September 18, 2017 Service Request No:E1700943

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

Laboratory Results for: San Jacinto Waste Pits

Dear Craig,

Enclosed are the results of the sample(s) submitted to our laboratory September 11, 2017
For your reference, these analyses have been assigned our service request number **E1700943.**

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

Please contact me if you have any questions. My direct line is 281-575-2146. You may also contact me via email at Corey.Grandits@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 561 6125
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
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ALS Environmental

Client:	Integral Consulting, Inc.	**Service Request No.:**	E1700943
Project:	San Jacinto Waste Pits	**Date Received:**	09/01/17
Sample Matrix:	Sediment		

CASE NARRATIVE

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

Sample Receipt

Two sediment samples were received for analysis at ALS Environmental in Houston on 09/01/17.

The samples were received at 4.1°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1700401-01 contained low levels of various target compounds above the EDL however below the Method Reporting Limit (MRL).

One compound, OCDD, was above the MRL (CRQL). ALS/Houston follows the ***EPA National Functional Guidelines for CDDs and CDFs, September 2005,*** which states on page 31, "The concentration of OCDD/OCDF in the method blank must be <3x the CRQL (MRL.):"

The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

Precision and Accuracy:

EQ1700401: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/DMS for this extraction batch. The LCS and DLCS spike recoveries are within control limits.

2378-TCDF

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

Y flags – Cleanup Standard

The recovery for the cleanup standard, 37Cl-2,3,7,8-TCDD is marginally below the control limit in the Method Blank (EQ1700401-01). This labeled standard is provided as a means of demonstrating that both the sample extraction and subsequent cleanup steps performed as expected, and is not used in quantitation of target analytes.

K flags

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

Detection Limits

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

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

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- 2378-TCDF from the DB-225 column, when confirmation required
- Non-detected compounds are not included in the 'Total'

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

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

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1700943-001	SJWP-091117- Comp 02	9/11/2017	1130
E1700943-002	SJWP-091117- Comp 006S	9/11/2017	1050

Service Request Summary

Folder #: **E1700943**
Client Name: Integral Consulting, Incorporated
Project Name: San Jacinto Waste Pits
Project Number: C643

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 09/11/17
Internal Due Date: 9/18/2017
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number:
EDD: Integral-UCR

2 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 4C
Pressure Gas:
Rush

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
E1700943-001	SJWP-091117- Comp 02	Sediment	09/11/17 1130	**IV**	**IV**
E1700943-002	SJWP-091117- Comp 006S	Sediment	09/11/17 1050	**IV**	**IV**

Service Request Summary

Folder #:	**E1700943**
Client Name:	Integral Consulting, Incorporated
Project Name:	San Jacinto Waste Pits
Project Number:	C643
Report To:	Craig Hutchings Integral Consulting, Inc. 1205 West Bay Drive NW Olympia, WA 98502-4670 USA
Phone Number:	360-705-3534
Cell Number:	
Fax Number:	
E-mail:	chutchings@integral-corp.com

Project Chemist:	Corey Grandits
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	09/11/17
Internal Due Date:	9/18/2017
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	Y
P.O. Number:	
EDD:	Integral-UCR

2 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 4C

Pressure Gas:

Rush

Superset Summary

Service Request: E1700943 **SuperSet Reference:** 17-0000436894 rev 00

Analytical Method: **1613B**

Calibrations: 05/16/17

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P609095	P609087	P609091	E1700943-001
P609096	P609087	P609091	E1700943-002
P609091	P609087	P609091	EQ1700401-01

Calibrations: 09/01/17

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
p407887	P407876	P609091	EQ1700401-02
P407862	P407852	P609091	EQ1700401-03

Data Qualifiers

HRMS Qualifier Set

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

Acronyms

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

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2017
Arizona Department of Health Services	AZ0793	5/27/2018
Arkansas Department of Environmental Quality	17-027-0	3/27/2018
California Department of Health Services	2452	2/28/2018
Florida Department of Health	E87611	7/31/2018
Hawaii Department of Health	TX02694	4/30/2018
Illinois Environmental Protection Agency	004112	5/9/2018
Kansas Department of Health and Environment	E-10406	9/30/2017
Louisiana Department of Environmental Quality	03048	6/30/2018
Louisiana Department of Health and Hospitals	LA150026	12/31/2017
Maine Center for Disease Control and Prevention	2014019	6/5/2018
Maryland Department of the Environment	343	6/30/2018
Michigan Depratment of Environmental Quality	9971	6/5/2018
Minnesota Department of Health	840911	12/31/2017
Nebraska Department of Health and Human Services	NE-OS-25-13	4/30/2018
Nevada Department of Concervation and Natural Resources	TX014112013-2	7/31/2018
New Mexico Environment Department	TX02694	4/30/2018
New York Department of Health	11707	3/31/2018
Oklahoma Department of Environmental Quality	2014 124	8/31/2018
Oregon Environmental Laboratory Accreditation Program	TX200002-009	3/24/2018
Pennsylvania Department of Environmental Protection	68-03441	6/30/2018
Tennessee Department of Environment and Concervation	04016	6/30/2018
Texas Commision on Environmental Quality	TX104704231-17-18	4/30/2018
United States Department of Agriculture	P330-14-00067	6/19/2018
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2018
Washington Department of Health	c819	11/14/2017
West Virginia Department of Environmental Protection	347	6/30/2018

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

SR# Unique ID E1700943 DB-5MSUI SPB-Octyl

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

Date:	Analyst:	Samples:
09/15/17	Gc	001, 002

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

Date:	Analyst:	Samples:
09/15/17	LKC	001, 002

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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Chain of Custody Form

Page 1 of 1

COC ID: 146289

E1700943 5
Integral Consulting, Inc.
San Jacinto Waste Pits

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	San Jacinto Waste Pits	A	Dioxin/Furans / EPA 1613
Work Order		Project Number	C643	B	
Company Name	Integral Consulting	Bill To Company	Same	C	
Send Report To	Craig Hutchings	Invoice Attn	Same	D	
Address	6205 W. Bay Drive NW. Olympia, WA 98501	Address	Same	E	
				F	
City/State/Zip		City/State/Zip		G	
Phone	360-485-3679	Phone		H	
Fax		Fax		I	
e-Mail Address	CHUTCHINGS@Integral-corp.com	e-Mail Address	Same	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	SJWP-091117-COMP02	09/11/17	11:30	Sed	8	1	X										
2	SJWP-091117-0065	09/11/17	10:50	Sed	8	1	X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Kevin Kichline

Shipment Method: Delivered

Required Turnaround Time: (Check Box) ☒ Other 5 Day TAT or Sooner ☐ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date:	Time:	Received by:
Kevin Kichline	09/11/17	1300	
Relinquished by:	Date: 9/11/17	Time: 1424	Received by (Laboratory): J. MAKAN
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp
25036	3.6
	1420
	CF0.5

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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ALS Environmental

Cooler Receipt Form

Project Chemist: CG

Client/Project: INTEGRAL

Thermometer ID: SMC4

Date/Time Received: 9/11/17 Initials: CG Date/Time Logged in: 9/11/17 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ○ Courier ✓ Client
2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ○ Yes ✓ No
   Were they intact? ○ Yes ○ No ✓ N/A
   Were they signed and dated? ○ Yes ○ No ✓ N/A
   If yes, how many and where? —
4. Packing Material: ○ Inserts ○ Baggies ○ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
—		9-11-17	1427	CG	3.6/4.1	✓
						☐
						☐
						☐

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

Notes, Discrepancies, & Resolutions:

Service request Label: E1700943 5
Integral Consulting, Inc.
San Jacinto Waste Pits

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www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

Prep Run#: 297680 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 9/11/17 03:00 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1700940-001	North Andover WWTP	.01	1613B/Dioxins Furans			Sludge, Solid	10.508g	Black Gravel
2	E1700941-001	Sludge SQC 2nd	.01	1613B/Dioxins Furans			Sludge, Solid	10.222g	Black soil
3	E1700942-001	Primary Sludge	.01	1613B/Dioxins Furans			Solid	10.175g	Grey Sludge
4	E1700942-002	Secondary Sludge	.01	1613B/Dioxins Furans			Solid	10.292g	Brown Soil
5	E1700942-003	Combined Sludge	.01	1613B/Dioxins Furans			Solid	10.393g	Brown Soil
6	E1700942-004	Pri. Sludge Z	.01	1613B/Dioxins Furans			Solid	10.757g	GreynSludge
7	E1700942-005	Sec Sludge Z	.01	1613B/Dioxins Furans			Solid	10.579g	Brown Soil
8	E1700942-006	Comb. Sludge Z	.01	1613B/Dioxins Furans			Solid	10.309g	Brown Soil
9	E1700943-001	SJWP-091117- Comp 02	.01	1613B/Dioxins Furans			Sediment	10.784g	Brown Clay
10	E1700943-002	SJWP-091117- Comp 006S	.01	1613B/Dioxins Furans			Sediment	10.098g	Brown Clay
11	EQ1700401-01	MB		1613B/Dioxins Furans			Solid	10.687g	
12	EQ1700401-02	LCS		1613B/Dioxins Furans			Solid	10.332g	
13	EQ1700401-03	DLCS		1613B/Dioxins Furans			Solid	10.714g	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 183440 Logbook Ref: 183440 JG 8/17/17 2-20 ng/mL Expires On: 02/13/2018

EQ1700401-02	100.00µL	EQ1700401-03	100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 183803 Logbook Ref: 183803 JG 9/5/17 8 ng/mL Expires On: 10/29/2017

E1700940-001	100.00µL	E1700941-001	100.00µL	E1700942-001	100.00µL	E1700942-002	100.00µL	E1700942-003	100.00µL	E1700942-004	100.00µL
E1700942-005	100.00µL	E1700942-006	100.00µL	E1700943-001	100.00µL	E1700943-002	100.00µL	EQ1700401-01	100.00µL	EQ1700401-02	100.00µL
EQ1700401-03	100.00µL										

Name: 1613B Labeled Working Standard Inventory ID 183927 Logbook Ref: 183927 JR 9/8/17 2-4ng/ml Expires On: 10/31/2017

E1700940-001	1,000.00µL	E1700941-001	1,000.00µL	E1700942-001	1,000.00µL	E1700942-002	1,000.00µL	E1700942-003	1,000.00µL	E1700942-004	1,000.00µL
E1700942-005	1,000.00µL	E1700942-006	1,000.00µL	E1700943-001	1,000.00µL	E1700943-002	1,000.00µL	EQ1700401-01	1,000.00µL	EQ1700401-02	1,000.00µL
EQ1700401-03	1,000.00µL										

Preparation Materials

Carbon, High Purity	JR7/18/2017 (182733)	Ethyl Acetate 99.9% Minimum EtOAc	AL 3/3/17 (179750)	Glass Wool	JG 07/06/2017 (182496)
Hexanes 95%	JG 8/16/17 (183628)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JG 7/17/2017 (182665)	Sodium Hydroxide 1N NaOH	sodium hydroxide (180303)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 6/8/17 (181861)	Tridecane (n-Tridecane)	JG 7/18/17 (182731)	Silica Gel	AL 7/28/17 (182979)
sulfuric acid	JG 7/20/17 (182760)	Toluene 99.9% Minimum	AL 9/6/17 (183870)		

Preparation Information Benchsheet

Prep Run#: 297680 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method Soxhlet **Prep Date/Time:** 9/11/17 03:00 PM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	9/11/17 15:00	Started:	9/13/17 12:00	Started:	9/14/17 09:00	Started:	9/14/17 12:00
Finished:	9/12/17 12:00	Finished:	9/13/17 13:00	Finished:	9/14/17 11:00	Finished:	9/14/17 15:00
By:	TWOODS	By:	TWOODS	By:	TWOODS	By:	TWOODS
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 11:30
Sample Matrix:	Sediment	**Date Received:**	09/11/17 12:24
Sample Name:	SJWP-091117- Comp 02	**Units:**	ng/Kg
Lab Code:	E1700943-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 21:30
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609095	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.55**K**		0.0756	0.689	0.63	1.001	1
1,2,3,7,8-PeCDD	0.176**JK**		0.0787	3.44	1.89	1.001	1
1,2,3,4,7,8-HxCDD	0.336**JK**		0.0572	3.44	1.46	1.000	1
1,2,3,6,7,8-HxCDD	0.957**JK**		0.0656	3.44	0.99	1.000	1
1,2,3,7,8,9-HxCDD	1.14**J**		0.0564	3.44	1.14	1.007	1
1,2,3,4,6,7,8-HpCDD	42.3		0.196	3.44	1.11	1.000	1
OCDD	1580		0.0261	6.89	0.88	1.000	1
2,3,7,8-TCDF	5.78		0.0342	0.689	0.81	1.001	1
1,2,3,7,8-PeCDF	0.265**JK**		0.105	3.44	1.15	1.000	1
2,3,4,7,8-PeCDF	0.323**BJ**		0.107	3.44	1.42	1.001	1
1,2,3,4,7,8-HxCDF	0.518**J**		0.0323	3.44	1.09	1.000	1
1,2,3,6,7,8-HxCDF	0.286**BJ**		0.0280	3.44	1.29	1.000	1
1,2,3,7,8,9-HxCDF	0.127**BJK**		0.0290	3.44	1.72	1.001	1
2,3,4,6,7,8-HxCDF	0.200**BJK**		0.0276	3.44	1.73	1.000	1
1,2,3,4,6,7,8-HpCDF	2.29**JK**		0.0928	3.44	1.22	1.000	1
1,2,3,4,7,8,9-HpCDF	0.256**J**		0.115	3.44	0.98	1.000	1
OCDF	15.4		0.0524	6.89	0.84	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 11:30
Sample Matrix:	Sediment	**Date Received:**	09/11/17 12:24
Sample Name:	SJWP-091117- Comp 02	**Units:**	ng/Kg
Lab Code:	E1700943-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 21:30
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609095	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.91		0.0756	0.689	0.77		1
Total Penta-Dioxins	2.05**J**		0.0787	3.44	1.69		1
Total Hexa-Dioxins	7.08		0.0596	3.44	1.33		1
Total Hepta-Dioxins	42.3		0.196	3.44	1.11		1
Total Tetra-Furans	9.71		0.0342	0.689	0.85		1
Total Penta-Furans	1.15**J**		0.106	3.44	1.62		1
Total Hexa-Furans	3.09**J**		0.0291	3.44	1.33		1
Total Hepta-Furans	4.90		0.104	3.44	1.04		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 11:30
Sample Matrix:	Sediment	**Date Received:**	09/11/17 12:24
Sample Name:	SJWP-091117- Comp 02	**Units:**	Percent
Lab Code:	E1700943-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 21:30
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.784g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609095	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1151.146	58		25-164	0.79	1.025
13C-1,2,3,7,8-PeCDD	2000	1152.253	58		25-181	1.57	1.213
13C-1,2,3,4,7,8-HxCDD	2000	1103.401	55		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1082.492	54		28-130	1.18	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	978.296	49		23-140	1.06	1.070
13C-OCDD	4000	1851.044	46		17-157	0.88	1.146
13C-2,3,7,8-TCDF	2000	1012.456	51		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1132.324	57		24-185	1.58	1.166
13C-2,3,4,7,8-PeCDF	2000	1080.833	54		21-178	1.57	1.203
13C-1,2,3,4,7,8-HxCDF	2000	986.785	49		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	998.805	50		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1154.149	58		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1044.701	52		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1057.673	53		28-143	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1092.466	55		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	448.825	56		35-197	NA	1.027

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 11:30
Sample Matrix:	Sediment	**Date Received:**	09/11/17 12:24
Sample Name:	SJWP-091117- Comp 02	**Units:**	ng/Kg
Lab Code:	E1700943-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.55**	0.0756	0.689	1	1	1.55
1,2,3,7,8-PeCDD	**0.176**	0.0787	3.44	1	1	0.176
1,2,3,4,7,8-HxCDD	**0.336**	0.0572	3.44	1	0.1	0.0336
1,2,3,6,7,8-HxCDD	**0.957**	0.0656	3.44	1	0.1	0.0957
1,2,3,7,8,9-HxCDD	**1.14**	0.0564	3.44	1	0.1	0.114
1,2,3,4,6,7,8-HpCDD	**42.3**	0.196	3.44	1	0.01	0.423
OCDD	**1580**	0.0261	6.89	1	0.0003	0.474
2,3,7,8-TCDF	**5.78**	0.0342	0.689	1	0.1	0.578
1,2,3,7,8-PeCDF	**0.265**	0.105	3.44	1	0.03	0.00795
2,3,4,7,8-PeCDF	**0.323**	0.107	3.44	1	0.3	0.0969
1,2,3,4,7,8-HxCDF	**0.518**	0.0323	3.44	1	0.1	0.0518
1,2,3,6,7,8-HxCDF	**0.286**	0.0280	3.44	1	0.1	0.0286
1,2,3,7,8,9-HxCDF	**0.127**	0.0290	3.44	1	0.1	0.0127
2,3,4,6,7,8-HxCDF	**0.200**	0.0276	3.44	1	0.1	0.0200
1,2,3,4,6,7,8-HpCDF	**2.29**	0.0928	3.44	1	0.01	0.0229
1,2,3,4,7,8,9-HpCDF	**0.256**	0.115	3.44	1	0.01	0.00256
OCDF	**15.4**	0.0524	6.89	1	0.0003	0.00462
		Total TEQ				3.69

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 11:30
Sample Matrix:	Sediment	**Date Received:**	09/11/17 12:24
Sample Name:	SJWP-091117- Comp 02	**Units:**	Percent
Lab Code:	E1700943-001	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	09/15/17 16:56
	5.734g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	67.3		-	-			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 10:50
Sample Matrix:	Sediment	**Date Received:**	09/11/17 14:24
Sample Name:	SJWP-091117- Comp 006S	**Units:**	ng/Kg
Lab Code:	E1700943-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 22:19
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.098g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609096	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.85		0.129	0.824	0.81	1.001	1
1,2,3,7,8-PeCDD	0.502	**JK**	0.135	4.12	2.18	1.001	1
1,2,3,4,7,8-HxCDD	1.09	**J**	0.0867	4.12	1.37	1.000	1
1,2,3,6,7,8-HxCDD	3.12	**J**	0.0987	4.12	1.16	1.000	1
1,2,3,7,8,9-HxCDD	2.32	**J**	0.0851	4.12	1.35	1.007	1
1,2,3,4,6,7,8-HpCDD	117		0.367	4.12	1.03	1.000	1
OCDD	1400		0.0566	8.24	0.89	1.000	1
2,3,7,8-TCDF	5.97		0.0900	0.824	0.75	1.001	1
1,2,3,7,8-PeCDF	0.926	**J**	0.131	4.12	1.52	1.001	1
2,3,4,7,8-PeCDF	1.11	**JK**	0.133	4.12	1.21	1.000	1
1,2,3,4,7,8-HxCDF	1.52	**J**	0.139	4.12	1.09	1.000	1
1,2,3,6,7,8-HxCDF	0.927	**J**	0.132	4.12	1.17	1.000	1
1,2,3,7,8,9-HxCDF	0.312	**BJ**	0.132	4.12	1.32	1.001	1
2,3,4,6,7,8-HxCDF	0.788	**JK**	0.134	4.12	1.66	1.000	1
1,2,3,4,6,7,8-HpCDF	10.0		0.0920	4.12	1.11	1.000	1
1,2,3,4,7,8,9-HpCDF	0.613	**JK**	0.115	4.12	1.33	1.000	1
OCDF	37.1		0.0660	8.24	0.85	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 10:50
Sample Matrix:	Sediment	**Date Received:**	09/11/17 14:24
Sample Name:	SJWP-091117- Comp 006S	**Units:**	ng/Kg
Lab Code:	E1700943-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 22:19
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.098g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609096	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	34.6		0.129	0.824	0.88		1
Total Penta-Dioxins	4.94		0.135	4.12	1.56		1
Total Hexa-Dioxins	35.3		0.0900	4.12	1.27		1
Total Hepta-Dioxins	117		0.367	4.12	1.03		1
Total Tetra-Furans	74.3		0.0900	0.824	0.77		1
Total Penta-Furans	6.73		0.132	4.12	1.48		1
Total Hexa-Furans	13.0		0.134	4.12	1.21		1
Total Hepta-Furans	28.3		0.103	4.12	1.11		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 10:50
Sample Matrix:	Sediment	**Date Received:**	09/11/17 14:24
Sample Name:	SJWP-091117- Comp 006S	**Units:**	Percent
Lab Code:	E1700943-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 22:19
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.098g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609096	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1106.806	55		25-164	0.79	1.025
13C-1,2,3,7,8-PeCDD	2000	1126.510	56		25-181	1.55	1.213
13C-1,2,3,4,7,8-HxCDD	2000	1020.332	51		32-141	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	986.002	49		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	850.600	43		23-140	1.06	1.070
13C-OCDD	4000	1565.928	39		17-157	0.89	1.146
13C-2,3,7,8-TCDF	2000	986.934	49		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1114.181	56		24-185	1.59	1.165
13C-2,3,4,7,8-PeCDF	2000	1058.720	53		21-178	1.58	1.202
13C-1,2,3,4,7,8-HxCDF	2000	965.278	48		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	921.137	46		26-123	0.54	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1110.058	56		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	988.496	49		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	929.416	46		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	938.557	47		26-138	0.44	1.083
37Cl-2,3,7,8-TCDD	800	414.841	52		35-197	NA	1.026

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 10:50
Sample Matrix:	Sediment	**Date Received:**	09/11/17 14:24
Sample Name:	SJWP-091117- Comp 006S	**Units:**	ng/Kg
Lab Code:	E1700943-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.85**	0.129	0.824	1	1	1.85
1,2,3,7,8-PeCDD	**0.502**	0.135	4.12	1	1	0.502
1,2,3,4,7,8-HxCDD	**1.09**	0.0867	4.12	1	0.1	0.109
1,2,3,6,7,8-HxCDD	**3.12**	0.0987	4.12	1	0.1	0.312
1,2,3,7,8,9-HxCDD	**2.32**	0.0851	4.12	1	0.1	0.232
1,2,3,4,6,7,8-HpCDD	**117**	0.367	4.12	1	0.01	1.17
OCDD	**1400**	0.0566	8.24	1	0.0003	0.420
2,3,7,8-TCDF	**5.97**	0.0900	0.824	1	0.1	0.597
1,2,3,7,8-PeCDF	**0.926**	0.131	4.12	1	0.03	0.0278
2,3,4,7,8-PeCDF	**1.11**	0.133	4.12	1	0.3	0.333
1,2,3,4,7,8-HxCDF	**1.52**	0.139	4.12	1	0.1	0.152
1,2,3,6,7,8-HxCDF	**0.927**	0.132	4.12	1	0.1	0.0927
1,2,3,7,8,9-HxCDF	**0.312**	0.132	4.12	1	0.1	0.0312
2,3,4,6,7,8-HxCDF	**0.788**	0.134	4.12	1	0.1	0.0788
1,2,3,4,6,7,8-HpCDF	**10.0**	0.0920	4.12	1	0.01	0.100
1,2,3,4,7,8,9-HpCDF	**0.613**	0.115	4.12	1	0.01	0.00613
OCDF	**37.1**	0.0660	8.24	1	0.0003	0.0111
		Total TEQ				6.02

2005 WHO TEFs, ND = 0

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	09/11/17 10:50
Sample Matrix:	Sediment	**Date Received:**	09/11/17 14:24
Sample Name:	SJWP-091117- Comp 006S	**Units:**	Percent
Lab Code:	E1700943-002	**Basis:**	As Received

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	09/15/17 16:56
	5.151g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	60.1		-	-			1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1700401-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 18:14
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.687g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609091	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0567	0.468			1
1,2,3,7,8-PeCDD	ND	U	0.00674	2.34			1
1,2,3,4,7,8-HxCDD	ND	U	0.00656	2.34			1
1,2,3,6,7,8-HxCDD	ND	U	0.00740	2.34			1
1,2,3,7,8,9-HxCDD	ND	U	0.00646	2.34			1
1,2,3,4,6,7,8-HpCDD	0.421**JK**		0.00496	2.34	1.26	1.000	1
OCDD	4.88		0.00843	4.68	0.89	1.000	1
2,3,7,8-TCDF	ND	U	0.0679	0.468			1
1,2,3,7,8-PeCDF	ND	U	0.0312	2.34			1
2,3,4,7,8-PeCDF	0.0609**JK**		0.0293	2.34	0.95	1.001	1
1,2,3,4,7,8-HxCDF	0.0320**JK**		0.00590	2.34	1.90	1.001	1
1,2,3,6,7,8-HxCDF	0.0366**JK**		0.00581	2.34	1.73	1.000	1
1,2,3,7,8,9-HxCDF	0.0450**JK**		0.00627	2.34	1.03	1.000	1
2,3,4,6,7,8-HxCDF	0.0359**JK**		0.00571	2.34	0.90	1.000	1
1,2,3,4,6,7,8-HpCDF	0.0725**J**		0.00319	2.34	1.12	1.001	1
1,2,3,4,7,8,9-HpCDF	0.0252**JK**		0.00412	2.34	0.63	1.000	1
OCDF	0.205**JK**		0.0346	4.68	1.51	1.005	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1700401-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 18:14
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.687g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609091	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.0567	0.468			1
Total Penta-Dioxins	ND	U	0.00674	2.34			1
Total Hexa-Dioxins	ND	U	0.00684	2.34			1
Total Hepta-Dioxins	ND	U	0.00496	2.34			1
Total Tetra-Furans	ND	U	0.0679	0.468			1
Total Penta-Furans	ND	U	0.0303	2.34			1
Total Hexa-Furans	ND	U	0.00590	2.34			1
Total Hepta-Furans	0.183**J**		0.00356	2.34	1.12		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1700401-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/14/17 18:14
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.687g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P609091	**Blank File Name:**	P609091
ICAL Date:	05/16/17	**Cal Ver. File Name:**	P609087

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	764.865	38		25-164	0.79	1.025
13C-1,2,3,7,8-PeCDD	2000	1056.058	53		25-181	1.55	1.213
13C-1,2,3,4,7,8-HxCDD	2000	1189.261	59		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1238.199	62		28-130	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1159.356	58		23-140	1.06	1.070
13C-OCDD	4000	2146.720	54		17-157	0.89	1.146
13C-2,3,7,8-TCDF	2000	652.864	33		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	925.386	46		24-185	1.57	1.166
13C-2,3,4,7,8-PeCDF	2000	951.428	48		21-178	1.57	1.203
13C-1,2,3,4,7,8-HxCDF	2000	1112.302	56		26-152	0.52	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1083.539	54		26-123	0.53	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1209.409	60		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1145.886	57		28-136	0.54	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1182.291	59		28-143	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1203.548	60		26-138	0.45	1.083
37Cl-2,3,7,8-TCDD	800	261.621	33	**Y**	35-197	NA	1.027

Accuracy & Precision

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Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Analyzed:**	09/15/17
Sample Matrix:	Sediment	**Date Extracted:**	09/11/17

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

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	562041

	Lab Control Sample EQ1700401-02			Duplicate Lab Control Sample EQ1700401-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	94.8	96.8	98	92.0	93.3	99	70-140	3	50
1,2,3,4,7,8-HxCDD	85.9	96.8	89	87.1	93.3	93	70-164	1	50
1,2,3,6,7,8-HxCDD	93.4	96.8	97	97.5	93.3	104	76-134	4	50
1,2,3,7,8,9-HxCDD	88.4	96.8	91	95.3	93.3	102	64-162	7	50
1,2,3,7,8-PeCDD	96.3	96.8	99	93.7	93.3	100	70-142	3	50
2,3,7,8-TCDD	16.1	19.4	83	16.6	18.7	89	67-158	3	50
OCDD	215	194	111	212	187	114	78-144	1	50
1,2,3,4,6,7,8-HpCDF	85.3	96.8	88	83.3	93.3	89	82-122	2	50
1,2,3,4,7,8,9-HpCDF	87.4	96.8	90	82.5	93.3	88	78-138	6	50
1,2,3,4,7,8-HxCDF	87.6	96.8	90	84.8	93.3	91	72-134	3	50
1,2,3,6,7,8-HxCDF	89.6	96.8	93	86.2	93.3	92	84-130	4	50
1,2,3,7,8,9-HxCDF	80.0	96.8	83	81.3	93.3	87	78-130	2	50
1,2,3,7,8-PeCDF	83.0	96.8	86	83.0	93.3	89	80-134	<1	50
2,3,4,6,7,8-HxCDF	86.6	96.8	89	82.7	93.3	89	70-156	5	50
2,3,4,7,8-PeCDF	90.5	96.8	93	86.2	93.3	92	68-160	5	50
2,3,7,8-TCDF	18.6	19.4	96	18.1	18.7	97	75-158	3	50
OCDF	210	194	108	212	187	114	63-170	1	50

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1700401-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/15/17 21:17
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	p407887	**Blank File Name:**	P609091
ICAL Date:	09/01/17	**Cal Ver. File Name:**	P407876

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	16.1		0.614	0.614	0.78	1.001	1
1,2,3,7,8-PeCDD	96.3		0.289	2.42	1.51	1.000	1
1,2,3,4,7,8-HxCDD	85.9		0.369	2.42	1.24	1.000	1
1,2,3,6,7,8-HxCDD	93.4		0.390	2.42	1.24	1.000	1
1,2,3,7,8,9-HxCDD	88.4		0.369	2.42	1.29	1.007	1
1,2,3,4,6,7,8-HpCDD	94.8		0.607	2.42	1.09	1.000	1
OCDD	215		1.16	4.84	0.87	1.000	1
2,3,7,8-TCDF	18.6		0.804	0.804	0.75	1.001	1
1,2,3,7,8-PeCDF	83.0		0.384	2.42	1.52	1.001	1
2,3,4,7,8-PeCDF	90.5		0.395	2.42	1.51	1.001	1
1,2,3,4,7,8-HxCDF	87.6		0.302	2.42	1.23	1.000	1
1,2,3,6,7,8-HxCDF	89.6		0.293	2.42	1.23	1.000	1
1,2,3,7,8,9-HxCDF	80.0		0.405	2.42	1.29	1.000	1
2,3,4,6,7,8-HxCDF	86.6		0.316	2.42	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	85.3		0.423	2.42	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	87.4		0.645	2.42	0.99	1.000	1
OCDF	210		1.01	4.84	0.84	1.005	1

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Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1700401-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/15/17 21:17
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	p407887	**Blank File Name:**	P609091
ICAL Date:	09/01/17	**Cal Ver. File Name:**	P407876

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	16.1		0.614	0.614	0.78		1
Total Penta-Dioxins	96.3		0.289	2.42	1.51		1
Total Hexa-Dioxins	268		0.376	2.42	1.24		1
Total Hepta-Dioxins	98.3		0.607	2.42	0.89		1
Total Tetra-Furans	18.6		0.804	0.804	0.75		1
Total Penta-Furans	176		0.389	2.42	1.52		1
Total Hexa-Furans	344		0.325	2.42	1.23		1
Total Hepta-Furans	174		0.518	2.42	1.02		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1700401-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/15/17 21:17
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.332g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	p407887	**Blank File Name:**	P609091
ICAL Date:	09/01/17	**Cal Ver. File Name:**	P407876

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	921.299	46		25-164	0.79	1.021
13C-1,2,3,7,8-PeCDD	2000	1153.352	58		25-181	1.56	1.183
13C-1,2,3,4,7,8-HxCDD	2000	1024.950	51		32-141	1.30	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1205.080	60		28-130	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	935.155	47		23-140	1.06	1.066
13C-OCDD	4000	1462.978	37		17-157	0.88	1.139
13C-2,3,7,8-TCDF	2000	840.508	42		24-169	0.74	0.993
13C-1,2,3,7,8-PeCDF	2000	1160.609	58		24-185	1.60	1.141
13C-2,3,4,7,8-PeCDF	2000	1117.034	56		21-178	1.55	1.173
13C-1,2,3,4,7,8-HxCDF	2000	1030.764	52		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1211.870	61		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1116.903	56		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1104.524	55		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1006.378	50		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	958.124	48		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	348.337	44		35-197	NA	1.021

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1700401-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/15/17 00:20
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.714g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P407862	**Blank File Name:**	P609091
ICAL Date:	09/01/17	**Cal Ver. File Name:**	P407852

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	16.6		0.530	0.530	0.77	1.001	1
1,2,3,7,8-PeCDD	93.7		0.383	2.33	1.56	1.000	1
1,2,3,4,7,8-HxCDD	87.1		0.129	2.33	1.25	1.000	1
1,2,3,6,7,8-HxCDD	97.5		0.140	2.33	1.20	1.000	1
1,2,3,7,8,9-HxCDD	95.3		0.130	2.33	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	92.0		0.385	2.33	1.06	1.000	1
OCDD	212		0.578	4.67	0.89	1.000	1
2,3,7,8-TCDF	18.1		0.640	0.640	0.77	1.000	1
1,2,3,7,8-PeCDF	83.0		0.277	2.33	1.56	1.001	1
2,3,4,7,8-PeCDF	86.2		0.278	2.33	1.53	1.001	1
1,2,3,4,7,8-HxCDF	84.8		0.151	2.33	1.24	1.000	1
1,2,3,6,7,8-HxCDF	86.2		0.153	2.33	1.25	1.000	1
1,2,3,7,8,9-HxCDF	81.3		0.183	2.33	1.22	1.000	1
2,3,4,6,7,8-HxCDF	82.7		0.163	2.33	1.16	1.000	1
1,2,3,4,6,7,8-HpCDF	83.3		0.257	2.33	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	82.5		0.344	2.33	1.00	1.000	1
OCDF	212		0.519	4.67	0.87	1.005	1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1700401-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/15/17 00:20
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.714g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P407862	**Blank File Name:**	P609091
ICAL Date:	09/01/17	**Cal Ver. File Name:**	P407852

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	16.6		0.530	0.530	0.77		1
Total Penta-Dioxins	94.2		0.383	2.33	1.56		1
Total Hexa-Dioxins	283		0.133	2.33	1.09		1
Total Hepta-Dioxins	95.3		0.385	2.33	1.07		1
Total Tetra-Furans	19.6		0.640	0.640	0.86		1
Total Penta-Furans	171		0.277	2.33	1.56		1
Total Hexa-Furans	337		0.162	2.33	1.25		1
Total Hepta-Furans	166		0.296	2.33	1.00		1

Client:	Integral Consulting, Incorporated	**Service Request:**	E1700943
Project:	San Jacinto Waste Pits/C643	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1700401-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	09/15/17 00:20
Prep Method:	Method Soxhlet	**Date Extracted:**	9/11/17
Sample Amount:	10.714g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P407862	**Blank File Name:**	P609091
ICAL Date:	09/01/17	**Cal Ver. File Name:**	P407852

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	927.895	46		25-164	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1153.862	58		25-181	1.56	1.183
13C-1,2,3,4,7,8-HxCDD	2000	1046.543	52		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1098.577	55		28-130	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	981.643	49		23-140	1.07	1.066
13C-OCDD	4000	1717.357	43		17-157	0.91	1.139
13C-2,3,7,8-TCDF	2000	863.504	43		24-169	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	1146.178	57		24-185	1.59	1.140
13C-2,3,4,7,8-PeCDF	2000	1154.919	58		21-178	1.56	1.173
13C-1,2,3,4,7,8-HxCDF	2000	1054.718	53		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1139.681	57		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1175.930	59		29-147	0.50	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1103.656	55		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1018.882	51		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1107.025	55		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	353.764	44		35-197	NA	1.021

Chromatograms and Selected Ion Monitoring

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Sample Response Summary

CLIENT ID.
SJWP-091117-C

Run #14 Filename P609095 Samp: 1 Inj: 1 Acquired: 14-SEP-17 21:30:15
Processed: 15-SEP-17 08:42:37 Sample ID: E1700943-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:38	1.269e+03	1.568e+03	0.81	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	31:16	1.013e+02	8.774e+01	1.15	no	no	1.058
3	Unk	2,3,4,7,8-PeCDF	32:16	1.097e+02	7.701e+01	1.42	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	35:05	1.504e+02	1.381e+02	1.09	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	35:11	1.033e+02	7.987e+01	1.29	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:43	9.329e+01	5.386e+01	1.73	no	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	36:31	5.966e+01	3.461e+01	1.72	no	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:48	7.690e+02	6.302e+02	1.22	no	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	39:13	6.310e+01	6.460e+01	0.98	yes	no	1.341
10	Unk	OCDF	41:39	2.452e+03	2.905e+03	0.84	yes	no	1.337
11	Unk	2,3,7,8-TCDD	27:32	2.810e+02	4.434e+02	0.63	no	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:34	5.527e+01	2.921e+01	1.89	no	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:52	9.881e+01	6.761e+01	1.46	no	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:57	2.245e+02	2.270e+02	0.99	no	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	36:12	2.894e+02	2.538e+02	1.14	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:44	8.215e+03	7.405e+03	1.11	yes	no	1.048
17	Unk	OCDD	41:29	2.165e+05	2.450e+05	0.88	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	26:37	5.856e+04	7.414e+04	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	31:16	1.004e+05	6.338e+04	1.58	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	32:15	9.580e+04	6.095e+04	1.57	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	4.186e+04	8.029e+04	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	35:11	5.106e+04	9.711e+04	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:43	4.883e+04	9.230e+04	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	36:29	4.789e+04	9.072e+04	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:48	3.408e+04	7.697e+04	0.44	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:12	3.121e+04	7.146e+04	0.44	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	27:30	4.808e+04	6.110e+04	0.79	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:32	7.367e+04	4.707e+04	1.57	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:51	6.548e+04	5.026e+04	1.30	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:57	6.104e+04	5.166e+04	1.18	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:44	5.004e+04	4.715e+04	1.06	yes	no	0.884
32	IS	13C-OCDD	41:28	6.720e+04	7.653e+04	0.88	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:49	8.455e+04	1.076e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:11	1.246e+05	1.003e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:32	4.624e+04				no	1.072

$$\text{OCDD} = \frac{(2.165e+05 + 2.450e+05) \times 4000 \text{ pg} \times 1}{(6.720e+04 + 7.653e+04) \times 10.784 \text{ g} \times 67.3 / 100 \times 1.120} = 1580 \text{ ng/kg}$$

MM 09/18/17

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SJWP-091117-COMP

Run #14 Filename P609095 Samp: 1 Inj: 1 Acquired: 14-SEP-17 21:30:15
Processed: 15-SEP-17 08:42:37 LAB. ID: E1700943-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.78e+05	2.12e+02	8.4e+02	2.20e+05	8.36e+02	2.6e+02
2	1,2,3,7,8-PeCDF	1.90e+04	1.81e+03	1.1e+01	1.46e+04	2.81e+03	5.2e+00
3	2,3,4,7,8-PeCDF	1.80e+04	1.81e+03	1.0e+01	1.45e+04	2.81e+03	5.2e+00
4	1,2,3,4,7,8-HxCDF	3.07e+04	6.32e+02	4.9e+01	2.58e+04	7.92e+02	3.3e+01
5	1,2,3,6,7,8-HxCDF	1.93e+04	6.32e+02	3.1e+01	1.45e+04	7.92e+02	1.8e+01
6	2,3,4,6,7,8-HxCDF	2.21e+04	6.32e+02	3.5e+01	1.12e+04	7.92e+02	1.4e+01
7	1,2,3,7,8,9-HxCDF	1.00e+04	6.32e+02	1.6e+01	5.43e+03	7.92e+02	6.9e+00
8	1,2,3,4,6,7,8-HpCDF	1.52e+05	3.59e+03	4.2e+01	1.33e+05	7.84e+02	1.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.18e+04	3.59e+03	3.3e+00	1.17e+04	7.84e+02	1.5e+01
10	OCDF	3.70e+05	1.68e+02	2.2e+03	4.43e+05	9.76e+02	4.5e+02
11	2,3,7,8-TCDD	5.57e+04	1.28e+03	4.4e+01	7.65e+04	8.80e+02	8.7e+01
12	1,2,3,7,8-PeCDD	1.04e+04	1.59e+03	6.5e+00	7.55e+03	8.56e+02	8.8e+00
13	1,2,3,4,7,8-HxCDD	2.48e+04	4.56e+02	5.4e+01	1.54e+04	1.77e+03	8.7e+00
14	1,2,3,6,7,8-HxCDD	4.82e+04	4.56e+02	1.1e+02	5.04e+04	1.77e+03	2.9e+01
15	1,2,3,7,8,9-HxCDD	5.45e+04	4.56e+02	1.2e+02	5.60e+04	1.77e+03	3.2e+01
16	1,2,3,4,6,7,8-HpCDD	1.57e+06	3.03e+03	5.2e+02	1.43e+06	2.82e+03	5.0e+02
17	OCDD	3.38e+07	1.48e+02	2.3e+05	3.85e+07	3.28e+02	1.2e+05
18	13C-2,3,7,8-TCDF	9.08e+06	1.03e+04	8.8e+02	1.15e+07	4.61e+03	2.5e+03
19	13C-1,2,3,7,8-PeCDF	1.77e+07	1.61e+03	1.1e+04	1.11e+07	7.40e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	1.79e+07	1.61e+03	1.1e+04	1.14e+07	7.40e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	8.27e+06	1.96e+02	4.2e+04	1.59e+07	5.08e+02	3.1e+04
22	13C-1,2,3,6,7,8-HxCDF	1.01e+07	1.96e+02	5.2e+04	1.91e+07	5.08e+02	3.8e+04
23	13C-2,3,4,6,7,8-HxCDF	1.04e+07	1.96e+02	5.3e+04	1.97e+07	5.08e+02	3.9e+04
24	13C-1,2,3,7,8,9-HxCDF	9.66e+06	1.96e+02	4.9e+04	1.83e+07	5.08e+02	3.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.13e+06	4.70e+03	1.5e+03	1.61e+07	3.81e+03	4.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.96e+06	4.70e+03	1.3e+03	1.35e+07	3.81e+03	3.6e+03
27	13C-2,3,7,8-TCDD	8.18e+06	9.98e+03	8.2e+02	1.04e+07	4.12e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.35e+07	1.12e+03	1.2e+04	8.65e+06	8.56e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	1.37e+07	2.17e+03	6.3e+03	1.11e+07	1.09e+03	1.0e+04
30	13C-1,2,3,6,7,8-HxCDD	1.24e+07	2.17e+03	5.7e+03	1.01e+07	1.09e+03	9.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+07	1.14e+03	8.9e+03	9.51e+06	1.64e+02	5.8e+04
32	13C-OCDD	1.04e+07	1.92e+02	5.4e+04	1.20e+07	2.12e+02	5.7e+04
33	13C-1,2,3,4-TCDD	1.39e+07	9.98e+03	1.4e+03	1.78e+07	4.12e+03	4.3e+03
34	13C-1,2,3,7,8,9-HxCDD	2.55e+07	2.17e+03	1.2e+04	2.07e+07	1.09e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	7.64e+06	9.64e+02	7.9e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P609095 Sample:1 Injection:1 Function:1

Acquired: 14-SEP-17 21:30:15 Processed: 15-SEP-17 08:42:37

Mass: 303.9020 305.8990 Tot Response: 4.77e+03 RRF: 1.020

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	23:23	4.58e+01	5.37e+01	0.85	yes	9.96e+01	n	n
2	24:20	9.25e+01	1.14e+02	0.81	yes	2.07e+02	n	n
3	25:04	6.00e+01	8.35e+01	0.72	yes	1.43e+02	n	n
4	25:09	7.74e+01	1.15e+02	0.67	yes	1.93e+02	n	n
5	25:41	5.98e+02	6.91e+02	0.87	yes	1.29e+03	n	n
6	26:38	1.27e+03	1.57e+03	0.81	yes	2.84e+03	2,3,7,8-TCDF n	n

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Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P609095 Sample:1 Injection:1 Function:1

Acquired: 14-SEP-17 21:30:15 Processed: 15-SEP-17 08:42:37

Mass: 319.8970 321.8940 Tot Response: 7.99e+02 RRF: 1.055

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:02	1.04e+02	1.35e+02	0.77	yes	2.39e+02	n	n
2	25:17	1.90e+02	2.17e+02	0.88	yes	4.07e+02	n	n
3	26:48	6.99e+01	8.27e+01	0.85	yes	1.53e+02	n	n

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Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 39 Totals Name: Total Penta-Furans2

Run: 14 File: P609095 Sample:1 Injection:1 Function:2

Acquired: 14-SEP-17 21:30:15 Processed: 15-SEP-17 08:42:37

Mass: 339.8600 341.8570 Tot Response: 6.85e+02 RRF: 1.036

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:17	2.56e+02	1.58e+02	1.62	yes	4.15e+02	n	n
2	31:32	5.17e+01	3.19e+01	1.62	yes	8.36e+01	n	n
3	32:16	1.10e+02	7.70e+01	1.42	yes	1.87e+02	2,3,4,7,8-PeCDF n	n

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Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 14 File: P609095 Sample:1 Injection:1 Function:2

Acquired: 14-SEP-17 21:30:15 Processed: 15-SEP-17 08:42:37

Mass: 355.8550 357.8520 Tot Response: 8.66e+02 RRF: 0.9636

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:48	2.81e+02	1.67e+02	1.69	yes	4.48e+02		n	n
2	31:30	5.20e+01	3.11e+01	1.67	yes	8.30e+01		n	n
3	31:47	2.12e+02	1.23e+02	1.72	yes	3.35e+02		n	y

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Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P609095 Sample:1 Injection:1 Function:3

Acquired: 14-SEP-17 21:30:15 Processed: 15-SEP-17 08:42:37

Mass: 373.8210 375.8180 Tot Response: 1.85e+03 RRF: 1.207

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:04	3.78e+02	2.83e+02	1.33	yes	6.61e+02	n	n
2	34:26	1.83e+01	1.71e+01	1.07	yes	3.54e+01	n	n
3	34:37	3.60e+02	2.67e+02	1.35	yes	6.27e+02	n	n
4	34:58	2.94e+01	2.34e+01	1.26	yes	5.28e+01	n	n
5	35:05	1.50e+02	1.38e+02	1.09	yes	2.88e+02	1,2,3,4,7,8-HxCDF n	n
6	35:11	1.03e+02	7.99e+01	1.29	yes	1.83e+02	1,2,3,6,7,8-HxCDF n	n

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Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P609095 Sample:1 Injection:1 Function:3

Acquired: 14-SEP-17 21:30:15 Processed: 15-SEP-17 08:42:37

Mass: 389.8160 391.8130 Tot Response: 3.22e+03 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:15	1.41e+03	1.06e+03	1.33	yes	2.47e+03		n	n
2	36:01	6.82e+00	6.07e+00	1.13	yes	1.29e+01		n	n
3	36:07	1.04e+02	8.45e+01	1.23	yes	1.88e+02		n	n
4	36:12	2.89e+02	2.54e+02	1.14	yes	5.43e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P609095 Sample:1 Injection:1 Function:4

Acquired: 14-SEP-17 21:30:15 Processed: 15-SEP-17 08:42:37

Mass: 407.7820 409.7790 Tot Response: 2.59e+03 RRF: 1.368

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:13	1.25e+03	1.21e+03	1.04	yes	2.46e+03	n	n
2	39:13	6.31e+01	6.46e+01	0.98	yes	1.28e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P609095 Sample:1 Injection:1 Function:4

Acquired: 14-SEP-17 21:30:15 Processed: 15-SEP-17 08:42:37

Mass: 423.7770 425.7740 Tot Response: 1.56e+04 RRF: 1.048

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:44	8.21e+03	7.41e+03	1.11	yes	1.56e+04	1,2,3,4,6,7,8-HpCDD	n	n

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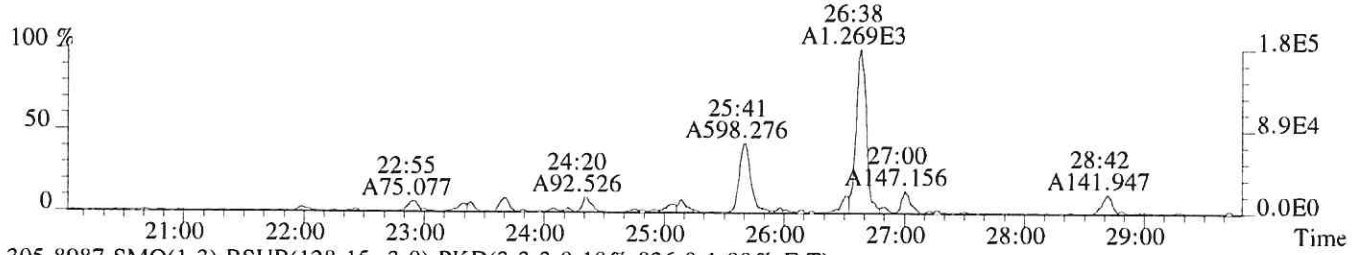
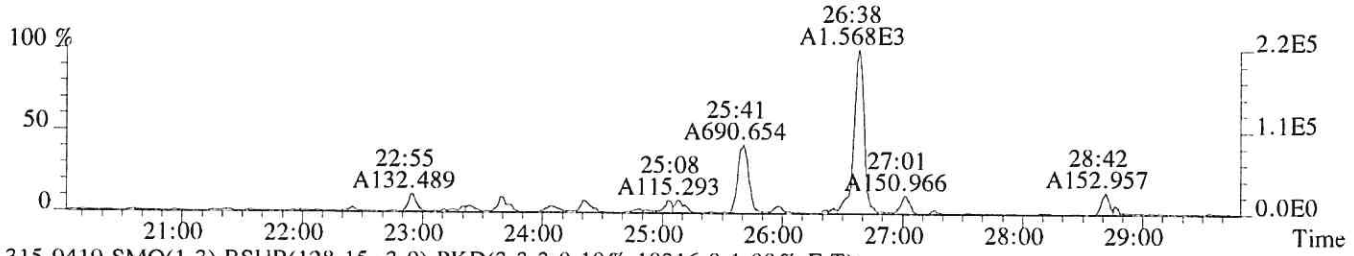
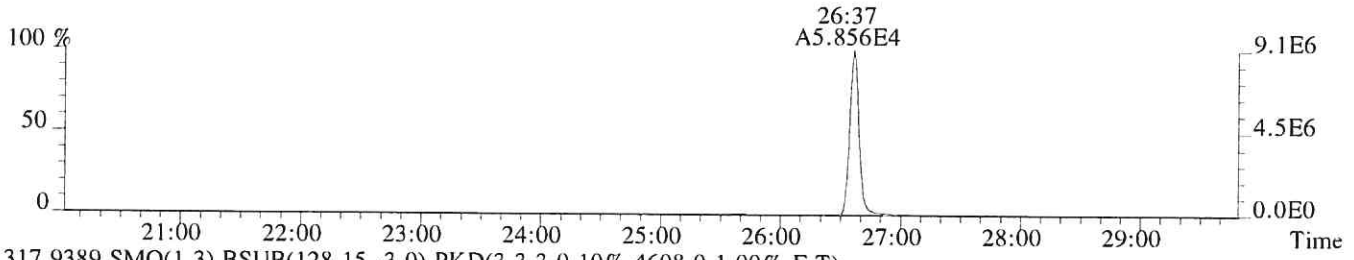
File:P609095 #1-694 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



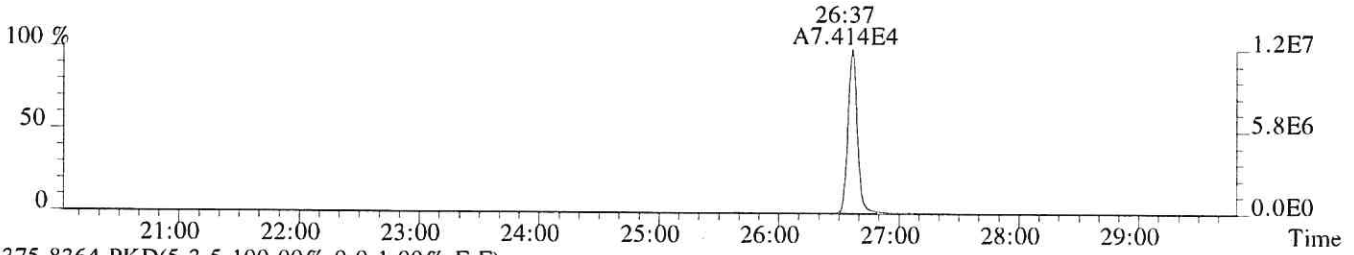
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



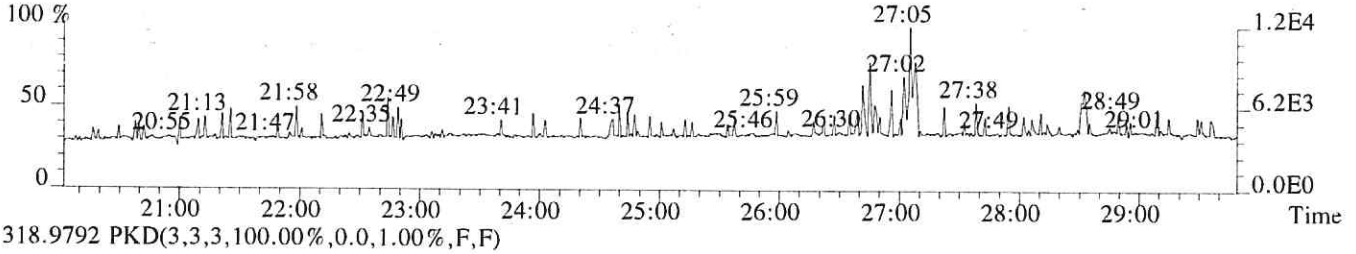
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10316.0,1.00%,F,T)



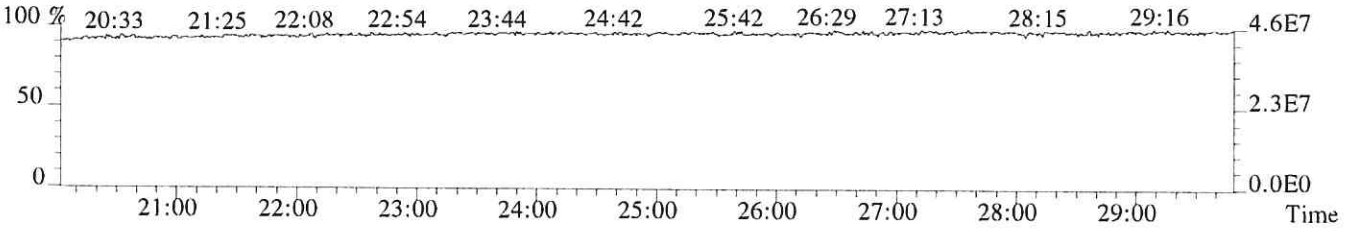
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4608.0,1.00%,F,T)



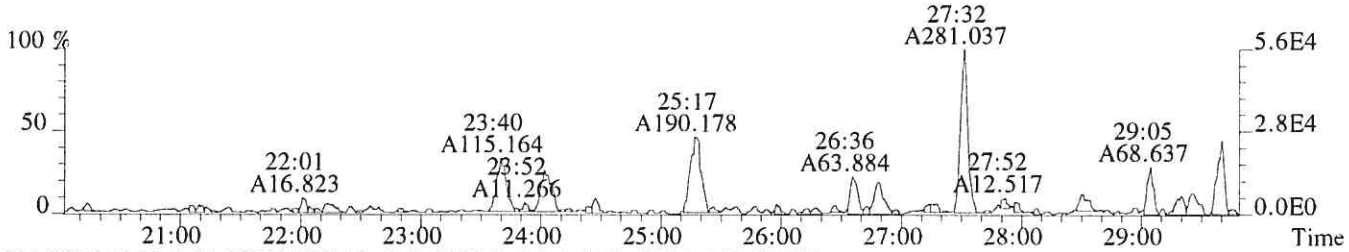
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



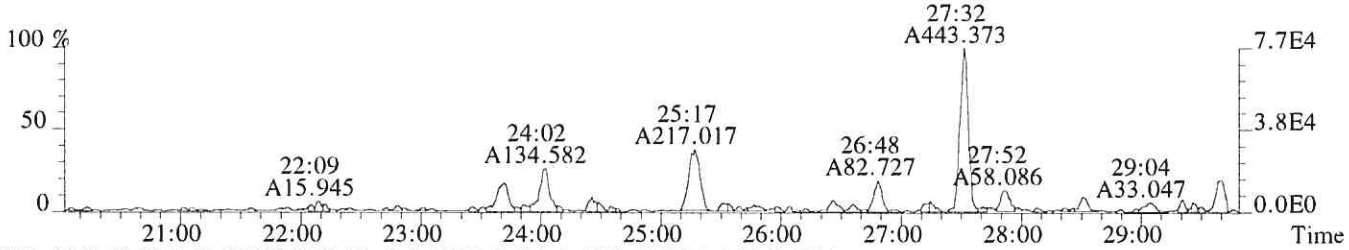
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



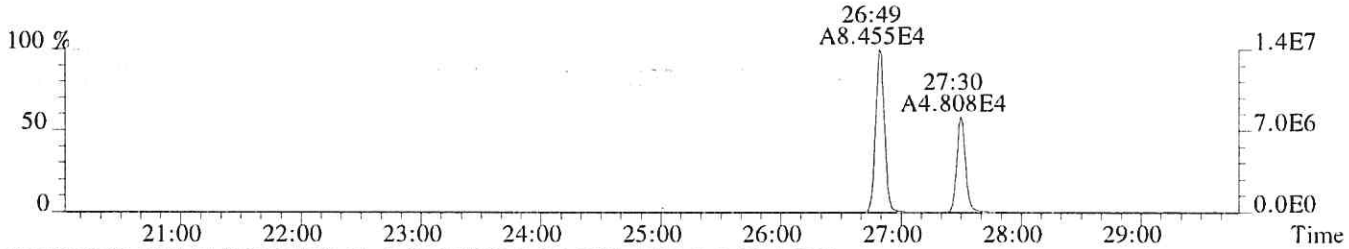
File:P609095 #1-694 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



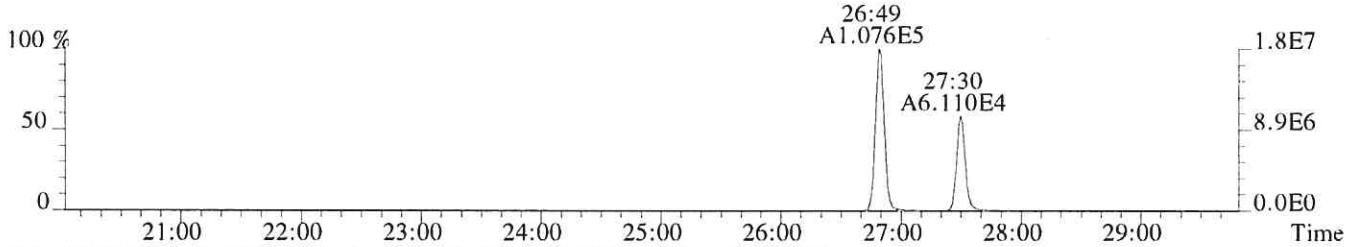
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



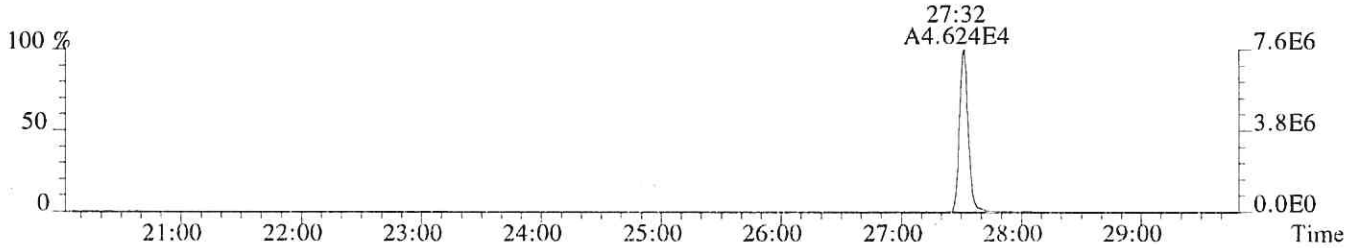
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9976.0,1.00%,F,T)



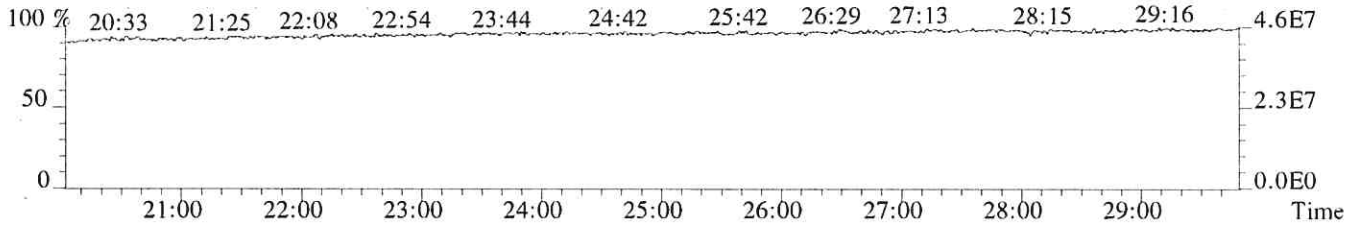
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4124.0,1.00%,F,T)



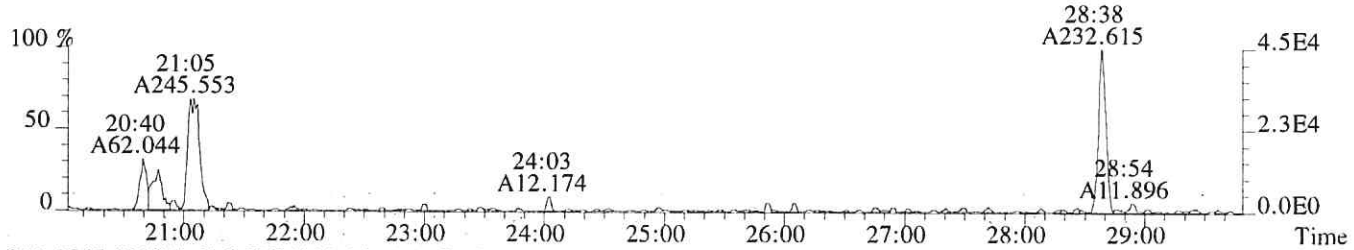
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



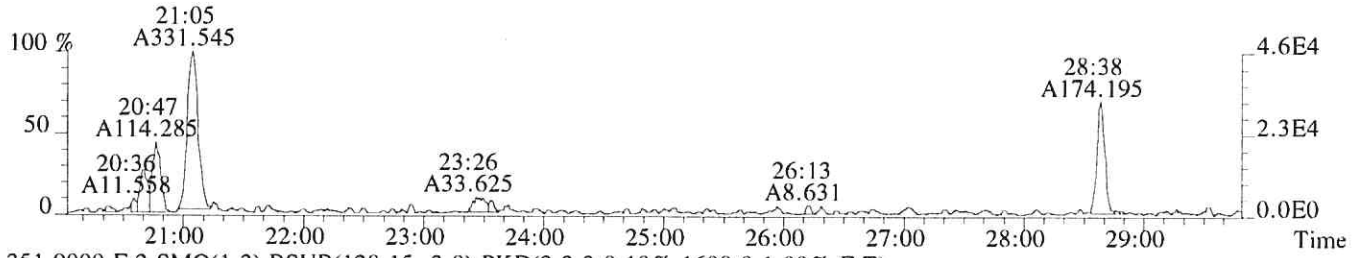
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



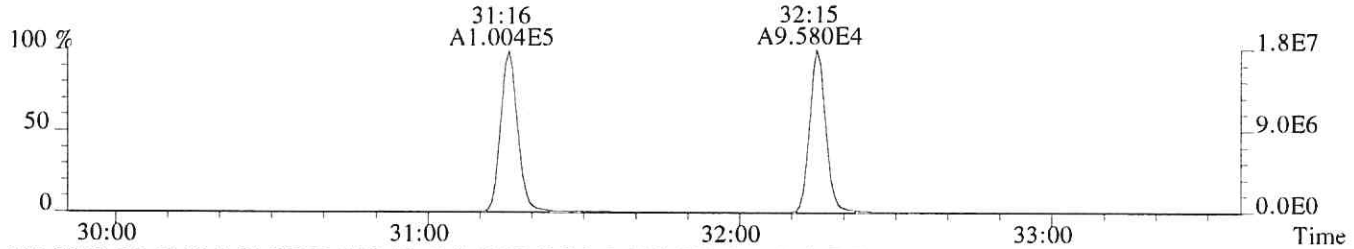
File:P609095 #1-694 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



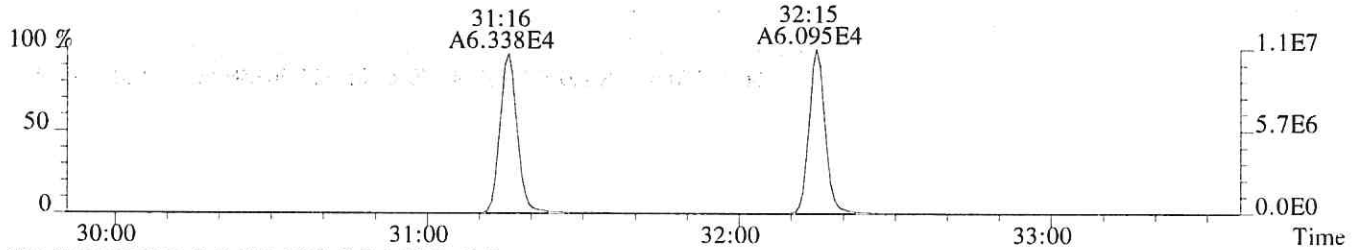
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



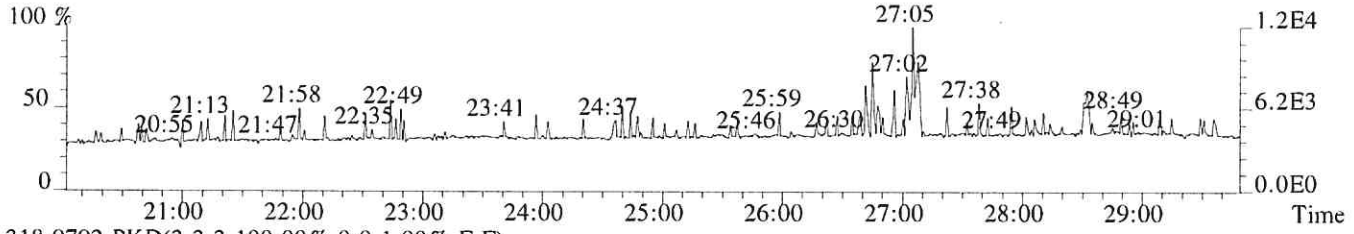
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



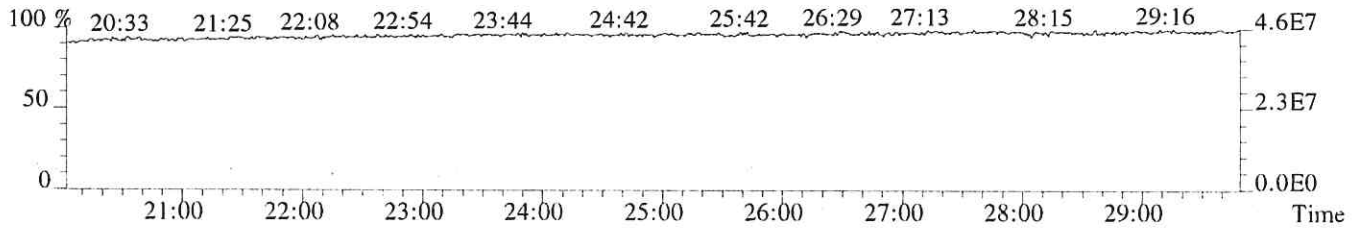
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



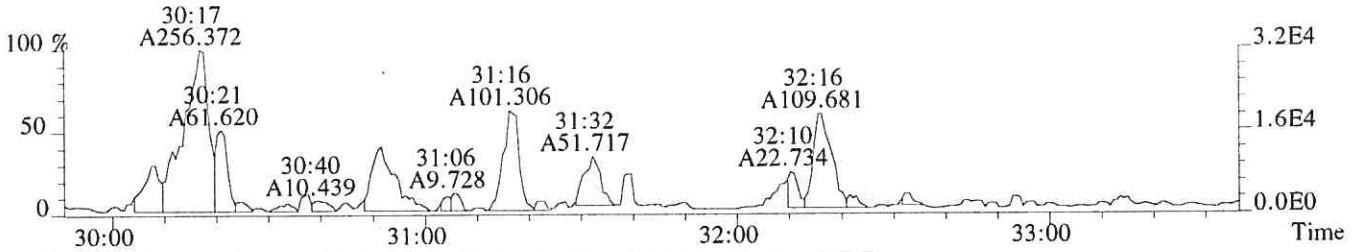
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



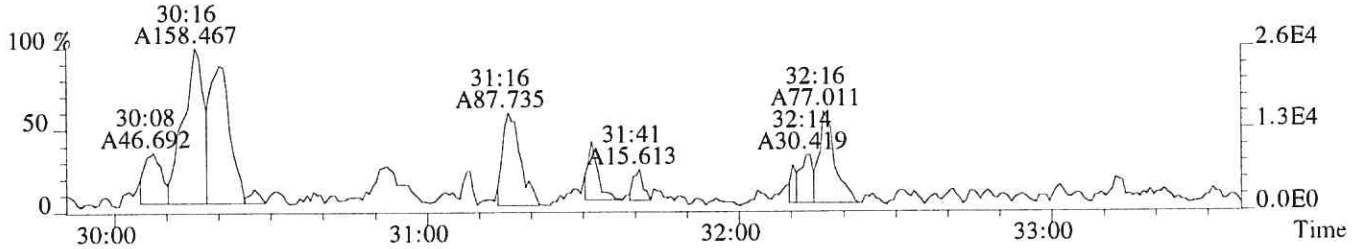
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



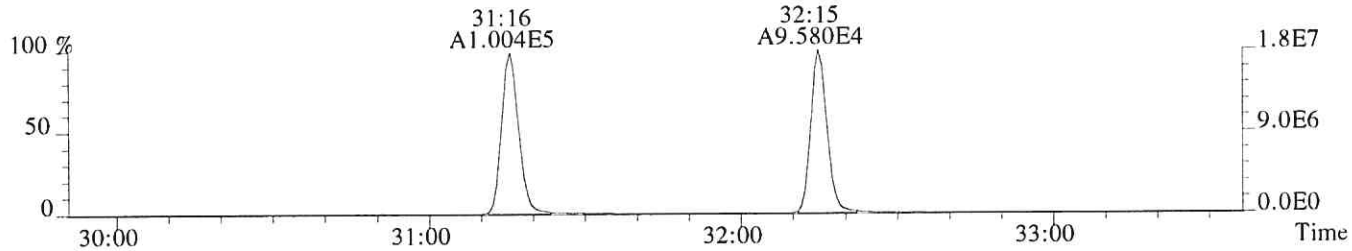
File:P609095 #1-339 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1808.0,1.00%,F,T)



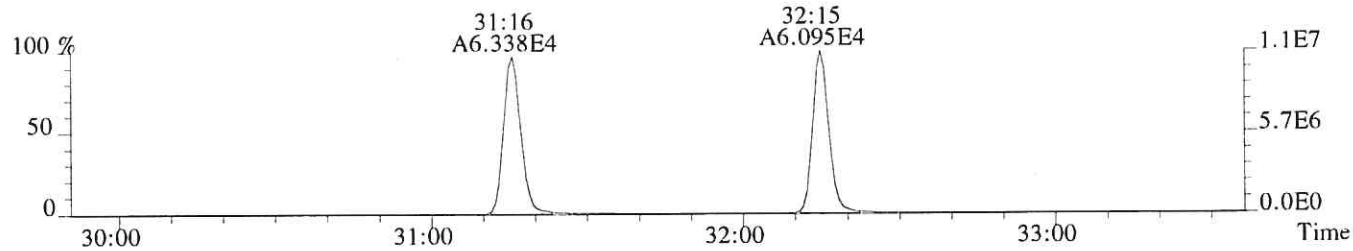
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2812.0,1.00%,F,T)



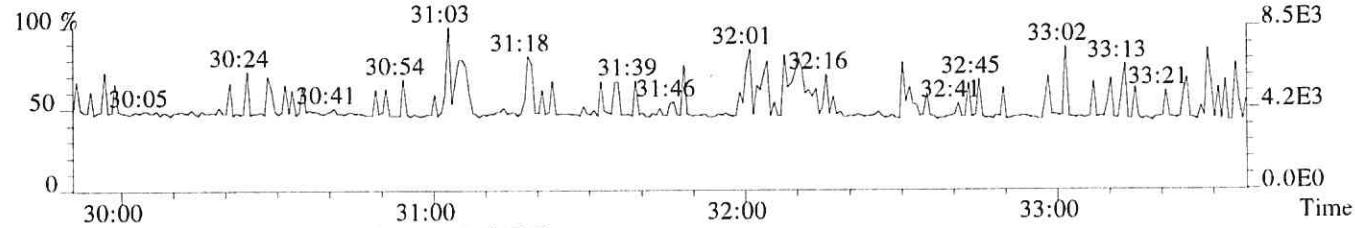
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



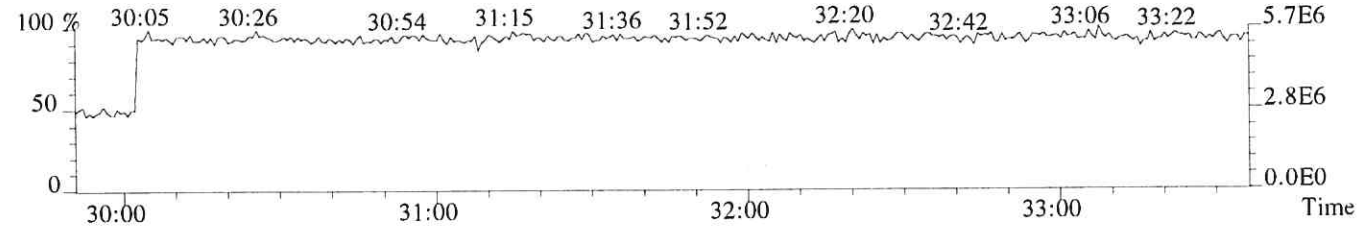
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



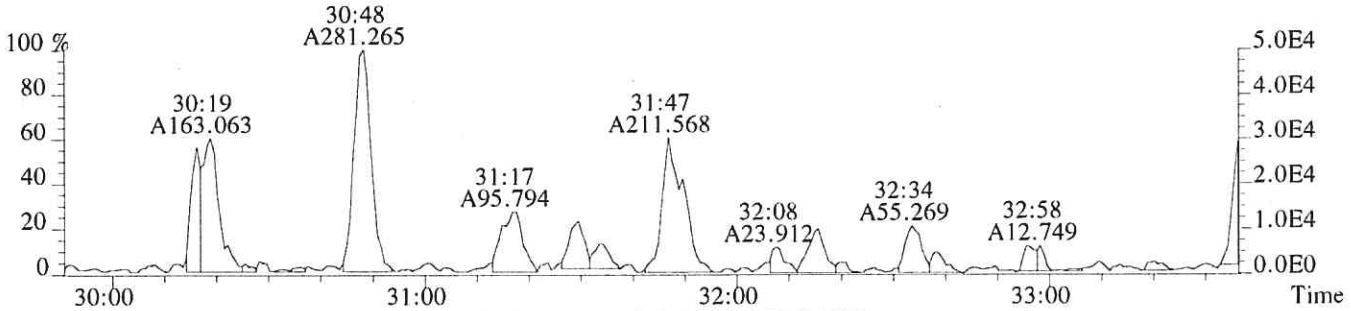
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



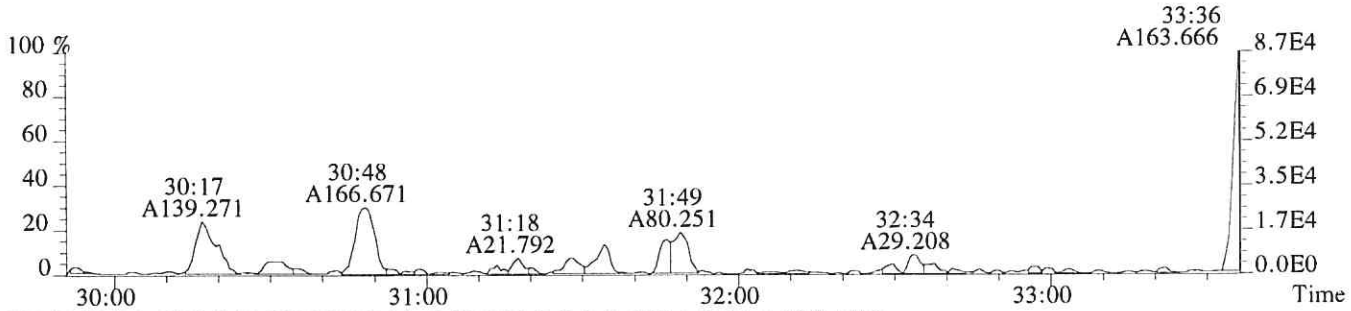
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



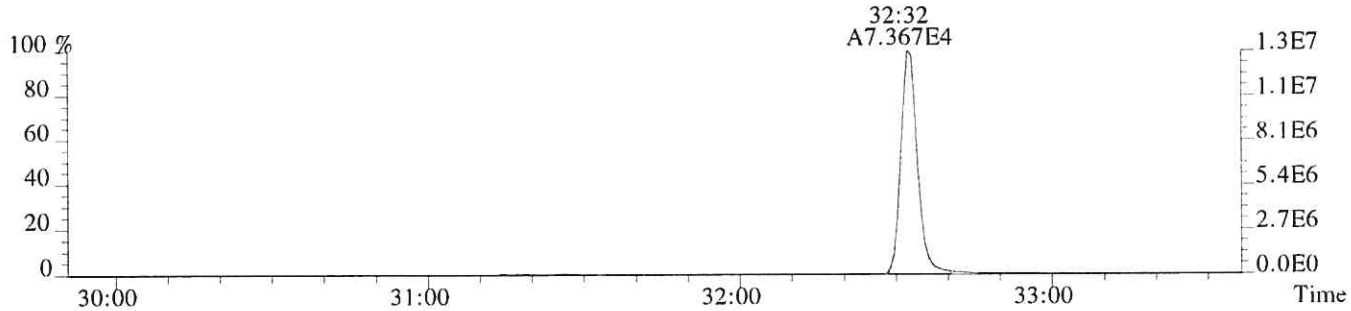
File:P609095 #1-339 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



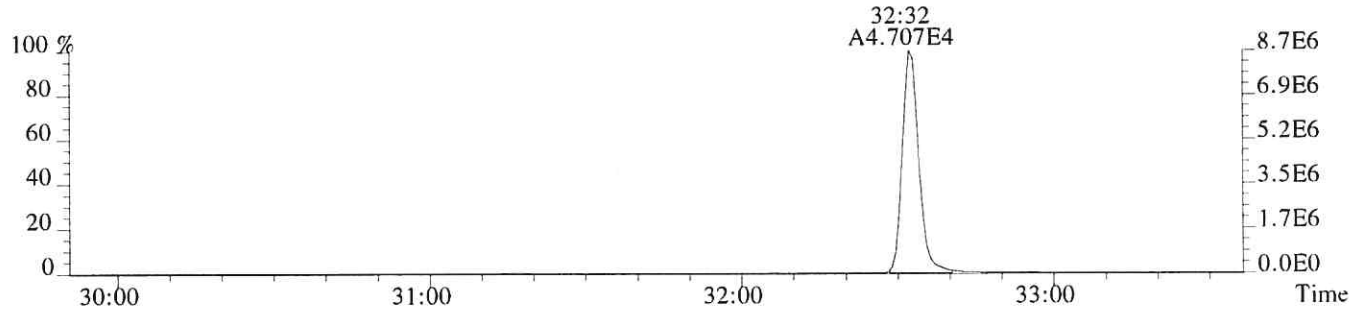
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



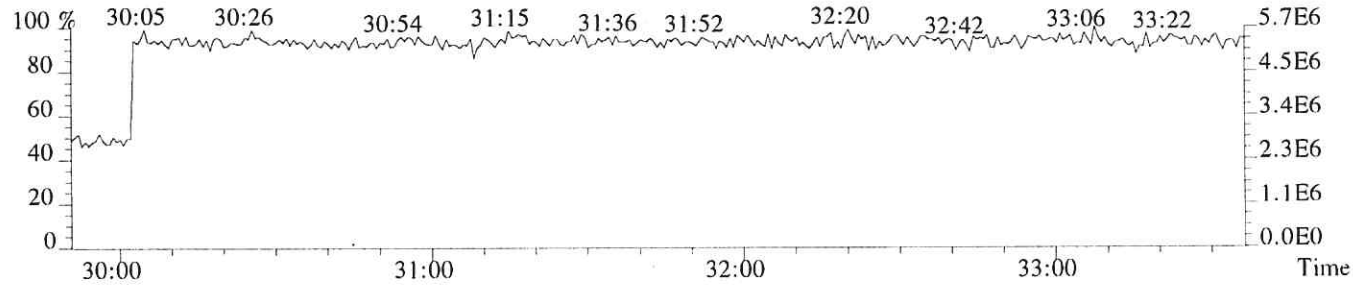
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



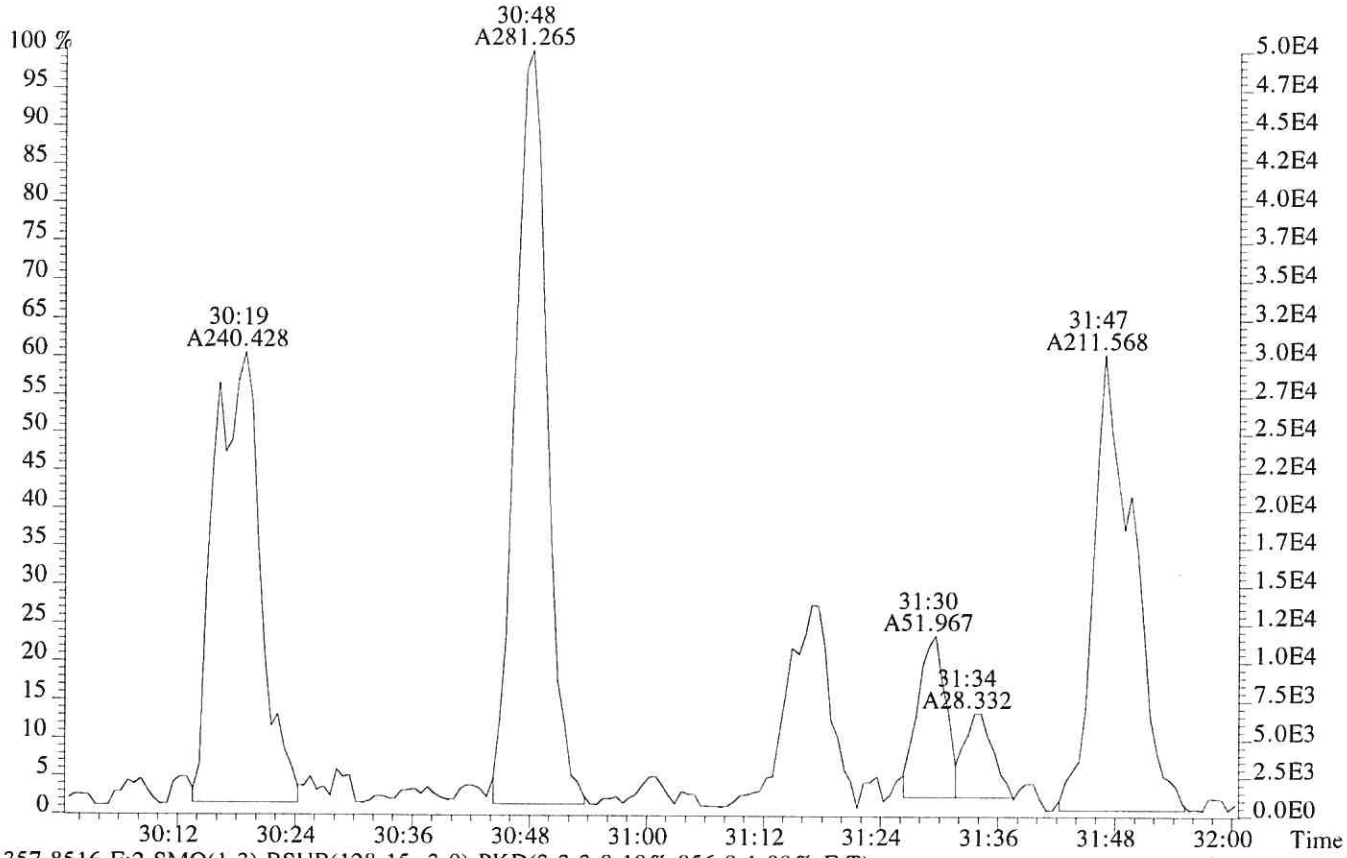
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



