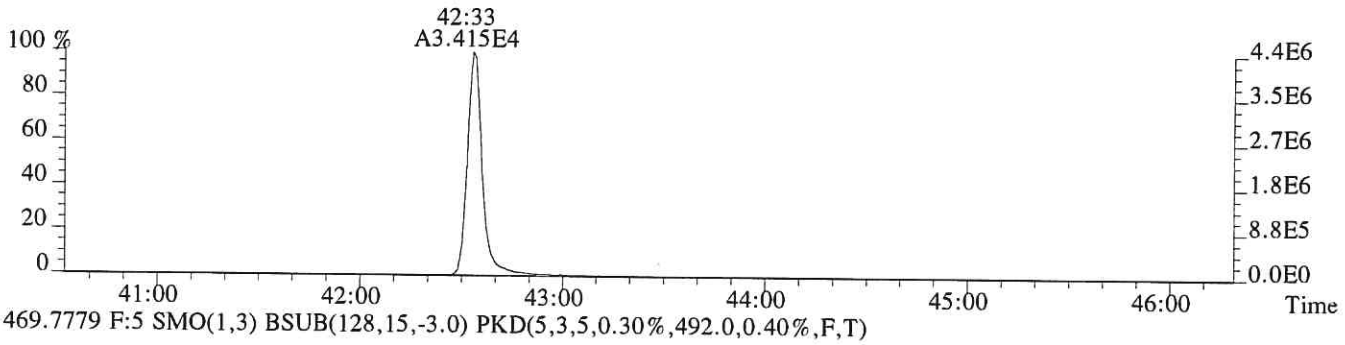
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



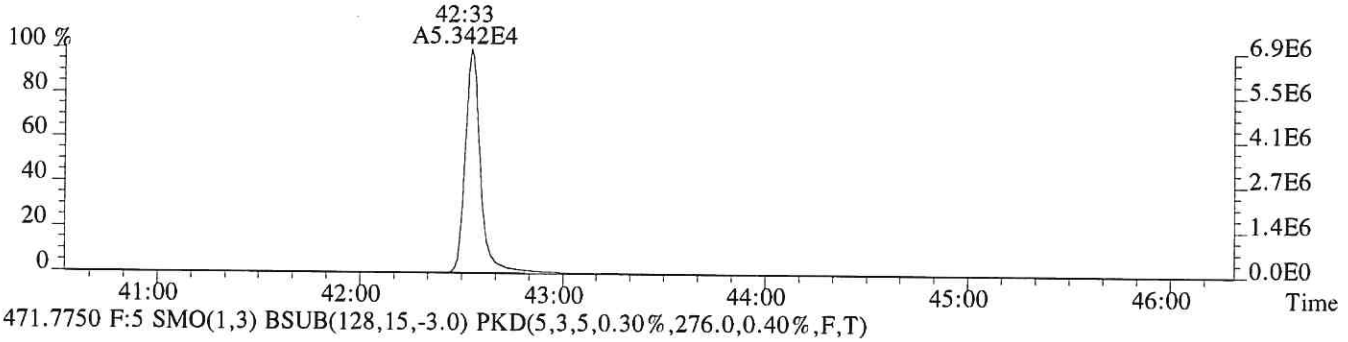
File:P519287 #1-520 Acq: 7-DEC-2018 19:08:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



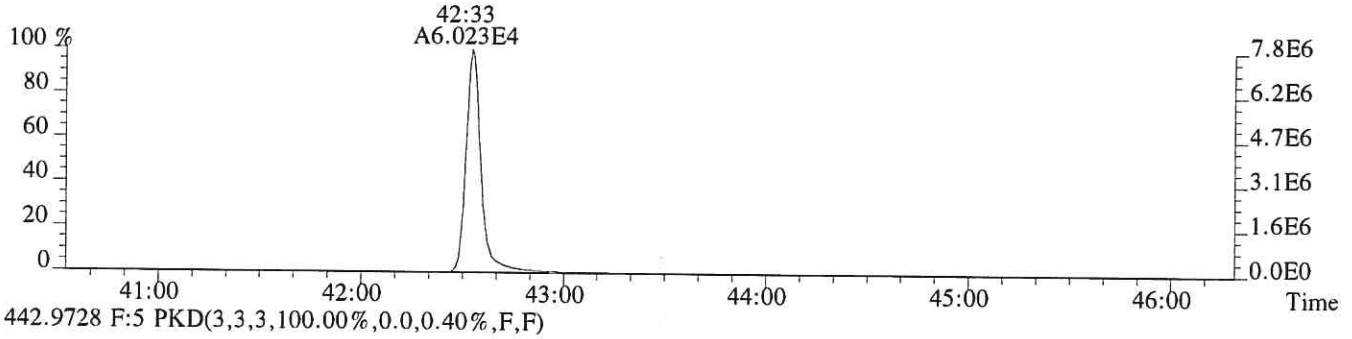
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



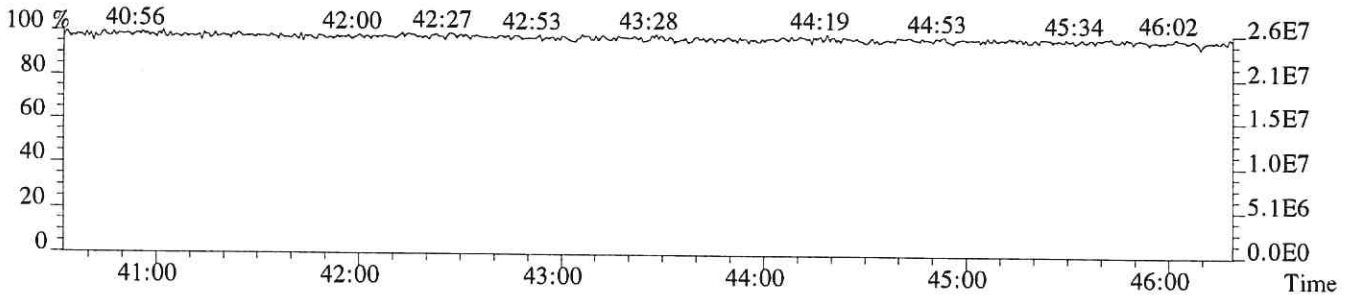
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,276.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519303

Date: 12/08/18

Circle one: (Beginning) / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 01/24/18

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOOW DEFINE	P519304	8-DEC-18	09:08:54
194503	CS3	P519303	8-DEC-18	08:21:08
METHOD BLANK	EQ1800476-01	P519305	8-DEC-18	09:57:33
METHOD BLANK	EQ1800498-01	P519306	8-DEC-18	10:46:10
SL0583	E1801065-004	P519307	8-DEC-18	11:34:47
SL0584	E1801065-005	P519308	8-DEC-18	12:23:33
SL0585	E1801065-006	P519309	8-DEC-18	13:12:09
SL0586	E1801065-007	P519310	8-DEC-18	14:00:47
COMP-SL0119-0123	E1801039-042	P519311	8-DEC-18	14:49:24
SL0587	E1801065-008	P519312	8-DEC-18	15:38:09
SL0588	E1801065-009	P519313	8-DEC-18	16:26:46
SL0589	E1801065-010	P519314	8-DEC-18	17:15:32
SL0570	E1801065-011	P519315	8-DEC-18	18:04:08
SL0561	E1801065-012	P519316	8-DEC-18	18:52:45
SL0562	E1801065-013	P519317	8-DEC-18	19:41:23

E1801065

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181207C.SPL
Last Modified: Monday, December 10, 2018 07:33:15 Central Standard Time
Printed: Monday, December 10, 2018 07:33:17 Central Standard Time

Page Position (1, 1)

OPUS5NET: P519303 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/8/18	08:21	P519303	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 08:21
2		09:08	P519304	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		09:57	P519305	MB	EQ1800476-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		10:46	P519306	MB	EQ1800498-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		11:34	P519307	E1801065-004	E1801065-004	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		12:23	P519308	E1801065-005	E1801065-005	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		13:12	P519309	E1801065-006	E1801065-006	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:00	P519310	E1801065-007	E1801065-007	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		14:49	P519311	E1801039-042	E1801039-042	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		15:38	P519312	E1801065-008	E1801065-008	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		16:26	P519313	E1801065-009	E1801065-009	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		17:15	P519314	E1801065-010	E1801065-010	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:04	P519315	E1801065-011	E1801065-011	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		18:52	P519316	E1801065-012	E1801065-012	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		19:41	P519317	E1801065-013	E1801065-013	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		20:38	P519318	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 20:38
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 12/12/18

Printed: Saturday, December 08, 2018 08:21:06 Central Standard Time

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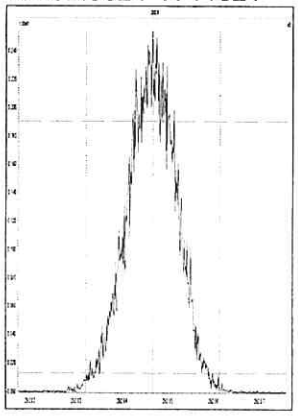
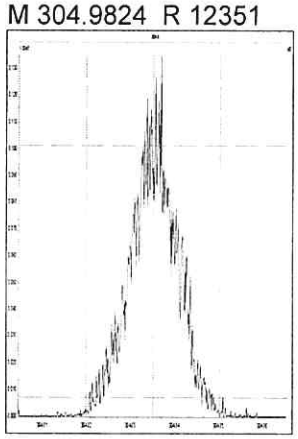


M 304.9824 R 12351



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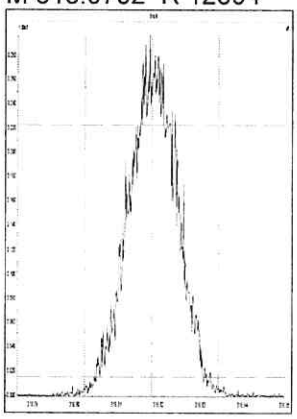

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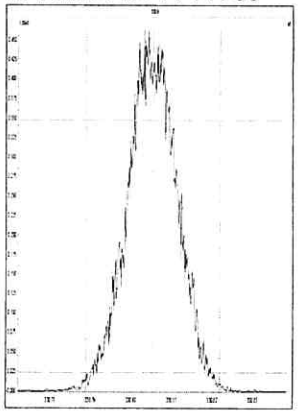

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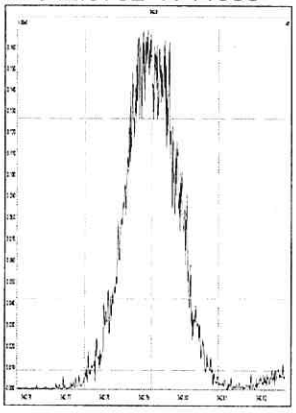

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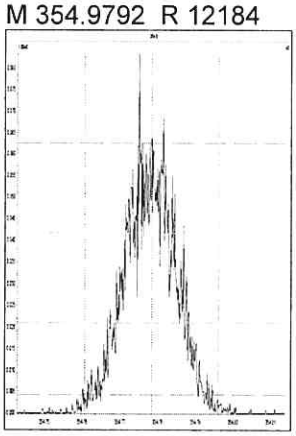

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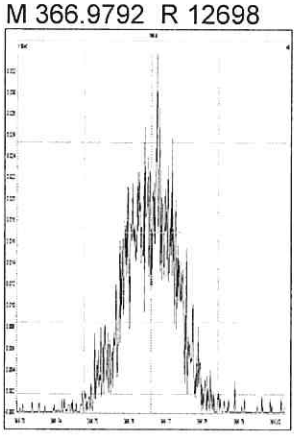

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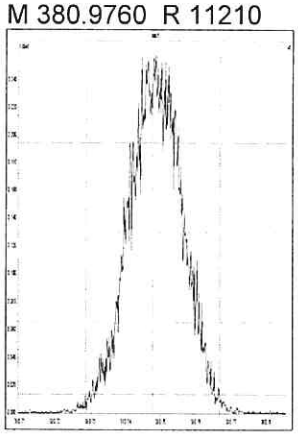

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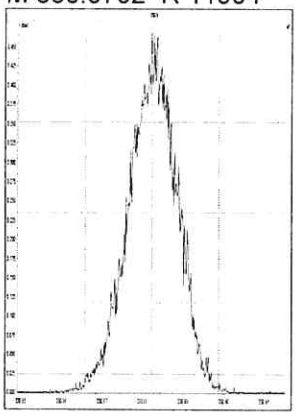

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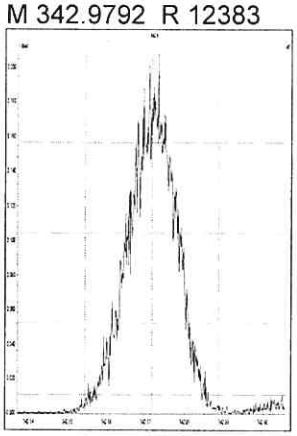

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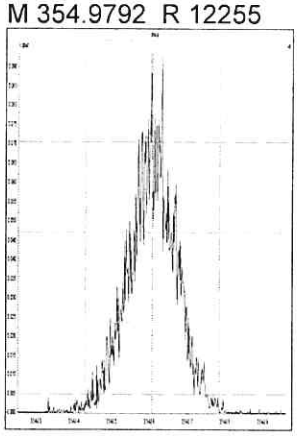

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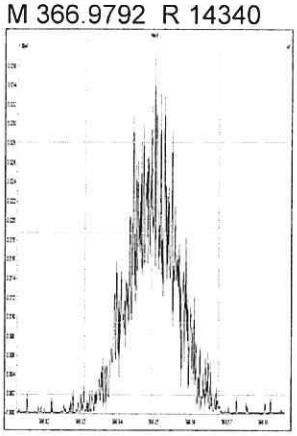

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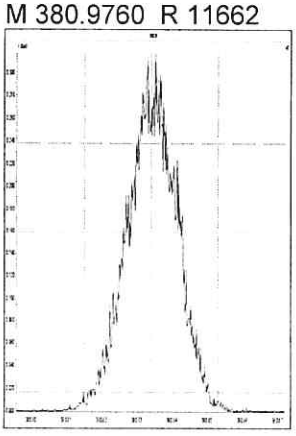

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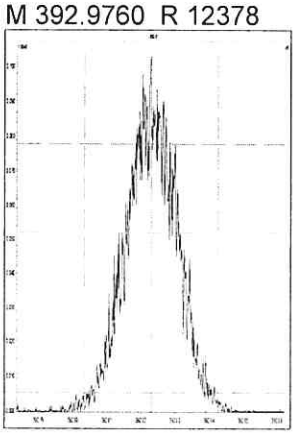

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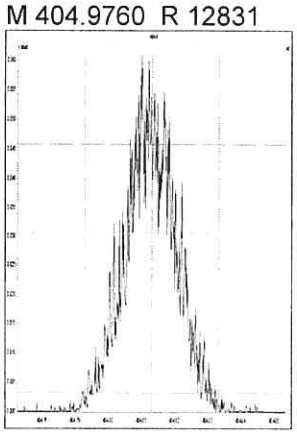

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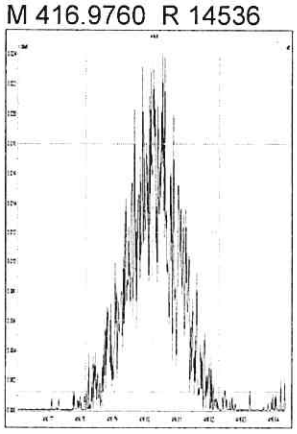

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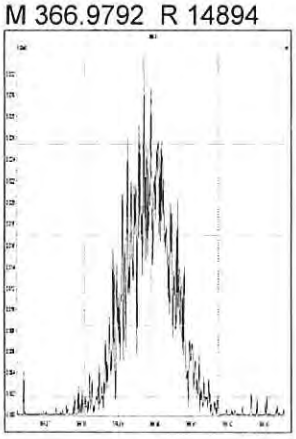

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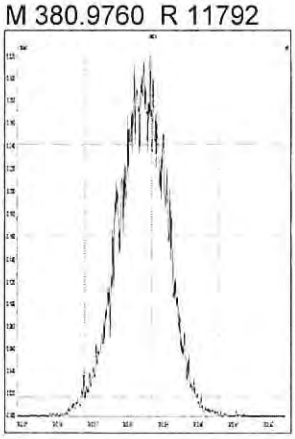

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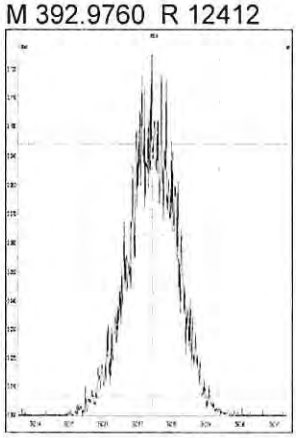

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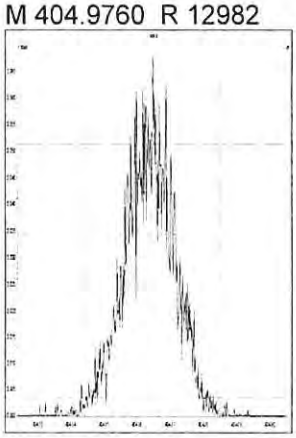

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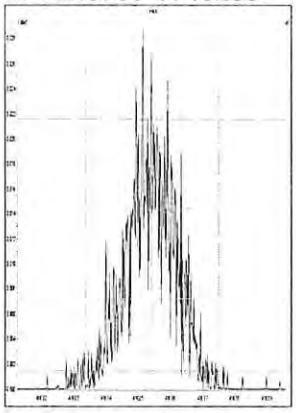
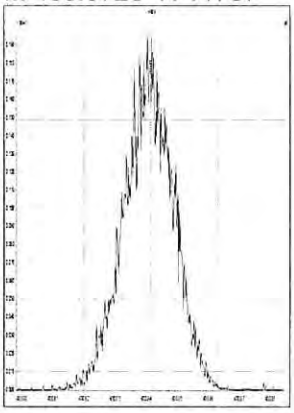
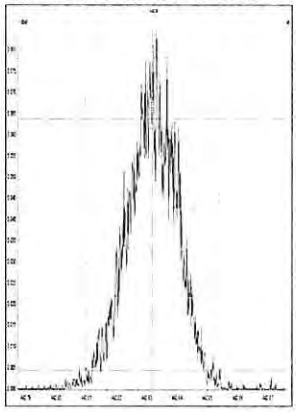


M 430.9728 R 11737



M 442.9728 R 12378



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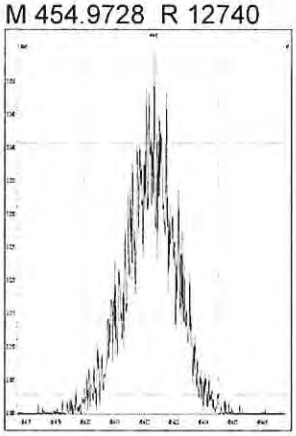

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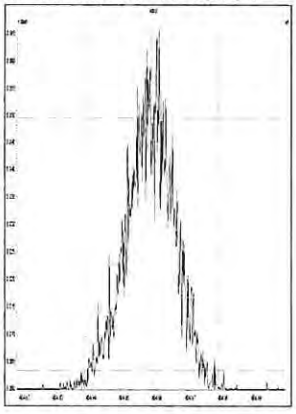

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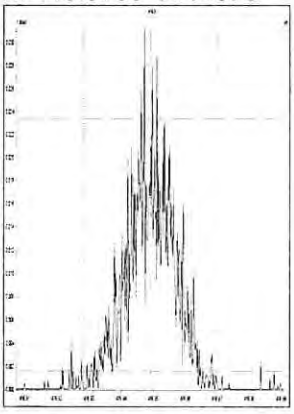

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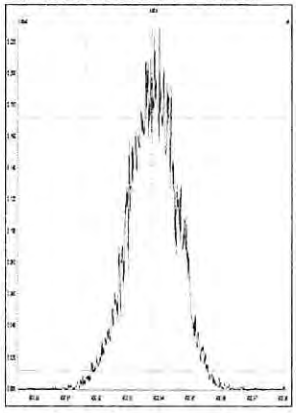

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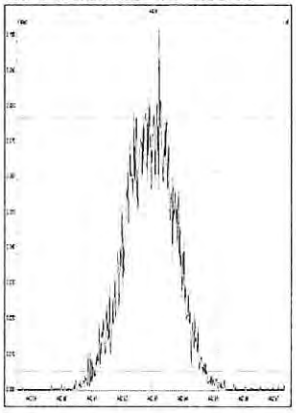

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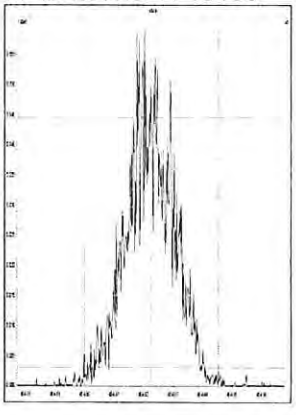

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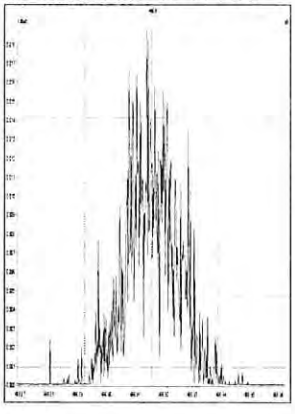

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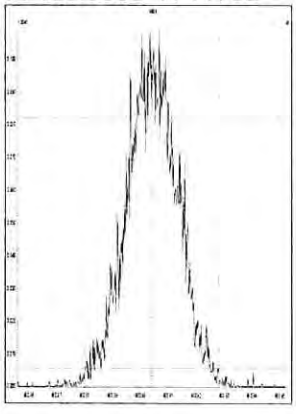

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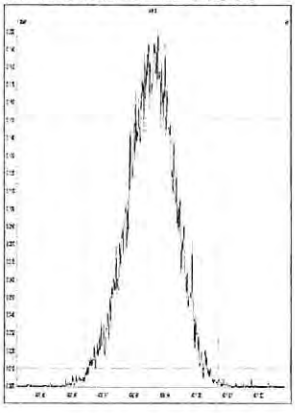

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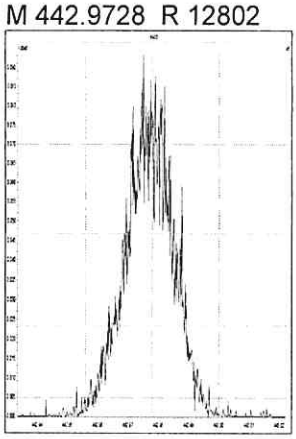

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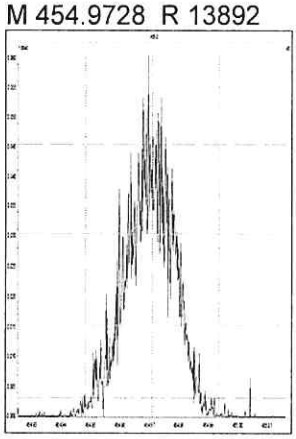

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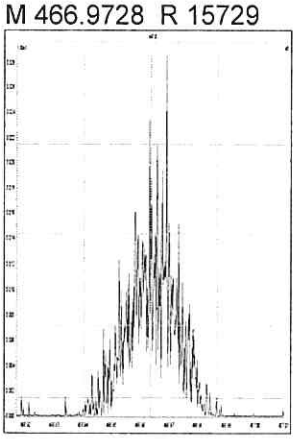

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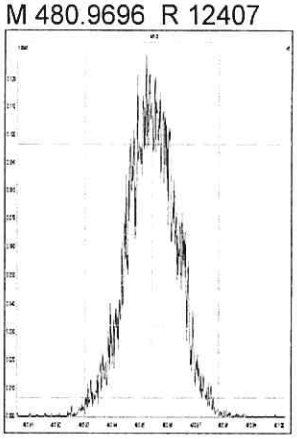

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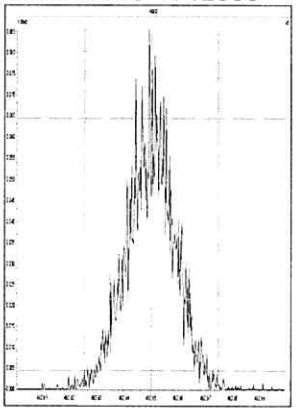

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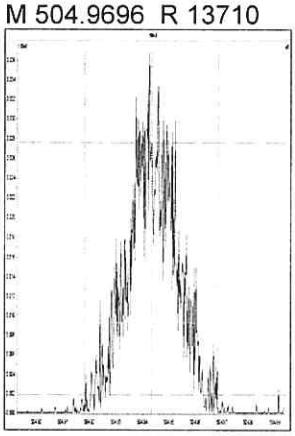

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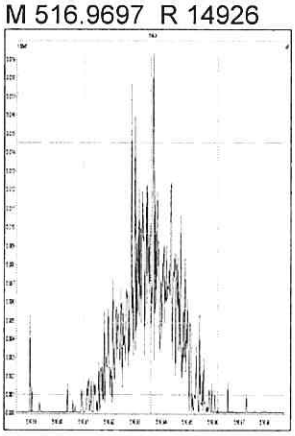

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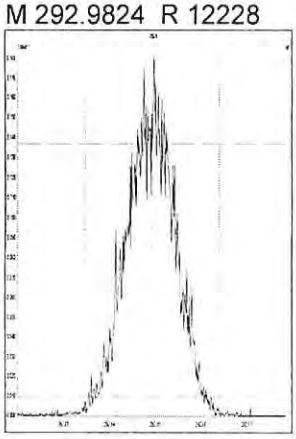

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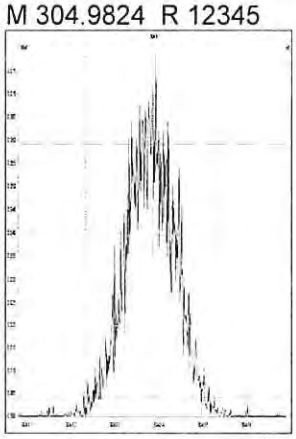

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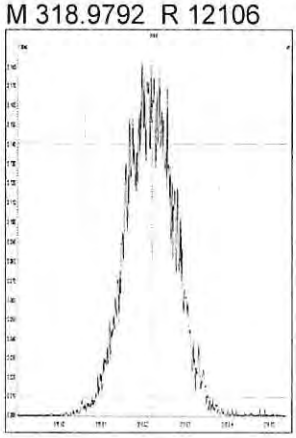

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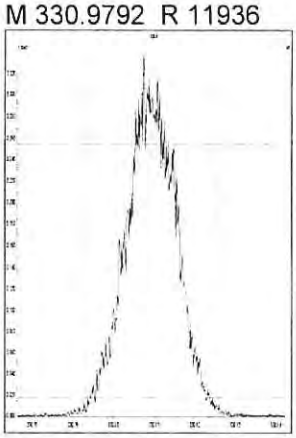

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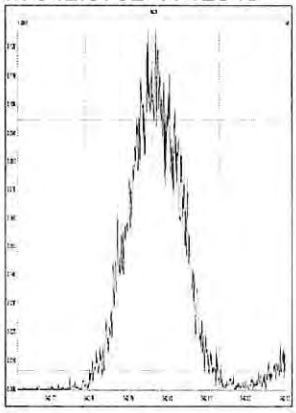

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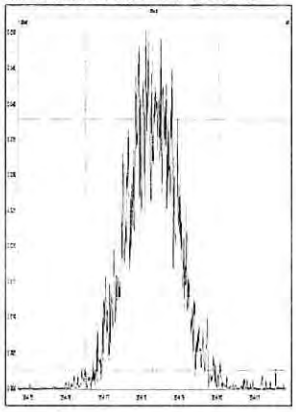

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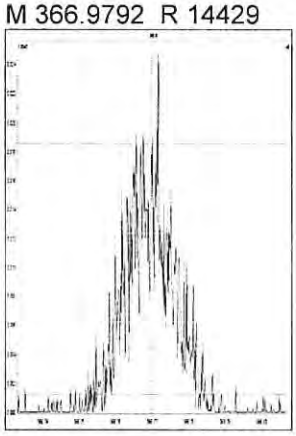

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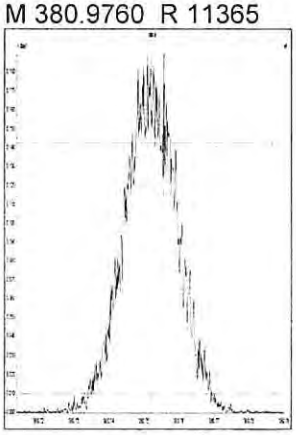

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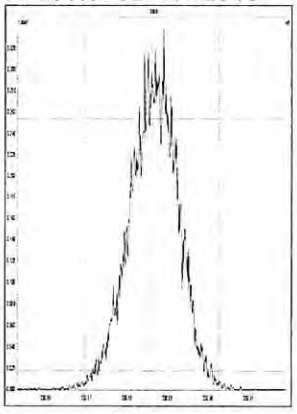

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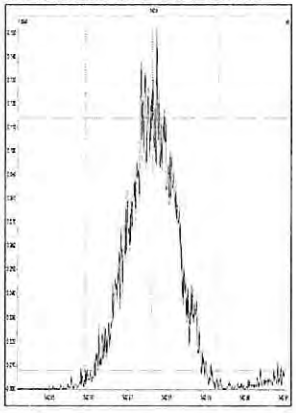

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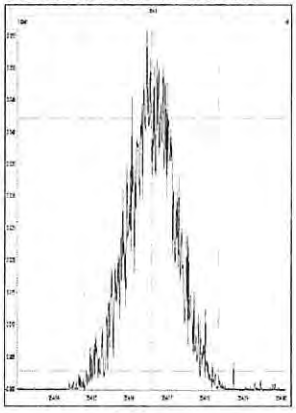

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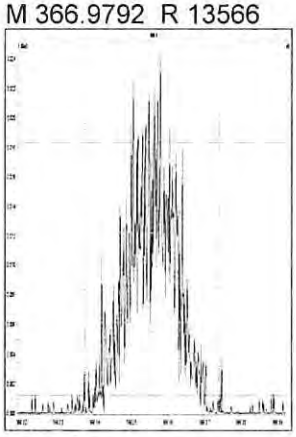

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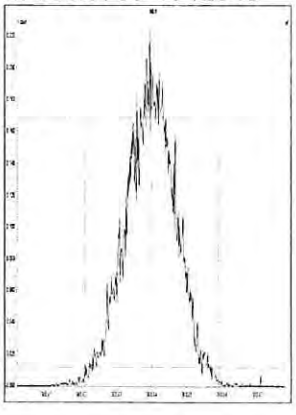

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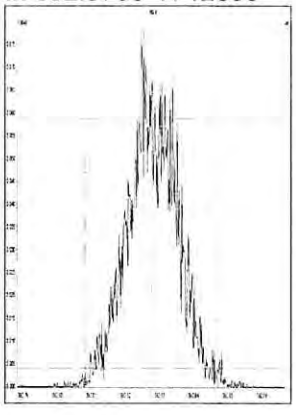

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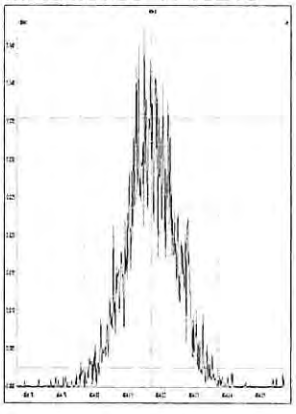

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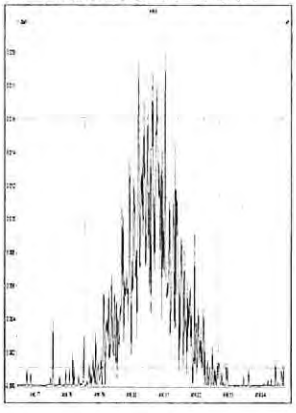

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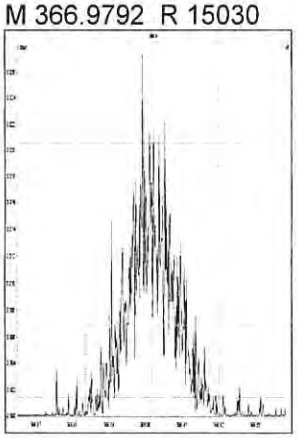

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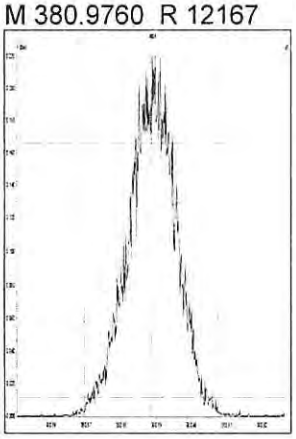

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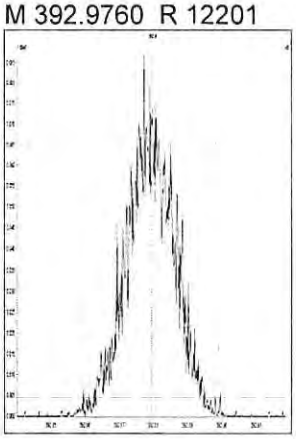

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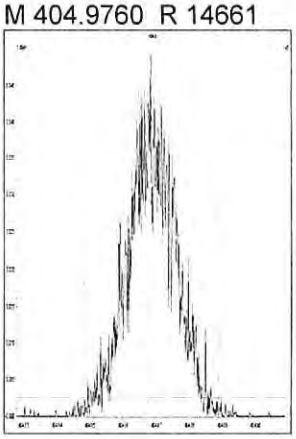

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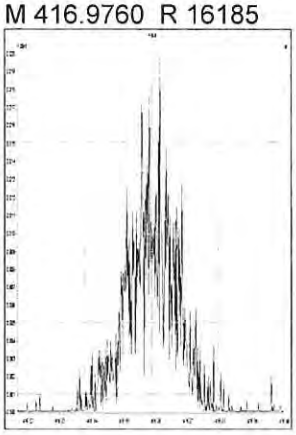

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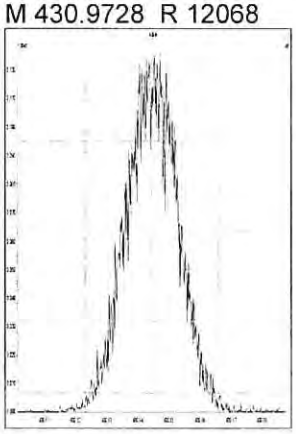

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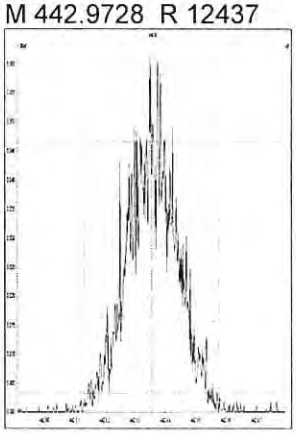

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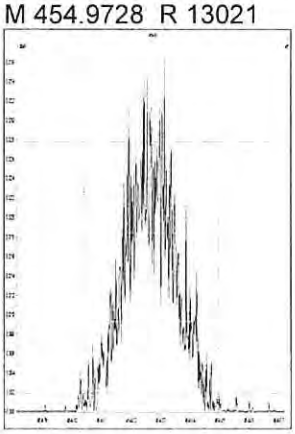

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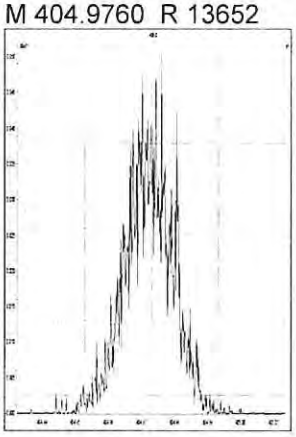

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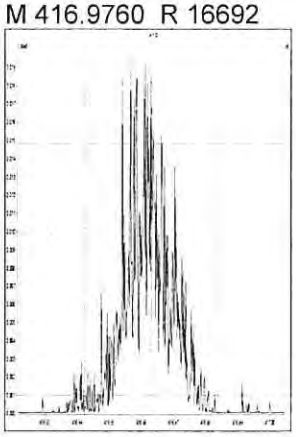

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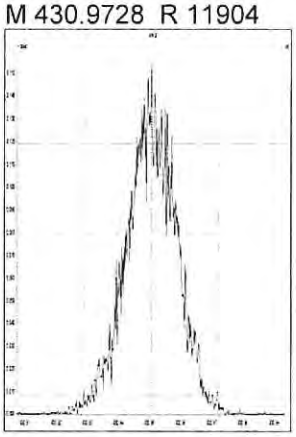

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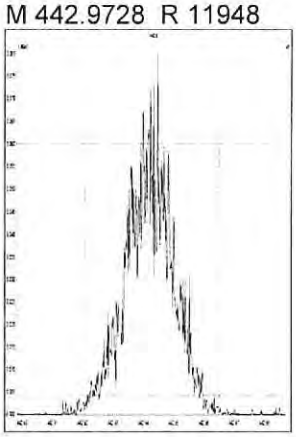

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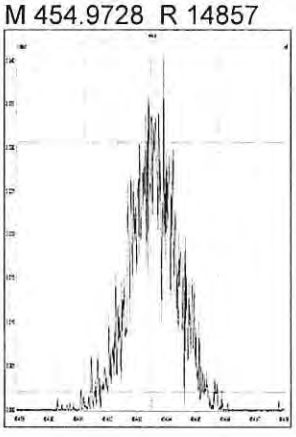

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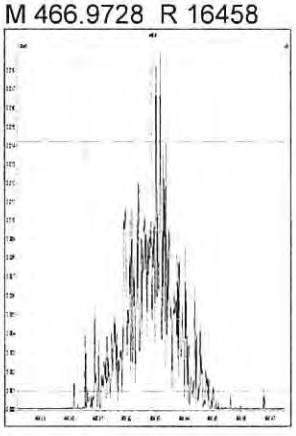

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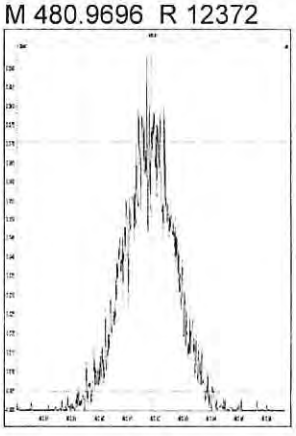

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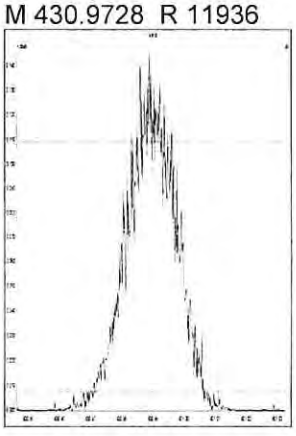

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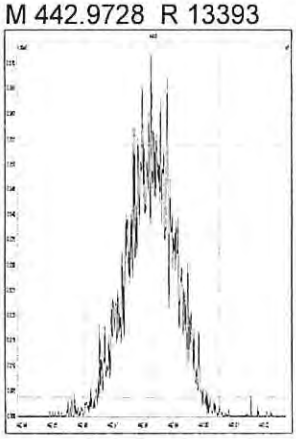

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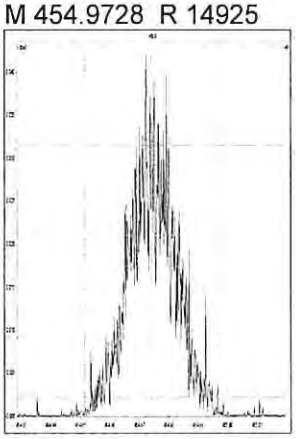

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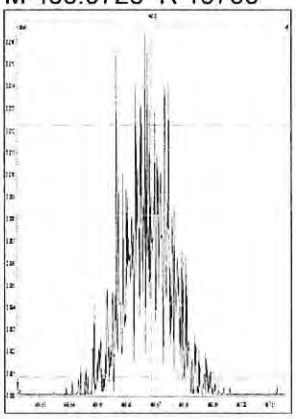

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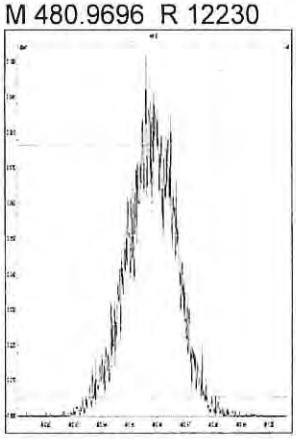

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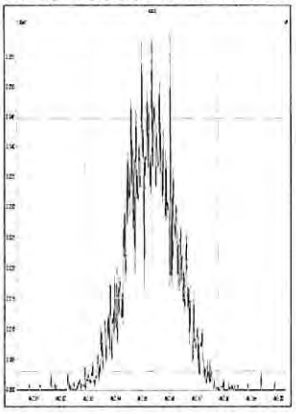

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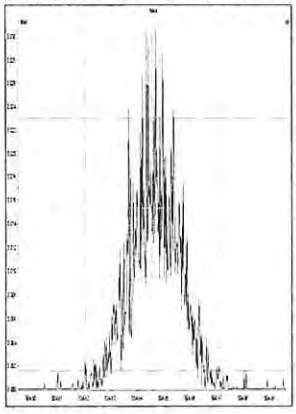

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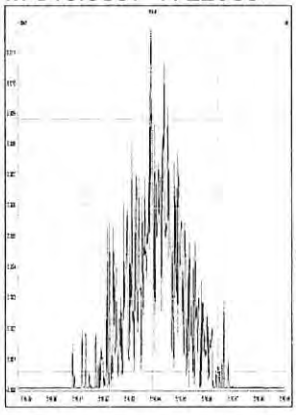


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

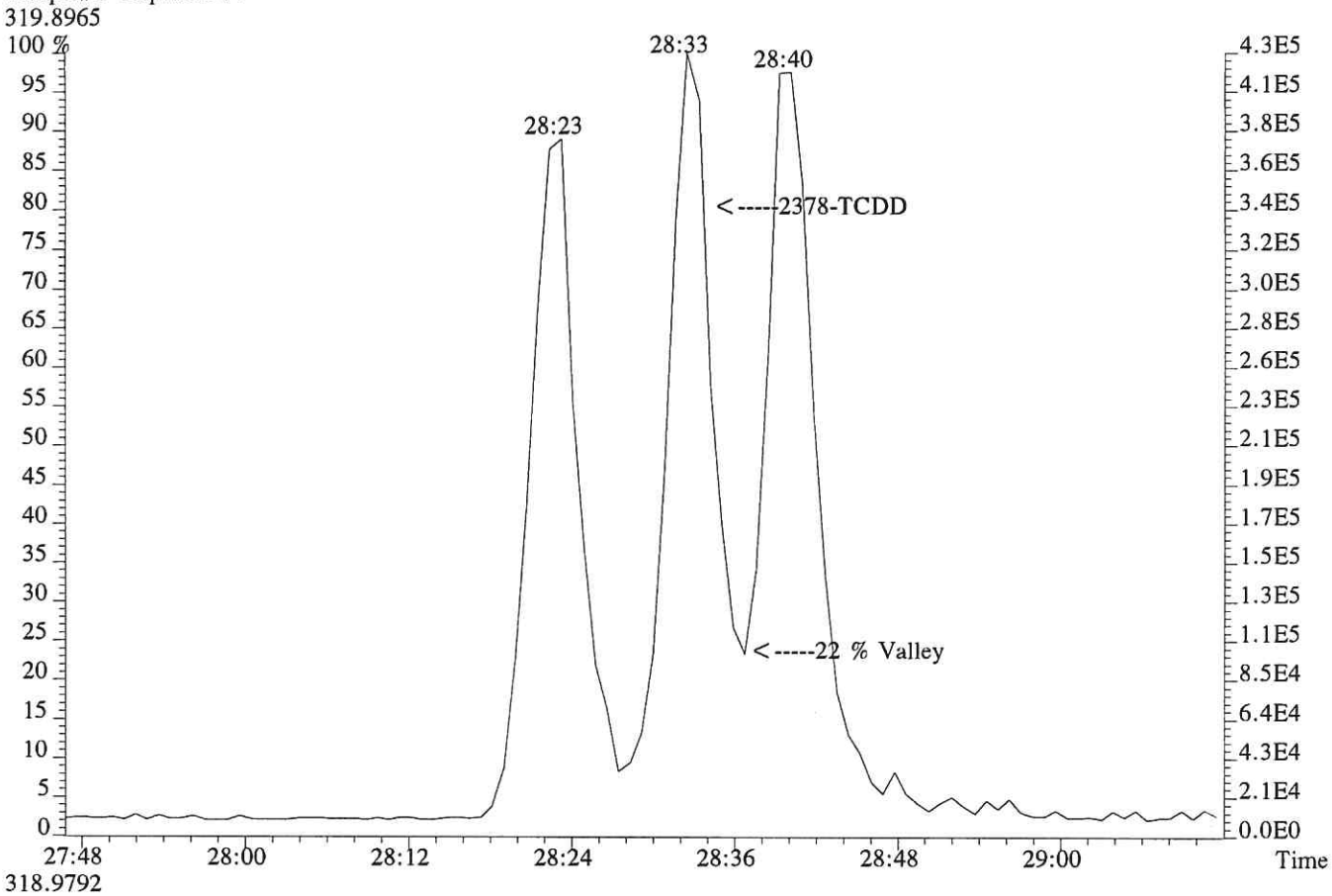
Case No.: _____ SDG No.:
ID: 0.25 (mm)

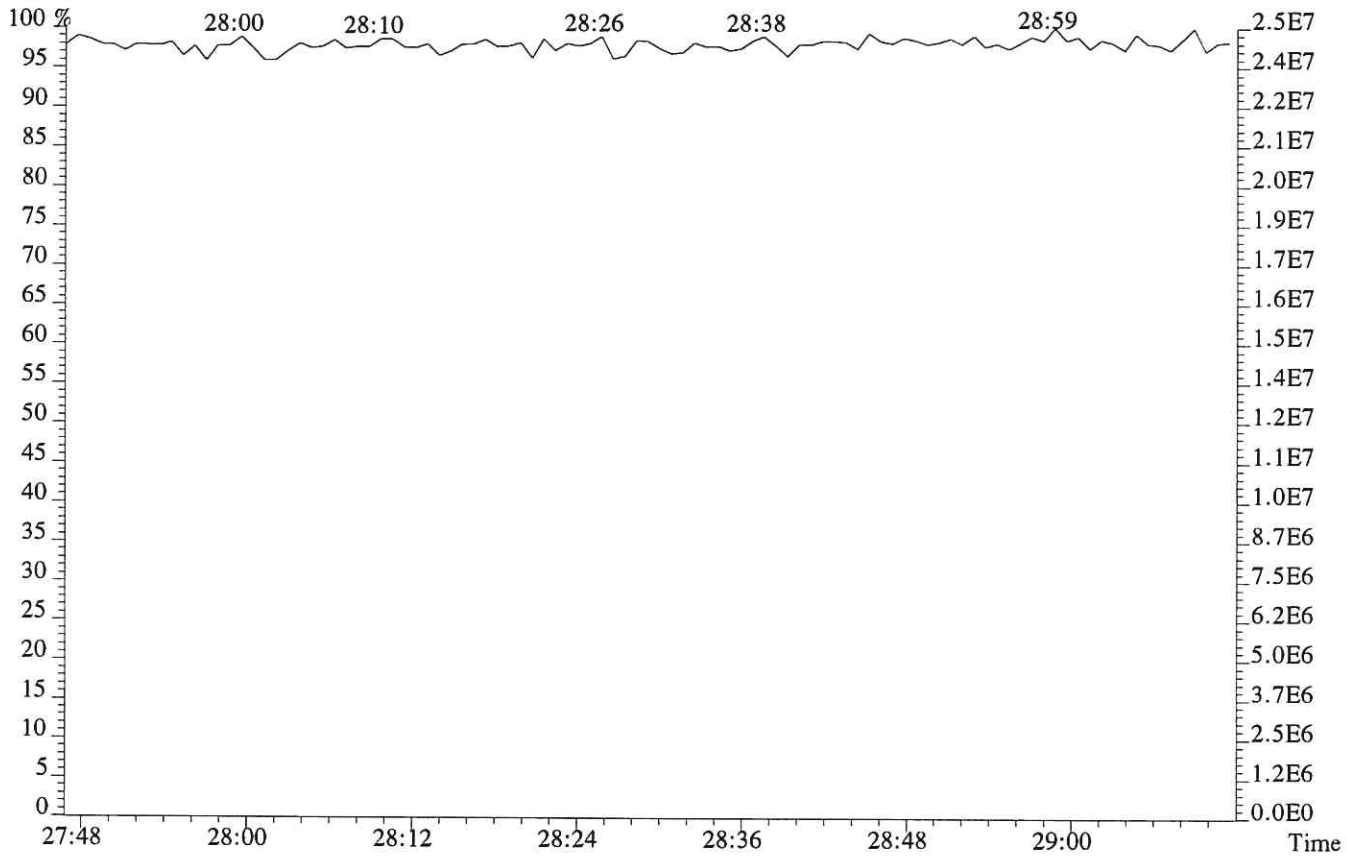
Lab File ID: P519304
Date Analyzed: 8-DEC-18
Time Analyzed: 09:08:54

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:17	29:44
TCDD	25:06	29:34
PeCDF	29:42	34:03
PeCDD	31:16	33:48
HxCDF	34:44	37:19
HxCDD	35:17	36:55
HpCDF	38:38	40:06
HpCDD	38:54	39:36

% Valley 2378-TCDD: 22 %

File:P519304 #1-587 Acq: 8-DEC-2018 09:08:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





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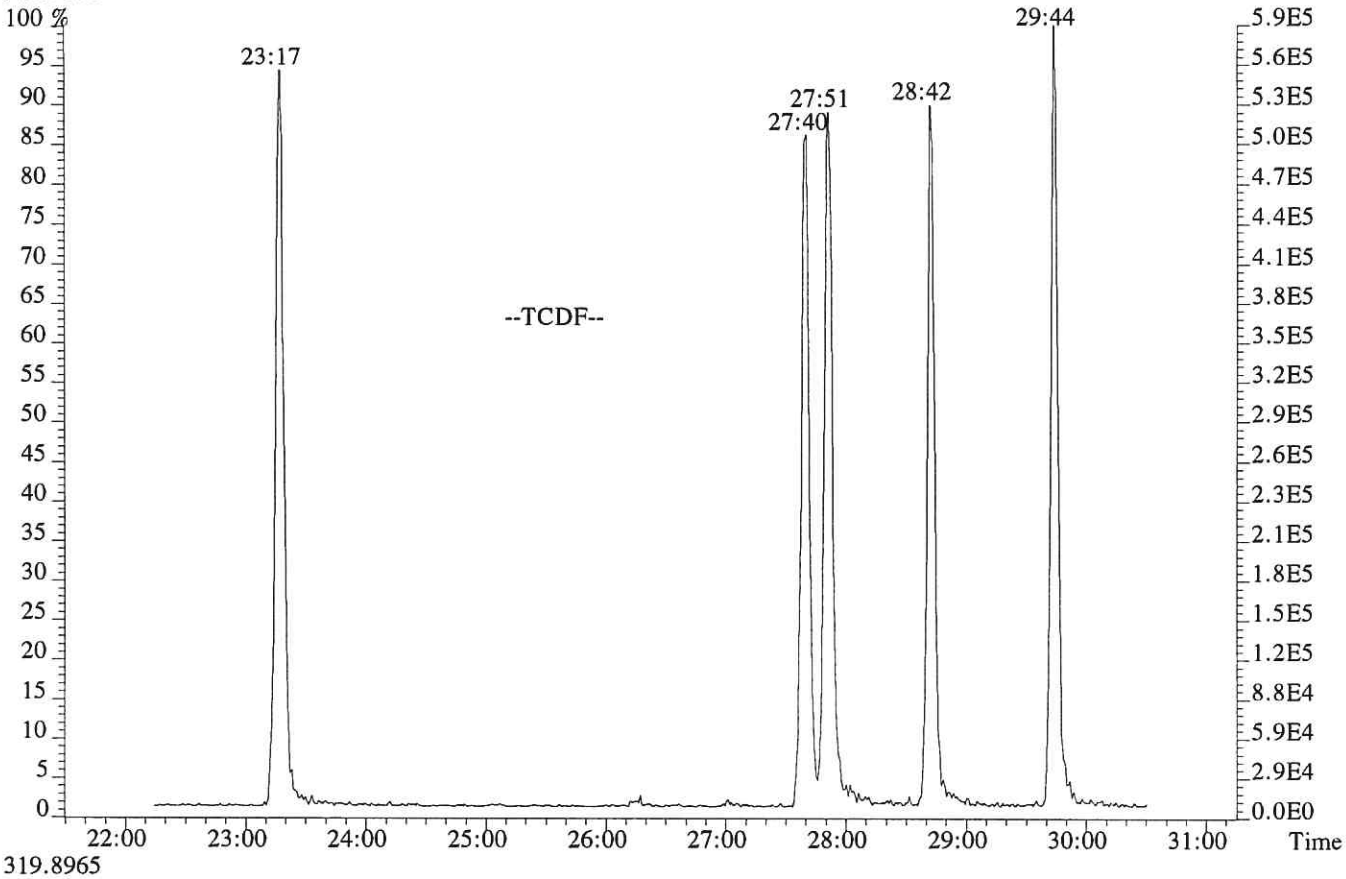

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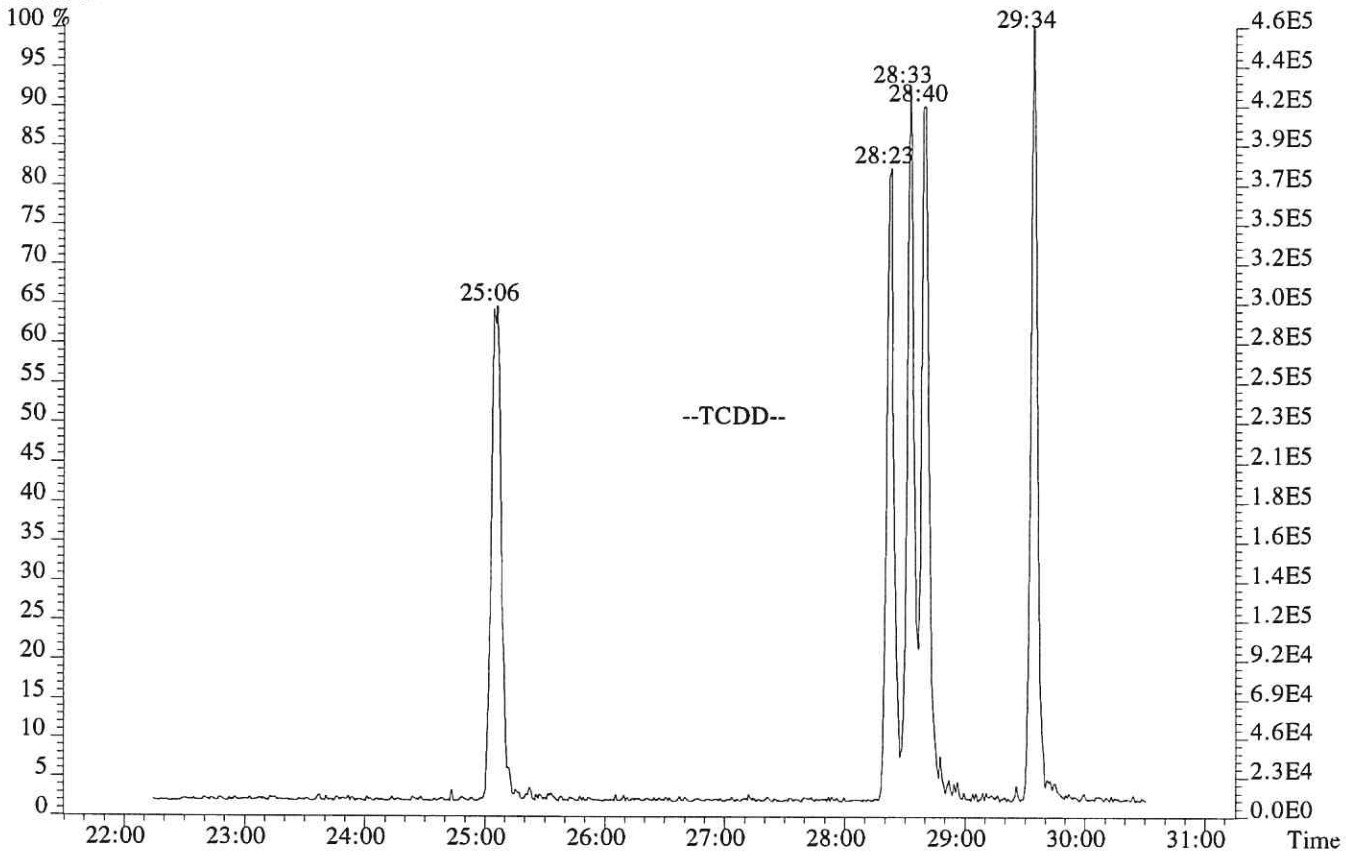
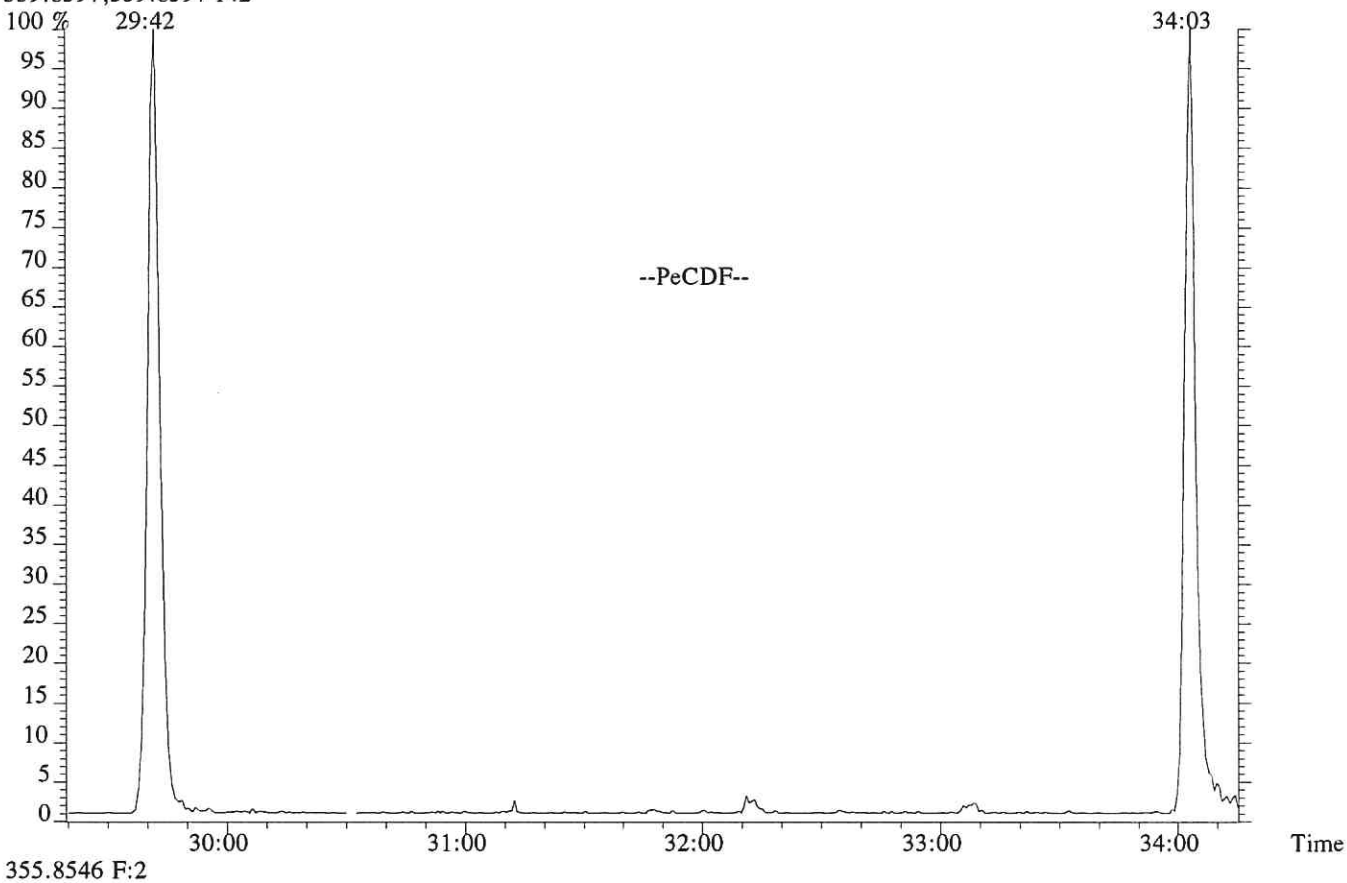
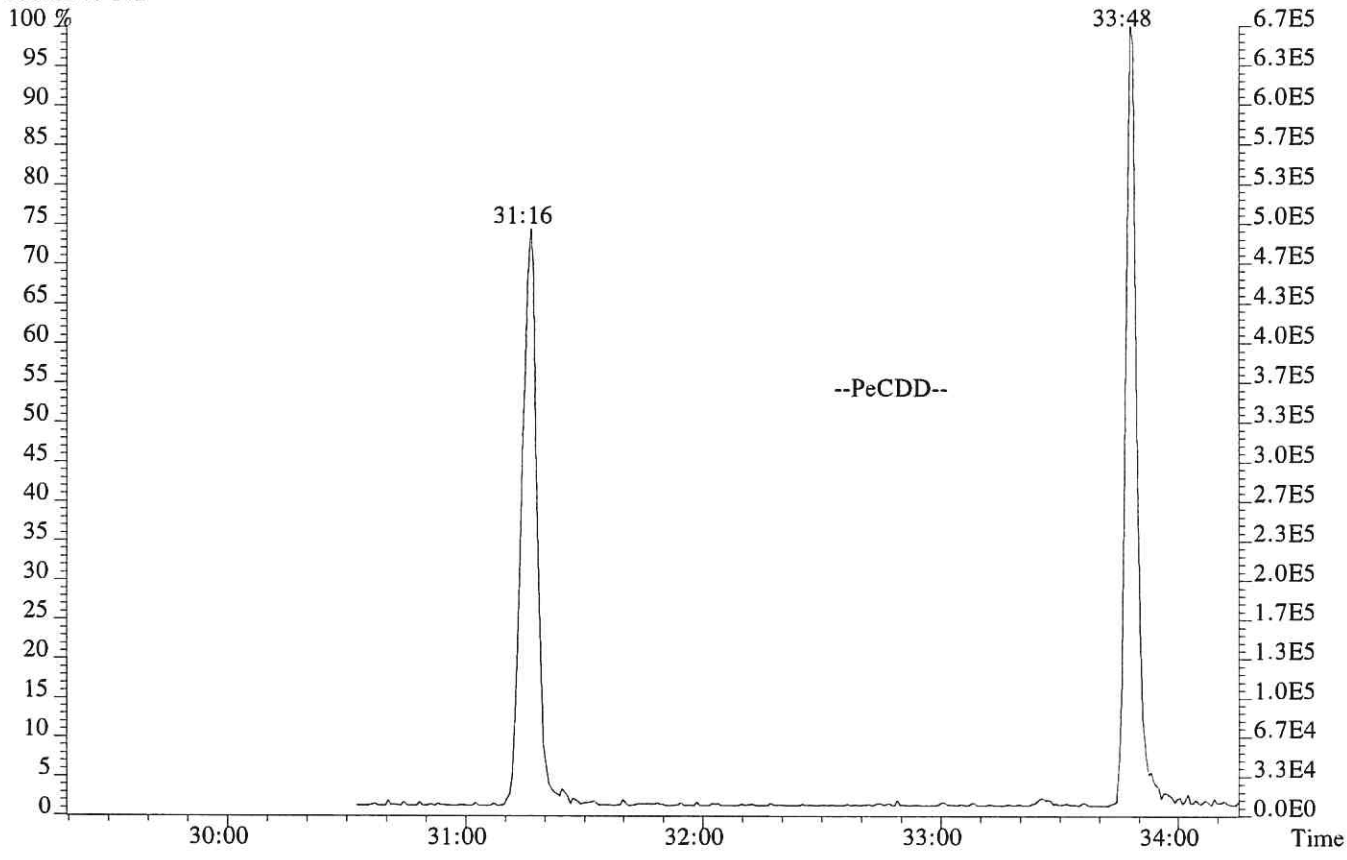


File:P519304 #1-587 Acq: 8-DEC-2018 09:08:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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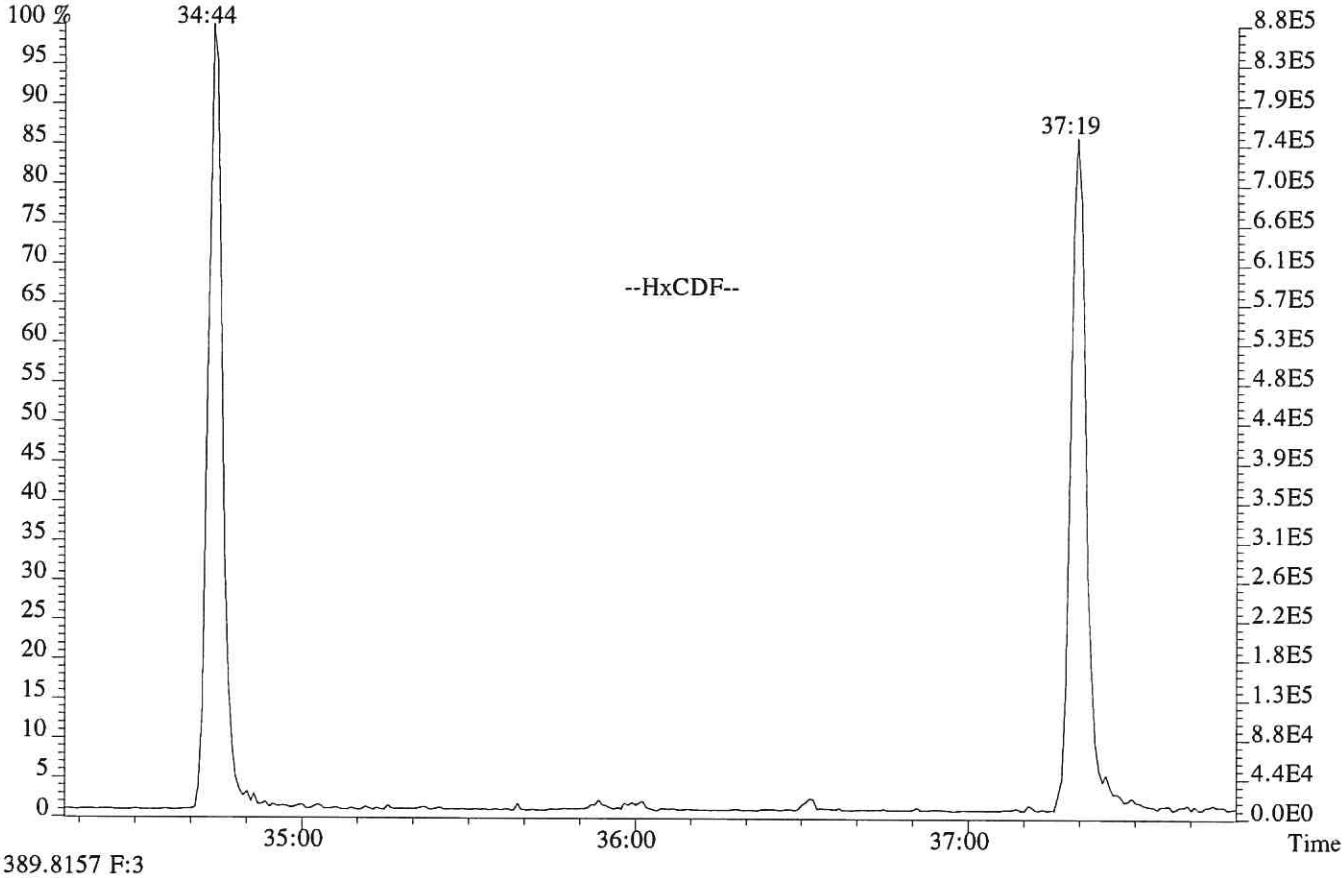
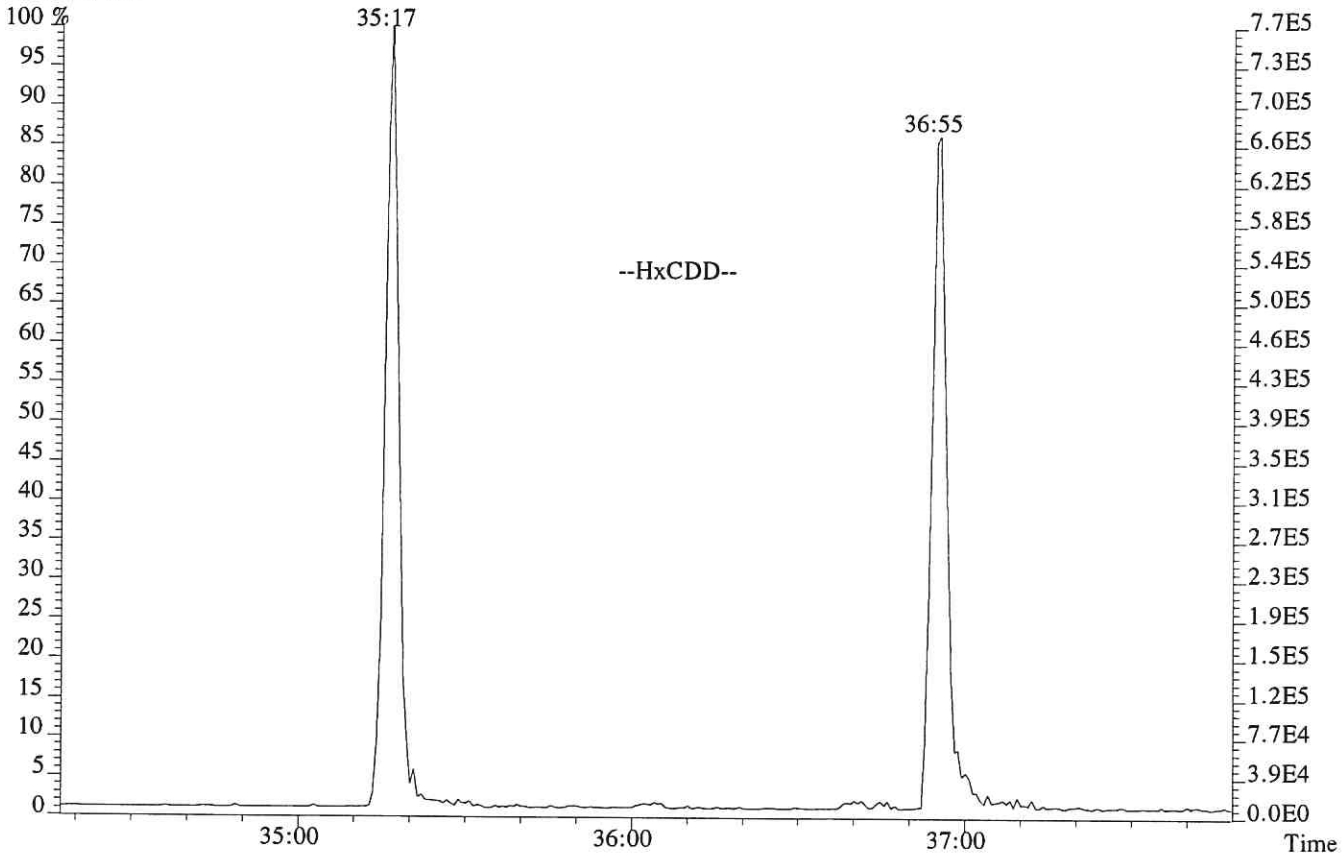
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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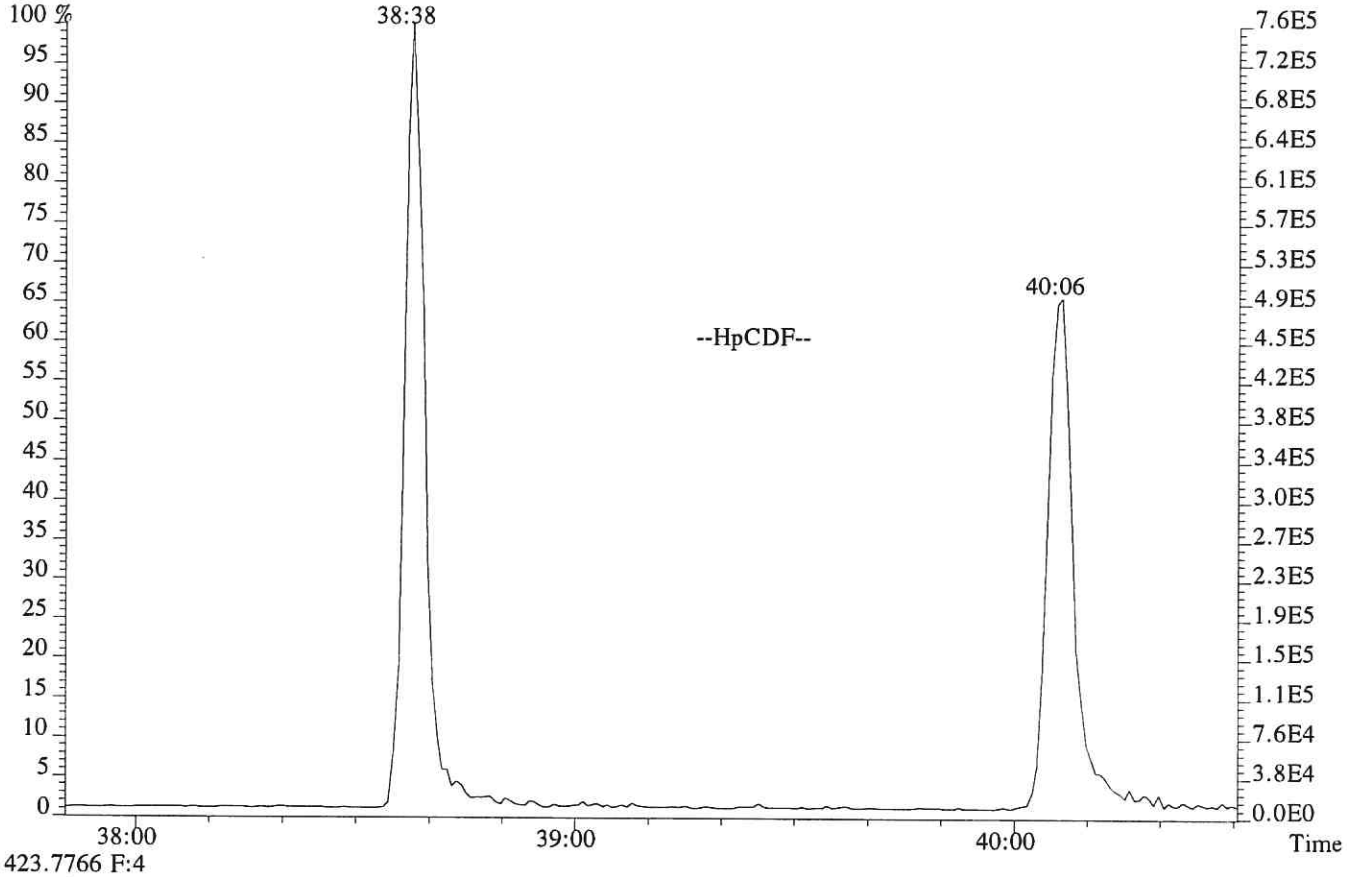
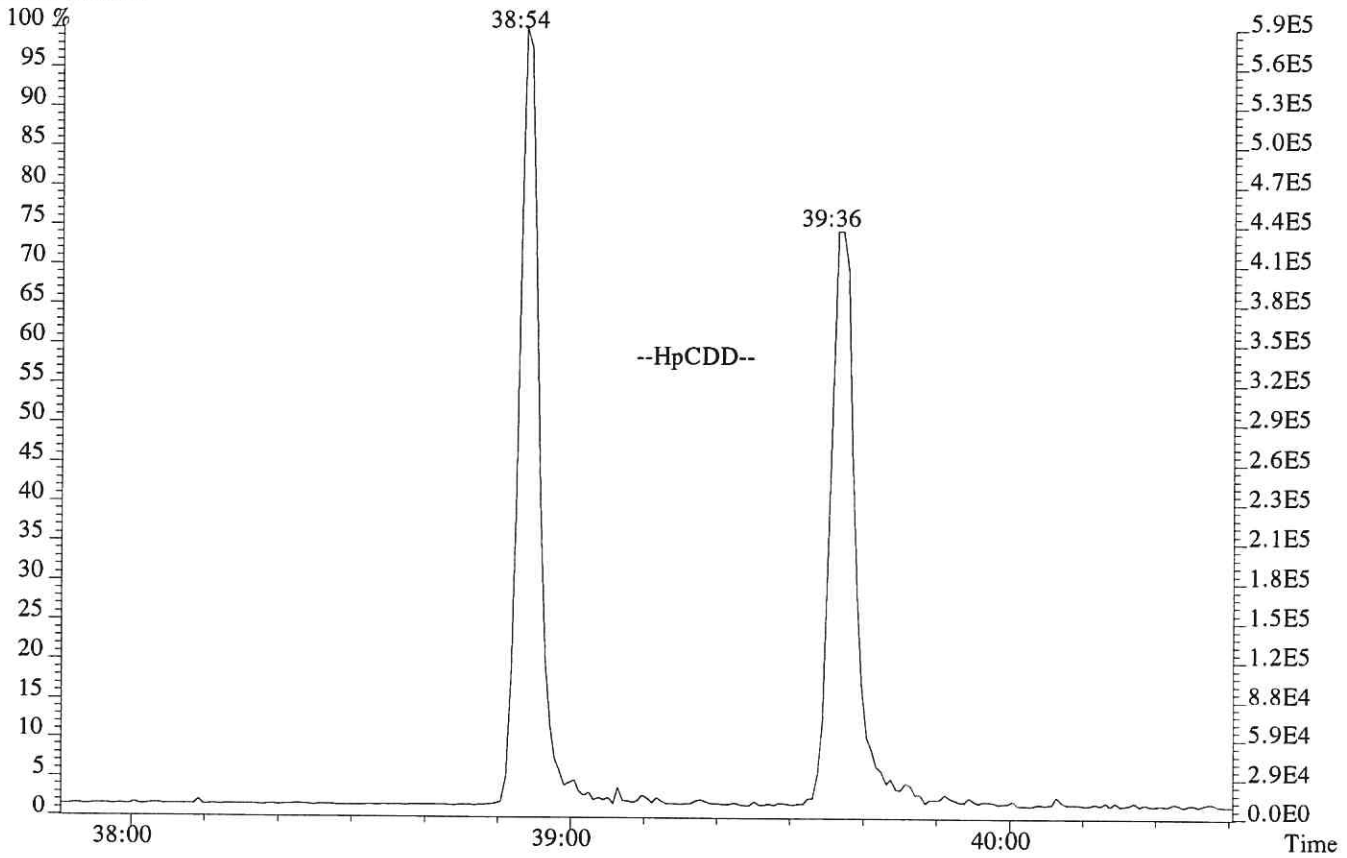
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519303 Analysis Date: 8-DEC-18 Time: 08:21:08

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.9	7.8 - 12.9	-1.0
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	51	39 - 65	1.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	50	39 - 64	0.6
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	3.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	55	41 - 61	10.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.90	0.76-1.02	102	79 - 126	2.2
2,3,7,8-TCDF	M/M+2	0.74	0.65-0.89	10.1	8.4 - 12.0	1.5
1,2,3,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	50	41 - 60	0.8
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	51	41 - 61	1.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	3.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	44 - 57	0.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	51	45 - 55	1.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	51	43 - 58	1.0
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519303 Analysis Date: 8-DEC-18 Time: 08:21:08

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	104	82 - 121	4.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	120	62 - 160	19.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	97	85 - 117	-3.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	95	85 - 118	-4.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	110	72 - 138	10.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	254	96 - 415	26.8
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	101	71 - 140	0.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	118	76 - 130	18.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	119	77 - 130	19.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	89	76 - 131	-11.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	70 - 143	-6.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	101	74 - 135	1.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-3.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	105	78 - 129	5.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	113	77 - 129	13.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.4	7.8 - 12.7	4.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

.un #7 Filename P519303 Samp: 1 Inj: 1 Acquired: 8-DEC-18 08:21:08
'rocessed: 11-DEC-18 16:32:47 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:52	3.940e+03	5.315e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:12	3.389e+04	2.252e+04	1.50	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:08	3.216e+04	2.118e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:53	2.931e+04	2.361e+04	1.24	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:00	3.159e+04	2.654e+04	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:31	2.942e+04	2.430e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:17	2.693e+04	2.258e+04	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	2.794e+04	2.688e+04	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	2.349e+04	2.303e+04	1.02	yes	no	1.258
.0	Unk	OCDF	42:48	3.710e+04	4.192e+04	0.89	yes	no	1.359
.1	Unk	2,3,7,8-TCDD	28:41	2.913e+03	3.655e+03	0.80	yes	no	1.085
.2	Unk	1,2,3,7,8-PeCDD	33:26	2.196e+04	1.397e+04	1.57	yes	no	0.956
.3	Unk	1,2,3,4,7,8-HxCDD	36:40	2.052e+04	1.635e+04	1.25	yes	no	1.038
.4	Unk	1,2,3,6,7,8-HxCDD	36:45	2.130e+04	1.702e+04	1.25	yes	no	1.038
.5	Unk	1,2,3,7,8,9-HxCDD	37:00	2.336e+04	1.846e+04	1.27	yes	no	1.063
.6	Unk	1,2,3,4,6,7,8-HpCDD	39:36	1.995e+04	1.879e+04	1.06	yes	no	1.025
.7	Unk	OCDD	42:37	3.145e+04	3.504e+04	0.90	yes	no	1.118
.8	IS	13C-2,3,7,8-TCDF	27:50	4.322e+04	5.362e+04	0.81	yes	no	1.513
.9	IS	13C-1,2,3,7,8-PeCDF	32:11	6.783e+04	4.273e+04	1.59	yes	no	1.471
:0	IS	13C-2,3,4,7,8-PeCDF	33:06	6.784e+04	4.227e+04	1.60	yes	no	1.457
:1	IS	13C-1,2,3,4,7,8-HxCDF	35:53	2.929e+04	5.690e+04	0.51	yes	no	1.234
:2	IS	13C-1,2,3,6,7,8-HxCDF	35:59	3.524e+04	6.829e+04	0.52	yes	no	1.399
:3	IS	13C-2,3,4,6,7,8-HxCDF	36:31	3.268e+04	6.276e+04	0.52	yes	no	1.257
:4	IS	13C-1,2,3,7,8,9-HxCDF	37:17	2.979e+04	5.655e+04	0.53	yes	no	1.086
:5	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	2.476e+04	5.543e+04	0.45	yes	no	0.966
:6	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	2.255e+04	5.069e+04	0.44	yes	no	0.820
:7	IS	13C-2,3,7,8-TCDD	28:39	2.724e+04	3.393e+04	0.80	yes	no	0.924
:8	IS	13C-1,2,3,7,8-PeCDD	33:24	4.545e+04	2.863e+04	1.59	yes	no	0.975
:9	IS	13C-1,2,3,4,7,8-HxCDD	36:39	3.987e+04	3.069e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:45	4.002e+04	3.122e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	3.824e+04	3.619e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:36	5.521e+04	6.111e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:05	2.851e+04	3.492e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.364e+04	3.511e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:41	6.688e+03				no	1.014

ALS ENVIRONMENTAL
.0450 Stancliff Rd., Suite 115
Houston, TX 77099
)ffice(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

un #7 Filename P519303 Samp: 1 Inj: 1 Acquired: 8-DEC-18 08:21:08
rocessed: 11-DEC-18 16:32:47 LAB. ID: CS3

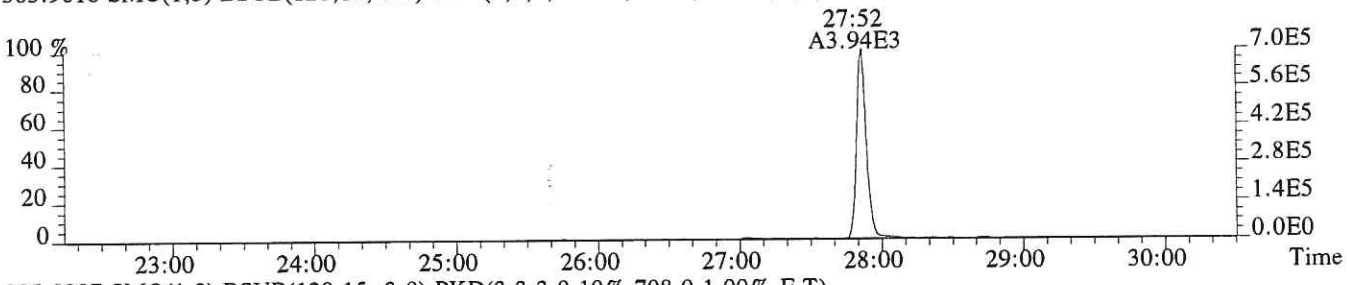
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	6.99e+05	2.32e+02	3.0e+03	9.39e+05	7.08e+02	1.3e+03
	1,2,3,7,8-PeCDF	6.26e+06	3.16e+02	2.0e+04	4.17e+06	7.40e+02	5.6e+03
	2,3,4,7,8-PeCDF	6.20e+06	3.16e+02	2.0e+04	4.05e+06	7.40e+02	5.5e+03
	1,2,3,4,7,8-HxCDF	6.10e+06	3.32e+02	1.8e+04	4.91e+06	2.16e+02	2.3e+04
	1,2,3,6,7,8-HxCDF	6.21e+06	3.32e+02	1.9e+04	5.23e+06	2.16e+02	2.4e+04
	2,3,4,6,7,8-HxCDF	6.00e+06	3.32e+02	1.8e+04	4.90e+06	2.16e+02	2.3e+04
	1,2,3,7,8,9-HxCDF	5.05e+06	3.32e+02	1.5e+04	4.25e+06	2.16e+02	2.0e+04
	1,2,3,4,6,7,8-HpCDF	5.43e+06	2.16e+02	2.5e+04	5.23e+06	2.22e+03	2.4e+03
	1,2,3,4,7,8,9-HpCDF	3.88e+06	2.16e+02	1.8e+04	3.79e+06	2.22e+03	1.7e+03
0	OCDF	4.53e+06	3.92e+02	1.2e+04	5.04e+06	5.32e+02	9.5e+03
1	2,3,7,8-TCDD	5.28e+05	1.22e+03	4.3e+02	6.91e+05	2.96e+02	2.3e+03
2	1,2,3,7,8-PeCDD	4.22e+06	4.12e+02	1.0e+04	2.70e+06	2.60e+02	1.0e+04
3	1,2,3,4,7,8-HxCDD	4.37e+06	2.12e+02	2.1e+04	3.44e+06	2.80e+02	1.2e+04
4	1,2,3,6,7,8-HxCDD	4.20e+06	2.12e+02	2.0e+04	3.43e+06	2.80e+02	1.2e+04
5	1,2,3,7,8,9-HxCDD	4.53e+06	2.12e+02	2.1e+04	3.48e+06	2.80e+02	1.2e+04
6	1,2,3,4,6,7,8-HpCDD	3.45e+06	2.20e+02	1.6e+04	3.24e+06	3.00e+02	1.1e+04
7	OCDD	3.84e+06	2.80e+02	1.4e+04	4.26e+06	4.16e+02	1.0e+04
8	13C-2,3,7,8-TCDF	7.61e+06	3.49e+03	2.2e+03	9.56e+06	1.74e+03	5.5e+03
9	13C-1,2,3,7,8-PeCDF	1.24e+07	3.20e+02	3.9e+04	7.81e+06	2.48e+02	3.2e+04
0	13C-2,3,4,7,8-PeCDF	1.31e+07	3.20e+02	4.1e+04	8.17e+06	2.48e+02	3.3e+04
1	13C-1,2,3,4,7,8-HxCDF	6.10e+06	5.32e+02	1.1e+04	1.17e+07	7.48e+02	1.6e+04
2	13C-1,2,3,6,7,8-HxCDF	7.06e+06	5.32e+02	1.3e+04	1.35e+07	7.48e+02	1.8e+04
3	13C-2,3,4,6,7,8-HxCDF	6.66e+06	5.32e+02	1.3e+04	1.26e+07	7.48e+02	1.7e+04
4	13C-1,2,3,7,8,9-HxCDF	5.56e+06	5.32e+02	1.0e+04	1.07e+07	7.48e+02	1.4e+04
5	13C-1,2,3,4,6,7,8-HpCDF	4.79e+06	2.65e+03	1.8e+03	1.07e+07	6.15e+03	1.7e+03
6	13C-1,2,3,4,7,8,9-HpCDF	3.76e+06	2.65e+03	1.4e+03	8.15e+06	6.15e+03	1.3e+03
7	13C-2,3,7,8-TCDD	5.08e+06	2.82e+03	1.8e+03	6.35e+06	9.28e+02	6.8e+03
8	13C-1,2,3,7,8-PeCDD	8.90e+06	2.20e+02	4.0e+04	5.57e+06	2.92e+02	1.9e+04
9	13C-1,2,3,4,7,8-HxCDD	8.40e+06	3.72e+02	2.3e+04	6.41e+06	2.32e+02	2.8e+04
0	13C-1,2,3,6,7,8-HxCDD	7.94e+06	3.72e+02	2.1e+04	6.21e+06	2.32e+02	2.7e+04
1	13C-1,2,3,4,6,7,8-HpCDD	6.64e+06	3.44e+02	1.9e+04	6.28e+06	3.92e+02	1.6e+04
2	13C-OCDD	6.64e+06	4.28e+02	1.6e+04	7.35e+06	3.60e+02	2.0e+04
3	13C-1,2,3,4-TCDD	5.29e+06	2.82e+03	1.9e+03	6.61e+06	9.28e+02	7.1e+03
4	13C-1,2,3,7,8,9-HxCDD	8.62e+06	3.72e+02	2.3e+04	6.70e+06	2.32e+02	2.9e+04
5	37Cl-2,3,7,8-TCDD	1.24e+06	5.16e+02	2.4e+03			

---Sample Calculation---

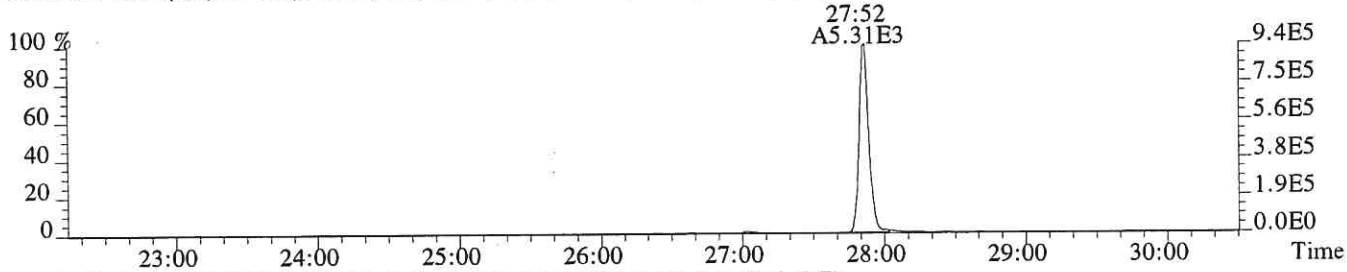
$$\text{/L TCDD} = \frac{2.5 \times (1.220e+03 + 2.960e+02\ ) \times 100}{(5.078e+06 + 6.354e+06\ ) \times (\qquad\qquad) \times 1.085} =$$

LS ENVIRONMENTAL
0450 Stancliff Rd., Suite 115
louston, TX 77099
ffice:(281)530-5656. Fax:(281)530-5887

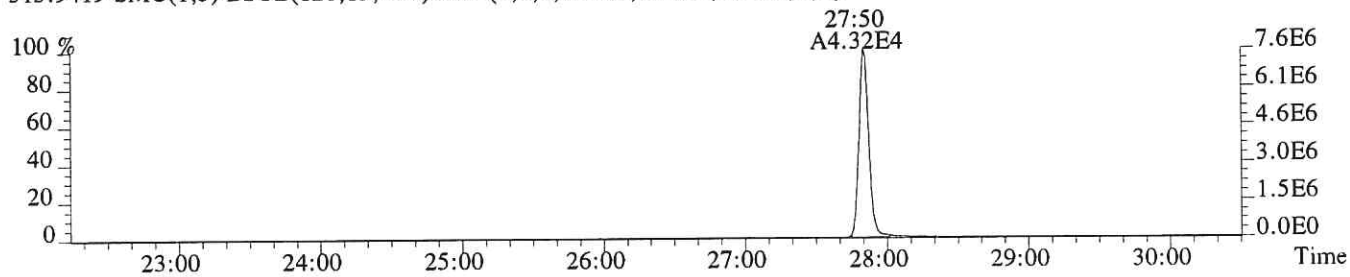
File:P519303 #1-587 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



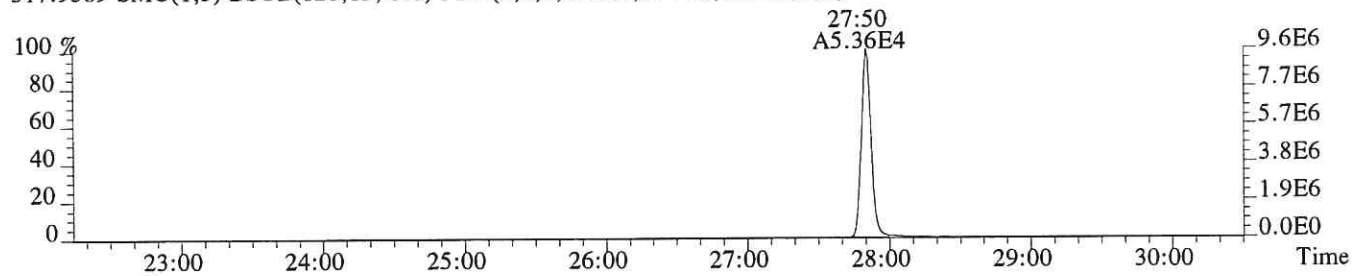
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



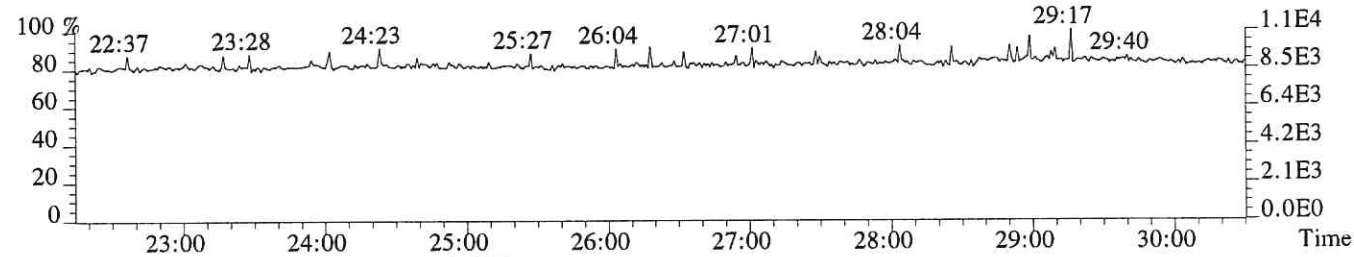
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3488.0,1.00%,F,T)



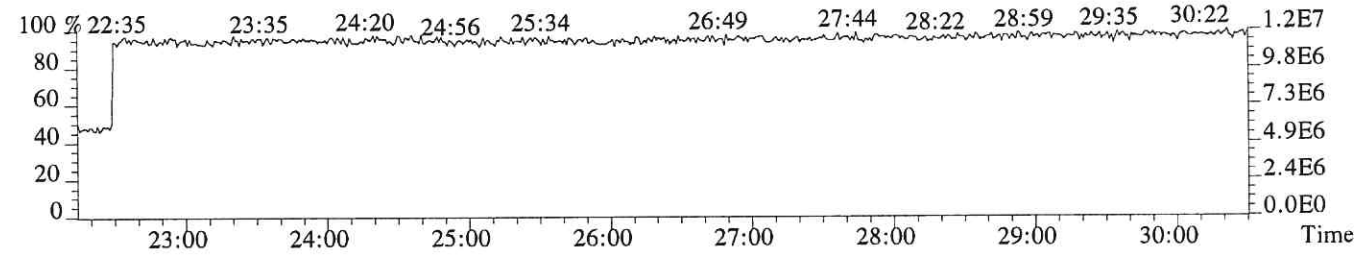
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



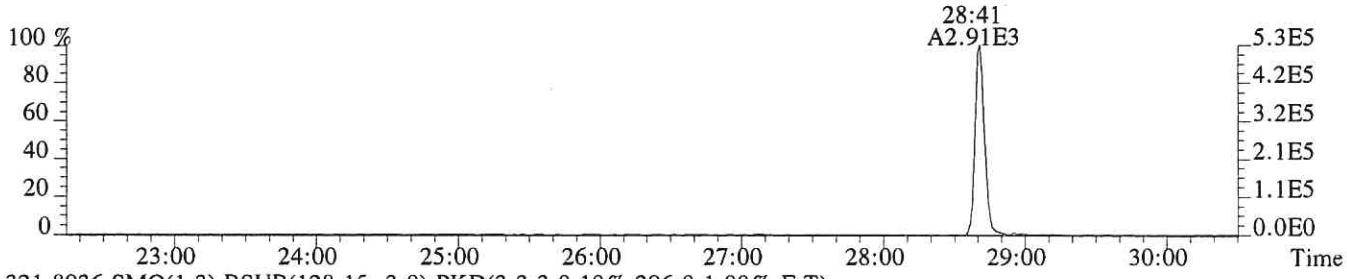
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



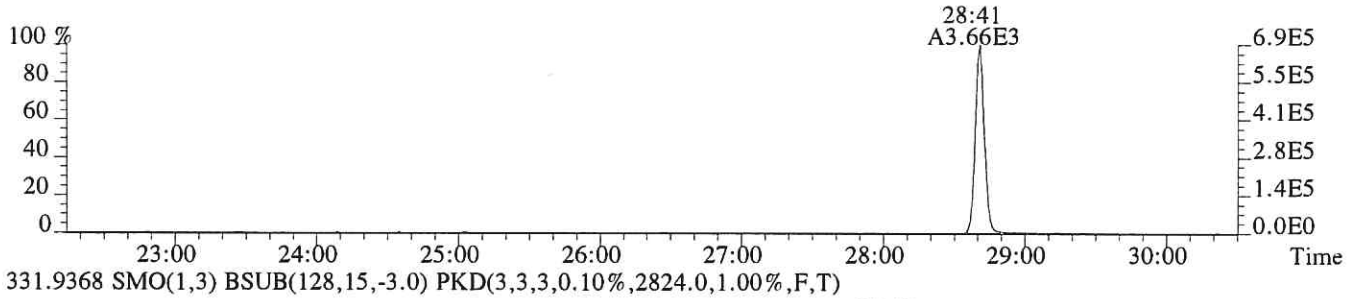
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



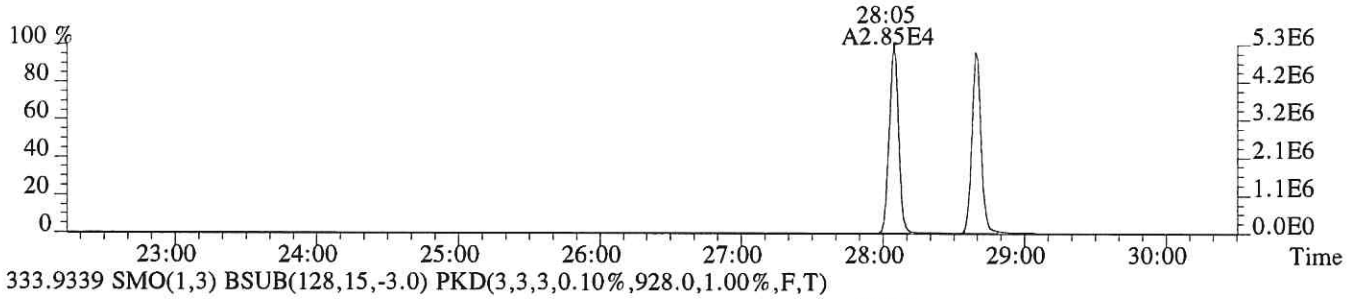
File:P519303 #1-587 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



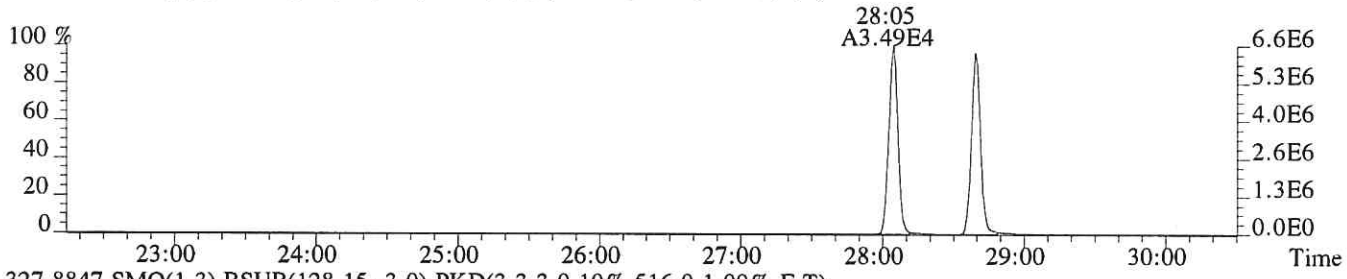
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



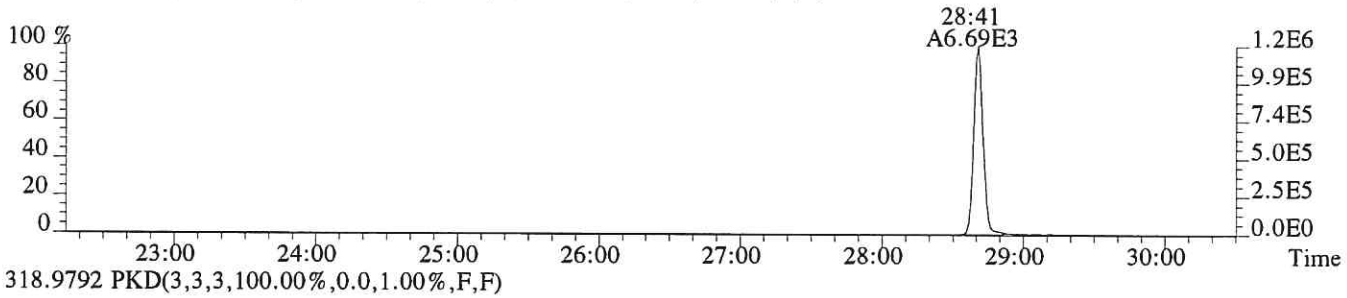
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2824.0,1.00%,F,T)



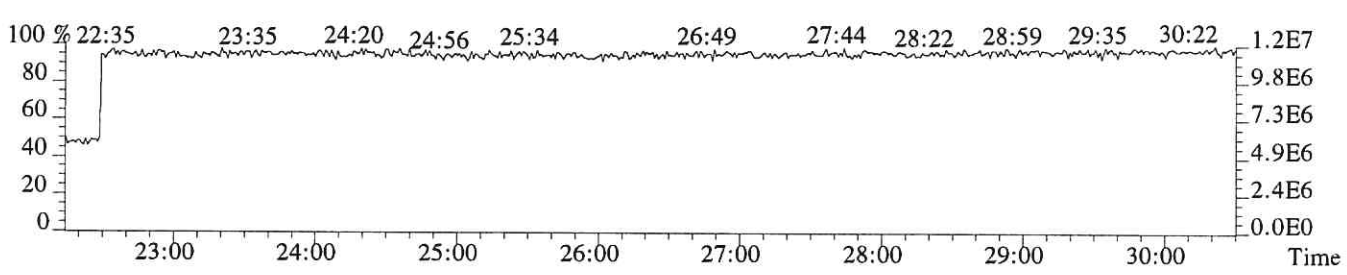
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)

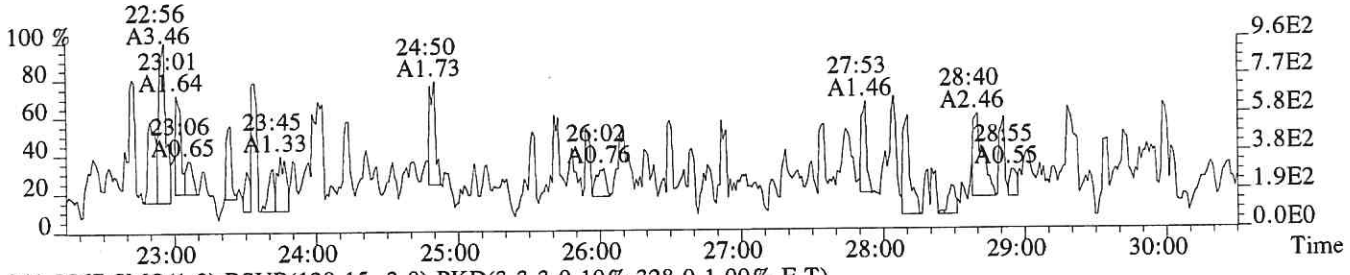


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

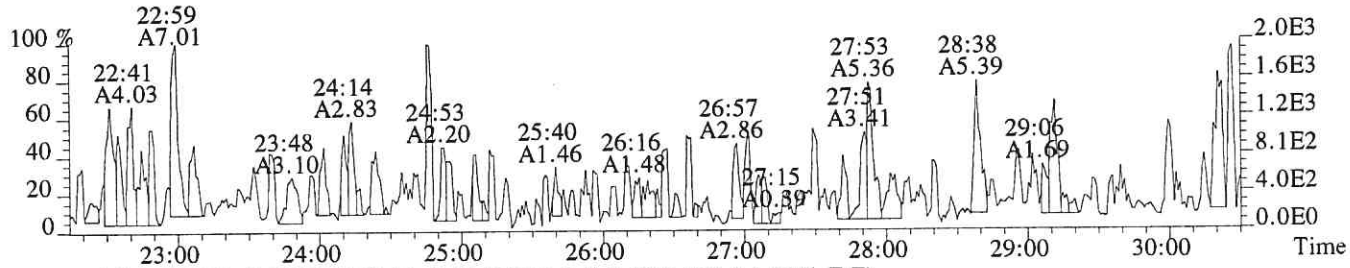


File:P519303 #1-587 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

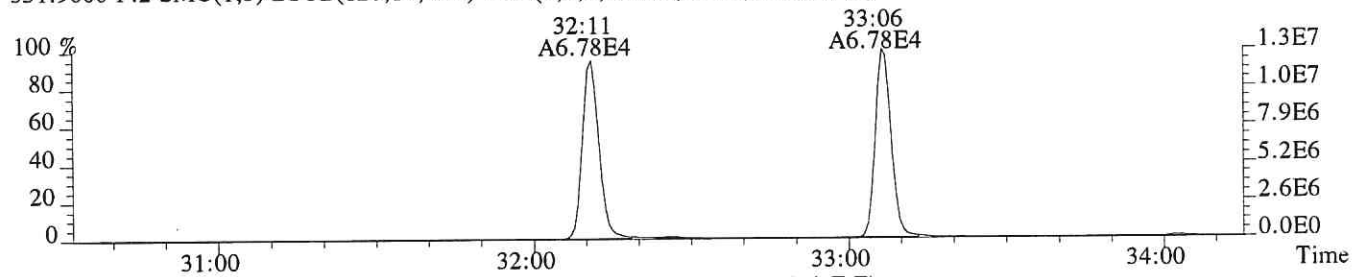
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



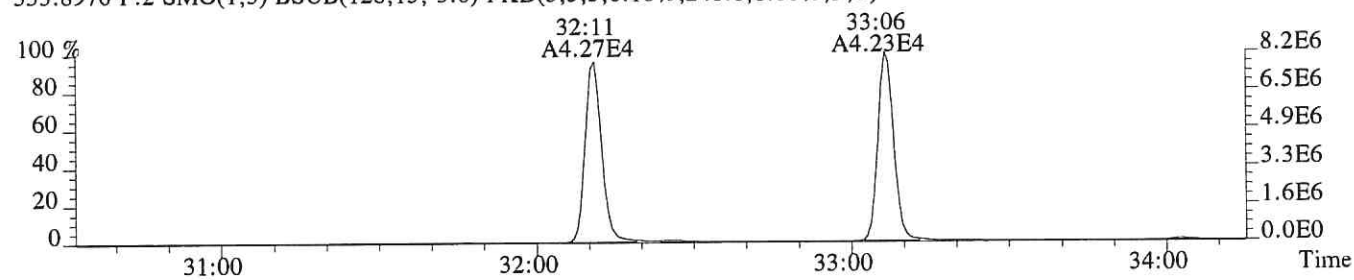
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



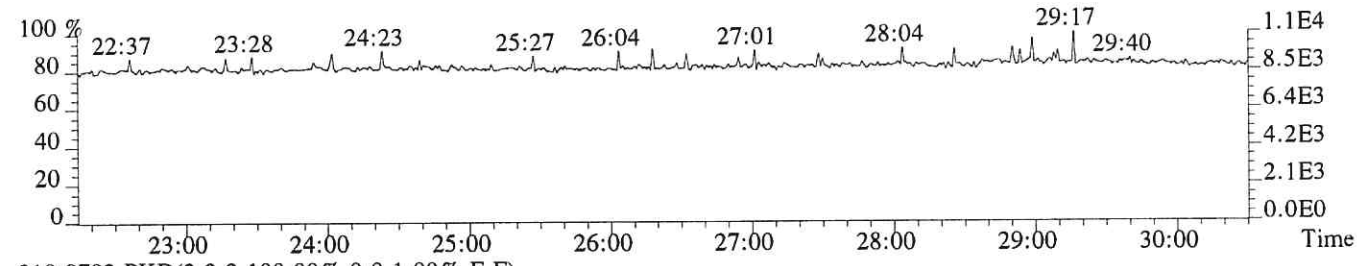
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



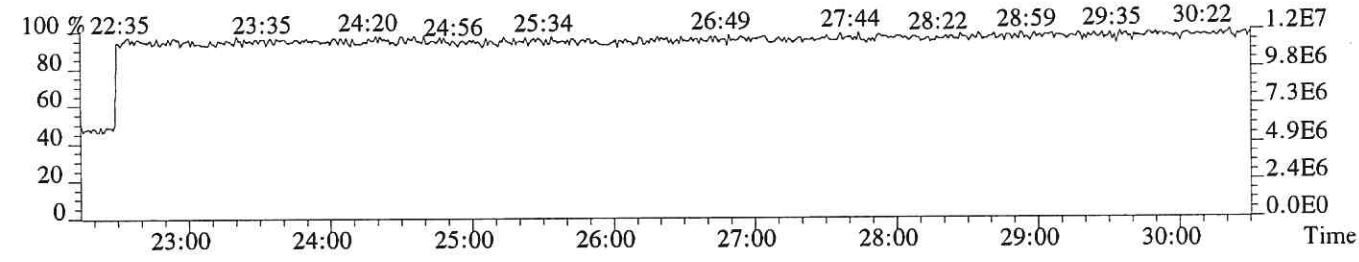
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



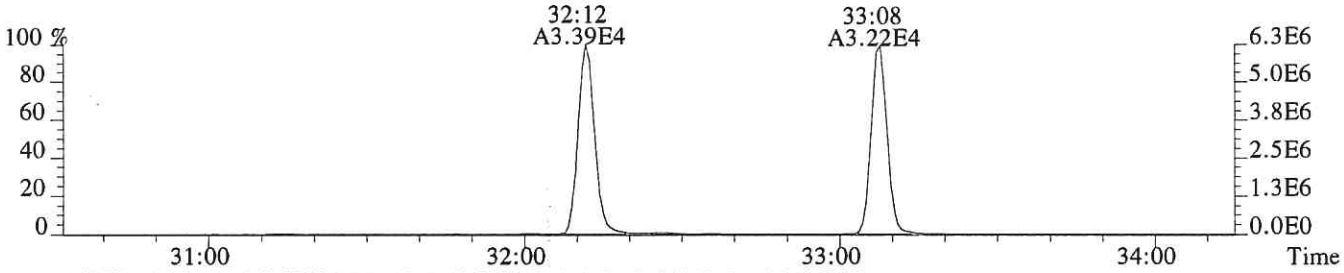
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



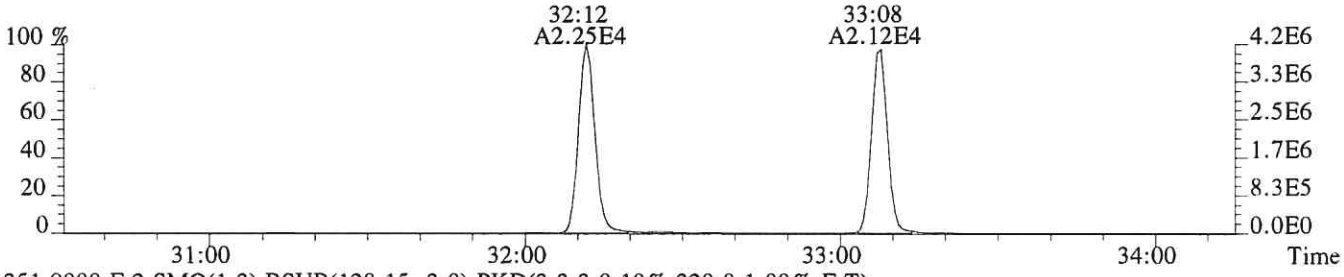
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



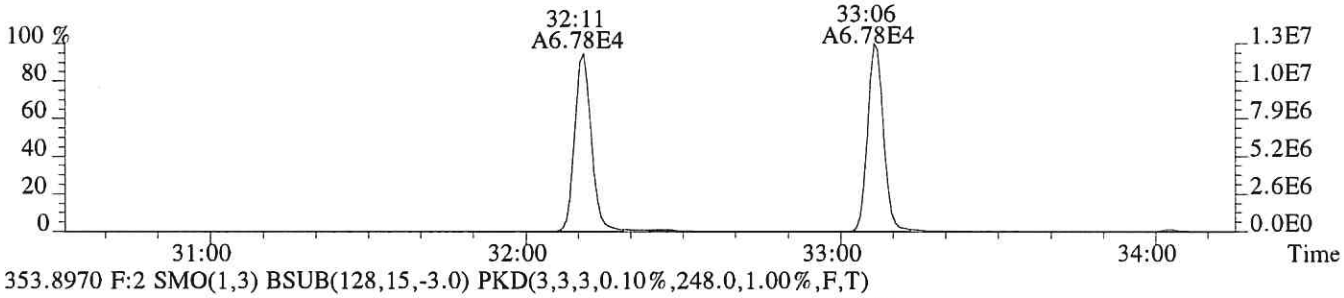
File:P519303 #1-335 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



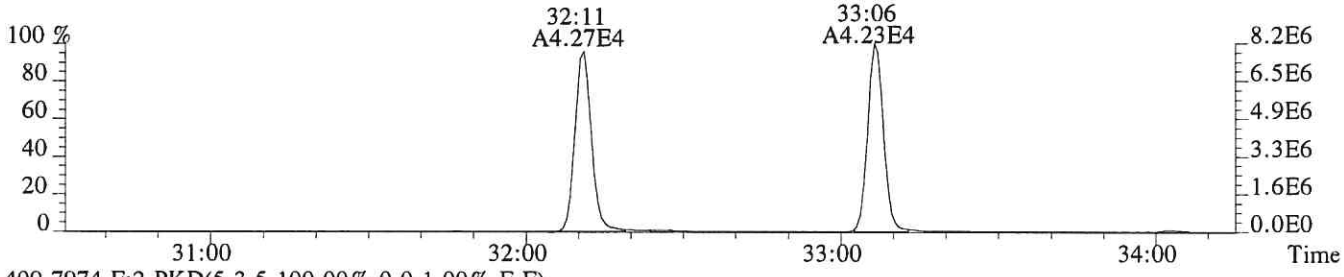
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



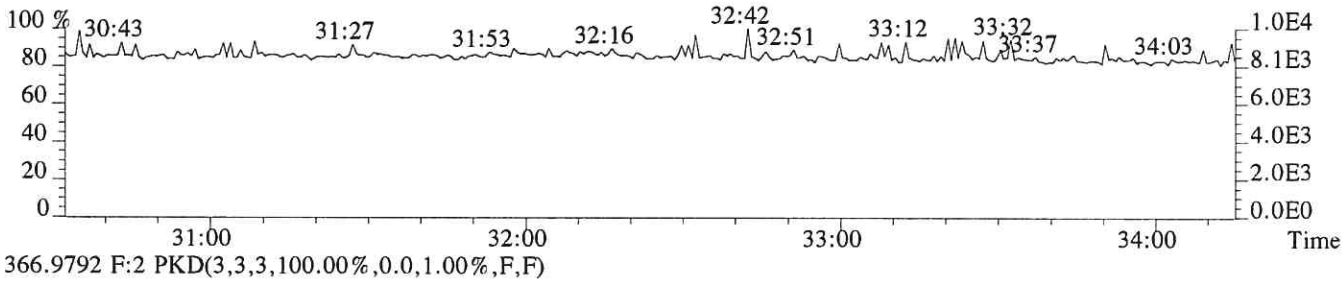
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



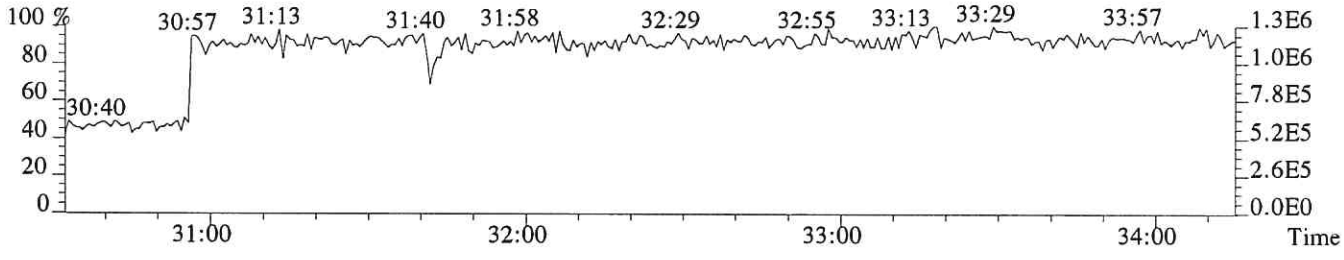
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



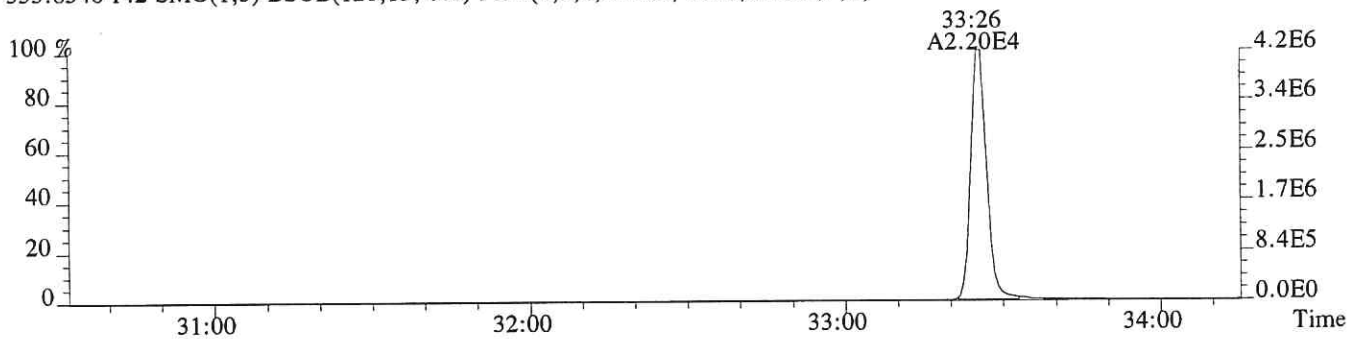
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



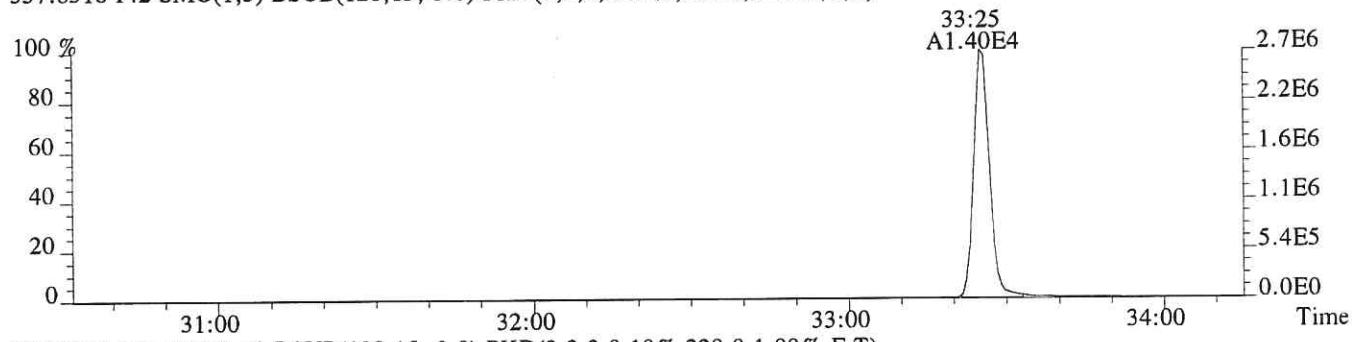
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



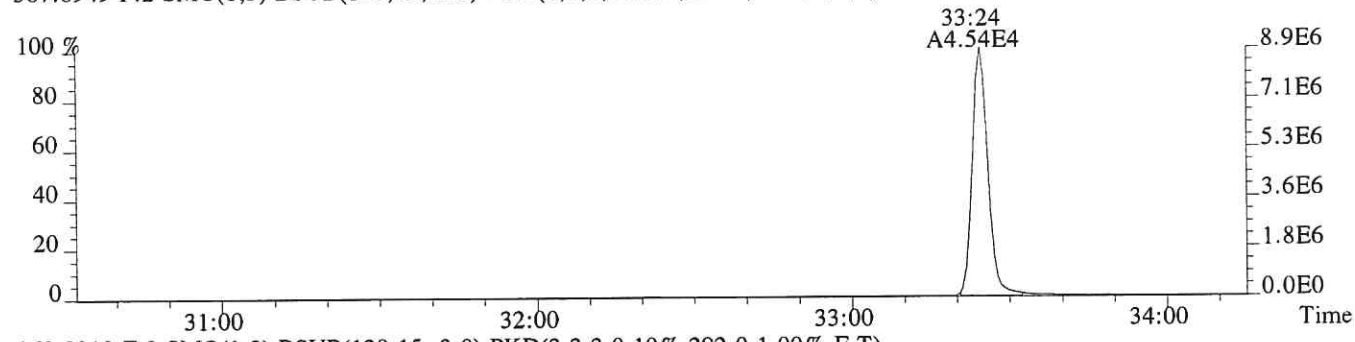
File:P519303 #1-335 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



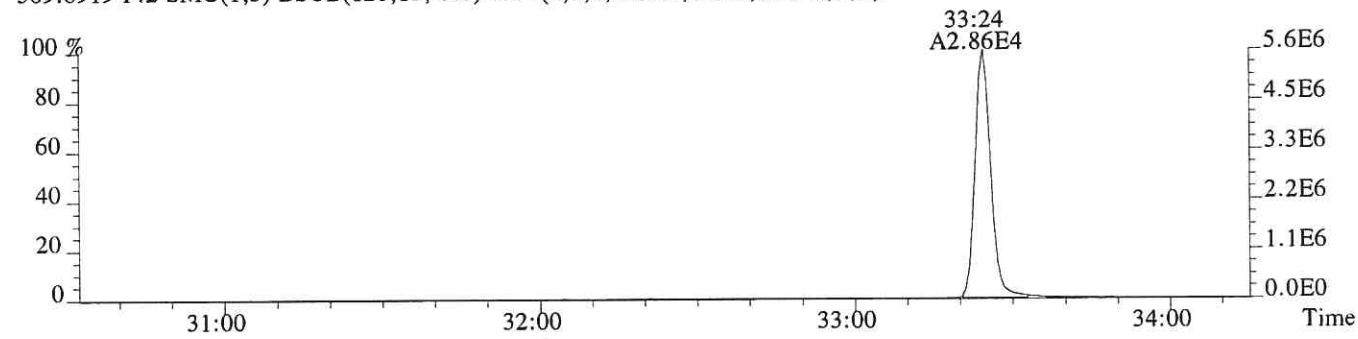
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



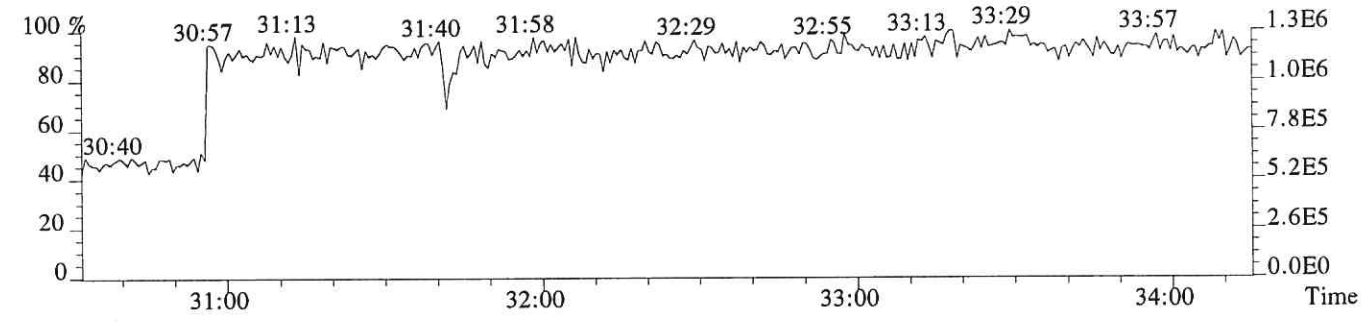
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)

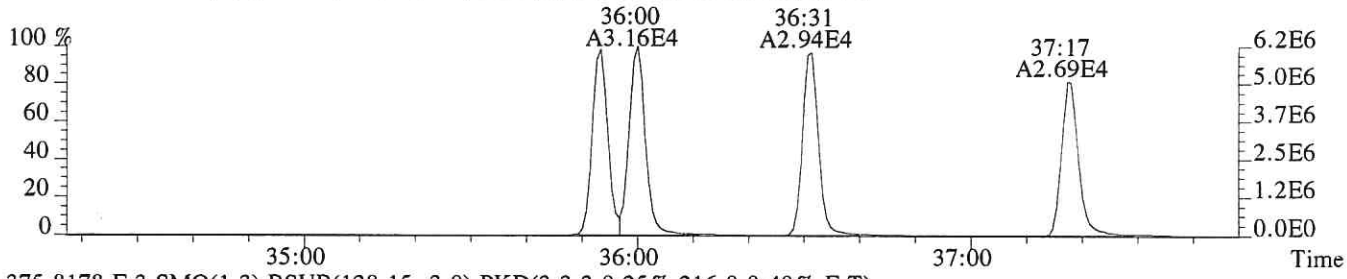


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

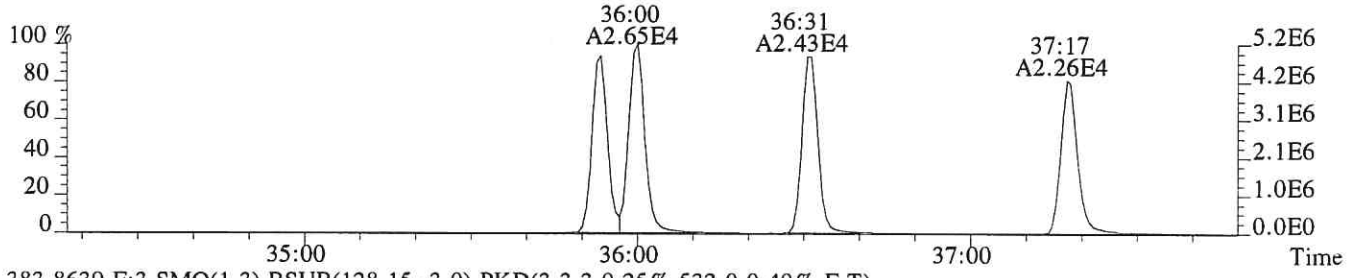


File:P519303 #1-317 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

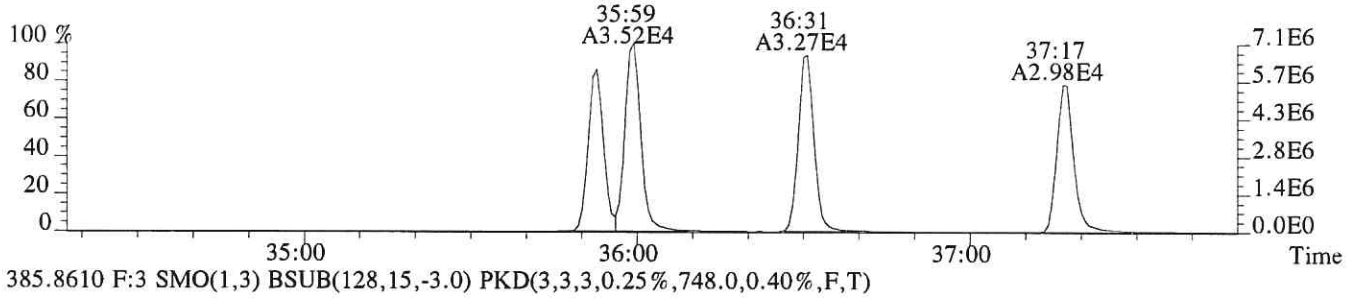
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



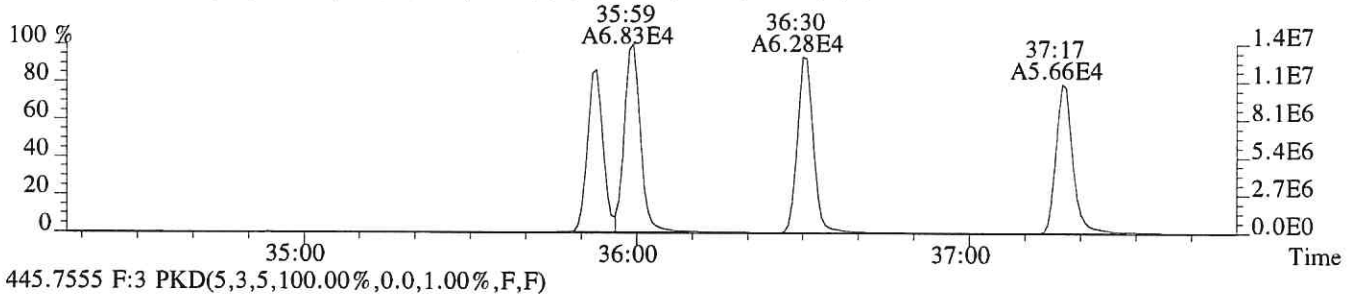
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



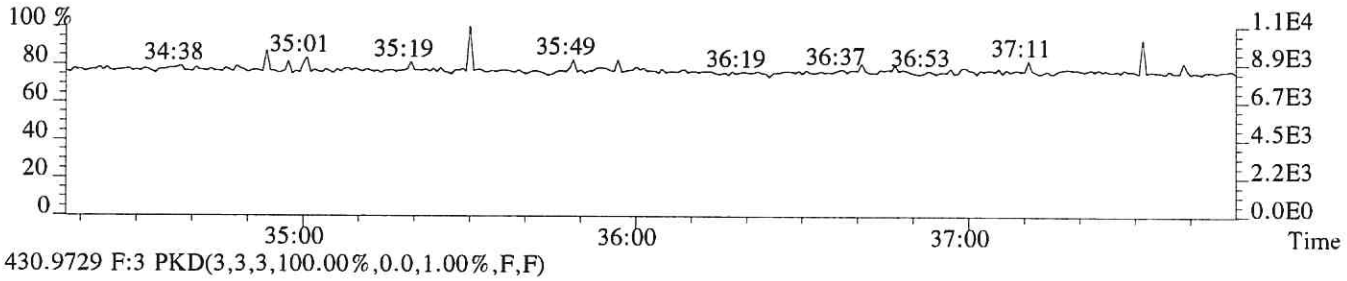
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



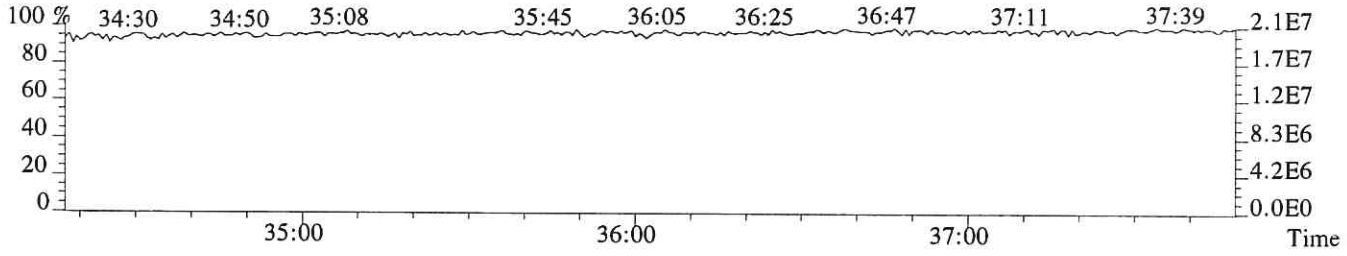
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



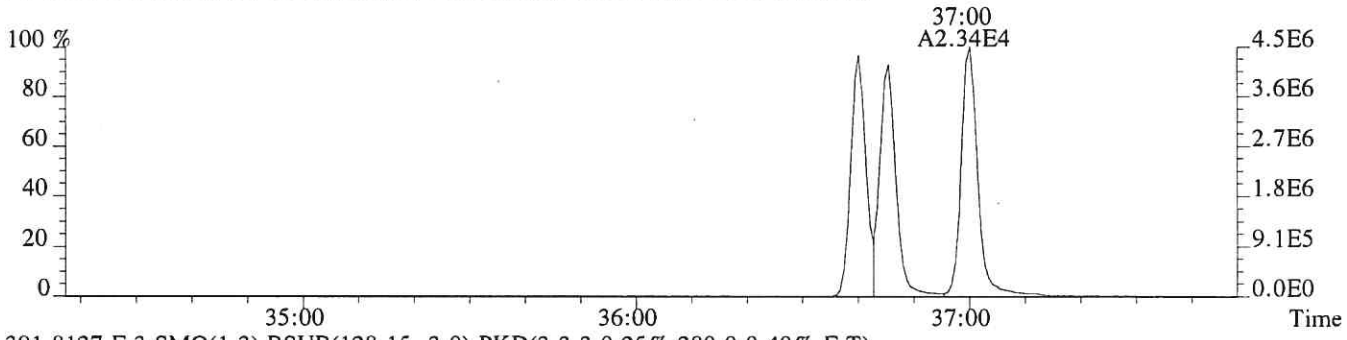
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



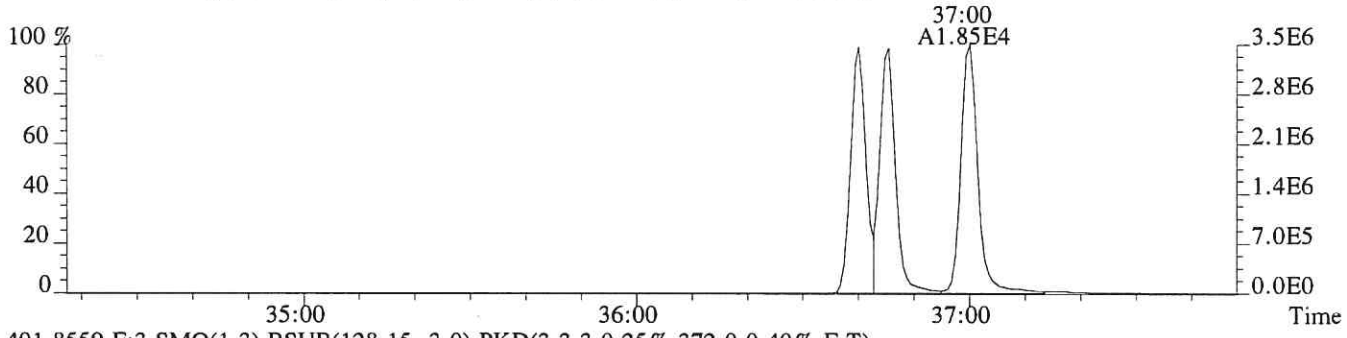
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



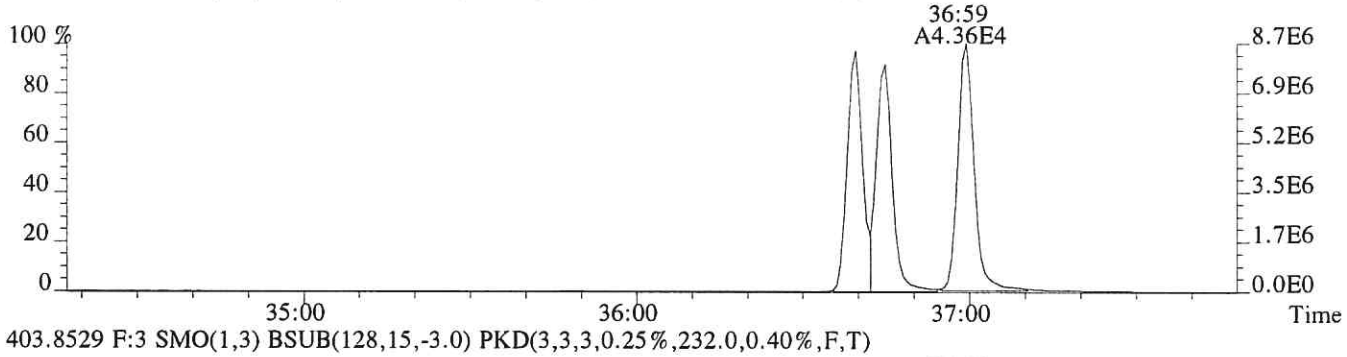
File:P519303 #1-317 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



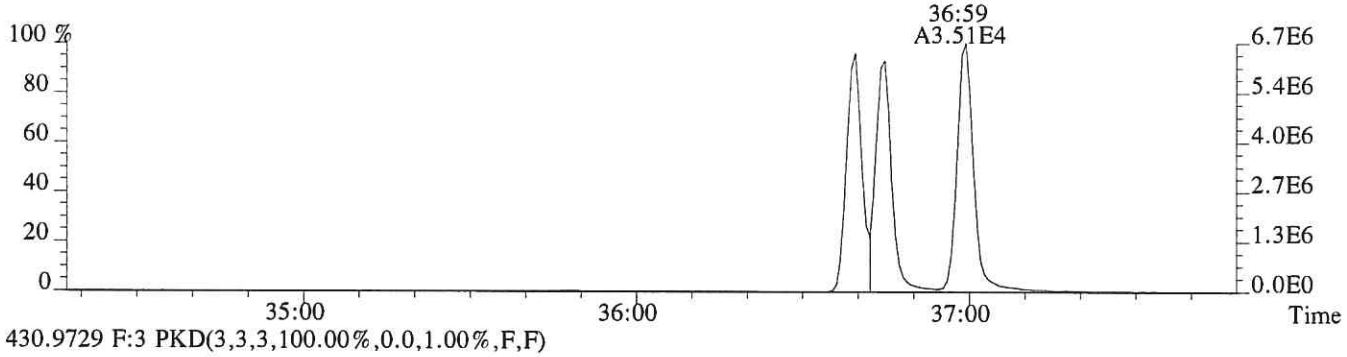
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



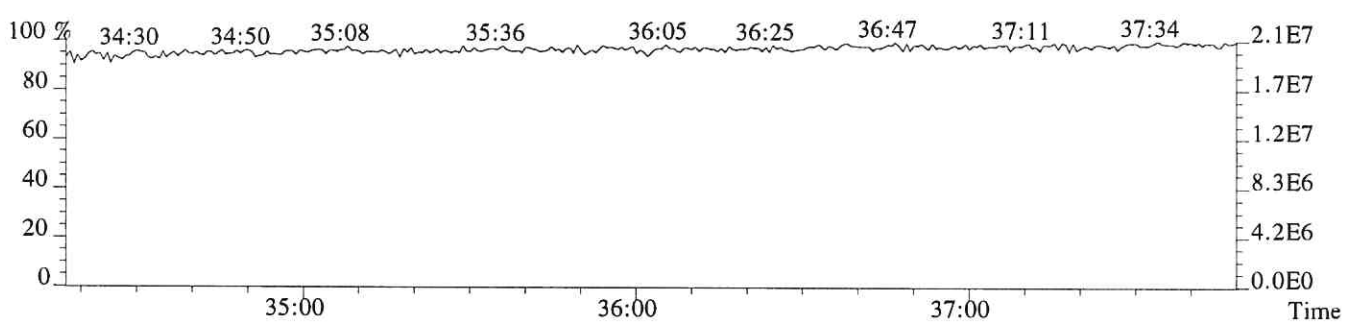
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)

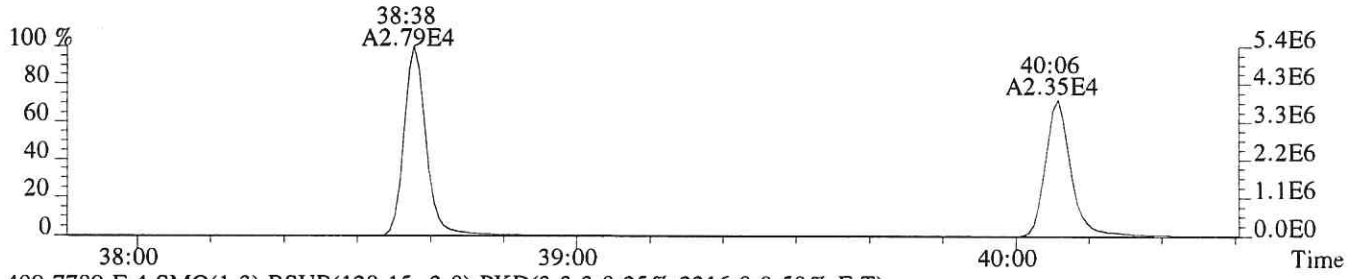


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

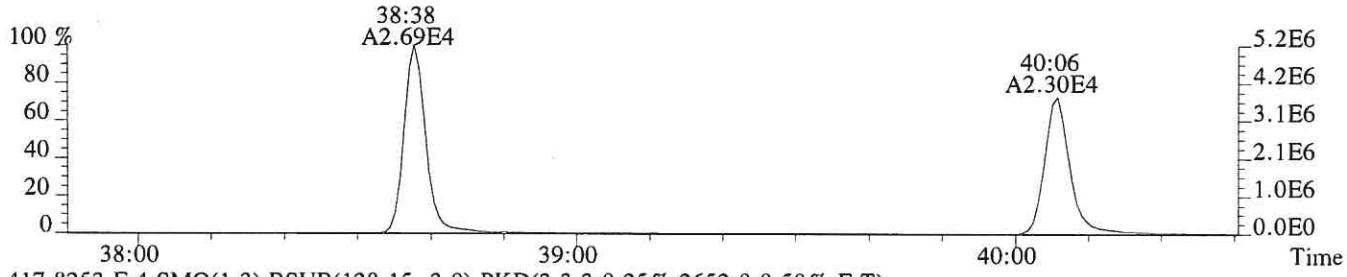


File:P519303 #1-241 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

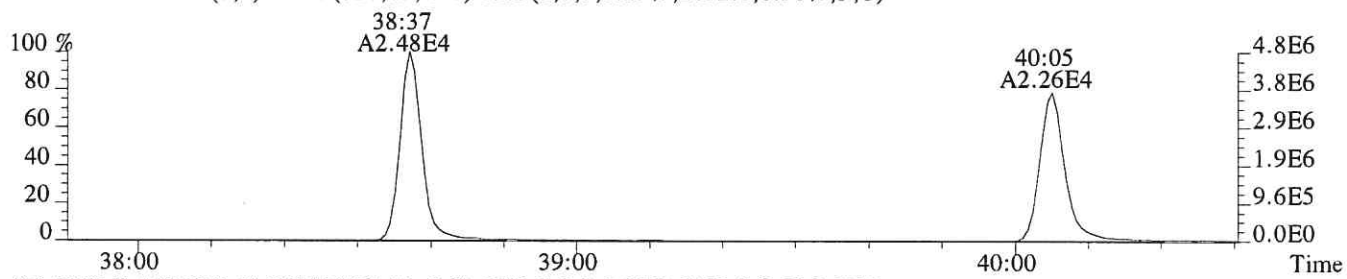
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.50%,F,T)



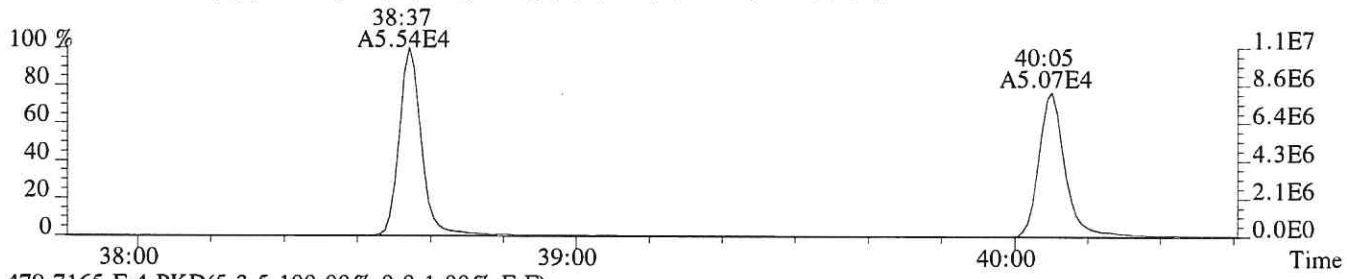
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.50%,F,T)



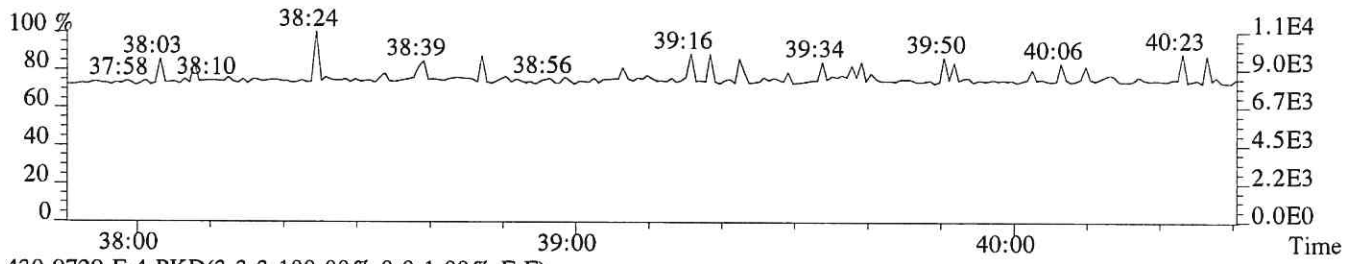
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2652.0,0.50%,F,T)



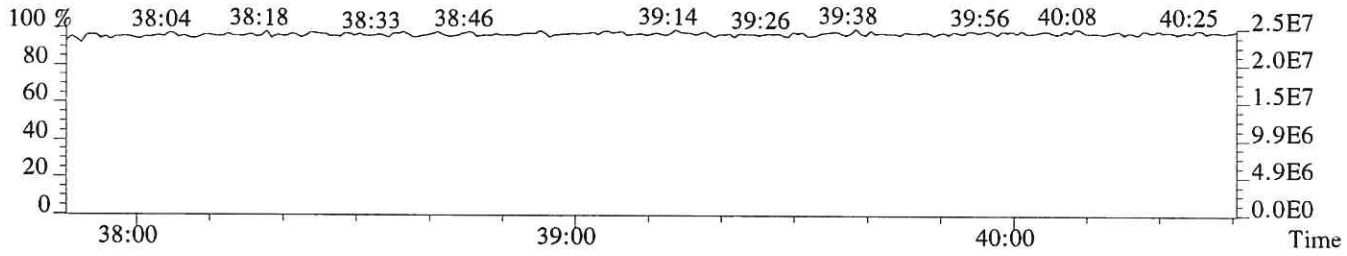
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6152.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

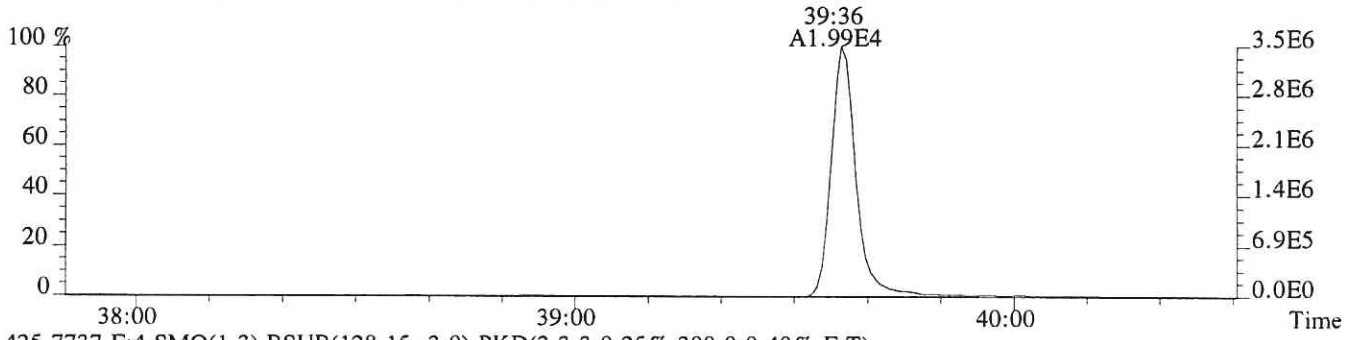


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

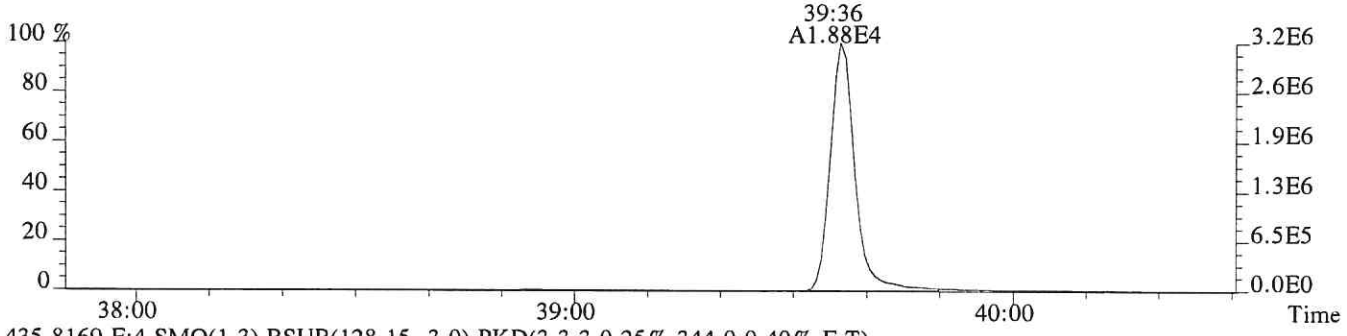


File:P519303 #1-241 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

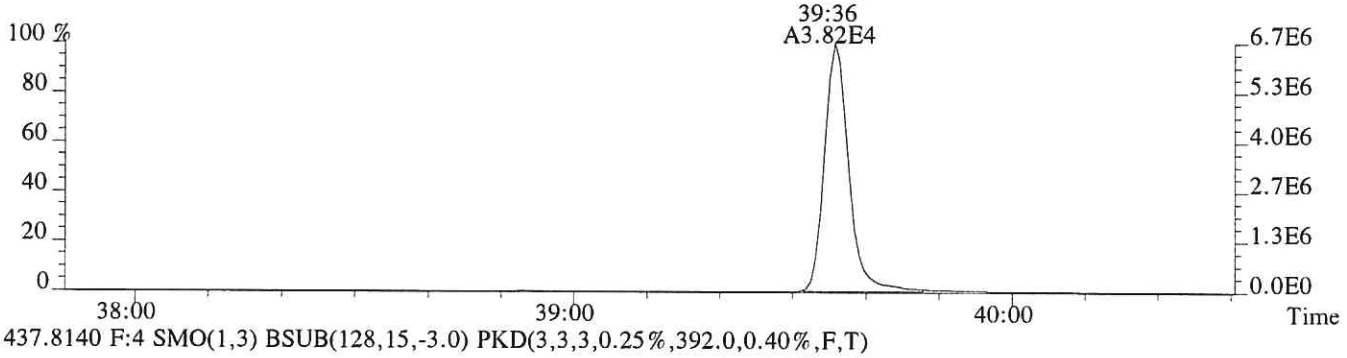
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



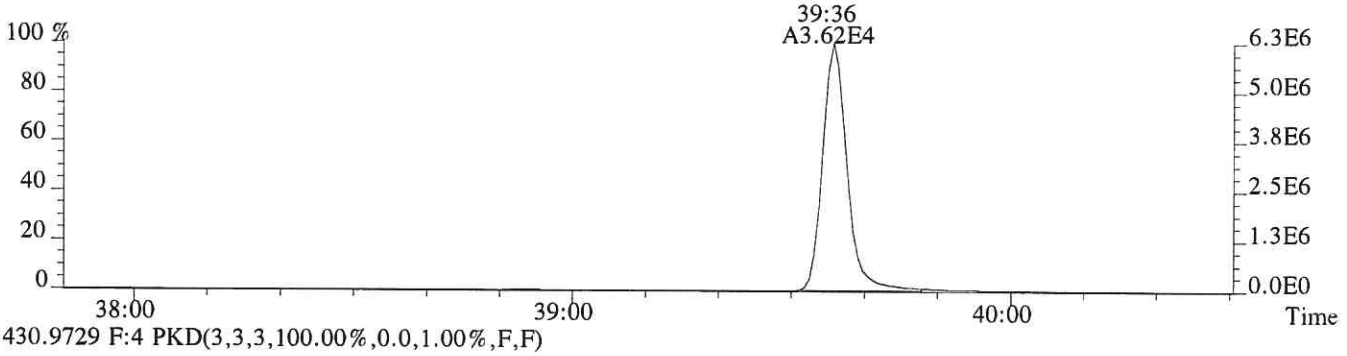
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



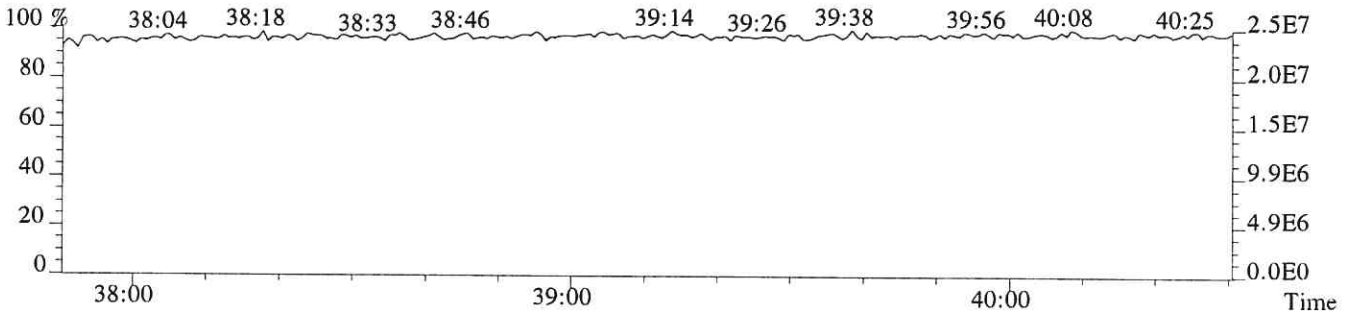
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)

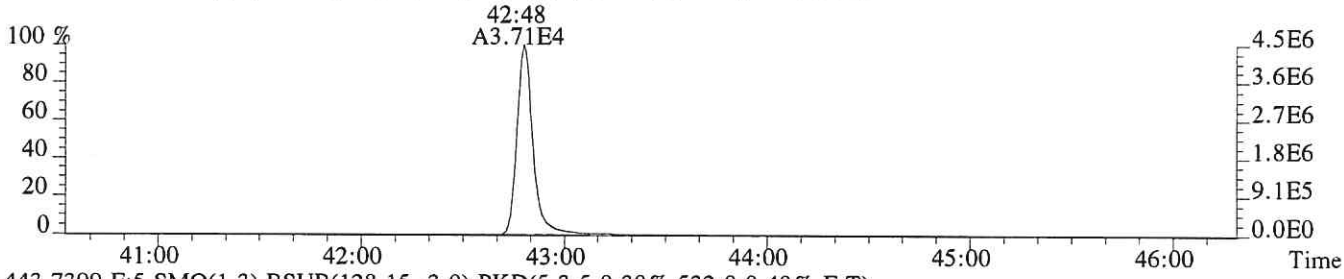


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

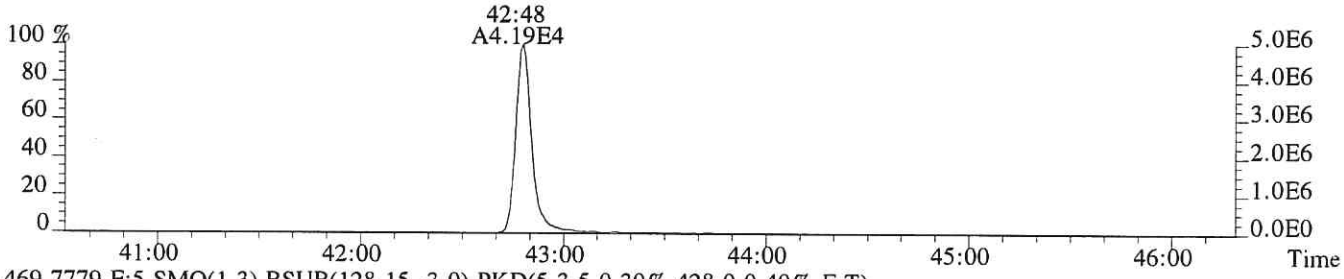


File:P519303 #1-520 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

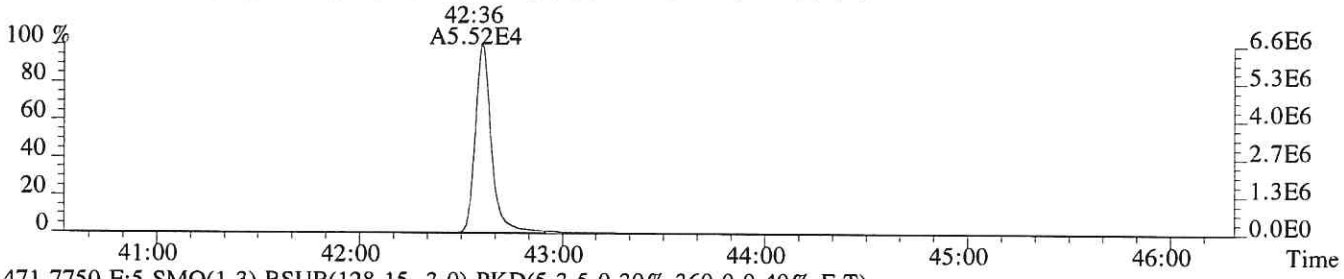
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



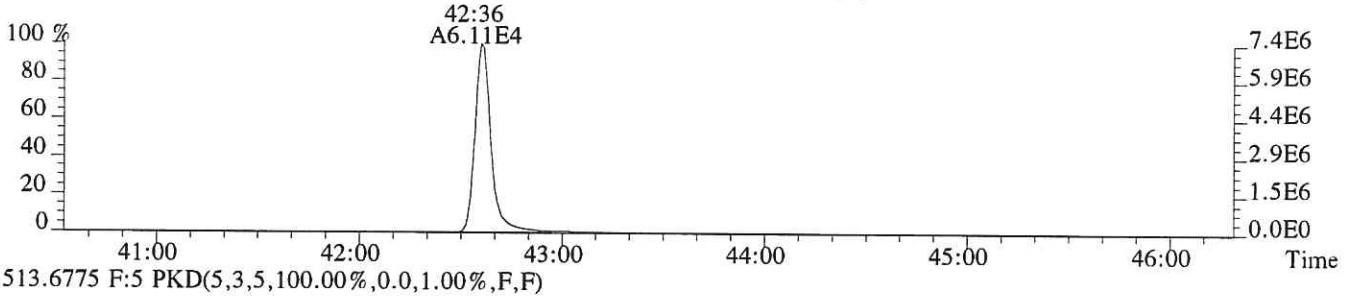
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



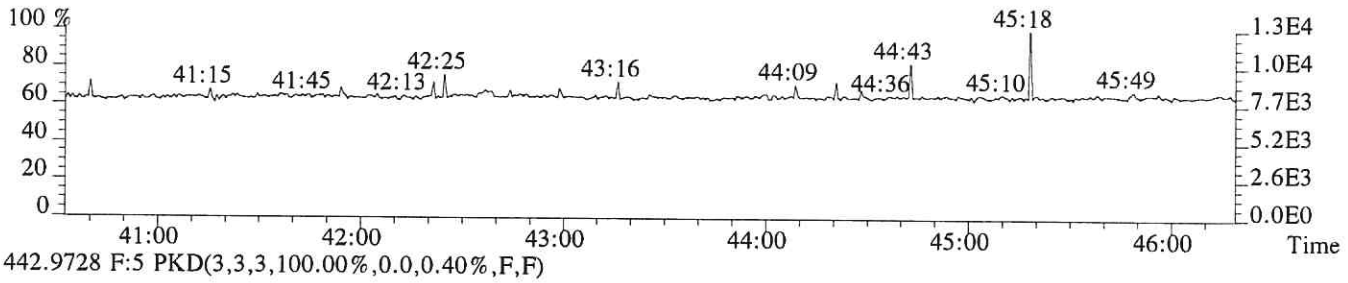
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



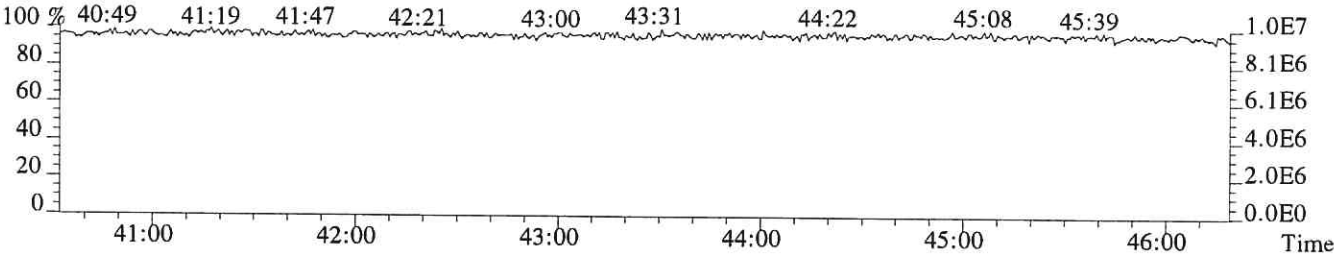
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



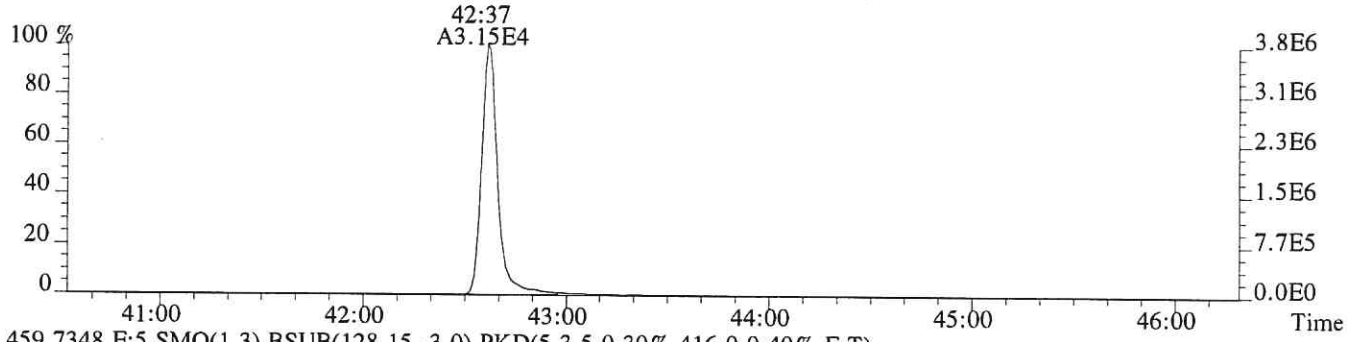
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



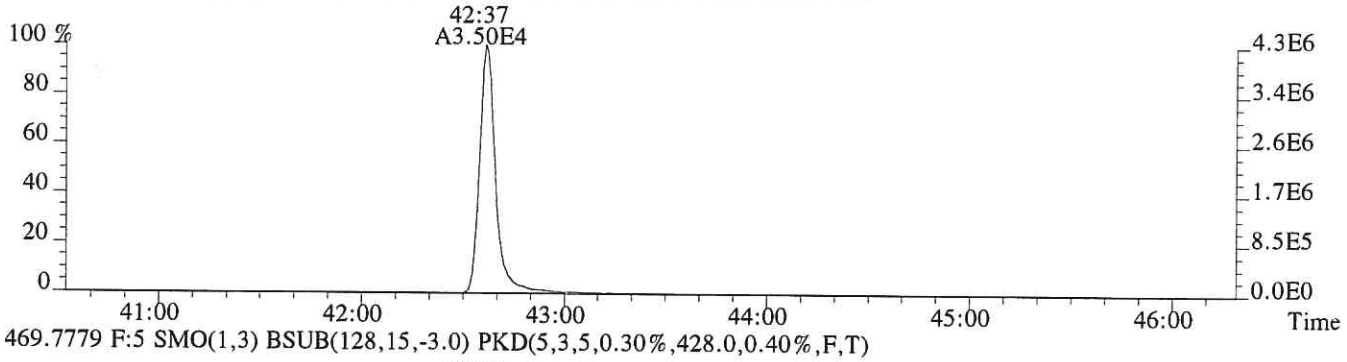
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



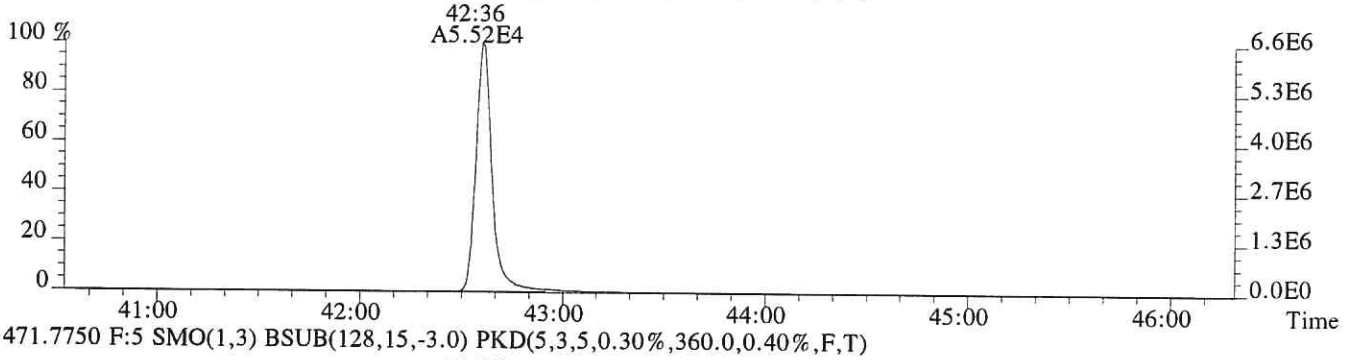
File:P519303 #1-520 Acq: 8-DEC-2018 08:21:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



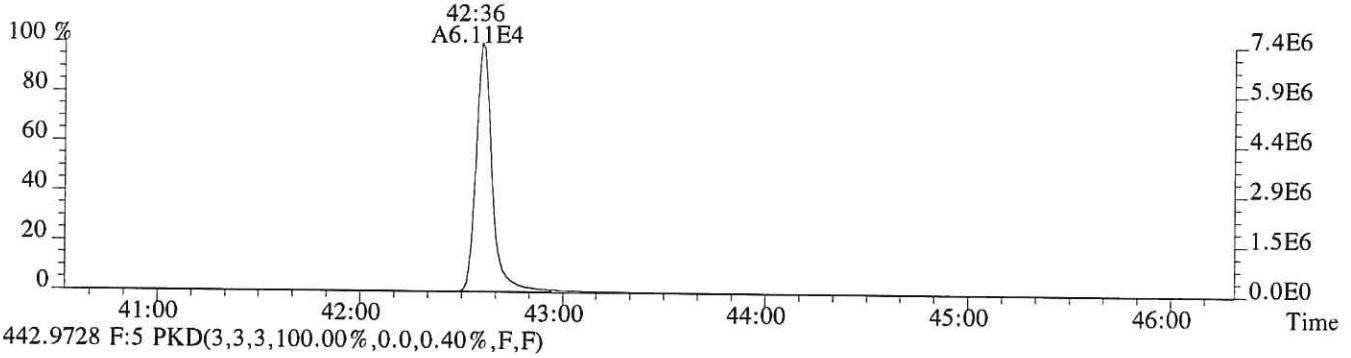
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



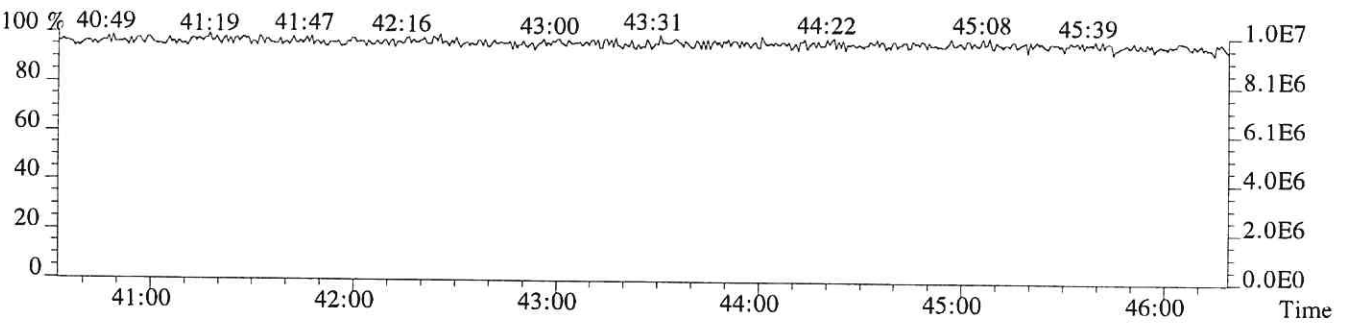
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,360.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519319

Date: 12/10/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519319	10-DEC-18	08:43:37
192977	WINDOW DEFINE	P519320	10-DEC-18	09:34:53
METHOD BLANK	EQ1800469-01	P519321	10-DEC-18	10:24:28
METHOD BLANK	EQ1800496-01	P519322	10-DEC-18	11:12:15
SL0175	E1801056-023DL	P519323	10-DEC-18	12:00:55
SL0221	E1801056-057DL	P519324	10-DEC-18	12:49:32
SL0227	E1801056-063DL	P519325	10-DEC-18	13:38:17
SL0249	E1801058-017DL	P519326	10-DEC-18	14:27:45
SL0250	E1801058-018DL	P519327	10-DEC-18	15:16:55
SL0553	E1801057-001DL	P519328	10-DEC-18	16:05:14
SL0556	E1801057-004DL	P519329	10-DEC-18	16:53:18
SL0559	E1801057-007DL	P519330	10-DEC-18	17:41:56
SL0560	E1801057-008DL	P519331	10-DEC-18	18:30:33
LCS	EQ1800498-02	P519332	10-DEC-18	19:19:11
DLCS	EQ1800498-03	P519333	10-DEC-18	20:07:48

E1801065

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181210A.SPL
Last Modified: Tuesday, December 11, 2018 06:34:31 Central Standard Time
Printed: Tuesday, December 11, 2018 06:34:33 Central Standard Time

Page Position (1, 1)

OPUS 4: P519319res

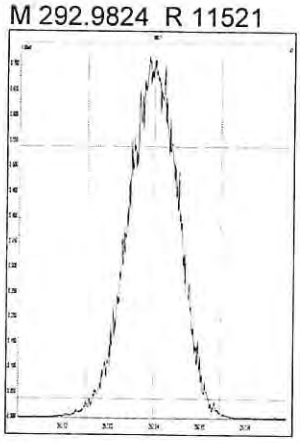
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	08:43	P519319	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 08:39
2		09:34	P519320	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		10:24	P519321	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		11:12	P519322	MB	EQ1800496-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:00	P519323	E1801056-023DL	E1801056-023DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		12:49	P519324	E1801056-057DL	E1801056-057DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		13:38	P519325	E1801056-063DL	E1801056-063DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		14:27	P519326	E1801058-017DL	E1801058-017DL	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		15:16	P519327	E1801058-018DL	E1801058-018DL	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		16:05	P519328	E1801057-001DL	E1801057-001DL	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		16:53	P519329	E1801057-004DL	E1801057-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		17:41	P519330	E1801057-007DL	E1801057-007DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		18:30	P519331	E1801057-008DL	E1801057-008DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		19:19	P519332	LCS	EQ1800498-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		20:07	P519333	DLCS	EQ1800498-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		21:04	P519334	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 21:04
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

JC 12/11/18

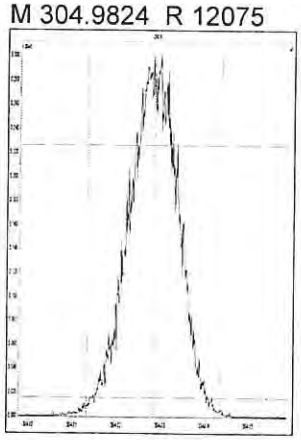
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:39:35 Central Standard Time

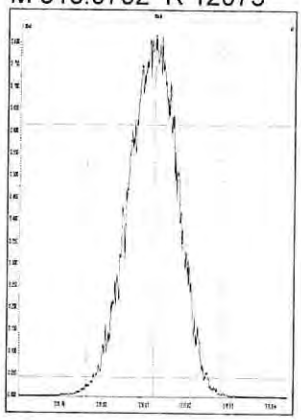
M 292.9824 R 11521



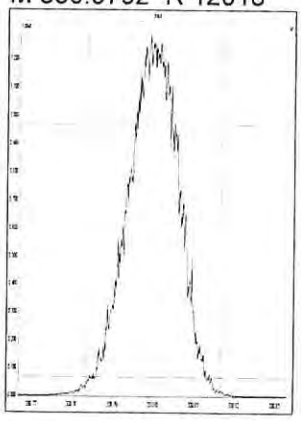
M 304.9824 R 12075



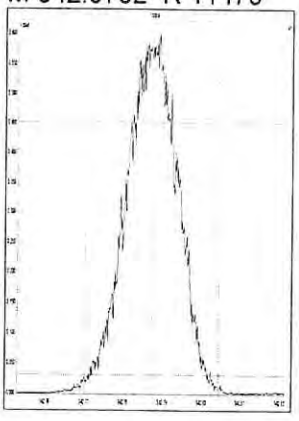
M 318.9792 R 12073



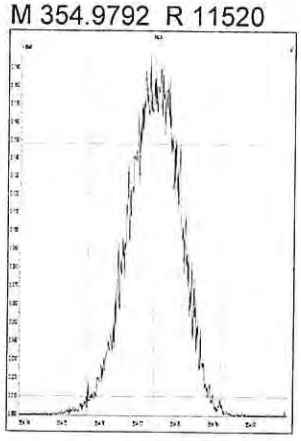
M 330.9792 R 12018



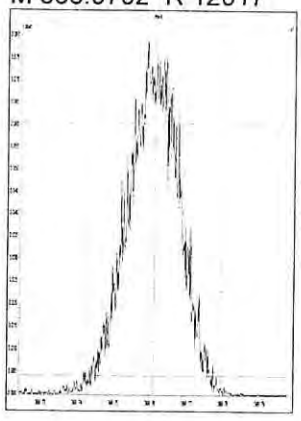
M 342.9792 R 11470



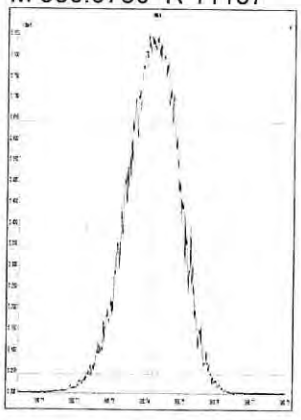
M 354.9792 R 11520



M 366.9792 R 12017



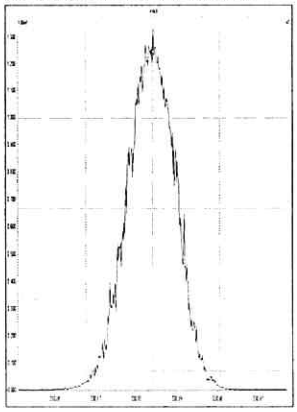
M 380.9760 R 11157



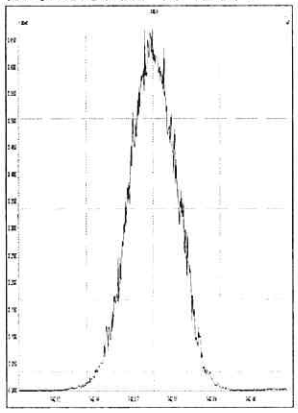
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:40:10 Central Standard Time

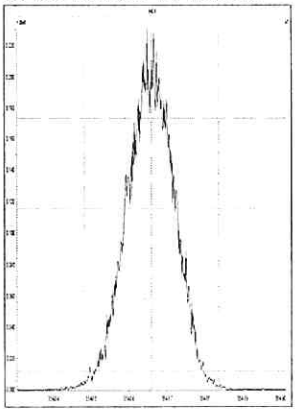
M 330.9792 R 12197



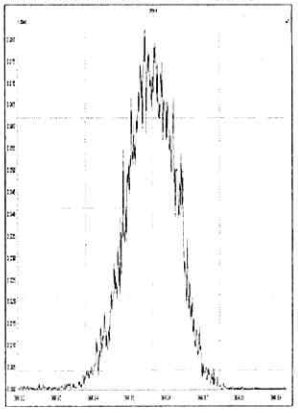
M 342.9792 R 12072



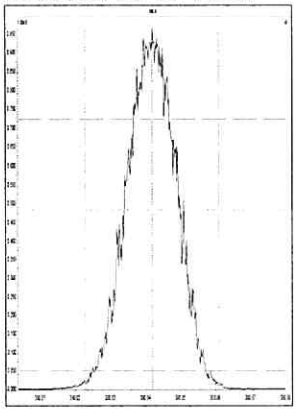
M 354.9792 R 12253



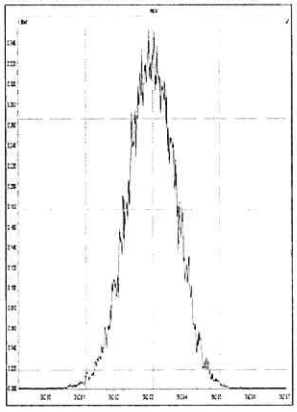
M 366.9792 R 11962



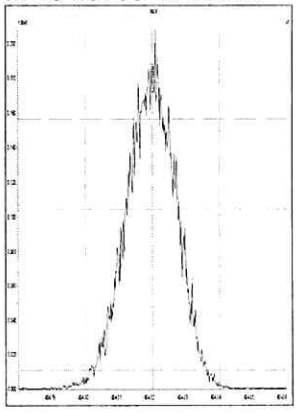
M 380.9760 R 11961



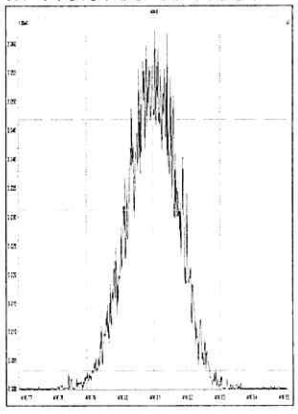
M 392.9760 R 11625



M 404.9760 R 11848



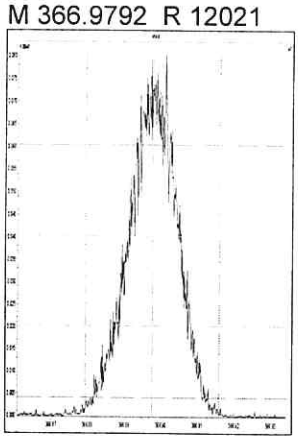
M 416.9760 R 11361



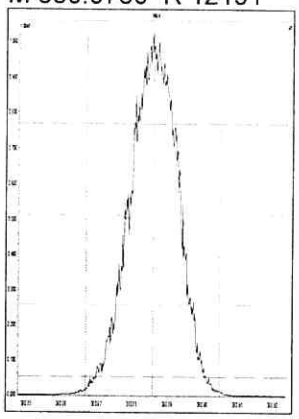
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:10 Central Standard Time

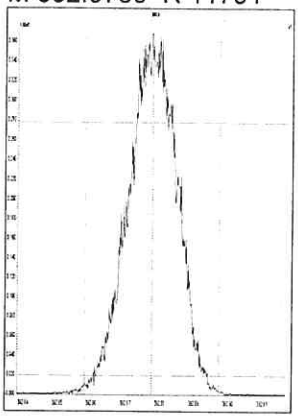
M 366.9792 R 12021



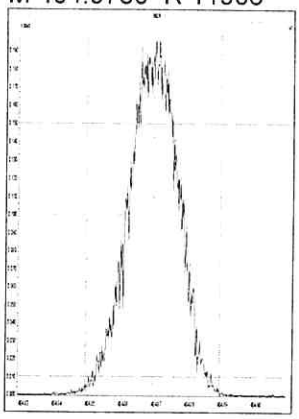
M 380.9760 R 12191



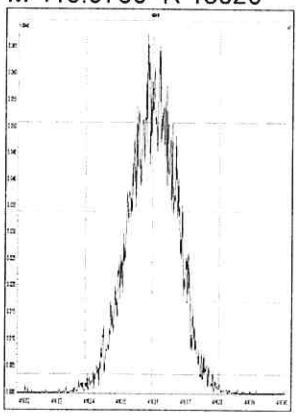
M 392.9760 R 11791



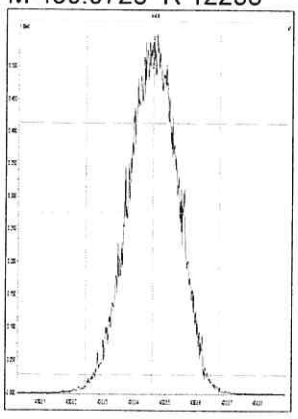
M 404.9760 R 11906



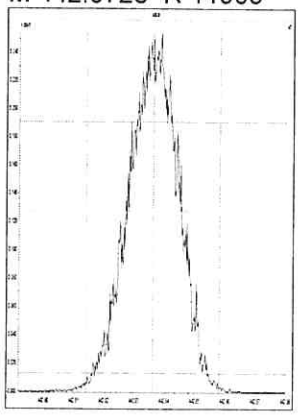
M 416.9760 R 13020



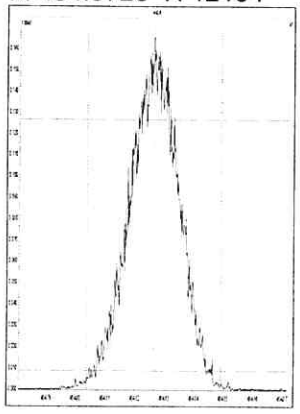
M 430.9728 R 12253



M 442.9728 R 11905



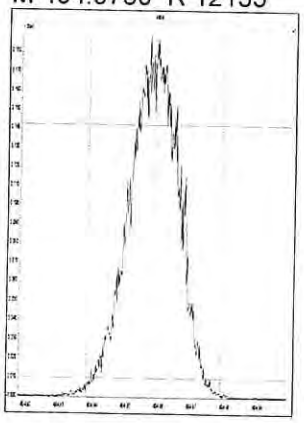
M 454.9728 R 12134



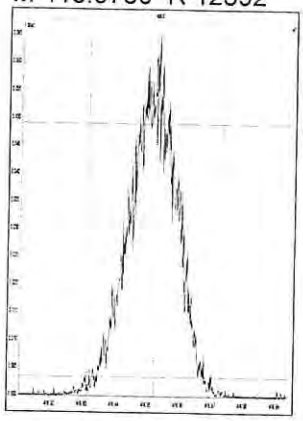
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:41:54 Central Standard Time

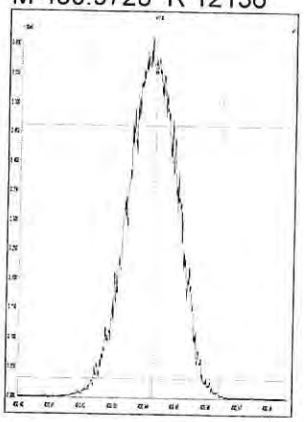
M 404.9760 R 12135



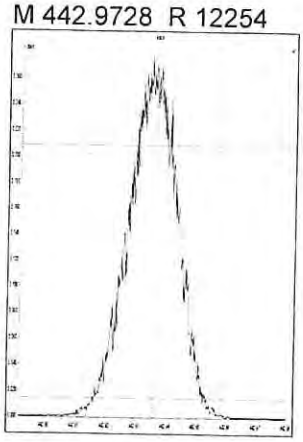
M 416.9760 R 12692



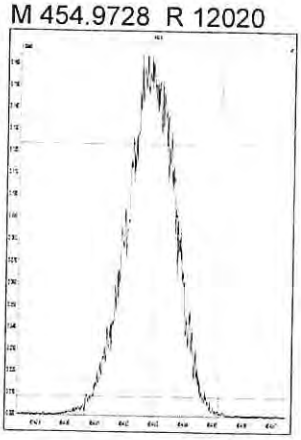
M 430.9728 R 12136



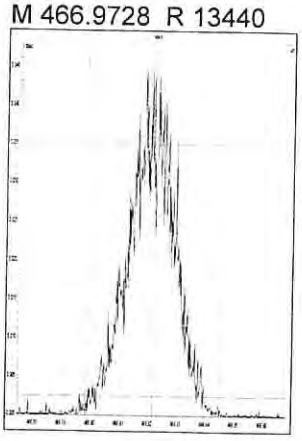
M 442.9728 R 12254



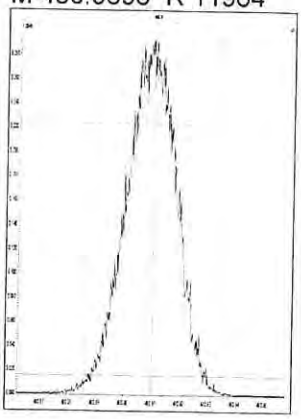
M 454.9728 R 12020



M 466.9728 R 13440



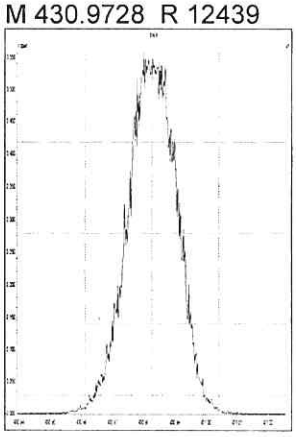
M 480.9696 R 11964



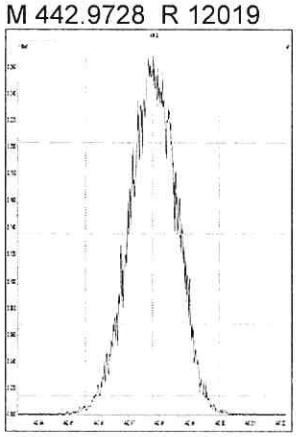
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, December 10, 2018 08:42:56 Central Standard Time

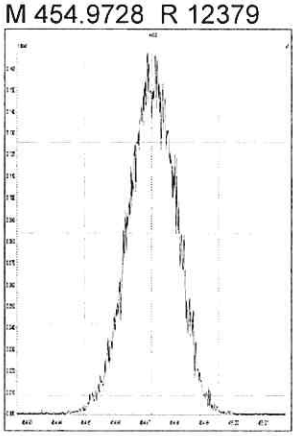
M 430.9728 R 12439



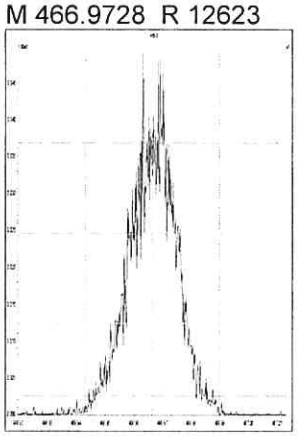
M 442.9728 R 12019



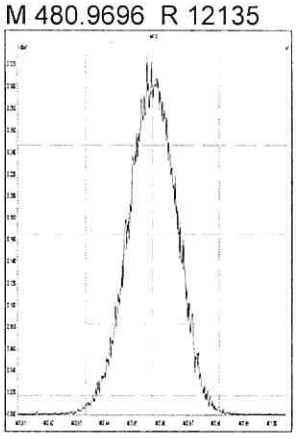
M 454.9728 R 12379



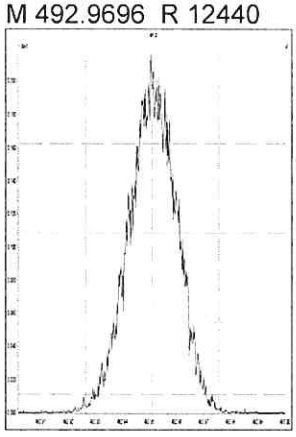
M 466.9728 R 12623



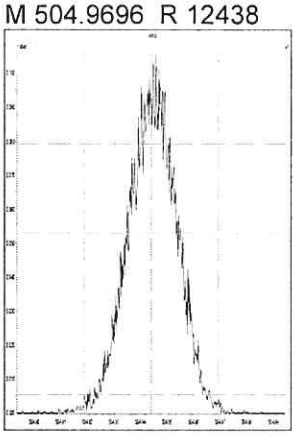
M 480.9696 R 12135



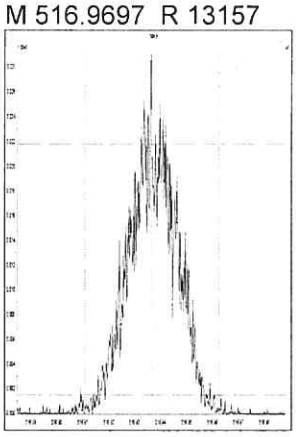
M 492.9696 R 12440



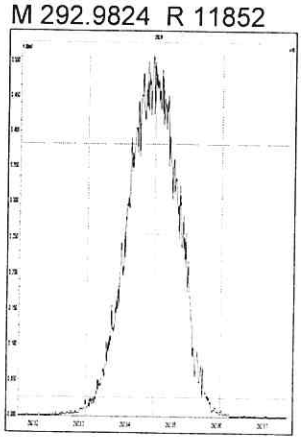
M 504.9696 R 12438



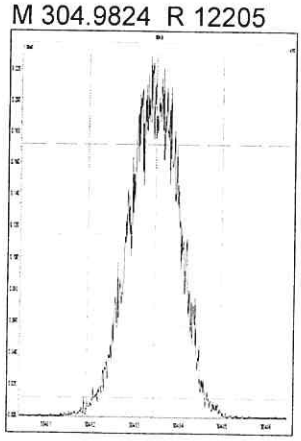
M 516.9697 R 13157



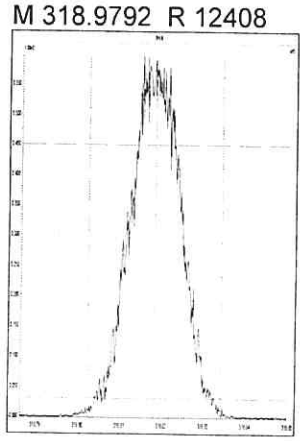
M 292.9824 R 11852



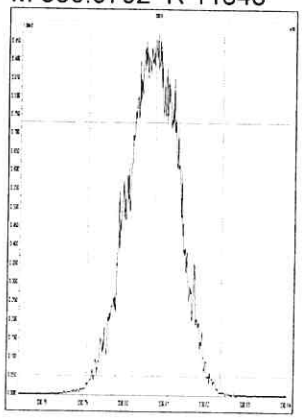
M 304.9824 R 12205



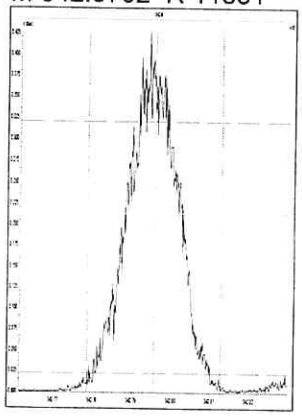
M 318.9792 R 12408



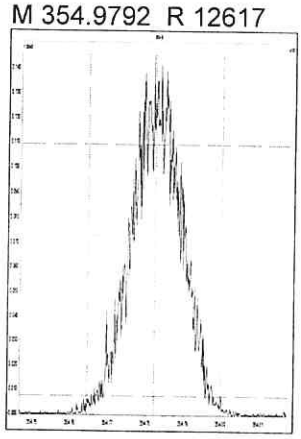
M 330.9792 R 11848



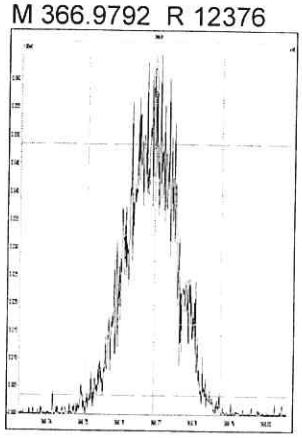
M 342.9792 R 11831



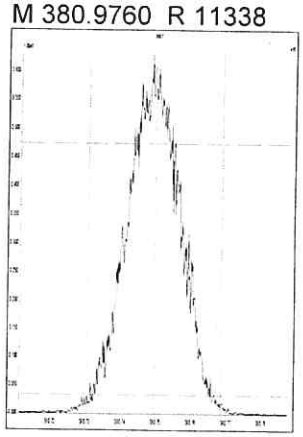
M 354.9792 R 12617



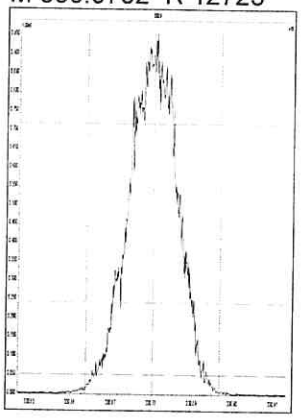
M 366.9792 R 12376



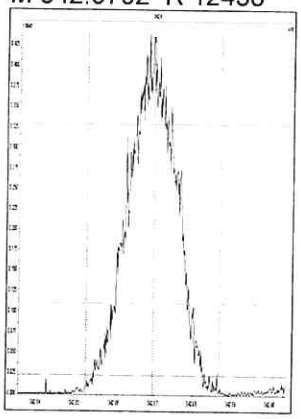
M 380.9760 R 11338



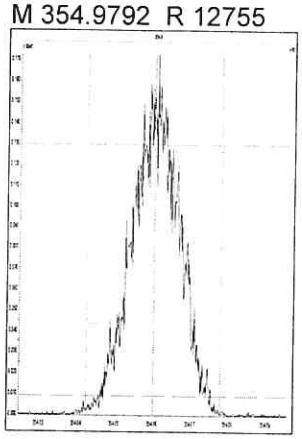
M 330.9792 R 12723



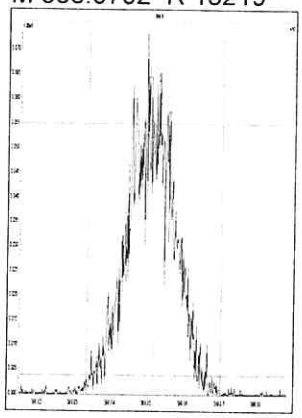
M 342.9792 R 12438



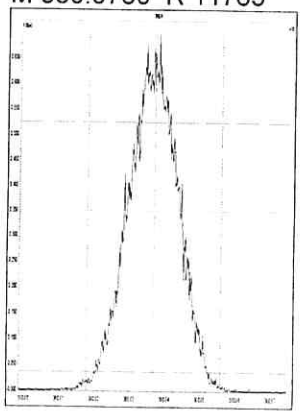
M 354.9792 R 12755



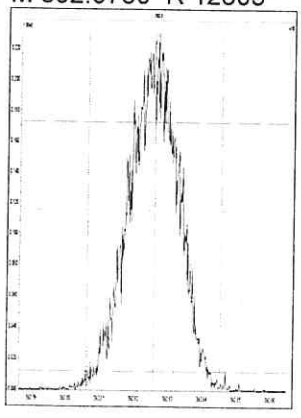
M 366.9792 R 13219



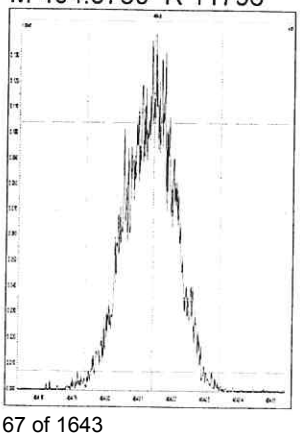
M 380.9760 R 11765



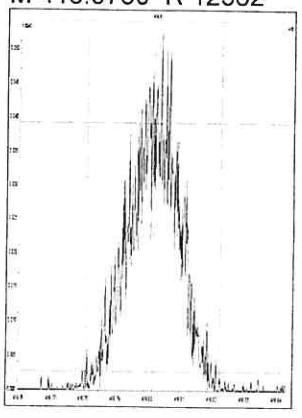
M 392.9760 R 12603



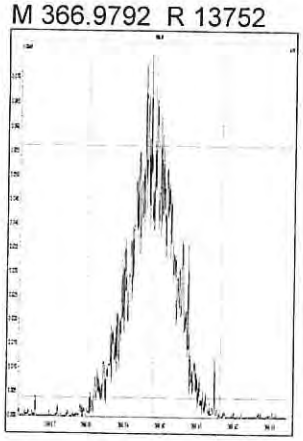
M 404.9760 R 11796



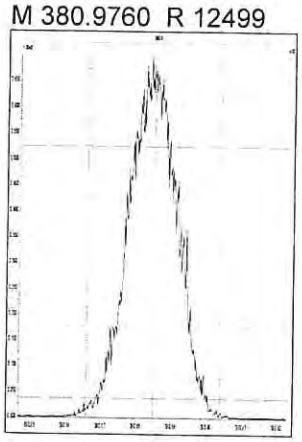
M 416.9760 R 12562



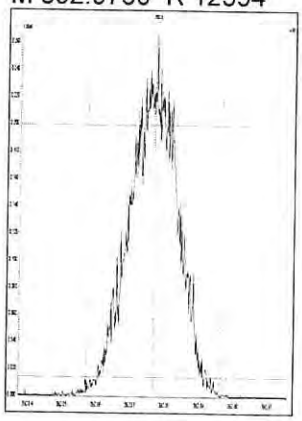
M 366.9792 R 13752



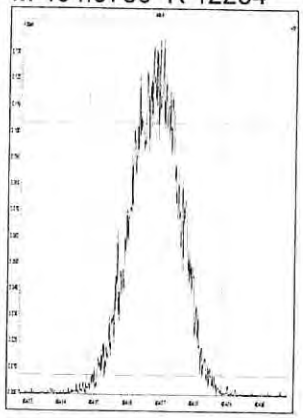
M 380.9760 R 12499



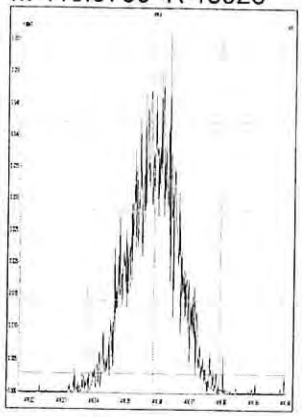
M 392.9760 R 12594



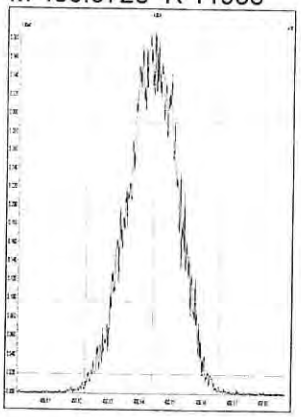
M 404.9760 R 12254



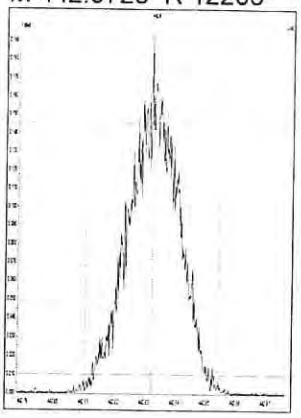
M 416.9760 R 13928



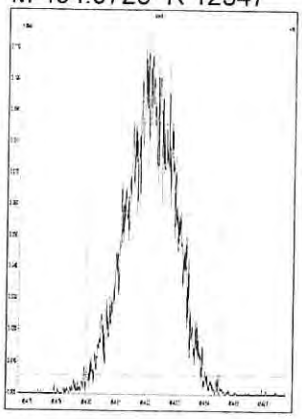
M 430.9728 R 11938



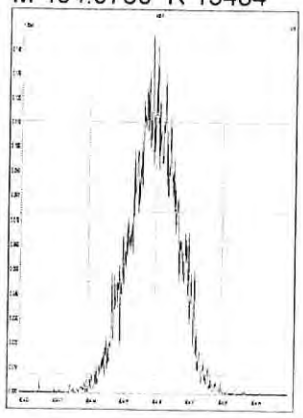
M 442.9728 R 12205



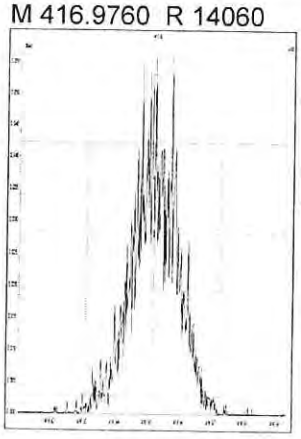
M 454.9728 R 12347



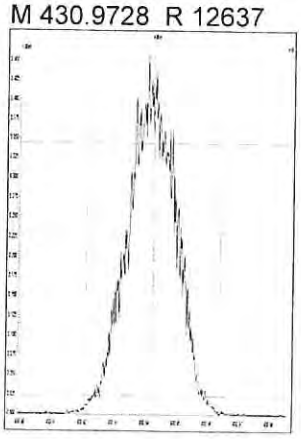
M 404.9760 R 13484



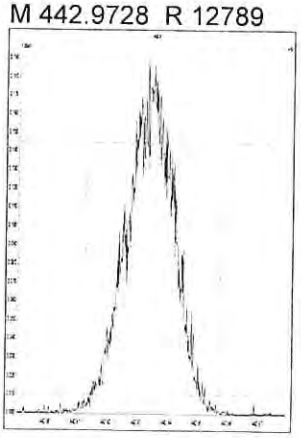
M 416.9760 R 14060



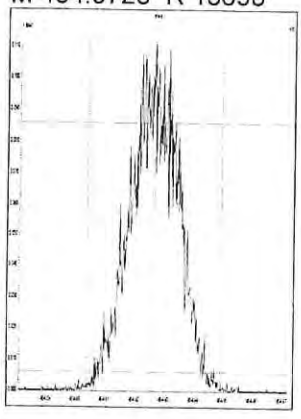
M 430.9728 R 12637



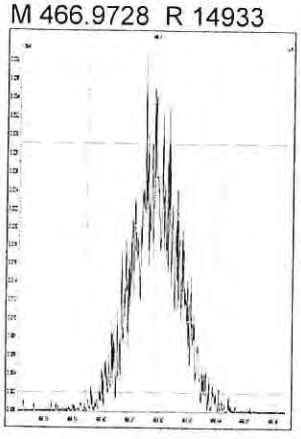
M 442.9728 R 12789



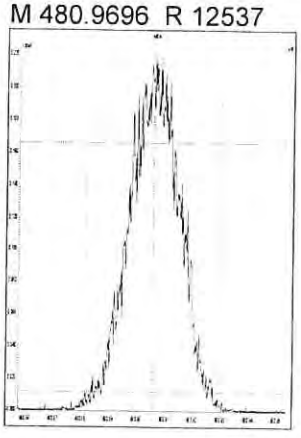
M 454.9728 R 13698



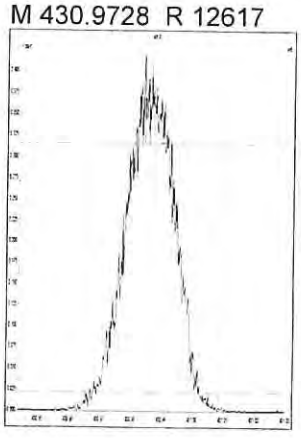
M 466.9728 R 14933



M 480.9696 R 12537

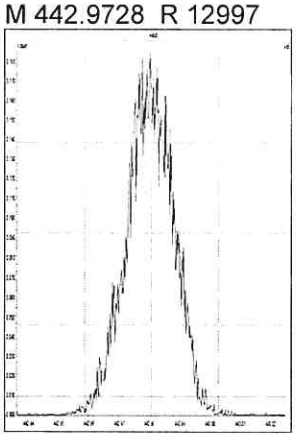


M 430.9728 R 12617

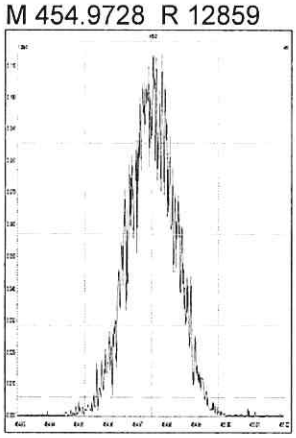


Printed: Monday, December 10, 2018 21:04:43 Central Standard Time

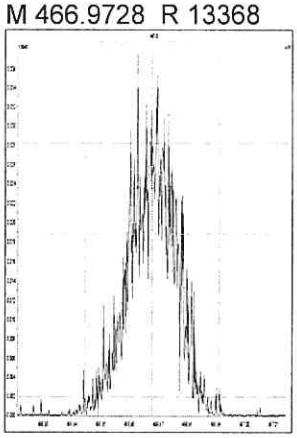
M 442.9728 R 12997



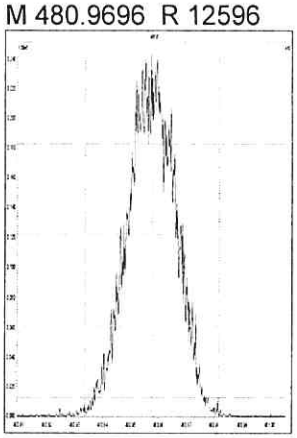
M 454.9728 R 12859



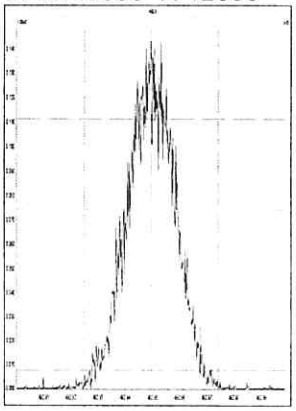
M 466.9728 R 13368



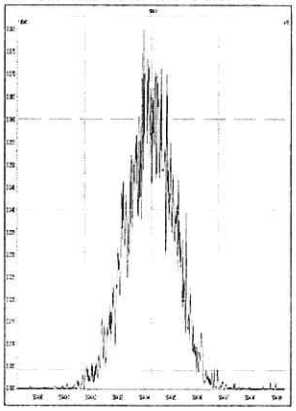
M 480.9696 R 12596



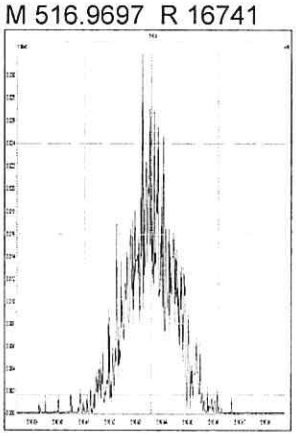
M 492.9696 R 12860



M 504.9696 R 13321



M 516.9697 R 16741



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

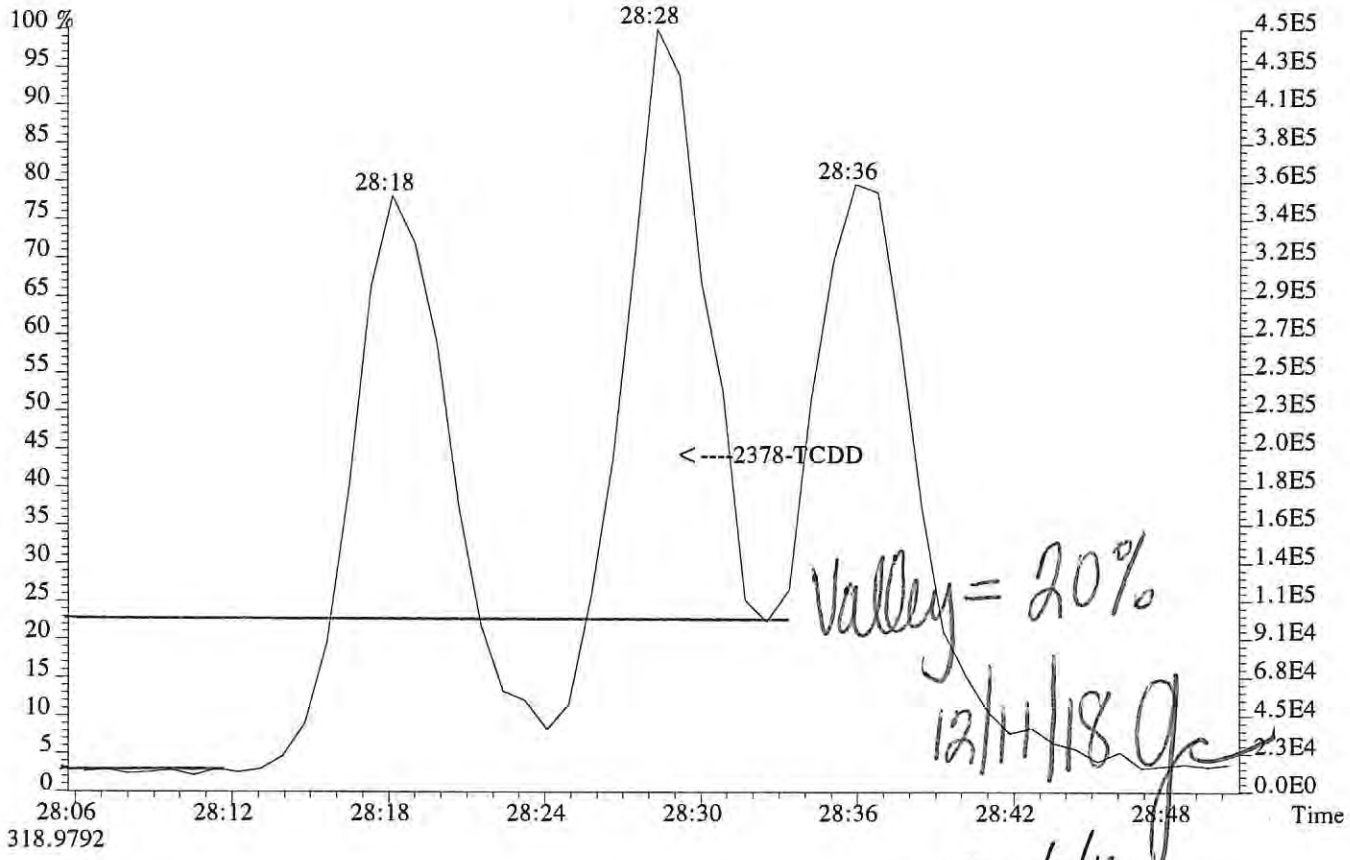
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519320
Date Analyzed: 10-DEC-2018
Time Analyzed: 09:34:53

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:12	29:40
TCDD	25:01	29:30
PeCDF	29:38	33:59
PeCDD	31:12	33:43
HxCDF	34:40	37:14
HxCDD	35:12	36:50
HpCDF	38:32	39:58
HpCDD	38:48	39:30

% Valley 2378-TCDD: 20 %

File:P519320 #1-587 Acq:10-DEC-2018 09:34:53 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:192977
319.8965



318.9792

LM 12/11/18



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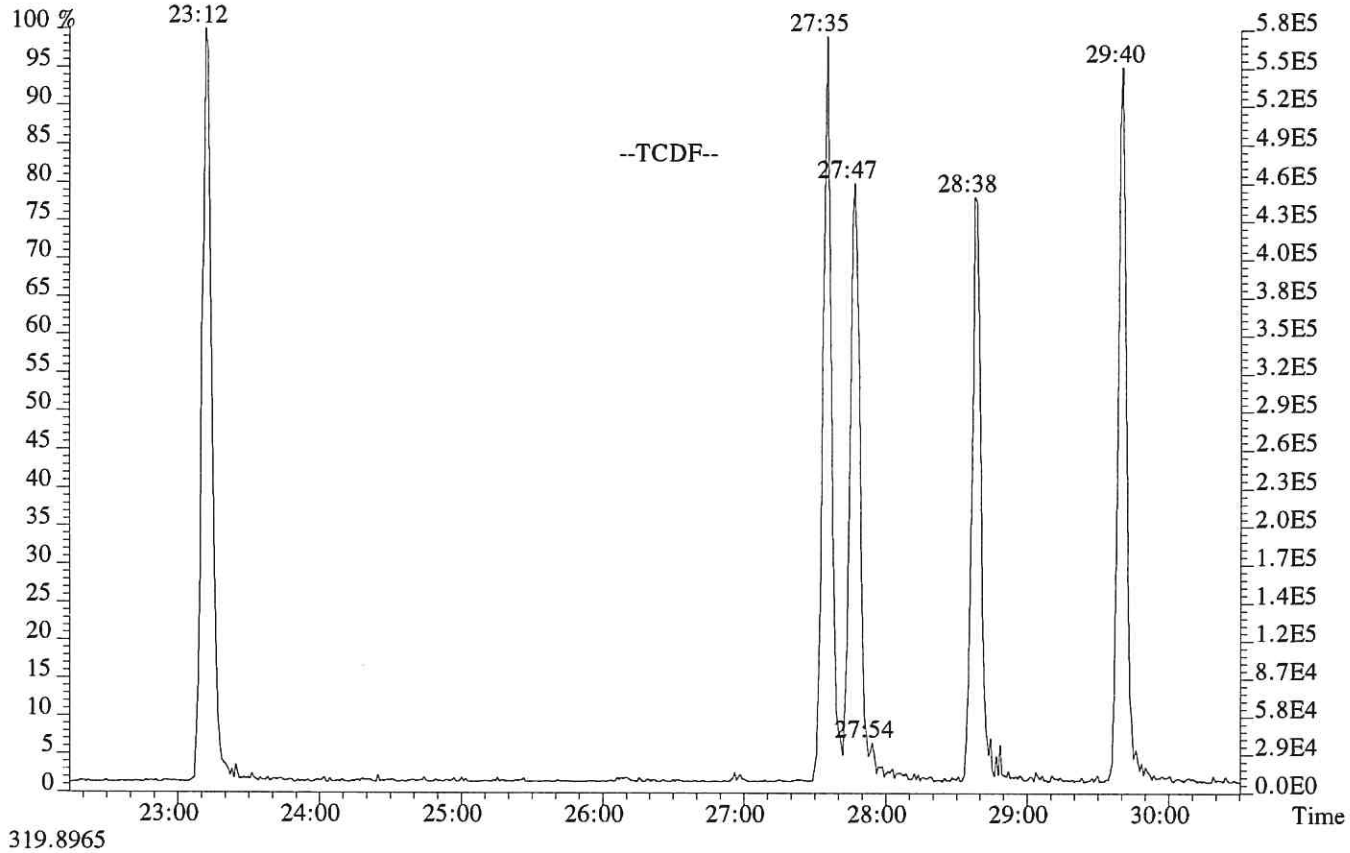
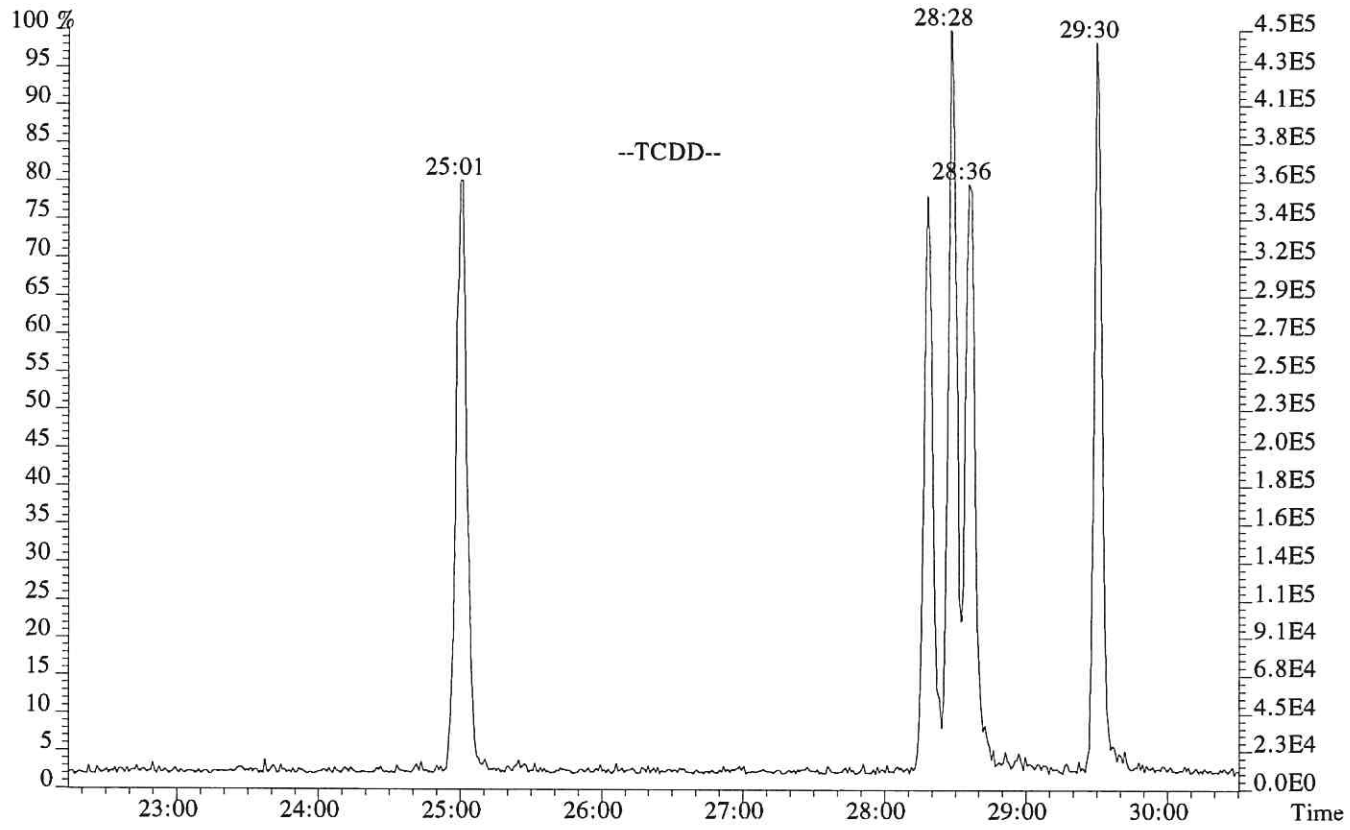
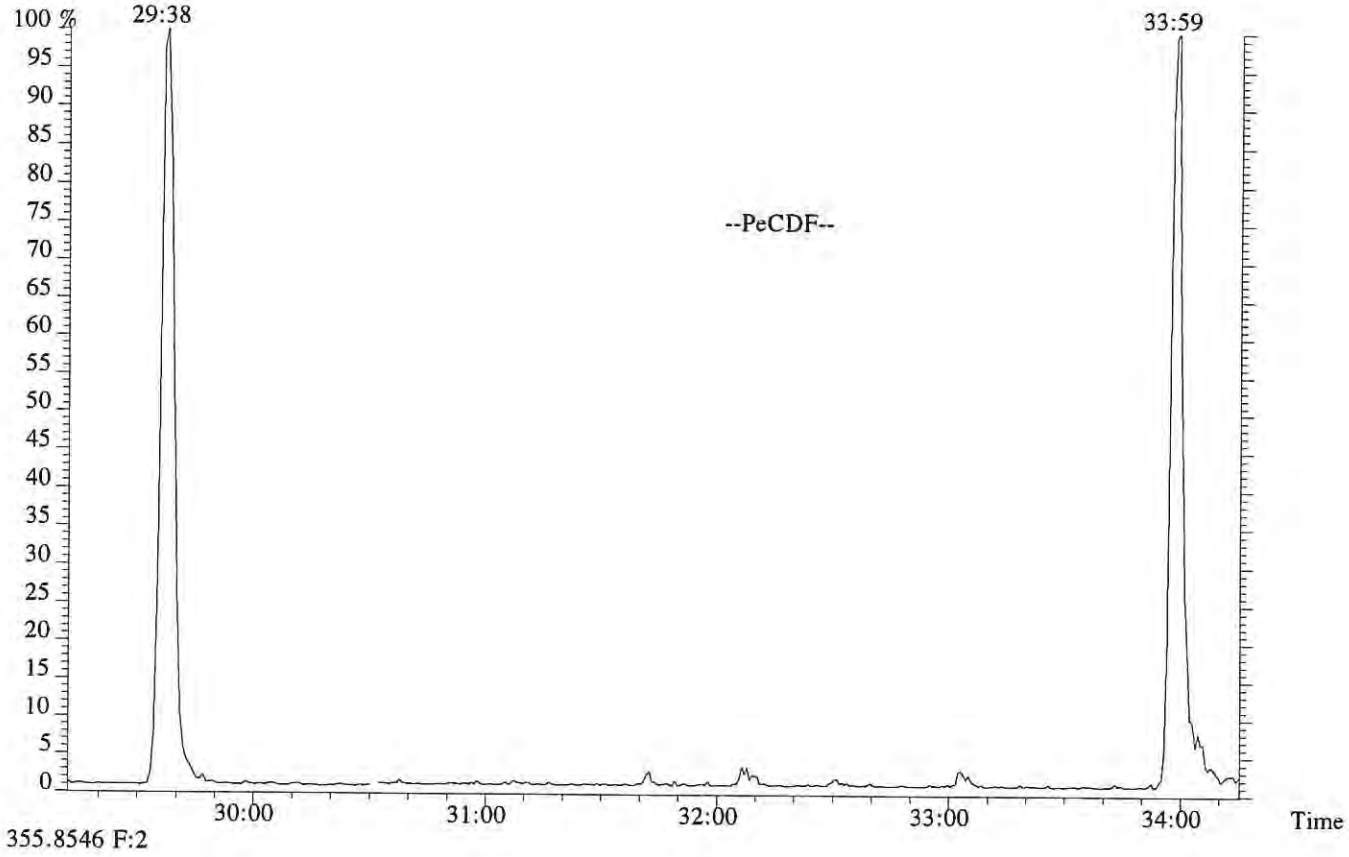
303.9016



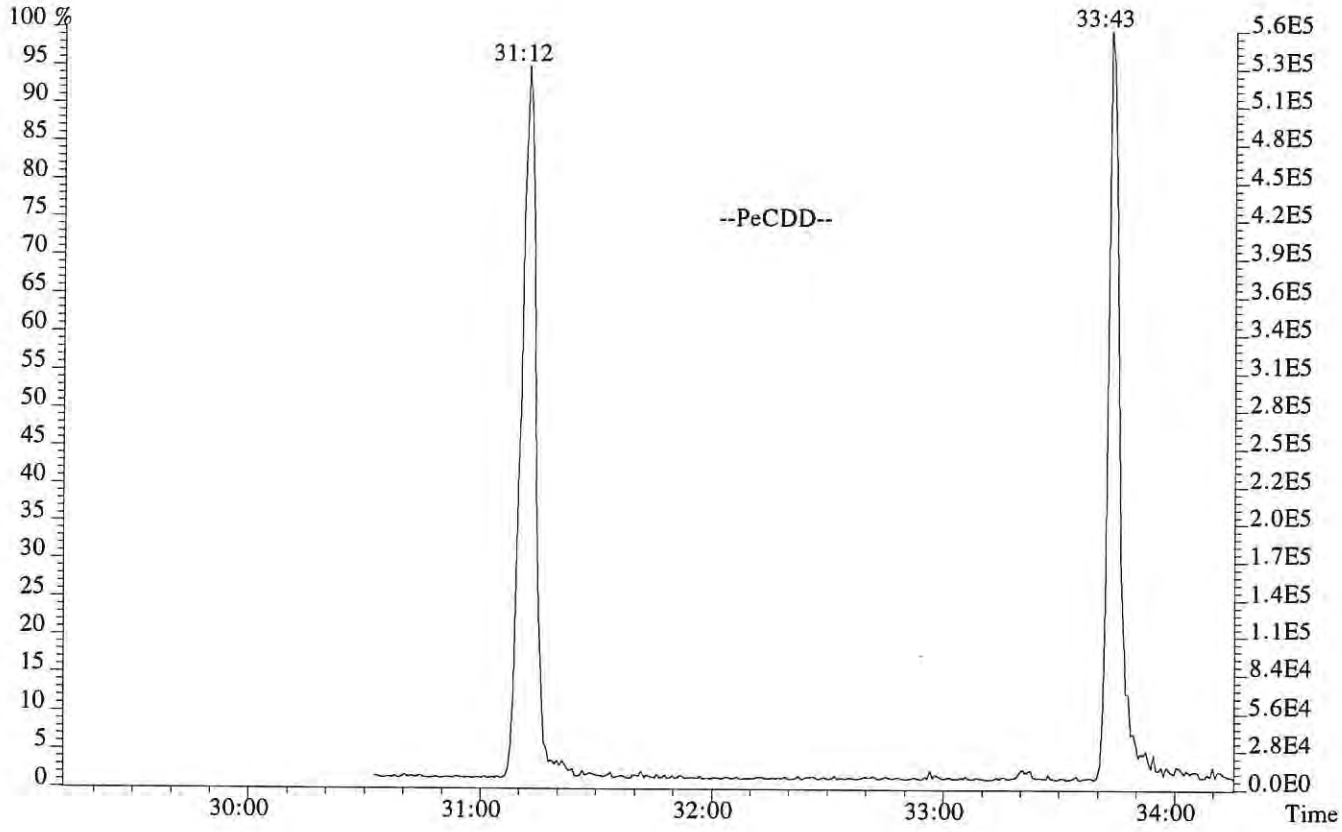
319.8965



File:P519320 #1-587 Acq:10-DEC-2018 09:34:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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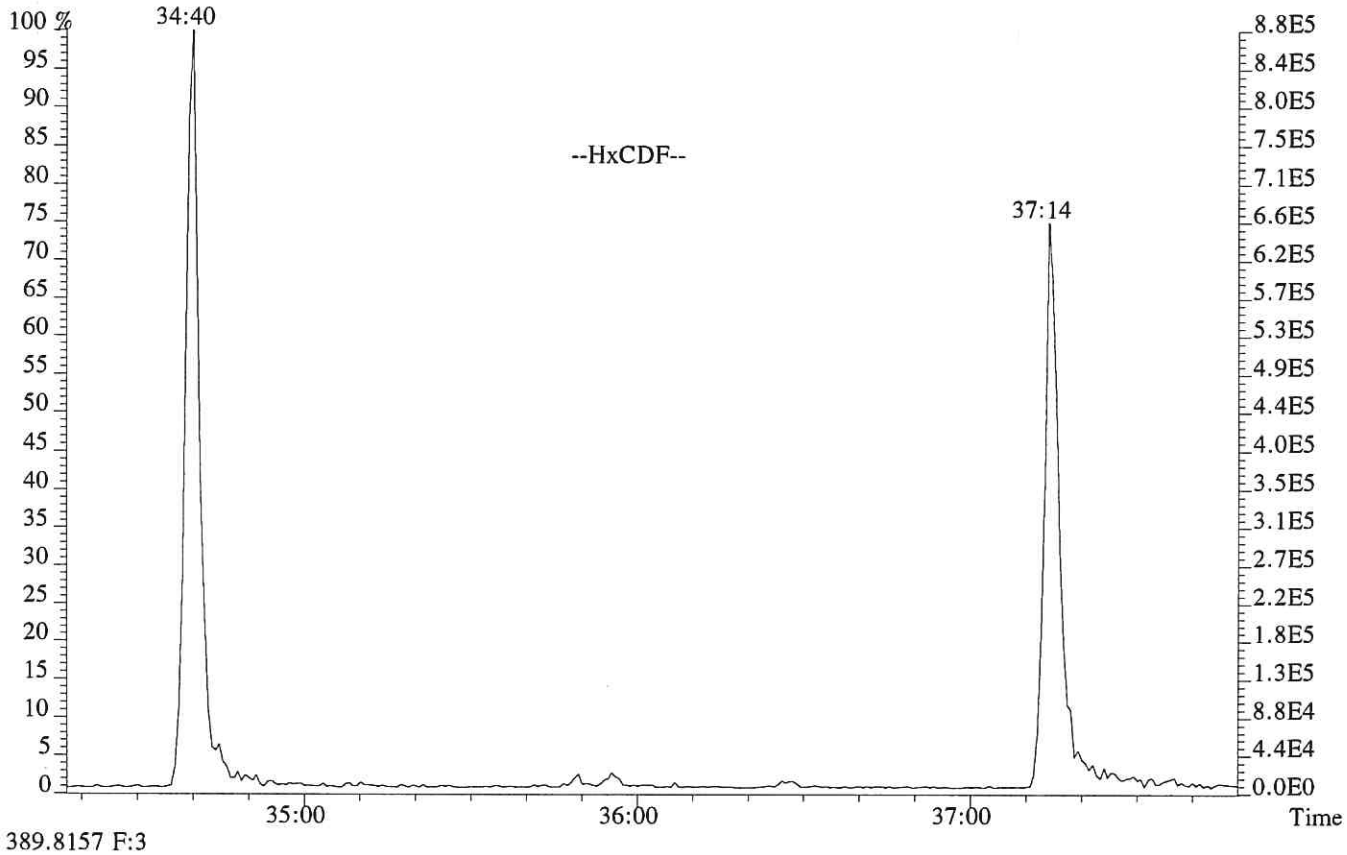
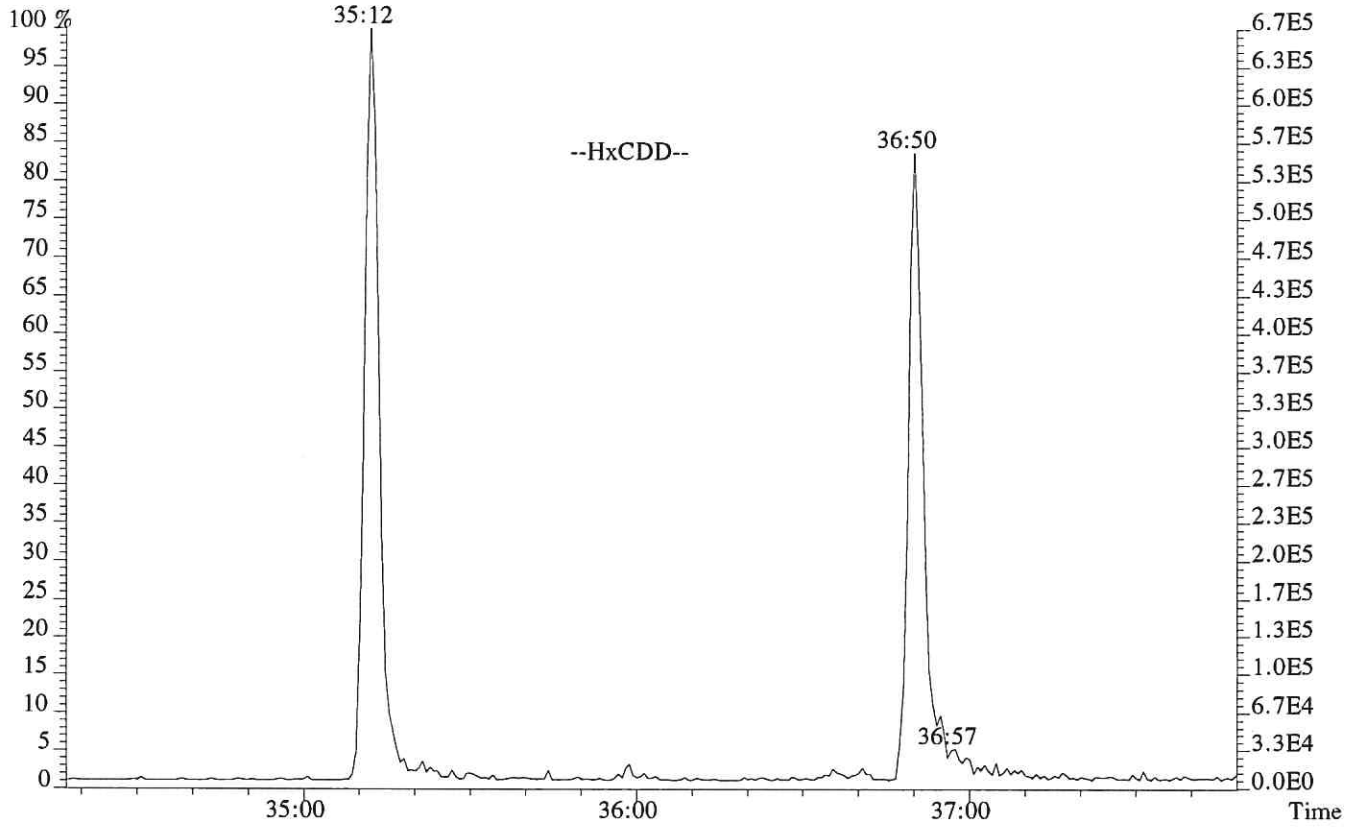
Sample#1 Exp:192977
373.8208 F:3



389.8157 F:3



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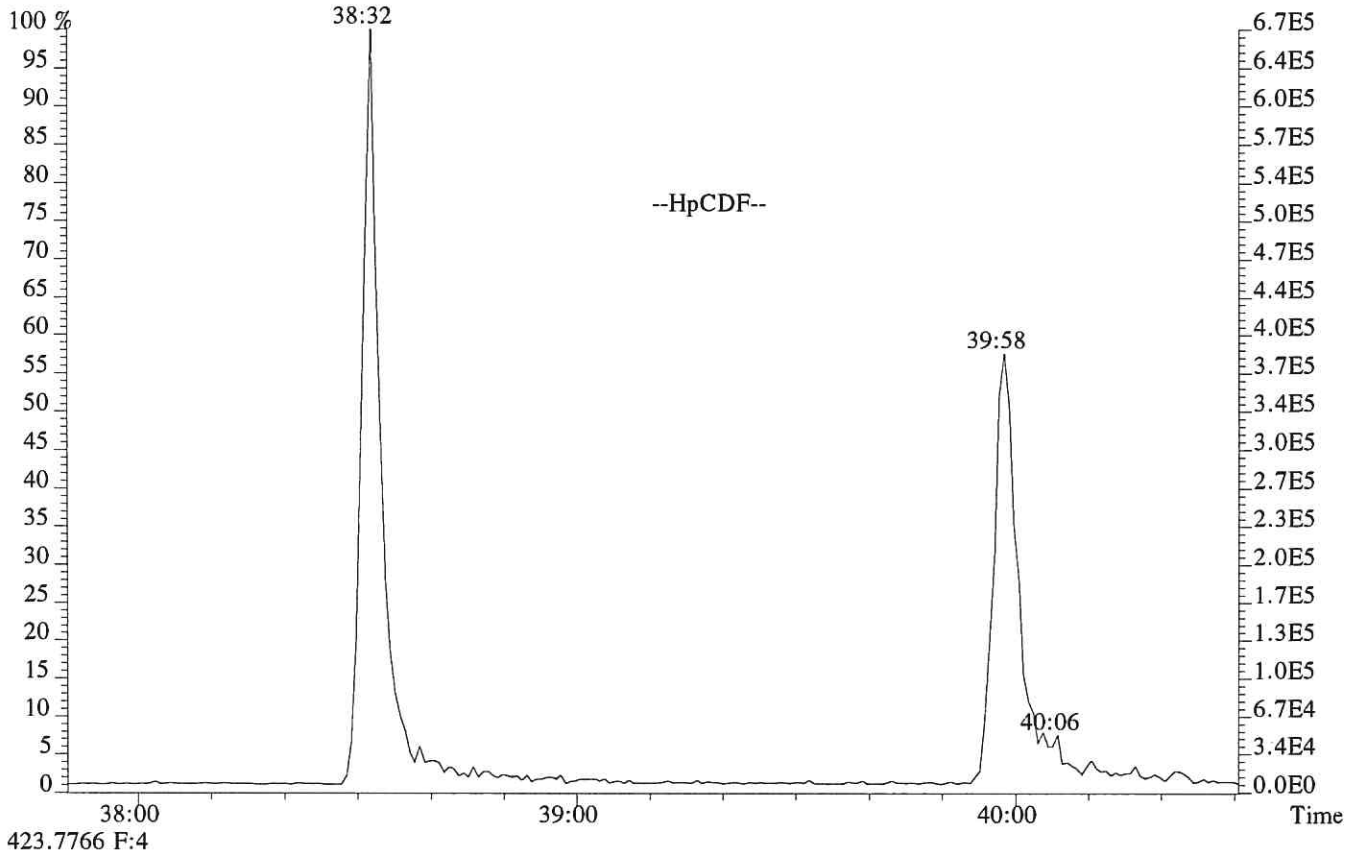
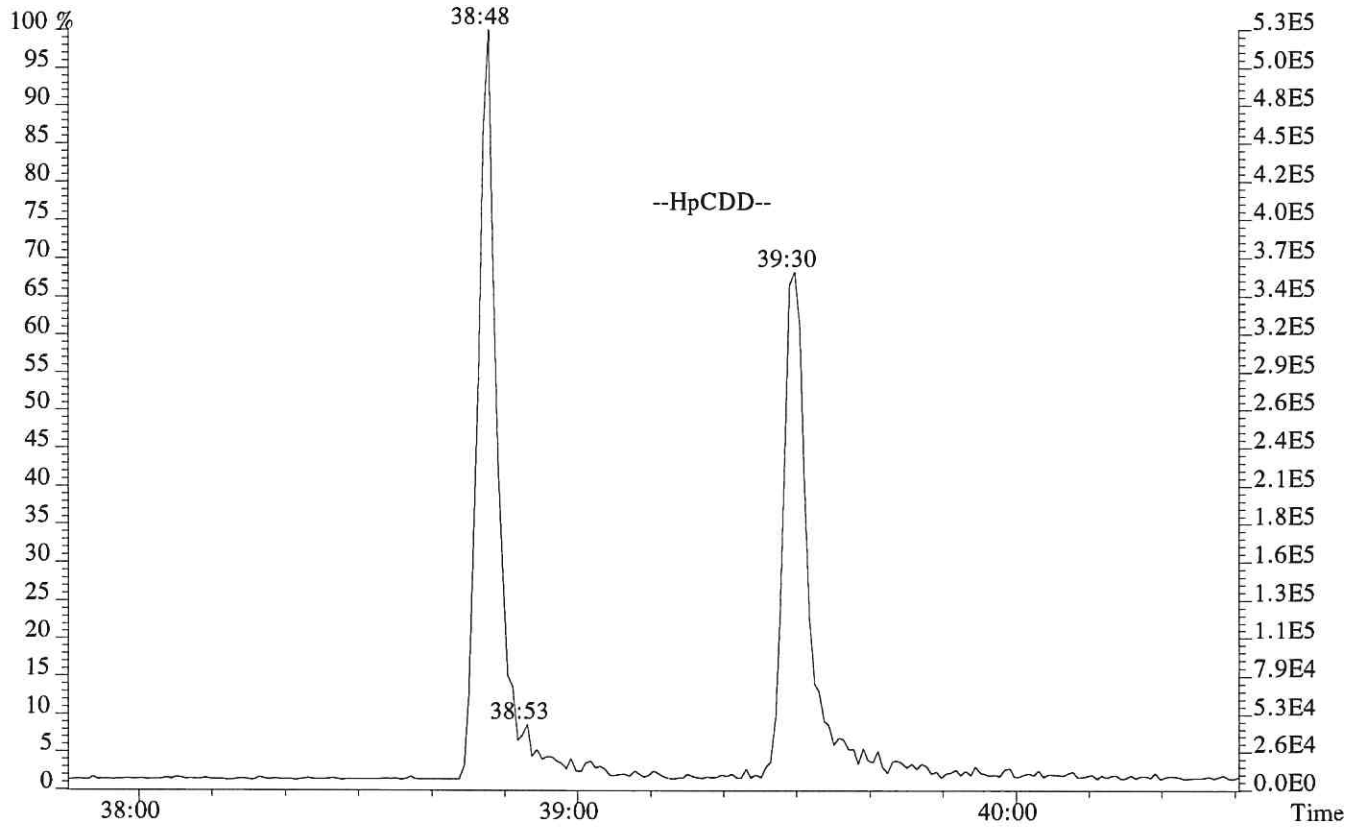
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	9.8	7.8 - 12.9	-1.7
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	7.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	50	43 - 58	-0.2
OCDD	M+2/M+4	0.90	0.76-1.02	99	79 - 126	-0.7
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.6	8.4 - 12.0	-3.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	-0.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	45 - 56	0.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	-0.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	50	44 - 57	1.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	50	45 - 55	0.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.4
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519319 Analysis Date: 10-DEC-18 Time: 08:43:37

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-2.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	107	62 - 160	6.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	86	85 - 117	-14.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 118	0.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	94	72 - 138	-5.8
13C-OCDD	M+2/M+4	0.90	0.76-1.02	216	96 - 415	8.2
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	93	71 - 140	-7.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	103	76 - 130	2.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	106	77 - 130	6.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	83	76 - 131	-17.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-4.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	85	74 - 135	-15.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	91	73 - 137	-9.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	95	78 - 129	-4.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	89	77 - 129	-11.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-4.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:48	5.306e+03	7.058e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:08	4.475e+04	2.952e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.329e+04	2.830e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.408e+04	2.857e+04	1.19	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	4.159e+04	3.445e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.540e+04	2.999e+04	1.18	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:12	2.969e+04	2.408e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:31	3.257e+04	3.146e+04	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	2.356e+04	2.347e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:35	3.990e+04	4.514e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:37	4.077e+03	5.309e+03	0.77	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.919e+04	1.885e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.353e+04	1.866e+04	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	2.847e+04	2.253e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.836e+04	2.256e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:28	2.187e+04	2.028e+04	1.08	yes	no	1.025
17	Unk	OCDD	42:23	3.386e+04	3.752e+04	0.90	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:46	6.030e+04	7.611e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:07	9.068e+04	5.677e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	9.205e+04	5.837e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.514e+04	6.920e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.665e+04	8.929e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	3.964e+04	7.706e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	3.177e+04	6.190e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:30	2.921e+04	6.472e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:56	2.258e+04	5.193e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:35	3.909e+04	4.892e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	6.261e+04	3.883e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	4.579e+04	3.531e+04	1.30	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	5.463e+04	4.289e+04	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	4.307e+04	3.937e+04	1.09	yes	no	0.858
32	IS	13C-OCDD	42:23	6.087e+04	6.772e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	4.342e+04	5.398e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	5.713e+04	4.493e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:37	9.407e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519319 Samp: 1 Inj: 1 Acquired: 10-DEC-18 08:43:37
Processed: 11-DEC-18 15:18:31 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.83e+05	6.04e+02	1.5e+03	1.18e+06	2.18e+03	5.4e+02
2	1,2,3,7,8-PeCDF	7.71e+06	4.68e+02	1.6e+04	5.02e+06	3.74e+03	1.3e+03
3	2,3,4,7,8-PeCDF	7.80e+06	4.68e+02	1.7e+04	5.22e+06	3.74e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	6.80e+06	5.16e+02	1.3e+04	5.62e+06	6.20e+02	9.1e+03
5	1,2,3,6,7,8-HxCDF	7.29e+06	5.16e+02	1.4e+04	6.03e+06	6.20e+02	9.7e+03
6	2,3,4,6,7,8-HxCDF	6.83e+06	5.16e+02	1.3e+04	5.61e+06	6.20e+02	9.0e+03
7	1,2,3,7,8,9-HxCDF	5.01e+06	5.16e+02	9.7e+03	4.06e+06	6.20e+02	6.6e+03
8	1,2,3,4,6,7,8-HpCDF	5.95e+06	4.45e+03	1.3e+03	5.72e+06	4.35e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.44e+06	4.45e+03	7.7e+02	3.46e+06	4.35e+03	8.0e+02
10	OCDF	4.72e+06	2.92e+02	1.6e+04	5.36e+06	7.40e+02	7.2e+03
11	2,3,7,8-TCDD	7.27e+05	1.90e+03	3.8e+02	9.05e+05	9.20e+02	9.8e+02
12	1,2,3,7,8-PeCDD	5.13e+06	6.08e+02	8.4e+03	3.28e+06	3.20e+02	1.0e+04
13	1,2,3,4,7,8-HxCDD	4.96e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
14	1,2,3,6,7,8-HxCDD	5.01e+06	4.60e+02	1.1e+04	3.94e+06	9.92e+02	4.0e+03
15	1,2,3,7,8,9-HxCDD	4.61e+06	4.60e+02	1.0e+04	3.69e+06	9.92e+02	3.7e+03
16	1,2,3,4,6,7,8-HpCDD	3.48e+06	3.68e+02	9.5e+03	3.36e+06	3.52e+02	9.5e+03
17	OCDD	3.92e+06	2.24e+02	1.7e+04	4.35e+06	1.48e+02	2.9e+04
18	13C-2,3,7,8-TCDF	1.01e+07	8.30e+03	1.2e+03	1.28e+07	5.92e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.51e+07	8.24e+02	1.8e+04	9.47e+06	4.32e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	1.68e+07	8.24e+02	2.0e+04	1.07e+07	4.32e+02	2.5e+04
21	13C-1,2,3,4,7,8-HxCDF	6.89e+06	3.28e+02	2.1e+04	1.35e+07	7.16e+02	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	8.06e+06	3.28e+02	2.5e+04	1.54e+07	7.16e+02	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	7.55e+06	3.28e+02	2.3e+04	1.45e+07	7.16e+02	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	5.37e+06	3.28e+02	1.6e+04	1.04e+07	7.16e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.27e+06	6.60e+03	8.0e+02	1.18e+07	1.72e+04	6.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.32e+06	6.60e+03	5.0e+02	7.49e+06	1.72e+04	4.4e+02
27	13C-2,3,7,8-TCDD	6.93e+06	8.50e+03	8.1e+02	8.64e+06	3.41e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.07e+07	1.41e+03	7.6e+03	6.64e+06	1.12e+03	5.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.59e+06	1.84e+03	5.2e+03	7.34e+06	5.72e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	9.49e+06	1.84e+03	5.2e+03	7.55e+06	5.72e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.80e+06	4.44e+02	1.5e+04	6.32e+06	6.20e+02	1.0e+04
32	13C-OCDD	6.94e+06	4.08e+02	1.7e+04	7.67e+06	2.36e+02	3.2e+04
33	13C-1,2,3,4-TCDD	7.91e+06	8.50e+03	9.3e+02	9.81e+06	3.41e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	8.95e+06	1.84e+03	4.9e+03	7.11e+06	5.72e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.64e+06	1.46e+03	1.1e+03			

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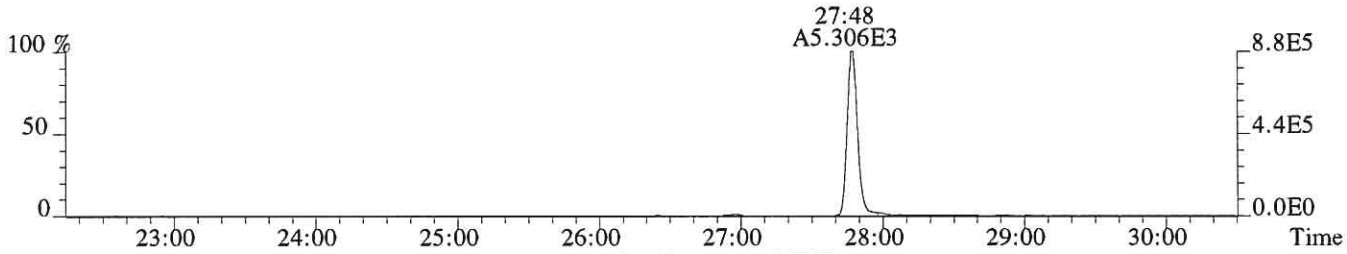
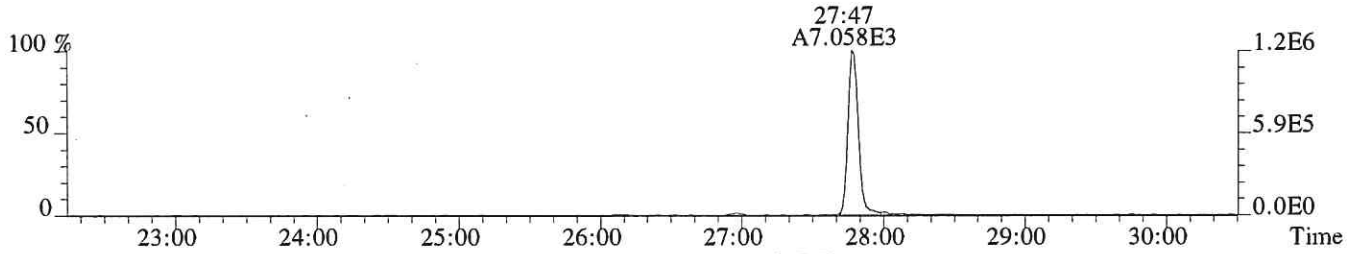
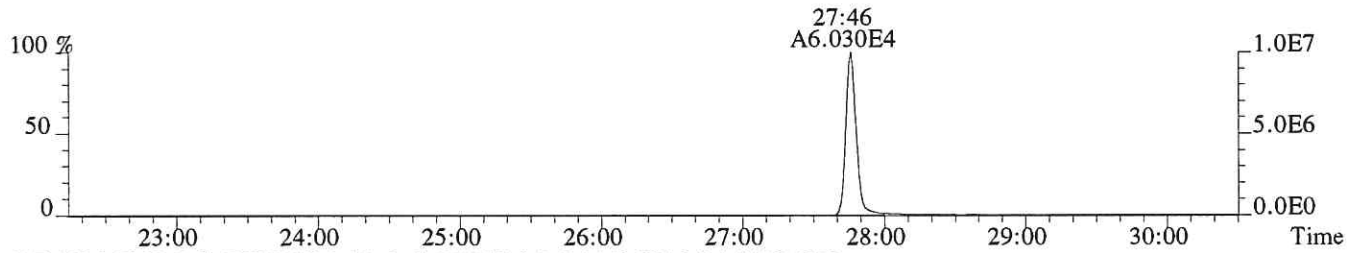
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



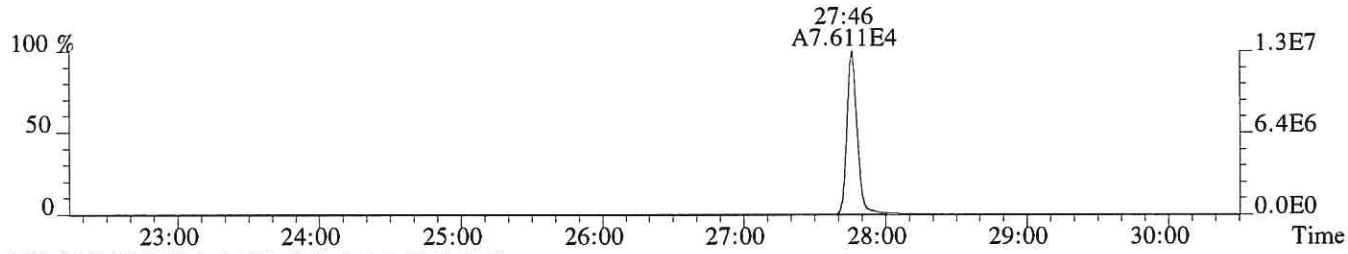
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



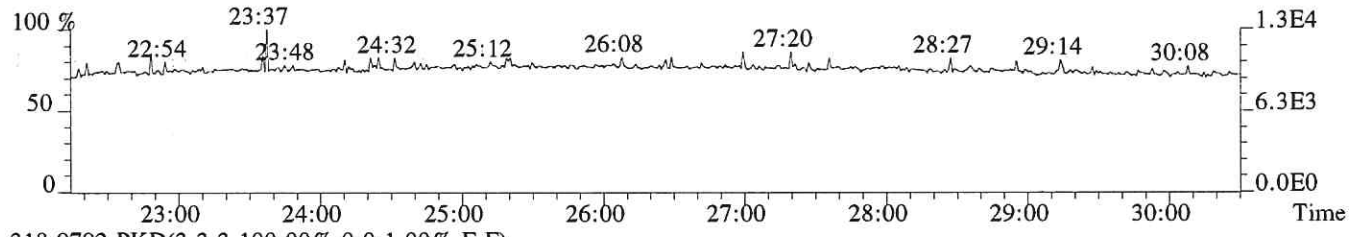
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8304.0,1.00%,F,T)



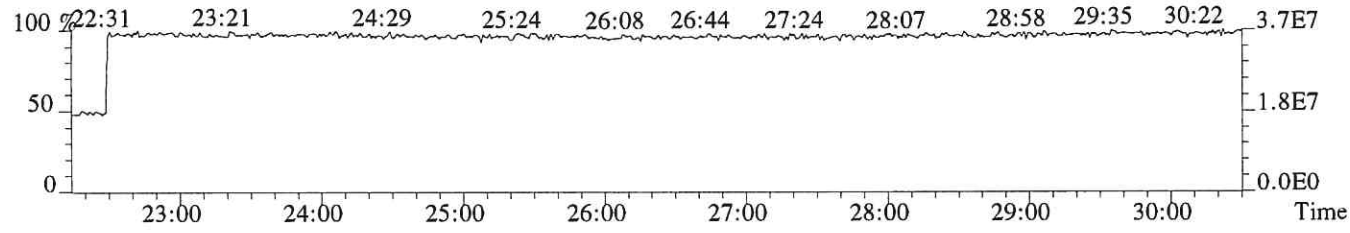
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5916.0,1.00%,F,T)



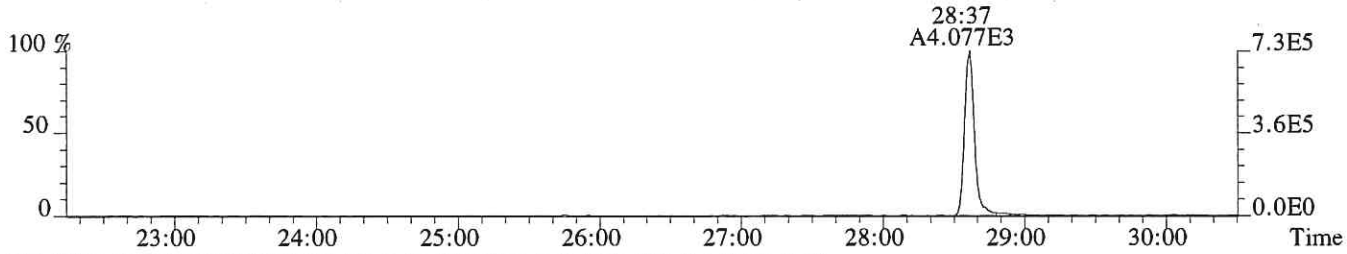
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



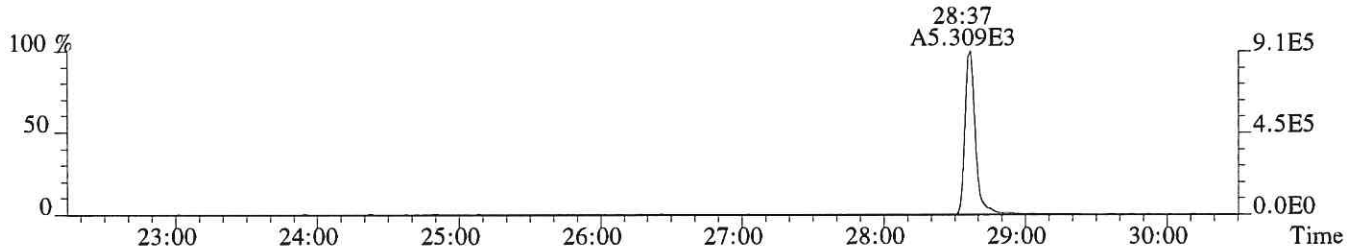
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



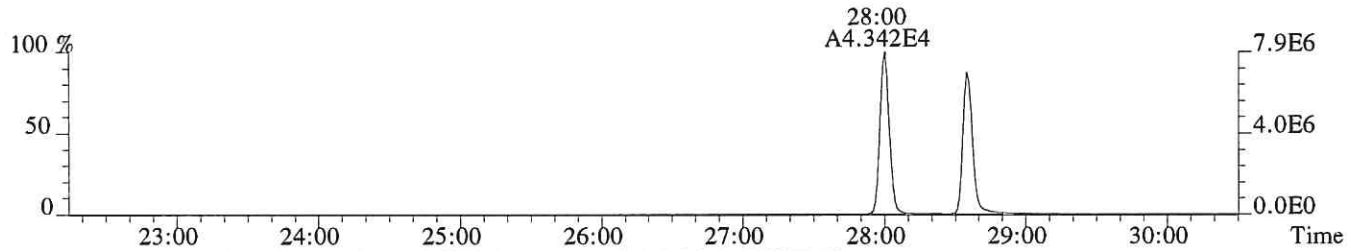
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



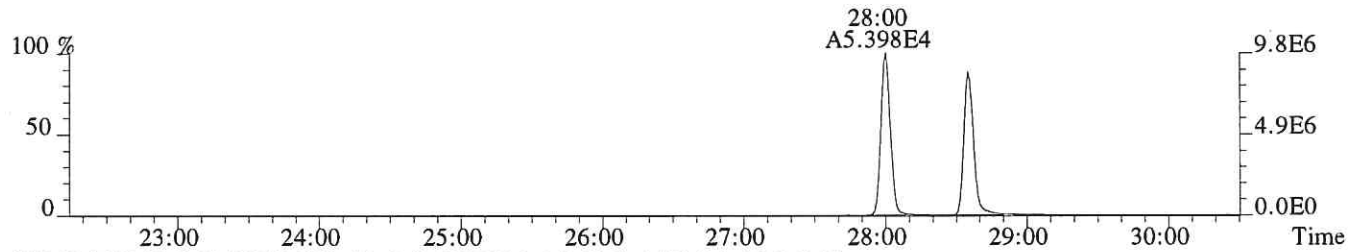
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



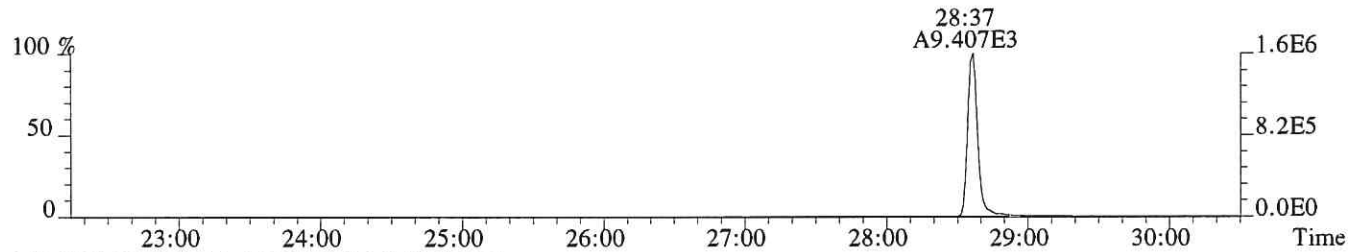
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8504.0,1.00%,F,T)



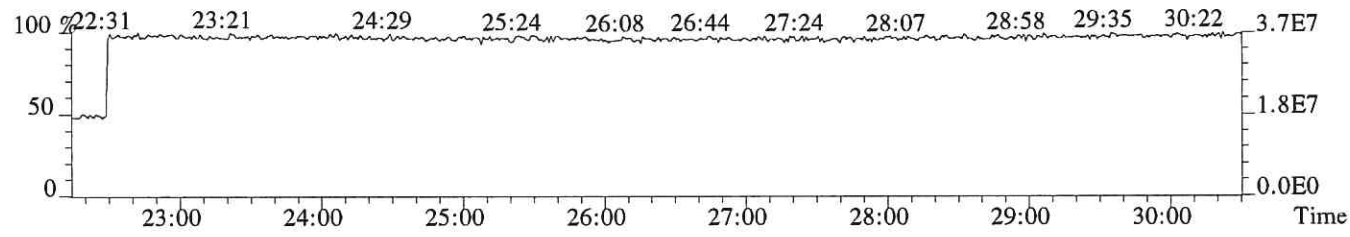
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



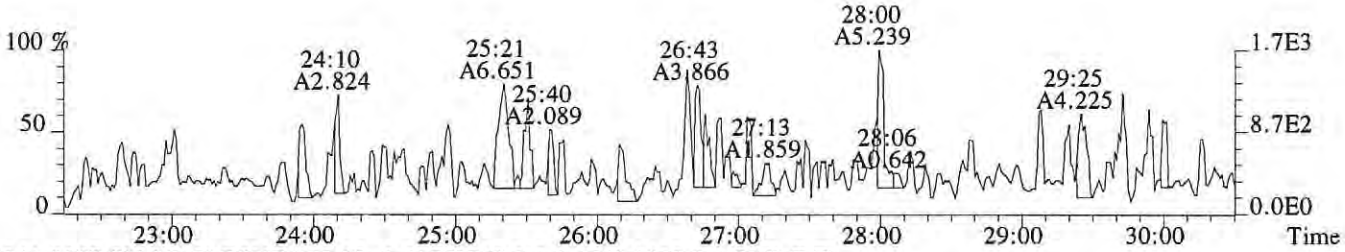
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



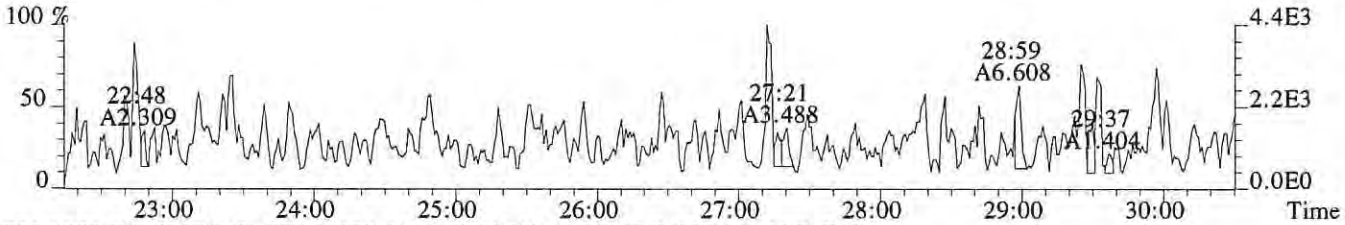
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



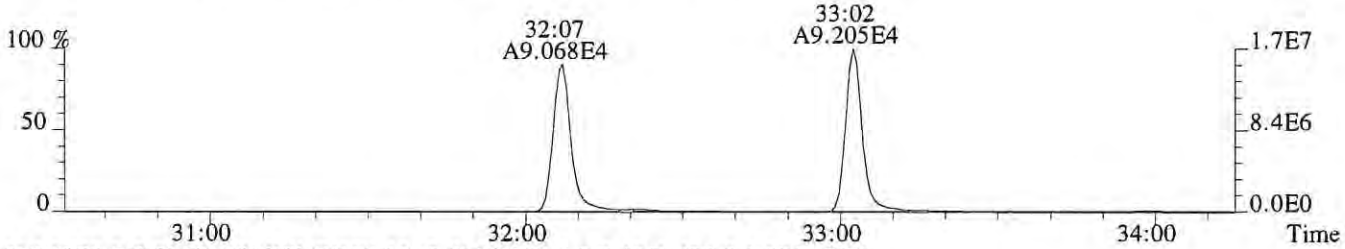
File:P519319 #1-587 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



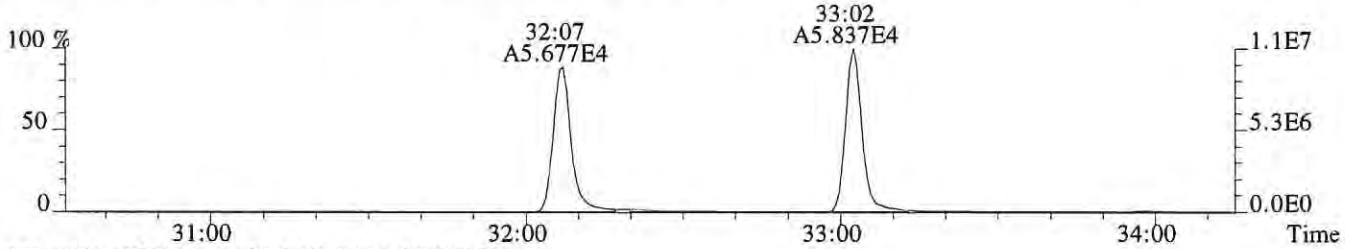
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



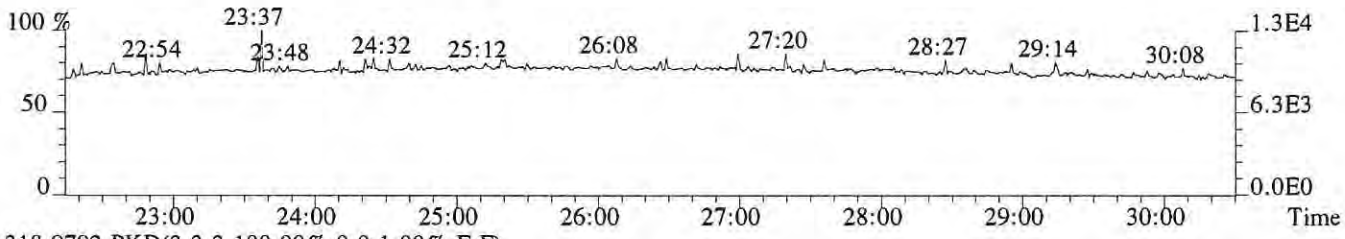
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



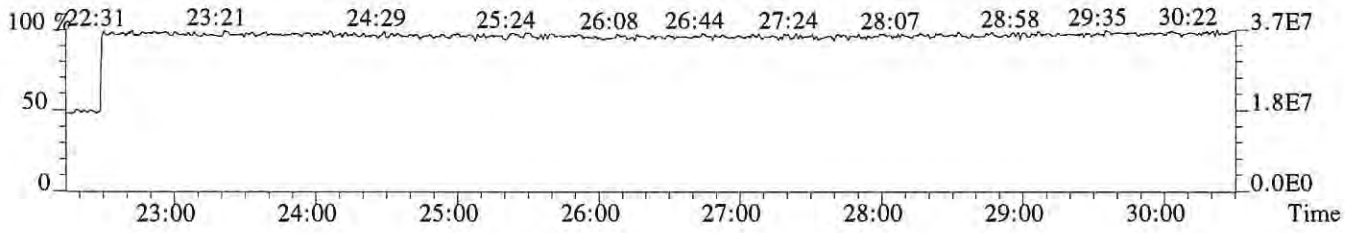
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



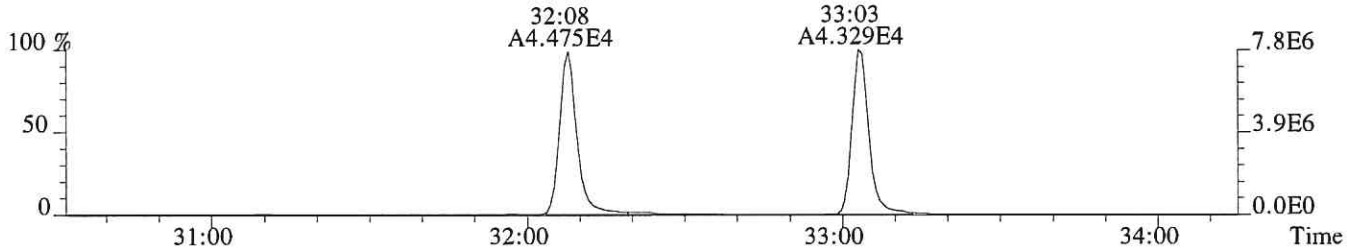
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



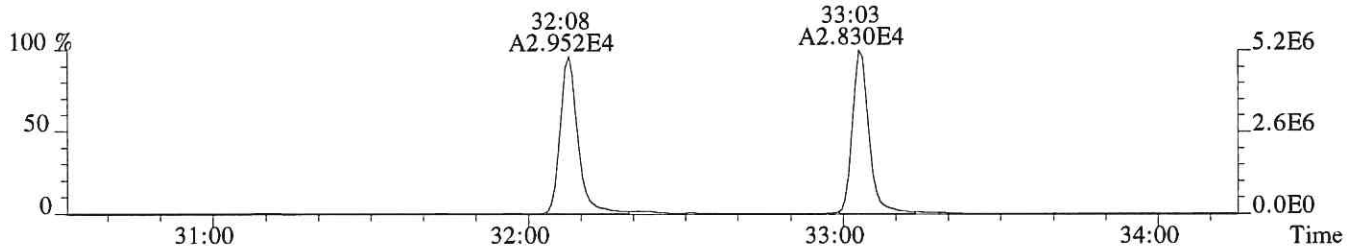
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



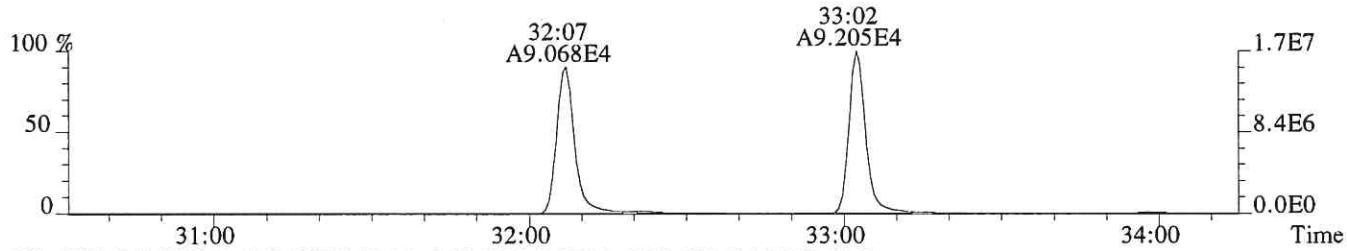
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



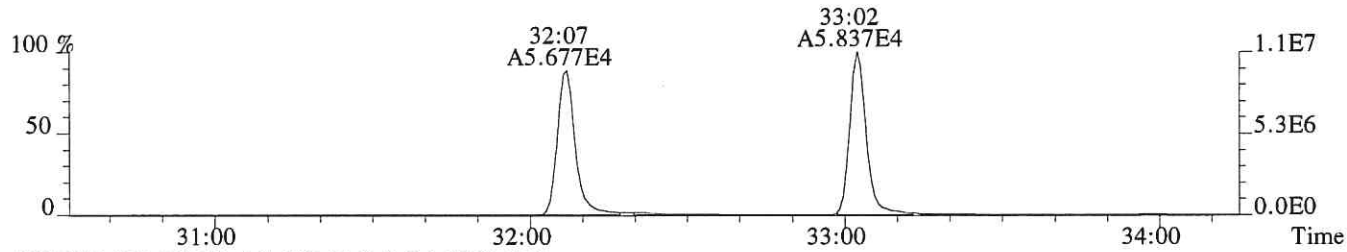
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



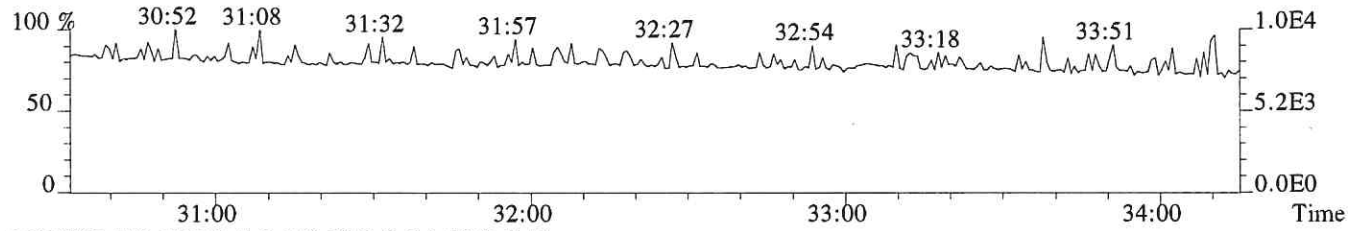
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



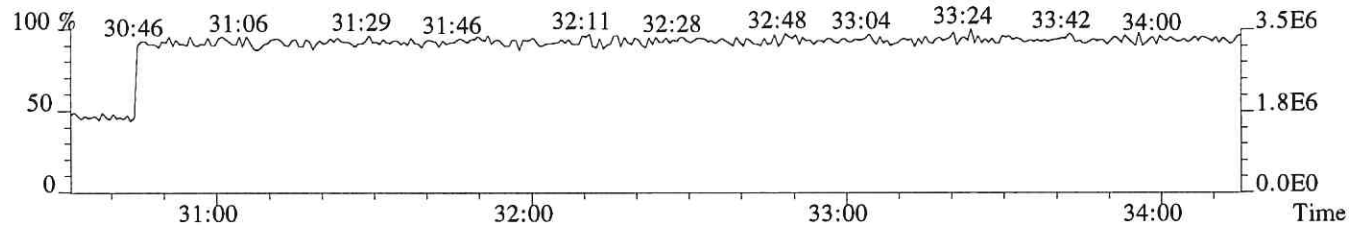
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



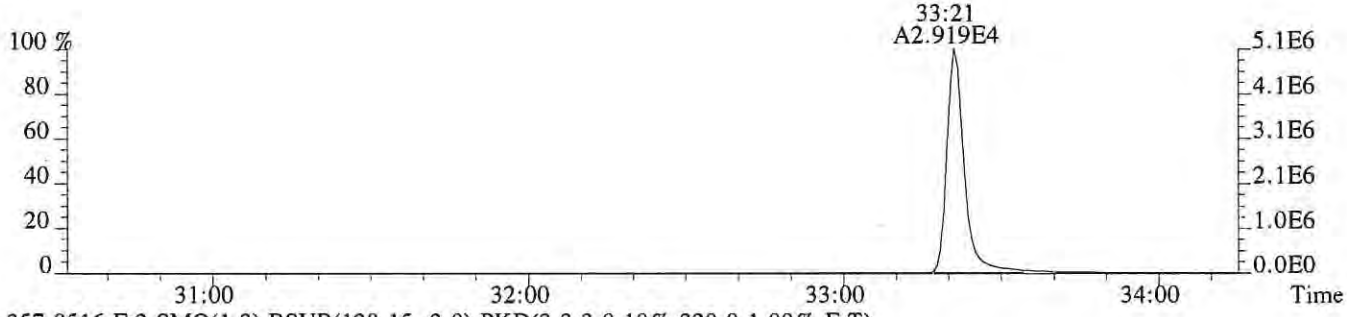
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



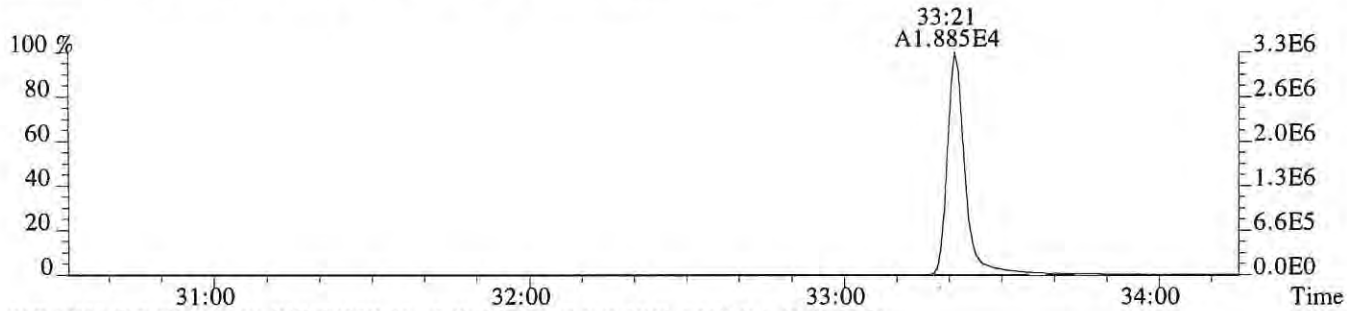
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



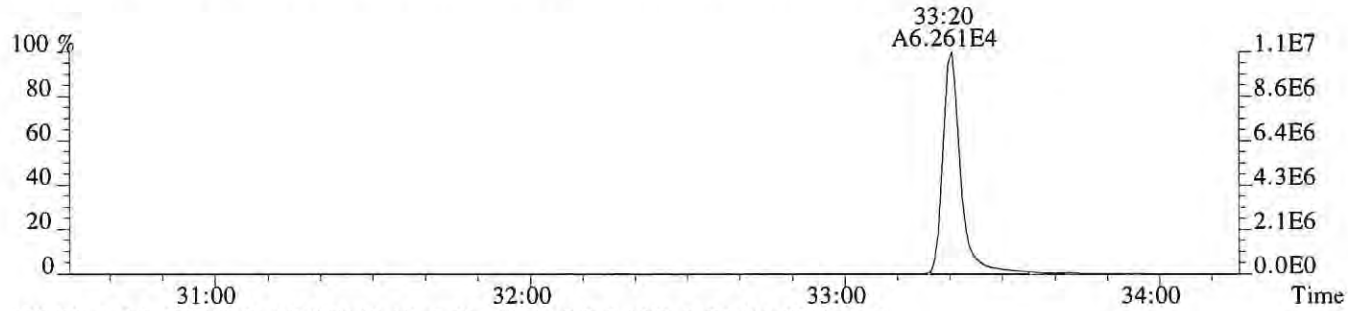
File:P519319 #1-335 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



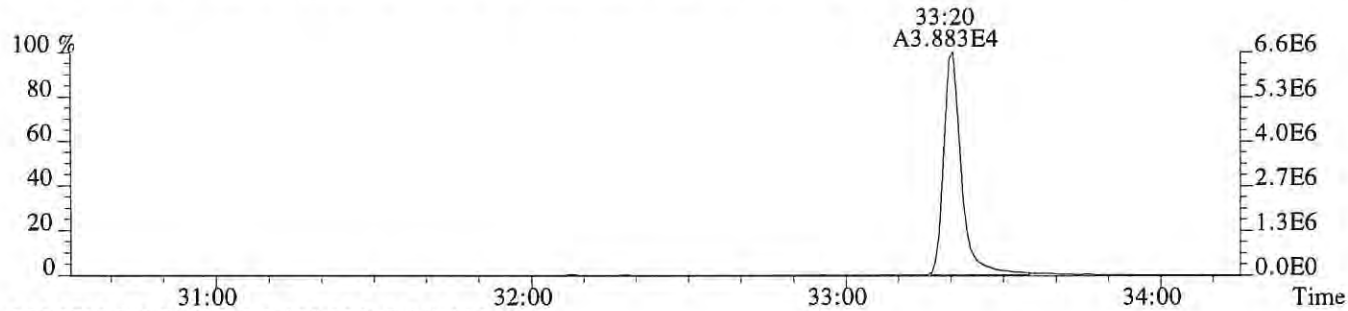
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



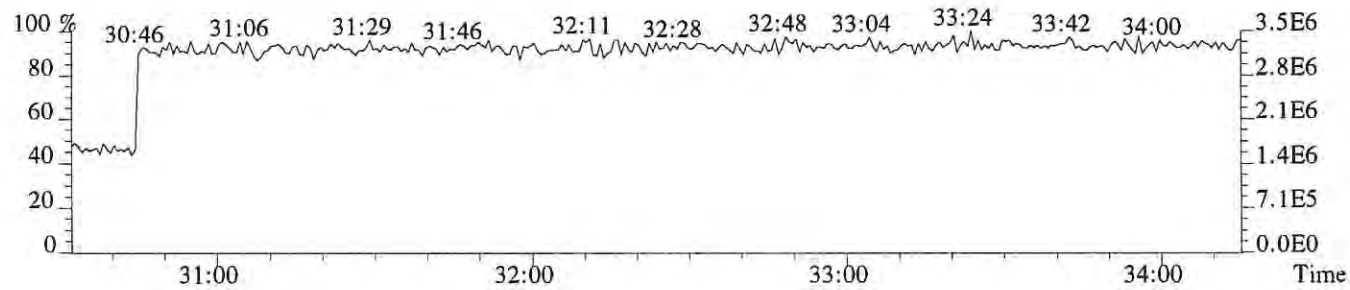
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



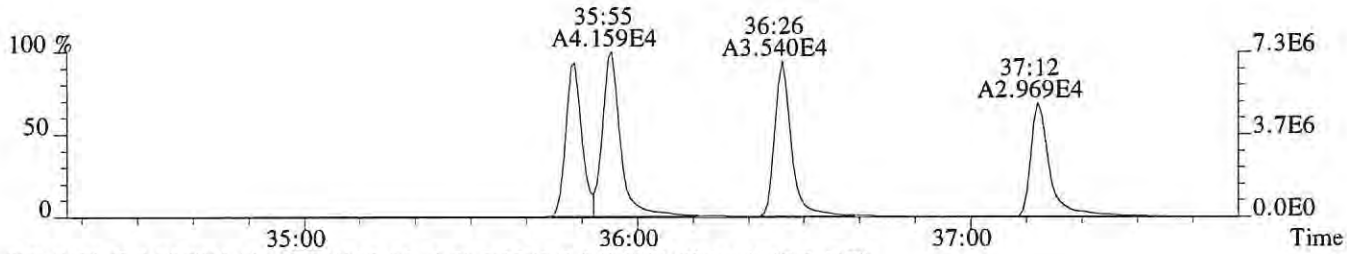
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



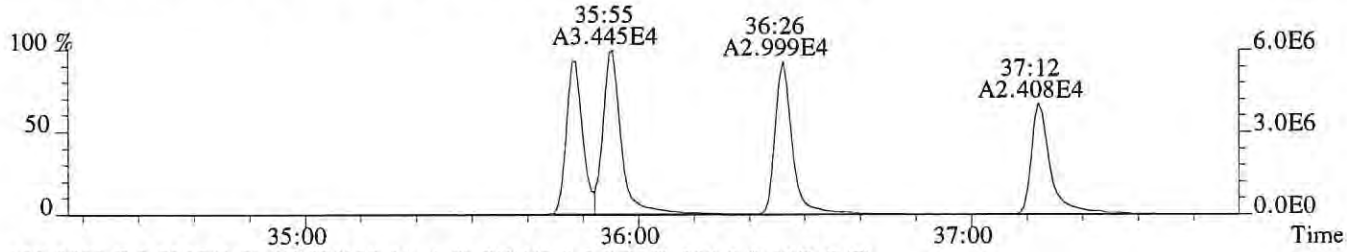
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



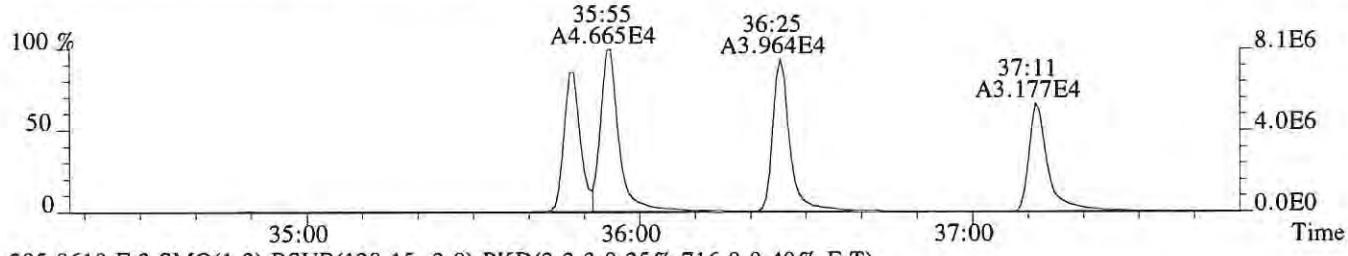
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



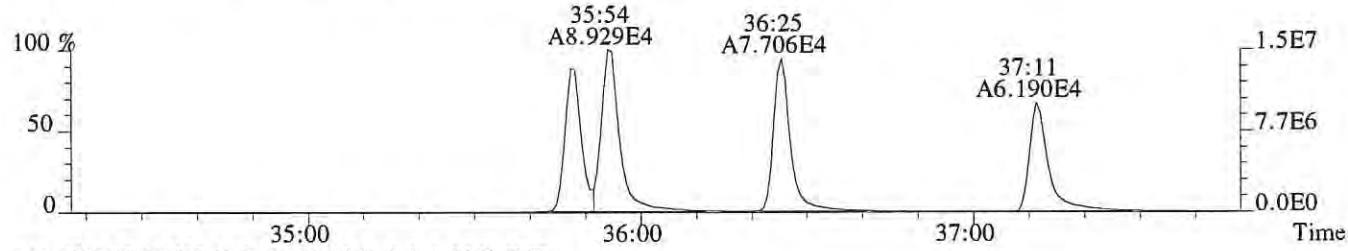
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



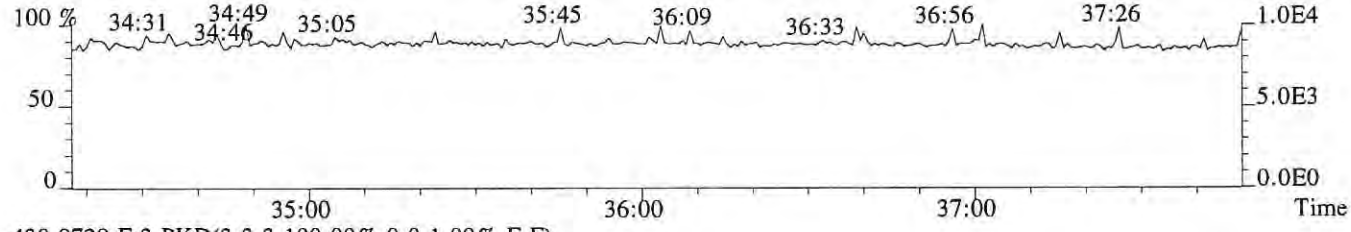
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



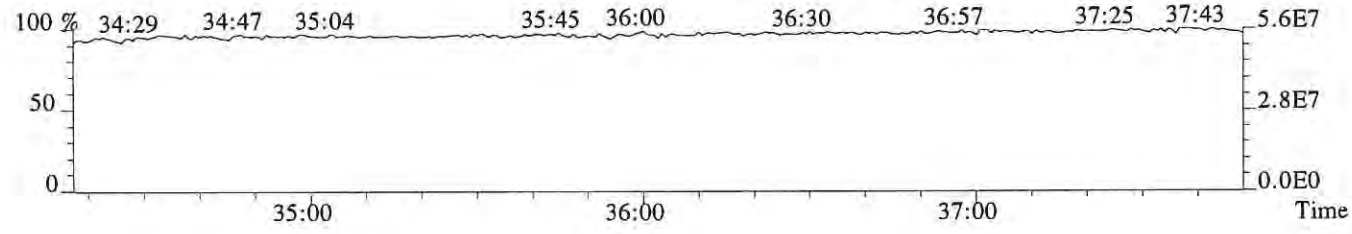
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



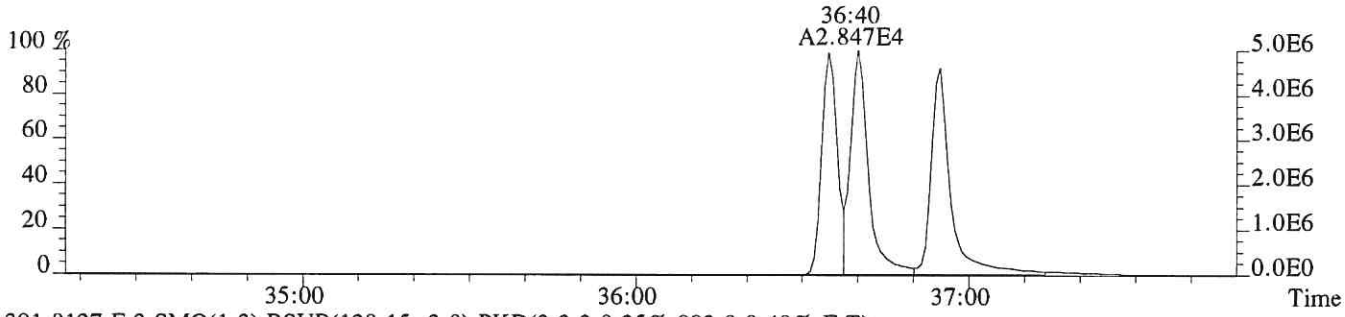
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



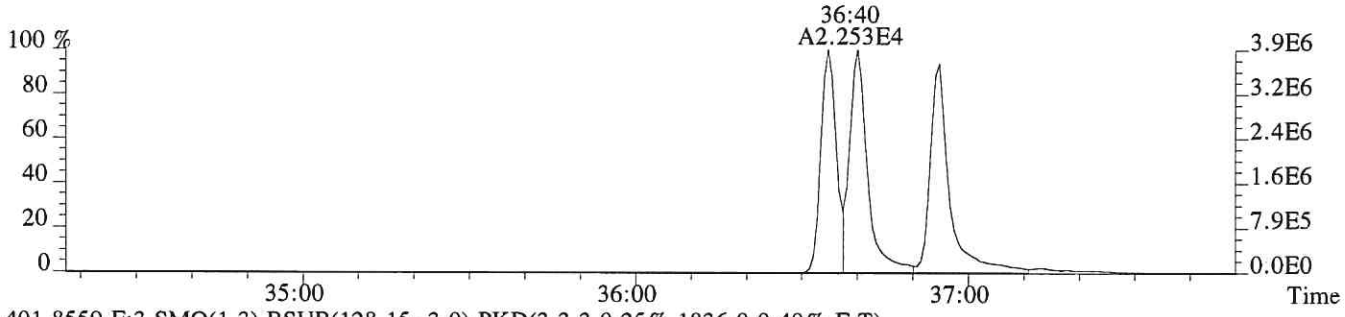
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



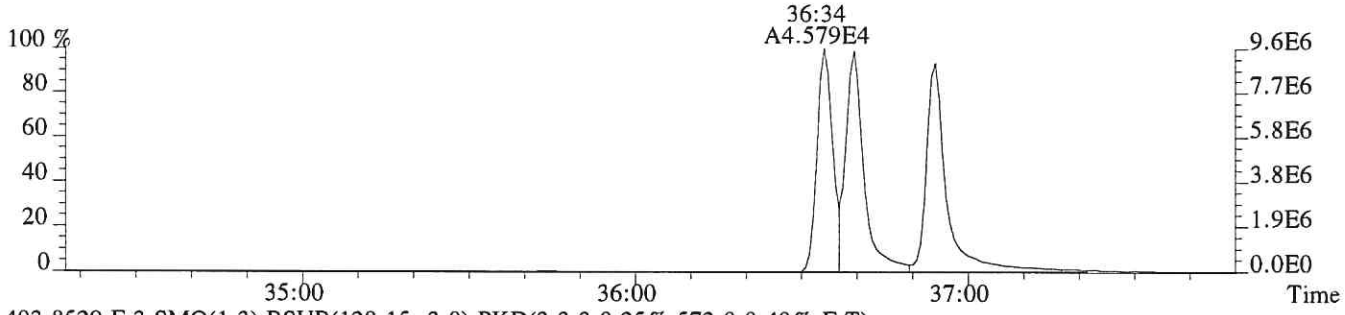
File:P519319 #1-317 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



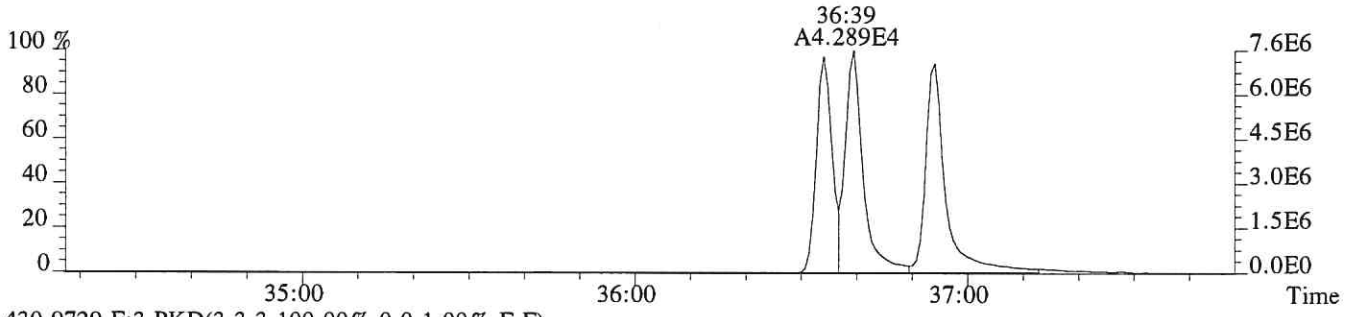
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



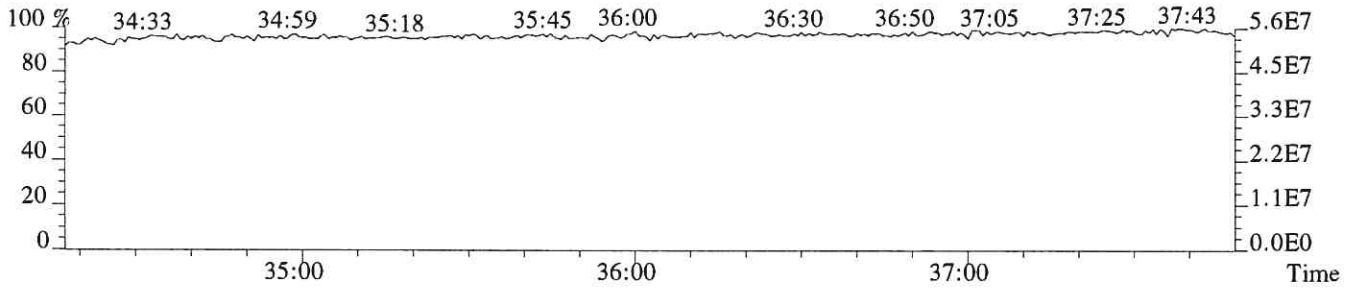
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



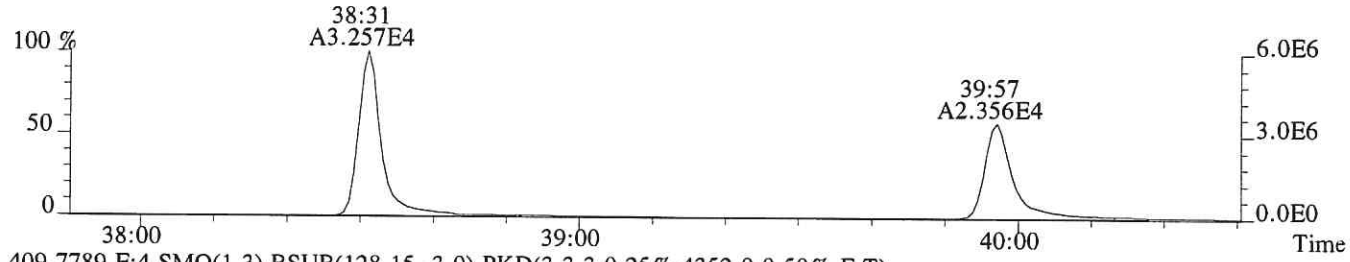
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



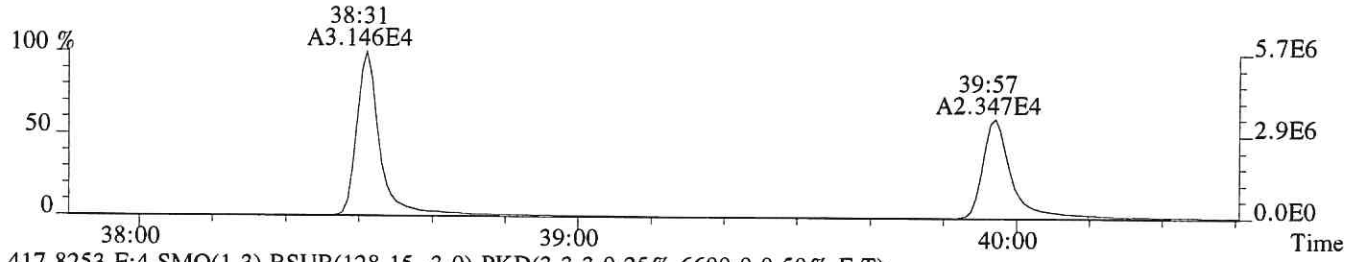
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



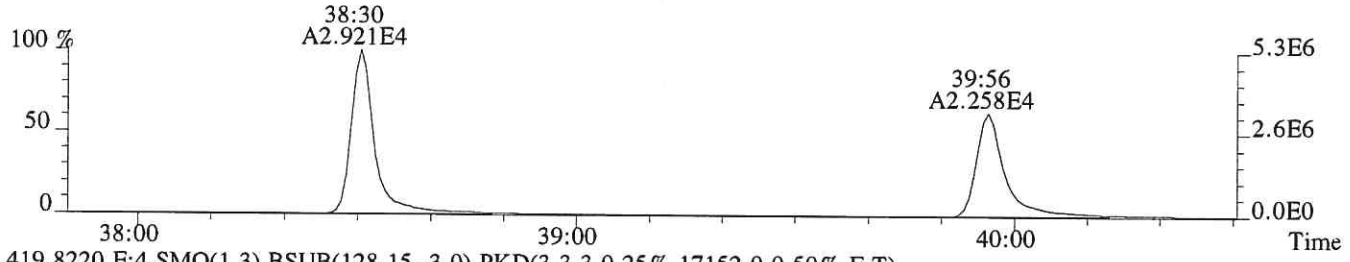
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4448.0,0.50%,F,T)



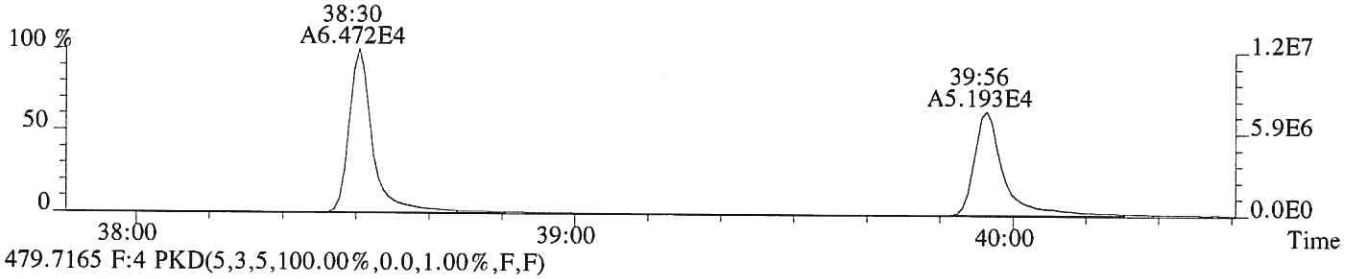
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4352.0,0.50%,F,T)



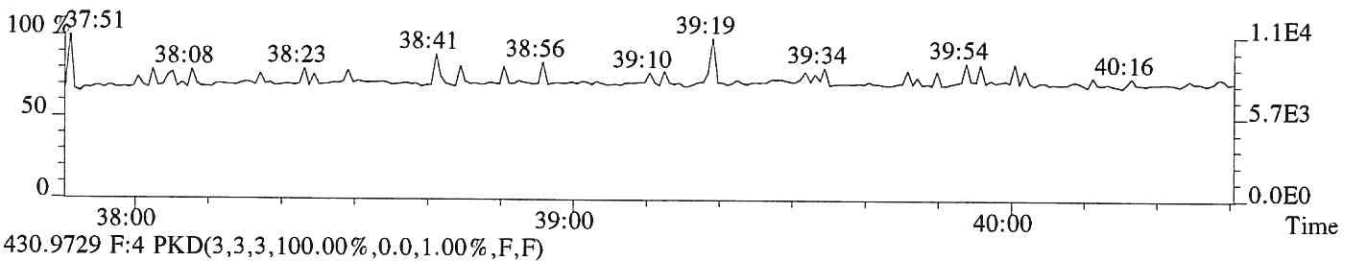
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6600.0,0.50%,F,T)



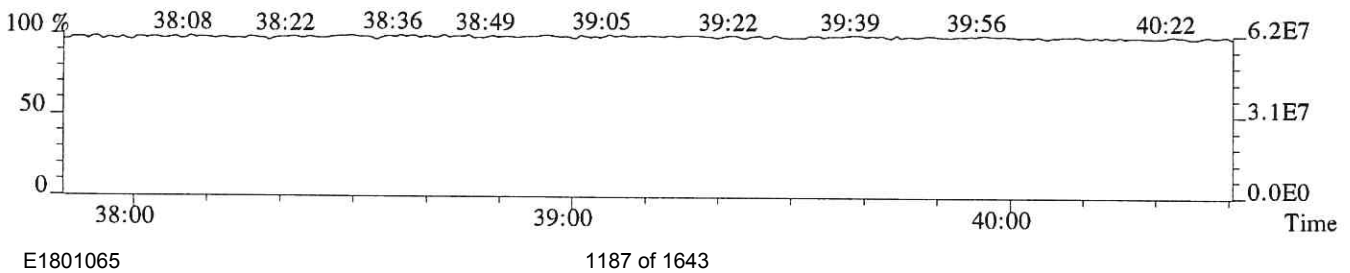
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17152.0,0.50%,F,T)



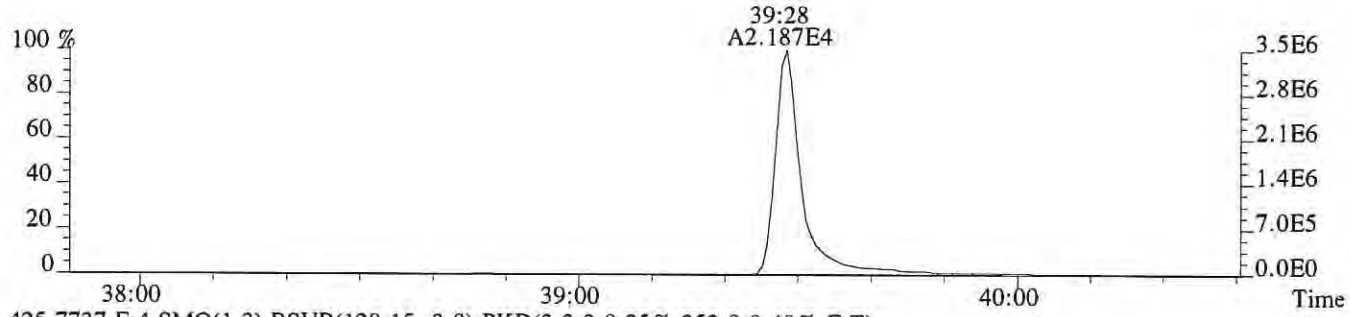
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



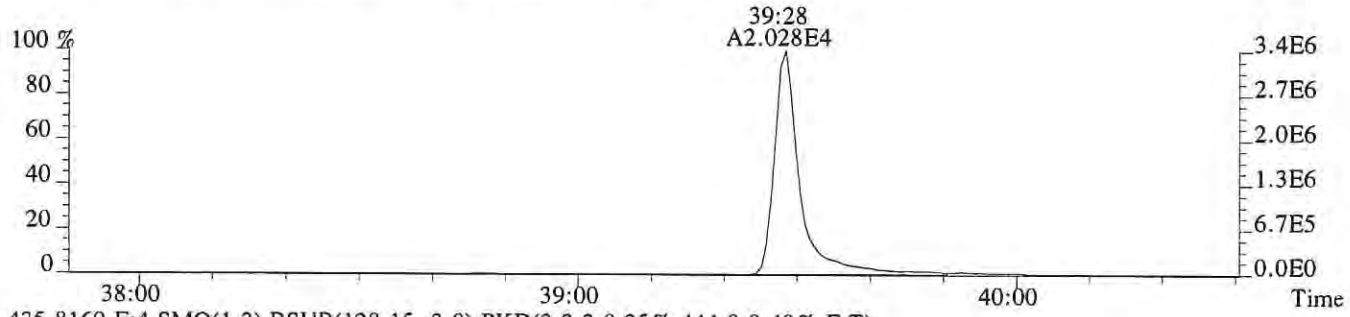
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



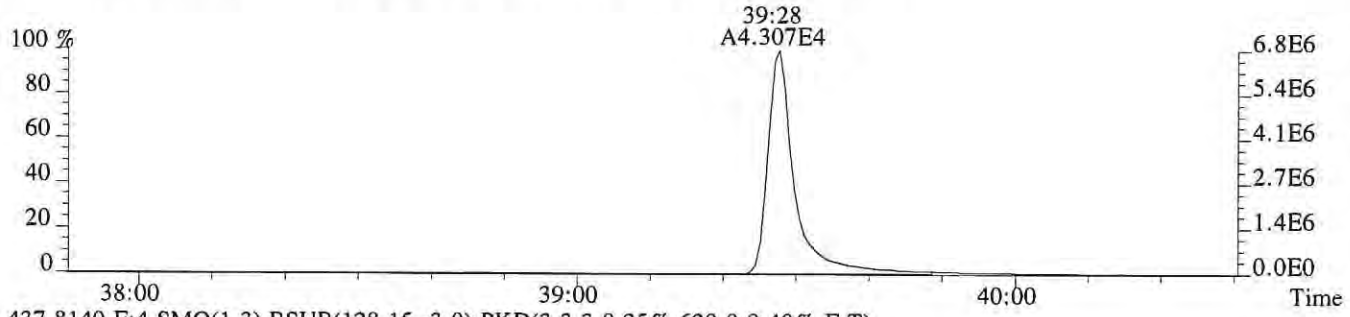
File:P519319 #1-241 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



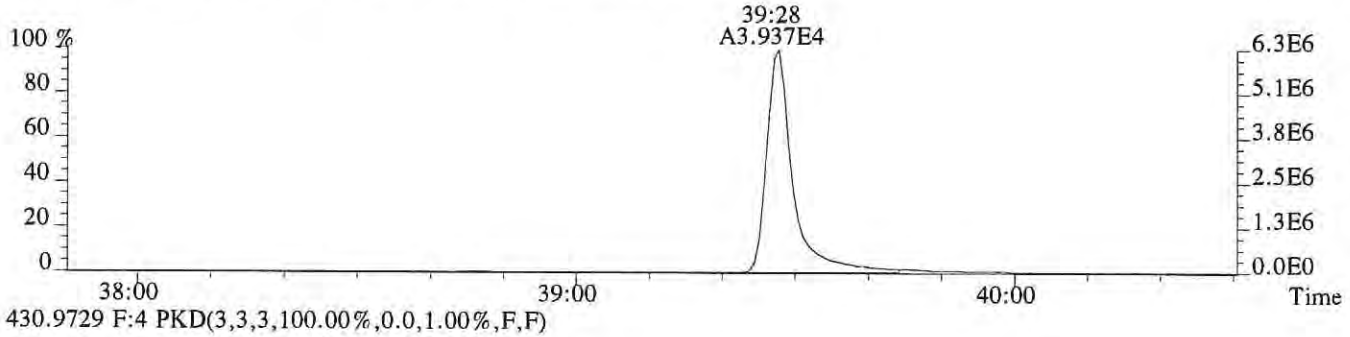
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



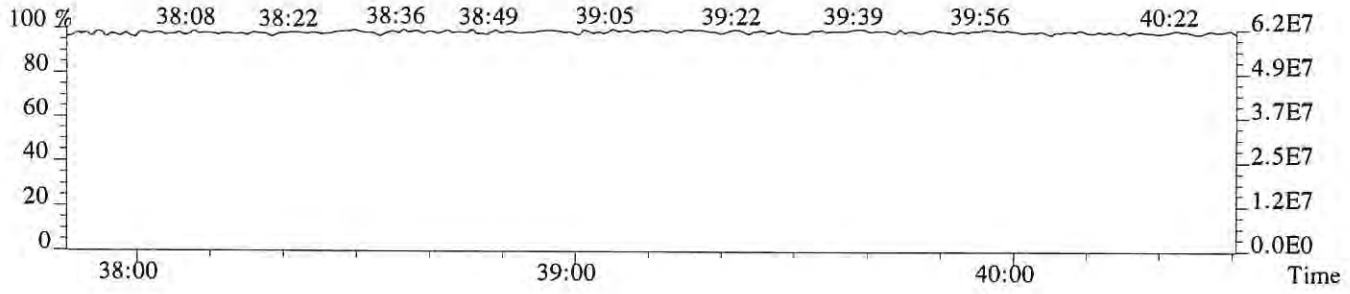
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



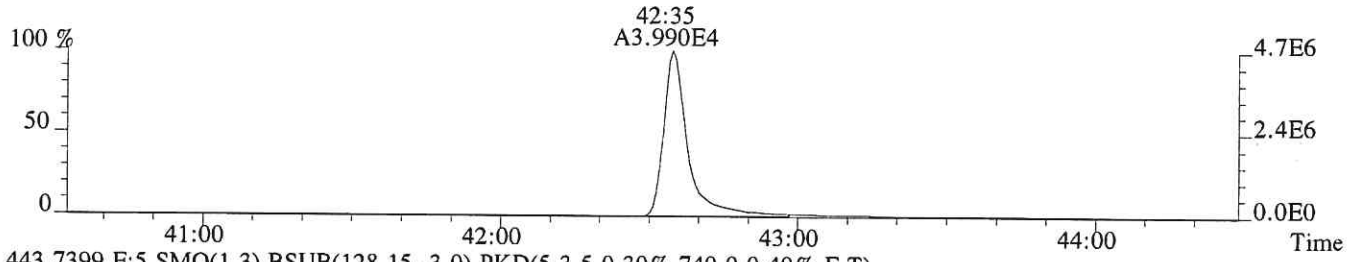
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



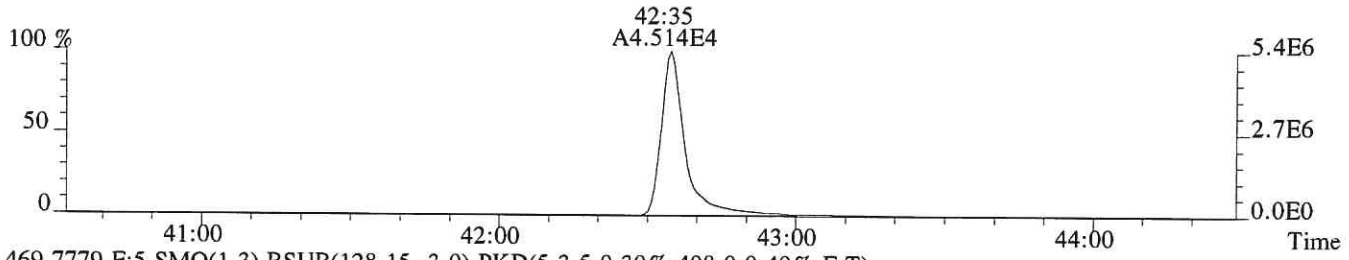
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



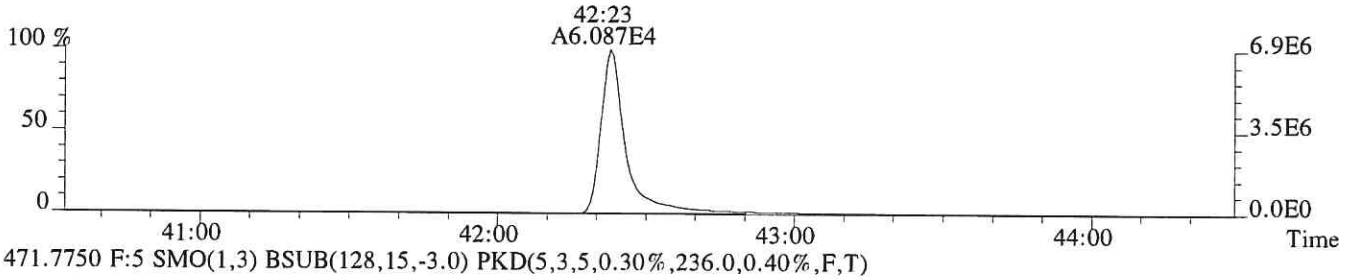
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,292.0,0.40%,F,T)



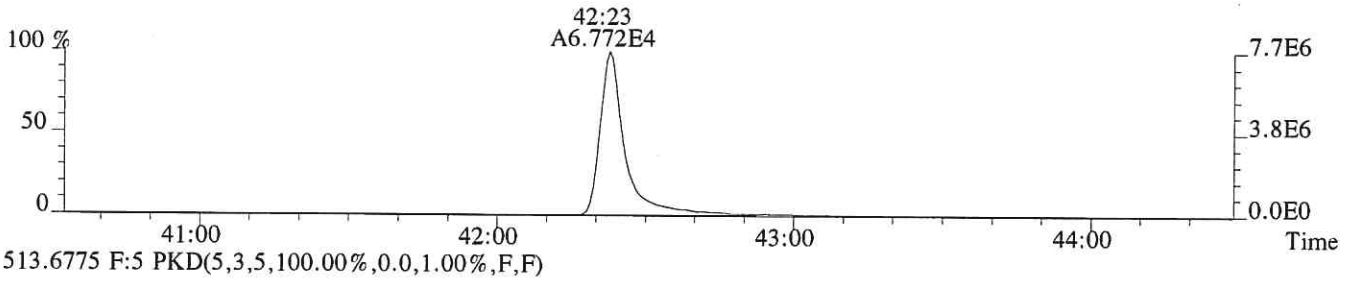
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



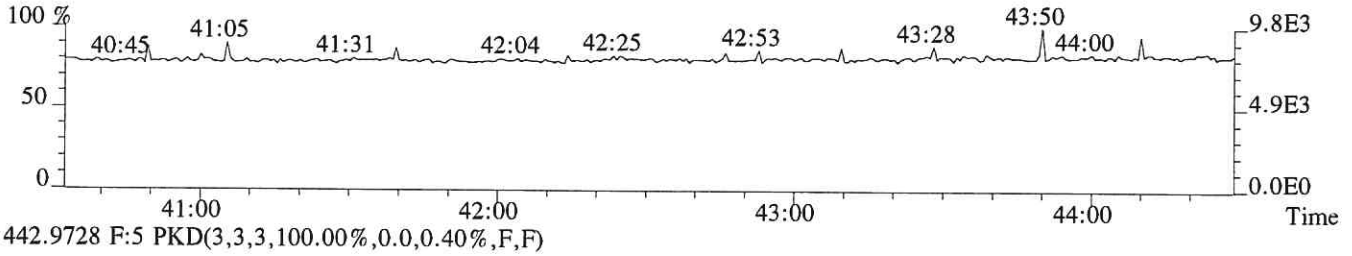
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



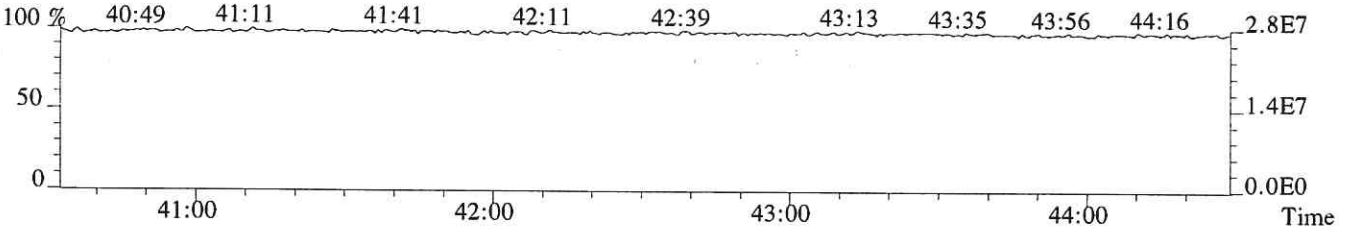
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



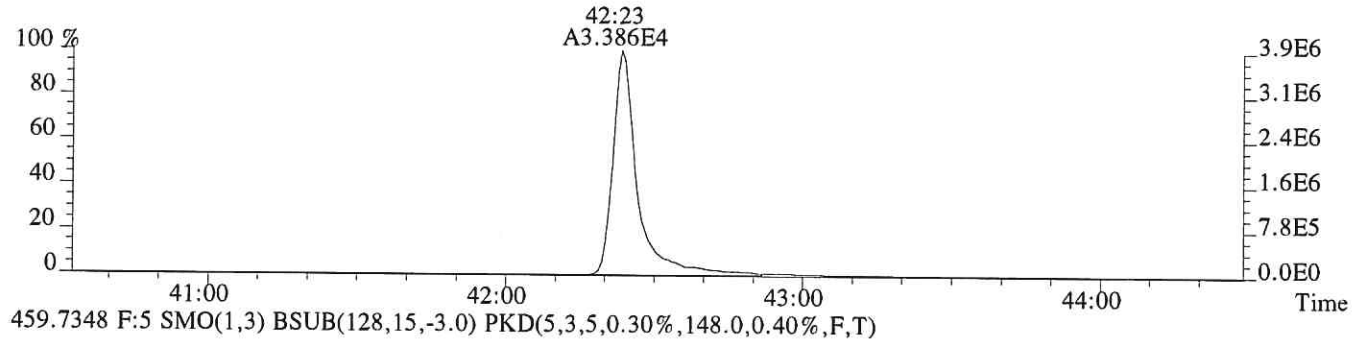
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



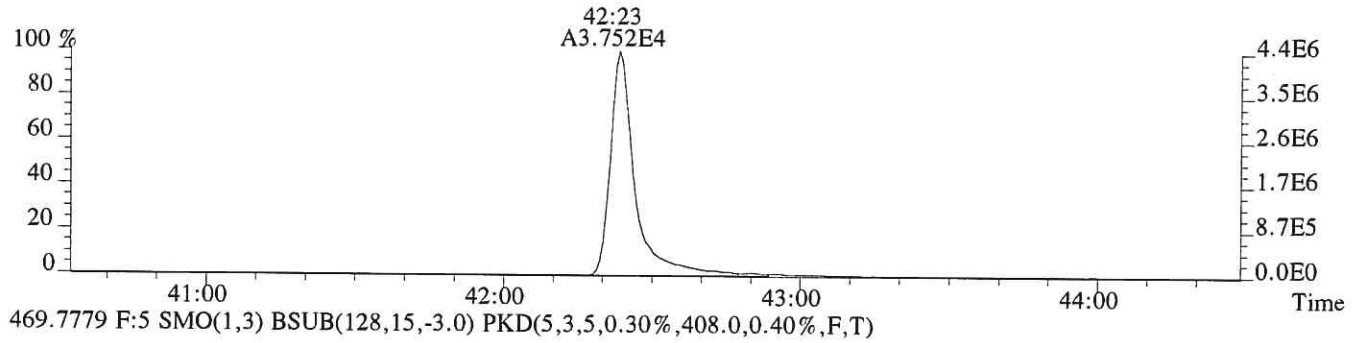
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



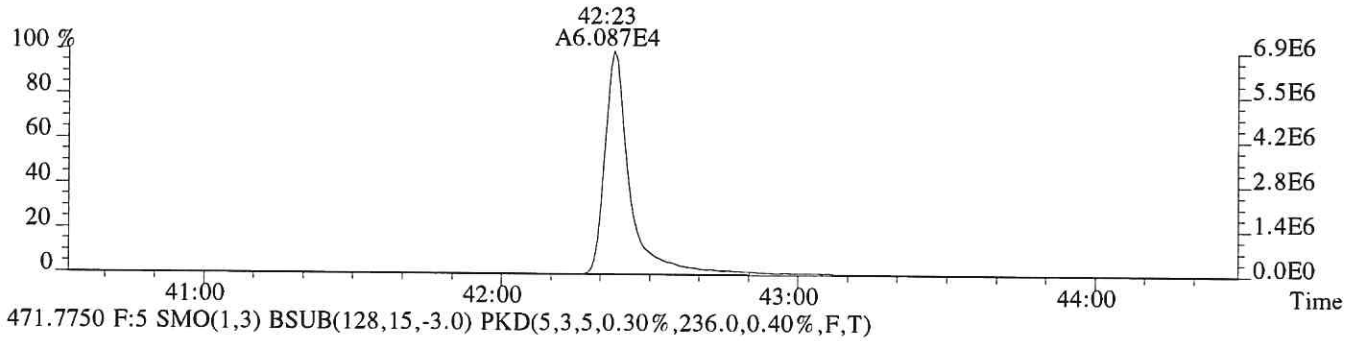
File:P519319 #1-355 Acq:10-DEC-2018 08:43:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



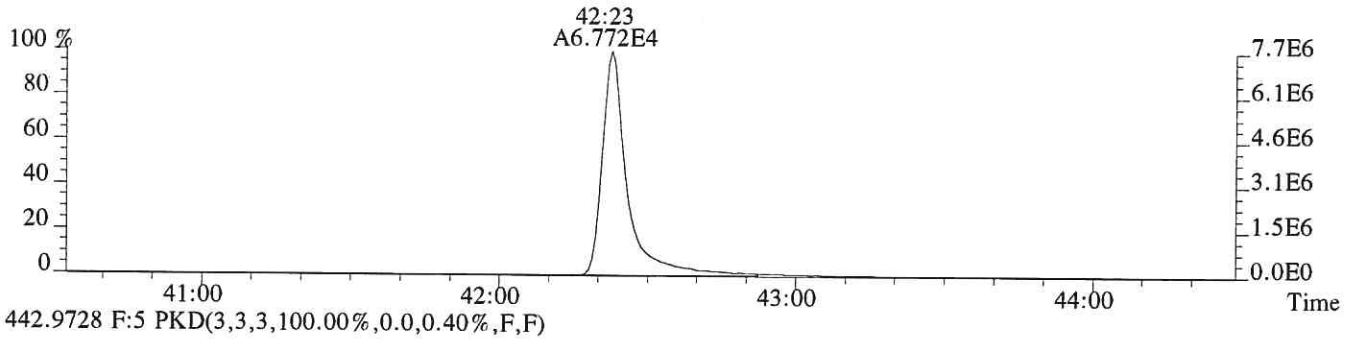
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



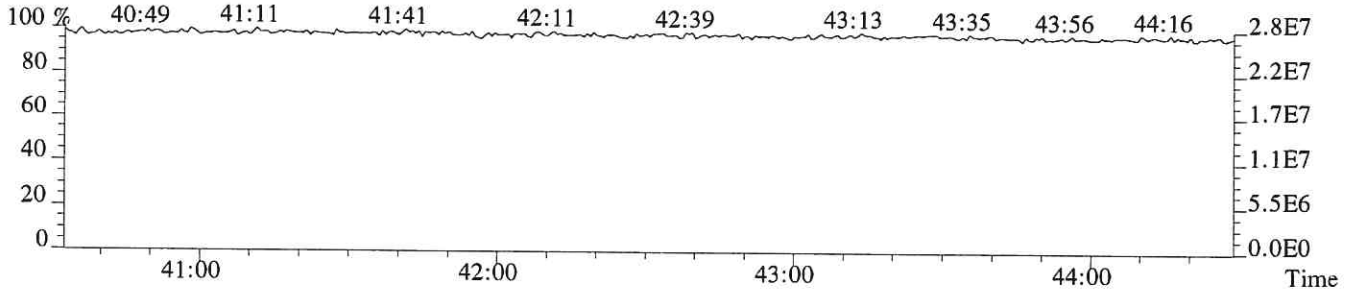
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,408.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P5I9335

Date: 12/10/18 - 12/11/18

Circle one: Beginning / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: qc

Second QC: LKL

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519335	10-DEC-18	22:00:44
192977	WINDOW DEFINE	P519336	10-DEC-18	22:48:30
METHOD BLANK	EQ1800485-01	P519337	10-DEC-18	23:37:07
SL0550	E1801057-005	P519338	11-DEC-18	00:25:45
SL0191	E1801056-006DL	P519339	11-DEC-18	01:14:23
SL0203	E1801056-039DL	P519340	11-DEC-18	02:03:00
SL0204	E1801056-040DL	P519341	11-DEC-18	02:51:38
SL0563	E1801065-014	P519342	11-DEC-18	03:40:15
SL0564	E1801065-015	P519343	11-DEC-18	04:28:53
SL0565	E1801065-016	P519344	11-DEC-18	05:17:31
SL0566	E1801065-017	P519345	11-DEC-18	06:06:16
SL0567	E1801065-018	P519346	11-DEC-18	06:56:26
SL0568	E1801065-019	P519347	11-DEC-18	07:44:14
SL0569	E1801065-020	P519348	11-DEC-18	08:32:58
SL0571	E1801065-021	P519349	11-DEC-18	09:21:38

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181210B.SPL
Last Modified: Tuesday, December 11, 2018 10:08:36 Central Standard Time
Printed: Tuesday, December 11, 2018 10:08:38 Central Standard Time

Page Position (1, 1)

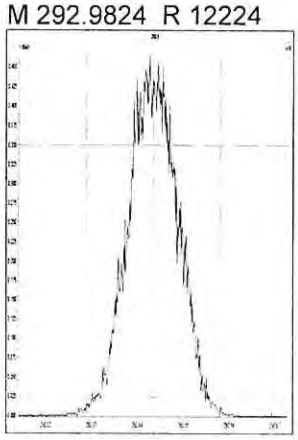
Opus 4: P519335 res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	22:00	P519335	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 22:00
2		22:48	P519336	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		23:37	P519337	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4	12/11/18	00:25	P519338	E1801057-005	E1801057-005	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		01:14	P519339	E1801056-006DL	E1801056-006DL	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		02:03	P519340	E1801056-039DL	E1801056-039DL	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		02:51	P519341	E1801056-040DL	E1801056-040DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		03:40	P519342	E1801065-014	E1801065-014	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		04:28	P519343	E1801065-015	E1801065-015	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		05:17	P519344	E1801065-016	E1801065-016	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		06:06	P519345	E1801065-017	E1801065-017	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		06:56	P519346	E1801065-018	E1801065-018	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		07:44	P519347	E1801065-019	E1801065-019	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		08:32	P519348	E1801065-020	E1801065-020	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		09:21	P519349	E1801065-021	E1801065-021	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 10:15
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

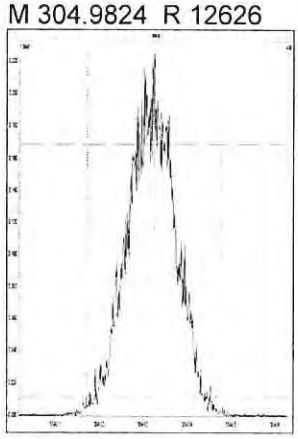
gc 12/12/18

051

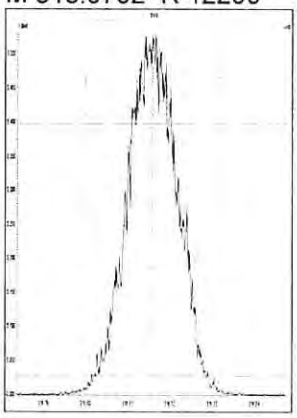
M 292.9824 R 12224



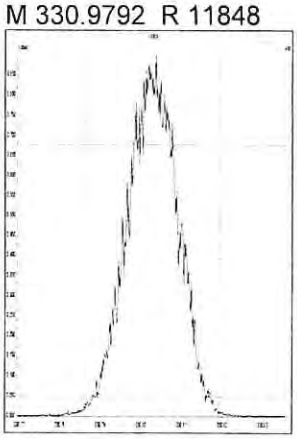
M 304.9824 R 12626



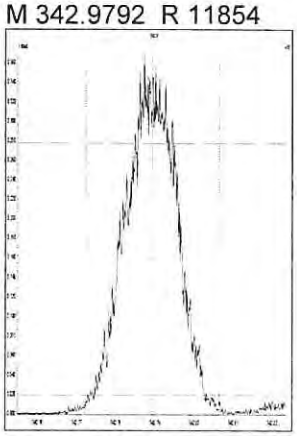
M 318.9792 R 12290



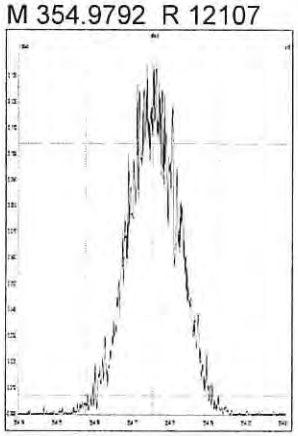
M 330.9792 R 11848



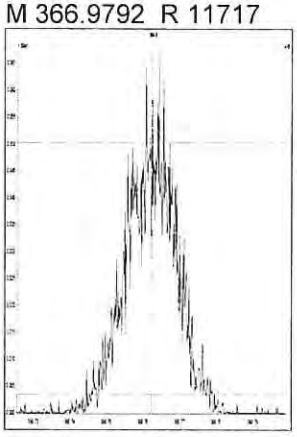
M 342.9792 R 11854



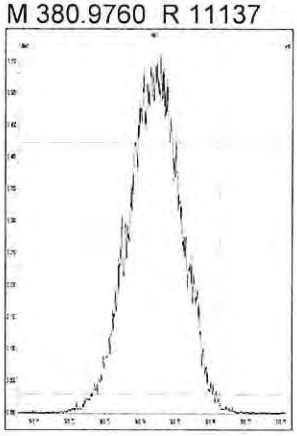
M 354.9792 R 12107



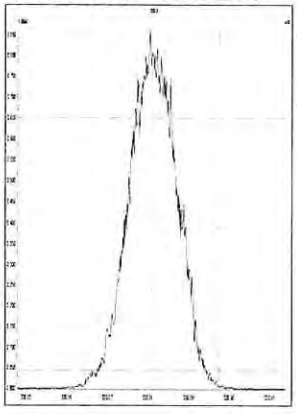
M 366.9792 R 11717



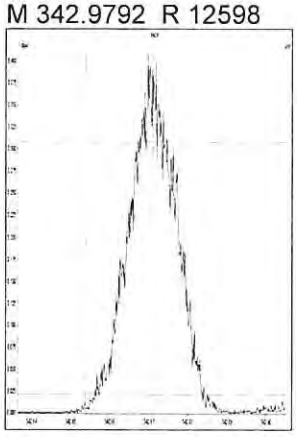
M 380.9760 R 11137



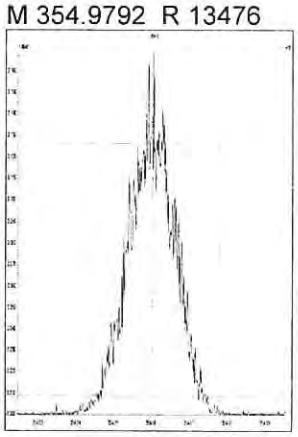
M 330.9792 R 12284



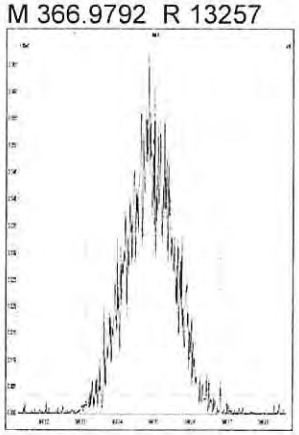
M 342.9792 R 12598



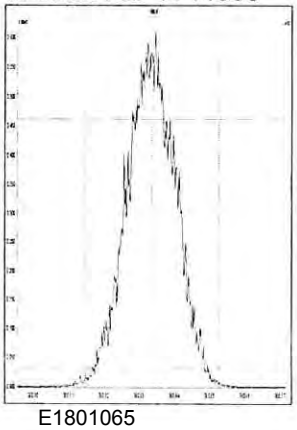
M 354.9792 R 13476



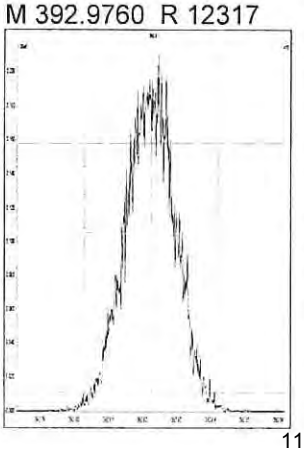
M 366.9792 R 13257



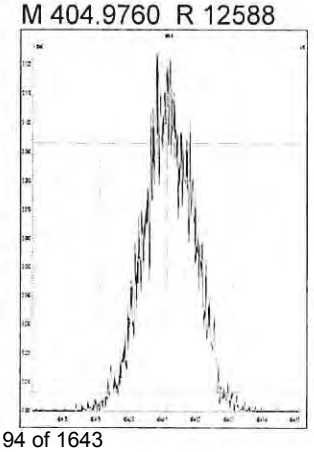
M 380.9760 R 11966



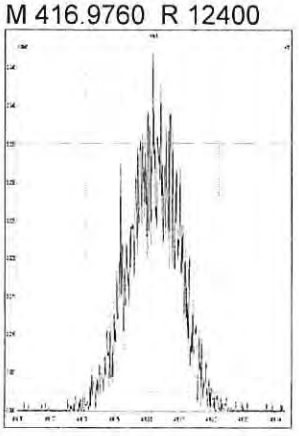
M 392.9760 R 12317



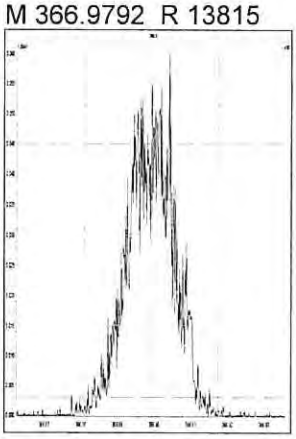
M 404.9760 R 12588



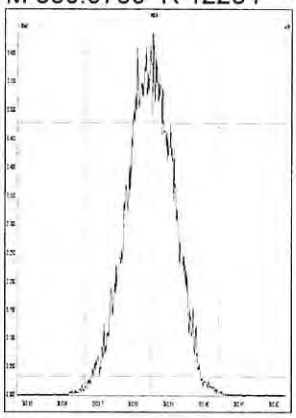
M 416.9760 R 12400



M 366.9792 R 13815



M 380.9760 R 12284



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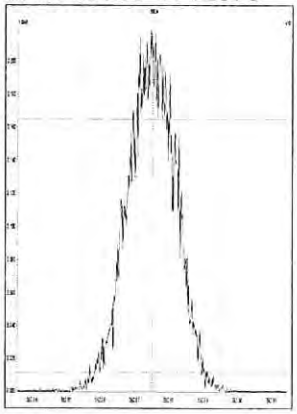
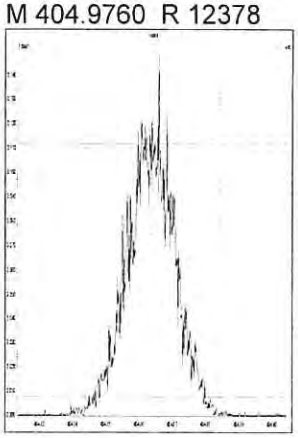
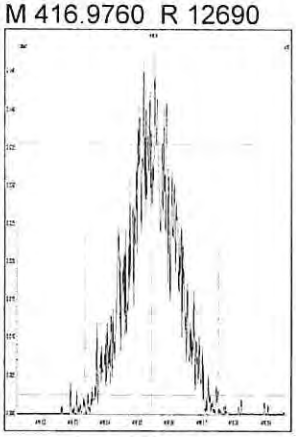


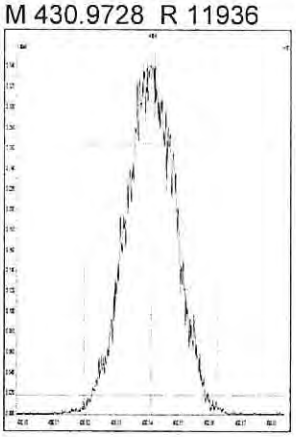
M 404.9760 R 12378



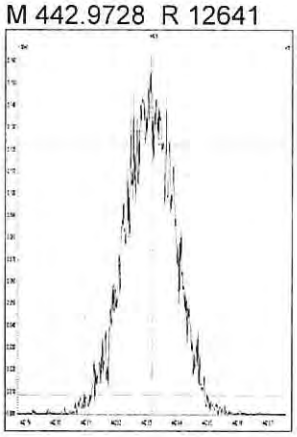
M 416.9760 R 12690



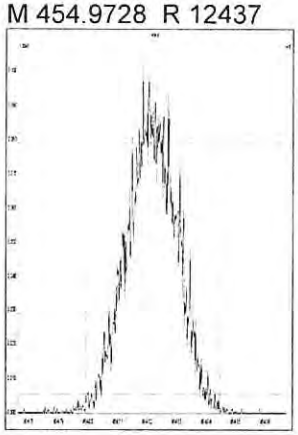
M 430.9728 R 11936



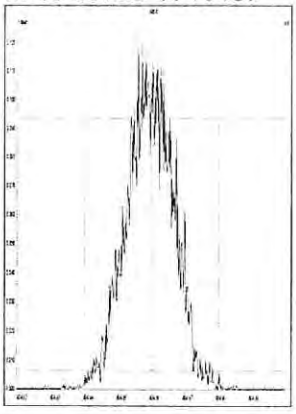
M 442.9728 R 12641



M 454.9728 R 12437



M 404.9760 R 13187



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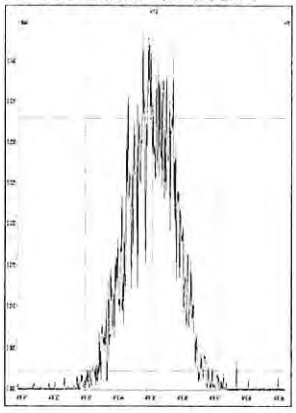

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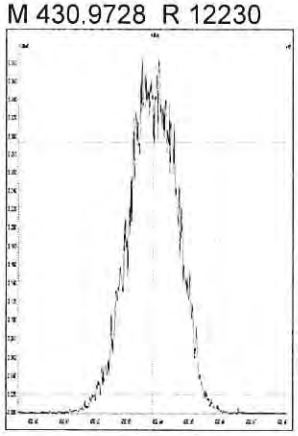
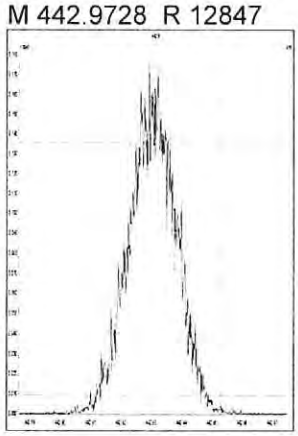
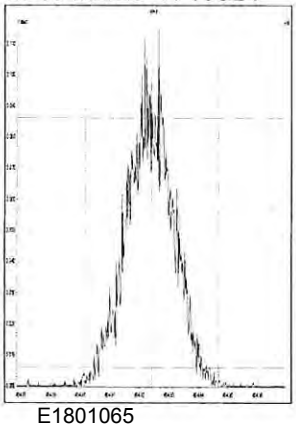


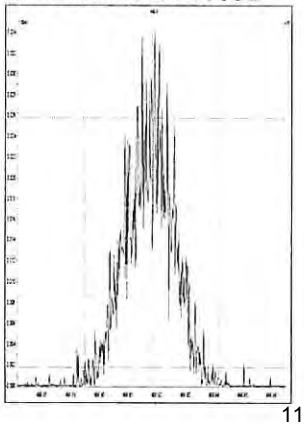
M 442.9728 R 12847



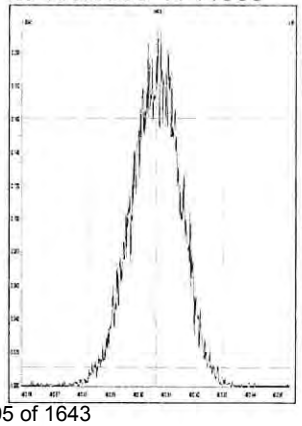
M 454.9728 R 13624



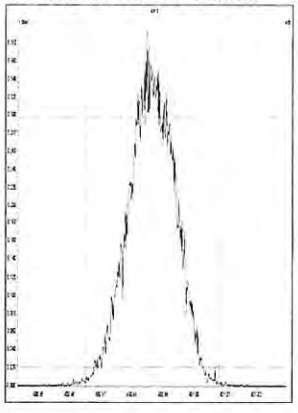
M 466.9728 R 13862



M 480.9696 R 11908

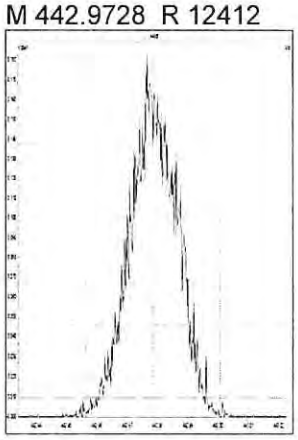


M 430.9728 R 12928

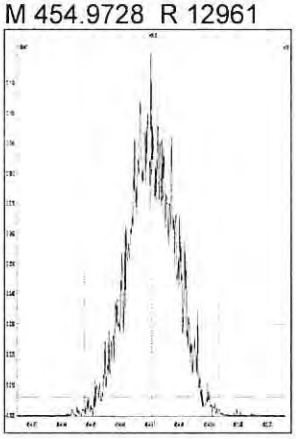


Printed: Monday, December 10, 2018 22:00:42 Central Standard Time

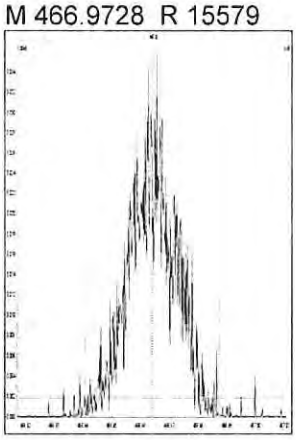
M 442.9728 R 12412



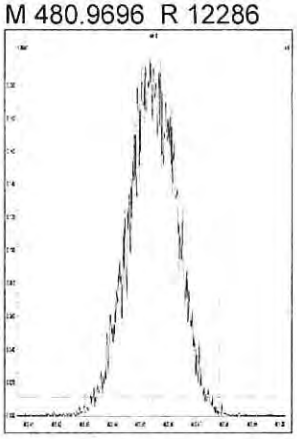
M 454.9728 R 12961



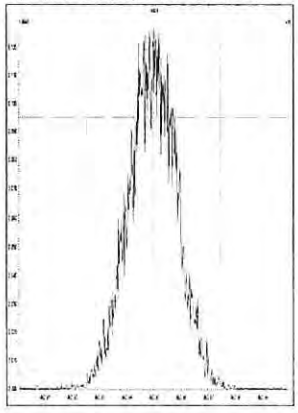
M 466.9728 R 15579



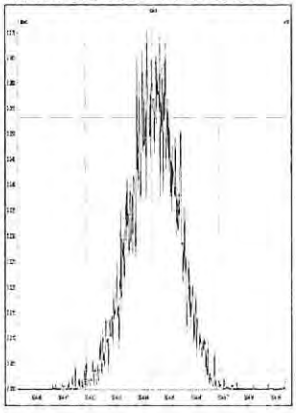
M 480.9696 R 12286



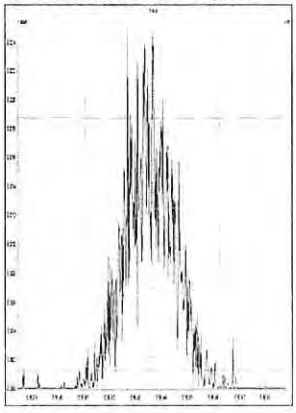
M 492.9696 R 12315



M 504.9696 R 12664



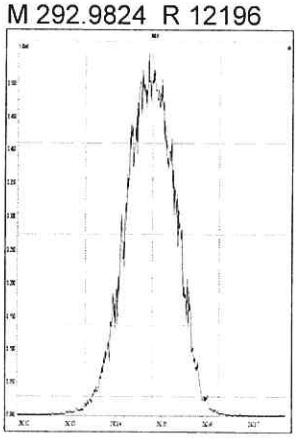
M 516.9697 R 16076



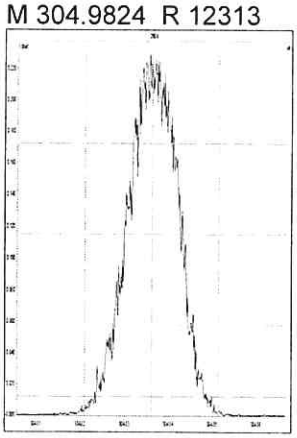
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:15:43 Central Standard Time

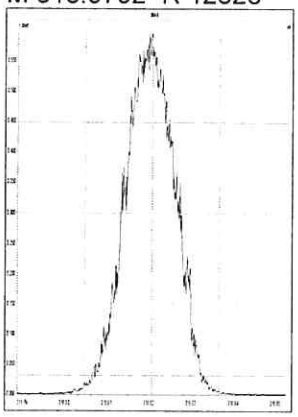
M 292.9824 R 12196



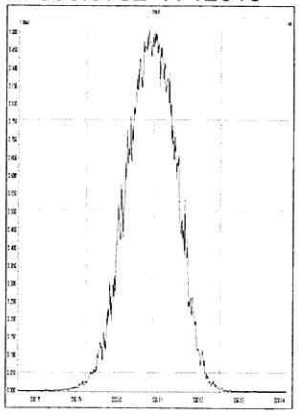
M 304.9824 R 12313



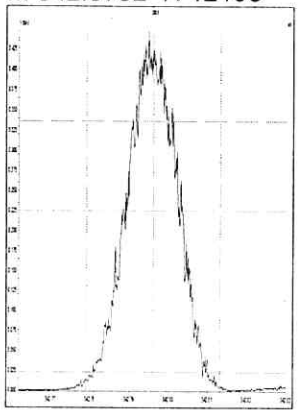
M 318.9792 R 12628



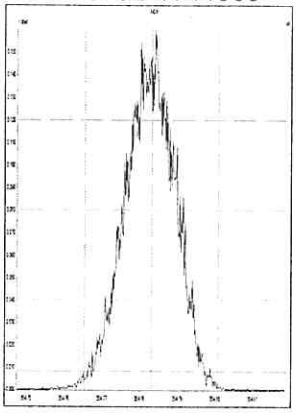
M 330.9792 R 12019



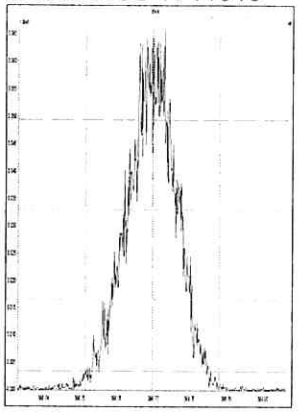
M 342.9792 R 12198



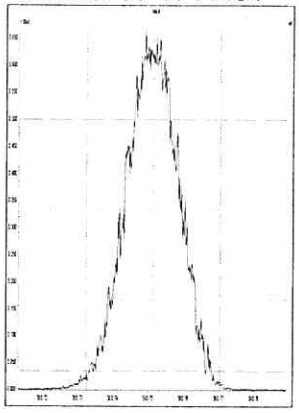
M 354.9792 R 11905



M 366.9792 R 11310



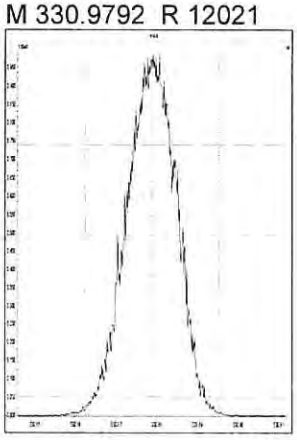
M 380.9760 R 11464



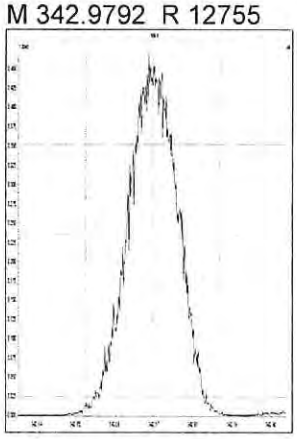
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:16:27 Central Standard Time

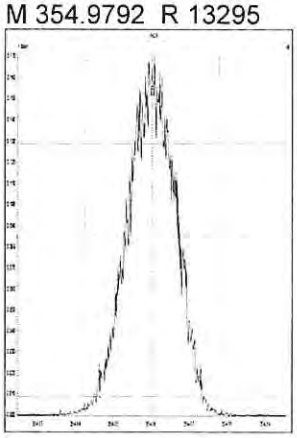
M 330.9792 R 12021



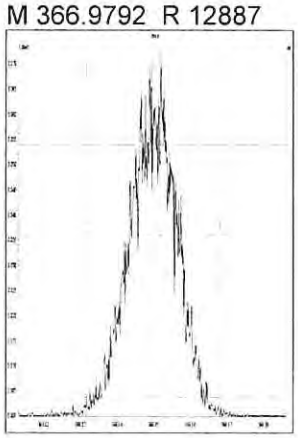
M 342.9792 R 12755



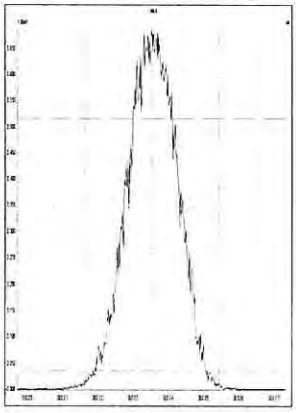
M 354.9792 R 13295



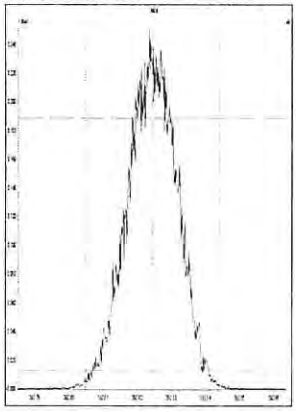
M 366.9792 R 12887



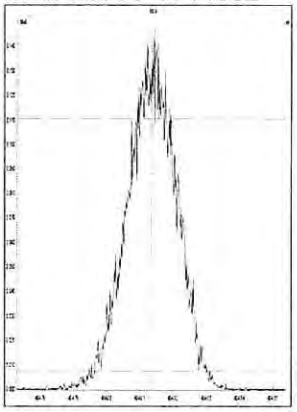
M 380.9760 R 12023



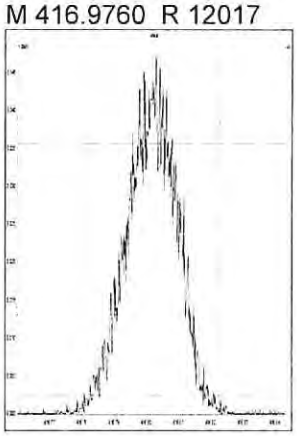
M 392.9760 R 11469



M 404.9760 R 11682



M 416.9760 R 12017



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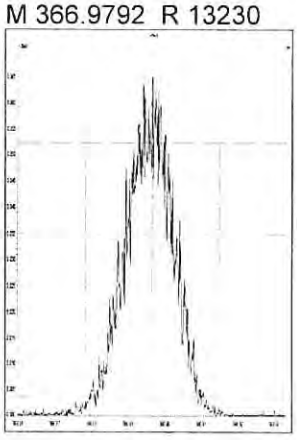
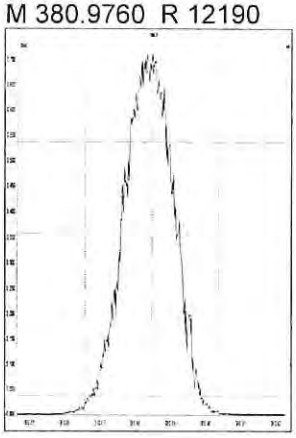
Printed: Tuesday, December 11, 2018 10:17:11 Central Standard Time

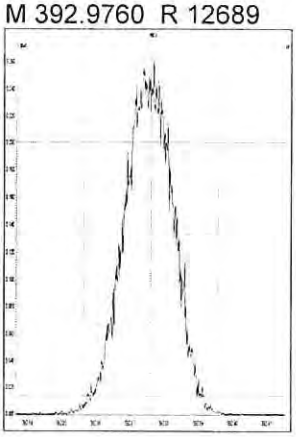
M 366.9792 R 13230



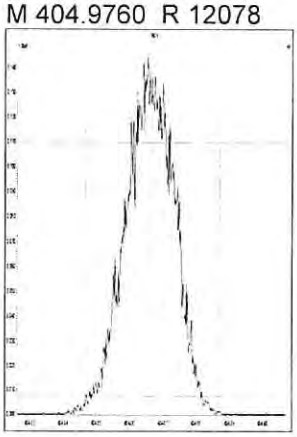
M 380.9760 R 12190



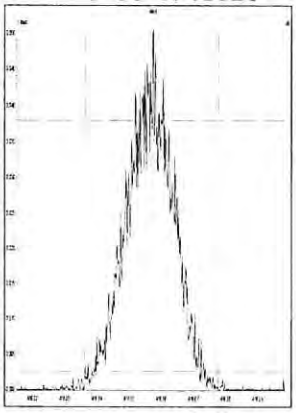
M 392.9760 R 12689



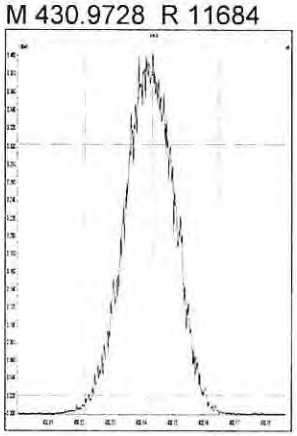
M 404.9760 R 12078



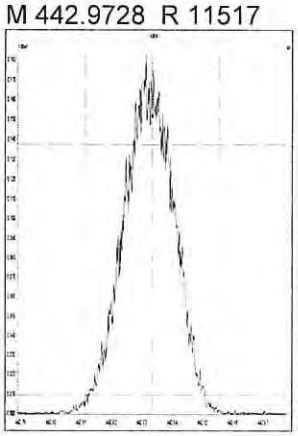
M 416.9760 R 13020



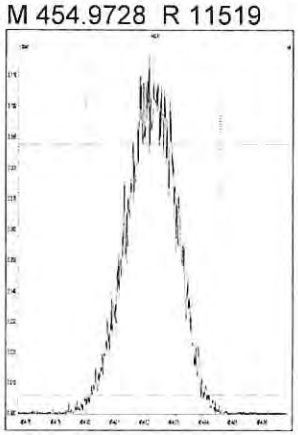
M 430.9728 R 11684



M 442.9728 R 11517



M 454.9728 R 11519



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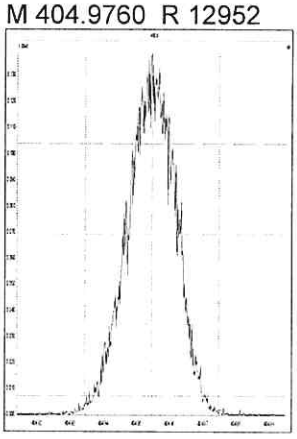
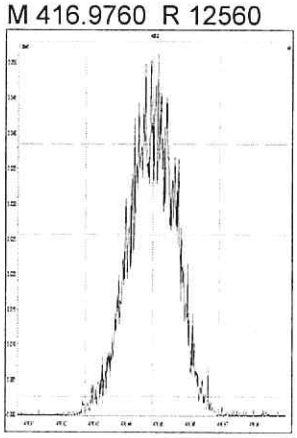
Printed: Tuesday, December 11, 2018 10:17:51 Central Standard Time

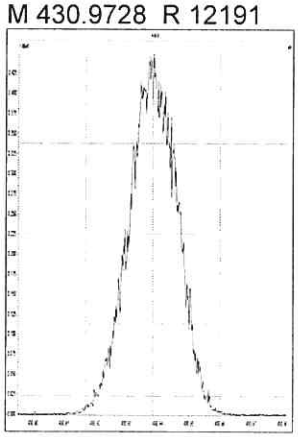
M 404.9760 R 12952



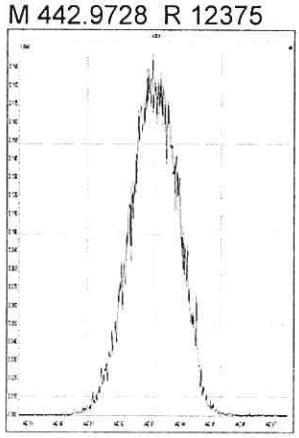
M 416.9760 R 12560



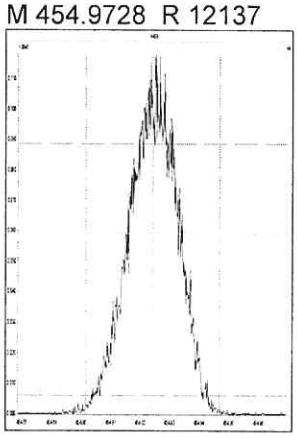
M 430.9728 R 12191



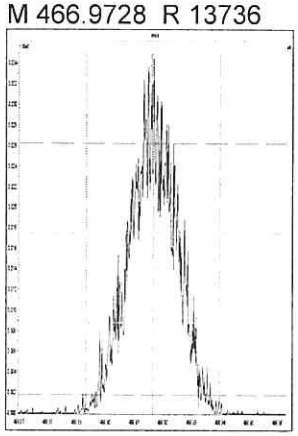
M 442.9728 R 12375



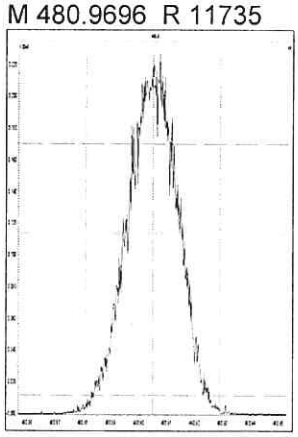
M 454.9728 R 12137



M 466.9728 R 13736



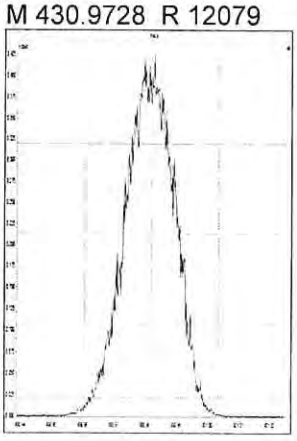
M 480.9696 R 11735



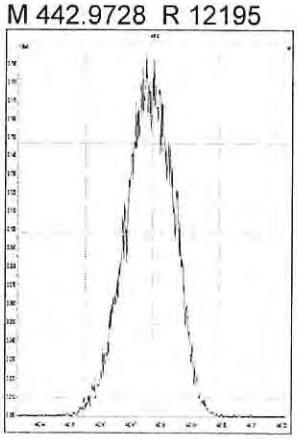
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:18:37 Central Standard Time

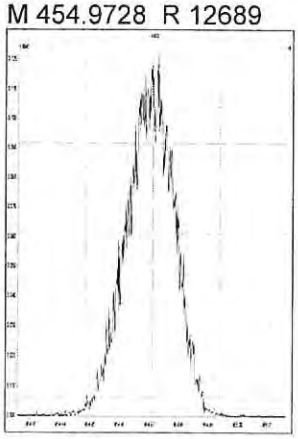
M 430.9728 R 12079



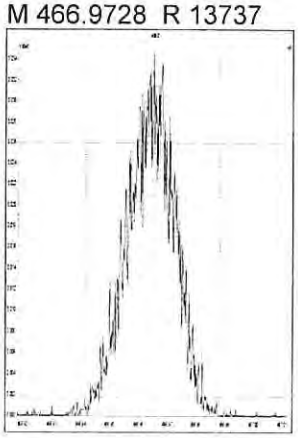
M 442.9728 R 12195



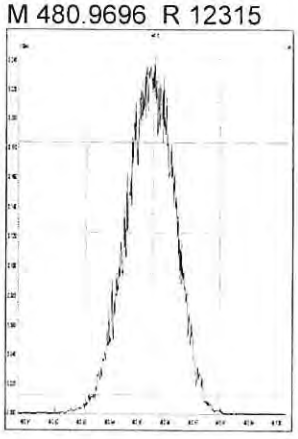
M 454.9728 R 12689



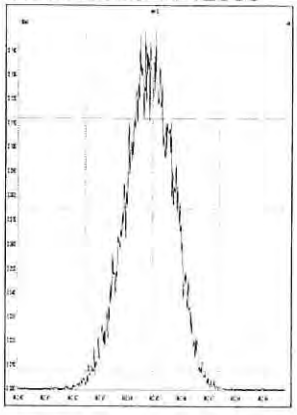
M 466.9728 R 13737



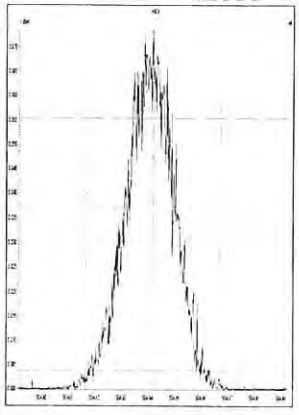
M 480.9696 R 12315



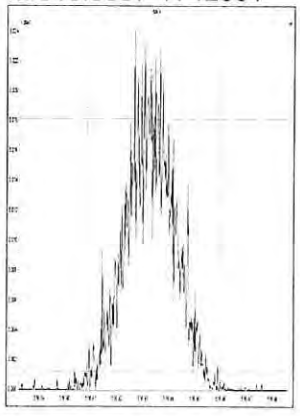
M 492.9696 R 12955



M 504.9696 R 12563



M 516.9697 R 12561



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

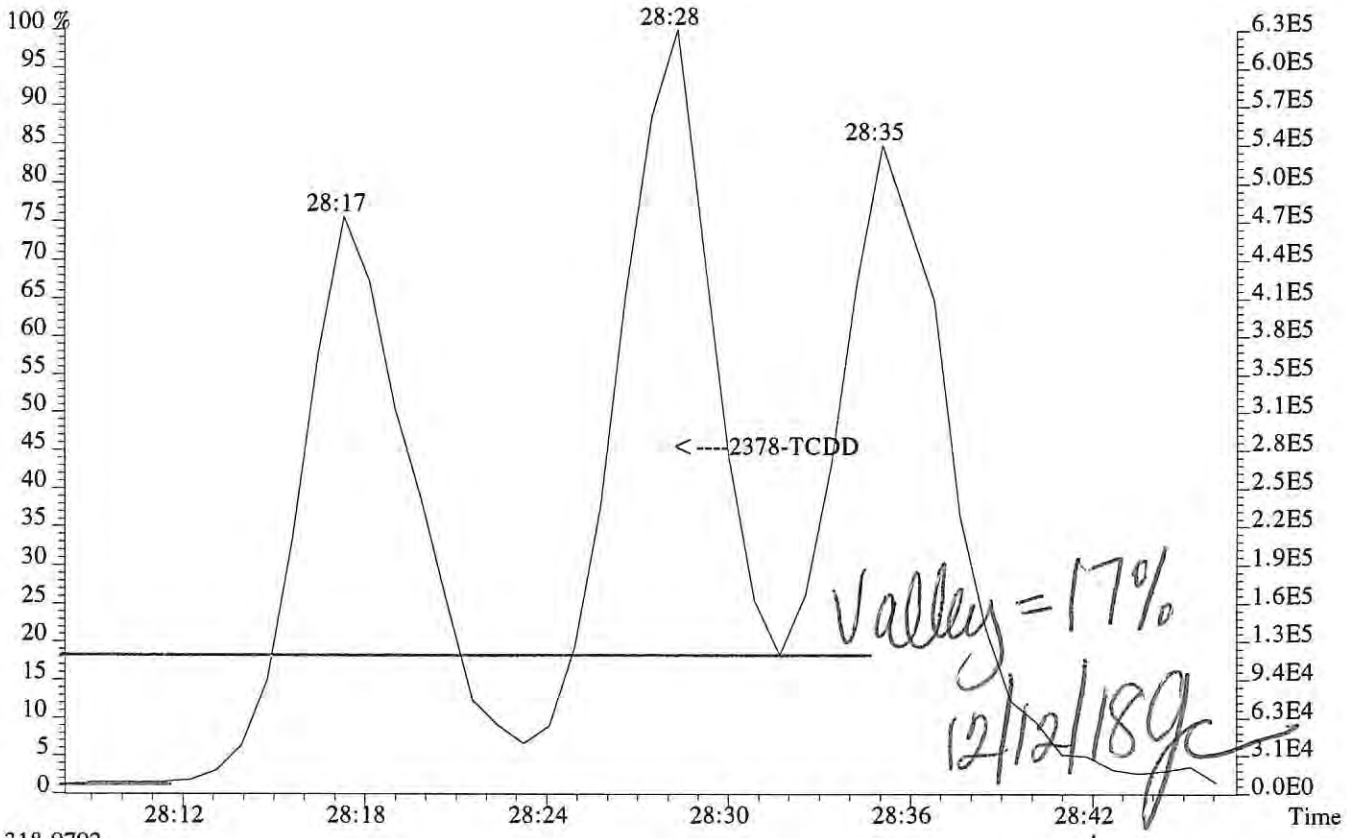
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P519336
Date Analyzed: 10-DEC-2018
Time Analyzed: 22:48:30

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:12	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:58
PeCDD	31:12	33:43
HxCDF	34:39	37:15
HxCDD	35:12	36:51
HpCDF	38:32	40:00
HpCDD	38:48	39:31

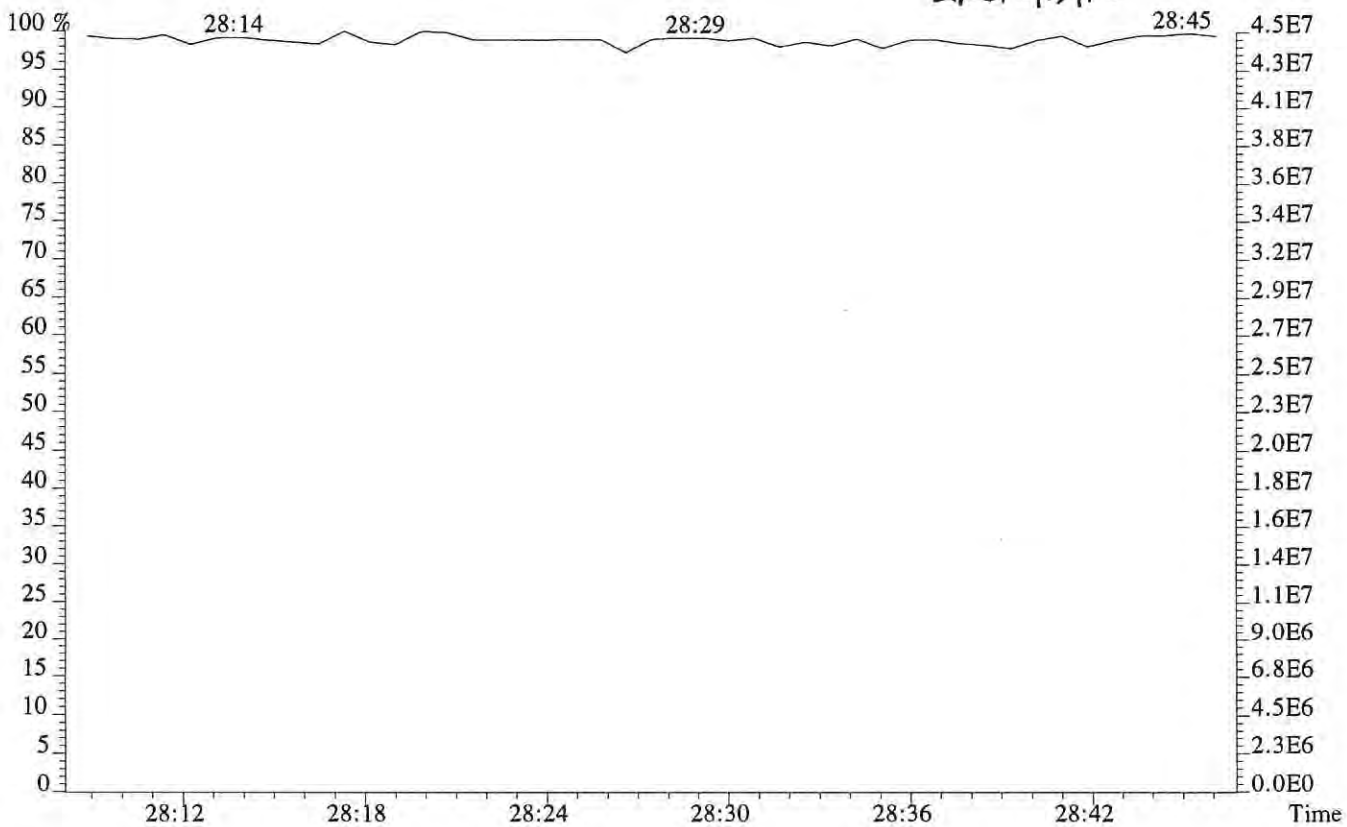
% Valley 2378-TCDD: 17 %

File:P519336 #1-587 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LM 12/13/18



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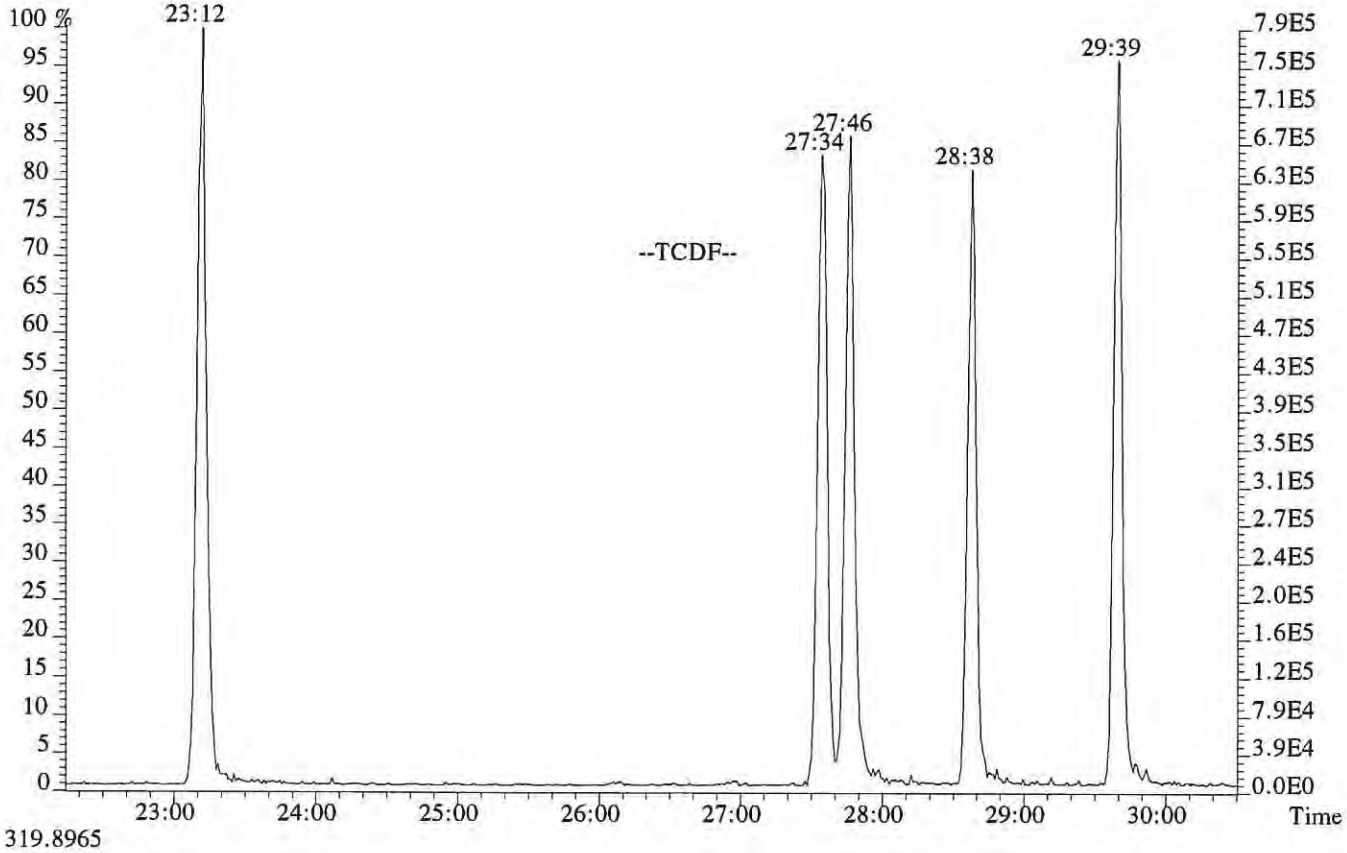
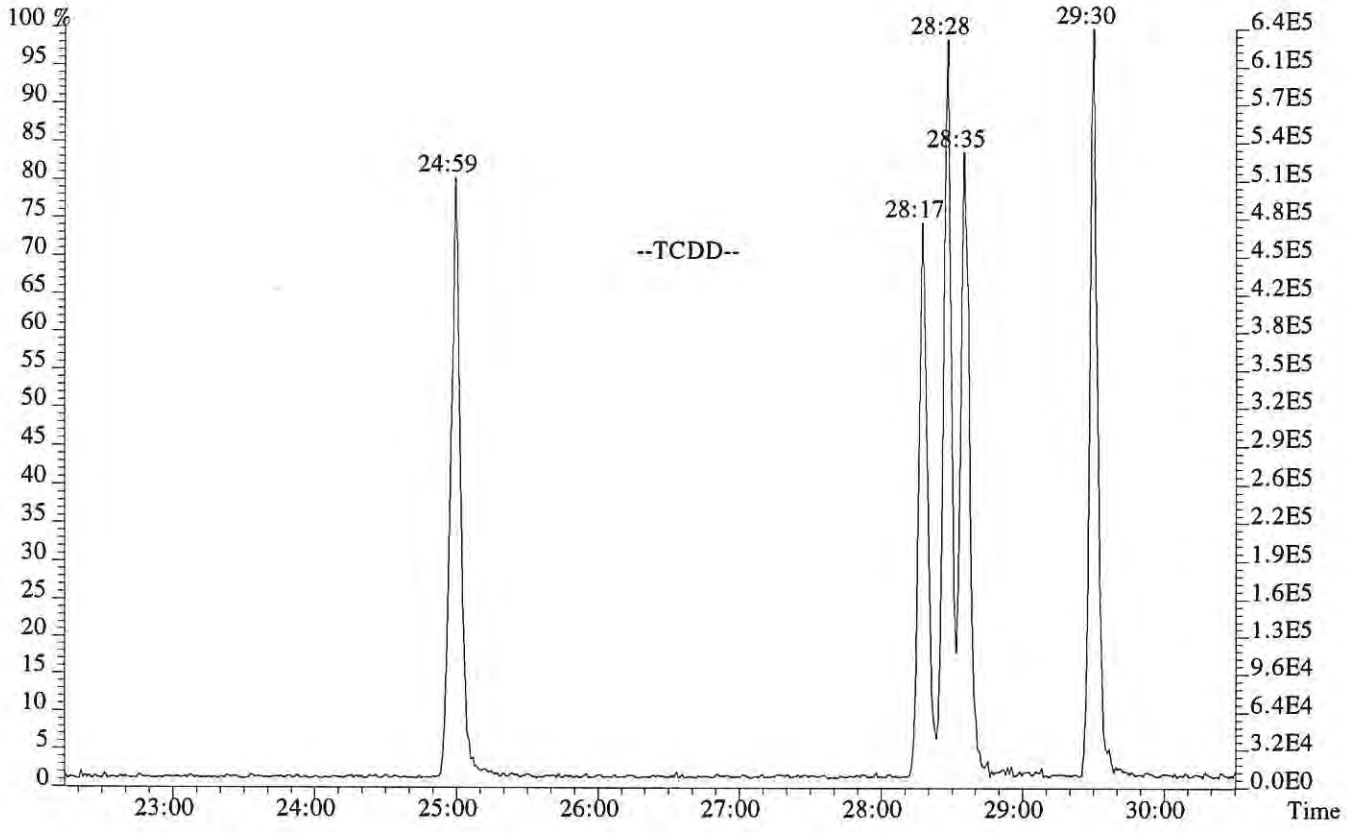
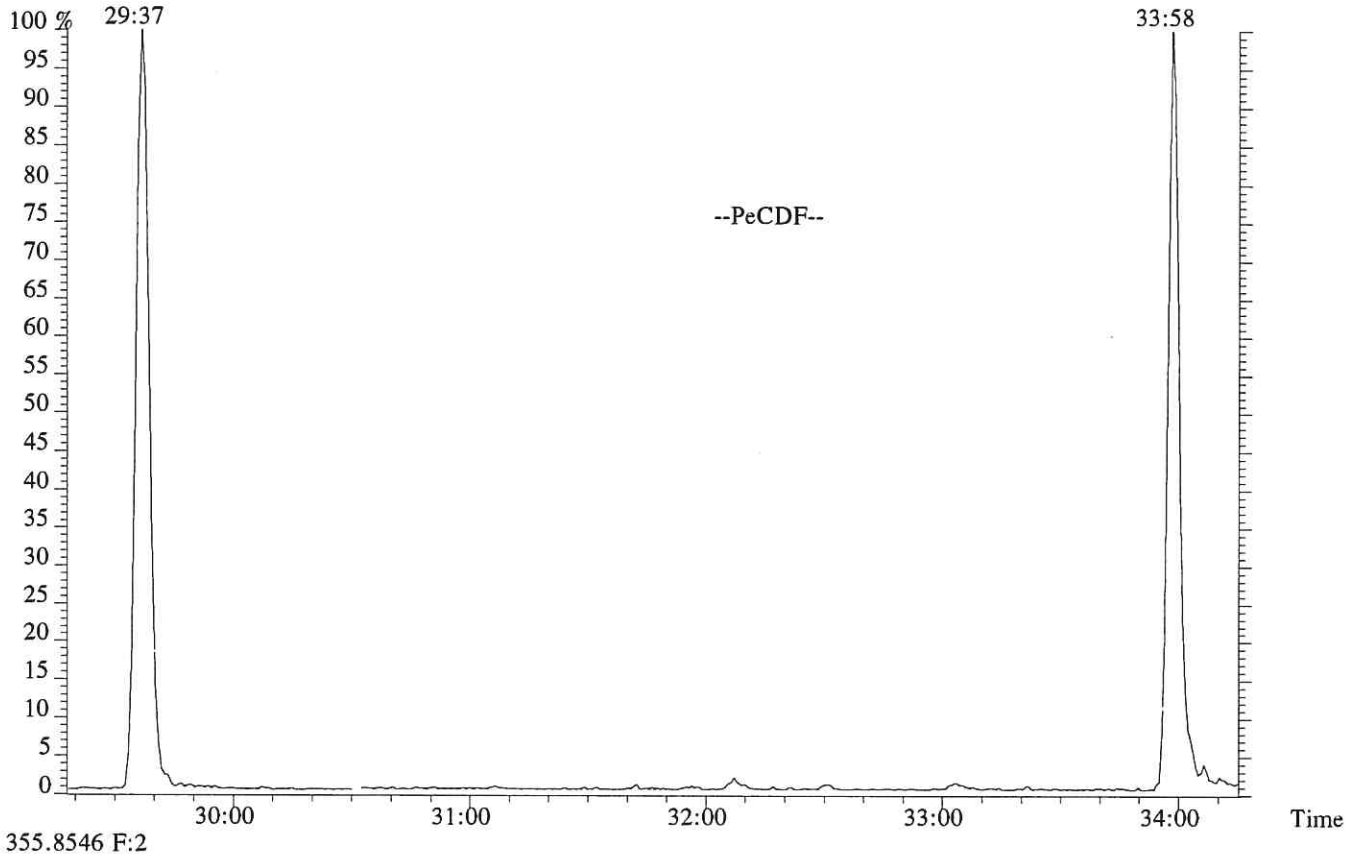
Sample#1 Exp:192977
303.9016



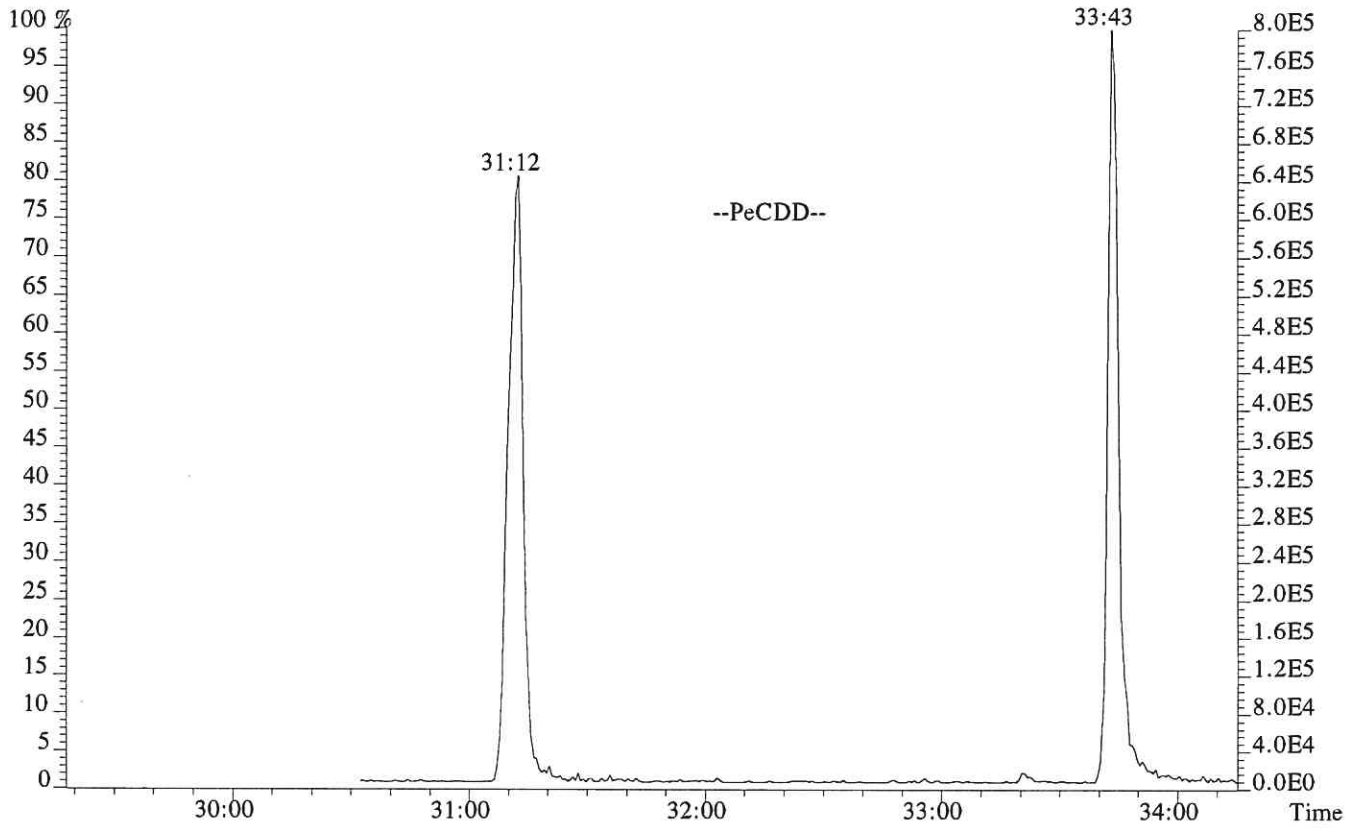
319.8965



File:P519336 #1-587 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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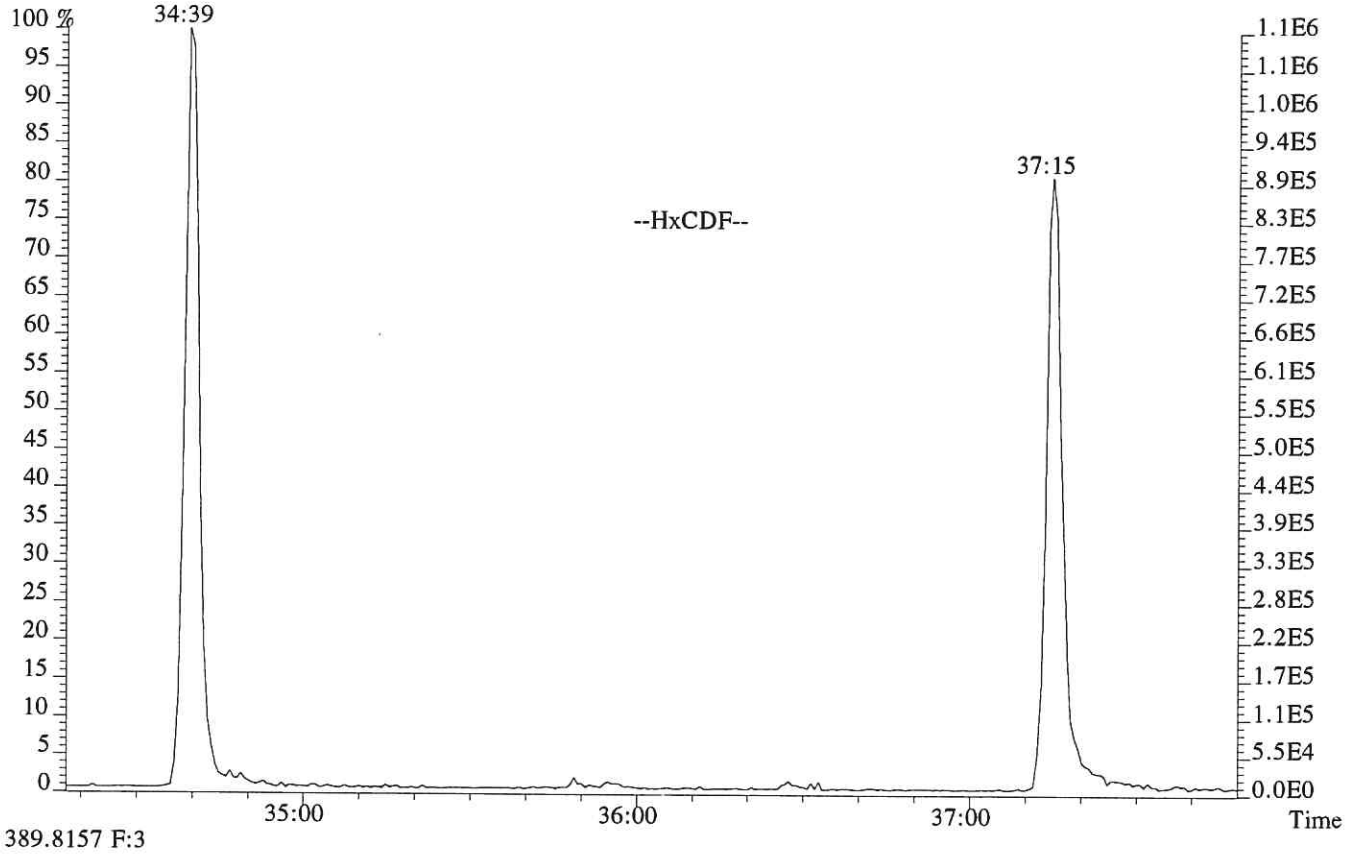
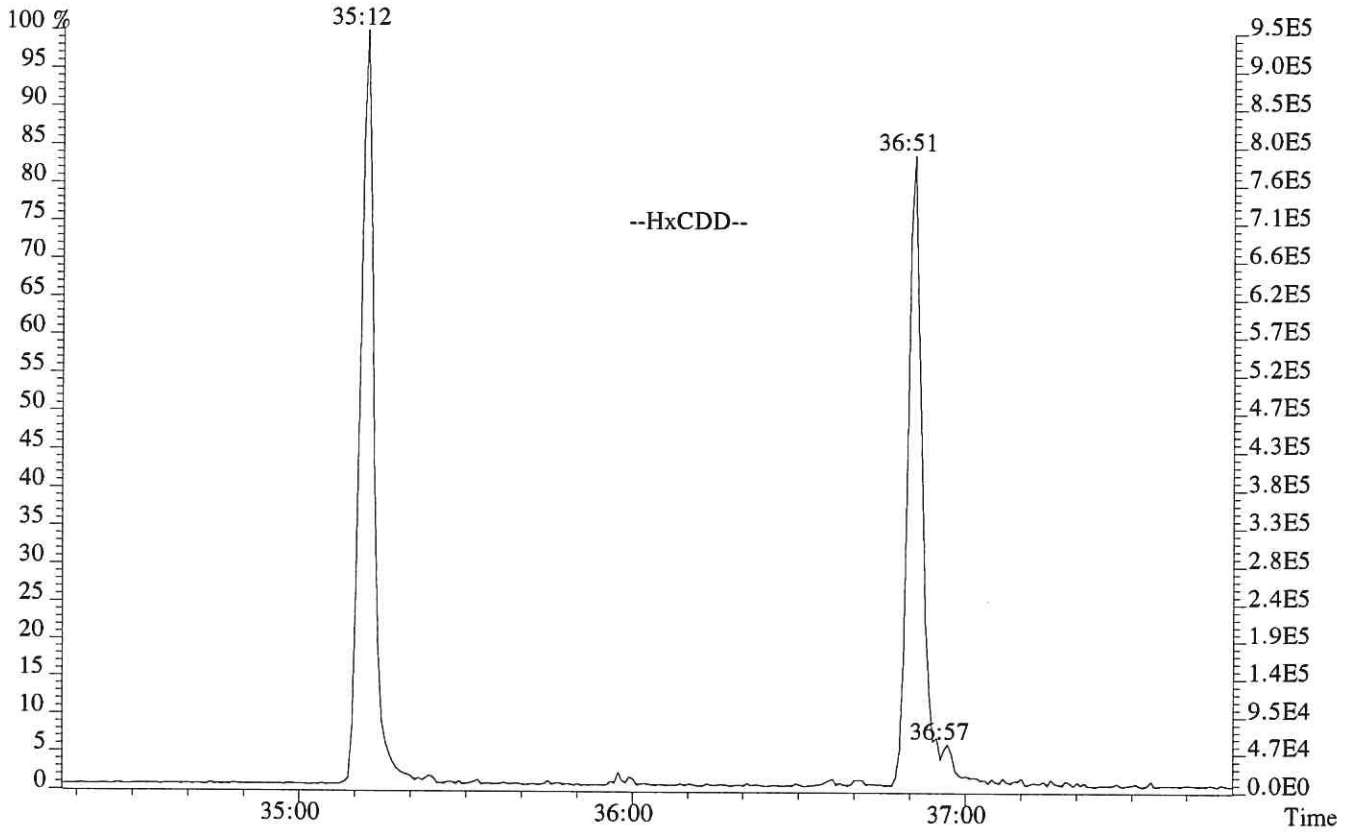
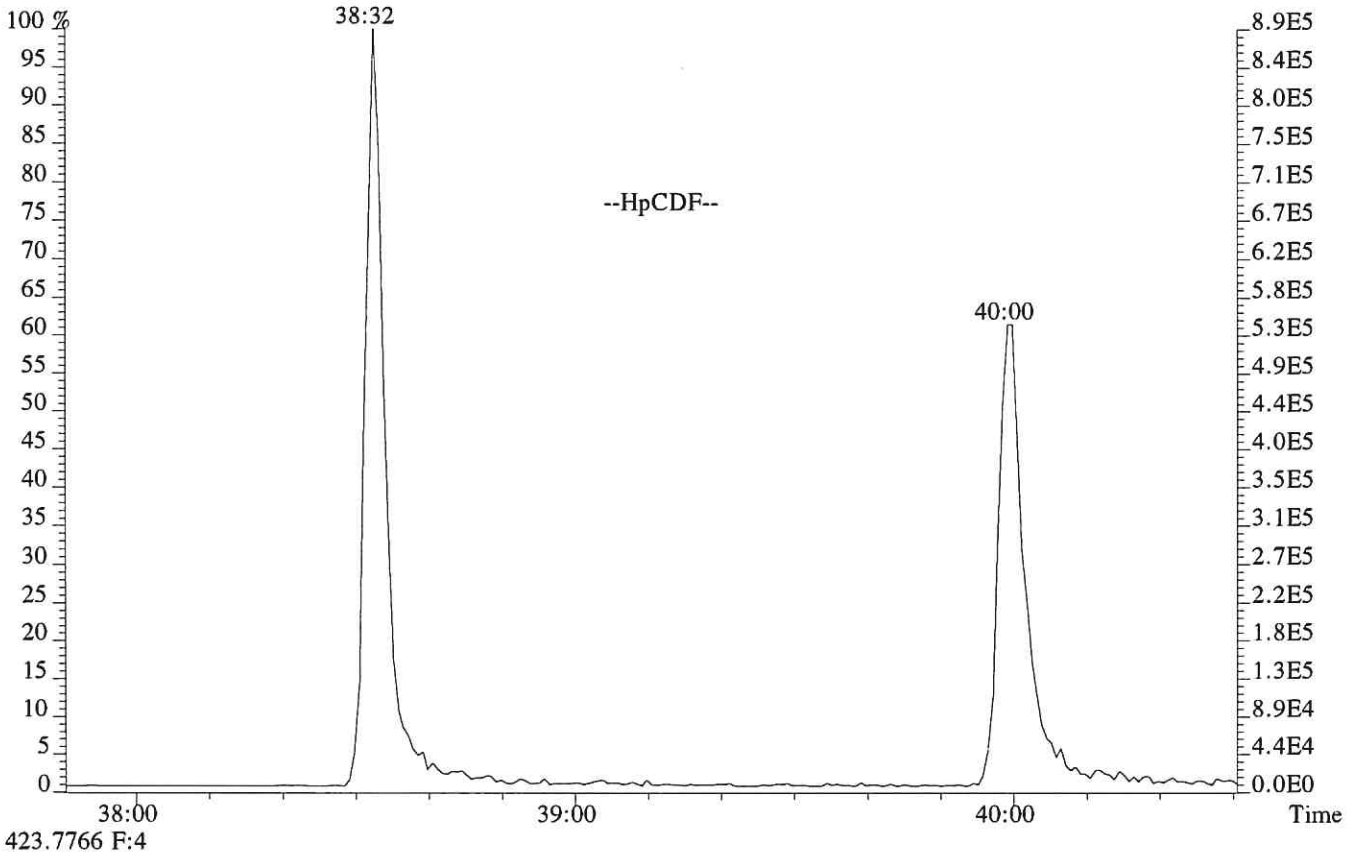
Sample#1 Exp:192977
373.8208 F:3



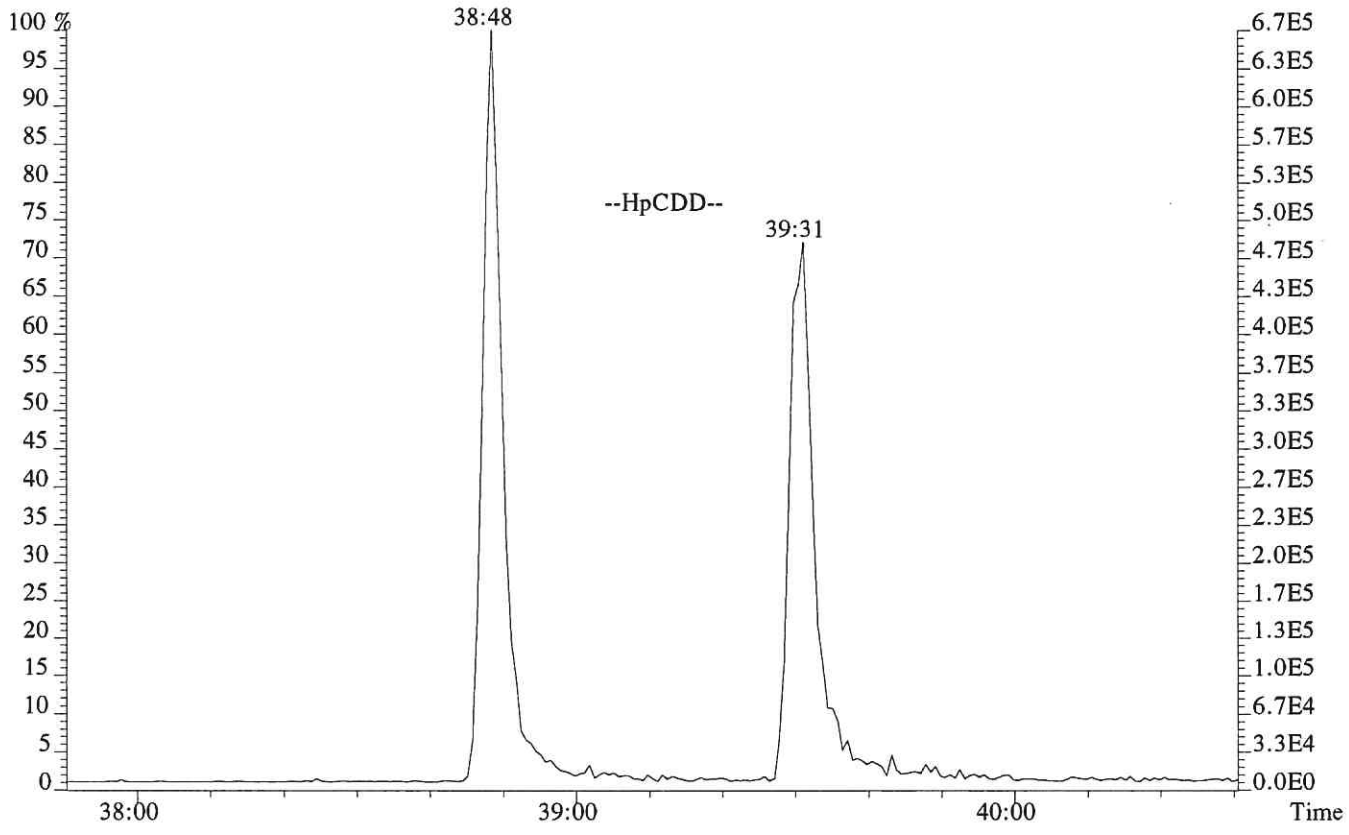
389.8157 F:3



File:P519336 #1-241 Acq:10-DEC-2018 22:48:30 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519335 Analysis Date: 10-DEC-18 Time: 22:00:44

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-6.4
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	50	39 - 65	-0.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	-0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	52	41 - 61	4.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	0.3
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.1
2,3,7,8-TCDF	M/M+2	0.72	0.65-0.89	9.9	8.4 - 12.0	-1.5
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	50	41 - 60	0.4
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 61	0.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	3.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	1.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	1.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	44 - 57	1.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	49	45 - 55	-1.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	99	63 - 159	-0.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/-20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519335 Analysis Date: 10-DEC-18 Time: 22:00:44

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	102	82 - 121	1.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	109	62 - 160	9.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	91	85 - 117	-9.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	101	85 - 118	1.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	103	72 - 138	3.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	248	96 - 415	24.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	95	71 - 140	-5.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	110	76 - 130	10.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	109	77 - 130	8.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	76 - 131	-13.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	70 - 143	-2.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	97	74 - 135	-3.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	73 - 137	-5.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	104	77 - 129	4.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519335 Samp: 1 Inj: 1 Acquired: 10-DEC-18 22:00:44
Processed: 12-DEC-18 13:50:37 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	4.207e+03	5.817e+03	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	3.760e+04	2.437e+04	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	3.454e+04	2.258e+04	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	2.910e+04	2.379e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.445e+04	2.814e+04	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	2.957e+04	2.453e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	2.705e+04	2.191e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	2.703e+04	2.632e+04	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:58	2.153e+04	2.107e+04	1.02	yes	no	1.258
10	Unk	OCDF	42:37	3.685e+04	4.158e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.096e+03	4.097e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	2.340e+04	1.473e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.950e+04	1.535e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:40	2.233e+04	1.749e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.234e+04	1.803e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	1.861e+04	1.798e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:27	3.088e+04	3.485e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	4.764e+04	6.039e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	7.498e+04	4.695e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	7.313e+04	4.596e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.914e+04	5.644e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	3.728e+04	7.208e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	3.282e+04	6.292e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	2.908e+04	5.536e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:31	2.467e+04	5.516e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.080e+04	4.803e+04	0.43	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.147e+04	3.931e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	4.940e+04	3.074e+04	1.61	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	3.832e+04	2.928e+04	1.31	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	4.347e+04	3.391e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	3.702e+04	3.420e+04	1.08	yes	no	0.858
32	IS	13C-OCDD	42:26	5.525e+04	6.107e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.360e+04	4.161e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:54	4.512e+04	3.531e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	7.384e+03				no	1.014

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519335 Samp: 1 Inj: 1 Acquired: 10-DEC-18 22:00:44
Processed: 12-DEC-18 13:50:37 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.36e+05	3.56e+02	2.1e+03	9.93e+05	8.76e+02	1.1e+03
2	1,2,3,7,8-PeCDF	6.81e+06	3.48e+02	2.0e+04	4.45e+06	2.02e+03	2.2e+03
3	2,3,4,7,8-PeCDF	6.54e+06	3.48e+02	1.9e+04	4.26e+06	2.02e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	6.05e+06	6.16e+02	9.8e+03	4.98e+06	3.44e+02	1.4e+04
5	1,2,3,6,7,8-HxCDF	6.36e+06	6.16e+02	1.0e+04	5.21e+06	3.44e+02	1.5e+04
6	2,3,4,6,7,8-HxCDF	5.96e+06	6.16e+02	9.7e+03	5.00e+06	3.44e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	4.99e+06	6.16e+02	8.1e+03	3.98e+06	3.44e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	5.02e+06	1.74e+03	2.9e+03	4.89e+06	2.62e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	3.45e+06	1.74e+03	2.0e+03	3.41e+06	2.62e+03	1.3e+03
10	OCDF	4.49e+06	2.60e+02	1.7e+04	5.08e+06	5.96e+02	8.5e+03
11	2,3,7,8-TCDD	5.57e+05	1.48e+03	3.8e+02	7.54e+05	6.96e+02	1.1e+03
12	1,2,3,7,8-PeCDD	4.39e+06	2.00e+02	2.2e+04	2.75e+06	2.16e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	4.14e+06	4.08e+02	1.0e+04	3.24e+06	3.24e+02	1.0e+04
14	1,2,3,6,7,8-HxCDD	4.19e+06	4.08e+02	1.0e+04	3.29e+06	3.24e+02	1.0e+04
15	1,2,3,7,8,9-HxCDD	4.08e+06	4.08e+02	1.0e+04	3.28e+06	3.24e+02	1.0e+04
16	1,2,3,4,6,7,8-HpCDD	3.08e+06	4.44e+02	6.9e+03	2.97e+06	5.60e+02	5.3e+03
17	OCDD	3.74e+06	2.20e+02	1.7e+04	4.12e+06	2.52e+02	1.6e+04
18	13C-2,3,7,8-TCDF	8.20e+06	6.94e+03	1.2e+03	1.04e+07	3.87e+03	2.7e+03
19	13C-1,2,3,7,8-PeCDF	1.34e+07	4.04e+02	3.3e+04	8.40e+06	1.06e+03	7.9e+03
20	13C-2,3,4,7,8-PeCDF	1.41e+07	4.04e+02	3.5e+04	9.00e+06	1.06e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	6.12e+06	7.04e+02	8.7e+03	1.18e+07	8.00e+02	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	7.01e+06	7.04e+02	1.0e+04	1.36e+07	8.00e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	6.63e+06	7.04e+02	9.4e+03	1.26e+07	8.00e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	5.29e+06	7.04e+02	7.5e+03	1.02e+07	8.00e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.60e+06	1.06e+03	4.3e+03	1.02e+07	8.57e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.36e+06	1.06e+03	3.2e+03	7.56e+06	8.57e+03	8.8e+02
27	13C-2,3,7,8-TCDD	5.84e+06	3.74e+03	1.6e+03	7.29e+06	1.39e+03	5.2e+03
28	13C-1,2,3,7,8-PeCDD	9.22e+06	3.84e+02	2.4e+04	5.81e+06	6.36e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	8.12e+06	6.36e+02	1.3e+04	6.29e+06	4.28e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	8.17e+06	6.36e+02	1.3e+04	6.42e+06	4.28e+02	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.01e+06	6.08e+02	9.9e+03	5.55e+06	3.28e+02	1.7e+04
32	13C-OCDD	6.58e+06	5.00e+02	1.3e+04	7.22e+06	2.44e+02	3.0e+04
33	13C-1,2,3,4-TCDD	6.17e+06	3.74e+03	1.6e+03	7.58e+06	1.39e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.94e+06	6.36e+02	1.2e+04	6.36e+06	4.28e+02	1.5e+04
35	37Cl-2,3,7,8-TCDD	1.34e+06	6.32e+02	2.1e+03			

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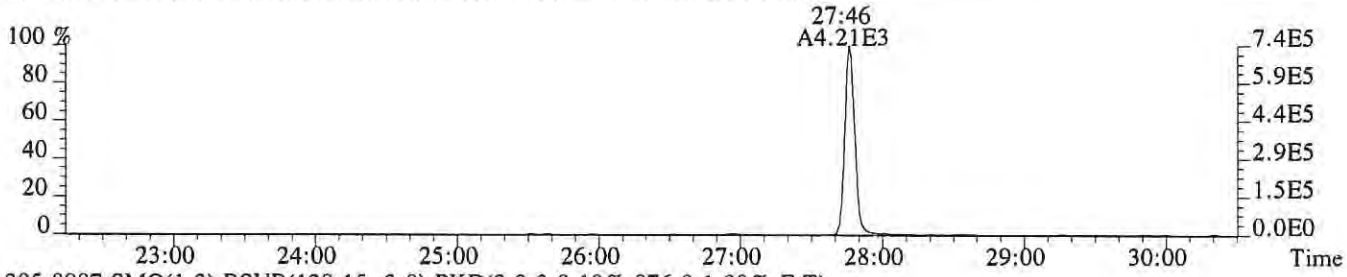
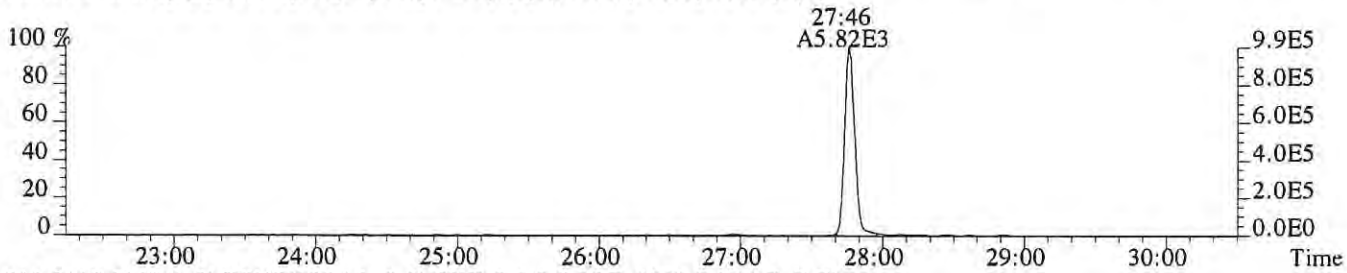
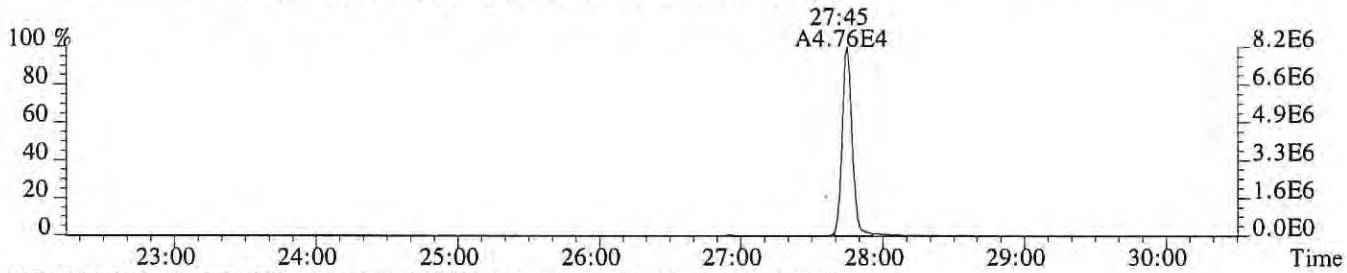
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



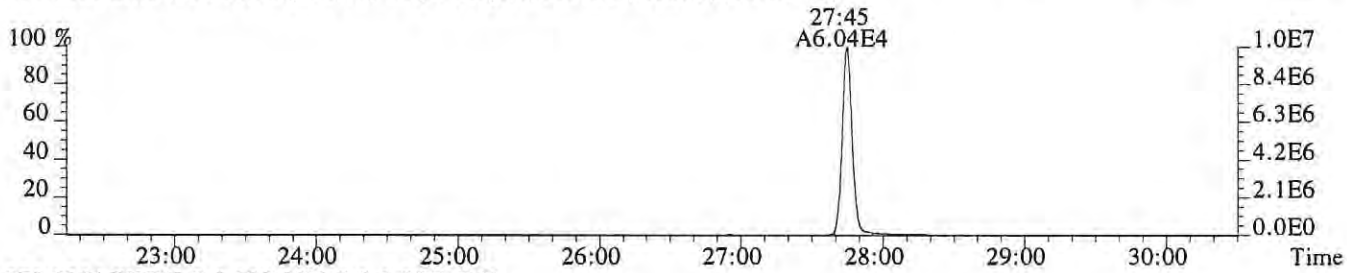
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



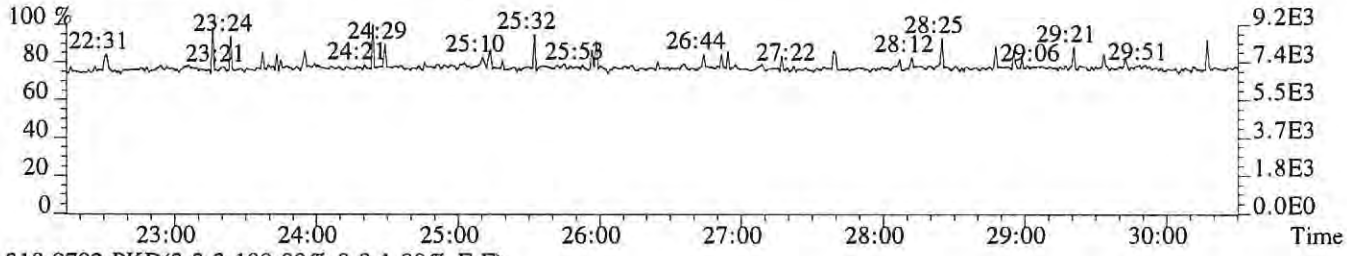
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6940.0,1.00%,F,T)



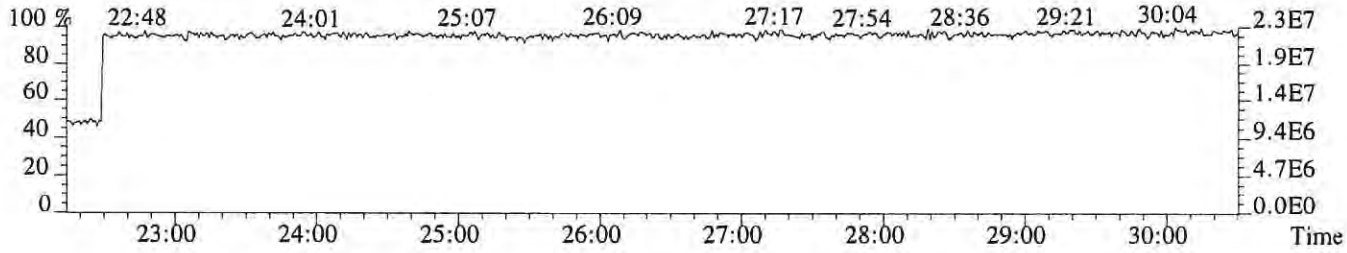
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



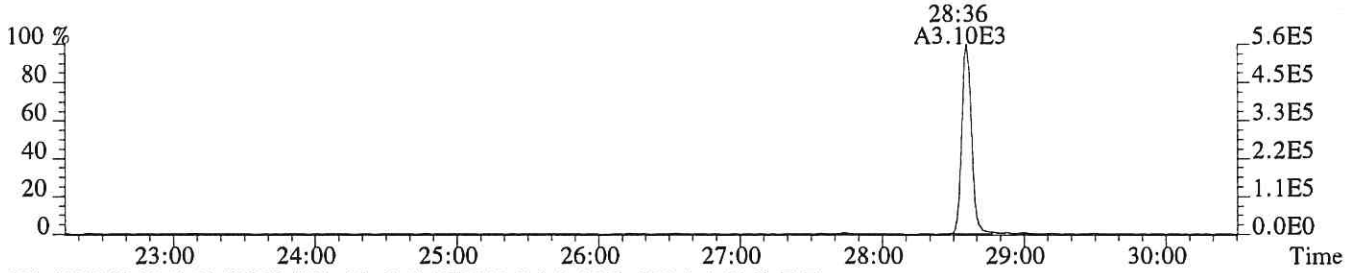
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



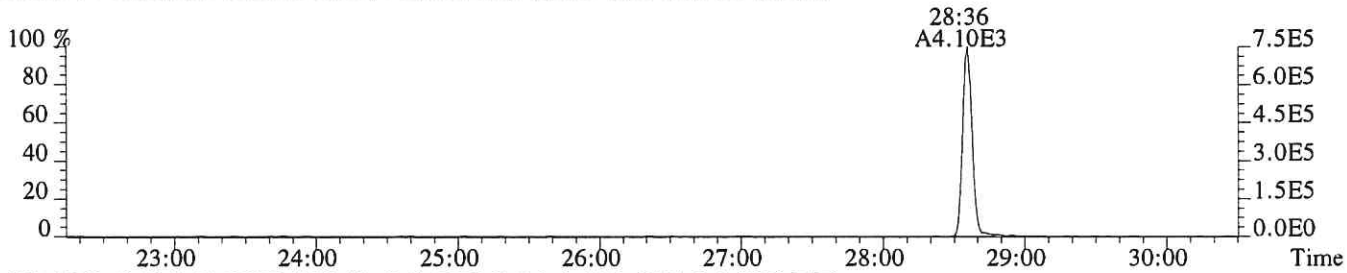
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



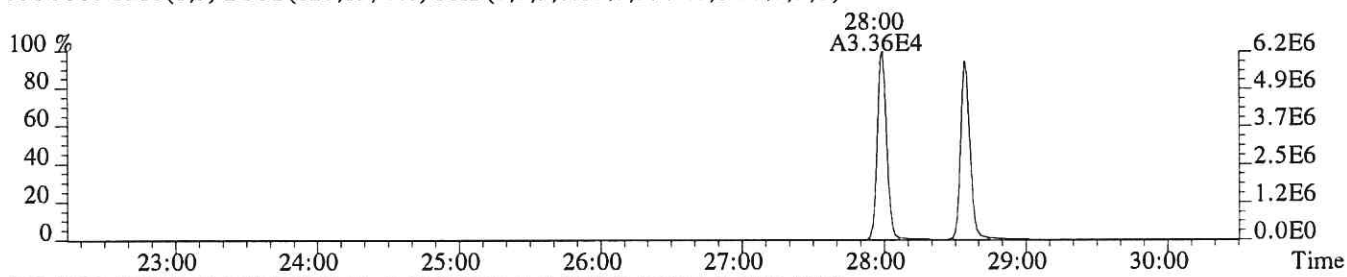
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



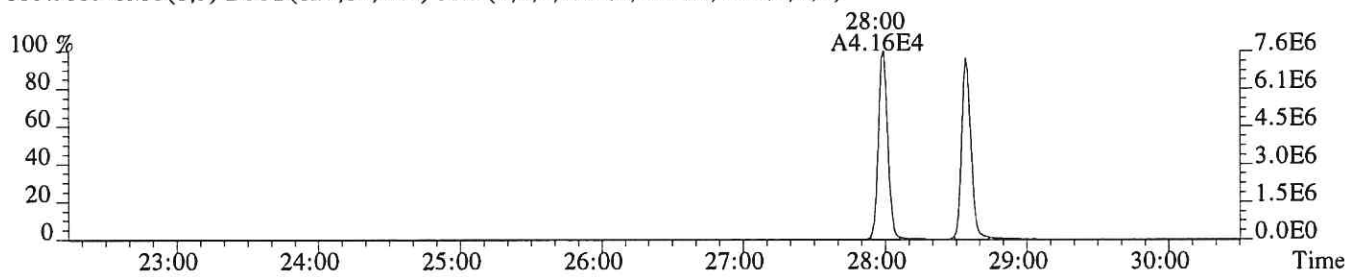
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



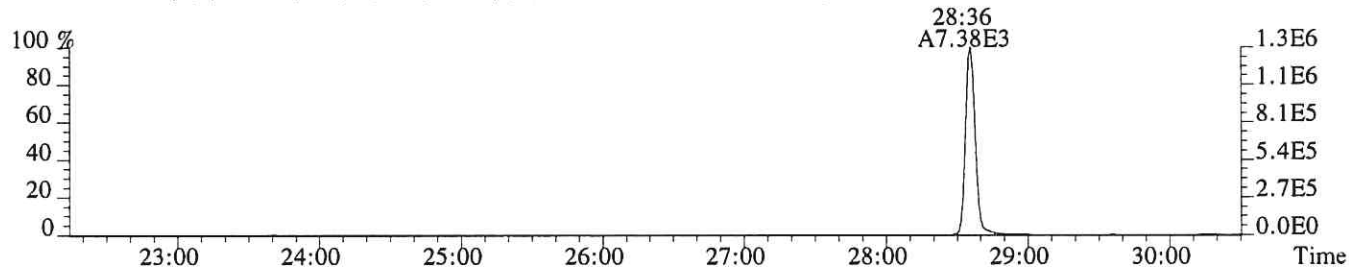
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3744.0,1.00%,F,T)



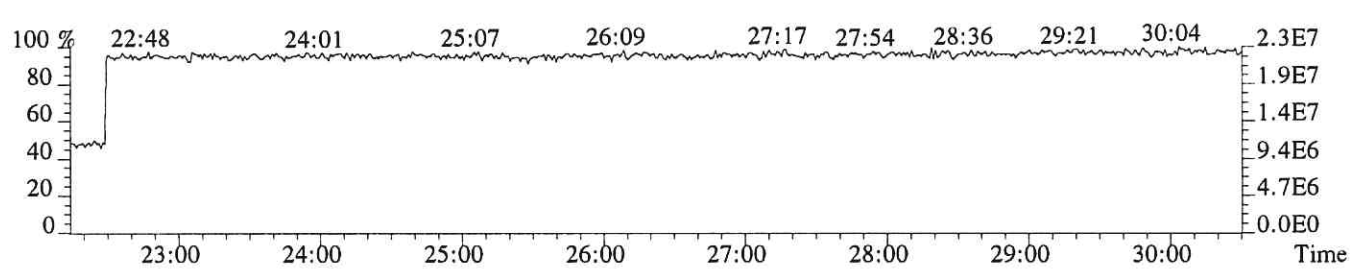
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



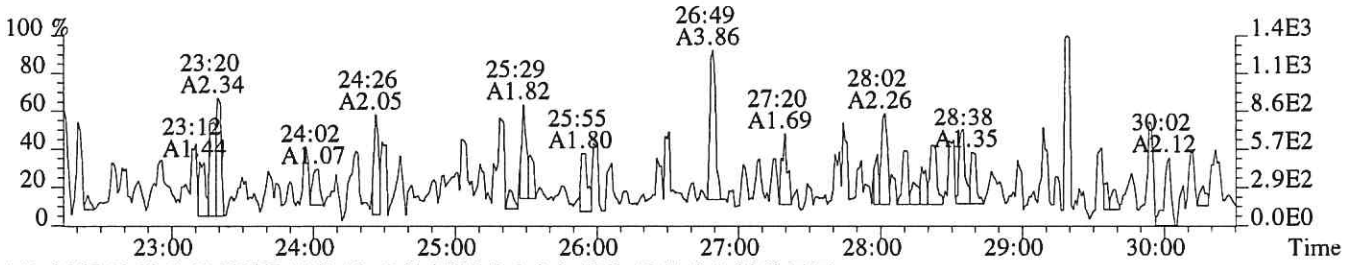
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



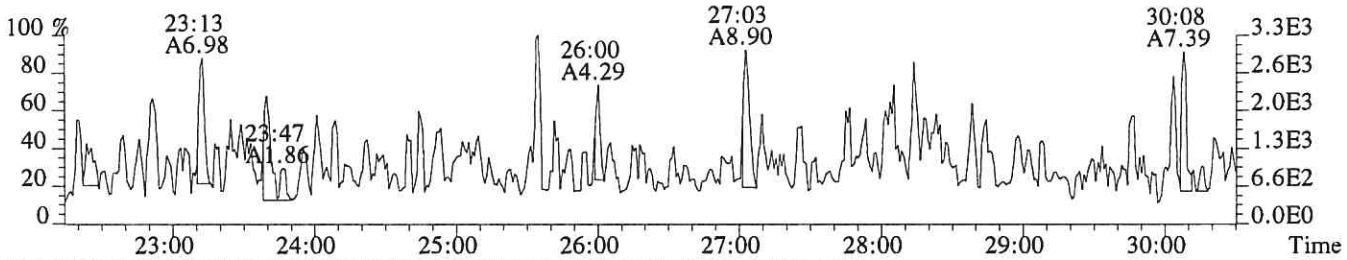
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



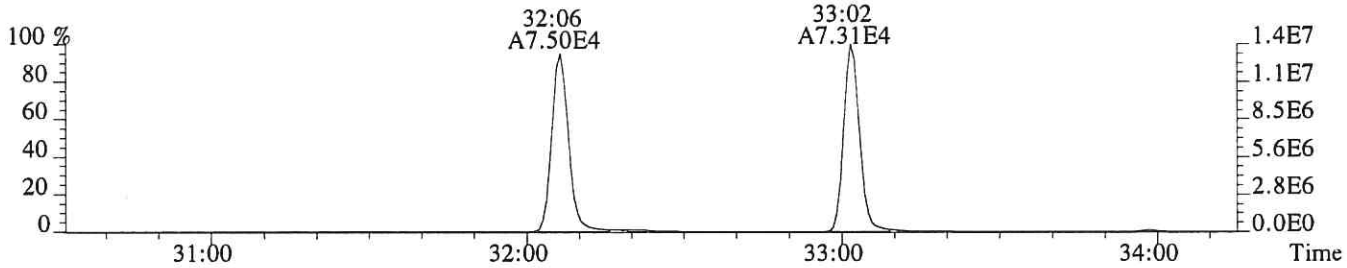
File:P519335 #1-587 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



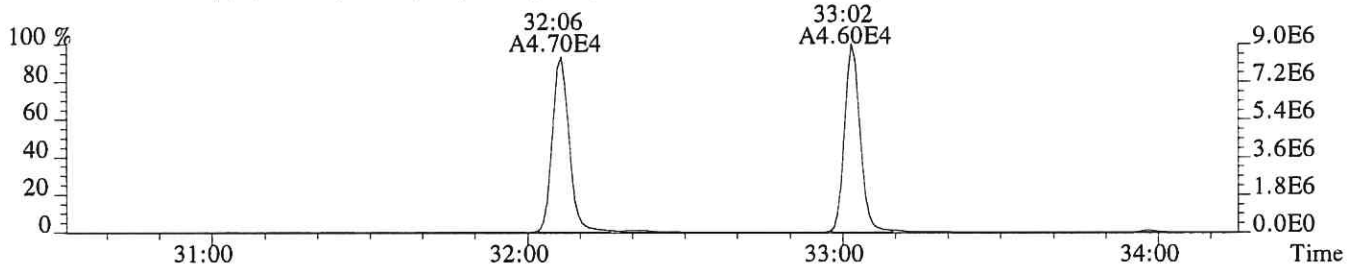
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



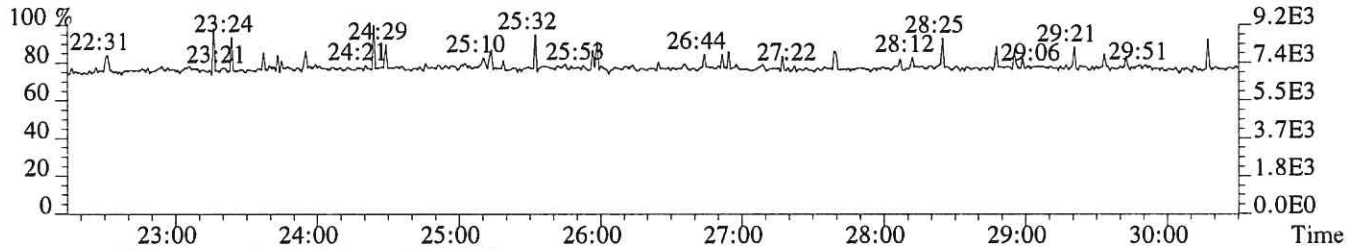
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



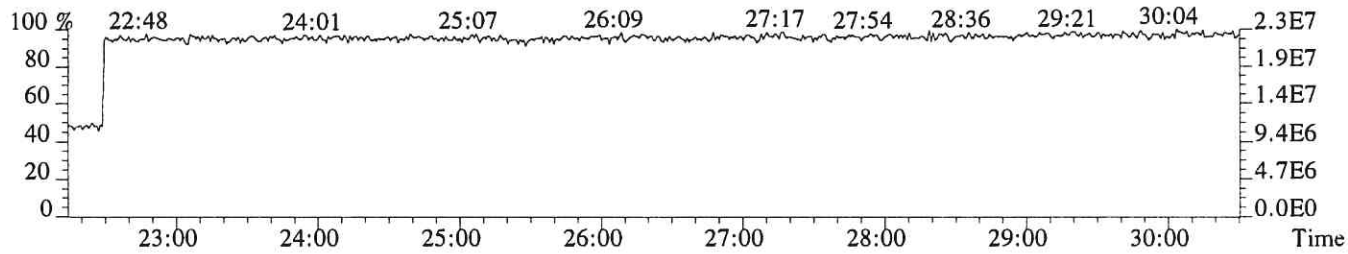
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

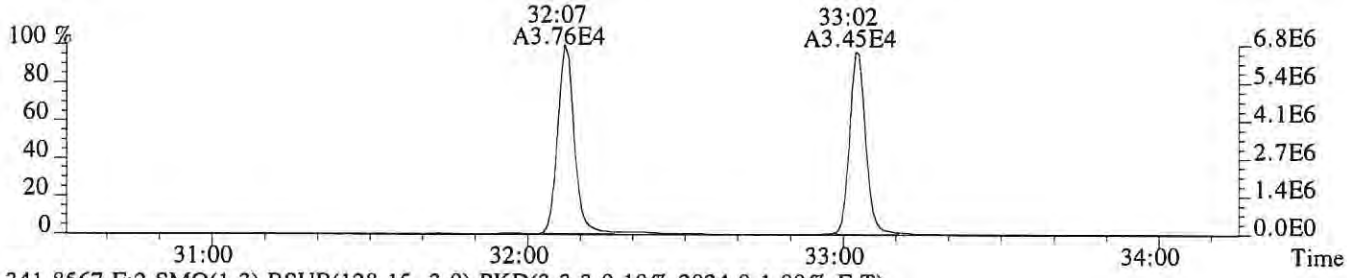


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

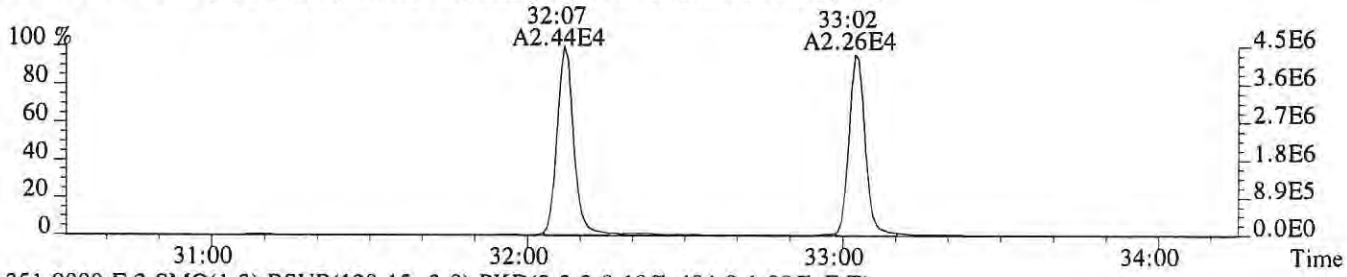


File:P519335 #1-335 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

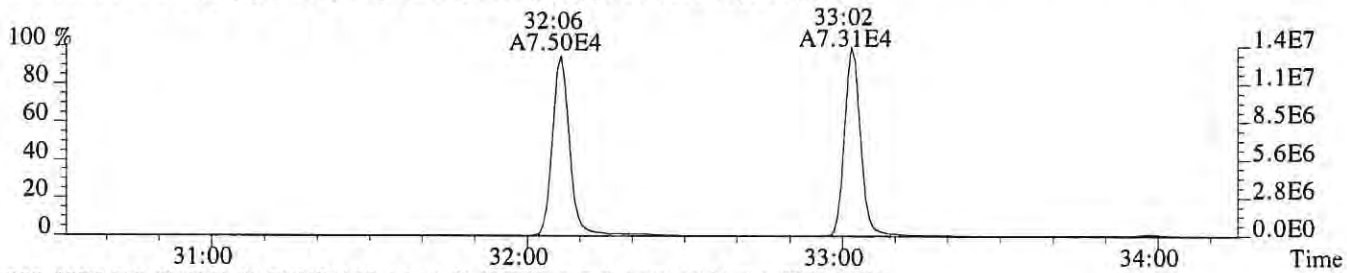
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



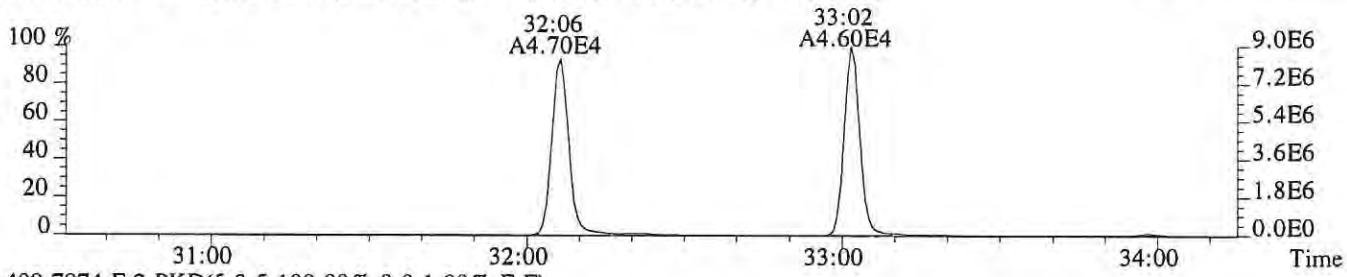
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



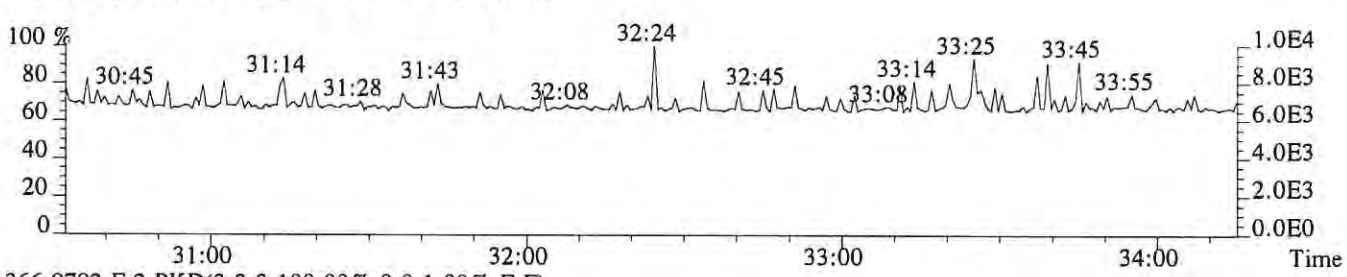
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



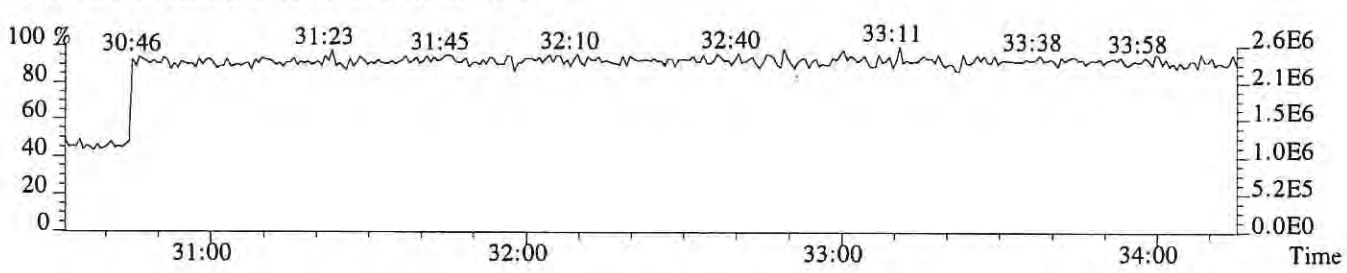
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



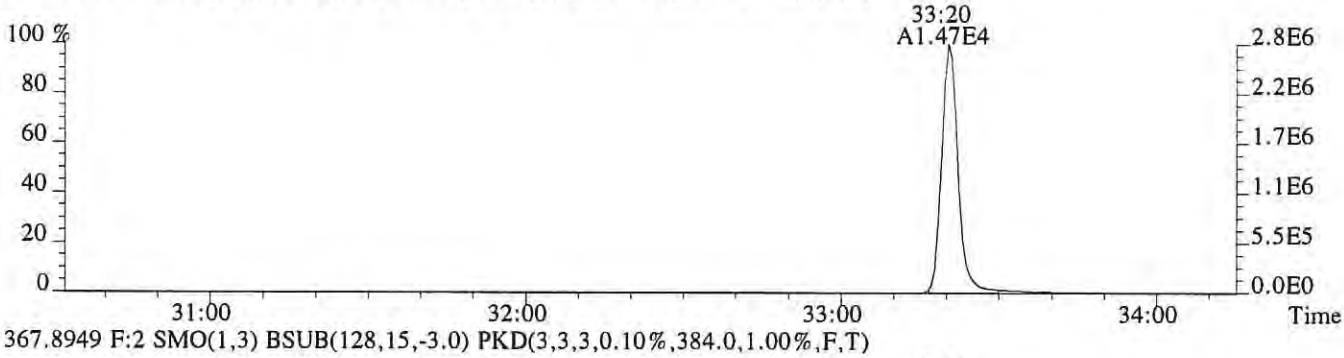
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



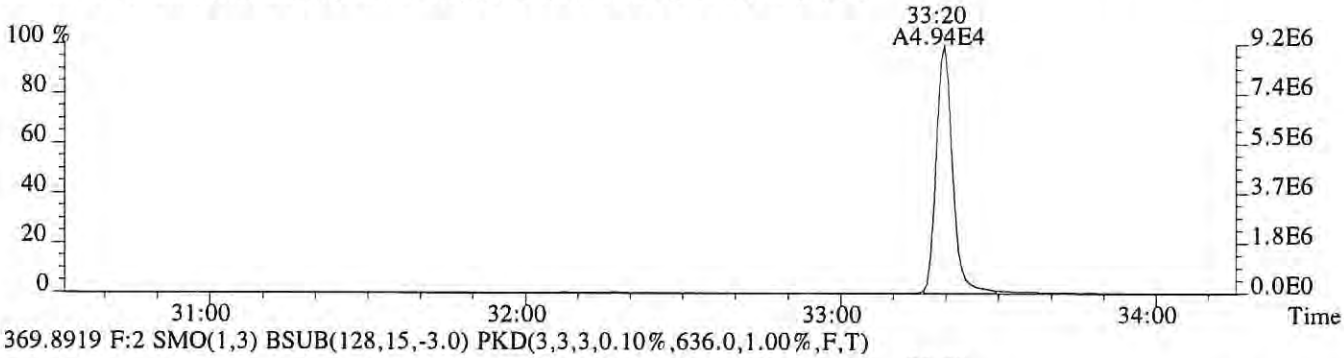
File:P519335 #1-335 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



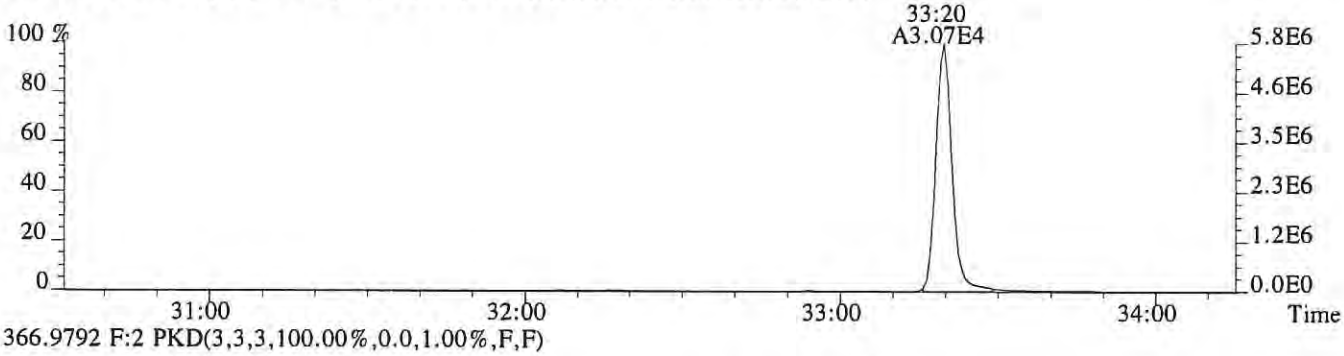
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)



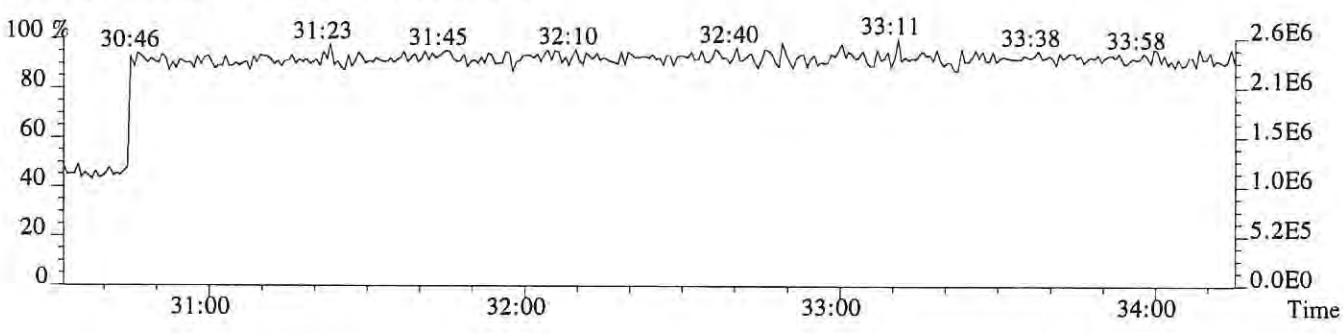
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)

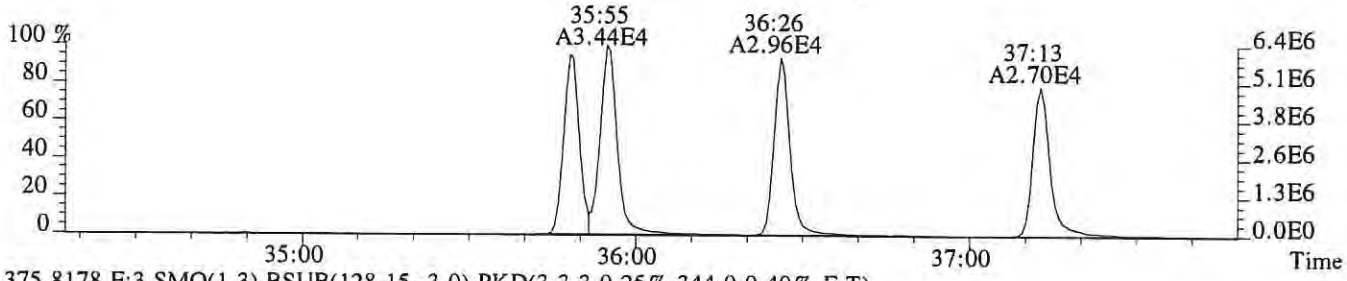


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

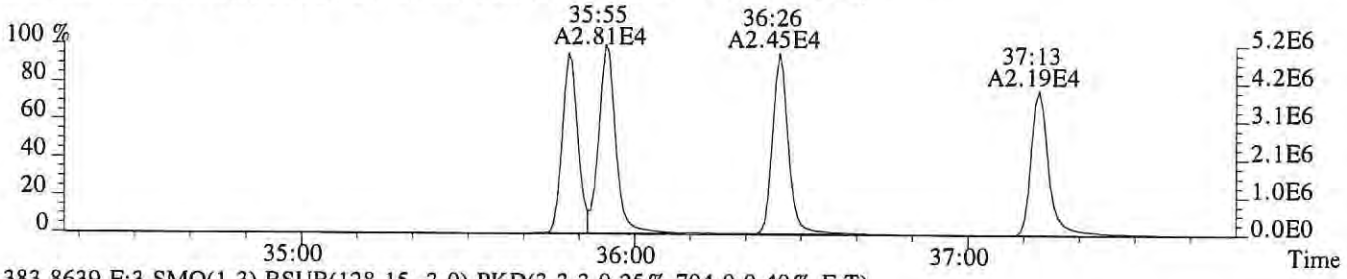


File:P519335 #1-317 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

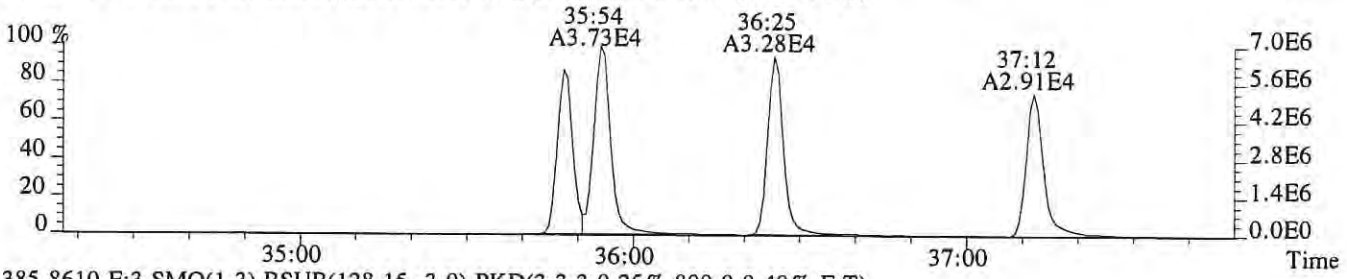
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



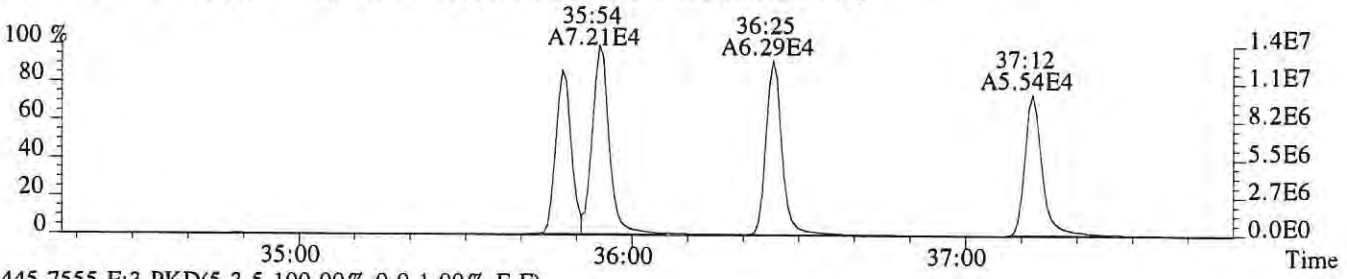
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



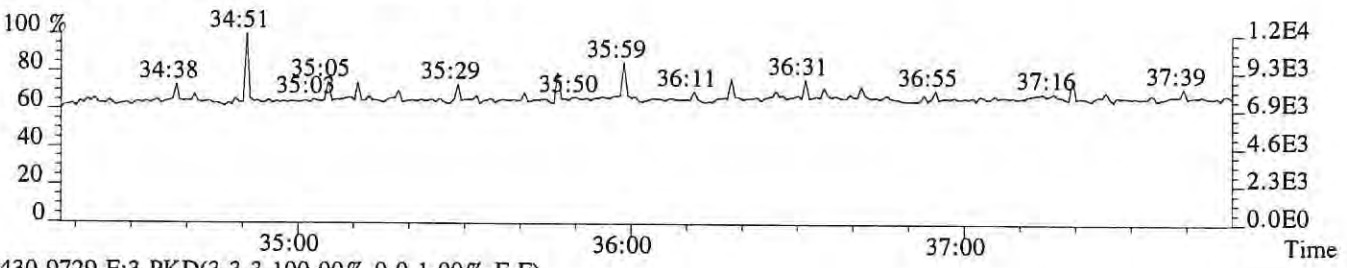
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



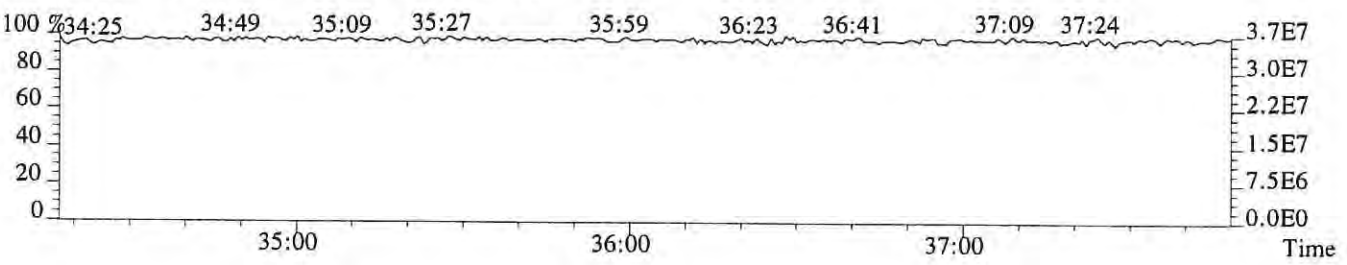
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



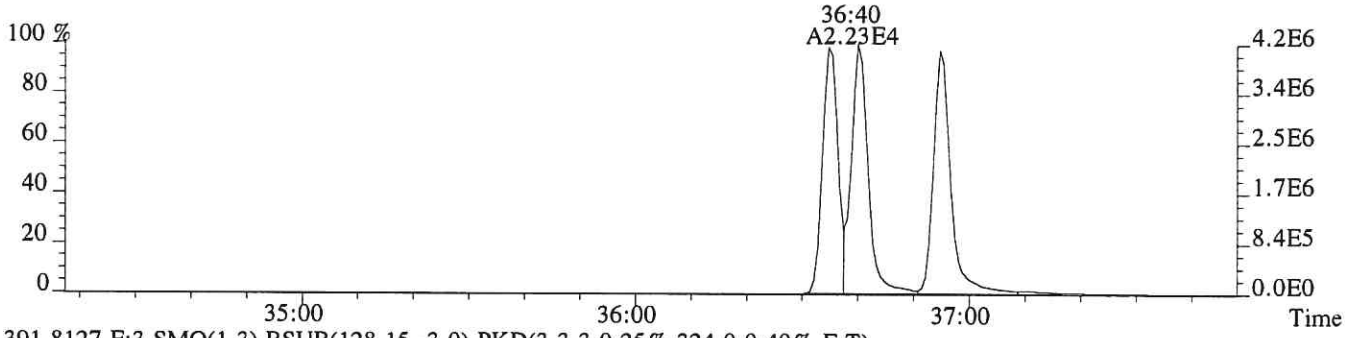
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



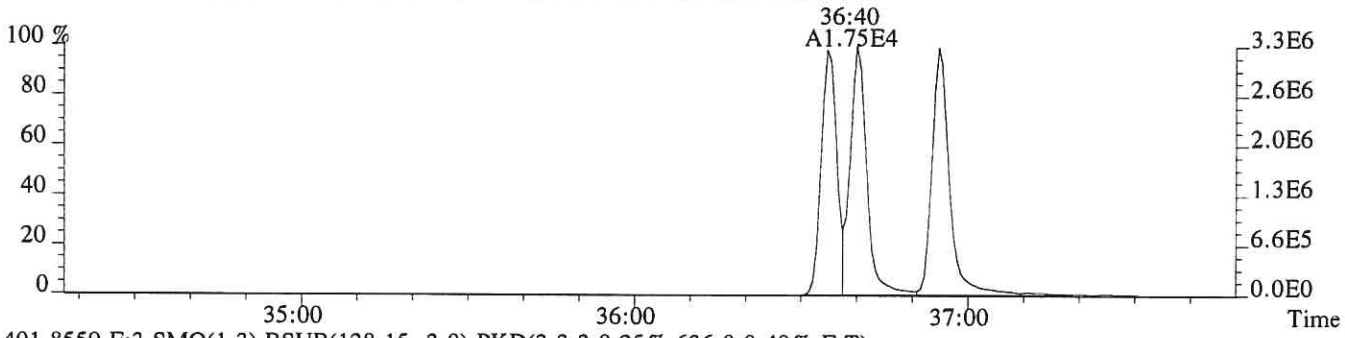
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



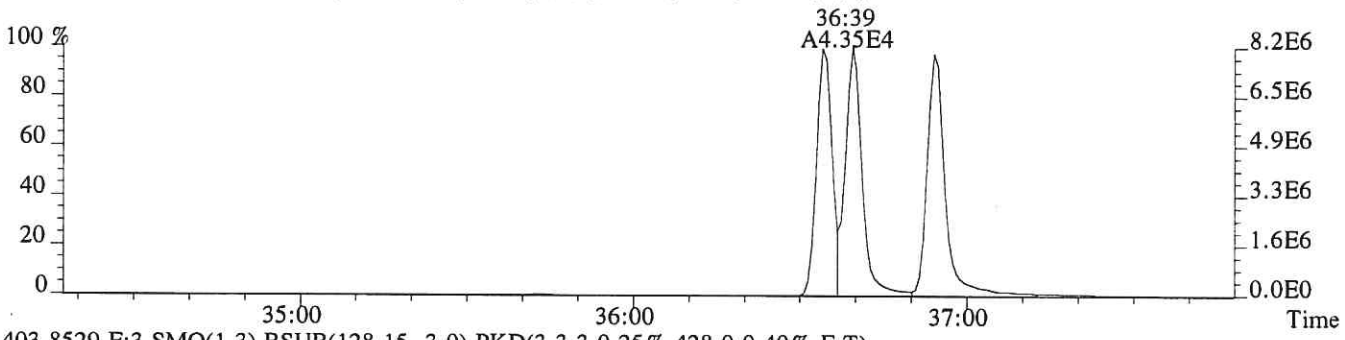
File:P519335 #1-317 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



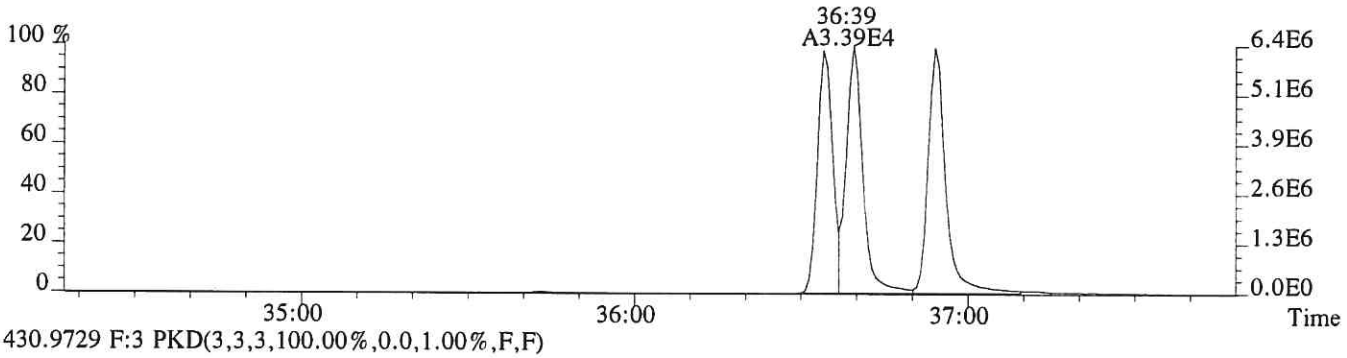
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



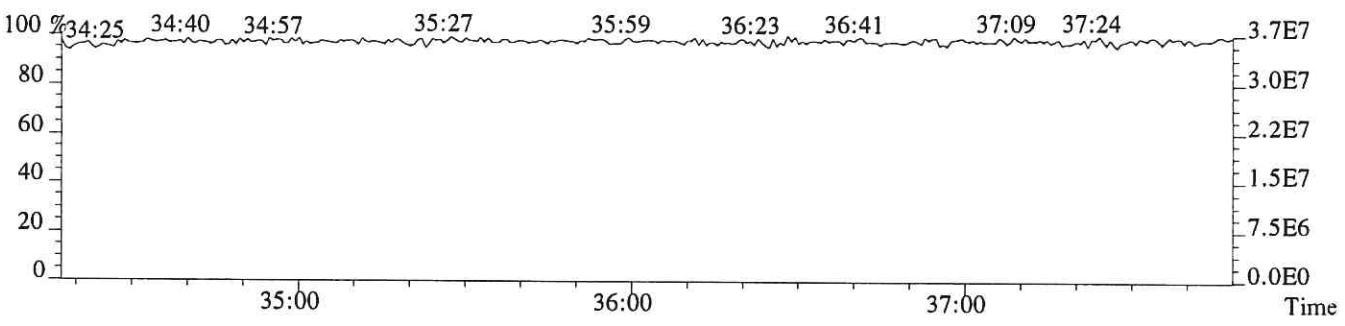
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



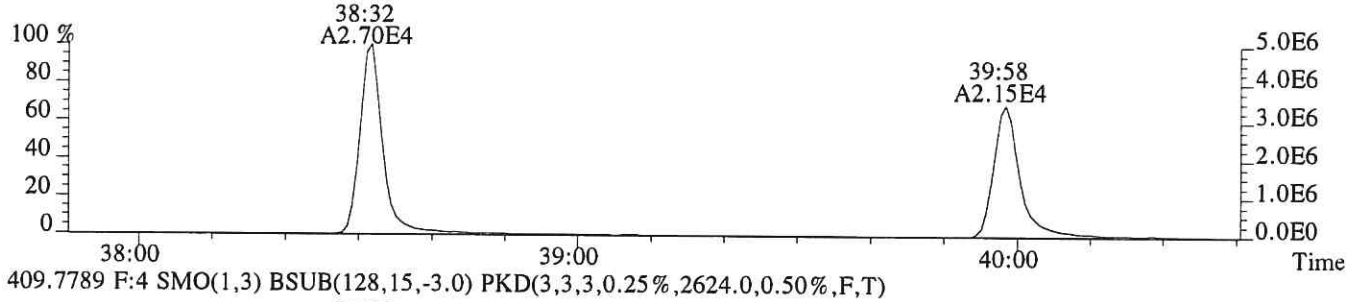
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



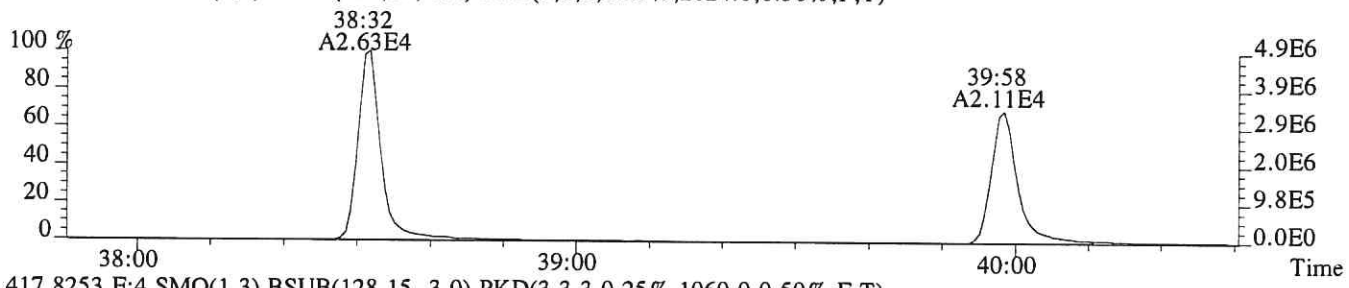
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



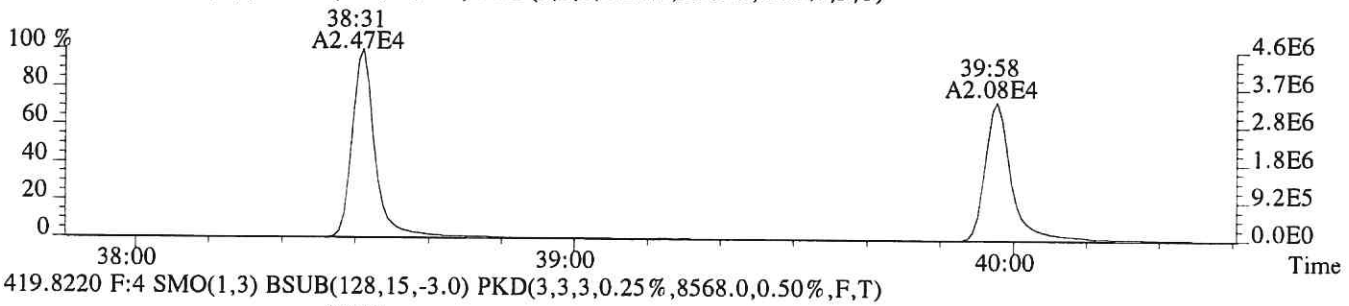
File:P519335 #1-241 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.50%,F,T)



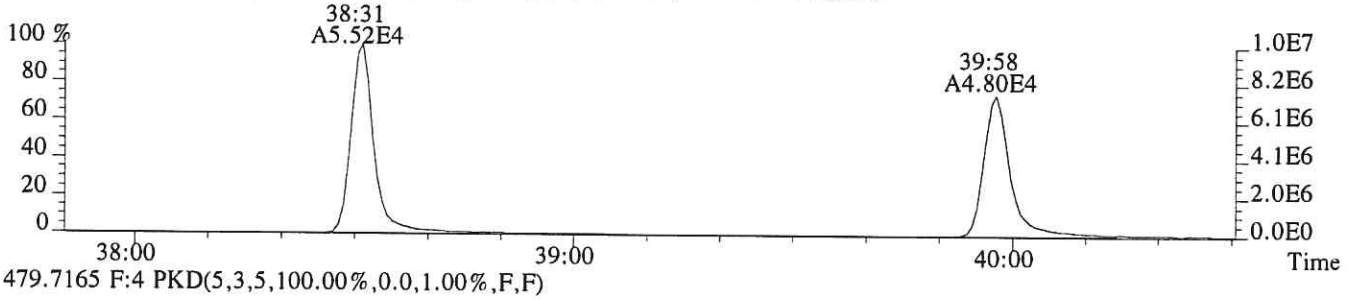
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.50%,F,T)



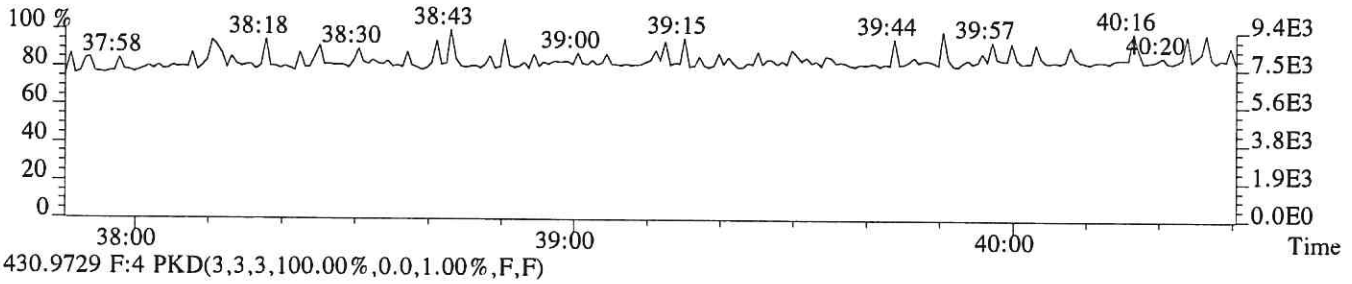
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)



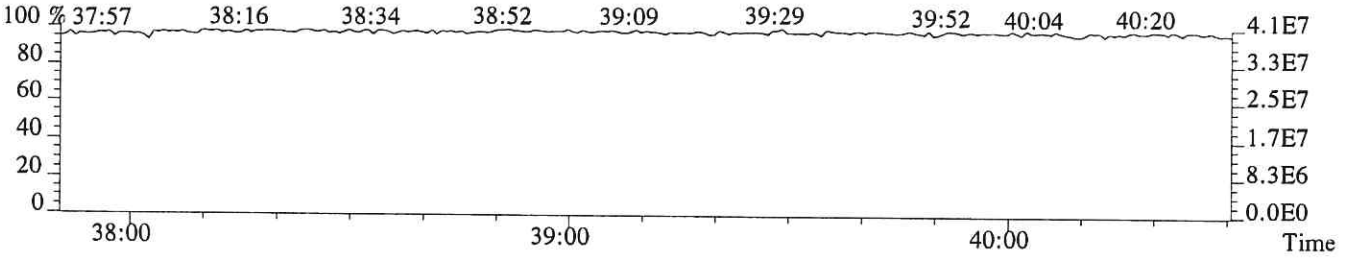
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8568.0,0.50%,F,T)



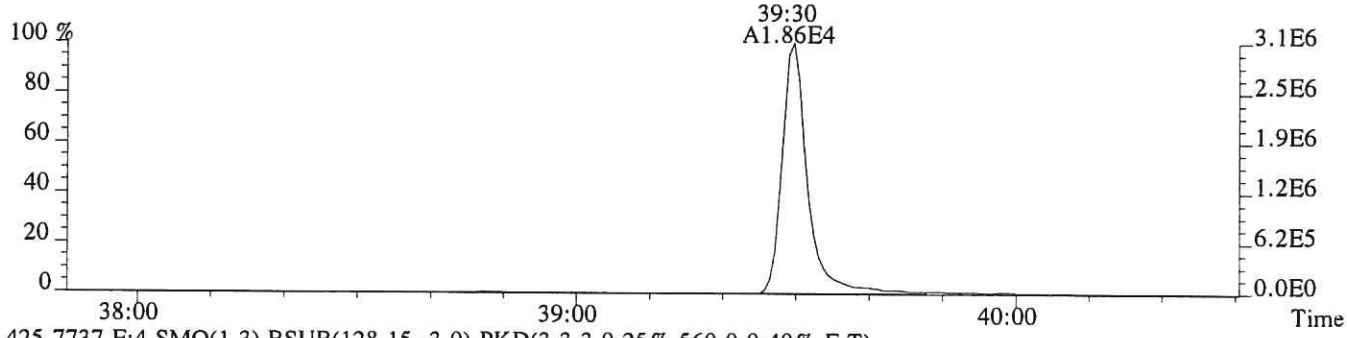
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



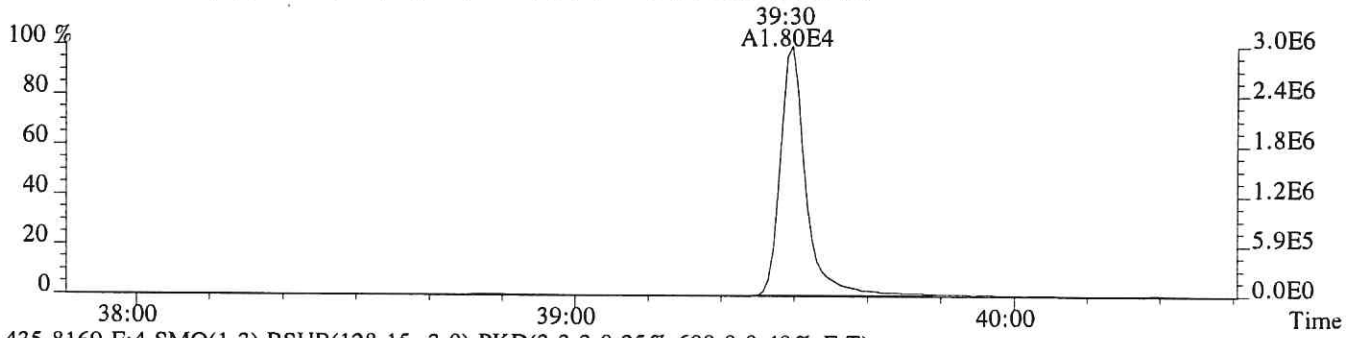
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



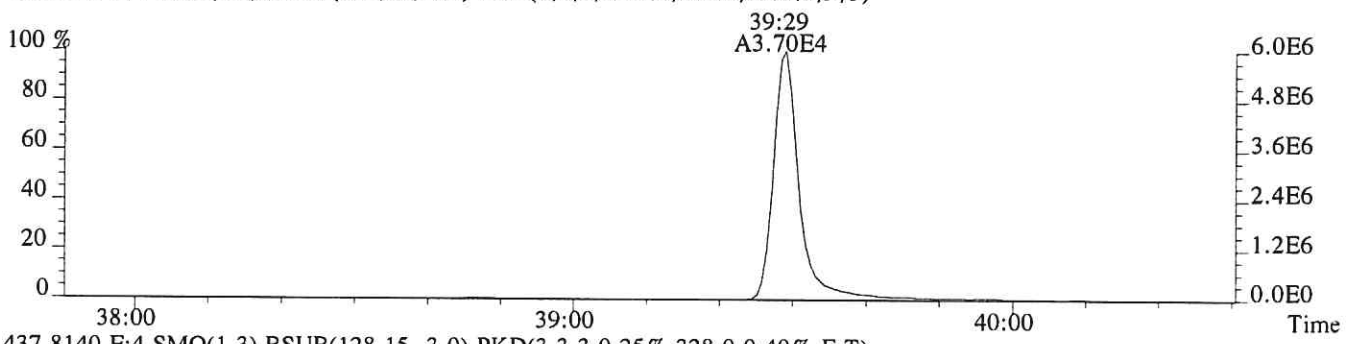
File:P519335 #1-241 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



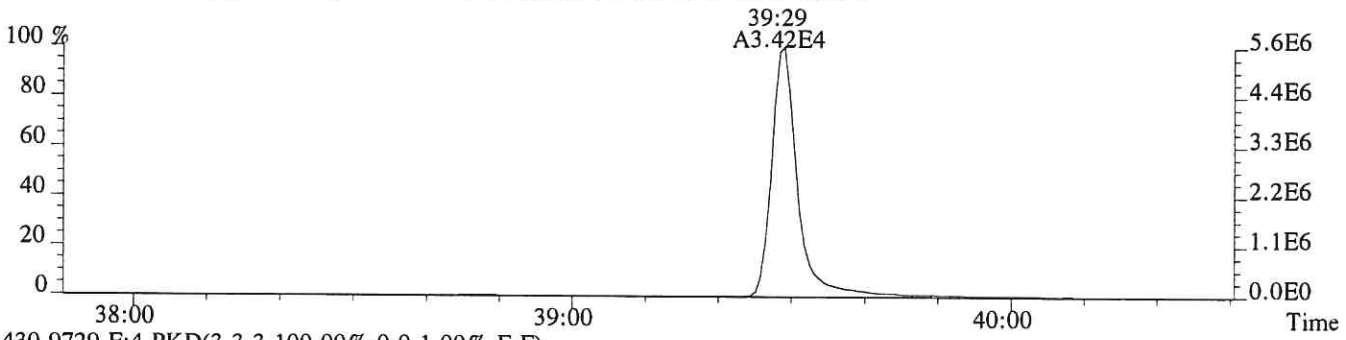
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



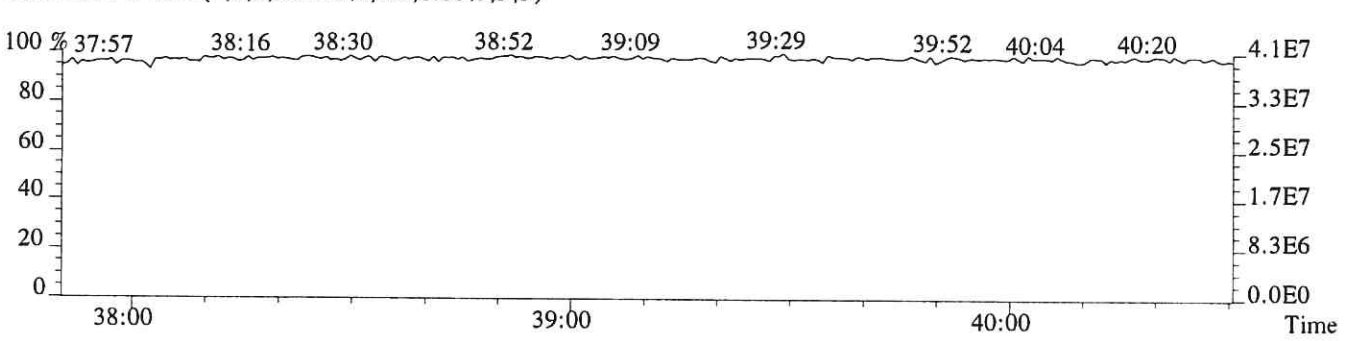
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)

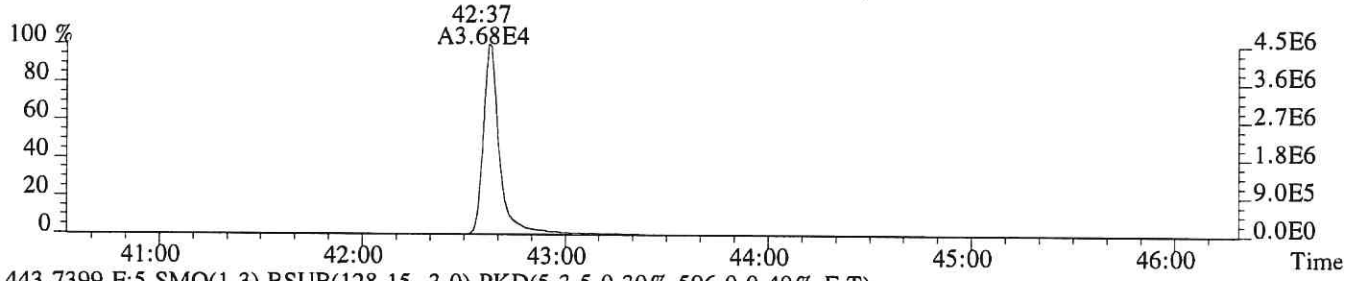


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

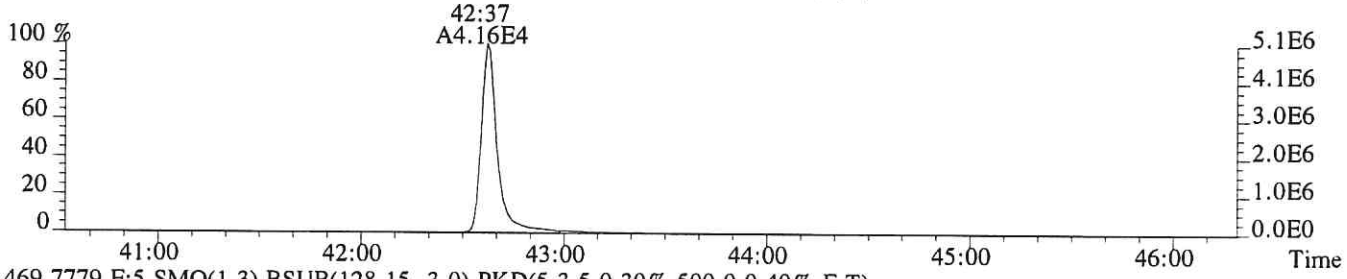


File:P519335 #1-520 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

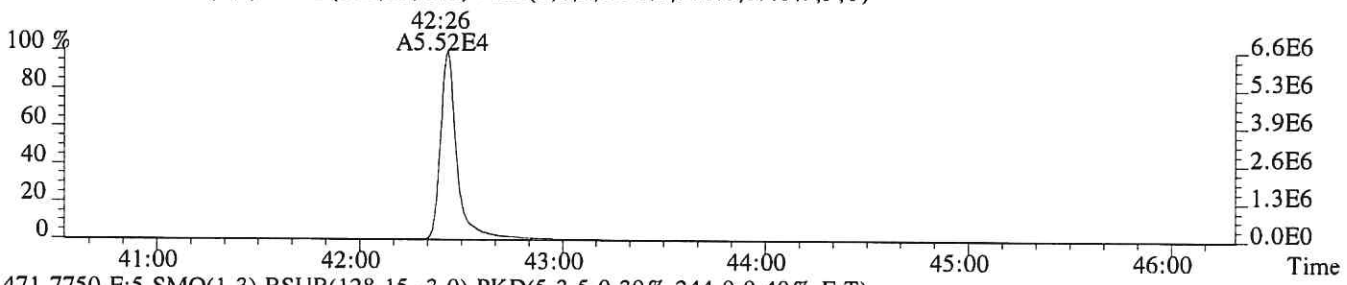
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



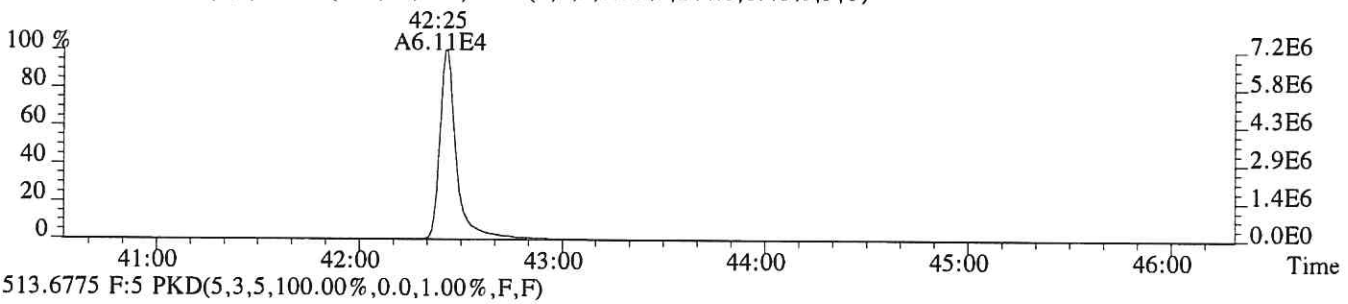
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



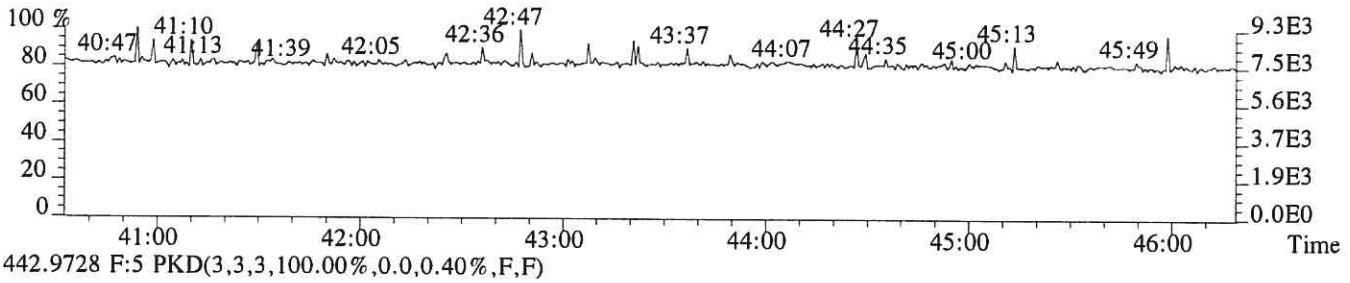
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



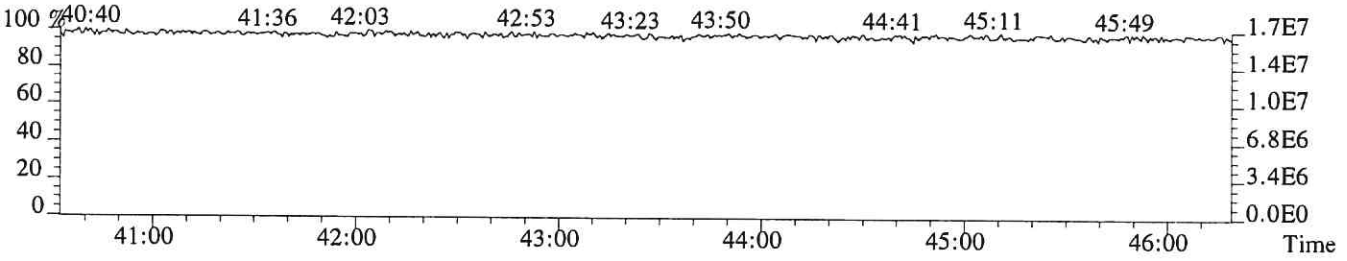
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



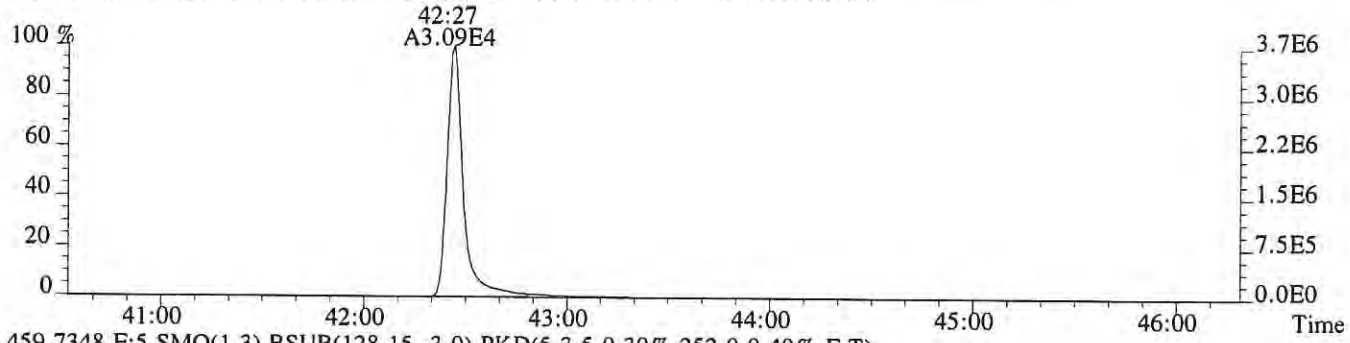
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



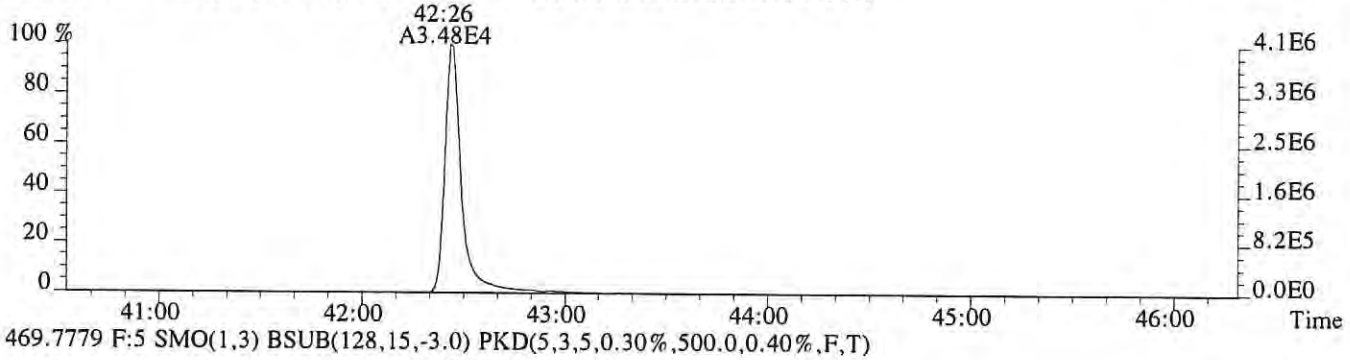
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



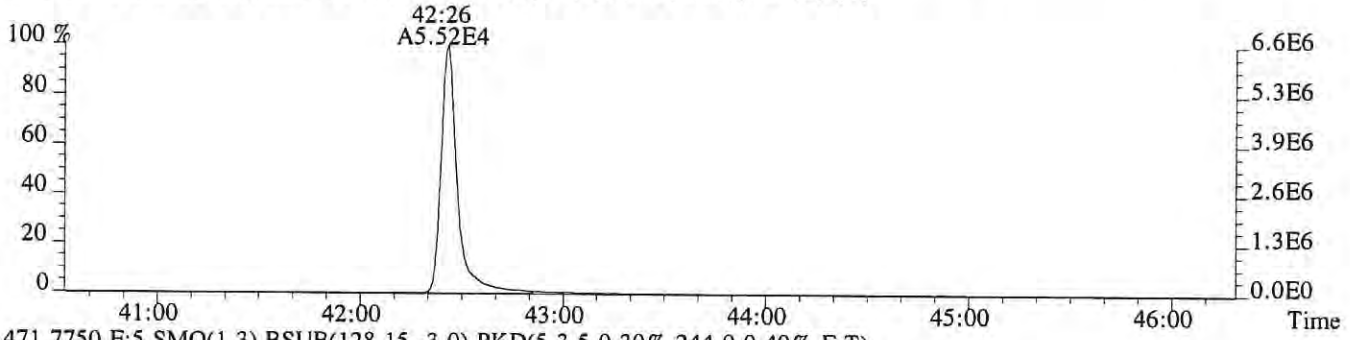
File:P519335 #1-520 Acq:10-DEC-2018 22:00:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



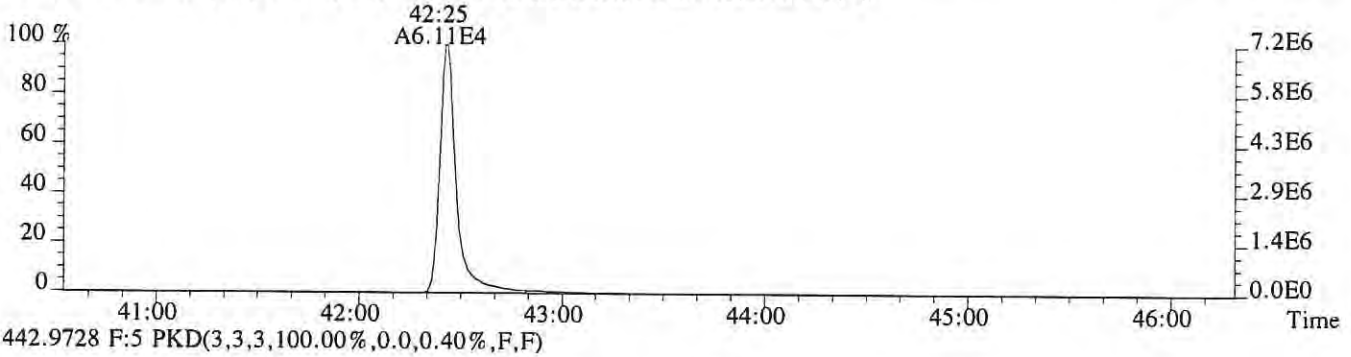
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



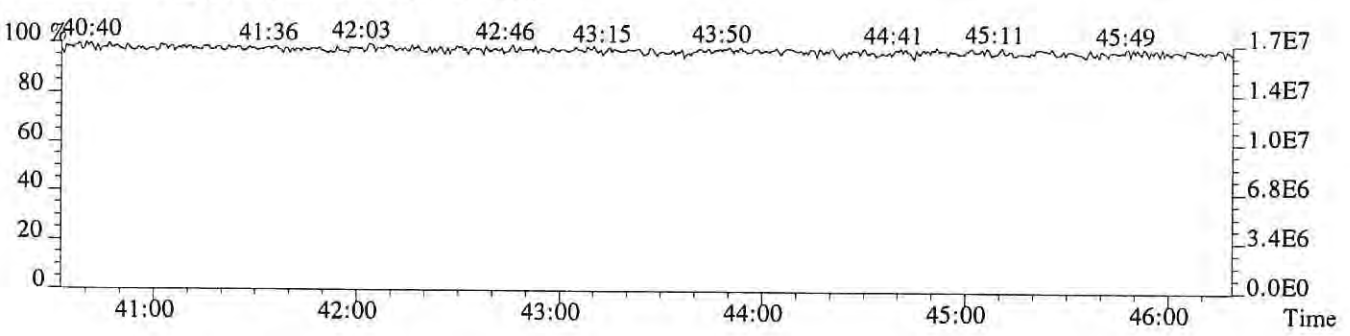
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519350

Date: 12/11/18

Circle one: (Beginning) / Ending

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519350	11-DEC-18	10:22:01
192977	WINDOW DEFINE	P519351	11-DEC-18	11:14:28
METHOD BLANK	EQ1800485-01	P519352	11-DEC-18	12:02:18
METHOD BLANK	EQ1800494-01	P519353	11-DEC-18	12:50:51
UU03601	K1811038-003	P519354	11-DEC-18	13:48:39
SL0572	E1801065-022	P519355	11-DEC-18	14:36:26
ASH 1 SPLP	E1801064-015	P519356	11-DEC-18	15:25:04
INFLUENT DIOXIN	E1801086-004	P519357	11-DEC-18	16:15:17
EFFLUENT DIOXIN	E1801086-005	P519358	11-DEC-18	17:05:24
3003147001	E1801087-001	P519359	11-DEC-18	17:53:12
SL0549	E1801055-004DL	P519360	11-DEC-18	18:41:50
FW0051	E1801046-007	P519361	11-DEC-18	19:30:28
FW008	E1801058-030	P519362	11-DEC-18	20:19:13
LCS	EQ1800488-02	P519363	11-DEC-18	21:07:51
DLCS	EQ1800488-03	P519364	11-DEC-18	21:56:19

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:00:37 Central Standard Time
Printed: Wednesday, December 12, 2018 07:00:39 Central Standard Time

Page Position (1, 1)

Opus4: P519350res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	10:22	P519350	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 10:15
2		11:14	P519351	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		12:02	P519352	MB	EQ1800485-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		12:50	P519353	MB	EQ1800494-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		13:48	P519354	K1811038-003	K1811038-003	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		14:36	P519355	E1801065-022	E1801065-022	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		15:25	P519356	E1801064-015	E1801064-015	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:15	P519357	E1801086-004	E1801086-004	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:05	P519358	E1801086-005	E1801086-005	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:53	P519359	E1801087-001	E1801087-001	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:41	P519360	E1801055-004DL	E1801055-004DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		19:30	P519361	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		20:19	P519362	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		21:07	P519363	LCS	EQ1800488-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:56	P519364	DLCS	EQ1800488-03	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		22:53	P519365	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 22:53
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

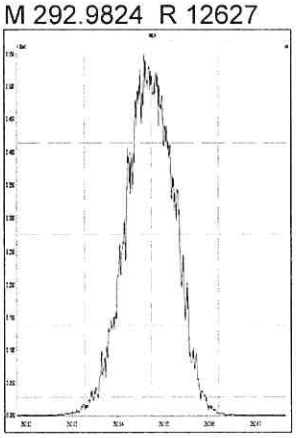
gc
12/12/18

052

File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:15:52 Central Standard Time

M 292.9824 R 12627



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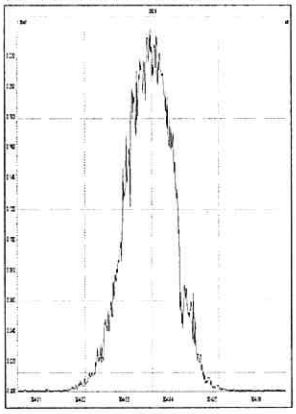

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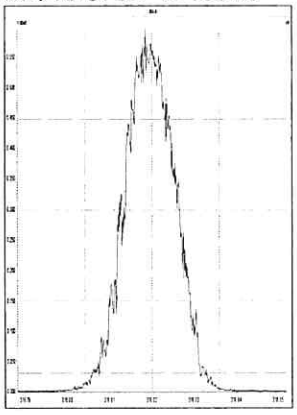

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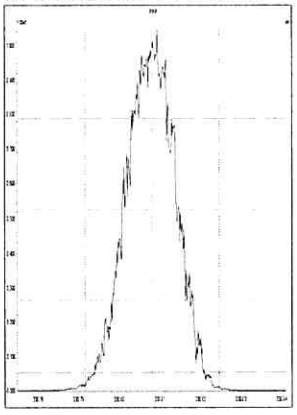

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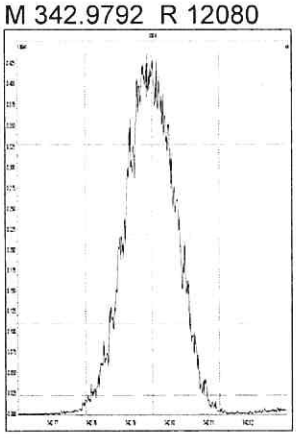
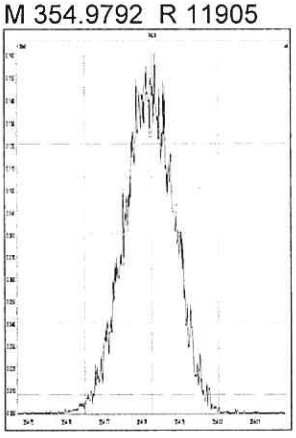


M 354.9792 R 11905



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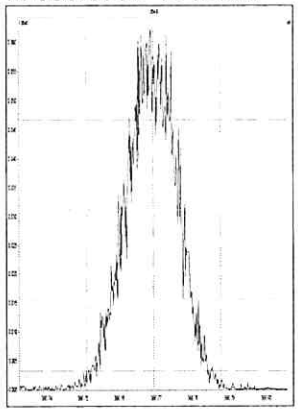
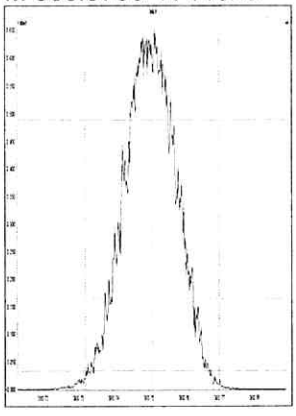


M 380.9760 R 11629



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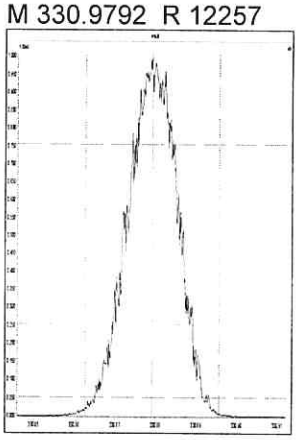
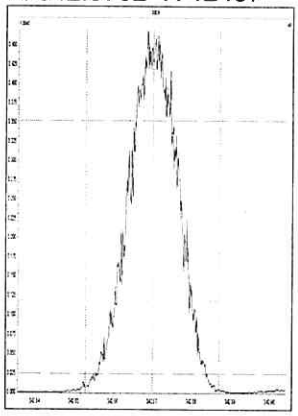
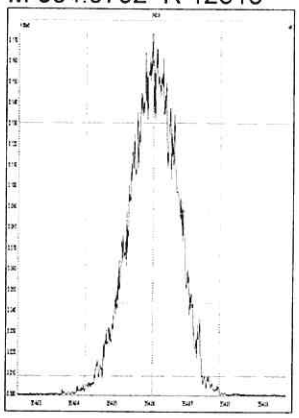


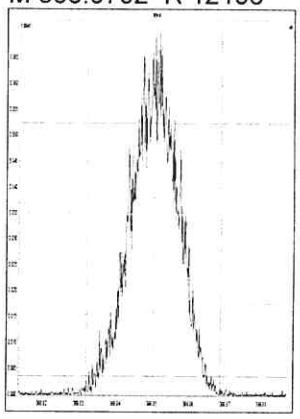
M 342.9792 R 12437



M 354.9792 R 12318



M 366.9792 R 12196



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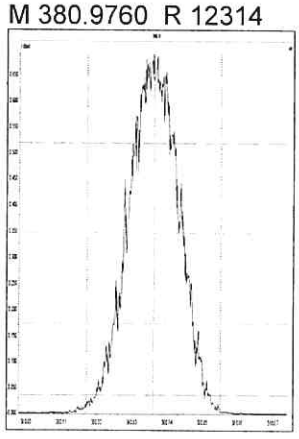

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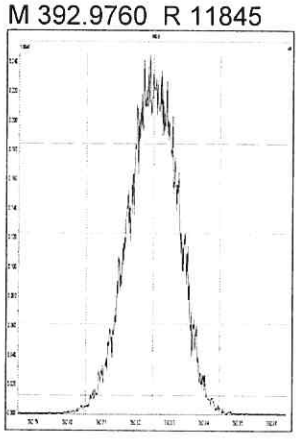

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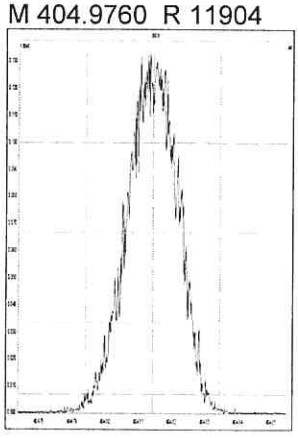
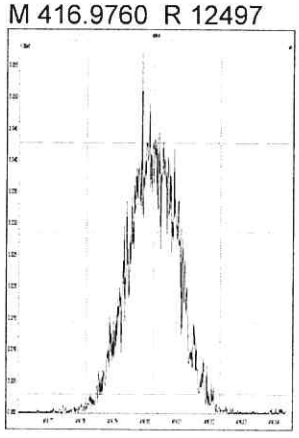


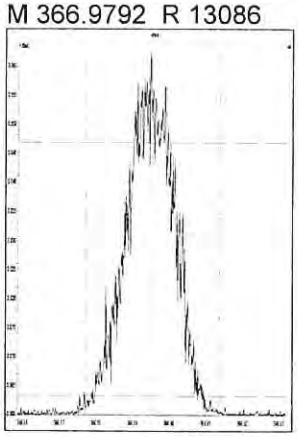
M 416.9760 R 12497



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:17:19 Central Standard Time

M 366.9792 R 13086



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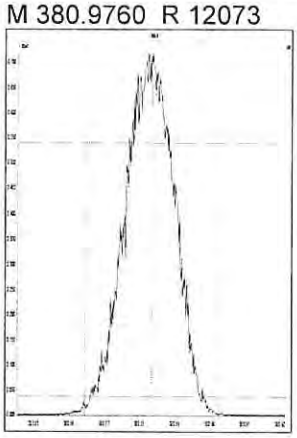
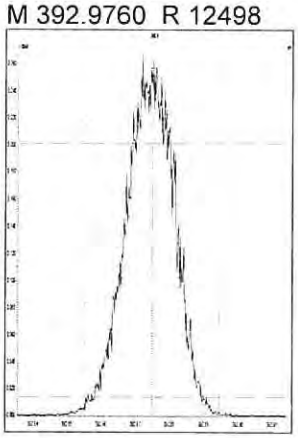
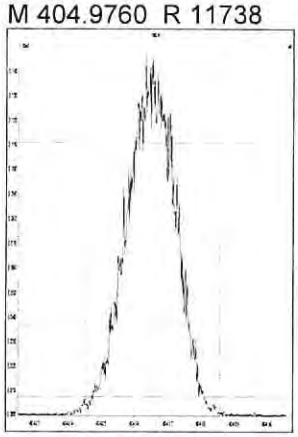


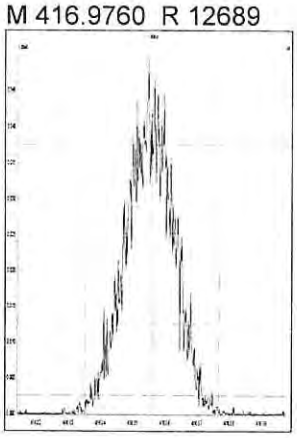
M 392.9760 R 12498



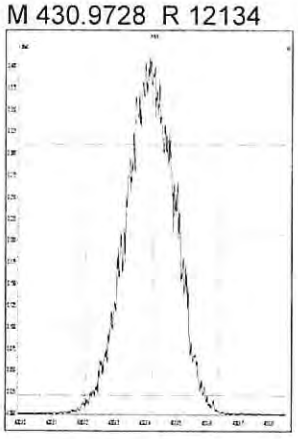
M 404.9760 R 11738



M 416.9760 R 12689



M 430.9728 R 12134



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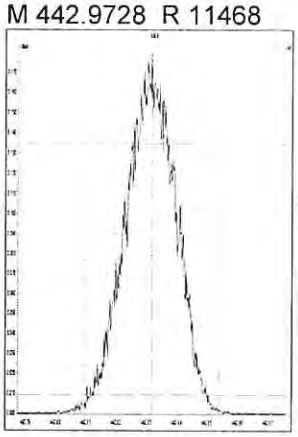
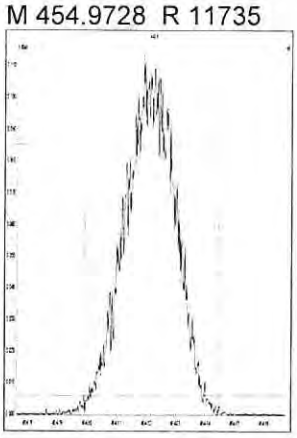


M 454.9728 R 11735



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Printed: Tuesday, December 11, 2018 10:17:58 Central Standard Time

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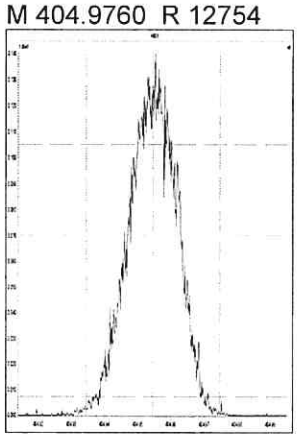

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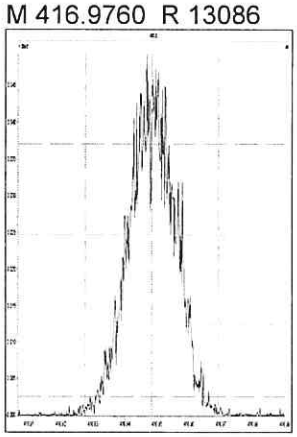

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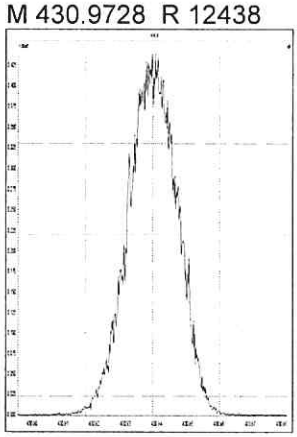

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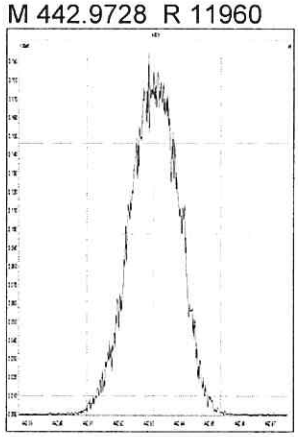

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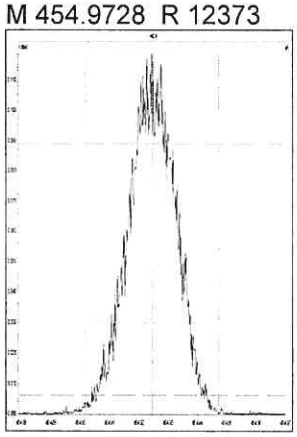

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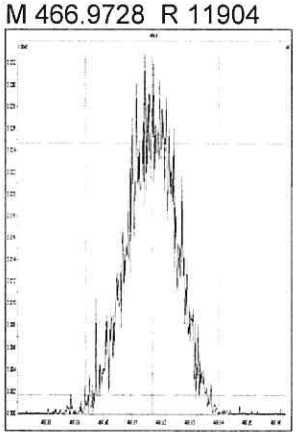
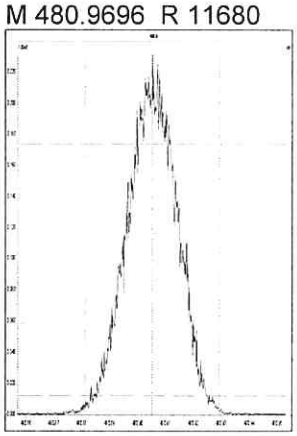


M 480.9696 R 11680



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 10:18:45 Central Standard Time

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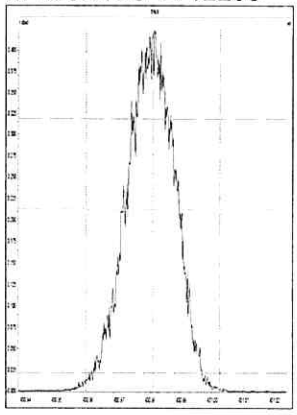

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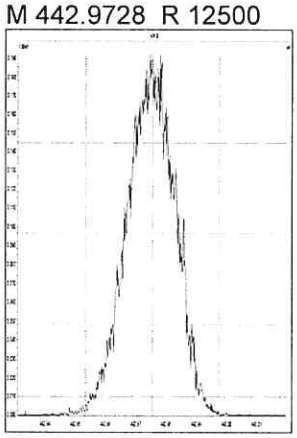

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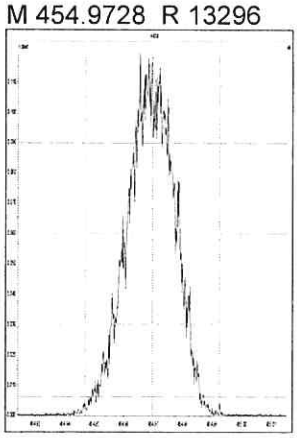

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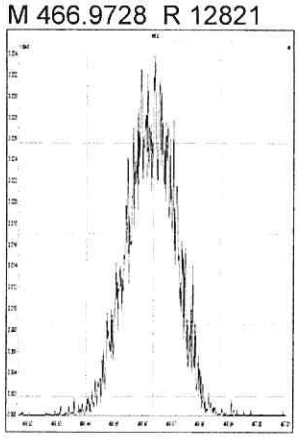
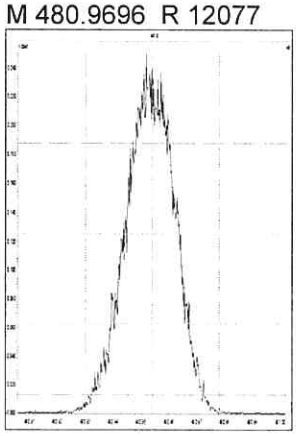
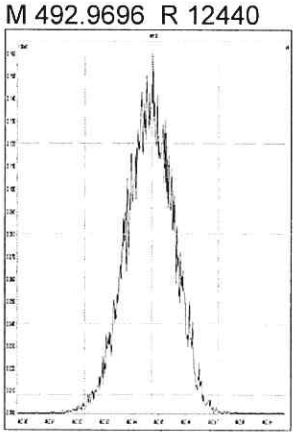


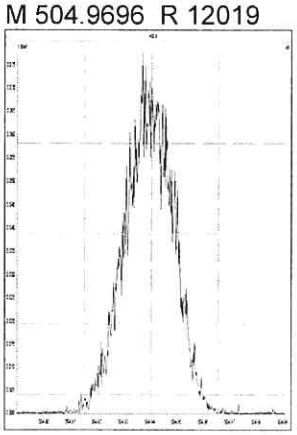
M 480.9696 R 12077



M 492.9696 R 12440



M 504.9696 R 12019



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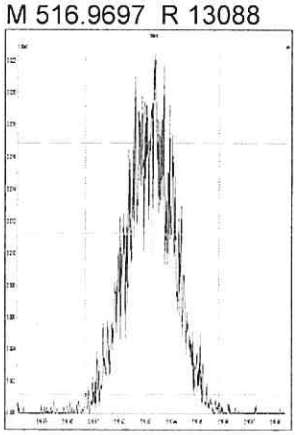
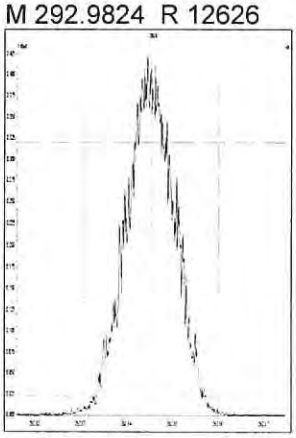
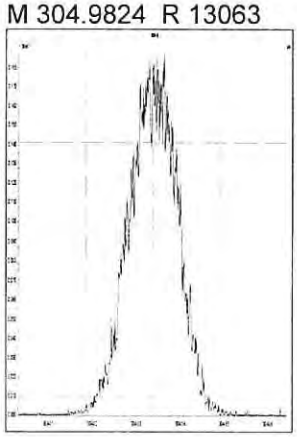


Printed: Tuesday, December 11, 2018 22:53:05 Central Standard Time

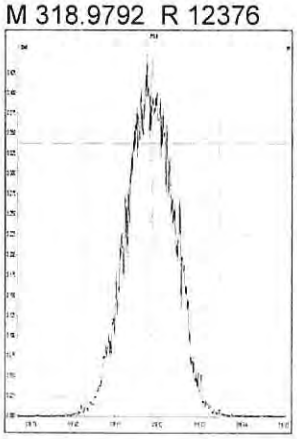
M 292.9824 R 12626



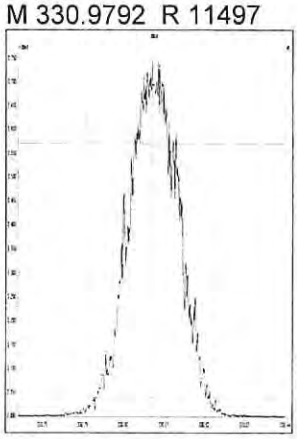
M 304.9824 R 13063



M 318.9792 R 12376



M 330.9792 R 11497



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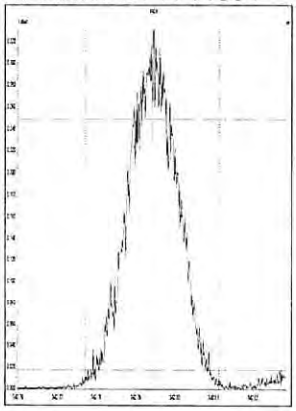

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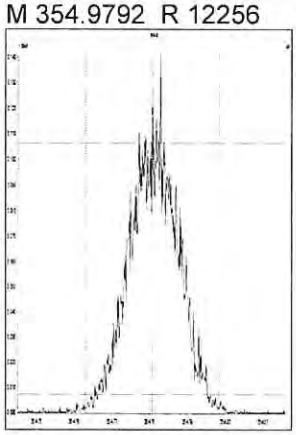

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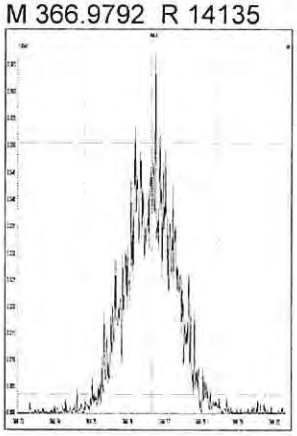

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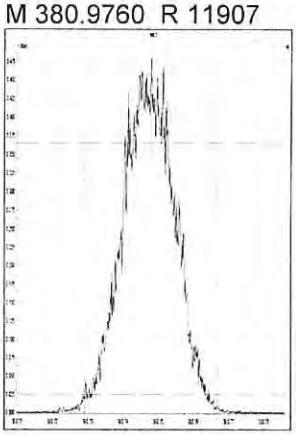

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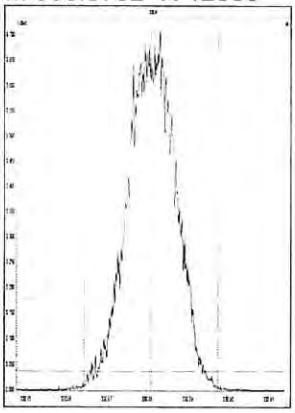

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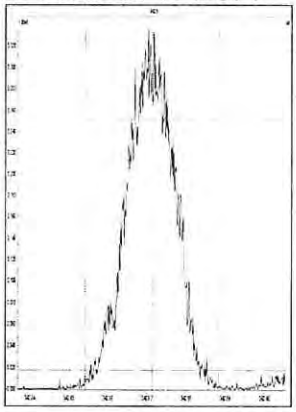

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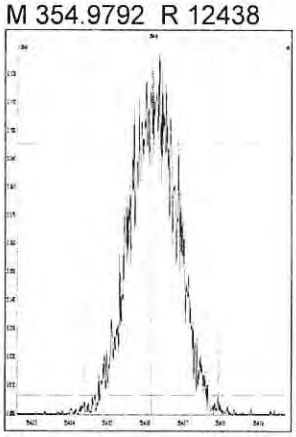

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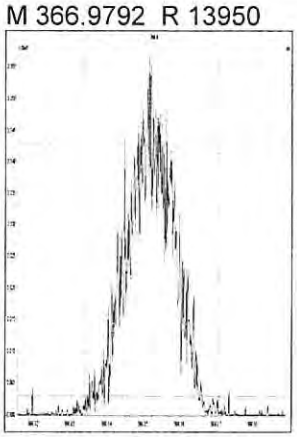

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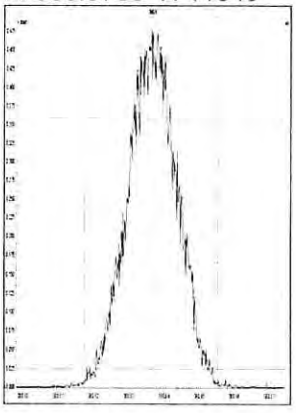

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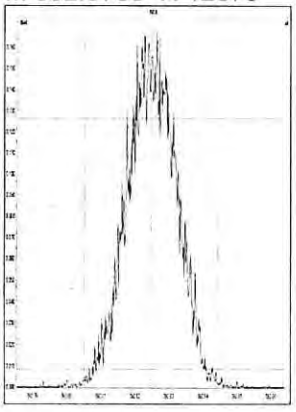

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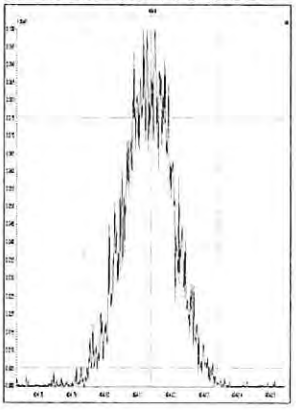

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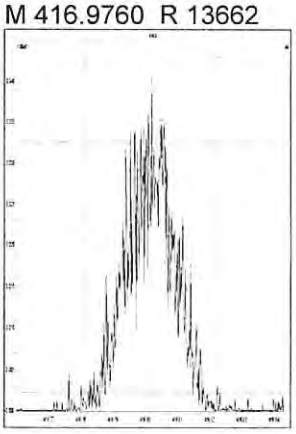

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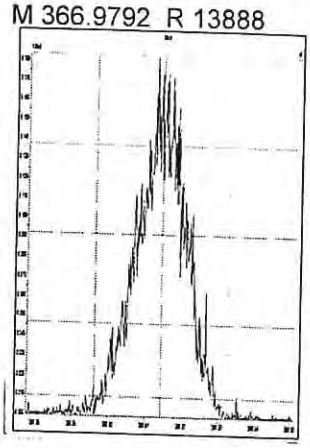

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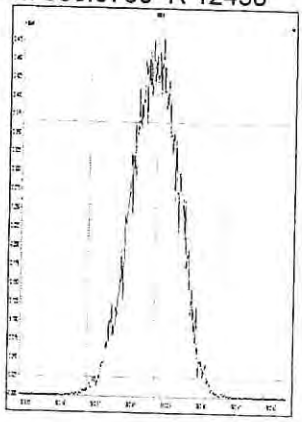

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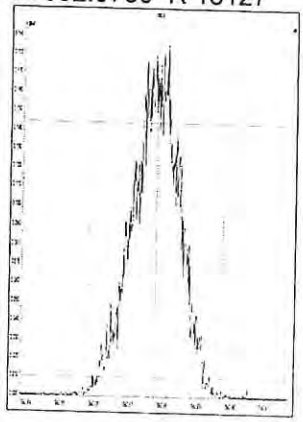

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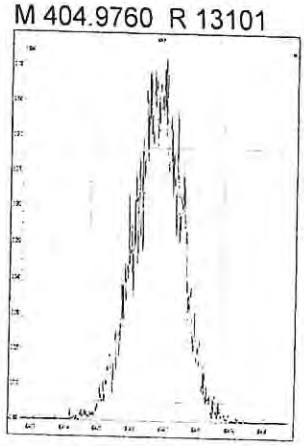

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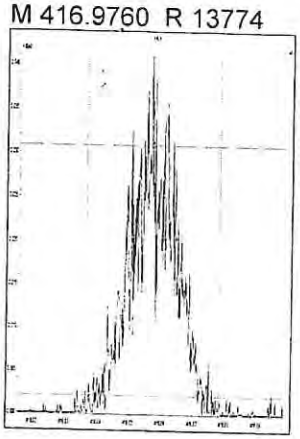

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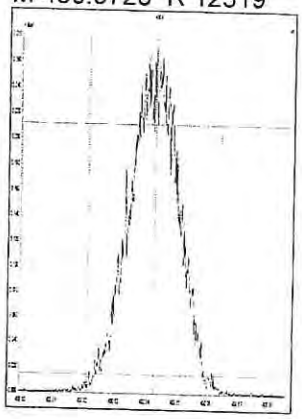

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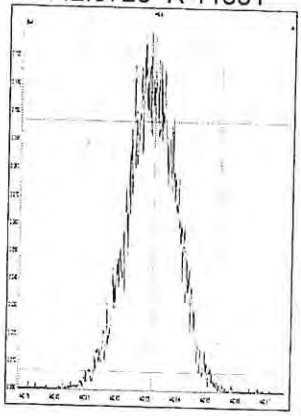

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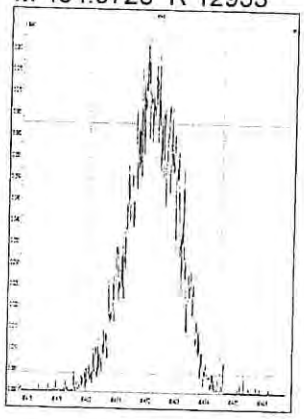

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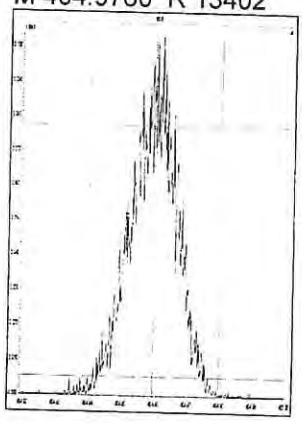

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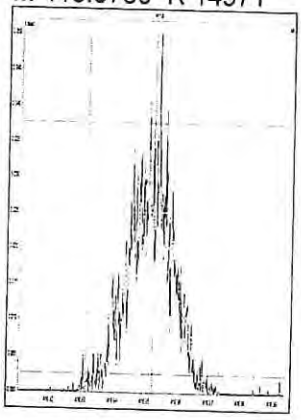

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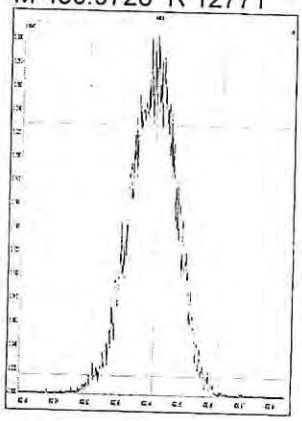

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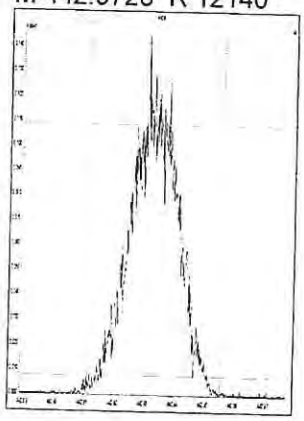

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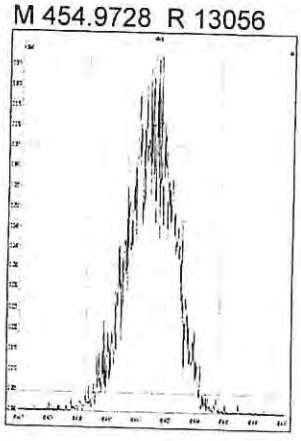

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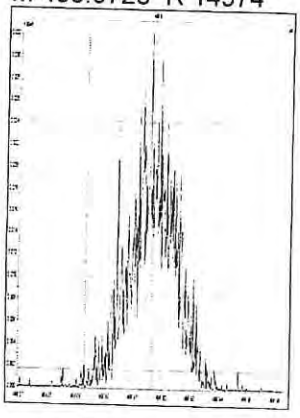

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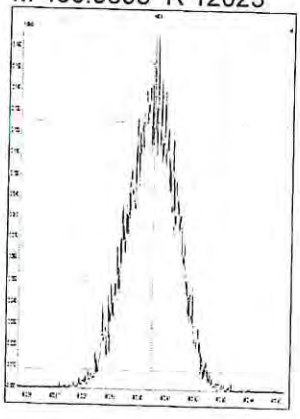

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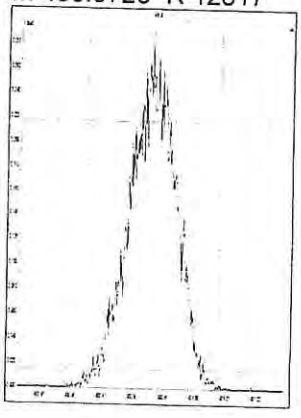

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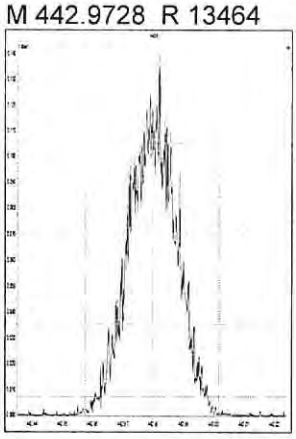

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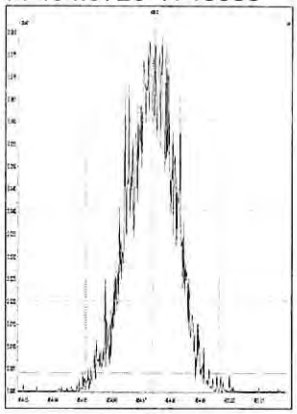

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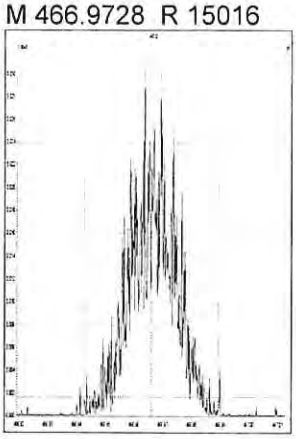

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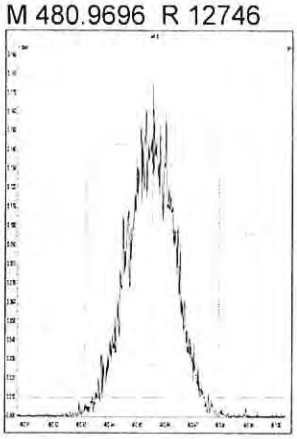

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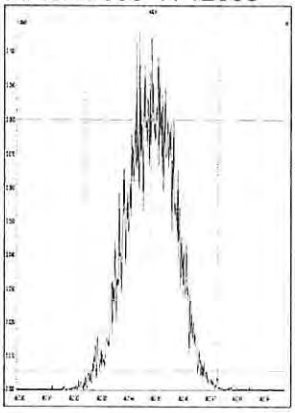

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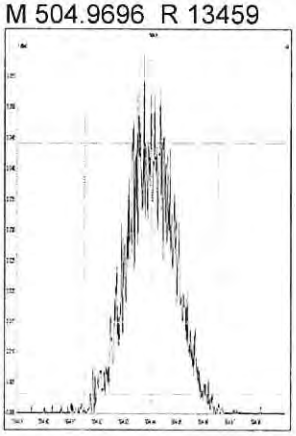

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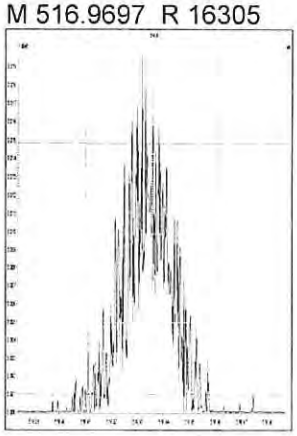


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

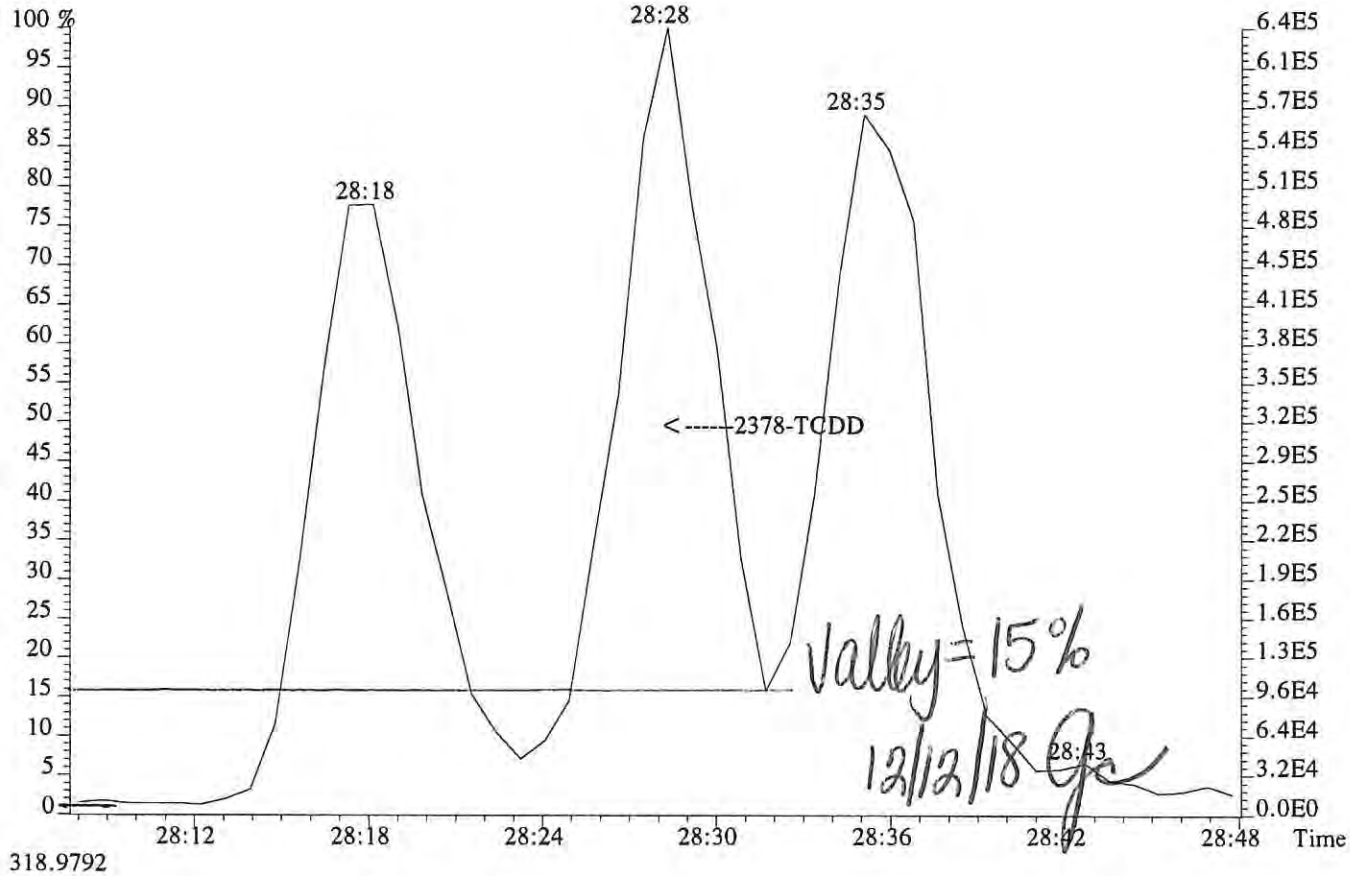
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519351
Date Analyzed: 11-DEC-2018
Time Analyzed: 11:14:28

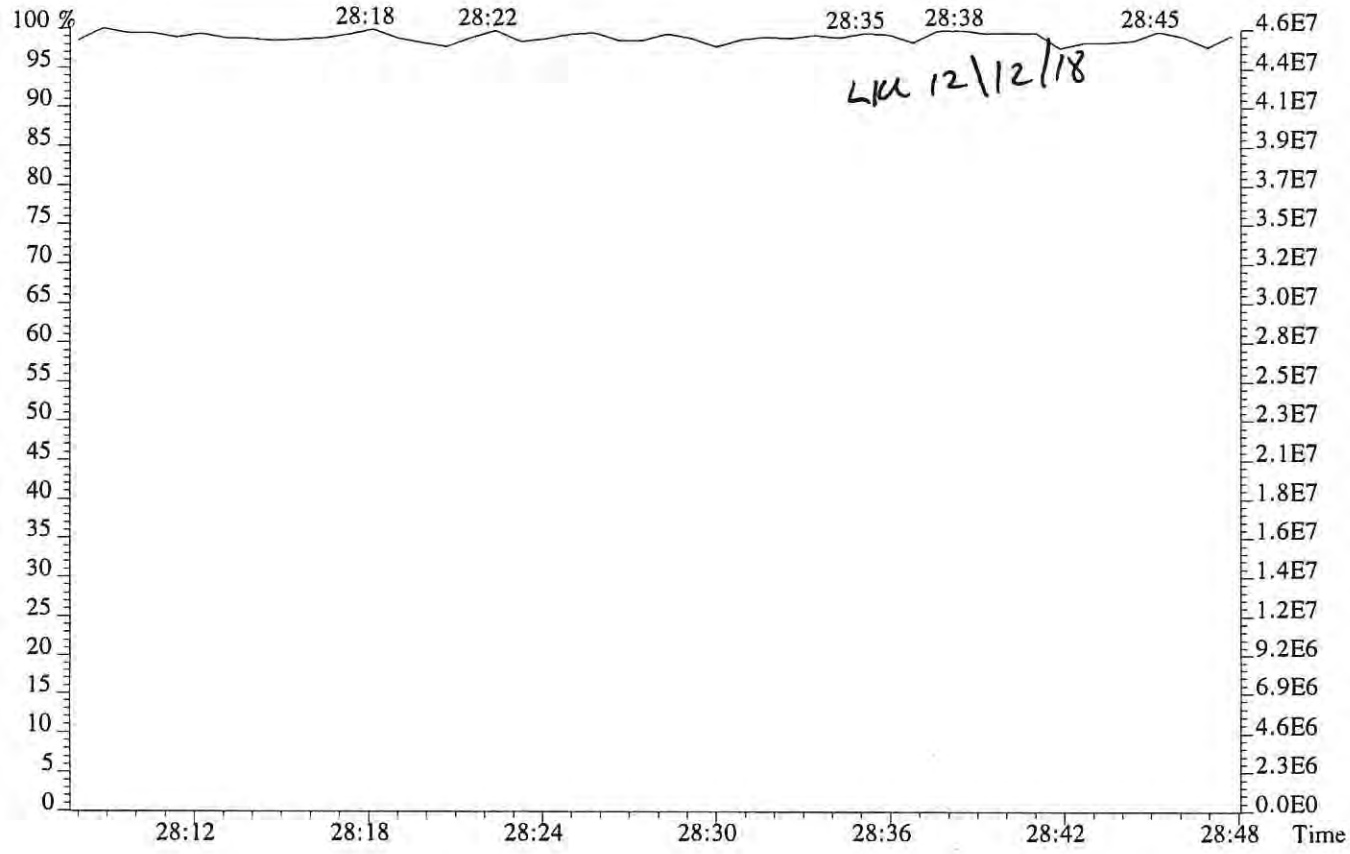
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:11	29:39
TCDD	24:59	29:30
PeCDF	29:37	33:59
PeCDD	31:12	33:44
HxCDF	34:41	37:15
HxCDD	35:13	36:50
HpCDF	38:32	40:00
HpCDD	38:48	39:31

% Valley 2378-TCDD: 15 %

File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792



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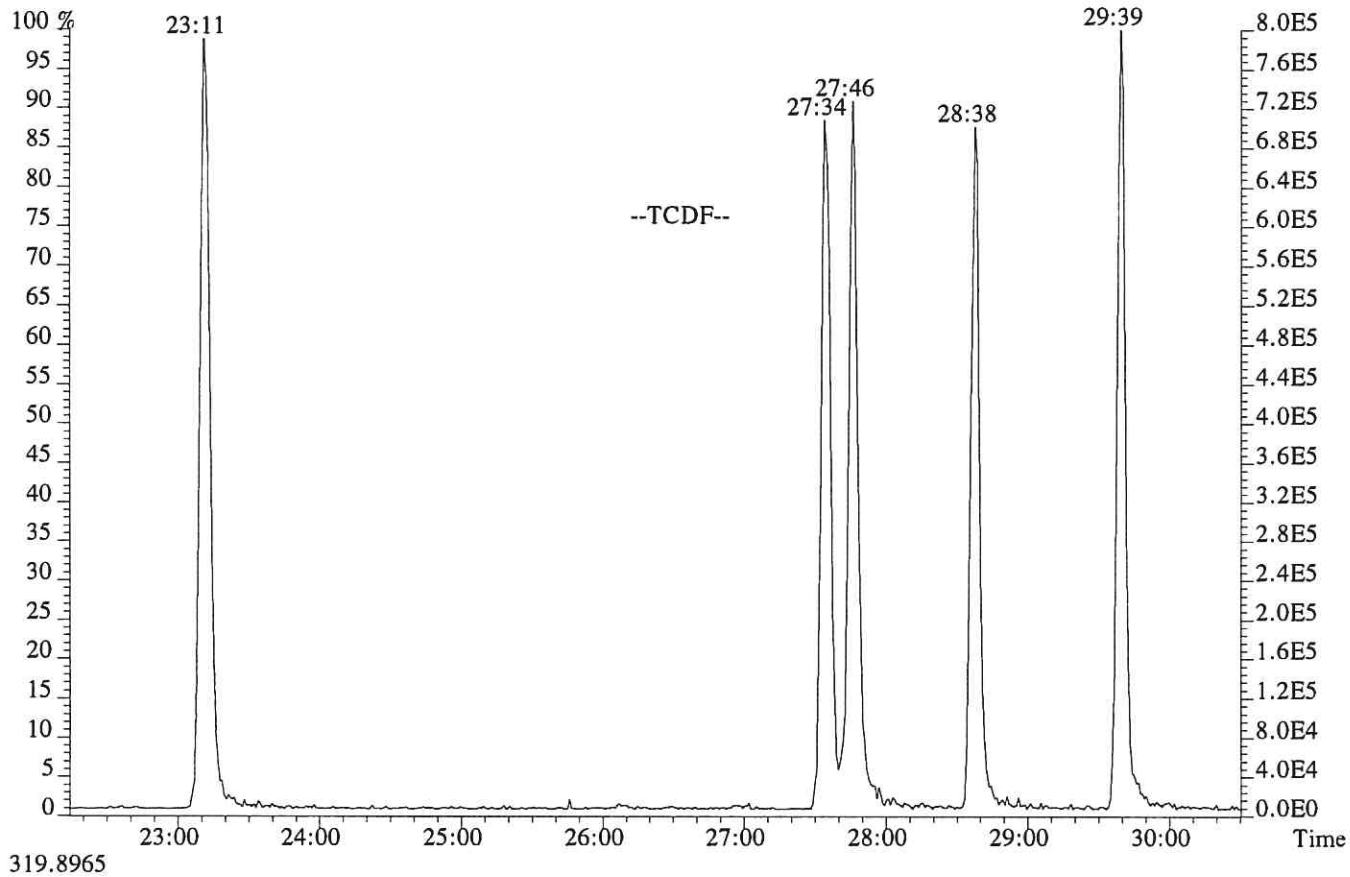
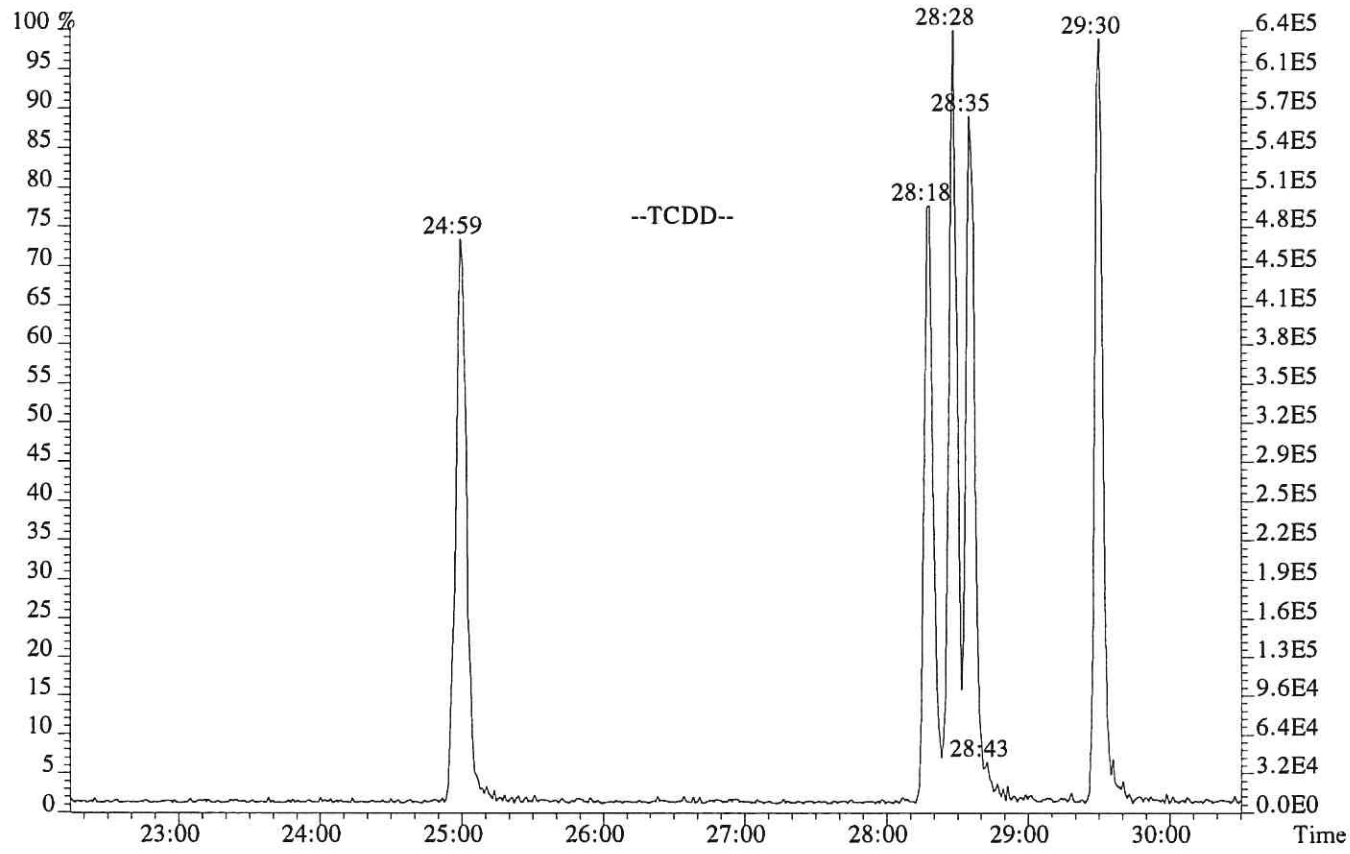
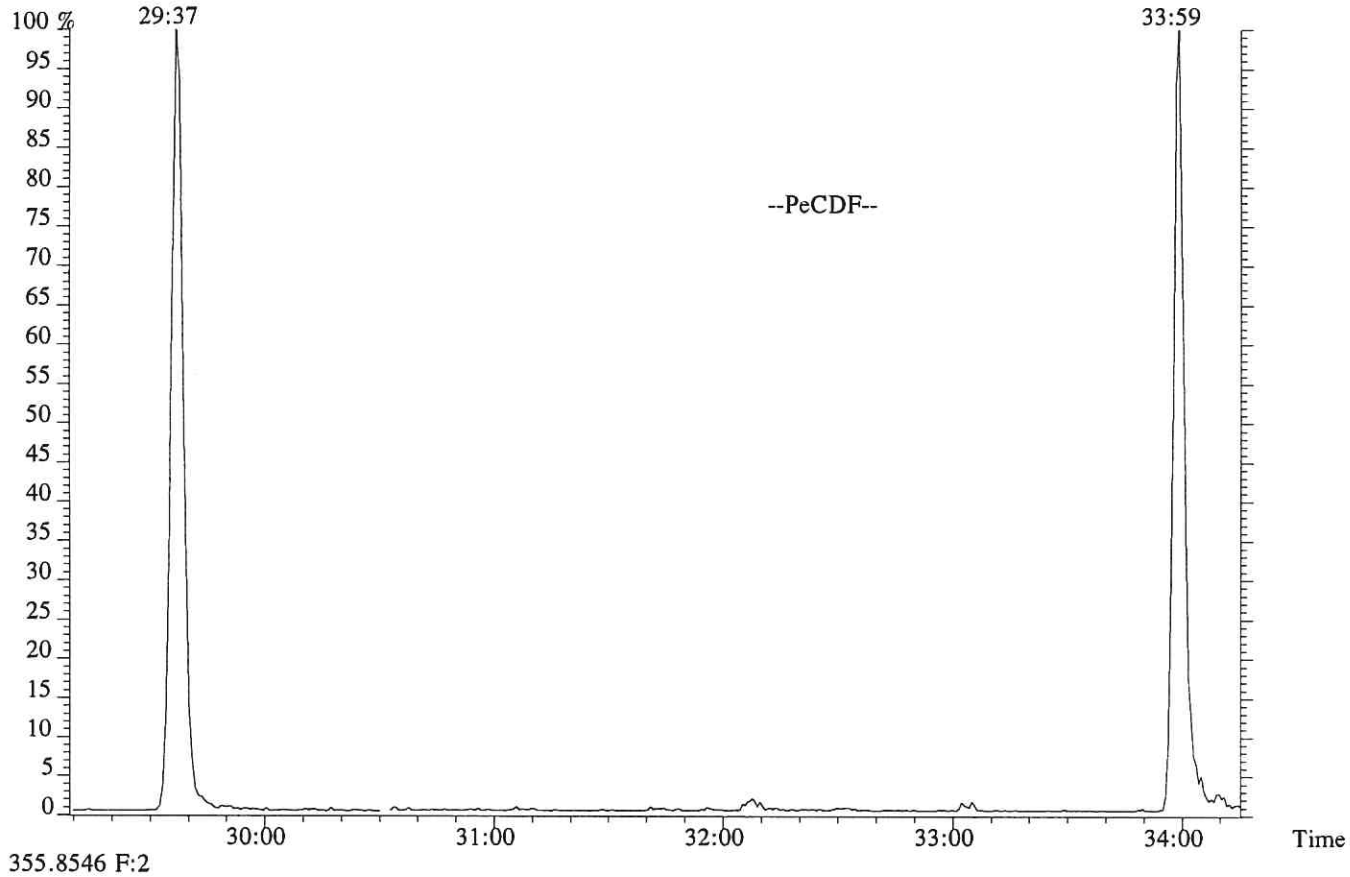
303.9016



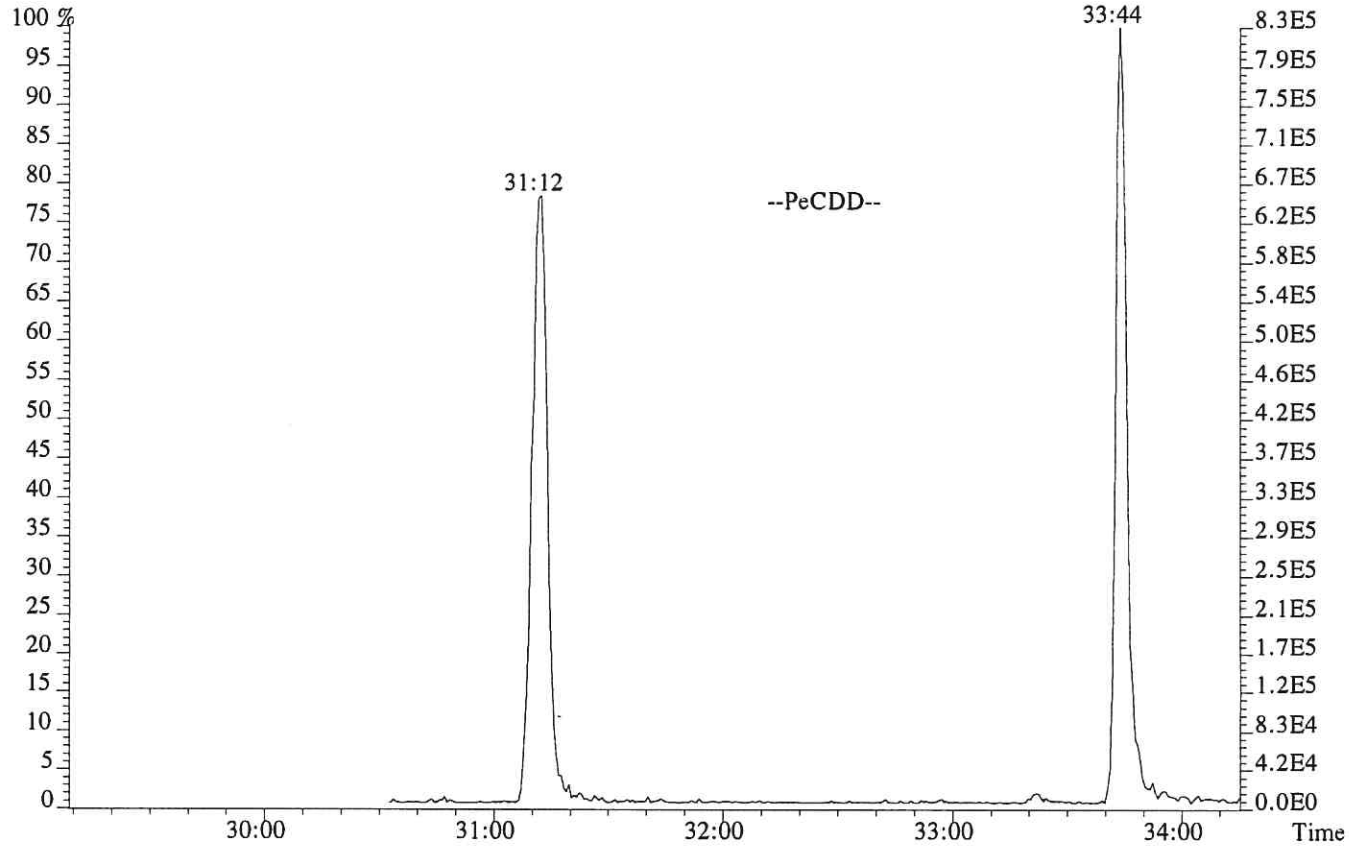
319.8965



File:P519351 #1-587 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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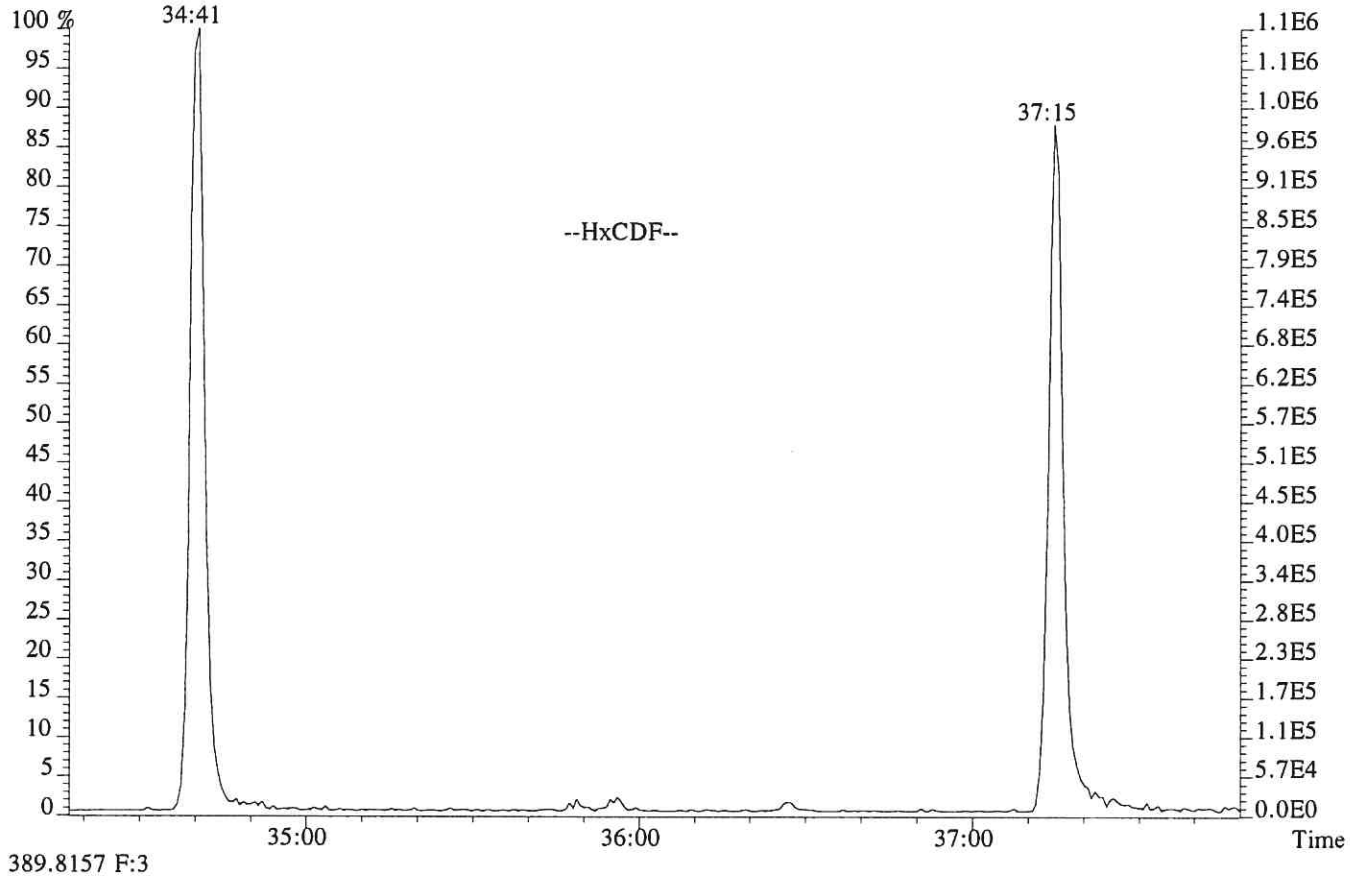
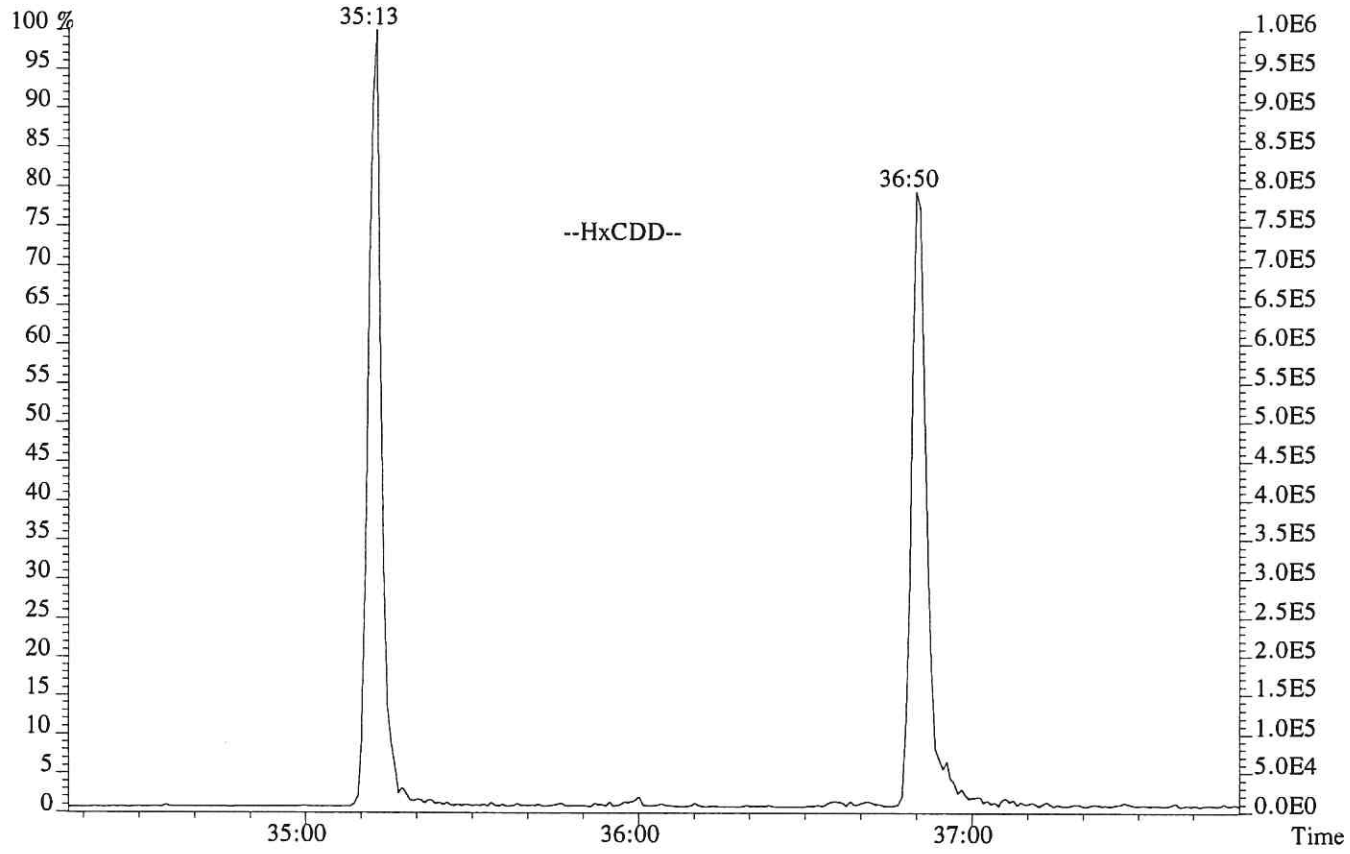
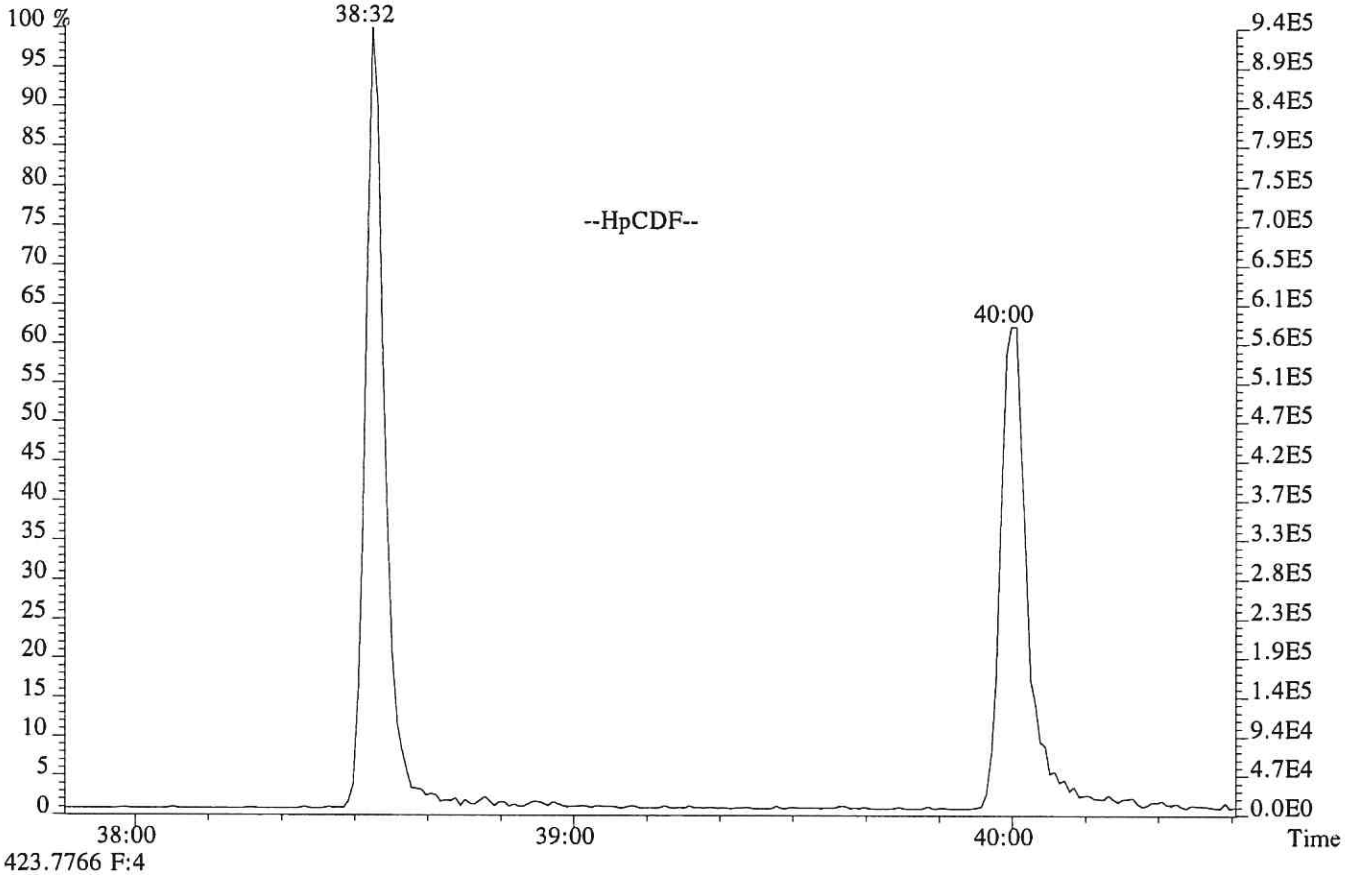
Sample#1 Exp:192977
373.8208 F:3



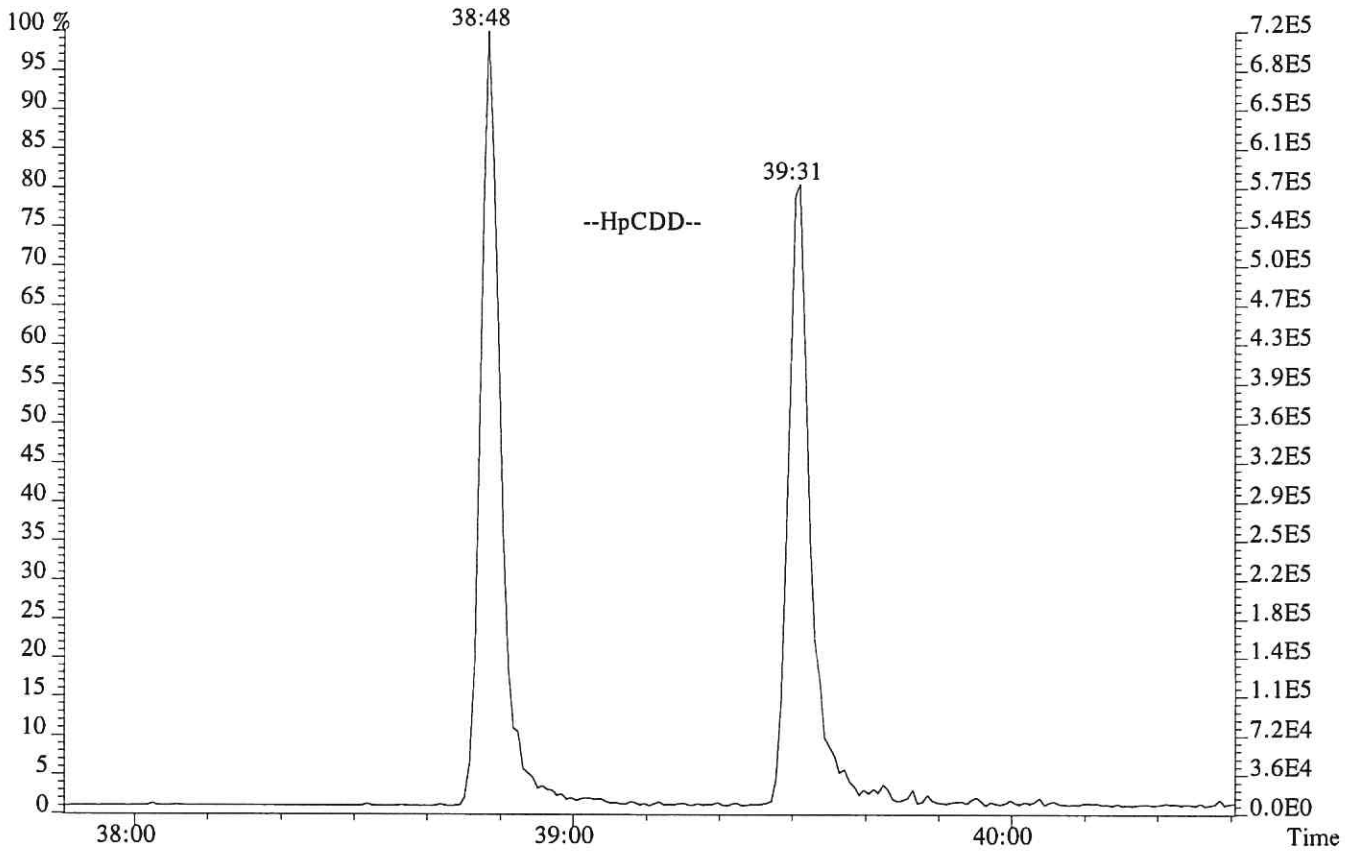
389.8157 F:3



File:P519351 #1-241 Acq:11-DEC-2018 11:14:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.4	7.8 - 12.9	-5.5
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	0.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	54	41 - 61	8.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	0.9
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	0.3
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.8	8.4 - 12.0	-1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 60	-1.3
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 61	-1.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	45 - 56	2.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	50	45 - 55	0.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.98	0.88-1.20	50	43 - 58	0.3
OCDF	M+2/M+4	0.88	0.76-1.02	97	63 - 159	-2.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519350 Analysis Date: 11-DEC-18 Time: 10:22:01

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	106	82 - 121	5.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	113	62 - 160	12.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 117	-6.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	95	85 - 118	-5.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	107	72 - 138	6.8
13C-OCDD	M+2/M+4	0.89	0.76-1.02	233	96 - 415	16.7
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-1.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	112	76 - 130	12.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	113	77 - 130	12.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	87	76 - 131	-12.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	94	70 - 143	-6.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-1.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	73 - 137	-4.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	107	78 - 129	7.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	107	77 - 129	6.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	2.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	5.308e+03	7.001e+03	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	4.406e+04	2.904e+04	1.52	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.136e+04	2.740e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.543e+04	2.949e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.963e+04	3.312e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.593e+04	2.996e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.331e+04	2.736e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:32	3.483e+04	3.414e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:59	2.697e+04	2.740e+04	0.98	yes	no	1.258
10	Unk	OCDF	42:42	4.159e+04	4.700e+04	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:36	3.844e+03	5.065e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	2.852e+04	1.810e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	2.467e+04	1.982e+04	1.24	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	2.629e+04	2.095e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	2.782e+04	2.213e+04	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.401e+04	2.264e+04	1.06	yes	no	1.025
17	Unk	OCDD	42:31	3.511e+04	3.992e+04	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:45	5.910e+04	7.387e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	9.023e+04	5.608e+04	1.61	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	8.955e+04	5.616e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	3.605e+04	7.021e+04	0.51	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.469e+04	8.464e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	4.040e+04	7.823e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	3.652e+04	6.908e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	3.151e+04	7.056e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:58	2.613e+04	6.006e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	3.848e+04	4.842e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	5.991e+04	3.752e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	4.768e+04	3.726e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	4.968e+04	3.871e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	4.639e+04	4.383e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:30	6.314e+04	7.068e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:00	3.953e+04	4.928e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	5.488e+04	4.359e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:36	9.184e+03				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519350 Samp: 1 Inj: 1 Acquired: 11-DEC-18 10:22:01
Processed: 12-DEC-18 09:58:22 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.33e+05	5.80e+02	1.6e+03	1.26e+06	1.14e+03	1.1e+03
2	1,2,3,7,8-PeCDF	8.13e+06	4.40e+02	1.8e+04	5.42e+06	9.84e+02	5.5e+03
3	2,3,4,7,8-PeCDF	8.16e+06	4.40e+02	1.9e+04	5.36e+06	9.84e+02	5.4e+03
4	1,2,3,4,7,8-HxCDF	7.30e+06	3.56e+02	2.1e+04	5.92e+06	3.92e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	7.85e+06	3.56e+02	2.2e+04	6.68e+06	3.92e+02	1.7e+04
6	2,3,4,6,7,8-HxCDF	7.22e+06	3.56e+02	2.0e+04	6.04e+06	3.92e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	5.99e+06	3.56e+02	1.7e+04	4.98e+06	3.92e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	6.57e+06	5.59e+03	1.2e+03	6.39e+06	2.82e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	4.32e+06	5.59e+03	7.7e+02	4.36e+06	2.82e+03	1.5e+03
10	OCDF	4.91e+06	3.52e+02	1.4e+04	5.52e+06	5.44e+02	1.0e+04
11	2,3,7,8-TCDD	7.22e+05	1.69e+03	4.3e+02	9.34e+05	1.03e+03	9.1e+02
12	1,2,3,7,8-PeCDD	5.29e+06	4.88e+02	1.1e+04	3.37e+06	2.48e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	5.00e+06	3.28e+02	1.5e+04	3.94e+06	4.28e+02	9.2e+03
14	1,2,3,6,7,8-HxCDD	5.26e+06	3.28e+02	1.6e+04	4.13e+06	4.28e+02	9.7e+03
15	1,2,3,7,8,9-HxCDD	5.12e+06	3.28e+02	1.6e+04	4.05e+06	4.28e+02	9.5e+03
16	1,2,3,4,6,7,8-HpCDD	4.10e+06	6.36e+02	6.4e+03	3.84e+06	1.96e+02	2.0e+04
17	OCDD	4.01e+06	1.76e+02	2.3e+04	4.56e+06	3.08e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.04e+07	4.63e+03	2.2e+03	1.31e+07	4.45e+03	2.9e+03
19	13C-1,2,3,7,8-PeCDF	1.64e+07	1.20e+03	1.4e+04	1.02e+07	1.35e+03	7.6e+03
20	13C-2,3,4,7,8-PeCDF	1.70e+07	1.20e+03	1.4e+04	1.07e+07	1.35e+03	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.25e+06	6.72e+02	1.1e+04	1.40e+07	5.60e+02	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	8.79e+06	6.72e+02	1.3e+04	1.67e+07	5.60e+02	3.0e+04
23	13C-2,3,4,6,7,8-HxCDF	8.01e+06	6.72e+02	1.2e+04	1.55e+07	5.60e+02	2.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.47e+06	6.72e+02	9.6e+03	1.24e+07	5.60e+02	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.84e+06	1.65e+03	3.5e+03	1.32e+07	2.66e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.25e+06	1.65e+03	2.6e+03	9.43e+06	2.66e+03	3.5e+03
27	13C-2,3,7,8-TCDD	7.12e+06	4.84e+03	1.5e+03	8.94e+06	1.87e+03	4.8e+03
28	13C-1,2,3,7,8-PeCDD	1.14e+07	8.56e+02	1.3e+04	7.20e+06	9.88e+02	7.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.50e+06	1.08e+03	8.8e+03	7.34e+06	4.88e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	9.67e+06	1.08e+03	9.0e+03	7.57e+06	4.88e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.85e+06	6.60e+02	1.2e+04	7.47e+06	6.88e+02	1.1e+04
32	13C-OCDD	7.14e+06	9.36e+02	7.6e+03	7.97e+06	3.52e+02	2.3e+04
33	13C-1,2,3,4-TCDD	7.30e+06	4.84e+03	1.5e+03	9.12e+06	1.87e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.08e+03	9.3e+03	7.85e+06	4.88e+02	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.71e+06	6.16e+02	2.8e+03			

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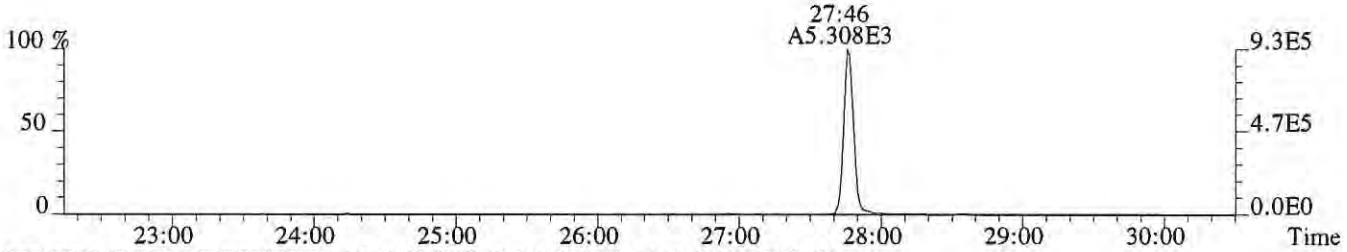
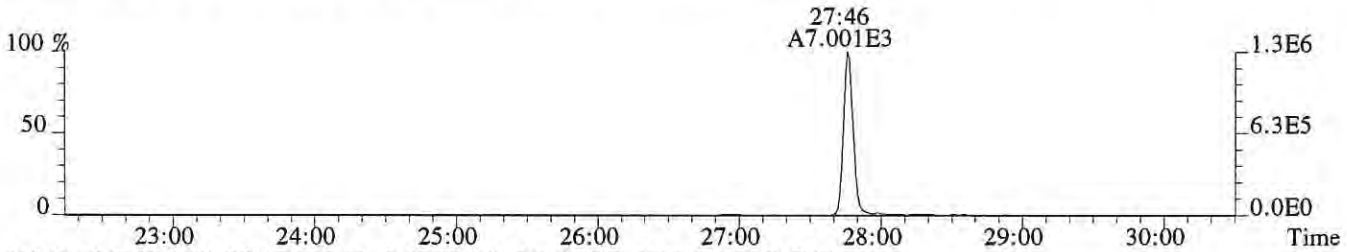
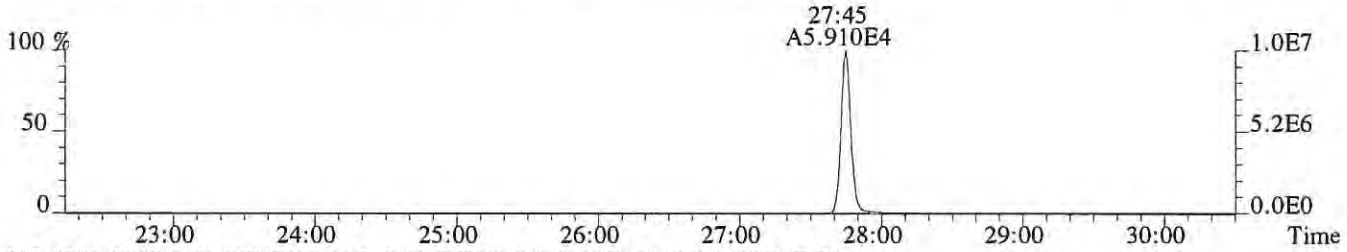
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



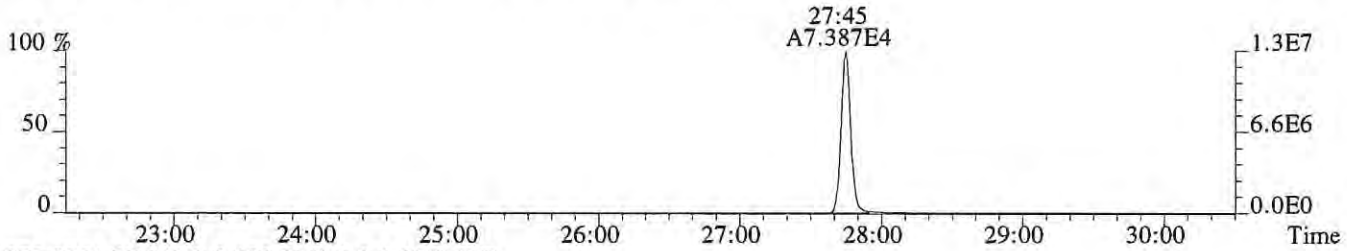
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



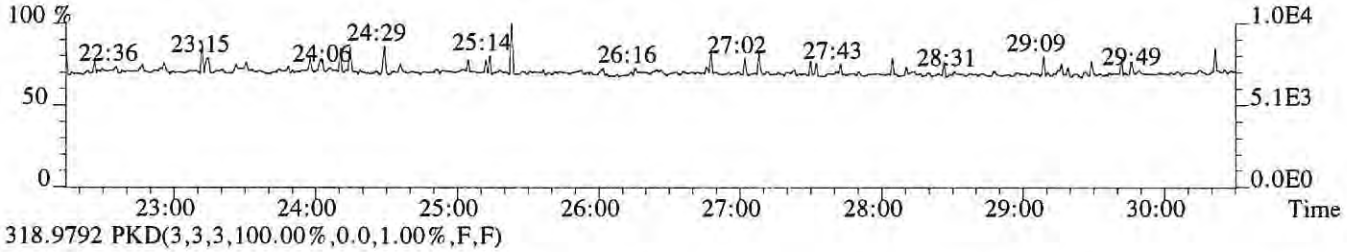
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4628.0,1.00%,F,T)



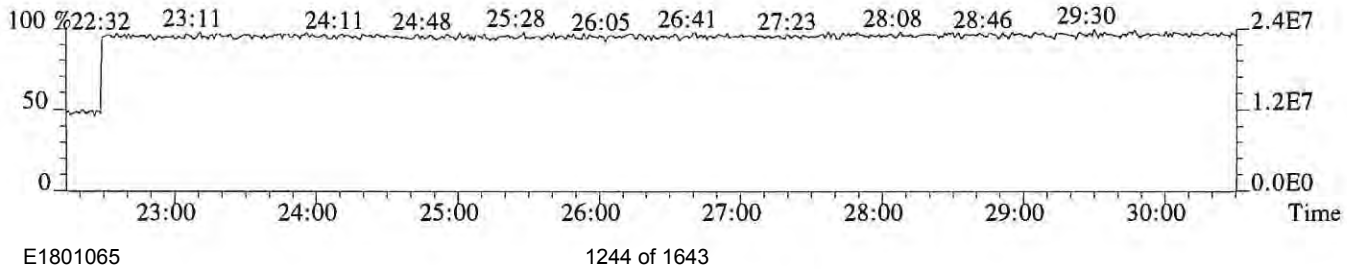
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4448.0,1.00%,F,T)



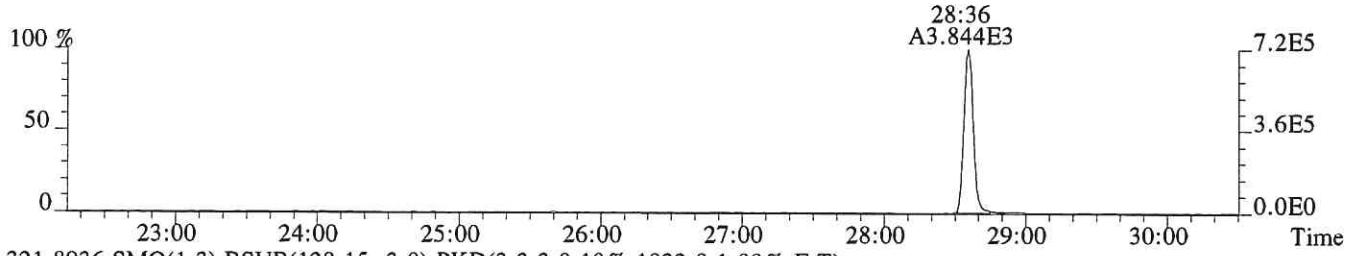
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



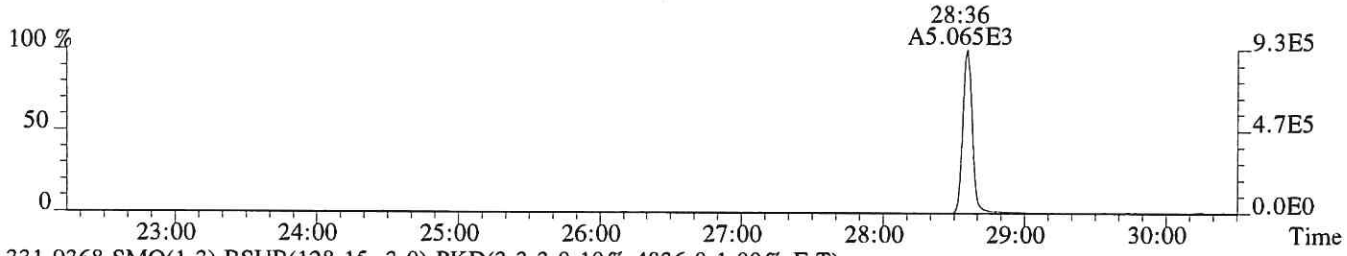
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



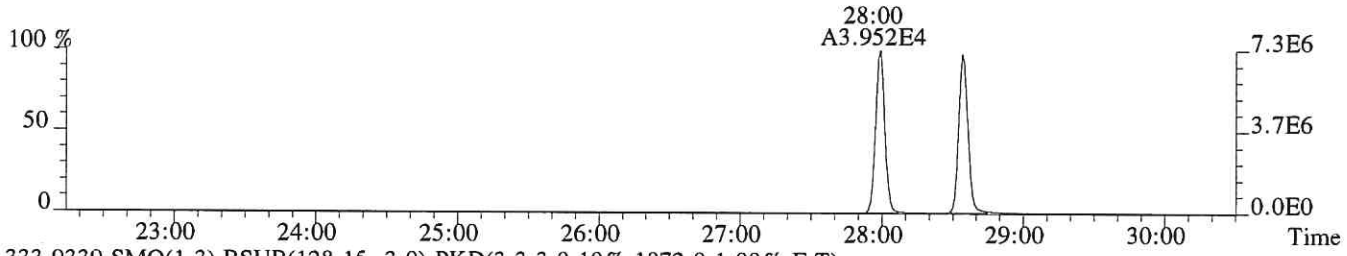
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



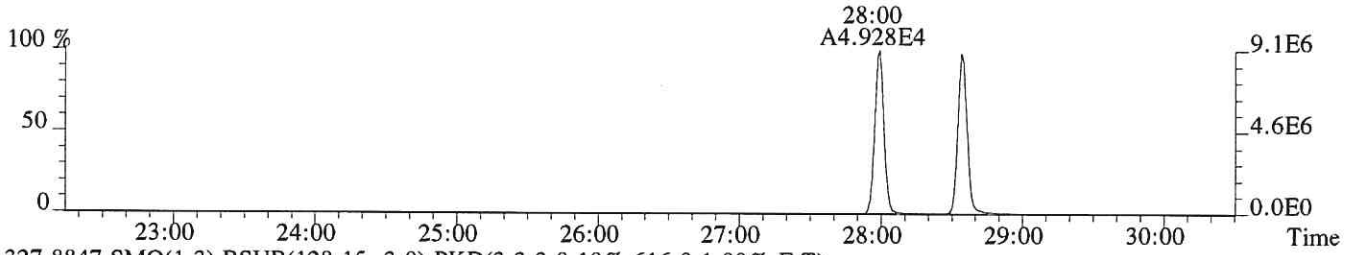
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



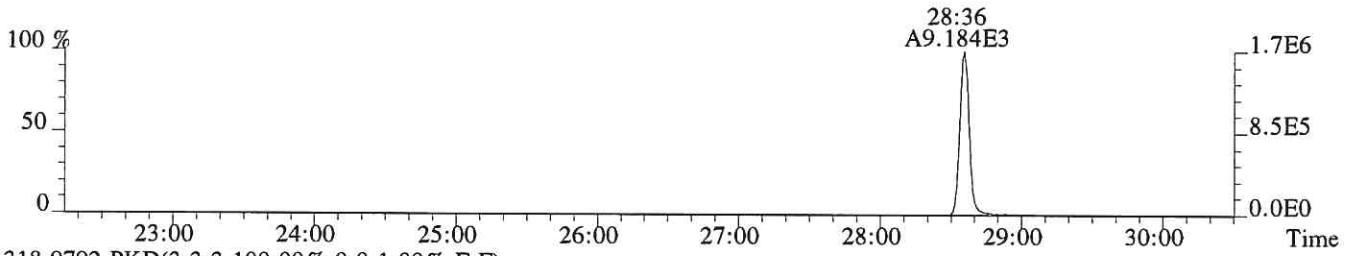
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4836.0,1.00%,F,T)



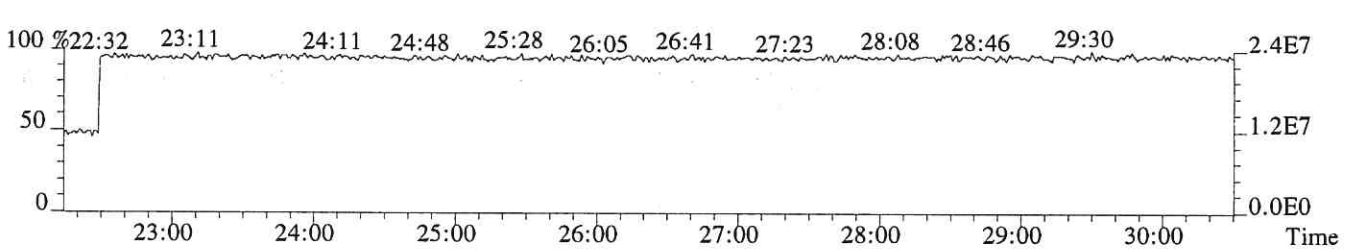
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



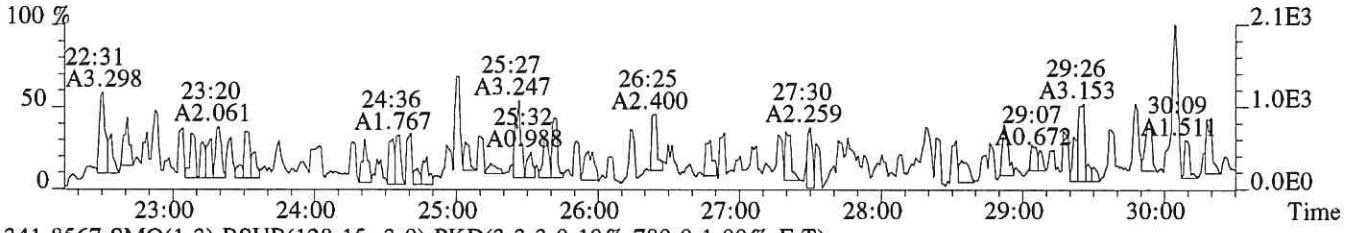
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



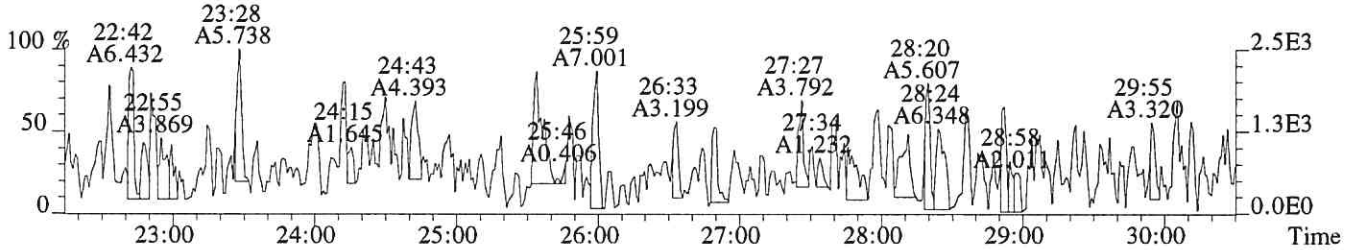
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



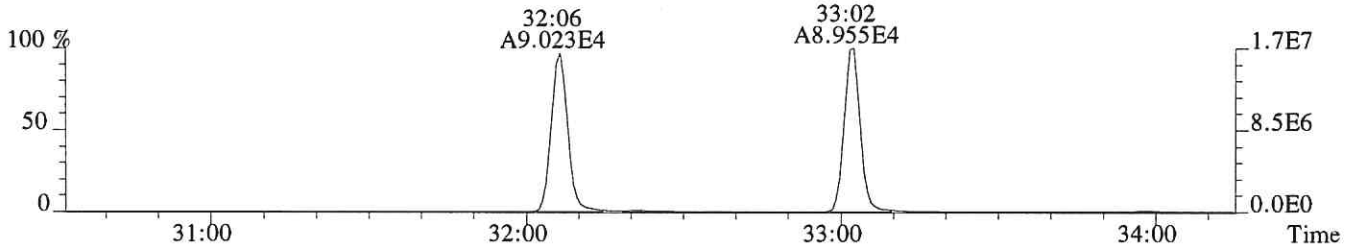
File:P519350 #1-587 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



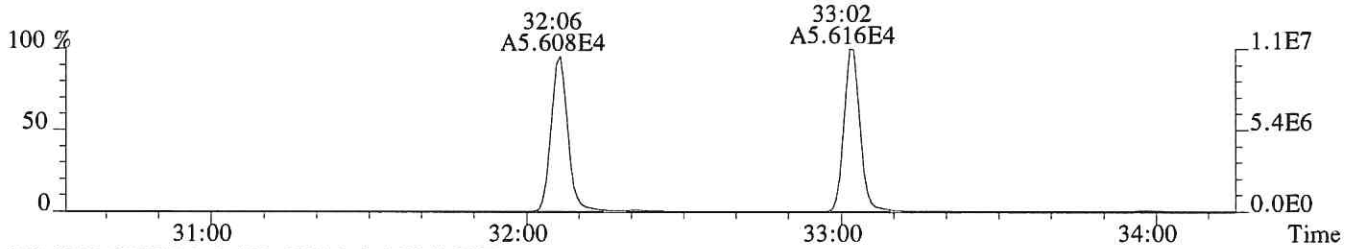
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



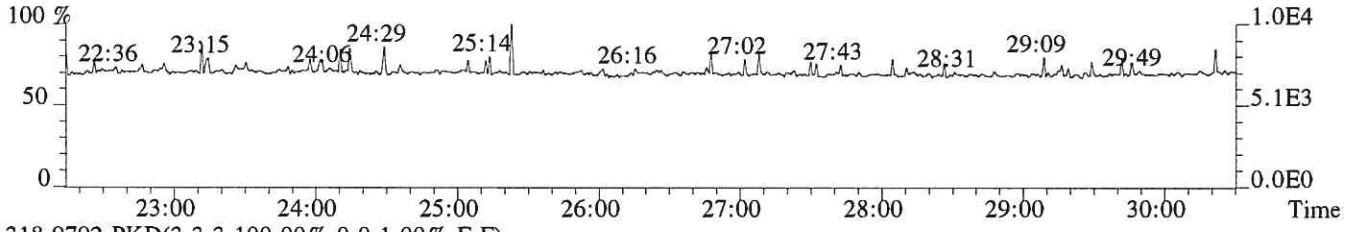
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



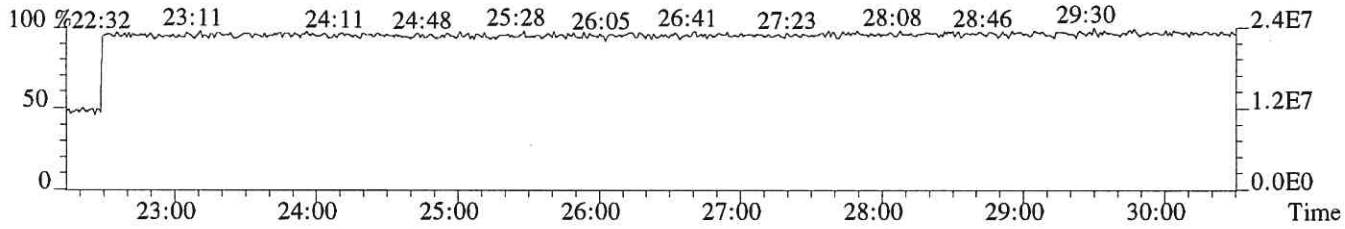
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



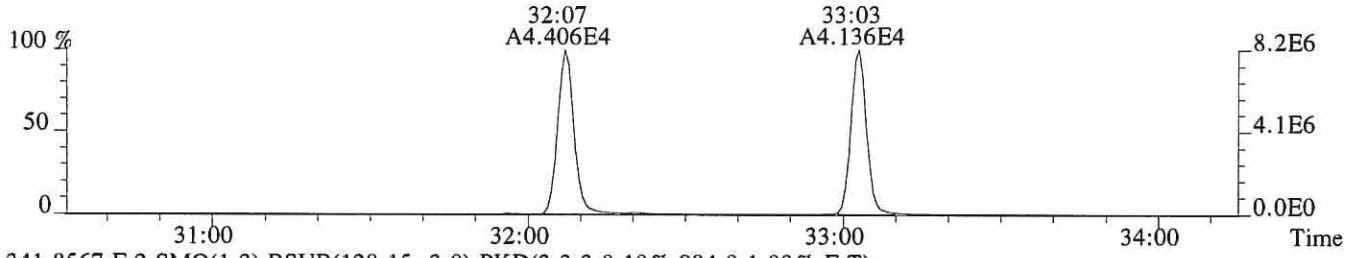
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



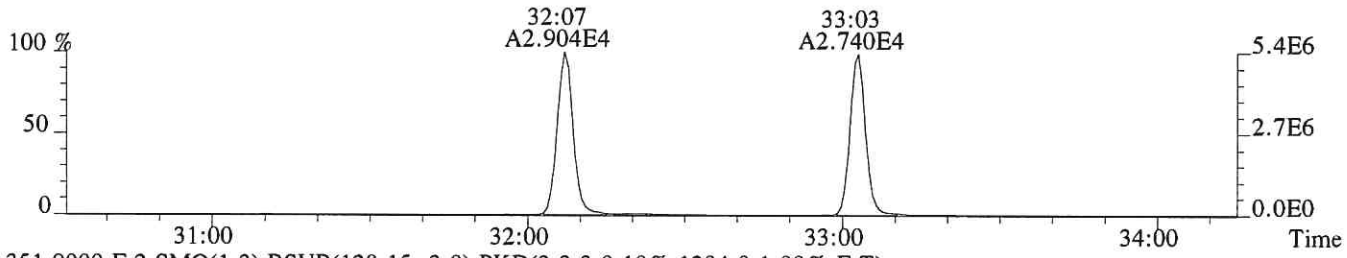
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



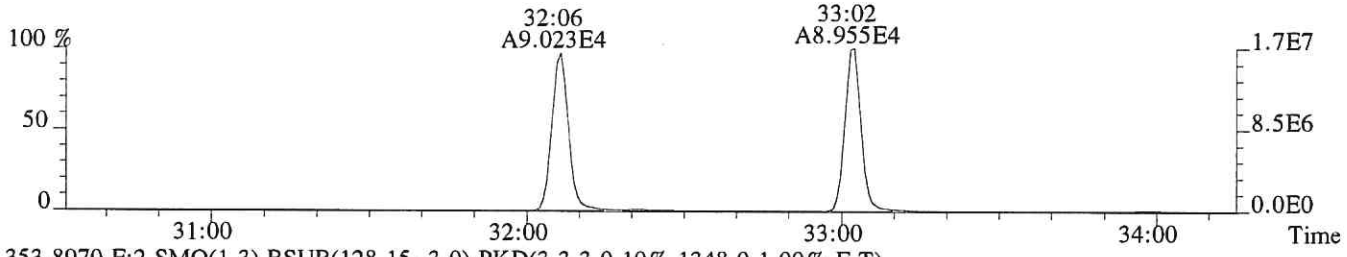
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



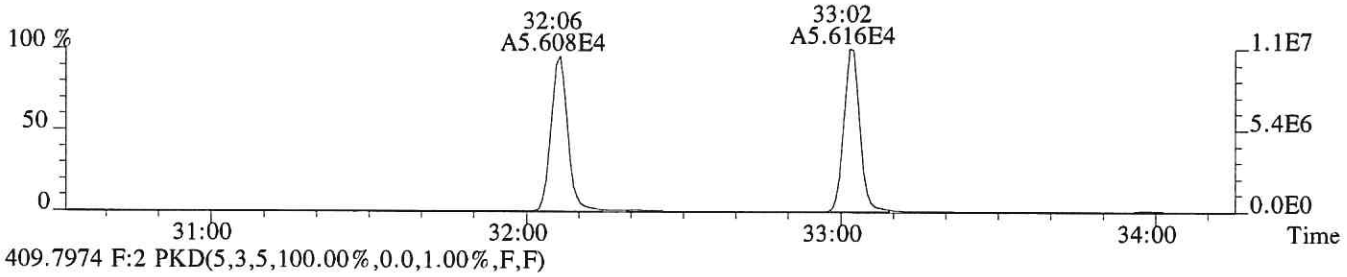
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



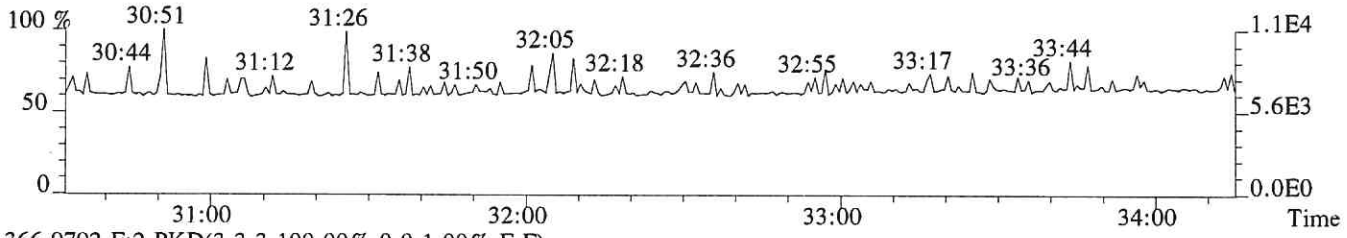
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



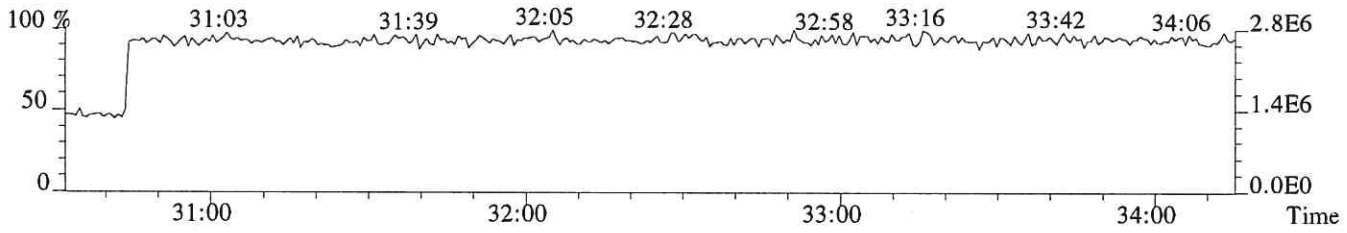
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



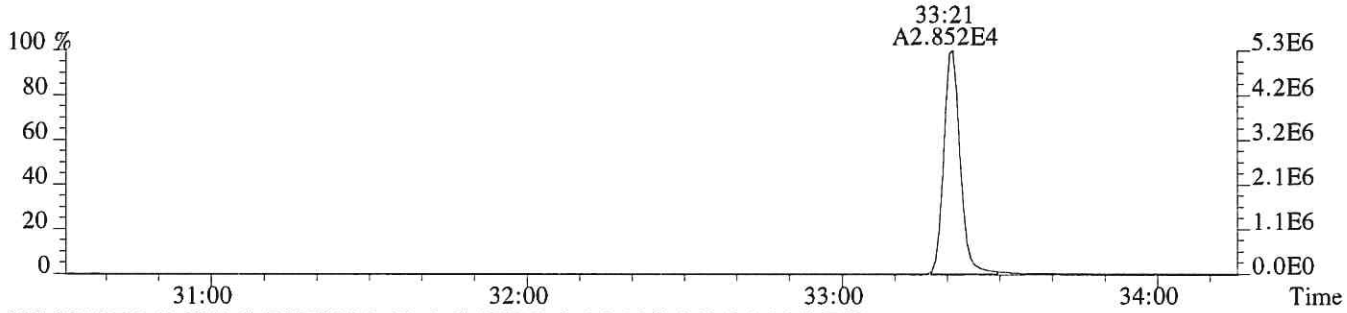
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



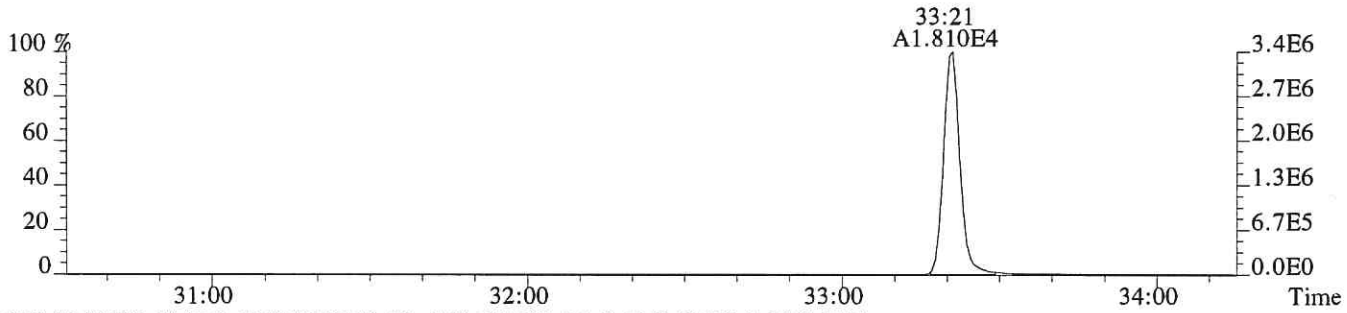
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



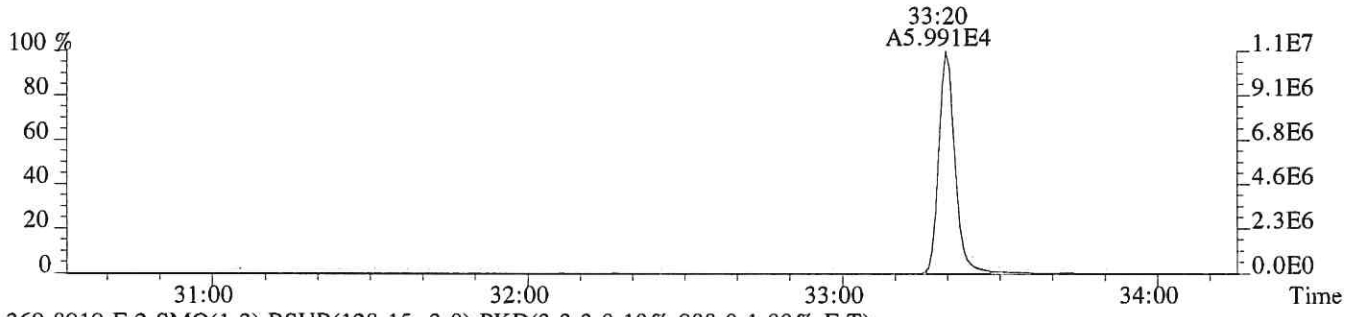
File:P519350 #1-335 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



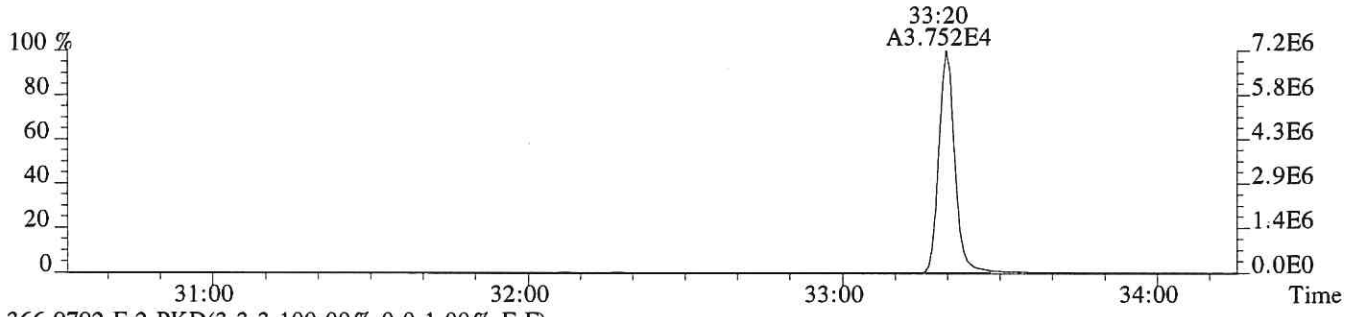
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



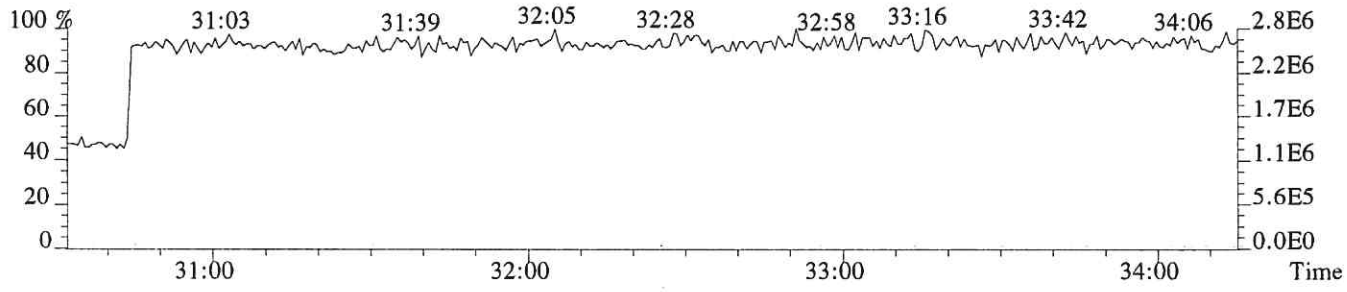
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



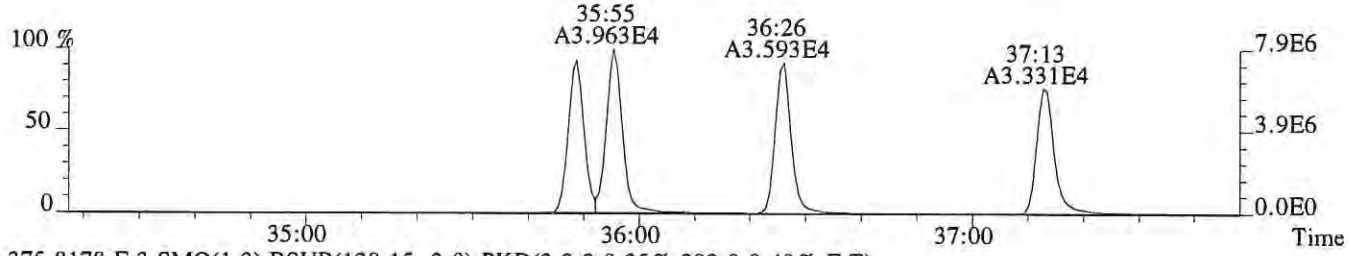
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



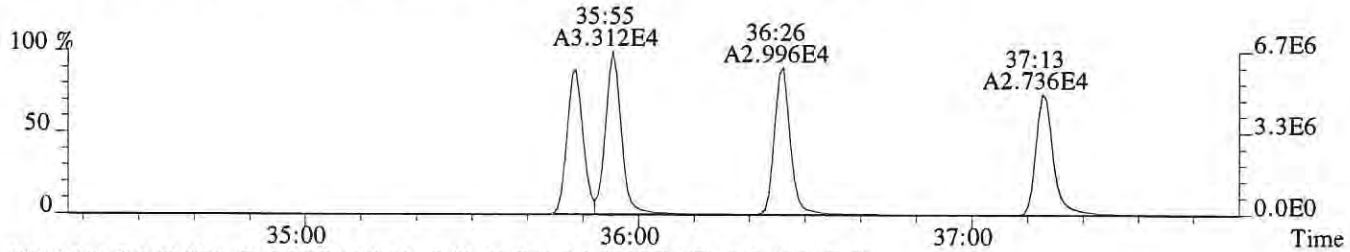
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



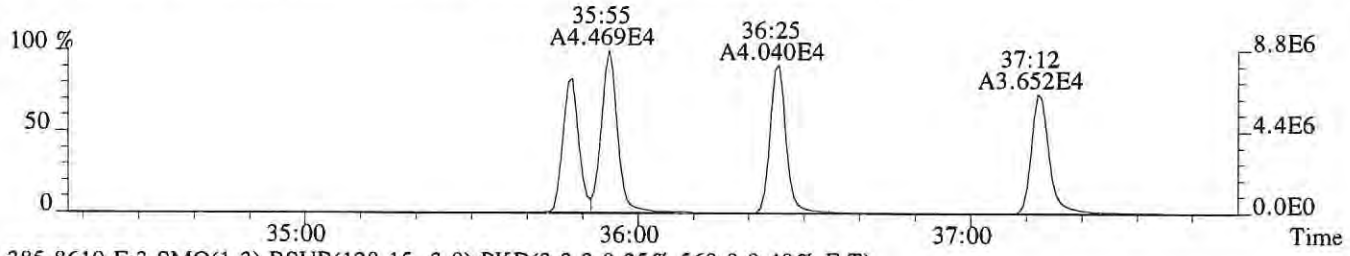
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



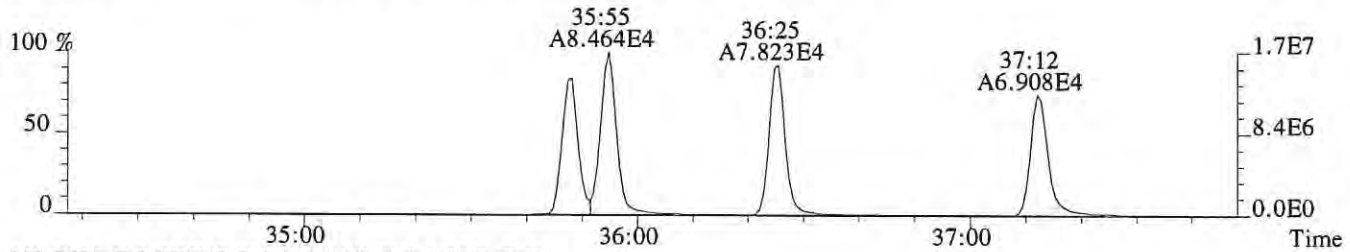
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



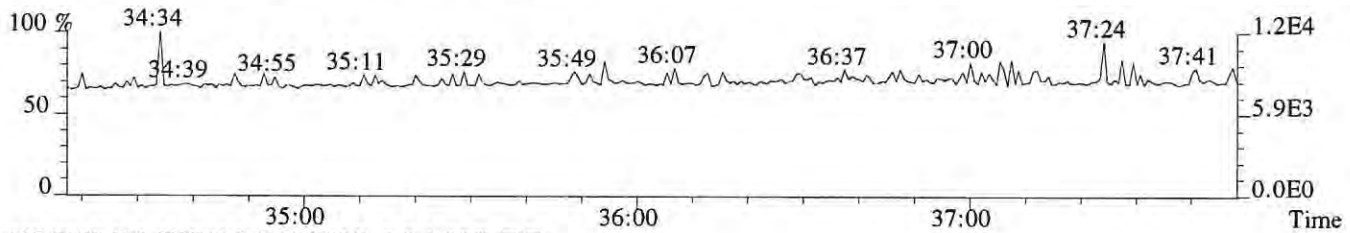
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



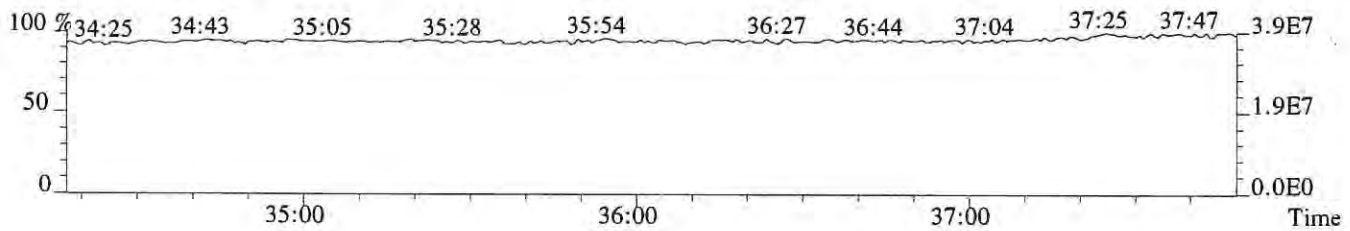
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



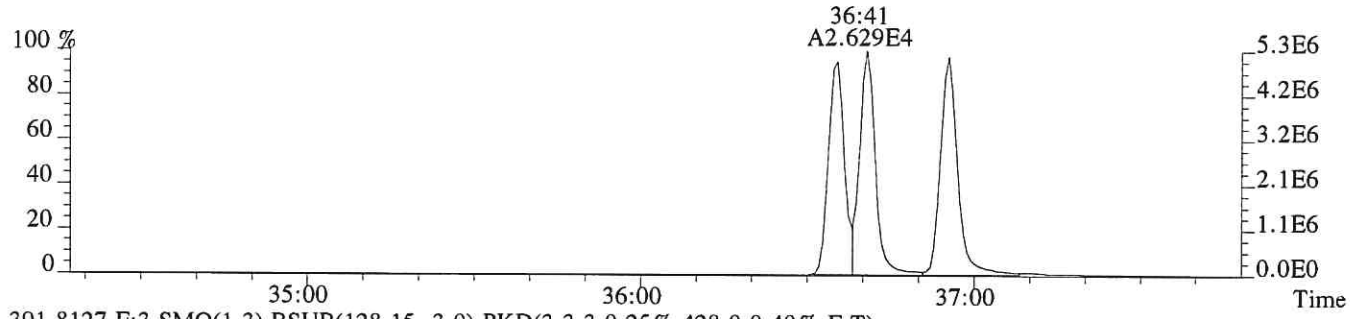
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



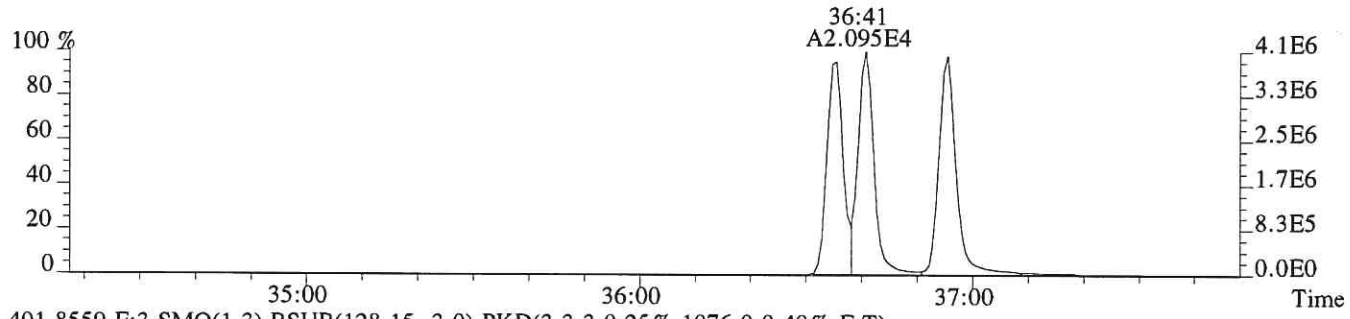
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



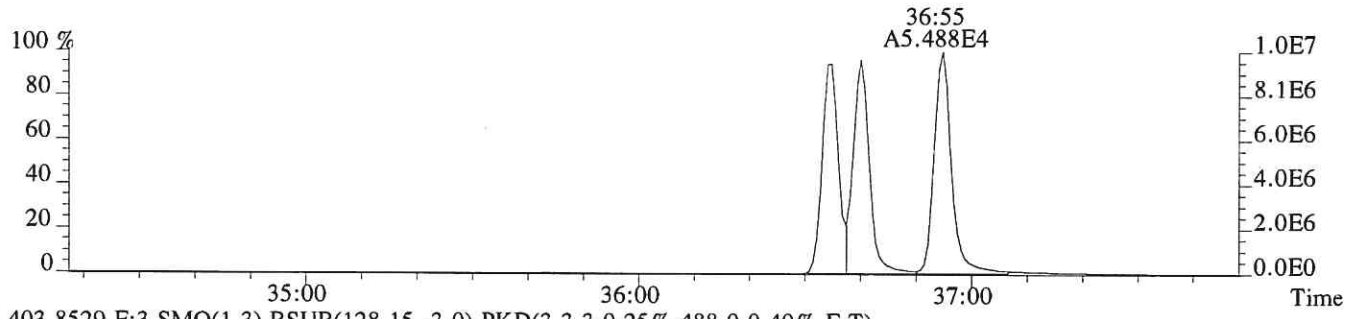
File:P519350 #1-317 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



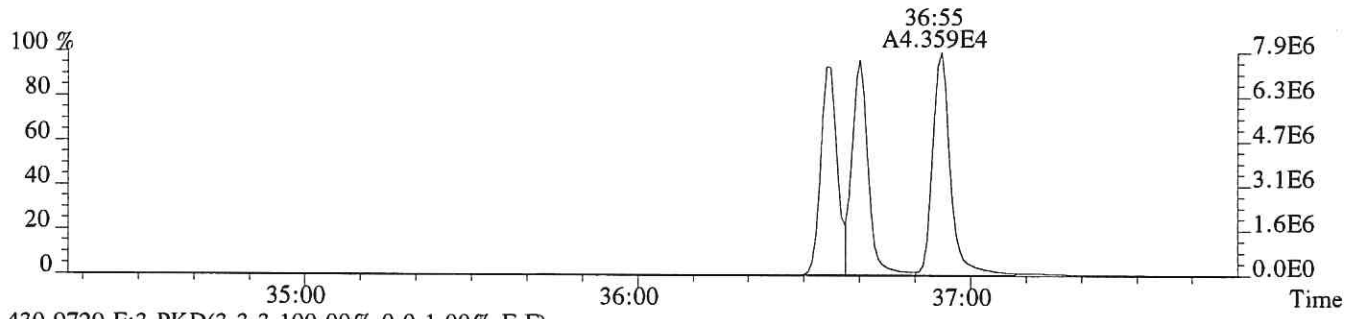
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



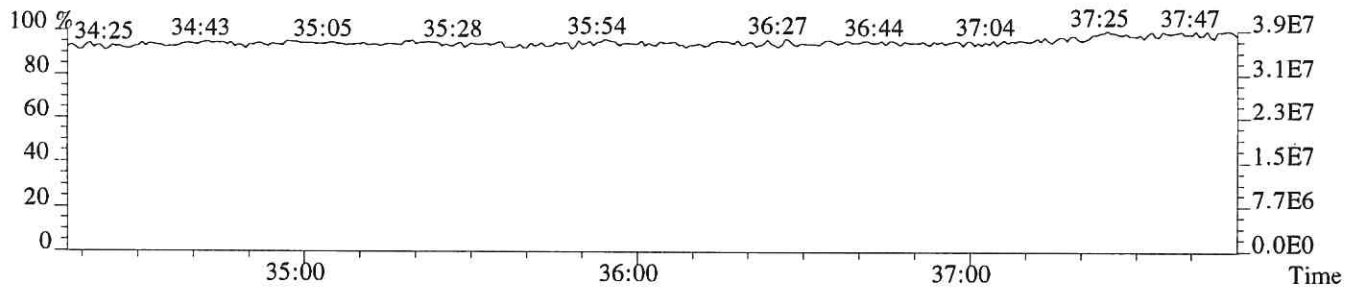
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



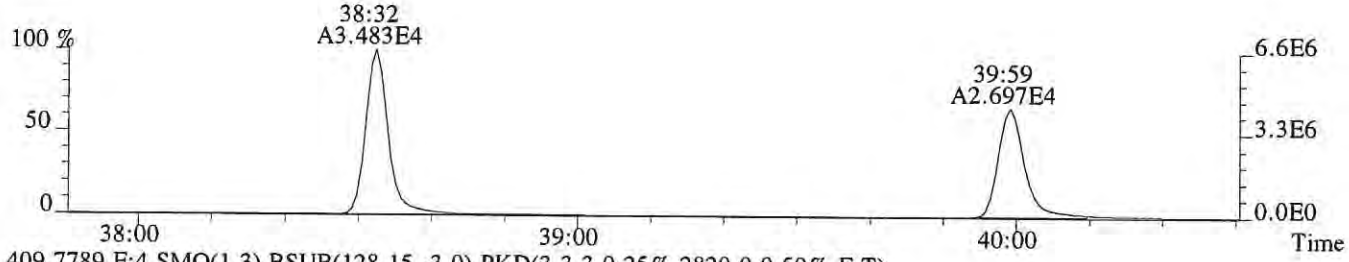
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



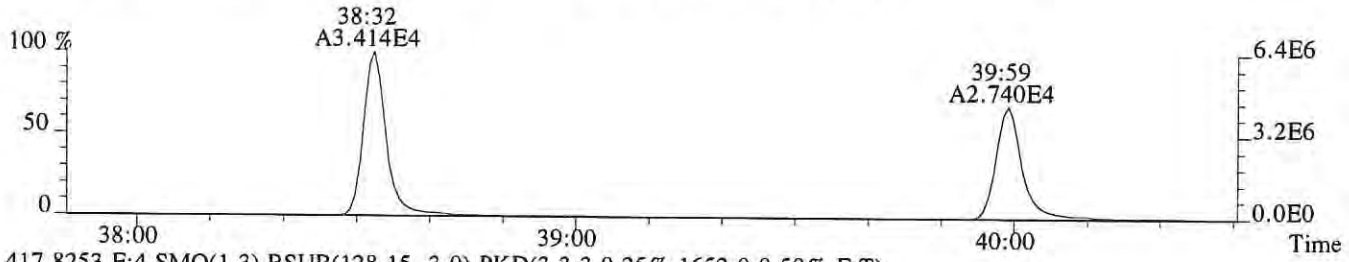
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



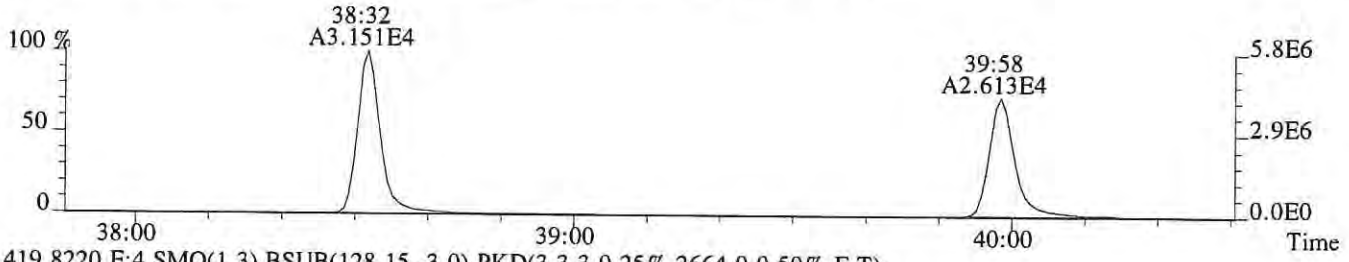
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5592.0,0.50%,F,T)



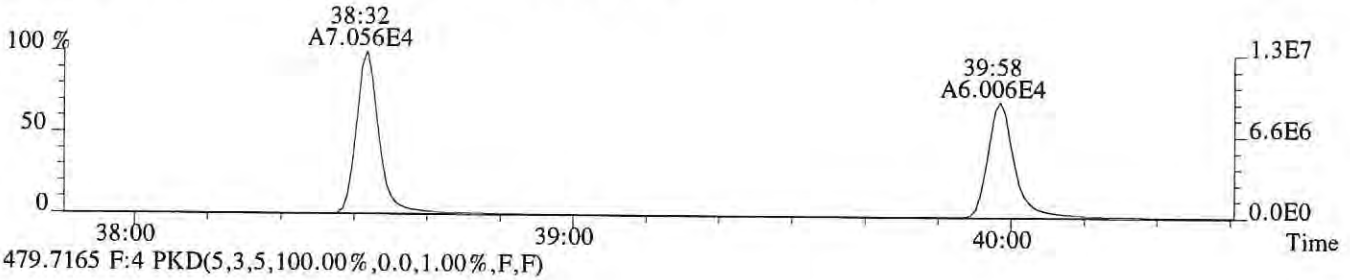
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.50%,F,T)



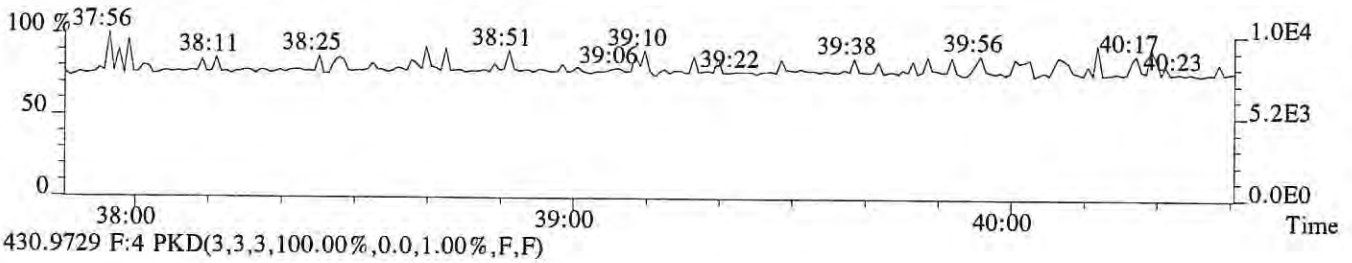
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



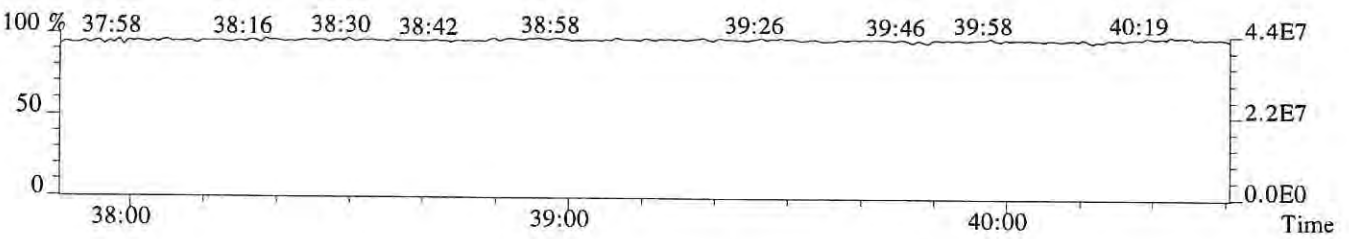
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2664.0,0.50%,F,T)



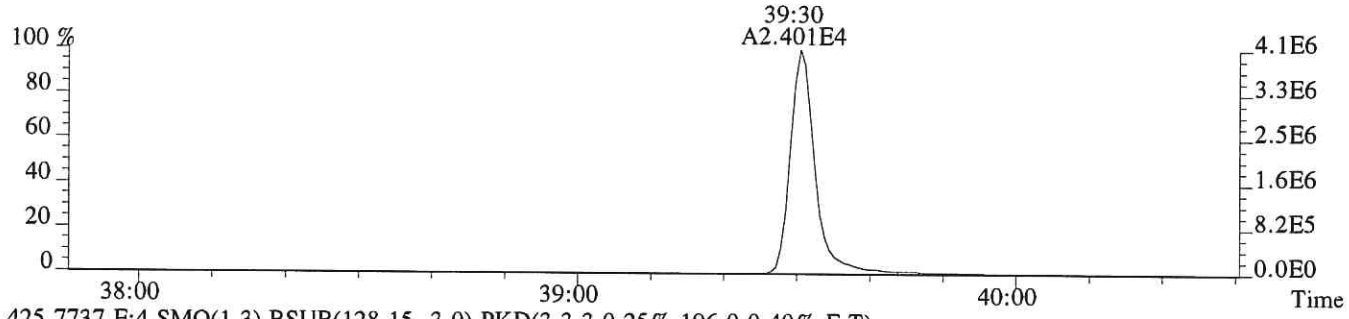
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



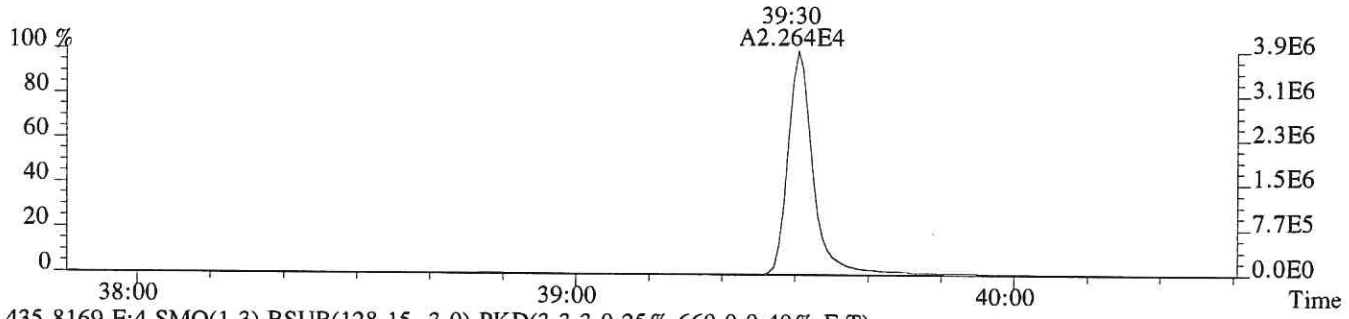
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



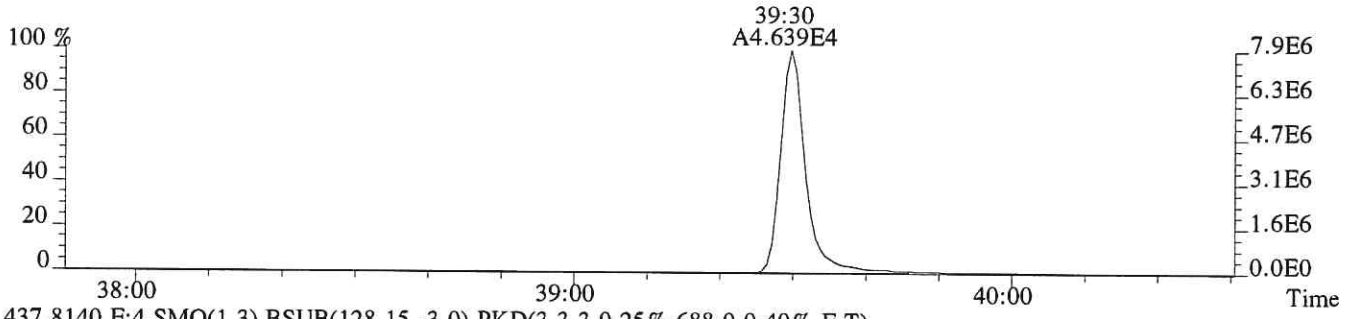
File:P519350 #1-241 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



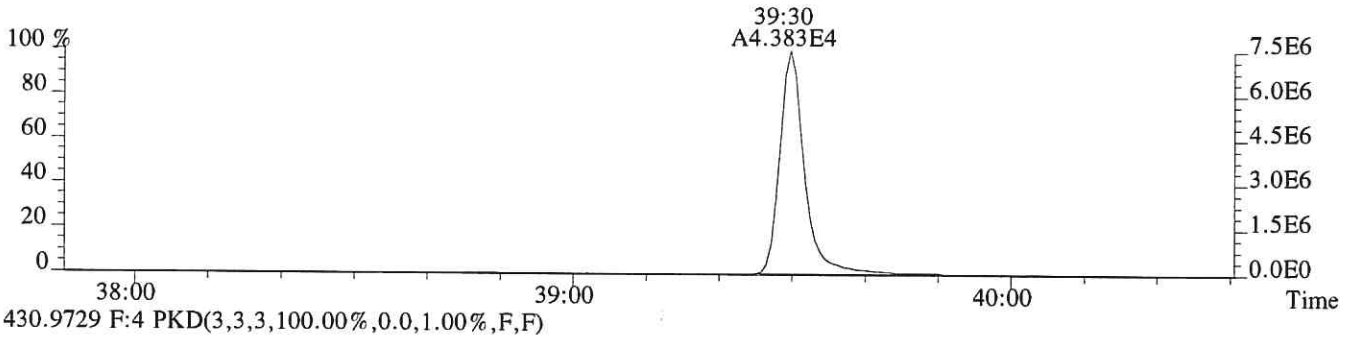
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



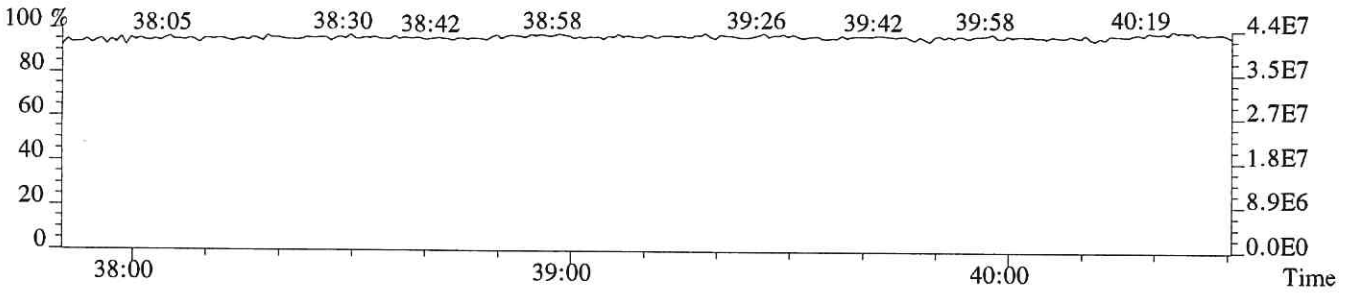
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



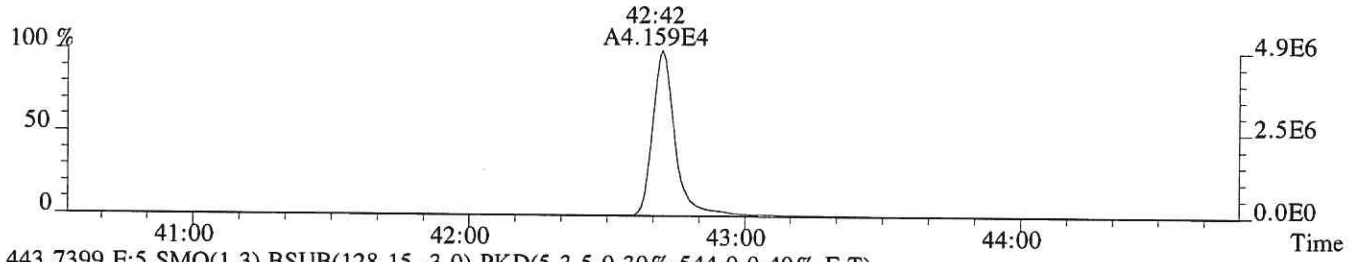
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



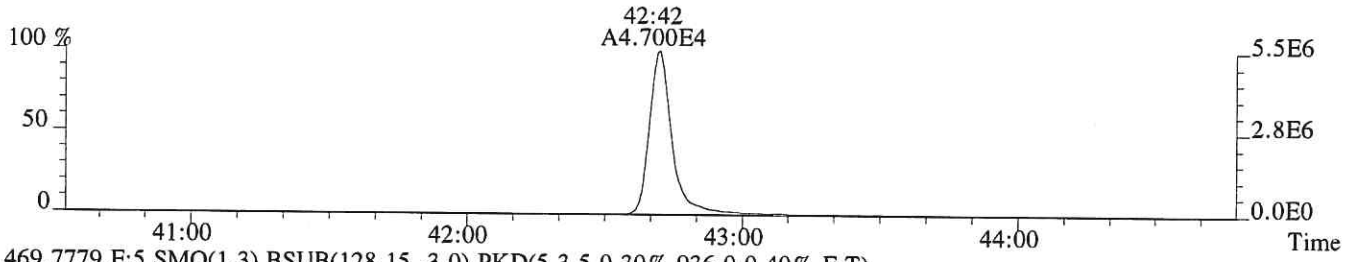
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



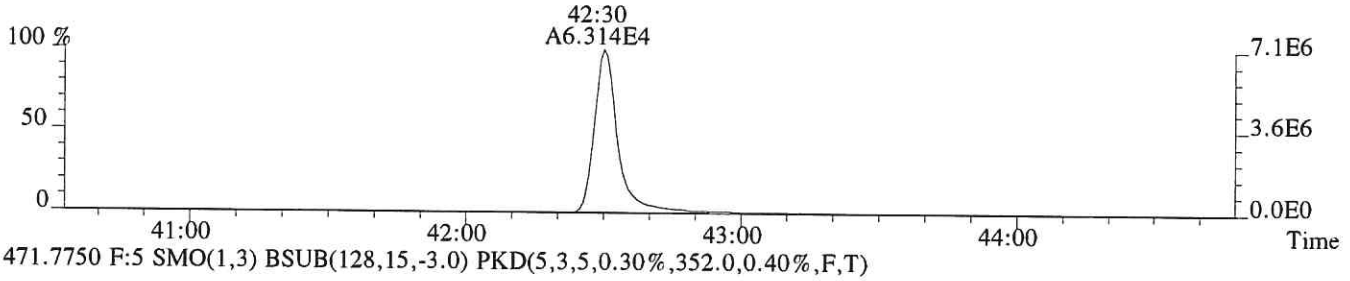
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



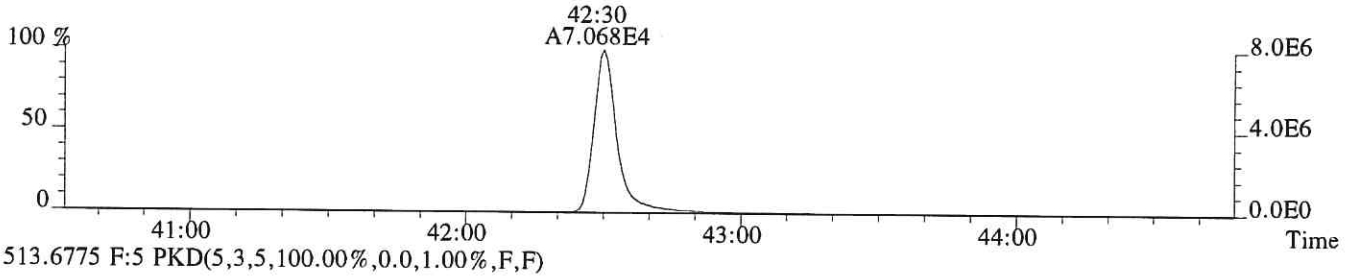
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



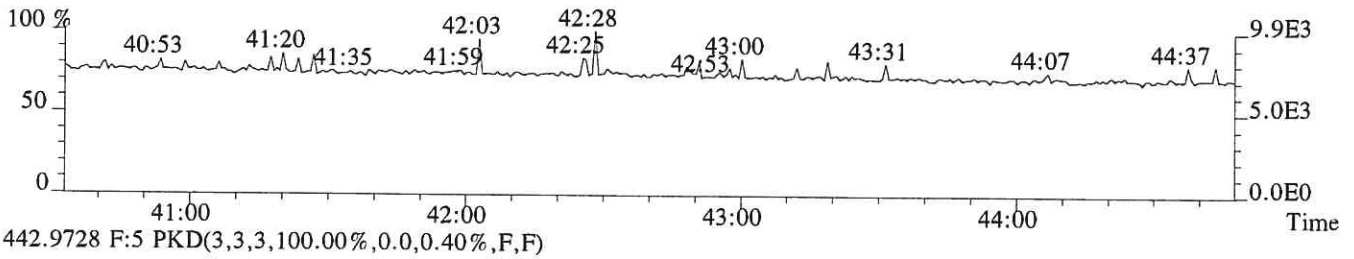
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



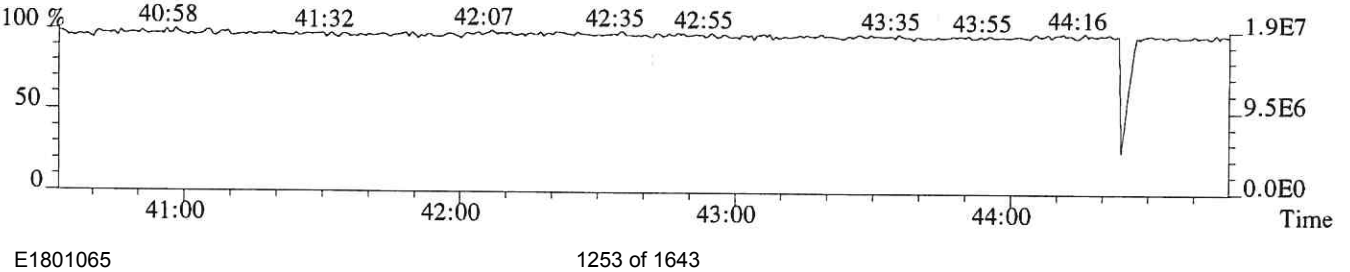
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



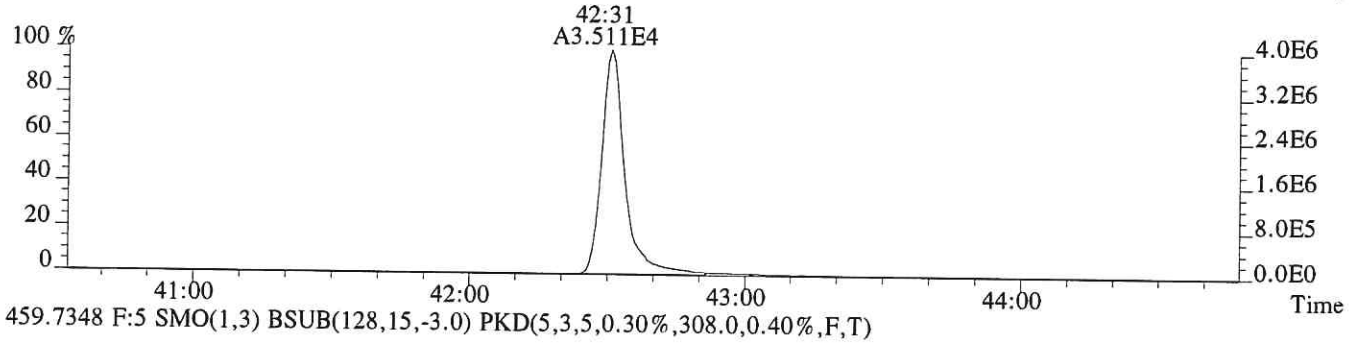
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



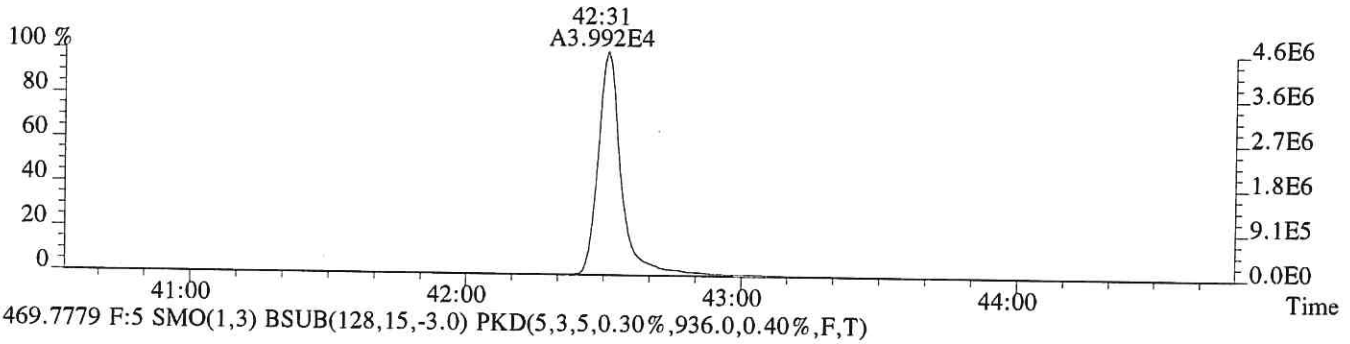
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



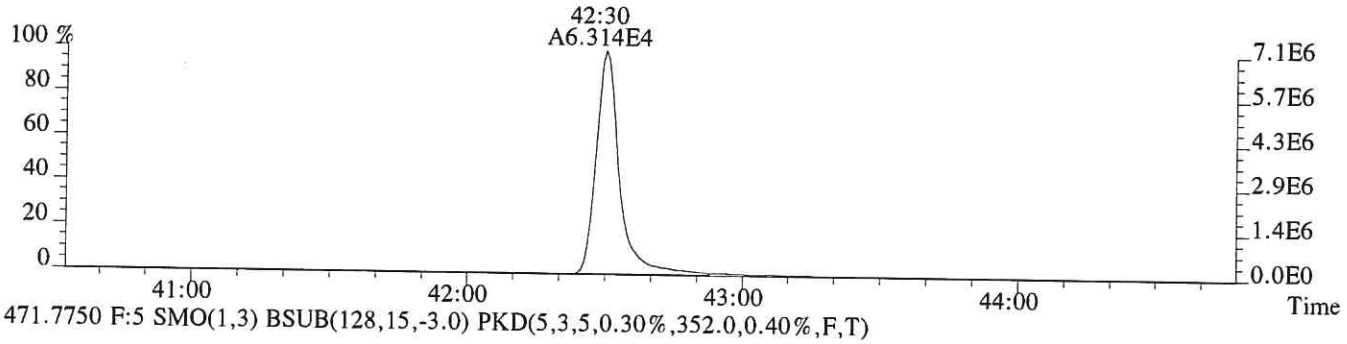
File:P519350 #1-383 Acq:11-DEC-2018 10:22:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



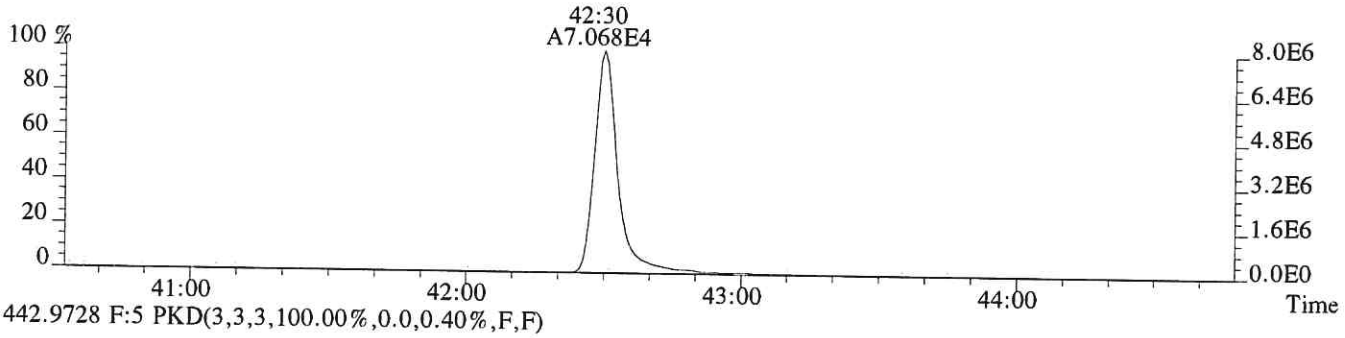
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



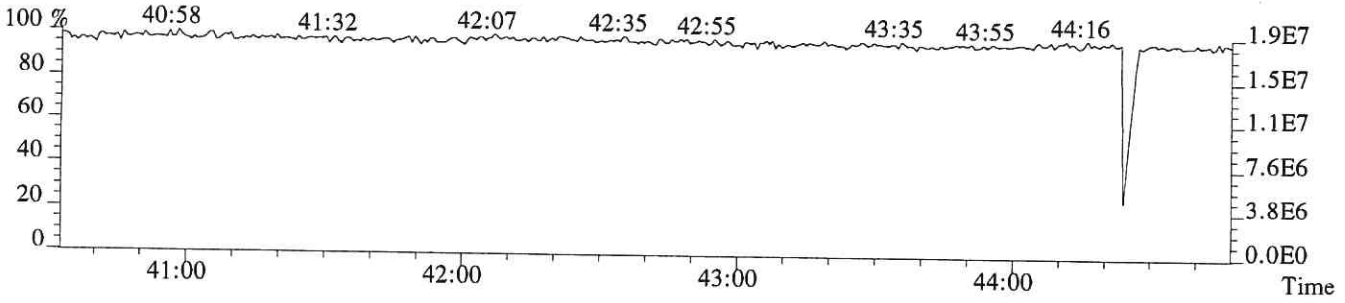
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P519366

Circle one: (Beginning) / Ending

Date: 12/11 - 12/12/18

Method: (1613) 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL

Second QC: LG

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P519367	12-DEC-18	00:36:53
194503	CS3	P519366	11-DEC-18	23:49:06
METHOD BLANK	EQ1800469-01	P519368	12-DEC-18	01:25:30
METHOD BLANK	EQ1800499-01	P519369	12-DEC-18	02:14:16
METHOD BLANK	EQ1800500-01	P519370	12-DEC-18	03:02:53
METHOD BLANK	EQ1800498-01	P519371	12-DEC-18	03:51:29
18-C036150	K1811360-001	P519372	12-DEC-18	04:40:08
SL0577	E1801065-027	P519373	12-DEC-18	05:28:45
SL0578	E1801065-028	P519374	12-DEC-18	06:18:14
SL0579	E1801065-029	P519375	12-DEC-18	07:06:39
SL0570	E1801065-011DL	P519376	12-DEC-18	07:54:43
SL0561	E1801065-012DL	P519377	12-DEC-18	08:43:29
SL0562	E1801065-013DL	P519378	12-DEC-18	09:32:06
LCS	EQ1800500-02	P519379	12-DEC-18	10:20:34
DLCS	EQ1800500-03	P519380	12-DEC-18	11:09:11

E1801065

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181211B.SPL
Last Modified: Wednesday, December 12, 2018 11:32:46 Central Standard Time
Printed: Wednesday, December 12, 2018 11:32:48 Central Standard Time

Page Position (1, 1)

OPUS 5NET: P519366 RES

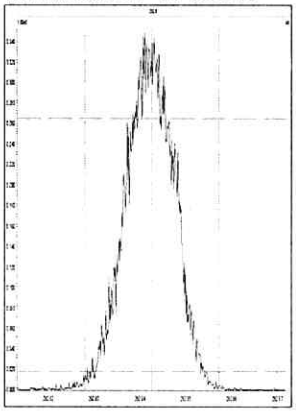
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/12/18	23:49	P519366	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 23:49
2	12/12/18	00:36	P519367	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		01:25	P519368	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		02:14	P519369	MB	EQ1800499-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		03:02	P519370	MB	EQ1800500-01	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		03:51	P519371	MB	EQ1800498-01	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		04:40	P519372	K1811360-001	K1811360-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		05:28	P519373	E1801065-027	E1801065-027	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		06:18	P519374	E1801065-028	E1801065-028	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		07:06	P519375	E1801065-029	E1801065-029	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		07:54	P519376	E1801065-011DL	E1801065-011DL	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		08:43	P519377	E1801065-012DL	E1801065-012DL	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		09:32	P519378	E1801065-013DL	E1801065-013DL	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		10:20	P519379	LCS	EQ1800500-02	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15	✓	11:09	P519380	DLCS	EQ1800500-03	EPA1613_ALS	Dioxin_ALS	Tray1:15	✓	HRMS check 12:01
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

LKL 12/13/18

1257 of 1643

Printed: Tuesday, December 11, 2018 23:49:04 Central Standard Time

M 292.9824 R 12345



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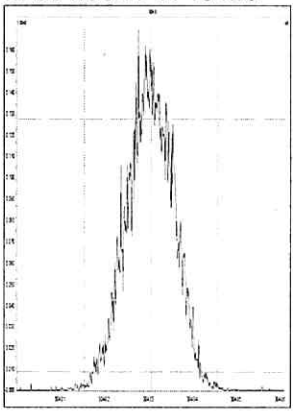

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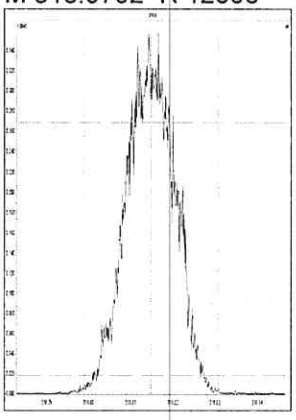

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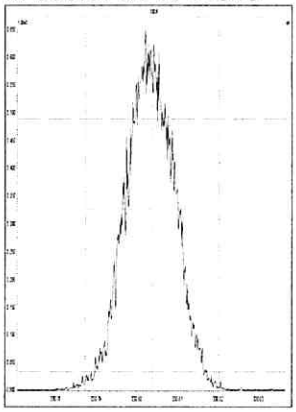
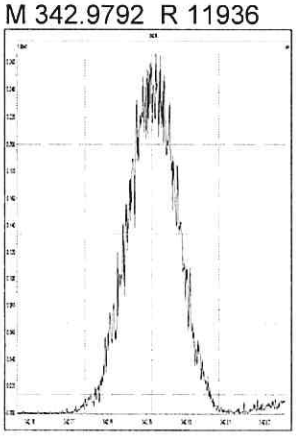


M 342.9792 R 11936



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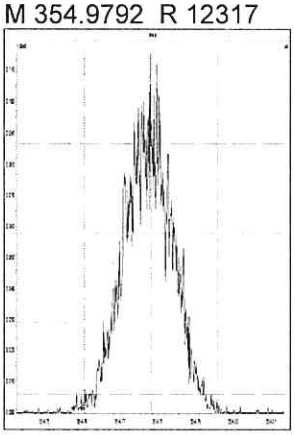
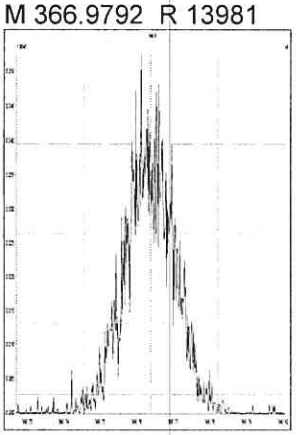
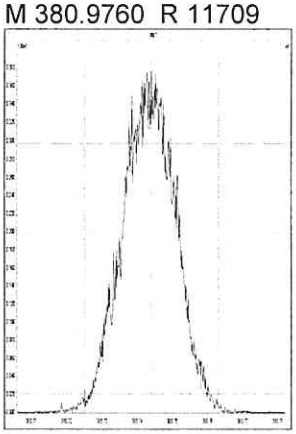


M 366.9792 R 13981



M 380.9760 R 11709



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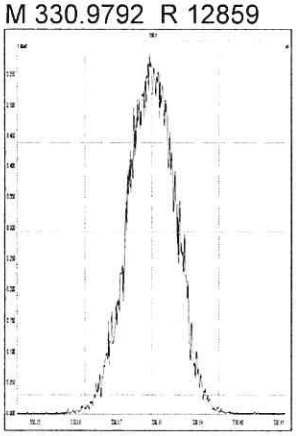
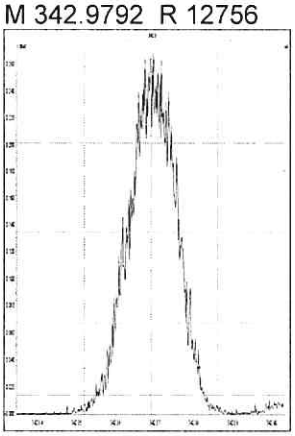
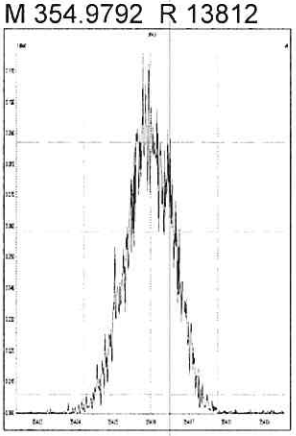


M 342.9792 R 12756



M 354.9792 R 13812



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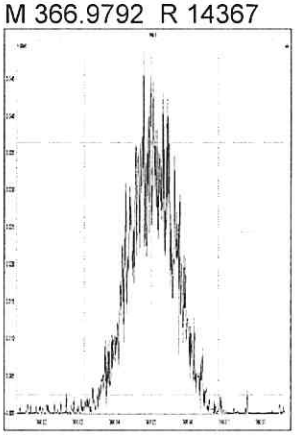

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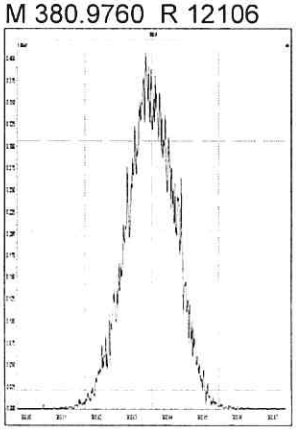
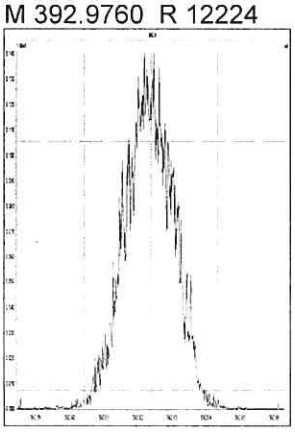
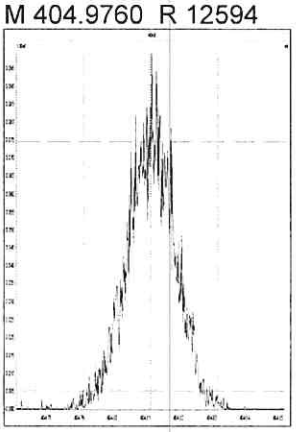


M 392.9760 R 12224



M 404.9760 R 12594



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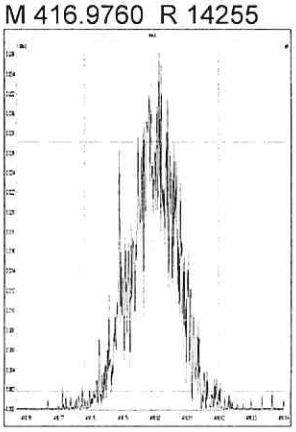
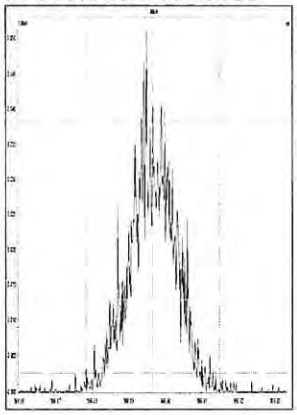


M 366.9792 R 13858



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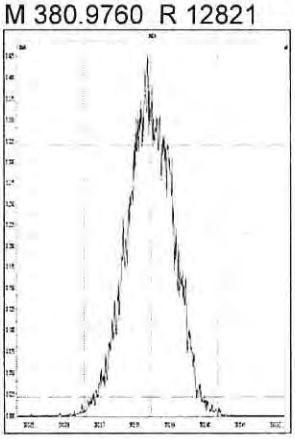
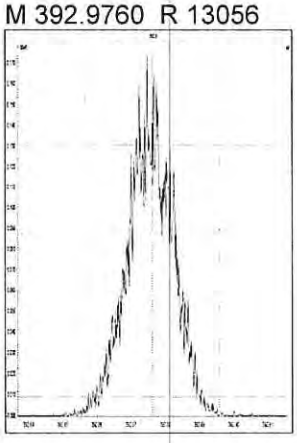


M 392.9760 R 13056



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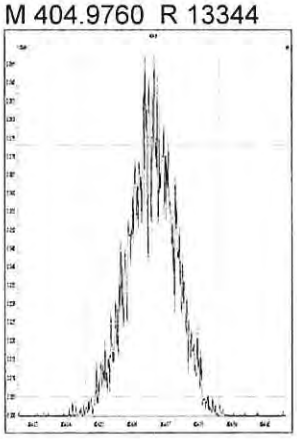
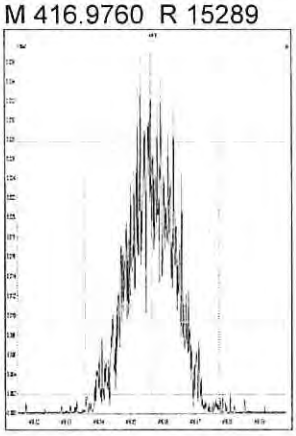
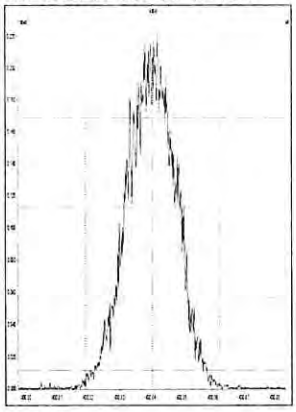


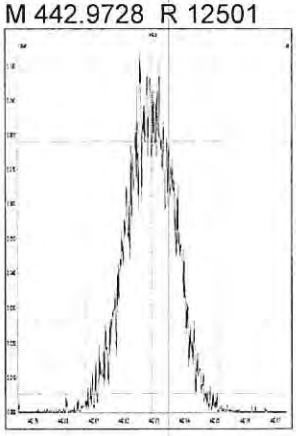
M 416.9760 R 15289



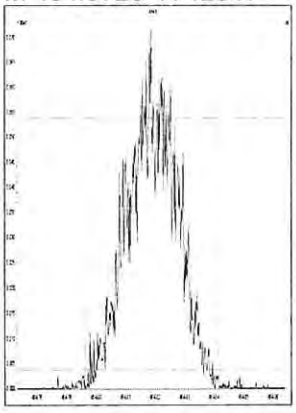
M 430.9728 R 12177



M 442.9728 R 12501



M 454.9728 R 12317



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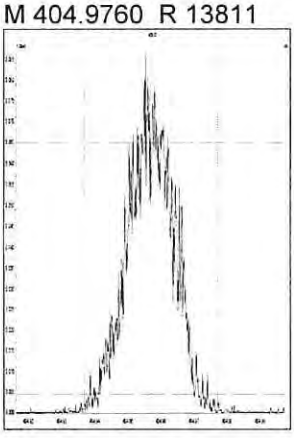

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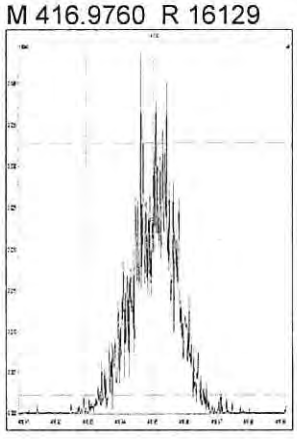

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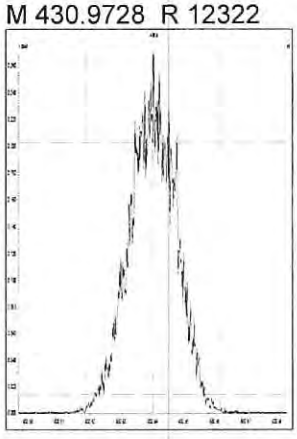
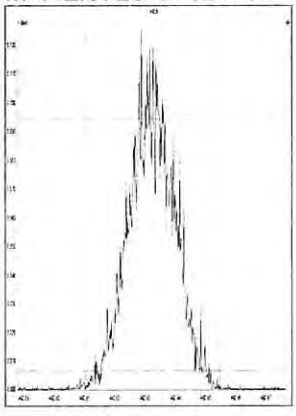
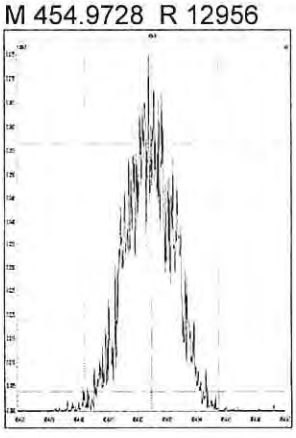


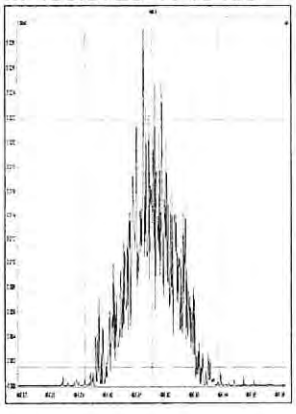
M 442.9728 R 12475



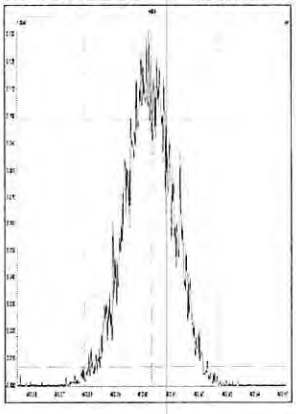
M 454.9728 R 12956



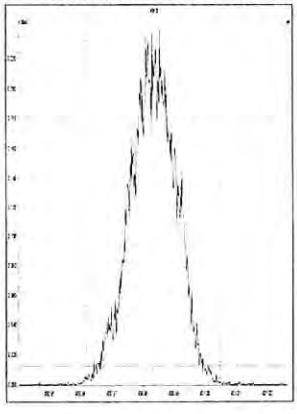
M 466.9728 R 15460



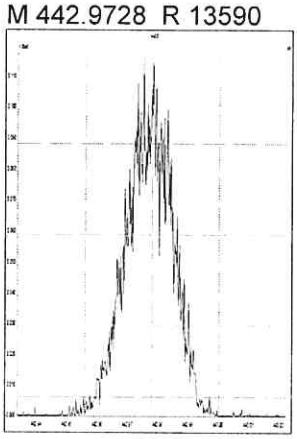
M 480.9696 R 12502



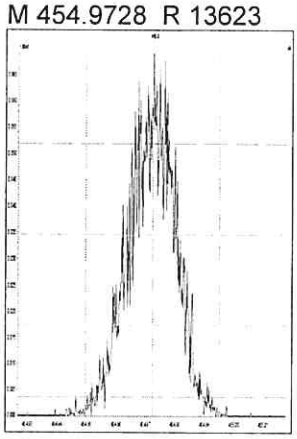
M 430.9728 R 12832



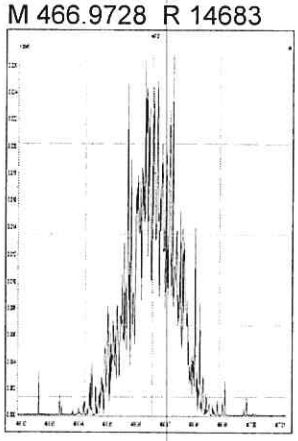
M 442.9728 R 13590



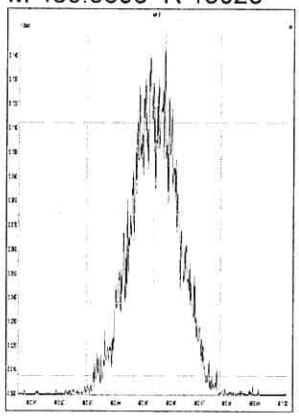
M 454.9728 R 13623



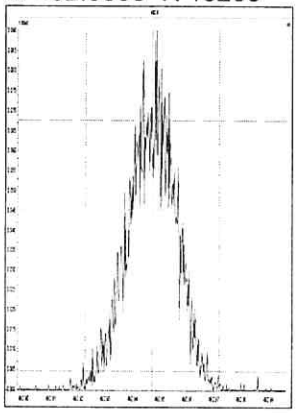
M 466.9728 R 14683



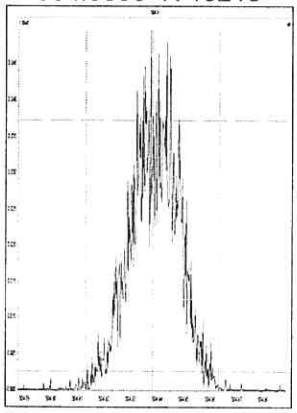
M 480.9696 R 13023



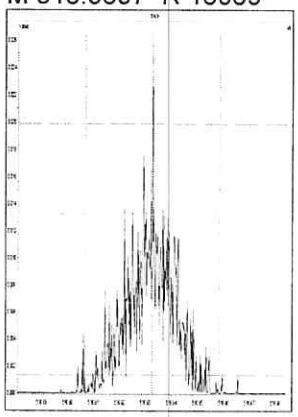
M 492.9696 R 13203



M 504.9696 R 13210



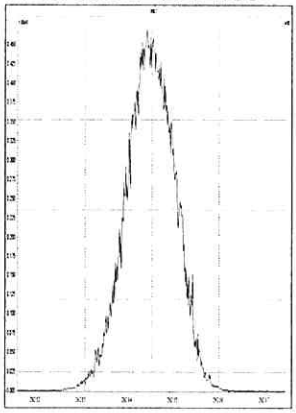
M 516.9697 R 16069



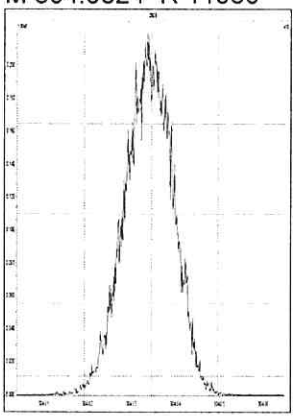
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:01:18 Central Standard Time

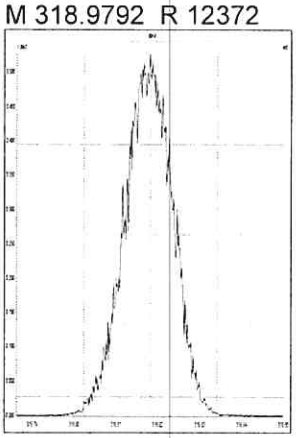
M 292.9824 R 12196



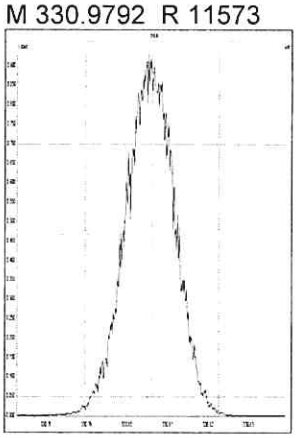
M 304.9824 R 11960



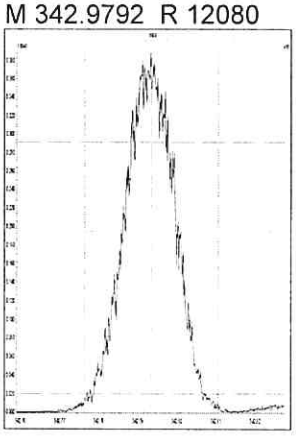
M 318.9792 R 12372



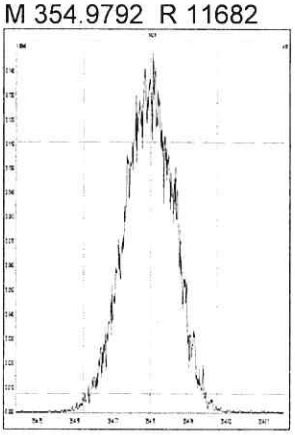
M 330.9792 R 11573



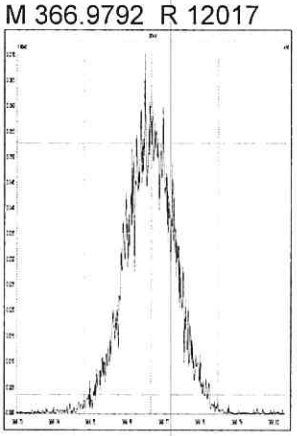
M 342.9792 R 12080



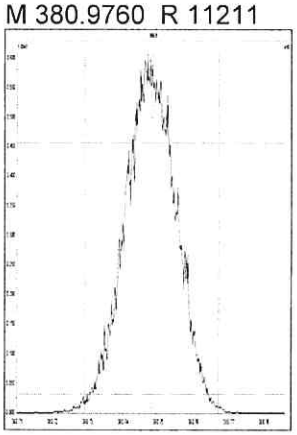
M 354.9792 R 11682



M 366.9792 R 12017



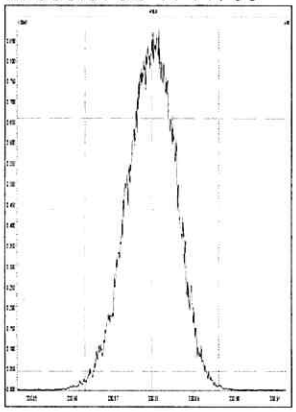
M 380.9760 R 11211



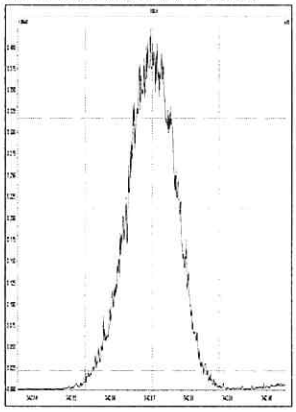
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:02:01 Central Standard Time

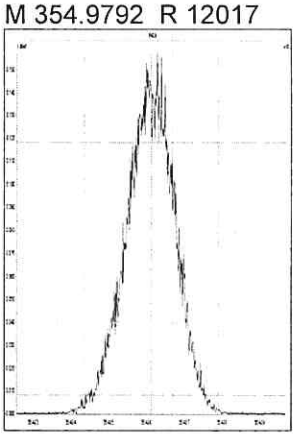
M 330.9792 R 11789



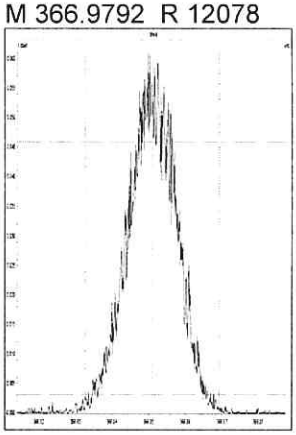
M 342.9792 R 11961



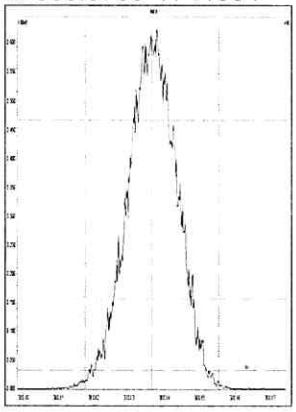
M 354.9792 R 12017



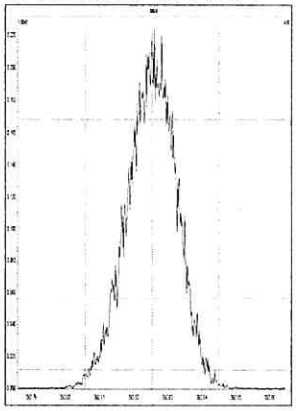
M 366.9792 R 12078



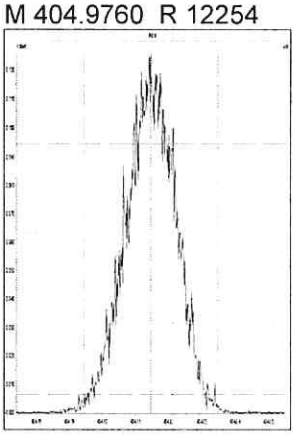
M 380.9760 R 11904



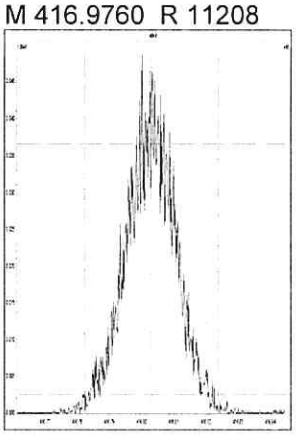
M 392.9760 R 11734



M 404.9760 R 12254



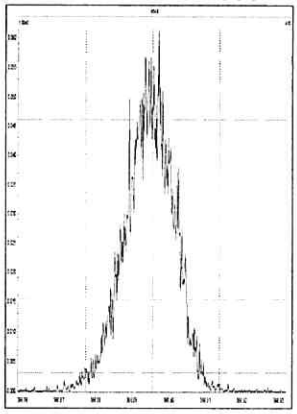
M 416.9760 R 11208



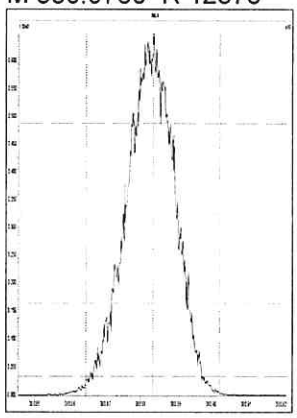
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:02:45 Central Standard Time

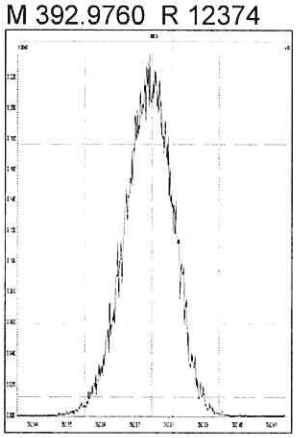
M 366.9792 R 12883



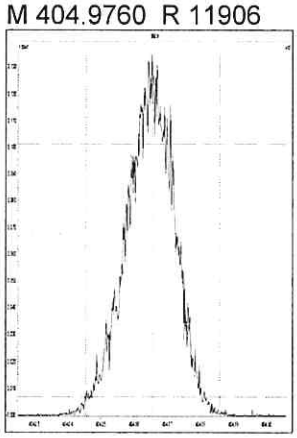
M 380.9760 R 12376



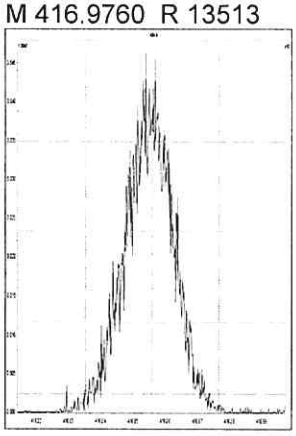
M 392.9760 R 12374



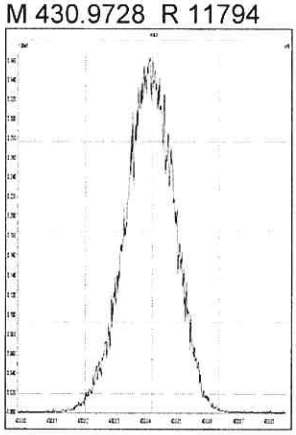
M 404.9760 R 11906



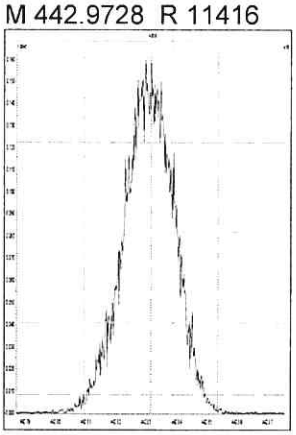
M 416.9760 R 13513



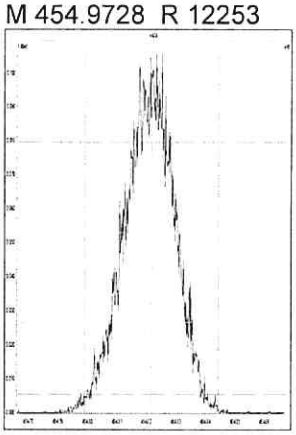
M 430.9728 R 11794



M 442.9728 R 11416



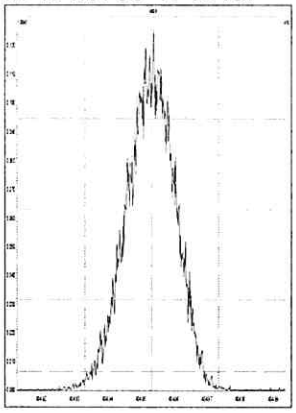
M 454.9728 R 12253



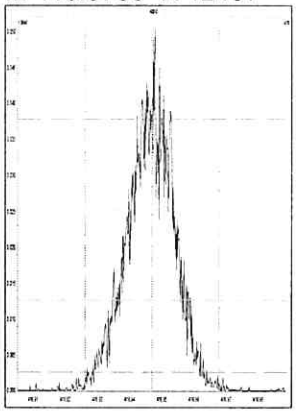
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:03:25 Central Standard Time

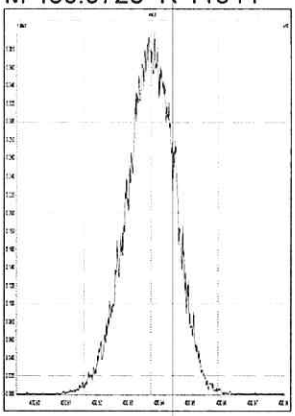
M 404.9760 R 12437



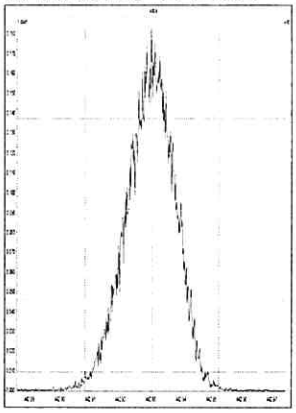
M 416.9760 R 12197



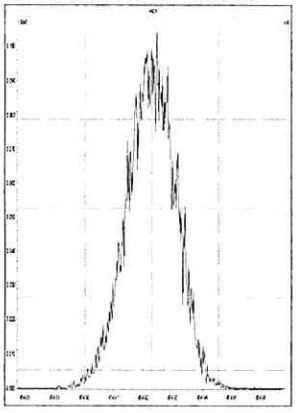
M 430.9728 R 11844



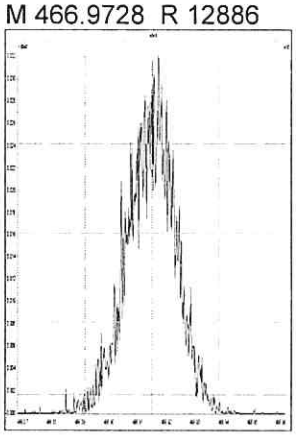
M 442.9728 R 12134



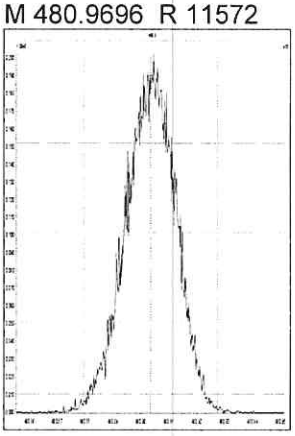
M 454.9728 R 12020



M 466.9728 R 12886



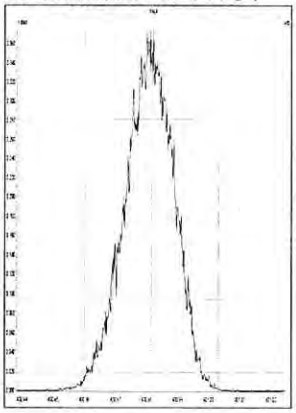
M 480.9696 R 11572



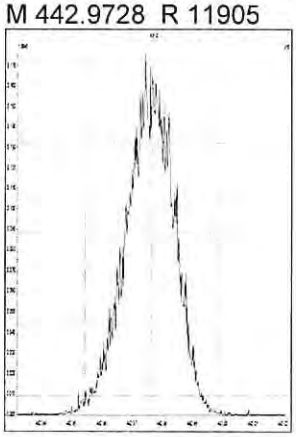
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, December 12, 2018 12:04:15 Central Standard Time

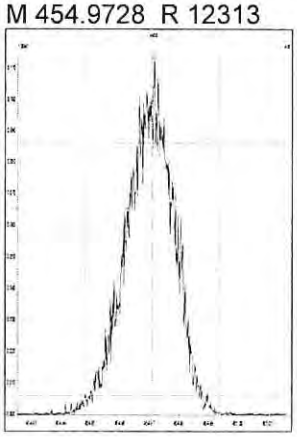
M 430.9728 R 11734



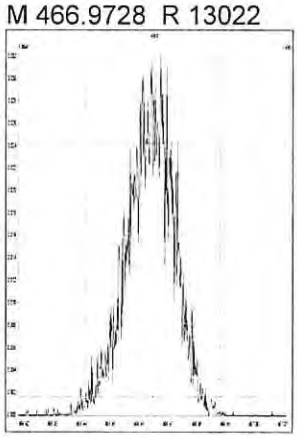
M 442.9728 R 11905



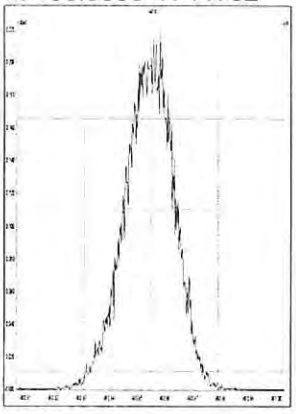
M 454.9728 R 12313



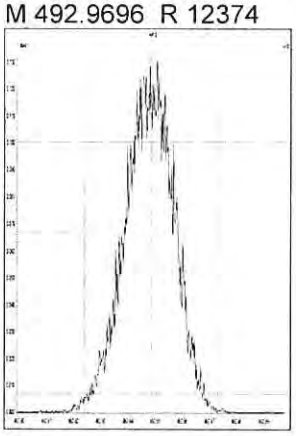
M 466.9728 R 13022



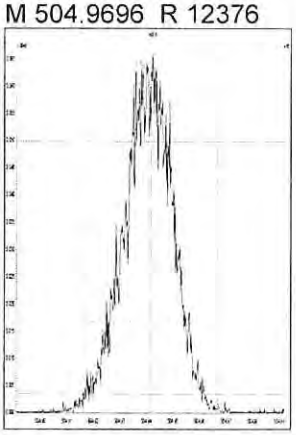
M 480.9696 R 11792



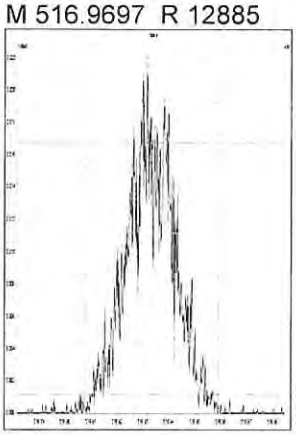
M 492.9696 R 12374



M 504.9696 R 12376



M 516.9697 R 12885



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

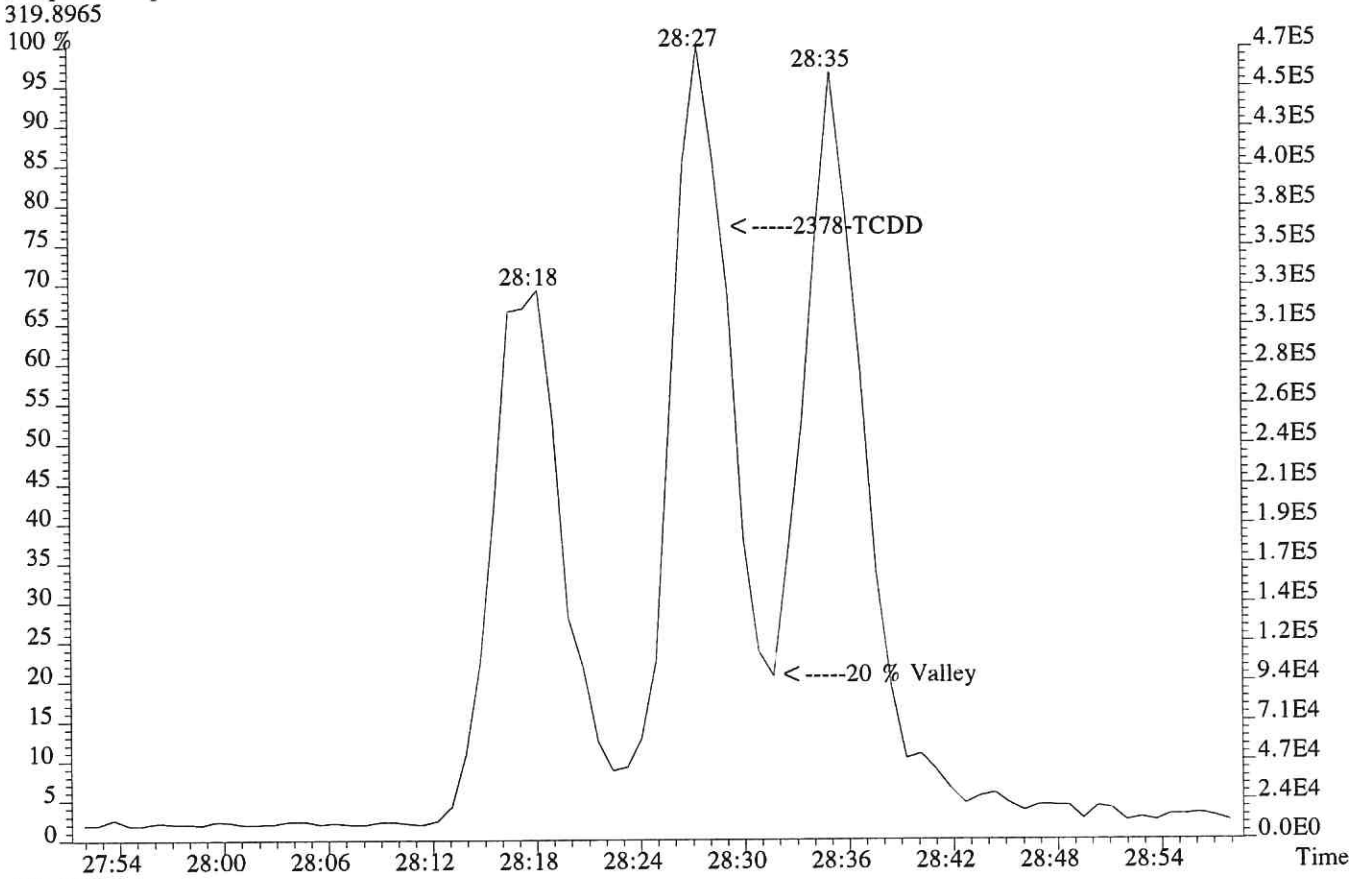
Case No.: _____ SDG No.:
ID: 0.25 (mm)

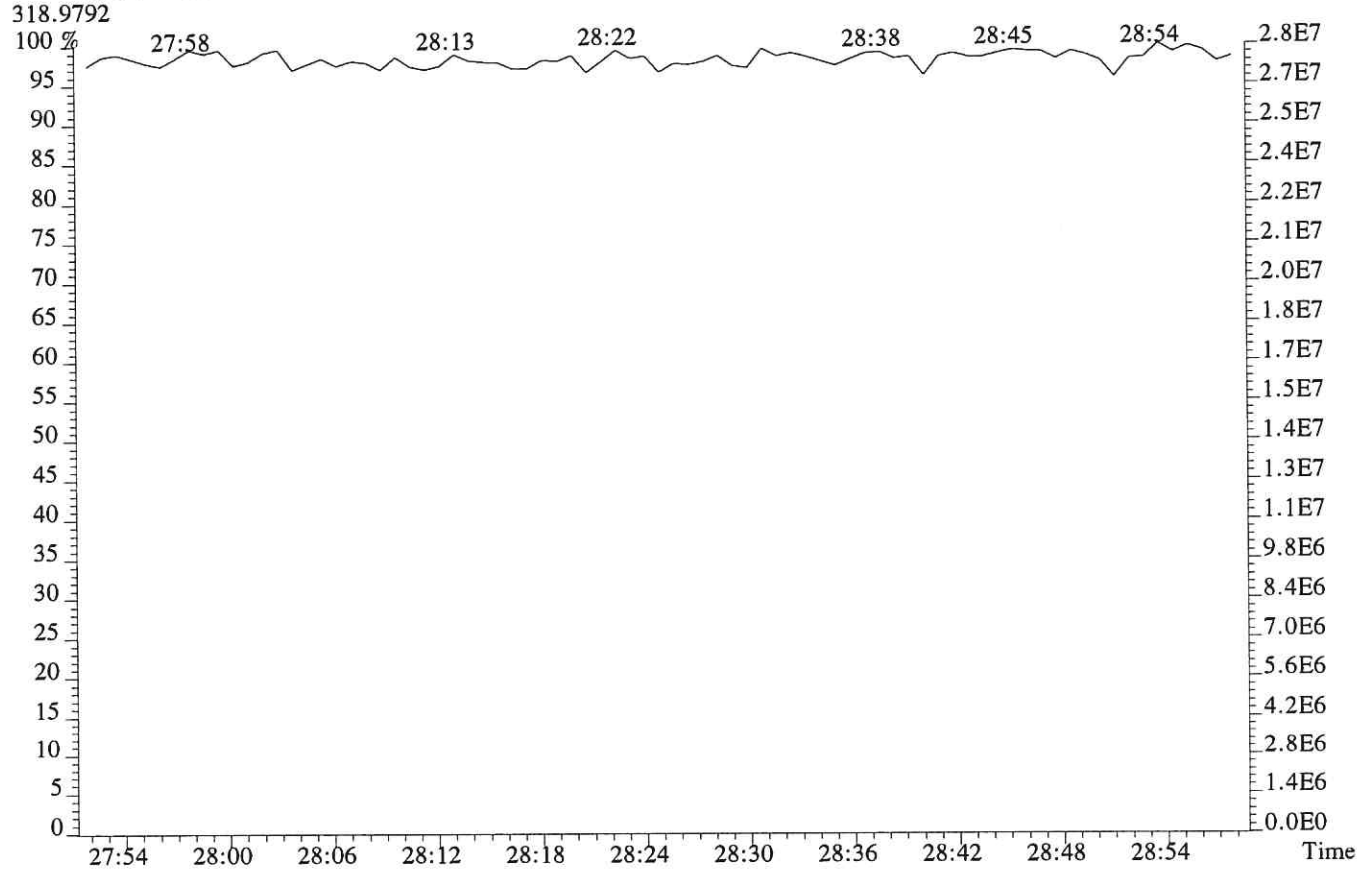
Lab File ID: P519367
Date Analyzed: 12-DEC-18
Time Analyzed: 00:36:53

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:11	29:39
TCDD	24:59	29:29
PeCDF	29:37	33:59
PeCDD	31:12	33:44
HxCDF	34:40	37:15
HxCDD	35:12	36:51
HpCDF	38:33	40:00
HpCDD	38:48	39:31

% Valley 2378-TCDD: 20 %

File:P519367 #1-587 Acq:12-DEC-2018 00:36:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977





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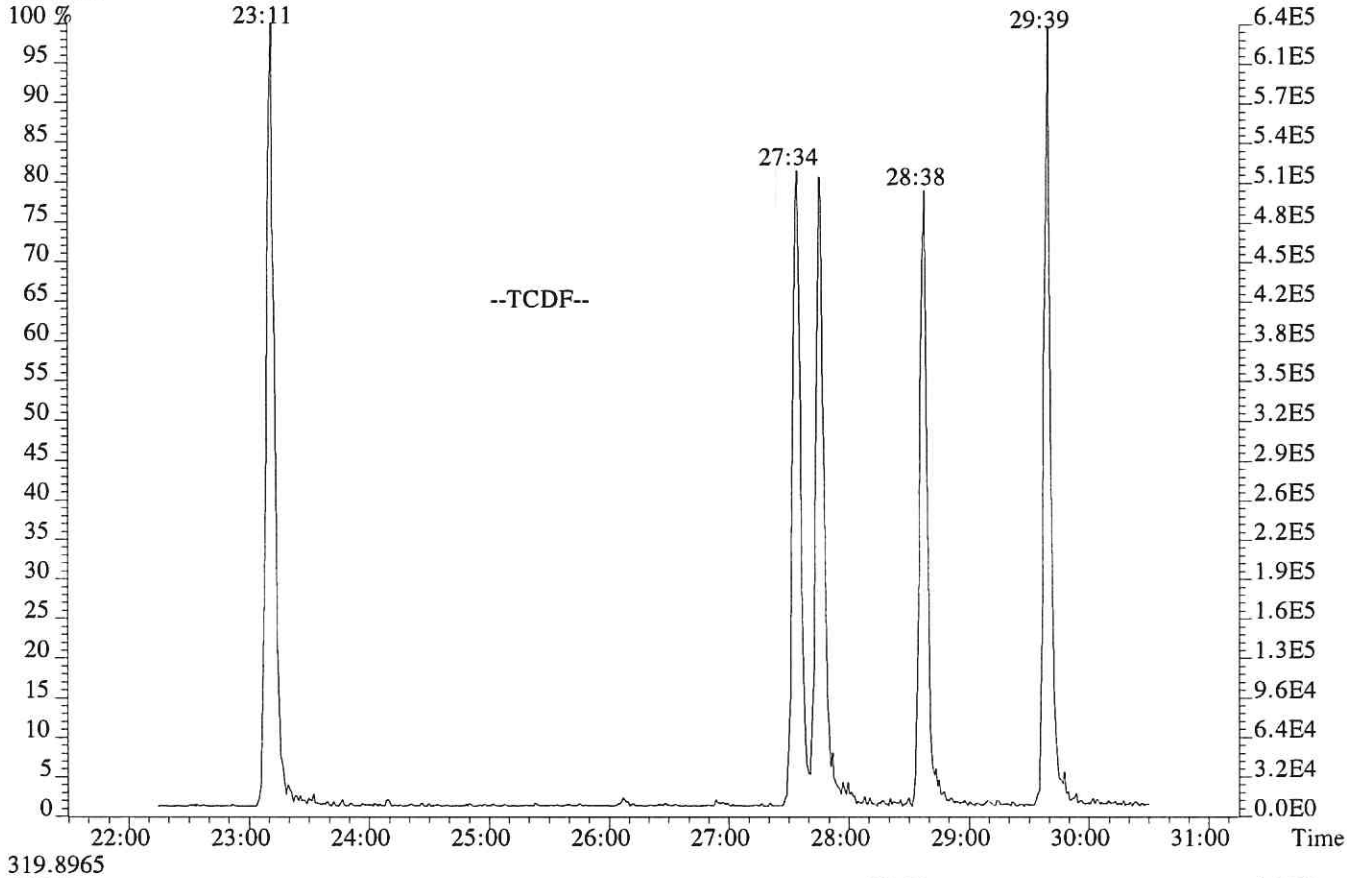
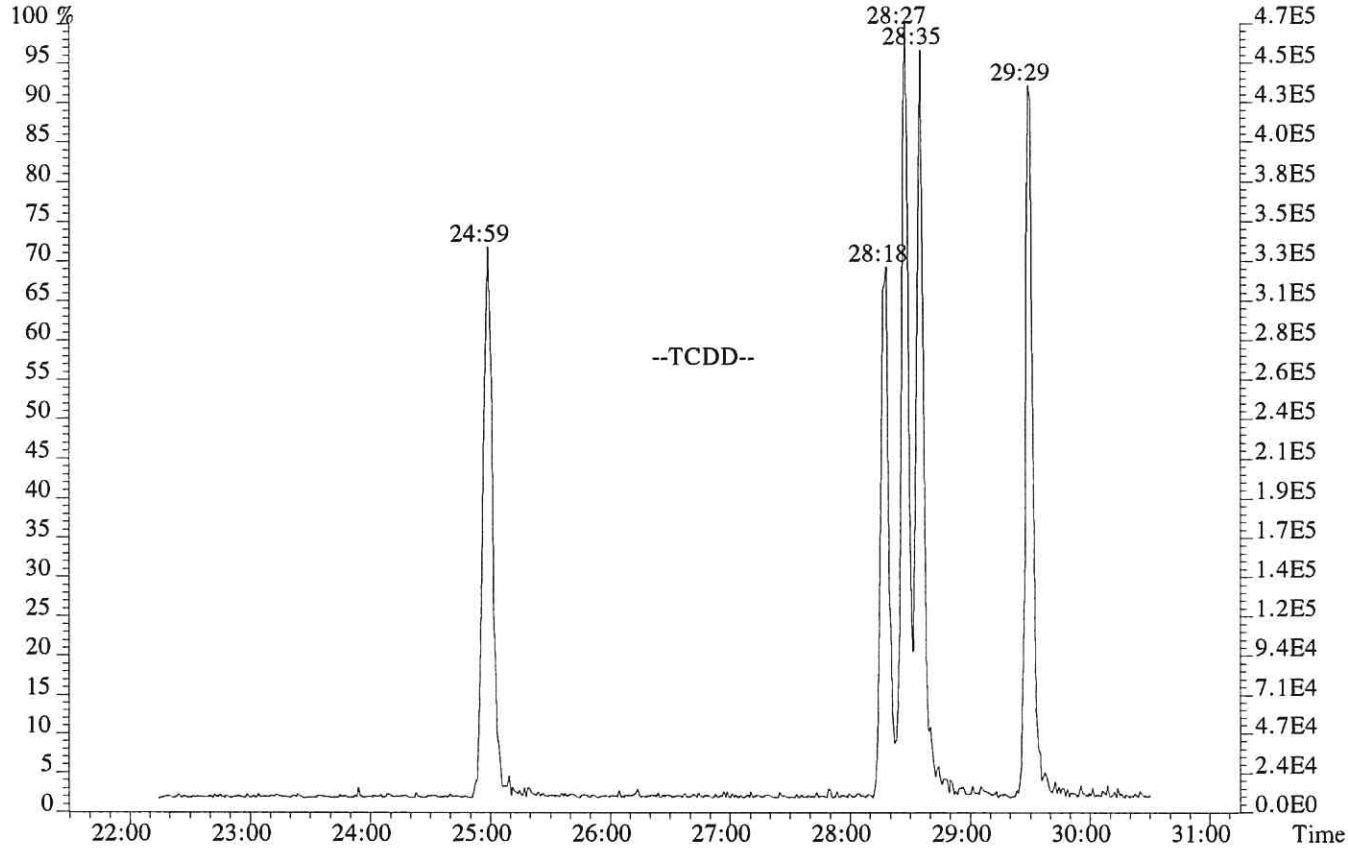
Sample#1 Exp:192977

303.9016



319.8965



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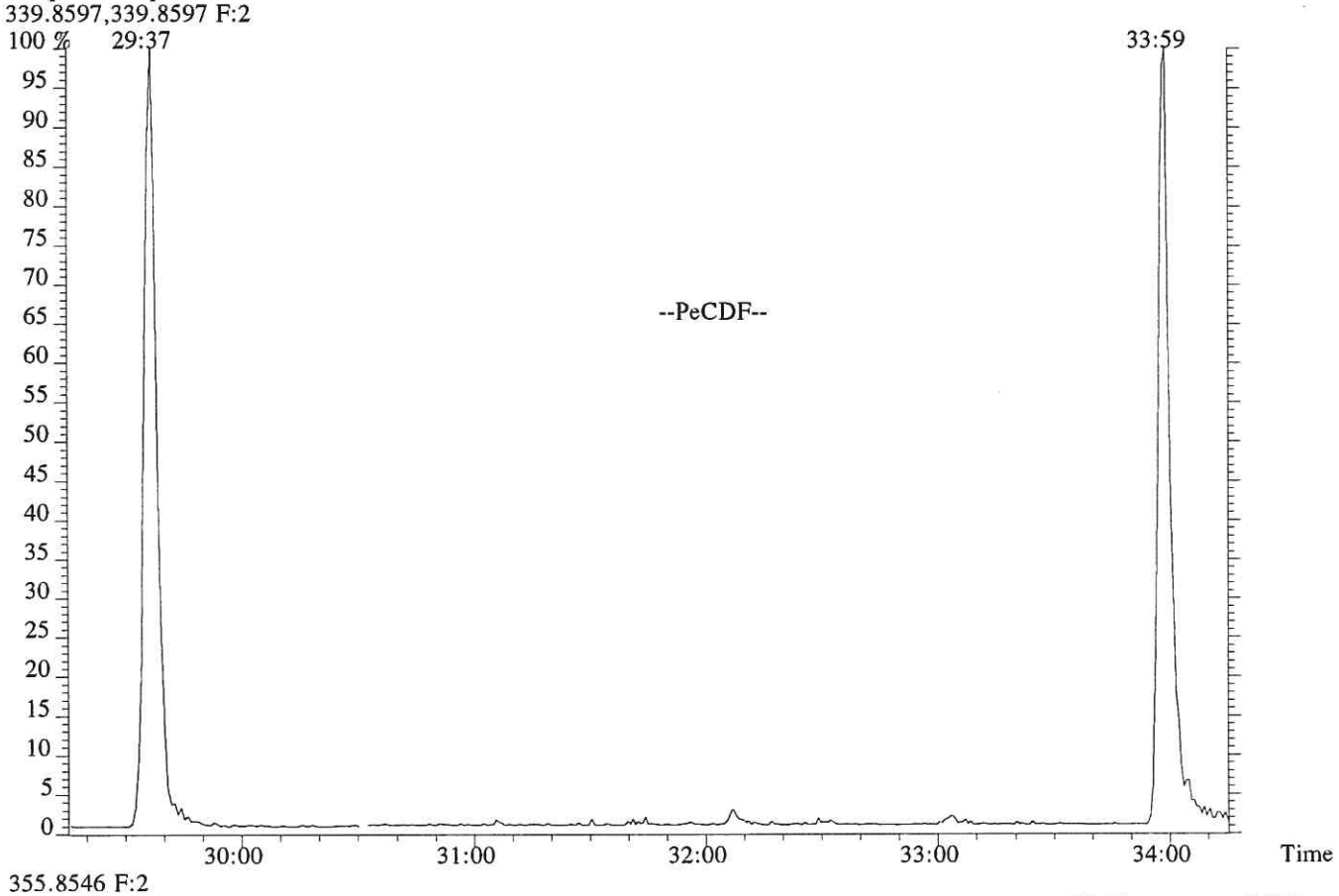
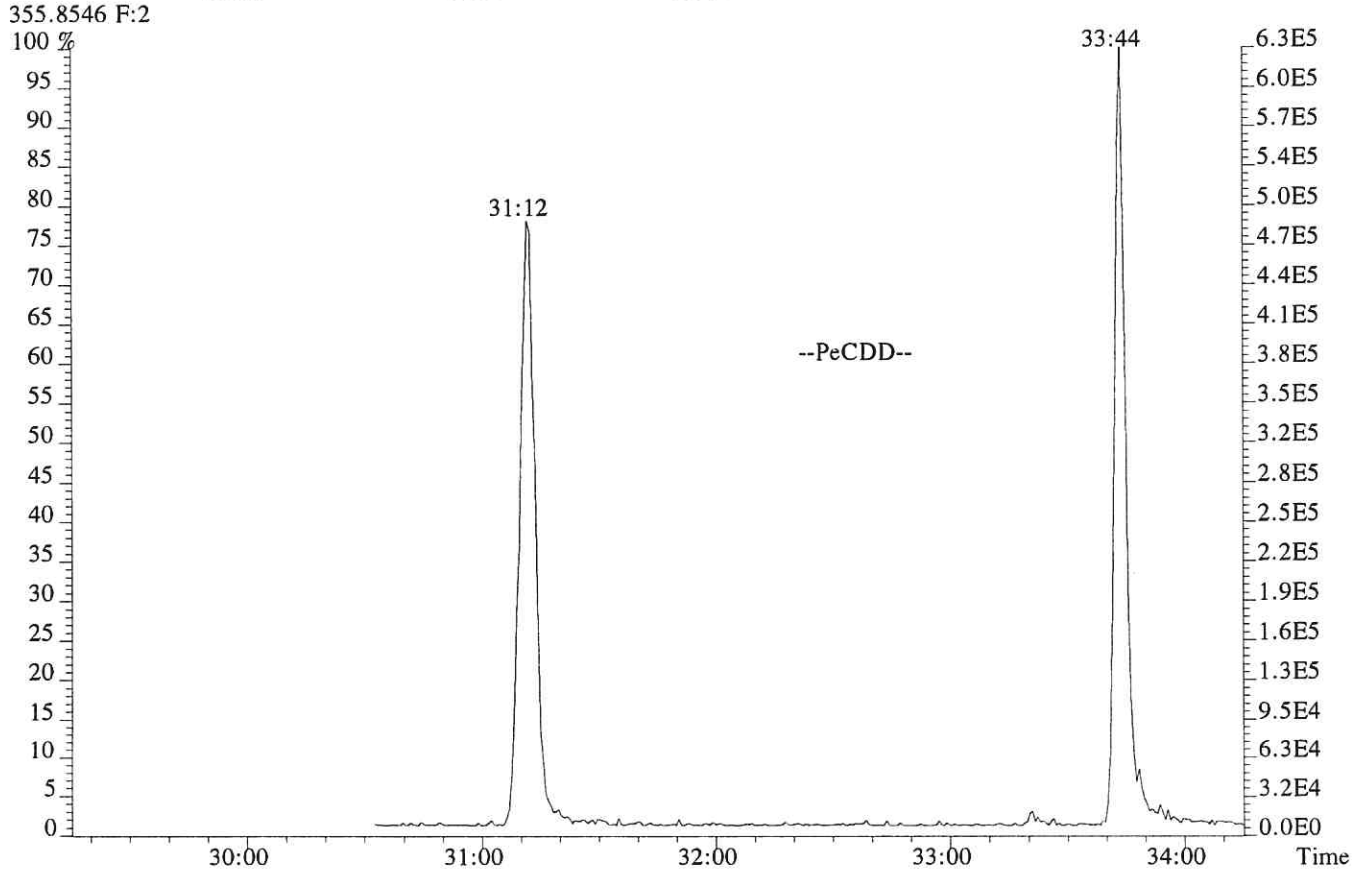
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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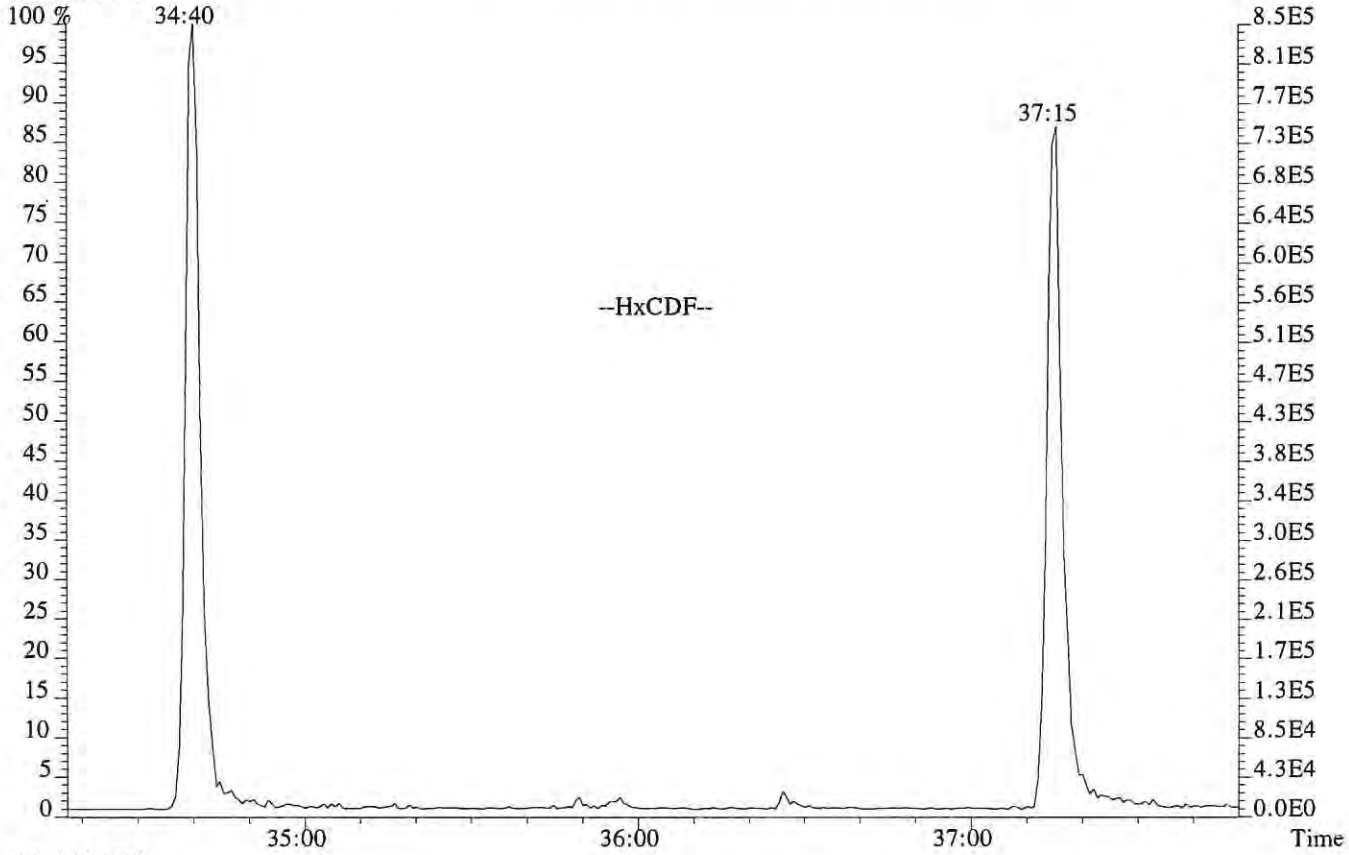
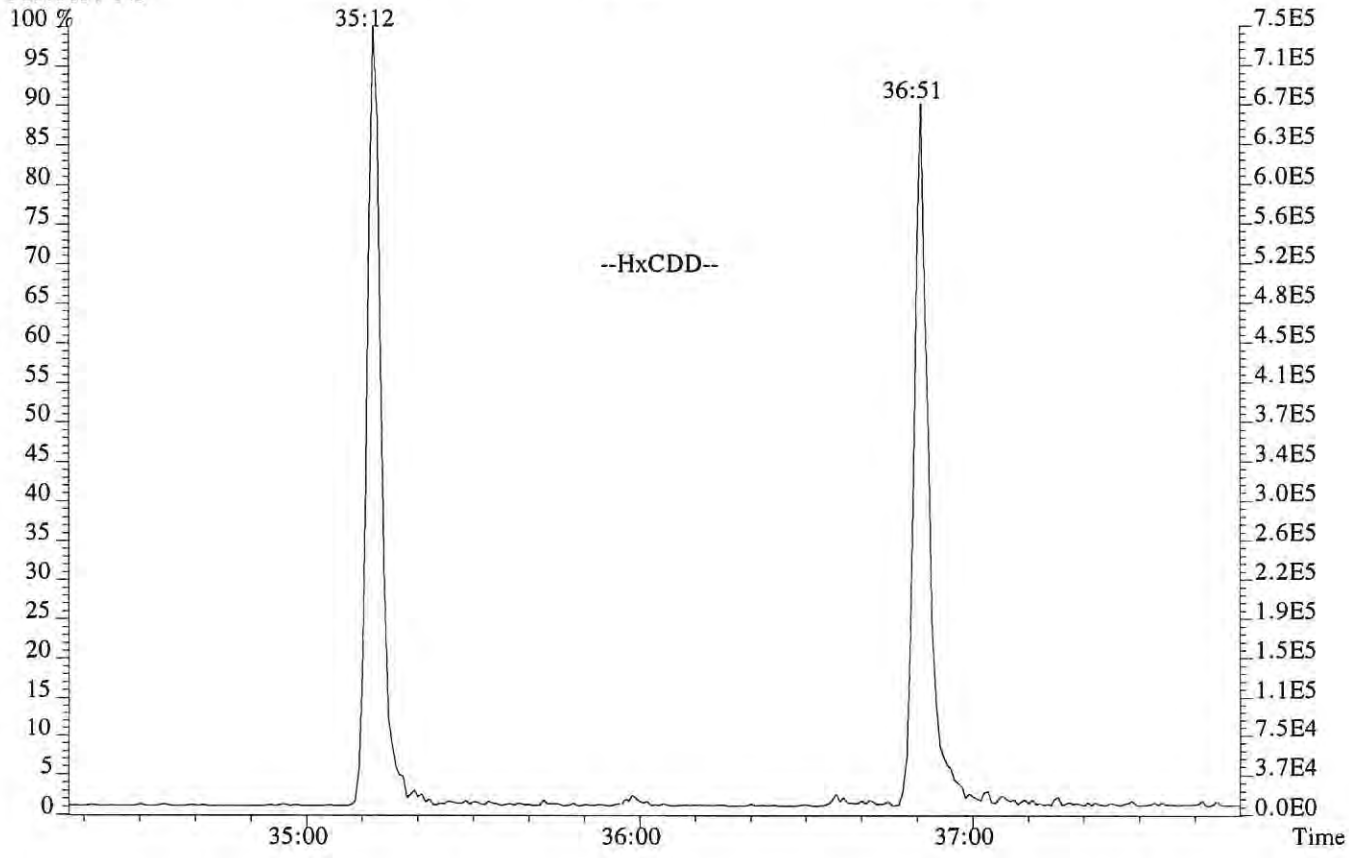


389.8157 F:3



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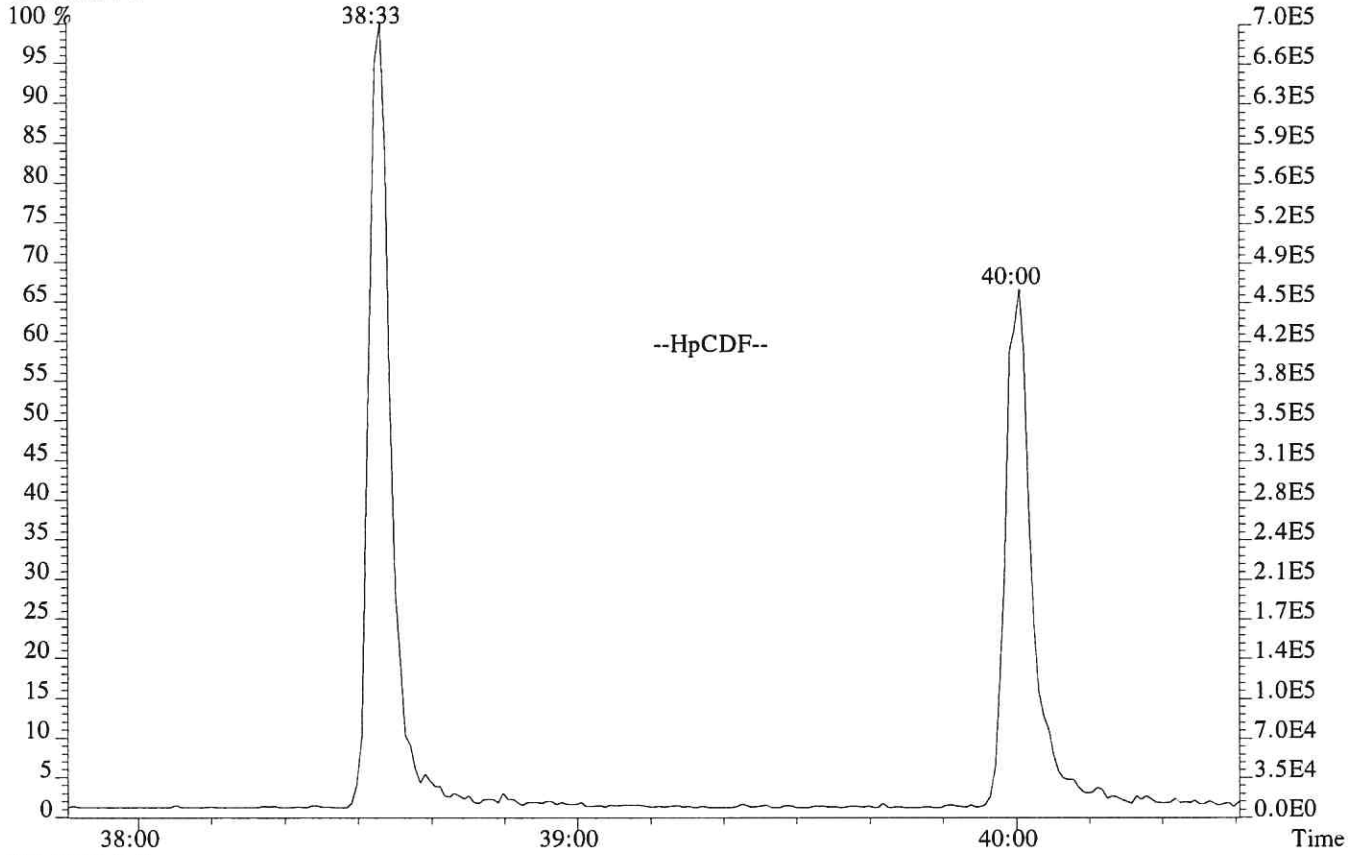
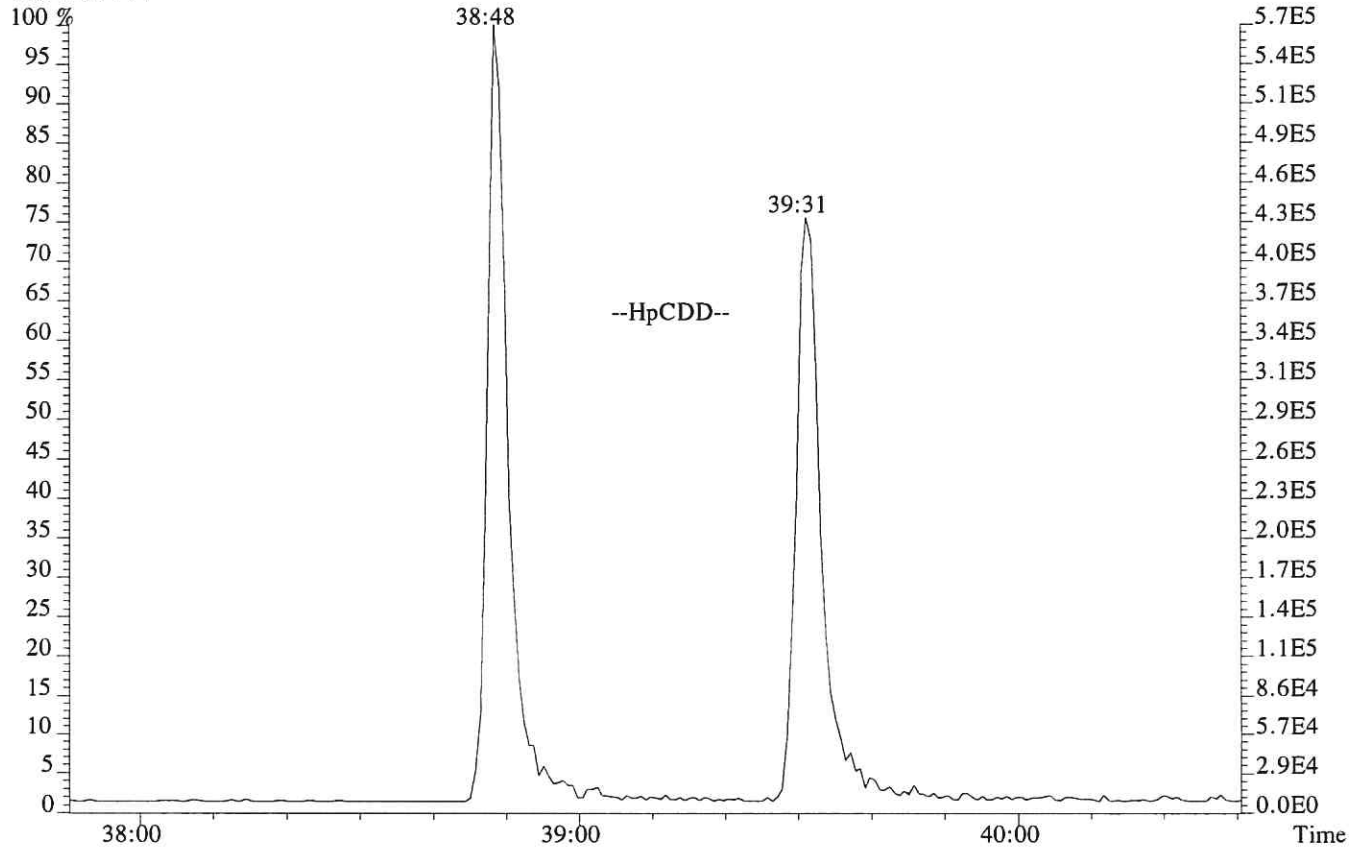
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519366 Analysis Date: 11-DEC-18 Time: 23:49:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.63	1.32-1.78	50	39 - 65	-0.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	50	39 - 64	0.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	53	41 - 61	5.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	0.7
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	9.5	8.4 - 12.0	-4.9
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 60	-1.3
2,3,4,7,8-PeCDF	M+2/M+4	1.49	1.32-1.78	49	41 - 61	-2.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.17	1.05-1.43	52	45 - 56	3.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	44 - 57	0.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	50	45 - 56	-0.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	50	44 - 57	0.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-1.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	51	43 - 58	2.2
OCDF	M+2/M+4	0.89	0.76-1.02	99	63 - 159	-1.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519366 Analysis Date: 11-DEC-18 Time: 23:49:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	102	82 - 121	2.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	107	62 - 160	7.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	93	85 - 117	-7.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	96	85 - 118	-4.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.0
13C-OCDD	M+2/M+4	0.90	0.76-1.02	249	96 - 415	24.6
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	96	71 - 140	-4.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	109	76 - 130	8.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	108	77 - 130	7.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	87	76 - 131	-12.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-5.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	97	74 - 135	-2.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	73 - 137	-3.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	106	77 - 129	5.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.0	7.8 - 12.7	-0.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519366 Samp: 1 Inj: 1 Acquired: 11-DEC-18 23:49:06
Processed: 13-DEC-18 09:25:54 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:46	3.288e+03	4.606e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	2.924e+04	1.932e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:02	2.674e+04	1.791e+04	1.49	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:48	2.307e+04	1.968e+04	1.17	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.621e+04	2.194e+04	1.19	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	2.400e+04	1.982e+04	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:13	2.123e+04	1.752e+04	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:33	2.181e+04	2.152e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	39:60	1.817e+04	1.769e+04	1.03	yes	no	1.258
10	Unk	OCDF	42:40	2.950e+04	3.328e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	2.669e+03	3.403e+03	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:20	1.863e+04	1.144e+04	1.63	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:35	1.588e+04	1.295e+04	1.23	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	1.709e+04	1.354e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:55	1.783e+04	1.424e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	1.509e+04	1.449e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:29	2.476e+04	2.797e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:44	3.943e+04	4.876e+04	0.81	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	5.970e+04	3.750e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	5.851e+04	3.655e+04	1.60	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	2.415e+04	4.551e+04	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.909e+04	5.641e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	2.710e+04	5.150e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	2.330e+04	4.477e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:32	2.026e+04	4.473e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:59	1.729e+04	3.854e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:34	2.552e+04	3.188e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:19	3.915e+04	2.422e+04	1.62	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	3.106e+04	2.441e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:40	3.311e+04	2.539e+04	1.30	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	2.983e+04	2.824e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:28	4.423e+04	4.941e+04	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:59	2.704e+04	3.365e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	3.657e+04	2.795e+04	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:35	6.145e+03				no	1.014

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519366 Samp: 1 Inj: 1 Acquired: 11-DEC-18 23:49:06
Processed: 13-DEC-18 09:25:54 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.58e+05	5.00e+02	1.1e+03	7.63e+05	8.44e+02	9.0e+02
2	1,2,3,7,8-PeCDF	5.21e+06	1.64e+02	3.2e+04	3.44e+06	9.80e+02	3.5e+03
3	2,3,4,7,8-PeCDF	5.01e+06	1.64e+02	3.1e+04	3.45e+06	9.80e+02	3.5e+03
4	1,2,3,4,7,8-HxCDF	4.69e+06	2.92e+02	1.6e+04	4.00e+06	3.44e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	5.03e+06	2.92e+02	1.7e+04	4.15e+06	3.44e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	4.73e+06	2.92e+02	1.6e+04	3.94e+06	3.44e+02	1.1e+04
7	1,2,3,7,8,9-HxCDF	3.79e+06	2.92e+02	1.3e+04	3.15e+06	3.44e+02	9.2e+03
8	1,2,3,4,6,7,8-HpCDF	4.01e+06	2.72e+03	1.5e+03	3.97e+06	4.52e+03	8.8e+02
9	1,2,3,4,7,8,9-HpCDF	2.86e+06	2.72e+03	1.1e+03	2.79e+06	4.52e+03	6.2e+02
10	OCDF	3.44e+06	2.40e+02	1.4e+04	3.93e+06	6.24e+02	6.3e+03
11	2,3,7,8-TCDD	4.81e+05	1.39e+03	3.5e+02	6.33e+05	6.16e+02	1.0e+03
12	1,2,3,7,8-PeCDD	3.52e+06	4.60e+02	7.7e+03	2.19e+06	1.64e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	3.28e+06	3.36e+02	9.8e+03	2.68e+06	3.92e+02	6.8e+03
14	1,2,3,6,7,8-HxCDD	3.30e+06	3.36e+02	9.8e+03	2.57e+06	3.92e+02	6.6e+03
15	1,2,3,7,8,9-HxCDD	3.27e+06	3.36e+02	9.7e+03	2.63e+06	3.92e+02	6.7e+03
16	1,2,3,4,6,7,8-HpCDD	2.48e+06	2.56e+02	9.7e+03	2.35e+06	2.88e+02	8.2e+03
17	OCDD	2.90e+06	1.76e+02	1.6e+04	3.24e+06	2.04e+02	1.6e+04
18	13C-2,3,7,8-TCDF	6.80e+06	4.27e+03	1.6e+03	8.44e+06	2.48e+03	3.4e+03
19	13C-1,2,3,7,8-PeCDF	1.07e+07	2.60e+02	4.1e+04	6.83e+06	5.56e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.12e+07	2.60e+02	4.3e+04	6.95e+06	5.56e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	4.88e+06	6.56e+02	7.4e+03	9.47e+06	8.08e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	5.50e+06	6.56e+02	8.4e+03	1.06e+07	8.08e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	5.28e+06	6.56e+02	8.1e+03	1.02e+07	8.08e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	4.21e+06	6.56e+02	6.4e+03	8.07e+06	8.08e+02	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.77e+06	2.52e+03	1.5e+03	8.15e+06	5.36e+02	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.77e+06	2.52e+03	1.1e+03	6.14e+06	5.36e+02	1.1e+04
27	13C-2,3,7,8-TCDD	4.59e+06	3.72e+03	1.2e+03	5.69e+06	1.37e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	7.19e+06	2.52e+02	2.9e+04	4.45e+06	3.60e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	6.42e+06	8.52e+02	7.5e+03	5.01e+06	2.40e+02	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	6.25e+06	8.52e+02	7.3e+03	4.84e+06	2.40e+02	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.93e+06	3.60e+02	1.4e+04	4.63e+06	2.88e+02	1.6e+04
32	13C-OCDD	5.00e+06	2.52e+02	2.0e+04	5.68e+06	2.00e+02	2.8e+04
33	13C-1,2,3,4-TCDD	5.00e+06	3.72e+03	1.3e+03	6.20e+06	1.37e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	6.63e+06	8.52e+02	7.8e+03	5.10e+06	2.40e+02	2.1e+04
35	37Cl-2,3,7,8-TCDD	1.11e+06	9.24e+02	1.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.392e{+}03 + 6.160e{+}02\ ) \times 100}{(4.593e{+}06 + 5.691e{+}06\ ) \times (\qquad\qquad) \times 1.085} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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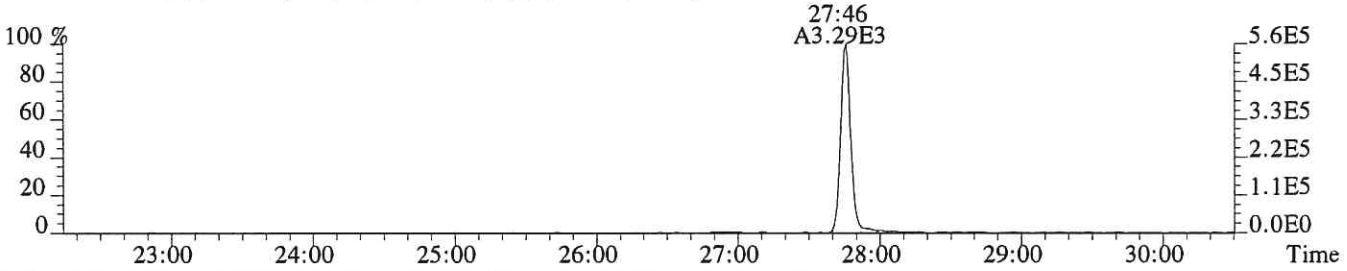
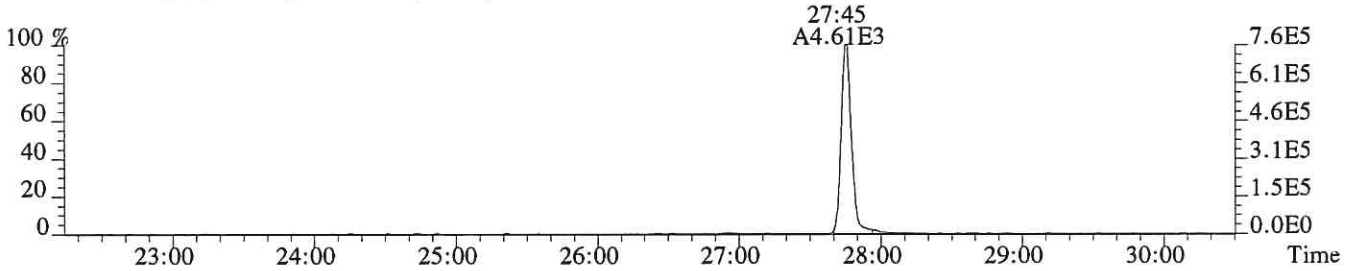
Office:(281)530-5656. Fax:(281)530-5887

File:P519366 #1-587 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

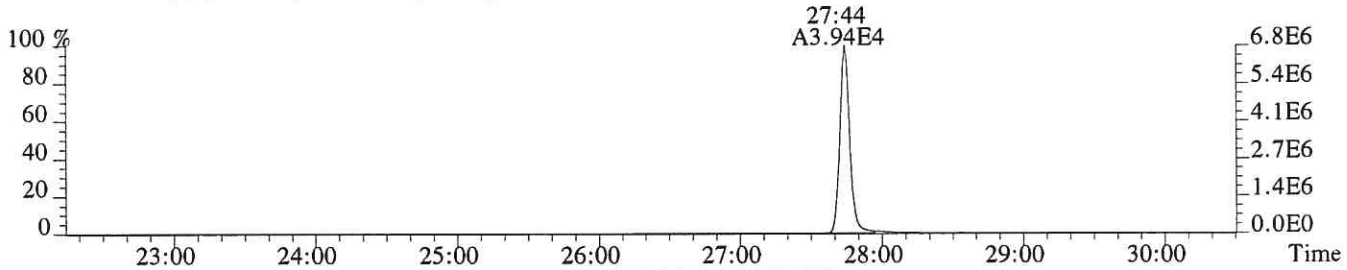
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



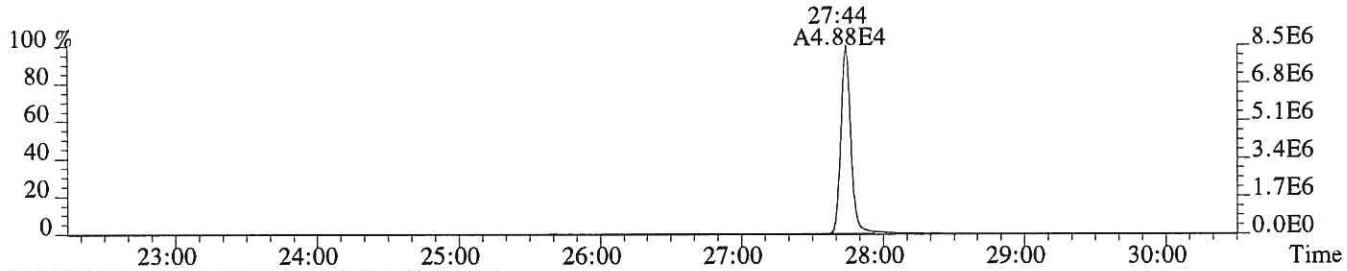
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



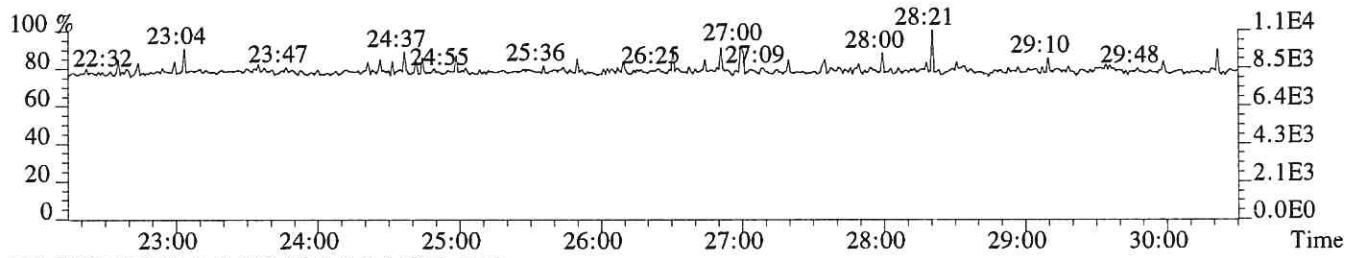
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4268.0,1.00%,F,T)



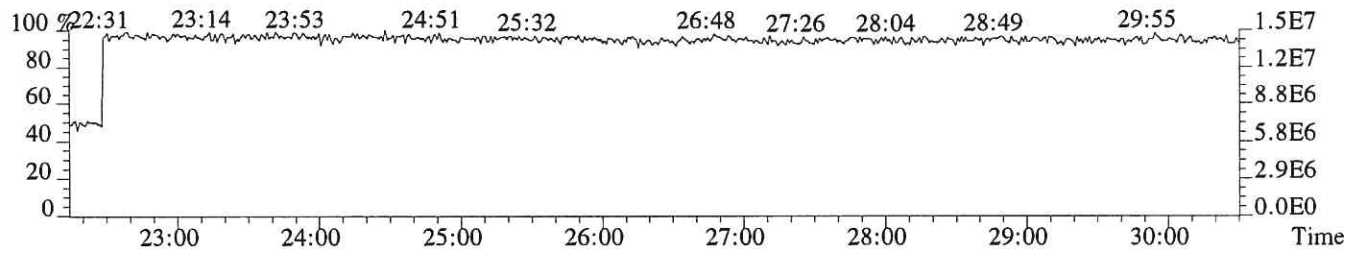
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



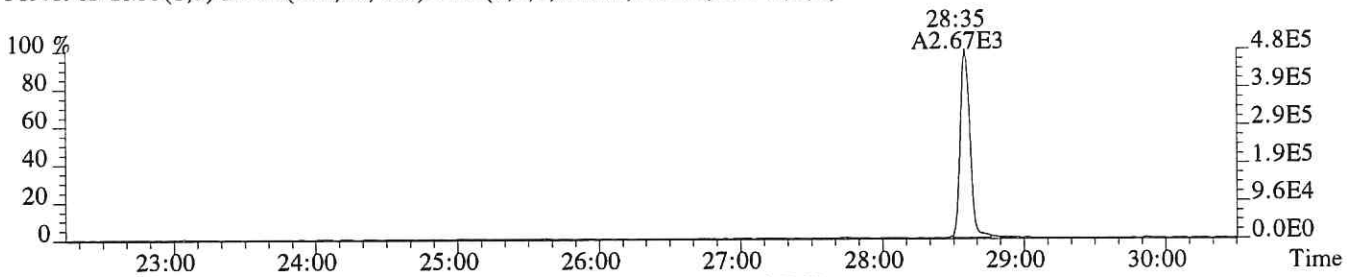
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



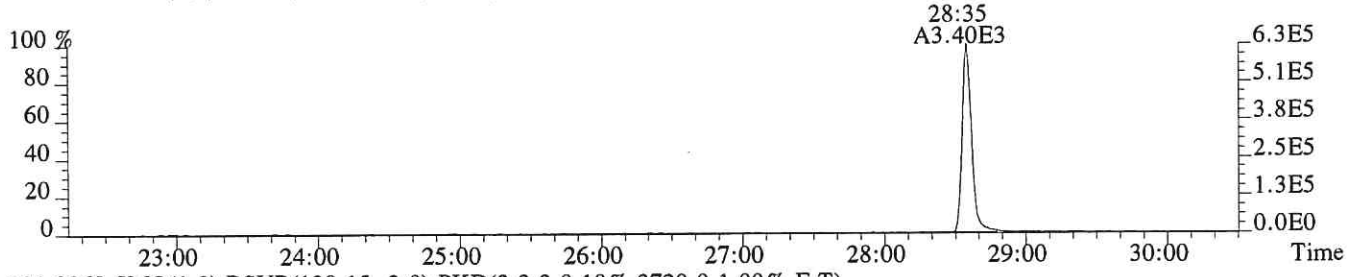
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