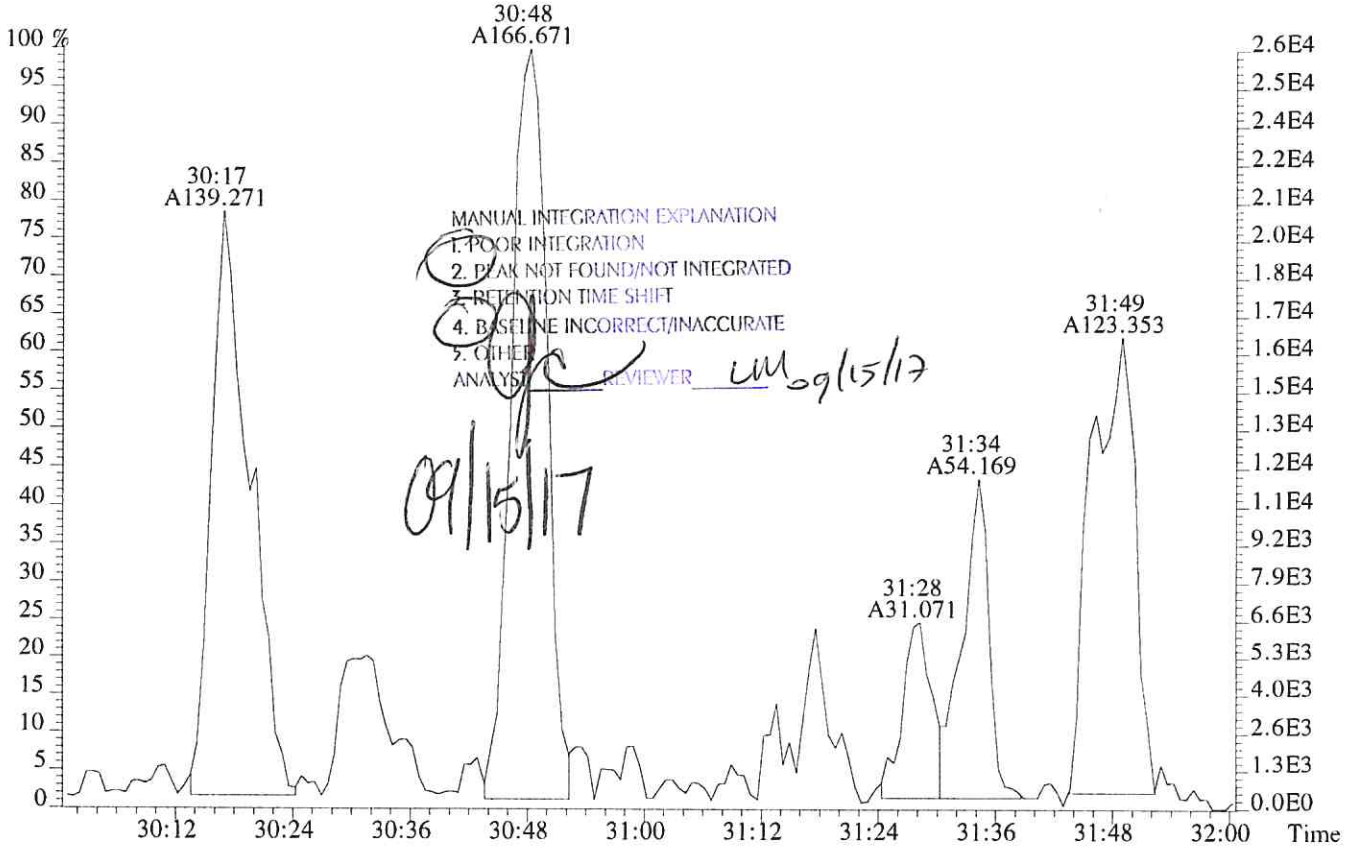
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P609095 #1-339 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



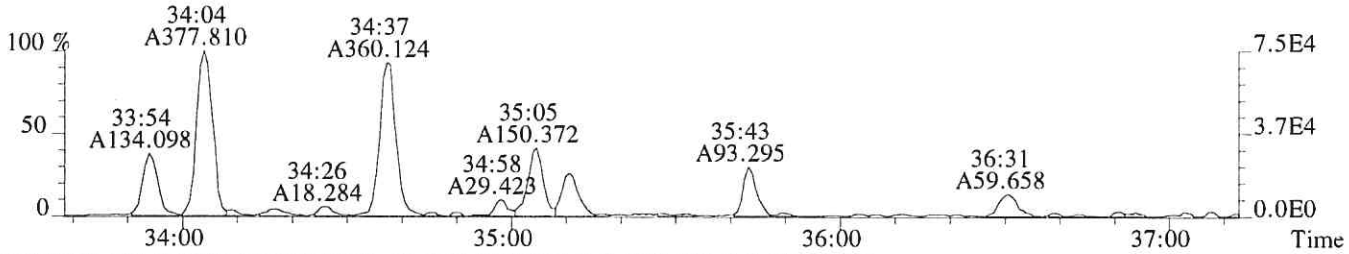
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



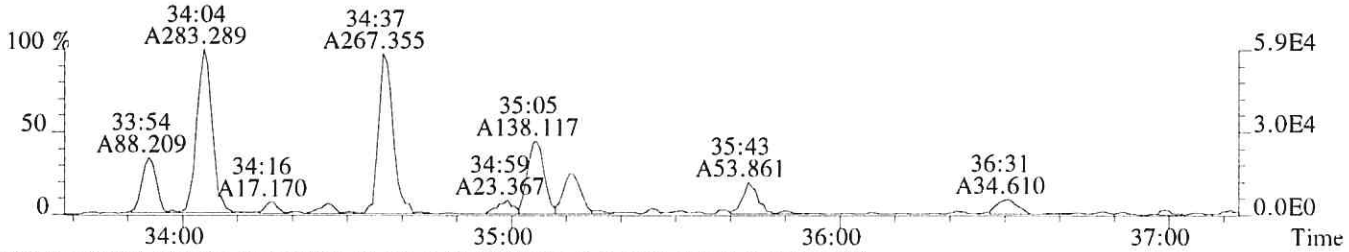
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LM 09/15/17

09/15/17

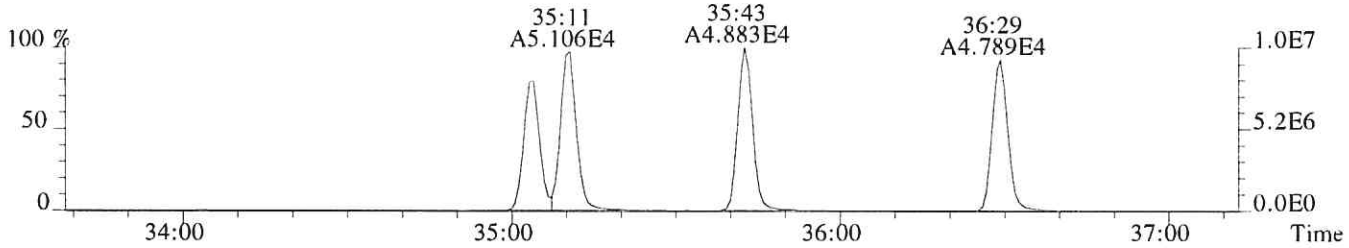
File:P609095 #1-322 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



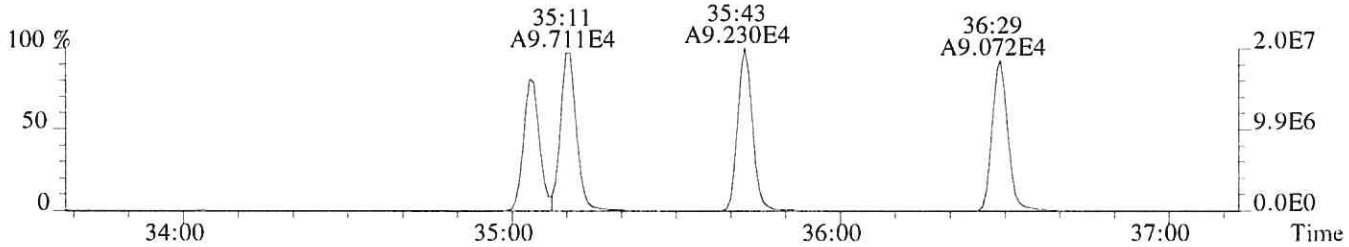
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



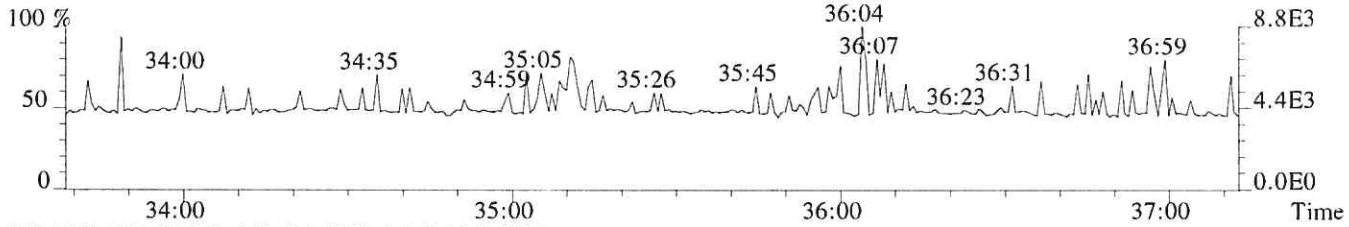
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



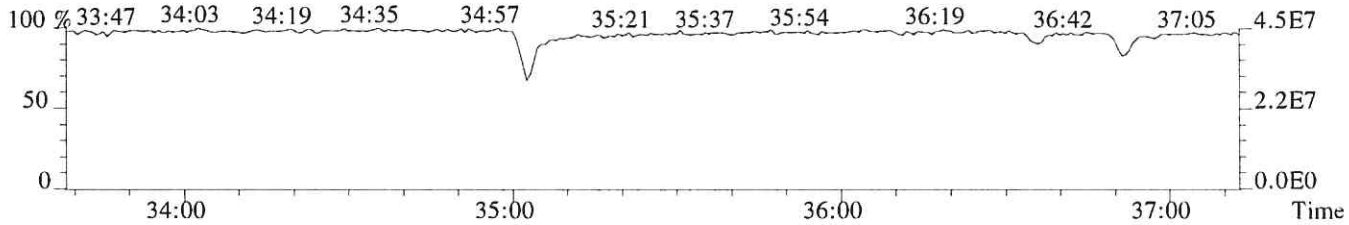
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



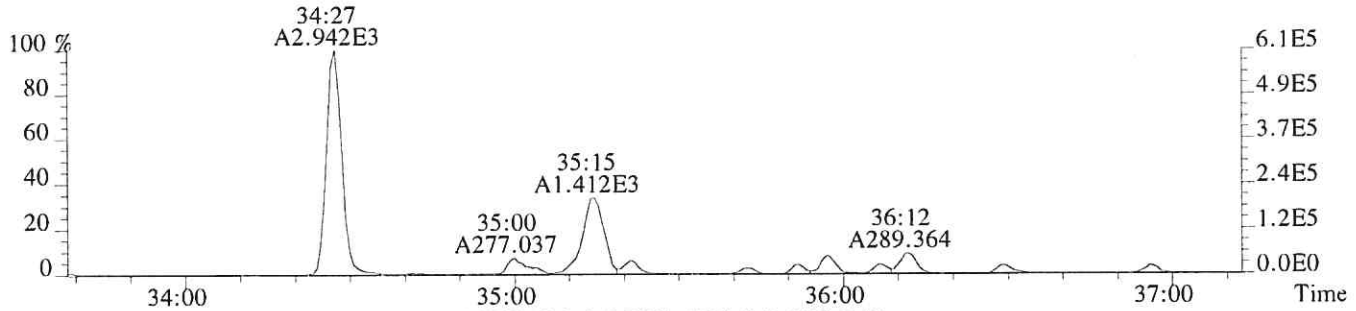
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



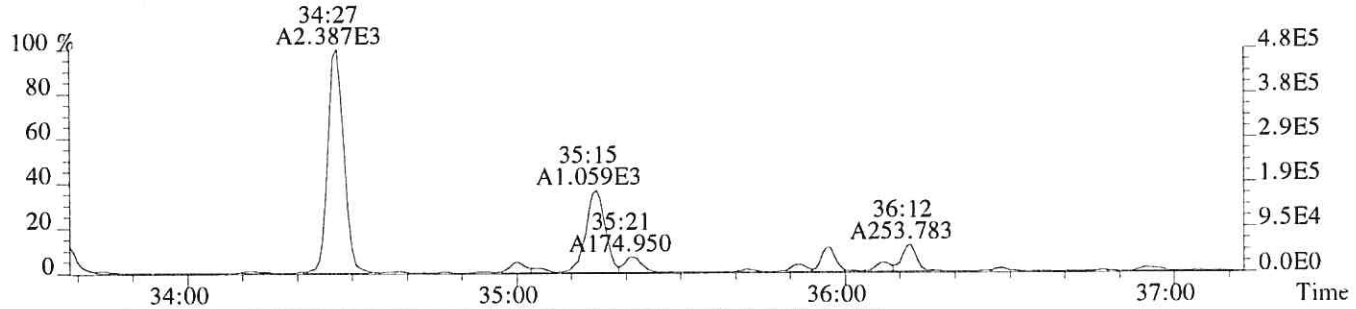
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



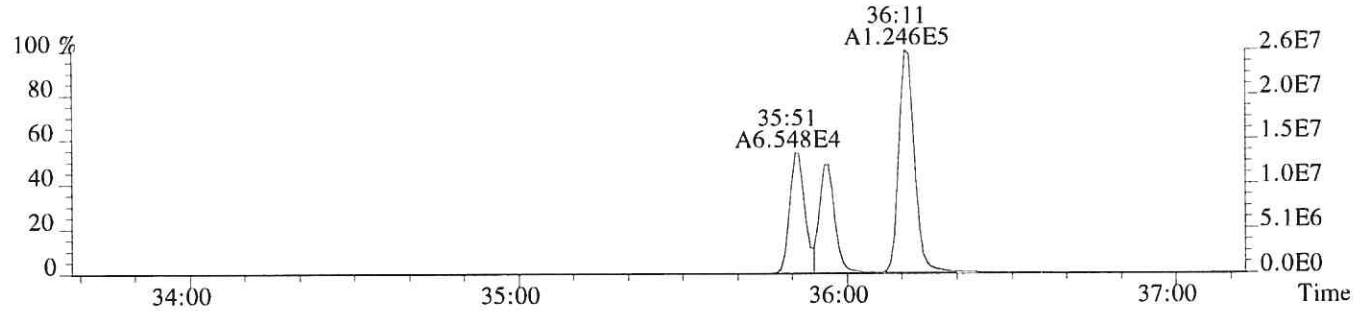
File:P609095 #1-322 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



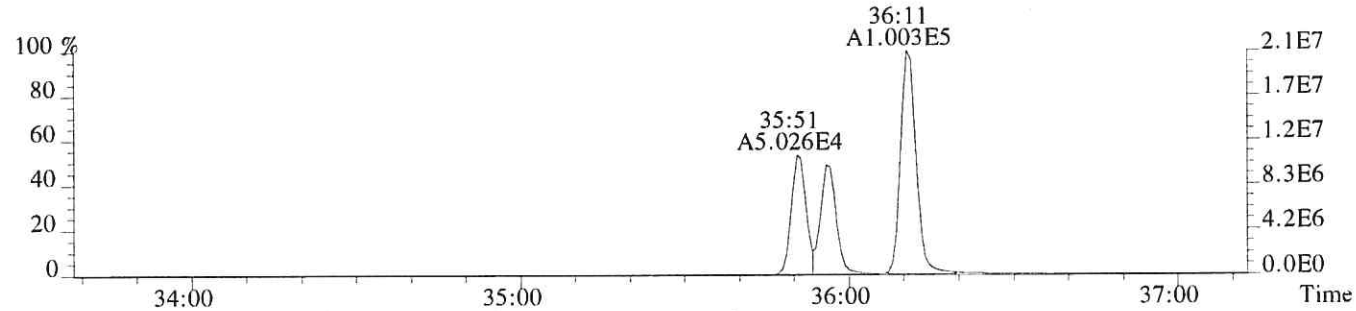
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



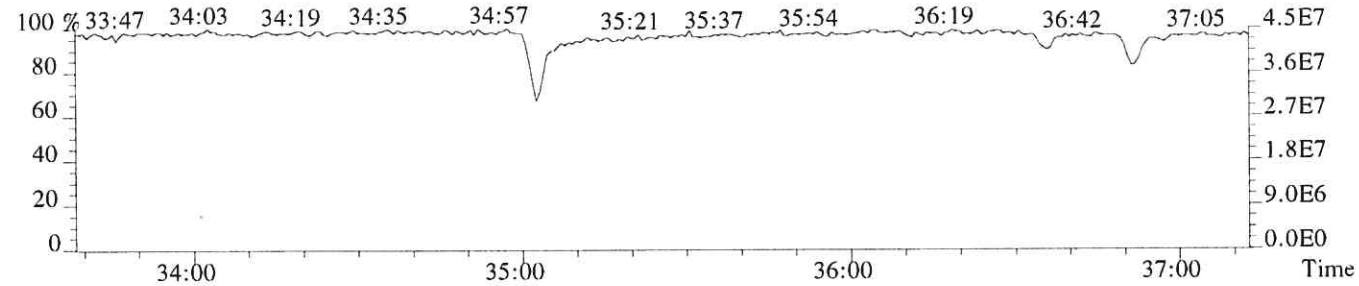
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.40%,F,T)



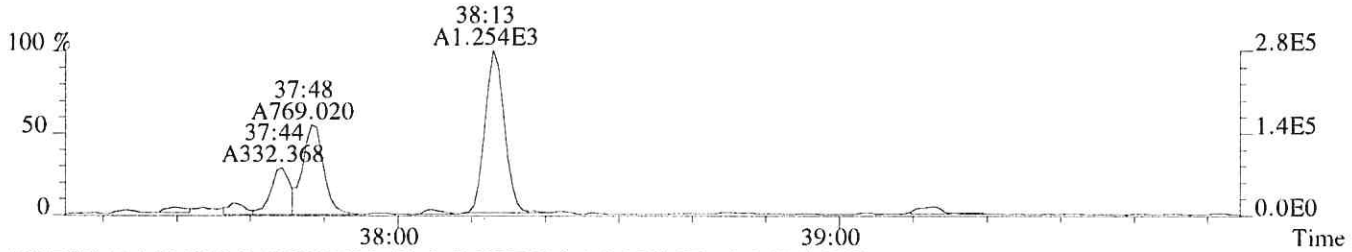
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.40%,F,T)



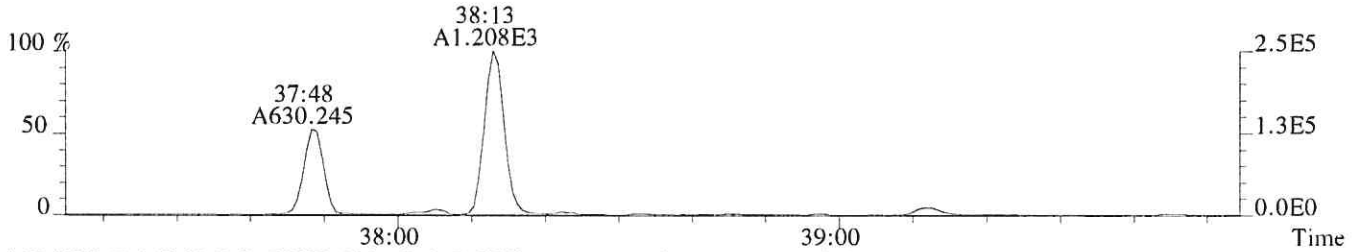
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



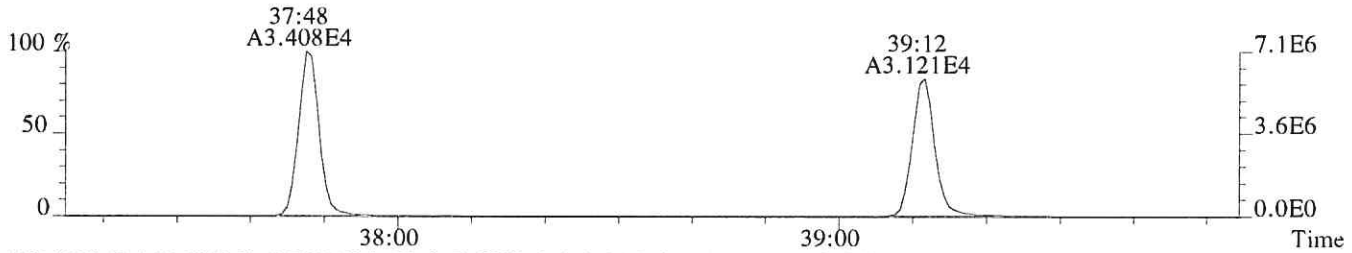
File:P609095 #1-240 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3592.0,0.50%,F,T)



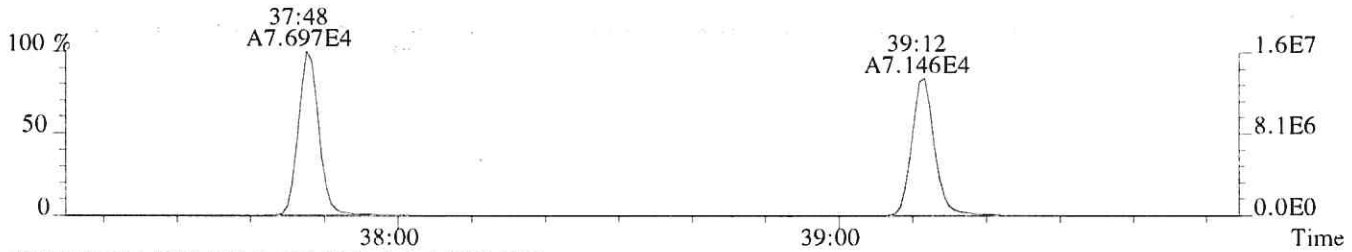
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.50%,F,T)



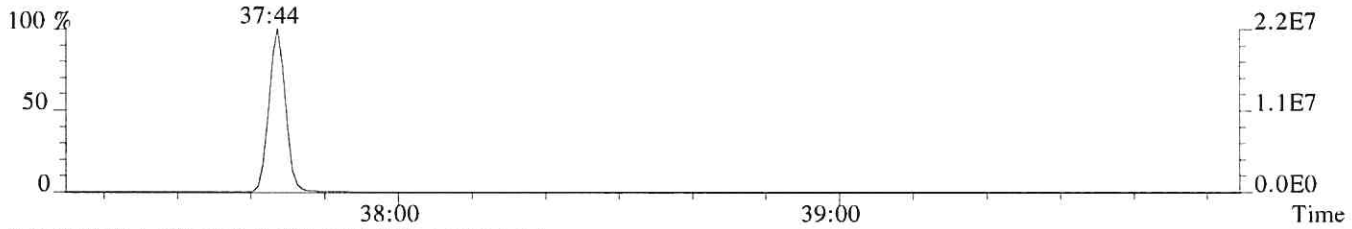
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4704.0,0.50%,F,T)



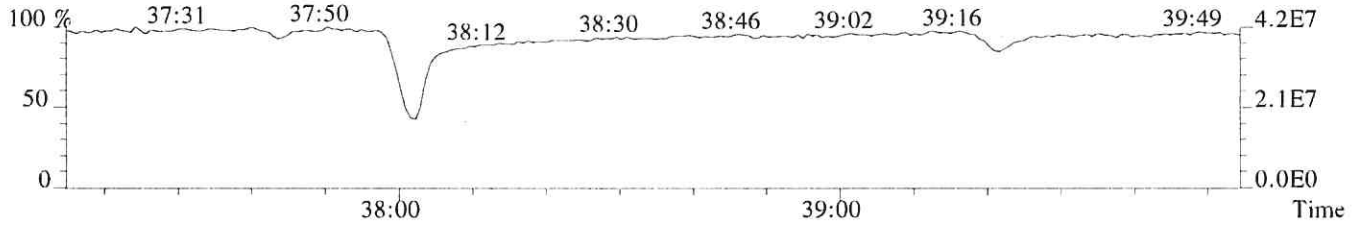
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3808.0,0.50%,F,T)



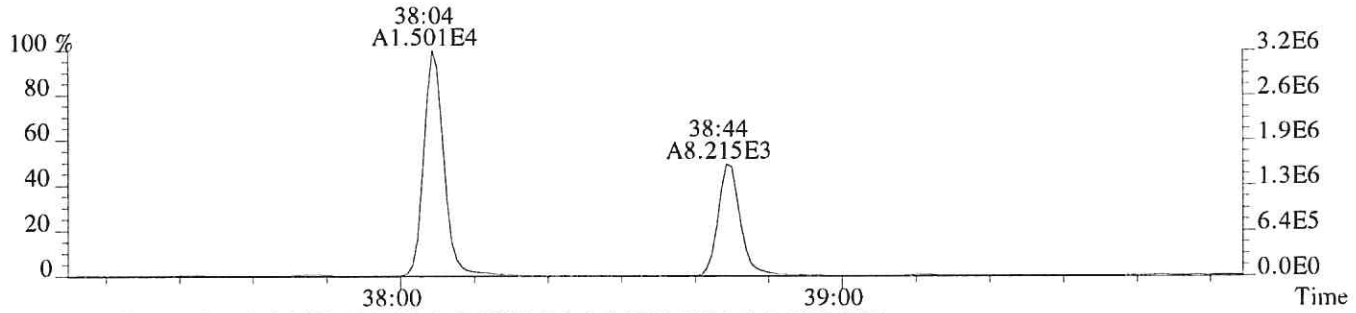
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



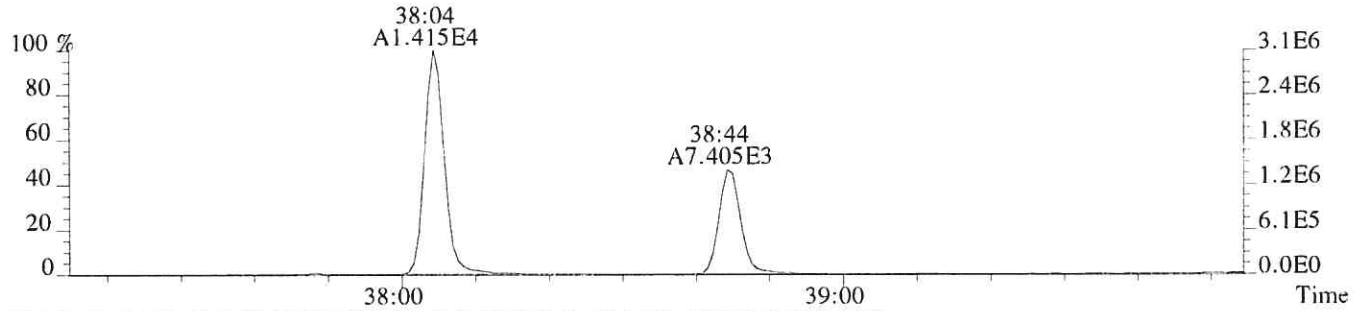
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



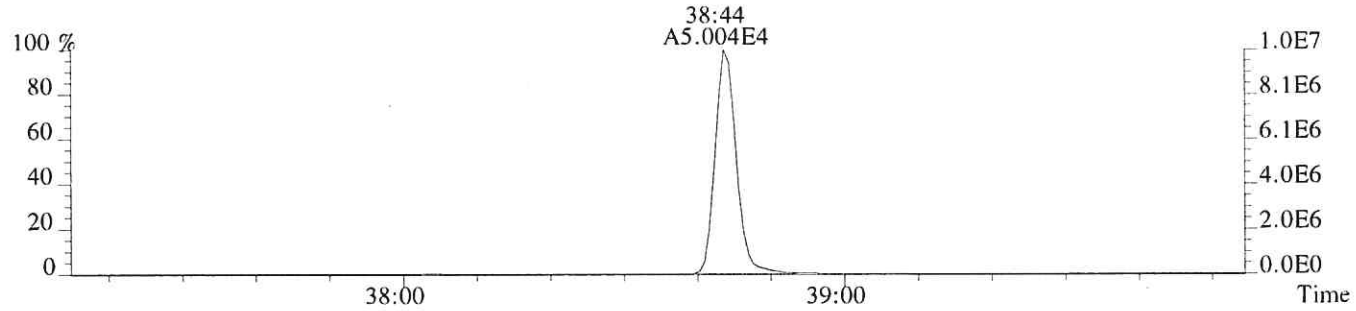
File:P609095 #1-240 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3028.0,0.40%,F,T)



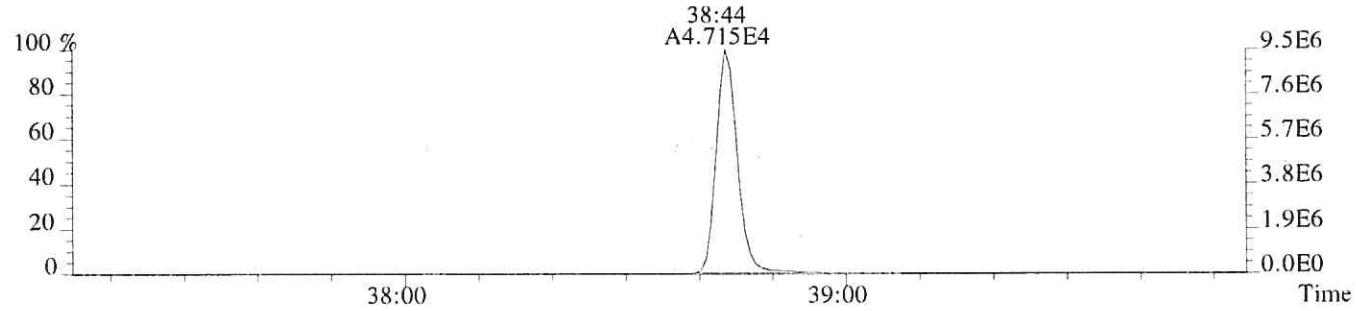
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2824.0,0.40%,F,T)



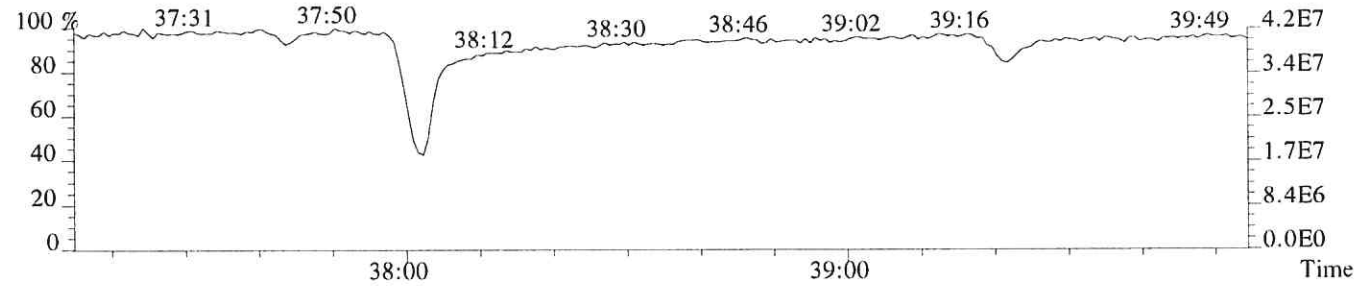
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



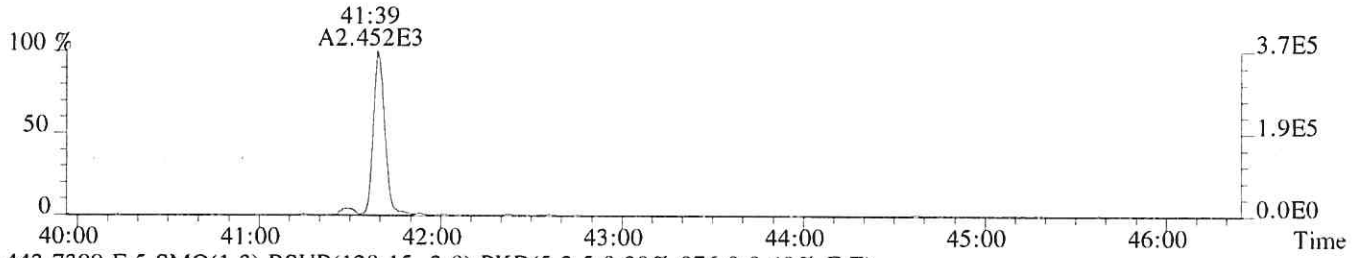
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



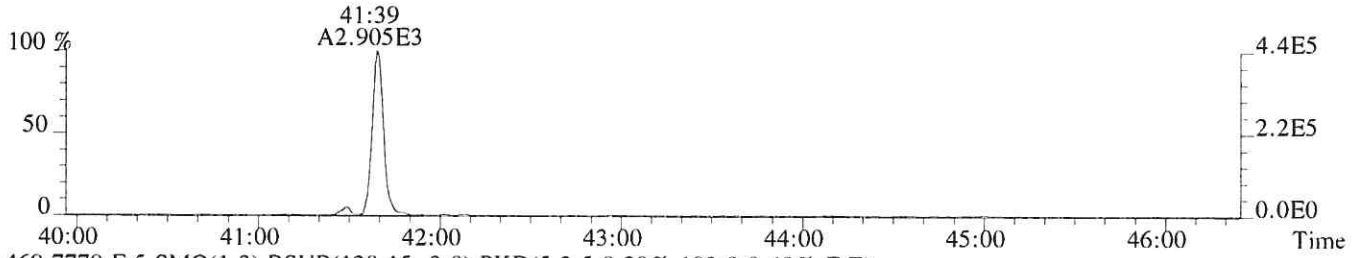
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



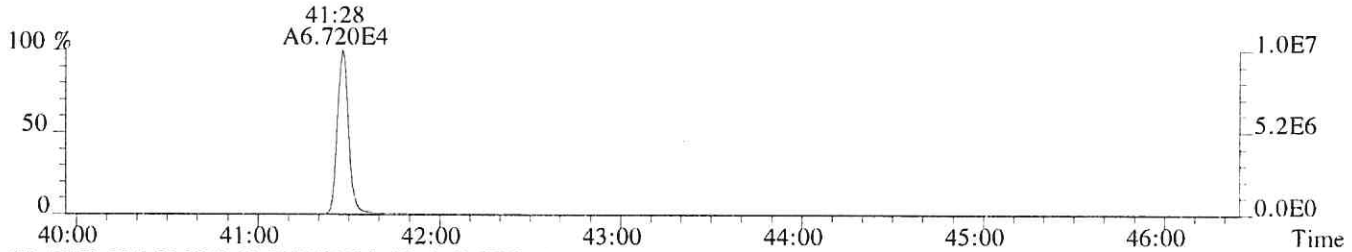
File:P609095 #1-583 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



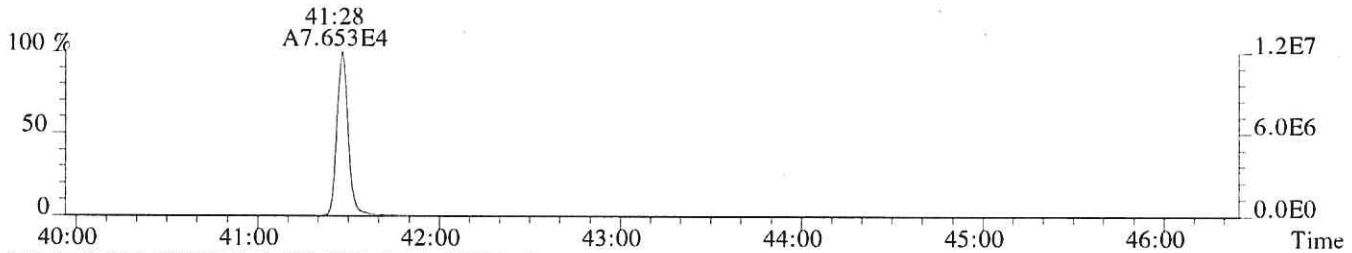
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



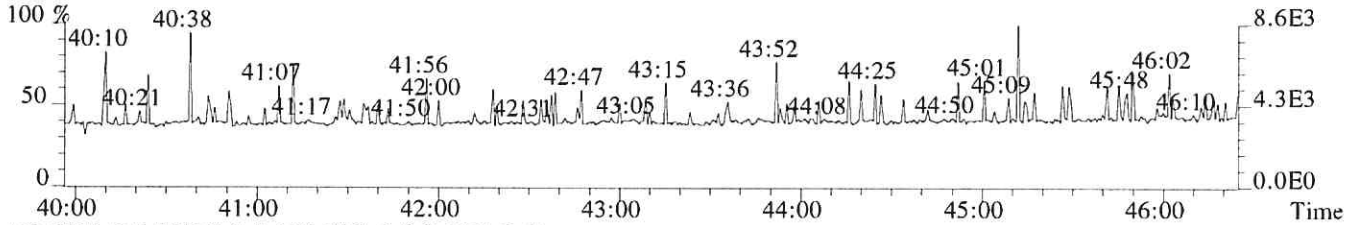
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



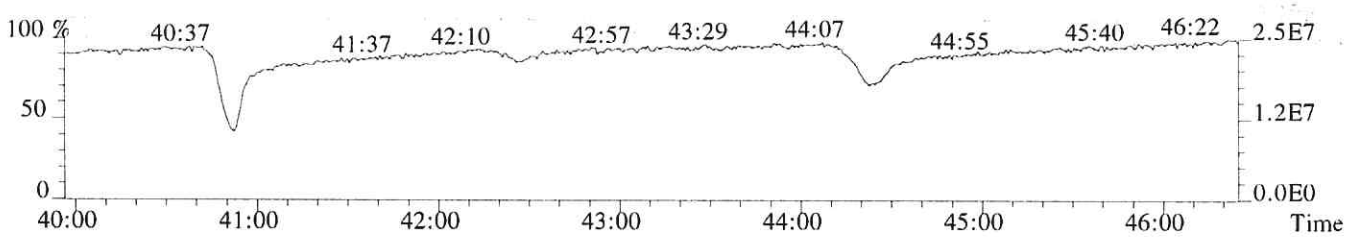
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,212.0,0.40%,F,T)



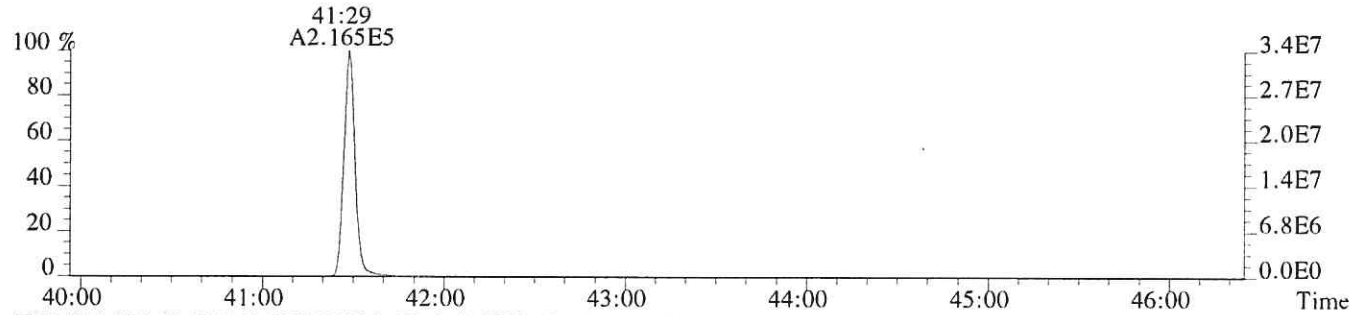
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



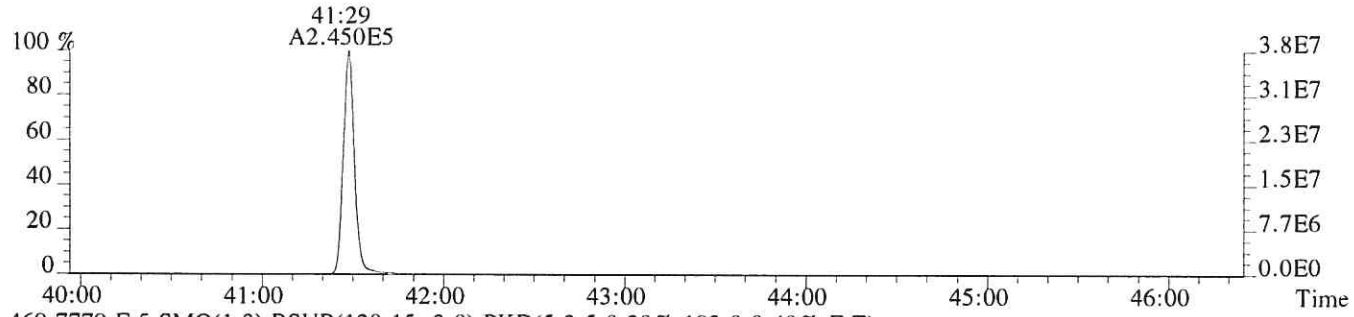
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



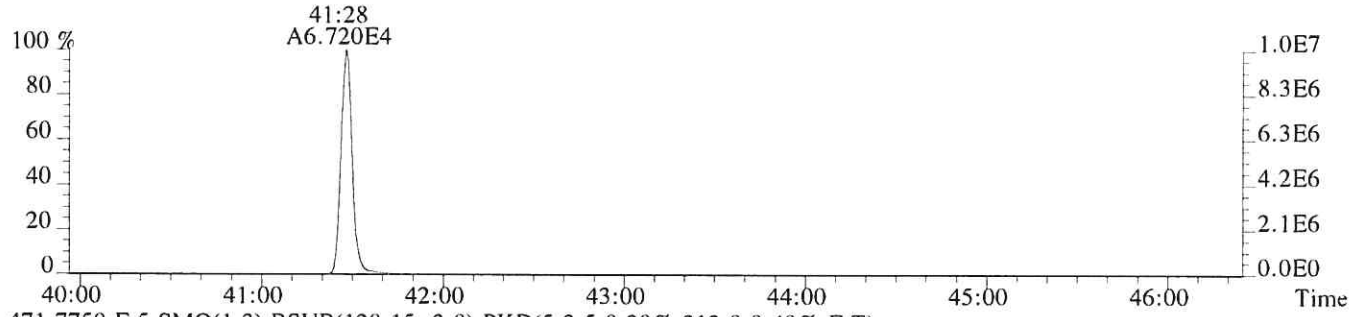
File:P609095 #1-583 Acq:14-SEP-2017 21:30:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



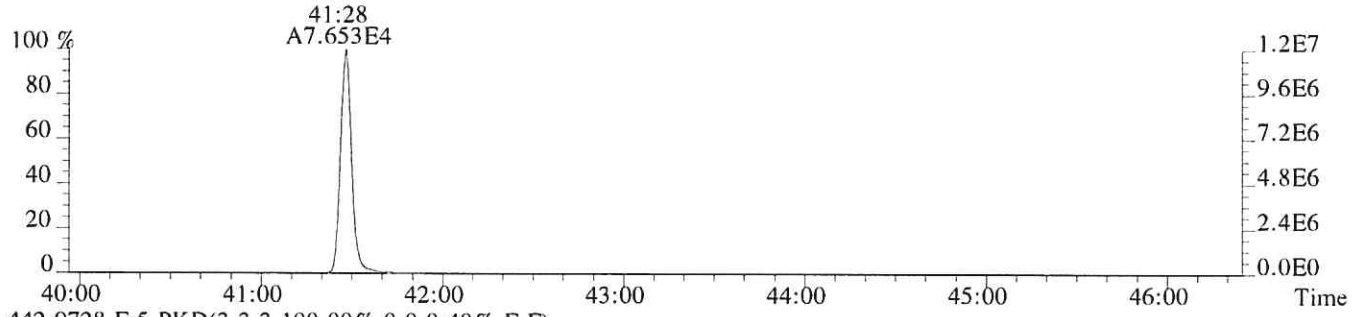
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



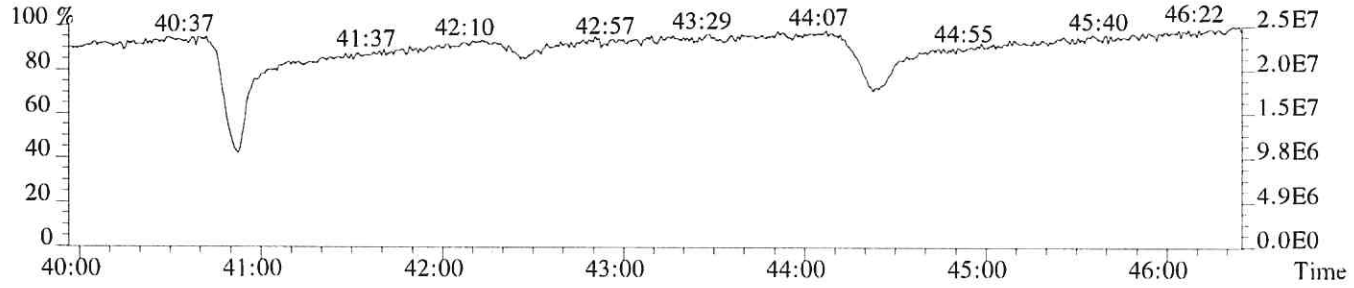
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



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



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
SJWP-091117-C

Run #15 Filename P609096 Samp: 1 Inj: 1 Acquired: 14-SEP-17 22:19:18
Processed: 15-SEP-17 08:42:38 Sample ID: E1700943-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:38	1.076e+03	1.438e+03	0.75	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	31:17	3.038e+02	1.999e+02	1.52	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	32:16	3.362e+02	2.777e+02	1.21	no	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	35:05	3.858e+02	3.547e+02	1.09	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	35:11	2.638e+02	2.258e+02	1.17	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:44	2.979e+02	1.794e+02	1.66	no	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	36:31	9.307e+01	7.057e+01	1.32	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:49	2.319e+03	2.090e+03	1.11	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	39:12	1.541e+02	1.154e+02	1.33	no	no	1.341
10	Unk	OCDF	41:39	4.487e+03	5.306e+03	0.85	yes	no	1.337
11	Unk	2,3,7,8-TCDD	27:31	2.930e+02	3.627e+02	0.81	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:34	1.554e+02	7.144e+01	2.18	no	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:52	2.352e+02	1.716e+02	1.37	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:58	5.787e+02	4.996e+02	1.16	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	36:12	5.203e+02	3.855e+02	1.35	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:45	1.705e+04	1.651e+04	1.03	yes	no	1.048
17	Unk	OCDD	41:29	1.459e+05	1.640e+05	0.89	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	26:37	6.007e+04	7.603e+04	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	31:16	1.042e+05	6.536e+04	1.59	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	32:16	9.884e+04	6.272e+04	1.58	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	4.376e+04	8.401e+04	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	35:11	5.107e+04	9.505e+04	0.54	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:43	4.931e+04	9.349e+04	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	36:29	4.853e+04	9.403e+04	0.52	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:48	3.224e+04	7.212e+04	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:12	2.895e+04	6.537e+04	0.44	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	27:30	4.870e+04	6.176e+04	0.79	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:33	7.557e+04	4.864e+04	1.55	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:51	6.334e+04	5.111e+04	1.24	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:57	6.098e+04	4.880e+04	1.25	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:44	4.657e+04	4.380e+04	1.06	yes	no	0.884
32	IS	13C-OCDD	41:28	6.120e+04	6.882e+04	0.89	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:50	8.931e+04	1.129e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:11	1.326e+05	1.079e+05	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:32	4.497e+04				no	1.072

$$\text{OCDD} = \frac{(1.459e+05 + 1.640e+05) \times 4000 \text{ pg} \times 1}{(6.120e+04 + 6.882e+04) \times 10.098 \text{ g} \times 60.1 / 100 \times 1.120} = 1402 \text{ ng/kg}$$

mm 9/18/17

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
SJWP-091117-COMP

Run #15 Filename P609096 Samp: 1 Inj: 1 Acquired: 14-SEP-17 22:19:18
Processed: 15-SEP-17 08:42:38 LAB. ID: E1700943-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.69e+05	9.12e+02	1.9e+02	2.14e+05	1.54e+03	1.4e+02
2	1,2,3,7,8-PeCDF	5.92e+04	2.86e+03	2.1e+01	3.29e+04	2.08e+03	1.6e+01
3	2,3,4,7,8-PeCDF	4.80e+04	2.86e+03	1.7e+01	4.09e+04	2.08e+03	2.0e+01
4	1,2,3,4,7,8-HxCDF	8.17e+04	3.42e+03	2.4e+01	7.42e+04	2.36e+03	3.1e+01
5	1,2,3,6,7,8-HxCDF	5.64e+04	3.42e+03	1.6e+01	4.94e+04	2.36e+03	2.1e+01
6	2,3,4,6,7,8-HxCDF	5.72e+04	3.42e+03	1.7e+01	3.76e+04	2.36e+03	1.6e+01
7	1,2,3,7,8,9-HxCDF	1.75e+04	3.42e+03	5.1e+00	1.28e+04	2.36e+03	5.4e+00
8	1,2,3,4,6,7,8-HpCDF	4.64e+05	3.31e+03	1.4e+02	4.35e+05	1.36e+02	3.2e+03
9	1,2,3,4,7,8,9-HpCDF	3.33e+04	3.31e+03	1.0e+01	2.46e+04	1.36e+02	1.8e+02
10	OCDF	7.11e+05	2.44e+02	2.9e+03	8.52e+05	8.72e+02	9.8e+02
11	2,3,7,8-TCDD	5.48e+04	1.78e+03	3.1e+01	6.36e+04	1.43e+03	4.4e+01
12	1,2,3,7,8-PeCDD	2.94e+04	1.76e+03	1.7e+01	1.46e+04	2.00e+03	7.3e+00
13	1,2,3,4,7,8-HxCDD	4.87e+04	2.96e+02	1.6e+02	4.19e+04	2.59e+03	1.6e+01
14	1,2,3,6,7,8-HxCDD	1.22e+05	2.96e+02	4.1e+02	1.22e+05	2.59e+03	4.7e+01
15	1,2,3,7,8,9-HxCDD	1.11e+05	2.96e+02	3.7e+02	8.96e+04	2.59e+03	3.5e+01
16	1,2,3,4,6,7,8-HpCDD	3.48e+06	4.23e+03	8.2e+02	3.36e+06	4.24e+03	7.9e+02
17	OCDD	2.32e+07	1.40e+02	1.7e+05	2.62e+07	6.64e+02	3.9e+04
18	13C-2,3,7,8-TCDF	9.61e+06	1.29e+04	7.5e+02	1.23e+07	5.39e+03	2.3e+03
19	13C-1,2,3,7,8-PeCDF	1.81e+07	8.12e+02	2.2e+04	1.14e+07	6.96e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	1.84e+07	8.12e+02	2.3e+04	1.17e+07	6.96e+02	1.7e+04
21	13C-1,2,3,4,7,8-HxCDF	9.35e+06	1.88e+02	5.0e+04	1.79e+07	1.36e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.06e+07	1.88e+02	5.6e+04	1.97e+07	1.36e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.05e+07	1.88e+02	5.6e+04	1.96e+07	1.36e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.01e+07	1.88e+02	5.4e+04	1.98e+07	1.36e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.86e+06	6.76e+03	1.0e+03	1.52e+07	4.70e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.67e+06	6.76e+03	8.4e+02	1.28e+07	4.70e+03	2.7e+03
27	13C-2,3,7,8-TCDD	8.50e+06	9.42e+03	9.0e+02	1.09e+07	3.83e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	1.44e+07	9.76e+02	1.5e+04	9.33e+06	8.28e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	1.42e+07	1.49e+03	9.5e+03	1.13e+07	1.14e+03	9.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.28e+07	1.49e+03	8.6e+03	1.03e+07	1.14e+03	9.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.30e+06	9.40e+02	9.9e+03	8.76e+06	1.32e+02	6.6e+04
32	13C-OCDD	9.77e+06	1.84e+02	5.3e+04	1.11e+07	1.40e+02	7.9e+04
33	13C-1,2,3,4-TCDD	1.51e+07	9.42e+03	1.6e+03	1.87e+07	3.83e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	2.84e+07	1.49e+03	1.9e+04	2.33e+07	1.14e+03	2.0e+04
35	37Cl-2,3,7,8-TCDD	7.82e+06	1.06e+03	7.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SJWP-091117-COMP

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P609096 Sample:1 Injection:1 Function:1

Acquired: 14-SEP-17 22:19:18 Processed: 15-SEP-17 08:42:38

Mass: 303.9020 305.8990 Tot Response: 3.13e+04 RRF: 1.020

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	22:55	1.13e+04	1.47e+04	0.77	yes	2.59e+04		n	n
2	24:21	1.70e+02	2.48e+02	0.68	yes	4.18e+02		n	n
3	25:41	5.79e+02	6.94e+02	0.83	yes	1.27e+03		n	n
4	25:58	8.33e+01	1.10e+02	0.75	yes	1.94e+02		n	n
5	26:38	1.08e+03	1.44e+03	0.75	yes	2.51e+03	2,3,7,8-TCDF	n	n
6	27:02	2.27e+02	2.87e+02	0.79	yes	5.14e+02		n	n
7	28:18	1.97e+02	2.57e+02	0.77	yes	4.55e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P609096 Sample:1 Injection:1 Function:1

Acquired: 14-SEP-17 22:19:18 Processed: 15-SEP-17 08:42:38

Mass: 319.8970 321.8940 Tot Response: 1.22e+04 RRF: 1.055

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:02	1.34e+02	1.52e+02	0.88	yes	2.86e+02		n	n
2	25:18	7.39e+01	8.82e+01	0.84	yes	1.62e+02		n	n
3	25:45	4.03e+01	5.95e+01	0.68	yes	9.98e+01		n	n
4	26:25	2.31e+01	2.95e+01	0.78	yes	5.26e+01		n	n
5	27:31	2.93e+02	3.63e+02	0.81	yes	6.56e+02	2,3,7,8-TCDD	n	n
6	28:18	4.81e+03	6.16e+03	0.78	yes	1.10e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P609096 Sample:1 Injection:1 Function:2

Acquired: 14-SEP-17 22:19:18 Processed: 15-SEP-17 08:42:38

Mass: 339.8600 341.8570 Tot Response: 3.53e+03 RRF: 1.036

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:08	2.28e+02	1.53e+02	1.48	yes	3.81e+02	n	n
2	30:16	1.13e+03	8.01e+02	1.42	yes	1.94e+03	n	n
3	30:53	3.49e+02	2.25e+02	1.55	yes	5.73e+02	n	n
4	31:17	3.04e+02	2.00e+02	1.52	yes	5.04e+02 1,2,3,7,8-PeCDF	n	n
5	32:10	8.22e+01	5.01e+01	1.64	yes	1.32e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
SJWP-091117-COMP

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P609096 Sample:1 Injection:1 Function:2

Acquired: 14-SEP-17 22:19:18 Processed: 15-SEP-17 08:42:38

Mass: 355.8550 357.8520 Tot Response: 1.79e+03 RRF: 0.9636

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:49	3.18e+02	2.04e+02	1.56	yes	5.22e+02		n	n
2	31:18	2.02e+02	1.25e+02	1.61	yes	3.27e+02		n	n
3	31:28	2.01e+02	1.29e+02	1.55	yes	3.30e+02		n	n
4	31:48	2.90e+02	1.82e+02	1.59	yes	4.73e+02		y	n
5	32:08	8.63e+01	5.53e+01	1.56	yes	1.42e+02		n	n

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Peak List Summary

CLIENT ID.
SJWP-091117-COMP

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P609096 Sample:1 Injection:1 Function:3

Acquired: 14-SEP-17 22:19:18 Processed: 15-SEP-17 08:42:38

Mass: 373.8210 375.8180 Tot Response: 6.63e+03 RRF: 1.207

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:05	1.61e+03	1.33e+03	1.21	yes	2.95e+03	n	n
2	34:27	5.94e+01	4.50e+01	1.32	yes	1.04e+02	n	n
3	34:37	1.20e+03	9.92e+02	1.21	yes	2.19e+03	n	n
4	35:05	3.86e+02	3.55e+02	1.09	yes	7.40e+02	1,2,3,4,7,8-HxCDF	n	n
5	35:11	2.64e+02	2.26e+02	1.17	yes	4.90e+02	1,2,3,6,7,8-HxCDF	n	n
6	36:31	9.31e+01	7.06e+01	1.32	yes	1.64e+02	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P609096 Sample:1 Injection:1 Function:3

Acquired: 14-SEP-17 22:19:18 Processed: 15-SEP-17 08:42:38

Mass: 389.8160 391.8130 Tot Response: 1.30e+04 RRF: 1.085

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:00	9.29e+02	7.31e+02	1.27	yes	1.66e+03		n	n
2	35:15	3.95e+03	3.08e+03	1.28	yes	7.03e+03		n	n
3	35:21	7.67e+02	6.88e+02	1.11	yes	1.45e+03		n	n
4	35:27	1.16e+01	8.82e+00	1.32	yes	2.05e+01		n	n
5	35:52	2.35e+02	1.72e+02	1.37	yes	4.07e+02	1,2,3,4,7,8-HxCDD	n	n
6	35:58	5.79e+02	5.00e+02	1.16	yes	1.08e+03	1,2,3,6,7,8-HxCDD	n	n
7	36:07	2.56e+02	1.95e+02	1.31	yes	4.52e+02		n	n
8	36:12	5.20e+02	3.86e+02	1.35	yes	9.06e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.
SJWP-091117-COMP

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P609096 Sample:1 Injection:1 Function:4

Acquired: 14-SEP-17 22:19:18 Processed: 15-SEP-17 08:42:38

Mass: 407.7820 409.7790 Tot Response: 1.20e+04 RRF: 1.368

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:49	2.32e+03	2.09e+03	1.11	yes	4.41e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	38:06	7.68e+01	7.61e+01	1.01	yes	1.53e+02		n	n
3	38:14	3.80e+03	3.60e+03	1.06	yes	7.41e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SJWP-091117-COMP

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P609096 Sample:1 Injection:1 Function:4

Acquired: 14-SEP-17 22:19:18 Processed: 15-SEP-17 08:42:38

Mass: 423.7770 425.7740 Tot Response: 3.36e+04 RRF: 1.048

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:45	1.70e+04	1.65e+04	1.03	yes	3.36e+04	1,2,3,4,6,7,8-HpCDD	n	n

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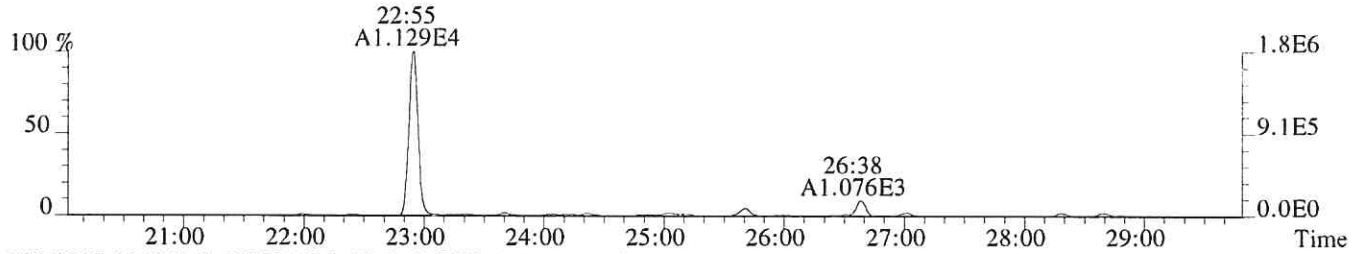
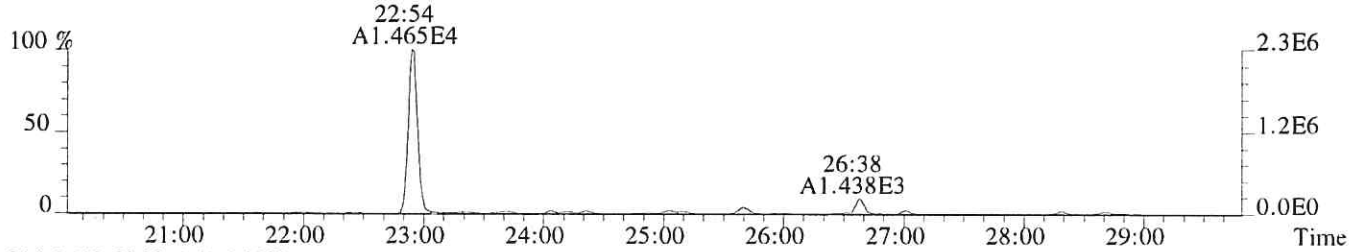
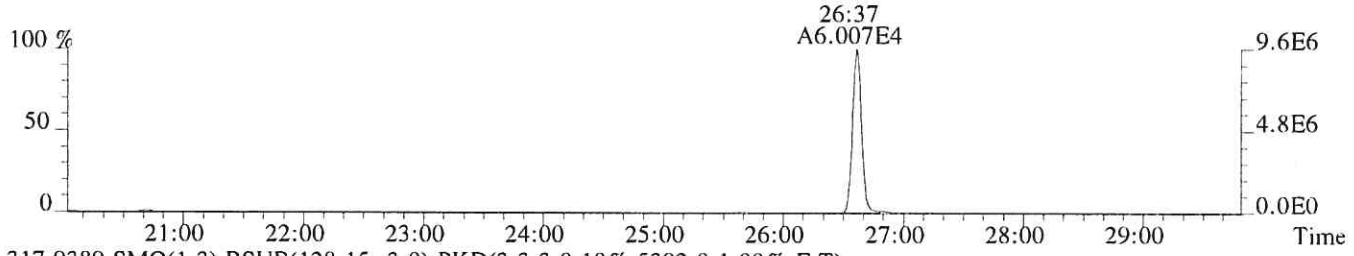
File:P609096 #1-694 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



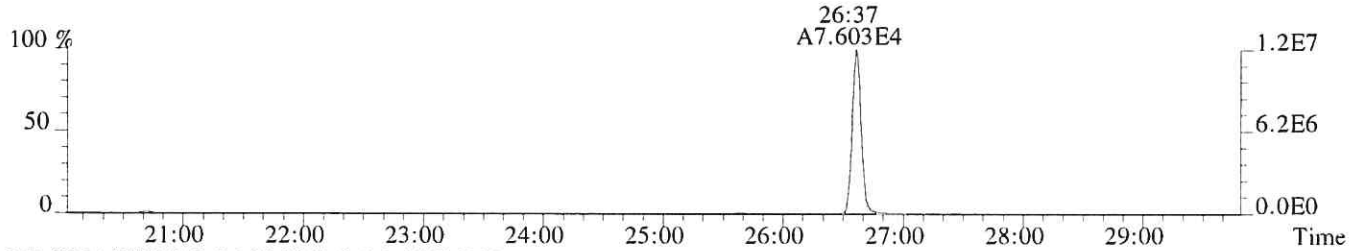
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



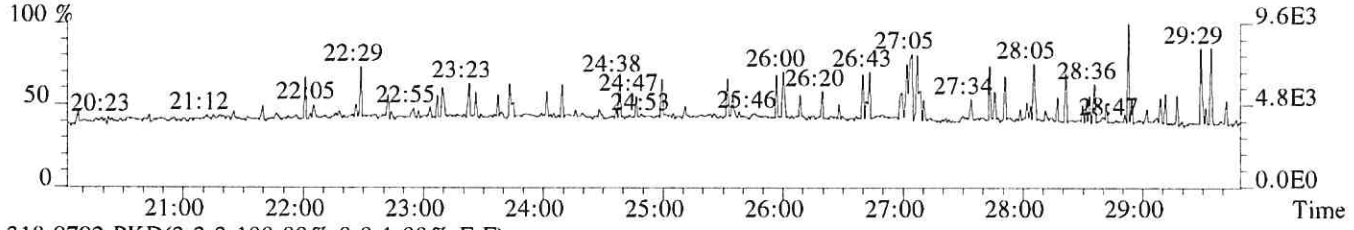
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12896.0,1.00%,F,T)



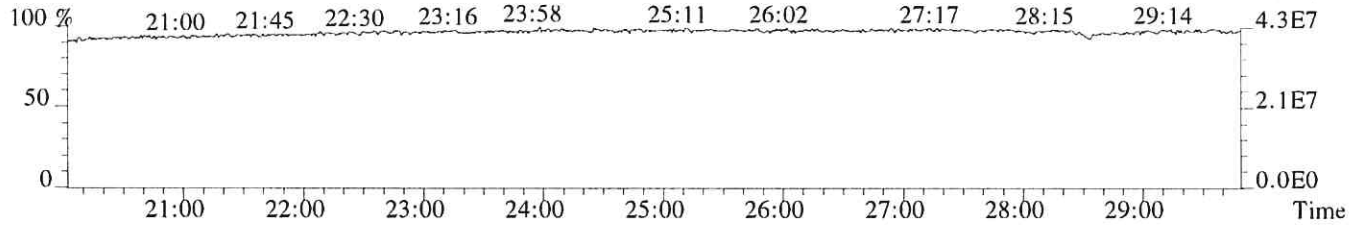
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5392.0,1.00%,F,T)



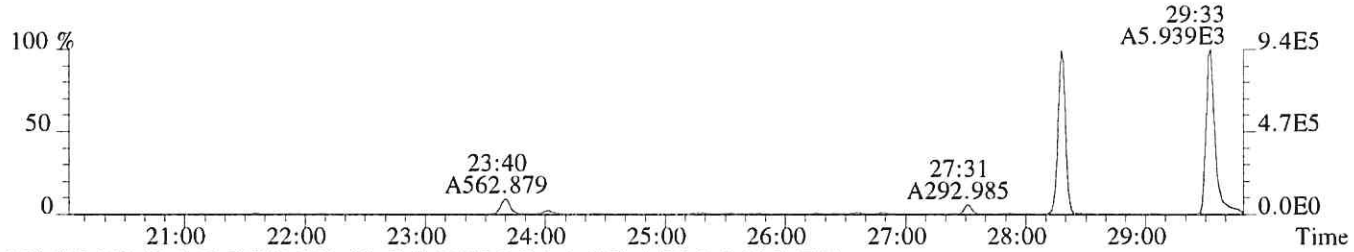
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



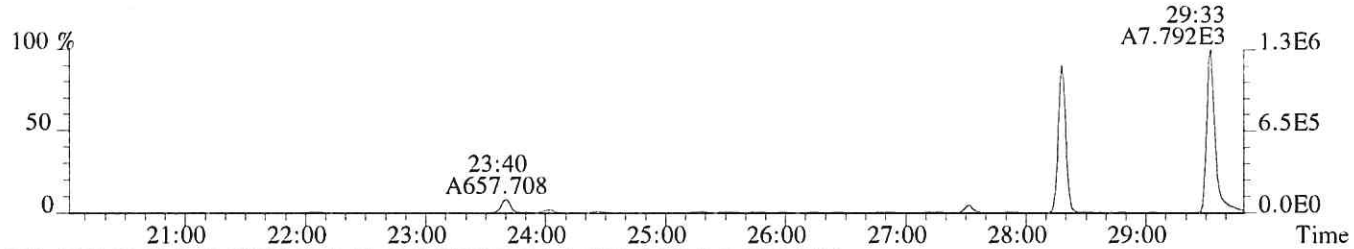
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



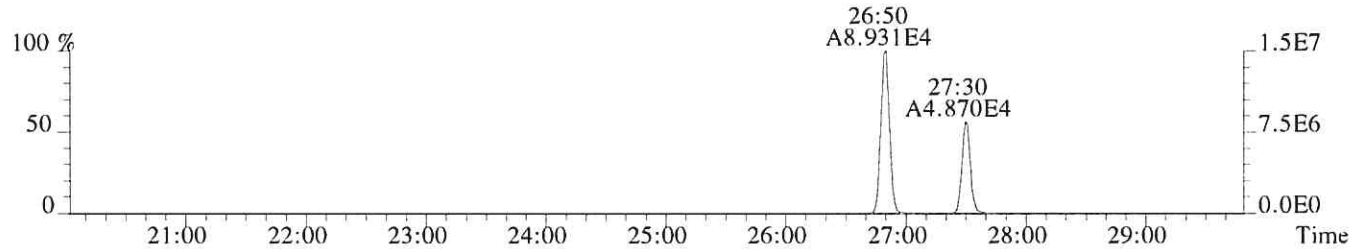
File:P609096 #1-694 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



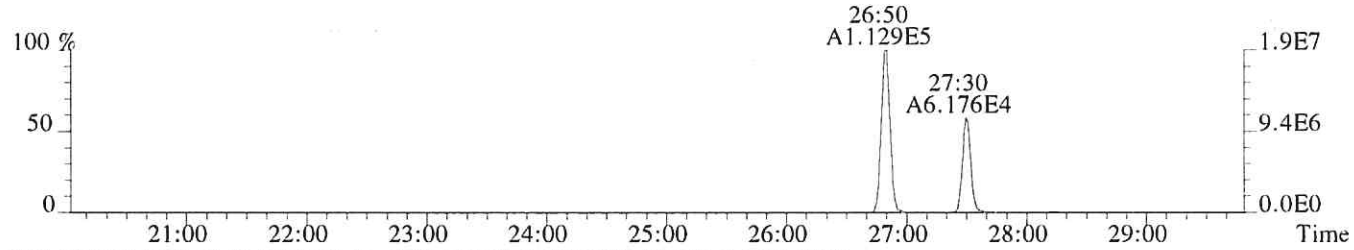
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



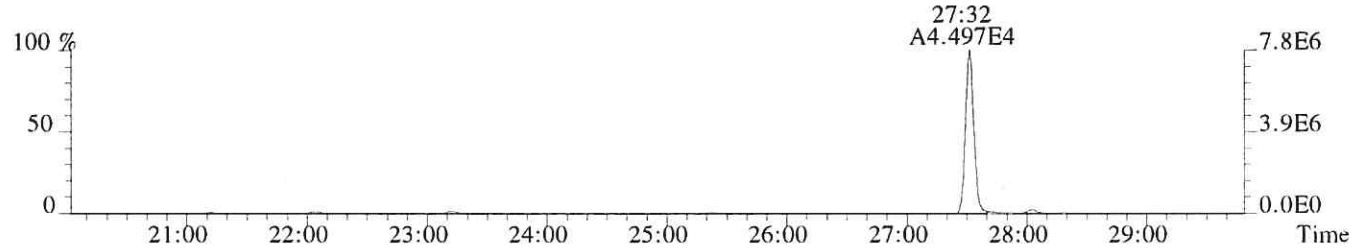
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9420.0,1.00%,F,T)



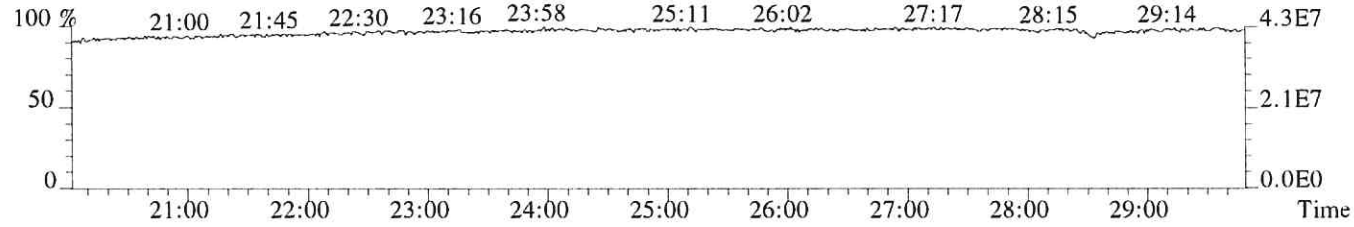
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3832.0,1.00%,F,T)



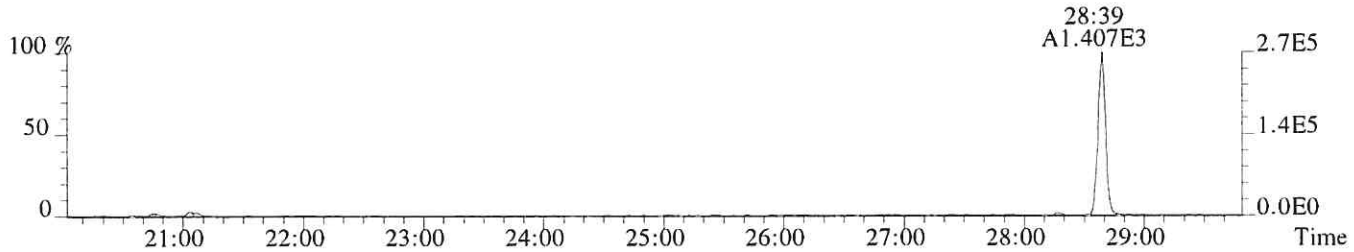
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



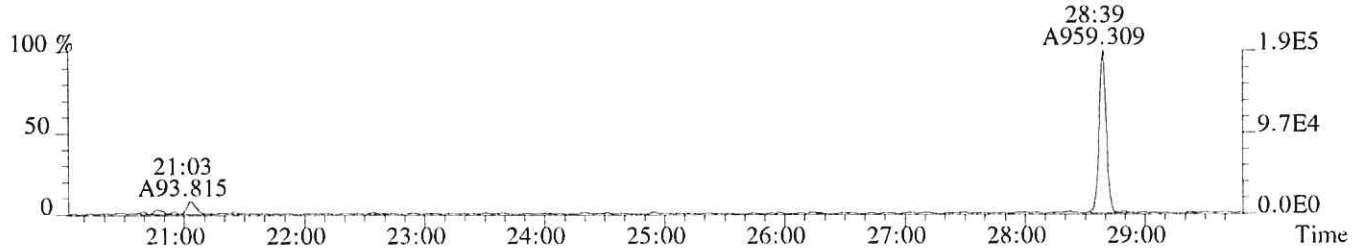
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



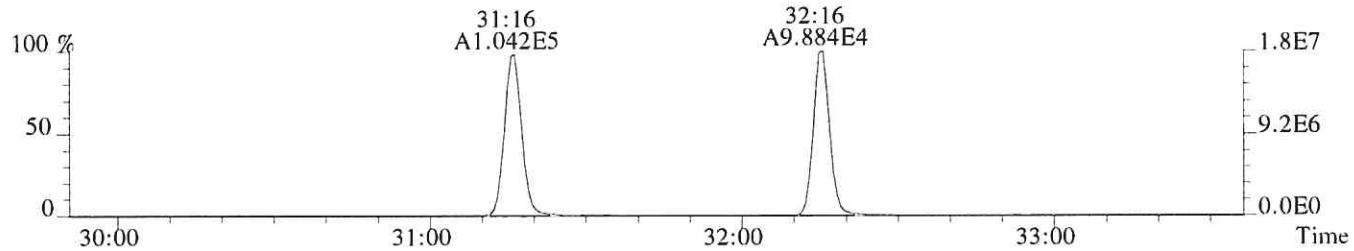
File:P609096 #1-694 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



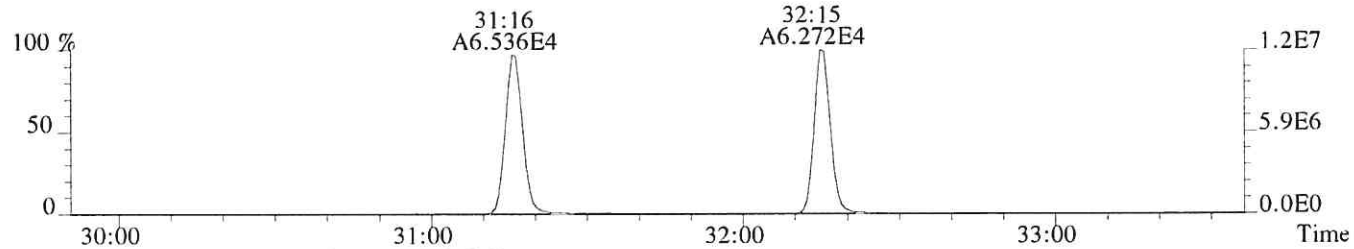
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



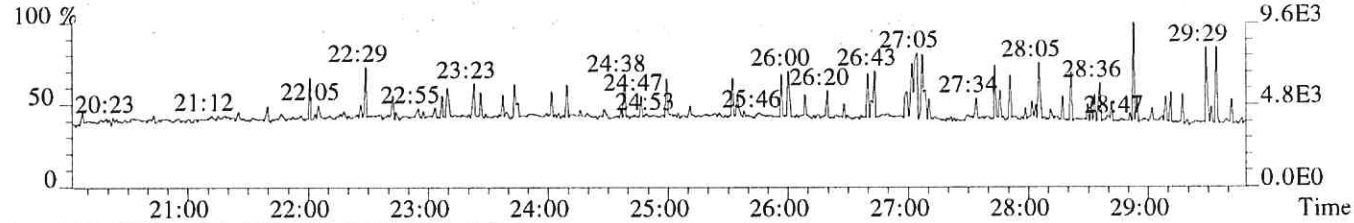
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



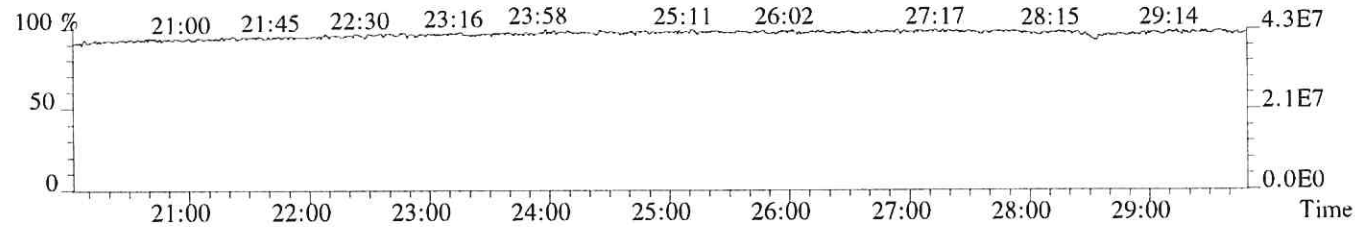
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



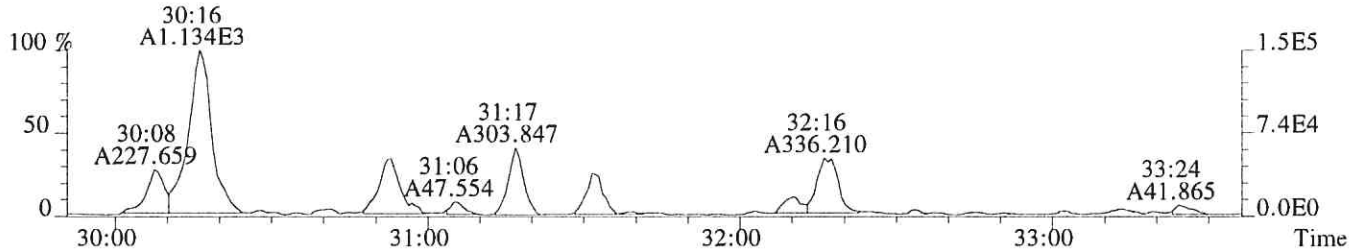
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



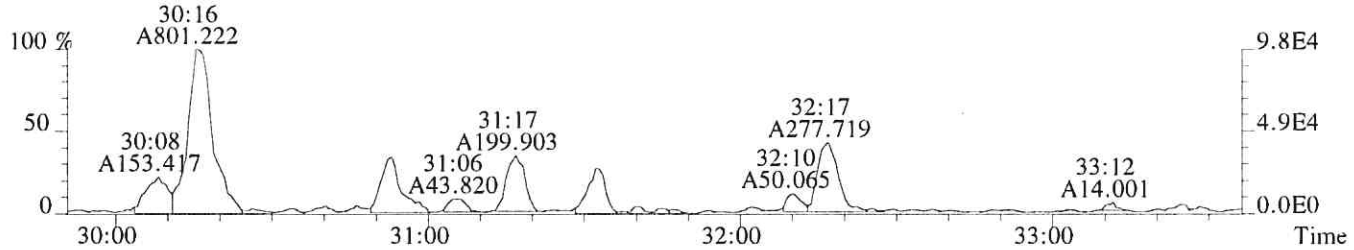
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



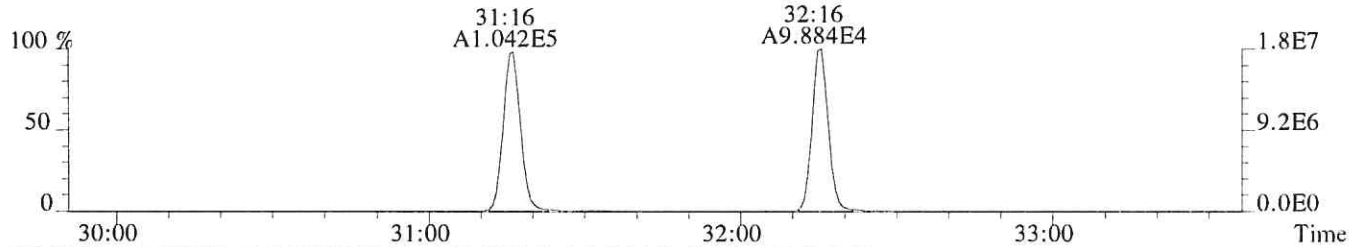
File:P609096 #1-339 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2864.0,1.00%,F,T)



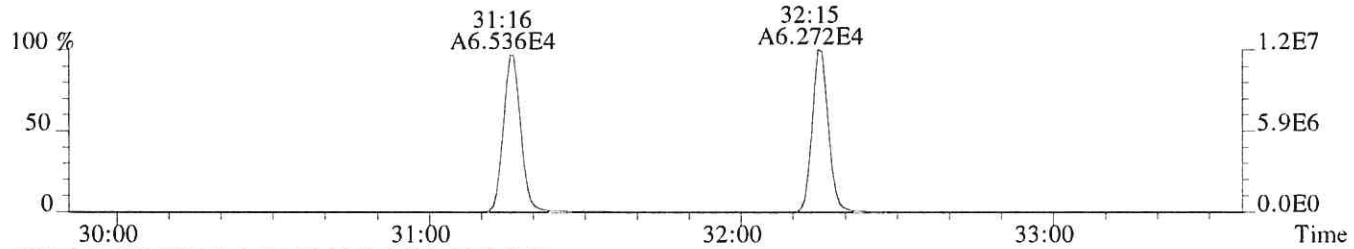
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2084.0,1.00%,F,T)