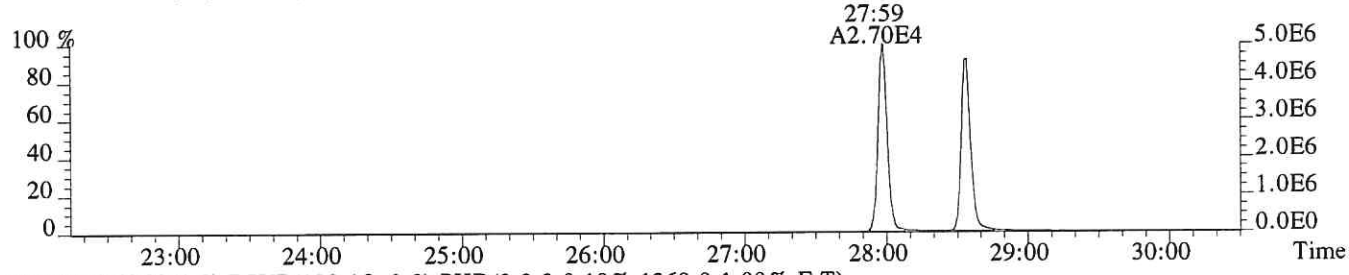
File:P519366 #1-587 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



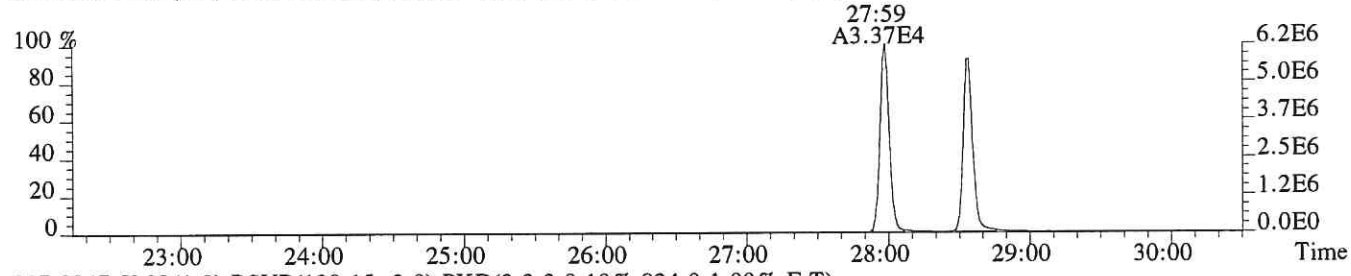
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



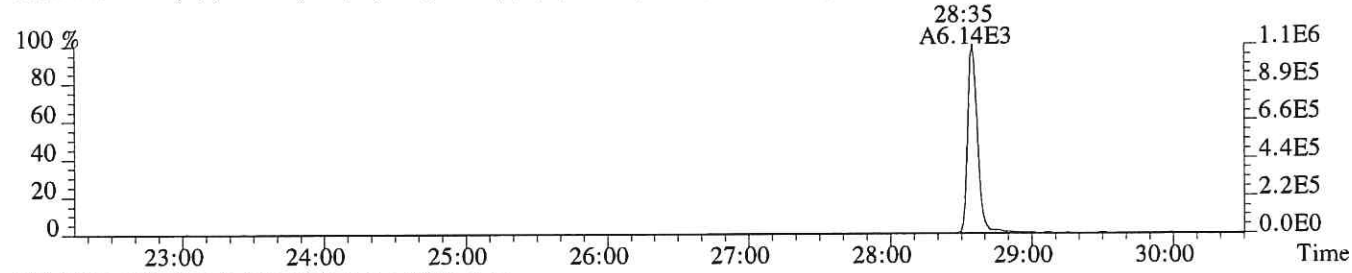
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3720.0,1.00%,F,T)



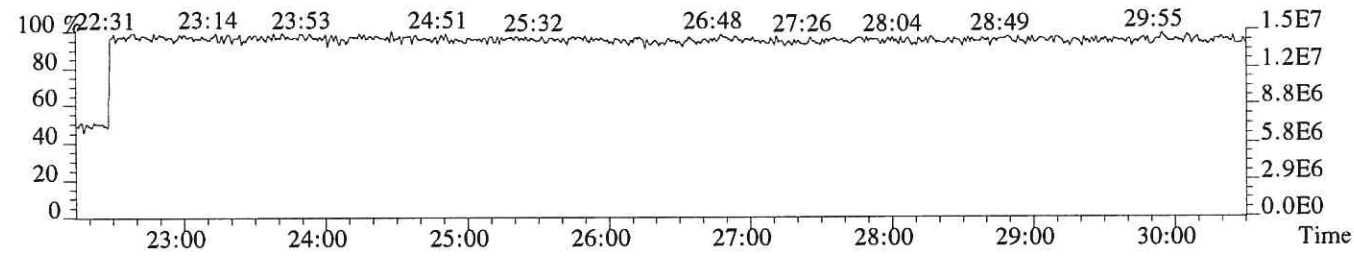
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)

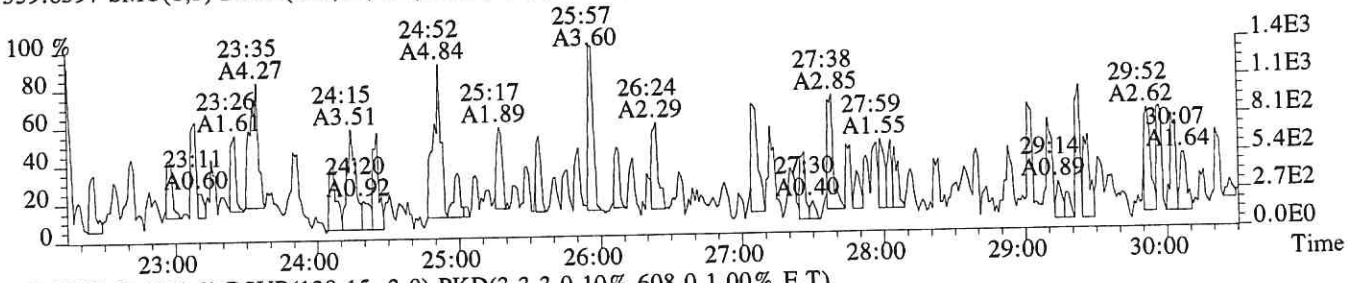


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

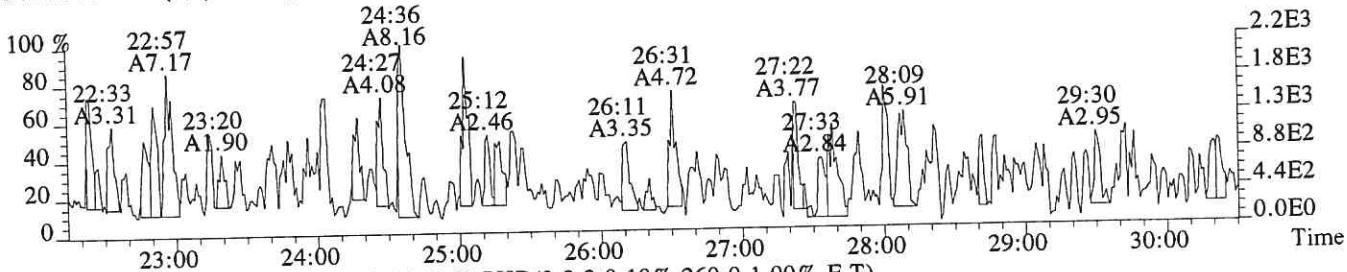


File:P519366 #1-587 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

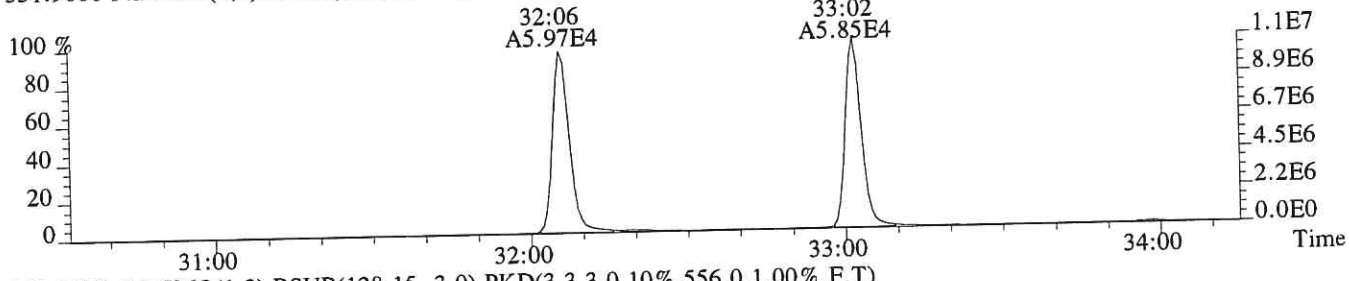
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



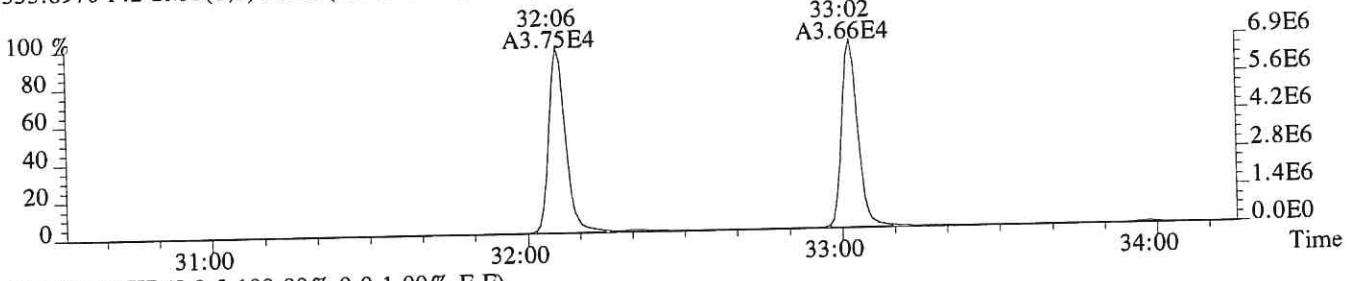
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



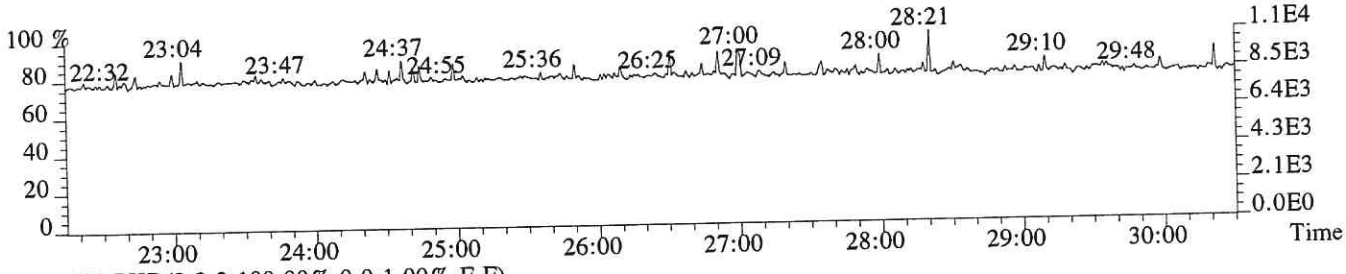
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



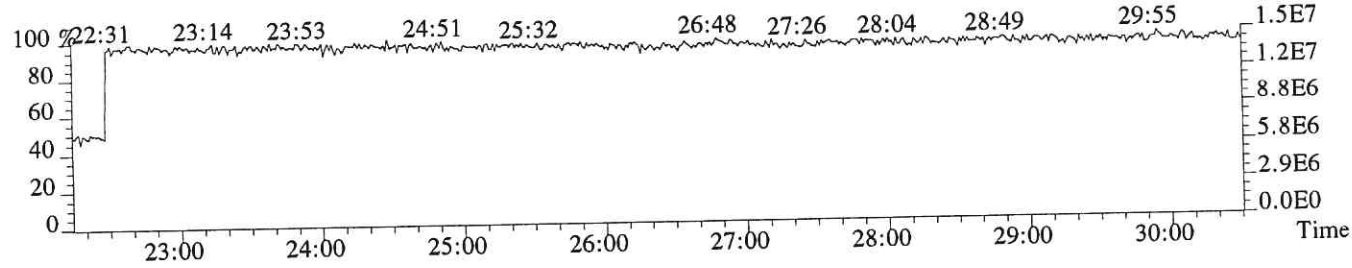
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

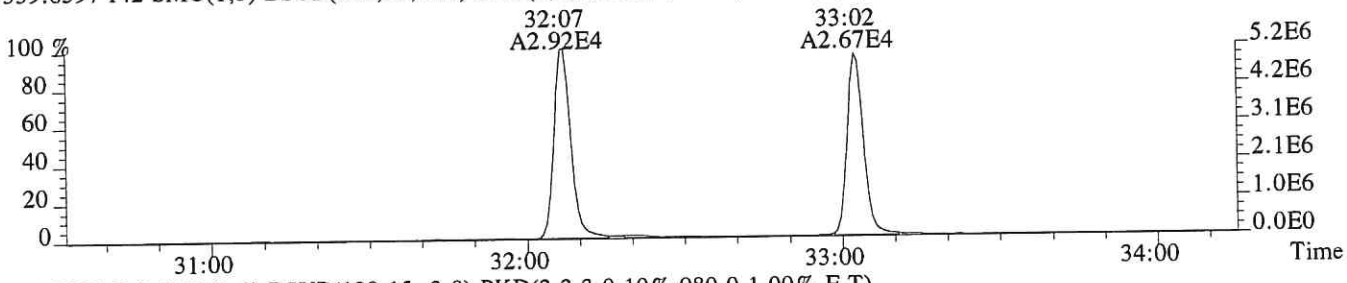


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

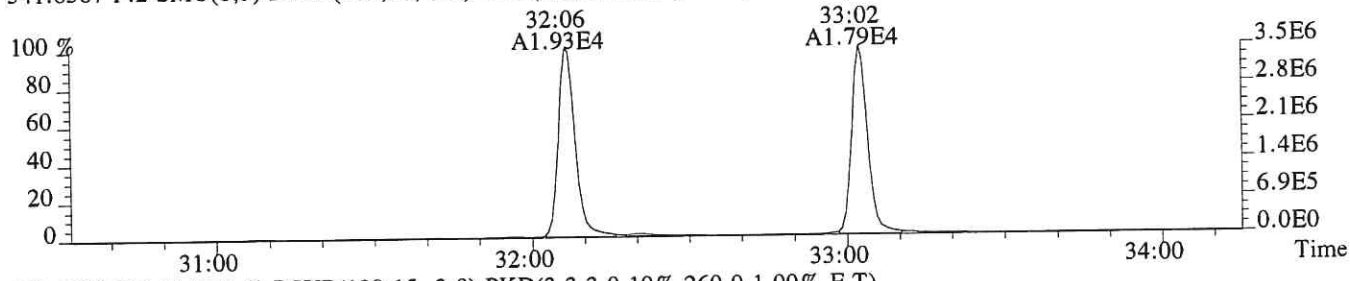


File:P519366 #1-335 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

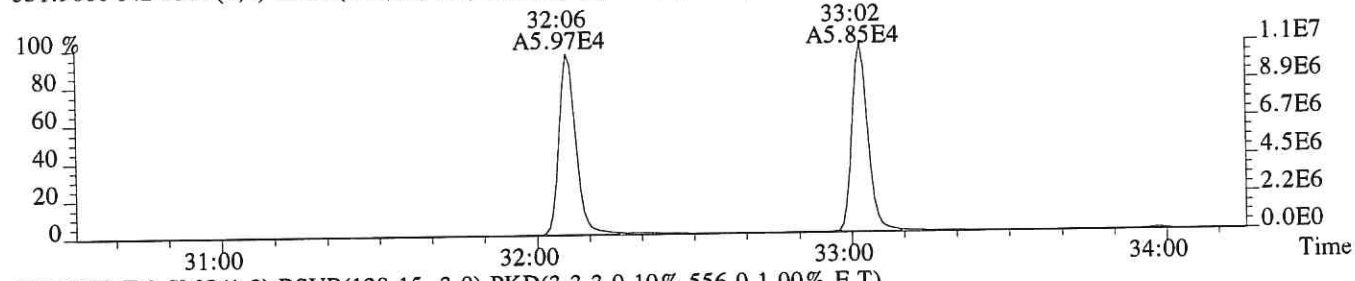
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



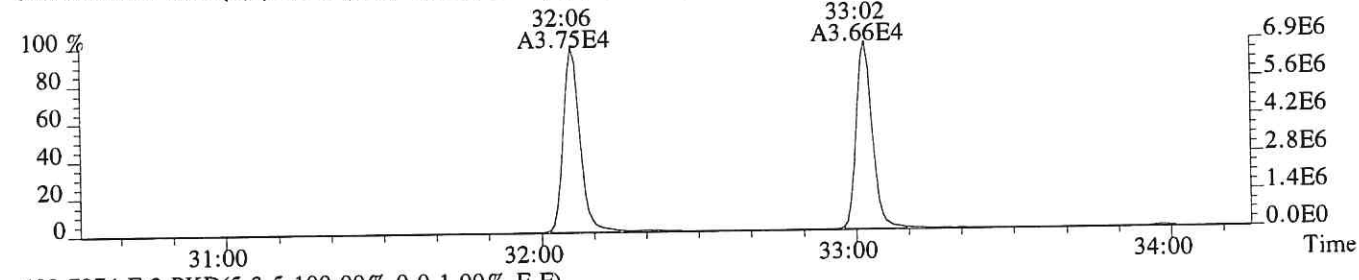
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



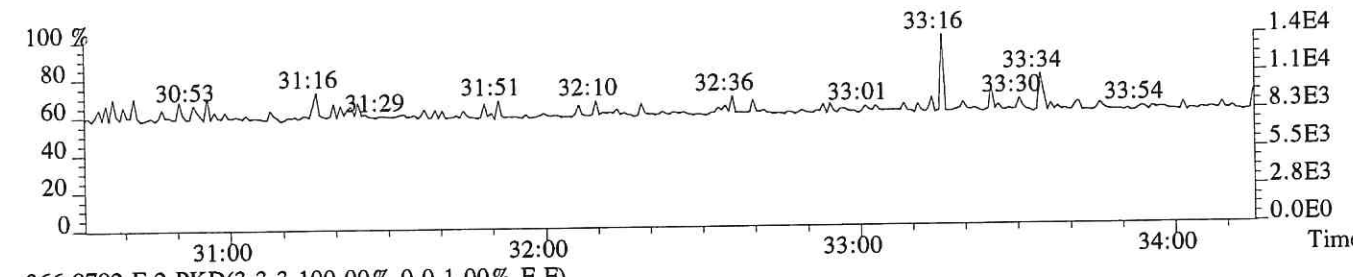
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



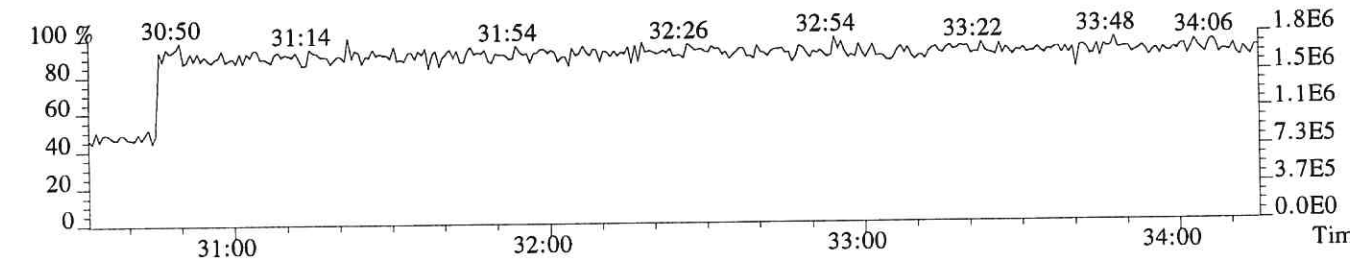
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



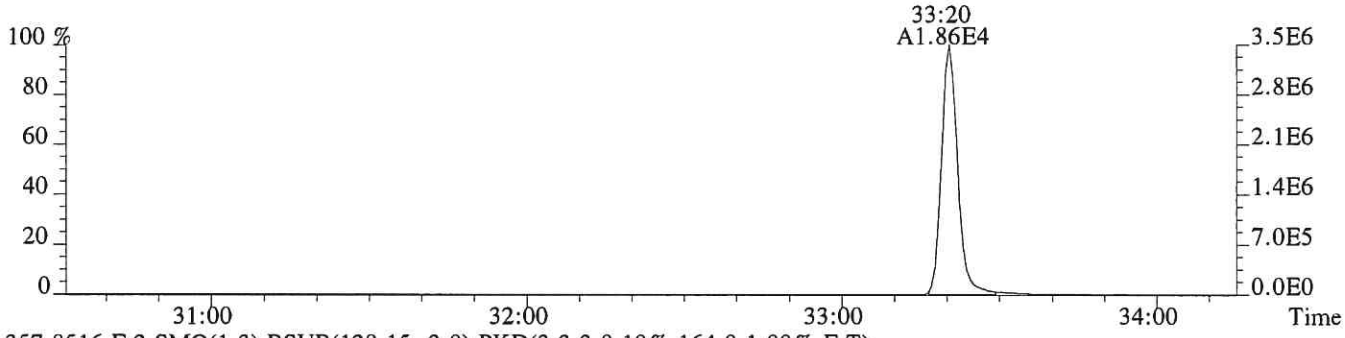
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



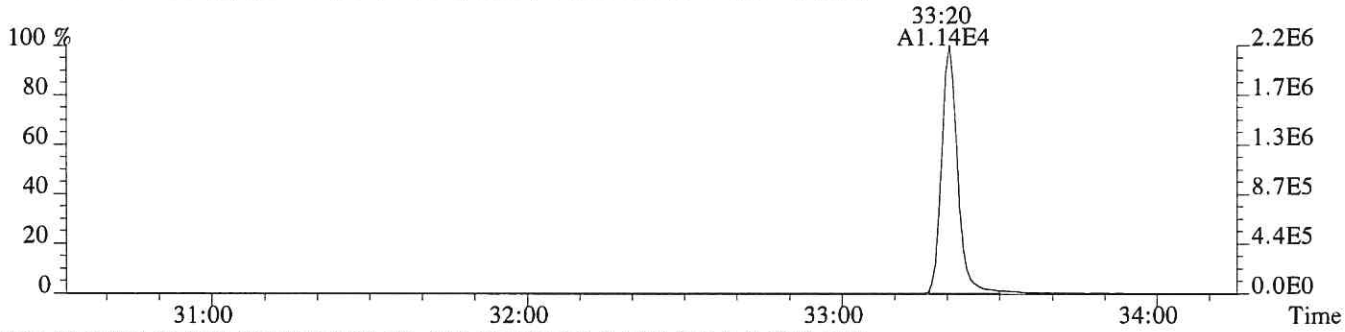
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P519366 #1-335 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



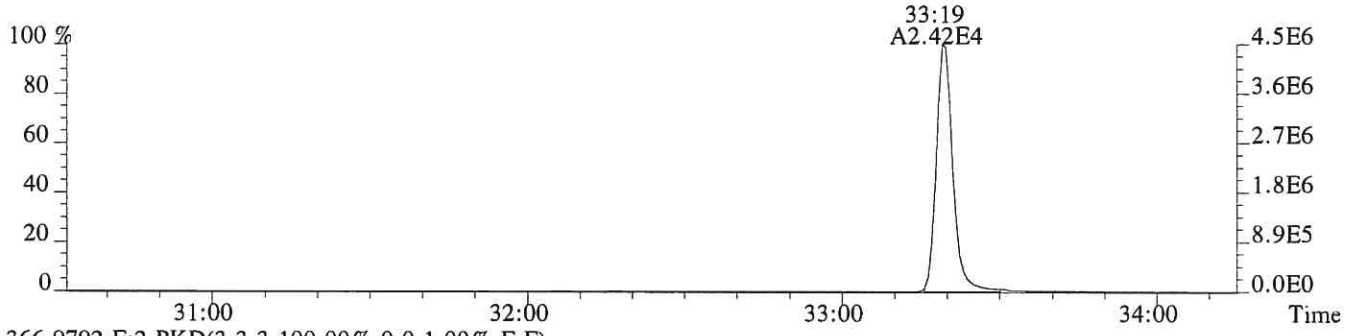
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



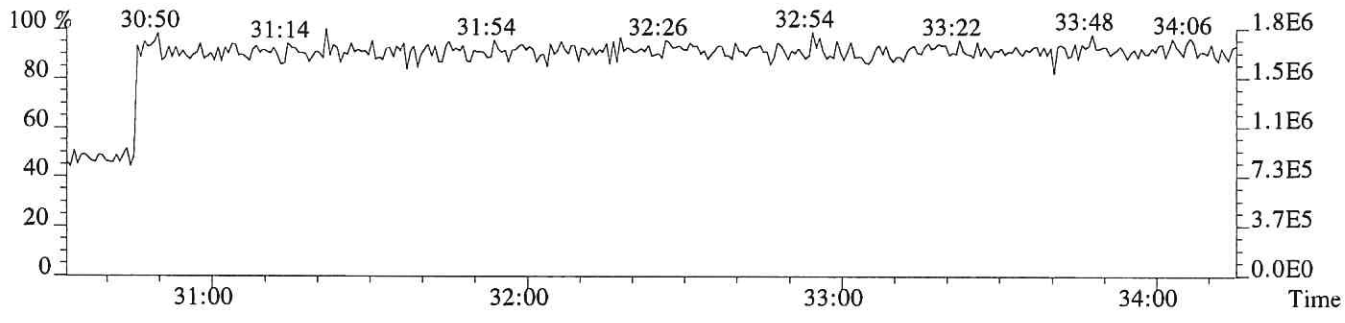
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)

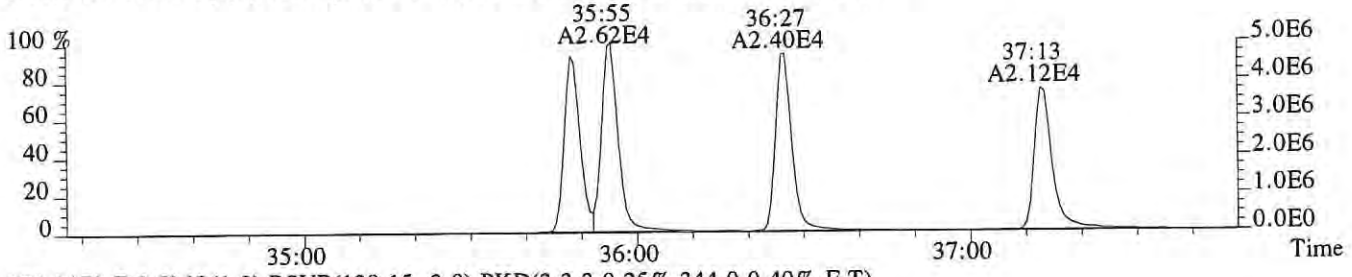


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

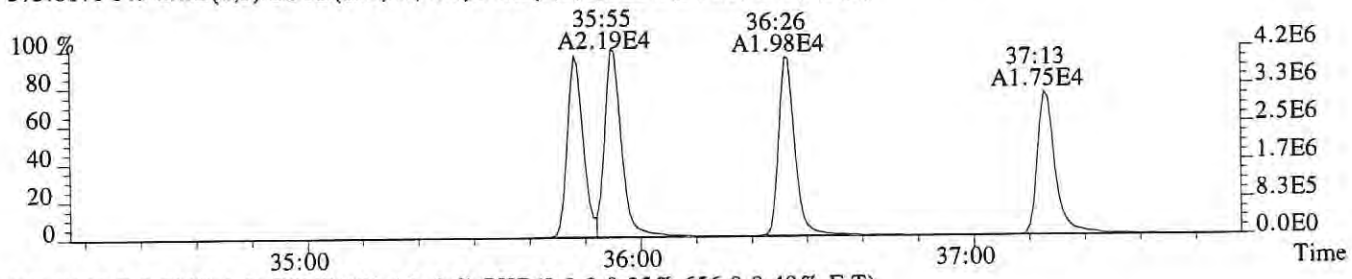


File:P519366 #1-317 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

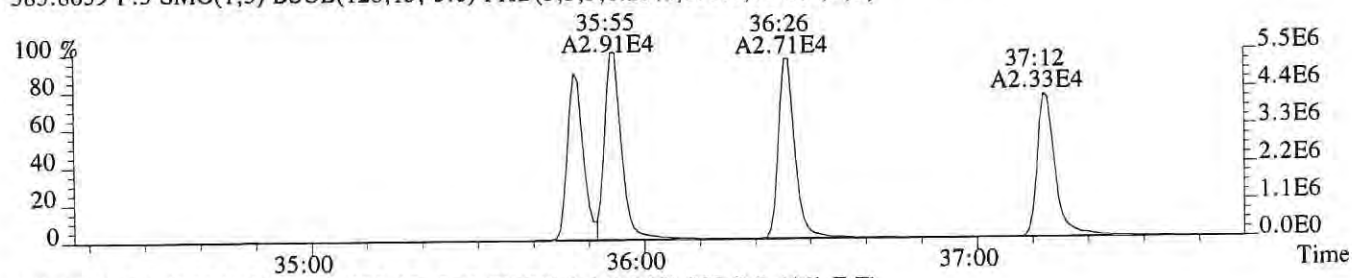
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



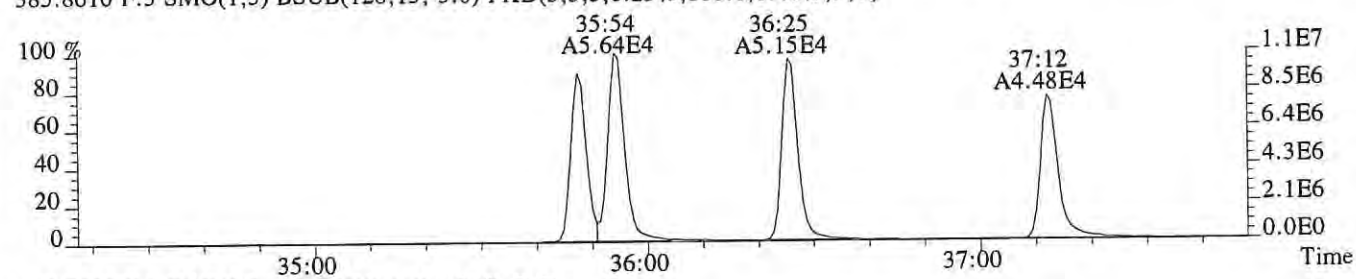
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



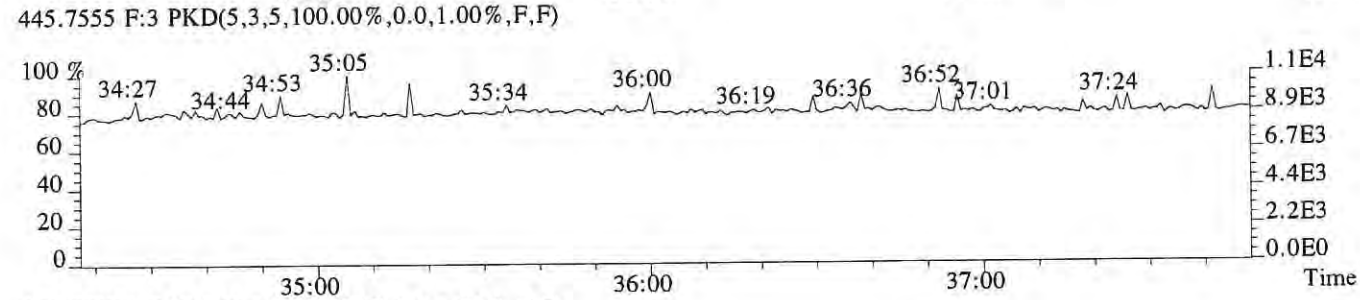
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



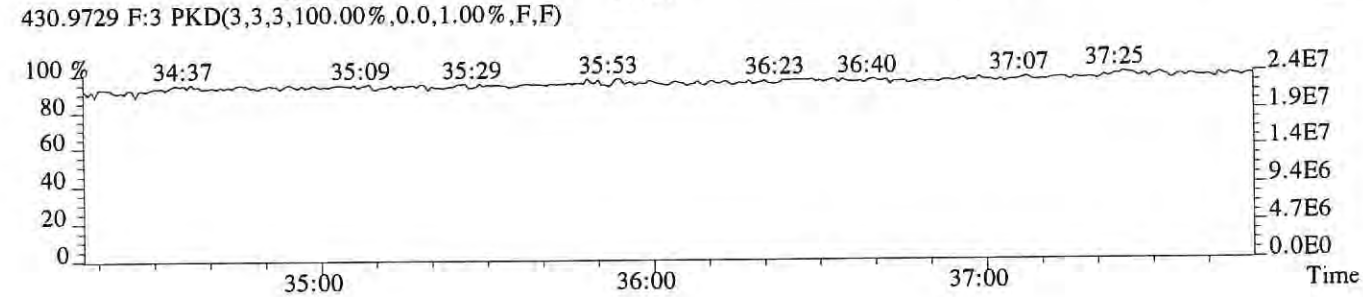
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



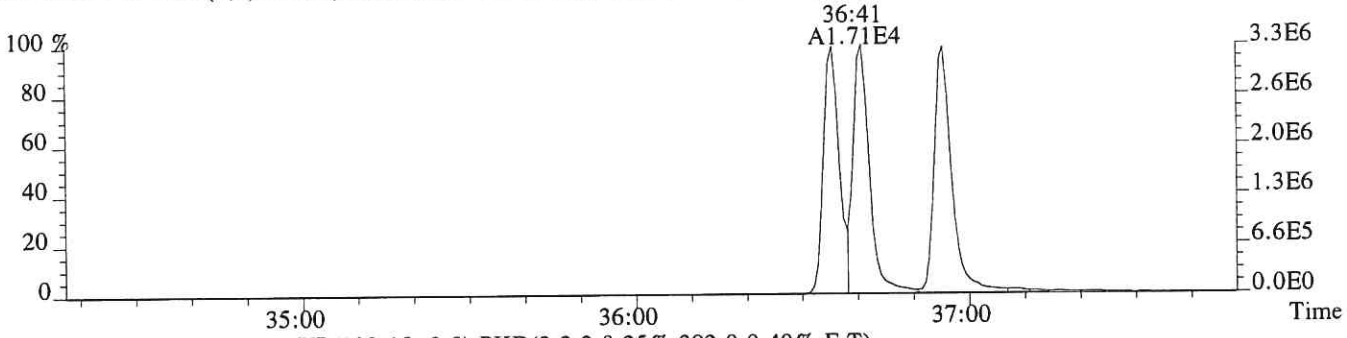
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



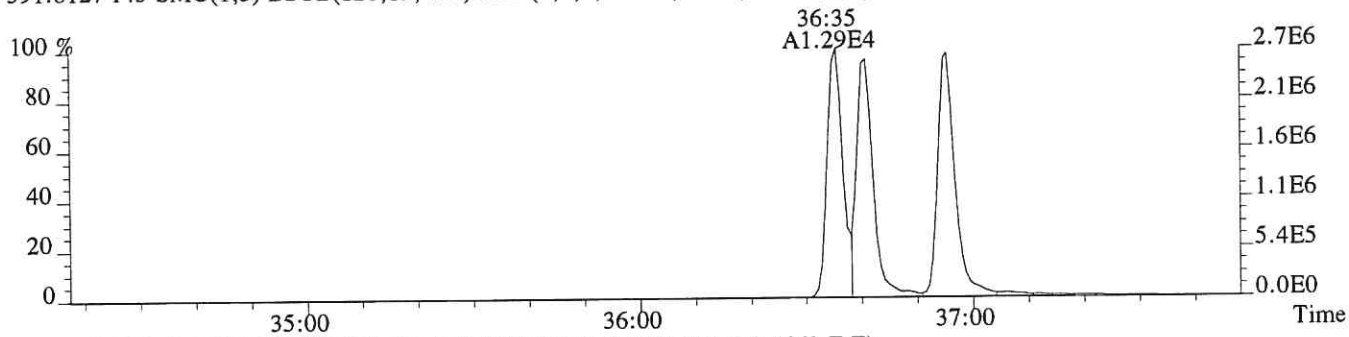
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



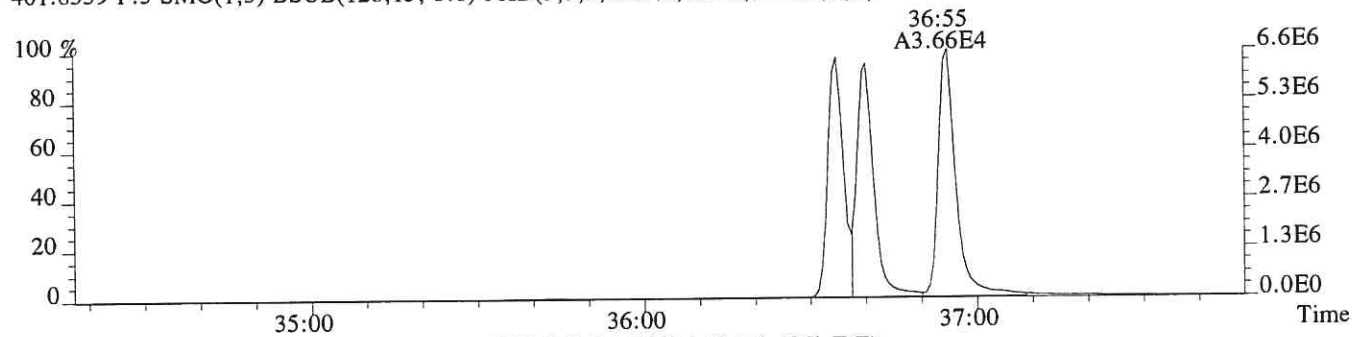
File:P519366 #1-317 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



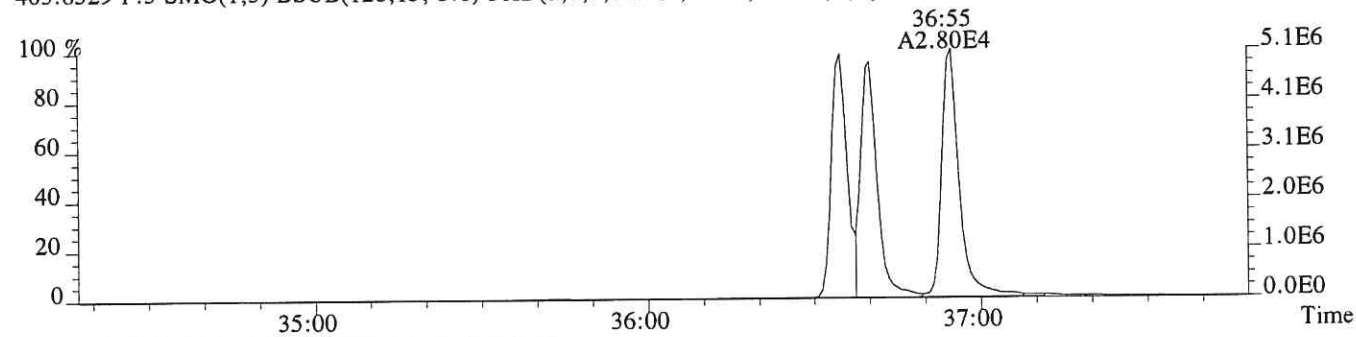
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)



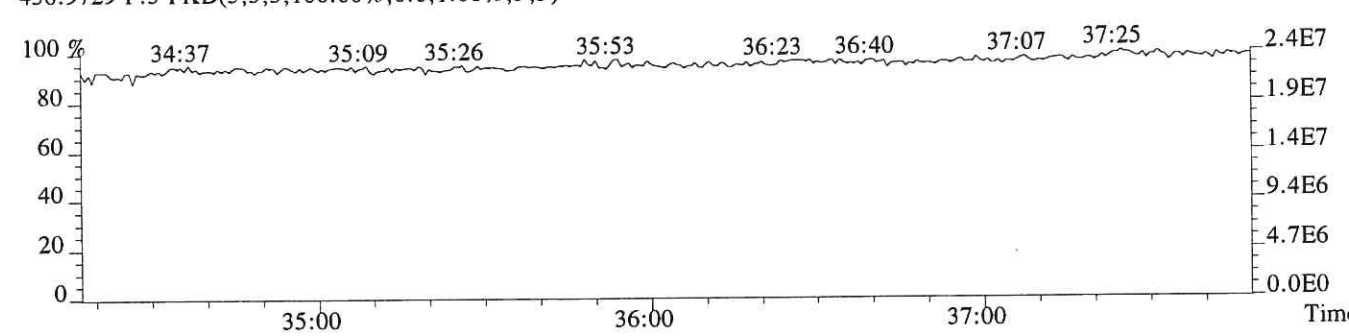
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)

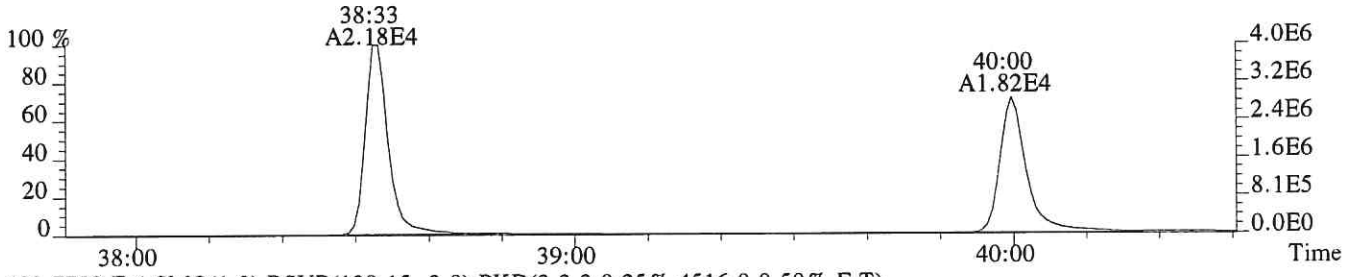


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

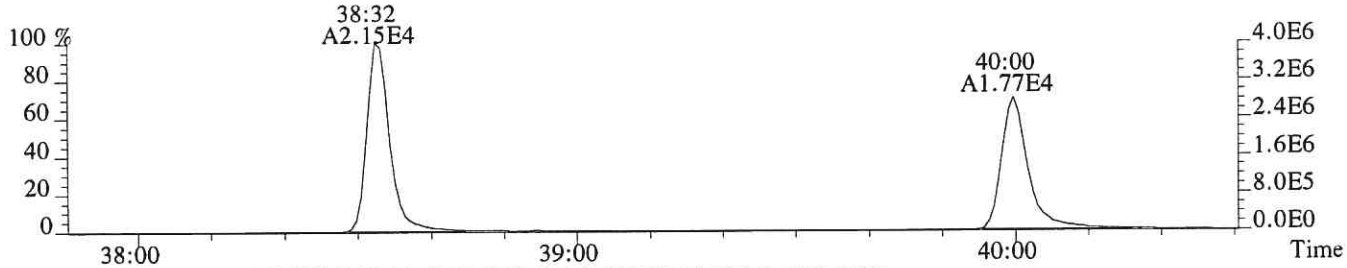


File:P519366 #1-241 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503

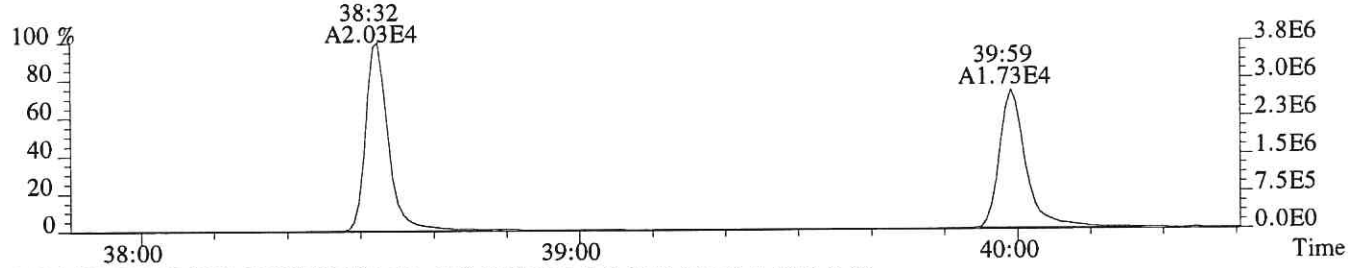
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2716.0,0.50%,F,T)



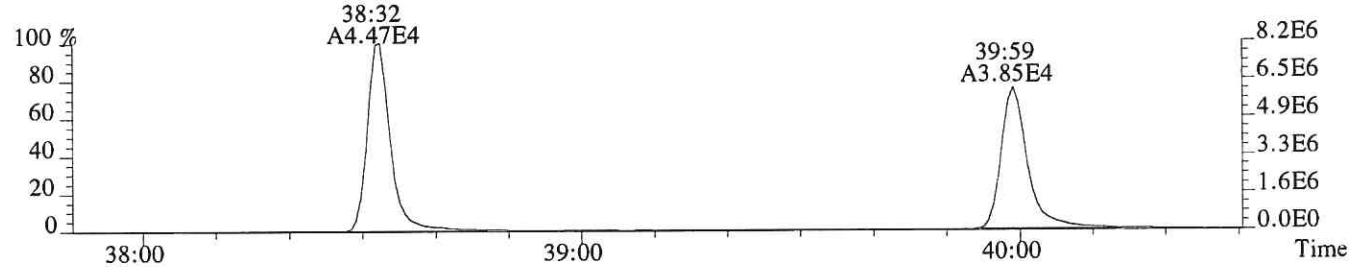
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4516.0,0.50%,F,T)



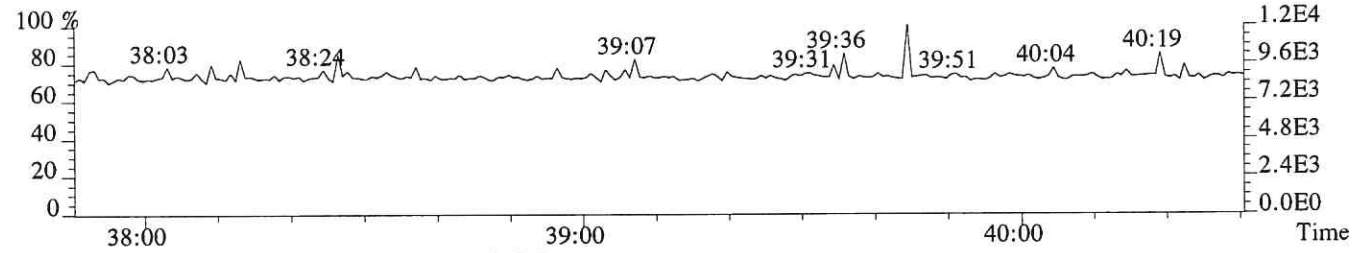
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2516.0,0.50%,F,T)



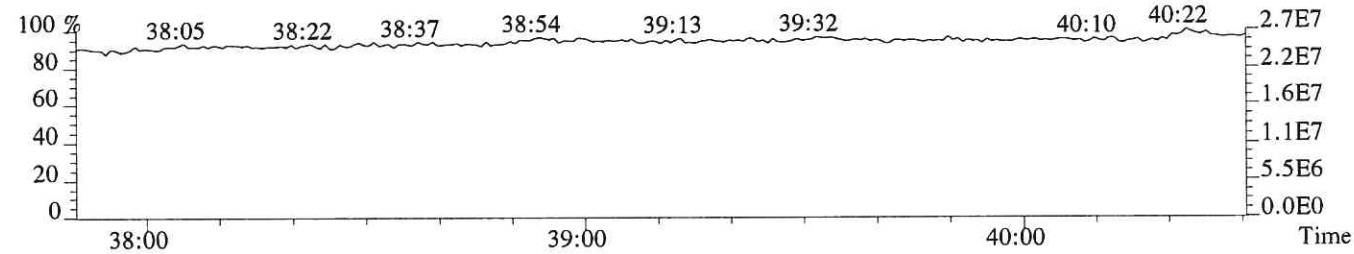
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



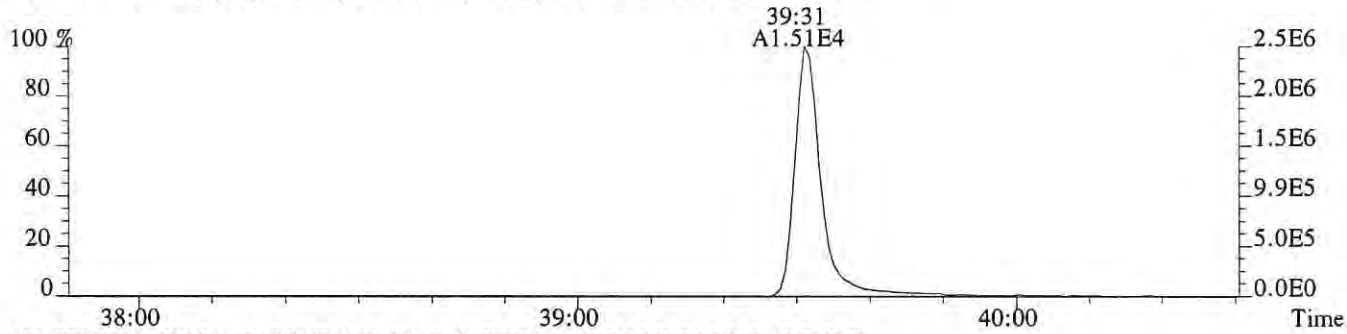
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



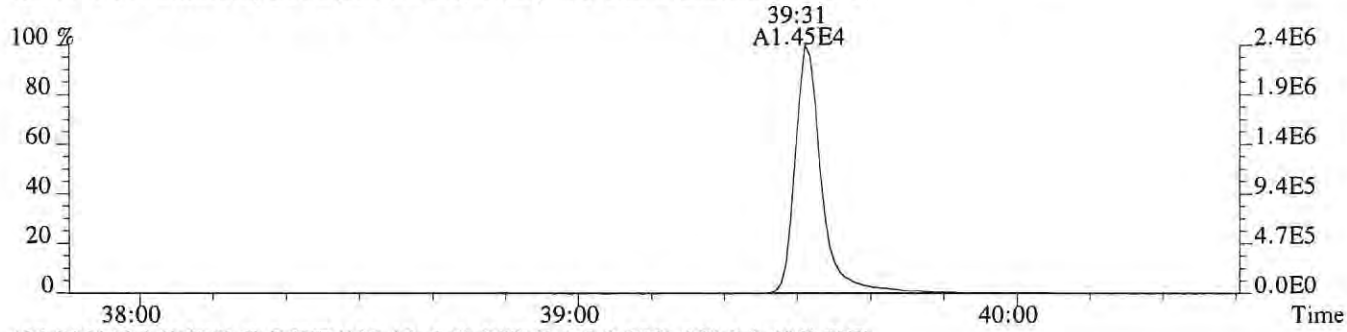
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



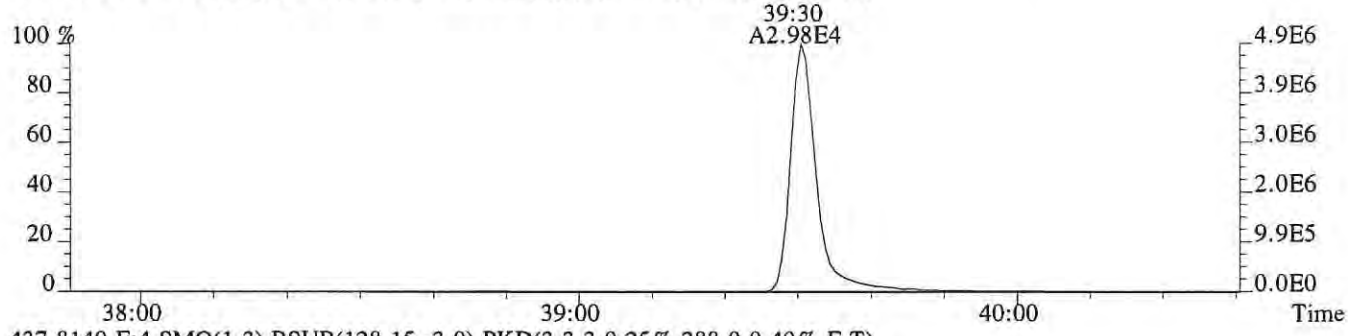
File:P519366 #1-241 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



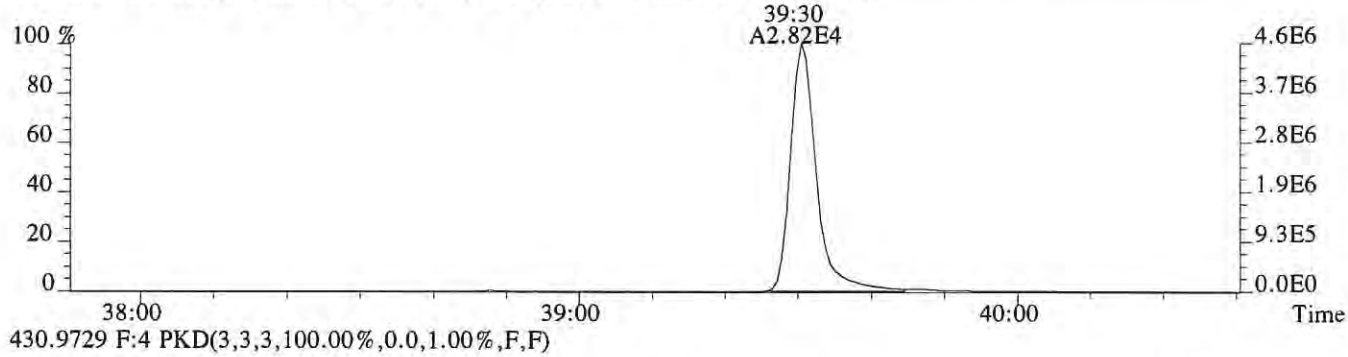
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



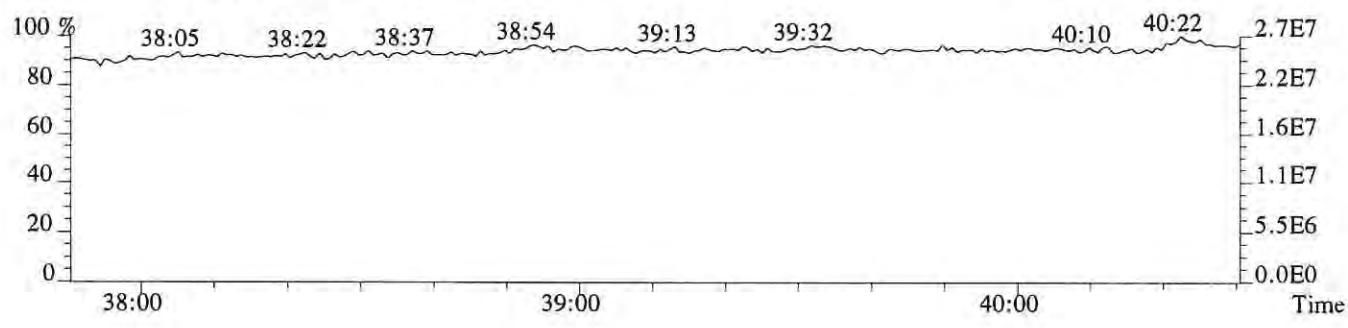
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



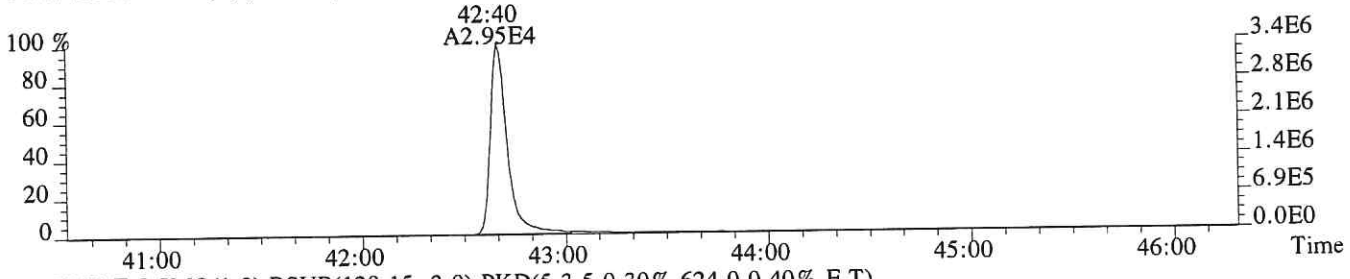
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



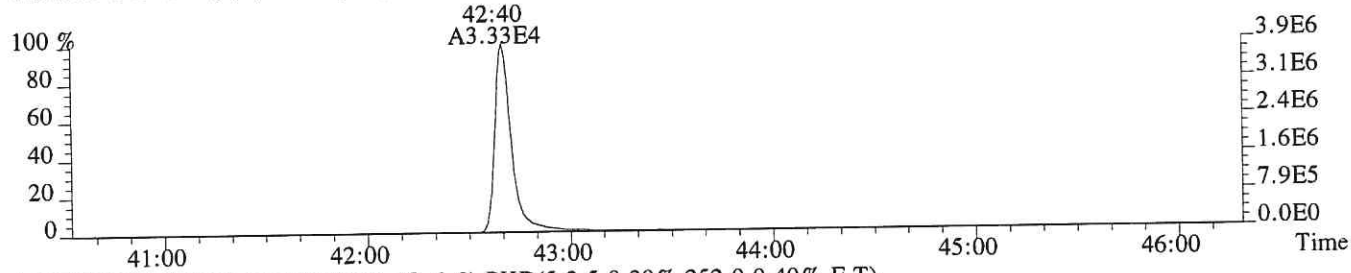
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



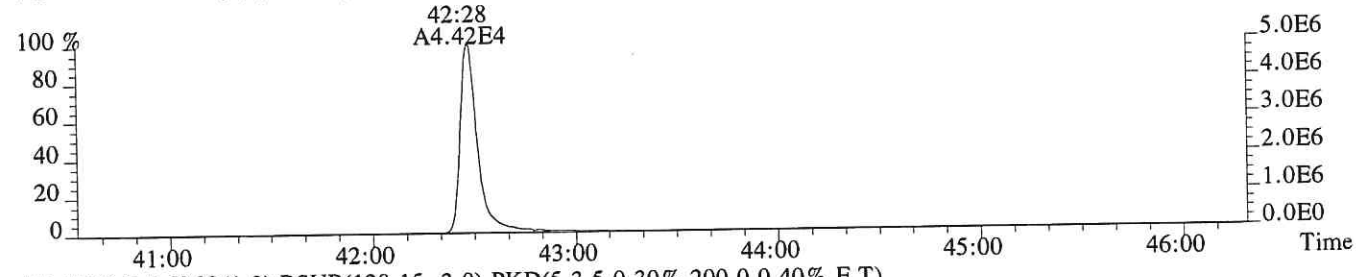
File:P519366 #1-520 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



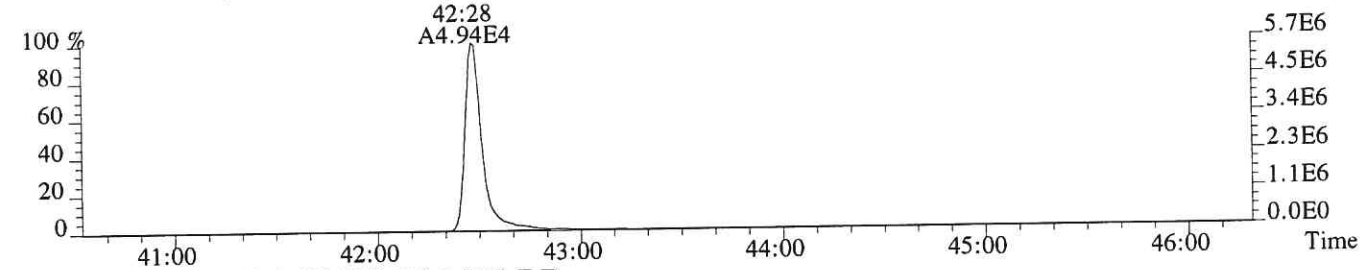
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



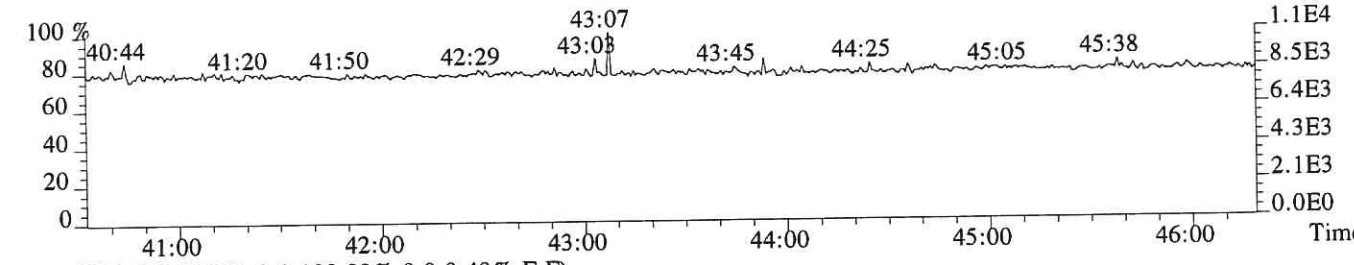
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



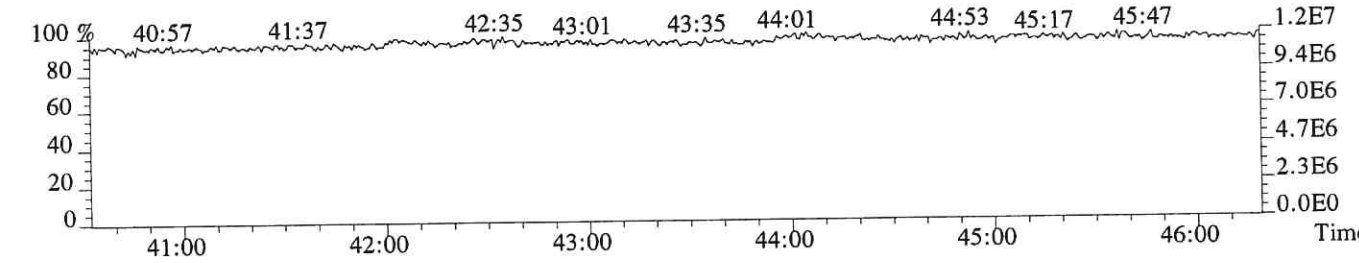
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



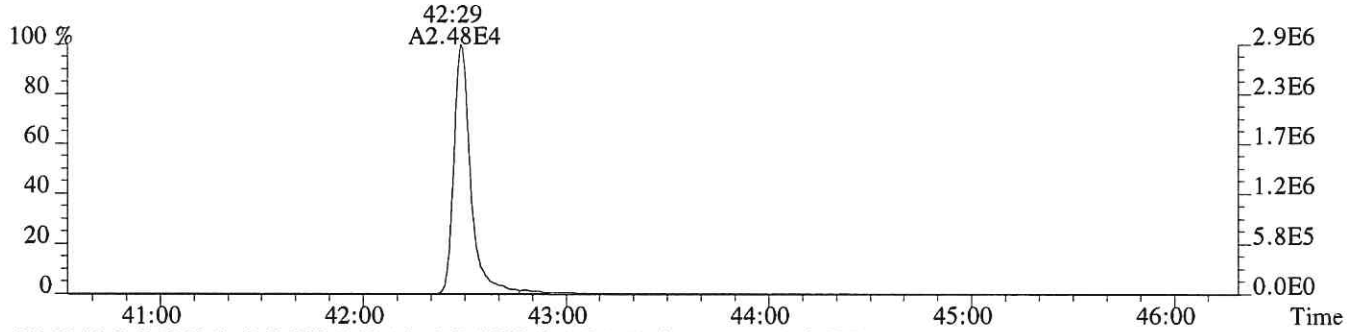
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



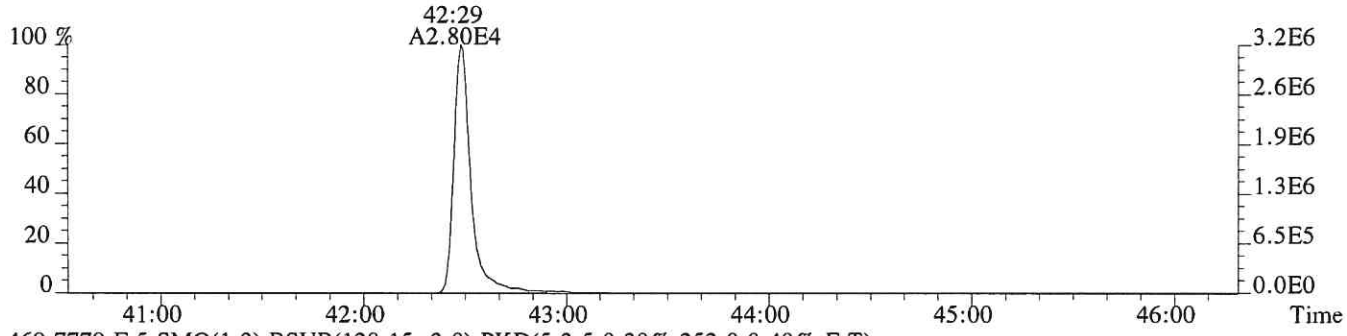
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



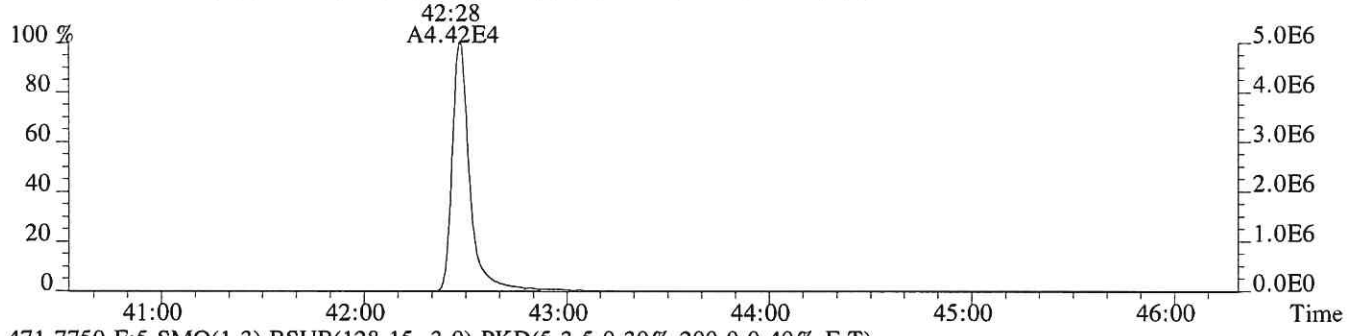
File:P519366 #1-520 Acq:11-DEC-2018 23:49:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



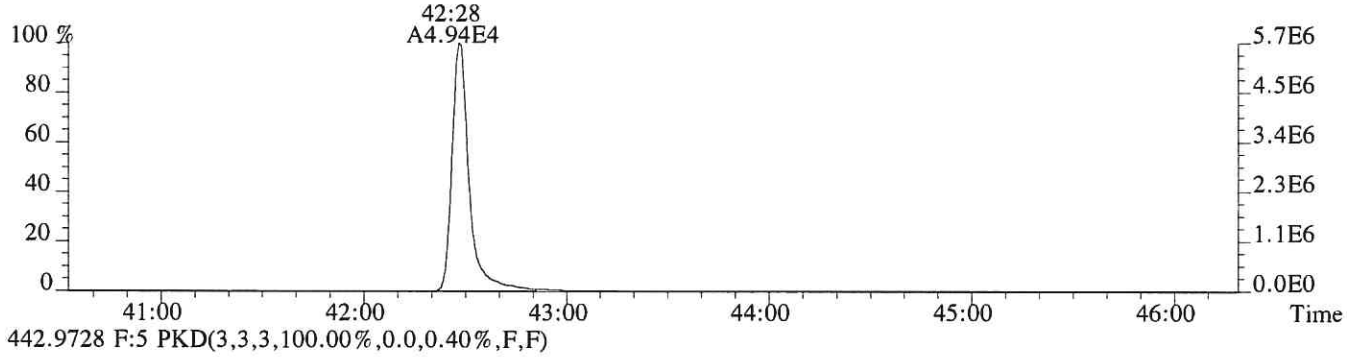
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



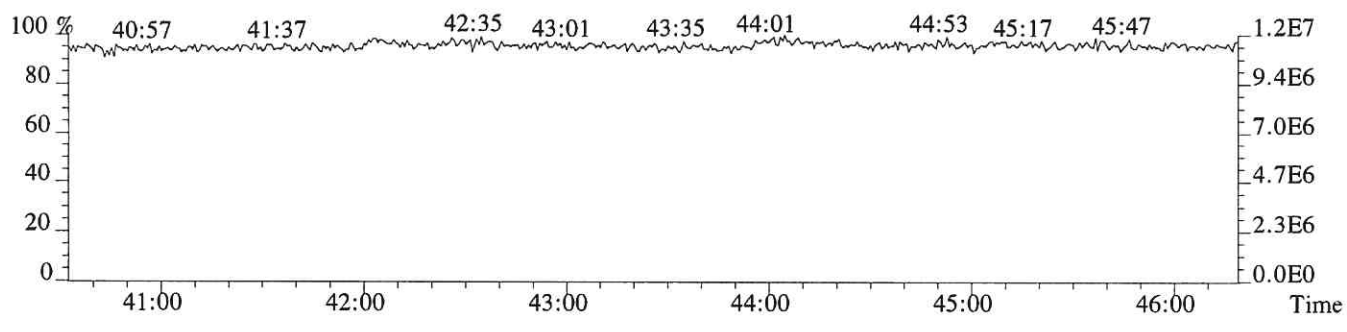
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P5|9397

Date: 12|13|18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P519397	13-DEC-18	01:20:58
192977	WINDOW DEFINE	P519398	13-DEC-18	02:08:45
METHOD BLANK	EQ1800469-01	P519399	13-DEC-18	02:57:24
METHOD BLANK	EQ1800504-01	P519400	13-DEC-18	03:46:08
LIQUID SLUDGE	E1801071-001	P519401	13-DEC-18	04:34:46
KRAFT SLUDGE	J1808461-003	P519402	13-DEC-18	05:23:23
SL0563	E1801065-014DL	P519403	13-DEC-18	06:12:00
SLUDGE	E1801084-001	P519404	13-DEC-18	07:00:46
LCS	EQ1800504-02	P519405	13-DEC-18	07:49:23
DLCS	EQ1800504-03	P519406	13-DEC-18	08:38:08

E1801065

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20181212B.SPL
Last Modified: Friday, December 14, 2018 10:33:47 Central Standard Time
Printed: Friday, December 14, 2018 10:34:19 Central Standard Time

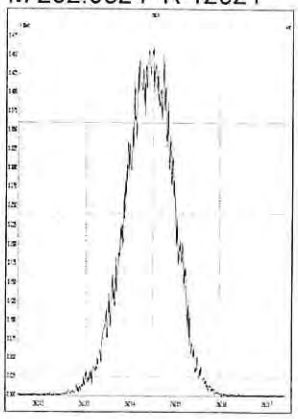
Page Position (1, 1)

opus 4: P519397res

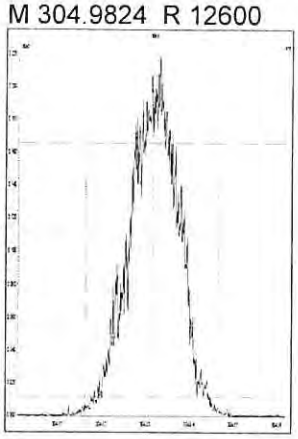
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/13/18	01:20	P519397	CS3	194503	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 00:24
2		02:08	P519398	WINDOWDEFINE	192977	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		02:57	P519399	MB	EQ1800469-01	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		03:46	P519400	MB	EQ1800504-01	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		04:34	P519401	E1801071-001	E1801071-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		05:23	P519402	J1808461-003	J1808461-003	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		06:12	P519403	E1801065-014DL	E1801065-014DL	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		07:00	P519404	E1801084-001	E1801084-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		07:49	P519405	LCS	EQ1800504-02	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		08:38	P519406	DLCS	EQ1800504-03	EPA1613_ALS	Dioxin_ALS	Tray1:10		HRMS check 09:27
11	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:11	---	---
12	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:12	---	---
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 12/14/18

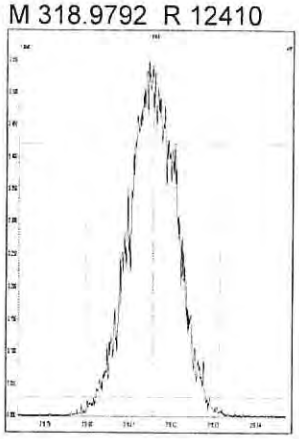
M 292.9824 R 12021



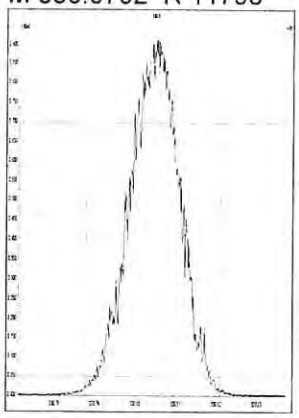
M 304.9824 R 12600



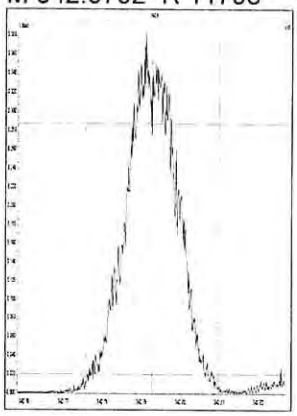
M 318.9792 R 12410



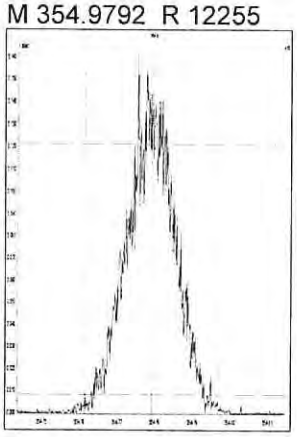
M 330.9792 R 11793



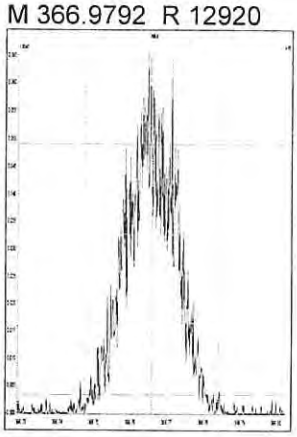
M 342.9792 R 11793



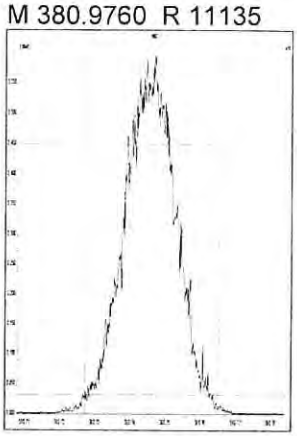
M 354.9792 R 12255



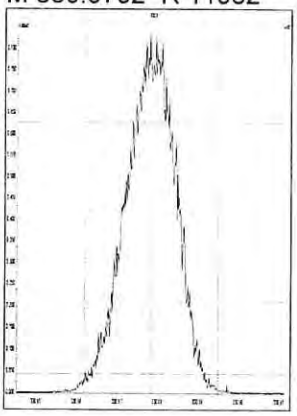
M 366.9792 R 12920



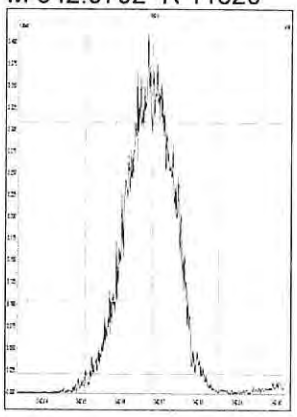
M 380.9760 R 11135



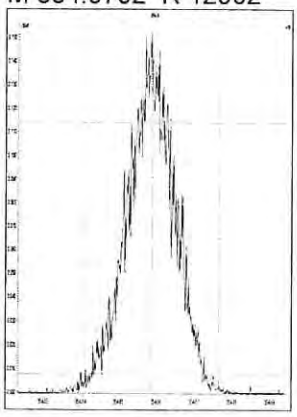
M 330.9792 R 11962



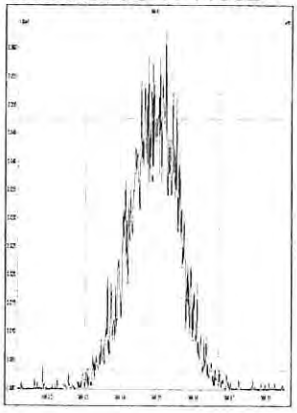
M 342.9792 R 11820



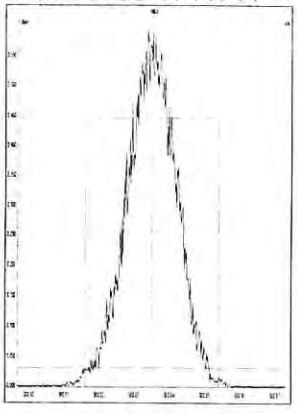
M 354.9792 R 12902



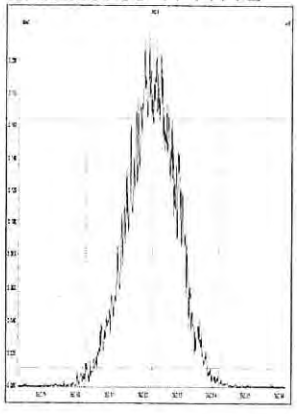
M 366.9792 R 11932



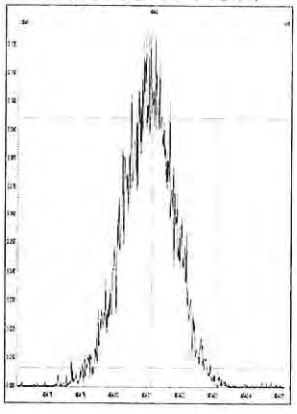
M 380.9760 R 11711



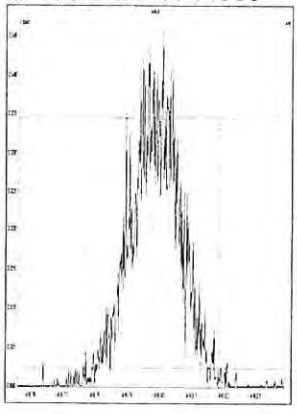
M 392.9760 R 11772



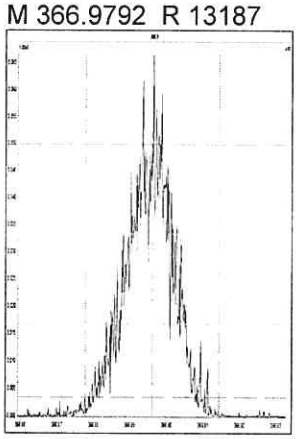
M 404.9760 R 11914



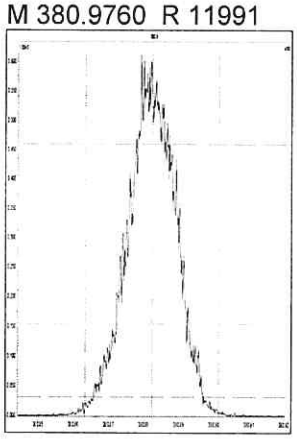
M 416.9760 R 14080



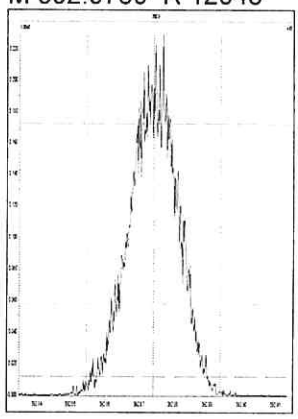
M 366.9792 R 13187



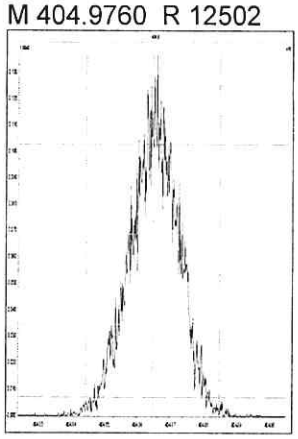
M 380.9760 R 11991



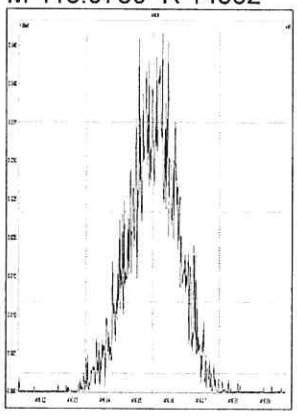
M 392.9760 R 12048



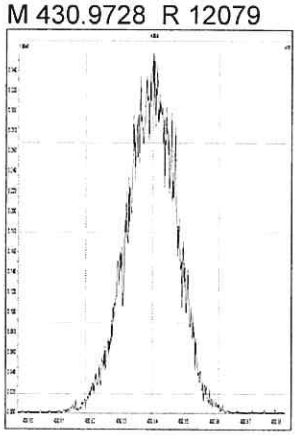
M 404.9760 R 12502



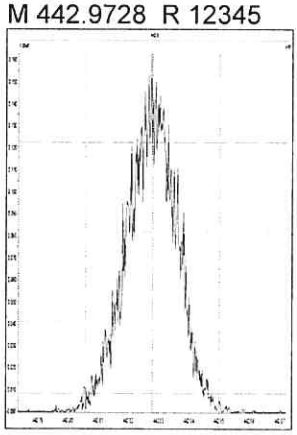
M 416.9760 R 14552



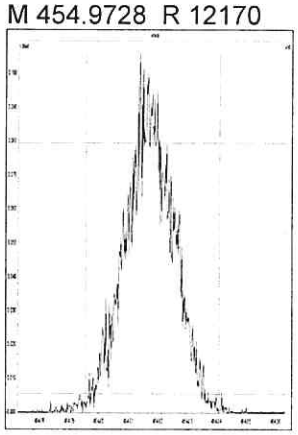
M 430.9728 R 12079



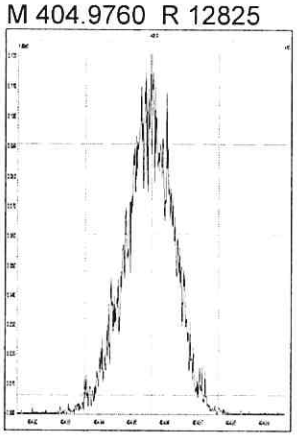
M 442.9728 R 12345



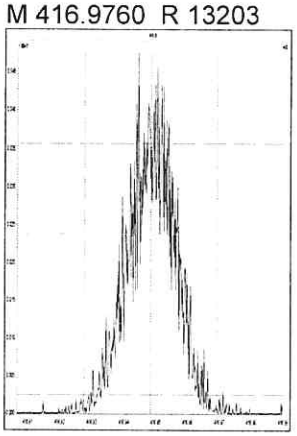
M 454.9728 R 12170



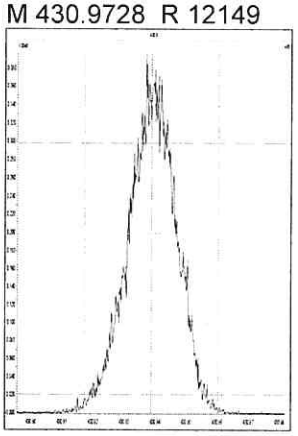
M 404.9760 R 12825



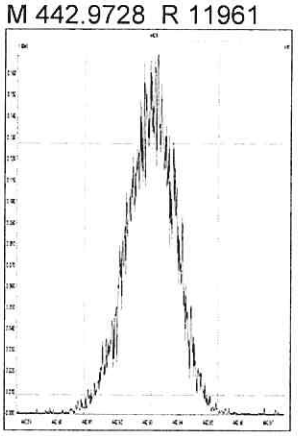
M 416.9760 R 13203



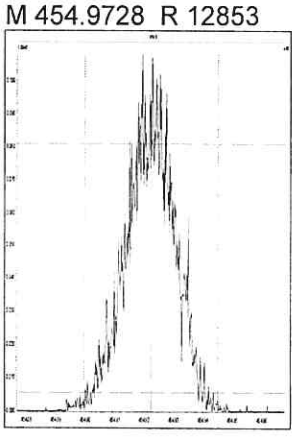
M 430.9728 R 12149



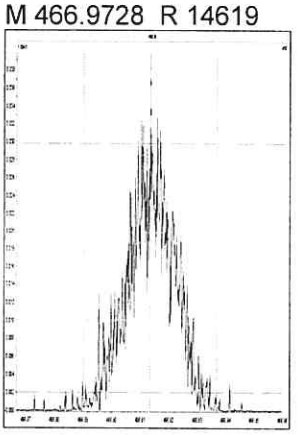
M 442.9728 R 11961



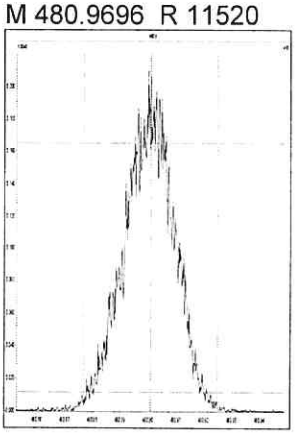
M 454.9728 R 12853



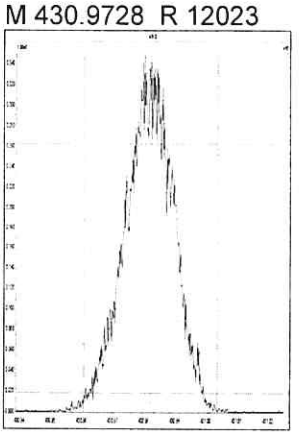
M 466.9728 R 14619



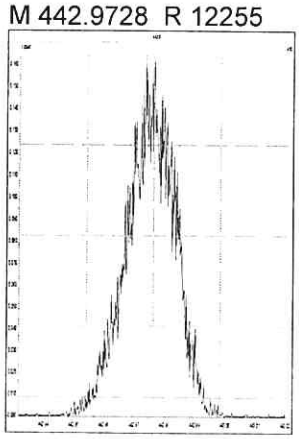
M 480.9696 R 11520



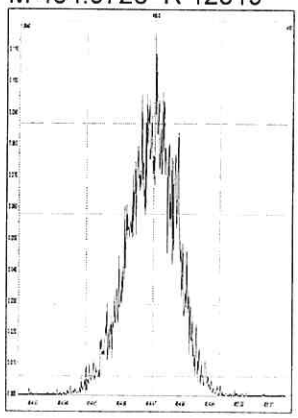
M 430.9728 R 12023



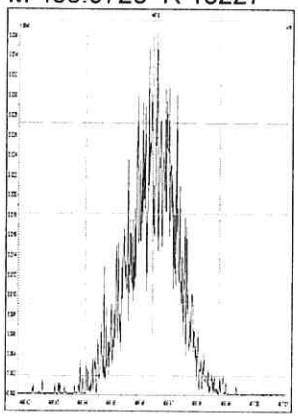
M 442.9728 R 12255



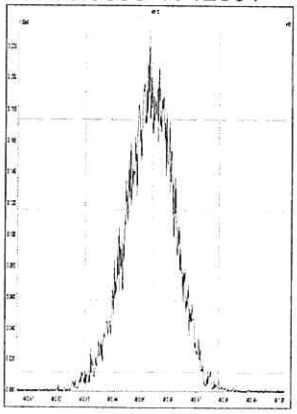
M 454.9728 R 12519



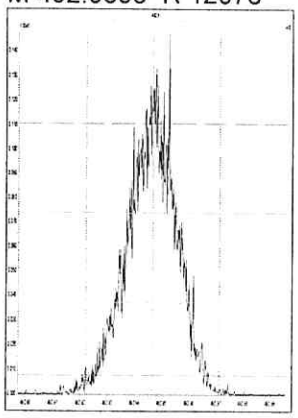
M 466.9728 R 13227



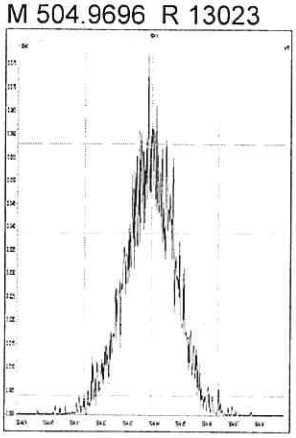
M 480.9696 R 12051



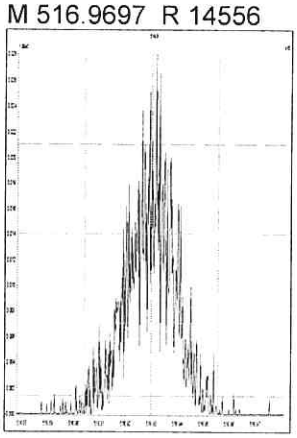
M 492.9696 R 12078



M 504.9696 R 13023



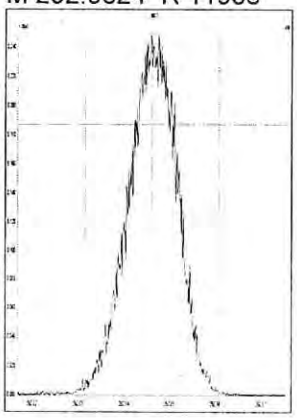
M 516.9697 R 14556



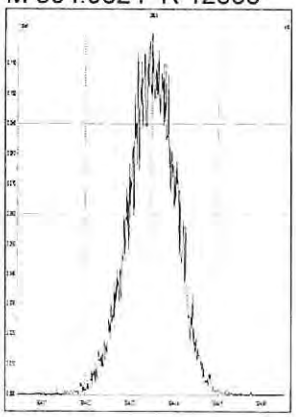
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, December 13, 2018 09:27:57 Central Standard Time

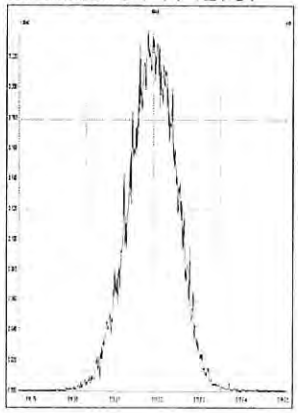
M 292.9824 R 11956



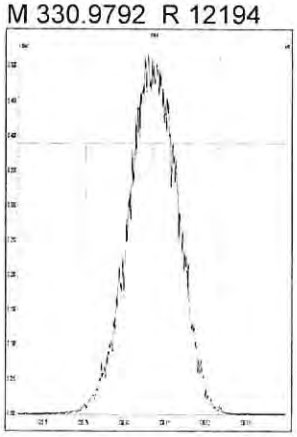
M 304.9824 R 12688



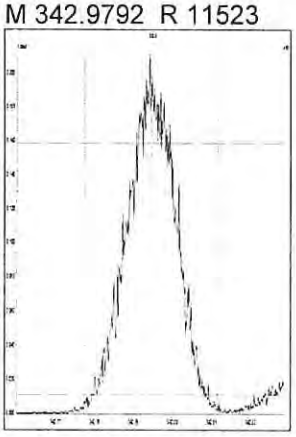
M 318.9792 R 12757



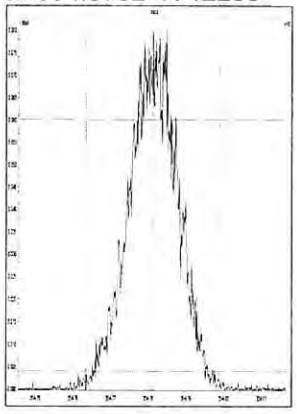
M 330.9792 R 12194



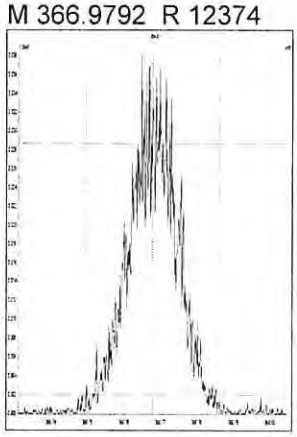
M 342.9792 R 11523



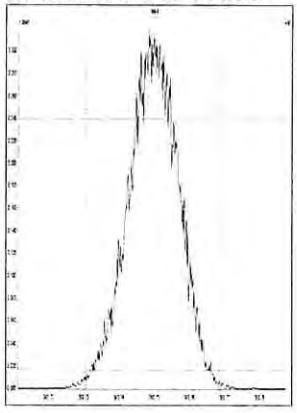
M 354.9792 R 12255



M 366.9792 R 12374



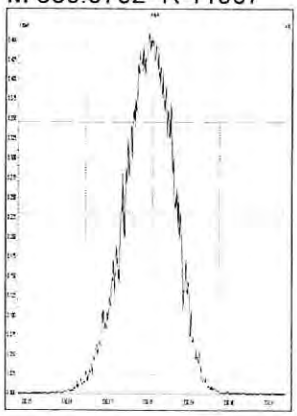
M 380.9760 R 11963



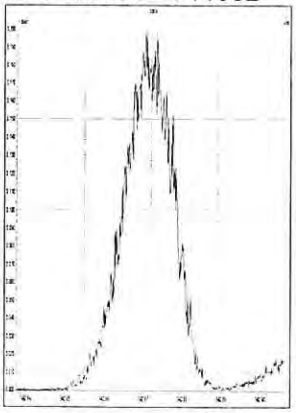
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, December 13, 2018 09:28:24 Central Standard Time

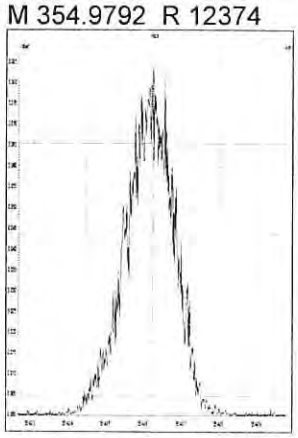
M 330.9792 R 11907



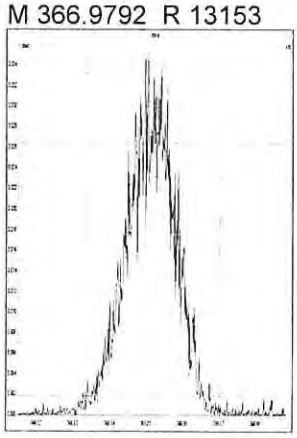
M 342.9792 R 11682



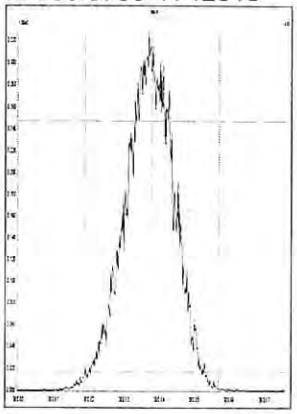
M 354.9792 R 12374



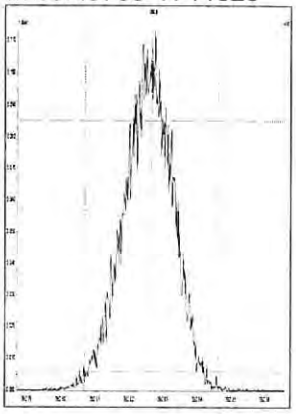
M 366.9792 R 13153



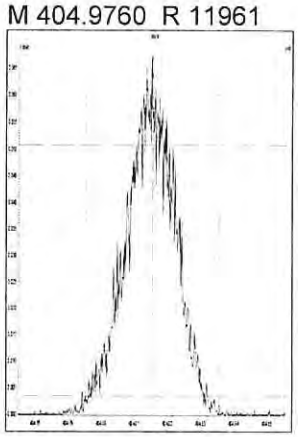
M 380.9760 R 12018



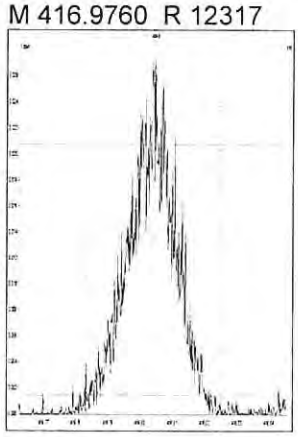
M 392.9760 R 11625



M 404.9760 R 11961



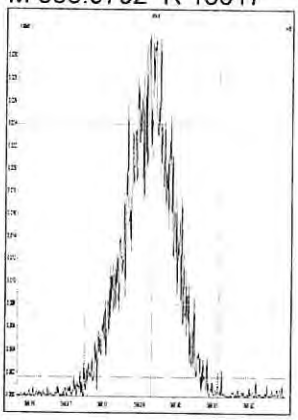
M 416.9760 R 12317



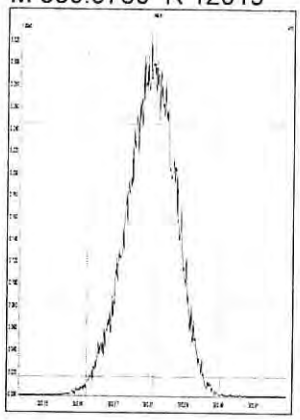
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, December 13, 2018 09:28:55 Central Standard Time

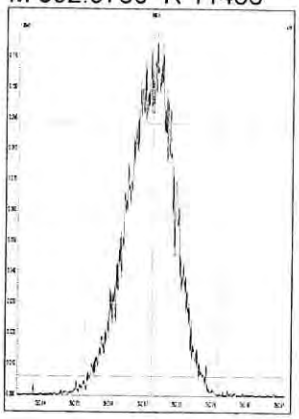
M 366.9792 R 13017



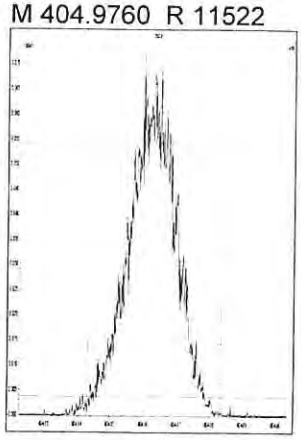
M 380.9760 R 12019



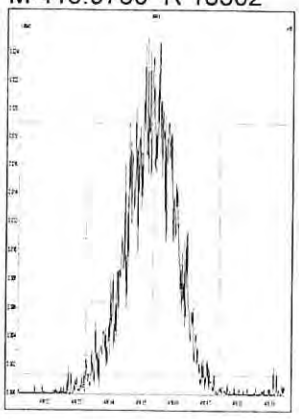
M 392.9760 R 11466



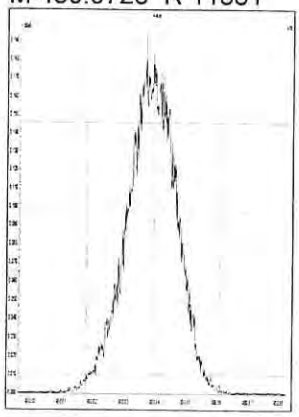
M 404.9760 R 11522



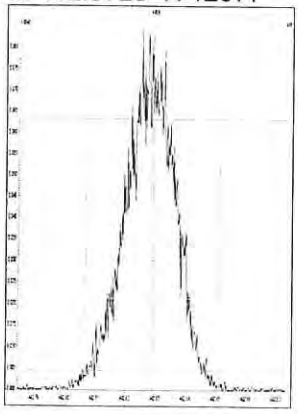
M 416.9760 R 13302



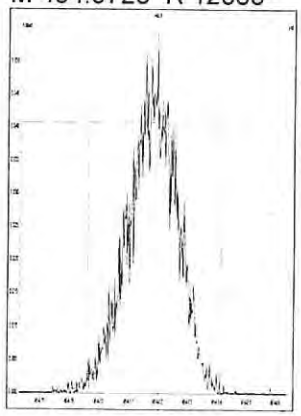
M 430.9728 R 11361



M 442.9728 R 12077



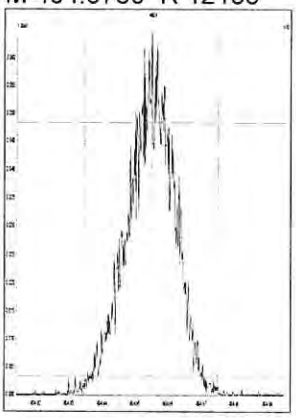
M 454.9728 R 12565



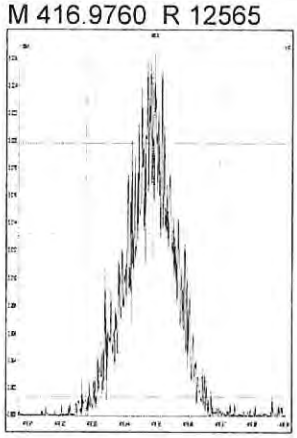
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, December 13, 2018 09:29:27 Central Standard Time

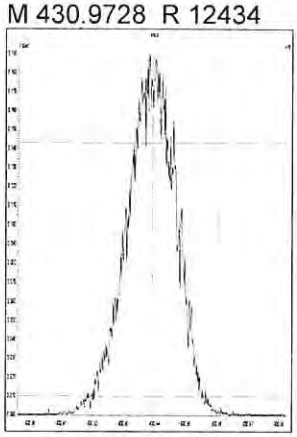
M 404.9760 R 12135



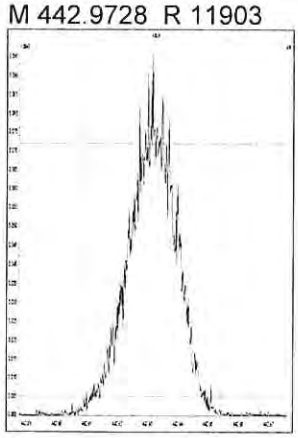
M 416.9760 R 12565



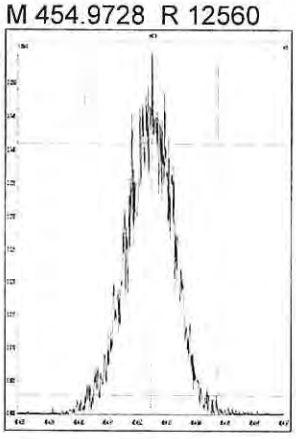
M 430.9728 R 12434



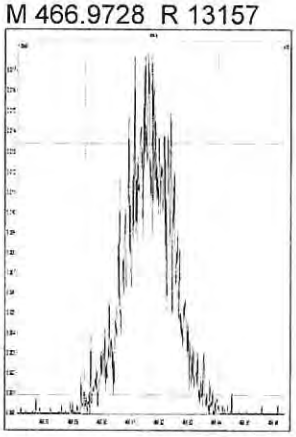
M 442.9728 R 11903



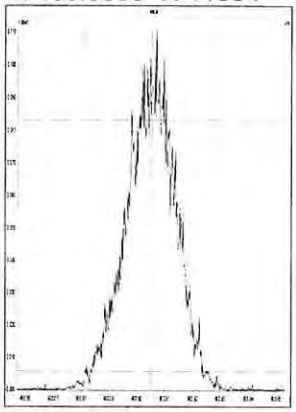
M 454.9728 R 12560



M 466.9728 R 13157



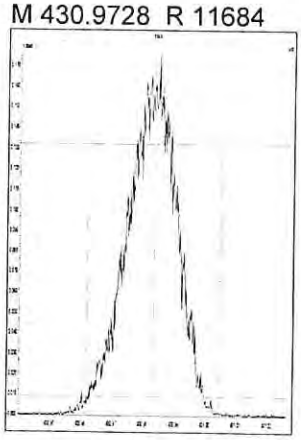
M 480.9696 R 11964



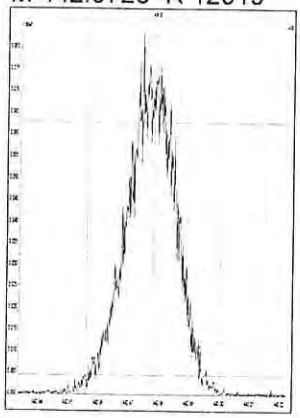
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, December 13, 2018 09:29:58 Central Standard Time

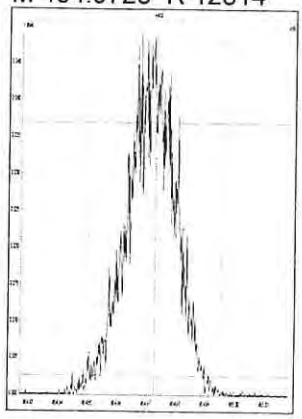
M 430.9728 R 11684



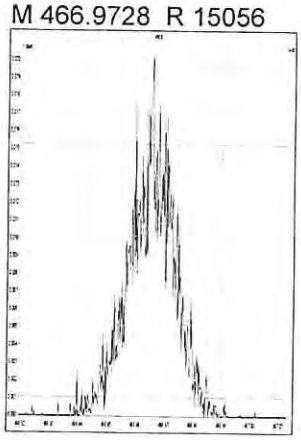
M 442.9728 R 12019



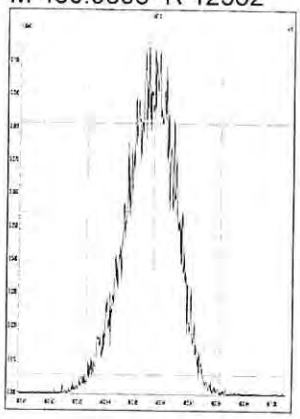
M 454.9728 R 12314



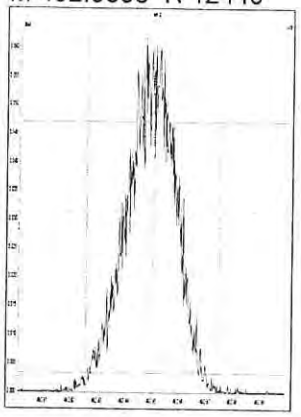
M 466.9728 R 15056



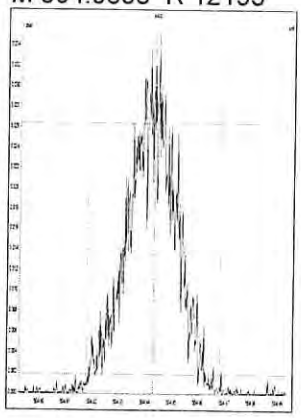
M 480.9696 R 12562



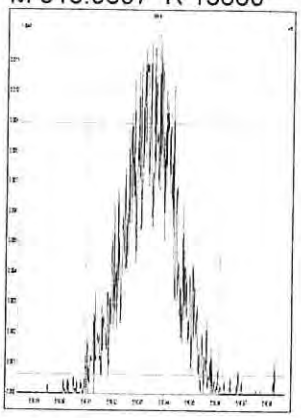
M 492.9696 R 12440



M 504.9696 R 12195



M 516.9697 R 13660



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

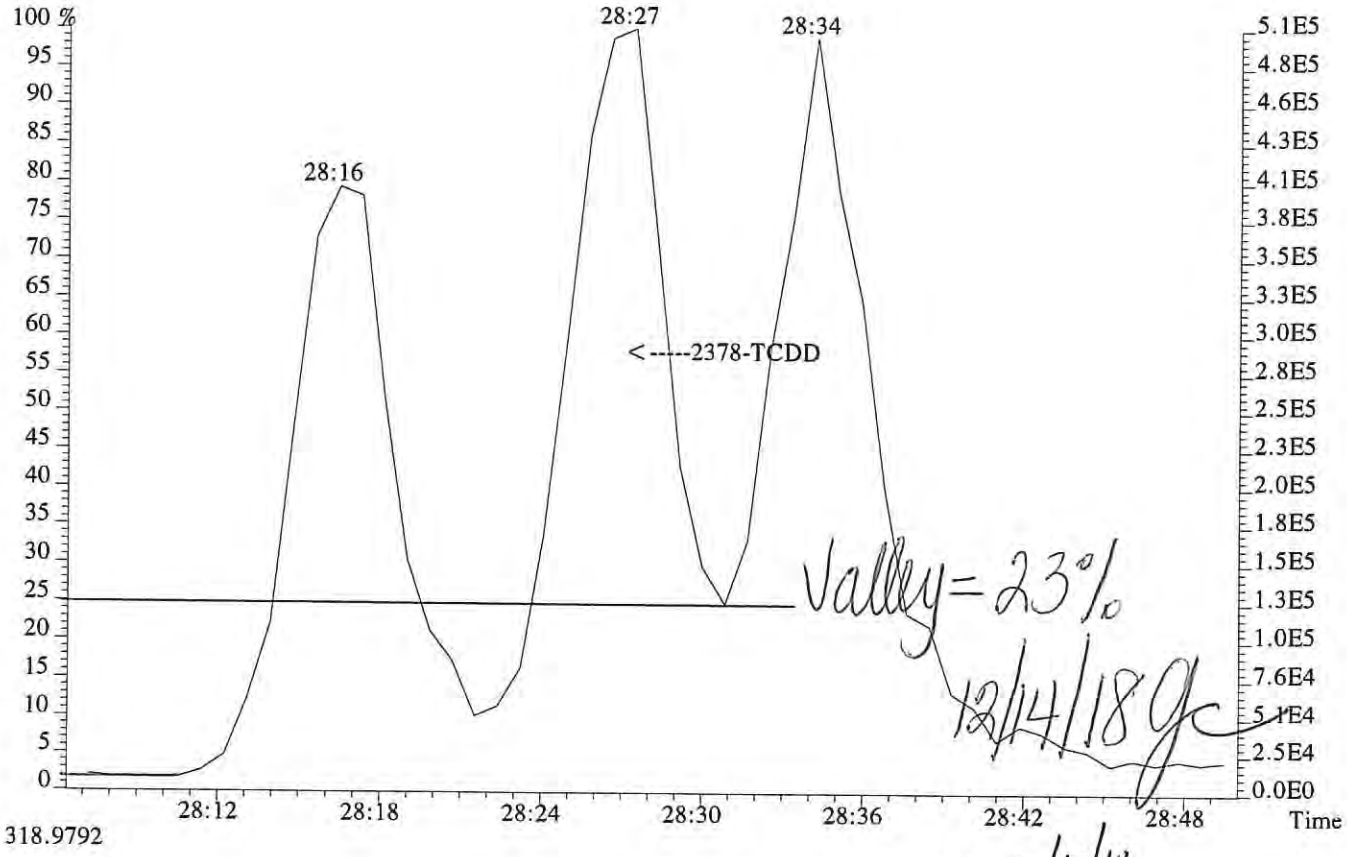
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm) Lab File ID: P519398
Date Analyzed: 13-DEC-2018
Time Analyzed: 02:08:45

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:10	29:39
TCDD	24:58	29:29
PeCDF	29:36	33:59
PeCDD	31:12	33:44
HxCDF	34:40	37:15
HxCDD	35:13	36:51
HpCDF	38:34	40:01
HpCDD	38:50	39:32

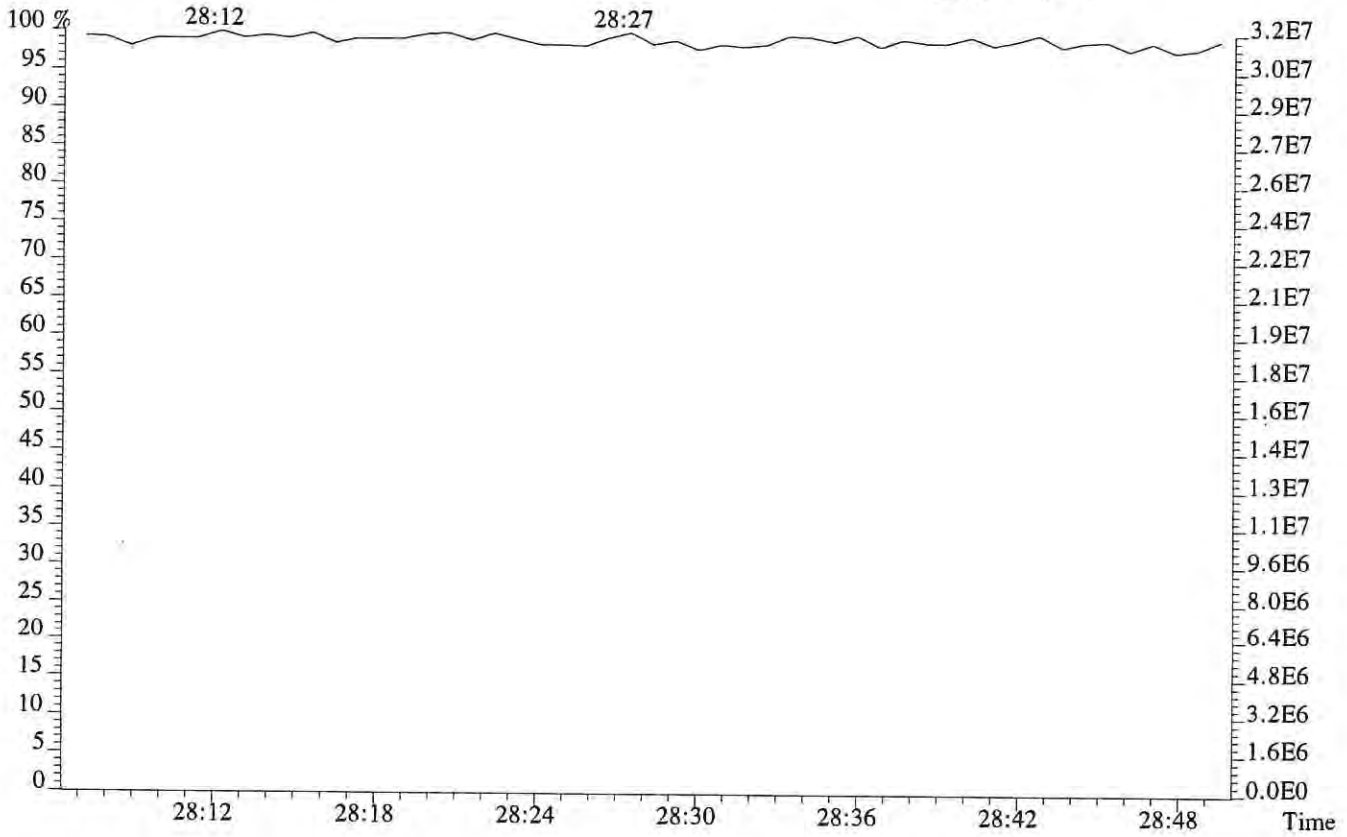
% Valley 2378-TCDD: 23 %

File:P519398 #1-587 Acq:13-DEC-2018 02:08:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
319.8965



318.9792

LLC 12/14/18



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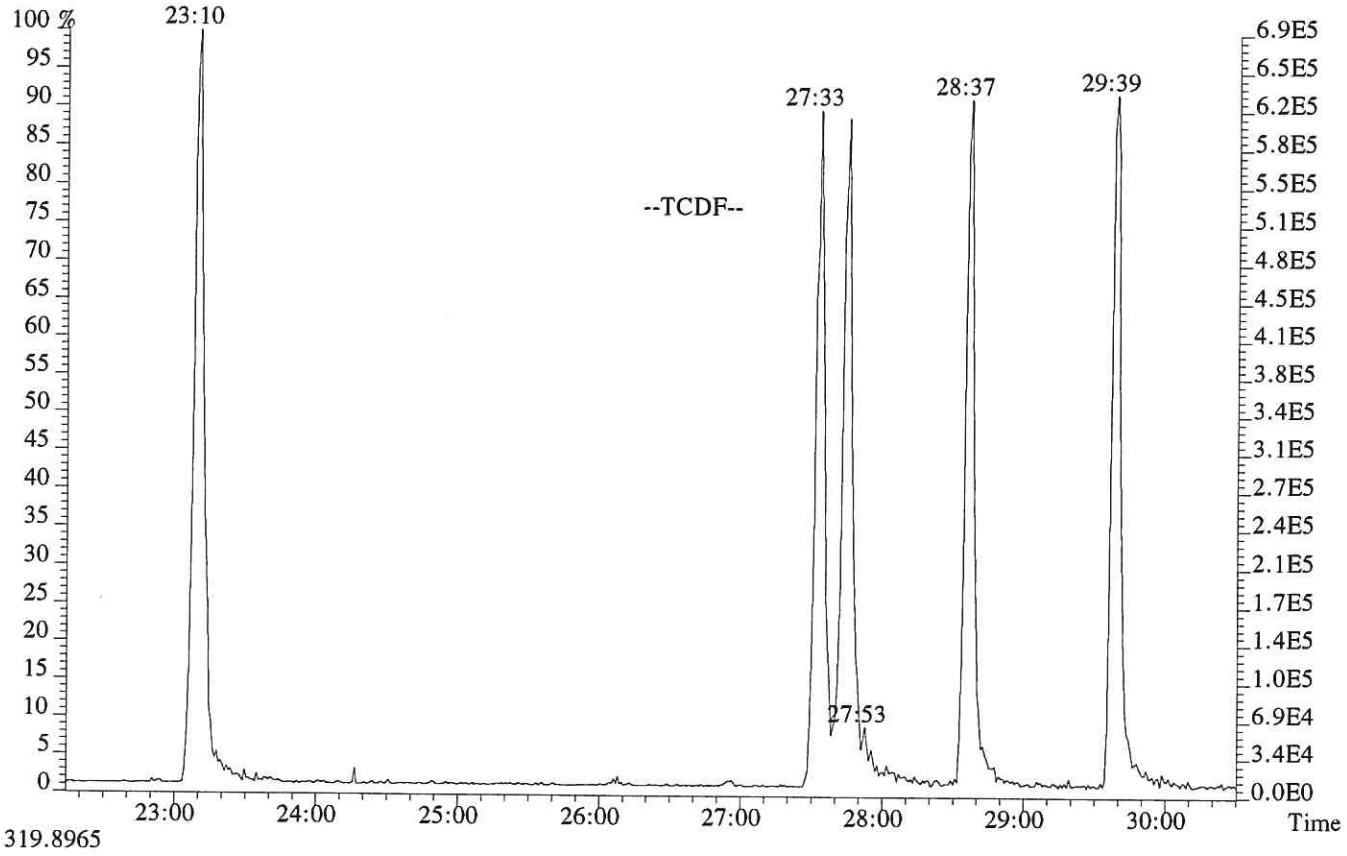
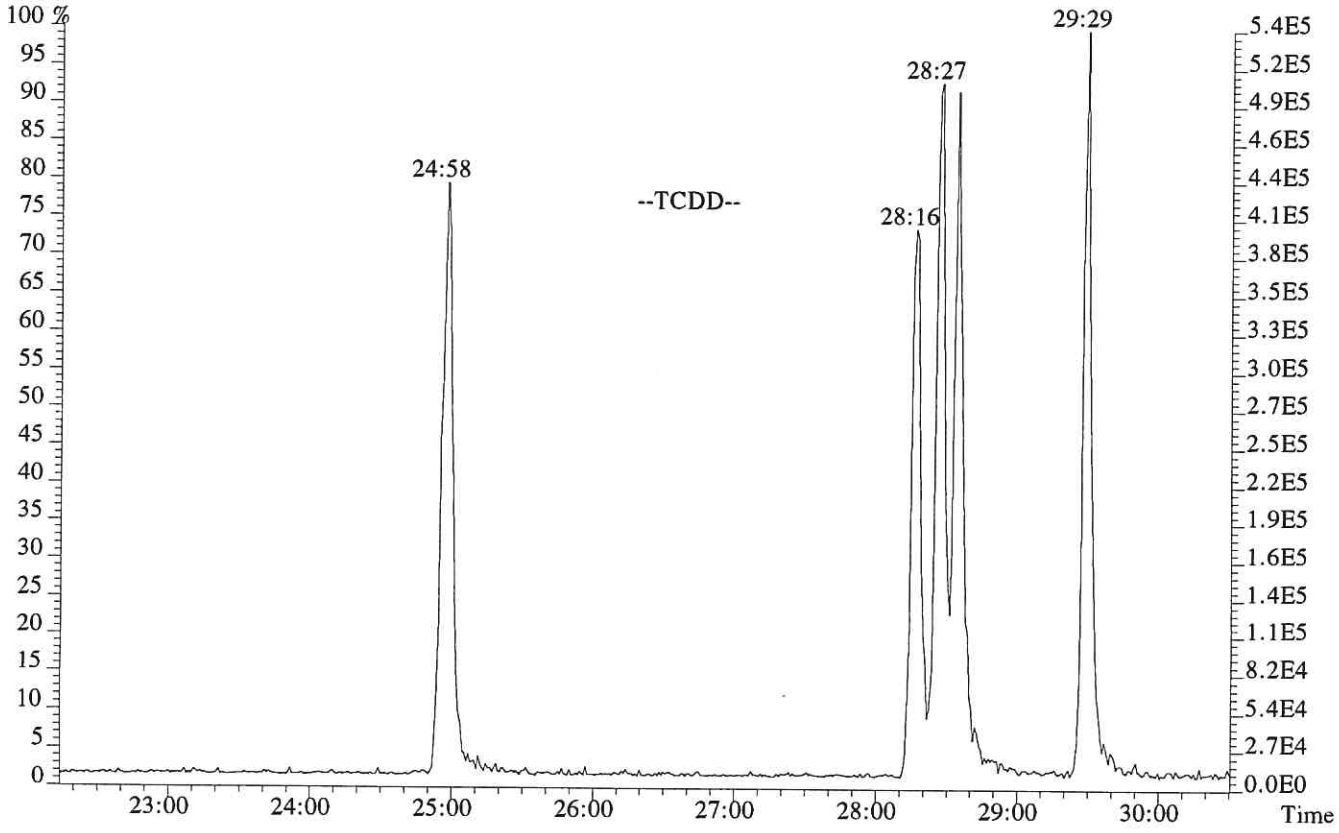
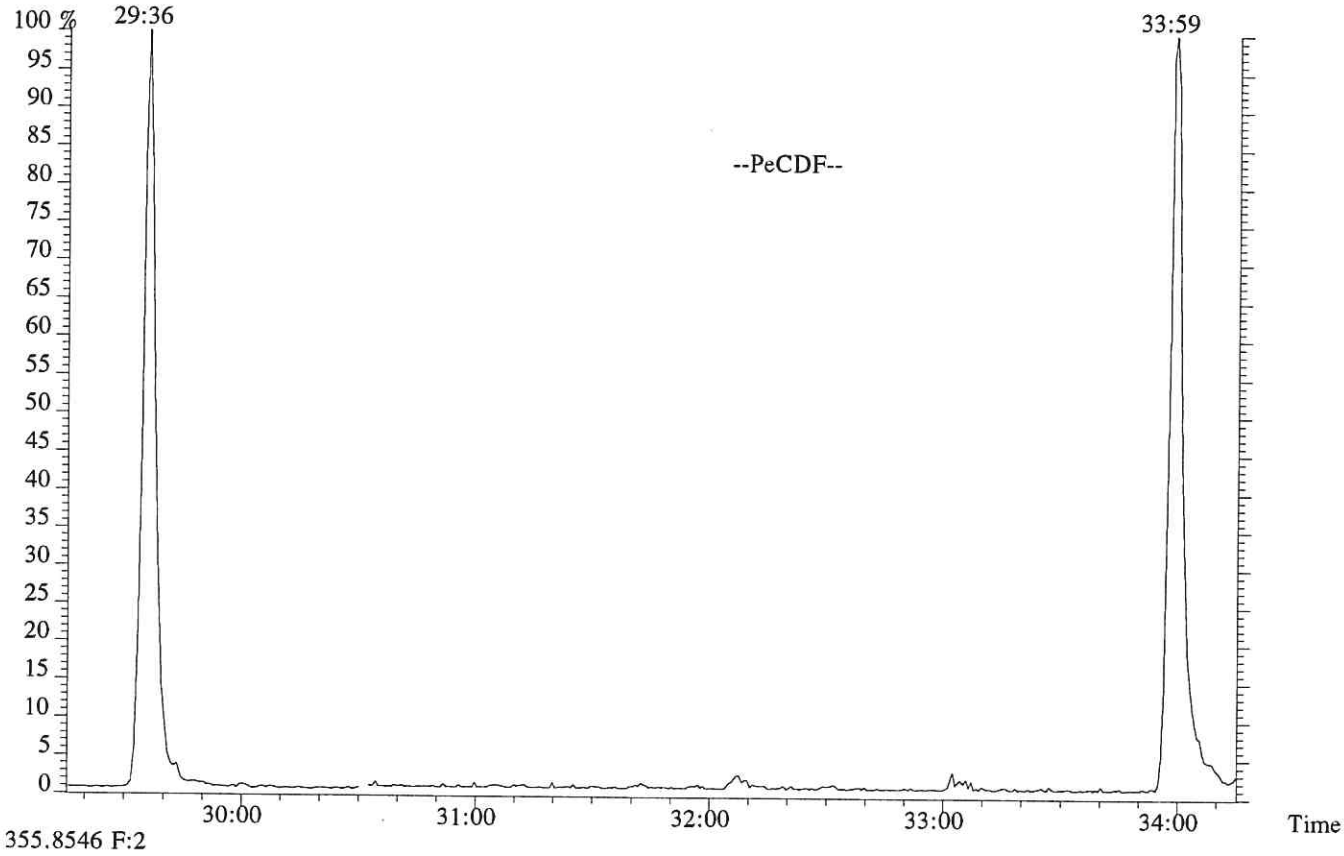
Sample#1 Exp:192977
303.9016



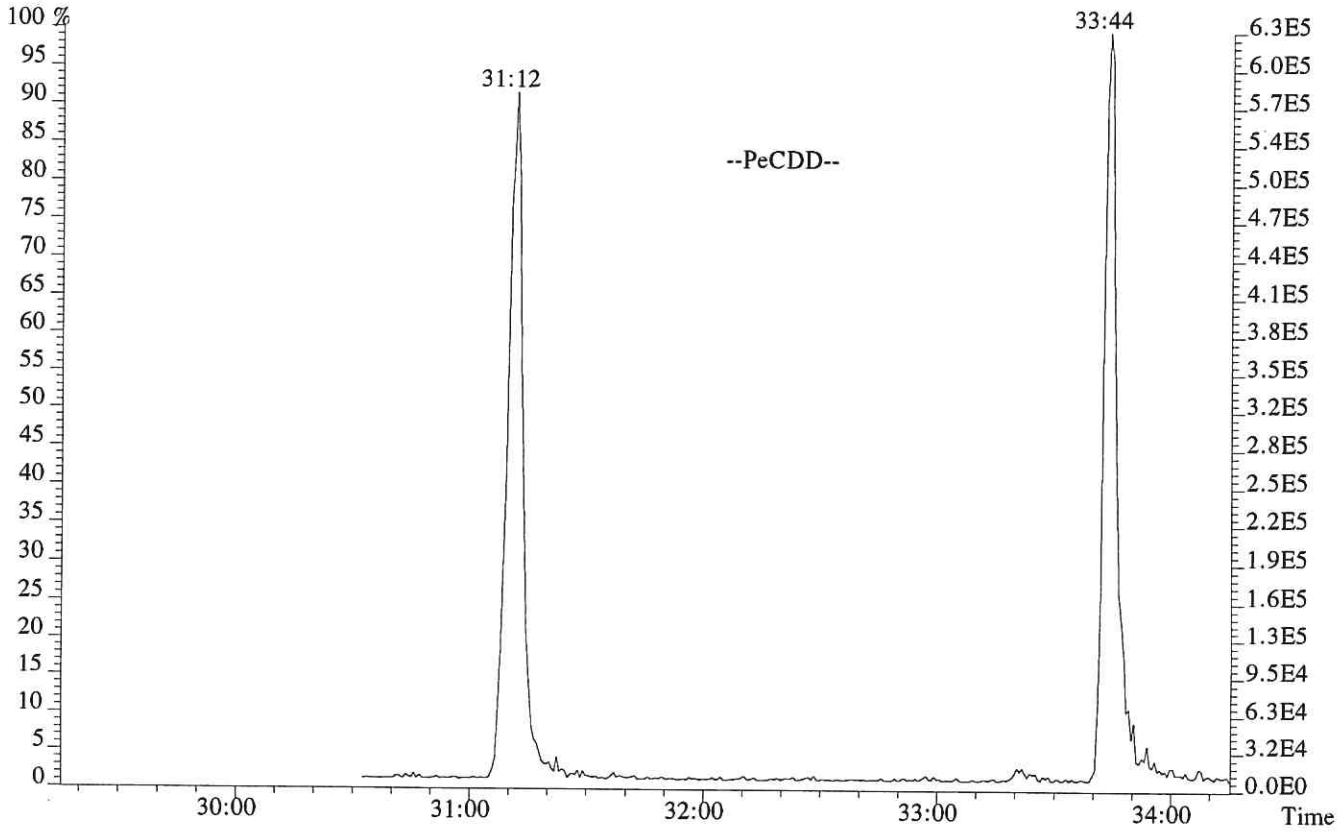
319.8965



File:P519398 #1-587 Acq:13-DEC-2018 02:08:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
339.8597,339.8597 F:2



355.8546 F:2



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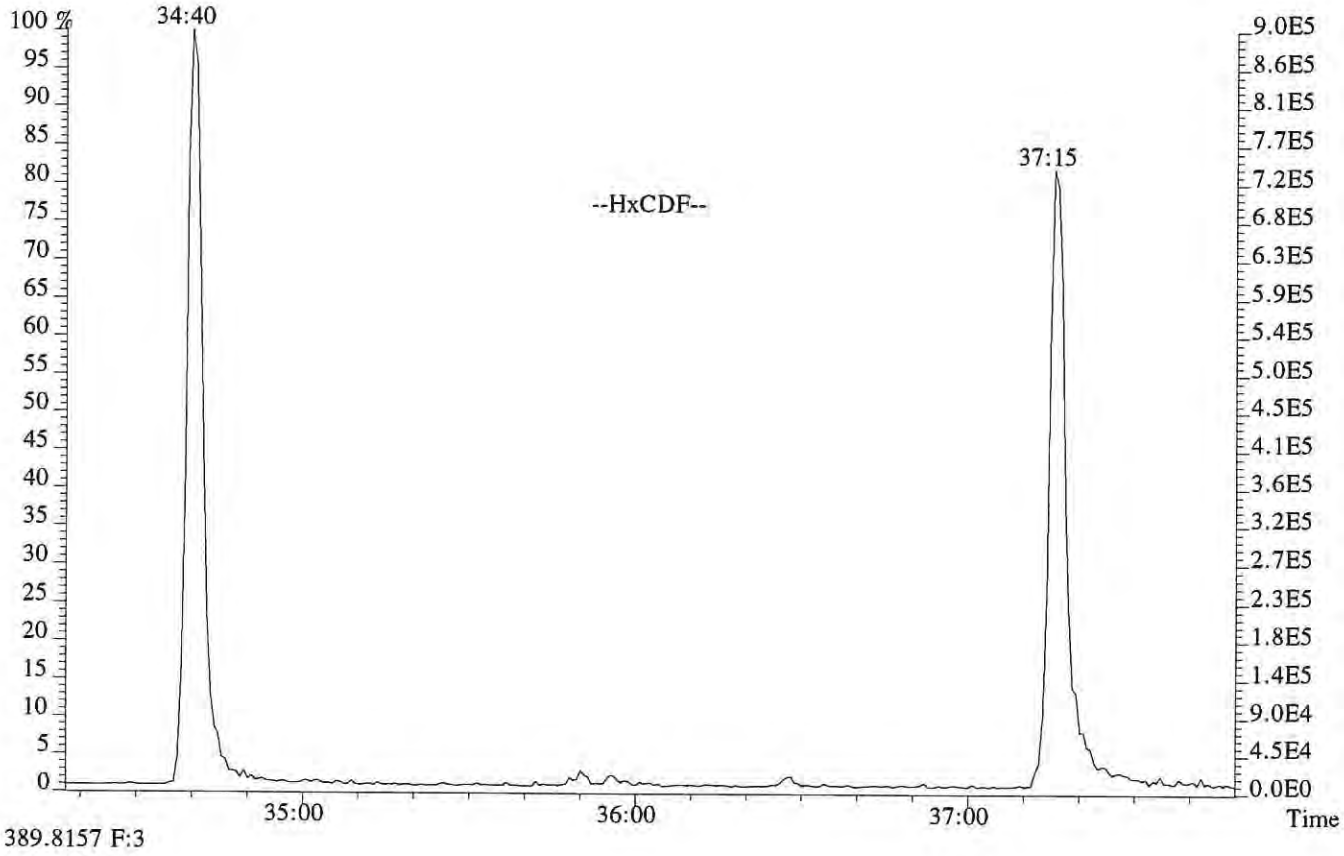
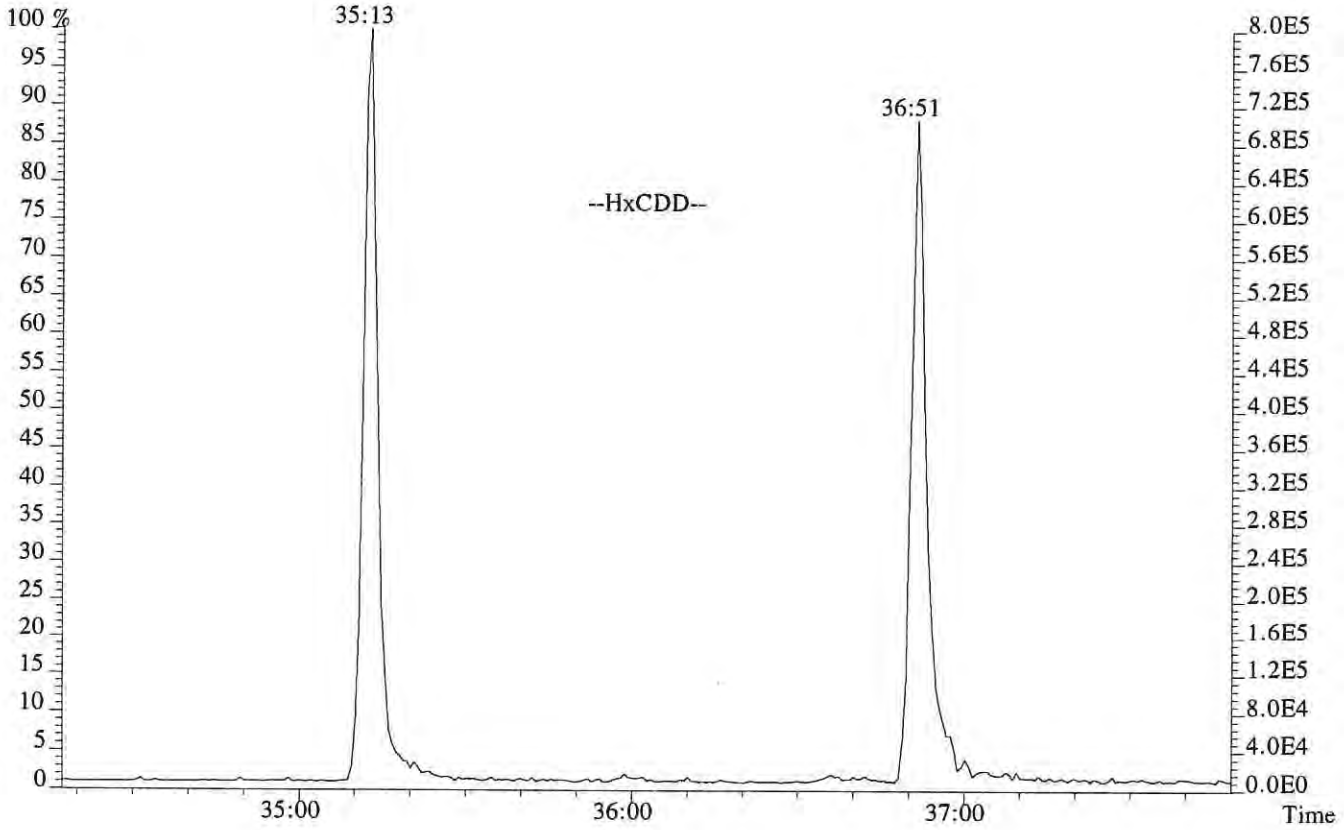
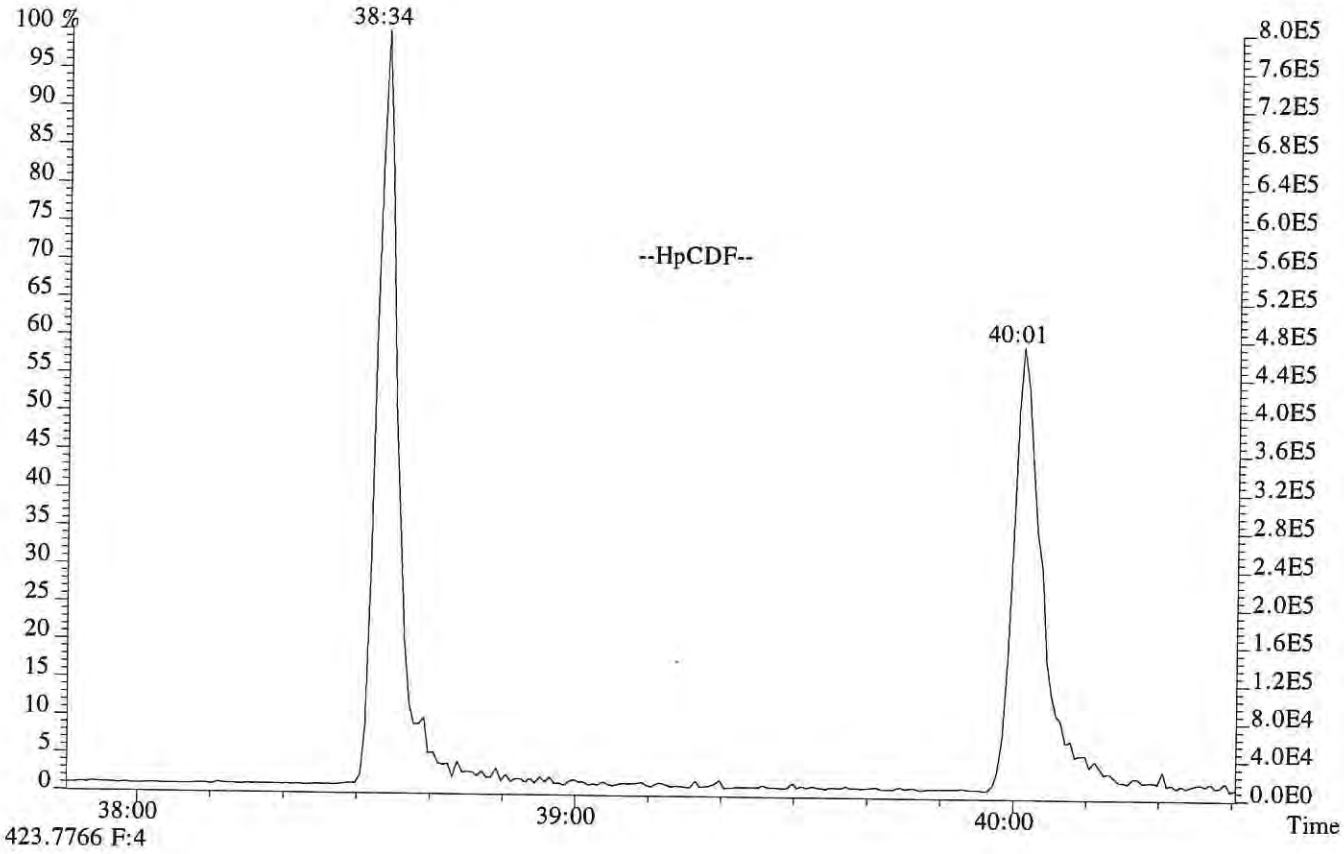
Sample#1 Exp:192977
373.8208 F:3



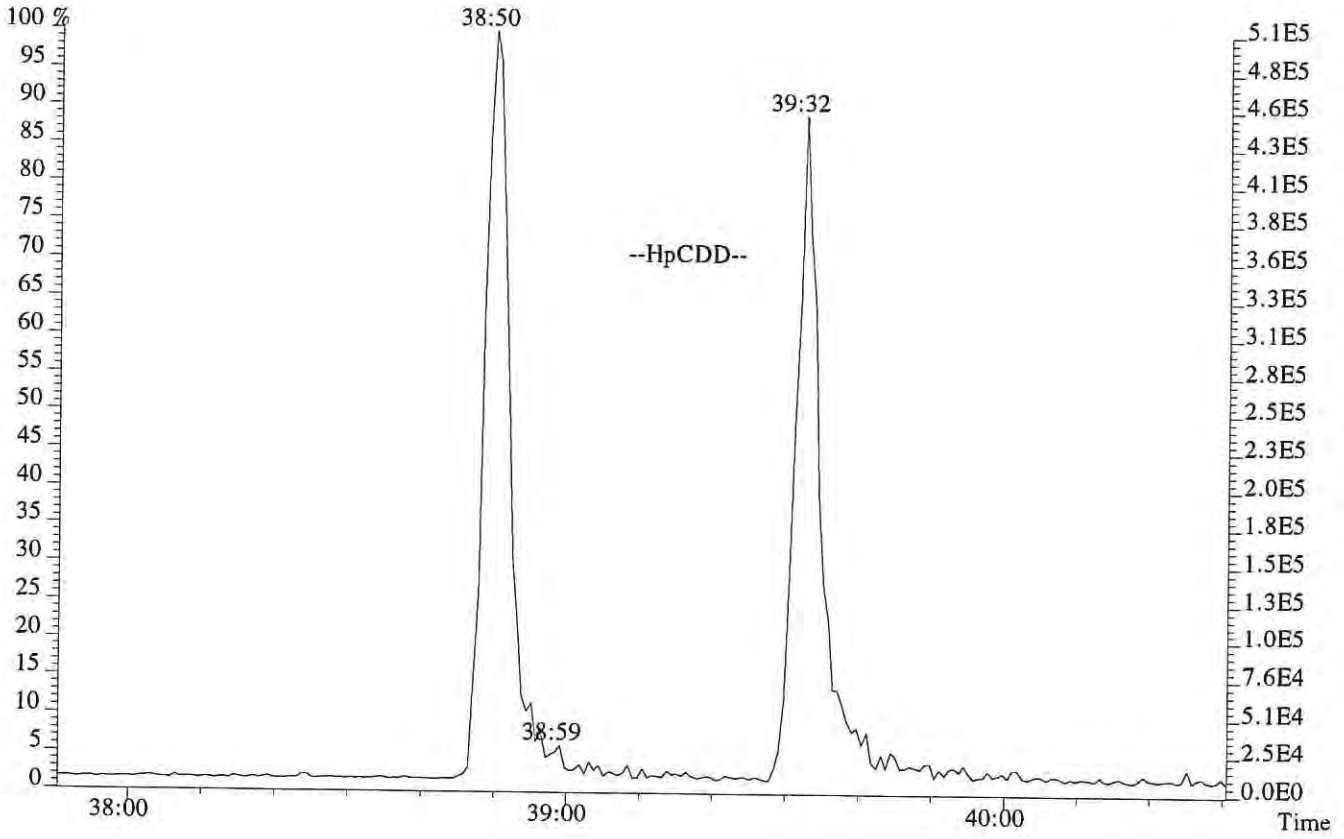
389.8157 F:3



File:P519398 #1-241 Acq:13-DEC-2018 02:08:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:192977
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519397 Analysis Date: 13-DEC-18 Time: 01:20:58

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.4	7.8 - 12.9	-5.8
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	50	39 - 65	0.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-1.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	-0.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	54	41 - 61	7.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	50	43 - 58	-0.1
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.1
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.9	8.4 - 12.0	-1.1
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	49	41 - 60	-2.4
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	50	41 - 61	0.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	45 - 56	1.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	51	44 - 57	1.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	49	45 - 56	-1.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	50	44 - 57	-0.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	50	43 - 58	0.7
OCDF	M+2/M+4	0.90	0.76-1.02	99	63 - 159	-0.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P519397 Analysis Date: 13-DEC-18 Time: 01:20:58

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	103	82 - 121	3.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	110	62 - 160	9.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	89	85 - 117	-11.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	102	85 - 118	2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	106	72 - 138	6.2
13C-OCDD	M+2/M+4	0.91	0.76-1.02	246	96 - 415	23.2
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	95	71 - 140	-4.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	110	76 - 130	9.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	110	77 - 130	9.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	84	76 - 131	-16.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	70 - 143	-5.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	94	74 - 135	-5.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	95	73 - 137	-5.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	103	78 - 129	3.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	107	77 - 129	6.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-1.8

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P519397 Samp: 1 Inj: 1 Acquired: 13-DEC-18 01:20:58
Processed: 14-DEC-18 11:06:52 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:45	5.693e+03	7.578e+03	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:07	4.790e+04	3.100e+04	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:03	4.568e+04	3.028e+04	1.51	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.781e+04	3.131e+04	1.21	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	35:56	4.504e+04	3.754e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:27	3.943e+04	3.326e+04	1.19	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:14	3.481e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:35	3.670e+04	3.640e+04	1.01	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	3.094e+04	3.011e+04	1.03	yes	no	1.258
10	Unk	OCDF	42:47	5.045e+04	5.630e+04	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	28:35	4.240e+03	5.387e+03	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:21	3.128e+04	1.966e+04	1.59	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:36	2.585e+04	2.040e+04	1.27	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	36:41	3.065e+04	2.436e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	36:56	3.132e+04	2.507e+04	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	2.606e+04	2.529e+04	1.03	yes	no	1.025
17	Unk	OCDD	42:35	4.223e+04	4.720e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	27:43	6.343e+04	7.900e+04	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:06	9.814e+04	6.159e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:02	9.706e+04	6.104e+04	1.59	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	3.897e+04	7.506e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	4.959e+04	9.560e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:27	4.426e+04	8.732e+04	0.51	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	3.831e+04	7.468e+04	0.51	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:34	3.391e+04	7.593e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	2.976e+04	6.662e+04	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	28:33	4.152e+04	5.269e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:20	6.487e+04	4.089e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:35	5.071e+04	3.971e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	36:41	6.010e+04	4.688e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	5.188e+04	4.845e+04	1.07	yes	no	0.858
32	IS	13C-OCDD	42:35	7.534e+04	8.279e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	27:58	4.406e+04	5.482e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:55	6.134e+04	4.886e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:34	9.843e+03				no	1.014

ALS ENVIRONMENTAL
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Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P519397 Samp: 1 Inj: 1 Acquired: 13-DEC-18 01:20:58
Processed: 14-DEC-18 11:06:52 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.37e+05	6.76e+02	1.4e+03	1.23e+06	1.24e+03	9.9e+02
2	1,2,3,7,8-PeCDF	8.23e+06	3.64e+02	2.3e+04	5.23e+06	1.73e+03	3.0e+03
3	2,3,4,7,8-PeCDF	8.32e+06	3.64e+02	2.3e+04	5.58e+06	1.73e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.83e+06	5.12e+02	1.5e+04	6.46e+06	3.24e+02	2.0e+04
5	1,2,3,6,7,8-HxCDF	8.23e+06	5.12e+02	1.6e+04	6.88e+06	3.24e+02	2.1e+04
6	2,3,4,6,7,8-HxCDF	7.55e+06	5.12e+02	1.5e+04	6.41e+06	3.24e+02	2.0e+04
7	1,2,3,7,8,9-HxCDF	5.88e+06	5.12e+02	1.1e+04	5.00e+06	3.24e+02	1.5e+04
8	1,2,3,4,6,7,8-HpCDF	6.36e+06	4.14e+03	1.5e+03	6.22e+06	5.11e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	4.34e+06	4.14e+03	1.0e+03	4.27e+06	5.11e+03	8.3e+02
10	OCDF	5.14e+06	3.84e+02	1.3e+04	5.73e+06	4.72e+02	1.2e+04
11	2,3,7,8-TCDD	7.29e+05	1.91e+03	3.8e+02	9.45e+05	9.36e+02	1.0e+03
12	1,2,3,7,8-PeCDD	5.63e+06	6.44e+02	8.7e+03	3.52e+06	2.76e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	5.45e+06	3.24e+02	1.7e+04	4.27e+06	2.48e+02	1.7e+04
14	1,2,3,6,7,8-HxCDD	5.33e+06	3.24e+02	1.6e+04	4.28e+06	2.48e+02	1.7e+04
15	1,2,3,7,8,9-HxCDD	5.15e+06	3.24e+02	1.6e+04	4.26e+06	2.48e+02	1.7e+04
16	1,2,3,4,6,7,8-HpCDD	3.85e+06	3.20e+02	1.2e+04	3.76e+06	4.44e+02	8.5e+03
17	OCDD	4.21e+06	3.68e+02	1.1e+04	4.74e+06	3.88e+02	1.2e+04
18	13C-2,3,7,8-TCDF	1.05e+07	5.88e+03	1.8e+03	1.31e+07	3.37e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	1.66e+07	6.28e+02	2.6e+04	1.06e+07	1.12e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	1.75e+07	6.28e+02	2.8e+04	1.09e+07	1.12e+03	9.7e+03
21	13C-1,2,3,4,7,8-HxCDF	7.93e+06	4.72e+02	1.7e+04	1.53e+07	6.48e+02	2.4e+04
22	13C-1,2,3,6,7,8-HxCDF	9.08e+06	4.72e+02	1.9e+04	1.75e+07	6.48e+02	2.7e+04
23	13C-2,3,4,6,7,8-HxCDF	8.45e+06	4.72e+02	1.8e+04	1.66e+07	6.48e+02	2.6e+04
24	13C-1,2,3,7,8,9-HxCDF	6.52e+06	4.72e+02	1.4e+04	1.26e+07	6.48e+02	2.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.88e+06	1.04e+03	5.7e+03	1.29e+07	9.58e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.13e+06	1.04e+03	4.0e+03	9.28e+06	9.58e+03	9.7e+02
27	13C-2,3,7,8-TCDD	7.33e+06	5.01e+03	1.5e+03	9.32e+06	2.33e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	1.16e+07	3.32e+02	3.5e+04	7.26e+06	5.96e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.05e+07	1.31e+03	8.0e+03	8.35e+06	5.72e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	1.05e+07	1.31e+03	8.0e+03	8.27e+06	5.72e+02	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.68e+06	5.48e+02	1.4e+04	7.29e+06	3.64e+02	2.0e+04
32	13C-OCDD	7.40e+06	4.44e+02	1.7e+04	8.27e+06	2.88e+02	2.9e+04
33	13C-1,2,3,4-TCDD	7.98e+06	5.01e+03	1.6e+03	9.97e+06	2.33e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.02e+07	1.31e+03	7.8e+03	8.19e+06	5.72e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.71e+06	1.10e+03	1.5e+03			

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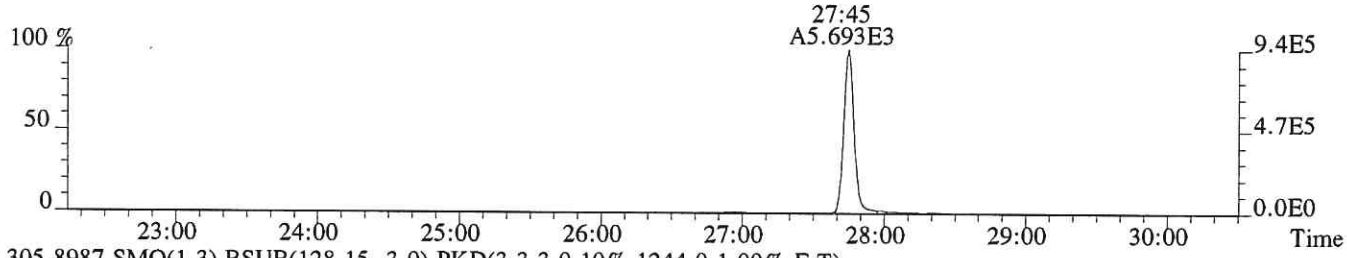
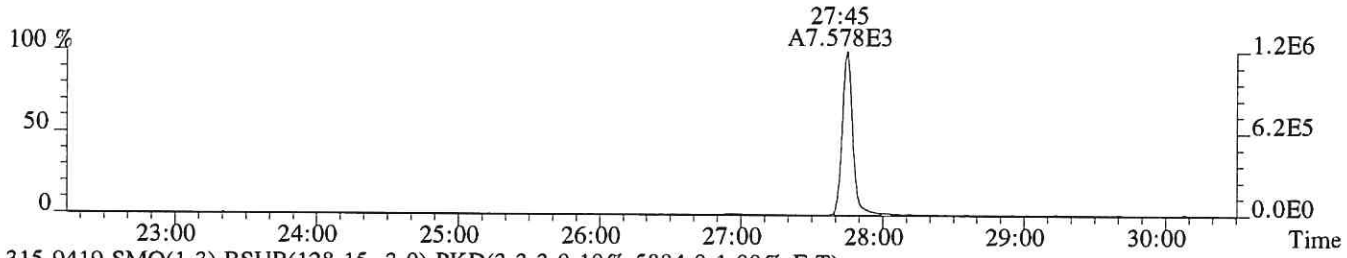
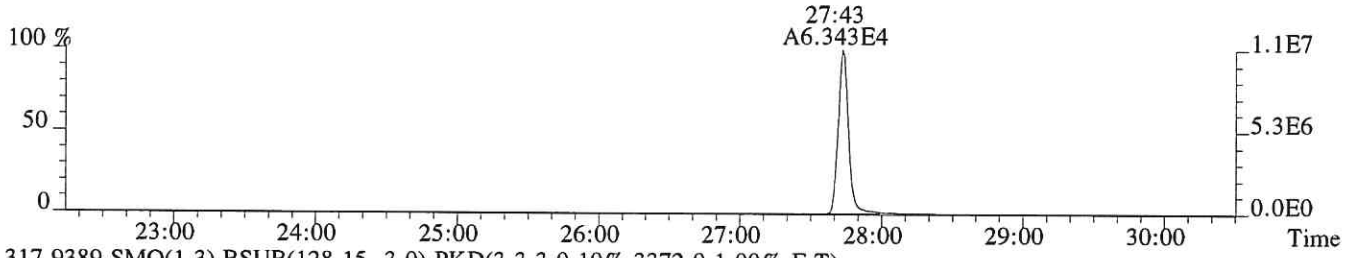
File:P519397 #1-587 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



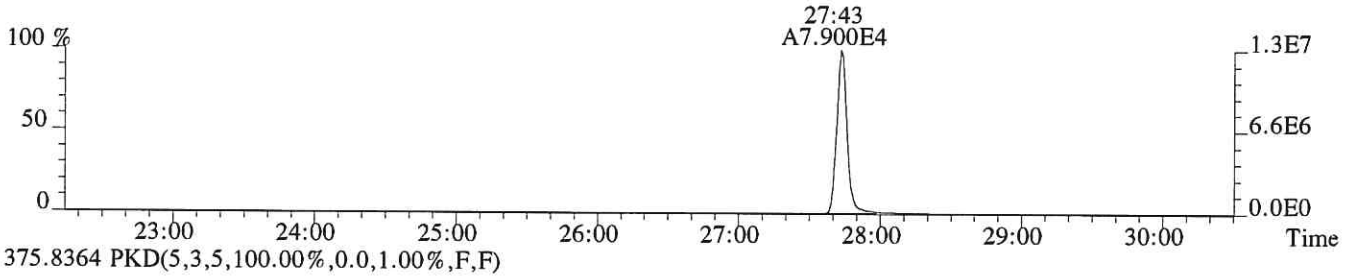
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



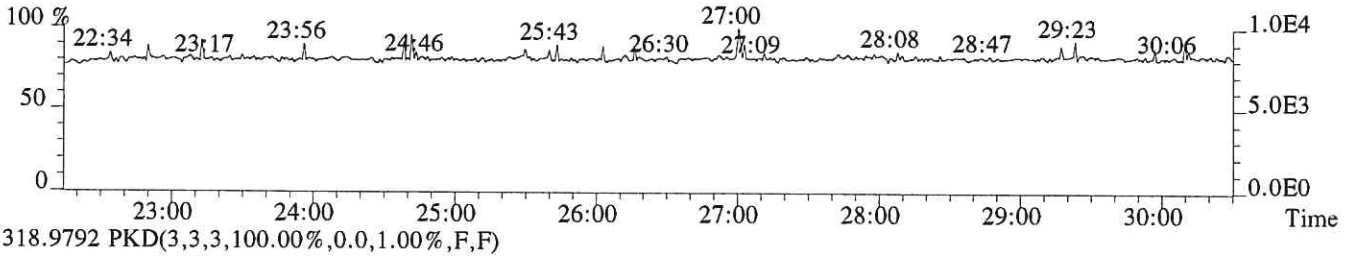
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5884.0,1.00%,F,T)



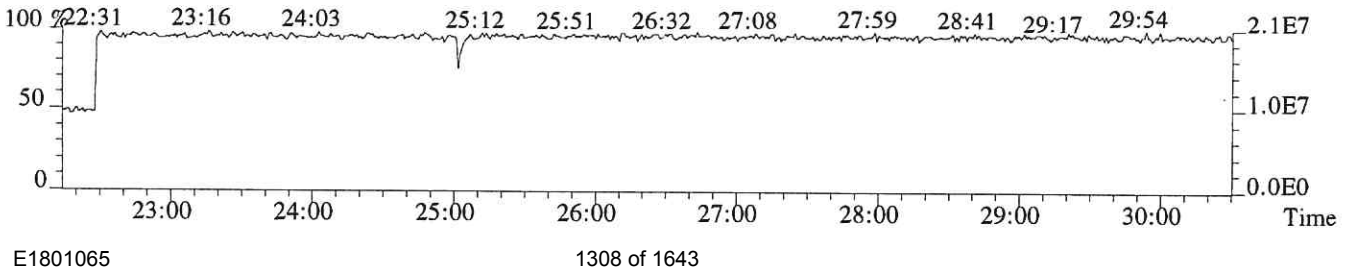
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3372.0,1.00%,F,T)



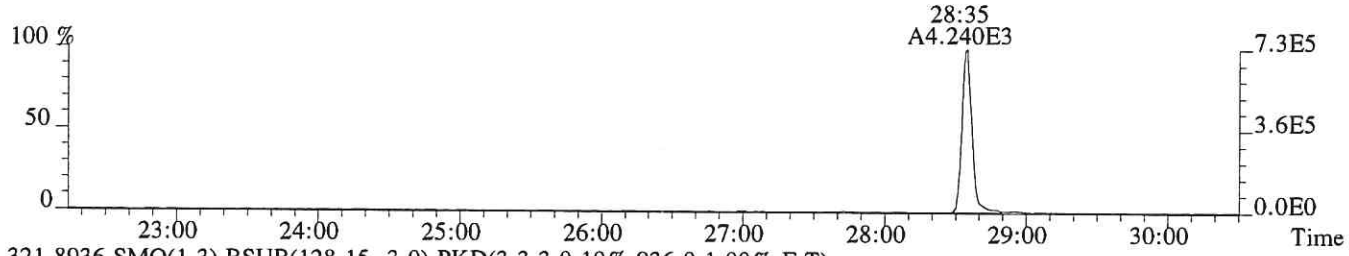
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



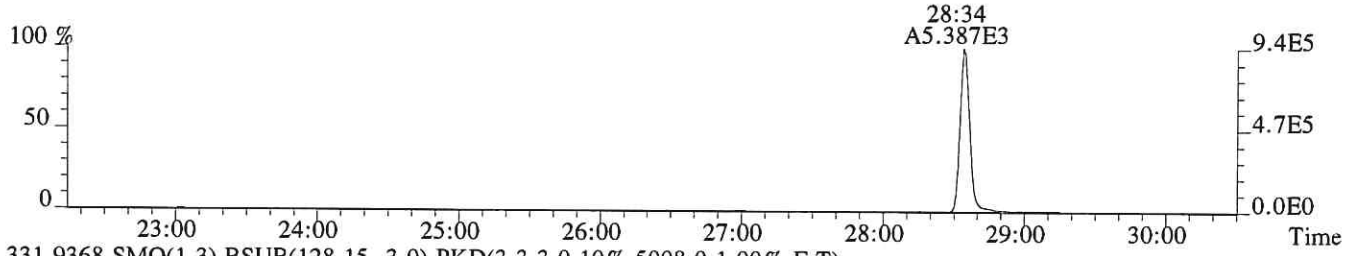
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



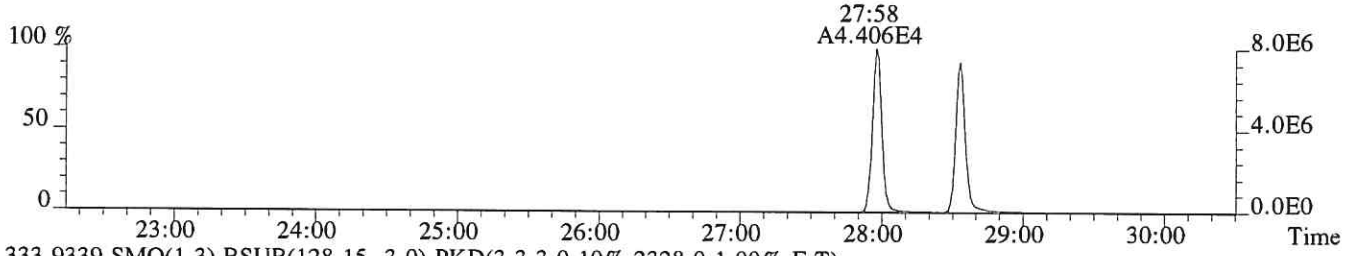
File:P519397 #1-587 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



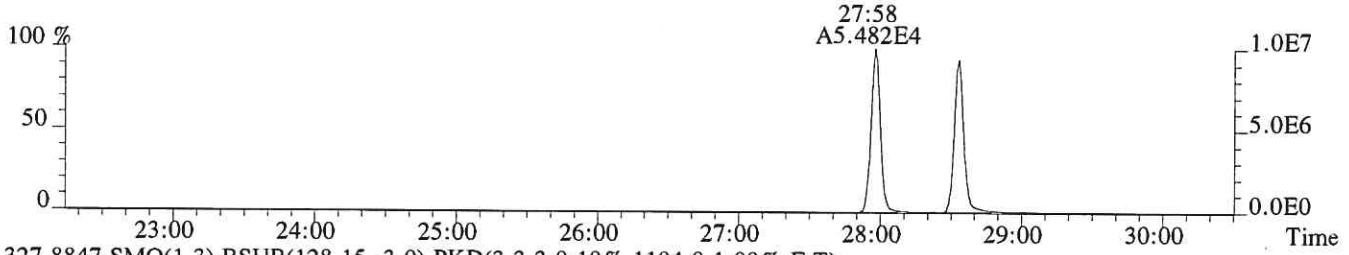
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



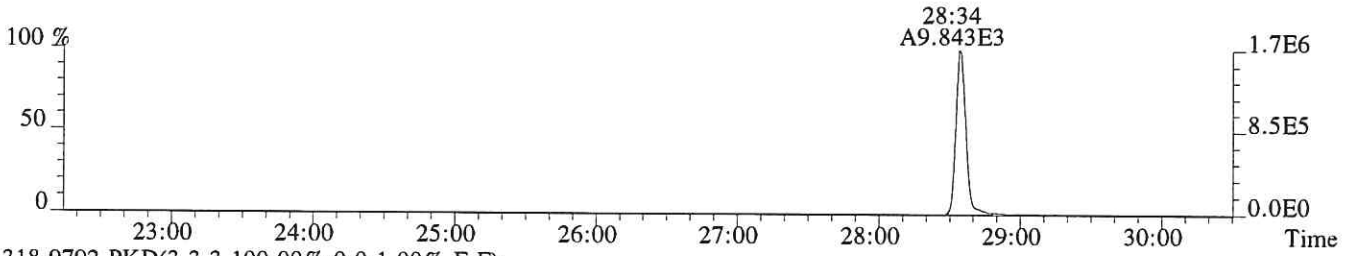
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5008.0,1.00%,F,T)



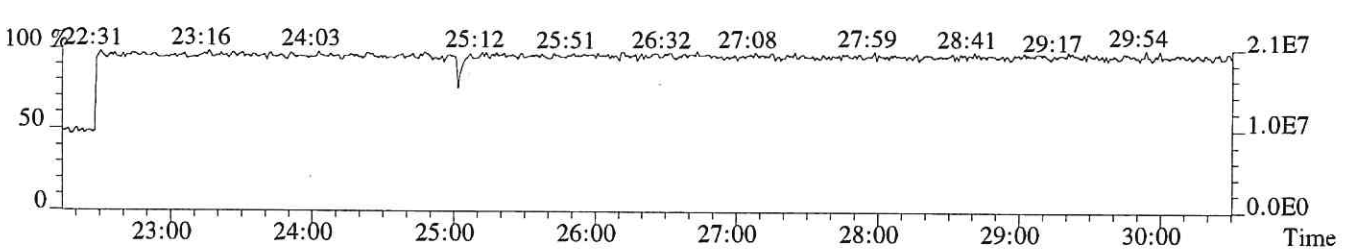
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2328.0,1.00%,F,T)



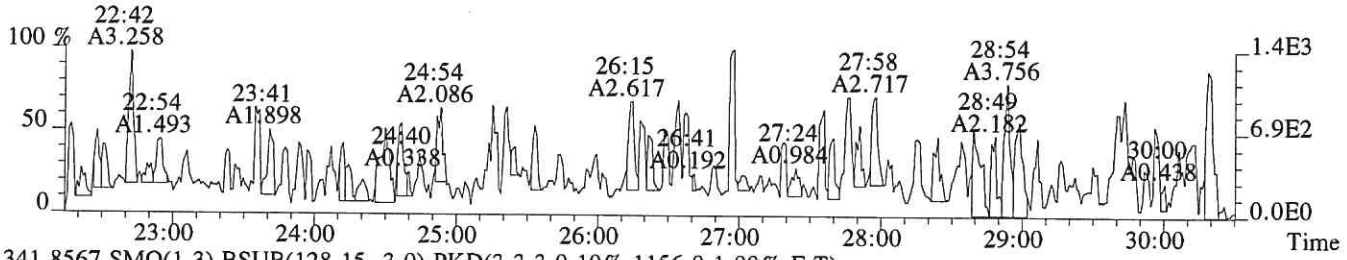
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



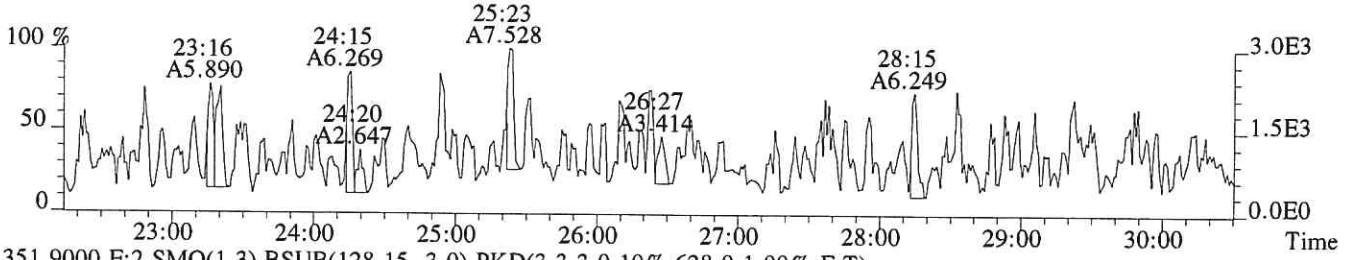
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



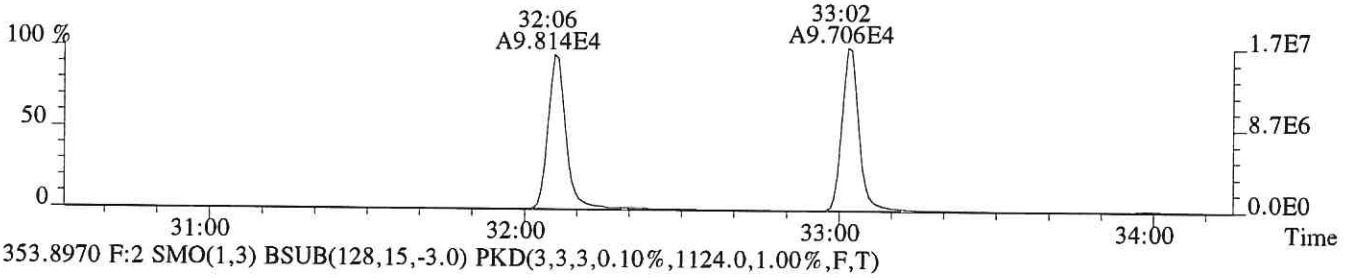
File:P519397 #1-587 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



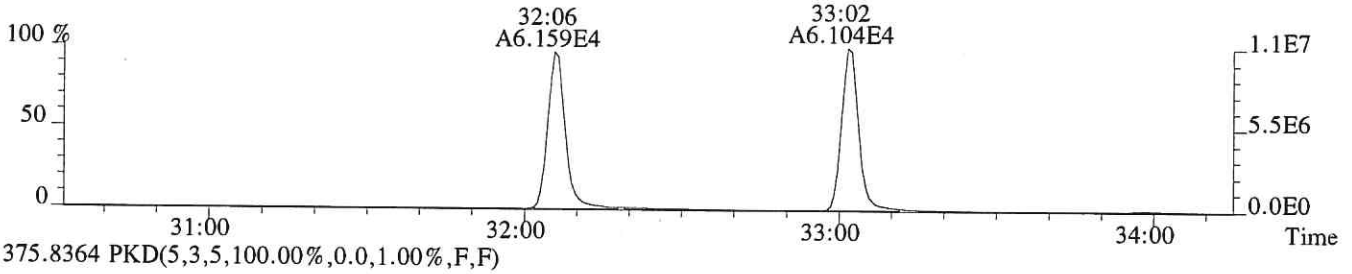
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



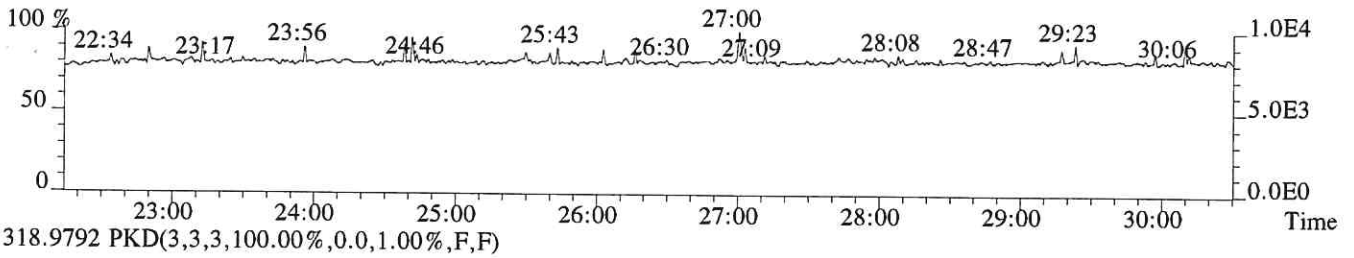
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



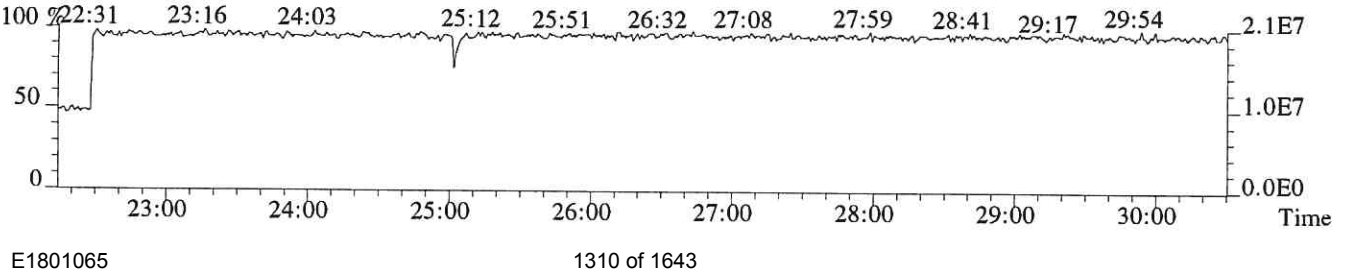
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



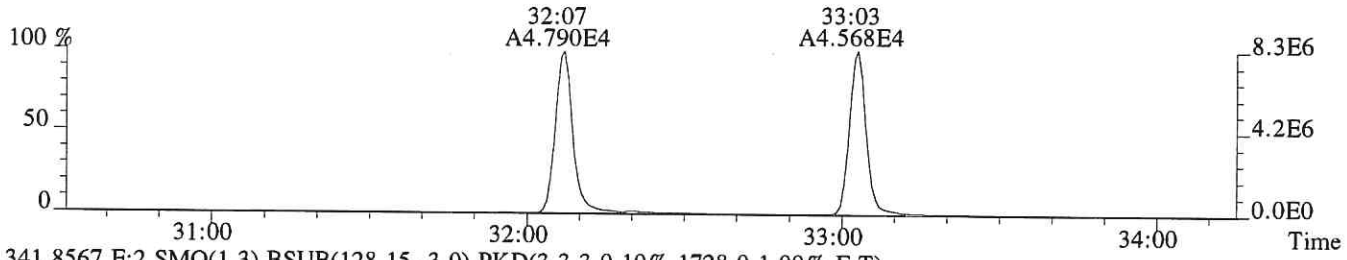
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



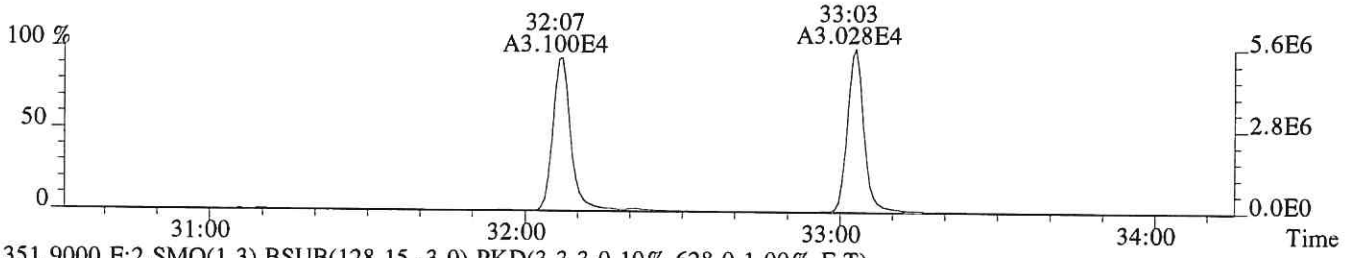
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



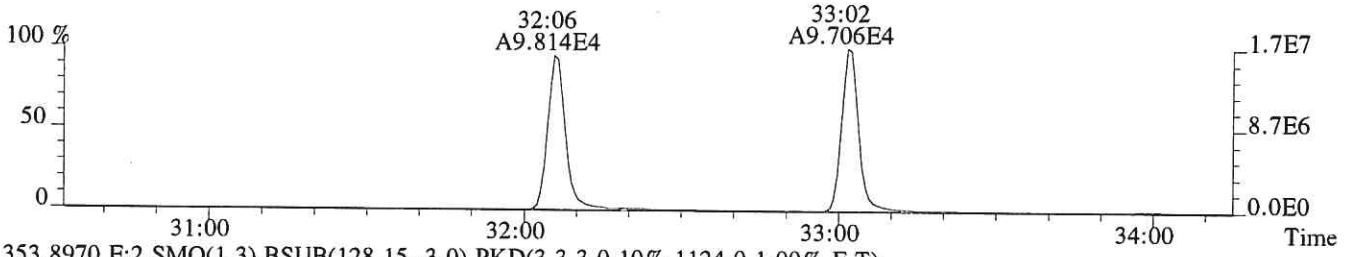
File:P519397 #1-335 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



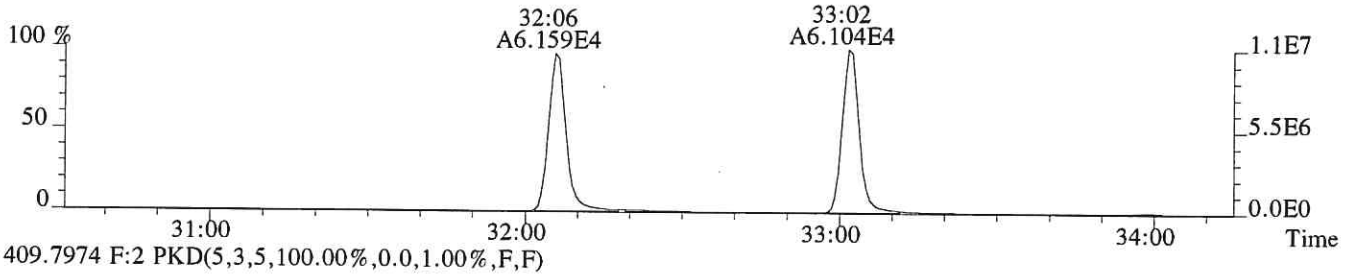
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



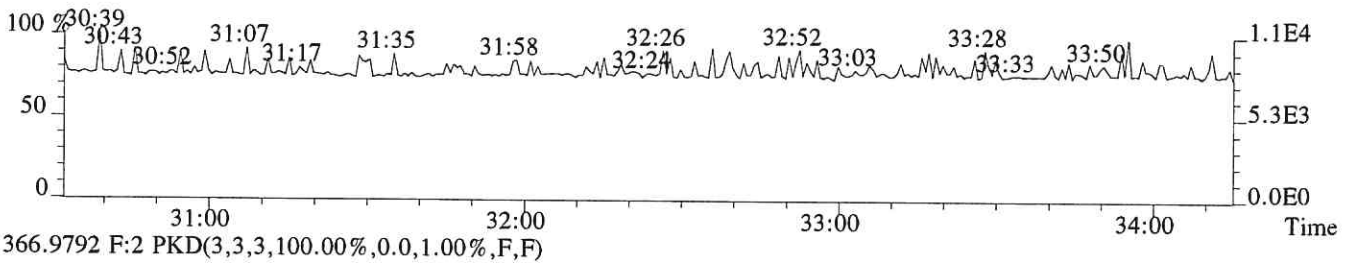
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



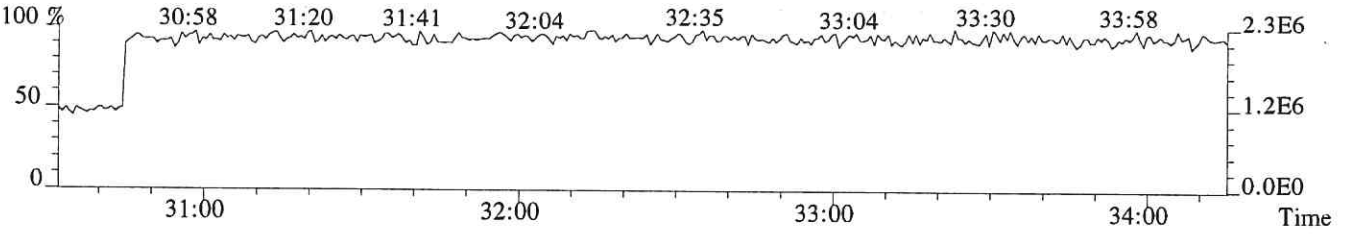
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



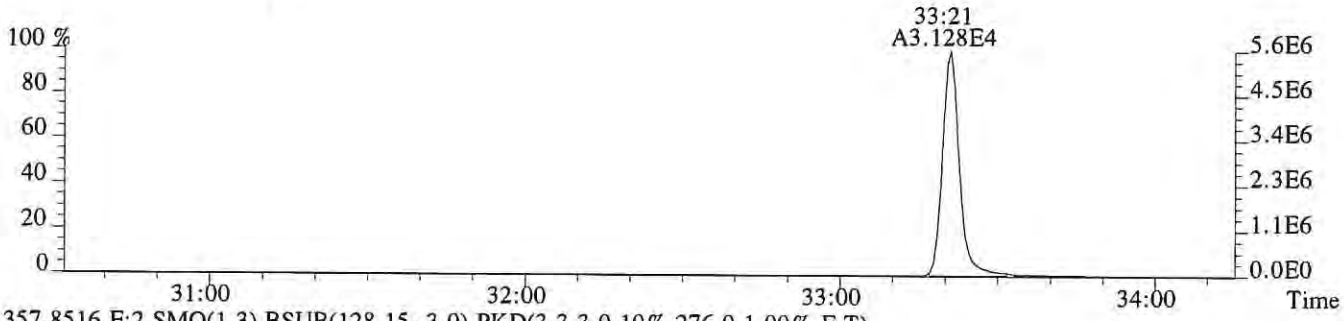
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



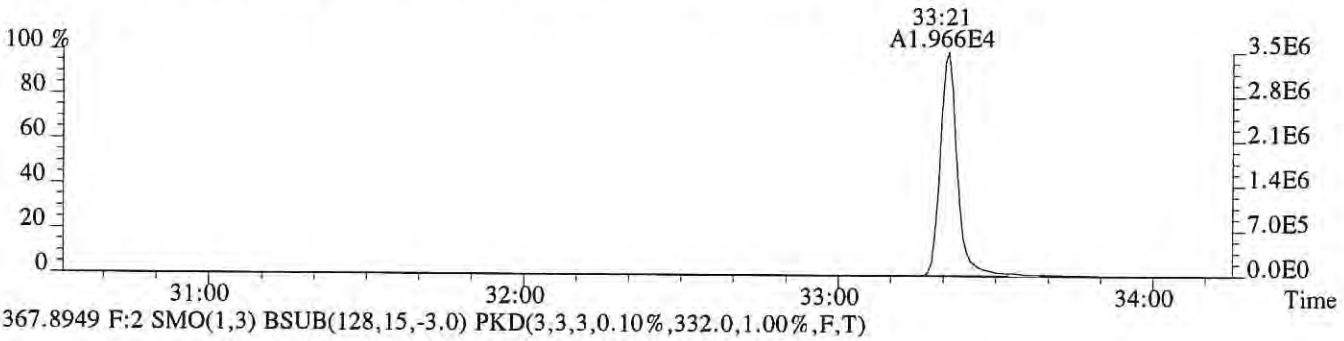
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



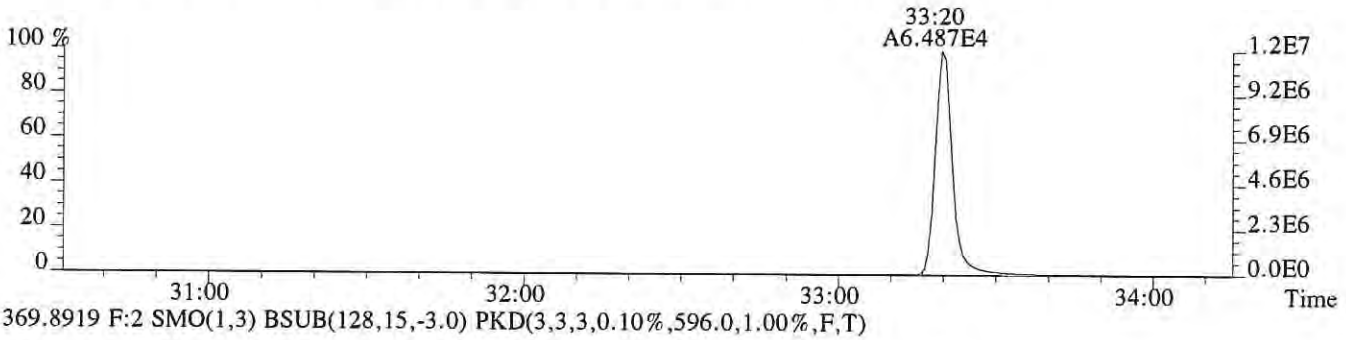
File:P519397 #1-335 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



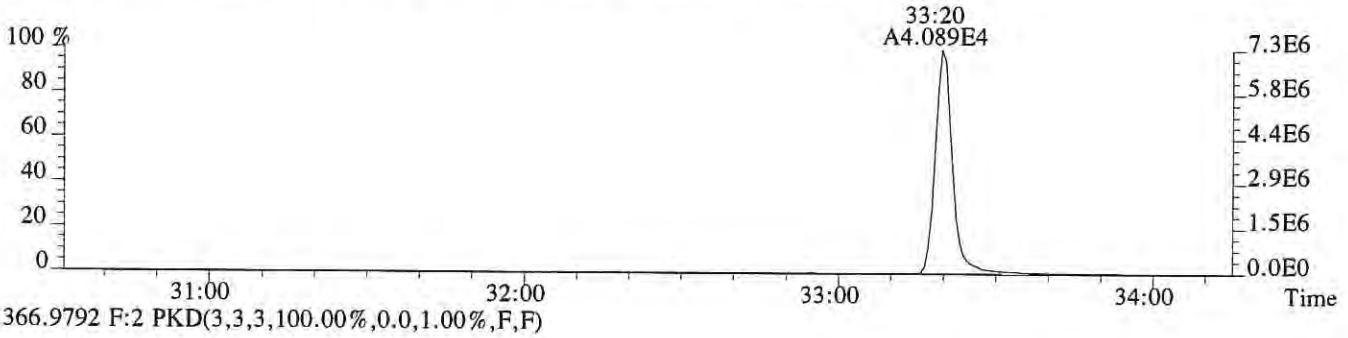
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)



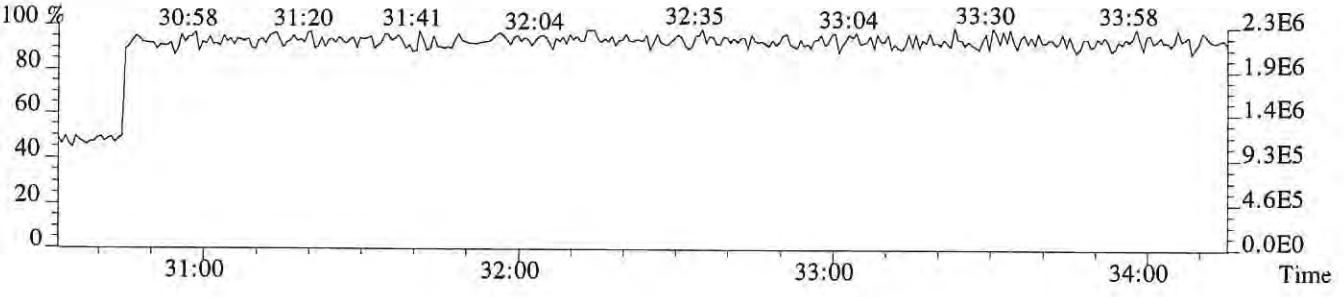
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



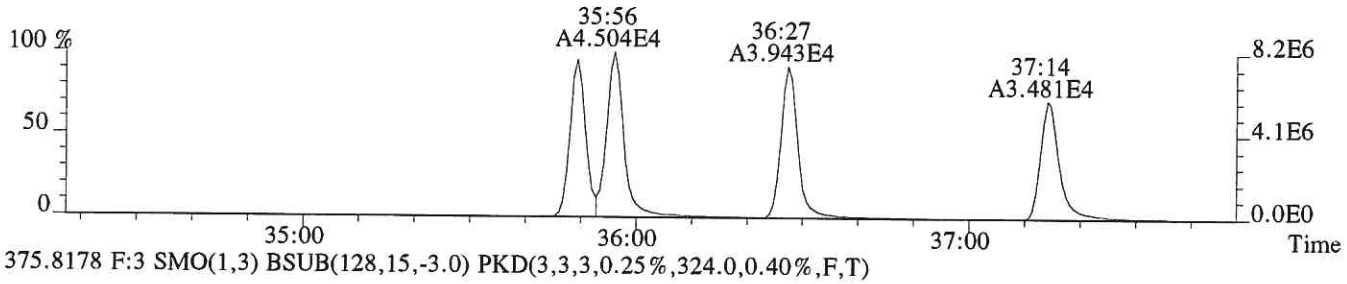
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



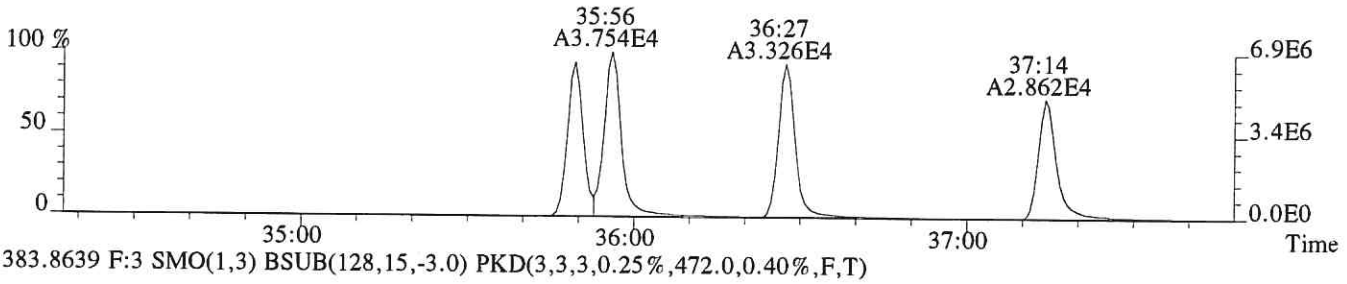
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



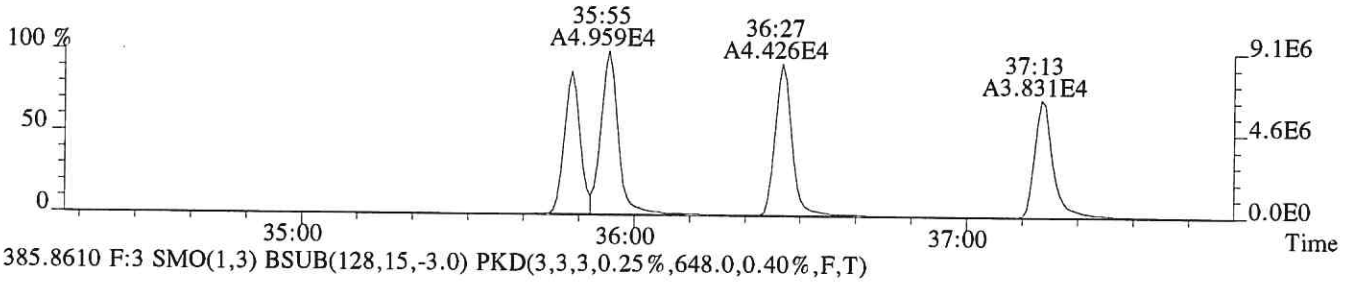
File:P519397 #1-317 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



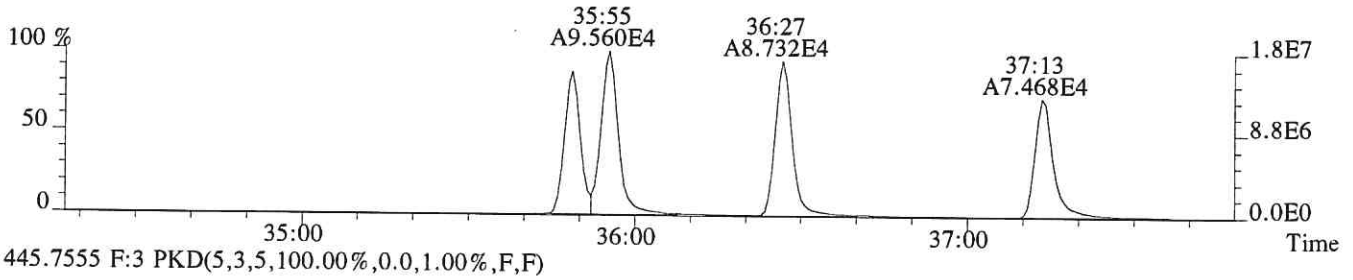
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



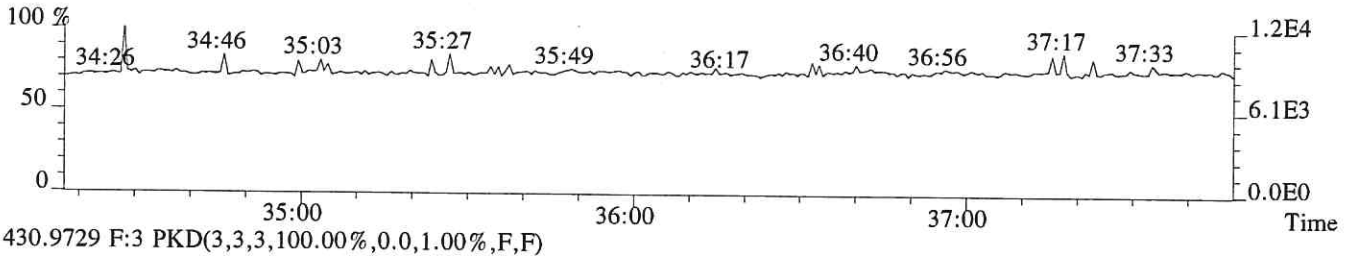
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



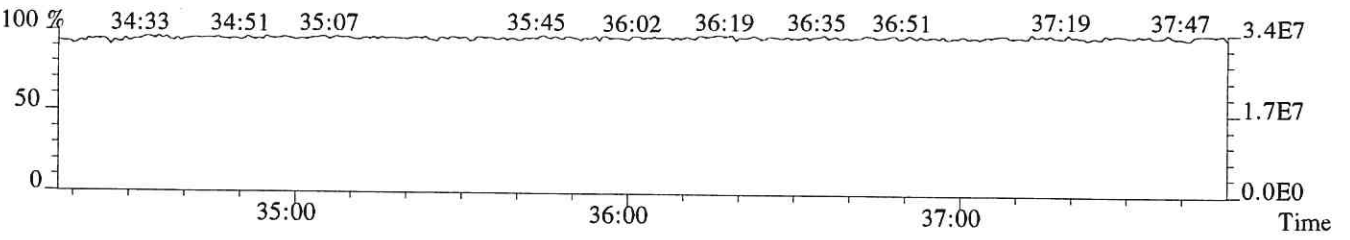
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



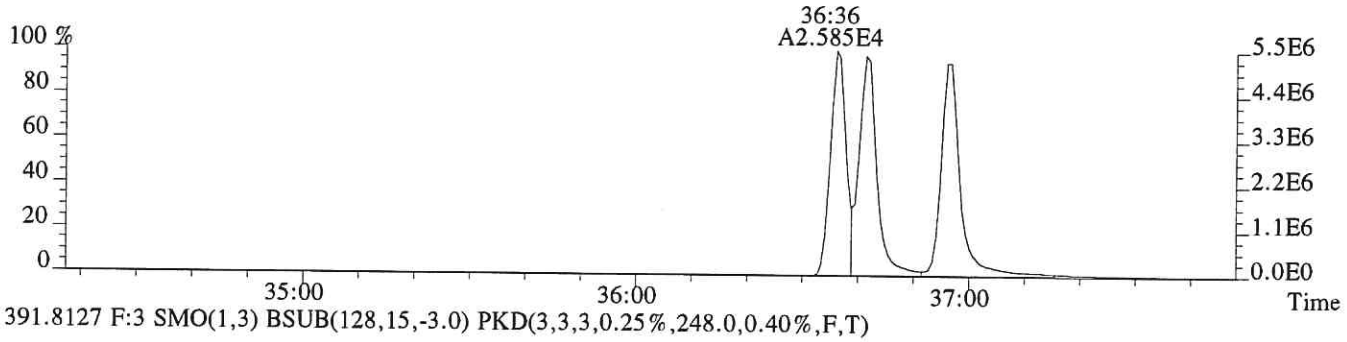
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



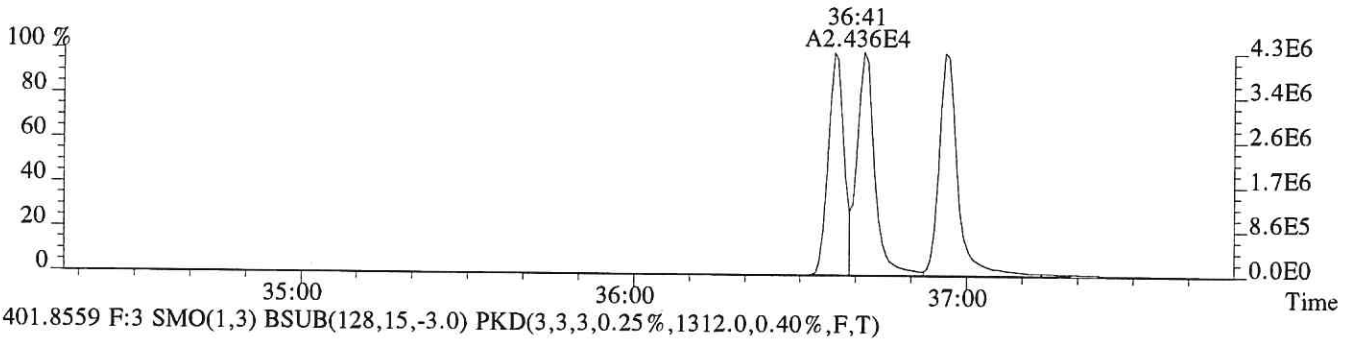
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



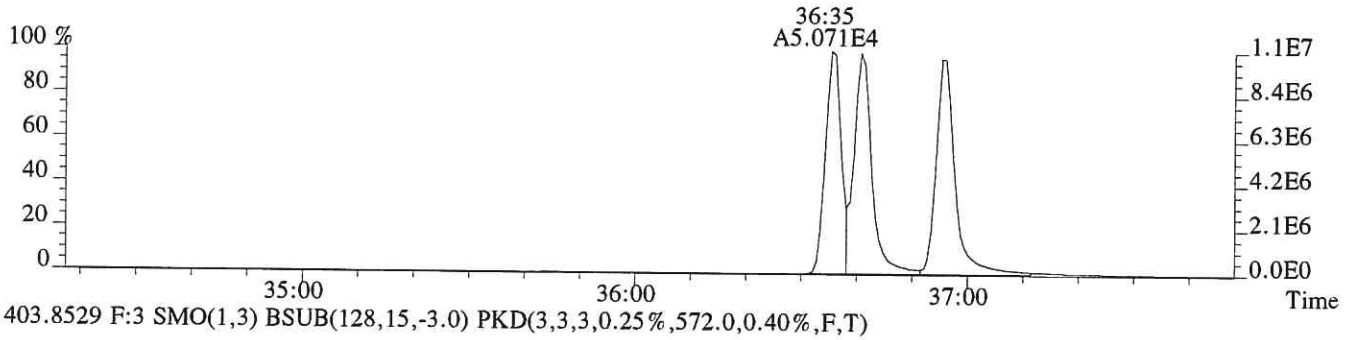
File:P519397 #1-317 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



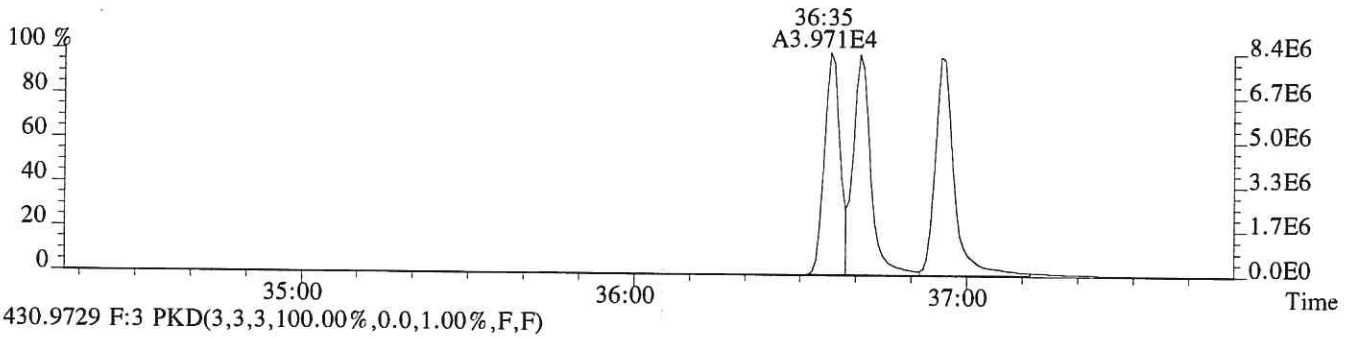
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



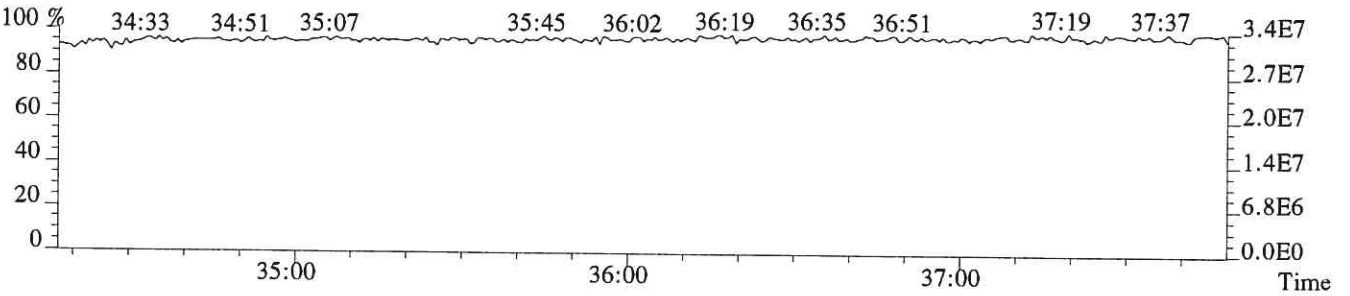
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



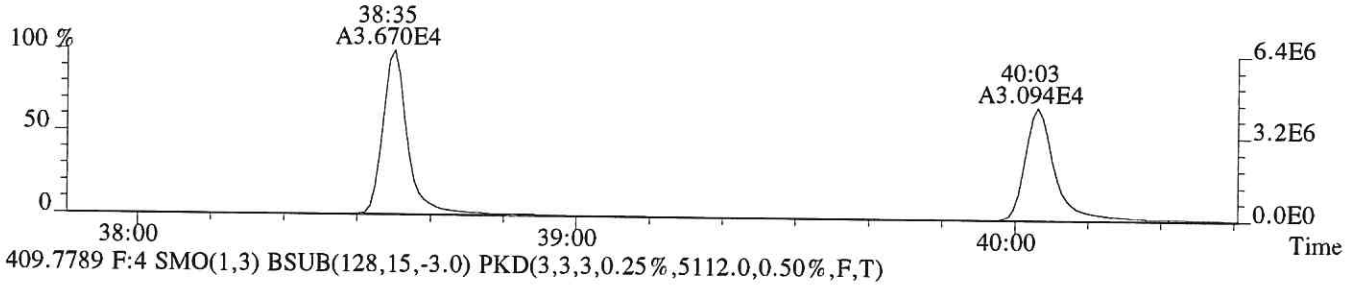
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



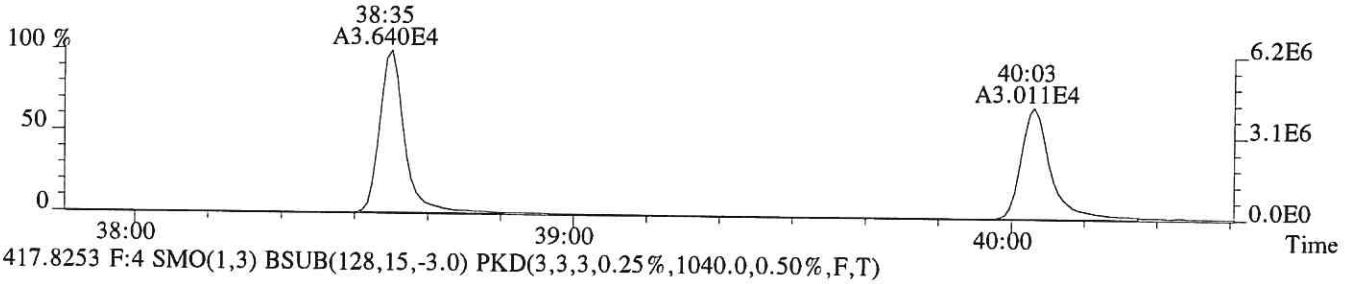
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



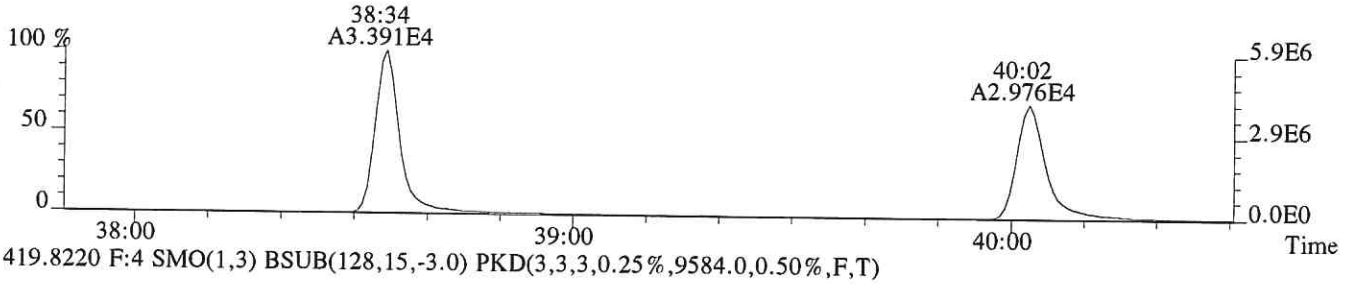
File:P519397 #1-241 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4144.0,0.50%,F,T)



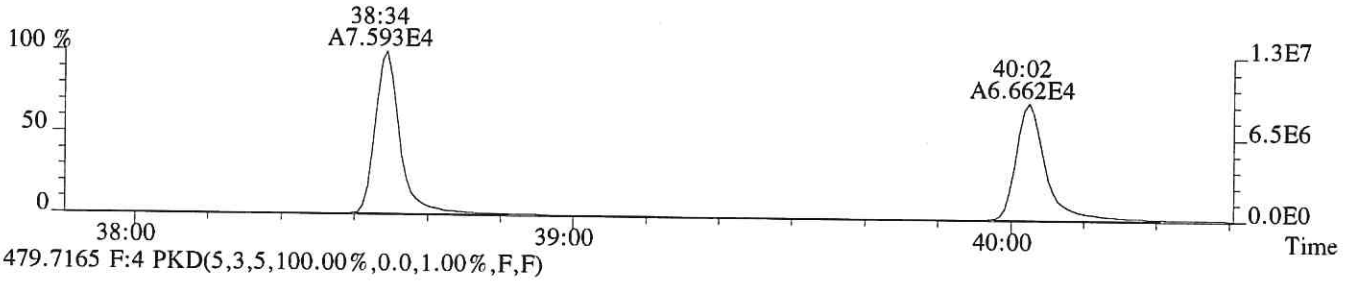
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5112.0,0.50%,F,T)



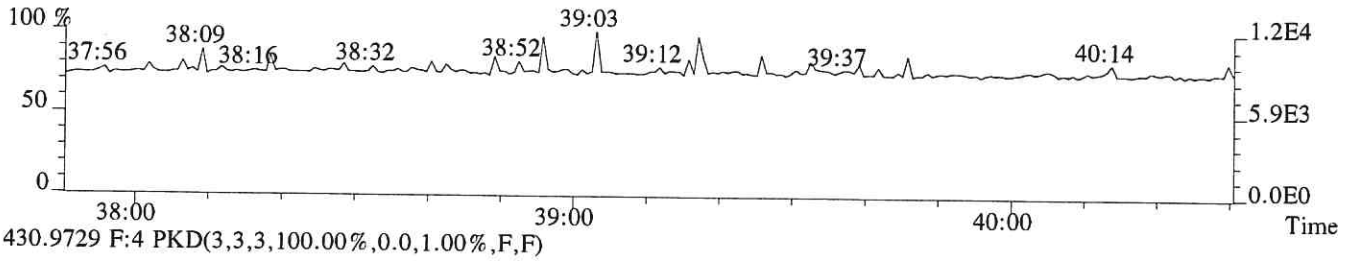
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.50%,F,T)



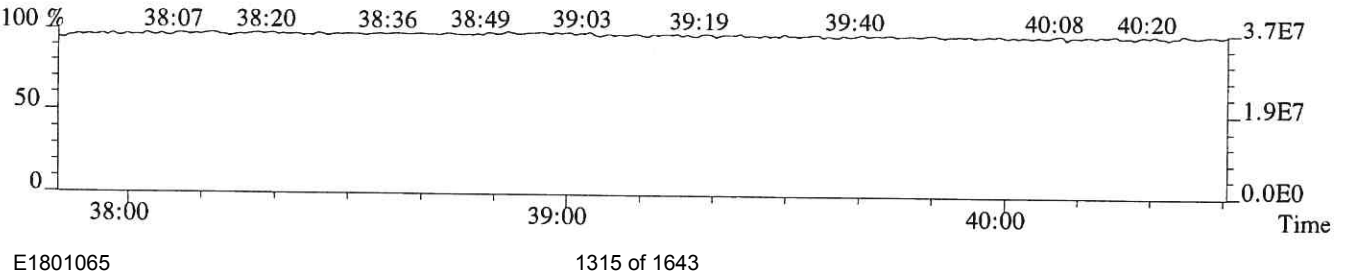
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9584.0,0.50%,F,T)



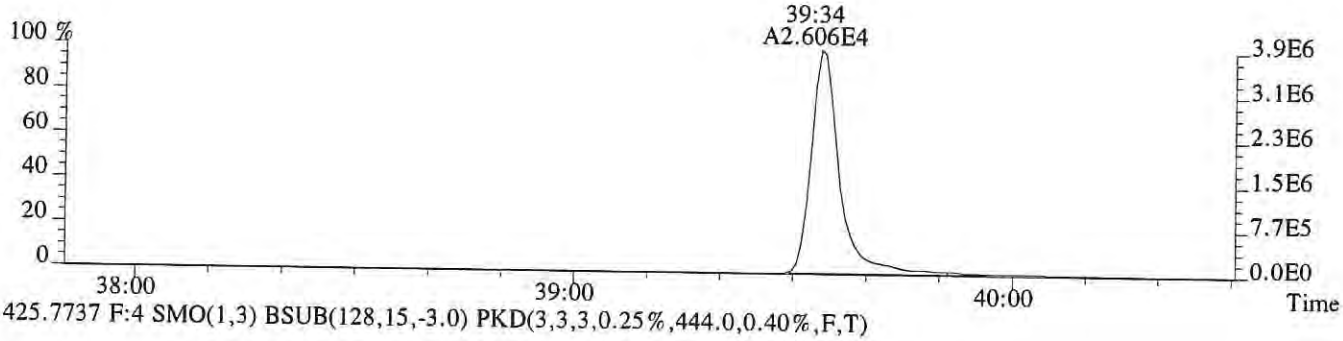
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



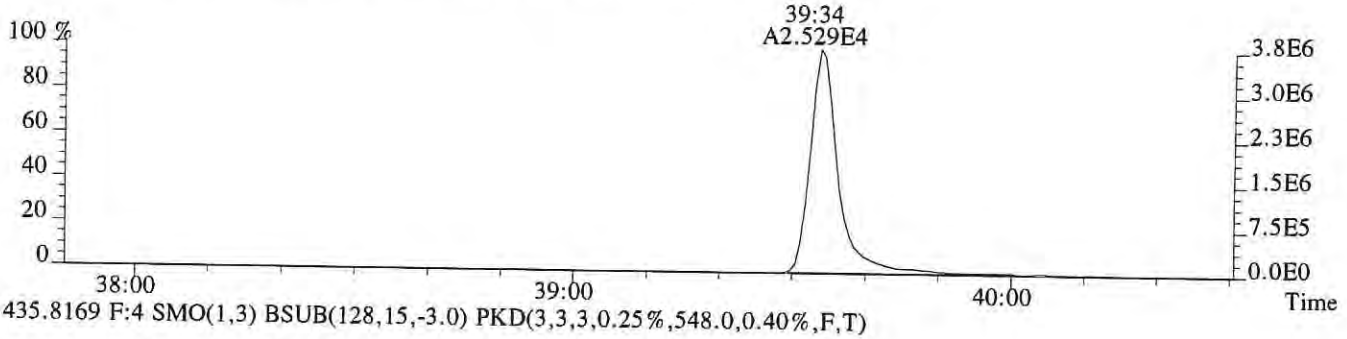
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



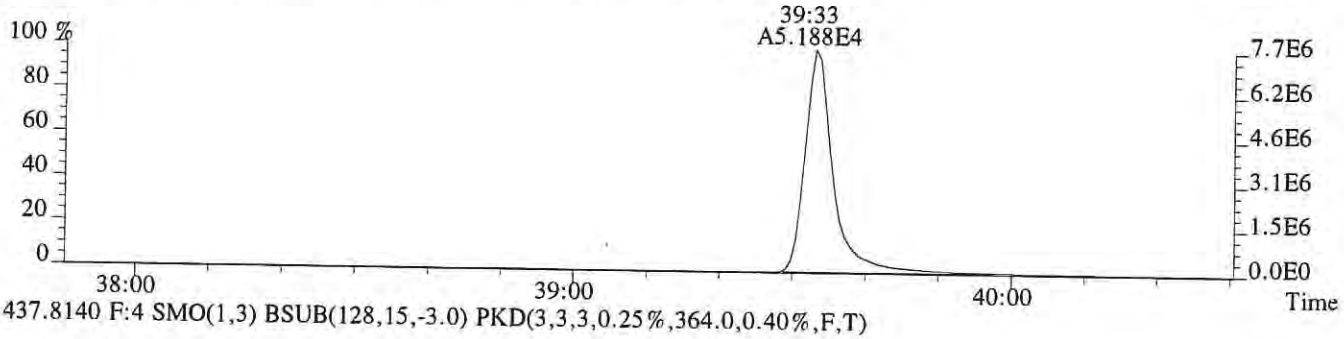
File:P519397 #1-241 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



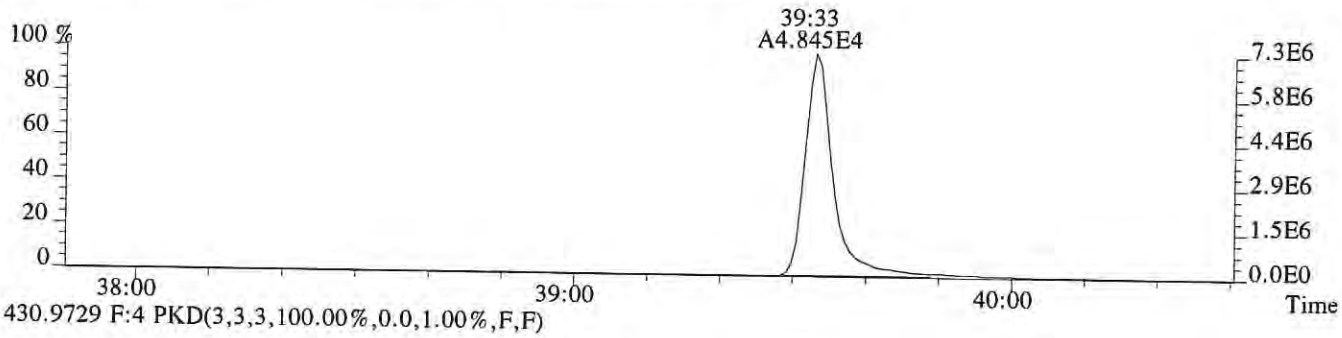
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



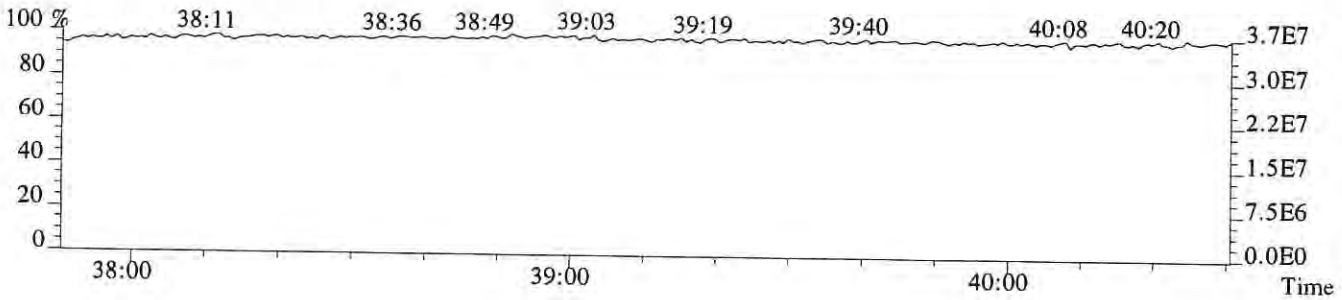
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



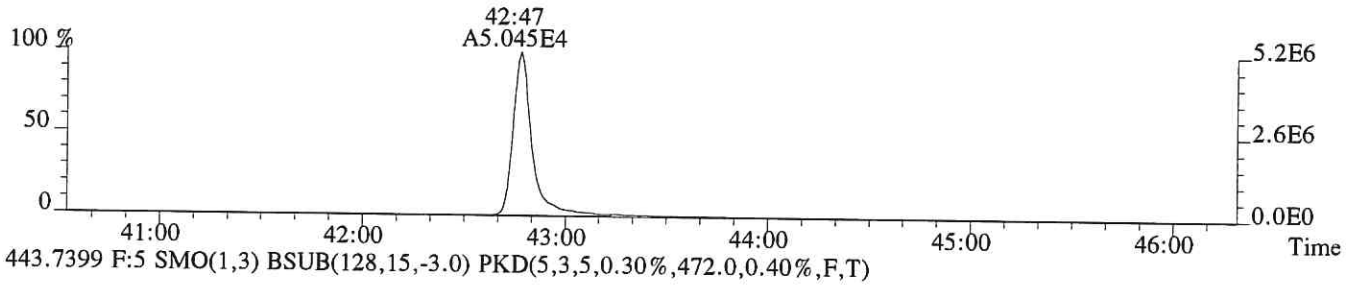
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



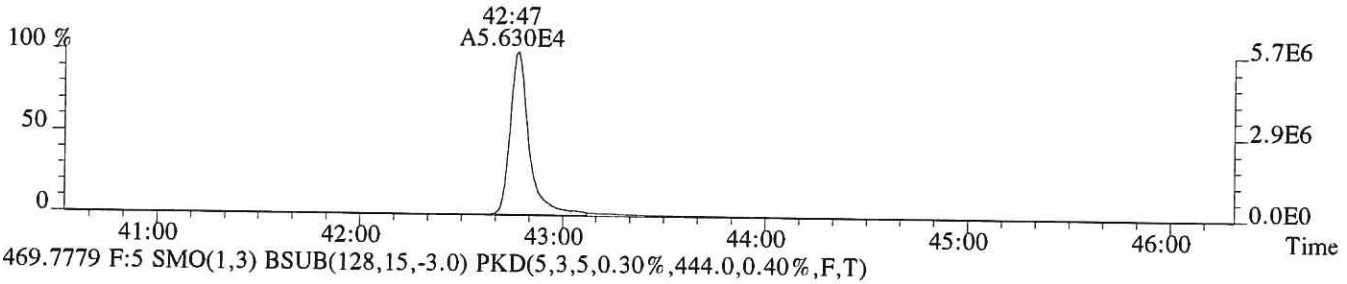
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



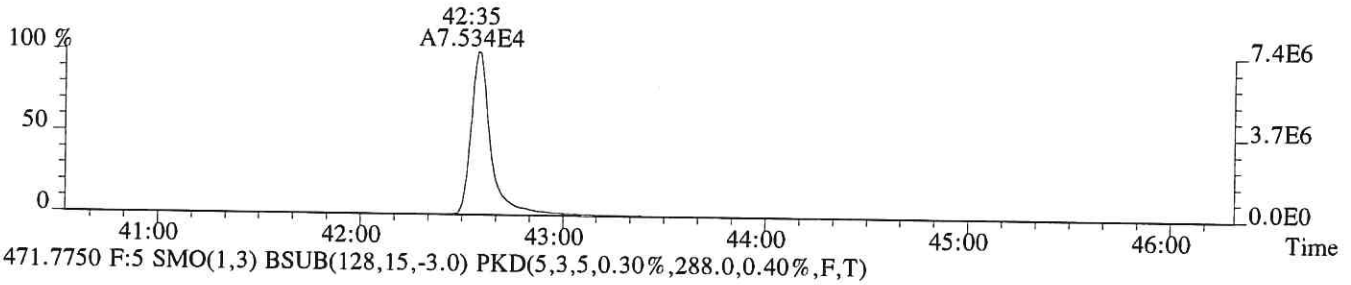
File:P519397 #1-520 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



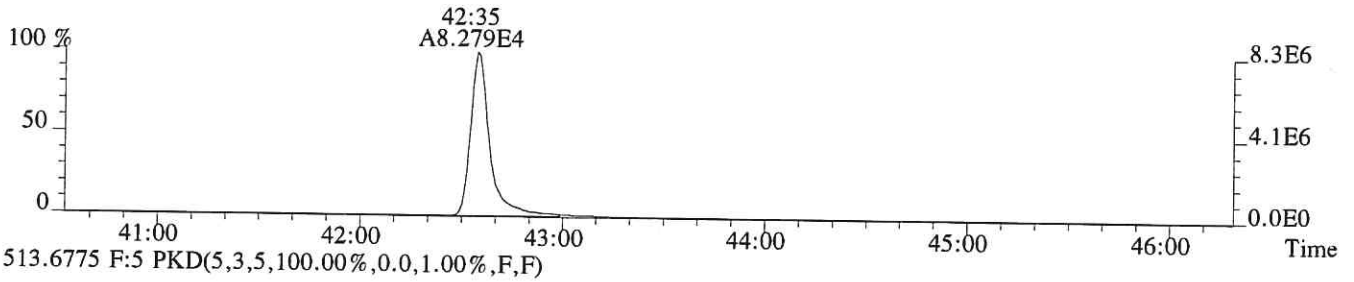
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



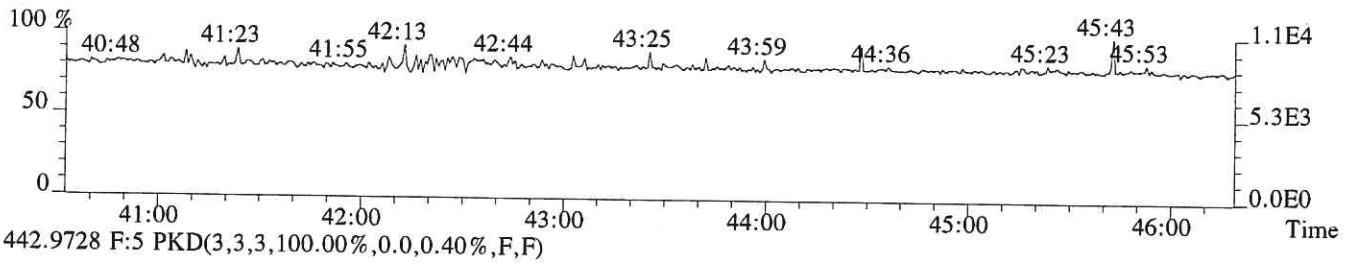
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



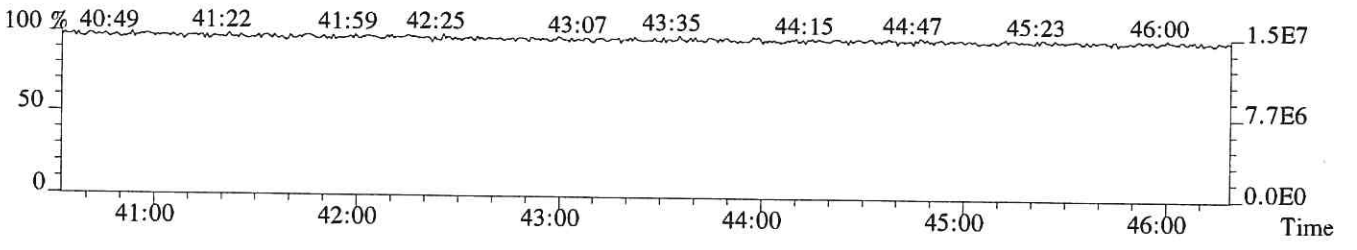
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



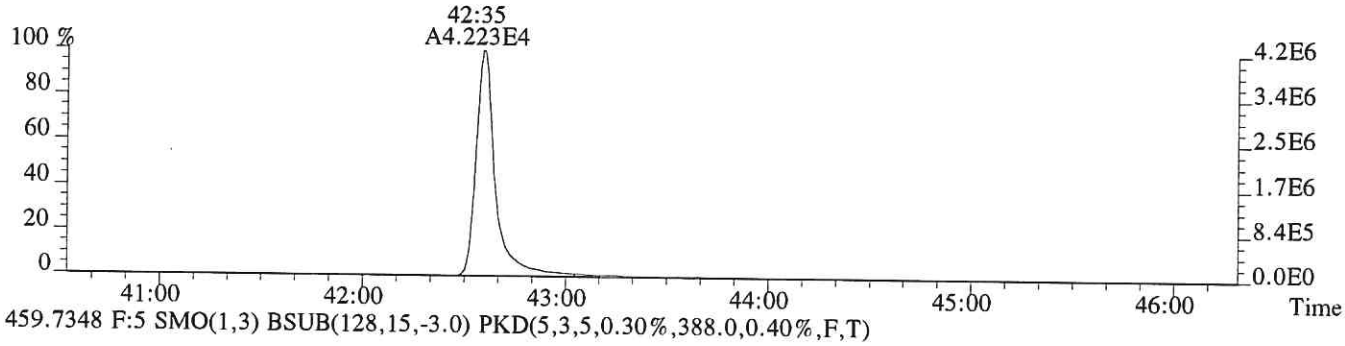
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



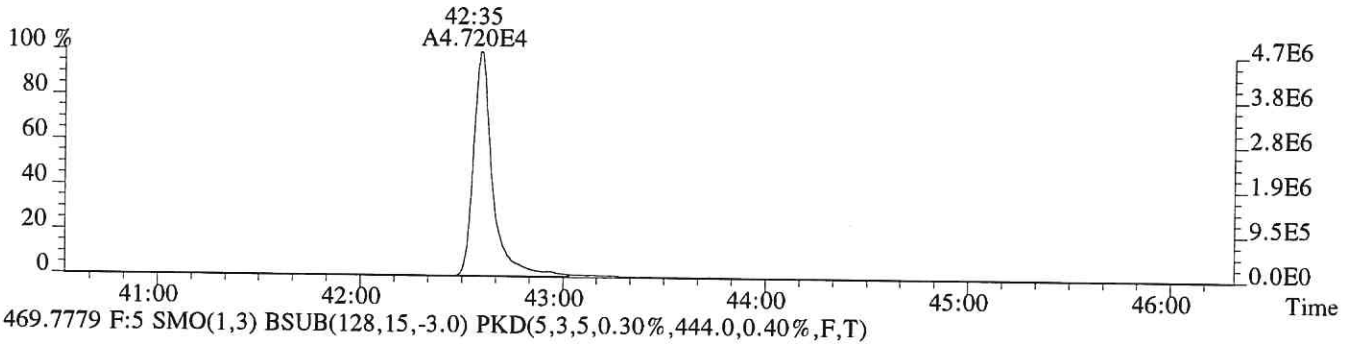
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



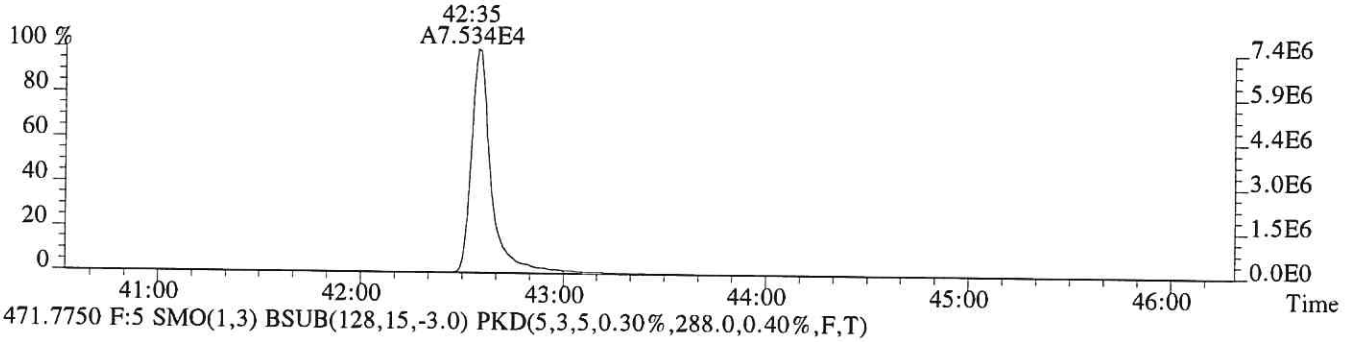
File:P519397 #1-520 Acq:13-DEC-2018 01:20:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:194503
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



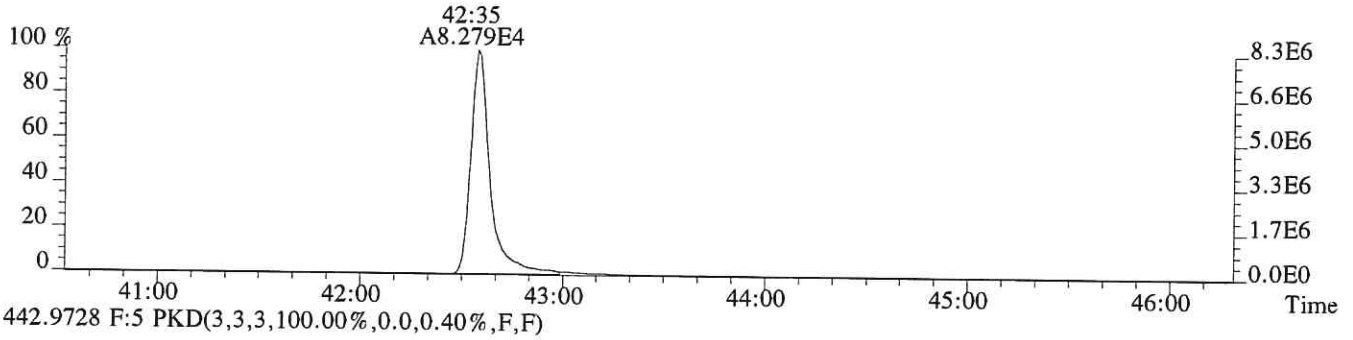
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



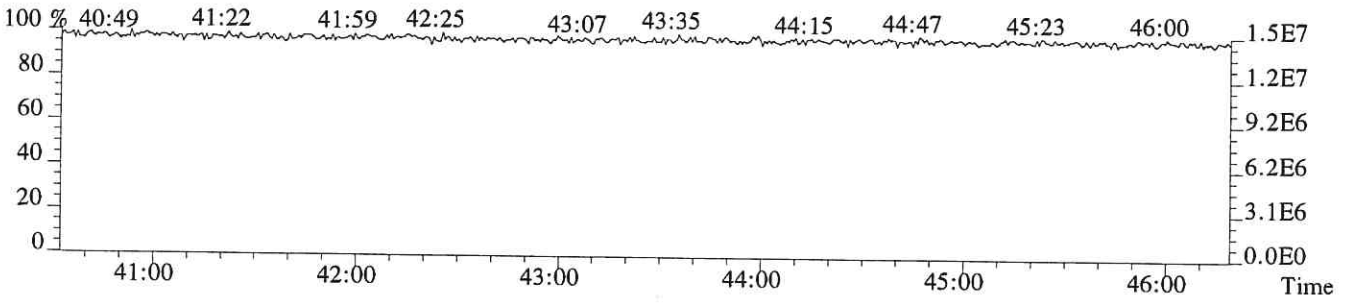
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P0159607

Date: 12/07/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P615967	7-DEC-18	09:44:40
192977	WINDOW DEFINE	P615968	7-DEC-18	10:37:36
METHOD BLANK	EQ1800482-01	P615969	7-DEC-18	11:29:51
METHOD BLANK	EQ1800487-01	P615970	7-DEC-18	12:18:15
METHOD BLANK	EQ1800494-01	P615971	7-DEC-18	13:07:22
METHOD BLANK	EQ1800491-01	P615972	7-DEC-18	13:56:34
110669-3	E1801081-003	P615973	7-DEC-18	14:47:00
SL0538	E1801055-001	P615974	7-DEC-18	15:35:19
SL0545	E1801055-002	P615975	7-DEC-18	16:24:30
SL0546	E1801055-003	P615976	7-DEC-18	17:13:40
SL0549	E1801055-004	P615977	7-DEC-18	18:02:47
SL0550	E1801055-005	P615978	7-DEC-18	18:51:58
SL0551	E1801055-006	P615979	7-DEC-18	19:41:01
LCS	EQ1800494-02	P615980	7-DEC-18	20:30:09
DLCS	EQ1800494-03	P615981	7-DEC-18	21:19:19

E1801065

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181207A.SPL
Last Modified: Monday, December 10, 2018 07:08:26 Central Standard Time
Printed: Monday, December 10, 2018 07:08:28 Central Standard Time

Page Position (1, 1)

Opus4: P615967res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/7/18	09:44	P615967	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	HRMS check 09:41
2		12:37	P615968	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		11:29	P615969	EQ1800482-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		12:18	P615970	EQ1800487-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		13:07	P615971	EQ1800494-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:56	P615972	EQ1800491-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:47	P615973	E1801081-003	E1801081-003	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:35	P615974	E1801055-001	E1801055-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:24	P615975	E1801055-002	E1801055-002	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:13	P615976	E1801055-003	E1801055-003	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:02	P615977	E1801055-004	E1801055-004	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:51	P615978	E1801055-005	E1801055-005	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:41	P615979	E1801055-006	E1801055-006	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:30	P615980	EQ1800494-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:19	P615981	EQ1800494-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:15		
16		22:16	P615982	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 22:16
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

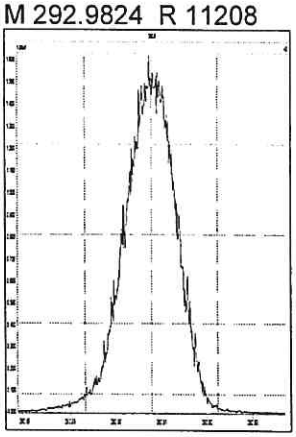
1321 of 1643

QC 12/11/18

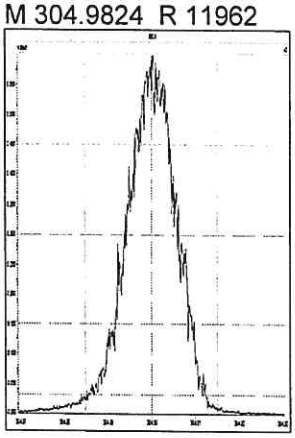
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:41:36 Central Standard Time

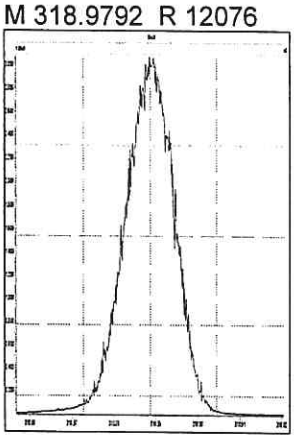
M 292.9824 R 11208



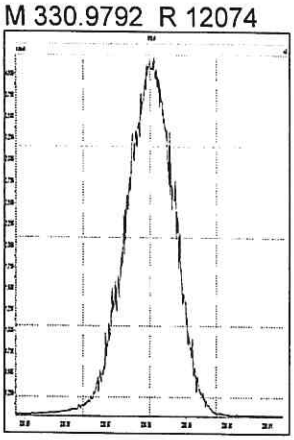
M 304.9824 R 11962



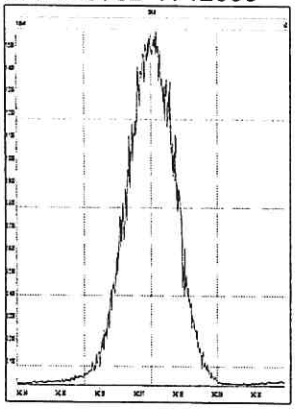
M 318.9792 R 12076



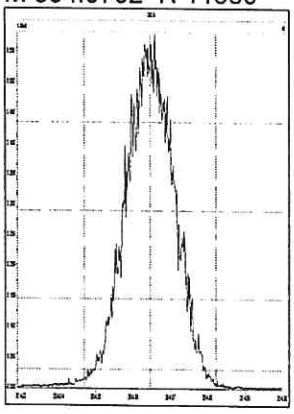
M 330.9792 R 12074



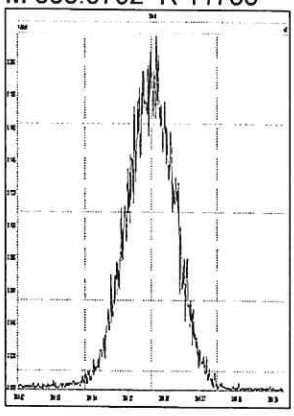
M 342.9792 R 12563



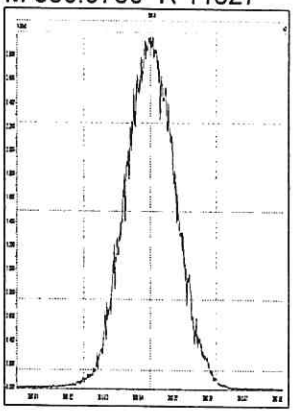
M 354.9792 R 11680



M 366.9792 R 11733



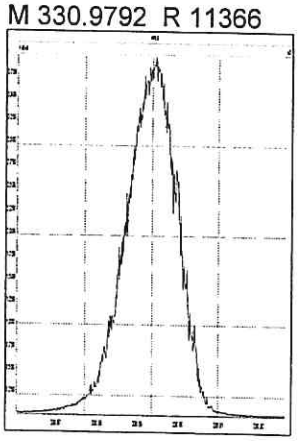
M 380.9760 R 11627



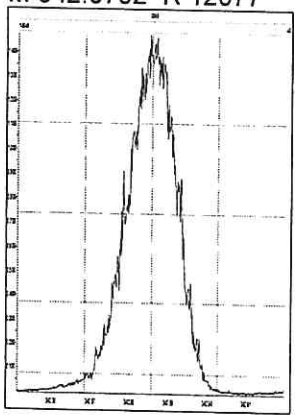
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:42:11 Central Standard Time

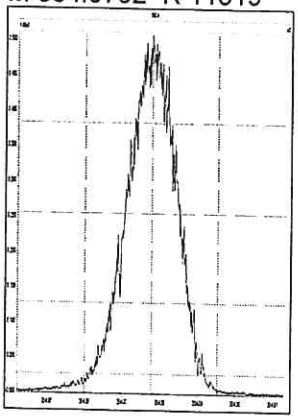
M 330.9792 R 11366



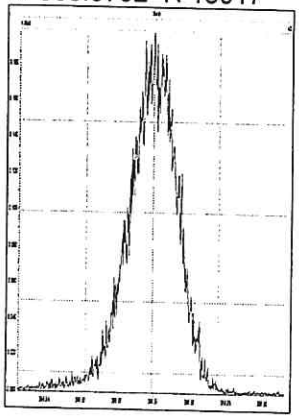
M 342.9792 R 12077



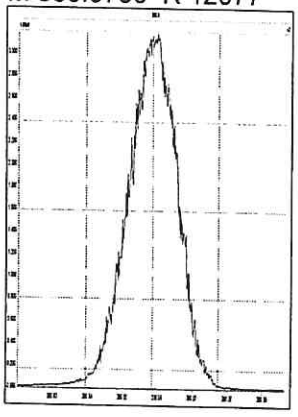
M 354.9792 R 11519



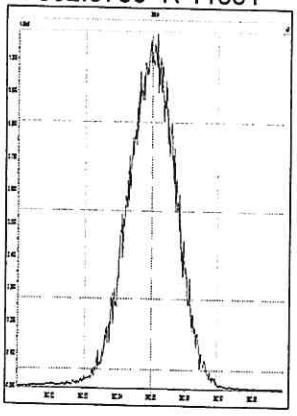
M 366.9792 R 13017



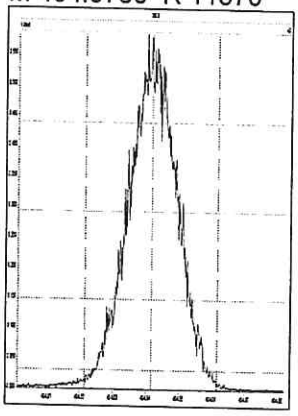
M 380.9760 R 12077



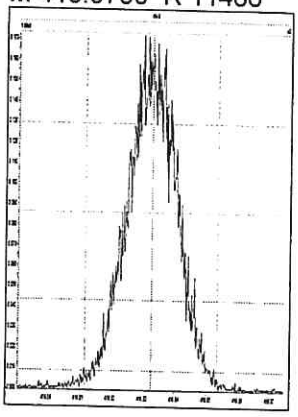
M 392.9760 R 11851



M 404.9760 R 11570



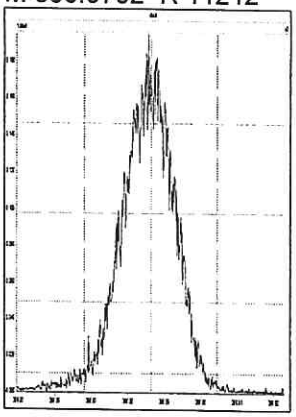
M 416.9760 R 11466



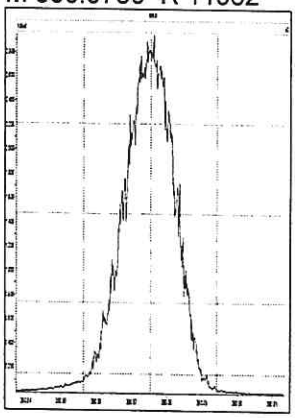
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:42:42 Central Standard Time

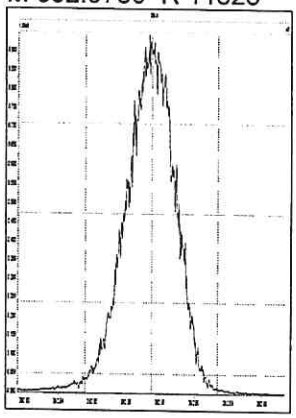
M 366.9792 R 11212



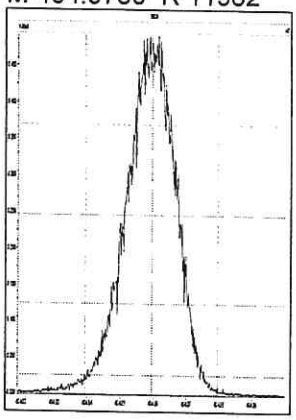
M 380.9760 R 11962



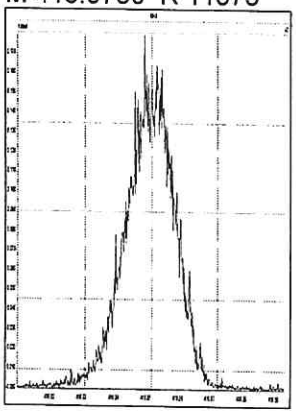
M 392.9760 R 11626



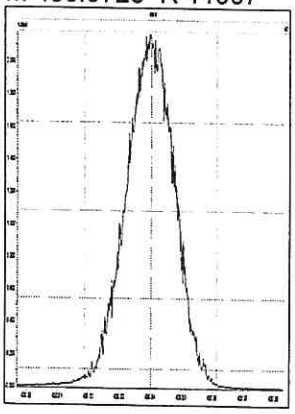
M 404.9760 R 11962



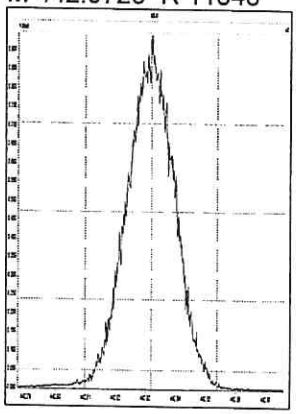
M 416.9760 R 11573



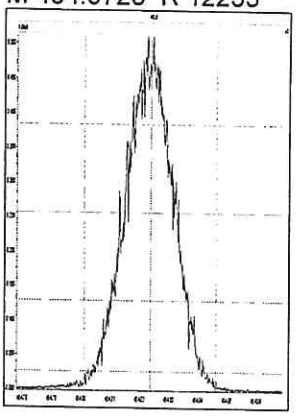
M 430.9728 R 11907



M 442.9728 R 11848



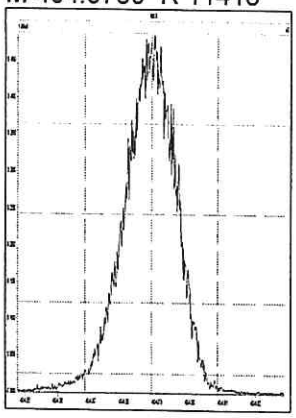
M 454.9728 R 12253



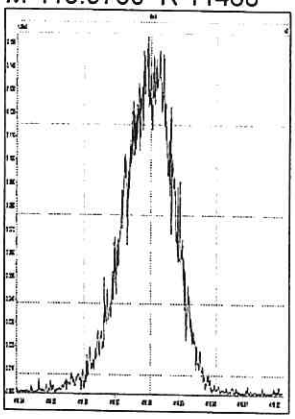
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:43:14 Central Standard Time

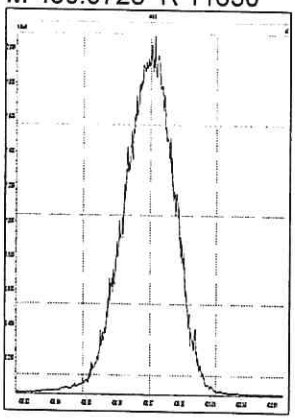
M 404.9760 R 11413



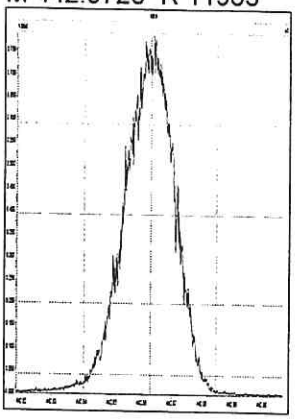
M 416.9760 R 11468



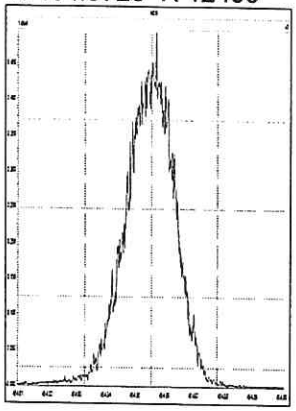
M 430.9728 R 11630



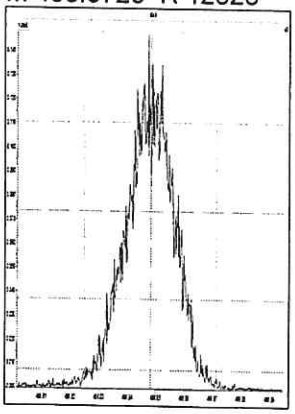
M 442.9728 R 11963



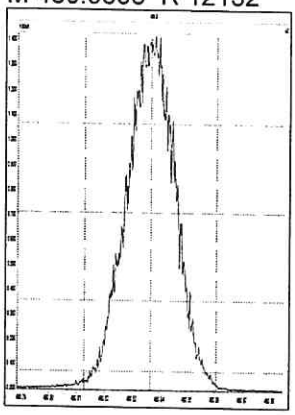
M 454.9728 R 12499



M 466.9728 R 12628



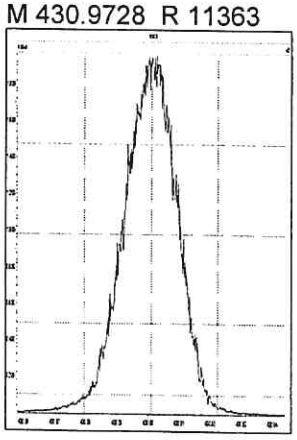
M 480.9696 R 12132



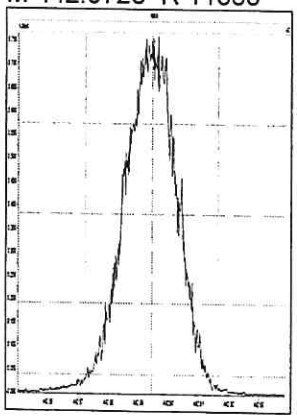
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, December 07, 2018 09:44:05 Central Standard Time

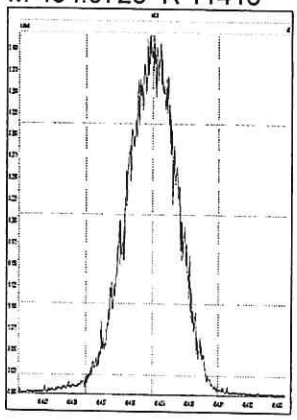
M 430.9728 R 11363



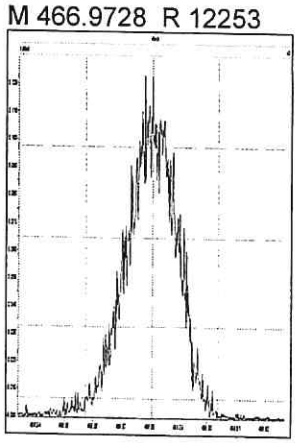
M 442.9728 R 11365



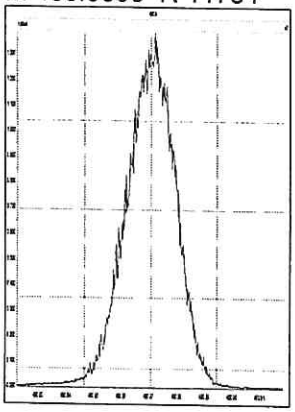
M 454.9728 R 11416



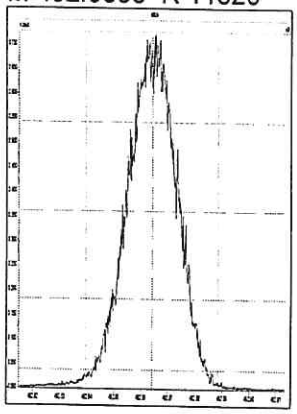
M 466.9728 R 12253



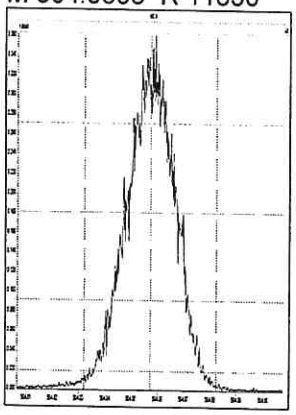
M 480.9696 R 11734



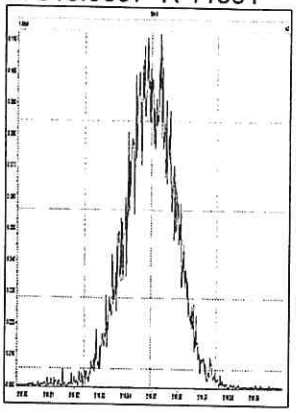
M 492.9696 R 11520



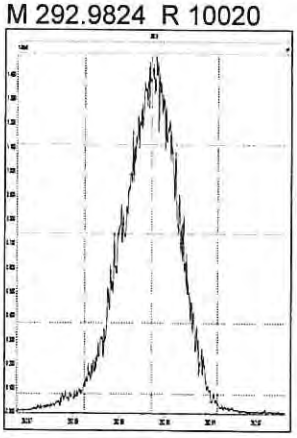
M 504.9696 R 11850



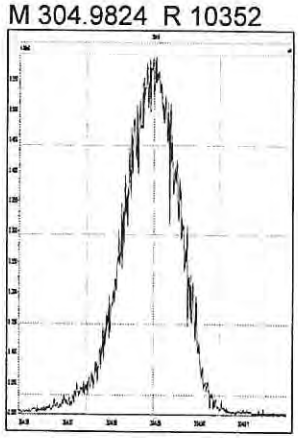
M 516.9697 R 11361



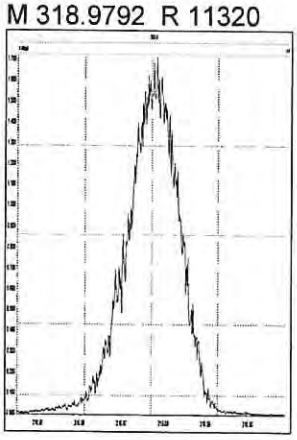
M 292.9824 R 10020



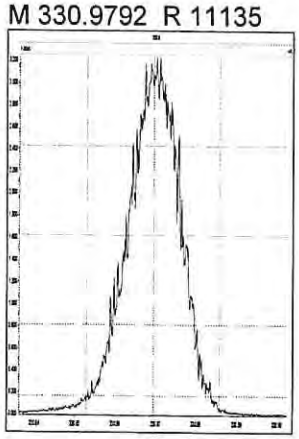
M 304.9824 R 10352



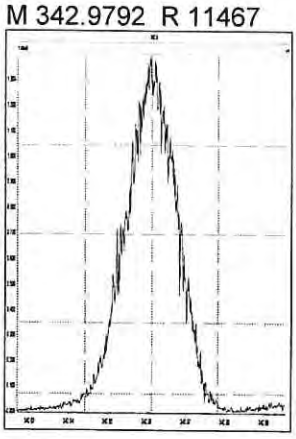
M 318.9792 R 11320



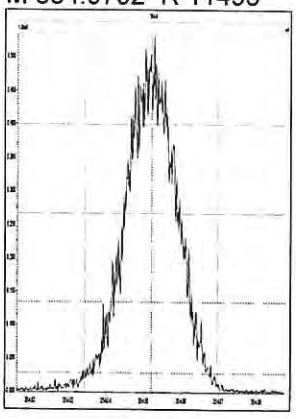
M 330.9792 R 11135



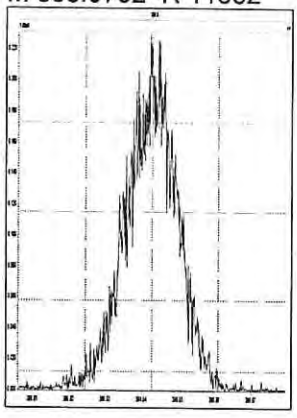
M 342.9792 R 11467



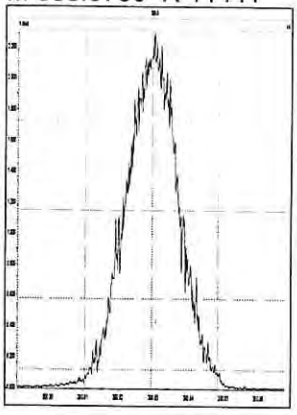
M 354.9792 R 11493



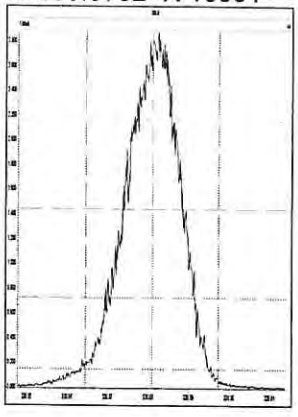
M 366.9792 R 11682



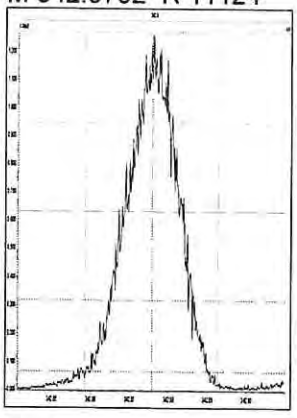
M 380.9760 R 11441



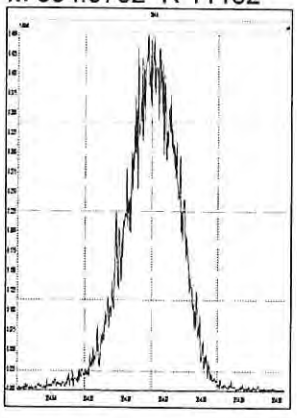
M 330.9792 R 10661



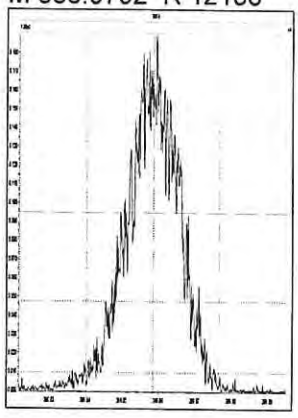
M 342.9792 R 11124



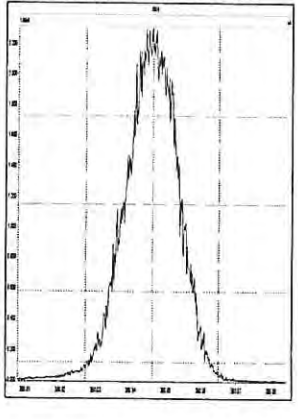
M 354.9792 R 11162



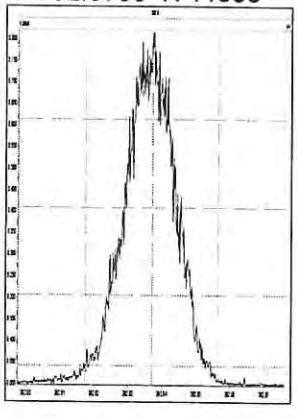
M 366.9792 R 12138



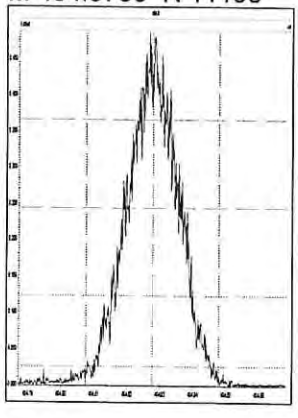
M 380.9760 R 11235



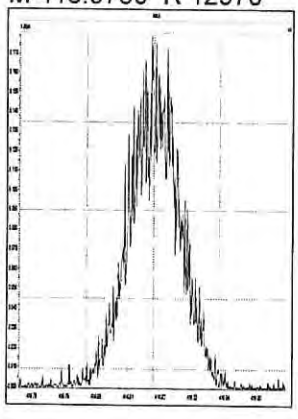
M 392.9760 R 11338



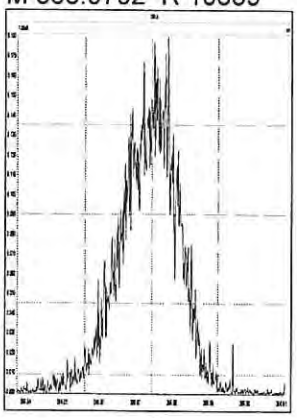
M 404.9760 R 11198



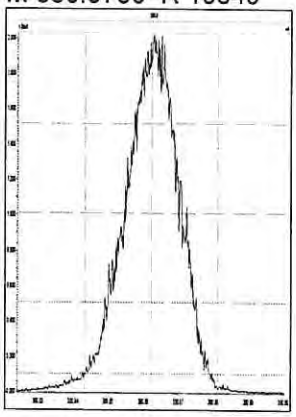
M 416.9760 R 12970



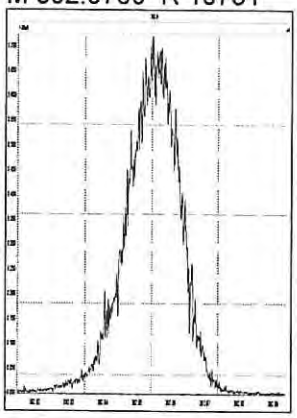
M 366.9792 R 10639



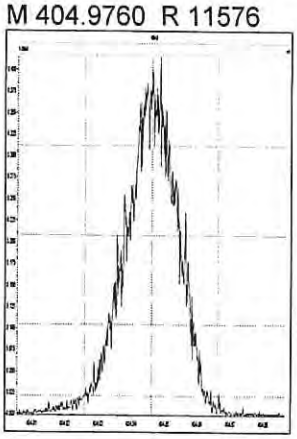
M 380.9760 R 10549



M 392.9760 R 10731



M 404.9760 R 11576



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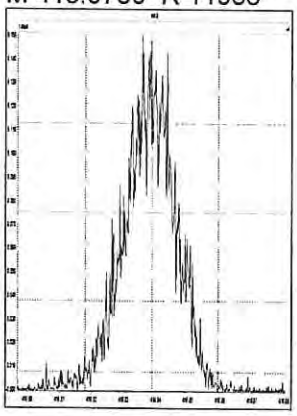
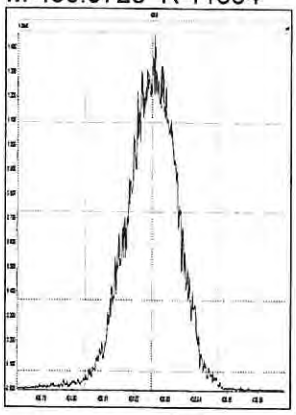
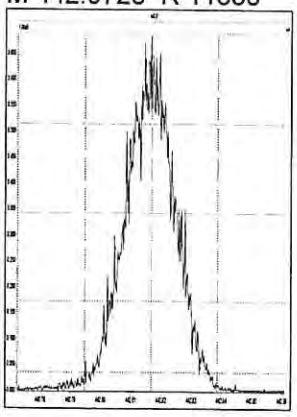


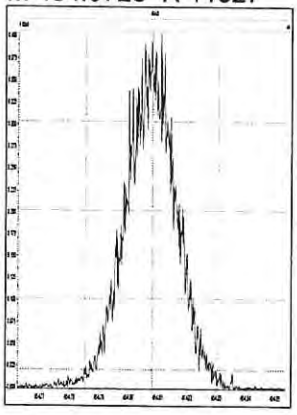
M 430.9728 R 11654



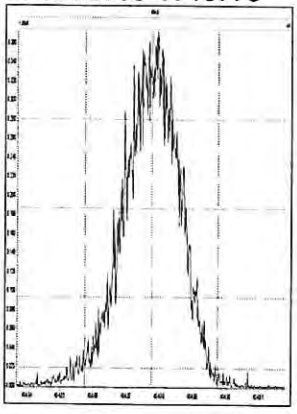
M 442.9728 R 11338



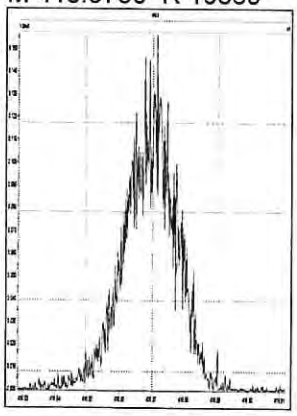
M 454.9728 R 11327



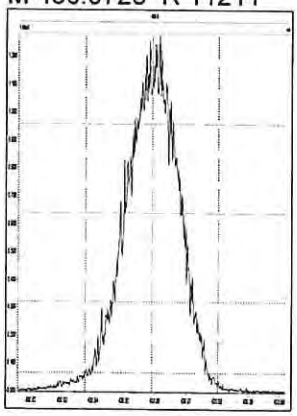
M 404.9760 R 10778



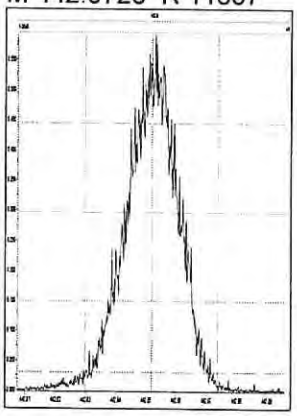
M 416.9760 R 10869



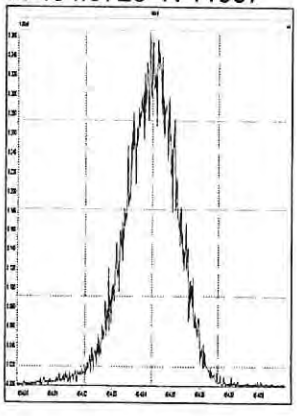
M 430.9728 R 11211



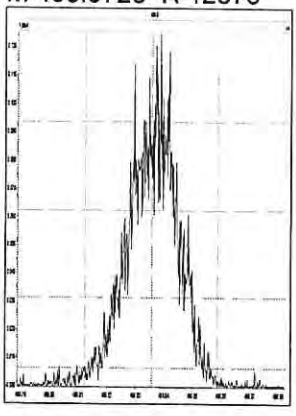
M 442.9728 R 11657



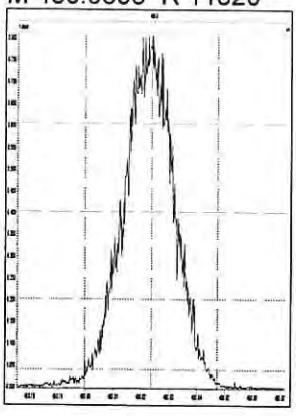
M 454.9728 R 11887



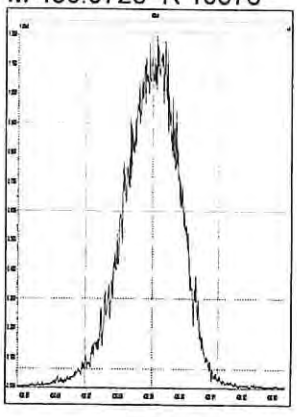
M 466.9728 R 12376



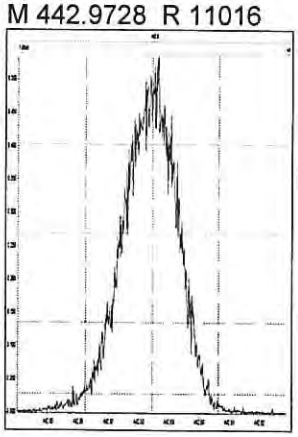
M 480.9696 R 11320



M 430.9728 R 10576



M 442.9728 R 11016



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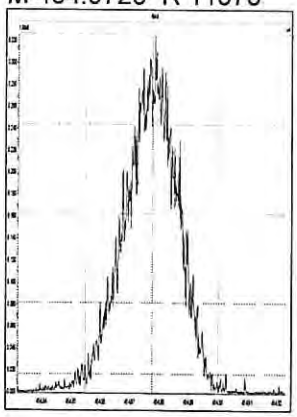
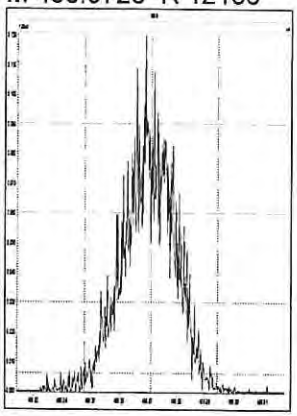


M 466.9728 R 12136



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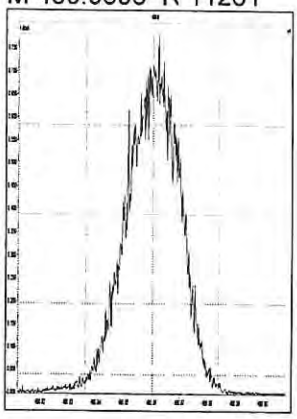

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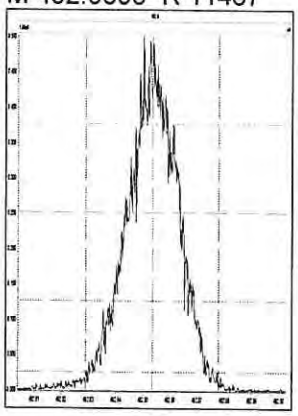

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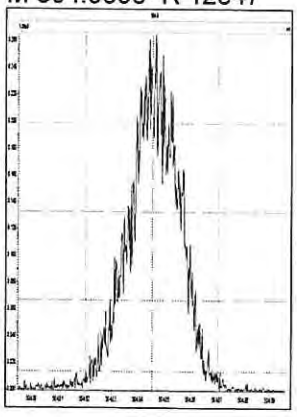

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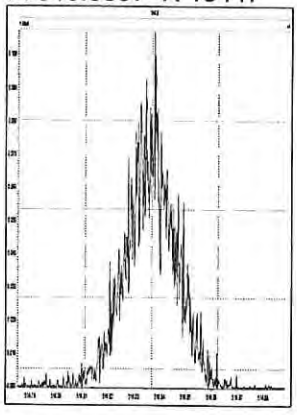


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

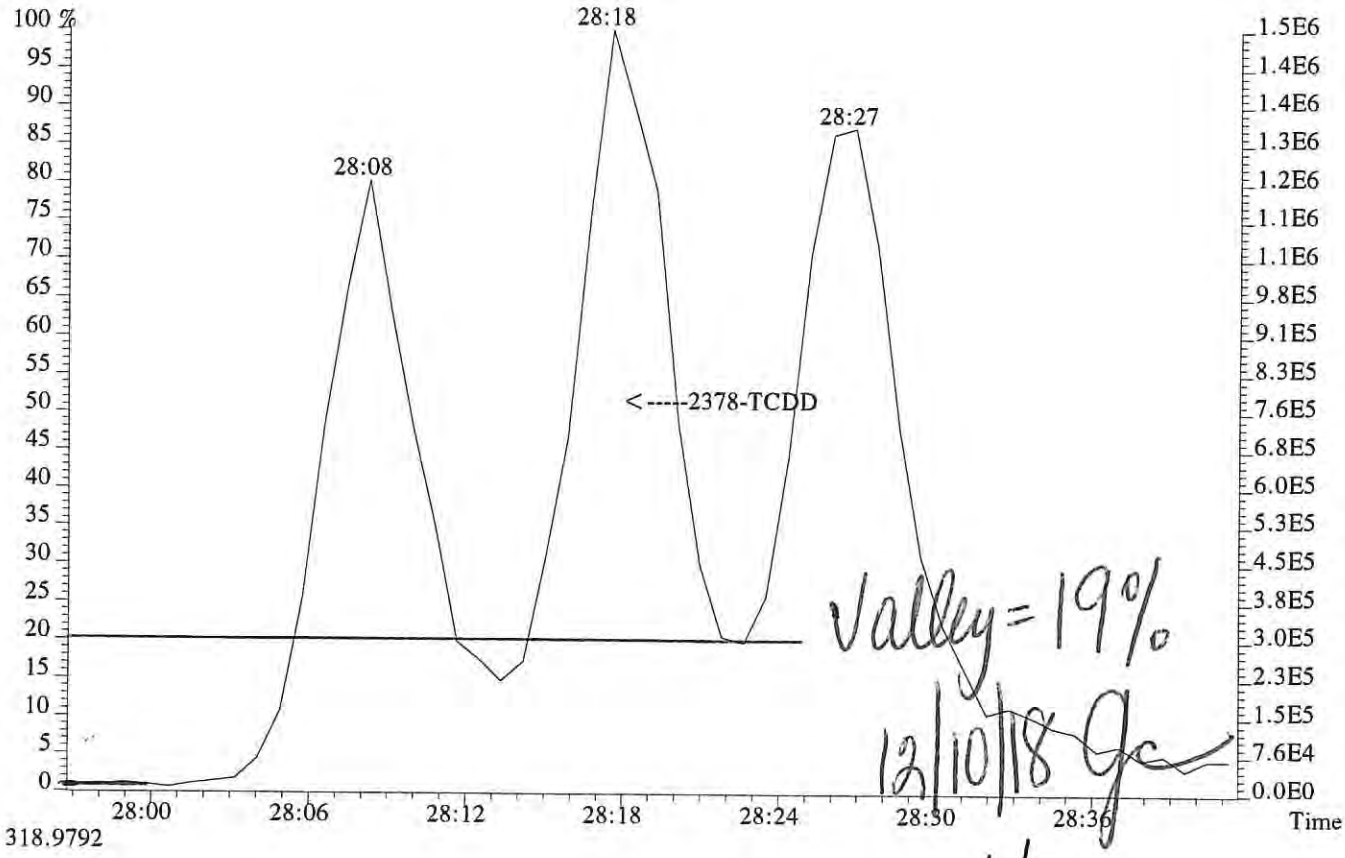
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P615968
Date Analyzed: 7-DEC-18
Time Analyzed: 10:37:36

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:59	29:31
TCDD	24:45	29:20
PeCDF	29:26	33:48
PeCDD	31:02	33:32
HxCDF	34:26	36:58
HxCDD	34:57	36:33
HpCDF	38:10	39:32
HpCDD	38:24	39:04

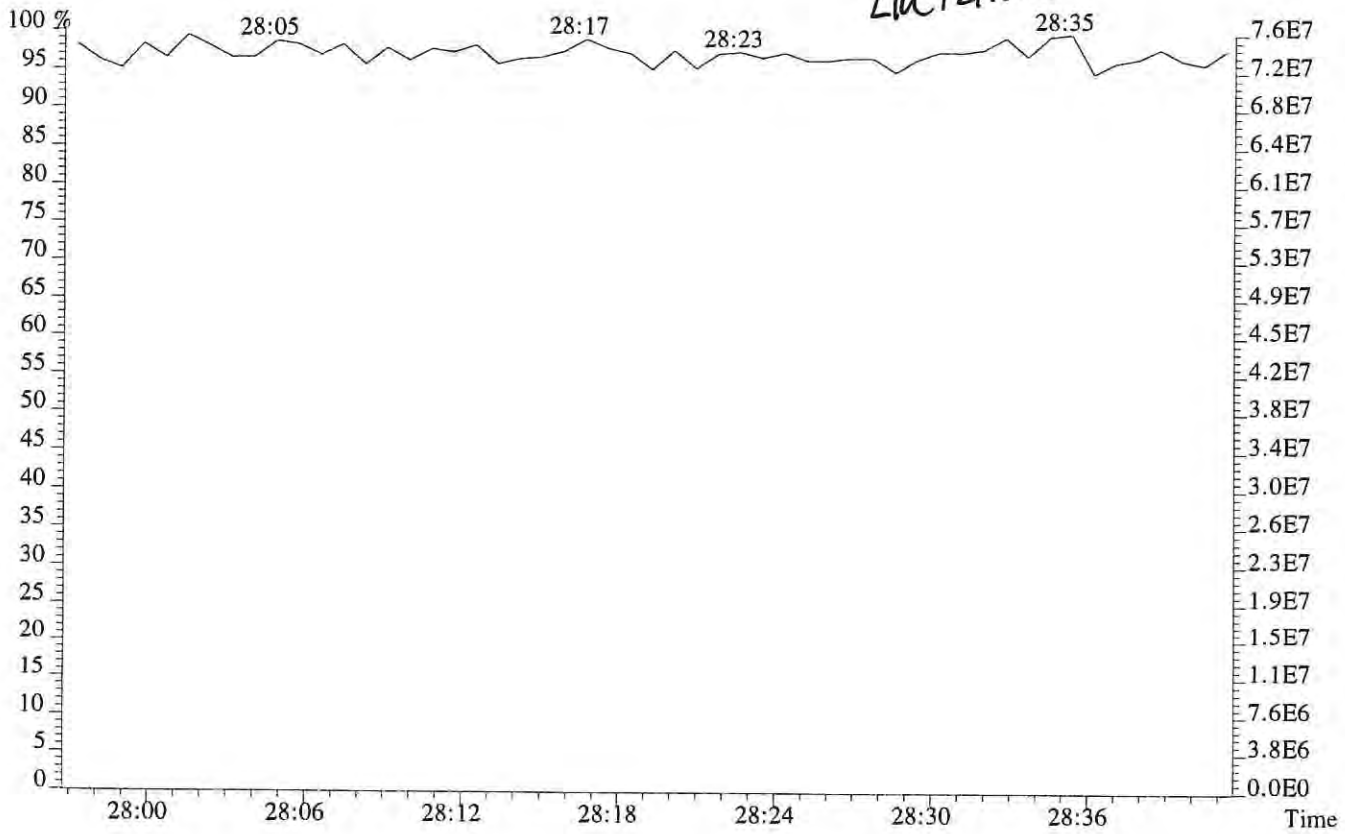
% Valley 2378-TCDD: 19 %

File:P615968 #1-552 Acq: 7-DEC-2018 10:37:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792

LM 12/11/18



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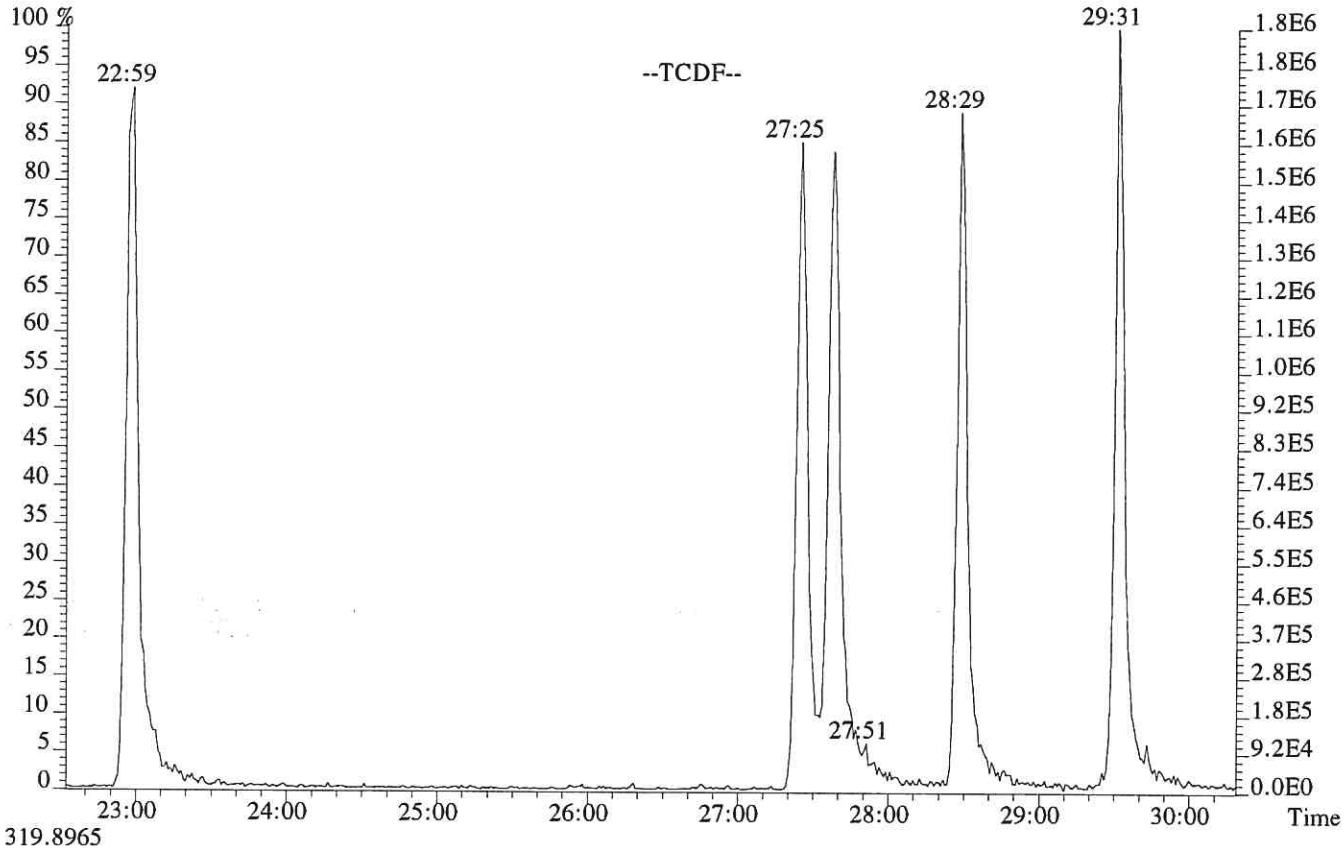
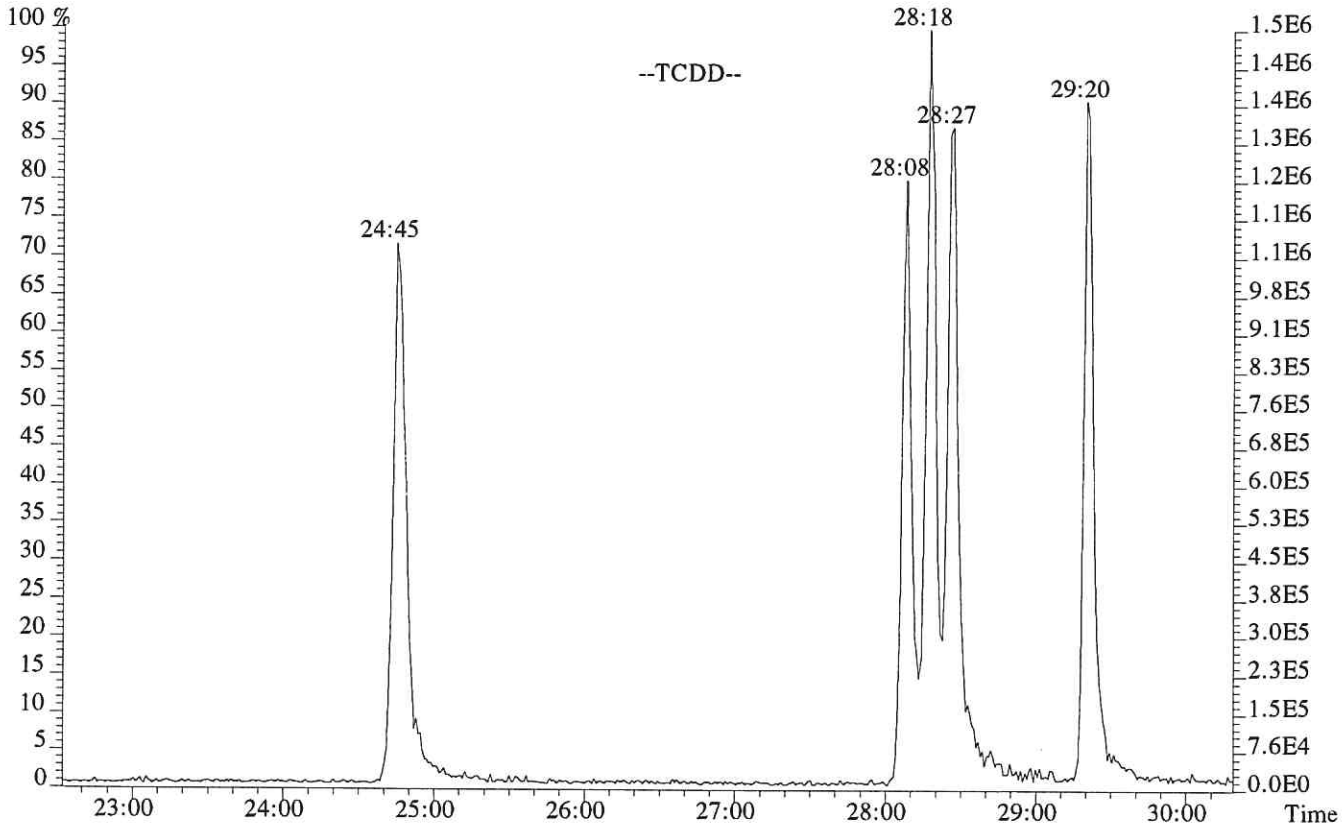
303.9016



319.8965



File:P615968 #1-552 Acq: 7-DEC-2018 10:37:36 Probe EI+ Magnet SIR VG BioTech Mass spectℓ
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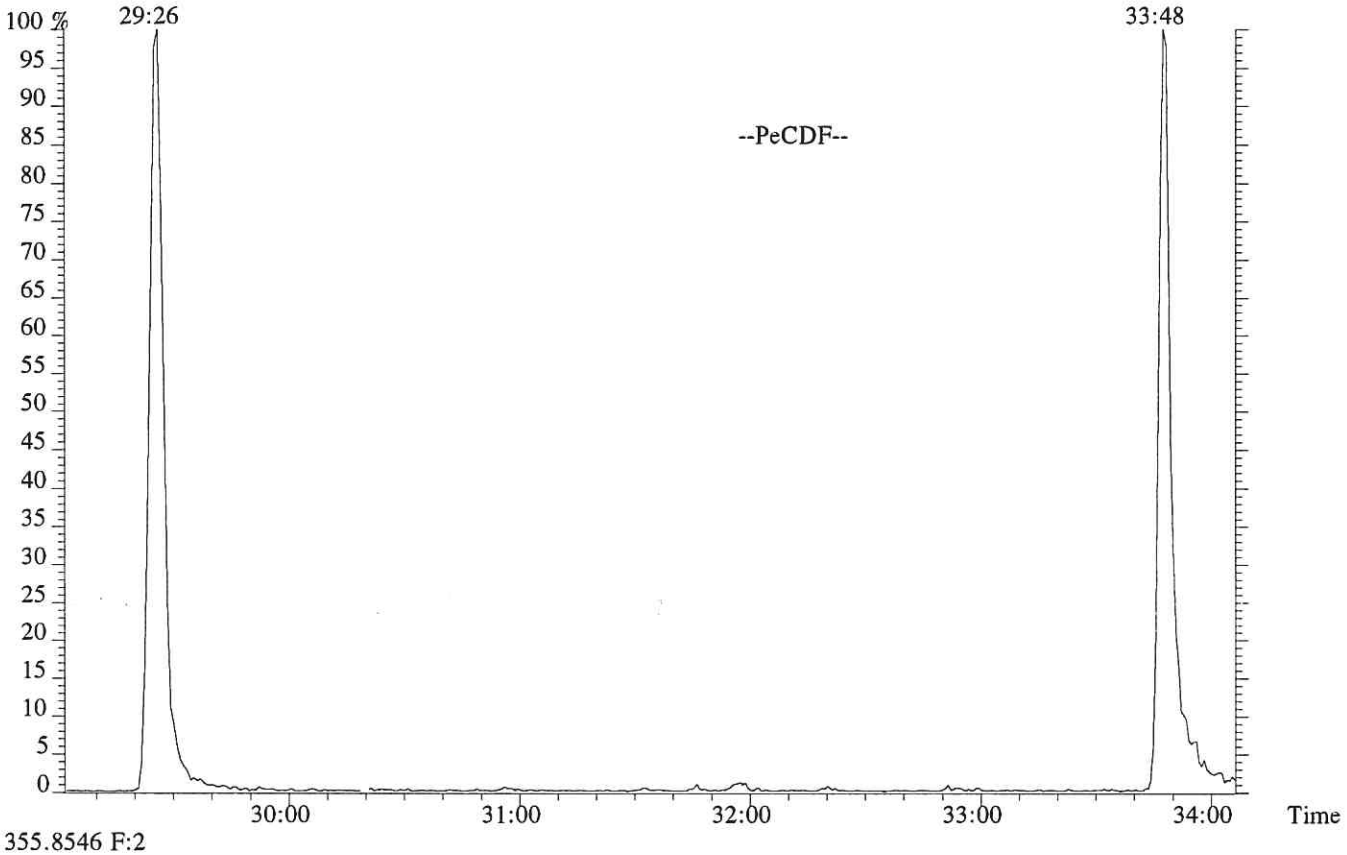
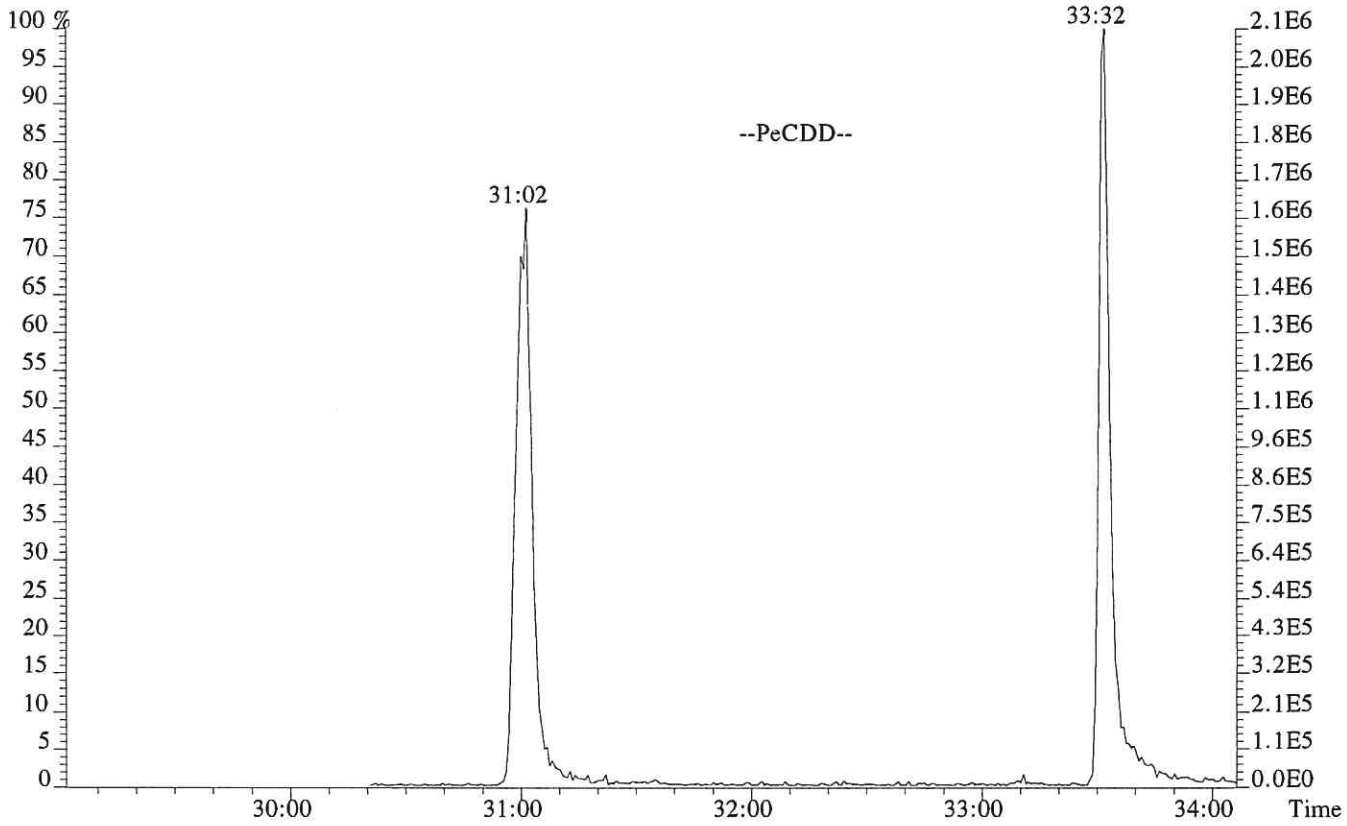
339.8597,339.8597 F:2



355.8546 F:2



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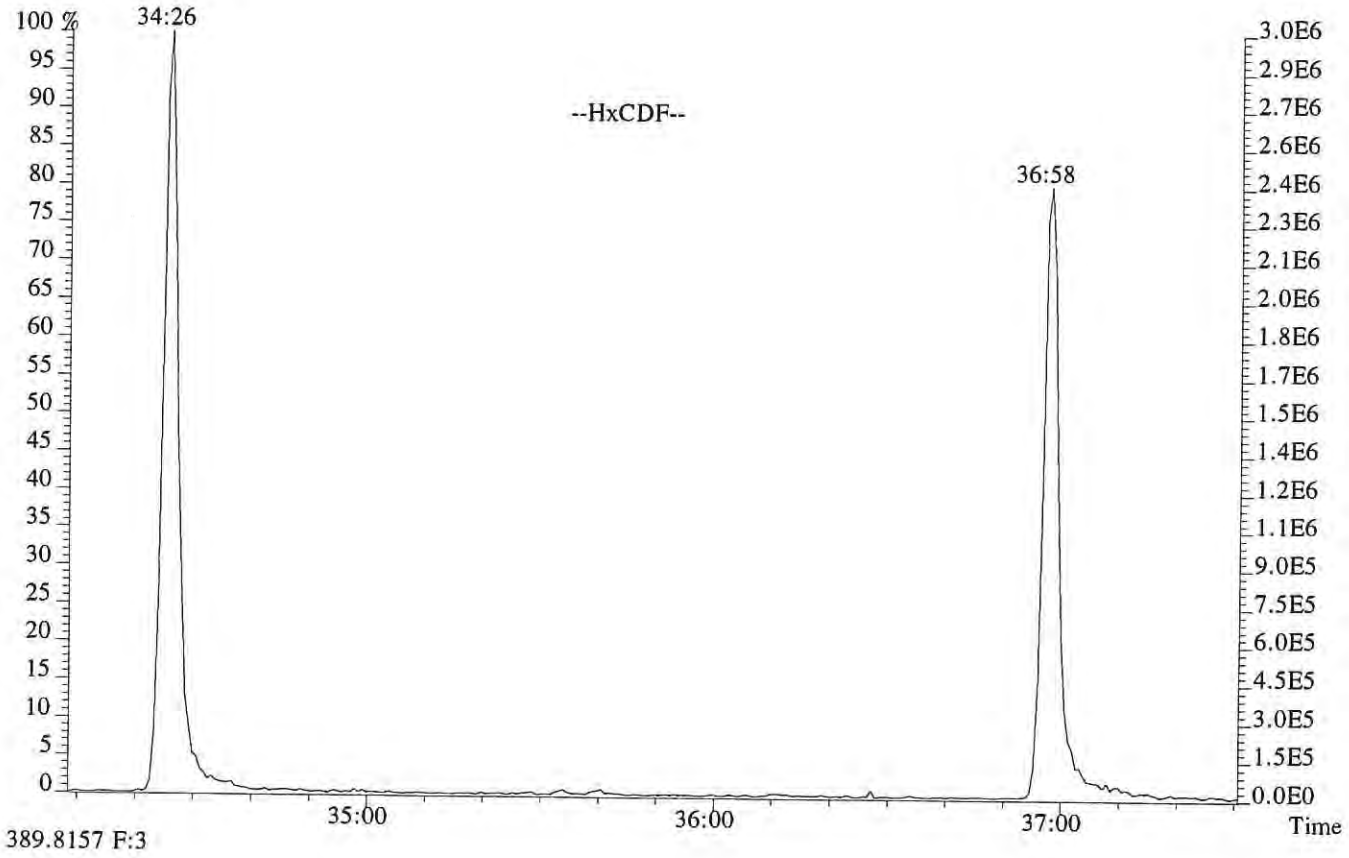
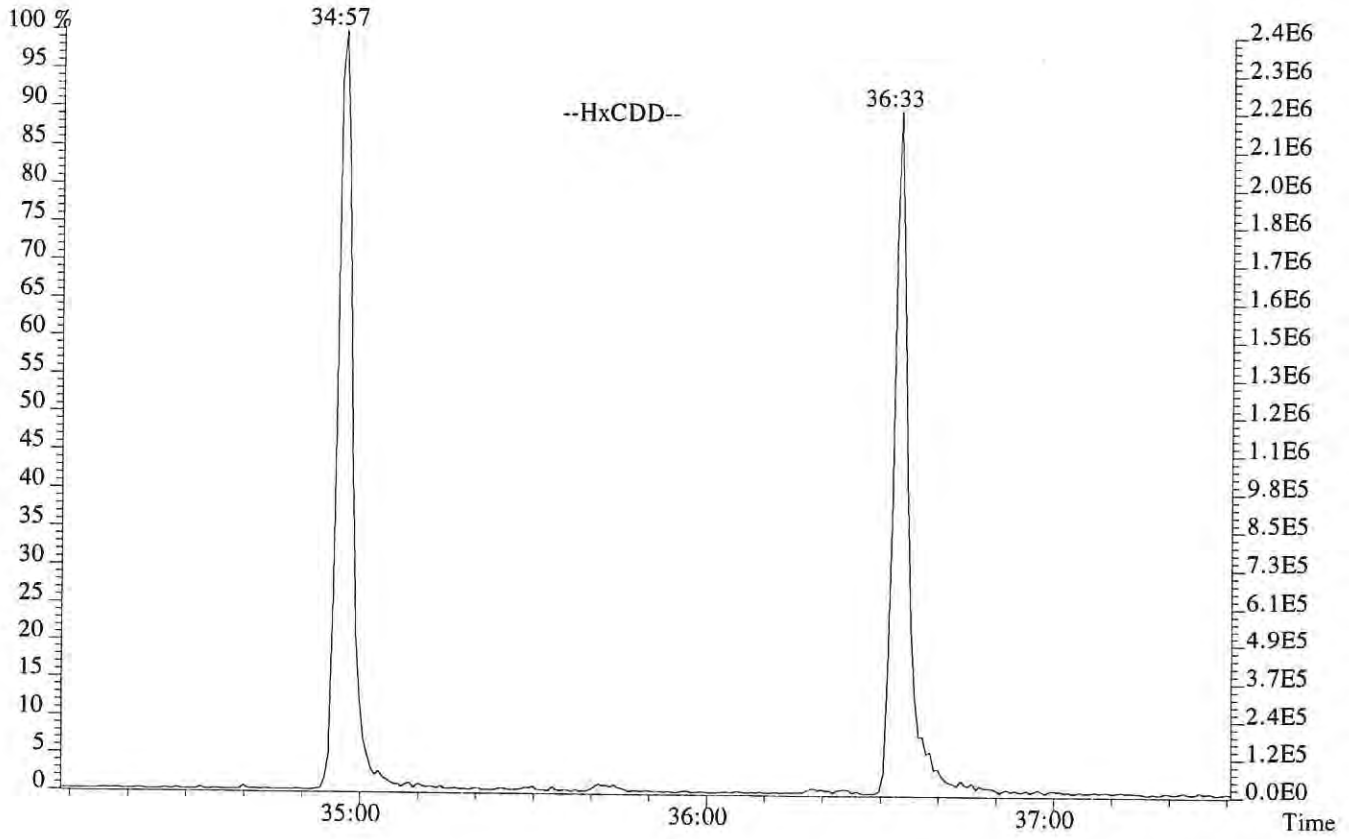
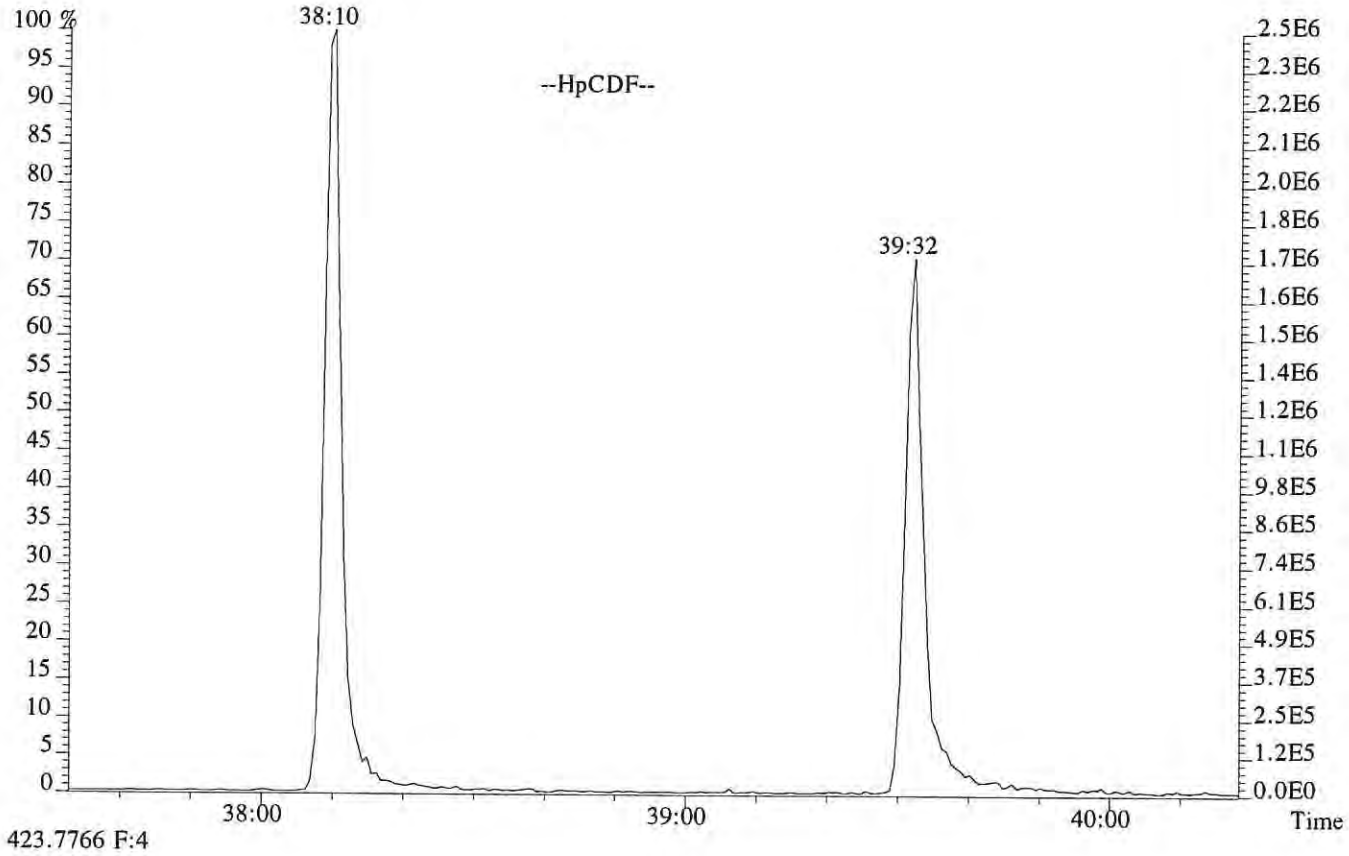
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



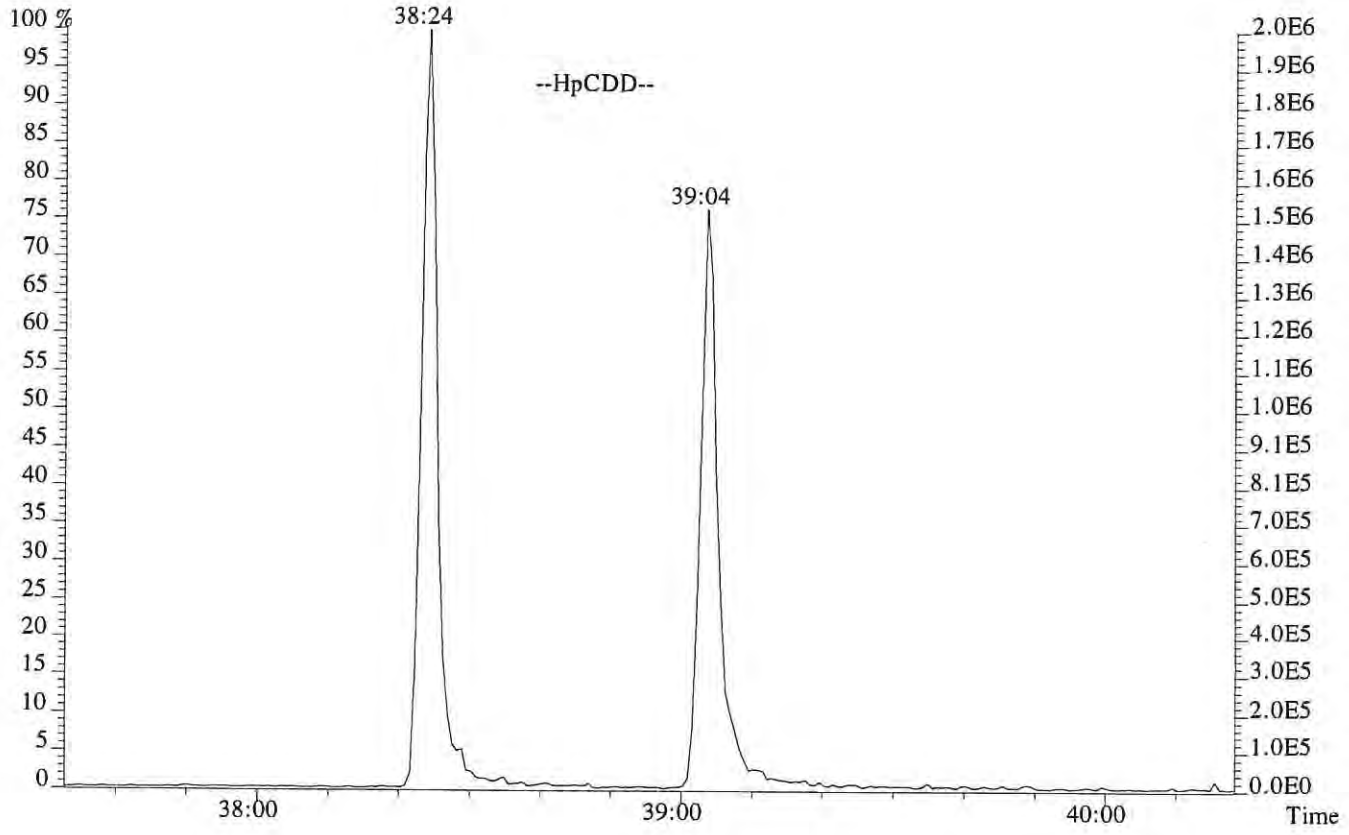
389.8157 F:3



File:P615968 #1-249 Acq: 7-DEC-2018 10:37:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615967 Analysis Date: 7-DEC-18 Time: 09:44:40

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.8	7.8 - 12.9	-1.6
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	50	39 - 65	0.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-3.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.20	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	48	43 - 58	-4.4
OCDD	M+2/M+4	0.90	0.76-1.02	96	79 - 126	-4.0
2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	9.0	8.4 - 12.0	-10.2
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	46	41 - 60	-8.2
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	46	41 - 61	-8.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	46	45 - 56	-8.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	46	44 - 57	-7.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	46	45 - 56	-8.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	47	44 - 57	-6.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	46	45 - 55	-7.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	46	43 - 58	-8.6
OCDF	M+2/M+4	0.91	0.76-1.02	88	63 - 159	-12.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P615967 Analysis Date: 7-DEC-18 Time: 09:44:40

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	102	82 - 121	2.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	93	62 - 160	-7.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 117	-1.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	98	85 - 118	-2.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	91	72 - 138	-9.0
13C-OCDD	M+2/M+4	0.90	0.76-1.02	159	96 - 415	-20.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	99	71 - 140	-1.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	95	76 - 130	-5.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	93	77 - 130	-6.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	76 - 131	-5.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	70 - 143	-4.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	93	74 - 135	-7.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	73 - 137	-4.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	89	78 - 129	-10.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	83	77 - 129	-16.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-2.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P615967 Samp: 1 Inj: 1 Acquired: 7-DEC-18 09:44:40
Processed: 10-DEC-18 16:28:03 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:38	1.175e+04	1.471e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:57	9.446e+04	6.167e+04	1.53	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:53	8.769e+04	5.641e+04	1.55	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:33	7.636e+04	6.054e+04	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:40	8.110e+04	6.500e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:11	7.564e+04	6.079e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:56	6.800e+04	5.374e+04	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:10	6.311e+04	6.185e+04	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:32	4.971e+04	4.737e+04	1.05	yes	no	1.463
10	Unk	OCDF	41:57	6.633e+04	7.249e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:27	8.683e+03	1.147e+04	0.76	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:10	5.703e+04	3.709e+04	1.54	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:19	4.949e+04	3.926e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:24	4.951e+04	3.930e+04	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:38	5.211e+04	4.353e+04	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:04	4.061e+04	3.907e+04	1.04	yes	no	1.112
17	Unk	OCDD	41:45	5.292e+04	5.882e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:37	1.202e+05	1.525e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:56	1.805e+05	1.136e+05	1.59	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:52	1.749e+05	1.100e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:33	7.273e+04	1.390e+05	0.52	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:39	8.478e+04	1.597e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:10	7.878e+04	1.499e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:55	6.996e+04	1.319e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	5.530e+04	1.215e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:31	4.531e+04	9.986e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:25	8.607e+04	1.090e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:09	1.233e+05	7.932e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:18	9.575e+04	7.504e+04	1.28	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:23	9.495e+04	7.470e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	7.729e+04	7.262e+04	1.06	yes	no	0.857
32	IS	13C-OCDD	41:44	9.551e+04	1.056e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:48	8.584e+04	1.086e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:37	1.071e+05	8.509e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:27	2.068e+04				no	1.086

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Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P615967 Samp: 1 Inj: 1 Acquired: 7-DEC-18 09:44:40
Processed: 10-DEC-18 16:28:03 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.80e+06	1.78e+03	1.0e+03	2.21e+06	4.00e+03	5.5e+02
2	1,2,3,7,8-PeCDF	1.65e+07	7.76e+02	2.1e+04	1.06e+07	2.87e+03	3.7e+03
3	2,3,4,7,8-PeCDF	1.67e+07	7.76e+02	2.1e+04	1.07e+07	2.87e+03	3.7e+03
4	1,2,3,4,7,8-HxCDF	1.66e+07	1.60e+03	1.0e+04	1.32e+07	7.28e+02	1.8e+04
5	1,2,3,6,7,8-HxCDF	1.67e+07	1.60e+03	1.0e+04	1.35e+07	7.28e+02	1.9e+04
6	2,3,4,6,7,8-HxCDF	1.65e+07	1.60e+03	1.0e+04	1.32e+07	7.28e+02	1.8e+04
7	1,2,3,7,8,9-HxCDF	1.39e+07	1.60e+03	8.7e+03	1.10e+07	7.28e+02	1.5e+04
8	1,2,3,4,6,7,8-HpCDF	1.39e+07	7.22e+03	1.9e+03	1.37e+07	2.15e+03	6.4e+03
9	1,2,3,4,7,8,9-HpCDF	9.56e+06	7.22e+03	1.3e+03	9.17e+06	2.15e+03	4.3e+03
10	OCDF	1.18e+07	7.88e+02	1.5e+04	1.27e+07	1.92e+03	6.6e+03
11	2,3,7,8-TCDD	1.48e+06	5.02e+03	3.0e+02	1.90e+06	2.54e+03	7.5e+02
12	1,2,3,7,8-PeCDD	1.07e+07	1.37e+03	7.8e+03	6.91e+06	4.84e+02	1.4e+04
13	1,2,3,4,7,8-HxCDD	1.11e+07	5.64e+02	2.0e+04	8.74e+06	8.88e+02	9.8e+03
14	1,2,3,6,7,8-HxCDD	1.06e+07	5.64e+02	1.9e+04	8.33e+06	8.88e+02	9.4e+03
15	1,2,3,7,8,9-HxCDD	1.12e+07	5.64e+02	2.0e+04	9.03e+06	8.88e+02	1.0e+04
16	1,2,3,4,6,7,8-HpCDD	8.66e+06	1.26e+03	6.9e+03	8.34e+06	1.45e+03	5.7e+03
17	OCDD	9.55e+06	7.36e+02	1.3e+04	1.07e+07	6.96e+02	1.5e+04
18	13C-2,3,7,8-TCDF	1.82e+07	9.18e+03	2.0e+03	2.30e+07	6.64e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.05e+07	1.97e+03	1.5e+04	1.95e+07	1.63e+03	1.2e+04
20	13C-2,3,4,7,8-PeCDF	3.32e+07	1.97e+03	1.7e+04	2.08e+07	1.63e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.59e+07	2.23e+03	7.1e+03	3.03e+07	2.29e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.76e+07	2.23e+03	7.9e+03	3.31e+07	2.29e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.70e+07	2.23e+03	7.6e+03	3.26e+07	2.29e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.44e+07	2.23e+03	6.5e+03	2.72e+07	2.29e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.22e+07	3.22e+03	3.8e+03	2.69e+07	6.65e+03	4.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.66e+06	3.22e+03	2.7e+03	1.92e+07	6.65e+03	2.9e+03
27	13C-2,3,7,8-TCDD	1.44e+07	1.66e+04	8.7e+02	1.83e+07	8.46e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	2.26e+07	1.45e+03	1.6e+04	1.44e+07	1.68e+03	8.6e+03
29	13C-1,2,3,4,7,8-HxCDD	2.14e+07	2.61e+03	8.2e+03	1.65e+07	1.37e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.98e+07	2.61e+03	7.6e+03	1.56e+07	1.37e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.65e+07	1.76e+03	9.4e+03	1.53e+07	5.04e+02	3.0e+04
32	13C-OCDD	1.72e+07	1.45e+03	1.2e+04	1.92e+07	3.00e+02	6.4e+04
33	13C-1,2,3,4-TCDD	1.44e+07	1.66e+04	8.7e+02	1.82e+07	8.46e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.23e+07	2.61e+03	8.5e+03	1.77e+07	1.37e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.40e+06	2.43e+03	1.4e+03			

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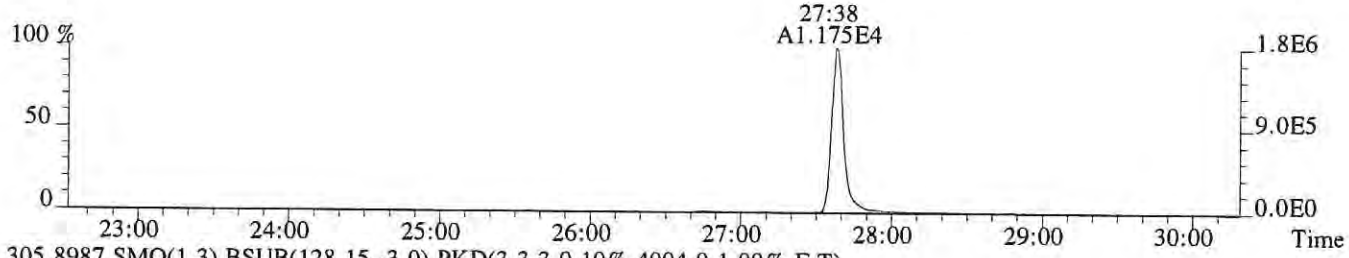
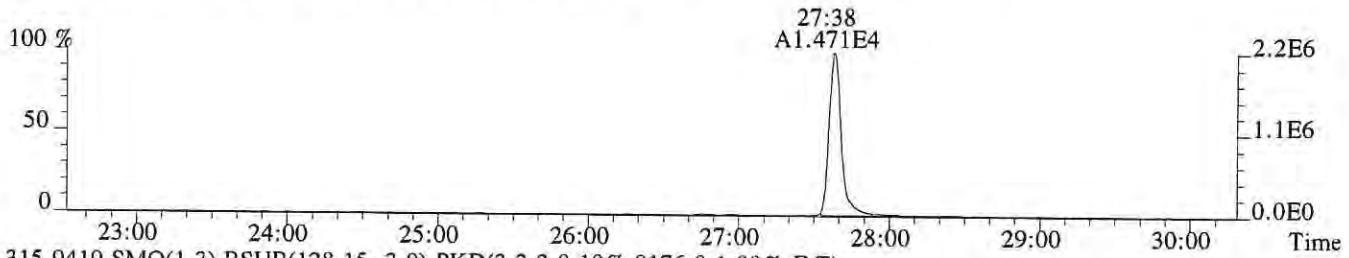
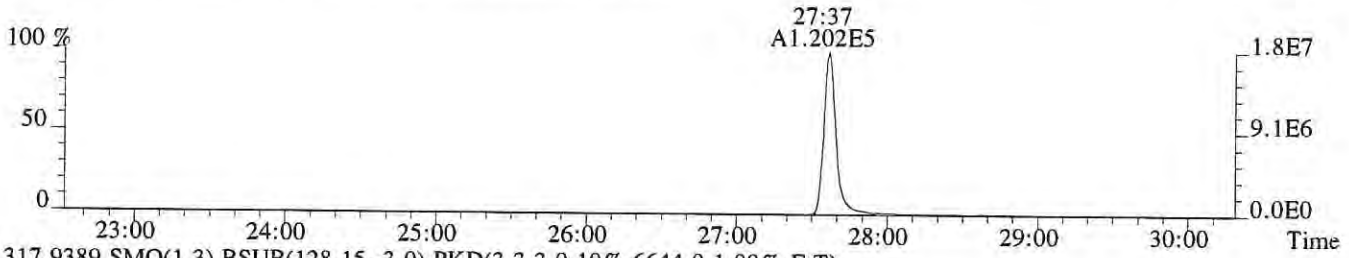
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



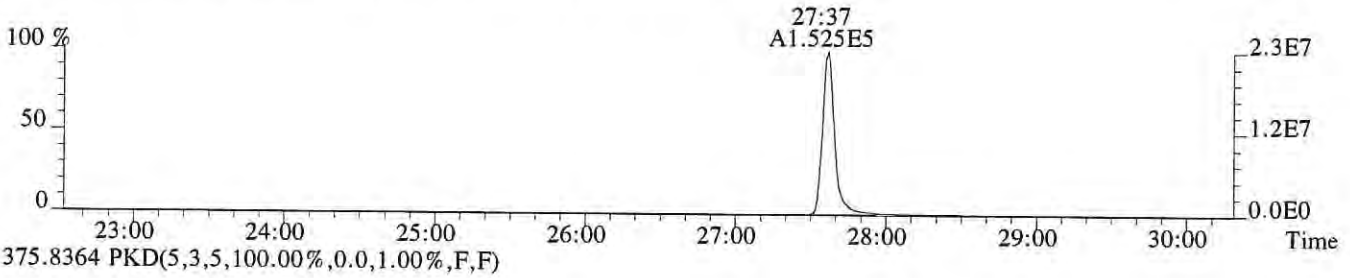
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4004.0,1.00%,F,T)



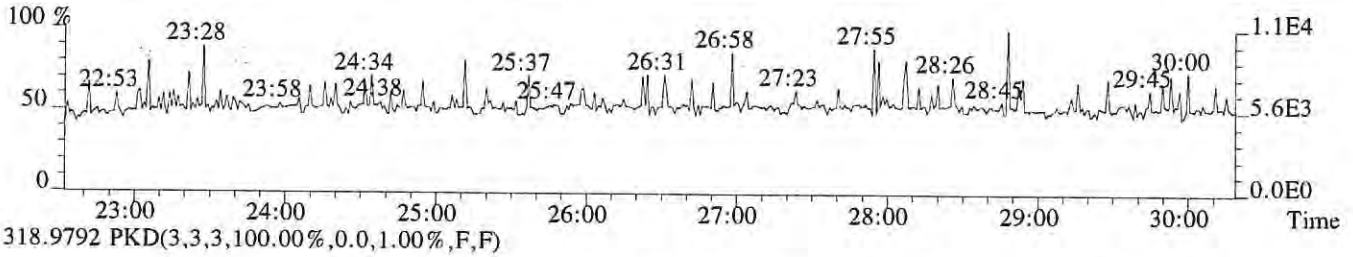
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9176.0,1.00%,F,T)



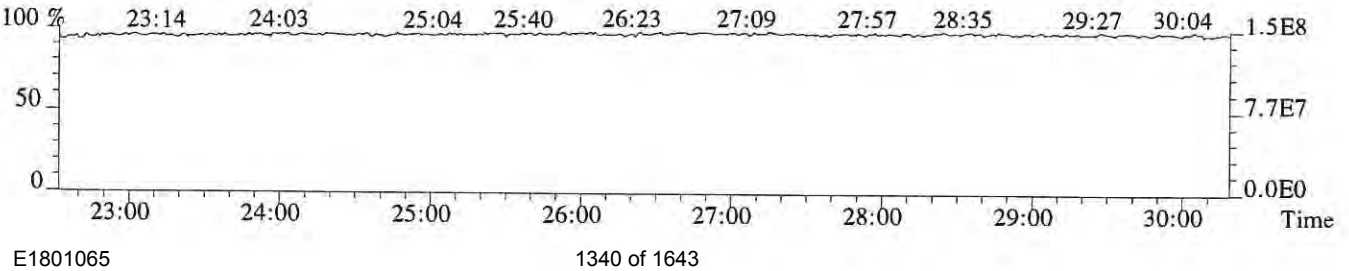
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6644.0,1.00%,F,T)



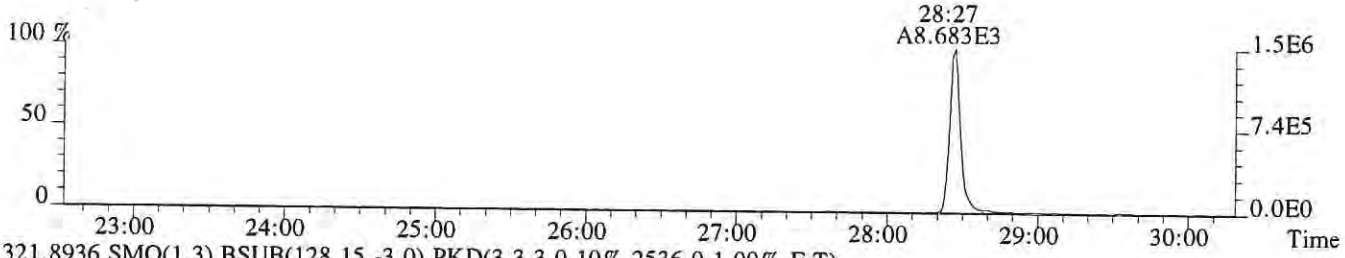
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



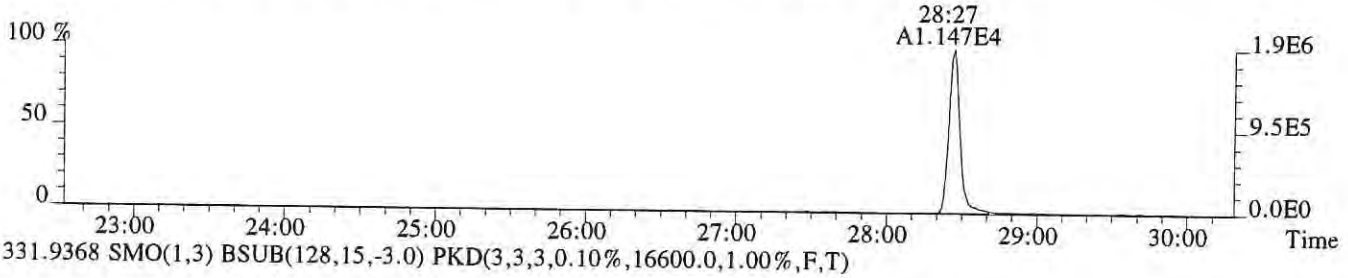
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



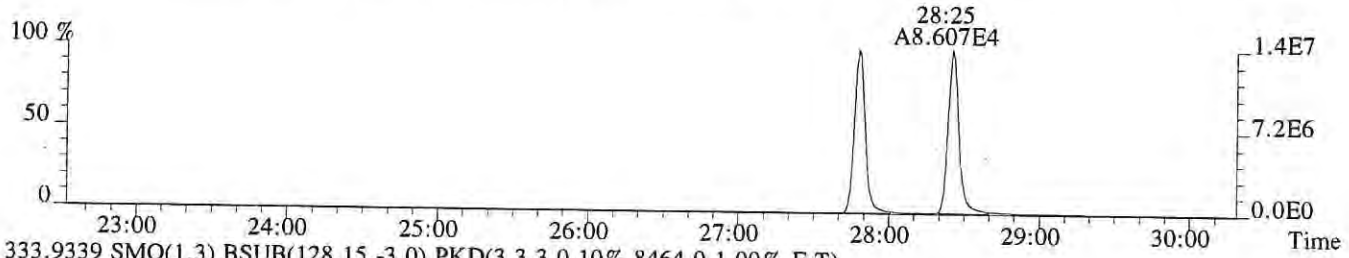
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5020.0,1.00%,F,T)



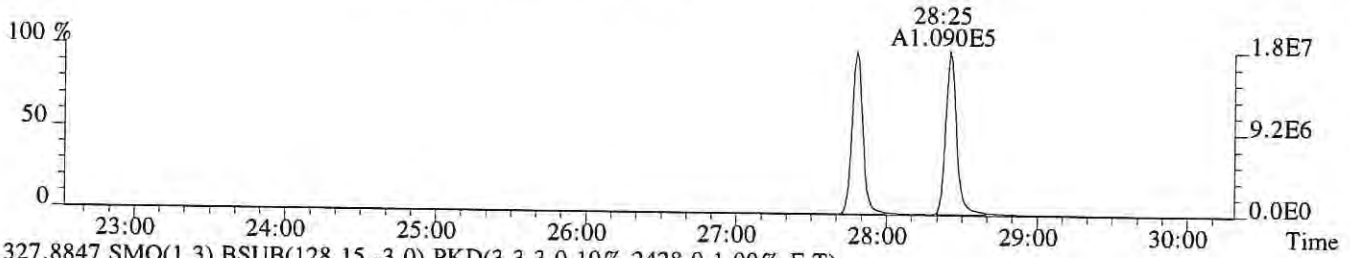
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



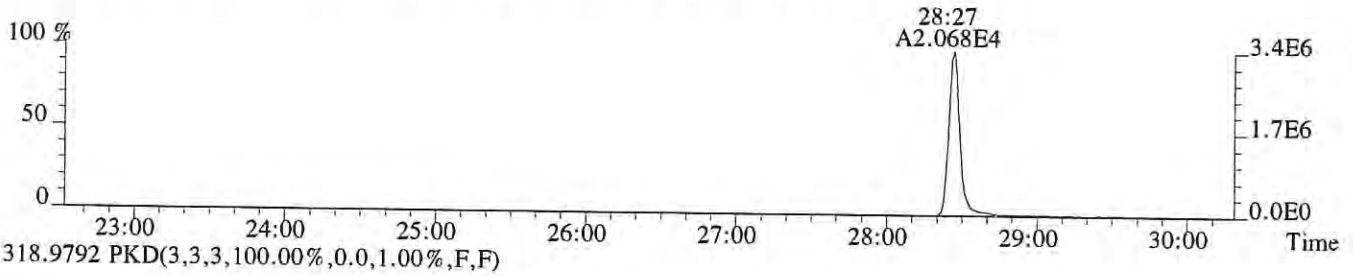
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16600.0,1.00%,F,T)



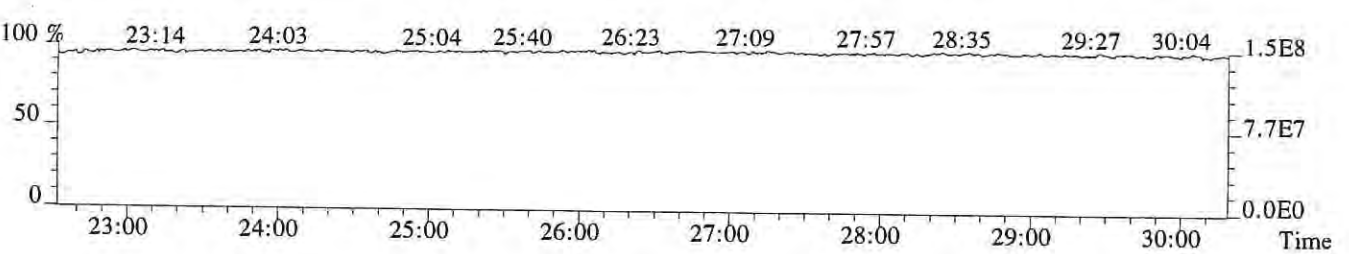
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8464.0,1.00%,F,T)



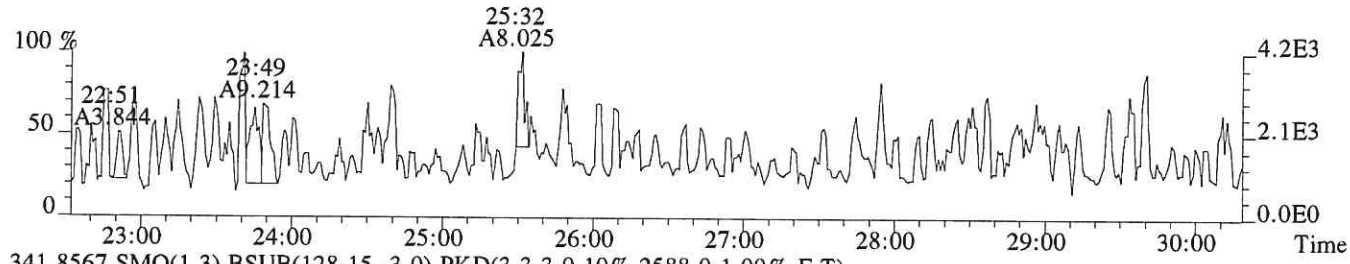
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



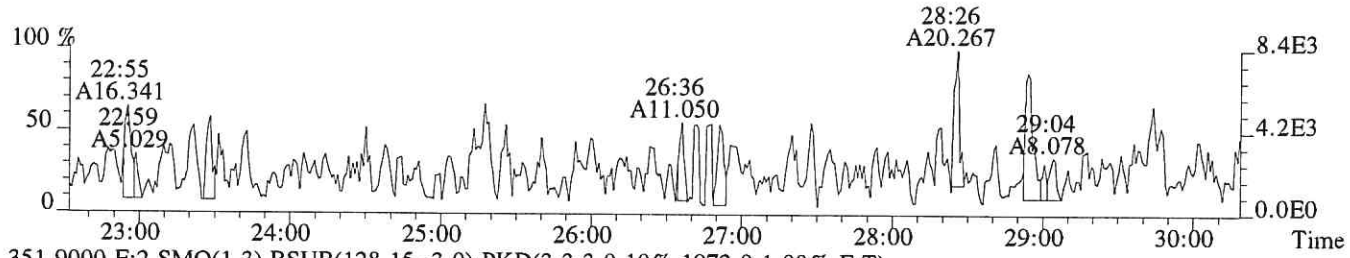
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



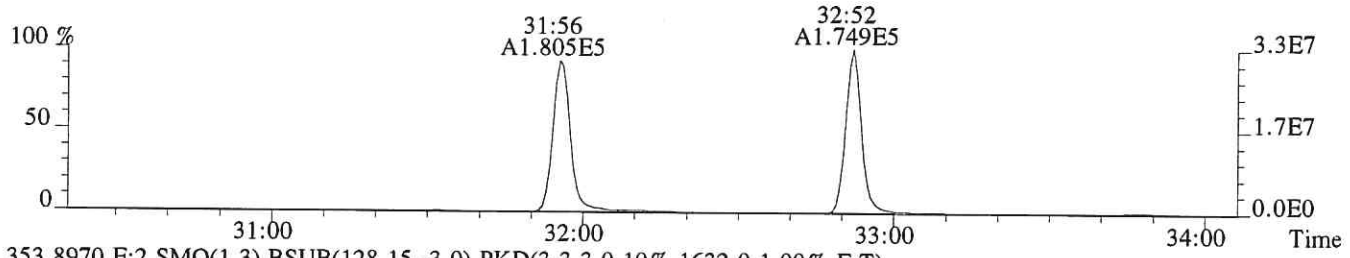
File:P615967 #1-552 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



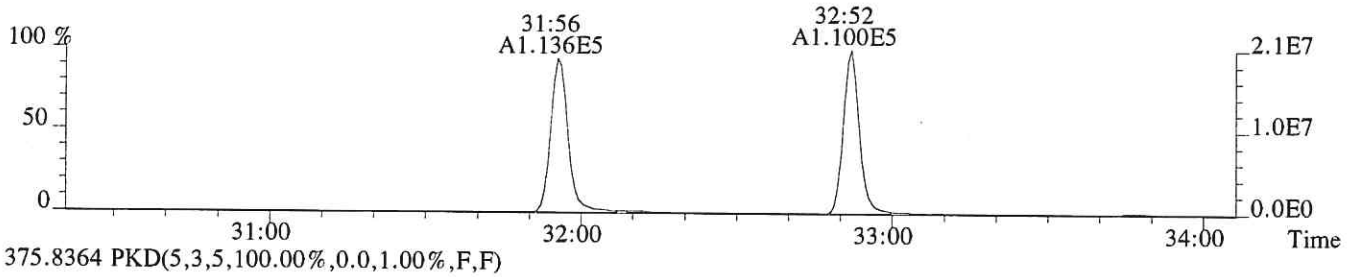
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



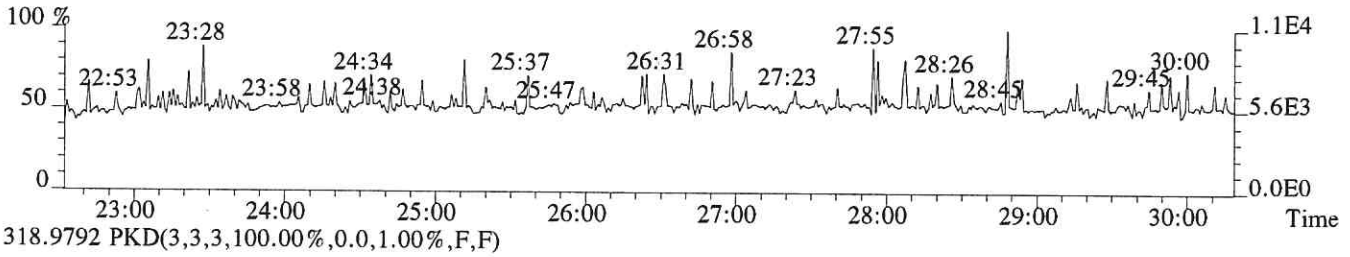
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



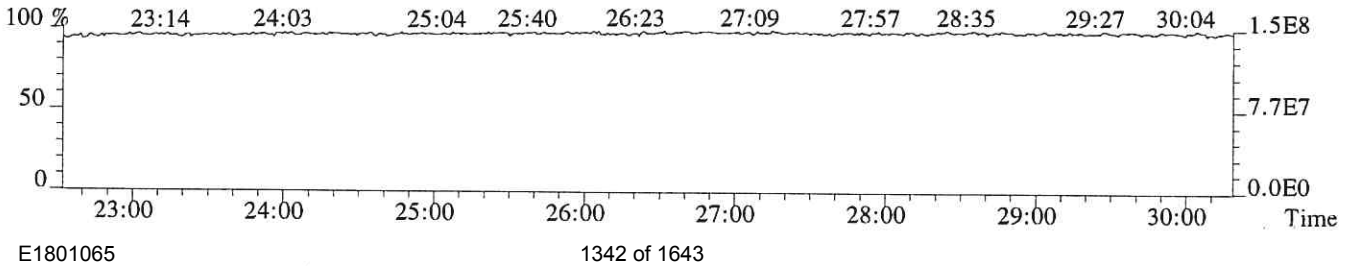
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



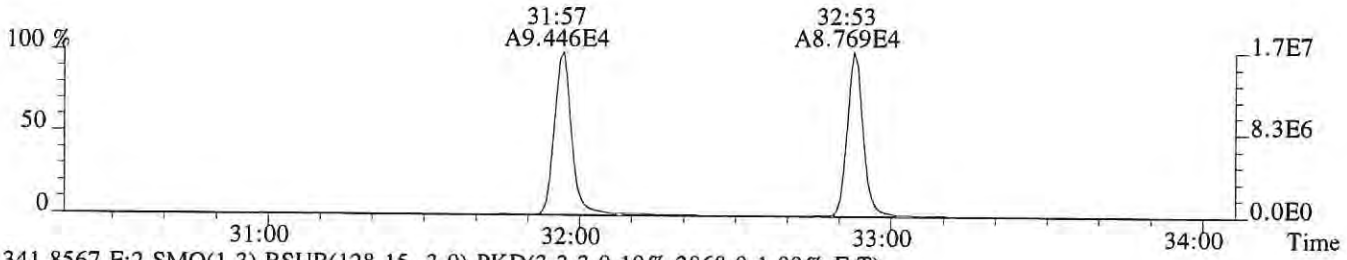
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



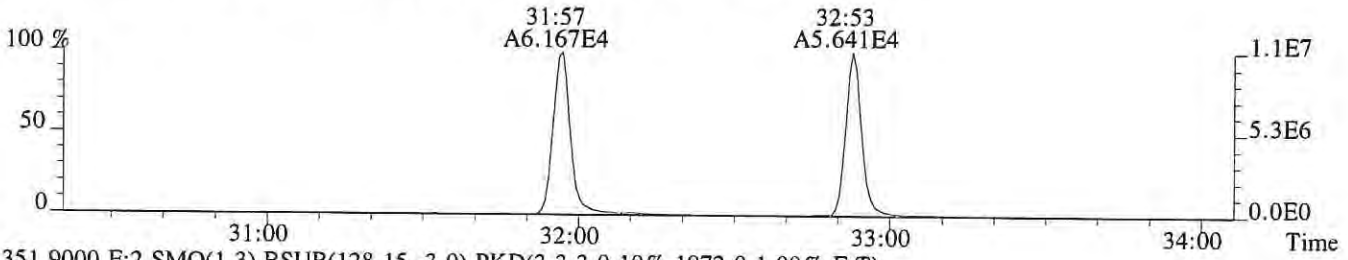
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



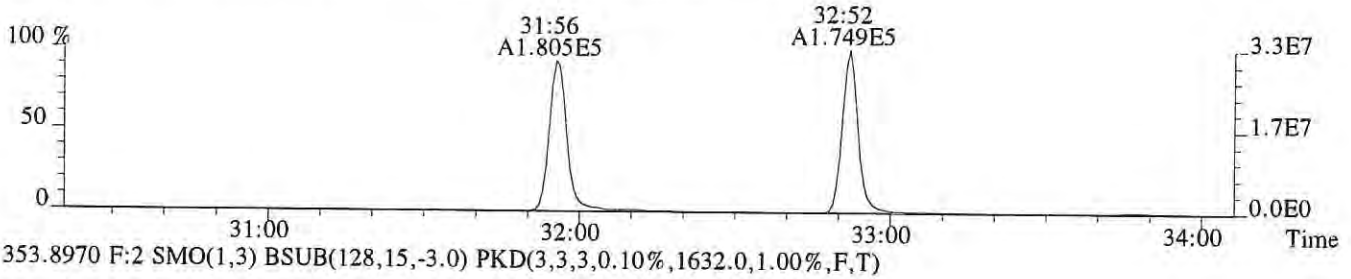
File:P615967 #1-339 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



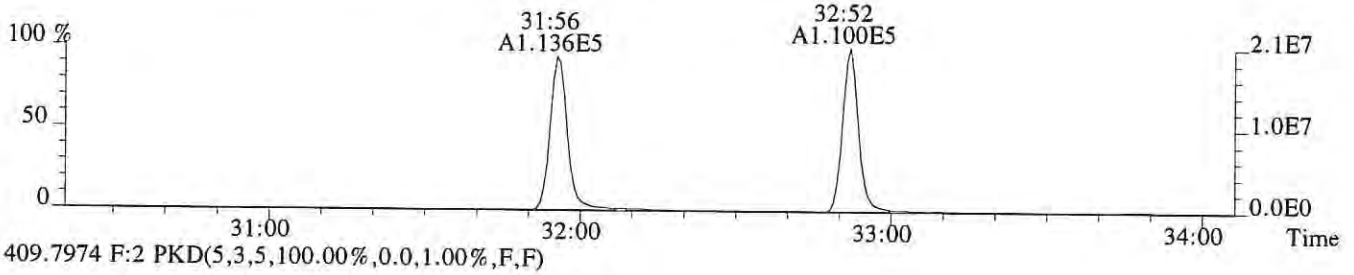
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)



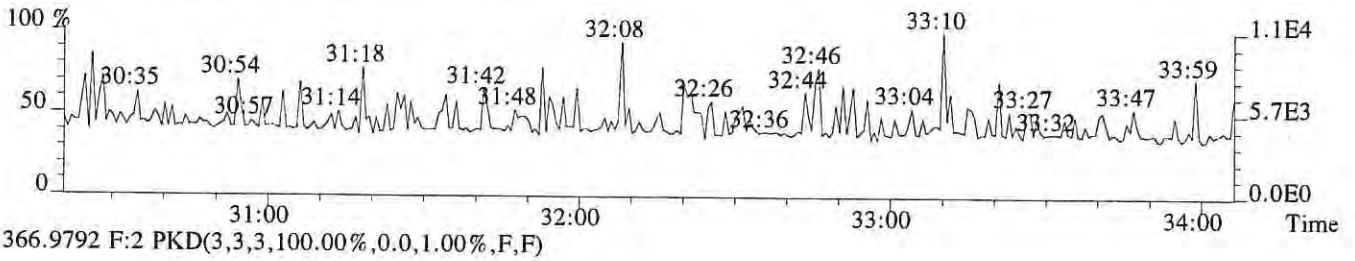
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



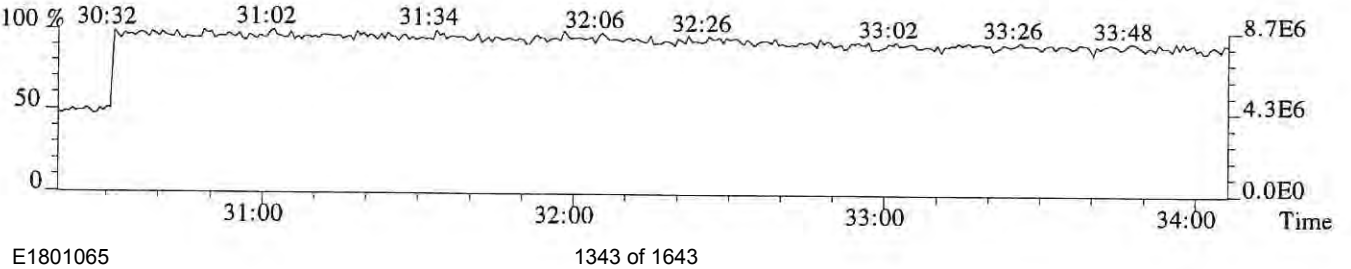
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



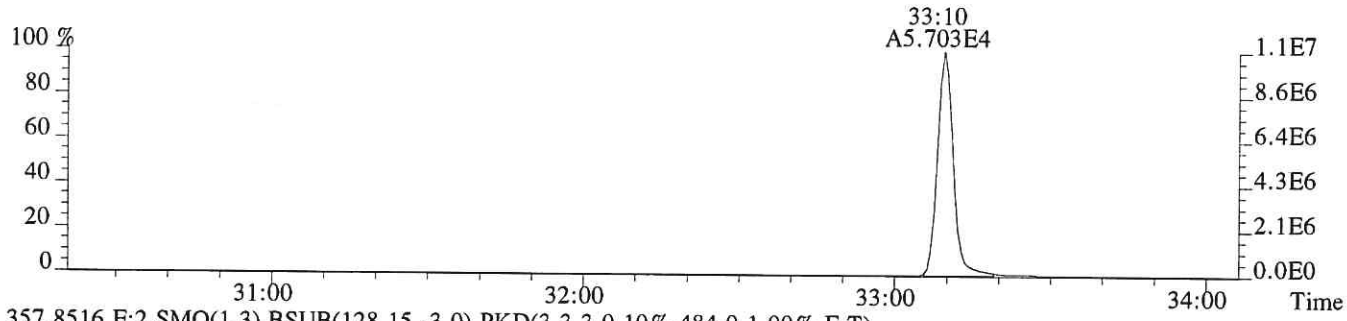
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



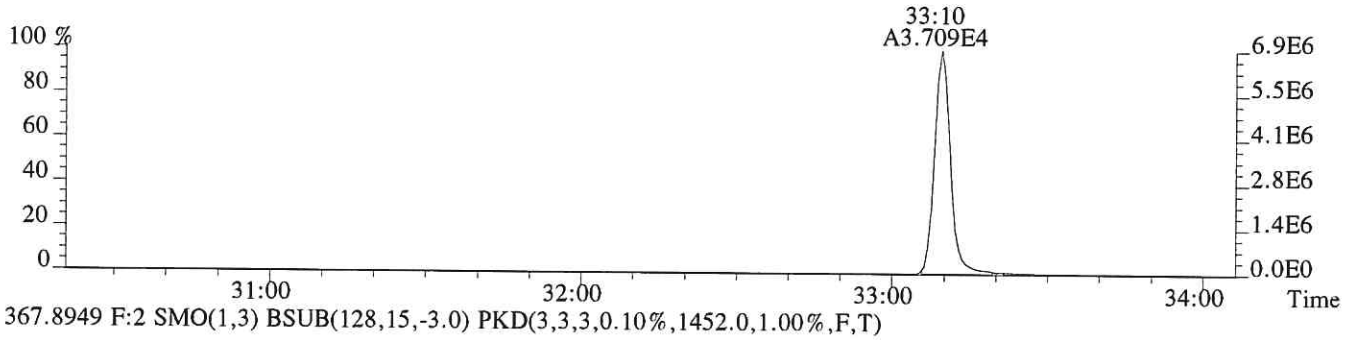
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



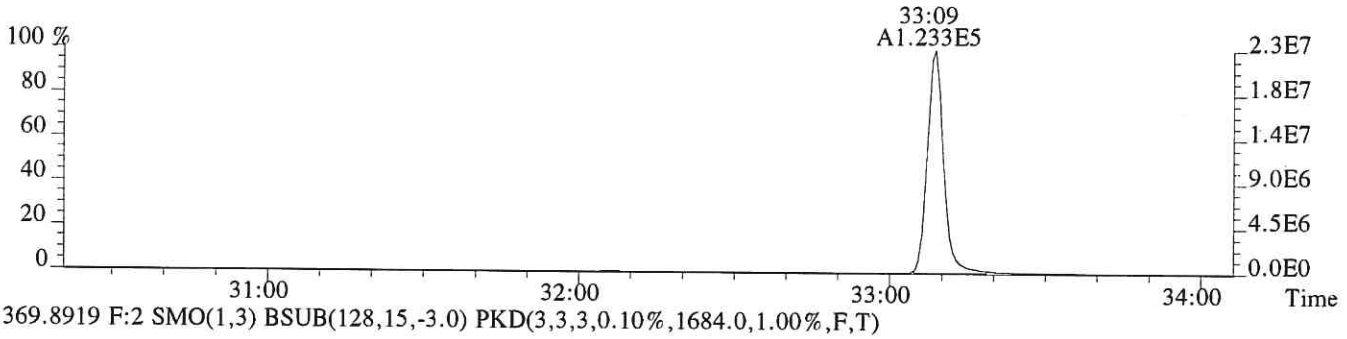
File:P615967 #1-339 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



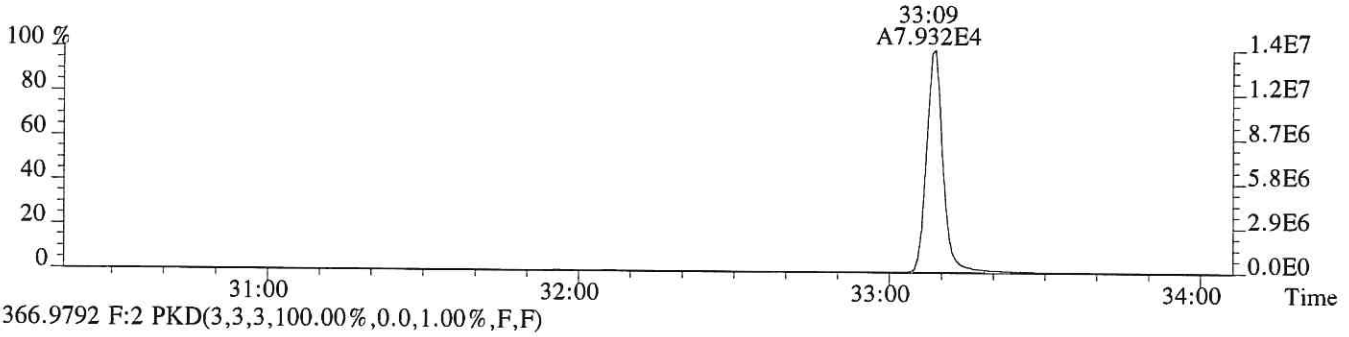
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



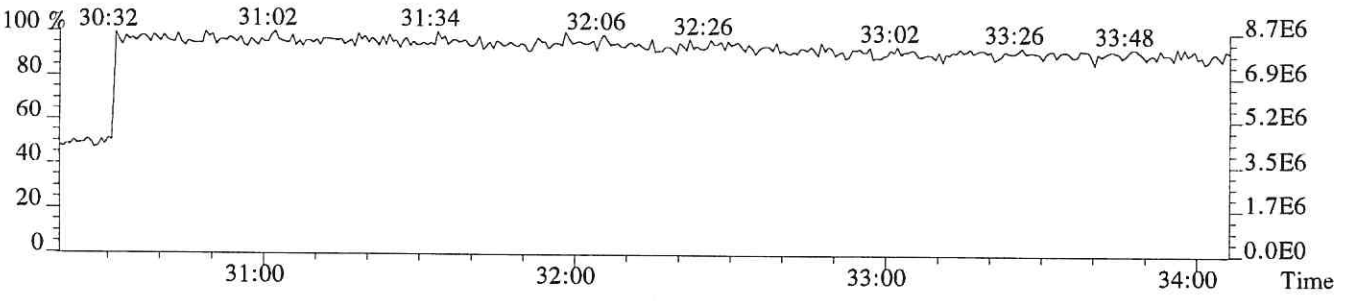
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



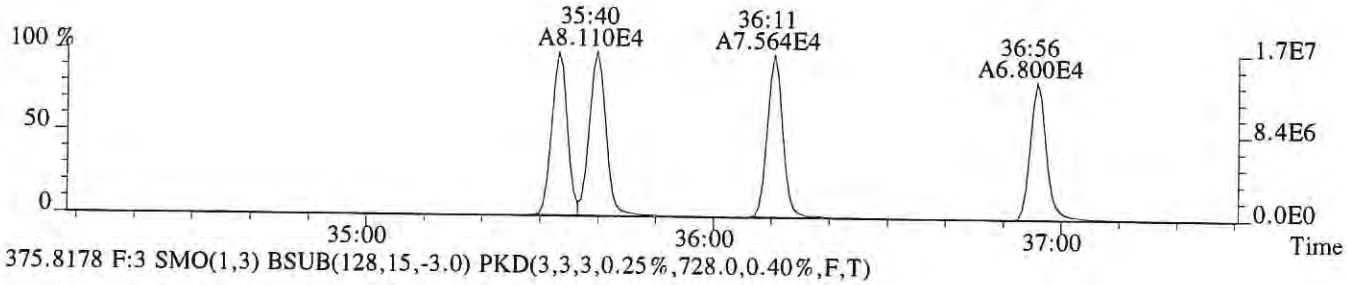
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



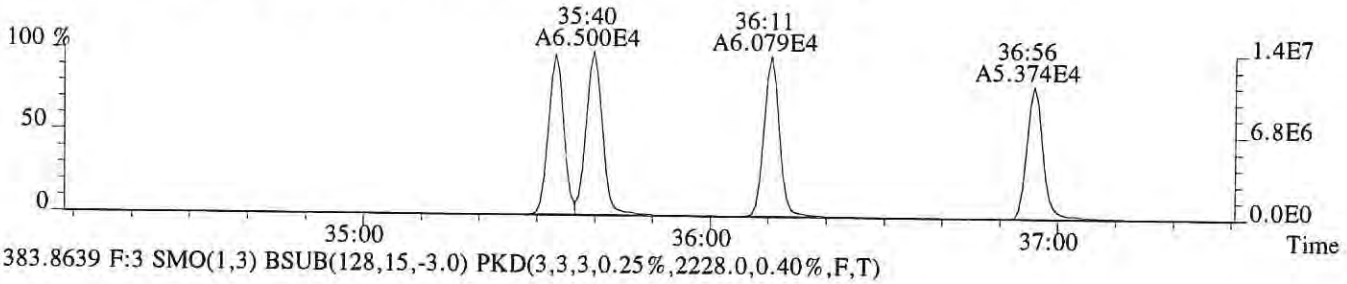
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



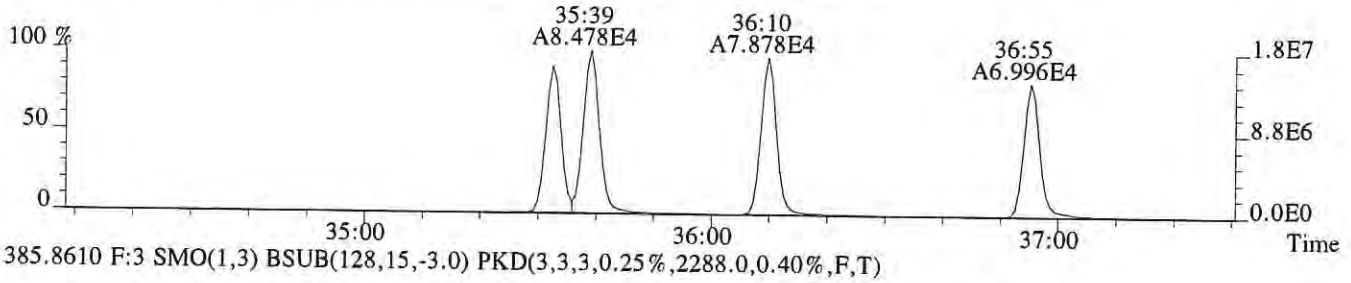
File:P615967 #1-304 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



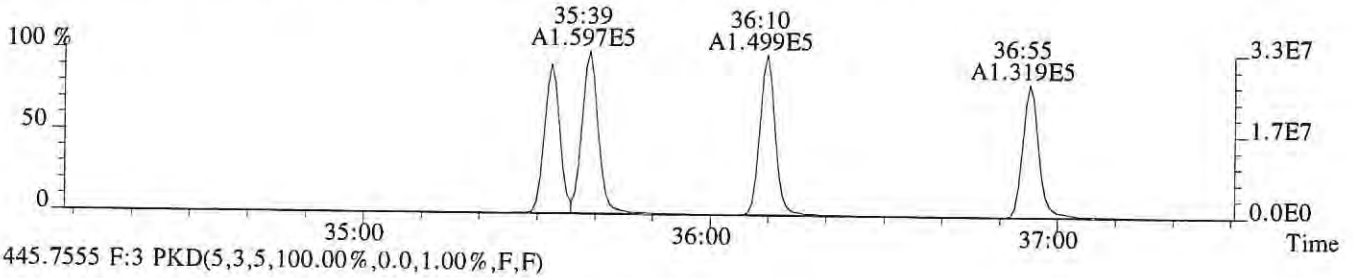
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



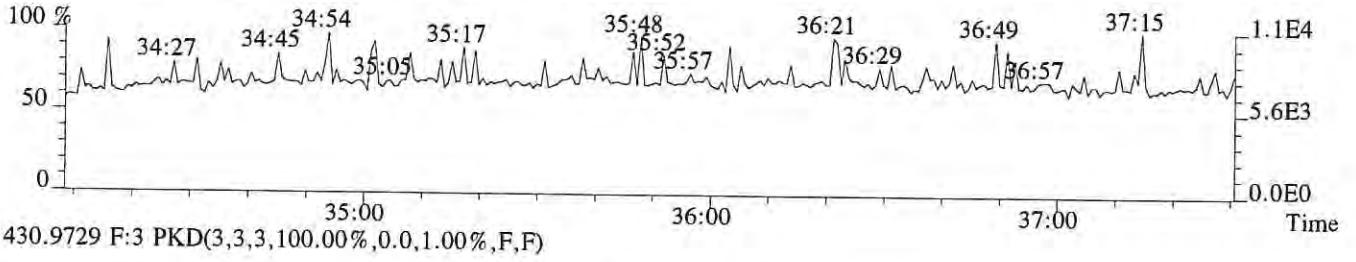
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2228.0,0.40%,F,T)



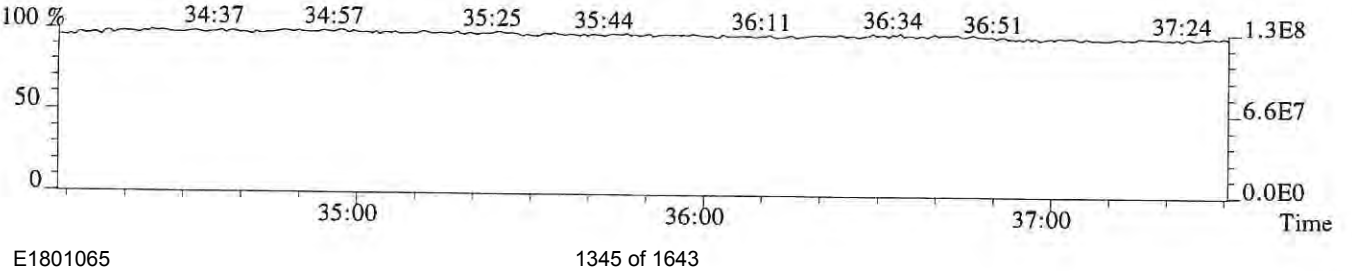
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2288.0,0.40%,F,T)



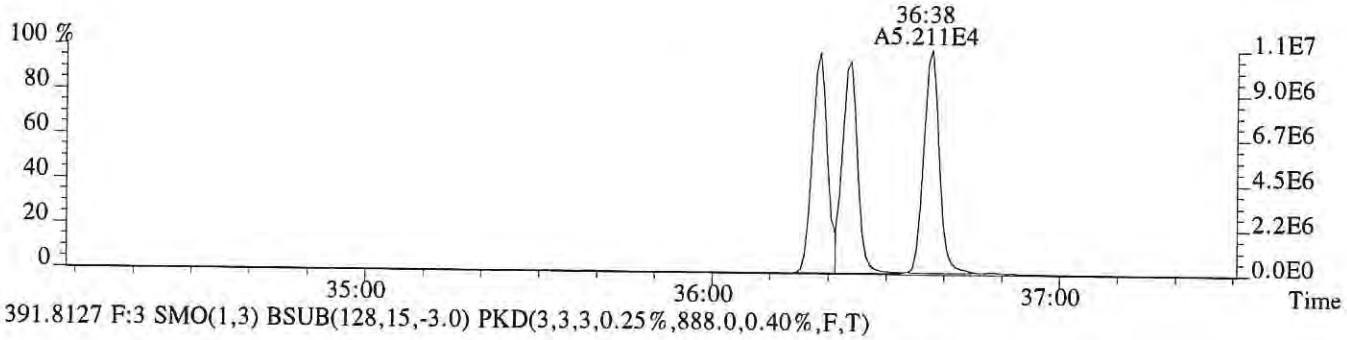
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



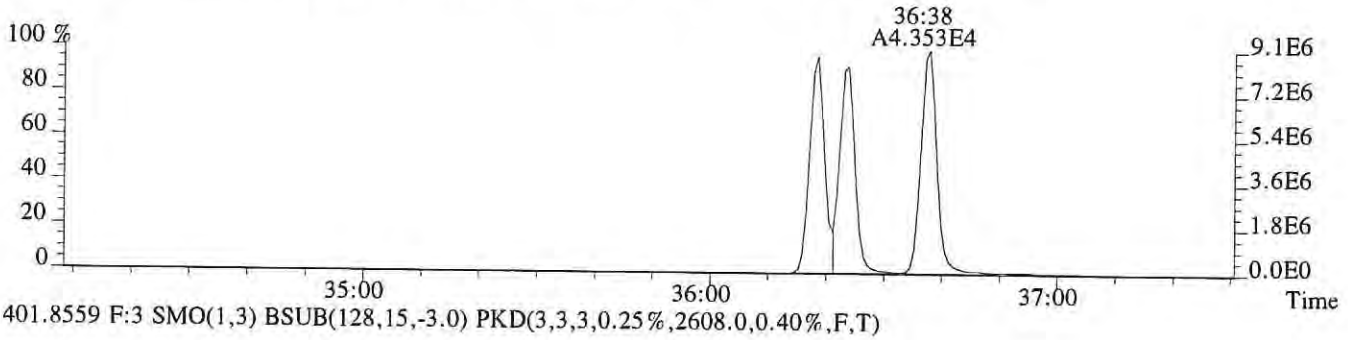
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



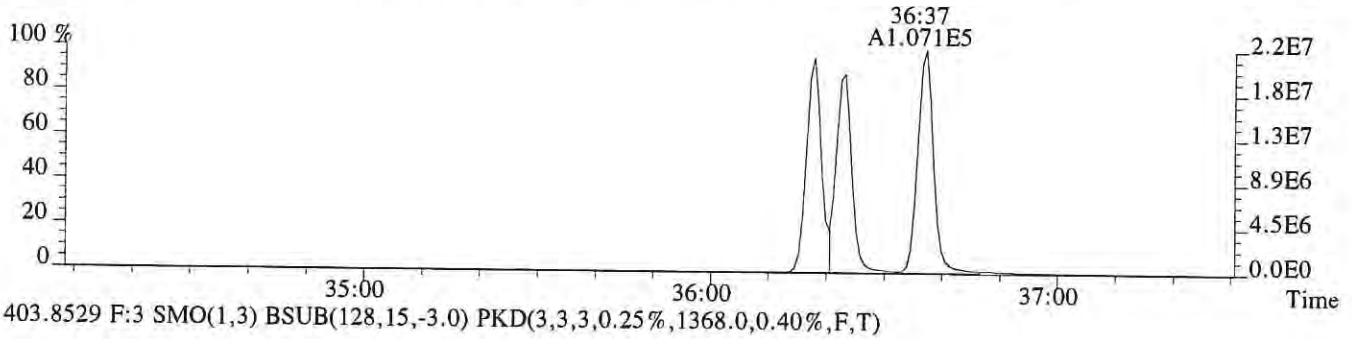
File:P615967 #1-304 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



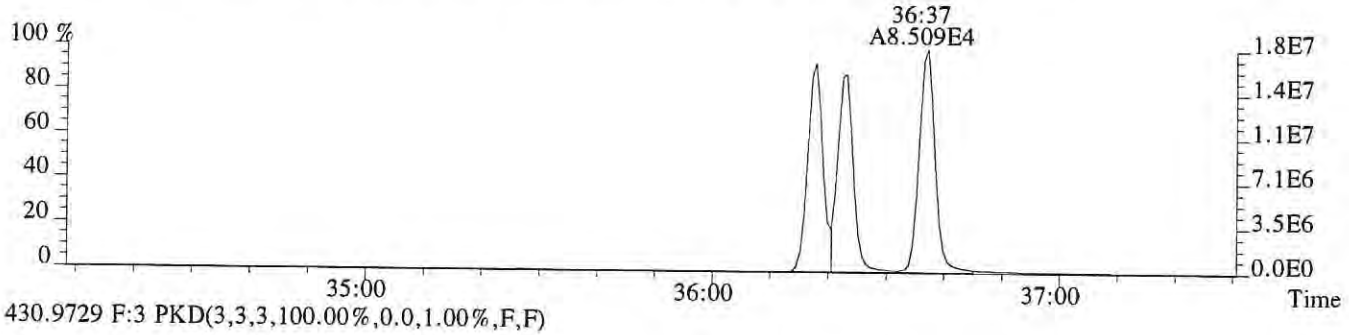
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



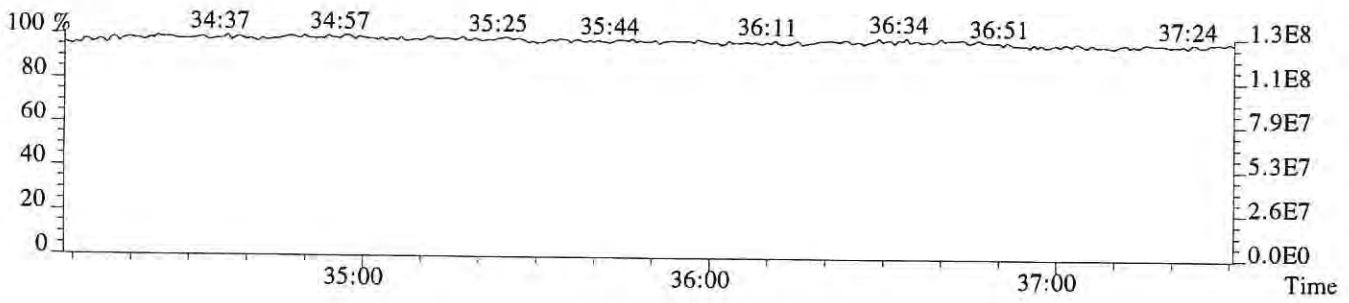
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



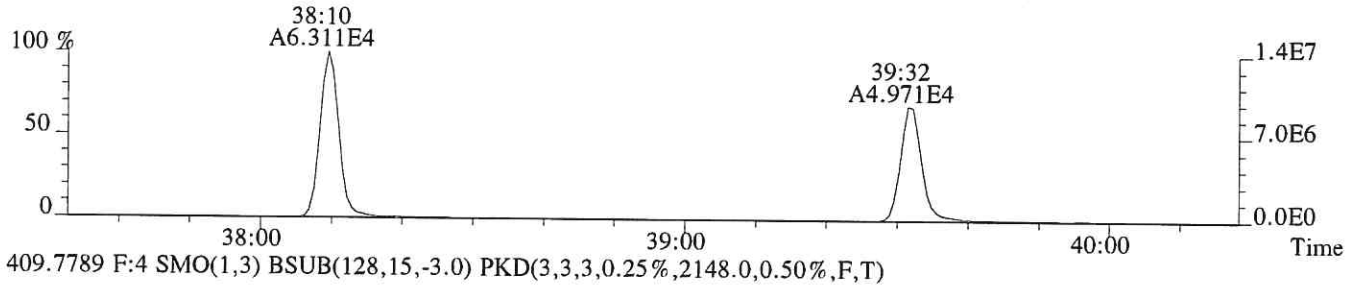
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



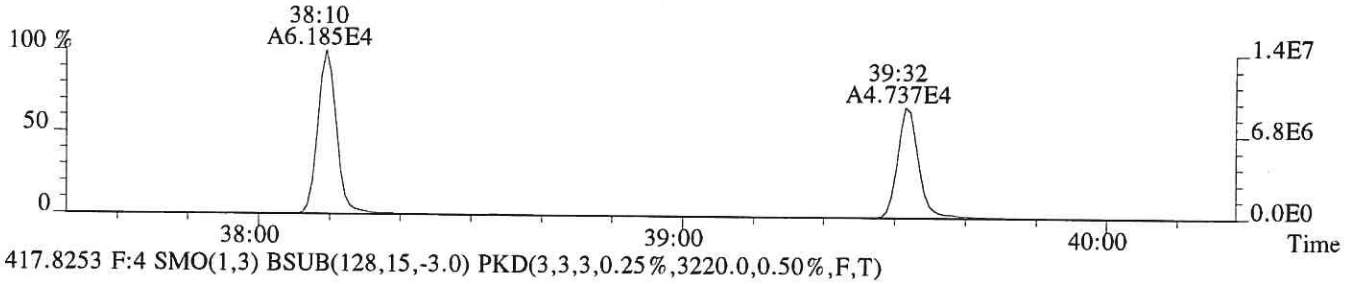
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



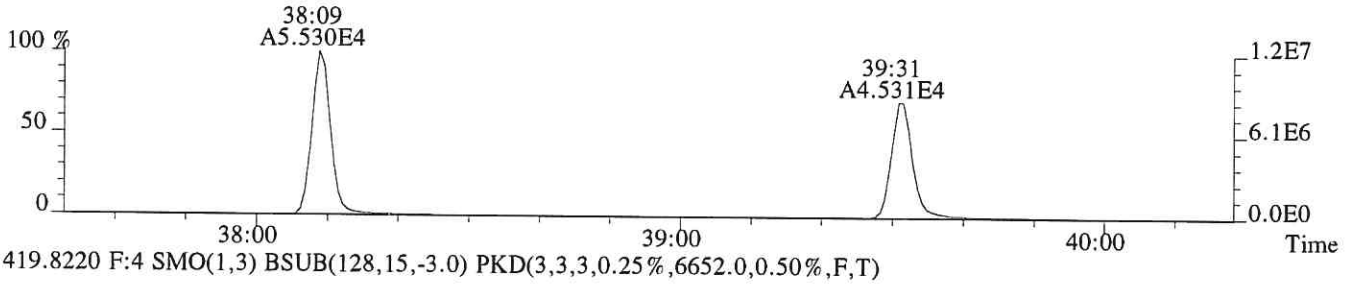
File:P615967 #1-249 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7216.0,0.50%,F,T)



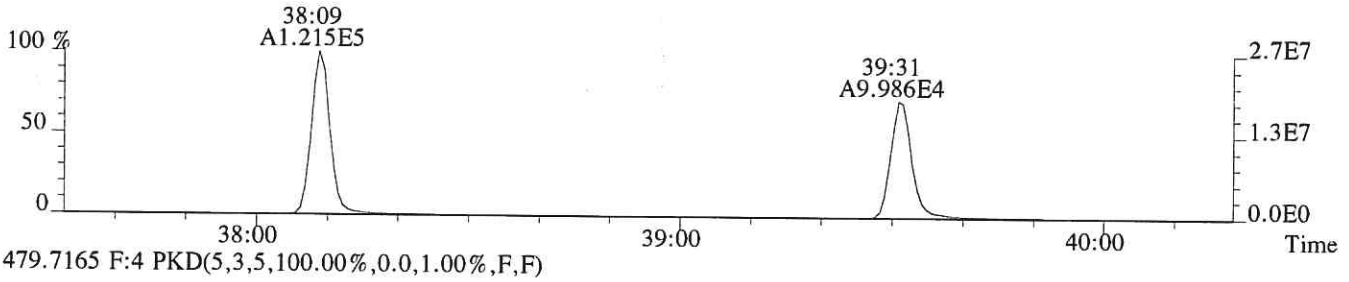
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2148.0,0.50%,F,T)



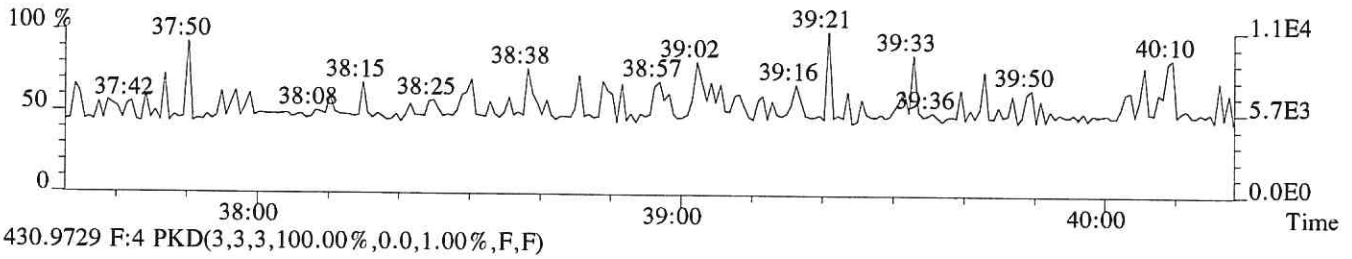
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3220.0,0.50%,F,T)



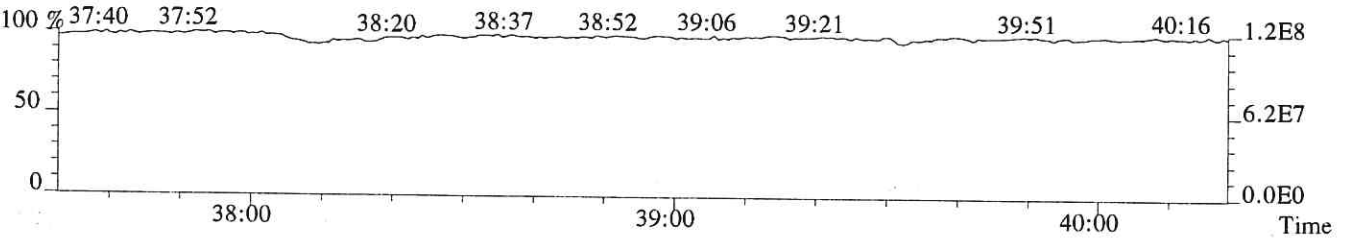
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6652.0,0.50%,F,T)



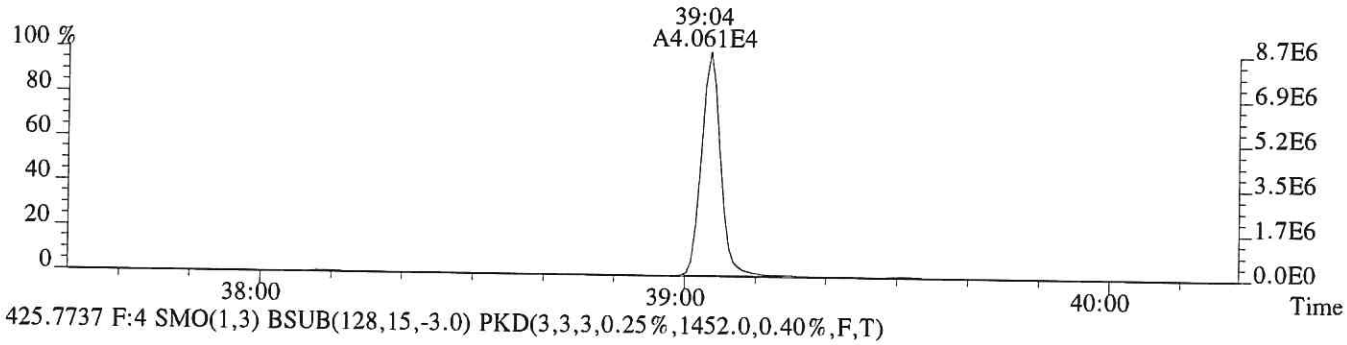
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



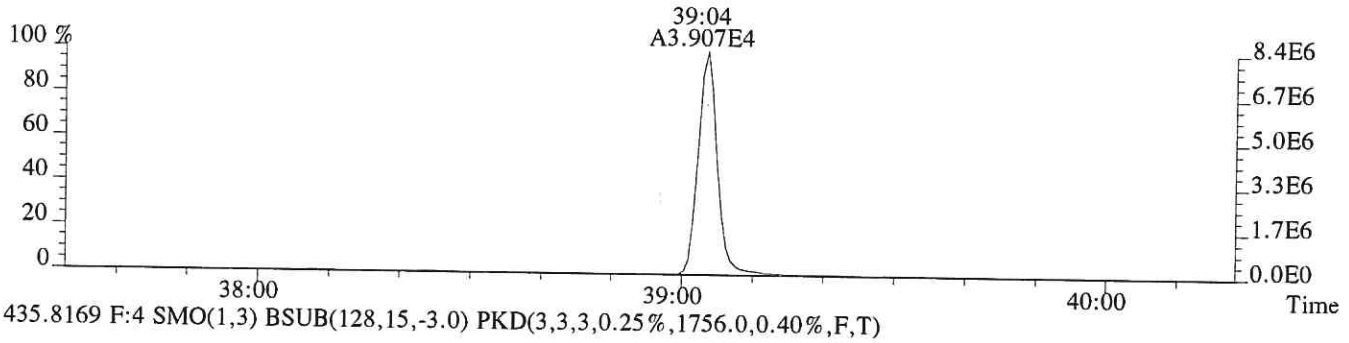
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



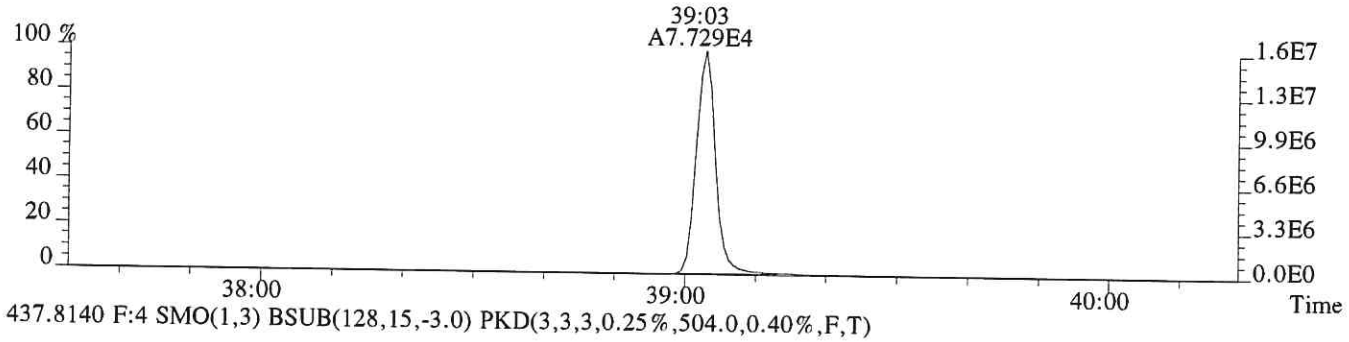
File:P615967 #1-249 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



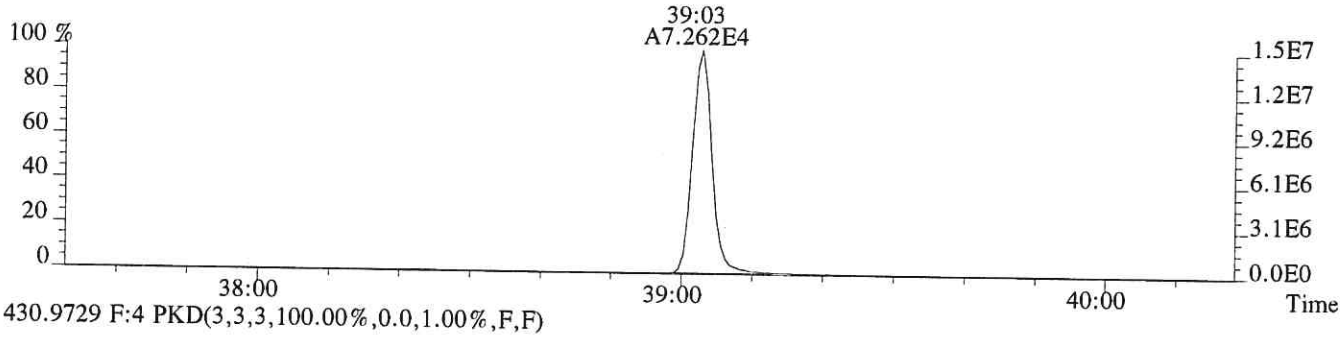
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.40%,F,T)



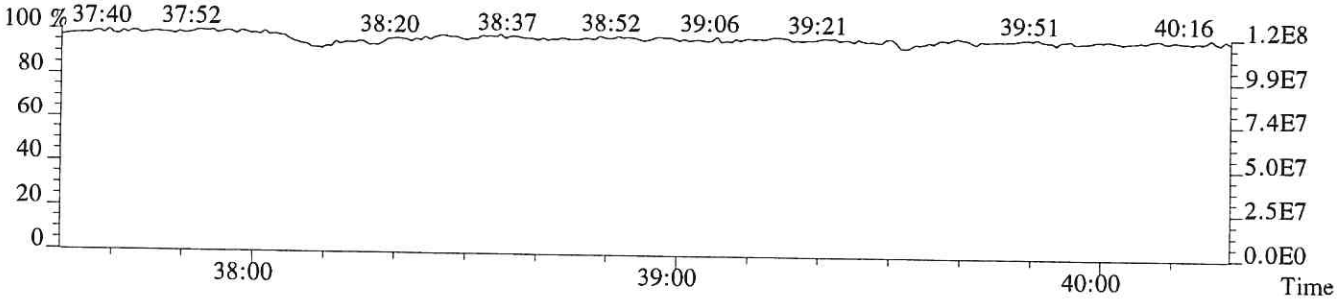
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.40%,F,T)



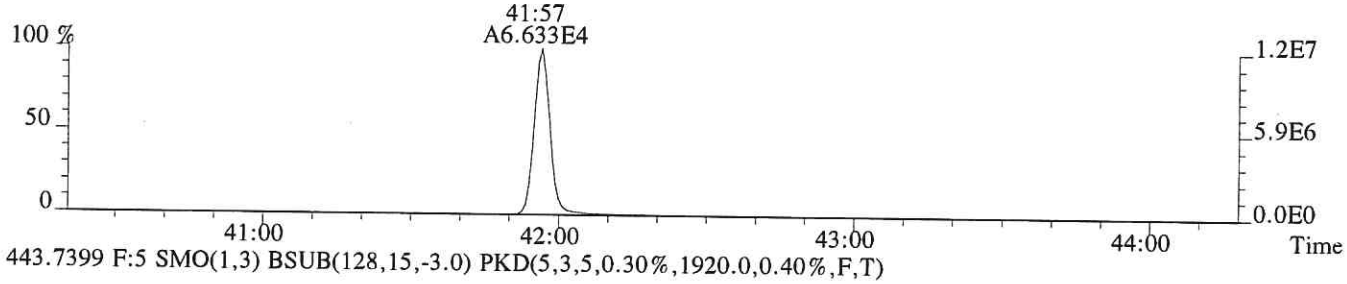
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



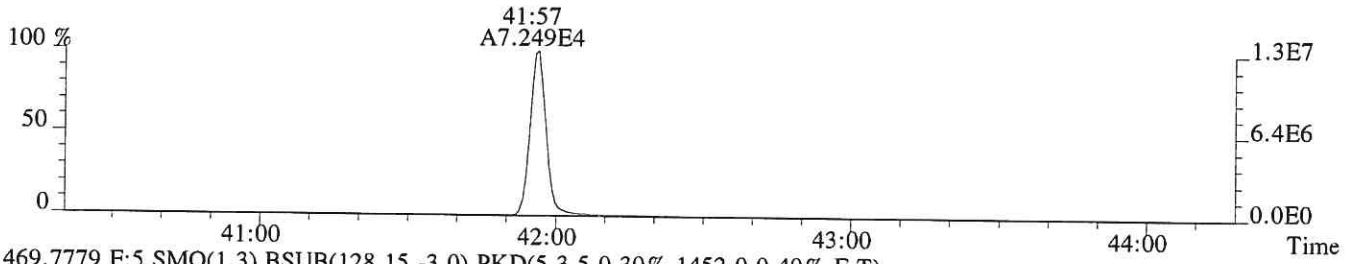
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



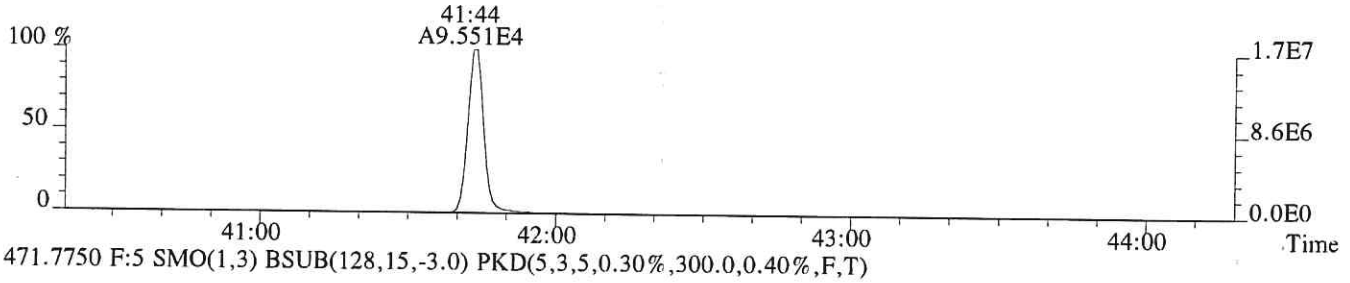
File:P615967 #1-357 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



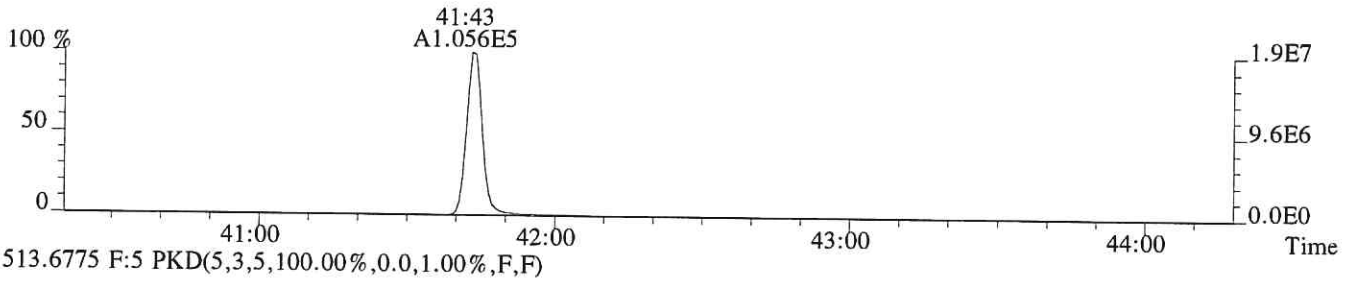
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1920.0,0.40%,F,T)



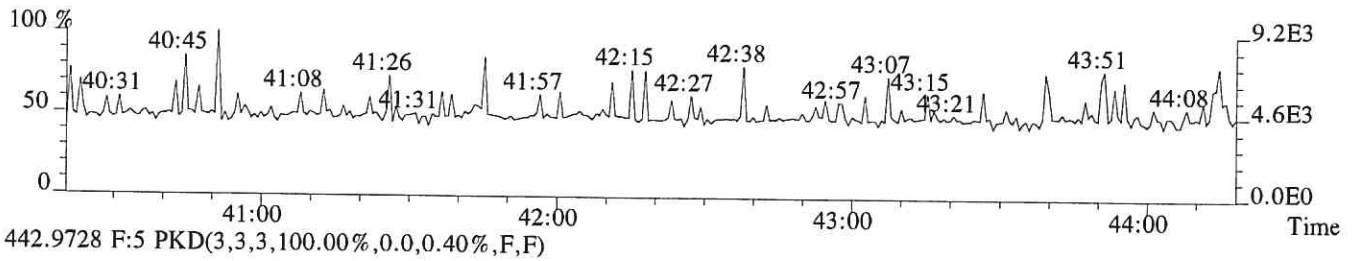
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1452.0,0.40%,F,T)



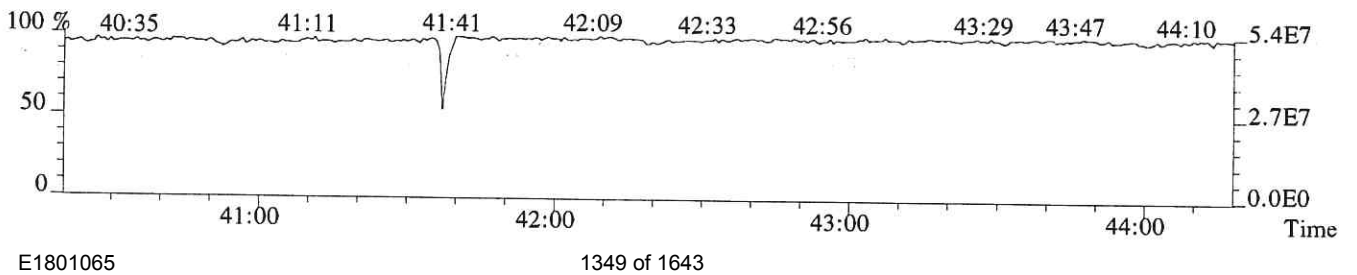
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



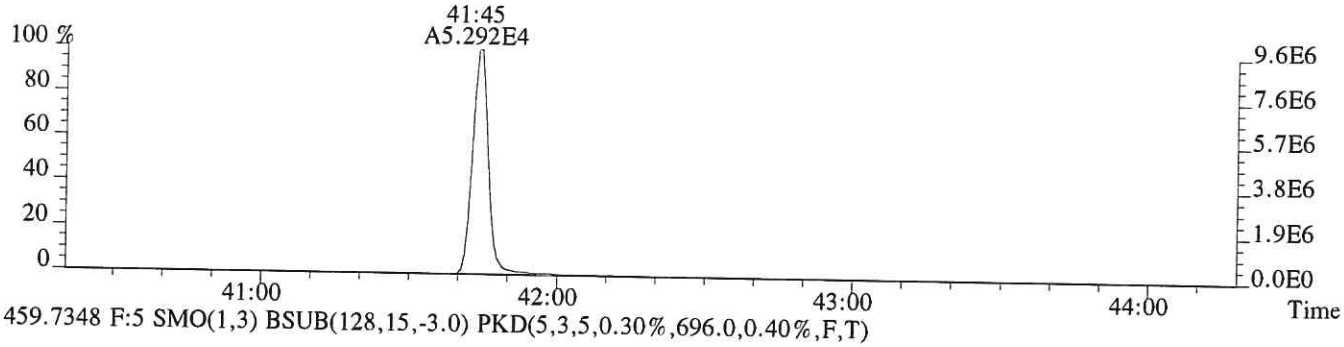
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



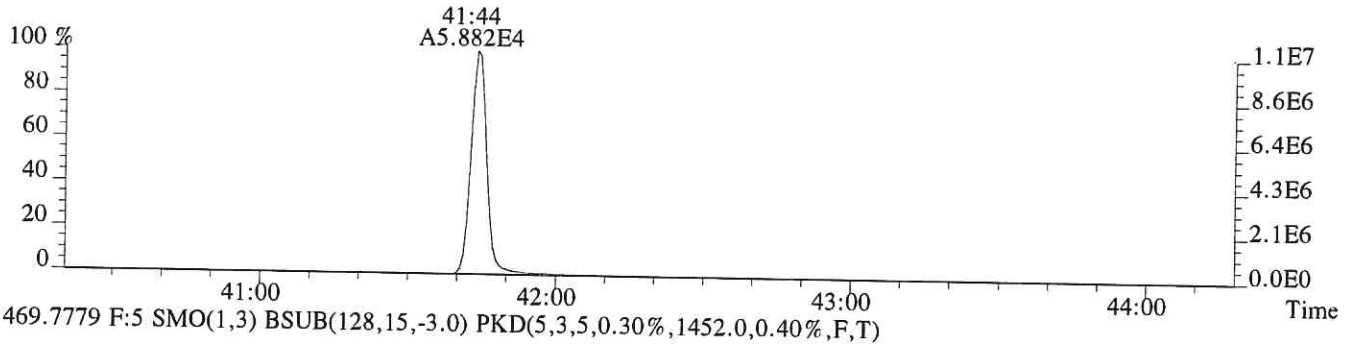
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



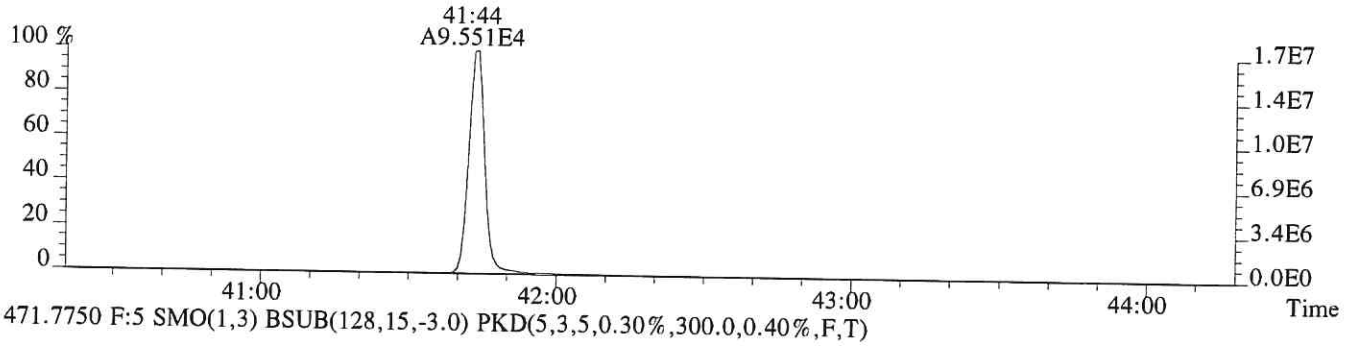
File:P615967 #1-357 Acq: 7-DEC-2018 09:44:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



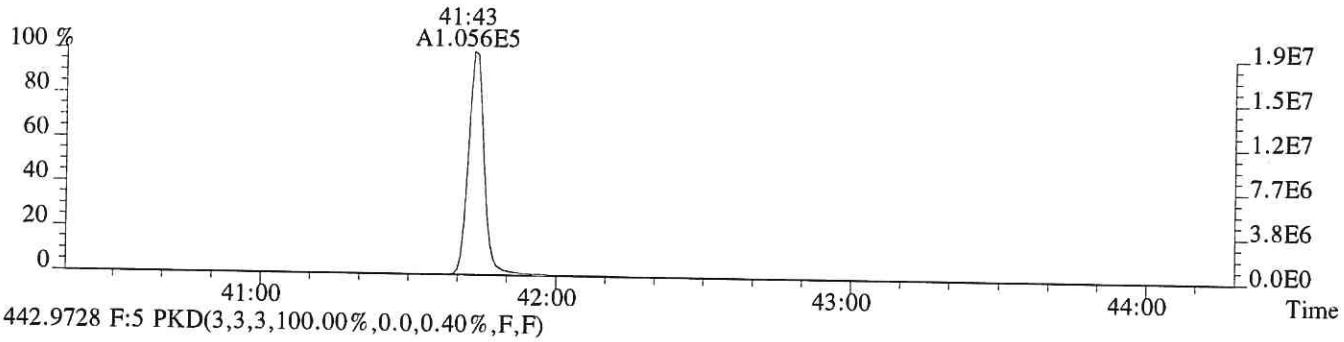
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



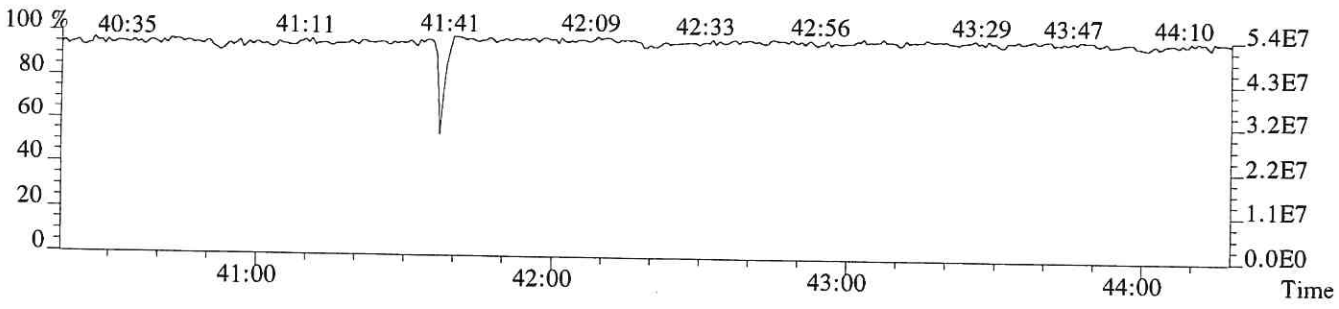
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1452.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P616023

Date: 12/10 - 12/11/18

Circle one: (Beginning) / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: LKL Second QC: LG

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P616025	10-DEC-18	20:50:06
194503	CS3	P616023	10-DEC-18	19:05:19
METHOD BLANK	EQ1800489-01	P616026	10-DEC-18	21:39:16
METHOD BLANK	EQ1800503-01	P616027	10-DEC-18	22:28:26
#3 BLEACH PLANT	E1801077-001	P616028	10-DEC-18	23:17:35
OUTFALL 001 EFFLUE┐	J1808271-002	P616029	11-DEC-18	00:06:44
77527-5 EFF	E1801082-001	P616030	11-DEC-18	00:55:54
2018-Q4-002	E1801083-001	P616031	11-DEC-18	01:45:04
SL0573	E1801065-023	P616032	11-DEC-18	02:34:13
SL0574	E1801065-024	P616033	11-DEC-18	03:23:22
SL0575	E1801065-025	P616034	11-DEC-18	04:12:33
SL0576	E1801065-026	P616035	11-DEC-18	05:01:42
LCS	EQ1800503-02	P616036	11-DEC-18	05:50:51
DLCS	EQ1800503-03	P616037	11-DEC-18	06:40:01

E1801065

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181210B.SPL
Last Modified: Tuesday, December 11, 2018 08:11:49 Central Standard Time
Printed: Tuesday, December 11, 2018 08:11:51 Central Standard Time

Page Position (1, 1)

OPUS 5 NET: P616023 RES

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/10/18	19:05	P616023	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	1+RMS check 20:01
2		20:50	P616025	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
3		21:39	P616026	EQ1800489-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		22:28	P616027	EQ1800503-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		23:17	P616028	E1801077-001	E1801077-001	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6	12/11/18	00:06	P616029	J1808271-002	J1808271-002	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		00:55	P616030	E1801082-001	E1801082-001	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		01:45	P616031	E1801083-001	E1801083-001	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		02:34	P616032	E1801065-023	E1801065-023	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		03:23	P616033	E1801065-024	E1801065-024	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		04:12	P616034	E1801065-025	E1801065-025	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		05:01	P616035	E1801065-026	E1801065-026	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		05:50	P616036	EQ1800503-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:2		
14		06:40	P616037	EQ1800503-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15		07:29	P616038	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:1		1+RMS check 68:45
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

1353 of 1643

dupped file P616024

LKL 12/13/18

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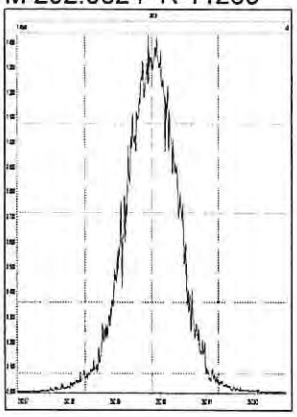
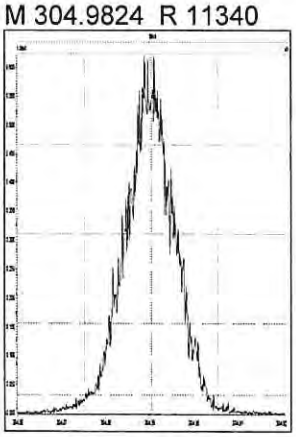


M 304.9824 R 11340



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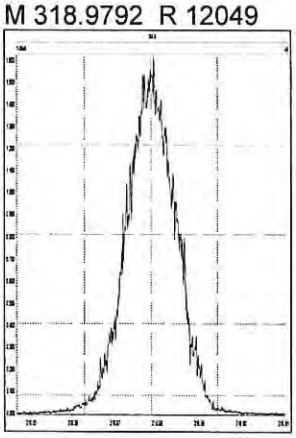

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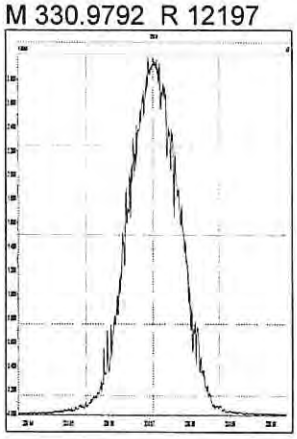

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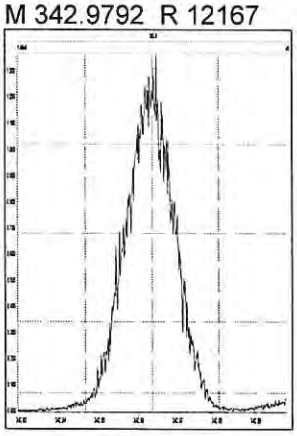

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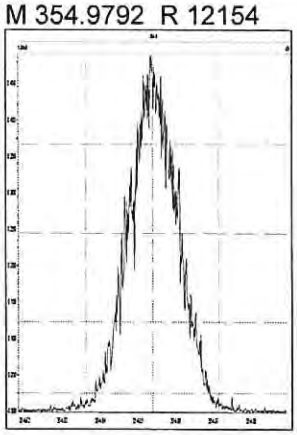

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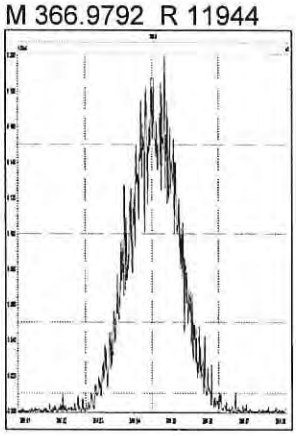
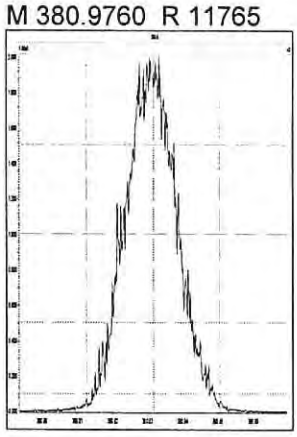


M 380.9760 R 11765



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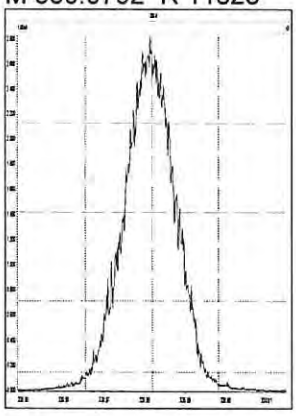

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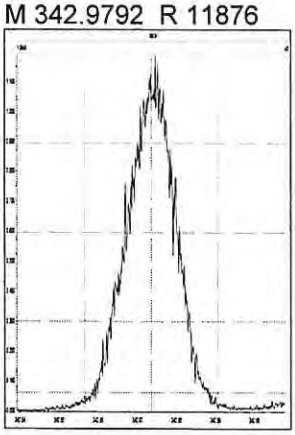

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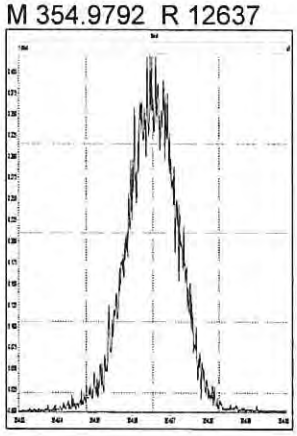

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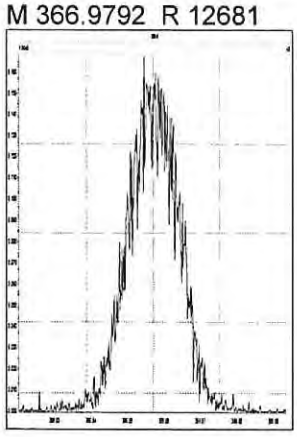

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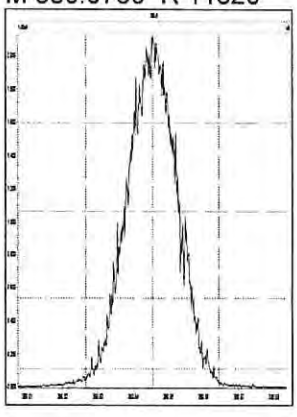

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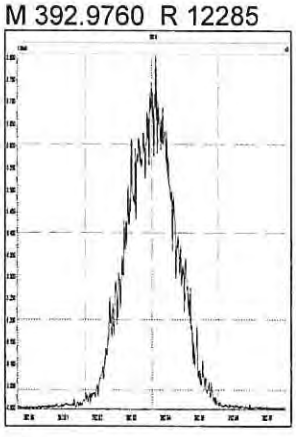

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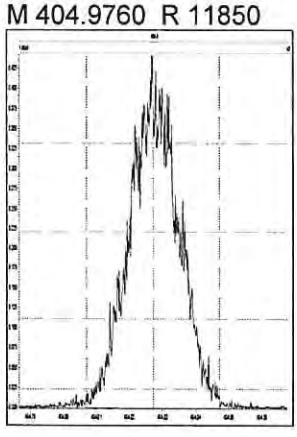

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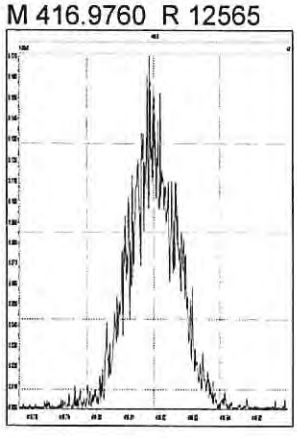

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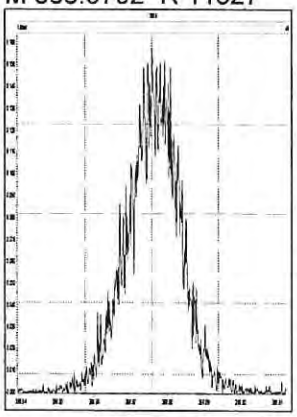

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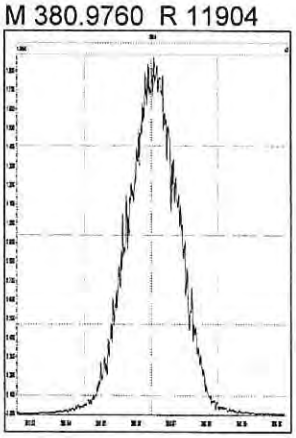

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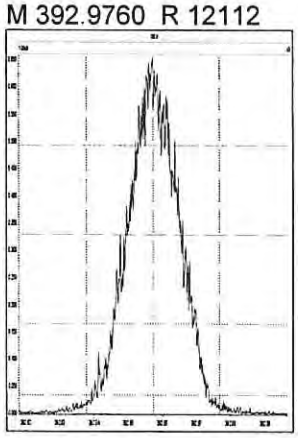

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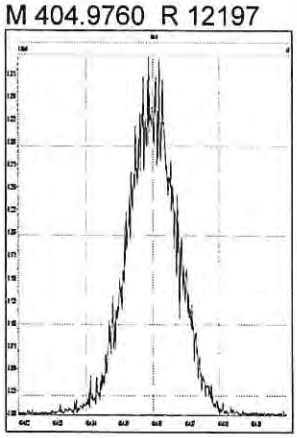

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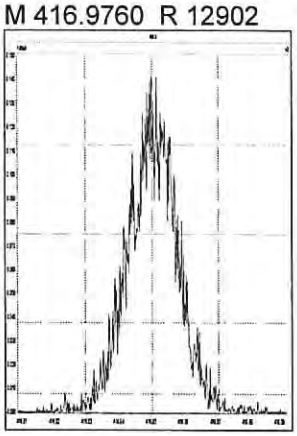

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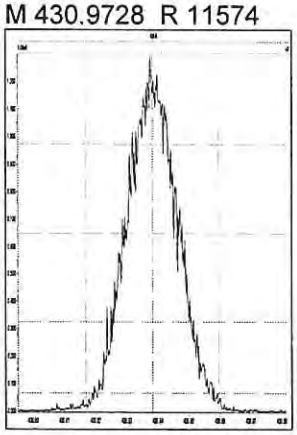

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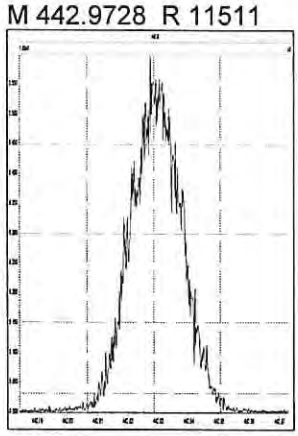

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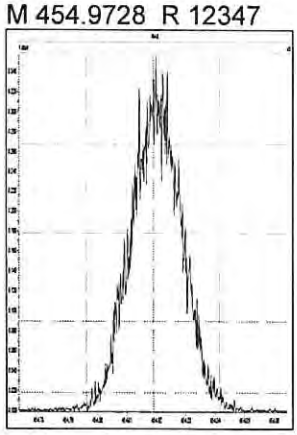

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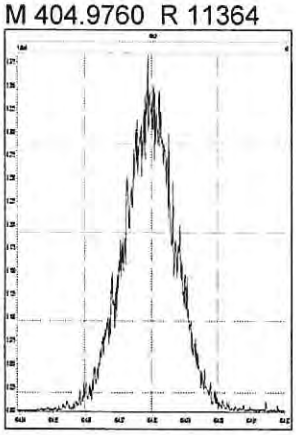

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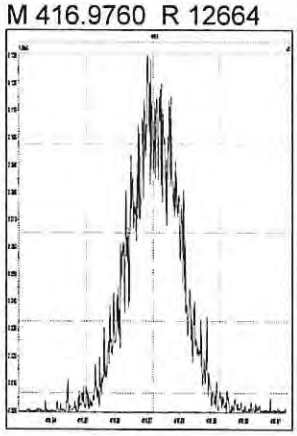

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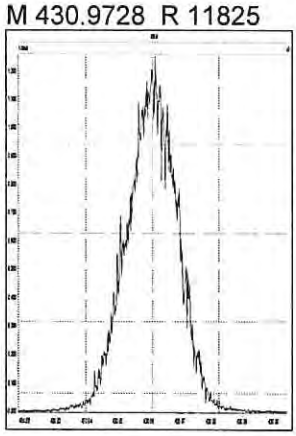

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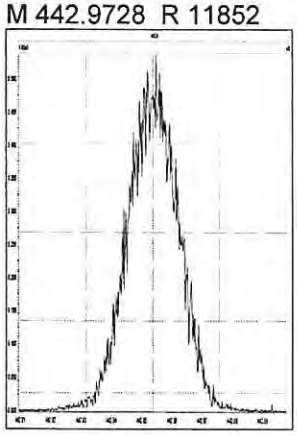

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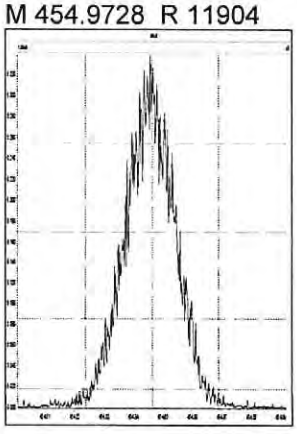

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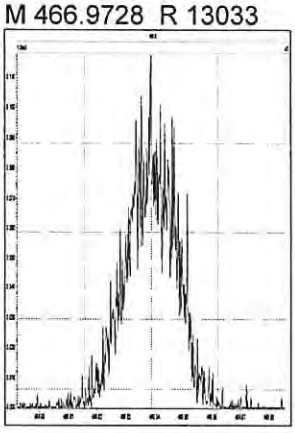

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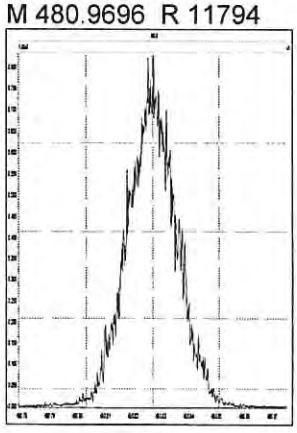

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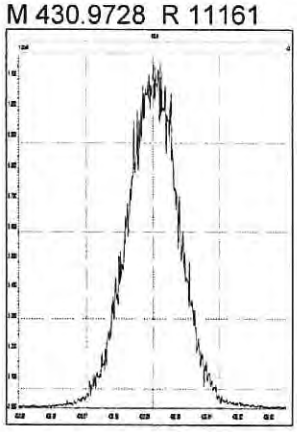

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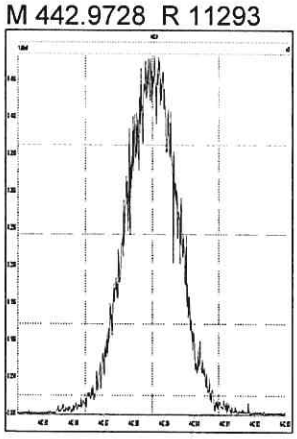

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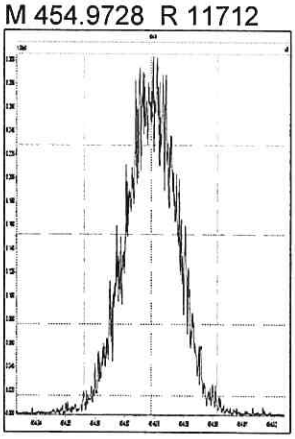

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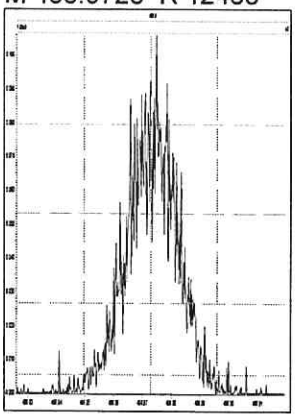

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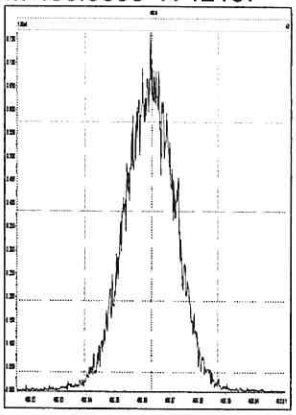

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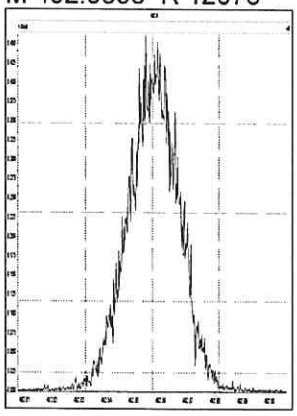

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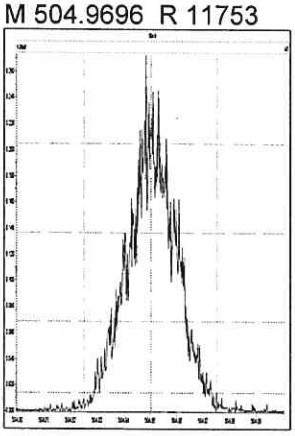

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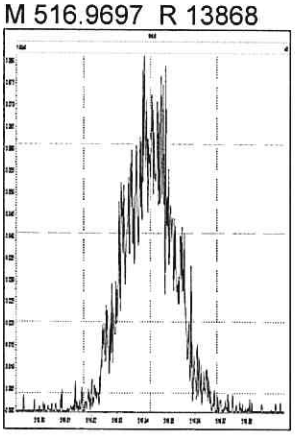
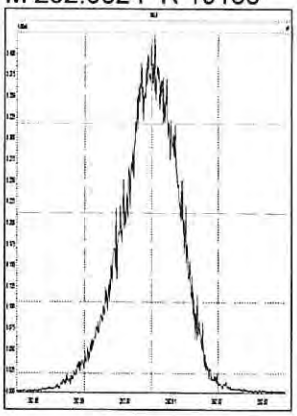


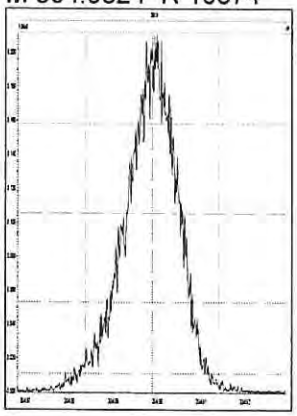
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 08:45:44 Central Standard Time

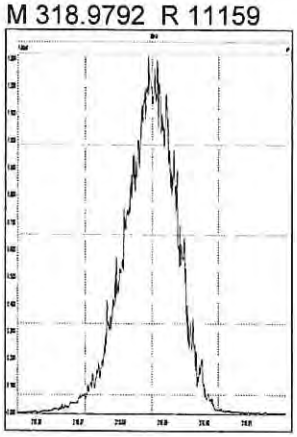
M 292.9824 R 10165



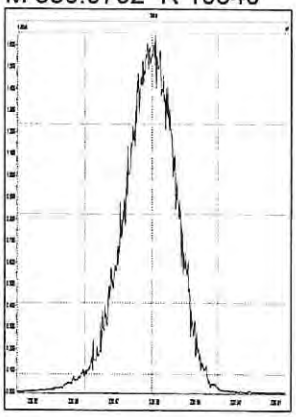
M 304.9824 R 10374



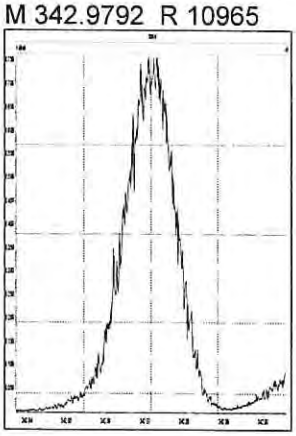
M 318.9792 R 11159



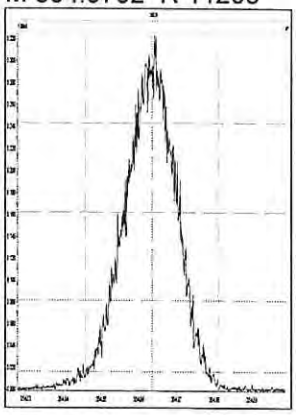
M 330.9792 R 10640



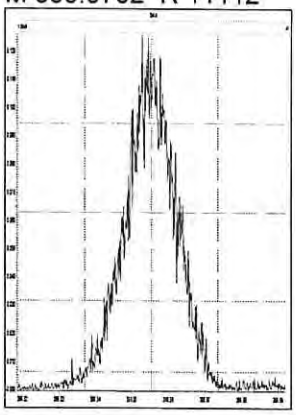
M 342.9792 R 10965



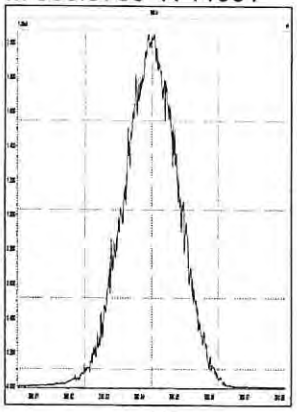
M 354.9792 R 11208



M 366.9792 R 11112



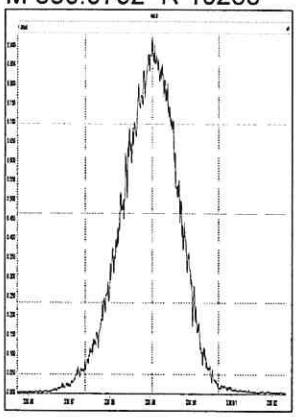
M 380.9760 R 11061



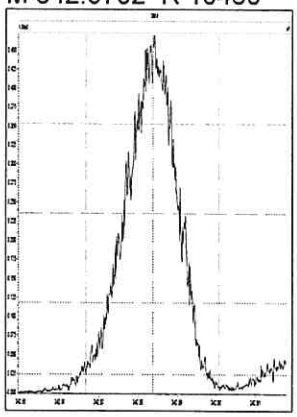
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 08:46:11 Central Standard Time

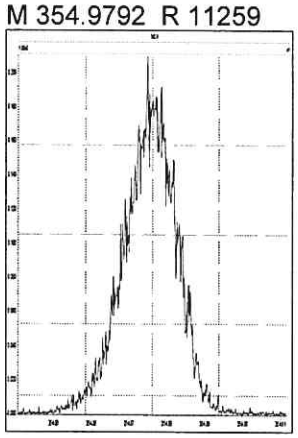
M 330.9792 R 10285



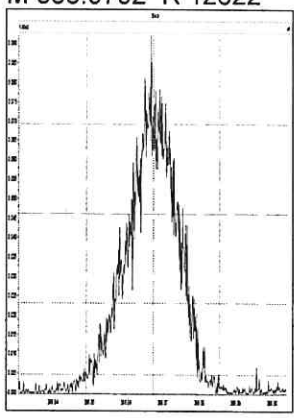
M 342.9792 R 10460



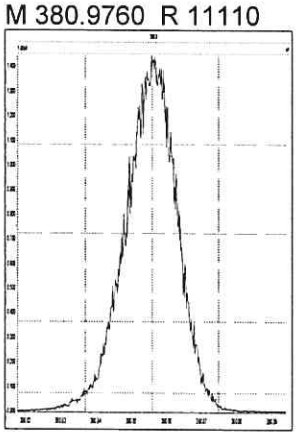
M 354.9792 R 11259



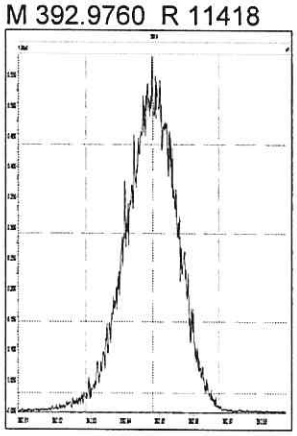
M 366.9792 R 12622



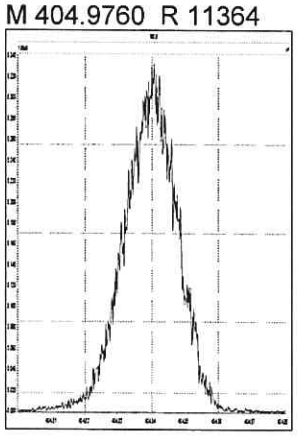
M 380.9760 R 11110



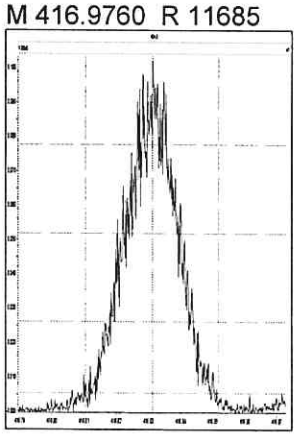
M 392.9760 R 11418



M 404.9760 R 11364



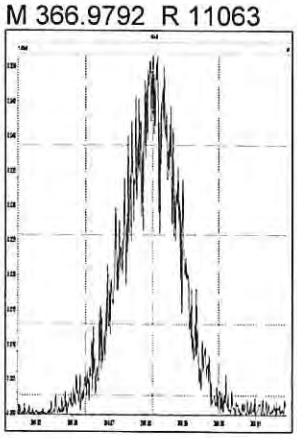
M 416.9760 R 11685



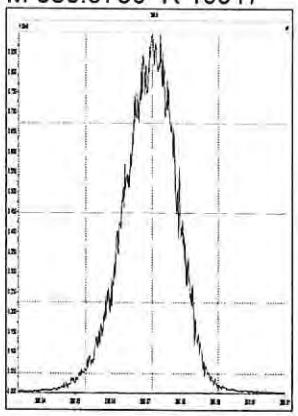
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 08:46:55 Central Standard Time

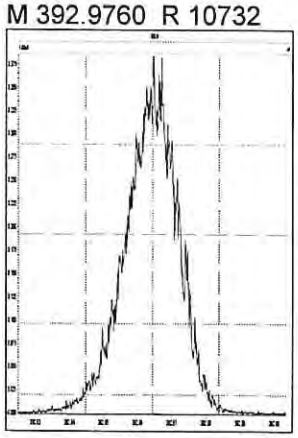
M 366.9792 R 11063



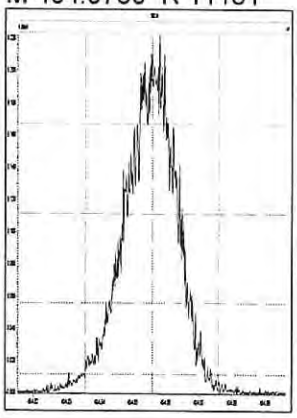
M 380.9760 R 10917



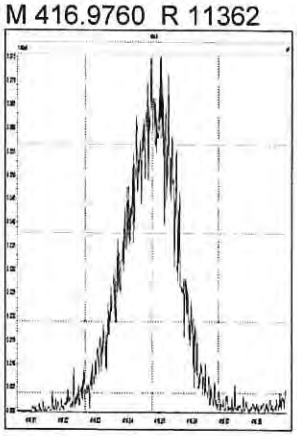
M 392.9760 R 10732



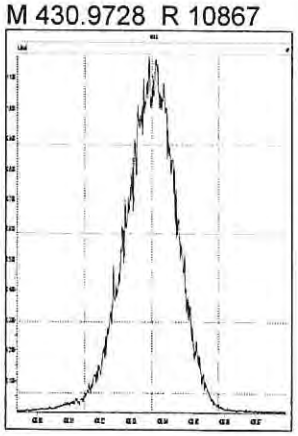
M 404.9760 R 11161



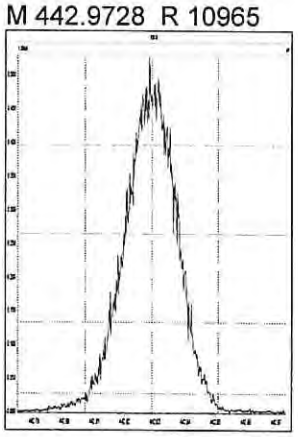
M 416.9760 R 11362



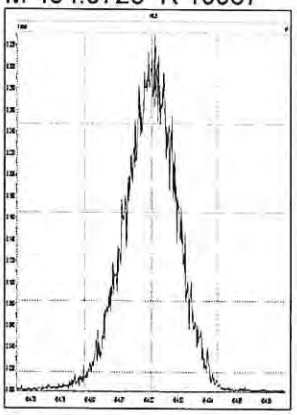
M 430.9728 R 10867



M 442.9728 R 10965



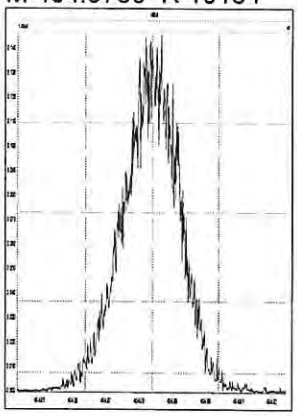
M 454.9728 R 10967



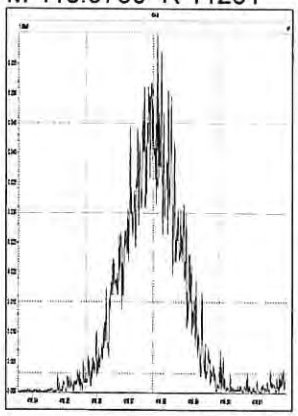
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 08:47:36 Central Standard Time

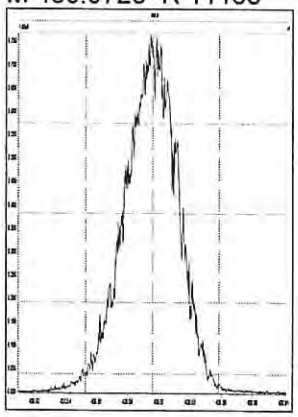
M 404.9760 R 10164



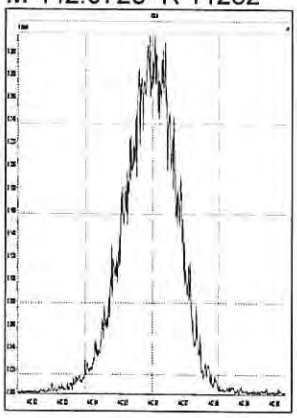
M 416.9760 R 11261



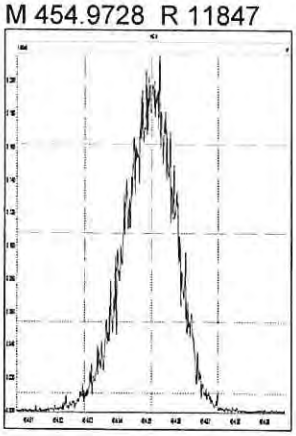
M 430.9728 R 11163



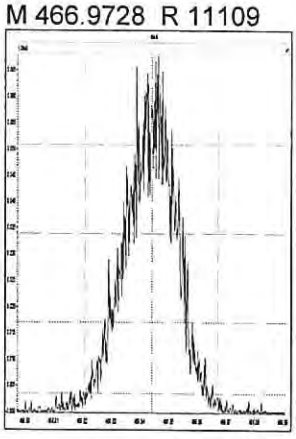
M 442.9728 R 11262



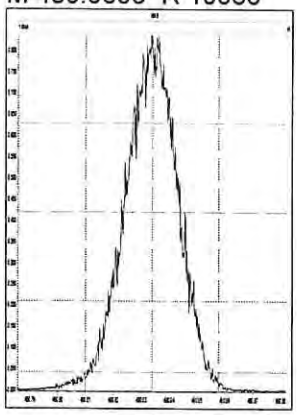
M 454.9728 R 11847



M 466.9728 R 11109



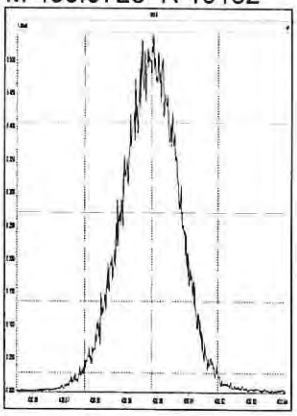
M 480.9696 R 10965



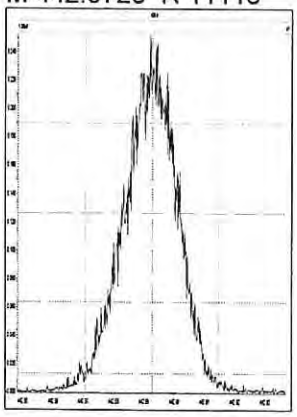
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 08:48:02 Central Standard Time

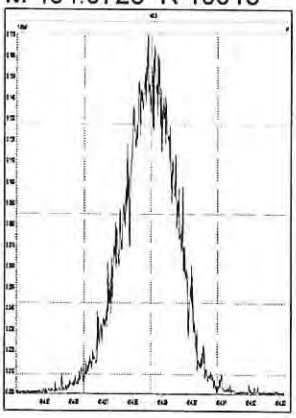
M 430.9728 R 10162



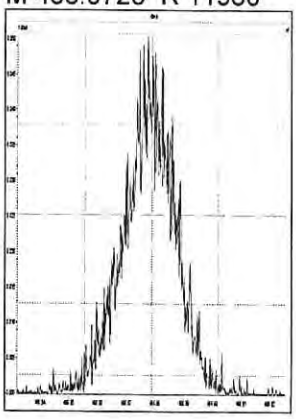
M 442.9728 R 11113



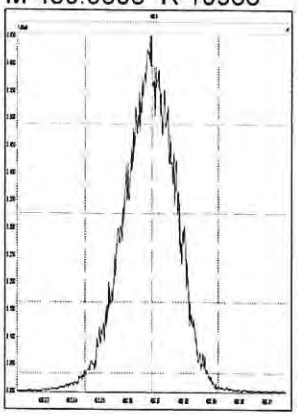
M 454.9728 R 10913



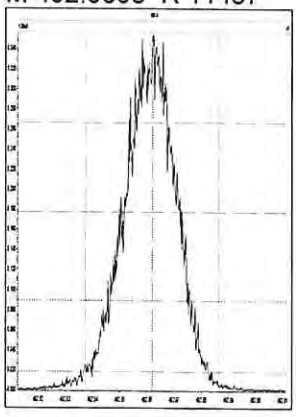
M 466.9728 R 11960



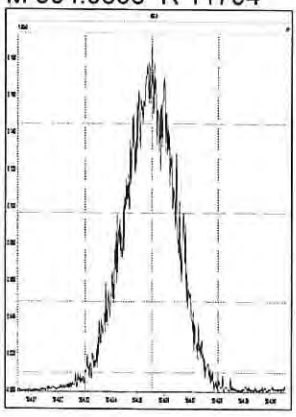
M 480.9696 R 10966



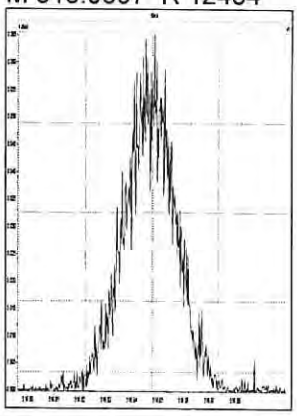
M 492.9696 R 11467



M 504.9696 R 11794



M 516.9697 R 12434



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

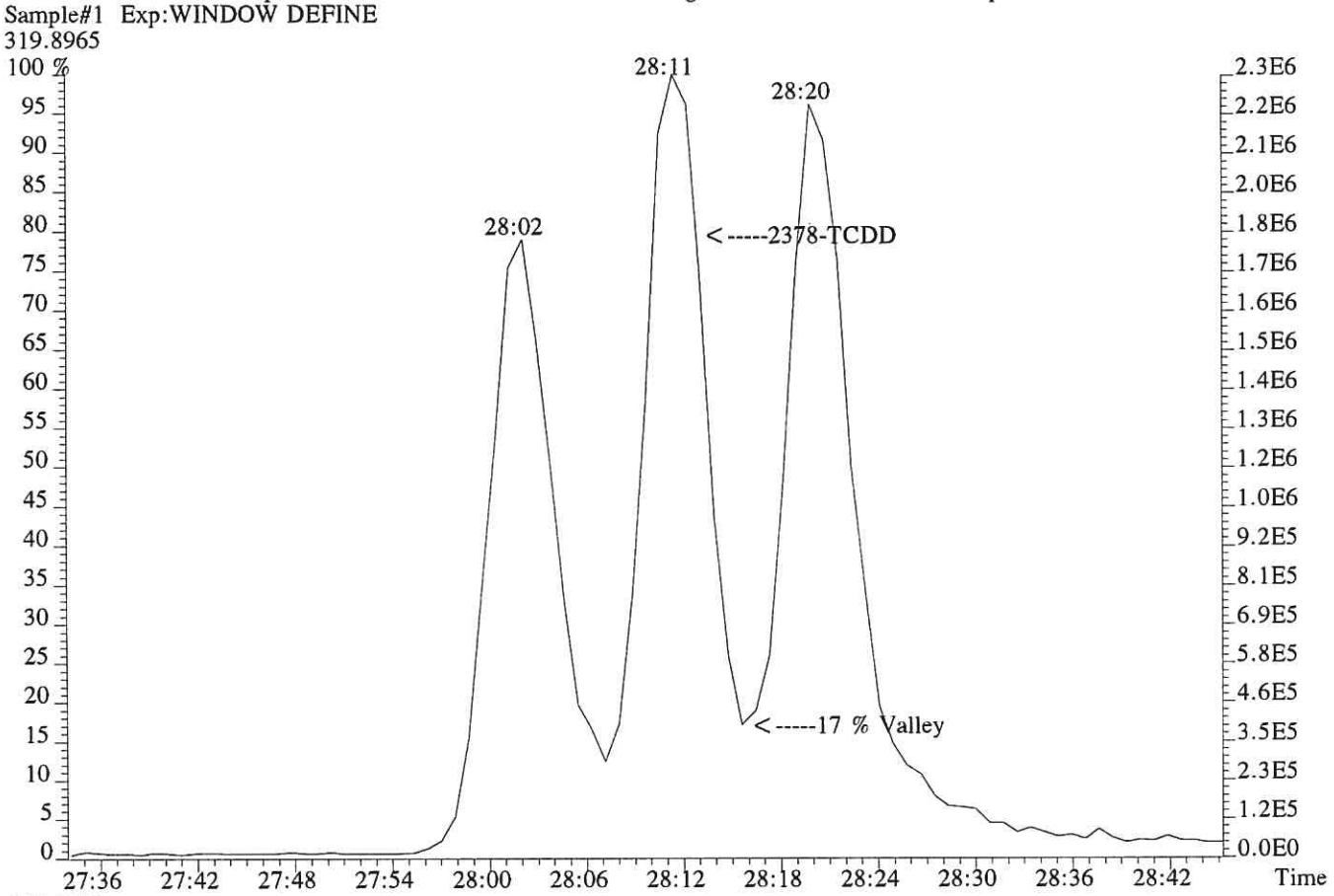
Case No.: _____ SDG No.:
ID: 0.25 (mm)

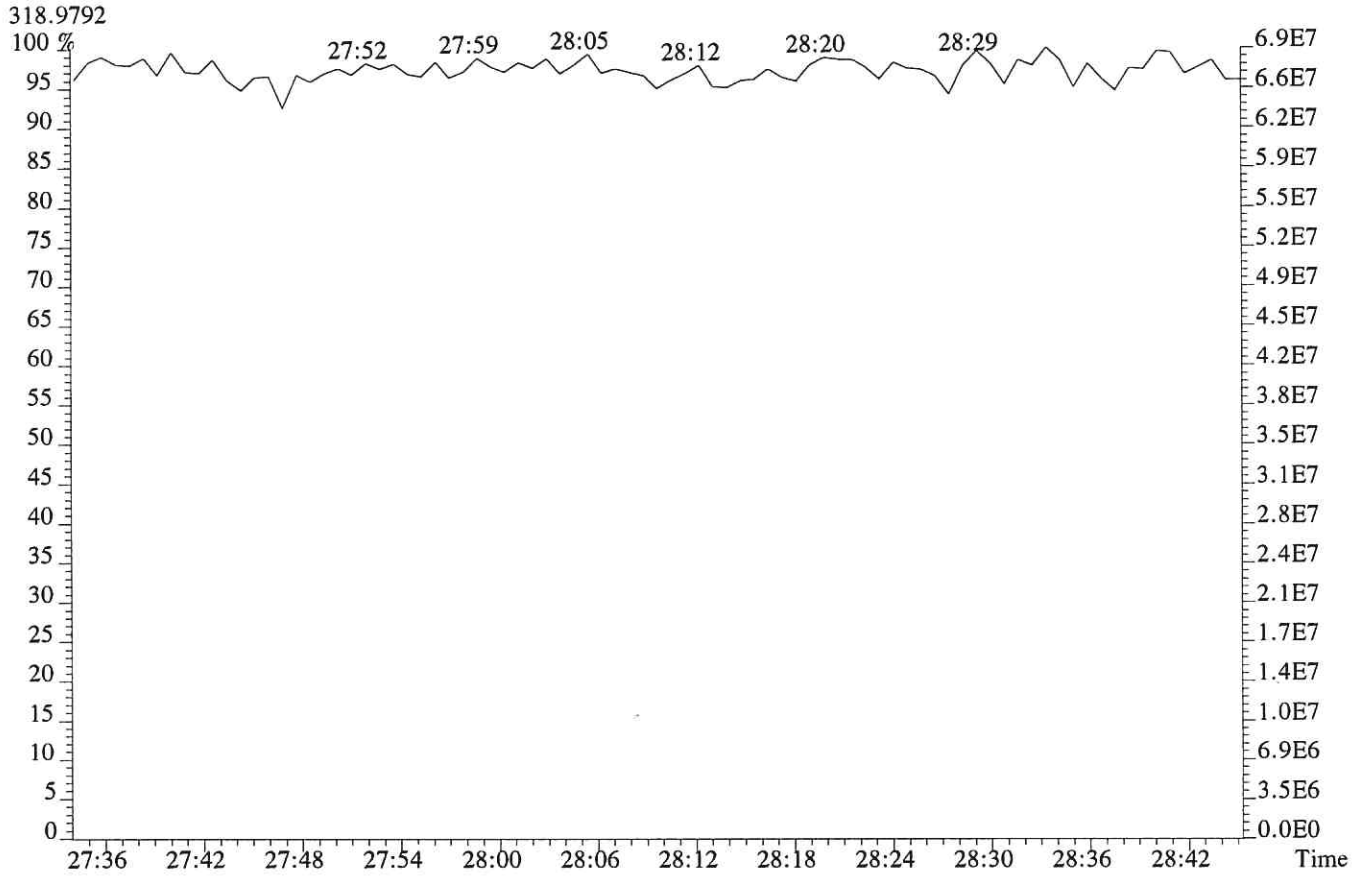
Lab File ID: P616025
Date Analyzed: 10-DEC-18
Time Analyzed: 20:50:06

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:51	29:27
TCDD	24:38	29:15
PeCDF	29:20	33:44
PeCDD	30:57	33:28
HxCDF	34:22	36:55
HxCDD	34:54	36:30
HpCDF	38:07	39:29
HpCDD	38:21	39:01

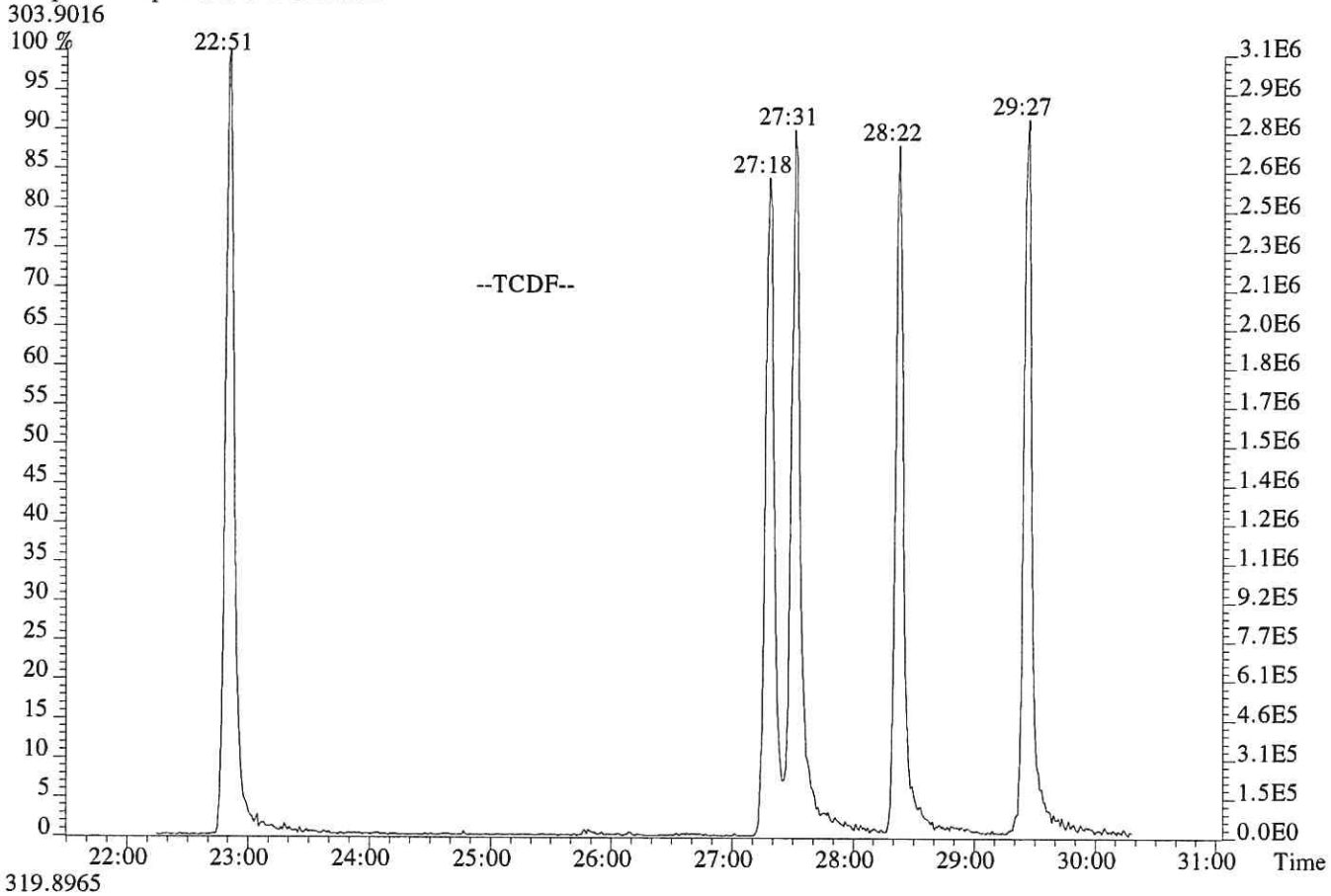
% Valley 2378-TCDD: 17 %

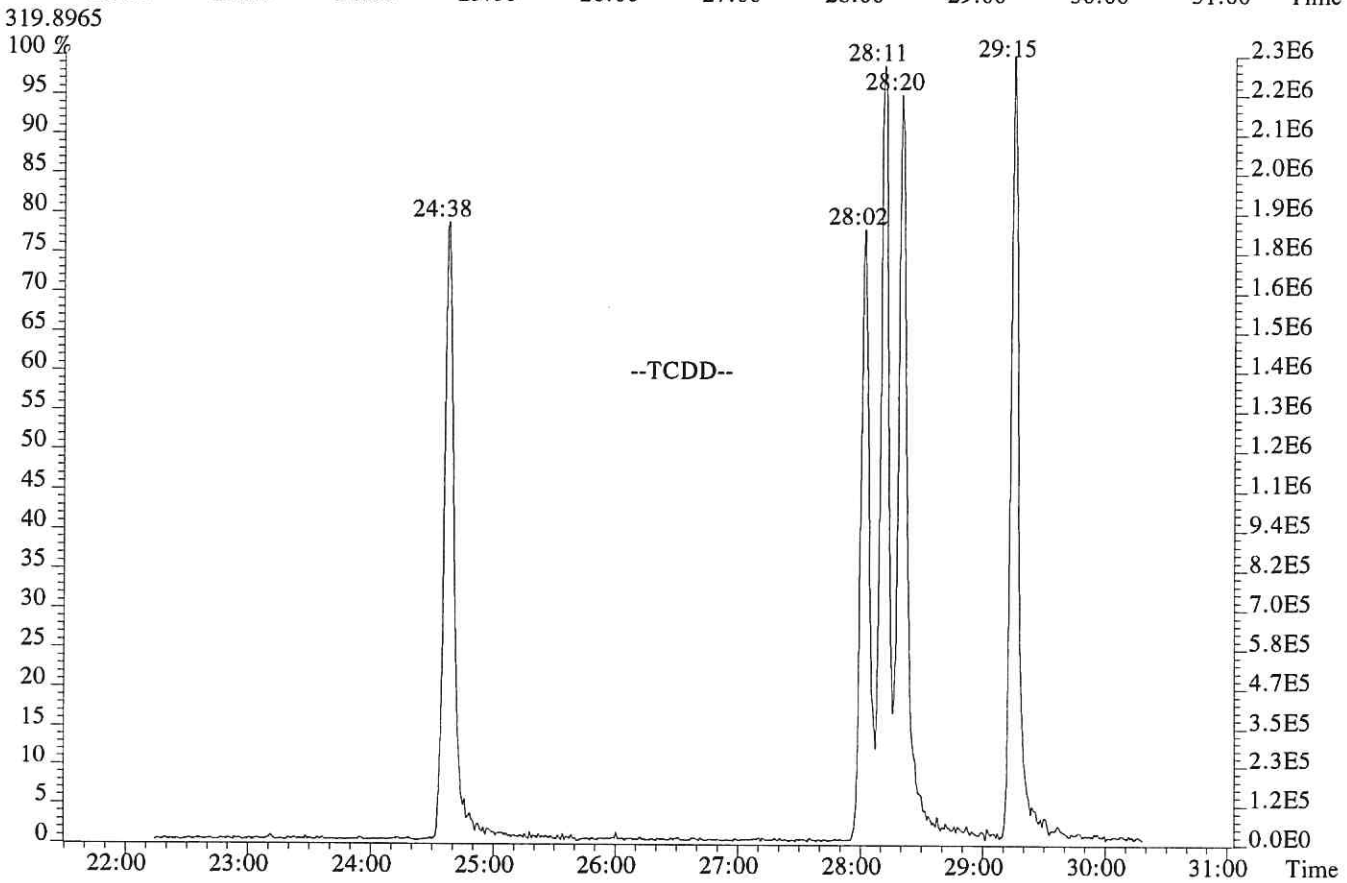
File:P616025 #1-573 Acq:10-DEC-2018 20:50:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



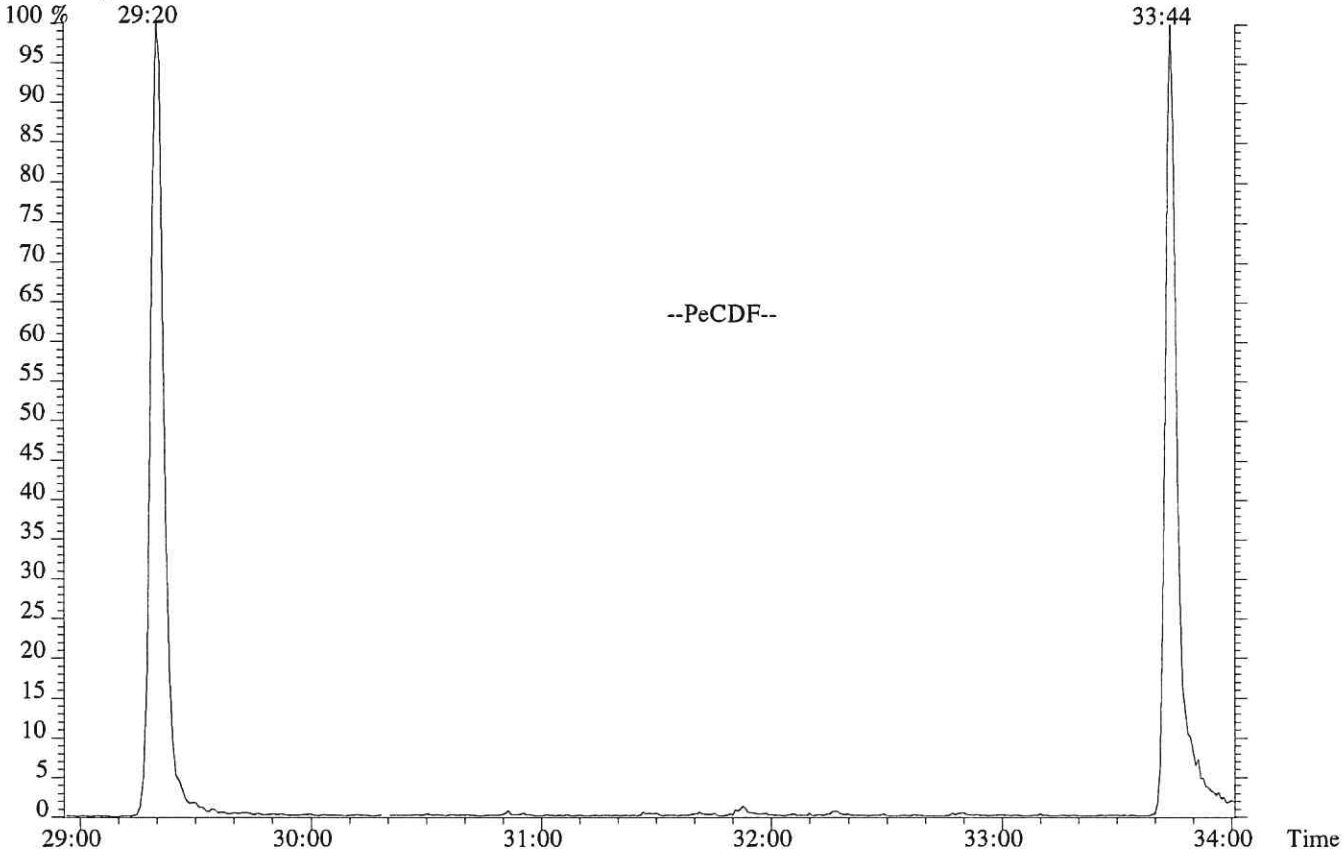


File:P616025 #1-573 Acq:10-DEC-2018 20:50:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

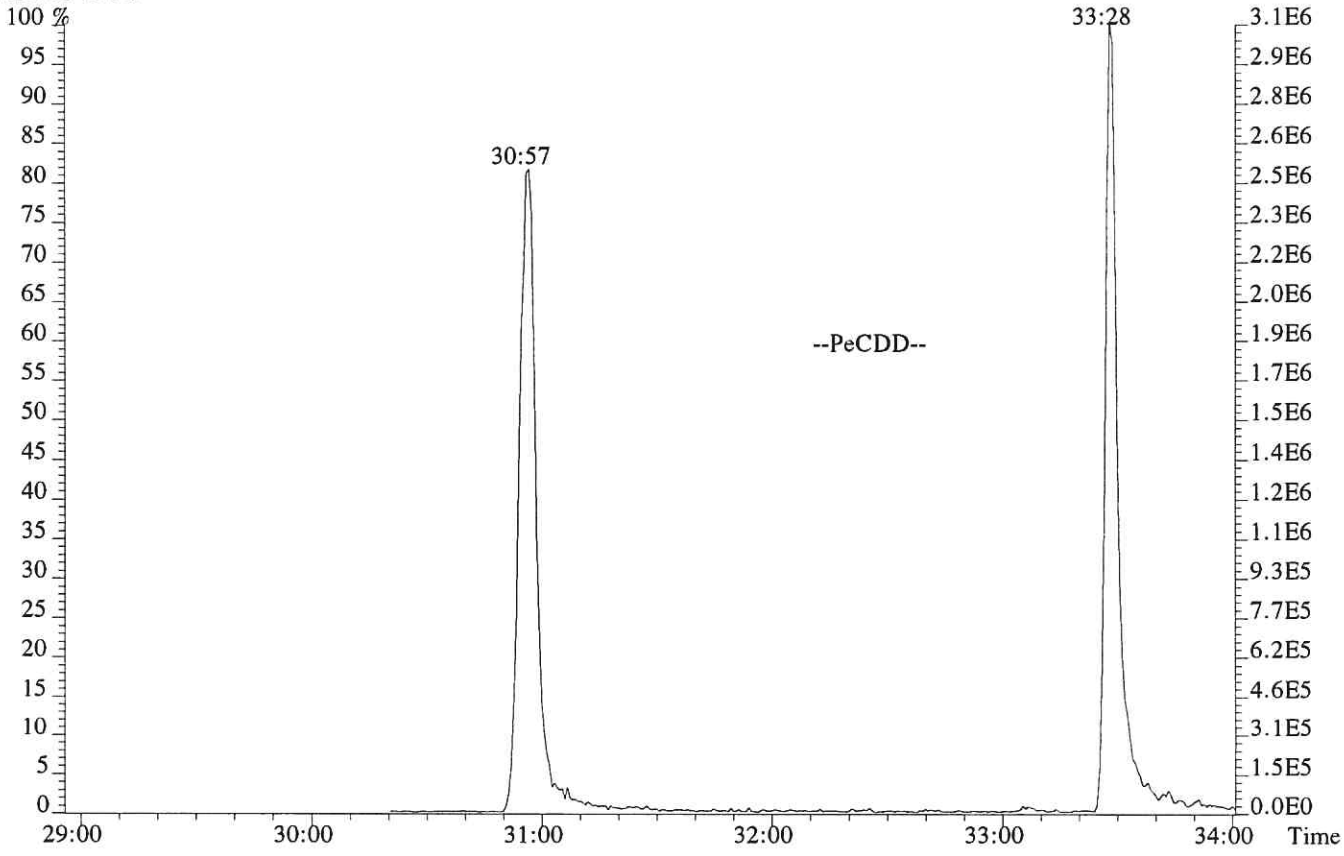




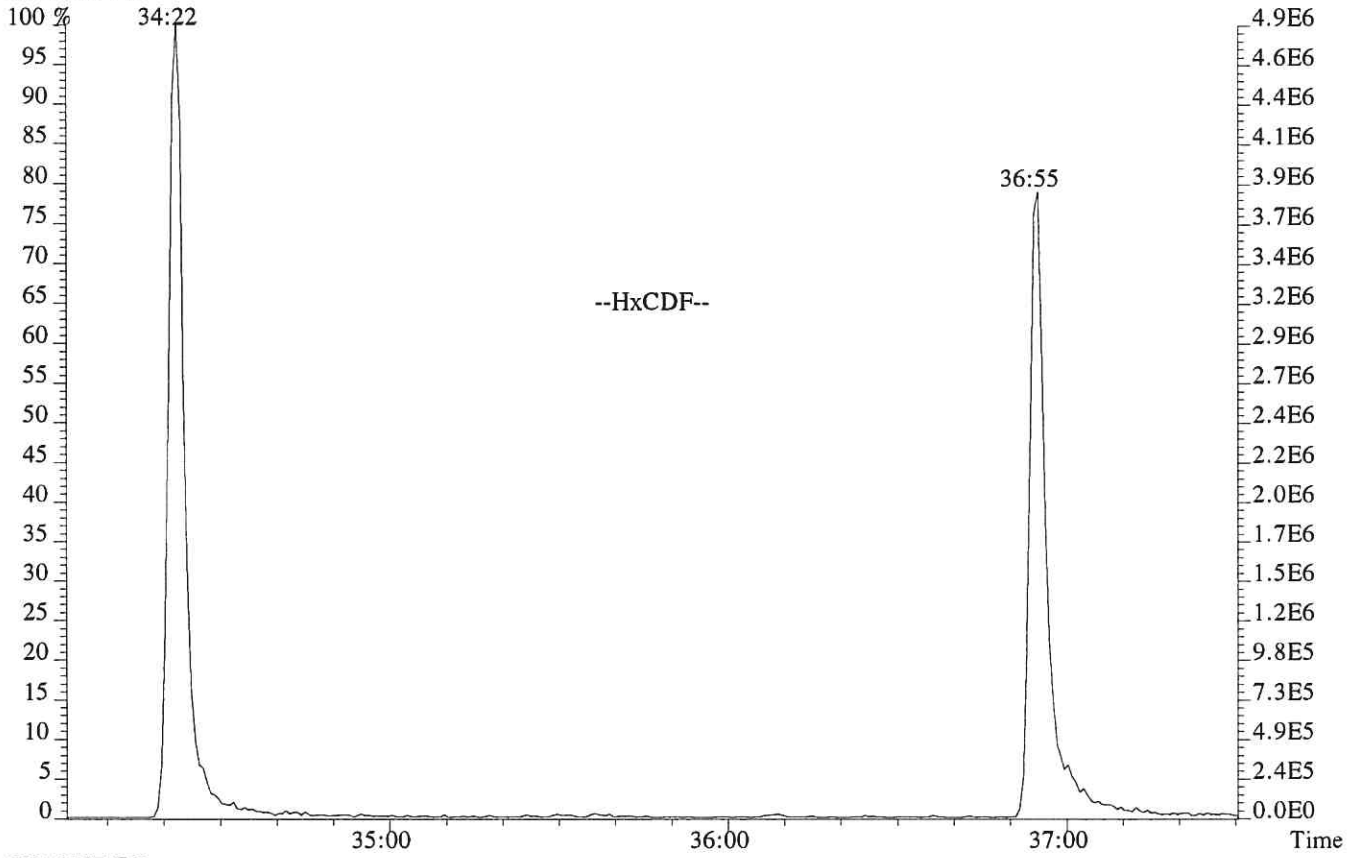
File:P616025 #1-573 Acq:10-DEC-2018 20:50:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

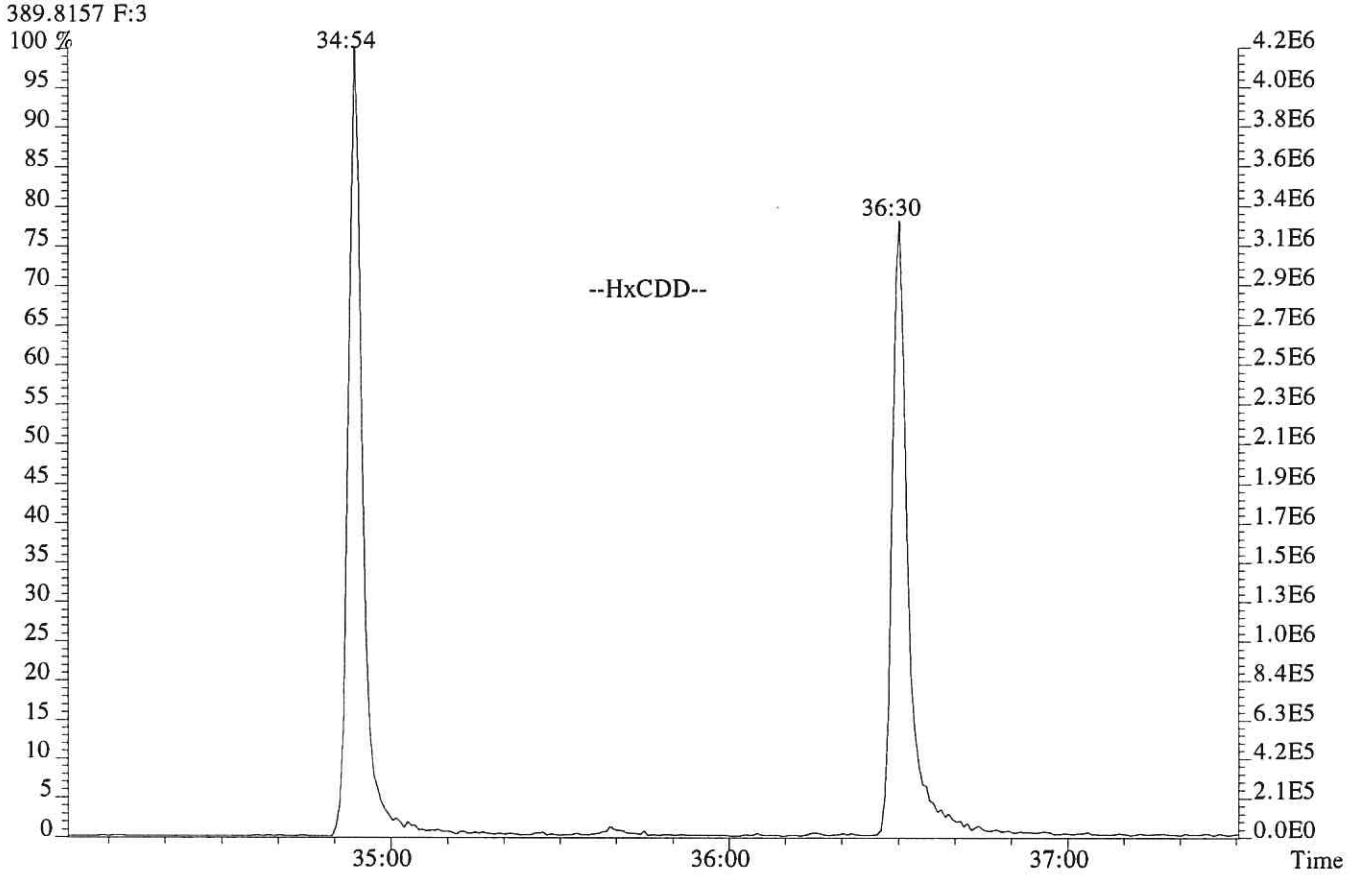


355.8546 F:2

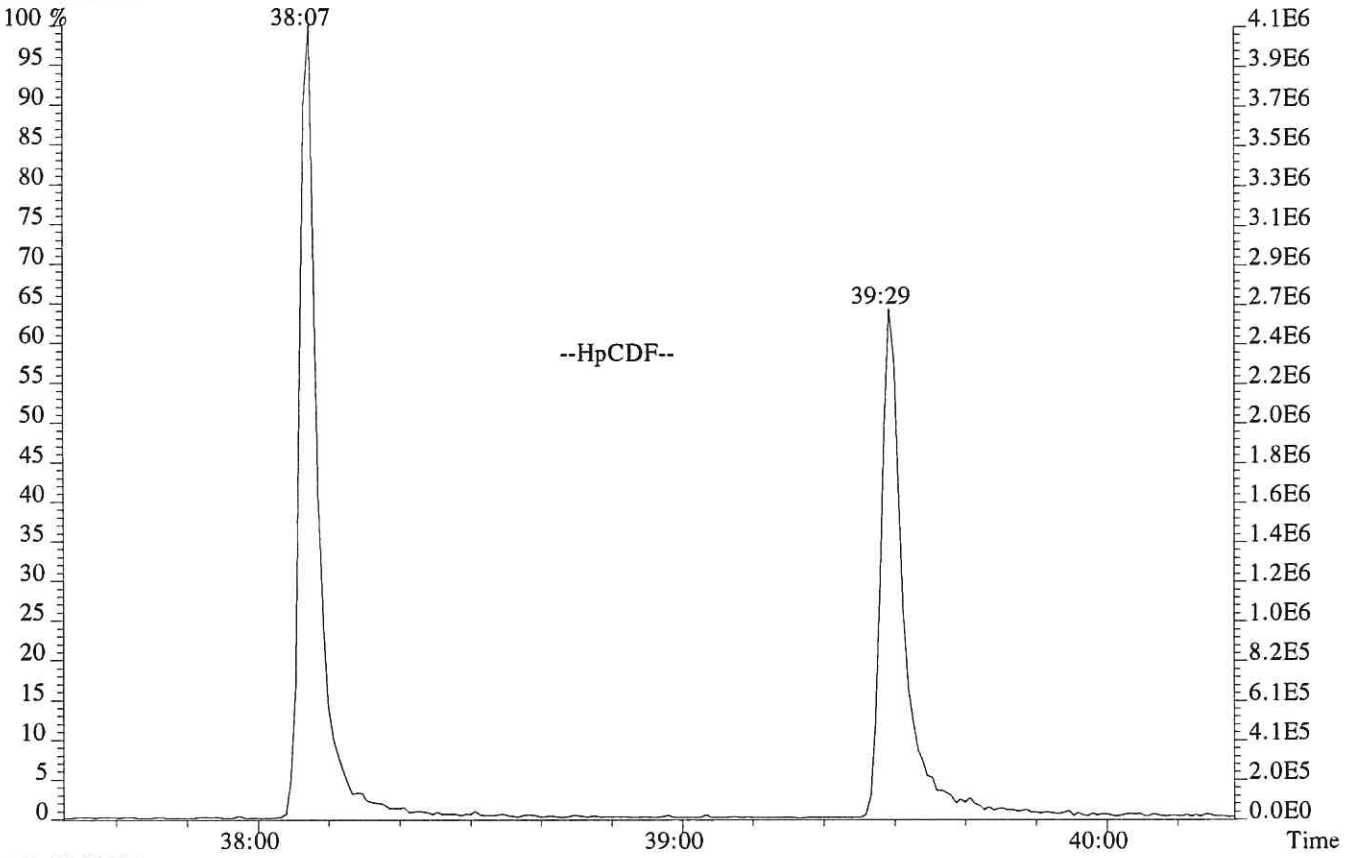


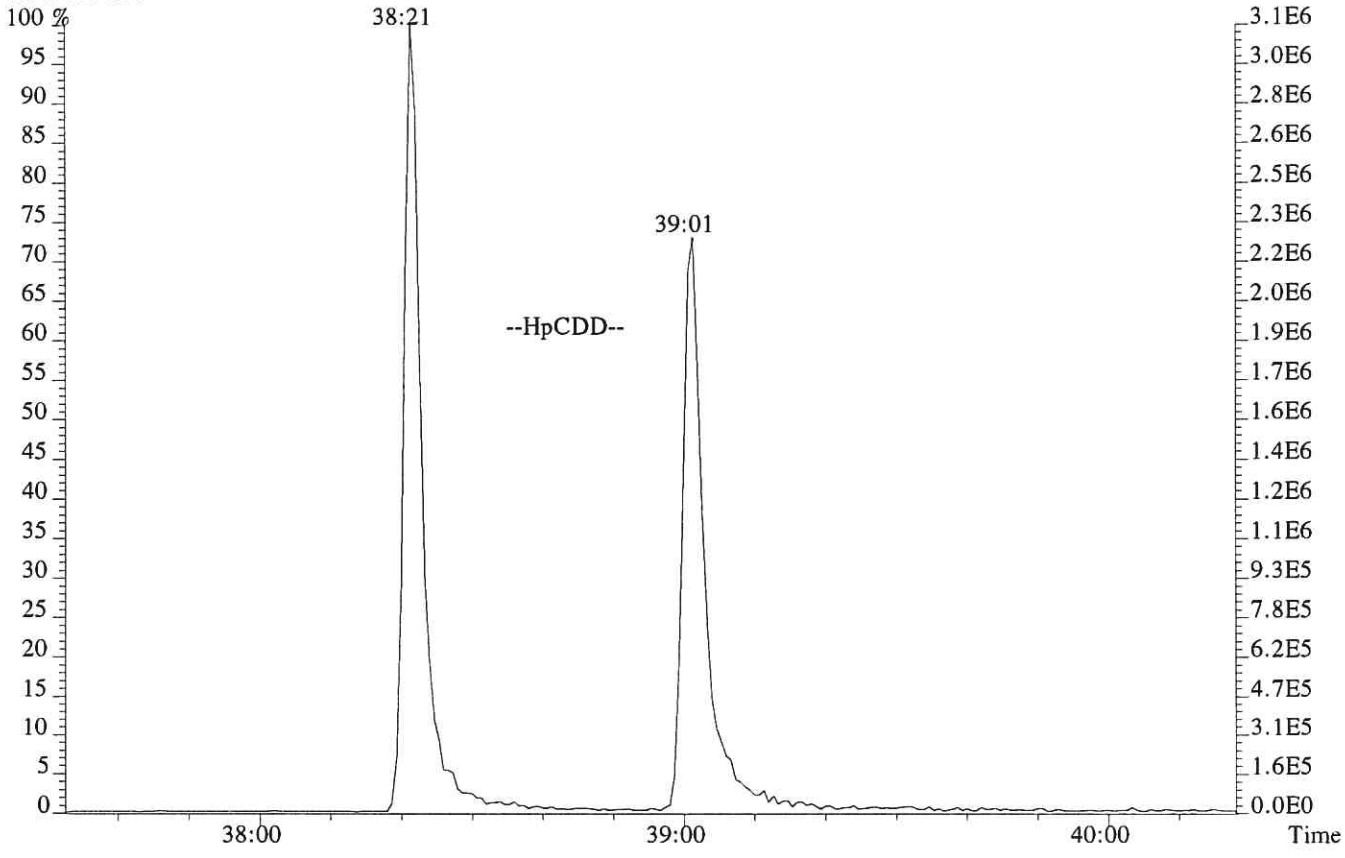
File:P616025 #1-573 Acq:10-DEC-2018 20:50:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:P616025 #1-573 Acq:10-DEC-2018 20:50:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616023 Analysis Date: 10-DEC-18 Time: 19:05:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.2	7.8 - 12.9	-7.6
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	50	39 - 65	-0.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	48	39 - 64	-3.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	48	39 - 64	-3.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	49	41 - 61	-1.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	47	43 - 58	-6.0
OCDD	M+2/M+4	0.90	0.76-1.02	96	79 - 126	-4.4
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	8.9	8.4 - 12.0	-10.7
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	45	41 - 60	-10.1
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	44	41 - 61	-11.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-10.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	46	44 - 57	-8.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	45	45 - 56	-10.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	46	44 - 57	-8.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	46	45 - 55	-7.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	44	43 - 58	-12.2
OCDF	M+2/M+4	0.91	0.76-1.02	85	63 - 159	-15.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616023 Analysis Date: 10-DEC-18 Time: 19:05:19

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	100	82 - 121	0.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	96	62 - 160	-3.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	93	85 - 117	-7.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	102	85 - 118	1.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	89	72 - 138	-11.0
13C-OCDD	M+2/M+4	0.91	0.76-1.02	153	96 - 415	-23.7
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	96	71 - 140	-4.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	93	76 - 130	-6.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	95	77 - 130	-4.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	89	76 - 131	-10.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	70 - 143	-5.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	88	74 - 135	-11.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	73 - 137	-7.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	82	78 - 129	-17.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	80	77 - 129	-19.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.2	7.8 - 12.7	-7.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P616023 Samp: 1 Inj: 1 Acquired: 10-DEC-18 19:05:19
Processed: 13-DEC-18 08:44:00 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:33	9.127e+03	1.167e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:53	7.509e+04	4.826e+04	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:50	7.116e+04	4.503e+04	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:31	6.154e+04	4.988e+04	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:38	7.033e+04	5.636e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:08	6.425e+04	5.127e+04	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:54	5.497e+04	4.547e+04	1.21	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:08	5.161e+04	4.926e+04	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:30	4.063e+04	3.873e+04	1.05	yes	no	1.463
10	Unk	OCDF	41:54	5.412e+04	5.973e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:22	6.756e+03	8.438e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:07	4.815e+04	3.132e+04	1.54	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:16	4.109e+04	3.276e+04	1.25	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:22	4.478e+04	3.530e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:36	4.708e+04	3.718e+04	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:02	3.494e+04	3.279e+04	1.07	yes	no	1.112
17	Unk	OCDD	41:42	4.474e+04	4.978e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:31	9.456e+04	1.210e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:53	1.452e+05	9.204e+04	1.58	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:49	1.460e+05	9.175e+04	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:30	6.090e+04	1.154e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:37	7.433e+04	1.408e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:08	6.858e+04	1.286e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:54	5.877e+04	1.112e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:07	4.422e+04	9.964e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:29	3.823e+04	8.535e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:20	6.835e+04	8.838e+04	0.77	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:06	1.053e+05	6.717e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:16	7.948e+04	6.301e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:21	8.755e+04	6.847e+04	1.28	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:01	6.711e+04	6.248e+04	1.07	yes	no	0.857
32	IS	13C-OCDD	41:42	8.143e+04	8.941e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:43	7.025e+04	8.887e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:35	9.464e+04	7.527e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:22	1.597e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P616023 Samp: 1 Inj: 1 Acquired: 10-DEC-18 19:05:19
Processed: 13-DEC-18 08:44:00 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.41e+06	1.87e+03	7.5e+02	1.78e+06	5.40e+03	3.3e+02
2	1,2,3,7,8-PeCDF	1.26e+07	1.68e+03	7.5e+03	8.04e+06	7.77e+03	1.0e+03
3	2,3,4,7,8-PeCDF	1.28e+07	1.68e+03	7.6e+03	8.10e+06	7.77e+03	1.0e+03
4	1,2,3,4,7,8-HxCDF	1.29e+07	1.26e+03	1.0e+04	1.05e+07	1.54e+03	6.8e+03
5	1,2,3,6,7,8-HxCDF	1.32e+07	1.26e+03	1.1e+04	1.07e+07	1.54e+03	6.9e+03
6	2,3,4,6,7,8-HxCDF	1.27e+07	1.26e+03	1.0e+04	1.02e+07	1.54e+03	6.6e+03
7	1,2,3,7,8,9-HxCDF	9.67e+06	1.26e+03	7.7e+03	7.94e+06	1.54e+03	5.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.03e+07	3.77e+03	2.7e+03	9.81e+06	1.01e+04	9.7e+02
9	1,2,3,4,7,8,9-HpCDF	7.13e+06	3.77e+03	1.9e+03	6.80e+06	1.01e+04	6.7e+02
10	OCDF	8.83e+06	3.09e+03	2.9e+03	9.82e+06	5.18e+03	1.9e+03
11	2,3,7,8-TCDD	1.15e+06	4.51e+03	2.5e+02	1.47e+06	2.47e+03	5.9e+02
12	1,2,3,7,8-PeCDD	8.42e+06	1.81e+03	4.6e+03	5.47e+06	1.33e+03	4.1e+03
13	1,2,3,4,7,8-HxCDD	9.02e+06	1.08e+03	8.3e+03	7.14e+06	1.84e+03	3.9e+03
14	1,2,3,6,7,8-HxCDD	8.64e+06	1.08e+03	8.0e+03	6.99e+06	1.84e+03	3.8e+03
15	1,2,3,7,8,9-HxCDD	8.78e+06	1.08e+03	8.1e+03	7.03e+06	1.84e+03	3.8e+03
16	1,2,3,4,6,7,8-HpCDD	6.68e+06	1.20e+03	5.5e+03	6.27e+06	7.00e+02	9.0e+03
17	OCDD	7.58e+06	1.17e+03	6.5e+03	8.41e+06	1.30e+03	6.5e+03
18	13C-2,3,7,8-TCDF	1.45e+07	1.03e+04	1.4e+03	1.85e+07	6.74e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	2.37e+07	1.51e+03	1.6e+04	1.49e+07	1.92e+03	7.8e+03
20	13C-2,3,4,7,8-PeCDF	2.60e+07	1.51e+03	1.7e+04	1.62e+07	1.92e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.28e+07	3.11e+03	4.1e+03	2.44e+07	2.21e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	1.41e+07	3.11e+03	4.5e+03	2.70e+07	2.21e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.35e+07	3.11e+03	4.4e+03	2.55e+07	2.21e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.01e+07	3.11e+03	3.2e+03	1.95e+07	2.21e+03	8.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.83e+06	2.34e+04	3.8e+02	1.97e+07	1.54e+04	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.70e+06	2.34e+04	2.9e+02	1.48e+07	1.54e+04	9.6e+02
27	13C-2,3,7,8-TCDD	1.13e+07	1.92e+04	5.9e+02	1.47e+07	5.92e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.83e+07	2.19e+03	8.3e+03	1.17e+07	2.79e+03	4.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.72e+07	3.10e+03	5.6e+03	1.36e+07	2.52e+03	5.4e+03
30	13C-1,2,3,6,7,8-HxCDD	1.70e+07	3.10e+03	5.5e+03	1.33e+07	2.52e+03	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.29e+07	2.22e+03	5.8e+03	1.18e+07	1.66e+03	7.1e+03
32	13C-OCDD	1.37e+07	2.19e+03	6.2e+03	1.52e+07	1.69e+03	9.0e+03
33	13C-1,2,3,4-TCDD	1.22e+07	1.92e+04	6.3e+02	1.52e+07	5.92e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.77e+07	3.10e+03	5.7e+03	1.40e+07	2.52e+03	5.5e+03
35	37Cl-2,3,7,8-TCDD	2.70e+06	2.26e+03	1.2e+03			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (4.512e{+}03 + 2.472e{+}03\ ) \times 100}{(1.133e{+}07 + 1.470e{+}07\ ) \times (\qquad\qquad) \times 1.049} =$$

ALS ENVIRONMENTAL
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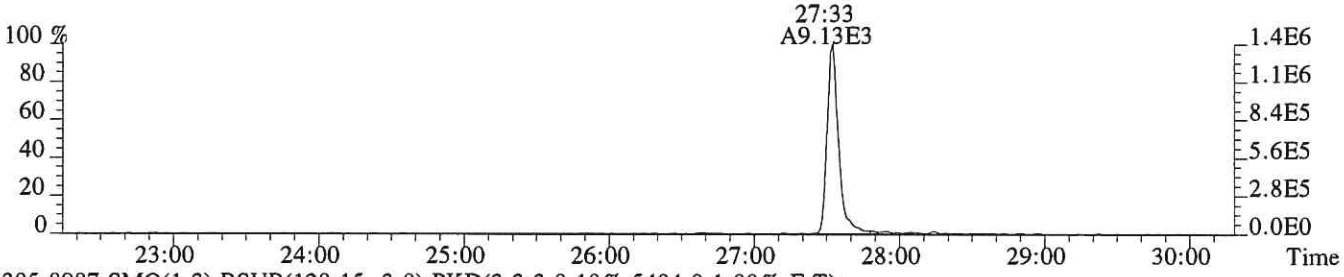
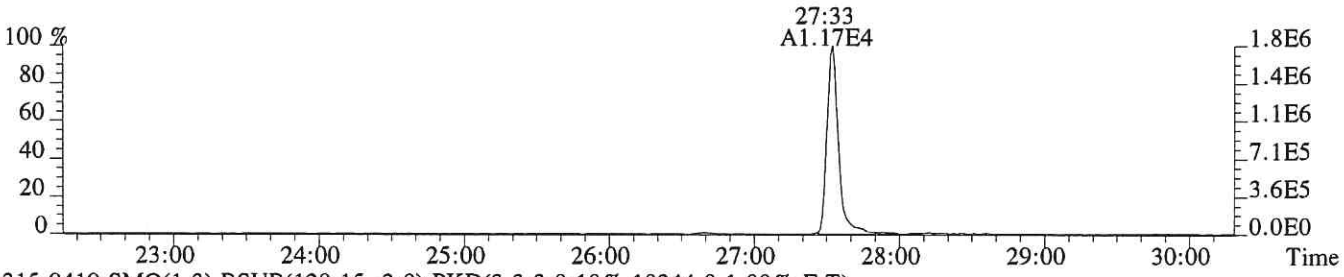
File:P616023 #1-573 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

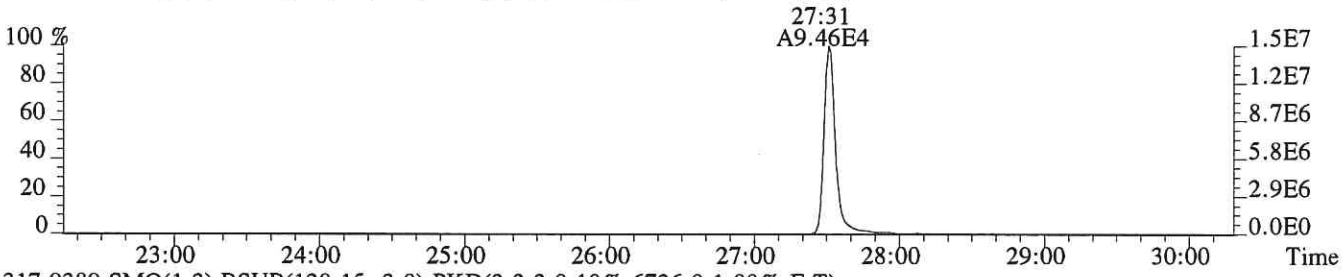
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



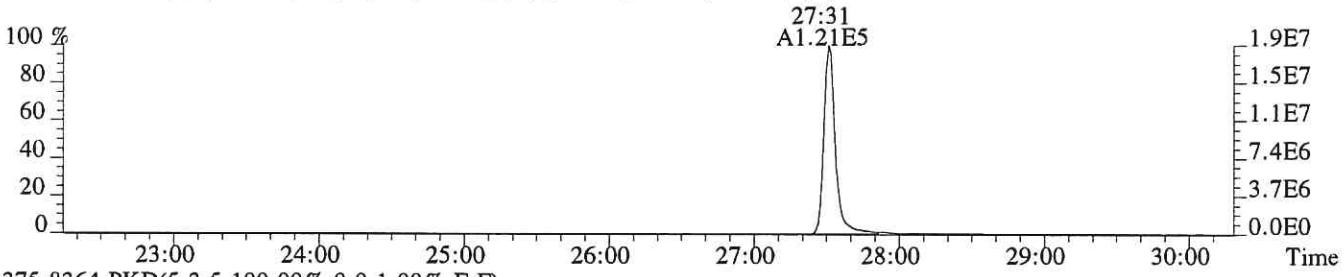
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5404.0,1.00%,F,T)



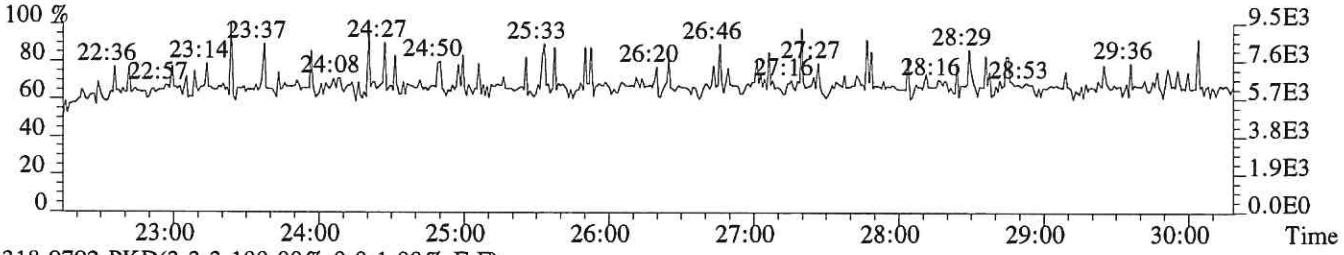
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10344.0,1.00%,F,T)



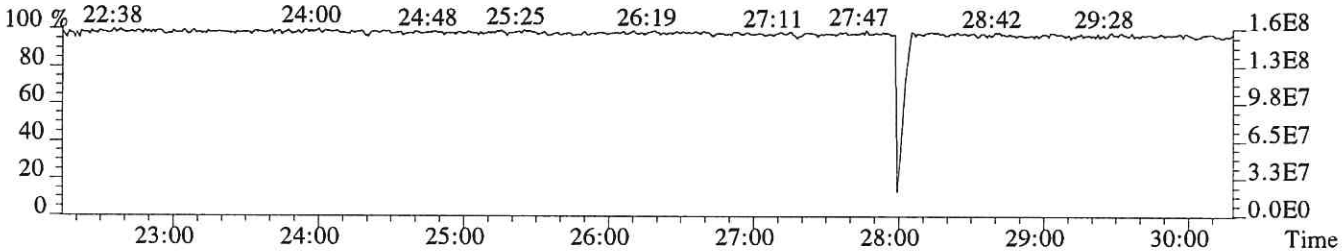
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6736.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

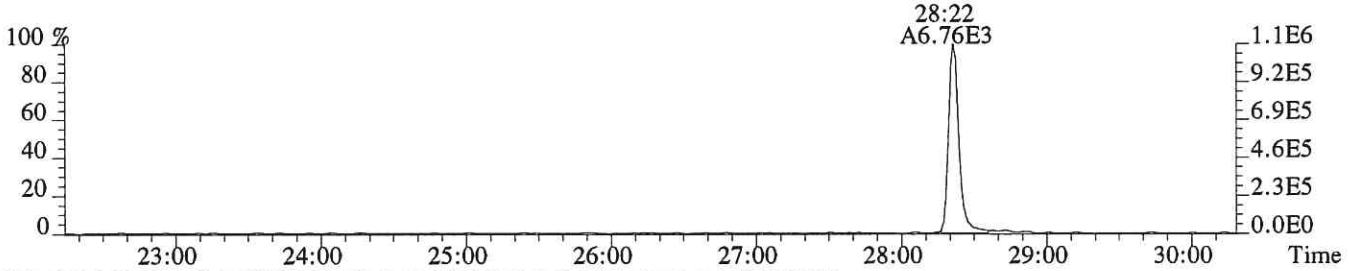


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

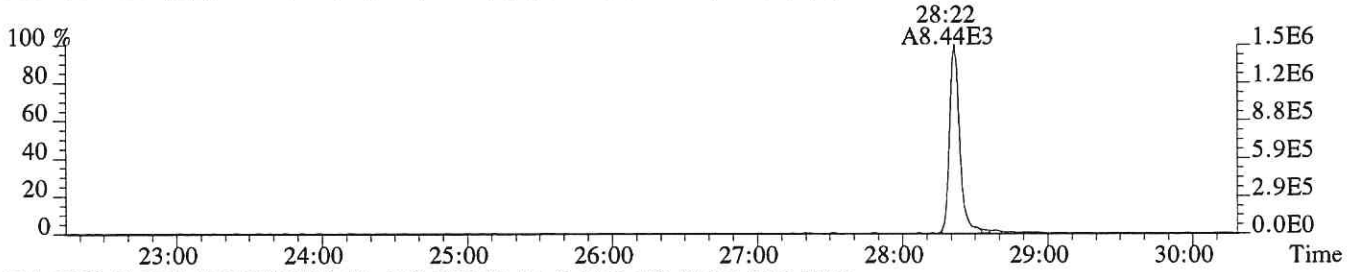


File:P616023 #1-573 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

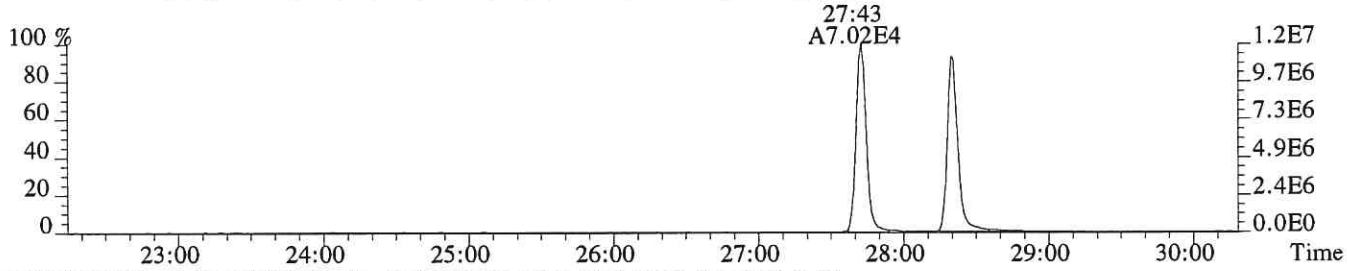
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4512.0,1.00%,F,T)



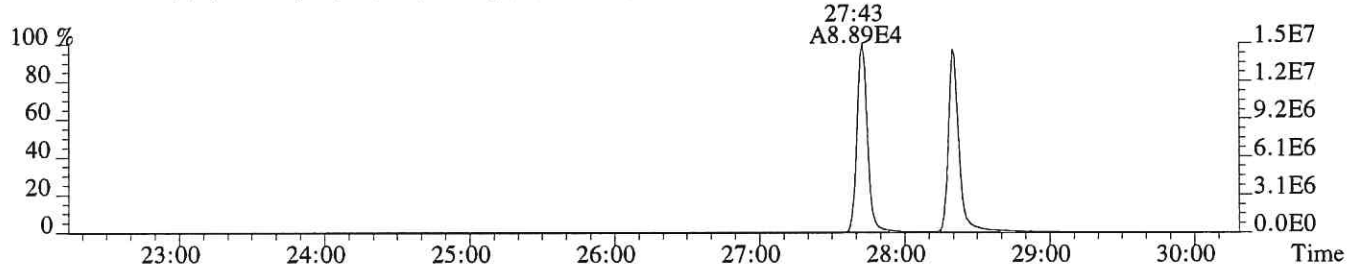
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2472.0,1.00%,F,T)



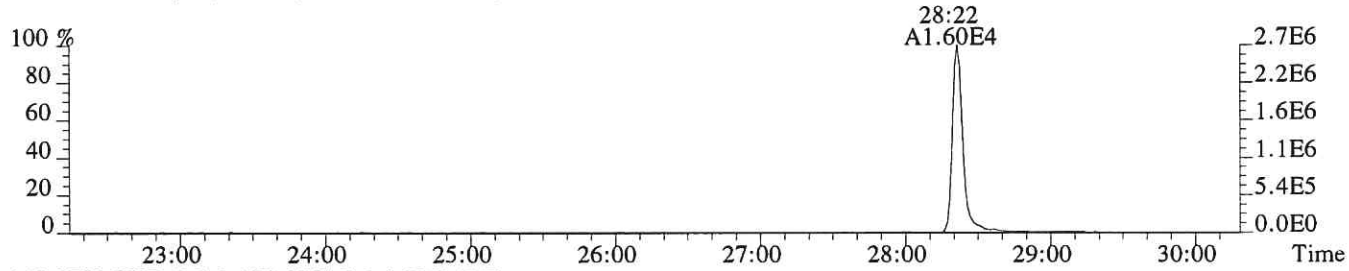
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19240.0,1.00%,F,T)



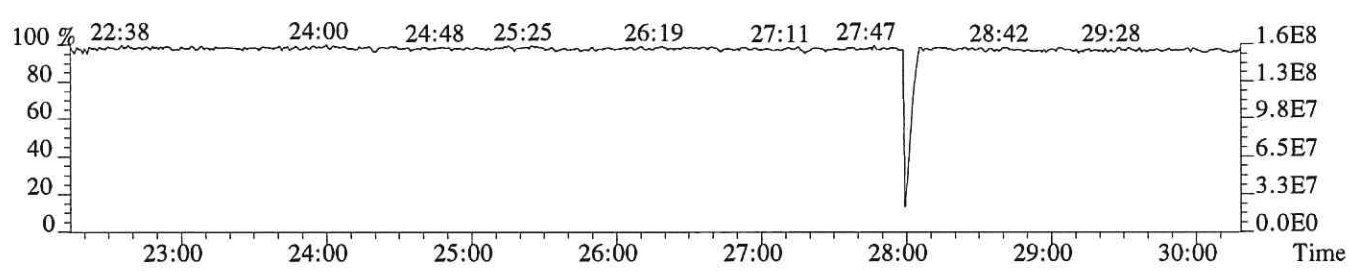
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5920.0,1.00%,F,T)



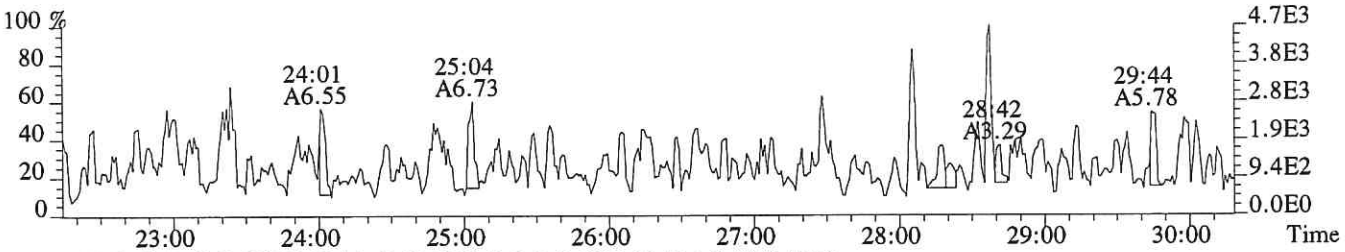
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2256.0,1.00%,F,T)



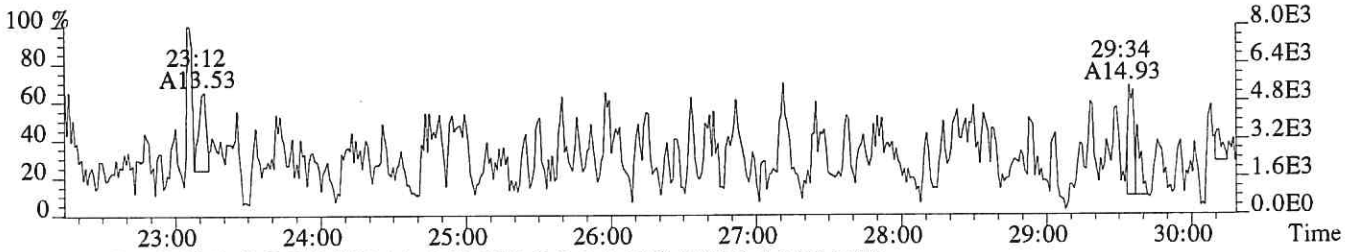
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



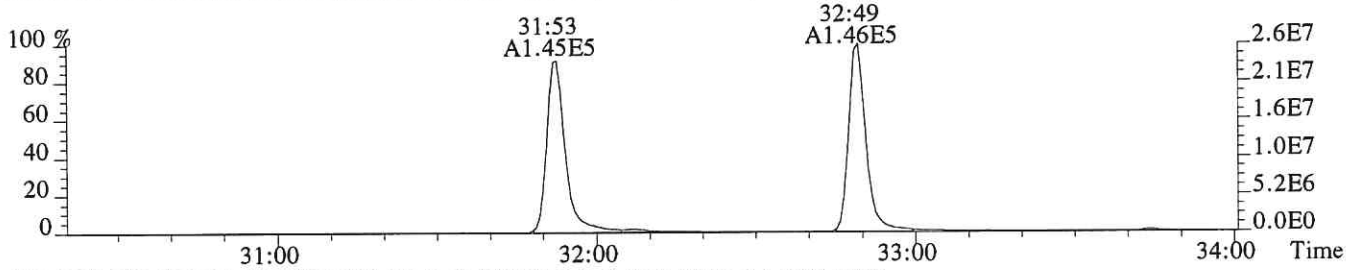
File:P616023 #1-573 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



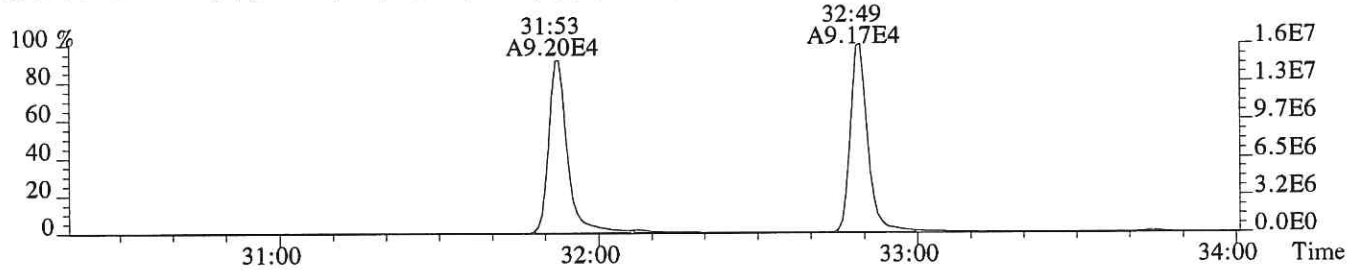
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



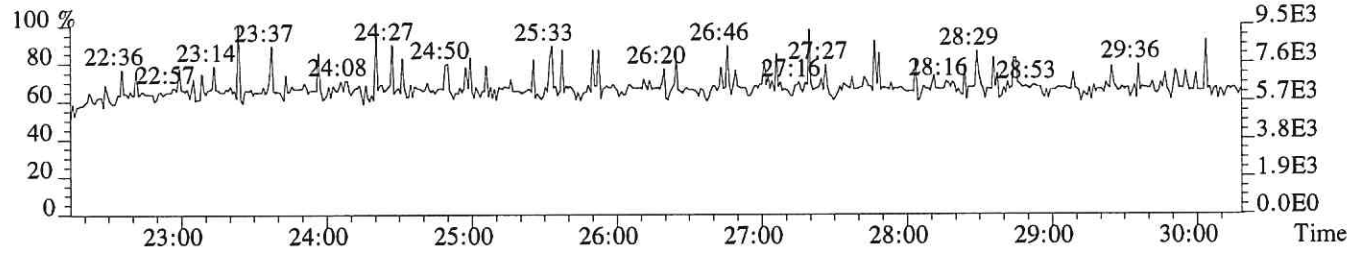
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



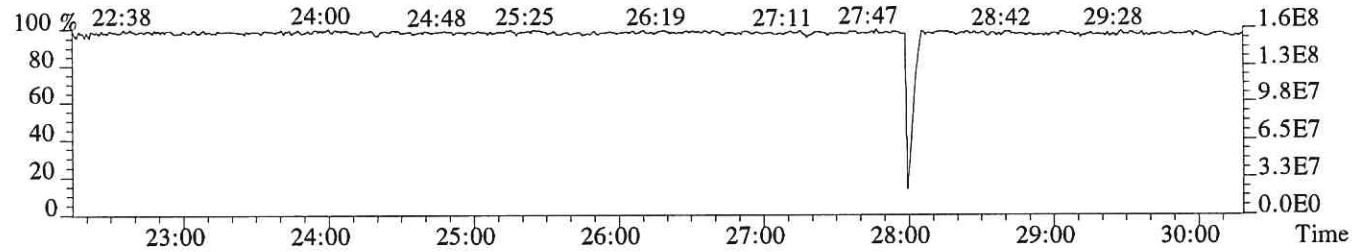
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

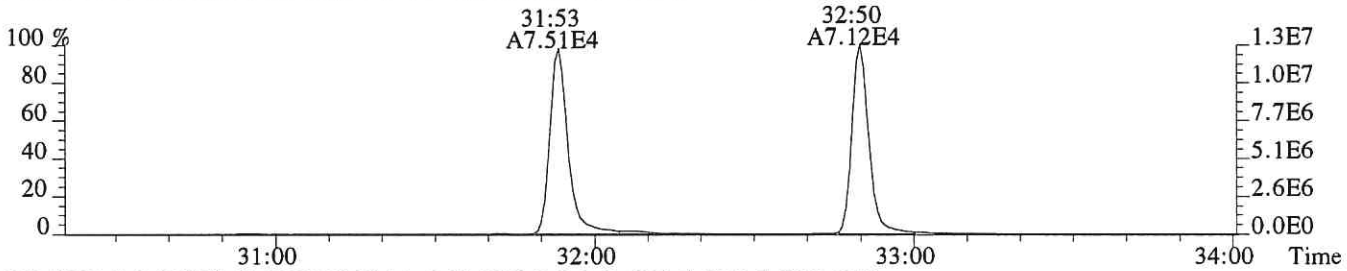


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

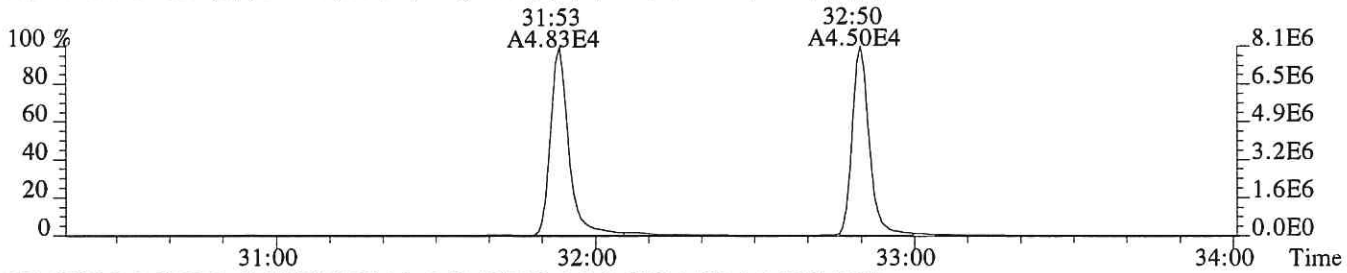


File:P616023 #1-331 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

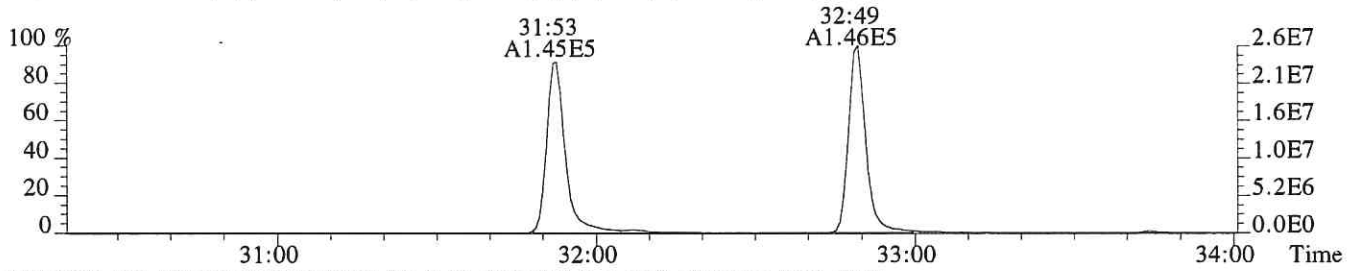
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



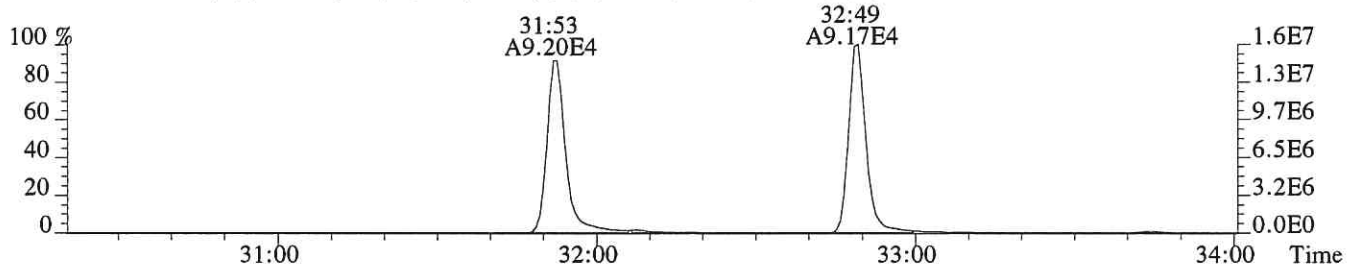
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7768.0,1.00%,F,T)



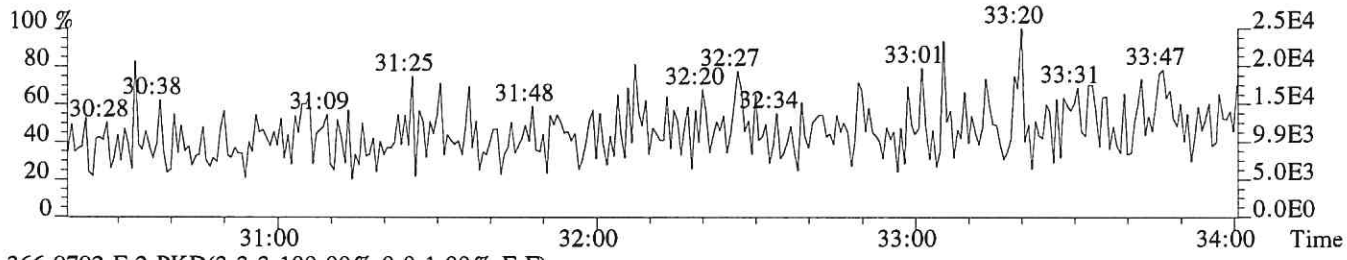
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



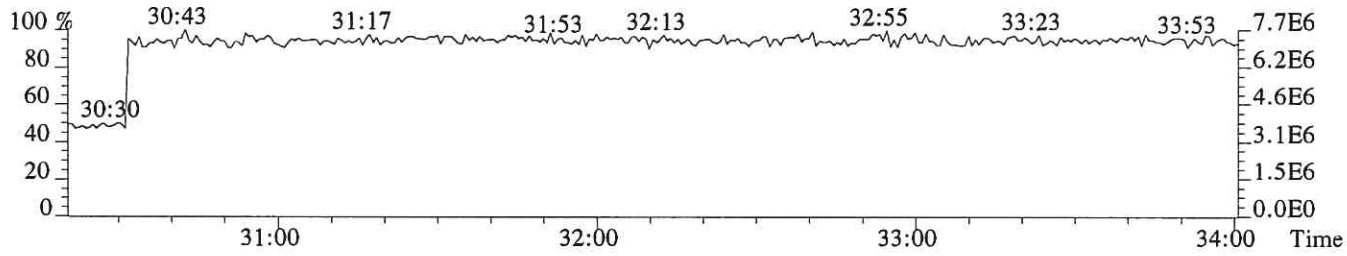
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



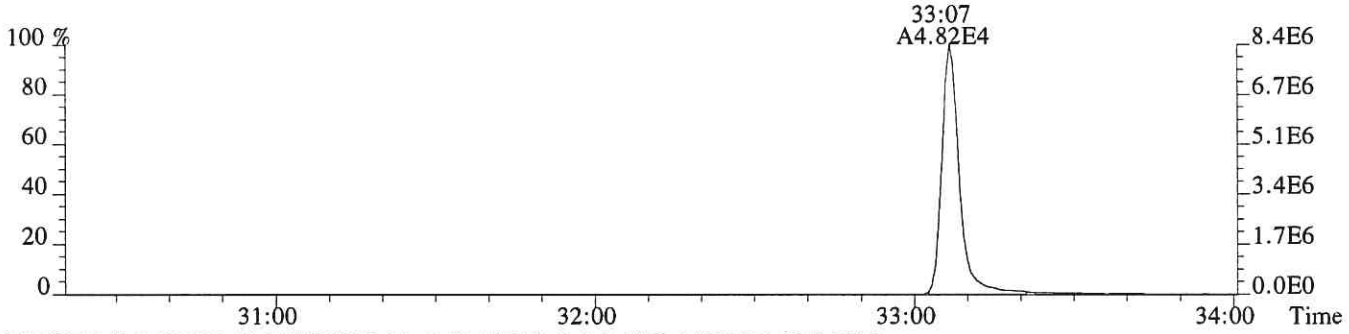
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



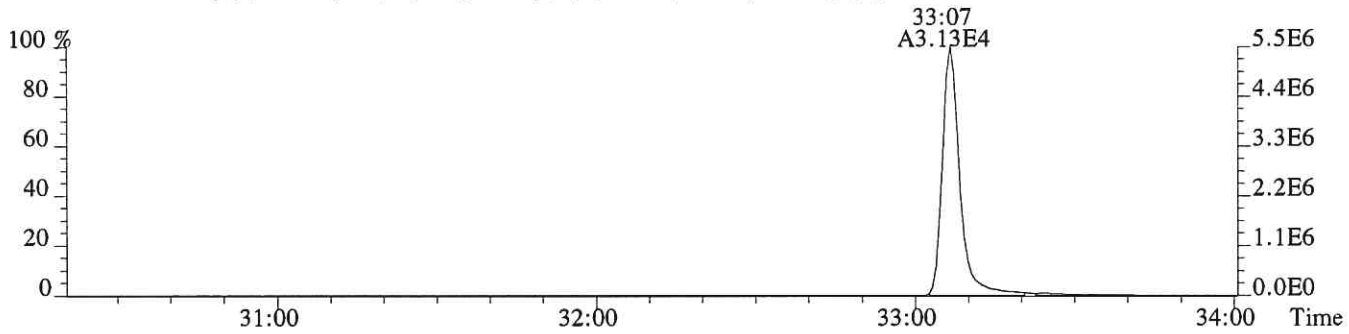
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



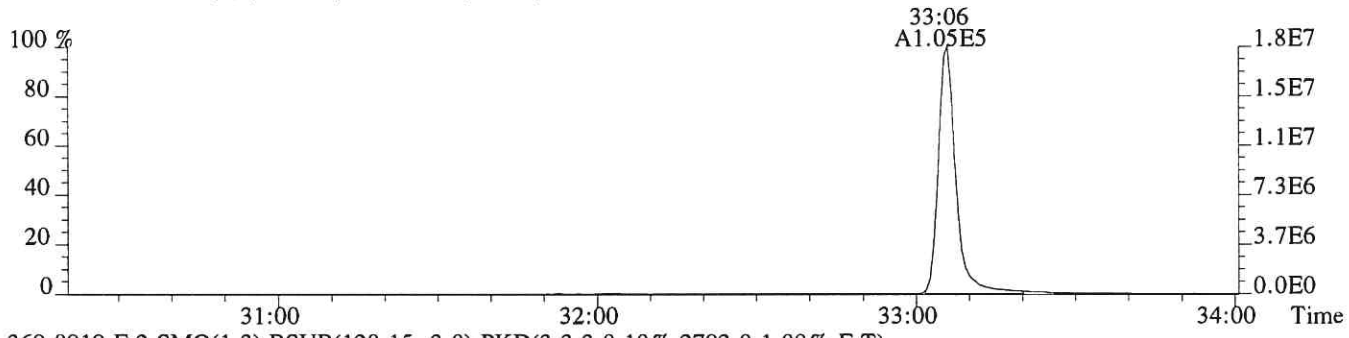
File:P616023 #1-331 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



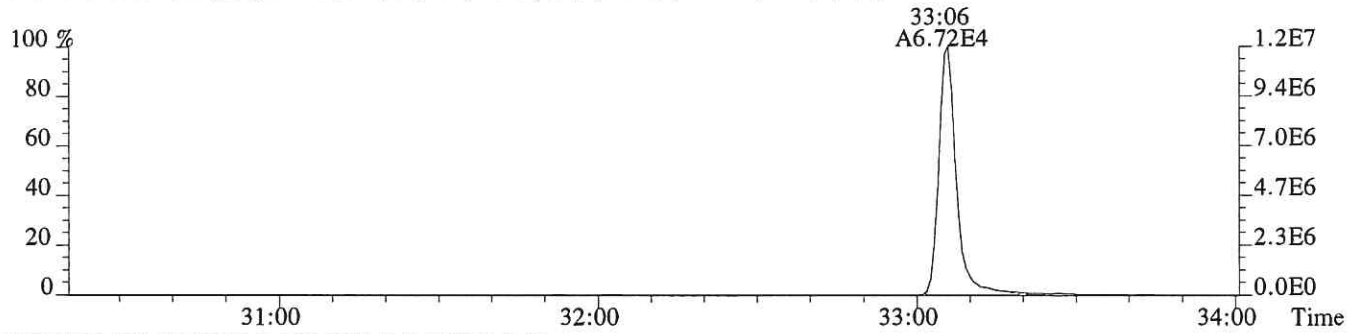
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



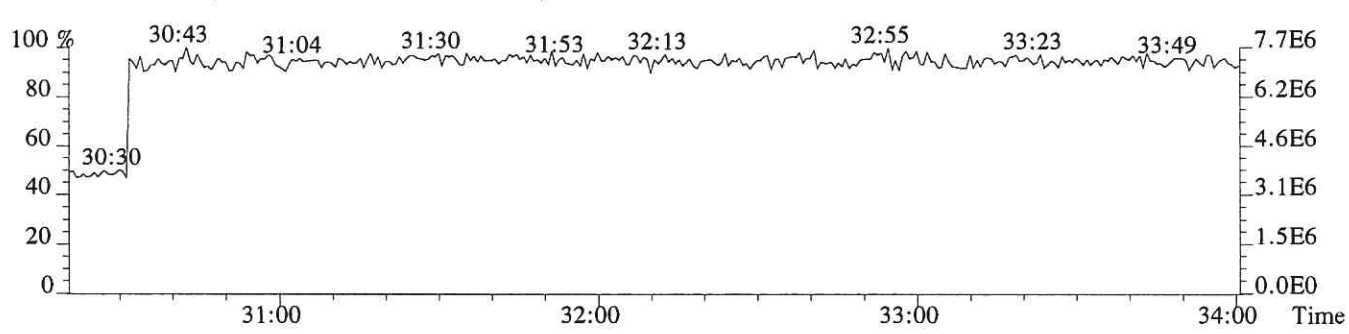
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2192.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2792.0,1.00%,F,T)

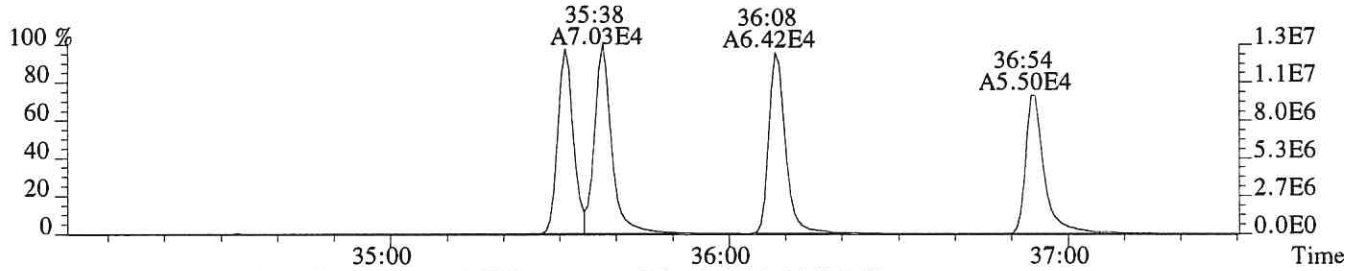


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

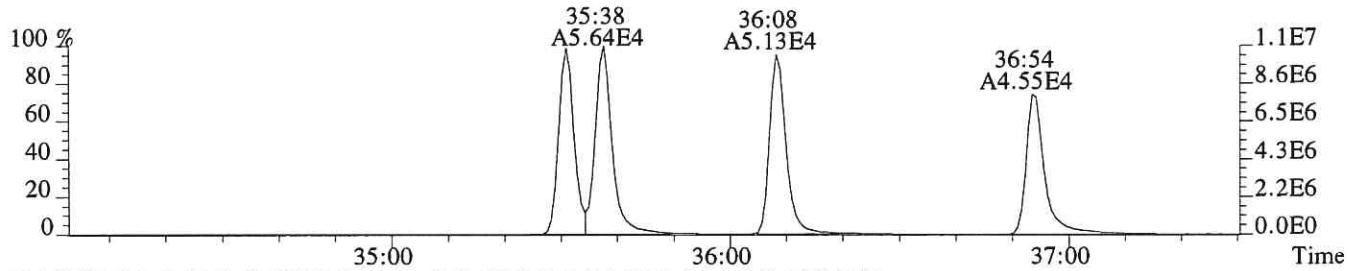


File:P616023 #1-312 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

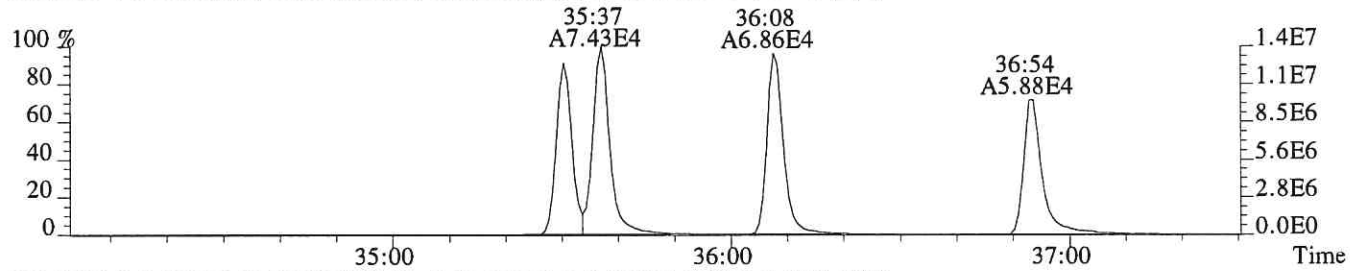
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



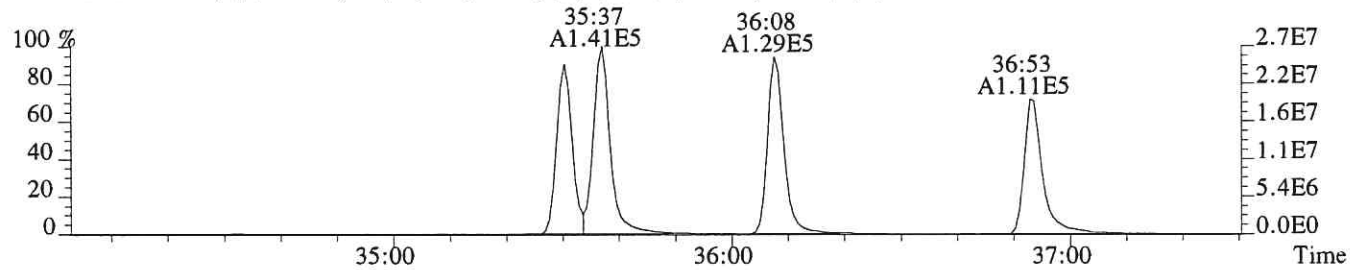
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.40%,F,T)



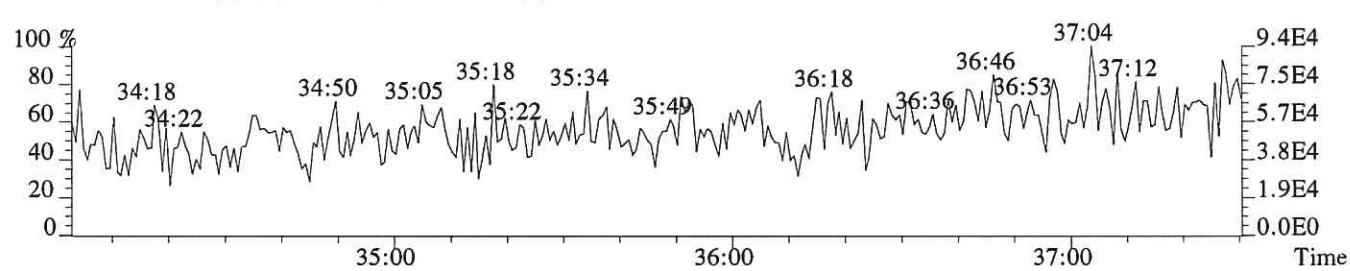
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3108.0,0.40%,F,T)



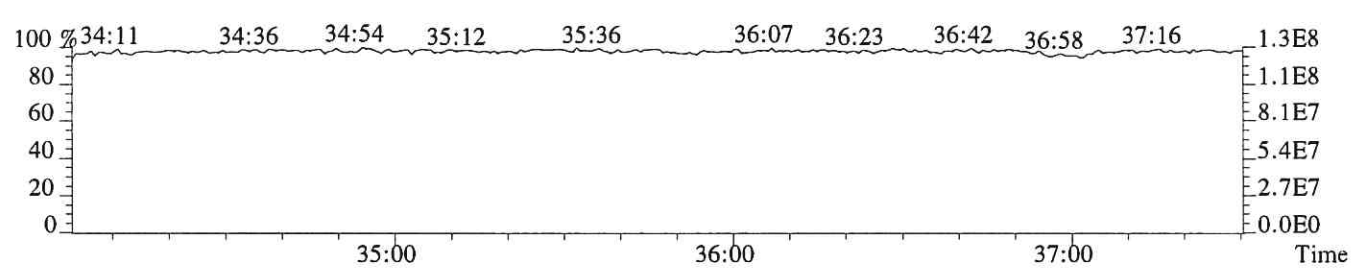
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2208.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

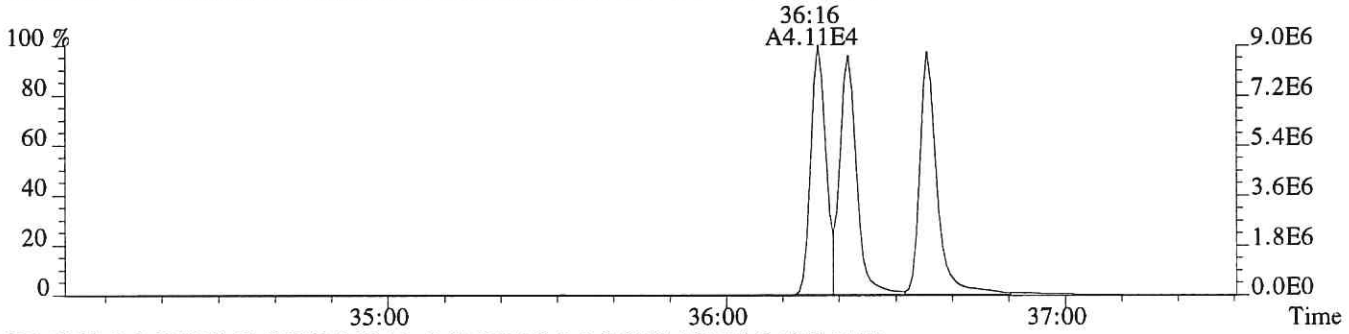


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

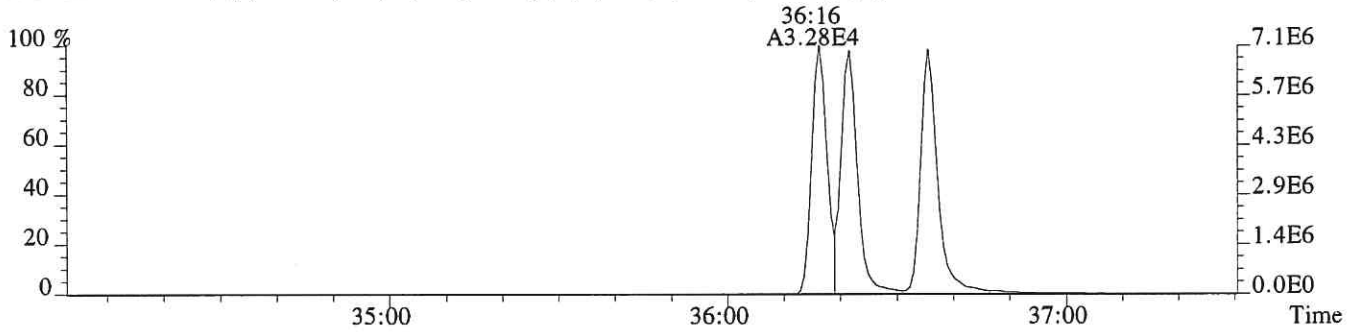


File:P616023 #1-312 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

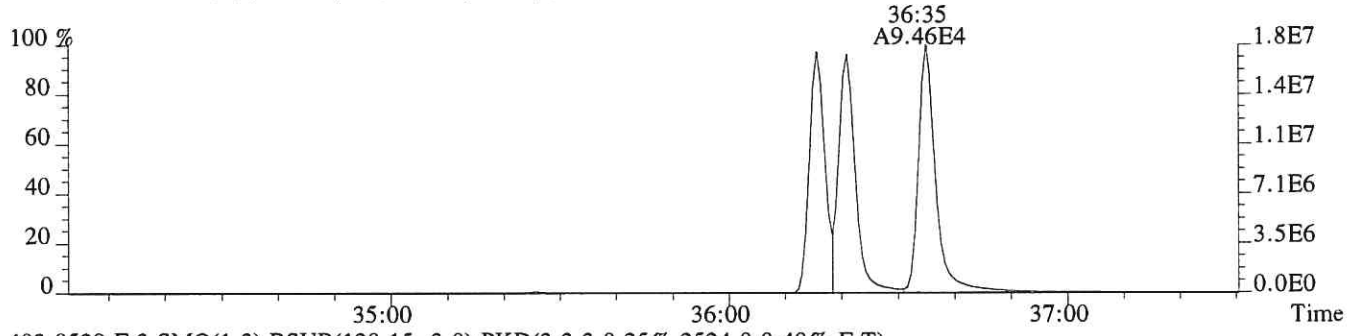
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



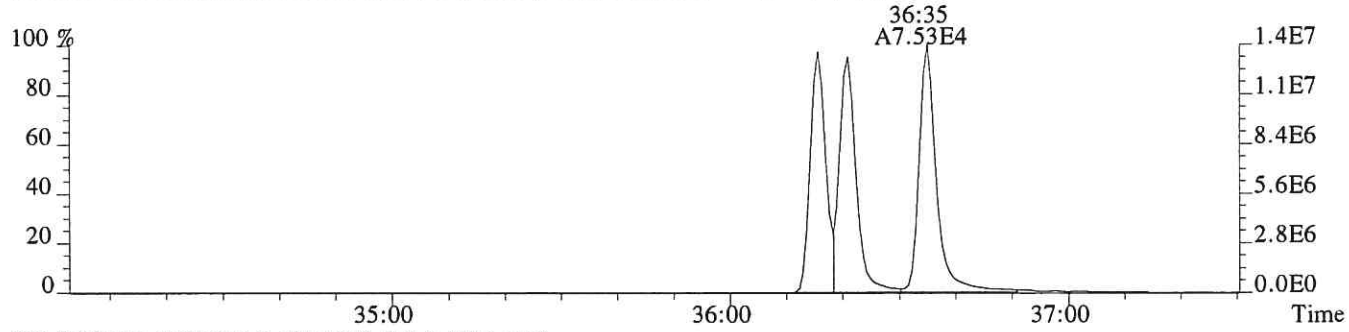
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



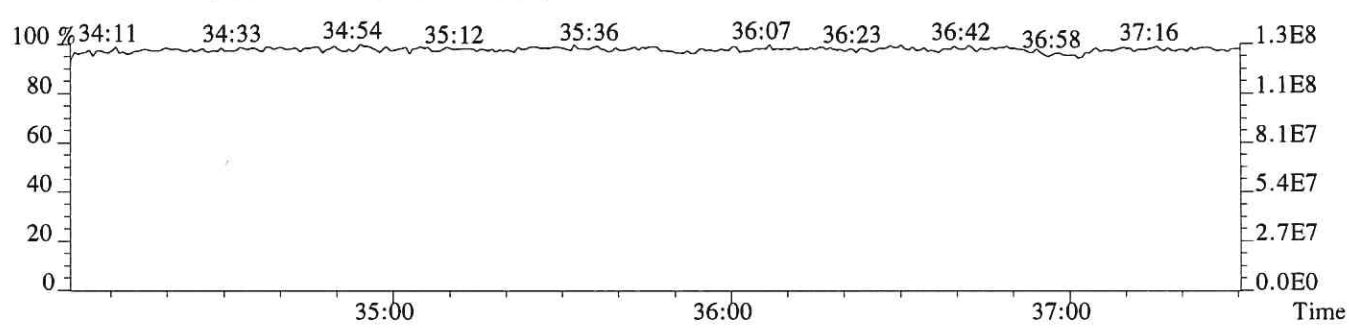
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3100.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2524.0,0.40%,F,T)

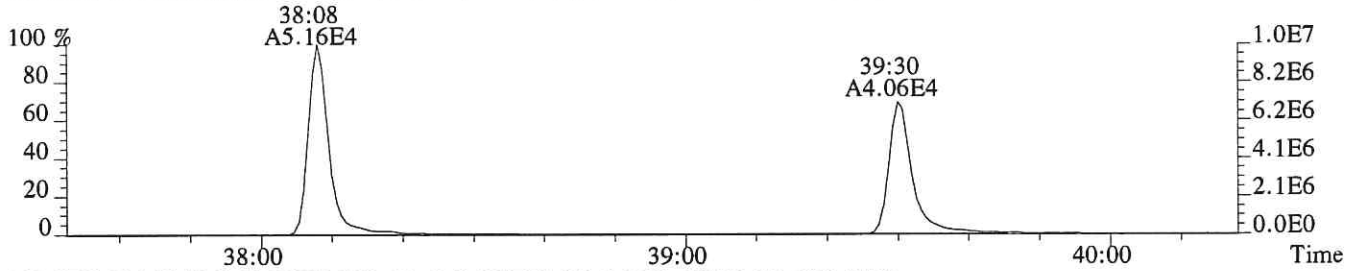


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

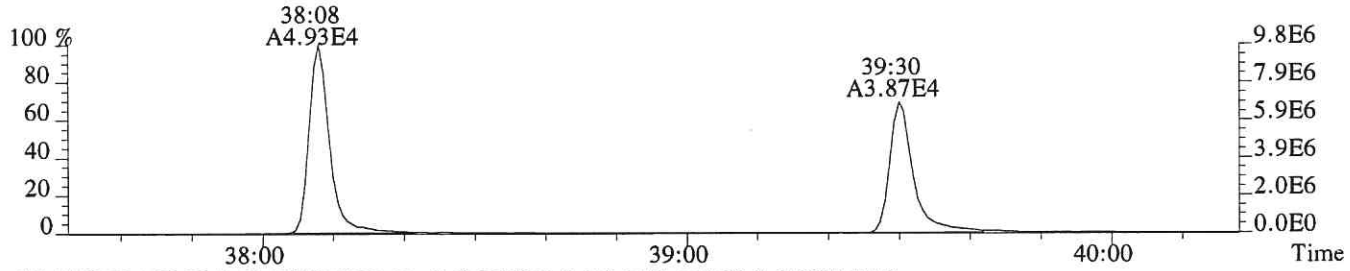


File:P616023 #1-249 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

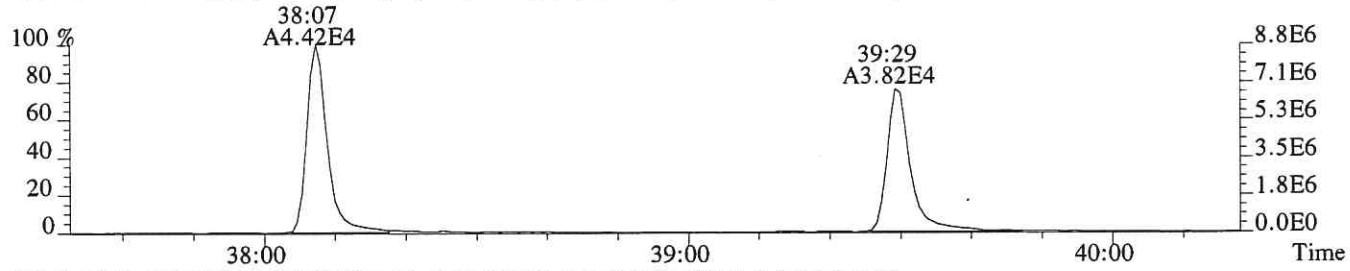
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3772.0,0.50%,F,T)



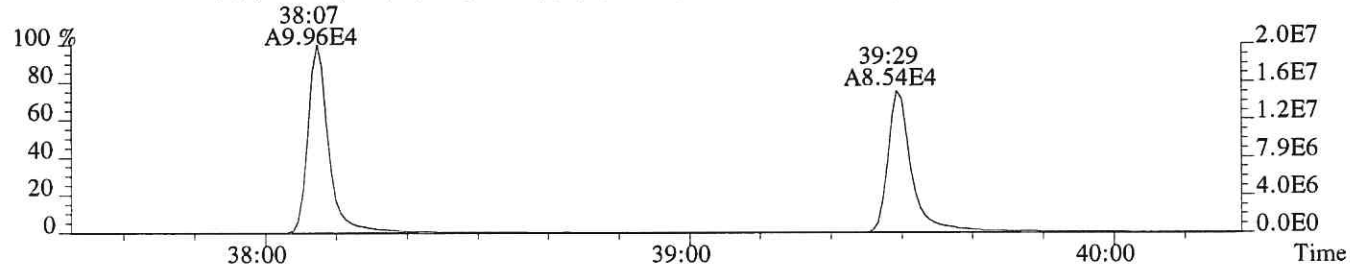
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10116.0,0.50%,F,T)



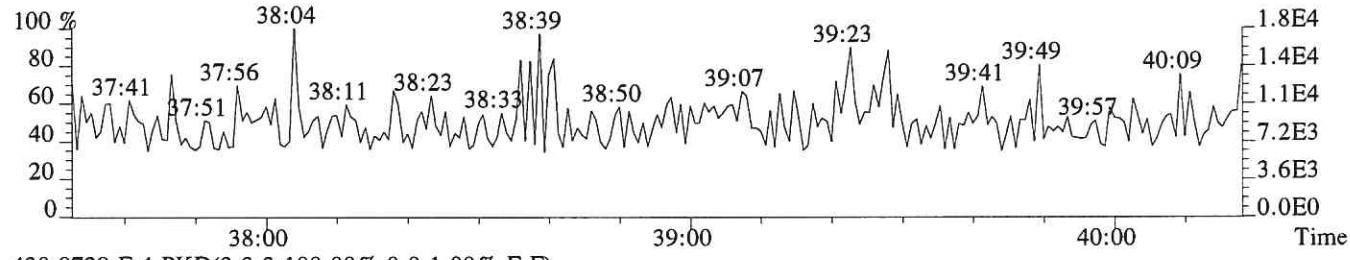
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,23368.0,0.50%,F,T)



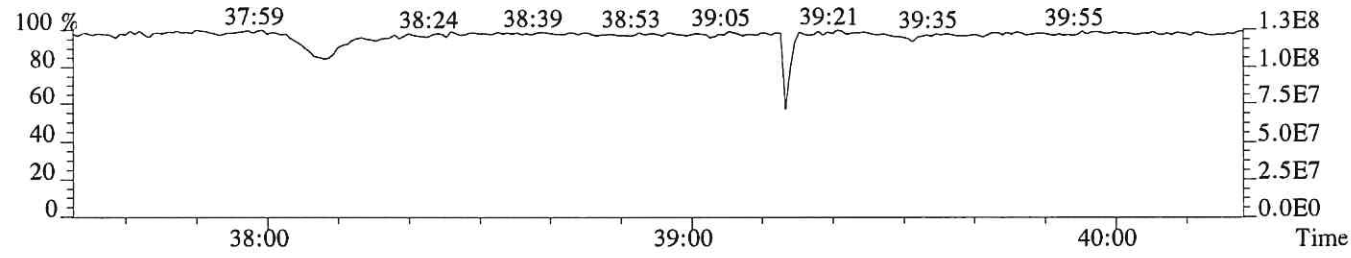
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15420.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

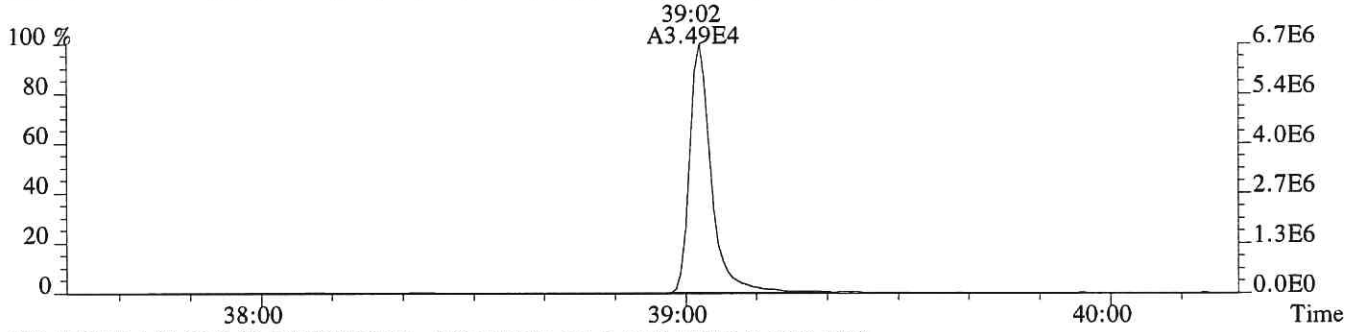


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

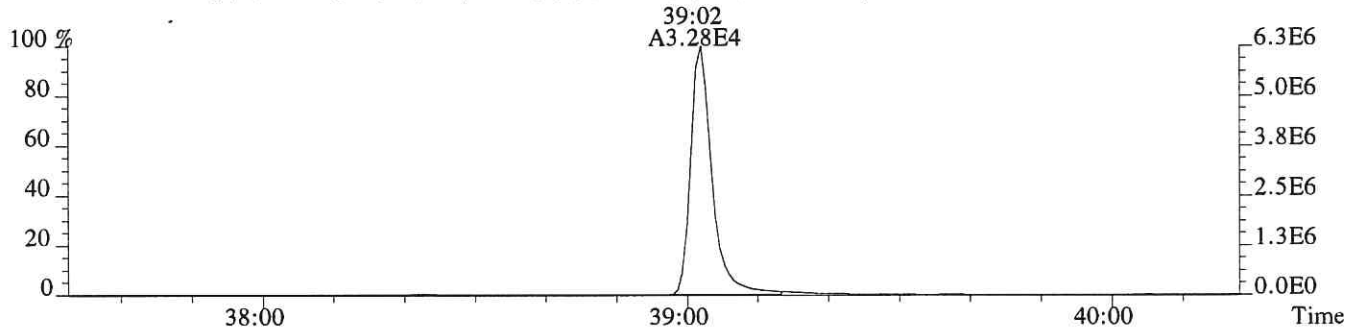


File:P616023 #1-249 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

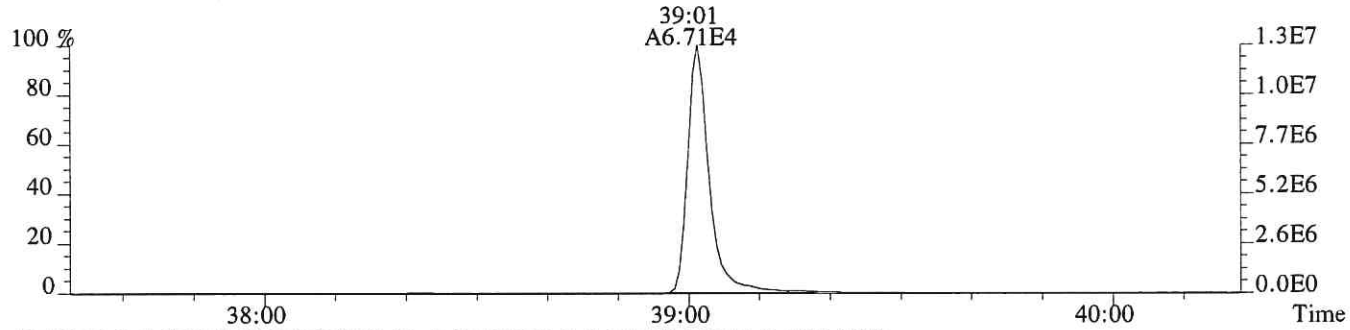
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



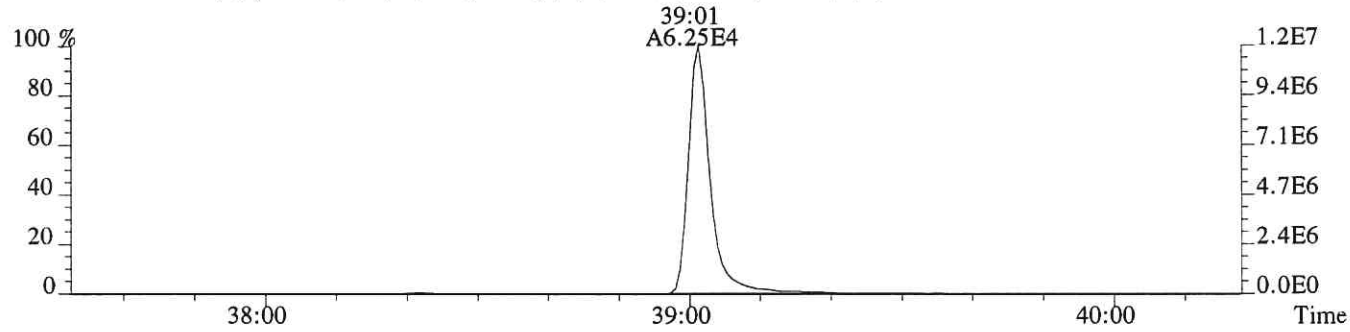
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



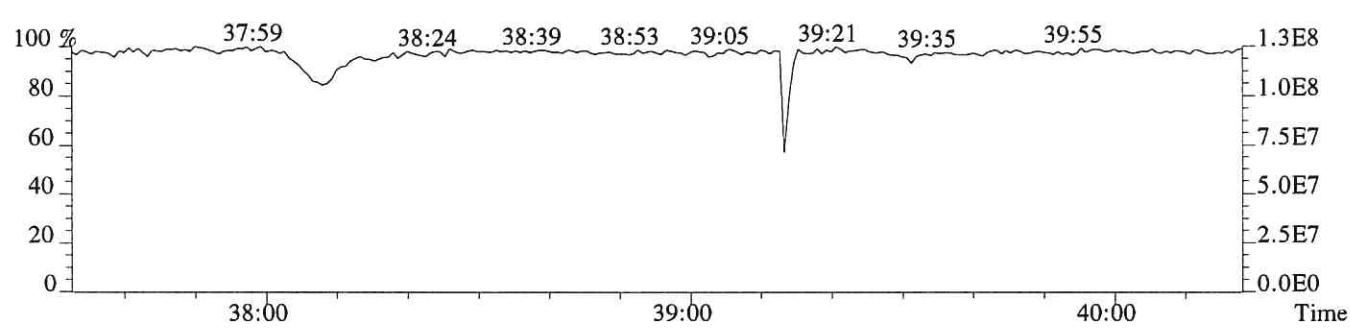
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)

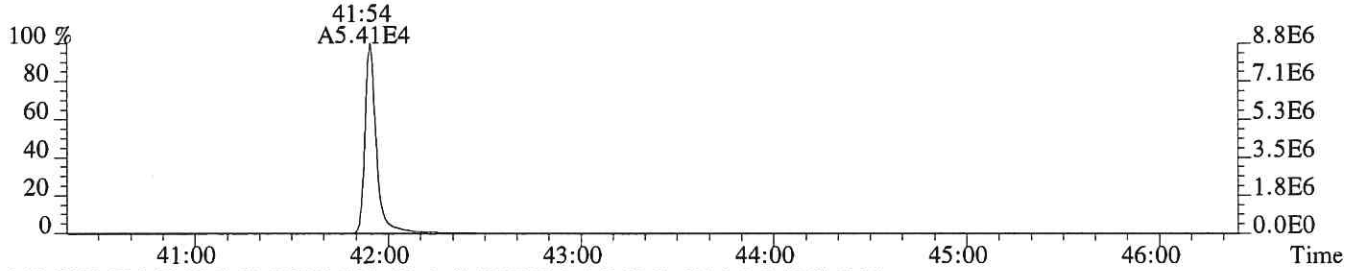


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

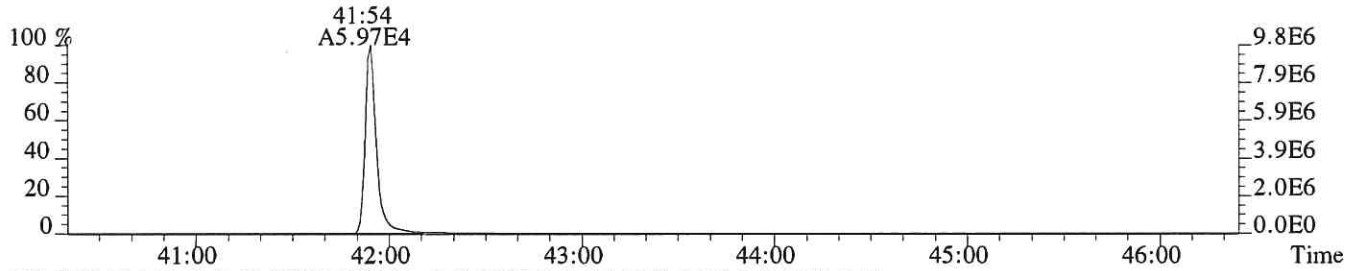


File:P616023 #1-547 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

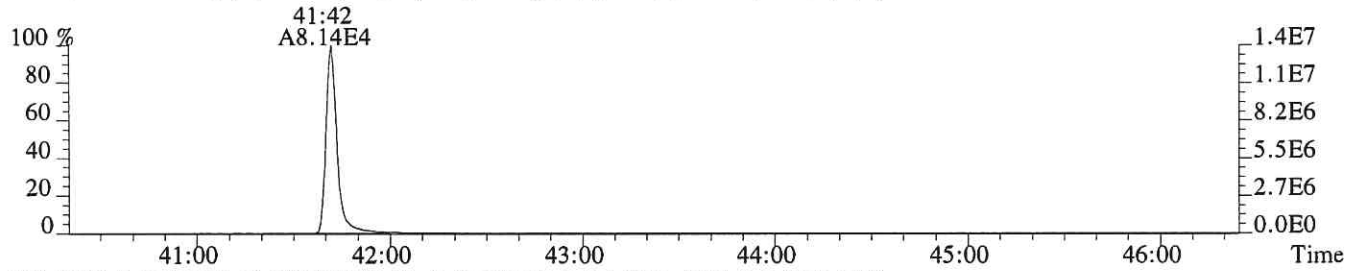
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



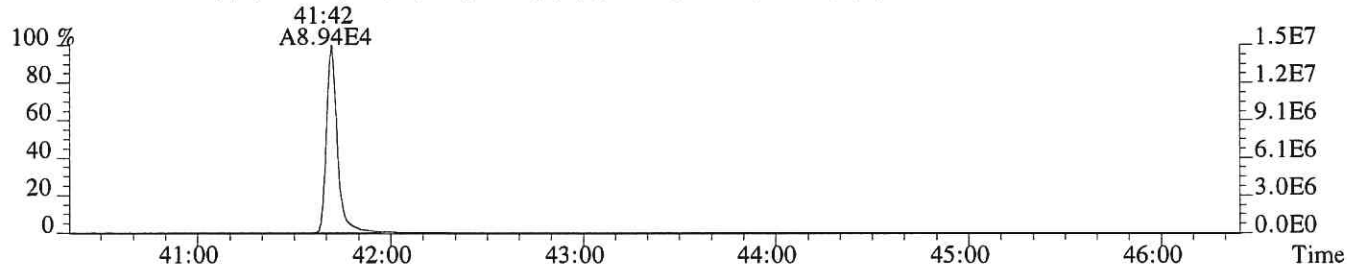
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5184.0,0.40%,F,T)



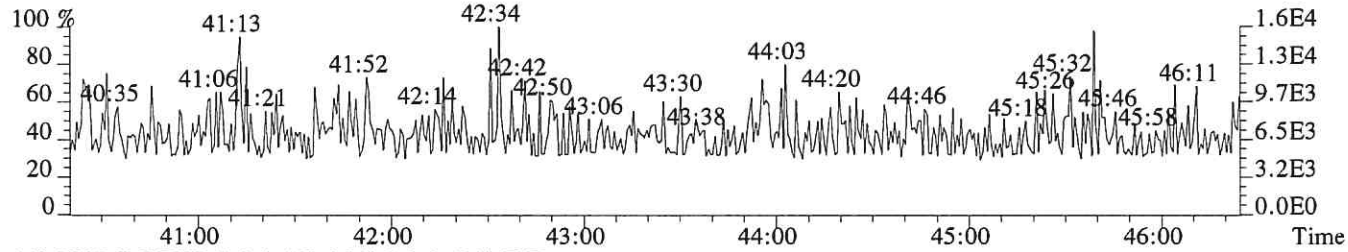
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2188.0,0.40%,F,T)



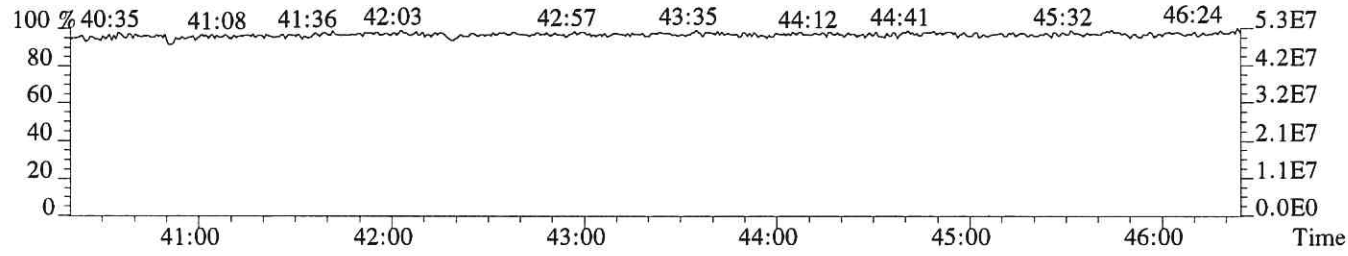
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1688.0,0.40%,F,T)



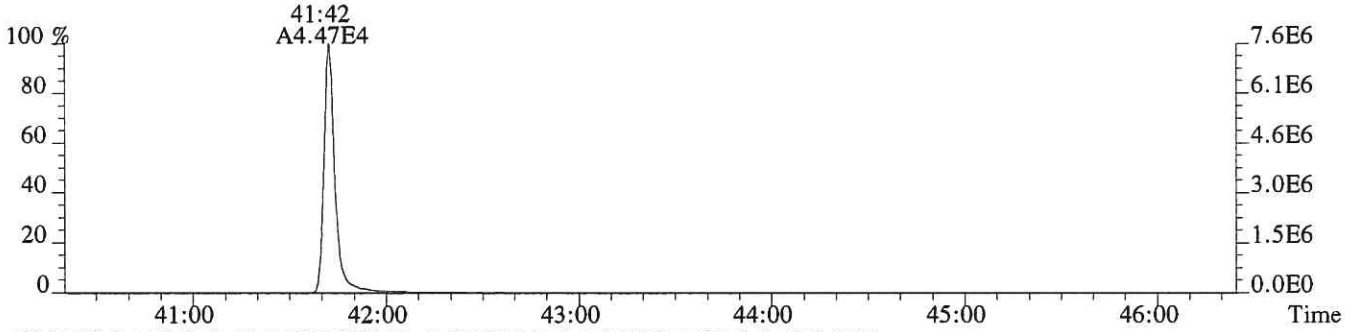
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



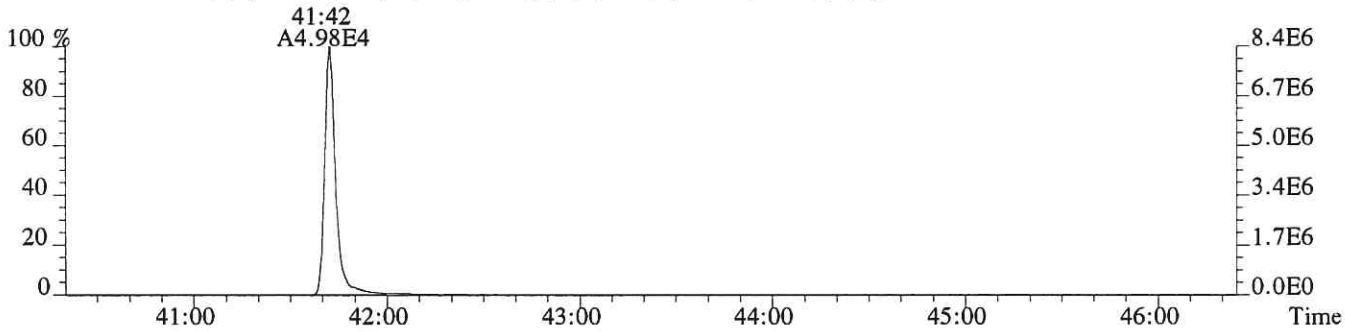
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



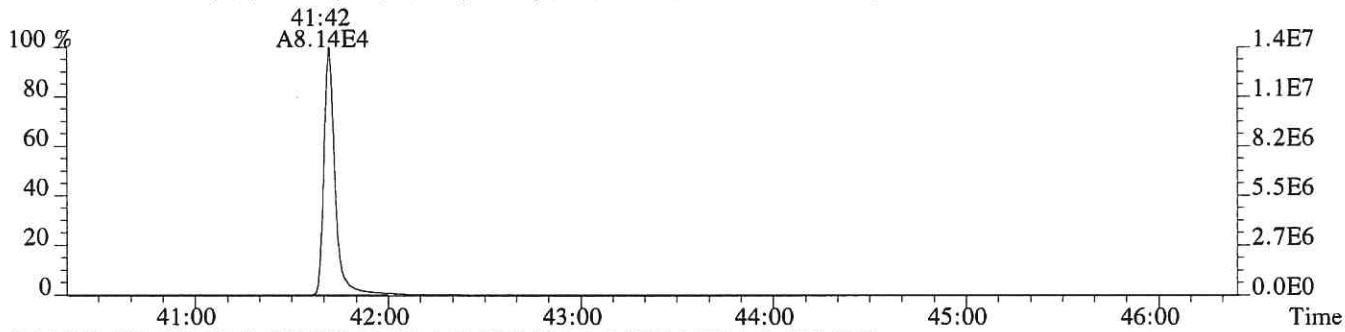
File:P616023 #1-547 Acq:10-DEC-2018 19:05:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1168.0,0.40%,F,T)



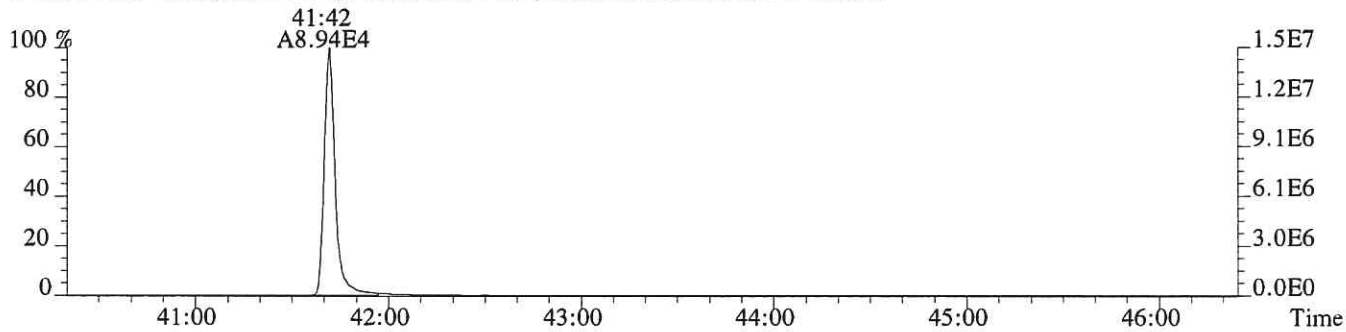
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1296.0,0.40%,F,T)



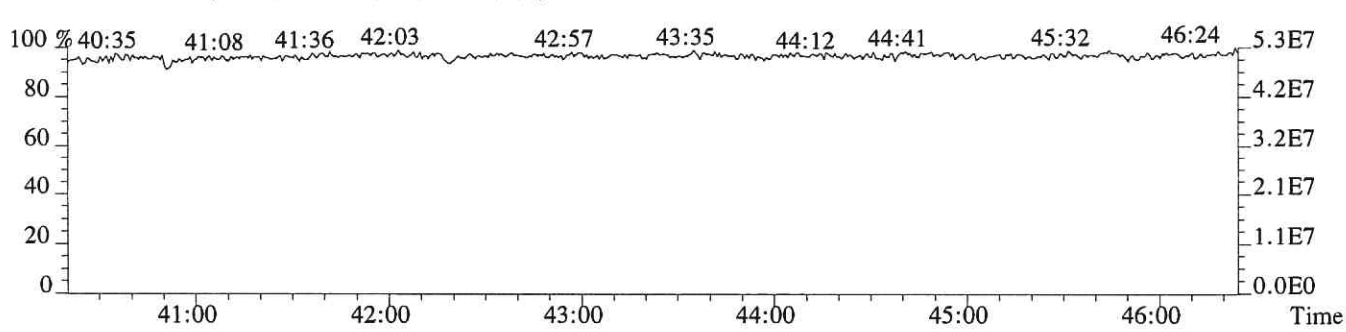
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2188.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1688.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P0116040

Date: 12/11/18

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LG

ccalqc.xls 07/17/12

5DFC

PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
194503	CS3	P616040	11-DEC-18	09:58:58
192977	WINDOW DEFINE	P616041	11-DEC-18	10:49:15
METHOD BLANK	EQ1800471-01	P616042	11-DEC-18	11:39:22
METHOD BLANK	EQ1800499-01	P616043	11-DEC-18	12:27:41
FW0051	E1801046-007	P616044	11-DEC-18	13:16:51
FW0007	E1801056-069	P616045	11-DEC-18	14:39:28
FW0052	E1801058-030	P616046	11-DEC-18	15:32:13
FW0053	E1801058-031	P616047	11-DEC-18	16:28:02
FW010	E1801058-032	P616048	11-DEC-18	17:18:28
FW0052	E1801065-030	P616049	11-DEC-18	18:06:47
FW0053	E1801065-031	P616050	11-DEC-18	18:55:56
LCS	EQ1800499-02	P616051	11-DEC-18	19:45:05
DLCS	EQ1800499-03	P616052	11-DEC-18	20:34:15

E1801065

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20181211A.SPL
Last Modified: Wednesday, December 12, 2018 07:08:08 Central Standard Time
Printed: Wednesday, December 12, 2018 07:08:11 Central Standard Time

Page Position (1, 1)

OPUS4: P616040res

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	12/11/18	09:03	P616039	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2	LG	not used
2		09:58	P616040	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 09:00
3		10:49	P616041	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1		
4		11:39	P616042	EQ1800471-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		12:27	P616043	EQ1800499-01	MB	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		13:16	P616044	E1801046-007	E1801046-007	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		14:39	P616045	E1801056-069	E1801056-069	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		15:33	P616046	E1801058-030	E1801058-030	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		16:23	P616047	E1801058-031	E1801058-031	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		17:18	P616048	E1801058-032	E1801058-032	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		18:06	P616049	E1801065-030	E1801065-030	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		18:55	P616050	E1801065-031	E1801065-031	EPA1613_ALS	Dioxin_ALS	Tray1:12		
13		19:45	P616051	EQ1800499-02	LCS	EPA1613_ALS	Dioxin_ALS	Tray1:13		
14		20:34	P616052	EQ1800499-03	DLCS	EPA1613_ALS	Dioxin_ALS	Tray1:14		
15		21:31	P616053	194503	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 21:31
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

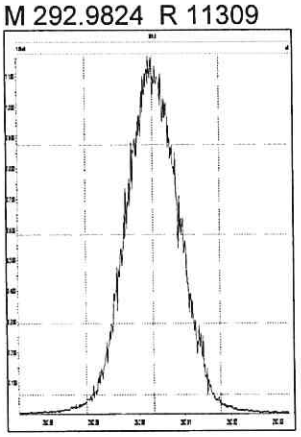
1385 of 1643

JC 12/13/18

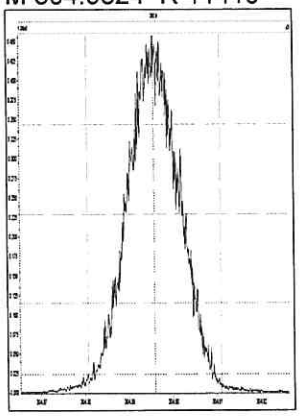
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:00:28 Central Standard Time

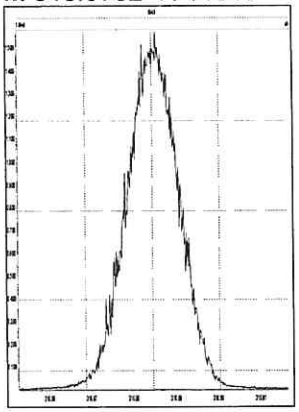
M 292.9824 R 11309



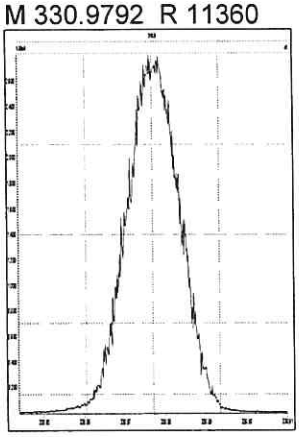
M 304.9824 R 11410



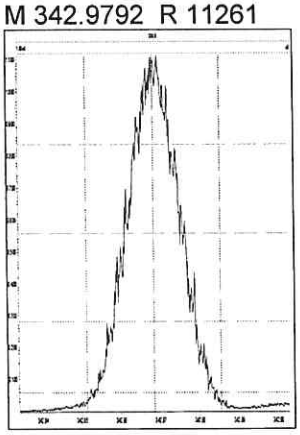
M 318.9792 R 11519



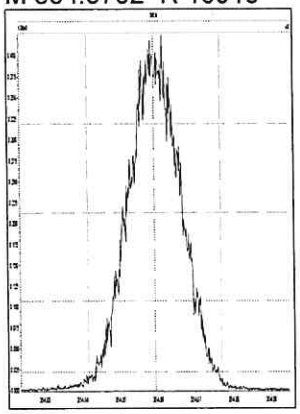
M 330.9792 R 11360



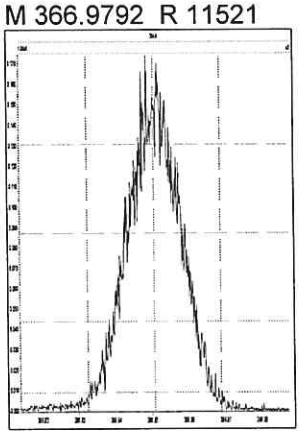
M 342.9792 R 11261



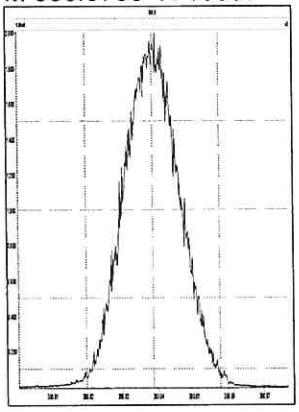
M 354.9792 R 10915



M 366.9792 R 11521



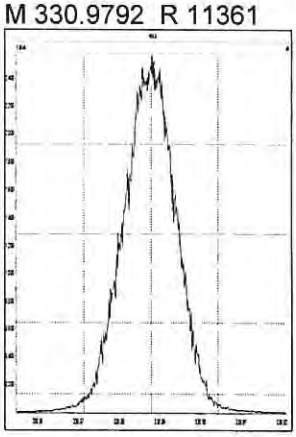
M 380.9760 R 10637



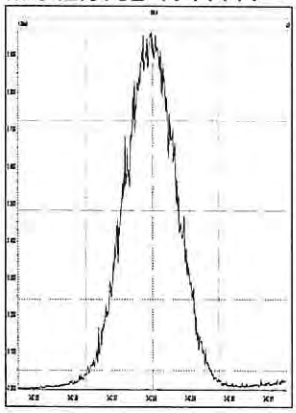
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:01:04 Central Standard Time

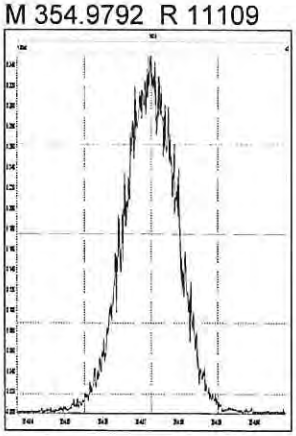
M 330.9792 R 11361



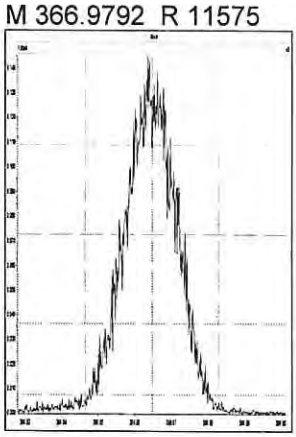
M 342.9792 R 11111



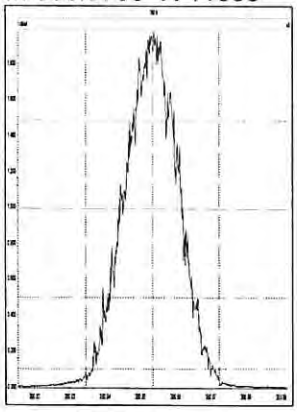
M 354.9792 R 11109



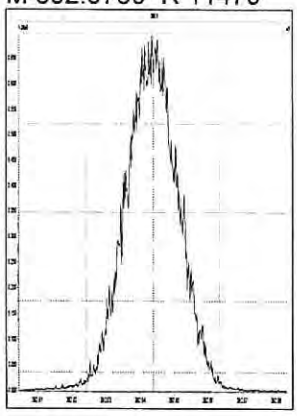
M 366.9792 R 11575



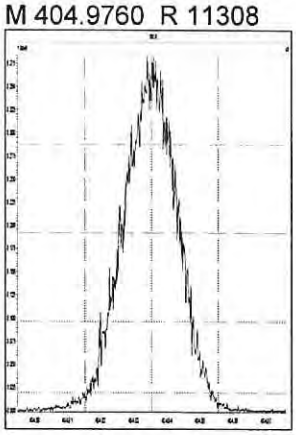
M 380.9760 R 11363



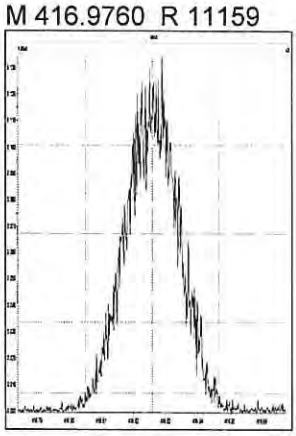
M 392.9760 R 11470



M 404.9760 R 11308



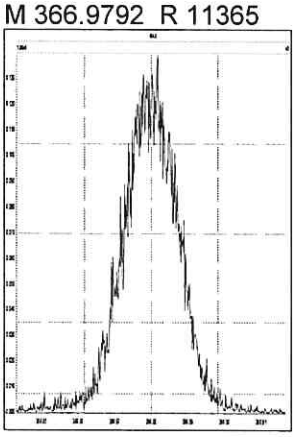
M 416.9760 R 11159



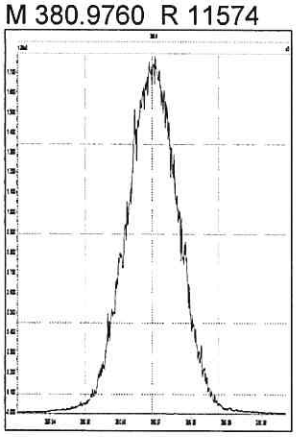
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:01:35 Central Standard Time

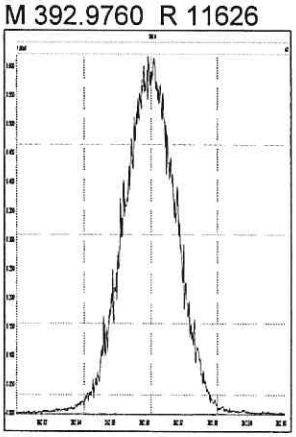
M 366.9792 R 11365



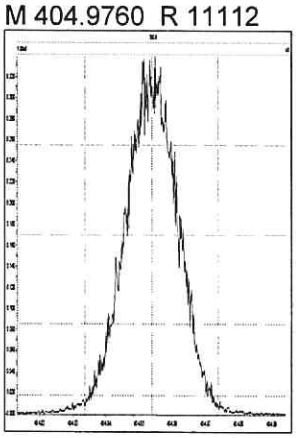
M 380.9760 R 11574



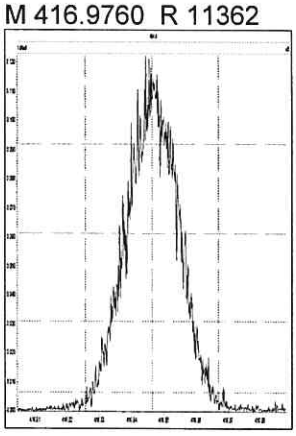
M 392.9760 R 11626



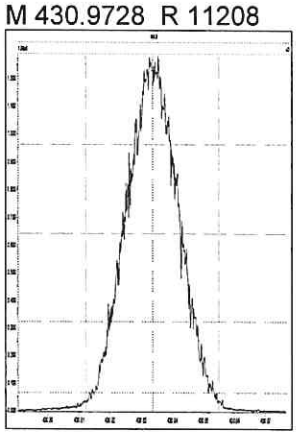
M 404.9760 R 11112



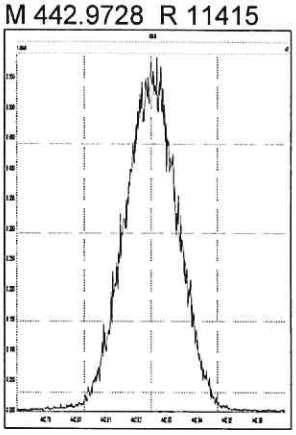
M 416.9760 R 11362



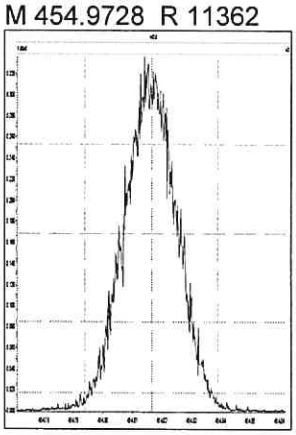
M 430.9728 R 11208



M 442.9728 R 11415



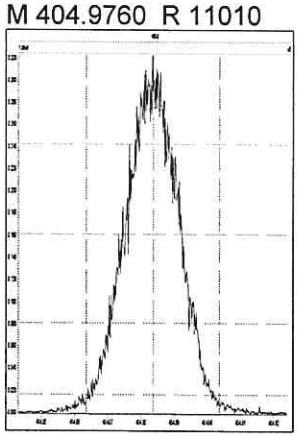
M 454.9728 R 11362



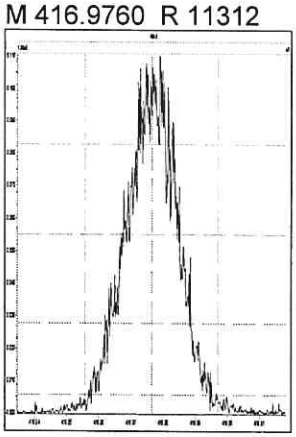
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:02:10 Central Standard Time

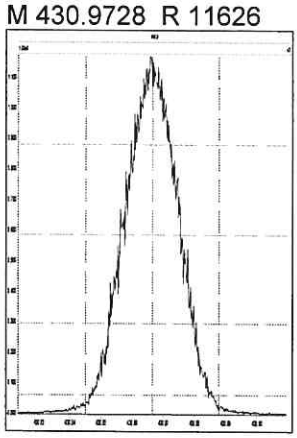
M 404.9760 R 11010



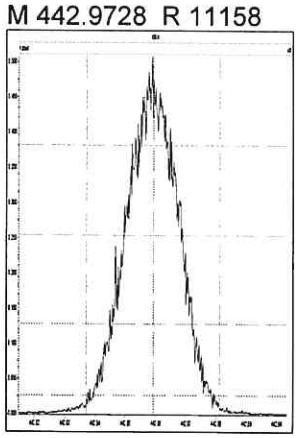
M 416.9760 R 11312



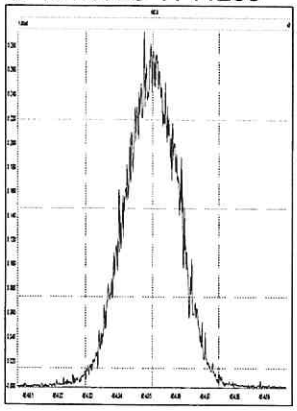
M 430.9728 R 11626



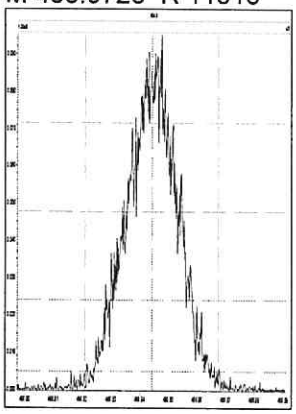
M 442.9728 R 11158



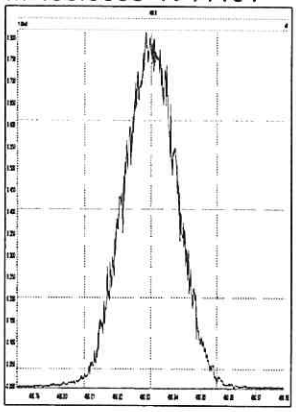
M 454.9728 R 11260



M 466.9728 R 11518



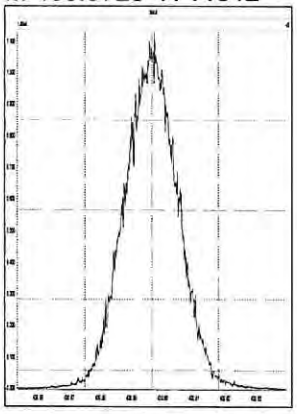
M 480.9696 R 11161



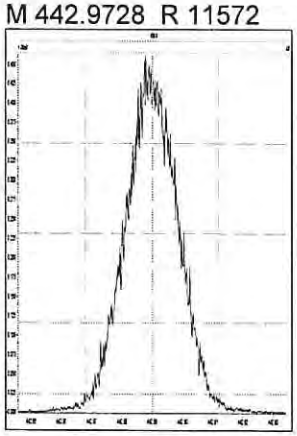
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, December 11, 2018 09:02:49 Central Standard Time

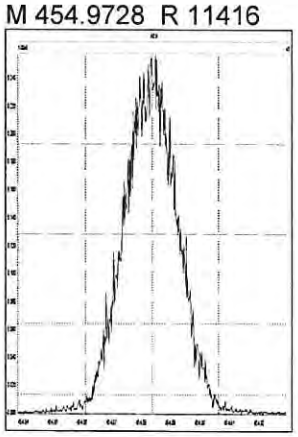
M 430.9728 R 11012



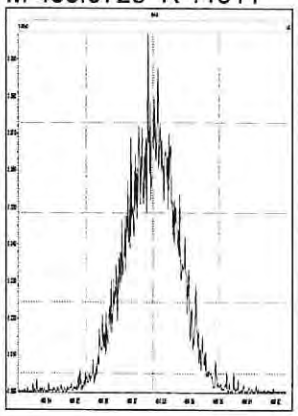
M 442.9728 R 11572



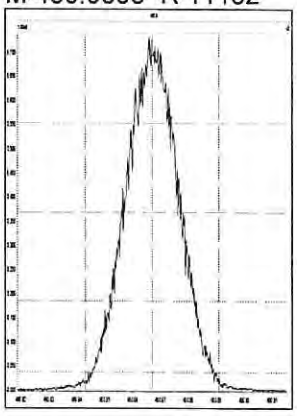
M 454.9728 R 11416



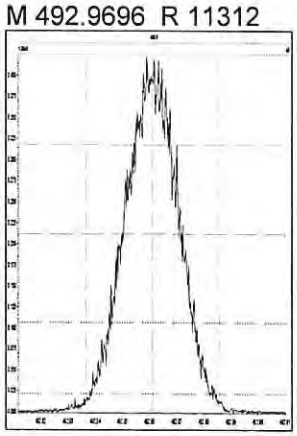
M 466.9728 R 11311



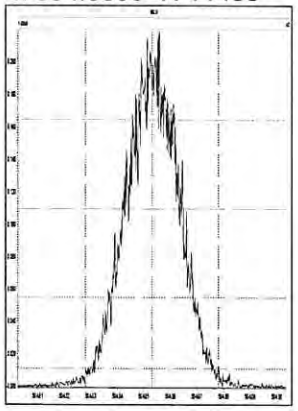
M 480.9696 R 11162



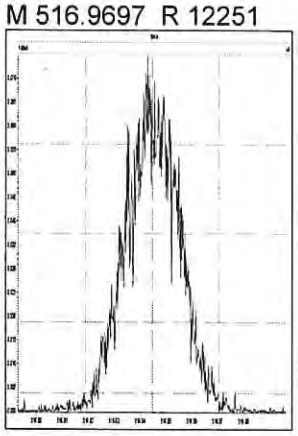
M 492.9696 R 11312



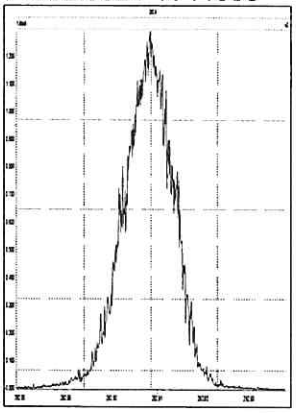
M 504.9696 R 11469



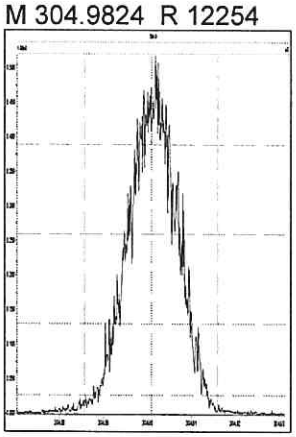
M 516.9697 R 12251



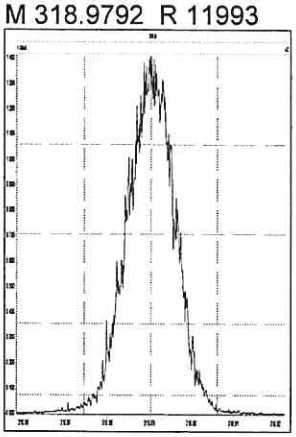
M 292.9824 R 11968



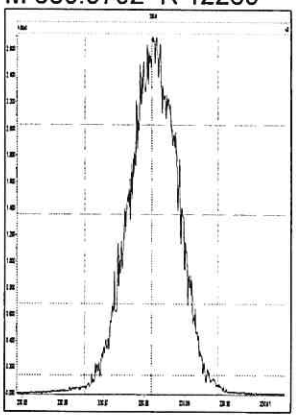
M 304.9824 R 12254



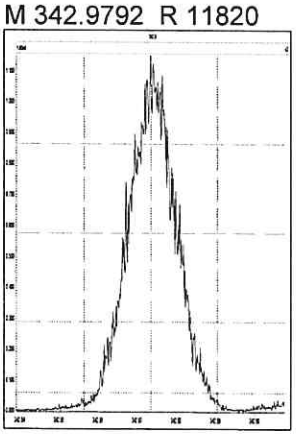
M 318.9792 R 11993



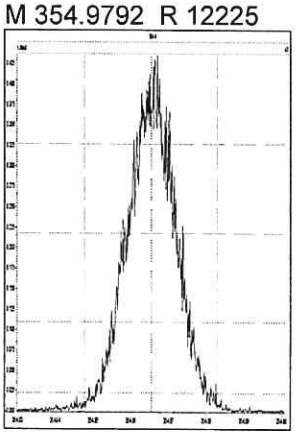
M 330.9792 R 12269



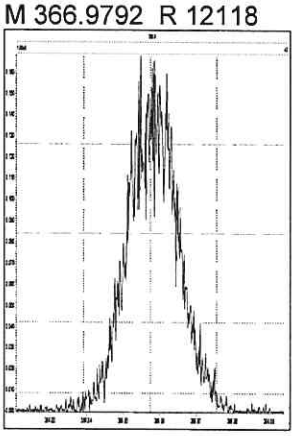
M 342.9792 R 11820



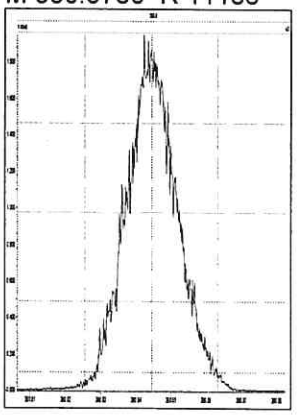
M 354.9792 R 12225



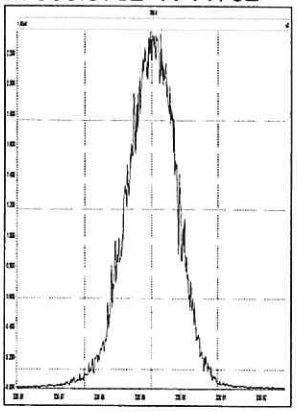
M 366.9792 R 12118



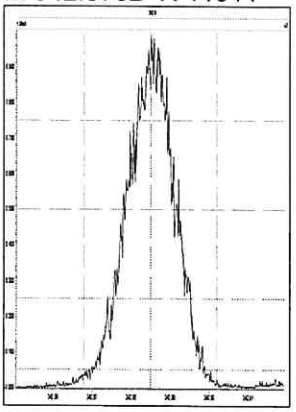
M 380.9760 R 11186



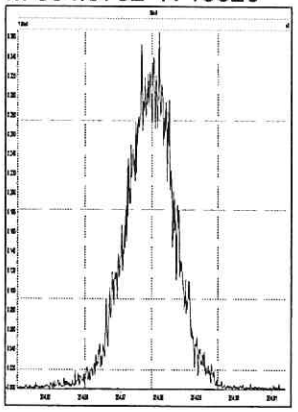
M 330.9792 R 11792



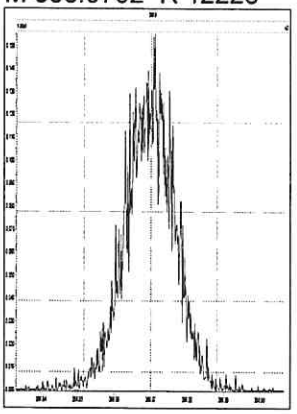
M 342.9792 R 11911



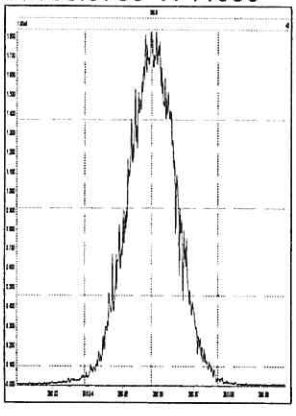
M 354.9792 R 13020



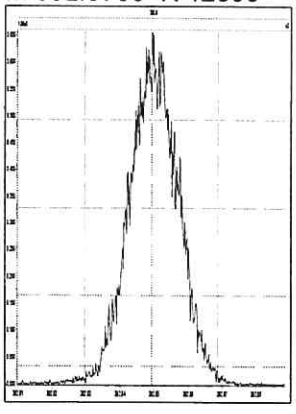
M 366.9792 R 12226



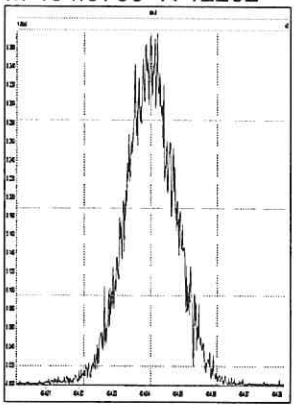
M 380.9760 R 11990



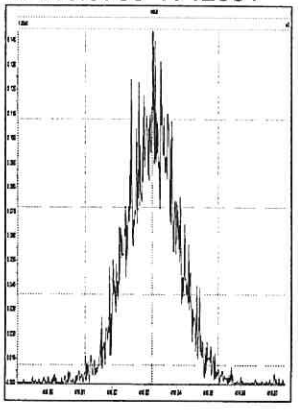
M 392.9760 R 12390



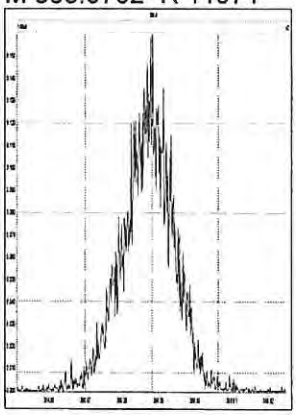
M 404.9760 R 12202



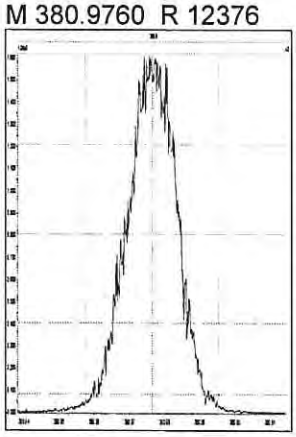
M 416.9760 R 12681



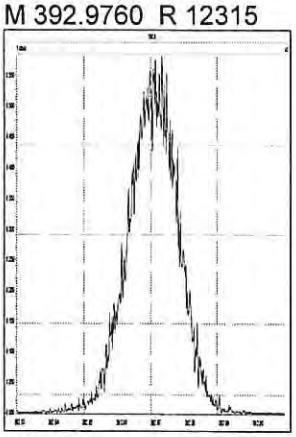
M 366.9792 R 11971



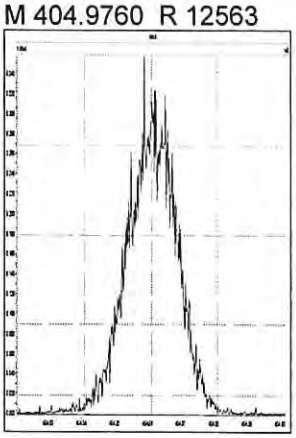
M 380.9760 R 12376



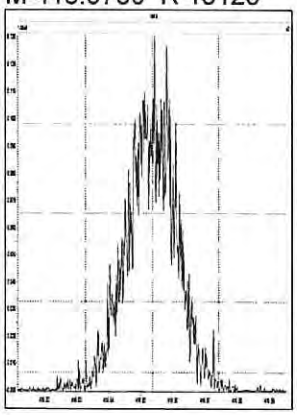
M 392.9760 R 12315



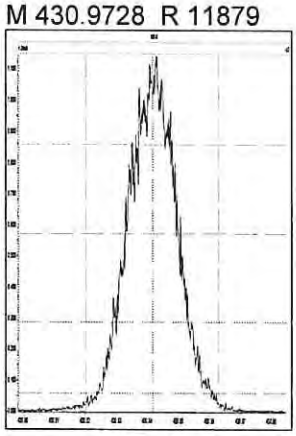
M 404.9760 R 12563



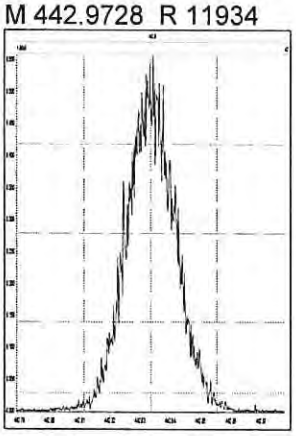
M 416.9760 R 13125



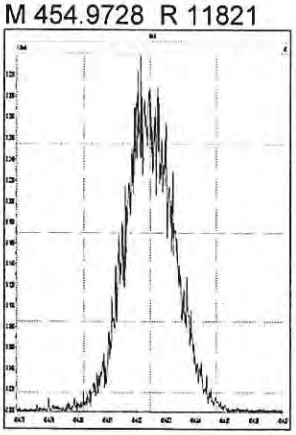
M 430.9728 R 11879



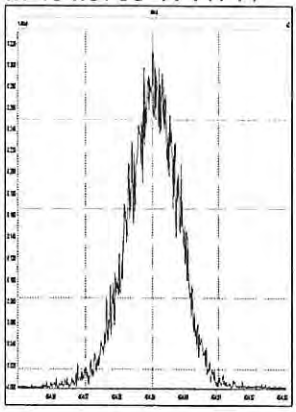
M 442.9728 R 11934



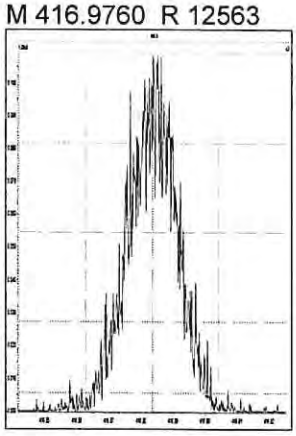
M 454.9728 R 11821



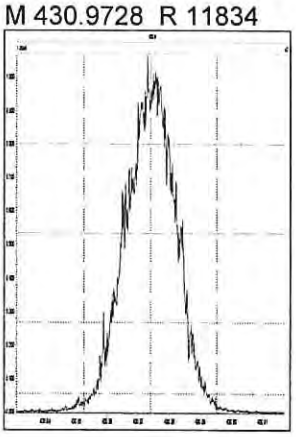
M 404.9760 R 11711



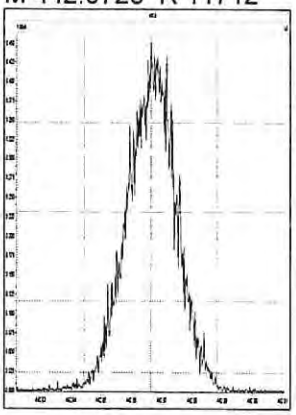
M 416.9760 R 12563



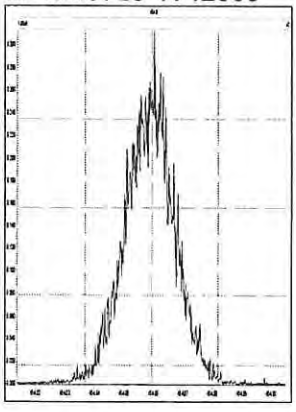
M 430.9728 R 11834



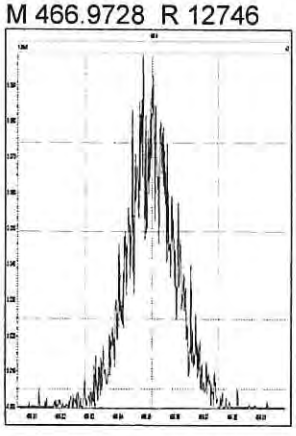
M 442.9728 R 11712



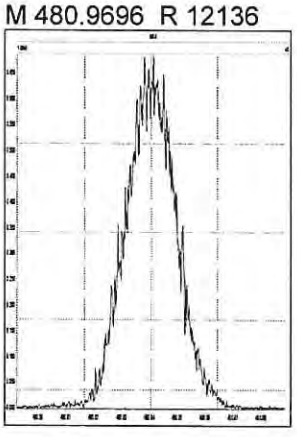
M 454.9728 R 12306



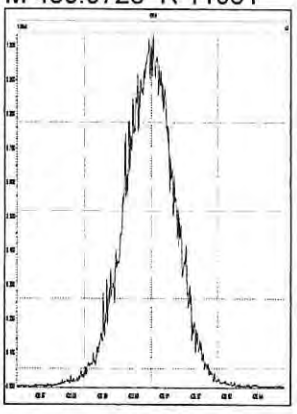
M 466.9728 R 12746



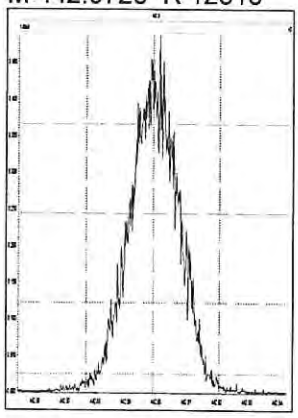
M 480.9696 R 12136



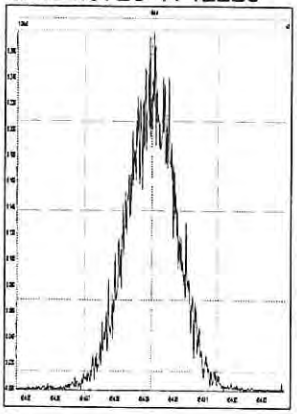
M 430.9728 R 11061



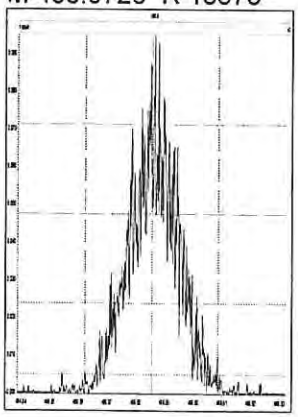
M 442.9728 R 12315



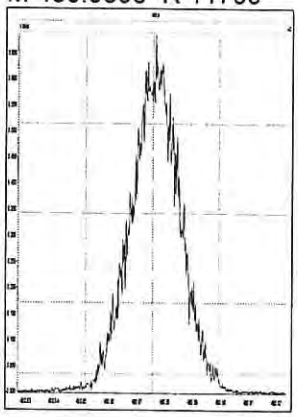
M 454.9728 R 12225



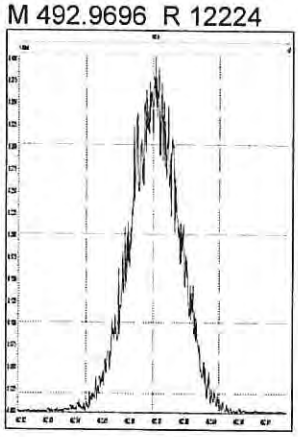
M 466.9728 R 13673



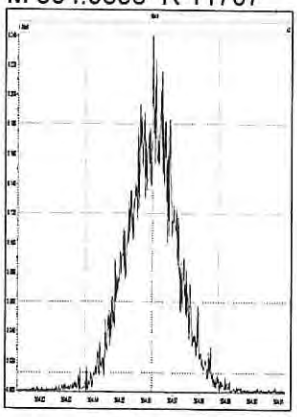
M 480.9696 R 11709



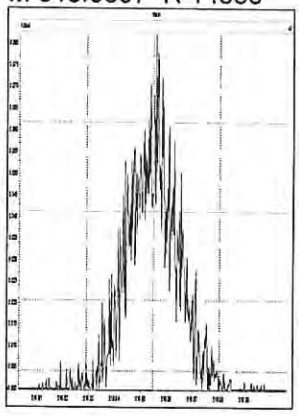
M 492.9696 R 12224



M 504.9696 R 11707



M 516.9697 R 14665



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

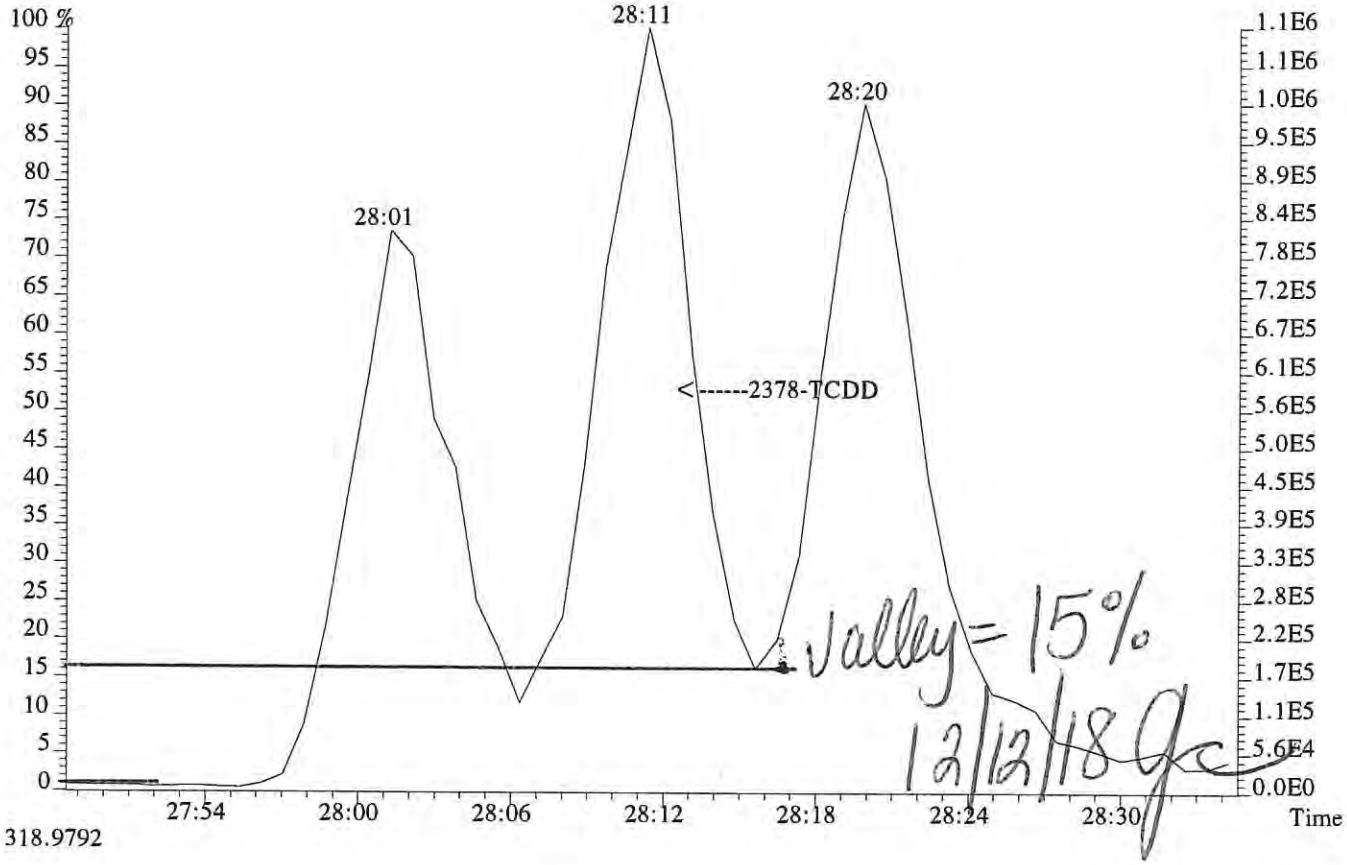
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P616041
Date Analyzed: 11-DEC-18
Time Analyzed: 10:49:15

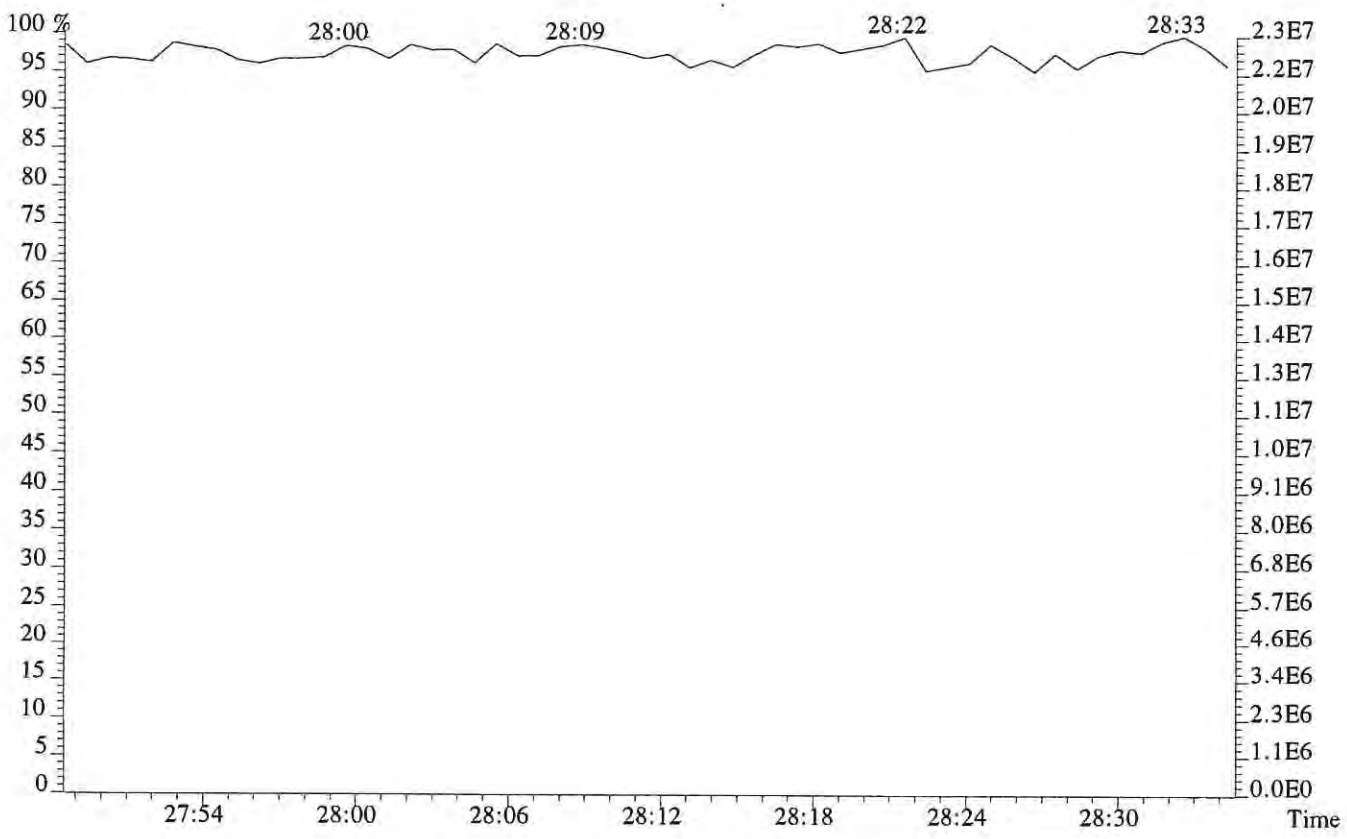
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:50	29:26
TCDD	24:37	29:15
PeCDF	29:20	33:44
PeCDD	30:56	33:28
HxCDF	34:22	36:55
HxCDD	34:54	36:30
HpCDF	38:07	39:29
HpCDD	38:21	39:01

% Valley 2378-TCDD: 15 %

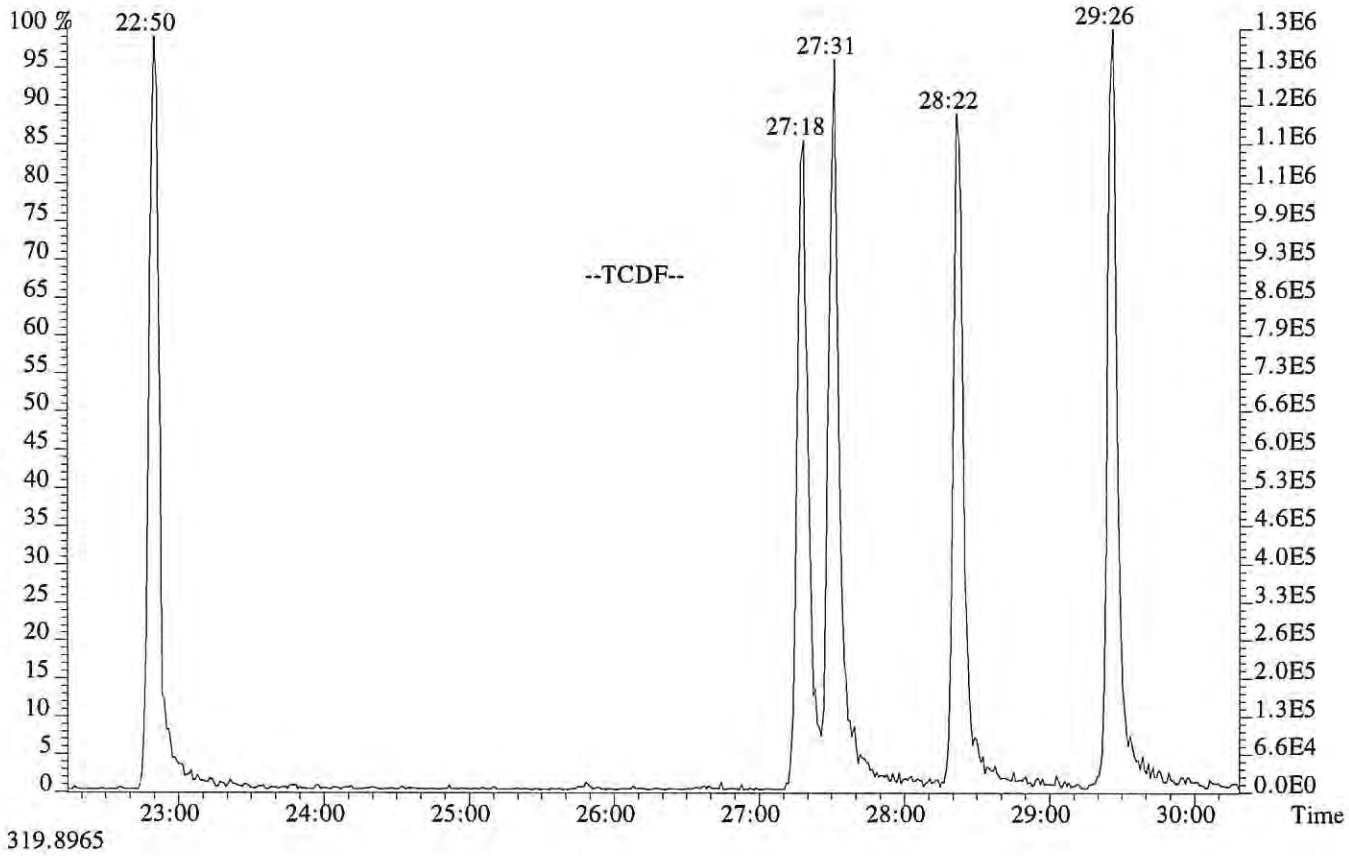
File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



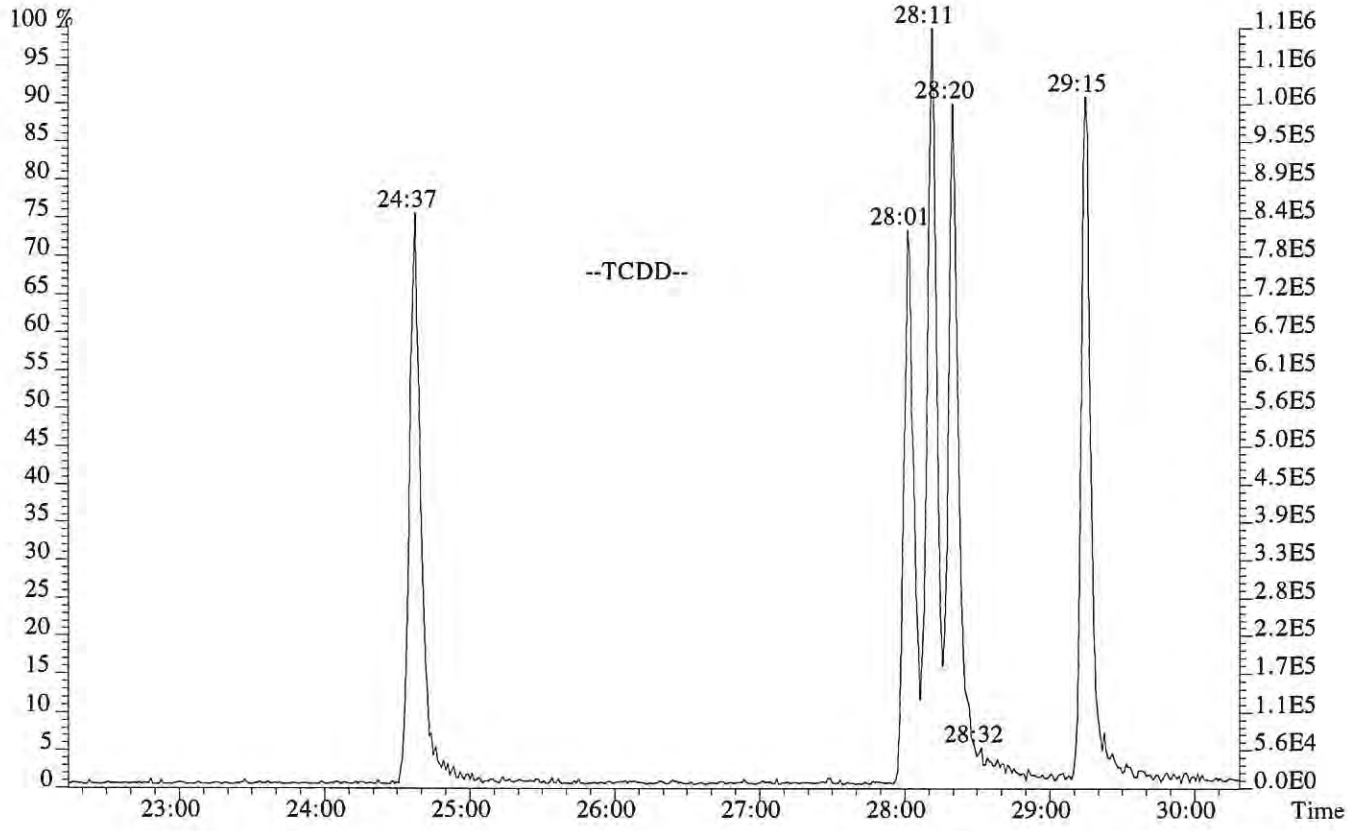
318.9792



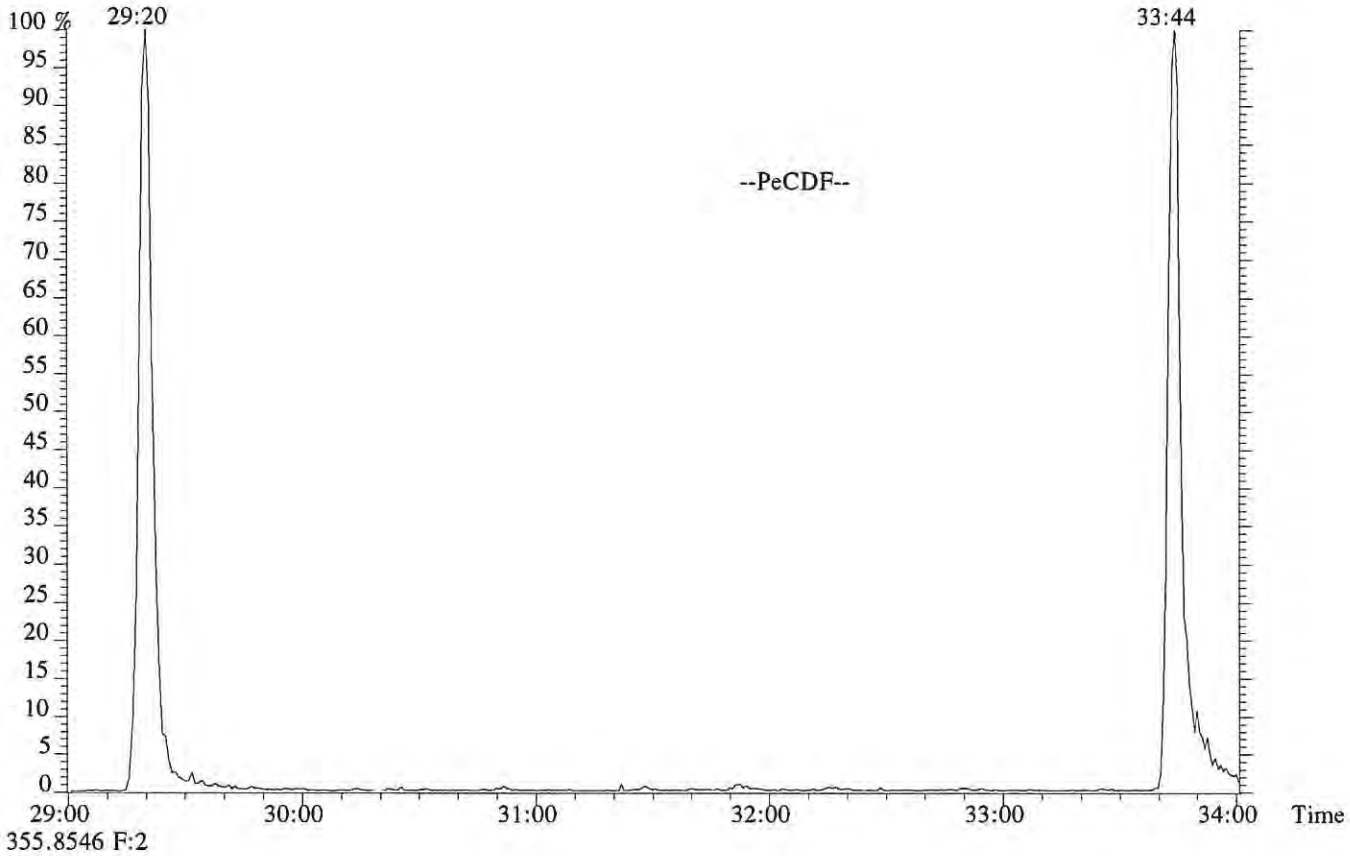
File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



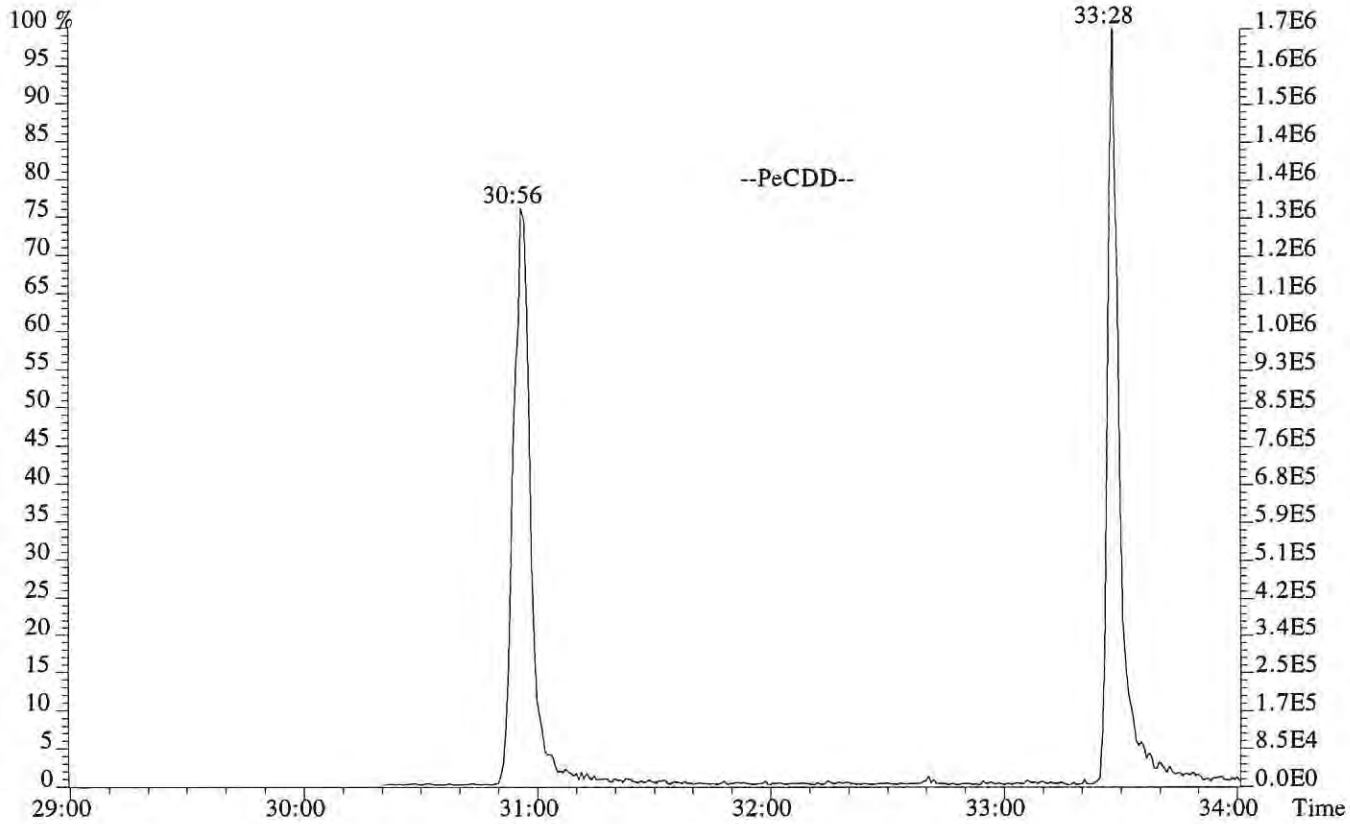
319.8965



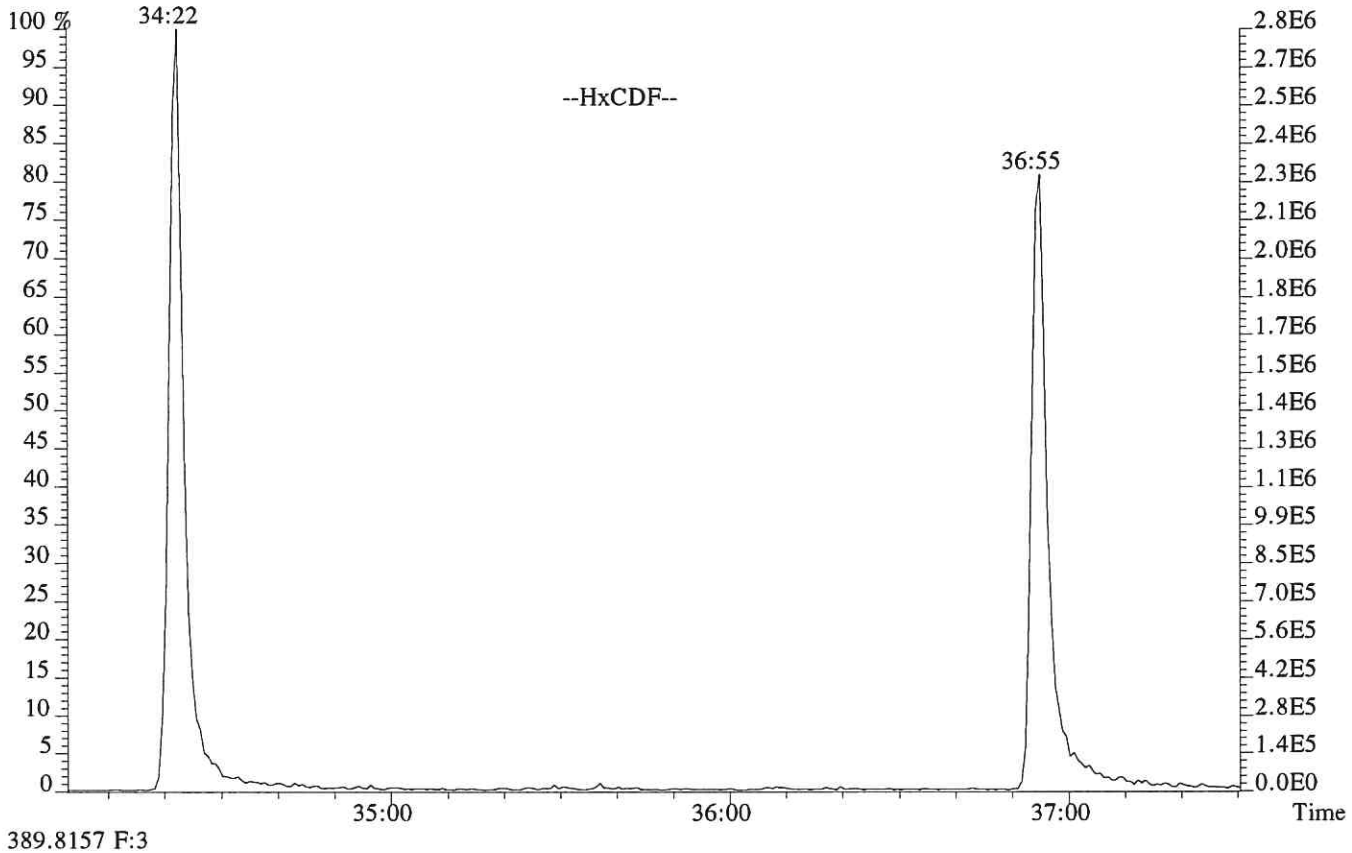
File:P616041 #1-573 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



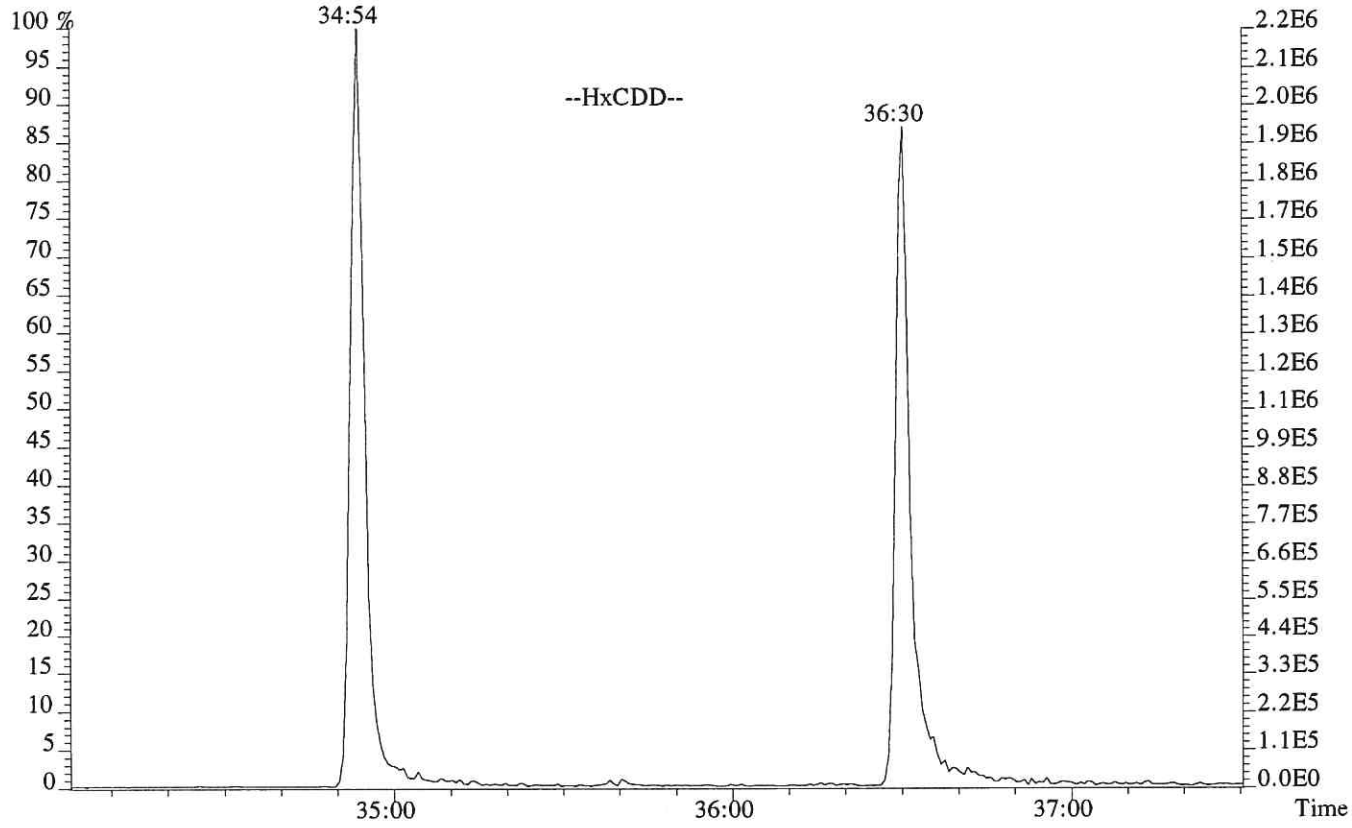
355.8546 F:2



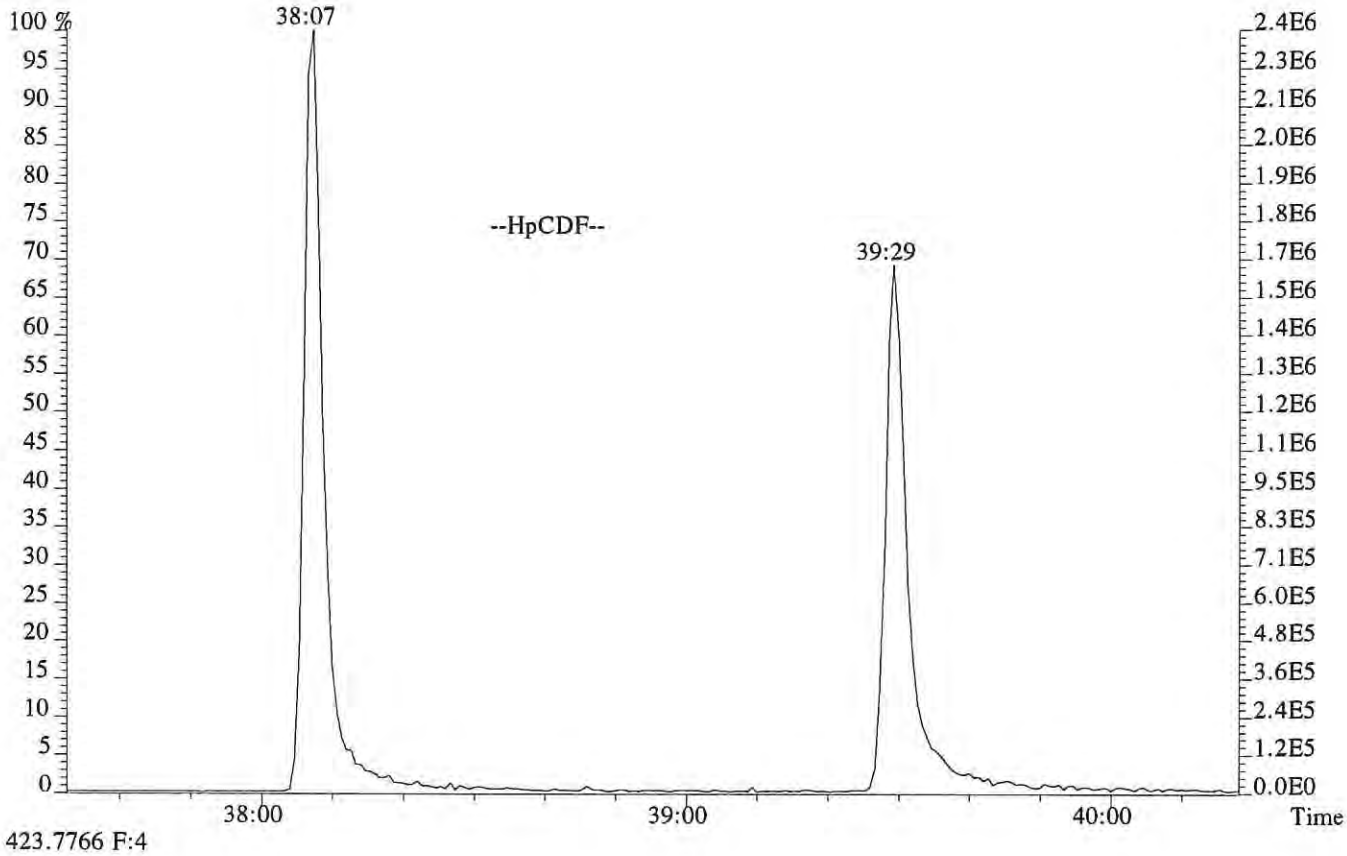
File:P616041 #1-312 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



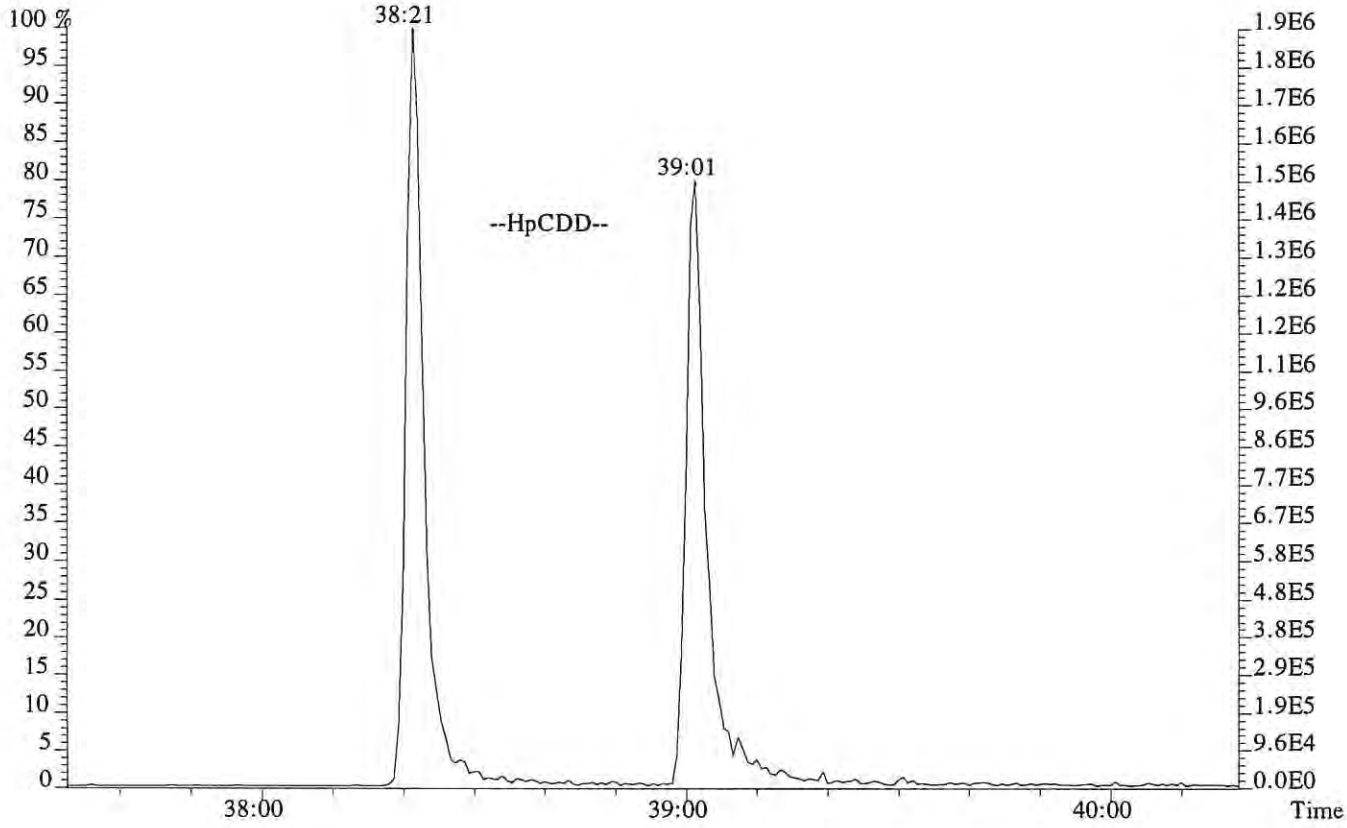
389.8157 F:3



File:P616041 #1-249 Acq:11-DEC-2018 10:49:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616040 Analysis Date: 11-DEC-18 Time: 09:58:58

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.6	7.8 - 12.9	-3.9
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-0.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	49	39 - 64	-2.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	50	39 - 64	0.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	50	41 - 61	0.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	48	43 - 58	-3.4
OCDD	M+2/M+4	0.89	0.76-1.02	96	79 - 126	-3.8
2,3,7,8-TCDF	M/M+2	0.82	0.65-0.89	9.2	8.4 - 12.0	-8.1
1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	46	41 - 60	-8.1
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	46	41 - 61	-7.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	46	45 - 56	-8.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	47	44 - 57	-6.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-6.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	48	44 - 57	-4.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	47	45 - 55	-6.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	46	43 - 58	-8.4
OCDF	M+2/M+4	0.91	0.76-1.02	87	63 - 159	-13.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P616040 Analysis Date: 11-DEC-18 Time: 09:58:58

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	96	82 - 121	-4.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	105	62 - 160	4.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	91	85 - 117	-9.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	96	72 - 138	-3.6
13C-OCDD	M+2/M+4	0.91	0.76-1.02	177	96 - 415	-11.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	90	71 - 140	-10.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	100	76 - 130	-0.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	104	77 - 130	3.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	86	76 - 131	-14.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	70 - 143	-5.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	87	74 - 135	-13.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	91	73 - 137	-9.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	92	78 - 129	-8.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	89	77 - 129	-11.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-9.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
194503

Run #7 Filename P616040 Samp: 1 Inj: 1 Acquired: 11-DEC-18 09:58:58
Processed: 12-DEC-18 16:11:21 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	27:31	4.115e+03	5.005e+03	0.82	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	31:51	3.749e+04	2.350e+04	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	32:49	3.658e+04	2.321e+04	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:30	3.265e+04	2.651e+04	1.23	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:36	3.866e+04	3.113e+04	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:07	3.531e+04	2.812e+04	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:52	3.095e+04	2.468e+04	1.25	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:07	3.150e+04	3.009e+04	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:29	2.498e+04	2.435e+04	1.03	yes	no	1.463
10	Unk	OCDF	41:53	3.474e+04	3.803e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:20	2.941e+03	3.906e+03	0.75	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:05	2.380e+04	1.532e+04	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:15	2.166e+04	1.746e+04	1.24	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:20	2.413e+04	1.972e+04	1.22	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:34	2.567e+04	1.981e+04	1.30	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:01	2.122e+04	1.953e+04	1.09	yes	no	1.112
17	Unk	OCDD	41:41	2.807e+04	3.152e+04	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:29	4.056e+04	5.130e+04	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	31:51	7.080e+04	4.398e+04	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	32:47	7.255e+04	4.507e+04	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:29	3.137e+04	5.968e+04	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:36	3.956e+04	7.576e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:06	3.601e+04	6.782e+04	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:52	3.132e+04	5.889e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:06	2.741e+04	5.939e+04	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:28	2.297e+04	5.064e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:18	2.996e+04	3.797e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:04	5.160e+04	3.324e+04	1.55	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:14	4.193e+04	3.331e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:20	4.630e+04	3.647e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:00	3.886e+04	3.696e+04	1.05	yes	no	0.857
32	IS	13C-OCDD	41:40	5.093e+04	5.612e+04	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	27:41	3.196e+04	4.013e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:34	5.162e+04	4.008e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:20	7.128e+03				no	1.086

ALS ENVIRONMENTAL
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Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
194503

Run #7 Filename P616040 Samp: 1 Inj: 1 Acquired: 11-DEC-18 09:58:58
Processed: 12-DEC-18 16:11:21 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.18e+05	6.32e+02	9.8e+02	7.05e+05	1.68e+03	4.2e+02
2	1,2,3,7,8-PeCDF	5.91e+06	1.21e+03	4.9e+03	3.66e+06	1.93e+03	1.9e+03
3	2,3,4,7,8-PeCDF	6.35e+06	1.21e+03	5.3e+03	4.00e+06	1.93e+03	2.1e+03
4	1,2,3,4,7,8-HxCDF	6.72e+06	1.03e+03	6.5e+03	5.43e+06	4.64e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	7.07e+06	1.03e+03	6.9e+03	5.66e+06	4.64e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	6.91e+06	1.03e+03	6.7e+03	5.46e+06	4.64e+02	1.2e+04
7	1,2,3,7,8,9-HxCDF	5.43e+06	1.03e+03	5.3e+03	4.40e+06	4.64e+02	9.5e+03
8	1,2,3,4,6,7,8-HpCDF	6.32e+06	7.51e+03	8.4e+02	6.08e+06	1.24e+03	4.9e+03
9	1,2,3,4,7,8,9-HpCDF	4.39e+06	7.51e+03	5.8e+02	4.32e+06	1.24e+03	3.5e+03
10	OCDF	5.58e+06	7.24e+02	7.7e+03	5.96e+06	2.00e+03	3.0e+03
11	2,3,7,8-TCDD	4.78e+05	2.20e+03	2.2e+02	6.20e+05	3.96e+02	1.6e+03
12	1,2,3,7,8-PeCDD	4.08e+06	1.00e+03	4.1e+03	2.55e+06	4.12e+02	6.2e+03
13	1,2,3,4,7,8-HxCDD	4.74e+06	8.20e+02	5.8e+03	3.85e+06	7.72e+02	5.0e+03
14	1,2,3,6,7,8-HxCDD	4.66e+06	8.20e+02	5.7e+03	3.82e+06	7.72e+02	5.0e+03
15	1,2,3,7,8,9-HxCDD	4.68e+06	8.20e+02	5.7e+03	3.78e+06	7.72e+02	4.9e+03
16	1,2,3,4,6,7,8-HpCDD	3.92e+06	8.20e+02	4.8e+03	3.70e+06	5.60e+02	6.6e+03
17	OCDD	4.77e+06	4.68e+02	1.0e+04	5.21e+06	4.56e+02	1.1e+04
18	13C-2,3,7,8-TCDF	5.98e+06	5.42e+03	1.1e+03	7.59e+06	3.93e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	1.14e+07	1.29e+03	8.8e+03	7.13e+06	8.96e+02	8.0e+03
20	13C-2,3,4,7,8-PeCDF	1.24e+07	1.29e+03	9.6e+03	7.90e+06	8.96e+02	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	6.55e+06	1.32e+03	5.0e+03	1.24e+07	1.20e+03	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	7.40e+06	1.32e+03	5.6e+03	1.40e+07	1.20e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	7.15e+06	1.32e+03	5.4e+03	1.34e+07	1.20e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	5.68e+06	1.32e+03	4.3e+03	1.07e+07	1.20e+03	8.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.46e+06	1.52e+03	3.6e+03	1.19e+07	4.90e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.01e+06	1.52e+03	2.6e+03	9.03e+06	4.90e+03	1.8e+03
27	13C-2,3,7,8-TCDD	4.84e+06	9.34e+03	5.2e+02	6.04e+06	4.12e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	8.80e+06	7.32e+02	1.2e+04	5.67e+06	1.30e+03	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	9.08e+06	3.01e+03	3.0e+03	7.12e+06	1.16e+03	6.1e+03
30	13C-1,2,3,6,7,8-HxCDD	9.10e+06	3.01e+03	3.0e+03	7.04e+06	1.16e+03	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.38e+06	6.16e+02	1.2e+04	6.96e+06	4.48e+02	1.6e+04
32	13C-OCDD	8.50e+06	1.57e+03	5.4e+03	9.34e+06	7.72e+02	1.2e+04
33	13C-1,2,3,4-TCDD	5.14e+06	9.34e+03	5.5e+02	6.48e+06	4.12e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	9.53e+06	3.01e+03	3.2e+03	7.51e+06	1.16e+03	6.5e+03
35	37Cl-2,3,7,8-TCDD	1.14e+06	2.11e+03	5.4e+02			

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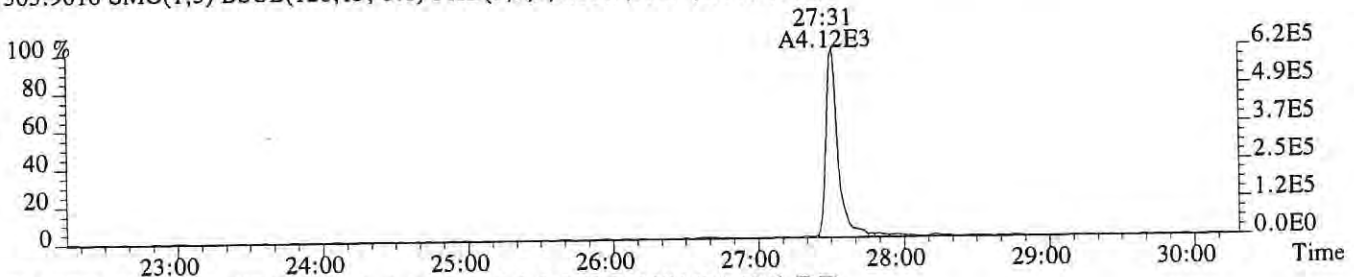
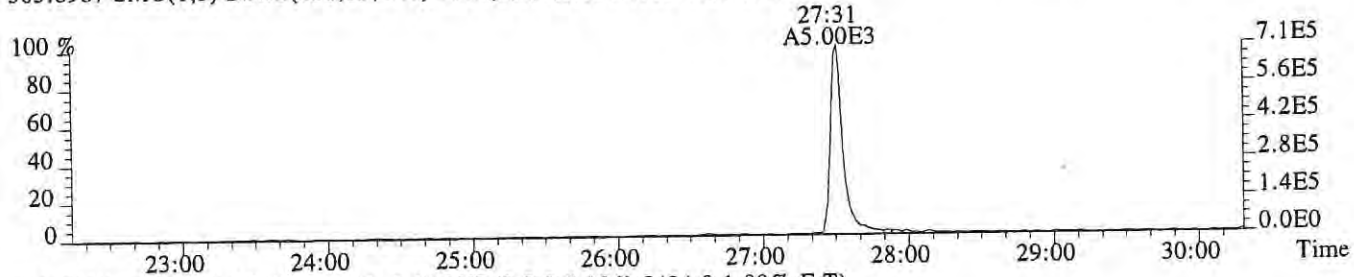
File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

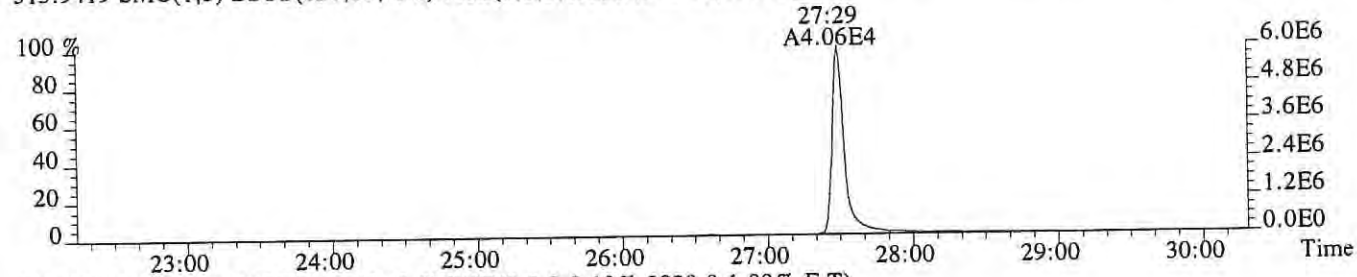
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



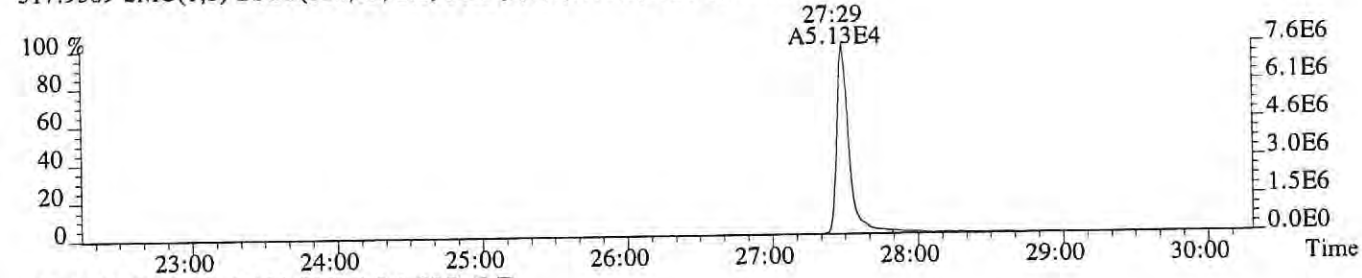
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



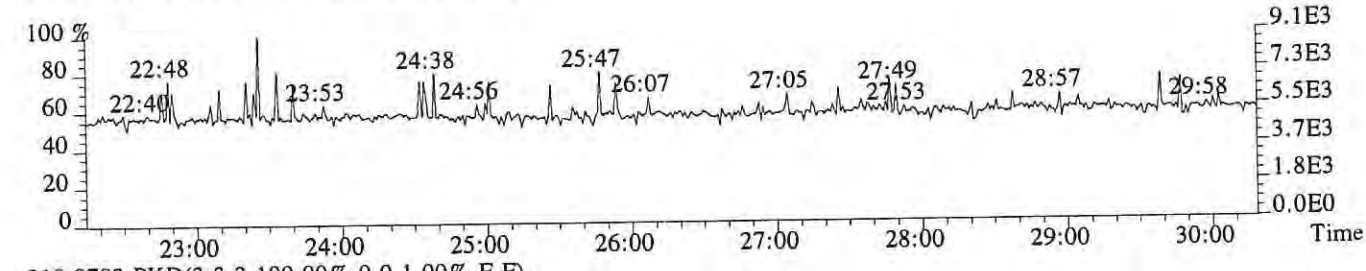
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5424.0,1.00%,F,T)



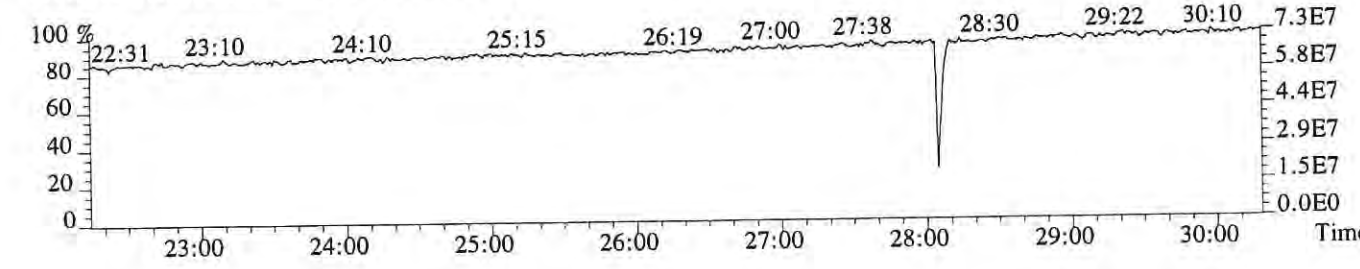
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3928.0,1.00%,F,T)



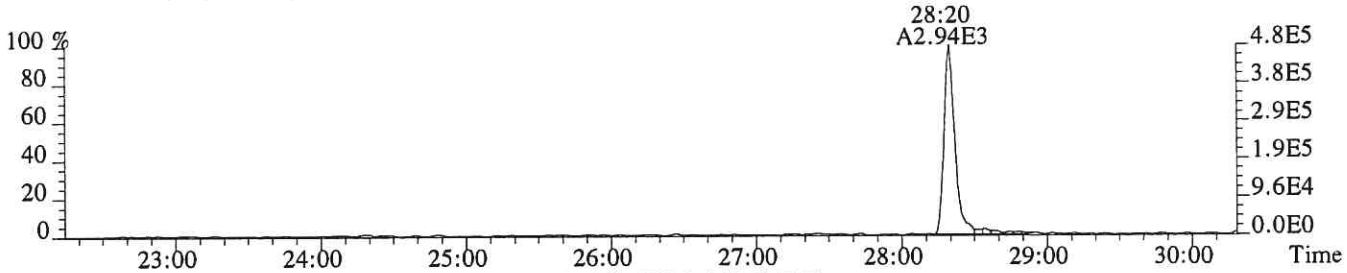
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



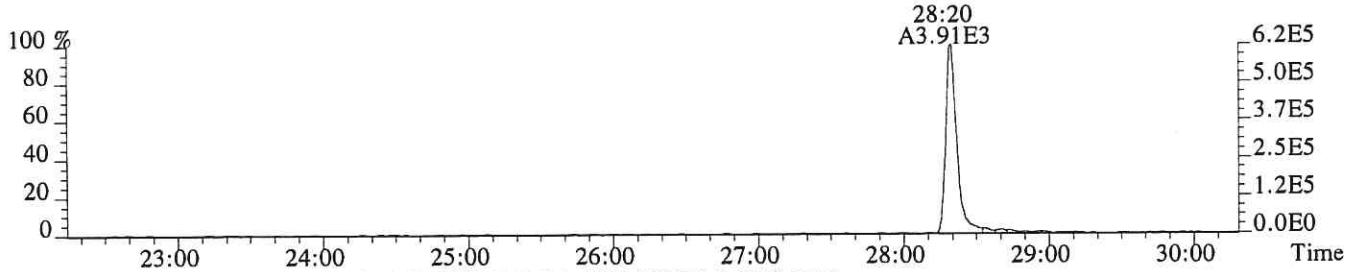
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



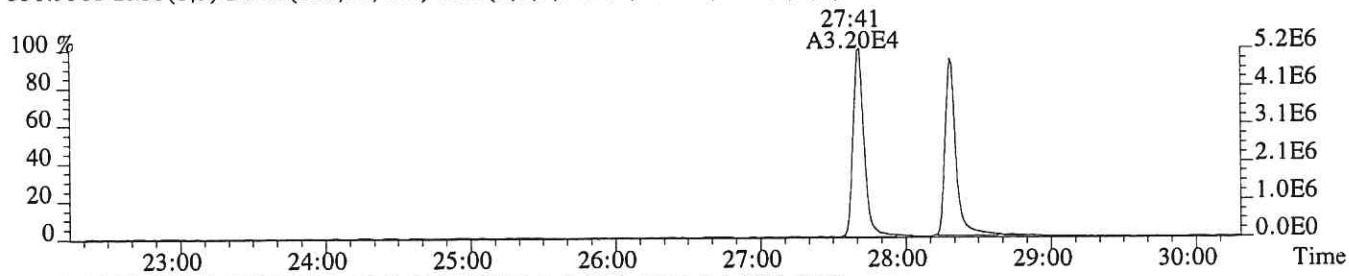
File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



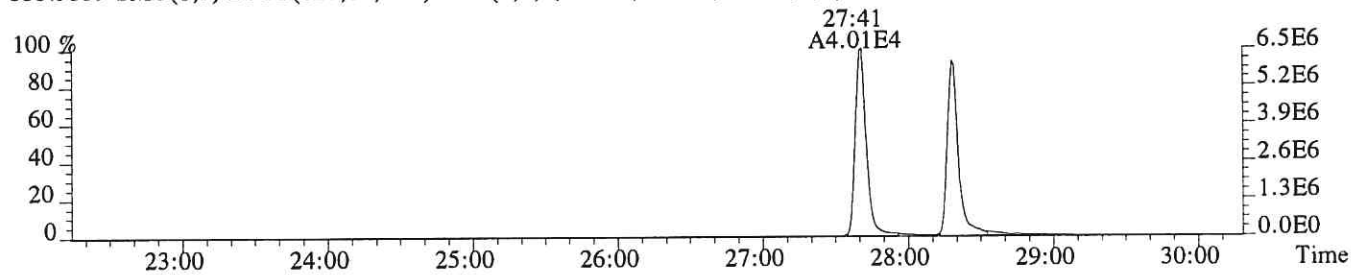
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



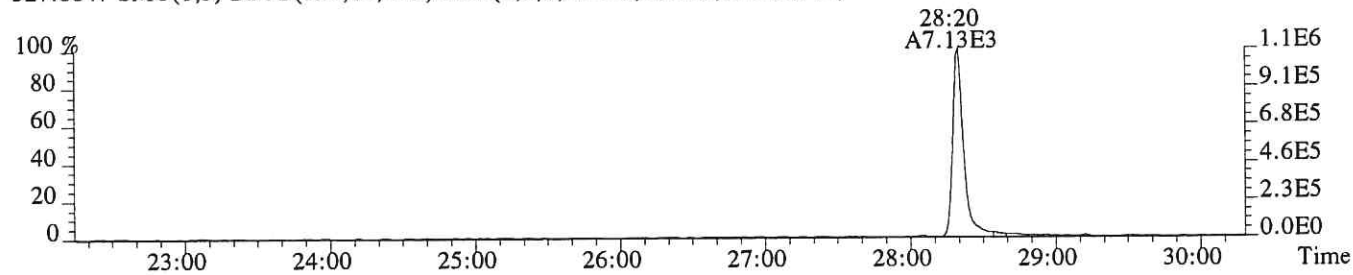
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9336.0,1.00%,F,T)



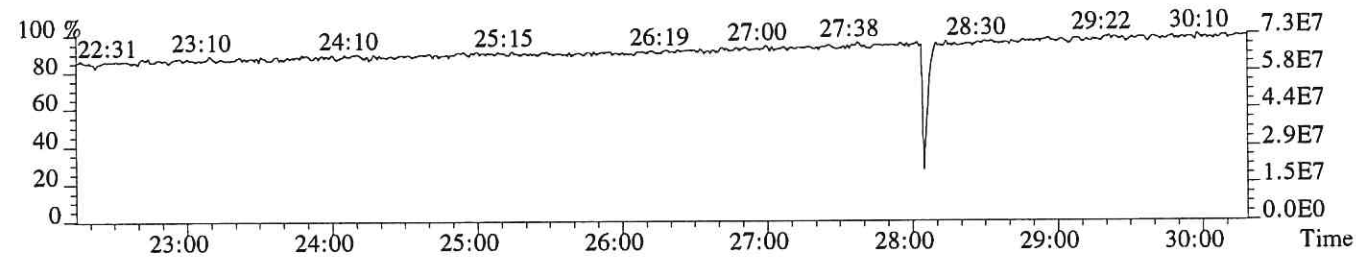
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4124.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)

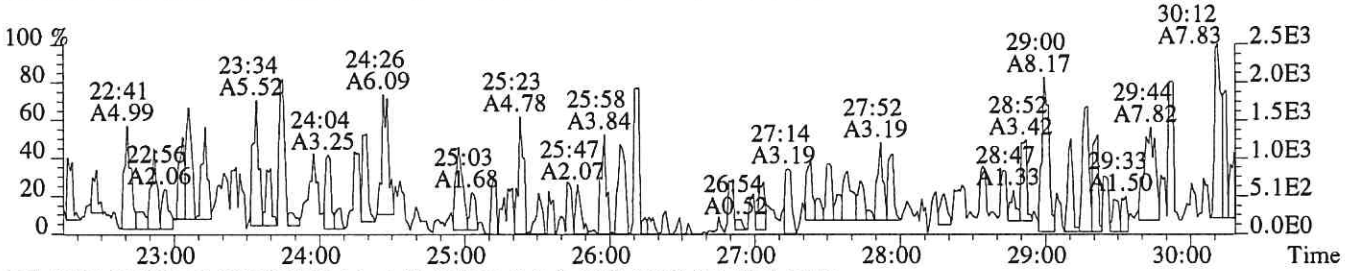


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

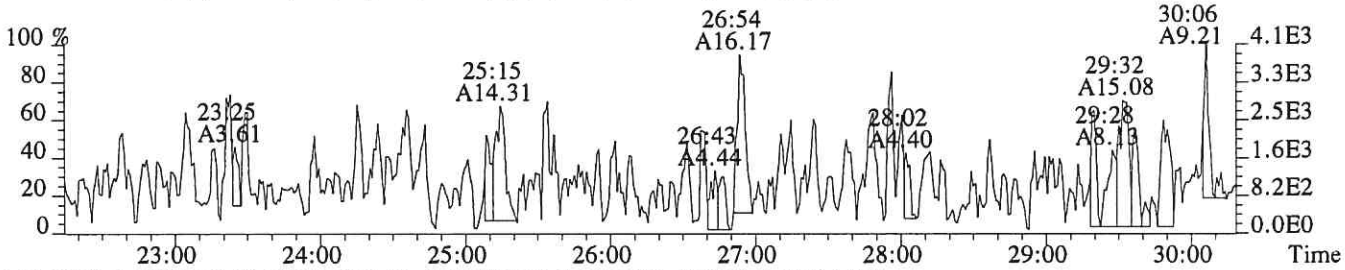


File:P616040 #1-573 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

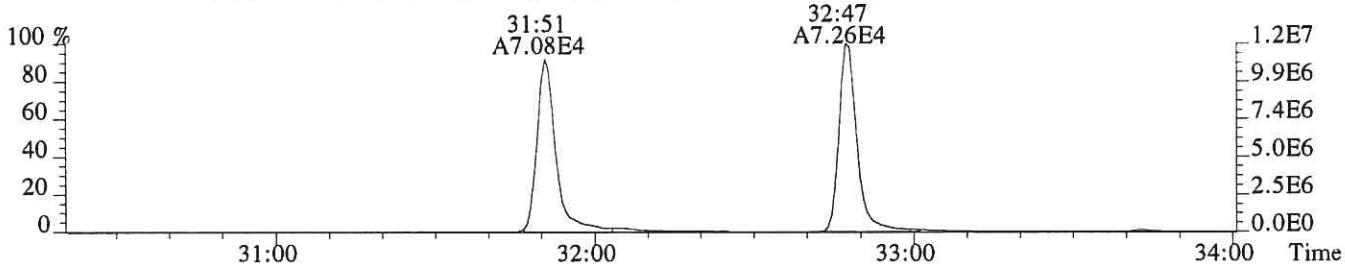
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



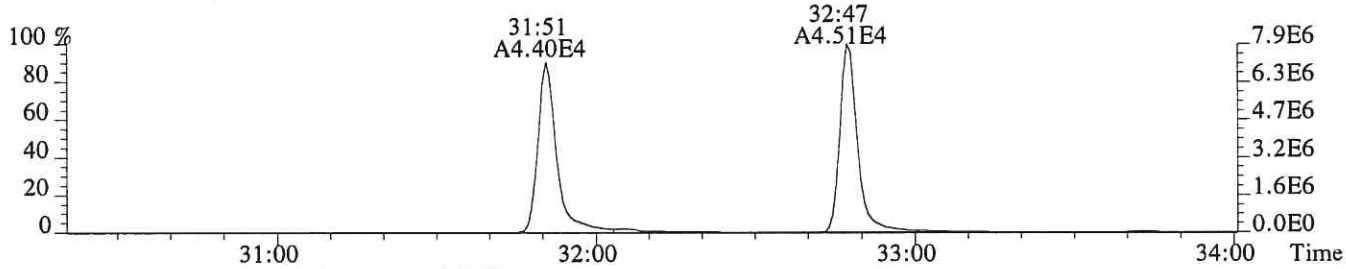
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



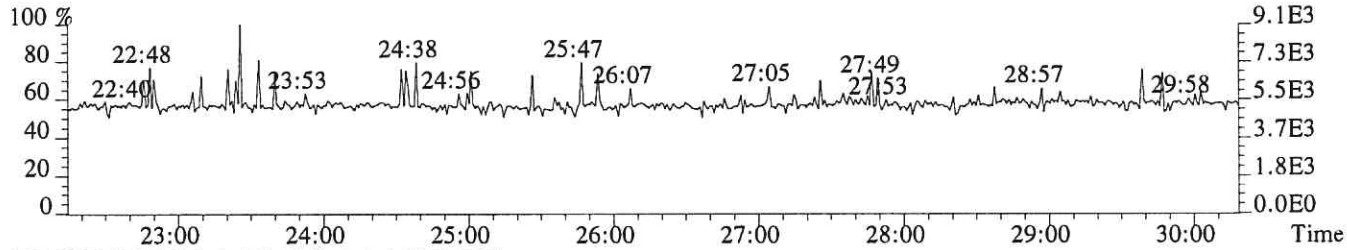
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



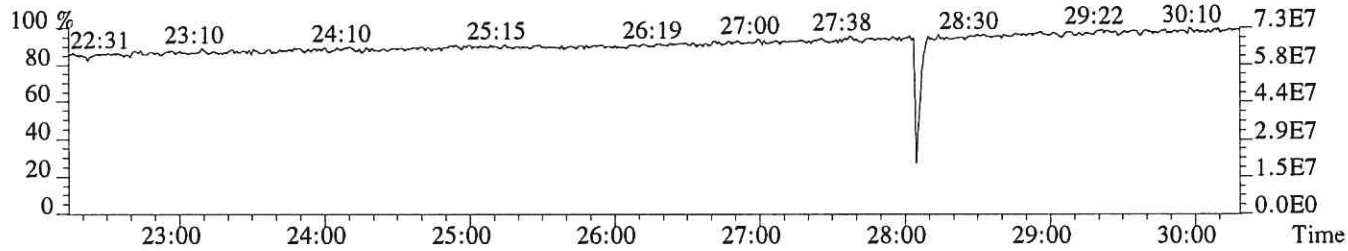
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

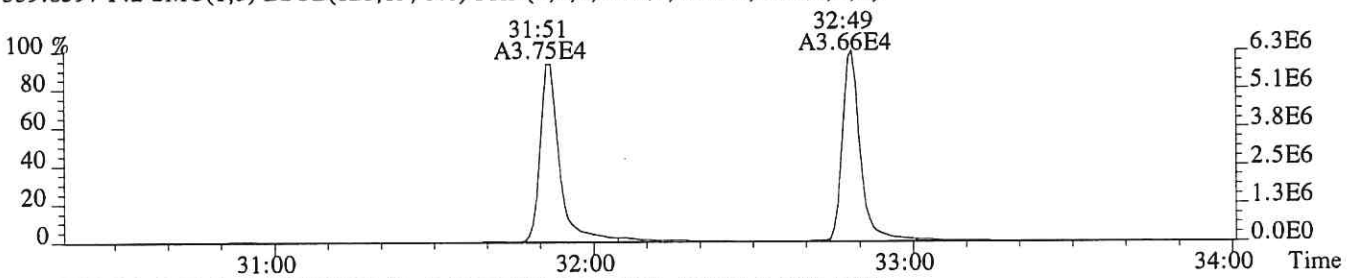


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

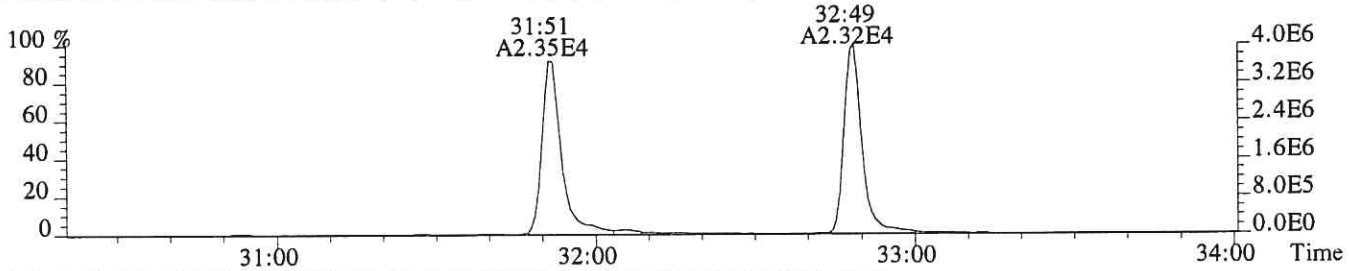


File:P616040 #1-331 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

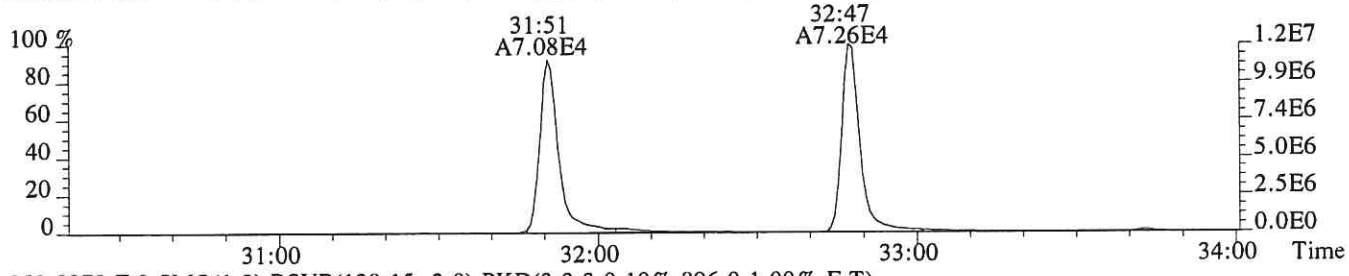
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



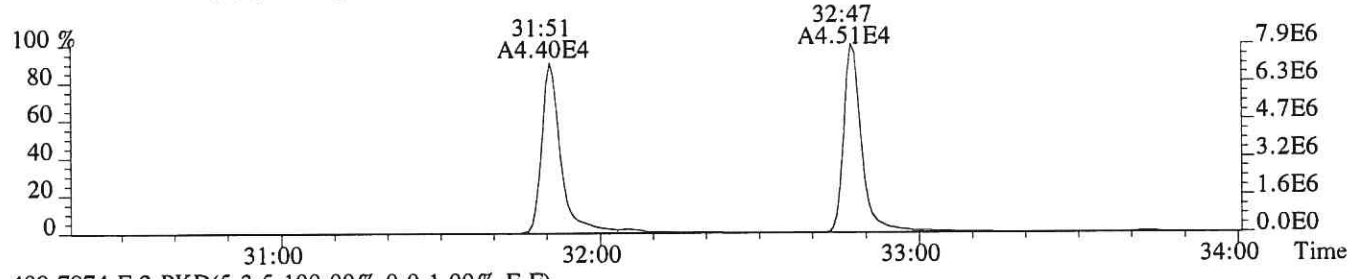
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1932.0,1.00%,F,T)



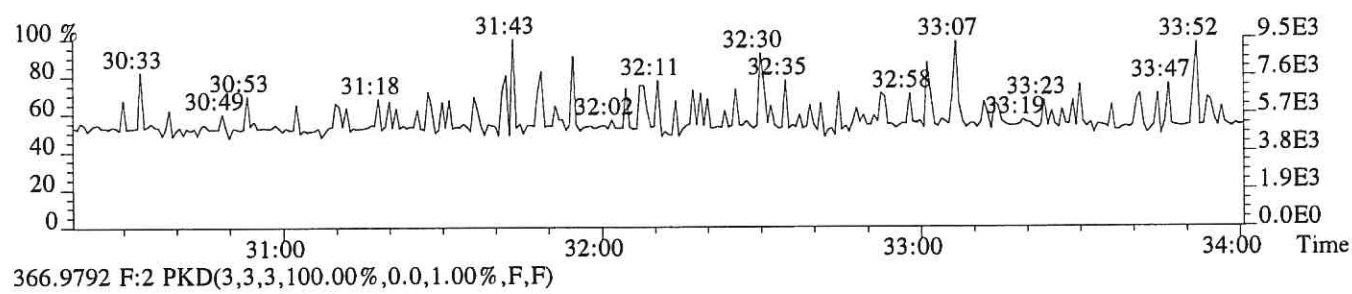
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



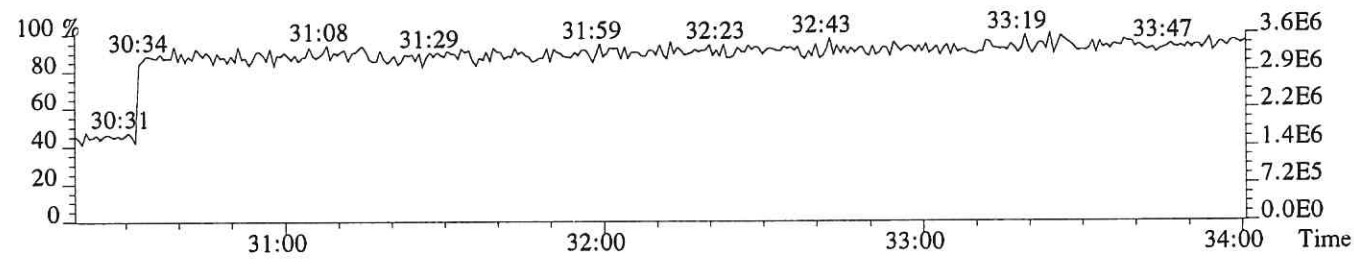
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



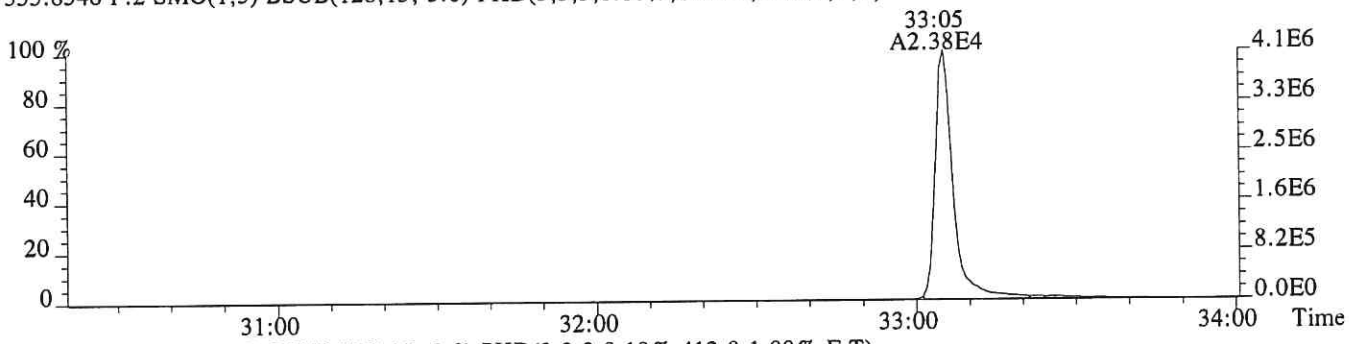
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



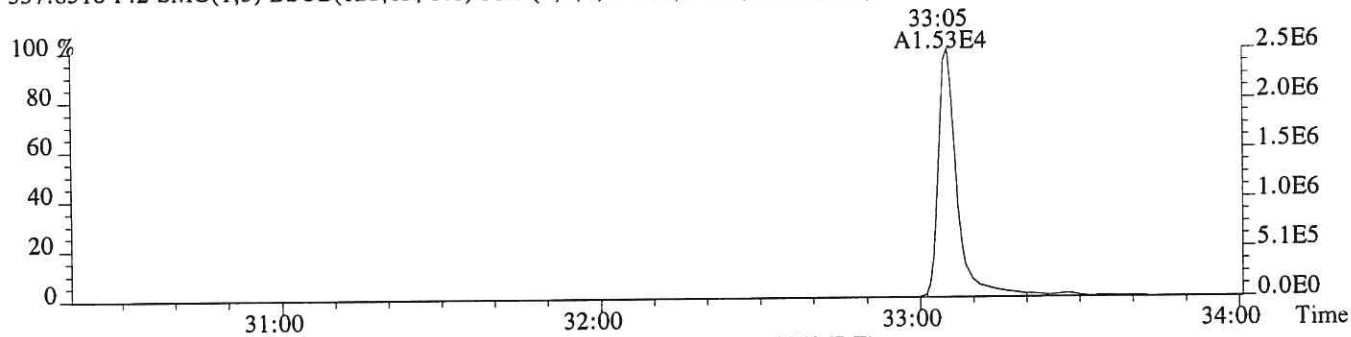
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



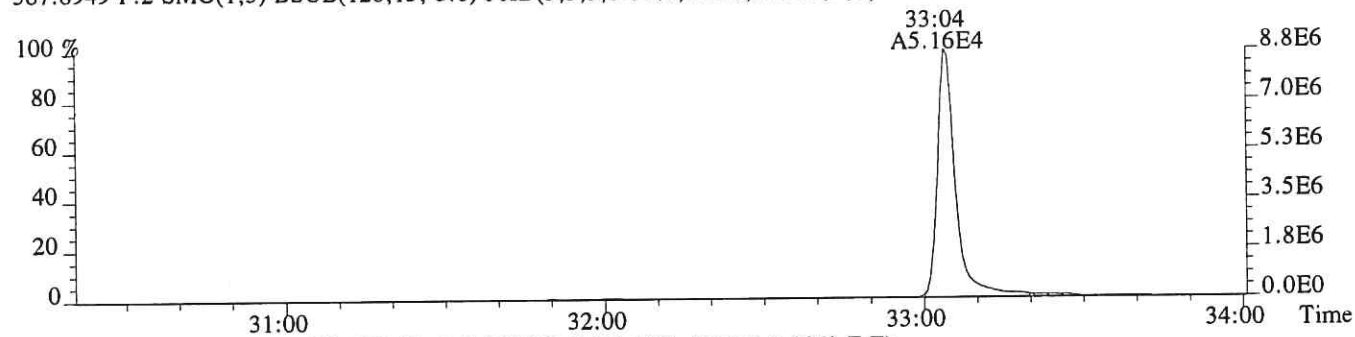
File:P616040 #1-331 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



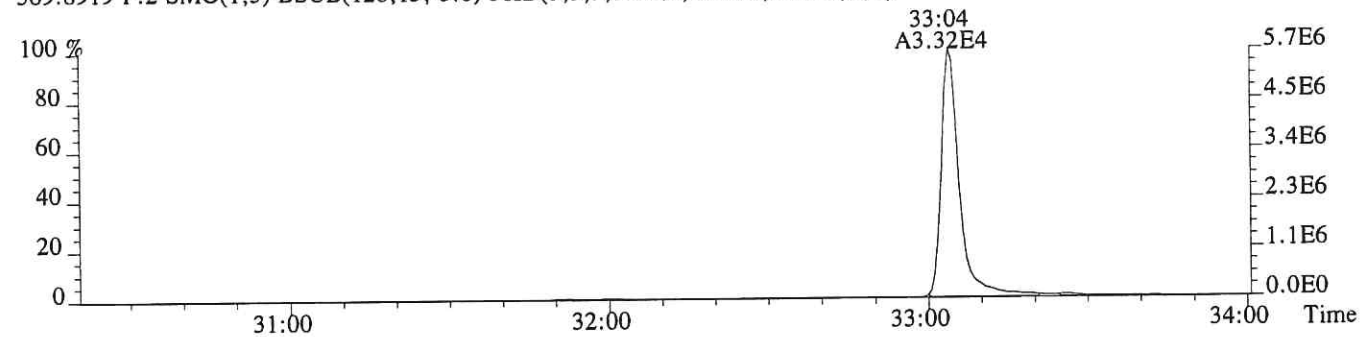
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



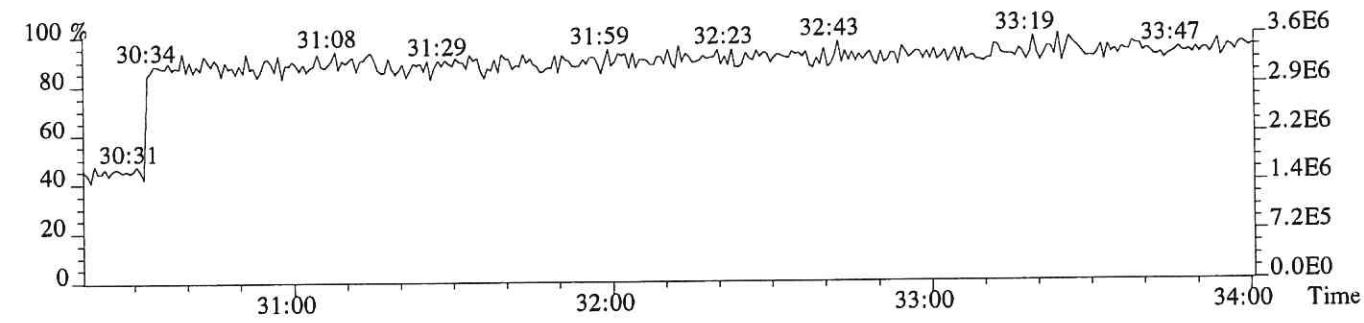
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)

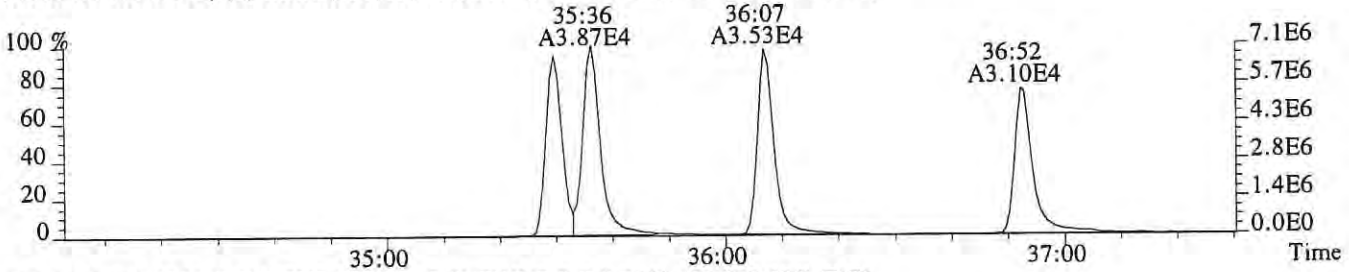


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

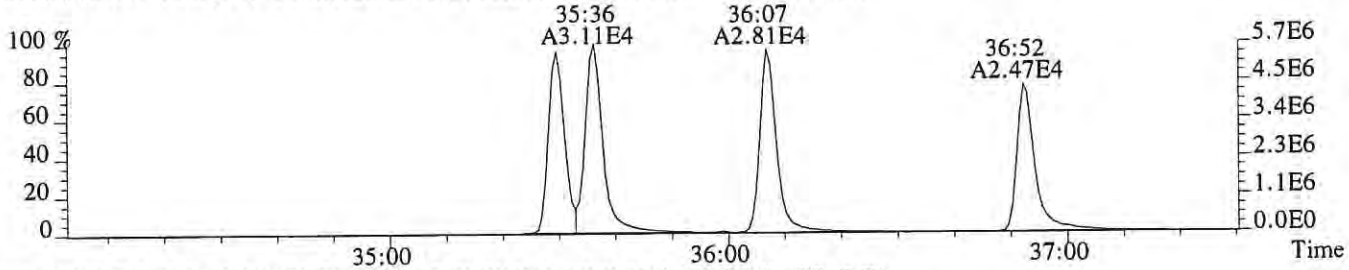


File:P616040 #1-312 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

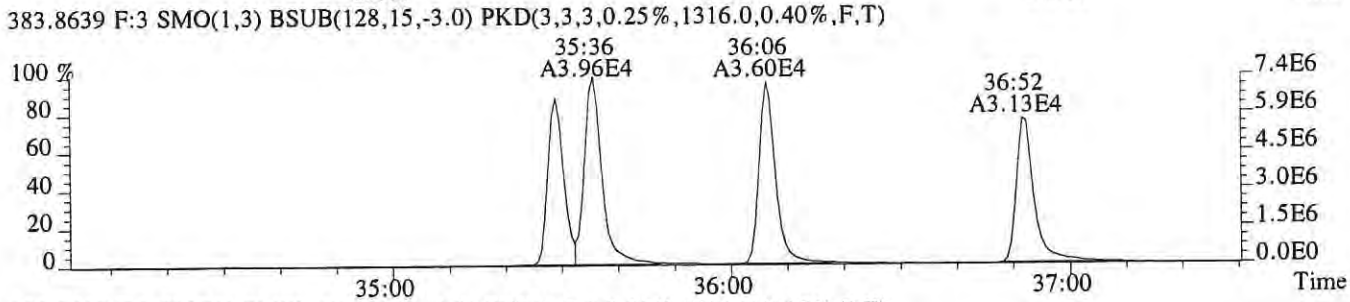
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



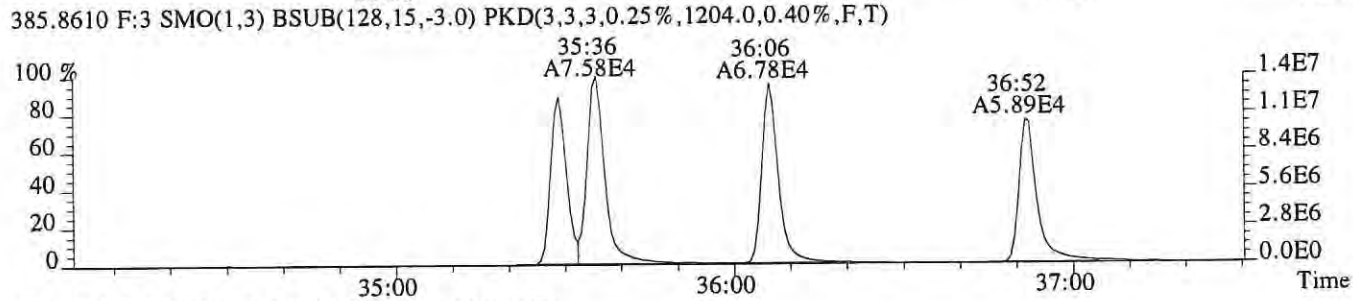
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



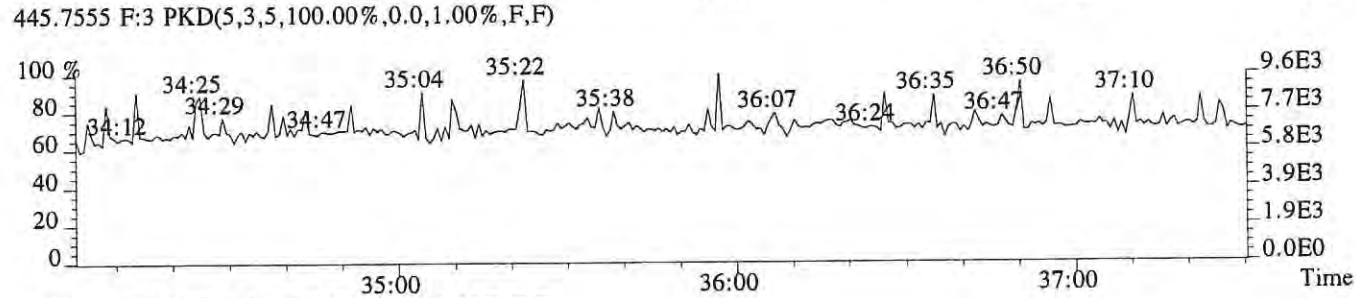
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



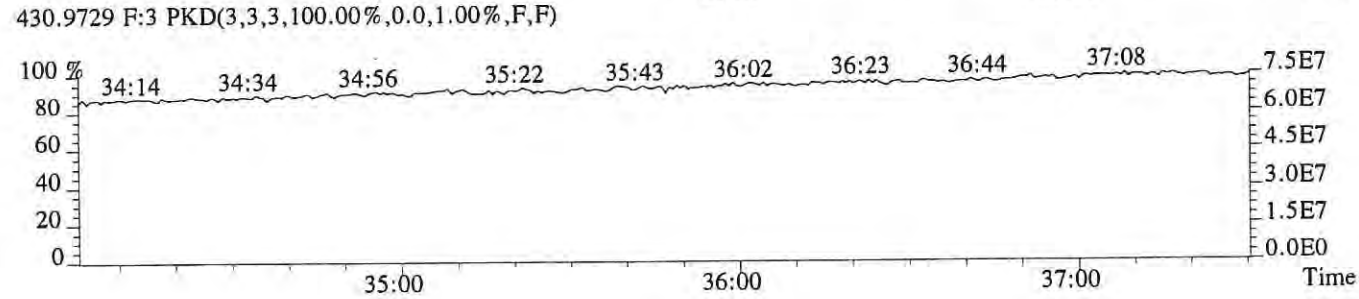
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



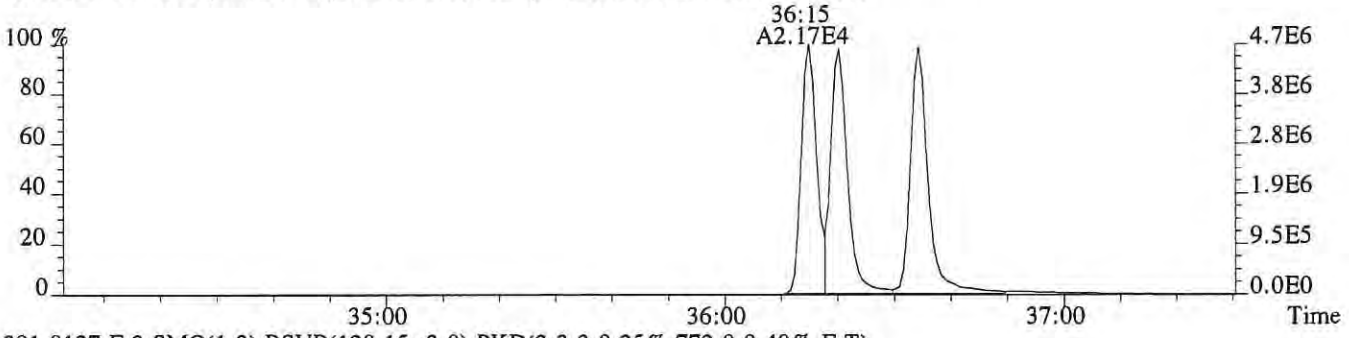
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



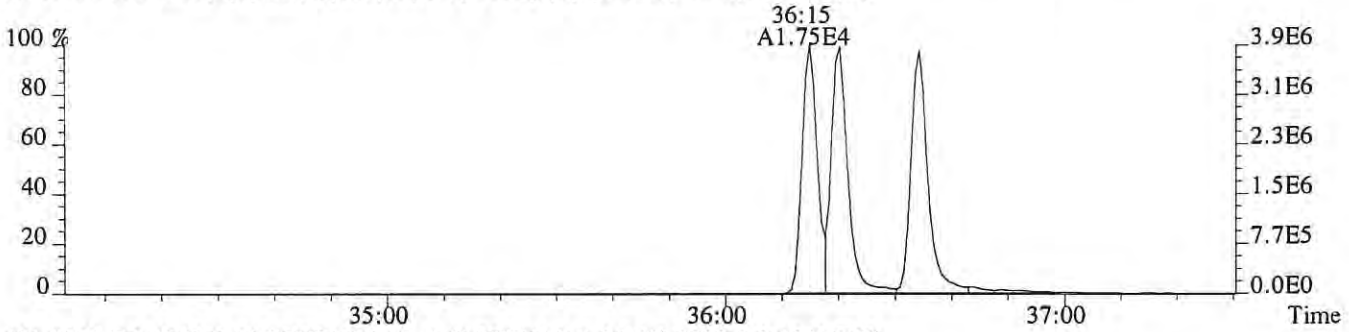
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



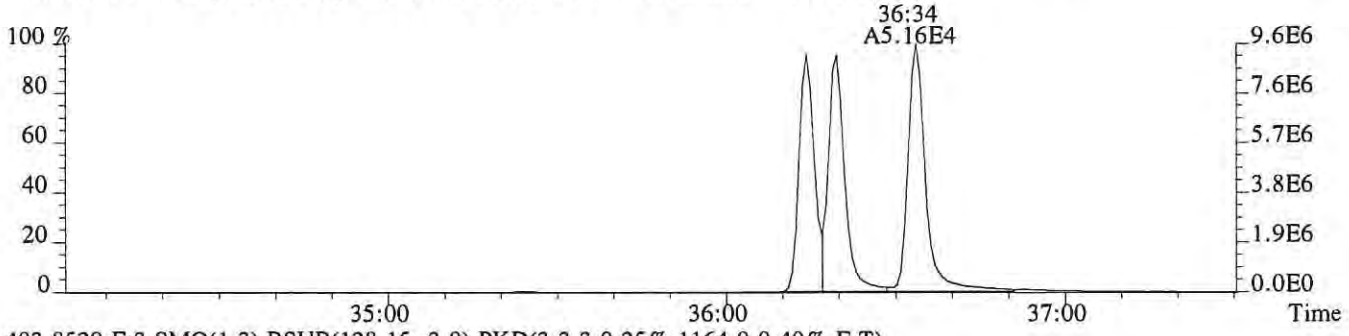
File:P616040 #1-312 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



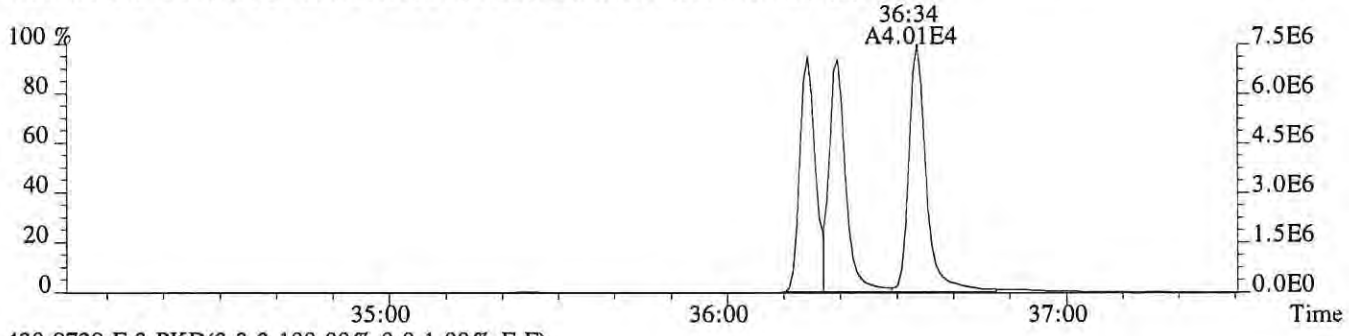
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



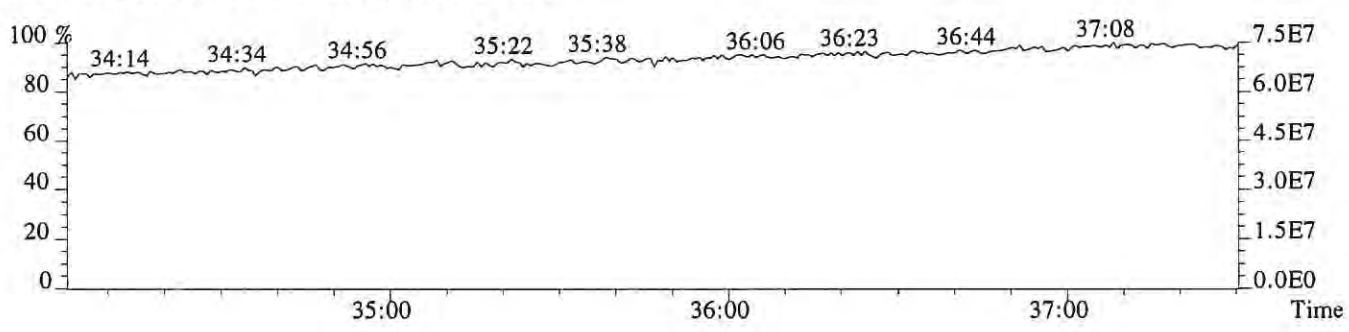
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)

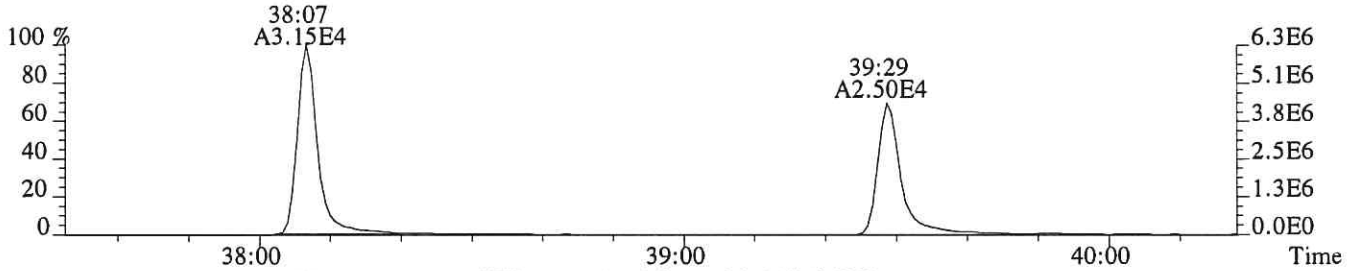


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

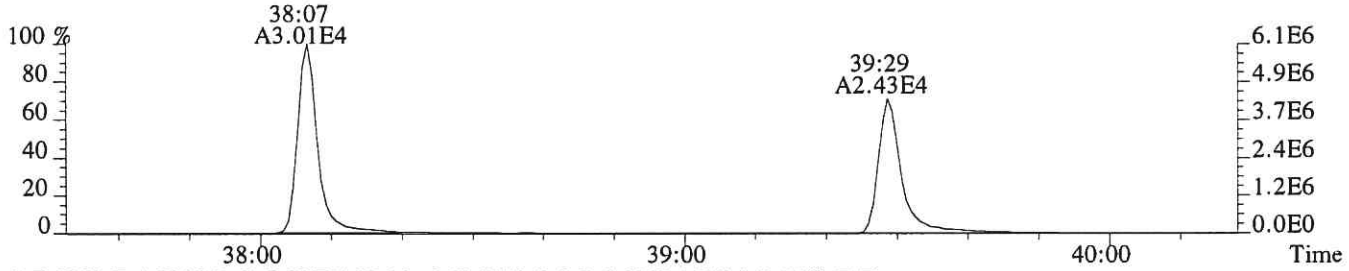


File:P616040 #1-249 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

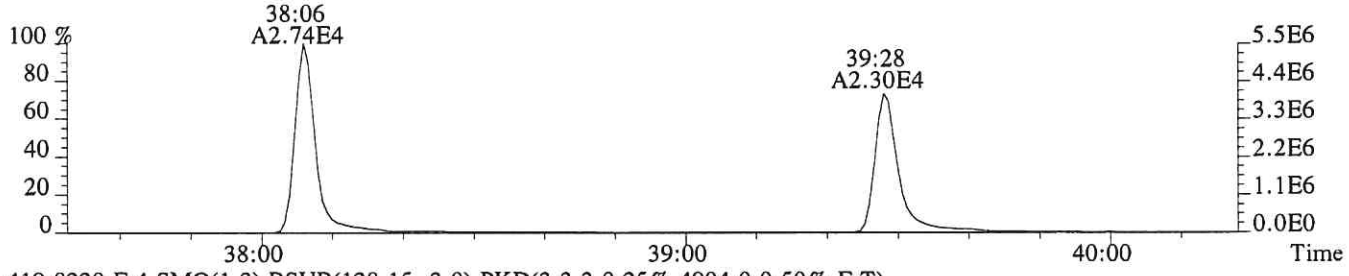
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7512.0,0.50%,F,T)



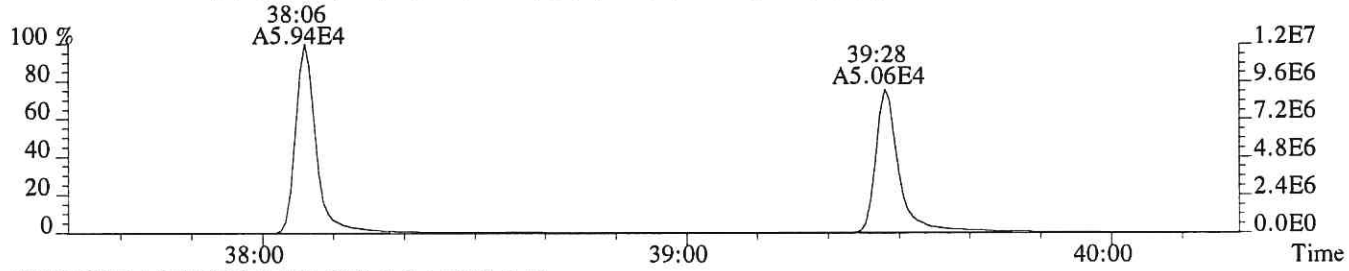
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.50%,F,T)



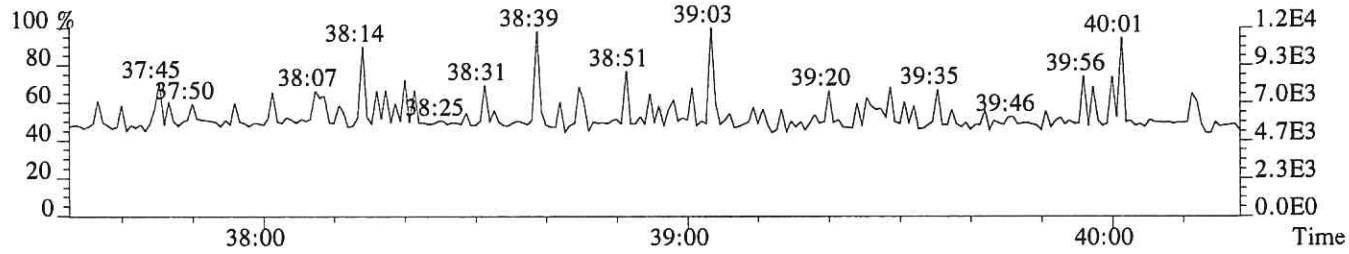
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.50%,F,T)



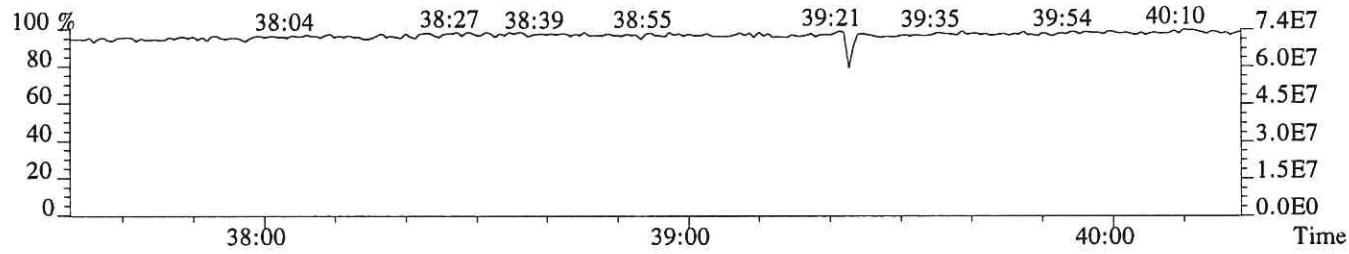
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4904.0,0.50%,F,T)



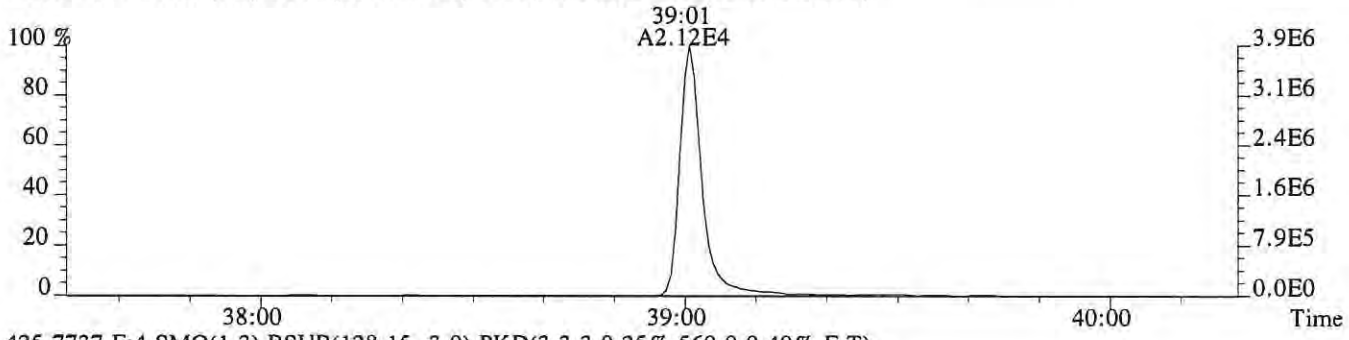
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



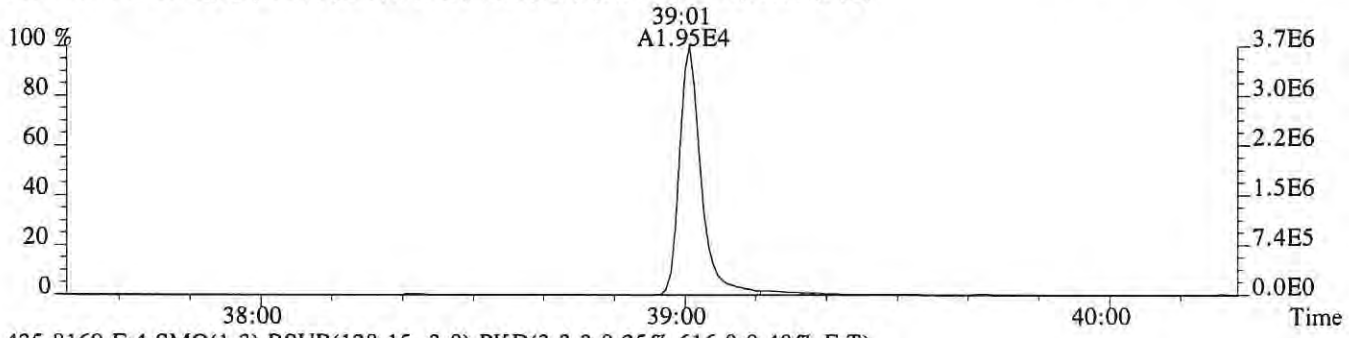
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



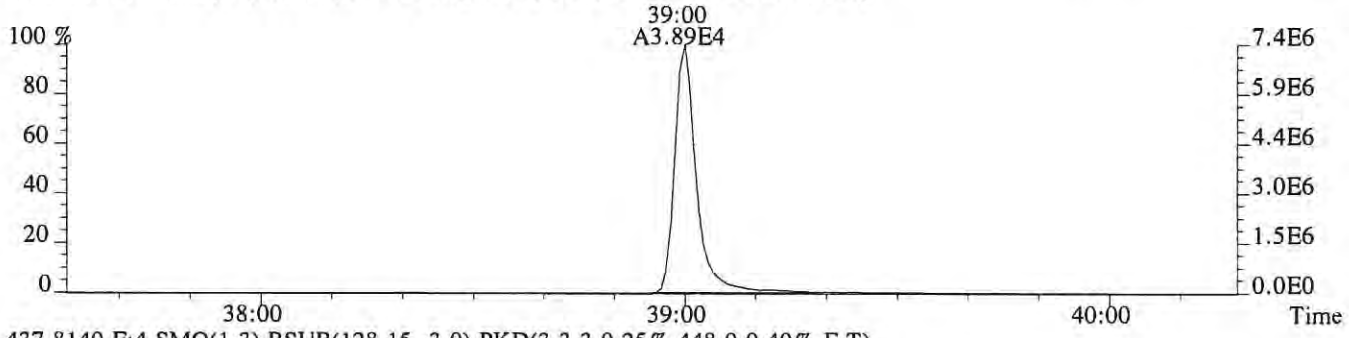
File:P616040 #1-249 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



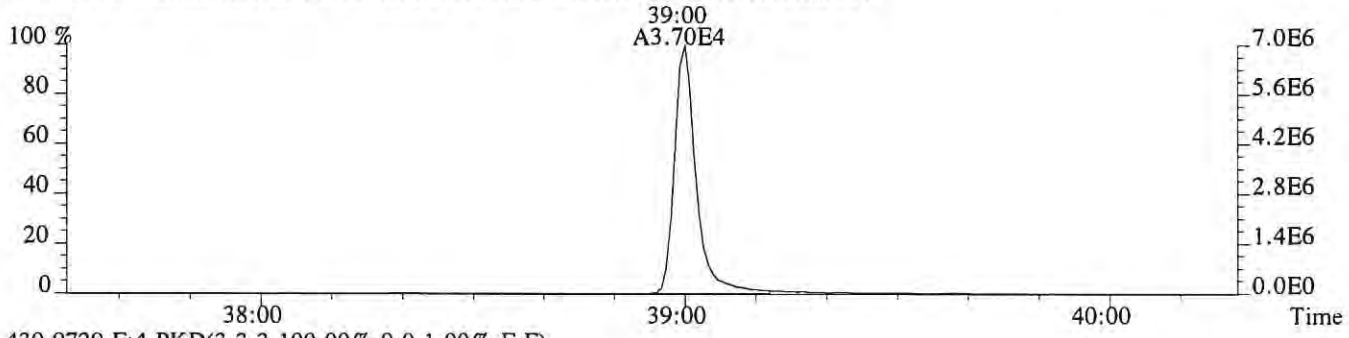
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



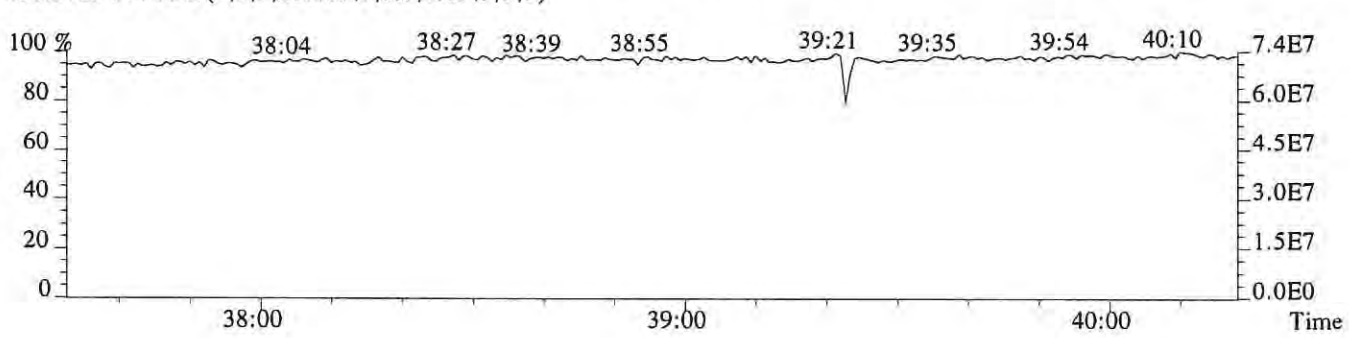
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)

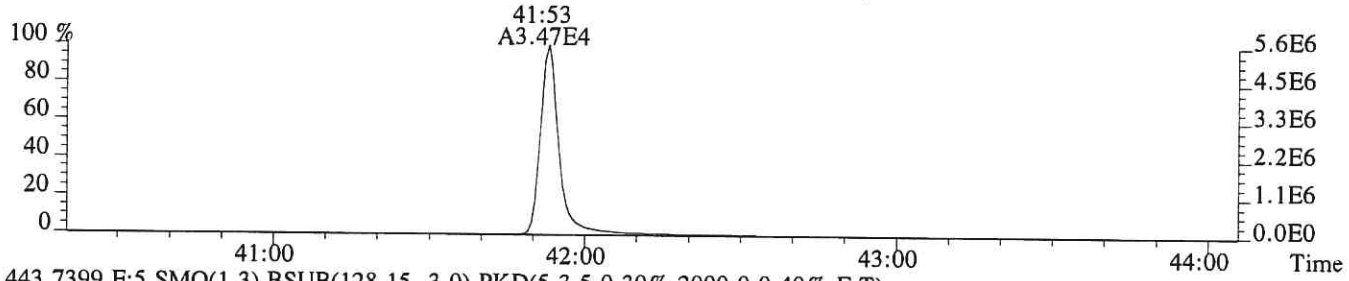


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

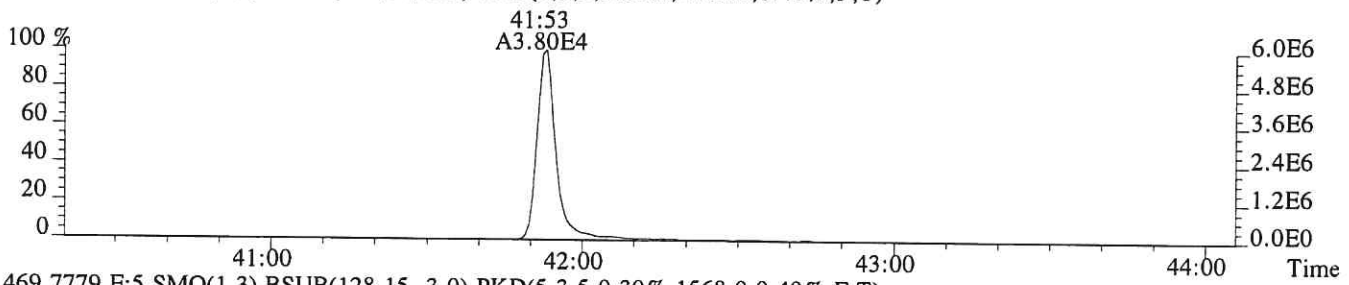


File:P616040 #1-339 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

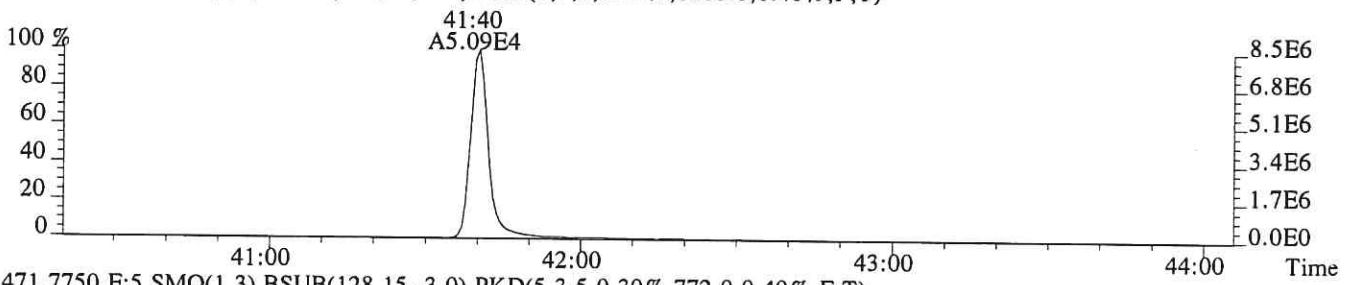
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



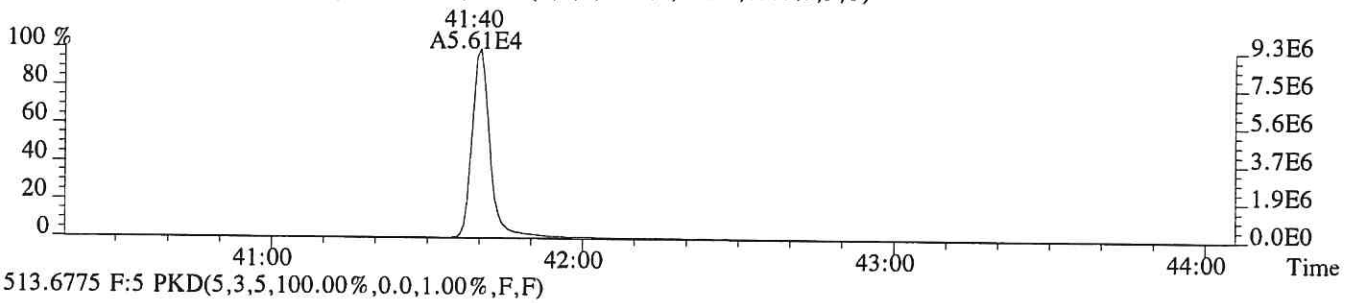
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2000.0,0.40%,F,T)



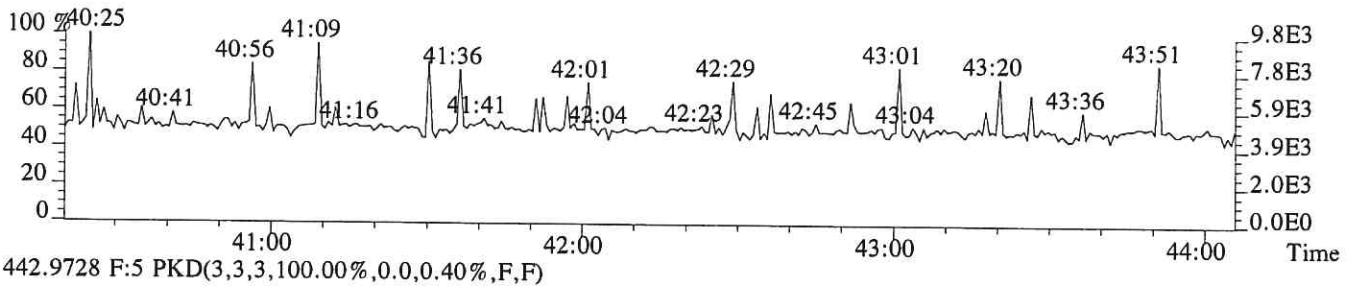
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1568.0,0.40%,F,T)



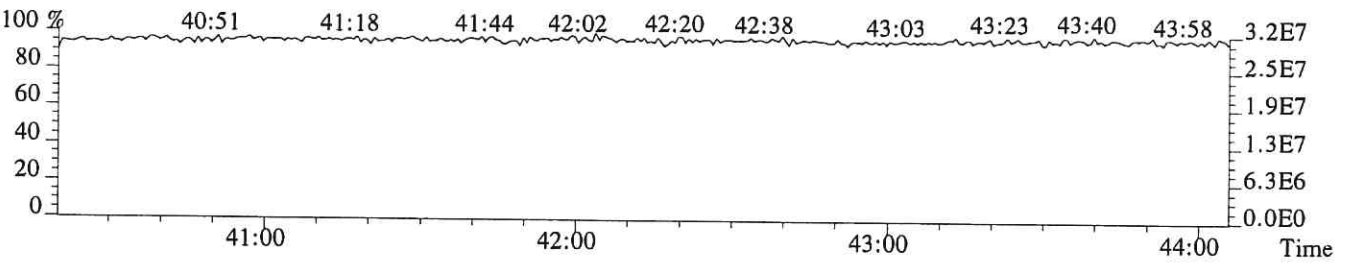
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



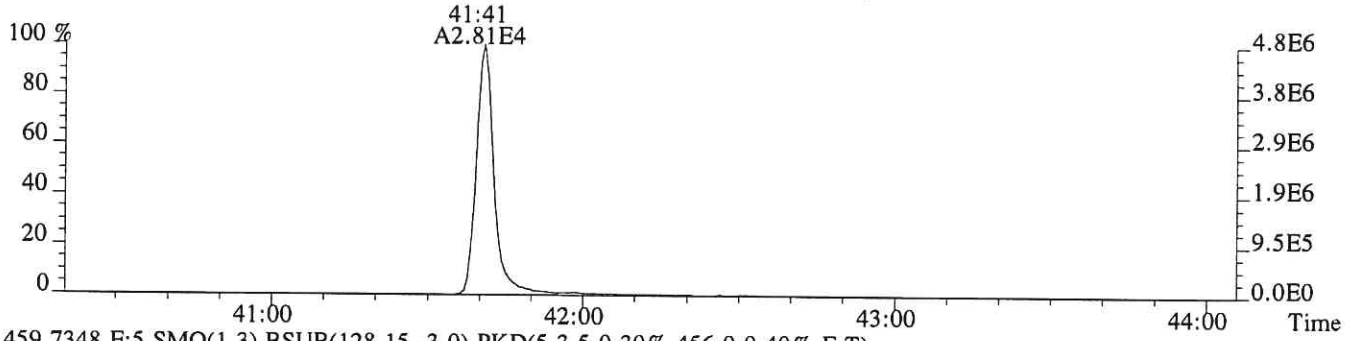
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



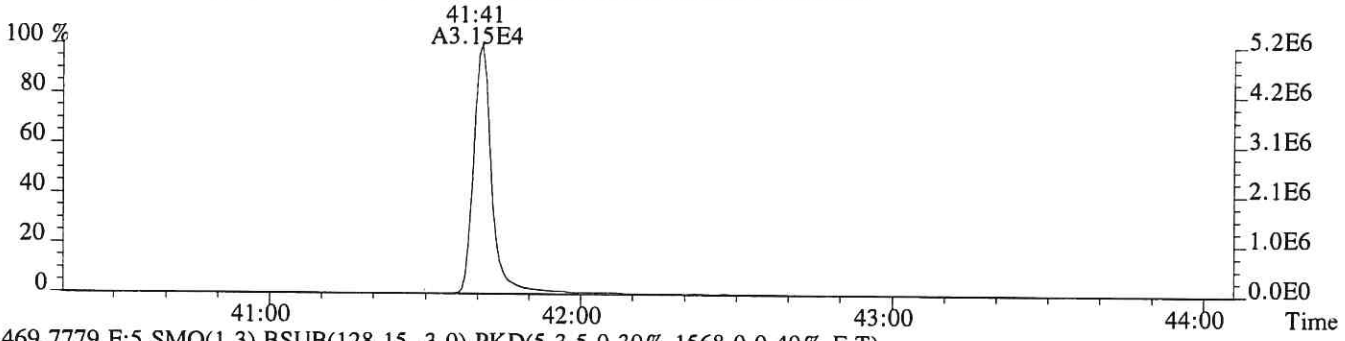
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



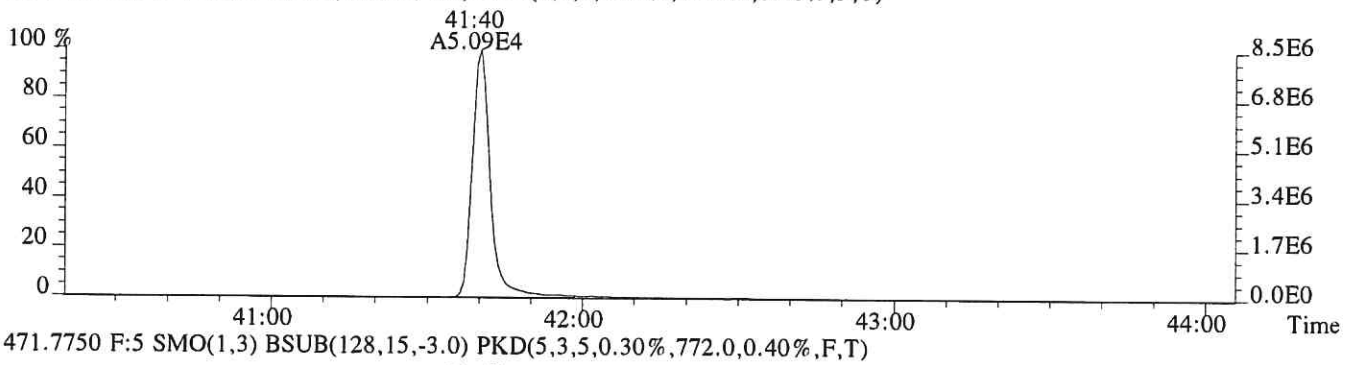
File:P616040 #1-339 Acq:11-DEC-2018 09:58:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



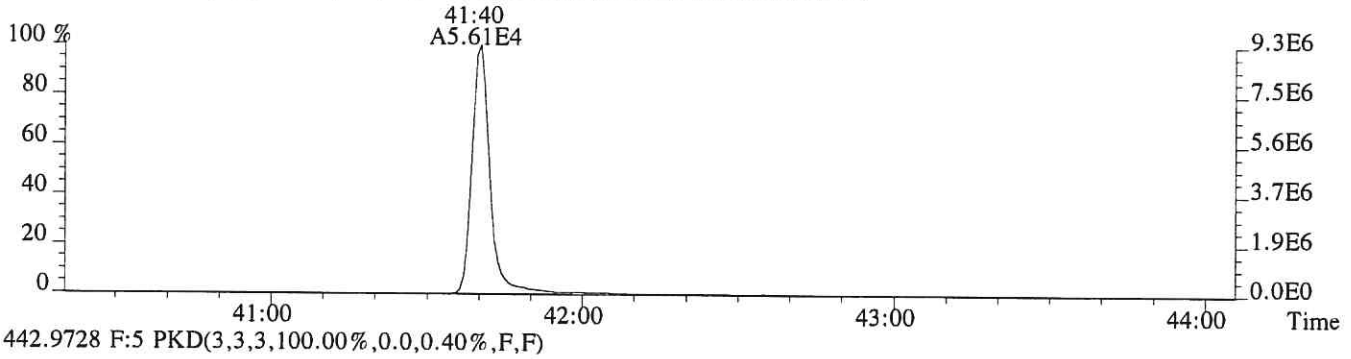
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



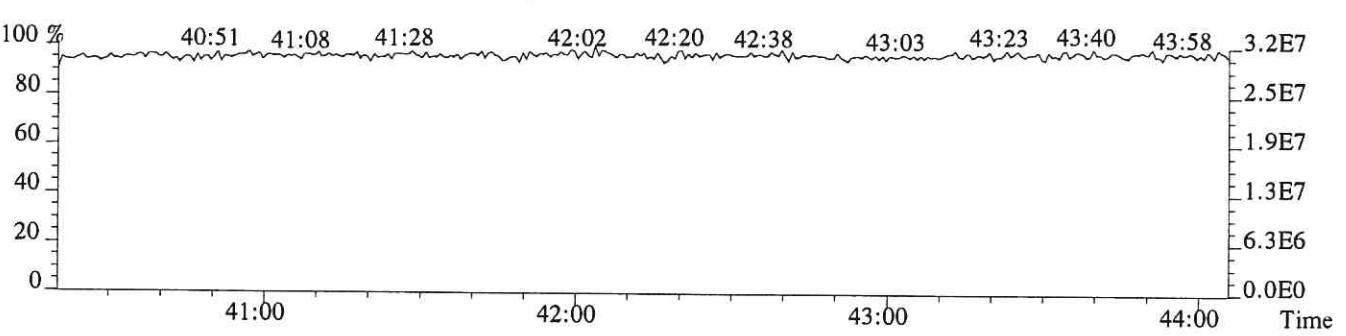
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Kristin Neir	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?		√			
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 01/25/18
Instrument Name: E-HRMS-07	Calibration File Name: P5-1801241613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-07

Init. Calib. Date: 01/24/18

Init. Calib.Times: 11:44

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
183360	WINDOW DEFINE	P513848	24-JAN-18	11:44:47
76554	CS0.5	P513850	24-JAN-18	13:32:06
76555	CS1	P513851	24-JAN-18	14:23:56
76556	CS2	P513852	24-JAN-18	15:18:44
76557	CS3	P513853	24-JAN-18	16:06:29
76558	CS4	P513854	24-JAN-18	16:55:09
185657	CS5	P513855	24-JAN-18	17:43:48
75080	2ND SOURCE	P513857	24-JAN-18	19:21:06

E1801065

Sample List Report — **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS07.PRO\SampleDB\20180124A.SPL
Last Modified: Thursday, January 25, 2018 07:09:10 Eastern Standard Time
Printed: Thursday, January 25, 2018 07:24:00 Eastern Standard Time

Page Position (1, 1)

Opus 4: P5-180124I613I P513857res

*Opus 4: P5-180124m23I P513857resm23

	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	1/24/18	10:38	P513847	CS3	186061	EPA1613_ALS	Dioxin_ALS	Tray1:1	LS	not used
2		11:44	P513848	WINDOWDEFINE	183360	EPA1613_ALS	Dioxin_ALS	Tray1:2		HRMS check 11:10
3		12:35	P513849	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:3		not used
4		13:32	P513850	CS0.5	76554	EPA1613_ALS	Dioxin_ALS	Tray1:4		~~not used~~ LD 1/24/18
5		14:23	P513851	CS1	76555	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		15:18	P513852	CS2	76556	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		16:06	P513853	CS3	76557	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		16:55	P513854	CS4	76558	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		17:43	P513855	CS5	185657	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		18:32	P513856	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:10		
11		19:21	P513857	2ND SOURCE	75080	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
13			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:1		
14			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:2		
15			---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15		HRMS check 1/25/18 00:51
16		19:21	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---
22	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:22	---	---
23	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:23	---	---
24	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:24	---	---
25	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:25	---	---

1419 of 1643

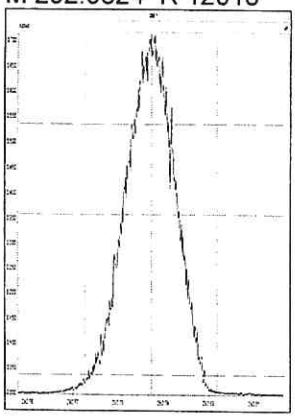
gc 01/25/18

* gc 01/25/18

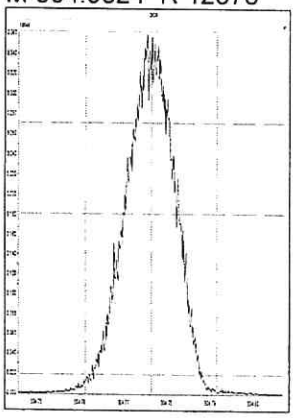
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:40:23 Eastern Standard Time

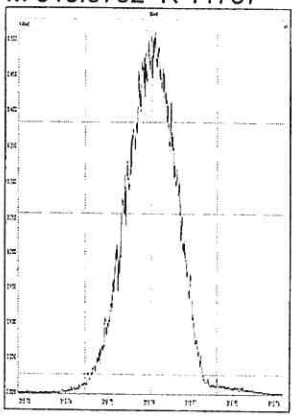
M 292.9824 R 12018



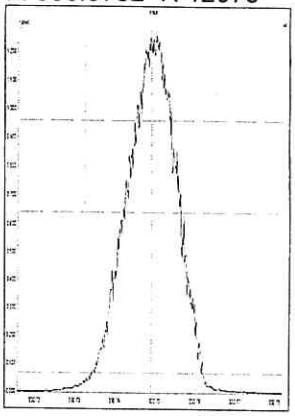
M 304.9824 R 12378



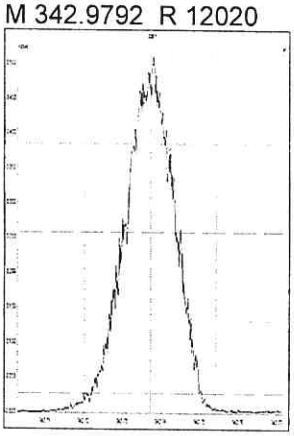
M 318.9792 R 11737



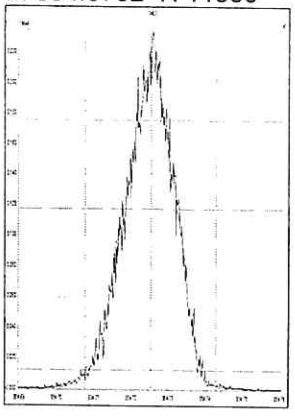
M 330.9792 R 12075



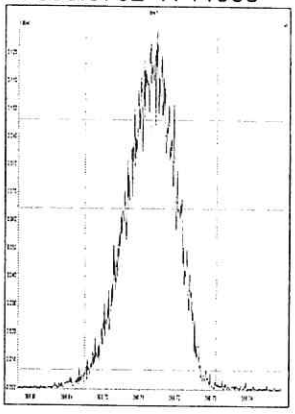
M 342.9792 R 12020



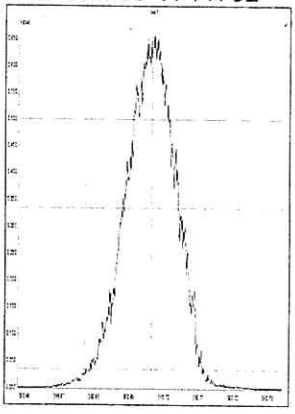
M 354.9792 R 11680



M 366.9792 R 11963



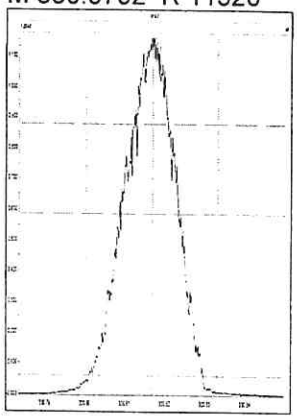
M 380.9760 R 11792



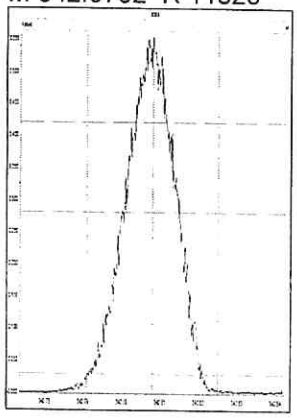
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:41:23 Eastern Standard Time

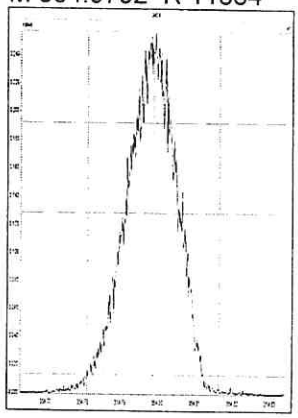
M 330.9792 R 11520



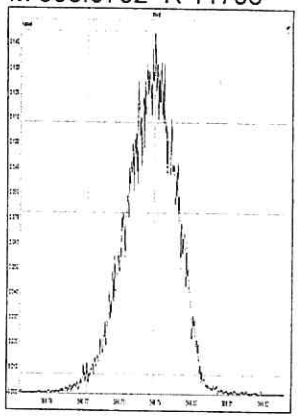
M 342.9792 R 11625



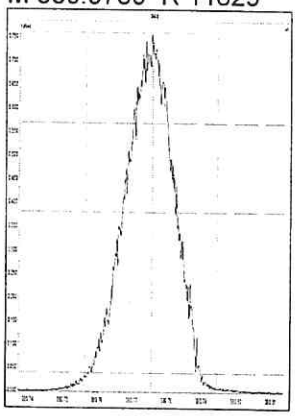
M 354.9792 R 11364



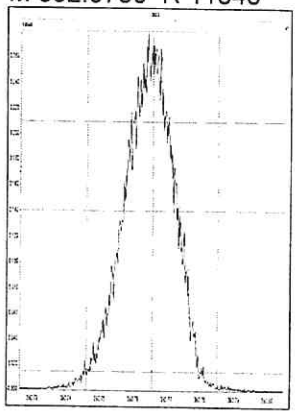
M 366.9792 R 11796



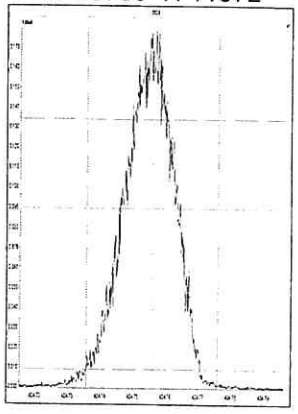
M 380.9760 R 11629



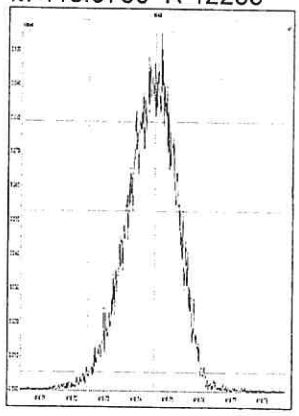
M 392.9760 R 11848



M 404.9760 R 11572



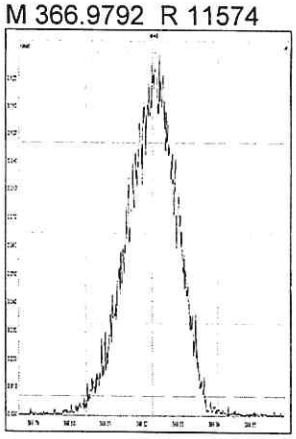
M 416.9760 R 12255



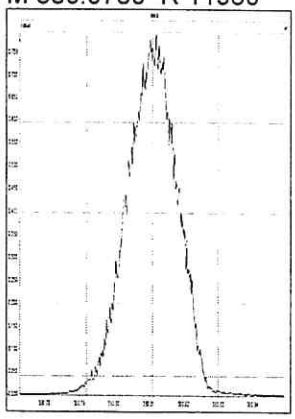
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:42:15 Eastern Standard Time

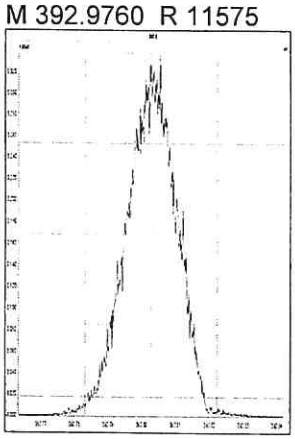
M 366.9792 R 11574



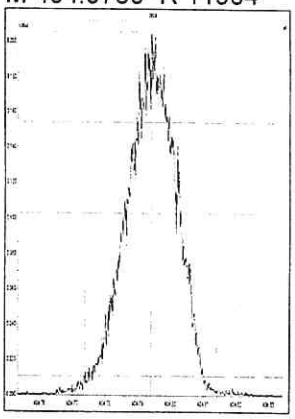
M 380.9760 R 11960



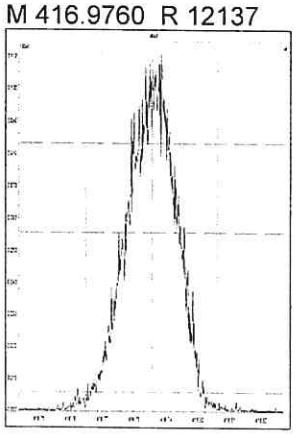
M 392.9760 R 11575



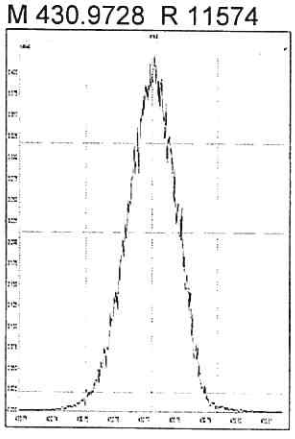
M 404.9760 R 11904



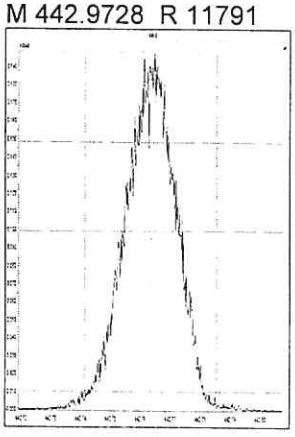
M 416.9760 R 12137



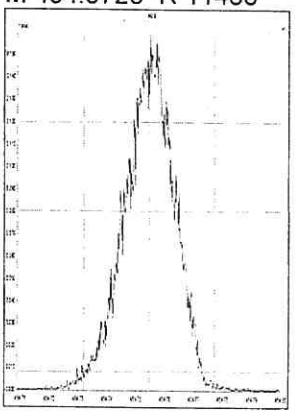
M 430.9728 R 11574



M 442.9728 R 11791



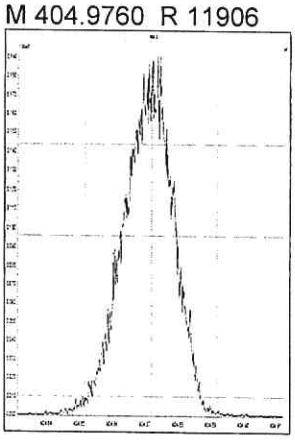
M 454.9728 R 11465



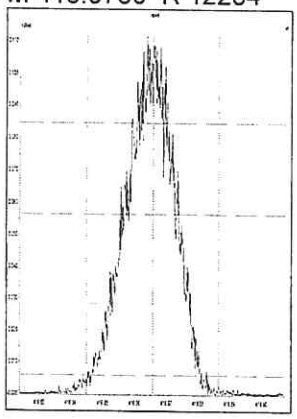
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:11 Eastern Standard Time

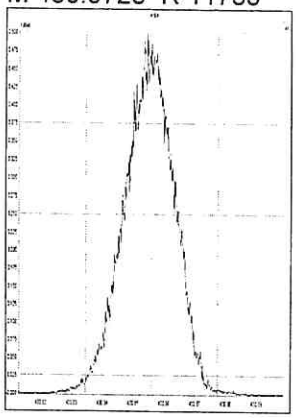
M 404.9760 R 11906



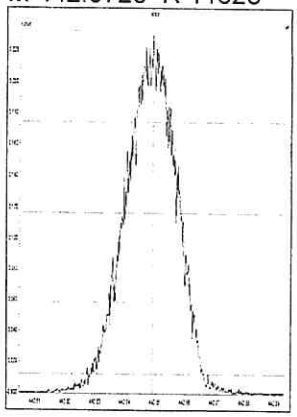
M 416.9760 R 12254



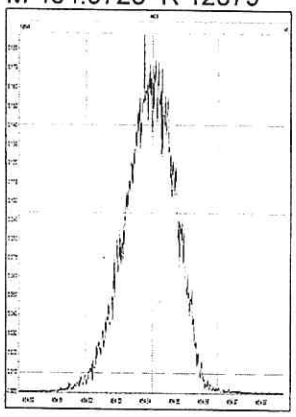
M 430.9728 R 11735



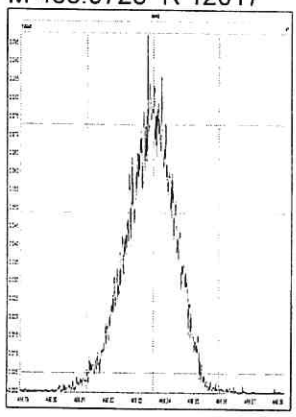
M 442.9728 R 11628



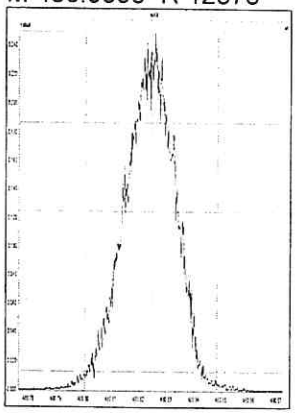
M 454.9728 R 12379



M 466.9728 R 12017



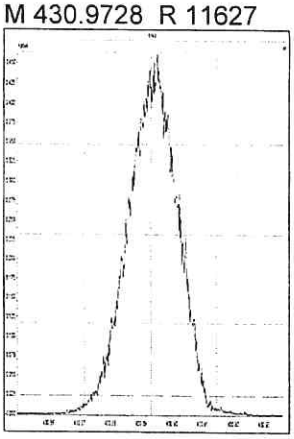
M 480.9696 R 12376



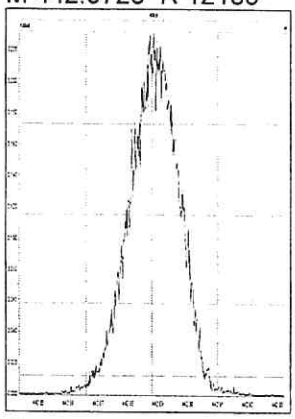
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, January 24, 2018 11:43:57 Eastern Standard Time