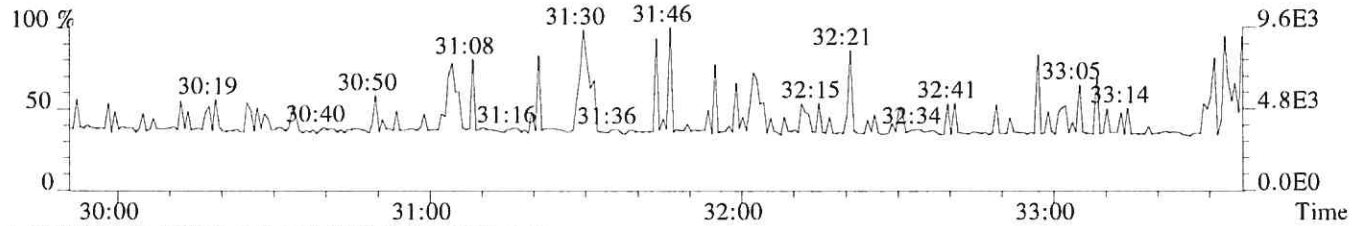
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



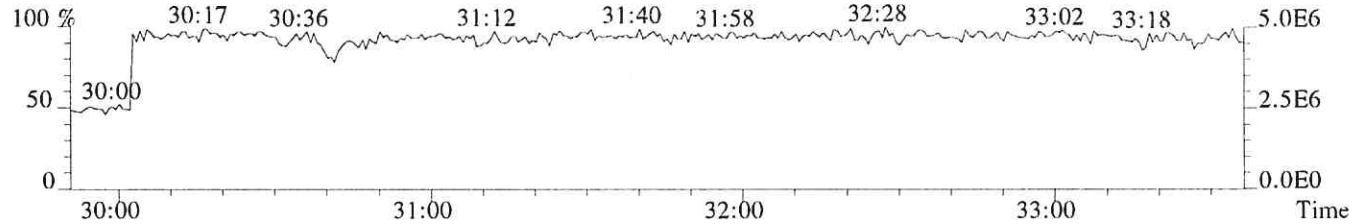
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



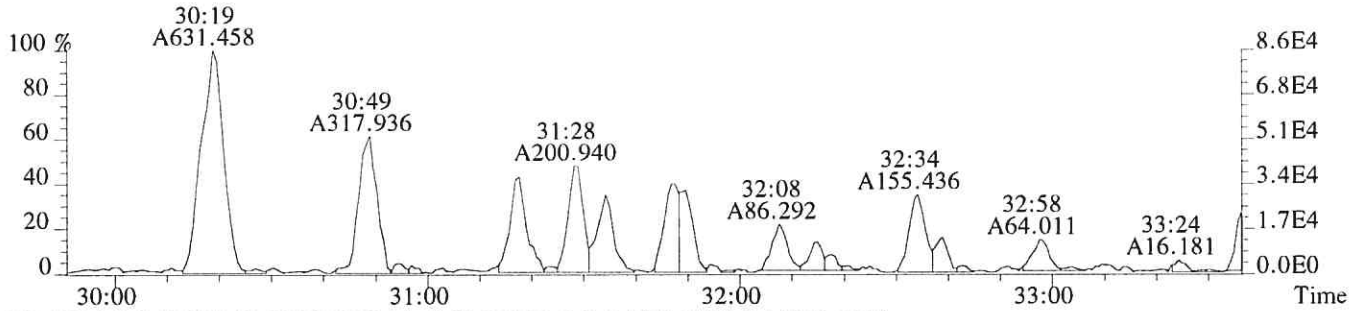
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



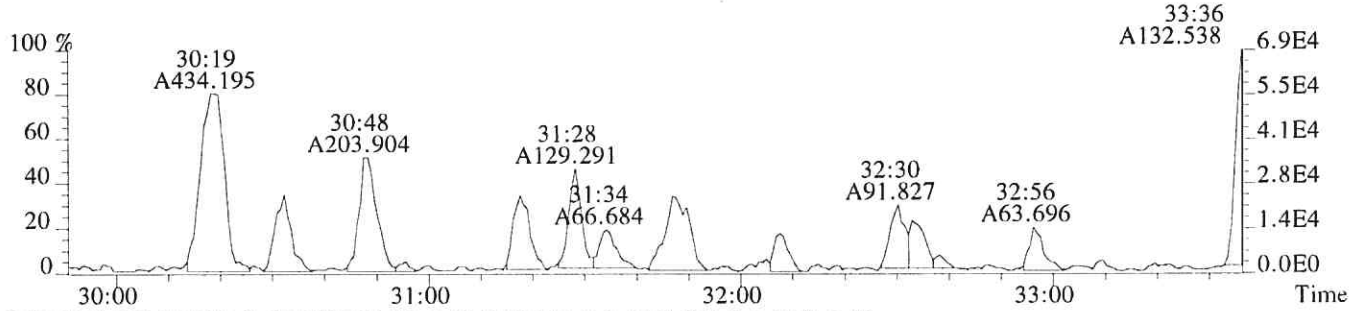
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



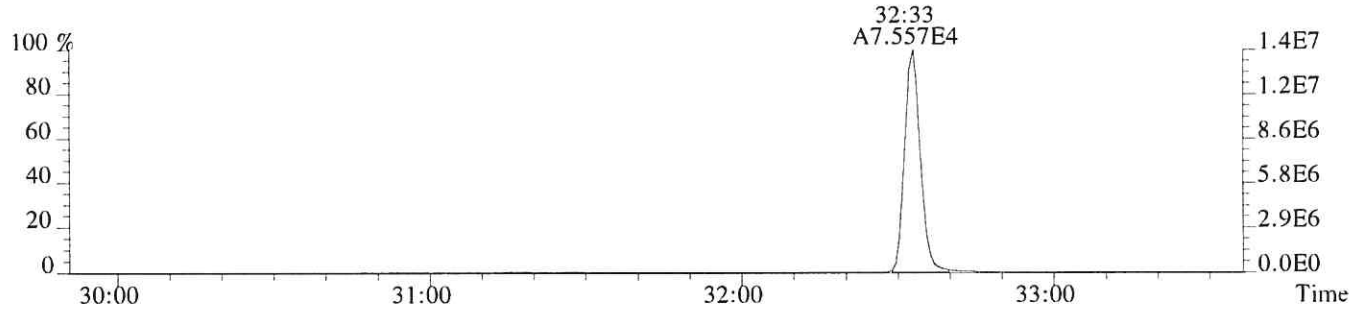
File:P609096 #1-339 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



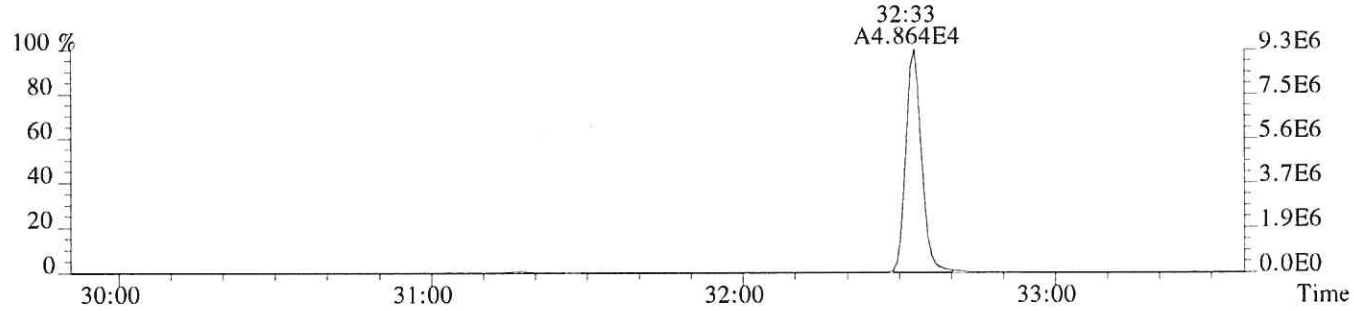
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



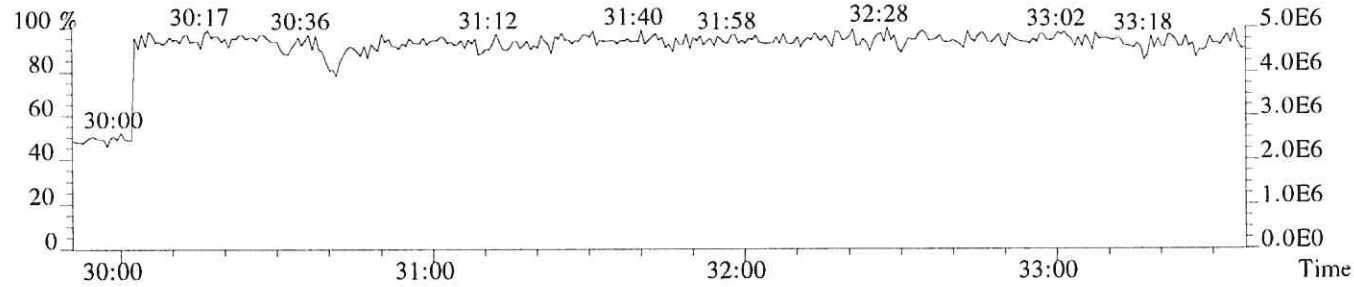
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



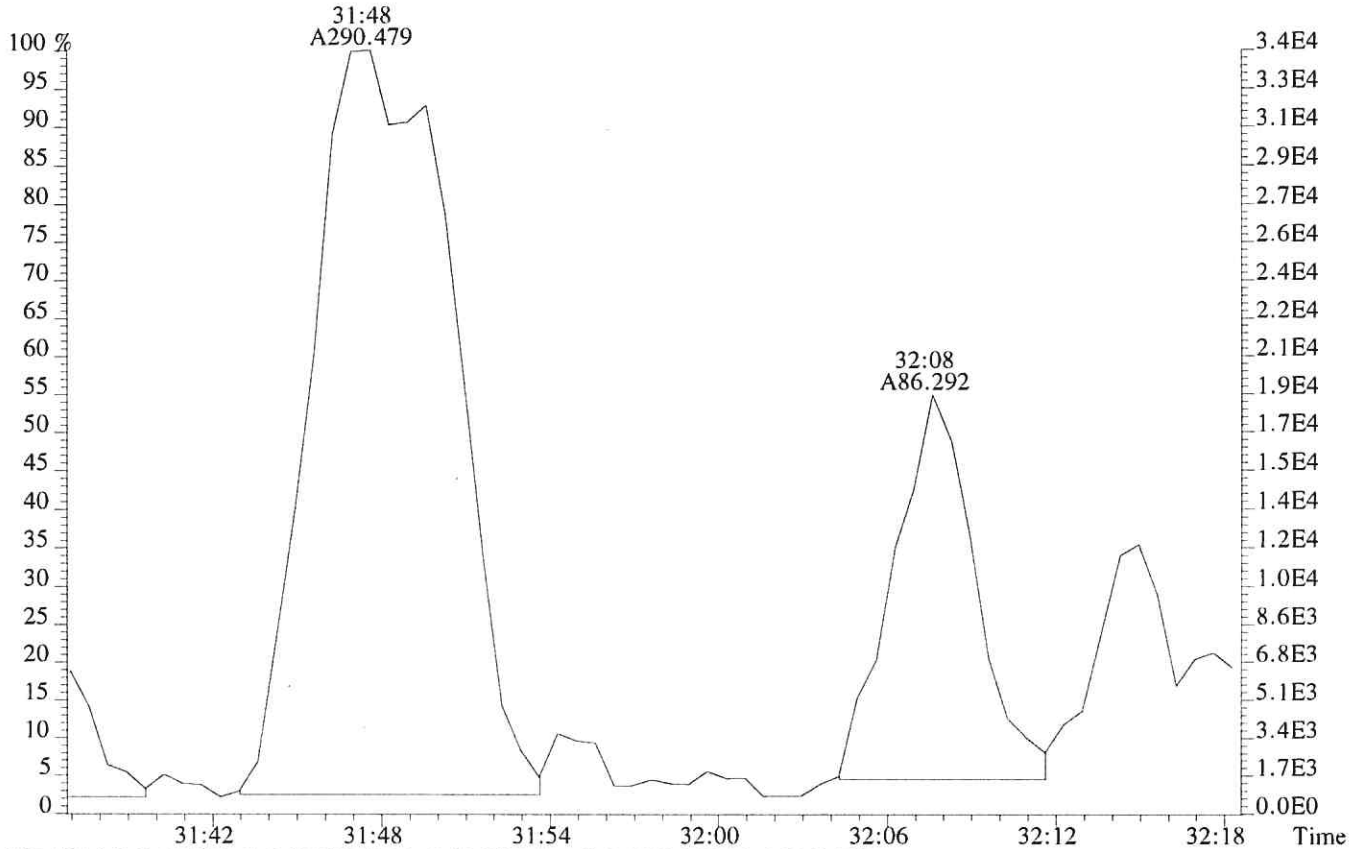
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



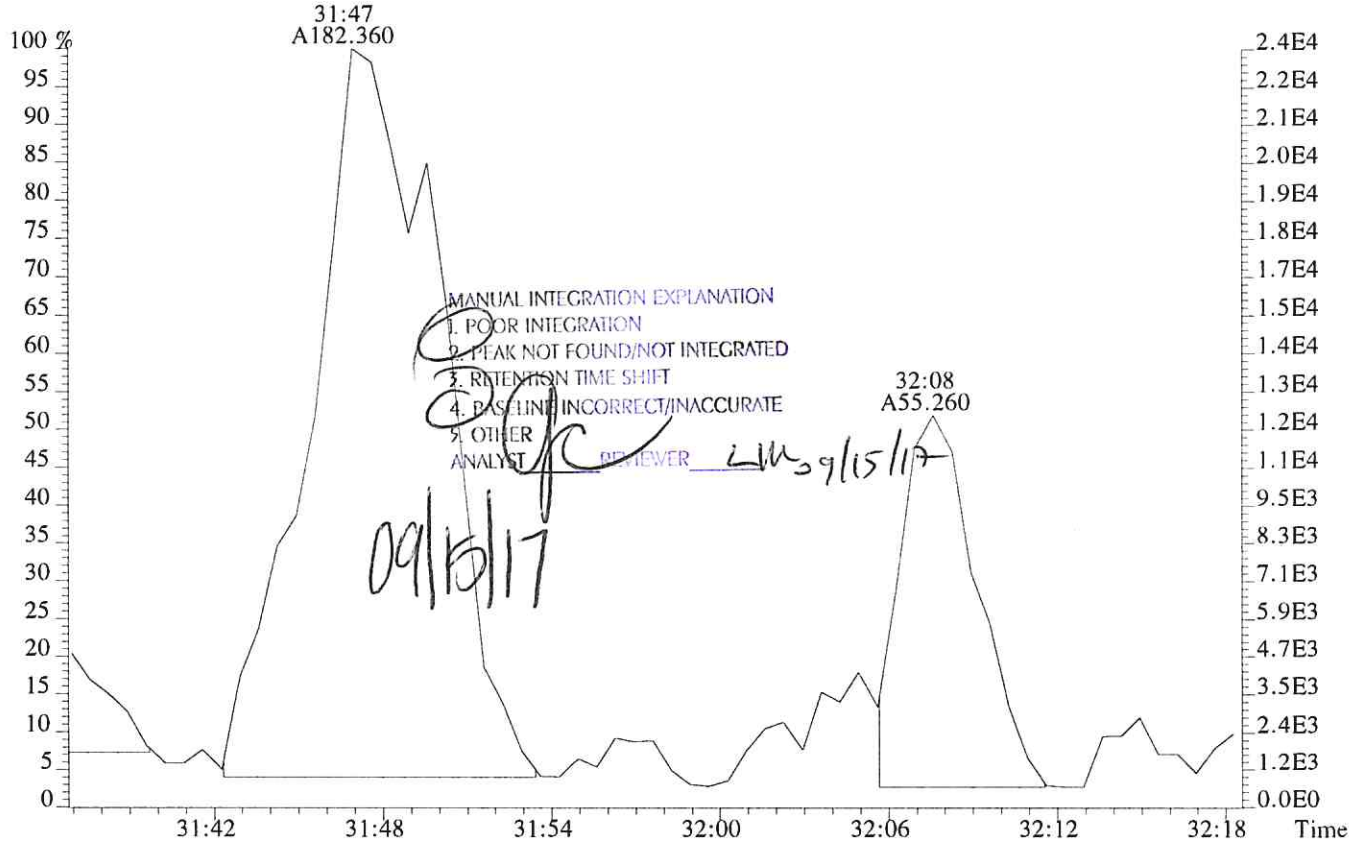
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



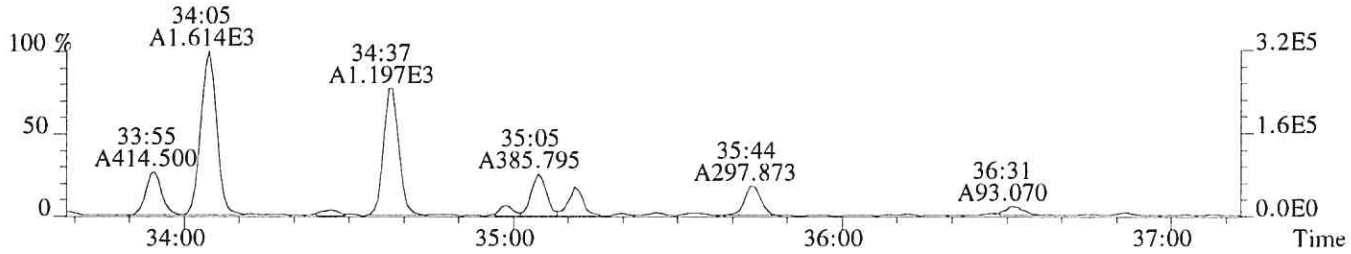
File:P609096 #1-339 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



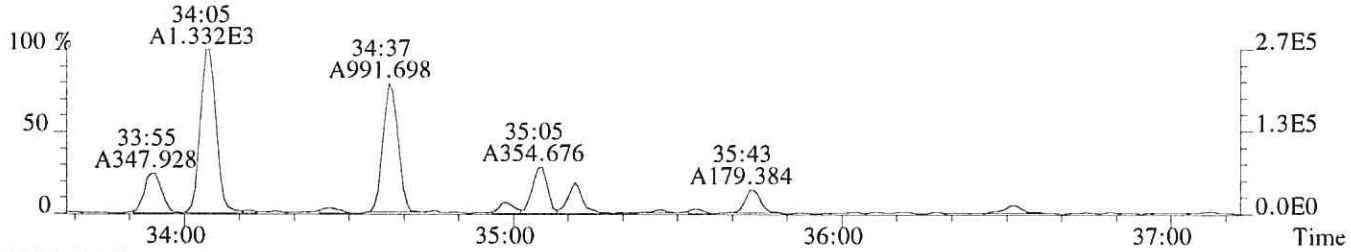
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



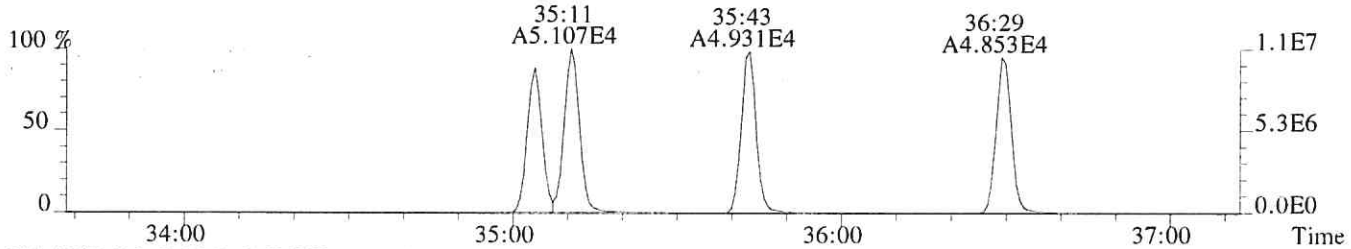
File:P609096 #1-322 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3420.0,0.40%,F,T)



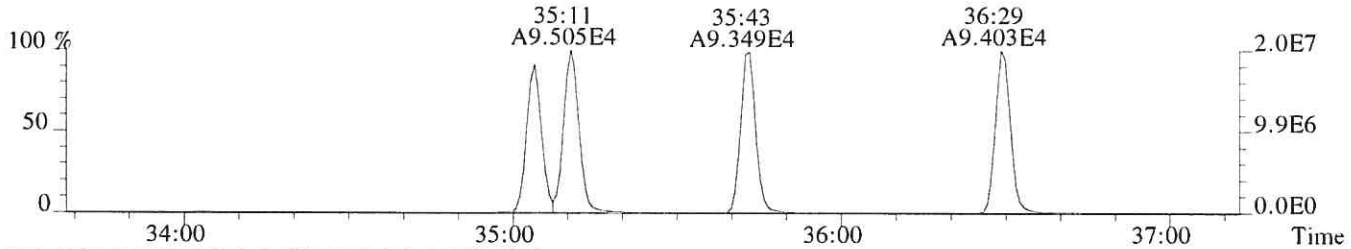
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2360.0,0.40%,F,T)



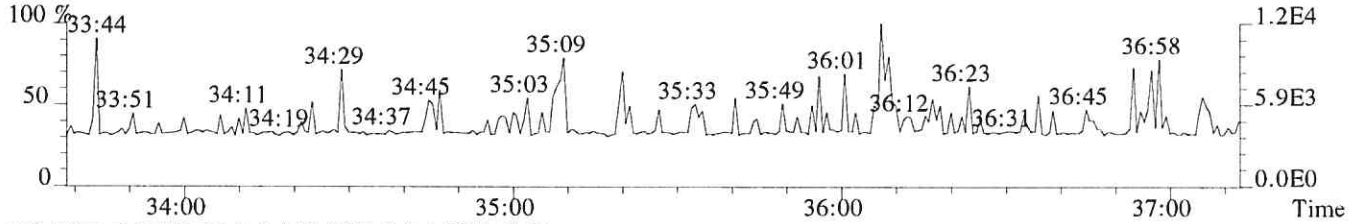
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



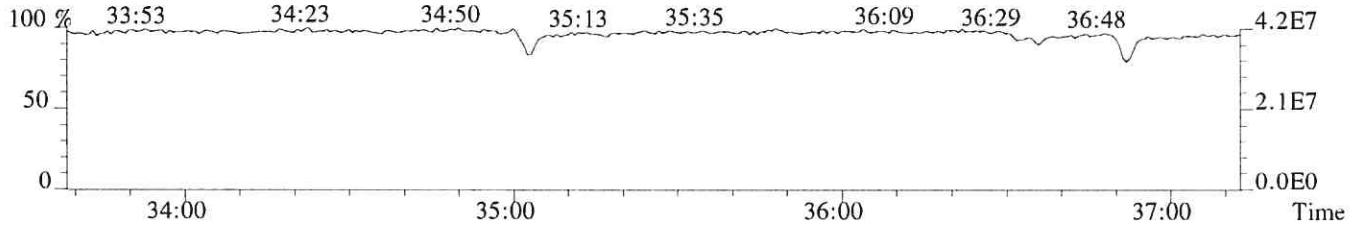
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



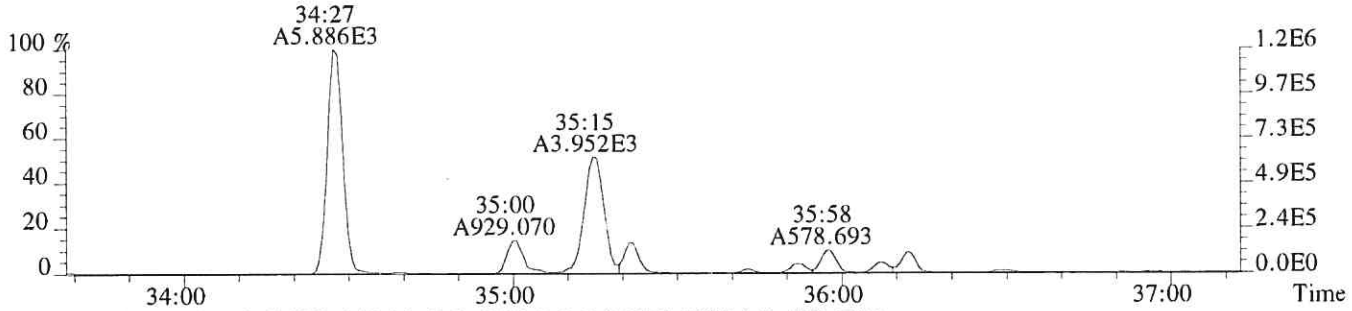
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



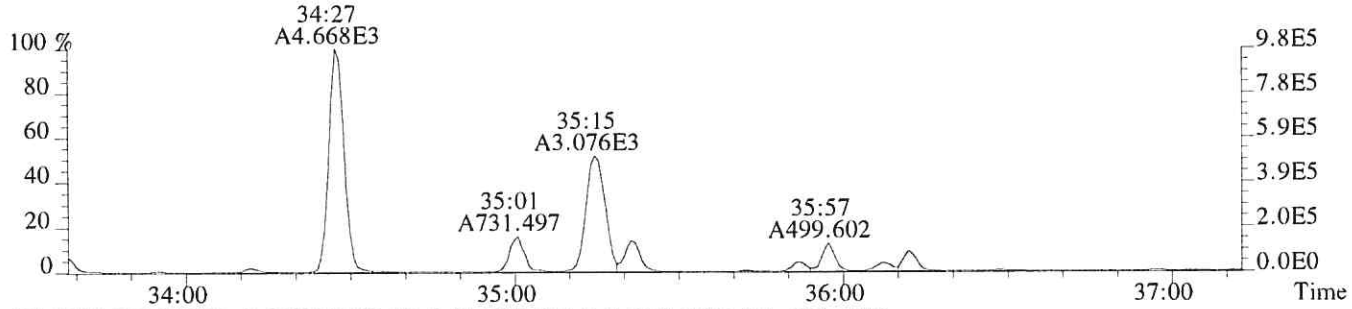
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



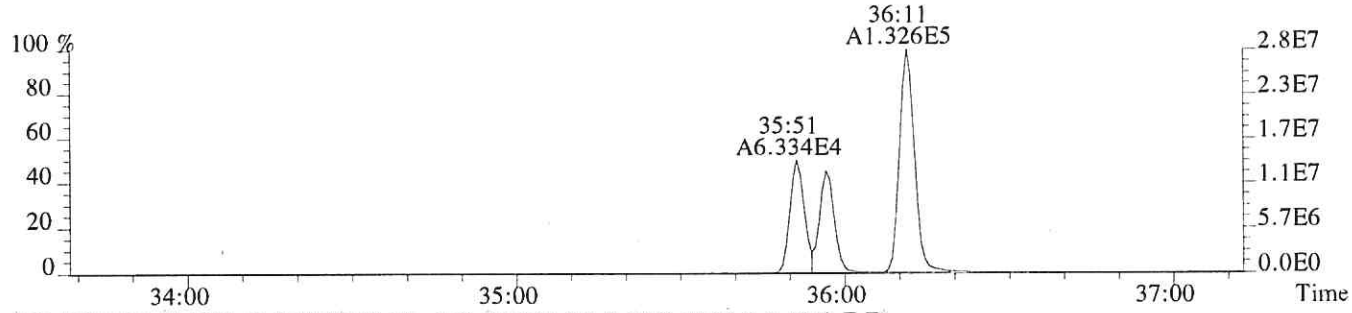
File:P609096 #1-322 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



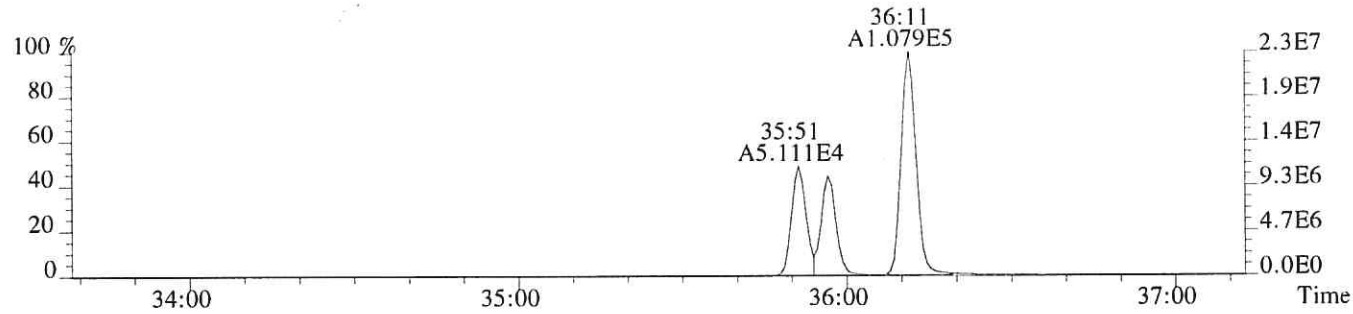
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2588.0,0.40%,F,T)



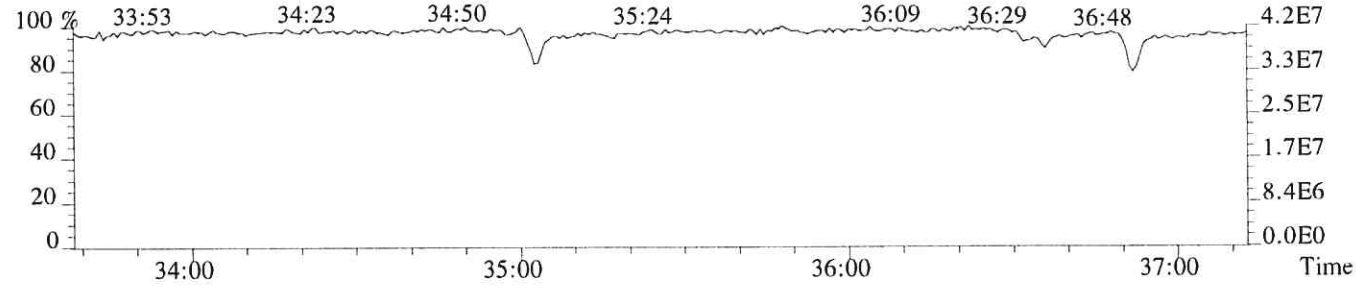
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1492.0,0.40%,F,T)



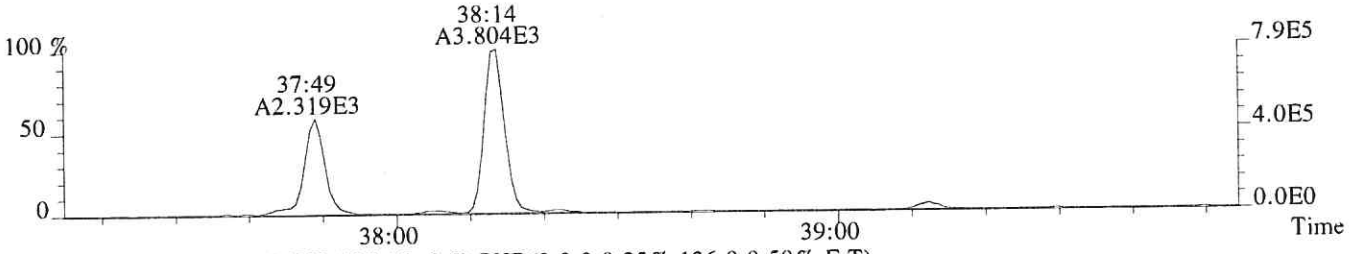
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



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

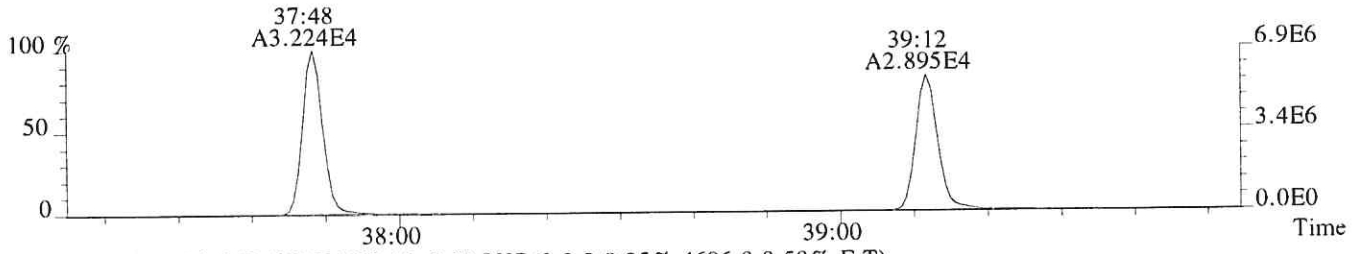


File:P609096 #1-240 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1700943-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3308.0,0.50%,F,T)

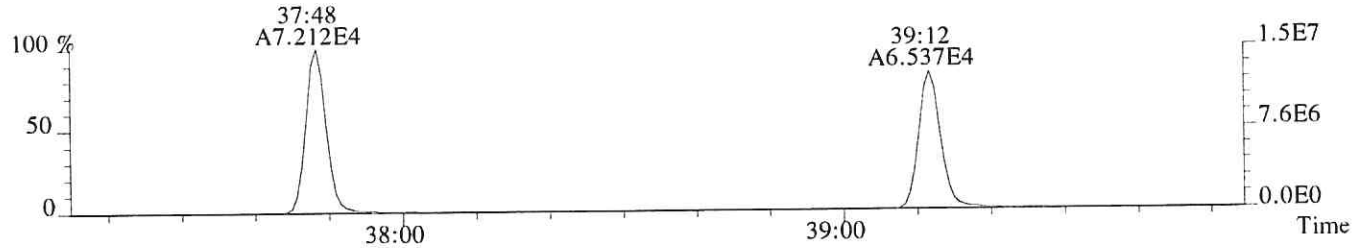


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.50%,F,T)

417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6756.0,0.50%,F,T)

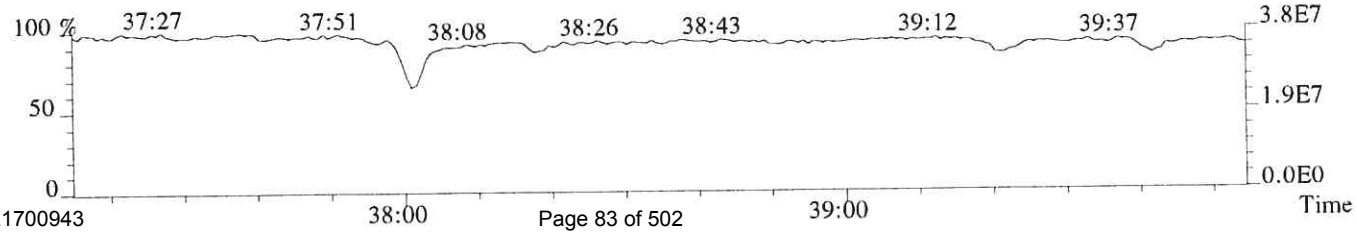


419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4696.0,0.50%,F,T)

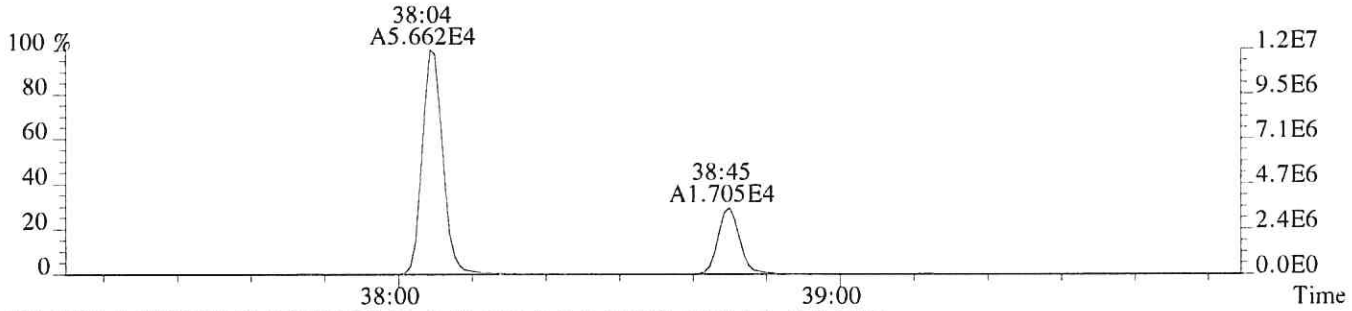


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

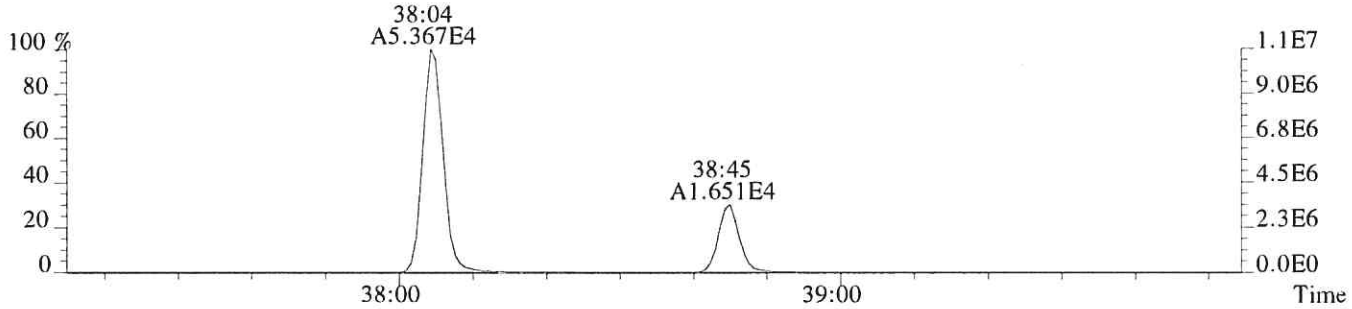
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



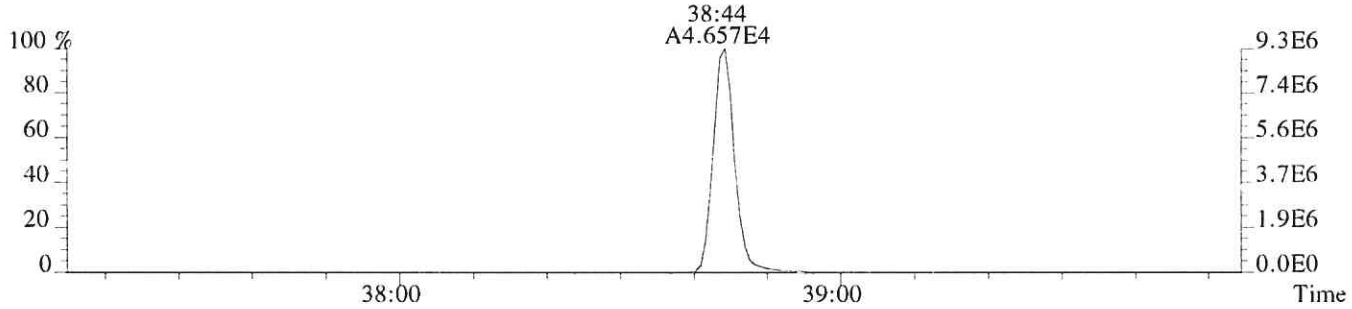
File:P609096 #1-240 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4228.0,0.40%,F,T)



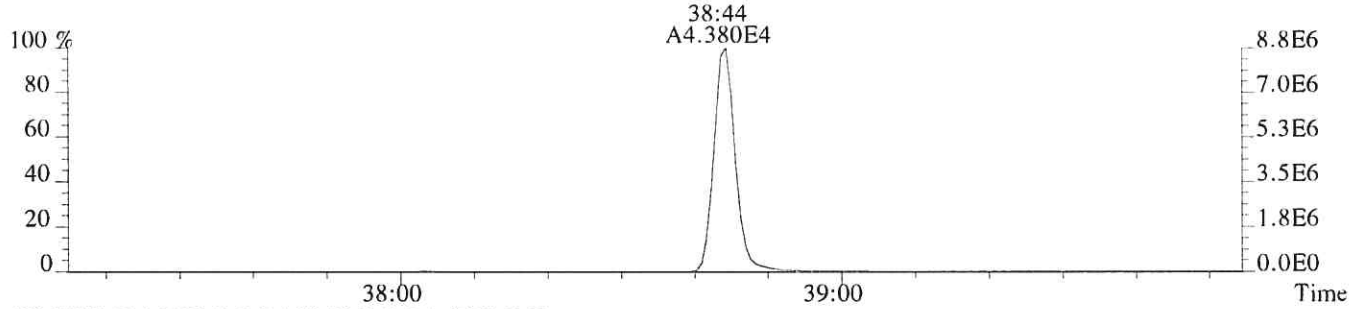
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4236.0,0.40%,F,T)



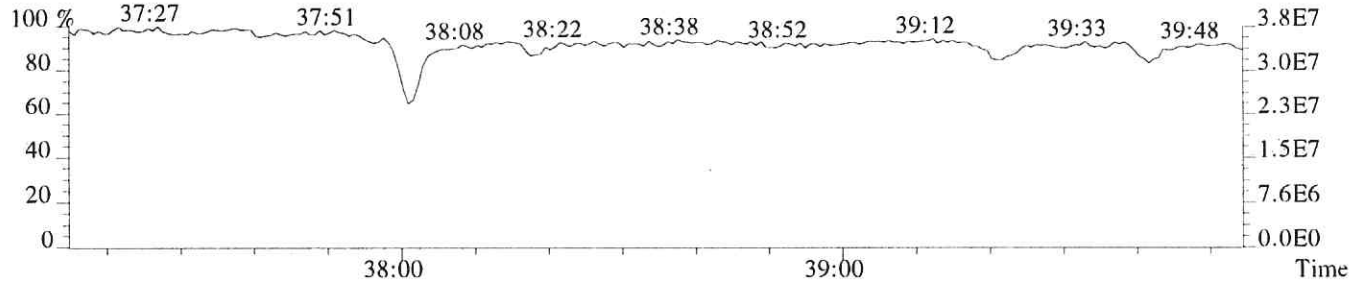
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



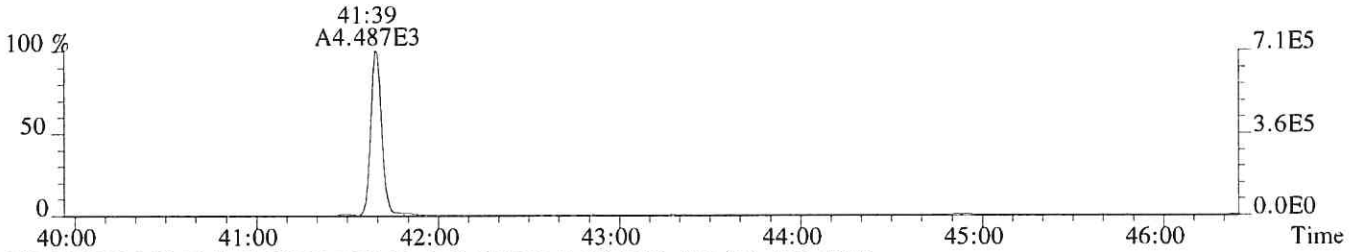
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.40%,F,T)



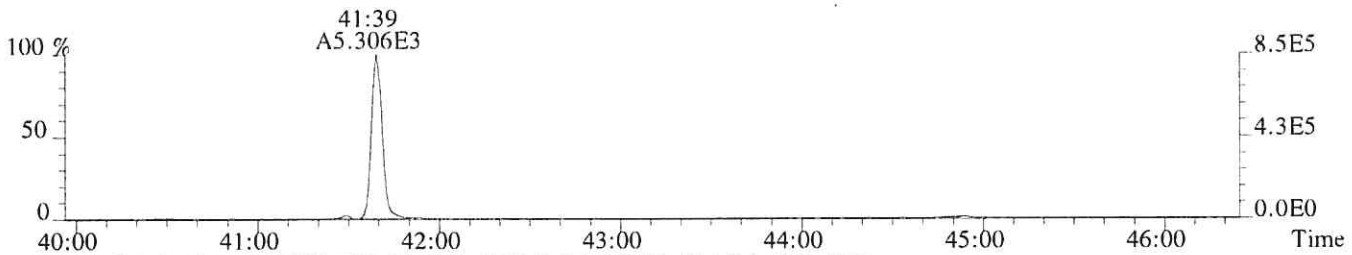
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



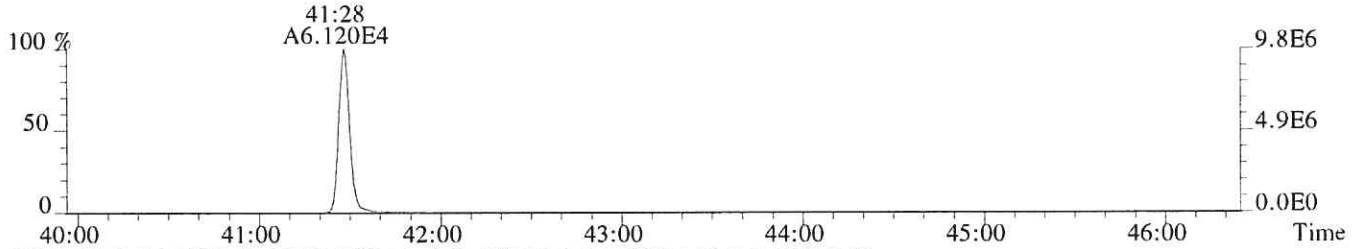
File:P609096 #1-583 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



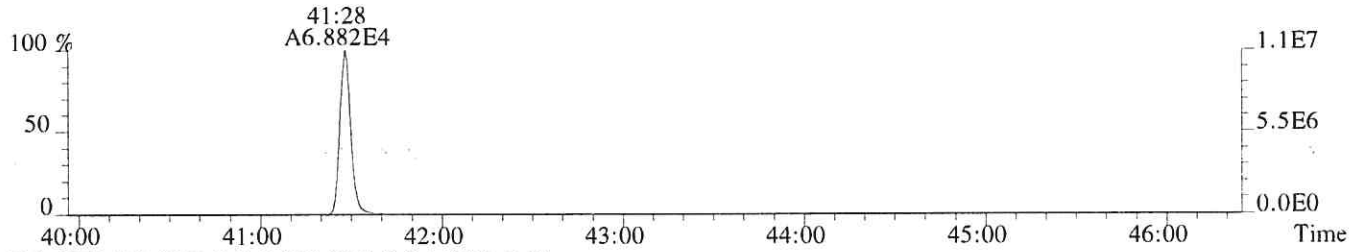
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



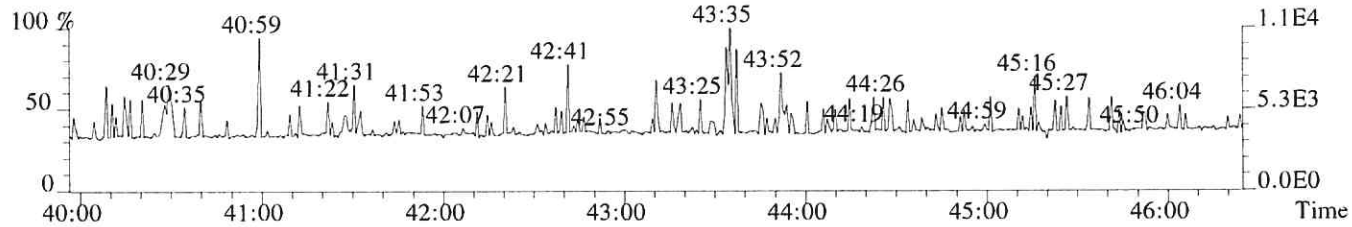
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



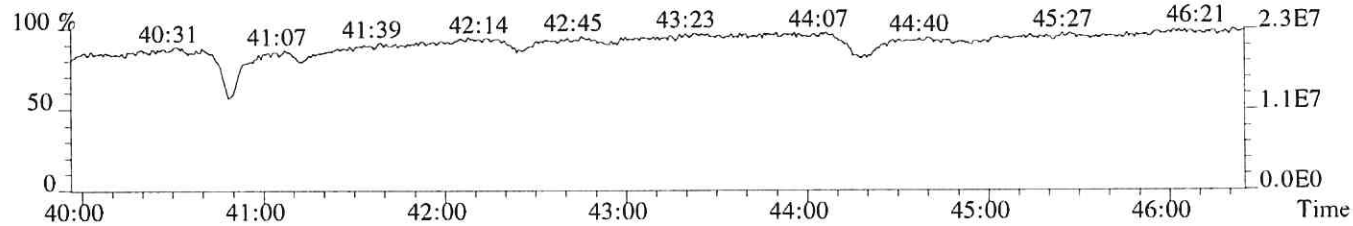
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



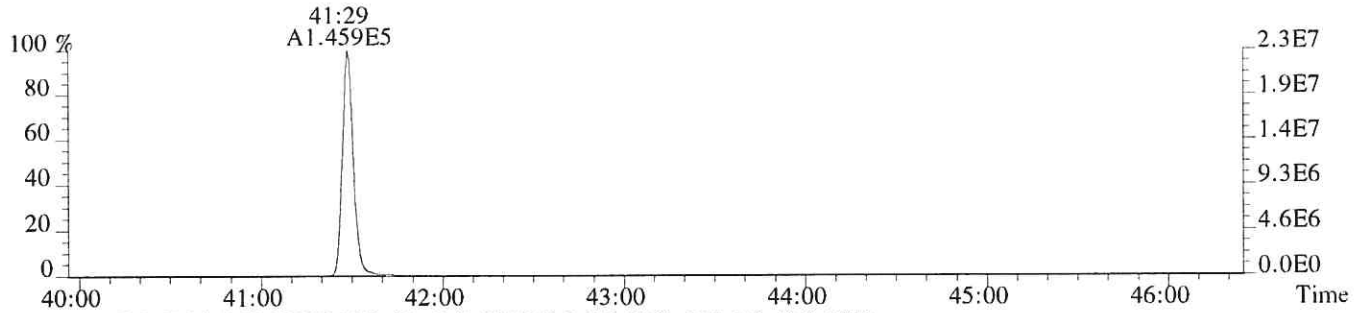
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



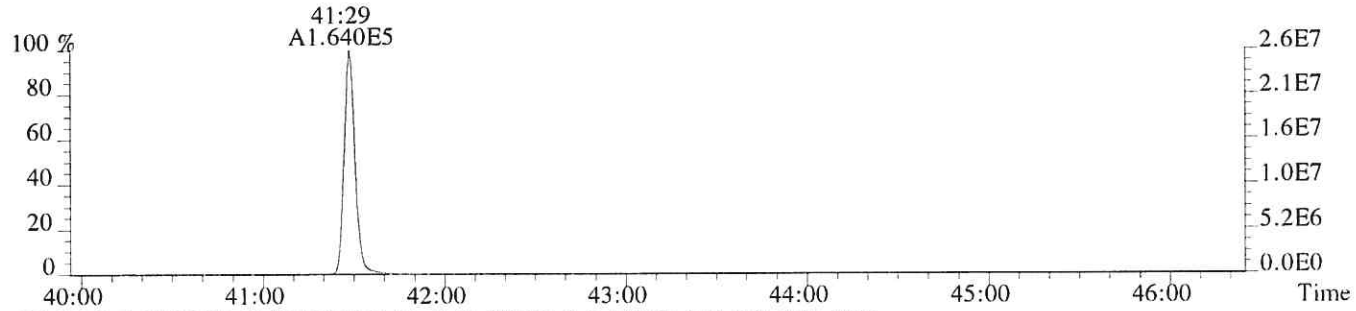
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



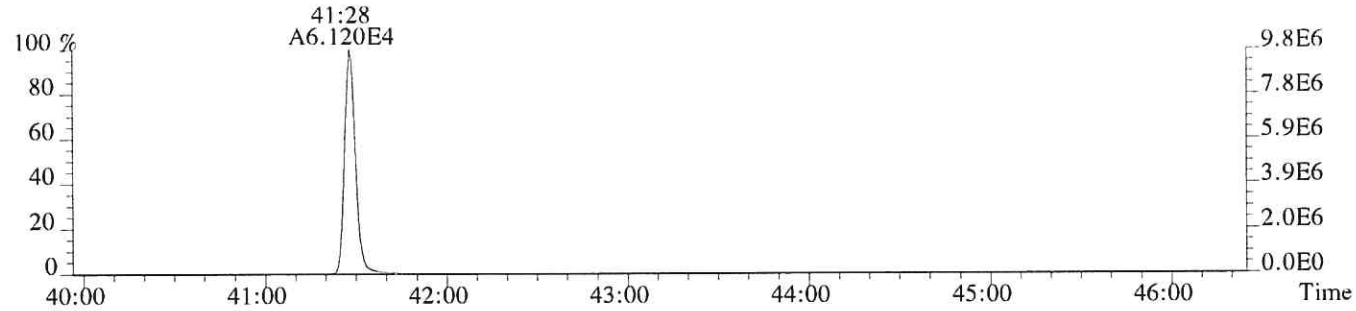
File:P609096 #1-583 Acq:14-SEP-2017 22:19:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700943-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



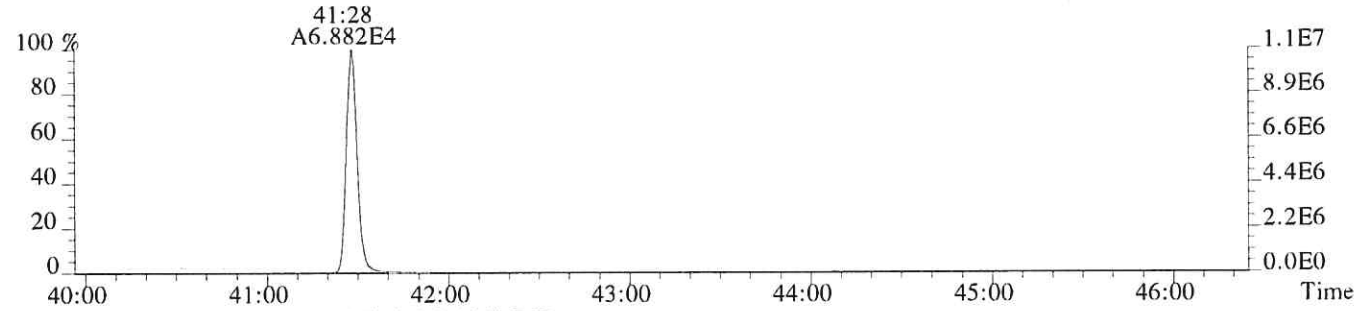
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



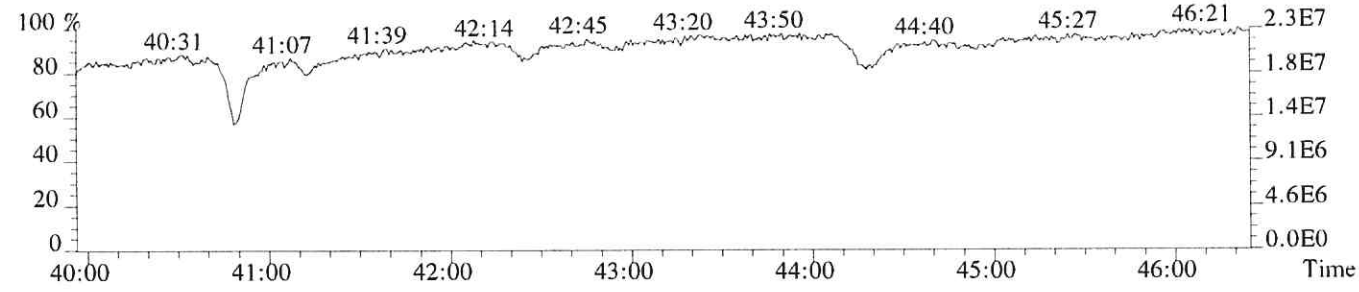
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P609091 Samp: 1 Inj: 1 Acquired: 14-SEP-17 18:14:03
Processed: 15-SEP-17 08:42:32 Sample ID: EQ1700401-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	1.020
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.058
3	Unk	2,3,4,7,8-PeCDF	32:16	3.113e+01	3.276e+01	0.95	no	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	35:05	2.552e+01	1.345e+01	1.90	no	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	35:11	2.939e+01	1.700e+01	1.73	no	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:43	1.966e+01	2.197e+01	0.90	no	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	36:30	2.385e+01	2.305e+01	1.03	no	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:50	3.596e+01	3.222e+01	1.12	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	39:11	1.058e+01	1.674e+01	0.63	no	yes	1.341
10	Unk	OCDF	41:41	9.953e+01	6.572e+01	1.51	no	no	1.337
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.055
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.964
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.074
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.037
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:44	1.712e+02	1.355e+02	1.26	no	no	1.048
17	Unk	OCDD	41:28	1.169e+03	1.308e+03	0.89	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	26:37	4.225e+04	5.389e+04	0.78	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	31:16	9.187e+04	5.848e+04	1.57	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	32:15	9.462e+04	6.042e+04	1.57	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	35:03	4.814e+04	9.195e+04	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	35:10	5.684e+04	1.067e+05	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:43	5.494e+04	1.026e+05	0.54	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	36:29	5.105e+04	9.674e+04	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:48	3.906e+04	8.725e+04	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:12	3.557e+04	7.952e+04	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	27:30	3.599e+04	4.552e+04	0.79	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:32	7.556e+04	4.878e+04	1.55	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:51	7.076e+04	5.617e+04	1.26	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:56	7.249e+04	5.869e+04	1.24	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:44	6.017e+04	5.703e+04	1.06	yes	no	0.884
32	IS	13C-OCDD	41:28	8.003e+04	8.956e+04	0.89	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:49	9.567e+04	1.202e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:11	1.269e+05	1.019e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:32	3.028e+04				no	1.072

$$\text{OCDD} = \frac{(1.169e+03 + 1.308e+03) \times 4000 \text{ pg} \times 1}{(8.003e+04 + 8.956e+04) \times \text{g} \times / 100 \times 1.120} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #10 Filename P609091 Samp: 1 Inj: 1 Acquired: 14-SEP-17 18:14:03
Processed: 15-SEP-17 08:42:32 LAB. ID: EQ1700401-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	8.40e+02	*	*	1.28e+03	*
2	1,2,3,7,8-PeCDF	*	6.56e+02	*	*	1.15e+03	*
3	2,3,4,7,8-PeCDF	4.91e+03	6.56e+02	7.5e+00	5.83e+03	1.15e+03	5.1e+00
4	1,2,3,4,7,8-HxCDF	5.34e+03	2.24e+02	2.4e+01	3.03e+03	2.40e+02	1.3e+01
5	1,2,3,6,7,8-HxCDF	7.55e+03	2.24e+02	3.4e+01	3.47e+03	2.40e+02	1.4e+01
6	2,3,4,6,7,8-HxCDF	5.48e+03	2.24e+02	2.4e+01	5.57e+03	2.40e+02	2.3e+01
7	1,2,3,7,8,9-HxCDF	5.07e+03	2.24e+02	2.3e+01	4.80e+03	2.40e+02	2.0e+01
8	1,2,3,4,6,7,8-HpCDF	7.20e+03	1.00e+02	7.2e+01	4.82e+03	1.40e+02	3.4e+01
9	1,2,3,4,7,8,9-HpCDF	2.87e+03	1.00e+02	2.9e+01	3.06e+03	1.40e+02	2.2e+01
10	OCDF	1.44e+04	1.76e+02	8.2e+01	9.96e+03	1.07e+03	9.3e+00
11	2,3,7,8-TCDD	*	1.55e+03	*	*	1.40e+02	*
12	1,2,3,7,8-PeCDD	*	1.44e+02	*	*	1.68e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.00e+02	*	*	2.20e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.00e+02	*	*	2.20e+02	*
15	1,2,3,7,8,9-HxCDD	*	2.00e+02	*	*	2.20e+02	*
16	1,2,3,4,6,7,8-HpCDD	2.95e+04	1.56e+02	1.9e+02	2.41e+04	1.00e+02	2.4e+02
17	OCDD	1.72e+05	1.28e+02	1.3e+03	2.09e+05	1.28e+02	1.6e+03
18	13C-2,3,7,8-TCDF	6.30e+06	1.11e+04	5.7e+02	7.96e+06	6.90e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	1.55e+07	2.08e+03	7.5e+03	1.00e+07	1.46e+03	6.9e+03
20	13C-2,3,4,7,8-PeCDF	1.72e+07	2.08e+03	8.3e+03	1.11e+07	1.46e+03	7.6e+03
21	13C-1,2,3,4,7,8-HxCDF	1.00e+07	1.31e+03	7.7e+03	1.94e+07	1.01e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.07e+07	1.31e+03	8.2e+03	2.05e+07	1.01e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	1.13e+07	1.31e+03	8.6e+03	2.11e+07	1.01e+03	2.1e+04
24	13C-1,2,3,7,8,9-HxCDF	9.84e+06	1.31e+03	7.5e+03	1.86e+07	1.01e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.78e+06	4.66e+03	1.7e+03	1.76e+07	1.13e+04	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.29e+06	4.66e+03	1.3e+03	1.41e+07	1.13e+04	1.3e+03
27	13C-2,3,7,8-TCDD	5.82e+06	9.40e+03	6.2e+02	7.38e+06	3.67e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	1.37e+07	1.30e+03	1.1e+04	8.80e+06	9.60e+01	9.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.55e+07	1.71e+03	9.1e+03	1.23e+07	4.76e+02	2.6e+04
30	13C-1,2,3,6,7,8-HxCDD	1.39e+07	1.71e+03	8.2e+03	1.15e+07	4.76e+02	2.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.18e+07	1.00e+03	1.2e+04	1.12e+07	3.52e+02	3.2e+04
32	13C-OCDD	1.19e+07	1.64e+02	7.2e+04	1.33e+07	1.48e+02	9.0e+04
33	13C-1,2,3,4-TCDD	1.59e+07	9.40e+03	1.7e+03	2.00e+07	3.67e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.52e+07	1.71e+03	1.5e+04	2.05e+07	4.76e+02	4.3e+04
35	37Cl-2,3,7,8-TCDD	4.82e+06	2.56e+02	1.9e+04			

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P609091 Sample:1 Injection:1 Function:4

Acquired: 14-SEP-17 18:14:03 Processed: 15-SEP-17 08:42:32

Mass: 407.7820 409.7790 Tot Response: 1.66e+02 RRF: 1.368

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:50	3.60e+01	3.22e+01	1.12	yes	6.82e+01	1,2,3,4,6,7,8-HpCDF	n	n
2	38:14	5.02e+01	4.74e+01	1.06	yes	9.76e+01		n	n

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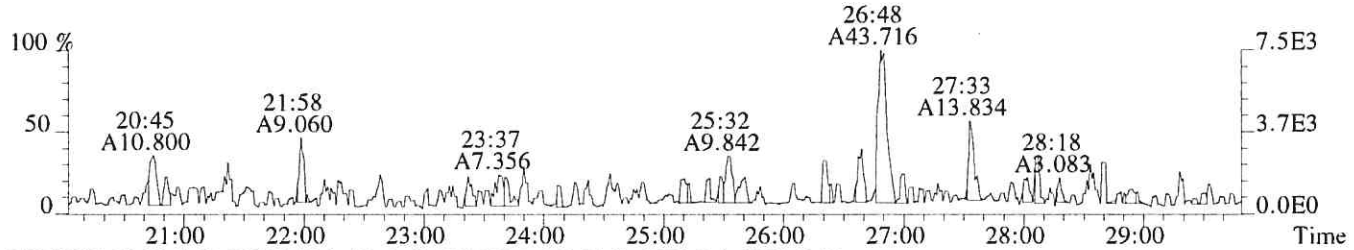
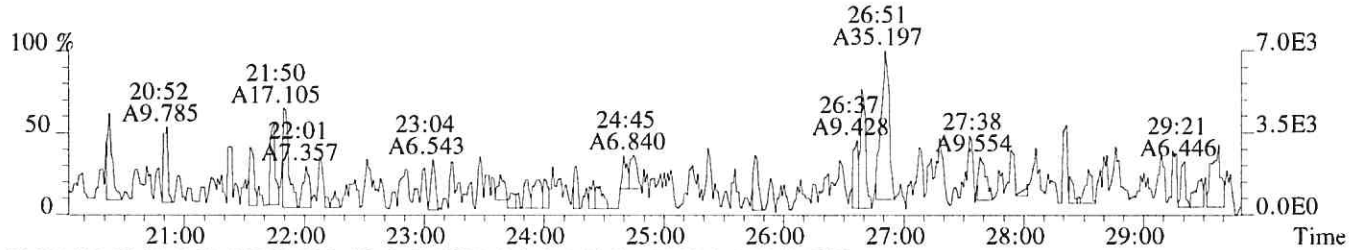
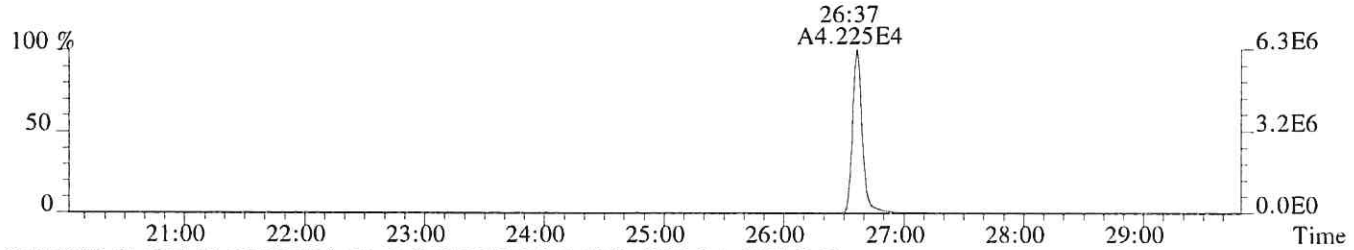
File:P609091 #1-694 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



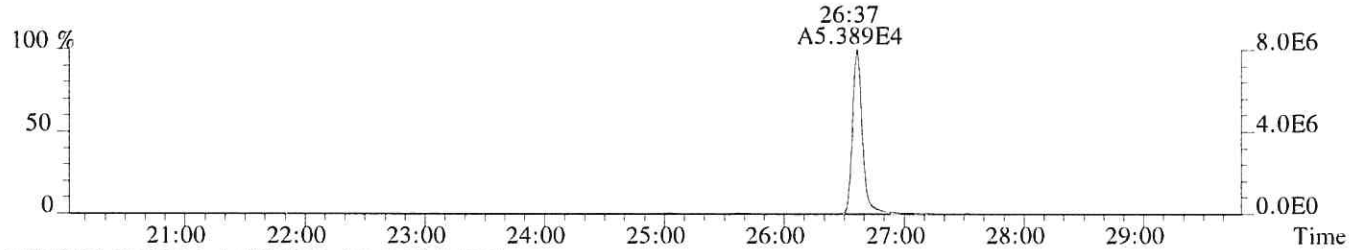
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



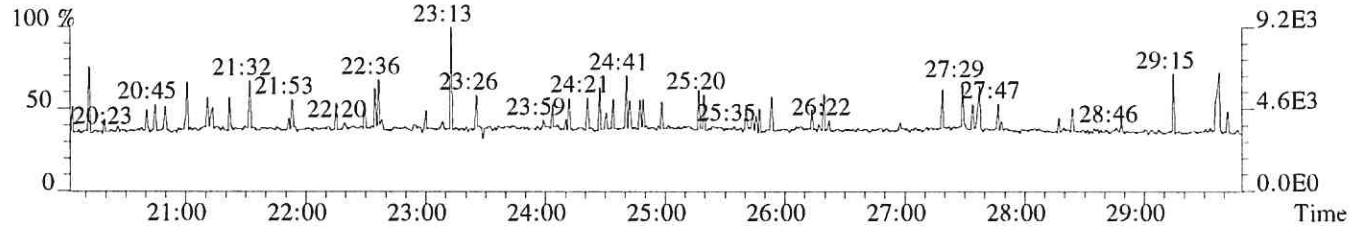
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11092.0,1.00%,F,T)



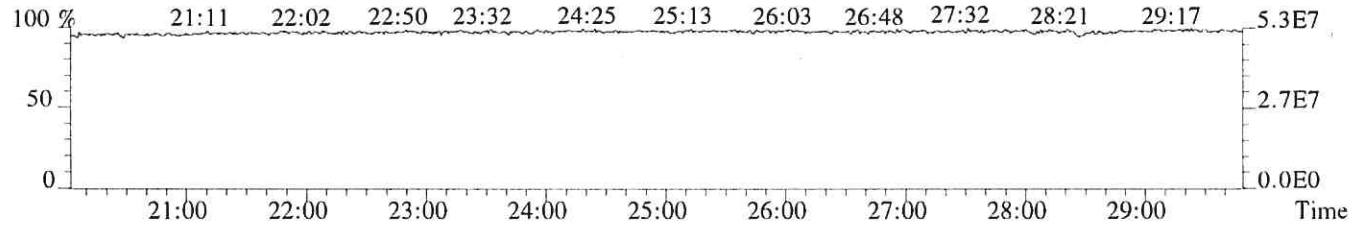
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6900.0,1.00%,F,T)



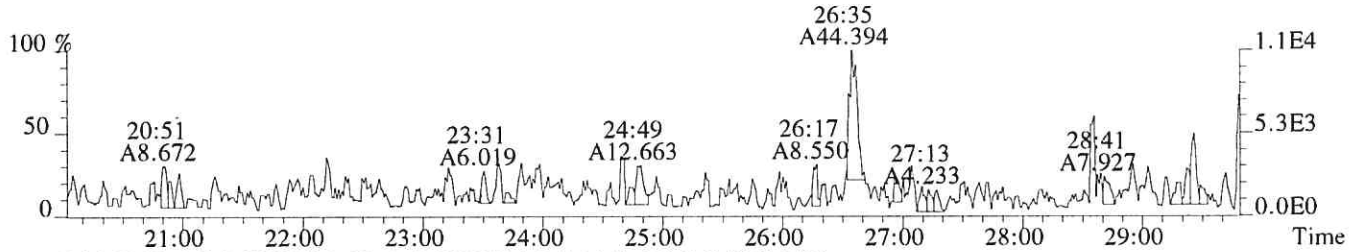
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



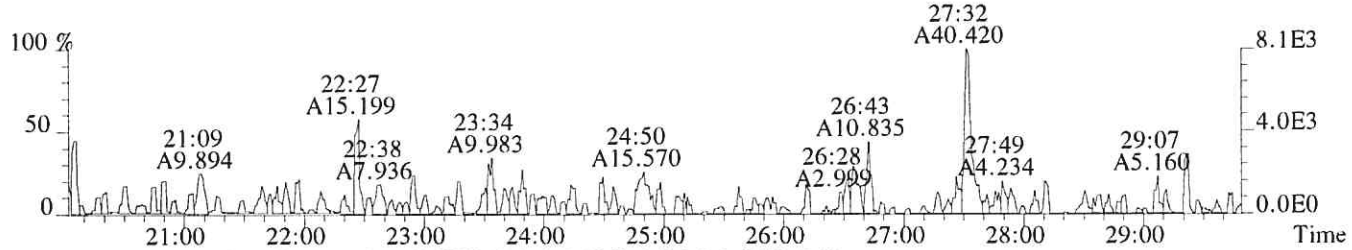
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



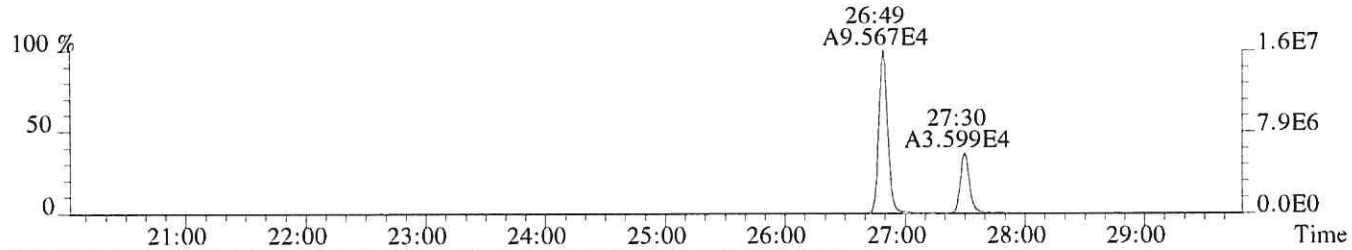
File:P609091 #1-694 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1552.0,1.00%,F,T)



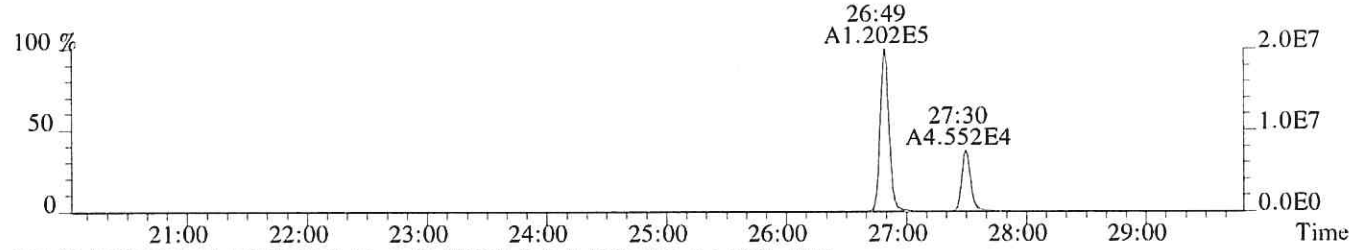
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,140.0,1.00%,F,T)



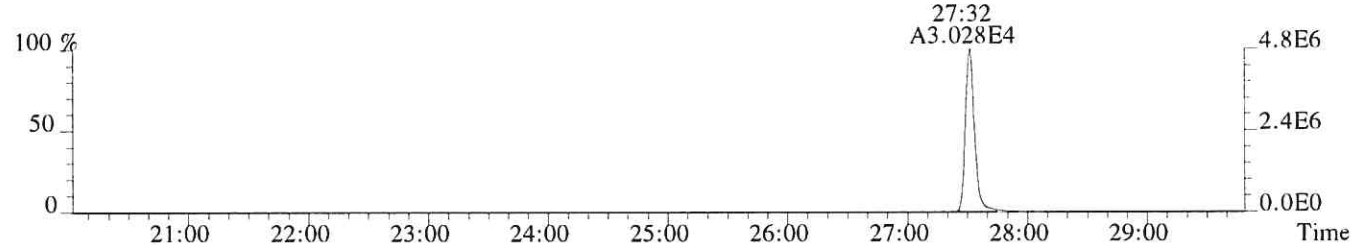
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9400.0,1.00%,F,T)



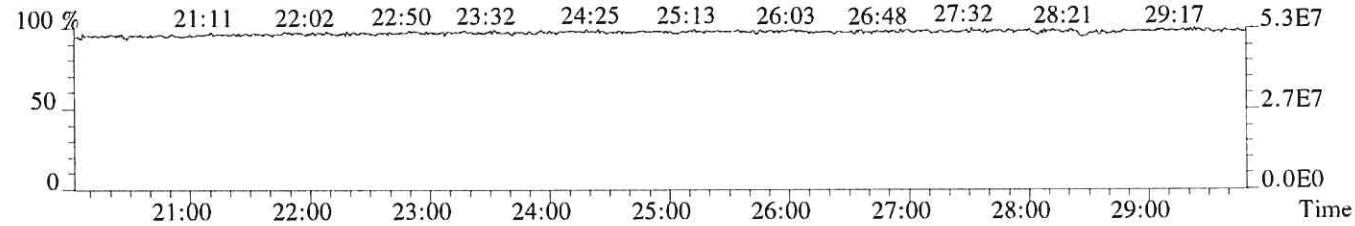
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3668.0,1.00%,F,T)



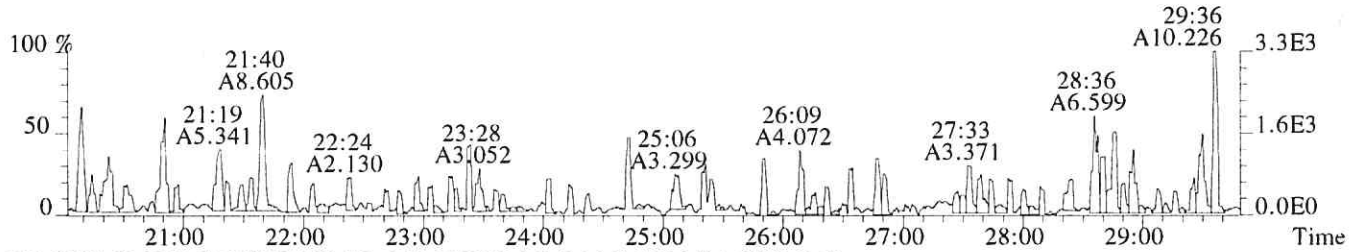
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



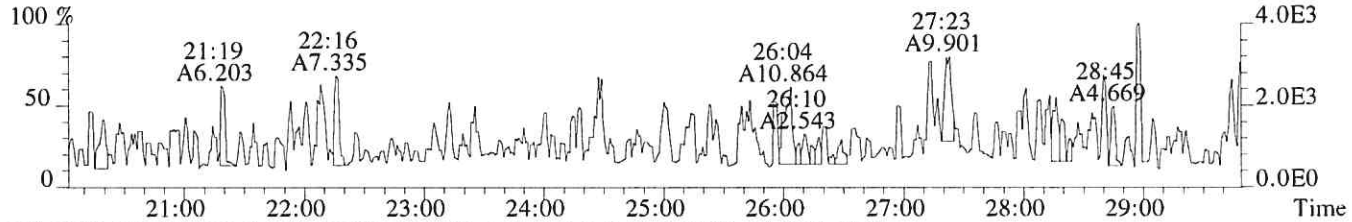
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



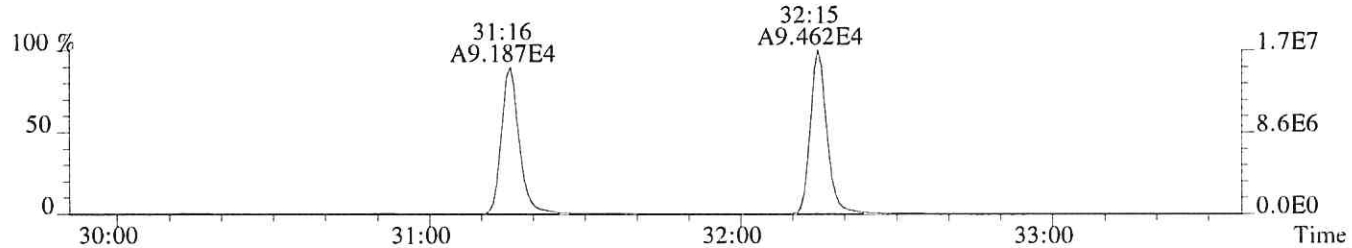
File:P609091 #1-694 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



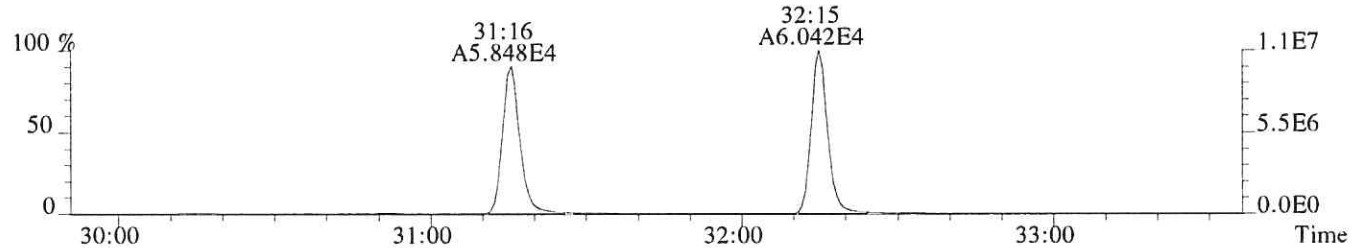
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



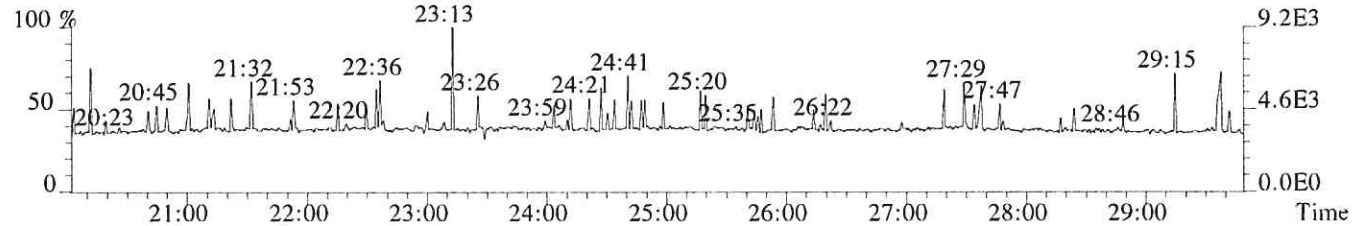
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



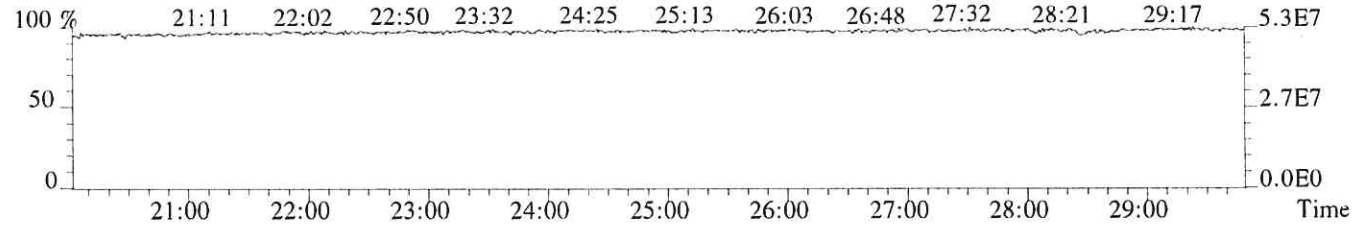
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



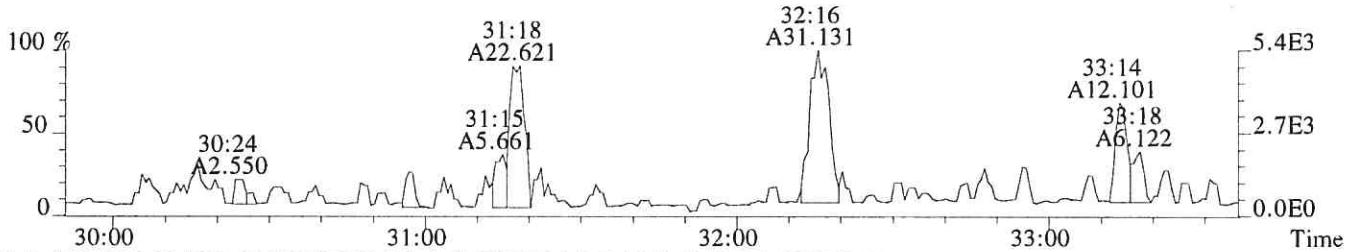
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