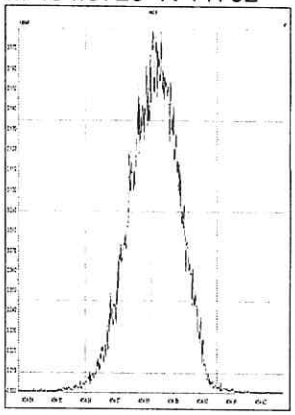
M 430.9728 R 11627



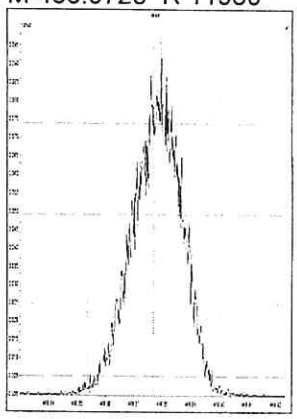
M 442.9728 R 12133



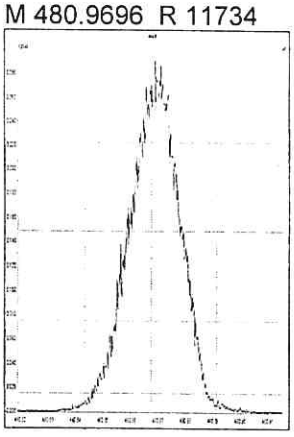
M 454.9728 R 11792



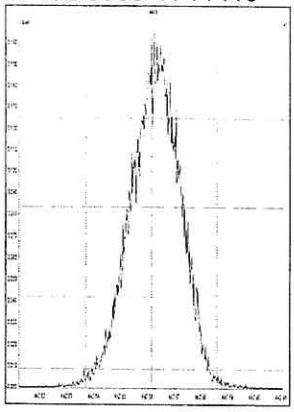
M 466.9728 R 11960



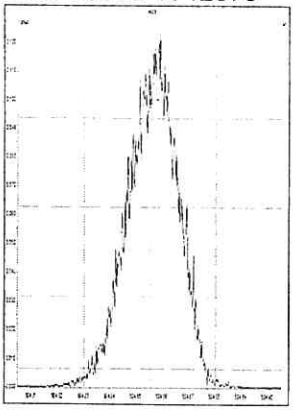
M 480.9696 R 11734



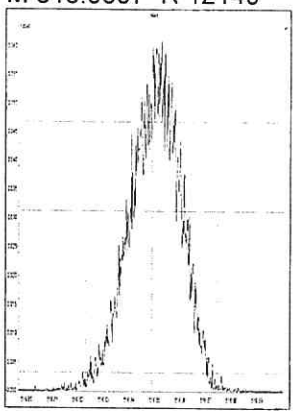
M 492.9696 R 11415



M 504.9696 R 12075



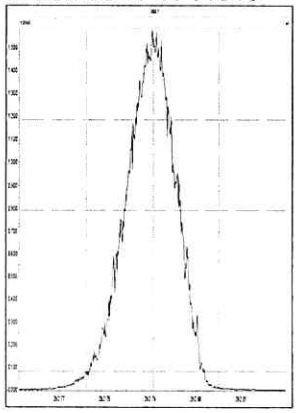
M 516.9697 R 12140



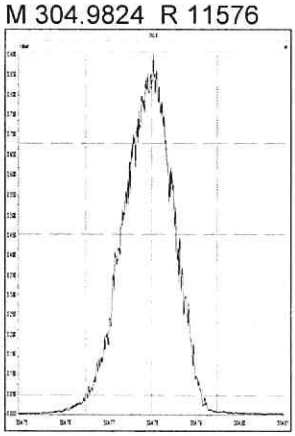
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:51:19 Eastern Standard Time

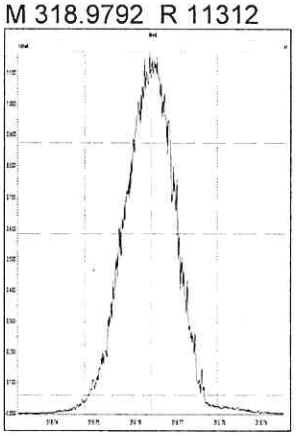
M 292.9824 R 11519



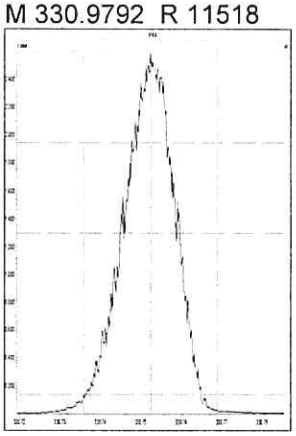
M 304.9824 R 11576



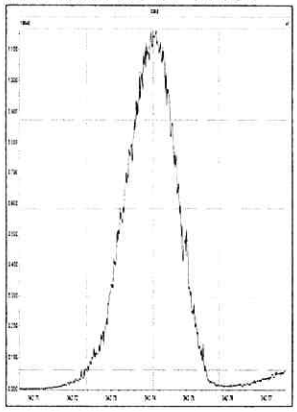
M 318.9792 R 11312



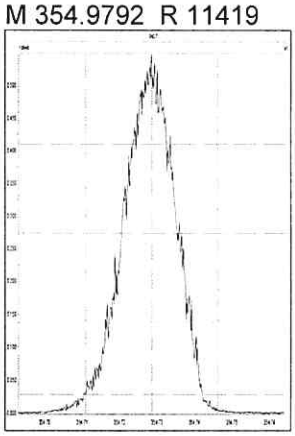
M 330.9792 R 11518



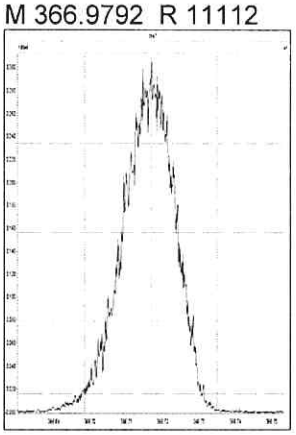
M 342.9792 R 11161



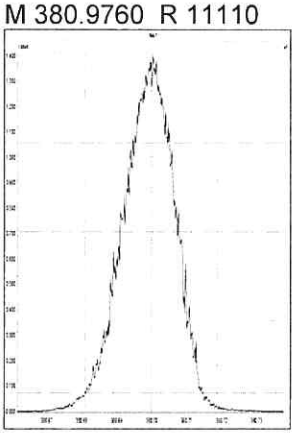
M 354.9792 R 11419



M 366.9792 R 11112



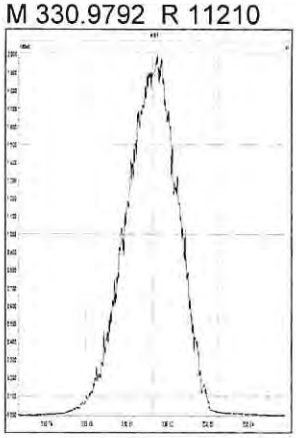
M 380.9760 R 11110



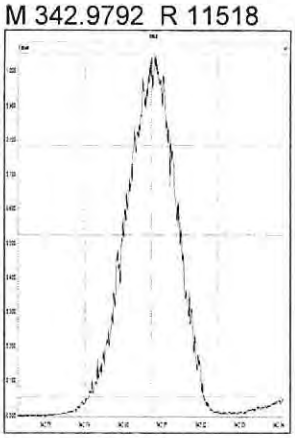
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:11 Eastern Standard Time

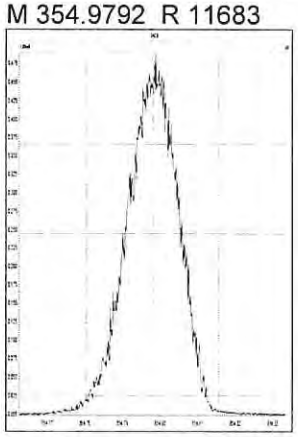
M 330.9792 R 11210



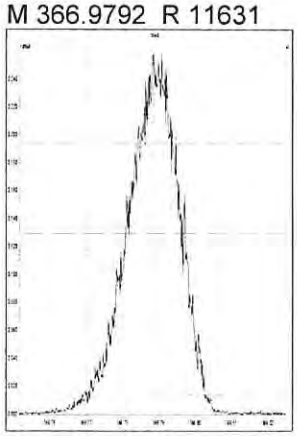
M 342.9792 R 11518



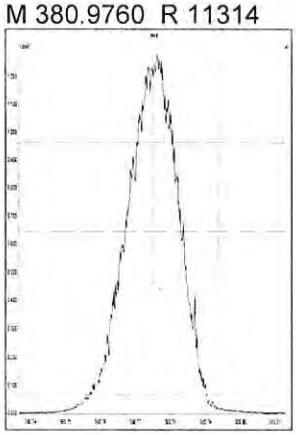
M 354.9792 R 11683



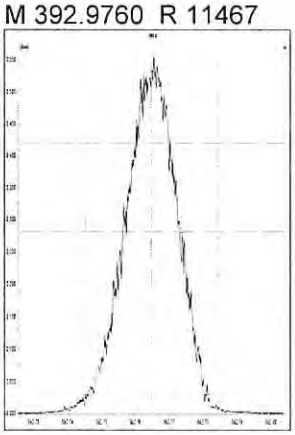
M 366.9792 R 11631



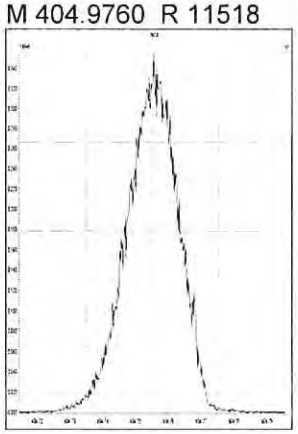
M 380.9760 R 11314



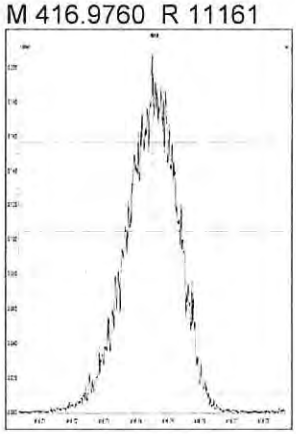
M 392.9760 R 11467



M 404.9760 R 11518



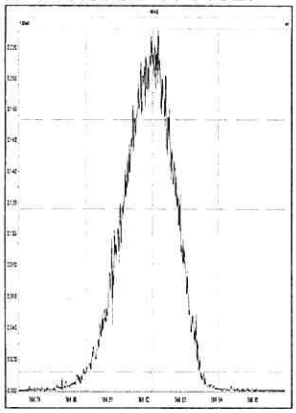
M 416.9760 R 11161



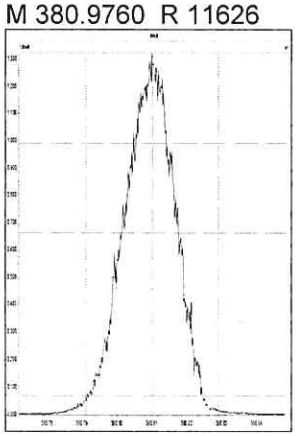
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:52:51 Eastern Standard Time

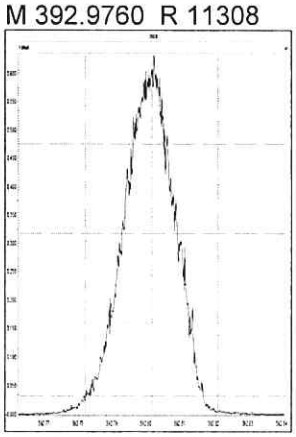
M 366.9792 R 11627



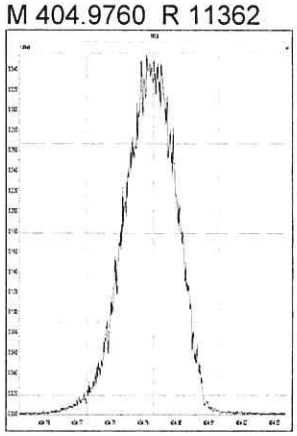
M 380.9760 R 11626



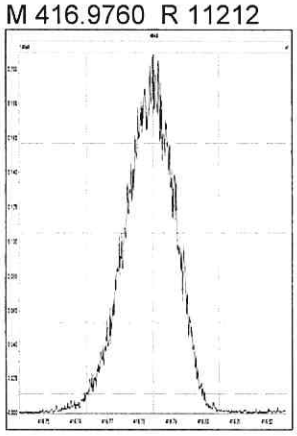
M 392.9760 R 11308



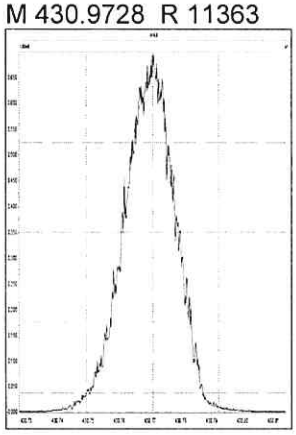
M 404.9760 R 11362



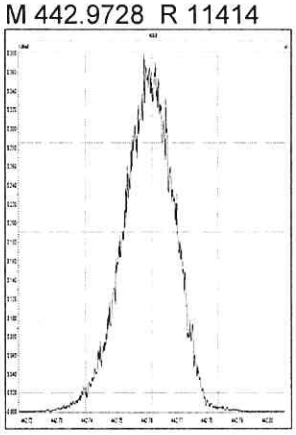
M 416.9760 R 11212



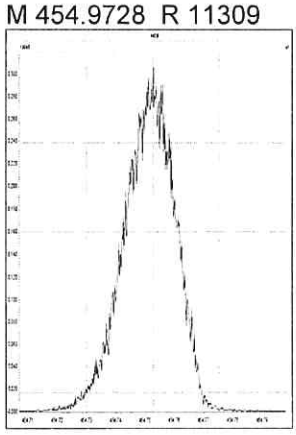
M 430.9728 R 11363



M 442.9728 R 11414



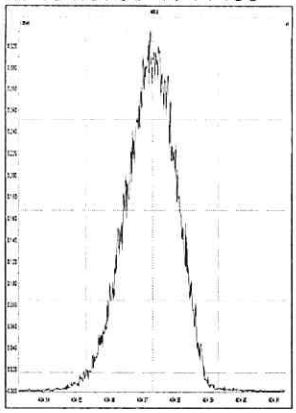
M 454.9728 R 11309



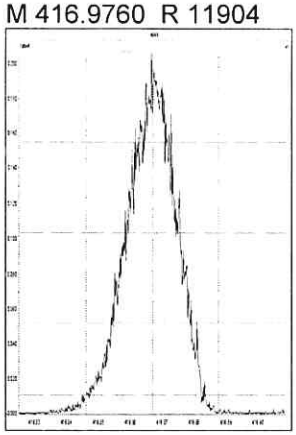
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:26 Eastern Standard Time

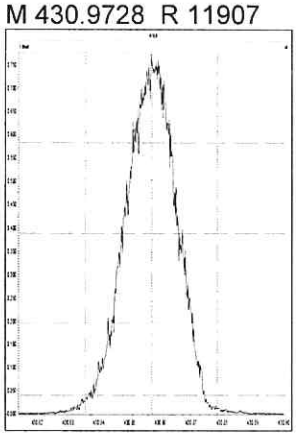
M 404.9760 R 11465



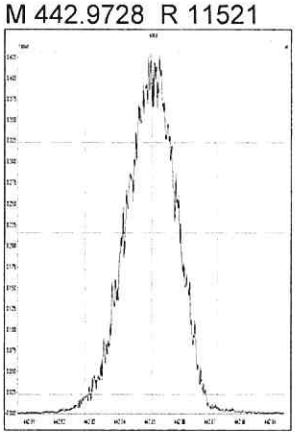
M 416.9760 R 11904



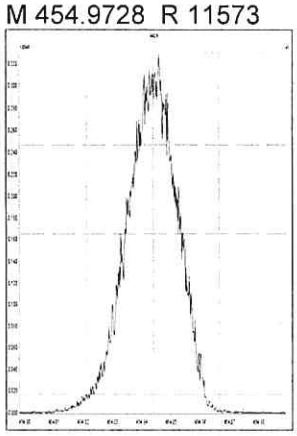
M 430.9728 R 11907



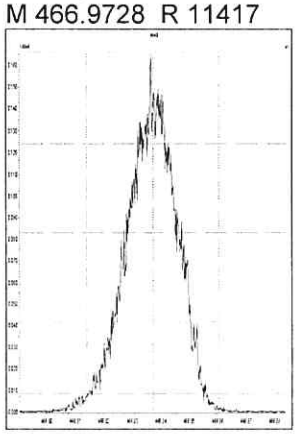
M 442.9728 R 11521



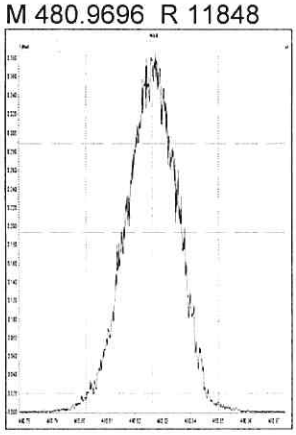
M 454.9728 R 11573



M 466.9728 R 11417



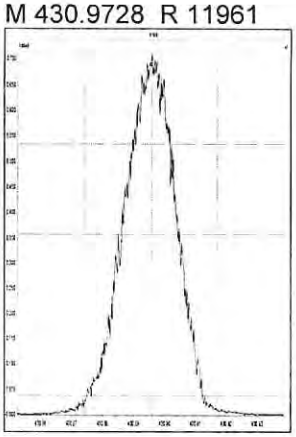
M 480.9696 R 11848



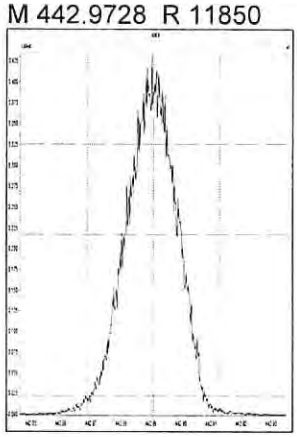
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, January 25, 2018 06:53:57 Eastern Standard Time

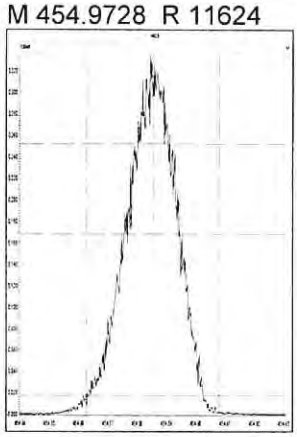
M 430.9728 R 11961



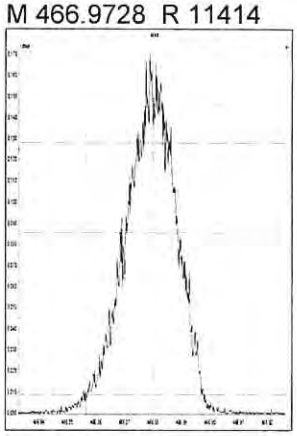
M 442.9728 R 11850



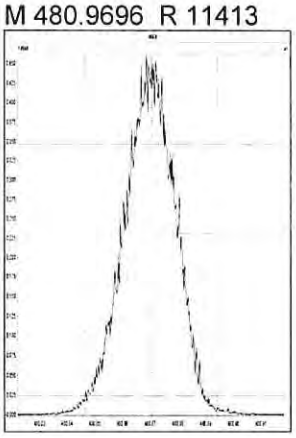
M 454.9728 R 11624



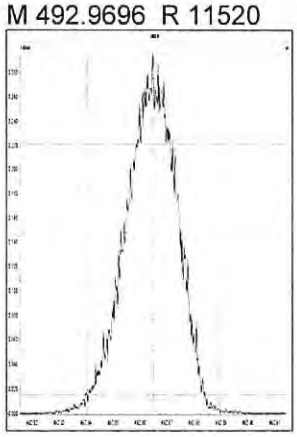
M 466.9728 R 11414



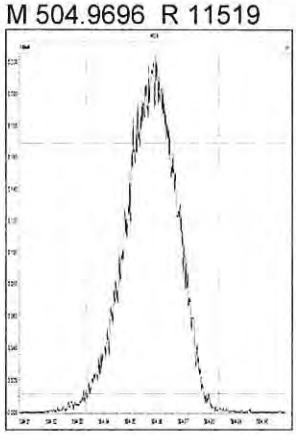
M 480.9696 R 11413



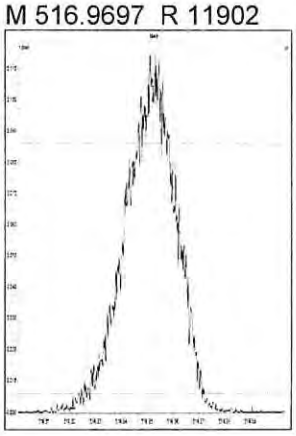
M 492.9696 R 11520



M 504.9696 R 11519



M 516.9697 R 11902



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

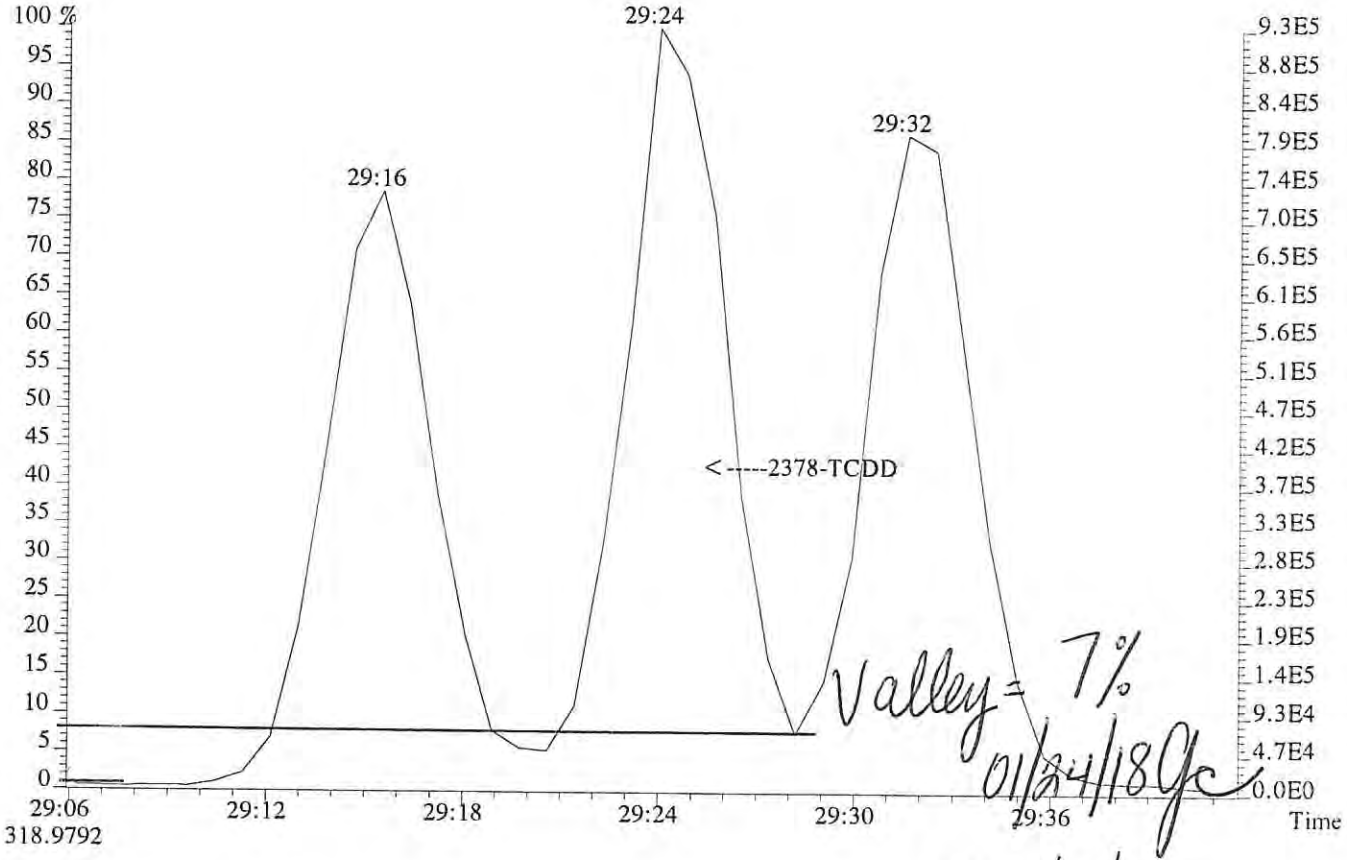
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P513848
Date Analyzed: 24-JAN-2018
Time Analyzed: 11:44:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:25	30:32
TCDD	26:17	30:22
PeCDF	30:27	34:34
PeCDD	31:55	34:19
HxCDF	35:11	37:38
HxCDD	35:41	37:14
HpCDF	38:49	40:14
HpCDD	39:04	39:44

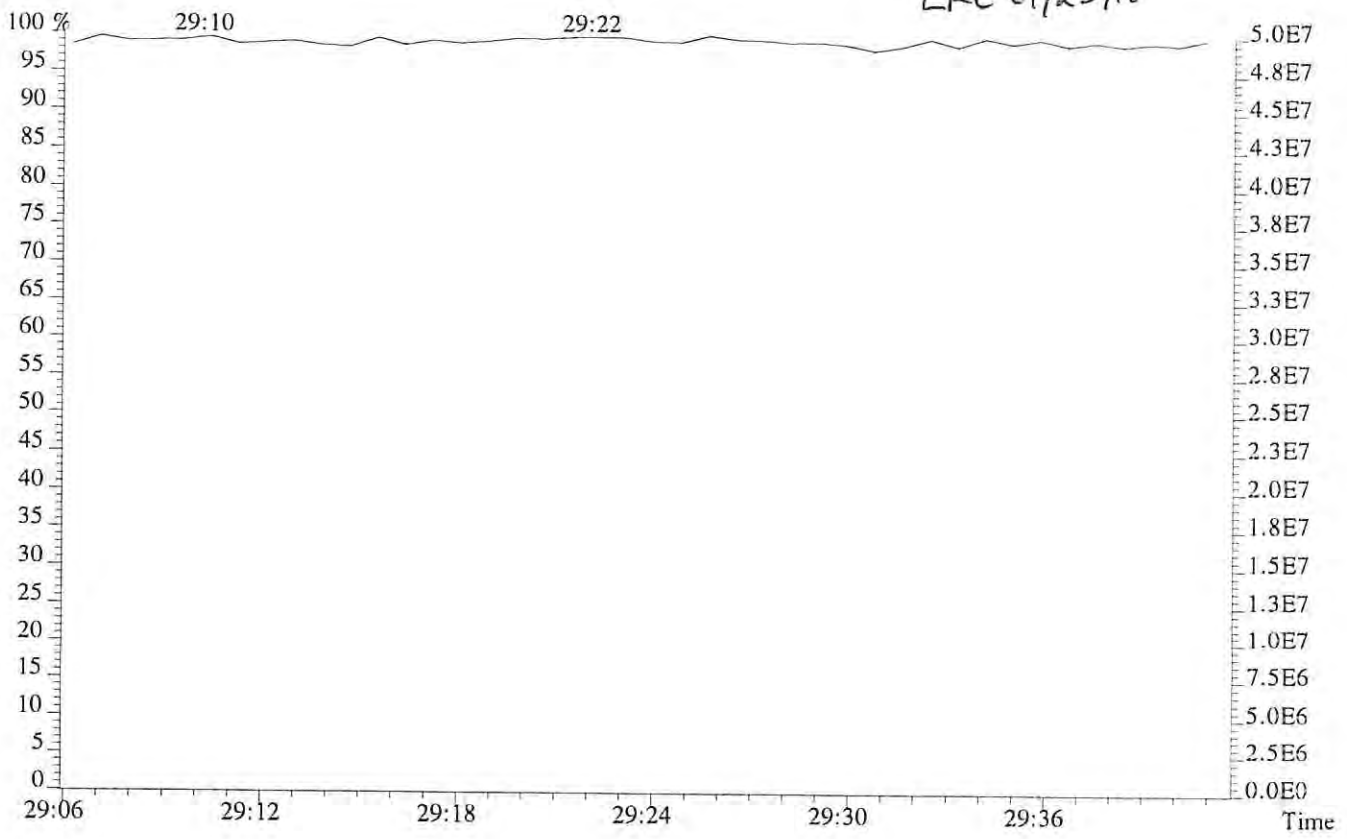
% Valley 2378-TCDD: 7 %

File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
319.8965



318.9792

LKL 01/25/18



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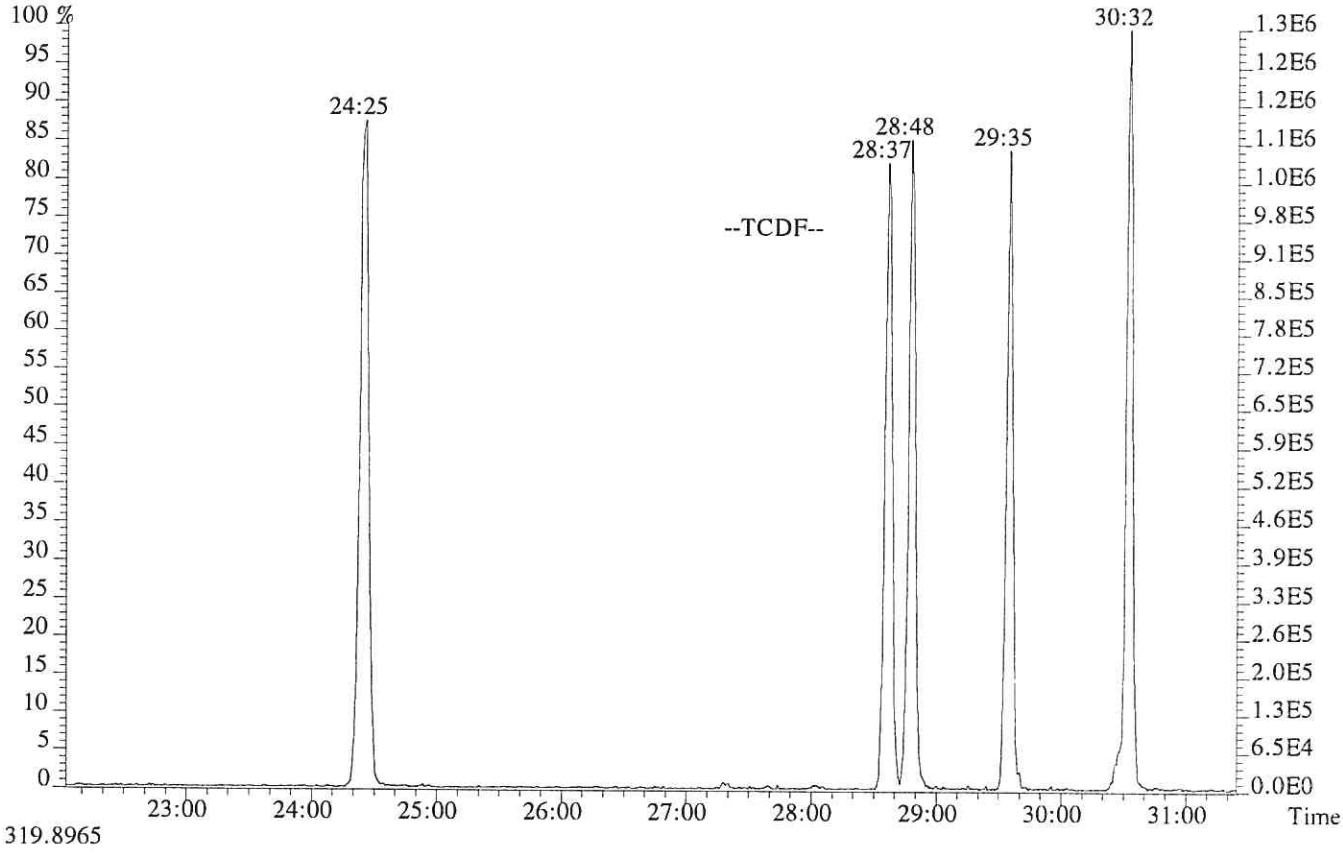
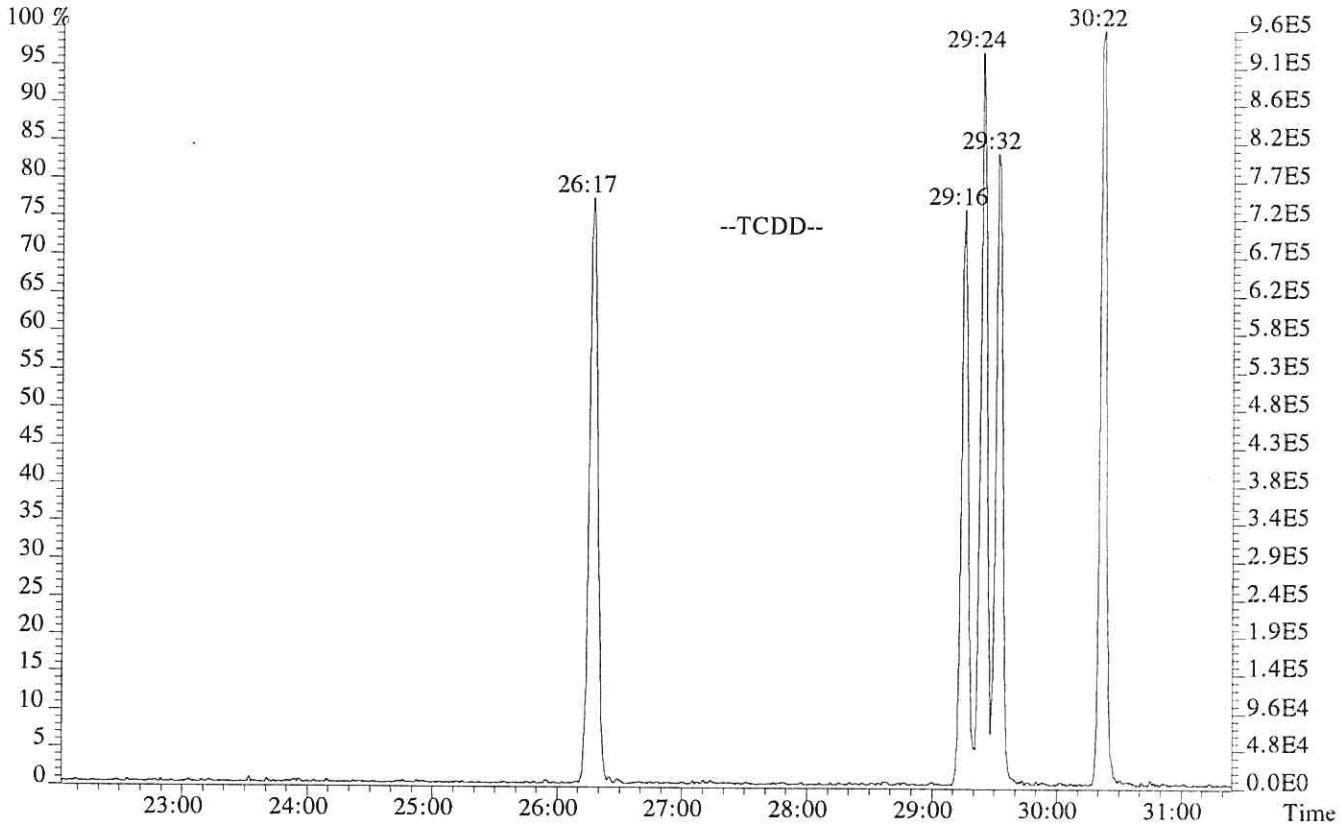
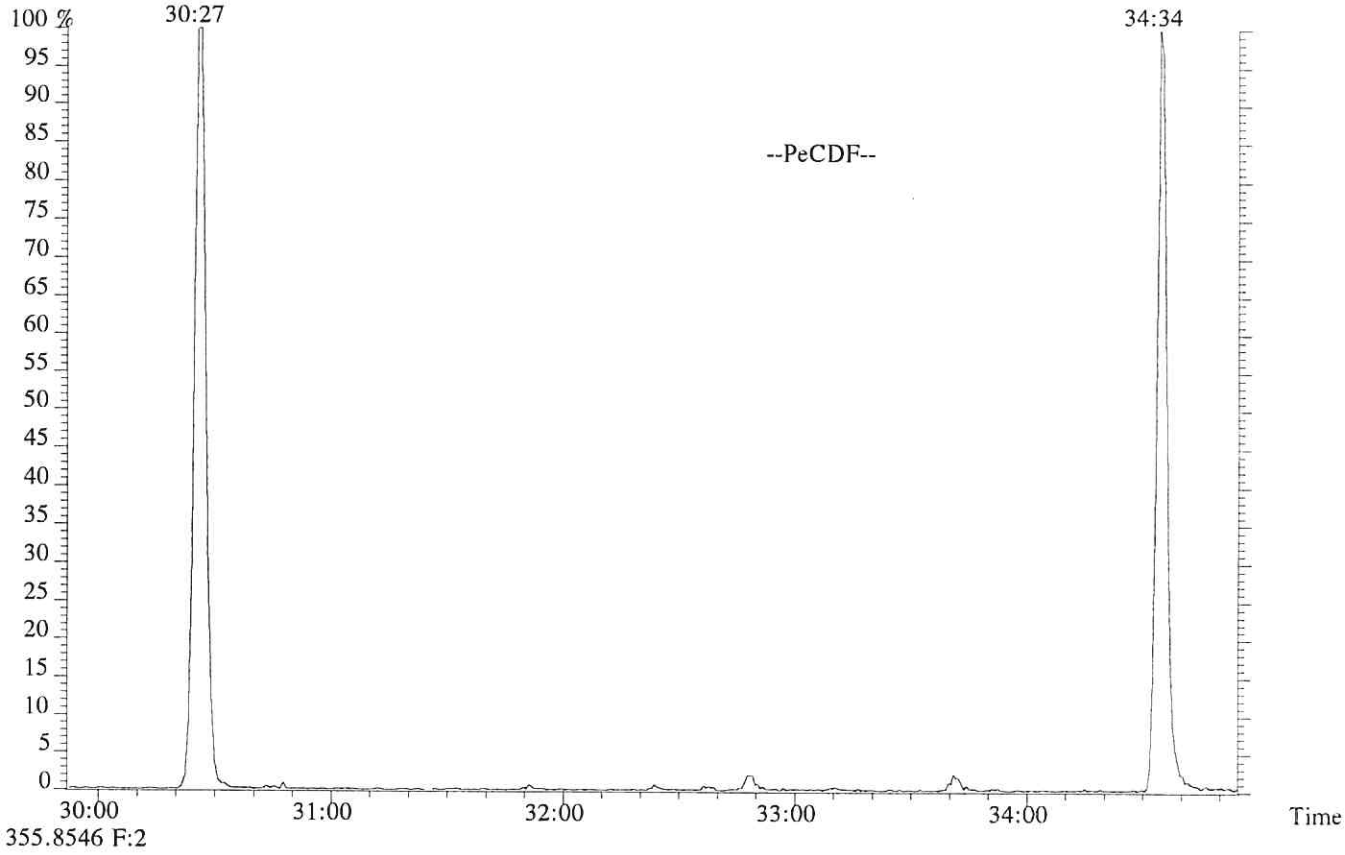
Sample#1 Exp:183360
303.9016



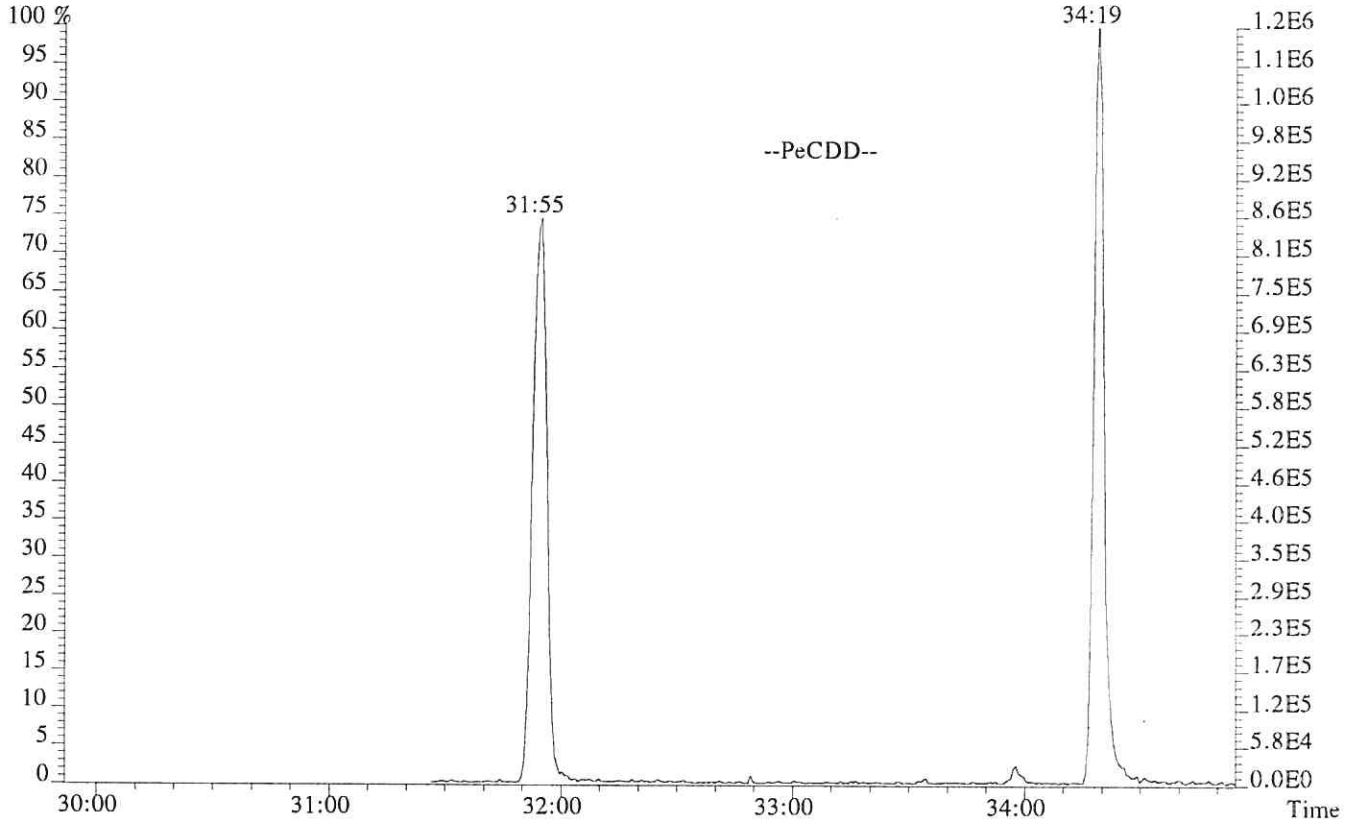
319.8965



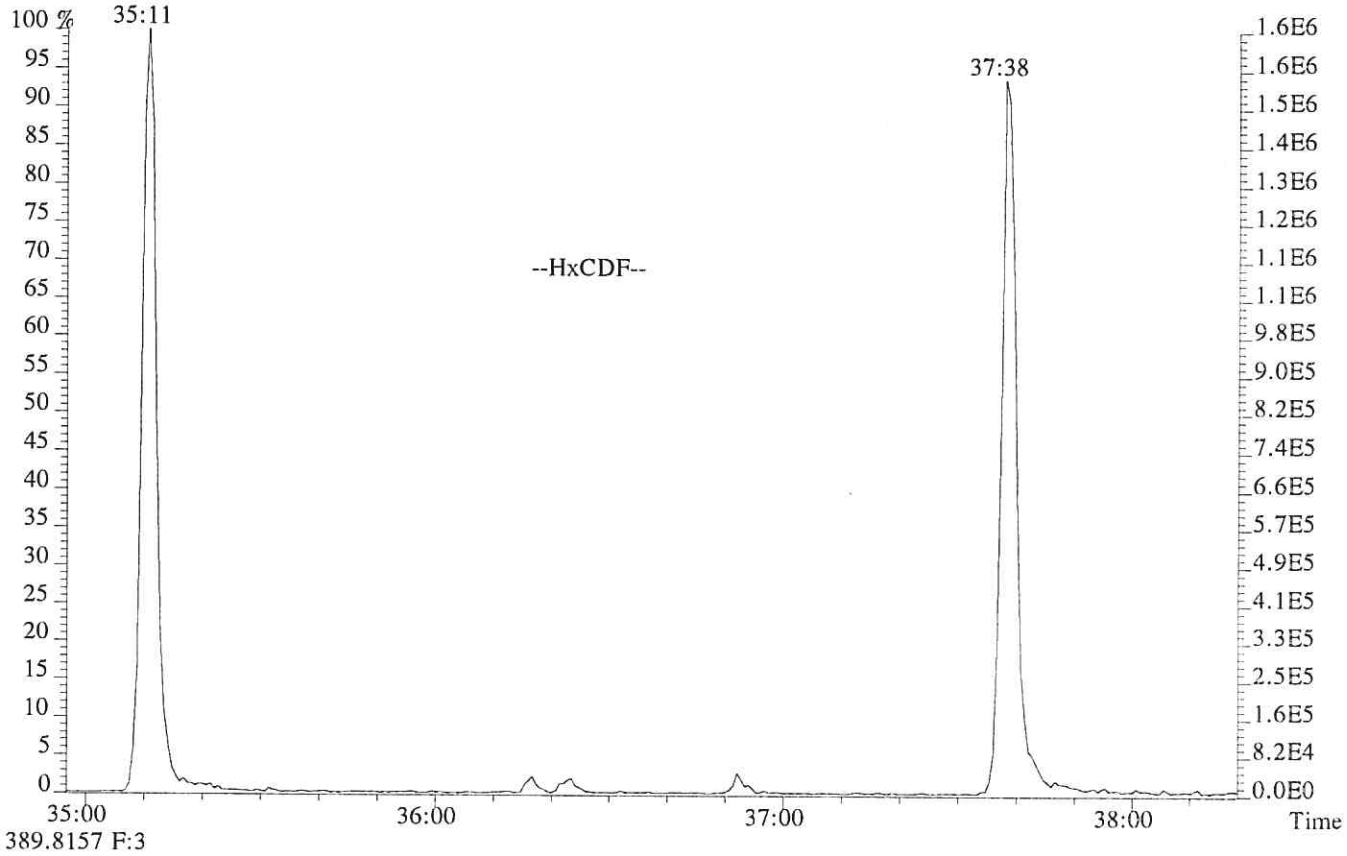
File:P513848 #1-665 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
339.8597,339.8597 F:2



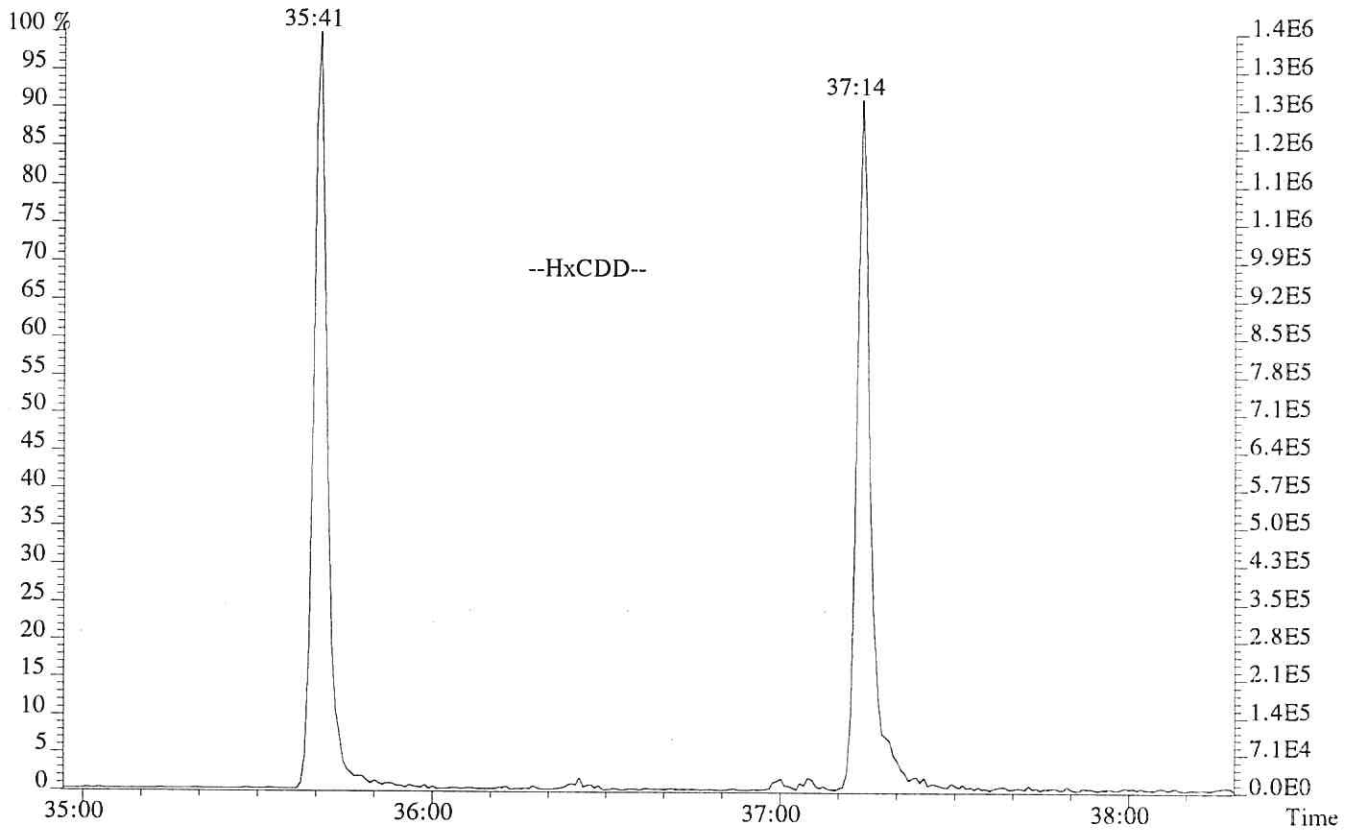
355.8546 F:2



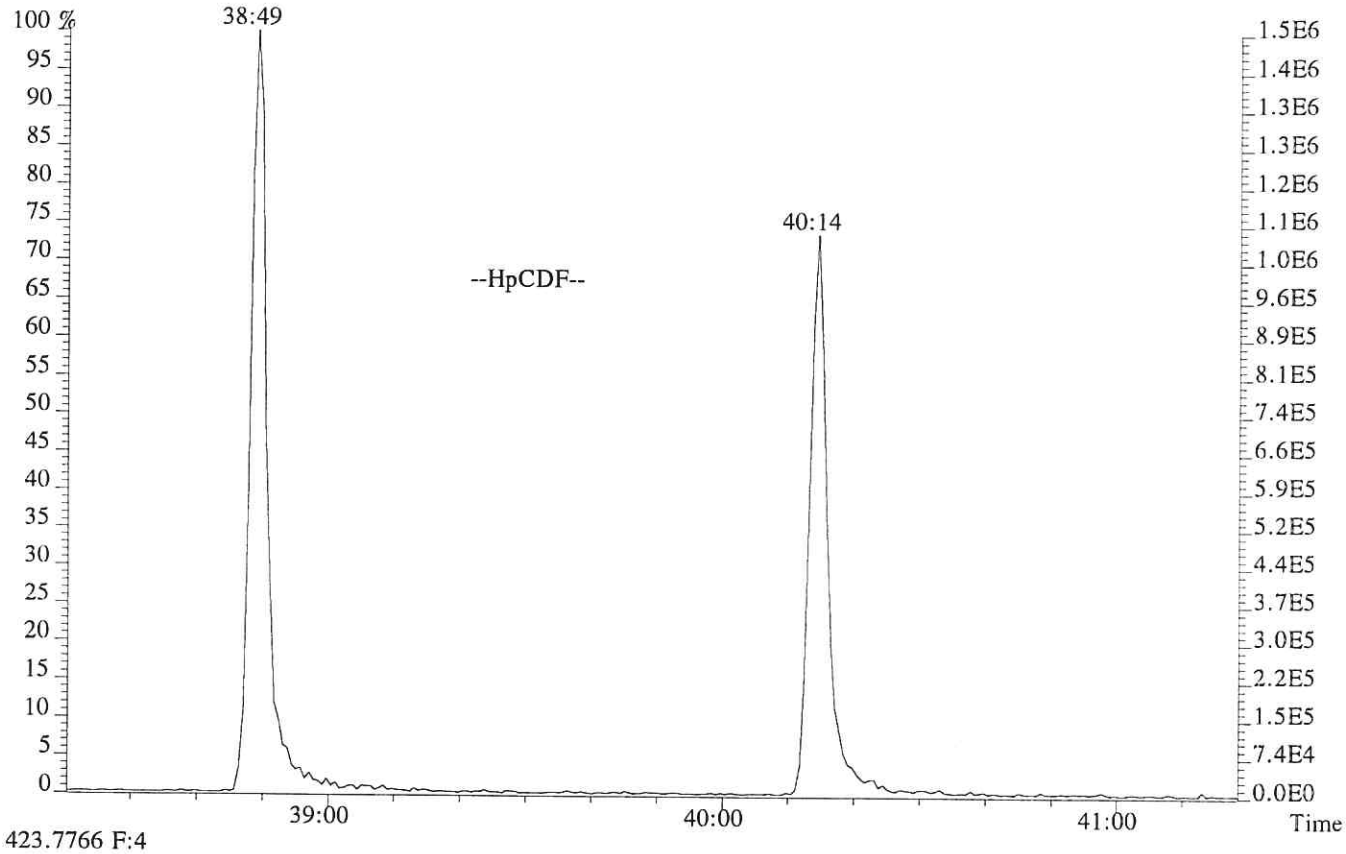
File:P513848 #1-303 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
373.8208 F:3



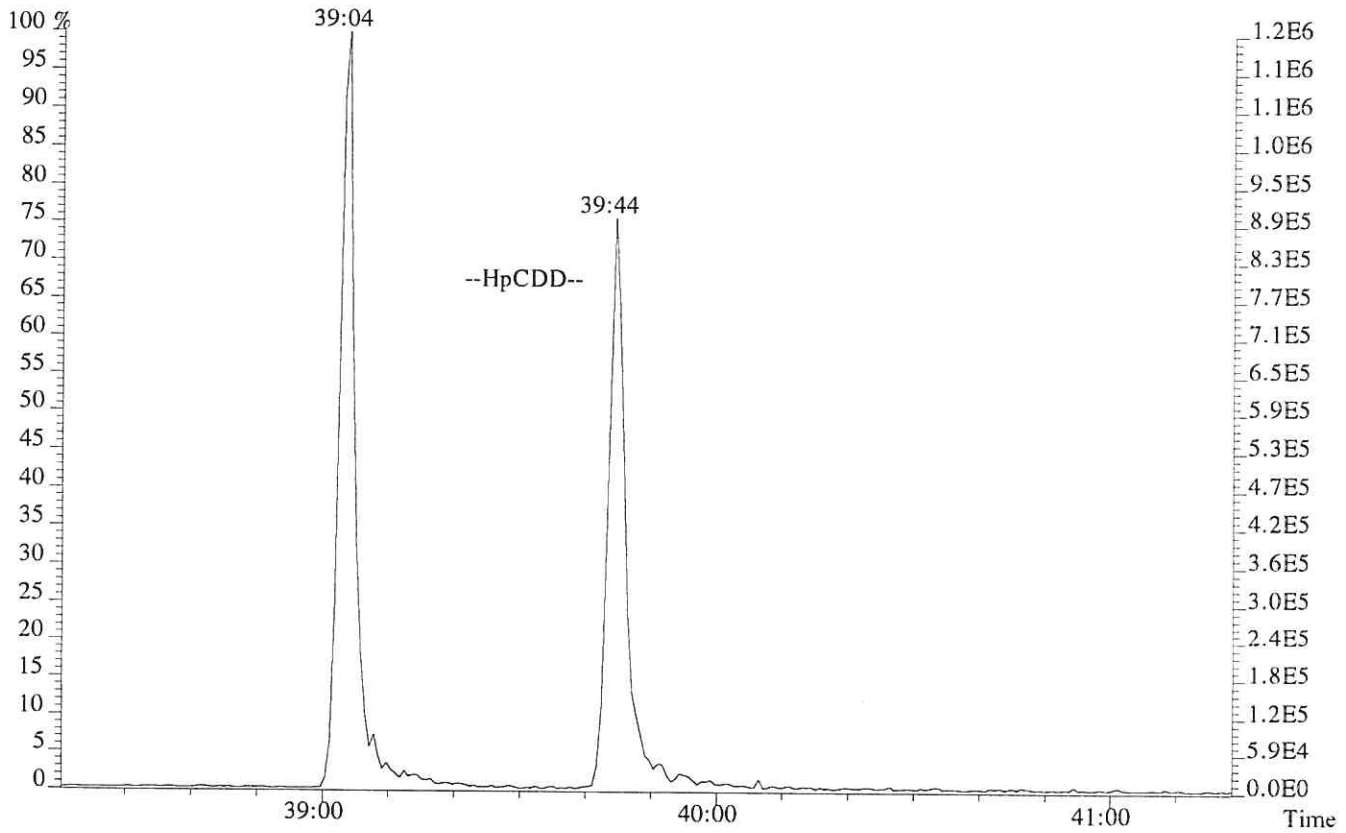
389.8157 F:3



File:P513848 #1-268 Acq:24-JAN-2018 11:44:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:183360
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.:
GC Column: DB-5MSUI ID: 0.25(mm)
Init. Calib. Date(s).: 01/24/18
Init. Calib. Time.: 11:44

Contract No.:
TO No.: SDG No.:
Instrument ID: E-HRMS-07
Method 1613/8290

RR/RRF

Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.10	1.07	1.06	1.07	1.10	1.11	1.09	1.96	+/-20%
2,3,7,8-TCDF	0.89	0.96	0.91	0.94	0.96	0.99	0.94	4.09	+/-20%
1,2,3,7,8-PeCDF	0.93	0.98	1.02	1.03	1.06	1.06	1.01	5.02	+/-20%
1,2,3,7,8-PeCDD	0.92	0.97	0.96	0.95	0.97	0.97	0.96	2.08	+/-20%
2,3,4,7,8-PeCDF	0.87	0.94	0.98	0.97	0.99	1.00	0.96	4.97	+/-20%
1,2,3,4,7,8-HxCDF	1.07	1.13	1.22	1.21	1.25	1.26	1.19	6.34	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.07	1.13	1.13	1.17	1.17	1.12	4.28	+/-20%
1,2,3,4,7,8-HxCDD	0.96	1.04	1.03	1.06	1.06	1.07	1.04	3.78	+/-20%
1,2,3,6,7,8-HxCDD	1.00	1.06	1.03	1.03	1.05	1.06	1.04	2.33	+/-20%
1,2,3,7,8,9-HxCDD	0.98	1.06	1.10	1.06	1.07	1.10	1.06	4.09	+/-20%
2,3,4,6,7,8-HxCDF	1.01	1.09	1.12	1.13	1.15	1.17	1.11	5.18	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.10	1.15	1.17	1.18	1.18	1.14	3.94	+/-20%
1,2,3,4,6,7,8-HpCDF	1.31	1.32	1.36	1.37	1.37	1.38	1.35	2.22	+/-20%
1,2,3,4,6,7,8-HpCDD	1.00	0.98	1.05	1.03	1.05	1.04	1.02	2.88	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.23	1.29	1.30	1.28	1.27	1.26	3.68	+/-20%
OCDD	1.05	1.14	1.14	1.13	1.12	1.12	1.12	2.97	+/-20%
OCDF	1.26	1.39	1.35	1.33	1.39	1.43	1.36	4.36	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.91	0.87	0.93	0.90	0.94	0.98	0.92	4.14	+/-35%
13C-1,2,3,7,8-PeCDD	0.91	0.83	1.03	0.99	1.01	1.08	0.98	9.21	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.94	0.90	0.90	0.95	0.93	0.92	0.92	2.06	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.96	0.94	0.97	0.97	0.91	0.95	2.50	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.81	0.92	0.79	0.88	0.90	0.85	0.86	5.83	+/-35%
13C-OCDD	0.52	0.63	0.58	0.58	0.62	0.57	0.58	6.90	+/-35%
13C-2,3,7,8-TCDF	1.45	1.48	1.53	1.60	1.53	1.49	1.51	3.54	+/-35%
13C-1,2,3,7,8-PeCDF	1.37	1.32	1.50	1.50	1.52	1.62	1.47	7.34	+/-35%
13C-2,3,4,7,8-PeCDF	1.36	1.29	1.50	1.46	1.52	1.61	1.46	7.94	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.22	1.27	1.18	1.29	1.25	1.19	1.23	3.63	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.40	1.48	1.34	1.42	1.41	1.34	1.40	3.84	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.26	1.26	1.23	1.27	1.28	1.23	1.26	1.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.17	1.06	1.00	1.17	1.08	1.09	6.47	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.96	1.02	0.92	0.99	0.98	0.93	0.97	3.83	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.95	0.79	0.74	0.86	0.82	0.82	9.19	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.96	1.03	1.00	1.05	1.11	1.01	6.21	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-07
Init. Calib. Date(s).: 01/24/18 Method 1613/8290
Init. Calib. Time.: 11:44

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.72	0.74	0.75	0.77	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.73	0.88	0.76	0.79	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.42	1.54	1.48	1.53	1.54	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.48	1.46	1.50	1.52	1.53	1.54		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.64	1.66	1.58	1.56	1.56	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.18	1.20	1.20	1.22	1.22	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.17	1.21	1.21	1.22	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.12	1.24	1.22	1.22	1.21	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.19	1.33	1.22	1.21	1.24	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.32	1.26	1.25	1.25	1.25	1.26		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.09	1.35	1.26	1.26	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.21	1.24	1.28	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.98	1.03	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	0.96	1.01	1.03	1.03	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.11	1.04	1.05	1.05	1.05		0.88-1.20
OCDF	442/444	0.88	0.95	0.89	0.90	0.91	0.91		0.76-1.02
OCDD	458/460	0.86	0.88	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.81	0.80	0.80	0.80	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.59	1.59	1.58	1.59	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.27	1.26	1.33	1.27	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.28	1.27	1.20	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.04	1.06	1.06	1.08	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.91	0.90	0.89	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.60	1.59	1.58	1.58	1.59		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.58	1.58	1.58	1.58	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.82	0.81	0.81	0.82	0.82		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.25	1.27	1.23	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.276e+02	4.332e+02	0.76	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.212e+03	1.557e+03	1.42	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	2.093e+03	1.410e+03	1.48	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.728e+03	1.459e+03	1.18	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	2.025e+03	1.584e+03	1.28	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.636e+03	1.459e+03	1.12	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.473e+03	1.234e+03	1.19	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.513e+03	1.543e+03	0.98	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.104e+03	1.067e+03	1.03	yes	no	1.258
10	Unk	OCDF	42:45	1.481e+03	1.680e+03	0.88	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.508e+02	3.419e+02	0.73	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.543e+03	9.381e+02	1.64	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.247e+03	9.443e+02	1.32	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.208e+03	1.105e+03	1.09	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.245e+03	1.015e+03	1.23	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	9.700e+02	9.817e+02	0.99	yes	no	1.025
17	Unk	OCDD	42:31	1.223e+03	1.416e+03	0.86	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.518e+05	1.920e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.987e+05	1.259e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.969e+05	1.249e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.196e+04	1.558e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.429e+04	1.782e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.377e+04	1.622e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	6.829e+04	1.322e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.778e+04	1.288e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	4.552e+04	1.019e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	9.630e+04	1.195e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.330e+05	8.317e+04	1.60	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.026e+05	7.962e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.036e+05	8.231e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.056e+04	7.625e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	9.520e+04	1.052e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:58	1.055e+05	1.310e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.085e+05	8.606e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.518e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P513850 Samp: 1 Inj: 1 Acquired: 24-JAN-18 13:32:06
Processed: 24-JAN-18 15:49:37 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.43e+04	7.40e+02	8.7e+01	8.19e+04	1.58e+03	5.2e+01
2	1,2,3,7,8-PeCDF	4.30e+05	1.01e+03	4.3e+02	3.00e+05	2.96e+03	1.0e+02
3	2,3,4,7,8-PeCDF	4.25e+05	1.01e+03	4.2e+02	2.98e+05	2.96e+03	1.0e+02
4	1,2,3,4,7,8-HxCDF	3.96e+05	8.76e+02	4.5e+02	3.10e+05	2.44e+02	1.3e+03
5	1,2,3,6,7,8-HxCDF	4.08e+05	8.76e+02	4.7e+02	3.20e+05	2.44e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	3.56e+05	8.76e+02	4.1e+02	3.17e+05	2.44e+02	1.3e+03
7	1,2,3,7,8,9-HxCDF	3.08e+05	8.76e+02	3.5e+02	2.40e+05	2.44e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	3.07e+05	8.60e+02	3.6e+02	3.29e+05	5.36e+02	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	2.09e+05	8.60e+02	2.4e+02	1.94e+05	5.36e+02	3.6e+02
10	OCDF	2.59e+05	6.40e+02	4.0e+02	2.85e+05	1.05e+03	2.7e+02
11	2,3,7,8-TCDD	4.96e+04	1.22e+03	4.1e+01	7.37e+04	7.32e+02	1.0e+02
12	1,2,3,7,8-PeCDD	3.05e+05	1.17e+03	2.6e+02	1.78e+05	1.88e+02	9.5e+02
13	1,2,3,4,7,8-HxCDD	2.70e+05	5.20e+02	5.2e+02	2.09e+05	4.64e+02	4.5e+02
14	1,2,3,6,7,8-HxCDD	2.52e+05	5.20e+02	4.8e+02	2.26e+05	4.64e+02	4.9e+02
15	1,2,3,7,8,9-HxCDD	2.55e+05	5.20e+02	4.9e+02	2.09e+05	4.64e+02	4.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.84e+05	1.72e+02	1.1e+03	2.04e+05	1.92e+02	1.1e+03
17	OCDD	1.95e+05	1.24e+02	1.6e+03	2.29e+05	1.76e+03	1.3e+02
18	13C-2,3,7,8-TCDF	2.97e+07	7.00e+03	4.2e+03	3.74e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	3.75e+07	6.04e+02	6.2e+04	2.38e+07	1.03e+03	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.92e+07	6.04e+02	6.5e+04	2.45e+07	1.03e+03	2.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.77e+07	4.00e+02	4.4e+04	3.34e+07	1.14e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.91e+07	4.00e+02	4.8e+04	3.65e+07	1.14e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.78e+07	4.00e+02	4.5e+04	3.38e+07	1.14e+03	3.0e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	4.00e+02	3.5e+04	2.65e+07	1.14e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.16e+07	1.44e+03	8.1e+03	2.60e+07	5.60e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.60e+06	1.44e+03	6.0e+03	1.92e+07	5.60e+03	3.4e+03
27	13C-2,3,7,8-TCDD	1.97e+07	6.10e+03	3.2e+03	2.45e+07	2.10e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.62e+07	9.88e+02	2.7e+04	1.65e+07	6.72e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.25e+07	4.24e+03	5.3e+03	1.74e+07	9.28e+02	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	2.12e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	9.20e+02	1.7e+04	1.49e+07	8.32e+02	1.8e+04
32	13C-OCDD	1.56e+07	1.68e+02	9.3e+04	1.71e+07	3.40e+02	5.0e+04
33	13C-1,2,3,4-TCDD	2.11e+07	6.10e+03	3.5e+03	2.60e+07	2.10e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	4.24e+03	5.0e+03	1.71e+07	9.28e+02	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.10e+05	1.04e+03	1.1e+02			

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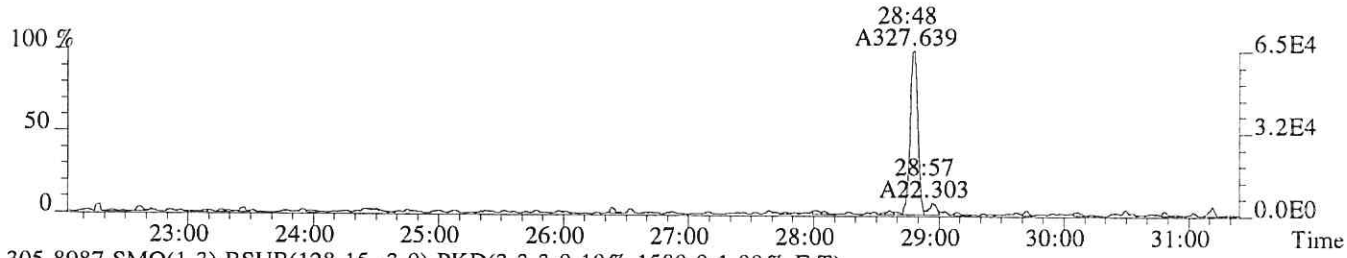
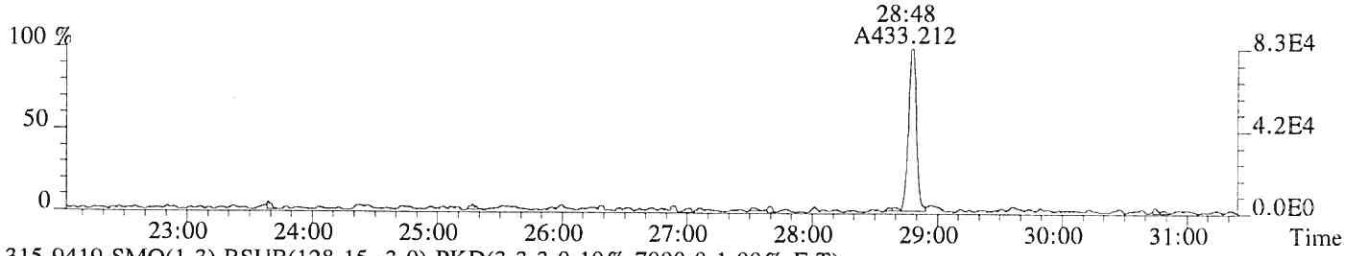
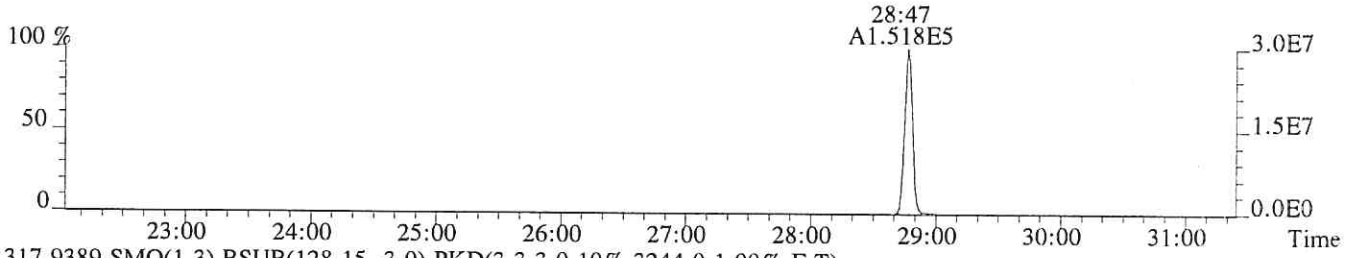
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



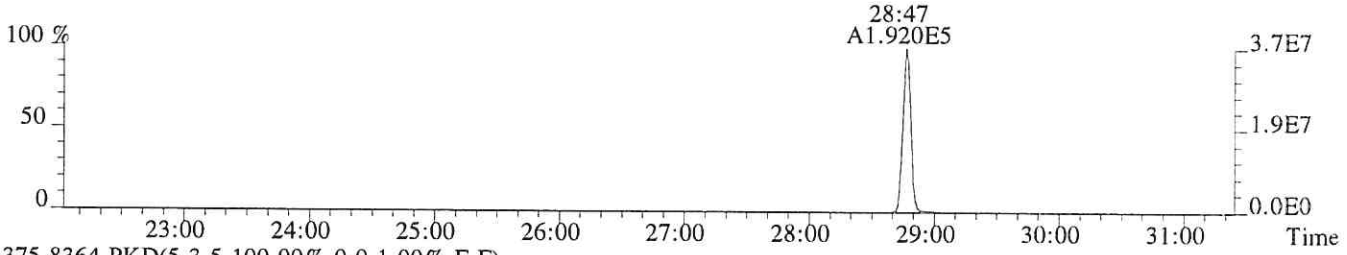
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



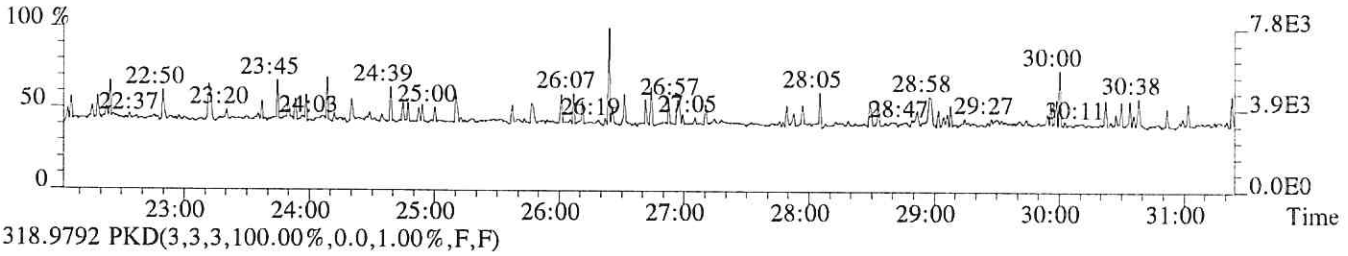
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



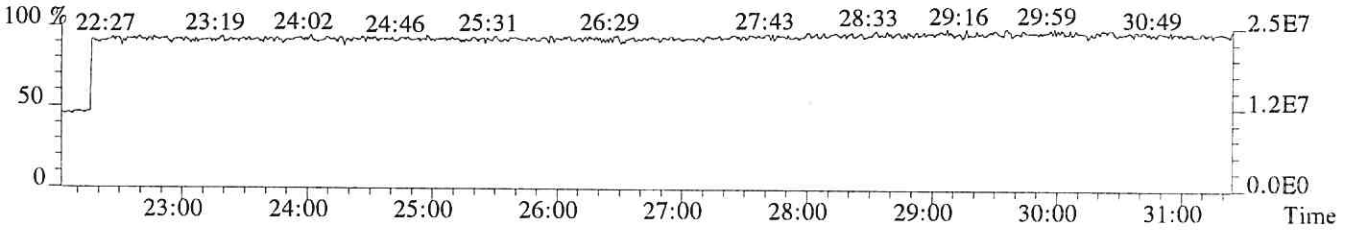
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



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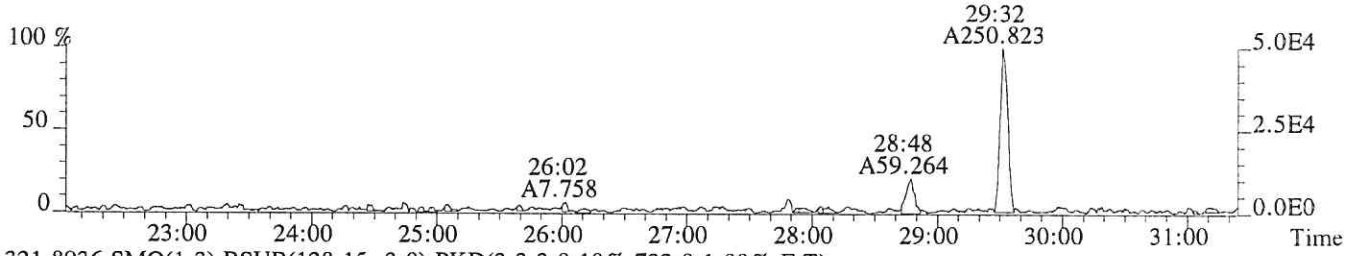
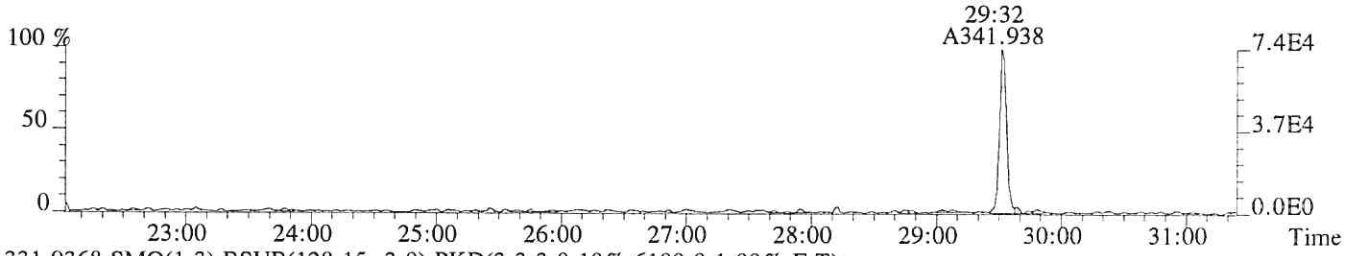
Sample#1 Exp:76554

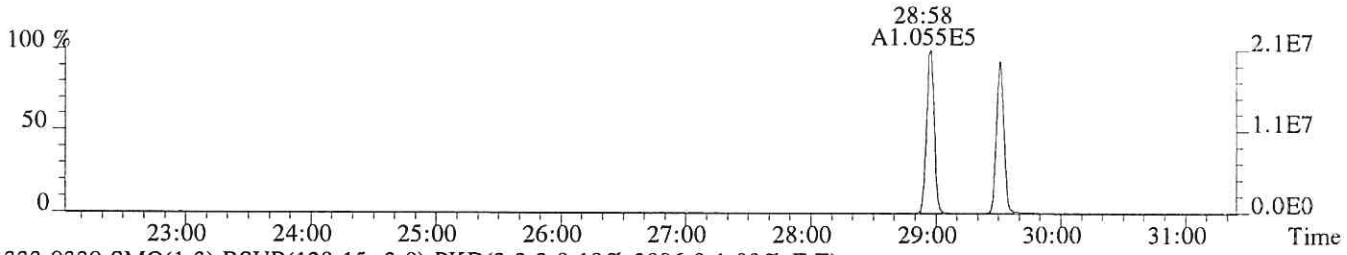
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



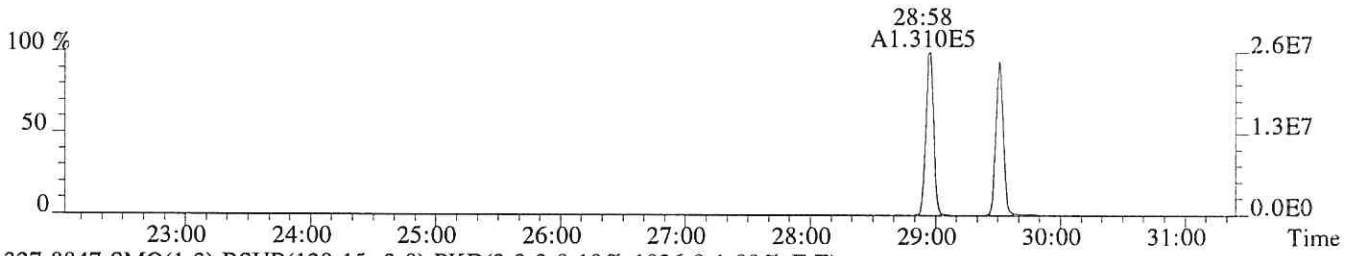
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



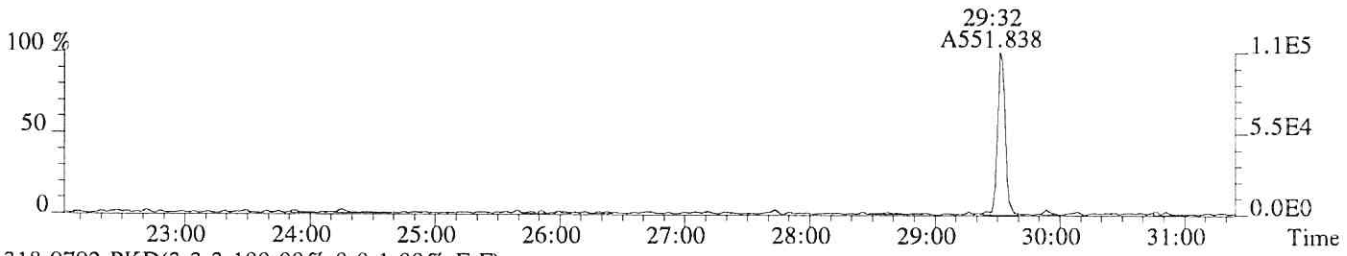
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



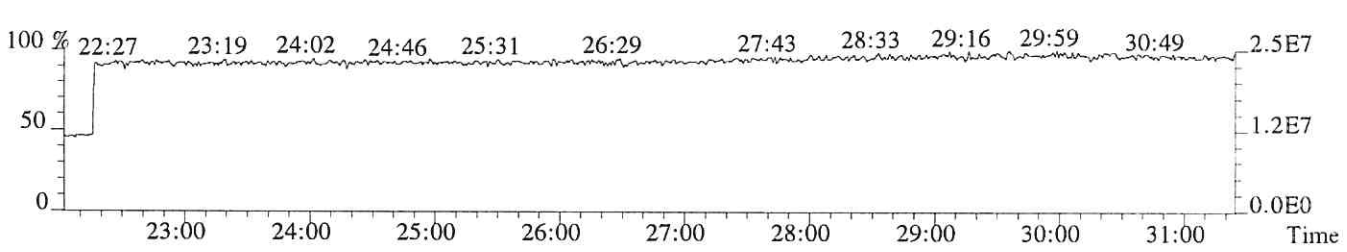
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



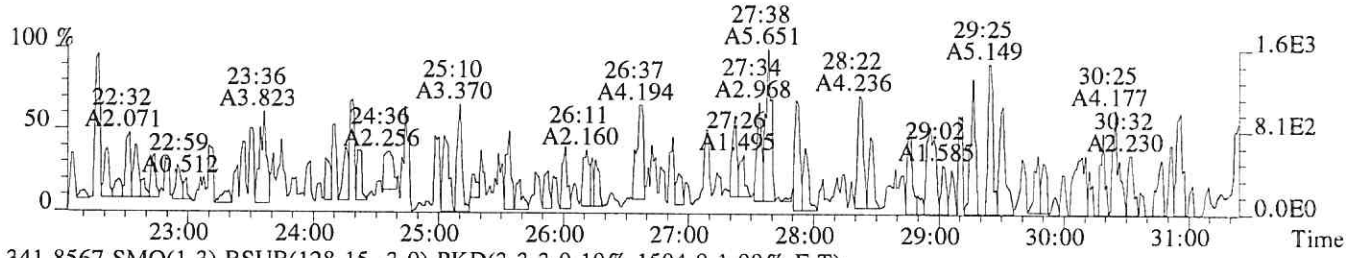
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



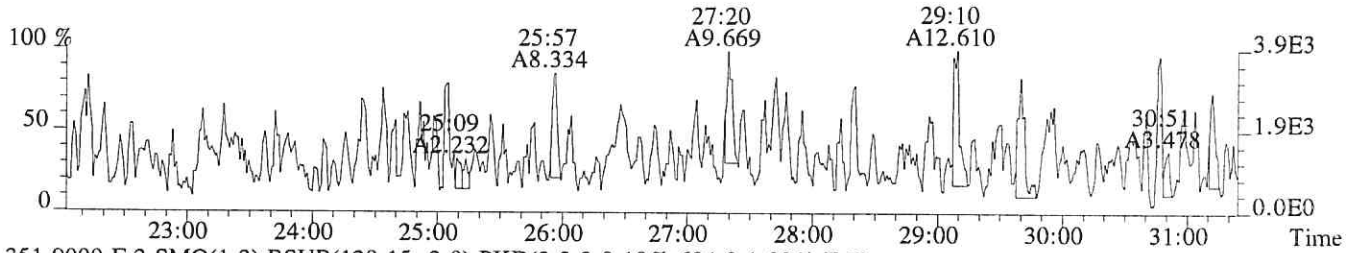
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



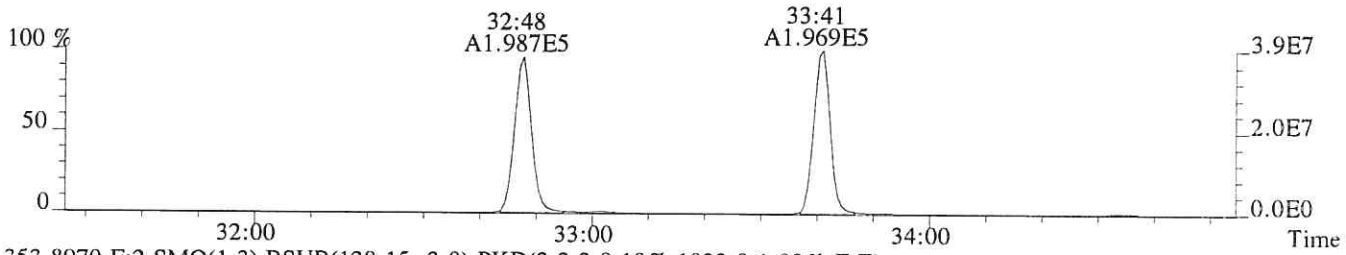
File:P513850 #1-665 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



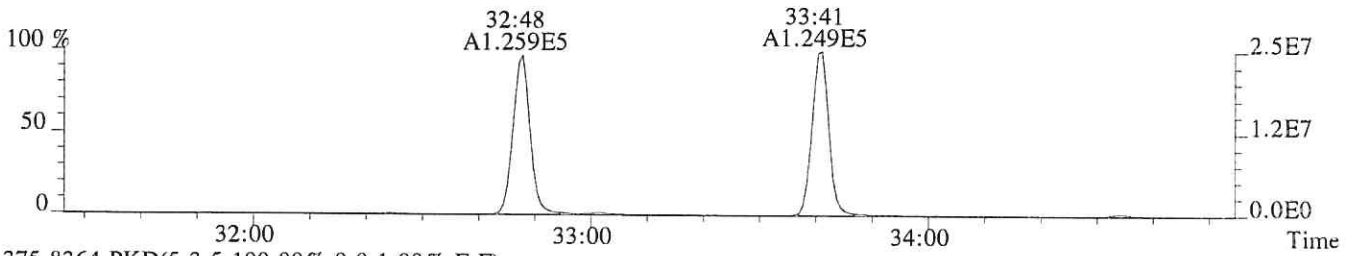
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



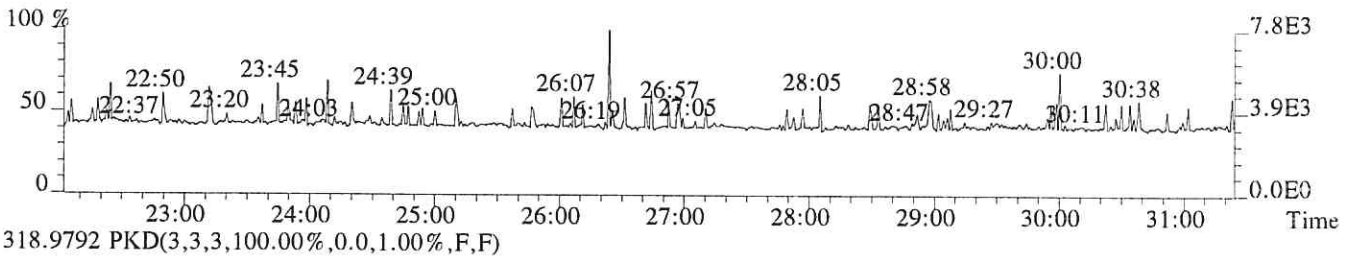
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



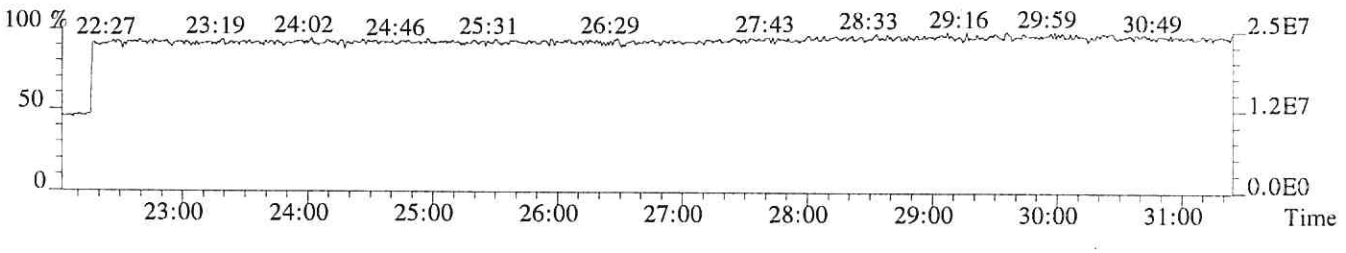
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



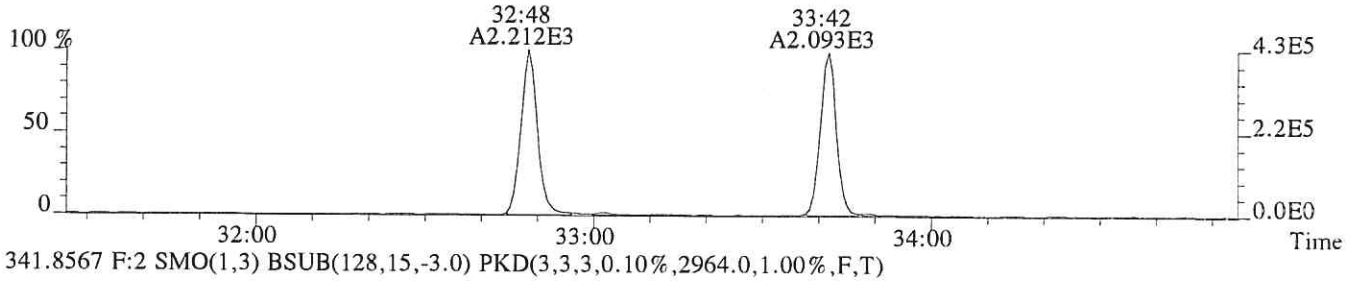
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



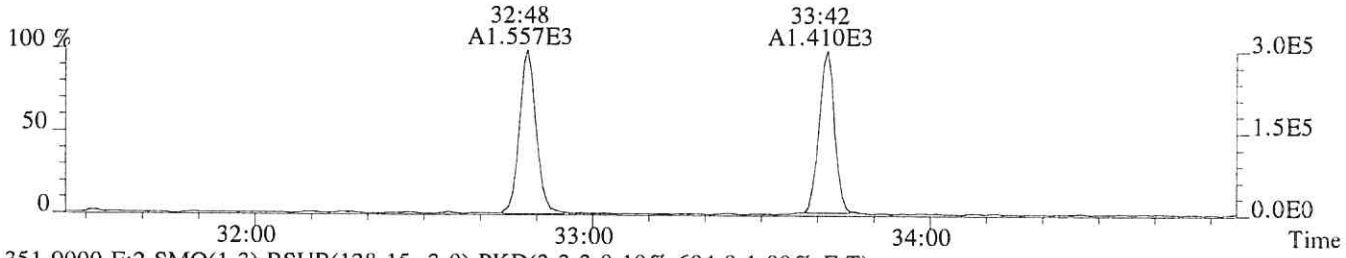
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



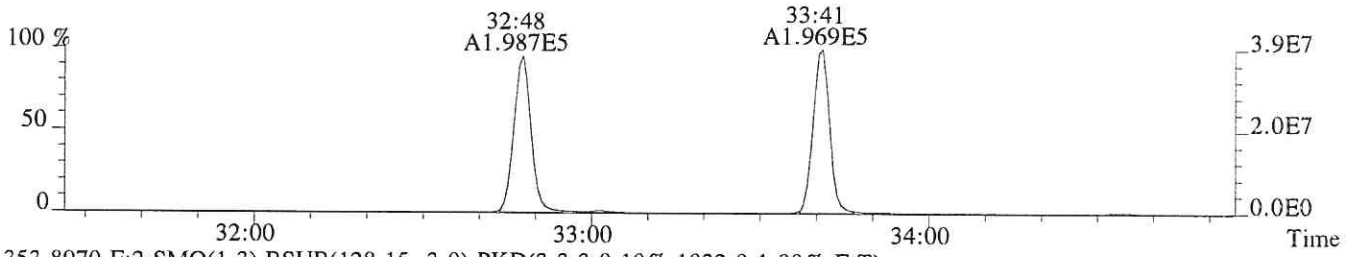
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



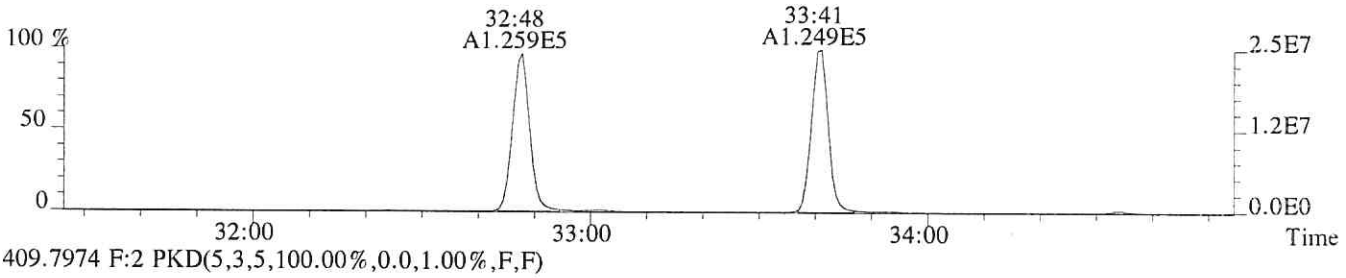
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



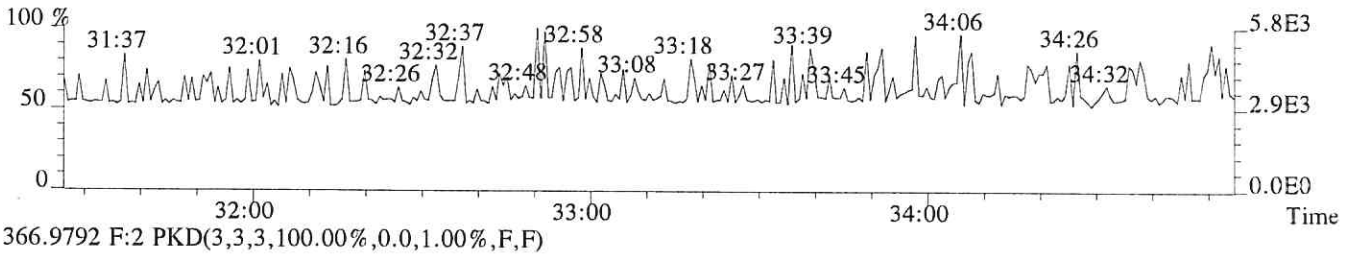
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



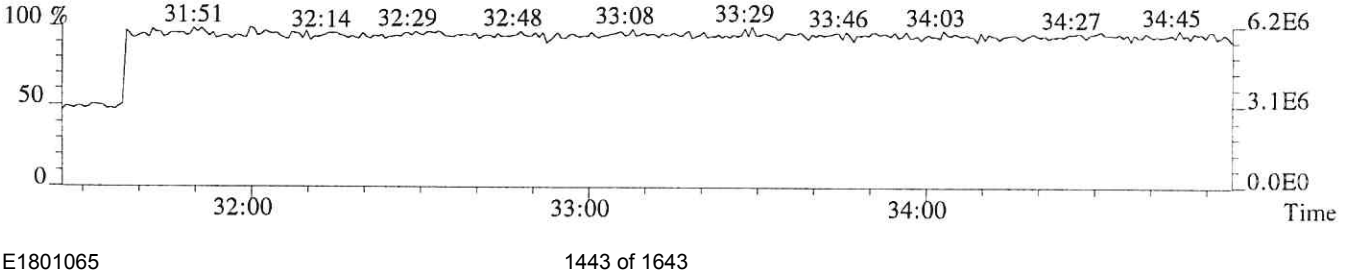
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



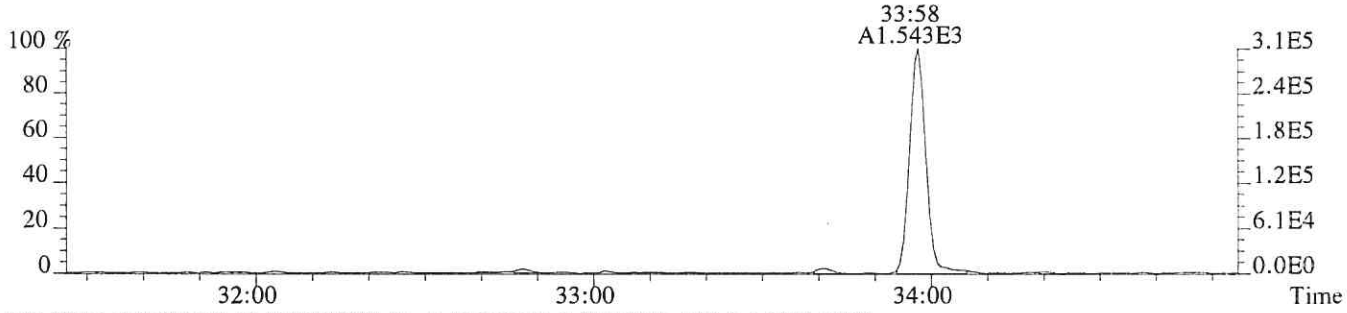
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



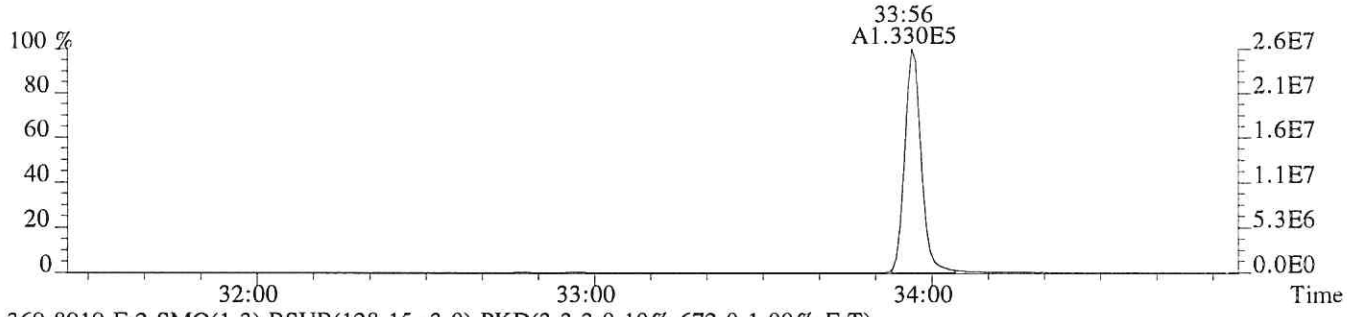
File:P513850 #1-313 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



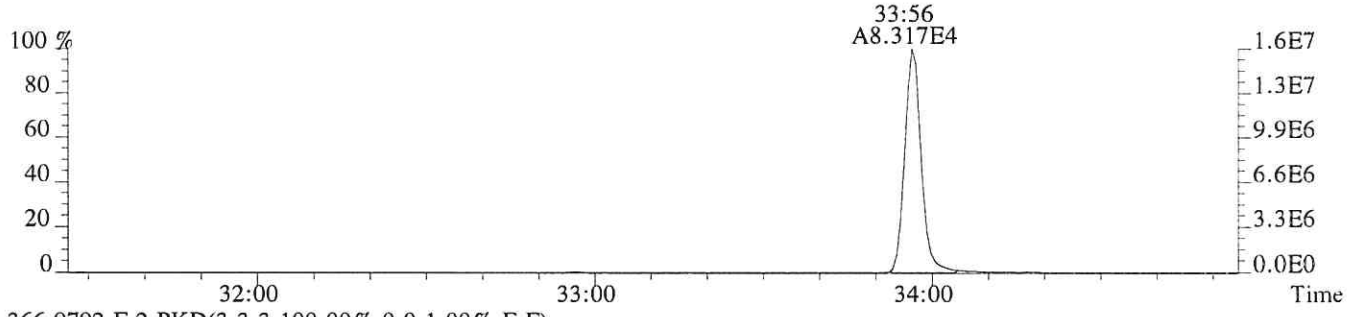
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



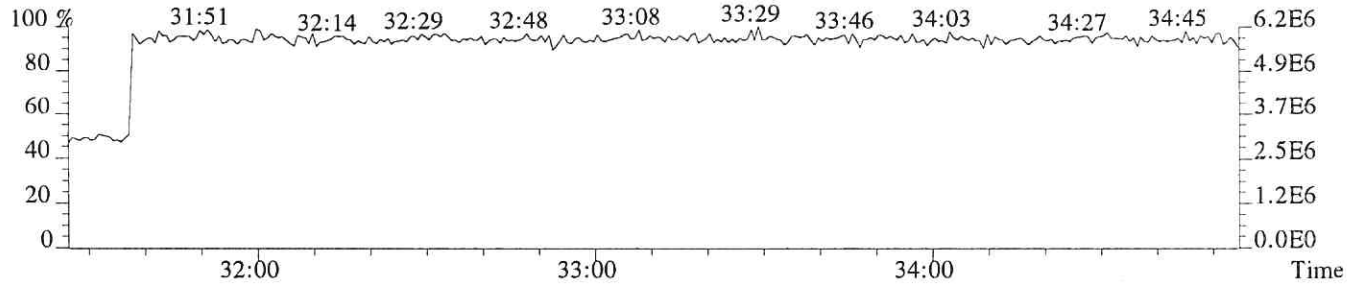
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



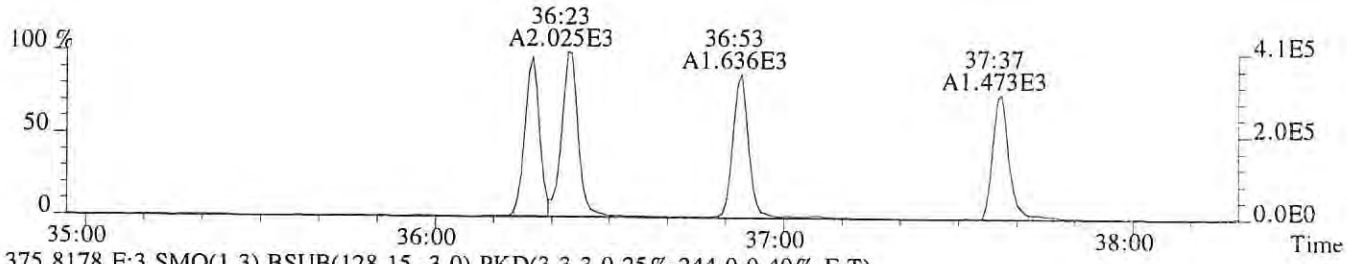
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



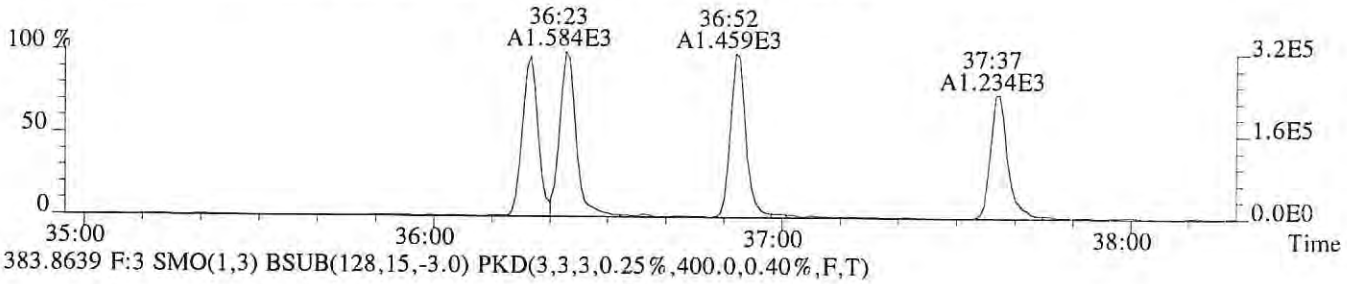
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



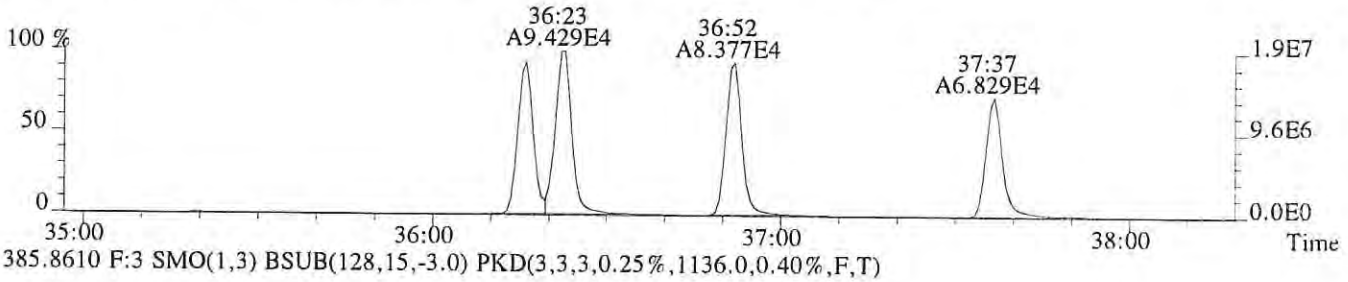
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76554
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



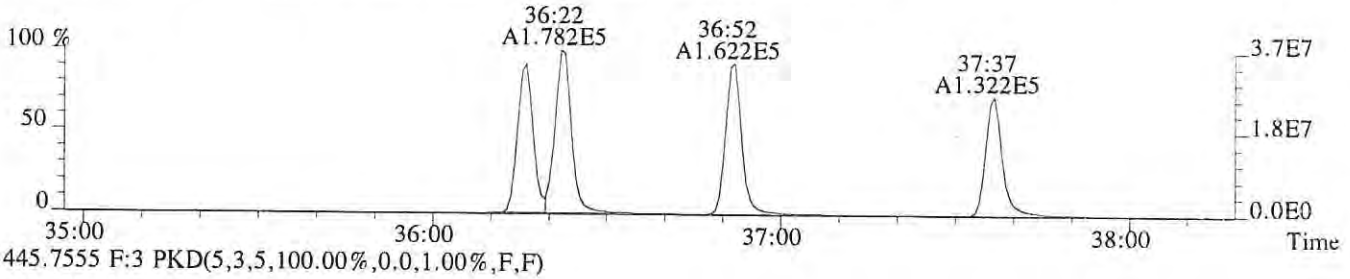
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



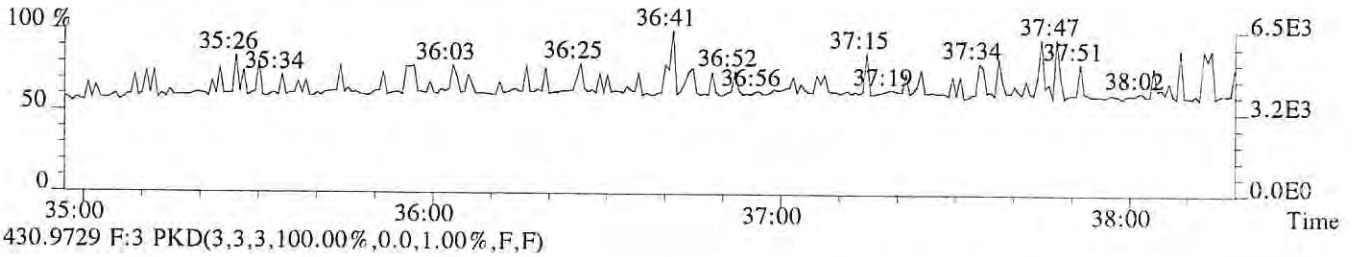
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



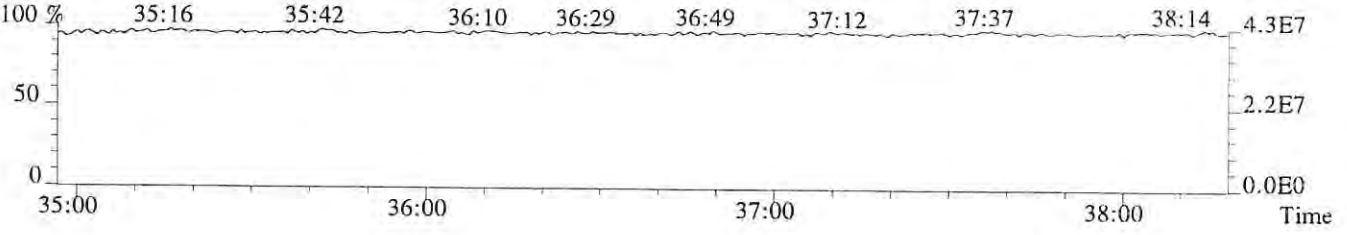
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



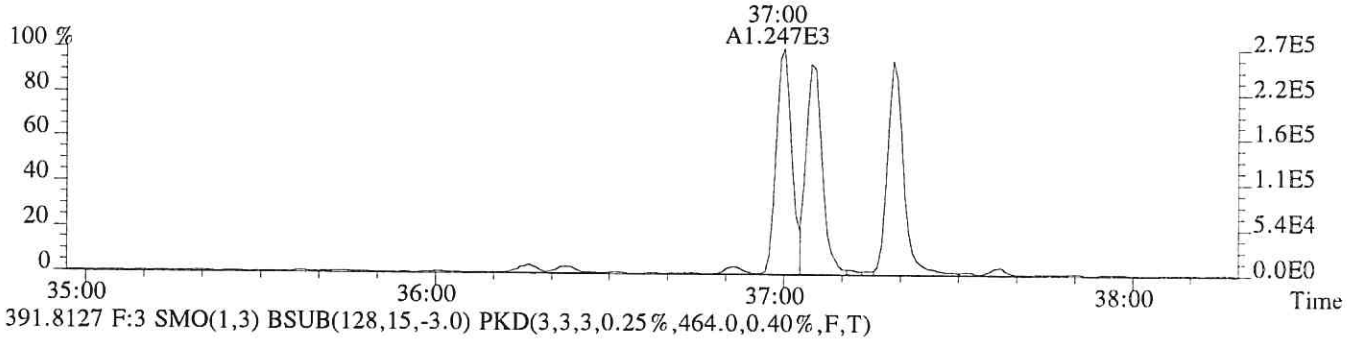
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



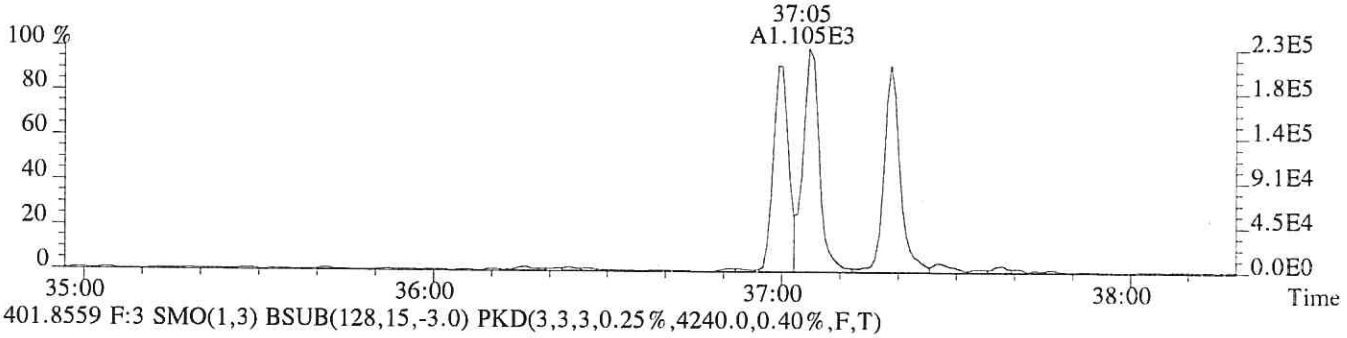
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



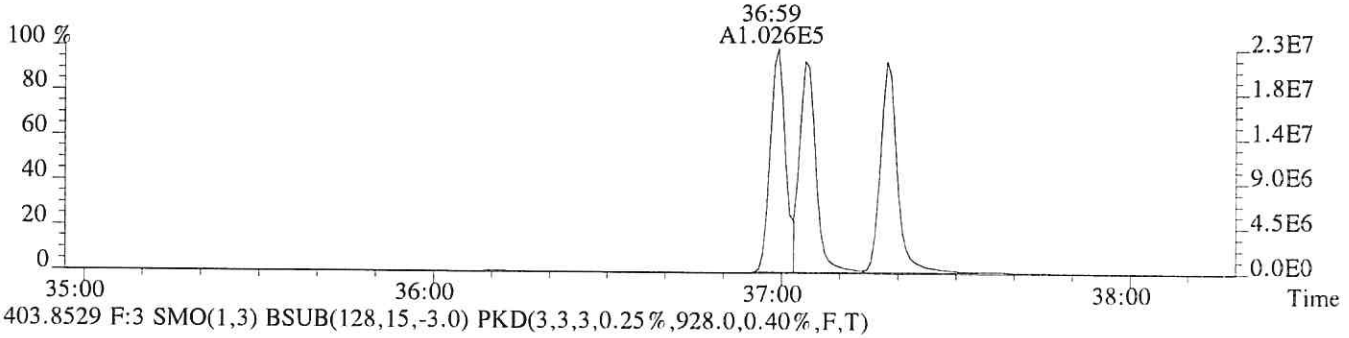
File:P513850 #1-303 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



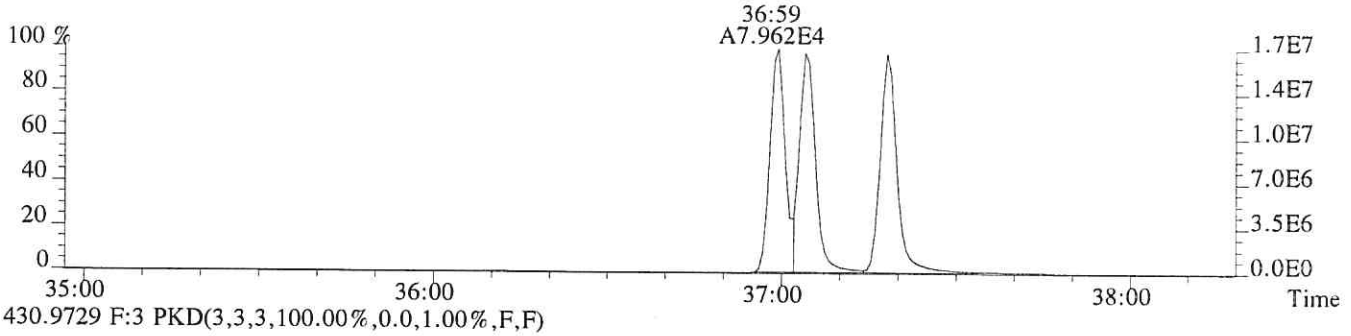
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



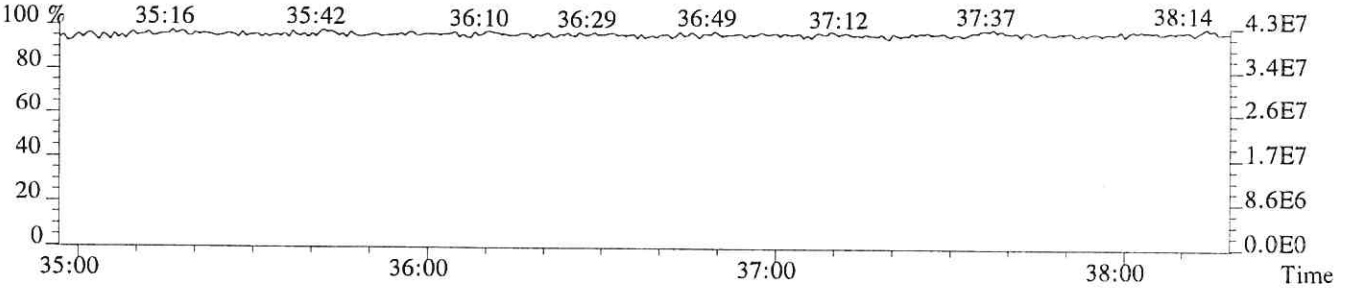
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



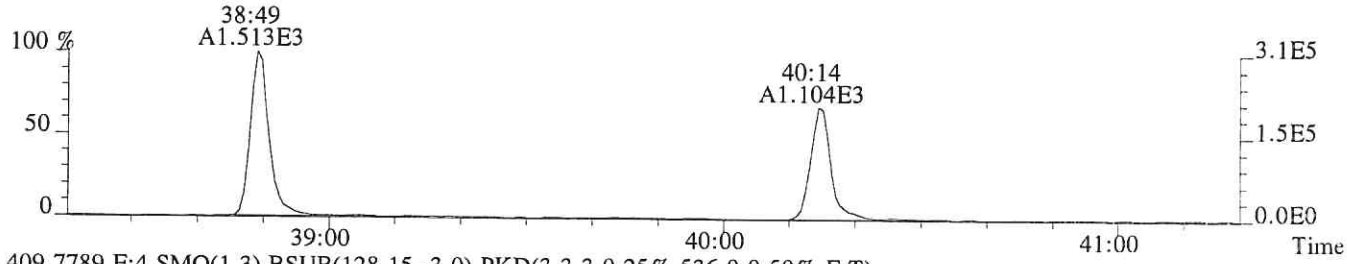
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



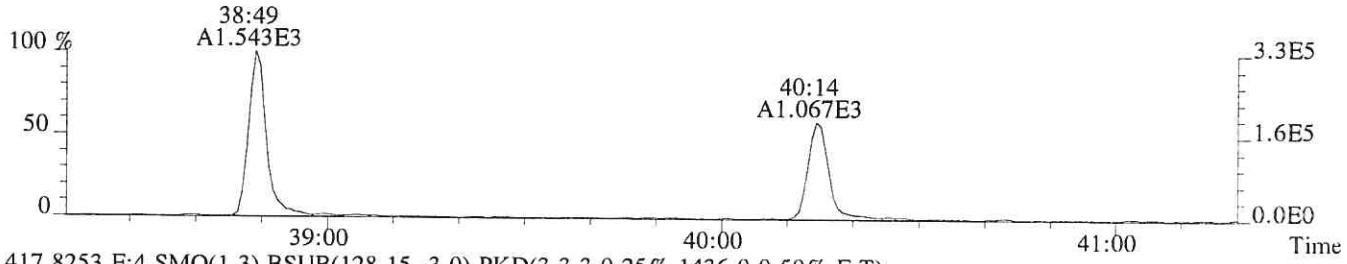
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



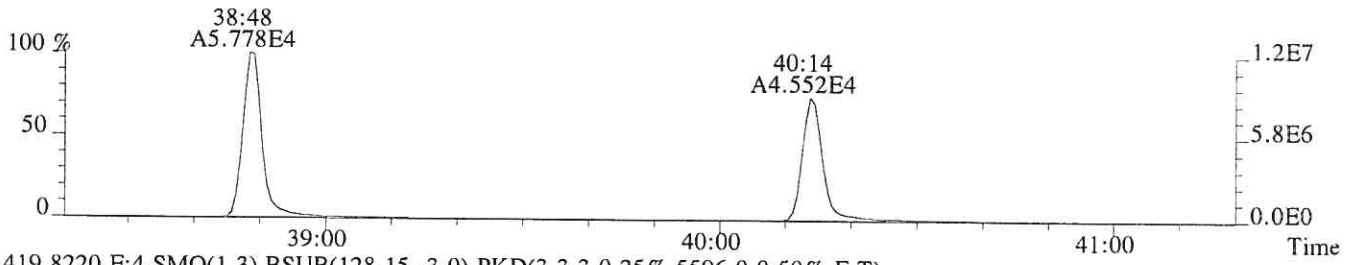
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.50%,F,T)



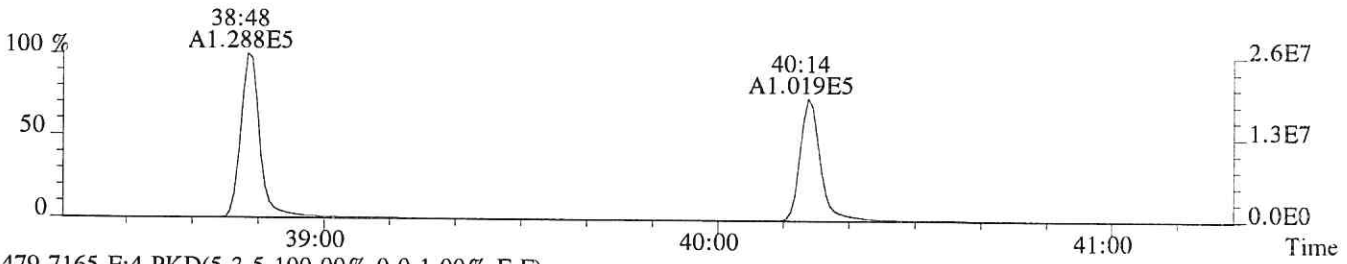
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



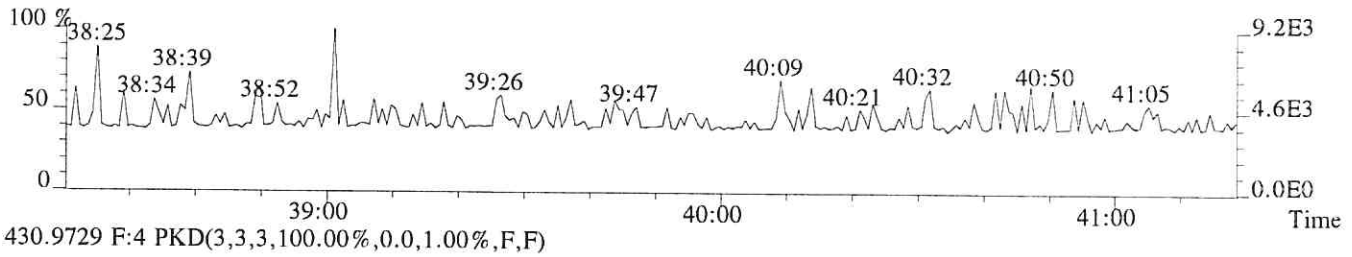
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.50%,F,T)



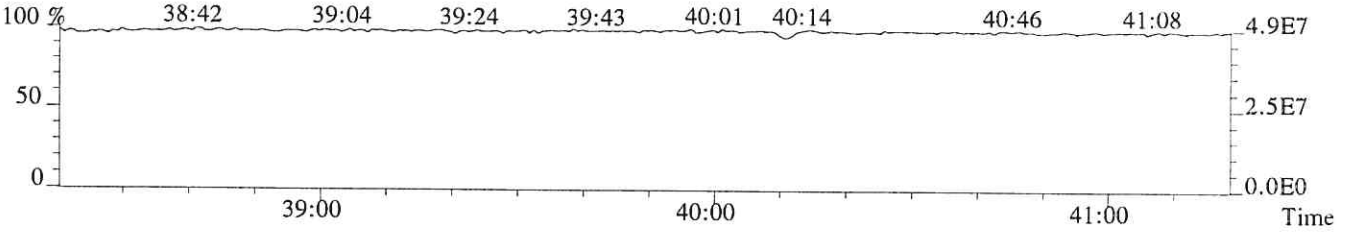
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5596.0,0.50%,F,T)



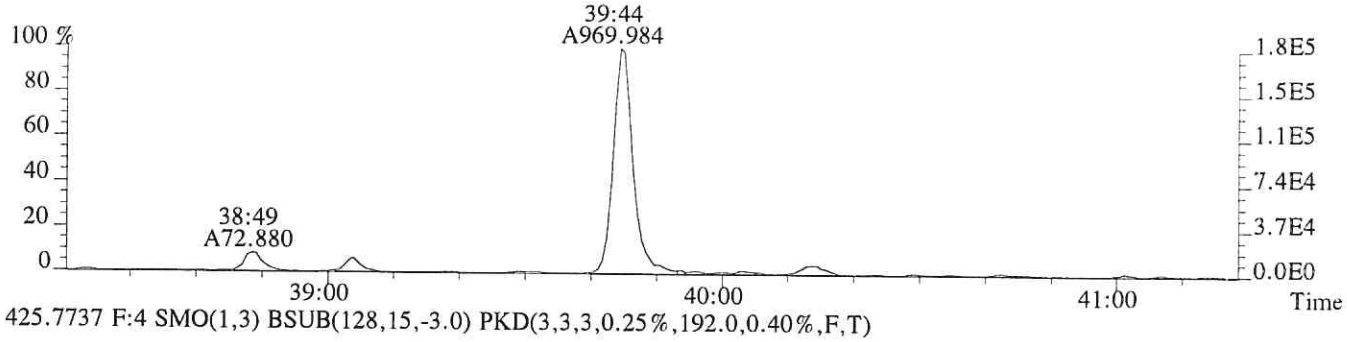
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



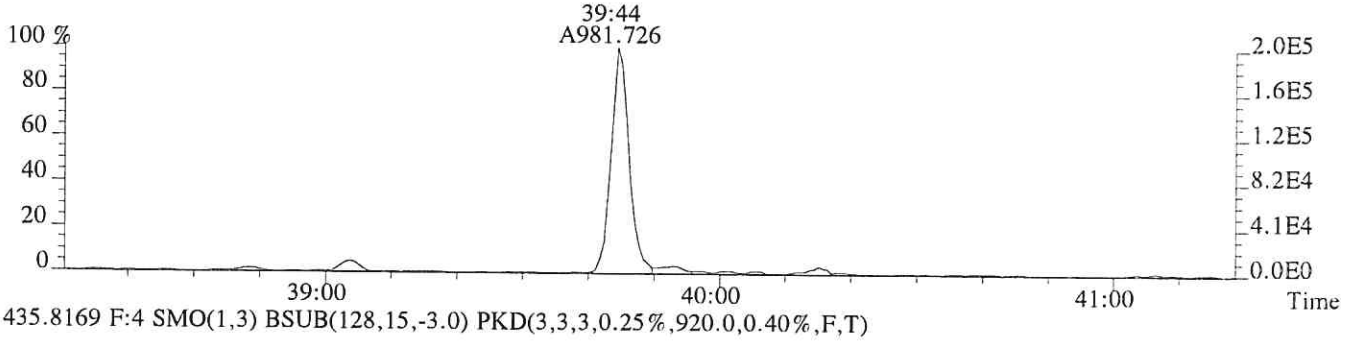
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



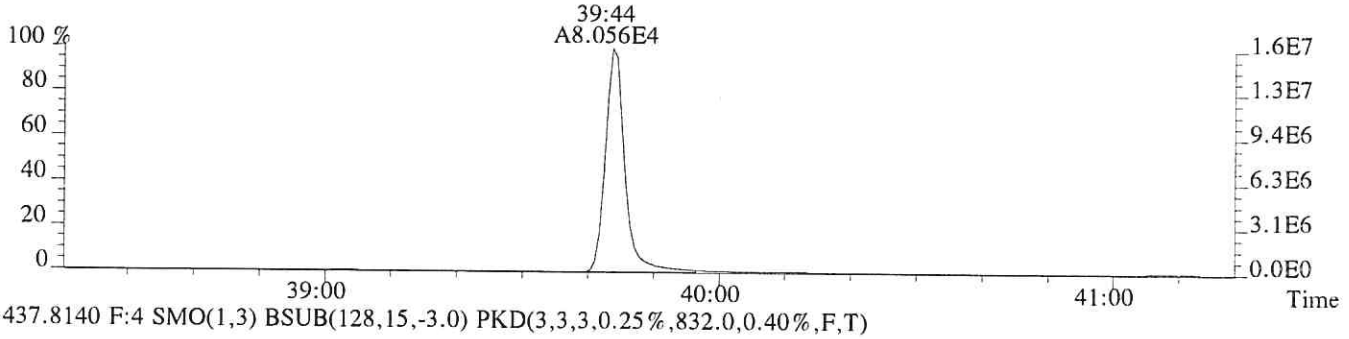
File:P513850 #1-268 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,172.0,0.40%,F,T)



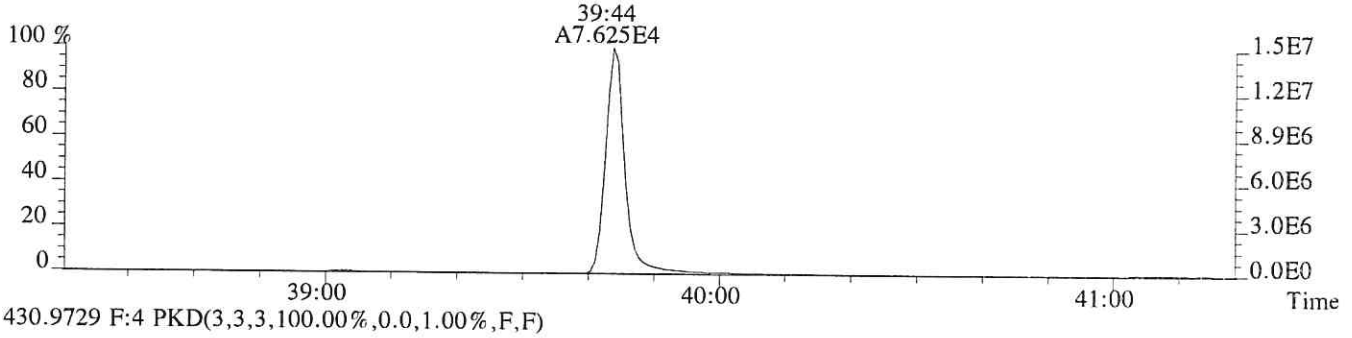
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,192.0,0.40%,F,T)



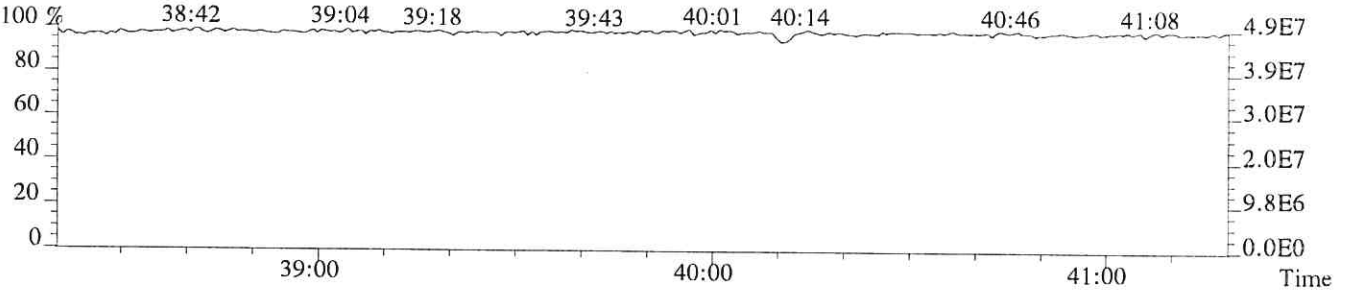
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



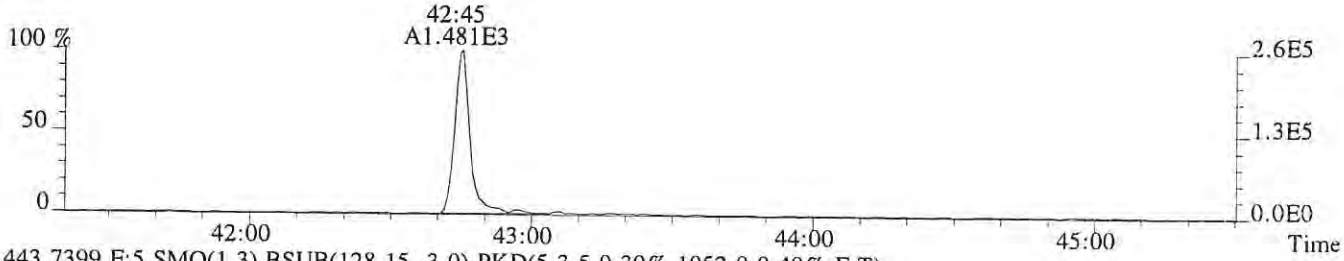
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



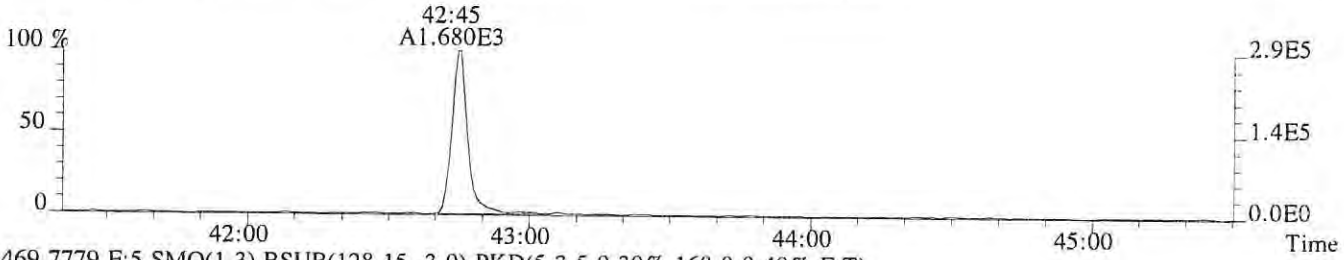
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



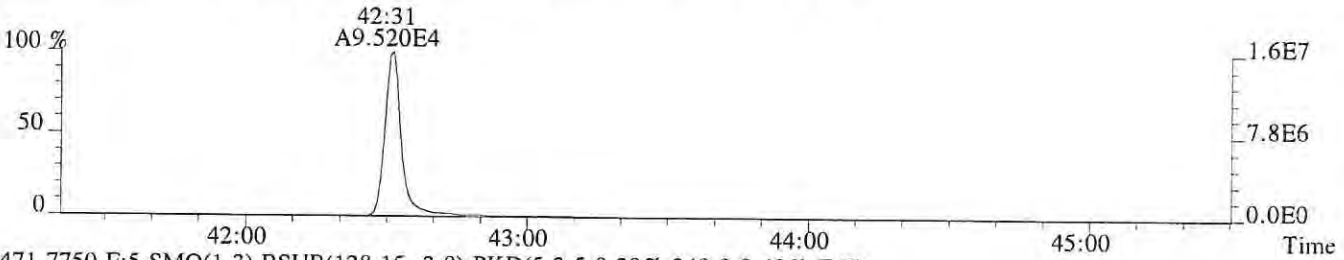
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



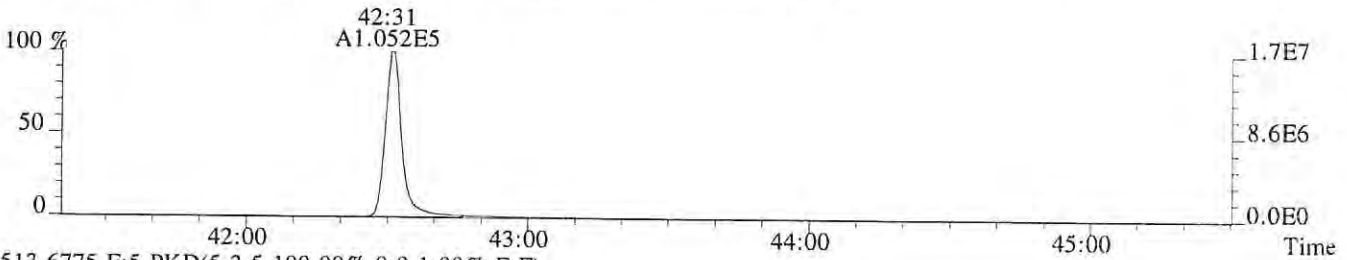
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



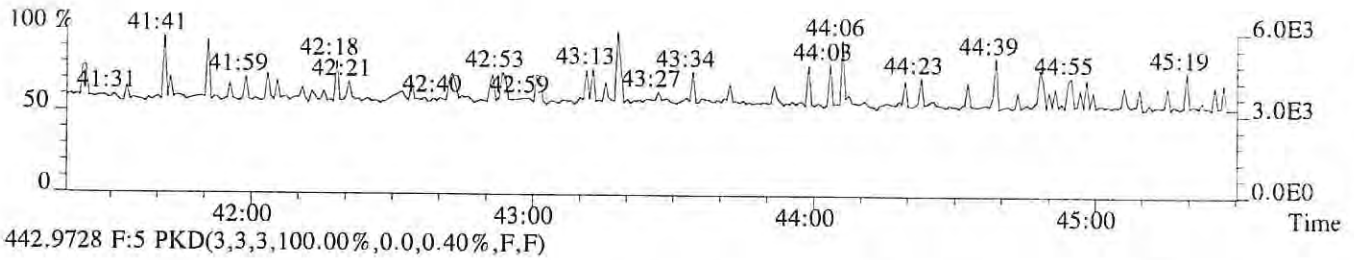
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



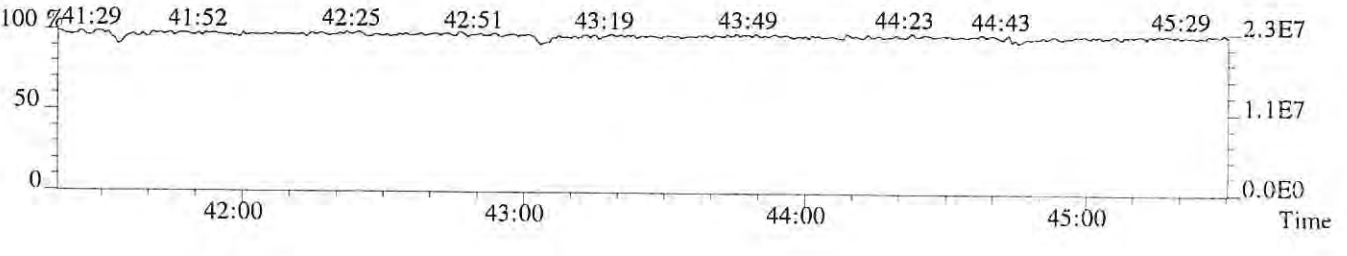
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



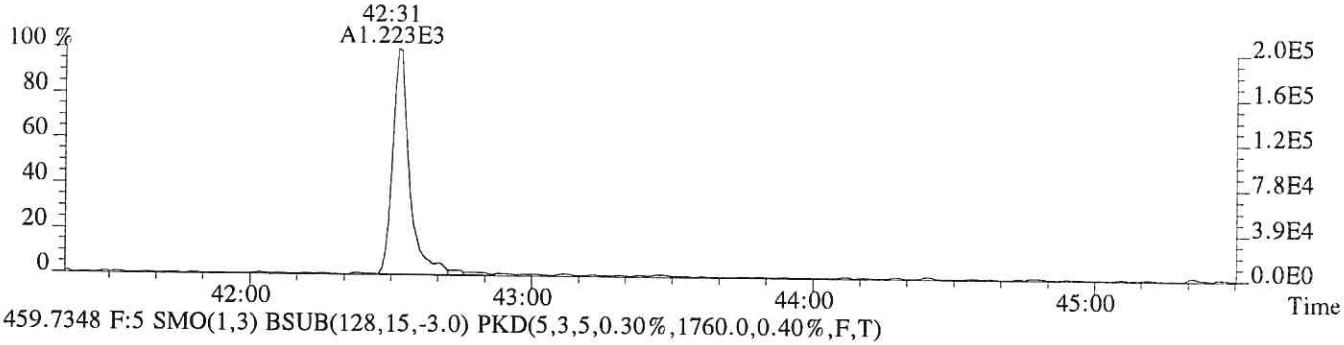
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



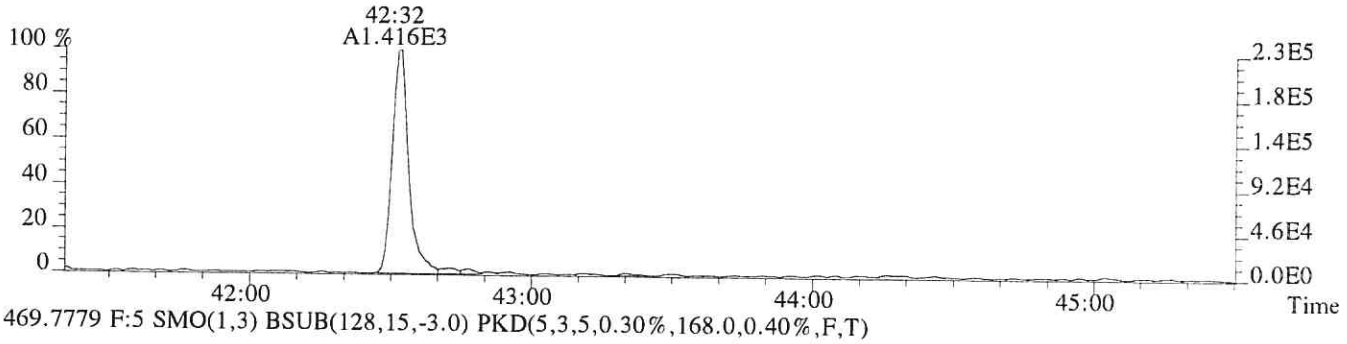
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



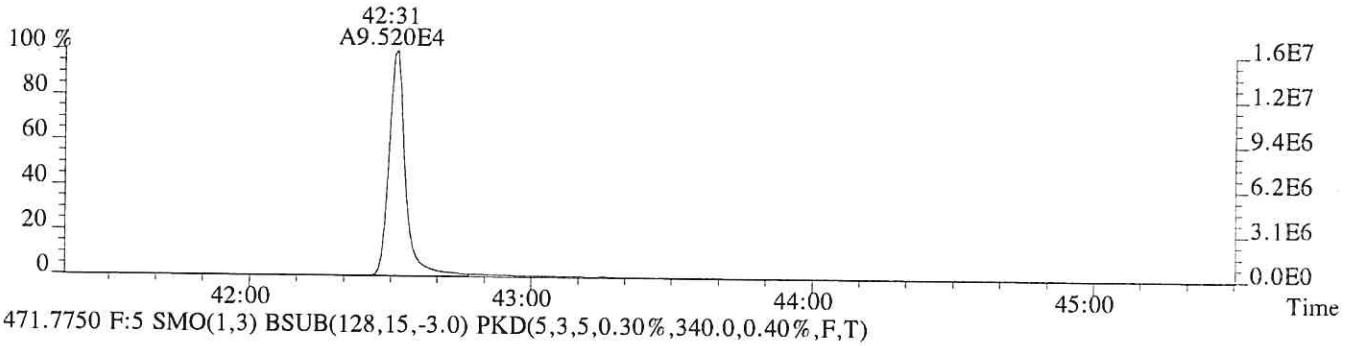
File:P513850 #1-375 Acq:24-JAN-2018 13:32:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



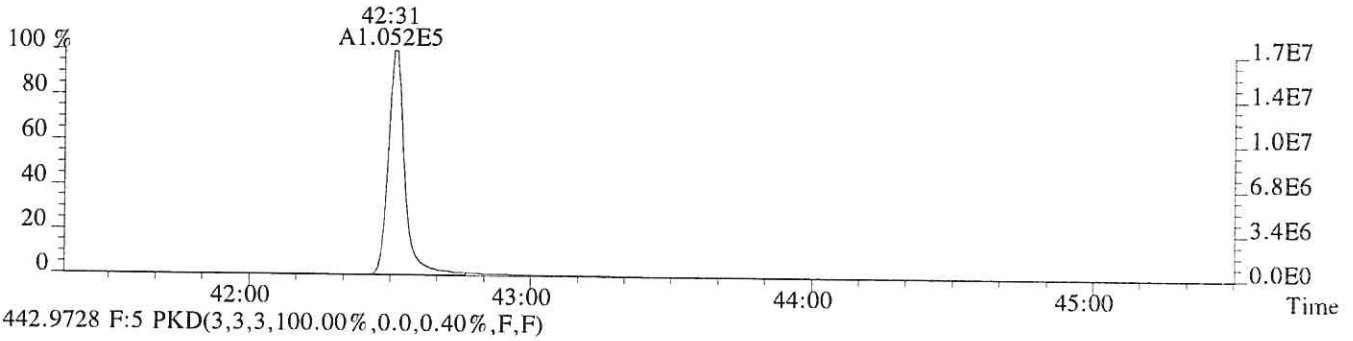
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



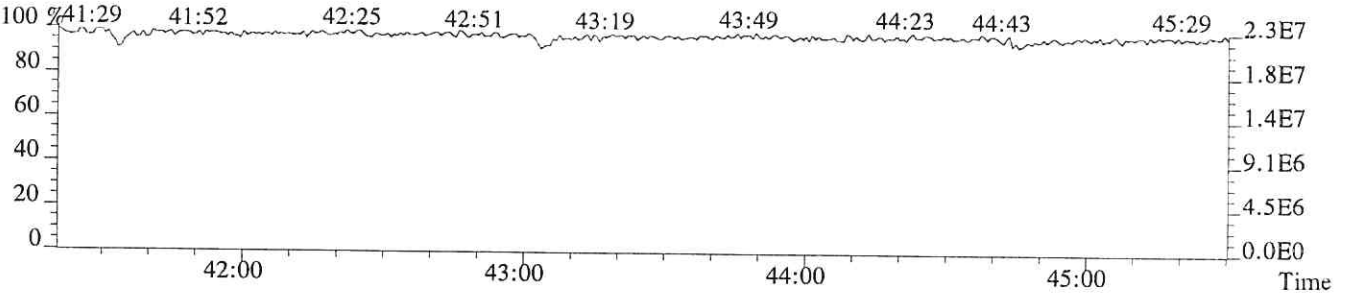
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	3.265e+02	4.510e+02	0.72	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.143e+03	1.390e+03	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	1.966e+03	1.345e+03	1.46	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.692e+03	1.406e+03	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.851e+03	1.586e+03	1.17	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.642e+03	1.320e+03	1.24	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.587e+03	1.193e+03	1.33	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.464e+03	1.425e+03	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.230e+03	1.277e+03	0.96	yes	no	1.258
10	Unk	OCDF	42:45	1.832e+03	1.936e+03	0.95	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	2.385e+02	2.700e+02	0.88	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.365e+03	8.234e+02	1.66	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.134e+03	9.001e+02	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.250e+03	9.288e+02	1.35	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.168e+03	9.616e+02	1.21	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.020e+03	9.210e+02	1.11	yes	no	1.025
17	Unk	OCDD	42:31	1.446e+03	1.652e+03	0.88	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	7.137e+04	9.000e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	8.867e+04	5.547e+04	1.60	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.638e+04	5.480e+04	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.777e+04	7.232e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.414e+04	8.392e+04	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.753e+04	7.150e+04	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.488e+04	6.647e+04	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.710e+04	6.070e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.509e+04	5.658e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	4.231e+04	5.302e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.560e+04	3.503e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.358e+04	3.432e+04	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.635e+04	3.621e+04	1.28	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	4.039e+04	3.882e+04	1.04	yes	no	0.858
32	IS	13C-OCDD	42:31	5.166e+04	5.687e+04	0.91	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.919e+04	6.018e+04	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.800e+04	3.836e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	5.257e+02				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P513851 Samp: 1 Inj: 1 Acquired: 24-JAN-18 14:23:56
Processed: 24-JAN-18 15:49:38 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.11e+04	5.52e+02	1.1e+02	8.10e+04	1.82e+03	4.5e+01
2	1,2,3,7,8-PeCDF	4.20e+05	1.32e+03	3.2e+02	2.59e+05	1.41e+03	1.8e+02
3	2,3,4,7,8-PeCDF	4.04e+05	1.32e+03	3.1e+02	2.67e+05	1.41e+03	1.9e+02
4	1,2,3,4,7,8-HxCDF	3.58e+05	5.32e+02	6.7e+02	3.14e+05	1.28e+02	2.5e+03
5	1,2,3,6,7,8-HxCDF	3.97e+05	5.32e+02	7.5e+02	3.35e+05	1.28e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	3.52e+05	5.32e+02	6.6e+02	2.91e+05	1.28e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	3.28e+05	5.32e+02	6.2e+02	2.40e+05	1.28e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.00e+05	3.04e+02	9.9e+02	3.07e+05	7.12e+02	4.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+05	3.04e+02	7.7e+02	2.45e+05	7.12e+02	3.4e+02
10	OCDF	3.05e+05	4.12e+02	7.4e+02	3.13e+05	8.20e+02	3.8e+02
11	2,3,7,8-TCDD	5.05e+04	1.50e+03	3.4e+01	5.68e+04	1.02e+03	5.5e+01
12	1,2,3,7,8-PeCDD	2.75e+05	9.88e+02	2.8e+02	1.65e+05	1.80e+02	9.2e+02
13	1,2,3,4,7,8-HxCDD	2.60e+05	5.96e+02	4.4e+02	2.09e+05	7.60e+02	2.7e+02
14	1,2,3,6,7,8-HxCDD	2.55e+05	5.96e+02	4.3e+02	1.96e+05	7.60e+02	2.6e+02
15	1,2,3,7,8,9-HxCDD	2.36e+05	5.96e+02	4.0e+02	1.94e+05	7.60e+02	2.6e+02
16	1,2,3,4,6,7,8-HpCDD	1.99e+05	6.88e+02	2.9e+02	1.95e+05	5.68e+02	3.4e+02
17	OCDD	2.63e+05	1.92e+02	1.4e+03	2.88e+05	1.59e+03	1.8e+02
18	13C-2,3,7,8-TCDF	1.42e+07	6.97e+03	2.0e+03	1.79e+07	2.86e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.70e+07	6.48e+02	2.6e+04	1.08e+07	1.59e+03	6.8e+03
20	13C-2,3,4,7,8-PeCDF	1.78e+07	6.48e+02	2.7e+04	1.13e+07	1.59e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	8.20e+06	9.16e+02	9.0e+03	1.58e+07	1.42e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	9.34e+06	9.16e+02	1.0e+04	1.79e+07	1.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.09e+06	9.16e+02	8.8e+03	1.56e+07	1.42e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	7.17e+06	9.16e+02	7.8e+03	1.36e+07	1.42e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.66e+06	2.69e+03	2.1e+03	1.28e+07	9.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.69e+03	1.8e+03	1.07e+07	9.09e+03	1.2e+03
27	13C-2,3,7,8-TCDD	8.84e+06	4.39e+03	2.0e+03	1.11e+07	2.59e+03	4.3e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	1.11e+03	1.0e+04	7.15e+06	7.88e+02	9.1e+03
29	13C-1,2,3,4,7,8-HxCDD	9.90e+06	2.00e+03	4.9e+03	7.79e+06	1.42e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	2.00e+03	4.8e+03	7.47e+06	1.42e+03	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.15e+03	6.9e+03	7.67e+06	8.88e+02	8.6e+03
32	13C-OCDD	8.56e+06	6.00e+01	1.4e+05	9.50e+06	8.00e+02	1.2e+04
33	13C-1,2,3,4-TCDD	9.96e+06	4.39e+03	2.3e+03	1.22e+07	2.59e+03	4.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.63e+06	2.00e+03	4.8e+03	7.67e+06	1.42e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.07e+05	1.30e+03	8.2e+01			

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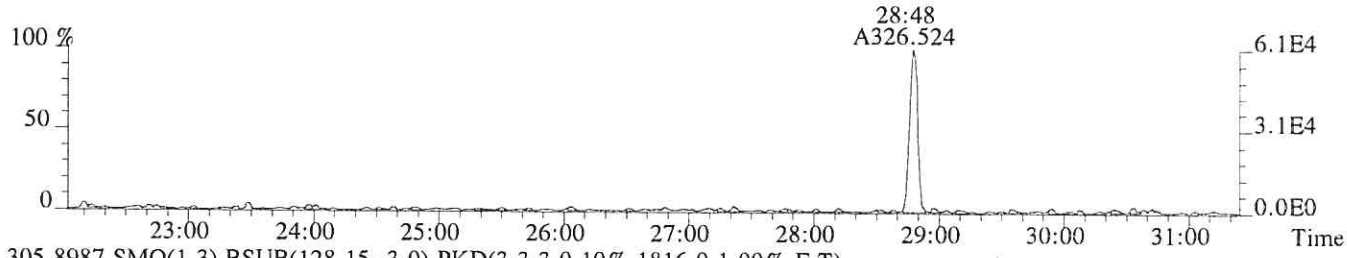
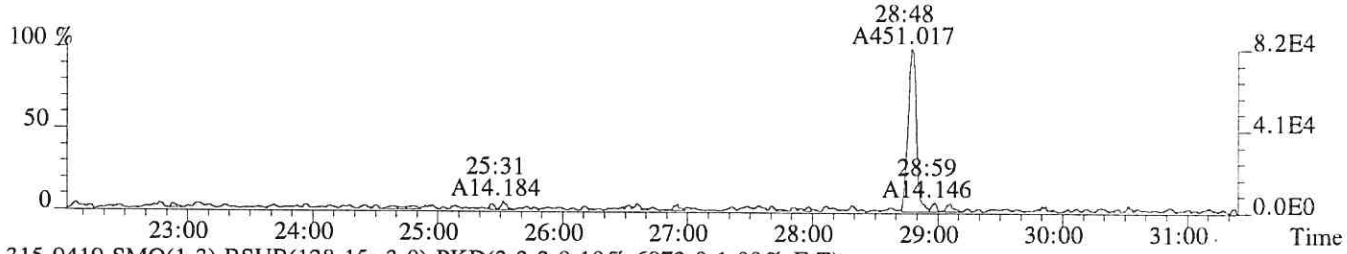
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

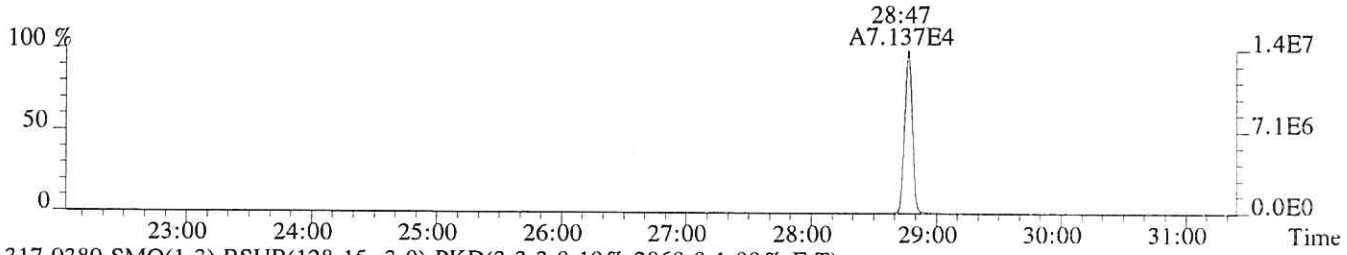
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



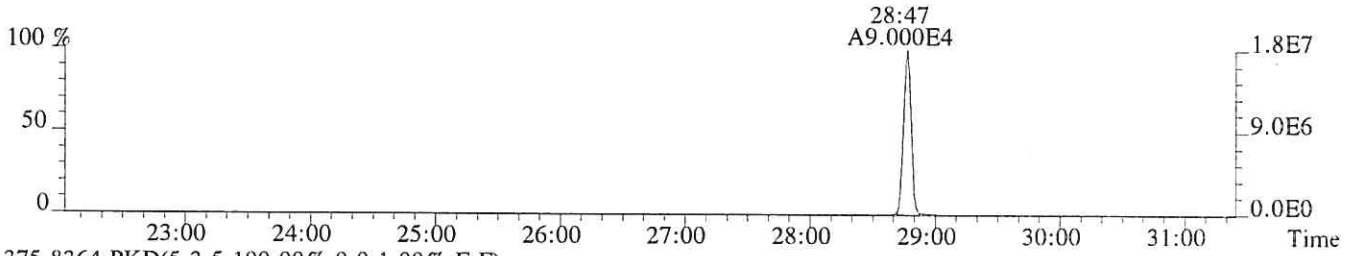
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



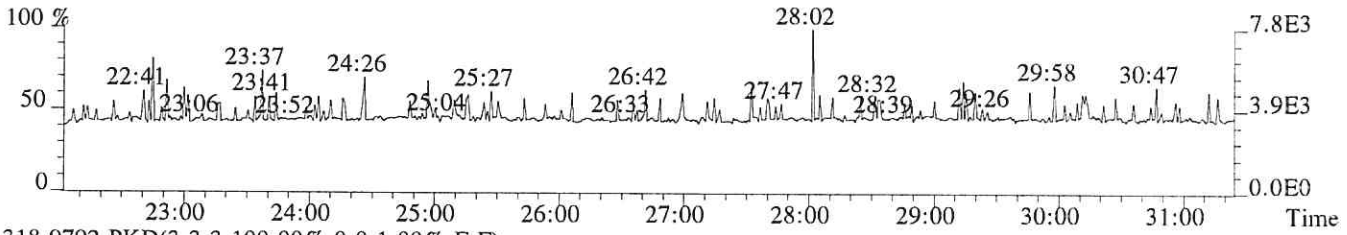
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



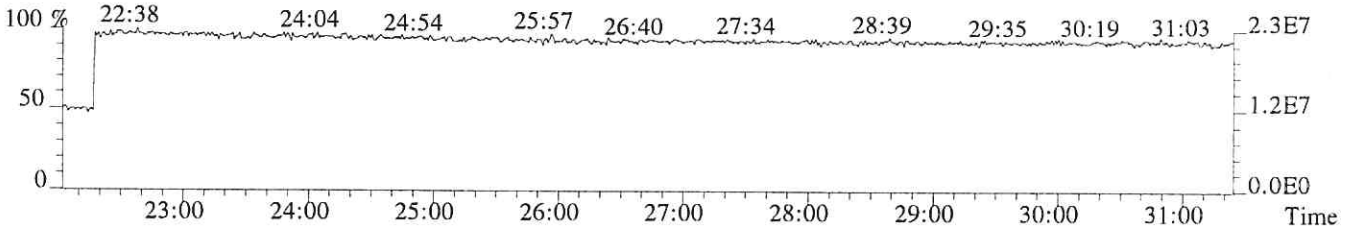
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



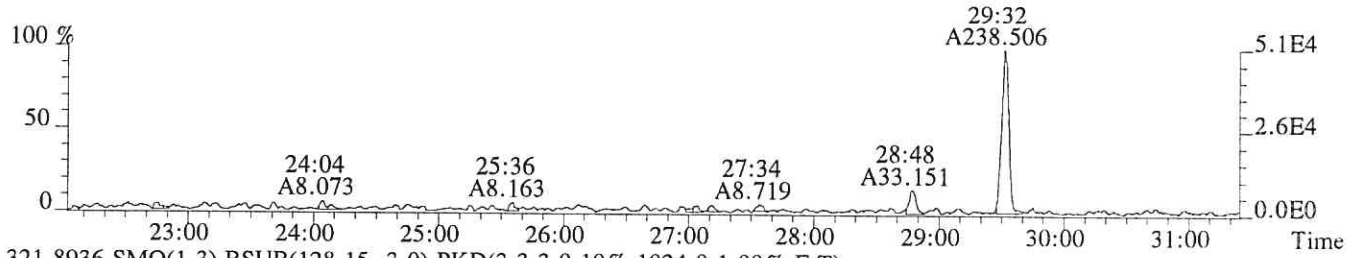
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



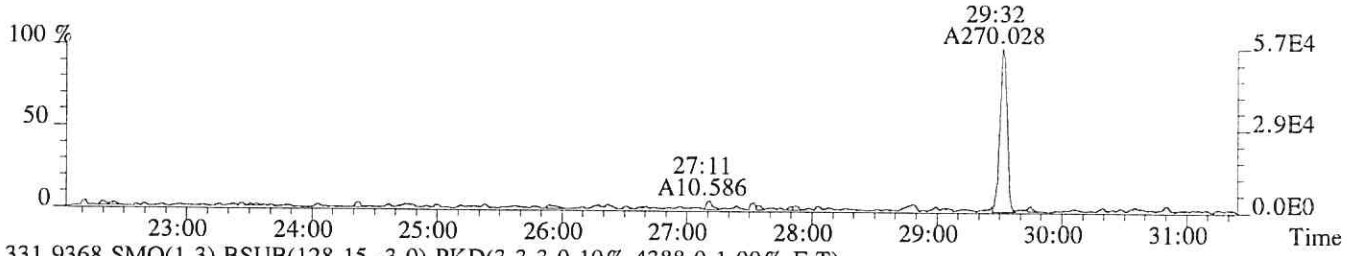
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



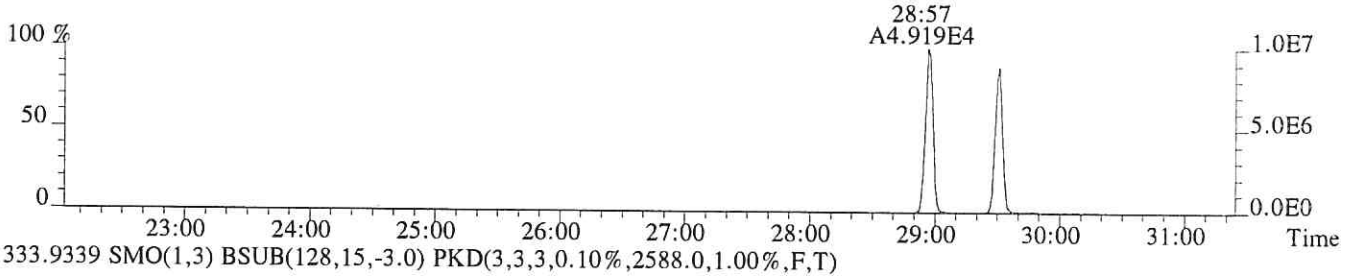
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76555
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



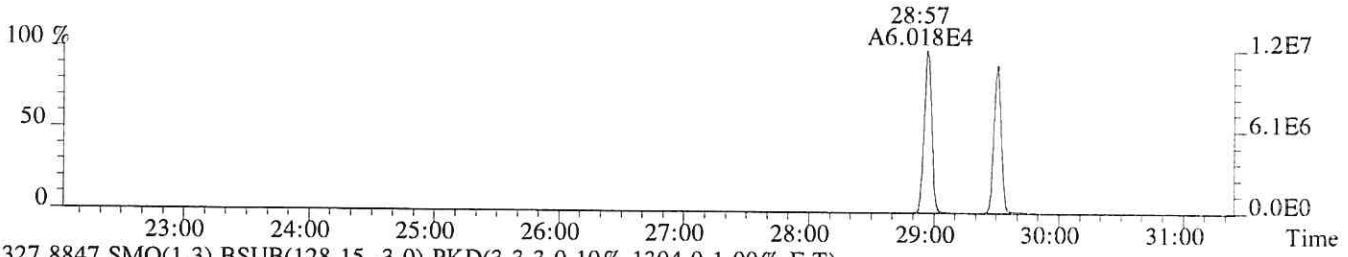
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



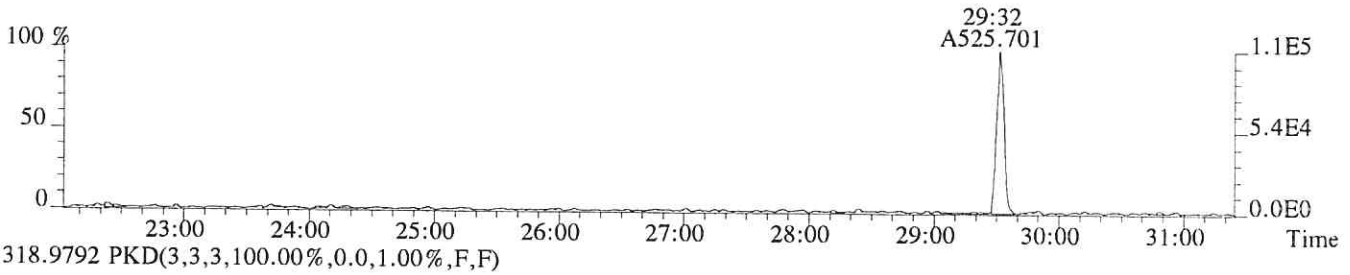
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4388.0,1.00%,F,T)



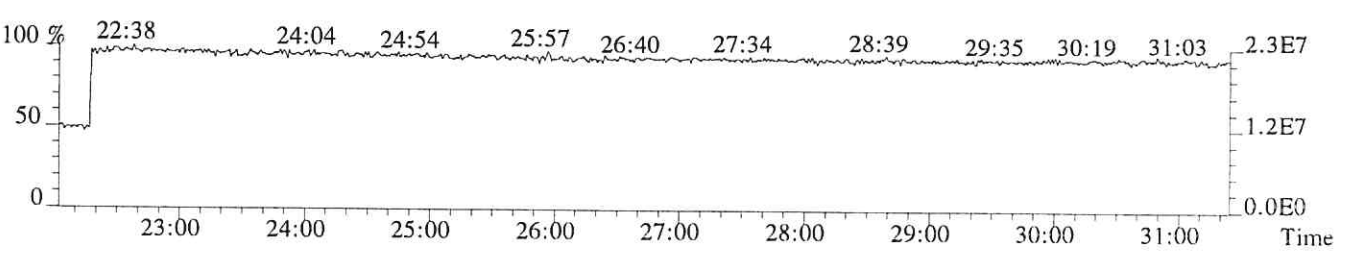
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



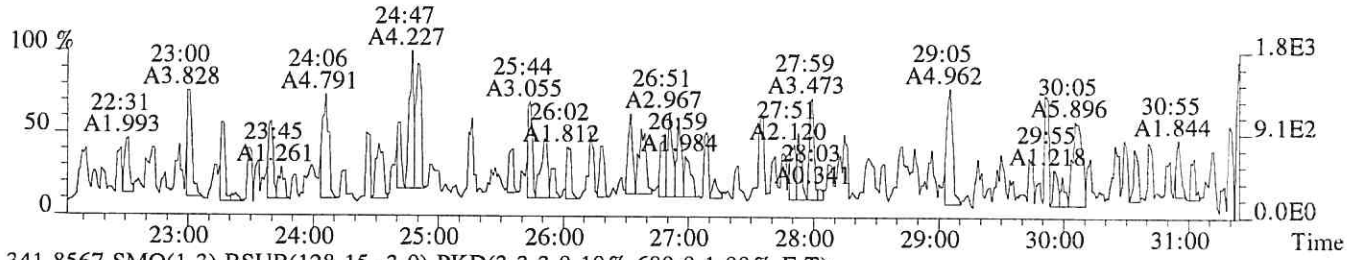
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



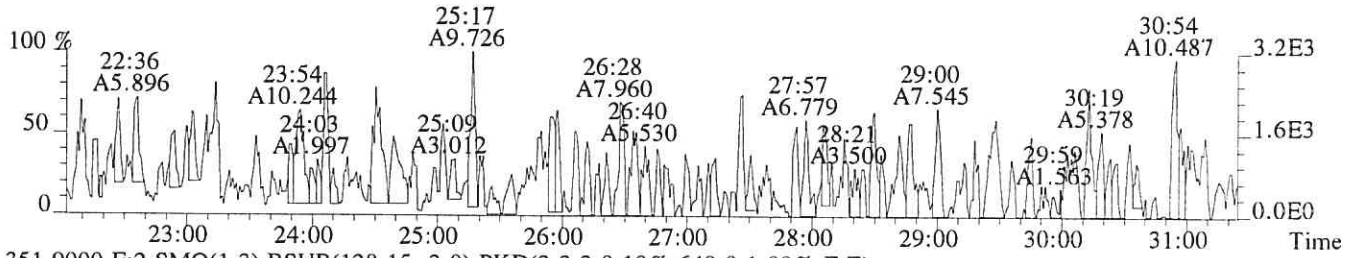
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



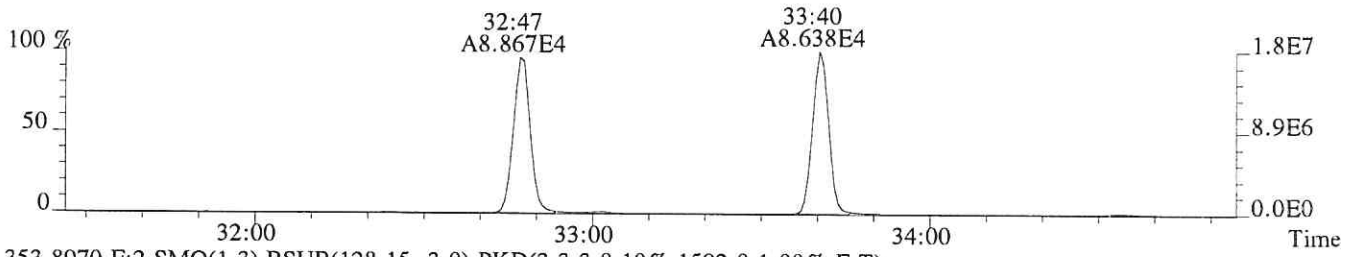
File:P513851 #1-665 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



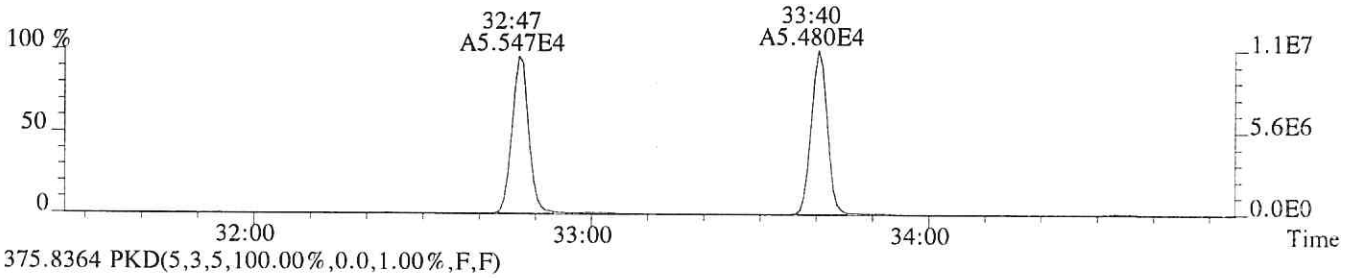
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



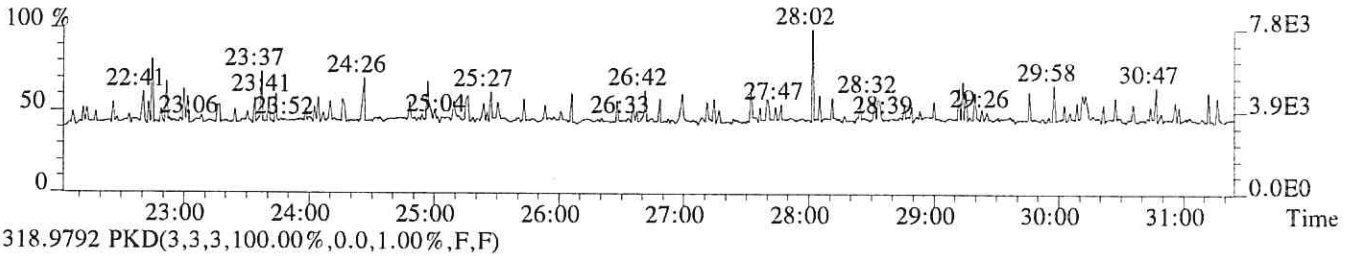
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



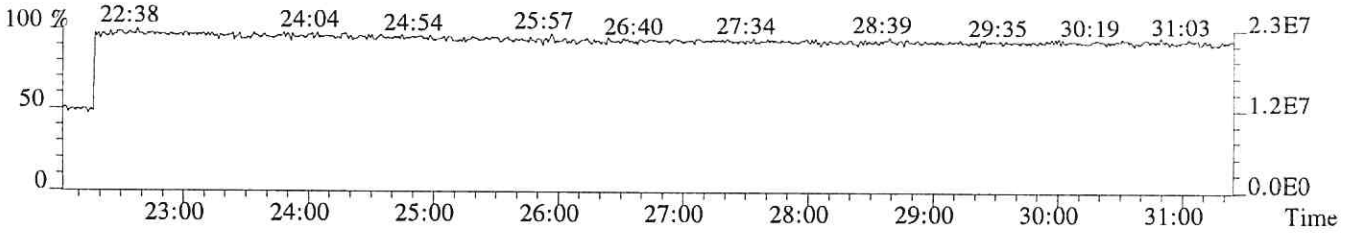
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



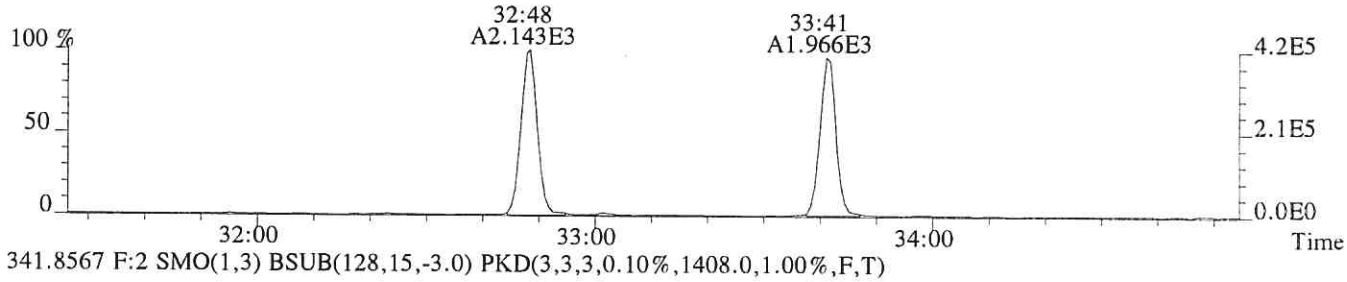
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



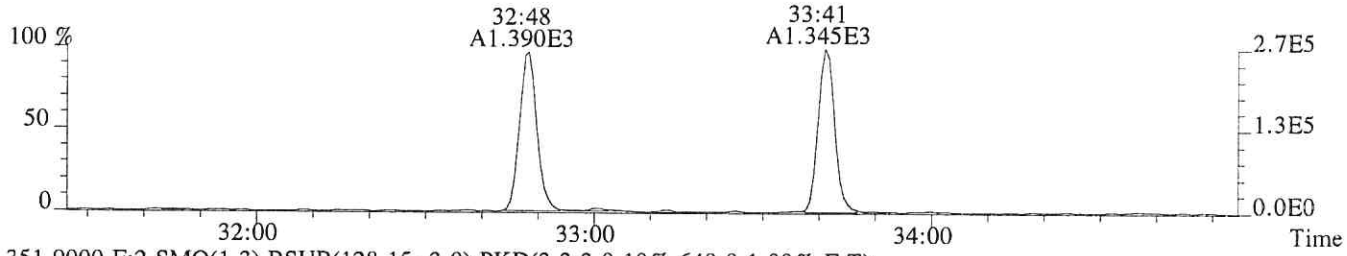
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



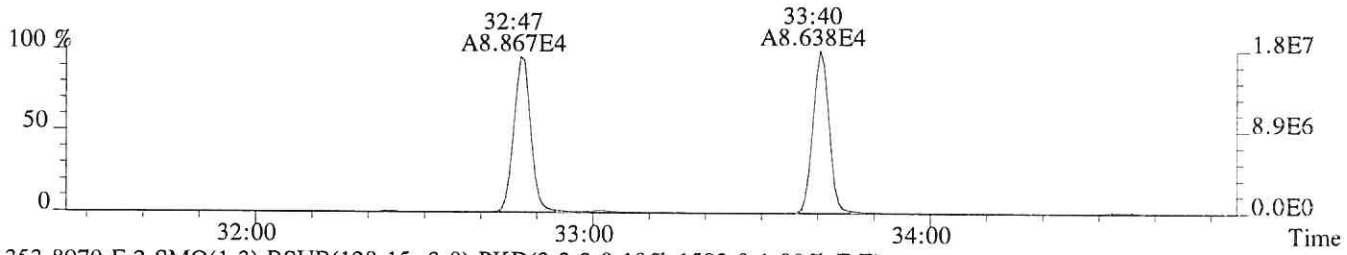
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



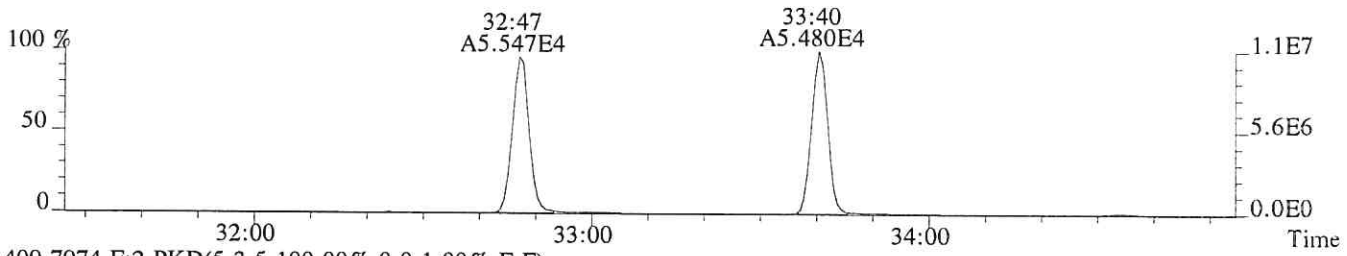
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



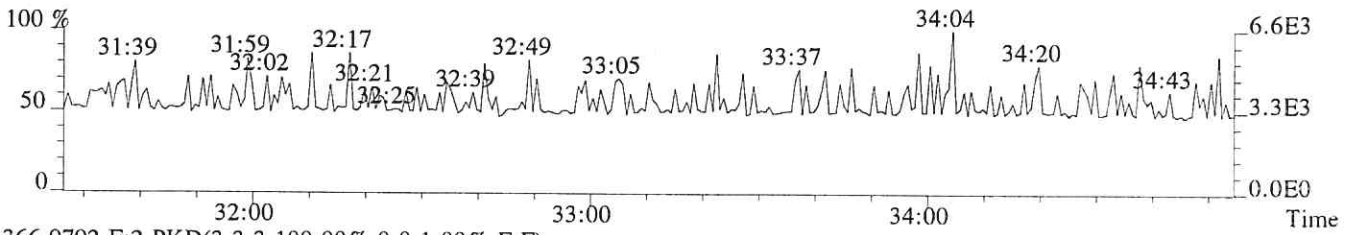
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



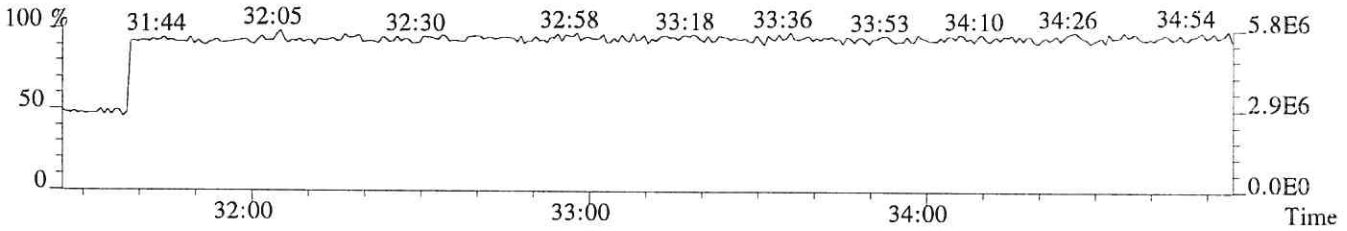
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



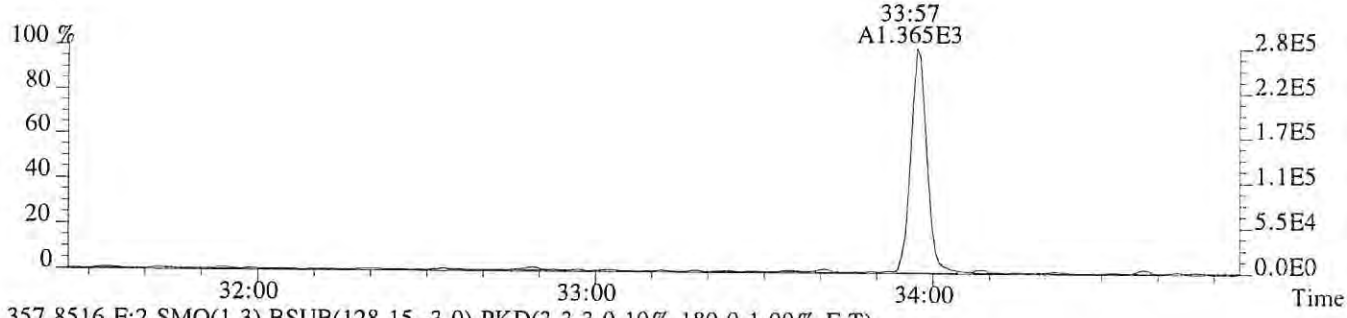
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



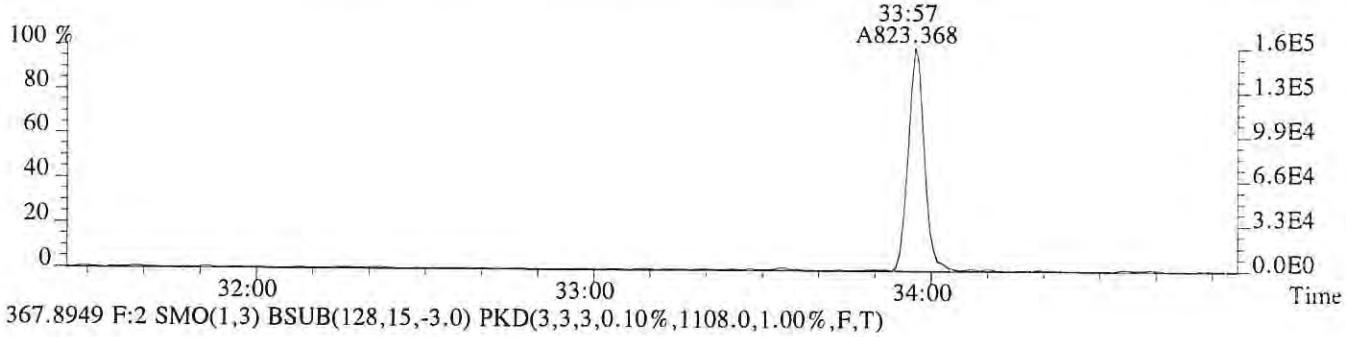
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



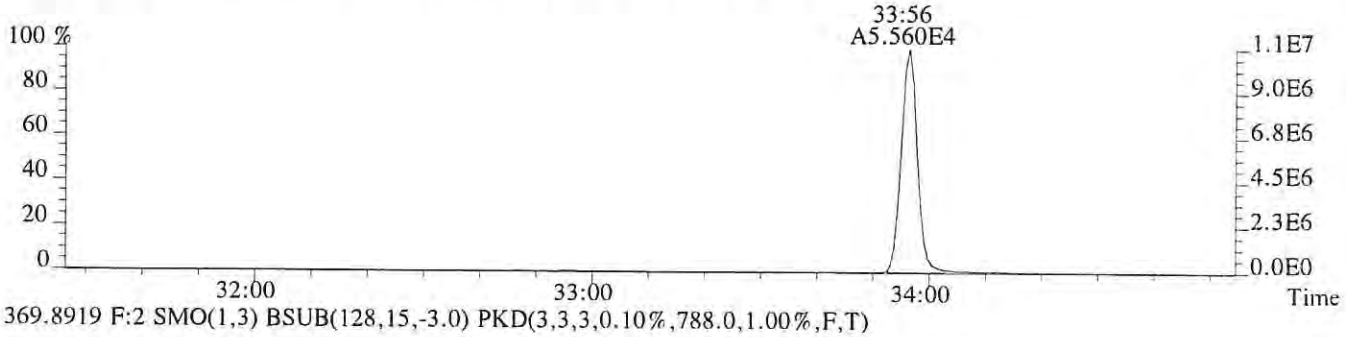
File:P513851 #1-313 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



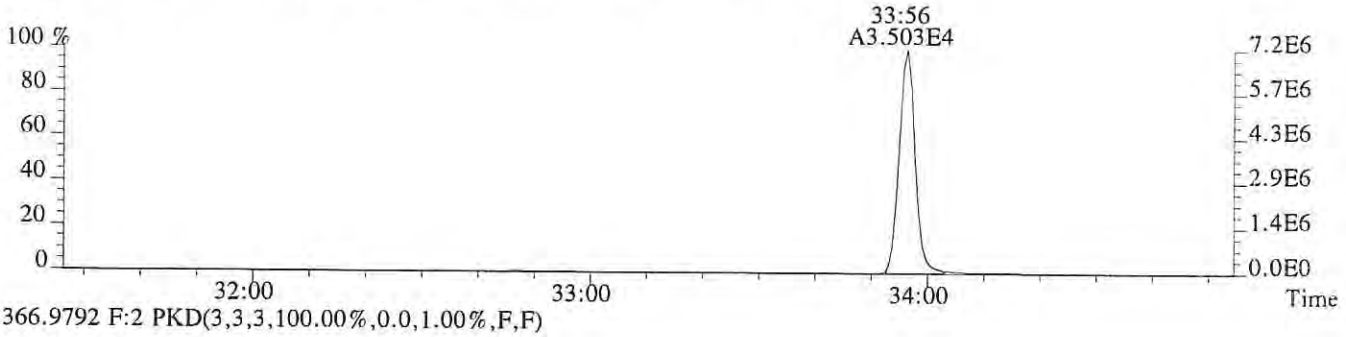
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



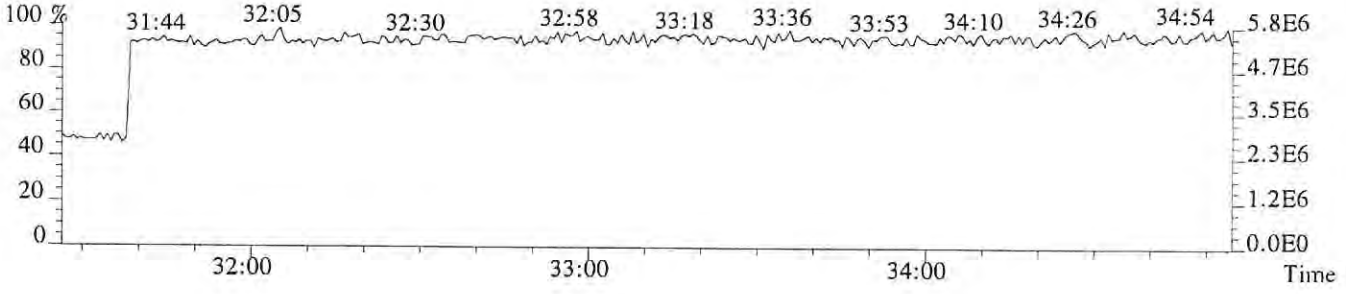
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



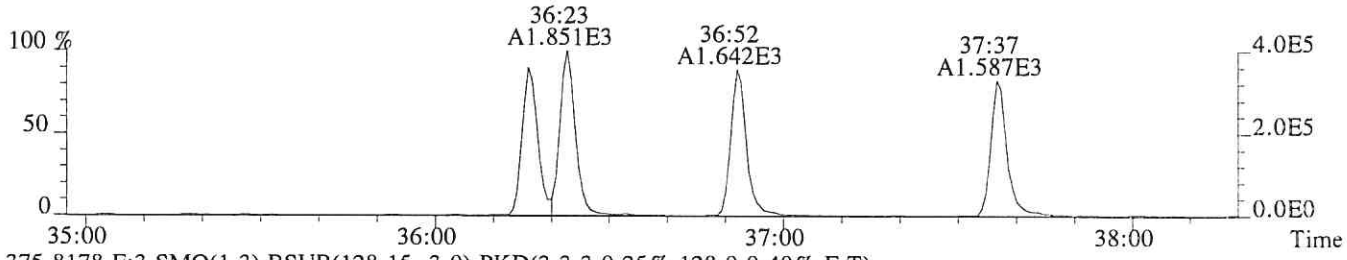
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



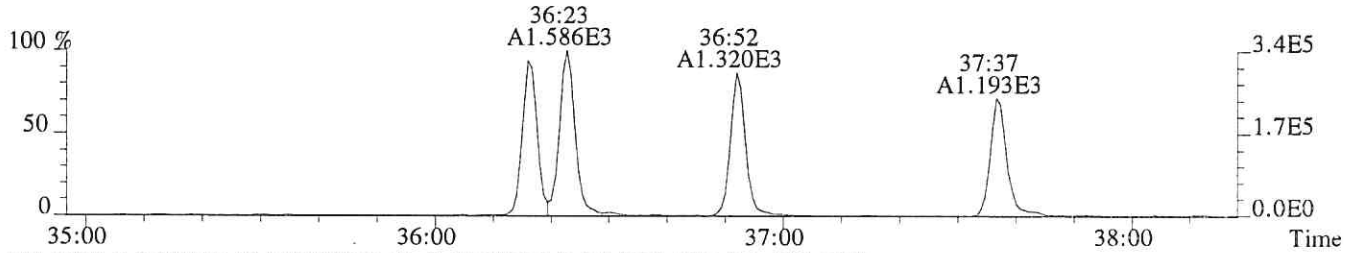
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



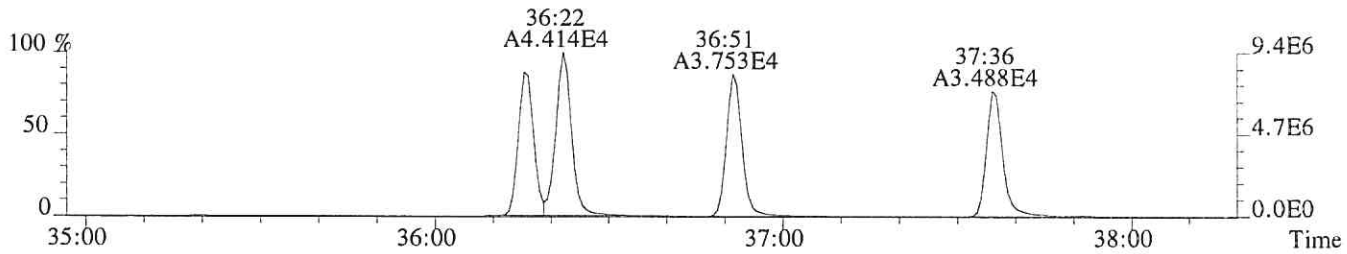
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:76555
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



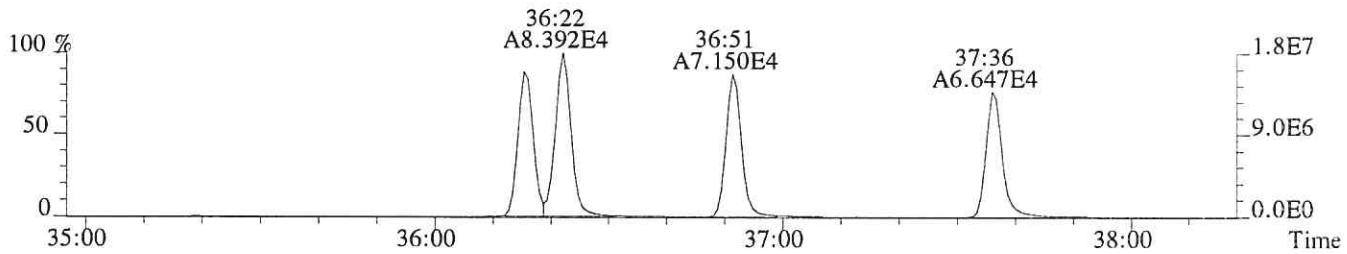
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



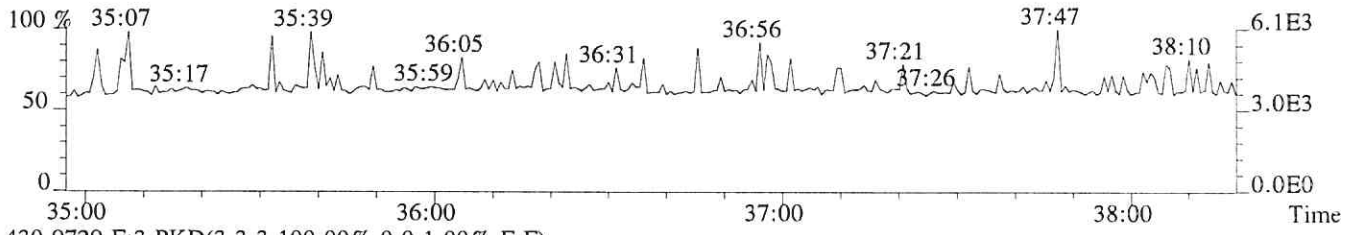
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



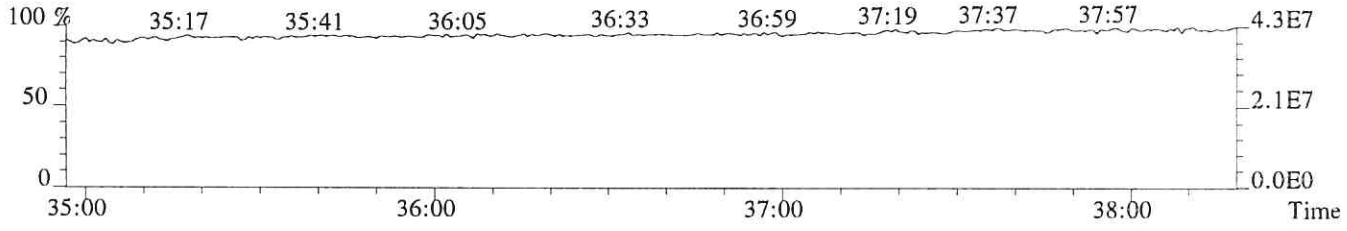
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



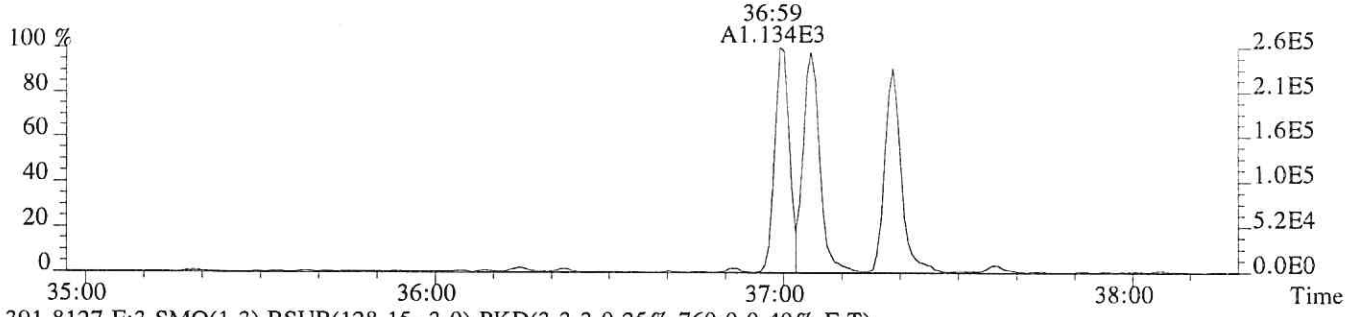
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



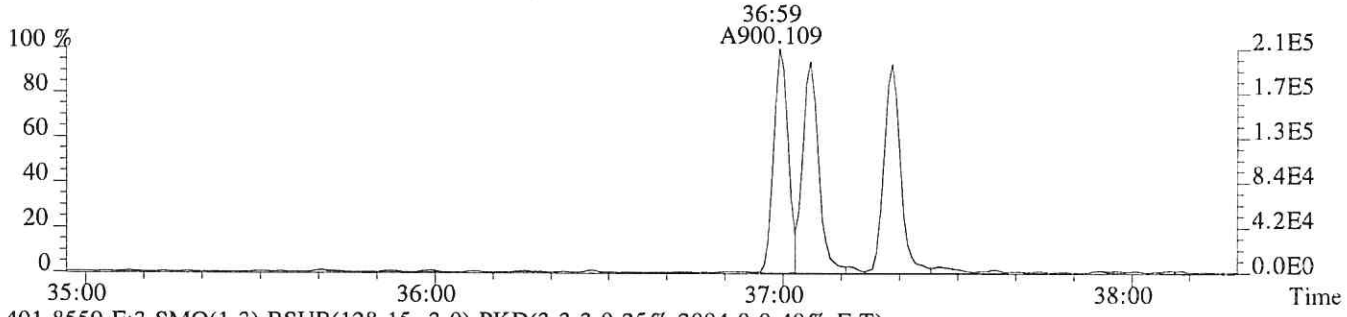
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



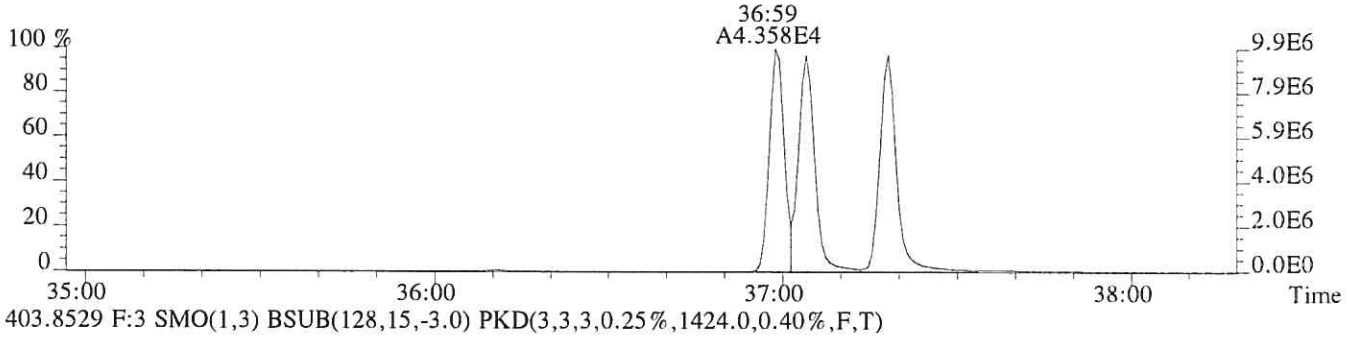
File:P513851 #1-303 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



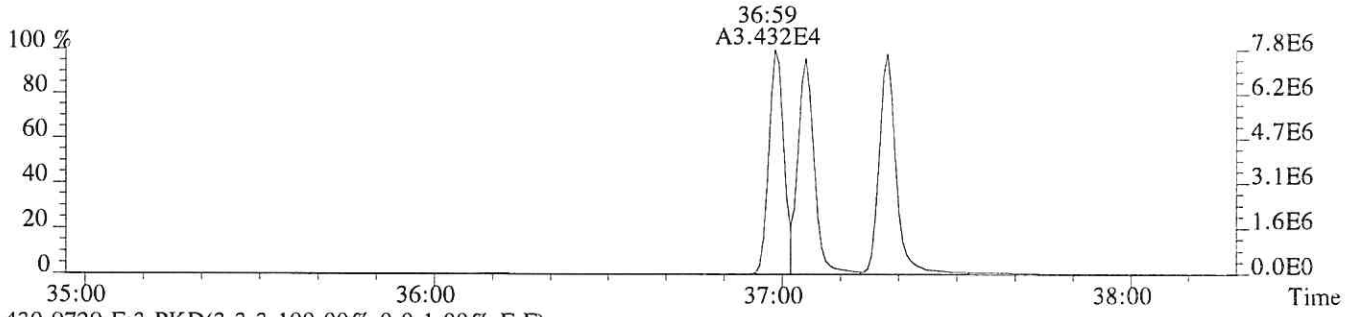
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



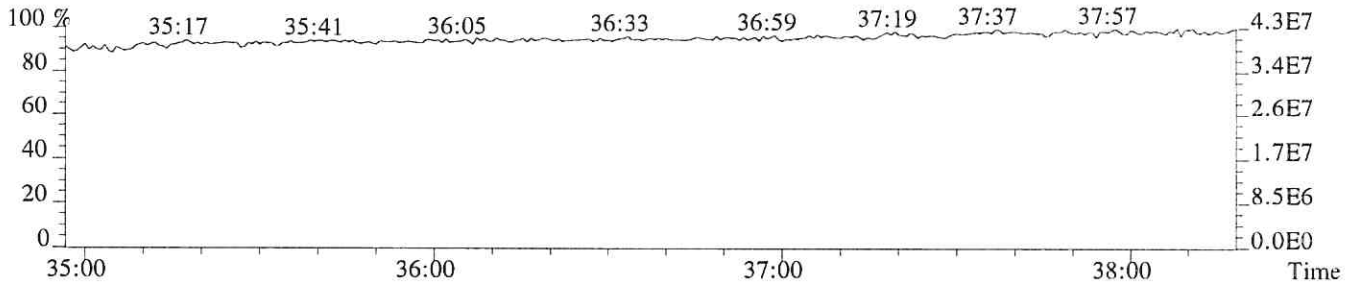
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



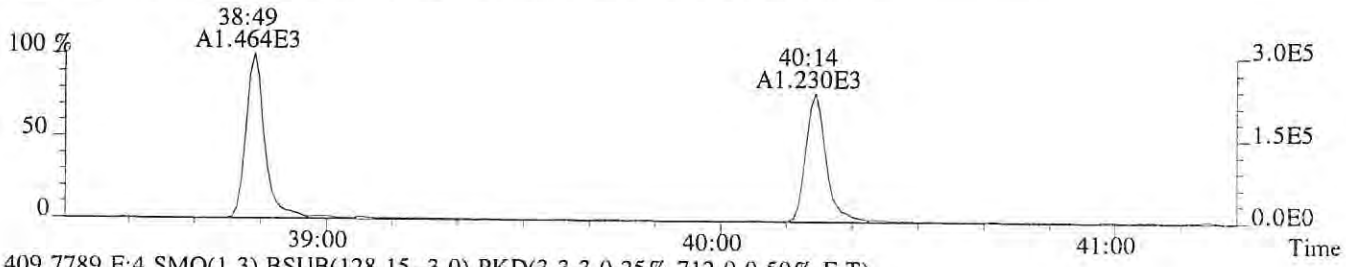
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



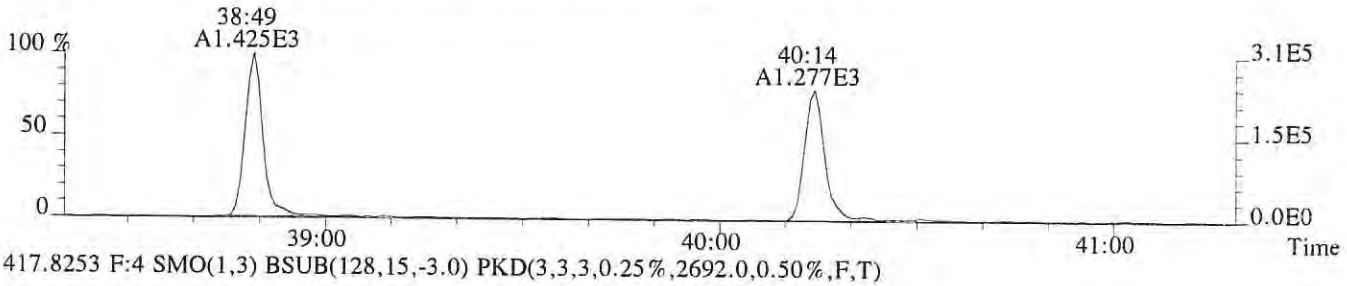
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



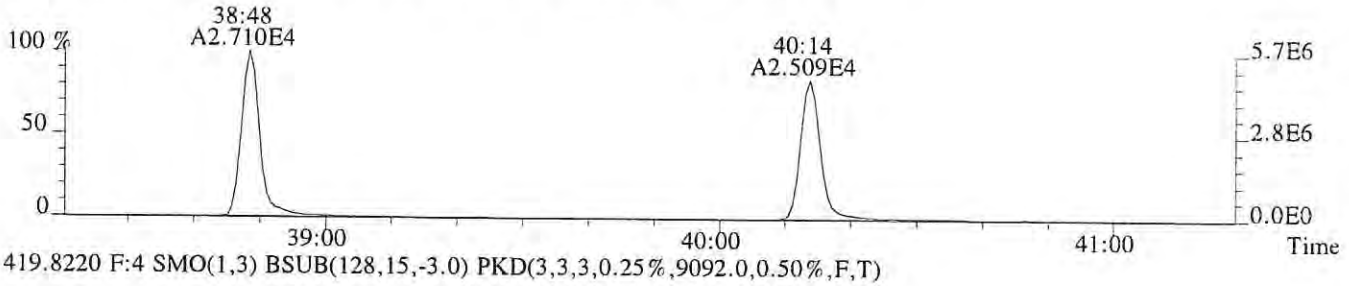
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.50%,F,T)



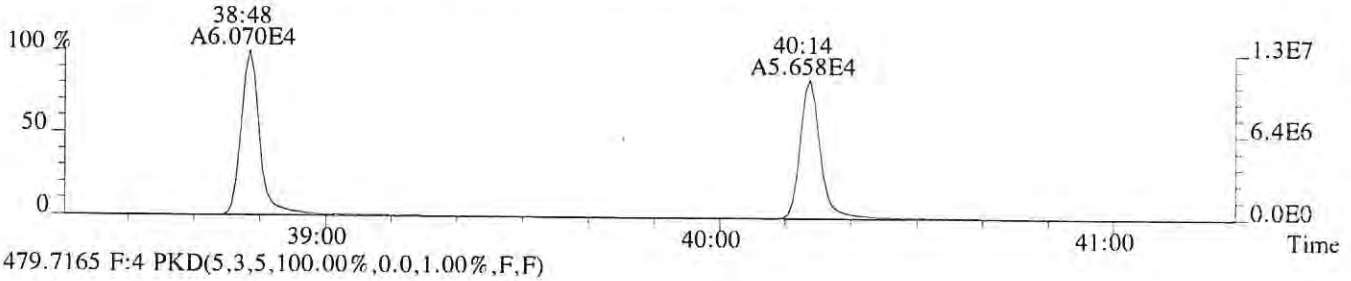
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



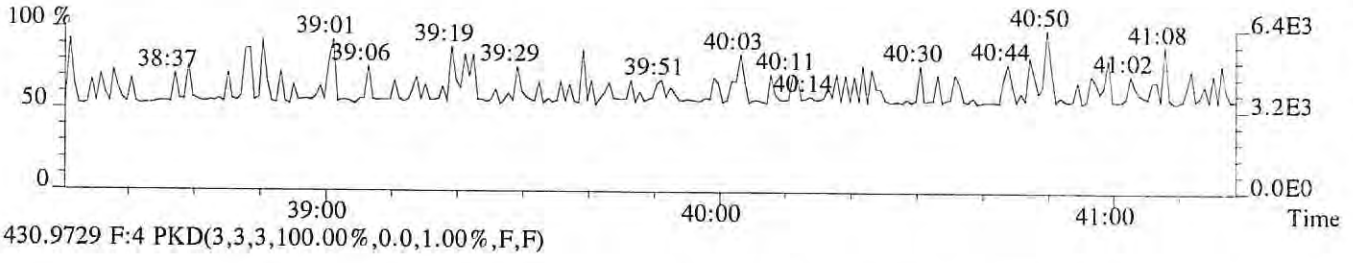
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



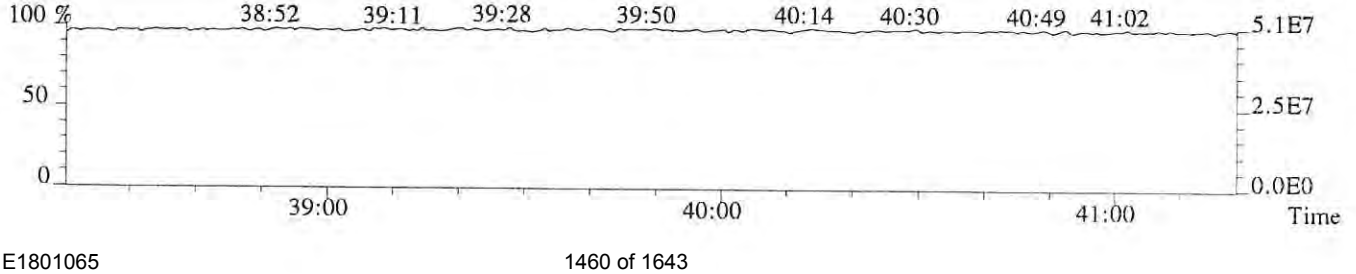
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9092.0,0.50%,F,T)



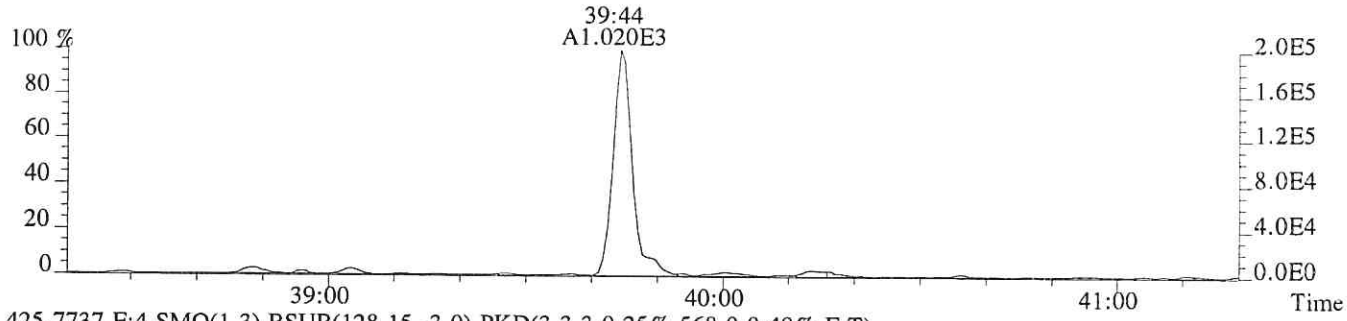
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



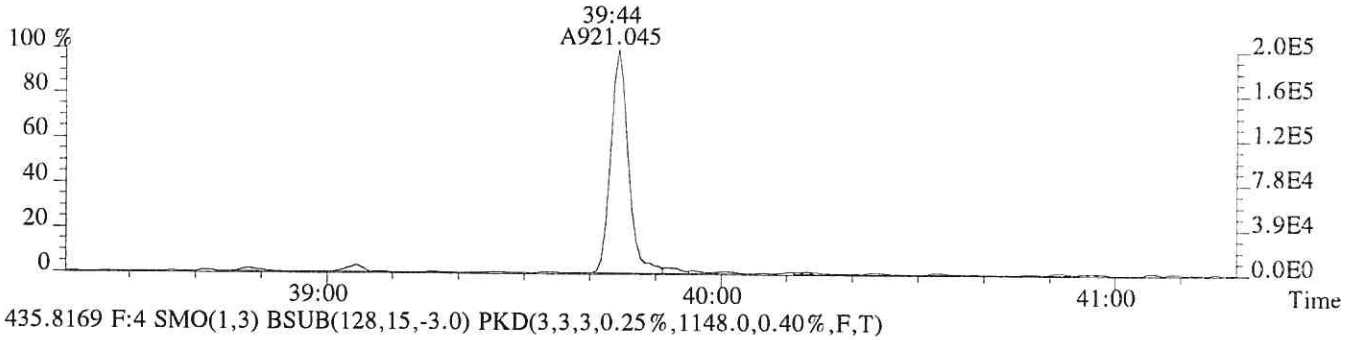
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



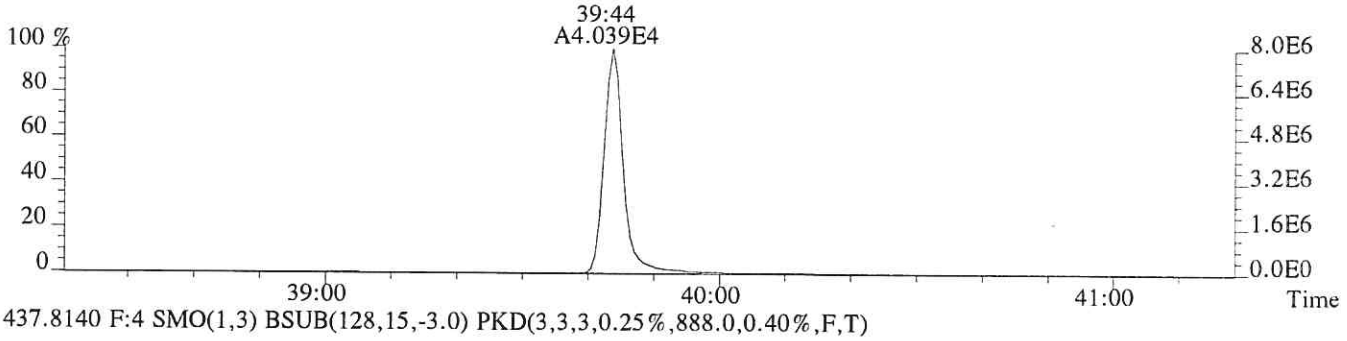
File:P513851 #1-268 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spectE
Sample#1 Exp:76555
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



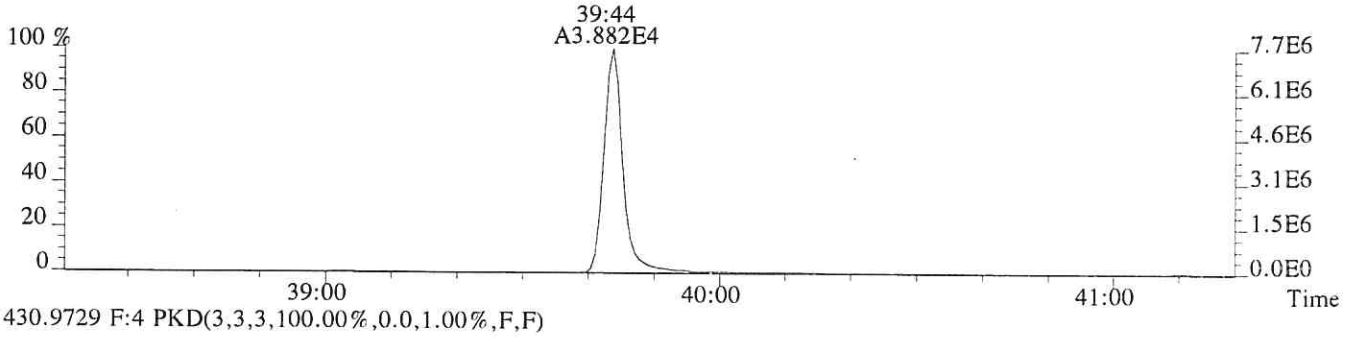
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



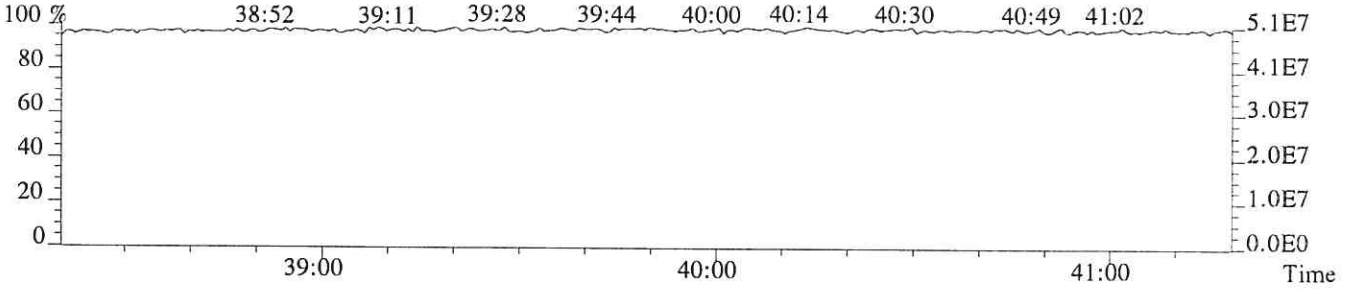
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



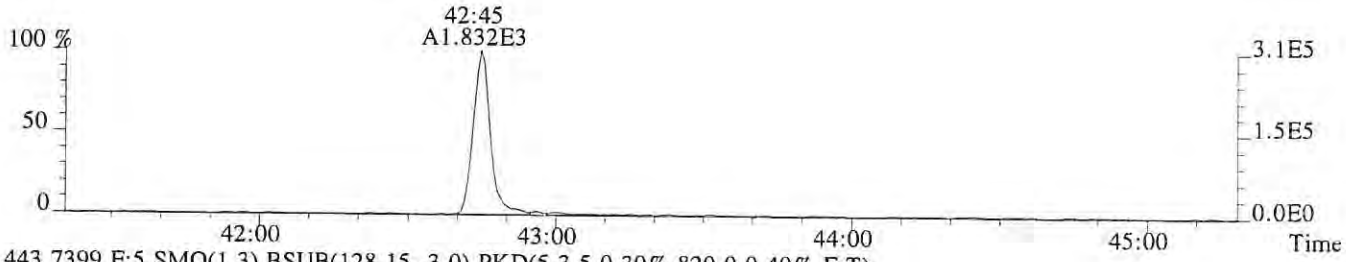
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



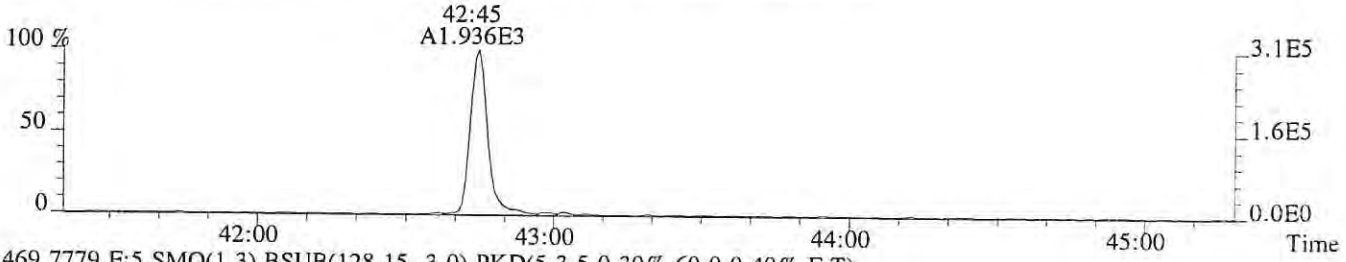
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



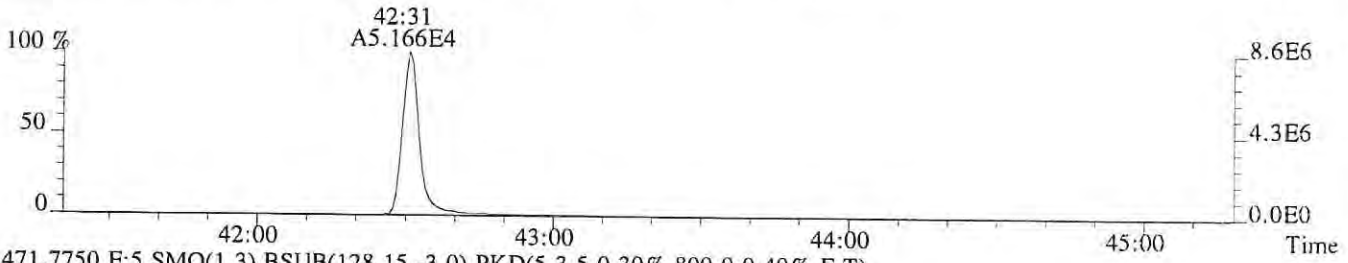
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



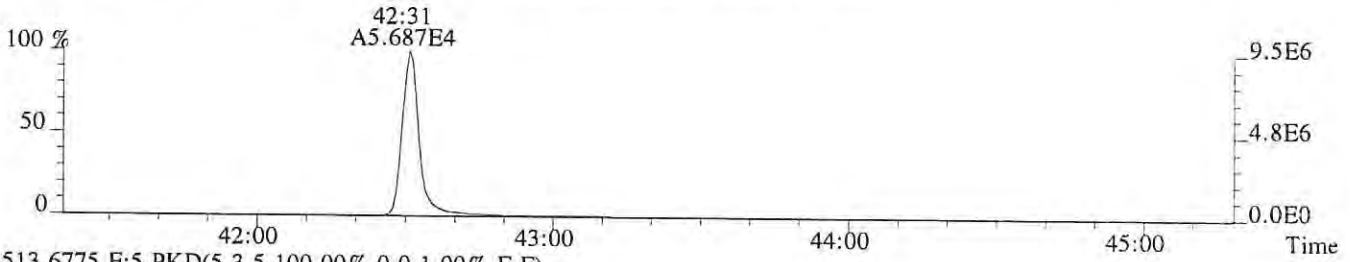
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



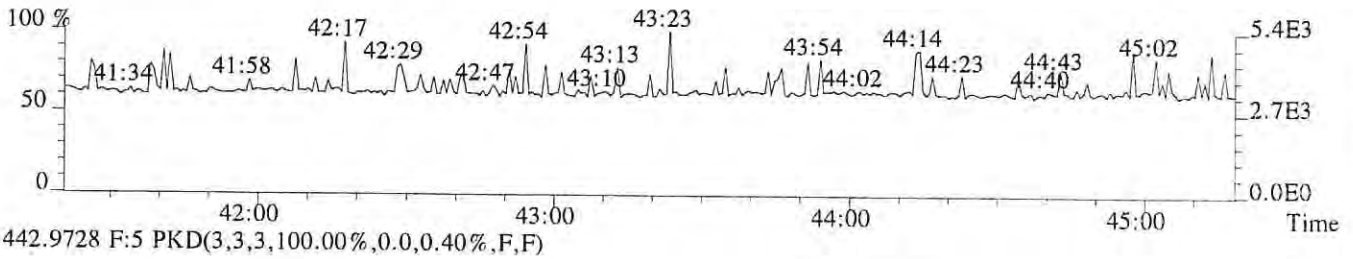
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



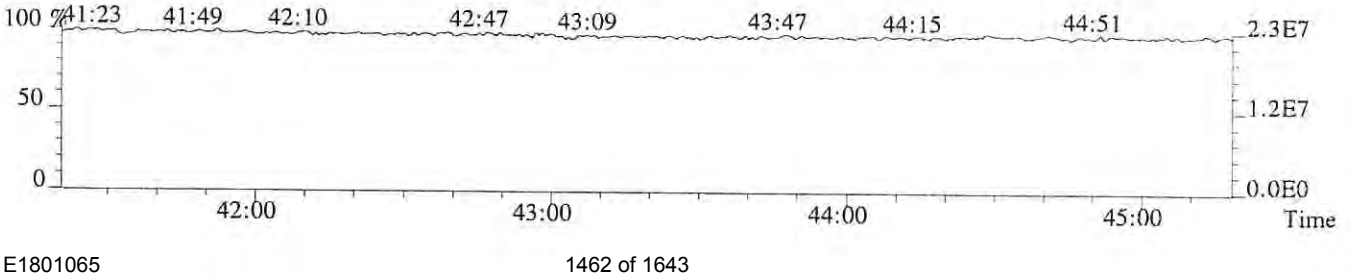
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



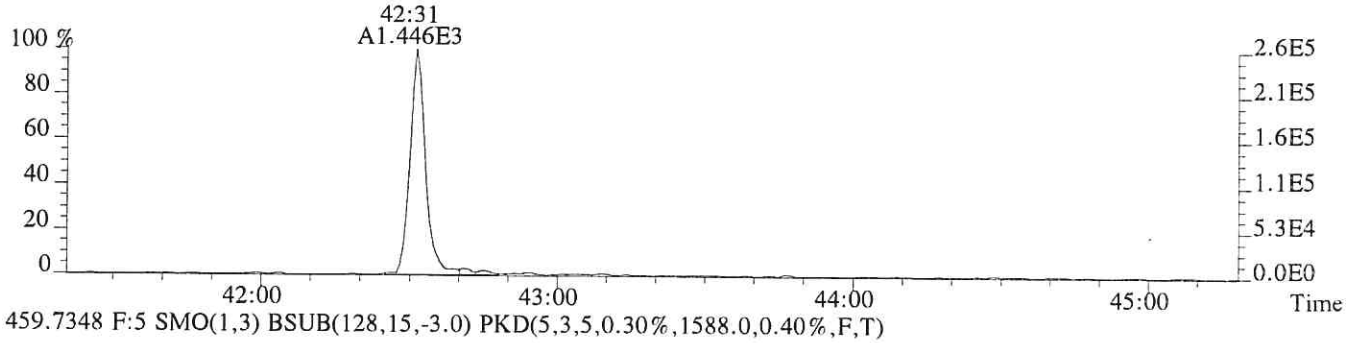
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



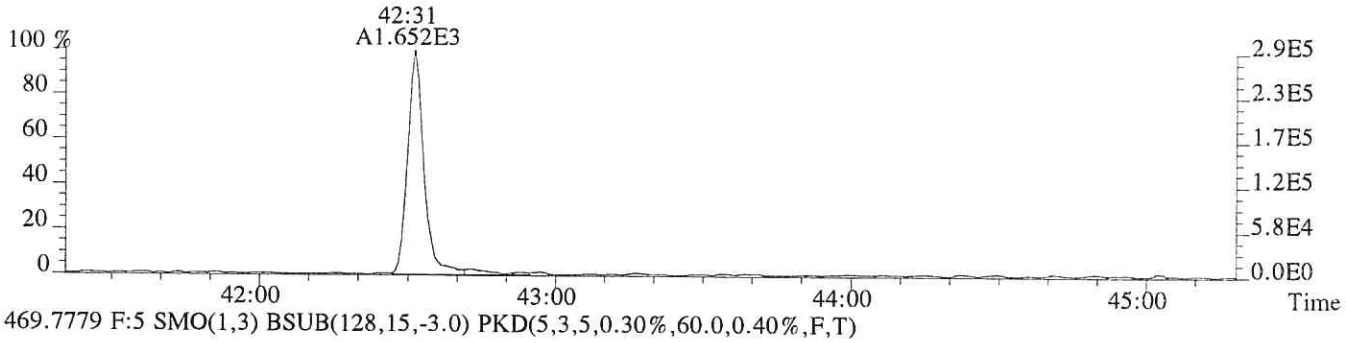
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



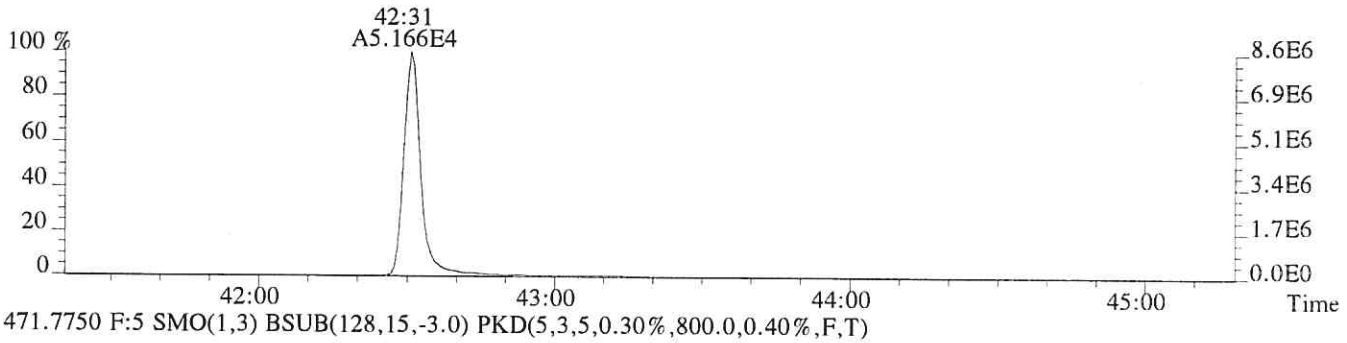
File:P513851 #1-357 Acq:24-JAN-2018 14:23:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



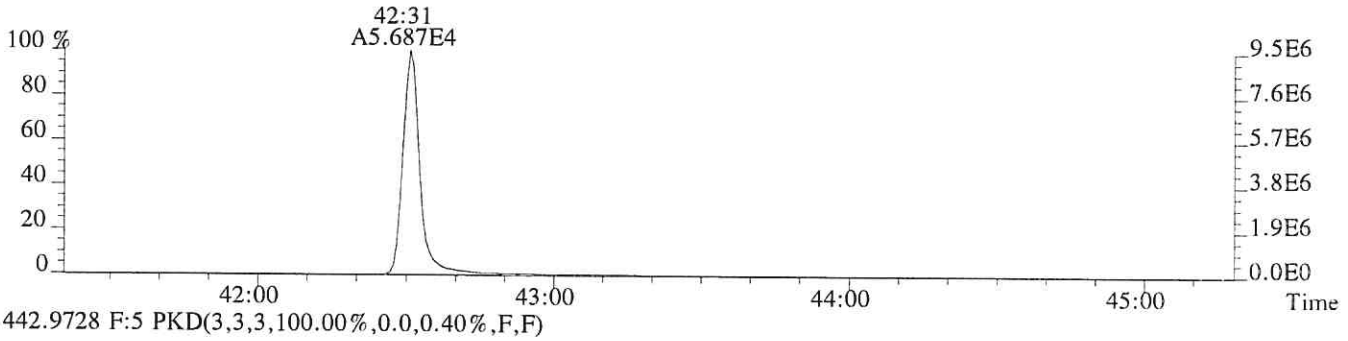
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



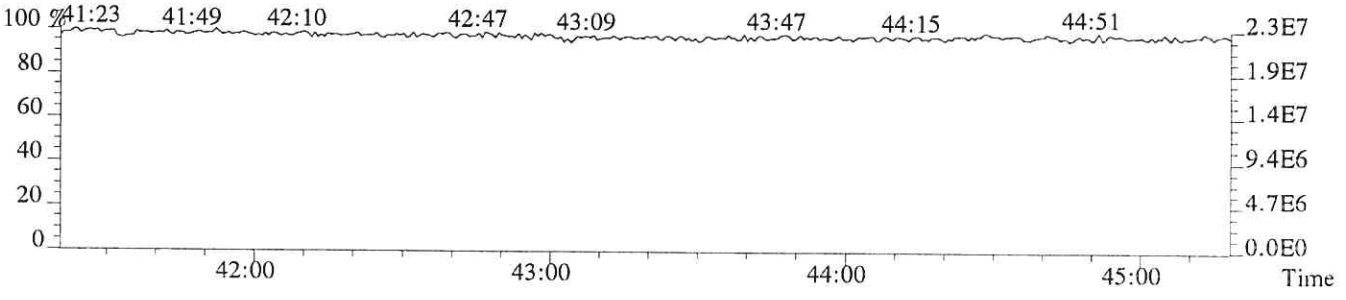
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.859e+03	7.932e+03	0.74	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	4.499e+04	3.047e+04	1.48	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	4.356e+04	2.901e+04	1.50	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.061e+04	3.382e+04	1.20	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.295e+04	3.562e+04	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.905e+04	3.212e+04	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	3.479e+04	2.862e+04	1.22	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.262e+04	3.207e+04	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.654e+04	2.632e+04	1.01	yes	no	1.258
10	Unk	OCDF	42:45	3.789e+04	4.247e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	4.192e+03	5.525e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	2.973e+04	1.886e+04	1.58	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.687e+04	2.156e+04	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.801e+04	2.223e+04	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.898e+04	2.343e+04	1.24	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	2.194e+04	2.114e+04	1.04	yes	no	1.025
17	Unk	OCDD	42:32	3.213e+04	3.615e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	3.357e+05	4.220e+05	0.80	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.551e+05	2.871e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.534e+05	2.868e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.091e+05	4.014e+05	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.405e+05	4.554e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.176e+05	4.192e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.900e+05	3.615e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	1.476e+05	3.275e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.279e+05	2.823e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	2.035e+05	2.546e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.112e+05	1.963e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	2.611e+05	2.071e+05	1.26	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.721e+05	2.137e+05	1.27	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	2.118e+05	1.999e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	2.824e+05	3.150e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.212e+05	2.732e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.902e+05	2.282e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.018e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P513852 Samp: 1 Inj: 1 Acquired: 24-JAN-18 15:18:44
Processed: 24-JAN-18 16:27:06 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.20e+06	7.00e+02	1.7e+03	1.59e+06	1.72e+03	9.3e+02
2	1,2,3,7,8-PeCDF	9.02e+06	1.92e+02	4.7e+04	6.06e+06	3.56e+03	1.7e+03
3	2,3,4,7,8-PeCDF	8.94e+06	1.92e+02	4.7e+04	5.88e+06	3.56e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	9.11e+06	1.02e+03	9.0e+03	7.52e+06	1.04e+03	7.2e+03
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.02e+03	8.7e+03	7.32e+06	1.04e+03	7.0e+03
6	2,3,4,6,7,8-HxCDF	8.62e+06	1.02e+03	8.5e+03	6.97e+06	1.04e+03	6.7e+03
7	1,2,3,7,8,9-HxCDF	7.31e+06	1.02e+03	7.2e+03	6.00e+06	1.04e+03	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.83e+06	3.67e+03	1.9e+03	6.77e+06	3.04e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	5.23e+06	3.67e+03	1.4e+03	5.30e+06	3.04e+03	1.7e+03
10	OCDF	6.47e+06	1.08e+03	6.0e+03	7.24e+06	1.74e+03	4.2e+03
11	2,3,7,8-TCDD	8.47e+05	1.35e+03	6.3e+02	1.14e+06	7.40e+02	1.5e+03
12	1,2,3,7,8-PeCDD	6.05e+06	5.16e+02	1.2e+04	3.80e+06	5.04e+02	7.5e+03
13	1,2,3,4,7,8-HxCDD	6.06e+06	7.48e+02	8.1e+03	4.85e+06	1.29e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.88e+06	7.48e+02	7.9e+03	4.64e+06	1.29e+03	3.6e+03
15	1,2,3,7,8,9-HxCDD	5.73e+06	7.48e+02	7.7e+03	4.69e+06	1.29e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	4.40e+06	1.68e+03	2.6e+03	4.18e+06	7.28e+02	5.7e+03
17	OCDD	5.55e+06	1.60e+02	3.5e+04	6.20e+06	1.07e+03	5.8e+03
18	13C-2,3,7,8-TCDF	6.63e+07	8.64e+03	7.7e+03	8.31e+07	4.36e+03	1.9e+04
19	13C-1,2,3,7,8-PeCDF	8.82e+07	9.44e+02	9.3e+04	5.54e+07	2.55e+03	2.2e+04
20	13C-2,3,4,7,8-PeCDF	9.11e+07	9.44e+02	9.6e+04	5.80e+07	2.55e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	4.63e+07	1.33e+03	3.5e+04	8.84e+07	3.58e+03	2.5e+04
22	13C-1,2,3,6,7,8-HxCDF	4.97e+07	1.33e+03	3.7e+04	9.31e+07	3.58e+03	2.6e+04
23	13C-2,3,4,6,7,8-HxCDF	4.74e+07	1.33e+03	3.6e+04	9.03e+07	3.58e+03	2.5e+04
24	13C-1,2,3,7,8,9-HxCDF	3.91e+07	1.33e+03	2.9e+04	7.44e+07	3.58e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.05e+07	5.18e+03	5.9e+03	6.68e+07	7.38e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+07	5.18e+03	4.8e+03	5.51e+07	7.38e+03	7.5e+03
27	13C-2,3,7,8-TCDD	4.21e+07	6.43e+03	6.5e+03	5.22e+07	3.34e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	6.30e+07	1.05e+03	6.0e+04	3.99e+07	1.24e+03	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	5.84e+07	4.36e+03	1.3e+04	4.60e+07	2.04e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.57e+07	4.36e+03	1.3e+04	4.34e+07	2.04e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.12e+07	2.07e+03	2.0e+04	3.91e+07	2.18e+03	1.8e+04
32	13C-OCDD	4.87e+07	6.80e+01	7.2e+05	5.40e+07	9.12e+02	5.9e+04
33	13C-1,2,3,4-TCDD	4.48e+07	6.43e+03	7.0e+03	5.57e+07	3.34e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.61e+07	4.36e+03	1.3e+04	4.47e+07	2.04e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	2.10e+06	1.00e+03	2.1e+03			

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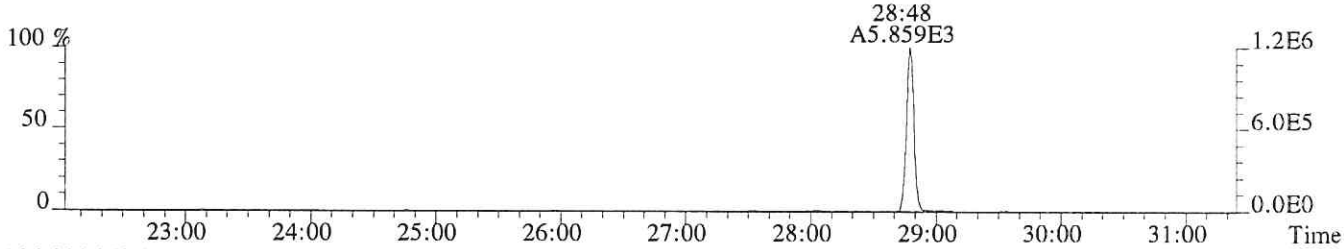
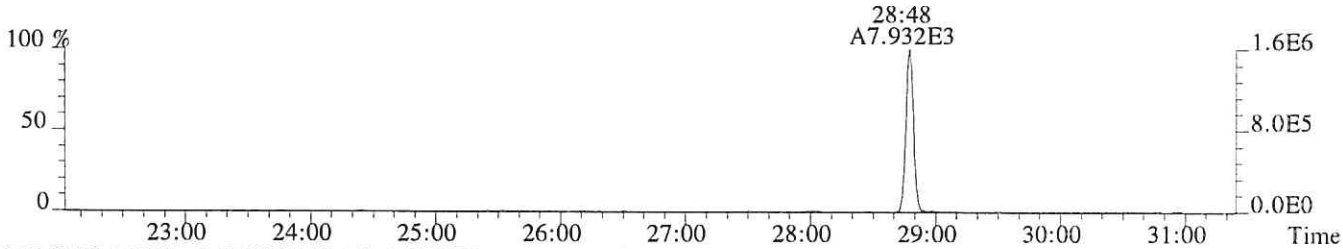
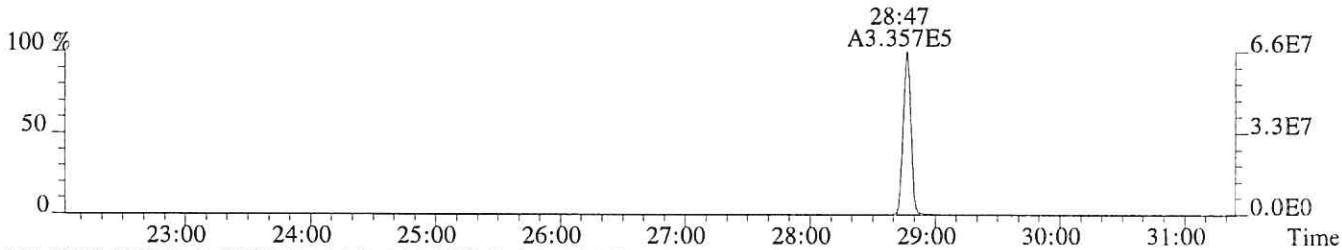
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



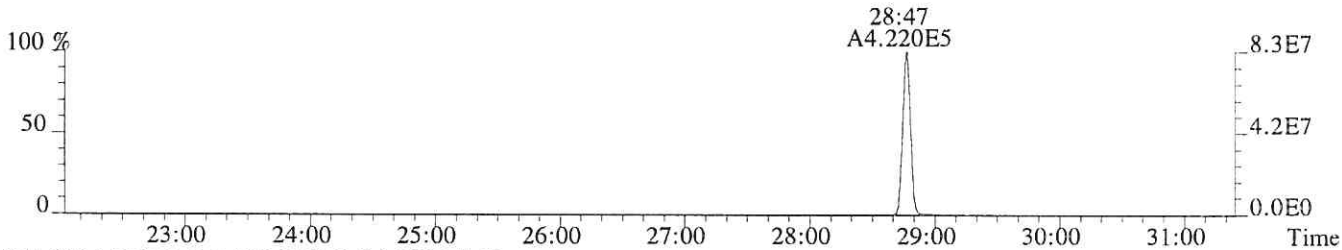
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



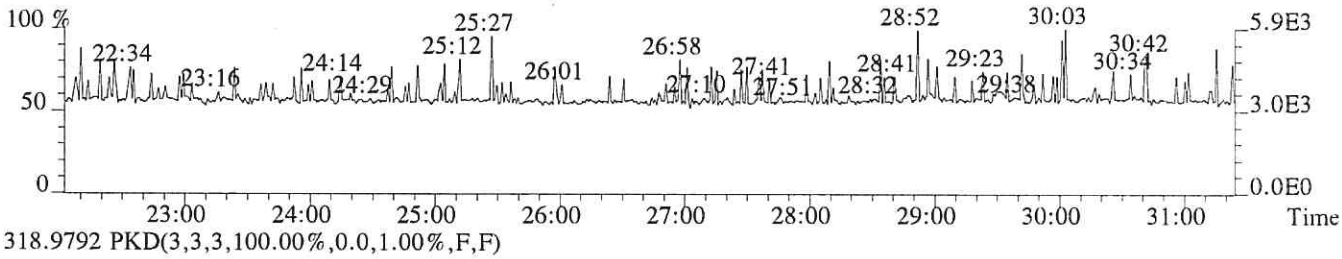
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8644.0,1.00%,F,T)



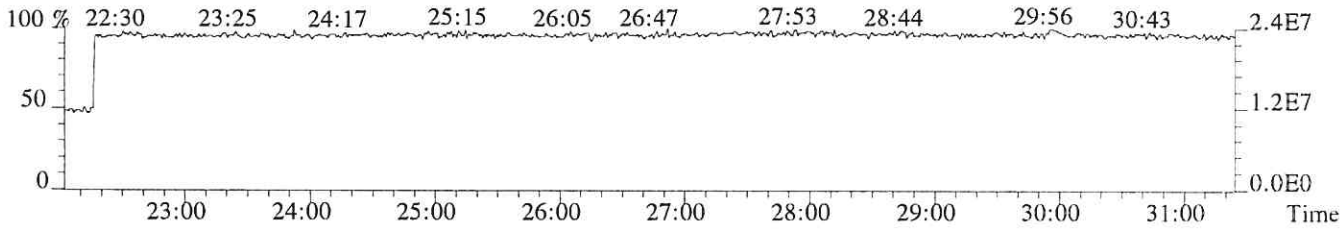
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4364.0,1.00%,F,T)



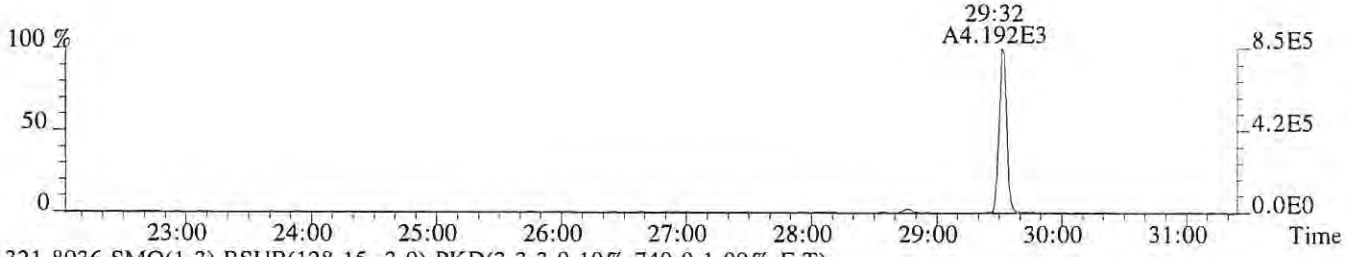
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



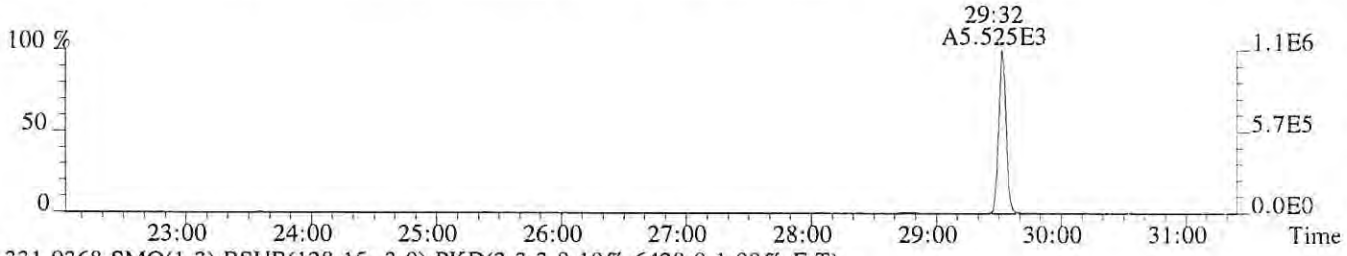
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



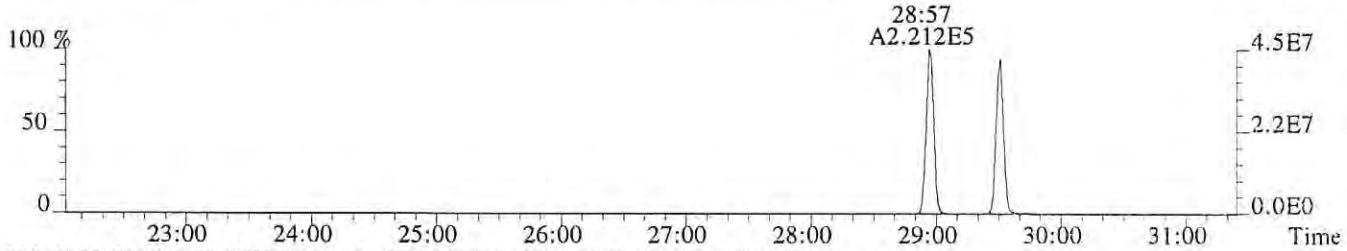
File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



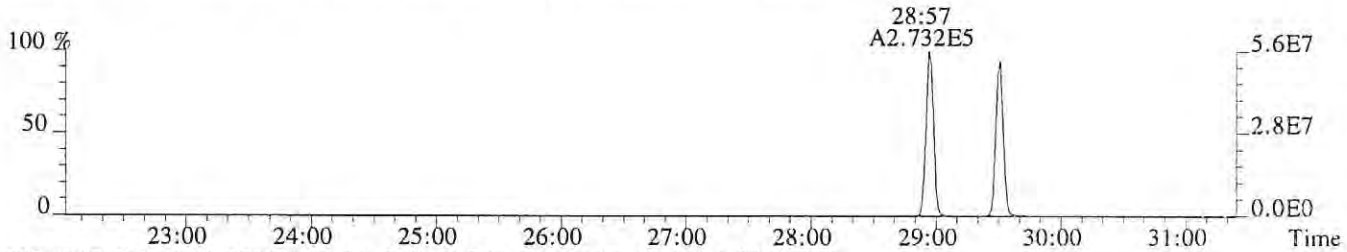
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



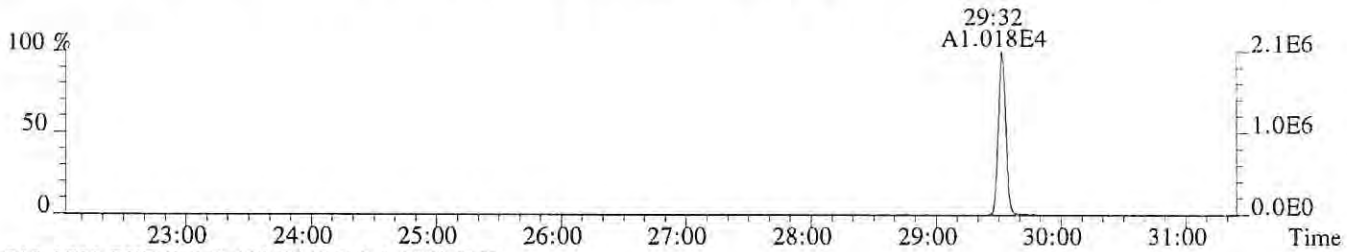
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6428.0,1.00%,F,T)



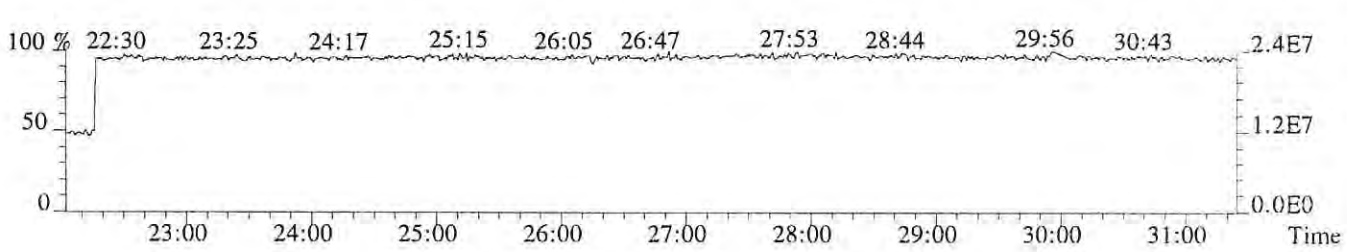
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)

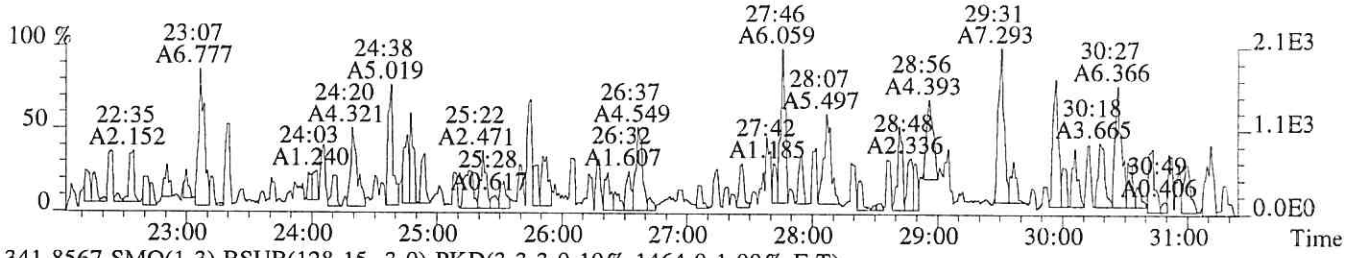


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

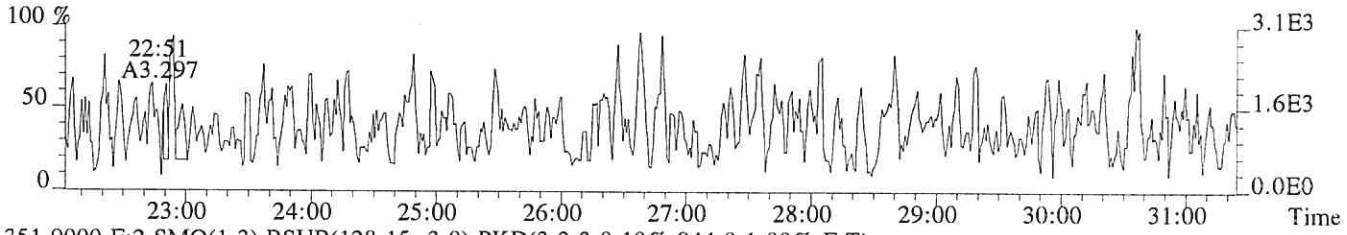


File:P513852 #1-665 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

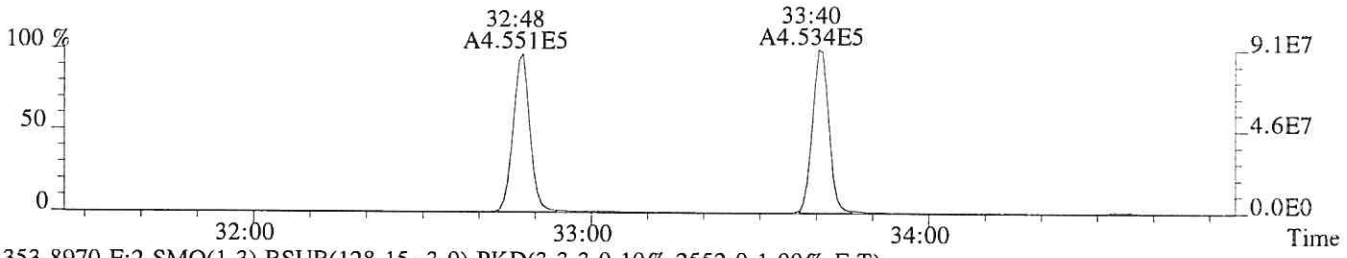
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



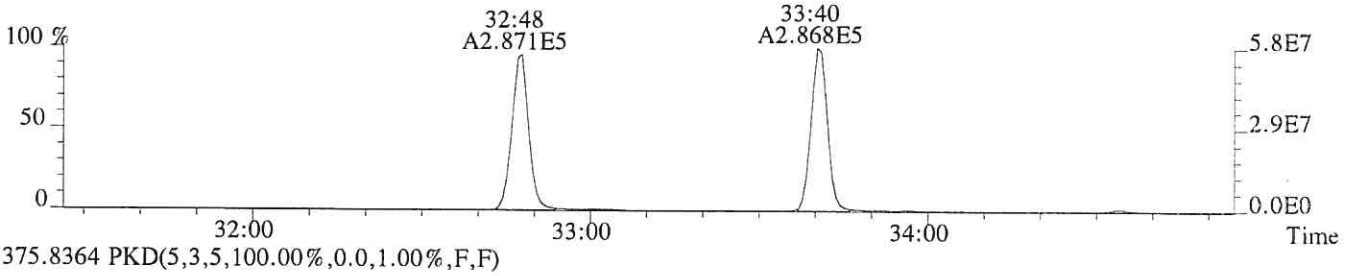
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



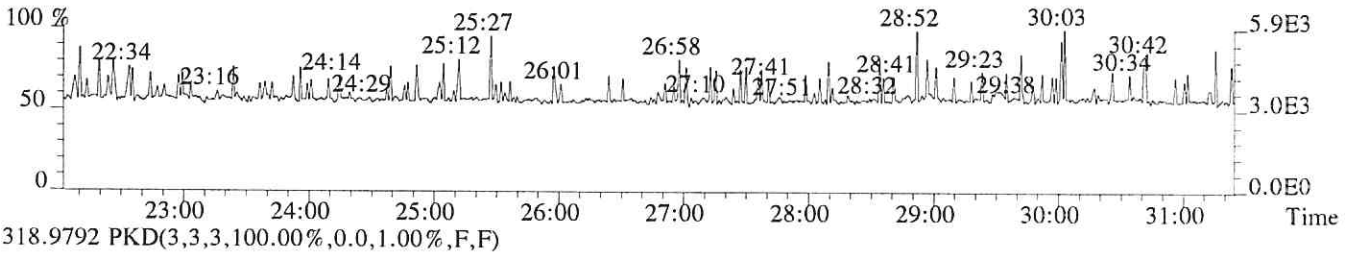
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



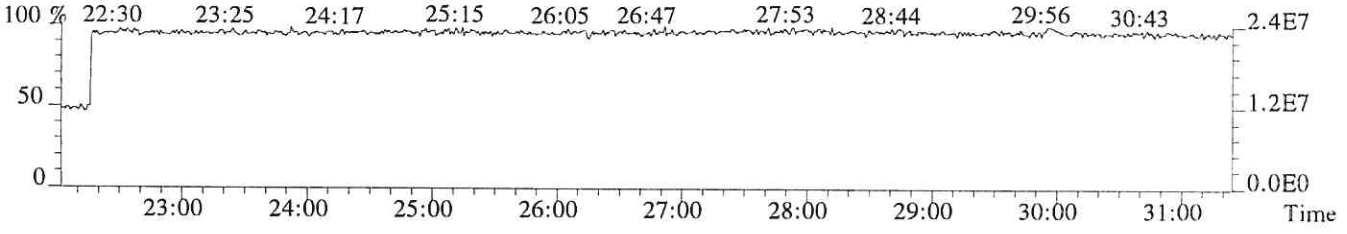
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



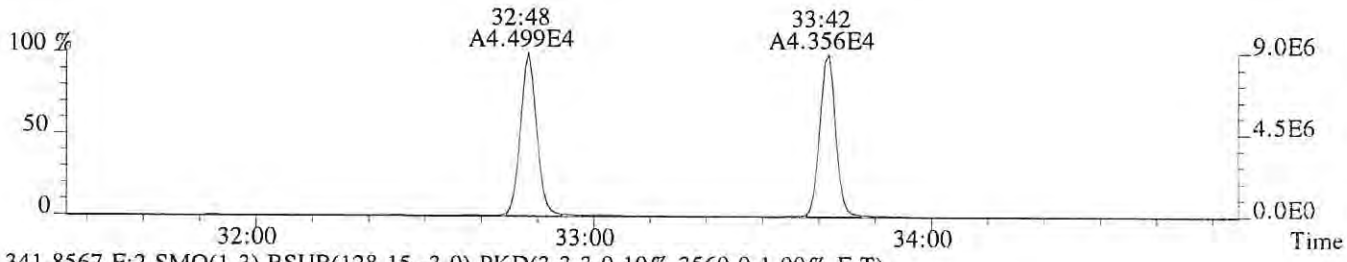
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



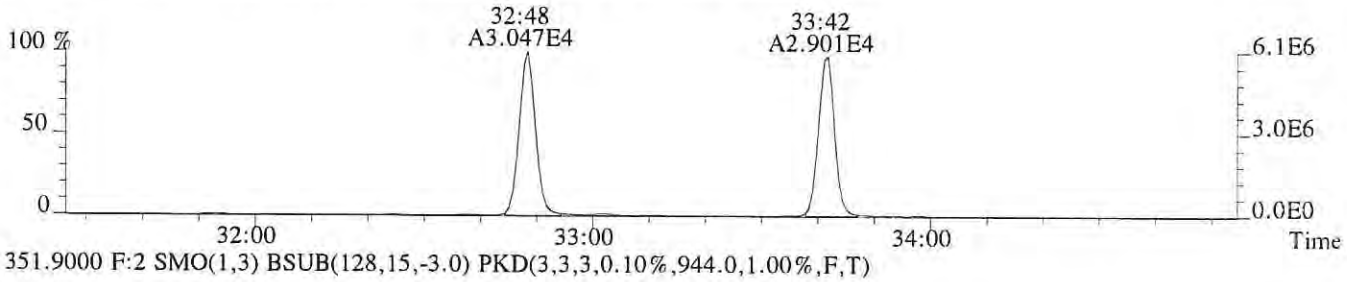
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



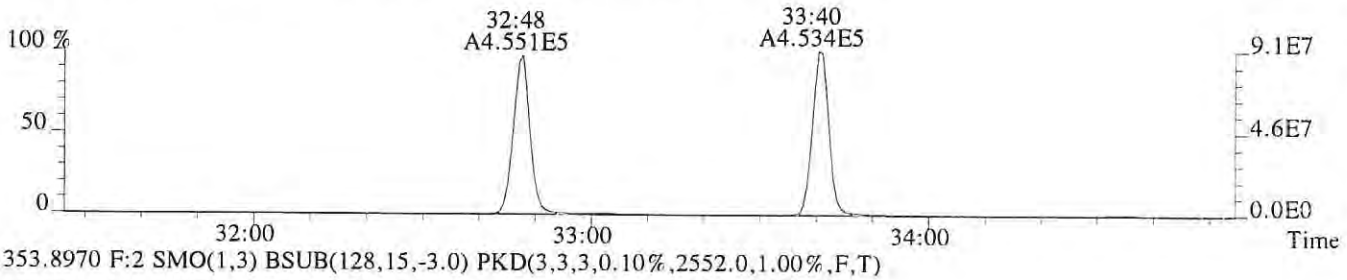
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



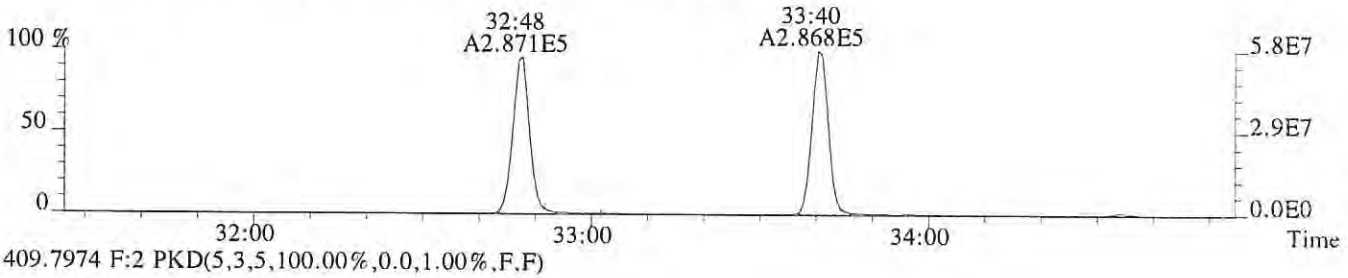
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



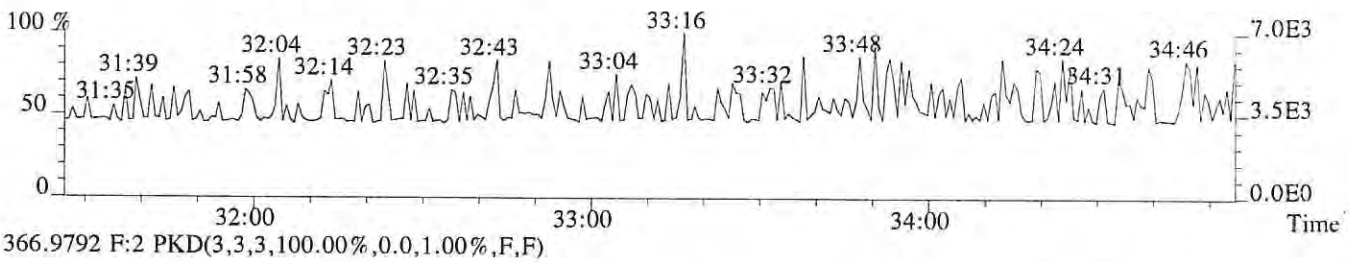
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



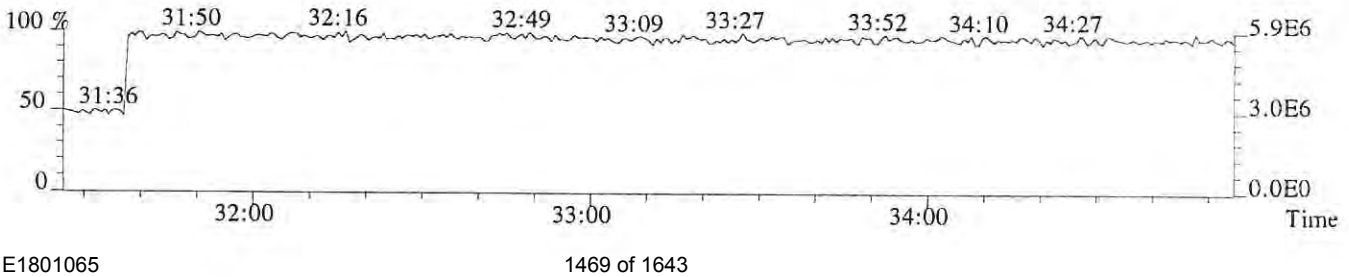
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



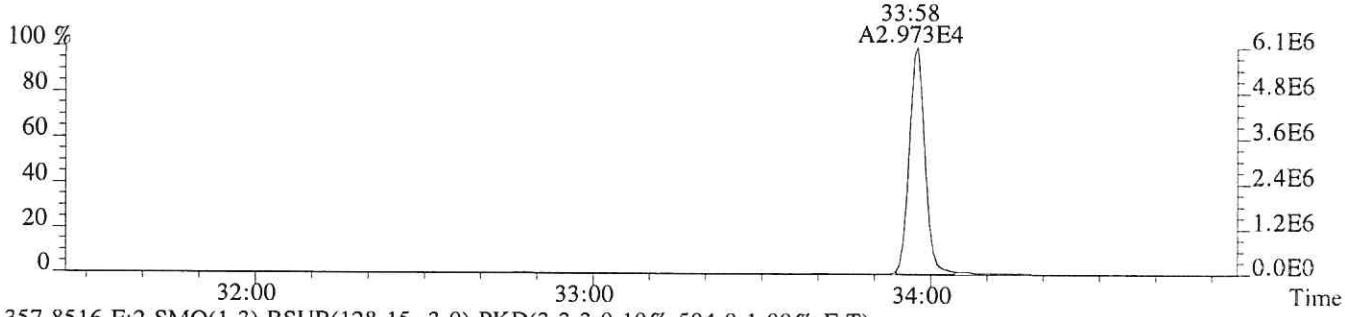
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



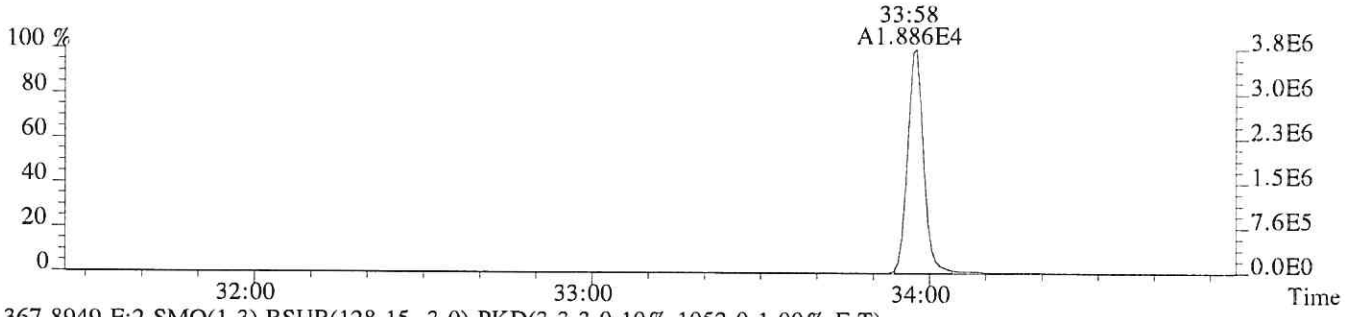
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



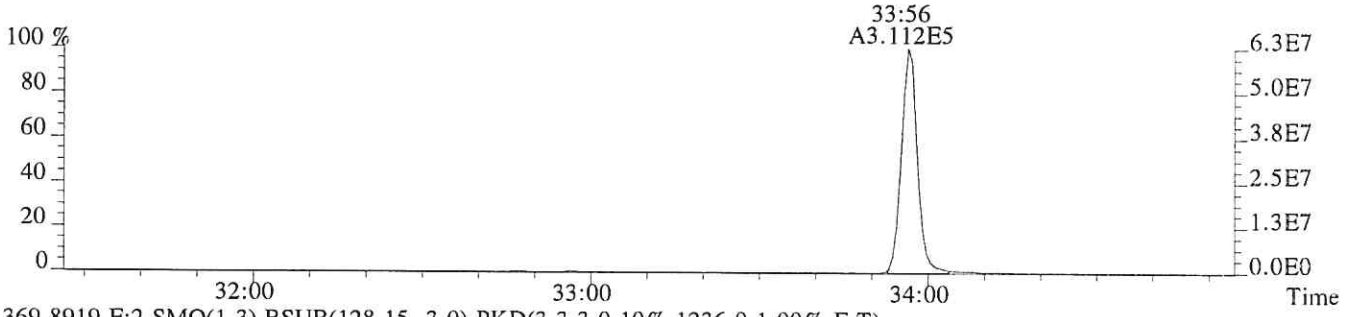
File:P513852 #1-313 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



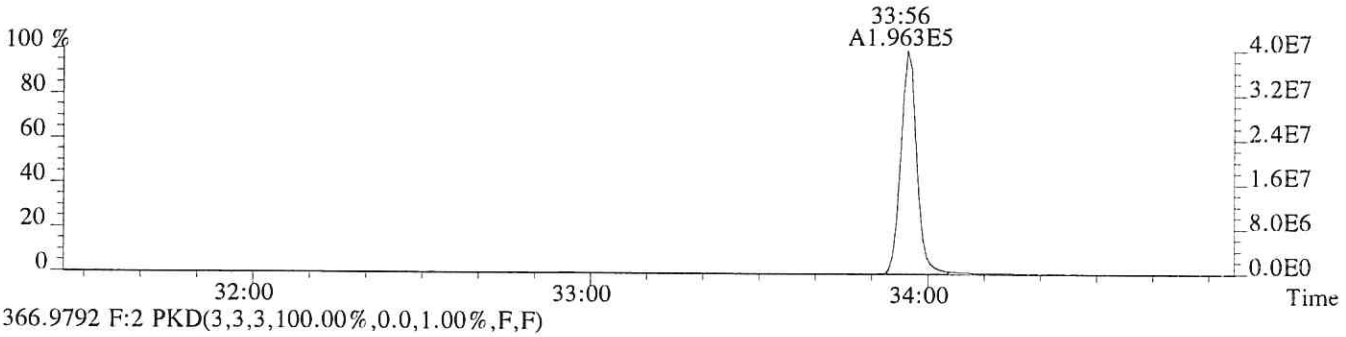
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



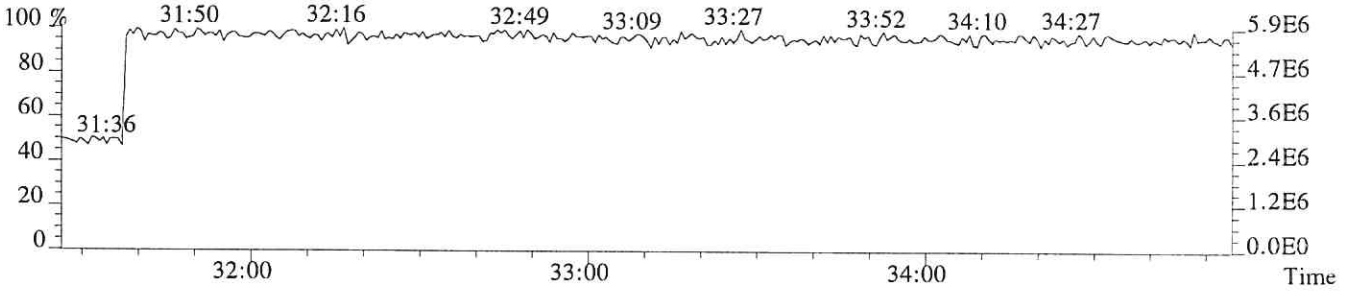
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



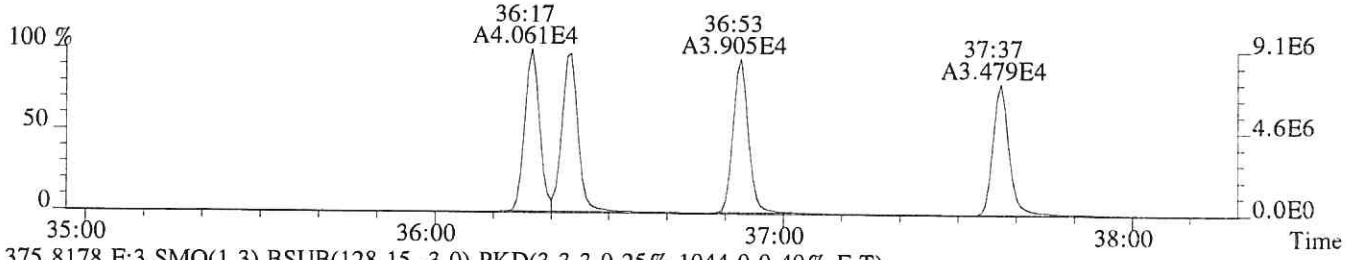
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



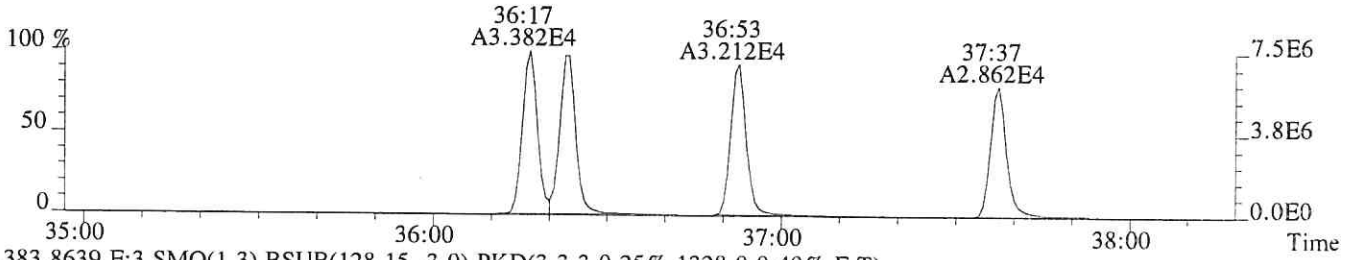
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



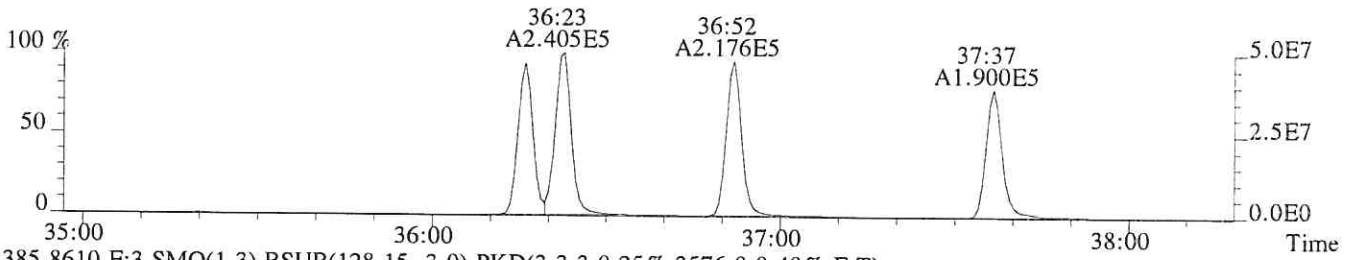
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



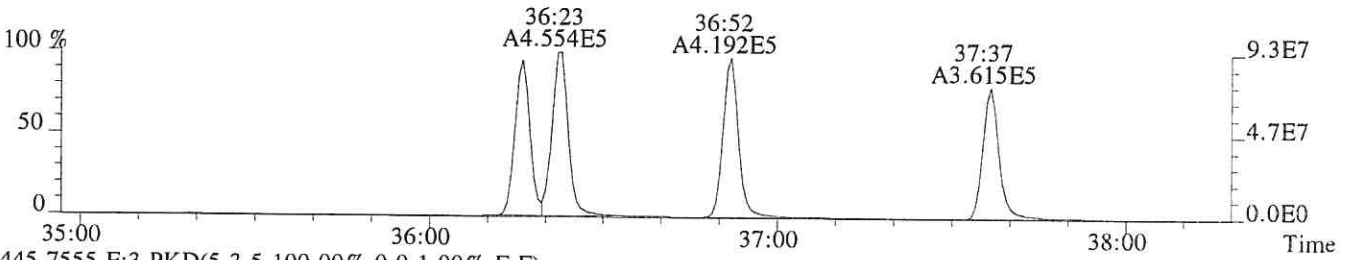
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



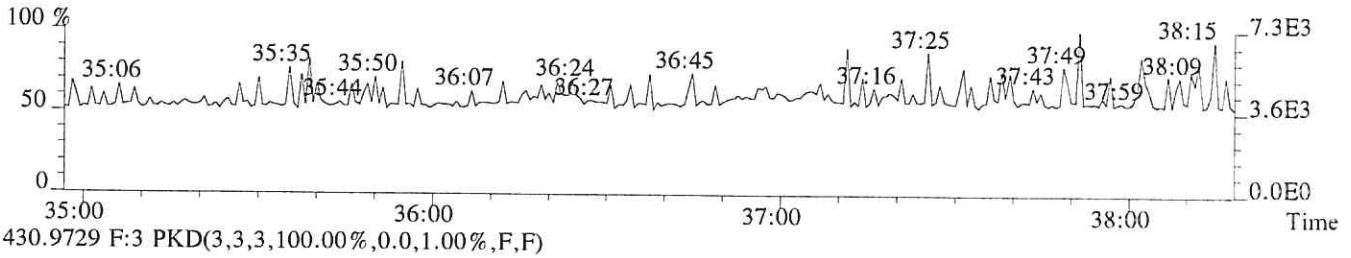
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



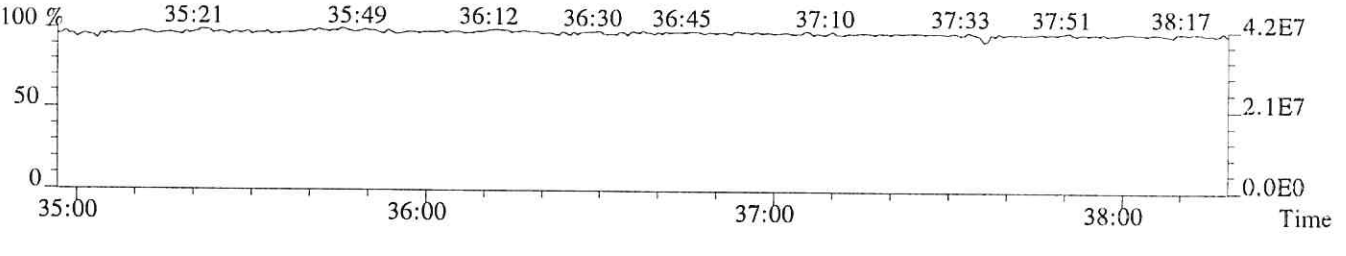
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



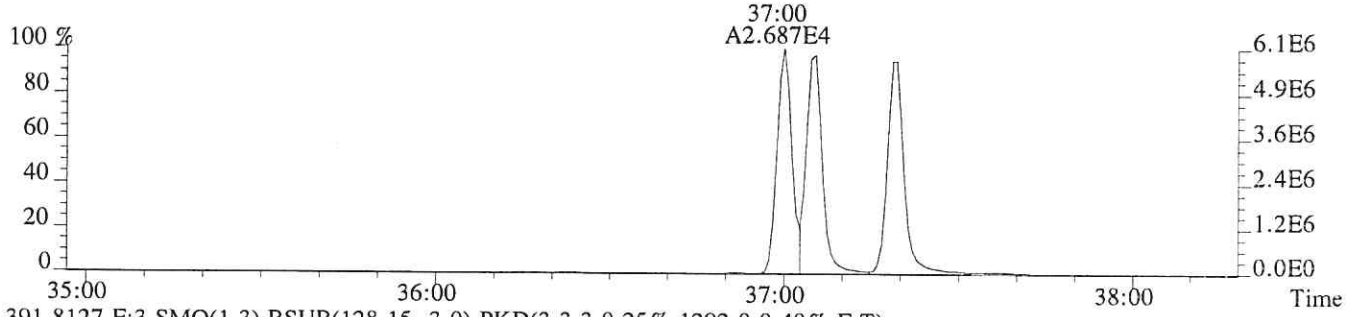
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



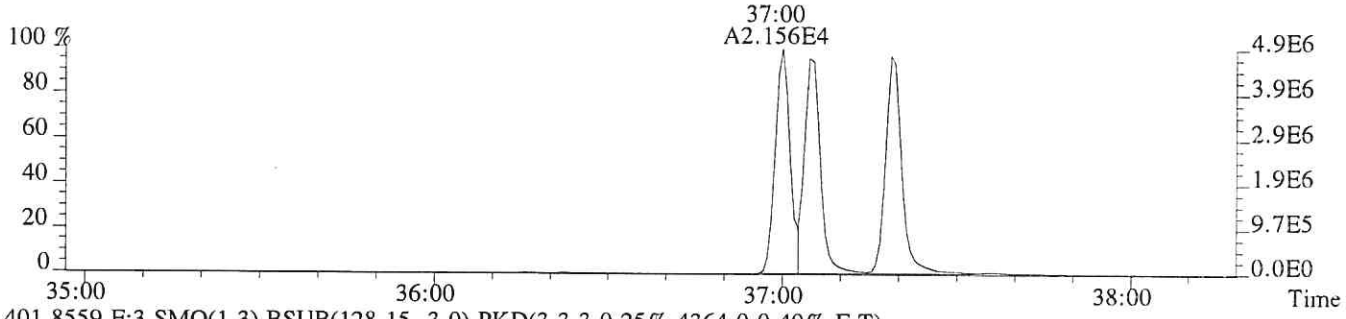
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



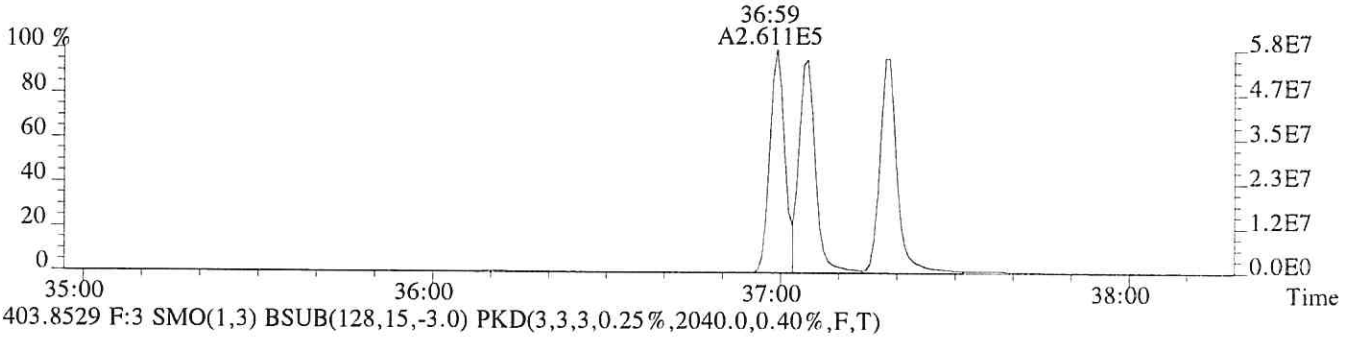
File:P513852 #1-303 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



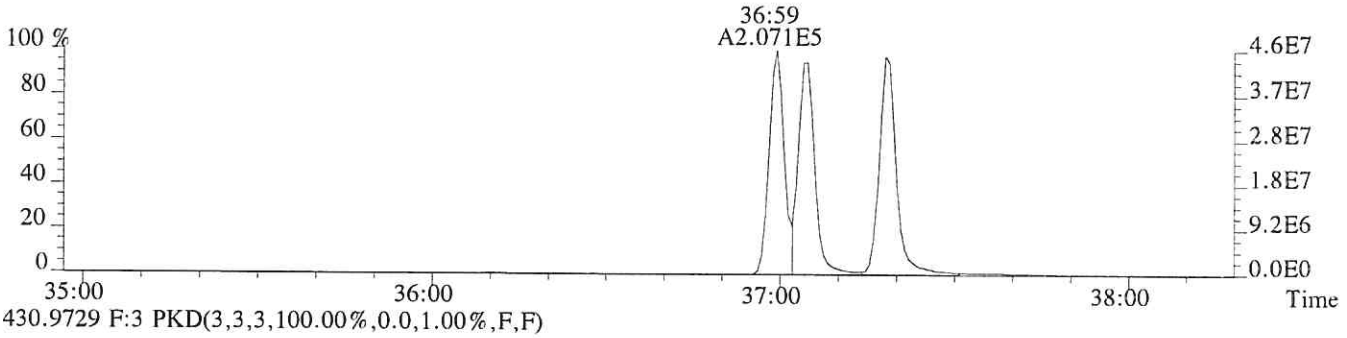
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)



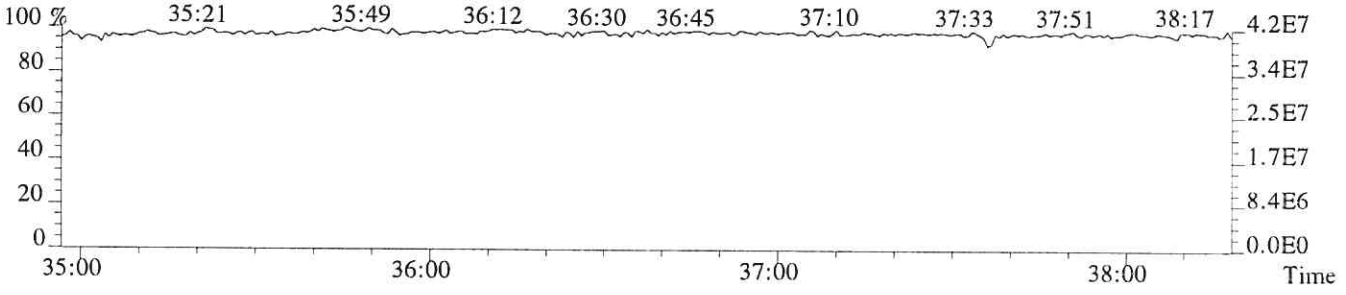
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4364.0,0.40%,F,T)



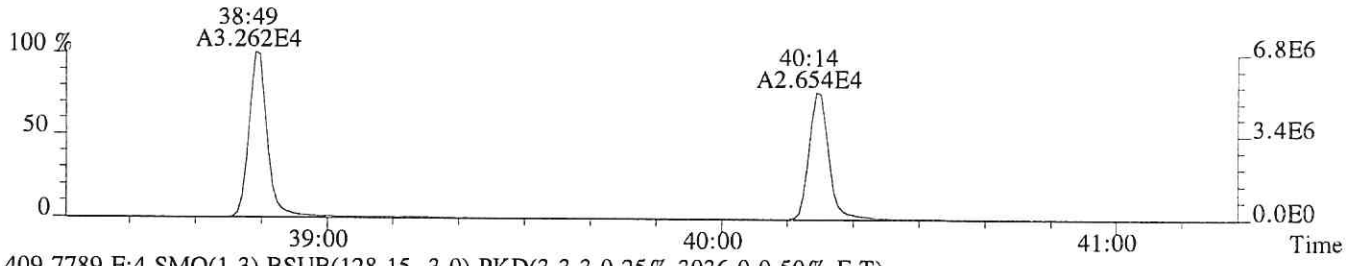
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.40%,F,T)



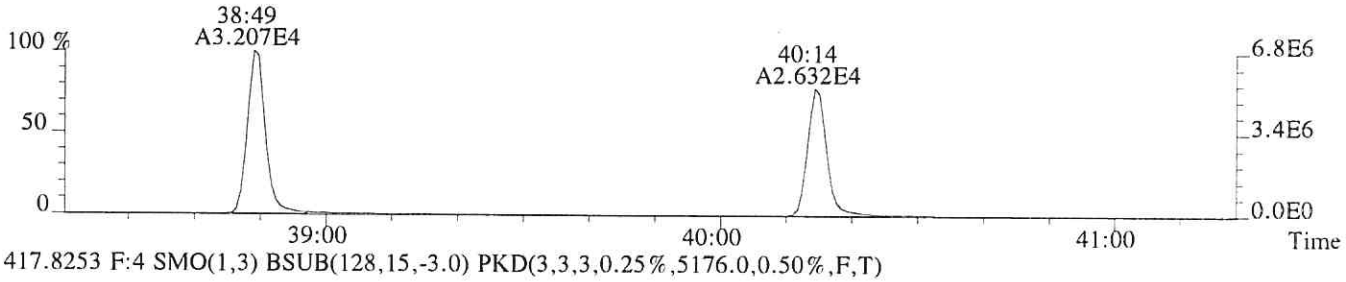
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



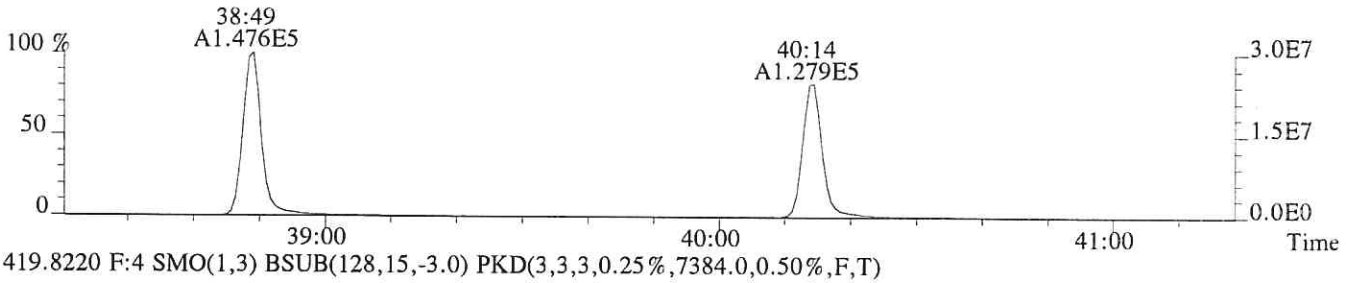
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3668.0,0.50%,F,T)



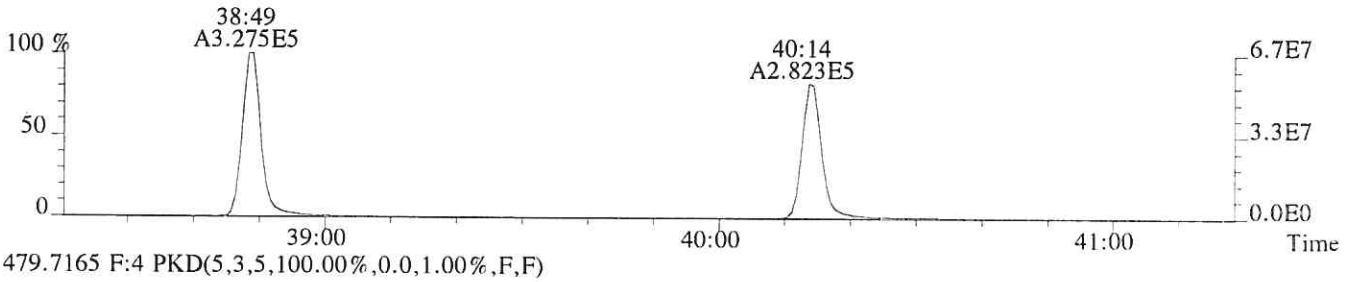
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.50%,F,T)



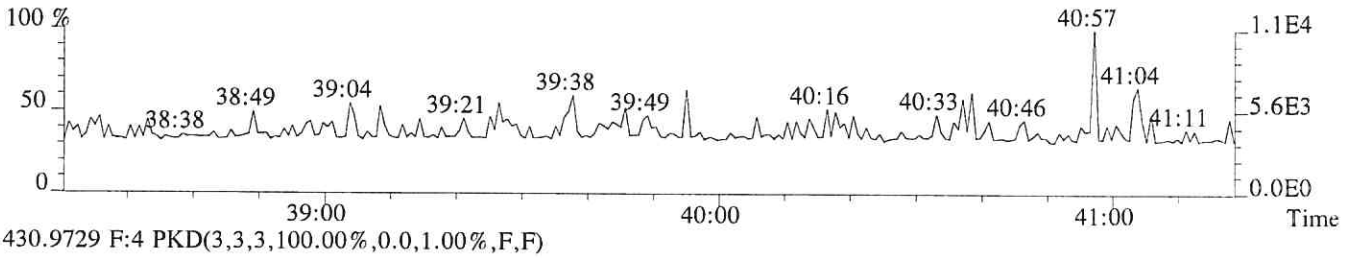
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5176.0,0.50%,F,T)



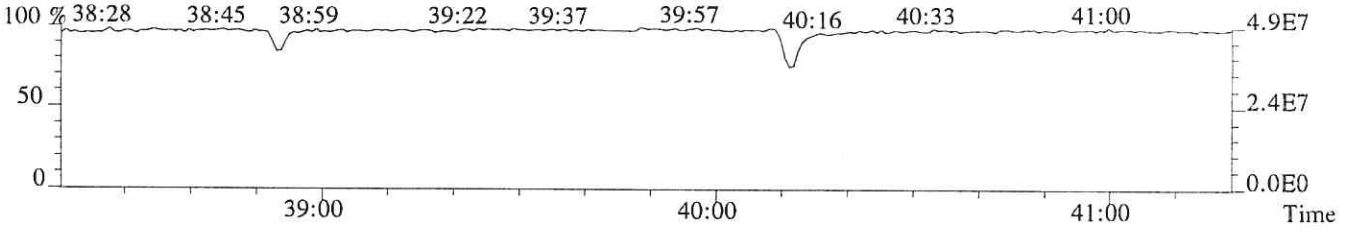
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7384.0,0.50%,F,T)



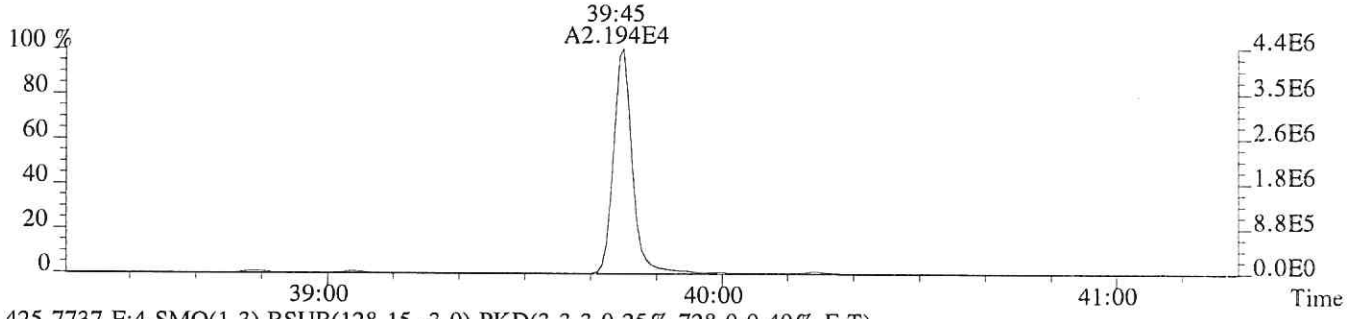
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



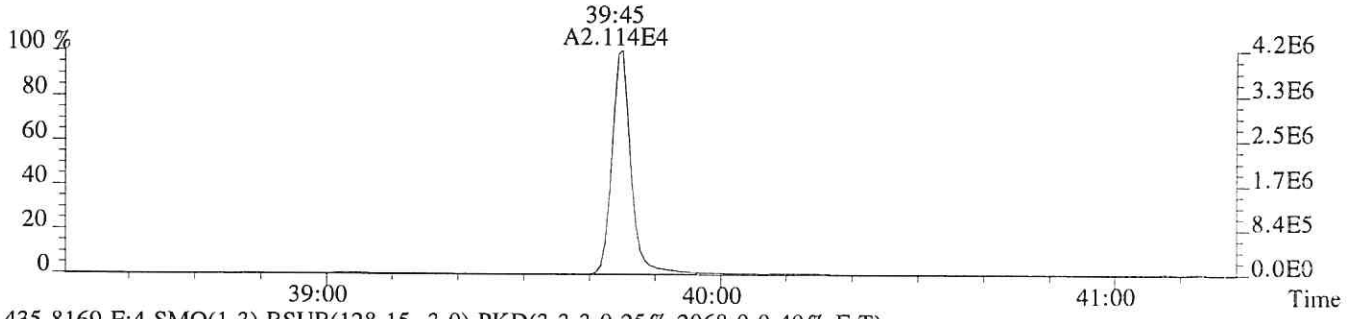
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



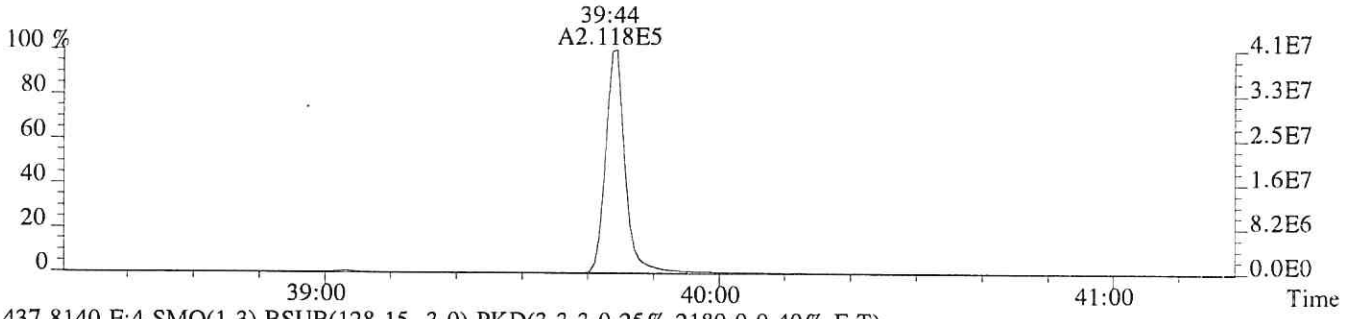
File:P513852 #1-268 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



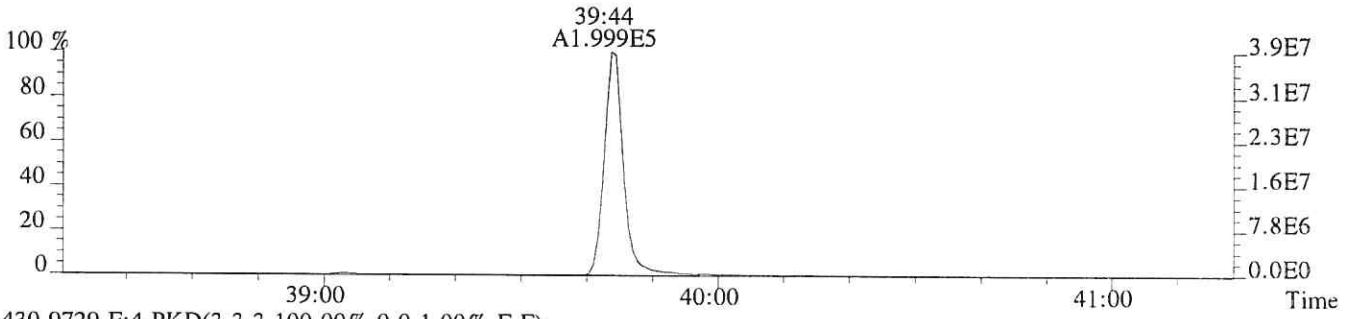
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



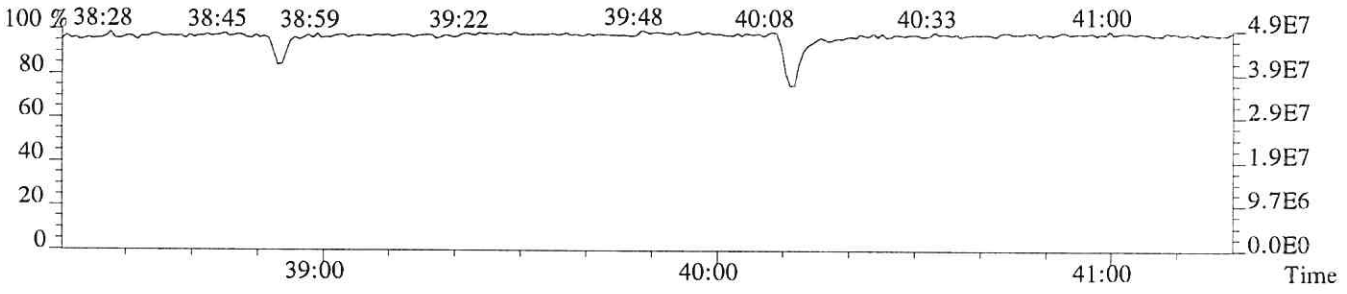
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



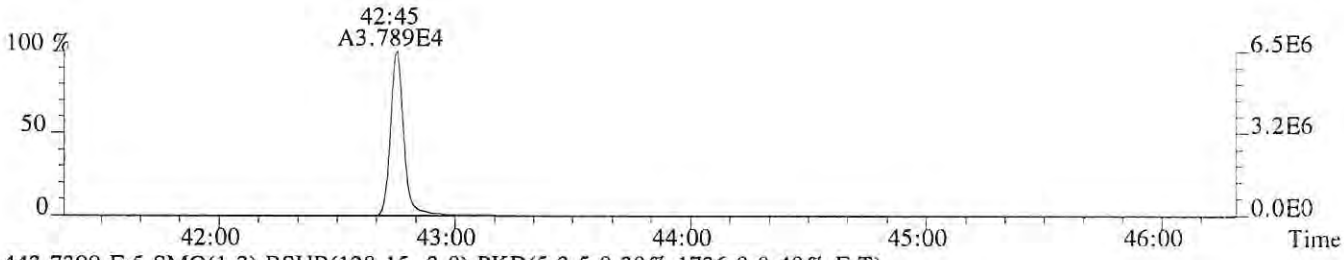
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



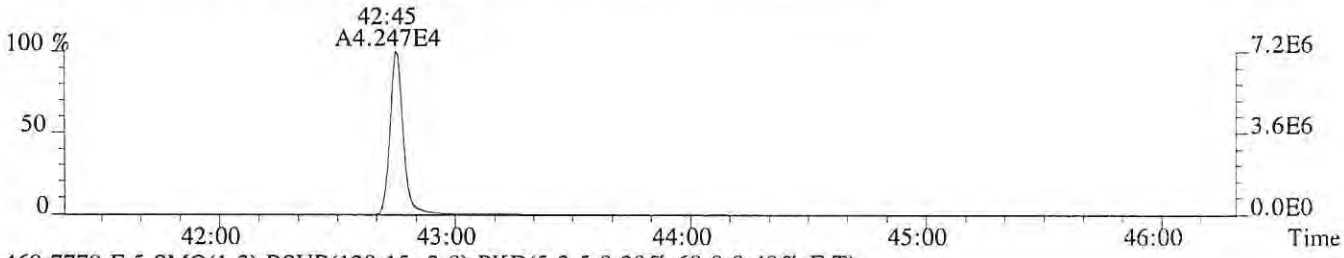
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



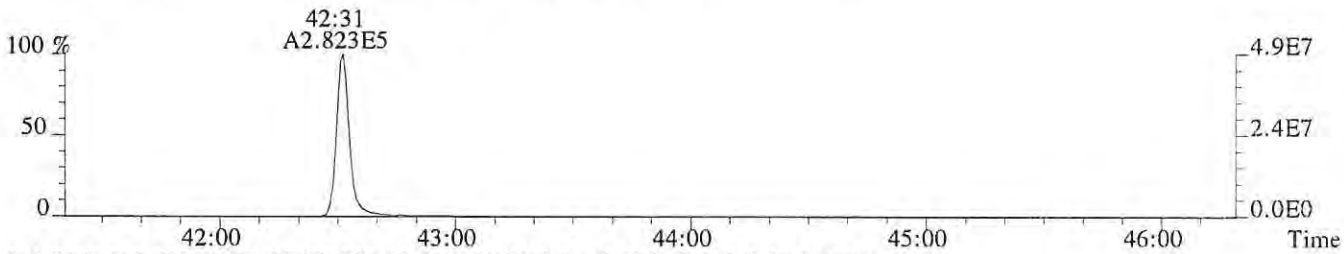
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



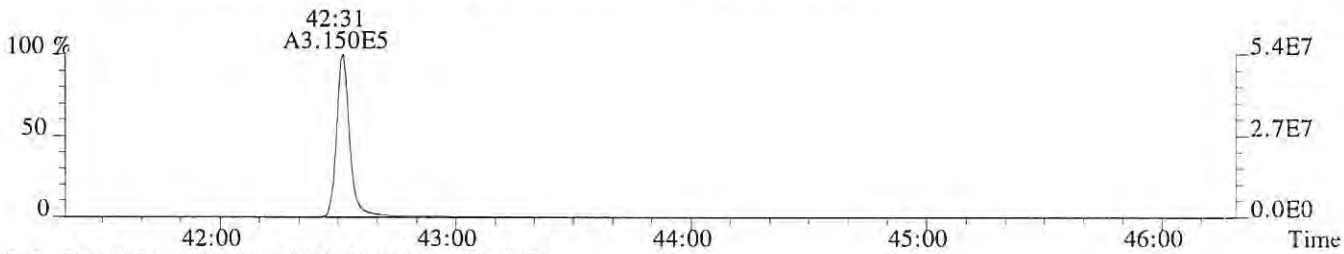
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



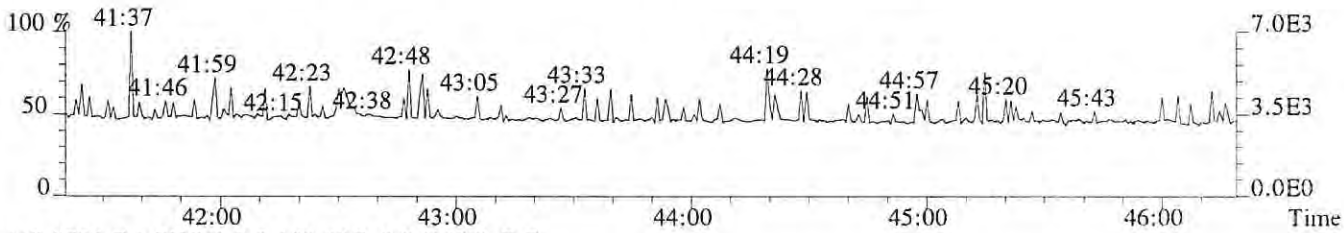
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



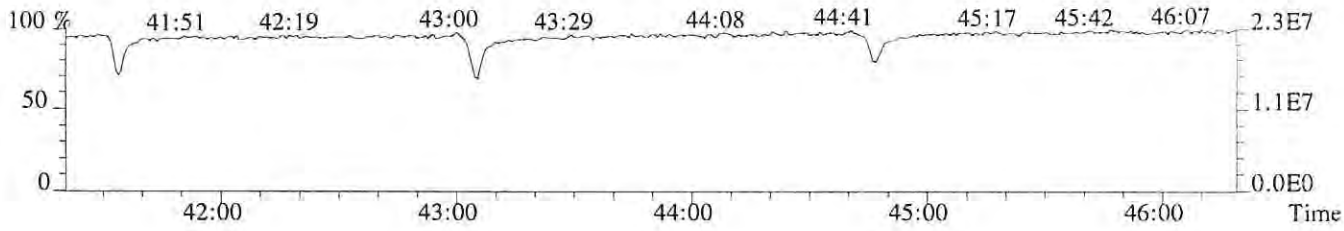
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



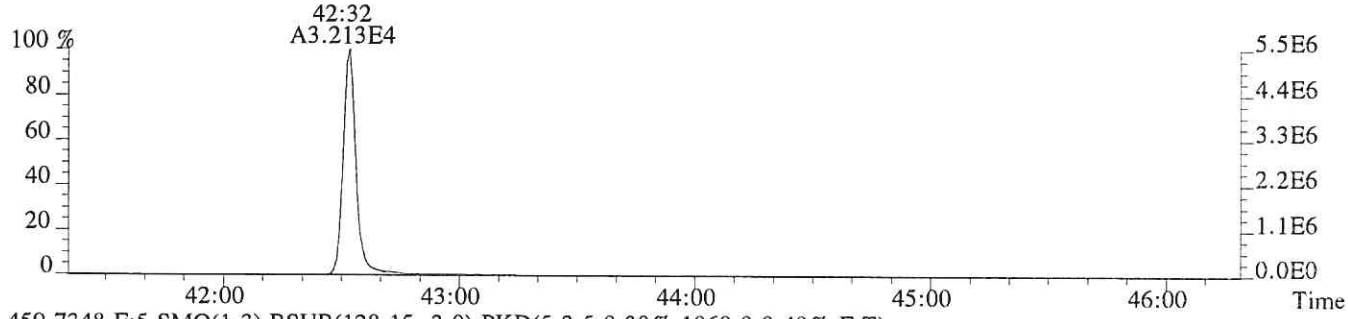
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



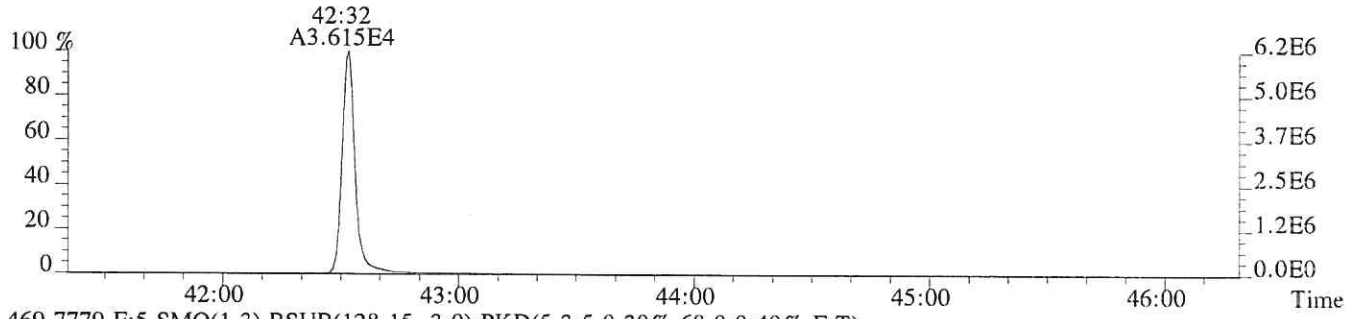
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



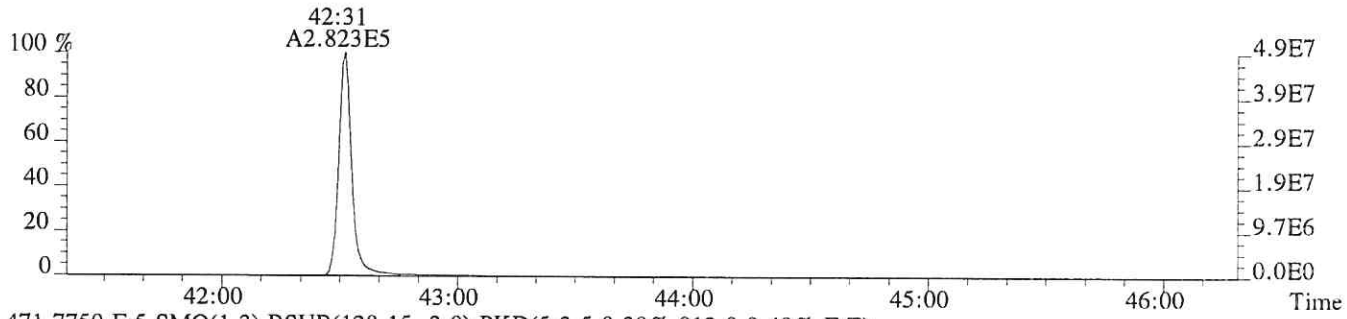
File:P513852 #1-448 Acq:24-JAN-2018 15:18:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



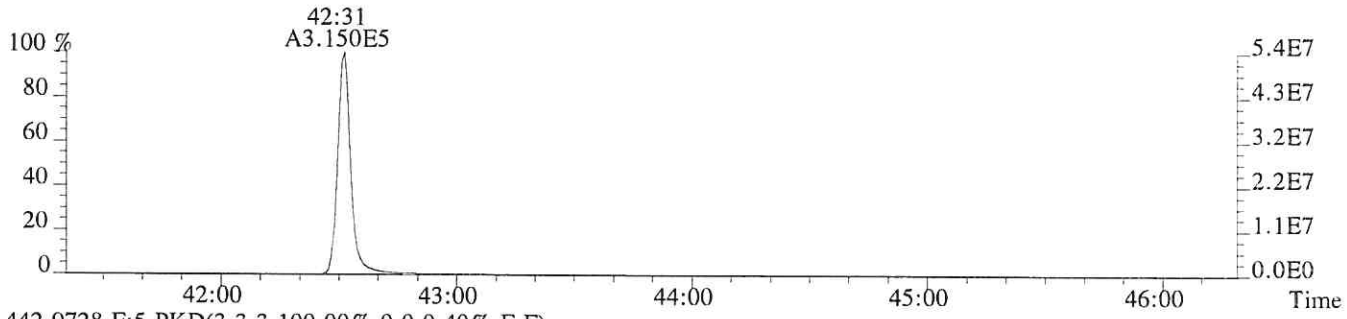
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



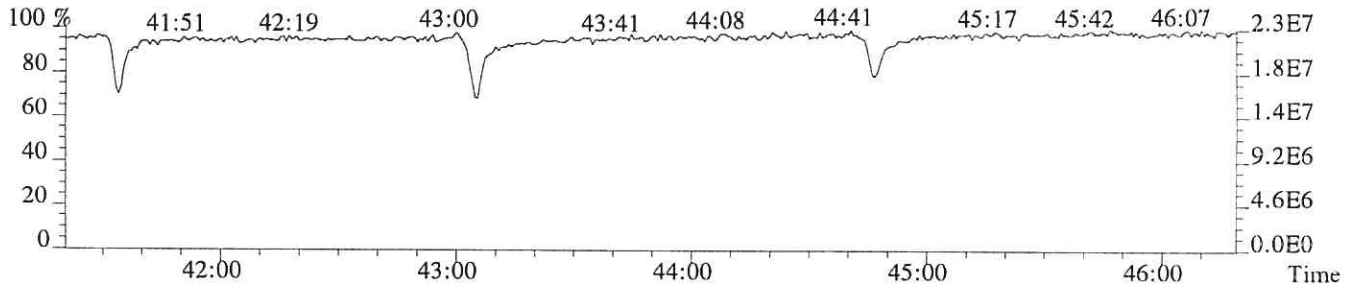
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,68.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	4.270e+04	5.692e+04	0.75	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.077e+05	2.016e+05	1.53	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	2.833e+05	1.864e+05	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.625e+05	2.158e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	2.702e+05	2.228e+05	1.21	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.439e+05	2.001e+05	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.977e+05	1.631e+05	1.21	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.099e+05	2.057e+05	1.02	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.509e+05	1.470e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:45	2.260e+05	2.525e+05	0.90	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	2.824e+04	3.588e+04	0.79	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	1.903e+05	1.221e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	1.727e+05	1.384e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.705e+05	1.356e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.758e+05	1.371e+05	1.28	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	1.431e+05	1.365e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	1.906e+05	2.140e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	4.689e+05	5.926e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	6.073e+05	3.832e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.900e+05	3.740e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.738e+05	5.189e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	3.023e+05	5.708e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	2.671e+05	5.167e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	2.133e+05	4.042e+05	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.882e+05	4.188e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	1.419e+05	3.155e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	2.668e+05	3.316e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.009e+05	2.534e+05	1.58	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	3.335e+05	2.508e+05	1.33	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.244e+05	2.699e+05	1.20	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.779e+05	2.632e+05	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	3.375e+05	3.799e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.956e+05	3.663e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.390e+05	2.761e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	6.612e+04				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P513853 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:06:29
Processed: 24-JAN-18 17:13:42 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.50e+06	6.40e+02	1.3e+04	1.14e+07	2.11e+03	5.4e+03
2	1,2,3,7,8-PeCDF	6.16e+07	1.61e+03	3.8e+04	4.01e+07	2.10e+03	1.9e+04
3	2,3,4,7,8-PeCDF	5.79e+07	1.61e+03	3.6e+04	3.78e+07	2.10e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	5.83e+07	1.86e+03	3.1e+04	4.74e+07	2.55e+03	1.9e+04
5	1,2,3,6,7,8-HxCDF	5.80e+07	1.86e+03	3.1e+04	4.80e+07	2.55e+03	1.9e+04
6	2,3,4,6,7,8-HxCDF	5.37e+07	1.86e+03	2.9e+04	4.34e+07	2.55e+03	1.7e+04
7	1,2,3,7,8,9-HxCDF	4.12e+07	1.86e+03	2.2e+04	3.39e+07	2.55e+03	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	4.57e+07	4.44e+03	1.0e+04	4.52e+07	1.05e+04	4.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.06e+07	4.44e+03	6.9e+03	2.99e+07	1.05e+04	2.8e+03
10	OCDF	3.93e+07	1.44e+02	2.7e+05	4.34e+07	1.38e+03	3.1e+04
11	2,3,7,8-TCDD	5.83e+06	1.92e+03	3.0e+03	7.39e+06	1.30e+03	5.7e+03
12	1,2,3,7,8-PeCDD	3.83e+07	1.45e+03	2.6e+04	2.46e+07	7.04e+02	3.5e+04
13	1,2,3,4,7,8-HxCDD	3.89e+07	5.12e+02	7.6e+04	3.08e+07	1.23e+03	2.5e+04
14	1,2,3,6,7,8-HxCDD	3.74e+07	5.12e+02	7.3e+04	3.02e+07	1.23e+03	2.5e+04
15	1,2,3,7,8,9-HxCDD	3.75e+07	5.12e+02	7.3e+04	3.01e+07	1.23e+03	2.5e+04
16	1,2,3,4,6,7,8-HpCDD	2.89e+07	1.84e+03	1.6e+04	2.78e+07	1.41e+03	2.0e+04
17	OCDD	3.41e+07	6.32e+02	5.4e+04	3.81e+07	1.31e+03	2.9e+04
18	13C-2,3,7,8-TCDF	9.47e+07	6.52e+03	1.5e+04	1.19e+08	4.12e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.17e+08	1.28e+03	9.1e+04	7.33e+07	8.08e+02	9.1e+04
20	13C-2,3,4,7,8-PeCDF	1.21e+08	1.28e+03	9.4e+04	7.72e+07	8.08e+02	9.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.01e+07	1.97e+03	3.1e+04	1.13e+08	1.75e+03	6.5e+04
22	13C-1,2,3,6,7,8-HxCDF	6.52e+07	1.97e+03	3.3e+04	1.24e+08	1.75e+03	7.1e+04
23	13C-2,3,4,6,7,8-HxCDF	5.86e+07	1.97e+03	3.0e+04	1.11e+08	1.75e+03	6.4e+04
24	13C-1,2,3,7,8,9-HxCDF	4.44e+07	1.97e+03	2.3e+04	8.35e+07	1.75e+03	4.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.03e+07	8.48e+03	4.8e+03	9.01e+07	6.21e+03	1.5e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.83e+07	8.48e+03	3.3e+03	6.33e+07	6.21e+03	1.0e+04
27	13C-2,3,7,8-TCDD	5.56e+07	5.87e+03	9.5e+03	6.88e+07	2.90e+03	2.4e+04
28	13C-1,2,3,7,8-PeCDD	8.27e+07	1.46e+03	5.7e+04	5.24e+07	1.17e+03	4.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.51e+07	3.07e+03	2.4e+04	5.90e+07	2.67e+03	2.2e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	3.07e+03	2.3e+04	5.69e+07	2.67e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.63e+07	2.93e+03	1.9e+04	5.39e+07	1.32e+03	4.1e+04
32	13C-OCDD	5.98e+07	1.07e+03	5.6e+04	6.69e+07	9.36e+02	7.1e+04
33	13C-1,2,3,4-TCDD	5.97e+07	5.87e+03	1.0e+04	7.42e+07	2.90e+03	2.6e+04
34	13C-1,2,3,7,8,9-HxCDD	7.31e+07	3.07e+03	2.4e+04	5.89e+07	2.67e+03	2.2e+04
35	37Cl-2,3,7,8-TCDD	1.36e+07	1.25e+03	1.1e+04			

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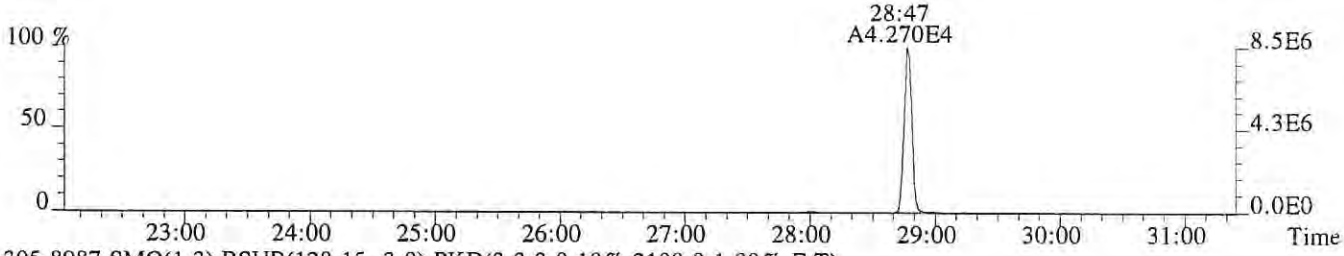
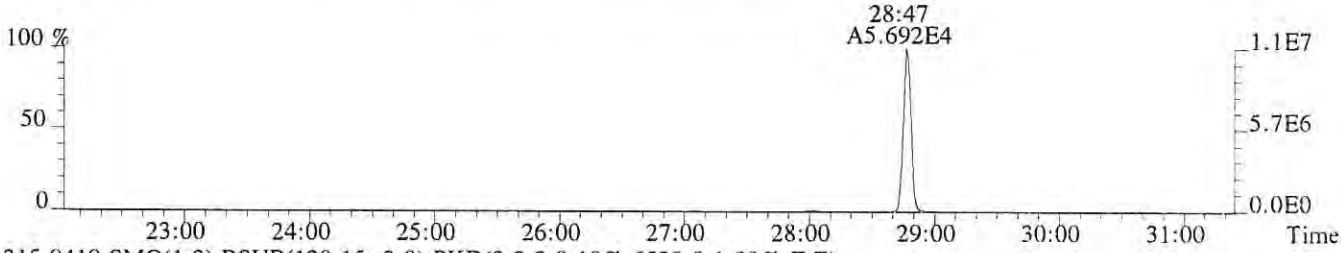
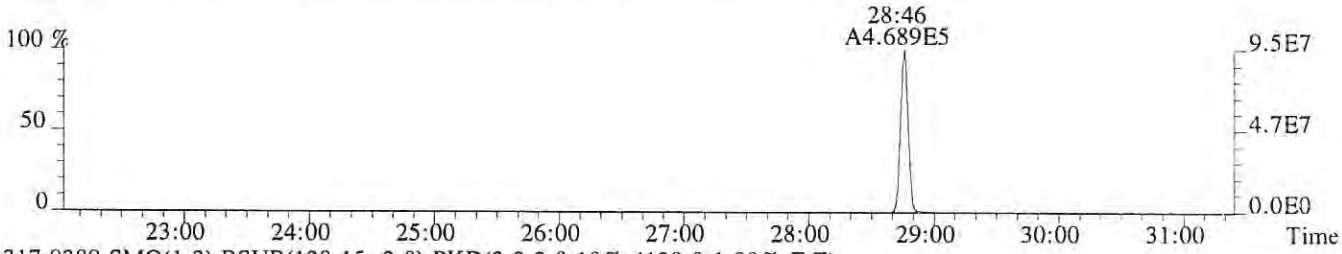
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



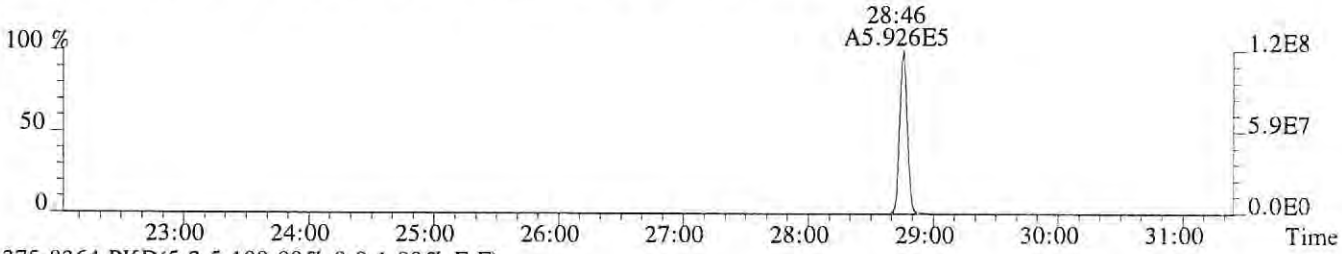
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



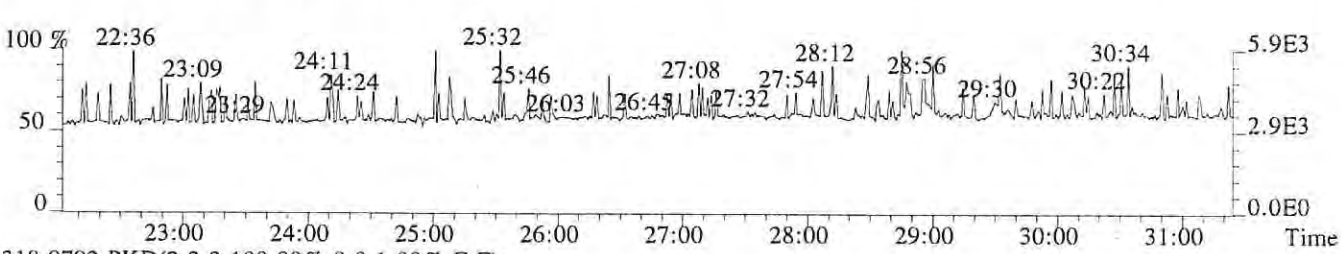
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6520.0,1.00%,F,T)



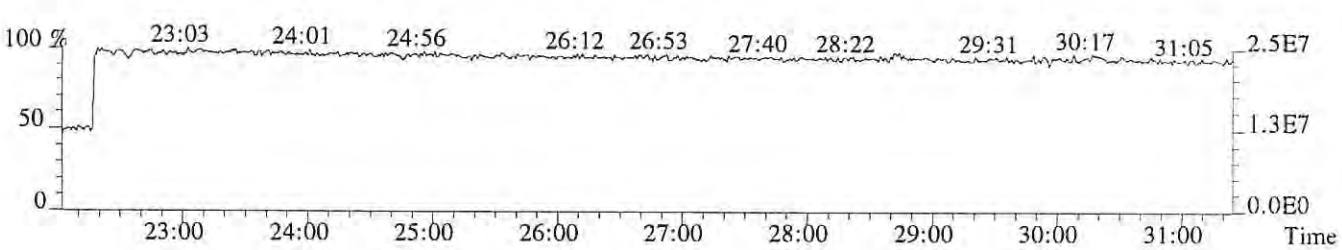
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4120.0,1.00%,F,T)



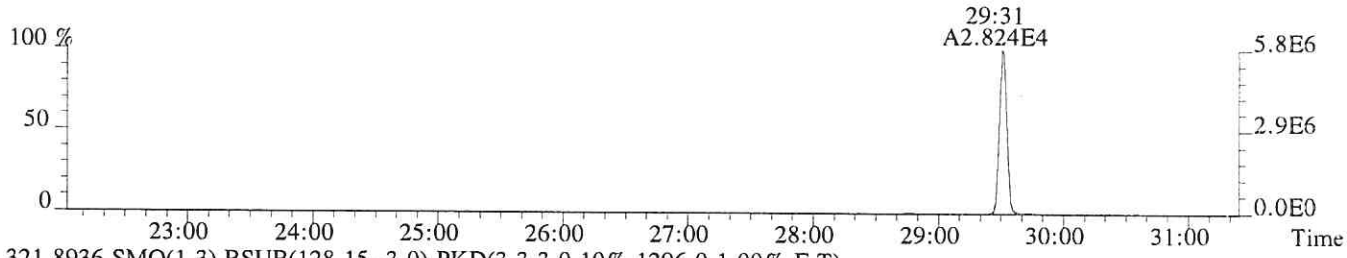
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



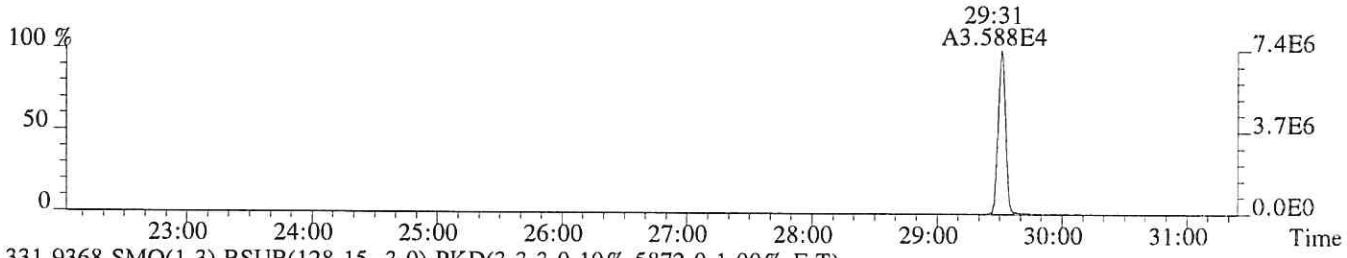
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



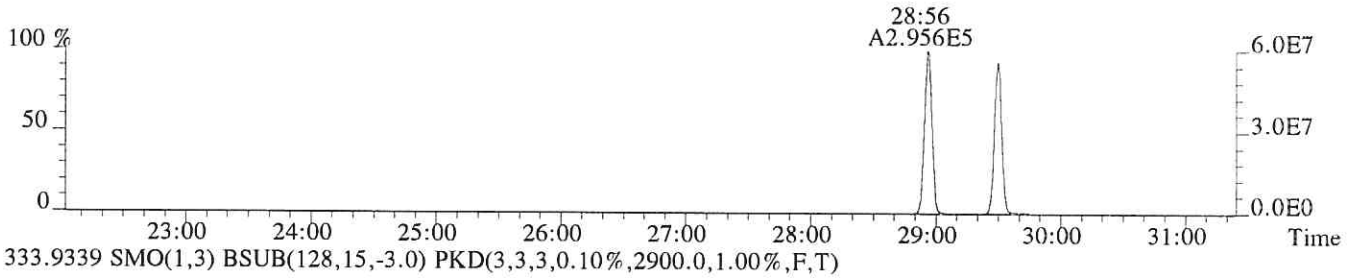
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



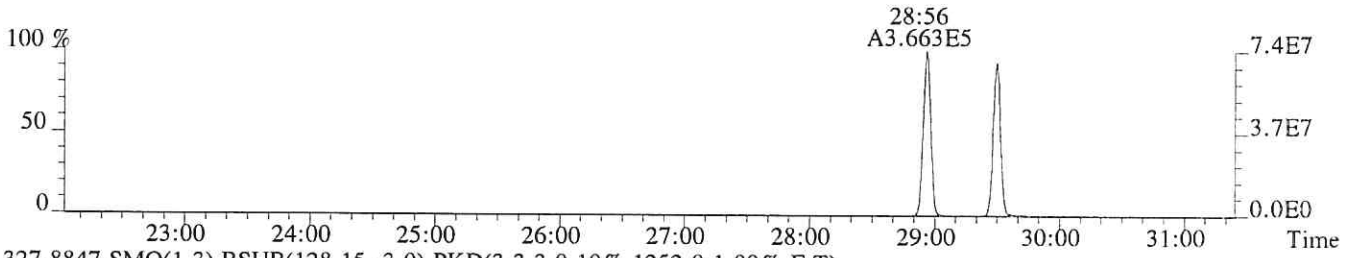
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



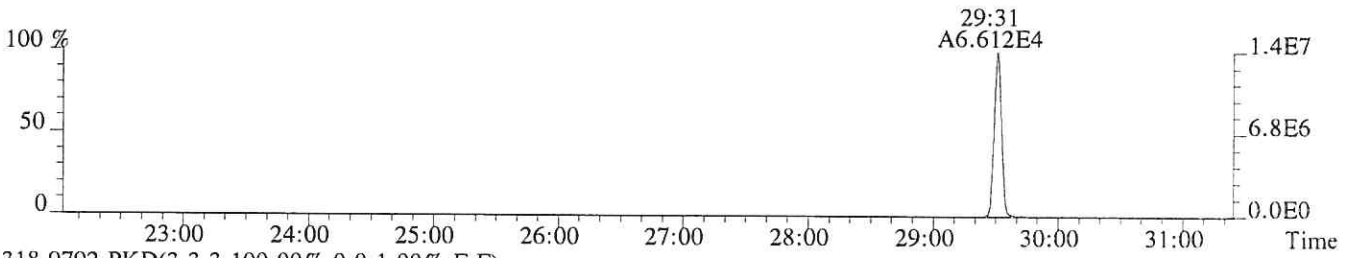
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5872.0,1.00%,F,T)



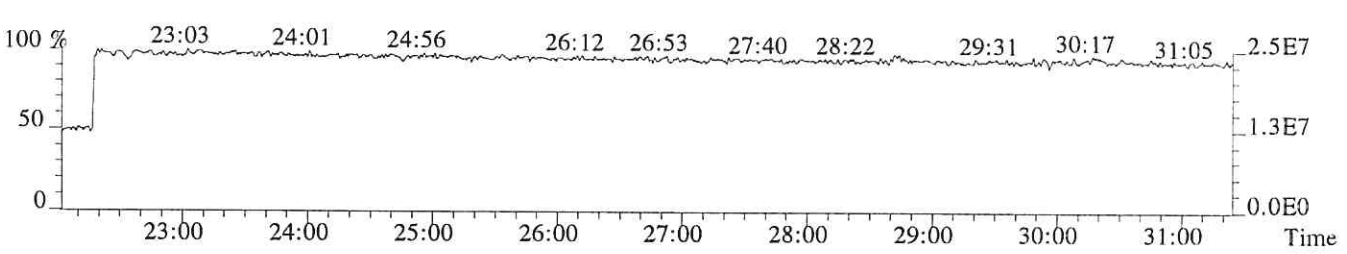
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2900.0,1.00%,F,T)



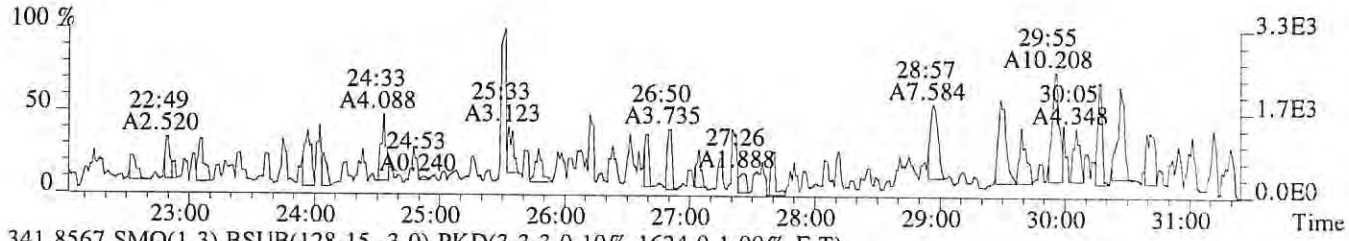
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



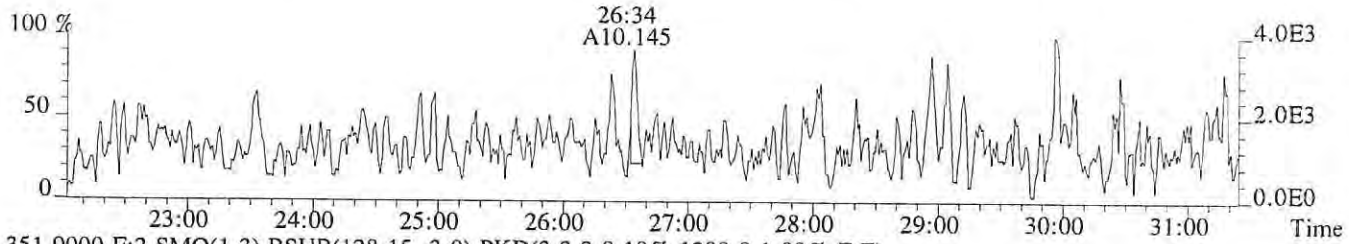
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



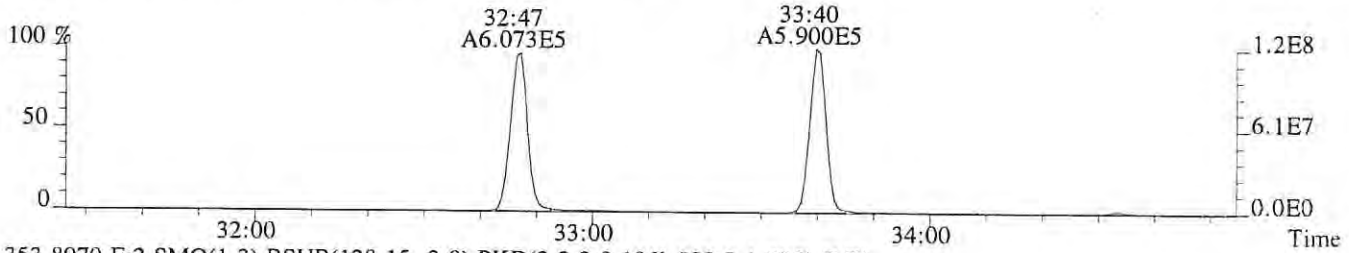
File:P513853 #1-665 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



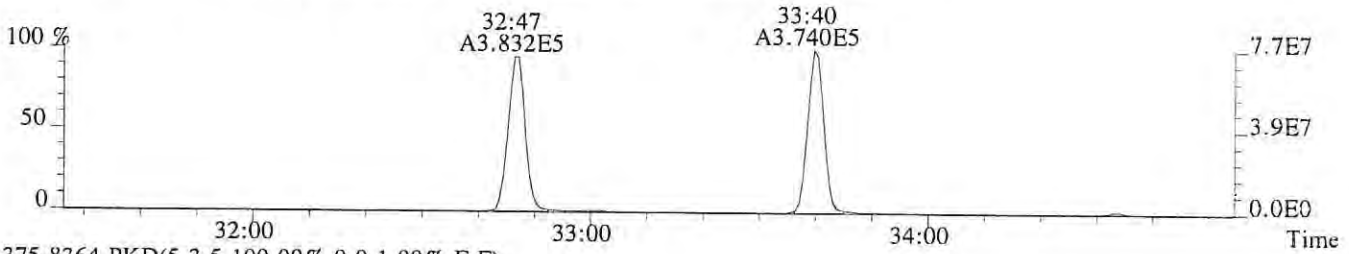
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



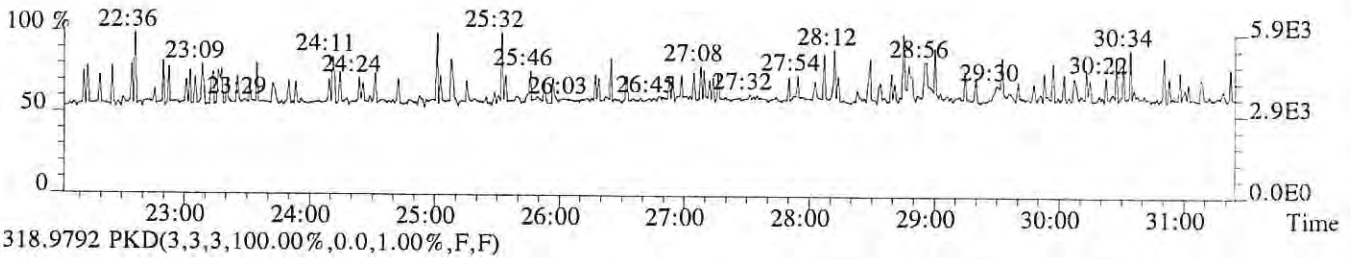
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



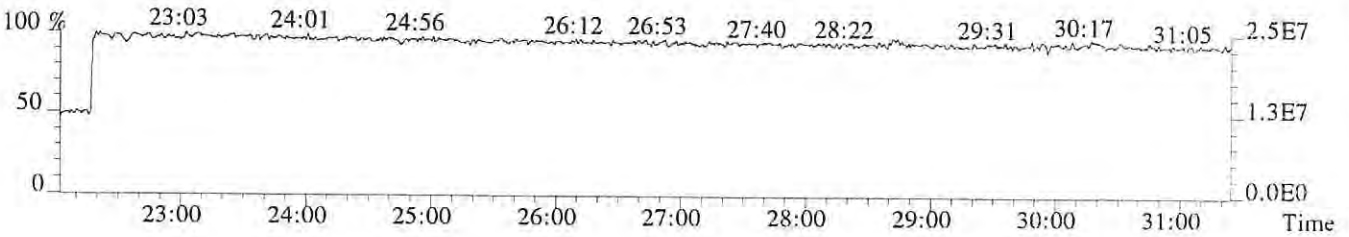
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



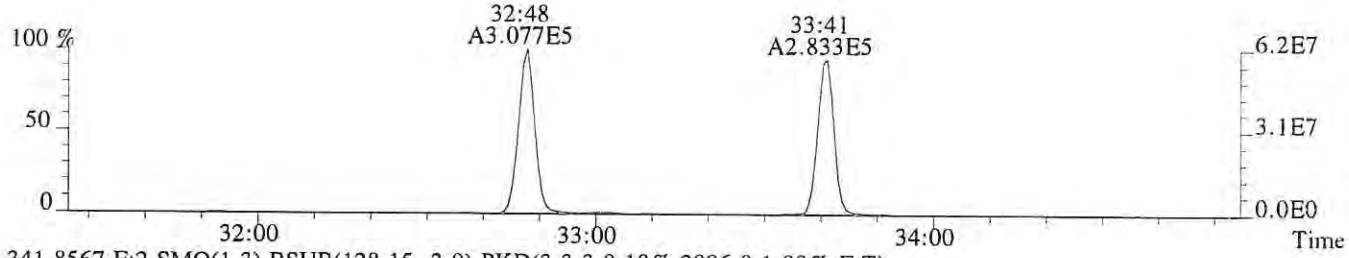
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



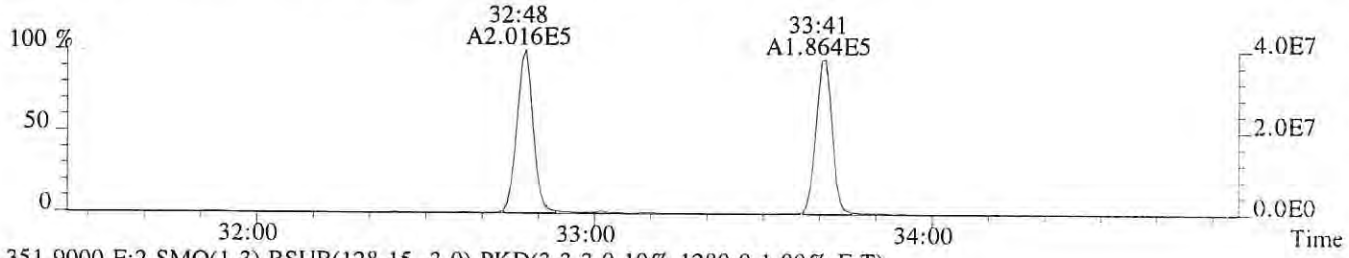
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



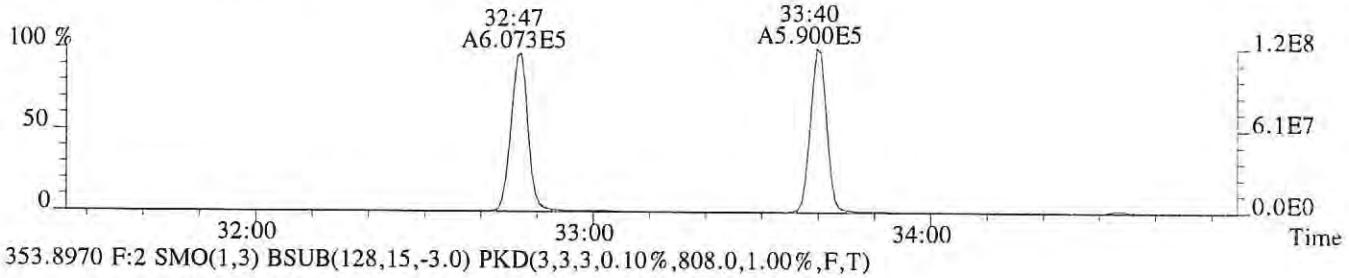
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



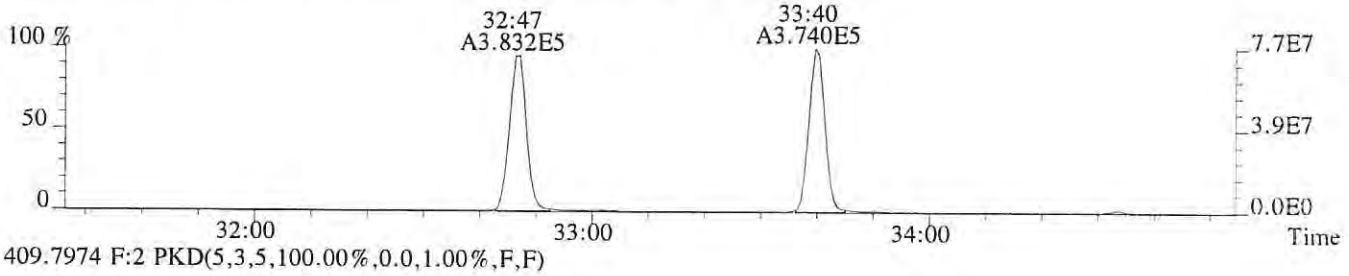
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



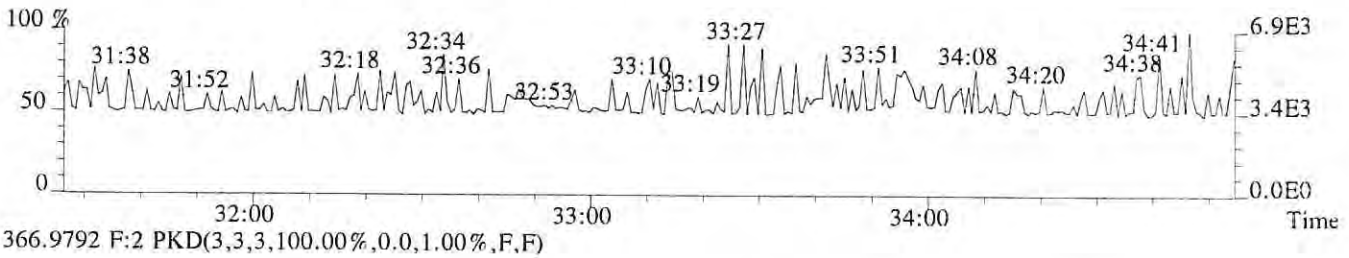
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



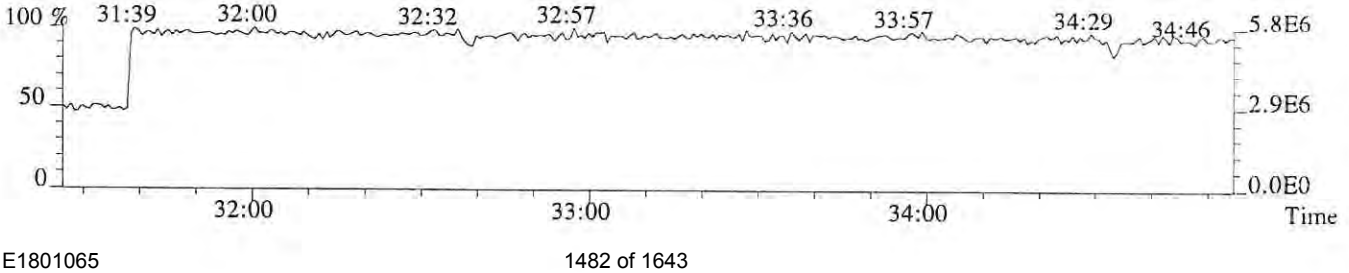
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



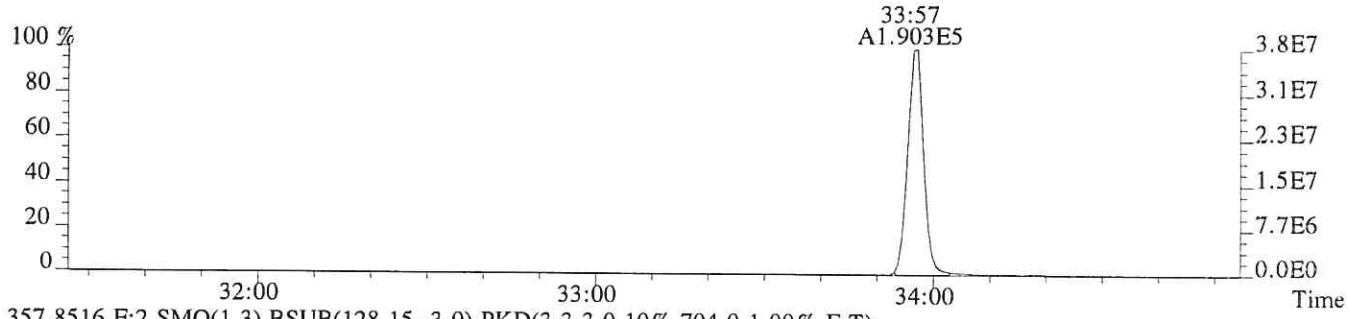
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



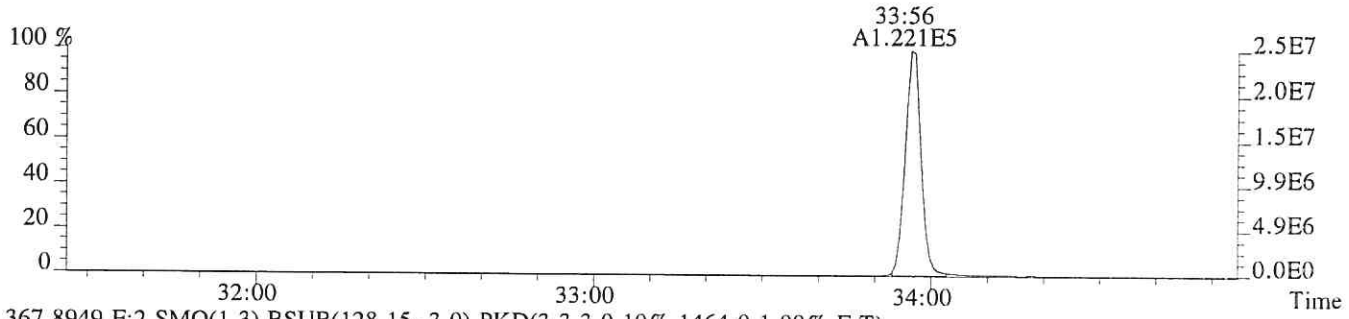
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



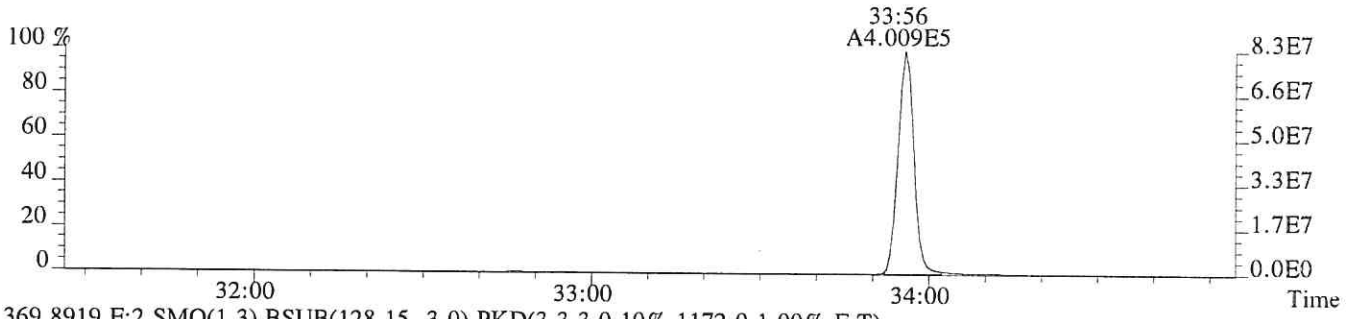
File:P513853 #1-313 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



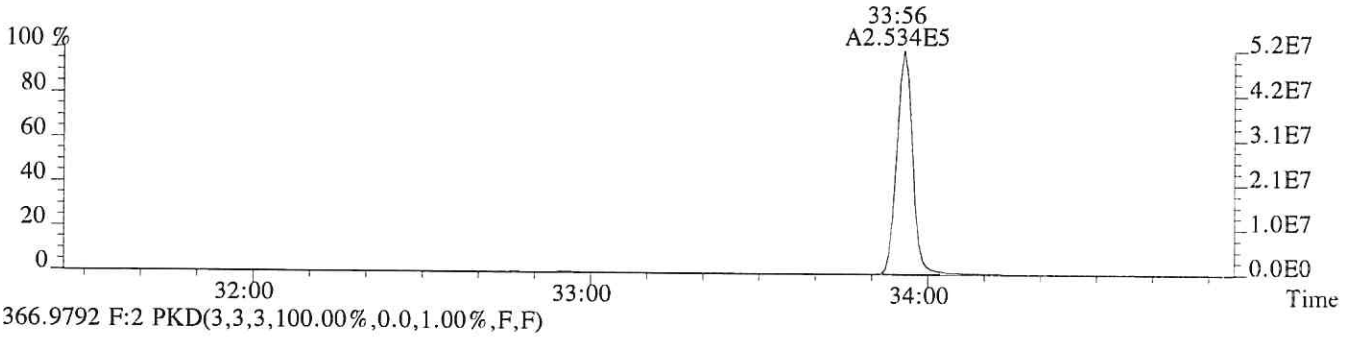
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



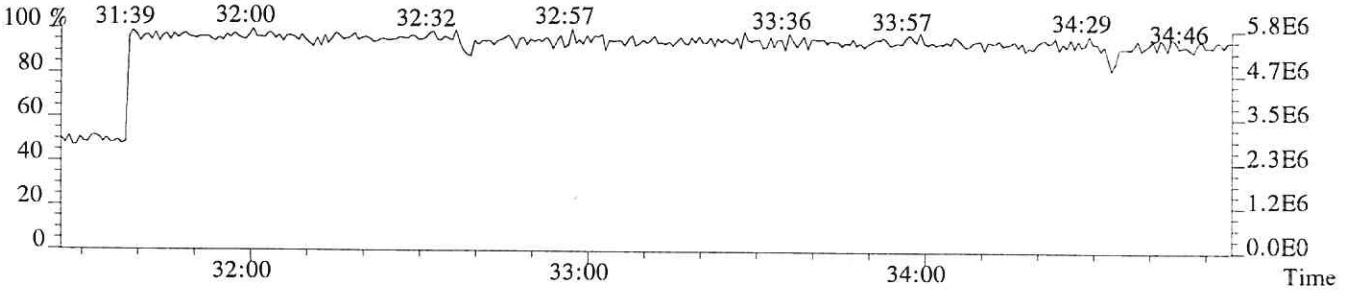
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



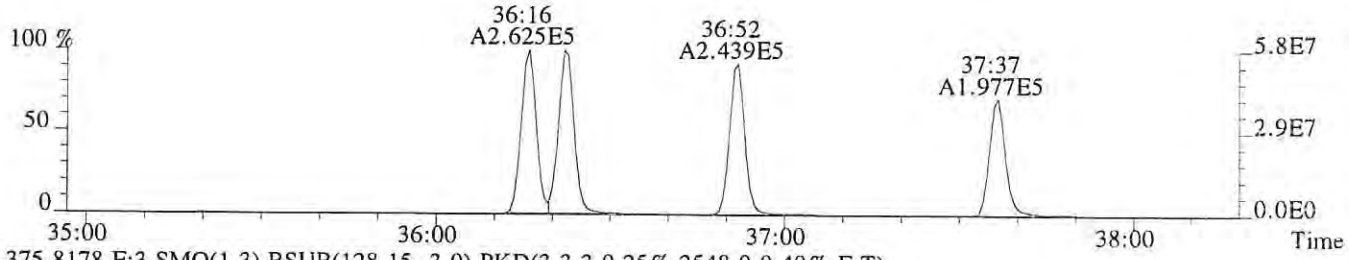
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



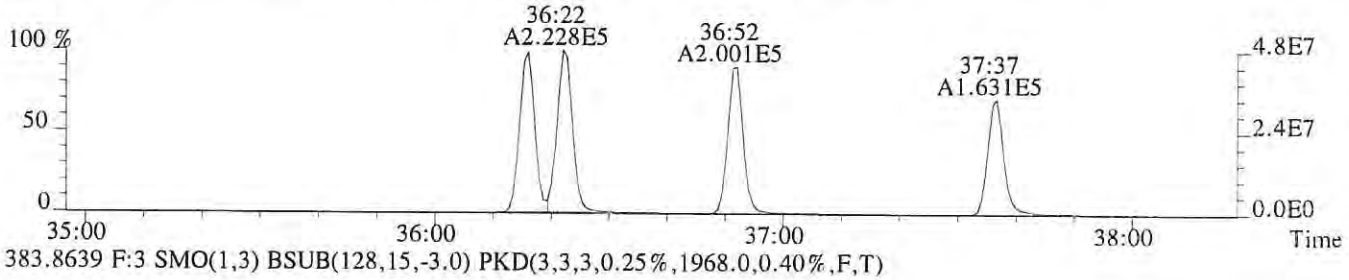
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



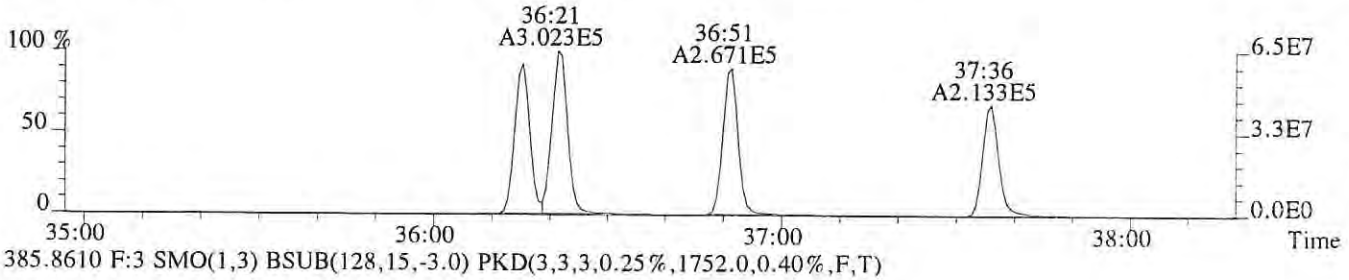
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



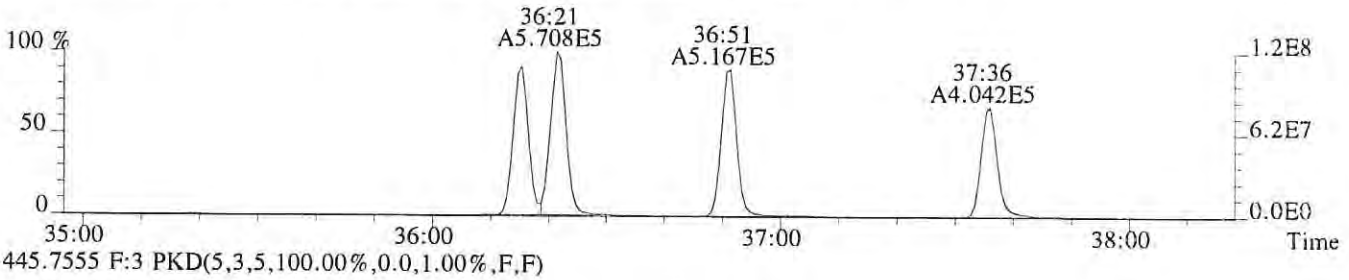
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2548.0,0.40%,F,T)



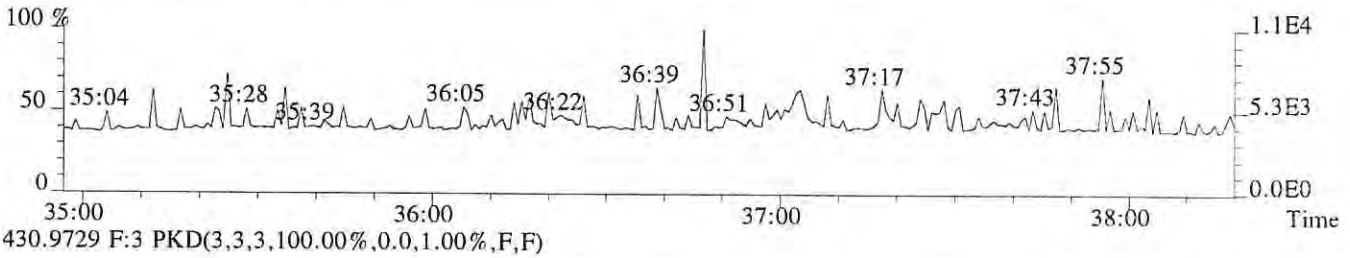
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.40%,F,T)



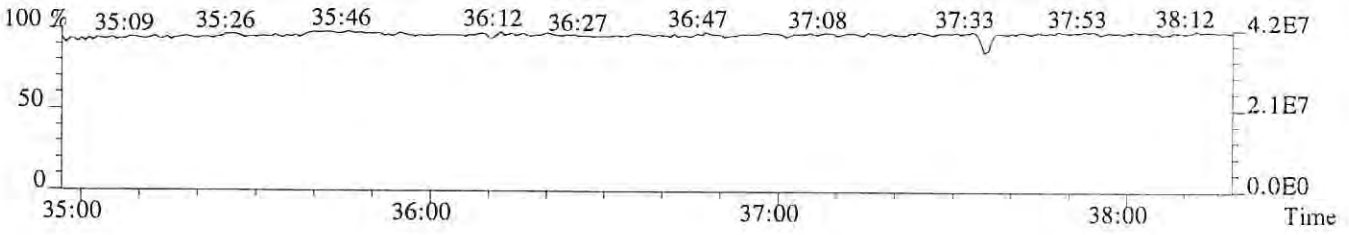
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



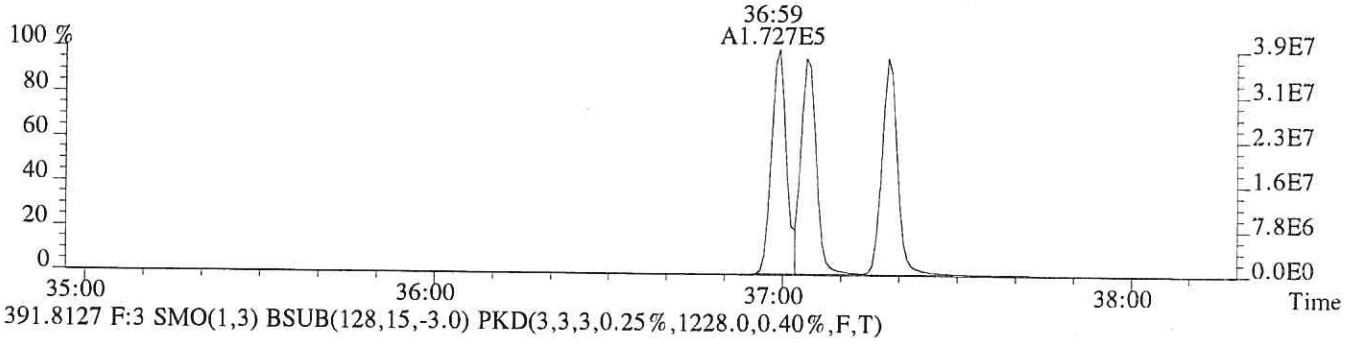
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



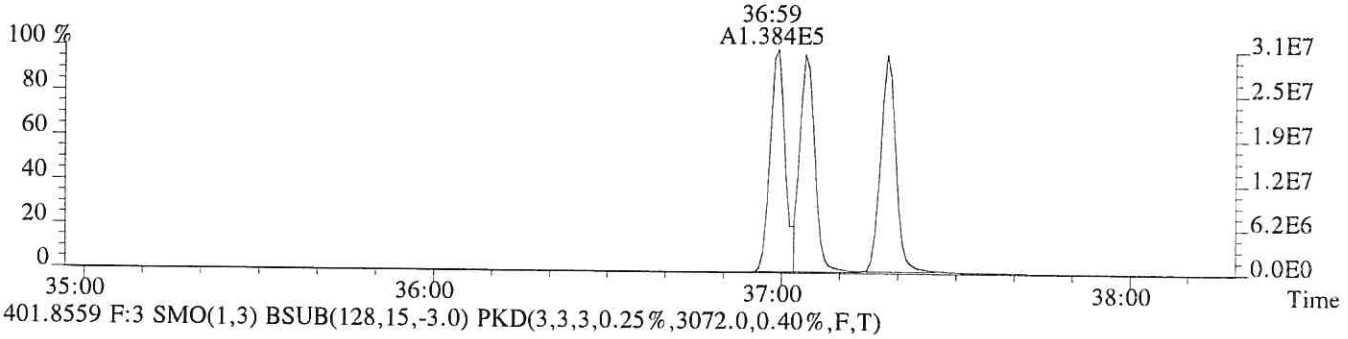
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



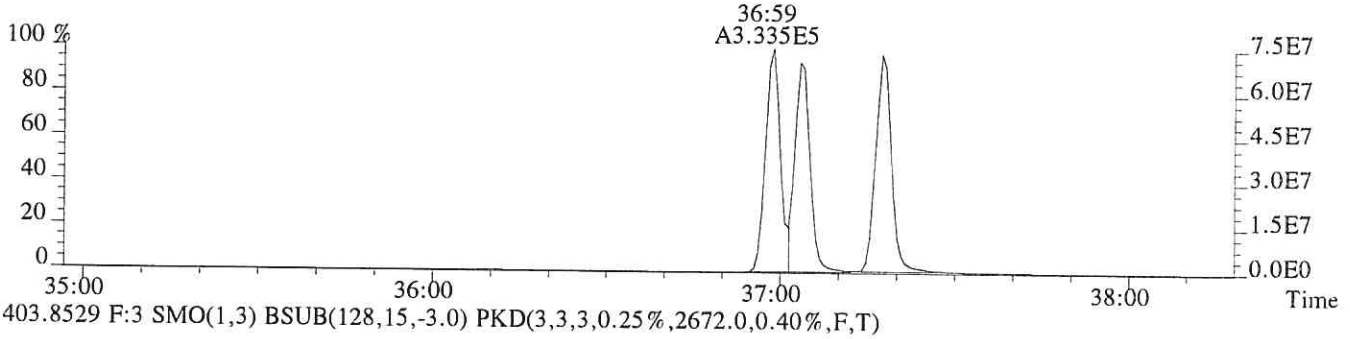
File:P513853 #1-303 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



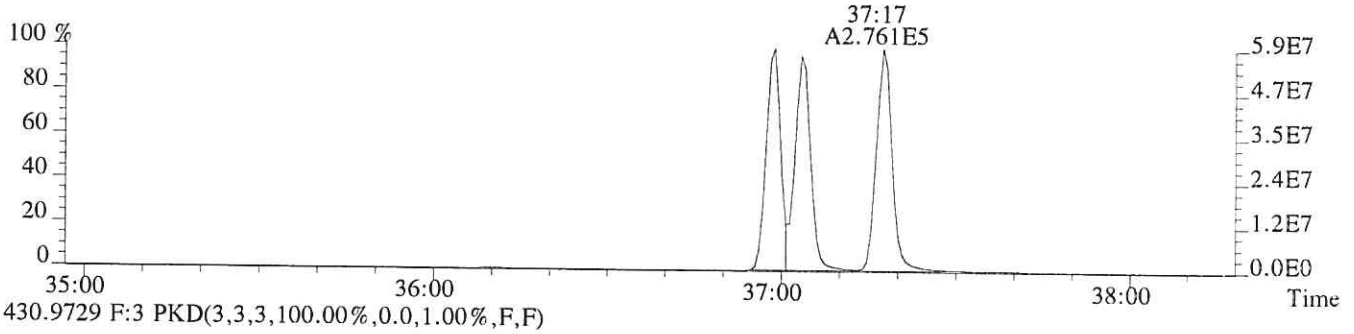
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



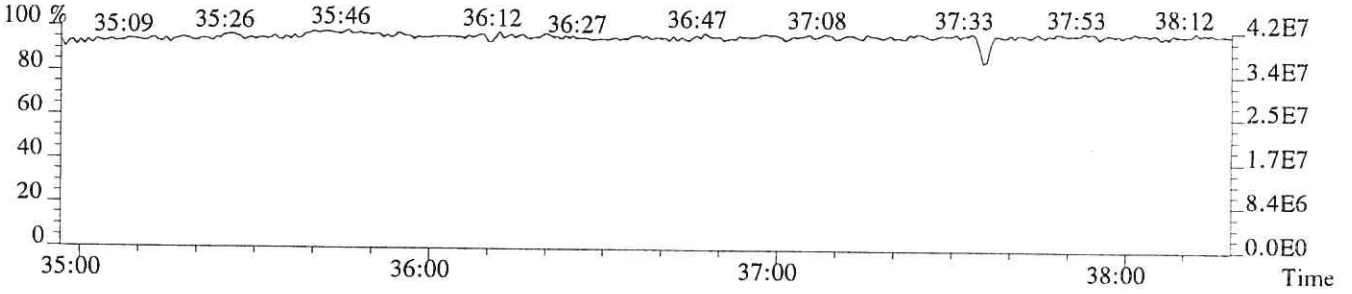
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.40%,F,T)



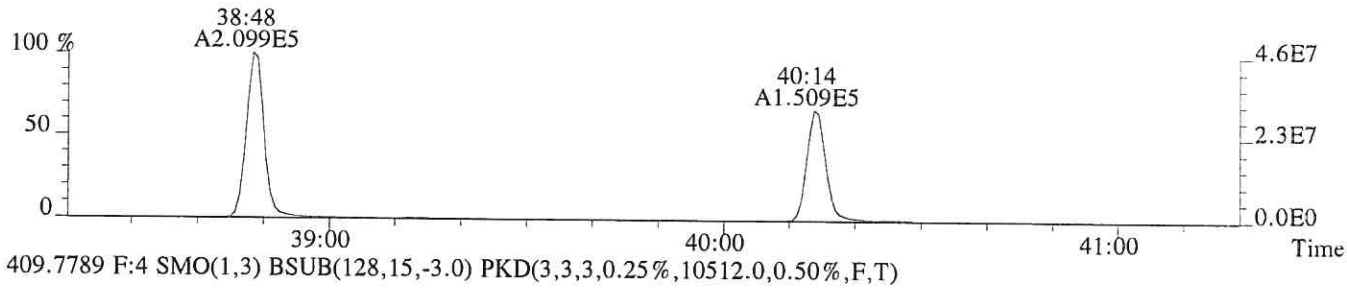
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.40%,F,T)



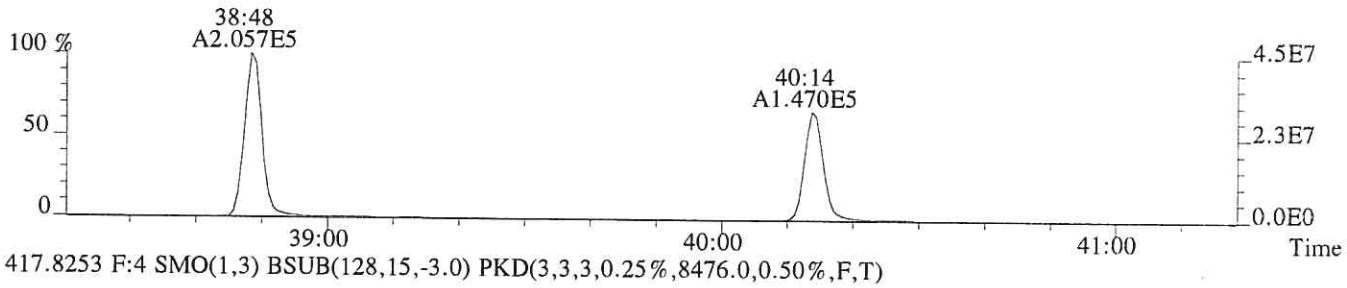
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



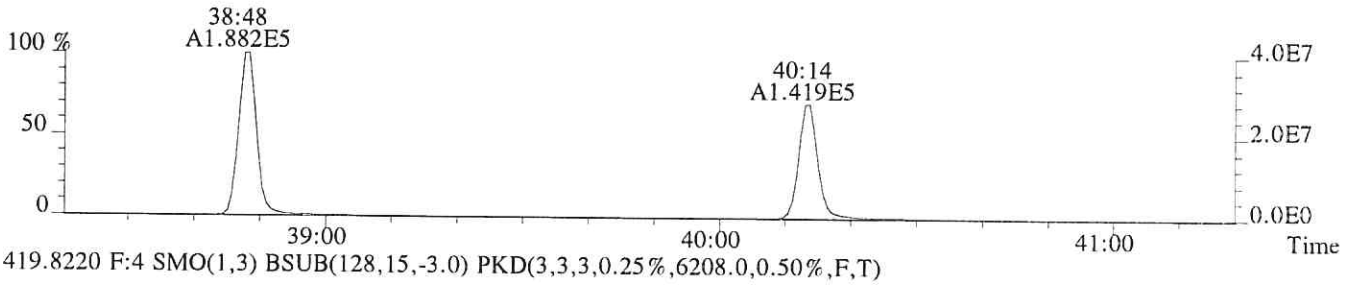
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.50%,F,T)



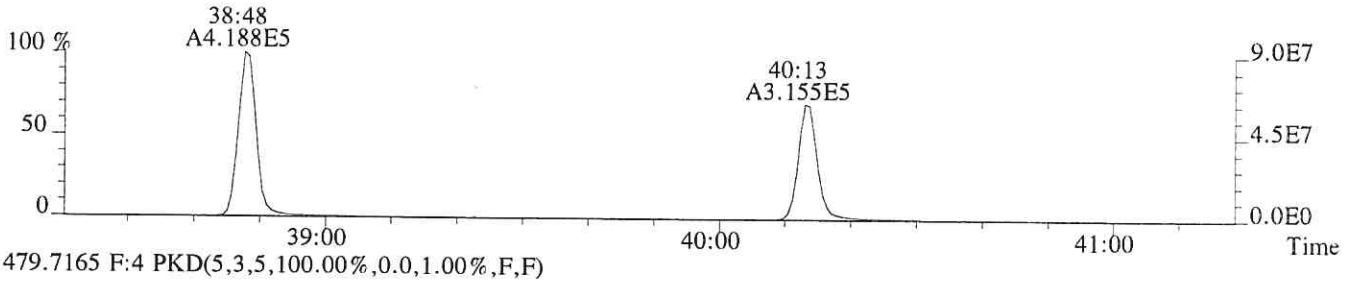
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10512.0,0.50%,F,T)



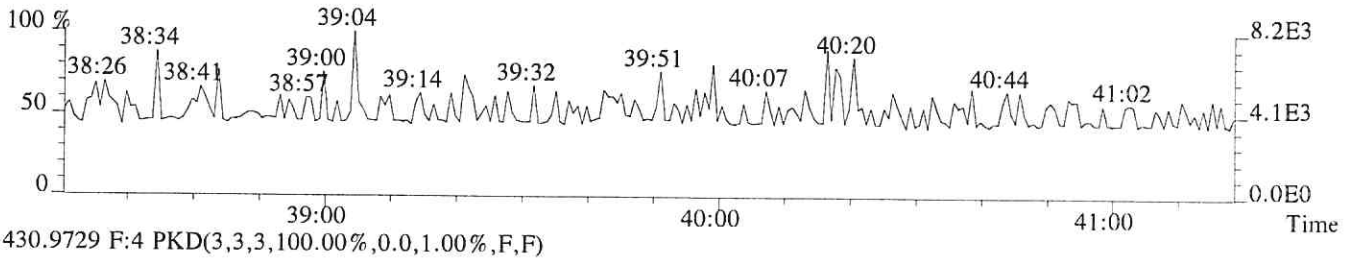
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8476.0,0.50%,F,T)



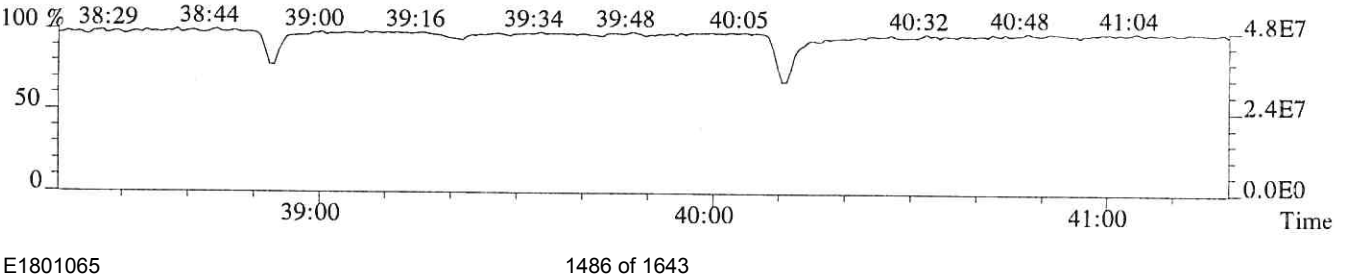
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6208.0,0.50%,F,T)



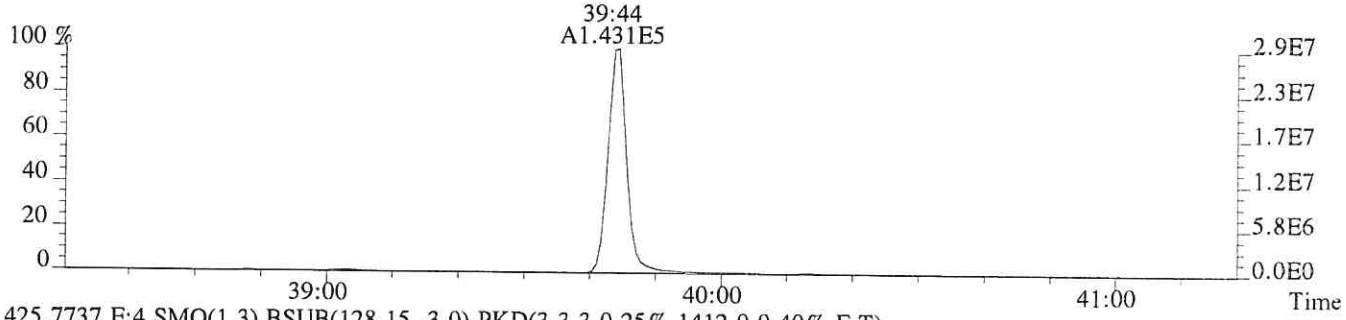
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



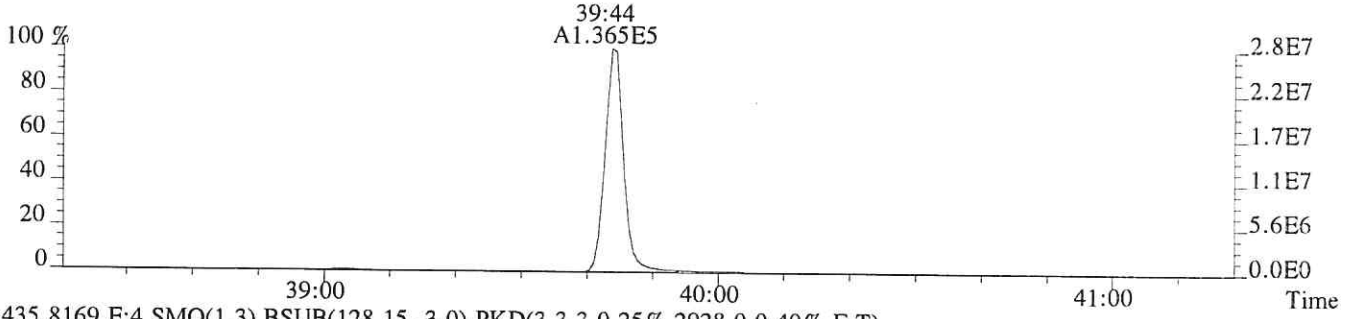
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



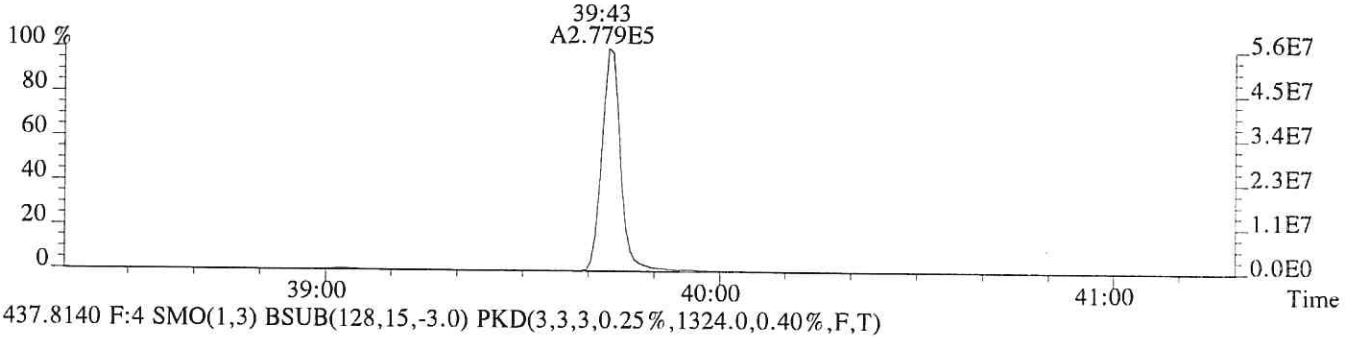
File:P513853 #1-268 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



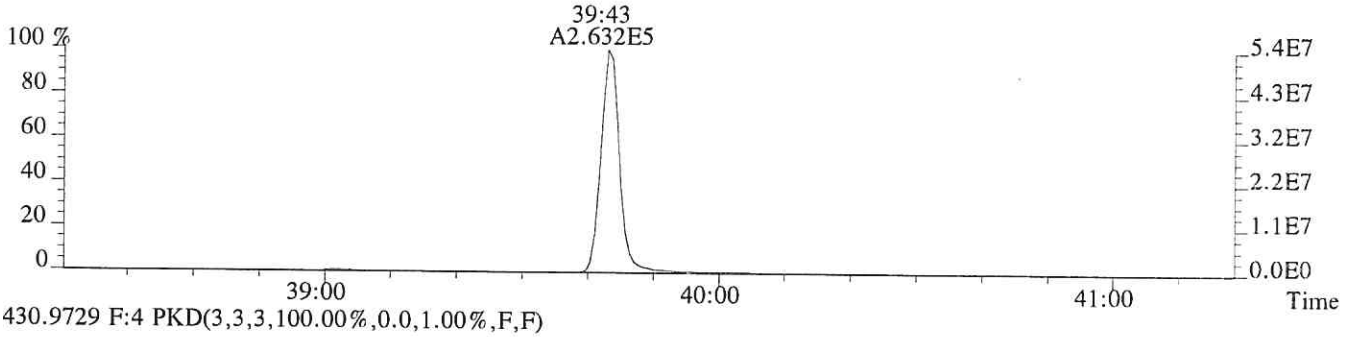
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



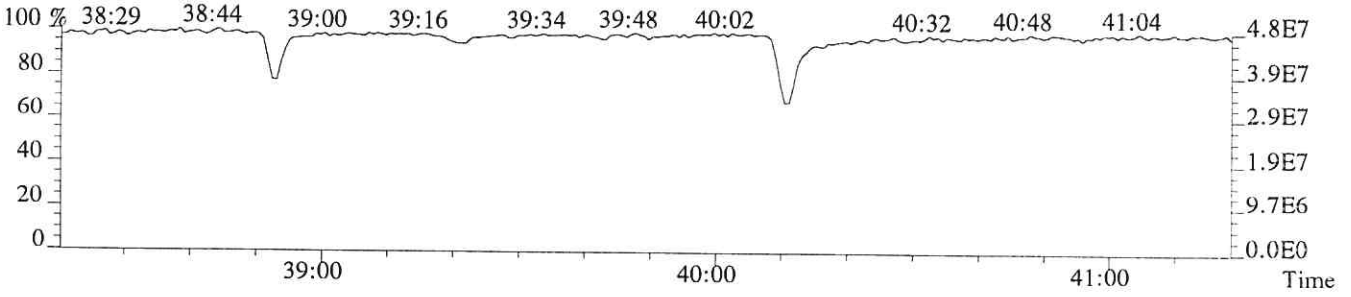
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.40%,F,T)



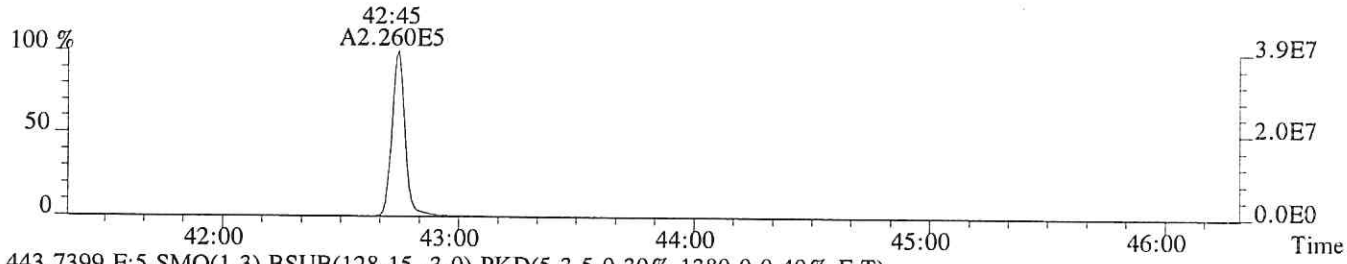
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



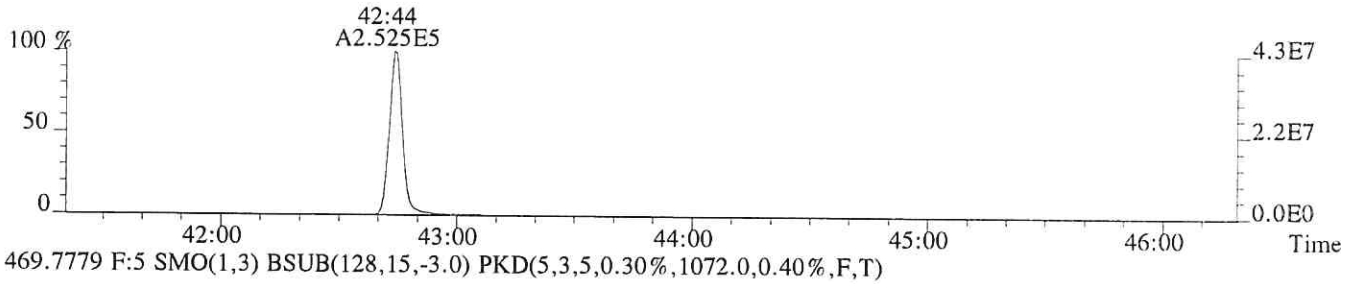
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



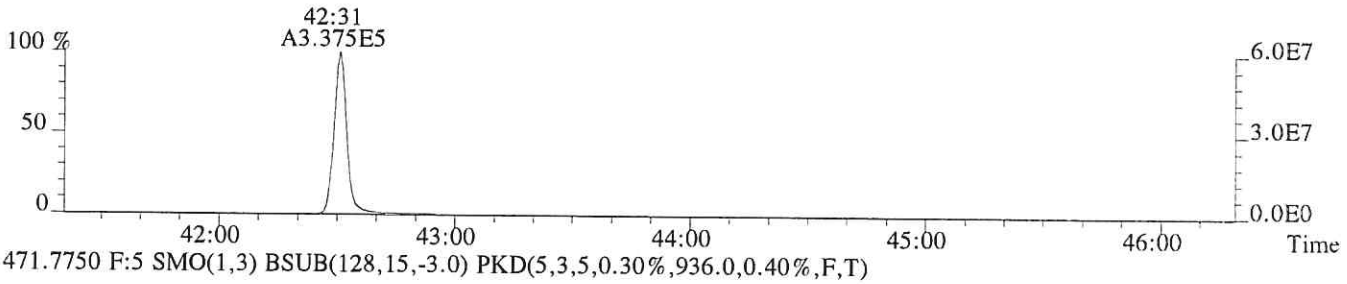
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



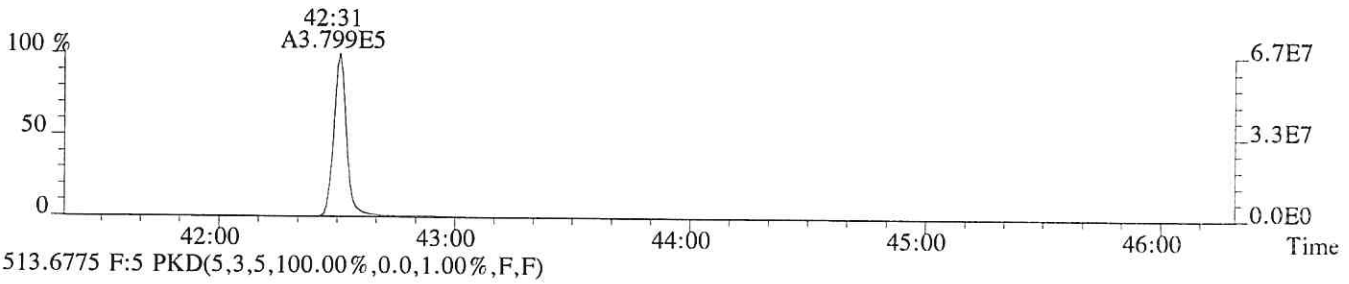
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



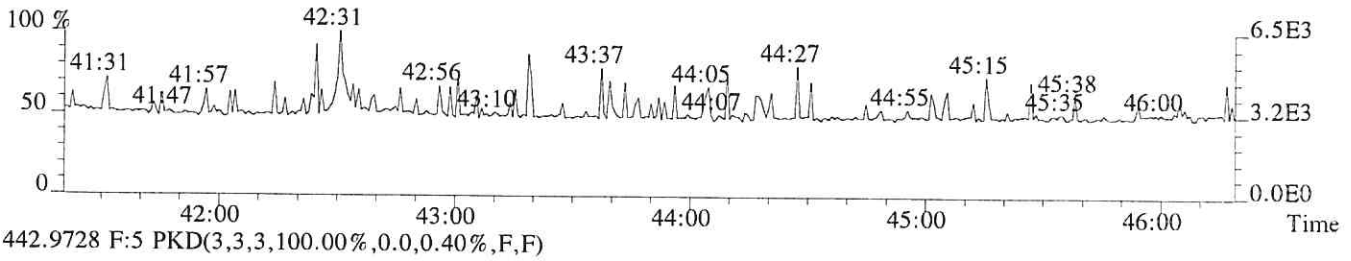
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



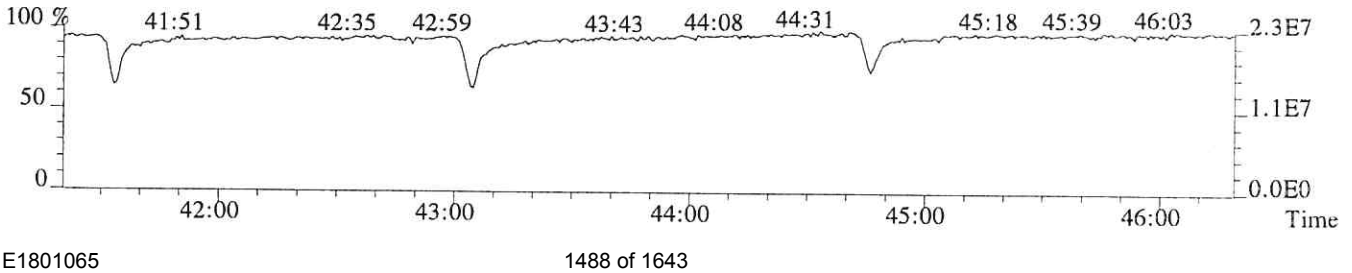
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



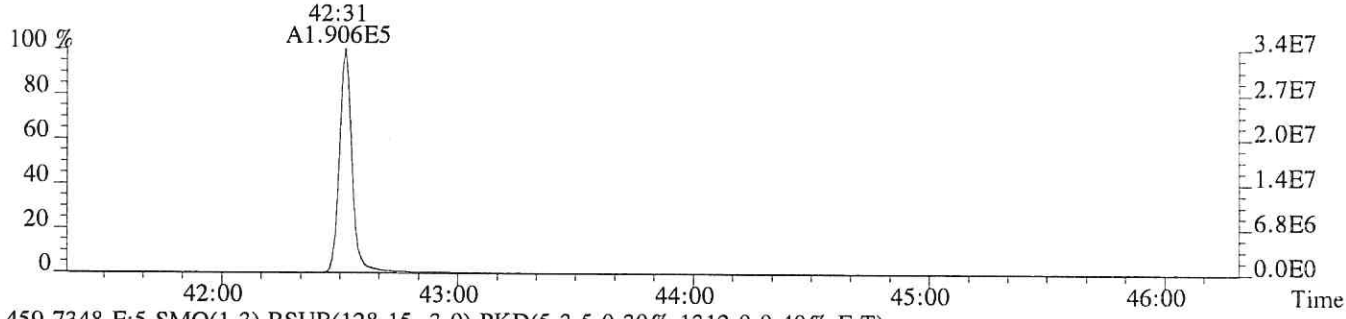
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



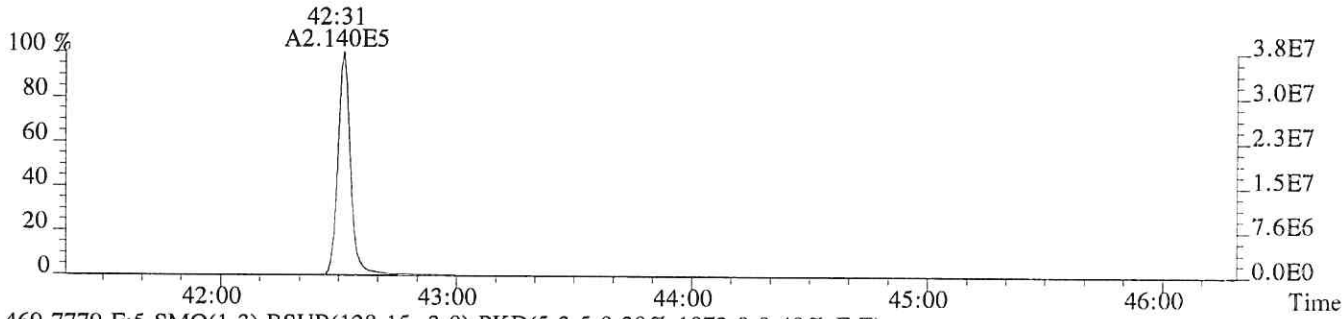
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



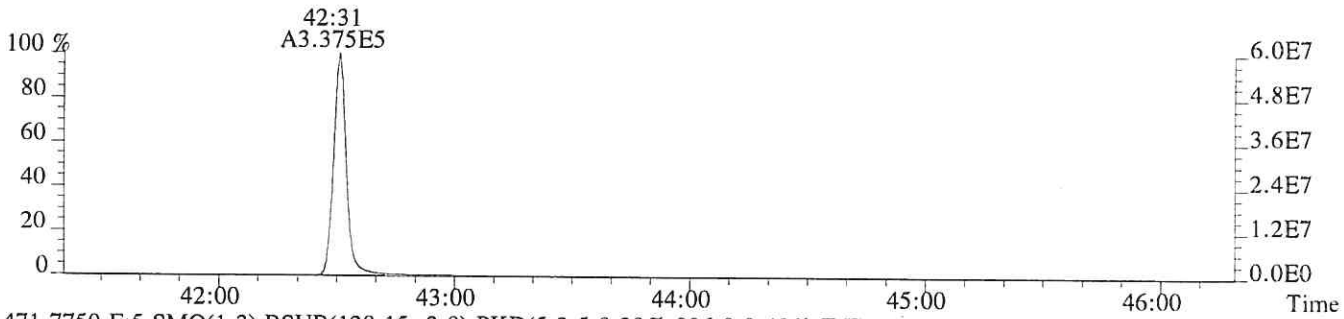
File:P513853 #1-448 Acq:24-JAN-2018 16:06:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



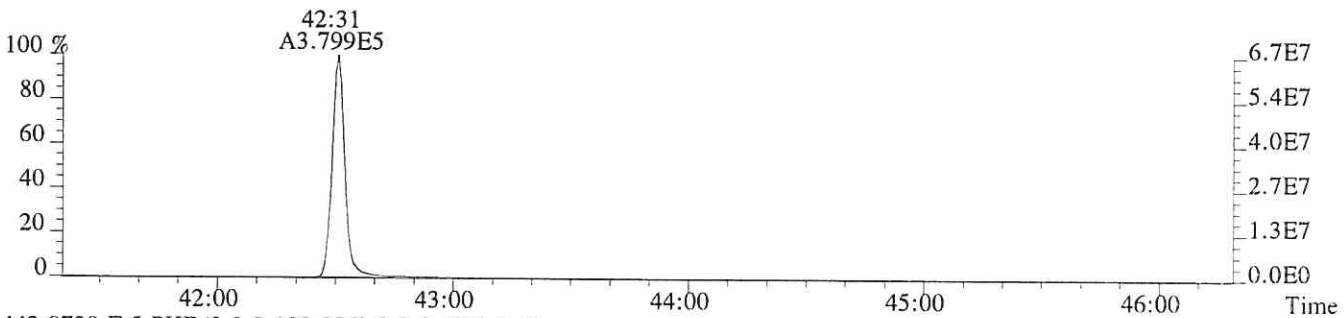
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1312.0,0.40%,F,T)



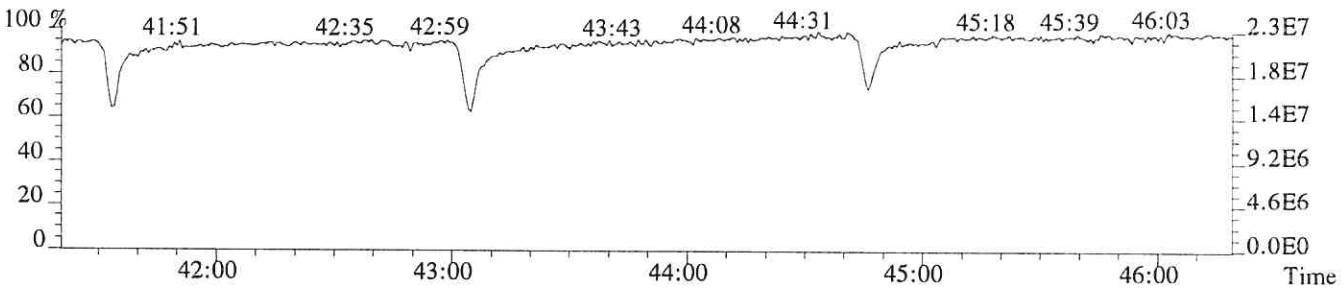
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	9.367e+04	1.218e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:47	7.158e+05	4.652e+05	1.54	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:40	6.668e+05	4.362e+05	1.53	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:15	6.097e+05	4.979e+05	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:22	6.415e+05	5.246e+05	1.22	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:51	5.685e+05	4.706e+05	1.21	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:36	5.397e+05	4.367e+05	1.24	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.833e+05	4.698e+05	1.03	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	3.955e+05	3.845e+05	1.03	yes	no	1.258
10	Unk	OCDF	42:44	5.770e+05	6.374e+05	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:31	6.699e+04	8.569e+04	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:56	4.394e+05	2.817e+05	1.56	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	3.869e+05	3.085e+05	1.25	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.031e+05	3.210e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.024e+05	3.196e+05	1.26	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	3.425e+05	3.252e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:31	4.623e+05	5.191e+05	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	2.467e+05	3.121e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:46	3.414e+05	2.167e+05	1.58	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	3.412e+05	2.161e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	1.522e+05	2.895e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.720e+05	3.253e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	1.562e+05	2.969e+05	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	1.406e+05	2.715e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.081e+05	2.395e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	9.438e+04	2.110e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	1.544e+05	1.910e+05	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.282e+05	1.431e+05	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.841e+05	1.451e+05	1.27	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.915e+05	1.516e+05	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.646e+05	1.528e+05	1.08	yes	no	0.858
32	IS	13C-OCDD	42:31	2.072e+05	2.298e+05	0.90	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.645e+05	2.018e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.964e+05	1.566e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.545e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P513854 Samp: 1 Inj: 1 Acquired: 24-JAN-18 16:55:09
Processed: 24-JAN-18 17:50:33 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+07	1.00e+03	1.9e+04	2.44e+07	1.90e+03	1.3e+04
2	1,2,3,7,8-PeCDF	1.40e+08	2.03e+03	6.9e+04	9.16e+07	1.47e+03	6.2e+04
3	2,3,4,7,8-PeCDF	1.39e+08	2.03e+03	6.9e+04	9.17e+07	1.47e+03	6.2e+04
4	1,2,3,4,7,8-HxCDF	1.35e+08	1.80e+03	7.5e+04	1.11e+08	2.10e+03	5.3e+04
5	1,2,3,6,7,8-HxCDF	1.41e+08	1.80e+03	7.8e+04	1.16e+08	2.10e+03	5.5e+04
6	2,3,4,6,7,8-HxCDF	1.27e+08	1.80e+03	7.0e+04	1.06e+08	2.10e+03	5.0e+04
7	1,2,3,7,8,9-HxCDF	1.14e+08	1.80e+03	6.3e+04	9.30e+07	2.10e+03	4.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.07e+08	1.75e+04	6.1e+03	1.05e+08	2.93e+04	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.10e+07	1.75e+04	4.6e+03	7.89e+07	2.93e+04	2.7e+03
10	OCDF	1.02e+08	5.04e+02	2.0e+05	1.14e+08	1.72e+03	6.6e+04
11	2,3,7,8-TCDD	1.41e+07	2.20e+03	6.4e+03	1.80e+07	1.38e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.08e+07	1.42e+03	6.4e+04	5.86e+07	1.44e+02	4.1e+05
13	1,2,3,4,7,8-HxCDD	8.77e+07	1.20e+03	7.3e+04	7.06e+07	1.58e+03	4.5e+04
14	1,2,3,6,7,8-HxCDD	8.80e+07	1.20e+03	7.3e+04	7.05e+07	1.58e+03	4.5e+04
15	1,2,3,7,8,9-HxCDD	8.97e+07	1.20e+03	7.5e+04	7.13e+07	1.58e+03	4.5e+04
16	1,2,3,4,6,7,8-HpCDD	7.19e+07	1.52e+03	4.7e+04	6.86e+07	1.50e+03	4.6e+04
17	OCDD	8.05e+07	7.36e+02	1.1e+05	9.09e+07	1.16e+03	7.8e+04
18	13C-2,3,7,8-TCDF	4.92e+07	8.28e+03	5.9e+03	6.18e+07	3.78e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	6.78e+07	1.09e+03	6.2e+04	4.35e+07	7.12e+02	6.1e+04
20	13C-2,3,4,7,8-PeCDF	7.11e+07	1.09e+03	6.5e+04	4.54e+07	7.12e+02	6.4e+04
21	13C-1,2,3,4,7,8-HxCDF	3.32e+07	1.94e+03	1.7e+04	6.39e+07	1.54e+03	4.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.76e+07	1.94e+03	1.9e+04	7.17e+07	1.54e+03	4.7e+04
23	13C-2,3,4,6,7,8-HxCDF	3.46e+07	1.94e+03	1.8e+04	6.63e+07	1.54e+03	4.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.97e+07	1.94e+03	1.5e+04	5.66e+07	1.54e+03	3.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.37e+07	7.11e+03	3.3e+03	5.25e+07	1.03e+04	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+07	7.11e+03	2.7e+03	4.34e+07	1.03e+04	4.2e+03
27	13C-2,3,7,8-TCDD	3.25e+07	6.40e+03	5.1e+03	3.99e+07	2.77e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	4.73e+07	1.13e+03	4.2e+04	2.97e+07	8.40e+02	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	4.15e+07	3.03e+03	1.4e+04	3.28e+07	2.40e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.14e+07	3.03e+03	1.4e+04	3.31e+07	2.40e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+07	1.55e+03	2.2e+04	3.21e+07	1.32e+03	2.4e+04
32	13C-OCDD	3.61e+07	1.25e+03	2.9e+04	4.00e+07	1.19e+03	3.4e+04
33	13C-1,2,3,4-TCDD	3.34e+07	6.40e+03	5.2e+03	4.12e+07	2.77e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.34e+07	3.03e+03	1.4e+04	3.46e+07	2.40e+03	1.4e+04
35	37Cl-2,3,7,8-TCDD	3.25e+07	1.28e+03	2.5e+04			

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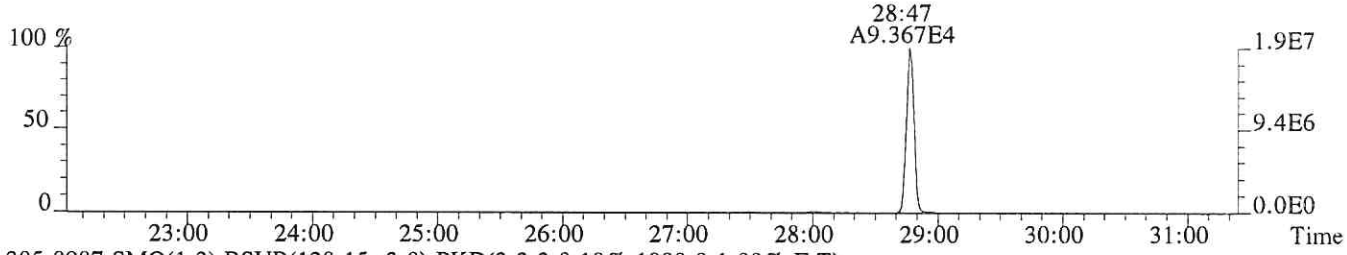
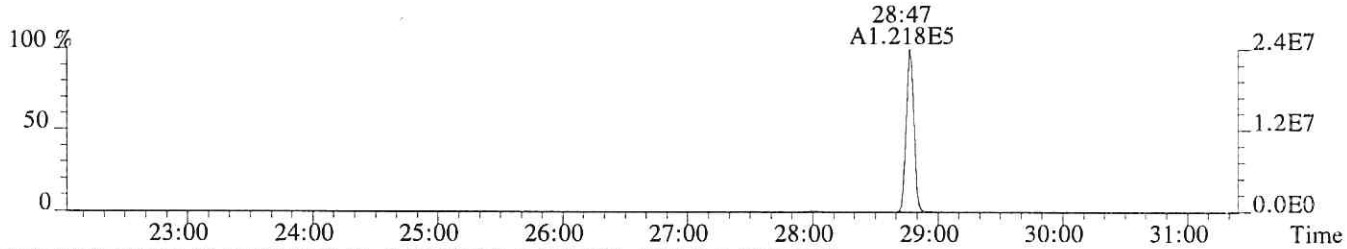
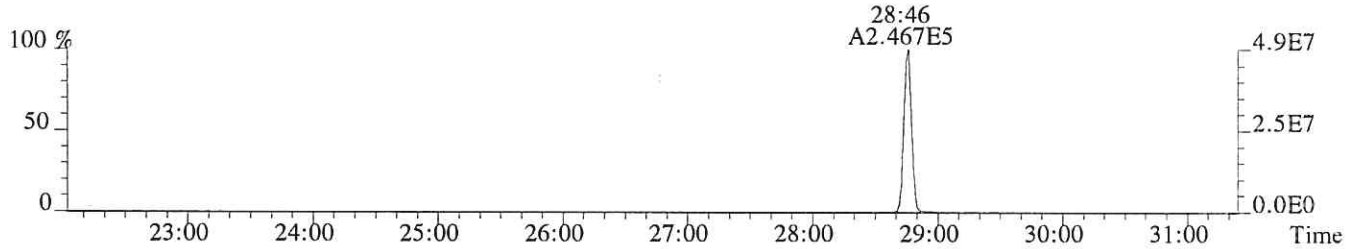
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



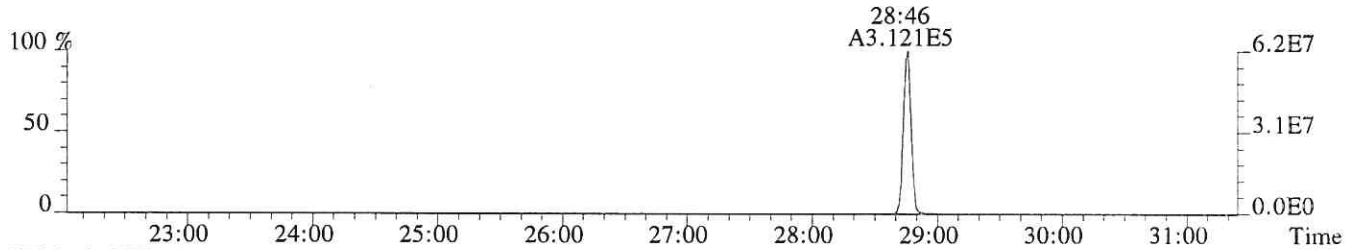
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1900.0,1.00%,F,T)



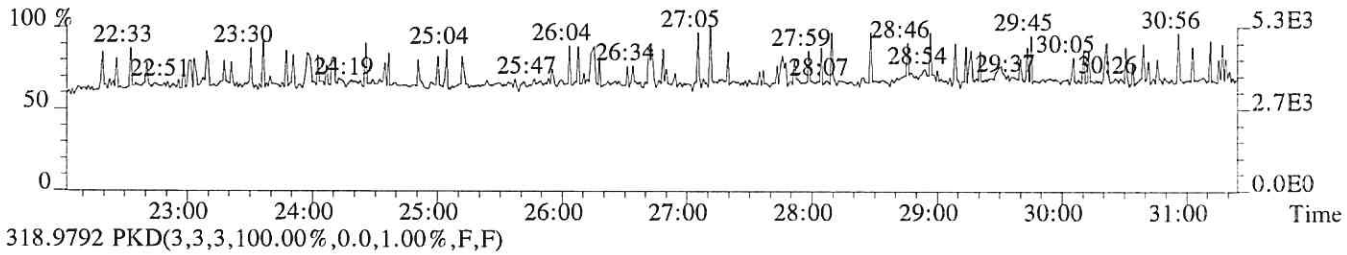
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8284.0,1.00%,F,T)



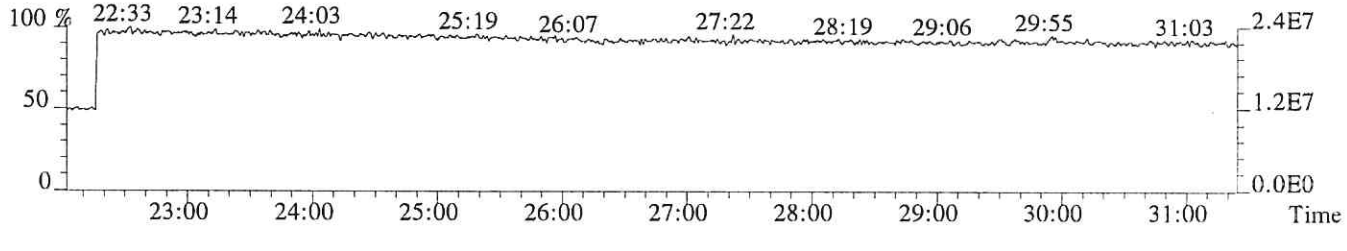
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3780.0,1.00%,F,T)



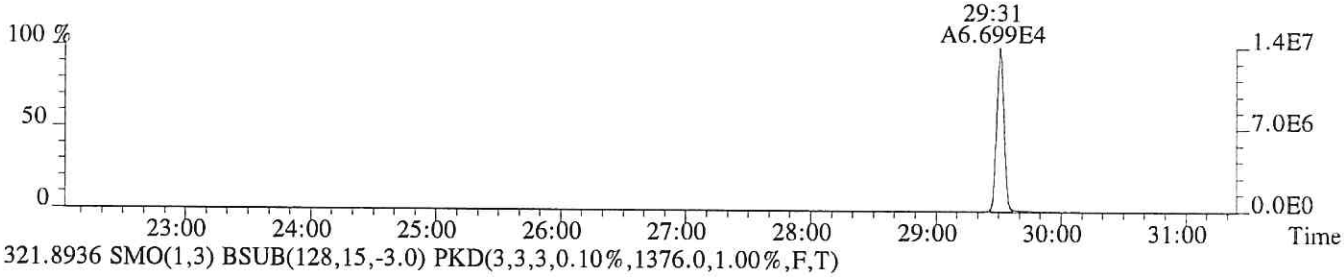
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



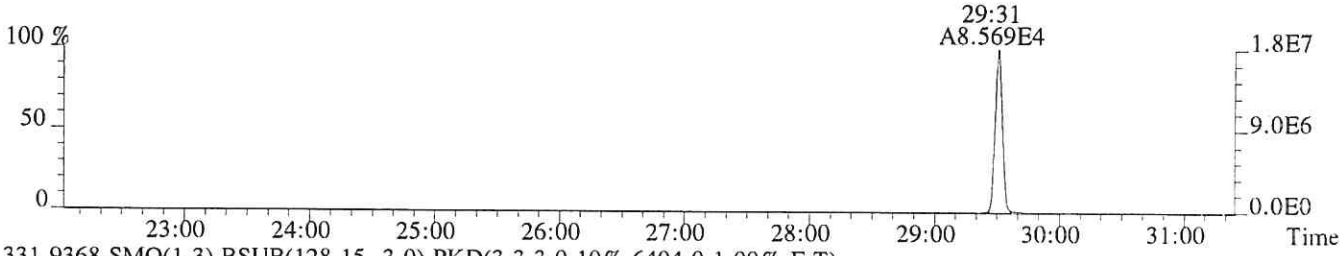
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



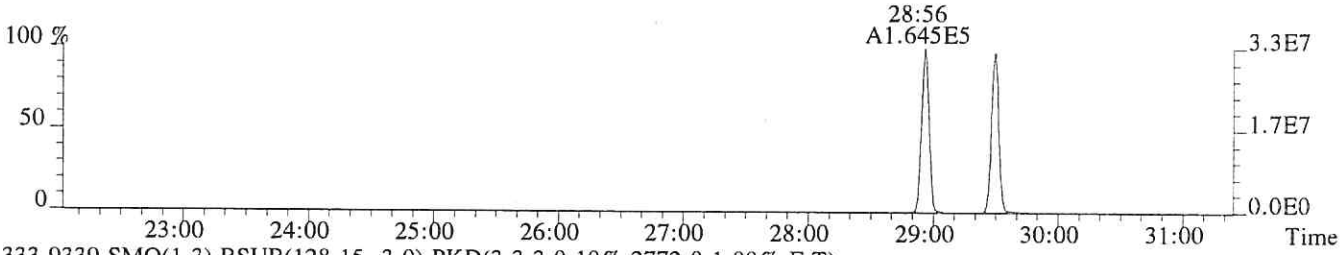
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



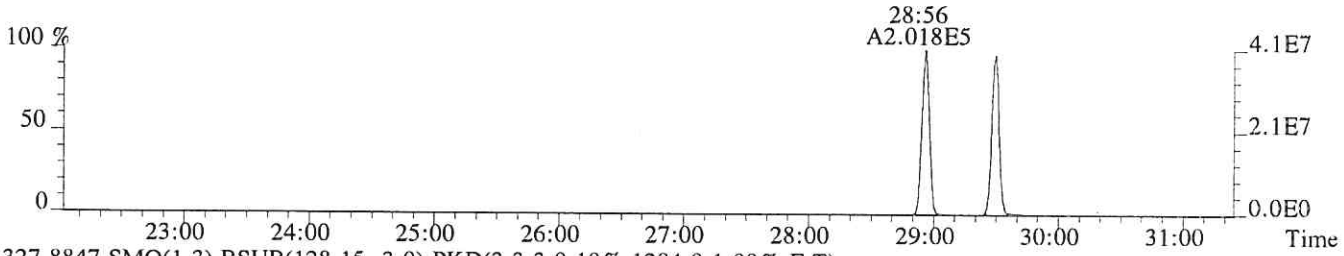
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



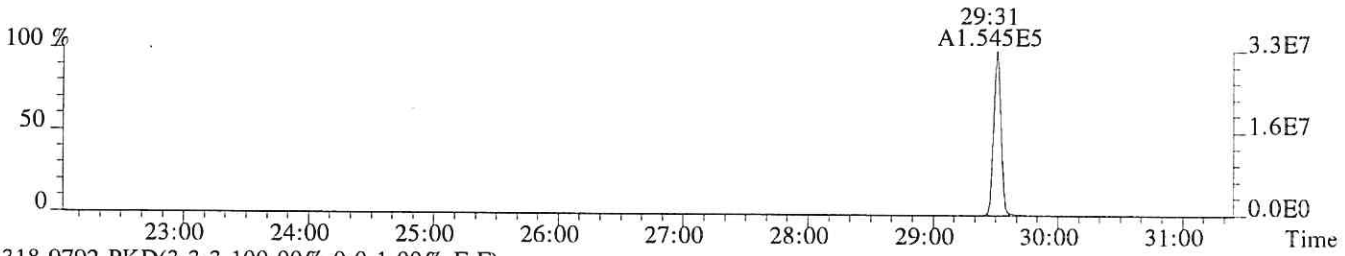
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6404.0,1.00%,F,T)



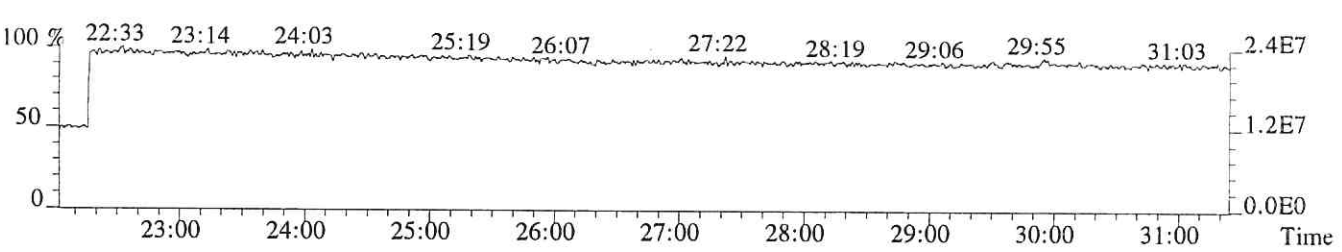
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2772.0,1.00%,F,T)



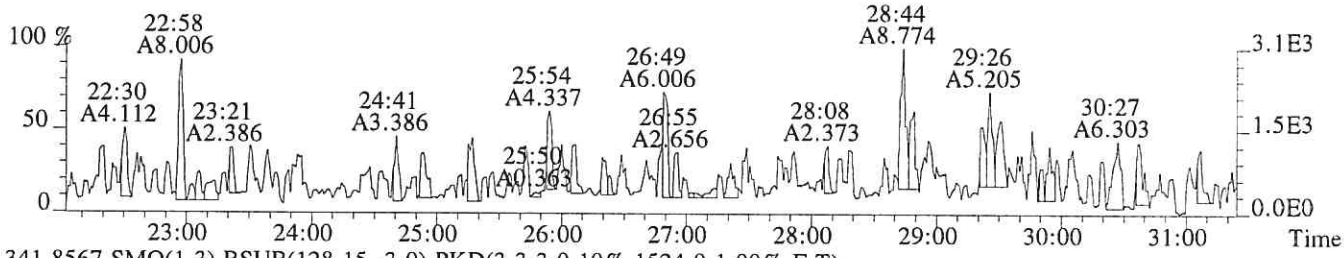
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



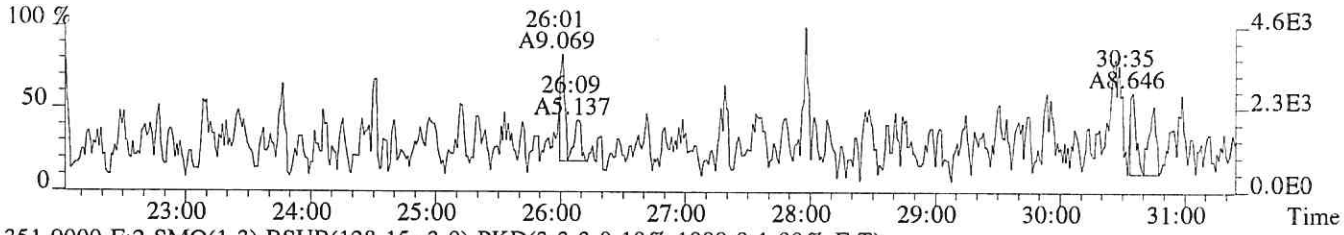
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



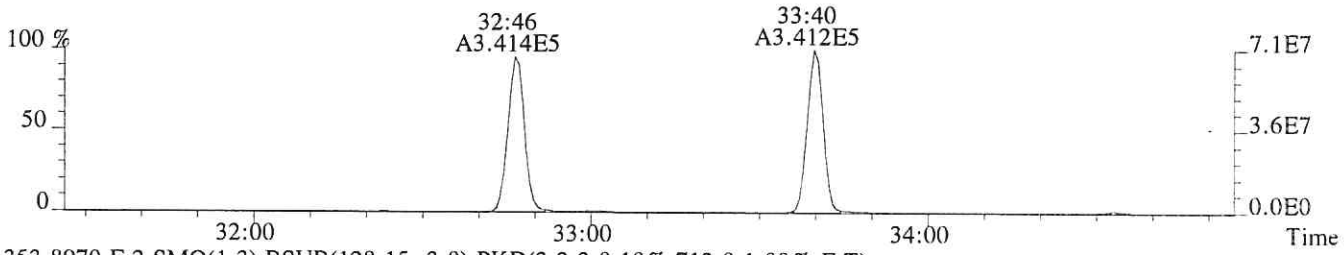
File:P513854 #1-665 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



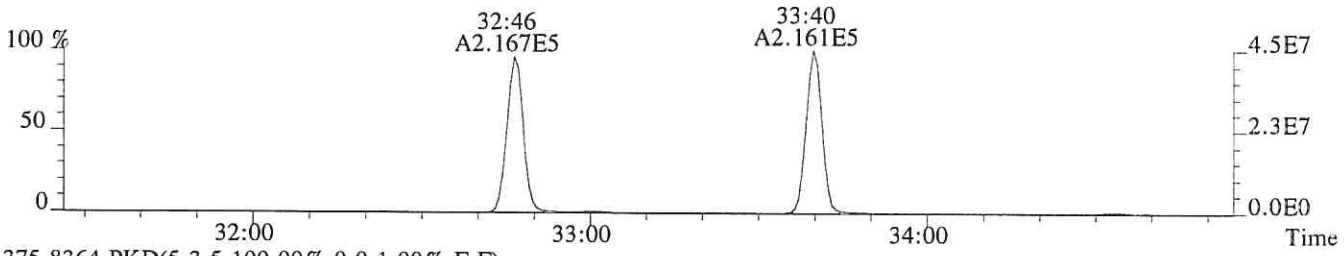
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



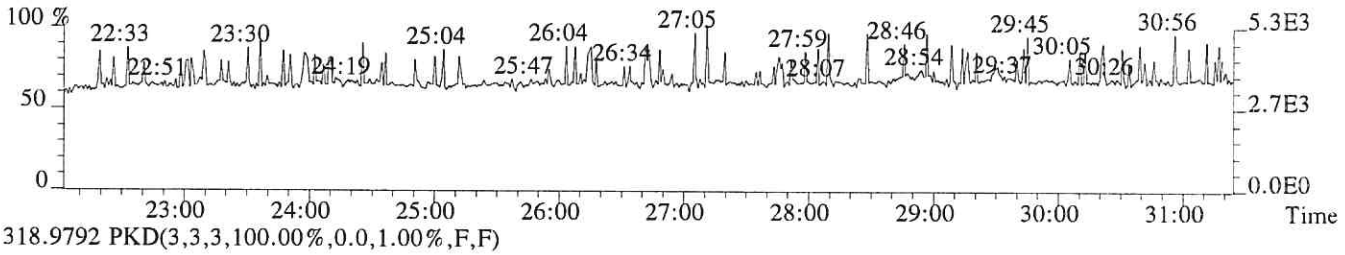
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



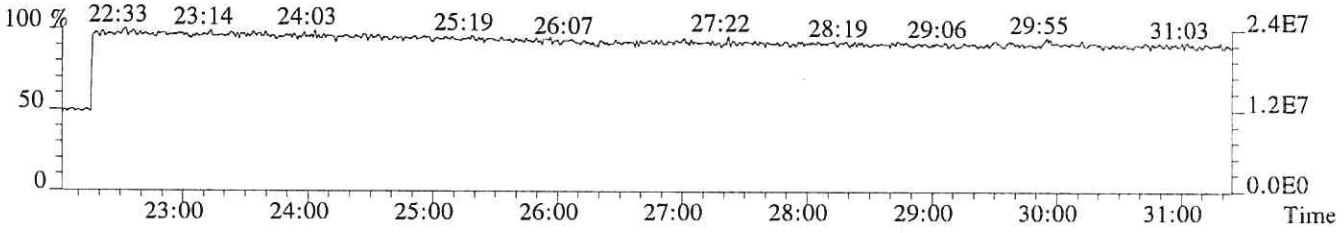
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



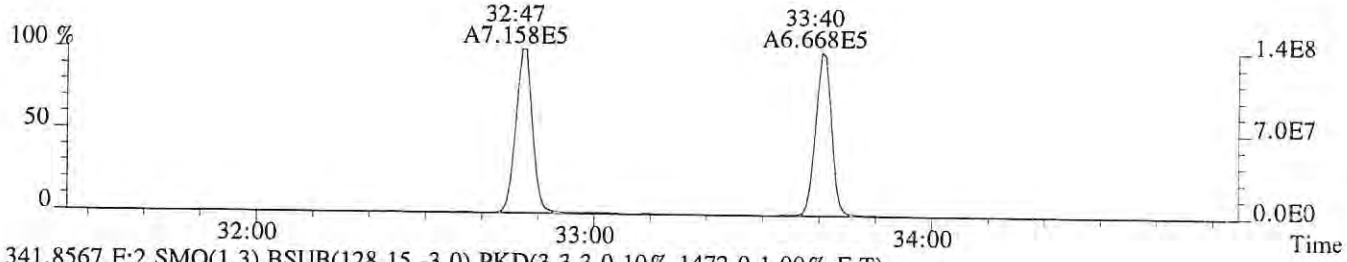
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



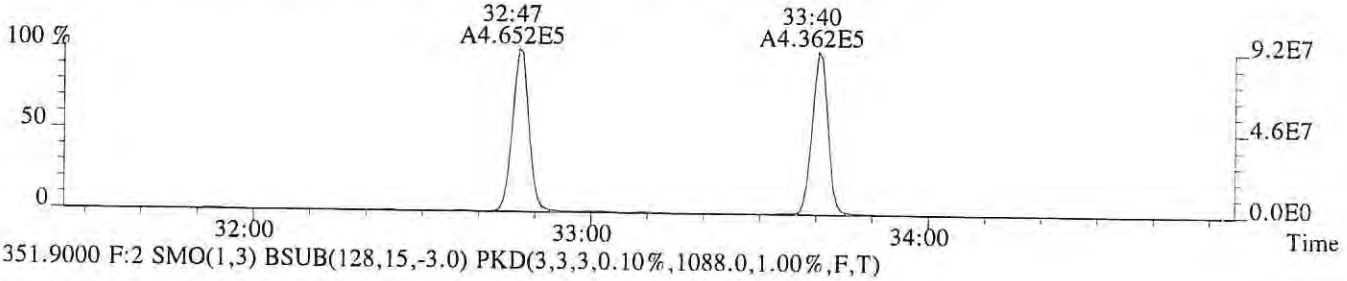
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



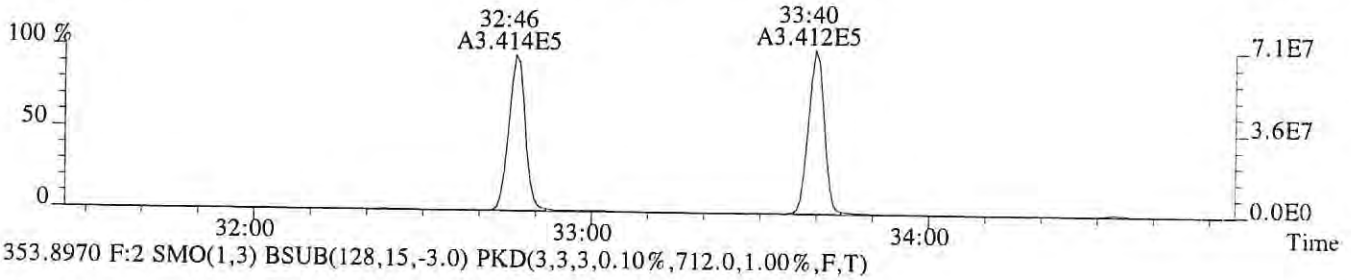
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



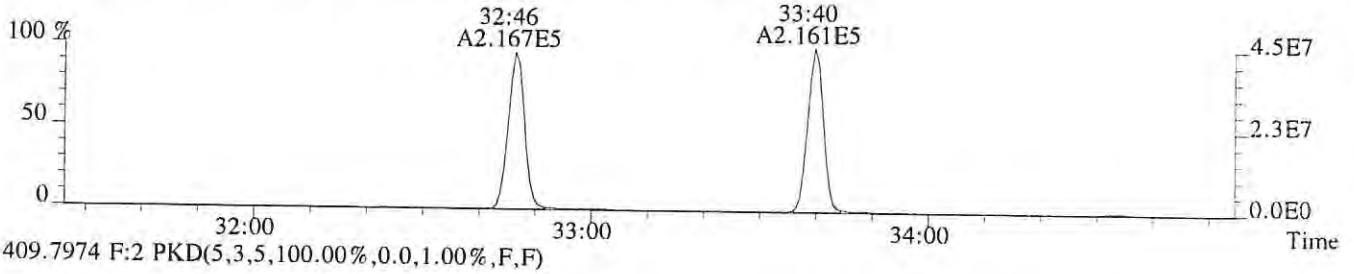
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



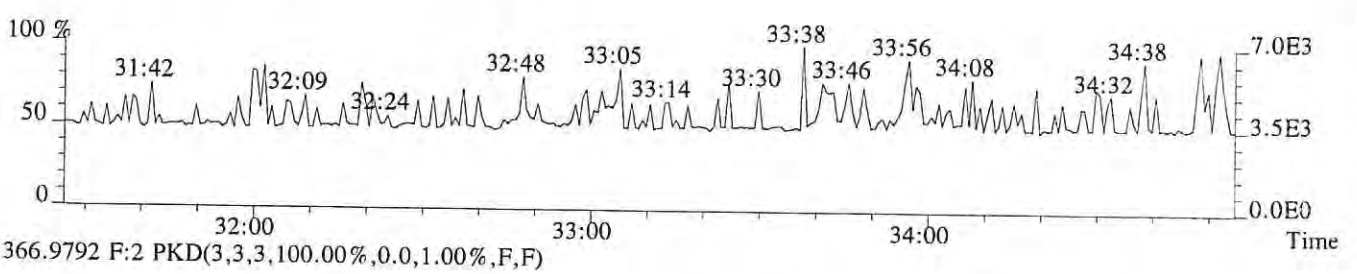
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



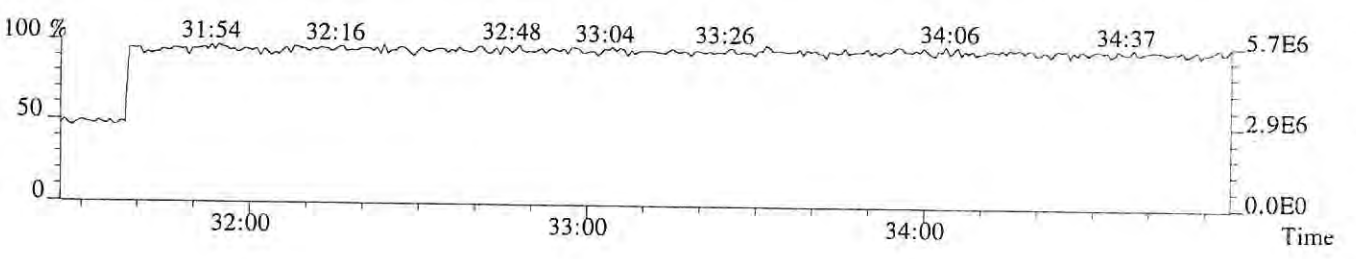
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



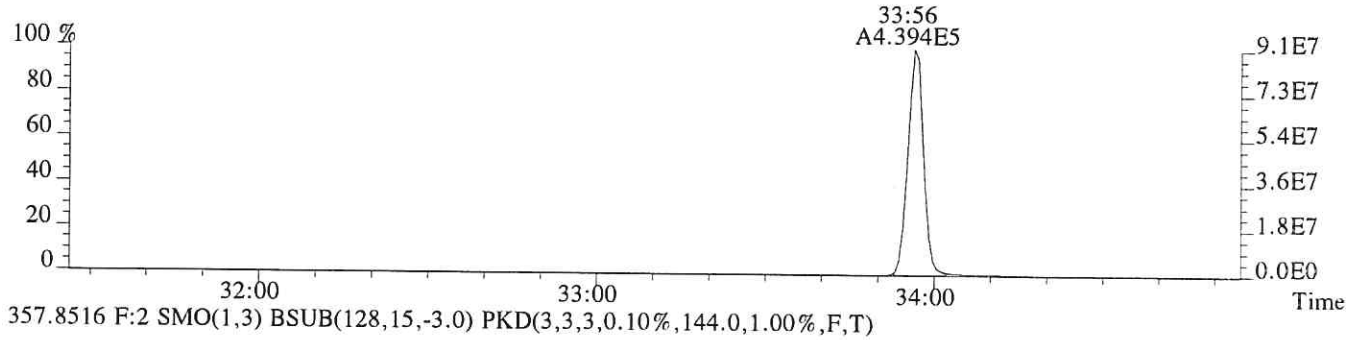
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



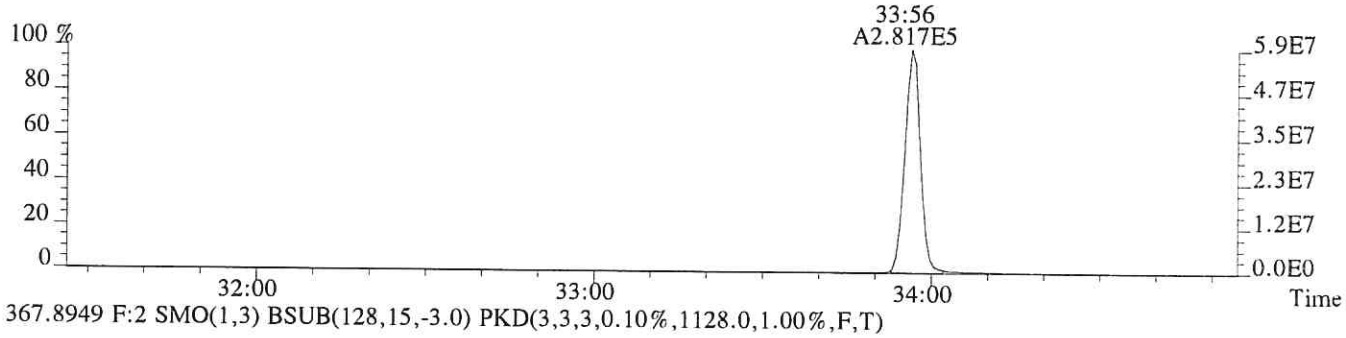
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



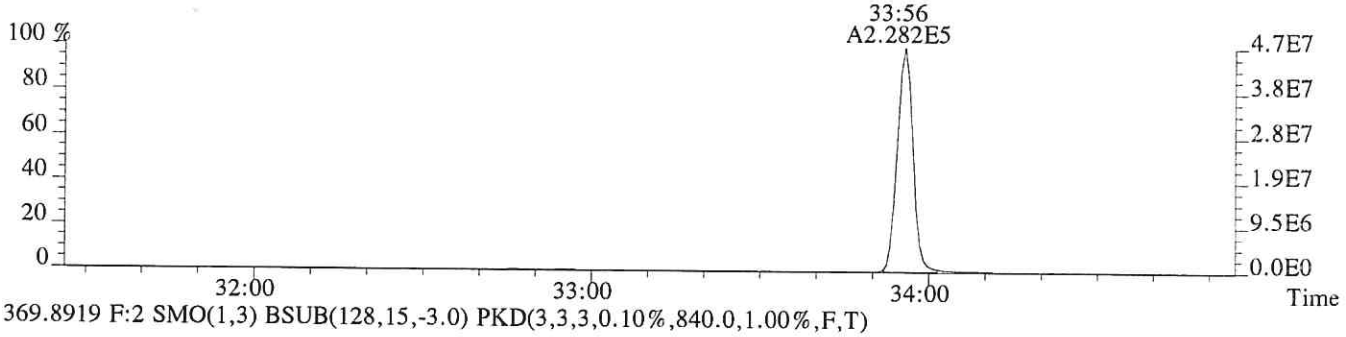
File:P513854 #1-313 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



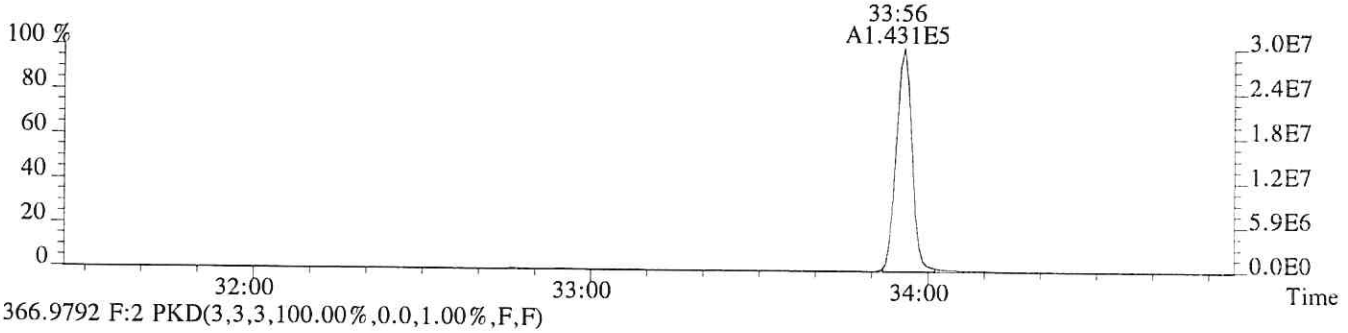
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



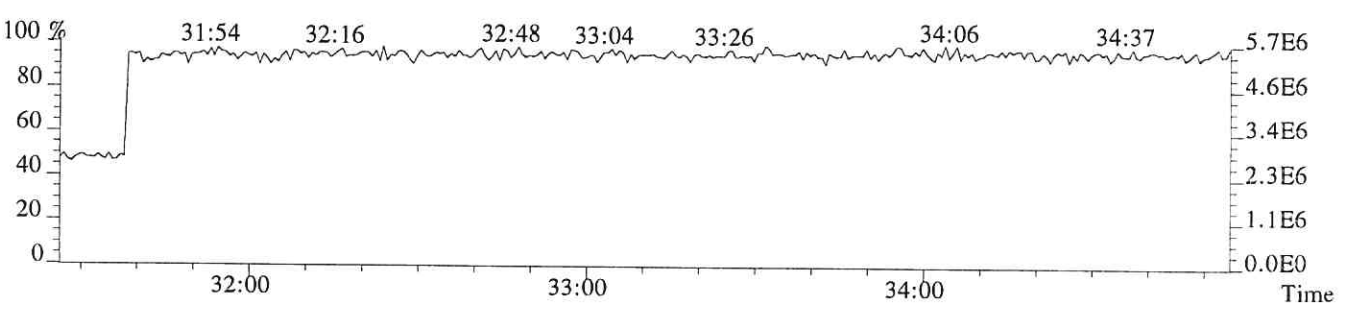
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



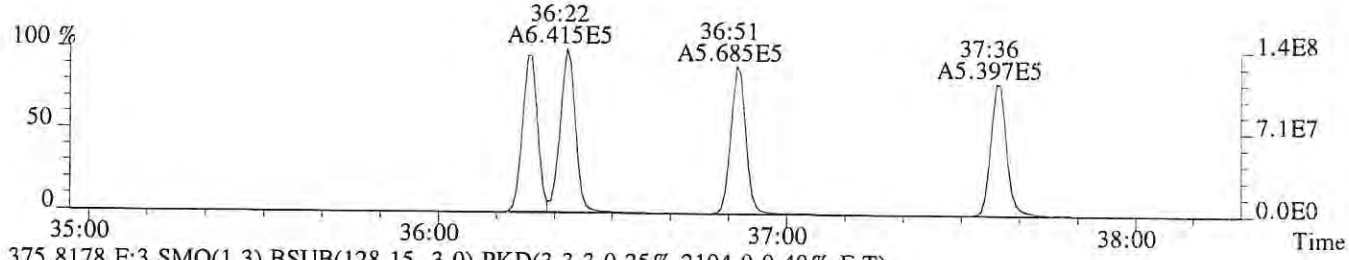
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



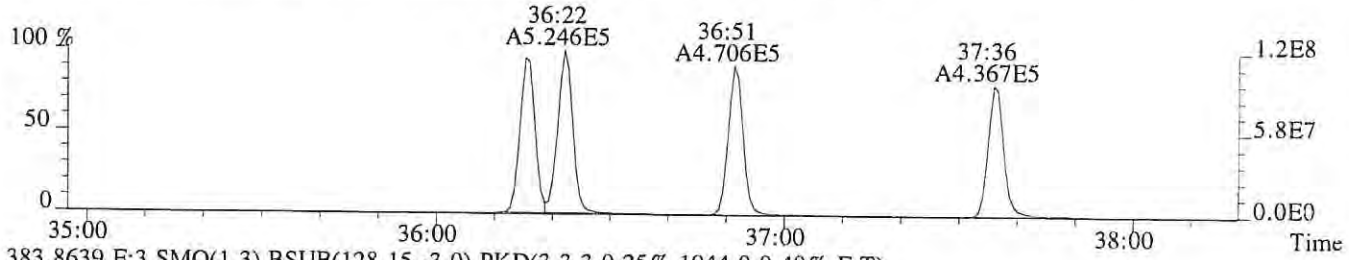
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



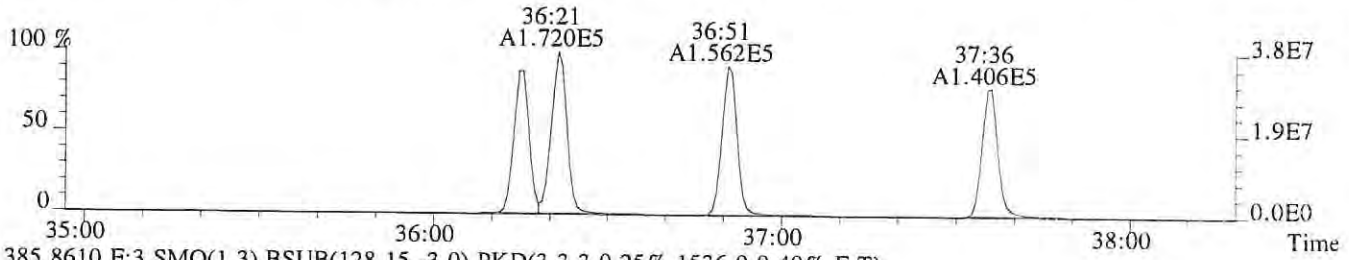
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



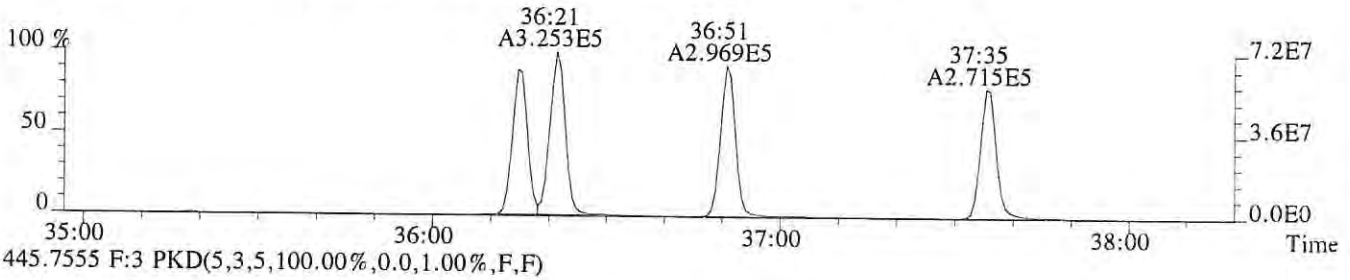
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



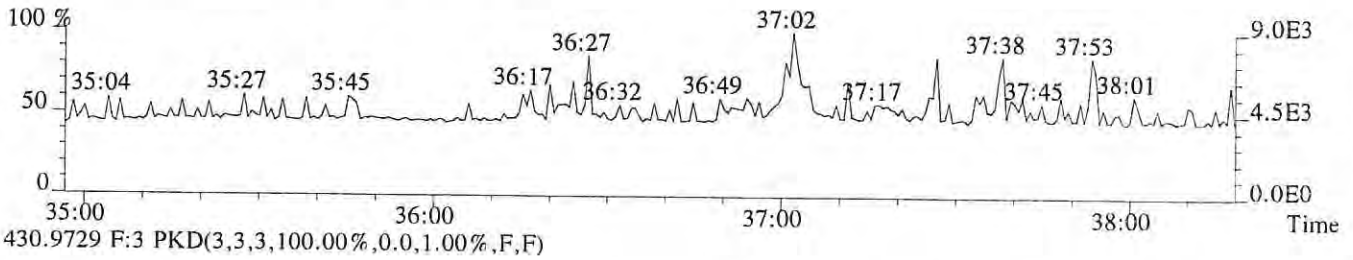
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)



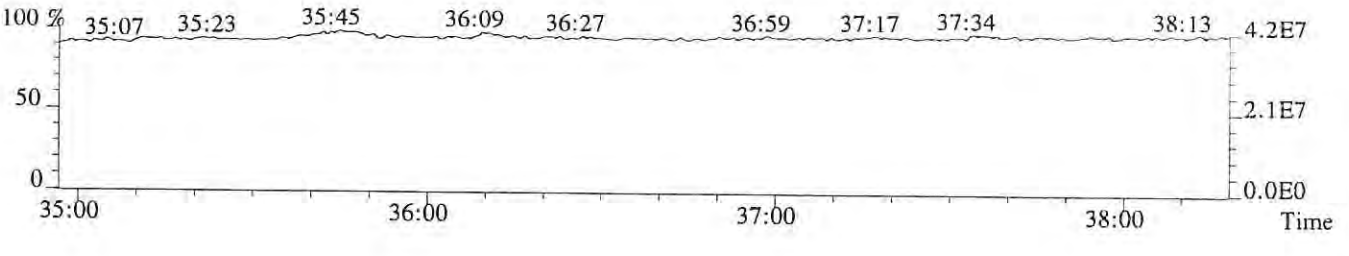
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



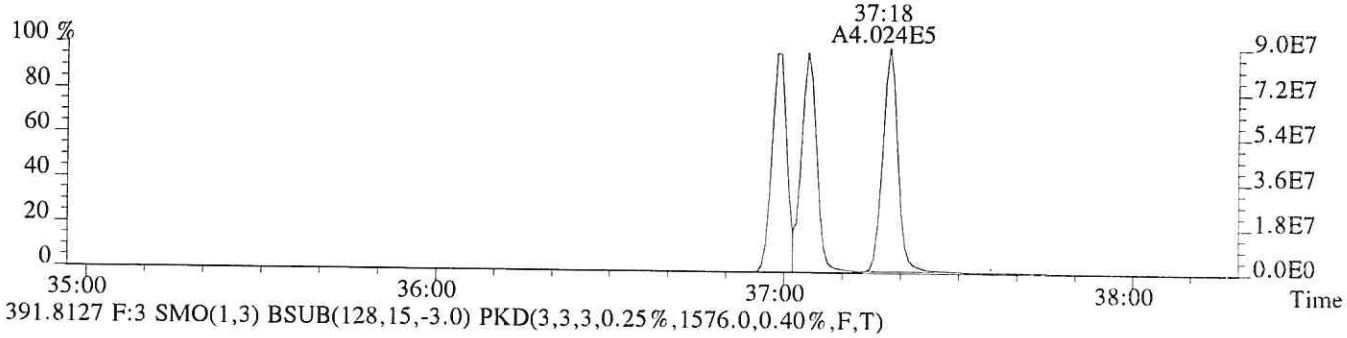
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



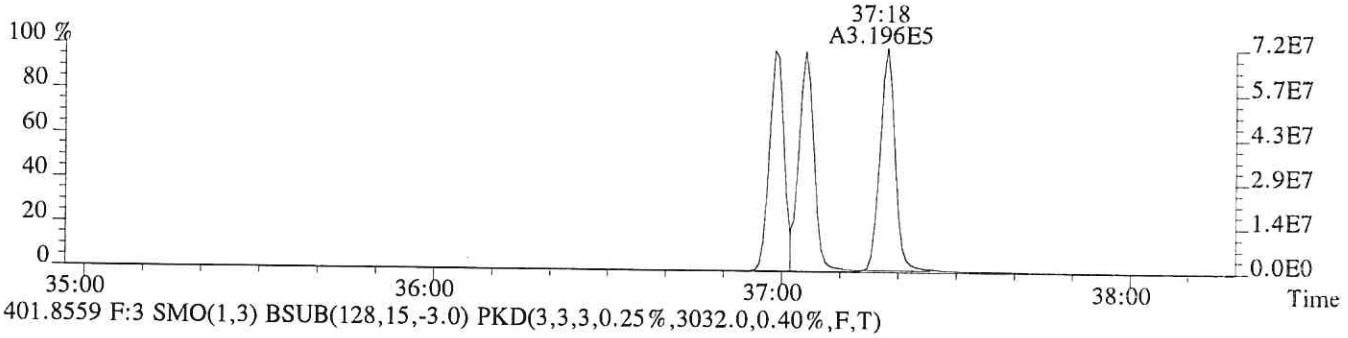
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



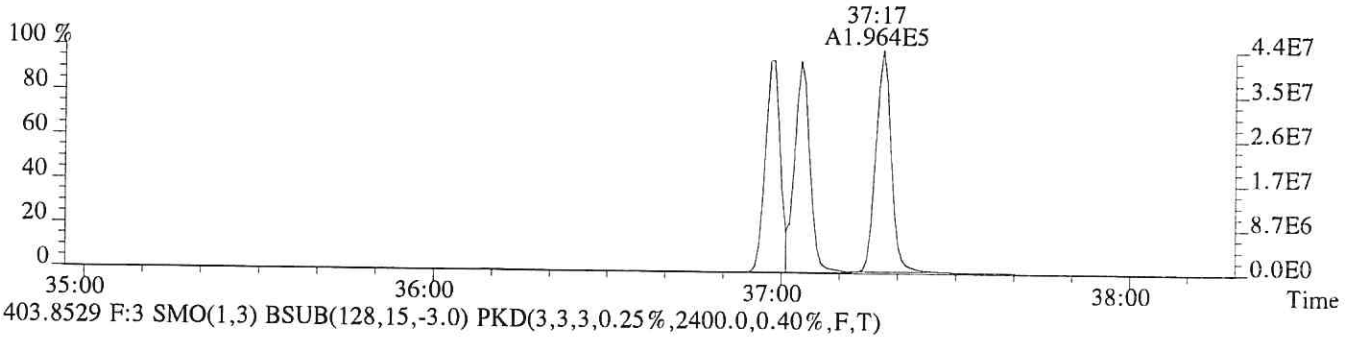
File:P513854 #1-303 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



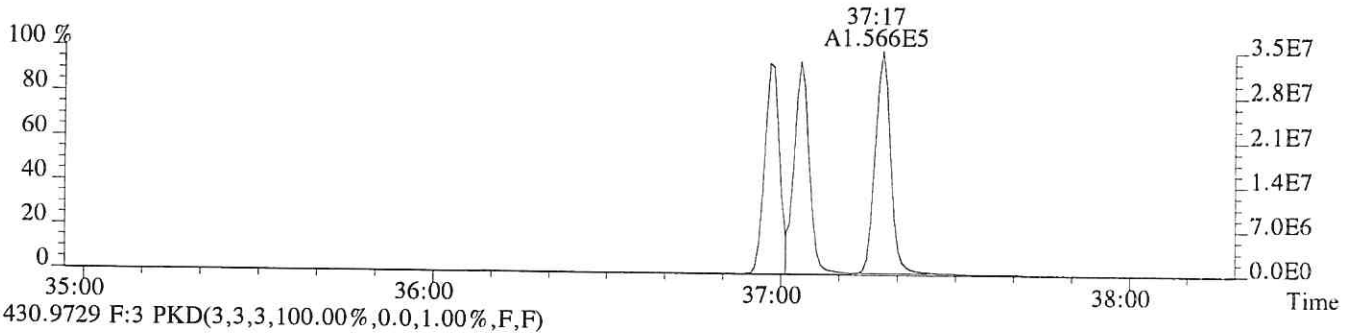
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



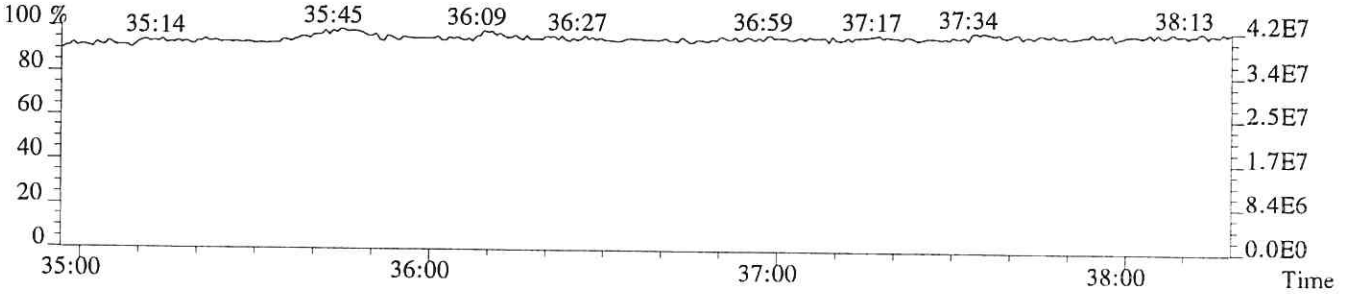
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3032.0,0.40%,F,T)



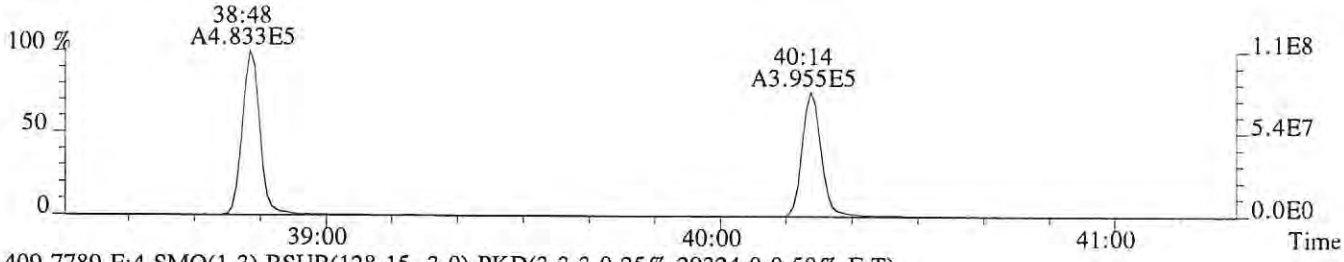
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



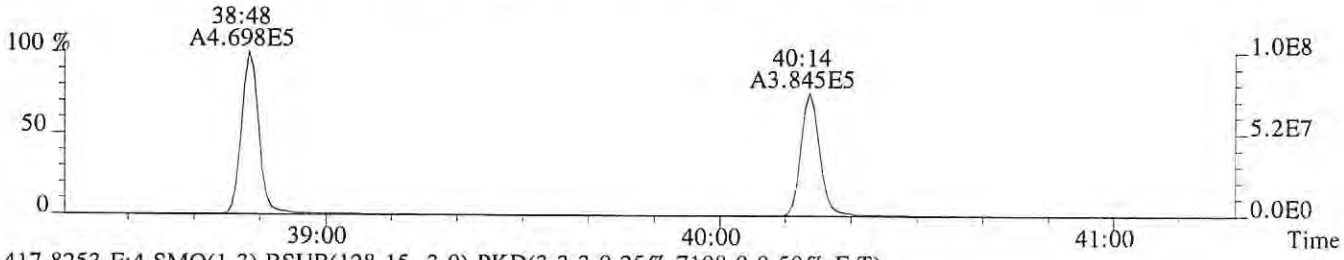
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



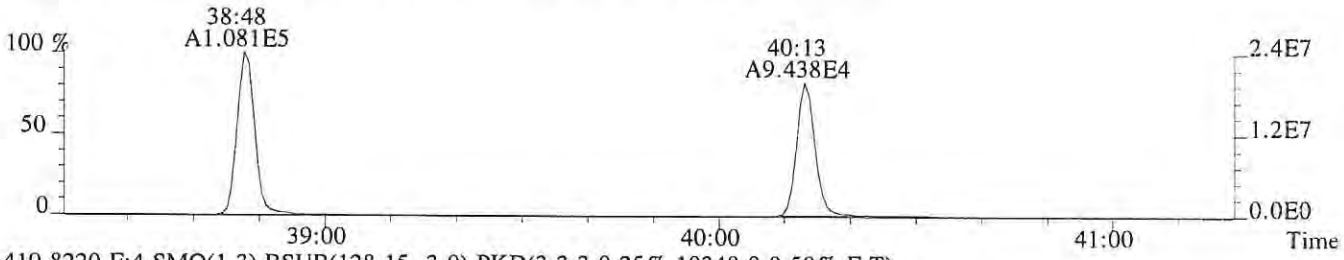
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17516.0,0.50%,F,T)



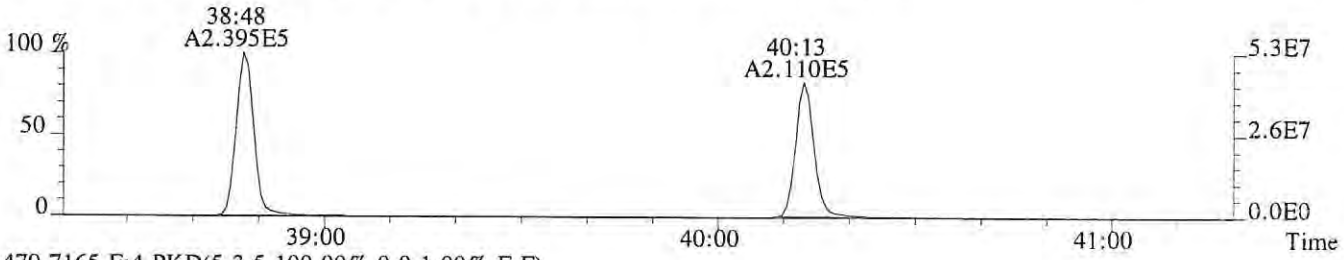
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,29324.0,0.50%,F,T)



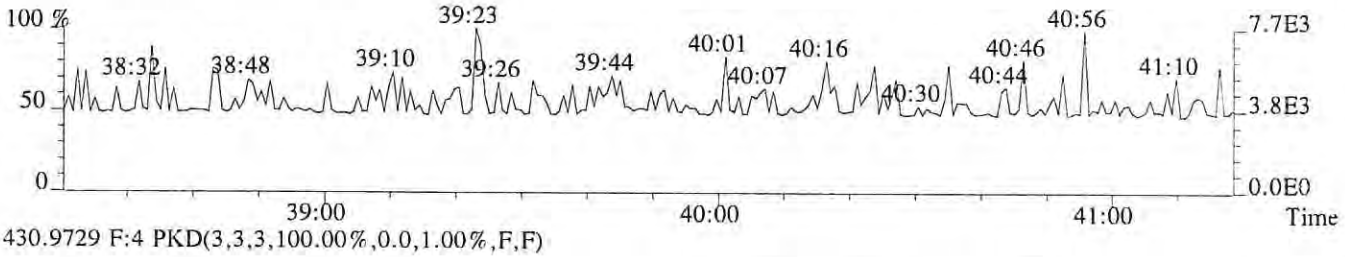
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7108.0,0.50%,F,T)



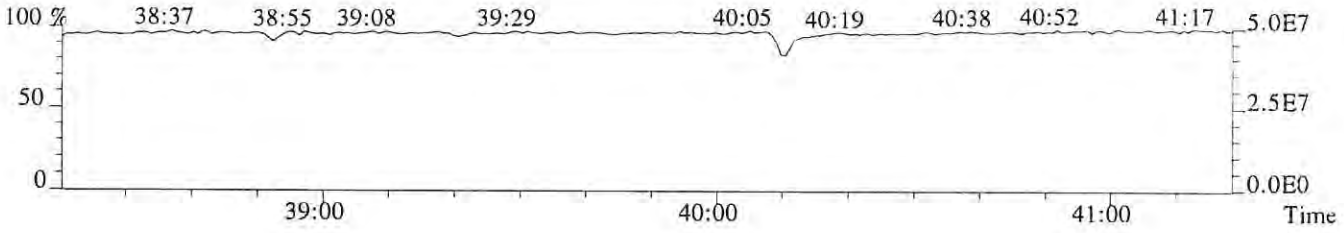
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10348.0,0.50%,F,T)



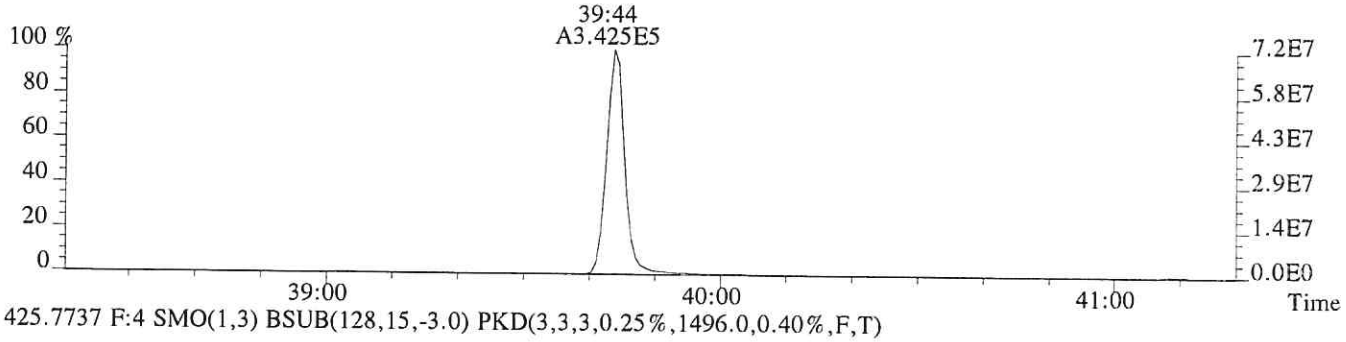
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



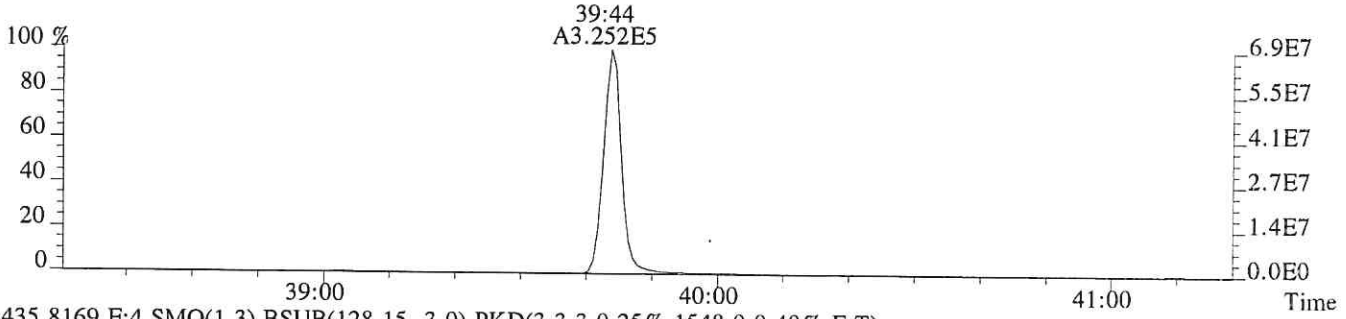
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



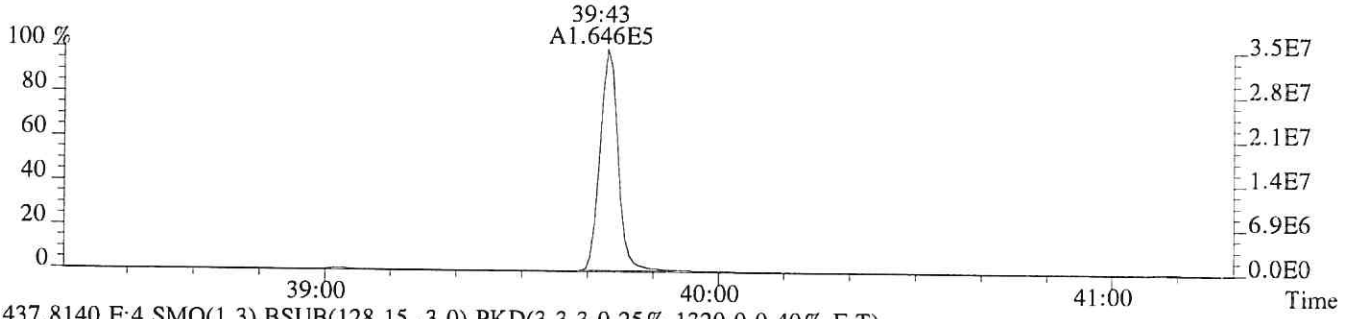
File:P513854 #1-268 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



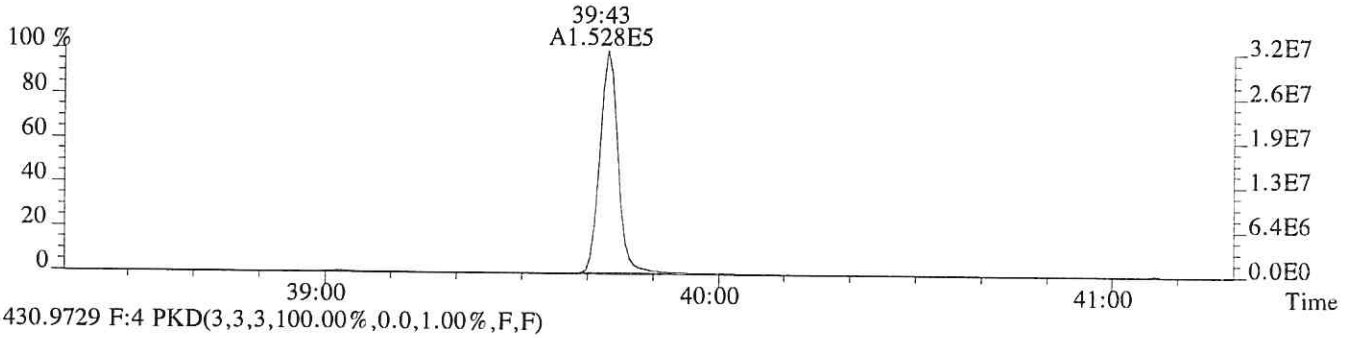
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



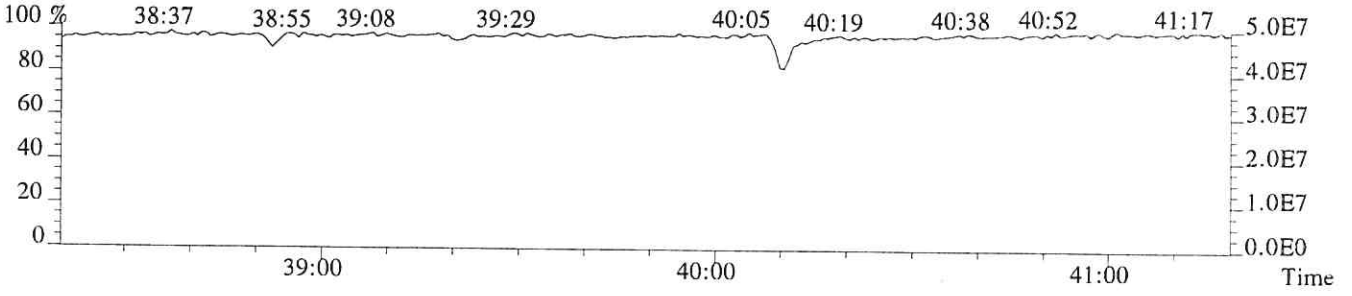
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



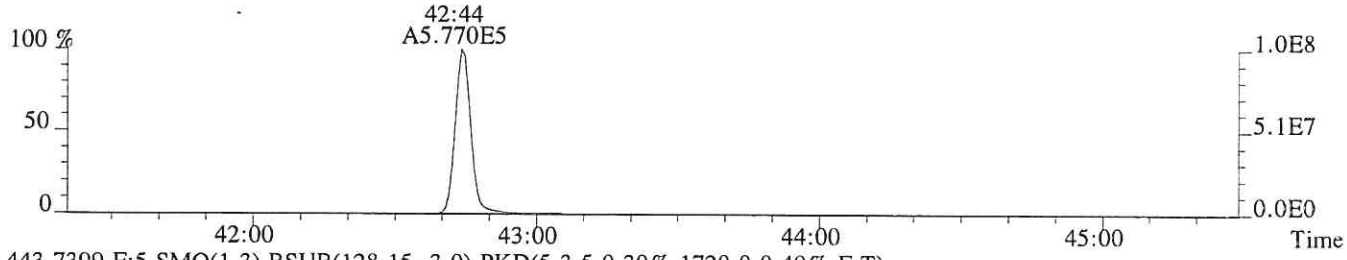
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



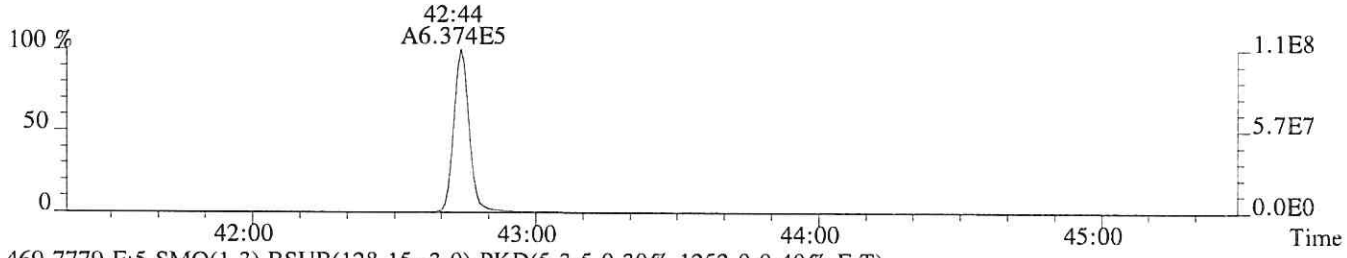
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



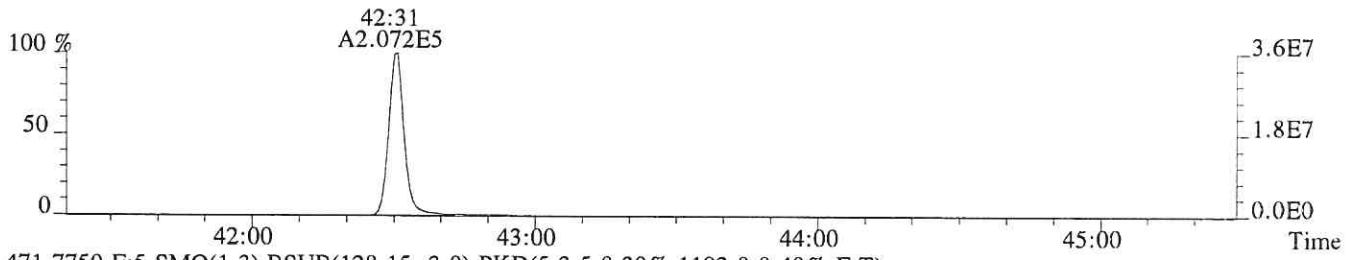
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



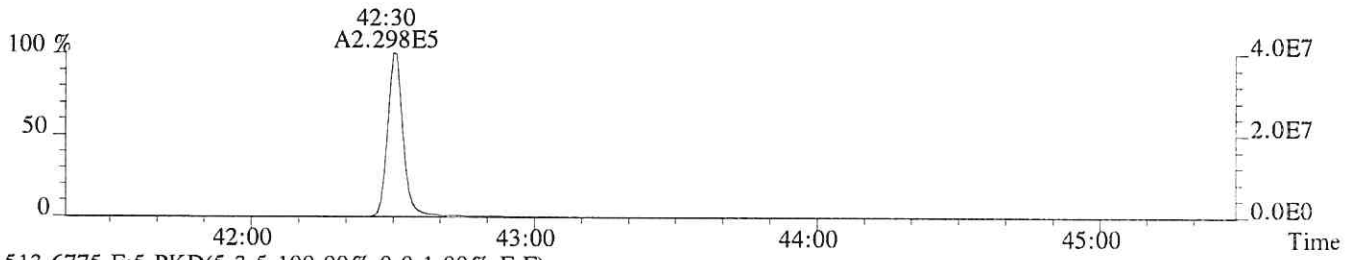
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



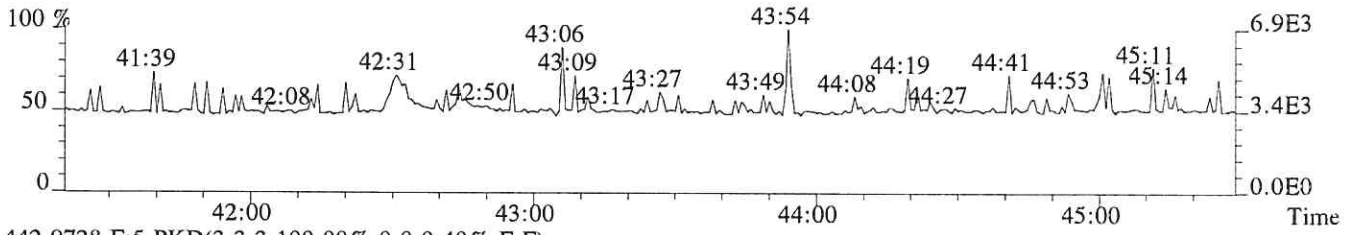
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



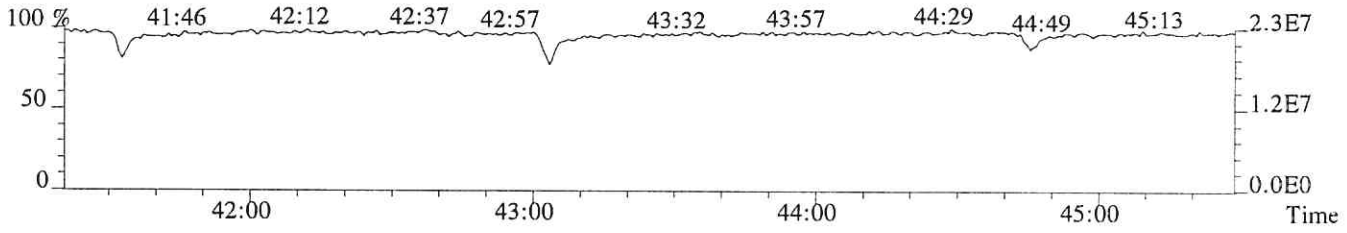
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



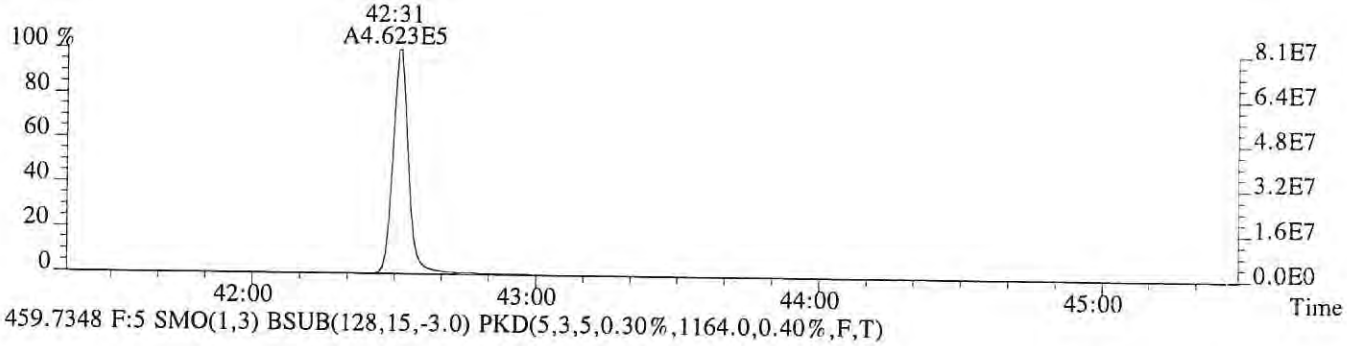
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



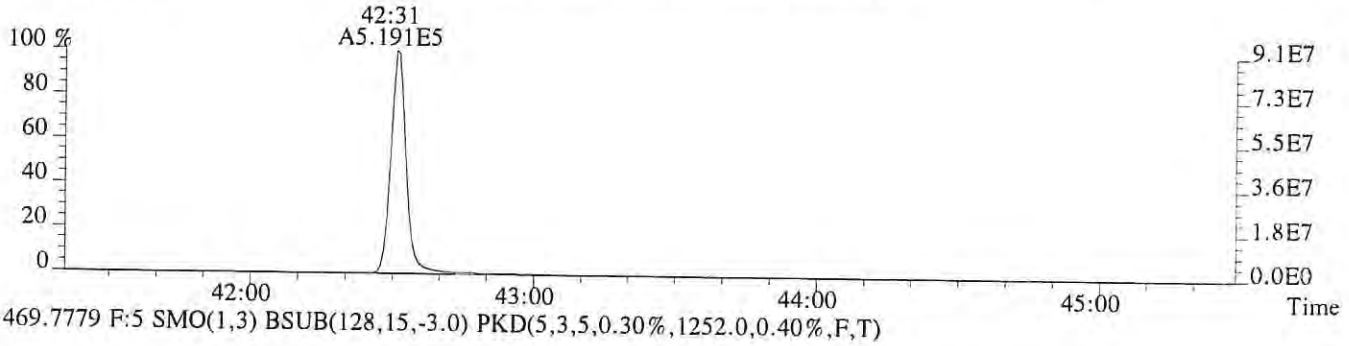
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



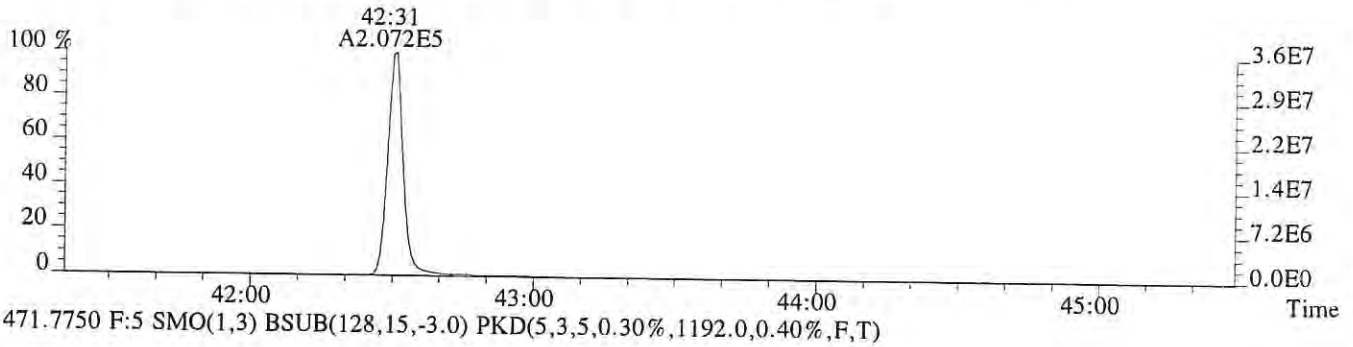
File:P513854 #1-373 Acq:24-JAN-2018 16:55:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



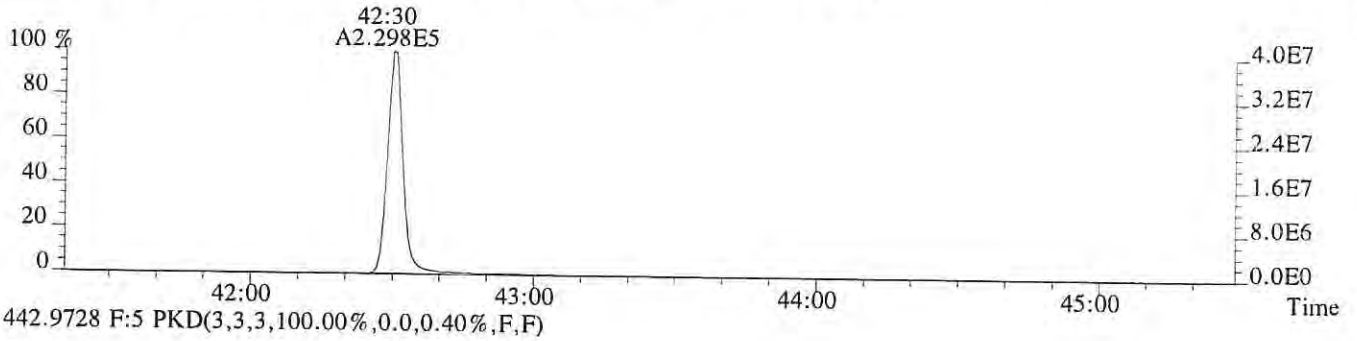
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



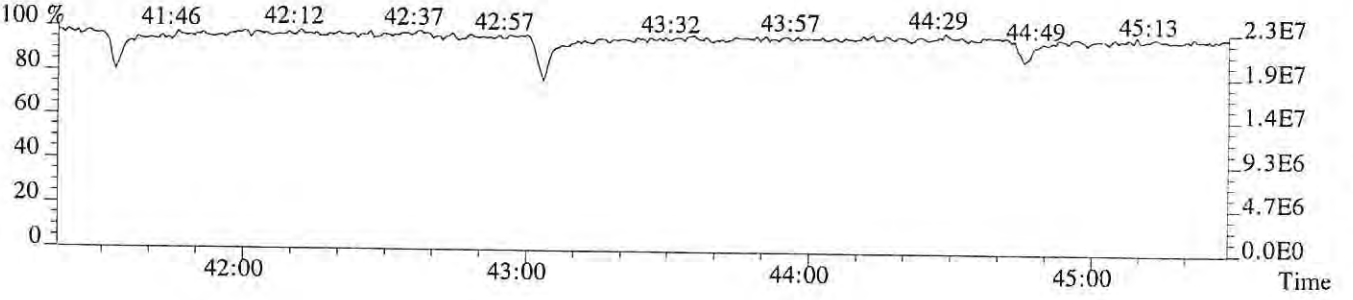
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1252.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.519e+05	3.290e+05	0.77	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	2.059e+06	1.330e+06	1.55	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:42	1.928e+06	1.251e+06	1.54	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.692e+06	1.377e+06	1.23	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.772e+06	1.434e+06	1.24	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.608e+06	1.317e+06	1.22	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	1.433e+06	1.167e+06	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.339e+06	1.290e+06	1.04	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	1.080e+06	1.042e+06	1.04	yes	no	1.258
10	Unk	OCDF	42:45	1.595e+06	1.756e+06	0.91	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	1.888e+05	2.423e+05	0.78	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:58	1.263e+06	8.057e+05	1.57	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.121e+06	8.925e+05	1.26	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	1.092e+06	8.671e+05	1.26	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.145e+06	9.139e+05	1.25	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	9.236e+05	8.810e+05	1.05	yes	no	1.025
17	Unk	OCDD	42:32	1.236e+06	1.384e+06	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:47	1.298e+05	1.639e+05	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.958e+05	1.231e+05	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.948e+05	1.236e+05	1.58	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	8.374e+04	1.594e+05	0.53	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	9.521e+04	1.780e+05	0.53	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	8.554e+04	1.650e+05	0.52	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	7.556e+04	1.441e+05	0.52	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	5.927e+04	1.314e+05	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	5.166e+04	1.153e+05	0.45	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:31	8.633e+04	1.080e+05	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.308e+05	8.218e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	1.058e+05	8.279e+04	1.28	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.031e+05	8.205e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	8.934e+04	8.409e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	1.103e+05	1.236e+05	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	8.893e+04	1.085e+05	0.82	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.136e+05	9.051e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	4.366e+05				no	1.014

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P513855 Samp: 1 Inj: 1 Acquired: 24-JAN-18 17:43:48
Processed: 25-JAN-18 08:12:42 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.13e+07	1.02e+03	5.0e+04	6.69e+07	2.00e+03	3.3e+04
2	1,2,3,7,8-PeCDF	4.18e+08	1.72e+03	2.4e+05	2.69e+08	4.25e+03	6.3e+04
3	2,3,4,7,8-PeCDF	4.06e+08	1.72e+03	2.4e+05	2.60e+08	4.25e+03	6.1e+04
4	1,2,3,4,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.12e+08	2.28e+03	1.4e+05
5	1,2,3,6,7,8-HxCDF	3.87e+08	3.18e+03	1.2e+05	3.14e+08	2.28e+03	1.4e+05
6	2,3,4,6,7,8-HxCDF	3.59e+08	3.18e+03	1.1e+05	2.88e+08	2.28e+03	1.3e+05
7	1,2,3,7,8,9-HxCDF	3.14e+08	3.18e+03	9.9e+04	2.53e+08	2.28e+03	1.1e+05
8	1,2,3,4,6,7,8-HpCDF	2.94e+08	4.87e+04	6.0e+03	2.86e+08	4.51e+04	6.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.17e+08	4.87e+04	4.5e+03	2.12e+08	4.51e+04	4.7e+03
10	OCDF	2.95e+08	6.68e+02	4.4e+05	3.20e+08	1.53e+03	2.1e+05
11	2,3,7,8-TCDD	4.01e+07	1.56e+03	2.6e+04	5.16e+07	1.78e+03	2.9e+04
12	1,2,3,7,8-PeCDD	2.63e+08	1.48e+03	1.8e+05	1.68e+08	6.04e+02	2.8e+05
13	1,2,3,4,7,8-HxCDD	2.57e+08	1.76e+03	1.5e+05	2.02e+08	1.10e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	2.40e+08	1.76e+03	1.4e+05	1.94e+08	1.10e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	2.55e+08	1.76e+03	1.5e+05	2.05e+08	1.10e+03	1.9e+05
16	1,2,3,4,6,7,8-HpCDD	1.92e+08	4.16e+03	4.6e+04	1.82e+08	2.40e+03	7.6e+04
17	OCDD	2.24e+08	1.92e+02	1.2e+06	2.52e+08	1.77e+03	1.4e+05
18	13C-2,3,7,8-TCDF	2.56e+07	8.72e+03	2.9e+03	3.23e+07	4.65e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	3.90e+07	1.47e+03	2.7e+04	2.42e+07	1.14e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	3.95e+07	1.47e+03	2.7e+04	2.53e+07	1.14e+03	2.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.87e+07	1.28e+03	1.5e+04	3.55e+07	3.08e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.06e+07	1.28e+03	1.6e+04	3.85e+07	3.08e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.90e+07	1.28e+03	1.5e+04	3.60e+07	3.08e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.65e+07	1.28e+03	1.3e+04	3.12e+07	3.08e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.32e+07	1.18e+04	1.1e+03	2.87e+07	5.77e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+07	1.18e+04	8.7e+02	2.29e+07	5.77e+03	4.0e+03
27	13C-2,3,7,8-TCDD	1.81e+07	7.00e+03	2.6e+03	2.26e+07	3.08e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	2.76e+07	1.47e+03	1.9e+04	1.74e+07	7.76e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	2.40e+07	2.43e+03	9.9e+03	1.87e+07	1.70e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	2.24e+07	2.43e+03	9.2e+03	1.82e+07	1.70e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+07	1.79e+03	1.0e+04	1.72e+07	1.40e+03	1.2e+04
32	13C-OCDD	1.97e+07	1.62e+03	1.2e+04	2.22e+07	1.42e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.83e+07	7.00e+03	2.6e+03	2.22e+07	3.08e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.50e+07	2.43e+03	1.0e+04	1.99e+07	1.70e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	9.29e+07	1.57e+03	5.9e+04			

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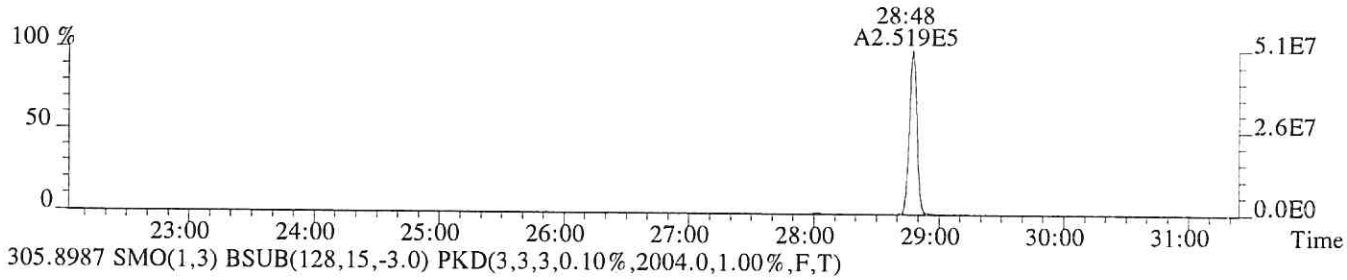
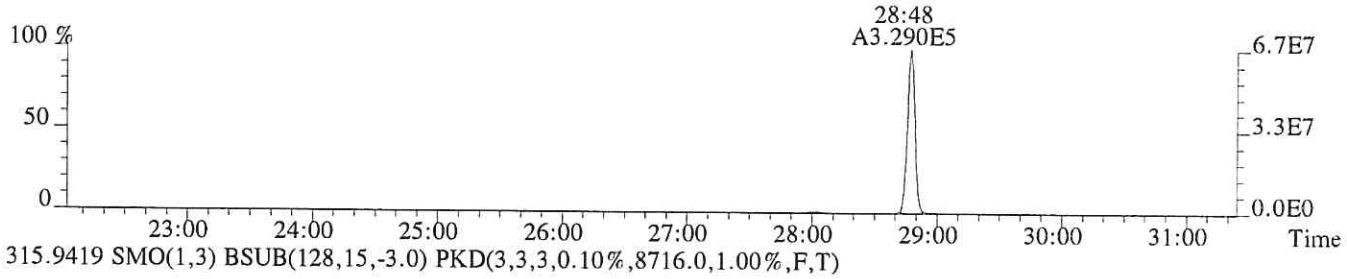
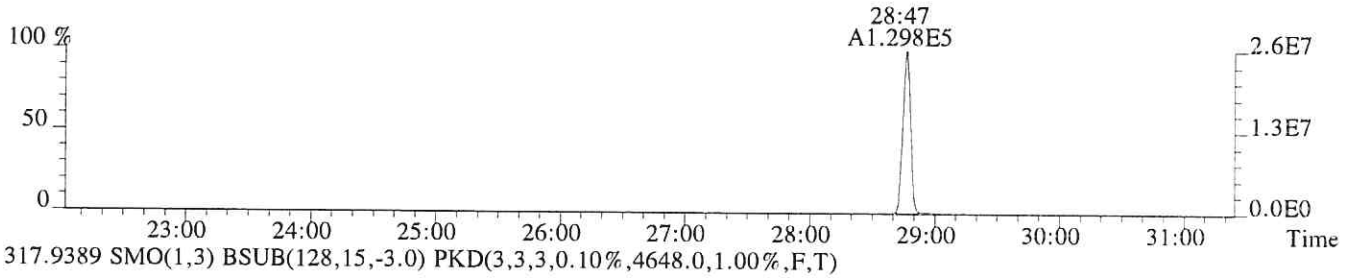
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



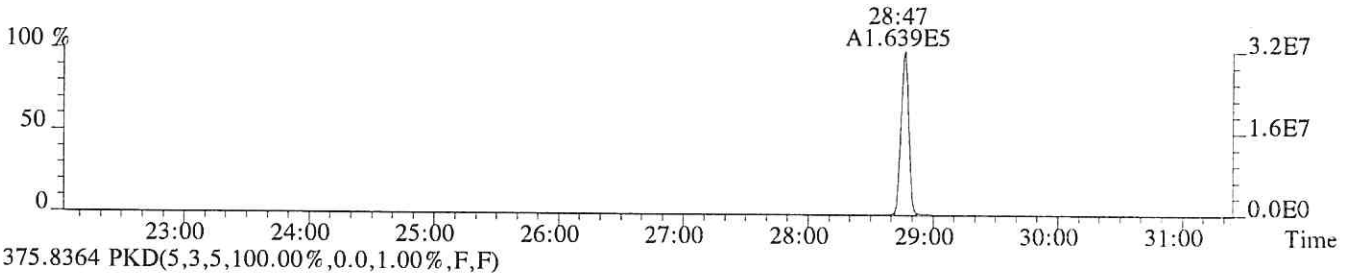
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



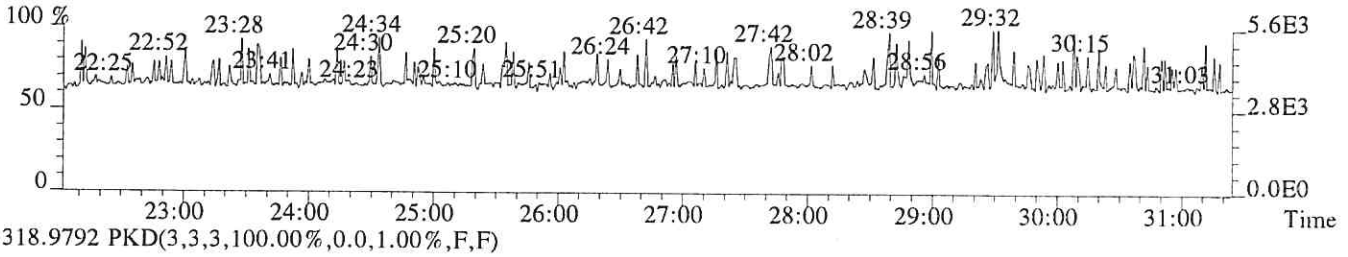
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8716.0,1.00%,F,T)



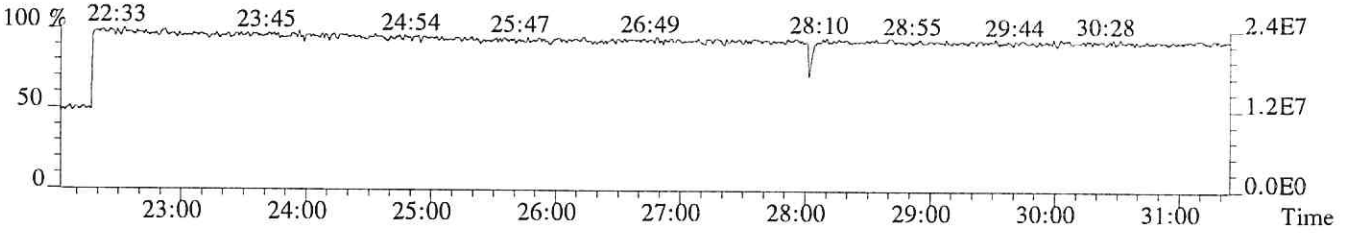
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4648.0,1.00%,F,T)



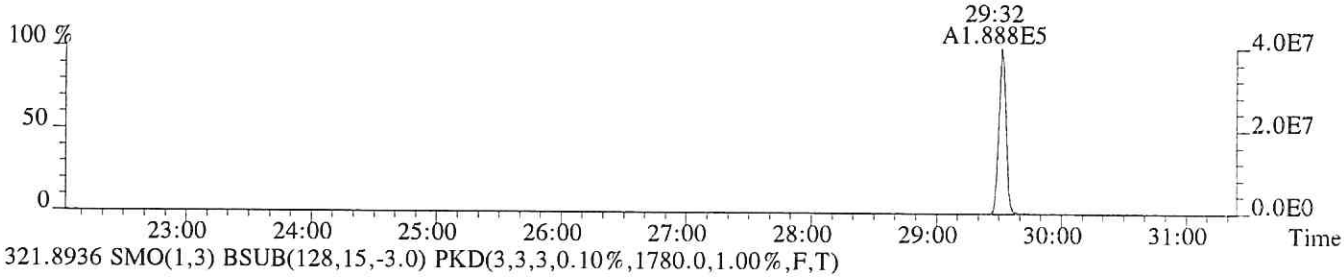
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



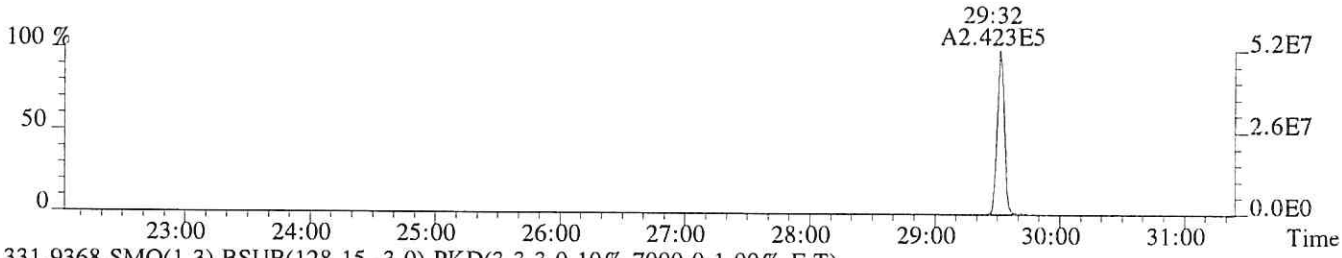
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



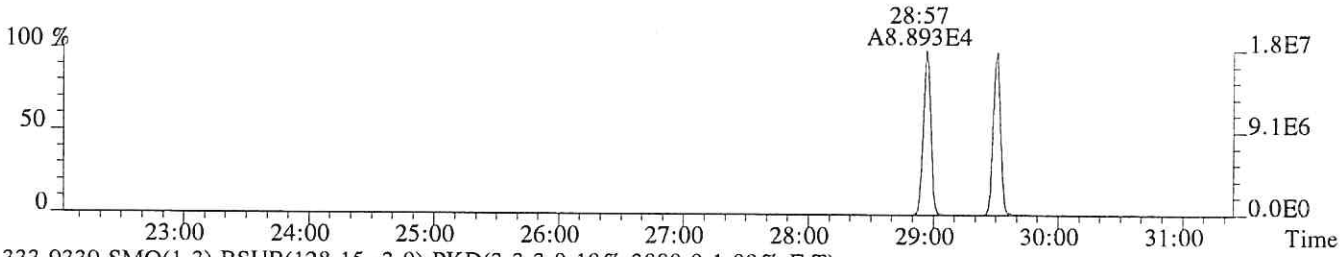
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



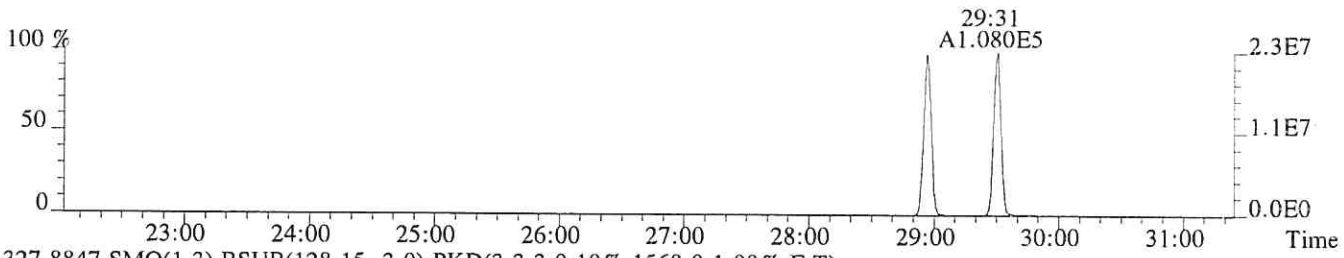
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



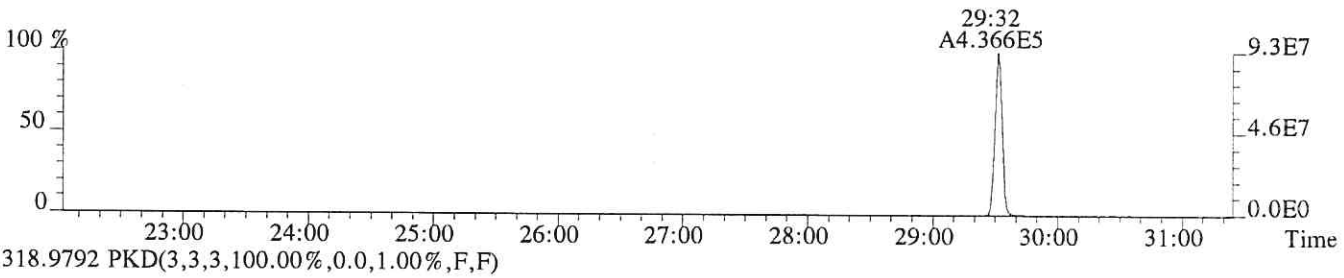
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7000.0,1.00%,F,T)



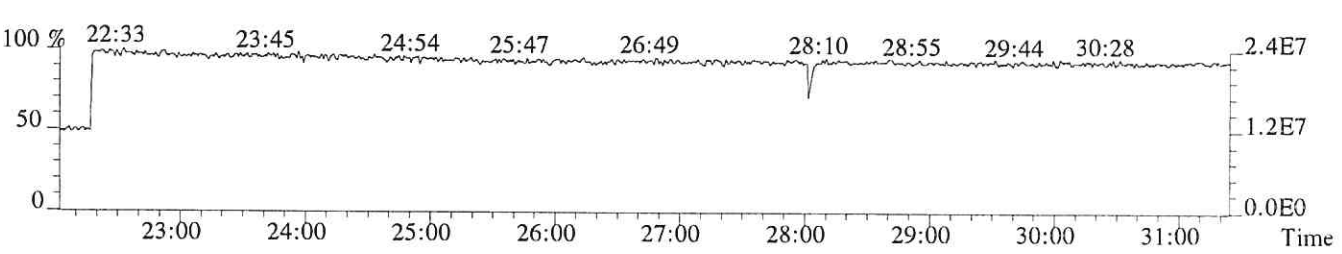
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



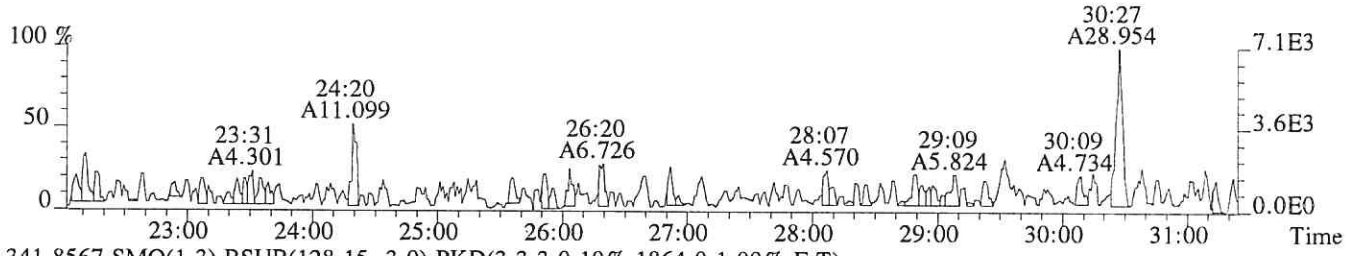
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



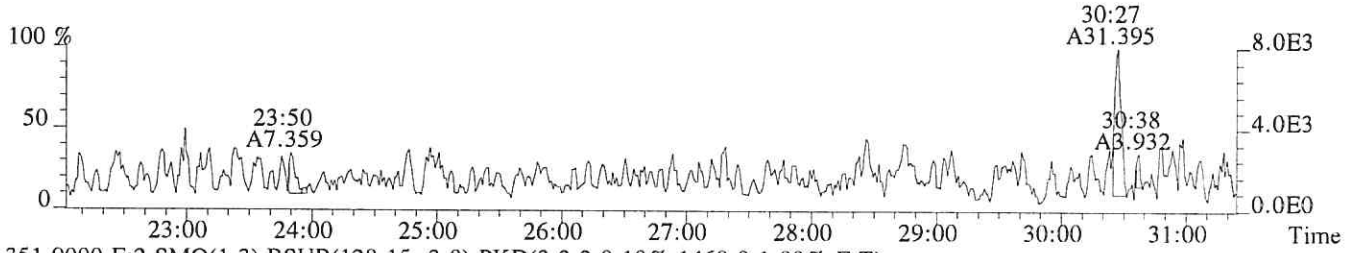
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



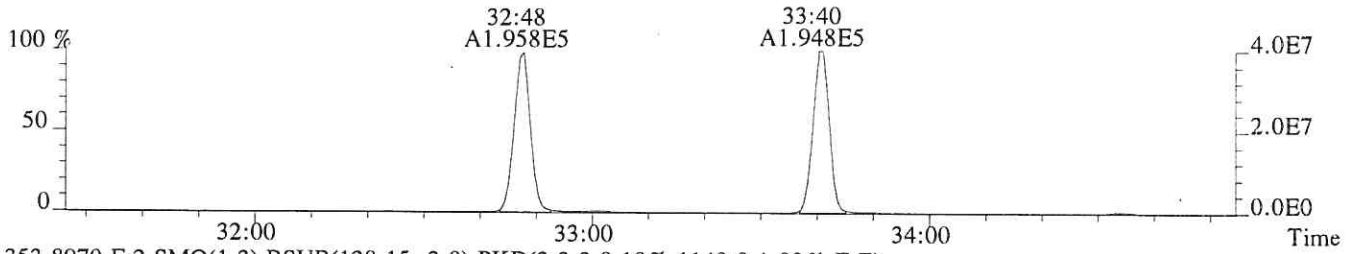
File:P513855 #1-665 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:185657
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



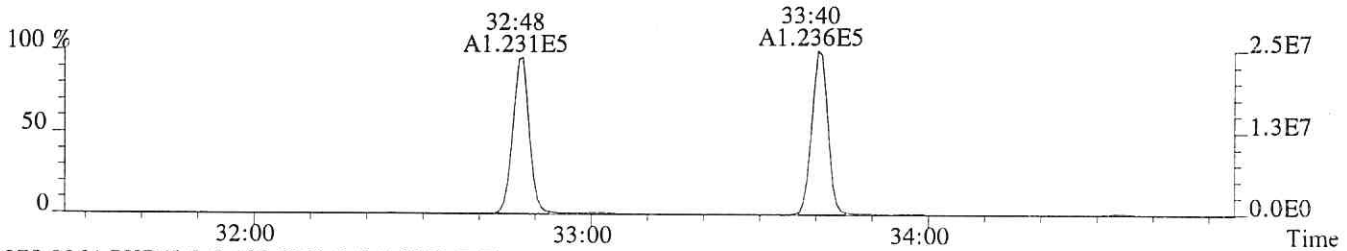
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



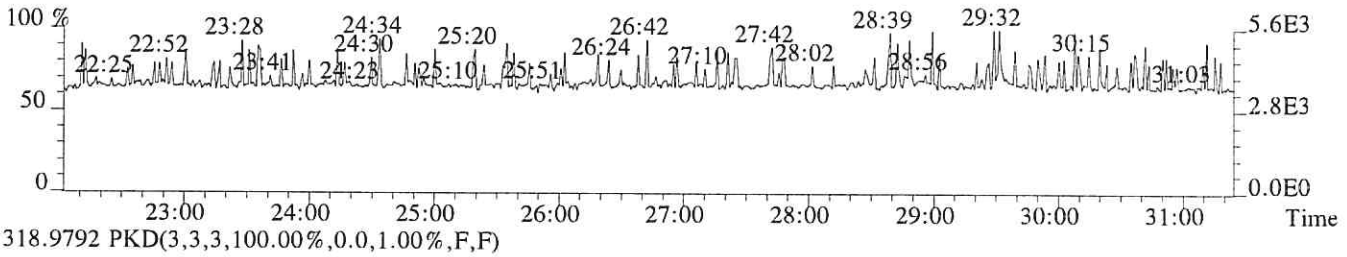
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



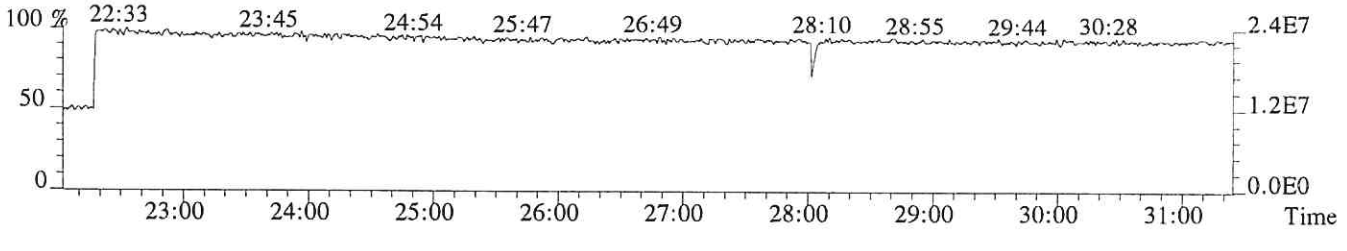
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



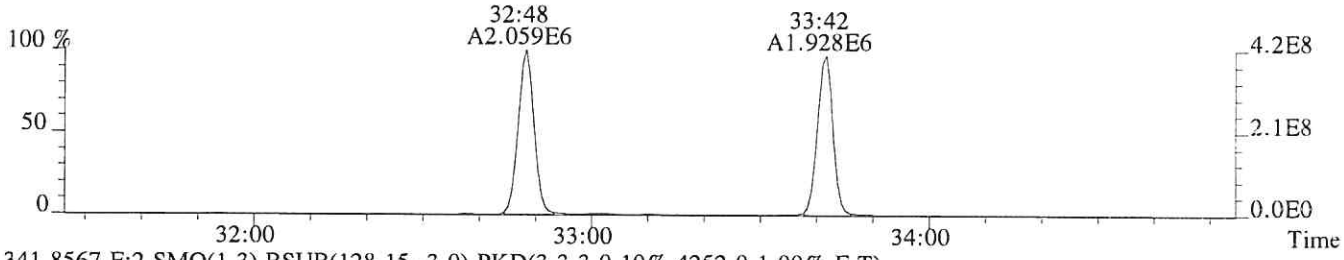
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



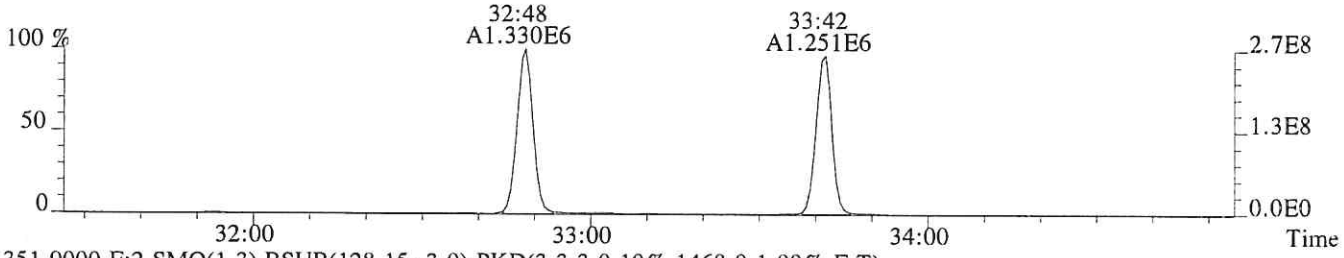
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



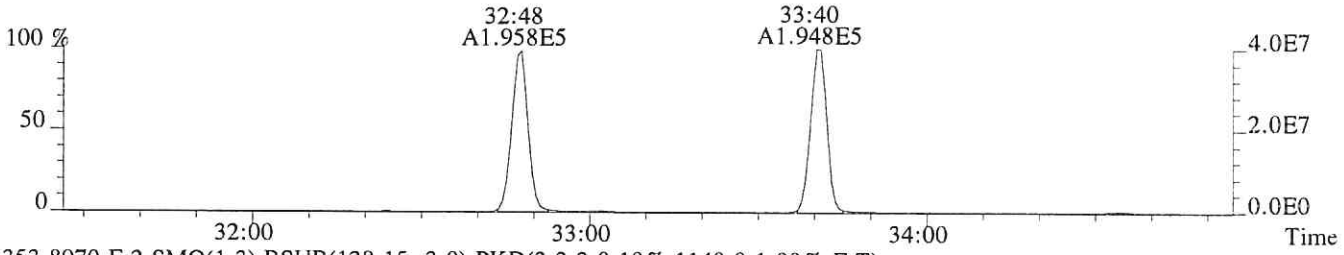
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



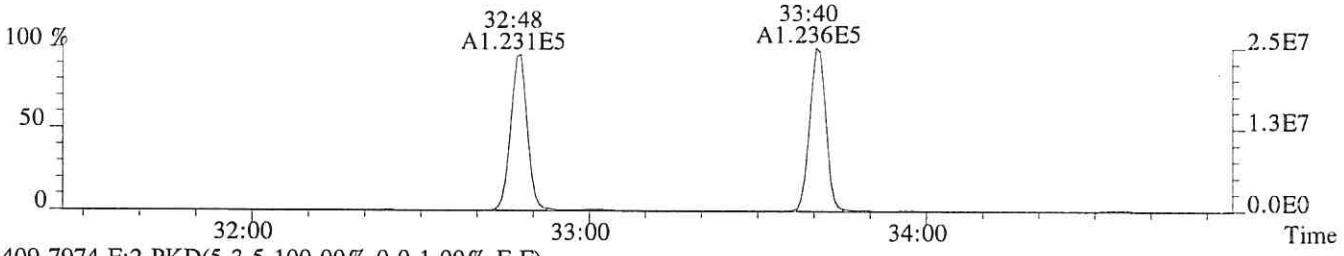
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



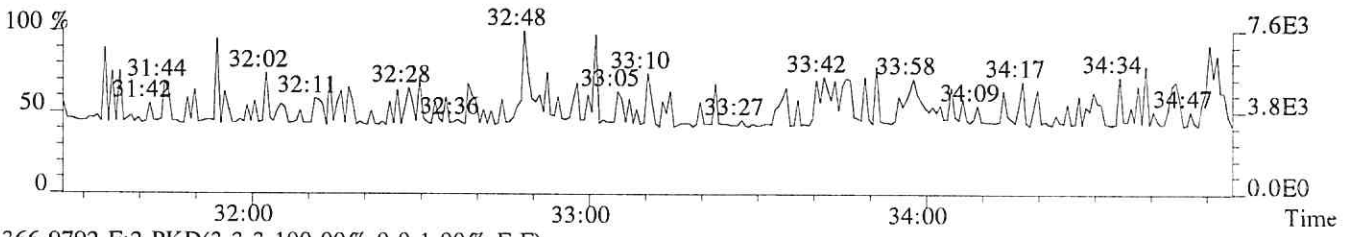
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



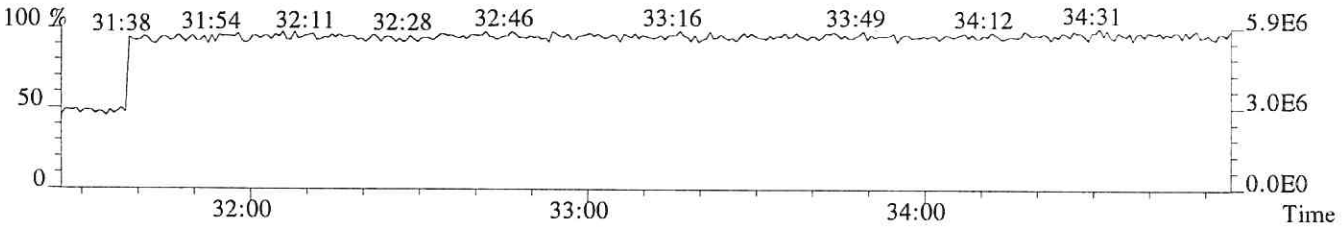
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



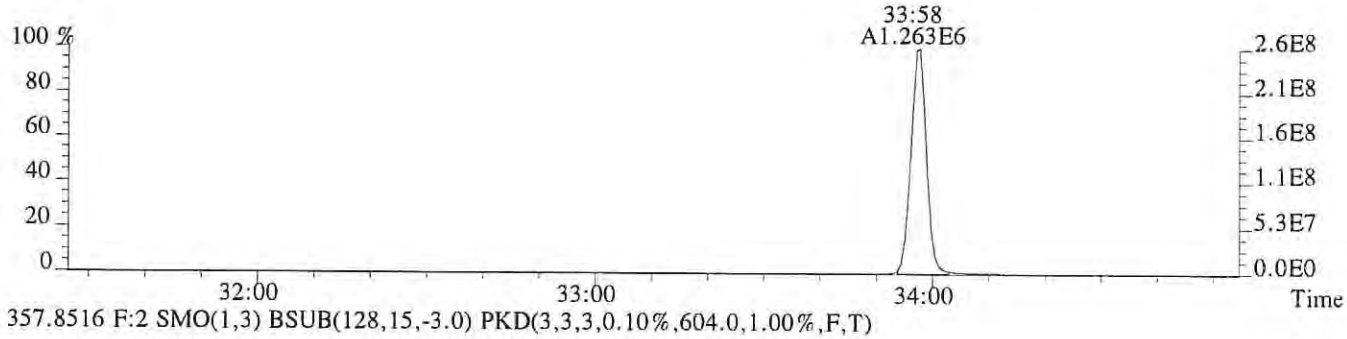
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



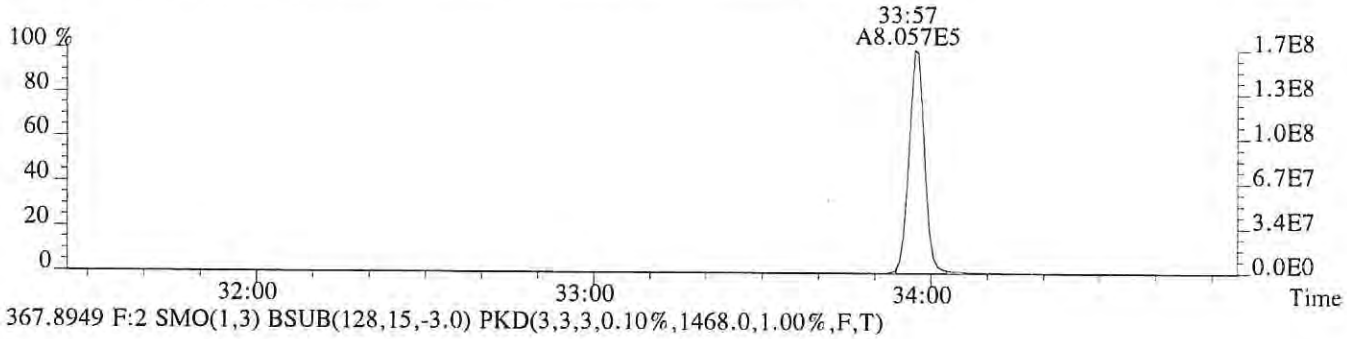
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



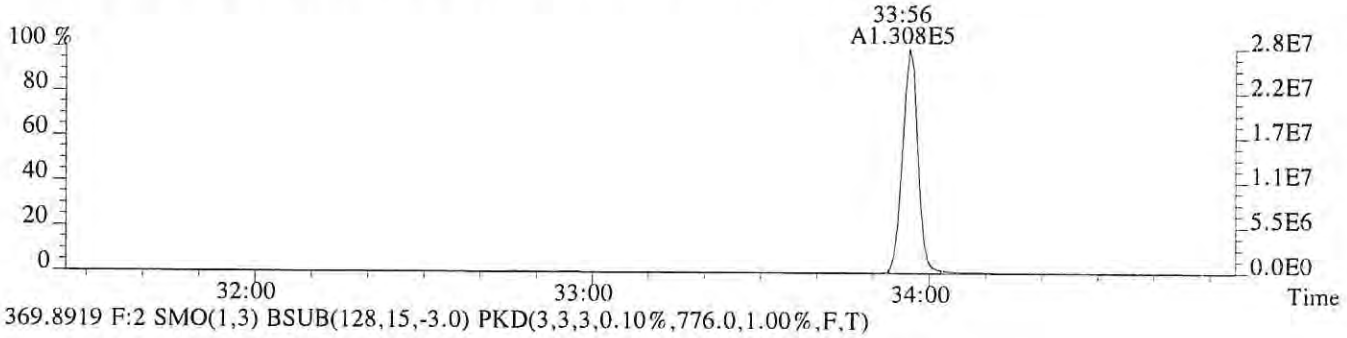
File:P513855 #1-313 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



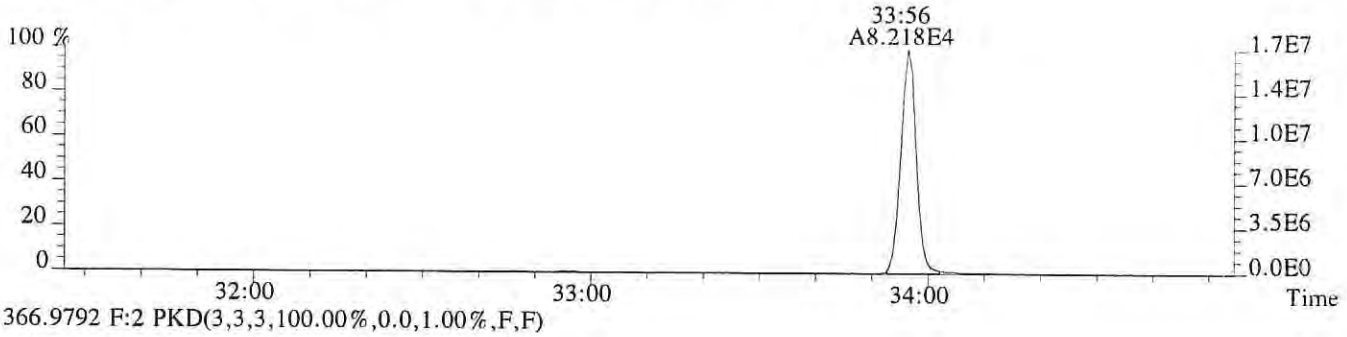
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



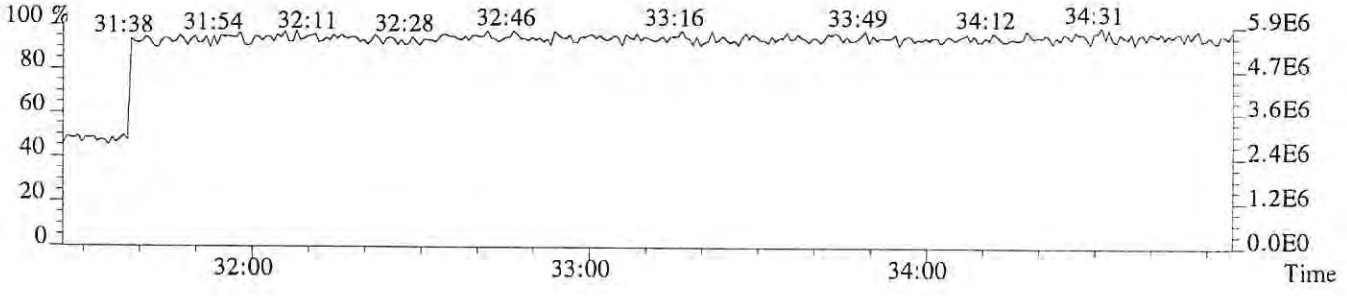
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



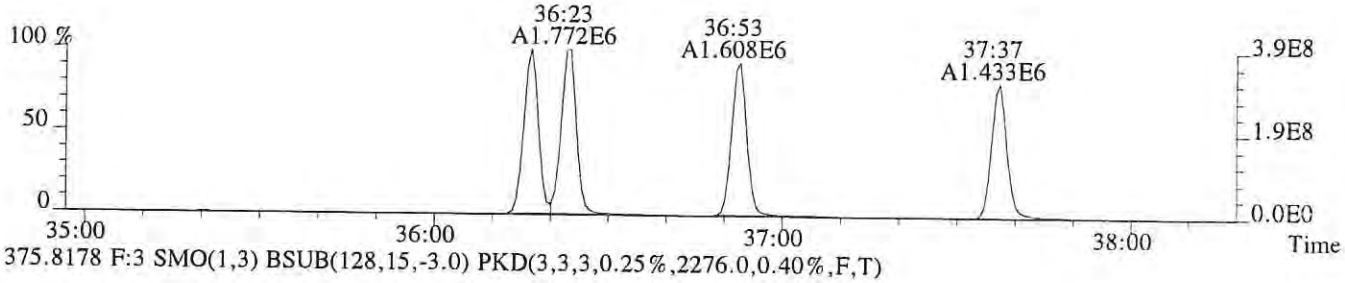
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



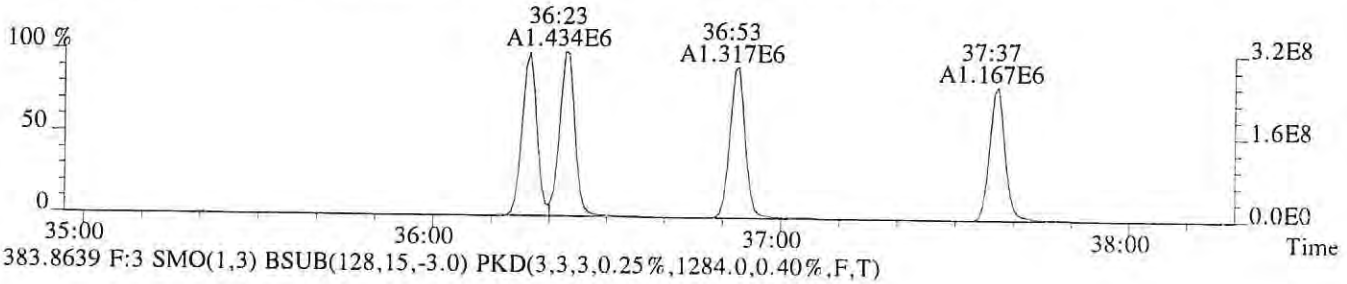
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



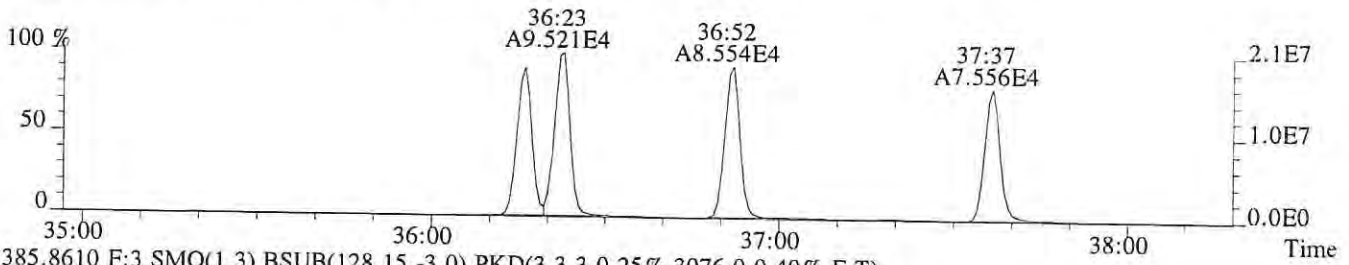
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



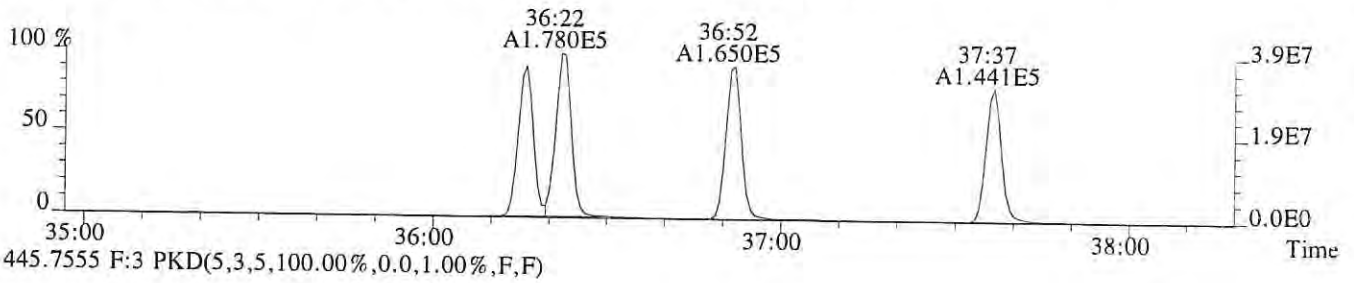
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



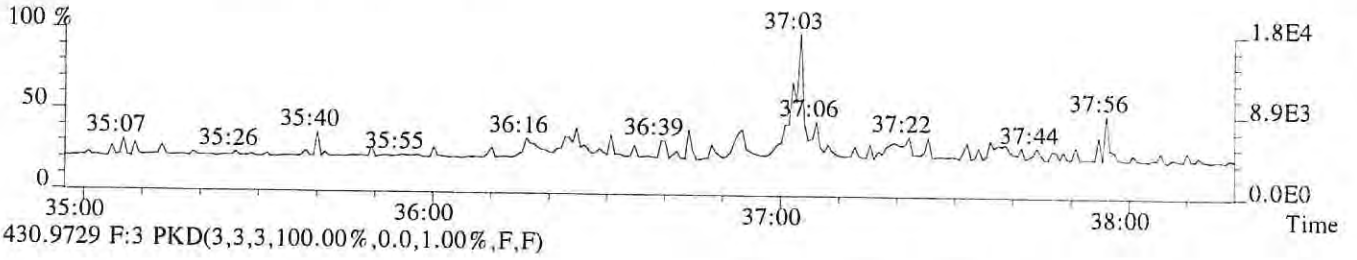
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)



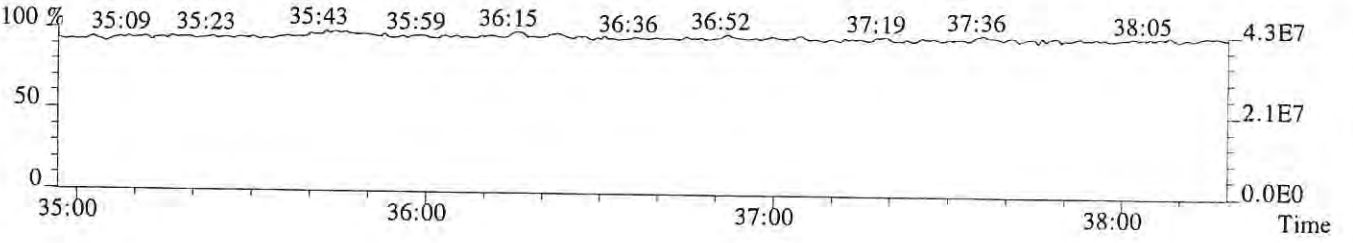
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3076.0,0.40%,F,T)



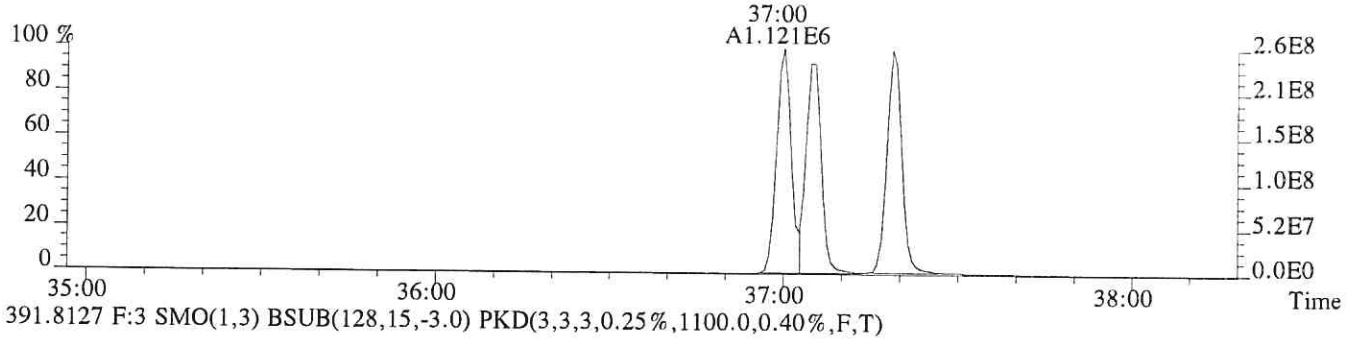
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



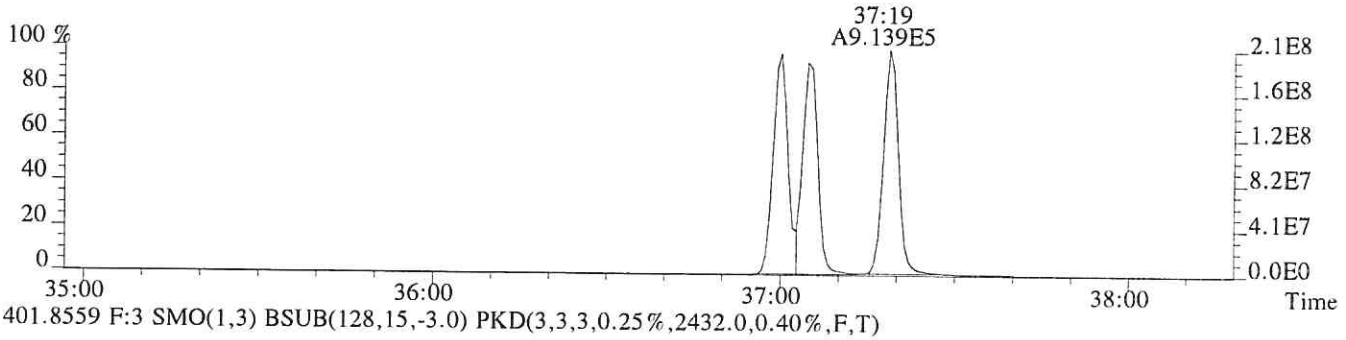
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



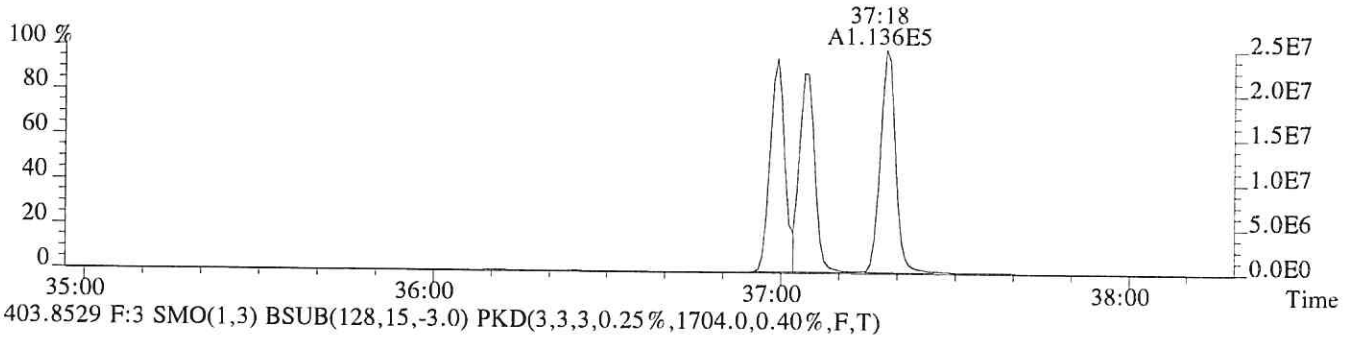
File:P513855 #1-303 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



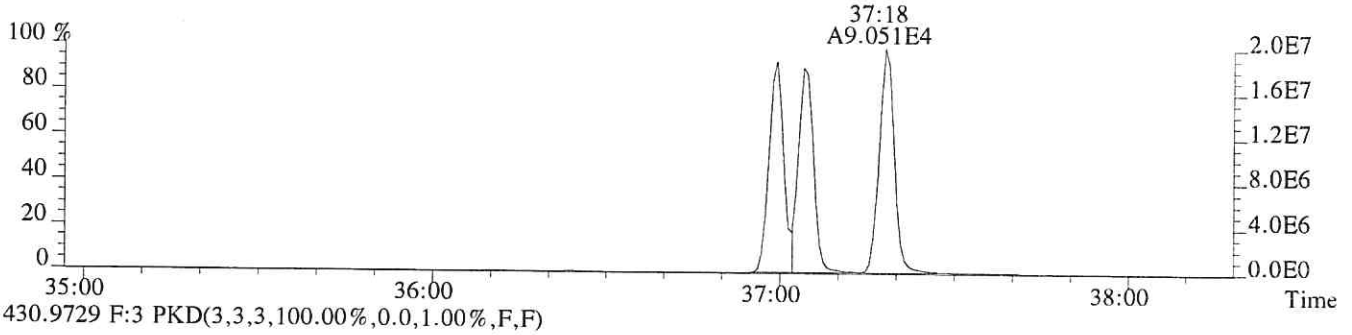
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



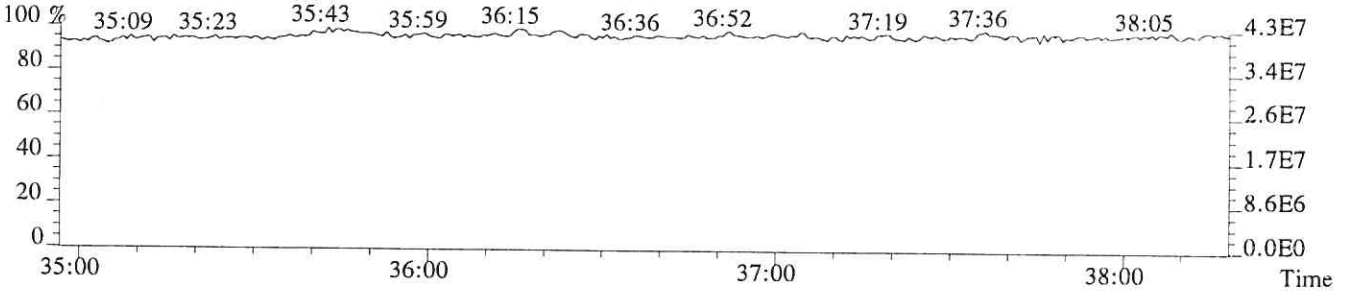
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



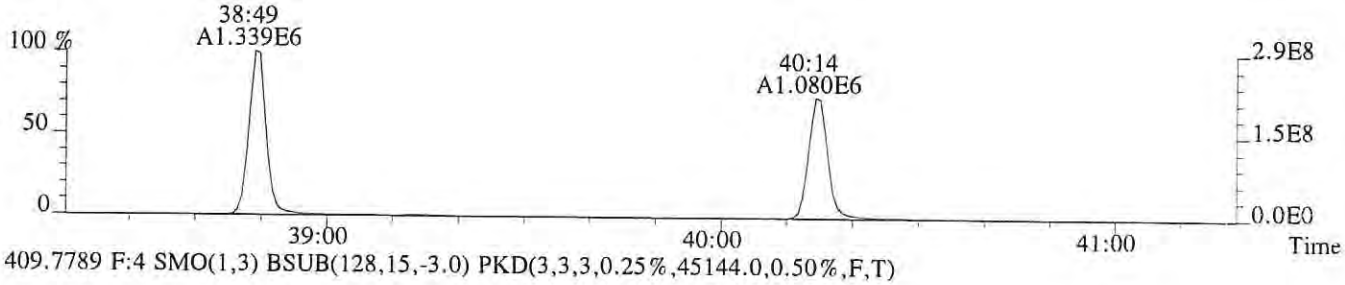
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



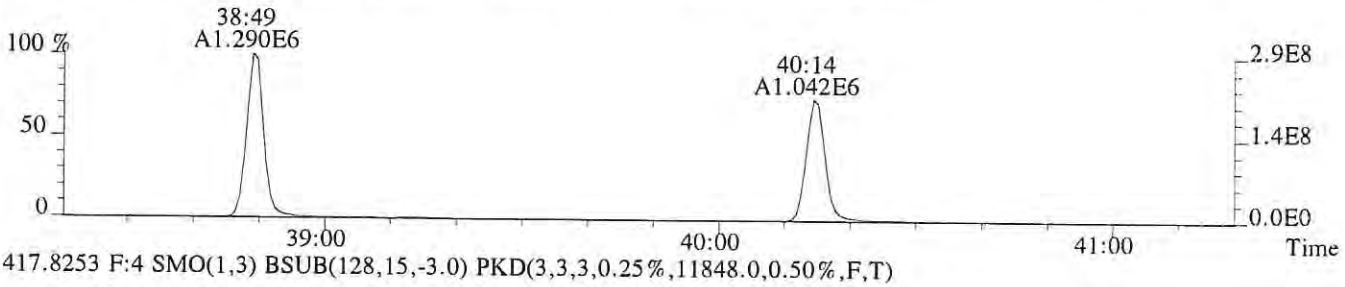
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



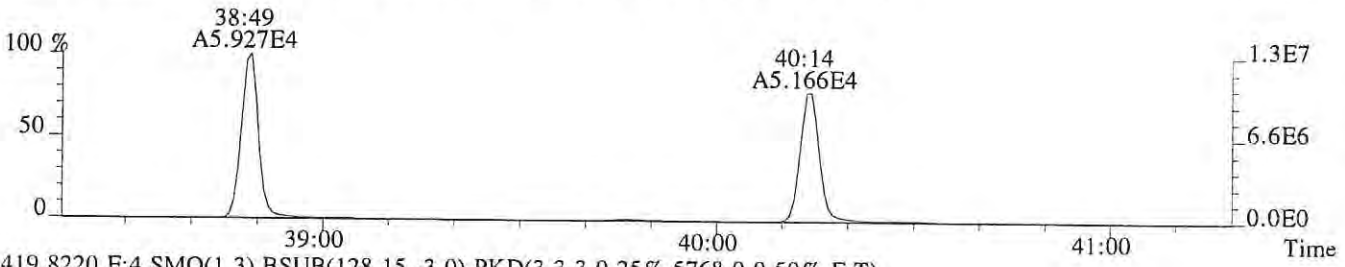
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48736.0,0.50%,F,T)



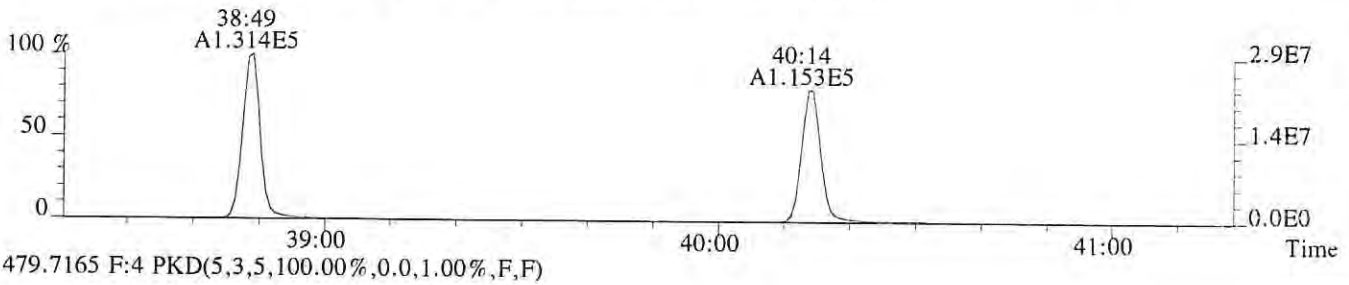
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45144.0,0.50%,F,T)



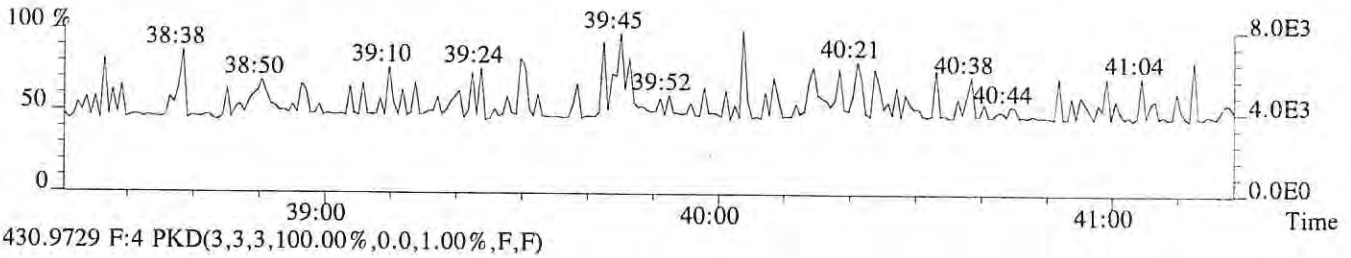
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



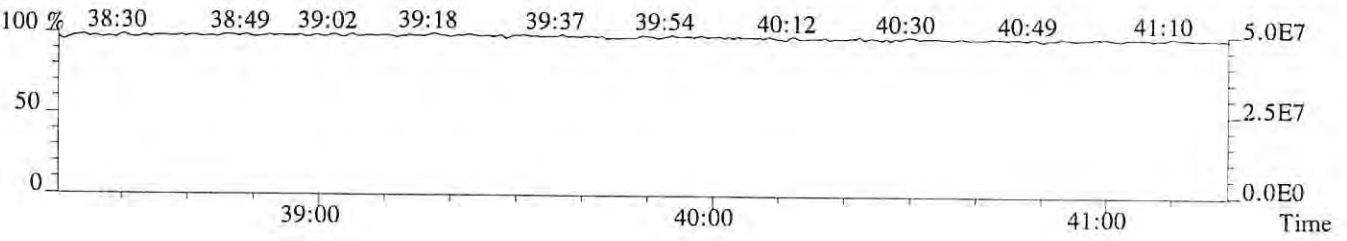
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5768.0,0.50%,F,T)



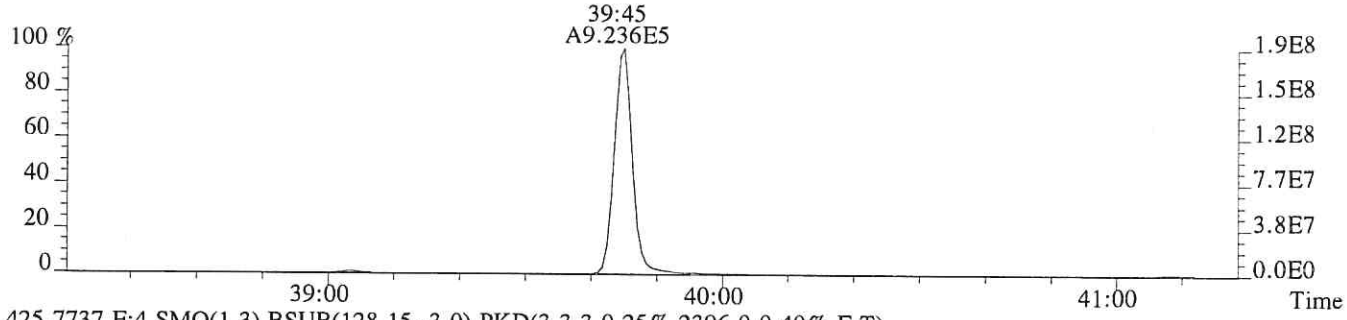
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



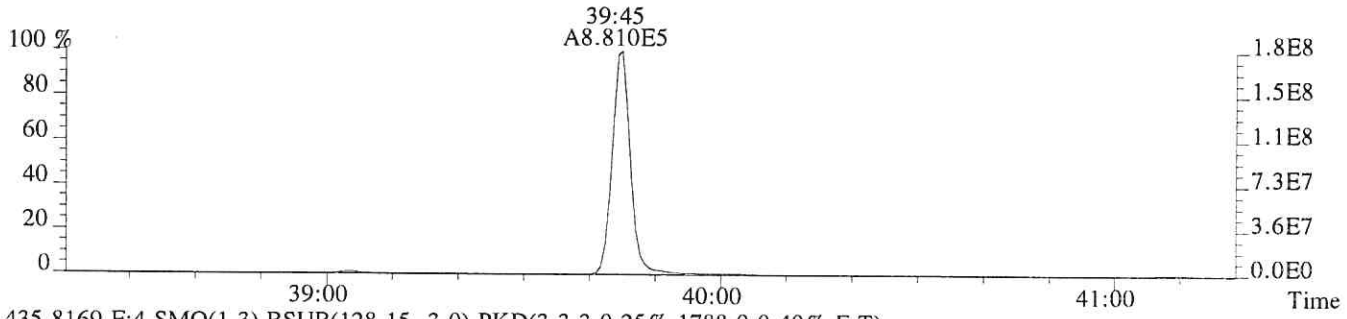
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



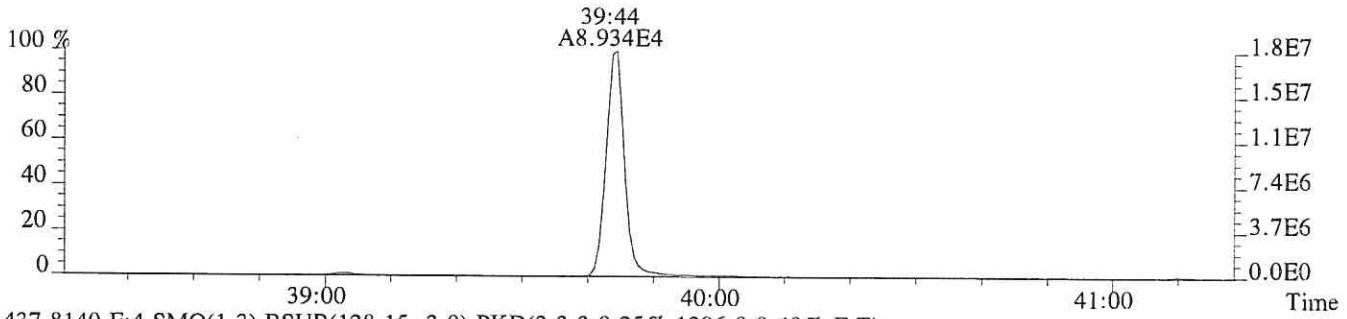
File:P513855 #1-268 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.40%,F,T)



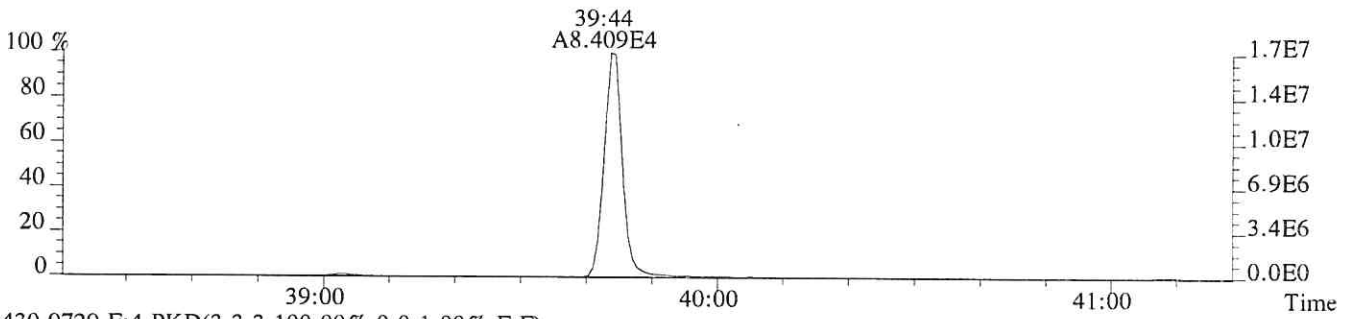
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2396.0,0.40%,F,T)



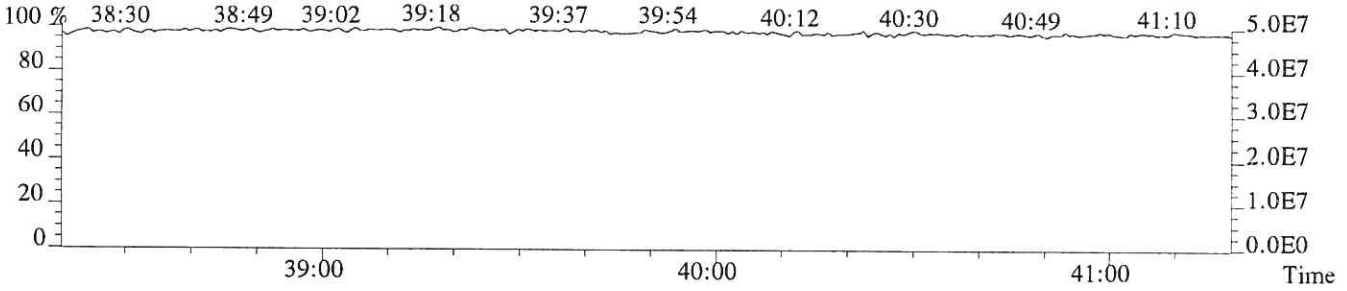
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



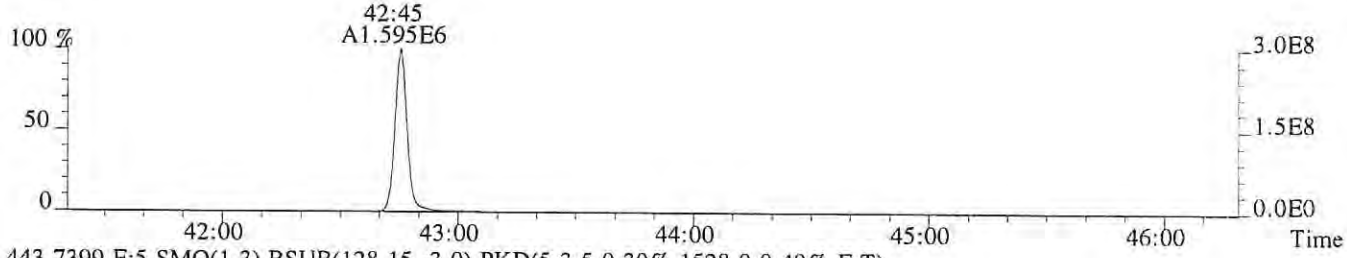
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



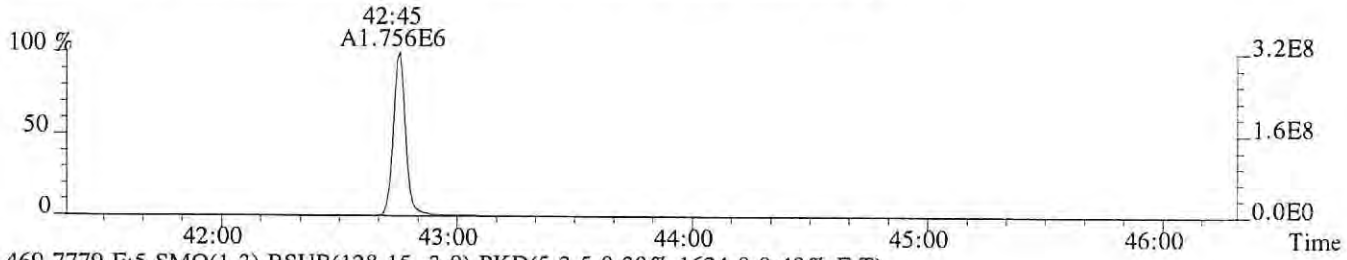
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



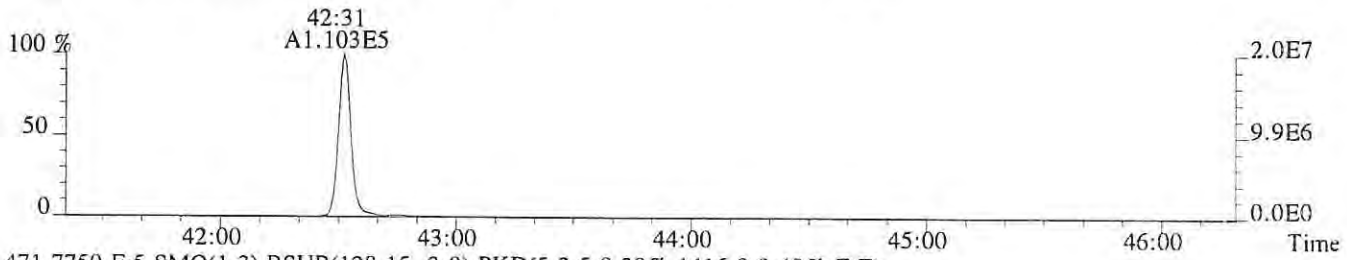
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



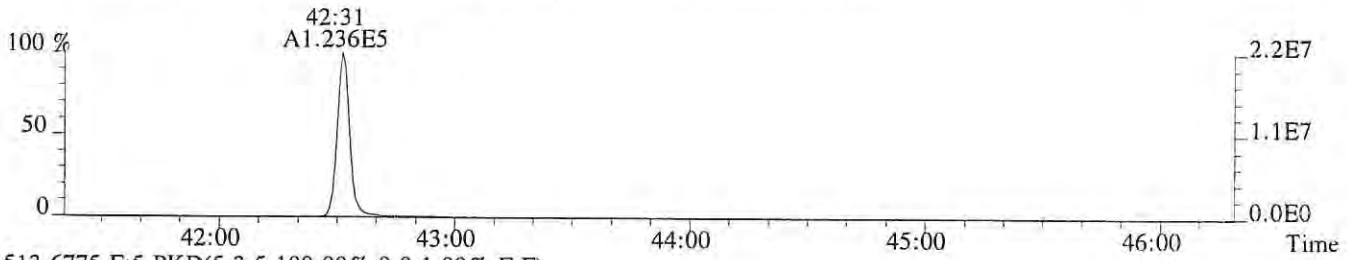
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



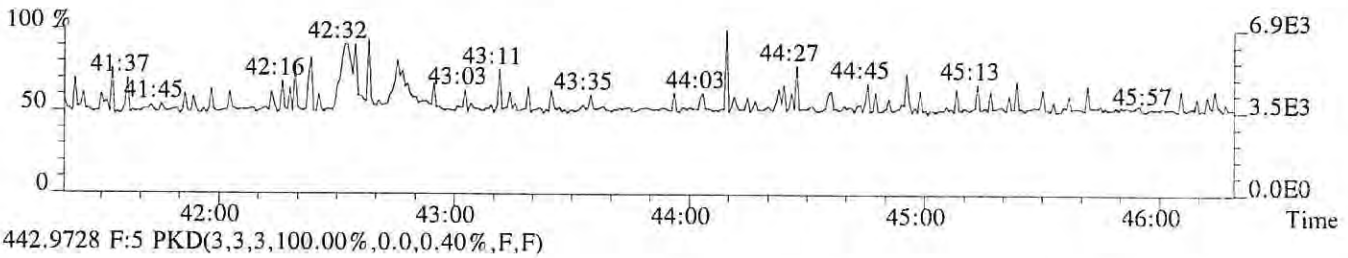
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



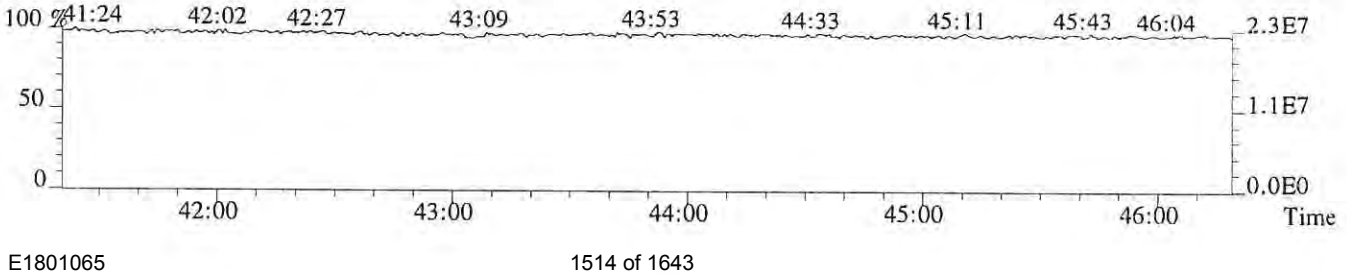
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



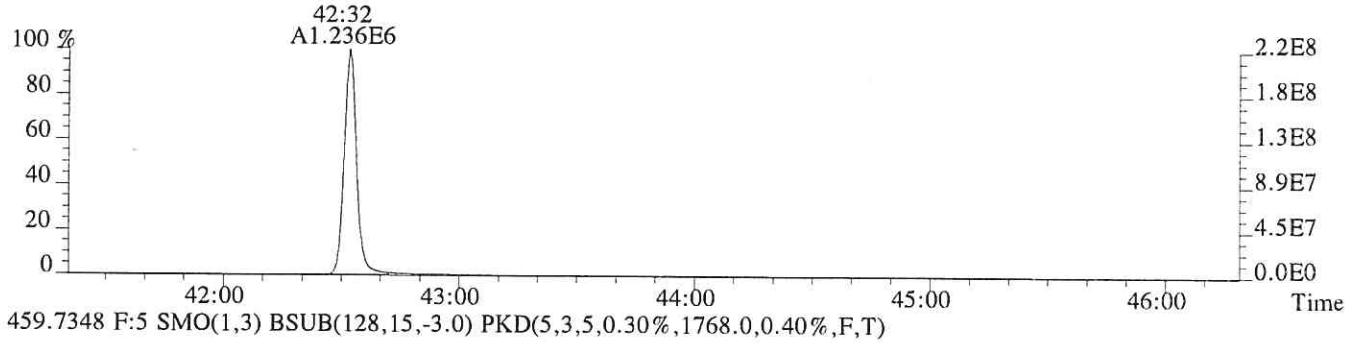
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



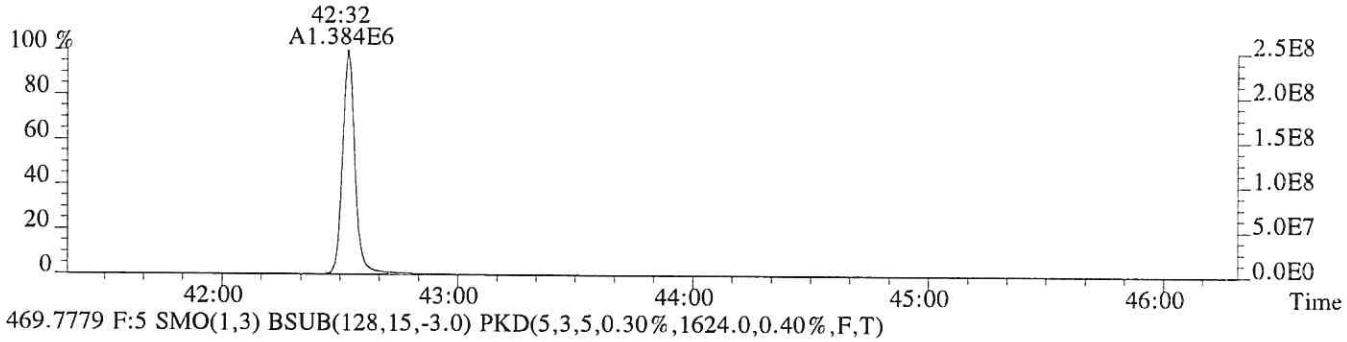
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



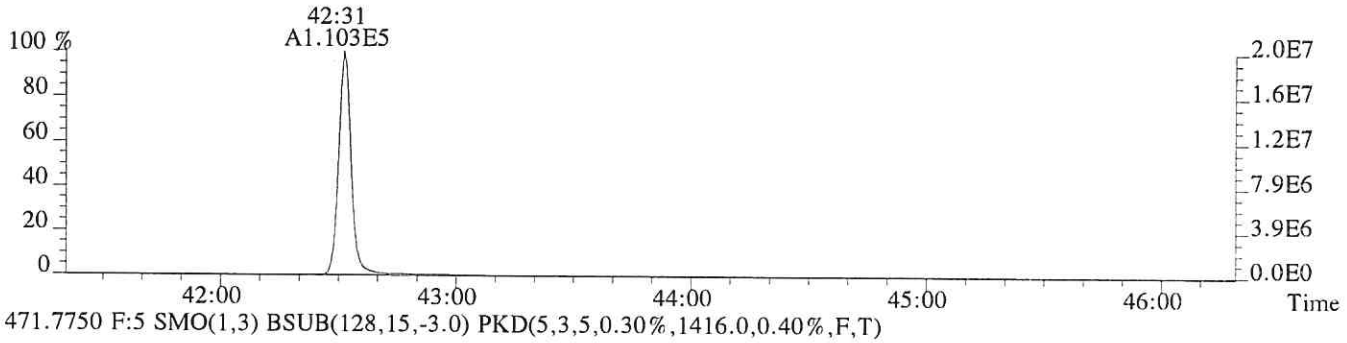
File:P513855 #1-448 Acq:24-JAN-2018 17:43:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:185657
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



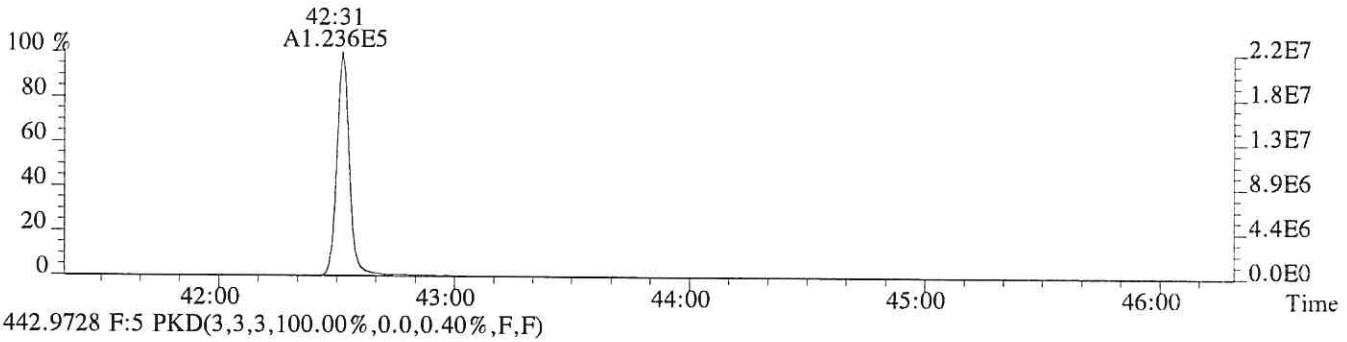
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



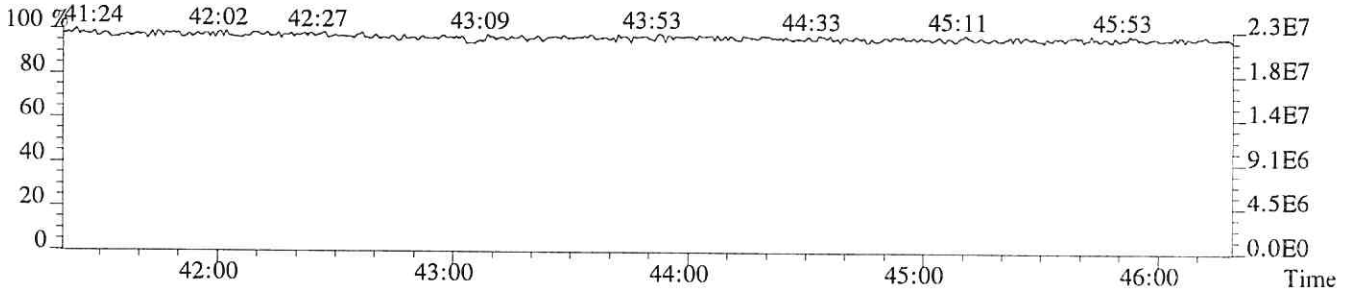
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1624.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.9	7.8 - 12.9	-0.8
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	0.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	50	39 - 64	0.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDD	M+2/M+4	0.89	0.76-1.02	101	79 - 126	1.5
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	10.2	8.4 - 12.0	2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	51	41 - 60	2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	44 - 57	0.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	50	45 - 55	0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	50	43 - 58	0.1
OCDF	M+2/M+4	0.89	0.76-1.02	100	63 - 159	0.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 01/24/18

Instrument ID: E-HRMS-07 GC Column ID: DB-5MSUI

VER Data Filename: P513857 Analysis Date: 24-JAN-18 Time: 19:21:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	92	62 - 160	-8.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	113	72 - 138	13.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	253	96 - 415	26.3
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	94	71 - 140	-6.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	94	76 - 130	-6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	94	77 - 130	-6.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	1.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	104	74 - 135	3.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	105	73 - 137	4.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	16.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.1	7.8 - 12.7	0.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	5.152e+03	7.223e+03	0.71	yes	no	0.942
2	Unk	1,2,3,7,8-PeCDF	32:48	3.916e+04	2.586e+04	1.51	yes	no	1.012
3	Unk	2,3,4,7,8-PeCDF	33:41	3.607e+04	2.366e+04	1.52	yes	no	0.959
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.202e+04	2.632e+04	1.22	yes	no	1.190
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.416e+04	2.839e+04	1.20	yes	no	1.123
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.150e+04	2.633e+04	1.20	yes	no	1.110
7	Unk	1,2,3,7,8,9-HxCDF	37:37	2.836e+04	2.314e+04	1.23	yes	no	1.144
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	2.874e+04	2.862e+04	1.00	yes	no	1.351
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	2.352e+04	2.346e+04	1.00	yes	no	1.258
10	Unk	OCDF	42:45	3.688e+04	4.148e+04	0.89	yes	no	1.359
11	Unk	2,3,7,8-TCDD	29:32	3.845e+03	5.032e+03	0.76	yes	no	1.085
12	Unk	1,2,3,7,8-PeCDD	33:57	2.377e+04	1.531e+04	1.55	yes	no	0.956
13	Unk	1,2,3,4,7,8-HxCDD	36:59	2.145e+04	1.680e+04	1.28	yes	no	1.038
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.240e+04	1.756e+04	1.28	yes	no	1.038
15	Unk	1,2,3,7,8,9-HxCDD	37:19	2.219e+04	1.741e+04	1.27	yes	no	1.063
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.034e+04	1.933e+04	1.05	yes	no	1.025
17	Unk	OCDD	42:31	3.083e+04	3.462e+04	0.89	yes	no	1.118
18	IS	13C-2,3,7,8-TCDF	28:46	5.681e+04	7.189e+04	0.79	yes	no	1.513
19	IS	13C-1,2,3,7,8-PeCDF	32:47	7.678e+04	4.833e+04	1.59	yes	no	1.471
20	IS	13C-2,3,4,7,8-PeCDF	33:40	7.550e+04	4.814e+04	1.57	yes	no	1.457
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.216e+04	6.216e+04	0.52	yes	no	1.234
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.808e+04	7.348e+04	0.52	yes	no	1.399
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	3.589e+04	6.747e+04	0.53	yes	no	1.257
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	3.054e+04	5.771e+04	0.53	yes	no	1.086
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	2.616e+04	5.845e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	2.287e+04	5.181e+04	0.44	yes	no	0.820
27	IS	13C-2,3,7,8-TCDD	29:30	3.654e+04	4.587e+04	0.80	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:56	4.972e+04	3.125e+04	1.59	yes	no	0.975
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	4.147e+04	3.207e+04	1.29	yes	no	0.925
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	4.264e+04	3.379e+04	1.26	yes	no	0.949
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	3.921e+04	3.703e+04	1.06	yes	no	0.858
32	IS	13C-OCDD	42:31	5.445e+04	6.090e+04	0.89	yes	no	0.582
33	RS/RT	13C-1,2,3,4-TCDD	28:57	4.052e+04	5.019e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	4.325e+04	3.518e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.276e+03				no	1.014

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P513857 Samp: 1 Inj: 1 Acquired: 24-JAN-18 19:21:06
Processed: 25-JAN-18 08:41:26 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+06	1.03e+03	1.0e+03	1.42e+06	2.00e+03	7.1e+02
2	1,2,3,7,8-PeCDF	7.88e+06	8.44e+02	9.3e+03	5.19e+06	1.52e+03	3.4e+03
3	2,3,4,7,8-PeCDF	7.53e+06	8.44e+02	8.9e+03	4.93e+06	1.52e+03	3.2e+03
4	1,2,3,4,7,8-HxCDF	7.21e+06	1.53e+03	4.7e+03	5.89e+06	1.36e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	1.53e+03	4.8e+03	6.08e+06	1.36e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	7.02e+06	1.53e+03	4.6e+03	5.88e+06	1.36e+03	4.3e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	1.53e+03	4.0e+03	4.95e+06	1.36e+03	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	6.16e+06	5.00e+03	1.2e+03	6.13e+06	6.59e+03	9.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.58e+06	5.00e+03	9.1e+02	4.45e+06	6.59e+03	6.7e+02
10	OCDF	6.54e+06	1.44e+02	4.5e+04	7.12e+06	8.36e+02	8.5e+03
11	2,3,7,8-TCDD	8.13e+05	1.92e+03	4.2e+02	1.05e+06	1.26e+03	8.3e+02
12	1,2,3,7,8-PeCDD	4.95e+06	8.52e+02	5.8e+03	3.18e+06	2.84e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	4.98e+06	7.64e+02	6.5e+03	3.93e+06	4.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	4.78e+06	7.64e+02	6.3e+03	3.77e+06	4.12e+02	9.2e+03
15	1,2,3,7,8,9-HxCDD	4.67e+06	7.64e+02	6.1e+03	3.64e+06	4.12e+02	8.8e+03
16	1,2,3,4,6,7,8-HpCDD	4.20e+06	1.17e+03	3.6e+03	3.99e+06	7.20e+01	5.5e+04
17	OCDD	5.25e+06	1.60e+02	3.3e+04	5.90e+06	1.22e+03	4.8e+03
18	13C-2,3,7,8-TCDF	1.11e+07	9.00e+03	1.2e+03	1.40e+07	3.76e+03	3.7e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	6.36e+02	2.4e+04	9.62e+06	1.34e+03	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.56e+07	6.36e+02	2.5e+04	9.99e+06	1.34e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.22e+06	7.60e+02	9.5e+03	1.40e+07	1.60e+03	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	8.16e+06	7.60e+02	1.1e+04	1.57e+07	1.60e+03	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.92e+06	7.60e+02	1.0e+04	1.49e+07	1.60e+03	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.41e+06	7.60e+02	8.4e+03	1.22e+07	1.60e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.67e+06	2.84e+03	2.0e+03	1.26e+07	6.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+06	2.84e+03	1.6e+03	1.00e+07	6.70e+03	1.5e+03
27	13C-2,3,7,8-TCDD	7.51e+06	5.77e+03	1.3e+03	9.42e+06	2.25e+03	4.2e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.06e+03	9.5e+03	6.31e+06	5.88e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	9.57e+06	2.66e+03	3.6e+03	7.40e+06	1.57e+03	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	9.03e+06	2.66e+03	3.4e+03	7.14e+06	1.57e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+06	1.17e+03	6.8e+03	7.51e+06	7.00e+02	1.1e+04
32	13C-OCDD	9.30e+06	2.60e+02	3.6e+04	1.03e+07	4.00e+02	2.6e+04
33	13C-1,2,3,4-TCDD	8.25e+06	5.77e+03	1.4e+03	1.02e+07	2.25e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.23e+06	2.66e+03	3.5e+03	7.29e+06	1.57e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	1.94e+06	1.18e+03	1.6e+03			

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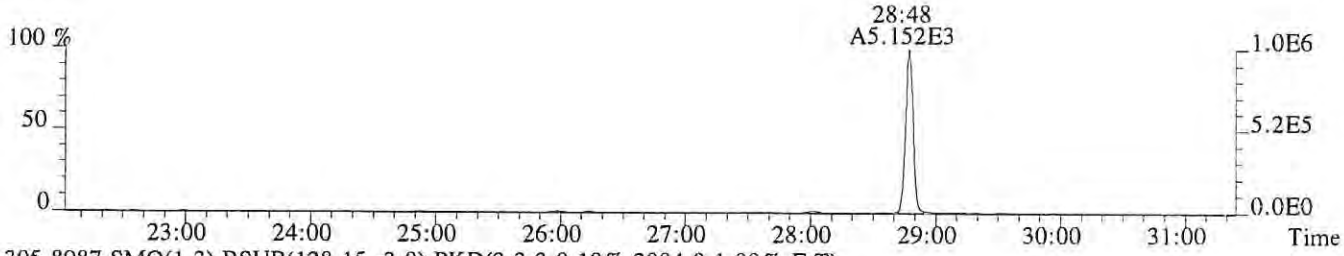
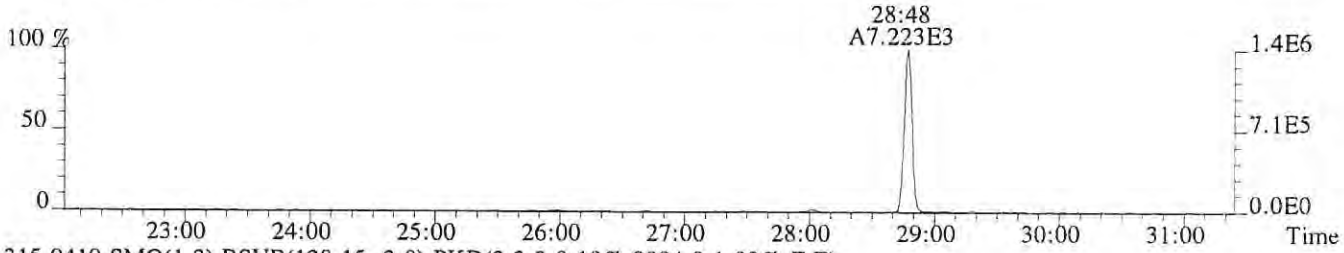
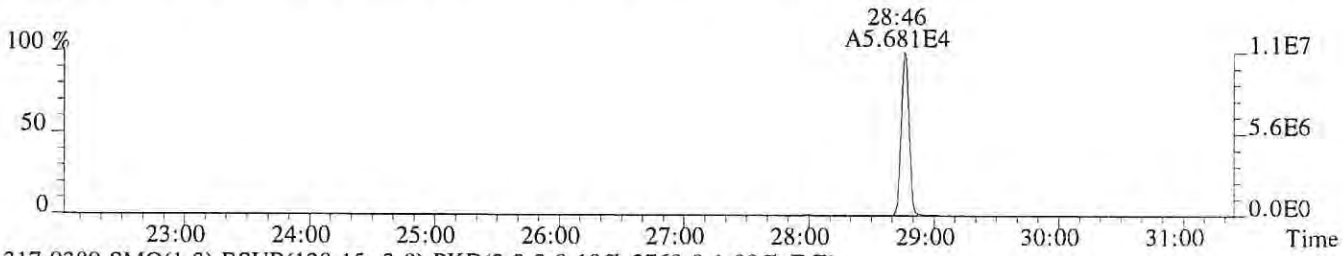
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spectt
Sample#1 Exp:75080
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



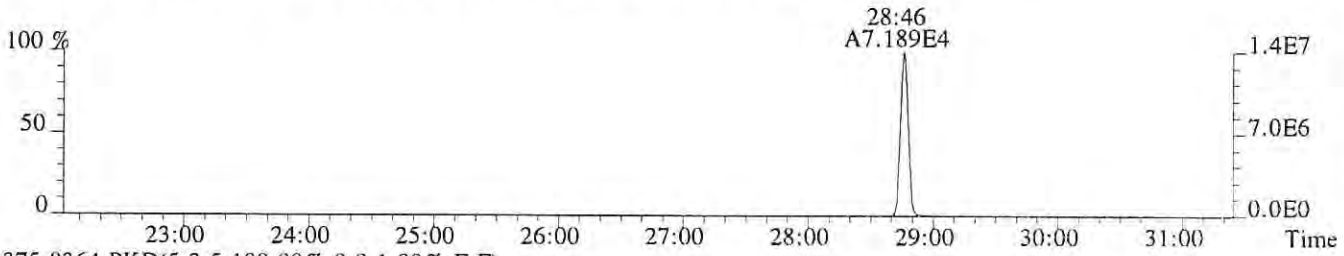
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2004.0,1.00%,F,T)



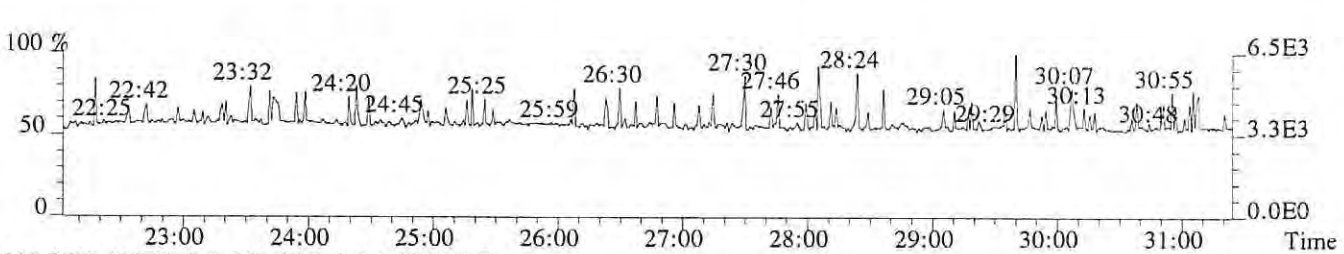
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9004.0,1.00%,F,T)



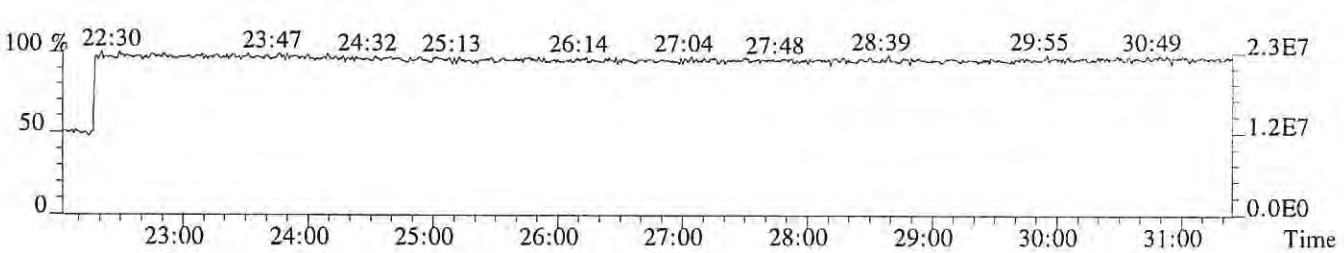
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3760.0,1.00%,F,T)



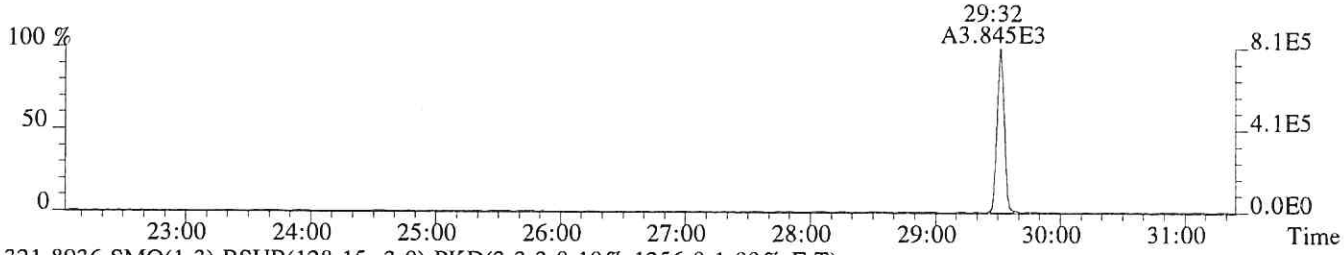
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



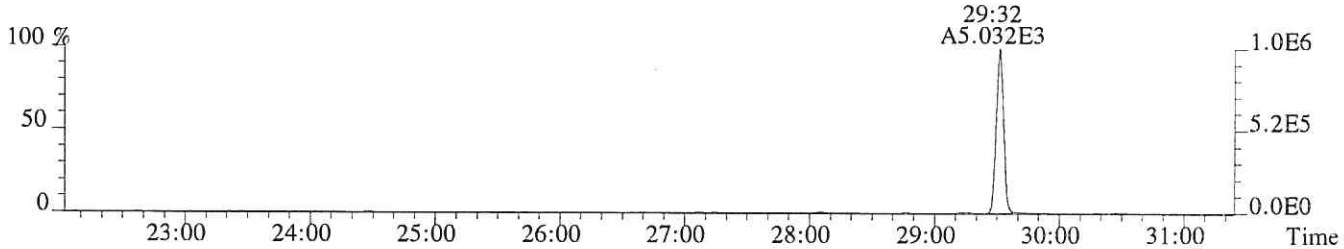
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



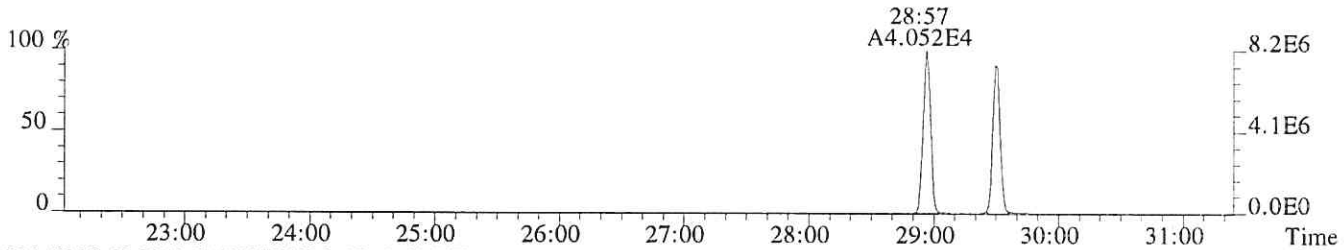
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



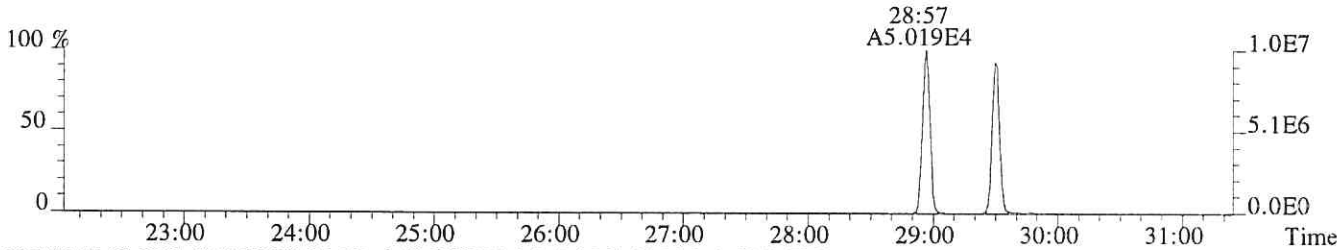
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



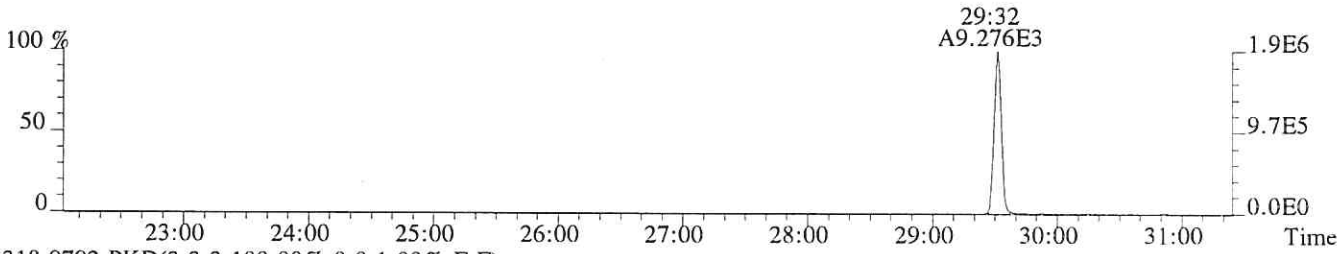
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



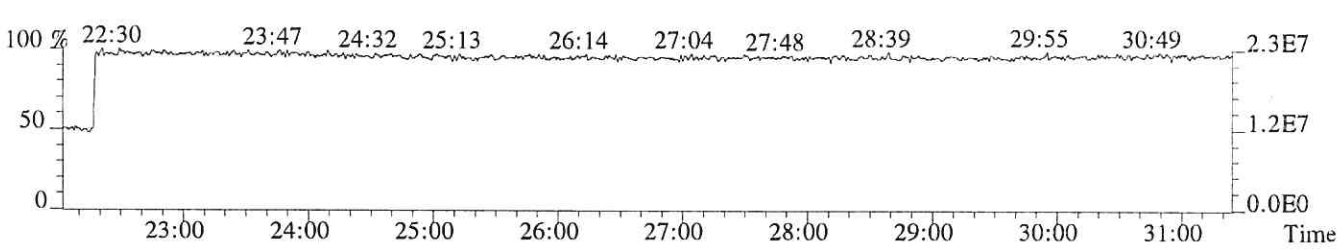
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



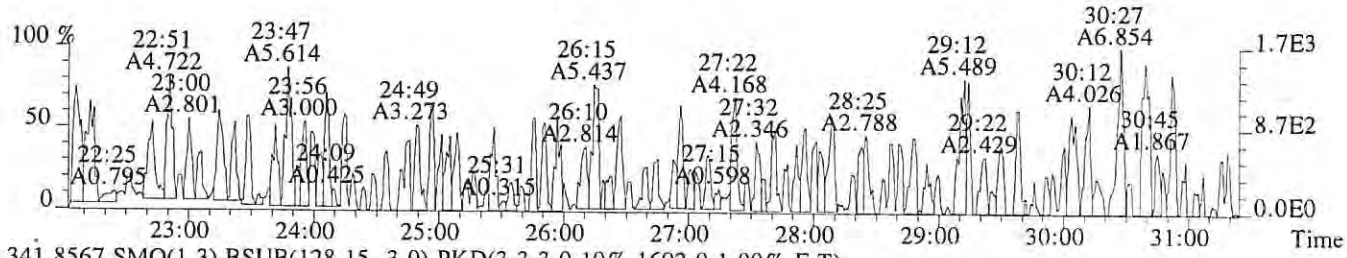
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



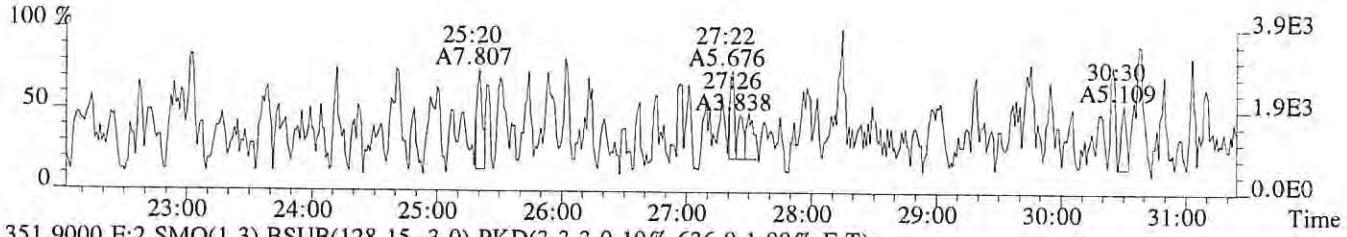
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



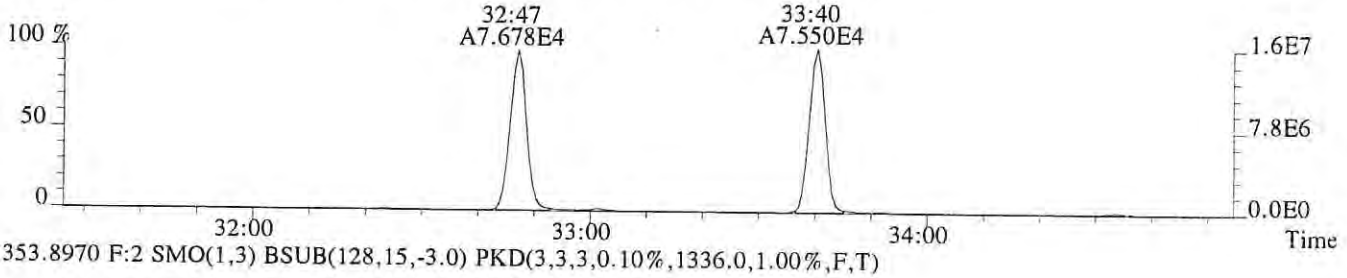
File:P513857 #1-665 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



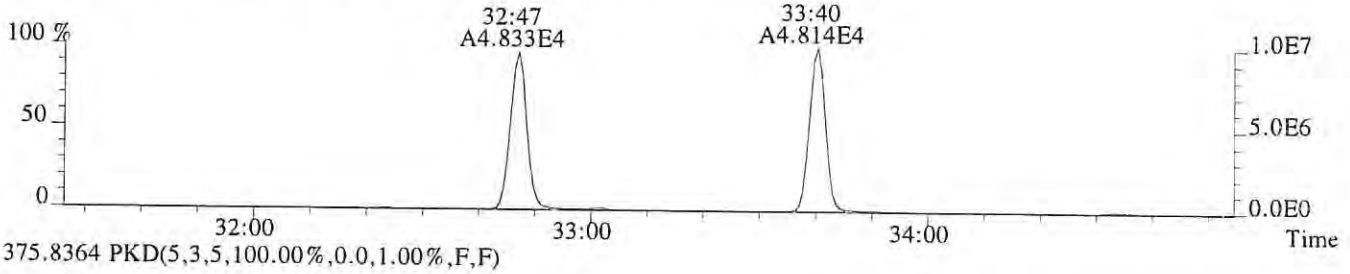
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



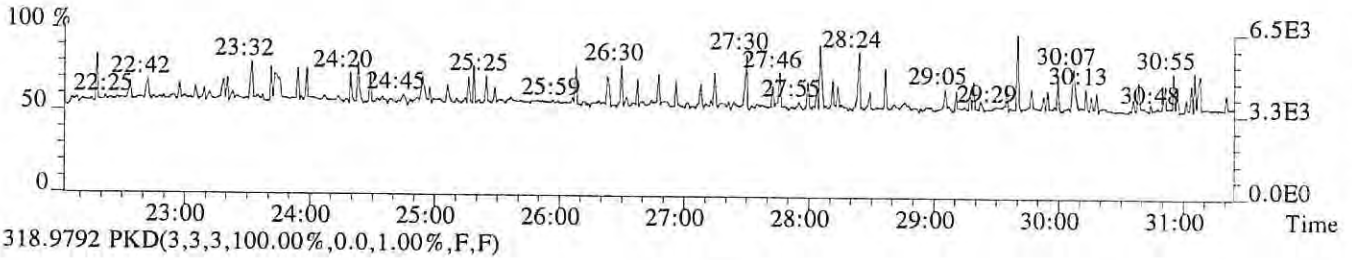
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



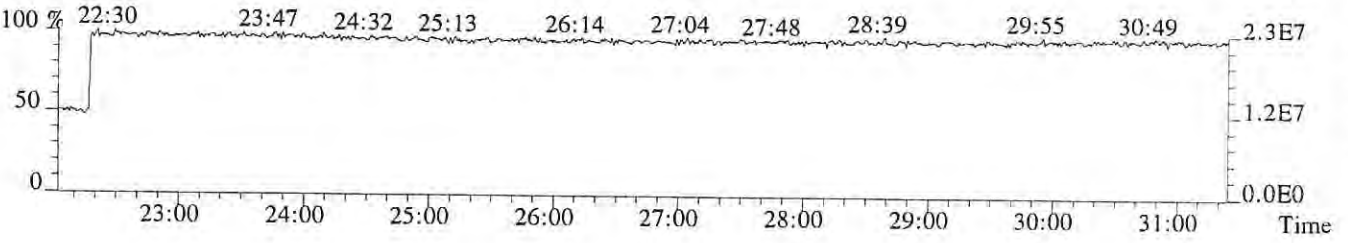
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



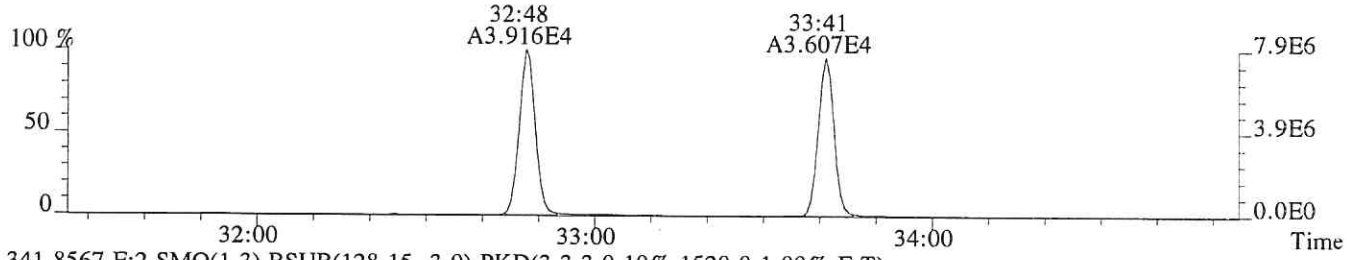
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



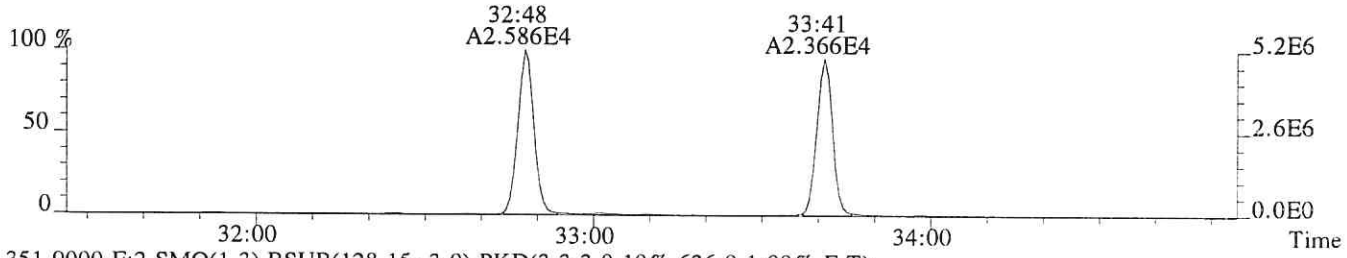
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



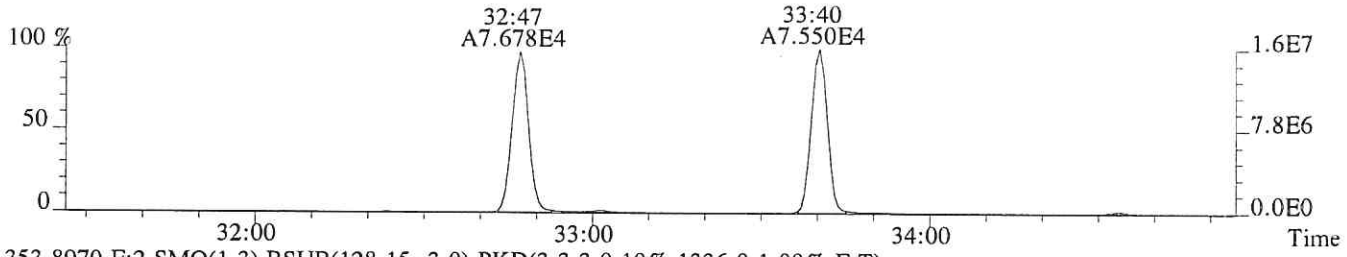
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



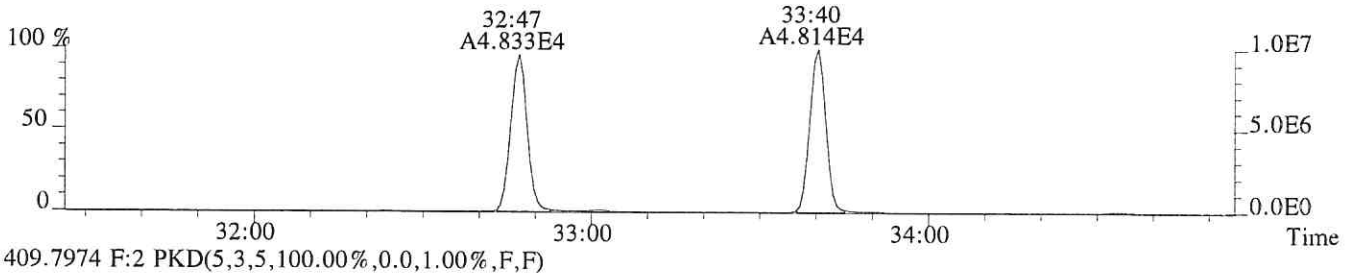
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



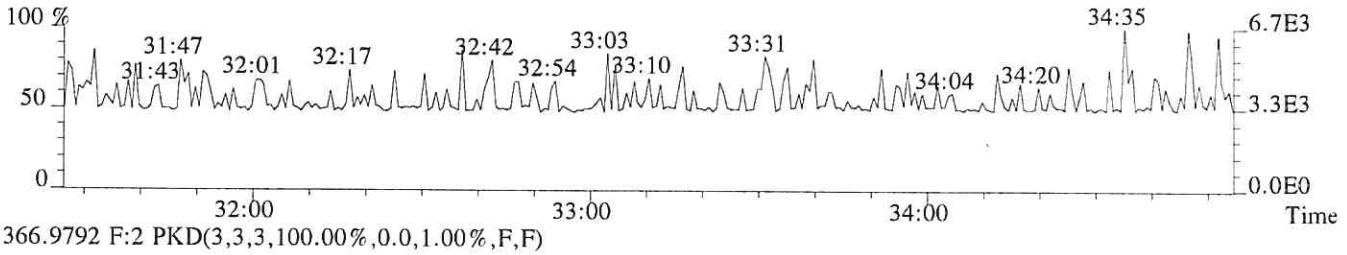
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



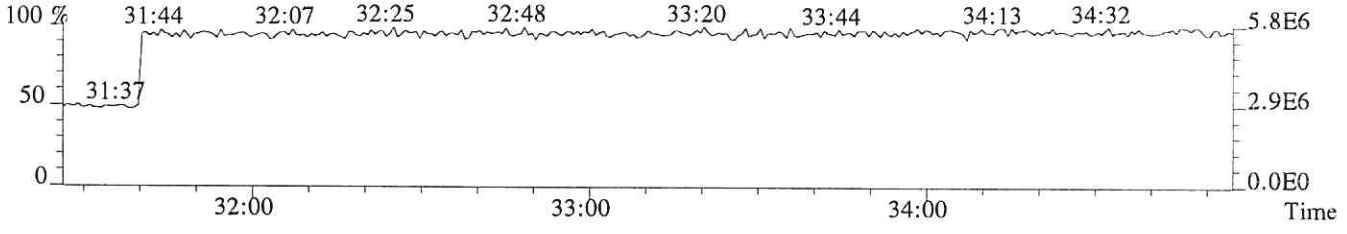
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



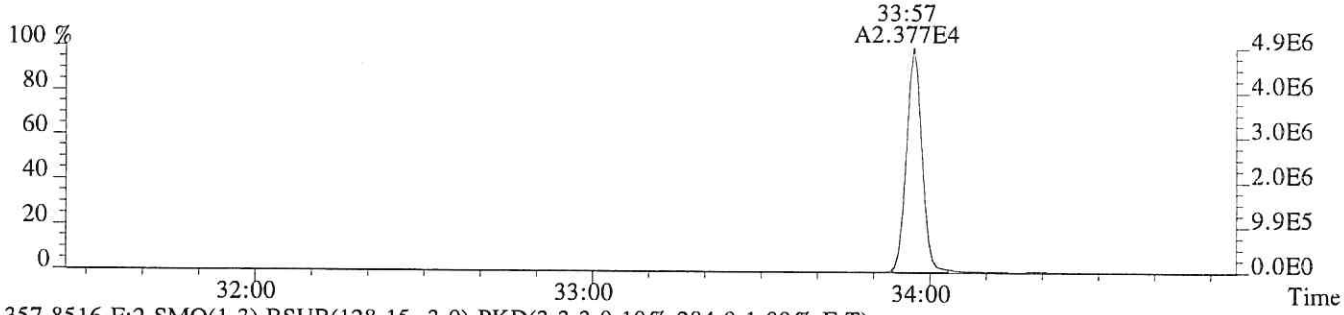
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



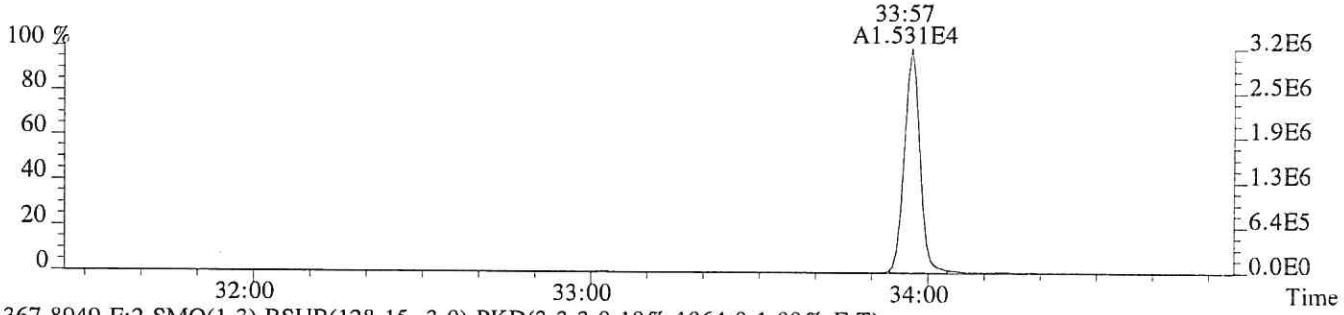
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



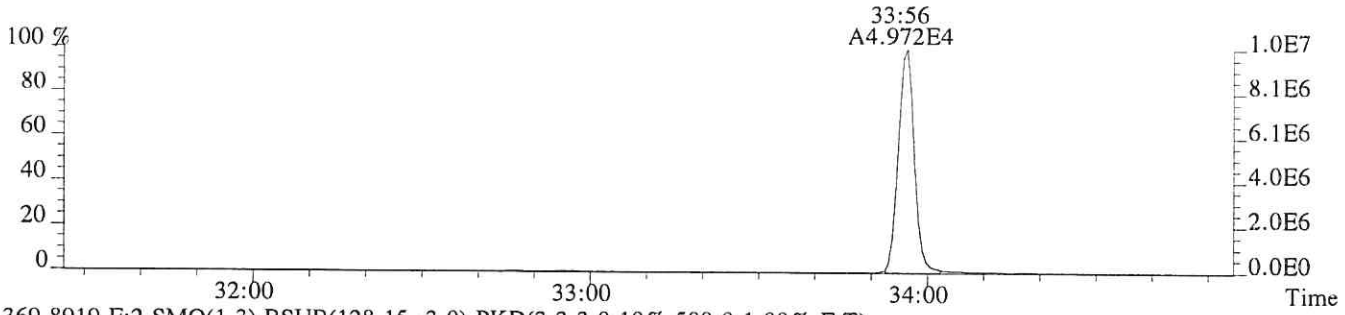
File:P513857 #1-313 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



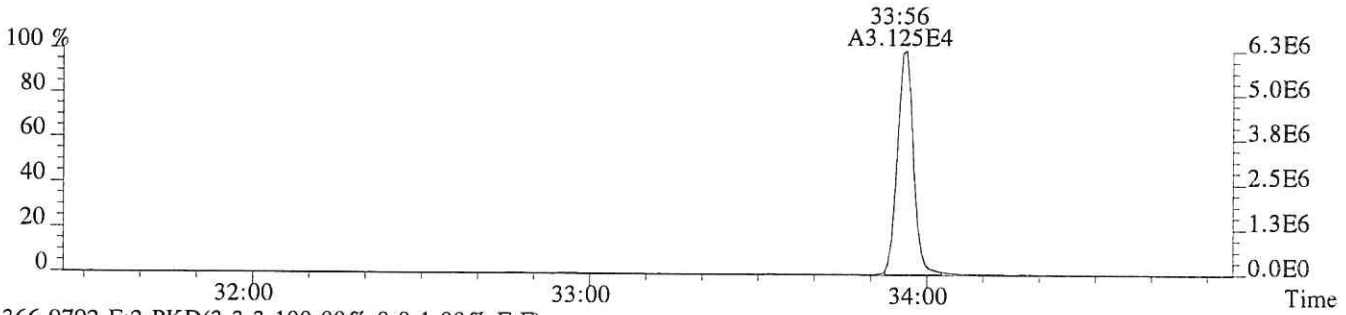
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



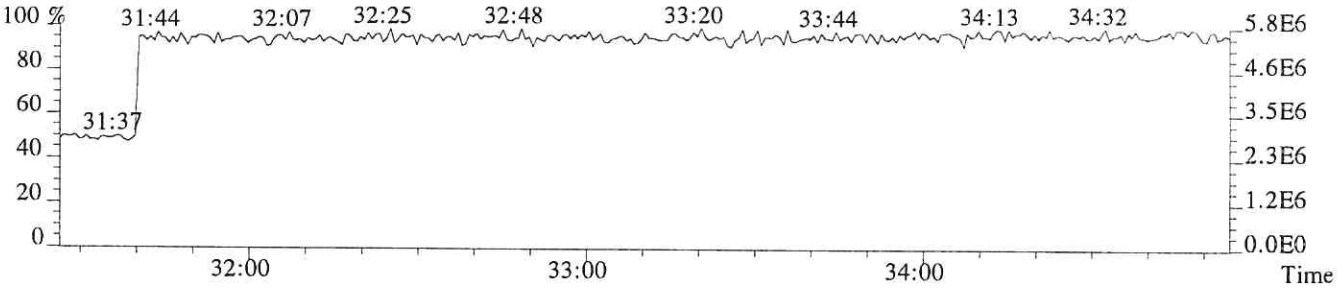
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



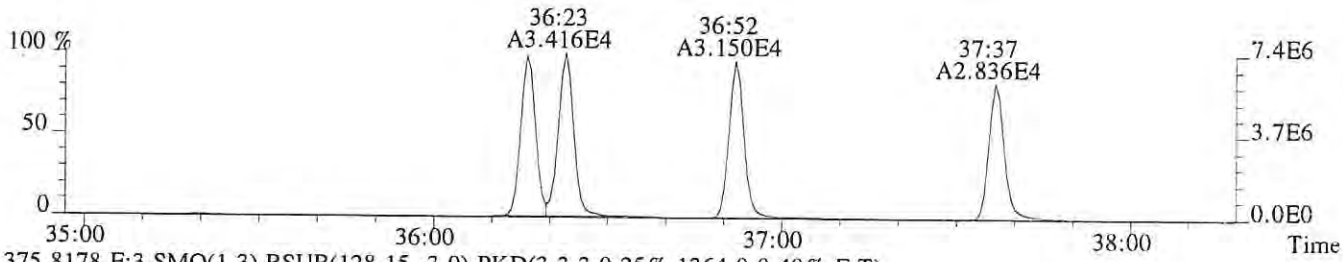
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



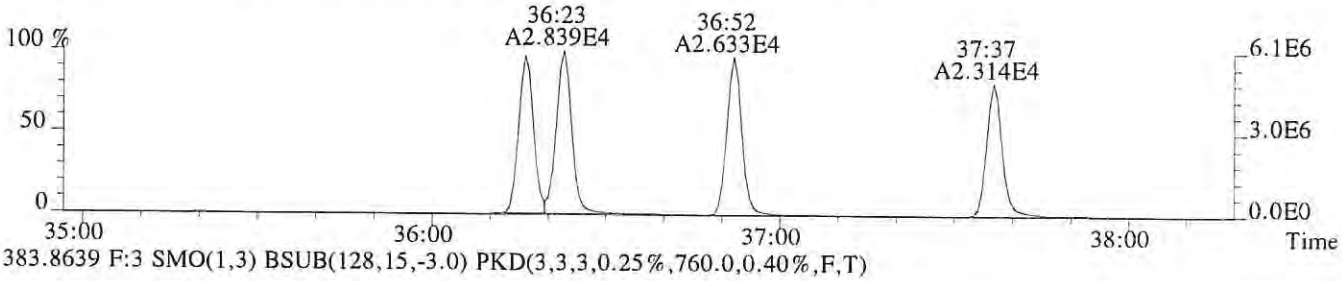
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



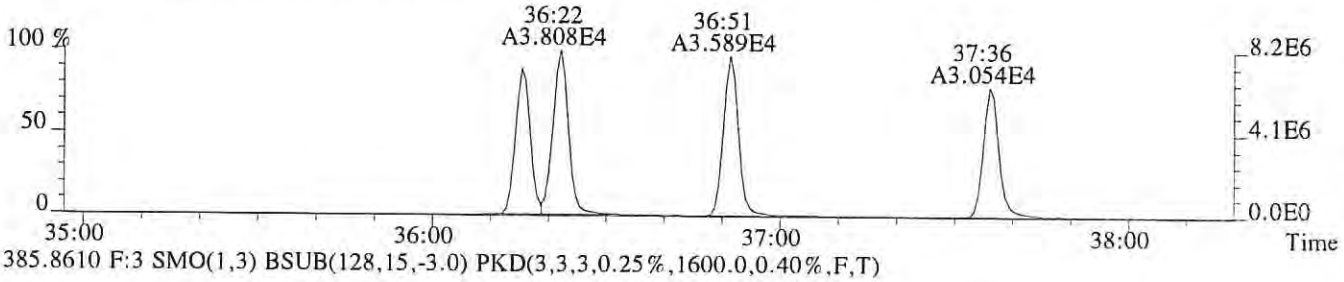
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



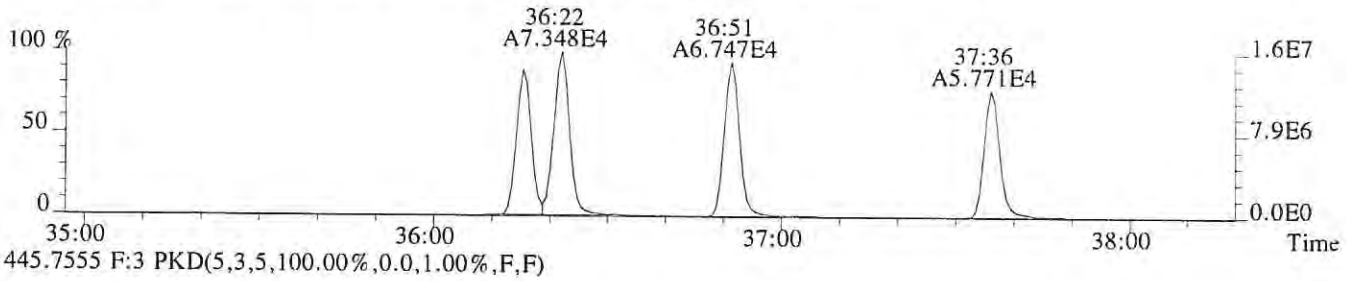
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



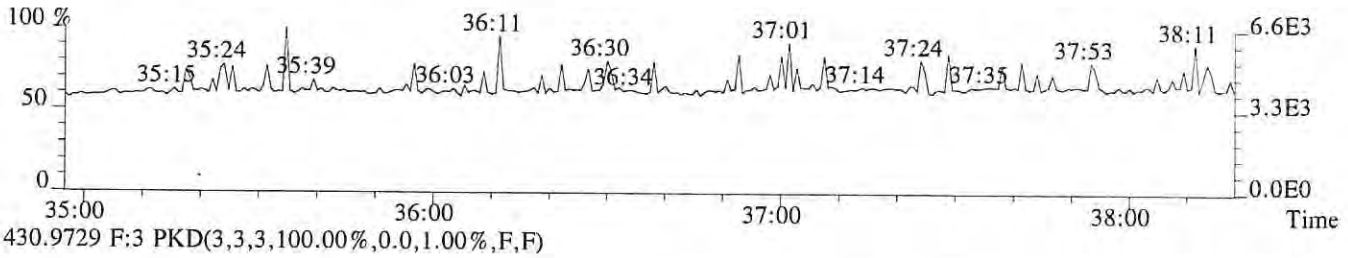
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



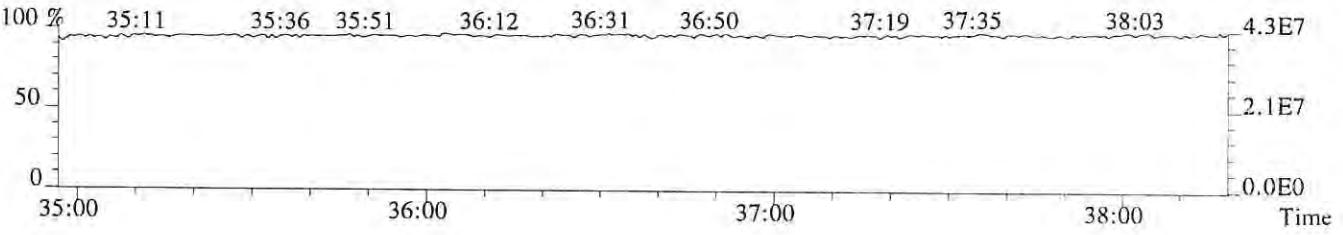
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



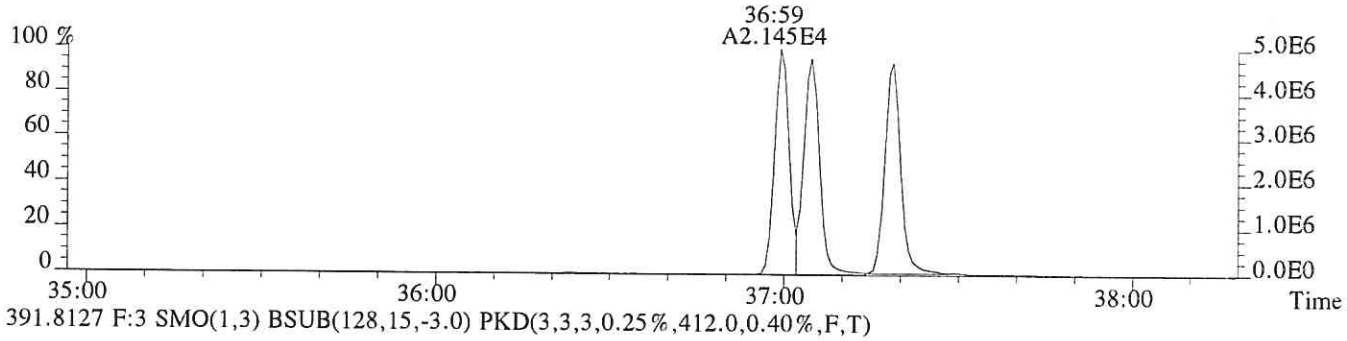
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



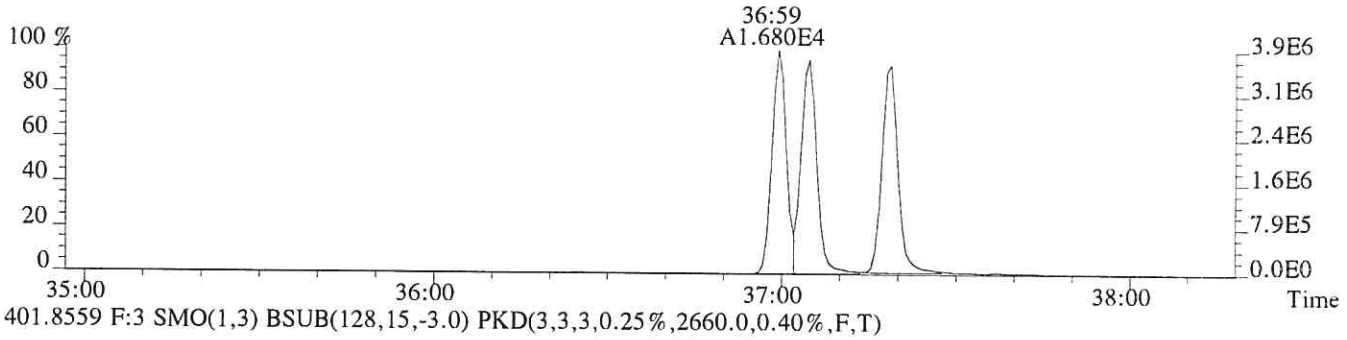
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



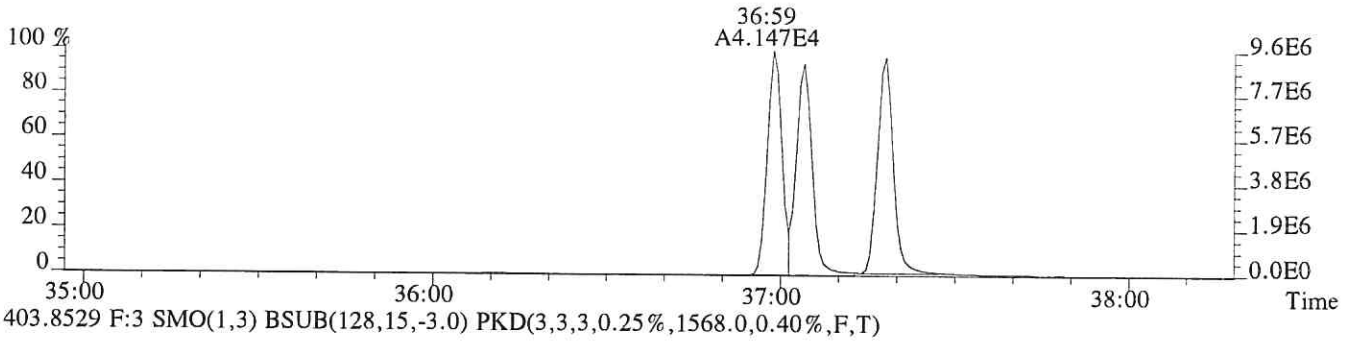
File:P513857 #1-303 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



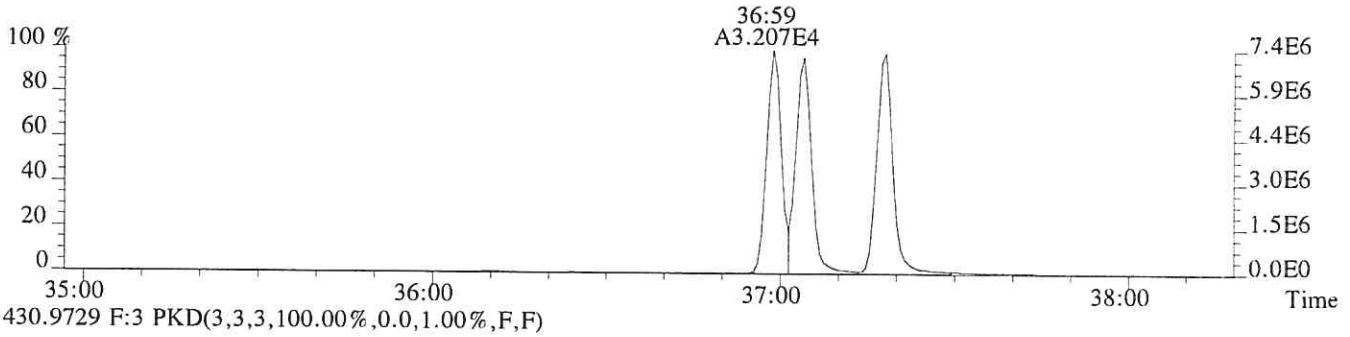
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



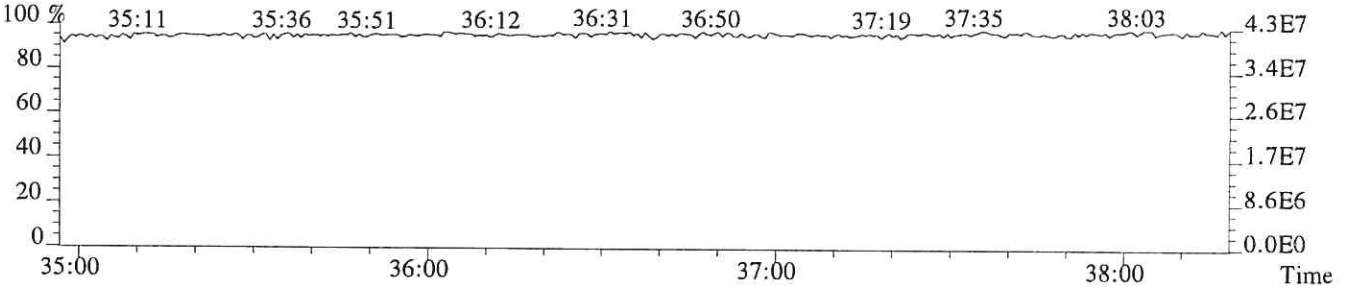
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



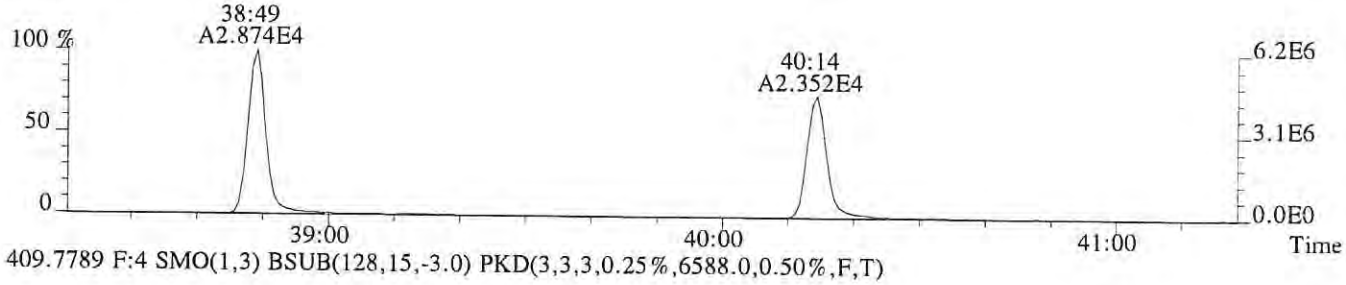
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



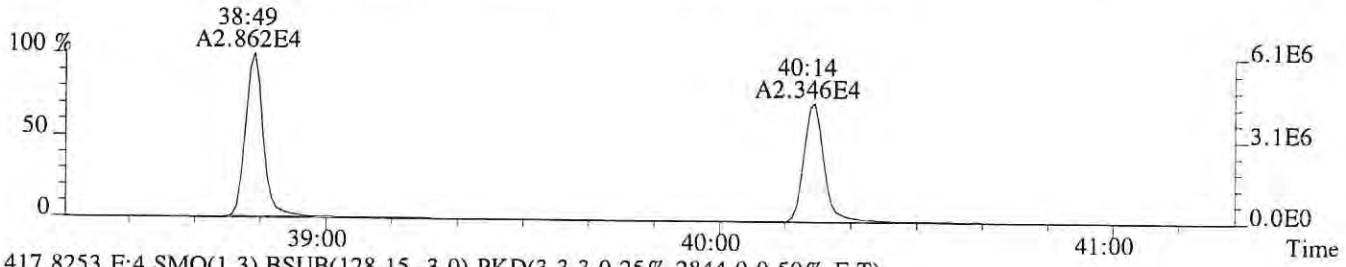
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



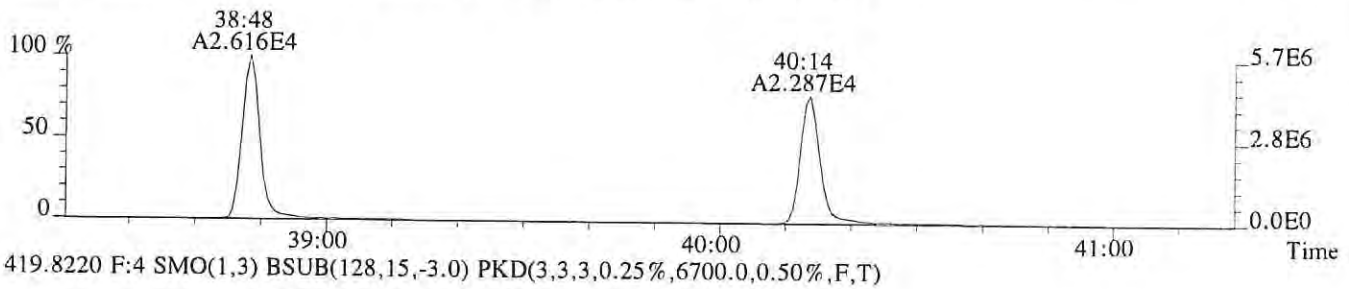
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5004.0,0.50%,F,T)



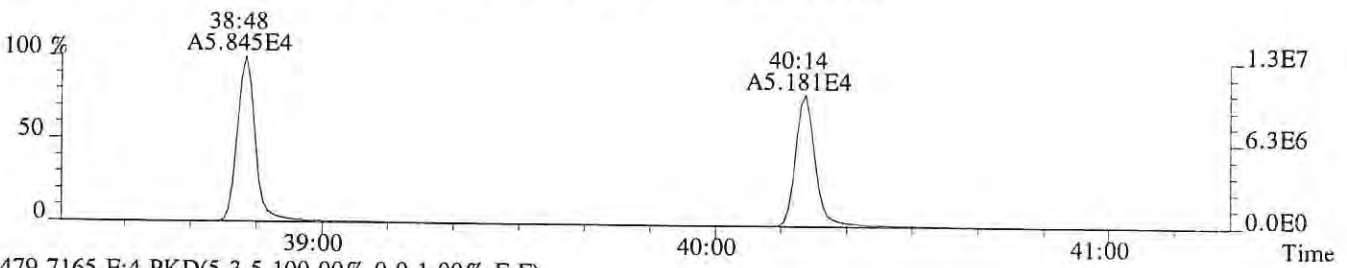
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6588.0,0.50%,F,T)



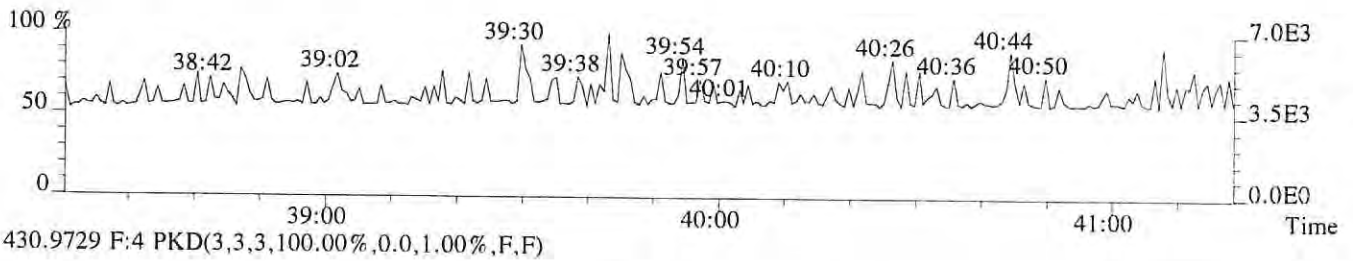
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2844.0,0.50%,F,T)



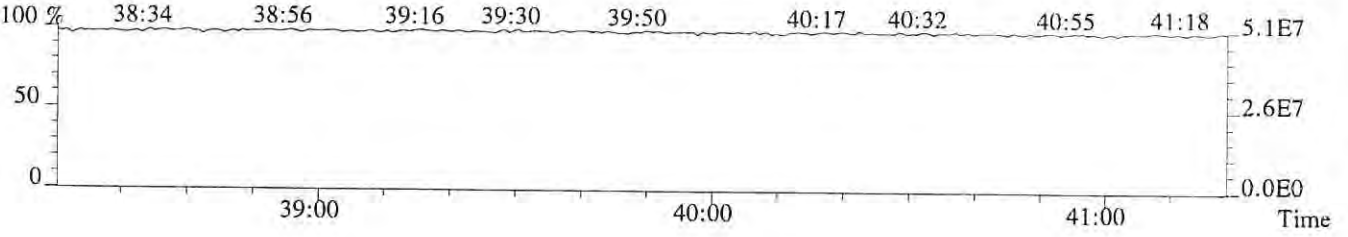
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6700.0,0.50%,F,T)



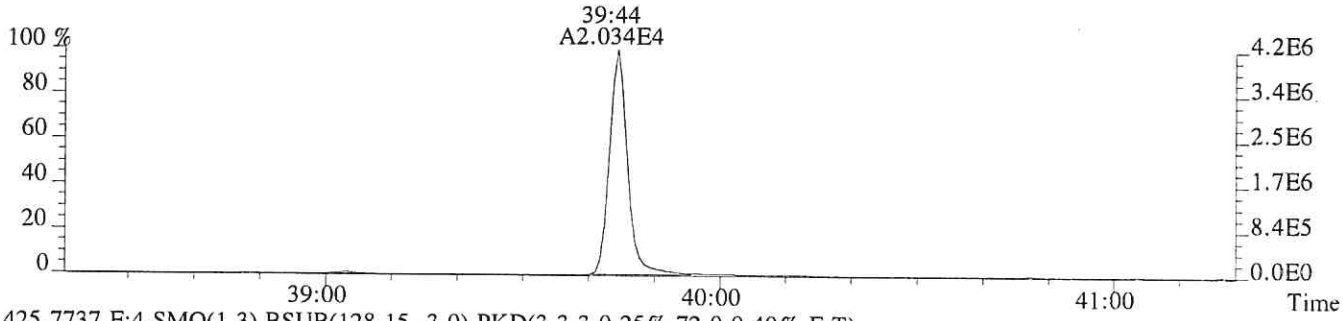
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



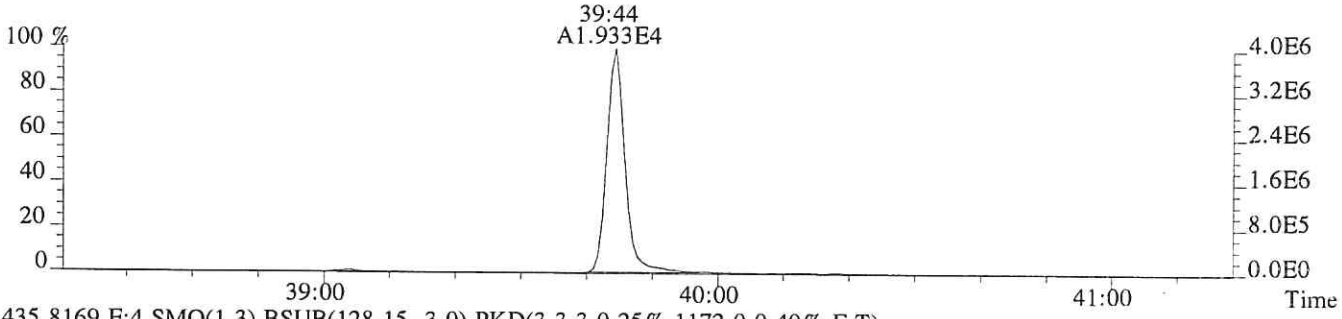
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



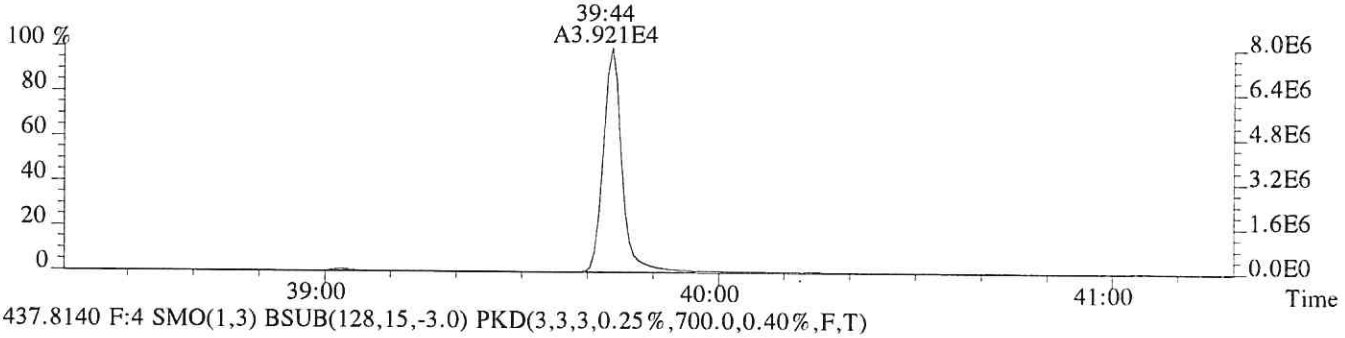
File:P513857 #1-268 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



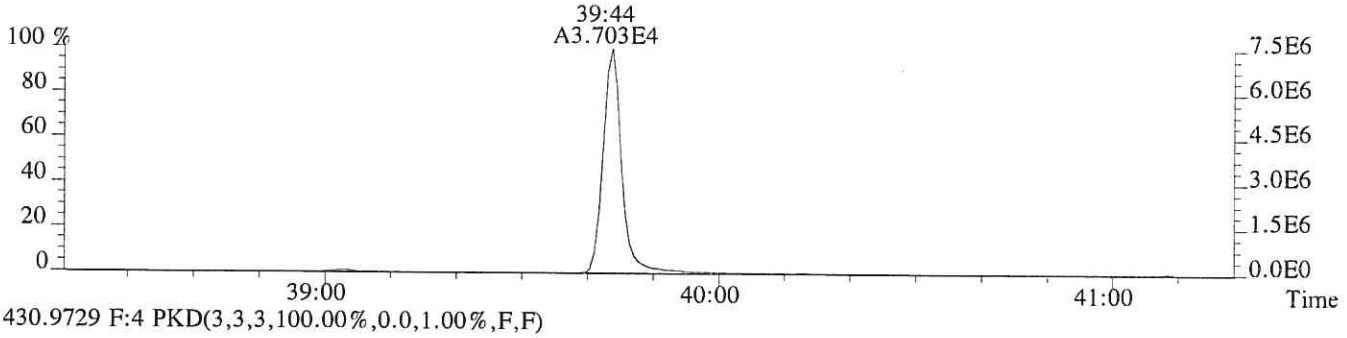
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



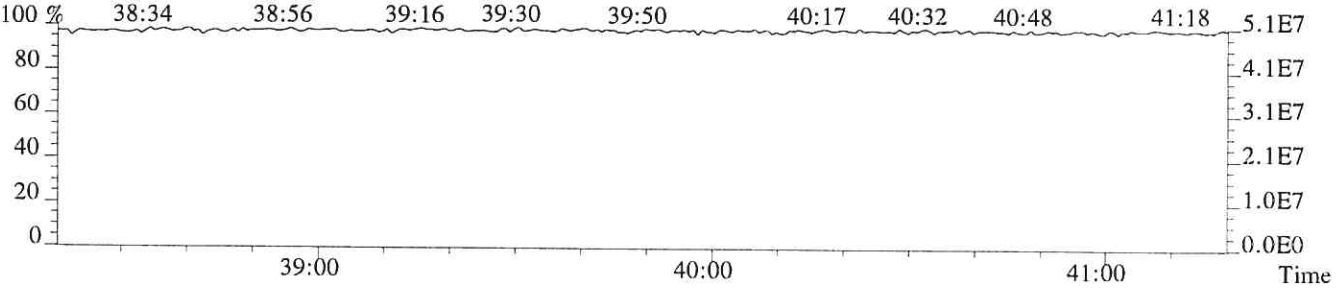
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.40%,F,T)



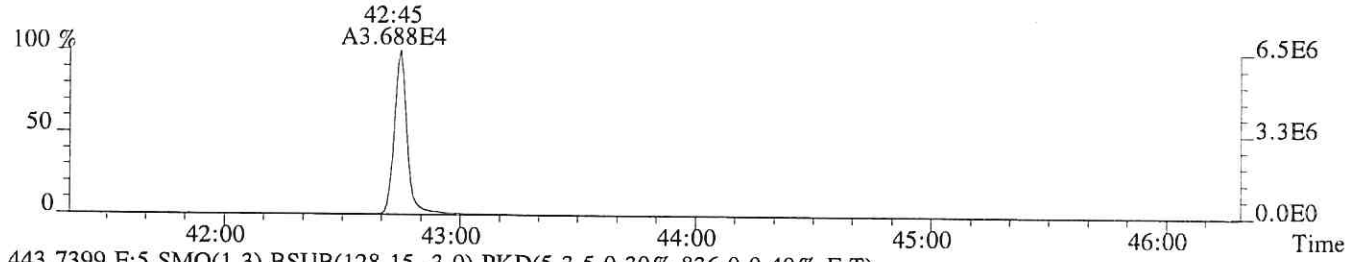
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



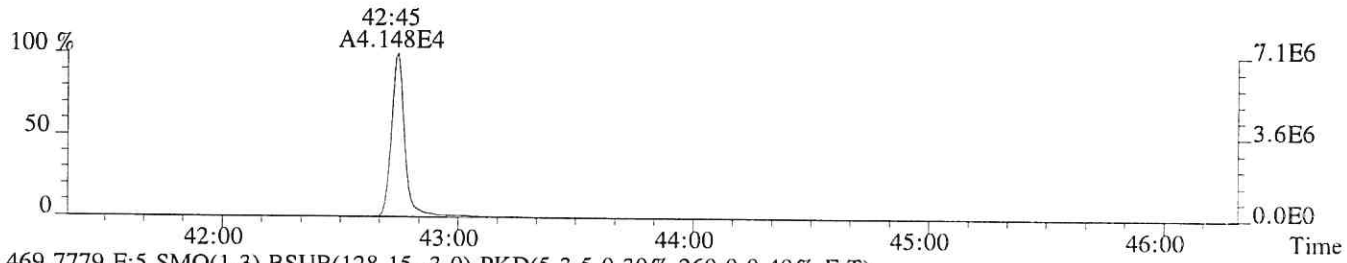
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



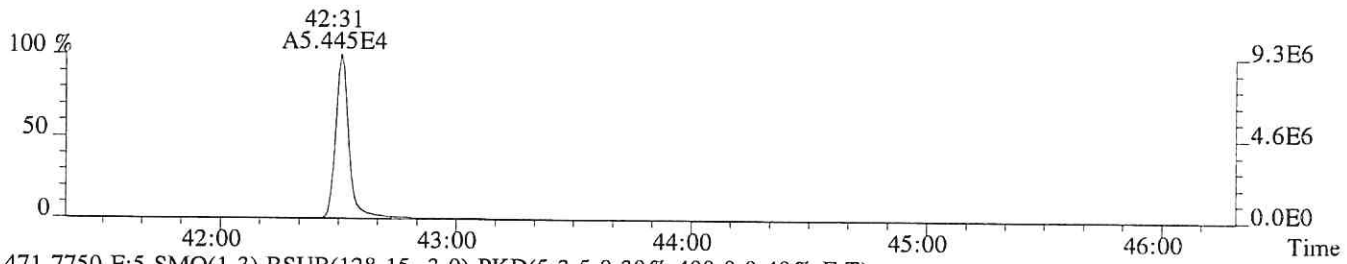
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



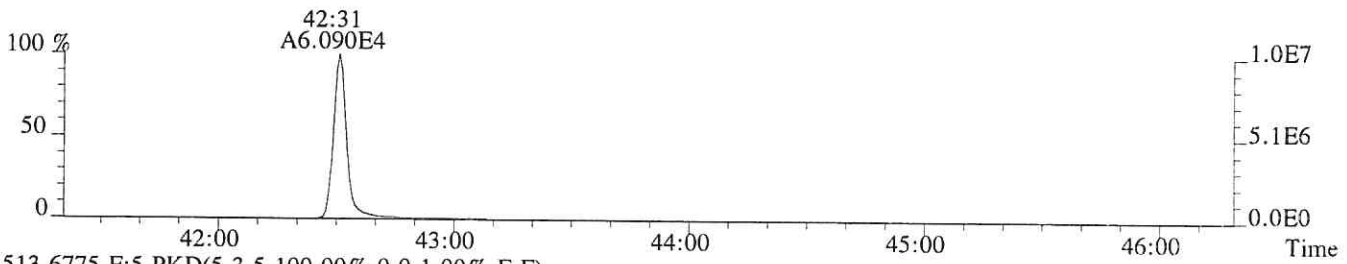
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



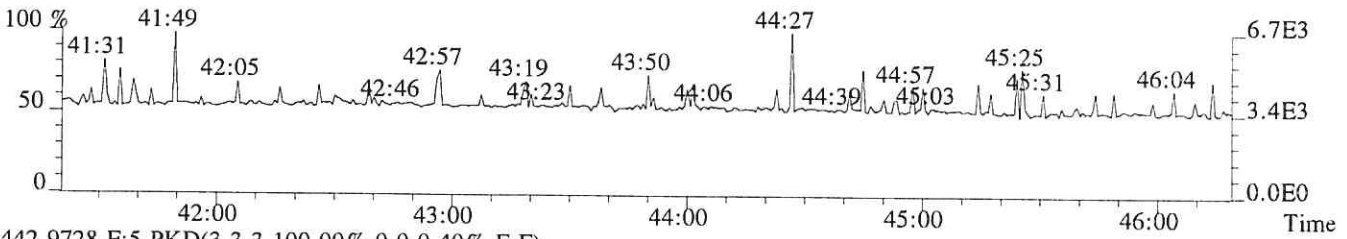
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



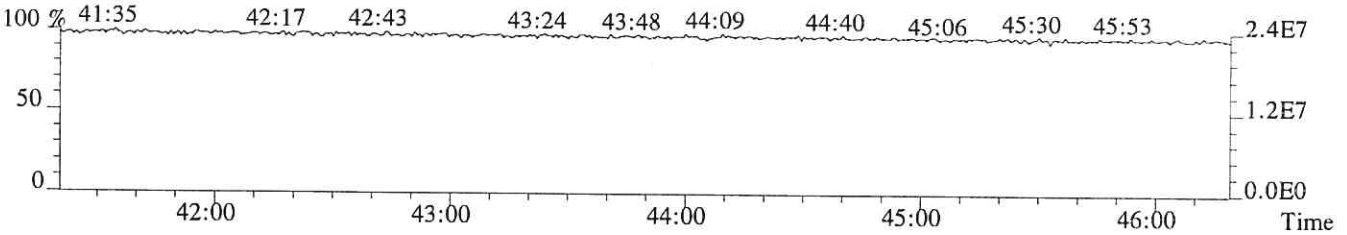
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



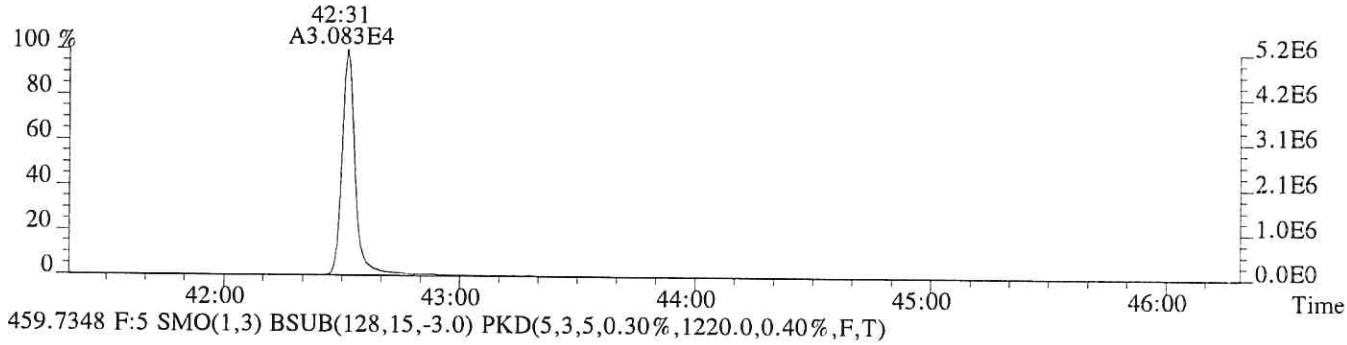
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



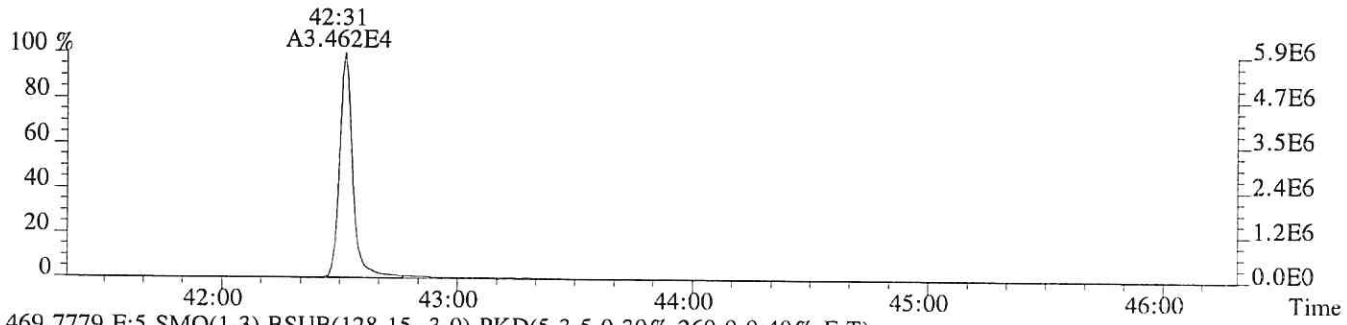
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



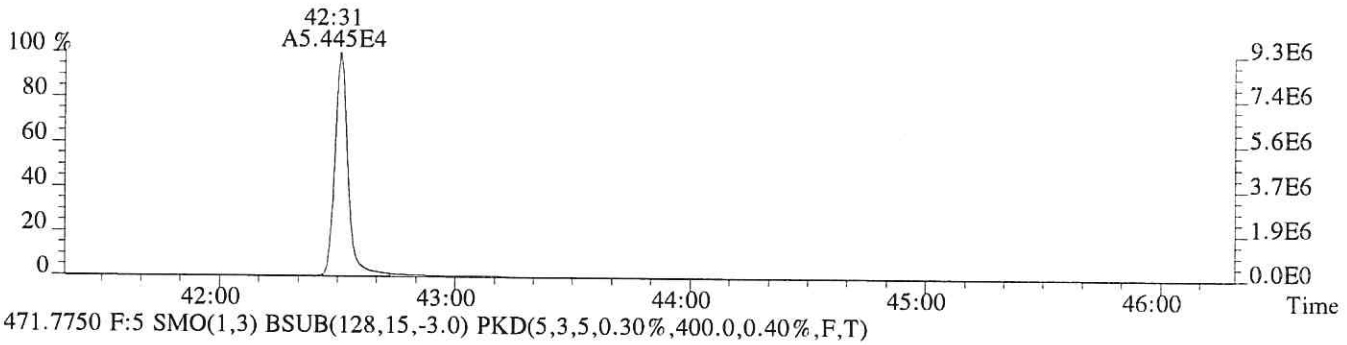
File:P513857 #1-448 Acq:24-JAN-2018 19:21:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:75080
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,160.0,0.40%,F,T)



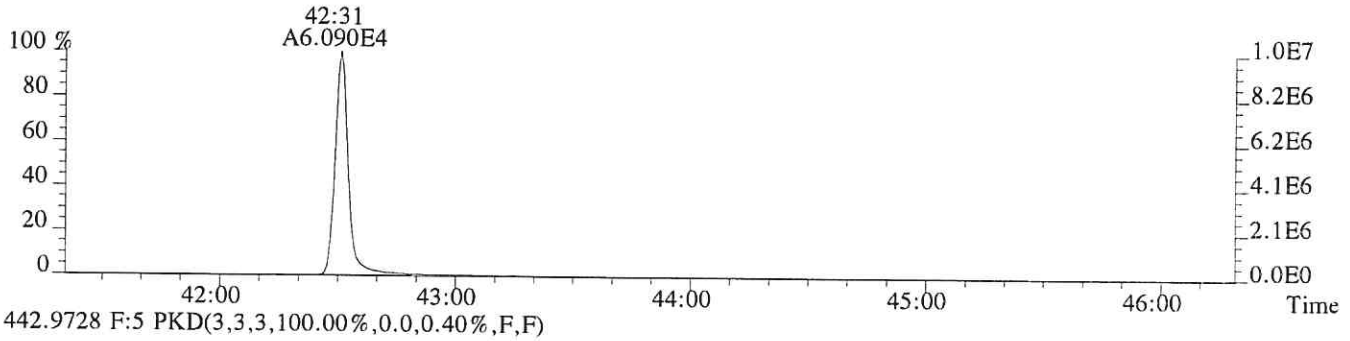
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



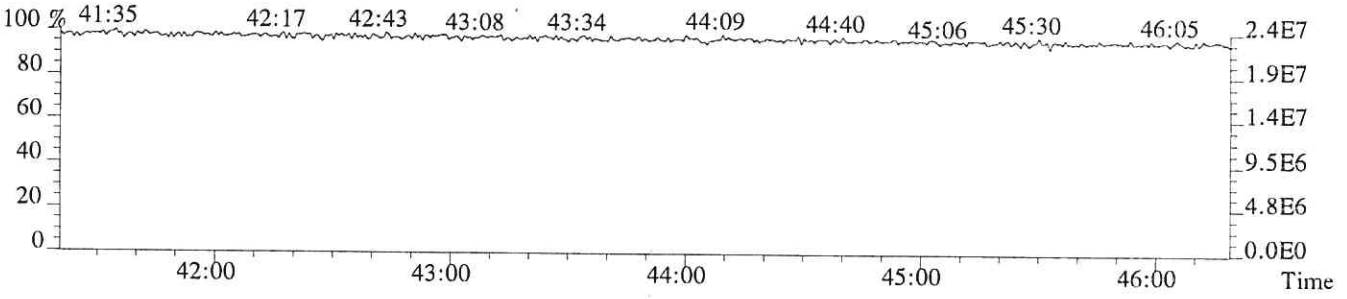
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018				
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131				
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong				
Supervisor Signature: Kristin Neir					
Description	**Yes**	**No**	**NA**	**NR**	**ER#**
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor Signature: Kristin Weir	

Description	Yes	No	NA	NR	ER#
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?			√		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 09/26/2018
Instrument Name: E-HRMS-08	Calibration File Name: P6-18092516131
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 09/25/18

Init. Calib.Times: 12:13

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
192977	WINDOW DEFINE	P614680	25-SEP-18	12:13:01
76554	CS0.5	P614682	25-SEP-18	14:18:27
82614	CS1	P614683	25-SEP-18	15:08:49
193434	CS2	P614684	25-SEP-18	15:59:37
76557	CS3	P614685	25-SEP-18	16:52:47
82167	CS4	P614686	25-SEP-18	17:41:03
185657	CS5	P614687	25-SEP-18	18:30:08
188969	2ND SOURCE	P614690	25-SEP-18	20:57:19

Sample List Report **MassLynx 4.1 SCN815 SCN795**

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20180925A.SPL
Last Modified: Wednesday, September 26, 2018 06:14:12 Central Daylight Time
Printed: Wednesday, September 26, 2018 06:14:14 Central Daylight Time

Page Position (1, 1)

OPUS4: P6-180925161 3I
P614690RES

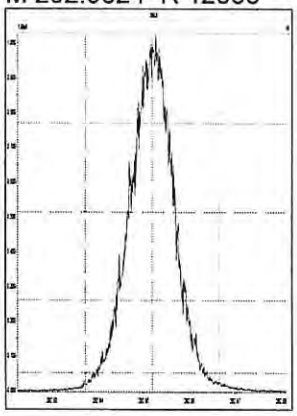
	Date	Time	File Name	Sample ID	File Text	MS File	Inlet File	Bottle	Analyst	Comments
1	9/25/18	12:13	P614680	192977	WINDOW DEFINE	EPA1613_ALS	Dioxin_ALS	Tray1:1	LG	HRMScheck 12:08
2		13:01	P614681	192807	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:2		
3		14:18	P614682	76554	CS0.5	EPA1613_ALS	Dioxin_ALS	Tray1:3		
4		15:08	P614683	82614	CS1	EPA1613_ALS	Dioxin_ALS	Tray1:4		
5		15:59	P614684	193434	CS2	EPA1613_ALS	Dioxin_ALS	Tray1:5		
6		16:52	P614685	76557	CS3	EPA1613_ALS	Dioxin_ALS	Tray1:6		
7		17:41	P614686	82167	CS4	EPA1613_ALS	Dioxin_ALS	Tray1:7		
8		18:30	P614687	185657	CS5	EPA1613_ALS	Dioxin_ALS	Tray1:8		
9		19:19	P614688	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:9		
10		20:08	P614689	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:10		Do not use.
11		20:57	P614690	188969	2ND SOURCE	EPA1613_ALS	Dioxin_ALS	Tray1:11		
12		21:51	P614691	NONANE	NONANE	EPA1613_ALS	Dioxin_ALS	Tray1:12		HRMScheck 22:51
13	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:13	---	---
14	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:14	---	---
15	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:15	---	---
16	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:16	---	---
17	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:17	---	---
18	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:18	---	---
19	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:19	---	---
20	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:20	---	---
21	---	---	---	---	---	EPA1613_ALS	Dioxin_ALS	Tray1:21	---	---

gc 09/26/18

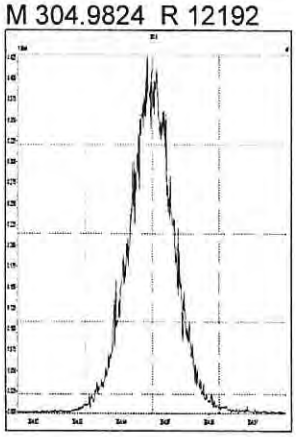
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:08:26 Central Daylight Time

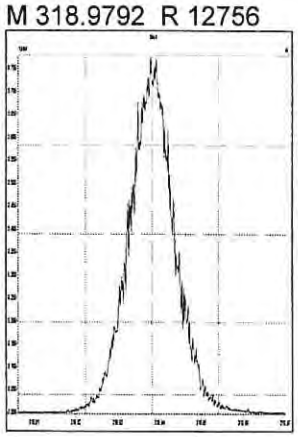
M 292.9824 R 12568



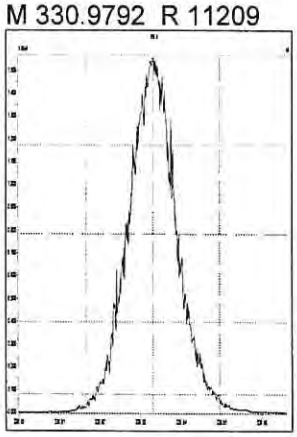
M 304.9824 R 12192



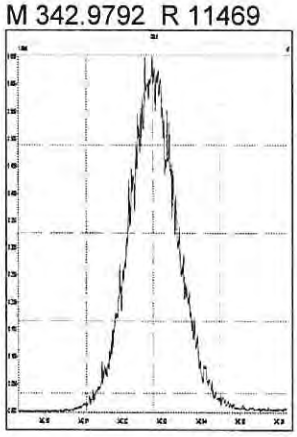
M 318.9792 R 12756



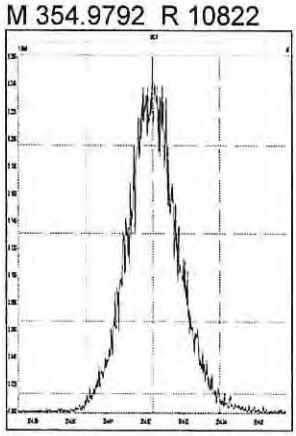
M 330.9792 R 11209



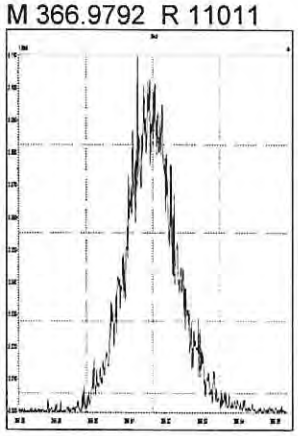
M 342.9792 R 11469



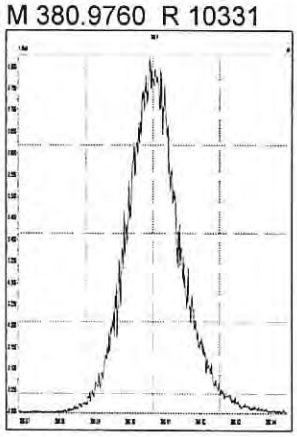
M 354.9792 R 10822



M 366.9792 R 11011



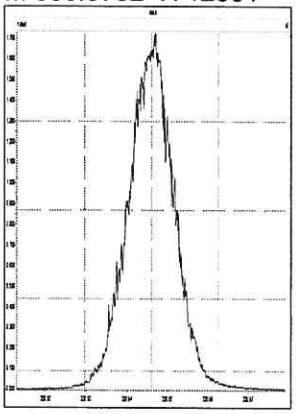
M 380.9760 R 10331



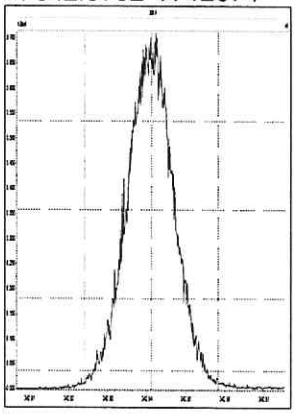
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:09:22 Central Daylight Time

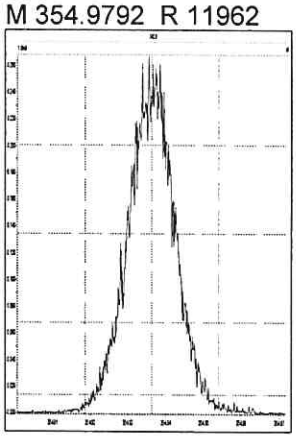
M 330.9792 R 12381



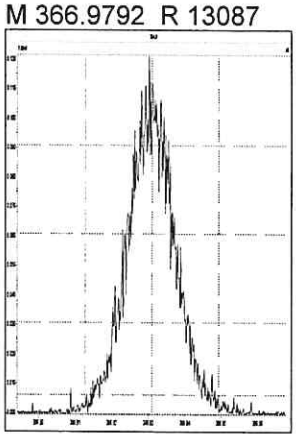
M 342.9792 R 12074



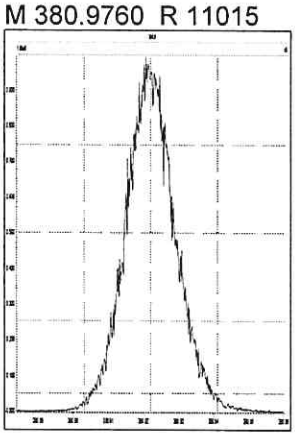
M 354.9792 R 11962



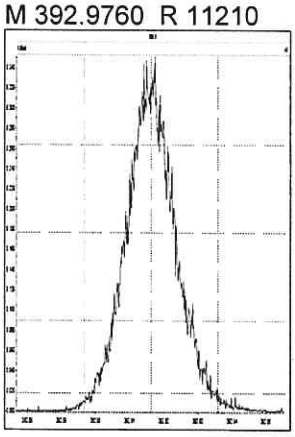
M 366.9792 R 13087



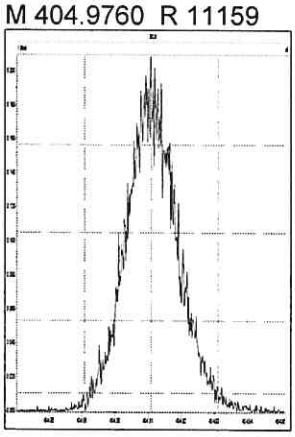
M 380.9760 R 11015



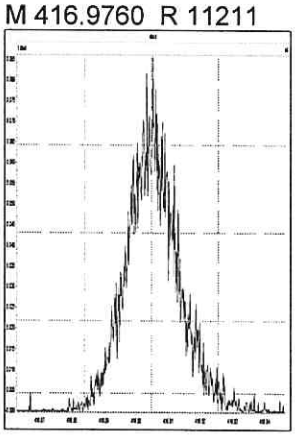
M 392.9760 R 11210



M 404.9760 R 11159



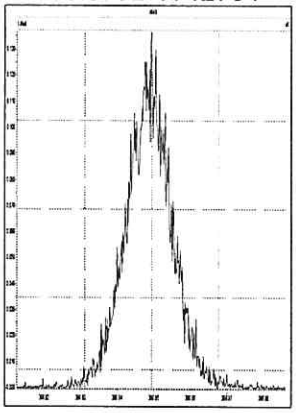
M 416.9760 R 11211



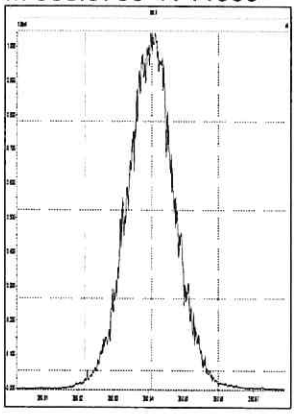
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:10 Central Daylight Time

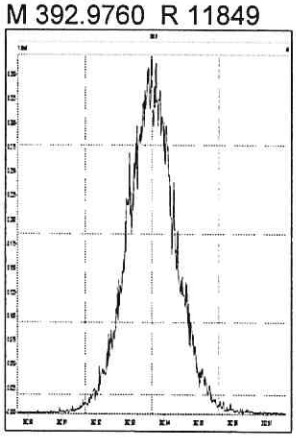
M 366.9792 R 12754



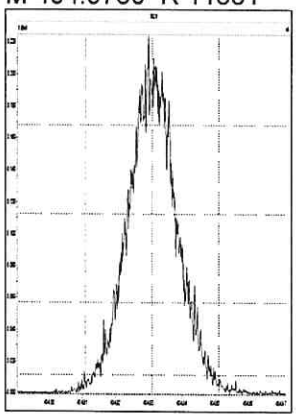
M 380.9760 R 11959



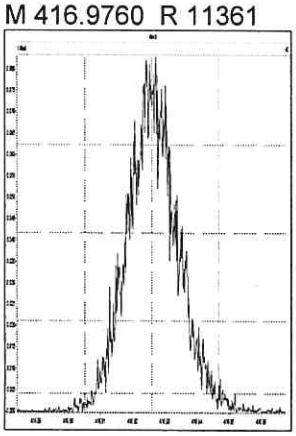
M 392.9760 R 11849



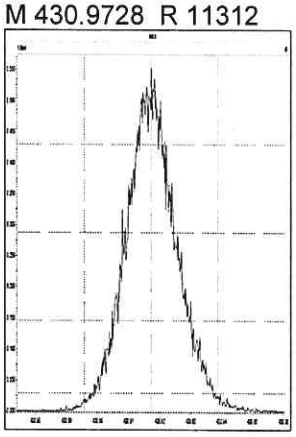
M 404.9760 R 11681



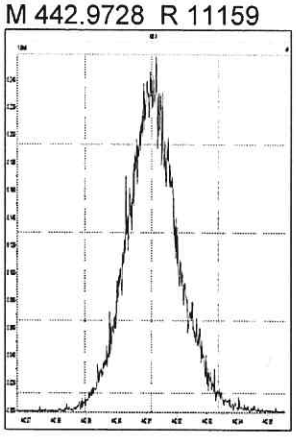
M 416.9760 R 11361



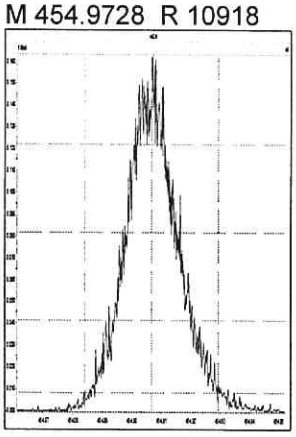
M 430.9728 R 11312



M 442.9728 R 11159



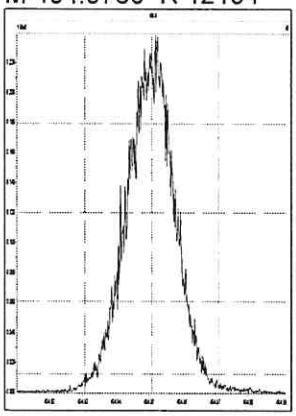
M 454.9728 R 10918



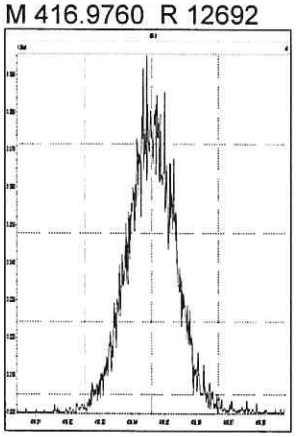
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:10:51 Central Daylight Time

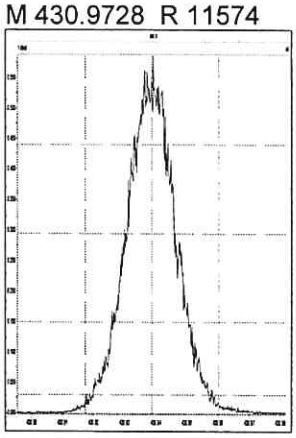
M 404.9760 R 12194



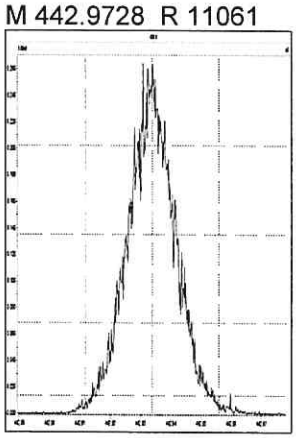
M 416.9760 R 12692



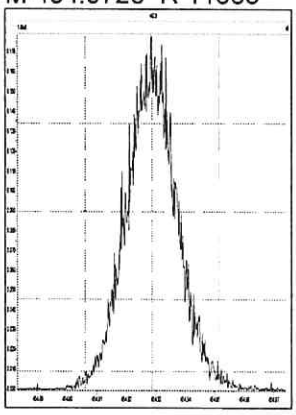
M 430.9728 R 11574



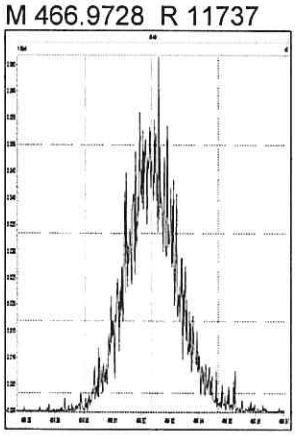
M 442.9728 R 11061



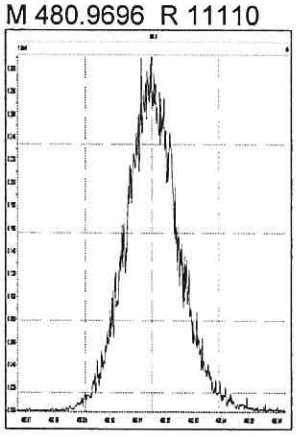
M 454.9728 R 11683



M 466.9728 R 11737



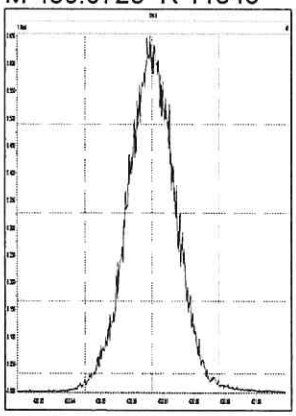
M 480.9696 R 11110



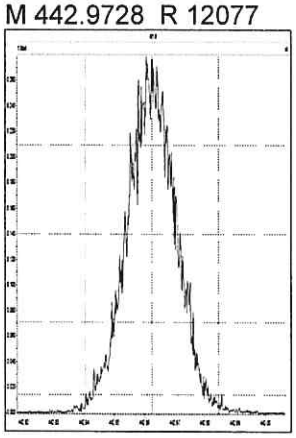
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, September 25, 2018 12:11:41 Central Daylight Time

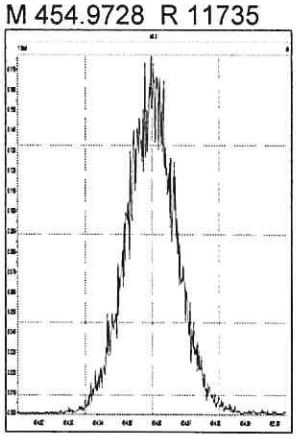
M 430.9728 R 11845



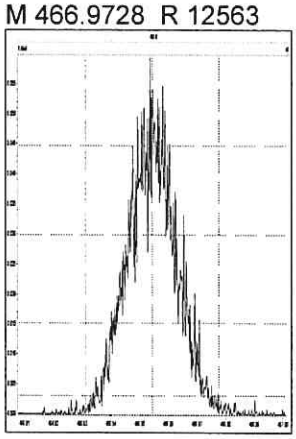
M 442.9728 R 12077



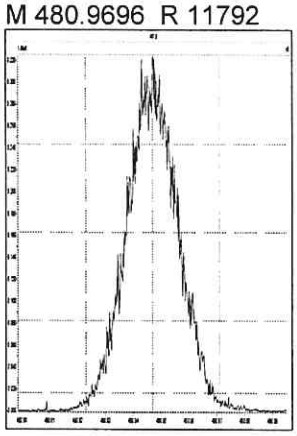
M 454.9728 R 11735



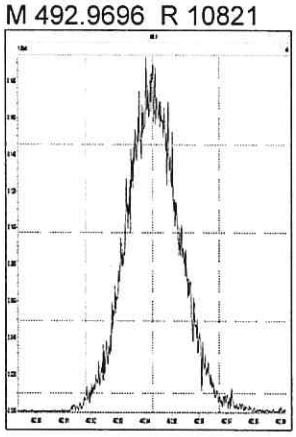
M 466.9728 R 12563



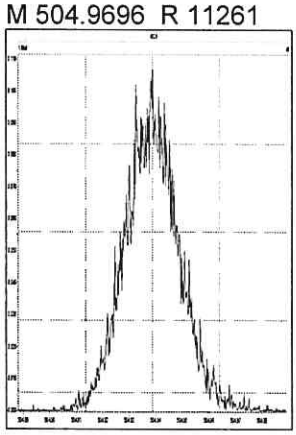
M 480.9696 R 11792



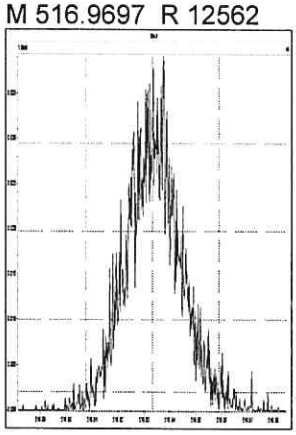
M 492.9696 R 10821



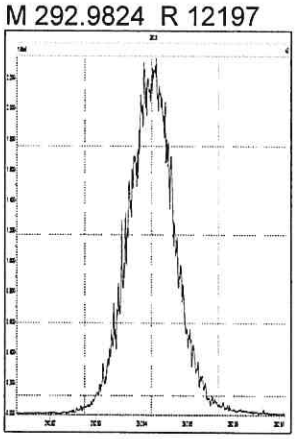
M 504.9696 R 11261



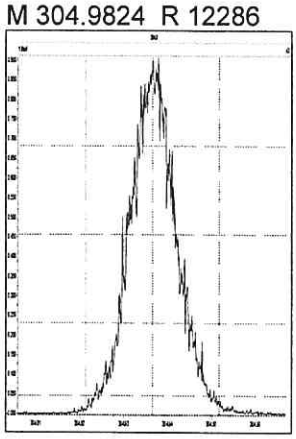
M 516.9697 R 12562



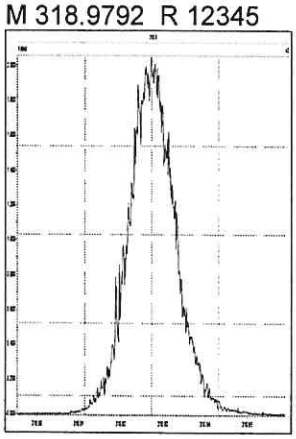
M 292.9824 R 12197



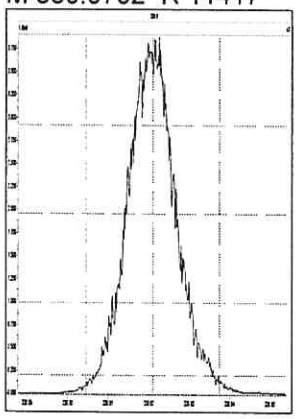
M 304.9824 R 12286



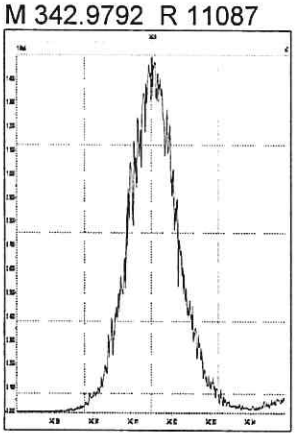
M 318.9792 R 12345



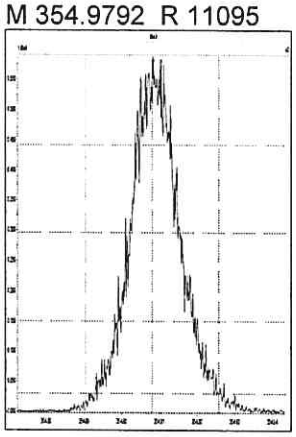
M 330.9792 R 11417



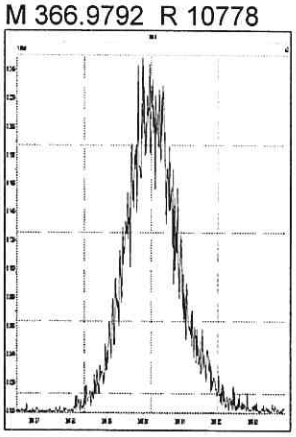
M 342.9792 R 11087



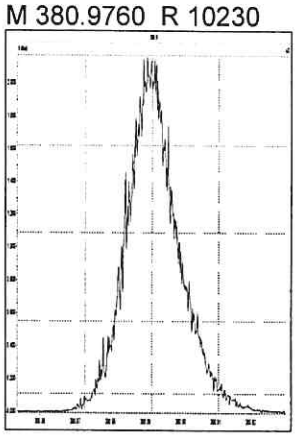
M 354.9792 R 11095



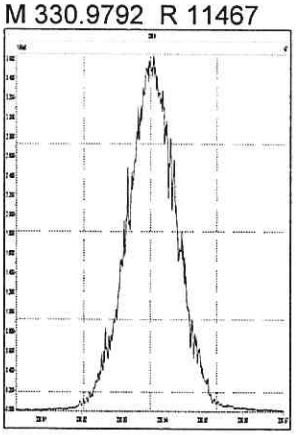
M 366.9792 R 10778



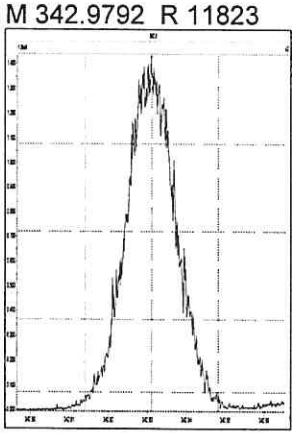
M 380.9760 R 10230



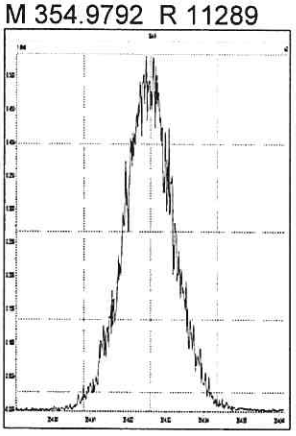
M 330.9792 R 11467



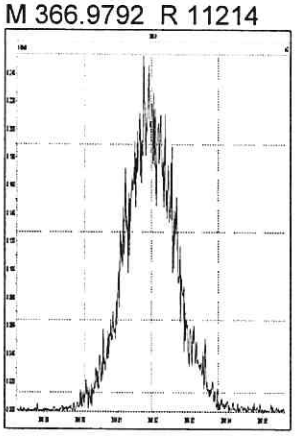
M 342.9792 R 11823



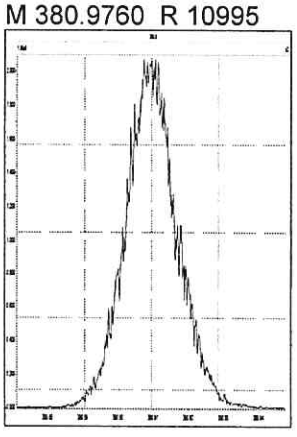
M 354.9792 R 11289



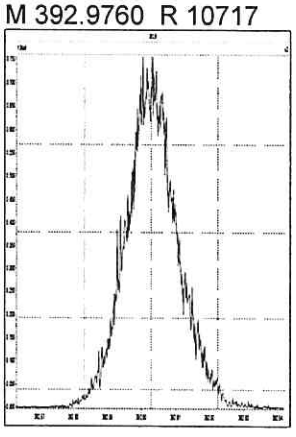
M 366.9792 R 11214



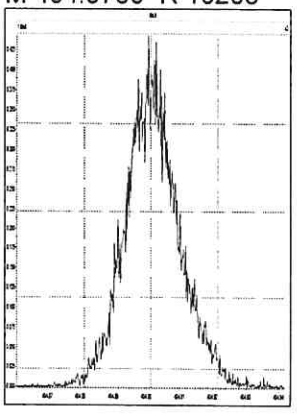
M 380.9760 R 10995



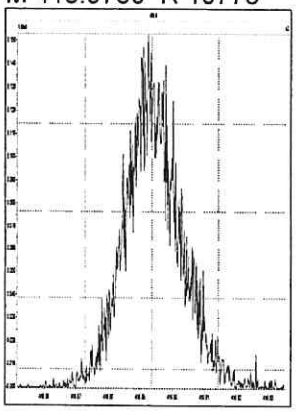
M 392.9760 R 10717



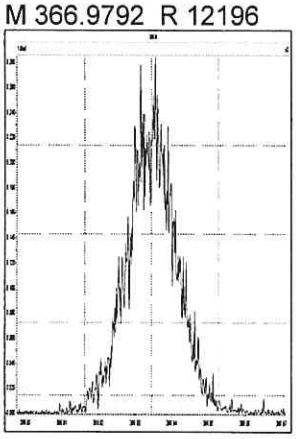
M 404.9760 R 10203



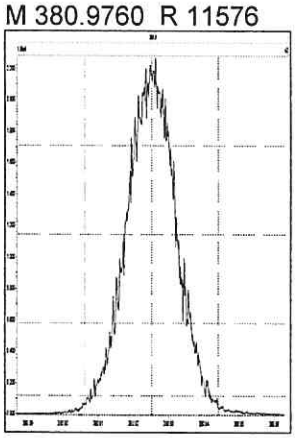
M 416.9760 R 10776



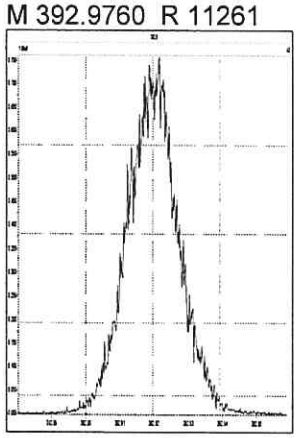
M 366.9792 R 12196



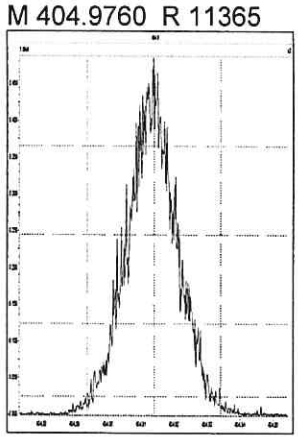
M 380.9760 R 11576



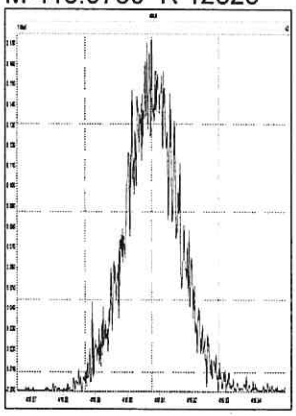
M 392.9760 R 11261



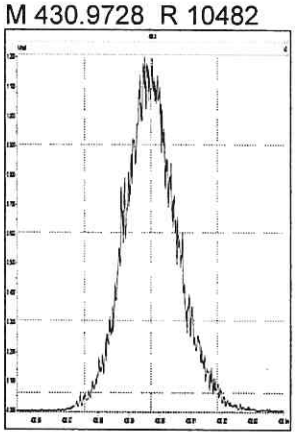
M 404.9760 R 11365



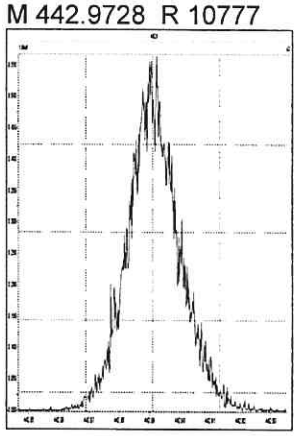
M 416.9760 R 12325



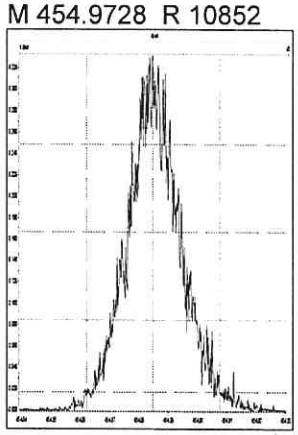
M 430.9728 R 10482



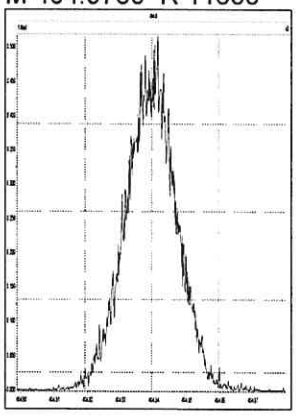
M 442.9728 R 10777



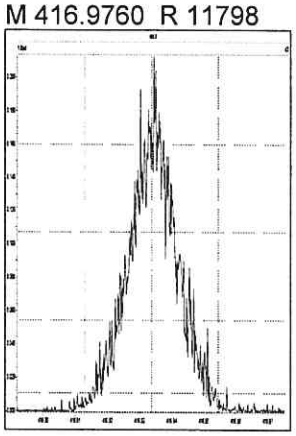
M 454.9728 R 10852



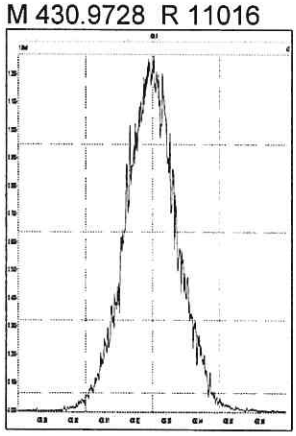
M 404.9760 R 11655



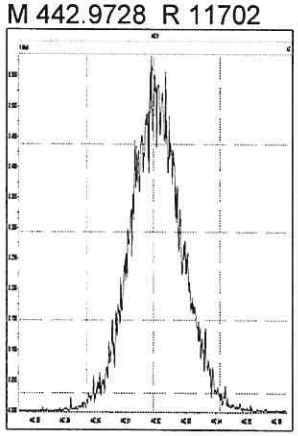
M 416.9760 R 11798



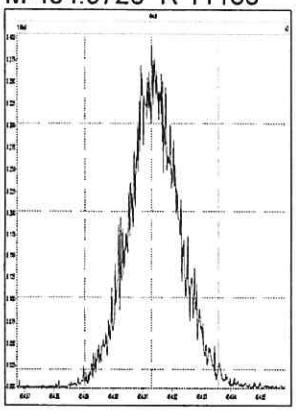
M 430.9728 R 11016



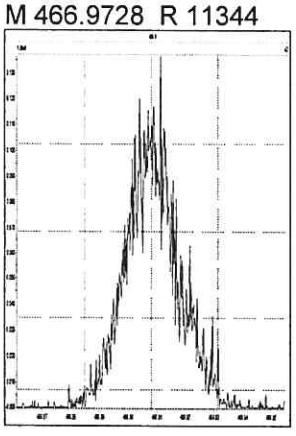
M 442.9728 R 11702



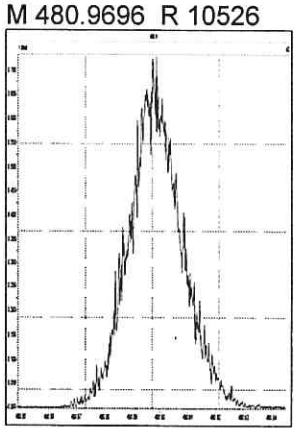
M 454.9728 R 11188



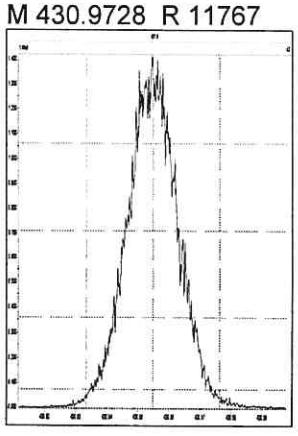
M 466.9728 R 11344



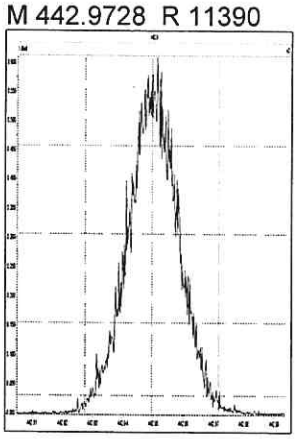
M 480.9696 R 10526



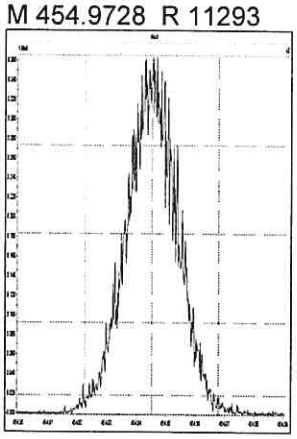
M 430.9728 R 11767



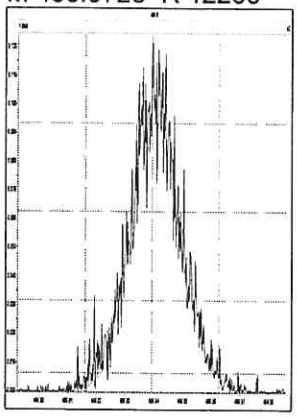
M 442.9728 R 11390



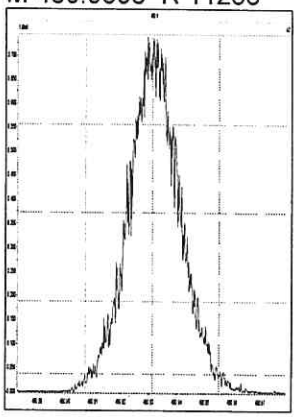
M 454.9728 R 11293



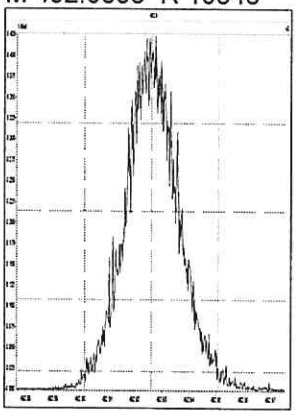
M 466.9728 R 12265



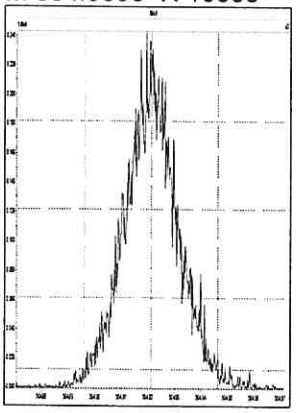
M 480.9696 R 11266



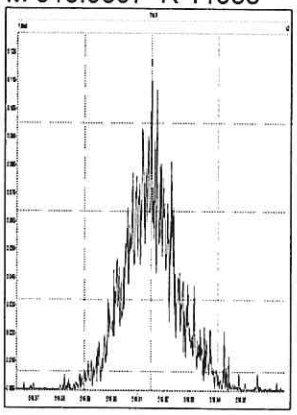
M 492.9696 R 10848



M 504.9696 R 10555



M 516.9697 R 11933



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

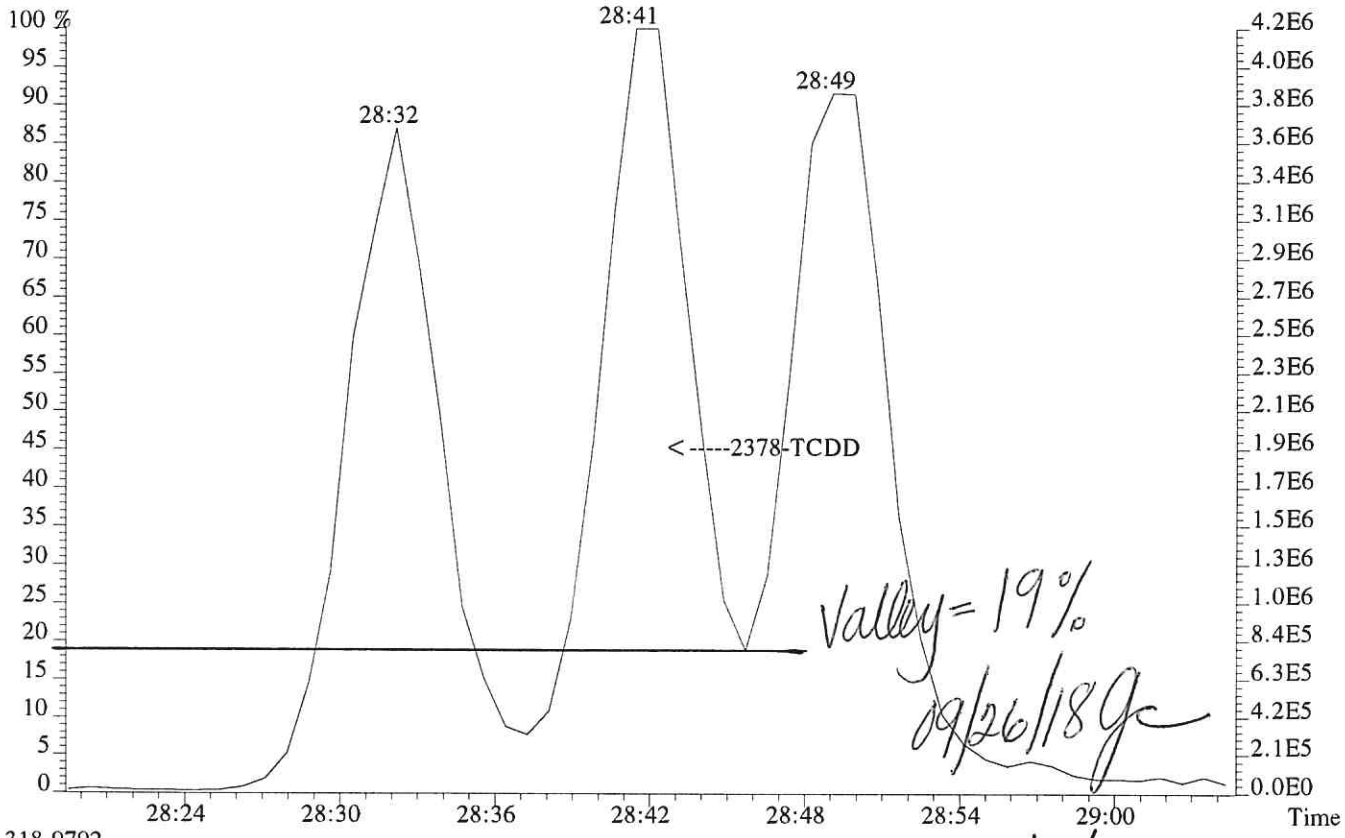
WDM

Lab Name: ALS Environmental
Lab Code: ALSTX Case No.: _____ SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P614680
Date Analyzed: 25-SEP-18
Time Analyzed: 12:13:01

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:28	29:52
TCDD	25:18	29:42
PeCDF	29:48	34:04
PeCDD	31:21	33:49
HxCDF	34:43	37:12
HxCDD	35:14	36:49
HpCDF	38:24	39:46
HpCDD	38:39	39:18

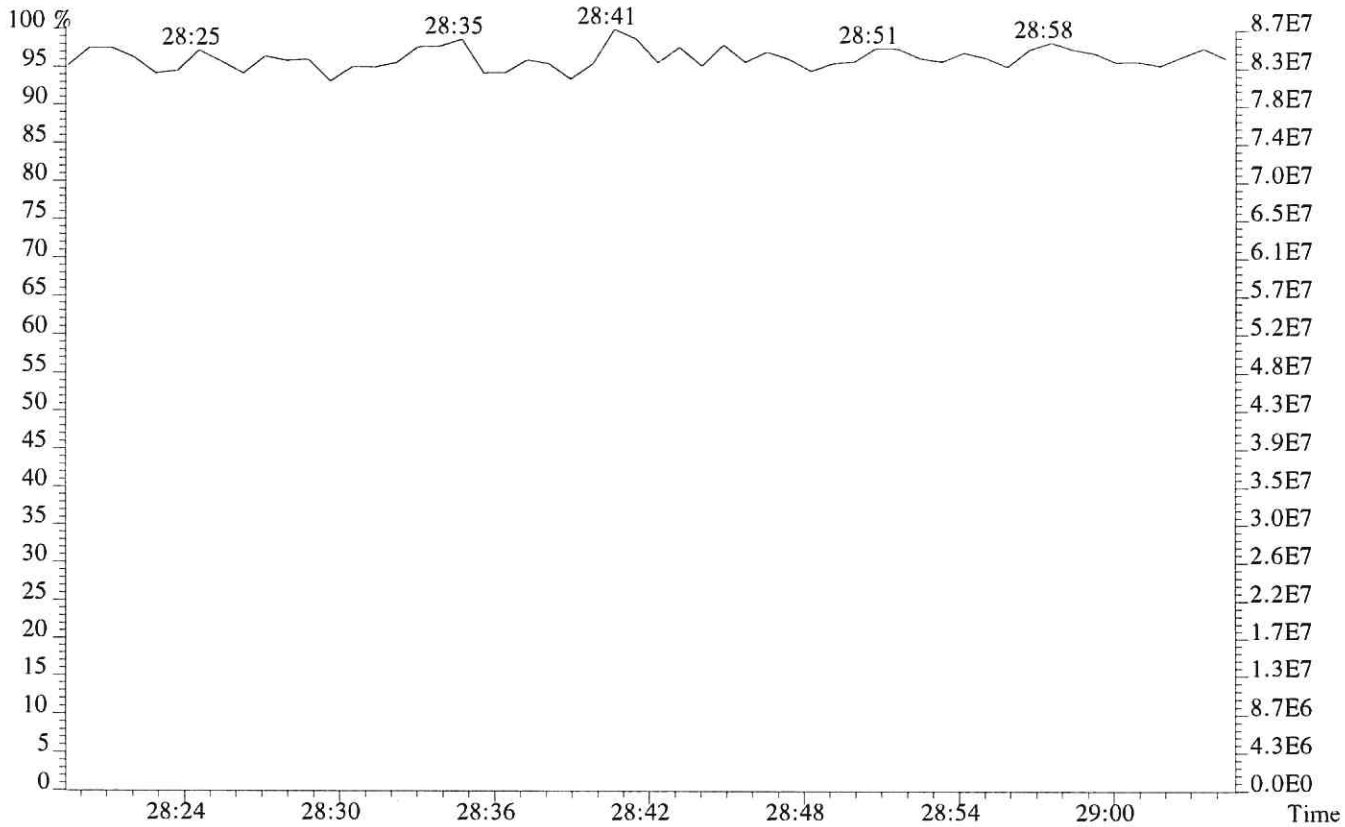
% Valley 2378-TCDD: 19 %

File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

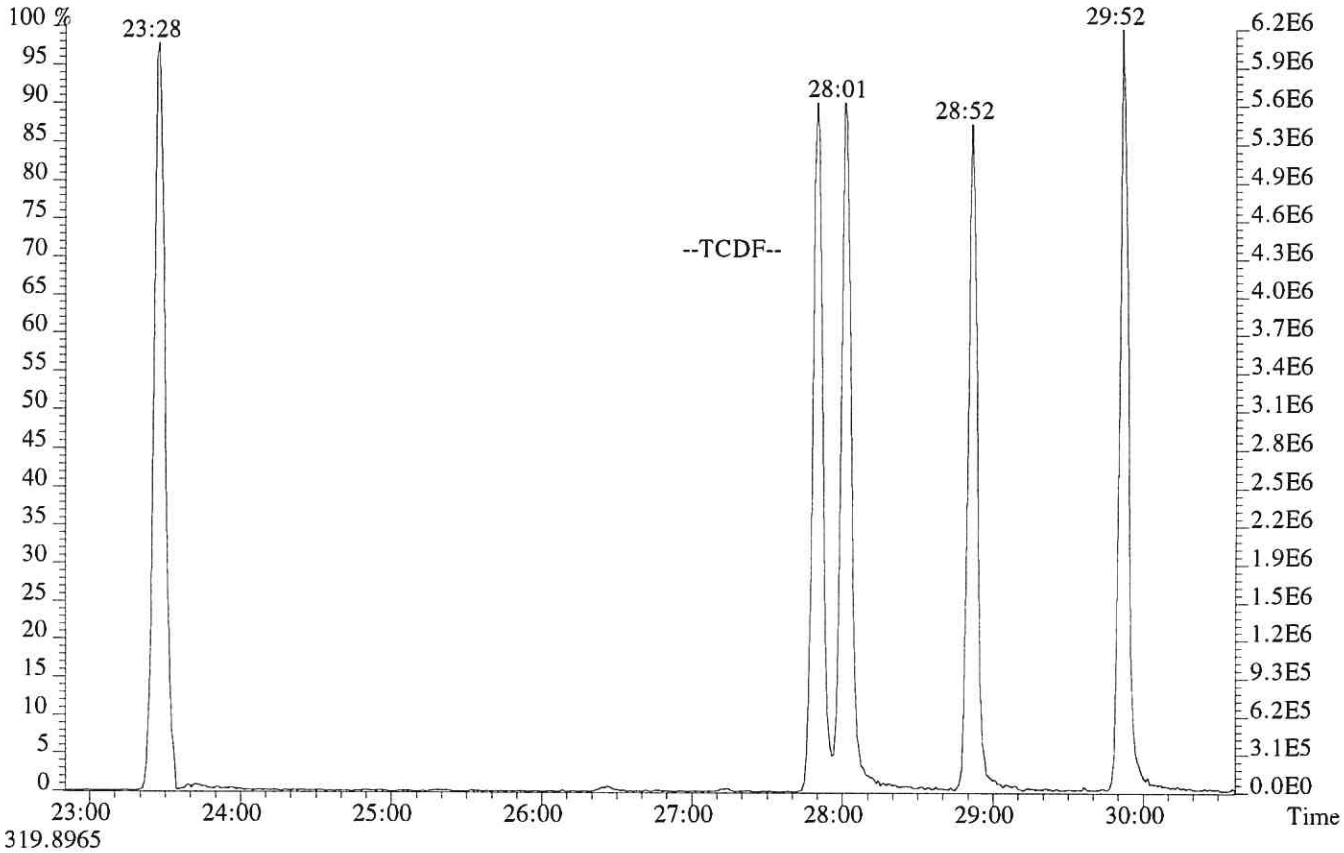


318.9792

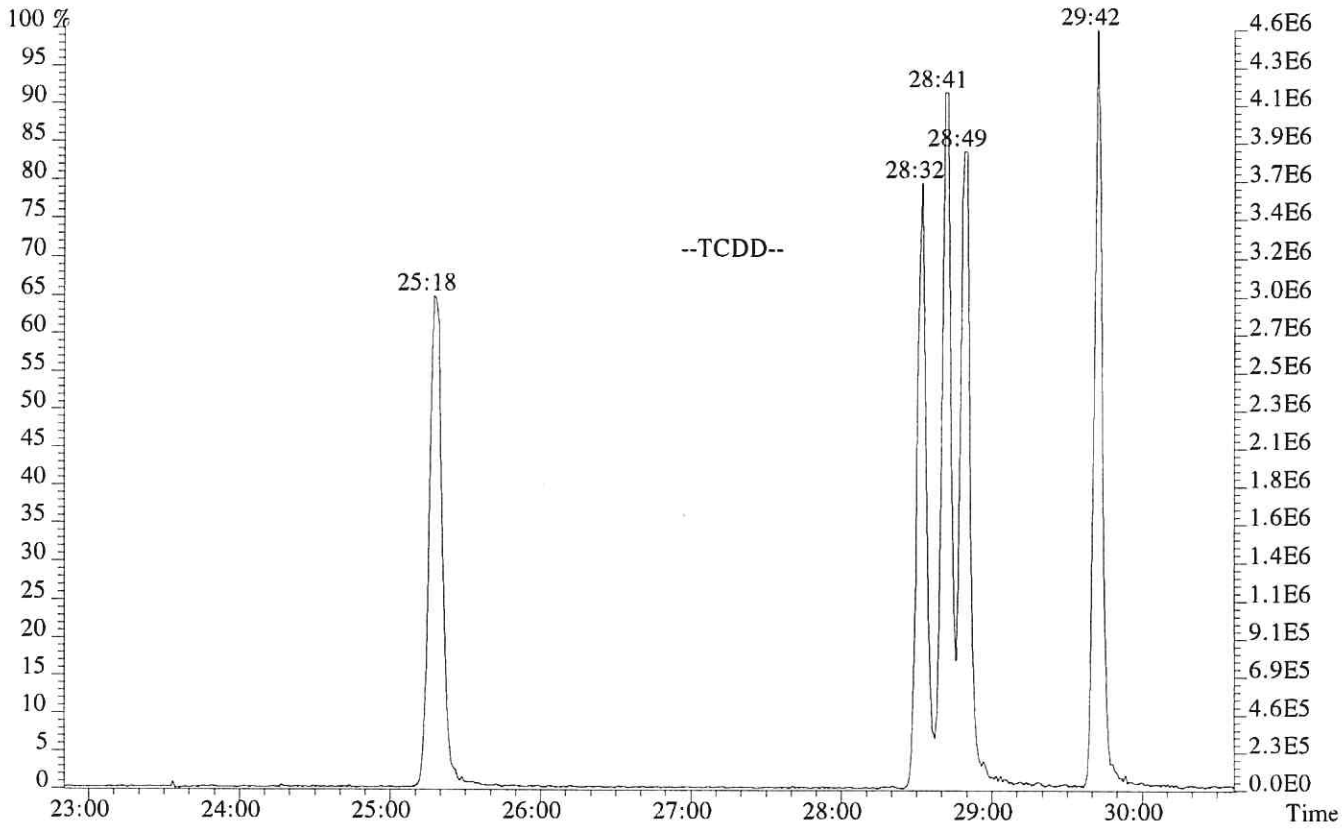
LKL 09/26/18



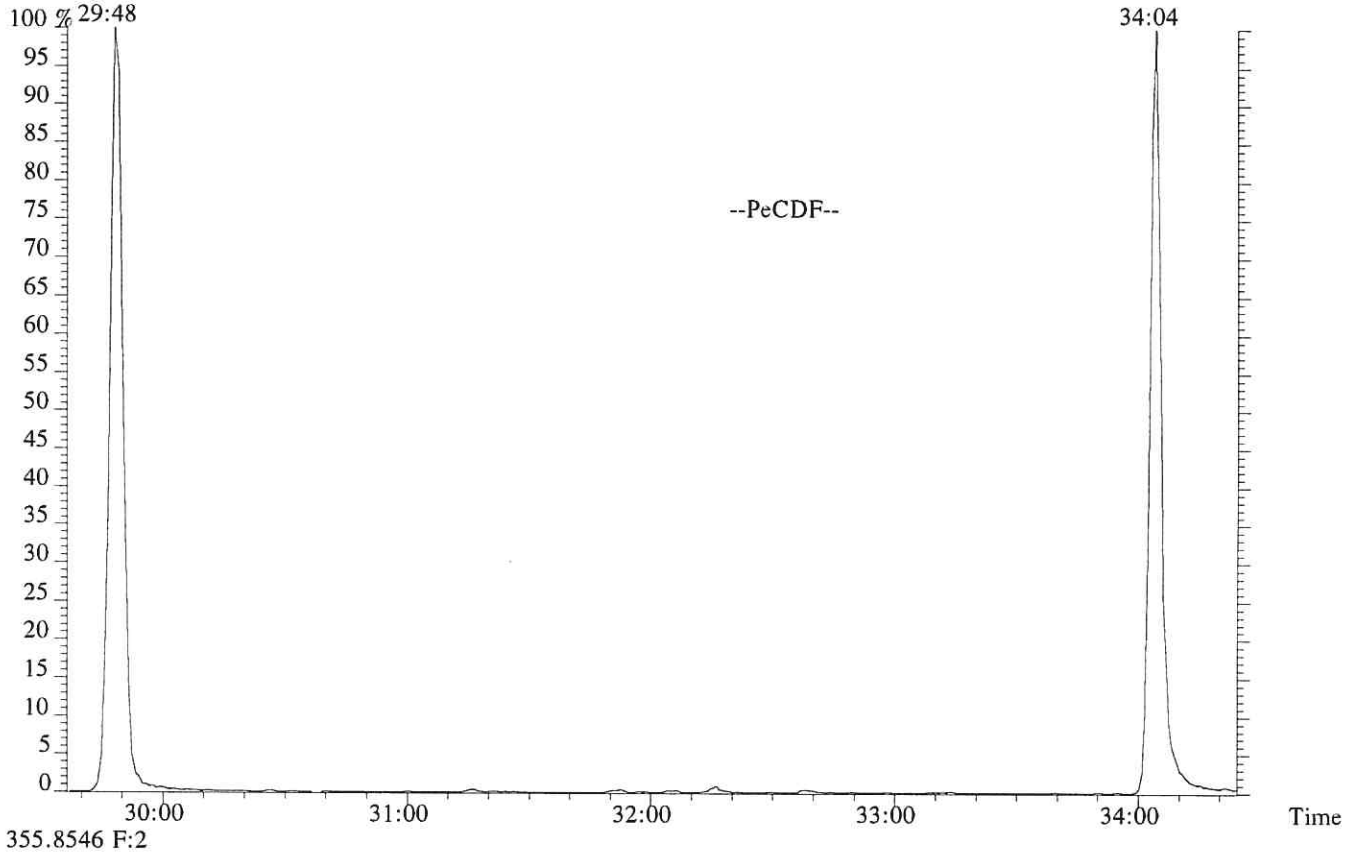
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



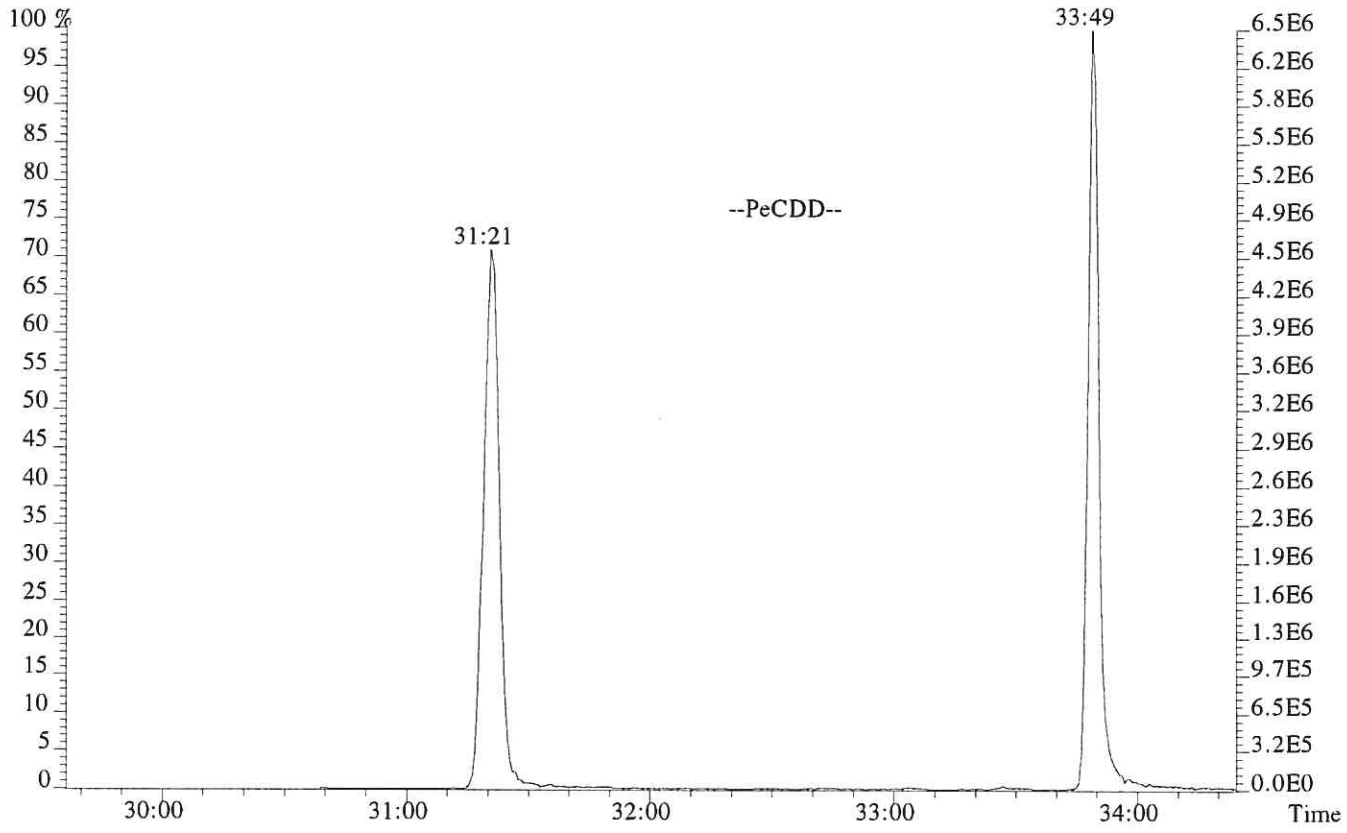
319.8965



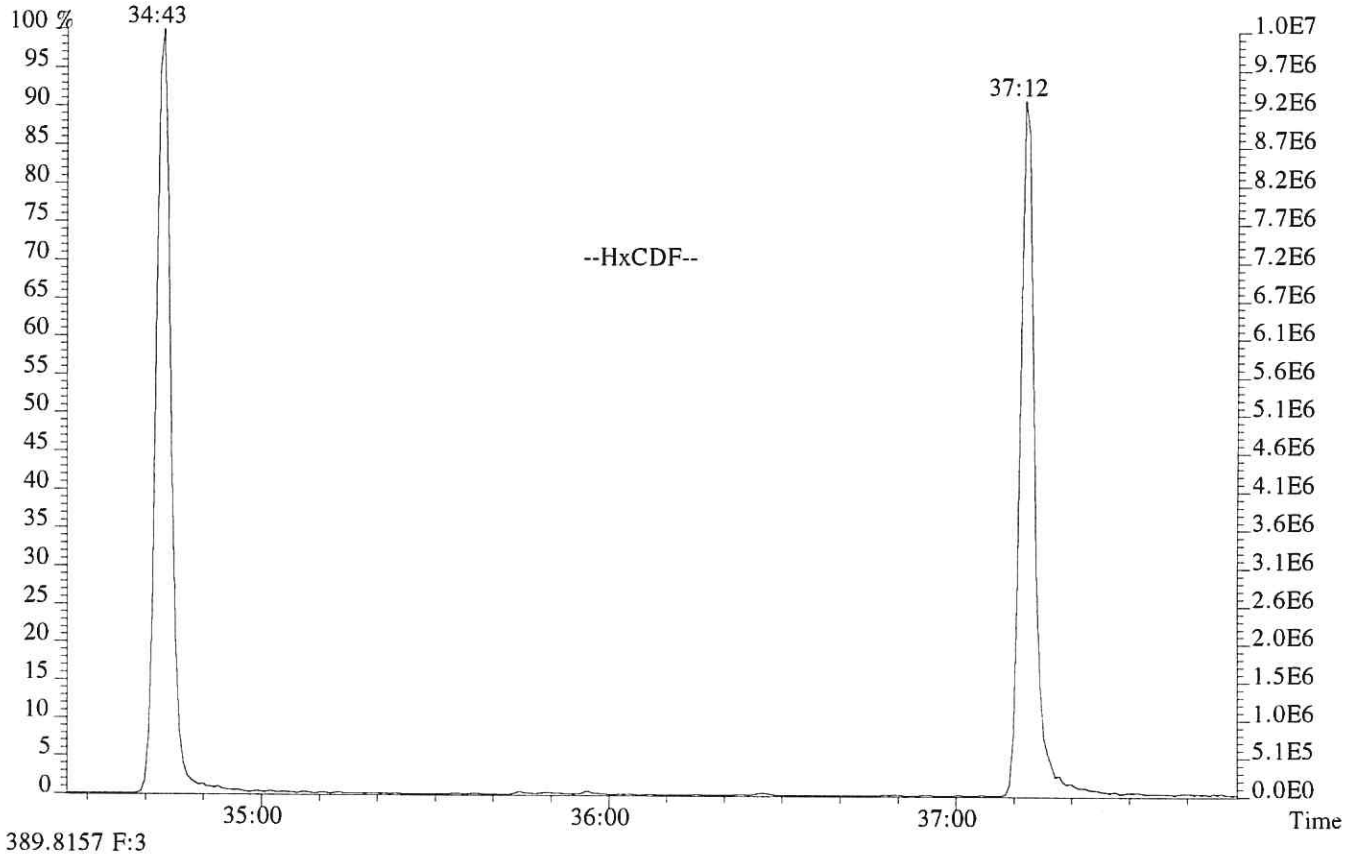
File:P614680 #1-552 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



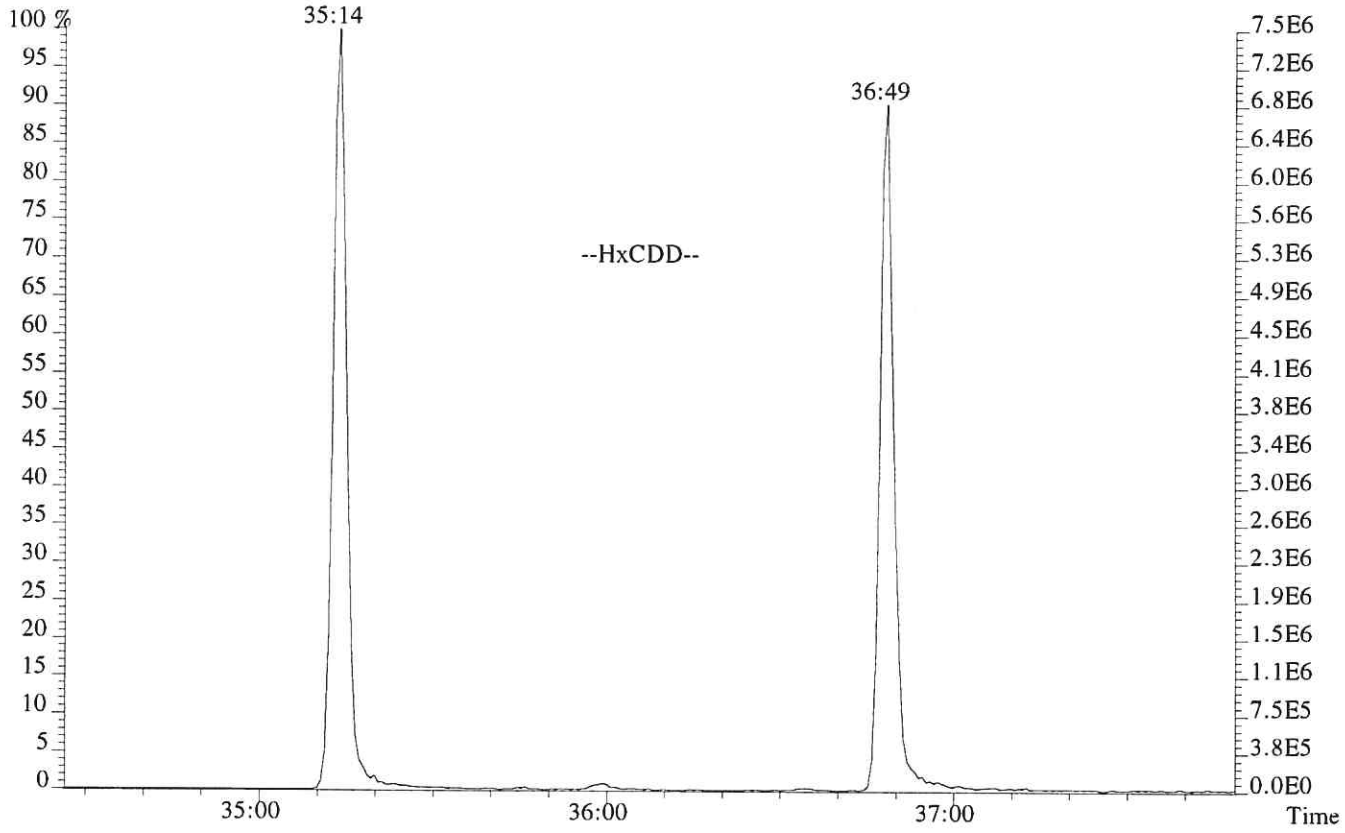
355.8546 F:2



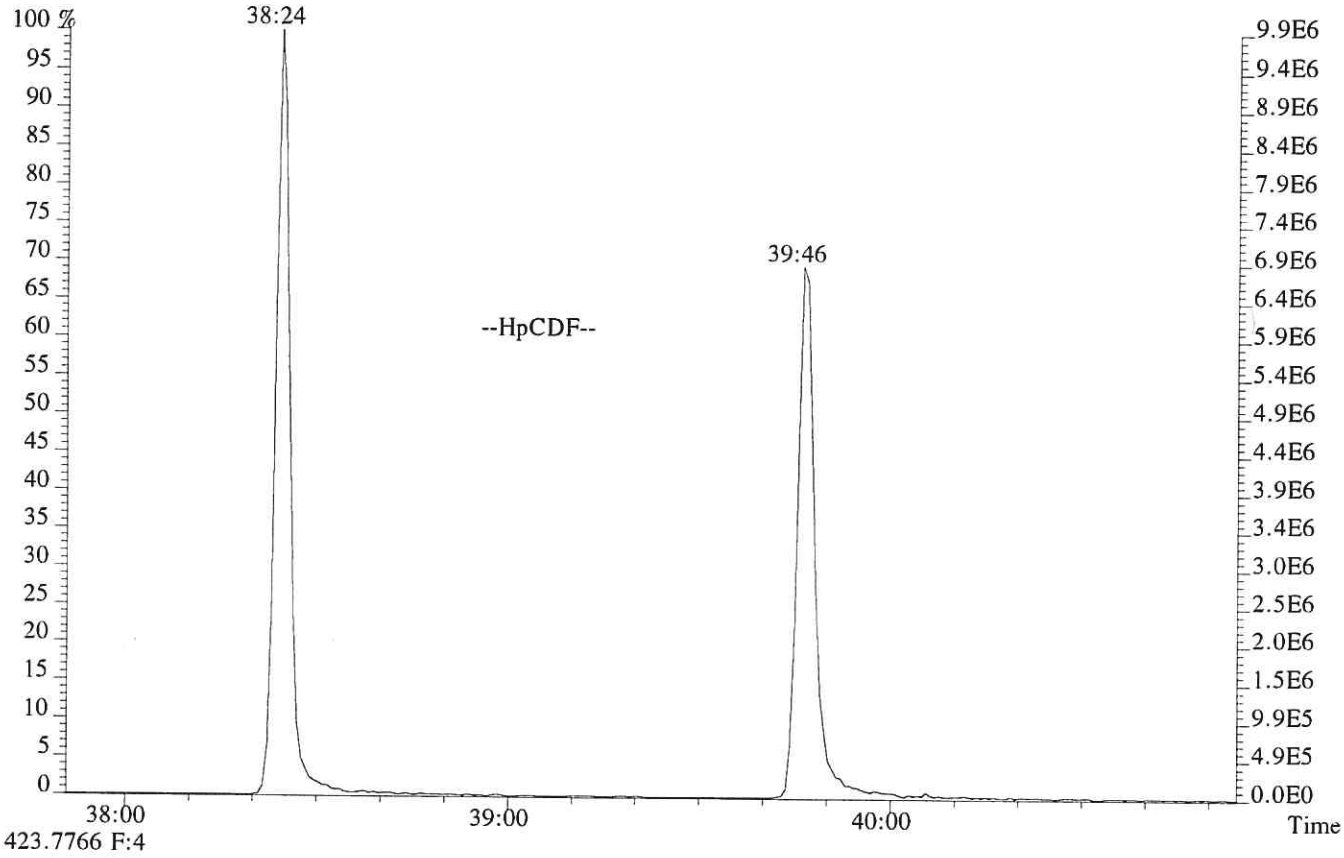
File:P614680 #1-304 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



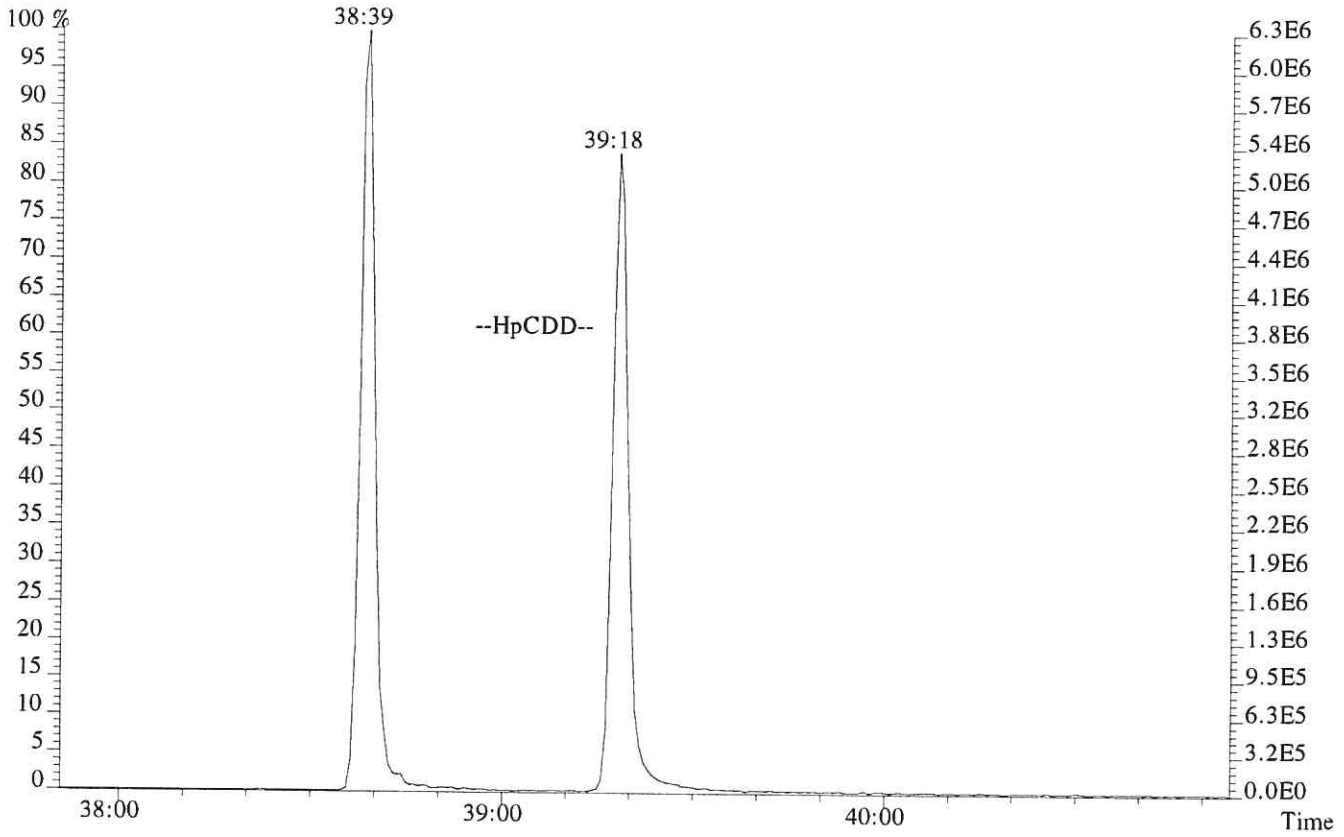
389.8157 F:3



File:P614680 #1-276 Acq:25-SEP-2018 12:13:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.15	1.00	1.00	1.03	1.05	1.06	1.05	5.38	+/-20%
2,3,7,8-TCDF	1.13	1.08	1.12	1.05	1.06	1.05	1.08	3.07	+/-20%
1,2,3,7,8-PeCDF	1.16	1.17	1.12	1.15	1.16	1.18	1.16	1.72	+/-20%
1,2,3,7,8-PeCDD	0.89	0.95	0.95	0.91	0.93	0.93	0.93	2.61	+/-20%
2,3,4,7,8-PeCDF	1.10	1.13	1.10	1.08	1.10	1.11	1.10	1.49	+/-20%
1,2,3,4,7,8-HxCDF	1.47	1.46	1.39	1.36	1.38	1.42	1.42	3.10	+/-20%
1,2,3,6,7,8-HxCDF	1.27	1.36	1.30	1.28	1.28	1.28	1.29	2.52	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.11	1.04	1.06	1.05	1.06	1.07	3.00	+/-20%
1,2,3,6,7,8-HxCDD	1.06	1.07	1.06	1.06	1.06	1.05	1.06	0.70	+/-20%
1,2,3,7,8,9-HxCDD	1.17	1.18	1.12	1.13	1.14	1.12	1.15	2.24	+/-20%
2,3,4,6,7,8-HxCDF	1.27	1.32	1.29	1.28	1.27	1.27	1.28	1.52	+/-20%
1,2,3,7,8,9-HxCDF	1.34	1.34	1.29	1.30	1.30	1.30	1.31	1.68	+/-20%
1,2,3,4,6,7,8-HpCDF	1.56	1.60	1.46	1.50	1.51	1.51	1.52	3.15	+/-20%
1,2,3,4,6,7,8-HpCDD	1.14	1.13	1.09	1.10	1.10	1.11	1.11	1.85	+/-20%
1,2,3,4,7,8,9-HpCDF	1.47	1.54	1.46	1.45	1.43	1.43	1.46	2.80	+/-20%
OCDD	1.22	1.21	1.10	1.14	1.14	1.14	1.16	4.23	+/-20%
OCDF	1.60	1.61	1.49	1.57	1.57	1.59	1.57	2.60	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.98	0.97	0.97	1.00	1.01	0.98	2.13	+/-35%
13C-1,2,3,7,8-PeCDD	1.09	1.05	1.16	1.13	1.16	1.15	1.12	3.77	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.90	0.91	0.90	0.90	0.89	0.90	0.67	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.92	0.92	0.89	0.89	0.91	0.90	0.90	1.52	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.86	0.88	0.85	0.86	0.84	0.84	0.86	1.91	+/-35%
13C-OCDD	0.65	0.69	0.65	0.67	0.65	0.65	0.66	2.45	+/-35%
13C-2,3,7,8-TCDF	1.40	1.41	1.42	1.44	1.40	1.43	1.42	1.24	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.54	1.61	1.61	1.65	1.63	1.60	3.24	+/-35%
13C-2,3,4,7,8-PeCDF	1.52	1.49	1.60	1.57	1.63	1.61	1.57	3.42	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.18	1.19	1.14	1.21	1.18	1.06	1.16	4.58	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.39	1.34	1.33	1.35	1.31	1.29	1.34	2.46	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.24	1.24	1.25	1.24	1.25	1.06	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.13	1.13	1.12	1.15	1.15	1.10	1.13	1.66	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.06	1.02	1.04	1.01	1.01	1.03	1.93	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.94	0.95	0.90	0.86	0.90	0.88	0.91	3.64	+/-35%
37Cl-2,3,7,8-TCDD	1.06	1.11	1.07	1.05	1.11	1.13	1.09	3.15	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 09/25/18 Method 1613/8290
Init. Calib. Time.: 12:13