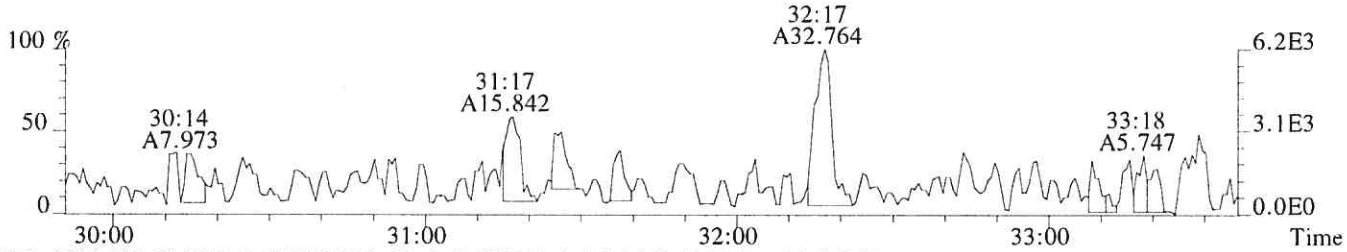
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



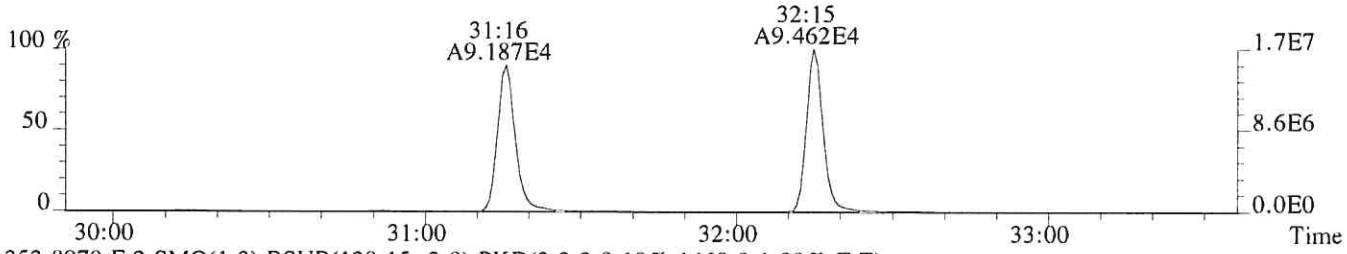
File:P609091 #1-339 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



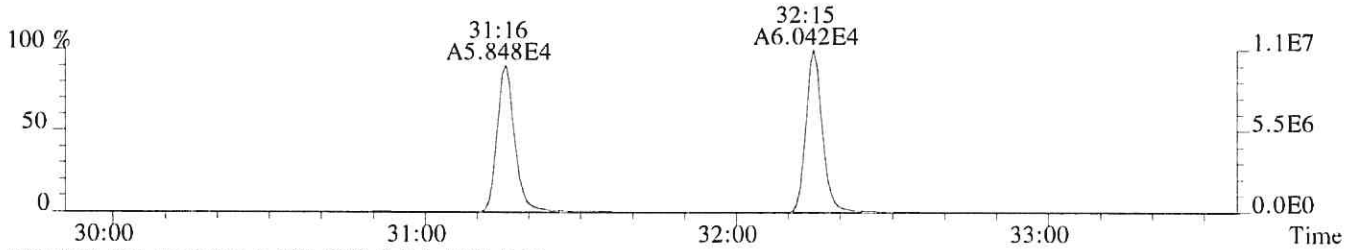
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



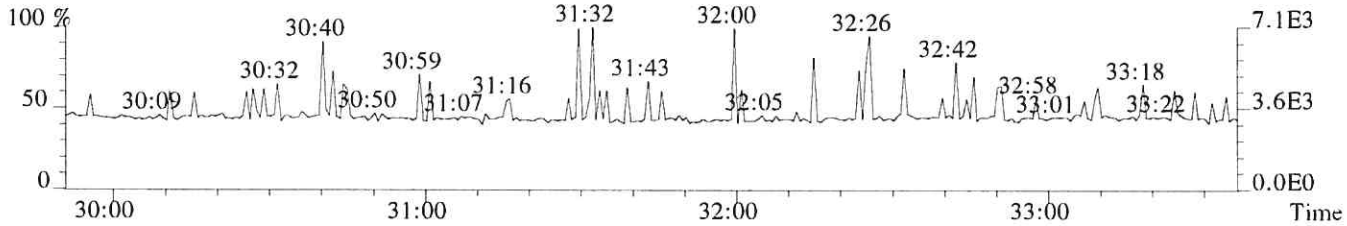
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



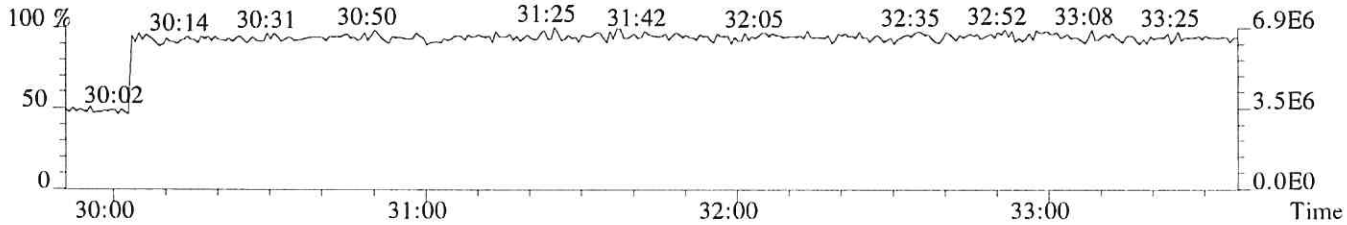
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



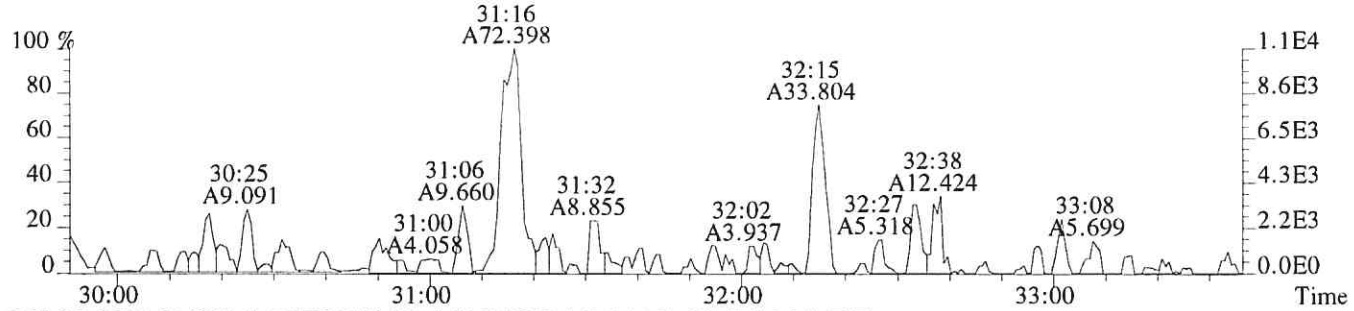
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



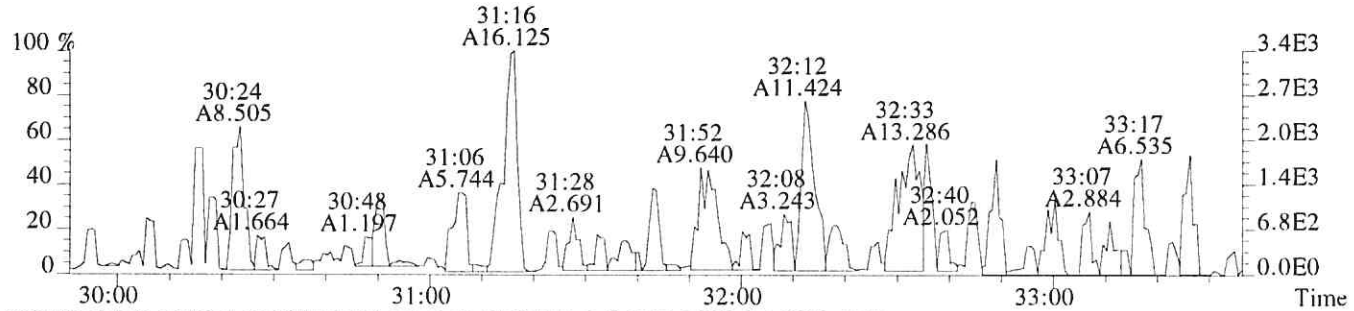
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



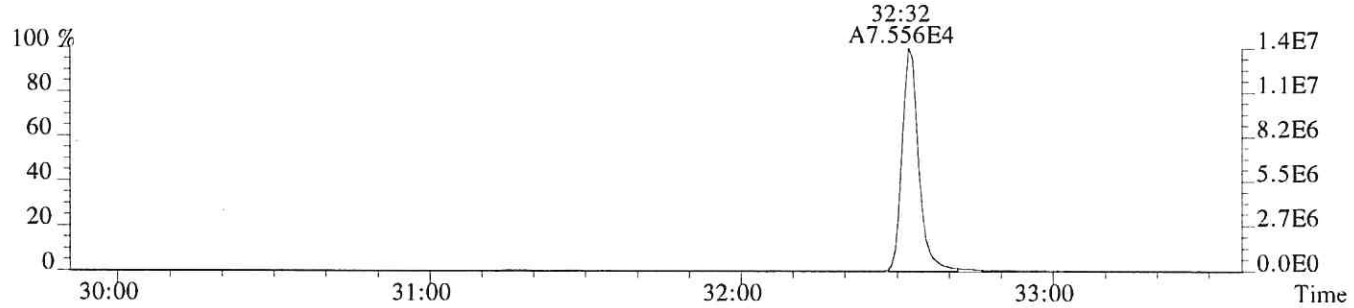
File:P609091 #1-339 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



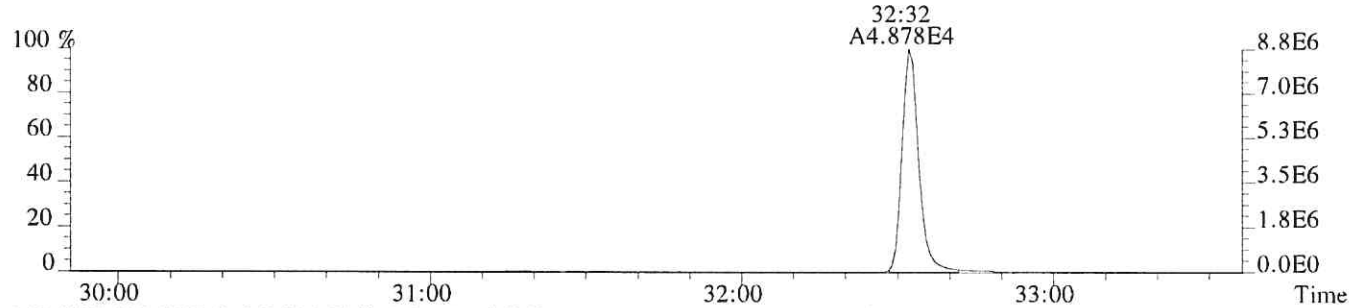
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



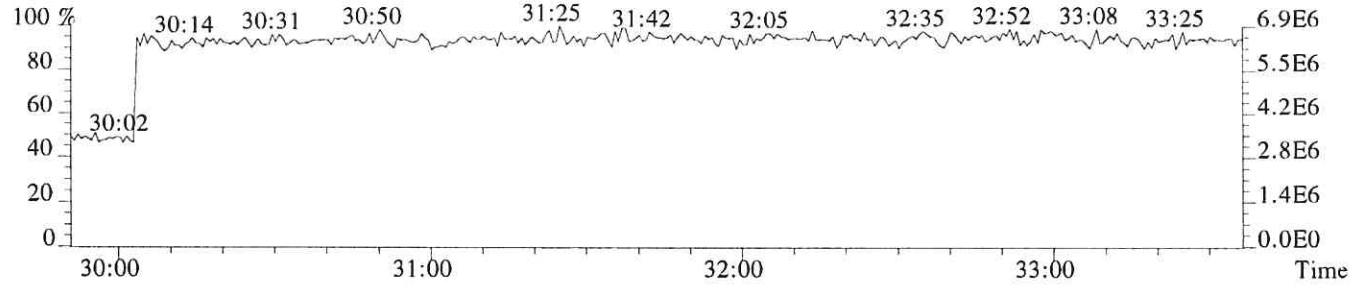
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



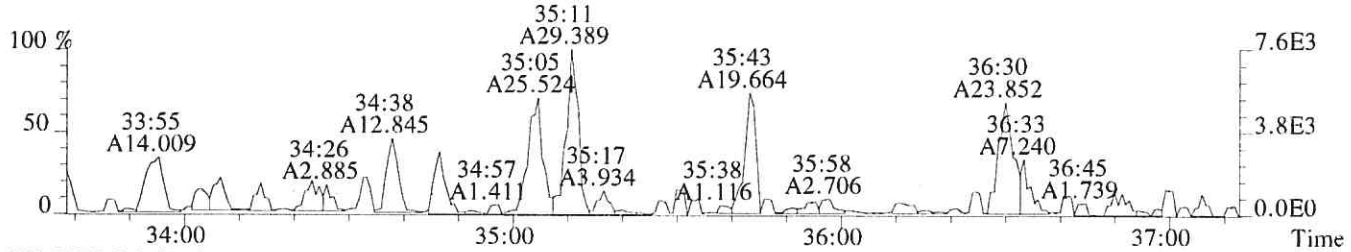
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



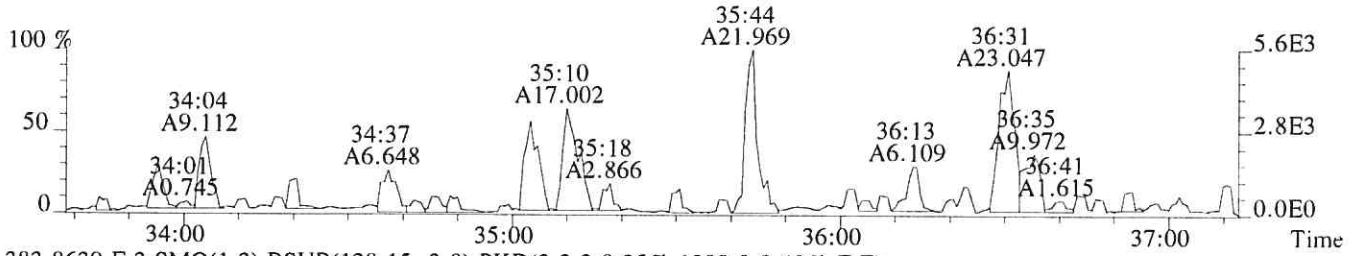
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



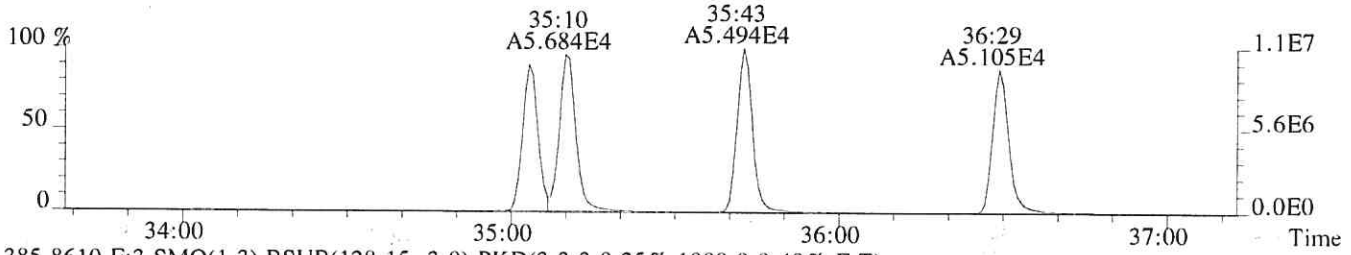
File:P609091 #1-322 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



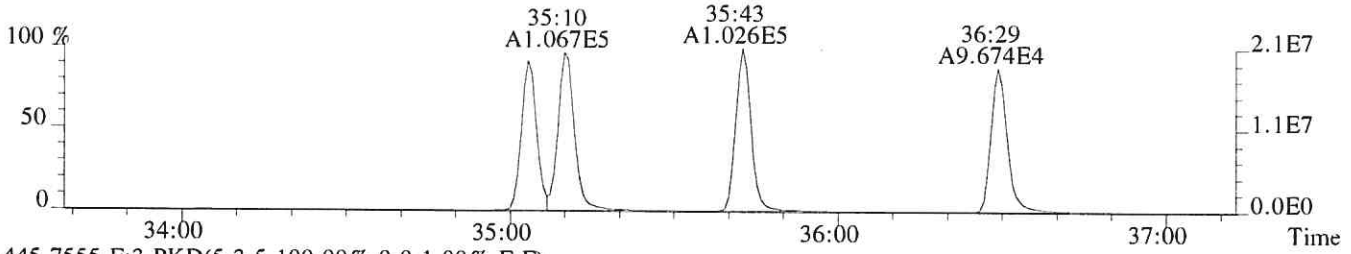
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



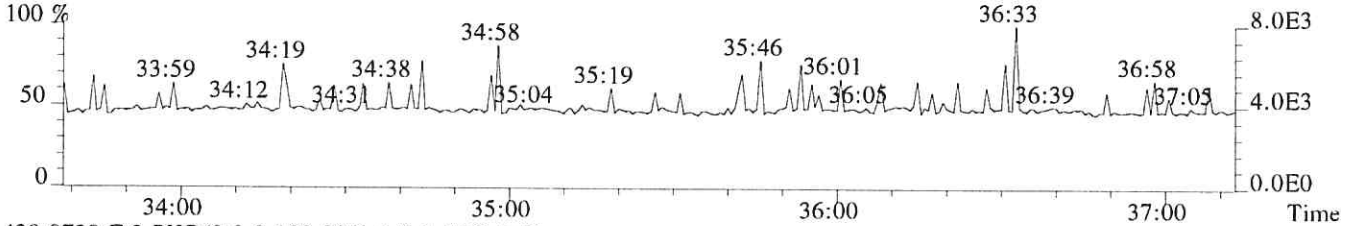
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



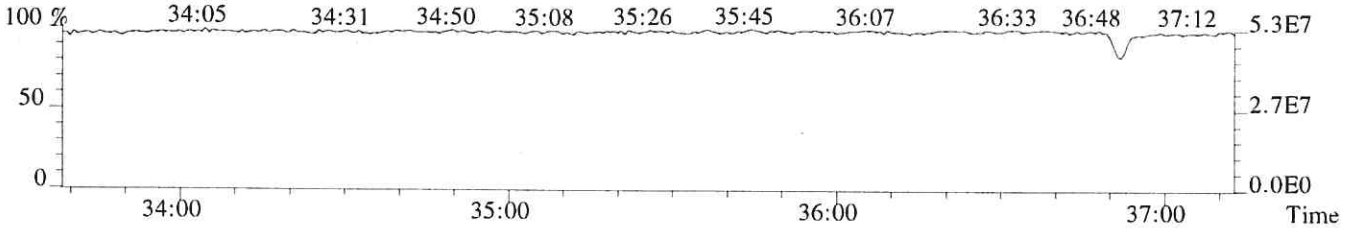
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



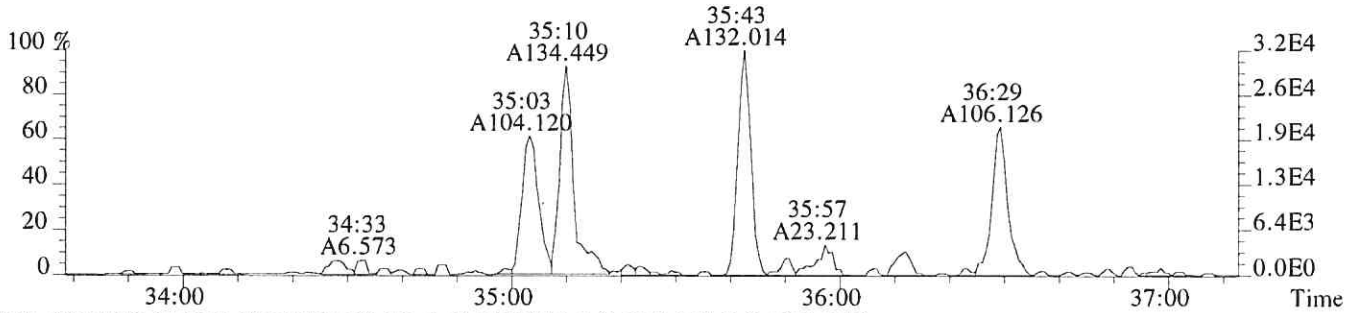
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



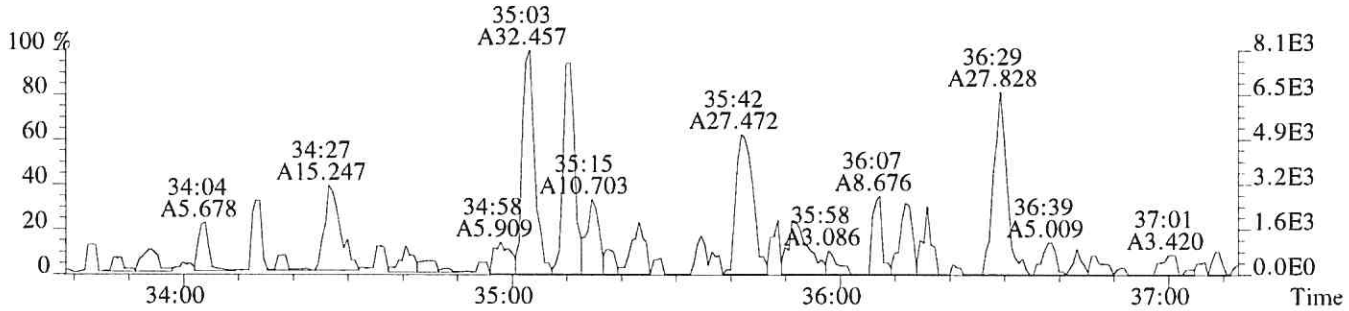
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



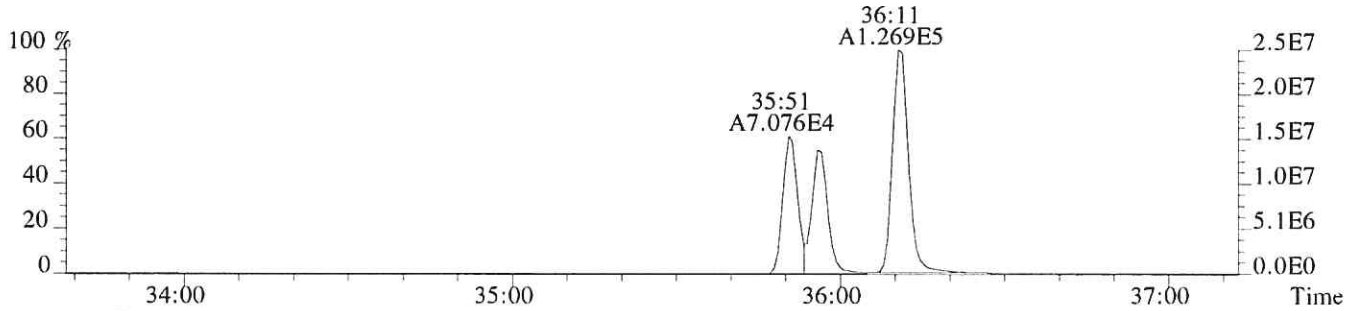
File:P609091 #1-322 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



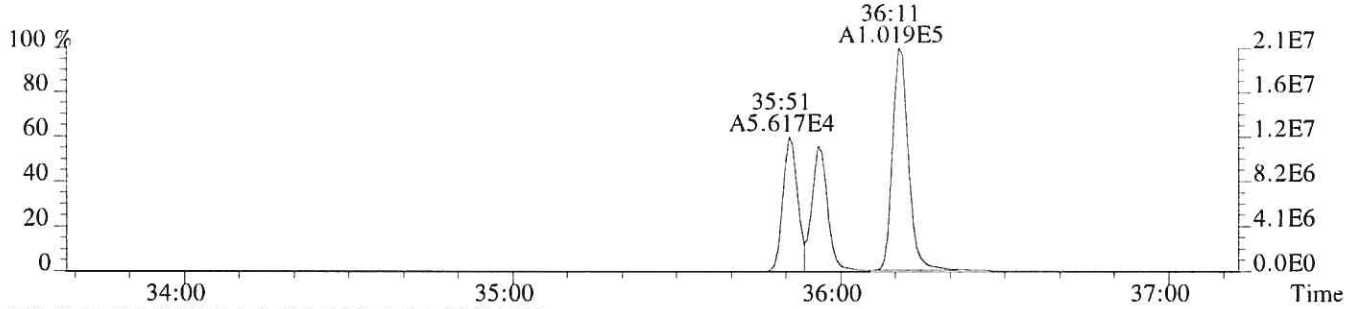
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



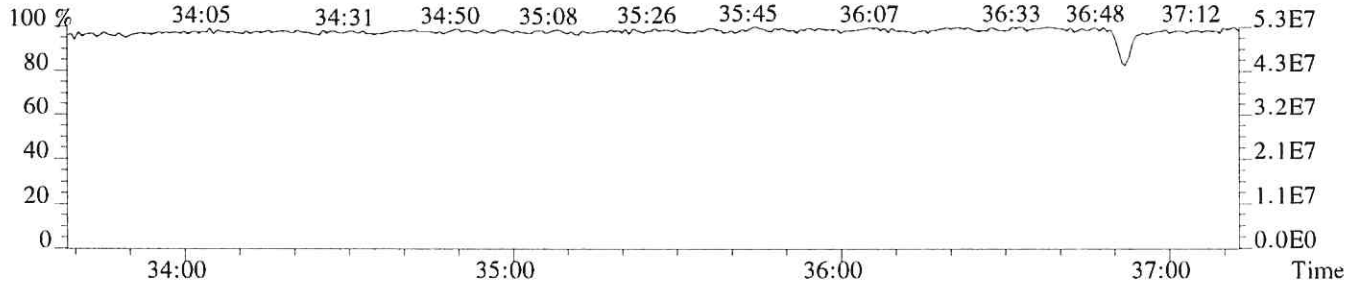
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1708.0,0.40%,F,T)



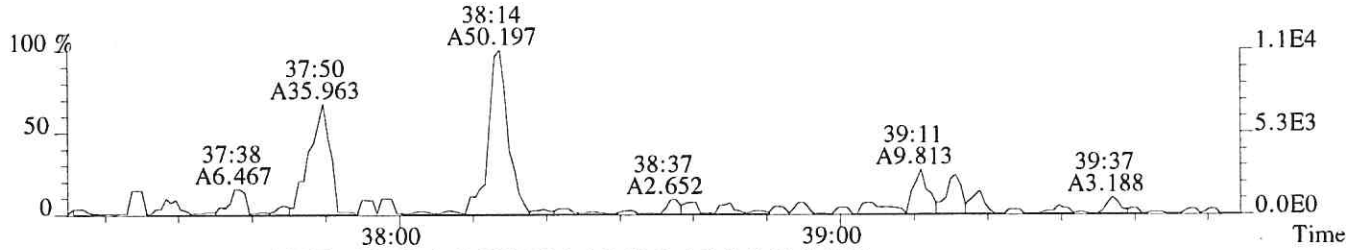
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



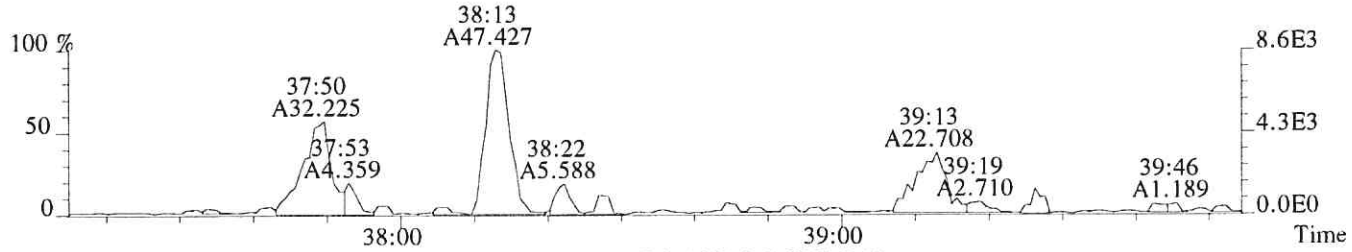
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



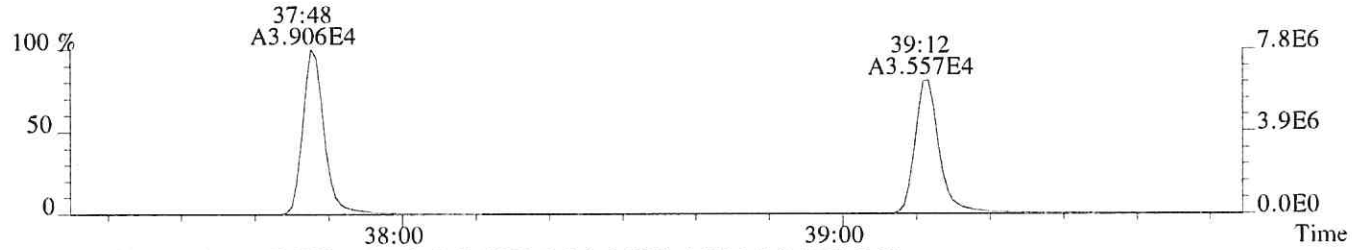
File:P609091 #1-240 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.50%,F,T)



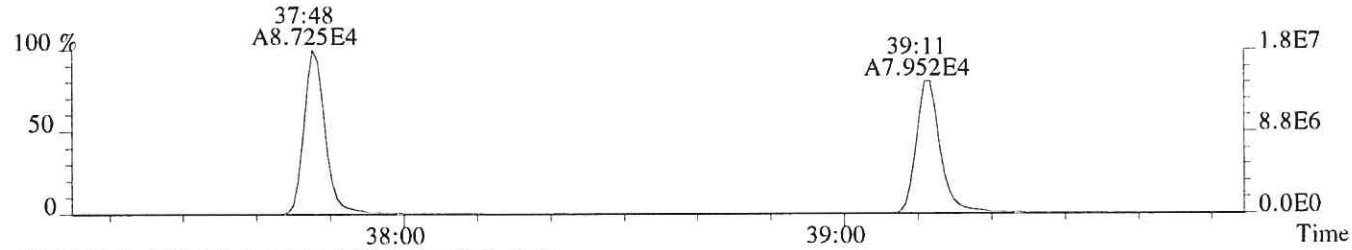
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.50%,F,T)



417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4664.0,0.50%,F,T)

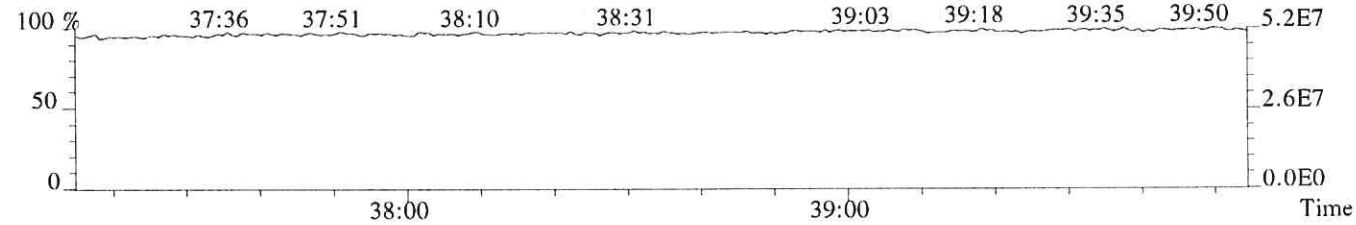


419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11256.0,0.50%,F,T)

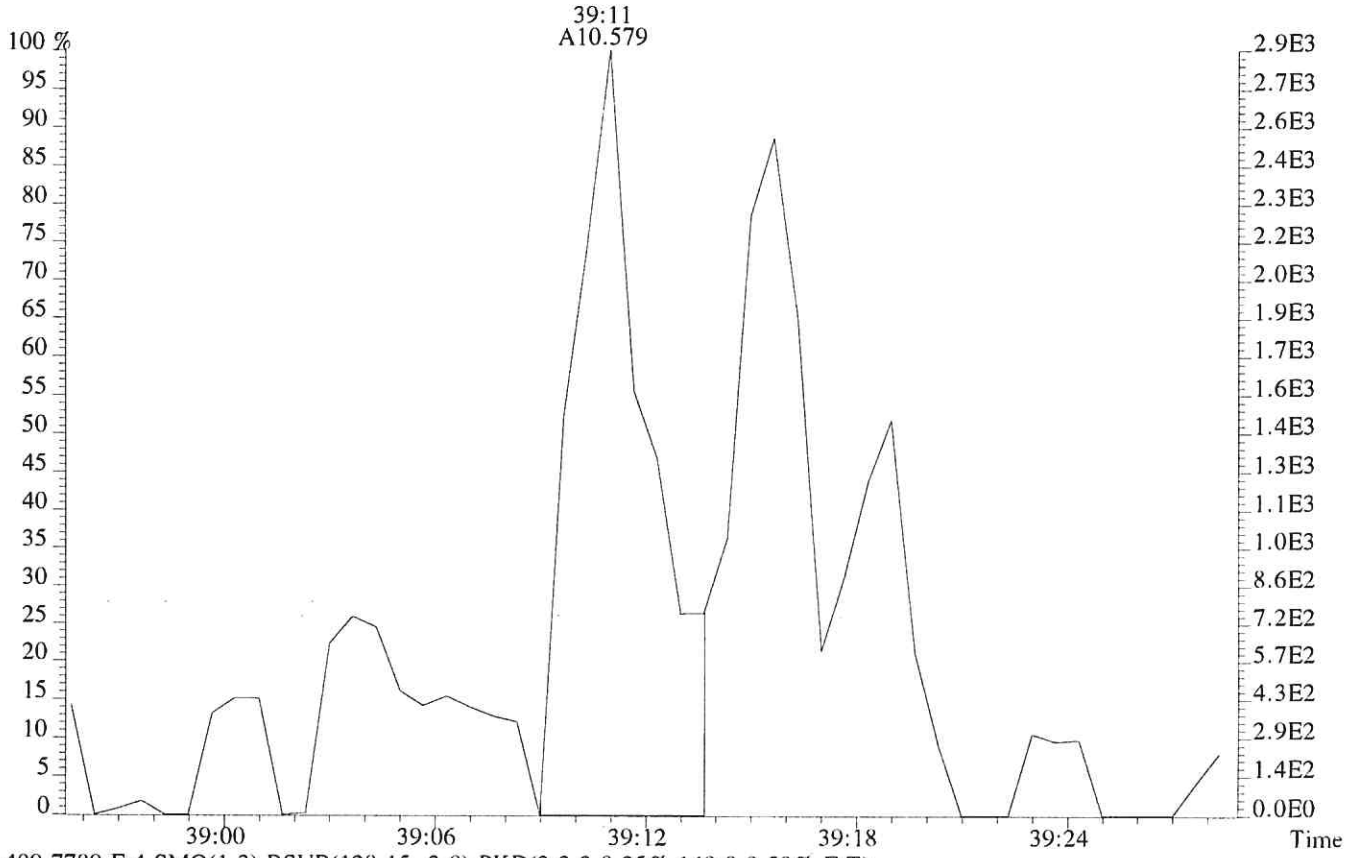


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

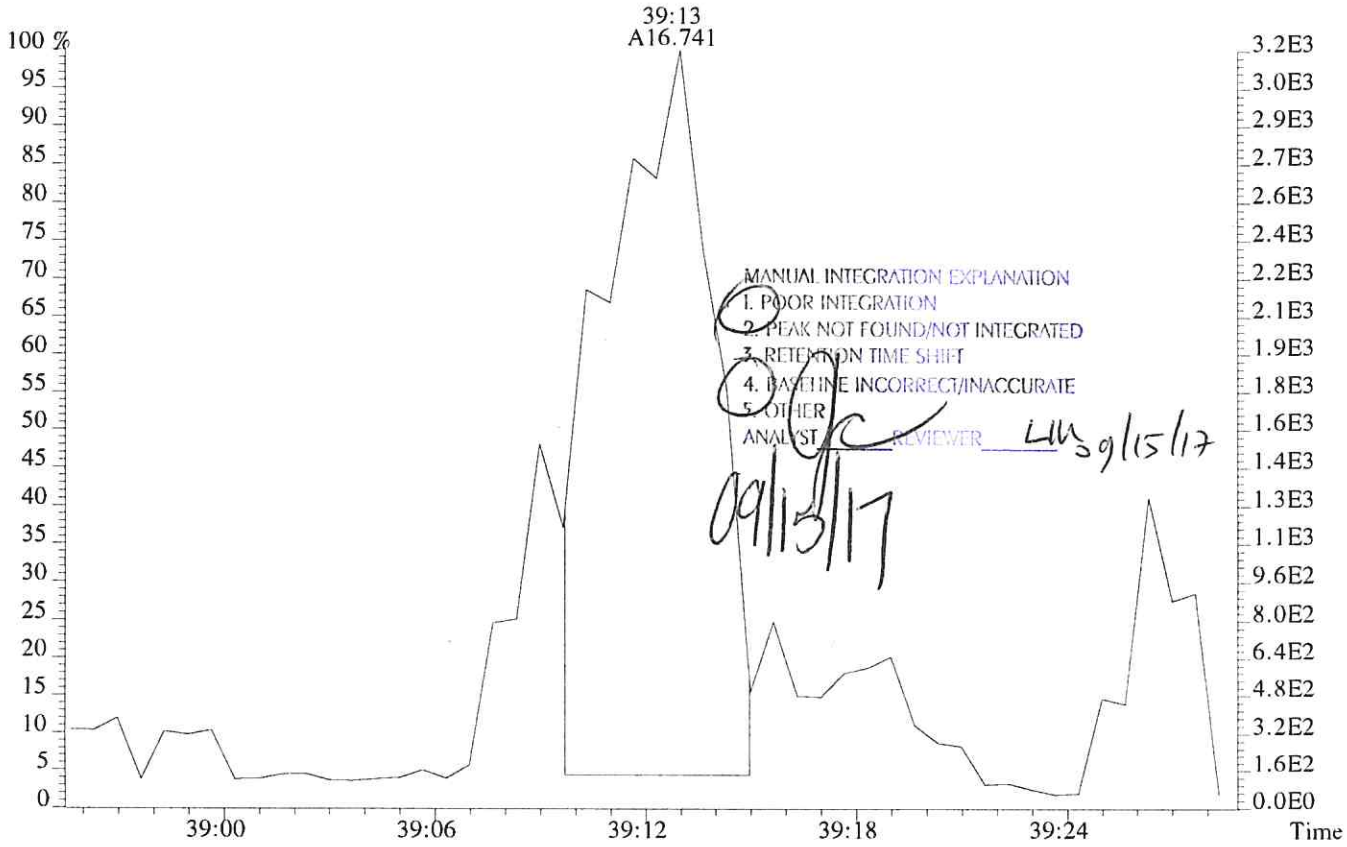
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



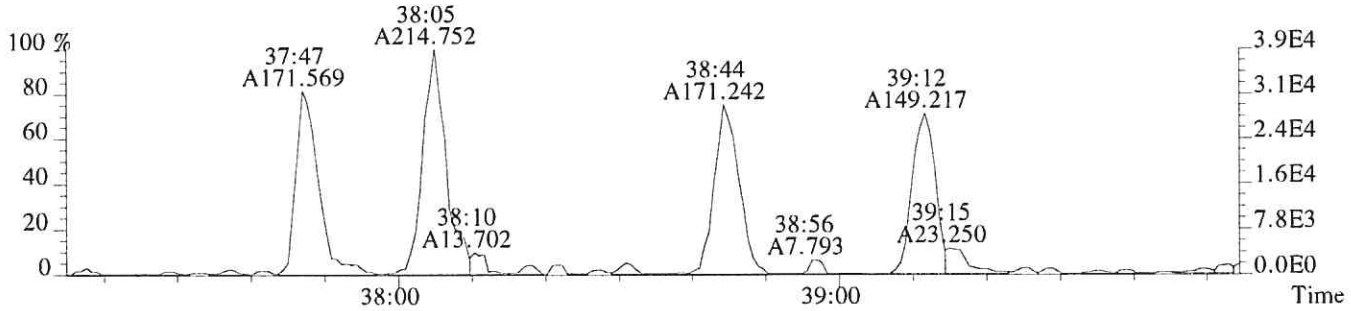
File:P609091 #1-240 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.50%,F,T)



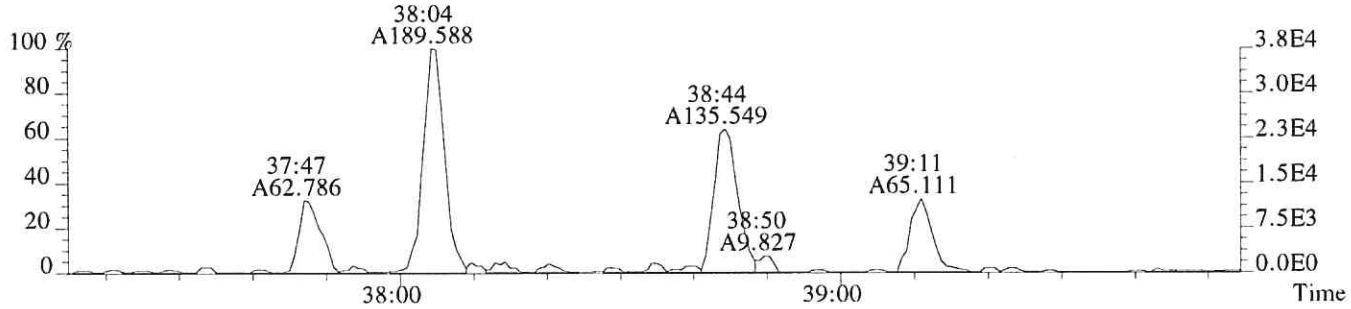
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.50%,F,T)



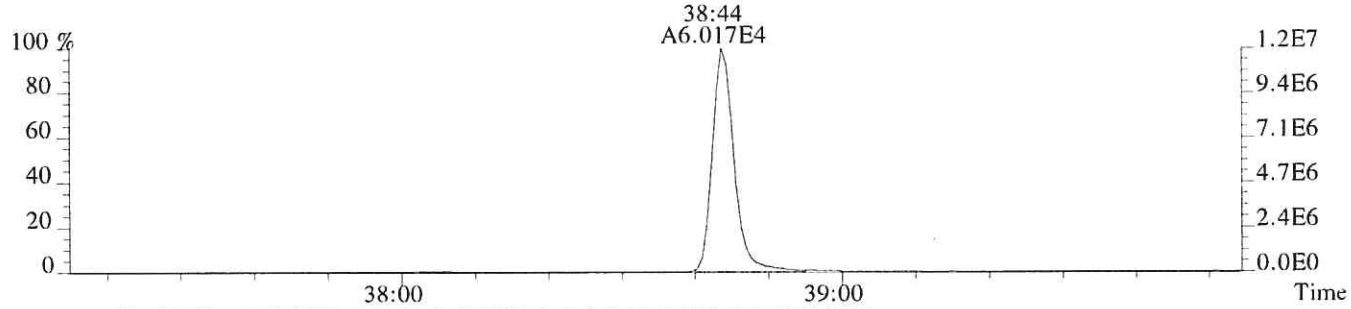
File:P609091 #1-240 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)



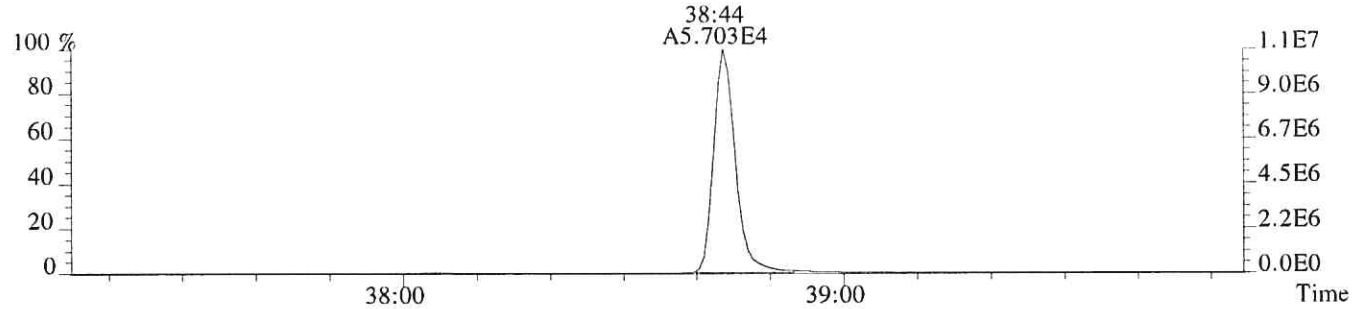
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.40%,F,T)



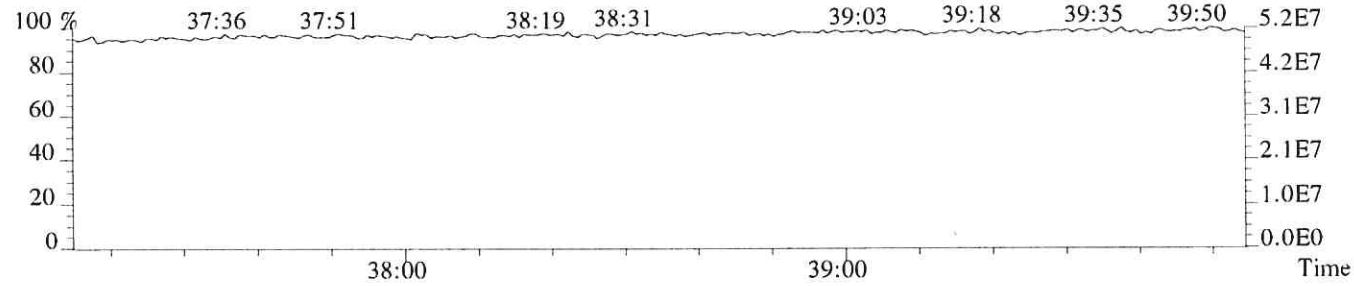
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



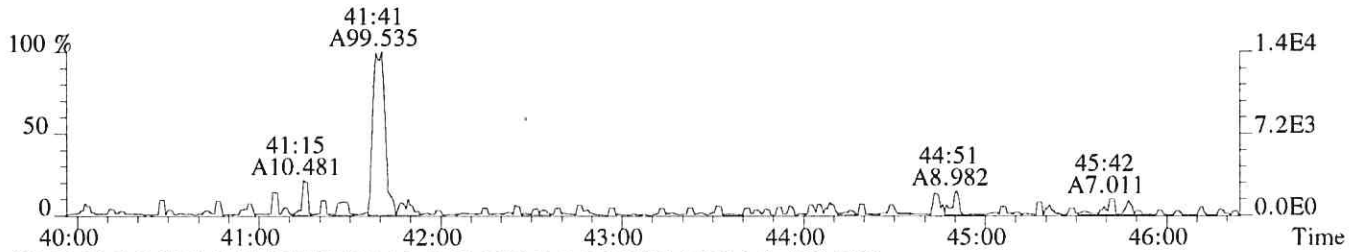
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



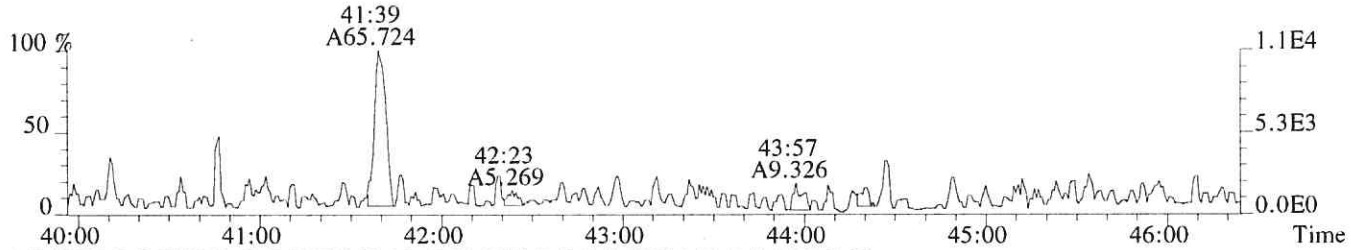
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



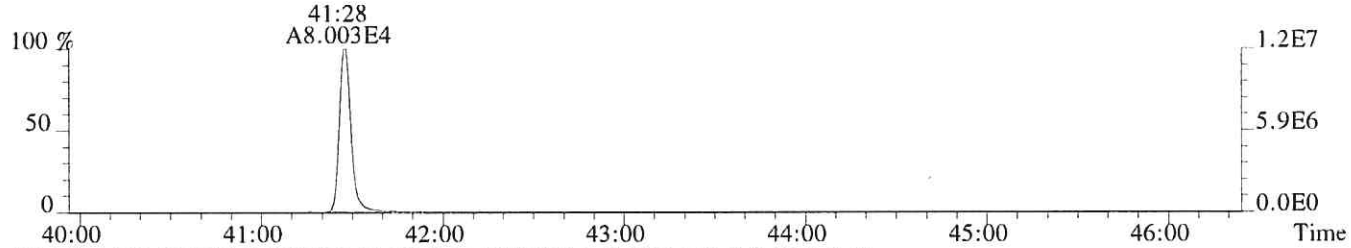
File:P609091 #1-582 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



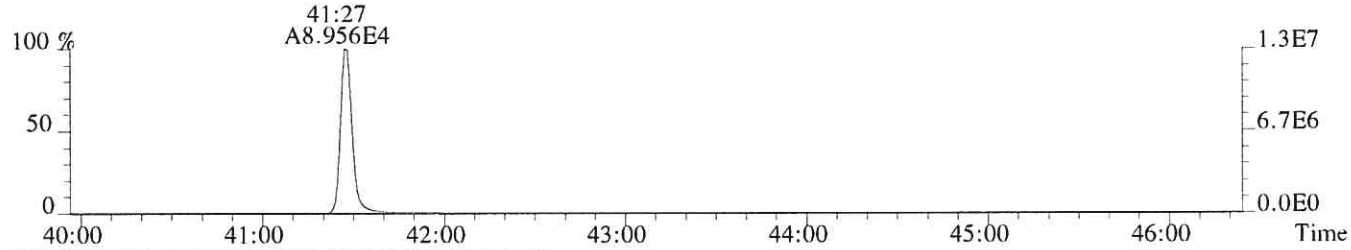
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



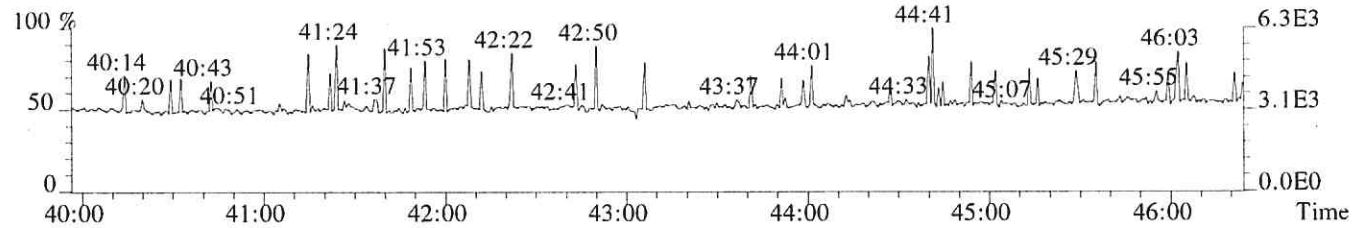
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



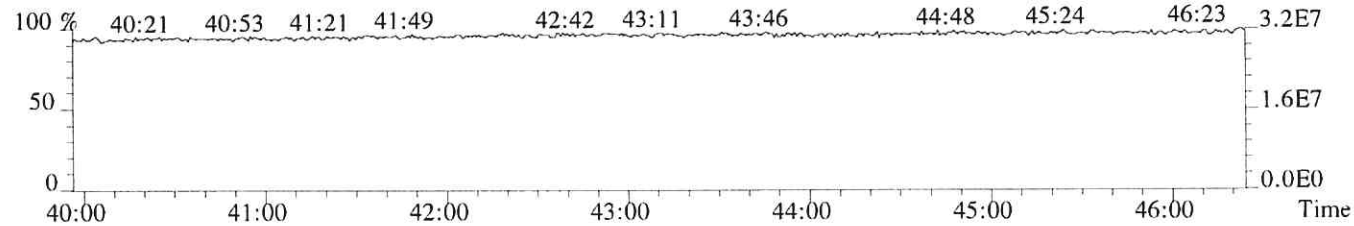
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



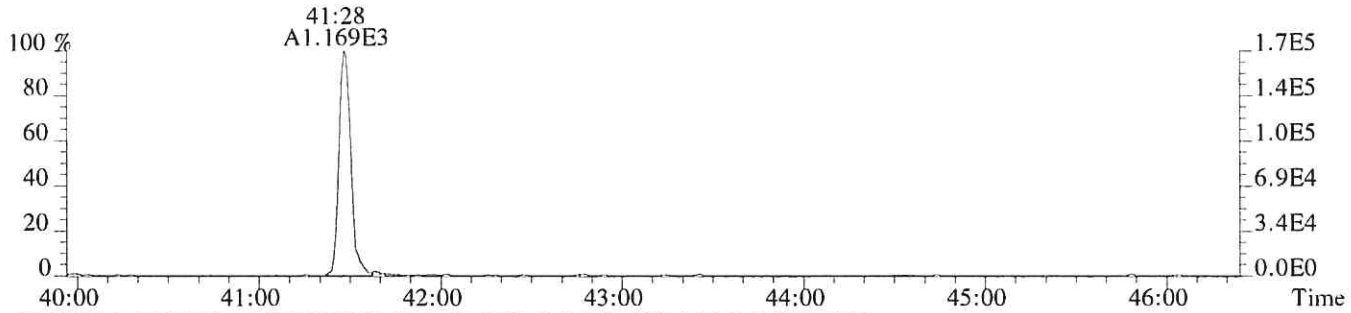
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



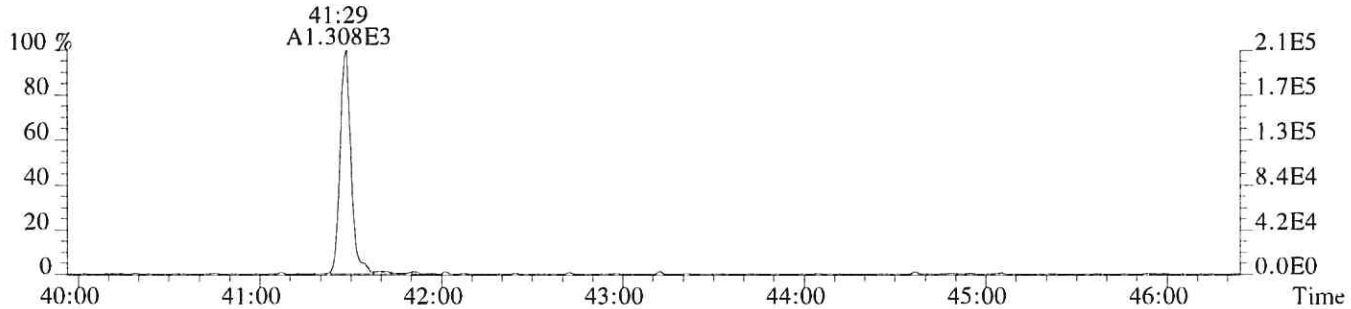
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



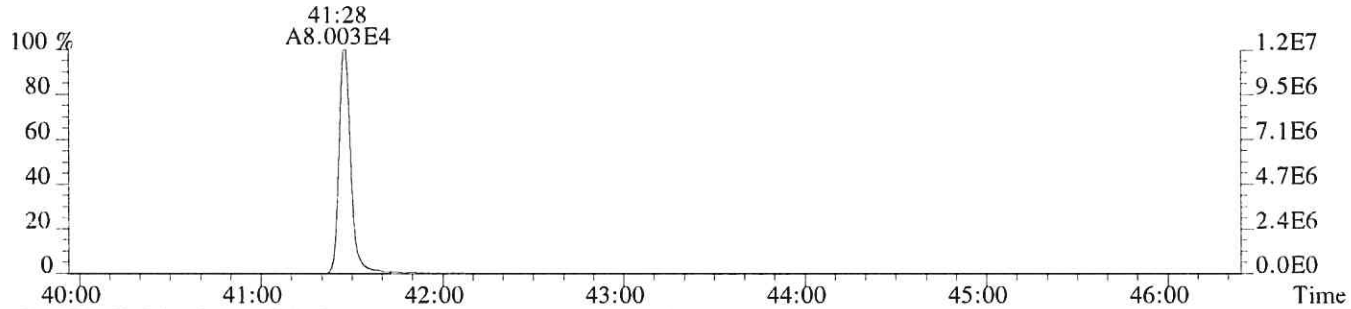
File:P609091 #1-582 Acq:14-SEP-2017 18:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,128.0,0.40%,F,T)



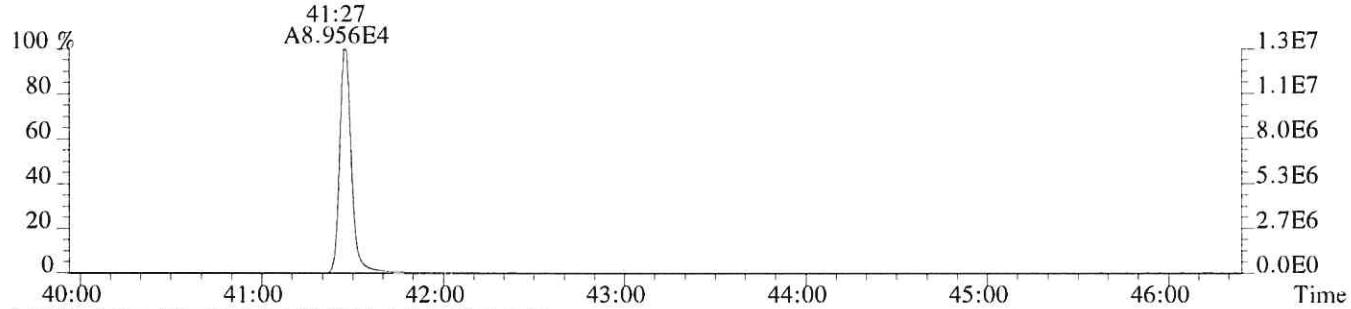
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,128.0,0.40%,F,T)



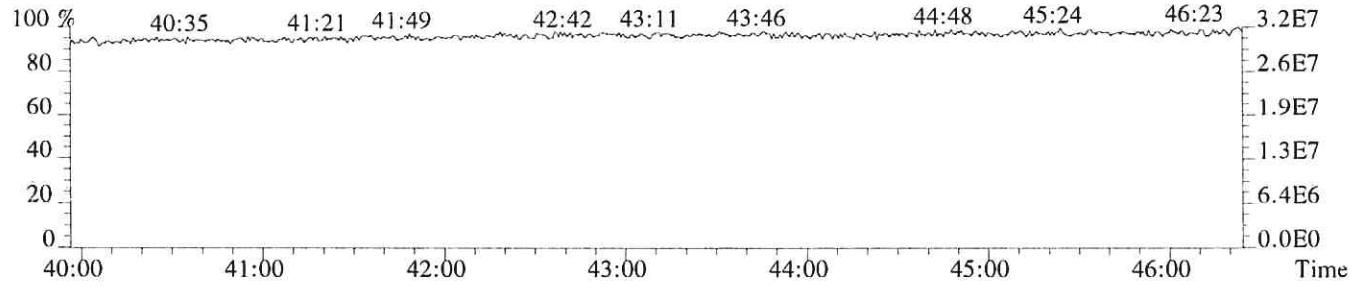
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,164.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #18 Filename p407887 Samp: 1 Inj: 1 Acquired: 15-SEP-17 21:17:23
Processed: 18-SEP-17 14:16:07 Sample ID: EQ1700401-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:07	4.245e+02	5.690e+02	0.75	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:17	4.146e+03	2.727e+03	1.52	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:12	4.022e+03	2.670e+03	1.51	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	35:49	3.519e+03	2.872e+03	1.23	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	35:56	4.342e+03	3.527e+03	1.23	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:26	3.443e+03	2.865e+03	1.20	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:11	2.927e+03	2.263e+03	1.29	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	2.821e+03	2.768e+03	1.02	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	39:47	2.111e+03	2.141e+03	0.99	yes	no	1.301
10	Unk	OCDF	42:12	2.816e+03	3.341e+03	0.84	yes	no	1.114
11	Unk	2,3,7,8-TCDD	28:53	3.684e+02	4.721e+02	0.78	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:28	3.385e+03	2.235e+03	1.51	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:33	2.451e+03	1.978e+03	1.24	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:39	3.057e+03	2.461e+03	1.24	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	36:53	2.839e+03	2.203e+03	1.29	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	2.077e+03	1.903e+03	1.09	yes	no	0.975
17	Unk	OCDD	41:60	2.719e+03	3.138e+03	0.87	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:05	4.996e+03	6.707e+03	0.74	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:16	1.002e+04	6.264e+03	1.60	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:10	9.224e+03	5.967e+03	1.55	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	3.911e+03	7.580e+03	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	5.088e+03	9.723e+03	0.52	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	4.249e+03	8.194e+03	0.52	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:10	3.589e+03	7.126e+03	0.50	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	2.756e+03	6.459e+03	0.43	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	2.221e+03	5.014e+03	0.44	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	28:52	4.596e+03	5.848e+03	0.79	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:27	8.095e+03	5.188e+03	1.56	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	5.830e+03	4.502e+03	1.30	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	6.725e+03	5.458e+03	1.23	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	4.297e+03	4.037e+03	1.06	yes	no	0.854
32	IS	13C-OCDD	41:59	4.764e+03	5.438e+03	0.88	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:17	1.043e+04	1.324e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.157e+04	9.307e+03	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:53	4.090e+03				no	0.992

$$\text{OCDD} = \frac{(2.719e+03 + 3.138e+03)\ \times 4000\ \text{pg} \times 1}{(4.764e+03 + 5.438e+03)\ \times\ \text{g} \times / 100 \times 1.033} =$$

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #18 Filename p407887 Samp: 1 Inj: 1 Acquired: 15-SEP-17 21:17:23
Processed: 18-SEP-17 14:16:07 LAB. ID: EQ1700401-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.45e+04	7.60e+02	9.8e+01	9.74e+04	2.38e+03	4.1e+01
2	1,2,3,7,8-PeCDF	7.08e+05	8.76e+02	8.1e+02	4.71e+05	1.30e+03	3.6e+02
3	2,3,4,7,8-PeCDF	7.62e+05	8.76e+02	8.7e+02	4.81e+05	1.30e+03	3.7e+02
4	1,2,3,4,7,8-HxCDF	7.33e+05	8.96e+02	8.2e+02	6.03e+05	9.40e+02	6.4e+02
5	1,2,3,6,7,8-HxCDF	7.73e+05	8.96e+02	8.6e+02	6.28e+05	9.40e+02	6.7e+02
6	2,3,4,6,7,8-HxCDF	6.62e+05	8.96e+02	7.4e+02	5.56e+05	9.40e+02	5.9e+02
7	1,2,3,7,8,9-HxCDF	5.09e+05	8.96e+02	5.7e+02	4.06e+05	9.40e+02	4.3e+02
8	1,2,3,4,6,7,8-HpCDF	5.34e+05	1.26e+03	4.2e+02	5.11e+05	8.08e+02	6.3e+02
9	1,2,3,4,7,8,9-HpCDF	3.59e+05	1.26e+03	2.9e+02	3.46e+05	8.08e+02	4.3e+02
10	OCDF	4.07e+05	4.48e+02	9.1e+02	4.74e+05	1.24e+03	3.8e+02
11	2,3,7,8-TCDD	6.97e+04	1.74e+03	4.0e+01	8.83e+04	6.60e+02	1.3e+02
12	1,2,3,7,8-PeCDD	5.85e+05	7.96e+02	7.4e+02	3.84e+05	3.76e+02	1.0e+03
13	1,2,3,4,7,8-HxCDD	5.34e+05	6.76e+02	7.9e+02	4.38e+05	9.96e+02	4.4e+02
14	1,2,3,6,7,8-HxCDD	5.48e+05	6.76e+02	8.1e+02	4.57e+05	9.96e+02	4.6e+02
15	1,2,3,7,8,9-HxCDD	5.02e+05	6.76e+02	7.4e+02	3.93e+05	9.96e+02	3.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.44e+05	5.64e+02	6.1e+02	3.18e+05	1.18e+03	2.7e+02
17	OCDD	3.82e+05	3.40e+02	1.1e+03	4.33e+05	1.47e+03	3.0e+02
18	13C-2,3,7,8-TCDF	9.09e+05	1.11e+04	8.2e+01	1.22e+06	4.98e+03	2.4e+02
19	13C-1,2,3,7,8-PeCDF	1.69e+06	8.68e+02	2.0e+03	1.08e+06	7.08e+02	1.5e+03
20	13C-2,3,4,7,8-PeCDF	1.71e+06	8.68e+02	2.0e+03	1.11e+06	7.08e+02	1.6e+03
21	13C-1,2,3,4,7,8-HxCDF	8.10e+05	6.56e+02	1.2e+03	1.58e+06	1.73e+03	9.1e+02
22	13C-1,2,3,6,7,8-HxCDF	9.03e+05	6.56e+02	1.4e+03	1.73e+06	1.73e+03	1.0e+03
23	13C-2,3,4,6,7,8-HxCDF	8.41e+05	6.56e+02	1.3e+03	1.64e+06	1.73e+03	9.5e+02
24	13C-1,2,3,7,8,9-HxCDF	6.30e+05	6.56e+02	9.6e+02	1.23e+06	1.73e+03	7.1e+02
25	13C-1,2,3,4,6,7,8-HpCDF	5.18e+05	1.52e+03	3.4e+02	1.19e+06	2.10e+03	5.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.57e+05	1.52e+03	2.3e+02	8.42e+05	2.10e+03	4.0e+02
27	13C-2,3,7,8-TCDD	8.59e+05	5.13e+03	1.7e+02	1.09e+06	2.30e+03	4.7e+02
28	13C-1,2,3,7,8-PeCDD	1.41e+06	1.43e+03	9.9e+02	8.90e+05	1.40e+03	6.3e+02
29	13C-1,2,3,4,7,8-HxCDD	1.28e+06	1.14e+03	1.1e+03	9.81e+05	8.44e+02	1.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.23e+06	1.14e+03	1.1e+03	9.82e+05	8.44e+02	1.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.35e+05	9.60e+02	7.7e+02	6.85e+05	6.12e+02	1.1e+03
32	13C-OCDD	6.86e+05	2.22e+03	3.1e+02	7.69e+05	4.00e+02	1.9e+03
33	13C-1,2,3,4-TCDD	2.00e+06	5.13e+03	3.9e+02	2.51e+06	2.30e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.04e+06	1.14e+03	1.8e+03	1.63e+06	8.44e+02	1.9e+03
35	37Cl-2,3,7,8-TCDD	7.85e+05	2.36e+03	3.3e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.740e{+}03 + 6.600e{+}02\ ) \times 2000}{(8.591e{+}05 + 1.093e{+}06\ ) \times (\qquad\qquad\qquad\qquad) \times 0.966} =$$

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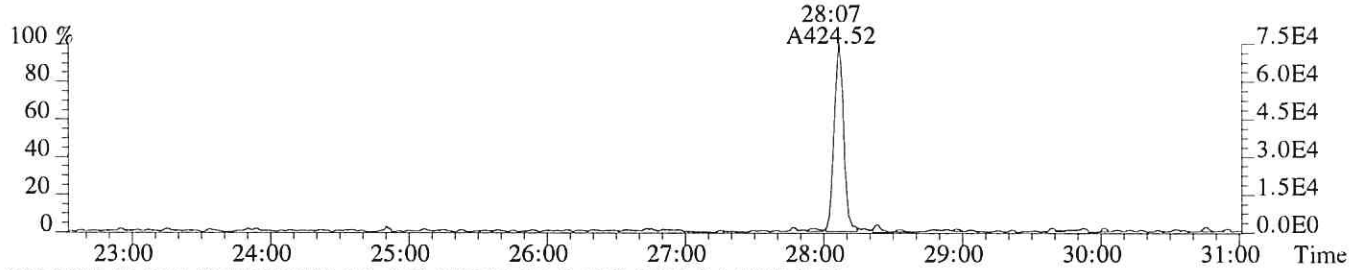
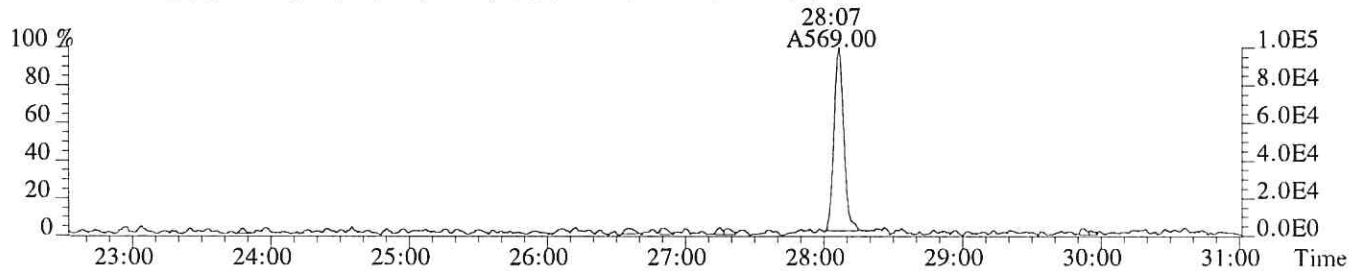
File:P407887 #1-602 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

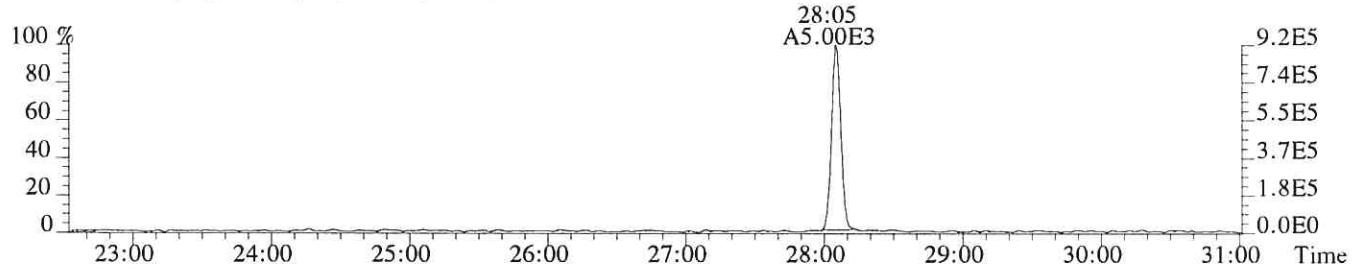
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



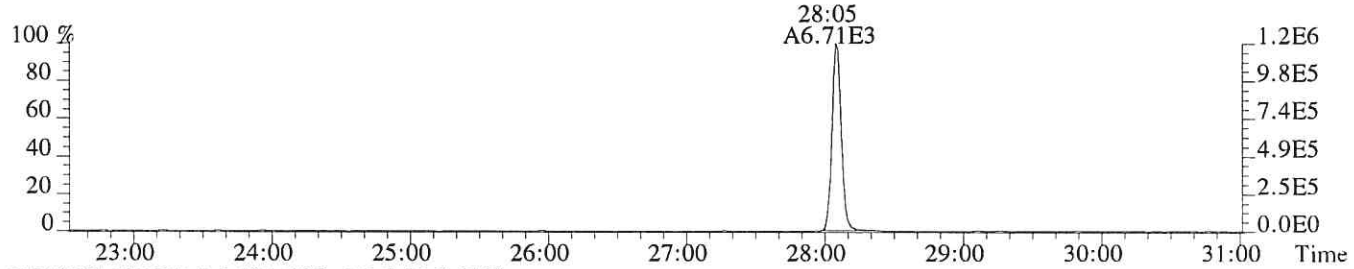
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



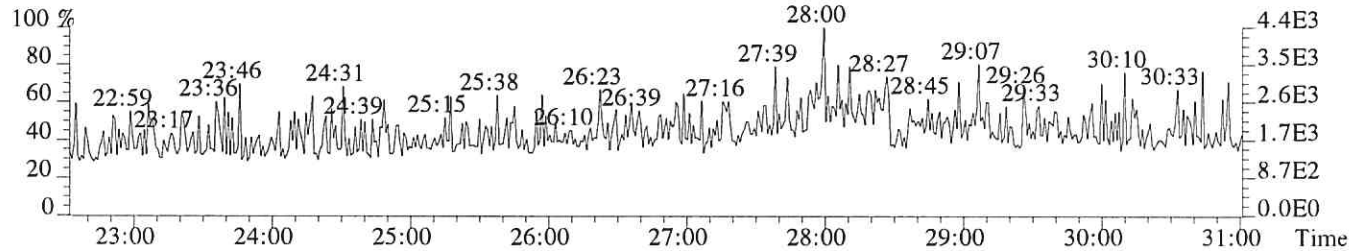
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11076.0,1.00%,F,T)



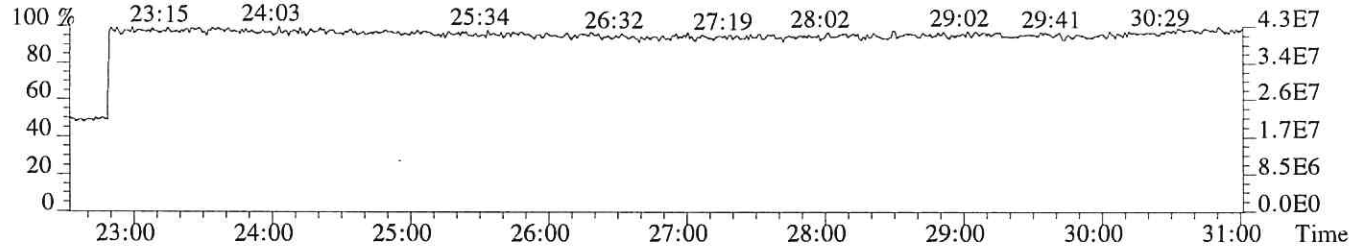
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4984.0,1.00%,F,T)



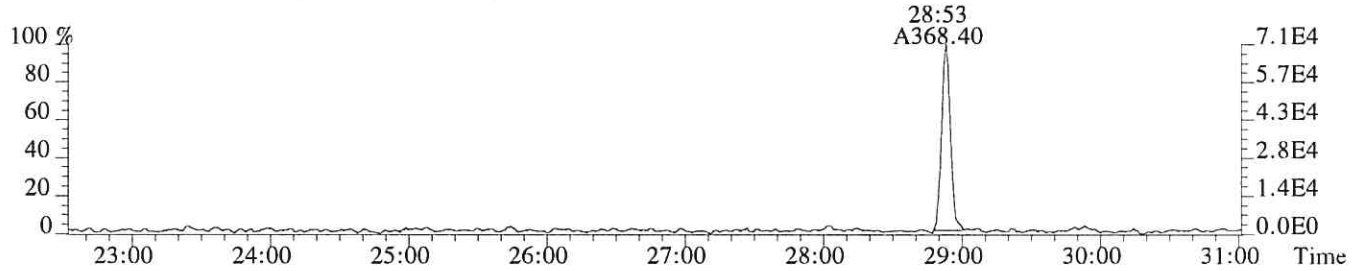
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



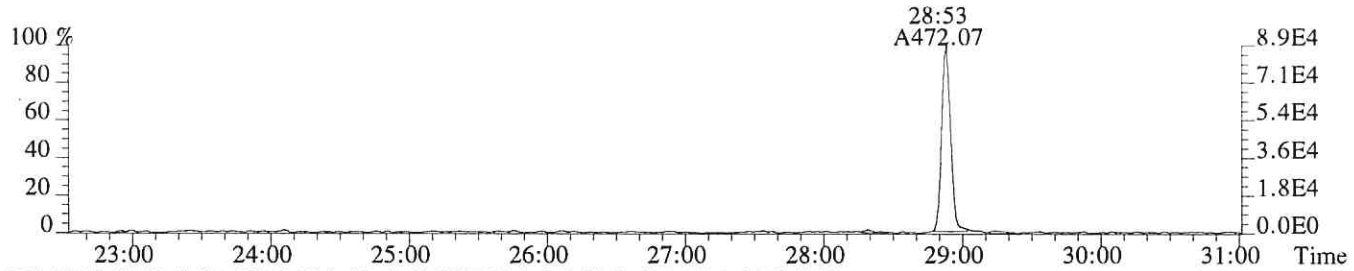
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



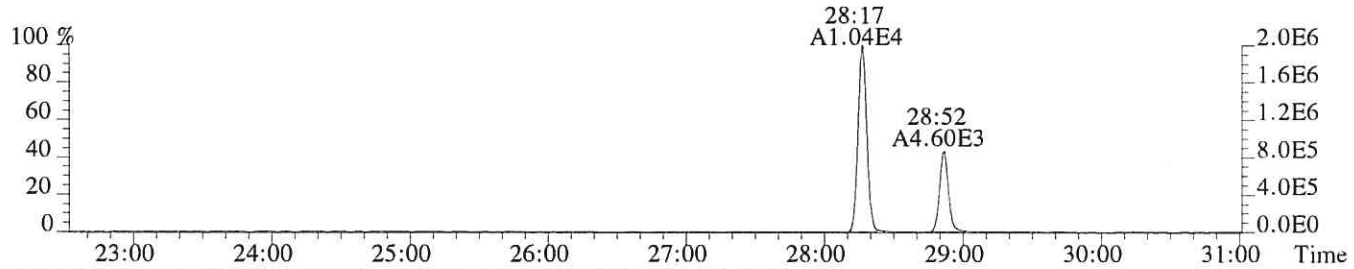
File:P407887 #1-602 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



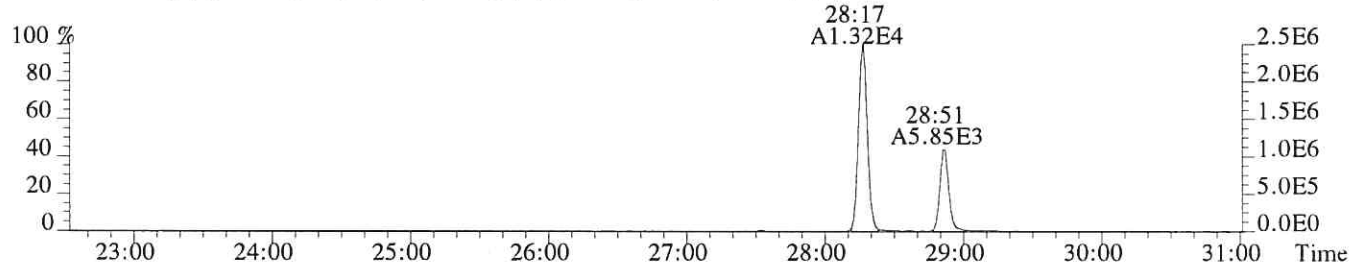
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



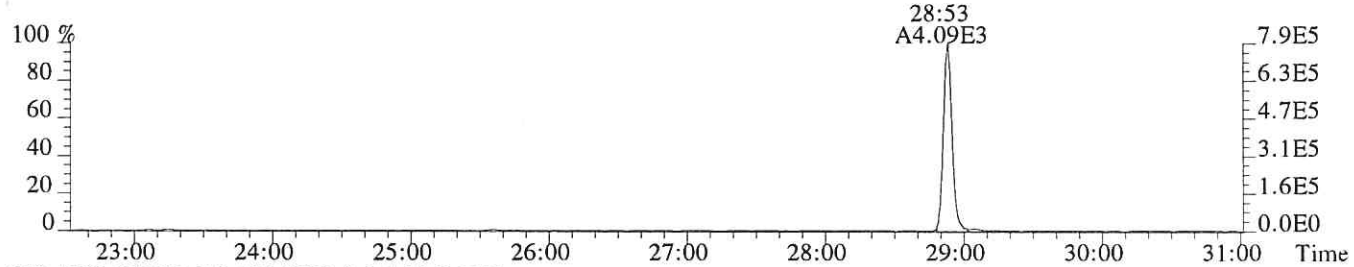
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5132.0,1.00%,F,T)



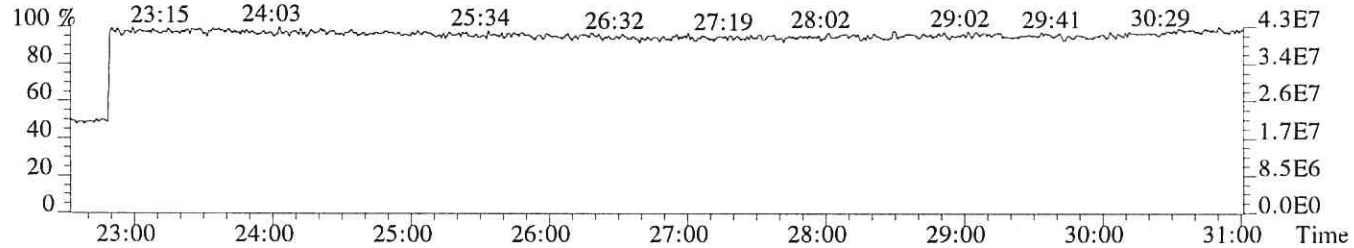
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



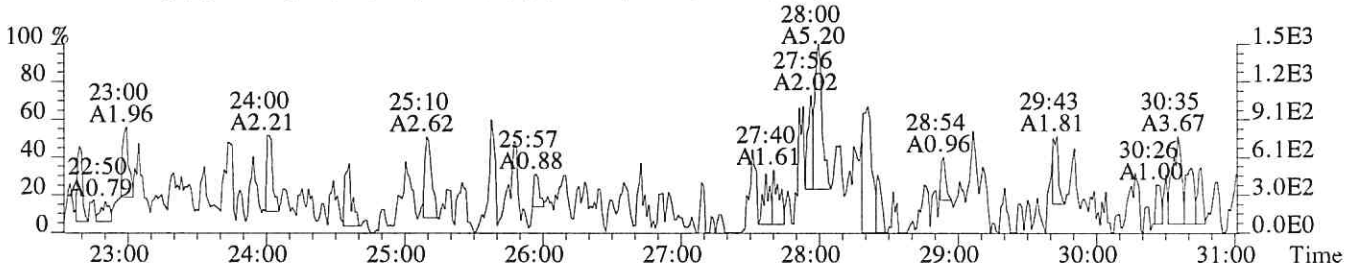
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



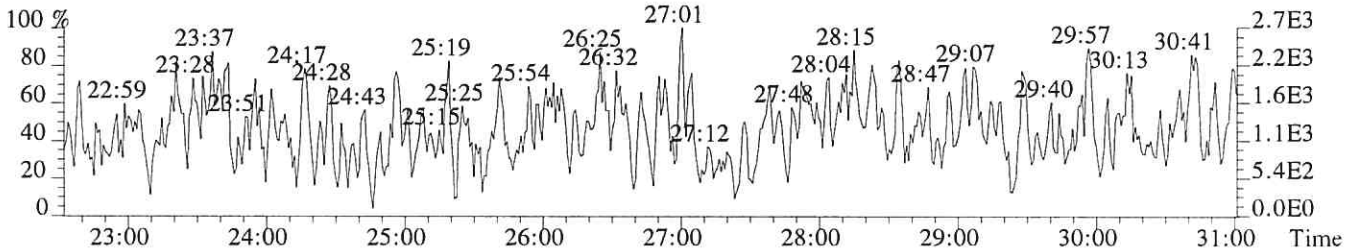
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