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.75	0.75	0.83	0.80	0.79	0.80		0.65-0.89
2,3,7,8-TCDD	320/322	0.78	0.83	0.80	0.78	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.58	1.57	1.58	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.57	1.61	1.57	1.58	1.59	1.59		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.56	1.52	1.53	1.55	1.55	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.29	1.25	1.26	1.28	1.29		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.24	1.25	1.27	1.27	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.29	1.25	1.28	1.28	1.26	1.26		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.22	1.29	1.23	1.28	1.28	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.21	1.20	1.26	1.33	1.26	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.41	1.27	1.25	1.23	1.27	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.20	1.22	1.25	1.24	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.04	1.02	1.06	1.05	1.04	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.89	1.07	1.05	1.04	1.05	1.05		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.10	1.07	1.07	1.06	1.06	1.06		0.88-1.20
OCDF	442/444	0.90	0.87	0.91	0.92	0.93	0.92		0.76-1.02
OCDD	458/460	0.93	0.89	0.88	0.90	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.80	0.80	0.80	0.80	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.58	1.57	1.58	1.56	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.26	1.26	1.32	1.25	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.26	1.26	1.20	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.06	1.06	1.04	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.91	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.80	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.60	1.60	1.60	1.60		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.59	1.62	1.61	1.59	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.54	0.54	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.54	0.54	0.53	0.54	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.53	0.53	0.54	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.46	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.46	0.45	0.46	0.45	0.46		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.81	0.81	0.81	0.80	0.79	0.81		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.26	1.26	1.24	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.991e+02	5.332e+02	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.245e+03	1.970e+03	1.65	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:10	3.017e+03	1.917e+03	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.964e+03	2.360e+03	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.032e+03	2.349e+03	1.29	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.788e+03	2.154e+03	1.29	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.544e+03	2.080e+03	1.22	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.520e+03	2.421e+03	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.988e+03	2.226e+03	0.89	yes	no	1.463
10	Unk	OCDF	42:13	3.006e+03	3.322e+03	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:49	2.873e+02	3.690e+02	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.757e+03	1.126e+03	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.695e+03	1.402e+03	1.21	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:39	1.736e+03	1.234e+03	1.41	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.790e+03	1.494e+03	1.20	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.575e+03	1.438e+03	1.10	yes	no	1.112
17	Unk	OCDD	42:01	2.333e+03	2.510e+03	0.93	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	28:00	1.453e+05	1.860e+05	0.78	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.225e+05	1.378e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.208e+05	1.389e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	1.017e+05	1.873e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.172e+05	2.227e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.097e+05	2.020e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.463e+04	1.814e+05	0.52	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	7.990e+04	1.736e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	7.243e+04	1.569e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.005e+05	1.270e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:26	1.588e+05	1.004e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.251e+05	9.838e+04	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.252e+05	9.893e+04	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.083e+05	1.026e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:01	1.503e+05	1.668e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.058e+05	1.311e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.355e+05	1.094e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:49	6.272e+02				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P614682 Samp: 1 Inj: 1 Acquired: 25-SEP-18 14:18:27
Processed: 26-SEP-18 07:39:04 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+04	1.79e+03	3.7e+01	1.00e+05	4.41e+03	2.3e+01
2	1,2,3,7,8-PeCDF	5.99e+05	1.18e+03	5.1e+02	3.57e+05	4.28e+03	8.3e+01
3	2,3,4,7,8-PeCDF	5.69e+05	1.18e+03	4.8e+02	3.70e+05	4.28e+03	8.7e+01
4	1,2,3,4,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.85e+05	1.42e+03	3.4e+02
5	1,2,3,6,7,8-HxCDF	6.38e+05	3.25e+03	2.0e+02	4.95e+05	1.42e+03	3.5e+02
6	2,3,4,6,7,8-HxCDF	6.03e+05	3.25e+03	1.9e+02	4.83e+05	1.42e+03	3.4e+02
7	1,2,3,7,8,9-HxCDF	4.97e+05	3.25e+03	1.5e+02	4.13e+05	1.42e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.62e+05	1.66e+03	3.4e+02	5.47e+05	1.04e+03	5.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.02e+05	1.66e+03	2.4e+02	4.51e+05	1.04e+03	4.3e+02
10	OCDF	5.23e+05	1.34e+03	3.9e+02	5.81e+05	4.02e+03	1.4e+02
11	2,3,7,8-TCDD	6.18e+04	5.07e+03	1.2e+01	6.68e+04	2.40e+03	2.8e+01
12	1,2,3,7,8-PeCDD	3.47e+05	2.36e+03	1.5e+02	2.20e+05	2.64e+02	8.3e+02
13	1,2,3,4,7,8-HxCDD	3.95e+05	1.84e+03	2.1e+02	3.18e+05	1.66e+03	1.9e+02
14	1,2,3,6,7,8-HxCDD	3.64e+05	1.84e+03	2.0e+02	2.60e+05	1.66e+03	1.6e+02
15	1,2,3,7,8,9-HxCDD	4.06e+05	1.84e+03	2.2e+02	3.23e+05	1.66e+03	1.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.19e+05	2.32e+03	1.4e+02	3.31e+05	1.19e+03	2.8e+02
17	OCDD	4.28e+05	8.48e+02	5.0e+02	4.37e+05	1.30e+03	3.4e+02
18	13C-2,3,7,8-TCDF	2.54e+07	1.52e+04	1.7e+03	3.22e+07	1.06e+04	3.1e+03
19	13C-1,2,3,7,8-PeCDF	4.04e+07	2.12e+03	1.9e+04	2.49e+07	3.13e+03	8.0e+03
20	13C-2,3,4,7,8-PeCDF	4.23e+07	2.12e+03	2.0e+04	2.67e+07	3.13e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.18e+07	3.28e+03	6.7e+03	4.05e+07	3.71e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	2.40e+07	3.28e+03	7.3e+03	4.55e+07	3.71e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.42e+07	3.28e+03	7.4e+03	4.44e+07	3.71e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.91e+07	3.28e+03	5.8e+03	3.68e+07	3.71e+03	9.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.81e+07	5.66e+03	3.2e+03	3.90e+07	2.05e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+07	5.66e+03	2.6e+03	3.15e+07	2.05e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.84e+07	1.55e+04	1.2e+03	2.34e+07	5.32e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	3.10e+07	3.24e+03	9.6e+03	1.95e+07	2.82e+03	6.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	5.20e+03	5.5e+03	2.24e+07	3.08e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+07	5.20e+03	5.1e+03	2.10e+07	3.08e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.26e+07	2.60e+03	8.7e+03	2.13e+07	2.03e+03	1.1e+04
32	13C-OCDD	2.73e+07	1.56e+03	1.8e+04	2.99e+07	4.32e+02	6.9e+04
33	13C-1,2,3,4-TCDD	1.96e+07	1.55e+04	1.3e+03	2.41e+07	5.32e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	3.00e+07	5.20e+03	5.8e+03	2.40e+07	3.08e+03	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.12e+05	4.66e+03	2.4e+01			

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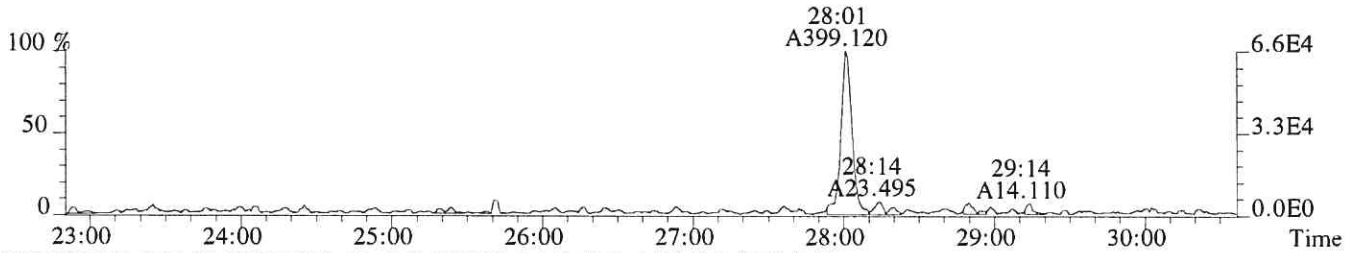
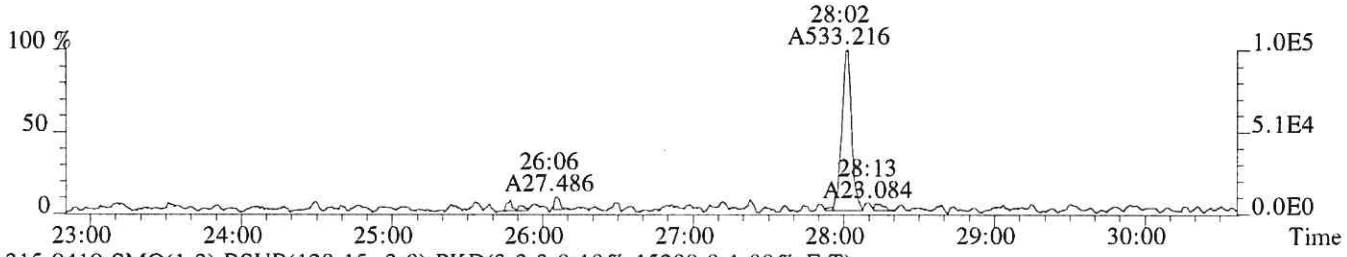
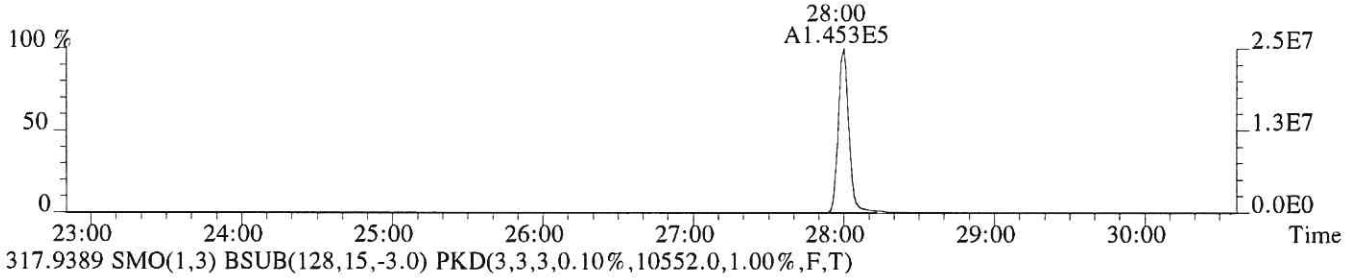
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



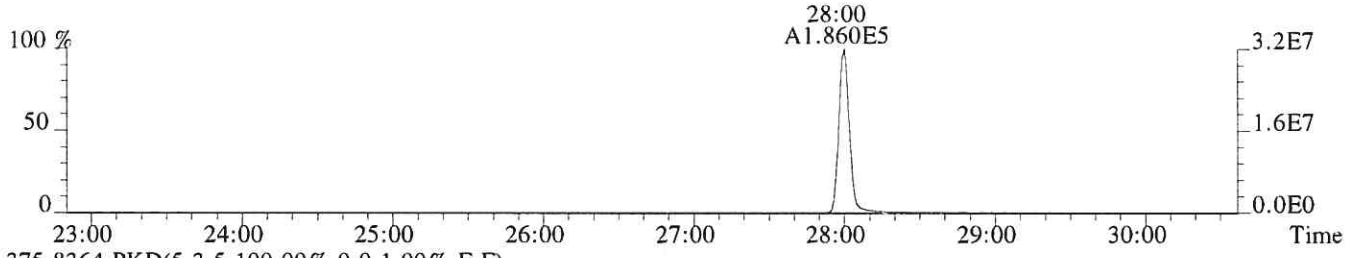
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4408.0,1.00%,F,T)



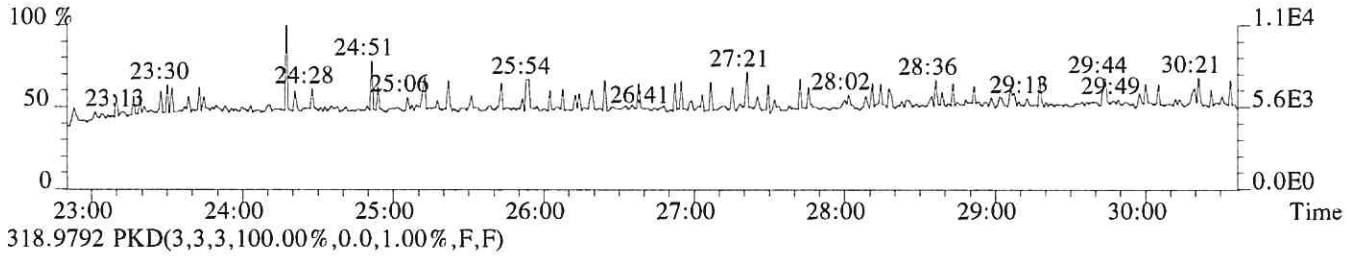
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15208.0,1.00%,F,T)



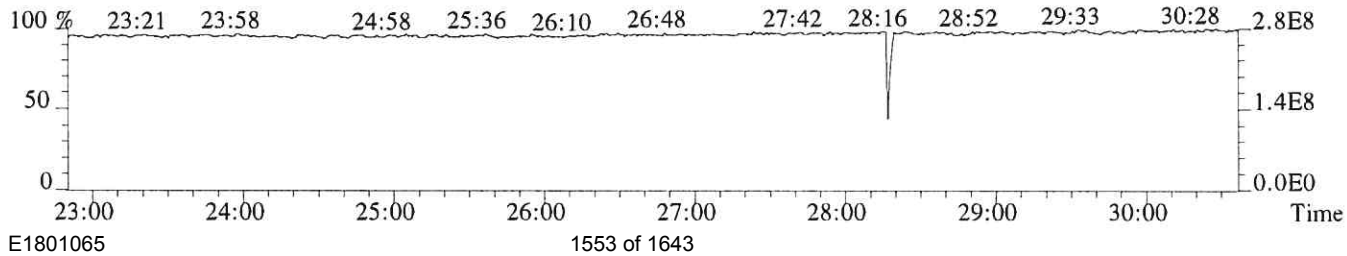
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10552.0,1.00%,F,T)



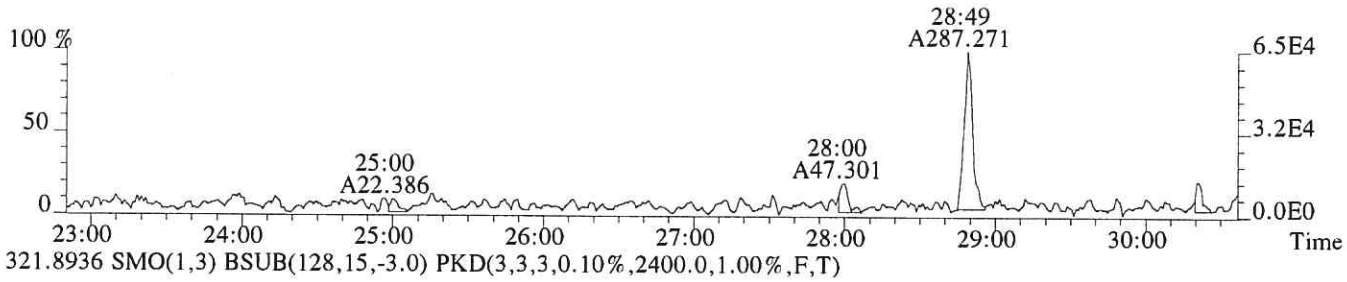
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



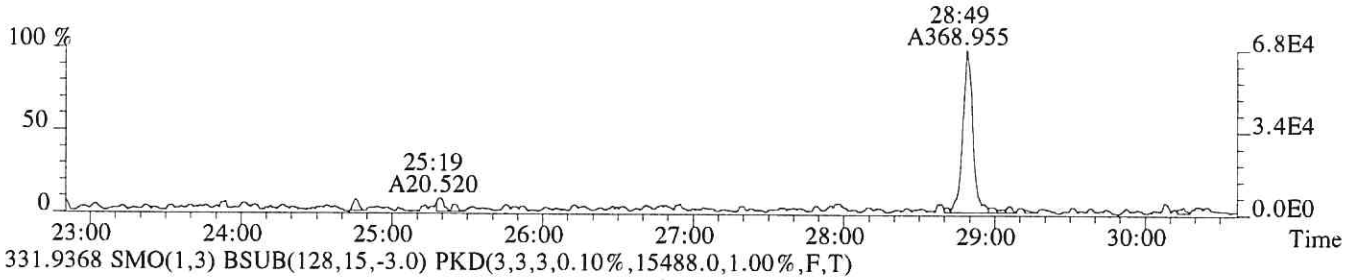
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



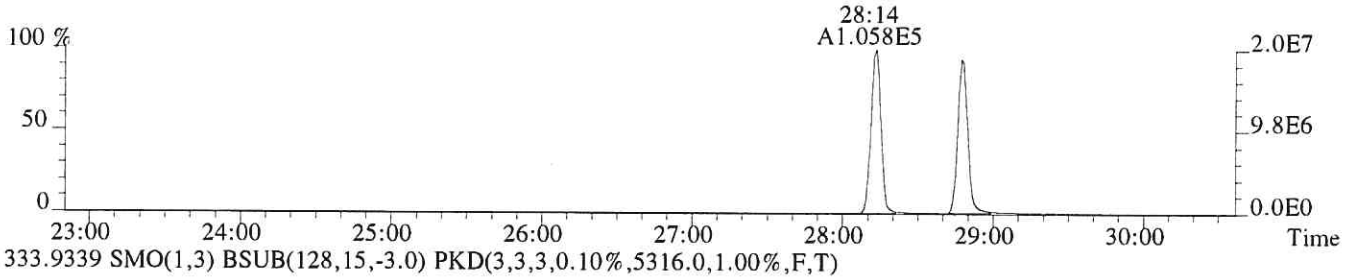
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5072.0,1.00%,F,T)



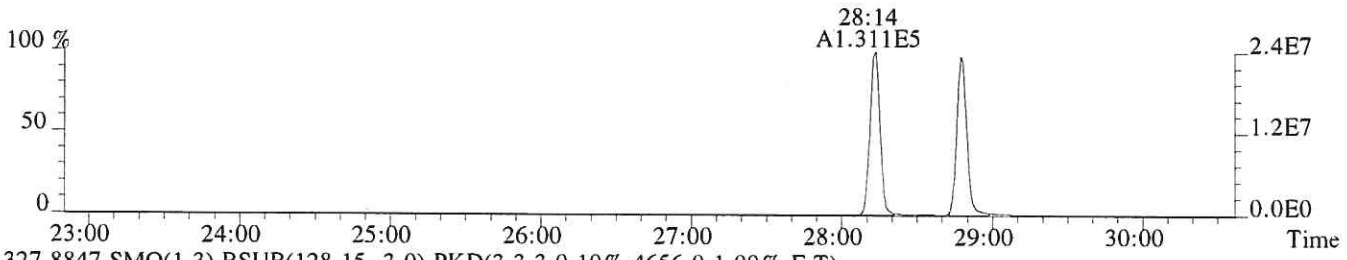
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



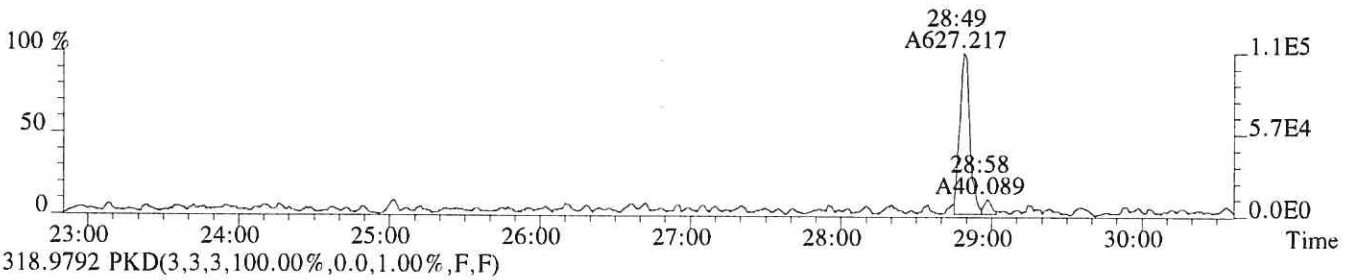
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15488.0,1.00%,F,T)



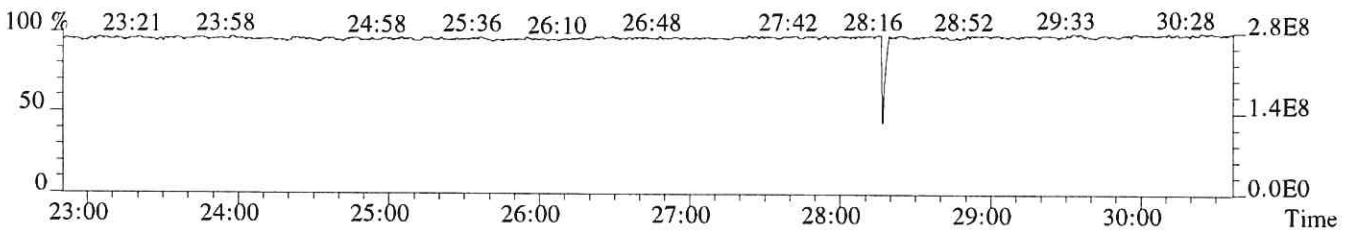
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5316.0,1.00%,F,T)



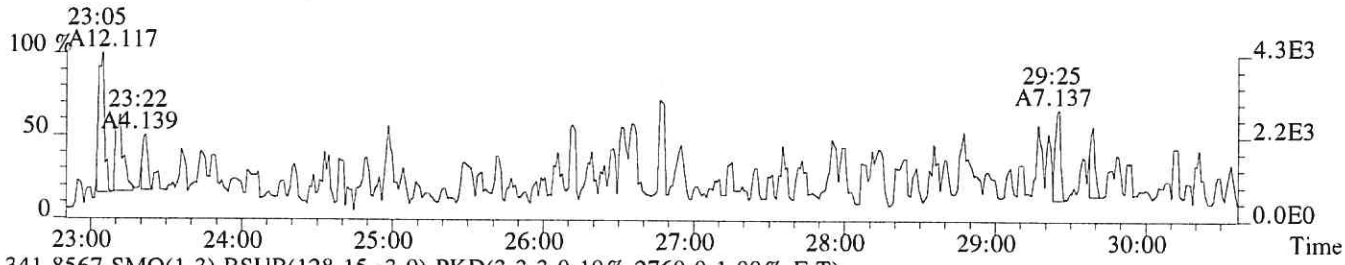
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4656.0,1.00%,F,T)



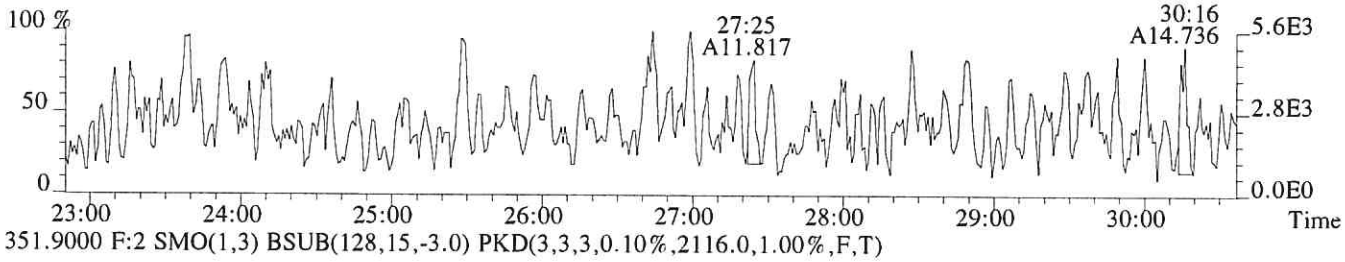
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



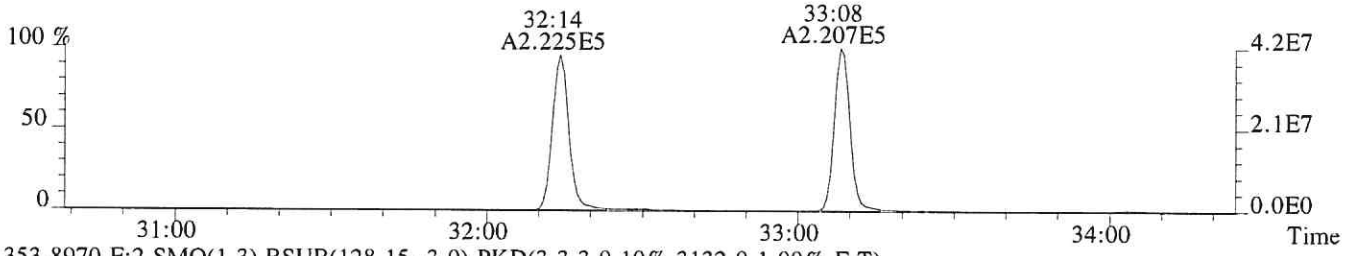
File:P614682 #1-552 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



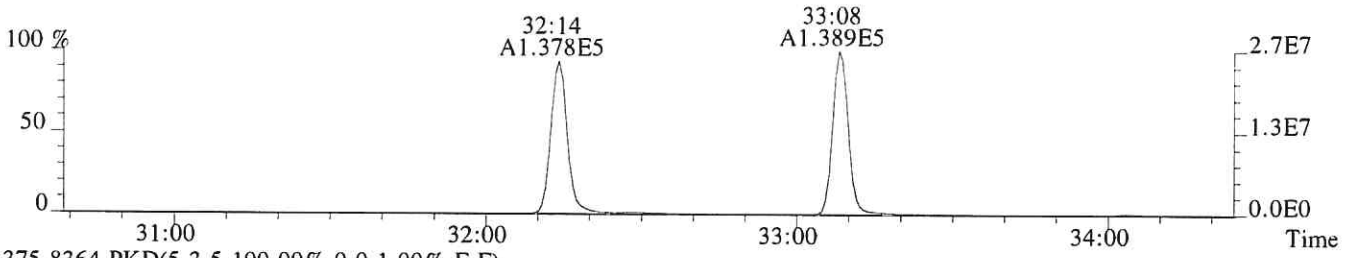
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



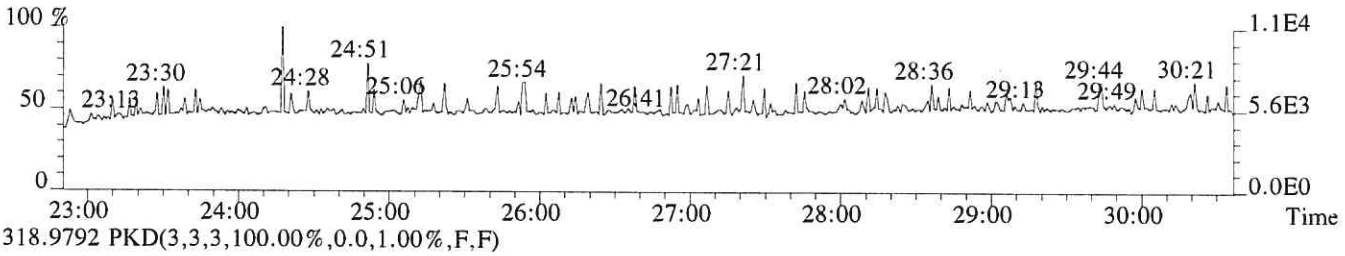
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



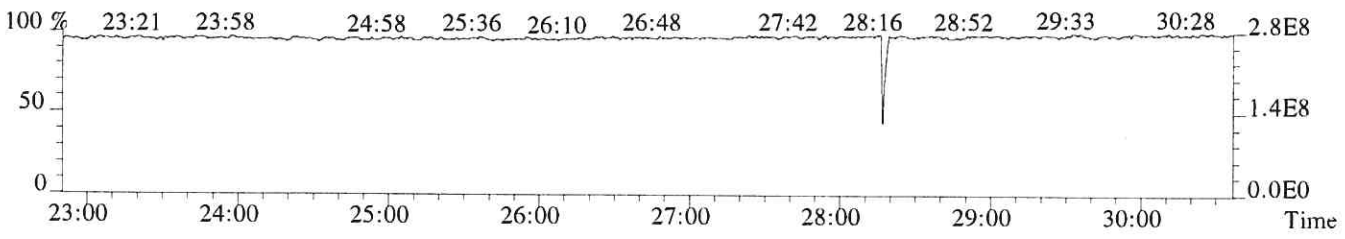
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



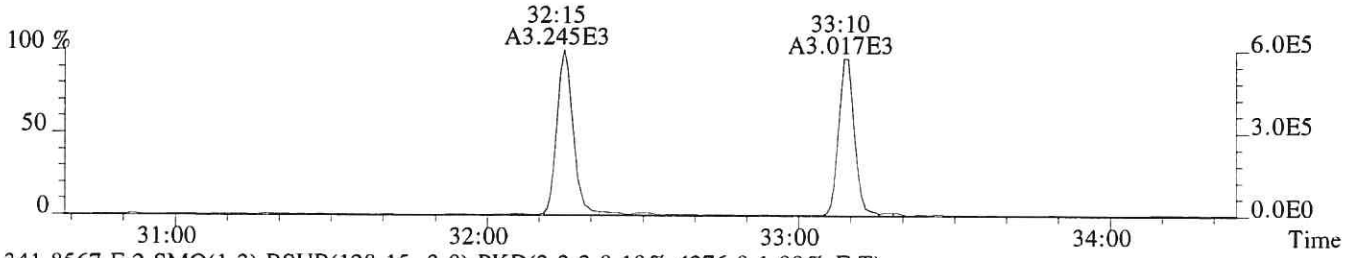
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



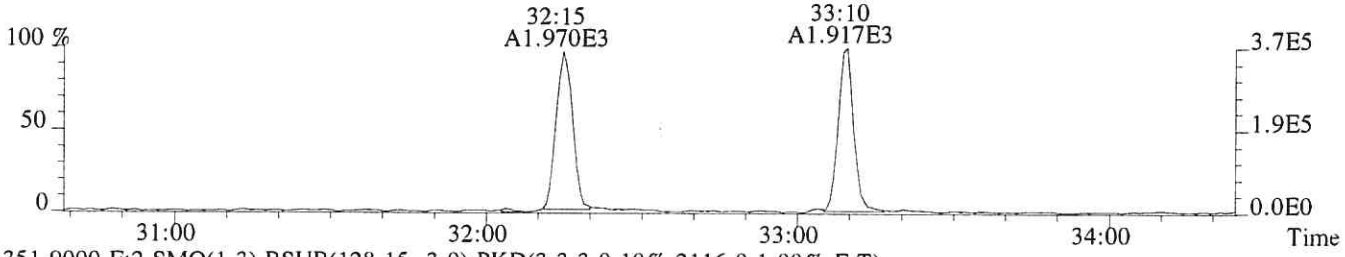
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



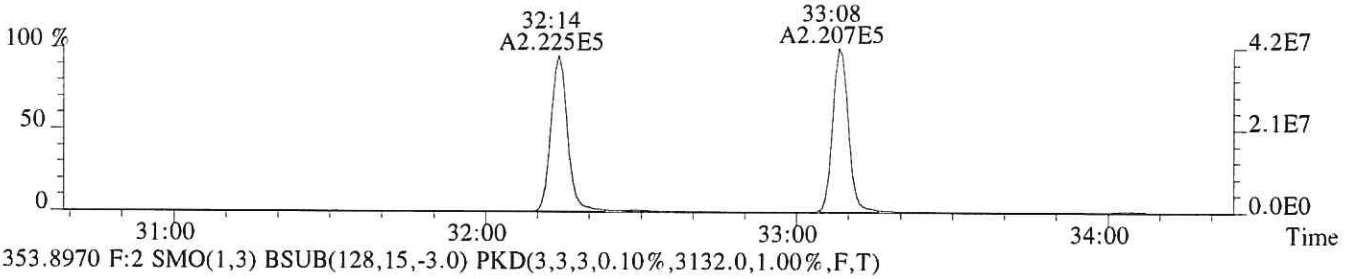
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



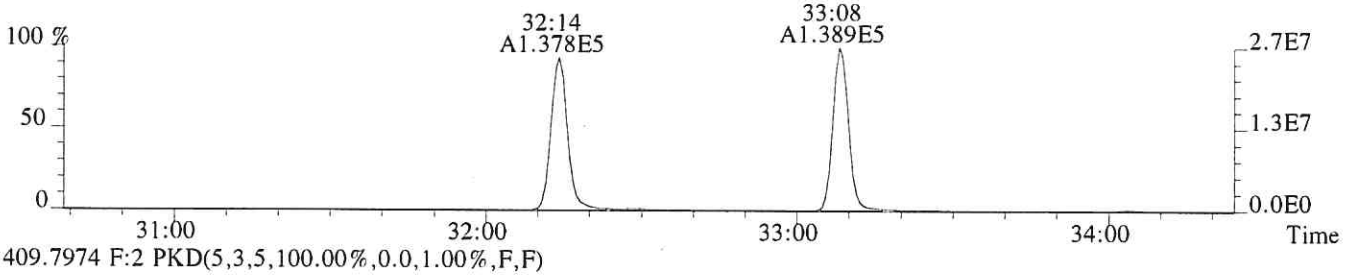
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4276.0,1.00%,F,T)



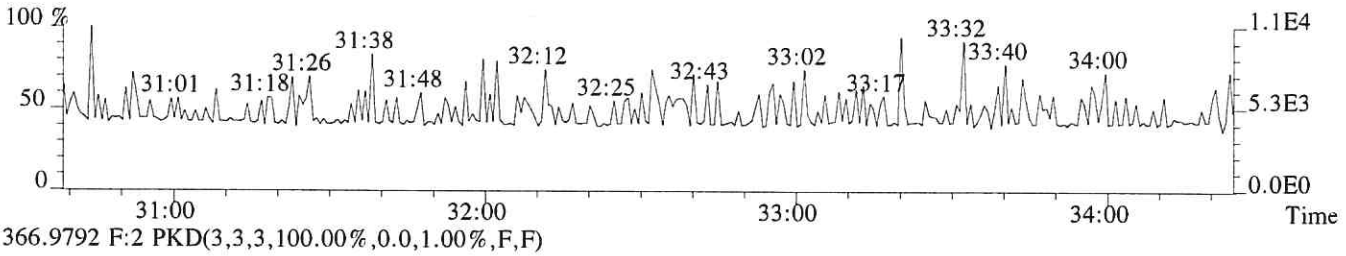
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



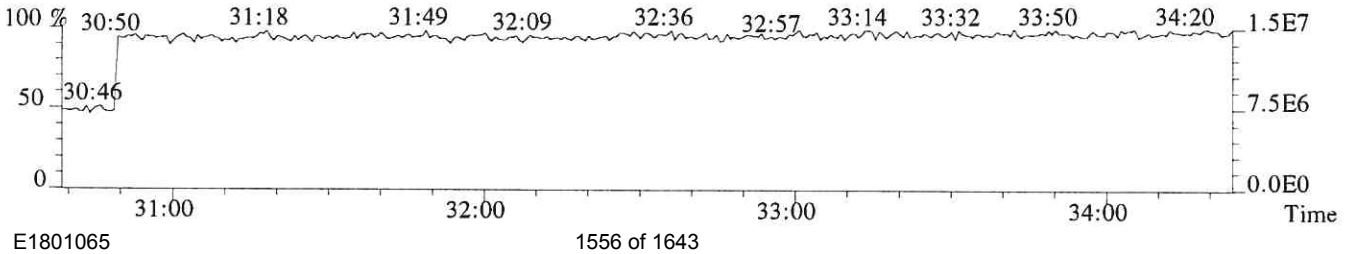
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



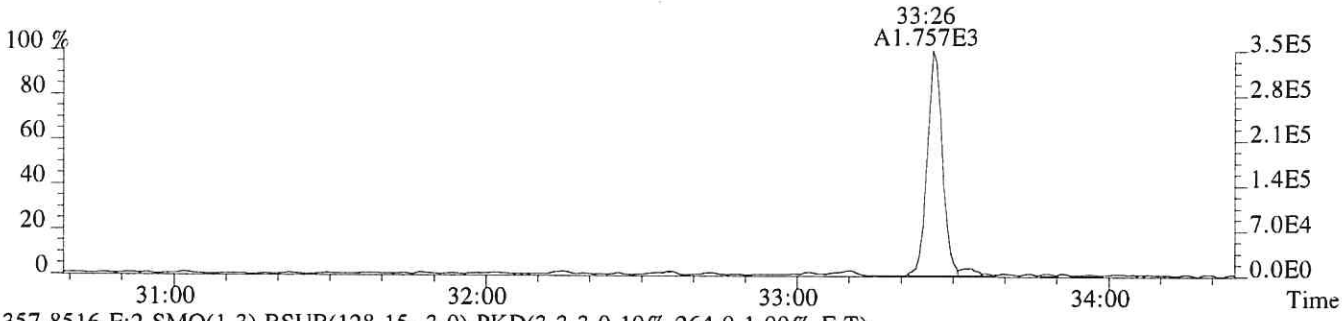
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



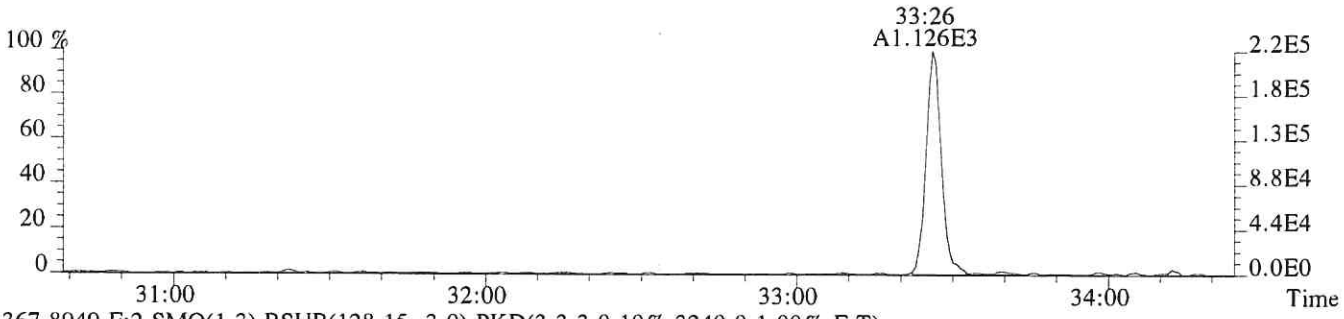
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



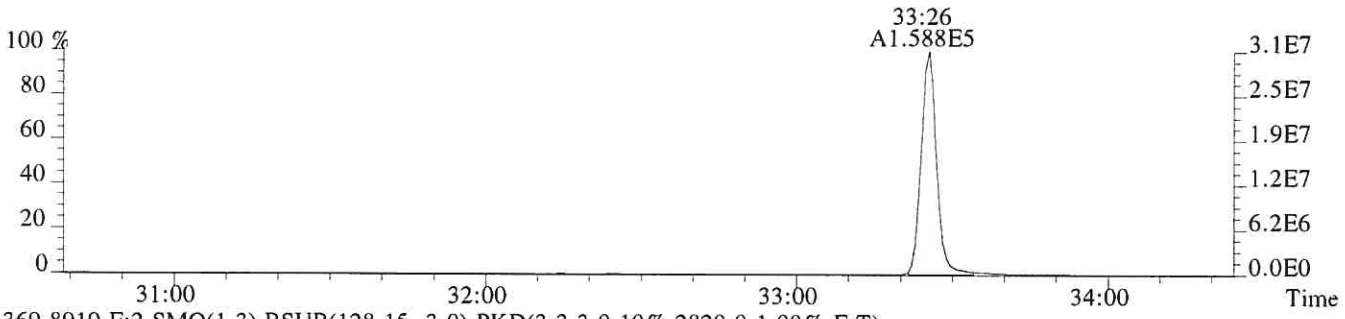
File:P614682 #1-339 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



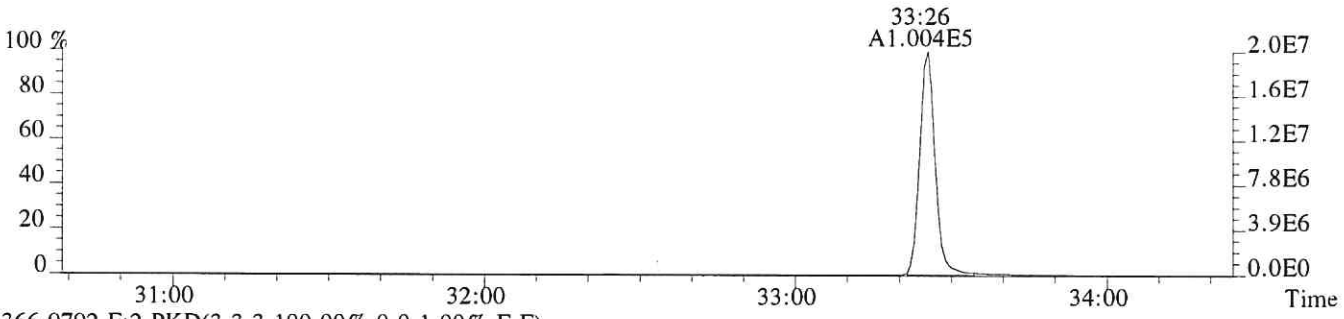
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



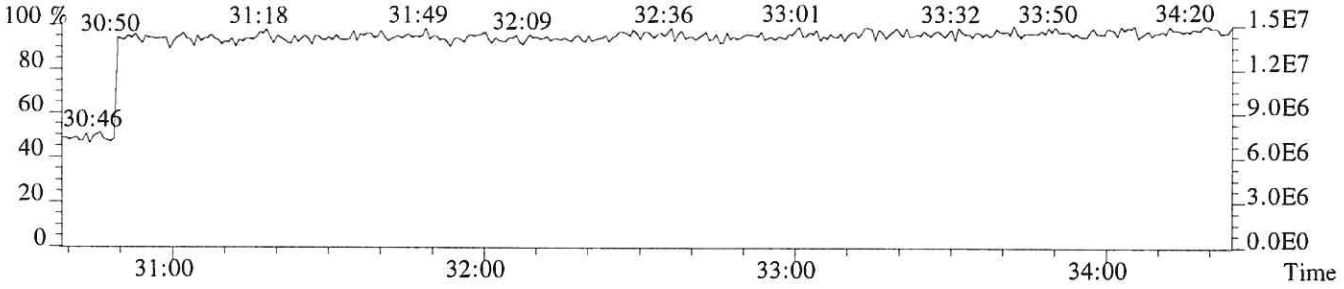
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



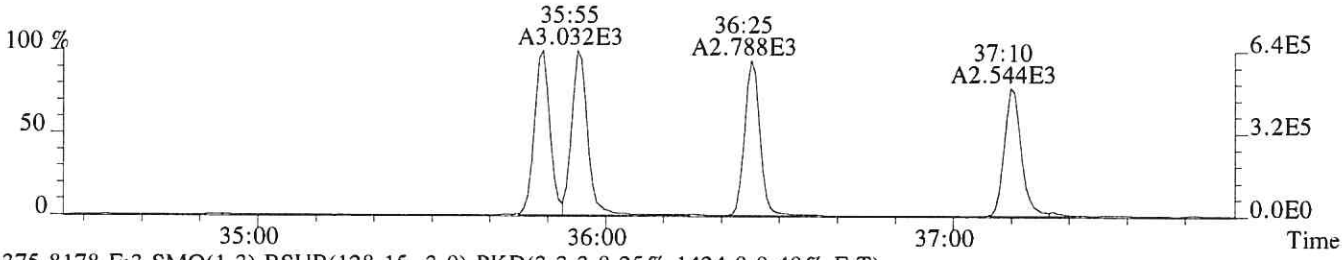
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



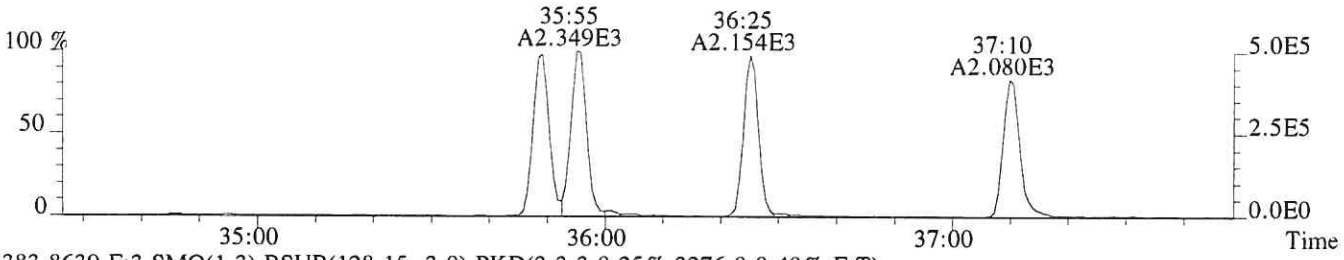
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



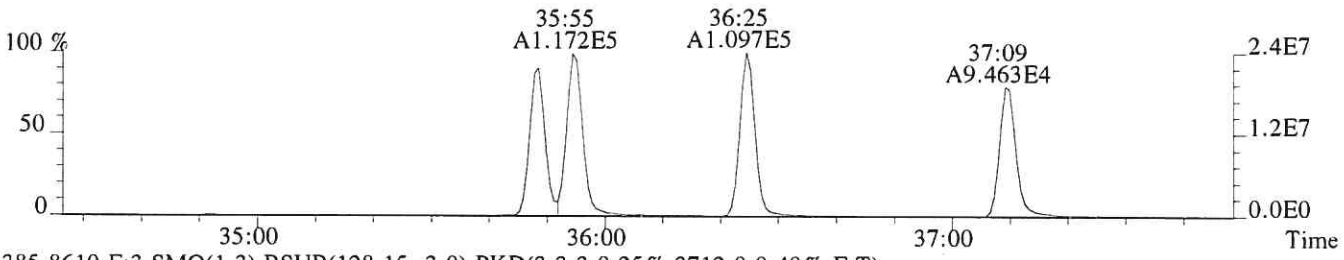
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.40%,F,T)



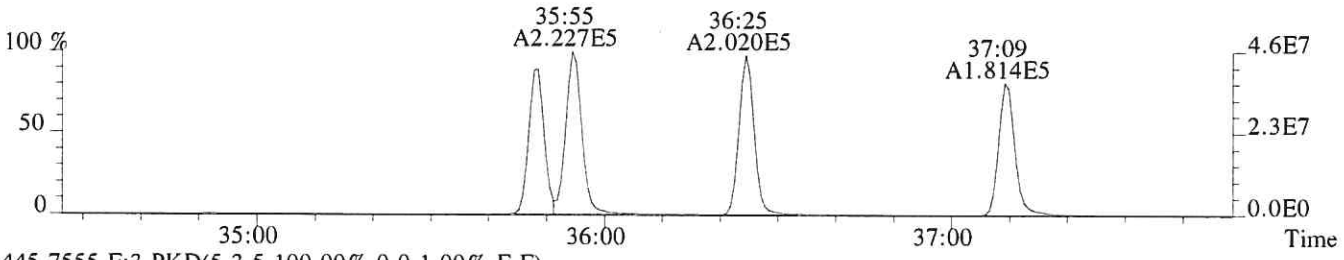
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



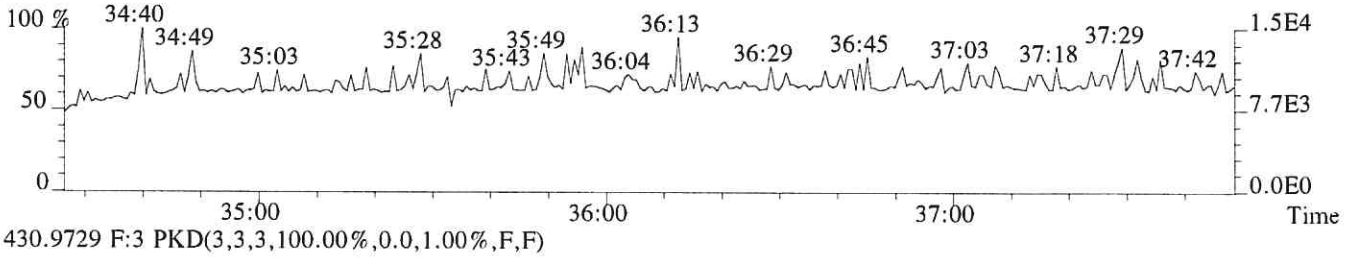
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



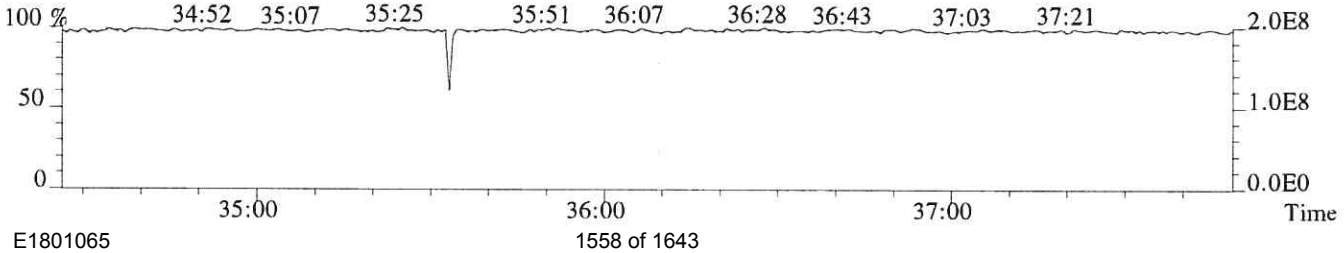
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.40%,F,T)



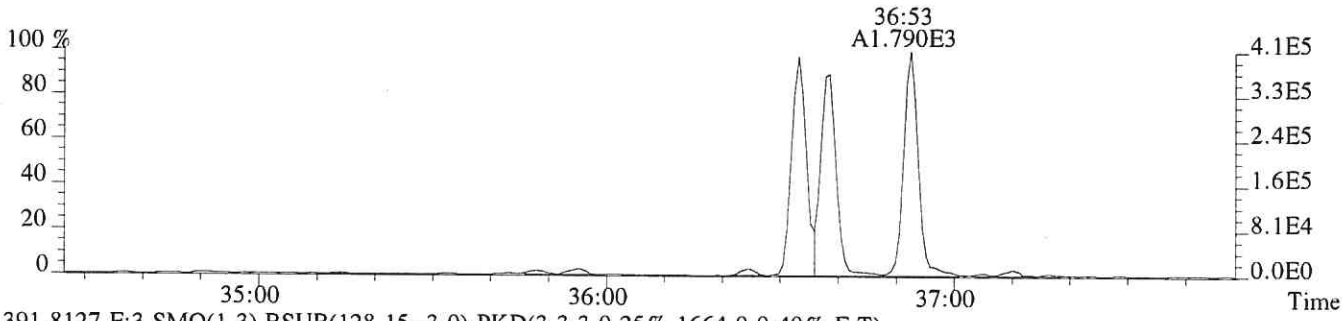
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



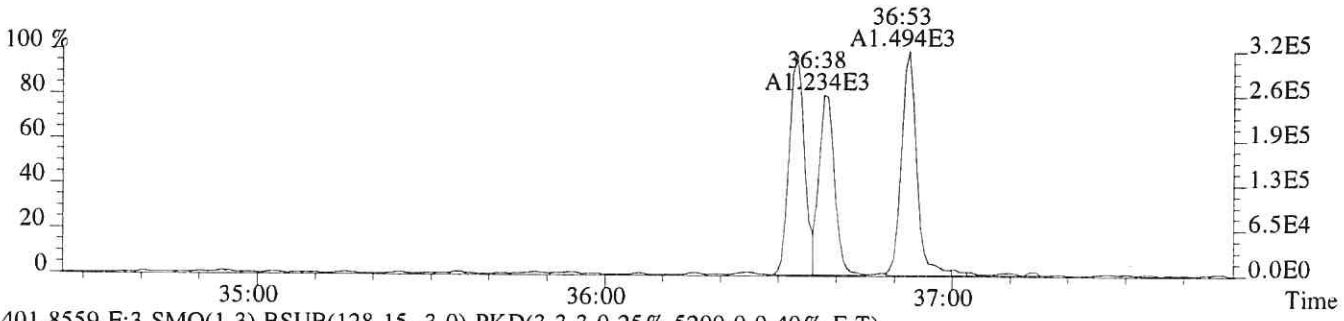
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



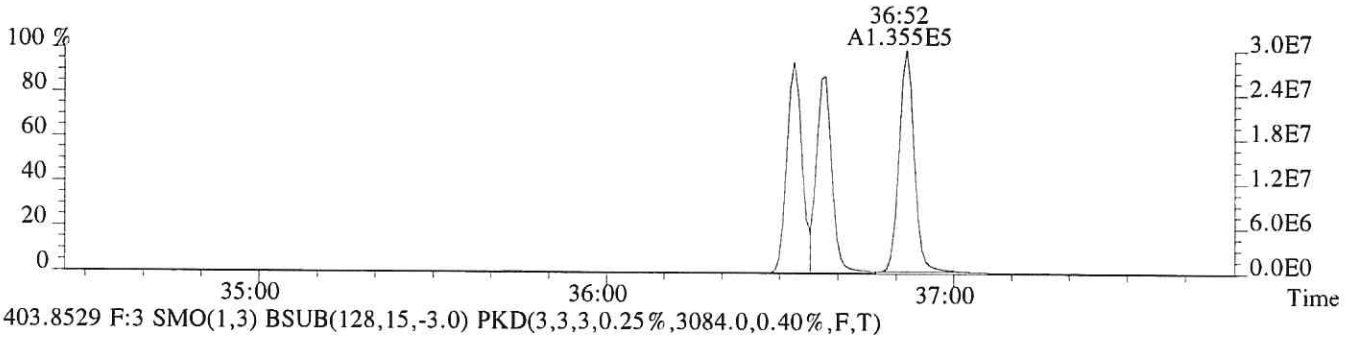
File:P614682 #1-304 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



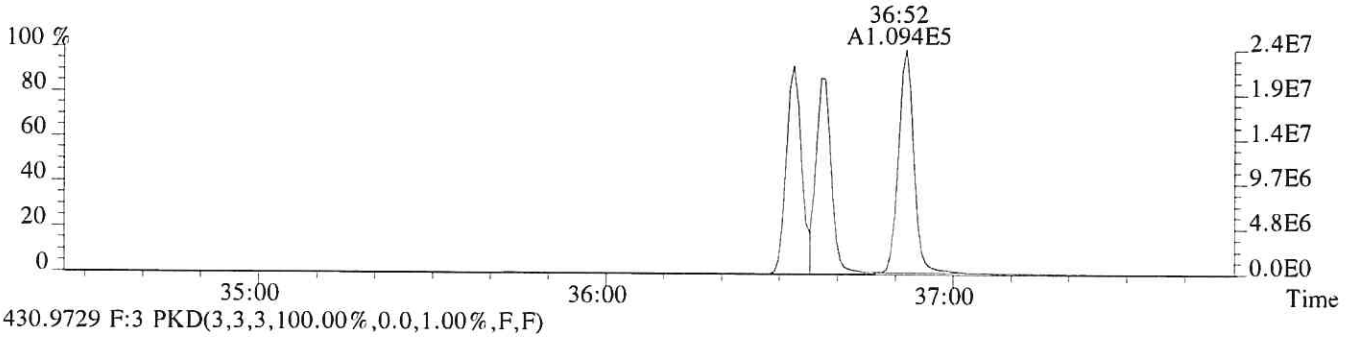
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



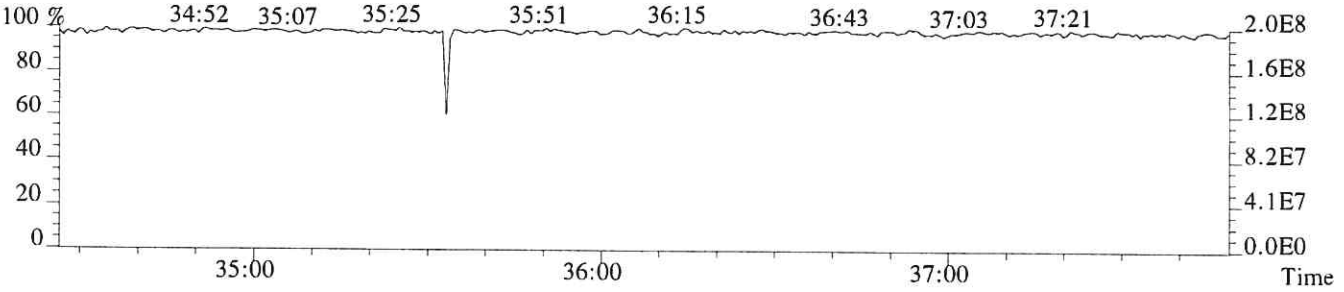
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5200.0,0.40%,F,T)



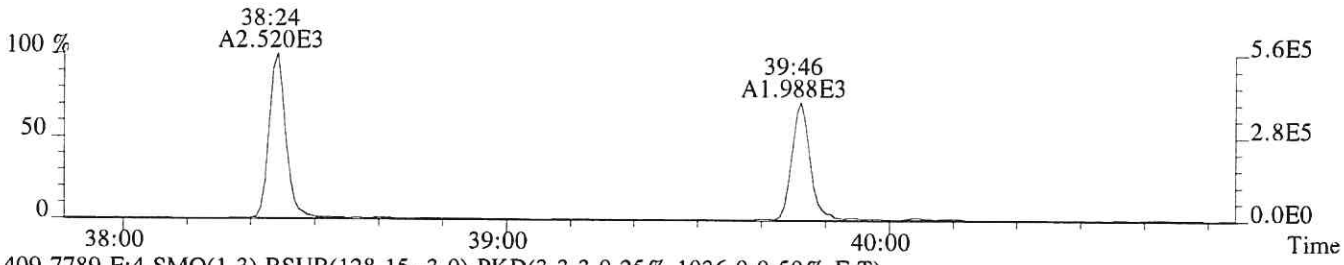
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3084.0,0.40%,F,T)



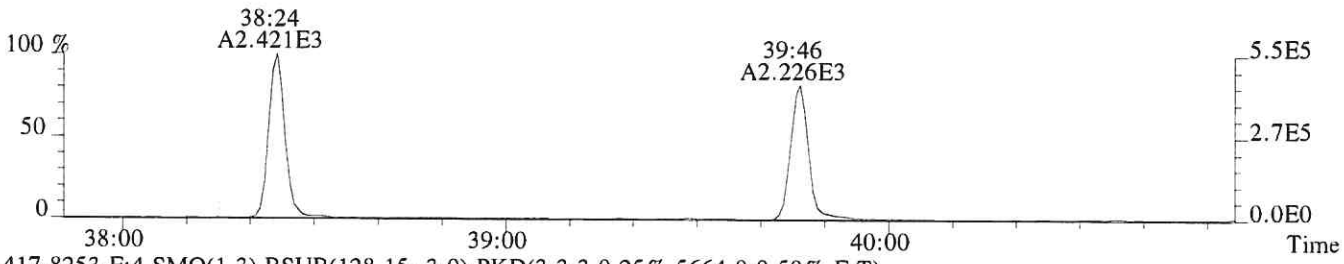
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



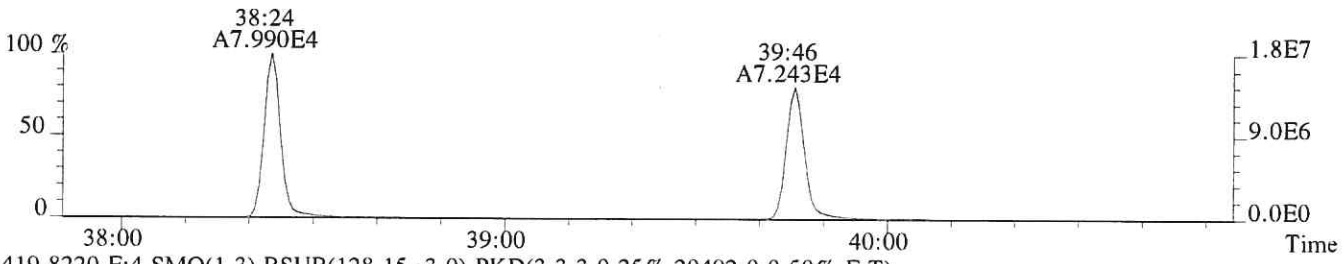
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.50%,F,T)



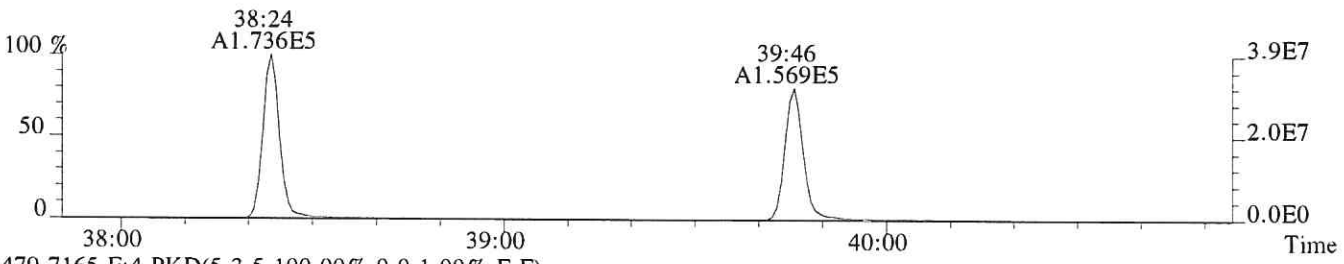
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



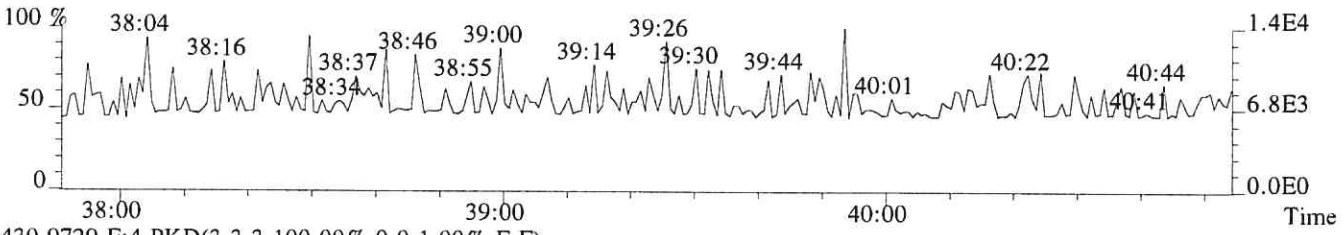
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5664.0,0.50%,F,T)



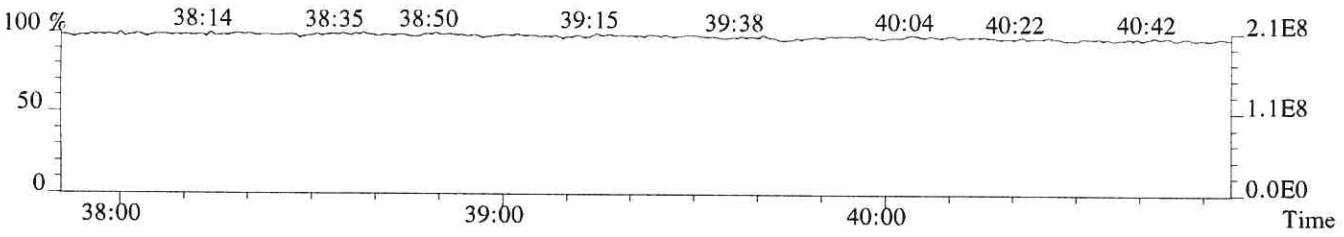
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20492.0,0.50%,F,T)



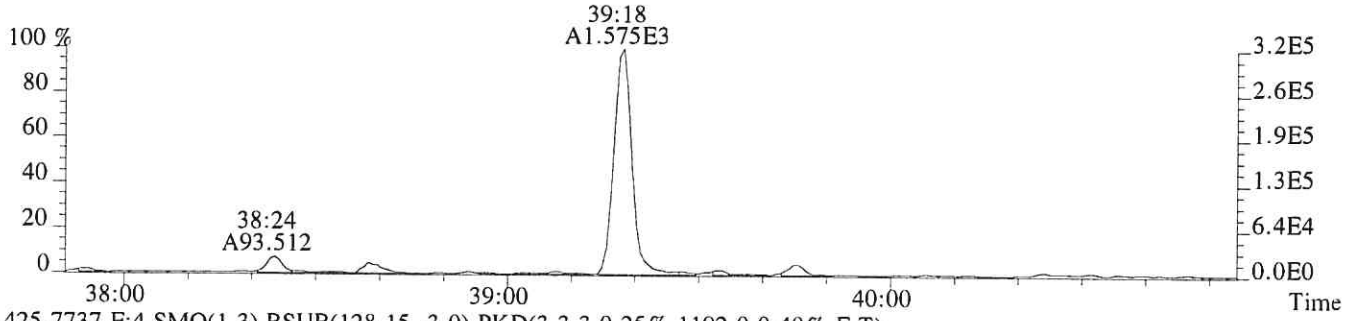
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



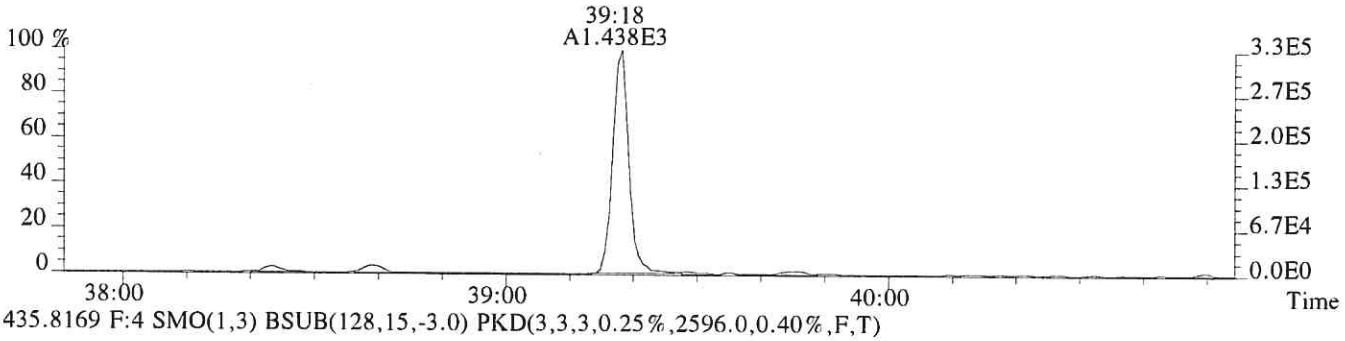
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



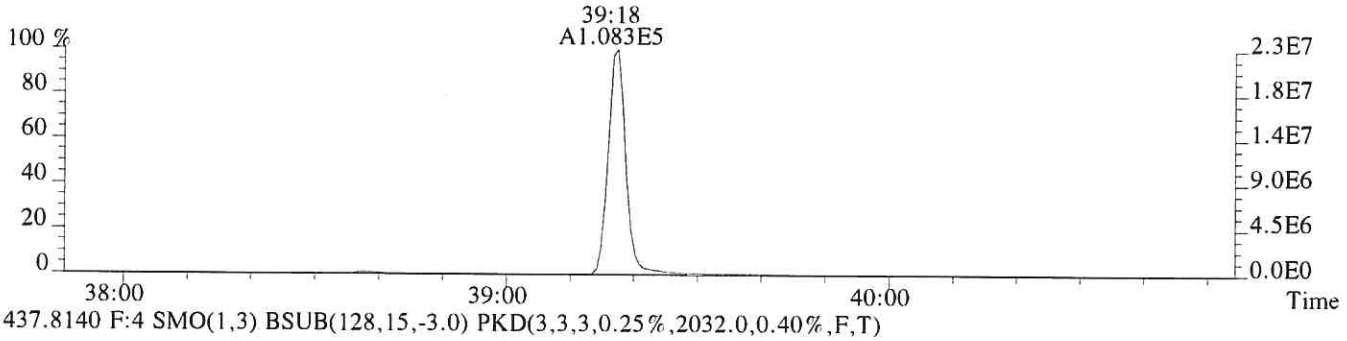
File:P614682 #1-276 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



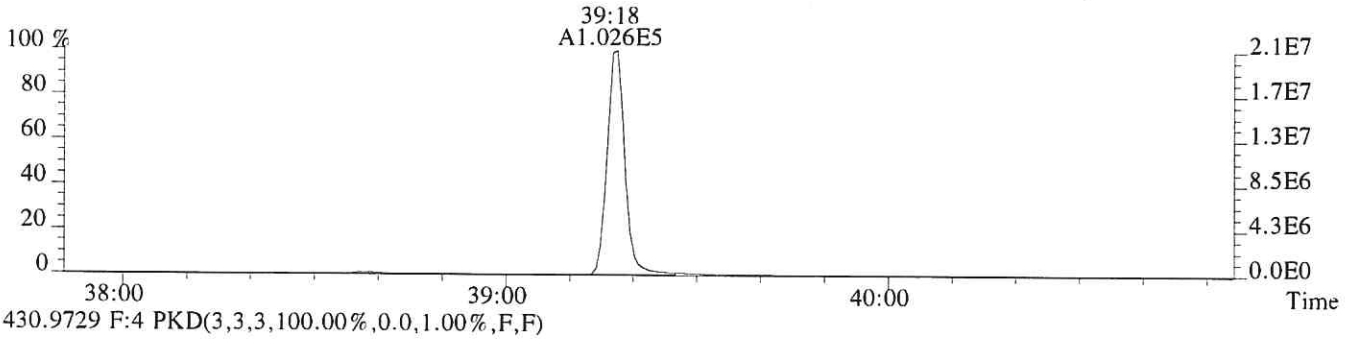
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



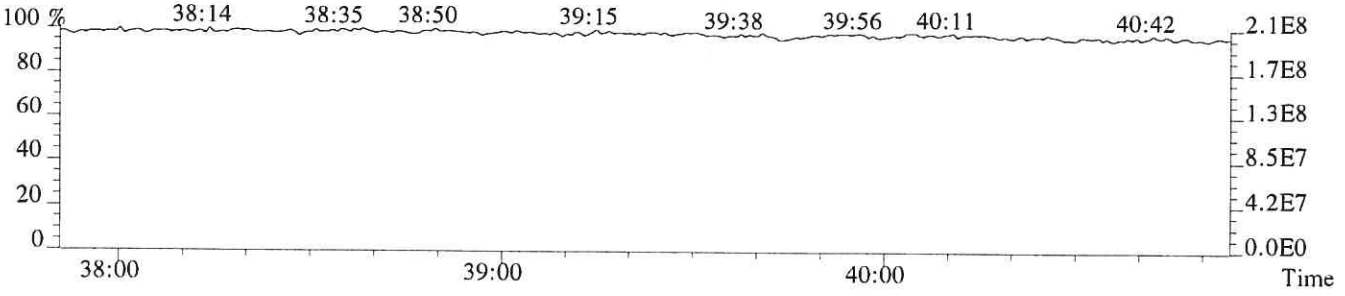
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.40%,F,T)



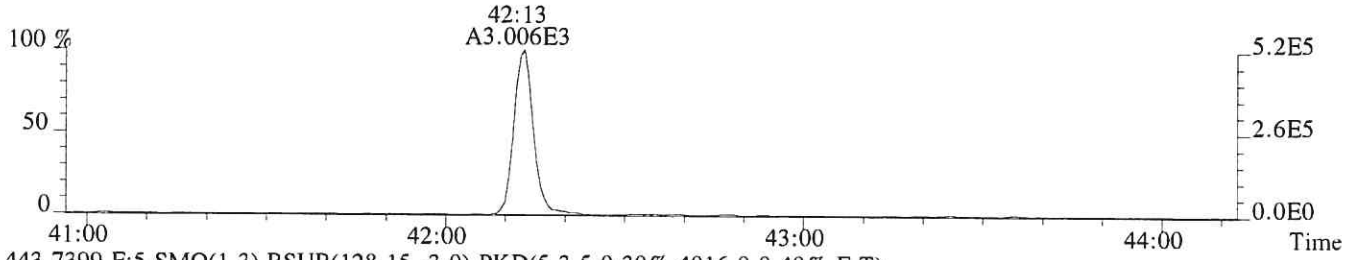
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



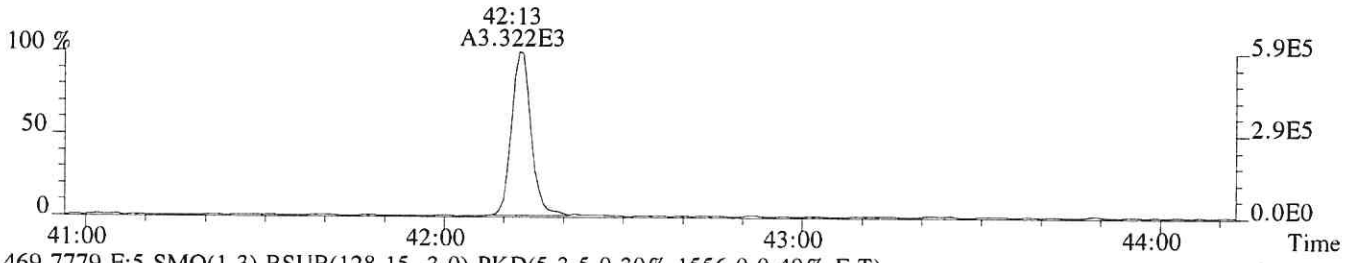
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



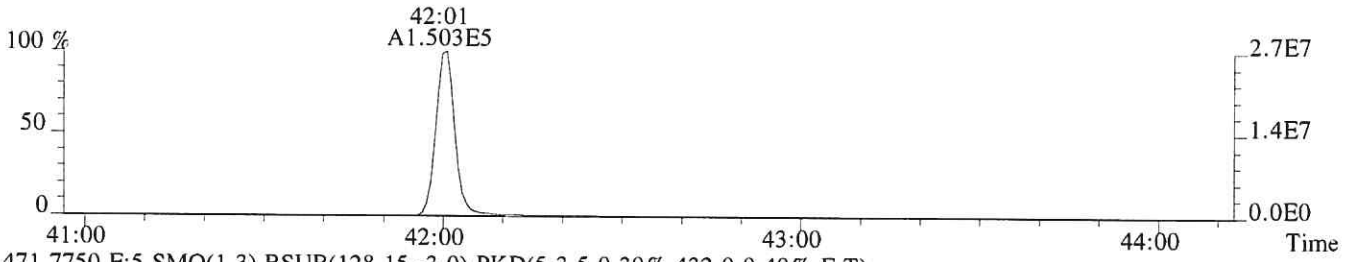
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



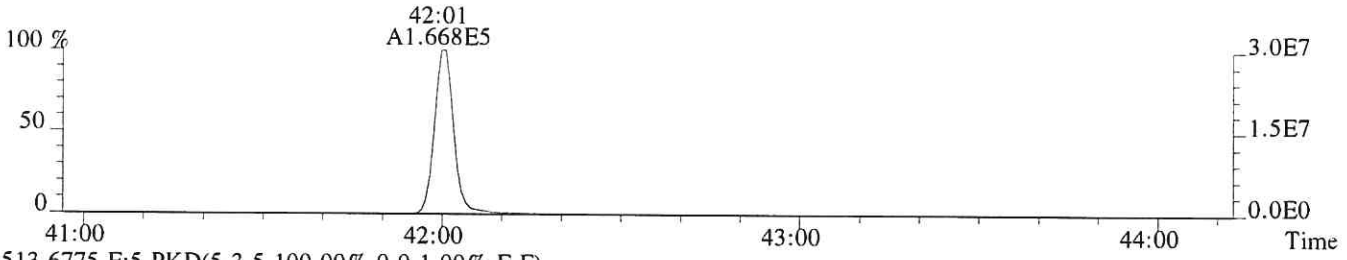
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4016.0,0.40%,F,T)



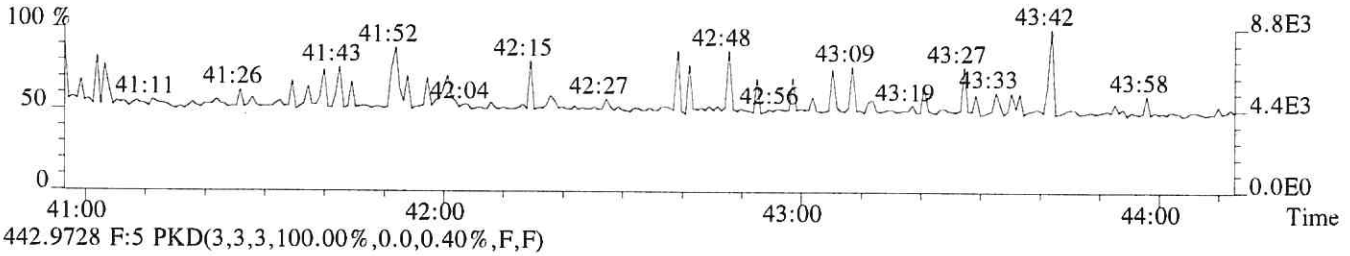
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



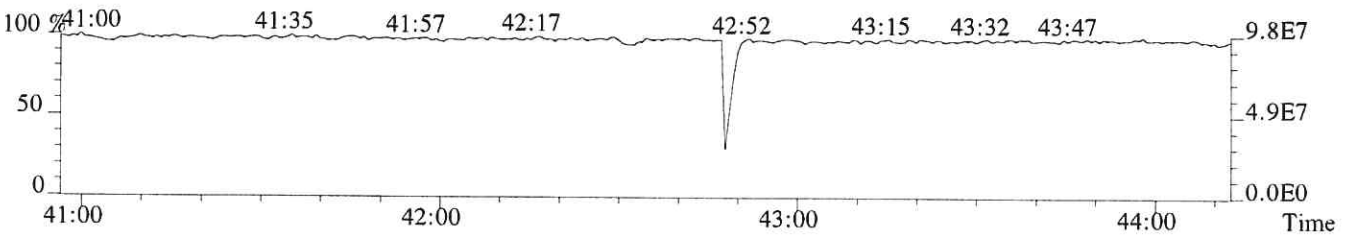
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



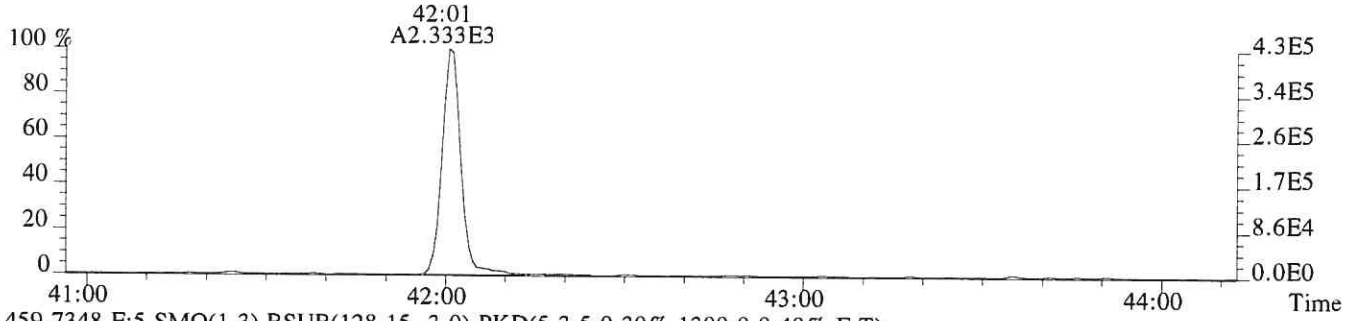
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



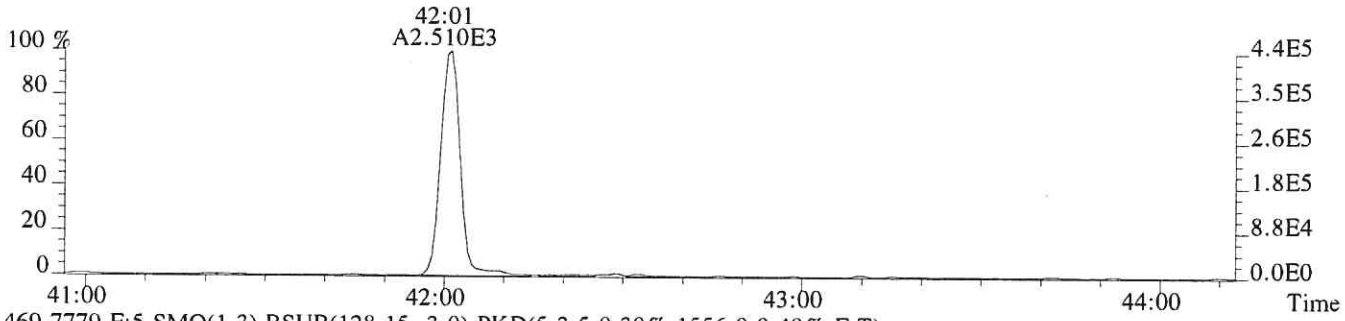
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



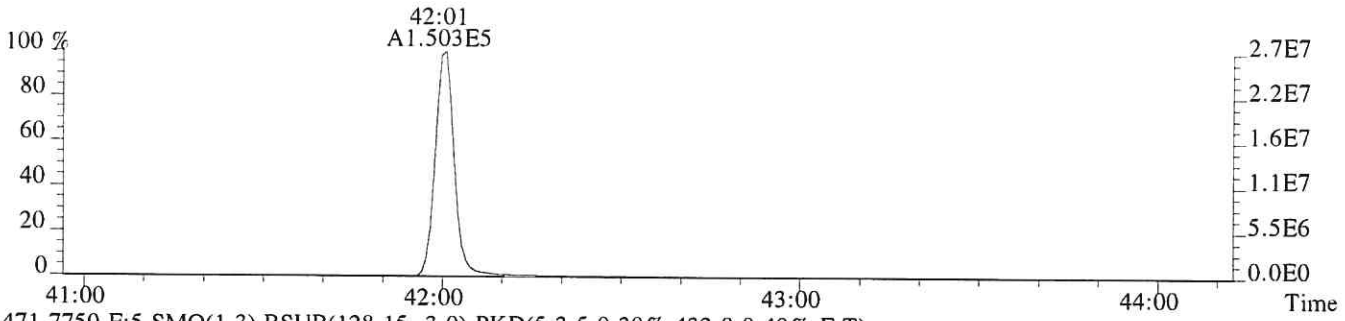
File:P614682 #1-295 Acq:25-SEP-2018 14:18:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



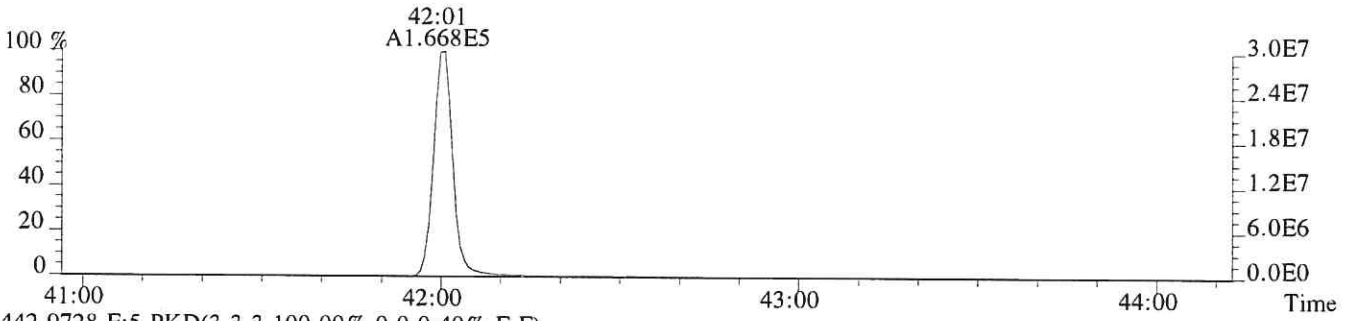
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



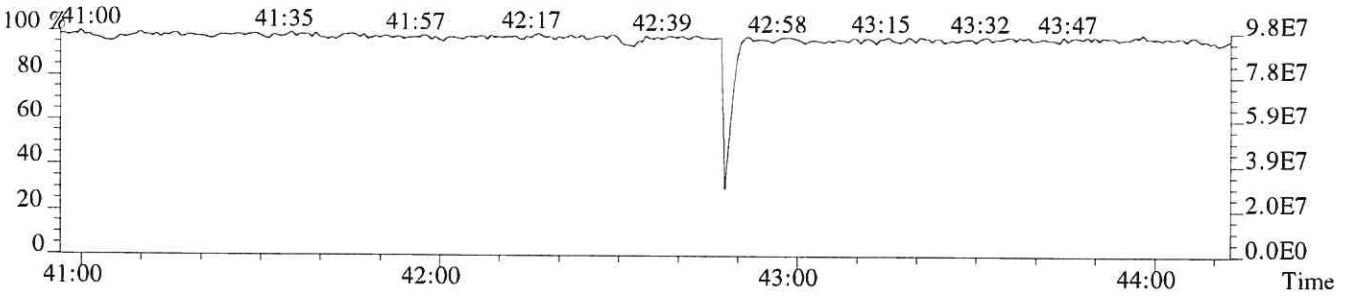
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1556.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	9.696e+02	1.301e+03	0.75	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	8.209e+03	5.211e+03	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	7.782e+03	4.847e+03	1.61	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.580e+03	5.860e+03	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	7.826e+03	6.295e+03	1.24	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	7.149e+03	5.707e+03	1.25	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	6.633e+03	5.137e+03	1.29	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	6.668e+03	6.509e+03	1.02	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	5.874e+03	5.515e+03	1.07	yes	no	1.463
10	Unk	OCDF	42:13	7.957e+03	9.190e+03	0.87	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	6.591e+02	7.969e+02	0.83	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	4.521e+03	2.979e+03	1.52	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	4.250e+03	3.535e+03	1.20	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	4.303e+03	3.394e+03	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	4.586e+03	3.767e+03	1.22	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.011e+03	3.764e+03	1.07	yes	no	1.112
17	Unk	OCDD	42:01	6.097e+03	6.815e+03	0.89	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.863e+05	2.330e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.845e+05	1.757e+05	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.739e+05	1.718e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.281e+05	2.407e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.461e+05	2.703e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.362e+05	2.538e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.215e+05	2.294e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.041e+05	2.259e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	9.345e+04	2.024e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.293e+05	1.616e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.924e+05	1.218e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.556e+05	1.239e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.601e+05	1.267e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.414e+05	1.336e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.022e+05	2.237e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.337e+05	1.646e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.731e+05	1.377e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	1.653e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82614

Run #2 Filename P614683 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:08:49
Processed: 26-SEP-18 07:39:06 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.73e+05	2.52e+03	6.9e+01	2.26e+05	4.68e+03	4.8e+01
2	1,2,3,7,8-PeCDF	1.49e+06	1.07e+03	1.4e+03	9.88e+05	5.47e+03	1.8e+02
3	2,3,4,7,8-PeCDF	1.55e+06	1.07e+03	1.5e+03	9.81e+05	5.47e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	1.64e+06	3.19e+03	5.1e+02	1.29e+06	1.24e+03	1.0e+03
5	1,2,3,6,7,8-HxCDF	1.65e+06	3.19e+03	5.2e+02	1.30e+06	1.24e+03	1.0e+03
6	2,3,4,6,7,8-HxCDF	1.53e+06	3.19e+03	4.8e+02	1.19e+06	1.24e+03	9.6e+02
7	1,2,3,7,8,9-HxCDF	1.37e+06	3.19e+03	4.3e+02	1.06e+06	1.24e+03	8.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.48e+06	1.97e+03	7.5e+02	1.45e+06	1.25e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.19e+06	1.97e+03	6.0e+02	1.11e+06	1.25e+03	8.9e+02
10	OCDF	1.45e+06	1.15e+03	1.3e+03	1.64e+06	2.28e+03	7.2e+02
11	2,3,7,8-TCDD	1.20e+05	6.88e+03	1.7e+01	1.48e+05	2.99e+03	5.0e+01
12	1,2,3,7,8-PeCDD	8.64e+05	2.37e+03	3.6e+02	5.83e+05	1.39e+03	4.2e+02
13	1,2,3,4,7,8-HxCDD	9.60e+05	1.02e+03	9.4e+02	8.07e+05	1.68e+03	4.8e+02
14	1,2,3,6,7,8-HxCDD	9.46e+05	1.02e+03	9.3e+02	7.52e+05	1.68e+03	4.5e+02
15	1,2,3,7,8,9-HxCDD	1.01e+06	1.02e+03	9.9e+02	8.34e+05	1.68e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	8.38e+05	1.17e+03	7.2e+02	8.29e+05	4.84e+02	1.7e+03
17	OCDD	1.16e+06	3.14e+03	3.7e+02	1.30e+06	1.96e+03	6.6e+02
18	13C-2,3,7,8-TCDF	3.28e+07	1.64e+04	2.0e+03	4.11e+07	1.27e+04	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.29e+07	3.44e+03	1.5e+04	3.26e+07	2.57e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	3.44e+03	1.6e+04	3.38e+07	2.57e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.86e+07	3.47e+03	8.3e+03	5.39e+07	4.48e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.07e+07	3.47e+03	8.8e+03	5.68e+07	4.48e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	2.95e+07	3.47e+03	8.5e+03	5.46e+07	4.48e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.51e+07	3.47e+03	7.2e+03	4.72e+07	4.48e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.29e+04	1.8e+03	4.99e+07	2.56e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.87e+07	1.29e+04	1.5e+03	4.06e+07	2.56e+04	1.6e+03
27	13C-2,3,7,8-TCDD	2.37e+07	1.79e+04	1.3e+03	2.98e+07	7.48e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	3.81e+07	3.05e+03	1.3e+04	2.43e+07	1.79e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	3.53e+07	4.99e+03	7.1e+03	2.84e+07	2.28e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	3.46e+07	4.99e+03	6.9e+03	2.73e+07	2.28e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.08e+07	3.94e+03	7.8e+03	2.93e+07	1.60e+03	1.8e+04
32	13C-OCDD	3.85e+07	1.12e+03	3.4e+04	4.22e+07	1.86e+03	2.3e+04
33	13C-1,2,3,4-TCDD	2.49e+07	1.79e+04	1.4e+03	3.07e+07	7.48e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	4.99e+03	7.5e+03	3.01e+07	2.28e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	3.03e+05	3.87e+03	7.8e+01			

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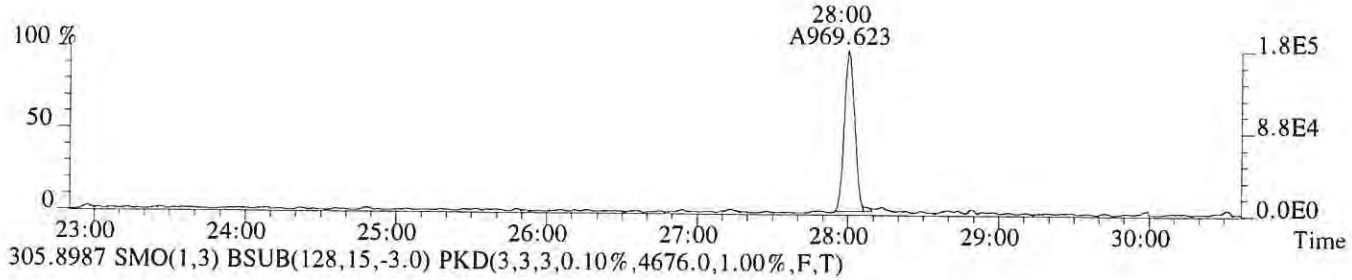
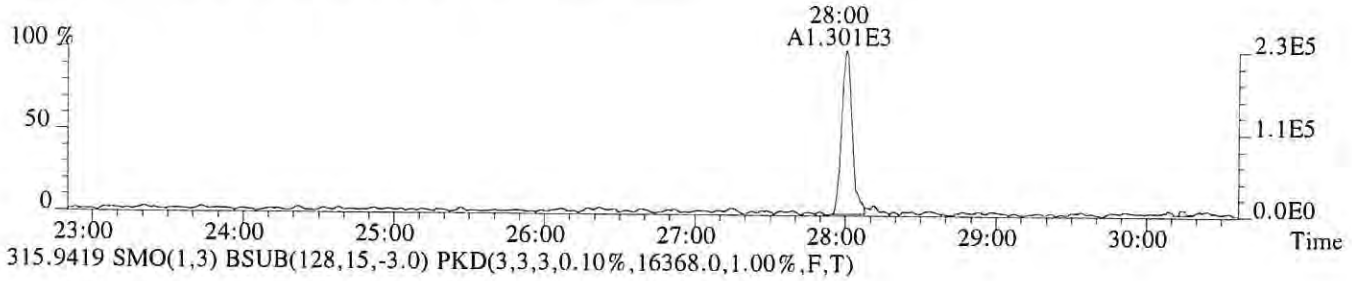
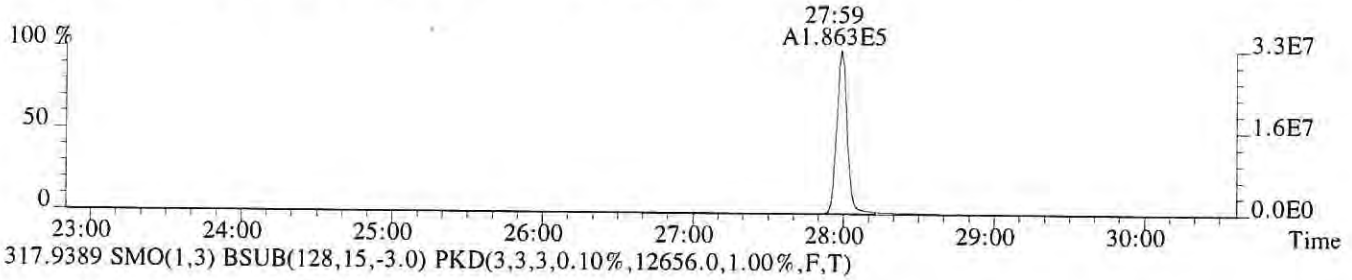
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



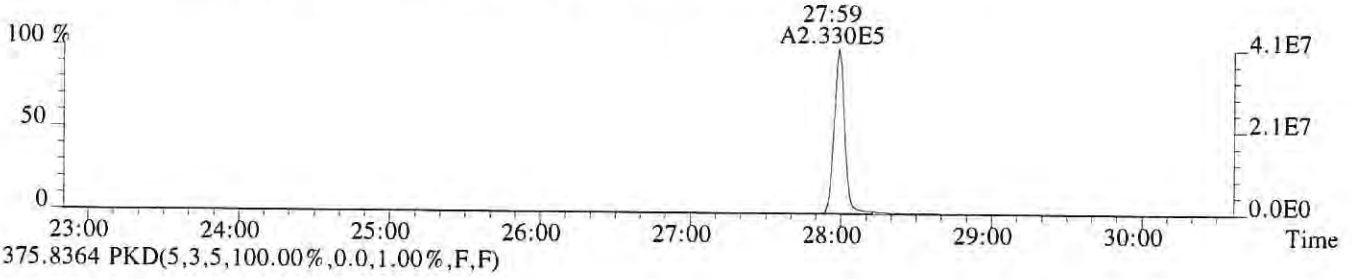
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4676.0,1.00%,F,T)



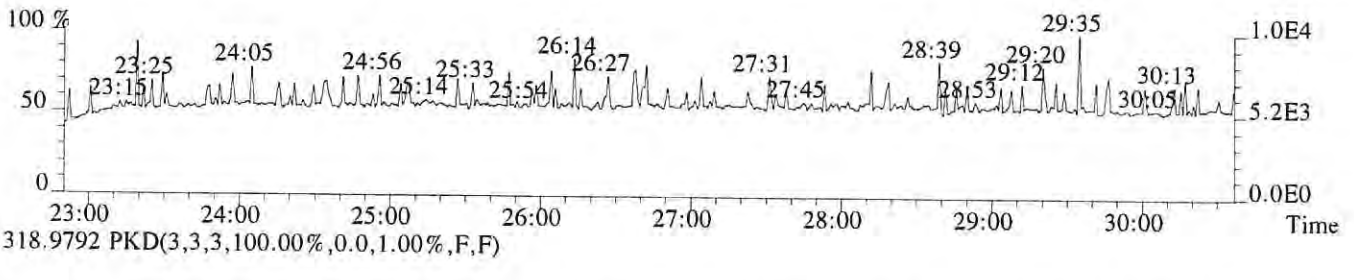
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16368.0,1.00%,F,T)



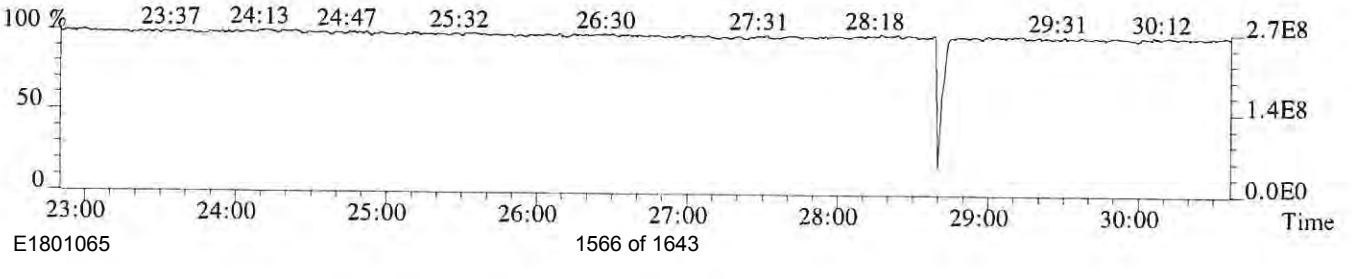
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



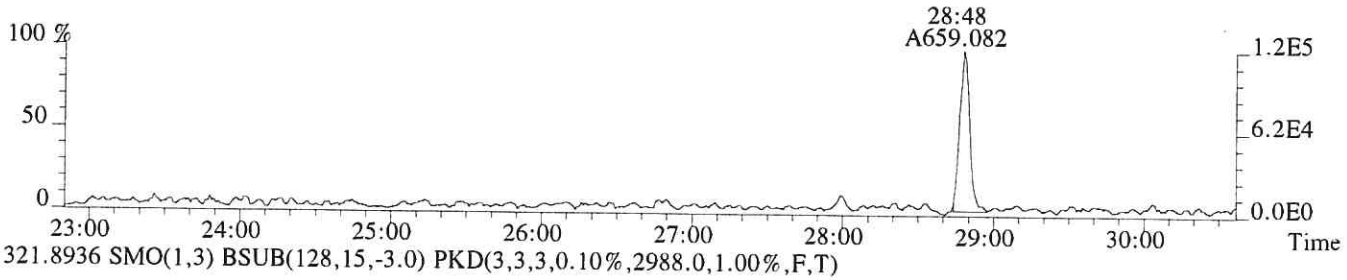
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



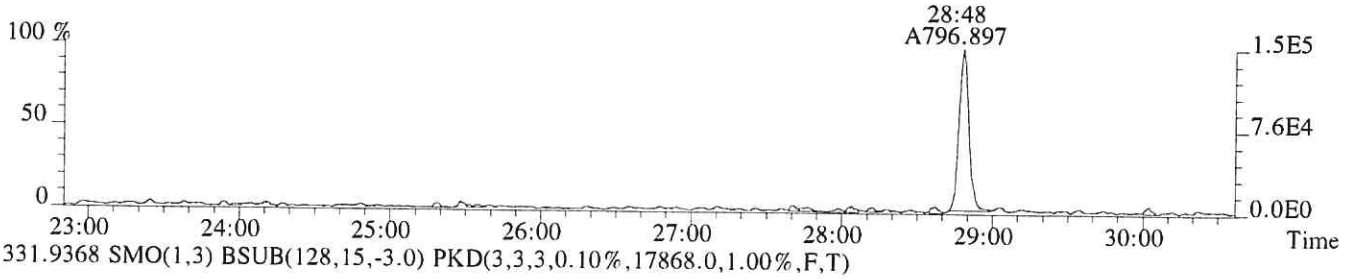
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



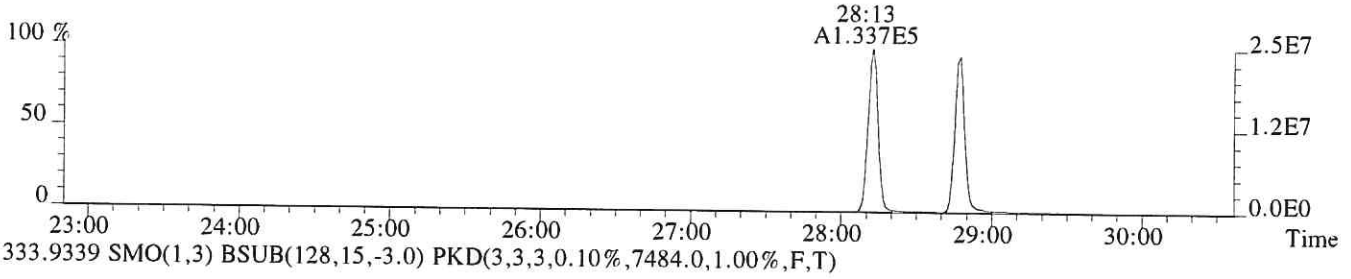
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6880.0,1.00%,F,T)



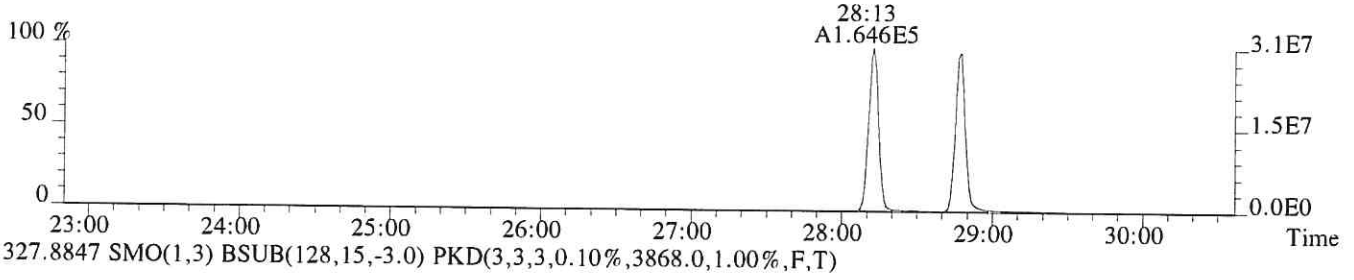
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



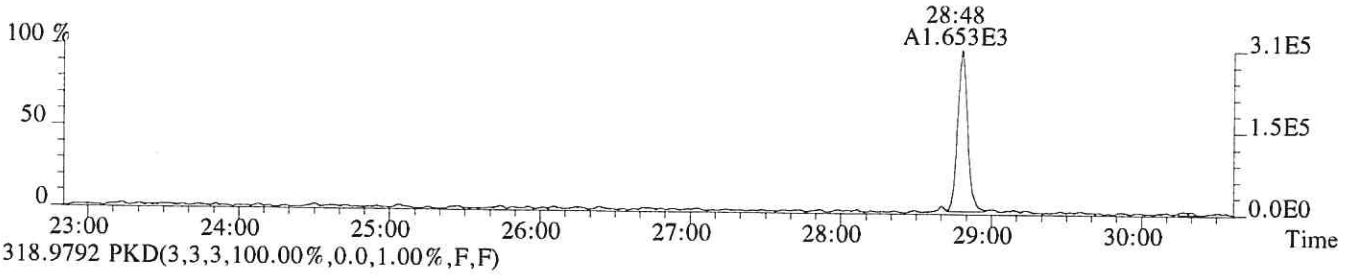
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17868.0,1.00%,F,T)



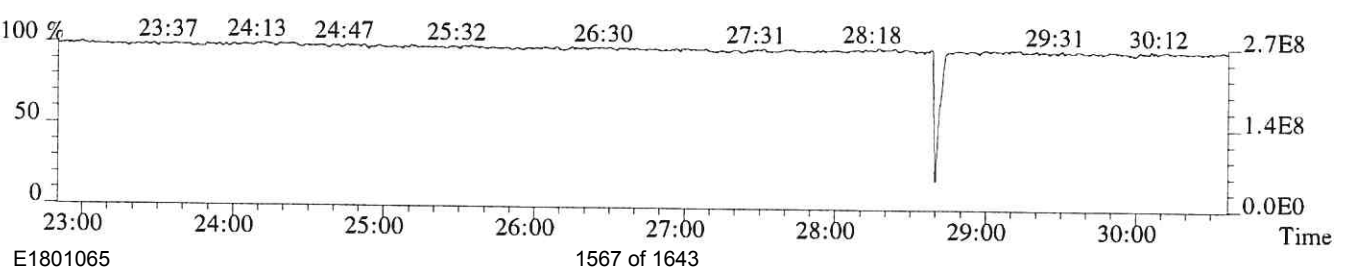
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7484.0,1.00%,F,T)



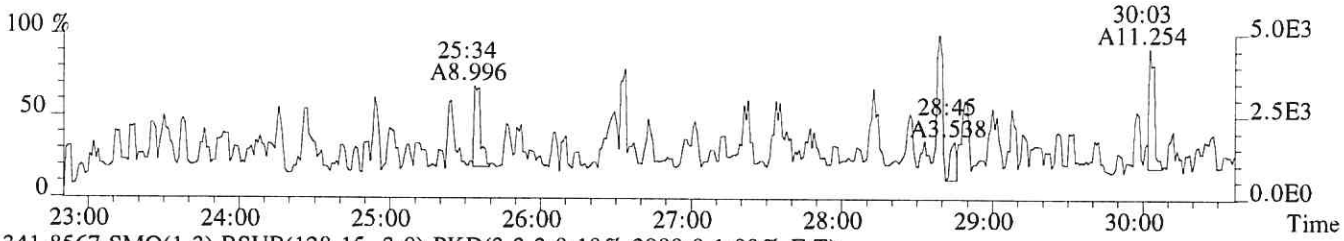
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



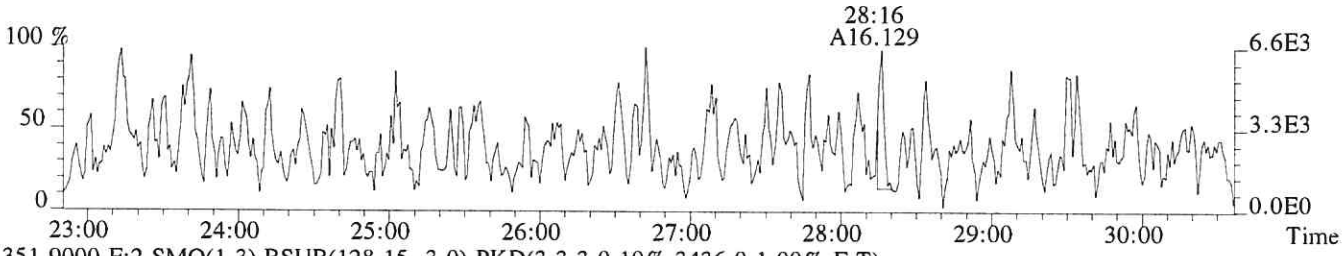
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



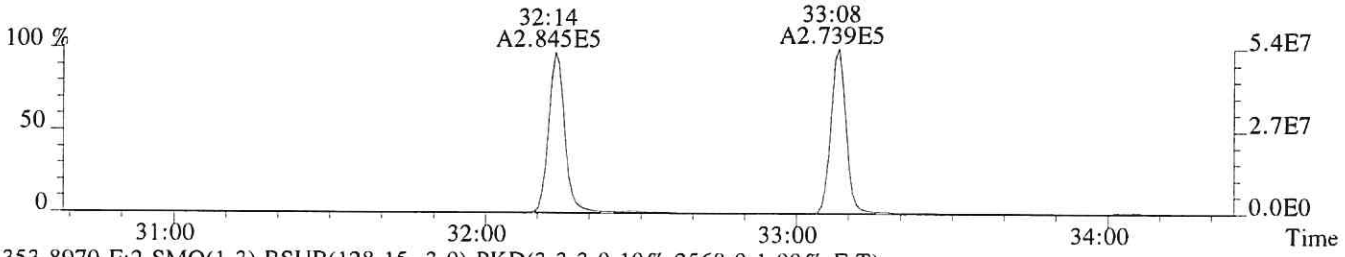
File:P614683 #1-552 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



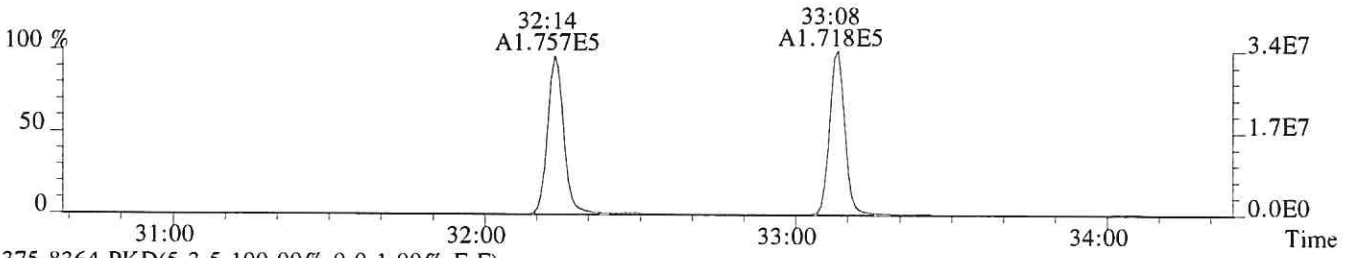
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



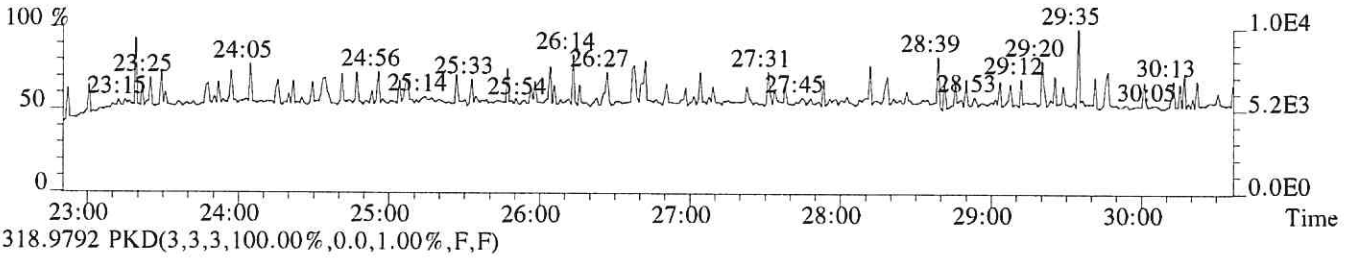
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



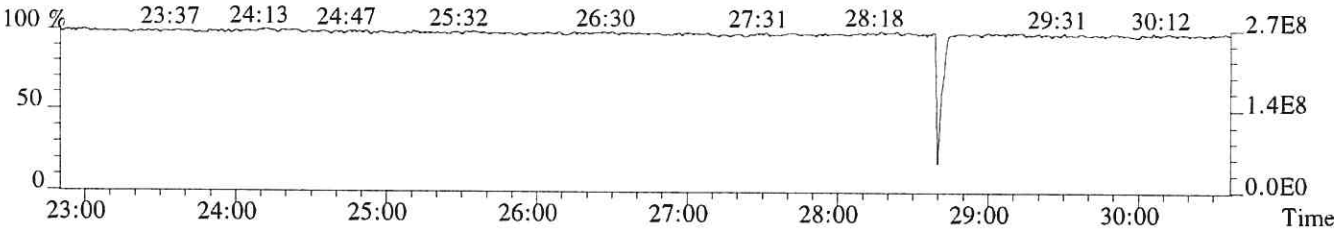
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



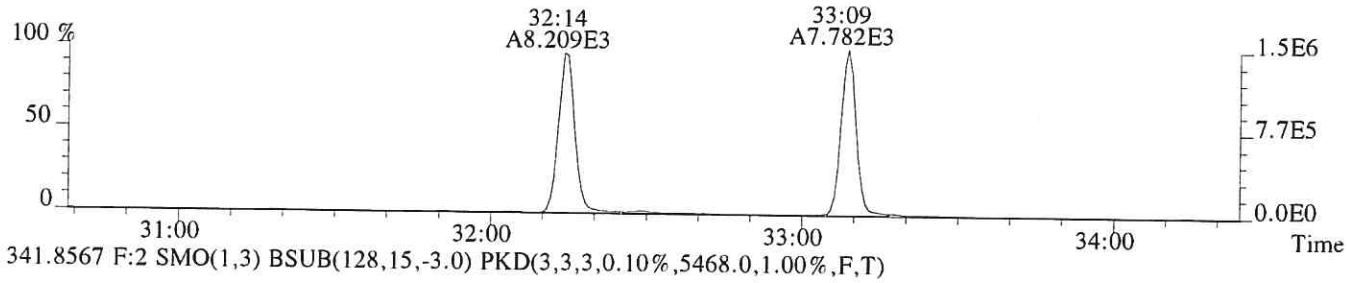
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



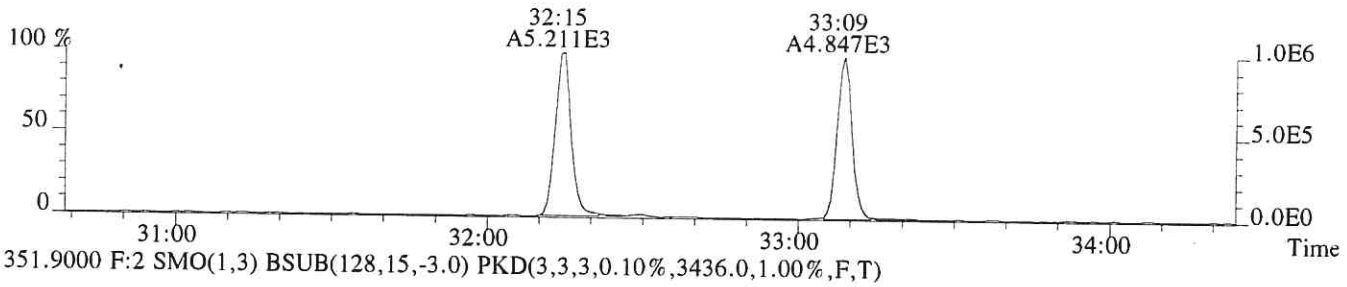
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



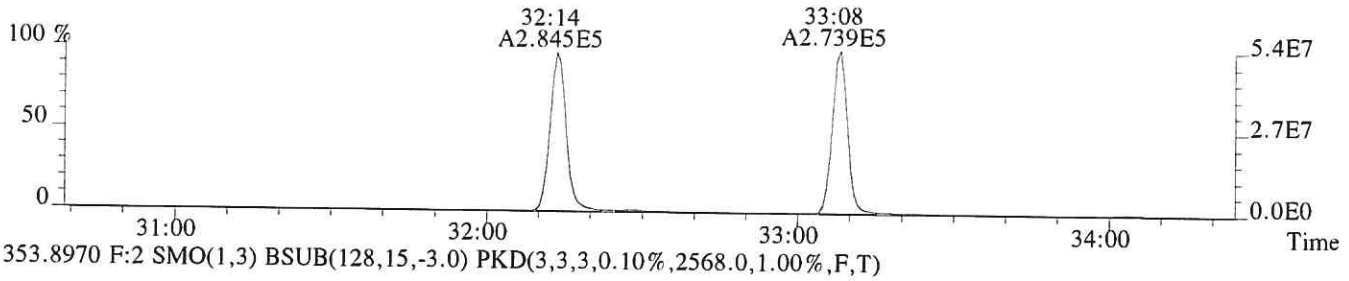
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



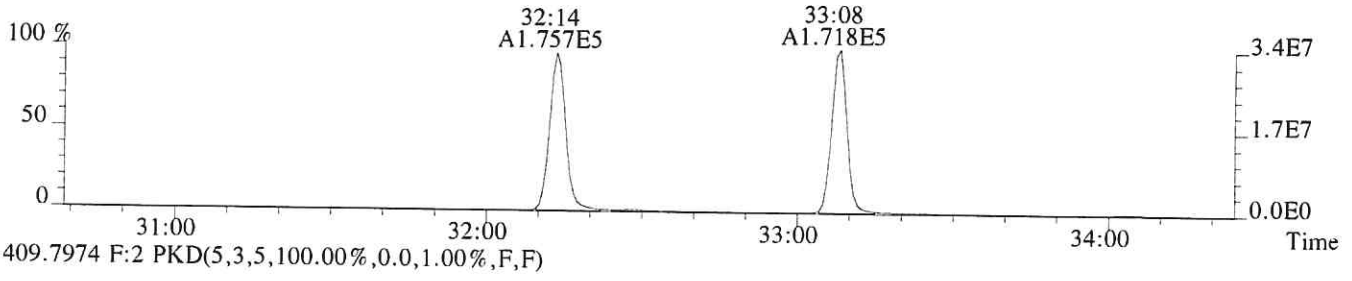
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5468.0,1.00%,F,T)



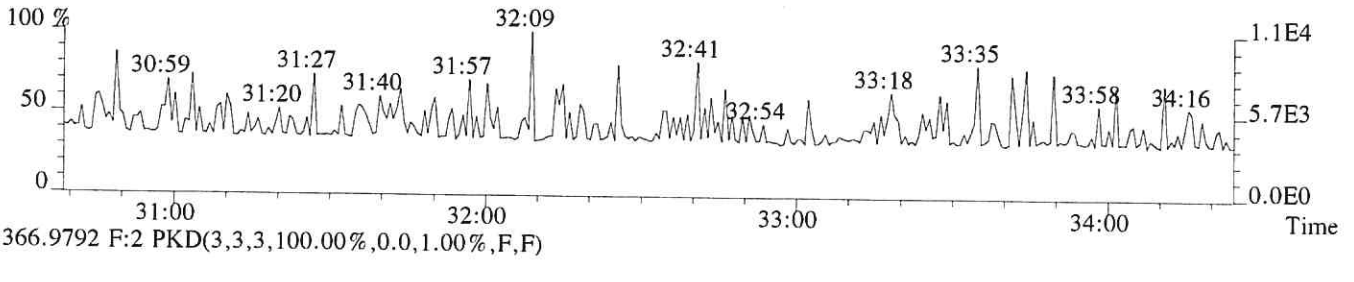
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



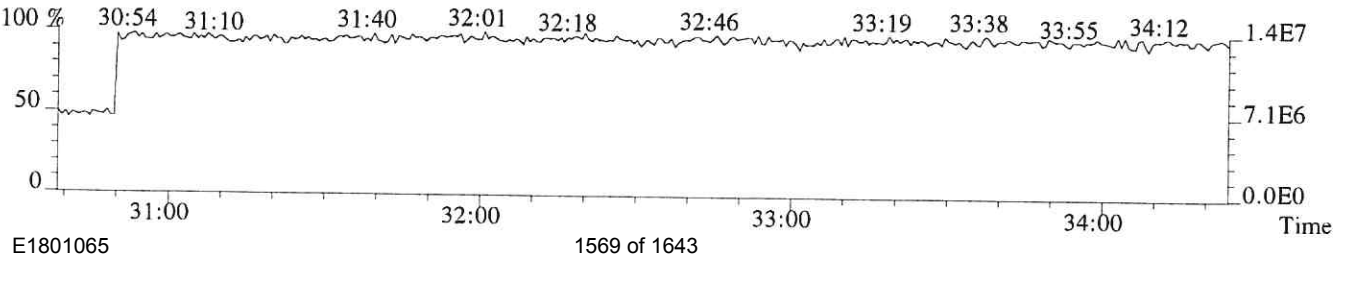
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



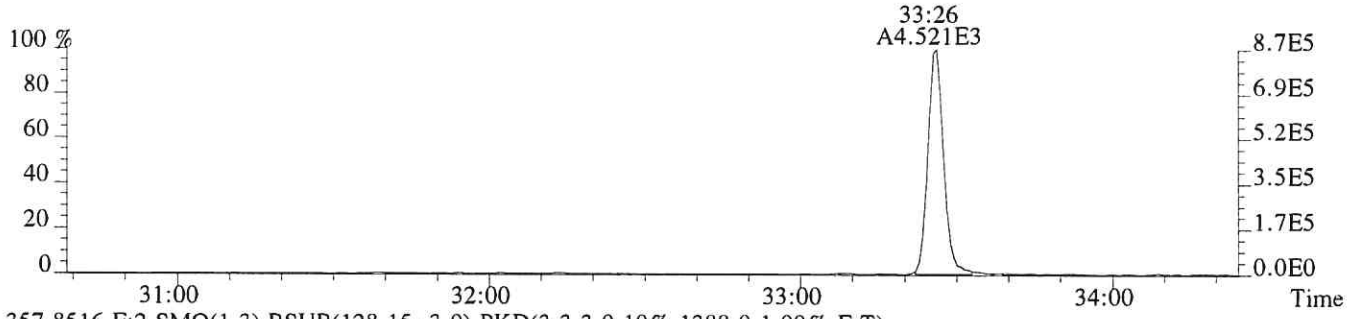
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



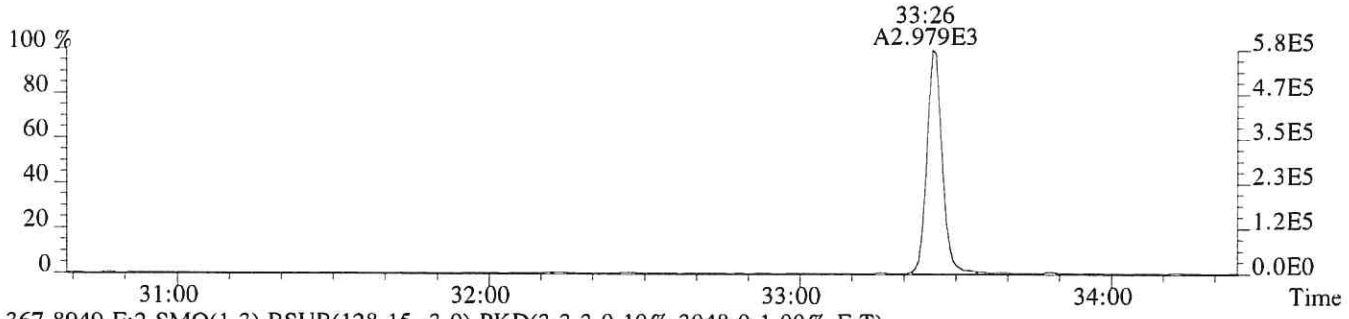
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



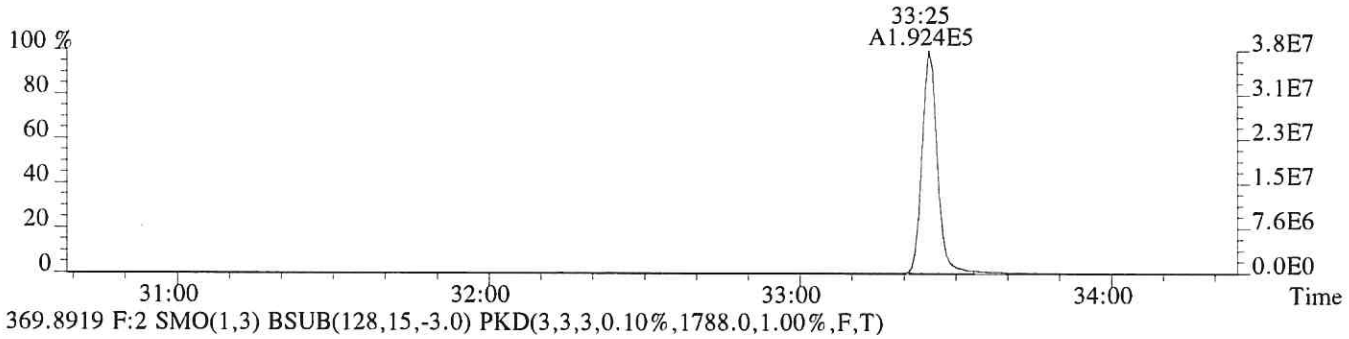
File:P614683 #1-339 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



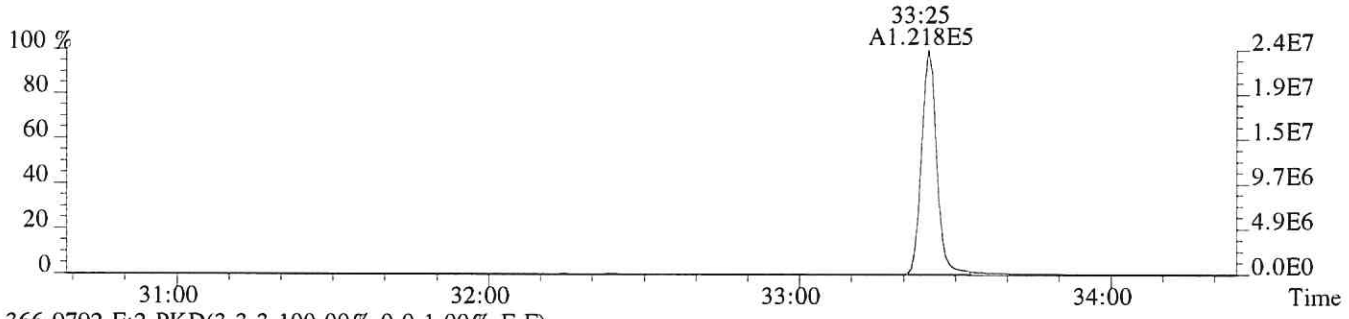
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



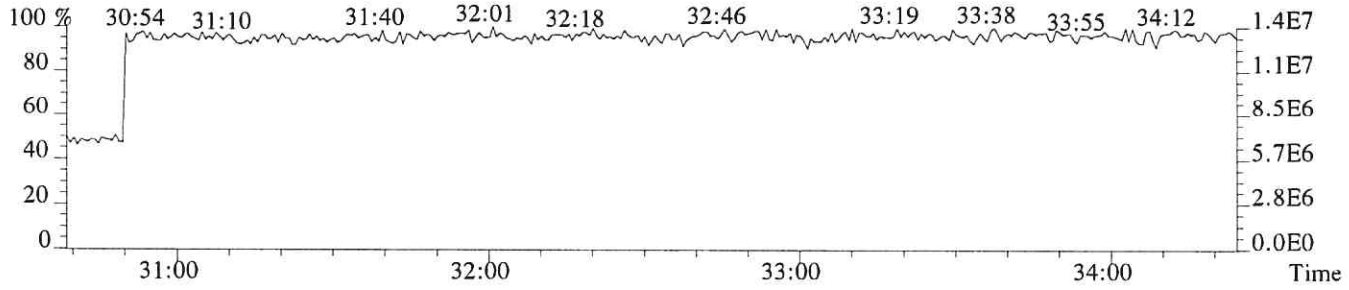
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3048.0,1.00%,F,T)



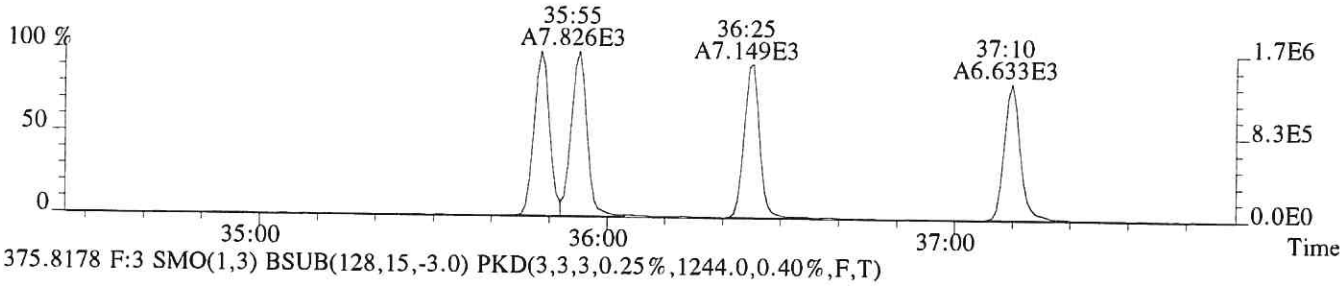
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



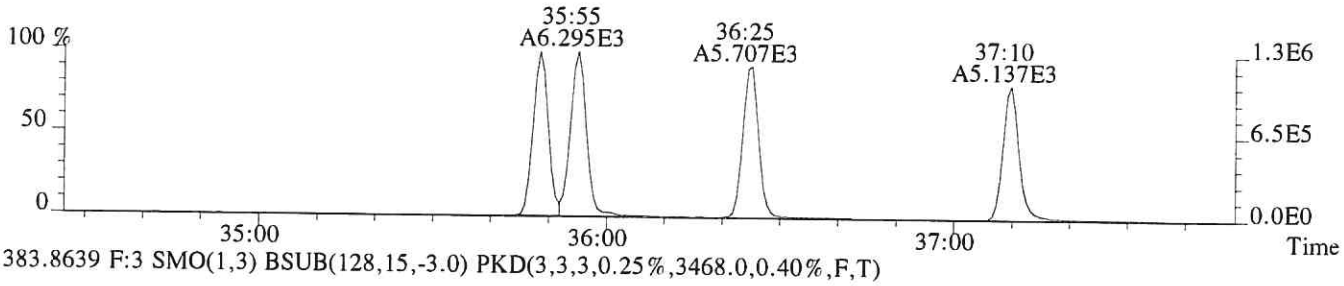
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



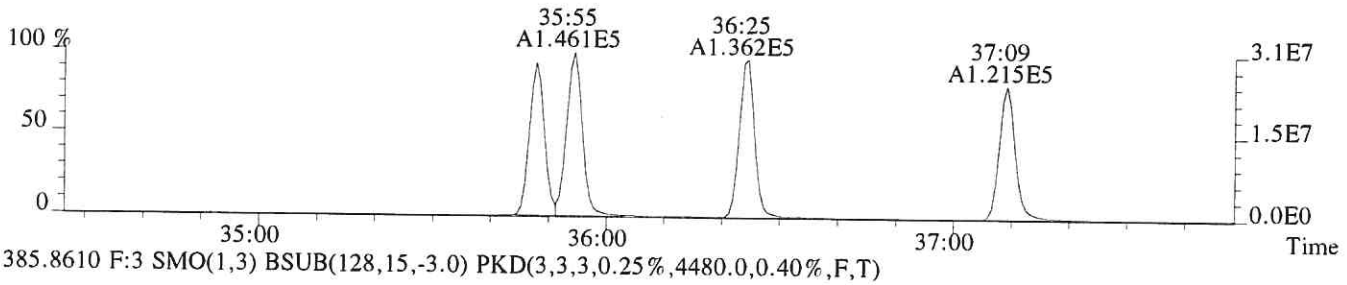
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



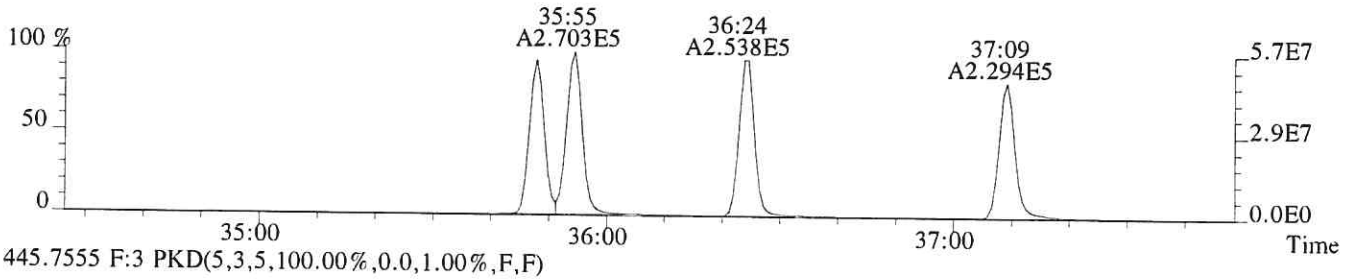
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



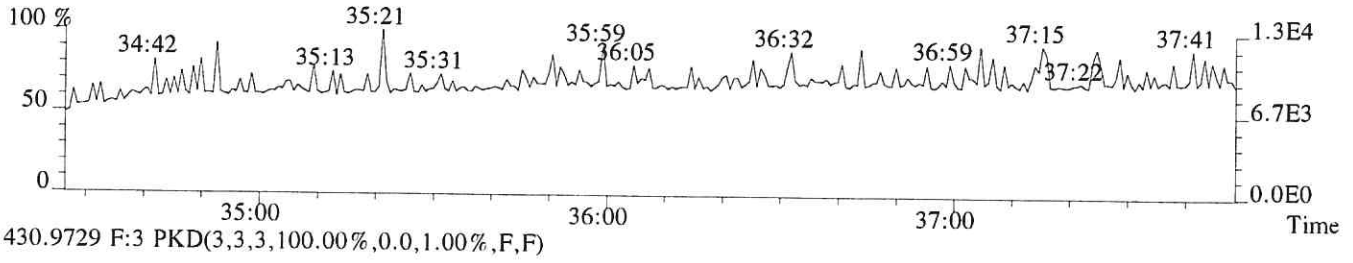
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3468.0,0.40%,F,T)



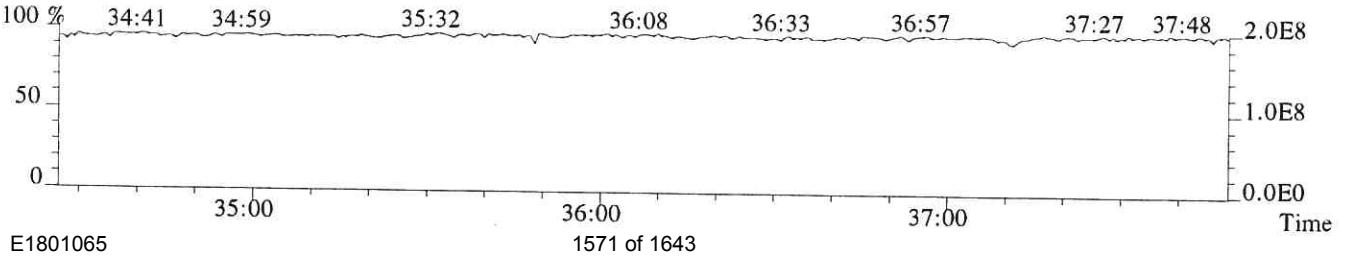
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4480.0,0.40%,F,T)



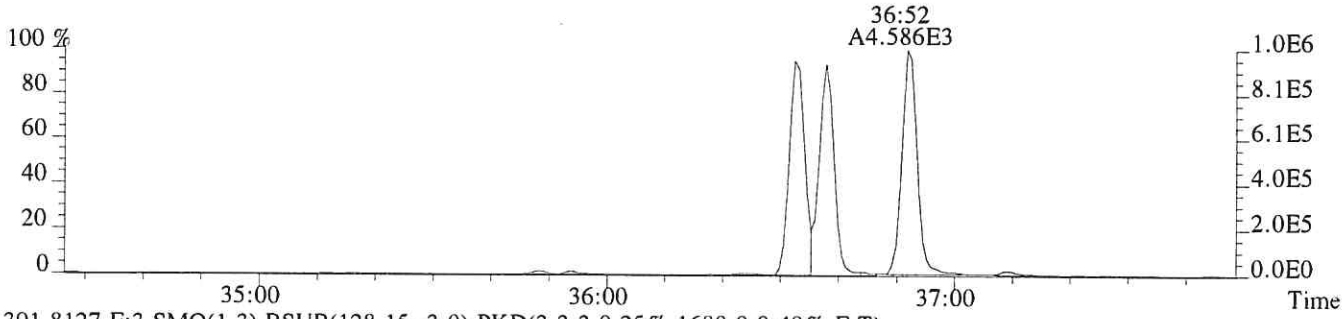
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



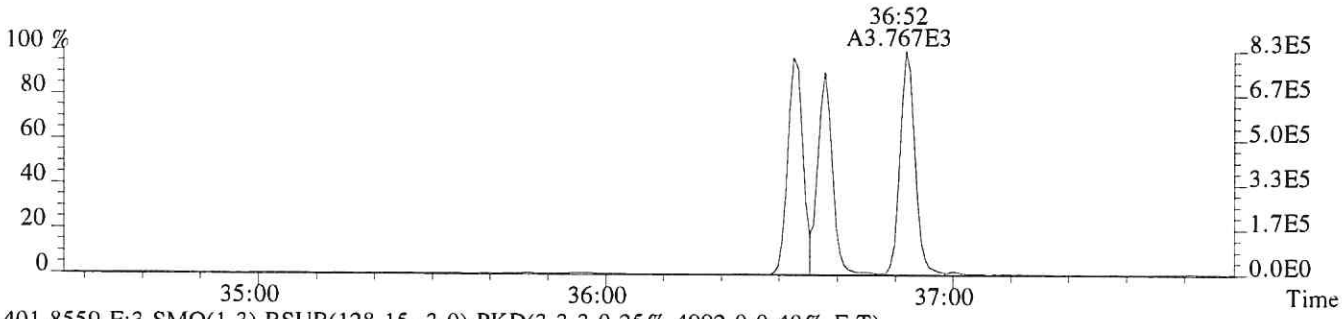
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



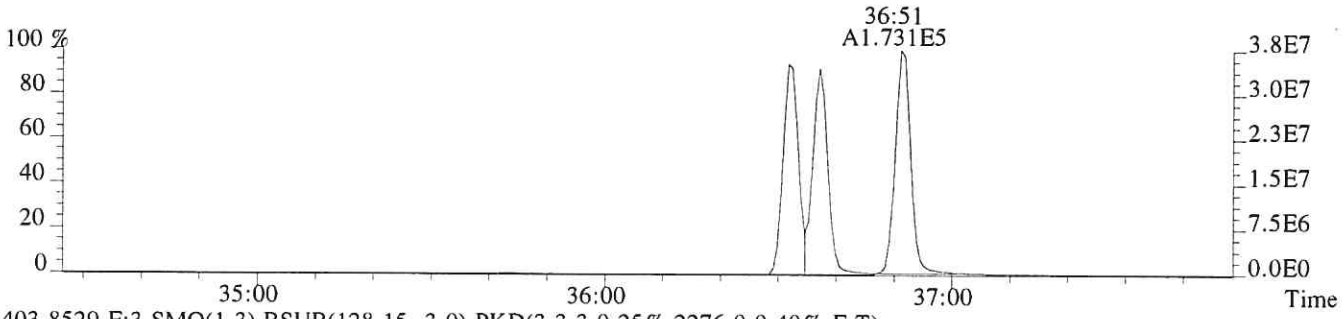
File:P614683 #1-304 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



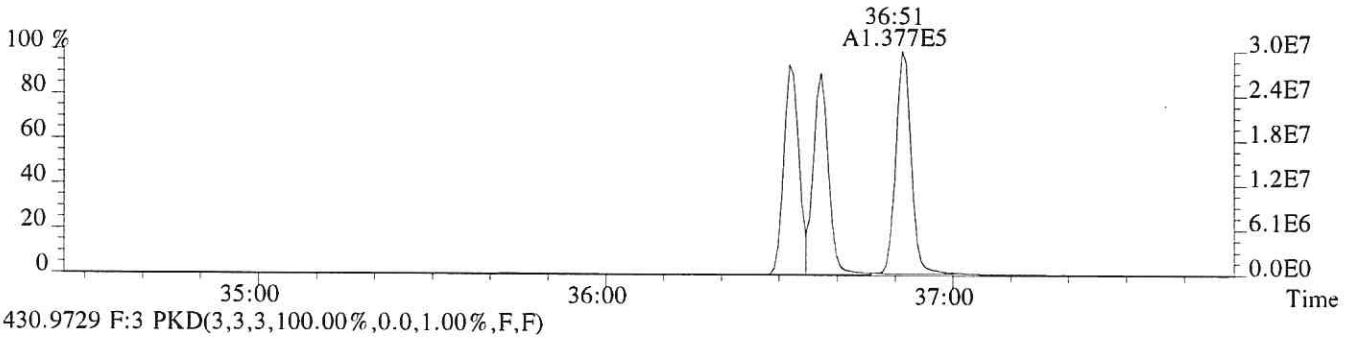
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



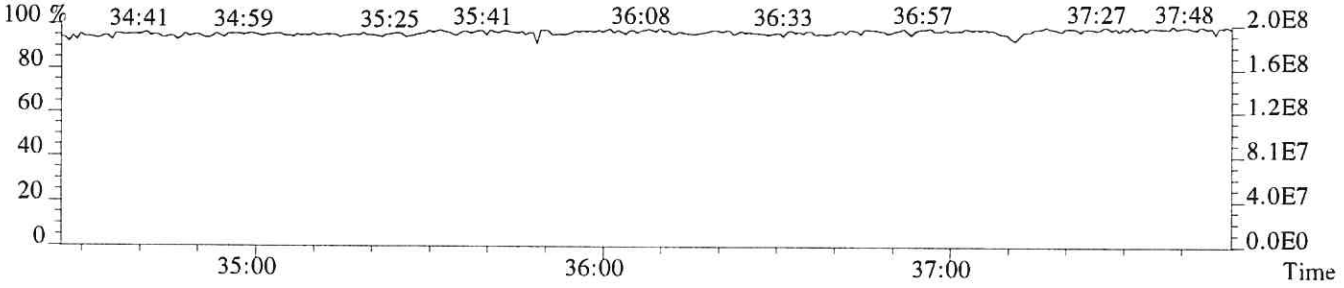
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4992.0,0.40%,F,T)



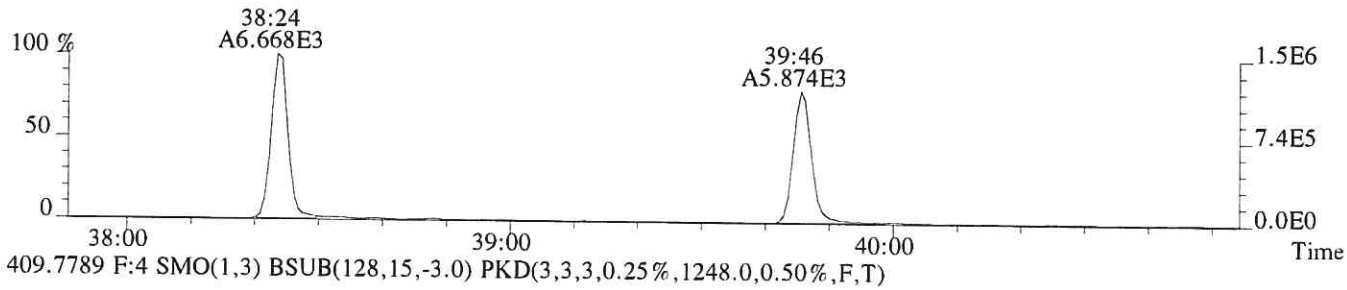
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2276.0,0.40%,F,T)



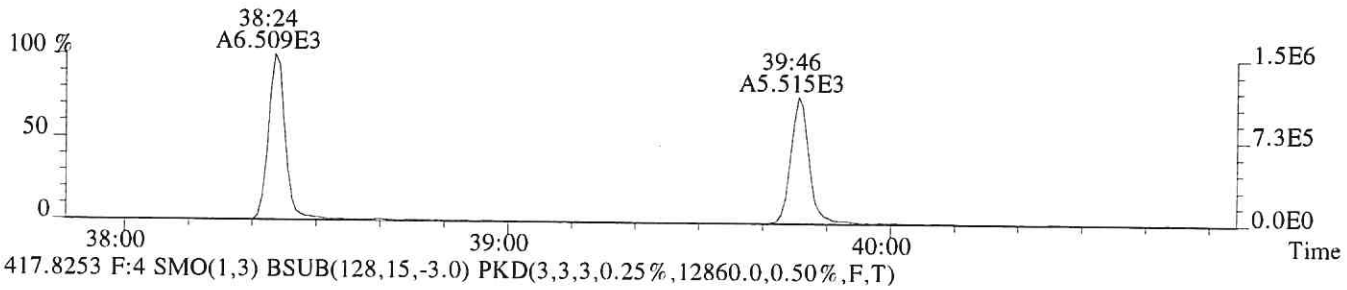
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



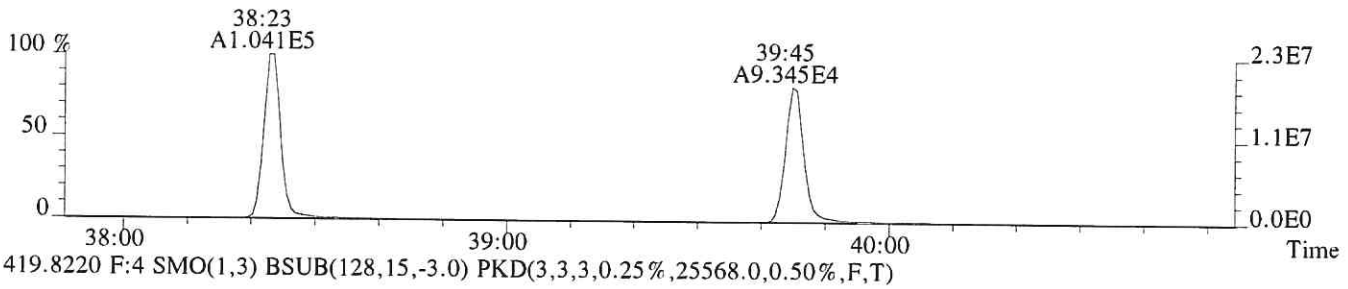
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



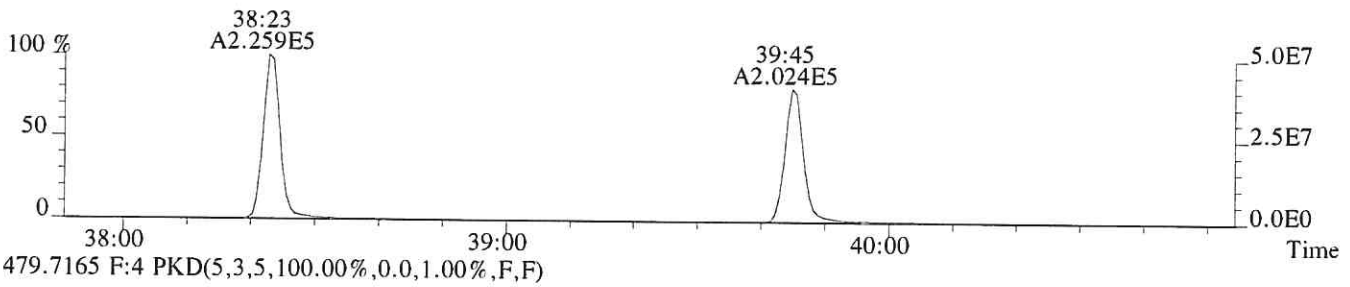
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



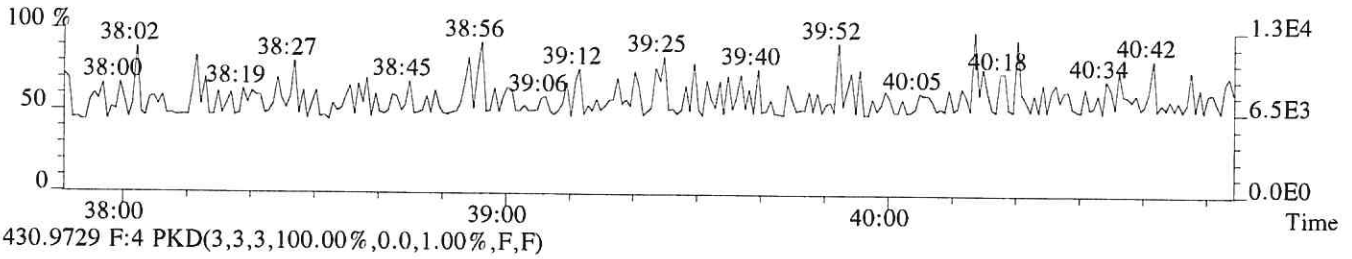
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12860.0,0.50%,F,T)



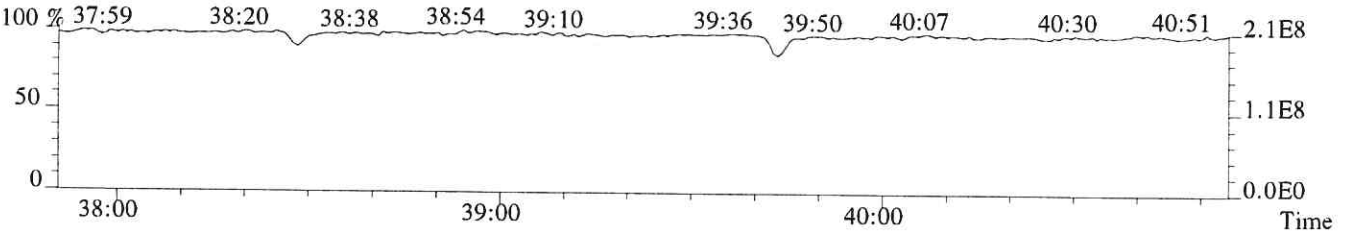
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25568.0,0.50%,F,T)



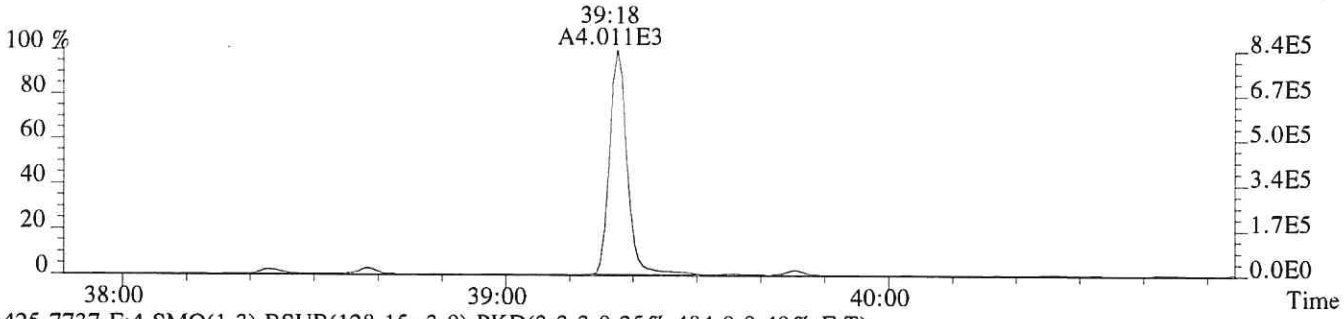
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



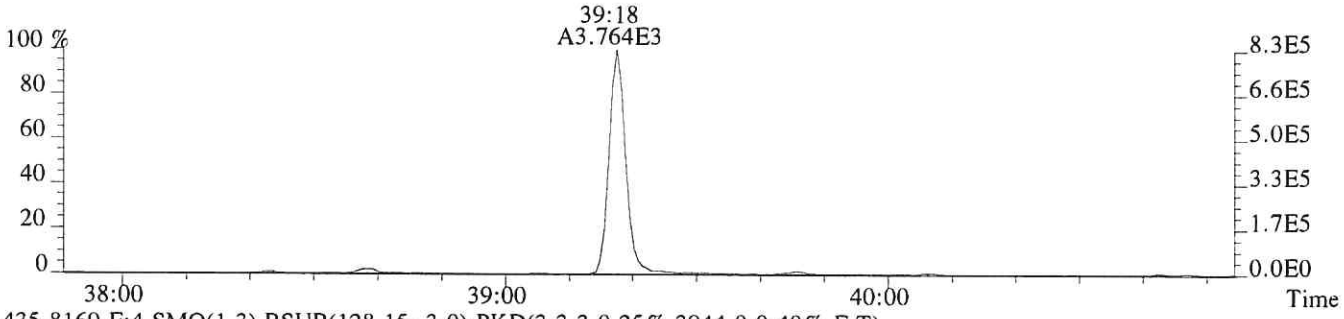
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



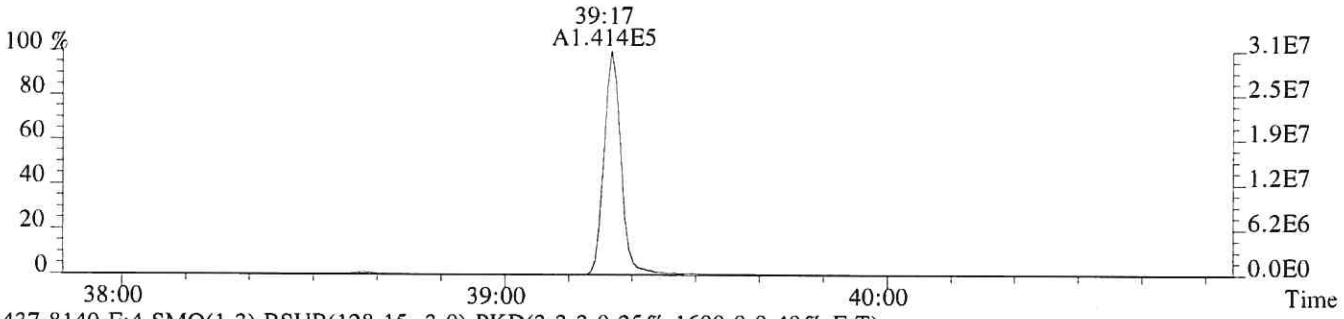
File:P614683 #1-276 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



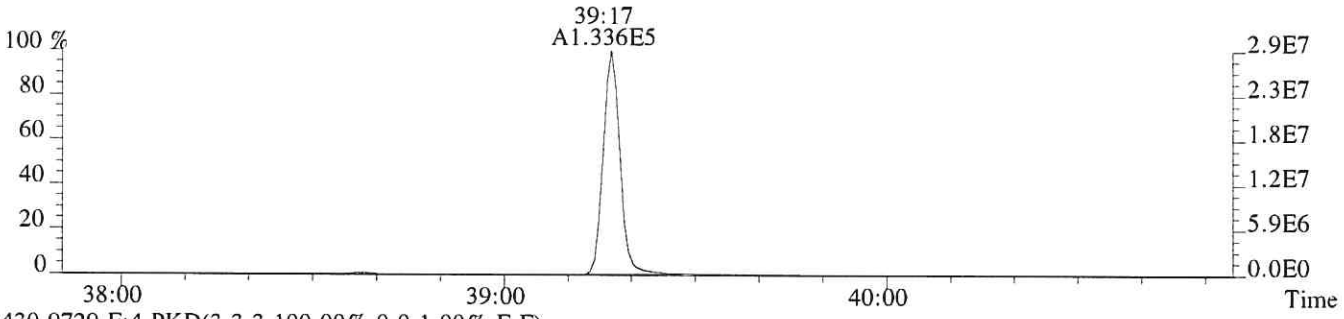
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



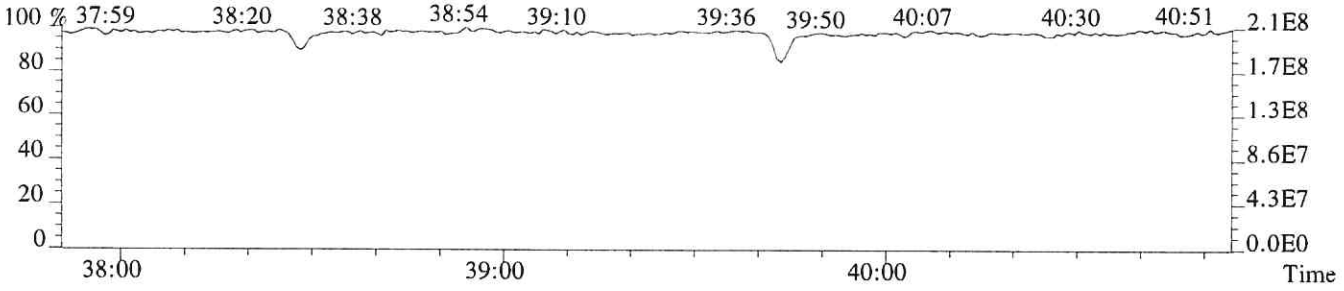
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3944.0,0.40%,F,T)



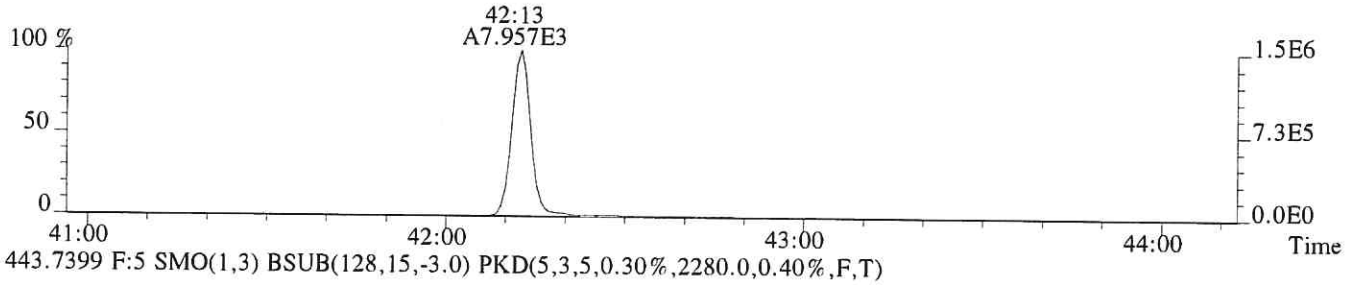
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



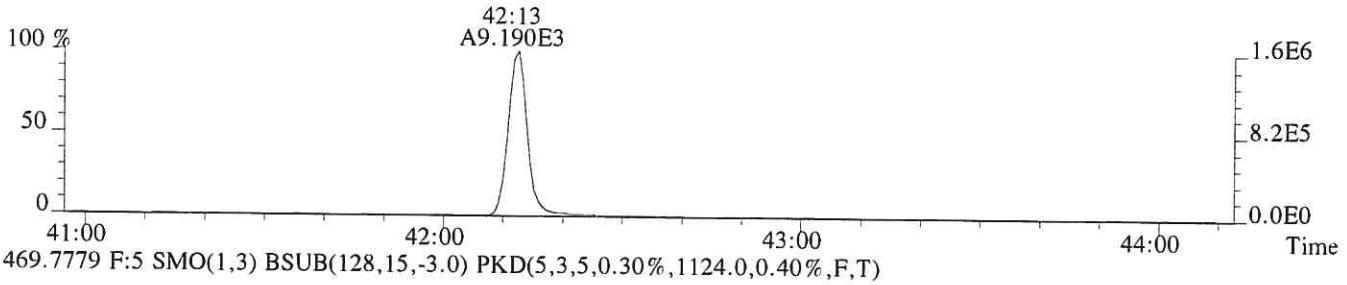
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



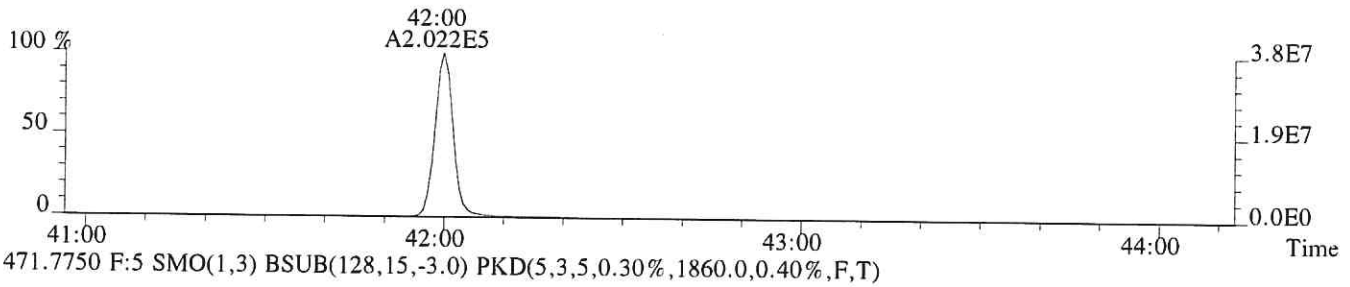
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



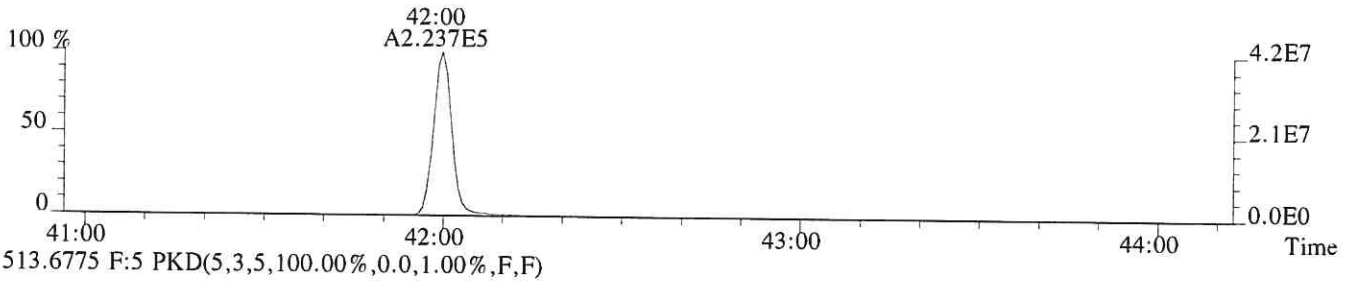
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2280.0,0.40%,F,T)



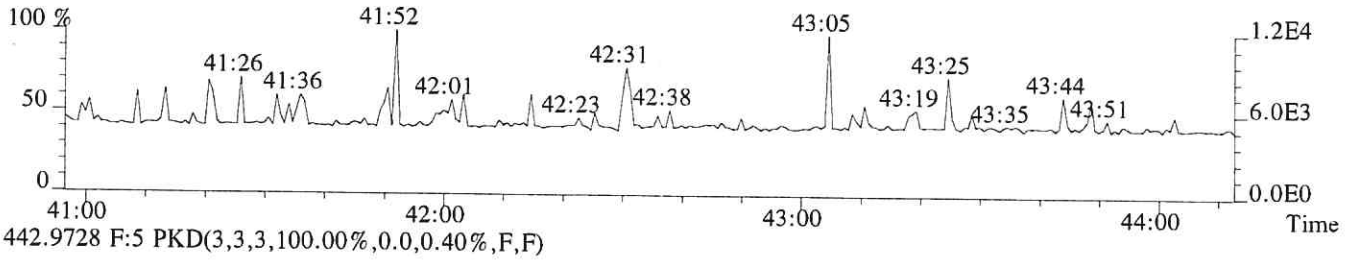
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



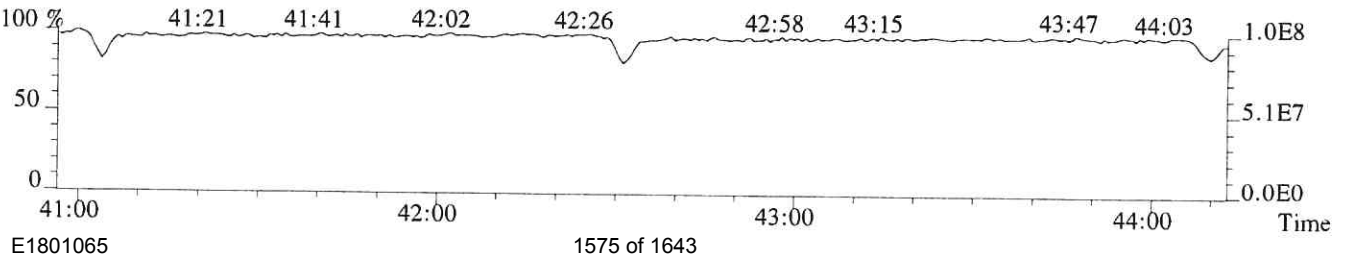
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



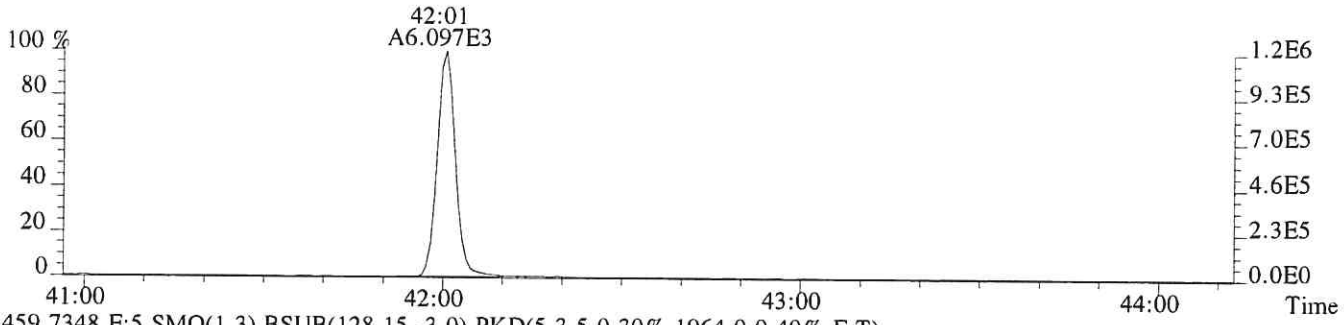
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



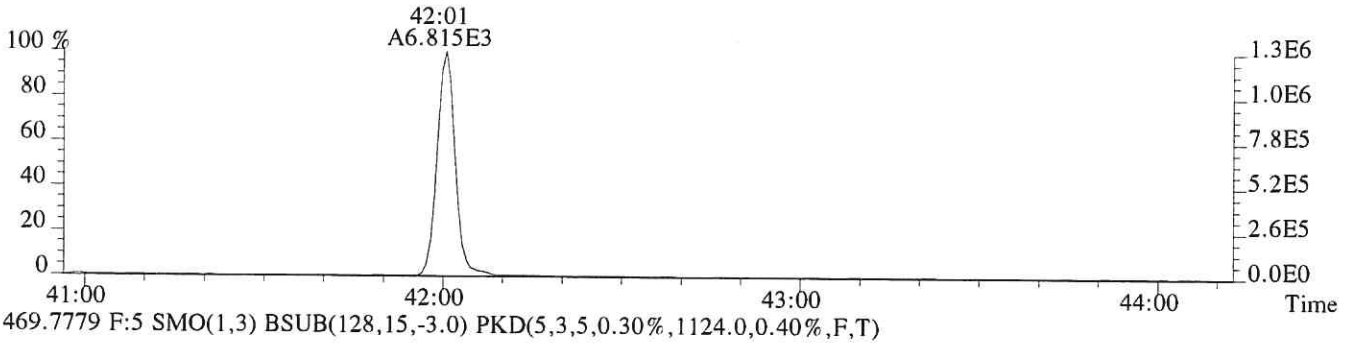
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



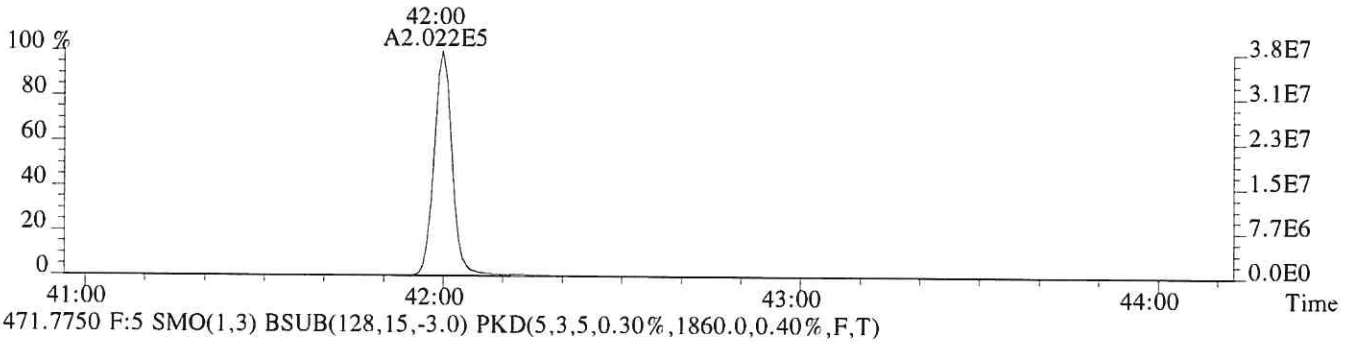
File:P614683 #1-295 Acq:25-SEP-2018 15:08:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3136.0,0.40%,F,T)



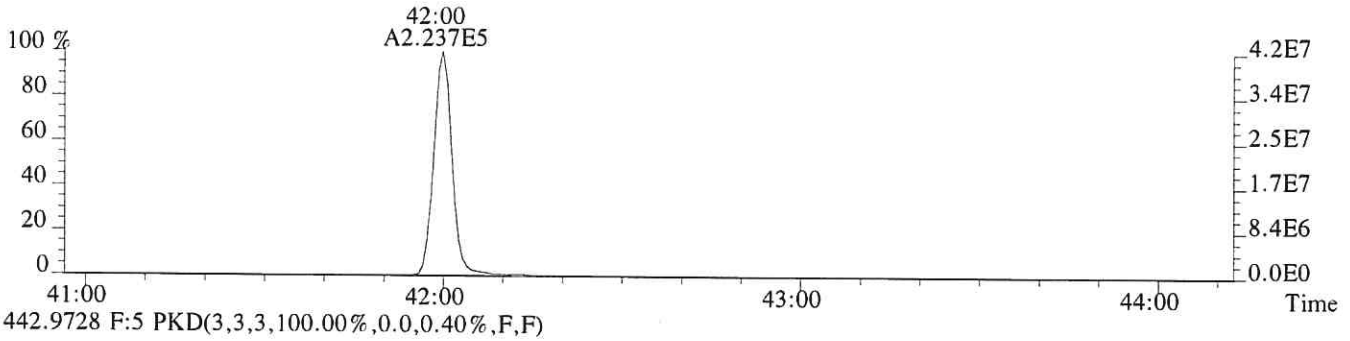
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



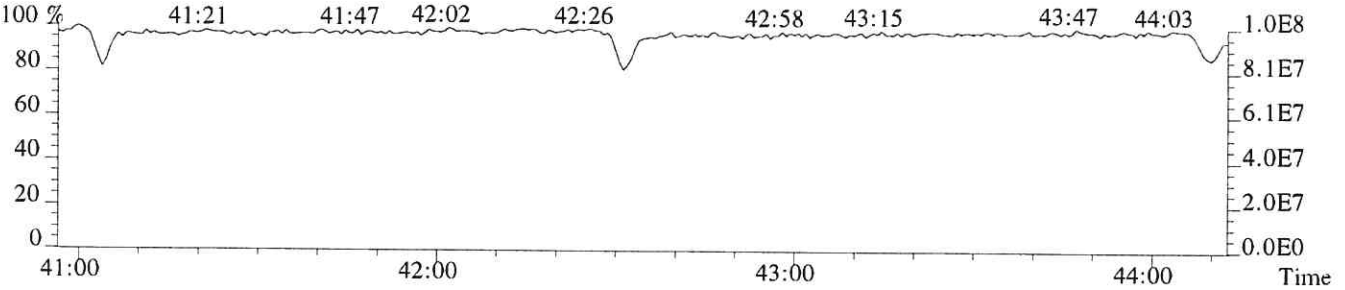
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1860.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	3.102e+03	3.732e+03	0.83	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	2.387e+04	1.519e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:08	2.329e+04	1.484e+04	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.143e+04	1.713e+04	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.340e+04	1.874e+04	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.188e+04	1.713e+04	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.950e+04	1.588e+04	1.23	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.863e+04	1.764e+04	1.06	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.650e+04	1.567e+04	1.05	yes	no	1.463
10	Unk	OCDF	42:12	2.250e+04	2.478e+04	0.91	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.874e+03	2.328e+03	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.440e+04	9.416e+03	1.53	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.279e+04	1.013e+04	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.275e+04	1.020e+04	1.25	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	1.359e+04	1.091e+04	1.25	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.169e+04	1.088e+04	1.07	yes	no	1.112
17	Unk	OCDD	42:01	1.626e+04	1.848e+04	0.88	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.350e+05	1.713e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.144e+05	1.340e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.142e+05	1.318e+05	1.62	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:47	9.603e+04	1.811e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.132e+05	2.120e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.055e+05	1.978e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	9.513e+04	1.787e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	7.767e+04	1.706e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	6.849e+04	1.521e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	9.327e+04	1.167e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.531e+05	9.729e+04	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.232e+05	9.748e+04	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.208e+05	9.608e+04	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.060e+05	1.018e+05	1.04	yes	no	0.857
32	IS	13C-OCDD	42:00	1.501e+05	1.663e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:12	9.647e+04	1.194e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.360e+05	1.078e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	4.600e+03				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
193434

Run #3 Filename P614684 Samp: 1 Inj: 1 Acquired: 25-SEP-18 15:59:37
Processed: 26-SEP-18 07:39:08 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.46e+05	1.35e+03	4.0e+02	6.81e+05	4.17e+03	1.6e+02
2	1,2,3,7,8-PeCDF	4.40e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
3	2,3,4,7,8-PeCDF	4.45e+06	1.19e+03	3.7e+03	2.83e+06	5.62e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	4.64e+06	2.66e+03	1.7e+03	3.65e+06	1.33e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.85e+06	2.66e+03	1.8e+03	3.88e+06	1.33e+03	2.9e+03
6	2,3,4,6,7,8-HxCDF	4.77e+06	2.66e+03	1.8e+03	3.75e+06	1.33e+03	2.8e+03
7	1,2,3,7,8,9-HxCDF	3.92e+06	2.66e+03	1.5e+03	3.16e+06	1.33e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.16e+06	4.06e+03	1.0e+03	3.98e+06	5.19e+03	7.7e+02
9	1,2,3,4,7,8,9-HpCDF	3.43e+06	4.06e+03	8.5e+02	3.23e+06	5.19e+03	6.2e+02
10	OCDF	4.02e+06	1.02e+03	3.9e+03	4.45e+06	3.18e+03	1.4e+03
11	2,3,7,8-TCDD	3.59e+05	5.08e+03	7.1e+01	4.49e+05	2.84e+03	1.6e+02
12	1,2,3,7,8-PeCDD	2.79e+06	2.23e+03	1.3e+03	1.83e+06	1.03e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.90e+06	1.16e+03	2.5e+03	2.30e+06	2.22e+03	1.0e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	1.16e+03	2.4e+03	2.20e+06	2.22e+03	9.9e+02
15	1,2,3,7,8,9-HxCDD	2.97e+06	1.16e+03	2.6e+03	2.38e+06	2.22e+03	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.45e+06	1.22e+03	2.0e+03	2.30e+06	1.43e+03	1.6e+03
17	OCDD	3.03e+06	8.24e+02	3.7e+03	3.48e+06	2.34e+03	1.5e+03
18	13C-2,3,7,8-TCDF	2.30e+07	1.44e+04	1.6e+03	2.91e+07	8.40e+03	3.5e+03
19	13C-1,2,3,7,8-PeCDF	3.88e+07	2.39e+03	1.6e+04	2.43e+07	1.71e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	4.22e+07	2.39e+03	1.8e+04	2.60e+07	1.71e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.07e+07	2.16e+03	9.6e+03	3.93e+07	5.29e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.36e+07	2.16e+03	1.1e+04	4.45e+07	5.29e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.32e+07	2.16e+03	1.1e+04	4.39e+07	5.29e+03	8.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.16e+03	8.9e+03	3.69e+07	5.29e+03	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.76e+07	7.69e+03	2.3e+03	3.85e+07	2.07e+04	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+07	7.69e+03	1.8e+03	3.12e+07	2.07e+04	1.5e+03
27	13C-2,3,7,8-TCDD	1.74e+07	1.66e+04	1.0e+03	2.17e+07	7.77e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.92e+07	3.94e+03	7.4e+03	1.87e+07	3.45e+03	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	2.82e+07	5.37e+03	5.3e+03	2.21e+07	2.98e+03	7.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+07	5.37e+03	4.9e+03	2.11e+07	2.98e+03	7.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.24e+07	3.06e+03	7.3e+03	2.12e+07	2.68e+03	7.9e+03
32	13C-OCDD	2.74e+07	2.09e+03	1.3e+04	3.02e+07	1.61e+03	1.9e+04
33	13C-1,2,3,4-TCDD	1.78e+07	1.66e+04	1.1e+03	2.20e+07	7.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.99e+07	5.37e+03	5.6e+03	2.35e+07	2.98e+03	7.9e+03
35	37Cl-2,3,7,8-TCDD	8.73e+05	3.54e+03	2.5e+02			

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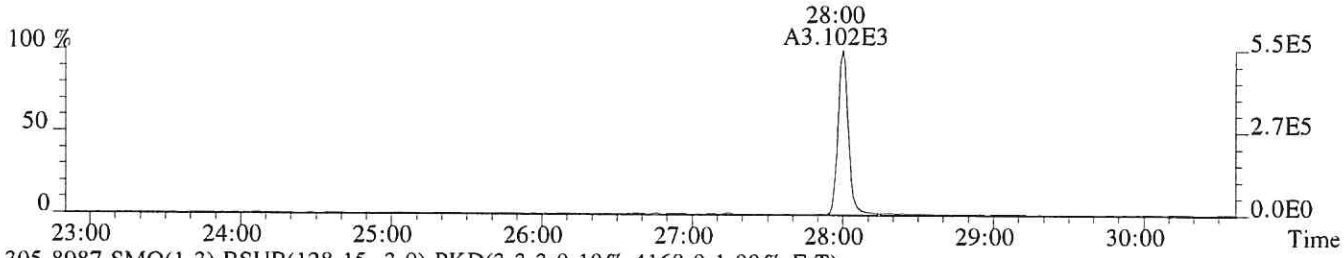
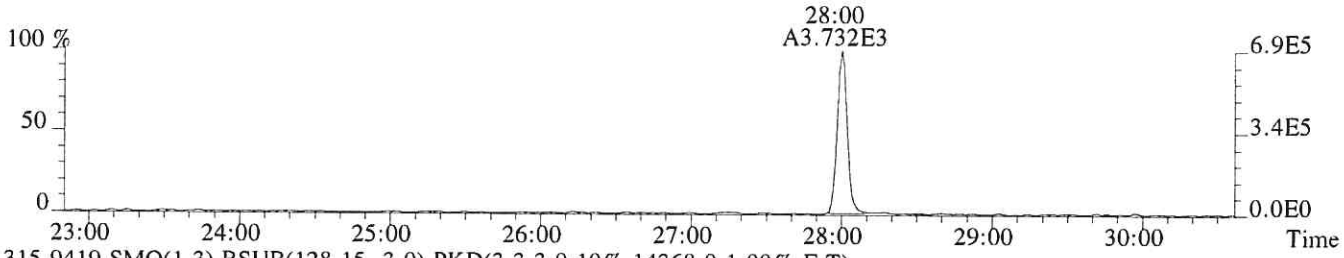
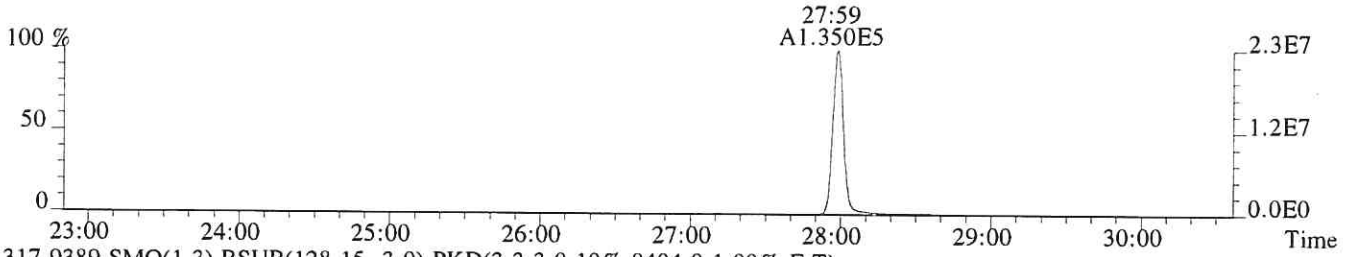
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



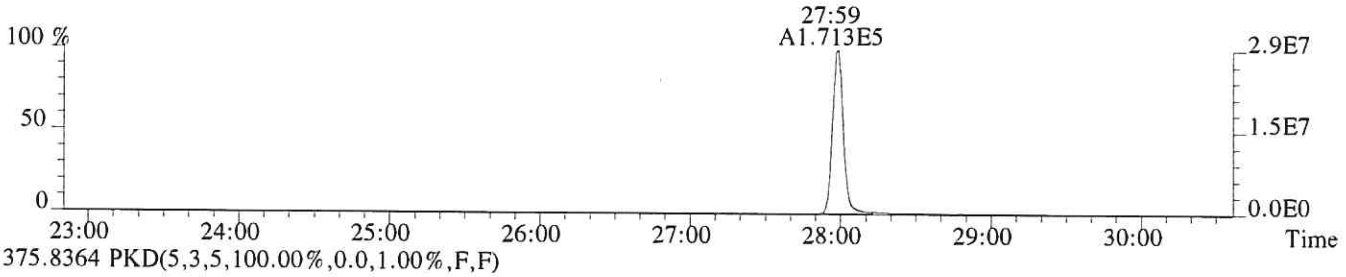
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



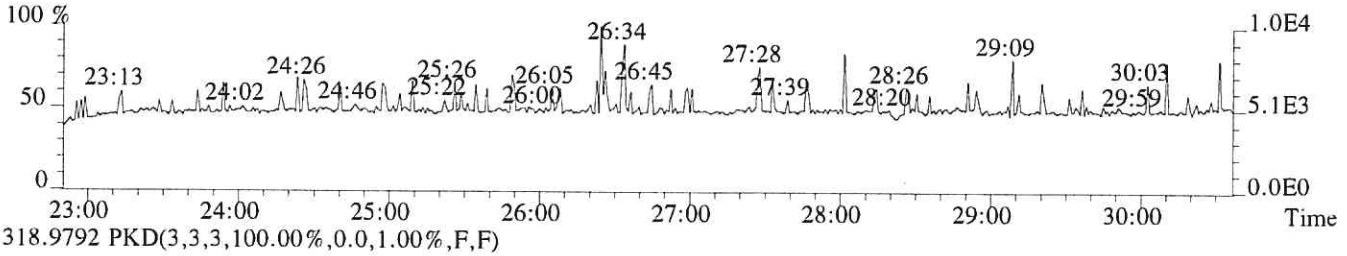
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14368.0,1.00%,F,T)



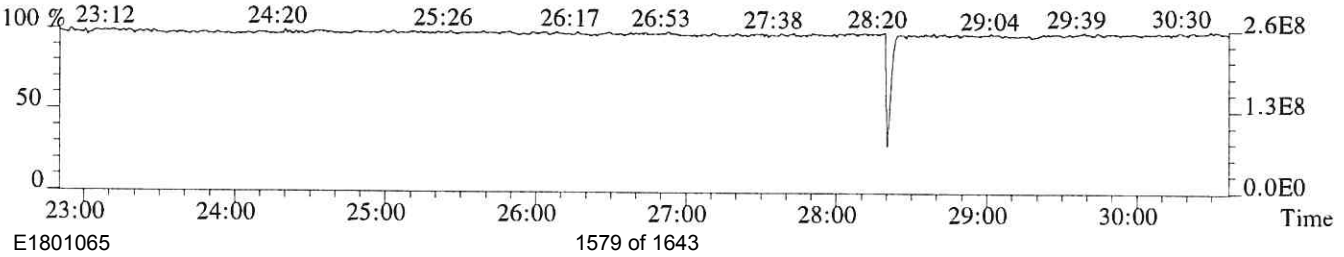
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8404.0,1.00%,F,T)



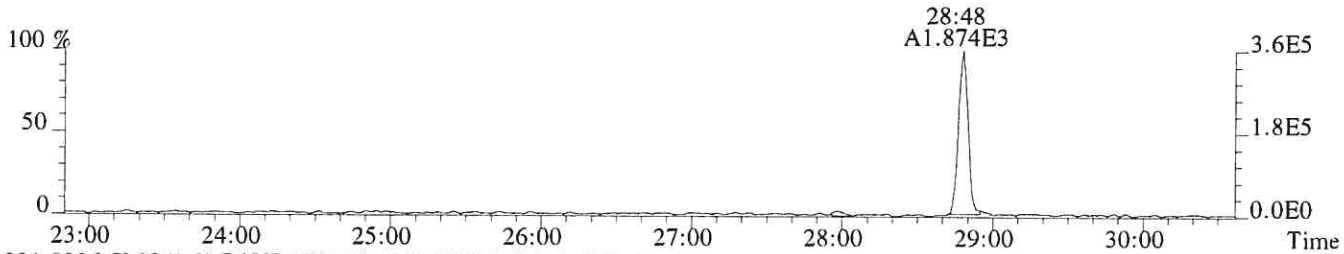
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



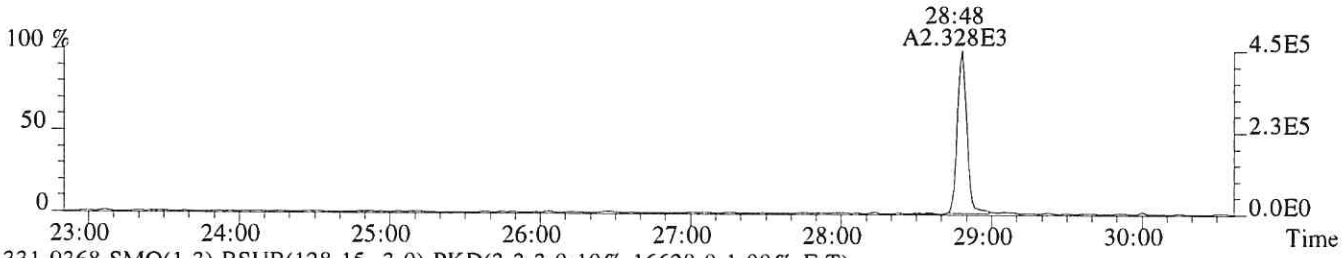
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



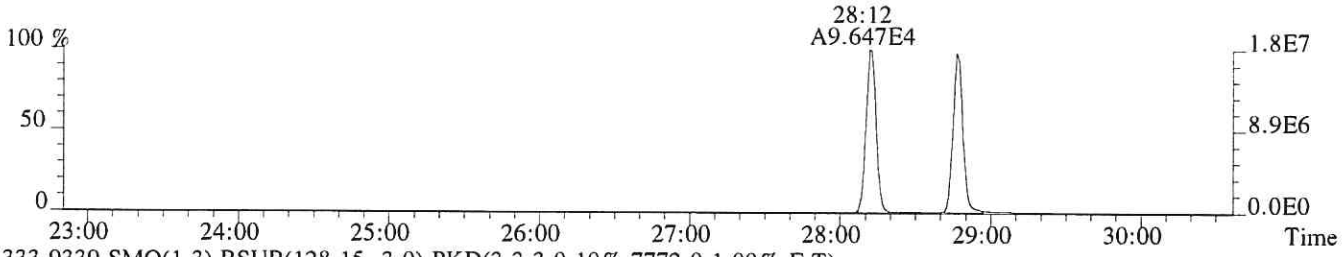
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5080.0,1.00%,F,T)



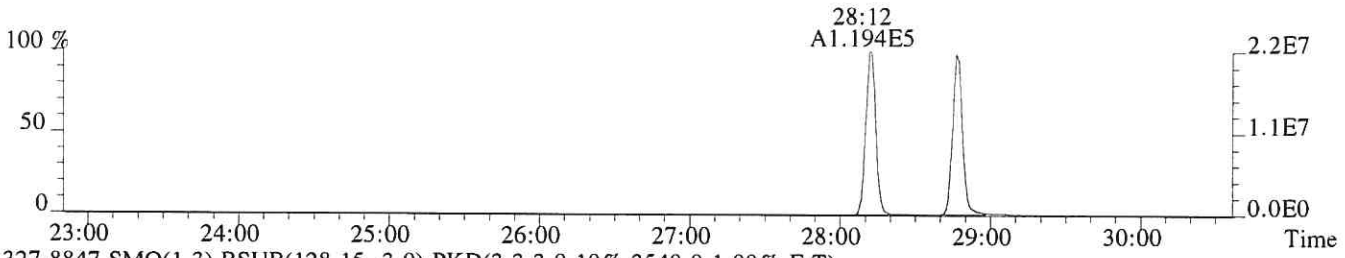
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2836.0,1.00%,F,T)



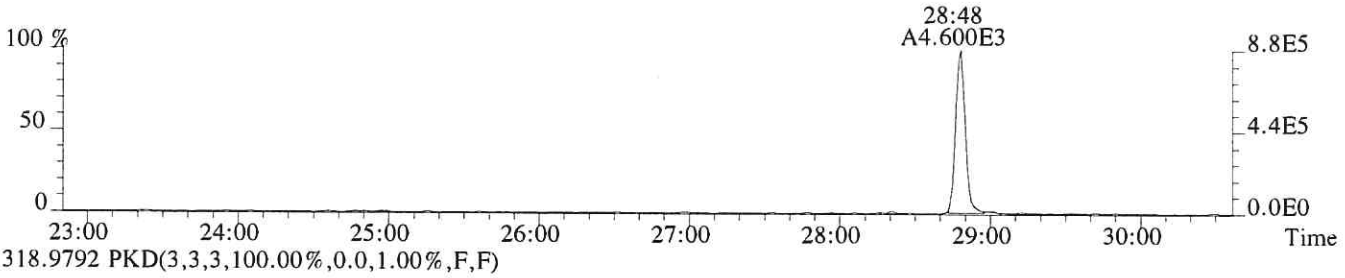
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16628.0,1.00%,F,T)



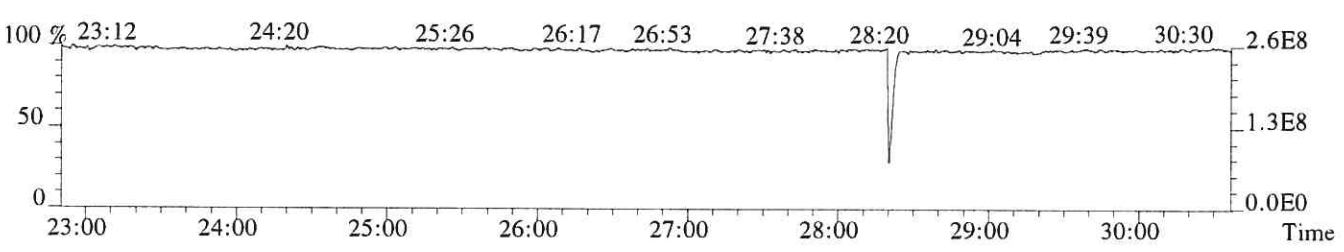
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7772.0,1.00%,F,T)



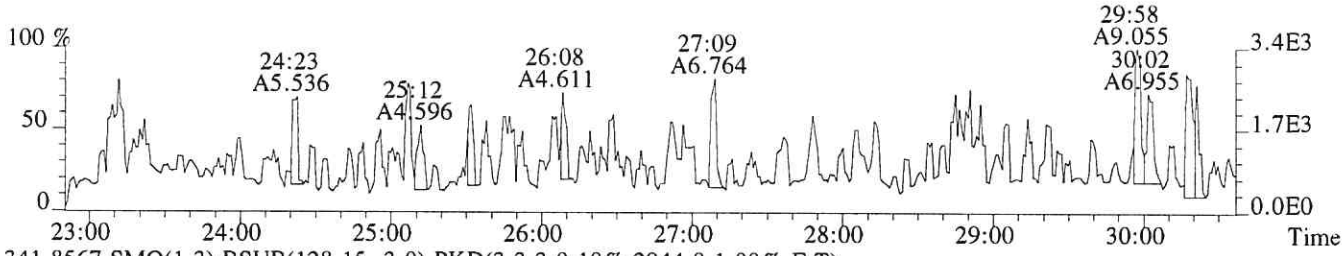
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



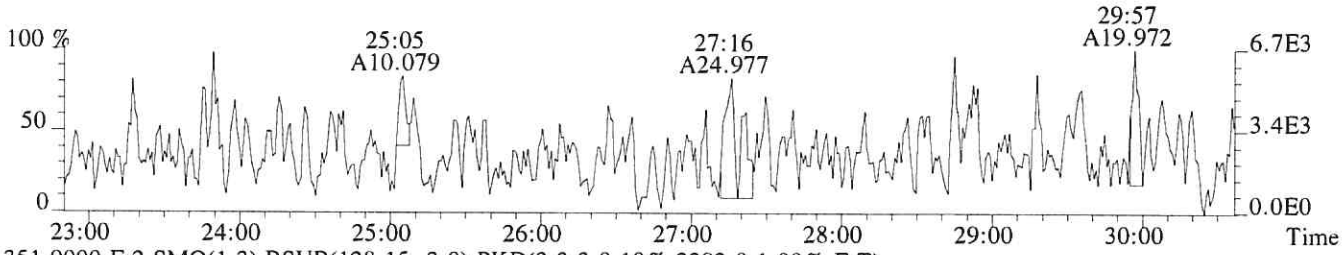
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



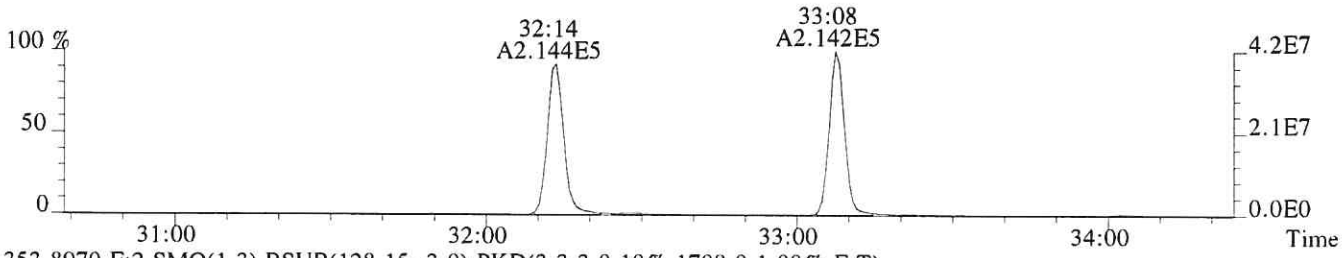
File:P614684 #1-552 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



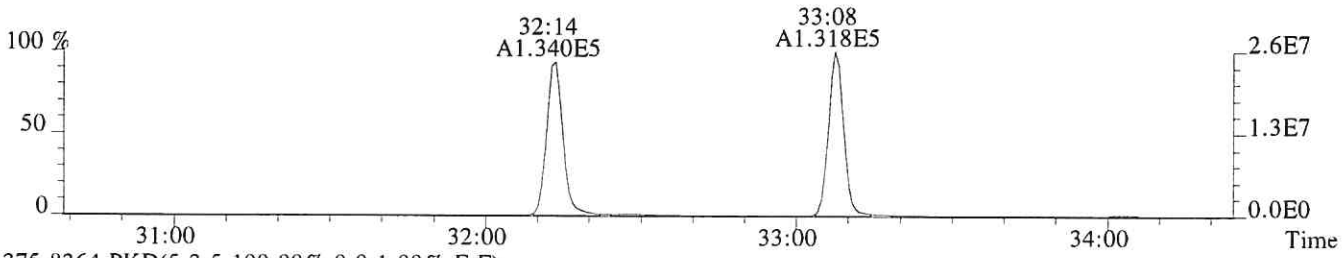
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



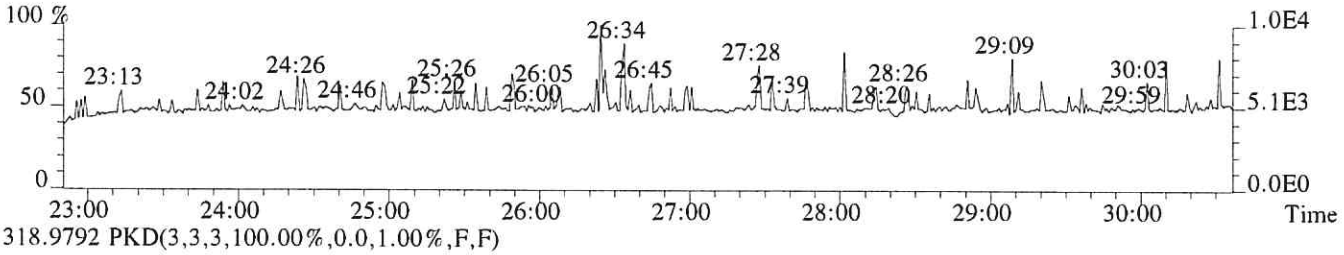
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



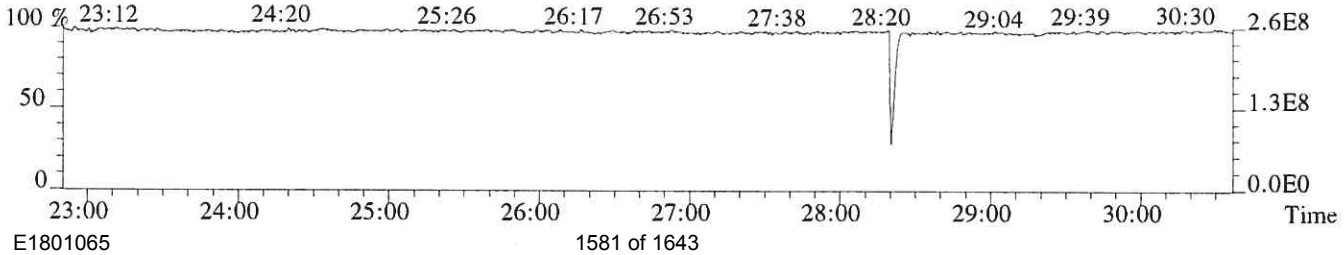
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



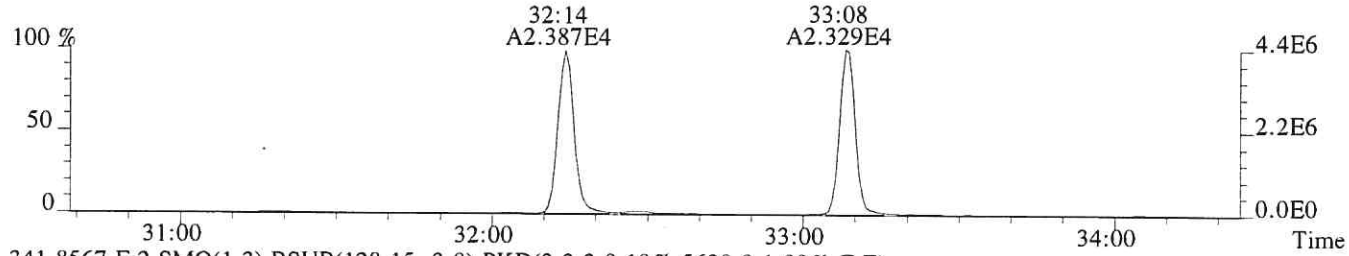
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



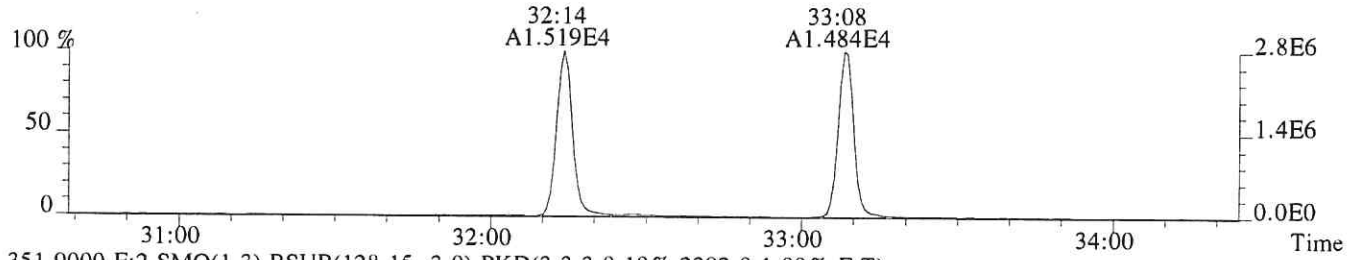
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



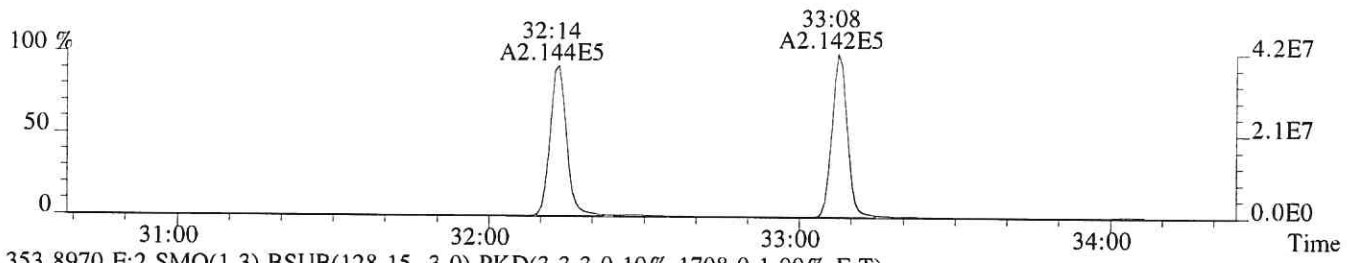
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



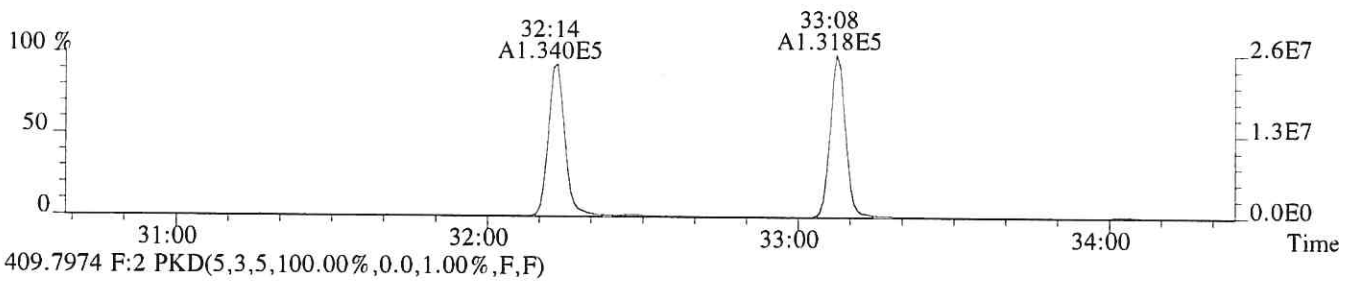
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5620.0,1.00%,F,T)



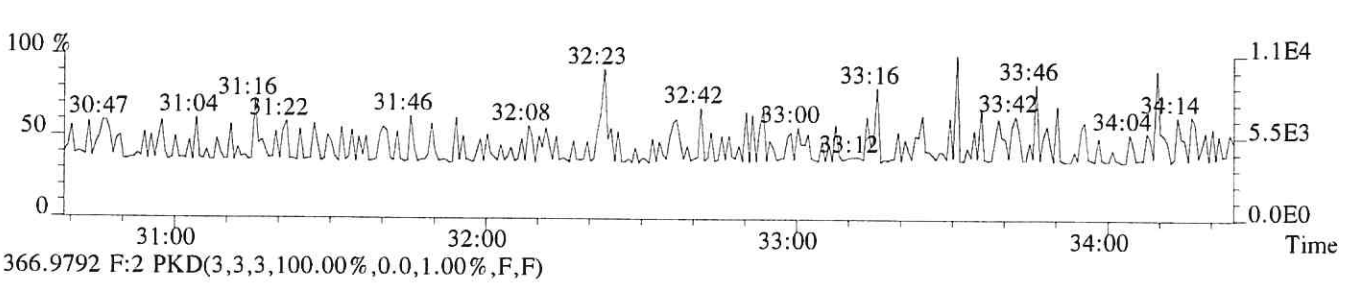
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



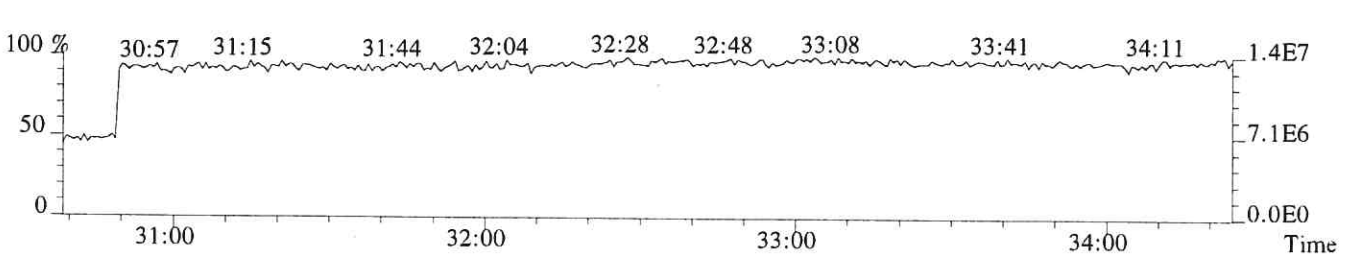
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



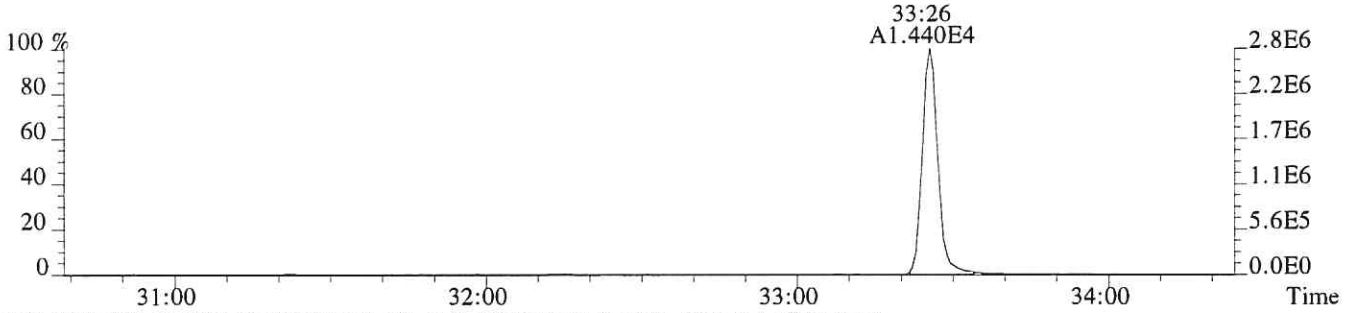
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



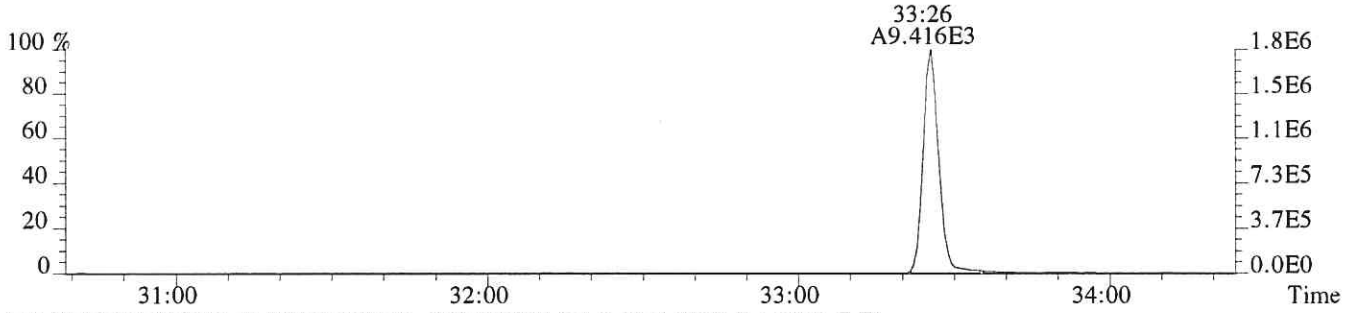
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



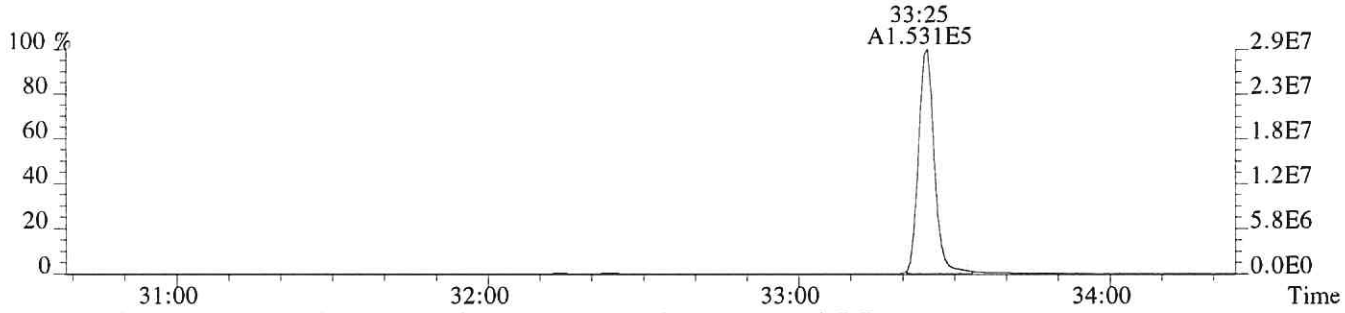
File:P614684 #1-339 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



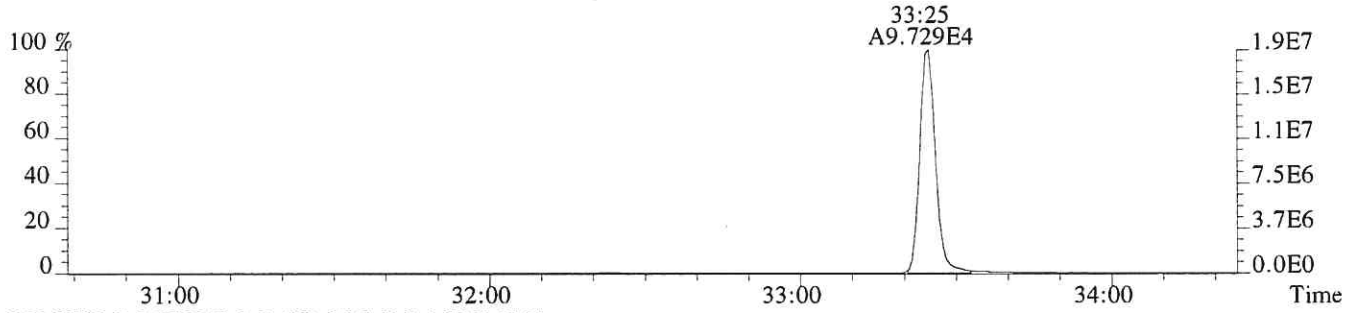
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



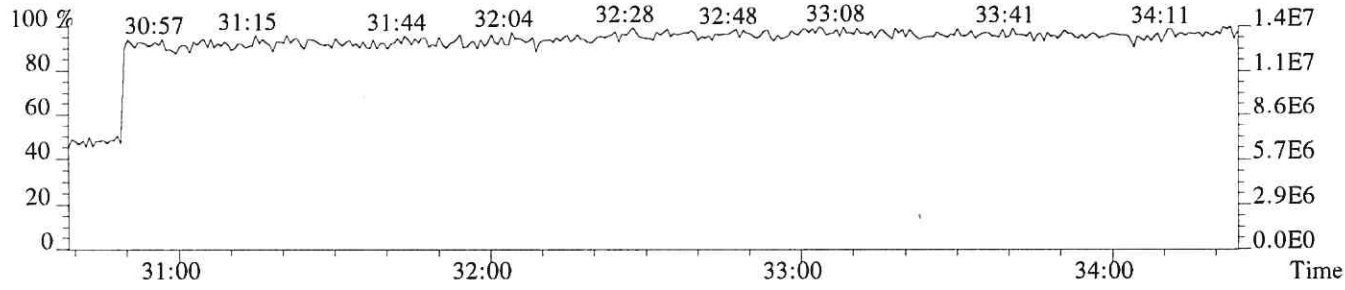
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)



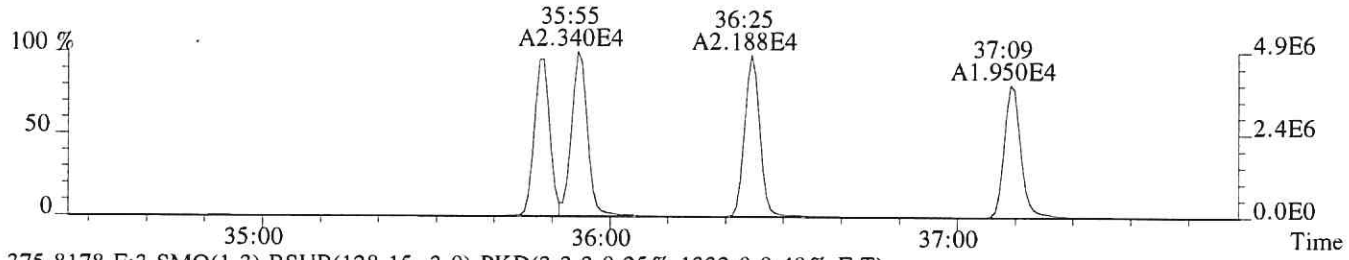
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3448.0,1.00%,F,T)



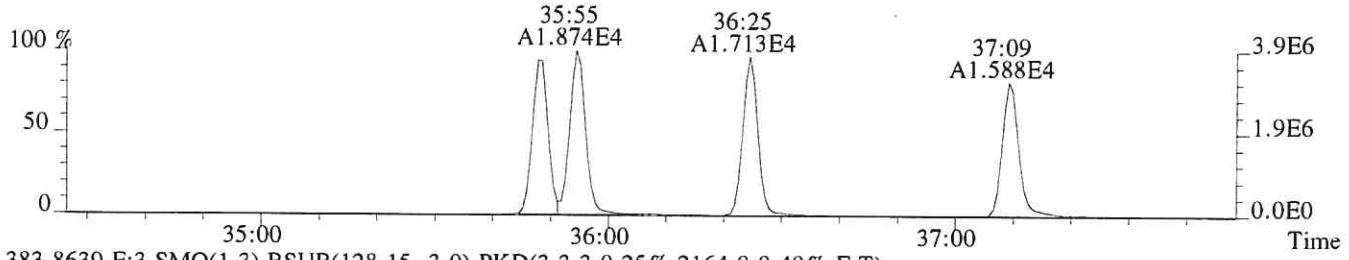
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



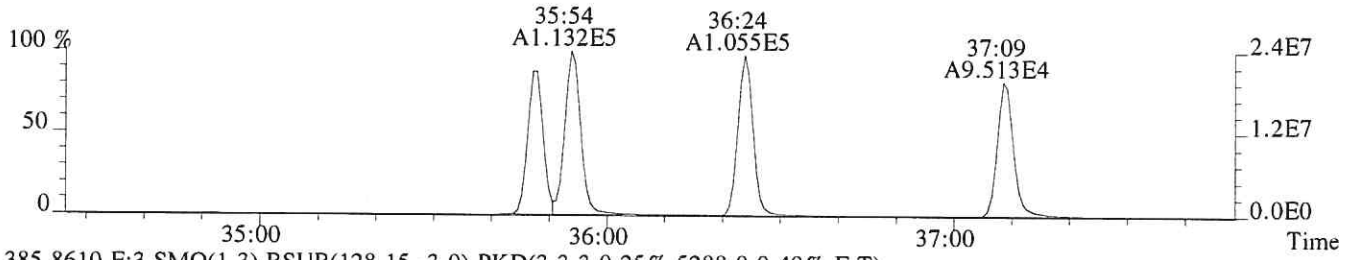
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.40%,F,T)



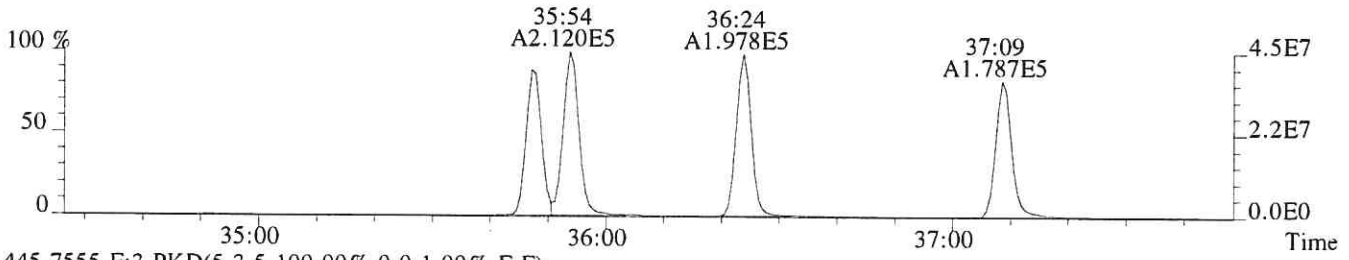
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



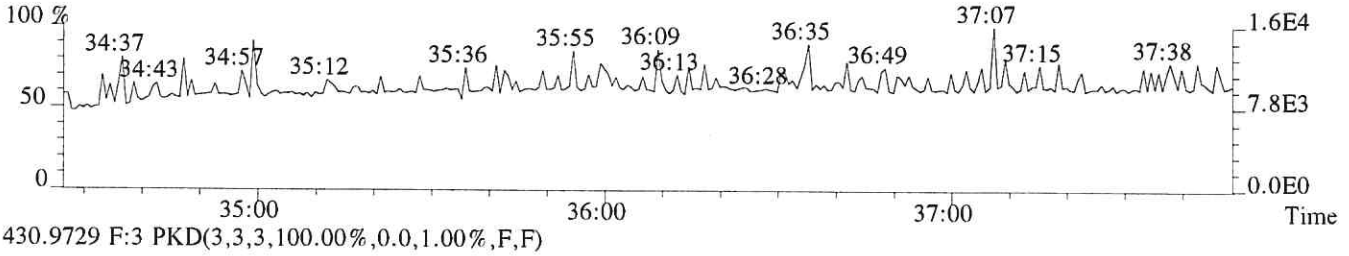
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



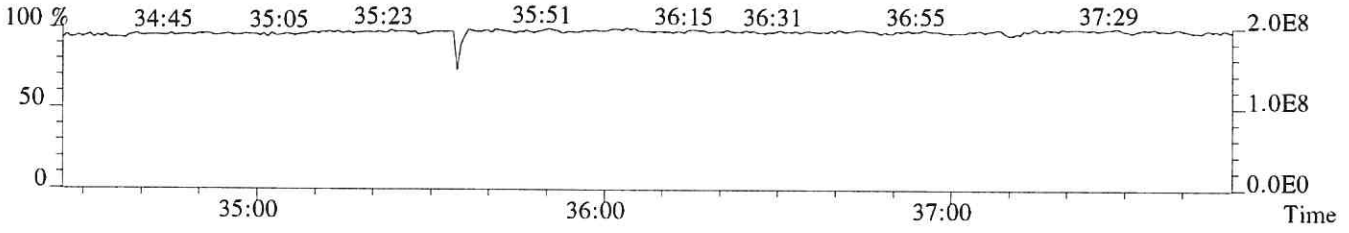
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5288.0,0.40%,F,T)



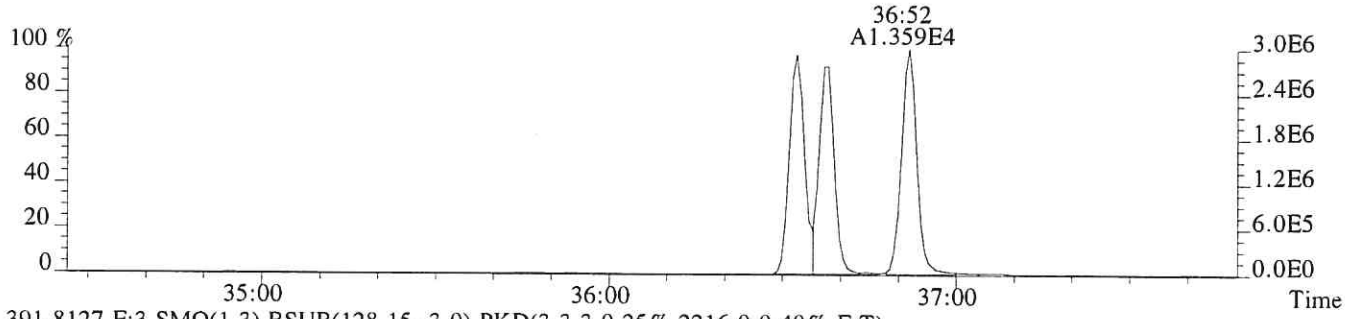
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



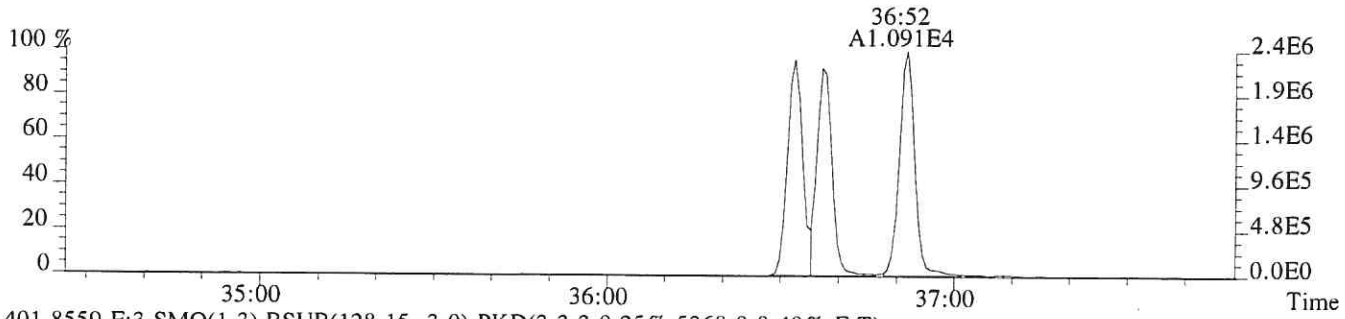
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



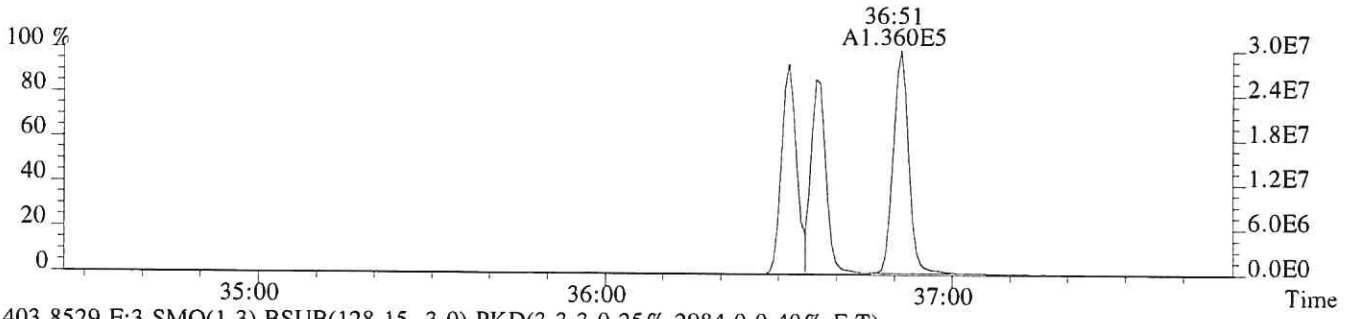
File:P614684 #1-304 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



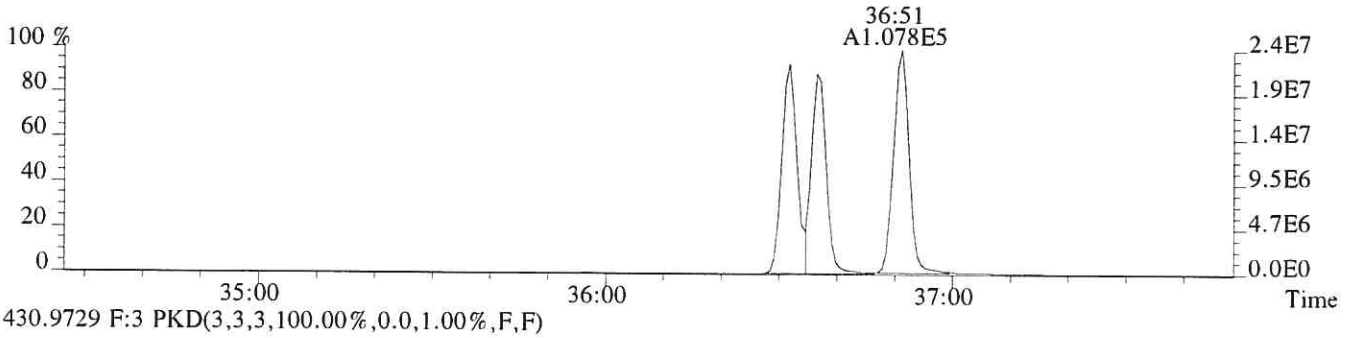
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2216.0,0.40%,F,T)



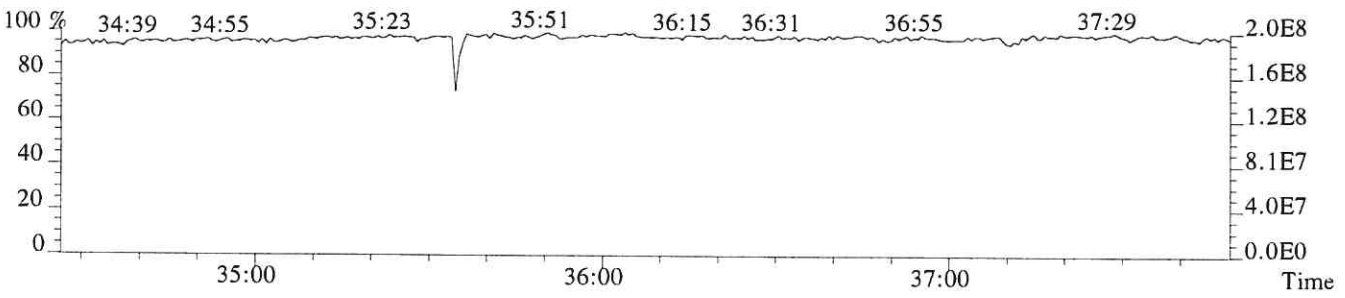
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5368.0,0.40%,F,T)



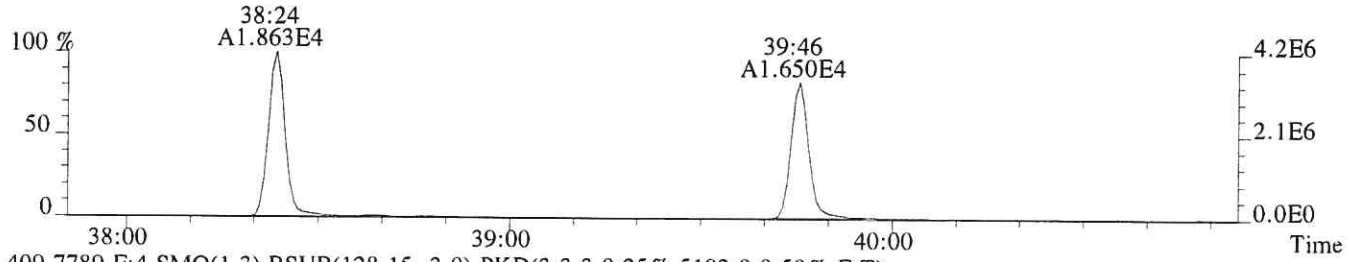
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



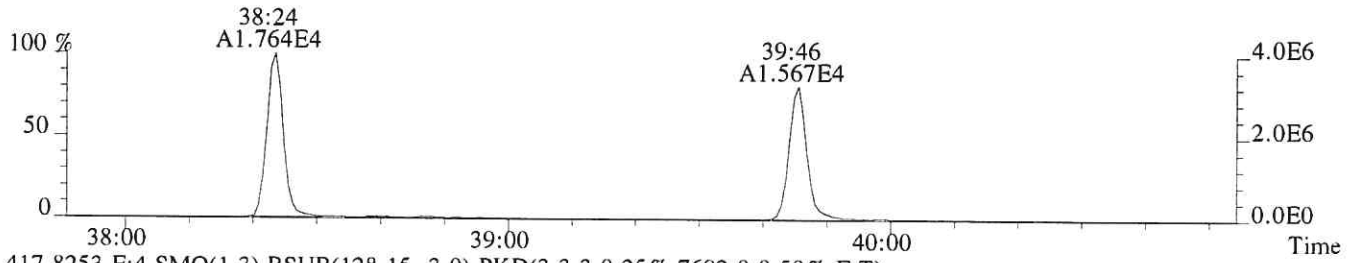
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



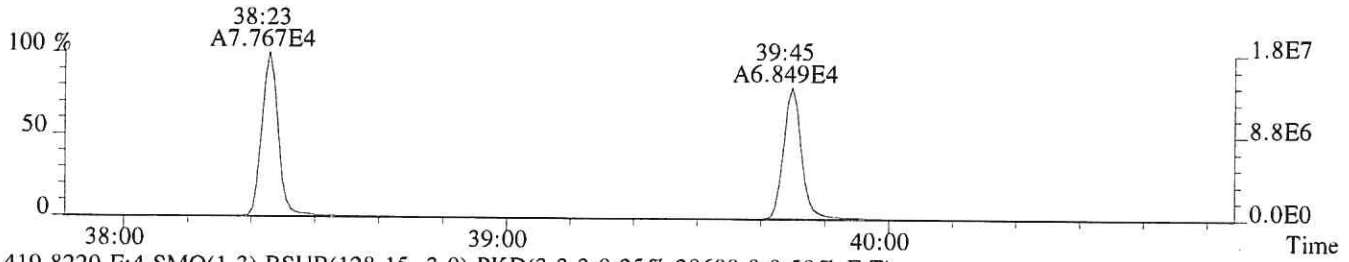
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4060.0,0.50%,F,T)



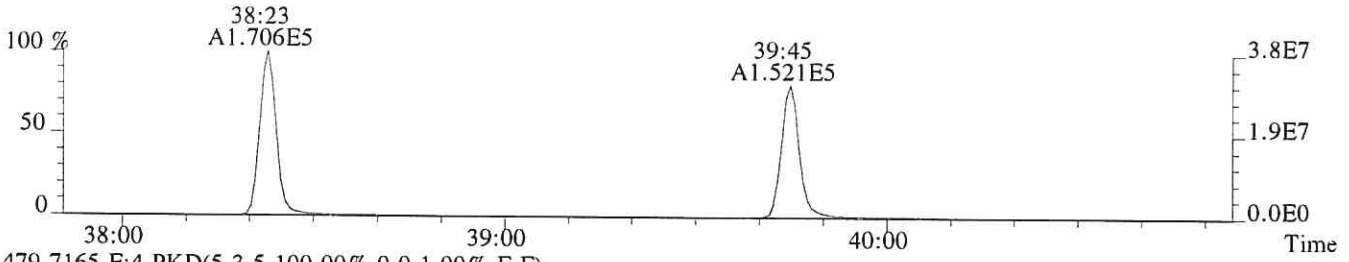
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5192.0,0.50%,F,T)



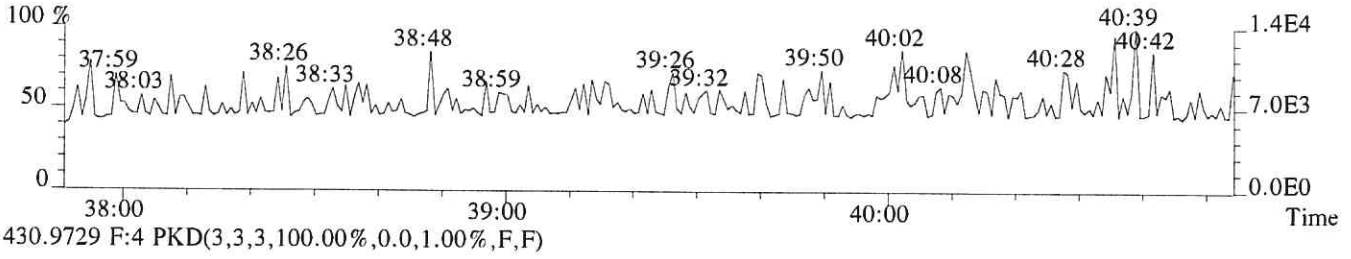
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7692.0,0.50%,F,T)



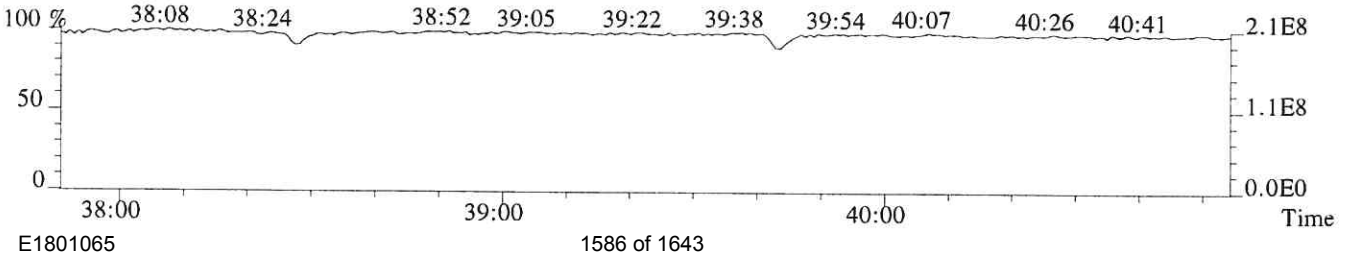
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20688.0,0.50%,F,T)



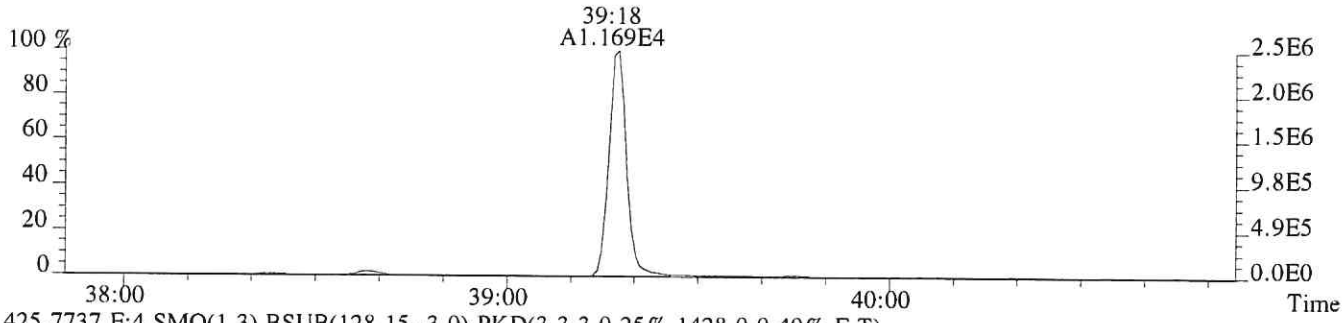
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



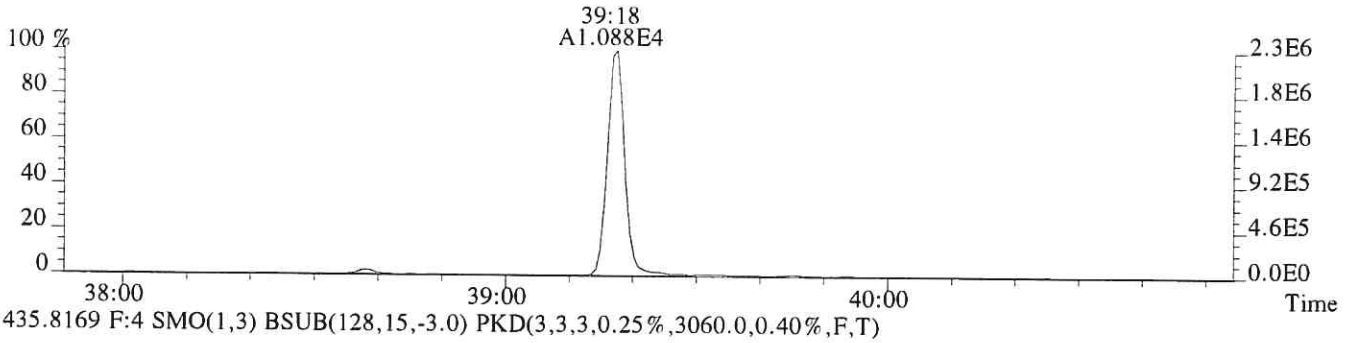
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



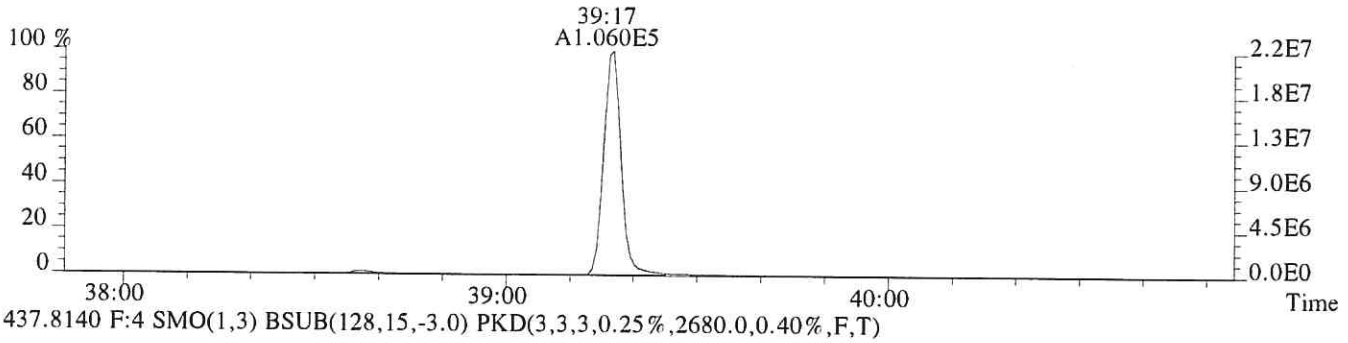
File:P614684 #1-276 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



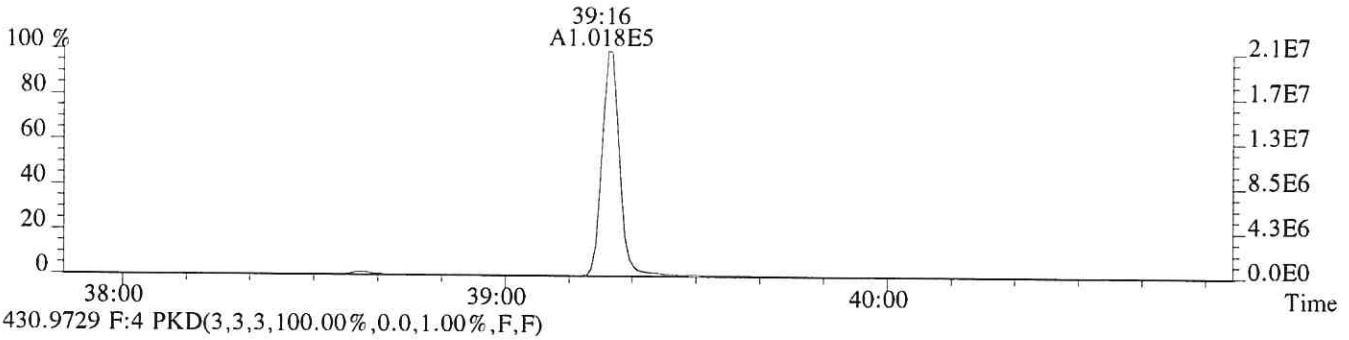
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



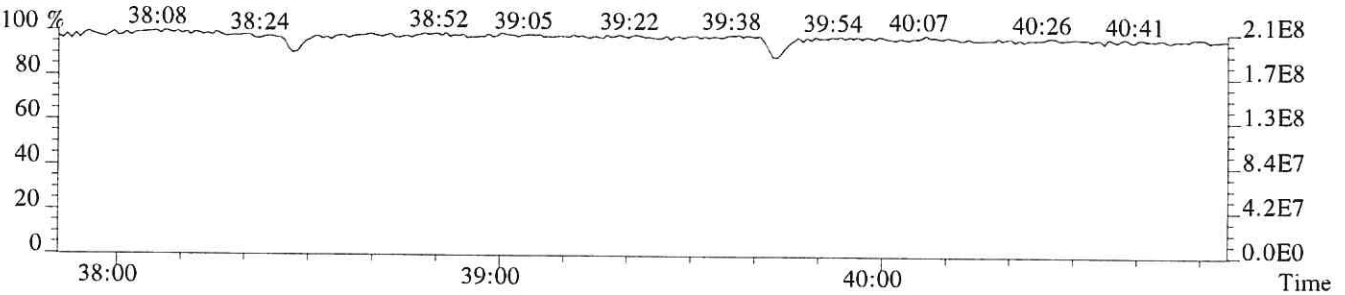
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



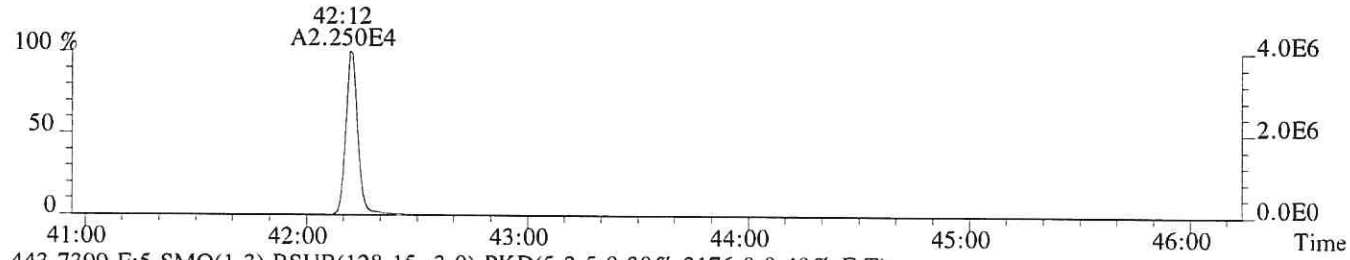
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.40%,F,T)



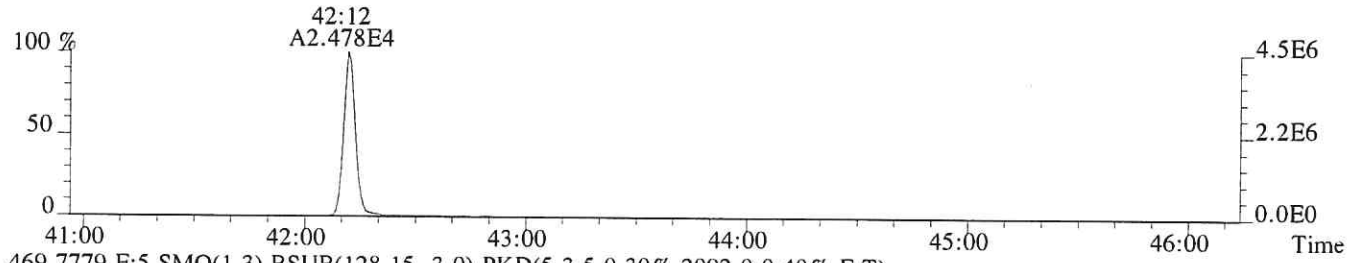
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



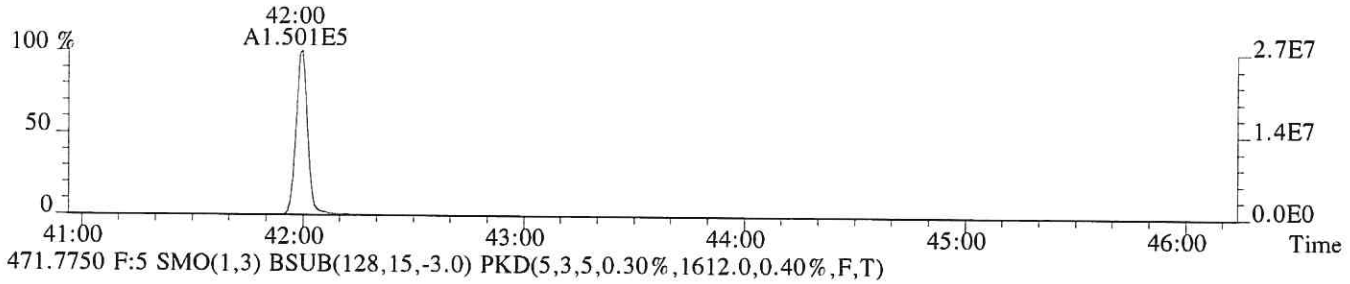
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1020.0,0.40%,F,T)



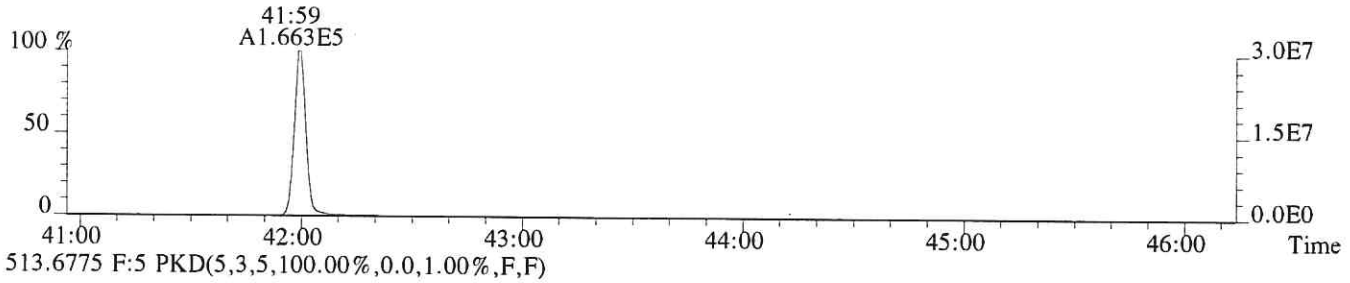
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3176.0,0.40%,F,T)



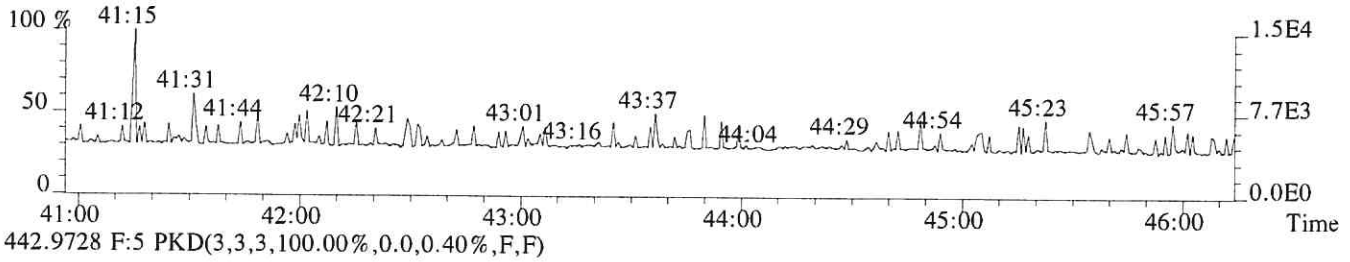
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



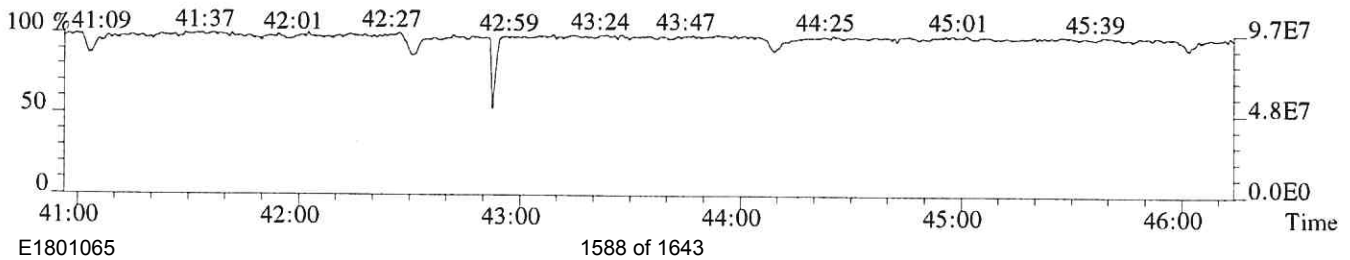
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



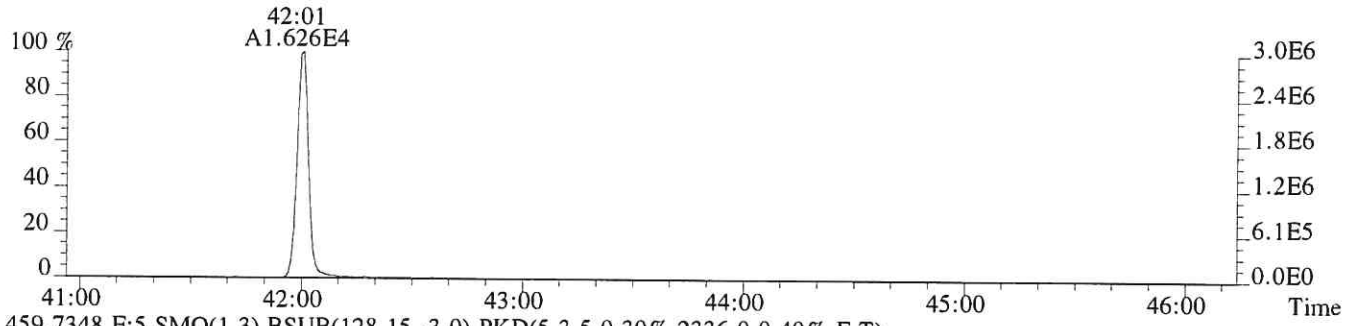
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



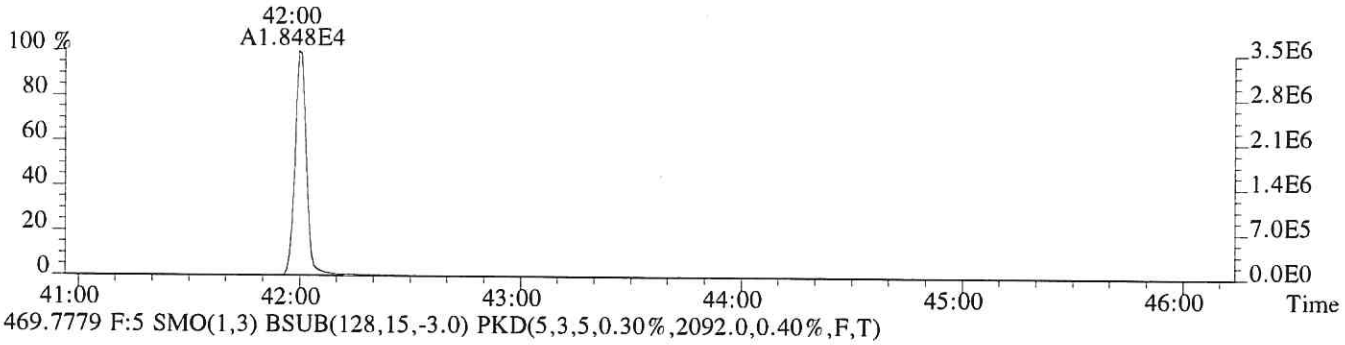
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



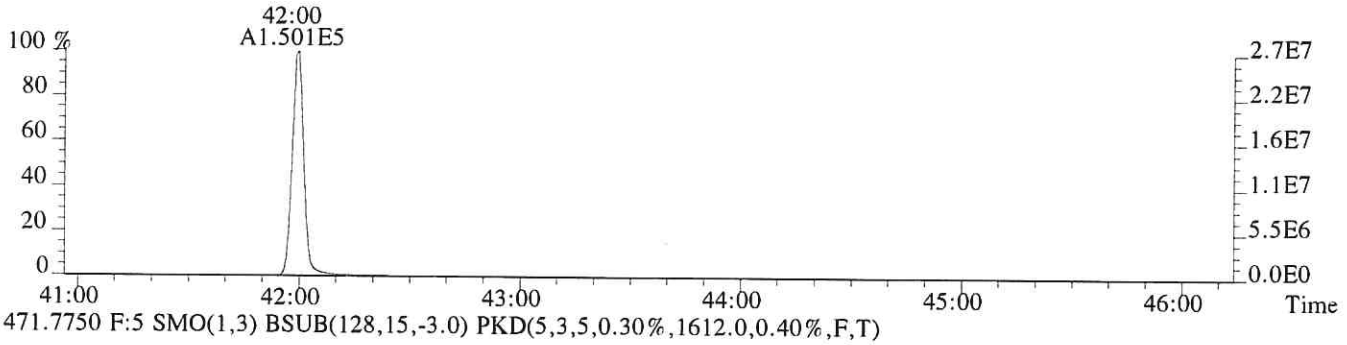
File:P614684 #1-477 Acq:25-SEP-2018 15:59:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



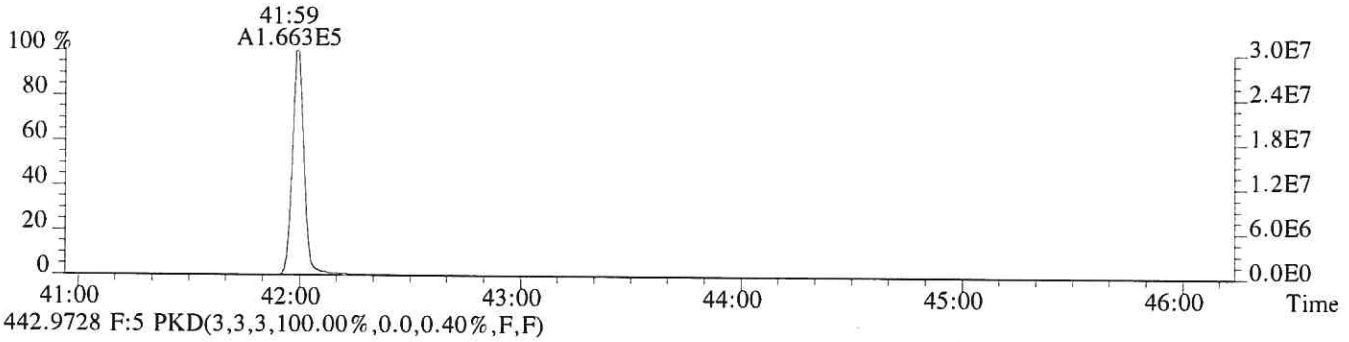
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2336.0,0.40%,F,T)



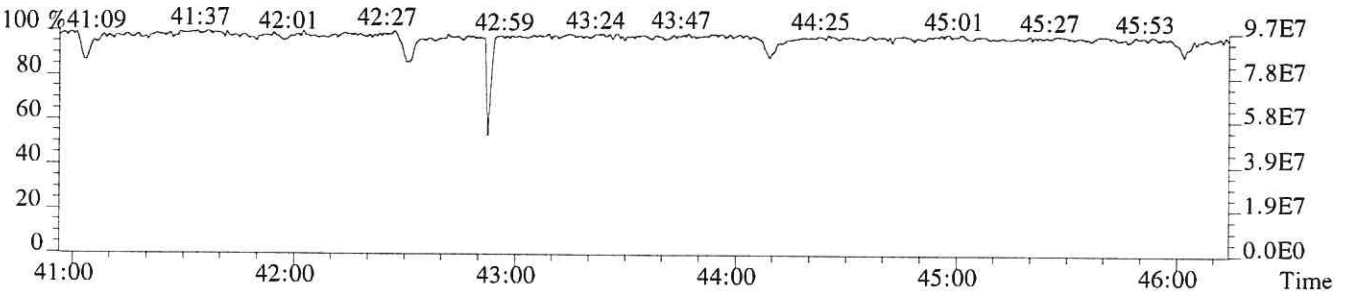
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:01	3.637e+04	4.546e+04	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:15	3.073e+05	1.939e+05	1.58	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	2.818e+05	1.782e+05	1.58	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	2.774e+05	2.200e+05	1.26	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	2.905e+05	2.295e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	2.685e+05	2.105e+05	1.28	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	2.537e+05	1.982e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.407e+05	2.292e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.925e+05	1.847e+05	1.04	yes	no	1.463
10	Unk	OCDF	42:13	3.041e+05	3.309e+05	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	2.365e+04	3.051e+04	0.78	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	1.706e+05	1.098e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	1.645e+05	1.238e+05	1.33	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	1.567e+05	1.272e+05	1.23	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:53	1.702e+05	1.368e+05	1.24	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.477e+05	1.392e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.180e+05	2.422e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	3.444e+05	4.352e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	5.358e+05	3.352e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	5.234e+05	3.254e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.524e+05	4.773e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.834e+05	5.294e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.621e+05	4.867e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.431e+05	4.520e+05	0.54	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.967e+05	4.289e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.638e+05	3.571e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.330e+05	2.909e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.758e+05	2.372e+05	1.58	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	3.106e+05	2.345e+05	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.932e+05	2.439e+05	1.20	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.673e+05	2.524e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	3.863e+05	4.247e+05	0.91	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.395e+05	3.006e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	3.335e+05	2.694e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	5.645e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P614685 Samp: 1 Inj: 1 Acquired: 25-SEP-18 16:52:47
Processed: 26-SEP-18 07:39:09 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.55e+06	2.18e+03	3.0e+03	8.17e+06	4.39e+03	1.9e+03
2	1,2,3,7,8-PeCDF	5.78e+07	2.87e+03	2.0e+04	3.64e+07	4.35e+03	8.4e+03
3	2,3,4,7,8-PeCDF	5.79e+07	2.87e+03	2.0e+04	3.65e+07	4.35e+03	8.4e+03
4	1,2,3,4,7,8-HxCDF	6.15e+07	2.89e+03	2.1e+04	4.93e+07	2.08e+03	2.4e+04
5	1,2,3,6,7,8-HxCDF	6.26e+07	2.89e+03	2.2e+04	4.97e+07	2.08e+03	2.4e+04
6	2,3,4,6,7,8-HxCDF	6.14e+07	2.89e+03	2.1e+04	4.79e+07	2.08e+03	2.3e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.89e+03	1.9e+04	4.26e+07	2.08e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	5.56e+07	1.47e+04	3.8e+03	5.23e+07	1.66e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.99e+07	1.47e+04	2.7e+03	3.80e+07	1.66e+04	2.3e+03
10	OCDF	5.72e+07	1.23e+03	4.7e+04	6.22e+07	3.01e+03	2.1e+04
11	2,3,7,8-TCDD	4.49e+06	5.36e+03	8.4e+02	5.78e+06	2.64e+03	2.2e+03
12	1,2,3,7,8-PeCDD	3.45e+07	2.46e+03	1.4e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	3.72e+07	9.04e+02	4.1e+04	2.90e+07	1.56e+03	1.9e+04
14	1,2,3,6,7,8-HxCDD	3.60e+07	9.04e+02	4.0e+04	2.81e+07	1.56e+03	1.8e+04
15	1,2,3,7,8,9-HxCDD	3.80e+07	9.04e+02	4.2e+04	3.00e+07	1.56e+03	1.9e+04
16	1,2,3,4,6,7,8-HpCDD	3.19e+07	1.58e+03	2.0e+04	3.06e+07	1.63e+03	1.9e+04
17	OCDD	4.21e+07	1.71e+03	2.5e+04	4.66e+07	1.53e+03	3.0e+04
18	13C-2,3,7,8-TCDF	6.23e+07	1.55e+04	4.0e+03	7.90e+07	1.02e+04	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+08	2.14e+03	4.7e+04	6.28e+07	2.18e+03	2.9e+04
20	13C-2,3,4,7,8-PeCDF	1.07e+08	2.14e+03	5.0e+04	6.66e+07	2.18e+03	3.1e+04
21	13C-1,2,3,4,7,8-HxCDF	5.63e+07	2.92e+03	1.9e+04	1.07e+08	4.60e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.12e+07	2.92e+03	2.1e+04	1.15e+08	4.60e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	2.92e+03	2.0e+04	1.10e+08	4.60e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.22e+07	2.92e+03	1.8e+04	9.74e+07	4.60e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.59e+07	1.18e+04	3.9e+03	9.95e+07	3.82e+04	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	1.18e+04	2.9e+03	7.29e+07	3.82e+04	1.9e+03
27	13C-2,3,7,8-TCDD	4.45e+07	1.91e+04	2.3e+03	5.53e+07	7.70e+03	7.2e+03
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.59e+03	2.1e+04	4.74e+07	2.50e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	6.95e+07	5.55e+03	1.3e+04	5.43e+07	3.18e+03	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	6.70e+07	5.55e+03	1.2e+04	5.36e+07	3.18e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	5.80e+07	4.72e+03	1.2e+04	5.53e+07	2.63e+03	2.1e+04
32	13C-OCDD	7.33e+07	1.86e+03	4.0e+04	8.10e+07	5.92e+02	1.4e+05
33	13C-1,2,3,4-TCDD	4.48e+07	1.91e+04	2.3e+03	5.67e+07	7.70e+03	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.38e+07	5.55e+03	1.3e+04	5.89e+07	3.18e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	1.08e+07	3.52e+03	3.1e+03			

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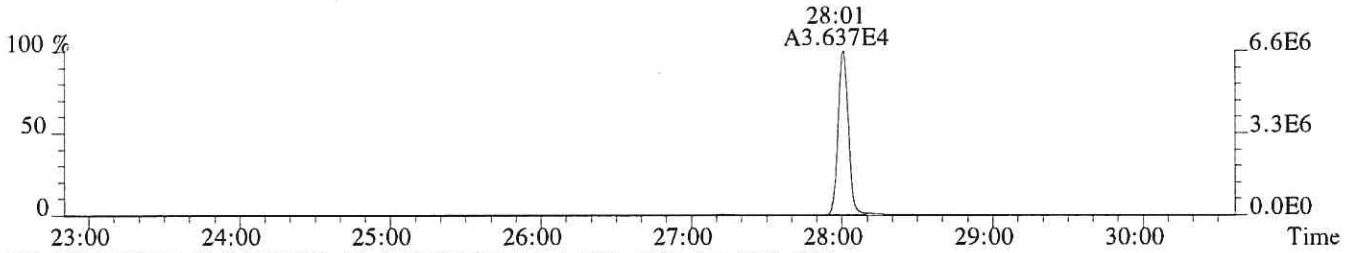
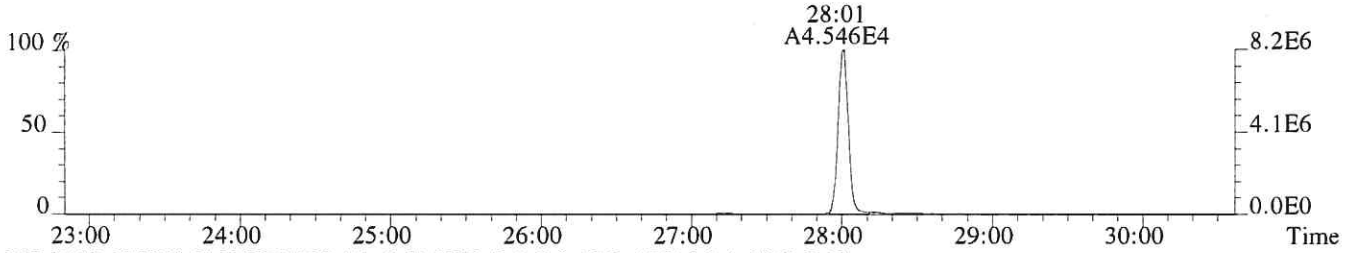
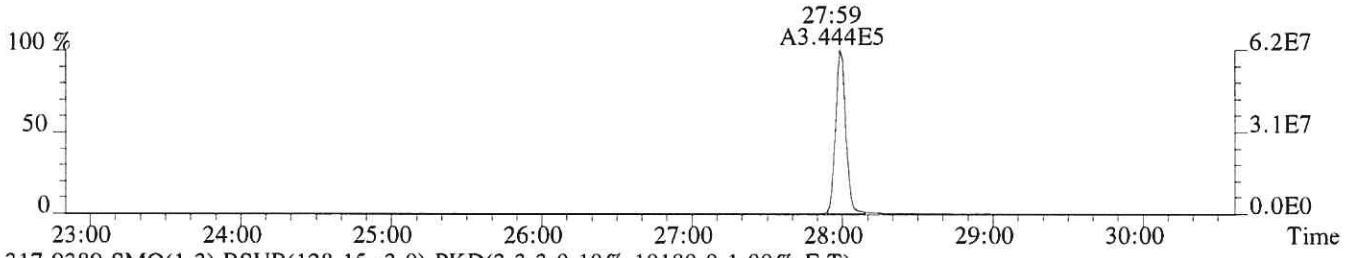
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



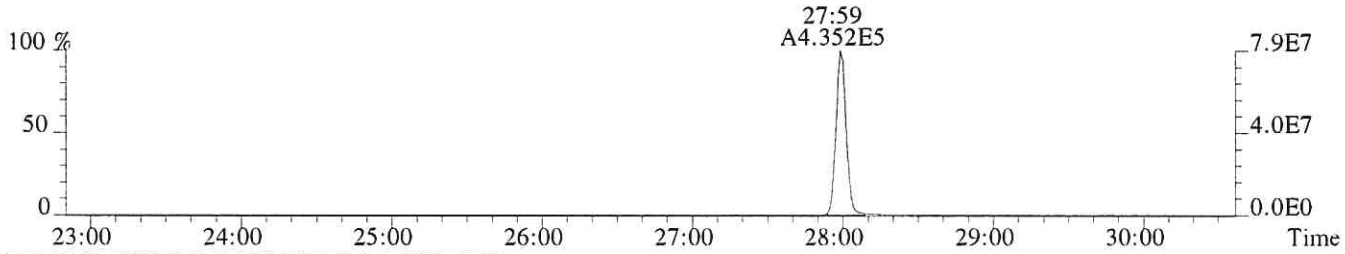
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4392.0,1.00%,F,T)



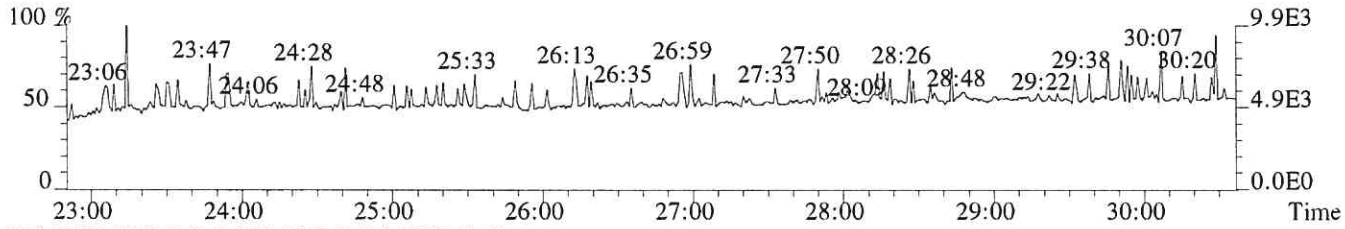
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15516.0,1.00%,F,T)



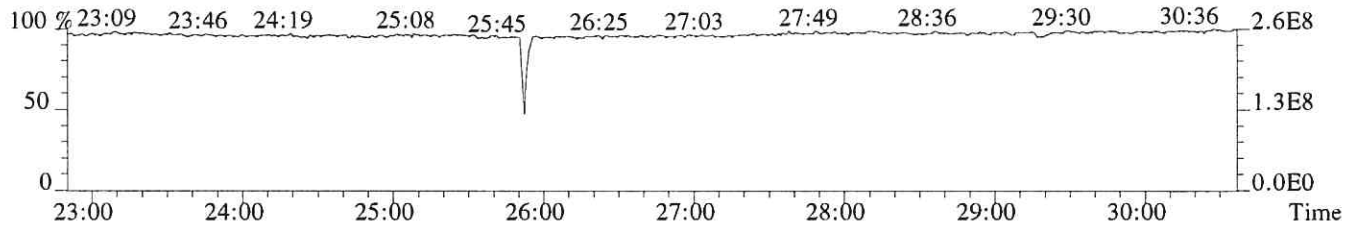
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10180.0,1.00%,F,T)



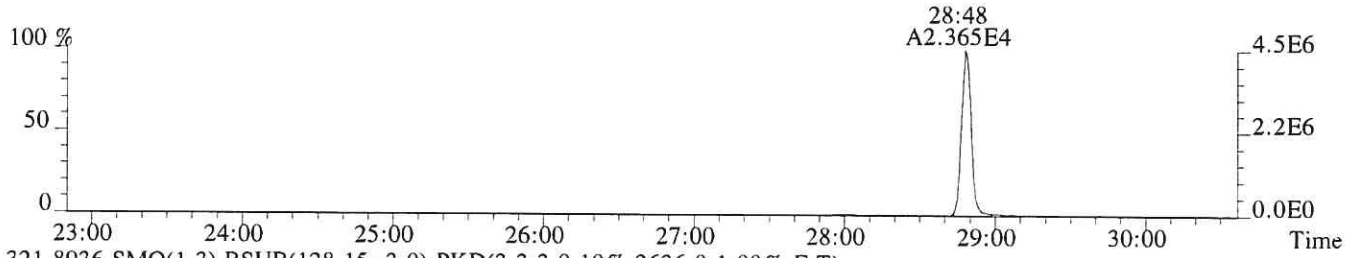
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



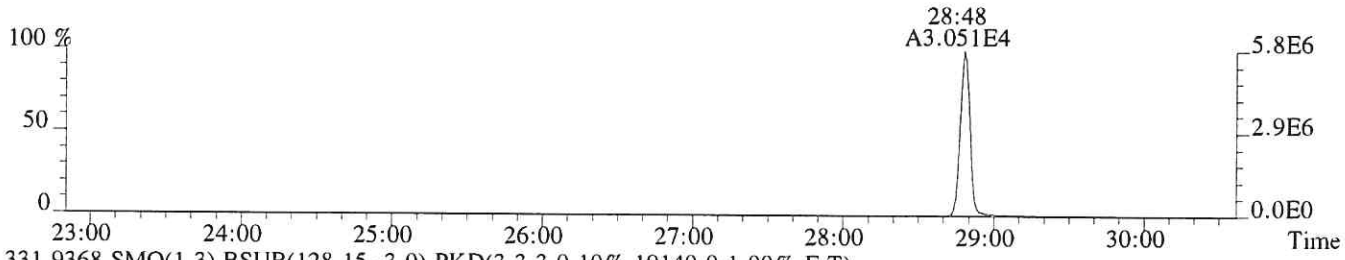
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



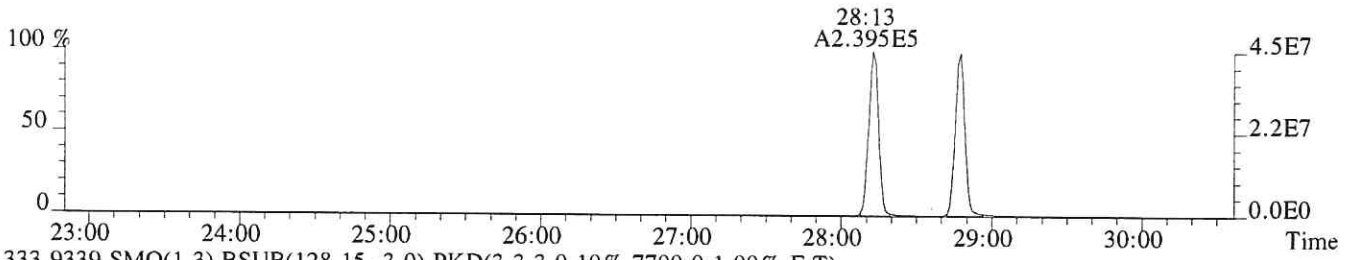
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5364.0,1.00%,F,T)



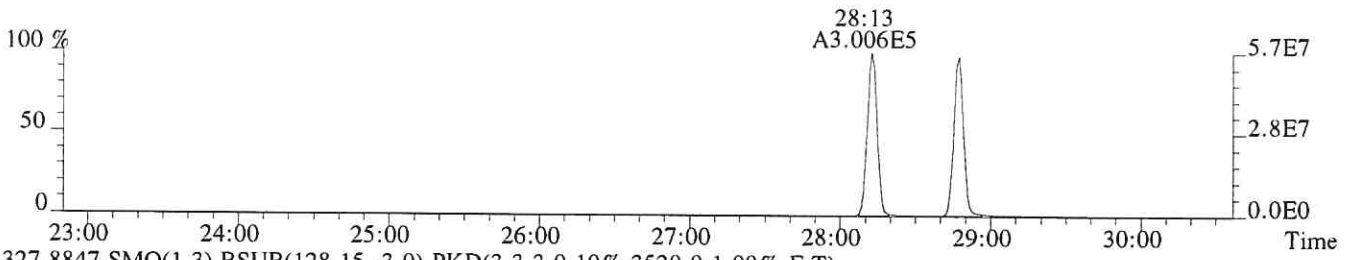
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



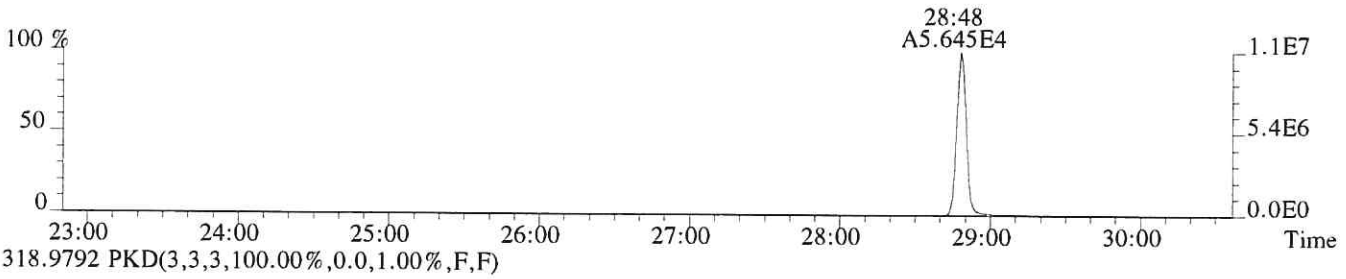
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19140.0,1.00%,F,T)



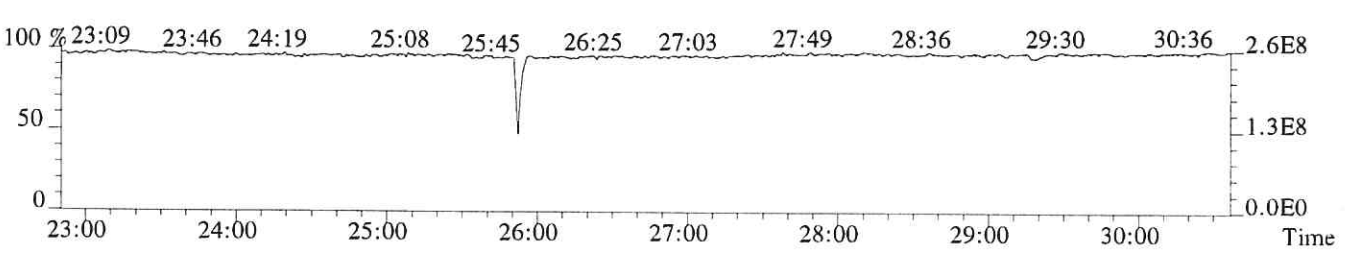
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7700.0,1.00%,F,T)



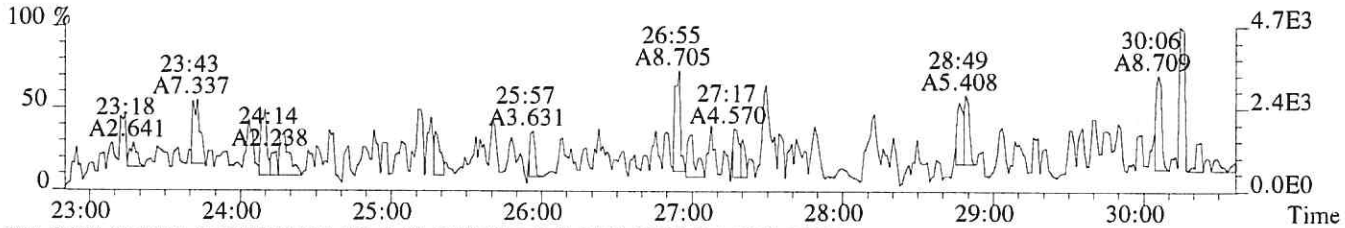
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)



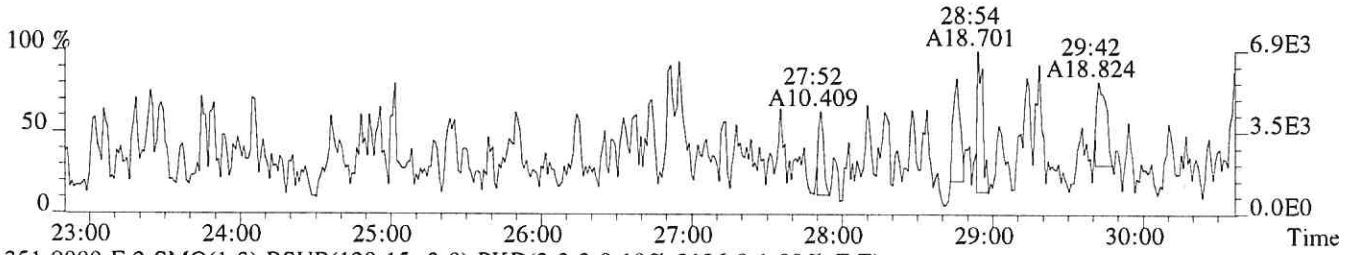
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



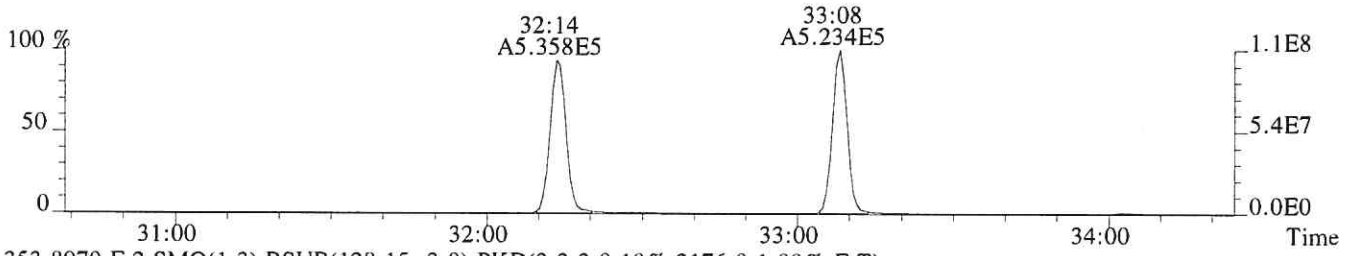
File:P614685 #1-552 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



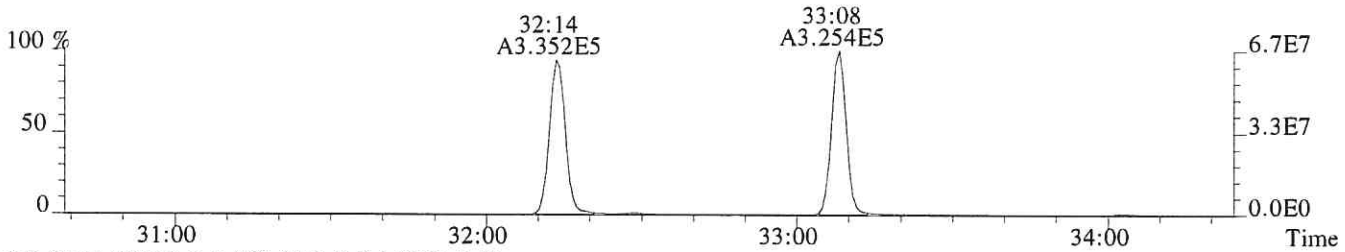
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



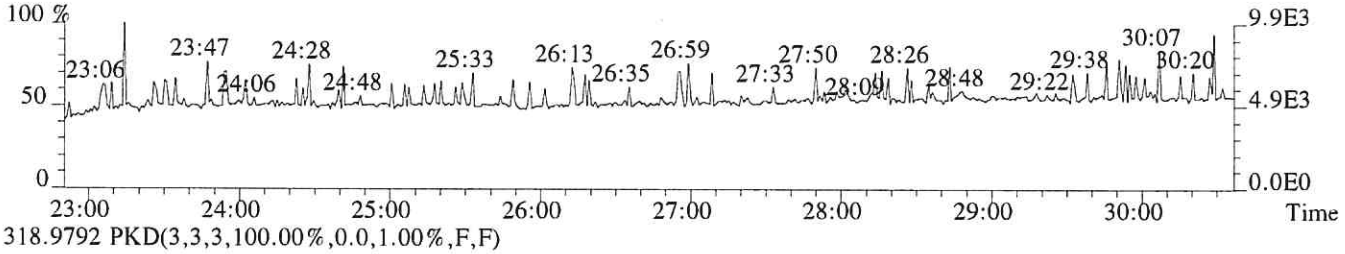
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



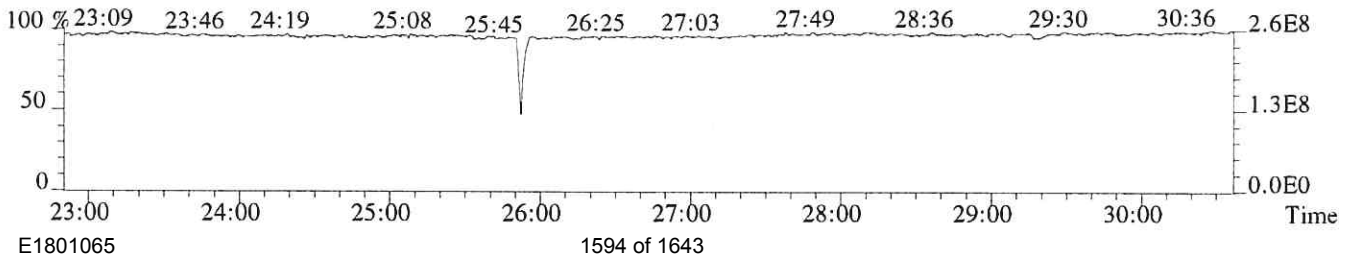
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



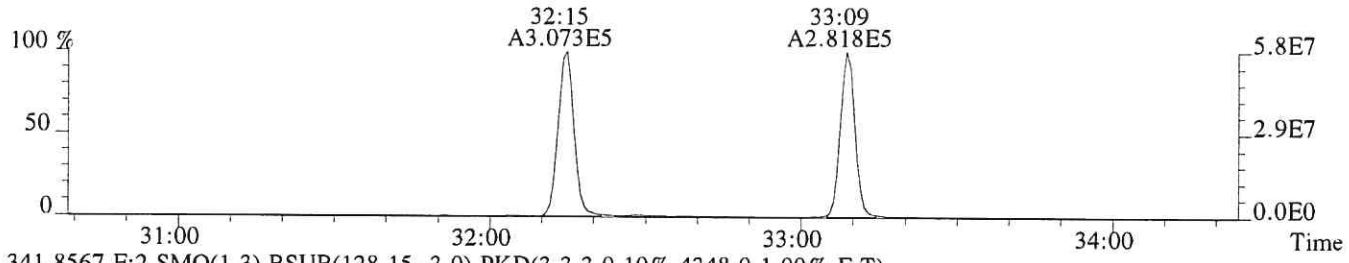
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



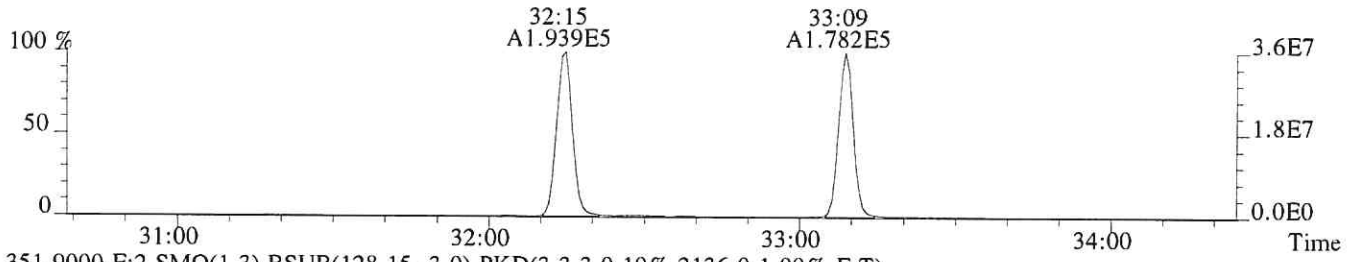
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



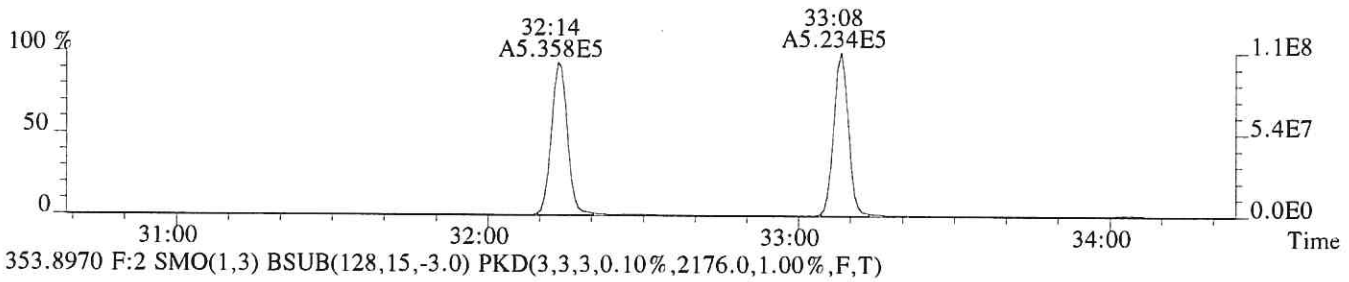
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



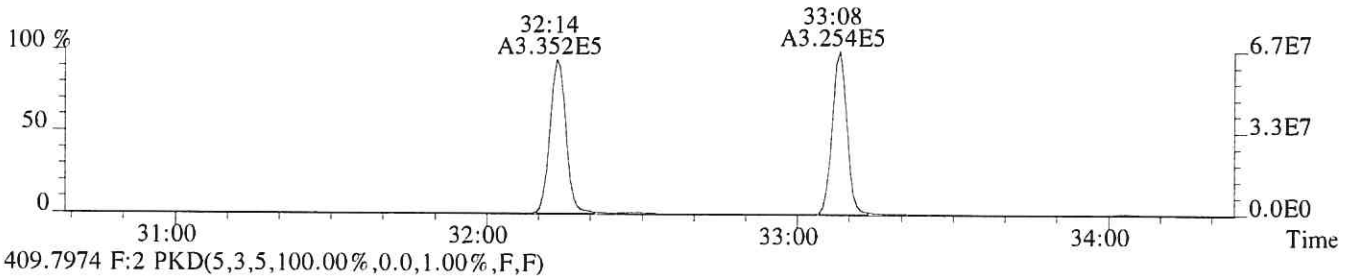
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4348.0,1.00%,F,T)



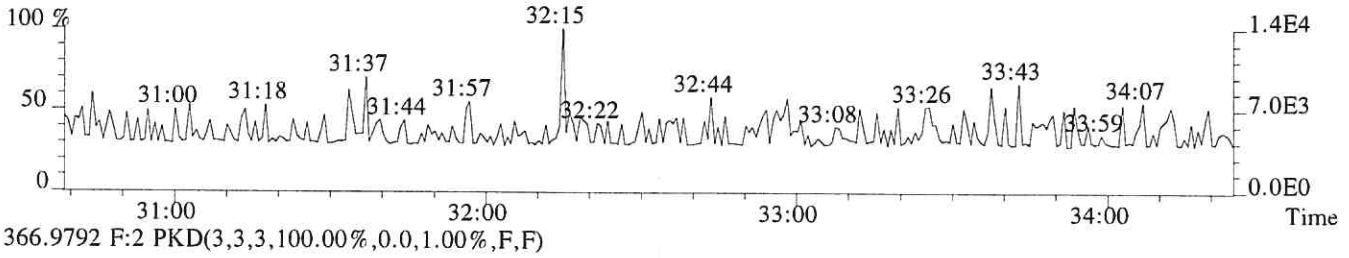
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



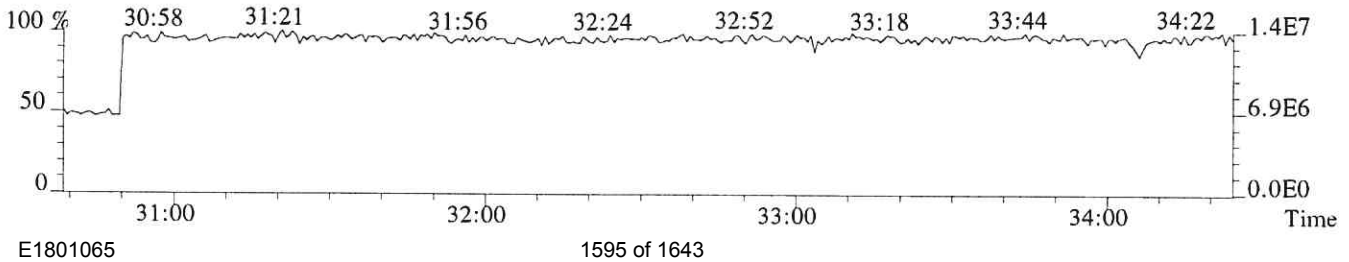
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



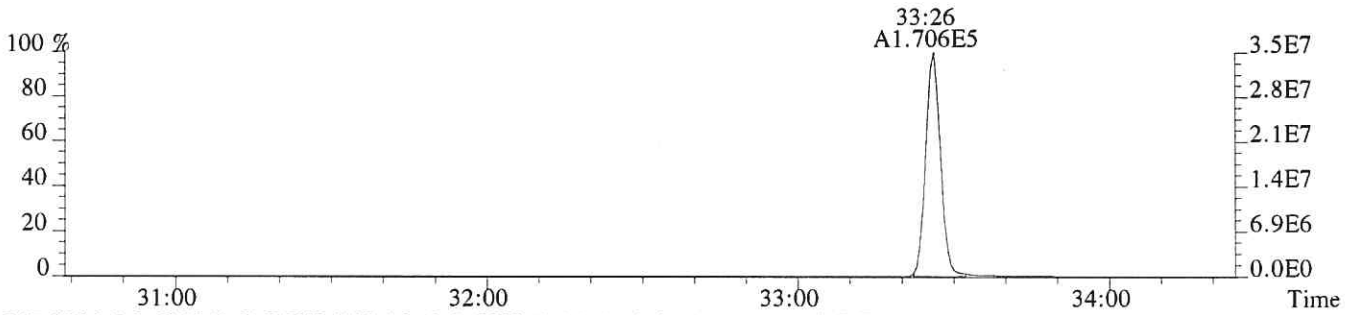
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



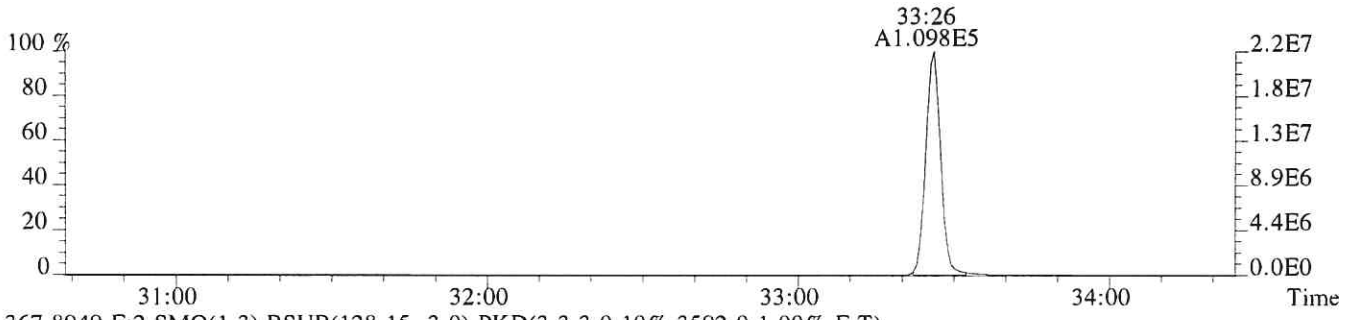
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



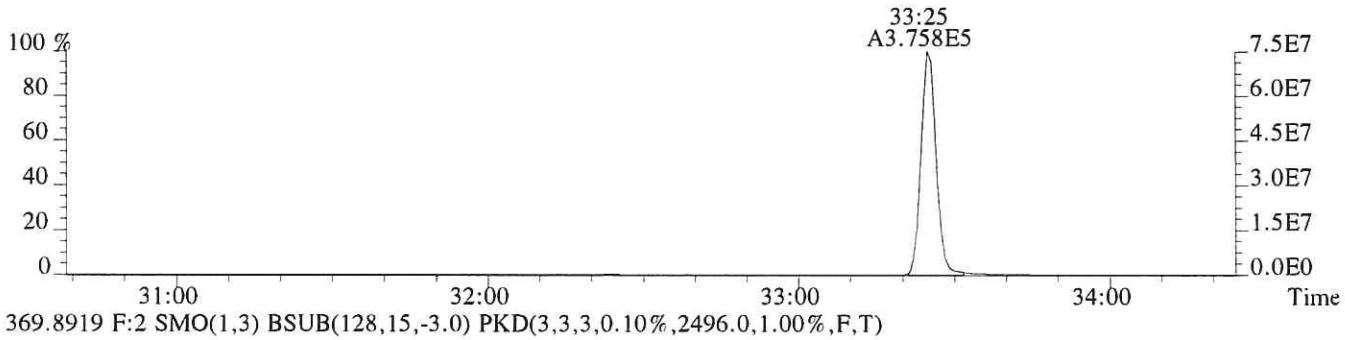
File:P614685 #1-339 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



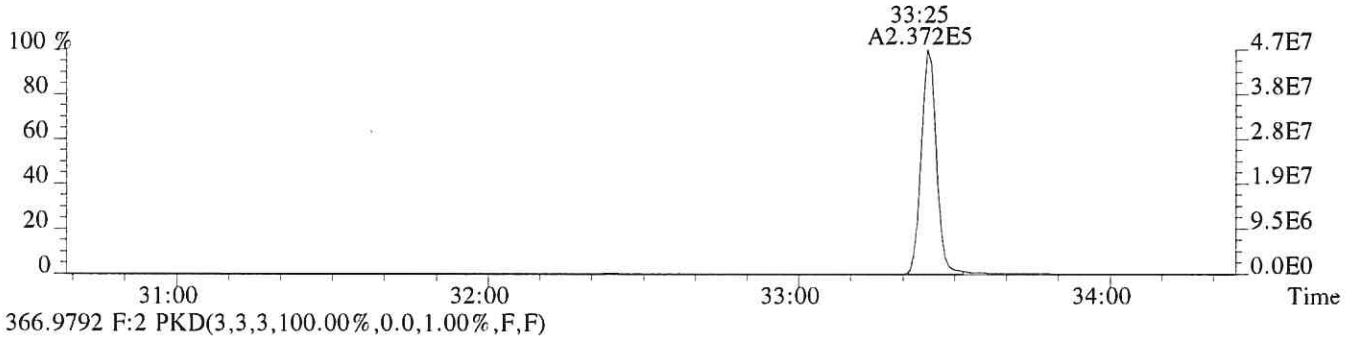
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



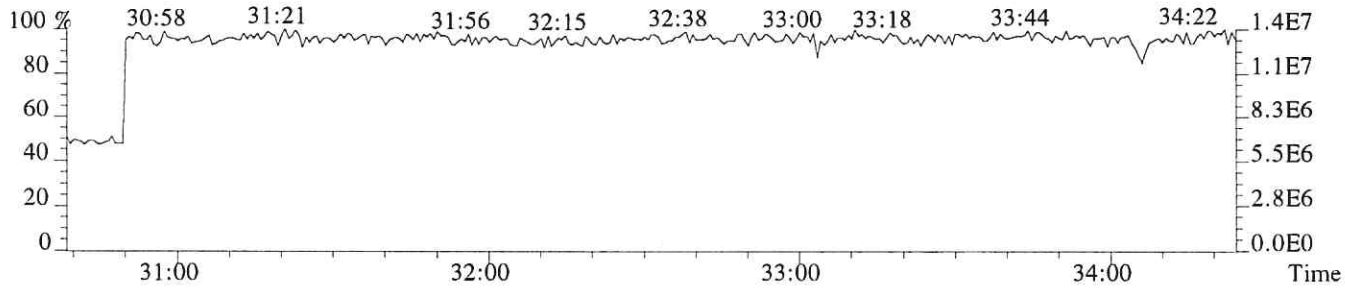
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3592.0,1.00%,F,T)



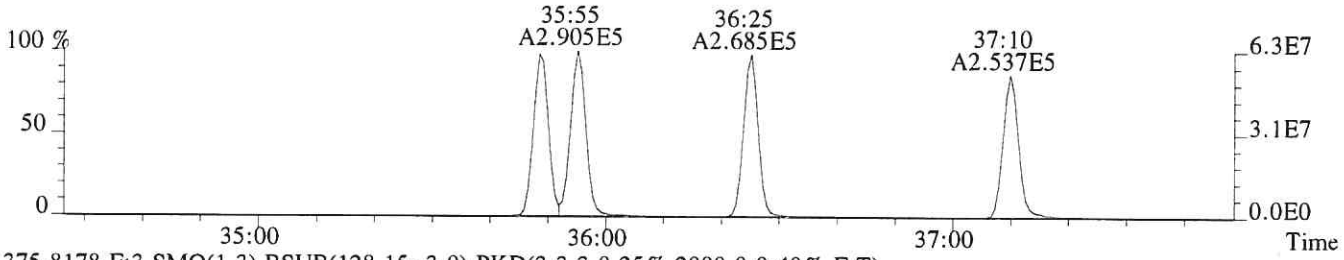
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



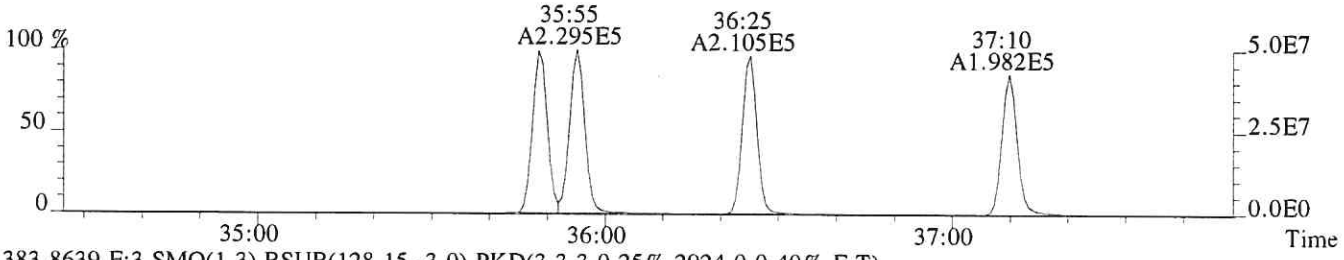
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



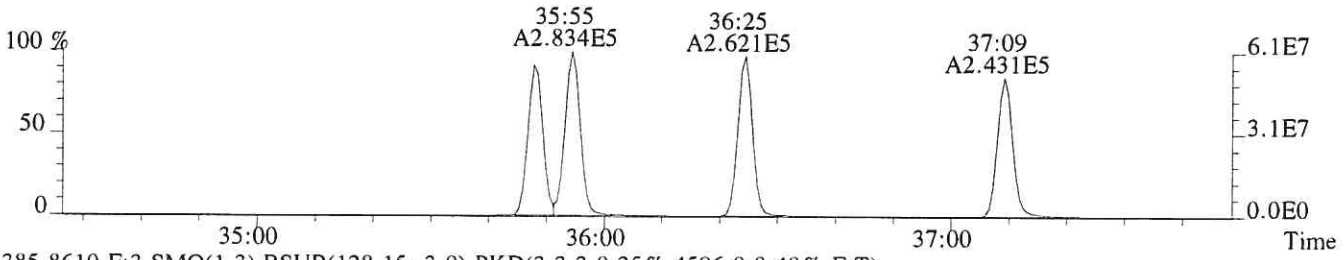
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



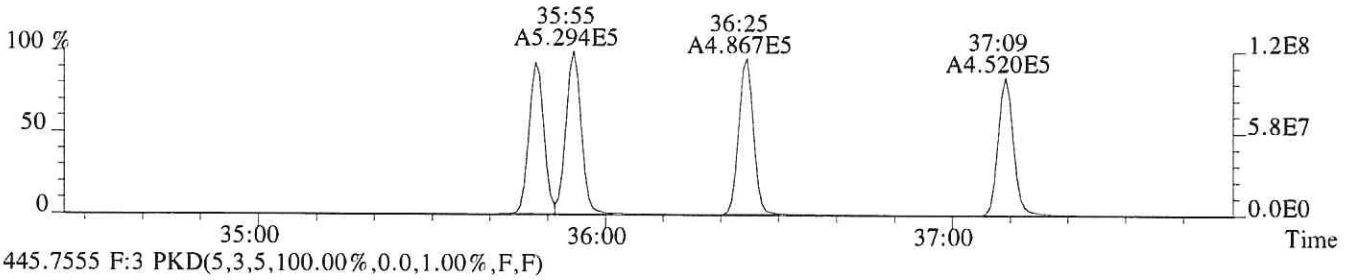
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)



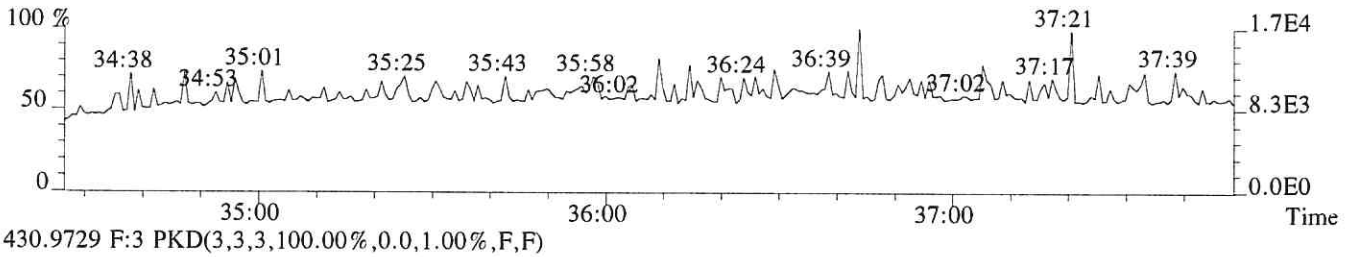
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



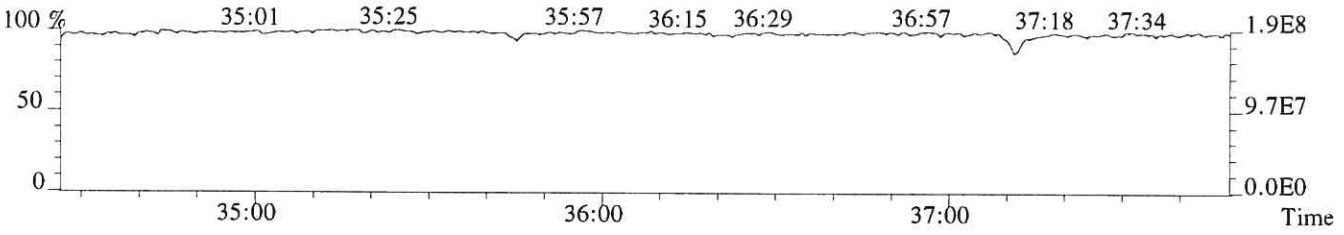
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4596.0,0.40%,F,T)



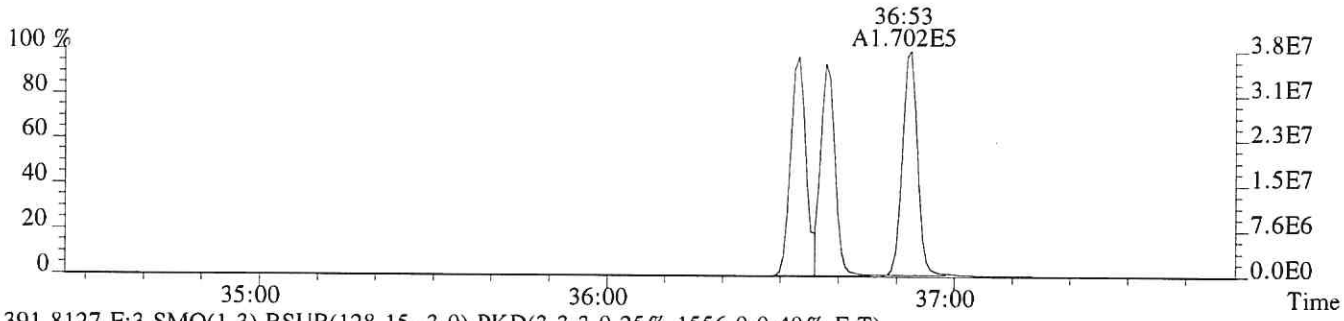
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



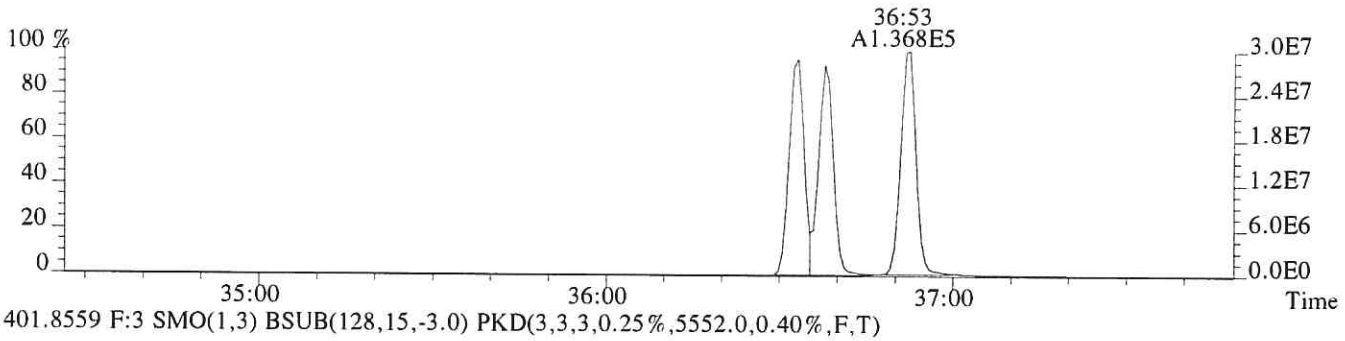
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



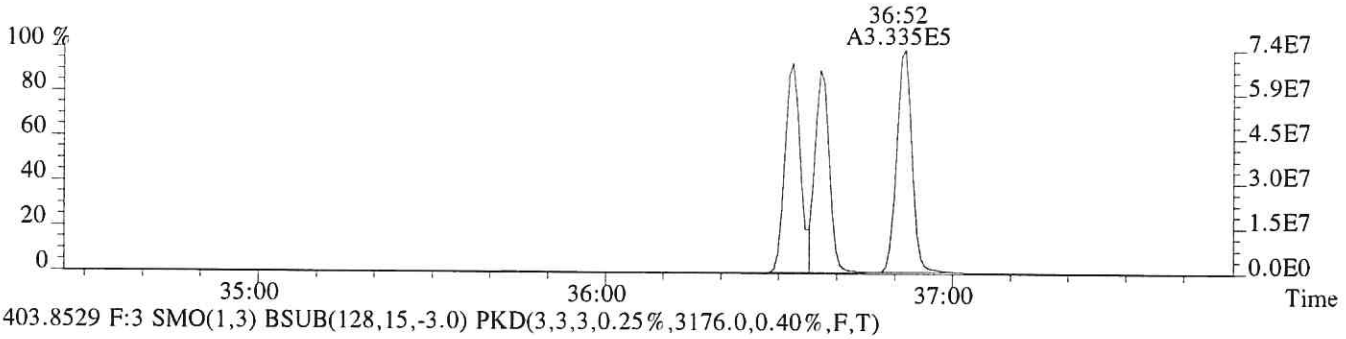
File:P614685 #1-304 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



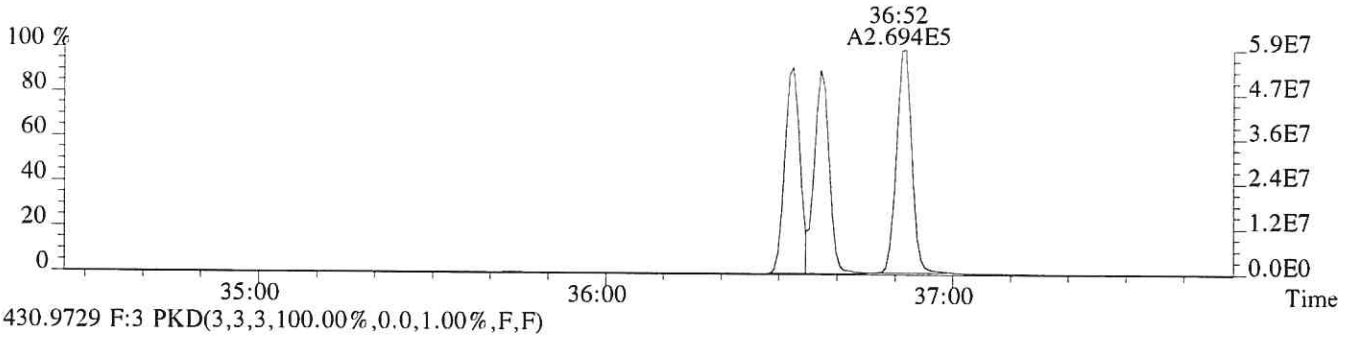
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



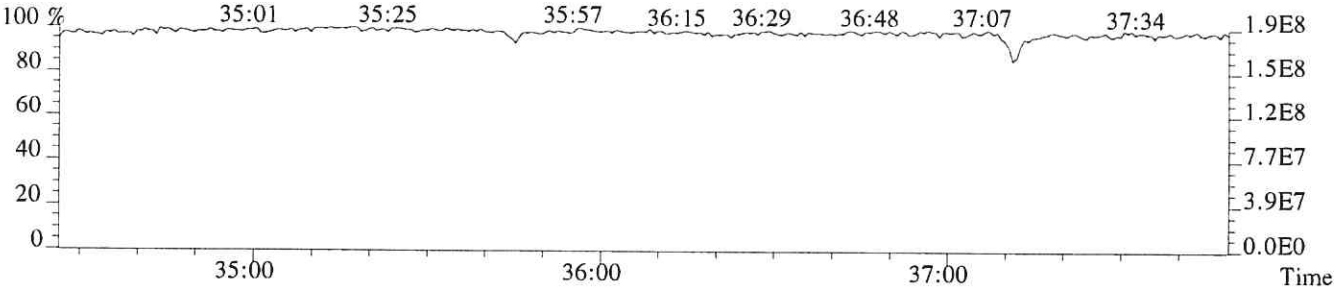
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5552.0,0.40%,F,T)



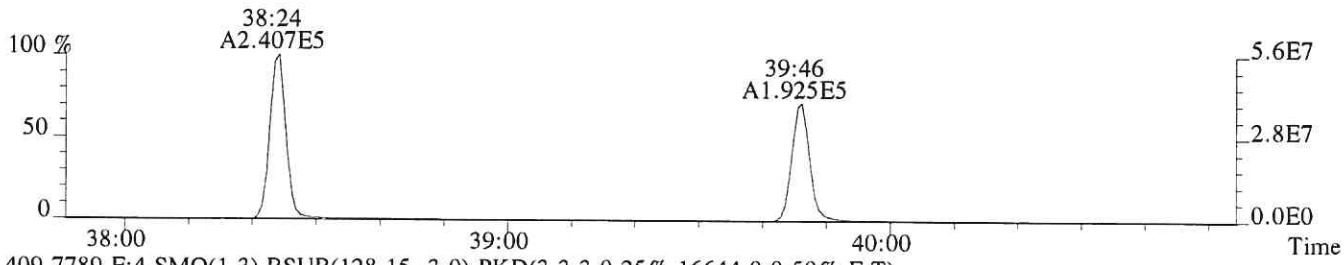
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3176.0,0.40%,F,T)



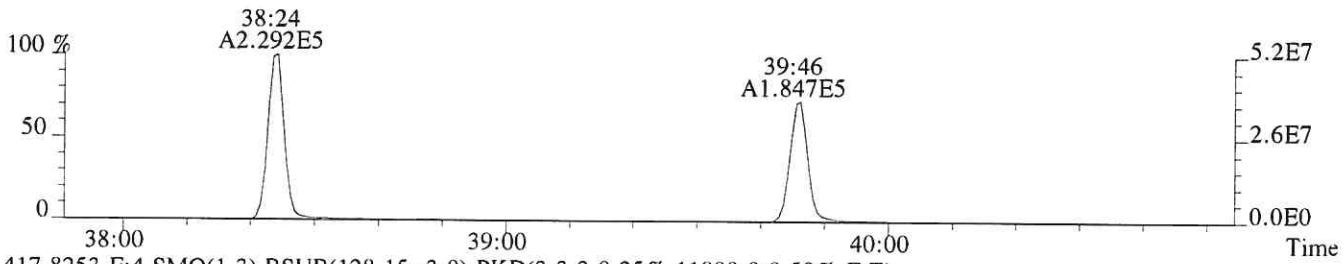
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



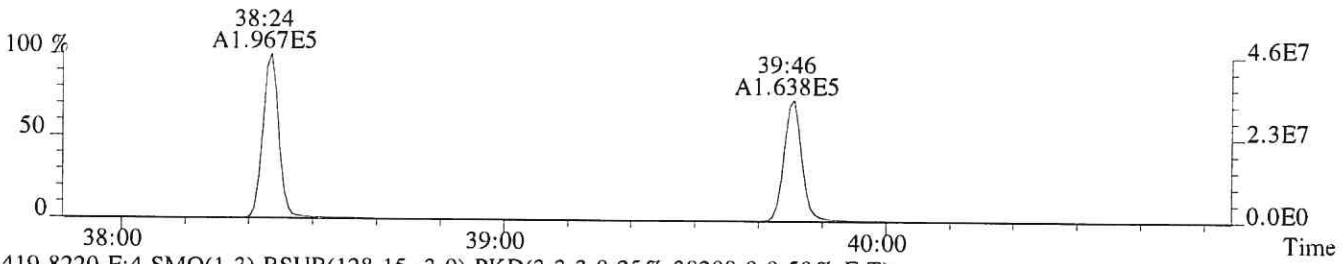
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14728.0,0.50%,F,T)



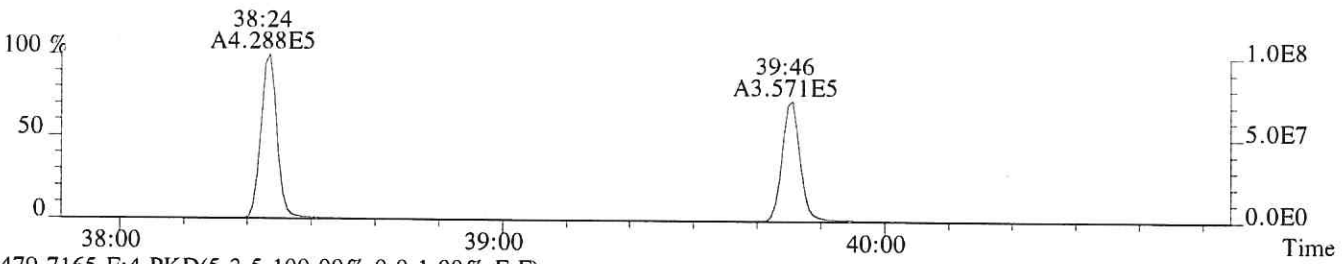
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16644.0,0.50%,F,T)



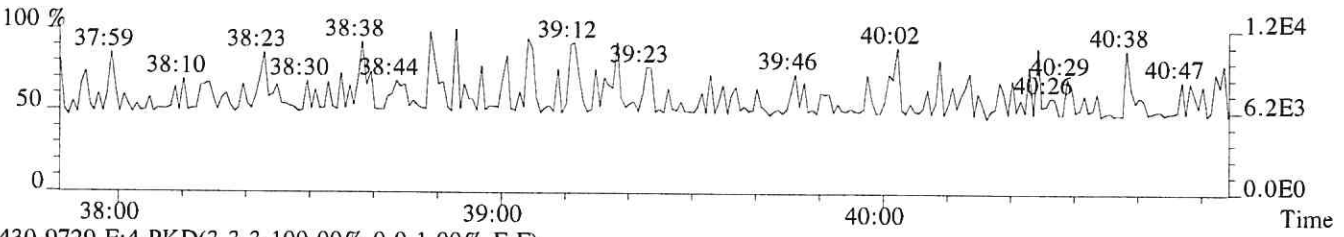
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11800.0,0.50%,F,T)



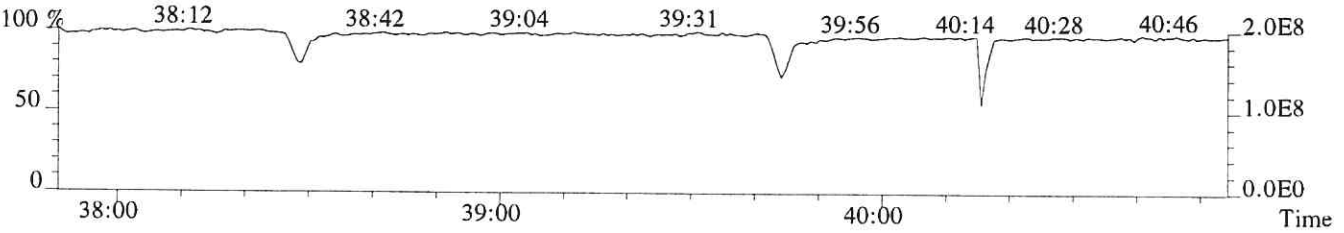
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,38208.0,0.50%,F,T)



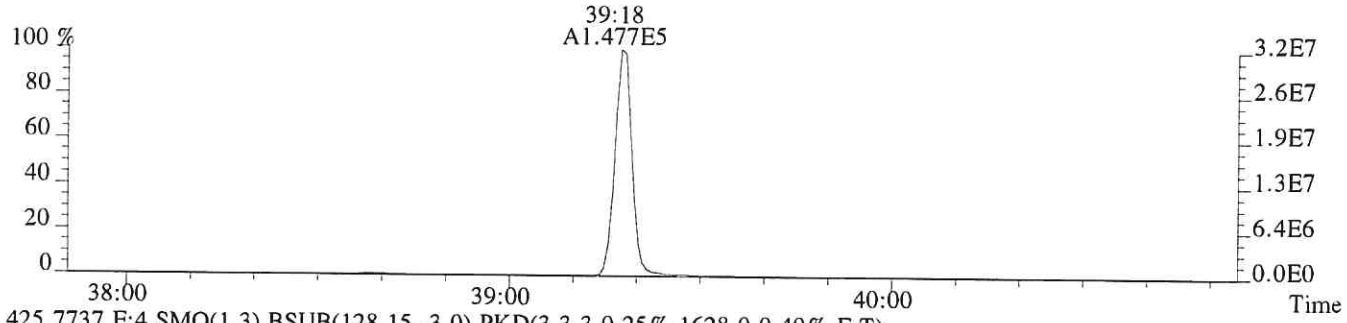
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



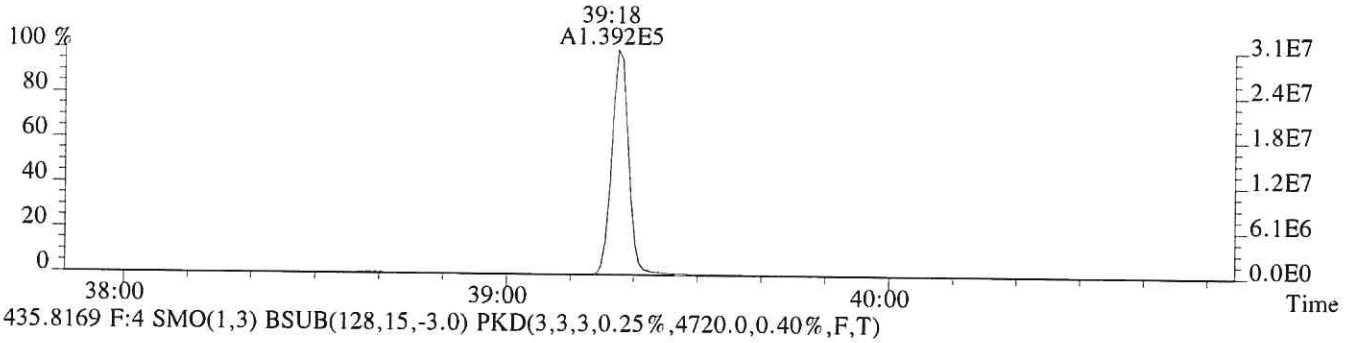
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



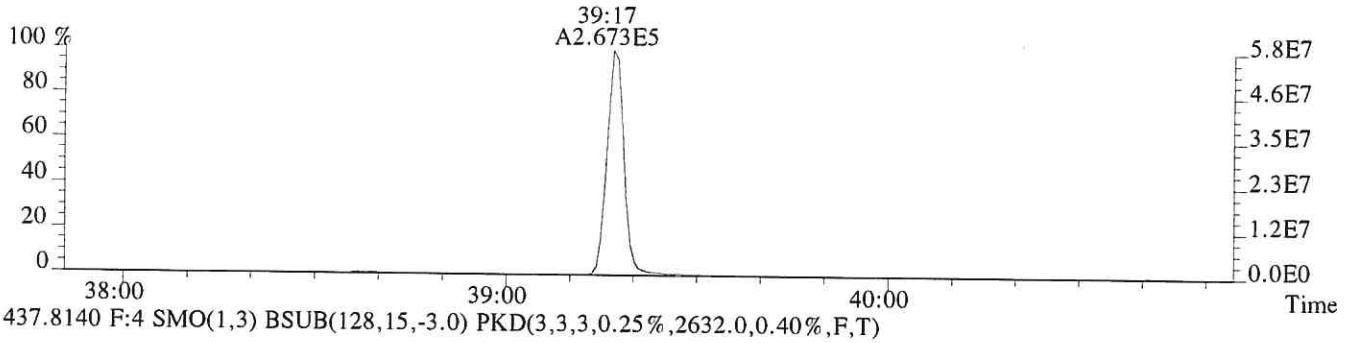
File:P614685 #1-276 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



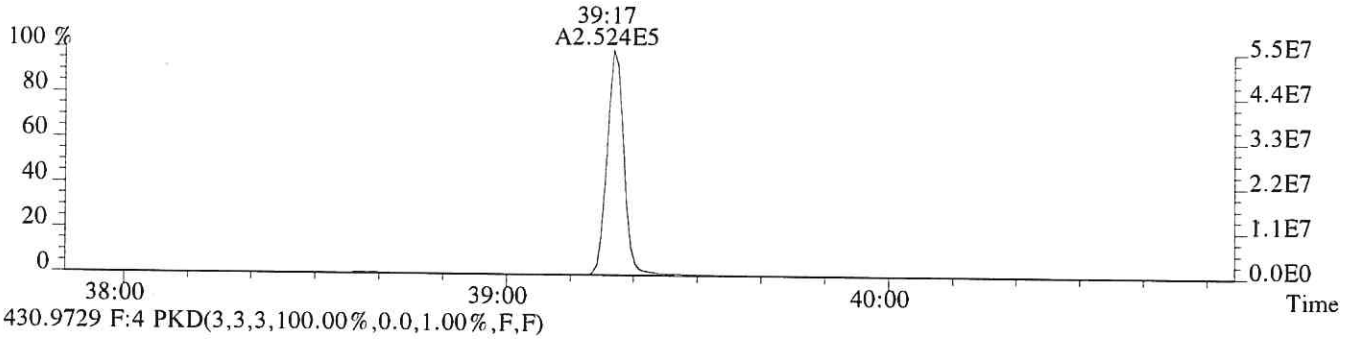
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



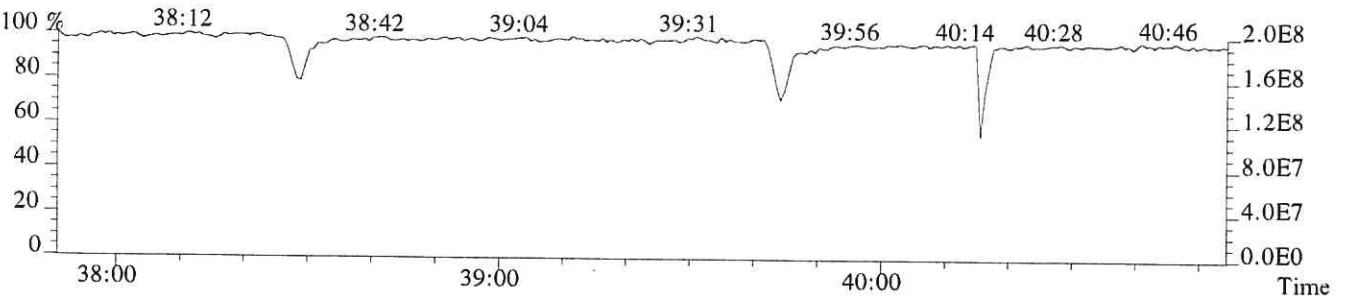
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4720.0,0.40%,F,T)



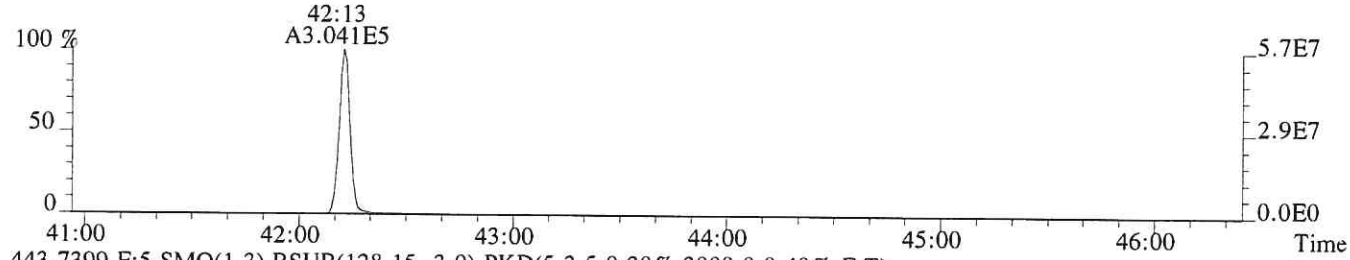
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



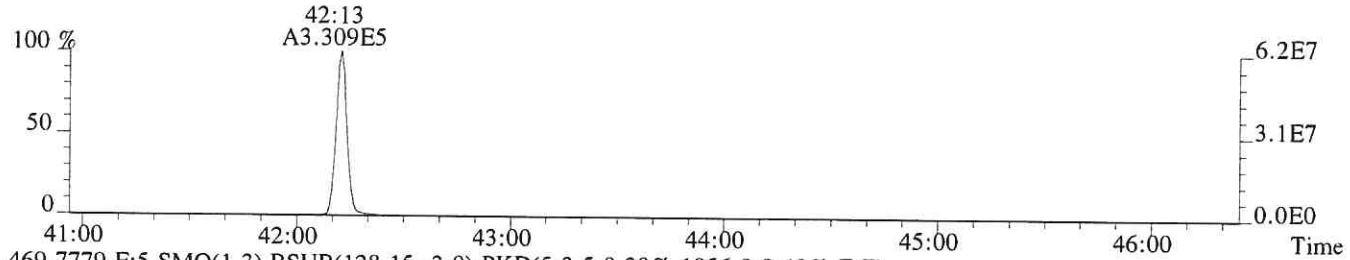
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



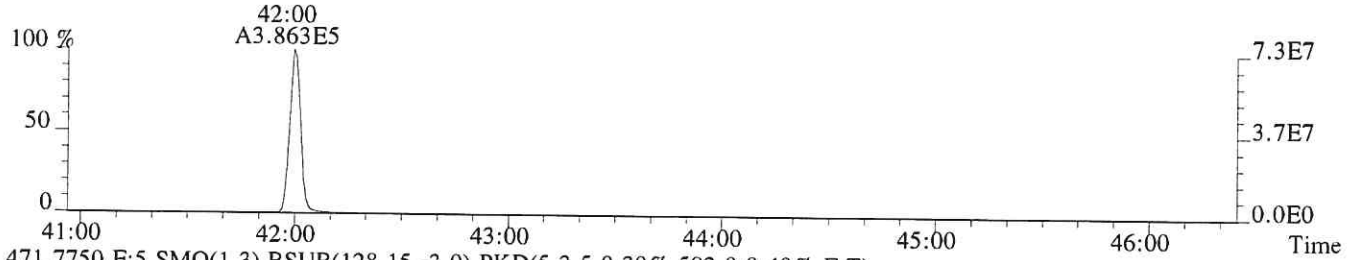
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



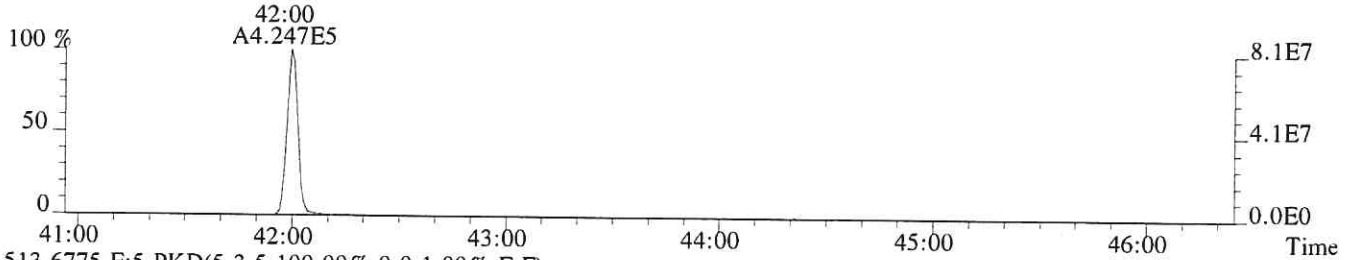
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3008.0,0.40%,F,T)



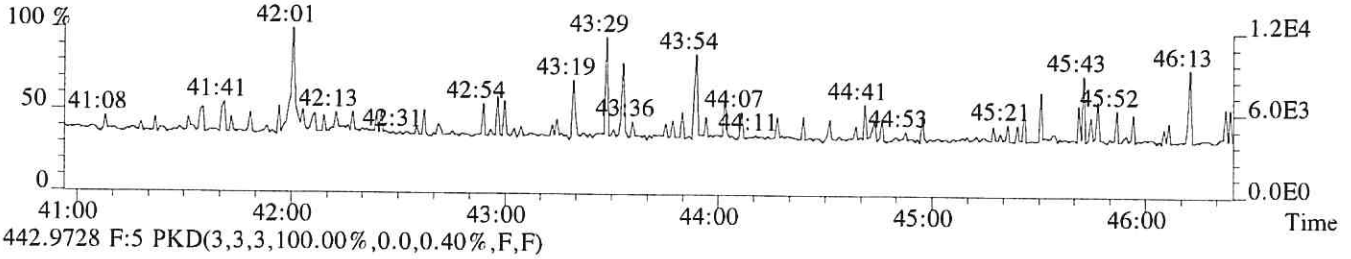
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



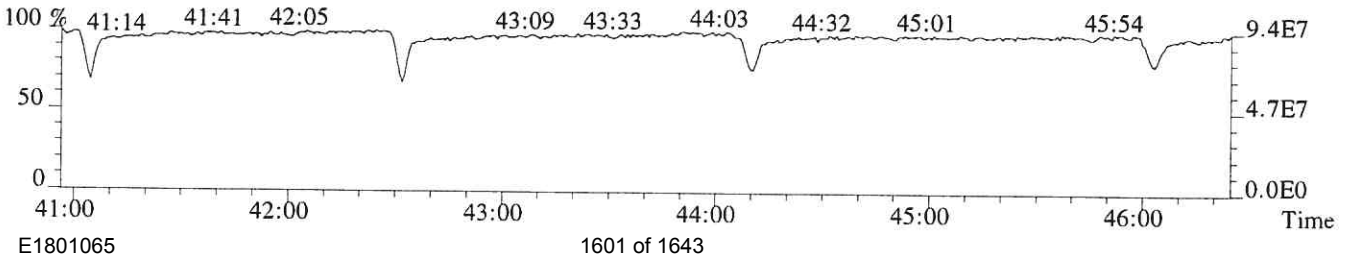
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



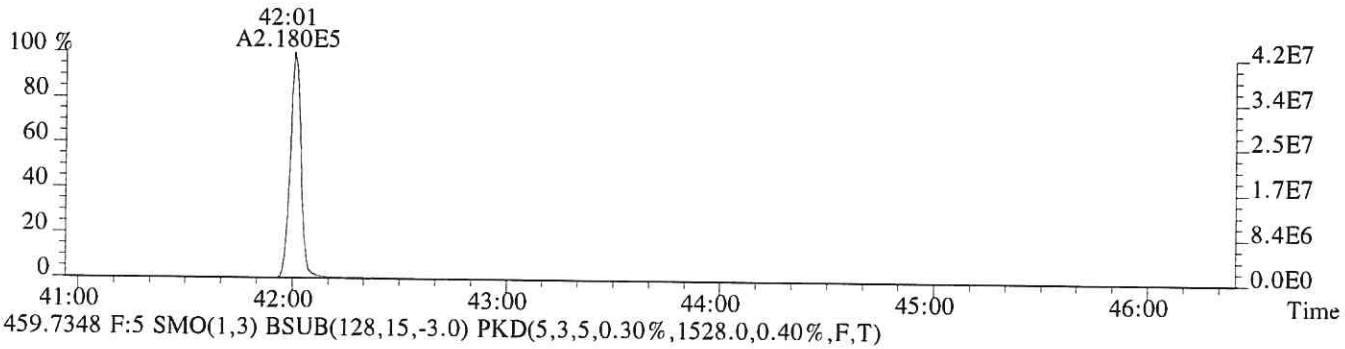
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



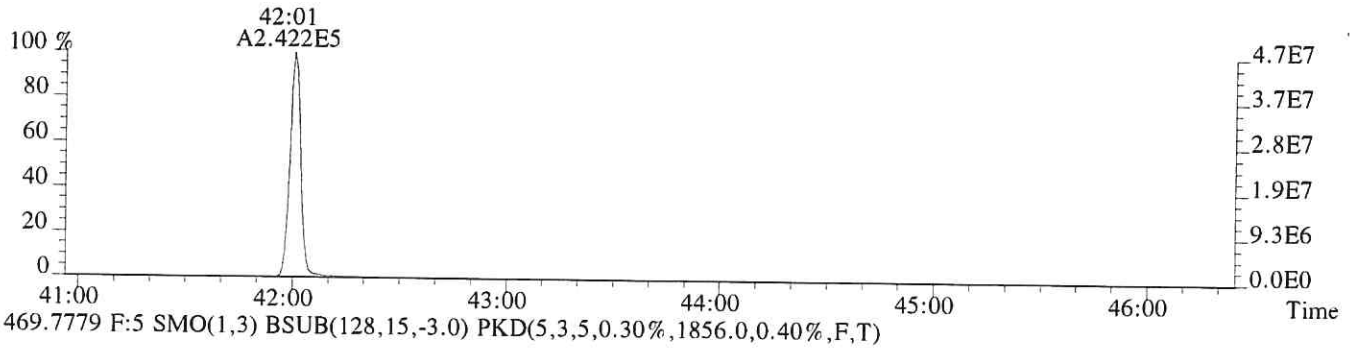
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



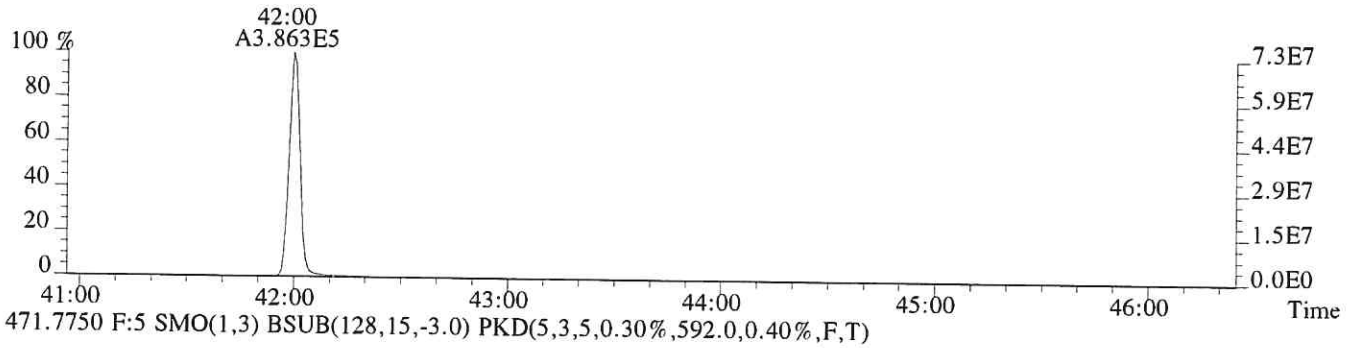
File:P614685 #1-493 Acq:25-SEP-2018 16:52:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



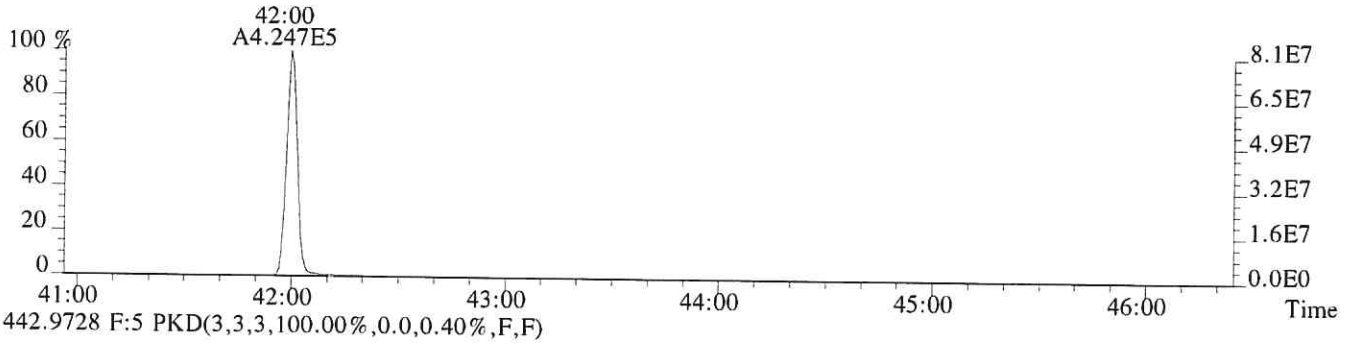
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



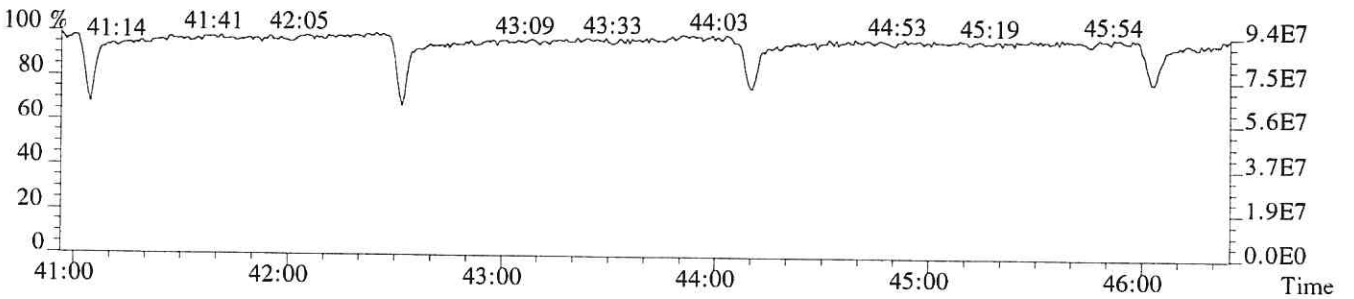
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.186e+05	1.498e+05	0.79	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.070e+06	6.680e+05	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	9.931e+05	6.255e+05	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	9.336e+05	7.318e+05	1.28	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	9.546e+05	7.530e+05	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	9.004e+05	7.134e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	8.574e+05	6.711e+05	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	7.924e+05	7.640e+05	1.04	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	6.712e+05	6.389e+05	1.05	yes	no	1.463
10	Unk	OCDF	42:13	9.999e+05	1.075e+06	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	8.371e+04	1.065e+05	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	5.908e+05	3.807e+05	1.55	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.387e+05	4.268e+05	1.26	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	5.444e+05	4.299e+05	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	5.850e+05	4.610e+05	1.27	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	4.859e+05	4.568e+05	1.06	yes	no	1.112
17	Unk	OCDD	42:01	7.127e+05	7.901e+05	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.799e+05	3.543e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	4.595e+05	2.875e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	4.523e+05	2.842e+05	1.59	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	2.092e+05	3.928e+05	0.53	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	2.332e+05	4.327e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	2.224e+05	4.139e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	2.041e+05	3.825e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	1.626e+05	3.528e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	1.431e+05	3.159e+05	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	2.012e+05	2.528e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	3.193e+05	2.044e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	2.552e+05	2.035e+05	1.25	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	2.565e+05	2.045e+05	1.25	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	2.187e+05	2.081e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	3.133e+05	3.464e+05	0.90	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	2.000e+05	2.518e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.828e+05	2.264e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.003e+05				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82167

Run #5 Filename P614686 Samp: 1 Inj: 1 Acquired: 25-SEP-18 17:41:03
Processed: 26-SEP-18 07:39:11 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.13e+07	2.15e+03	9.9e+03	2.70e+07	4.22e+03	6.4e+03
2	1,2,3,7,8-PeCDF	2.03e+08	3.06e+03	6.6e+04	1.29e+08	4.95e+03	2.6e+04
3	2,3,4,7,8-PeCDF	2.04e+08	3.06e+03	6.7e+04	1.28e+08	4.95e+03	2.6e+04
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.85e+03	1.2e+05	1.68e+08	4.92e+03	3.4e+04
5	1,2,3,6,7,8-HxCDF	2.12e+08	1.85e+03	1.1e+05	1.67e+08	4.92e+03	3.4e+04
6	2,3,4,6,7,8-HxCDF	2.02e+08	1.85e+03	1.1e+05	1.59e+08	4.92e+03	3.2e+04
7	1,2,3,7,8,9-HxCDF	1.88e+08	1.85e+03	1.0e+05	1.47e+08	4.92e+03	3.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.78e+08	2.61e+04	6.8e+03	1.72e+08	1.83e+04	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.41e+08	2.61e+04	5.4e+03	1.35e+08	1.83e+04	7.4e+03
10	OCDF	1.94e+08	1.46e+03	1.3e+05	2.08e+08	3.00e+03	6.9e+04
11	2,3,7,8-TCDD	1.62e+07	6.38e+03	2.5e+03	2.06e+07	2.42e+03	8.5e+03
12	1,2,3,7,8-PeCDD	1.19e+08	3.22e+03	3.7e+04	7.64e+07	1.02e+03	7.5e+04
13	1,2,3,4,7,8-HxCDD	1.25e+08	9.48e+02	1.3e+05	9.78e+07	1.64e+03	5.9e+04
14	1,2,3,6,7,8-HxCDD	1.22e+08	9.48e+02	1.3e+05	9.73e+07	1.64e+03	5.9e+04
15	1,2,3,7,8,9-HxCDD	1.31e+08	9.48e+02	1.4e+05	1.04e+08	1.64e+03	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.10e+08	2.46e+03	4.5e+04	1.04e+08	2.38e+03	4.4e+04
17	OCDD	1.42e+08	1.24e+03	1.1e+05	1.57e+08	1.46e+03	1.1e+05
18	13C-2,3,7,8-TCDF	5.06e+07	1.14e+04	4.4e+03	6.41e+07	7.28e+03	8.8e+03
19	13C-1,2,3,7,8-PeCDF	8.88e+07	3.08e+03	2.9e+04	5.58e+07	3.54e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	9.15e+07	3.08e+03	3.0e+04	5.70e+07	3.54e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	4.76e+07	3.01e+03	1.6e+04	8.96e+07	4.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	5.17e+07	3.01e+03	1.7e+04	9.54e+07	4.64e+03	2.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.99e+07	3.01e+03	1.7e+04	9.21e+07	4.64e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.48e+07	3.01e+03	1.5e+04	8.44e+07	4.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.73e+07	8.80e+03	4.2e+03	8.02e+07	1.92e+04	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.97e+07	8.80e+03	3.4e+03	6.54e+07	1.92e+04	3.4e+03
27	13C-2,3,7,8-TCDD	3.77e+07	1.85e+04	2.0e+03	4.78e+07	7.81e+03	6.1e+03
28	13C-1,2,3,7,8-PeCDD	6.47e+07	3.56e+03	1.8e+04	4.18e+07	3.26e+03	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	5.86e+07	4.66e+03	1.3e+04	4.67e+07	3.04e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	5.76e+07	4.66e+03	1.2e+04	4.61e+07	3.04e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.94e+07	3.14e+03	1.6e+04	4.74e+07	1.71e+03	2.8e+04
32	13C-OCDD	6.18e+07	1.83e+03	3.4e+04	6.87e+07	9.56e+02	7.2e+04
33	13C-1,2,3,4-TCDD	3.76e+07	1.85e+04	2.0e+03	4.73e+07	7.81e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	6.25e+07	4.66e+03	1.3e+04	5.04e+07	3.04e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	3.86e+07	4.32e+03	9.0e+03			

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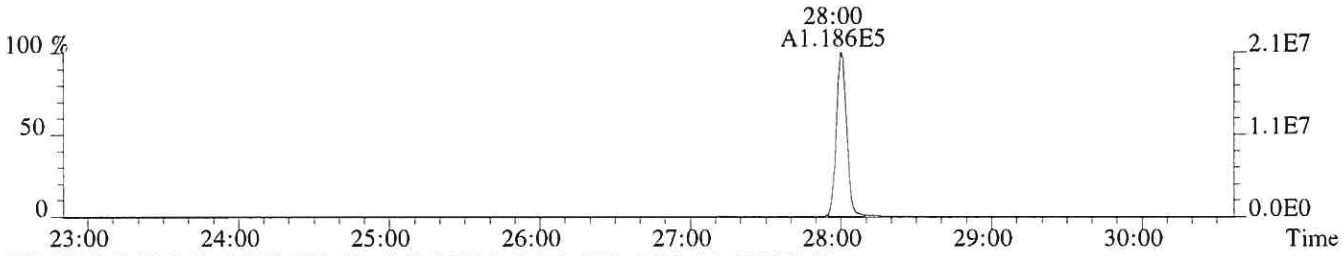
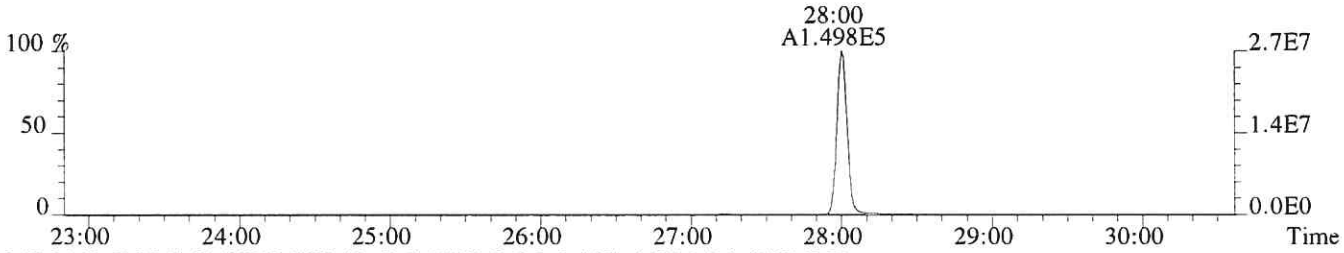
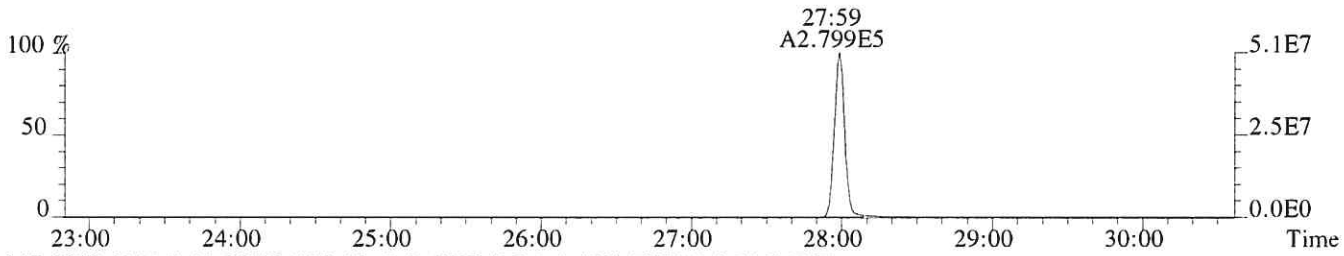
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2148.0,1.00%,F,T)



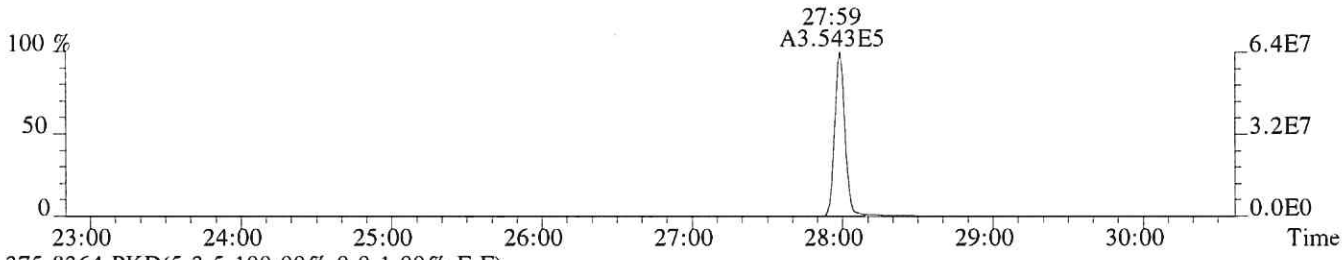
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4220.0,1.00%,F,T)



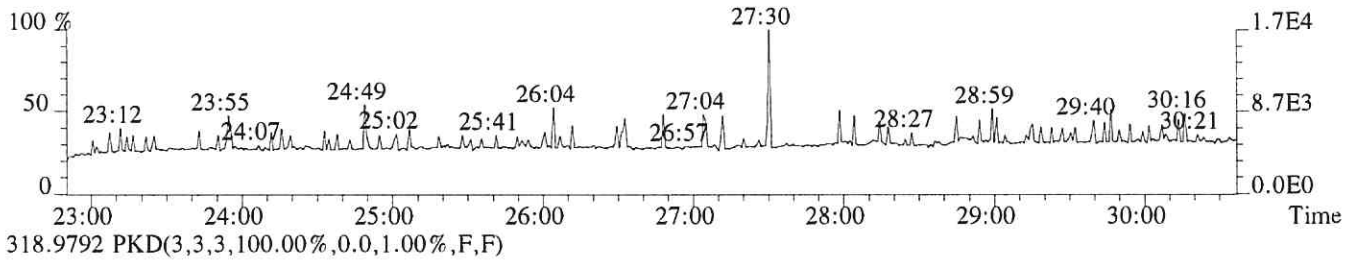
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11396.0,1.00%,F,T)



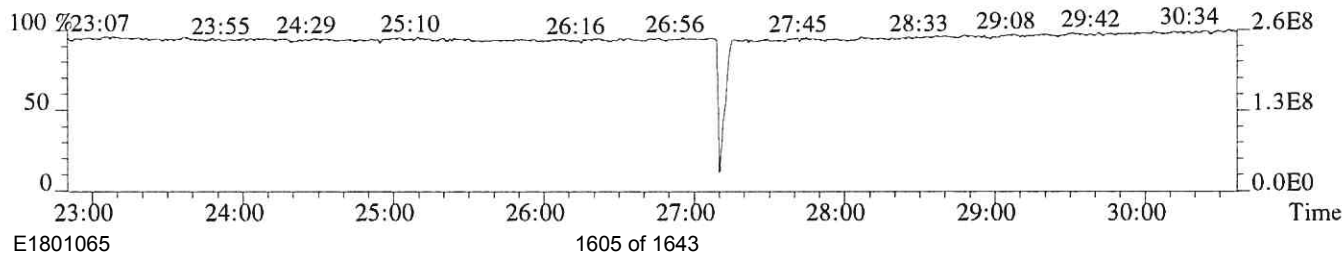
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7276.0,1.00%,F,T)



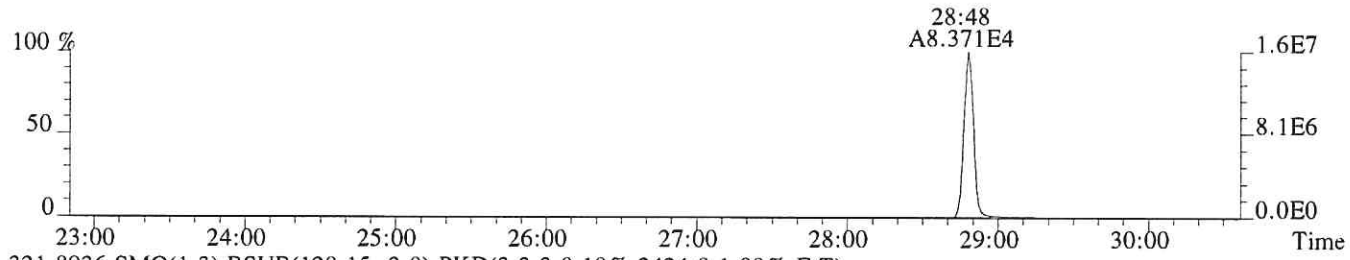
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



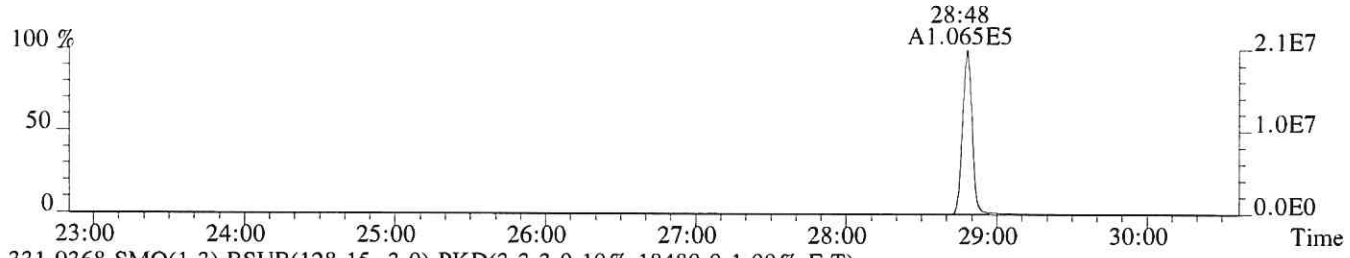
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



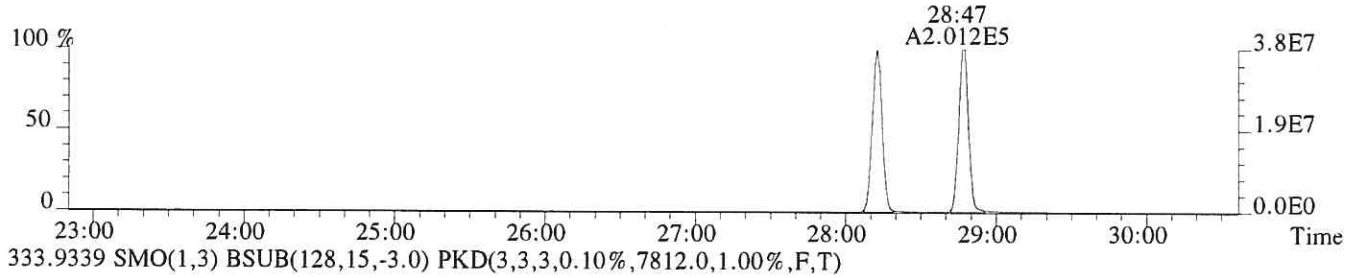
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6384.0,1.00%,F,T)



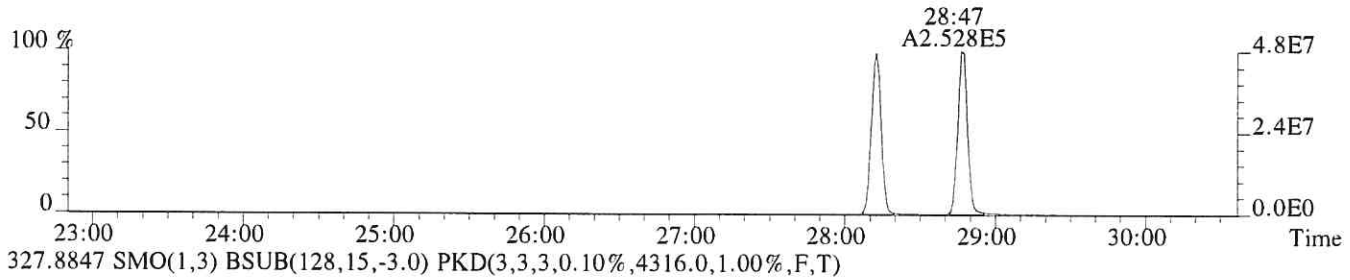
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



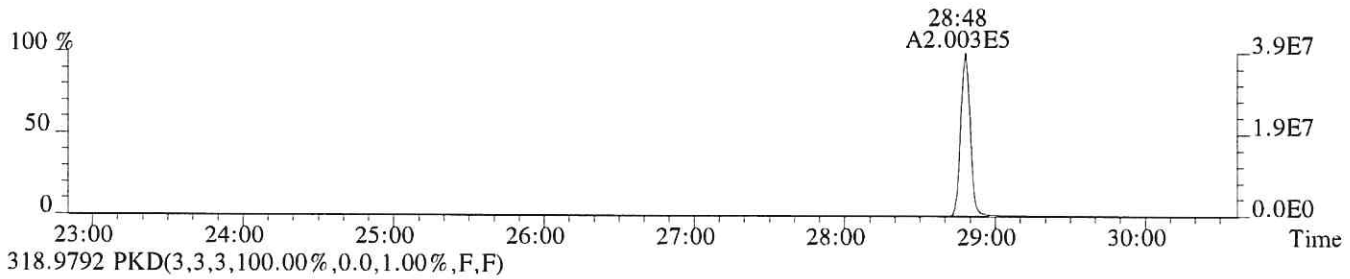
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18480.0,1.00%,F,T)



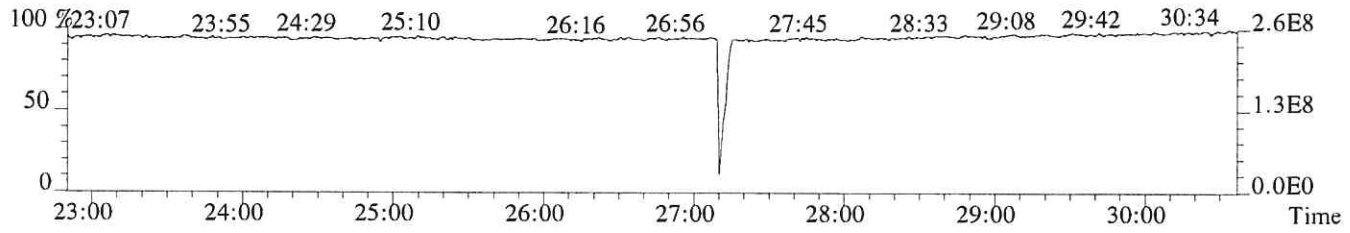
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7812.0,1.00%,F,T)



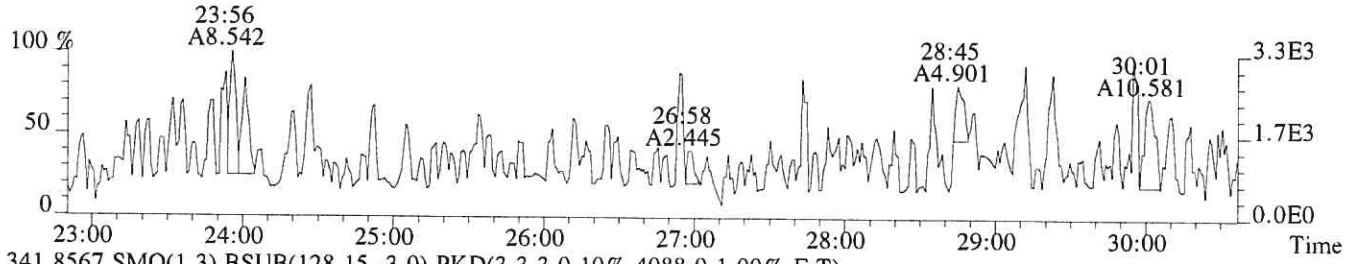
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



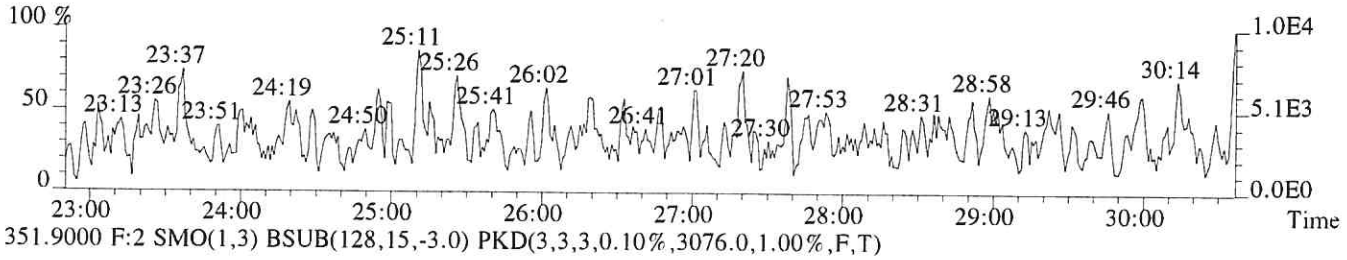
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



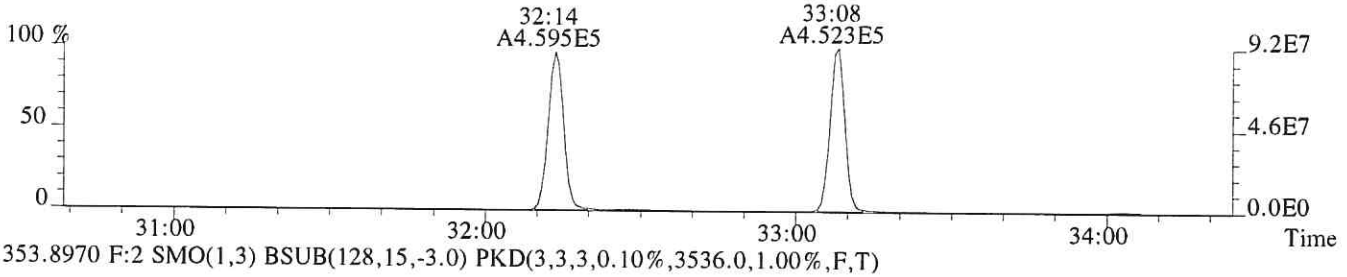
File:P614686 #1-552 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



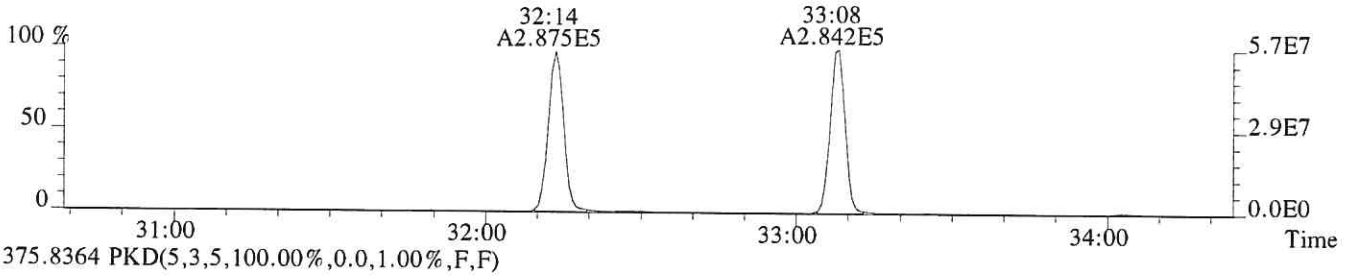
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4088.0,1.00%,F,T)



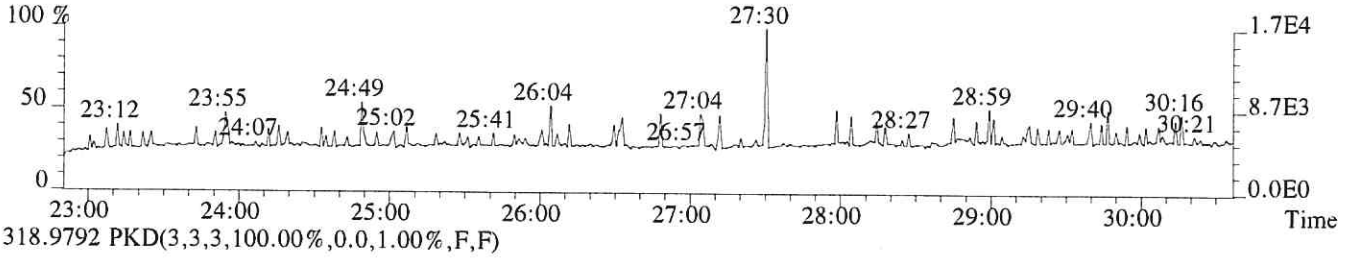
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



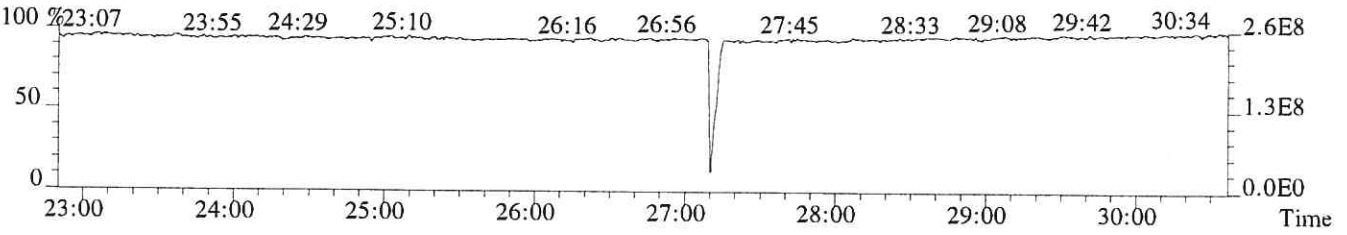
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



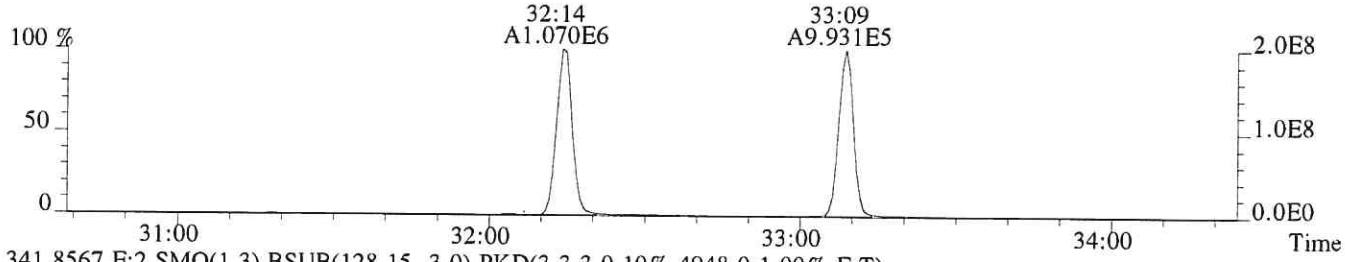
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



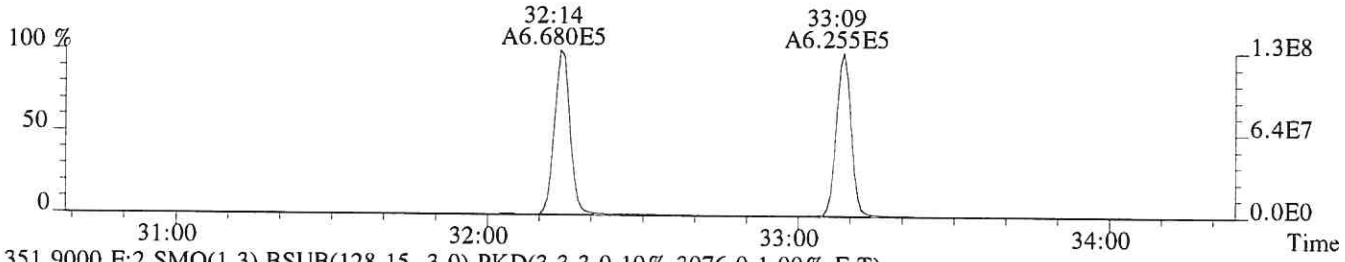
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