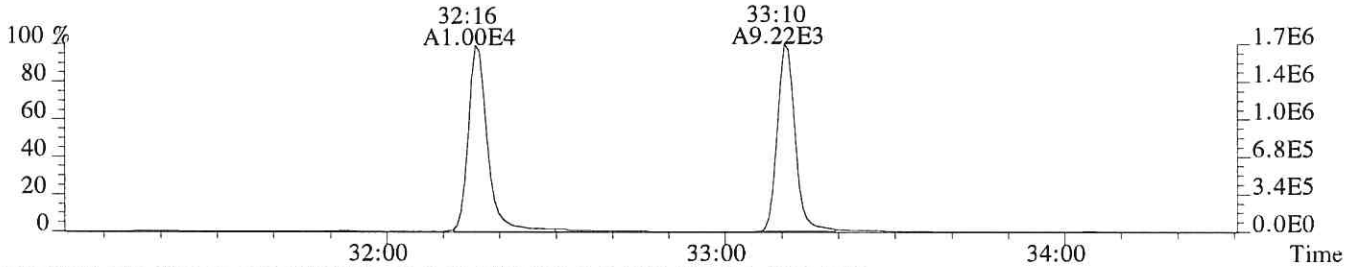
File:P407887 #1-602 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



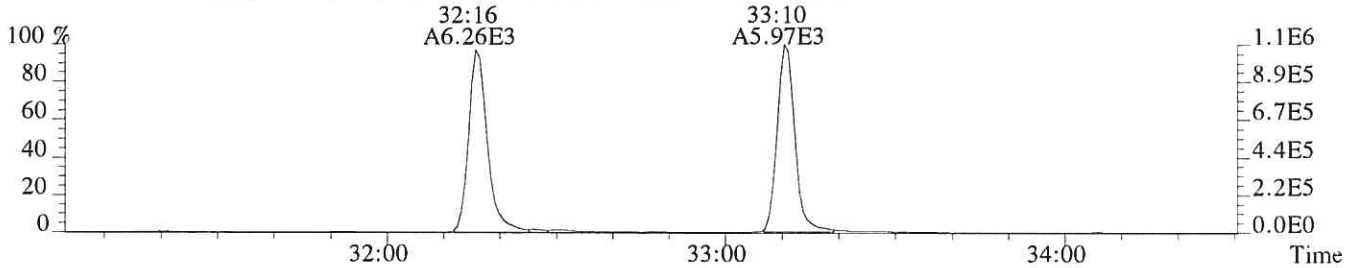
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



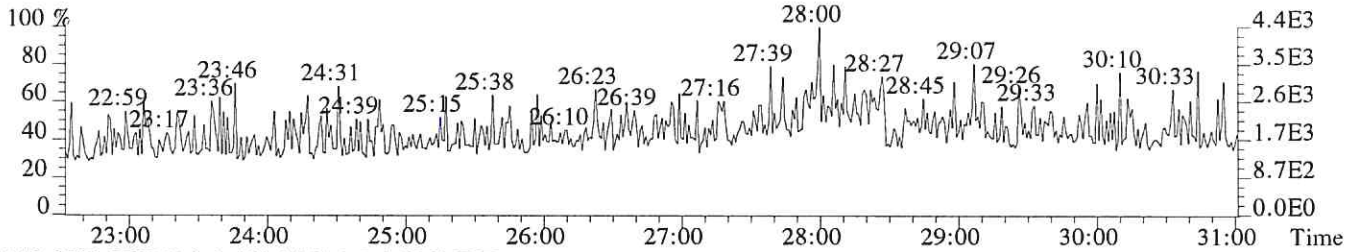
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



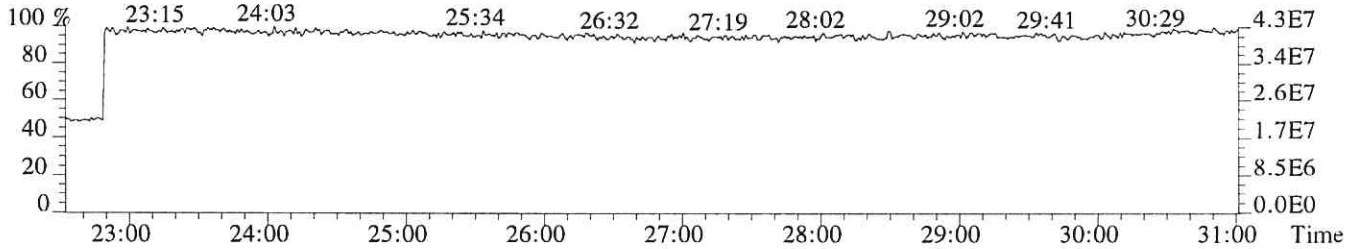
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



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

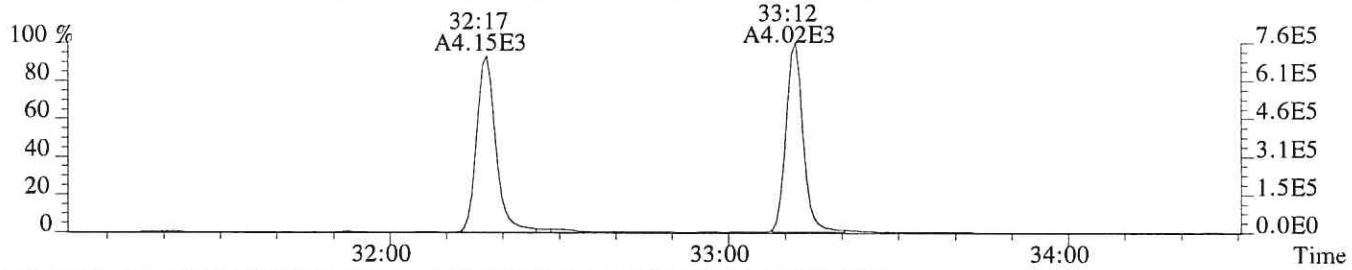


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

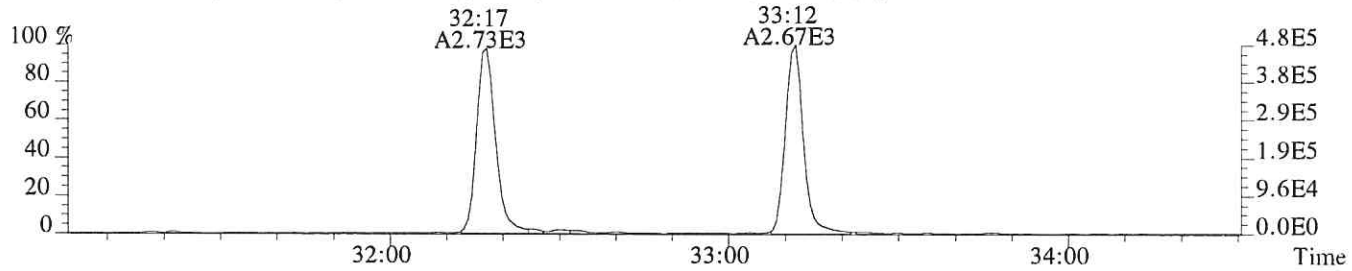


File:P407887 #1-312 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

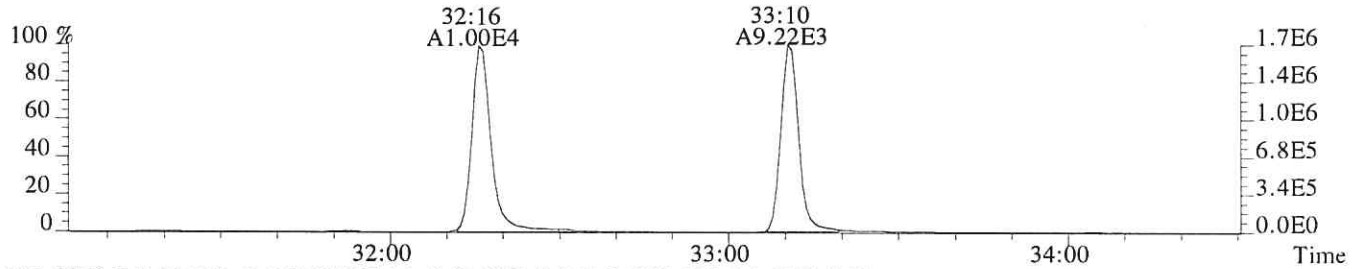
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



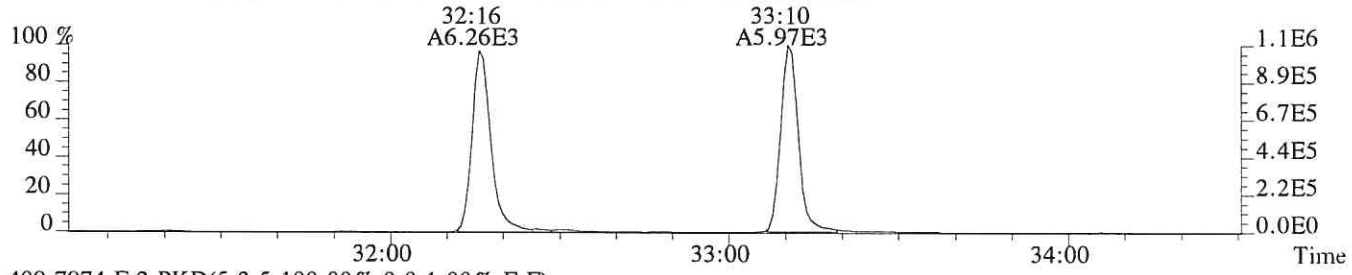
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



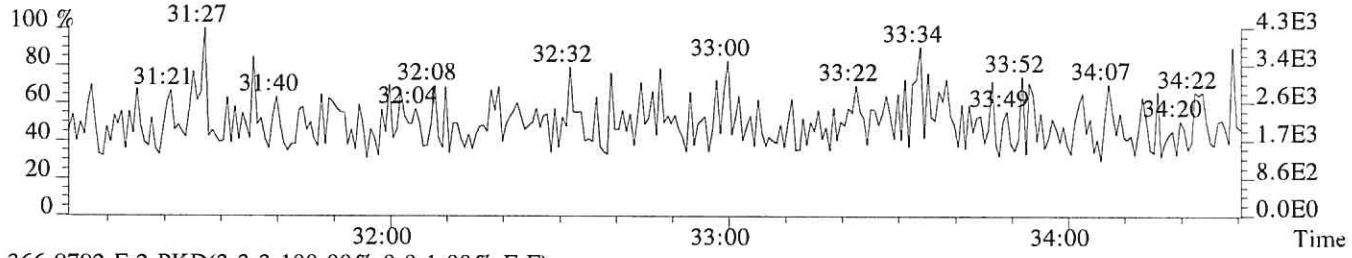
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



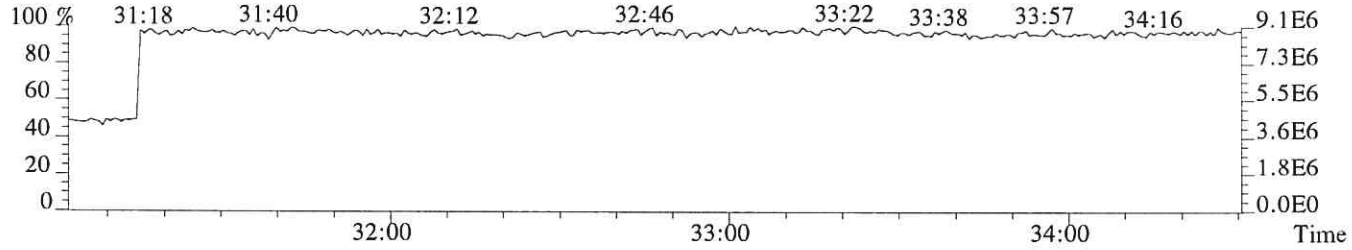
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



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

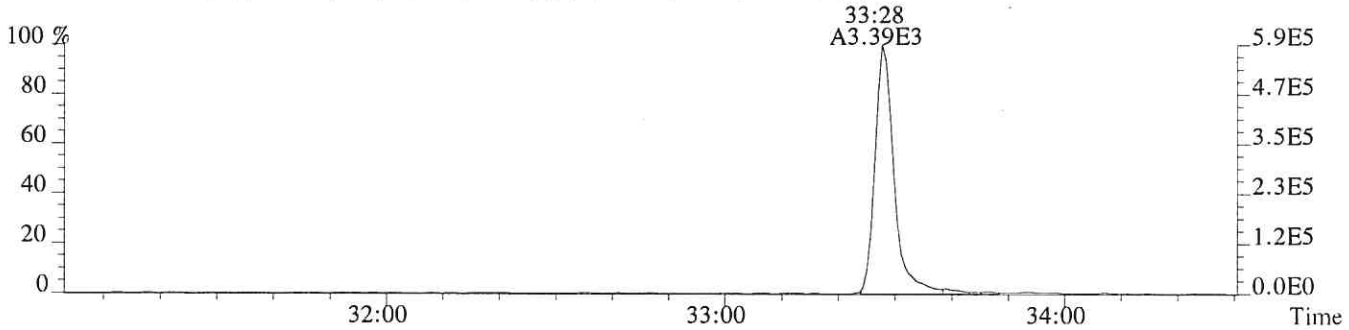


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

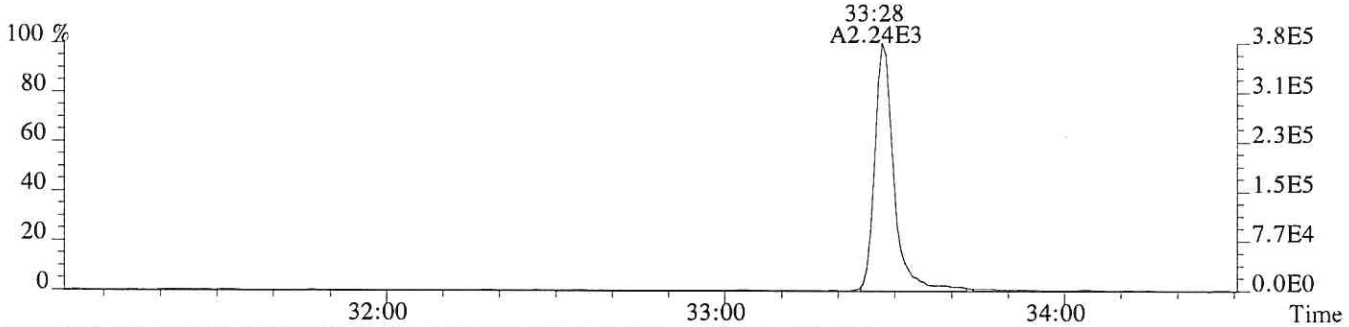


File:P407887 #1-312 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

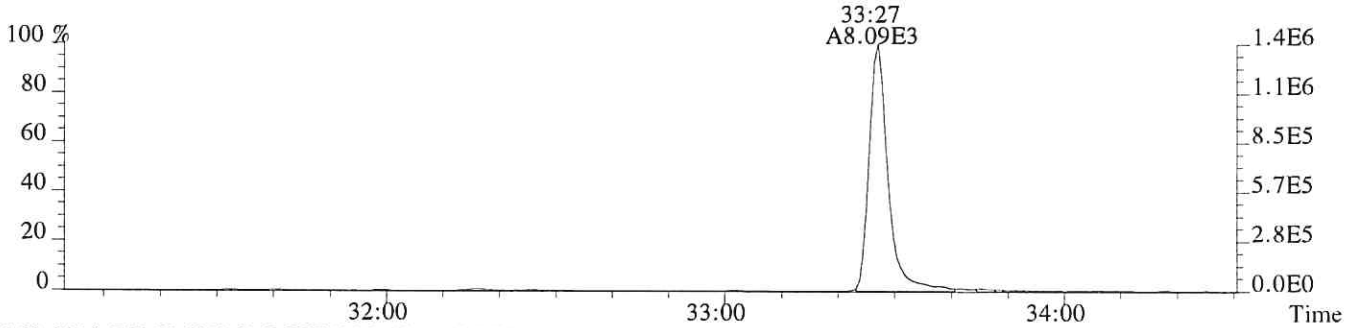
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



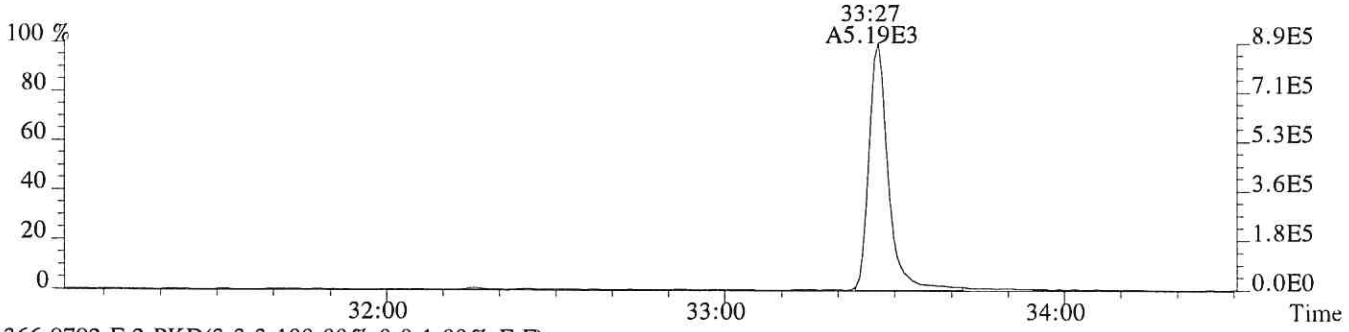
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



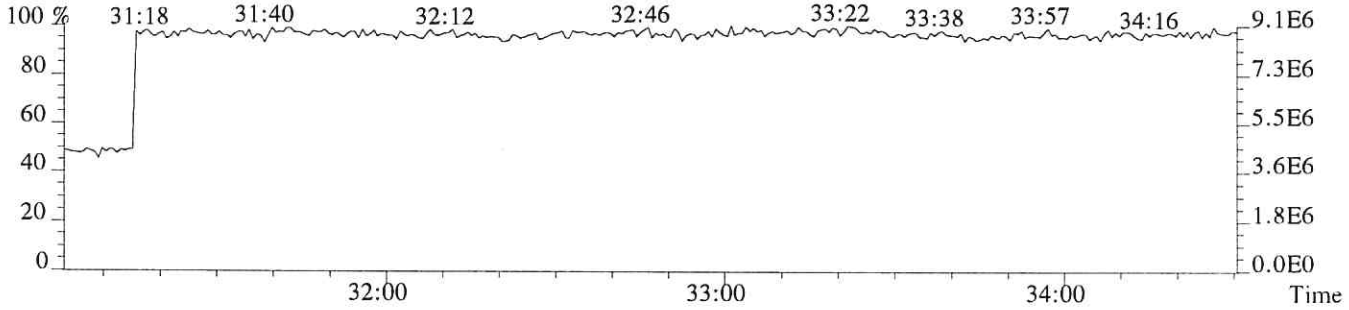
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)

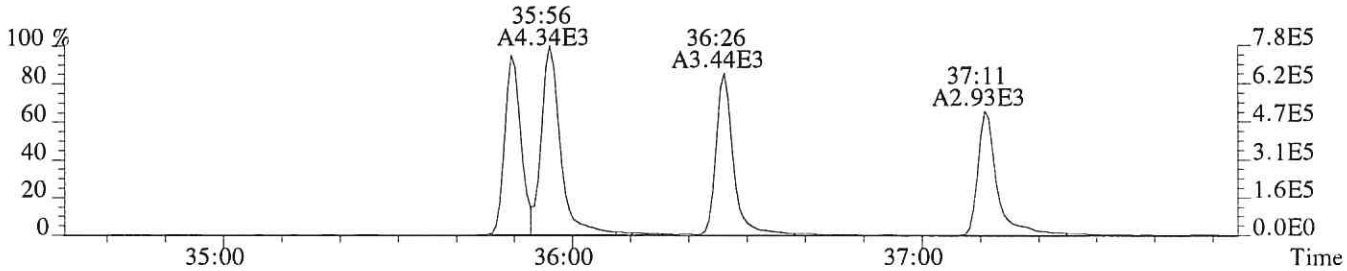


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

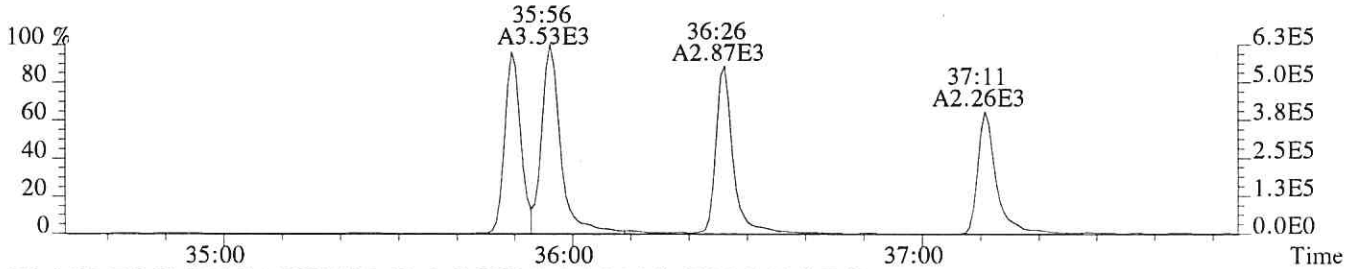


File:P407887 #1-303 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

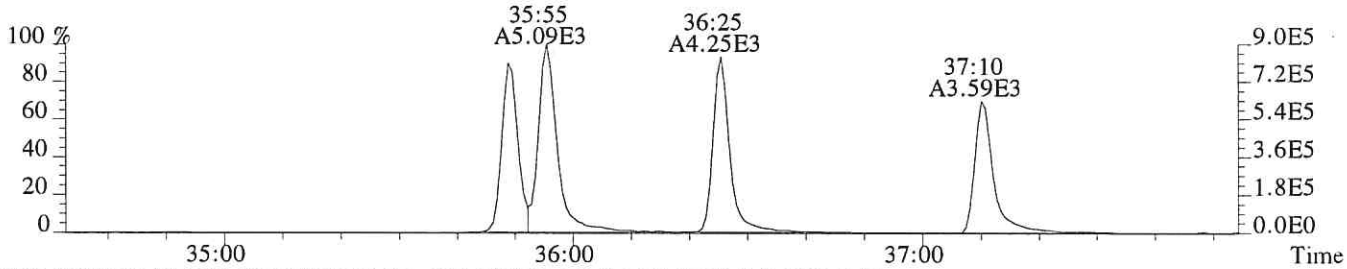
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



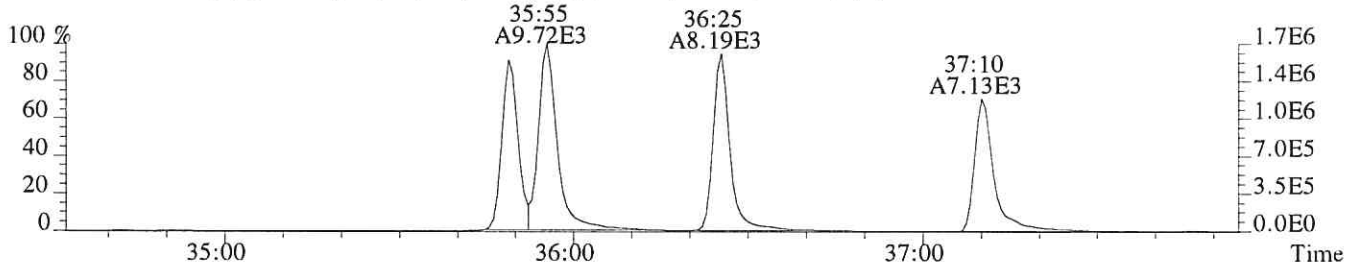
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



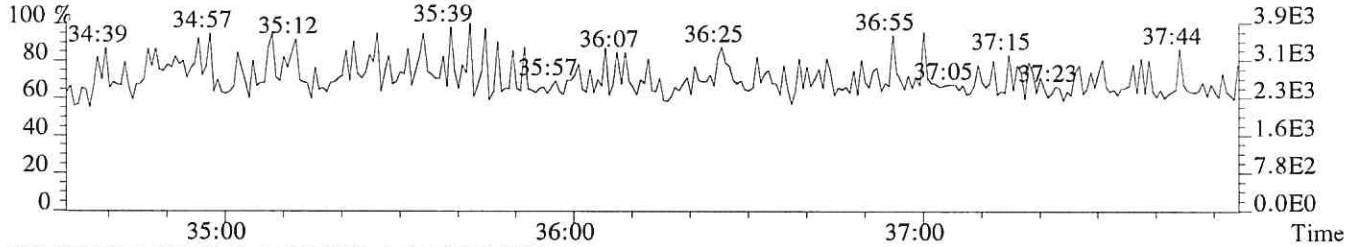
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



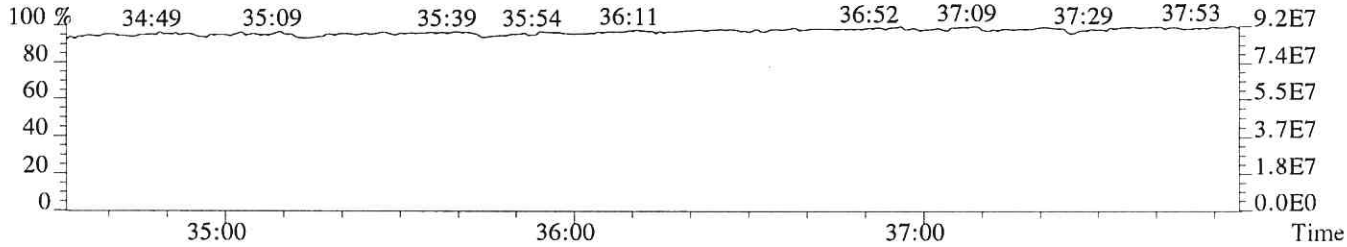
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.40%,F,T)



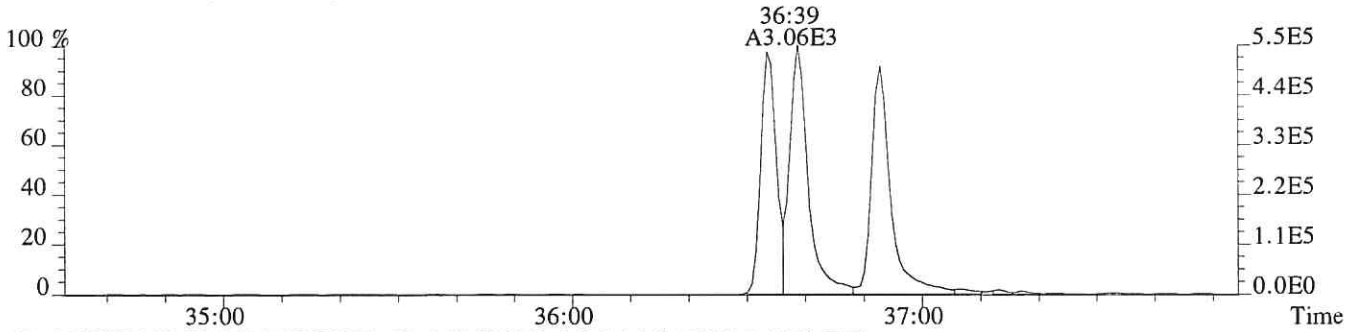
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



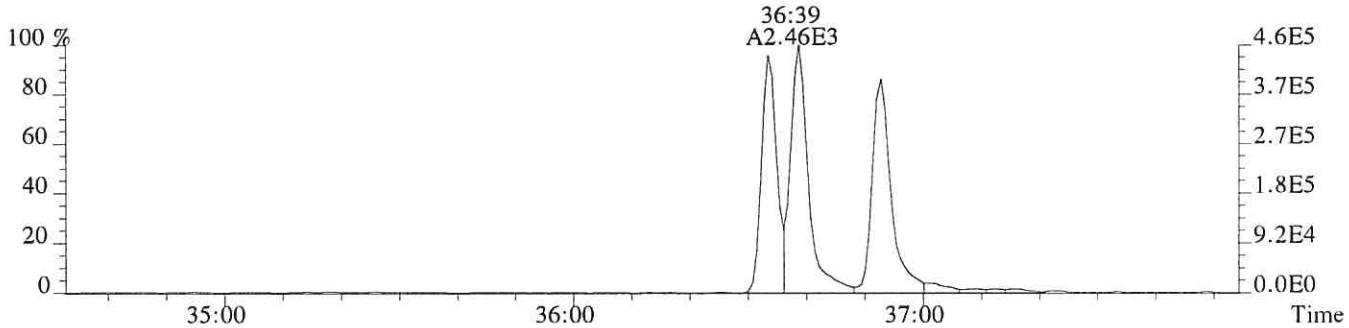
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



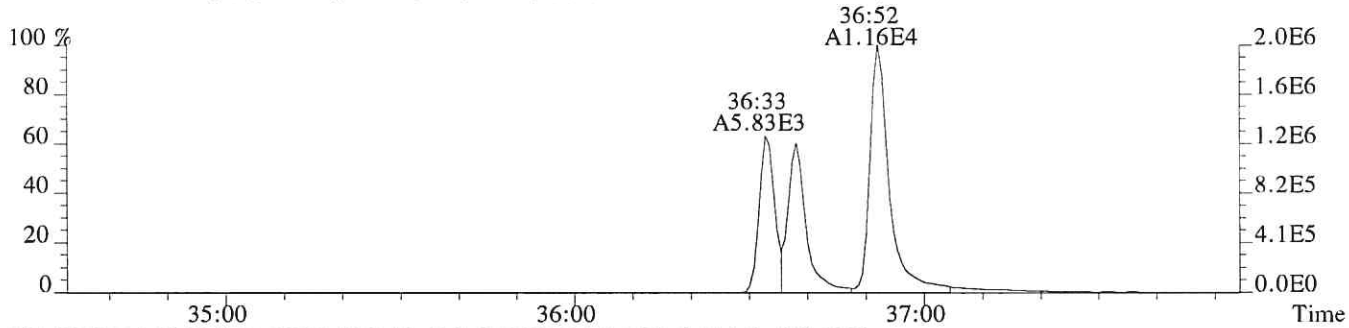
File:P407887 #1-303 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



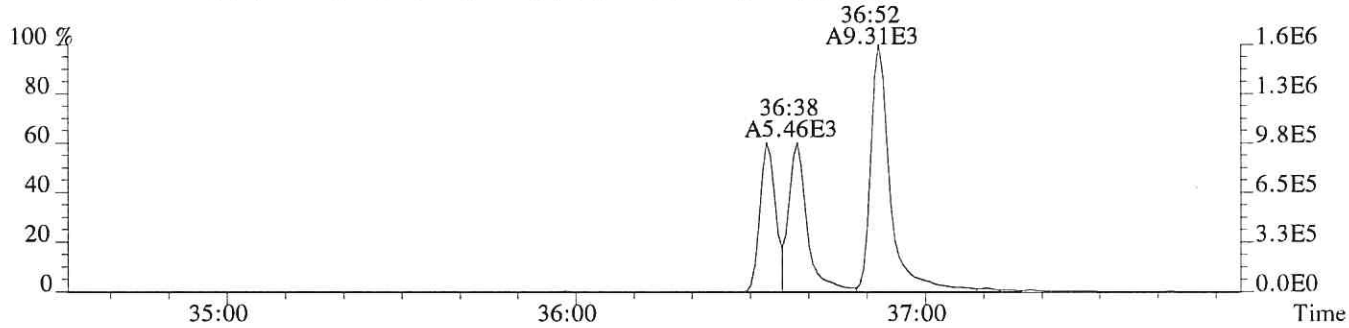
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



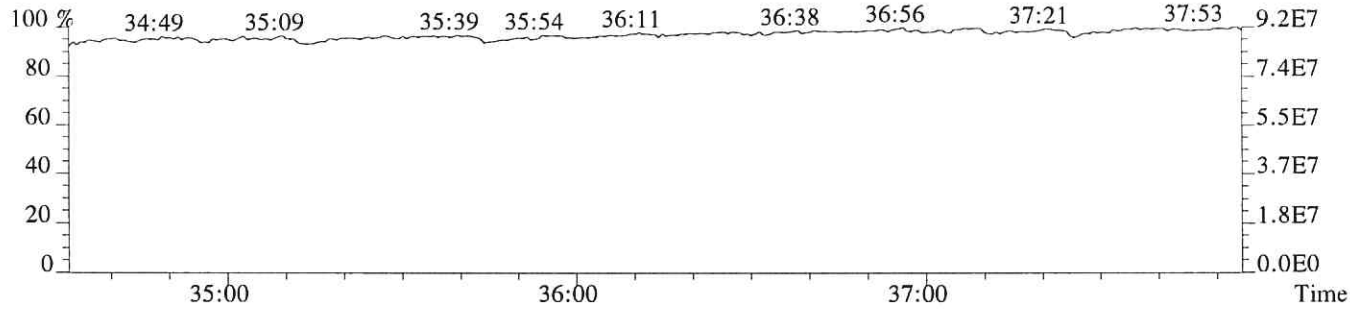
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)

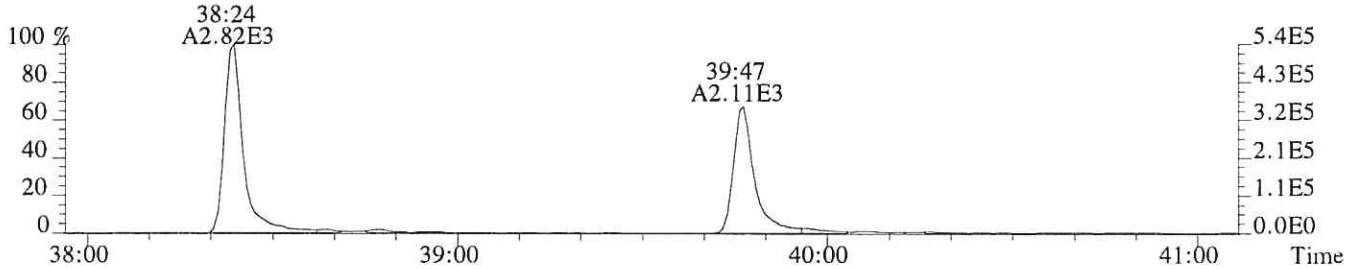


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

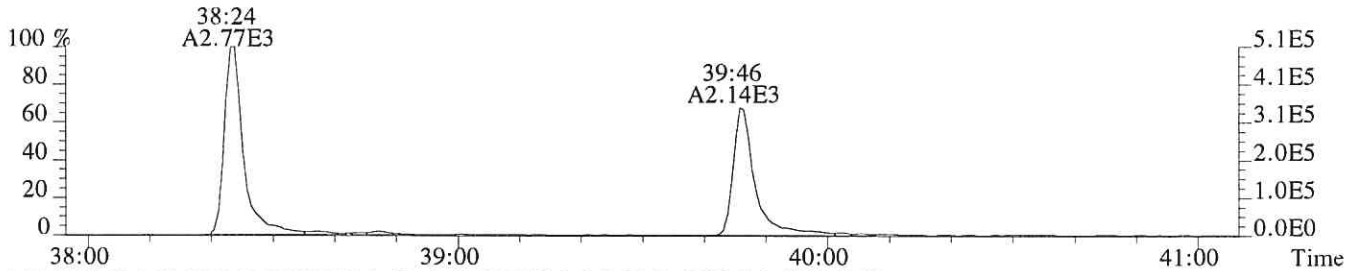


File:P407887 #1-286 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

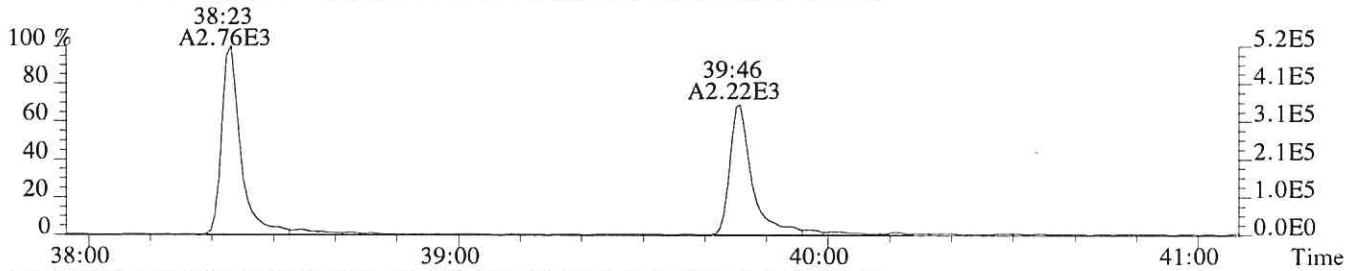
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.50%,F,T)



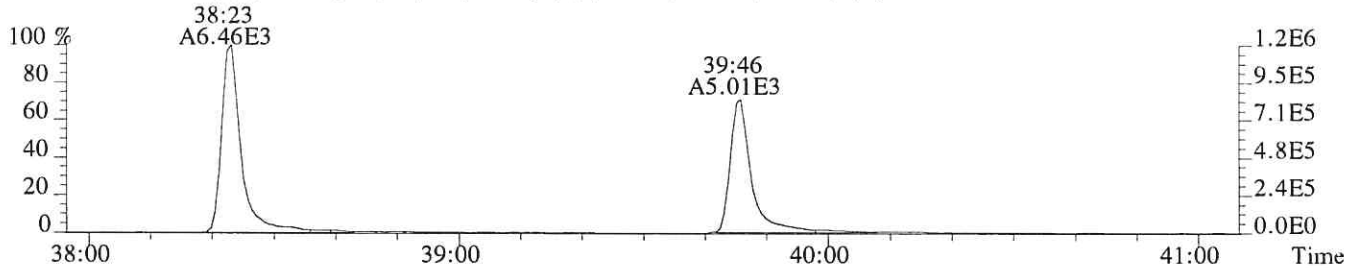
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.50%,F,T)



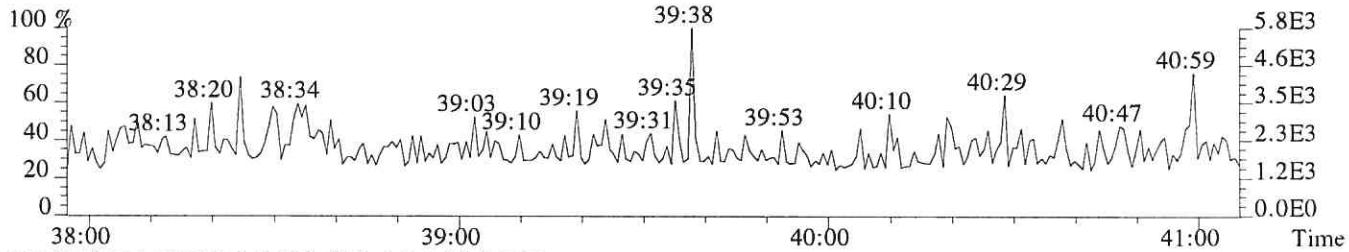
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.50%,F,T)



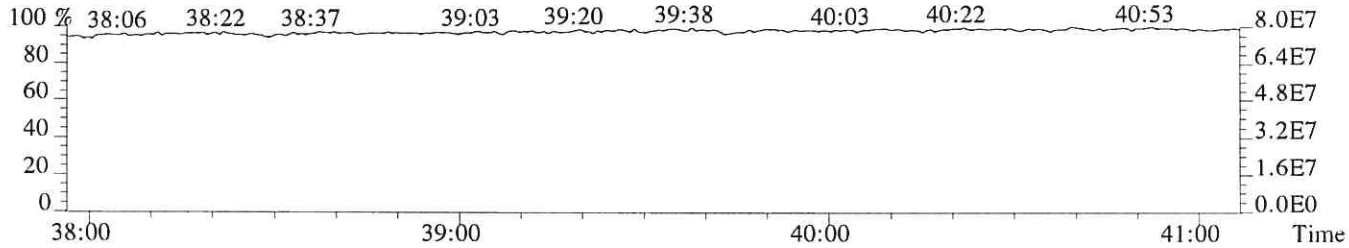
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.50%,F,T)



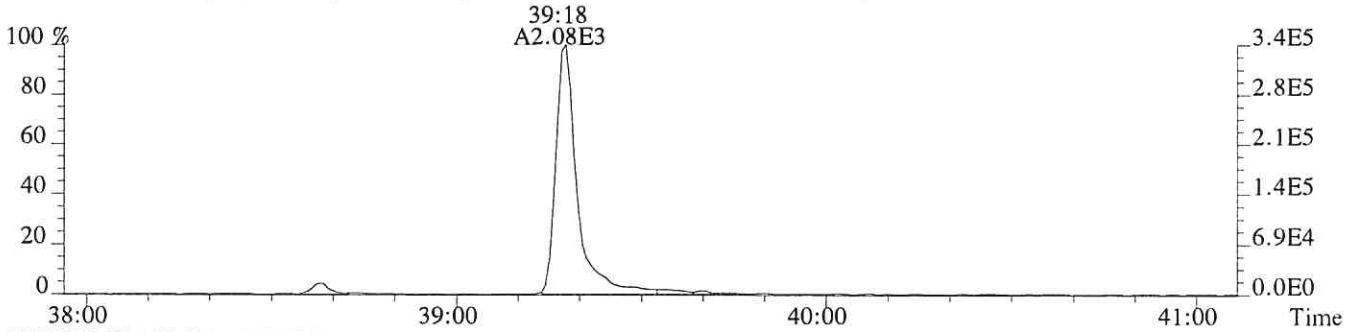
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



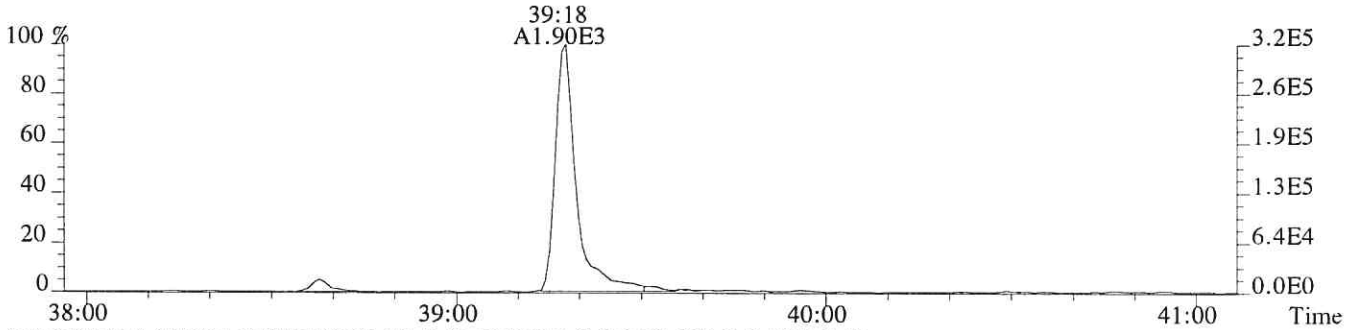
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



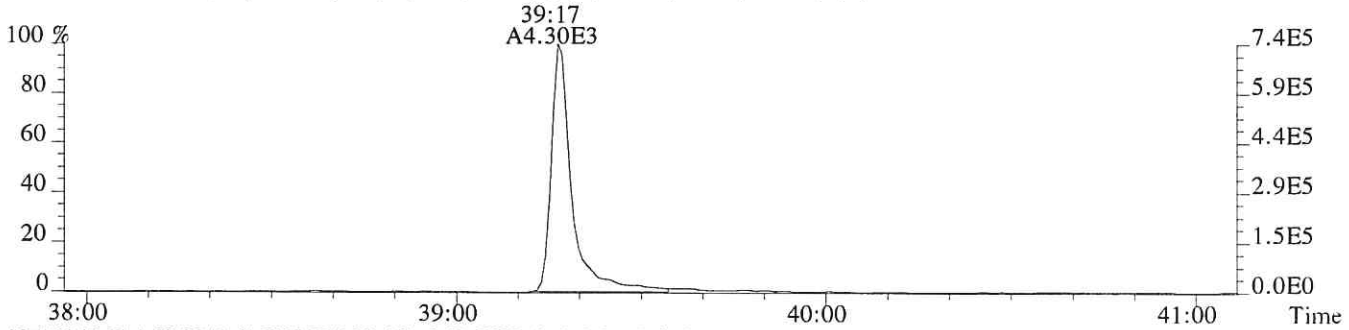
File:P407887 #1-286 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



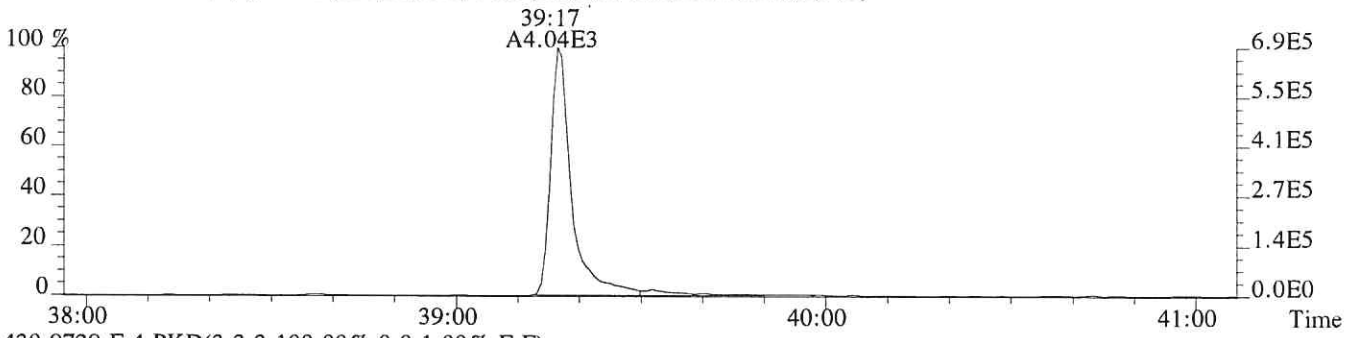
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



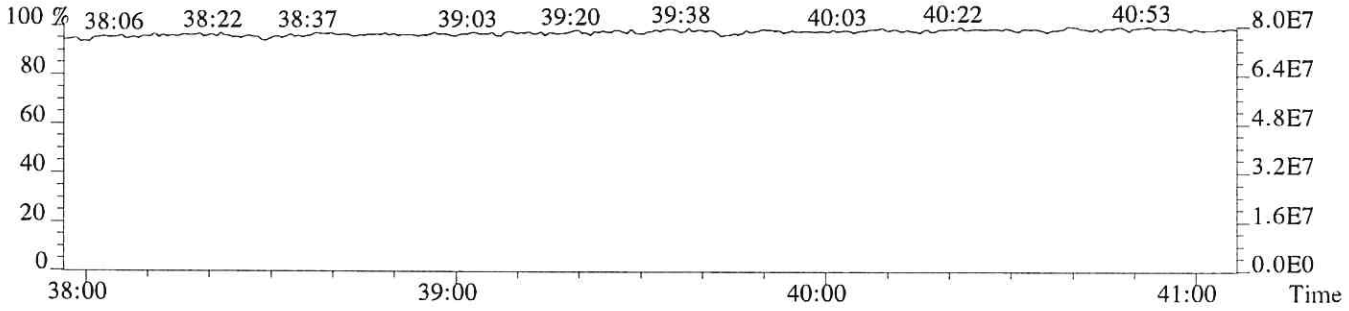
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)

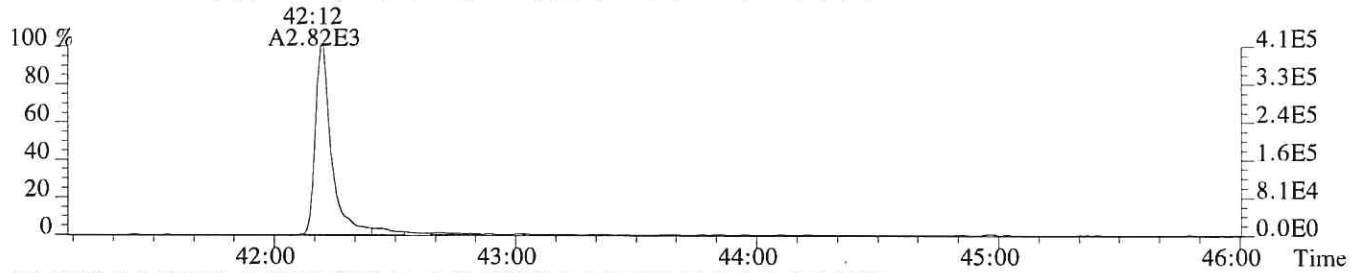


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

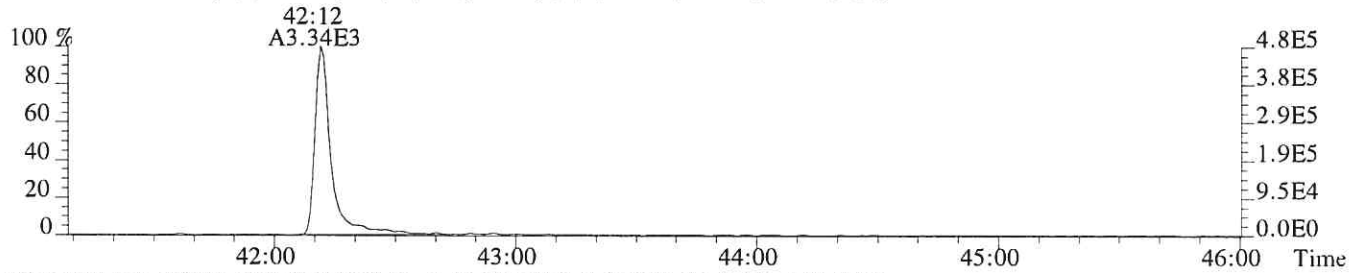


File:P407887 #1-438 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS

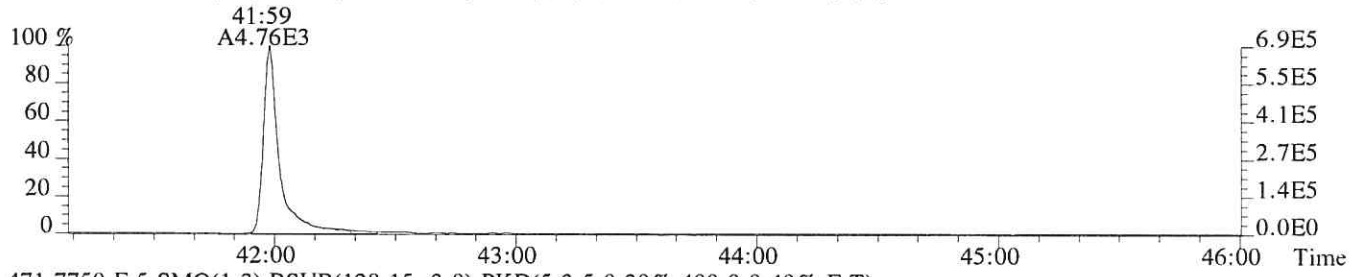
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



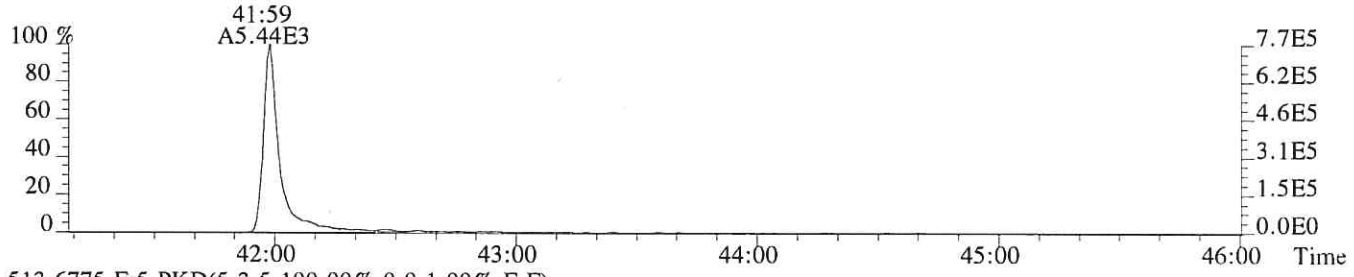
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



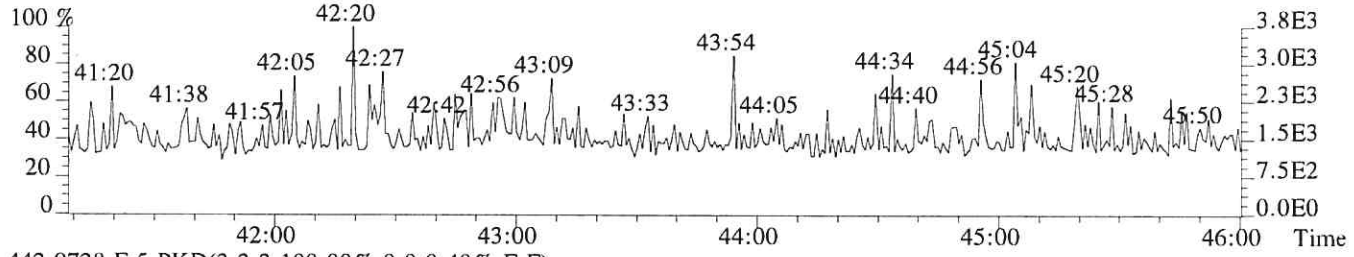
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2224.0,0.40%,F,T)



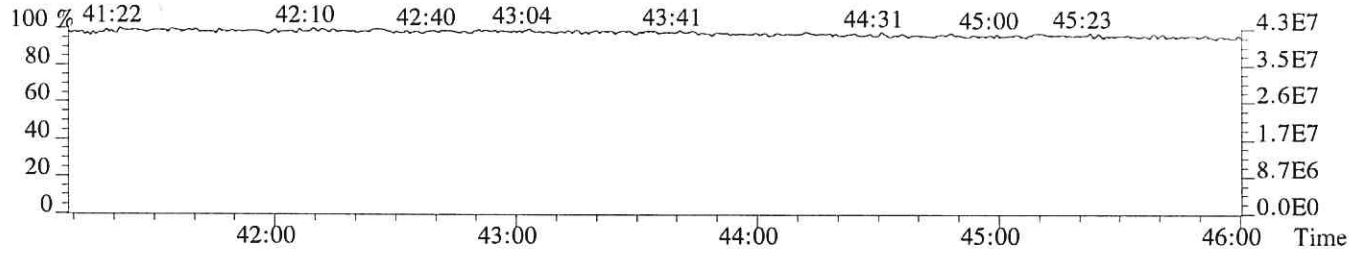
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



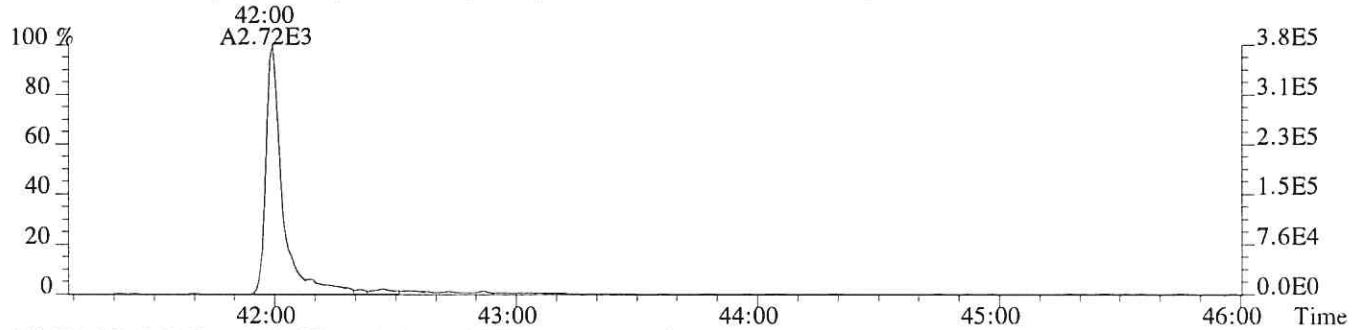
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



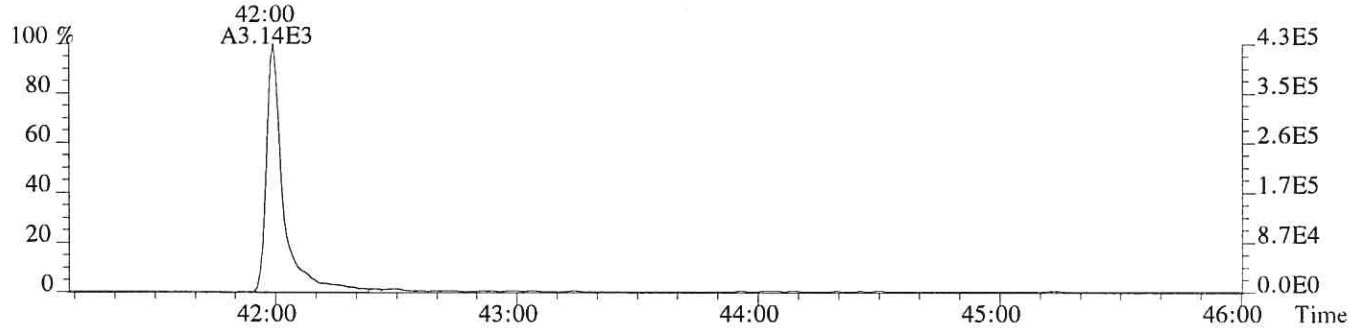
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



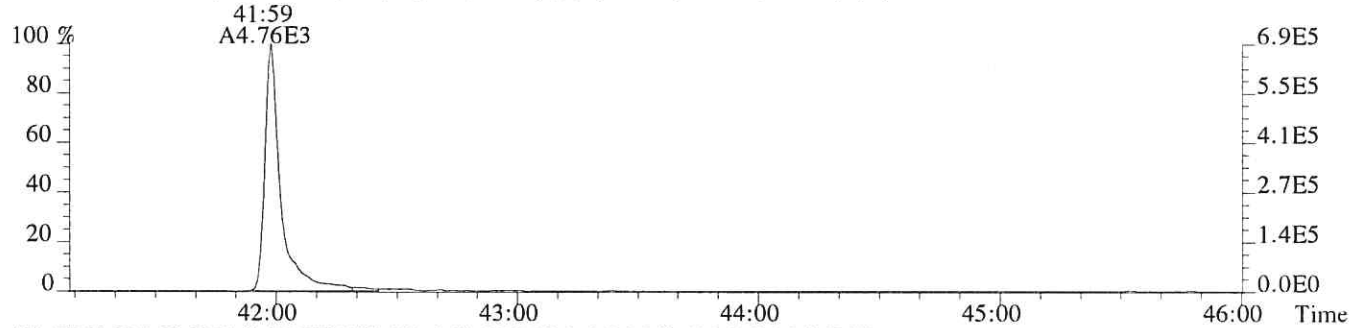
File:P407887 #1-438 Acq:15-SEP-2017 21:17:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:LCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



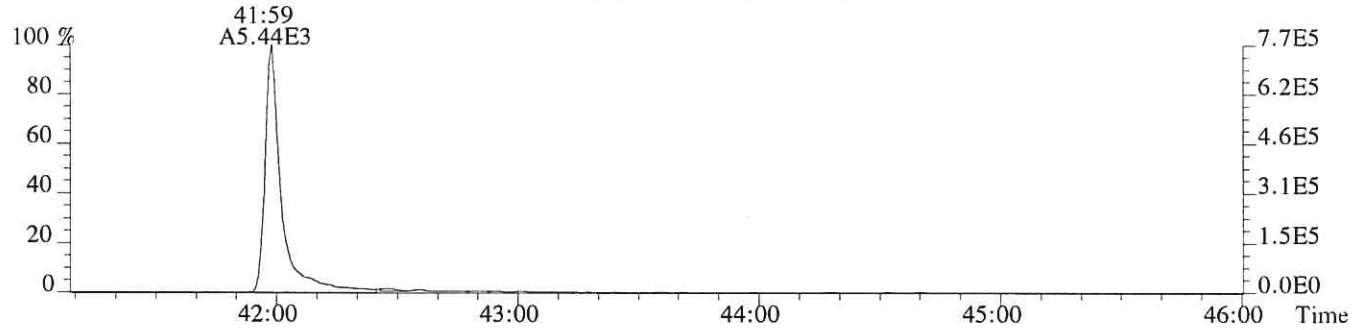
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1468.0,0.40%,F,T)



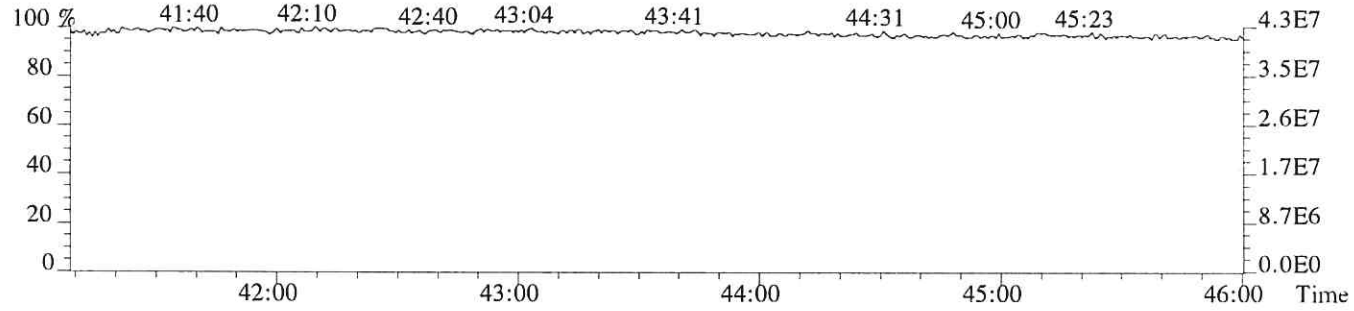
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2224.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #18 Filename P407862 Samp: 1 Inj: 1 Acquired: 15-SEP-17 00:20:42
Processed: 15-SEP-17 08:48:36 Sample ID: EQ1700401-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:07	5.112e+02	6.680e+02	0.77	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:17	4.908e+03	3.146e+03	1.56	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:12	4.733e+03	3.093e+03	1.53	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	35:50	4.466e+03	3.602e+03	1.24	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	35:57	5.034e+03	4.042e+03	1.25	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:26	4.127e+03	3.548e+03	1.16	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:11	3.885e+03	3.194e+03	1.22	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	3.529e+03	3.514e+03	1.00	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	39:47	2.949e+03	2.958e+03	1.00	yes	no	1.301
10	Unk	OCDF	42:12	4.328e+03	4.983e+03	0.87	yes	no	1.114
11	Unk	2,3,7,8-TCDD	28:54	4.486e+02	5.842e+02	0.77	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:28	3.959e+03	2.530e+03	1.56	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:34	3.249e+03	2.592e+03	1.25	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:39	3.648e+03	3.041e+03	1.20	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	36:53	3.763e+03	2.898e+03	1.30	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	2.659e+03	2.510e+03	1.06	yes	no	0.975
17	Unk	OCDD	42:00	4.076e+03	4.564e+03	0.89	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:07	6.049e+03	7.707e+03	0.78	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:16	1.130e+04	7.104e+03	1.59	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:11	1.096e+04	7.008e+03	1.56	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	4.931e+03	9.522e+03	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	35:56	5.918e+03	1.120e+04	0.53	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	5.144e+03	1.014e+04	0.51	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	4.616e+03	9.250e+03	0.50	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	3.461e+03	8.006e+03	0.43	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	3.126e+03	7.149e+03	0.44	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	28:52	5.245e+03	6.789e+03	0.77	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:28	9.257e+03	5.946e+03	1.56	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	7.227e+03	5.739e+03	1.26	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	7.539e+03	6.112e+03	1.23	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	5.568e+03	5.185e+03	1.07	yes	no	0.854
32	IS	13C-OCDD	41:60	7.000e+03	7.720e+03	0.91	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:18	1.191e+04	1.518e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.382e+04	1.184e+04	1.17	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:54	4.753e+03				no	0.992

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #18 Filename P407862 Samp: 1 Inj: 1 Acquired: 15-SEP-17 00:20:42
Processed: 15-SEP-17 08:48:36 LAB. ID: EQ1700401-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.55e+04	7.68e+02	1.2e+02	1.29e+05	2.30e+03	5.6e+01
2	1,2,3,7,8-PeCDF	8.89e+05	7.68e+02	1.2e+03	5.72e+05	1.22e+03	4.7e+02
3	2,3,4,7,8-PeCDF	9.31e+05	7.68e+02	1.2e+03	6.01e+05	1.22e+03	4.9e+02
4	1,2,3,4,7,8-HxCDF	9.53e+05	7.84e+02	1.2e+03	7.69e+05	4.44e+02	1.7e+03
5	1,2,3,6,7,8-HxCDF	9.64e+05	7.84e+02	1.2e+03	7.57e+05	4.44e+02	1.7e+03
6	2,3,4,6,7,8-HxCDF	8.63e+05	7.84e+02	1.1e+03	7.15e+05	4.44e+02	1.6e+03
7	1,2,3,7,8,9-HxCDF	7.33e+05	7.84e+02	9.3e+02	6.01e+05	4.44e+02	1.4e+03
8	1,2,3,4,6,7,8-HpCDF	7.34e+05	8.48e+02	8.7e+02	7.07e+05	9.52e+02	7.4e+02
9	1,2,3,4,7,8,9-HpCDF	5.43e+05	8.48e+02	6.4e+02	5.32e+05	9.52e+02	5.6e+02
10	OCDF	6.78e+05	5.48e+02	1.2e+03	7.71e+05	8.76e+02	8.8e+02
11	2,3,7,8-TCDD	8.72e+04	1.78e+03	4.9e+01	1.19e+05	7.96e+02	1.5e+02
12	1,2,3,7,8-PeCDD	7.45e+05	1.22e+03	6.1e+02	4.72e+05	7.44e+02	6.3e+02
13	1,2,3,4,7,8-HxCDD	7.06e+05	4.12e+02	1.7e+03	5.57e+05	3.48e+02	1.6e+03
14	1,2,3,6,7,8-HxCDD	7.03e+05	4.12e+02	1.7e+03	5.88e+05	3.48e+02	1.7e+03
15	1,2,3,7,8,9-HxCDD	6.90e+05	4.12e+02	1.7e+03	5.36e+05	3.48e+02	1.5e+03
16	1,2,3,4,6,7,8-HpCDD	5.03e+05	8.16e+02	6.2e+02	4.68e+05	8.04e+02	5.8e+02
17	OCDD	6.32e+05	1.92e+02	3.3e+03	7.04e+05	1.28e+03	5.5e+02
18	13C-2,3,7,8-TCDF	1.12e+06	9.36e+03	1.2e+02	1.40e+06	5.18e+03	2.7e+02
19	13C-1,2,3,7,8-PeCDF	2.07e+06	5.28e+02	3.9e+03	1.33e+06	7.28e+02	1.8e+03
20	13C-2,3,4,7,8-PeCDF	2.16e+06	5.28e+02	4.1e+03	1.38e+06	7.28e+02	1.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.04e+06	3.76e+02	2.8e+03	2.05e+06	8.96e+02	2.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.13e+06	3.76e+02	3.0e+03	2.14e+06	8.96e+02	2.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.04e+06	3.76e+02	2.8e+03	2.07e+06	8.96e+02	2.3e+03
24	13C-1,2,3,7,8,9-HxCDF	9.10e+05	3.76e+02	2.4e+03	1.74e+06	8.96e+02	1.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.25e+05	1.36e+03	5.3e+02	1.63e+06	1.97e+03	8.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	5.61e+05	1.36e+03	4.1e+02	1.32e+06	1.97e+03	6.7e+02
27	13C-2,3,7,8-TCDD	1.00e+06	4.28e+03	2.3e+02	1.34e+06	2.37e+03	5.7e+02
28	13C-1,2,3,7,8-PeCDD	1.69e+06	1.49e+03	1.1e+03	1.10e+06	1.12e+03	9.8e+02
29	13C-1,2,3,4,7,8-HxCDD	1.60e+06	1.26e+03	1.3e+03	1.26e+06	8.20e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.49e+06	1.26e+03	1.2e+03	1.21e+06	8.20e+02	1.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.03e+06	8.80e+02	1.2e+03	9.77e+05	7.20e+02	1.4e+03
32	13C-OCDD	1.11e+06	2.58e+03	4.3e+02	1.18e+06	2.32e+03	5.1e+02
33	13C-1,2,3,4-TCDD	2.31e+06	4.28e+03	5.4e+02	2.95e+06	2.37e+03	1.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.65e+06	1.26e+03	2.1e+03	2.23e+06	8.20e+02	2.7e+03
35	37Cl-2,3,7,8-TCDD	9.23e+05	1.78e+03	5.2e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.780e{+}03 + 7.960e{+}02\ ) \times 2000}{(1.004e{+}06 + 1.342e{+}06\ ) \times (\qquad\qquad\qquad\qquad) \times 0.966} =$$

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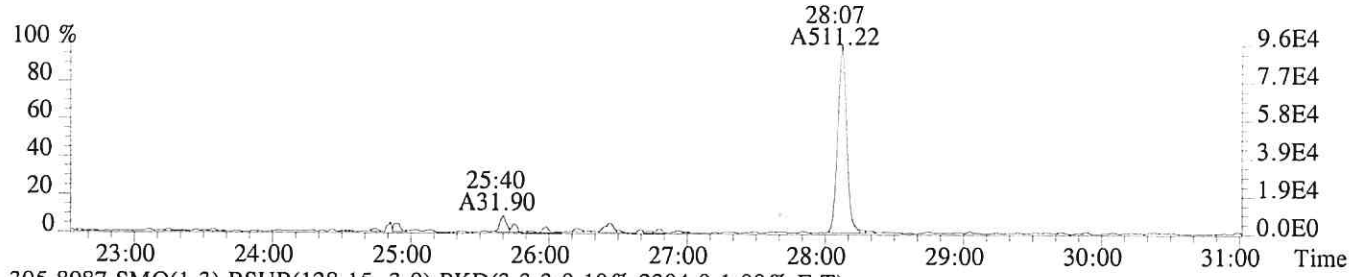
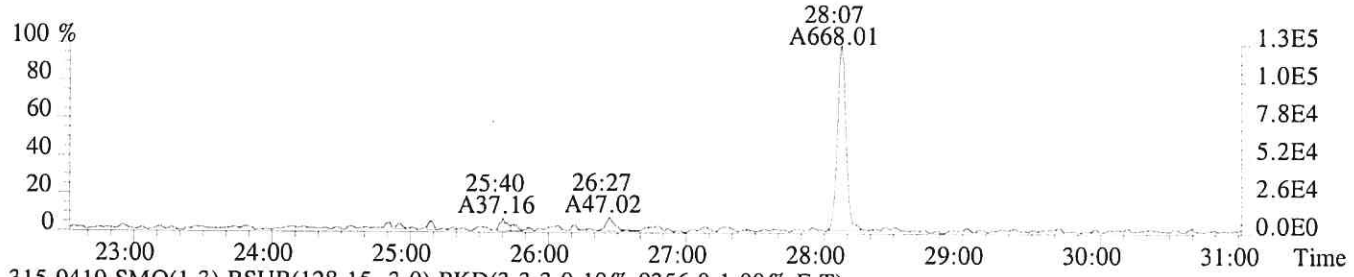
File:P407862 #1-602 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

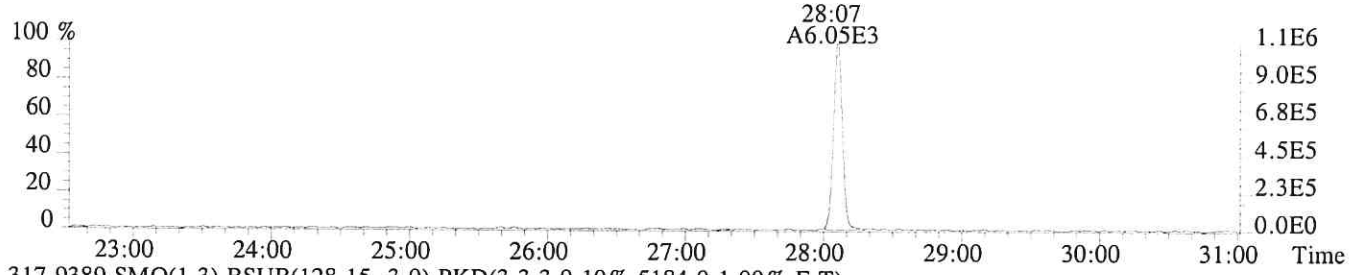
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



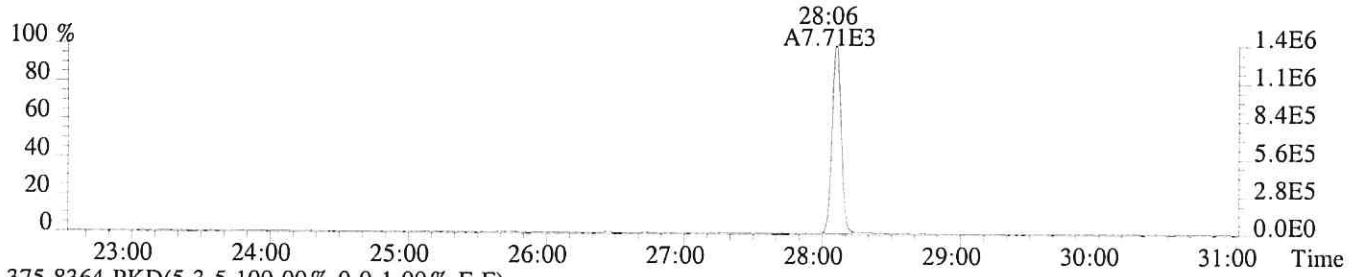
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



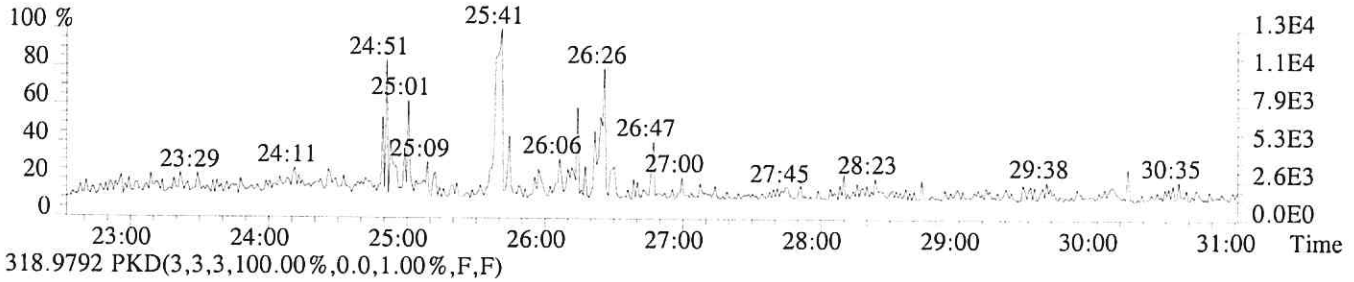
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9356.0,1.00%,F,T)



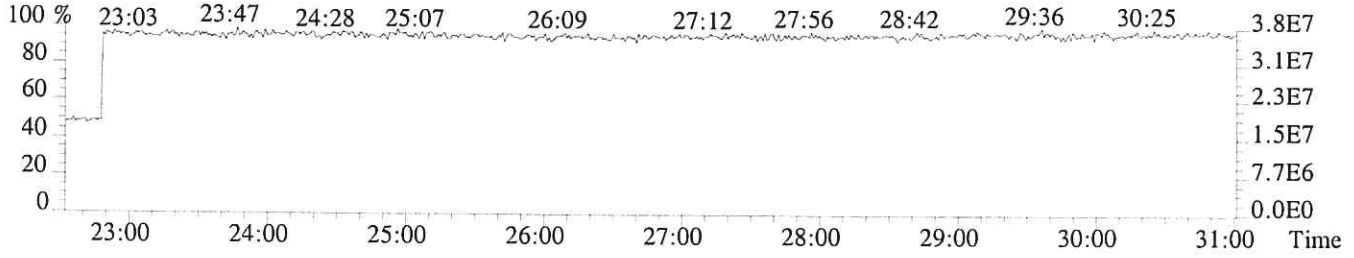
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5184.0,1.00%,F,T)



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

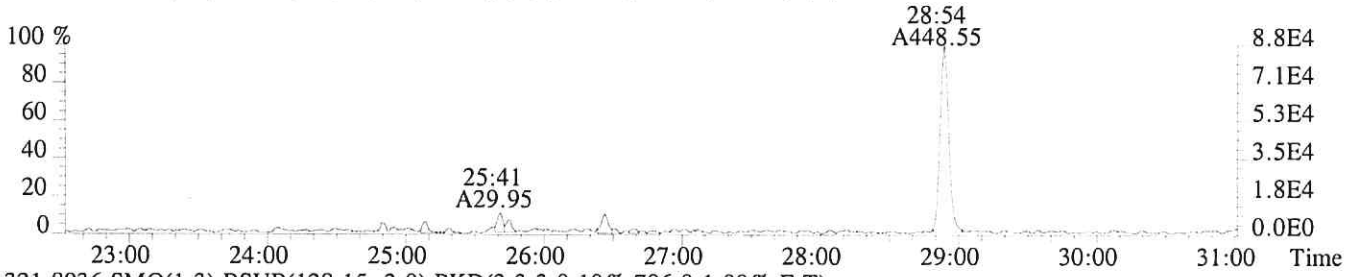


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

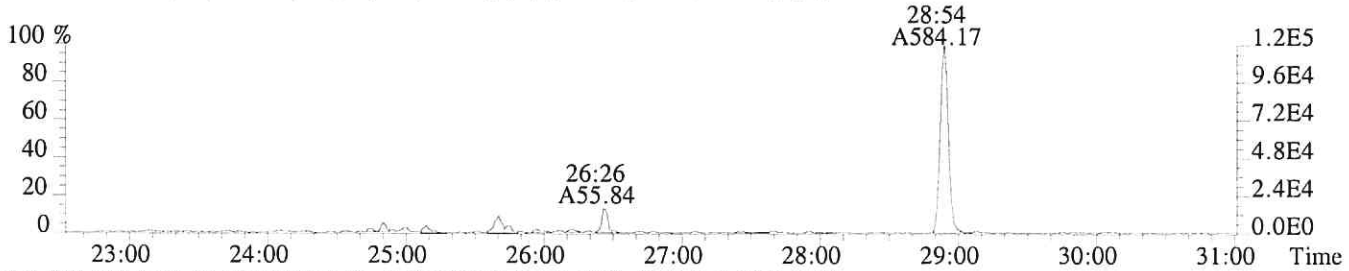


File:P407862 #1-602 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

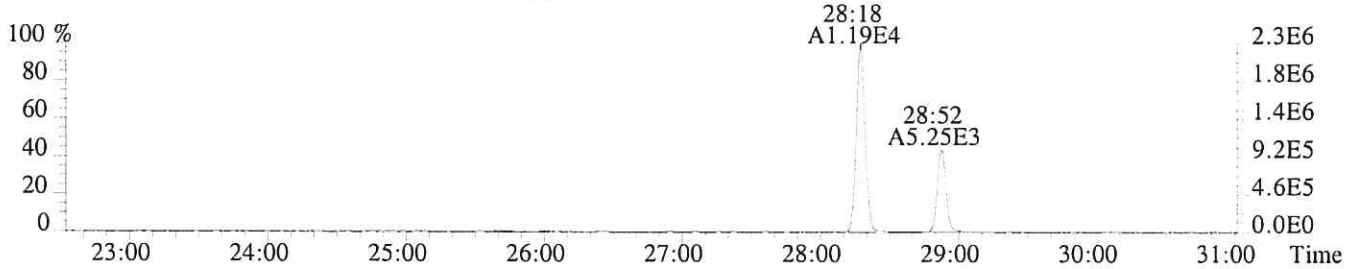
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



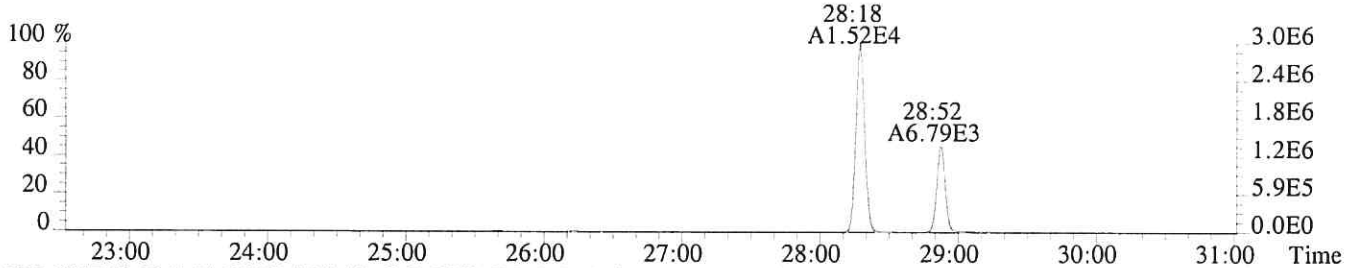
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



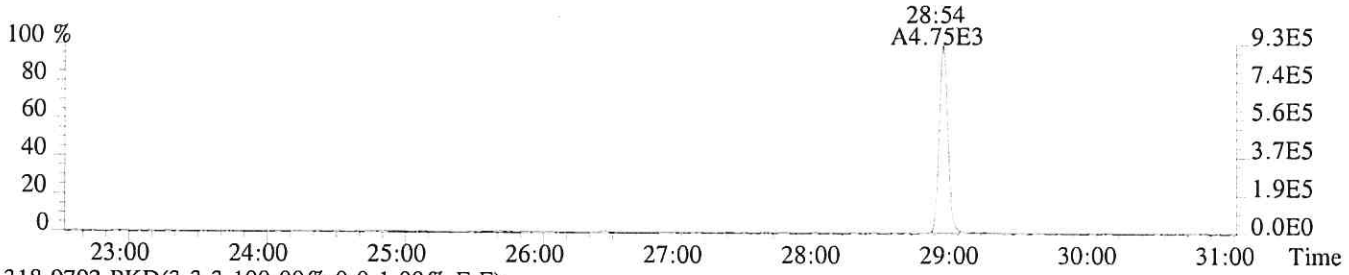
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4284.0,1.00%,F,T)



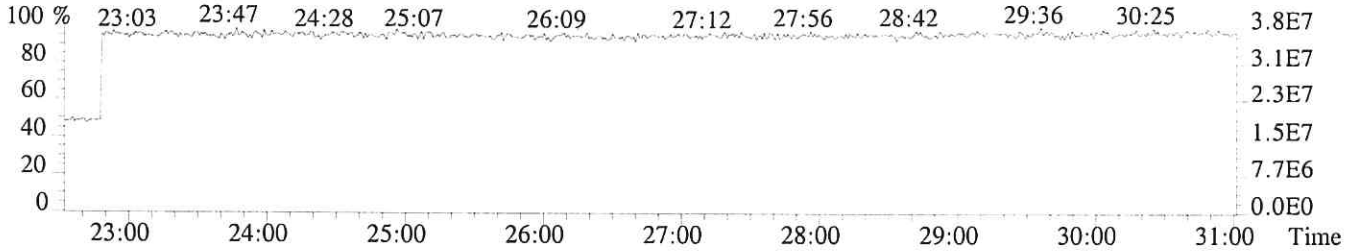
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)