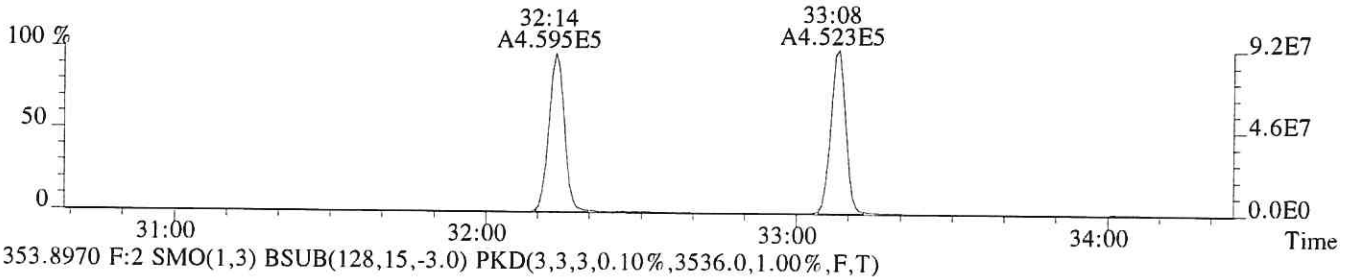
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



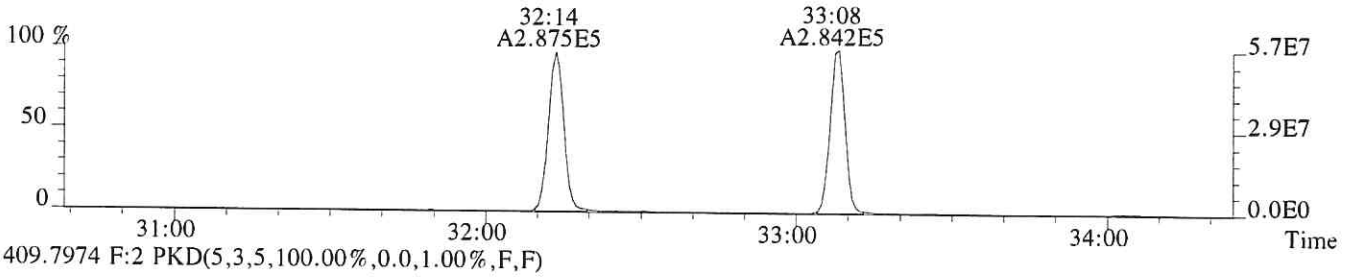
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4948.0,1.00%,F,T)



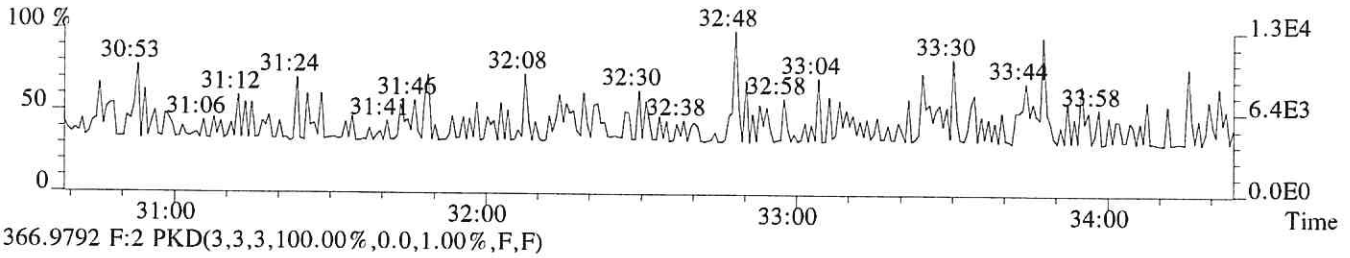
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



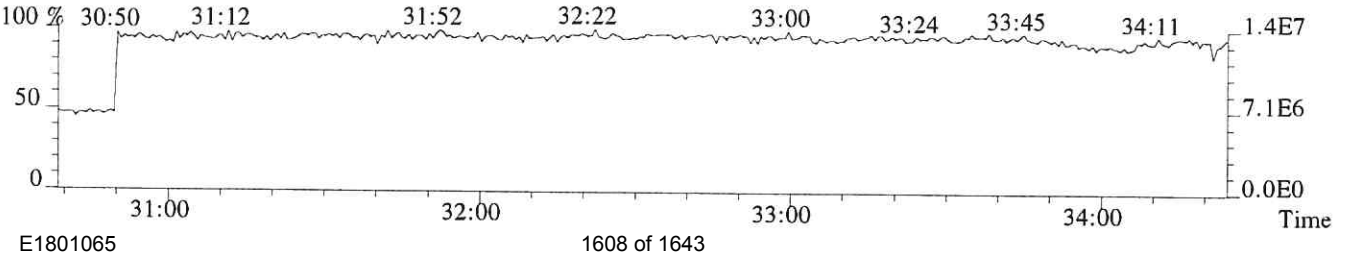
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3536.0,1.00%,F,T)



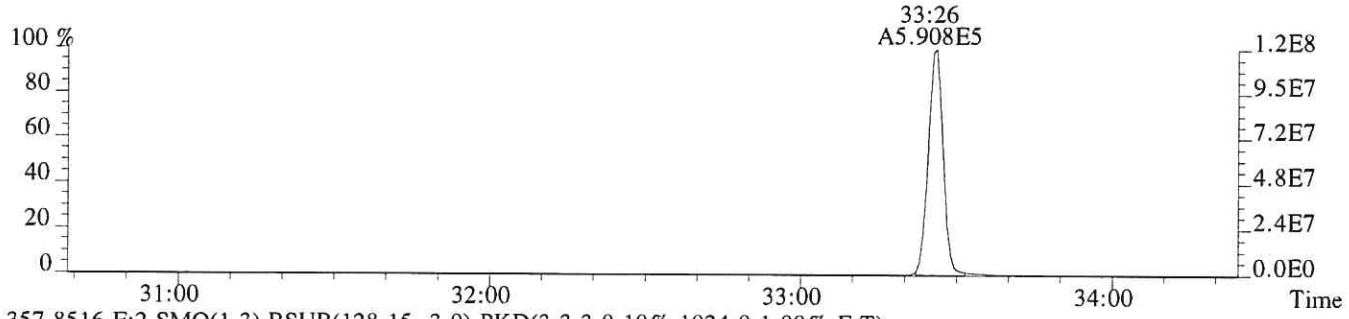
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



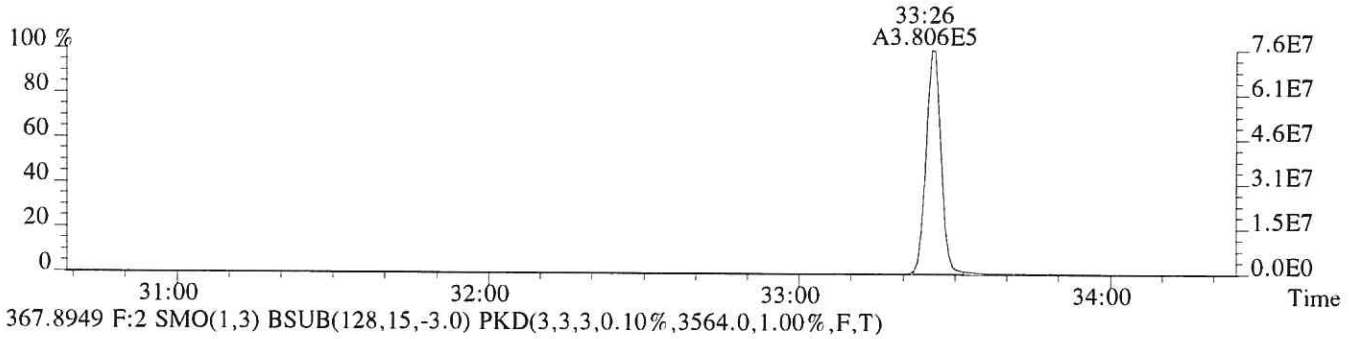
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



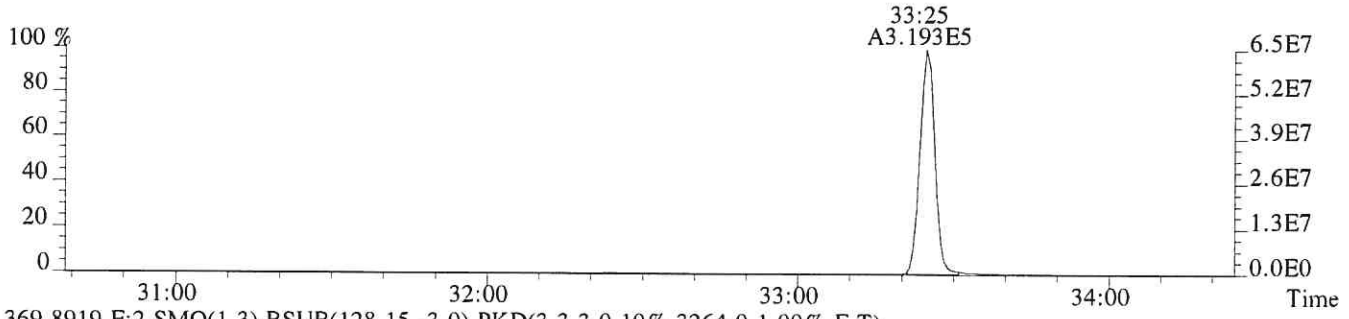
File:P614686 #1-339 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3220.0,1.00%,F,T)



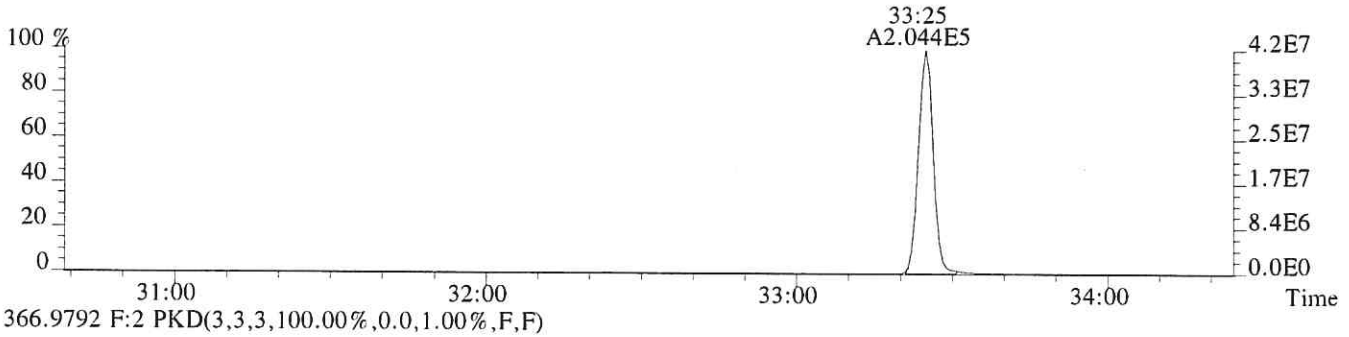
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



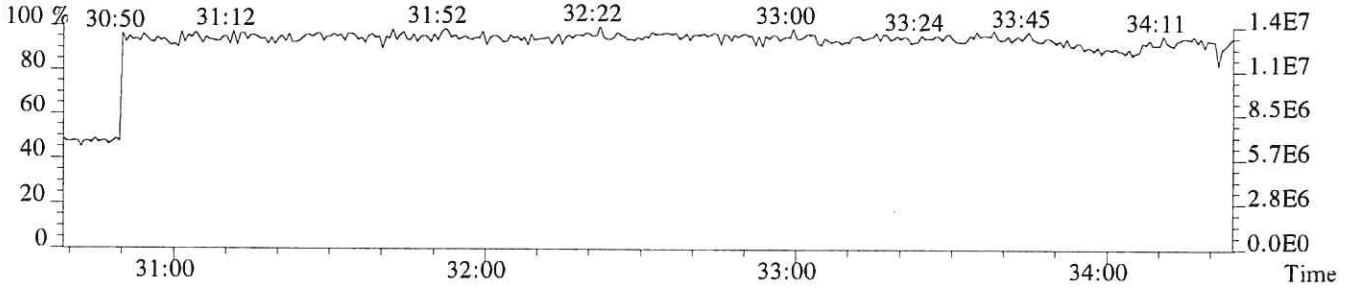
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



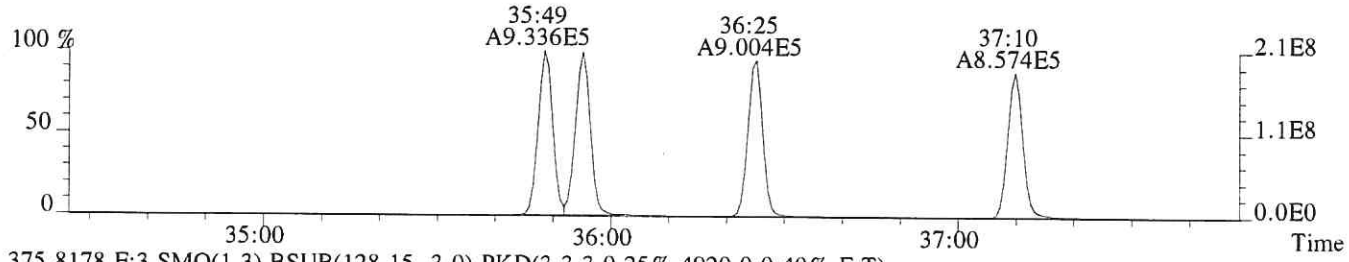
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



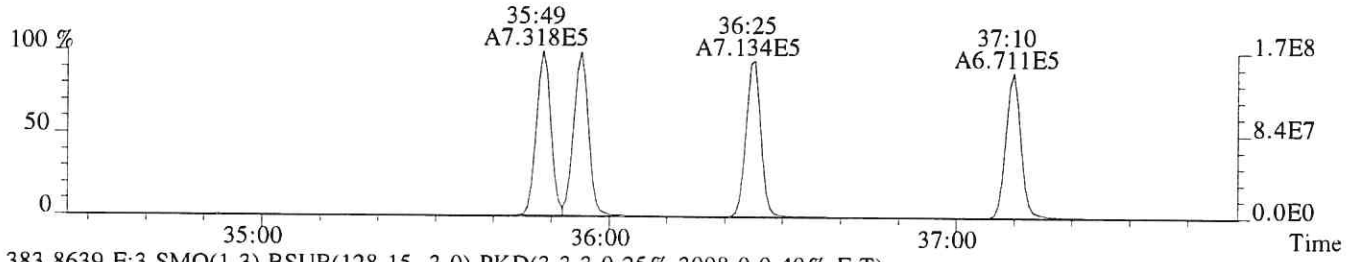
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



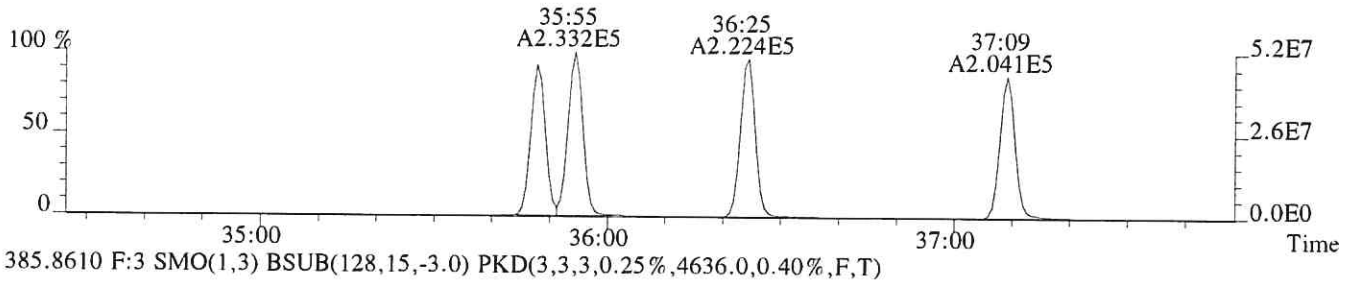
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



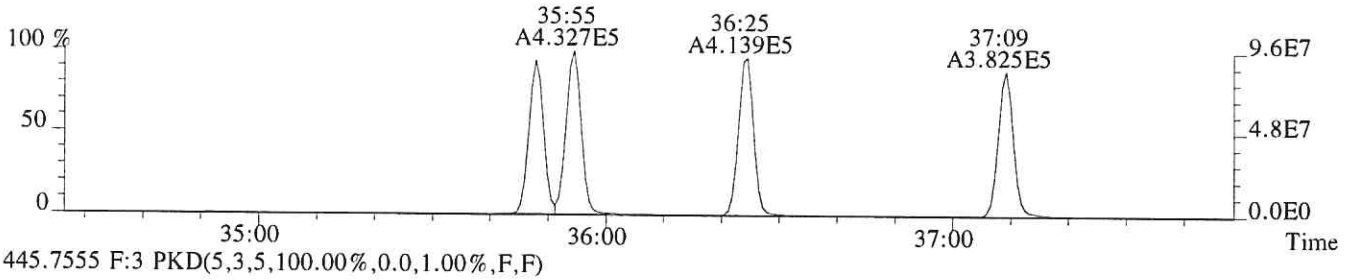
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4920.0,0.40%,F,T)



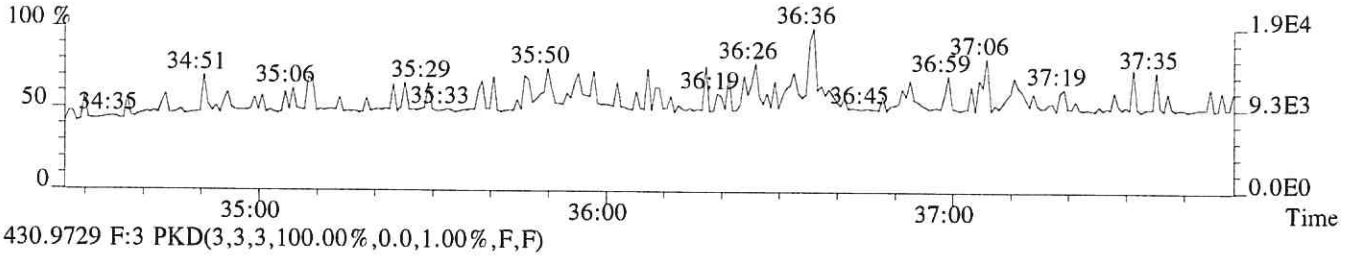
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



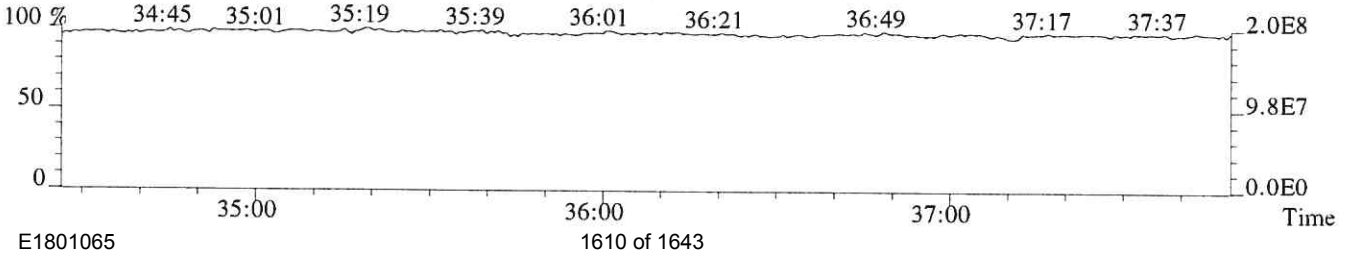
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



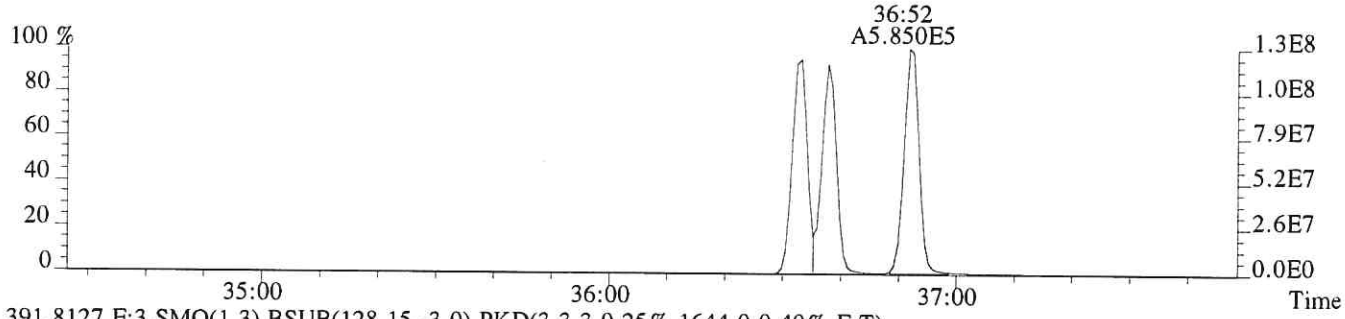
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



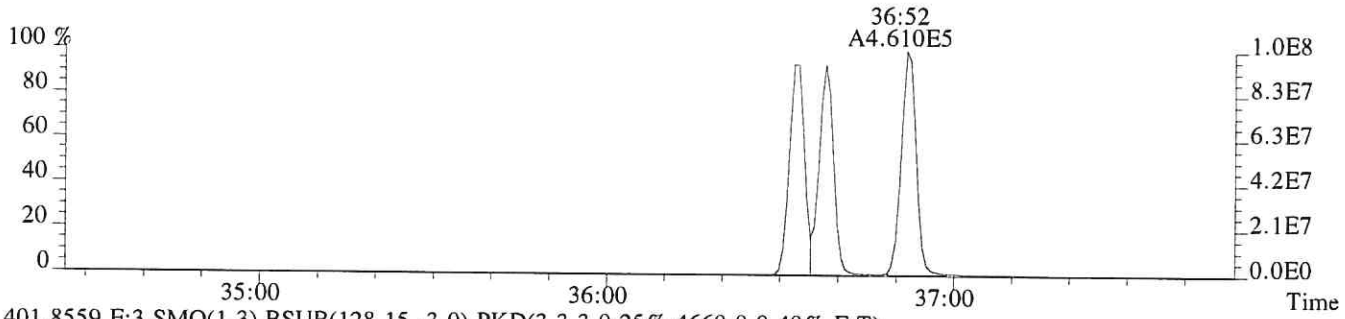
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



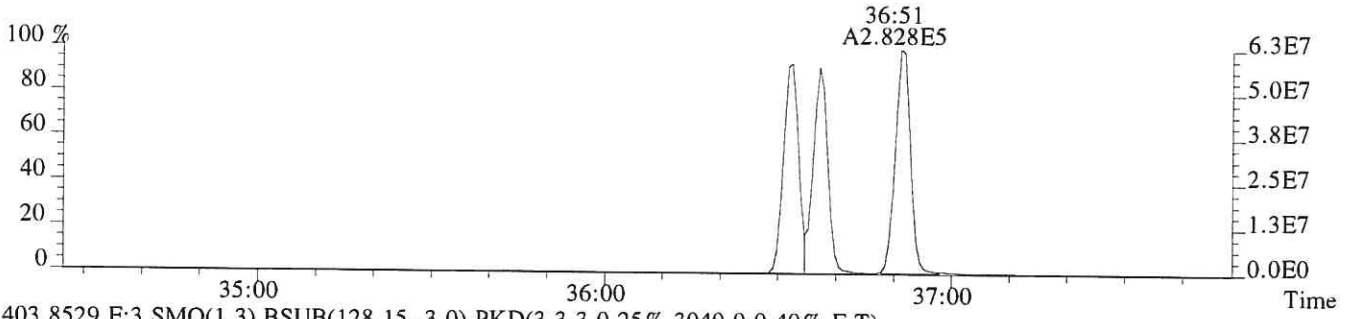
File:P614686 #1-304 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



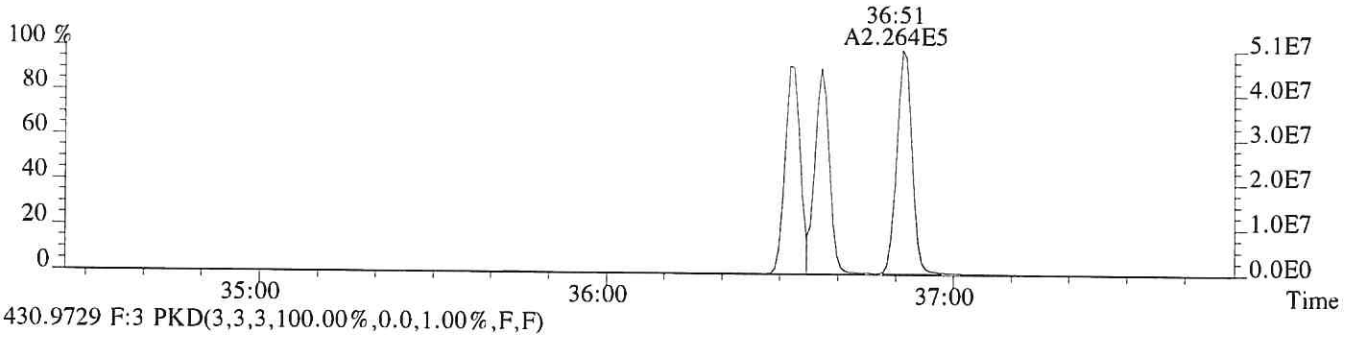
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



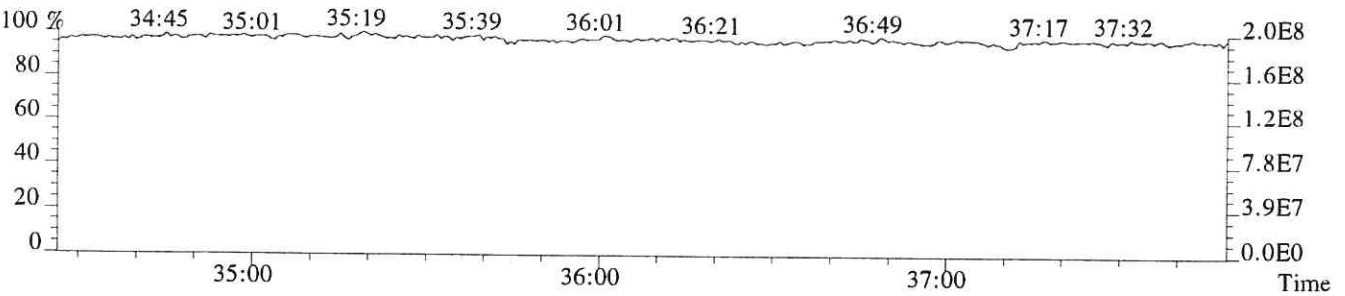
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4660.0,0.40%,F,T)



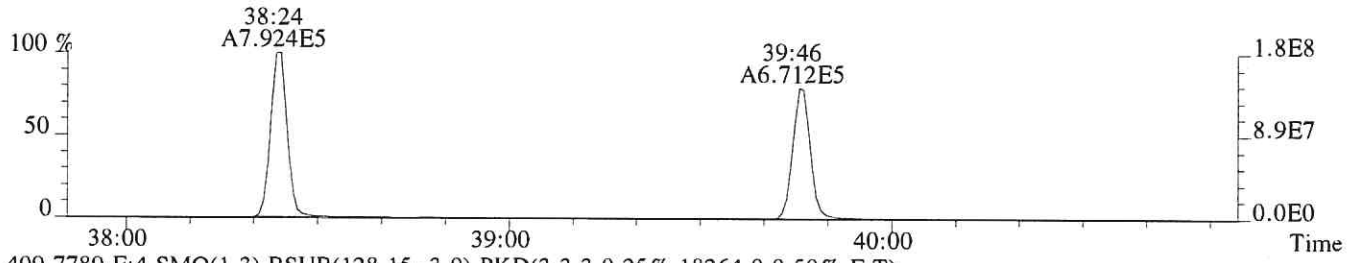
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.40%,F,T)



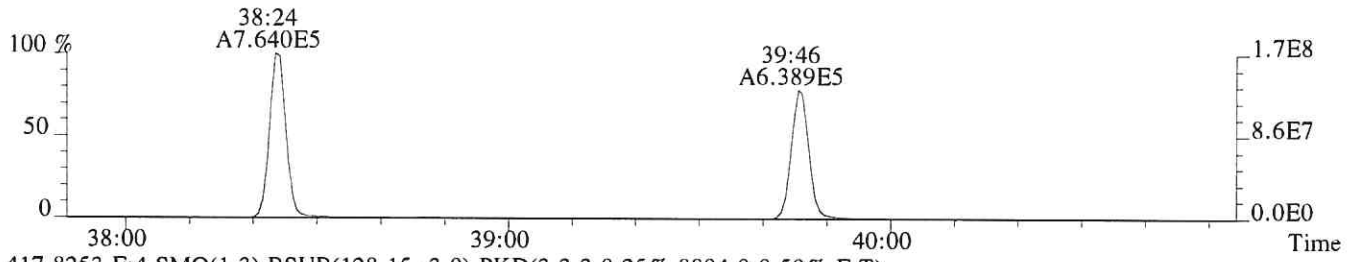
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



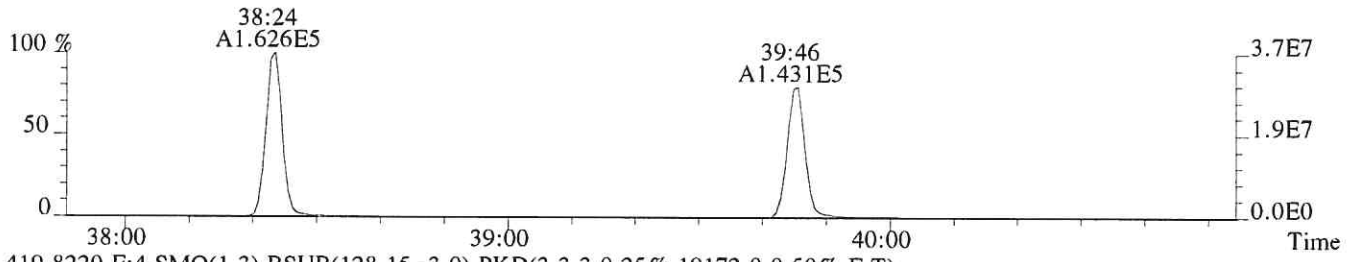
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26056.0,0.50%,F,T)



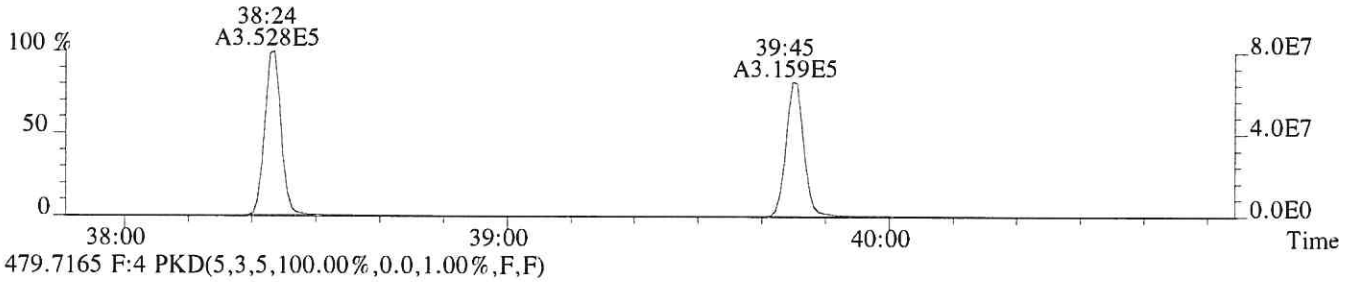
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18264.0,0.50%,F,T)



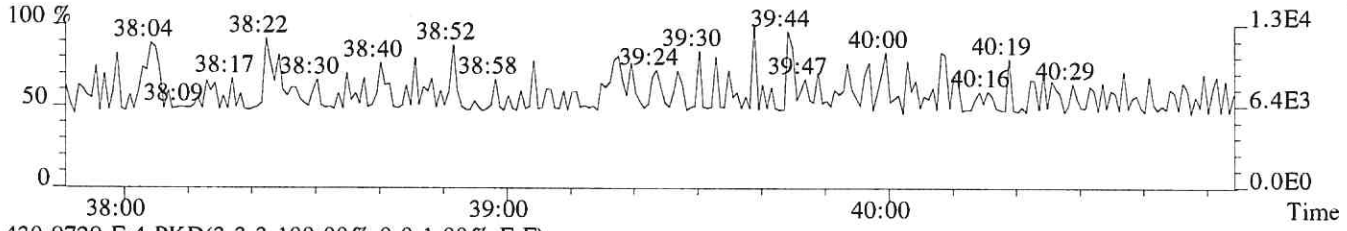
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8804.0,0.50%,F,T)



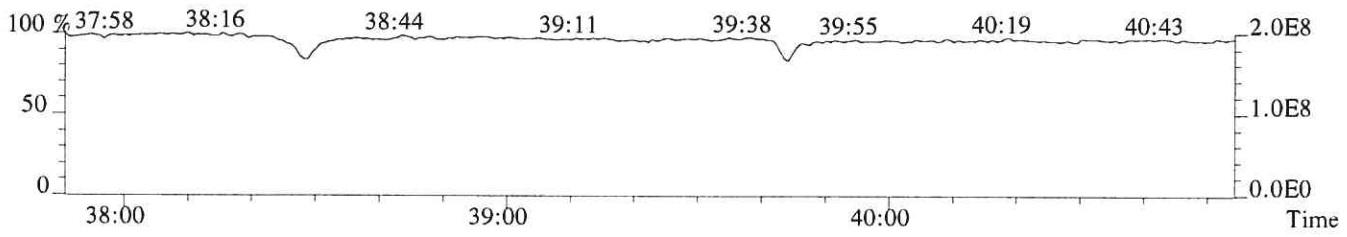
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19172.0,0.50%,F,T)



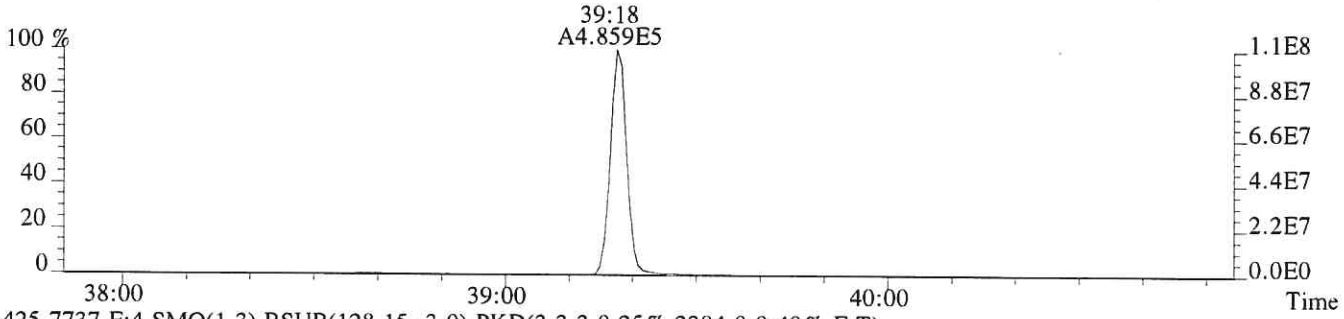
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



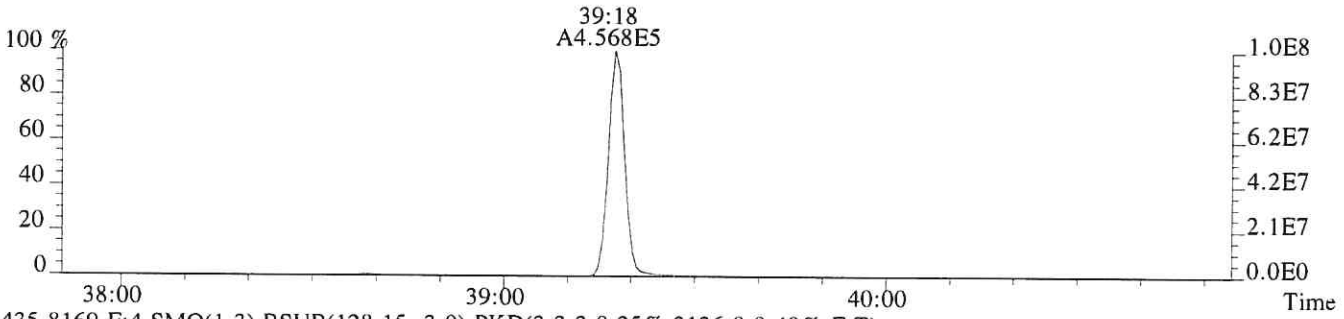
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



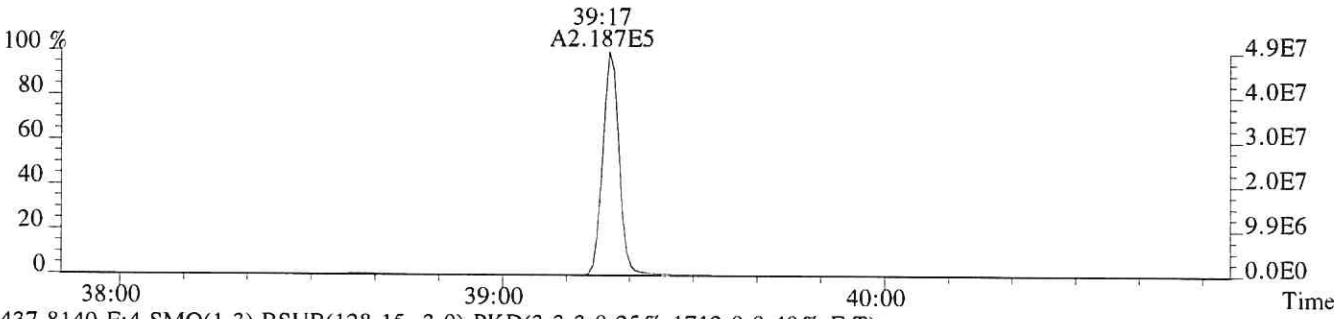
File:P614686 #1-276 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



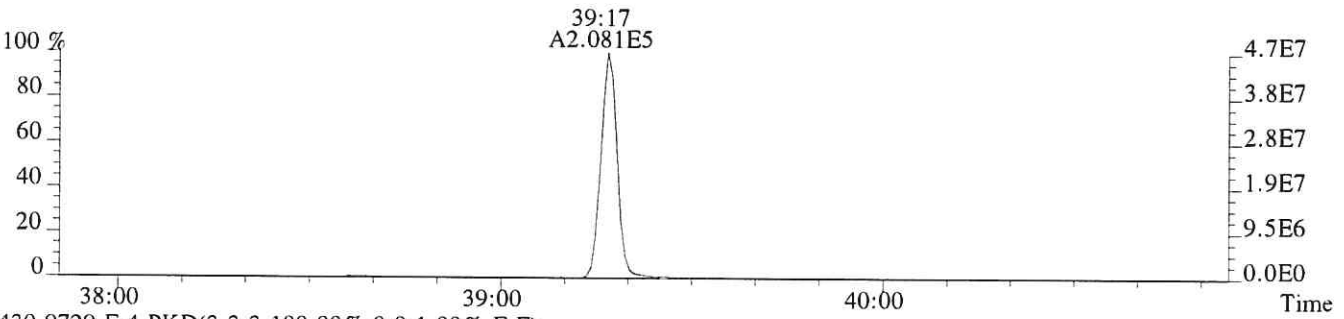
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



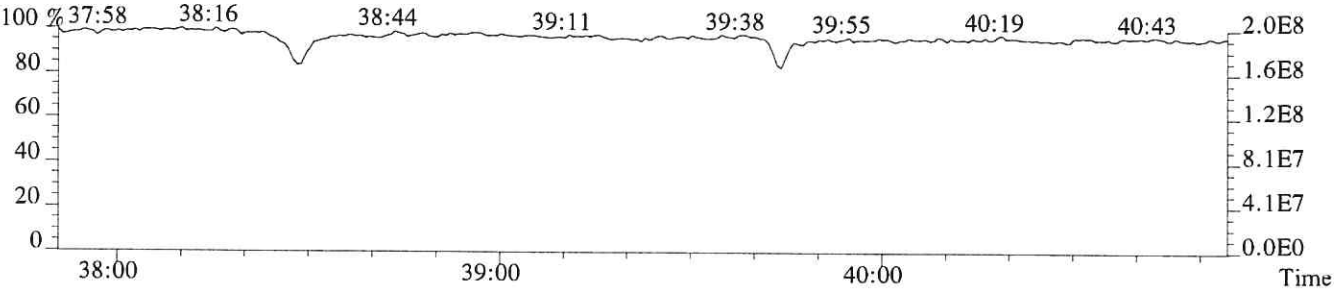
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.40%,F,T)



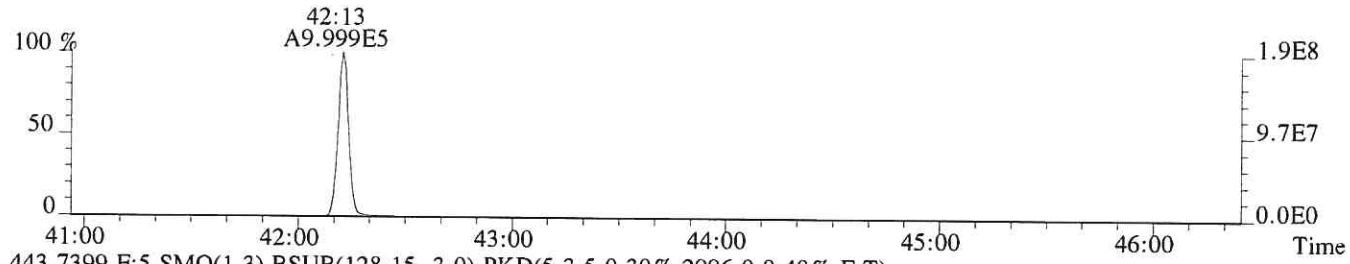
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



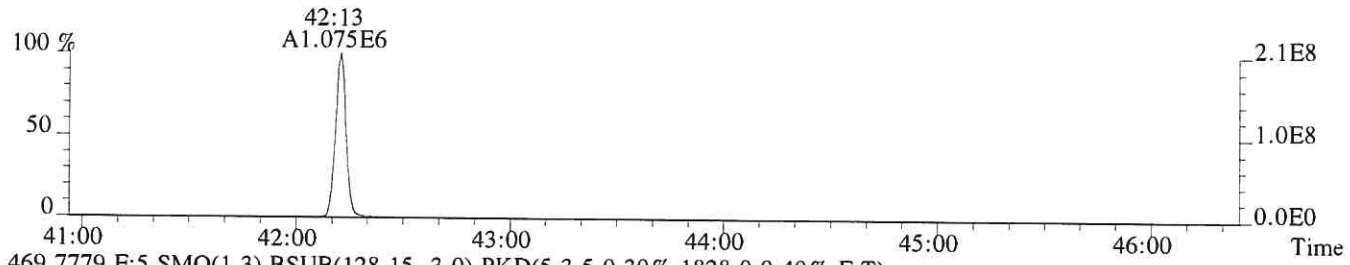
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



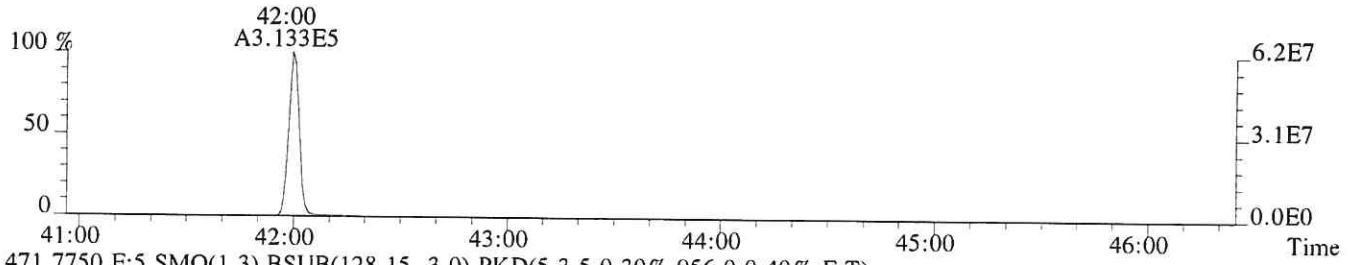
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



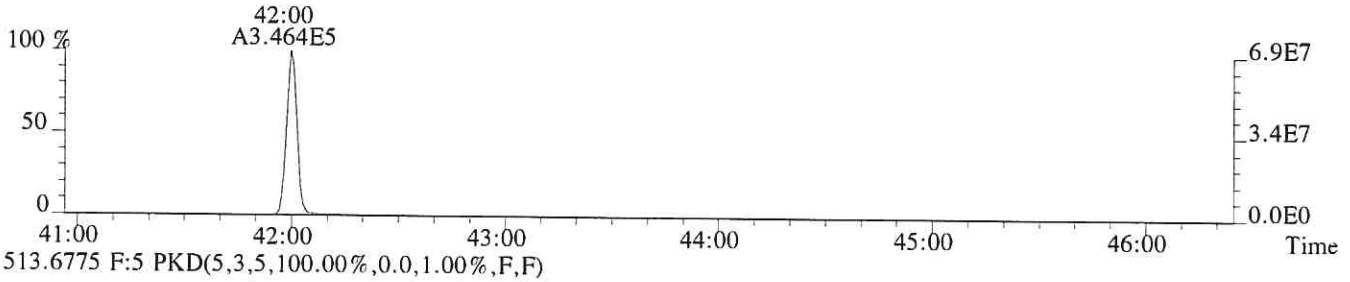
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2996.0,0.40%,F,T)



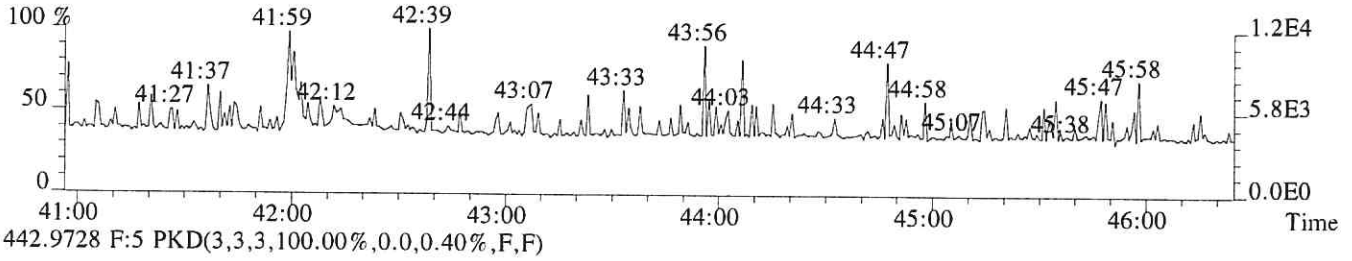
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



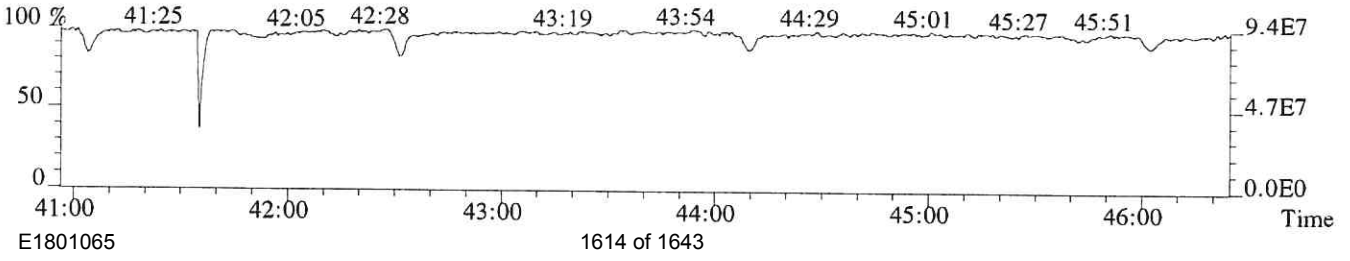
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



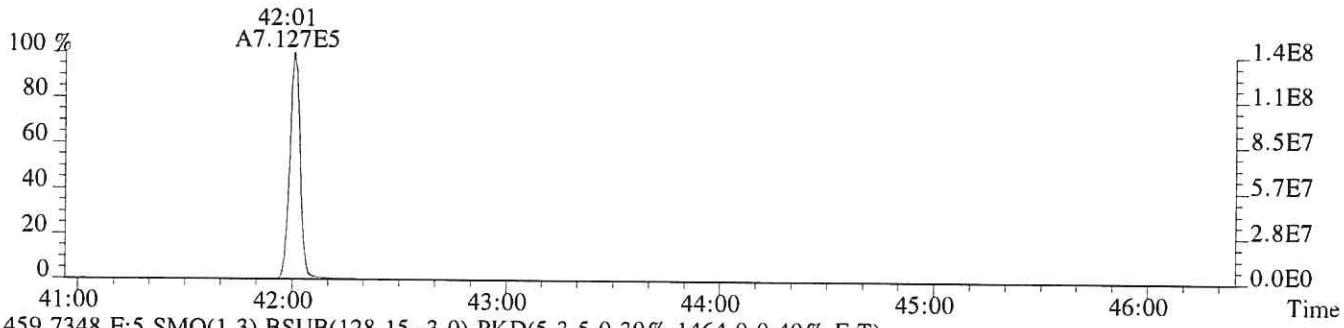
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



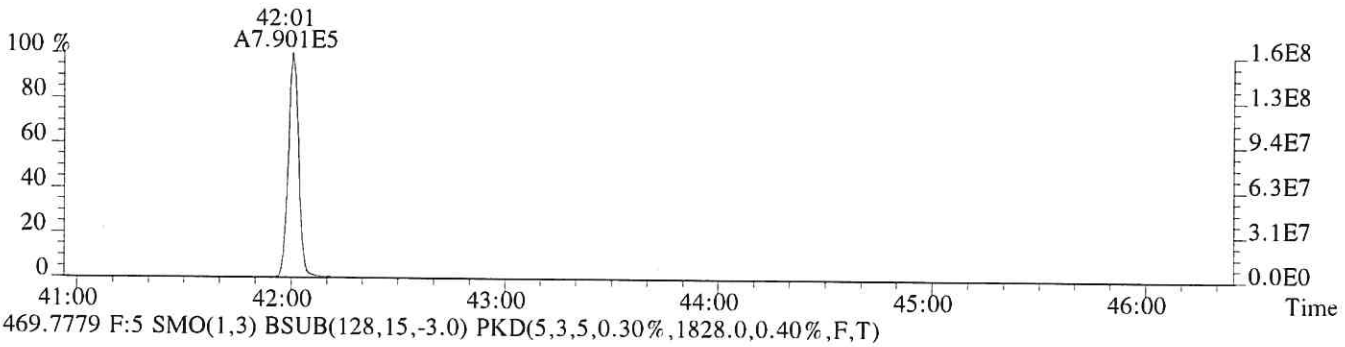
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



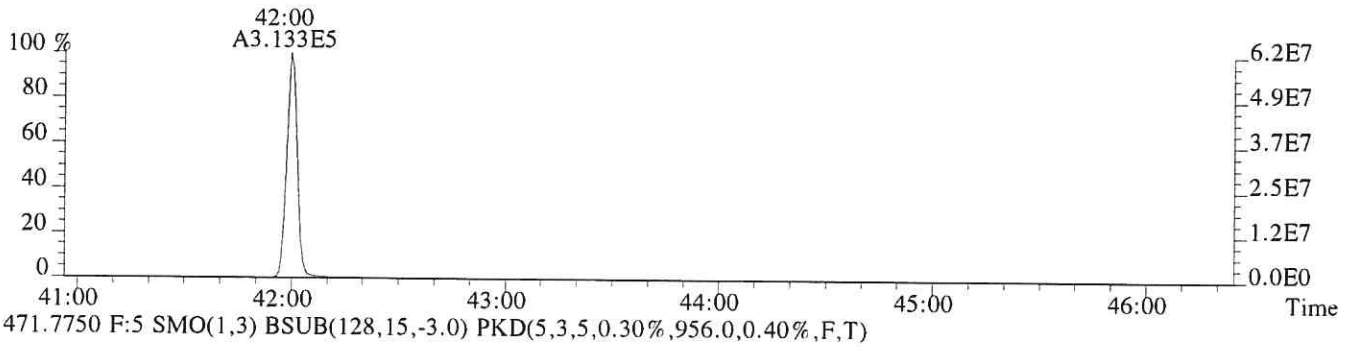
File:P614686 #1-493 Acq:25-SEP-2018 17:41:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



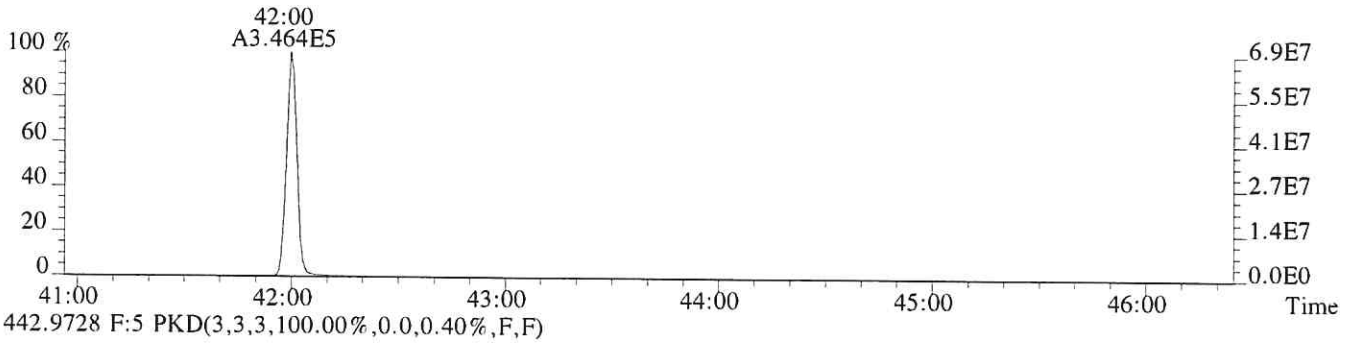
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1464.0,0.40%,F,T)



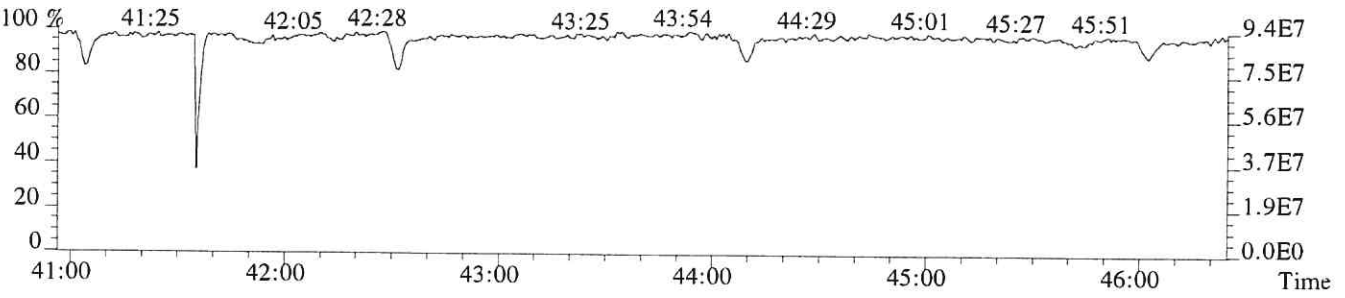
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	4.651e+05	5.844e+05	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	4.117e+06	2.575e+06	1.60	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	3.795e+06	2.391e+06	1.59	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.313e+06	2.571e+06	1.29	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	3.588e+06	2.836e+06	1.27	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	3.399e+06	2.690e+06	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:10	3.119e+06	2.463e+06	1.27	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.035e+06	2.883e+06	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	2.518e+06	2.388e+06	1.05	yes	no	1.463
10	Unk	OCDF	42:13	3.855e+06	4.175e+06	0.92	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	3.257e+05	4.207e+05	0.77	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	2.277e+06	1.455e+06	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.053e+06	1.616e+06	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	2.042e+06	1.617e+06	1.26	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	2.180e+06	1.732e+06	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	1.868e+06	1.765e+06	1.06	yes	no	1.112
17	Unk	OCDD	42:01	2.725e+06	3.028e+06	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	2.197e+05	2.785e+05	0.79	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	3.496e+05	2.178e+05	1.60	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	3.453e+05	2.138e+05	1.61	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.447e+05	2.684e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	1.758e+05	3.274e+05	0.54	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	1.668e+05	3.132e+05	0.53	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.489e+05	2.799e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	1.241e+05	2.682e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	1.078e+05	2.346e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.558e+05	1.966e+05	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	2.439e+05	1.553e+05	1.57	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.940e+05	1.538e+05	1.26	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.938e+05	1.542e+05	1.26	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.682e+05	1.601e+05	1.05	yes	no	0.857
32	IS	13C-OCDD	42:00	2.375e+05	2.681e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.555e+05	1.925e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	2.160e+05	1.725e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	7.877e+05				no	1.086

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
185657

Run #6 Filename P614687 Samp: 1 Inj: 1 Acquired: 25-SEP-18 18:30:08
Processed: 26-SEP-18 07:39:13 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.41e+07	1.94e+03	4.3e+04	1.06e+08	4.26e+03	2.5e+04
2	1,2,3,7,8-PeCDF	8.11e+08	8.46e+03	9.6e+04	5.11e+08	9.13e+03	5.6e+04
3	2,3,4,7,8-PeCDF	7.87e+08	8.46e+03	9.3e+04	4.93e+08	9.13e+03	5.4e+04
4	1,2,3,4,7,8-HxCDF	7.76e+08	1.23e+04	6.3e+04	6.07e+08	9.42e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	8.10e+08	1.23e+04	6.6e+04	6.40e+08	9.42e+03	6.8e+04
6	2,3,4,6,7,8-HxCDF	7.65e+08	1.23e+04	6.2e+04	6.05e+08	9.42e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	6.96e+08	1.23e+04	5.6e+04	5.46e+08	9.42e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.09e+08	9.68e+04	7.3e+03	6.78e+08	6.15e+04	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	5.55e+08	9.68e+04	5.7e+03	5.29e+08	6.15e+04	8.6e+03
10	OCDF	7.55e+08	1.43e+03	5.3e+05	8.22e+08	2.80e+03	2.9e+05
11	2,3,7,8-TCDD	6.32e+07	4.52e+03	1.4e+04	8.21e+07	2.67e+03	3.1e+04
12	1,2,3,7,8-PeCDD	4.67e+08	3.26e+03	1.4e+05	2.98e+08	1.54e+03	1.9e+05
13	1,2,3,4,7,8-HxCDD	4.65e+08	2.34e+03	2.0e+05	3.68e+08	1.99e+03	1.8e+05
14	1,2,3,6,7,8-HxCDD	4.59e+08	2.34e+03	2.0e+05	3.67e+08	1.99e+03	1.8e+05
15	1,2,3,7,8,9-HxCDD	4.96e+08	2.34e+03	2.1e+05	3.98e+08	1.99e+03	2.0e+05
16	1,2,3,4,6,7,8-HpCDD	4.28e+08	1.10e+04	3.9e+04	4.06e+08	8.82e+03	4.6e+04
17	OCDD	5.24e+08	9.60e+02	5.5e+05	5.87e+08	1.87e+03	3.1e+05
18	13C-2,3,7,8-TCDF	3.91e+07	1.53e+04	2.6e+03	4.94e+07	1.22e+04	4.0e+03
19	13C-1,2,3,7,8-PeCDF	6.89e+07	2.06e+03	3.3e+04	4.27e+07	4.55e+03	9.4e+03
20	13C-2,3,4,7,8-PeCDF	6.95e+07	2.06e+03	3.4e+04	4.34e+07	4.55e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.33e+07	2.62e+03	1.3e+04	6.22e+07	4.07e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	3.91e+07	2.62e+03	1.5e+04	7.31e+07	4.07e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	3.74e+07	2.62e+03	1.4e+04	6.98e+07	4.07e+03	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	3.36e+07	2.62e+03	1.3e+04	6.29e+07	4.07e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.82e+07	6.76e+03	4.2e+03	6.20e+07	1.14e+04	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.34e+07	6.76e+03	3.5e+03	5.11e+07	1.14e+04	4.5e+03
27	13C-2,3,7,8-TCDD	3.04e+07	1.91e+04	1.6e+03	3.86e+07	8.85e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	5.04e+07	1.98e+03	2.5e+04	3.21e+07	2.85e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	4.39e+07	4.70e+03	9.3e+03	3.50e+07	2.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	4.37e+07	4.70e+03	9.3e+03	3.49e+07	2.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.82e+07	2.97e+03	1.3e+04	3.65e+07	2.54e+03	1.4e+04
32	13C-OCDD	4.50e+07	3.46e+03	1.3e+04	5.10e+07	1.82e+03	2.8e+04
33	13C-1,2,3,4-TCDD	2.93e+07	1.91e+04	1.5e+03	3.60e+07	8.85e+03	4.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.90e+07	4.70e+03	1.0e+04	3.94e+07	2.24e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	1.54e+08	4.95e+03	3.1e+04			

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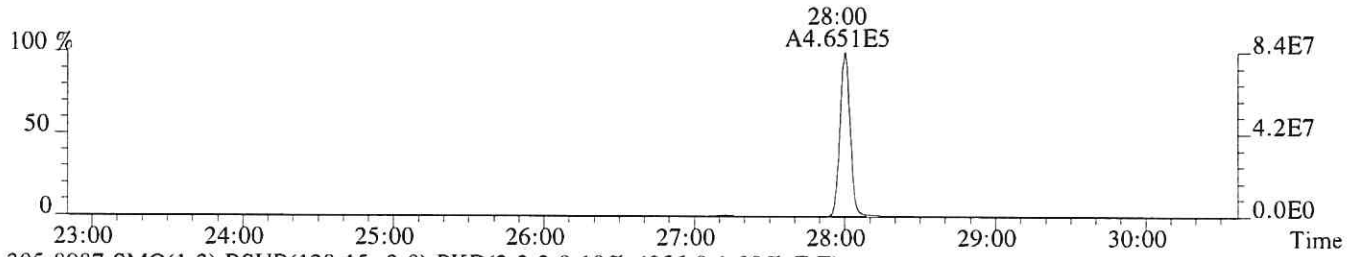
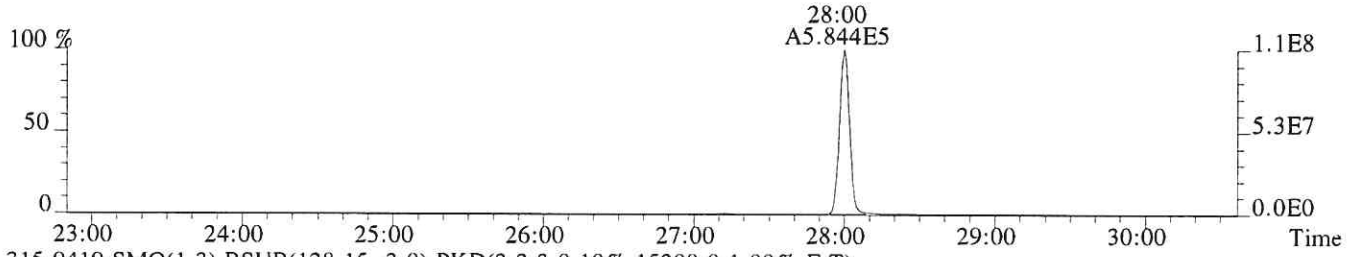
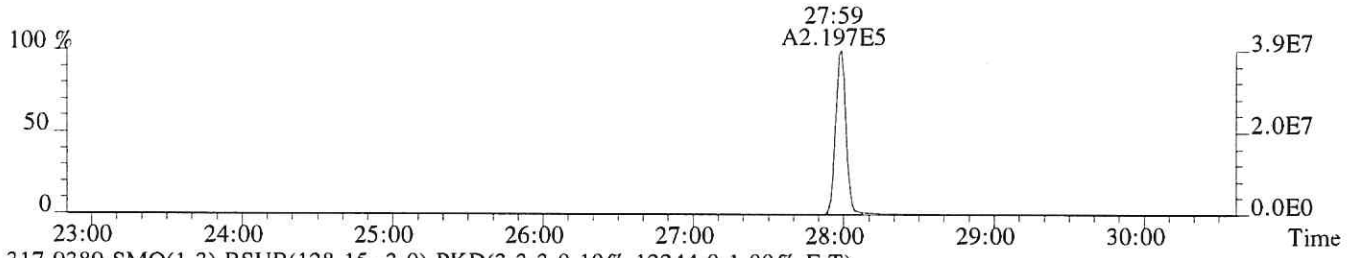
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



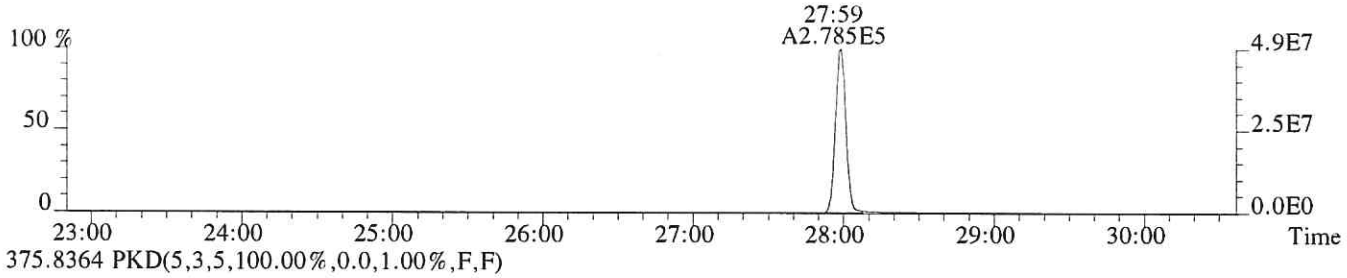
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4256.0,1.00%,F,T)



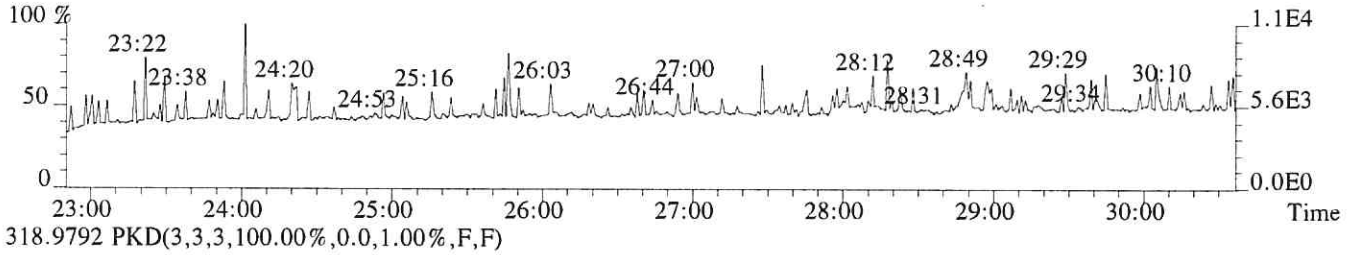
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15308.0,1.00%,F,T)



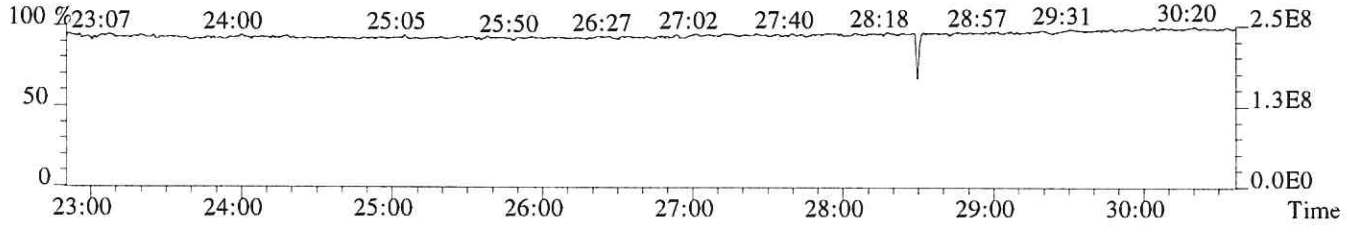
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12244.0,1.00%,F,T)



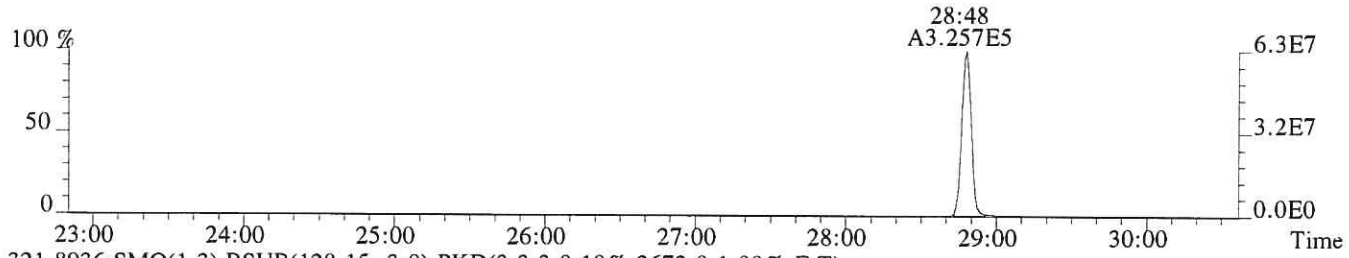
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



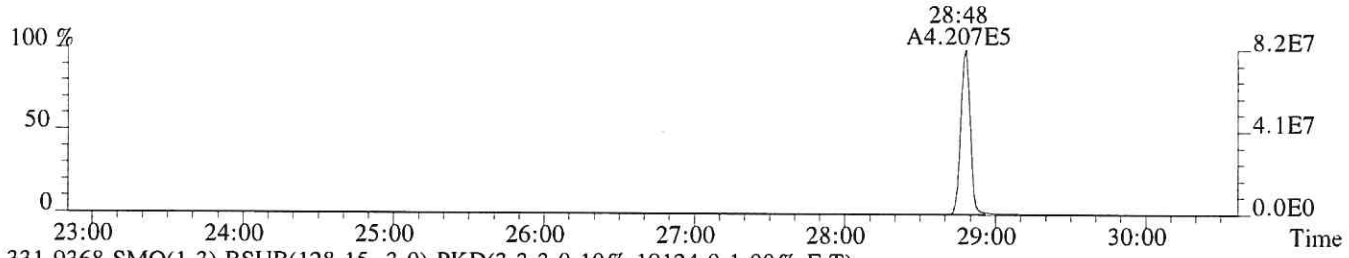
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



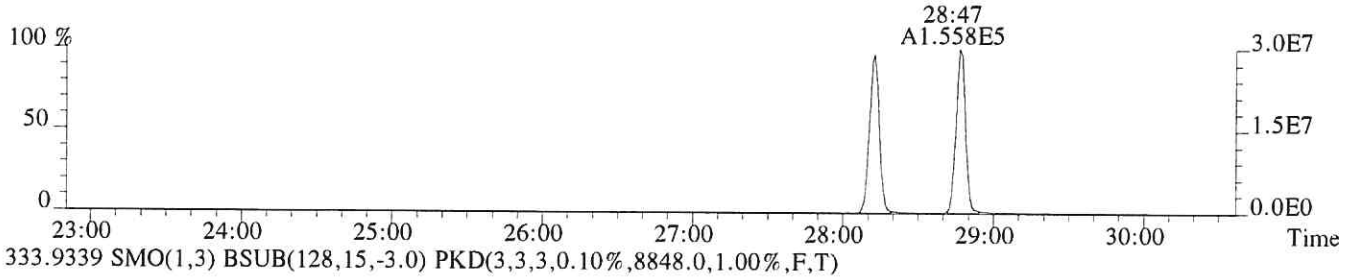
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



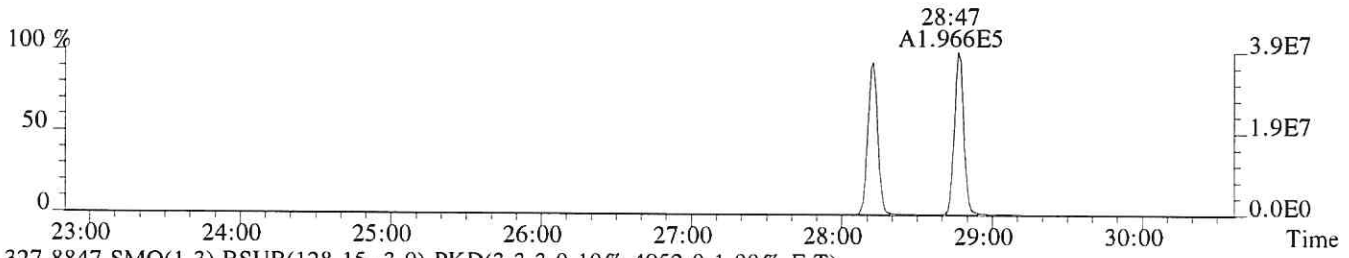
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



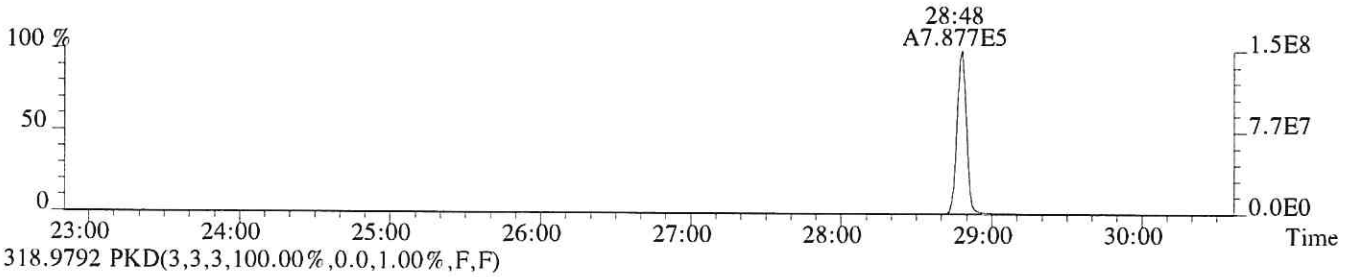
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,19124.0,1.00%,F,T)



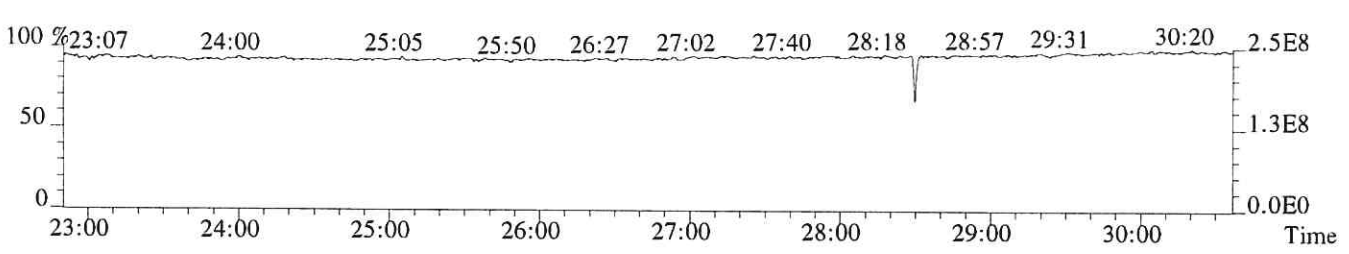
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8848.0,1.00%,F,T)



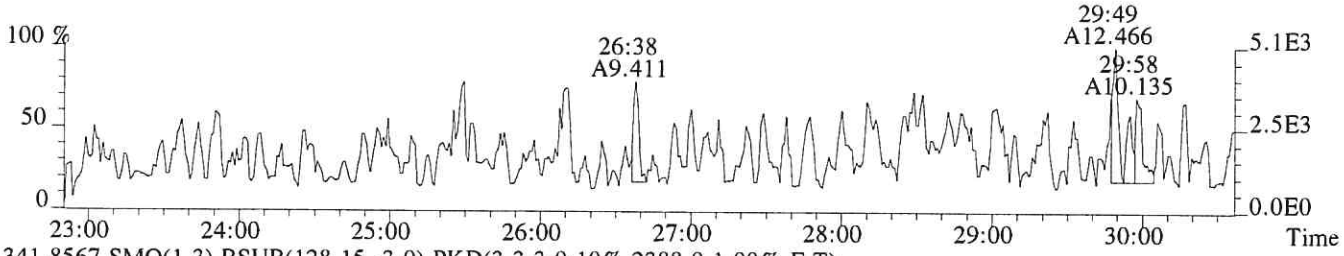
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)



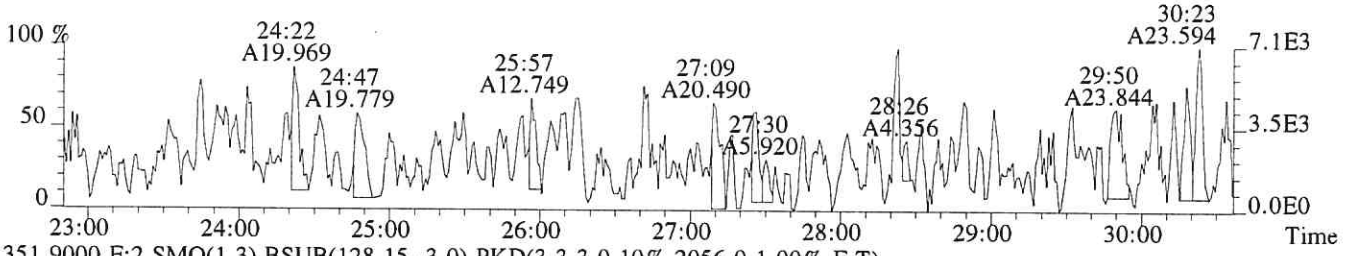
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



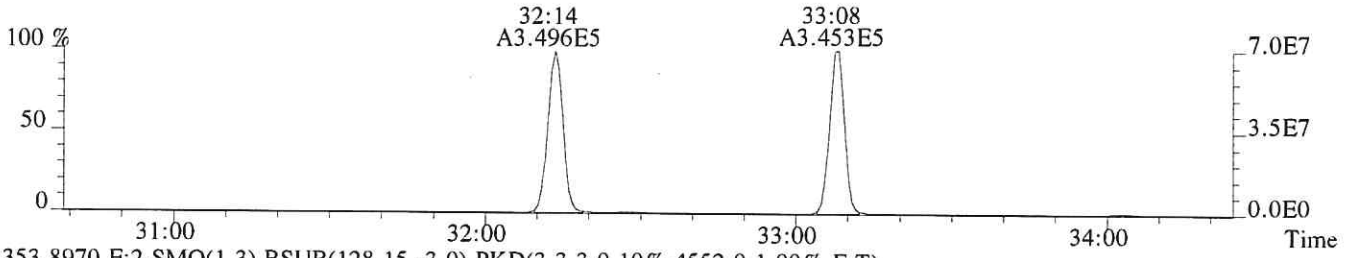
File:P614687 #1-552 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



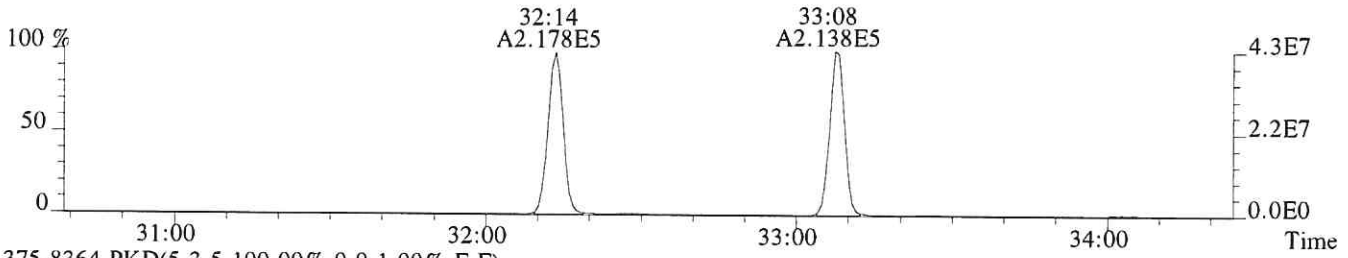
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



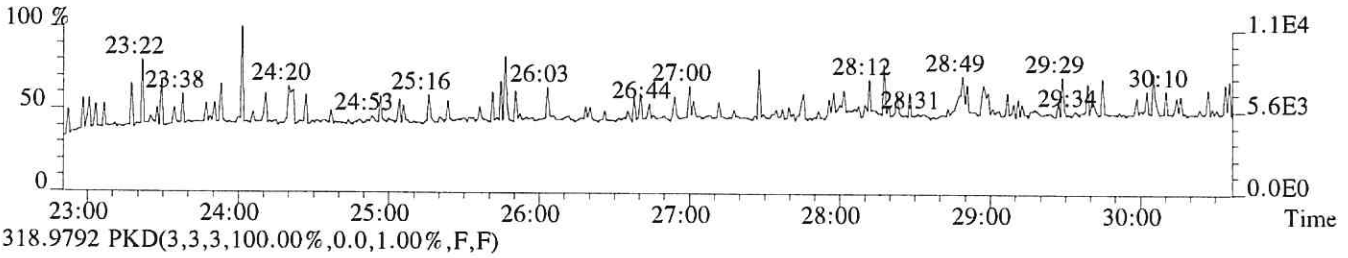
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



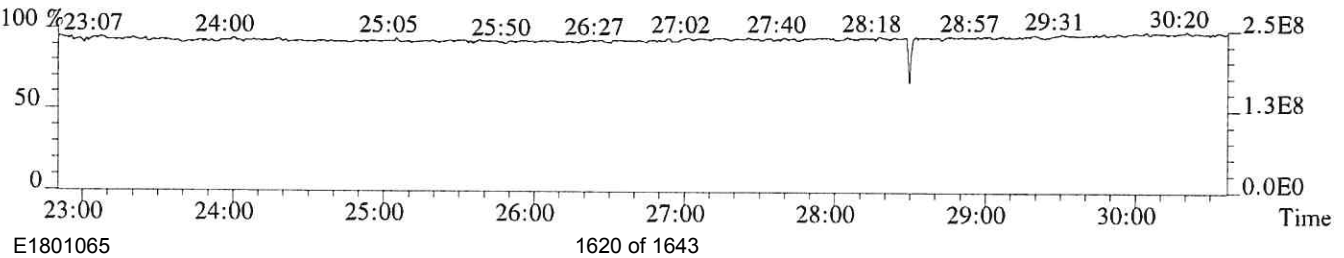
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



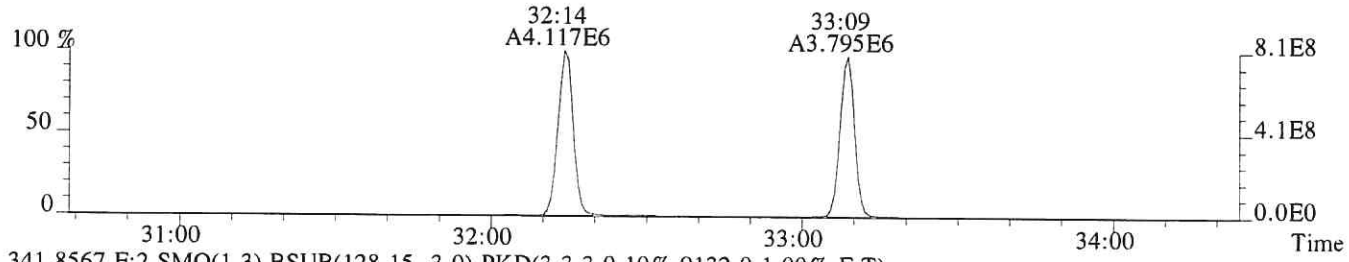
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



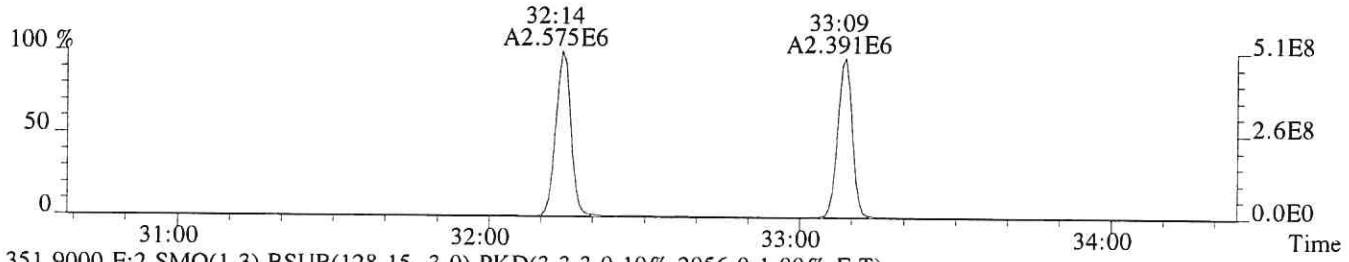
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



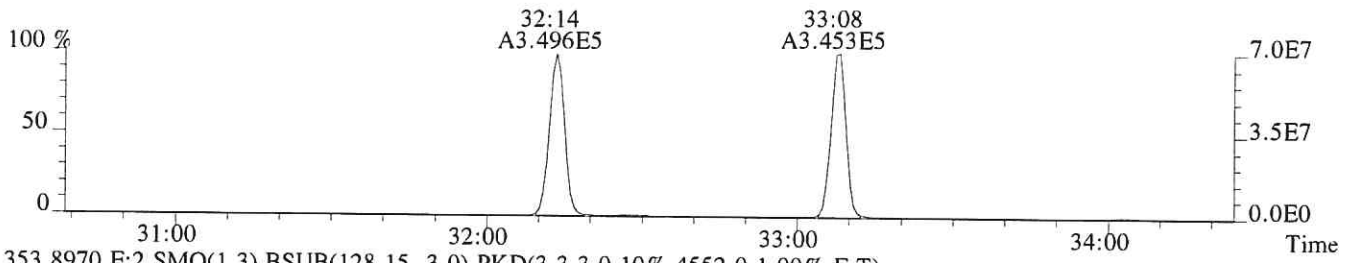
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8456.0,1.00%,F,T)



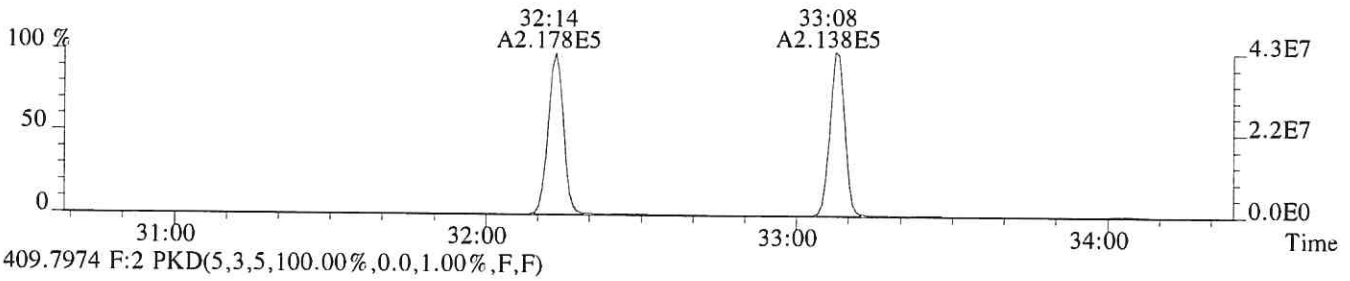
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9132.0,1.00%,F,T)



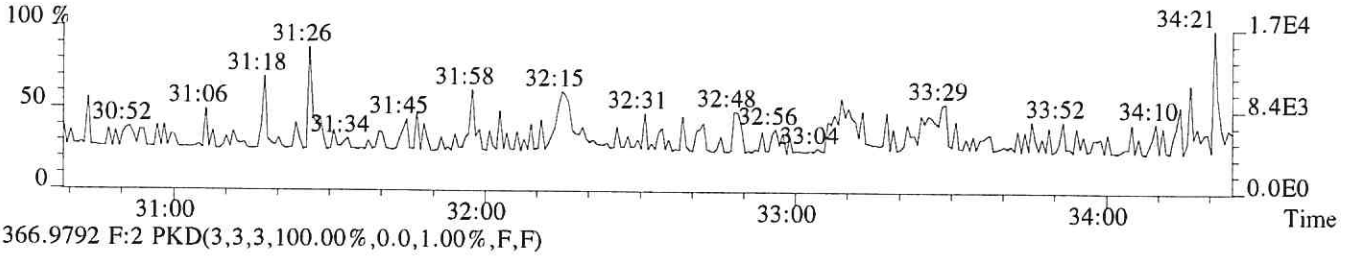
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



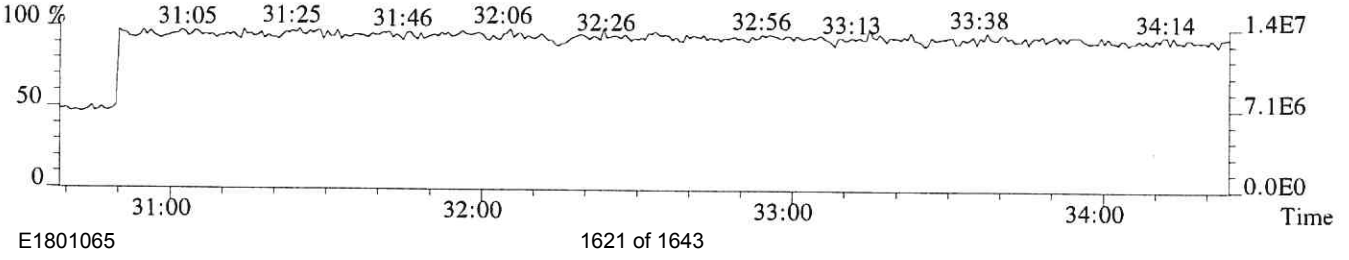
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4552.0,1.00%,F,T)



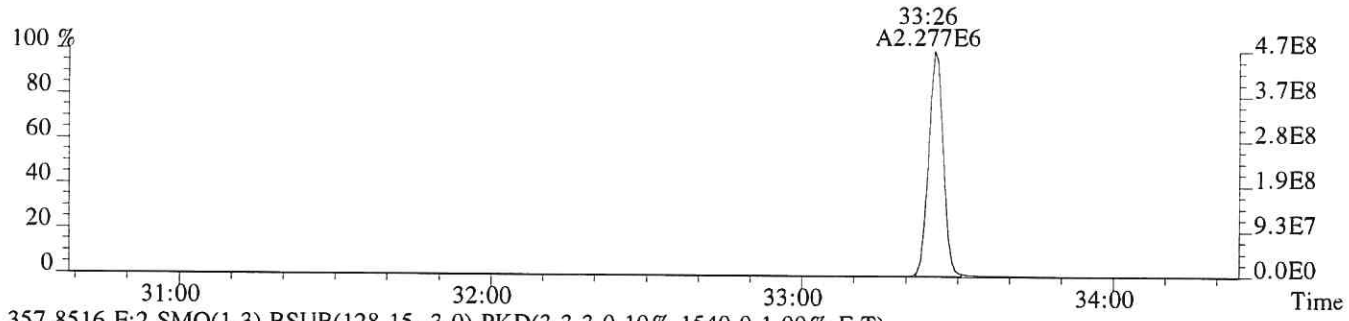
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



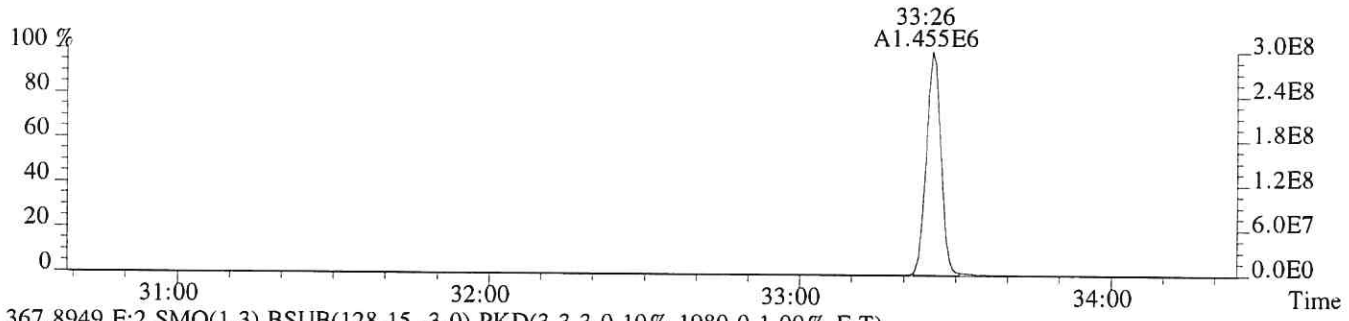
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



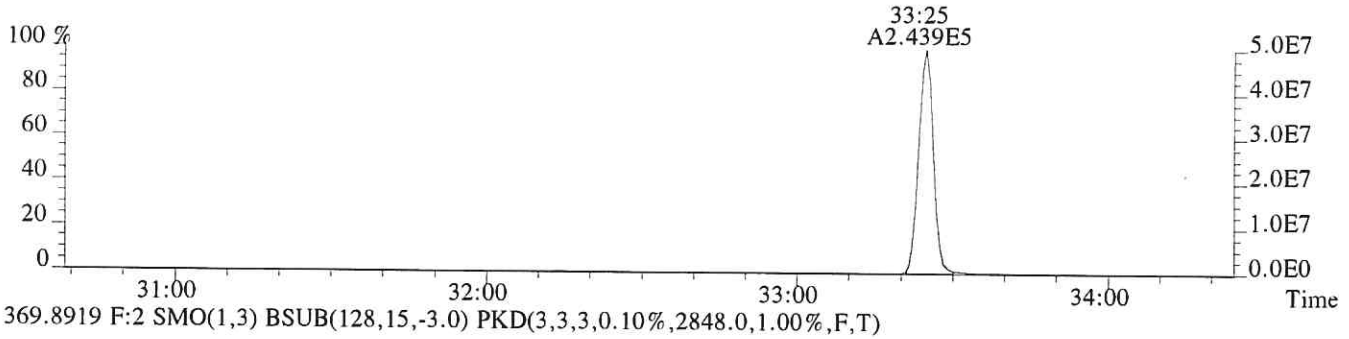
File:P614687 #1-339 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



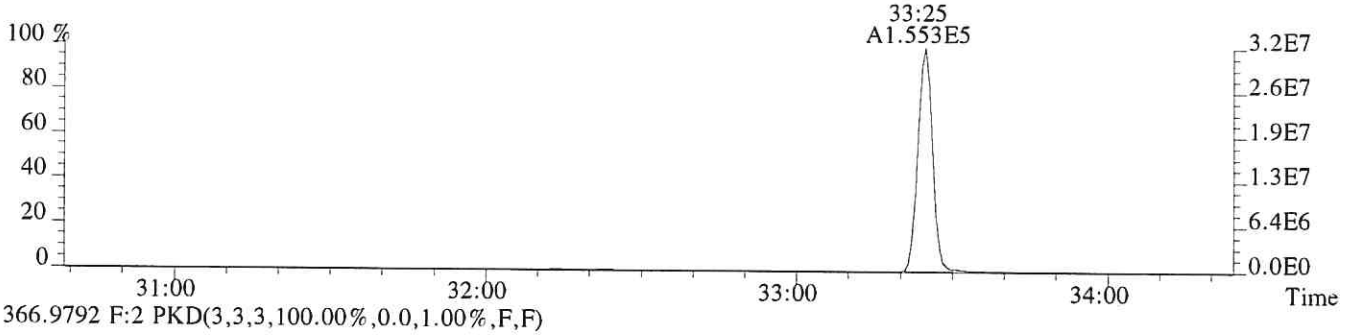
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



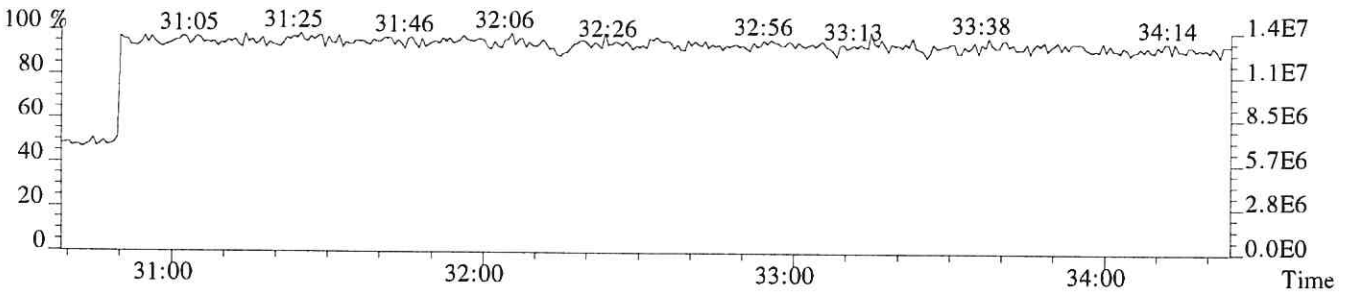
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



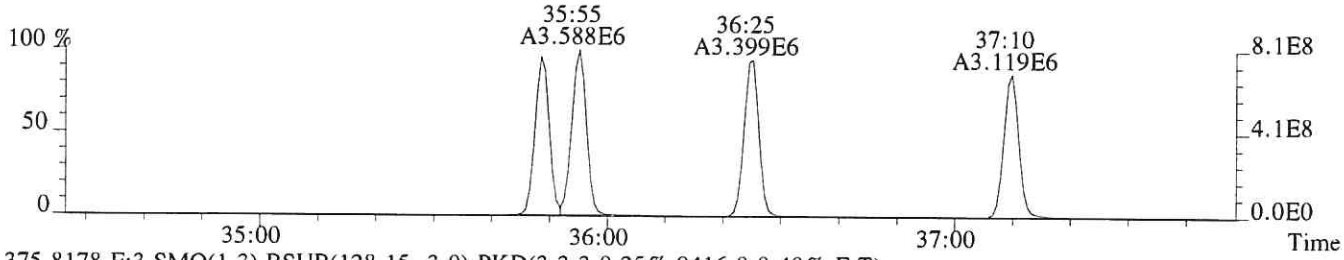
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



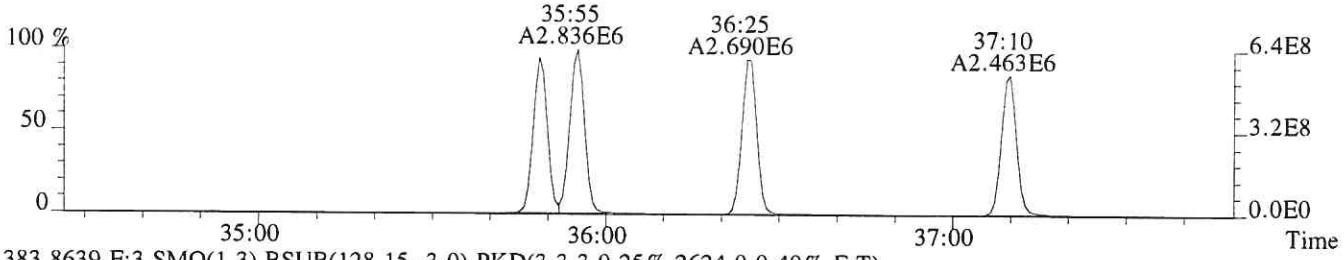
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



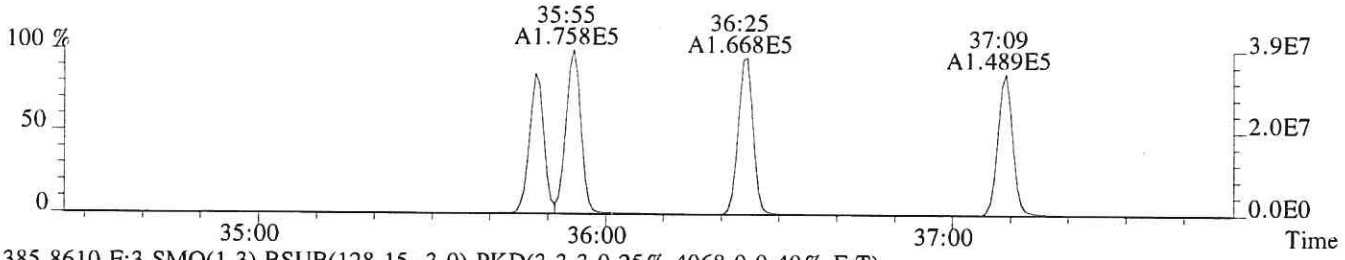
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12332.0,0.40%,F,T)



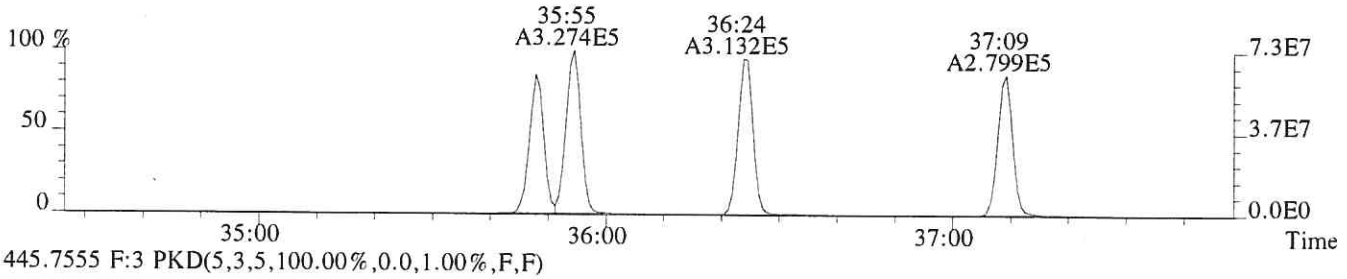
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9416.0,0.40%,F,T)



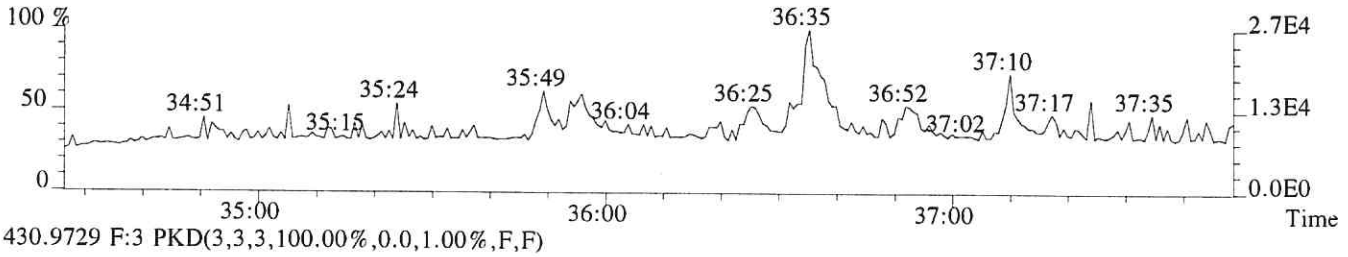
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.40%,F,T)



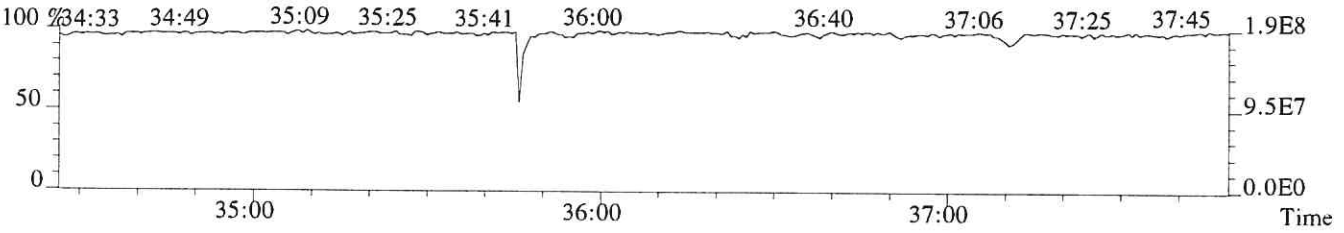
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4068.0,0.40%,F,T)



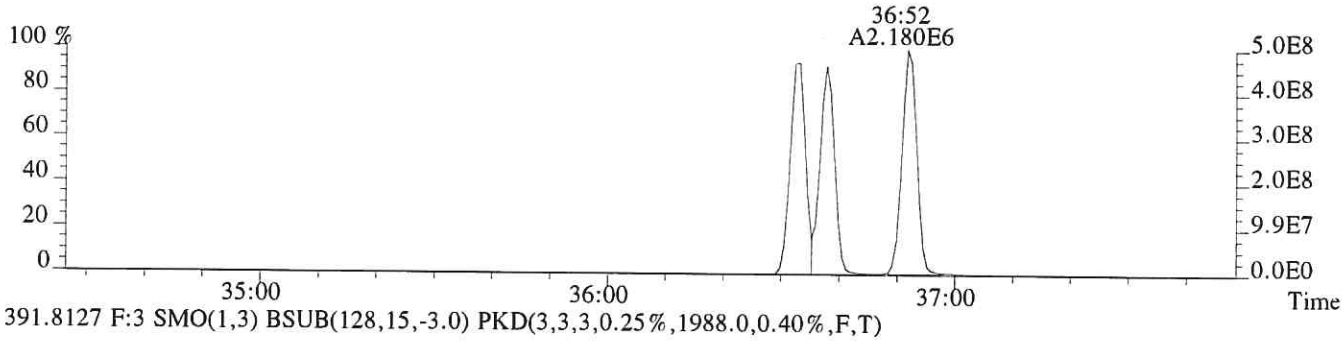
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



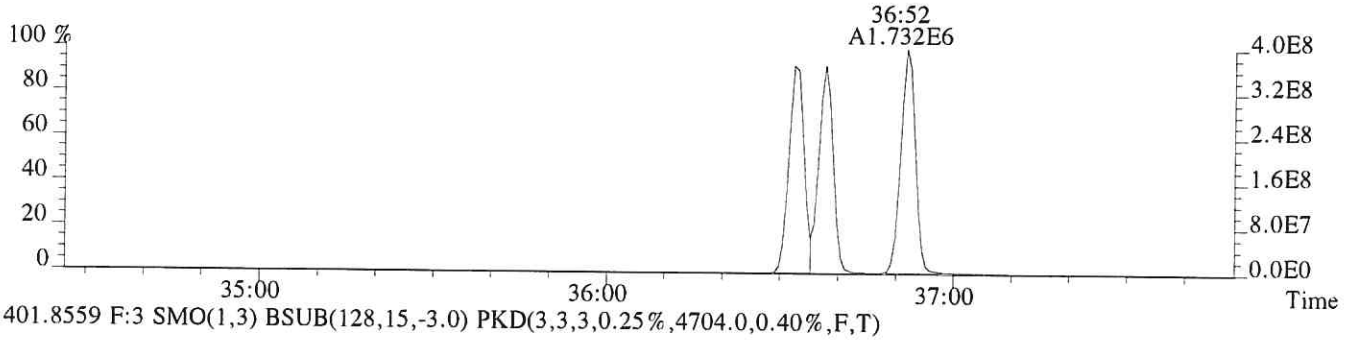
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



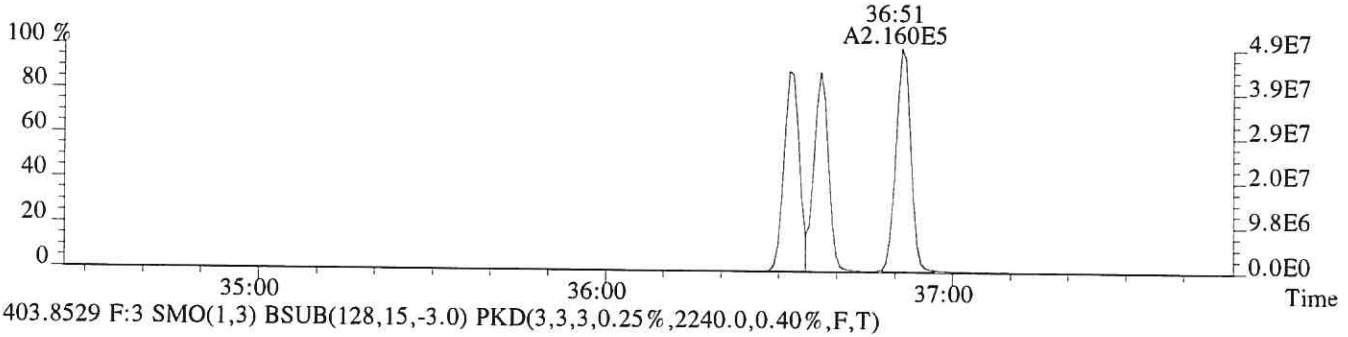
File:P614687 #1-304 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



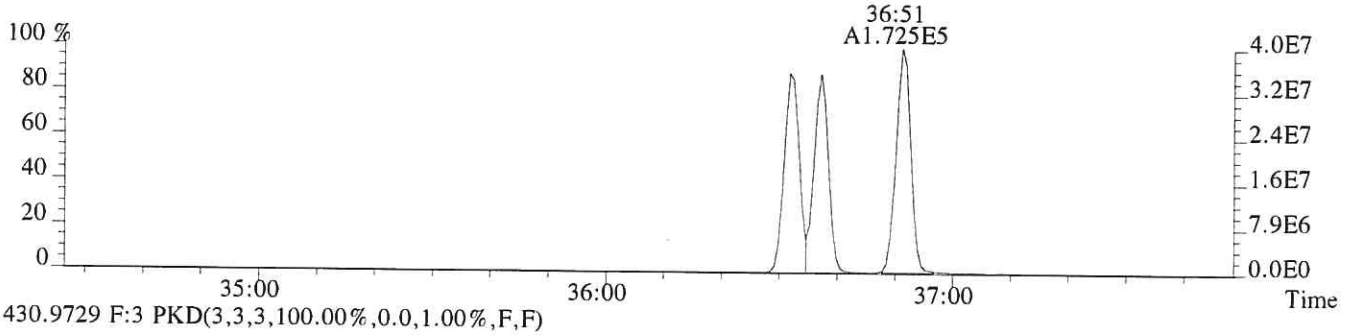
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



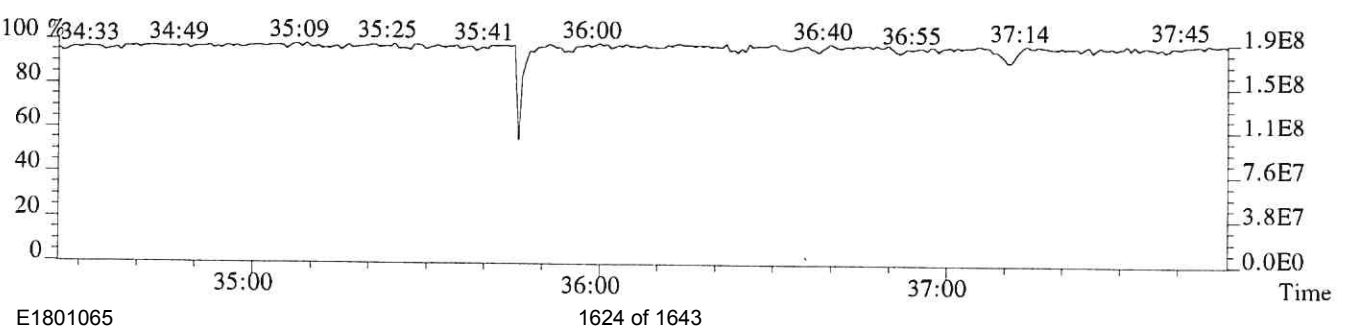
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.40%,F,T)



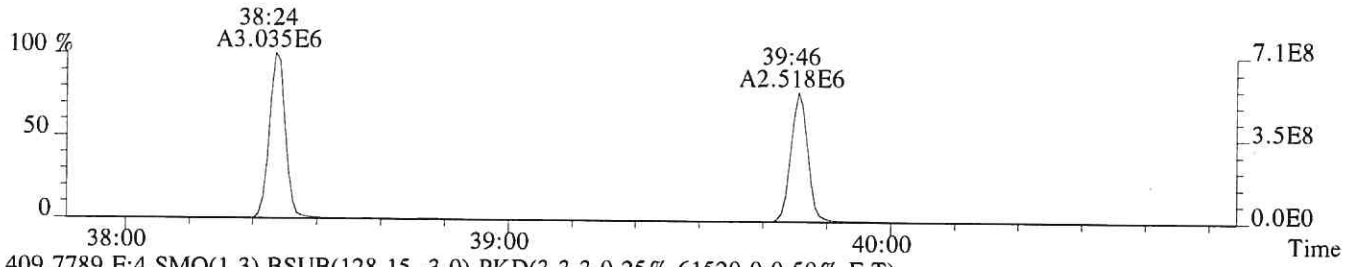
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)



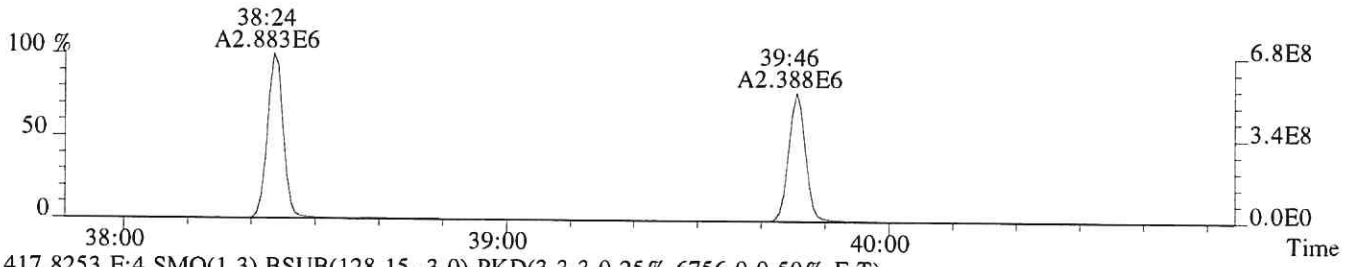
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



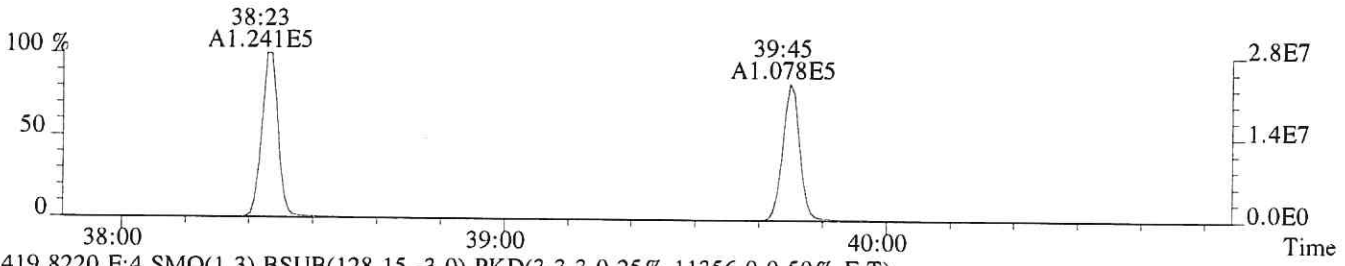
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96804.0,0.50%,F,T)



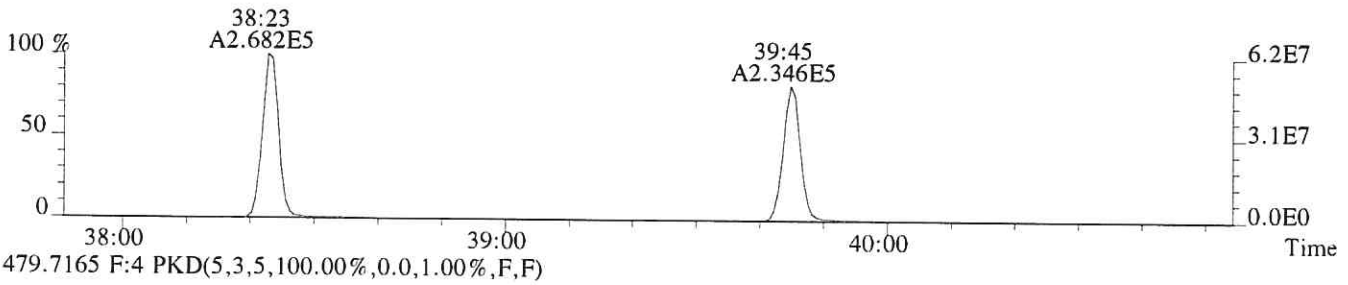
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61520.0,0.50%,F,T)



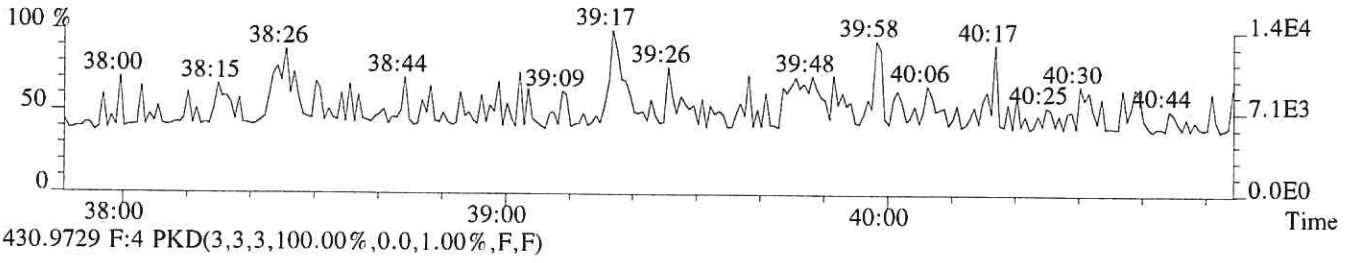
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)



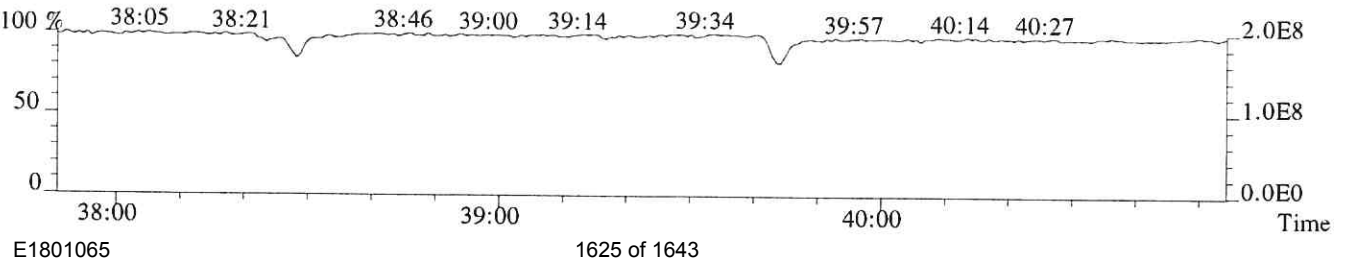
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11356.0,0.50%,F,T)



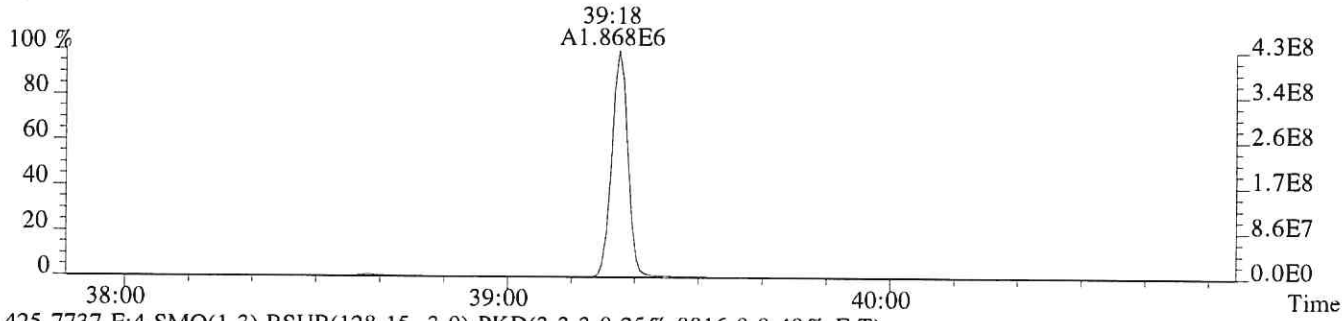
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



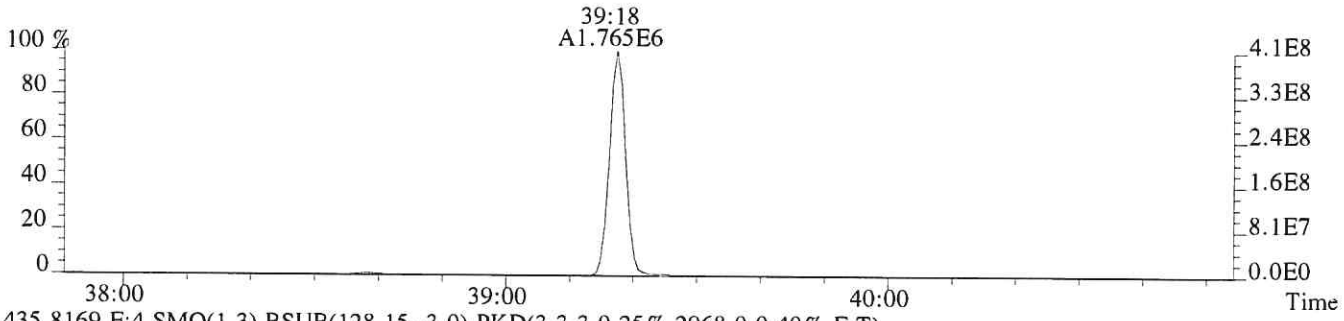
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



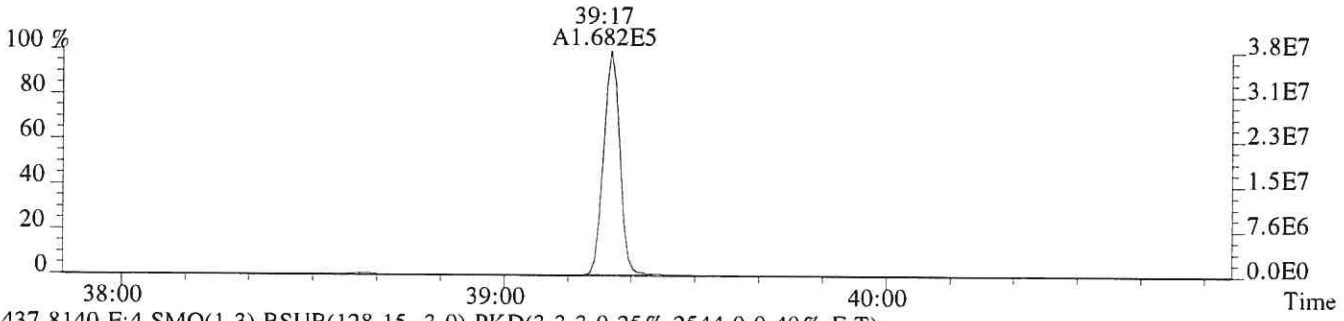
File:P614687 #1-276 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11044.0,0.40%,F,T)



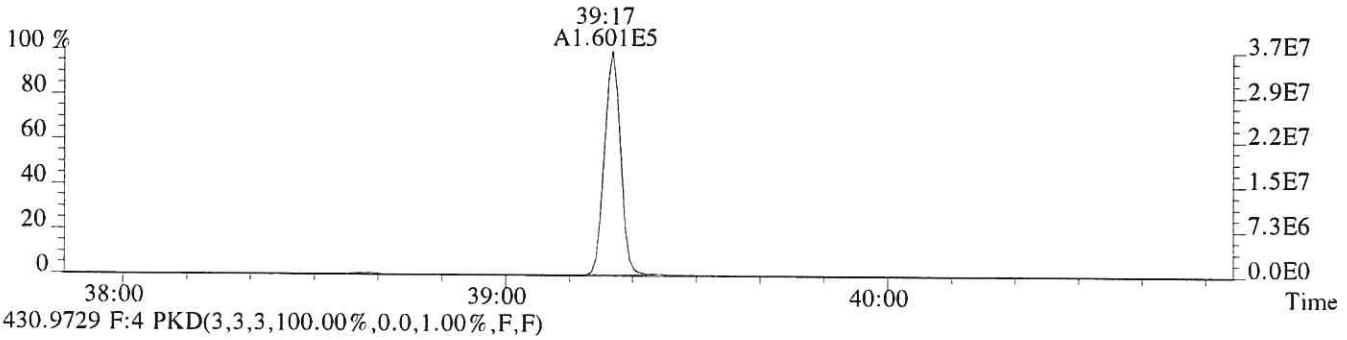
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8816.0,0.40%,F,T)



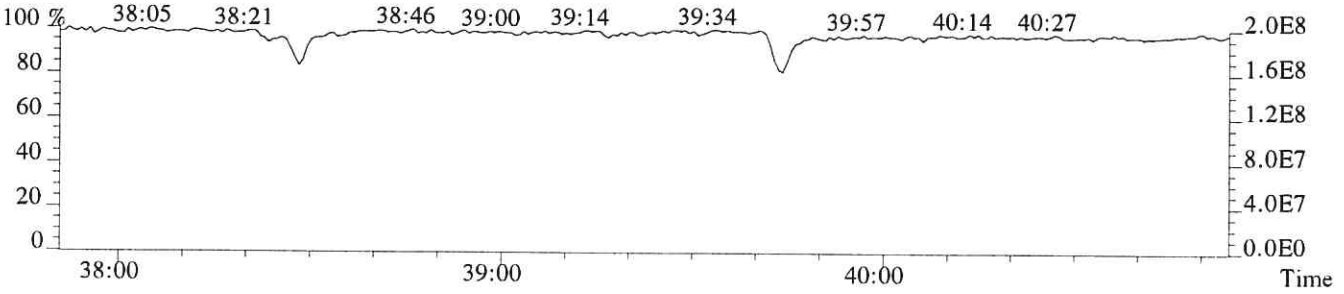
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2968.0,0.40%,F,T)



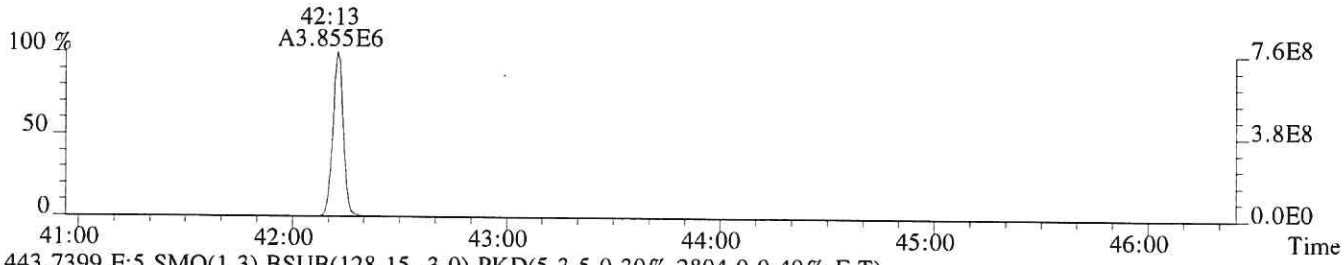
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2544.0,0.40%,F,T)



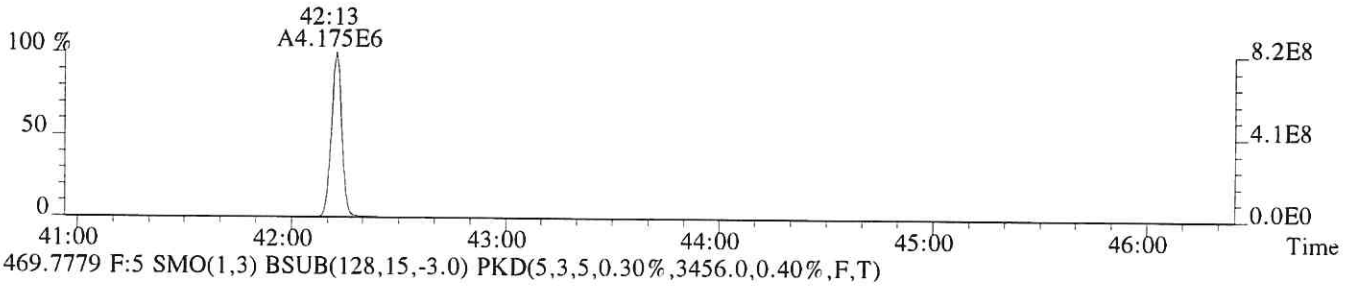
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



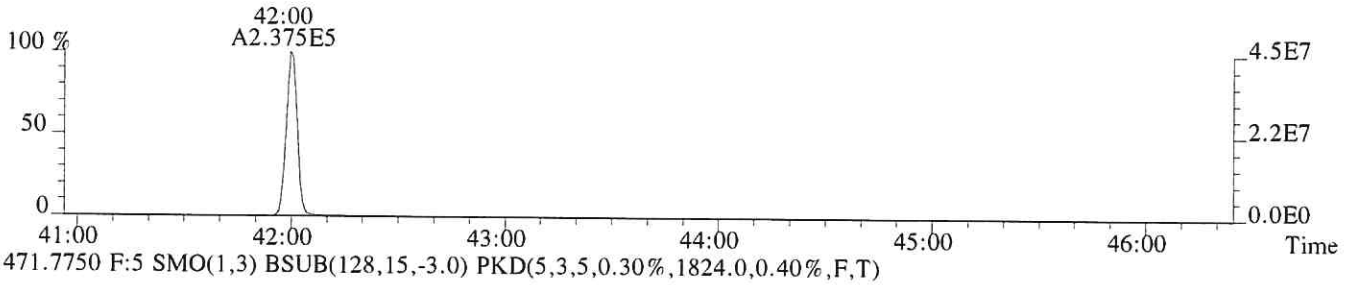
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



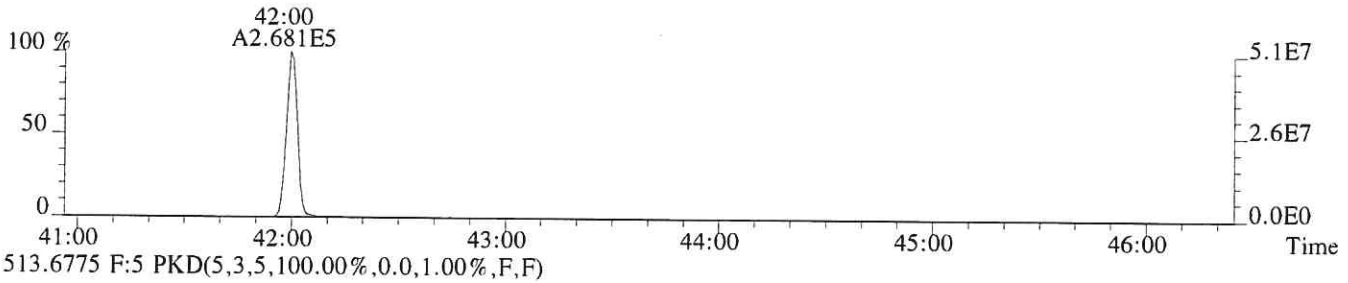
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2804.0,0.40%,F,T)



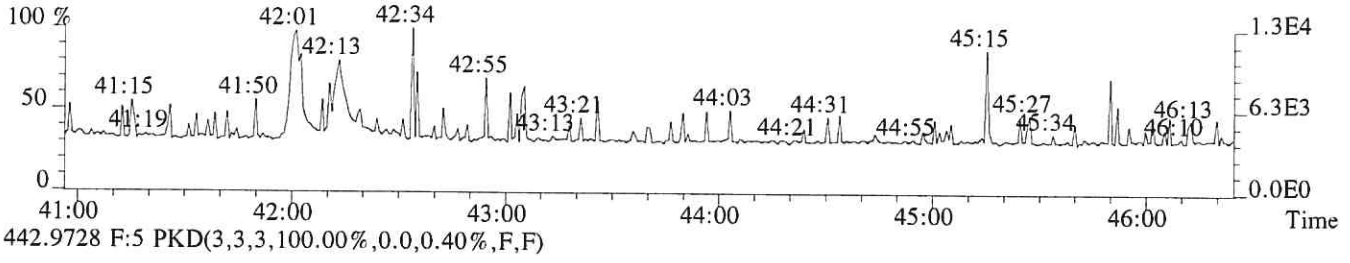
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



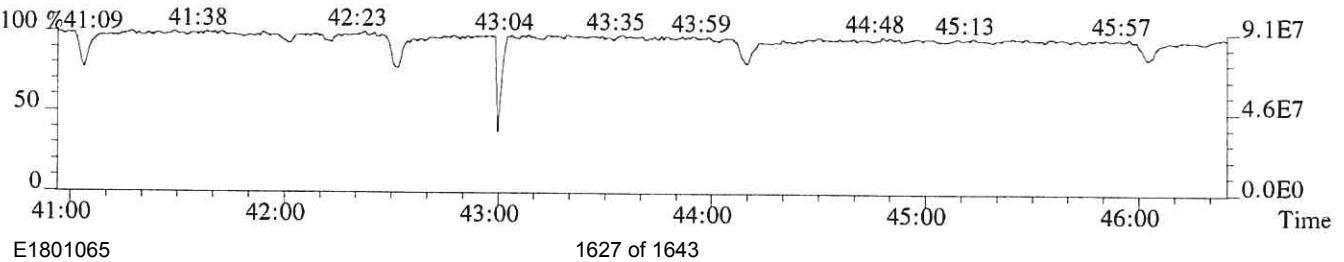
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



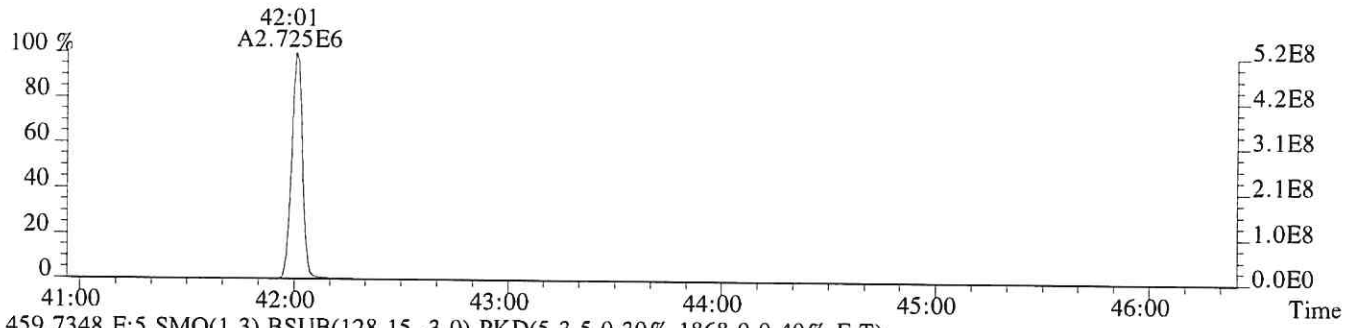
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



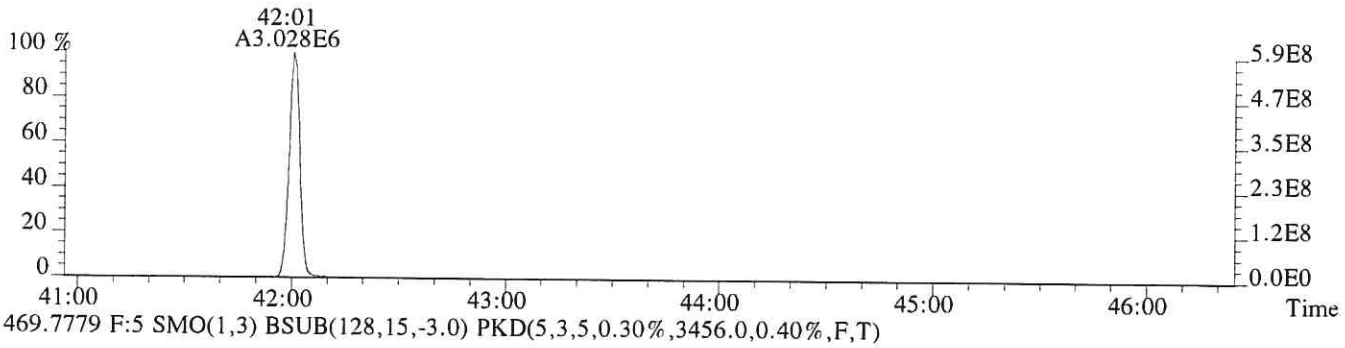
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



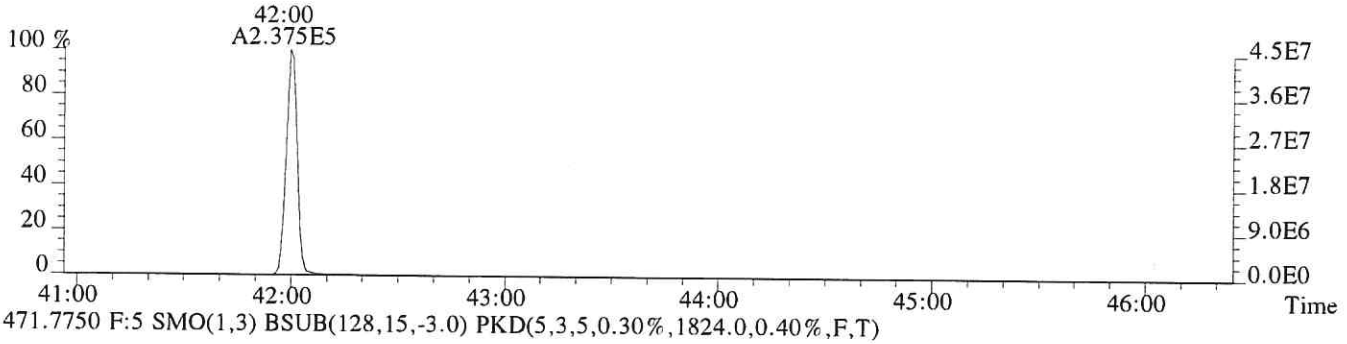
File:P614687 #1-493 Acq:25-SEP-2018 18:30:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



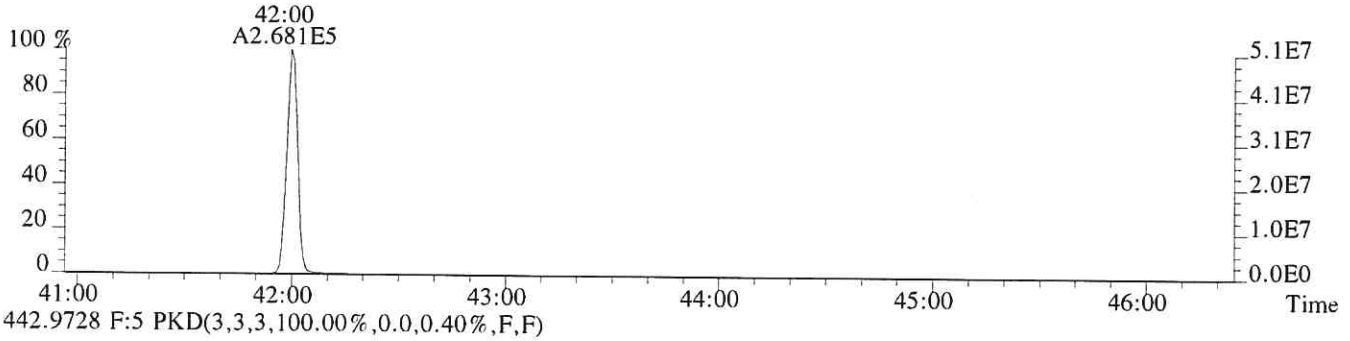
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1868.0,0.40%,F,T)



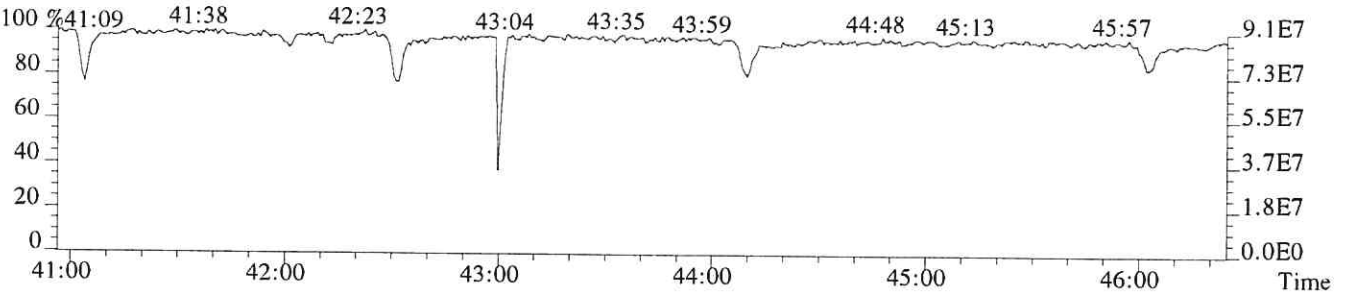
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-2.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	49	39 - 65	-2.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.91	0.76-1.02	98	79 - 126	-2.1
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.7	8.4 - 12.0	-2.7
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	49	41 - 60	-1.1
2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 61	-1.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	49	45 - 56	-2.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	49	44 - 57	-2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	-0.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.5
OCDF	M+2/M+4	0.93	0.76-1.02	100	63 - 159	-0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/25/18

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P614690 Analysis Date: 25-SEP-18 Time: 20:57:19

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	99	82 - 121	-0.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	97	62 - 160	-2.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	100	85 - 118	-0.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	105	72 - 138	5.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	224	96 - 415	11.9
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	99	71 - 140	-0.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	98	76 - 130	-2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	96	77 - 130	-3.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.54	0.43-0.59	102	76 - 131	2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	100	74 - 135	0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.54	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	103	78 - 129	2.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	109	77 - 129	9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:00	1.742e+04	2.239e+04	0.78	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	32:14	1.470e+05	9.342e+04	1.57	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	33:09	1.362e+05	8.490e+04	1.60	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	35:49	1.308e+05	1.044e+05	1.25	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	35:55	1.371e+05	1.074e+05	1.28	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	36:25	1.285e+05	1.018e+05	1.26	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	37:09	1.211e+05	9.459e+04	1.28	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	1.180e+05	1.126e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	1.018e+05	9.931e+04	1.02	yes	no	1.463
10	Unk	OCDF	42:12	1.605e+05	1.721e+05	0.93	yes	no	1.571
11	Unk	2,3,7,8-TCDD	28:48	1.193e+04	1.490e+04	0.80	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	33:26	8.164e+04	5.215e+04	1.57	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	36:33	7.752e+04	6.082e+04	1.27	yes	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	36:38	7.678e+04	6.066e+04	1.27	yes	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	36:52	8.213e+04	6.494e+04	1.26	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	7.382e+04	6.944e+04	1.06	yes	no	1.112
17	Unk	OCDD	42:01	1.146e+05	1.261e+05	0.91	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	27:59	1.682e+05	2.104e+05	0.80	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	32:14	2.590e+05	1.613e+05	1.61	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	33:08	2.497e+05	1.565e+05	1.60	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	35:48	1.202e+05	2.212e+05	0.54	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	35:54	1.342e+05	2.529e+05	0.53	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	36:24	1.258e+05	2.350e+05	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	37:09	1.132e+05	2.142e+05	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	9.579e+04	2.089e+05	0.46	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	8.964e+04	1.952e+05	0.46	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	28:47	1.166e+05	1.457e+05	0.80	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	33:25	1.797e+05	1.149e+05	1.56	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	36:32	1.476e+05	1.165e+05	1.27	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	36:37	1.453e+05	1.145e+05	1.27	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	1.336e+05	1.263e+05	1.06	yes	no	0.857
32	IS	13C-OCDD	42:00	2.007e+05	2.242e+05	0.89	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	28:13	1.202e+05	1.487e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:51	1.598e+05	1.284e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:48	2.893e+04				no	1.086

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
188969

Run #7 Filename P614690 Samp: 1 Inj: 1 Acquired: 25-SEP-18 20:57:19
Processed: 26-SEP-18 08:08:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.16e+03	1.4e+03	3.95e+06	5.67e+03	7.0e+02
2	1,2,3,7,8-PeCDF	2.75e+07	1.50e+03	1.8e+04	1.74e+07	8.24e+03	2.1e+03
3	2,3,4,7,8-PeCDF	2.67e+07	1.50e+03	1.8e+04	1.67e+07	8.24e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.29e+07	2.48e+03	9.3e+03
5	1,2,3,6,7,8-HxCDF	2.88e+07	2.35e+03	1.2e+04	2.30e+07	2.48e+03	9.3e+03
6	2,3,4,6,7,8-HxCDF	2.86e+07	2.35e+03	1.2e+04	2.28e+07	2.48e+03	9.2e+03
7	1,2,3,7,8,9-HxCDF	2.47e+07	2.35e+03	1.1e+04	1.95e+07	2.48e+03	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.70e+07	4.46e+03	6.0e+03	2.58e+07	1.29e+04	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	4.46e+03	4.8e+03	2.03e+07	1.29e+04	1.6e+03
10	OCDF	3.01e+07	1.50e+03	2.0e+04	3.28e+07	3.09e+03	1.1e+04
11	2,3,7,8-TCDD	2.20e+06	4.04e+03	5.4e+02	2.73e+06	2.27e+03	1.2e+03
12	1,2,3,7,8-PeCDD	1.64e+07	3.14e+03	5.2e+03	1.06e+07	2.92e+02	3.6e+04
13	1,2,3,4,7,8-HxCDD	1.79e+07	1.59e+03	1.1e+04	1.41e+07	2.43e+03	5.8e+03
14	1,2,3,6,7,8-HxCDD	1.70e+07	1.59e+03	1.1e+04	1.34e+07	2.43e+03	5.5e+03
15	1,2,3,7,8,9-HxCDD	1.85e+07	1.59e+03	1.2e+04	1.48e+07	2.43e+03	6.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.59e+07	2.28e+03	7.0e+03	1.49e+07	8.84e+02	1.7e+04
17	OCDD	2.16e+07	1.17e+03	1.8e+04	2.38e+07	1.31e+03	1.8e+04
18	13C-2,3,7,8-TCDF	2.88e+07	1.57e+04	1.8e+03	3.60e+07	9.18e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	4.79e+07	4.01e+03	1.2e+04	3.00e+07	3.41e+03	8.8e+03
20	13C-2,3,4,7,8-PeCDF	4.95e+07	4.01e+03	1.2e+04	3.12e+07	3.41e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.65e+07	2.99e+03	8.9e+03	4.93e+07	3.83e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	2.83e+07	2.99e+03	9.5e+03	5.32e+07	3.83e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.80e+07	2.99e+03	9.4e+03	5.25e+07	3.83e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.35e+07	2.99e+03	7.9e+03	4.43e+07	3.83e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.19e+07	7.32e+03	3.0e+03	4.77e+07	1.38e+04	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.88e+07	7.32e+03	2.6e+03	4.06e+07	1.38e+04	2.9e+03
27	13C-2,3,7,8-TCDD	2.17e+07	2.56e+04	8.4e+02	2.71e+07	6.97e+03	3.9e+03
28	13C-1,2,3,7,8-PeCDD	3.57e+07	3.26e+03	1.1e+04	2.28e+07	2.28e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	3.37e+07	5.66e+03	6.0e+03	2.64e+07	3.42e+03	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	3.18e+07	5.66e+03	5.6e+03	2.51e+07	3.42e+03	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.85e+07	3.13e+03	9.1e+03	2.68e+07	1.88e+03	1.4e+04
32	13C-OCDD	3.77e+07	2.72e+03	1.4e+04	4.17e+07	9.60e+02	4.3e+04
33	13C-1,2,3,4-TCDD	2.21e+07	2.56e+04	8.6e+02	2.72e+07	6.97e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	3.62e+07	5.66e+03	6.4e+03	2.92e+07	3.42e+03	8.5e+03
35	37Cl-2,3,7,8-TCDD	5.28e+06	4.24e+03	1.2e+03			

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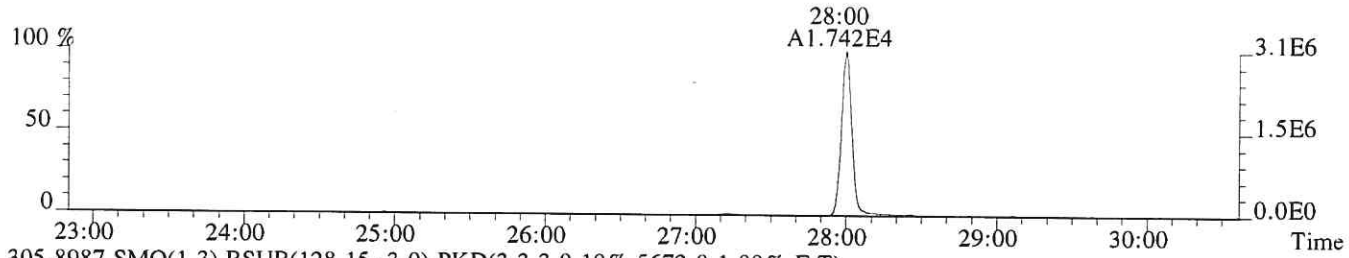
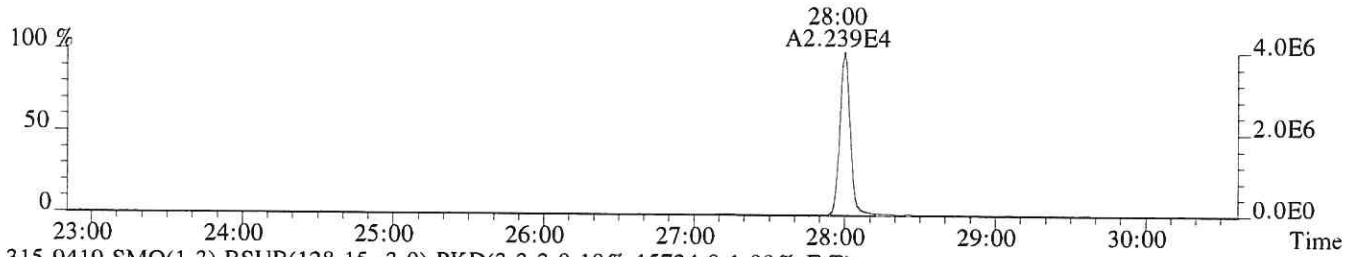
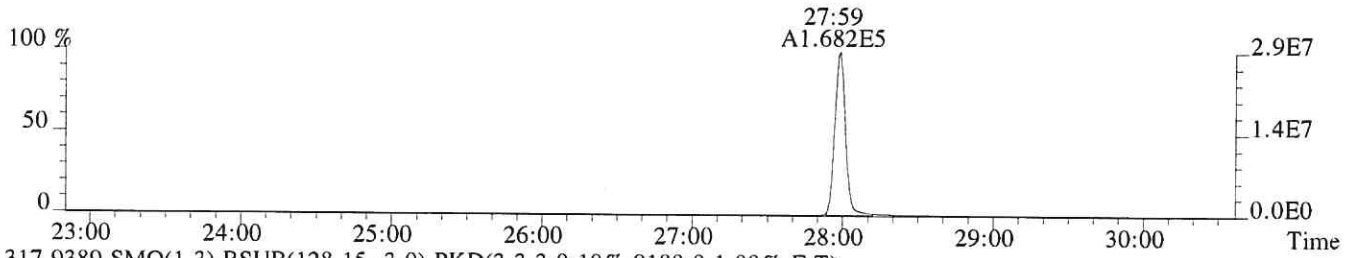
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



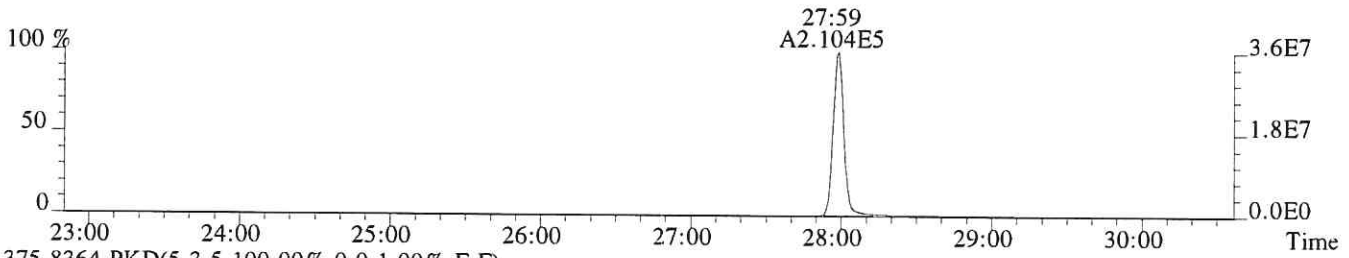
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5672.0,1.00%,F,T)



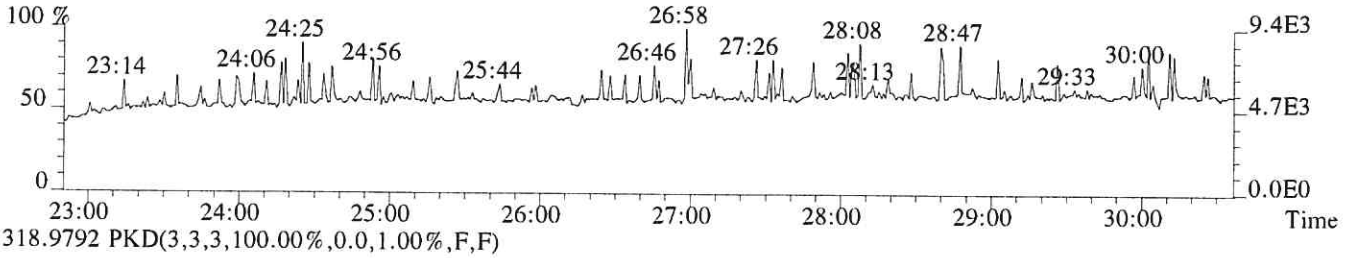
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15724.0,1.00%,F,T)



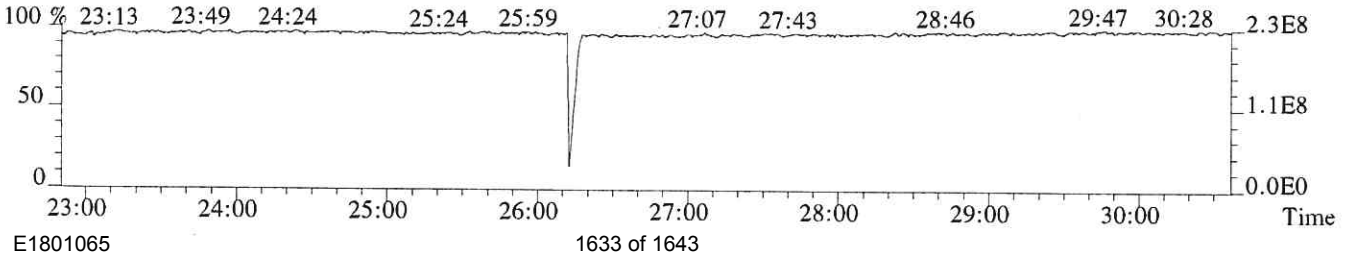
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9180.0,1.00%,F,T)



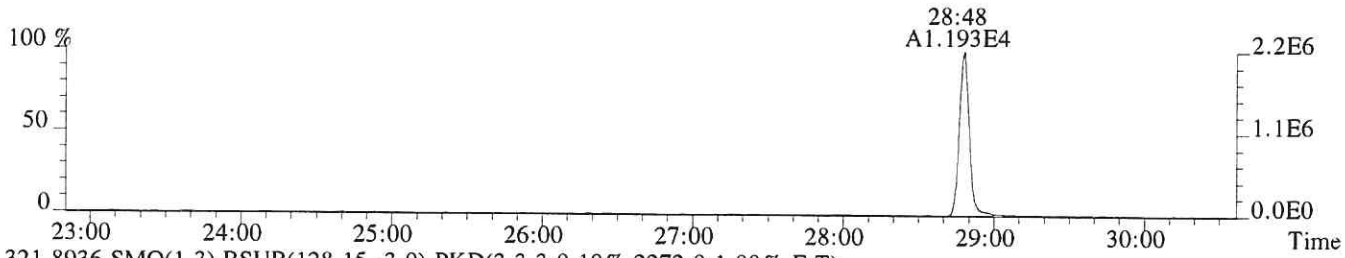
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



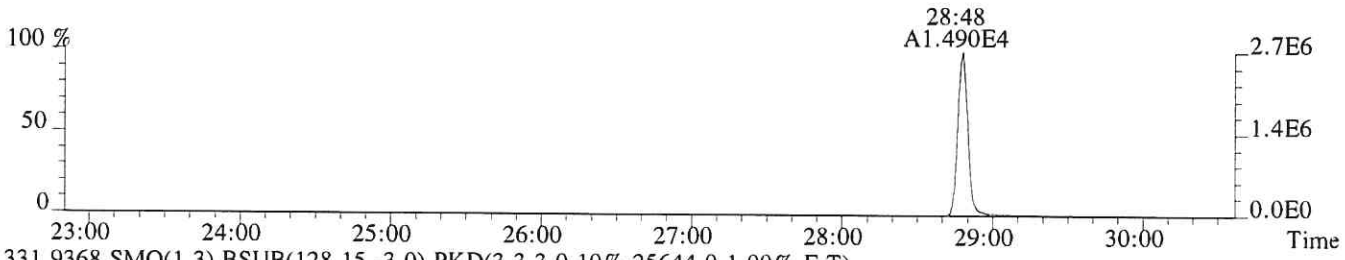
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



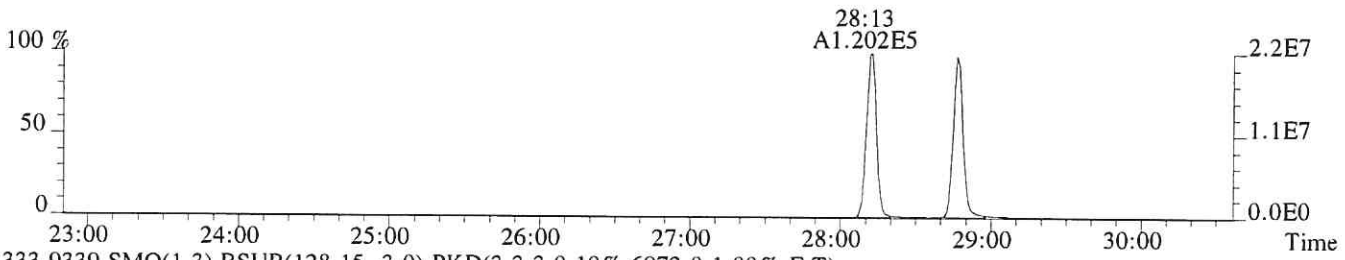
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



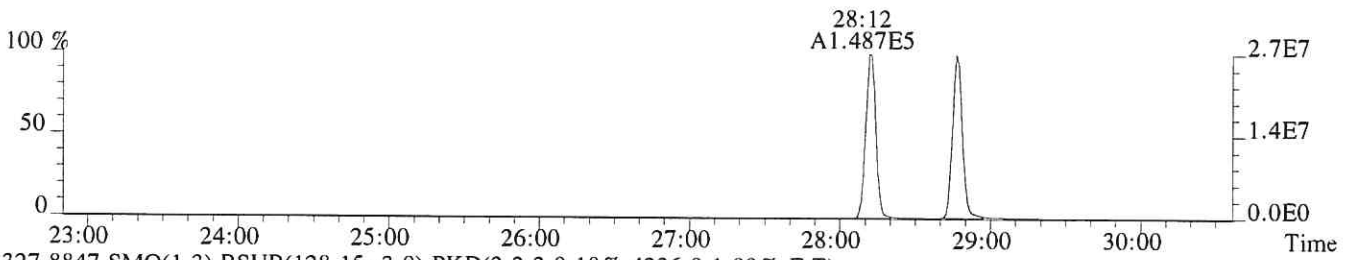
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



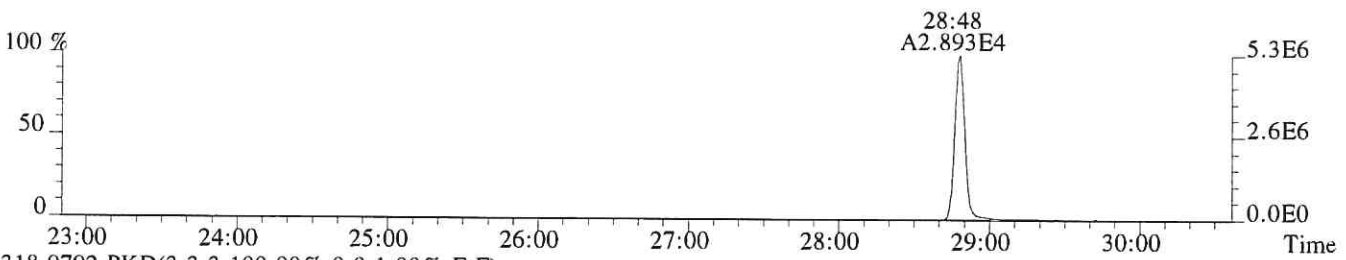
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,25644.0,1.00%,F,T)



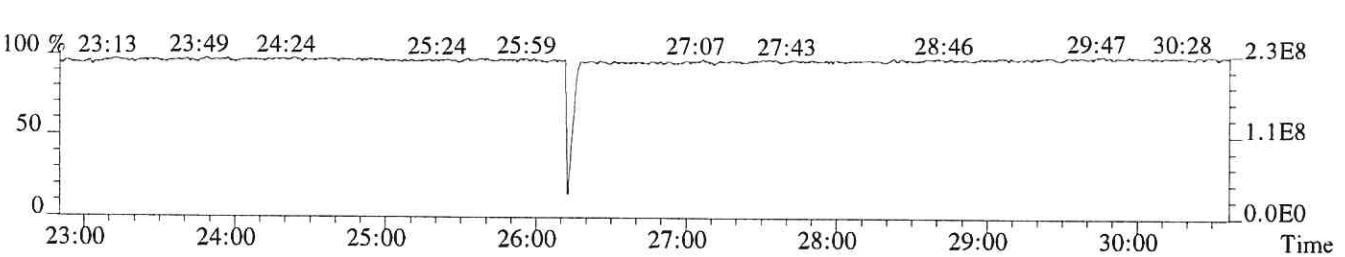
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6972.0,1.00%,F,T)



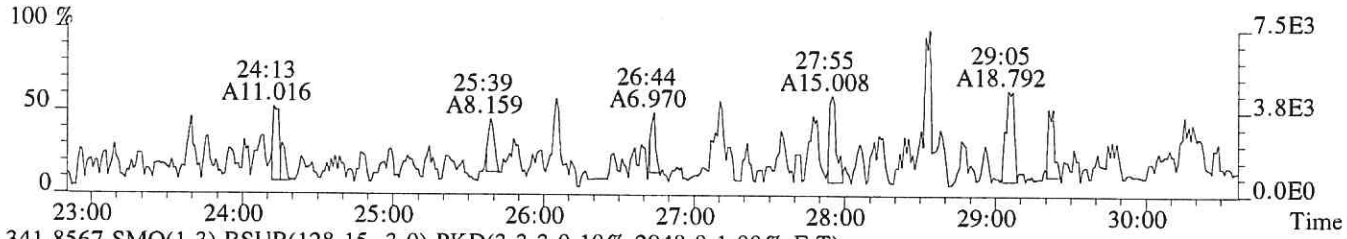
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4236.0,1.00%,F,T)



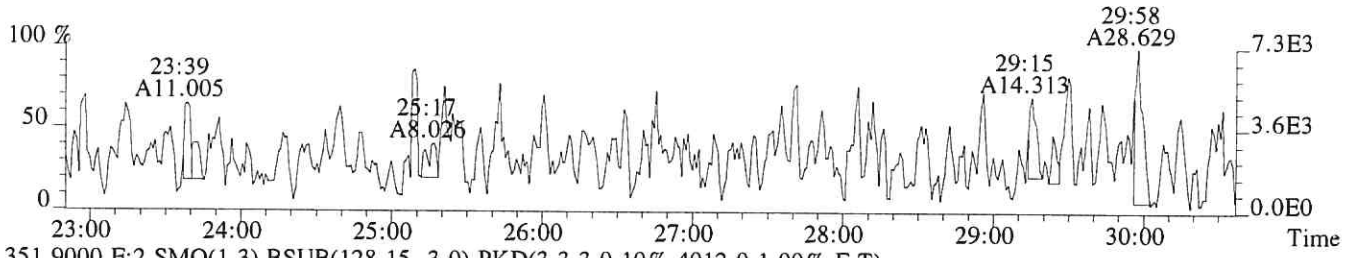
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



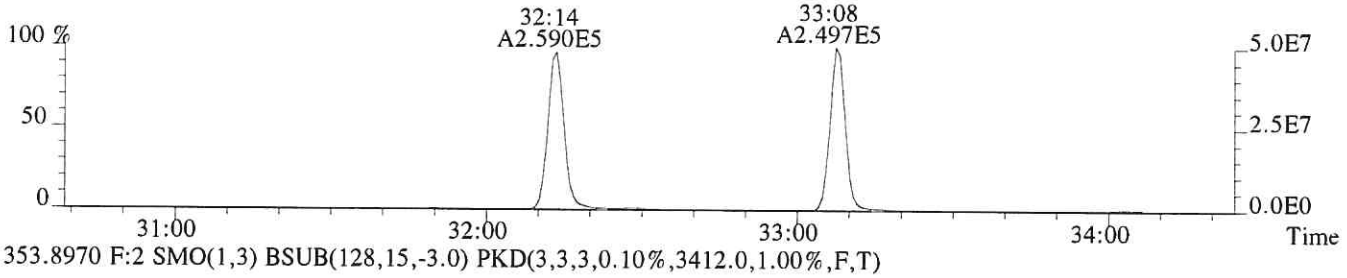
File:P614690 #1-552 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



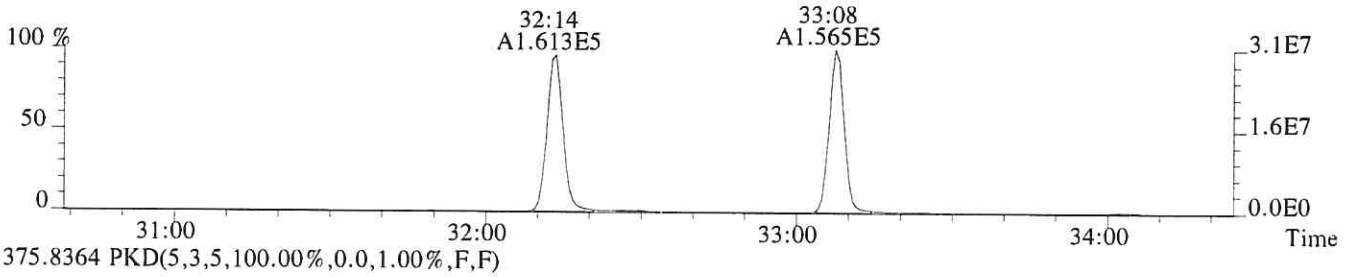
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



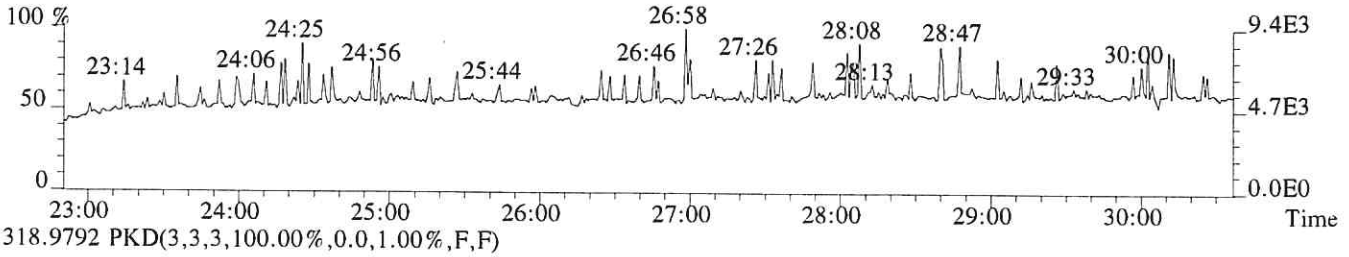
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



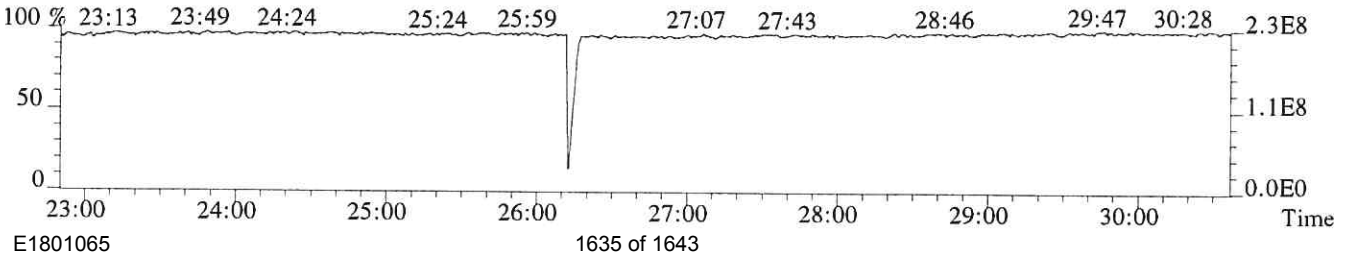
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



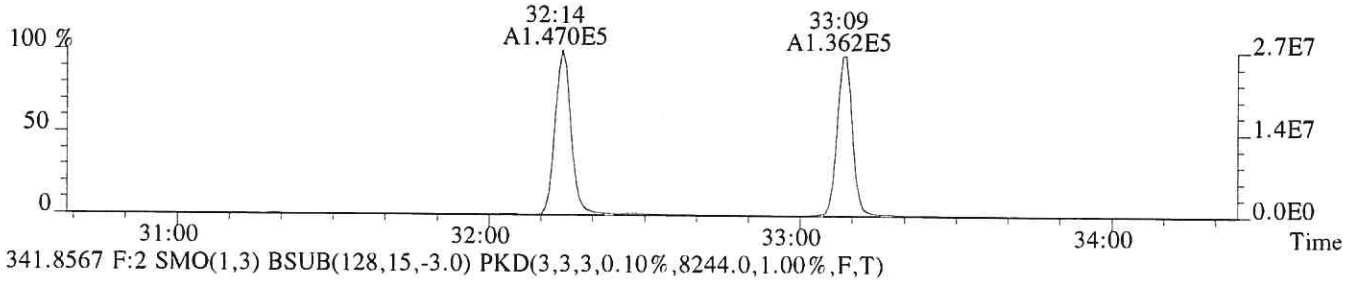
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



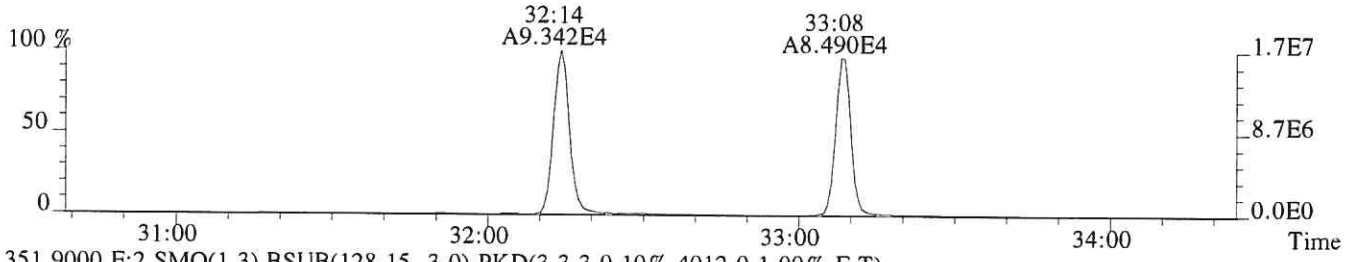
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



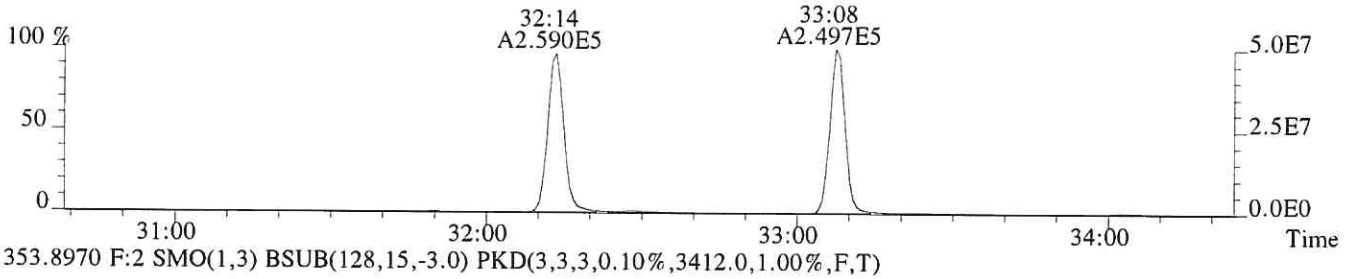
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



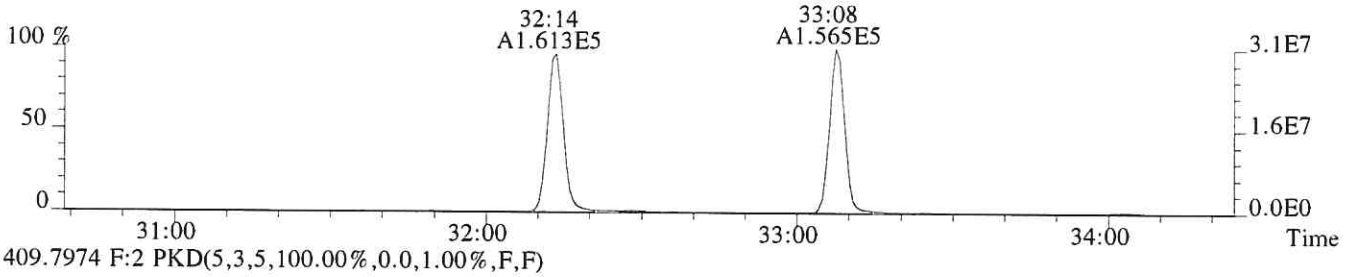
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8244.0,1.00%,F,T)



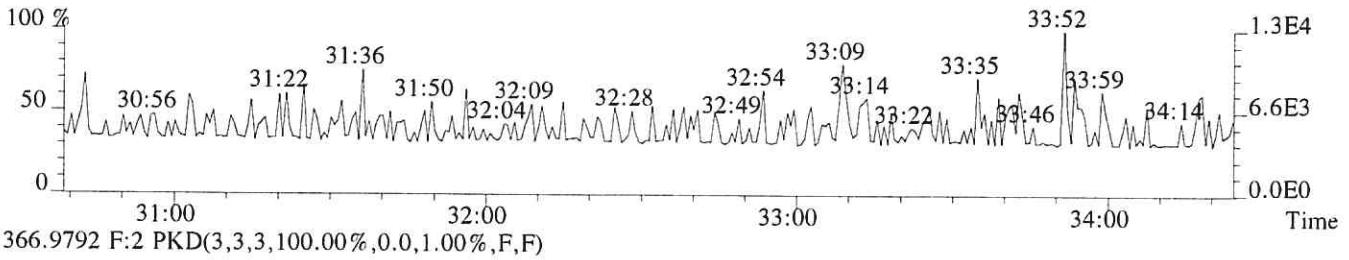
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4012.0,1.00%,F,T)



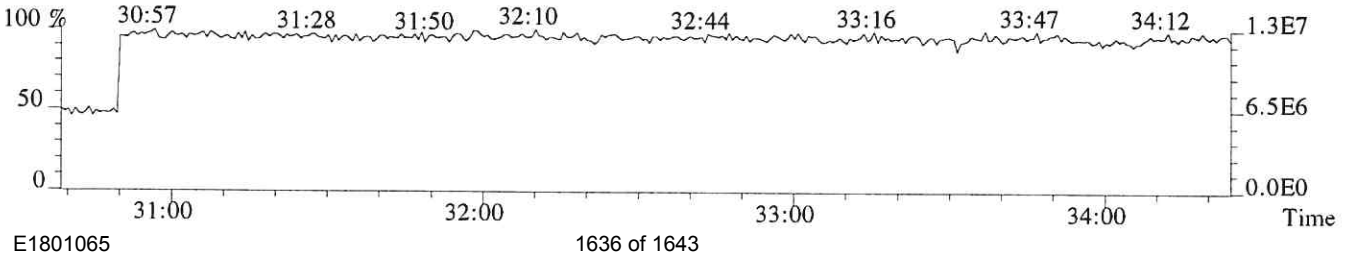
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



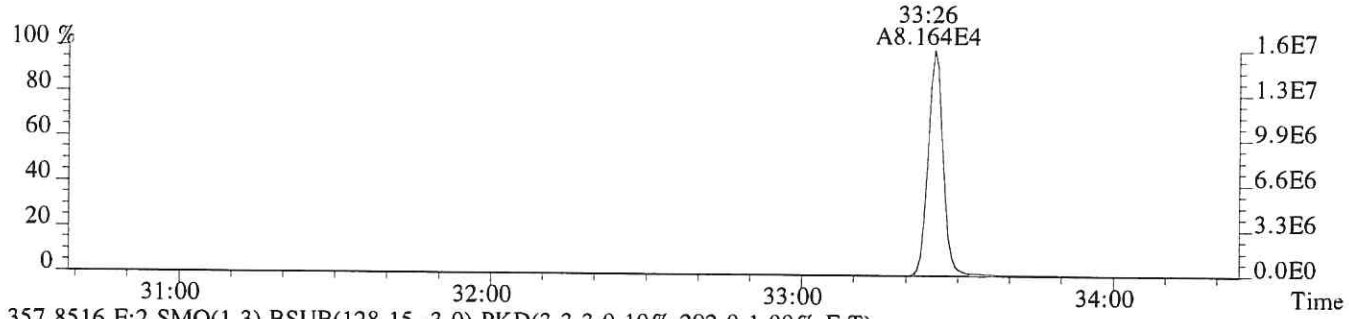
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



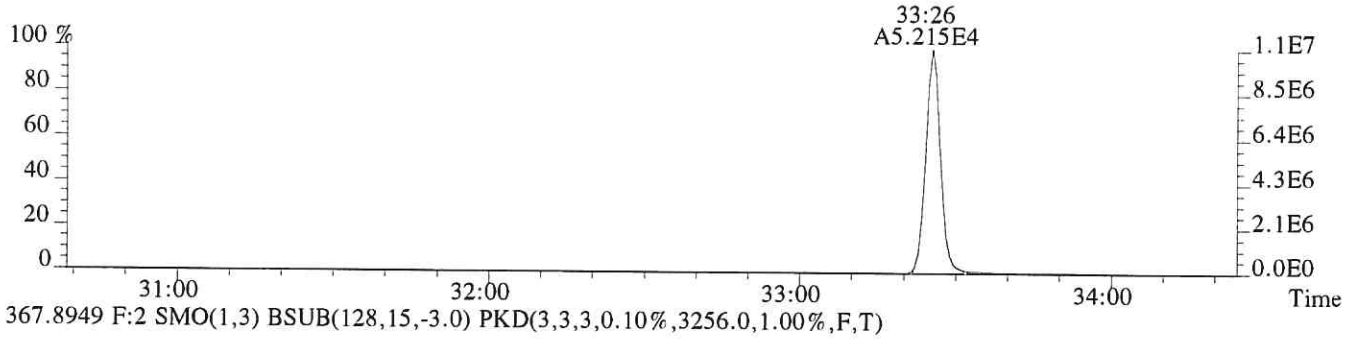
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



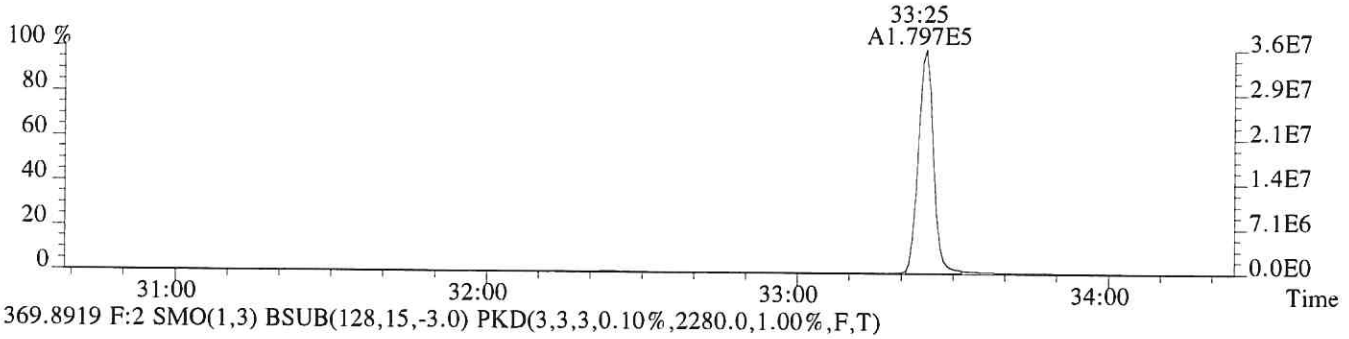
File:P614690 #1-339 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



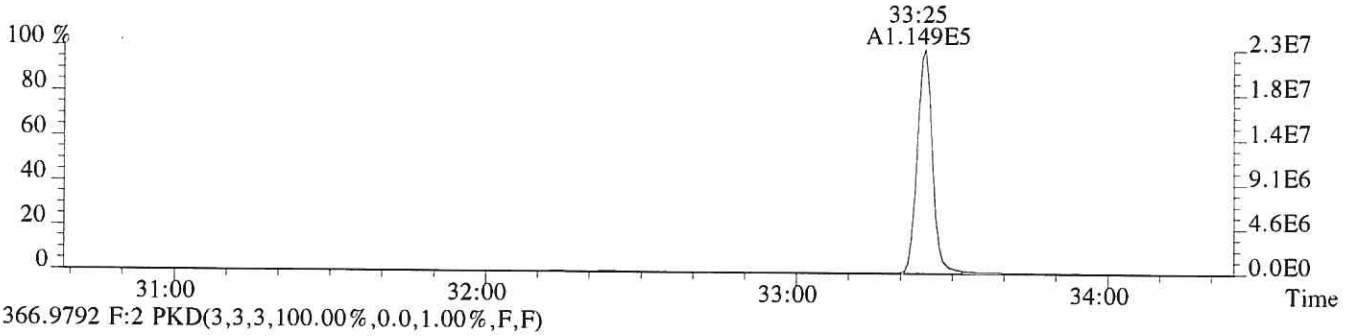
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



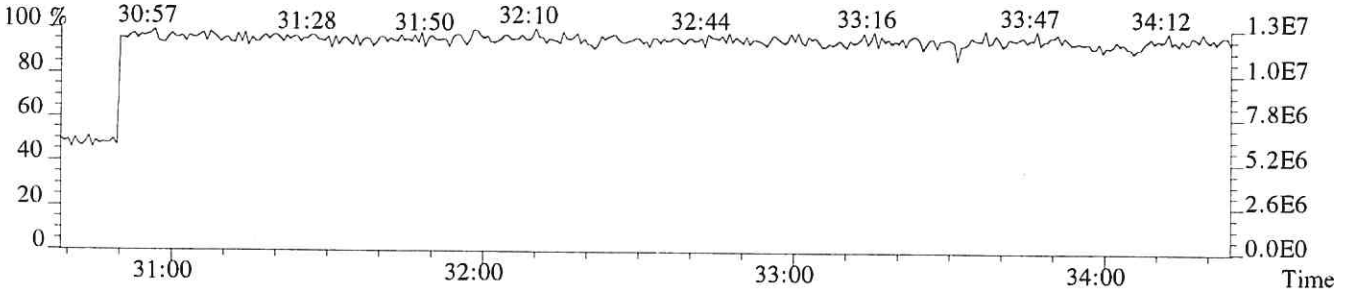
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3256.0,1.00%,F,T)



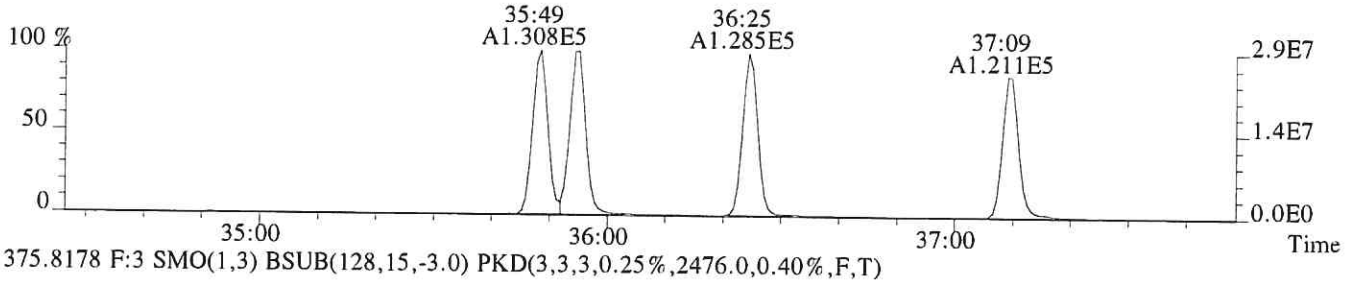
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2280.0,1.00%,F,T)



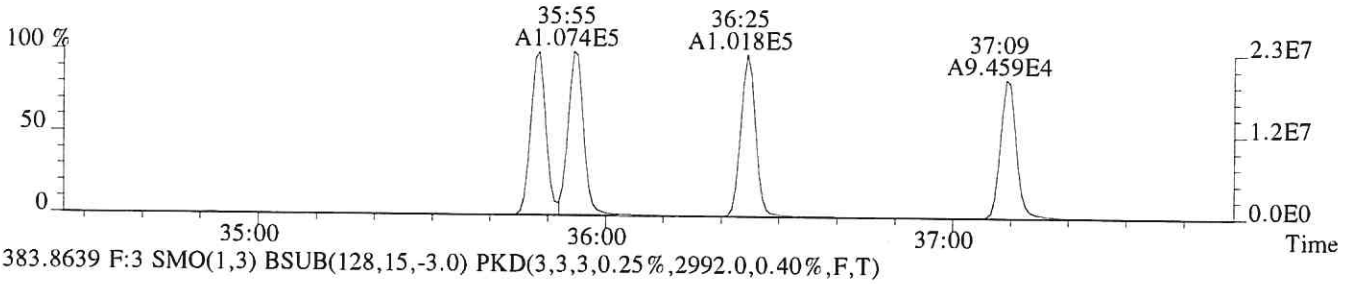
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



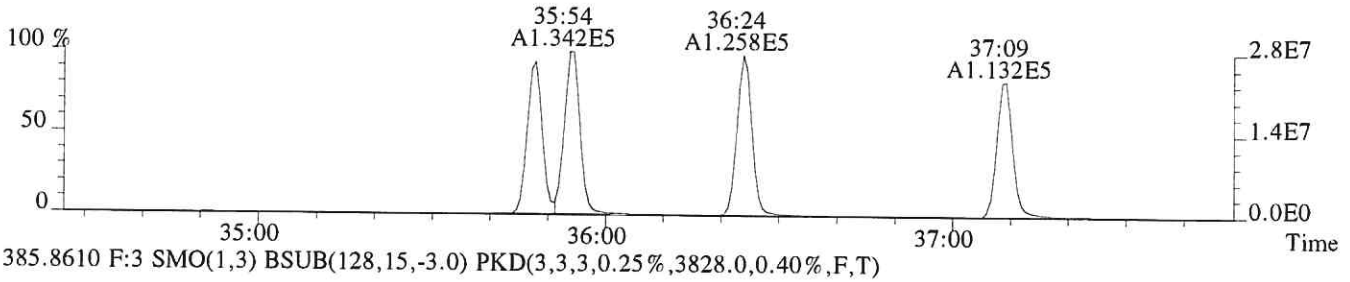
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



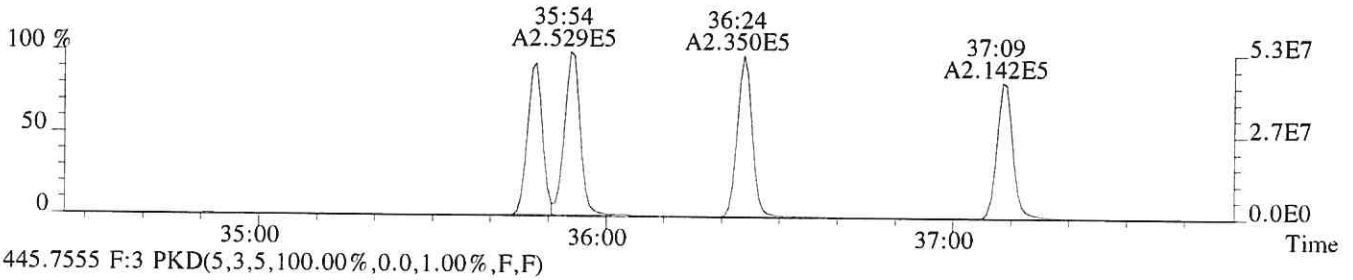
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



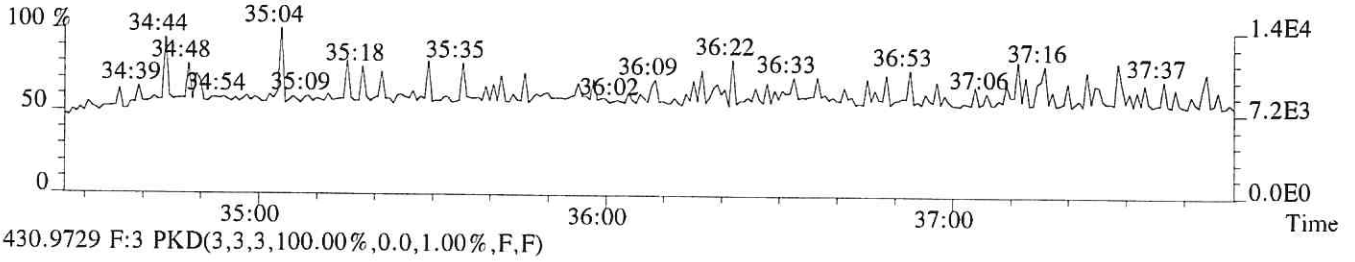
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.40%,F,T)



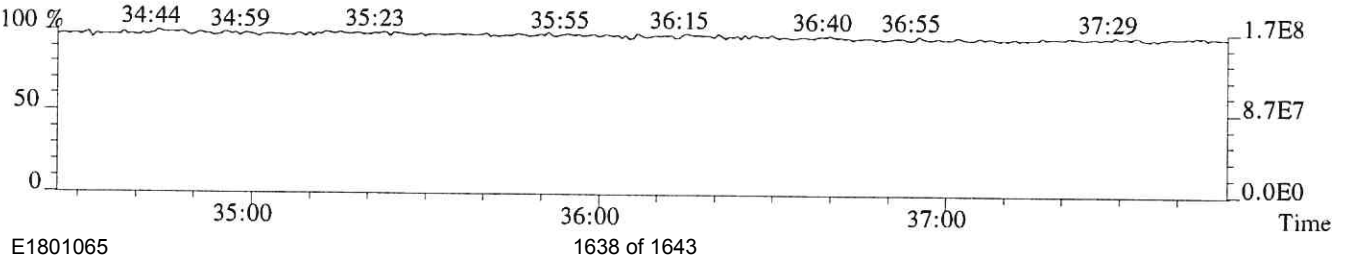
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3828.0,0.40%,F,T)



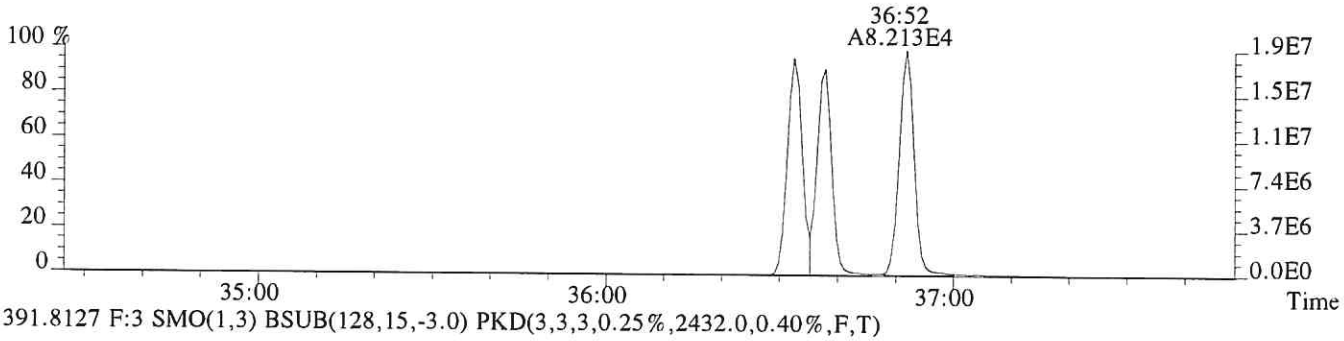
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



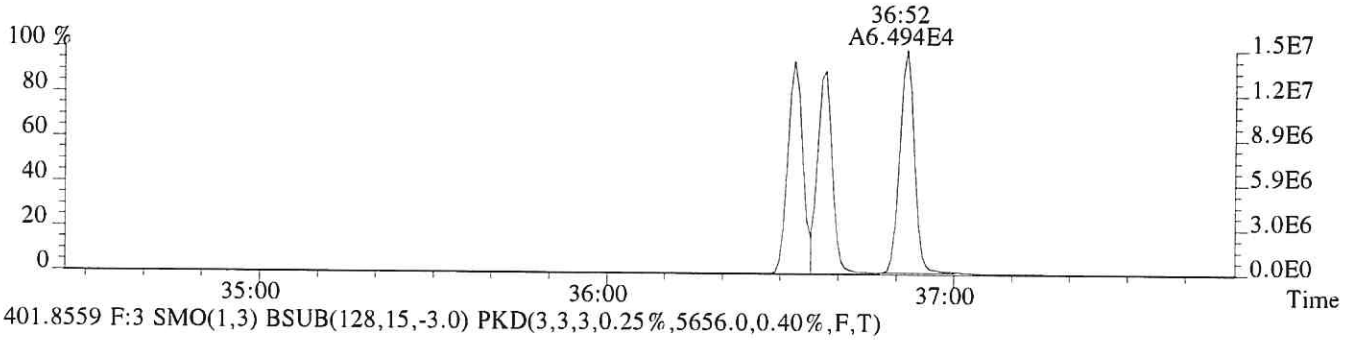
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



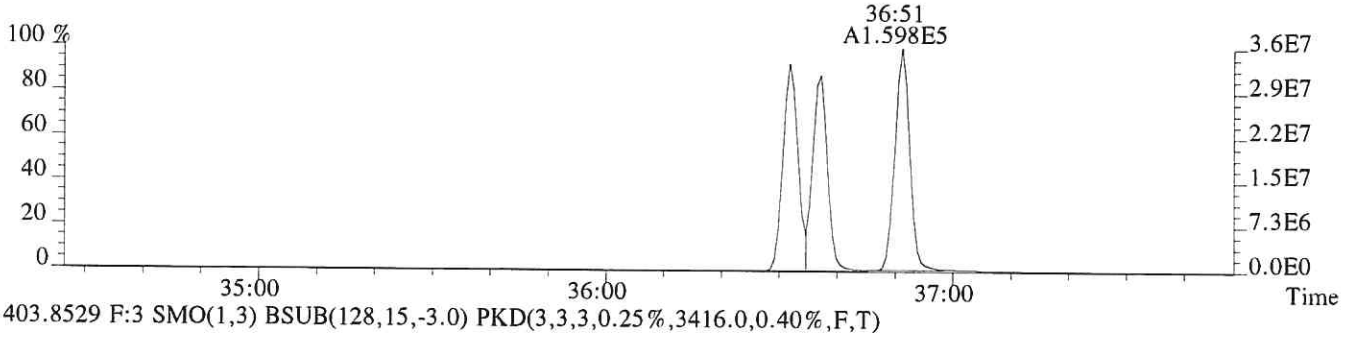
File:P614690 #1-304 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



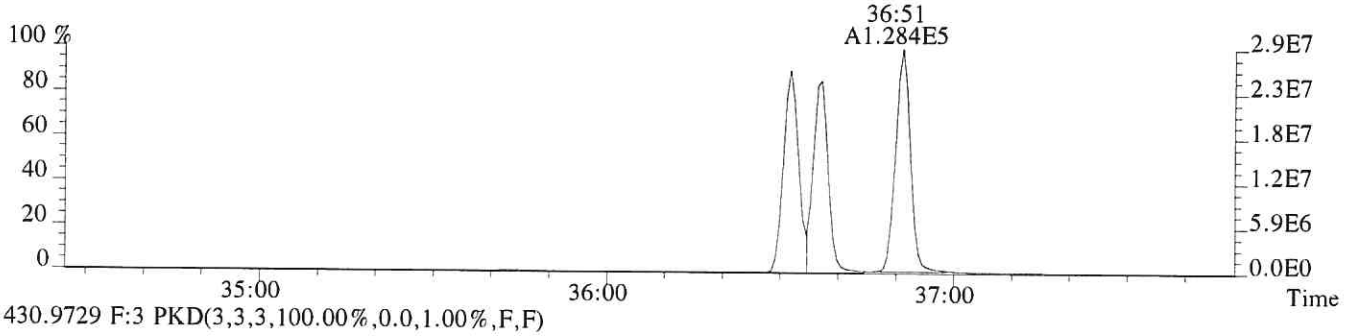
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2432.0,0.40%,F,T)



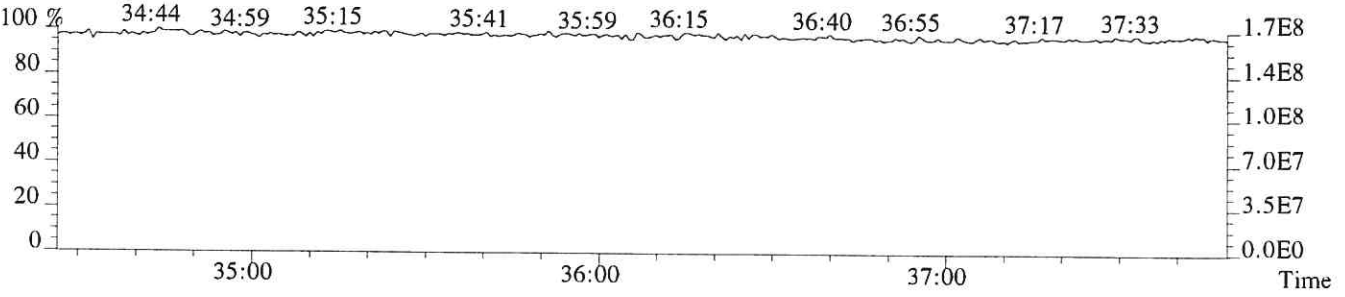
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.40%,F,T)



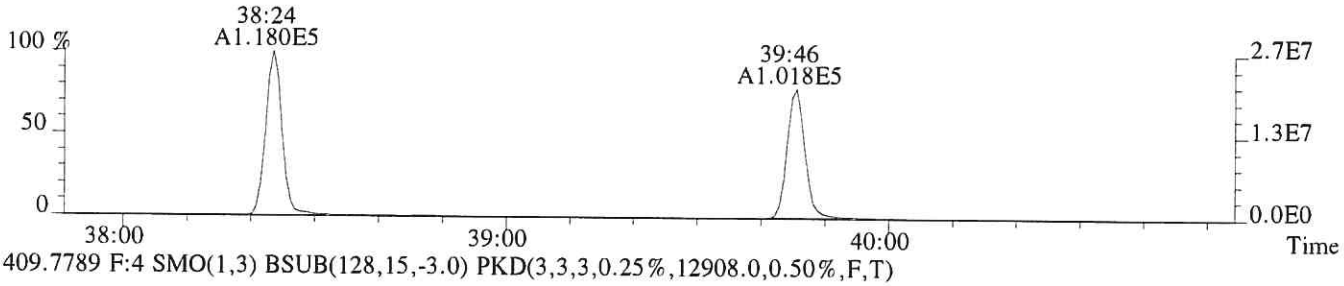
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3416.0,0.40%,F,T)



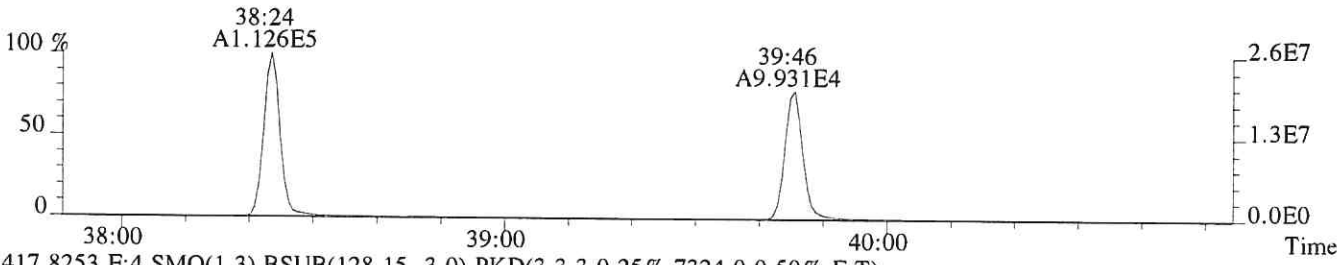
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



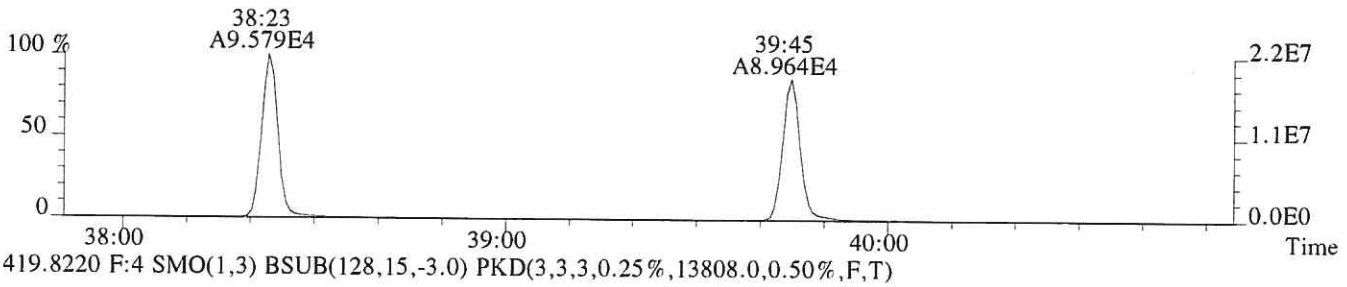
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



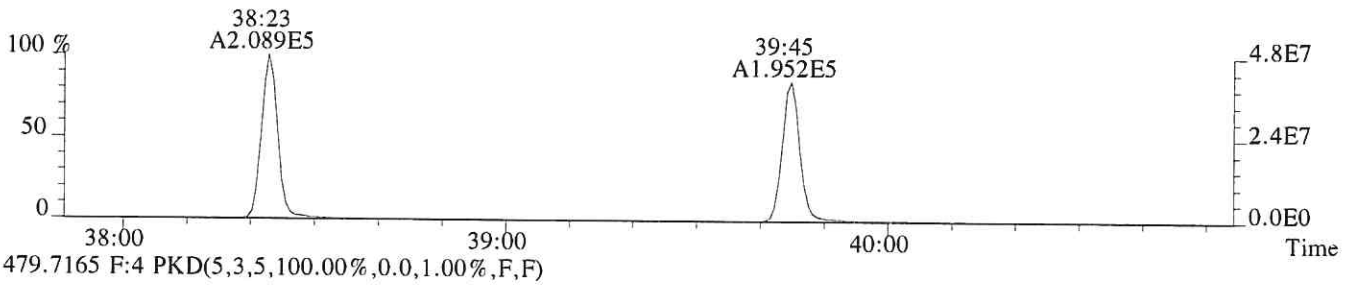
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12908.0,0.50%,F,T)



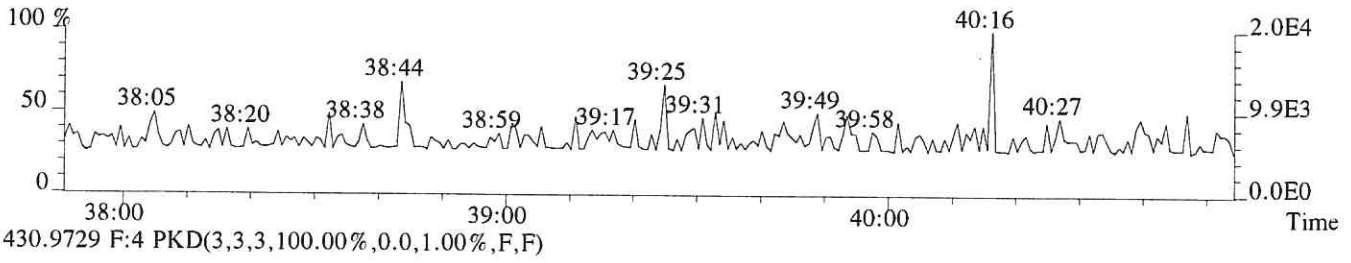
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7324.0,0.50%,F,T)



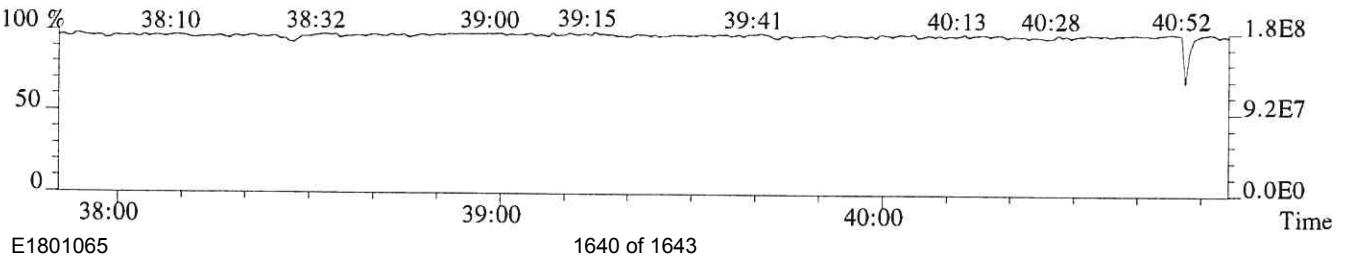
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13808.0,0.50%,F,T)



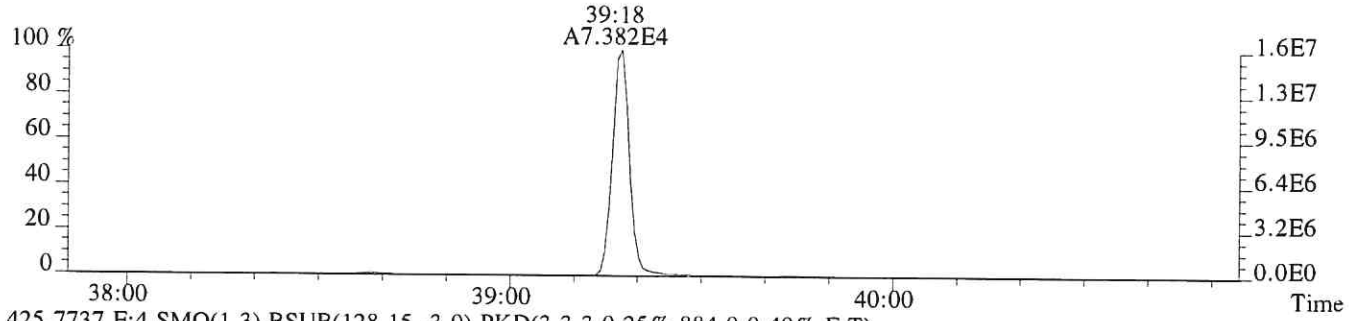
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



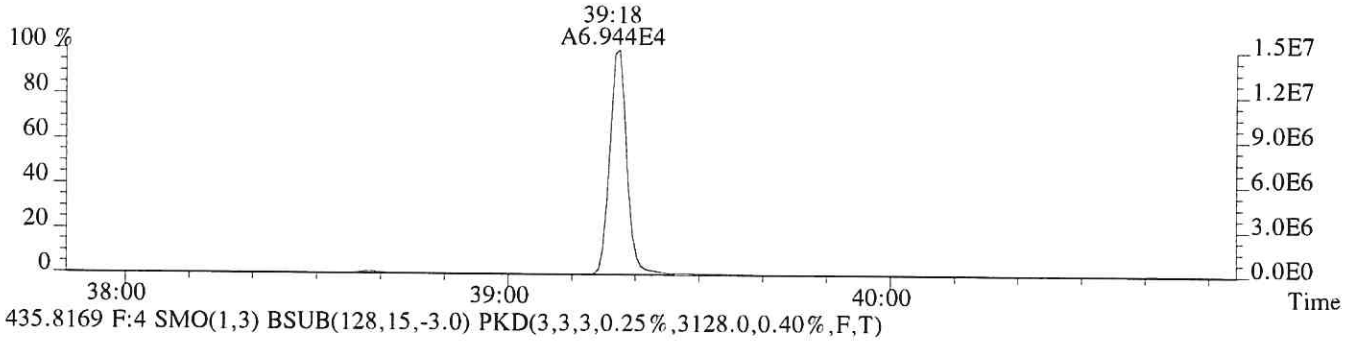
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



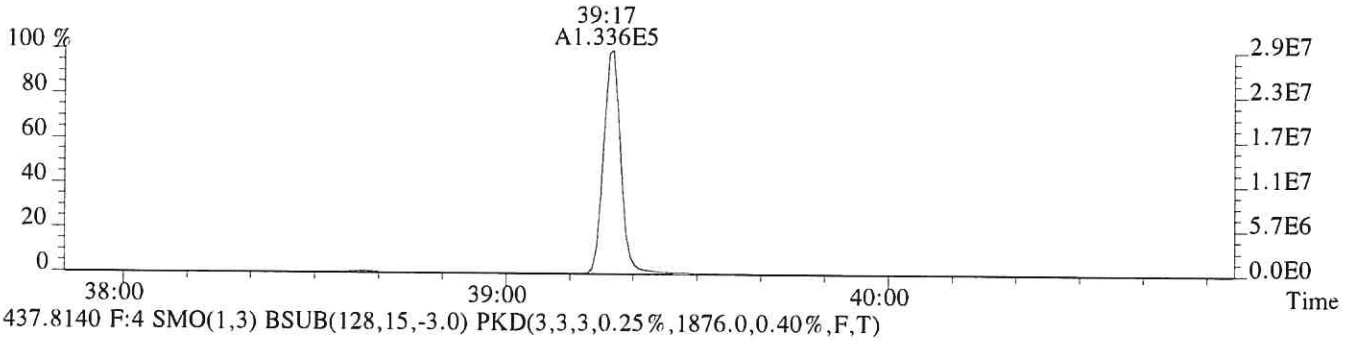
File:P614690 #1-276 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



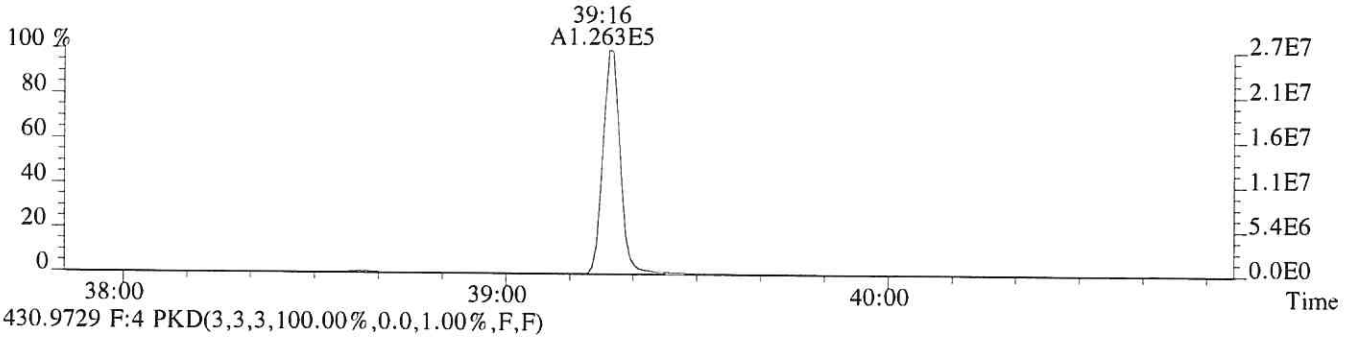
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



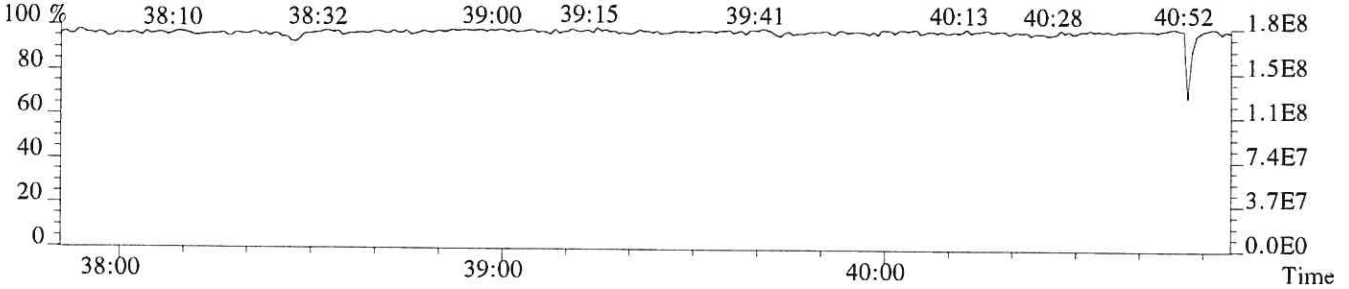
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.40%,F,T)



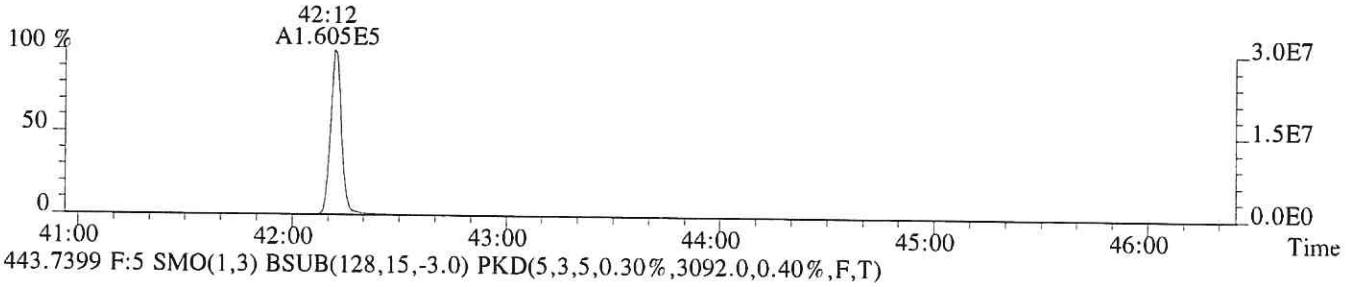
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



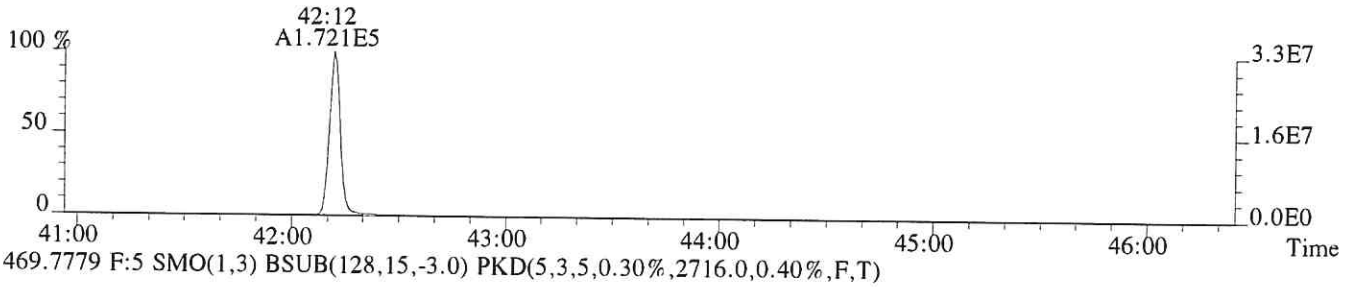
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



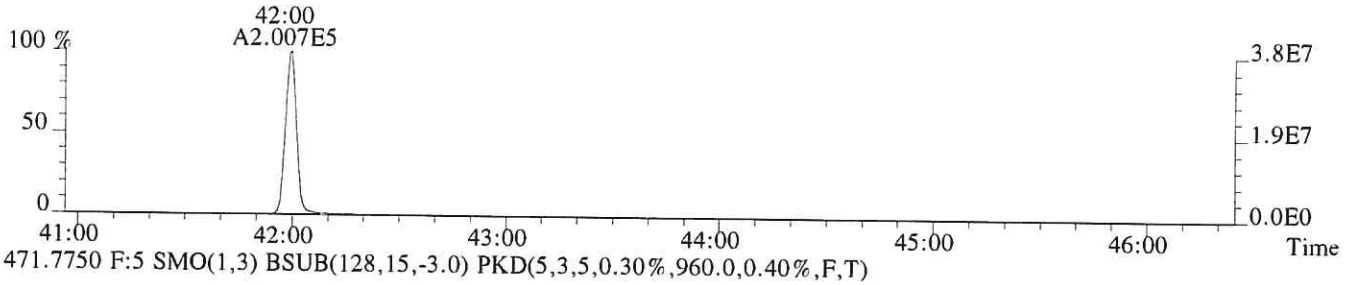
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1500.0,0.40%,F,T)



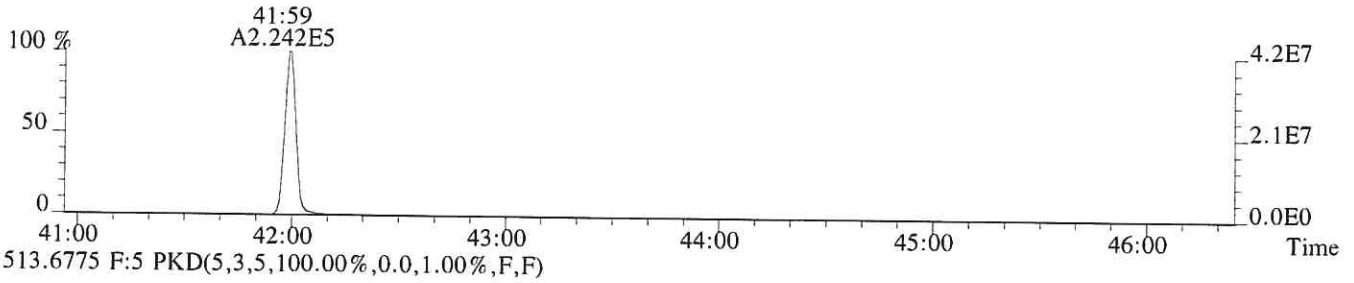
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3092.0,0.40%,F,T)



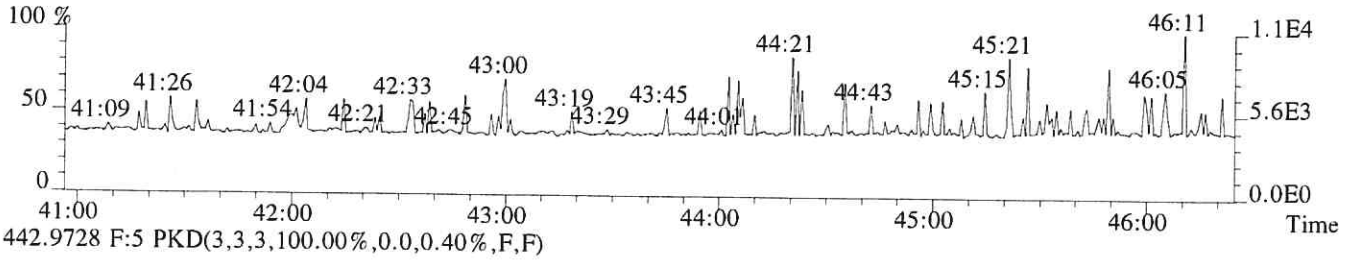
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



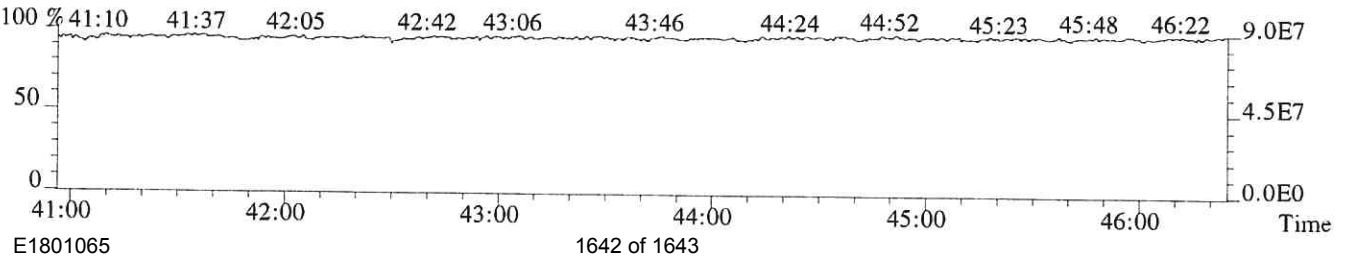
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



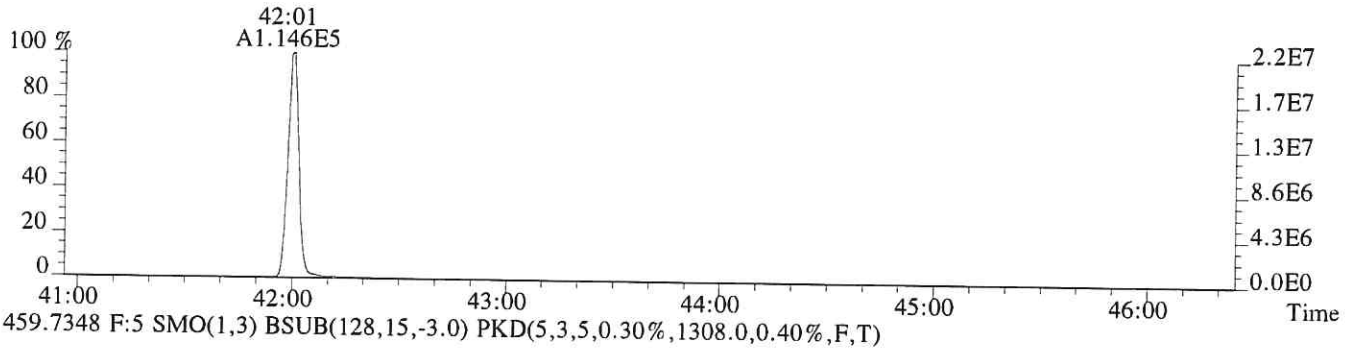
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



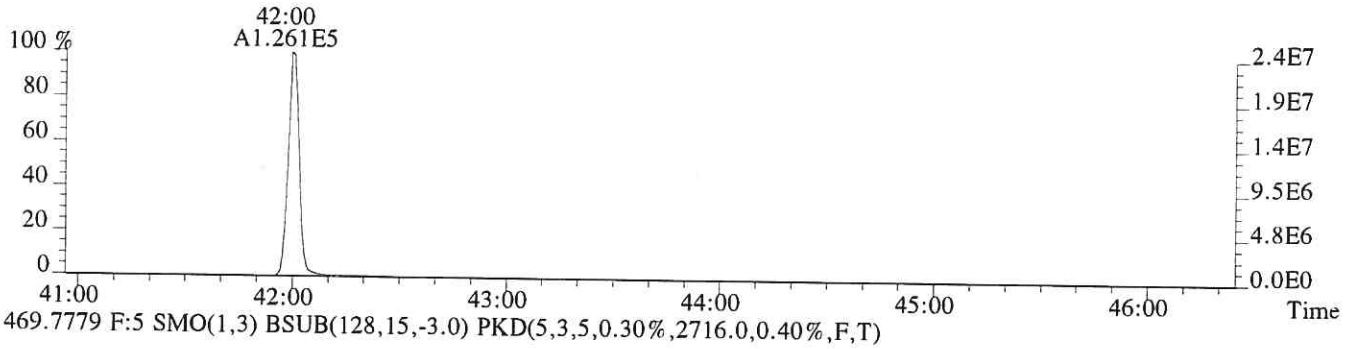
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



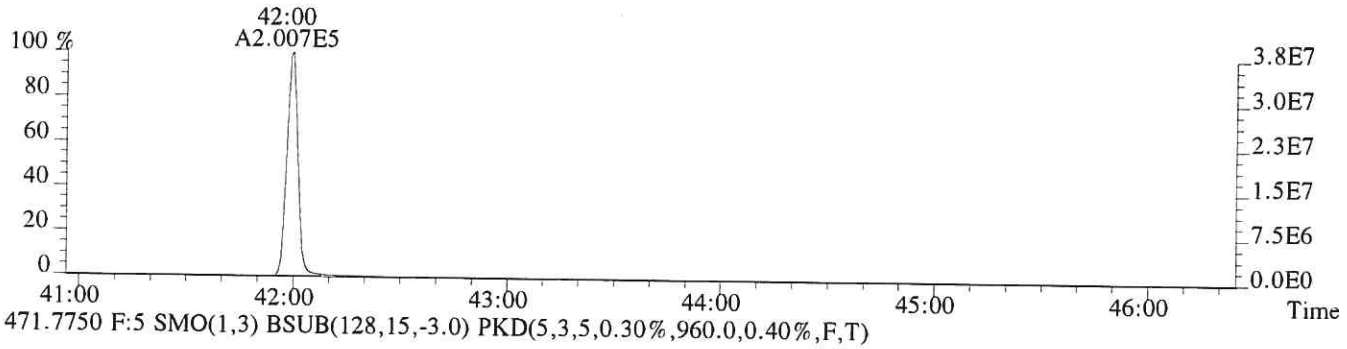
File:P614690 #1-493 Acq:25-SEP-2018 20:57:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1172.0,0.40%,F,T)



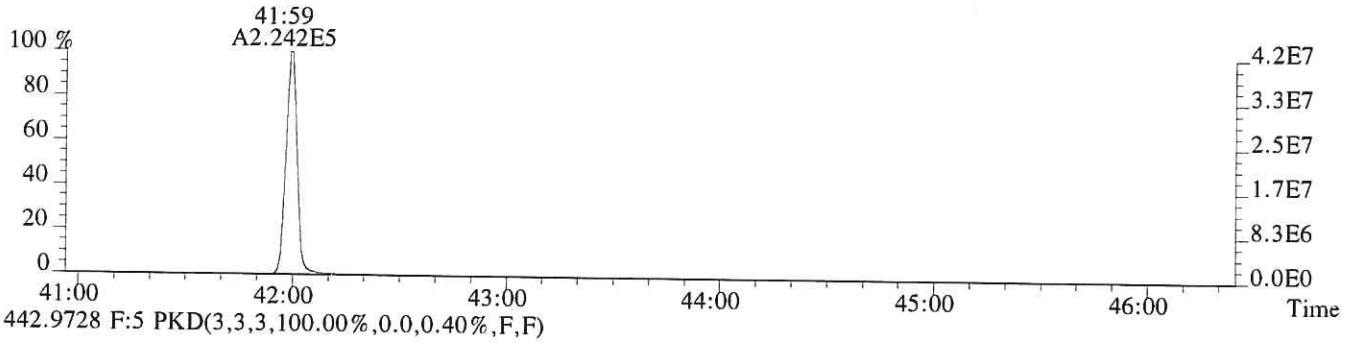
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



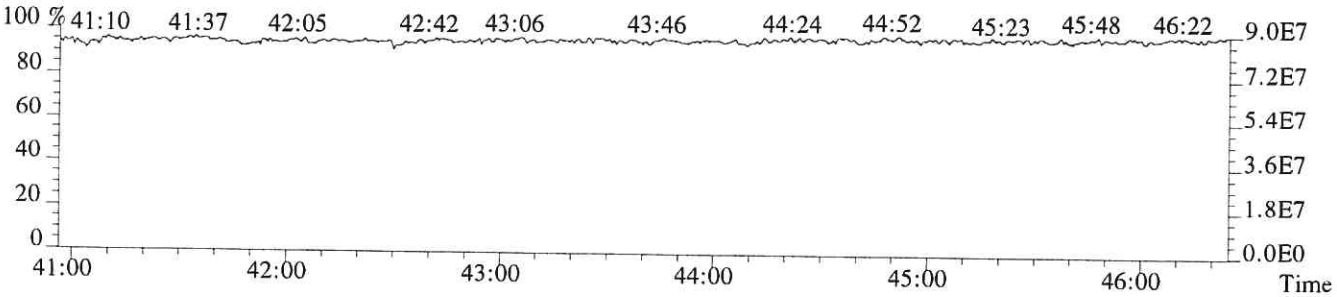
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



January 03, 2019 Service Request No:E1801105

Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670

Laboratory Results for: San Jacinto Waste Pits PPI-1

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory December 10, 2018
For your reference, these analyses have been assigned our service request number **E1801105.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

This is a revised report. Please see case narrative for details on this revision.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kristin Brown

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dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client: Integral **Service Request No.:** E1801105
Project: SJWP
Sample Matrix: Sediment

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

This is a revised report dated January 03, 2019. The revision is to insert the correct ICAL raw data.

Sample Receipt

Four samples were received for analysis at ALS Environmental in Houston on 12/10/18.

The samples were received at -1.8 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ1800515: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within control limits.

B flags – Method Blanks

The Method Blank EQ1800515-01 contained low levels of 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF below the Method Reporting Limit (MRL).

One compound, OCDD, was above the MRL (CRQL). ALS/Houston follows the ***EPA National Functional Guidelines for CDDs and CDFs, September 2005,*** which states on page 31, "The concentration of OCDD/OCDF in the method blank must be <3x the CRQL (MRL.):"

The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

Y flags – Cleanup Standard

The recoveries for the cleanup standard, 37Cl-2,3,7,8-TCDD are below control limits in the LCS and DLCS. The sample results are not affected since this labeled standard is provided as a means of demonstrating that both the sample extraction and subsequent cleanup steps performed as expected, and is not used in quantitation of target analytes.

Y flags – Labeled Standards

13C-2,3,7,8-TCDD and/or 13C-2,3,7,8-TCDF recovered below QC limits in the LCS and DLCS.

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Dilutions

Samples E1801105-001 and E1801105-002 had elevated levels of target analytes and required a dilution. The undiluted and diluted results were combined into one Total TEQ summary report for each sample. This reports a 'Total' result that includes the most appropriate concentration found for the associated target analyte.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- 2378-TCDF from the DB-225 column, when confirmation required
- Non-detected compounds are not included in the 'Total'
- The 1:1 and associated dilution have been combined into one TEQ Summary report

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written

approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1801105-001	SLO 0590	12/9/2018	1130
E1801105-002	SLO 0591	12/9/2018	1150
E1801105-003	SLO 0592	12/9/2018	1150
E1801105-004	SLO 0593	12/9/2018	1200

Service Request Summary

Folder #: **E1801105**
Client Name: Integral Consulting, Incorporated
Project Name: San Jacinto Waste Pits PPI-1
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 12/10/18
Internal Due Date: 12/21/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

4 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
4 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 3B, SMO
Pressure Gas:

				HOUSTON	
				Dioxins Furans/1613B	Total Solids/ALS SOP
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**		
E1801105-001	SLO 0590	Sediment	12/09/18 1130	**IV**	**IV**
E1801105-002	SLO 0591	Sediment	12/09/18 1150	**IV**	**IV**
E1801105-003	SLO 0592	Sediment	12/09/18 1150	**IV**	**IV**
E1801105-004	SLO 0593	Sediment	12/09/18 1200	**IV**	**IV**

Service Request Summary

Folder #: **E1801105**
Client Name: Integral Consulting, Incorporated
Project Name: San Jacinto Waste Pits PPI-1
Project Number:

Report To: Craig Hutchings
Integral Consulting, Inc.
1205 West Bay Drive NW
Olympia, WA 98502-4670
USA
Phone Number: 360-705-3534
Cell Number:
Fax Number:
E-mail: chutchings@integral-corp.com

Project Chemist: Kristin Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 12/10/18
Internal Due Date: 12/21/2018
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: Integral-UCR

4 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
4 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 3B, SMO

Pressure Gas:

Superset Summary

Service Request: E1801105 **SuperSet Reference:** 18-0000492719 rev 00

Analytical Method: **1613B**

Calibrations: 09/25/18

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P616246	P616242	P616210	E1801105-001
P616176	P616166	P616210	E1801105-001.R01
P616177	P616166	P616210	E1801105-002.R01
P616247	P616242	P616210	E1801105-002
P616184	P616181	P616210	E1801105-003
P616185	P616181	P616210	E1801105-004
P616210	P616205	P616210	EQ1800515-01
P616178	P616166	P616210	EQ1800515-02
P616179	P616166	P616210	EQ1800515-03

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.

E Estimated value. The reported concentration is above the calibration range of the instrument.

H Sample extracted and/or analyzed out of suggested holding time.

J Estimated value. The reported concentration is below the MRL.

K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.

P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.

Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.

S Signal saturated detector. Result reported from dilution.

U Compound was analyzed for, but was not detected (ND).

X See Case Narrative.

Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.

i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801105 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/28/18	LKL	001, 002

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/28/18	LG	001, 002

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1801105 (DB-5MSUI) SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/29/18	LKL	001DL, 002DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/29/18	LG	001DL, 002DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1801105 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/28/18	LKL	003, 004

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/28/18	LG	003, 004

HS-HRMSREVIEW R1.0

PEER REVIEW PAGE2015

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CHAIN OF CUSTODY FORM

Project: SAN JACINTO RIVER WASTE PITS PDI-1

Samplers: CHRIS TORELL - ANCHOR QEA

Integral Contact: OLIVIA HARGRAVE
Phone 206 9527, 0352

Ship to: HAND DELIVERED
Lab Name ALS HOUSTON
Address 10450 STANCLIFFRD. #210
HOUSTON TX 77099
Contact KRISTIN NEIR
Phone 281 530 5656

integral consulting inc.

ANALYSES REQUESTED

Sample No.	Tag #	Date	Time	Matrix	1613B DIOXANS/FURANS	1311 TCLP	9034 React. Sulfides	7.3.3.2 React. CN-	1010A IGN, 9040 FLASH, PH. CORROS.				Extra Container	Archive	Comments (BELOW CAP)
SL0590	0106	12/9/18	1130	SOIL	1										SJSB038 8-9'
SL0591	0107	12/9/18	1150	SOIL	1										SJSB038 9-10'
SL0592	0108	12/9/18	1150	SOIL	1										SJSB038 10-11'
SL0593	0109	12/9/18	1200	SOIL	1										SJSB038 11-12
SL0594		12/9/18	1500	SOIL		2	1	1	1				1	X	SJSB038 0-9
					TAGS	0111 0110	0114	0113	0112						
		SEE →													

PRESERVED W/ ZINC ACETATE

5 GALLON BUCKET (HOMOGENIZE WELL BEFORE USE)

SL0595 TAG 0115

E1801105 5
Integral Consulting, Inc.
San Jacinto Waste Pits

Analysis Turn Time: Normal Rush **Rush Results Needed By:**

Shipped by: CRT **Shipping Tracking No.** HAND DELIVERED

Condition of Samples Upon Receipt: **Custody Seal Intact?**

Matrix Code: GW - Groundwater; SL - Soil; SW - Surface water; SD -Sediment; Other:

Relinquished by: [signature] (signature) **Date/Time:** 12/10/18 0703 **Received by:** [signature] (signature) **Date/Time:** 12/10/18 0723

Relinquished by: _____ (signature) **Date/Time:** _____ **Received by:** _____ (signature) **Date/Time:** _____

Special Instructions:

44526 o/c - 3.8° #25 c/f 0.3°

Cooler Receipt Form

ALS Environmental

Project Chemist _____

Client/Project San Jac. Integral Consulting

Thermometer ID SM04

Date/Time Received: 12/10/18 0723 Initials: JG

Date/Time Logged in: 12/11/18 1350 Initials JG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ○ Courier ✓ Client

2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other _____

3. Were custody seals on coolers? ○ Yes ✓ No

Were they intact? ○ Yes ○ No ✓ N/A

Were they signed and dated? ○ Yes ○ No ✓ N/A

If yes, how many and where?

4. Packing Material: ○ Inserts ○ Baggies ✓ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other _____

5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling: _____

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
		12/11/18	1350	JG	-1.8/-1.4	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No

10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

E1801105
Integral Consulting, Inc.
San Jacinto Waste Pits
5

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
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www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 328369 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/17/18 09:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1801105-001	SLO 0590	.01	1613B/Dioxins Furans			Sediment	10.238g	Black Mud
2	E1801105-002	SLO 0591	.01	1613B/Dioxins Furans			Sediment	10.363g	Black Mud
3	E1801105-003	SLO 0592	.01	1613B/Dioxins Furans			Sediment	10.497g	Black Mud
4	E1801105-004	SLO 0593	.01	1613B/Dioxins Furans			Sediment	10.063g	Black Mud
5	EQ1800515-01	MB		1613B/Dioxins Furans			Solid	10.244g	
6	EQ1800515-02	LCS		1613B/Dioxins Furans			Solid	10.189g	
7	EQ1800515-03	DLCS		1613B/Dioxins Furans			Solid	10.107g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 195564 Logbook Ref: 195564 AL 12/11/18 2-20 ng/mL Expires On: 06/09/2019

EQ1800515-02 100.00µL EQ1800515-03 100.00µL

Name: 1613B Labeled Working Standard Inventory ID 195627 Logbook Ref: 195626 JG 12/14/18 2-4 ngml Expires On: 01/31/2019

E1801105-001 1,000.00µL E1801105-002 1,000.00µL E1801105-003 1,000.00µL E1801105-004 1,000.00µL EQ1800515-01 1,000.00µL EQ1800515-02 1,000.00µL
EQ1800515-03 1,000.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 195630 Logbook Ref: 195630 tw012/14/18 8ng/ml Expires On: 04/27/2019

E1801105-001 100.00µL E1801105-002 100.00µL E1801105-003 100.00µL E1801105-004 100.00µL EQ1800515-01 100.00µL EQ1800515-02 100.00µL
EQ1800515-03 100.00µL

Preparation Materials

Carbon, High Purity	12/7/18 carbon tw (195519)	Ethyl Acetate 99.9% Minimum EtOAc	tw ethyl acet 080218 (192158)	Glass Wool	112018 tw glasswool (195079)
Hexanes 95%	JG 12/17/18 (195673)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL (195005)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 10/12/18 (194060)	Tridecane (n-Tridecane)	AL 12/12/18 (195585)	Silica Gel	AL 10/11/18 (194005)
sulfuric acid	AL 10/11/18 (194007)	Toluene 99.9% Minimum	AL 11/16/18 (195003)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	12/17/18 09:00	Started:	12/18/18 10:00	Started:	12/18/18 13:00	Started:	12/20/18 09:00
Finished:	12/18/18 07:30	Finished:	12/18/18 11:00	Finished:	12/18/18 15:00	Finished:	12/20/18 12:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 328369 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 12/17/18 09:00 AM

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0590	**Units:**	ng/Kg
Lab Code:	E1801105-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/28/18 09:16
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.238g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616246	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616242

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	80600		1520	1520	0.77	1.001	500
1,2,3,7,8-PeCDD	284		0.523	5.16	1.56	1.001	1
1,2,3,4,7,8-HxCDD	2.60	**JK**	0.419	5.16	1.48	1.000	1
1,2,3,6,7,8-HxCDD	9.86	**K**	0.480	5.16	1.03	1.000	1
1,2,3,7,8,9-HxCDD	5.44		0.417	5.16	1.21	1.007	1
1,2,3,4,6,7,8-HpCDD	97.8		0.821	5.16	1.04	1.000	1
OCDD	1730		0.383	10.3	0.90	1.000	1
2,3,7,8-TCDF	136000		362	516	0.84	1.001	500
1,2,3,7,8-PeCDF	2660		4.29	5.16	1.56	1.000	1
2,3,4,7,8-PeCDF	2120		5.55	5.55	1.57	1.001	1
1,2,3,4,7,8-HxCDF	10500		108	2580	1.29	1.000	500
1,2,3,6,7,8-HxCDF	2590		1.19	5.16	1.25	1.000	1
1,2,3,7,8,9-HxCDF	611		1.23	5.16	1.24	1.001	1
2,3,4,6,7,8-HxCDF	631		1.34	5.16	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	3430		1.05	5.16	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	972		1.30	5.16	1.04	1.000	1
OCDF	1720		0.736	10.3	0.90	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0590	**Units:**	ng/Kg
Lab Code:	E1801105-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/28/18 09:16
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.238g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616246	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616242

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	38000		2.32	2.32	0.84		1
Total Penta-Dioxins	323		0.523	5.16	1.41		1
Total Hexa-Dioxins	56.6		0.437	5.16	1.24		1
Total Hepta-Dioxins	227		0.821	5.16	1.07		1
Total Tetra-Furans	159000		4.07	4.07	0.79		1
Total Penta-Furans	7320		4.87	5.16	1.57		1
Total Hexa-Furans	11600		1.21	5.16	1.23		1
Total Hepta-Furans	5270		1.17	5.16	1.05		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0590	**Units:**	Percent
Lab Code:	E1801105-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 20:13
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.238g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616176	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	555.209	28		25-164	0.79	1.028
13C-1,2,3,7,8-PeCDD	2000	922.530	46		25-181	1.54	1.216
13C-1,2,3,4,7,8-HxCDD	2000	1026.875	51		32-141	1.32	0.991
13C-1,2,3,6,7,8-HxCDD	2000	932.096	47		28-130	1.17	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1072.719	54		23-140	1.04	1.067
13C-OCDD	4000	1123.581	28		17-157	0.92	1.136
13C-2,3,7,8-TCDF	2000	902.371	45		24-169	0.81	0.989
13C-1,2,3,7,8-PeCDF	2000	882.314	44		24-185	1.62	1.169
13C-2,3,4,7,8-PeCDF	2000	772.284	39		21-178	1.58	1.206
13C-1,2,3,4,7,8-HxCDF	2000	923.712	46		26-152	0.55	0.969
13C-1,2,3,6,7,8-HxCDF	2000	875.235	44		26-123	0.52	0.972
13C-1,2,3,7,8,9-HxCDF	2000	909.928	45		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	876.718	44		28-136	0.54	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	771.427	39		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	777.447	39		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	543.205	68		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0590	**Units:**	ng/Kg
Lab Code:	E1801105-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**80600**	1520	1520	500	1	80600
1,2,3,7,8-PeCDD	**284**	0.523	5.16	1	1	284
1,2,3,4,7,8-HxCDD	**2.60**	0.419	5.16	1	0.1	0.260
1,2,3,6,7,8-HxCDD	**9.86**	0.480	5.16	1	0.1	0.986
1,2,3,7,8,9-HxCDD	**5.44**	0.417	5.16	1	0.1	0.544
1,2,3,4,6,7,8-HpCDD	**97.8**	0.821	5.16	1	0.01	0.978
OCDD	**1730**	0.383	10.3	1	0.0003	0.519
2,3,7,8-TCDF	**136000**	362	516	500	0.1	13600
1,2,3,7,8-PeCDF	**2660**	4.29	5.16	1	0.03	79.8
2,3,4,7,8-PeCDF	**2120**	5.55	5.55	1	0.3	636
1,2,3,4,7,8-HxCDF	**10500**	108	2580	500	0.1	1050
1,2,3,6,7,8-HxCDF	**2590**	1.19	5.16	1	0.1	259
1,2,3,7,8,9-HxCDF	**611**	1.23	5.16	1	0.1	61.1
2,3,4,6,7,8-HxCDF	**631**	1.34	5.16	1	0.1	63.1
1,2,3,4,6,7,8-HpCDF	**3430**	1.05	5.16	1	0.01	34.3
1,2,3,4,7,8,9-HpCDF	**972**	1.30	5.16	1	0.01	9.72
OCDF	**1720**	0.736	10.3	1	0.0003	0.516
		Total TEQ				96700

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:30
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0590	**Units:**	Percent
Lab Code:	E1801105-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/24/18 10:53
	5.129g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	47.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0591	**Units:**	ng/Kg
Lab Code:	E1801105-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 21:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.363g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616177	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	234		1.01	1.01	0.82	1.001	1
1,2,3,7,8-PeCDD	2.68	**J**	0.156	3.39	1.45	1.001	1
1,2,3,4,7,8-HxCDD	0.443	**J**	0.162	3.39	1.26	1.000	1
1,2,3,6,7,8-HxCDD	0.692	**JK**	0.181	3.39	0.92	1.000	1
1,2,3,7,8,9-HxCDD	1.09	**J**	0.159	3.39	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	19.4		0.222	3.39	1.09	1.000	1
OCDD	675		0.153	6.79	0.90	1.000	1
2,3,7,8-TCDF	1210		3.18	3.39	0.84	1.001	5
1,2,3,7,8-PeCDF	11.5		0.275	3.39	1.50	1.001	1
2,3,4,7,8-PeCDF	12.2		0.297	3.39	1.70	1.001	1
1,2,3,4,7,8-HxCDF	15.5		0.125	3.39	1.24	1.000	1
1,2,3,6,7,8-HxCDF	4.04		0.129	3.39	1.08	1.000	1
1,2,3,7,8,9-HxCDF	1.18	**JK**	0.153	3.39	1.46	1.001	1
2,3,4,6,7,8-HxCDF	0.927	**J**	0.139	3.39	1.28	1.000	1
1,2,3,4,6,7,8-HpCDF	5.46		0.111	3.39	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	1.63	**JK**	0.128	3.39	1.21	1.000	1
OCDF	2.56	**BJK**	0.333	6.79	1.08	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0591	**Units:**	ng/Kg
Lab Code:	E1801105-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 21:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.363g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616177	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	257		1.01	1.01	0.83		1
Total Penta-Dioxins	4.27		0.156	3.39	1.33		1
Total Hexa-Dioxins	19.0		0.167	3.39	1.33		1
Total Hepta-Dioxins	60.5		0.222	3.39	1.04		1
Total Tetra-Furans	1220		0.750	0.750	0.71		1
Total Penta-Furans	34.4		0.286	3.39	1.72		1
Total Hexa-Furans	22.2		0.136	3.39	1.11		1
Total Hepta-Furans	5.52		0.119	3.39	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0591	**Units:**	Percent
Lab Code:	E1801105-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 21:02
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.363g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616177	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	850.849	43		25-164	0.78	1.028
13C-1,2,3,7,8-PeCDD	2000	1458.628	73		25-181	1.55	1.228
13C-1,2,3,4,7,8-HxCDD	2000	1392.983	70		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1297.381	65		28-130	1.23	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1565.861	78		23-140	1.05	1.069
13C-OCDD	4000	1921.622	48		17-157	0.92	1.139
13C-2,3,7,8-TCDF	2000	1121.251	56		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	1422.353	71		24-185	1.58	1.177
13C-2,3,4,7,8-PeCDF	2000	1342.586	67		21-178	1.61	1.216
13C-1,2,3,4,7,8-HxCDF	2000	1216.568	61		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1186.100	59		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1174.447	59		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1141.267	57		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1072.901	54		28-143	0.46	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1146.453	57		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	467.041	58		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0591	**Units:**	ng/Kg
Lab Code:	E1801105-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**234**	1.01	1.01	1	1	234
1,2,3,7,8-PeCDD	**2.68**	0.156	3.39	1	1	2.68
1,2,3,4,7,8-HxCDD	**0.443**	0.162	3.39	1	0.1	0.0443
1,2,3,6,7,8-HxCDD	**0.692**	0.181	3.39	1	0.1	0.0692
1,2,3,7,8,9-HxCDD	**1.09**	0.159	3.39	1	0.1	0.109
1,2,3,4,6,7,8-HpCDD	**19.4**	0.222	3.39	1	0.01	0.194
OCDD	**675**	0.153	6.79	1	0.0003	0.203
2,3,7,8-TCDF	**1210**	3.18	3.39	5	0.1	121
1,2,3,7,8-PeCDF	**11.5**	0.275	3.39	1	0.03	0.345
2,3,4,7,8-PeCDF	**12.2**	0.297	3.39	1	0.3	3.66
1,2,3,4,7,8-HxCDF	**15.5**	0.125	3.39	1	0.1	1.55
1,2,3,6,7,8-HxCDF	**4.04**	0.129	3.39	1	0.1	0.404
1,2,3,7,8,9-HxCDF	**1.18**	0.153	3.39	1	0.1	0.118
2,3,4,6,7,8-HxCDF	**0.927**	0.139	3.39	1	0.1	0.0927
1,2,3,4,6,7,8-HpCDF	**5.46**	0.111	3.39	1	0.01	0.0546
1,2,3,4,7,8,9-HpCDF	**1.63**	0.128	3.39	1	0.01	0.0163
OCDF	**2.56**	0.333	6.79	1	0.0003	0.000768
		Total TEQ				365

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0591	**Units:**	Percent
Lab Code:	E1801105-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/24/18 10:53
	8.255g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	71.1		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0592	**Units:**	ng/Kg
Lab Code:	E1801105-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/25/18 03:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.497g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616184	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616181

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	116		0.629	0.752	0.81	1.001	1
1,2,3,7,8-PeCDD	1.36	**JK**	0.123	3.76	2.17	1.000	1
1,2,3,4,7,8-HxCDD	0.496	**J**	0.180	3.76	1.20	1.000	1
1,2,3,6,7,8-HxCDD	0.719	**J**	0.205	3.76	1.21	1.000	1
1,2,3,7,8,9-HxCDD	1.04	**J**	0.179	3.76	1.12	1.007	1
1,2,3,4,6,7,8-HpCDD	20.8		0.544	3.76	1.00	1.000	1
OCDD	793		1.95	7.52	0.89	1.000	1
2,3,7,8-TCDF	313		0.494	0.752	0.82	1.001	1
1,2,3,7,8-PeCDF	6.03		0.242	3.76	1.46	1.001	1
2,3,4,7,8-PeCDF	6.50		0.253	3.76	1.52	1.000	1
1,2,3,4,7,8-HxCDF	7.77		0.166	3.76	1.24	1.000	1
1,2,3,6,7,8-HxCDF	2.37	**J**	0.168	3.76	1.26	1.000	1
1,2,3,7,8,9-HxCDF	0.829	**J**	0.204	3.76	1.14	1.000	1
2,3,4,6,7,8-HxCDF	0.538	**JK**	0.183	3.76	1.02	1.000	1
1,2,3,4,6,7,8-HpCDF	3.30	**J**	0.0494	3.76	1.11	1.000	1
1,2,3,4,7,8,9-HpCDF	0.970	**J**	0.0621	3.76	1.04	1.000	1
OCDF	2.13	**BJ**	0.224	7.52	0.96	1.004	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0592	**Units:**	ng/Kg
Lab Code:	E1801105-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/25/18 03:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.497g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616184	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616181

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	127		0.629	0.752	0.79		1
Total Penta-Dioxins	1.32**J**		0.123	3.76	1.55		1
Total Hexa-Dioxins	25.2		0.188	3.76	1.25		1
Total Hepta-Dioxins	73.4		0.544	3.76	1.06		1
Total Tetra-Furans	566		0.494	0.752	0.66		1
Total Penta-Furans	16.2		0.247	3.76	1.42		1
Total Hexa-Furans	11.1		0.179	3.76	1.14		1
Total Hepta-Furans	5.52		0.0553	3.76	1.11		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0592	**Units:**	Percent
Lab Code:	E1801105-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/25/18 03:01
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.497g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616184	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616181

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	683.544	34		25-164	0.77	1.028
13C-1,2,3,7,8-PeCDD	2000	1069.500	53		25-181	1.57	1.229
13C-1,2,3,4,7,8-HxCDD	2000	1187.724	59		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1208.381	60		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1354.020	68		23-140	1.06	1.069
13C-OCDD	4000	1660.382	42		17-157	0.89	1.139
13C-2,3,7,8-TCDF	2000	954.944	48		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1078.162	54		24-185	1.58	1.178
13C-2,3,4,7,8-PeCDF	2000	1007.300	50		21-178	1.61	1.217
13C-1,2,3,4,7,8-HxCDF	2000	1110.370	56		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1098.393	55		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1036.846	52		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1037.775	52		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	929.105	46		28-143	0.46	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	942.873	47		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	377.253	47		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0592	**Units:**	ng/Kg
Lab Code:	E1801105-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**116**	0.629	0.752	1	1	116
1,2,3,7,8-PeCDD	**1.36**	0.123	3.76	1	1	1.36
1,2,3,4,7,8-HxCDD	**0.496**	0.180	3.76	1	0.1	0.0496
1,2,3,6,7,8-HxCDD	**0.719**	0.205	3.76	1	0.1	0.0719
1,2,3,7,8,9-HxCDD	**1.04**	0.179	3.76	1	0.1	0.104
1,2,3,4,6,7,8-HpCDD	**20.8**	0.544	3.76	1	0.01	0.208
OCDD	**793**	1.95	7.52	1	0.0003	0.238
2,3,7,8-TCDF	**313**	0.494	0.752	1	0.1	31.3
1,2,3,7,8-PeCDF	**6.03**	0.242	3.76	1	0.03	0.181
2,3,4,7,8-PeCDF	**6.50**	0.253	3.76	1	0.3	1.95
1,2,3,4,7,8-HxCDF	**7.77**	0.166	3.76	1	0.1	0.777
1,2,3,6,7,8-HxCDF	**2.37**	0.168	3.76	1	0.1	0.237
1,2,3,7,8,9-HxCDF	**0.829**	0.204	3.76	1	0.1	0.0829
2,3,4,6,7,8-HxCDF	**0.538**	0.183	3.76	1	0.1	0.0538
1,2,3,4,6,7,8-HpCDF	**3.30**	0.0494	3.76	1	0.01	0.0330
1,2,3,4,7,8,9-HpCDF	**0.970**	0.0621	3.76	1	0.01	0.00970
OCDF	**2.13**	0.224	7.52	1	0.0003	0.000639
		Total TEQ				153

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 11:50
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0592	**Units:**	Percent
Lab Code:	E1801105-003	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/24/18 10:53
	5.926g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	63.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 12:00
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0593	**Units:**	ng/Kg
Lab Code:	E1801105-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/25/18 03:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.063g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616185	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616181

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.87		0.805	0.805	0.67	1.001	1
1,2,3,7,8-PeCDD	0.542**J**		0.120	3.53	1.48	1.001	1
1,2,3,4,7,8-HxCDD	0.408**JK**		0.142	3.53	1.69	1.000	1
1,2,3,6,7,8-HxCDD	0.668**JK**		0.157	3.53	1.04	1.000	1
1,2,3,7,8,9-HxCDD	1.32**J**		0.139	3.53	1.14	1.007	1
1,2,3,4,6,7,8-HpCDD	25.7		0.212	3.53	0.96	1.000	1
OCDD	987		0.0777	7.07	0.89	1.000	1
2,3,7,8-TCDF	4.88		0.548	0.707	0.89	1.001	1
1,2,3,7,8-PeCDF	0.230**J**		0.131	3.53	1.71	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.140	3.53			1
1,2,3,4,7,8-HxCDF	0.238**J**		0.0781	3.53	1.18	1.000	1
1,2,3,6,7,8-HxCDF	0.124**JK**		0.0758	3.53	0.81	1.000	1
1,2,3,7,8,9-HxCDF	0.123**JK**		0.0980	3.53	0.91	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0816	3.53			1
1,2,3,4,6,7,8-HpCDF	0.336**BJ**		0.0471	3.53	0.93	1.000	1
1,2,3,4,7,8,9-HpCDF	0.133**BJK**		0.0604	3.53	1.31	1.000	1
OCDF	1.63**BJK**		0.252	7.07	1.12	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 12:00
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0593	**Units:**	ng/Kg
Lab Code:	E1801105-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/25/18 03:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.063g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616185	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616181

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4.19		0.805	0.805	0.83		1
Total Penta-Dioxins	4.88		0.120	3.53	1.72		1
Total Hexa-Dioxins	33.6		0.146	3.53	1.29		1
Total Hepta-Dioxins	88.9		0.212	3.53	1.04		1
Total Tetra-Furans	3.30		0.548	0.707	0.79		1
Total Penta-Furans	0.230	**J**	0.135	3.53	1.71		1
Total Hexa-Furans	0.238	**J**	0.0827	3.53	1.18		1
Total Hepta-Furans	0.552	**J**	0.0532	3.53	0.93		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 12:00
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0593	**Units:**	Percent
Lab Code:	E1801105-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/25/18 03:50
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.063g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616185	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616181

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	628.441	31		25-164	0.77	1.028
13C-1,2,3,7,8-PeCDD	2000	1095.155	55		25-181	1.55	1.229
13C-1,2,3,4,7,8-HxCDD	2000	1283.859	64		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1251.197	63		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1556.091	78		23-140	1.07	1.069
13C-OCDD	4000	2021.548	51		17-157	0.91	1.138
13C-2,3,7,8-TCDF	2000	832.244	42		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	1122.508	56		24-185	1.59	1.178
13C-2,3,4,7,8-PeCDF	2000	1027.838	51		21-178	1.60	1.218
13C-1,2,3,4,7,8-HxCDF	2000	1137.607	57		26-152	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1178.453	59		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1083.433	54		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1110.475	56		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1119.174	56		28-143	0.46	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1087.279	54		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	351.812	44		35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 12:00
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0593	**Units:**	ng/Kg
Lab Code:	E1801105-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.87**	0.805	0.805	1	1	2.87
1,2,3,7,8-PeCDD	**0.542**	0.120	3.53	1	1	0.542
1,2,3,4,7,8-HxCDD	**0.408**	0.142	3.53	1	0.1	0.0408
1,2,3,6,7,8-HxCDD	**0.668**	0.157	3.53	1	0.1	0.0668
1,2,3,7,8,9-HxCDD	**1.32**	0.139	3.53	1	0.1	0.132
1,2,3,4,6,7,8-HpCDD	**25.7**	0.212	3.53	1	0.01	0.257
OCDD	**987**	0.0777	7.07	1	0.0003	0.296
2,3,7,8-TCDF	**4.88**	0.548	0.707	1	0.1	0.488
1,2,3,7,8-PeCDF	**0.230**	0.131	3.53	1	0.03	0.00690
2,3,4,7,8-PeCDF	ND	0.140	3.53	1	0.3	
1,2,3,4,7,8-HxCDF	**0.238**	0.0781	3.53	1	0.1	0.0238
1,2,3,6,7,8-HxCDF	**0.124**	0.0758	3.53	1	0.1	0.0124
1,2,3,7,8,9-HxCDF	**0.123**	0.0980	3.53	1	0.1	0.0123
2,3,4,6,7,8-HxCDF	ND	0.0816	3.53	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.336**	0.0471	3.53	1	0.01	0.00336
1,2,3,4,7,8,9-HpCDF	**0.133**	0.0604	3.53	1	0.01	0.00133
OCDF	**1.63**	0.252	7.07	1	0.0003	0.000489
		Total TEQ				4.75

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	12/09/18 12:00
Sample Matrix:	Sediment	**Date Received:**	12/10/18 07:23
Sample Name:	SLO 0593	**Units:**	Percent
Lab Code:	E1801105-004	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	12/24/18 10:53
	7.063g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Total Solids	70.3		-	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800515-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/26/18 14:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.244g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616210	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616205

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.742	0.742			1
1,2,3,7,8-PeCDD	ND	U	0.135	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0889	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0984	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0871	2.44			1
1,2,3,4,6,7,8-HpCDD	0.545**JK**		0.0616	2.44	0.86	1.000	1
OCDD	9.66		0.127	4.88	0.88	1.000	1
2,3,7,8-TCDF	ND	U	0.630	0.630			1
1,2,3,7,8-PeCDF	ND	U	0.158	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.157	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0745	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0725	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0848	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0779	2.44			1
1,2,3,4,6,7,8-HpCDF	0.250**JK**		0.0250	2.44	1.29	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0620**JK**		0.0282	2.44	1.42	1.000	1
OCDF	1.27**J**		0.121	4.88	0.82	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800515-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/26/18 14:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.244g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616210	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616205

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.742	0.742			1
Total Penta-Dioxins	ND	U	0.135	2.44			1
Total Hexa-Dioxins	ND	U	0.0913	2.44			1
Total Hepta-Dioxins	ND	U	0.0616	2.44			1
Total Tetra-Furans	ND	U	0.630	0.630			1
Total Penta-Furans	ND	U	0.158	2.44			1
Total Hexa-Furans	ND	U	0.0772	2.44			1
Total Hepta-Furans	ND	U	0.0265	2.44			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800515-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/26/18 14:56
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.244g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616210	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616205

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	594.338	30		25-164	0.82	1.029
13C-1,2,3,7,8-PeCDD	2000	1166.741	58		25-181	1.55	1.232
13C-1,2,3,4,7,8-HxCDD	2000	1196.353	60		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1200.471	60		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1618.532	81		23-140	1.08	1.069
13C-OCDD	4000	2302.822	58		17-157	0.90	1.138
13C-2,3,7,8-TCDF	2000	818.772	41		24-169	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1080.756	54		24-185	1.60	1.182
13C-2,3,4,7,8-PeCDF	2000	1072.003	54		21-178	1.59	1.221
13C-1,2,3,4,7,8-HxCDF	2000	1014.805	51		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1031.203	52		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1040.089	52		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1011.793	51		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1069.209	53		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1138.158	57		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	304.559	38		35-197	NA	1.030

Accuracy & Precision

ALS Environmental - Houston HRMS
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QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Analyzed:**	12/24/18
Sample Matrix:	Sediment	**Date Extracted:**	12/17/18

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	620452

	Lab Control Sample EQ1800515-02			Duplicate Lab Control Sample EQ1800515-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	70.8	98.1	72	70.8	98.9	72	70-140	<1	50
1,2,3,4,7,8-HxCDD	89.3	98.1	91	89.3	98.9	90	70-164	<1	50
1,2,3,6,7,8-HxCDD	98.1	98.1	100	99.9	98.9	101	76-134	2	50
1,2,3,7,8,9-HxCDD	90.8	98.1	92	93.0	98.9	94	64-162	2	50
1,2,3,7,8-PeCDD	100	98.1	102	102	98.9	103	70-142	2	50
2,3,7,8-TCDD	29.9	19.6	152	31.3	19.8	158	67-158	4	50
OCDD	214	196	109	195	198	98	78-144	9	50
1,2,3,4,6,7,8-HpCDF	88.1	98.1	90	88.9	98.9	90	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	90.9	98.1	93	91.1	98.9	92	78-138	<1	50
1,2,3,4,7,8-HxCDF	87.3	98.1	89	87.2	98.9	88	72-134	<1	50
1,2,3,6,7,8-HxCDF	91.4	98.1	93	90.0	98.9	91	84-130	1	50
1,2,3,7,8,9-HxCDF	88.0	98.1	90	87.4	98.9	88	78-130	<1	50
1,2,3,7,8-PeCDF	84.5	98.1	86	85.7	98.9	87	80-134	1	50
2,3,4,6,7,8-HxCDF	92.4	98.1	94	90.5	98.9	91	70-156	2	50
2,3,4,7,8-PeCDF	91.0	98.1	93	93.5	98.9	94	68-160	3	50
2,3,7,8-TCDF	25.1	19.6	128	24.0	19.8	121	75-158	4	50
OCDF	181	196	92	179	198	91	63-170	<1	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800515-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 21:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.189g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616178	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	29.9		0.732	0.732	0.81	1.001	1
1,2,3,7,8-PeCDD	100		0.119	2.45	1.54	1.001	1
1,2,3,4,7,8-HxCDD	89.3		0.0723	2.45	1.27	1.000	1
1,2,3,6,7,8-HxCDD	98.1		0.0785	2.45	1.23	1.000	1
1,2,3,7,8,9-HxCDD	90.8		0.0701	2.45	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	70.8		0.0629	2.45	1.06	1.000	1
OCDD	214		0.0968	4.91	0.90	1.000	1
2,3,7,8-TCDF	25.1		0.520	0.520	0.82	1.001	1
1,2,3,7,8-PeCDF	84.5		0.106	2.45	1.56	1.001	1
2,3,4,7,8-PeCDF	91.0		0.0973	2.45	1.59	1.001	1
1,2,3,4,7,8-HxCDF	87.3		0.0611	2.45	1.25	1.000	1
1,2,3,6,7,8-HxCDF	91.4		0.0614	2.45	1.24	1.000	1
1,2,3,7,8,9-HxCDF	88.0		0.0728	2.45	1.26	1.000	1
2,3,4,6,7,8-HxCDF	92.4		0.0637	2.45	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	88.1		0.159	2.45	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	90.9		0.194	2.45	1.02	1.000	1
OCDF	181		0.161	4.91	0.92	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800515-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 21:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.189g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616178	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	30.0		0.732	0.732	0.81		1
Total Penta-Dioxins	100		0.119	2.45	1.54		1
Total Hexa-Dioxins	278		0.0735	2.45	1.27		1
Total Hepta-Dioxins	72.3		0.0629	2.45	1.07		1
Total Tetra-Furans	27.7		0.520	0.520	0.76		1
Total Penta-Furans	176		0.102	2.45	1.56		1
Total Hexa-Furans	359		0.0645	2.45	1.25		1
Total Hepta-Furans	180		0.175	2.45	1.07		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800515-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 21:51
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.189g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616178	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	475.821	24	**Y**	25-164	0.76	1.028
13C-1,2,3,7,8-PeCDD	2000	1085.778	54		25-181	1.57	1.228
13C-1,2,3,4,7,8-HxCDD	2000	1241.543	62		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1197.797	60		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1423.051	71		23-140	1.05	1.069
13C-OCDD	4000	1614.590	40		17-157	0.91	1.138
13C-2,3,7,8-TCDF	2000	644.170	32		24-169	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	934.781	47		24-185	1.62	1.178
13C-2,3,4,7,8-PeCDF	2000	1007.568	50		21-178	1.59	1.216
13C-1,2,3,4,7,8-HxCDF	2000	1073.950	54		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1044.568	52		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1028.645	51		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1036.471	52		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	999.193	50		28-143	0.45	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	989.148	49		26-138	0.46	1.081
37Cl-2,3,7,8-TCDD	800	256.214	32	**Y**	35-197	NA	1.029

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800515-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 22:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.107g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616179	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	31.3		1.16	1.16	0.80	1.001	1
1,2,3,7,8-PeCDD	102		0.120	2.47	1.58	1.001	1
1,2,3,4,7,8-HxCDD	89.3		0.104	2.47	1.26	1.000	1
1,2,3,6,7,8-HxCDD	99.9		0.112	2.47	1.22	1.000	1
1,2,3,7,8,9-HxCDD	93.0		0.0999	2.47	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	70.8		0.0658	2.47	1.02	1.000	1
OCDD	195		0.633	4.95	0.89	1.000	1
2,3,7,8-TCDF	24.0		0.932	0.932	0.81	1.001	1
1,2,3,7,8-PeCDF	85.7		0.151	2.47	1.55	1.001	1
2,3,4,7,8-PeCDF	93.5		0.137	2.47	1.53	1.001	1
1,2,3,4,7,8-HxCDF	87.2		0.0769	2.47	1.25	1.000	1
1,2,3,6,7,8-HxCDF	90.0		0.0772	2.47	1.26	1.000	1
1,2,3,7,8,9-HxCDF	87.4		0.0899	2.47	1.18	1.000	1
2,3,4,6,7,8-HxCDF	90.5		0.0853	2.47	1.27	1.000	1
1,2,3,4,6,7,8-HpCDF	88.9		0.265	2.47	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	91.1		0.339	2.47	1.04	1.000	1
OCDF	179		0.190	4.95	0.92	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800515-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 22:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.107g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616179	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	31.3		1.16	1.16	0.80		1
Total Penta-Dioxins	102		0.120	2.47	1.58		1
Total Hexa-Dioxins	282		0.105	2.47	1.26		1
Total Hepta-Dioxins	70.8		0.0658	2.47	1.02		1
Total Tetra-Furans	27.0		0.932	0.932	0.66		1
Total Penta-Furans	181		0.144	2.47	1.42		1
Total Hexa-Furans	355		0.0821	2.47	1.25		1
Total Hepta-Furans	181		0.299	2.47	1.06		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1801105
Project:	San Jacinto Waste Pits PPI-1	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800515-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/24/18 22:41
Prep Method:	Method Soxhlet	**Date Extracted:**	12/17/18
Sample Amount:	10.107g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P616179	**Blank File Name:**	P616210
ICAL Date:	09/25/18	**Cal Ver. File Name:**	P616166

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	278.150	14	**Y**	25-164	0.76	1.028
13C-1,2,3,7,8-PeCDD	2000	649.710	32		25-181	1.58	1.229
13C-1,2,3,4,7,8-HxCDD	2000	826.573	41		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	850.128	43		28-130	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	985.886	49		23-140	1.05	1.069
13C-OCDD	4000	1181.707	30		17-157	0.90	1.138
13C-2,3,7,8-TCDF	2000	379.140	19	**Y**	24-169	0.81	0.992
13C-1,2,3,7,8-PeCDF	2000	551.373	28		24-185	1.59	1.178
13C-2,3,4,7,8-PeCDF	2000	584.492	29		21-178	1.57	1.217
13C-1,2,3,4,7,8-HxCDF	2000	709.399	35		26-152	0.52	0.968
13C-1,2,3,6,7,8-HxCDF	2000	702.094	35		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	713.748	36		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	653.379	33		28-136	0.55	0.986
13C-1,2,3,4,6,7,8-HpCDF	2000	679.320	34		28-143	0.45	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	675.277	34		26-138	0.45	1.081
37Cl-2,3,7,8-TCDD	800	151.430	19	**Y**	35-197	NA	1.029

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
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Sample Response Summary

CLIENT ID.
SLO 0590

Run #16 Filename P616176 Samp: 1 Inj: 1 Acquired: 24-DEC-18 20:13:37
Processed: 28-DEC-18 08:18:30 Sample ID: E1801105-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:14	8.932e+06	1.122e+07	0.80	yes	no	1.081
2	Unk	1,2,3,7,8-PeCDF	30:58	4.407e+05	2.823e+05	1.56	yes	no	1.156
3	Unk	2,3,4,7,8-PeCDF	31:58	2.888e+05	1.838e+05	1.57	yes	no	1.104
4	Unk	1,2,3,4,7,8-HxCDF	34:41	9.464e+05	7.606e+05	1.24	yes	no	1.416
5	Unk	1,2,3,6,7,8-HxCDF	34:48	3.634e+05	2.916e+05	1.25	yes	no	1.293
6	Unk	2,3,4,6,7,8-HxCDF	35:19	8.208e+04	6.623e+04	1.24	yes	no	1.281
7	Unk	1,2,3,7,8,9-HxCDF	36:07	7.661e+04	6.173e+04	1.24	yes	no	1.313
8	Unk	1,2,3,4,6,7,8-HpCDF	37:19	3.553e+05	3.382e+05	1.05	yes	no	1.523
9	Unk	1,2,3,4,7,8,9-HpCDF	38:37	8.539e+04	8.235e+04	1.04	yes	no	1.463
10	Unk	OCDF	40:51	7.941e+04	8.835e+04	0.90	yes	no	1.571
11	Unk	2,3,7,8-TCDD	27:15	1.433e+06	1.814e+06	0.79	yes	no	1.049
12	Unk	1,2,3,7,8-PeCDD	32:14	2.779e+04	1.781e+04	1.56	yes	no	0.929
13	Unk	1,2,3,4,7,8-HxCDD	35:28	2.854e+02	1.931e+02	1.48	no	no	1.071
14	Unk	1,2,3,6,7,8-HxCDD	35:33	8.156e+02	7.902e+02	1.03	no	no	1.060
15	Unk	1,2,3,7,8,9-HxCDD	35:47	5.050e+02	4.176e+02	1.21	yes	no	1.145
16	Unk	1,2,3,4,6,7,8-HpCDD	38:12	8.548e+03	8.202e+03	1.04	yes	no	1.112
17	Unk	OCDD	40:40	5.847e+04	6.531e+04	0.90	yes	no	1.157
18	IS	13C-2,3,7,8-TCDF	26:12	3.931e+04	4.874e+04	0.81	yes	no	1.417
19	IS	13C-1,2,3,7,8-PeCDF	30:58	5.998e+04	3.698e+04	1.62	yes	no	1.596
20	IS	13C-2,3,4,7,8-PeCDF	31:56	5.119e+04	3.234e+04	1.58	yes	no	1.571
21	IS	13C-1,2,3,4,7,8-HxCDF	34:41	2.616e+04	4.793e+04	0.55	yes	no	1.160
22	IS	13C-1,2,3,6,7,8-HxCDF	34:47	2.763e+04	5.321e+04	0.52	yes	no	1.336
23	IS	13C-2,3,4,6,7,8-HxCDF	35:19	2.667e+04	4.911e+04	0.54	yes	no	1.250
24	IS	13C-1,2,3,7,8,9-HxCDF	36:05	2.463e+04	4.657e+04	0.53	yes	no	1.131
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:18	1.679e+04	3.812e+04	0.44	yes	no	1.029
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:36	1.503e+04	3.372e+04	0.45	yes	no	0.907
27	IS	13C-2,3,7,8-TCDD	27:14	1.653e+04	2.104e+04	0.79	yes	no	0.983
28	IS	13C-1,2,3,7,8-PeCDD	32:12	4.337e+04	2.809e+04	1.54	yes	no	1.125
29	IS	13C-1,2,3,4,7,8-HxCDD	35:27	3.653e+04	2.759e+04	1.32	yes	no	0.903
30	IS	13C-1,2,3,6,7,8-HxCDD	35:33	3.145e+04	2.677e+04	1.17	yes	no	0.903
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:11	3.247e+04	3.113e+04	1.04	yes	no	0.857
32	IS	13C-OCDD	40:40	2.454e+04	2.665e+04	0.92	yes	no	0.659
33	RS/RT	13C-1,2,3,4-TCDD	26:29	6.044e+04	7.729e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:47	7.708e+04	6.124e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:15	4.064e+04				no	1.086

$$\text{OCDD} = \frac{(5.847e+04 + 6.531e+04) \times 4000\ \text{pg} \times 1}{(2.454e+04 + 2.665e+04) \times 10.238\text{g} \times 47.3 / 100 \times 1.157} = 1726.2978\ \text{ng/Kg}$$

LG 12/28/18

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SLO 0590

Run #16 Filename P616176 Samp: 1 Inj: 1 Acquired: 24-DEC-18 20:13:37
Processed: 28-DEC-18 08:18:30 LAB. ID: E1801105-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.16e+08	1.42e+04	5.8e+04	1.01e+09	2.41e+04	4.2e+04
2	1,2,3,7,8-PeCDF	7.09e+07	6.25e+04	1.1e+03	4.59e+07	2.01e+04	2.3e+03
3	2,3,4,7,8-PeCDF	4.16e+07	6.25e+04	6.6e+02	2.63e+07	2.01e+04	1.3e+03
4	1,2,3,4,7,8-HxCDF	2.14e+08	1.44e+04	1.5e+04	1.70e+08	1.01e+04	1.7e+04
5	1,2,3,6,7,8-HxCDF	7.48e+07	1.44e+04	5.2e+03	5.97e+07	1.01e+04	5.9e+03
6	2,3,4,6,7,8-HxCDF	1.69e+07	1.44e+04	1.2e+03	1.35e+07	1.01e+04	1.3e+03
7	1,2,3,7,8,9-HxCDF	1.72e+07	1.44e+04	1.2e+03	1.38e+07	1.01e+04	1.4e+03
8	1,2,3,4,6,7,8-HpCDF	7.91e+07	7.30e+03	1.1e+04	7.45e+07	1.15e+04	6.5e+03
9	1,2,3,4,7,8,9-HpCDF	1.86e+07	7.30e+03	2.5e+03	1.80e+07	1.15e+04	1.6e+03
10	OCDF	1.42e+07	9.80e+02	1.5e+04	1.59e+07	4.17e+03	3.8e+03
11	2,3,7,8-TCDD	2.83e+08	1.05e+04	2.7e+04	3.58e+08	4.36e+03	8.2e+04
12	1,2,3,7,8-PeCDD	4.61e+06	2.38e+03	1.9e+03	2.97e+06	4.00e+03	7.4e+02
13	1,2,3,4,7,8-HxCDD	6.31e+04	1.82e+03	3.5e+01	4.92e+04	4.04e+03	1.2e+01
14	1,2,3,6,7,8-HxCDD	1.69e+05	1.82e+03	9.3e+01	1.58e+05	4.04e+03	3.9e+01
15	1,2,3,7,8,9-HxCDD	8.92e+04	1.82e+03	4.9e+01	7.35e+04	4.04e+03	1.8e+01
16	1,2,3,4,6,7,8-HpCDD	1.87e+06	7.29e+03	2.6e+02	1.77e+06	4.90e+03	3.6e+02
17	OCDD	1.04e+07	8.00e+02	1.3e+04	1.16e+07	1.18e+03	9.9e+03
18	13C-2,3,7,8-TCDF	4.02e+06	3.71e+04	1.1e+02	4.93e+06	2.26e+04	2.2e+02
19	13C-1,2,3,7,8-PeCDF	1.05e+07	1.06e+04	9.9e+02	6.59e+06	9.33e+03	7.1e+02
20	13C-2,3,4,7,8-PeCDF	8.49e+06	1.06e+04	8.0e+02	5.39e+06	9.33e+03	5.8e+02
21	13C-1,2,3,4,7,8-HxCDF	5.74e+06	1.62e+04	3.5e+02	1.07e+07	7.57e+03	1.4e+03
22	13C-1,2,3,6,7,8-HxCDF	5.70e+06	1.62e+04	3.5e+02	1.06e+07	7.57e+03	1.4e+03
23	13C-2,3,4,6,7,8-HxCDF	5.20e+06	1.62e+04	3.2e+02	9.56e+06	7.57e+03	1.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.40e+06	1.62e+04	3.3e+02	1.02e+07	7.57e+03	1.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.74e+06	6.22e+03	6.0e+02	8.37e+06	6.08e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.14e+06	6.22e+03	5.1e+02	7.03e+06	6.08e+03	1.2e+03
27	13C-2,3,7,8-TCDD	2.74e+06	2.12e+04	1.3e+02	3.53e+06	1.11e+04	3.2e+02
28	13C-1,2,3,7,8-PeCDD	8.20e+06	4.05e+03	2.0e+03	5.32e+06	3.16e+03	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	7.48e+06	3.44e+03	2.2e+03	5.93e+06	2.81e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	6.57e+06	3.44e+03	1.9e+03	5.33e+06	2.81e+03	1.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.98e+06	1.92e+03	3.6e+03	6.75e+06	1.68e+03	4.0e+03
32	13C-OCDD	4.42e+06	2.84e+03	1.6e+03	4.76e+06	1.35e+03	3.5e+03
33	13C-1,2,3,4-TCDD	6.81e+06	2.12e+04	3.2e+02	8.68e+06	1.11e+04	7.8e+02
34	13C-1,2,3,7,8,9-HxCDD	1.50e+07	3.44e+03	4.4e+03	1.20e+07	2.81e+03	4.3e+03
35	37Cl-2,3,7,8-TCDD	7.99e+06	8.80e+03	9.1e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.045e+04 + 4.360e+03) \times 2000}{(2.744e+06 + 3.535e+06) \times (\quad) \times 1.049} =$$

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Peak List Summary

CLIENT ID.

SLO 0590

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P616176 Sample:1 Injection:1 Function:1

Acquired: 24-DEC-18 20:13:37 Processed: 28-DEC-18 08:18:30

Mass: 303.9020 305.8990 Tot Response: 3.66e+07 RRF: 1.081

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:00	7.14e+04	9.00e+04	0.79	yes	1.61e+05		n	n
2	23:17	3.85e+05	4.87e+05	0.79	yes	8.71e+05		n	n
3	23:37	1.16e+05	1.49e+05	0.77	yes	2.65e+05		n	n
4	23:55	3.35e+05	4.35e+05	0.77	yes	7.70e+05		n	n
5	24:20	6.83e+04	8.83e+04	0.77	yes	1.57e+05		n	n
6	24:41	6.26e+05	8.14e+05	0.77	yes	1.44e+06		n	n
7	25:09	4.20e+06	5.33e+06	0.79	yes	9.53e+06		n	n
8	25:29	1.86e+05	2.40e+05	0.78	yes	4.25e+05		n	n
9	26:14	8.93e+06	1.12e+07	0.80	yes	2.02e+07	2,3,7,8-TCDF	n	n
10	26:39	5.91e+05	7.42e+05	0.80	yes	1.33e+06		n	n
11	26:56	7.91e+04	9.51e+04	0.83	yes	1.74e+05		n	n
12	28:23	5.90e+05	7.47e+05	0.79	yes	1.34e+06		n	n

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CLIENT ID.

SLO 0590

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P616176 Sample:1 Injection:1 Function:1

Acquired: 24-DEC-18 20:13:37 Processed: 28-DEC-18 08:18:30

Mass: 319.8970 321.8940 Tot Response: 3.62e+06 RRF: 1.049

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:52	1.63e+04	1.95e+04	0.84	yes	3.58e+04		n	n
2	27:15	1.43e+06	1.81e+06	0.79	yes	3.25e+06	2,3,7,8-TCDD	n	n
3	27:31	1.47e+05	1.92e+05	0.77	yes	3.40e+05		n	n

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Peak List Summary

CLIENT ID.

SLO 0590

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P616176 Sample:1 Injection:1 Function:2

Acquired: 24-DEC-18 20:13:37 Processed: 28-DEC-18 08:18:30

Mass: 339.8600 341.8570 Tot Response: 1.82e+06 RRF: 1.130

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:50	4.24e+03	2.70e+03	1.57	yes	6.94e+03		n	n
2	30:00	1.96e+05	1.24e+05	1.57	yes	3.20e+05		n	n
3	30:36	5.52e+03	3.57e+03	1.55	yes	9.09e+03		n	n
4	30:40	6.96e+03	4.47e+03	1.56	yes	1.14e+04		n	n
5	30:48	3.84e+04	2.46e+04	1.56	yes	6.29e+04		n	n
6	30:58	4.41e+05	2.82e+05	1.56	yes	7.23e+05	1,2,3,7,8-PeCDF	n	n
7	31:17	1.12e+05	7.09e+04	1.58	yes	1.83e+05		n	n
8	31:50	4.91e+03	3.40e+03	1.45	yes	8.30e+03		n	n
9	31:58	2.89e+05	1.84e+05	1.57	yes	4.73e+05	2,3,4,7,8-PeCDF	n	n
10	32:52	1.54e+04	1.01e+04	1.53	yes	2.56e+04		n	n

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Peak List Summary

CLIENT ID.

SLO 0590

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P616176 Sample:1 Injection:1 Function:2

Acquired: 24-DEC-18 20:13:37 Processed: 28-DEC-18 08:18:30

Mass: 355.8550 357.8520 Tot Response: 5.20e+04 RRF: 0.9288

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:02	5.21e+02	3.69e+02	1.41	yes	8.90e+02		n	n
2	31:00	7.04e+02	4.55e+02	1.55	yes	1.16e+03		n	n
3	31:12	1.28e+03	8.58e+02	1.49	yes	2.14e+03		n	n
4	31:16	2.61e+02	1.60e+02	1.63	yes	4.21e+02		n	n
5	31:48	5.75e+02	4.32e+02	1.33	yes	1.01e+03		n	n
6	32:14	2.78e+04	1.78e+04	1.56	yes	4.56e+04	1,2,3,7,8-PeCDD	n	n
7	32:36	4.83e+02	2.75e+02	1.76	yes	7.58e+02		n	n

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Peak List Summary

CLIENT ID.
SLO 0590

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P616176 Sample:1 Injection:1 Function:3

Acquired: 24-DEC-18 20:13:37 Processed: 28-DEC-18 08:18:30

Mass: 373.8210 375.8180 Tot Response: 2.90e+06 RRF: 1.324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:33	1.19e+04	9.64e+03	1.23	yes	2.15e+04		n	n
2	33:43	9.99e+04	7.98e+04	1.25	yes	1.80e+05		n	n
3	34:15	2.36e+04	1.90e+04	1.25	yes	4.26e+04		n	n
4	34:35	3.81e+03	3.12e+03	1.22	yes	6.93e+03		n	n
5	34:41	9.46e+05	7.61e+05	1.24	yes	1.71e+06	1,2,3,4,7,8-HxCDF	n	n
6	34:48	3.63e+05	2.92e+05	1.25	yes	6.55e+05	1,2,3,6,7,8-HxCDF	n	n
7	35:19	8.21e+04	6.62e+04	1.24	yes	1.48e+05	2,3,4,6,7,8-HxCDF	n	n
8	36:07	7.66e+04	6.17e+04	1.24	yes	1.38e+05	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.
SLO 0590

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P616176 Sample:1 Injection:1 Function:3

Acquired: 24-DEC-18 20:13:37 Processed: 28-DEC-18 08:18:30

Mass: 389.8160 391.8130 Tot Response: 9.19e+03 RRF: 1.092

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:05	1.22e+03	9.86e+02	1.24	yes	2.21e+03		n	n
2	34:37	4.26e+02	3.36e+02	1.27	yes	7.61e+02		n	n
3	34:51	2.85e+03	2.25e+03	1.27	yes	5.11e+03		n	n
4	35:42	1.09e+02	8.61e+01	1.27	yes	1.95e+02		n	n
5	35:47	5.05e+02	4.18e+02	1.21	yes	9.23e+02	1,2,3,7,8,9-HxCDD	n	n

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SLO 0590

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P616176 Sample:1 Injection:1 Function:4

Acquired: 24-DEC-18 20:13:37 Processed: 28-DEC-18 08:18:30

Mass: 407.7820 409.7790 Tot Response: 1.03e+06 RRF: 1.495

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:19	3.55e+05	3.38e+05	1.05	yes	6.94e+05	1,2,3,4,6,7,8-HpCDF	n	n
2	37:34	4.43e+03	4.30e+03	1.03	yes	8.73e+03		n	n
3	37:42	7.99e+04	7.56e+04	1.06	yes	1.56e+05		n	n
4	38:37	8.54e+04	8.24e+04	1.04	yes	1.68e+05	1,2,3,4,7,8,9-HpCDF	n	n

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CLIENT ID.
SLO 0590

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P616176 Sample:1 Injection:1 Function:4

Acquired: 24-DEC-18 20:13:37 Processed: 28-DEC-18 08:18:30

Mass: 423.7770 425.7740 Tot Response: 3.89e+04 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:34	1.14e+04	1.07e+04	1.07	yes	2.22e+04		n	n
2	38:12	8.55e+03	8.20e+03	1.04	yes	1.67e+04	1,2,3,4,6,7,8-HpCDD	n	n

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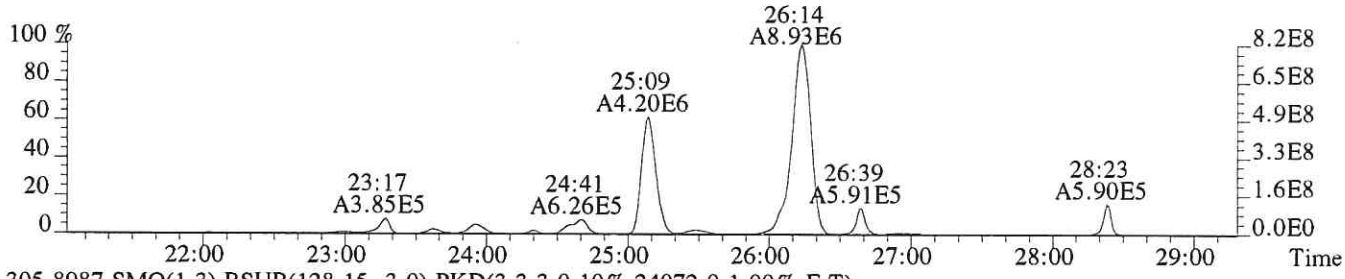
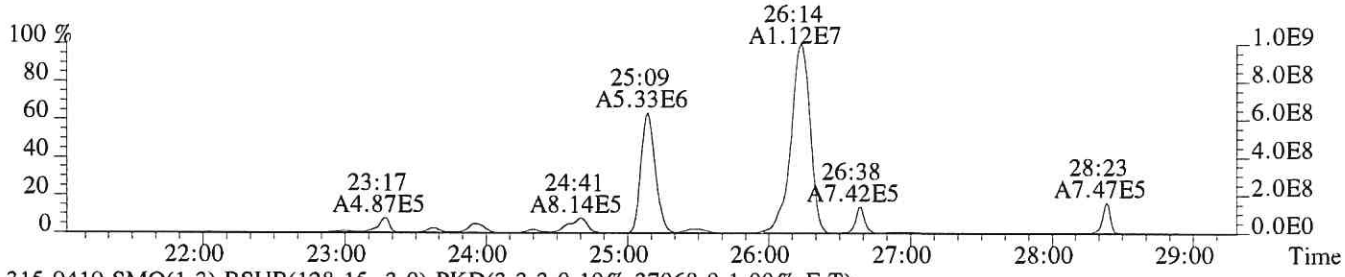
File:P616176 #1-587 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001

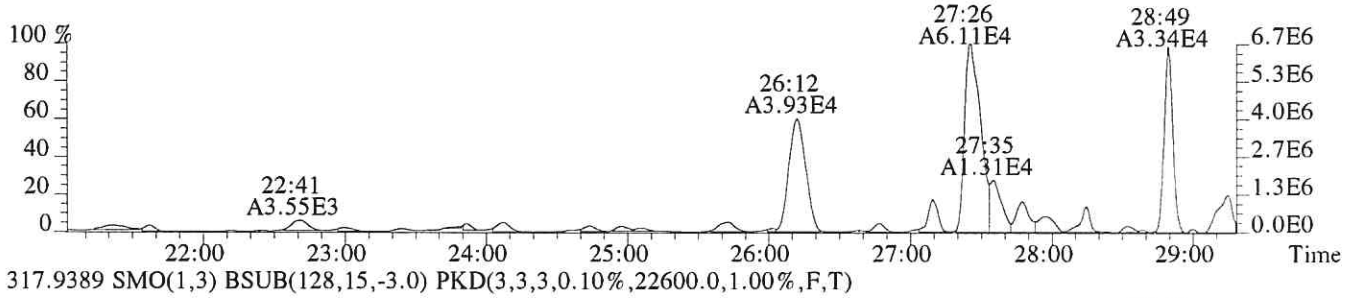
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14168.0,1.00%,F,T)



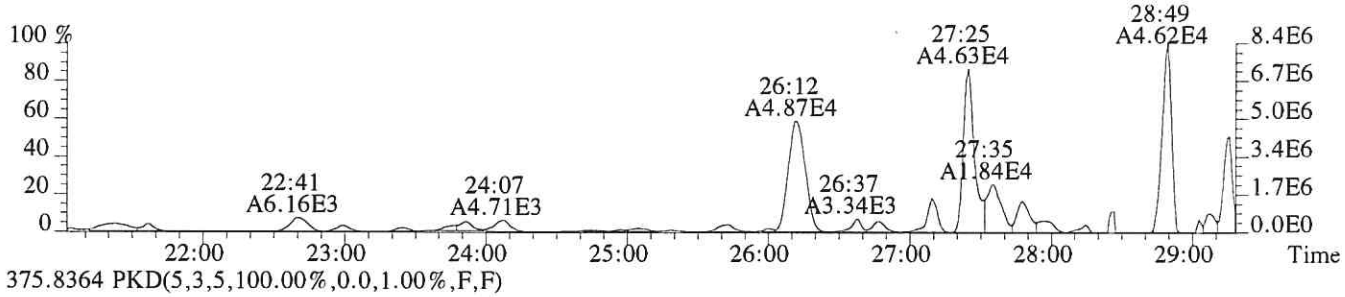
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,24072.0,1.00%,F,T)



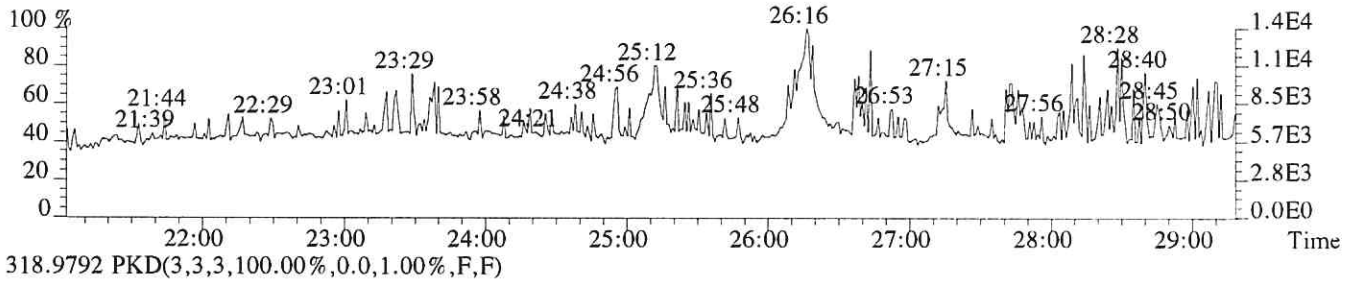
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,37068.0,1.00%,F,T)



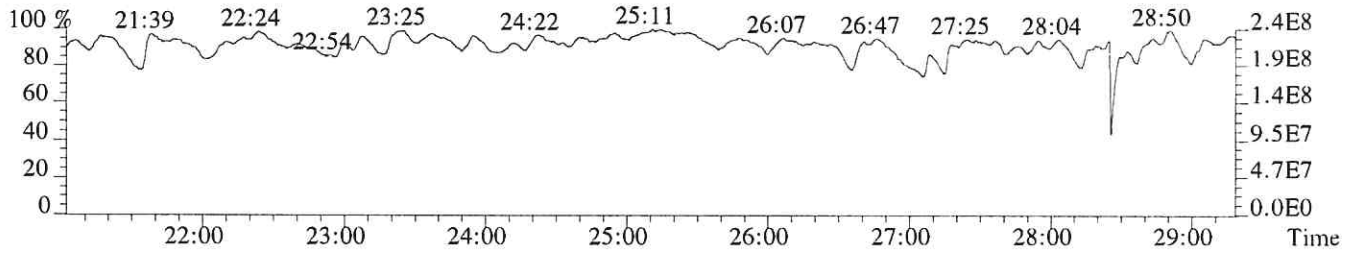
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,22600.0,1.00%,F,T)



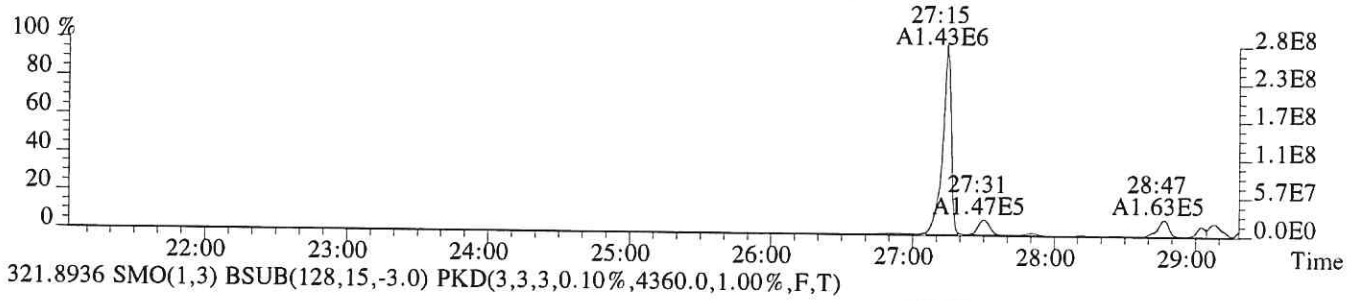
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



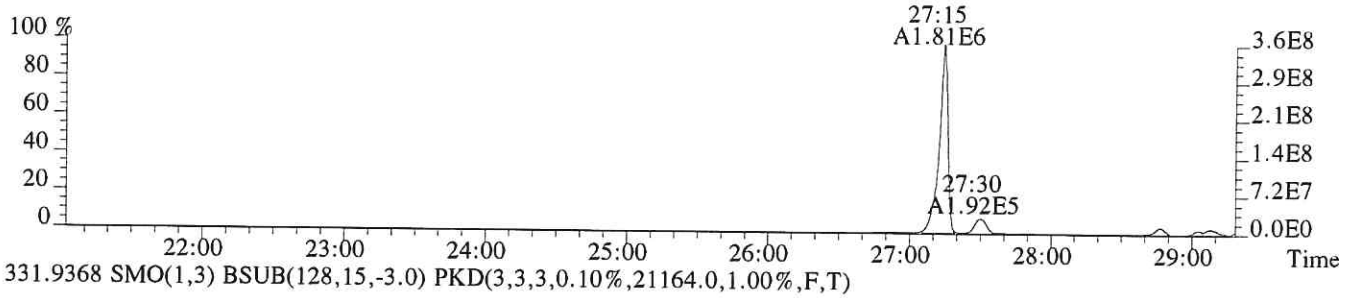
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



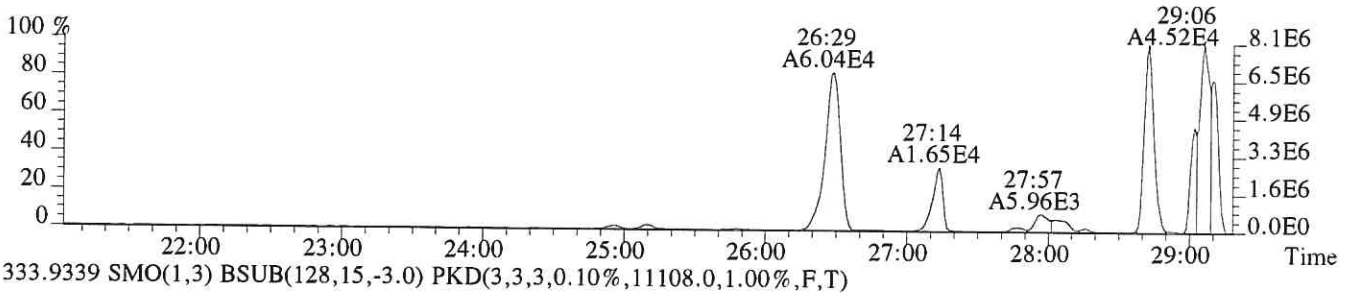
File:P616176 #1-587 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10452.0,1.00%,F,T)



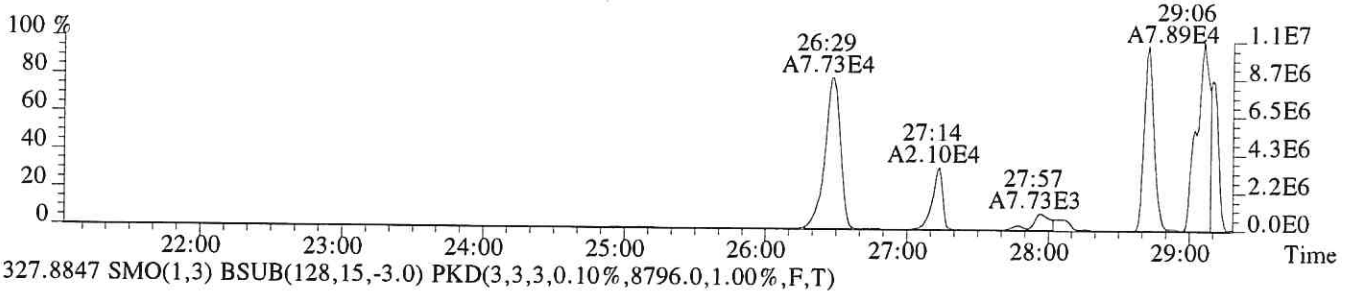
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4360.0,1.00%,F,T)



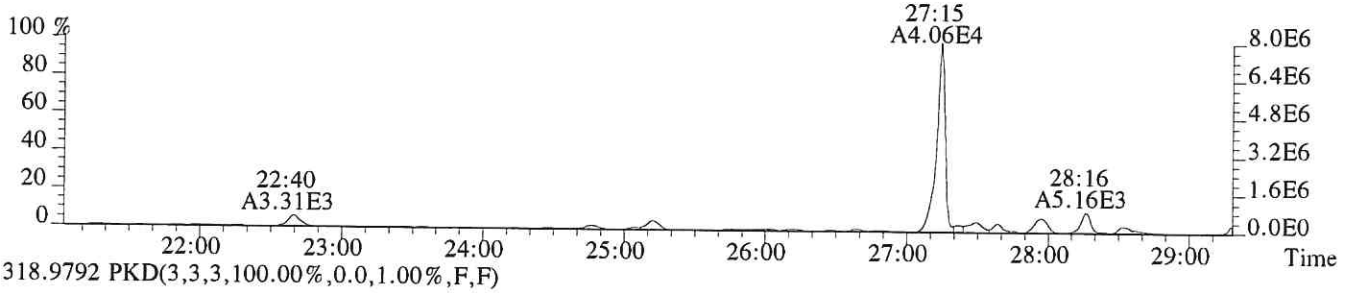
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,21164.0,1.00%,F,T)



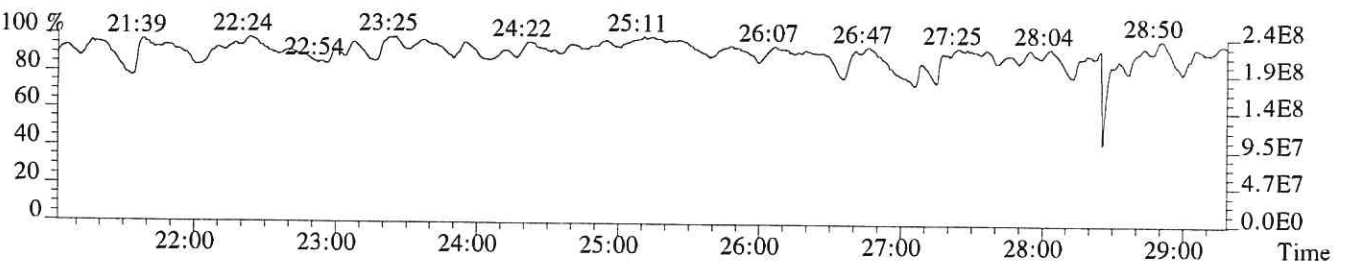
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11108.0,1.00%,F,T)



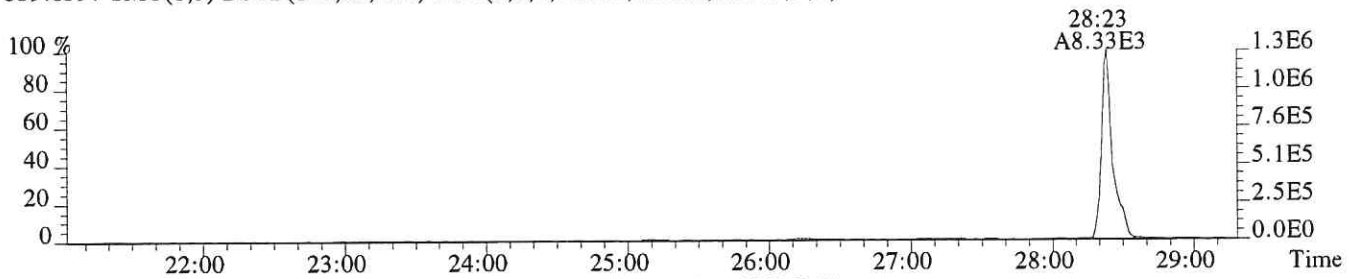
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8796.0,1.00%,F,T)



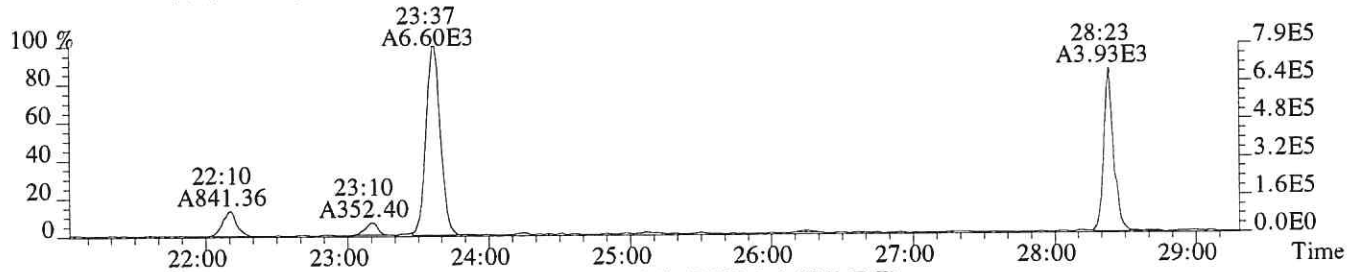
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



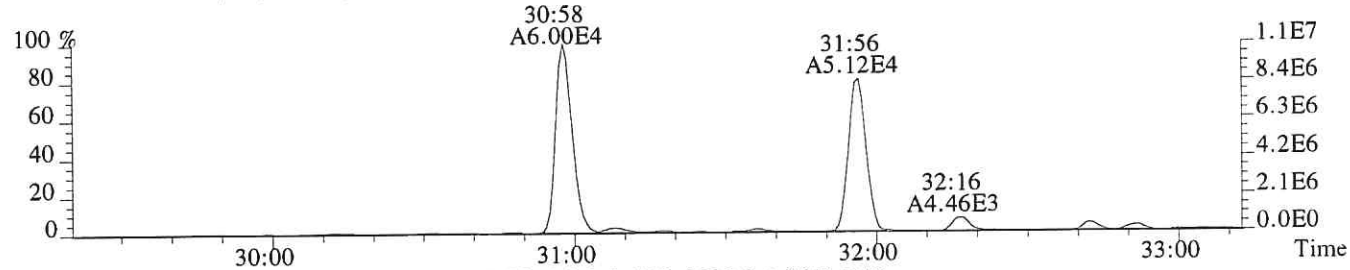
File:P616176 #1-587 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



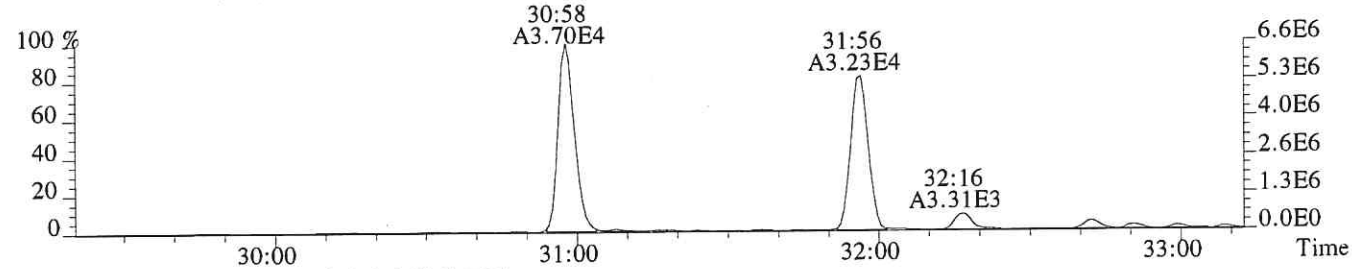
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4224.0,1.00%,F,T)



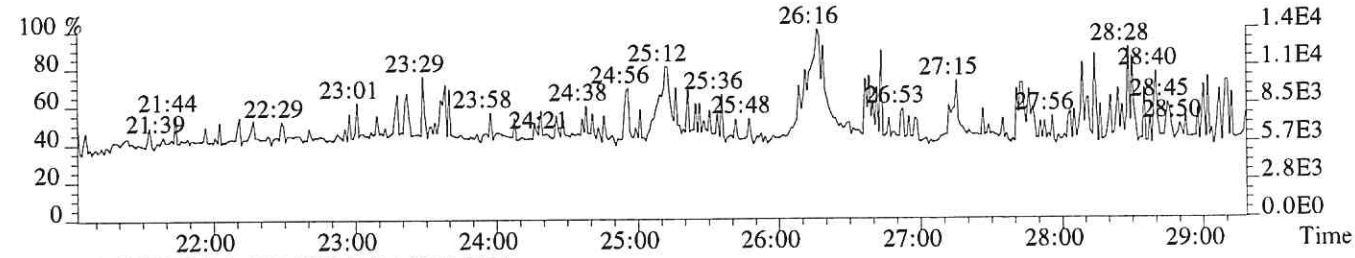
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10628.0,1.00%,F,T)



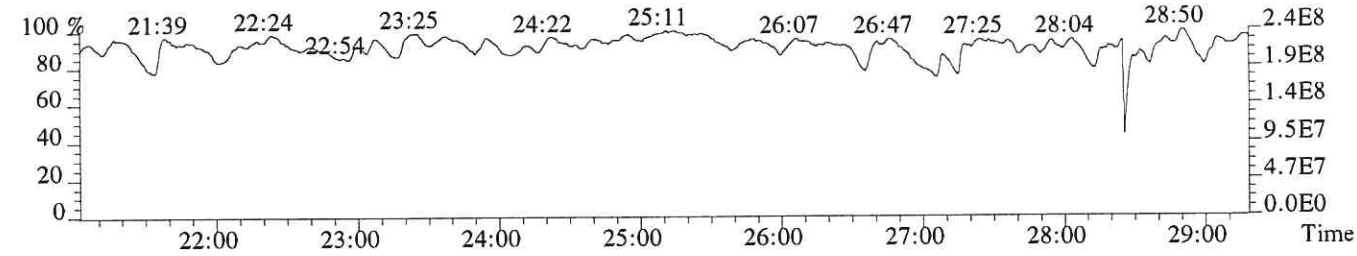
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9328.0,1.00%,F,T)



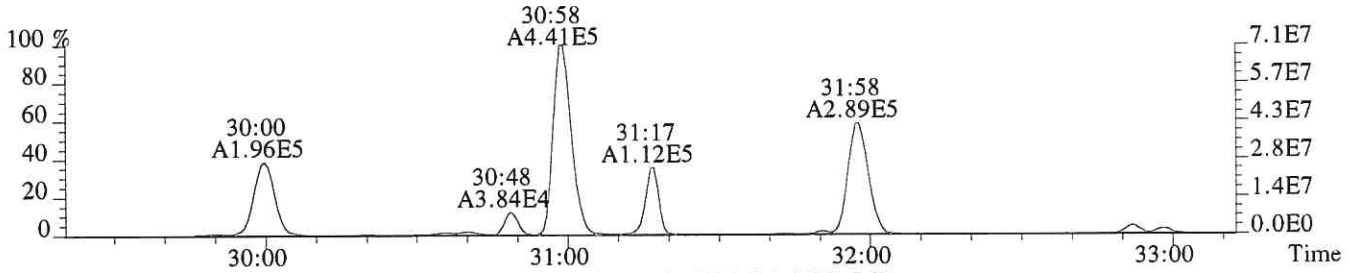
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



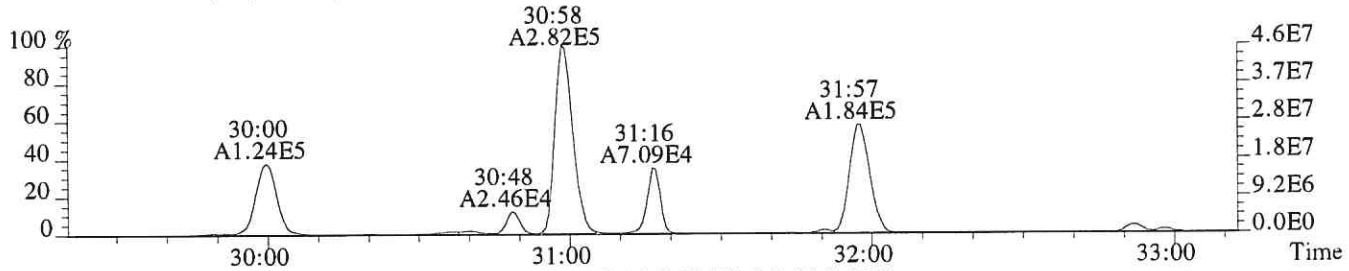
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



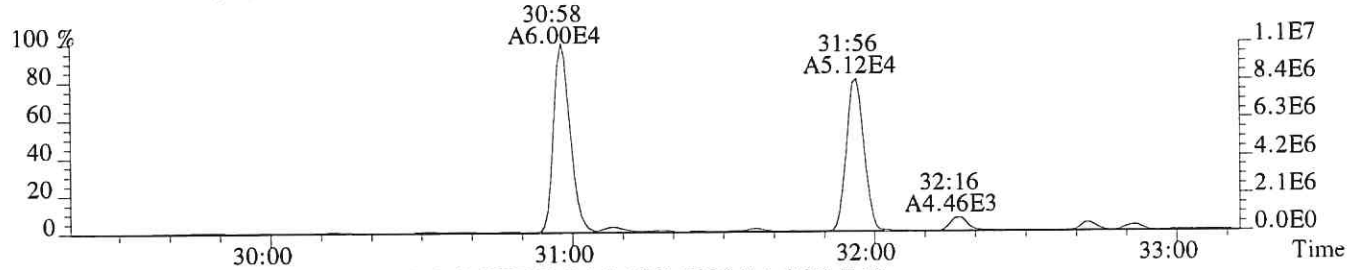
File:P616176 #1-349 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,62512.0,1.00%,F,T)



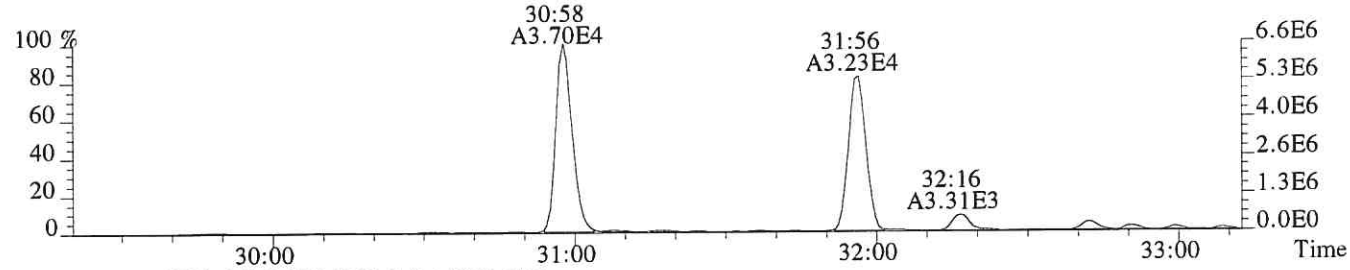
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,20096.0,1.00%,F,T)



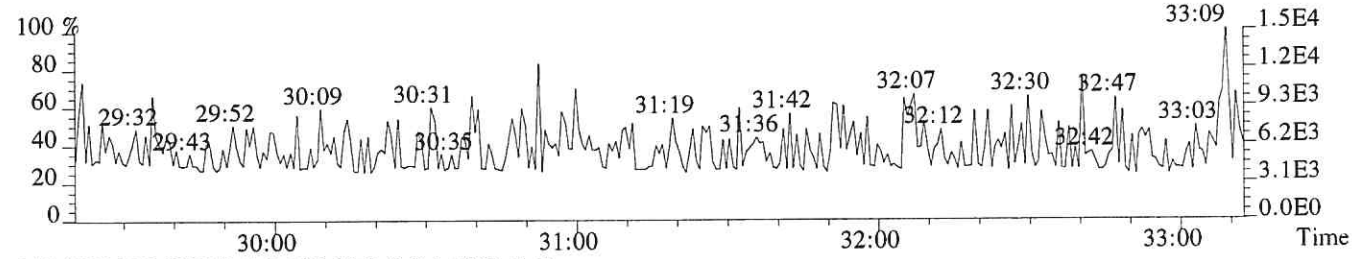
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10628.0,1.00%,F,T)



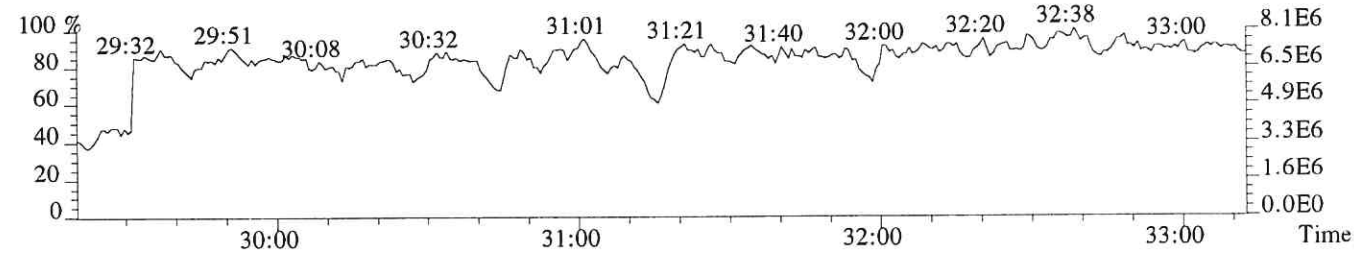
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9328.0,1.00%,F,T)



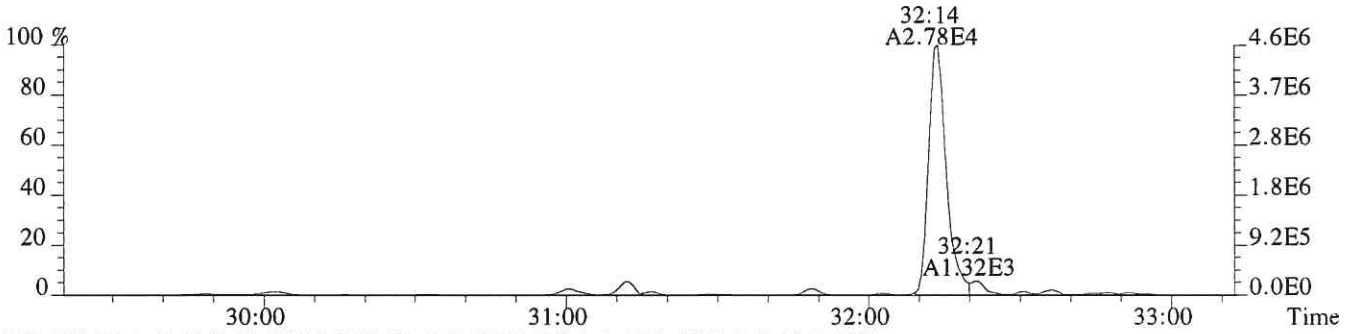
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



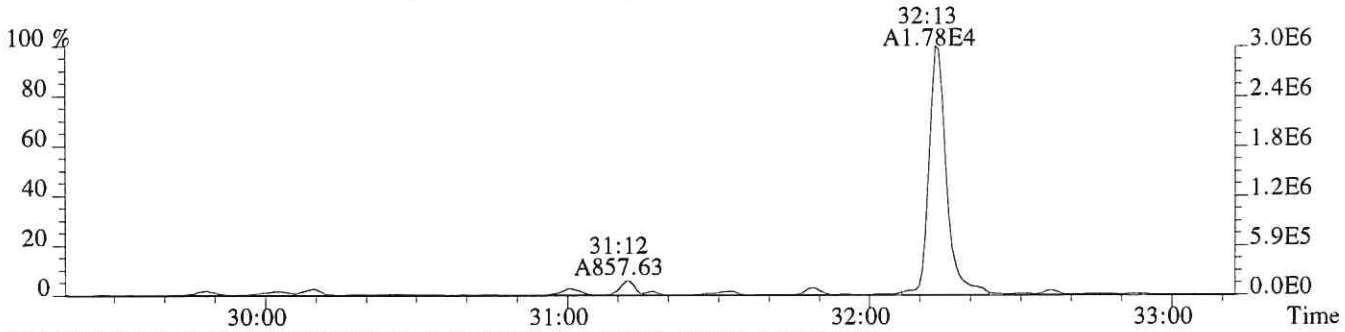
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



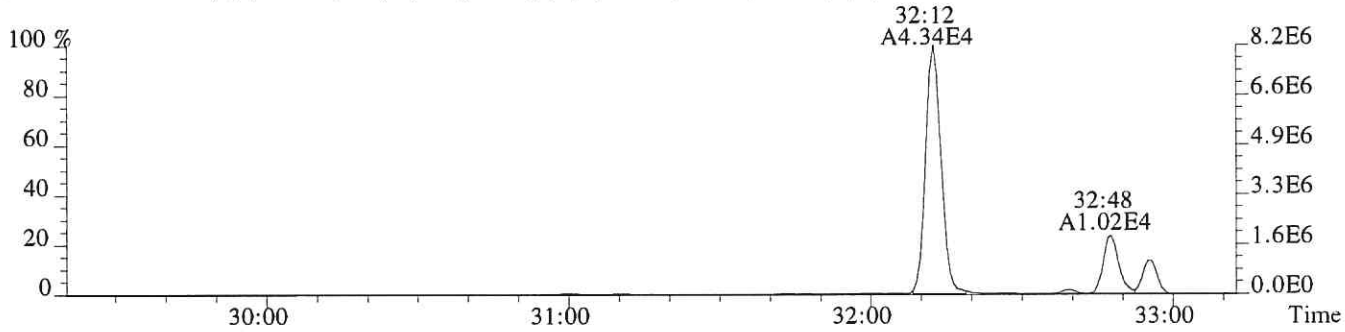
File:P616176 #1-349 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2384.0,1.00%,F,T)



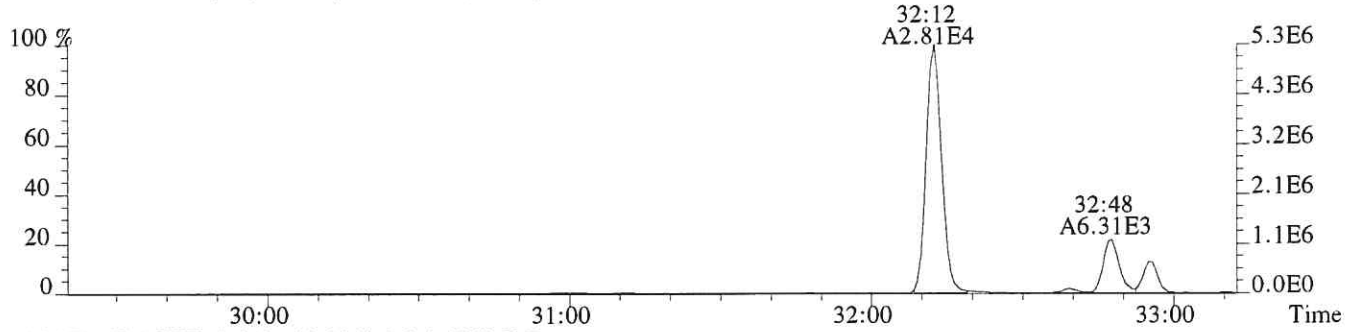
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4000.0,1.00%,F,T)



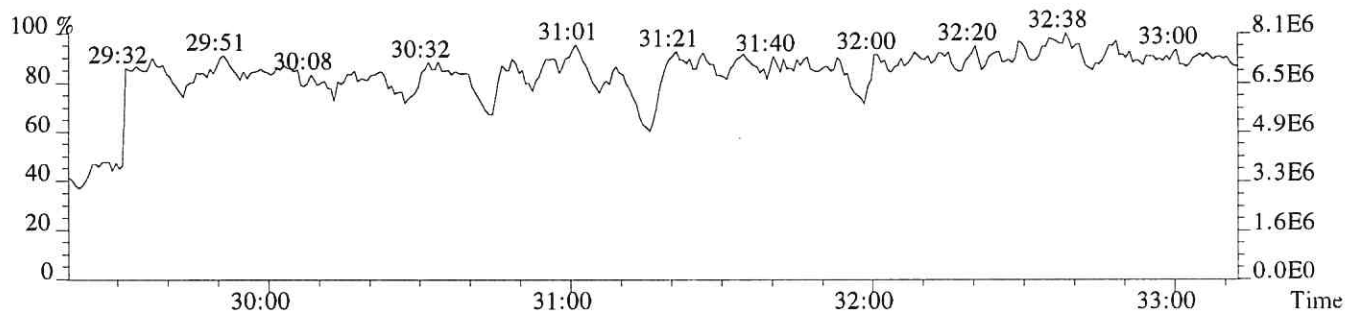
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4052.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3164.0,1.00%,F,T)

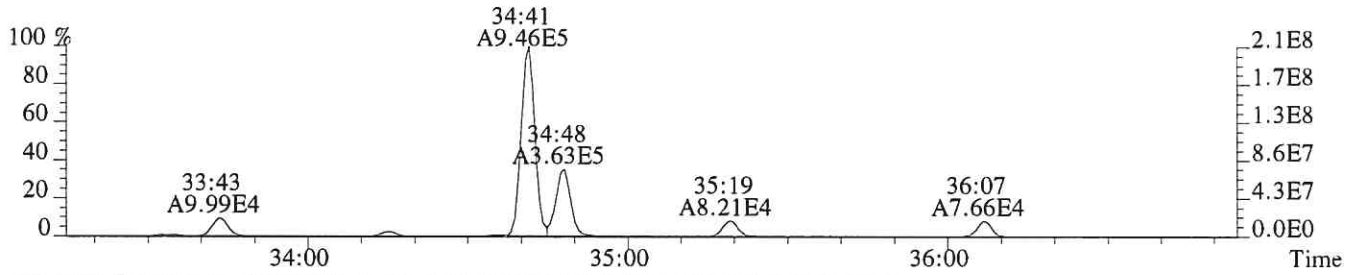


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

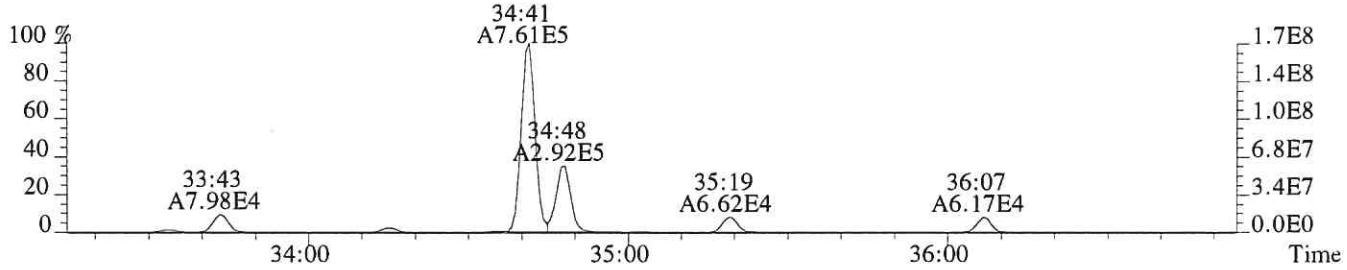


File:P616176 #1-330 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001

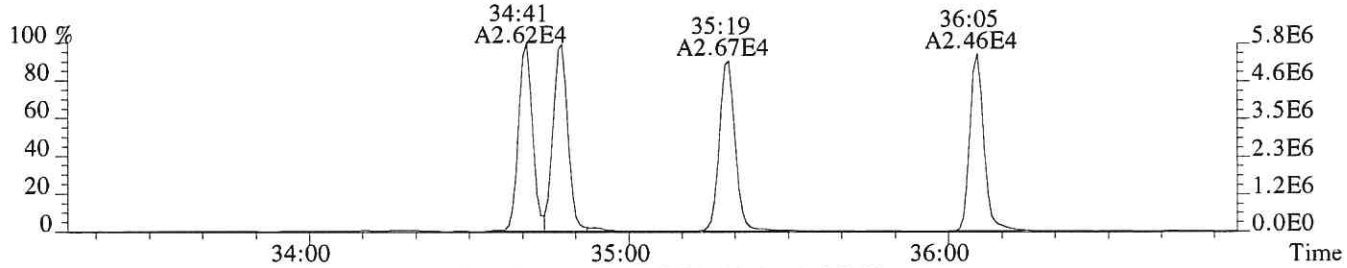
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14380.0,0.40%,F,T)



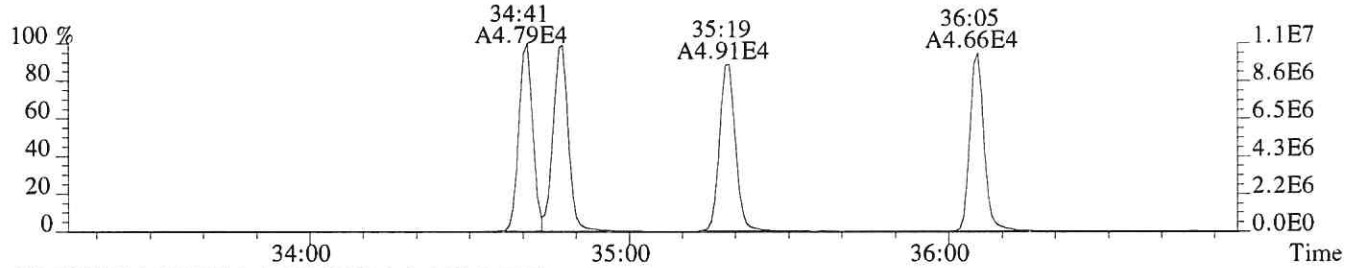
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10092.0,0.40%,F,T)



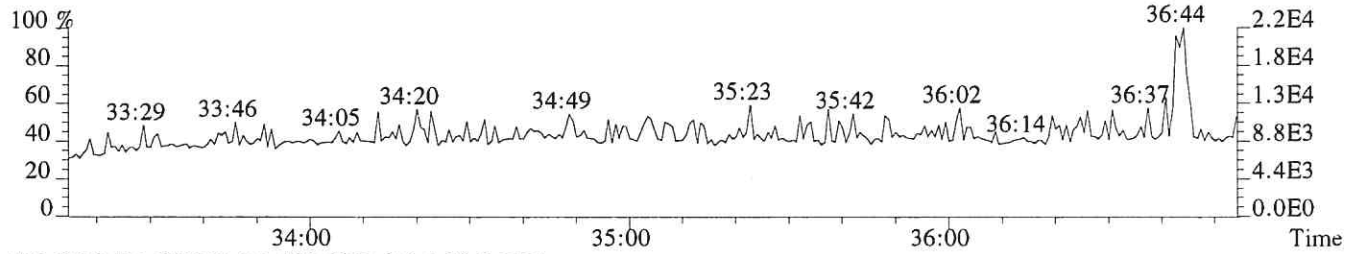
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16240.0,0.40%,F,T)



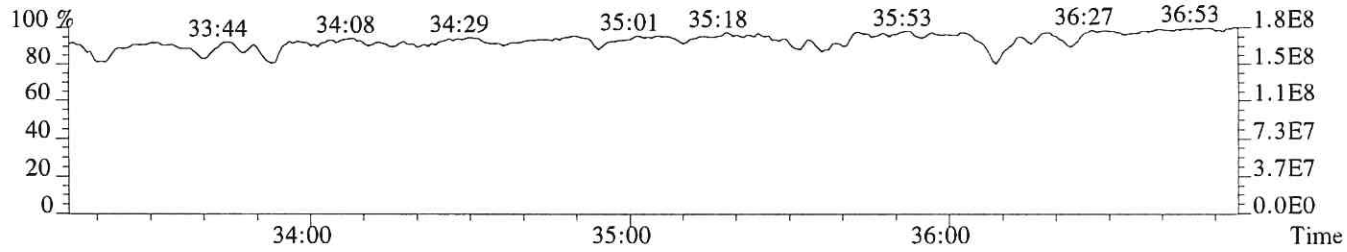
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7568.0,0.40%,F,T)



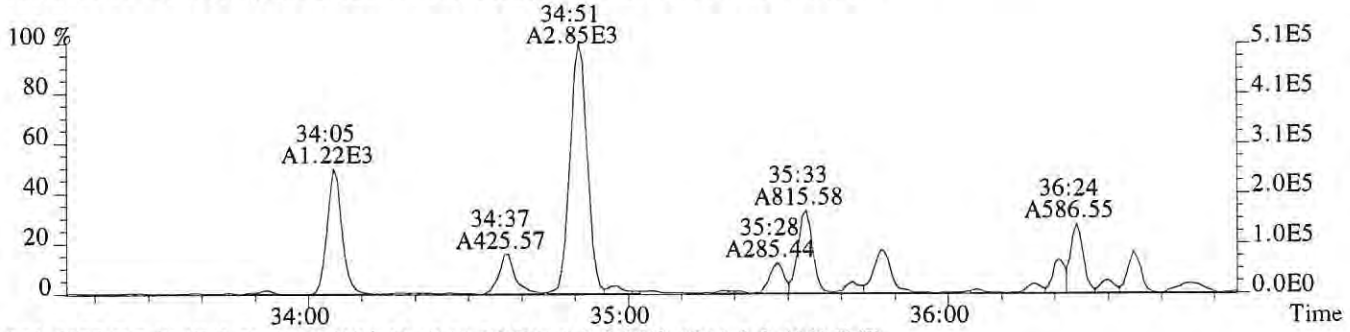
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



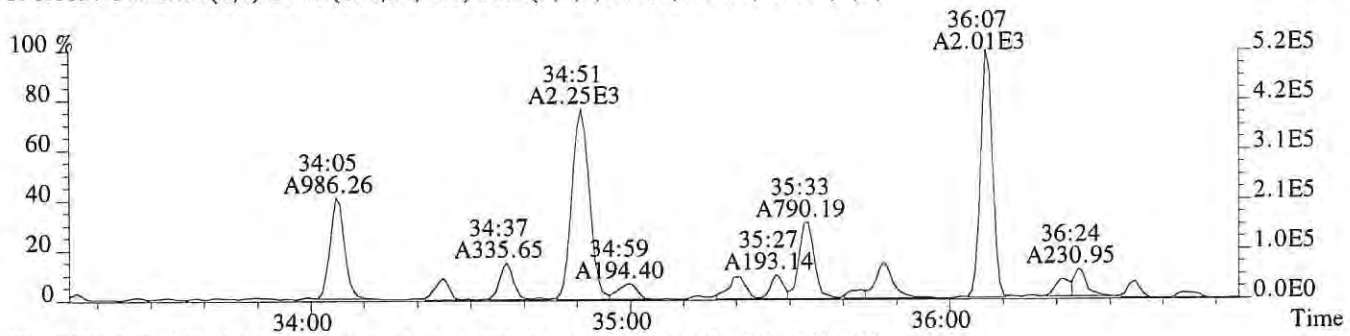
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



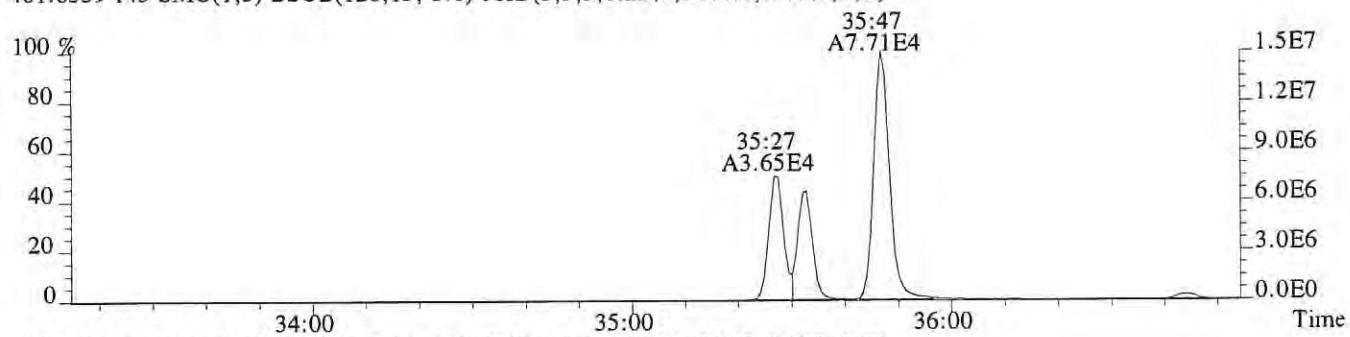
File:P616176 #1-330 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.40%,F,T)



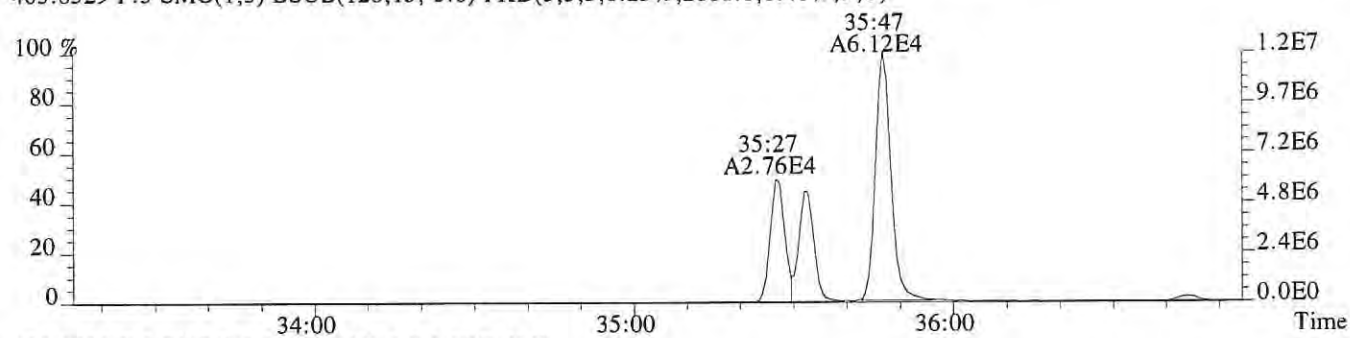
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4044.0,0.40%,F,T)



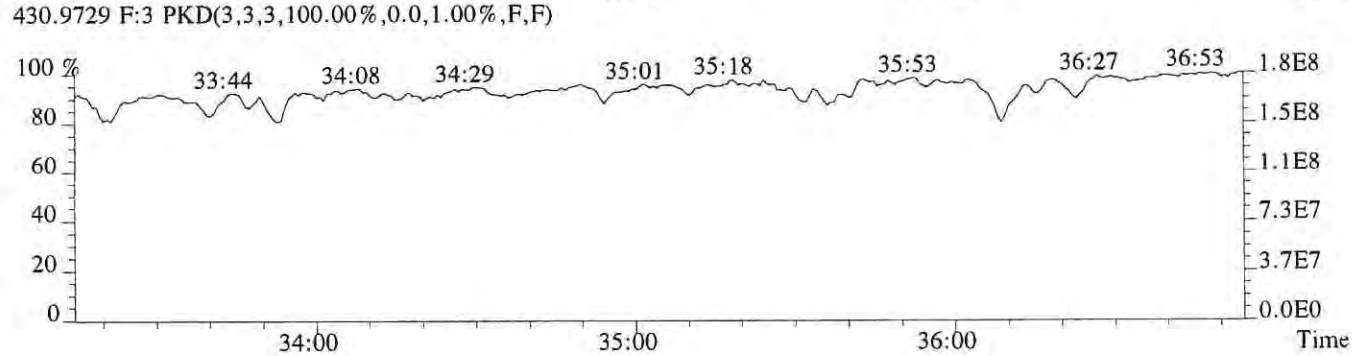
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3444.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2808.0,0.40%,F,T)

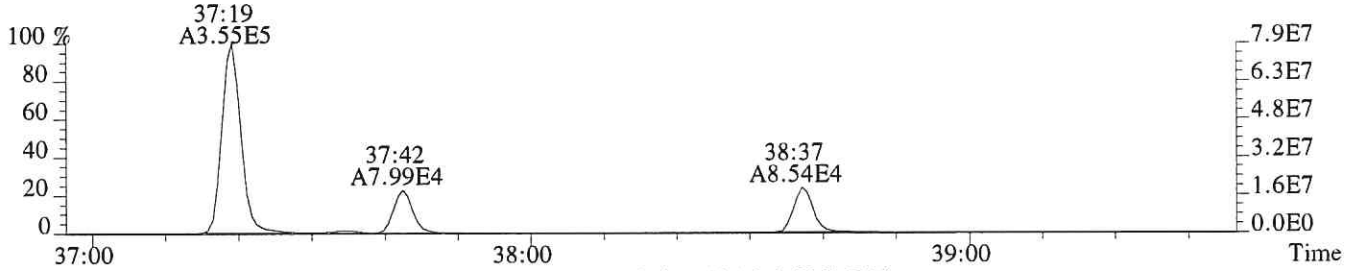


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

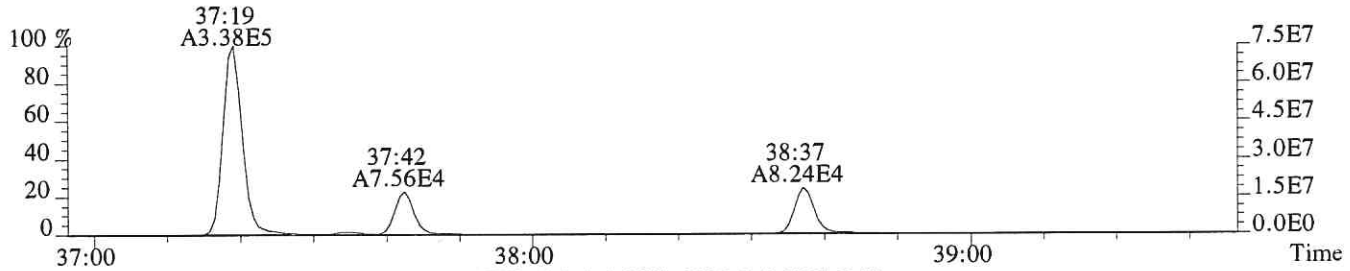


File:P616176 #1-241 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001

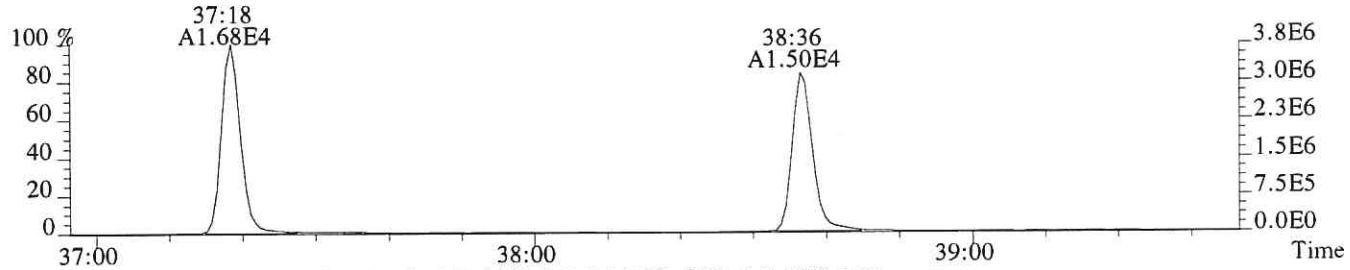
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7300.0,0.50%,F,T)



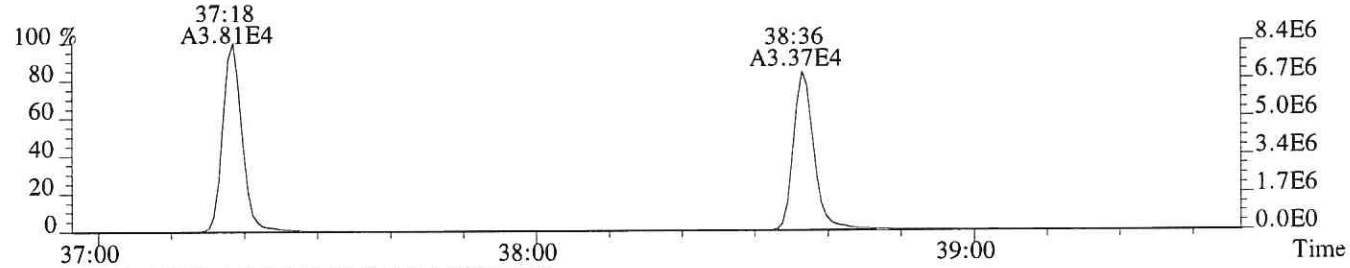
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11484.0,0.50%,F,T)



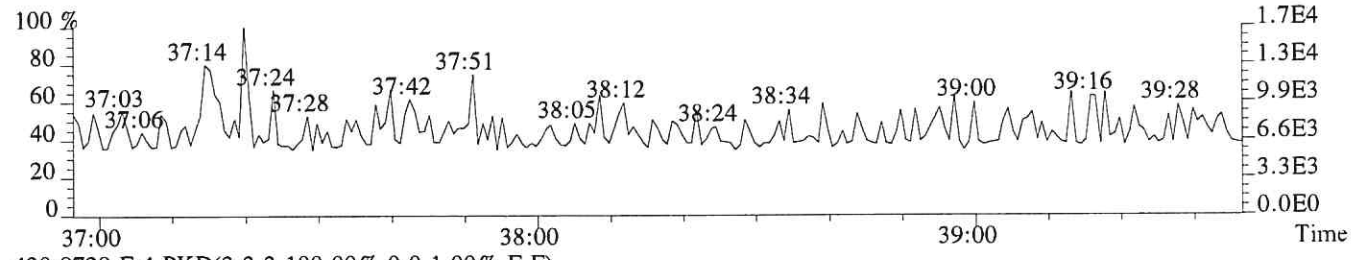
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6220.0,0.50%,F,T)



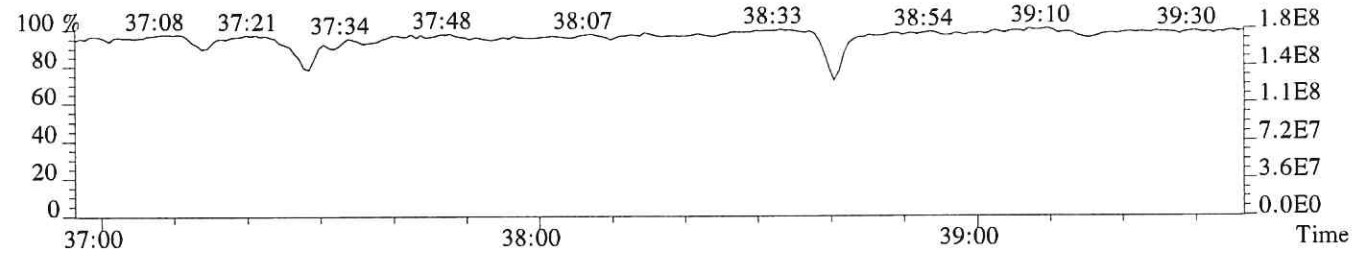
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6084.0,0.50%,F,T)



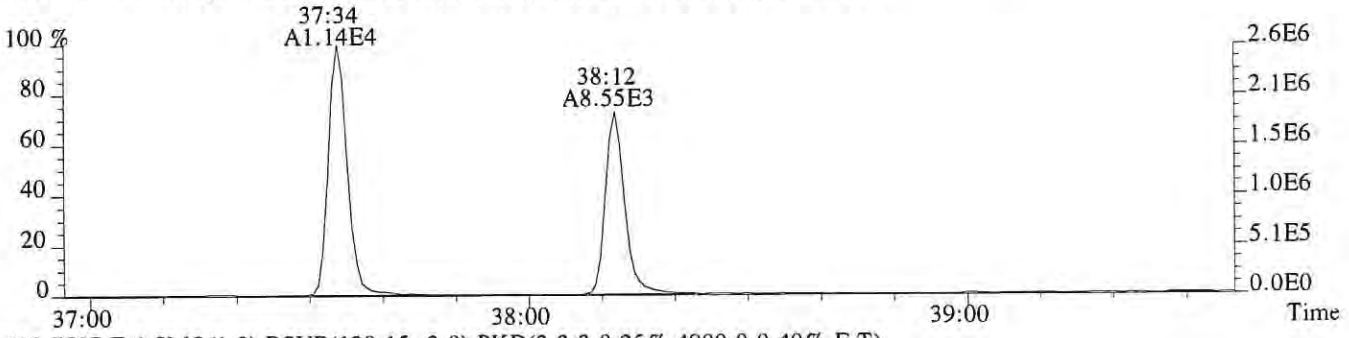
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



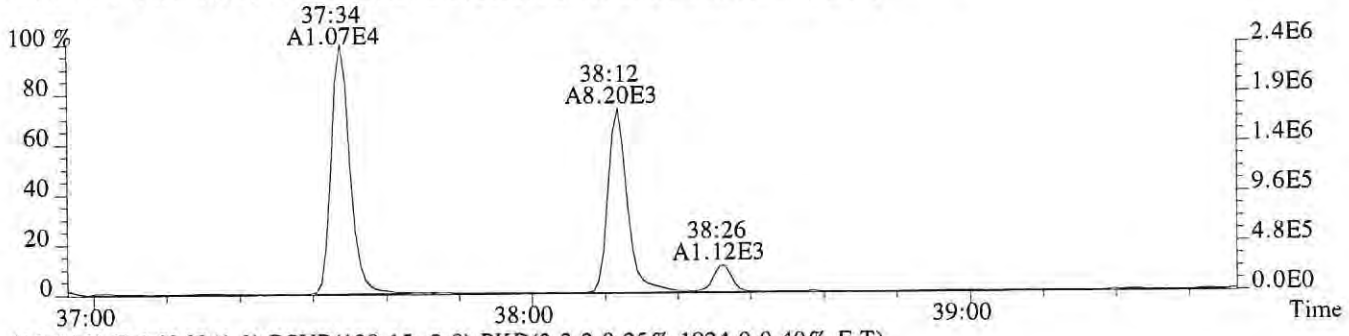
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



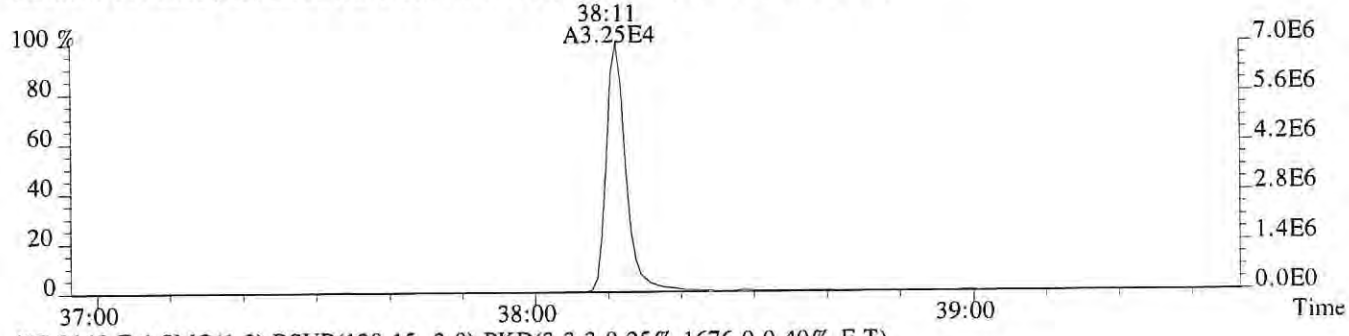
File:P616176 #1-241 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7288.0,0.40%,F,T)



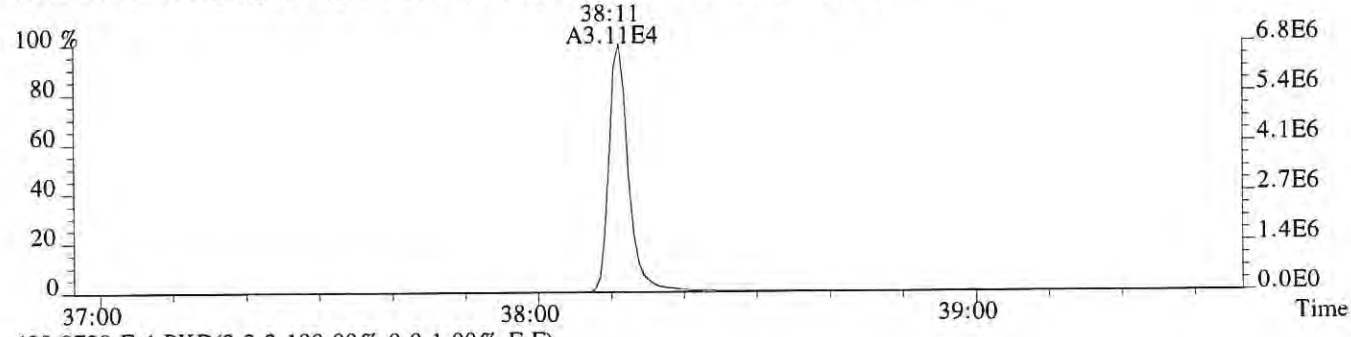
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4900.0,0.40%,F,T)



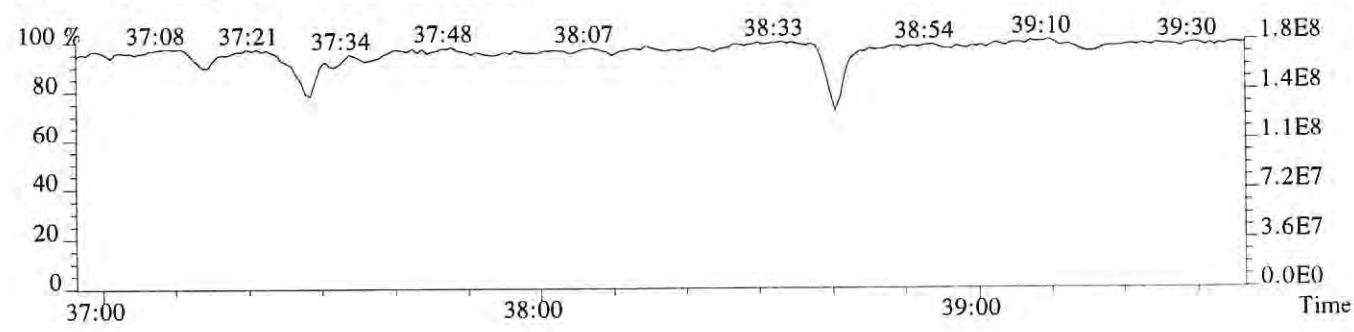
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1924.0,0.40%,F,T)



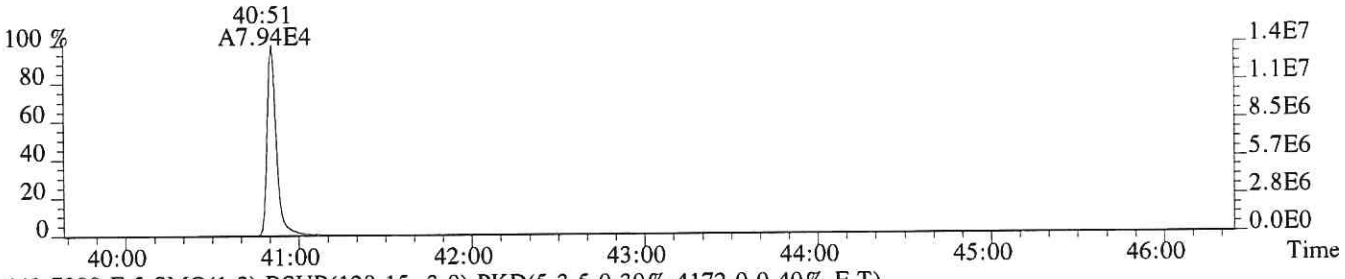
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



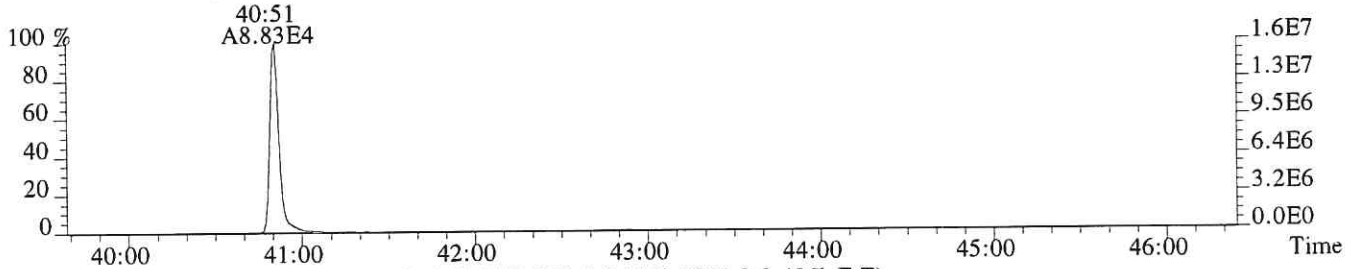
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



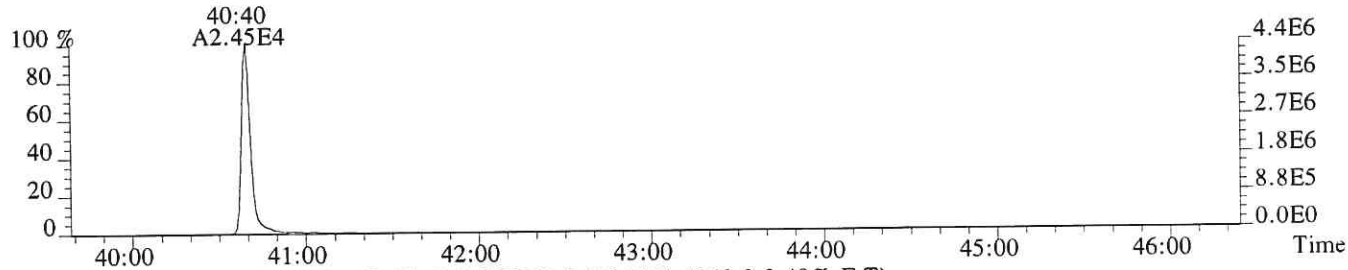
File:P616176 #1-609 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,980.0,0.40%,F,T)



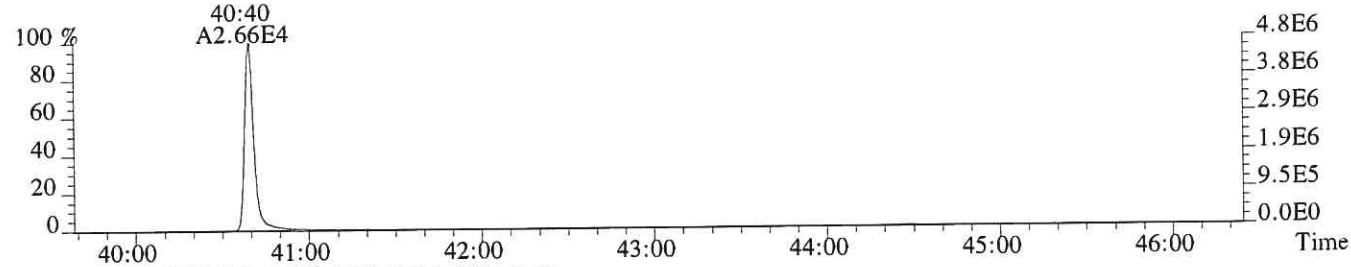
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4172.0,0.40%,F,T)



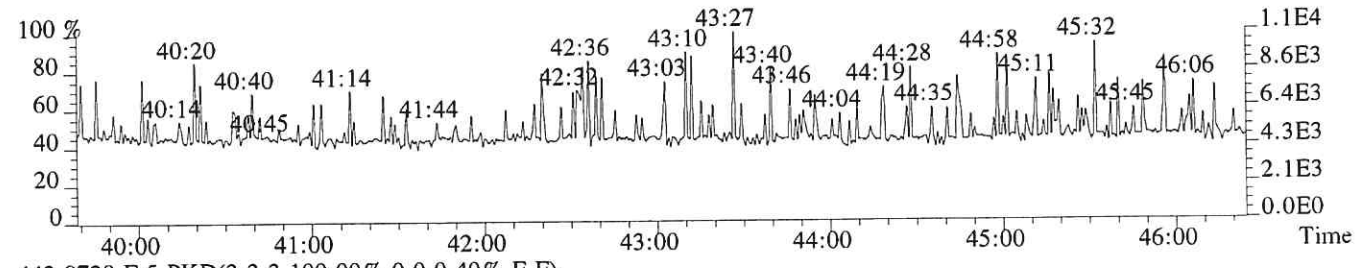
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2844.0,0.40%,F,T)



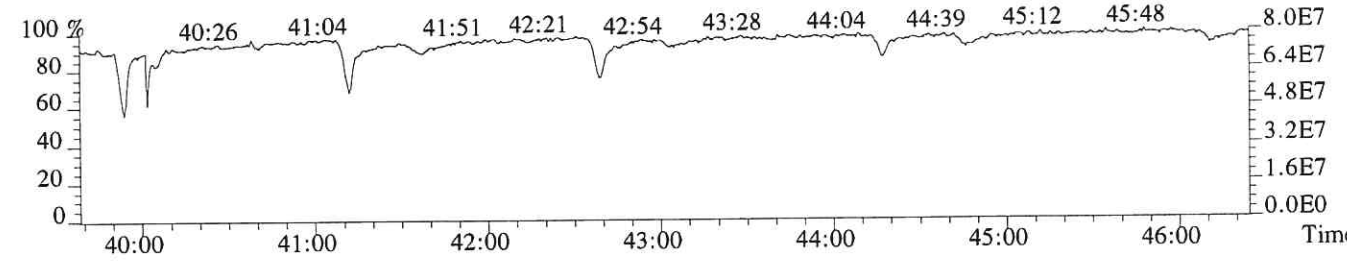
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1348.0,0.40%,F,T)



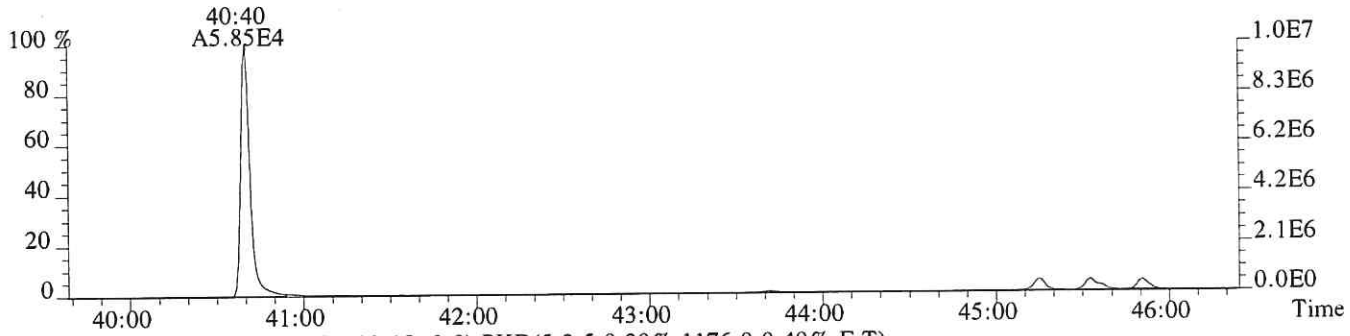
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



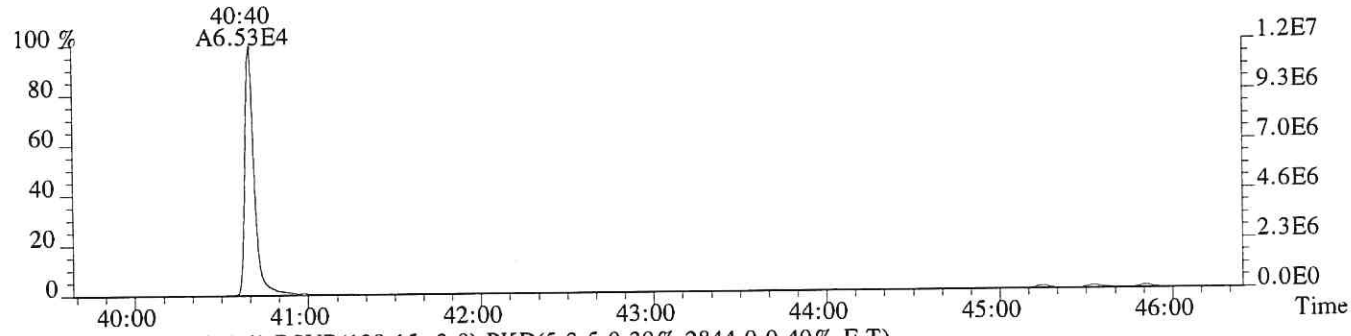
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



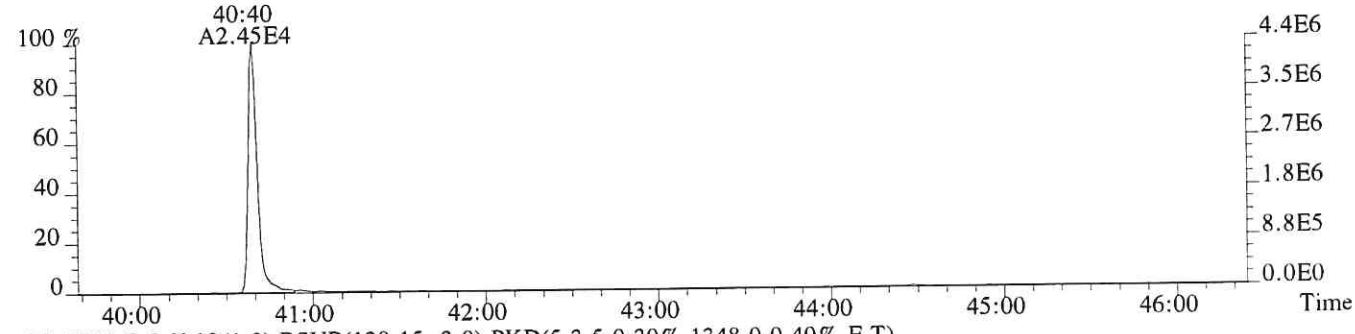
File:P616176 #1-609 Acq:24-DEC-2018 20:13:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1801105-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



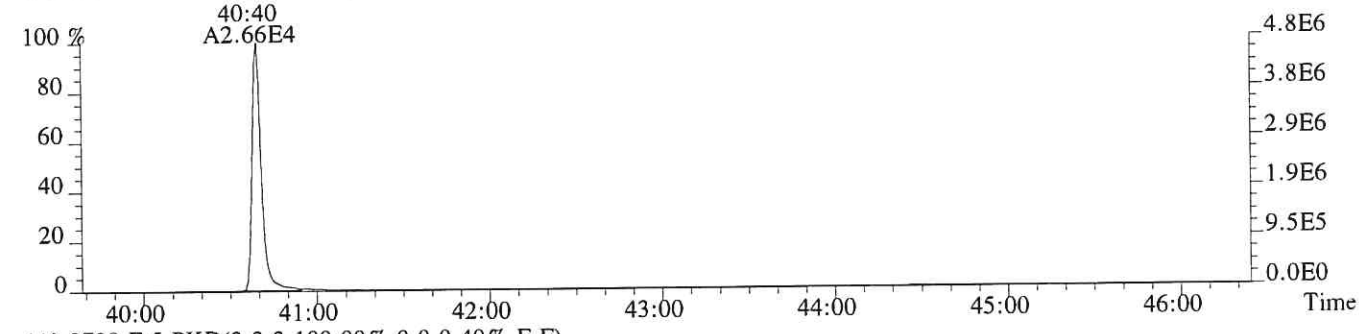
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1176.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2844.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1348.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