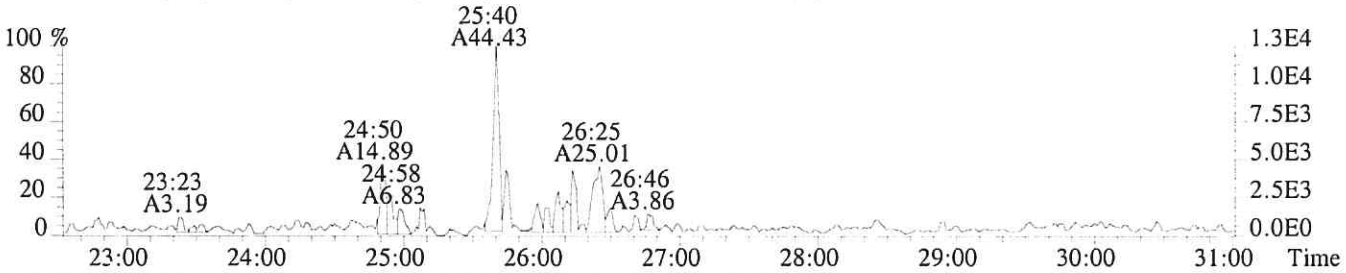


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

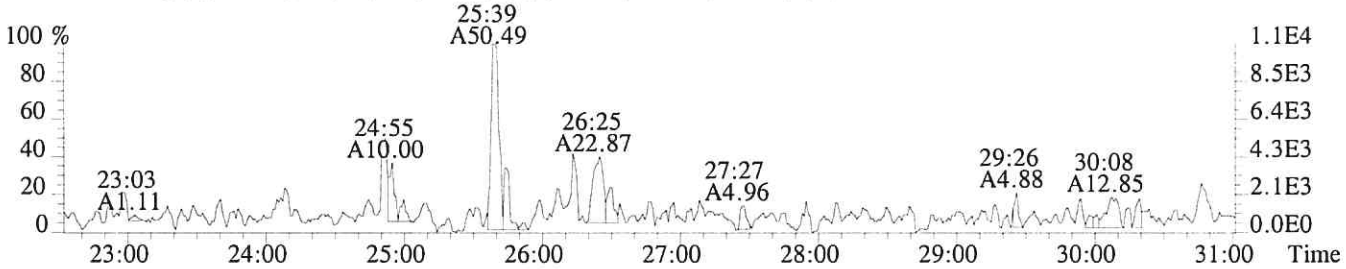


File:P407862 #1-602 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

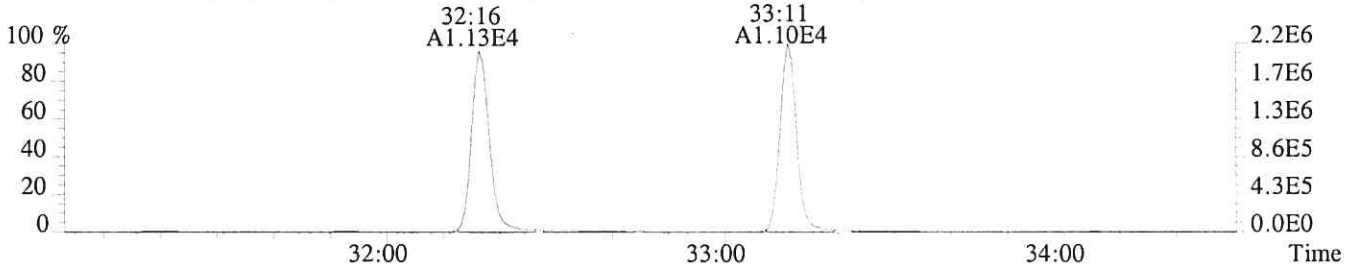
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



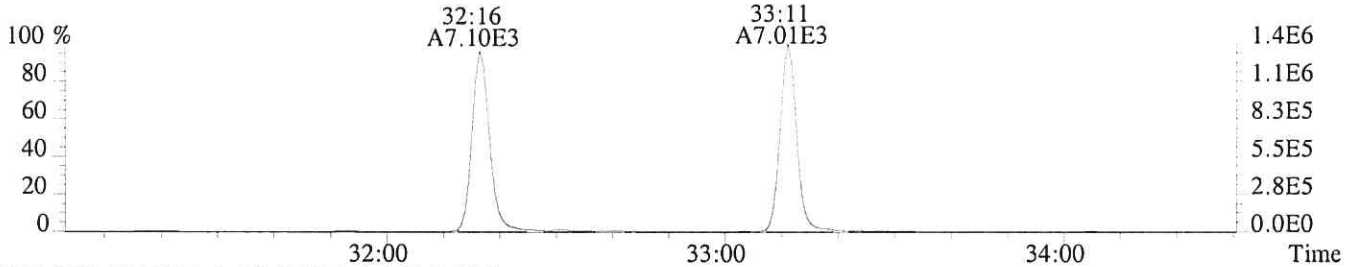
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



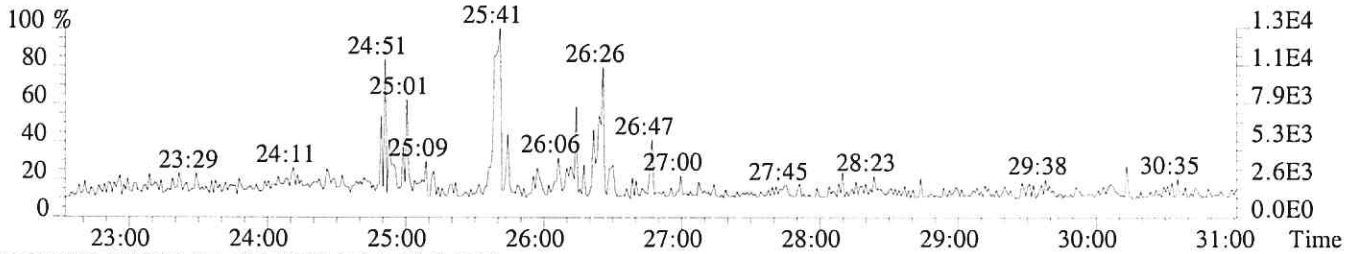
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



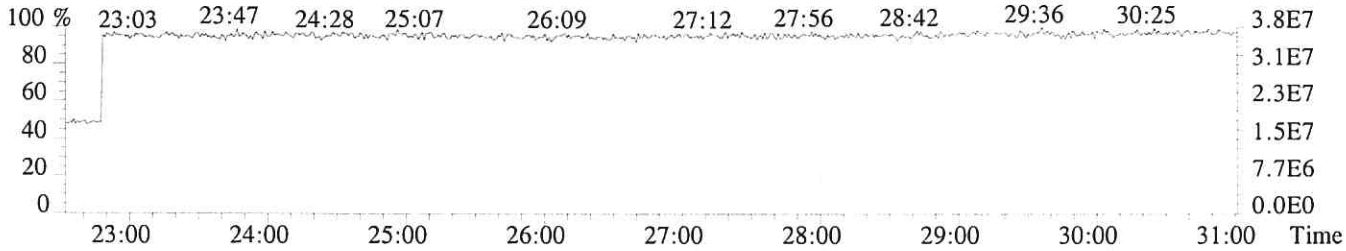
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



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

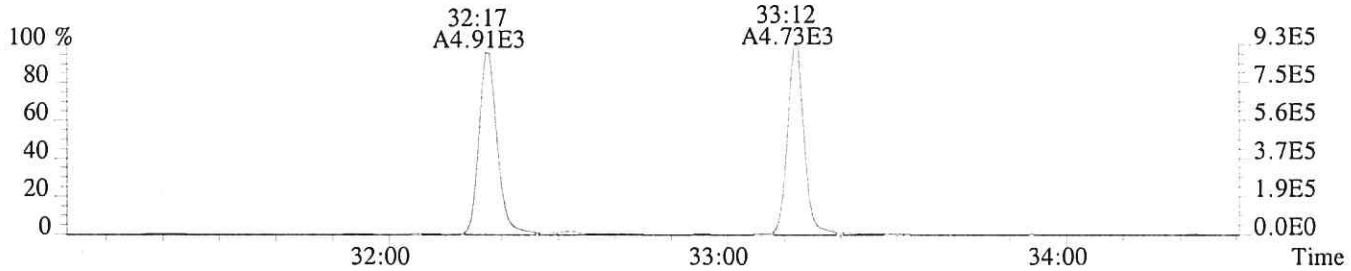


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

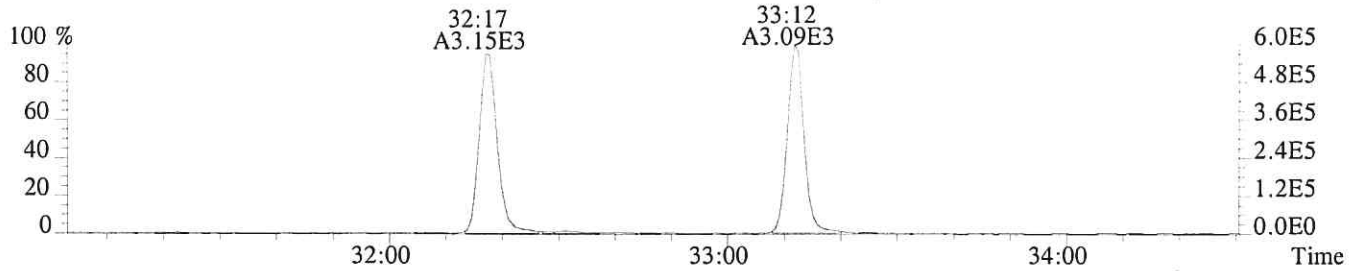


File:P407862 #1-312 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

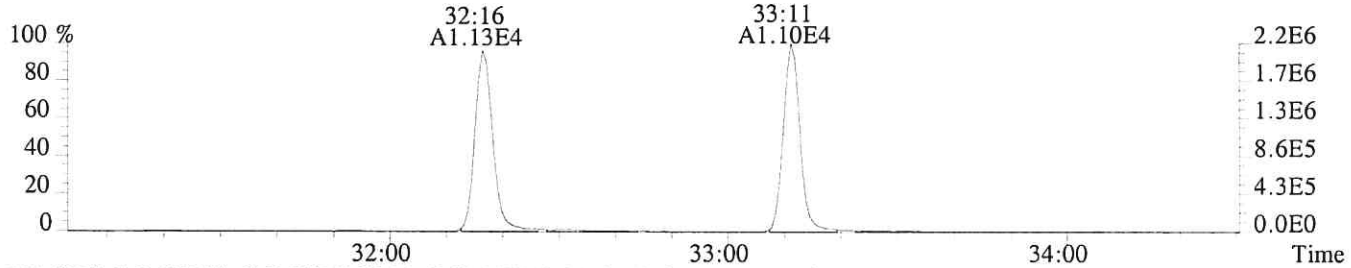
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



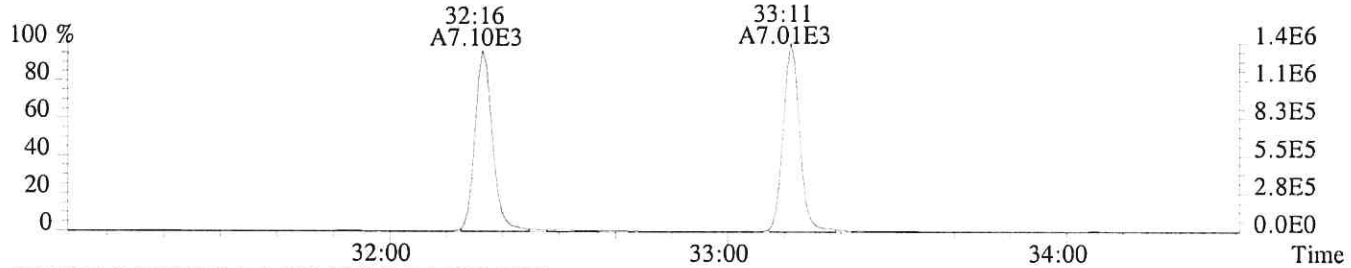
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



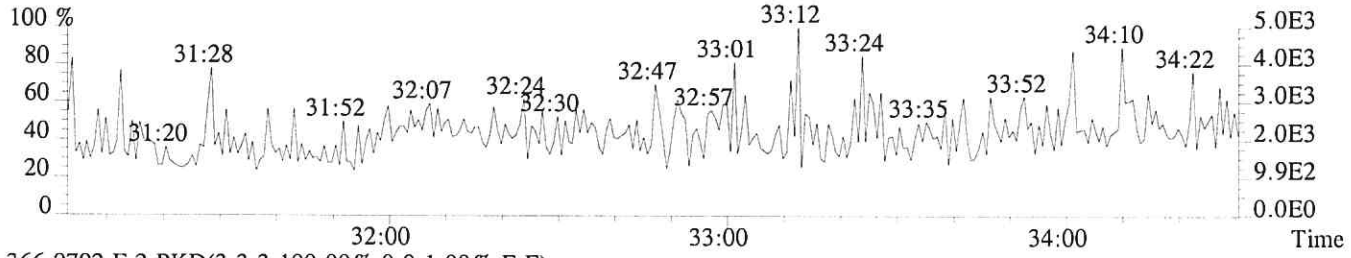
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



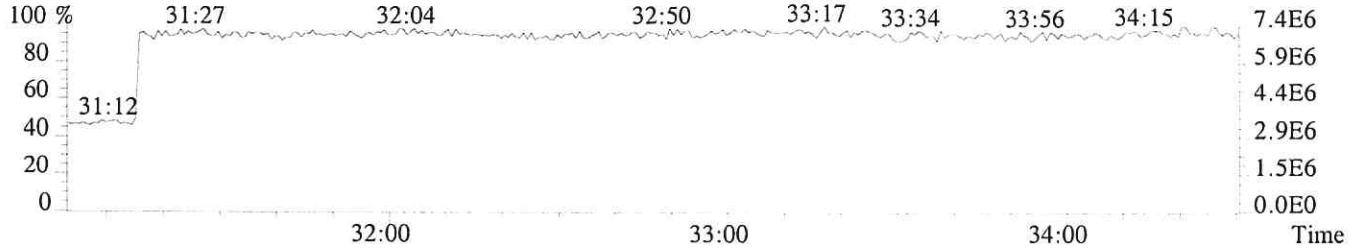
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



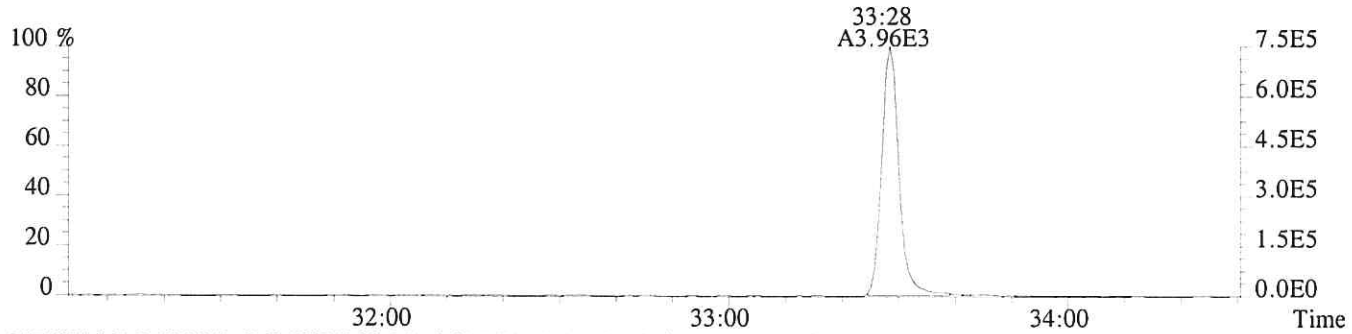
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



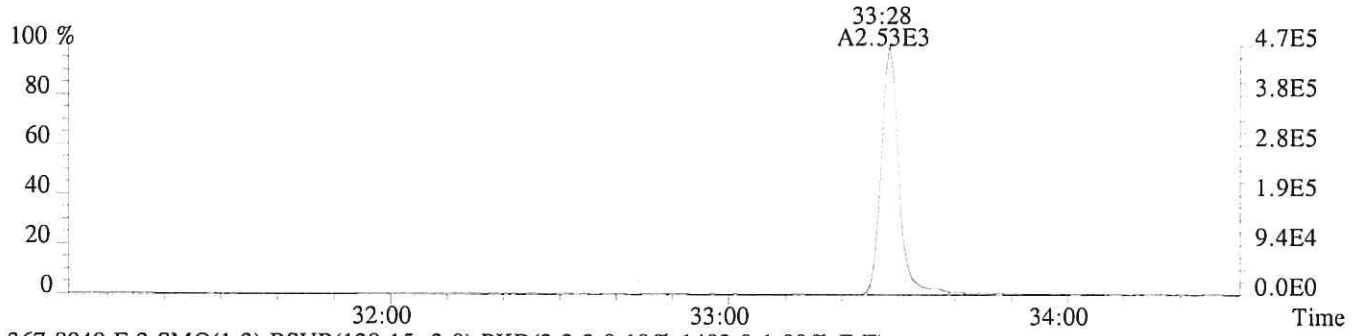
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



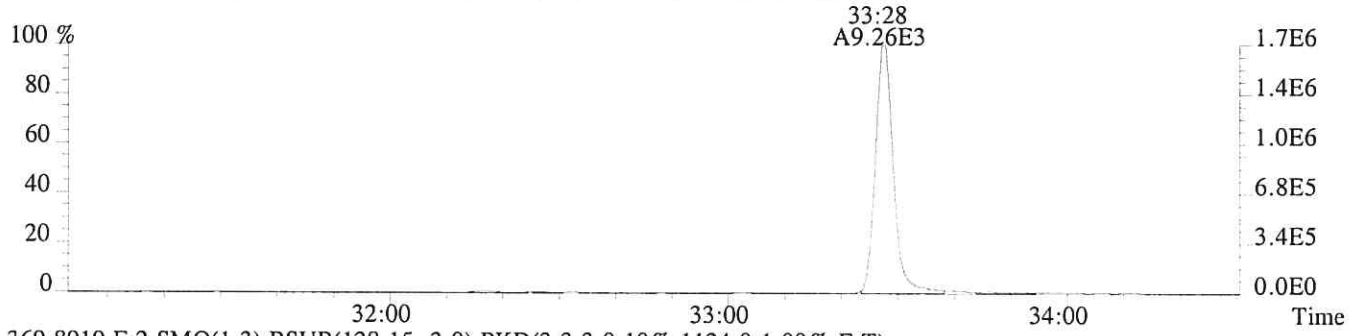
File:P407862 #1-312 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



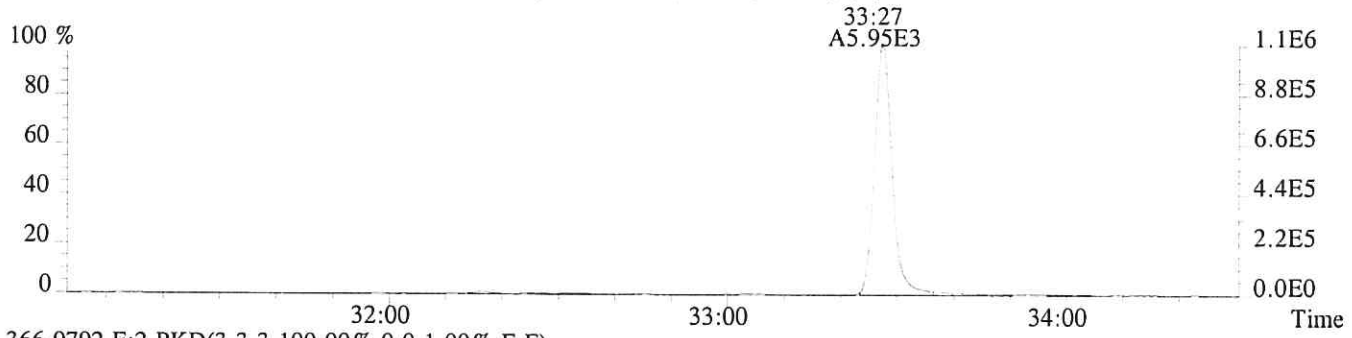
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



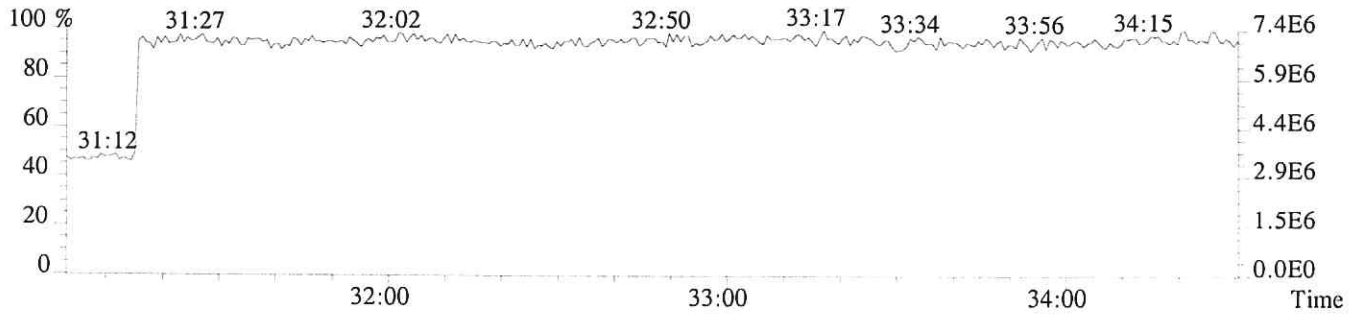
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1492.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)

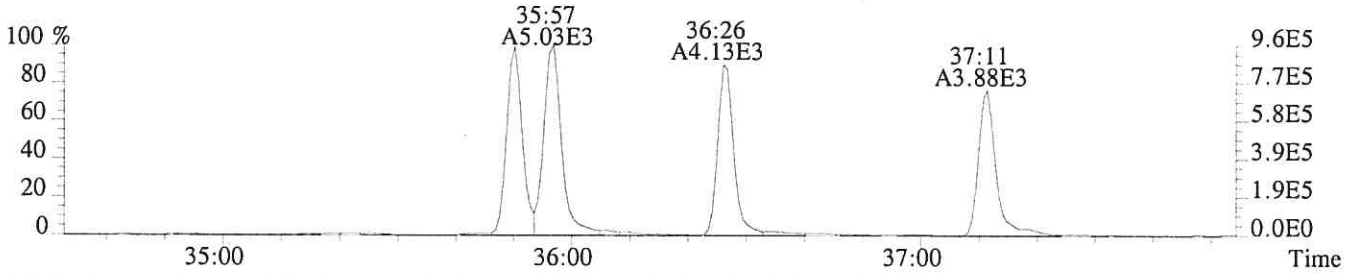


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

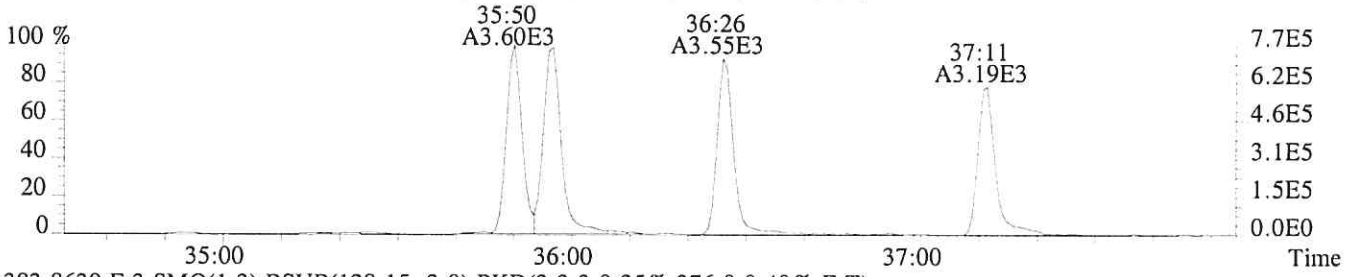


File:P407862 #1-303 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

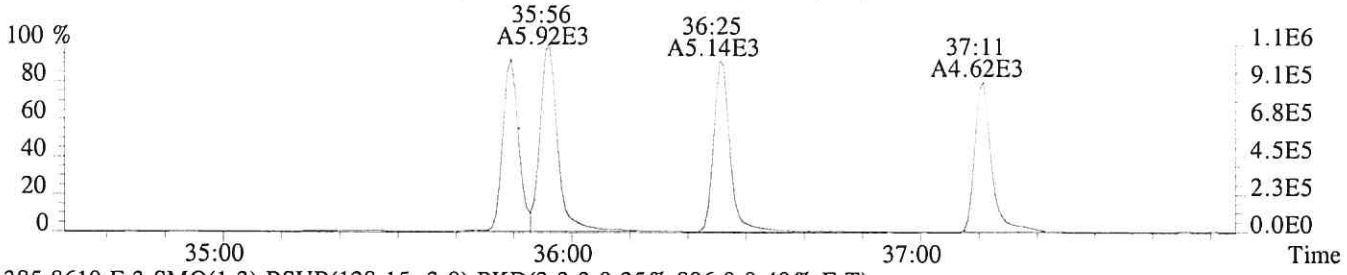
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



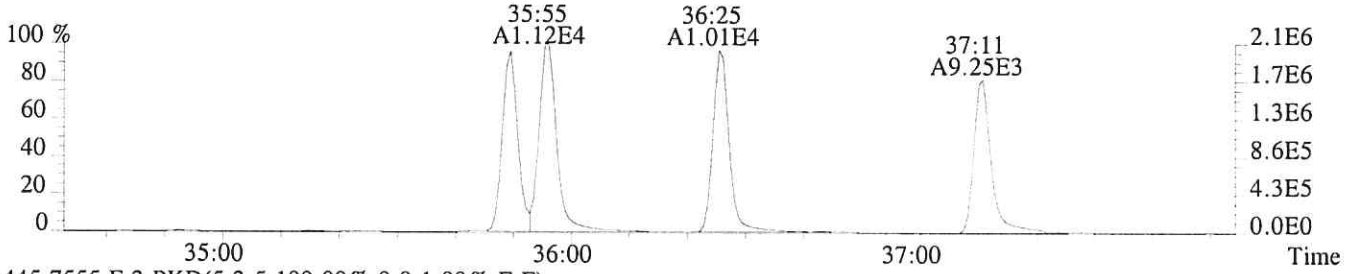
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



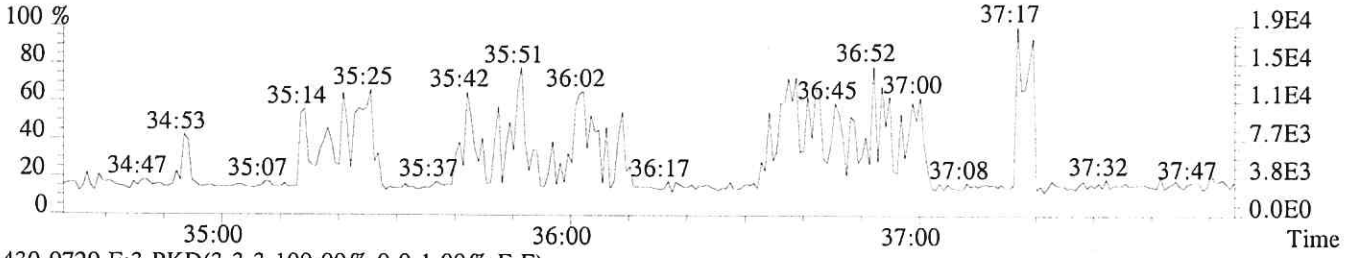
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



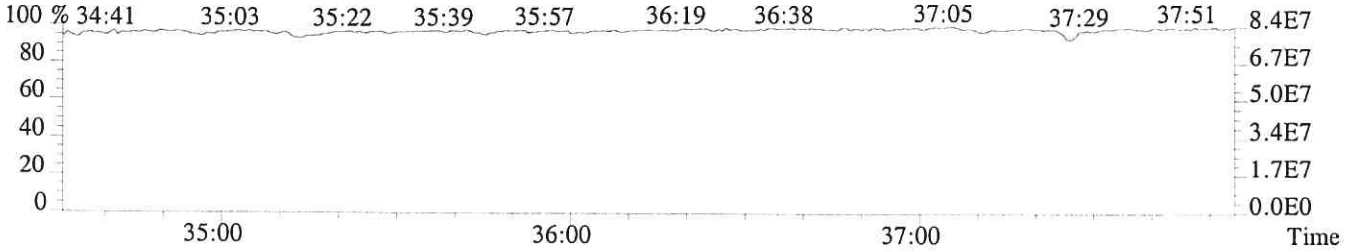
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



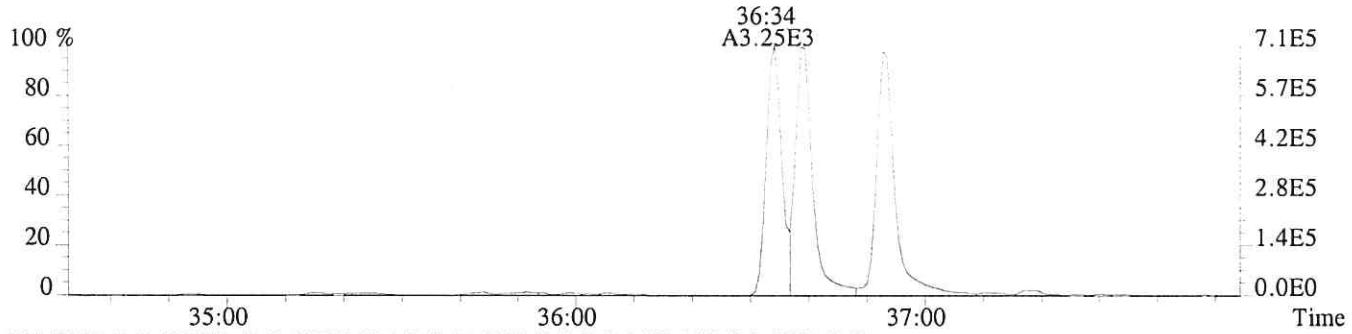
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



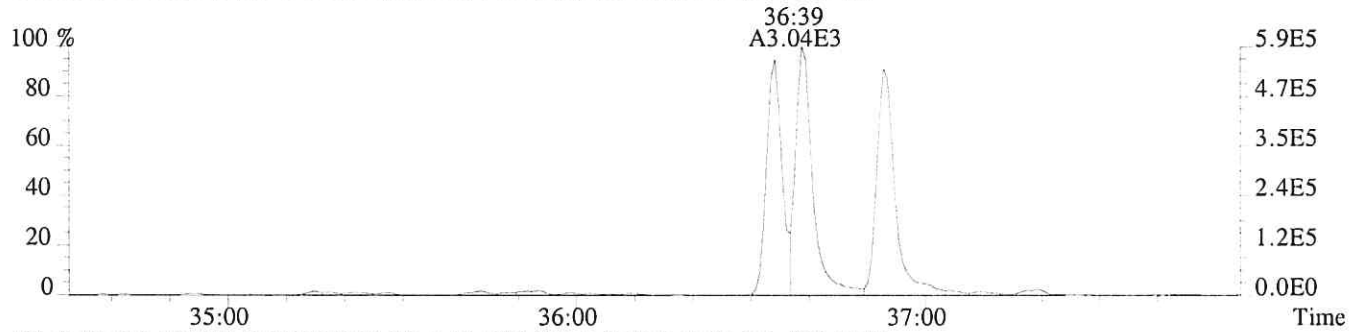
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



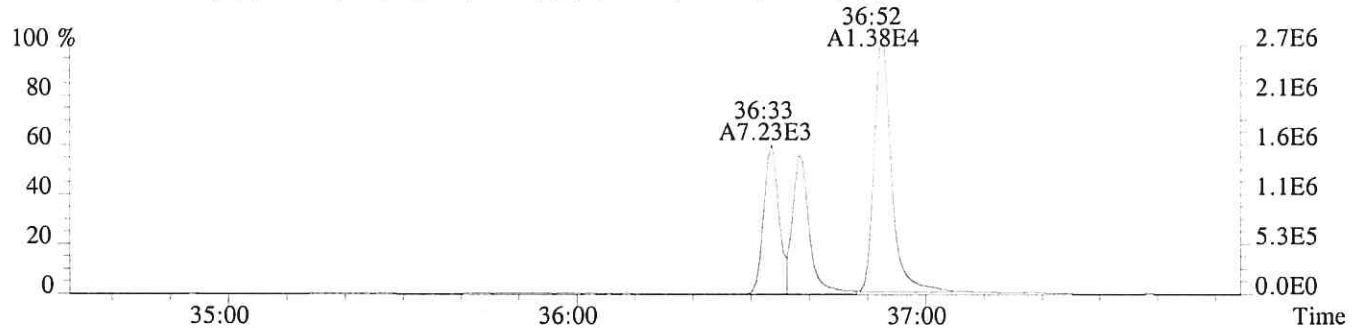
File:P407862 #1-303 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



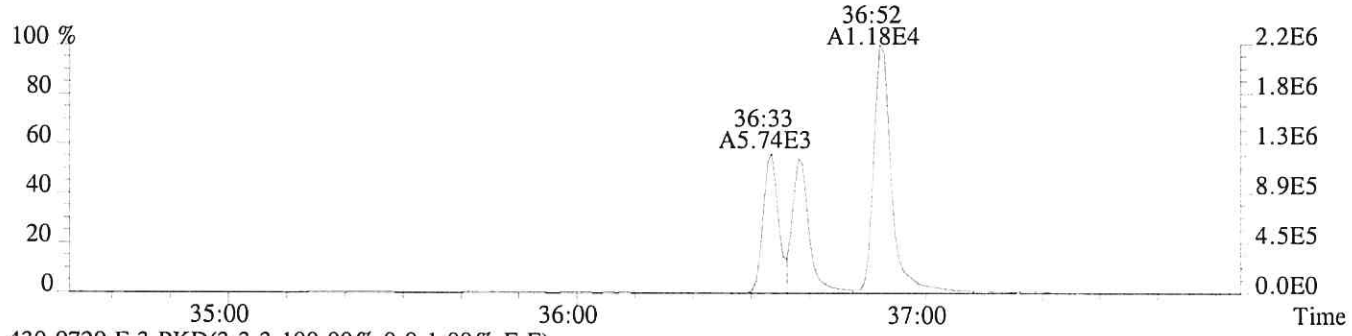
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



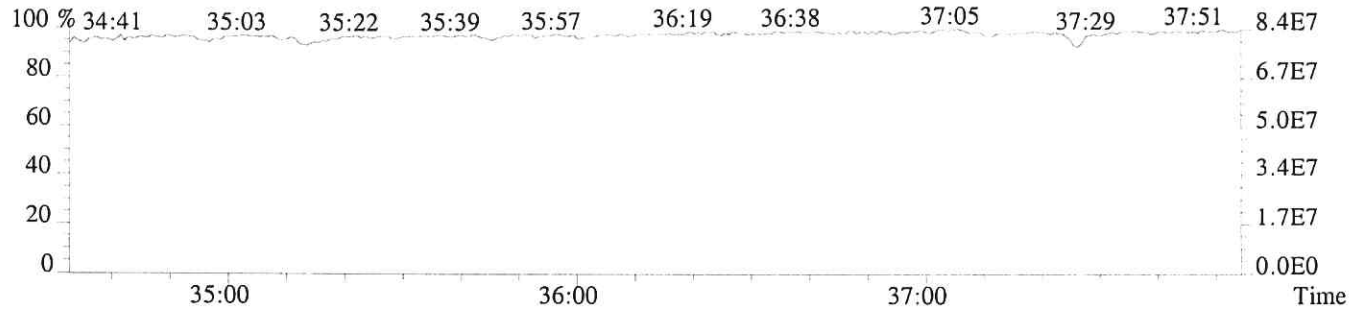
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)

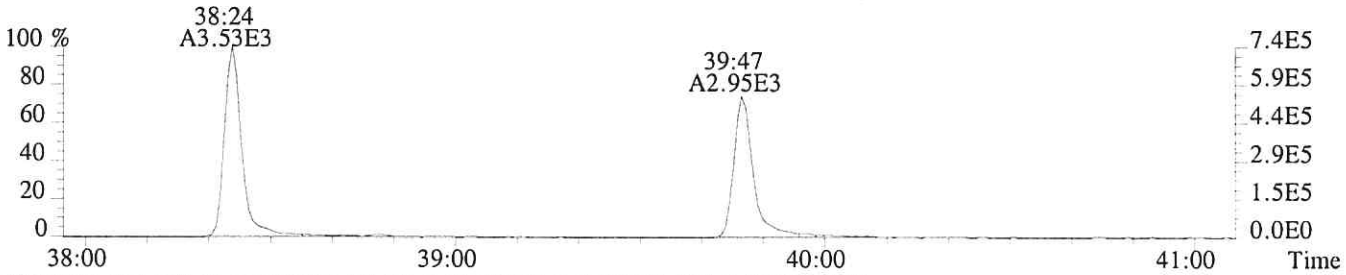


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

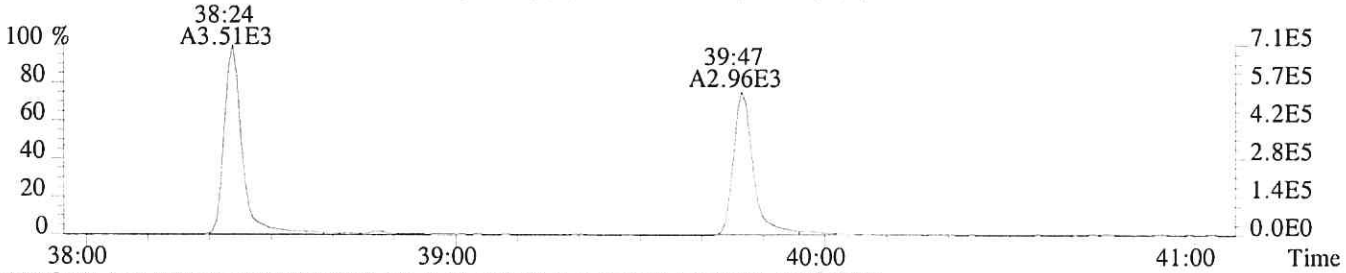


File:P407862 #1-286 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

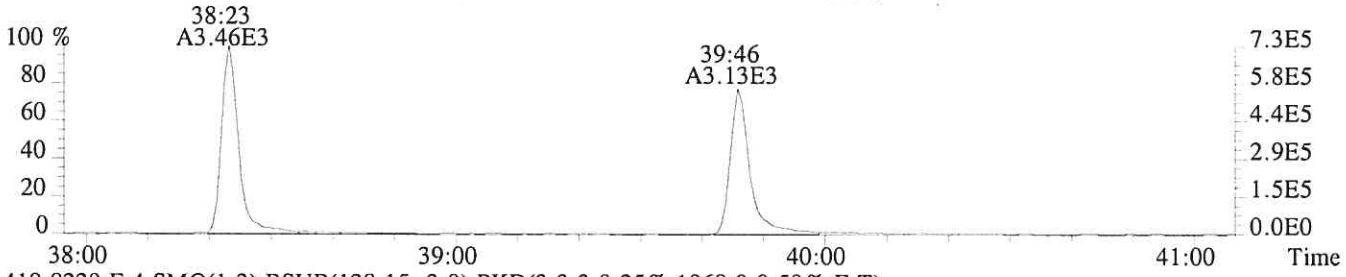
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.50%,F,T)



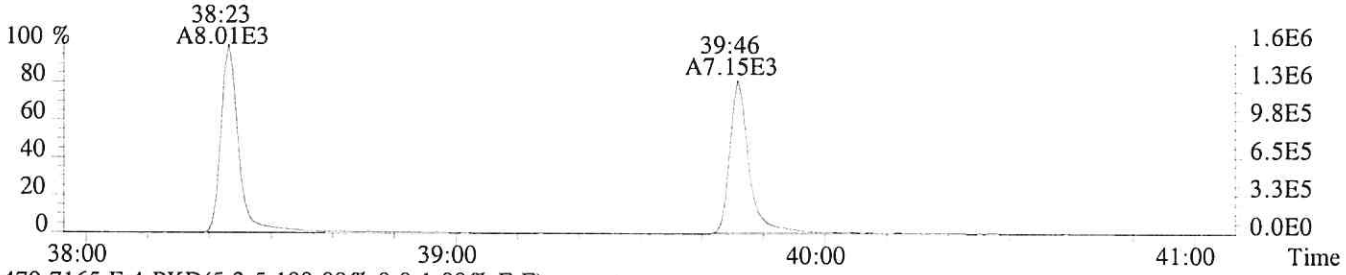
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.50%,F,T)



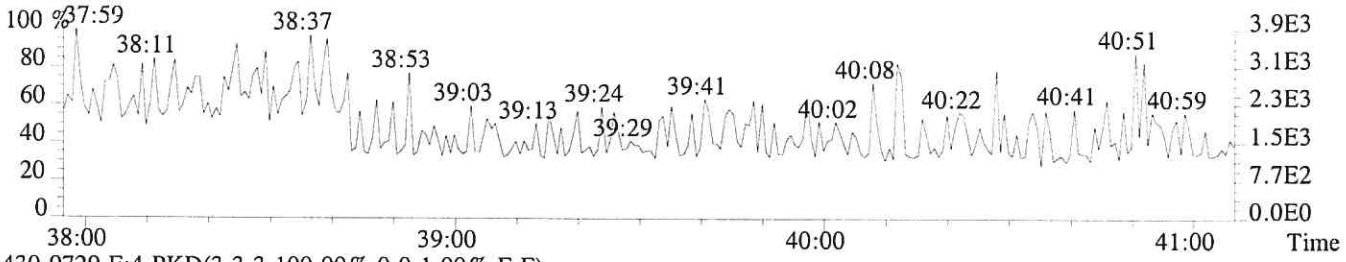
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.50%,F,T)



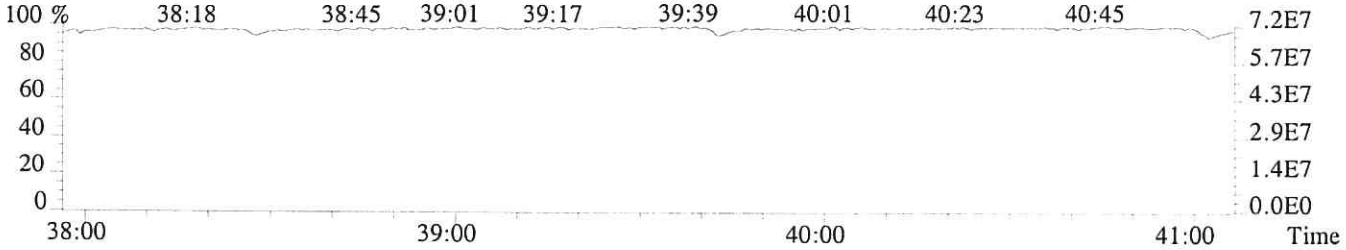
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1968.0,0.50%,F,T)



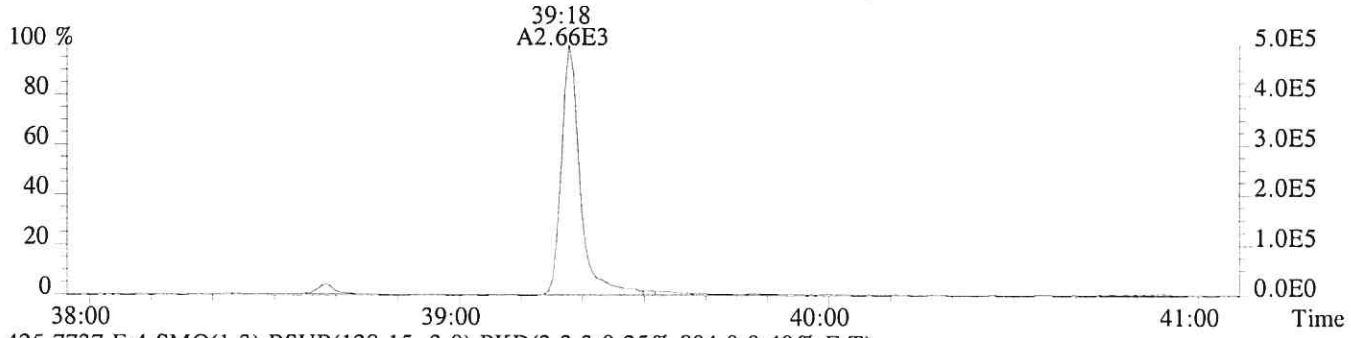
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



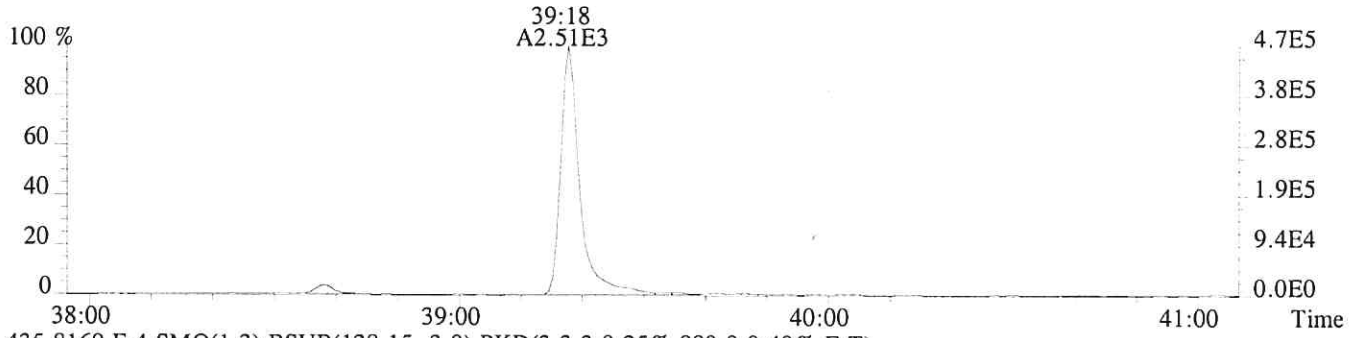
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



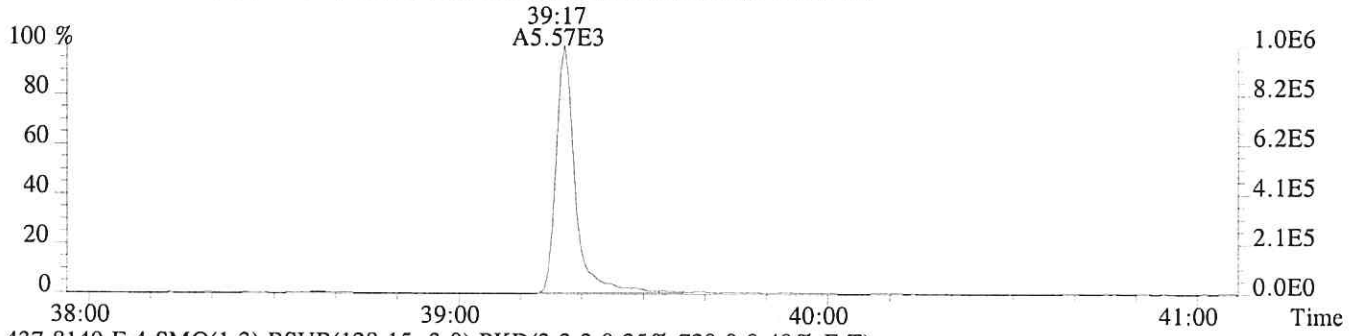
File:P407862 #1-286 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



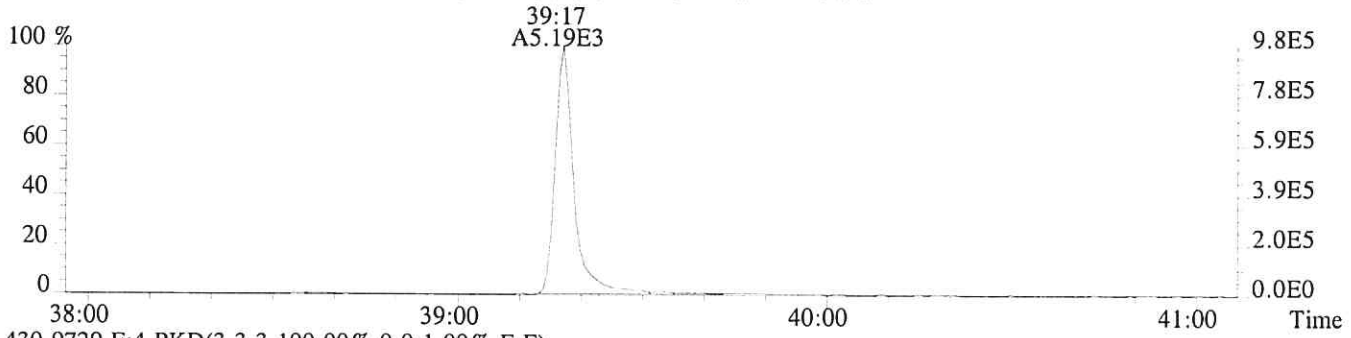
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



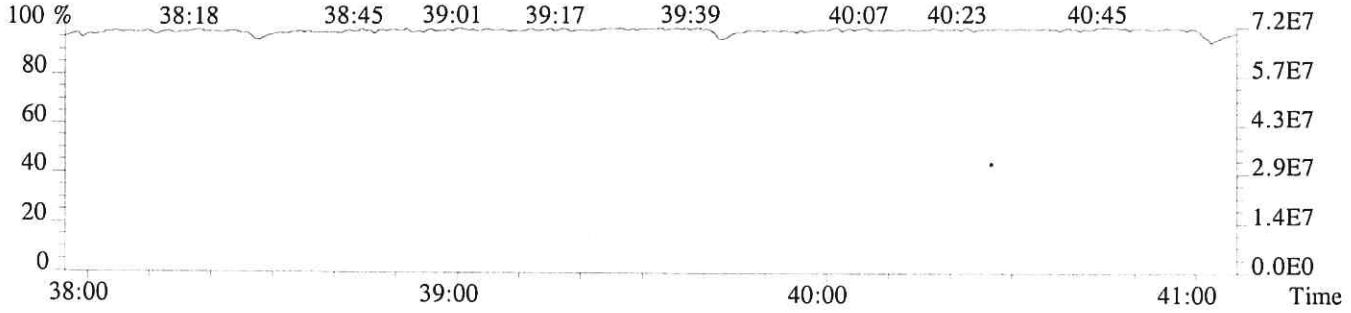
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)

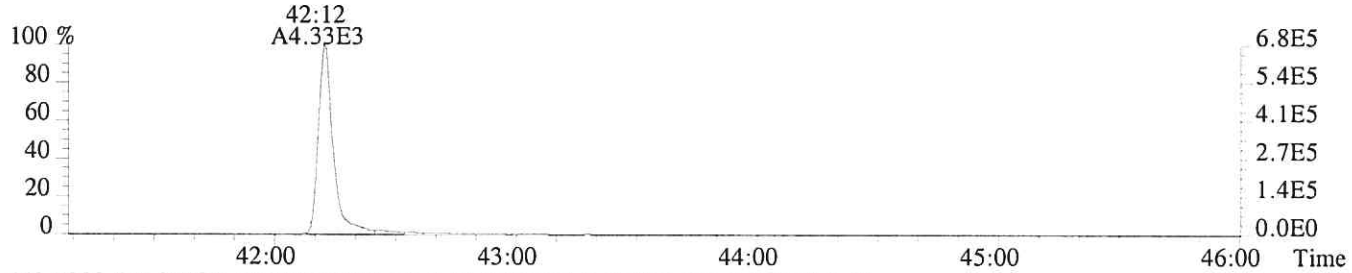


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

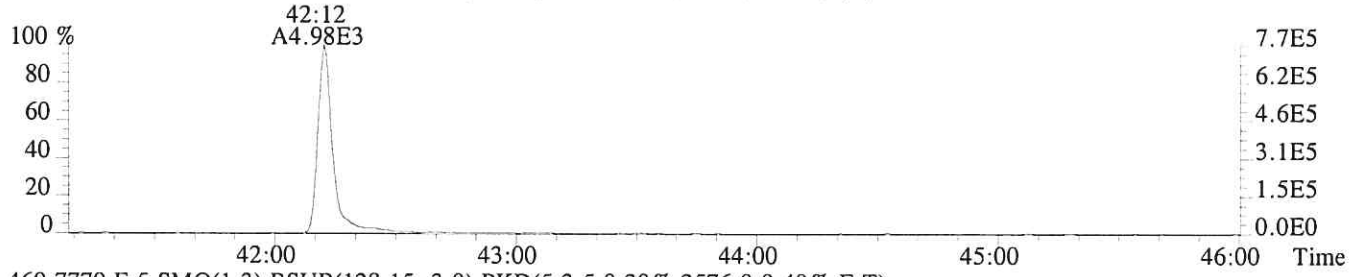


File:P407862 #1-438 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS

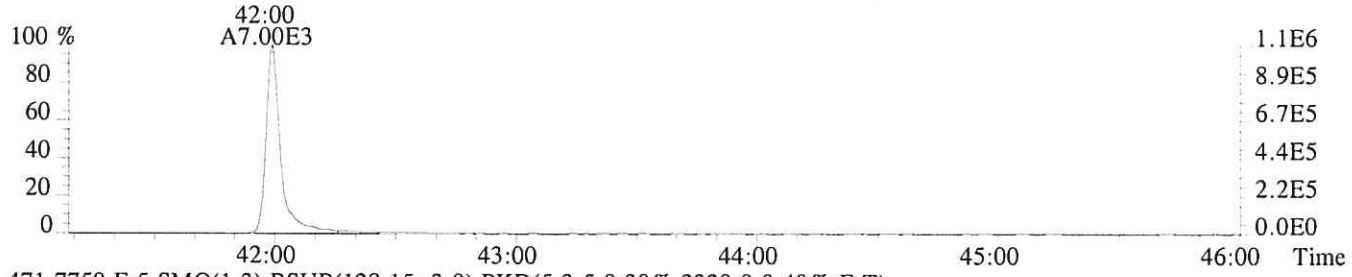
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



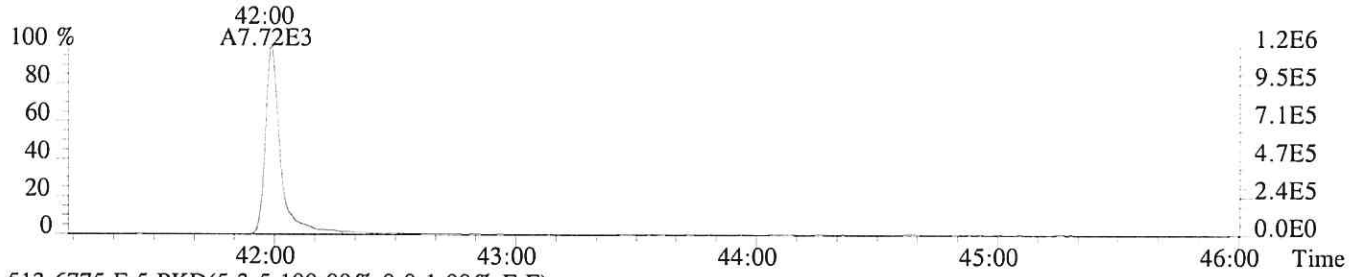
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,876.0,0.40%,F,T)



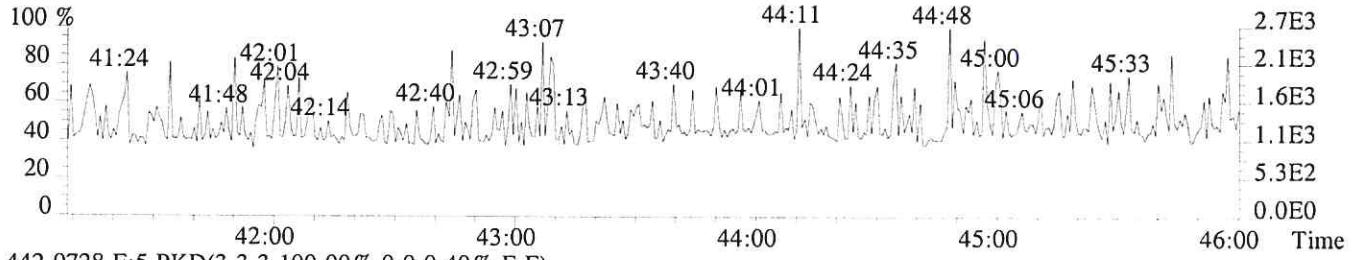
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2576.0,0.40%,F,T)



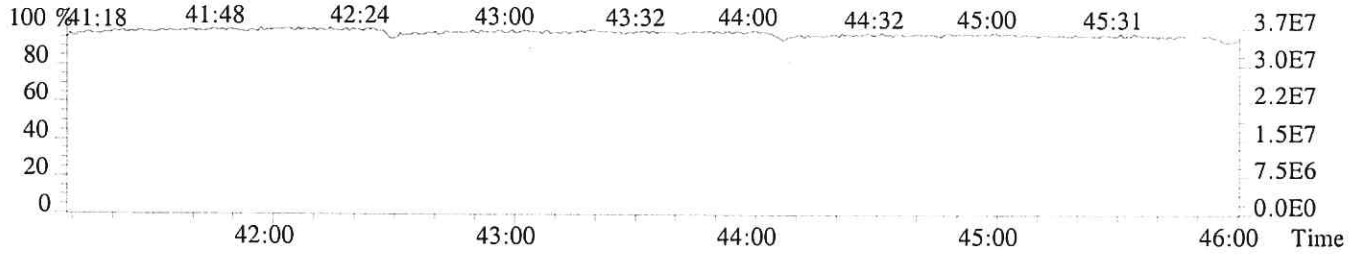
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2320.0,0.40%,F,T)



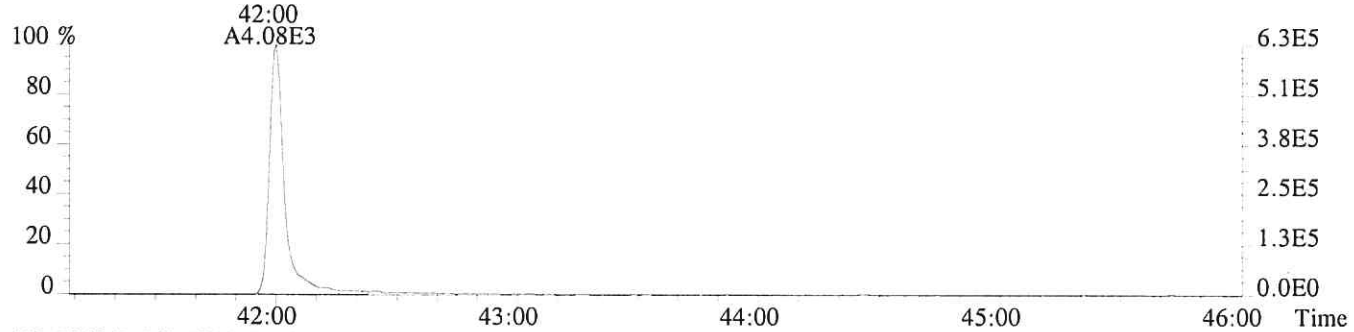
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



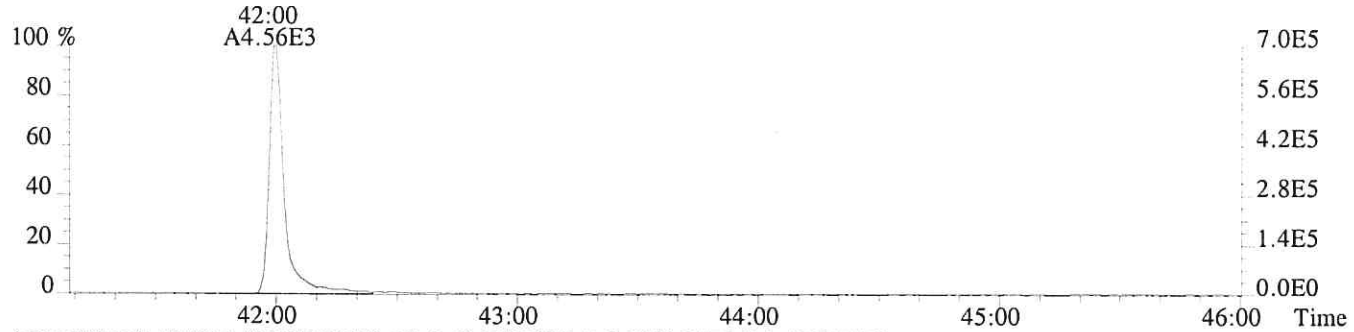
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



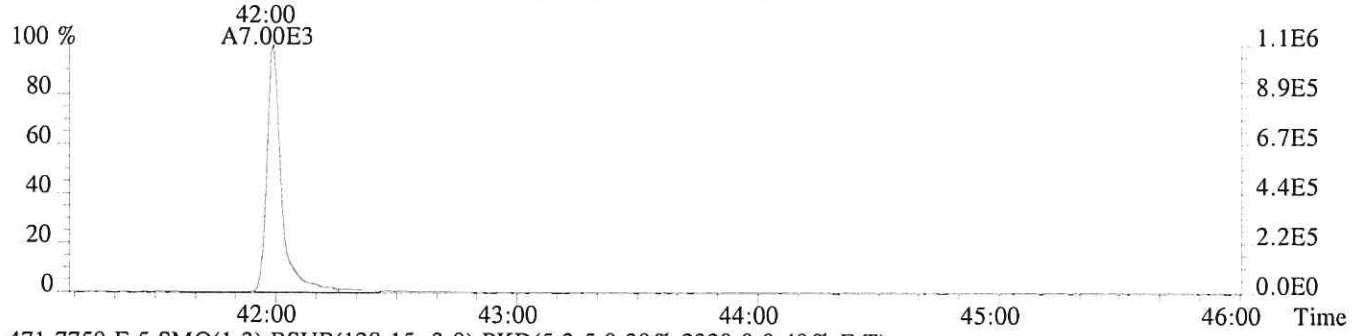
File:P407862 #1-438 Acq:15-SEP-2017 00:20:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:DLCS
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



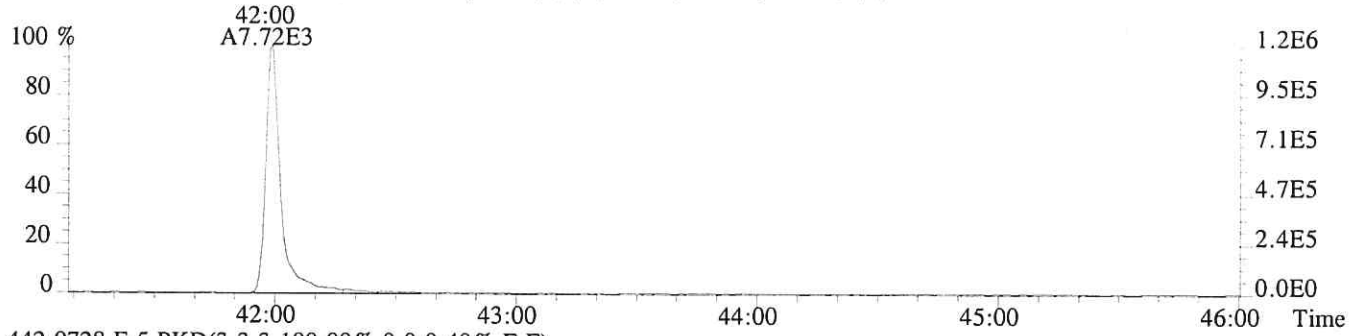
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1280.0,0.40%,F,T)



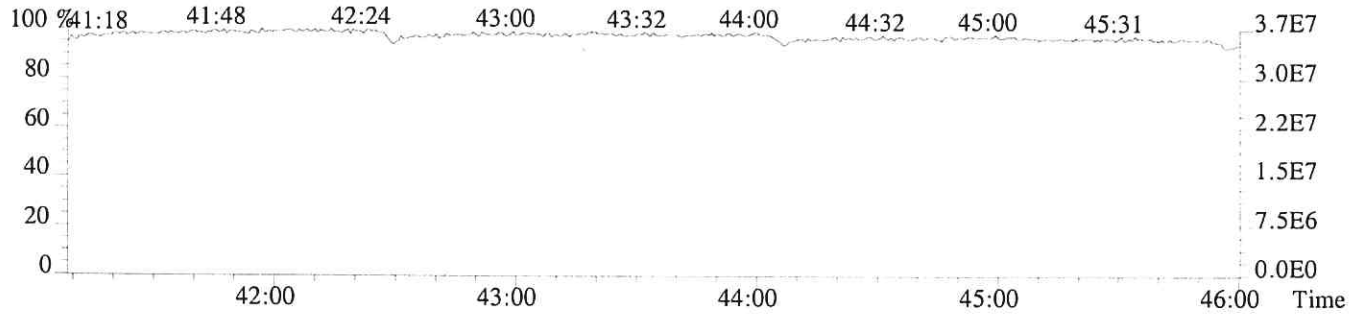
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2576.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2320.0,0.40%,F,T)



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



Continuing Calibration

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

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P609087 – P609099

Date: 09/14/17 – 09/15/17

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290 / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: QC

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 05/16/17

Init. Calib.Times: 11:03

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
178397	WINDOW DEFINE	P609088	14-SEP-17	15:47:46
178519	CS3	P609087	14-SEP-17	14:51:02
METHOD BLANK	EQ1700347-01	P609089	14-SEP-17	16:36:00
METHOD BLANK	EQ1700395-01	P609090	14-SEP-17	17:25:01
METHOD BLANK	EQ1700401-01	P609091	14-SEP-17	18:14:03
METHOD BLANK	EQ1700397-01	P609092	14-SEP-17	19:03:08
SJWP-090717-006W	E1700939-002	P609093	14-SEP-17	19:52:12
SJWP-090717-007W	E1700939-003	P609094	14-SEP-17	20:41:14
SJWP-091117-COMP 02	E1700943-001	P609095	14-SEP-17	21:30:15
SJWP-091117-COMP 0	E1700943-002	P609096	14-SEP-17	22:19:18
17813-002-S30X2	E1700853-005RE	P609097	14-SEP-17	23:08:21
17813-002-S29X2	E1700853-006RE	P609098	14-SEP-17	23:57:23
178519	CS3	P609099	15-SEP-17	00:54:40

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20170914A.SPL
Last Modified: Friday, September 15, 2017 07:54:05 Central Daylight Time
Printed: Friday, September 15, 2017 07:54:08 Central Daylight Time

Page Position (1, 1)

OPUS 4: P609087res

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	9/14/17	14:51	P609087	178519	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS	cfy	HRMS check 14:45
2		15:47	P609088	178397	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS		
3		16:36	P609089	EQ1700347-01	MB	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		17:25	P609090	EQ1700395-01	MB	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		18:14	P609091	EQ1700401-01	MB	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		19:03	P609092	EQ1700397-01	MB	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		19:52	P609093	E1700939-002	E1700939-002	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		20:41	P609094	E1700939-003	E1700939-003	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		21:30	P609095	E1700943-001	E1700943-001	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		22:19	P609096	E1700943-002	E1700943-002	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		23:08	P609097	E1700853-005RE	E1700853-005RE	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		23:57	P609098	E1700853-006RE	E1700853-006RE	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13	9/15/17	00:54	P609099	178519	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		HRMS check 00:54
14	—	—	—	—	—	Tray1:2	EPA1613_ALS	Dioxin_ALS	—	—
15	—	—	—	—	—	Tray1:1	EPA1613_ALS	Dioxin_ALS	—	—
16	—	—	—	—	—	Tray1:16	EPA1613_ALS	Dioxin_ALS	—	—
17	—	—	—	—	—	Tray1:17	EPA1613_ALS	Dioxin_ALS	—	—
18	—	—	—	—	—	Tray1:18	EPA1613_ALS	Dioxin_ALS	—	—
19	—	—	—	—	—	Tray1:19	EPA1613_ALS	Dioxin_ALS	—	—
20	—	—	—	—	—	Tray1:20	EPA1613_ALS	Dioxin_ALS	—	—
21	—	—	—	—	—	Tray1:21	EPA1613_ALS	Dioxin_ALS	—	—
22	—	—	—	—	—	Tray1:22	EPA1613_ALS	Dioxin_ALS	—	—
23	—	—	—	—	—	Tray1:23	EPA1613_ALS	Dioxin_ALS	—	—
24	—	—	—	—	—	Tray1:24	EPA1613_ALS	Dioxin_ALS	—	—
25	—	—	—	—	—	Tray1:25	EPA1613_ALS	Dioxin_ALS	—	—
26	—	—	—	—	—	Tray1:2	EPA1613_ALS	Dioxin_ALS	—	—
27	—	—	—	—	—	Tray1:27	EPA1613_ALS	Dioxin_ALS	—	—
28	—	—	—	—	—	Tray1:28	EPA1613_ALS	Dioxin_ALS	—	—
29	—	—	—	—	—	Tray1:29	EPA1613_ALS	Dioxin_ALS	—	—
30	—	—	—	—	—	Tray1:30	EPA1613_ALS	Dioxin_ALS	—	—
31	—	—	—	—	—	Tray1:31	EPA1613_ALS	Dioxin_ALS	—	—
32	—	—	—	—	—	Tray1:32	EPA1613_ALS	Dioxin_ALS	—	—
33	—	—	—	—	—	Tray1:33	EPA1613_ALS	Dioxin_ALS	—	—
34	—	—	—	—	—	Tray1:34	EPA1613_ALS	Dioxin_ALS	—	—
35	—	—	—	—	—	Tray1:35	EPA1613_ALS	Dioxin_ALS	—	—
36	—	—	—	—	—	Tray1:36	EPA1613_ALS	Dioxin_ALS	—	—
37	—	—	—	—	—	Tray1:37	EPA1613_ALS	Dioxin_ALS	—	—
38	—	—	—	—	—	Tray1:38	EPA1613_ALS	Dioxin_ALS	—	—
39	—	—	—	—	—	Tray1:39	EPA1613_ALS	Dioxin_ALS	—	—

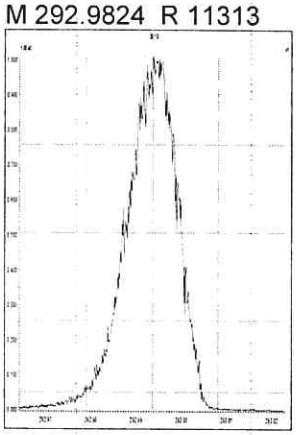
9/15/17

E-011

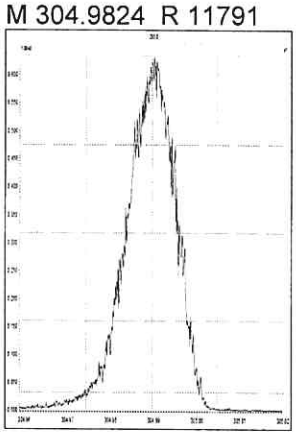
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, September 14, 2017 14:45:55 Central Daylight Time

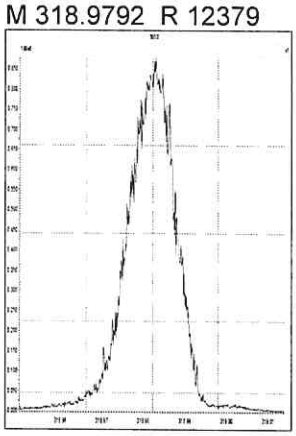
M 292.9824 R 11313



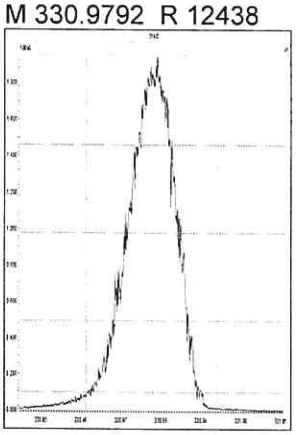
M 304.9824 R 11791



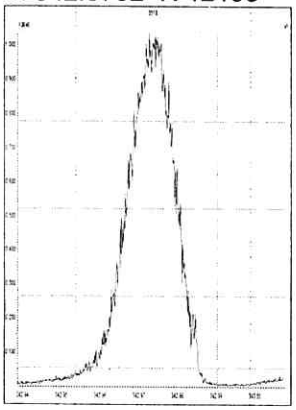
M 318.9792 R 12379



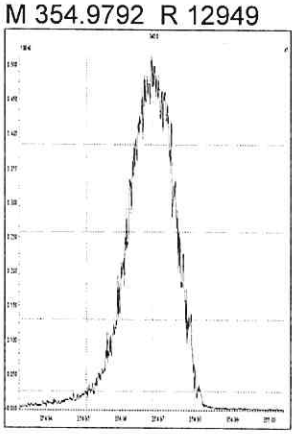
M 330.9792 R 12438



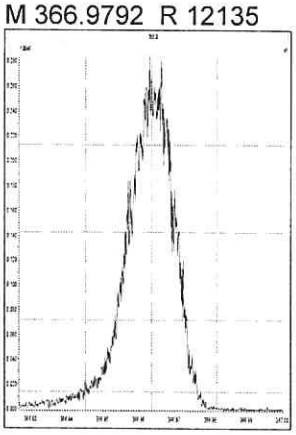
M 342.9792 R 12193



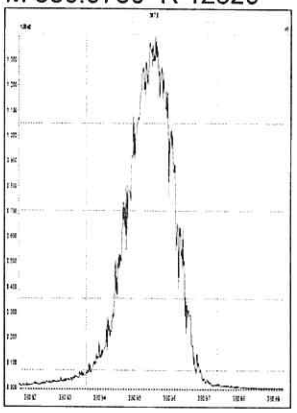
M 354.9792 R 12949



M 366.9792 R 12135



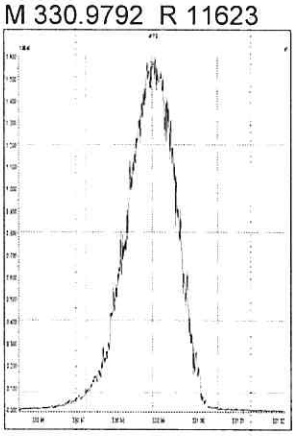
M 380.9760 R 12629



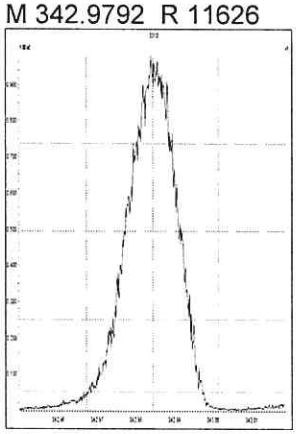
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, September 14, 2017 14:47:00 Central Daylight Time

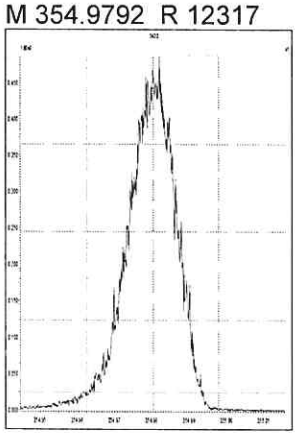
M 330.9792 R 11623



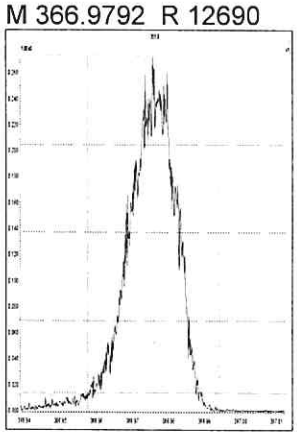
M 342.9792 R 11626



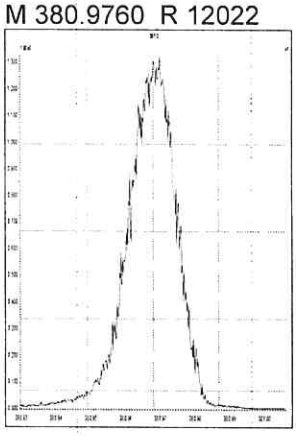
M 354.9792 R 12317



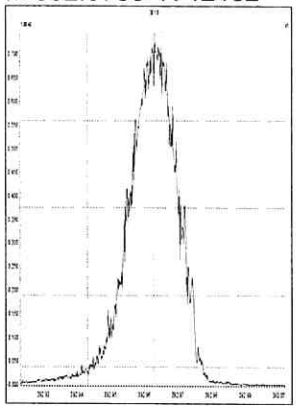
M 366.9792 R 12690



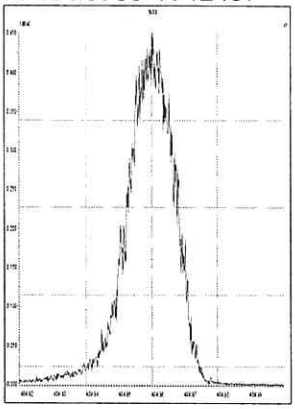
M 380.9760 R 12022



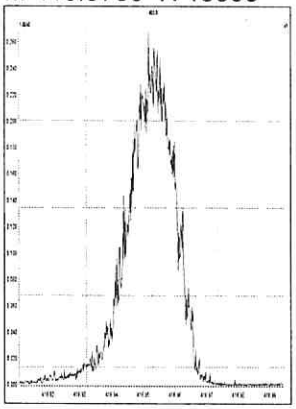
M 392.9760 R 12132



M 404.9760 R 12437



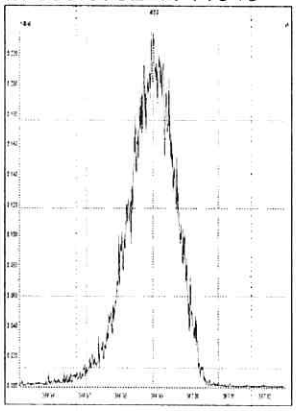
M 416.9760 R 13366



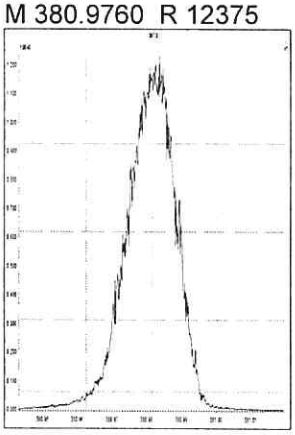
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, September 14, 2017 14:48:13 Central Daylight Time

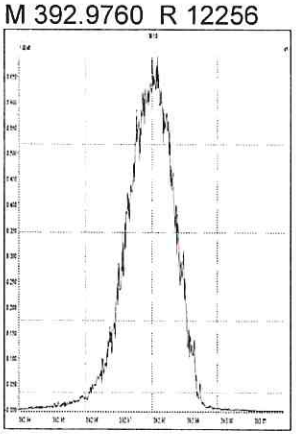
M 366.9792 R 11848



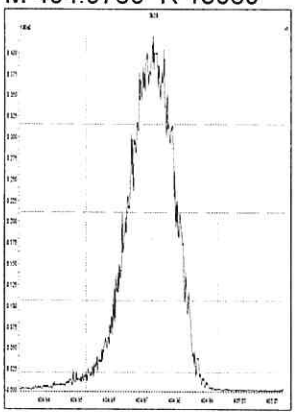
M 380.9760 R 12375



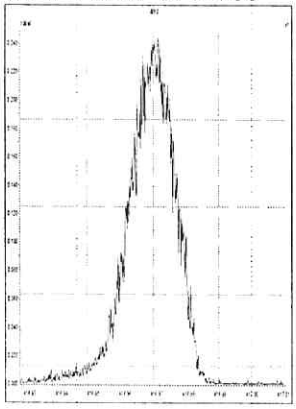
M 392.9760 R 12256



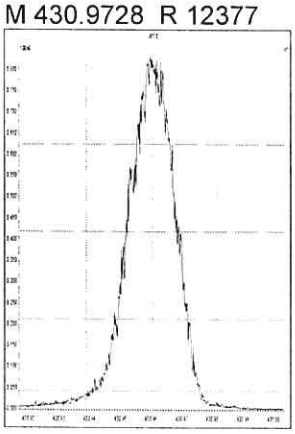
M 404.9760 R 13089



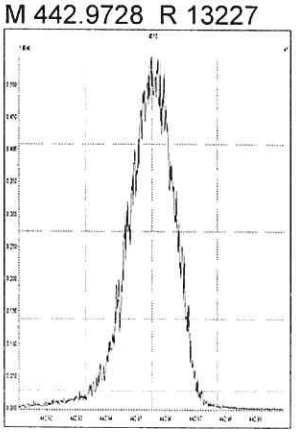
M 416.9760 R 12753



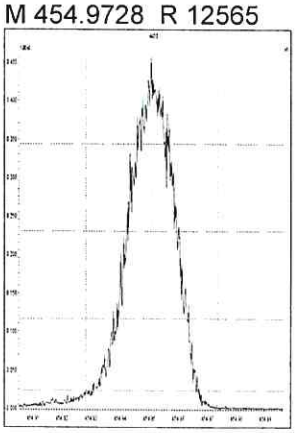
M 430.9728 R 12377



M 442.9728 R 13227



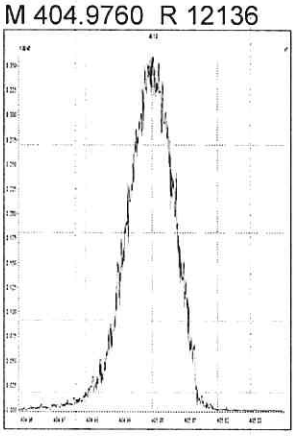
M 454.9728 R 12565



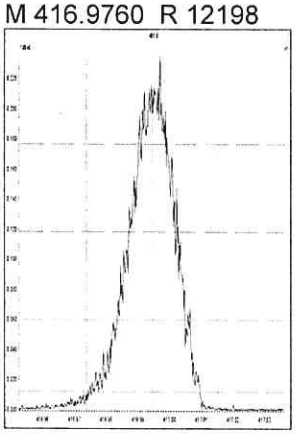
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, September 14, 2017 14:49:08 Central Daylight Time

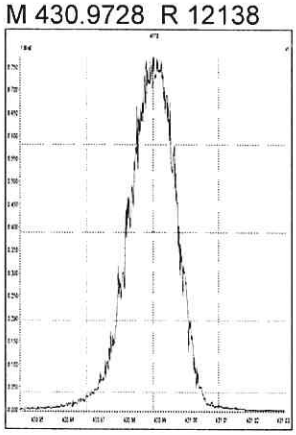
M 404.9760 R 12136



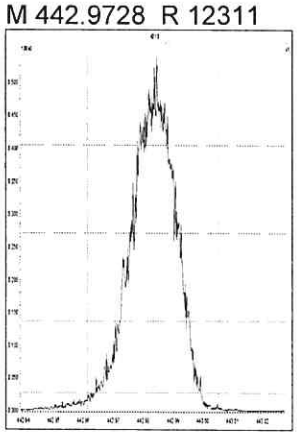
M 416.9760 R 12198



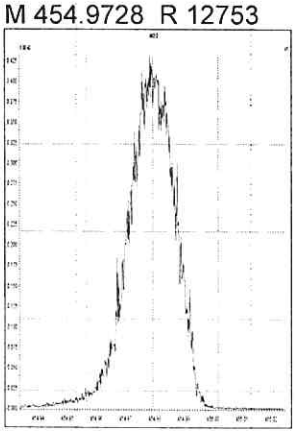
M 430.9728 R 12138



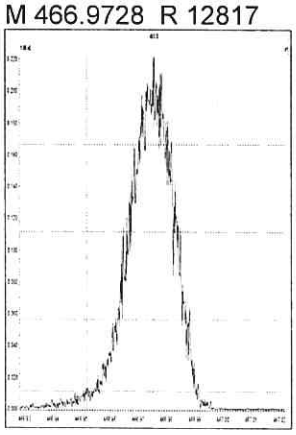
M 442.9728 R 12311



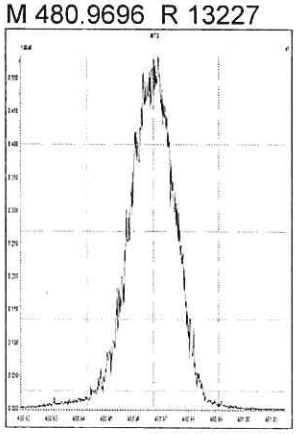
M 454.9728 R 12753



M 466.9728 R 12817



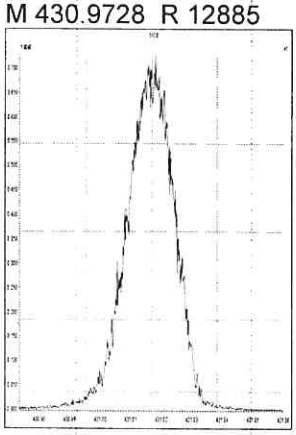
M 480.9696 R 13227



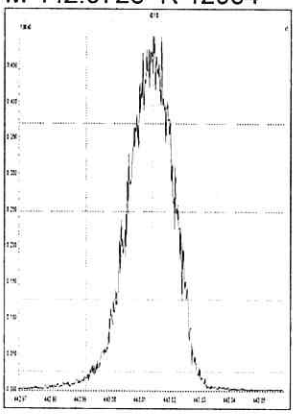
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, September 14, 2017 14:50:02 Central Daylight Time

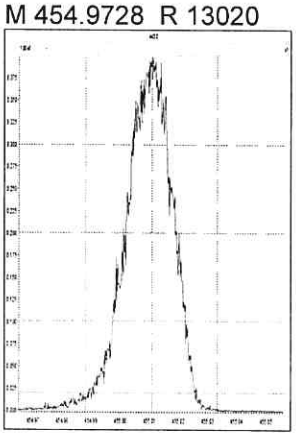
M 430.9728 R 12885



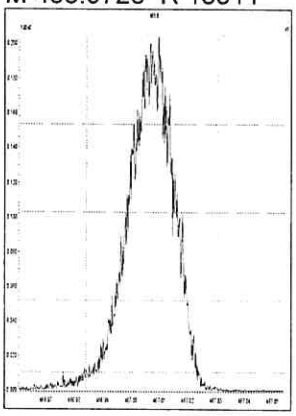
M 442.9728 R 12954



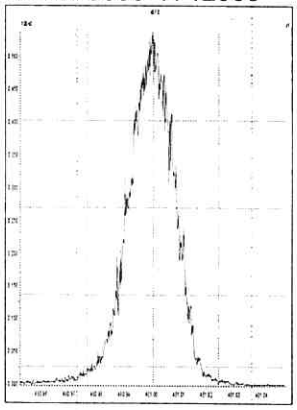
M 454.9728 R 13020



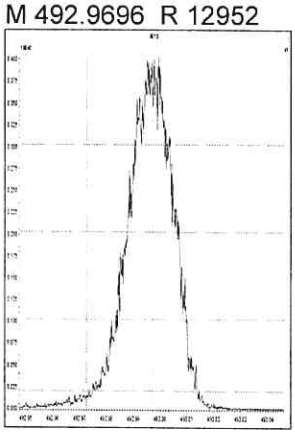
M 466.9728 R 13511



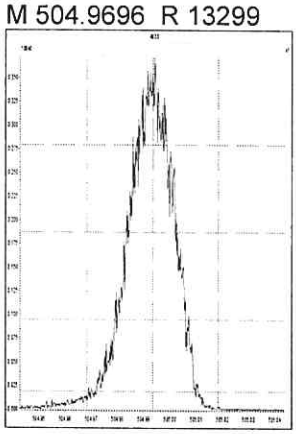
M 480.9696 R 12563



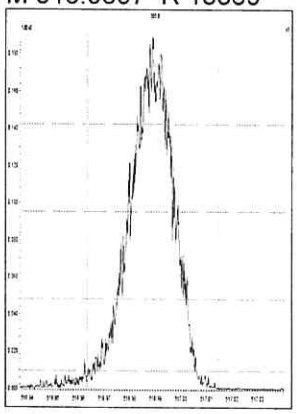
M 492.9696 R 12952



M 504.9696 R 13299

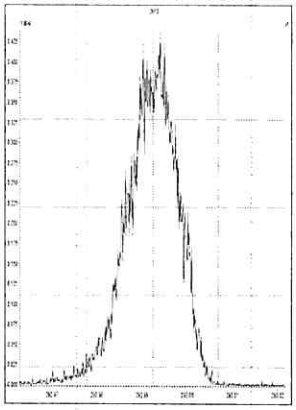


M 516.9697 R 13369

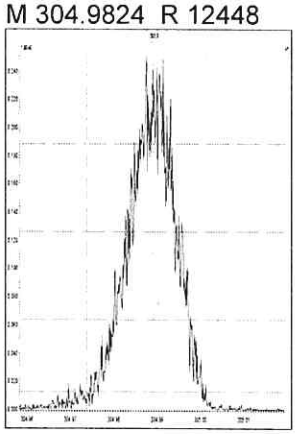


Printed: Friday, September 15, 2017 00:54:38 Central Daylight Time

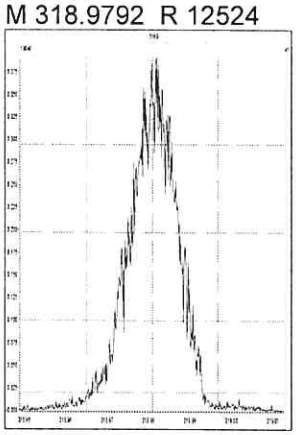
M 292.9824 R 11627



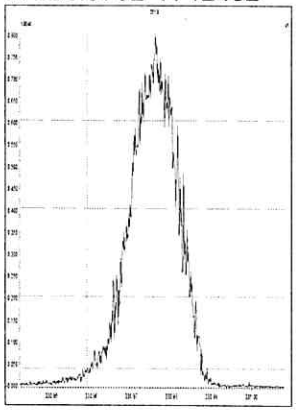
M 304.9824 R 12448



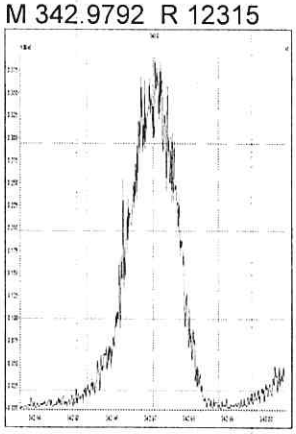
M 318.9792 R 12524



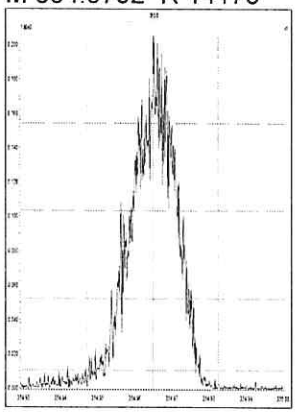
M 330.9792 R 12452



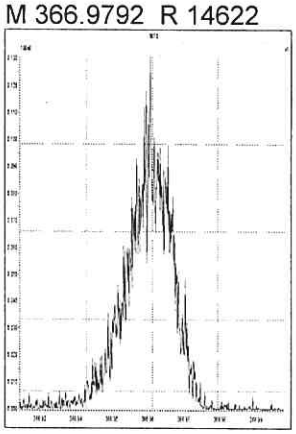
M 342.9792 R 12315



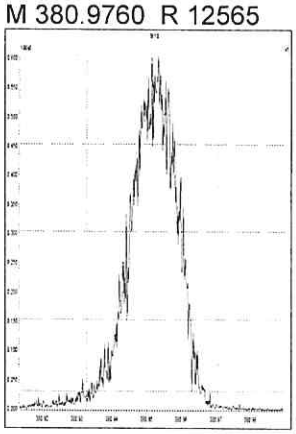
M 354.9792 R 14173



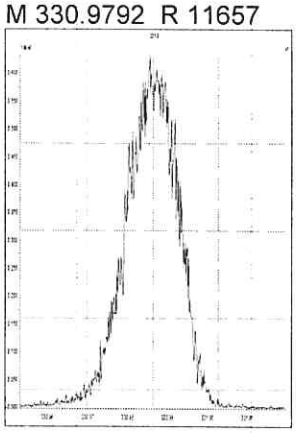
M 366.9792 R 14622



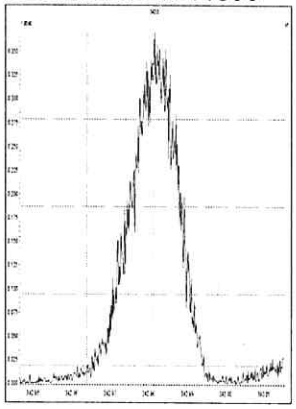
M 380.9760 R 12565



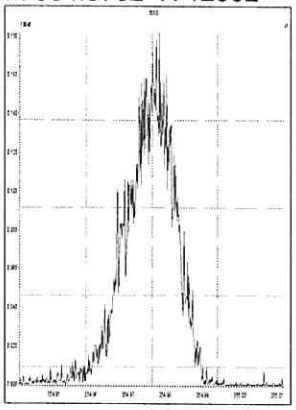
M 330.9792 R 11657



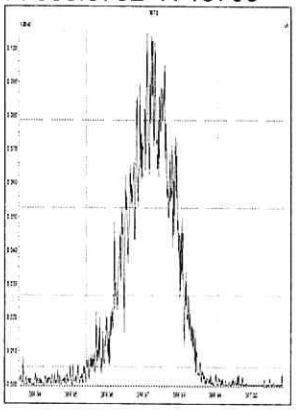
M 342.9792 R 11990



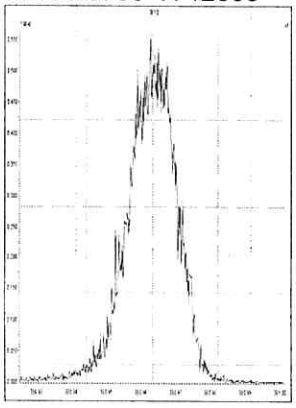
M 354.9792 R 12652



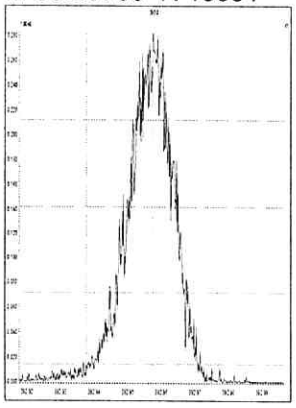
M 366.9792 R 13706



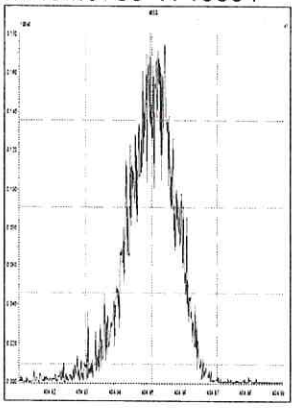
M 380.9760 R 12853



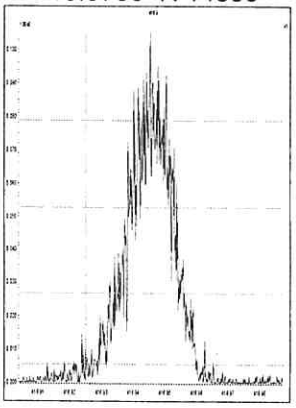
M 392.9760 R 13061



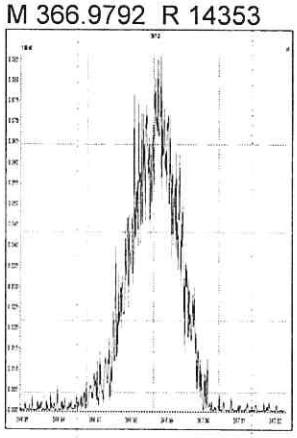
M 404.9760 R 13554



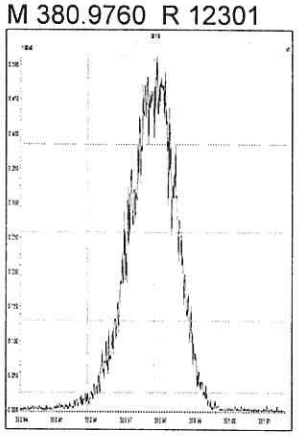
M 416.9760 R 14836



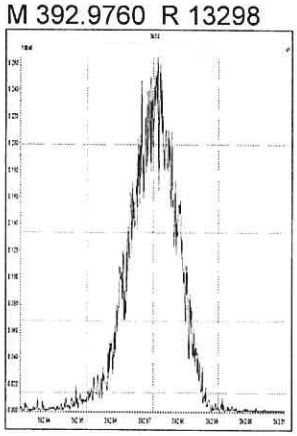
M 366.9792 R 14353



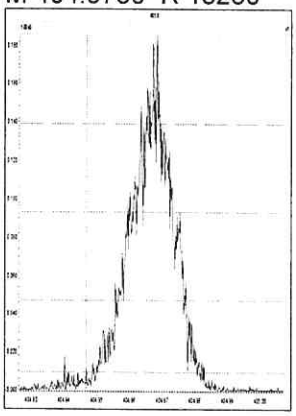
M 380.9760 R 12301



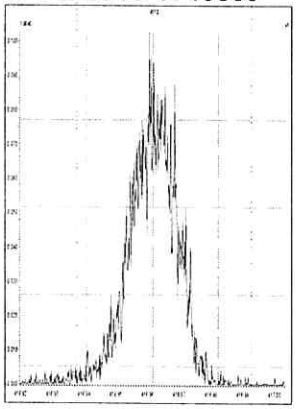
M 392.9760 R 13298



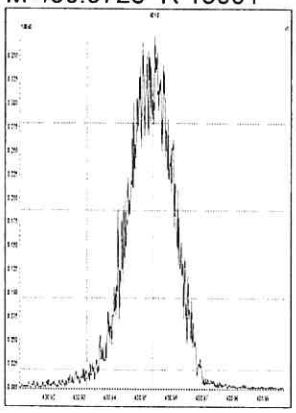
M 404.9760 R 13230



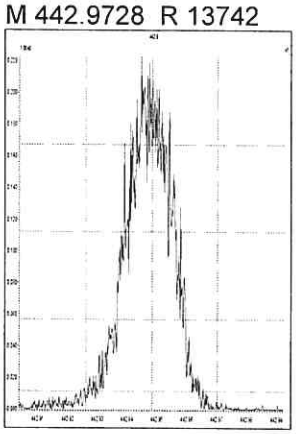
M 416.9760 R 13889



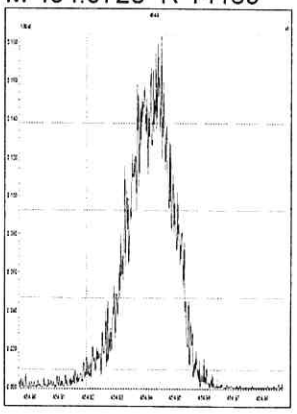
M 430.9728 R 13001



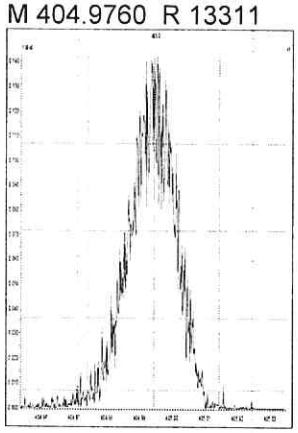
M 442.9728 R 13742



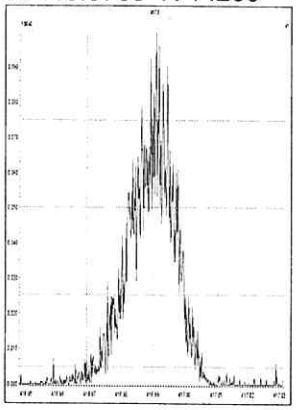
M 454.9728 R 14169



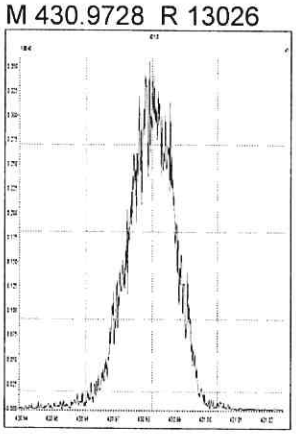
M 404.9760 R 13311



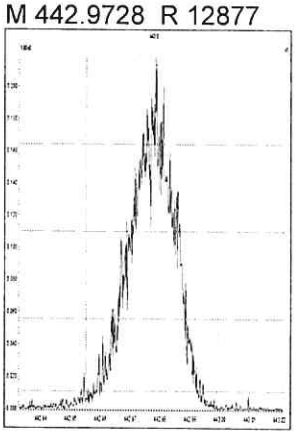
M 416.9760 R 14205



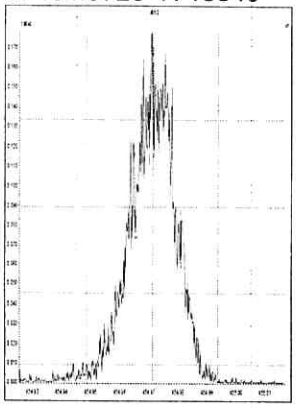
M 430.9728 R 13026



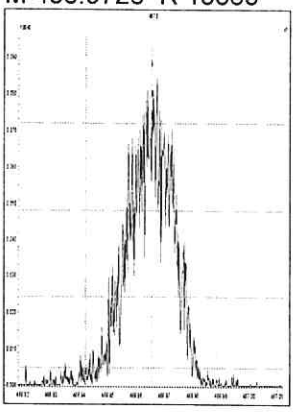
M 442.9728 R 12877



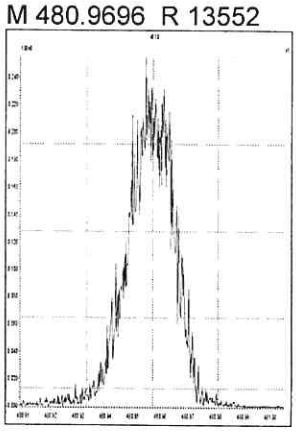
M 454.9728 R 13340



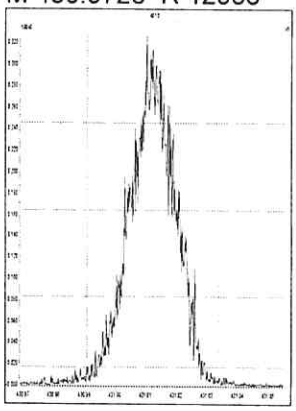
M 466.9728 R 15365



M 480.9696 R 13552

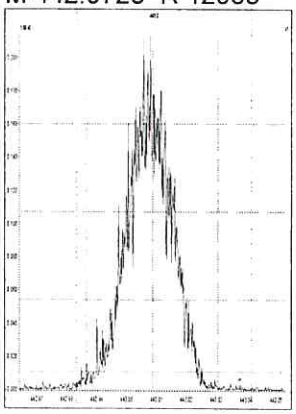


M 430.9728 R 12956

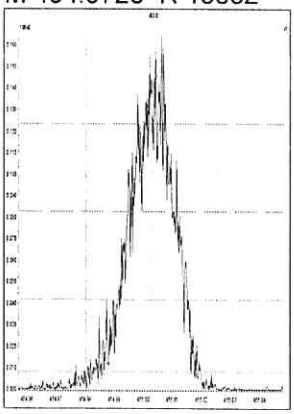


Printed: Friday, September 15, 2017 00:54:38 Central Daylight Time

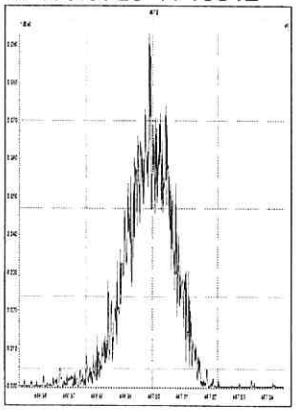
M 442.9728 R 12953



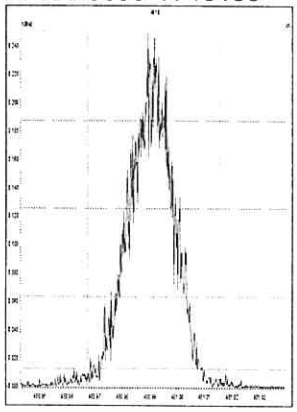
M 454.9728 R 13832



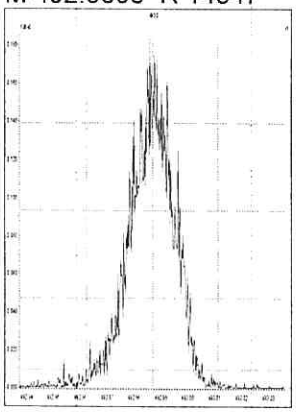
M 466.9728 R 13812



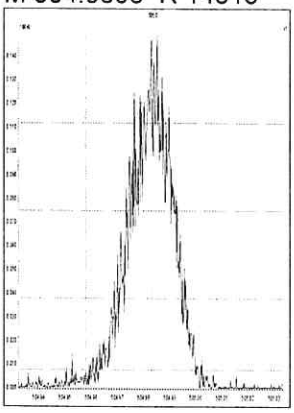
M 480.9696 R 13130



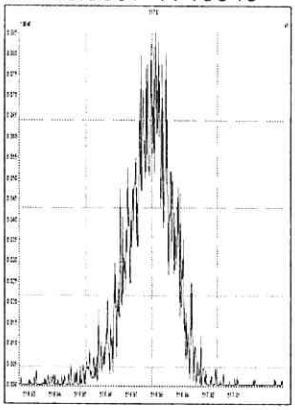
M 492.9696 R 14547



M 504.9696 R 14315



M 516.9697 R 16349



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

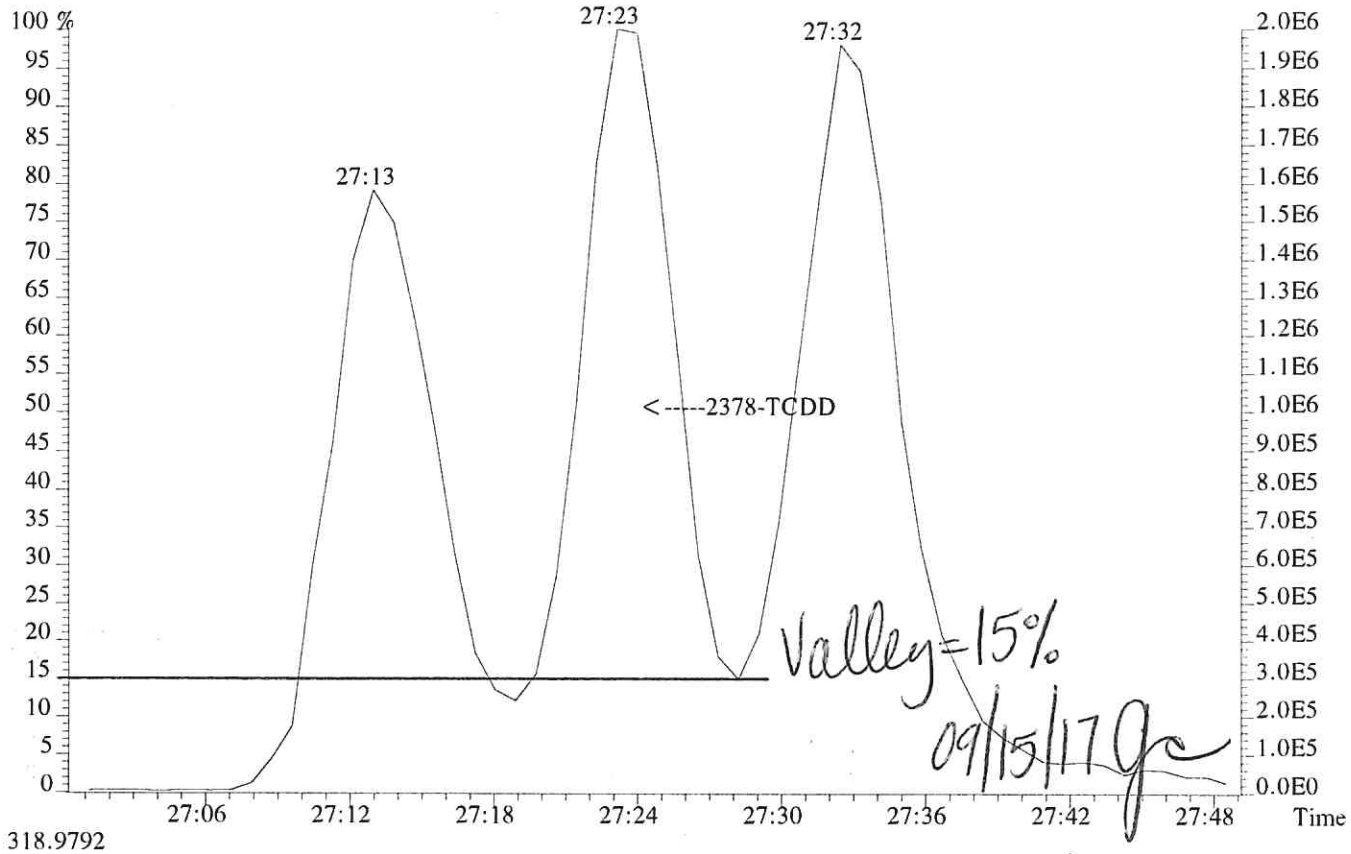
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P609088
Date Analyzed: 14-SEP-17
Time Analyzed: 15:47:46

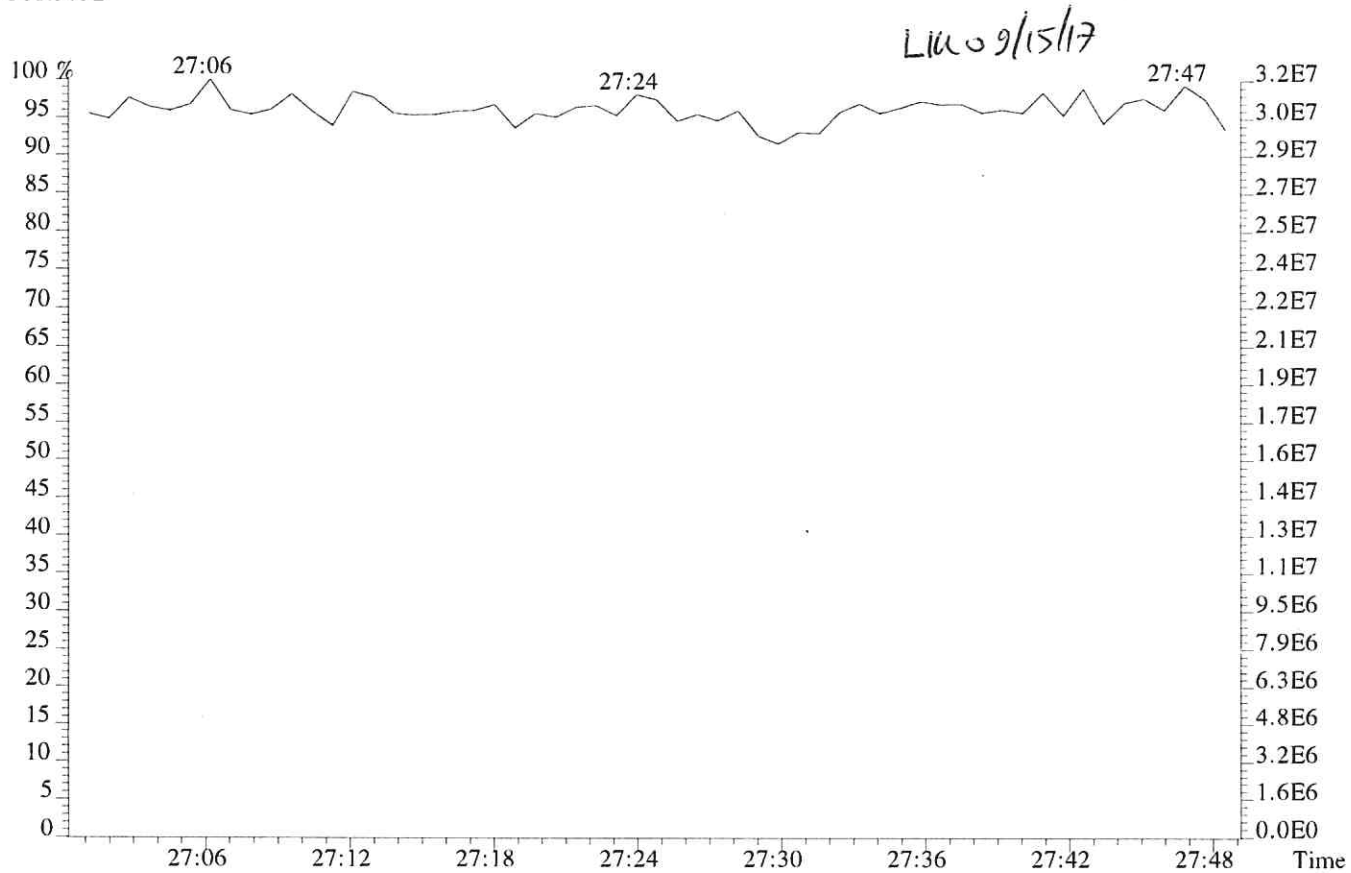
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:00	28:43
TCDD	23:41	28:32
PeCDF	28:38	33:14
PeCDD	30:20	32:58
HxCDF	33:55	36:33
HxCDD	34:28	36:08
HpCDF	37:49	39:13
HpCDD	38:05	38:45

% Valley 2378-TCDD: 15 %

File:P609088 #1-694 Acq:14-SEP-2017 15:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792



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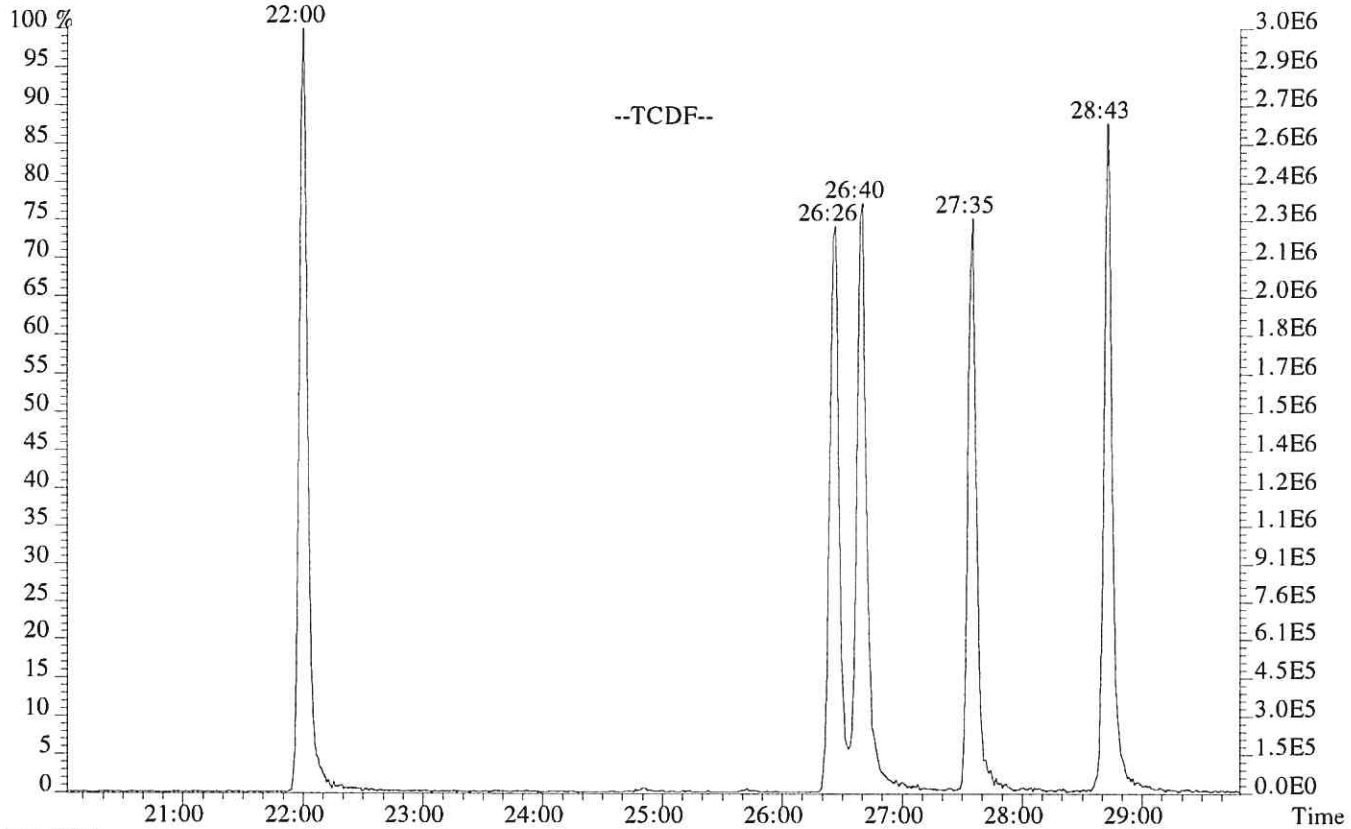
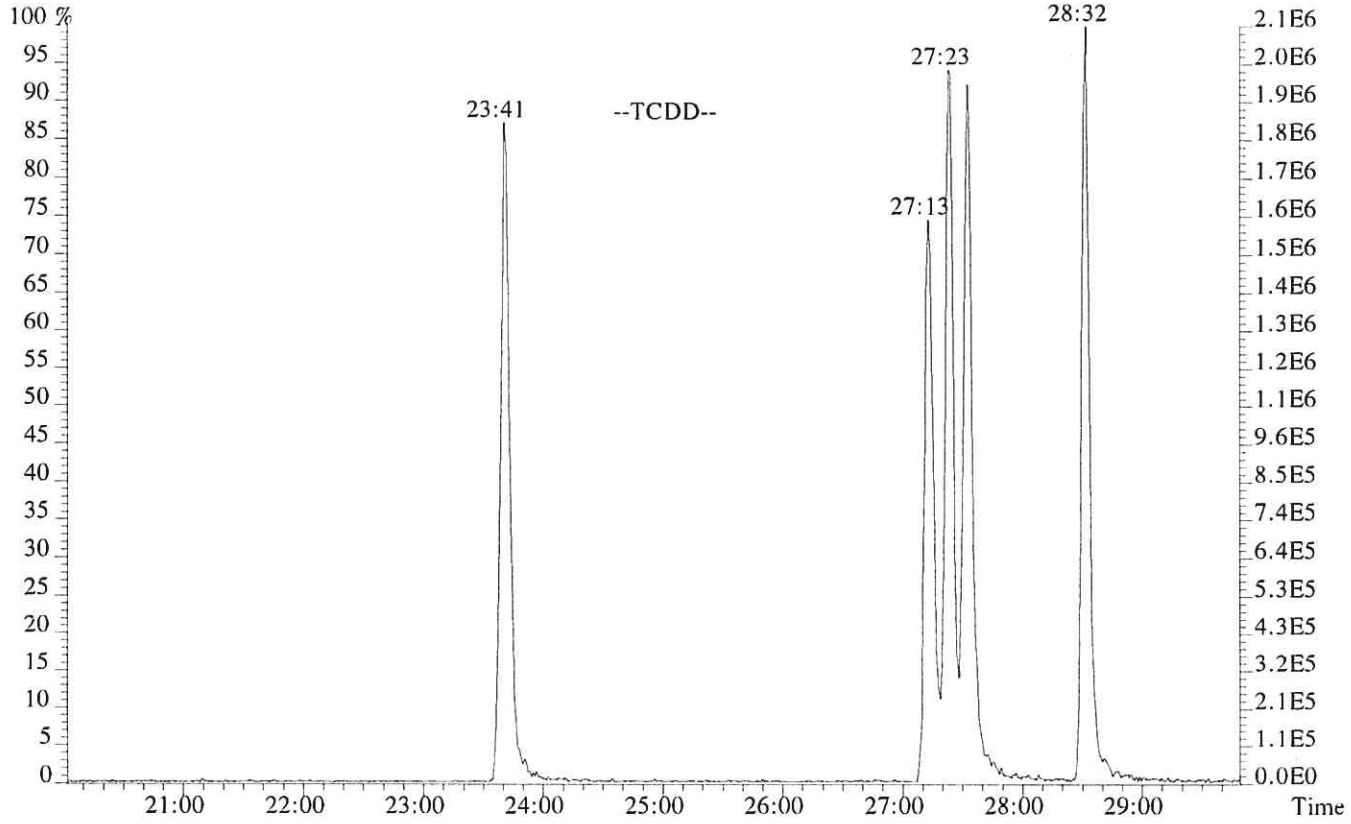
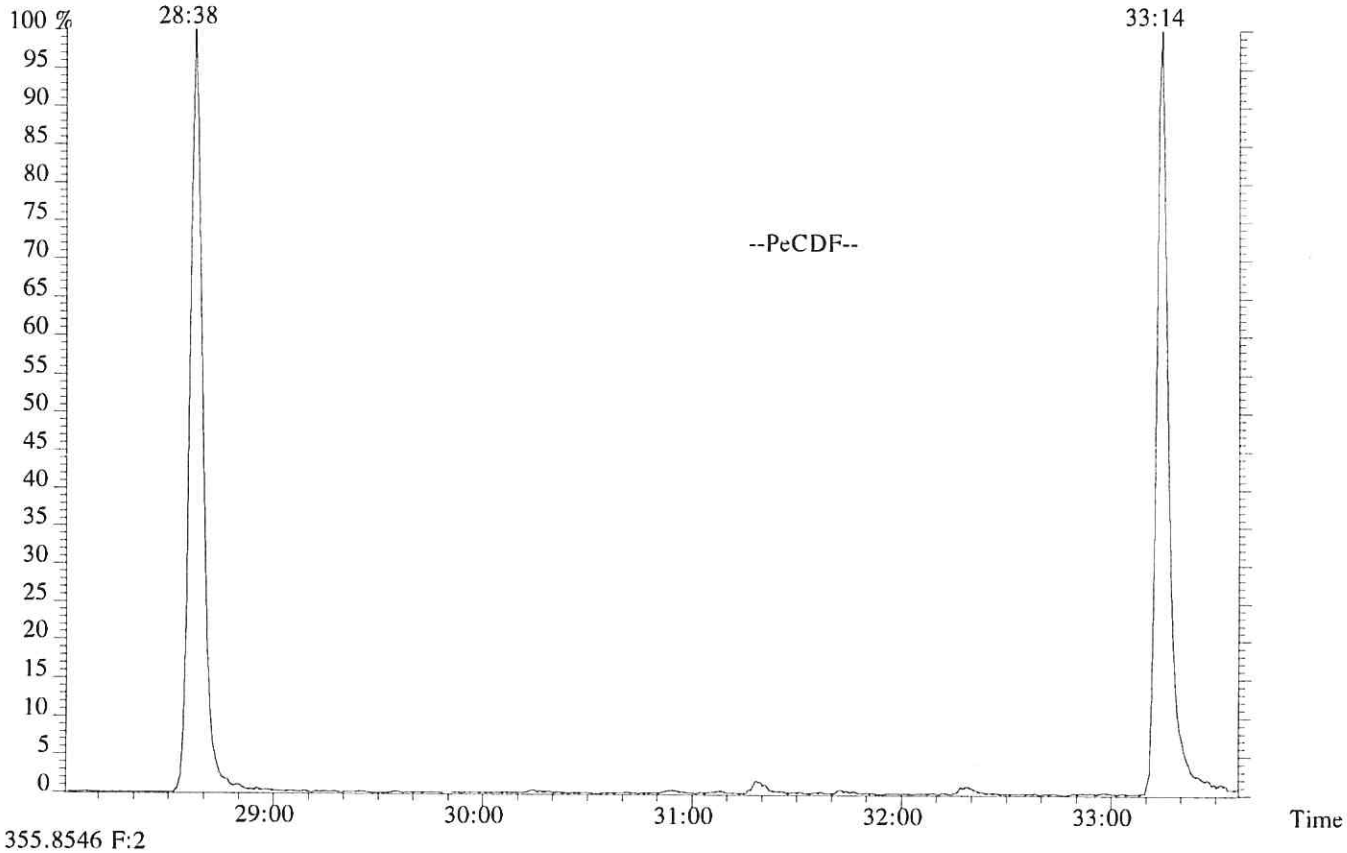
Sample#1 Exp:WINDOW DEFINE
303.9016



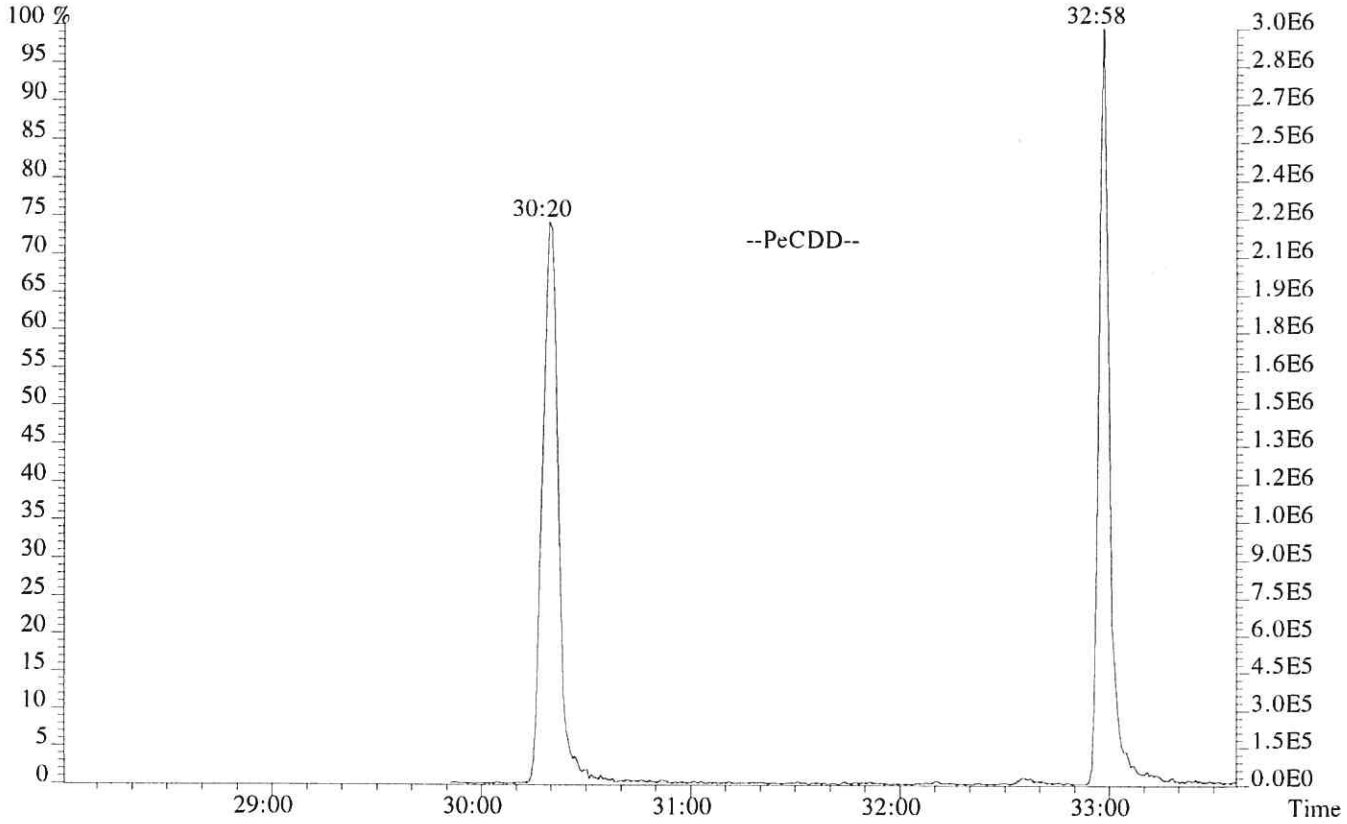
319.8965



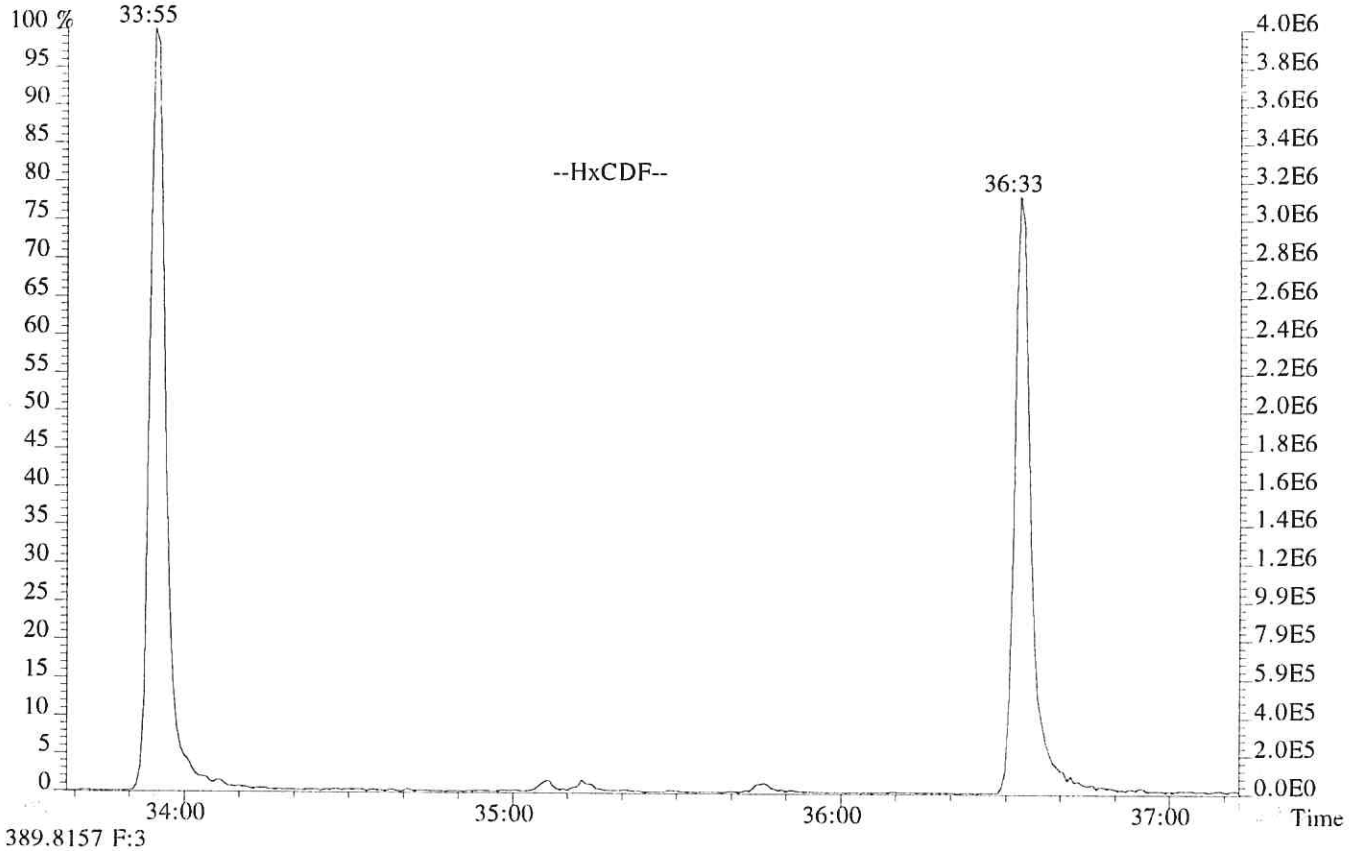
File:P609088 #1-694 Acq:14-SEP-2017 15:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



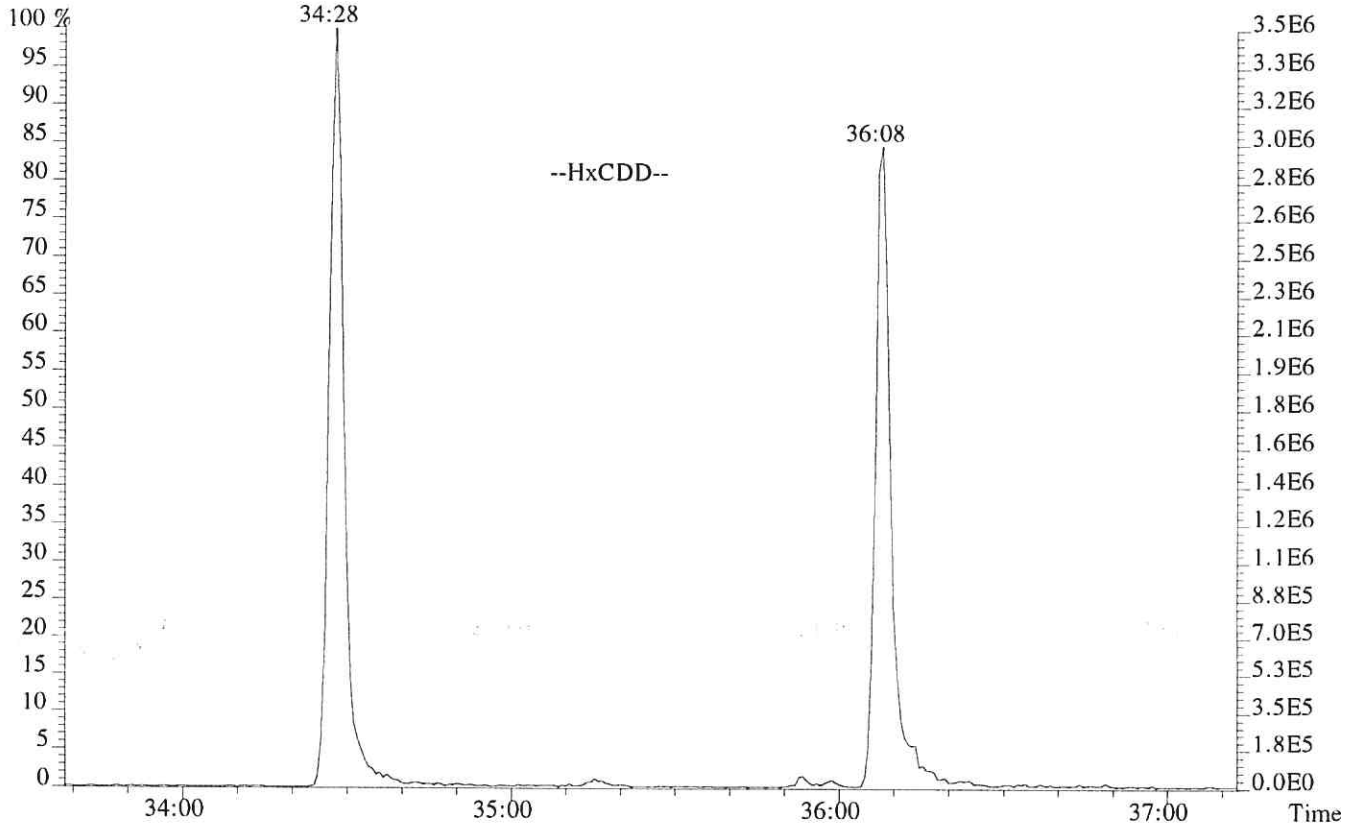
355.8546 F:2



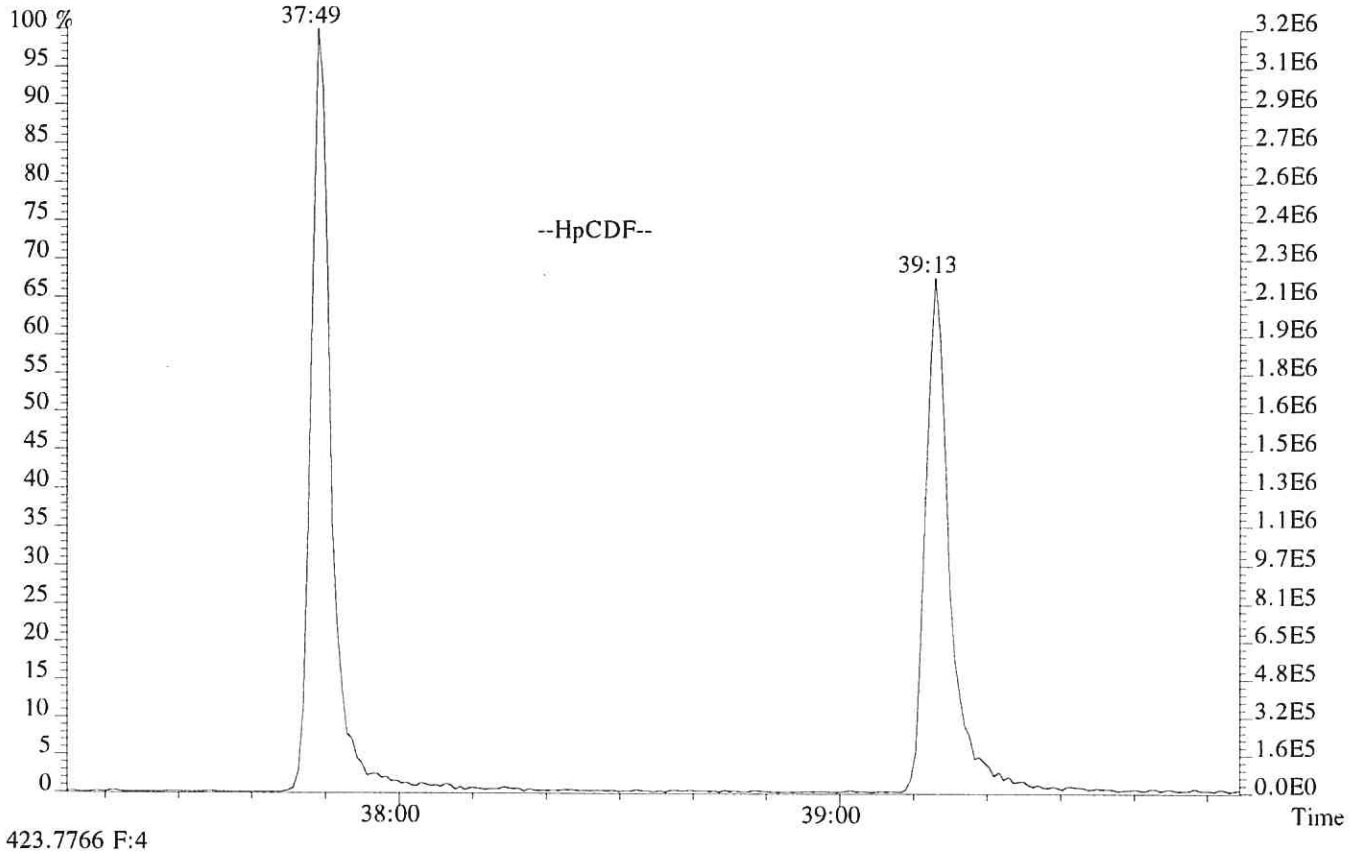
File:P609088 #1-322 Acq:14-SEP-2017 15:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



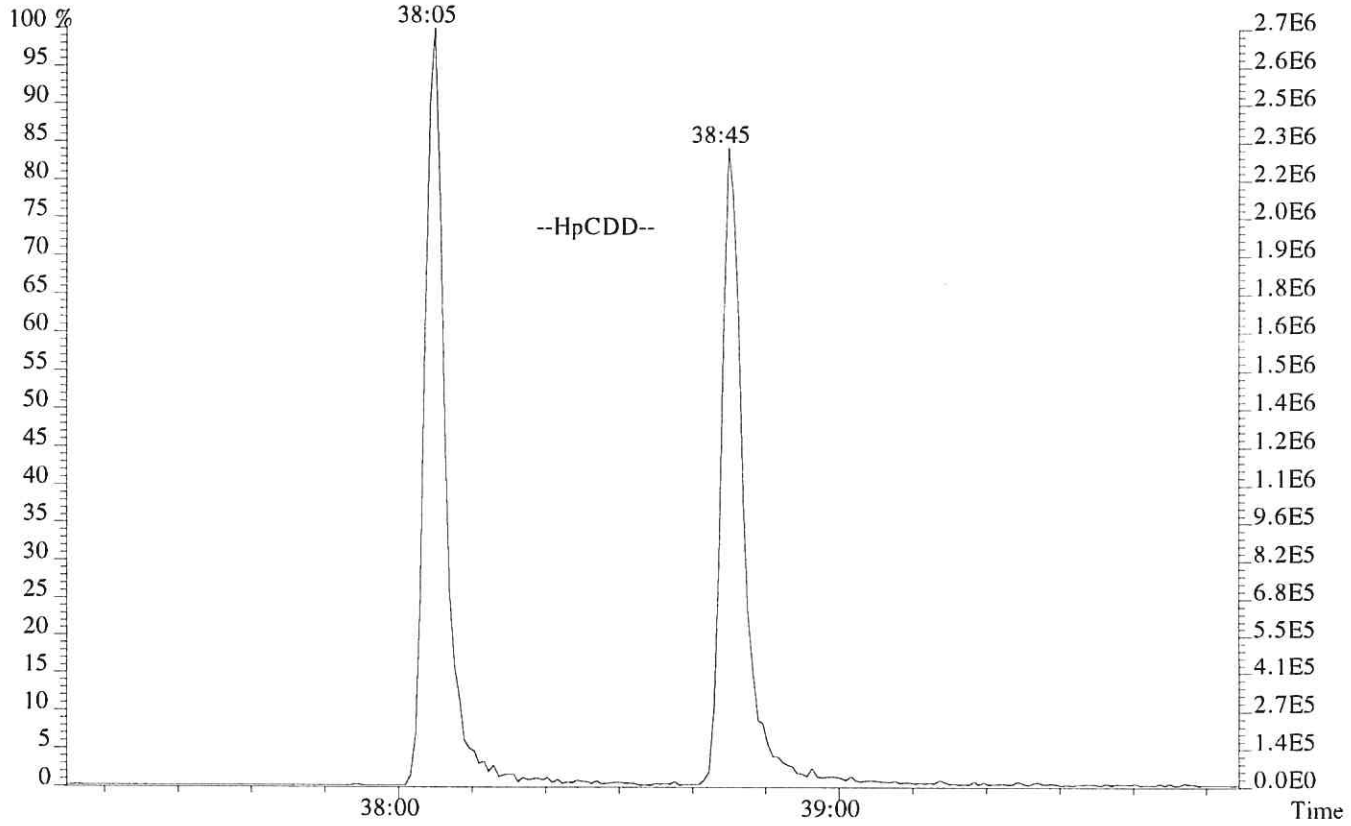
389.8157 F:3



File:P609088 #1-240 Acq:14-SEP-2017 15:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/16/17

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P609087 Analysis Date: 14-SEP-17 Time: 14:51:02

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.5	7.8 - 12.9	-4.7
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	46	39 - 65	-7.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	48	39 - 64	-4.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.21	1.05-1.43	48	41 - 61	-4.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	0.2
OCDD	M+2/M+4	0.90	0.76-1.02	100	79 - 126	-0.2
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.6	8.4 - 12.0	-3.7
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	49	41 - 60	-2.7
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	48	41 - 61	-3.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	47	45 - 56	-5.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	47	44 - 57	-6.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.21	1.05-1.43	47	45 - 56	-6.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	47	44 - 57	-6.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	47	45 - 55	-6.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	45	43 - 58	-10.9
OCDF	M+2/M+4	0.89	0.76-1.02	95	63 - 159	-4.8

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/16/17

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P609087 Analysis Date: 14-SEP-17 Time: 14:51:02

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	98	82 - 121	-1.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	94	62 - 160	-6.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.32	1.05-1.43	92	85 - 117	-7.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.18	1.05-1.43	101	85 - 118	0.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	95	72 - 138	-5.3
13C-OCDD	M+2/M+4	0.89	0.76-1.02	198	96 - 415	-1.0
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	93	71 - 140	-6.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	91	76 - 130	-9.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	90	77 - 130	-10.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	76 - 131	-3.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	70 - 143	-5.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	90	74 - 135	-10.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	95	73 - 137	-5.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	96	78 - 129	-3.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	91	77 - 129	-9.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-2.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
178519

Run #7 Filename P609087 Samp: 1 Inj: 1 Acquired: 14-SEP-17 14:51:02
Processed: 15-SEP-17 08:42:28 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:39	1.334e+04	1.737e+04	0.77	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	31:18	1.050e+05	6.820e+04	1.54	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	32:17	9.843e+04	6.444e+04	1.53	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	35:05	8.570e+04	7.013e+04	1.22	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	35:12	9.456e+04	7.748e+04	1.22	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:44	8.456e+04	6.996e+04	1.21	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	36:31	7.370e+04	6.075e+04	1.21	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:49	7.251e+04	7.159e+04	1.01	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	39:12	5.674e+04	5.542e+04	1.02	yes	no	1.341
10	Unk	OCDF	41:39	1.010e+05	1.135e+05	0.89	yes	no	1.337
11	Unk	2,3,7,8-TCDD	27:32	1.035e+04	1.364e+04	0.76	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:34	6.839e+04	4.332e+04	1.58	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:53	6.157e+04	4.921e+04	1.25	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:58	6.257e+04	5.111e+04	1.22	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	36:13	6.616e+04	5.482e+04	1.21	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:45	5.526e+04	5.313e+04	1.04	yes	no	1.048
17	Unk	OCDD	41:29	8.909e+04	9.943e+04	0.90	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	26:37	1.382e+05	1.745e+05	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	31:16	2.063e+05	1.302e+05	1.58	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	32:16	2.033e+05	1.296e+05	1.57	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	9.000e+04	1.717e+05	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	35:11	1.066e+05	2.023e+05	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:43	9.742e+04	1.834e+05	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	36:30	8.169e+04	1.552e+05	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:48	6.855e+04	1.527e+05	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:12	5.786e+04	1.298e+05	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	27:31	1.057e+05	1.329e+05	0.80	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:34	1.527e+05	9.856e+04	1.55	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:52	1.210e+05	9.159e+04	1.32	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:57	1.247e+05	1.056e+05	1.18	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:44	1.056e+05	1.007e+05	1.05	yes	no	0.884
32	IS	13C-OCDD	41:28	1.584e+05	1.788e+05	0.89	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:51	1.087e+05	1.372e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:12	1.364e+05	1.102e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:32	2.572e+04				no	1.072

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Signal/Noise Height Ratio Summary

CLIENT ID.
178519

Run #7 Filename P609087 Samp: 1 Inj: 1 Acquired: 14-SEP-17 14:51:02
Processed: 15-SEP-17 08:42:28 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.06e+06	1.19e+03	1.7e+03	2.62e+06	2.32e+03	1.1e+03
2	1,2,3,7,8-PeCDF	1.76e+07	4.84e+02	3.6e+04	1.15e+07	1.42e+03	8.1e+03
3	2,3,4,7,8-PeCDF	1.76e+07	4.84e+02	3.6e+04	1.15e+07	1.42e+03	8.1e+03
4	1,2,3,4,7,8-HxCDF	1.72e+07	6.76e+02	2.5e+04	1.42e+07	1.85e+03	7.7e+03
5	1,2,3,6,7,8-HxCDF	1.74e+07	6.76e+02	2.6e+04	1.42e+07	1.85e+03	7.7e+03
6	2,3,4,6,7,8-HxCDF	1.68e+07	6.76e+02	2.5e+04	1.40e+07	1.85e+03	7.6e+03
7	1,2,3,7,8,9-HxCDF	1.33e+07	6.76e+02	2.0e+04	1.09e+07	1.85e+03	5.9e+03
8	1,2,3,4,6,7,8-HpCDF	1.44e+07	7.16e+03	2.0e+03	1.40e+07	5.84e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	9.85e+06	7.16e+03	1.4e+03	9.56e+06	5.84e+03	1.6e+03
10	OCDF	1.48e+07	2.40e+02	6.2e+04	1.66e+07	1.34e+03	1.2e+04
11	2,3,7,8-TCDD	1.65e+06	1.82e+03	9.1e+02	2.19e+06	1.40e+03	1.6e+03
12	1,2,3,7,8-PeCDD	1.21e+07	1.04e+03	1.2e+04	7.64e+06	1.96e+02	3.9e+04
13	1,2,3,4,7,8-HxCDD	1.27e+07	2.20e+02	5.8e+04	1.01e+07	2.20e+02	4.6e+04
14	1,2,3,6,7,8-HxCDD	1.22e+07	2.20e+02	5.5e+04	9.74e+06	2.20e+02	4.4e+04
15	1,2,3,7,8,9-HxCDD	1.26e+07	2.20e+02	5.7e+04	1.01e+07	2.20e+02	4.6e+04
16	1,2,3,4,6,7,8-HpCDD	1.02e+07	2.32e+02	4.4e+04	9.59e+06	1.12e+03	8.6e+03
17	OCDD	1.31e+07	1.80e+02	7.3e+04	1.47e+07	2.20e+02	6.7e+04
18	13C-2,3,7,8-TCDF	2.12e+07	1.39e+04	1.5e+03	2.69e+07	7.03e+03	3.8e+03
19	13C-1,2,3,7,8-PeCDF	3.46e+07	1.90e+03	1.8e+04	2.20e+07	2.93e+03	7.5e+03
20	13C-2,3,4,7,8-PeCDF	3.68e+07	1.90e+03	1.9e+04	2.35e+07	2.93e+03	8.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.81e+07	1.38e+03	1.3e+04	3.48e+07	1.54e+03	2.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.98e+07	1.38e+03	1.4e+04	3.74e+07	1.54e+03	2.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.94e+07	1.38e+03	1.4e+04	3.65e+07	1.54e+03	2.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.51e+07	1.38e+03	1.1e+04	2.87e+07	1.54e+03	1.9e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.36e+07	1.16e+04	1.2e+03	3.04e+07	1.08e+04	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.00e+07	1.16e+04	8.6e+02	2.27e+07	1.08e+04	2.1e+03
27	13C-2,3,7,8-TCDD	1.73e+07	1.22e+04	1.4e+03	2.18e+07	4.38e+03	5.0e+03
28	13C-1,2,3,7,8-PeCDD	2.66e+07	1.57e+03	1.7e+04	1.71e+07	6.88e+02	2.5e+04
29	13C-1,2,3,4,7,8-HxCDD	2.46e+07	1.32e+03	1.9e+04	1.98e+07	1.34e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	2.38e+07	1.32e+03	1.8e+04	1.94e+07	1.34e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.92e+07	2.18e+03	8.8e+03	1.81e+07	2.92e+02	6.2e+04
32	13C-OCDD	2.37e+07	3.72e+02	6.4e+04	2.64e+07	2.20e+02	1.2e+05
33	13C-1,2,3,4-TCDD	1.79e+07	1.22e+04	1.5e+03	2.25e+07	4.38e+03	5.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.53e+07	1.32e+03	1.9e+04	2.01e+07	1.34e+03	1.5e+04
35	37Cl-2,3,7,8-TCDD	4.19e+06	8.04e+02	5.2e+03			

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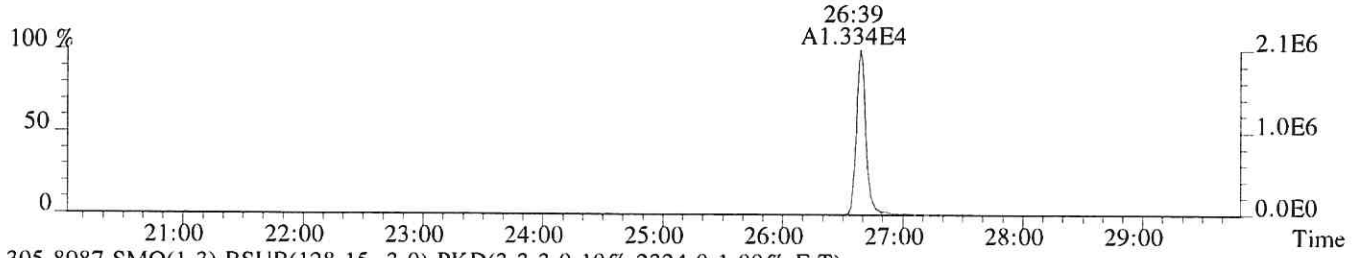
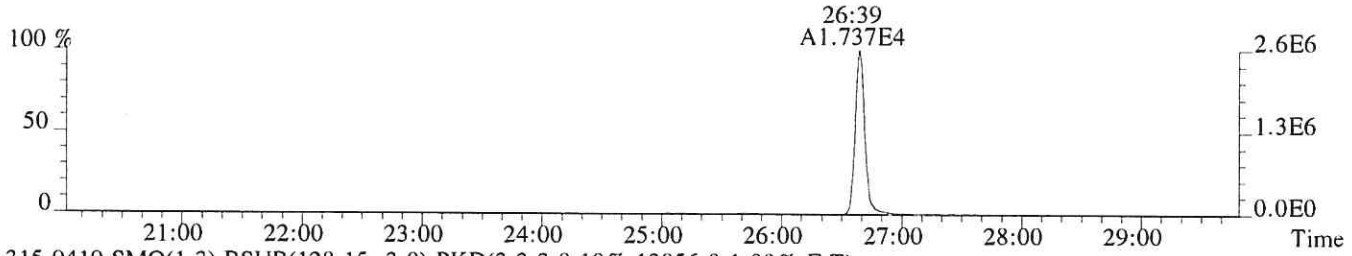
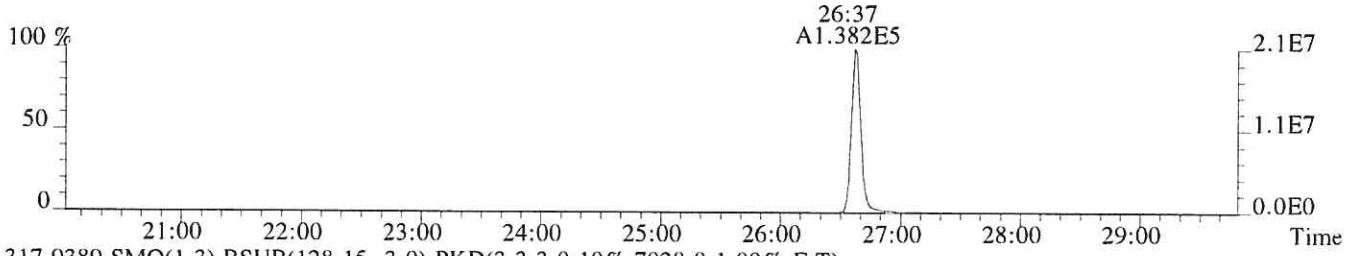
File:P609087 #1-694 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



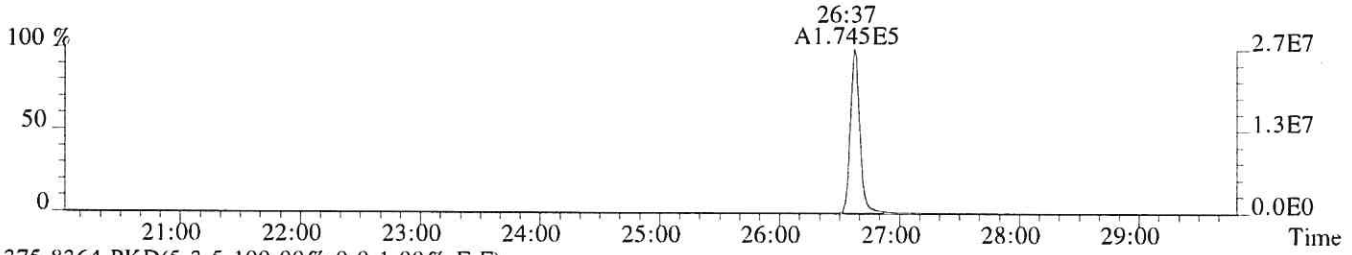
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2324.0,1.00%,F,T)



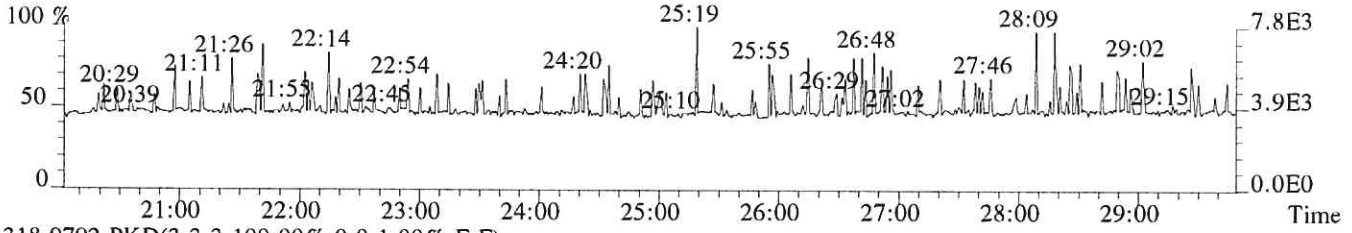
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13856.0,1.00%,F,T)



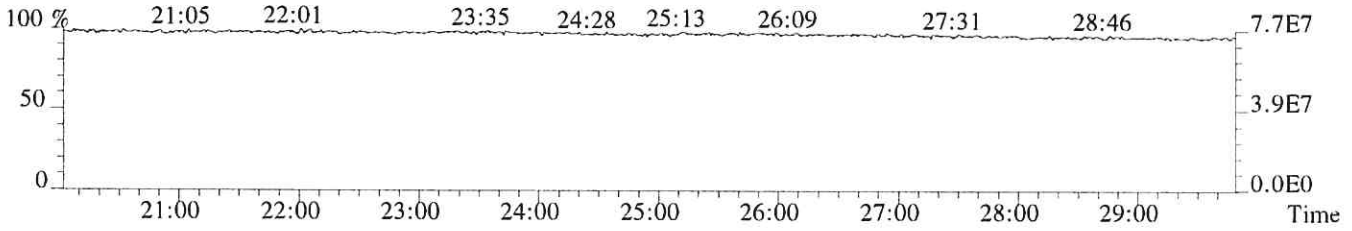
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7028.0,1.00%,F,T)



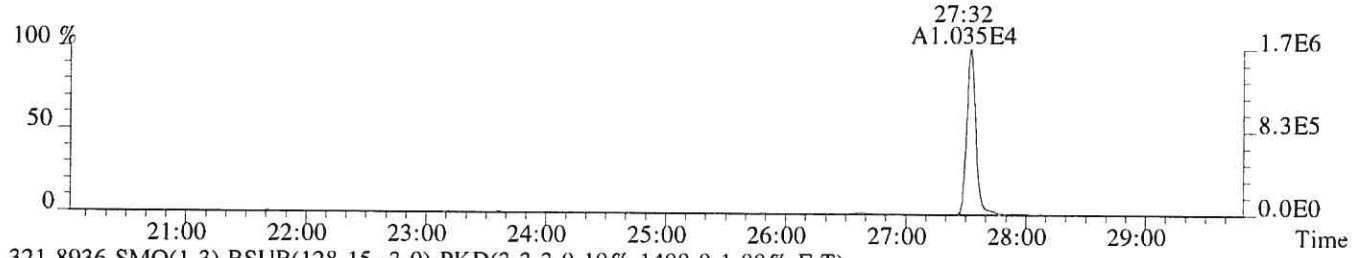
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



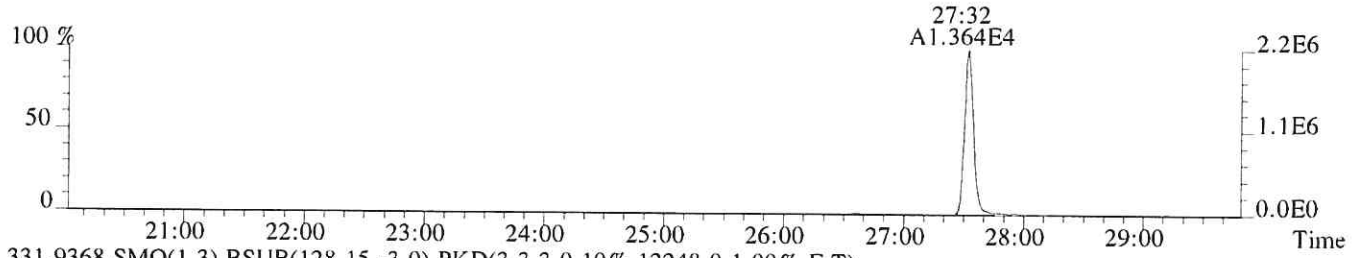
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



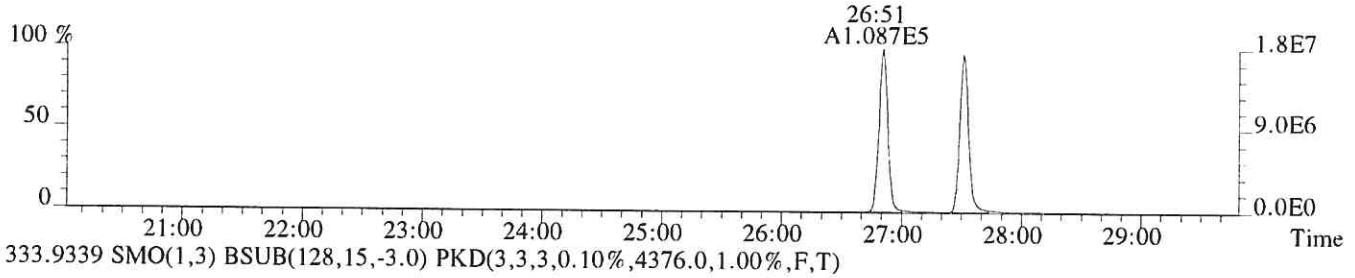
File:P609087 #1-694 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1820.0,1.00%,F,T)



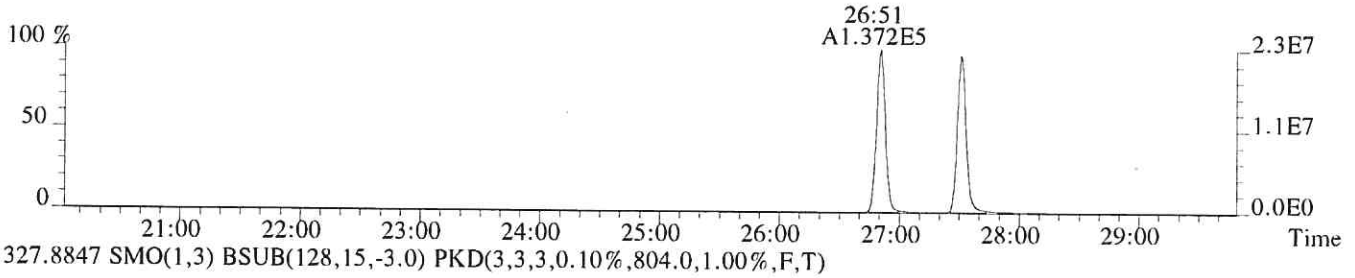
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



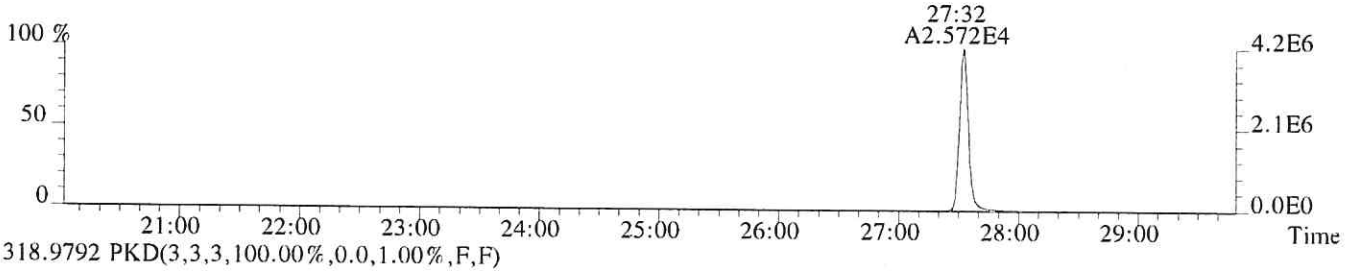
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12248.0,1.00%,F,T)



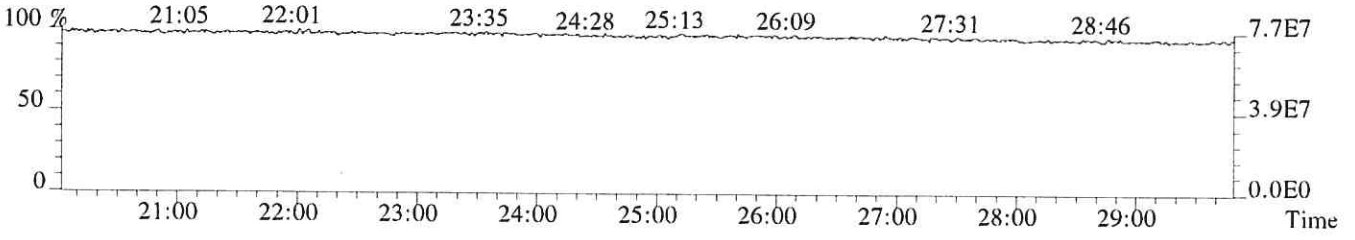
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4376.0,1.00%,F,T)



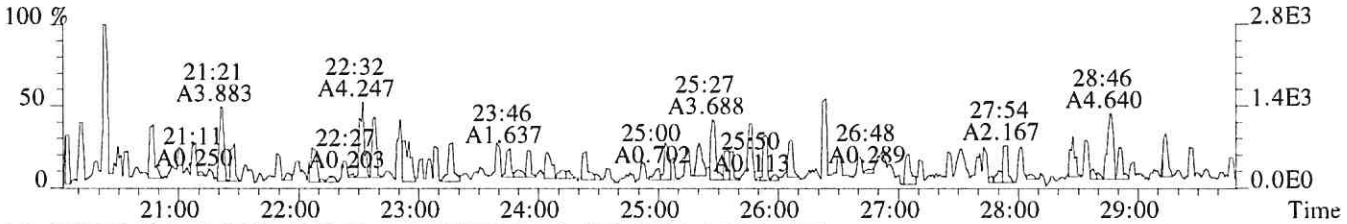
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



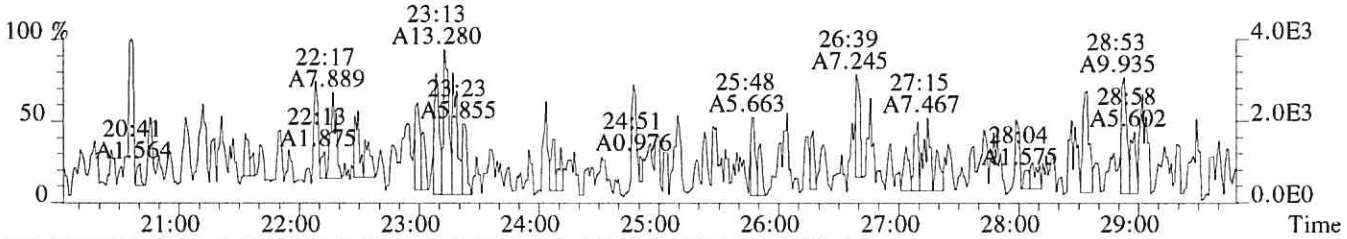
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



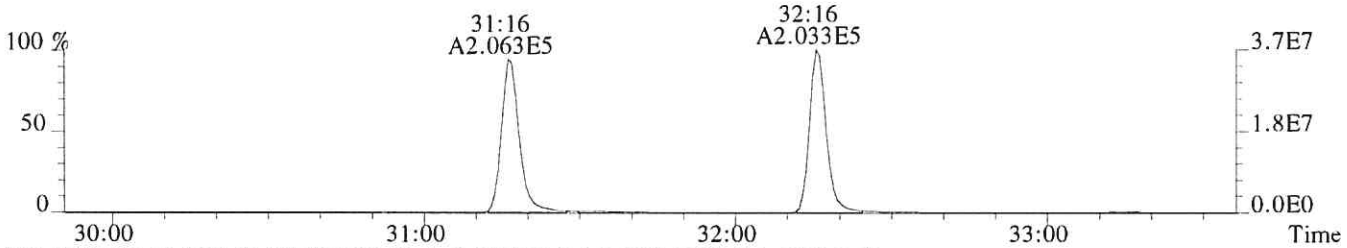
File:P609087 #1-694 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



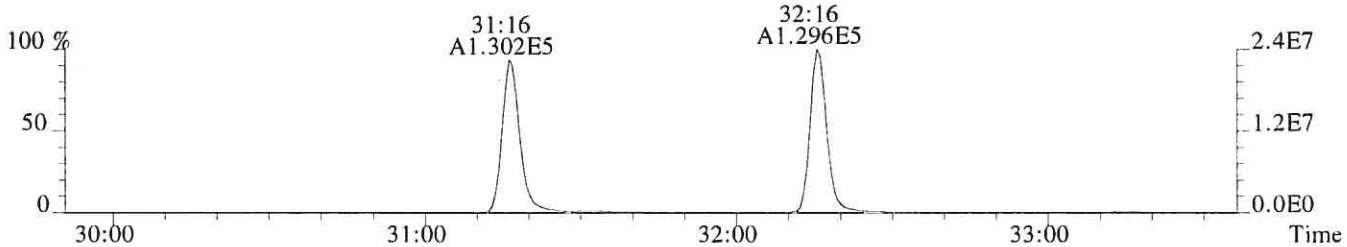
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



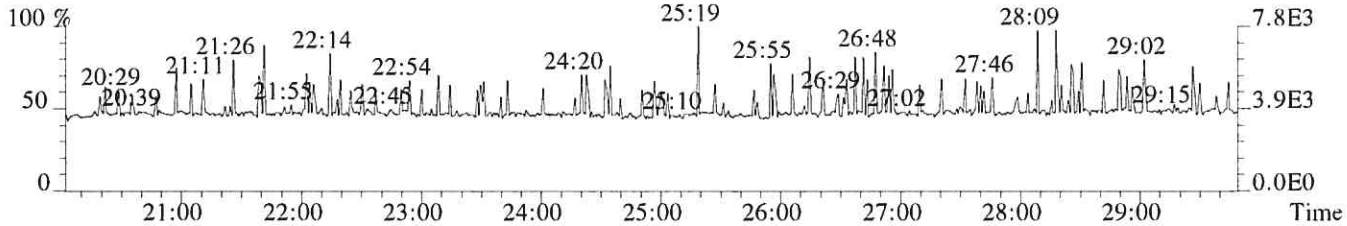
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



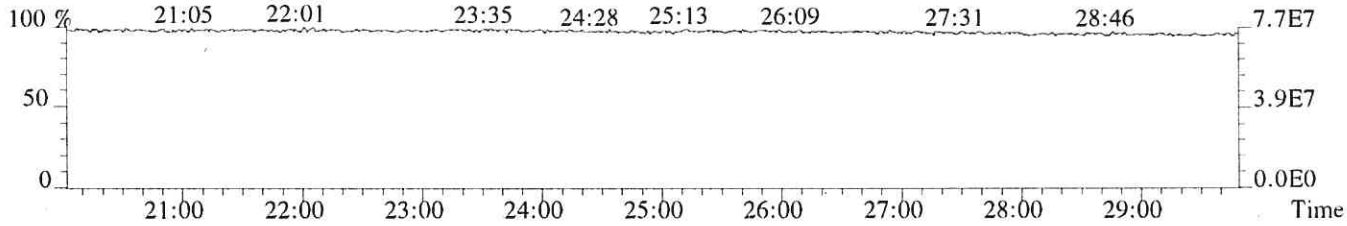
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2928.0,1.00%,F,T)



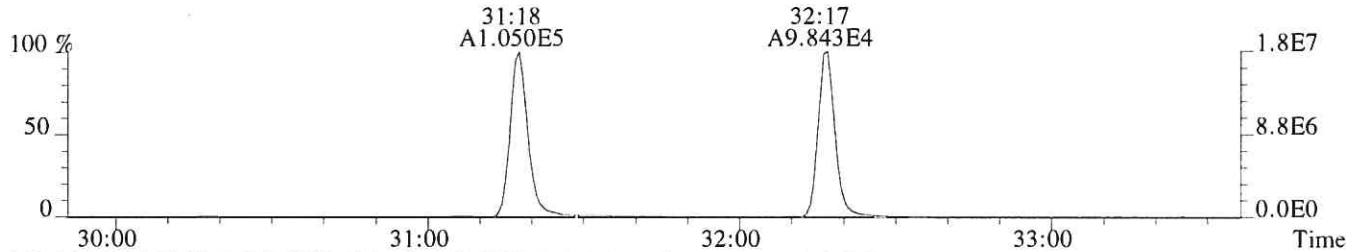
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



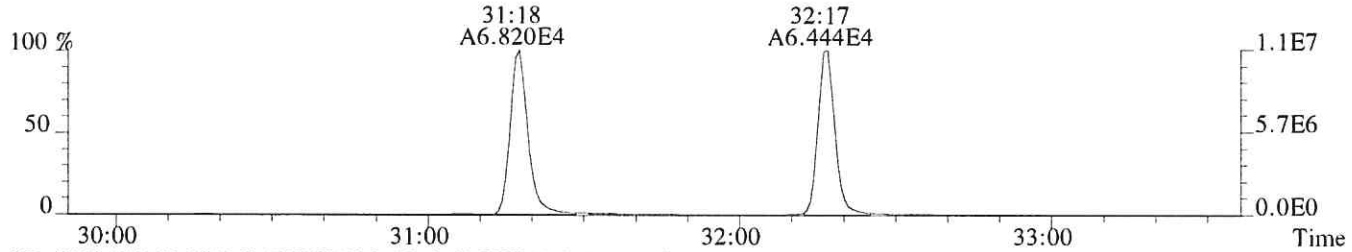
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



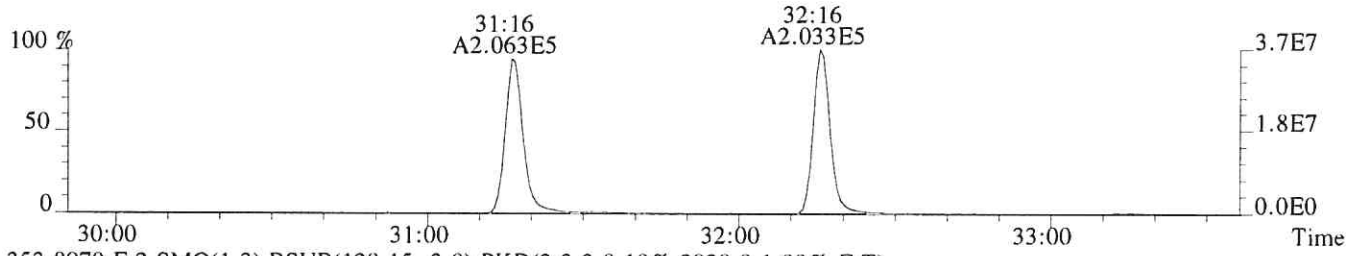
File:P609087 #1-339 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



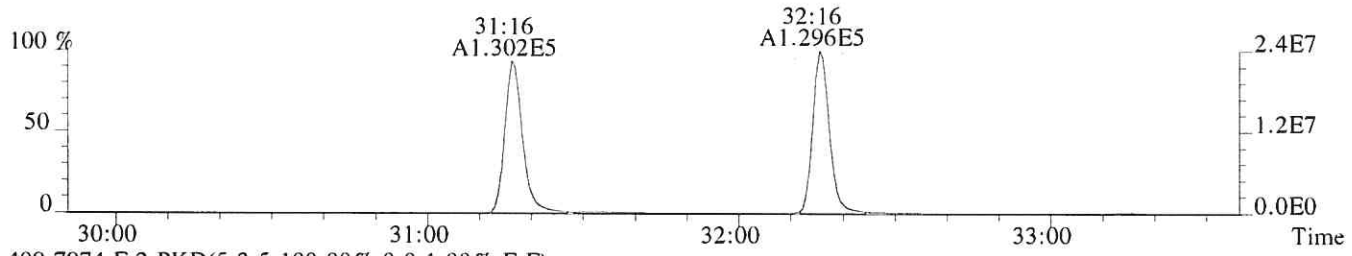
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



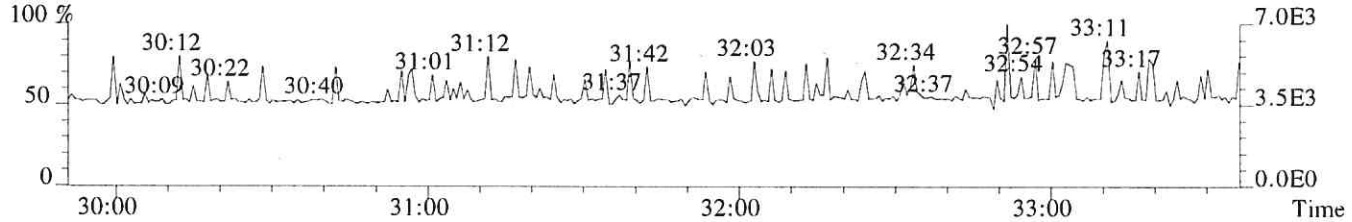
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



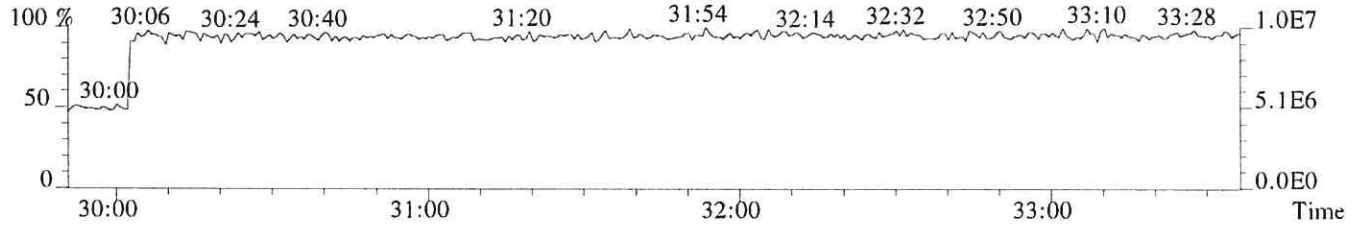
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2928.0,1.00%,F,T)



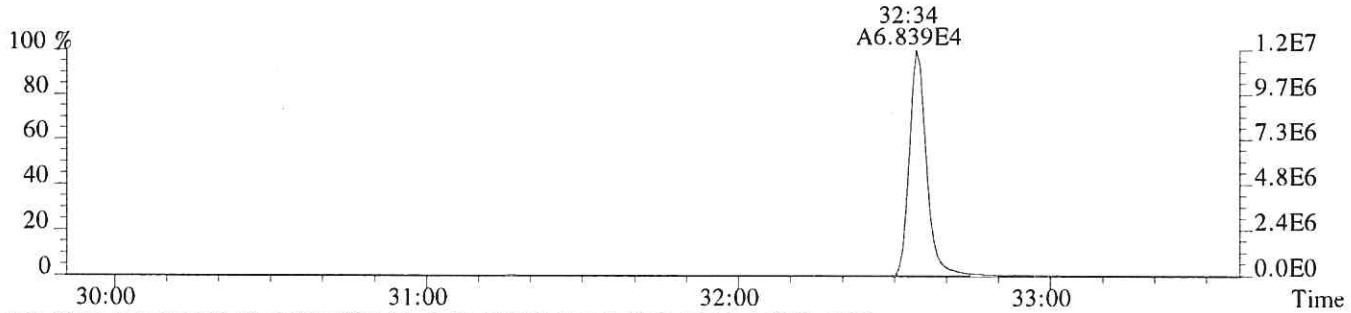
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



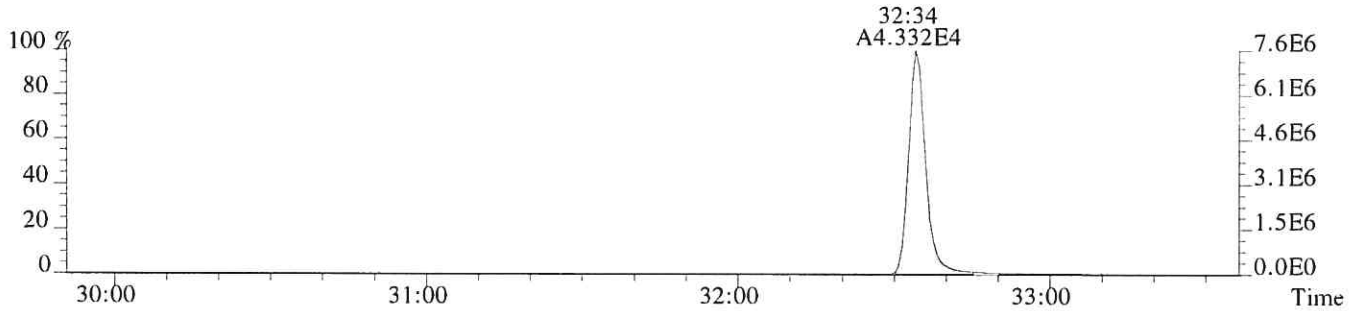
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



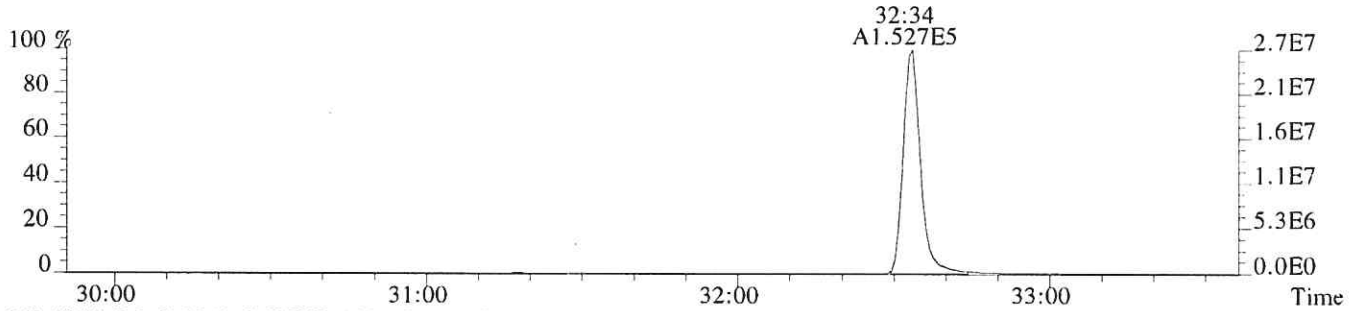
File:P609087 #1-339 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



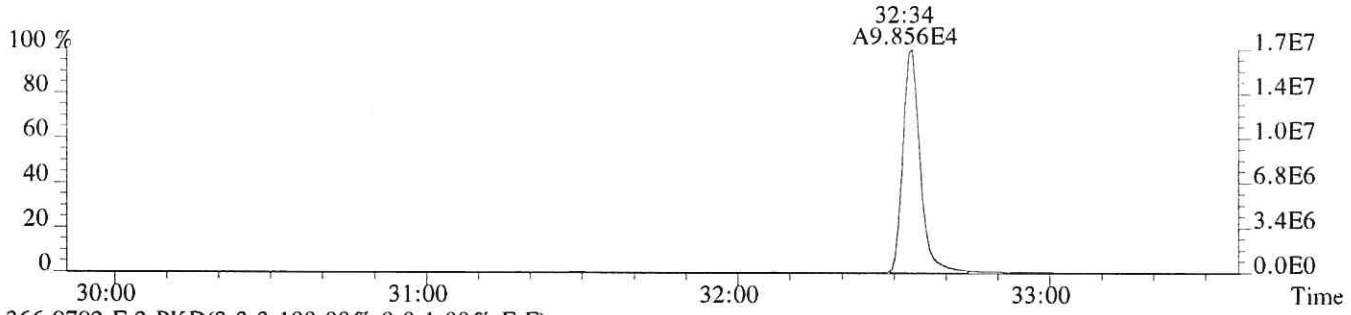
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



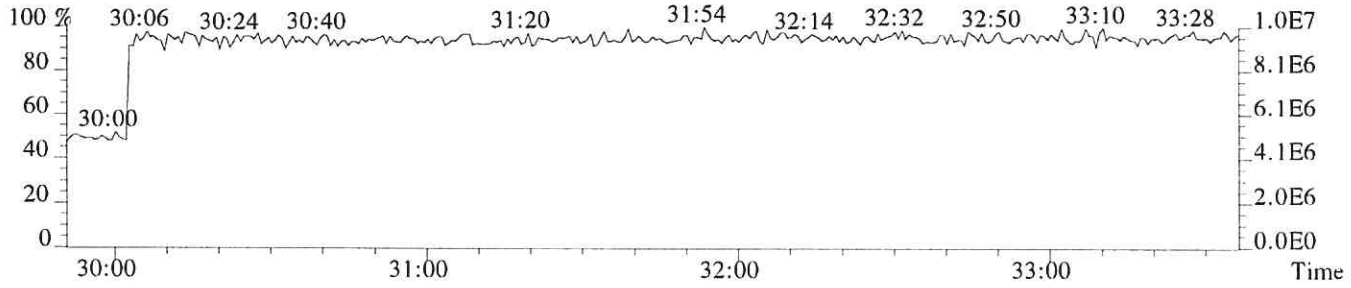
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



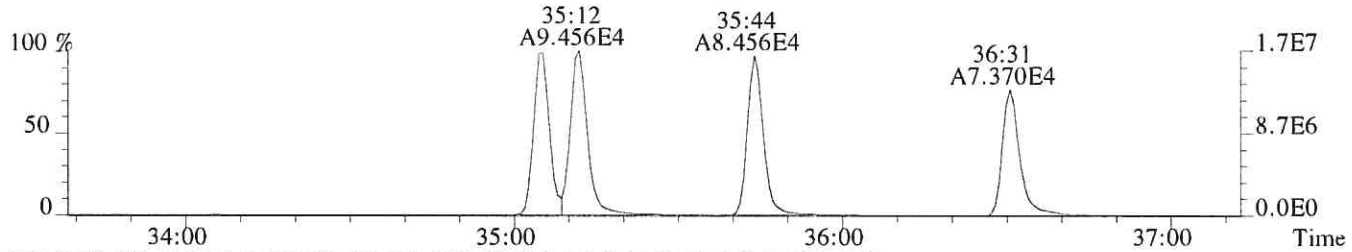
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



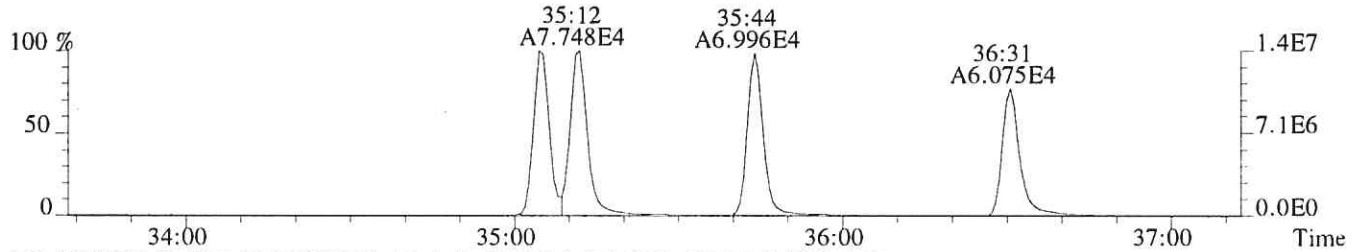
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



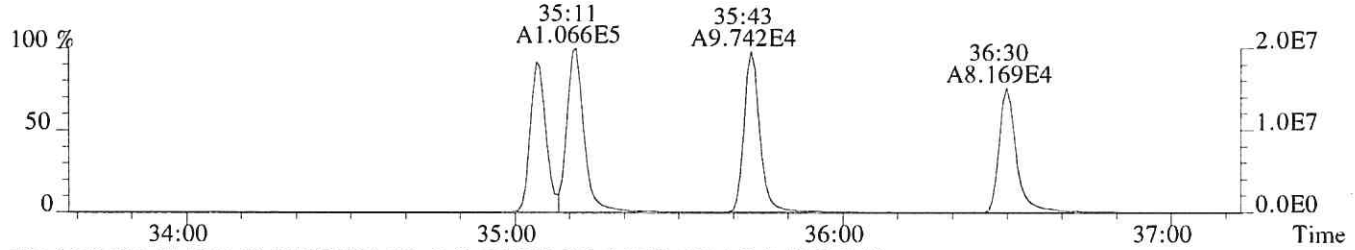
File:P609087 #1-322 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



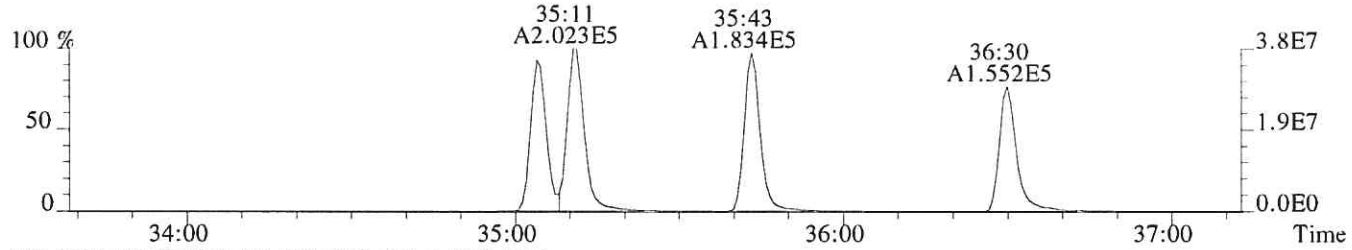
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



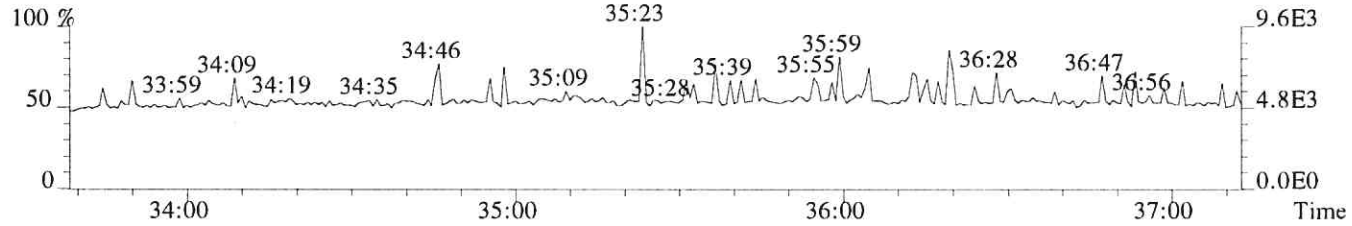
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



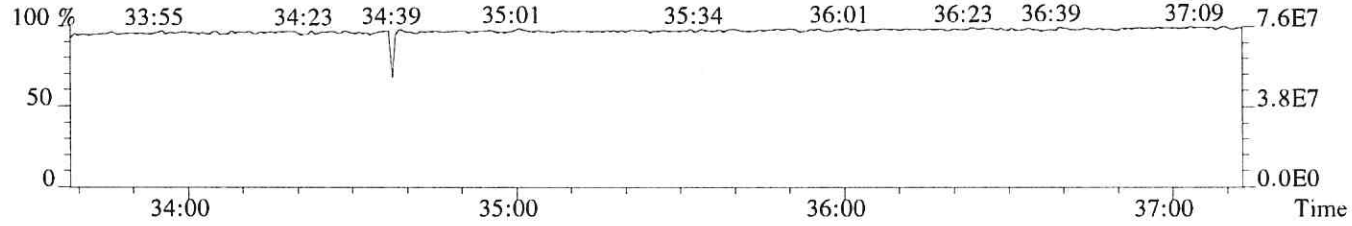
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



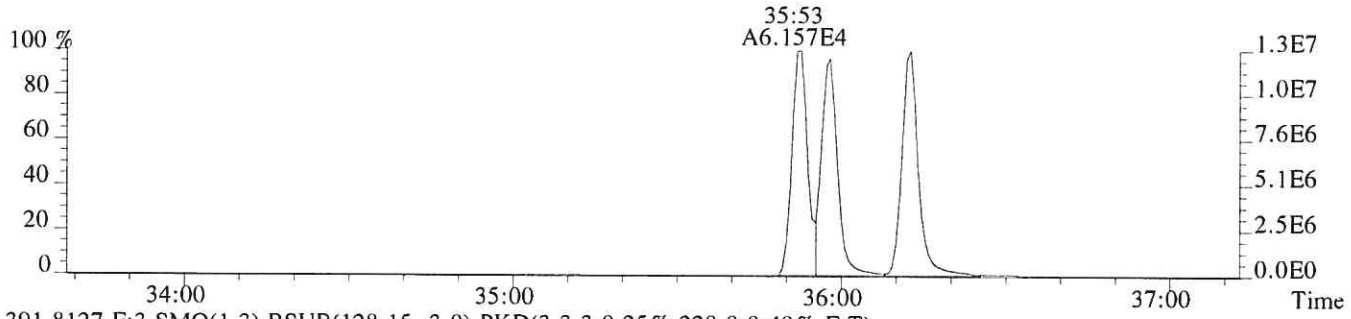
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



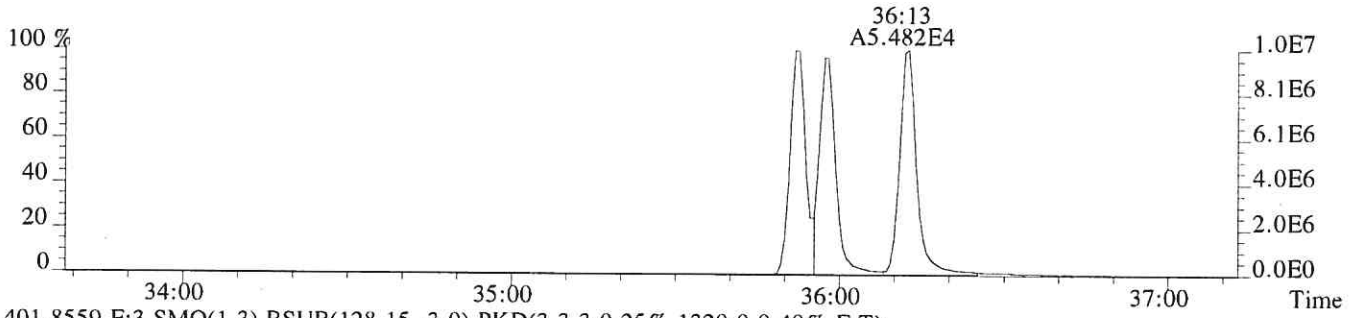
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



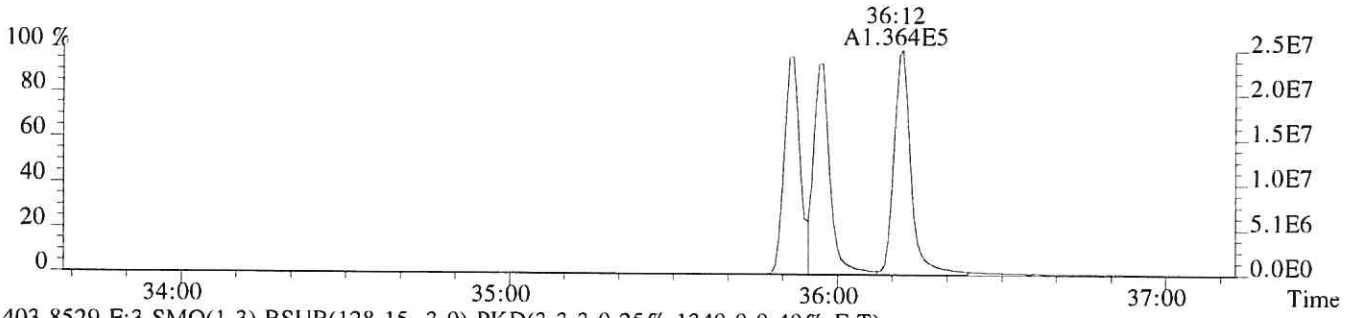
File:P609087 #1-322 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



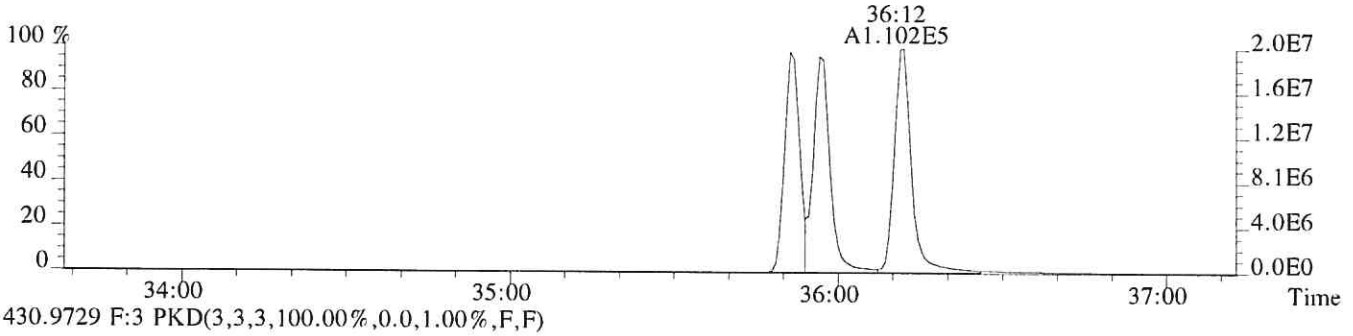
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



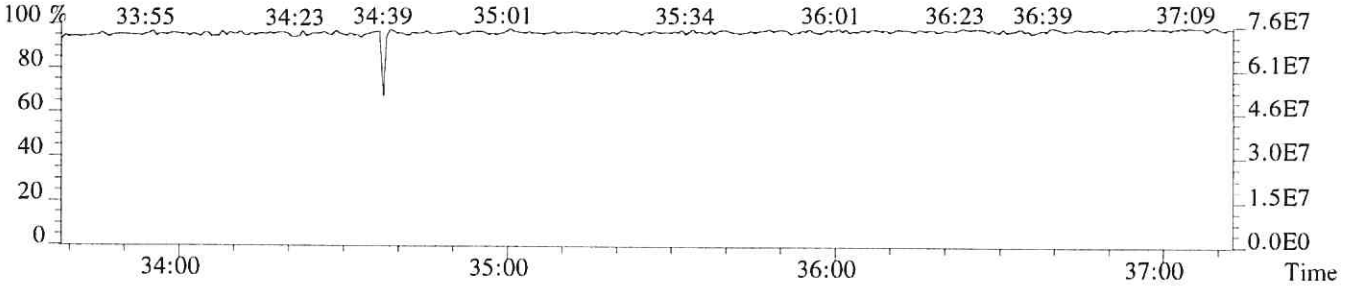
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



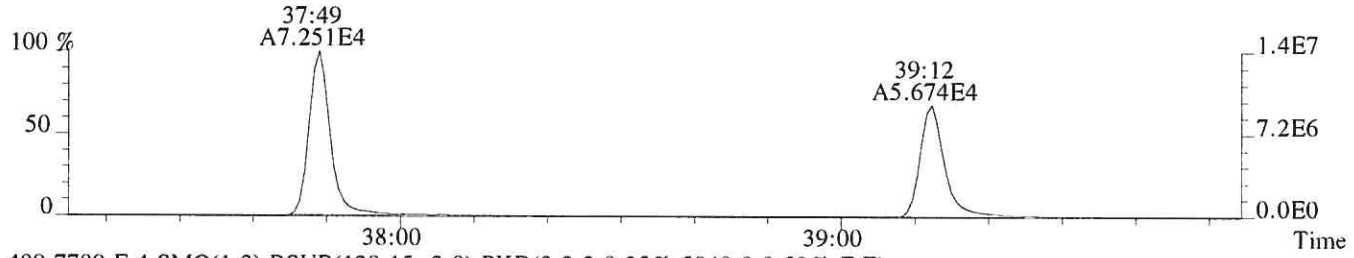
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)



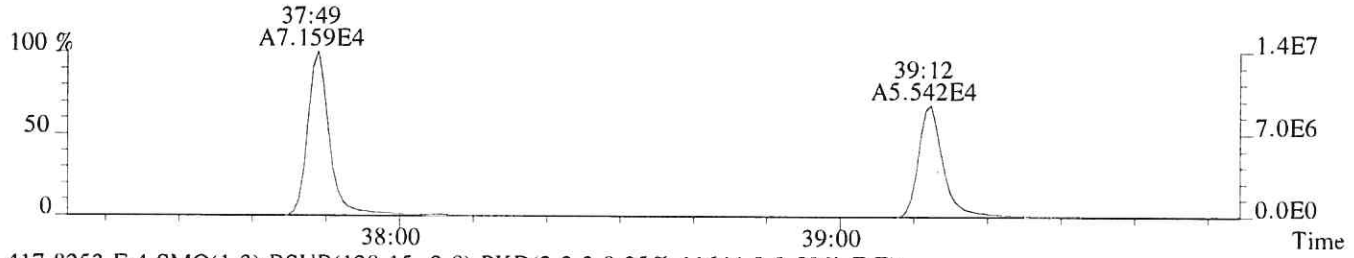
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



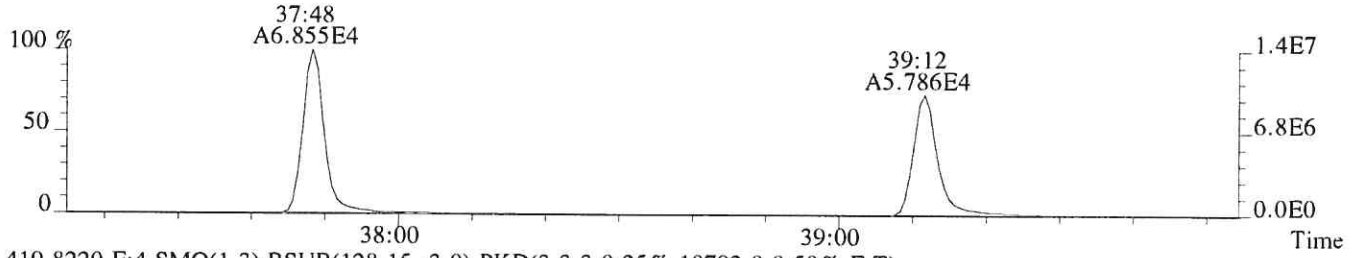
File:P609087 #1-240 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7164.0,0.50%,F,T)



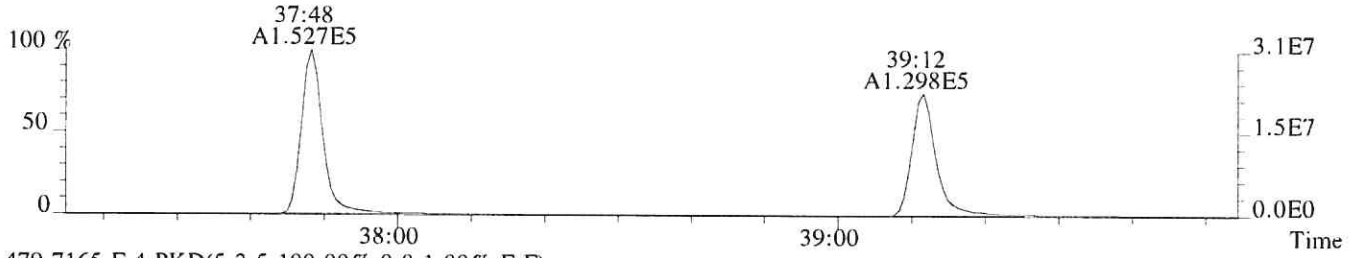
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5840.0,0.50%,F,T)



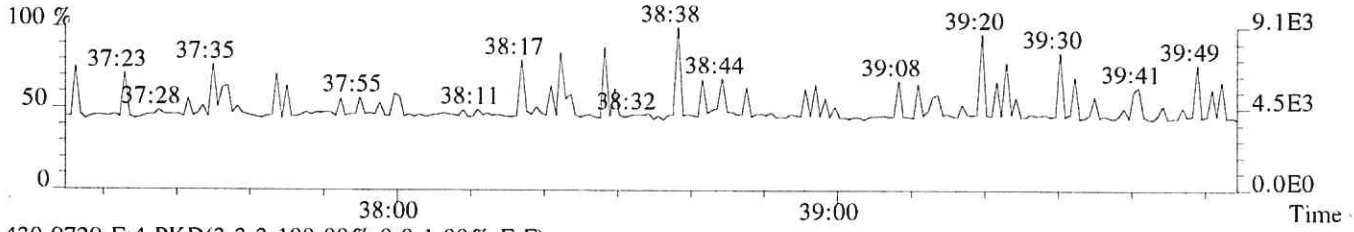
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11644.0,0.50%,F,T)



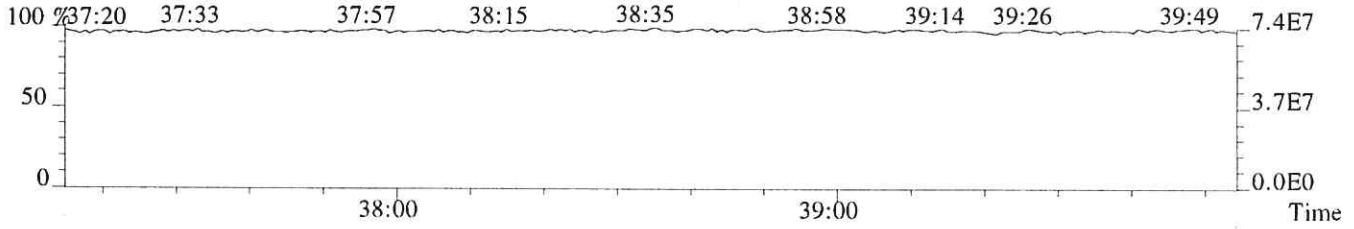
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10792.0,0.50%,F,T)



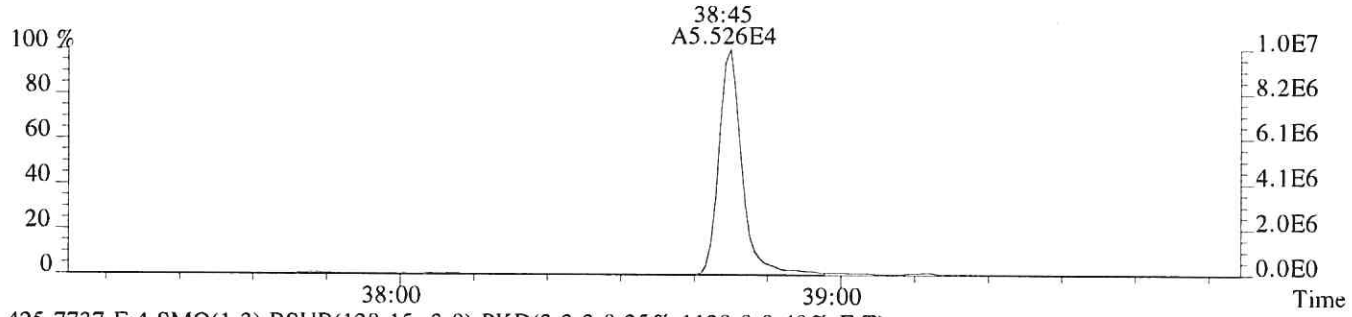
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



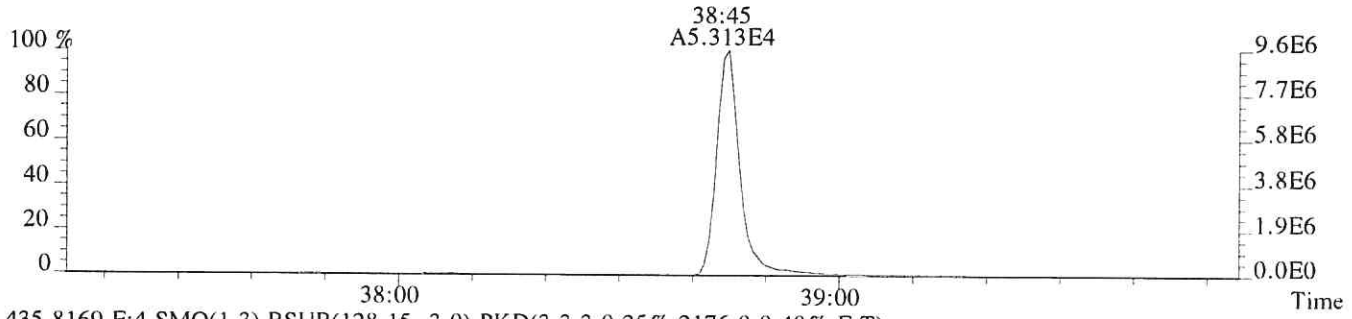
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



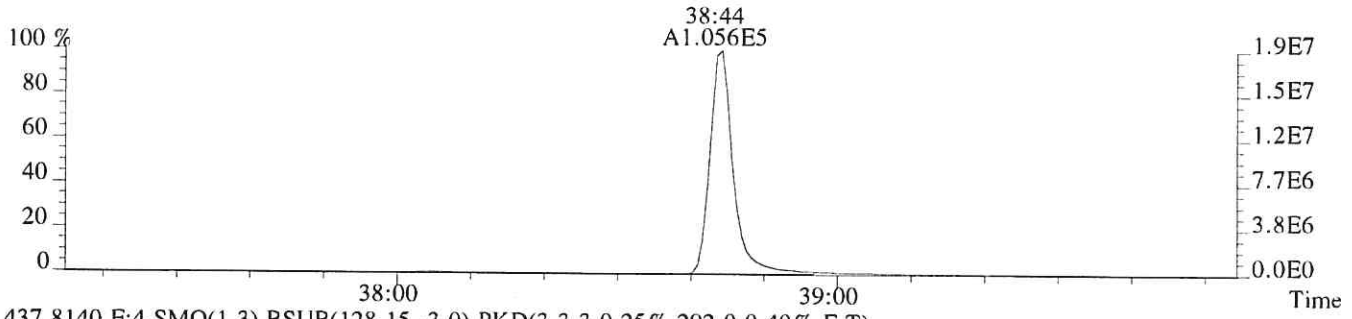
File:P609087 #1-240 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



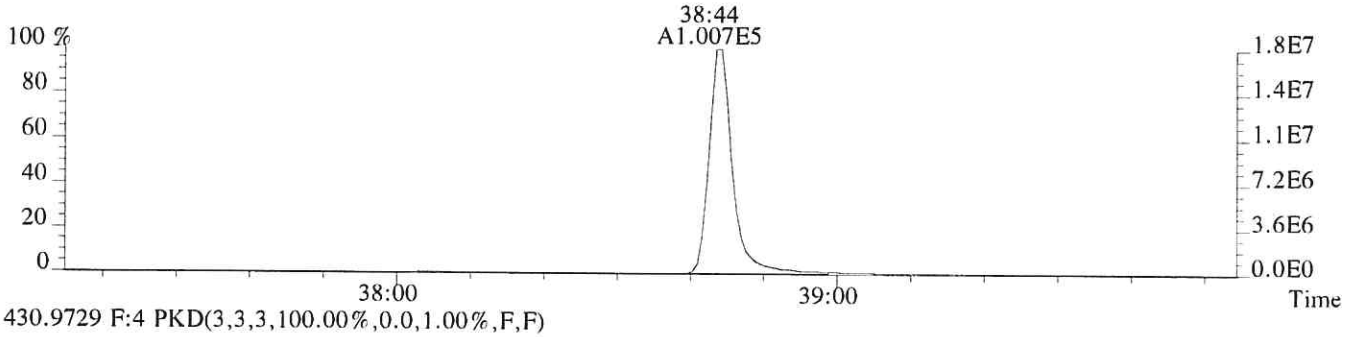
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



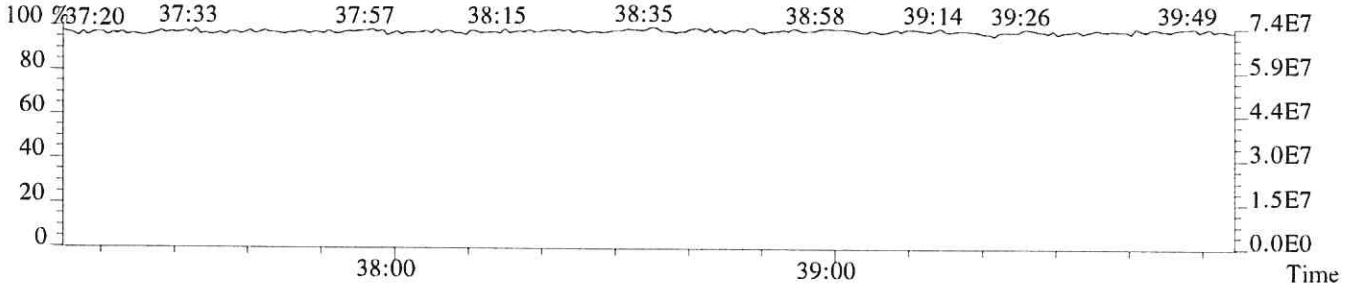
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2176.0,0.40%,F,T)



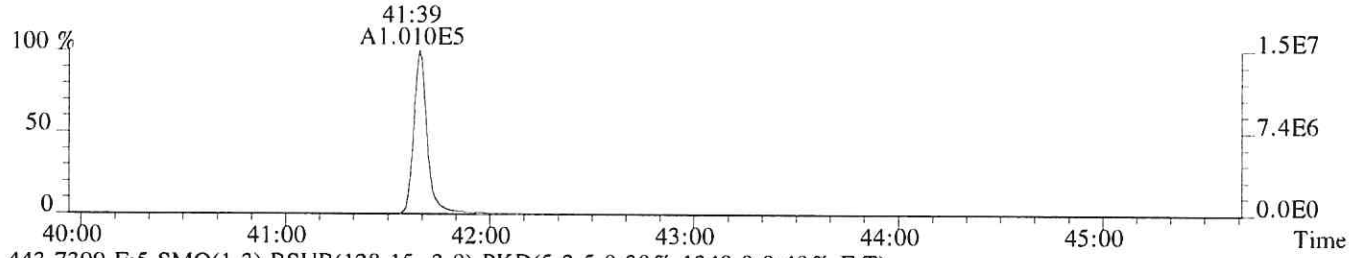
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



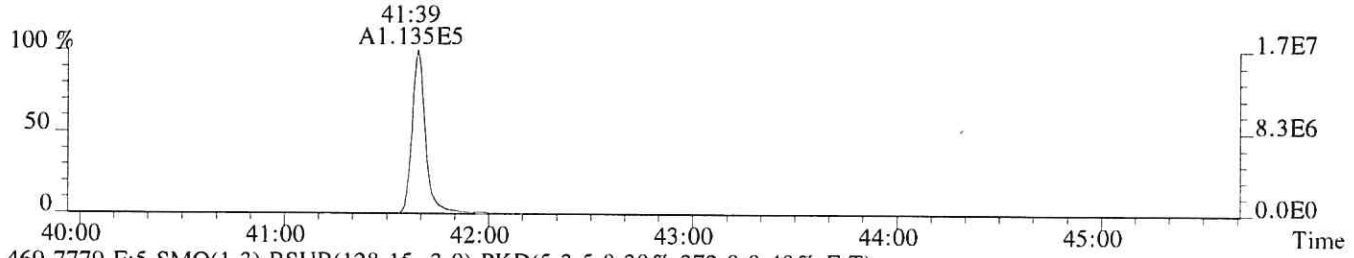
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



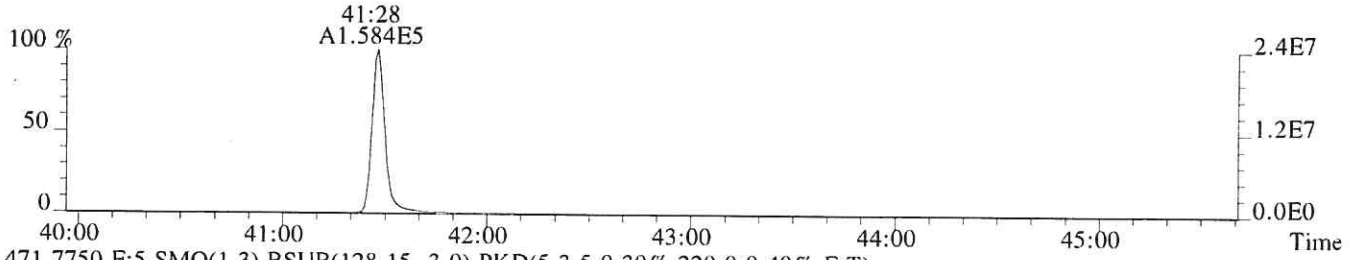
File:P609087 #1-517 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



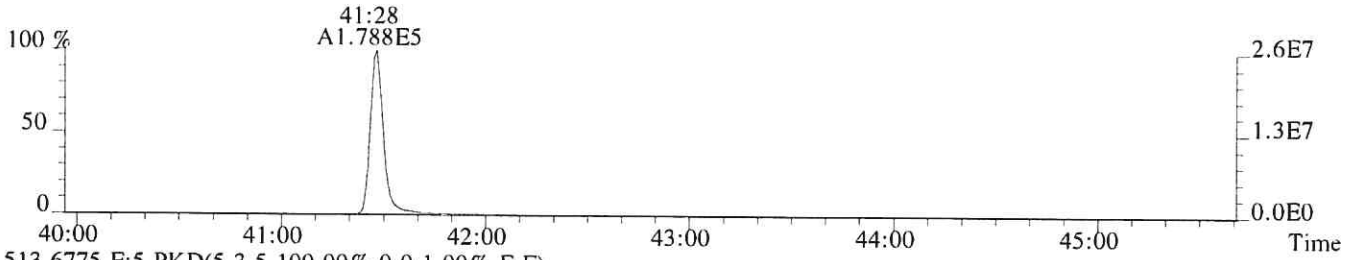
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



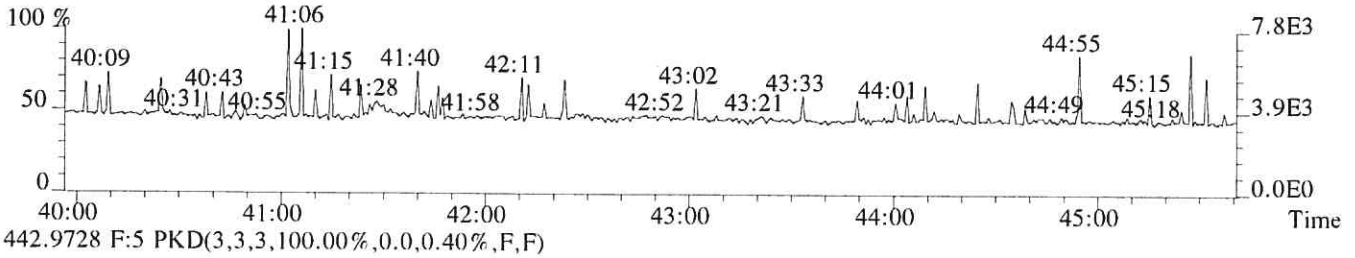
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



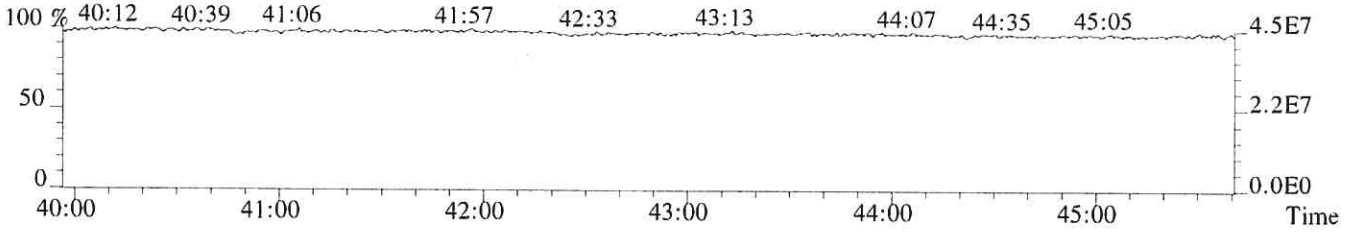
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



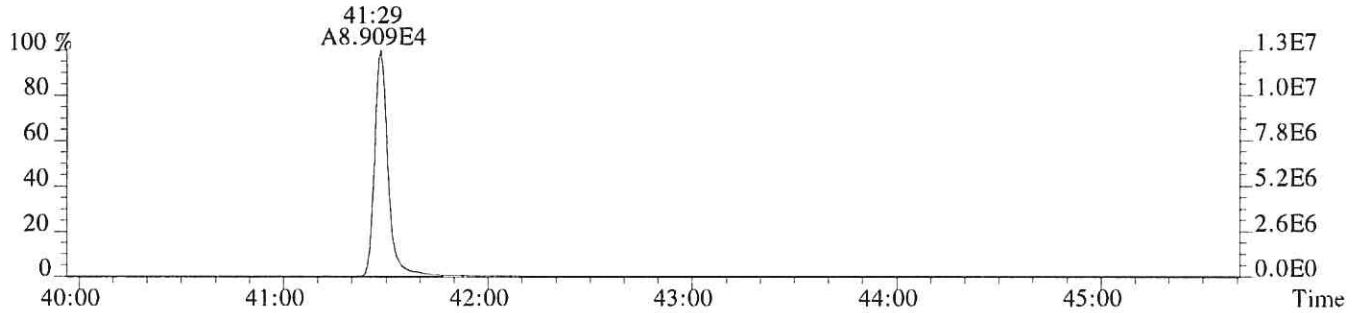
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



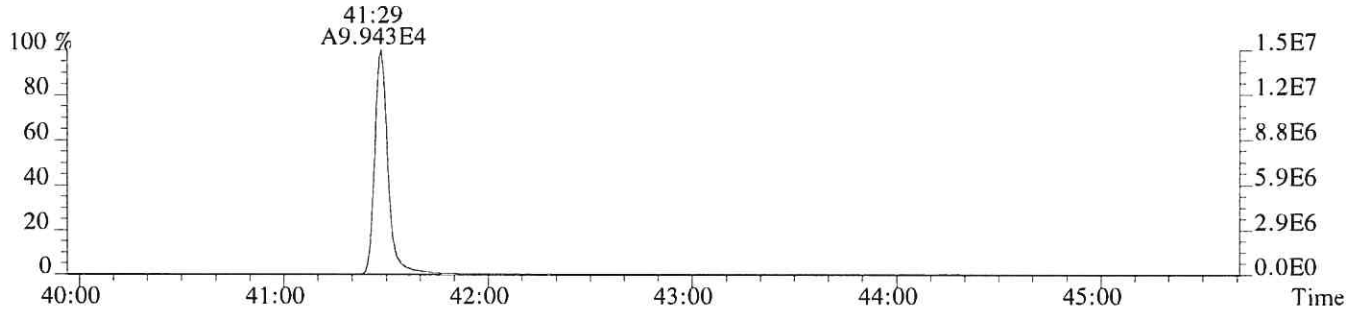
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



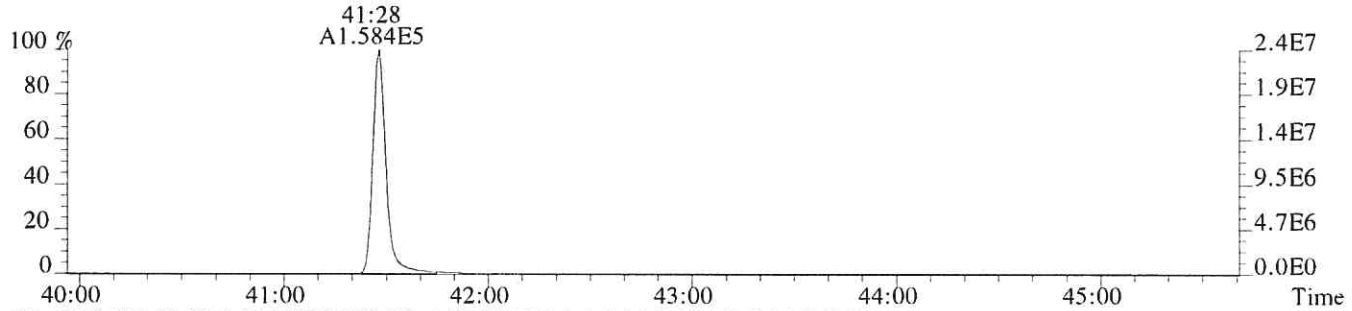
File:P609087 #1-517 Acq:14-SEP-2017 14:51:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



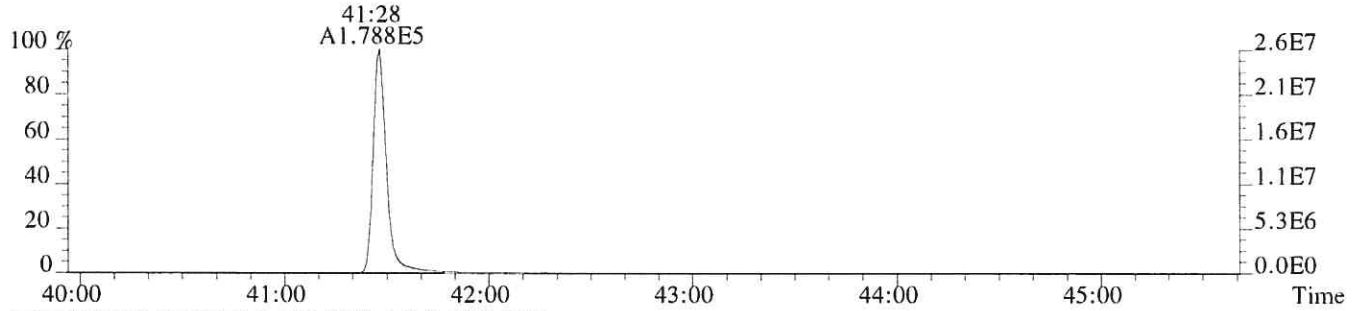
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



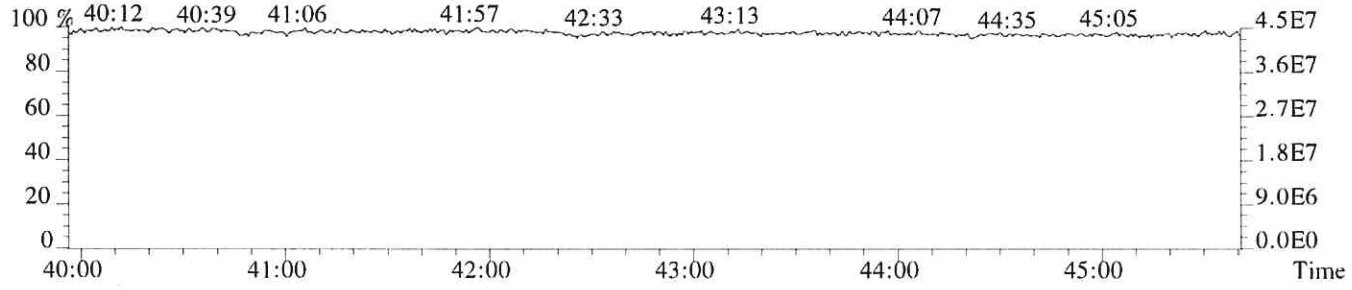
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



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



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/16/17

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P609099 Analysis Date: 15-SEP-17 Time: 00:54:40

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.4	7.8 - 12.9	-6.1
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	46	39 - 65	-8.1
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	47	39 - 64	-5.6
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	50	39 - 64	-0.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	49	41 - 61	-2.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	0.8
OCDD	M+2/M+4	0.89	0.76-1.02	99	79 - 126	-0.7
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.7	8.4 - 12.0	-3.2
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	48	41 - 60	-3.1
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	47	41 - 61	-5.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	47	45 - 56	-5.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	46	44 - 57	-7.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.19	1.05-1.43	46	45 - 56	-8.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	47	44 - 57	-6.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	46	45 - 55	-7.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	45	43 - 58	-10.1
OCDF	M+2/M+4	0.89	0.76-1.02	95	63 - 159	-5.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/16/17

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P609099 Analysis Date: 15-SEP-17 Time: 00:54:40

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	99	82 - 121	-1.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	101	62 - 160	1.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	94	85 - 117	-6.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	96	85 - 118	-4.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	100	72 - 138	0.1
13C-OCDD	M+2/M+4	0.89	0.76-1.02	226	96 - 415	12.8
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	92	71 - 140	-7.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	95	76 - 130	-4.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	96	77 - 130	-4.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	76 - 131	-6.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	91	70 - 143	-9.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	95	74 - 135	-5.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	73 - 137	-6.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	99	78 - 129	-1.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	102	77 - 129	2.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-4.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
178519

Run #18 Filename P609099 Samp: 1 Inj: 1 Acquired: 15-SEP-17 00:54:40
Processed: 15-SEP-17 08:42:41 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:38	1.155e+04	1.514e+04	0.76	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	31:17	9.566e+04	6.229e+04	1.54	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	32:16	9.011e+04	5.899e+04	1.53	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	35:05	8.337e+04	6.907e+04	1.21	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	35:11	9.010e+04	7.386e+04	1.22	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:44	8.380e+04	6.857e+04	1.22	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	36:30	7.574e+04	6.370e+04	1.19	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:49	7.468e+04	7.258e+04	1.03	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	39:12	6.398e+04	6.359e+04	1.01	yes	no	1.341
10	Unk	OCDF	41:40	1.154e+05	1.291e+05	0.89	yes	no	1.337
11	Unk	2,3,7,8-TCDD	27:32	8.894e+03	1.187e+04	0.75	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:34	6.383e+04	4.067e+04	1.57	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:52	6.078e+04	4.888e+04	1.24	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:57	6.240e+04	5.091e+04	1.23	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	36:12	6.685e+04	5.469e+04	1.22	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:45	5.948e+04	5.608e+04	1.06	yes	no	1.048
17	Unk	OCDD	41:29	1.010e+05	1.132e+05	0.89	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	26:37	1.192e+05	1.512e+05	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	31:16	1.894e+05	1.186e+05	1.60	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	32:16	1.890e+05	1.204e+05	1.57	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	8.788e+04	1.677e+05	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	35:11	1.021e+05	1.945e+05	0.52	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:43	9.616e+04	1.813e+05	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	36:29	8.638e+04	1.641e+05	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:48	7.018e+04	1.580e+05	0.44	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:12	6.534e+04	1.461e+05	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	27:31	9.239e+04	1.172e+05	0.79	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:33	1.437e+05	9.240e+04	1.56	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:51	1.197e+05	9.661e+04	1.24	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:57	1.218e+05	9.813e+04	1.24	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:44	1.126e+05	1.060e+05	1.06	yes	no	0.884
32	IS	13C-OCDD	41:29	1.810e+05	2.043e+05	0.89	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:50	9.482e+04	1.195e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:11	1.375e+05	1.097e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:32	2.204e+04				no	1.072

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
178519

Run #18 Filename P609099 Samp: 1 Inj: 1 Acquired: 15-SEP-17 00:54:40
Processed: 15-SEP-17 08:42:41 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.65e+06	3.80e+02	4.3e+03	2.23e+06	6.04e+02	3.7e+03
2	1,2,3,7,8-PeCDF	1.60e+07	2.18e+03	7.3e+03	1.04e+07	4.21e+03	2.5e+03
3	2,3,4,7,8-PeCDF	1.66e+07	2.18e+03	7.6e+03	1.09e+07	4.21e+03	2.6e+03
4	1,2,3,4,7,8-HxCDF	1.77e+07	1.38e+03	1.3e+04	1.47e+07	9.12e+02	1.6e+04
5	1,2,3,6,7,8-HxCDF	1.79e+07	1.38e+03	1.3e+04	1.49e+07	9.12e+02	1.6e+04
6	2,3,4,6,7,8-HxCDF	1.69e+07	1.38e+03	1.2e+04	1.38e+07	9.12e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	1.45e+07	1.38e+03	1.0e+04	1.21e+07	9.12e+02	1.3e+04
8	1,2,3,4,6,7,8-HpCDF	1.51e+07	3.39e+03	4.4e+03	1.46e+07	3.68e+03	4.0e+03
9	1,2,3,4,7,8,9-HpCDF	1.17e+07	3.39e+03	3.4e+03	1.14e+07	3.68e+03	3.1e+03
10	OCDF	1.75e+07	1.48e+02	1.2e+05	1.92e+07	2.32e+02	8.3e+04
11	2,3,7,8-TCDD	1.41e+06	9.60e+02	1.5e+03	1.90e+06	2.56e+02	7.4e+03
12	1,2,3,7,8-PeCDD	1.16e+07	9.32e+02	1.2e+04	7.27e+06	2.40e+02	3.0e+04
13	1,2,3,4,7,8-HxCDD	1.34e+07	2.96e+02	4.5e+04	1.08e+07	2.68e+02	4.0e+04
14	1,2,3,6,7,8-HxCDD	1.28e+07	2.96e+02	4.3e+04	1.05e+07	2.68e+02	3.9e+04
15	1,2,3,7,8,9-HxCDD	1.37e+07	2.96e+02	4.6e+04	1.10e+07	2.68e+02	4.1e+04
16	1,2,3,4,6,7,8-HpCDD	1.14e+07	1.52e+02	7.5e+04	1.06e+07	4.04e+02	2.6e+04
17	OCDD	1.55e+07	1.92e+02	8.1e+04	1.73e+07	9.64e+02	1.8e+04
18	13C-2,3,7,8-TCDF	1.81e+07	8.88e+03	2.0e+03	2.30e+07	4.23e+03	5.4e+03
19	13C-1,2,3,7,8-PeCDF	3.24e+07	7.56e+02	4.3e+04	2.03e+07	2.80e+03	7.3e+03
20	13C-2,3,4,7,8-PeCDF	3.53e+07	7.56e+02	4.7e+04	2.24e+07	2.80e+03	8.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.89e+07	1.06e+03	1.8e+04	3.57e+07	1.46e+03	2.4e+04
22	13C-1,2,3,6,7,8-HxCDF	2.07e+07	1.06e+03	2.0e+04	3.93e+07	1.46e+03	2.7e+04
23	13C-2,3,4,6,7,8-HxCDF	1.96e+07	1.06e+03	1.9e+04	3.73e+07	1.46e+03	2.6e+04
24	13C-1,2,3,7,8,9-HxCDF	1.64e+07	1.06e+03	1.6e+04	3.18e+07	1.46e+03	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.43e+07	6.76e+03	2.1e+03	3.20e+07	4.85e+03	6.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.21e+07	6.76e+03	1.8e+03	2.70e+07	4.85e+03	5.6e+03
27	13C-2,3,7,8-TCDD	1.52e+07	6.73e+03	2.3e+03	1.95e+07	3.95e+03	4.9e+03
28	13C-1,2,3,7,8-PeCDD	2.63e+07	8.36e+02	3.1e+04	1.72e+07	1.68e+02	1.0e+05
29	13C-1,2,3,4,7,8-HxCDD	2.63e+07	1.78e+03	1.5e+04	2.10e+07	8.16e+02	2.6e+04
30	13C-1,2,3,6,7,8-HxCDD	2.52e+07	1.78e+03	1.4e+04	2.02e+07	8.16e+02	2.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.17e+07	1.62e+03	1.3e+04	2.07e+07	6.84e+02	3.0e+04
32	13C-OCDD	2.78e+07	1.52e+02	1.8e+05	3.14e+07	2.72e+02	1.2e+05
33	13C-1,2,3,4-TCDD	1.52e+07	6.73e+03	2.3e+03	1.92e+07	3.95e+03	4.9e+03
34	13C-1,2,3,7,8,9-HxCDD	2.77e+07	1.78e+03	1.6e+04	2.23e+07	8.16e+02	2.7e+04
35	37Cl-2,3,7,8-TCDD	3.61e+06	6.60e+02	5.5e+03			

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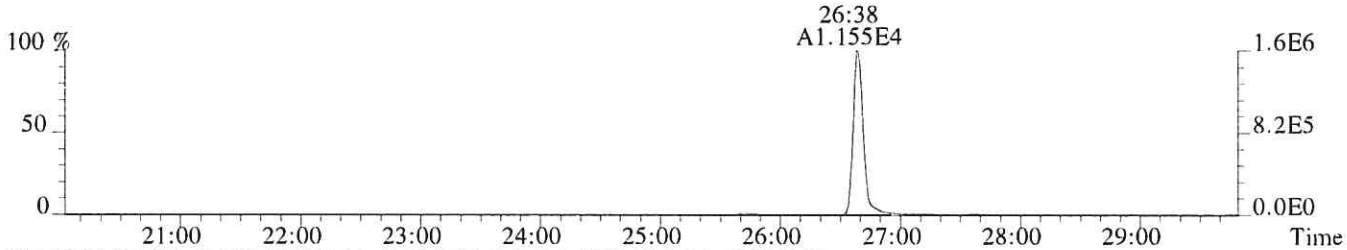
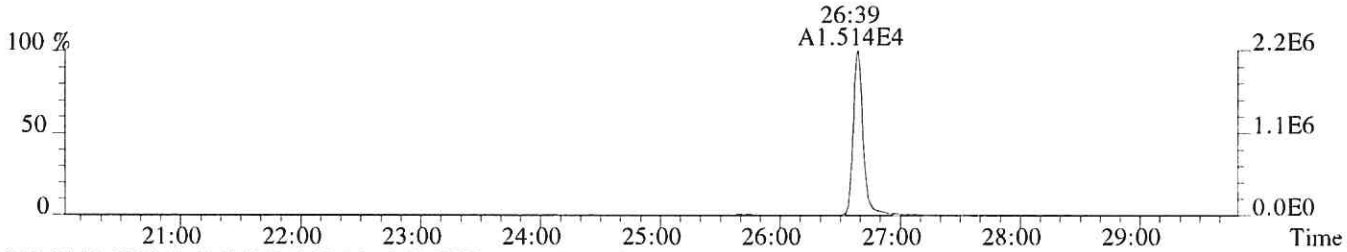
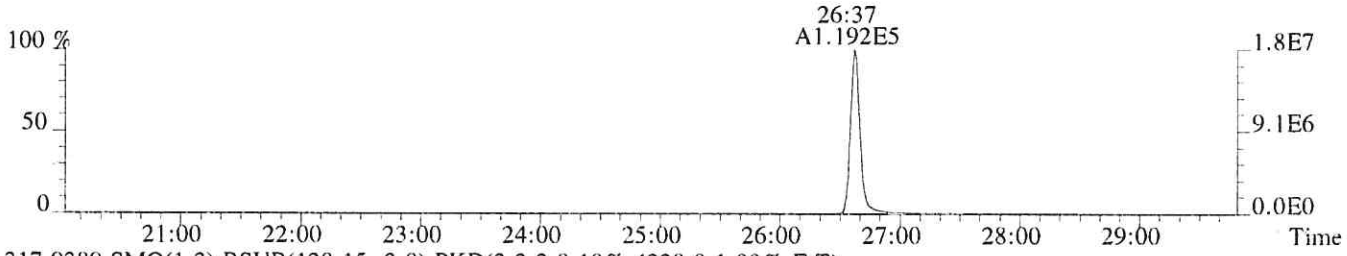
File:P609099 #1-694 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



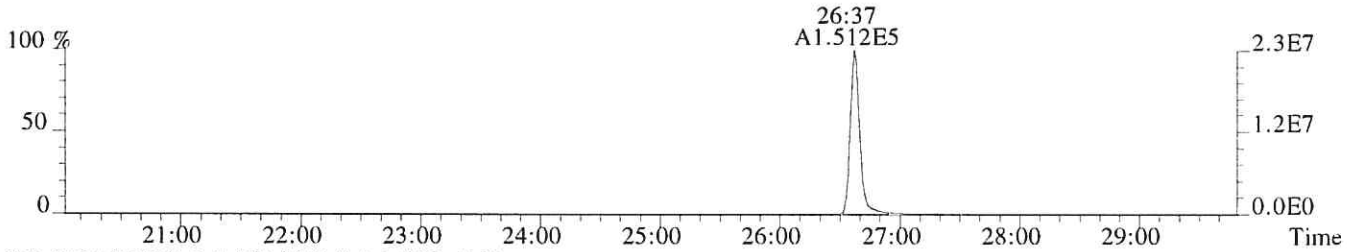
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



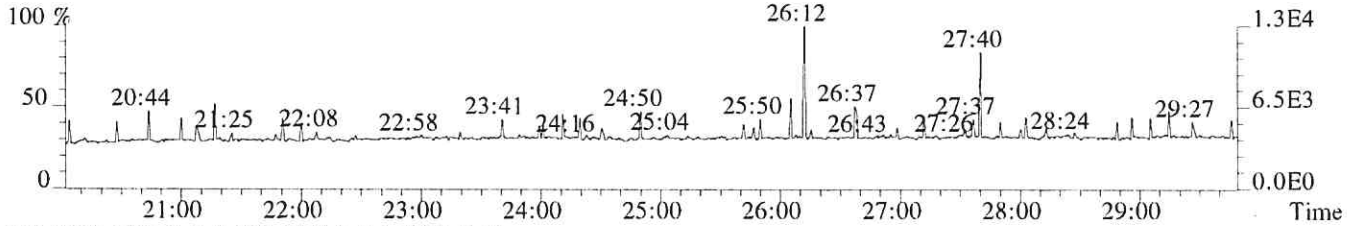
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8880.0,1.00%,F,T)



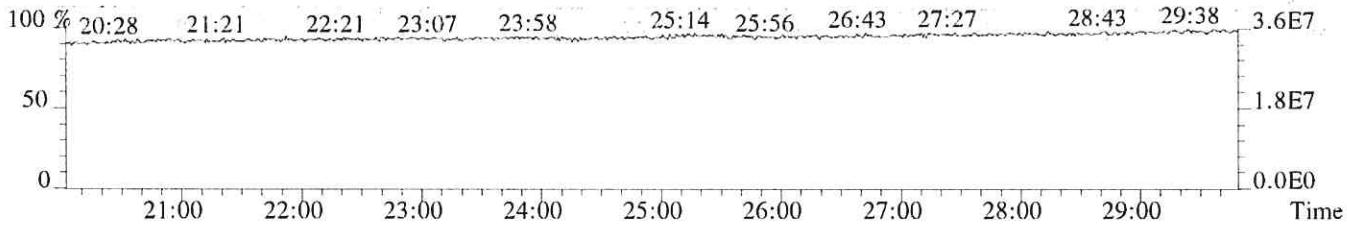
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4228.0,1.00%,F,T)



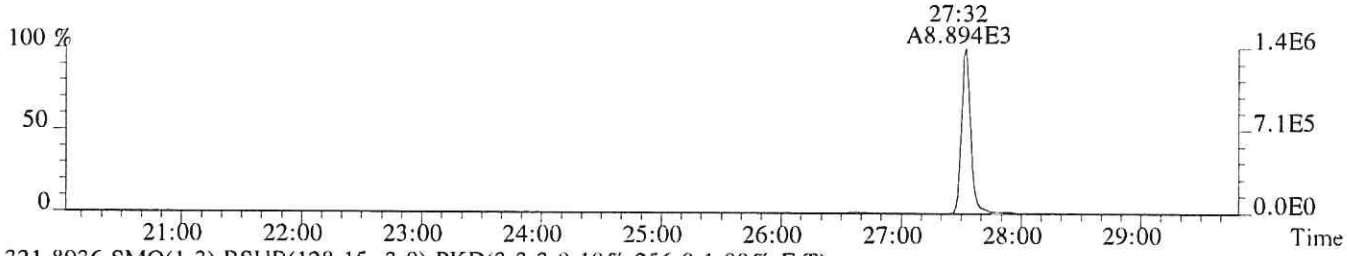
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



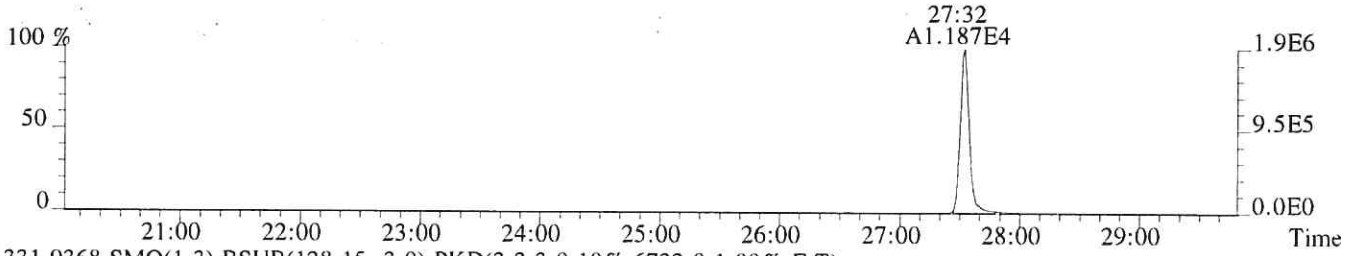
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



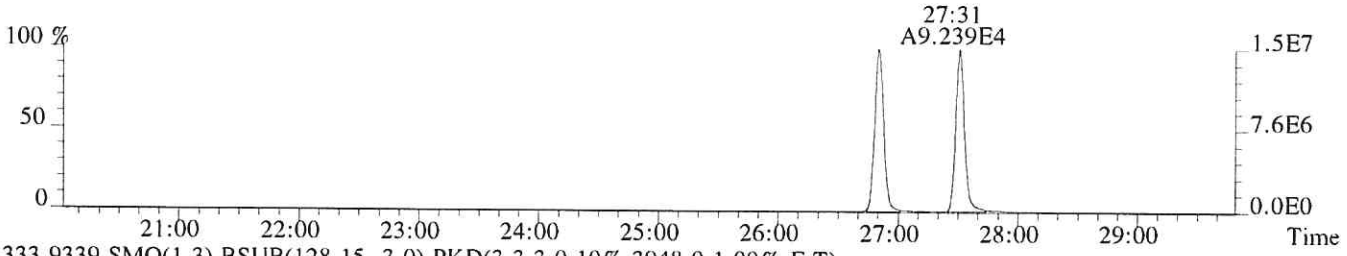
File:P609099 #1-694 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



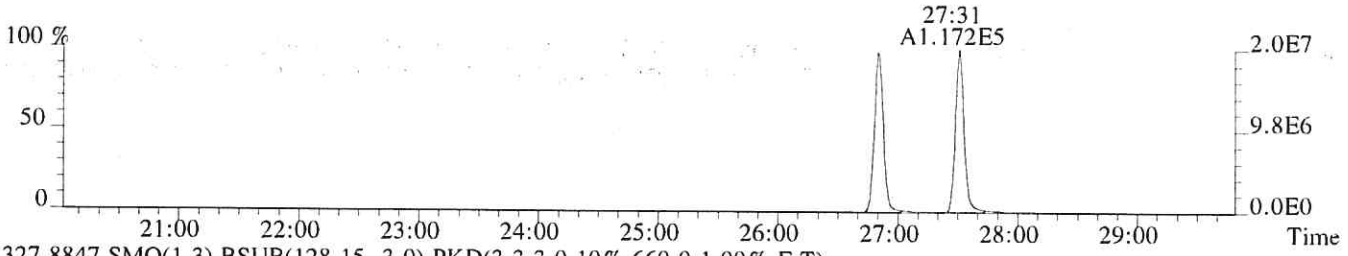
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



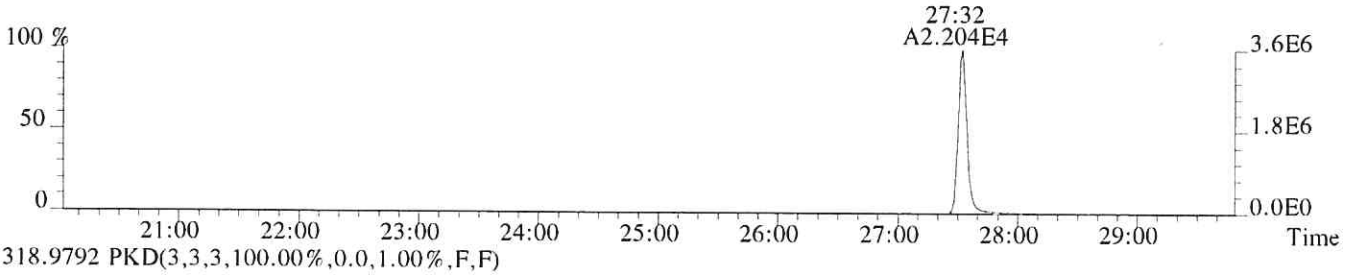
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6732.0,1.00%,F,T)



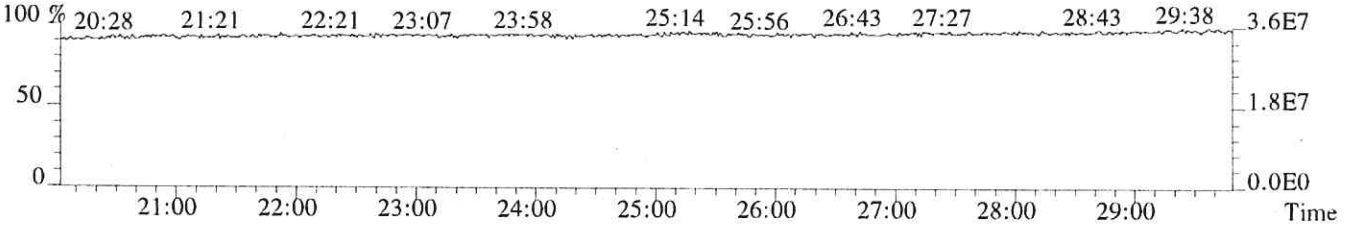
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3948.0,1.00%,F,T)



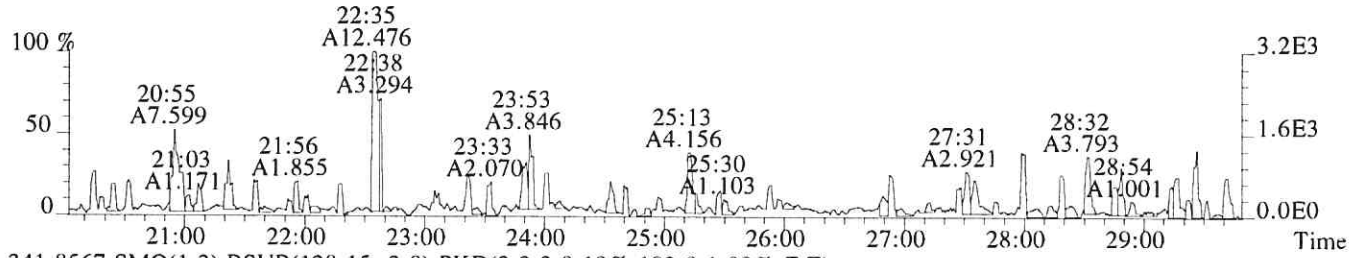
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



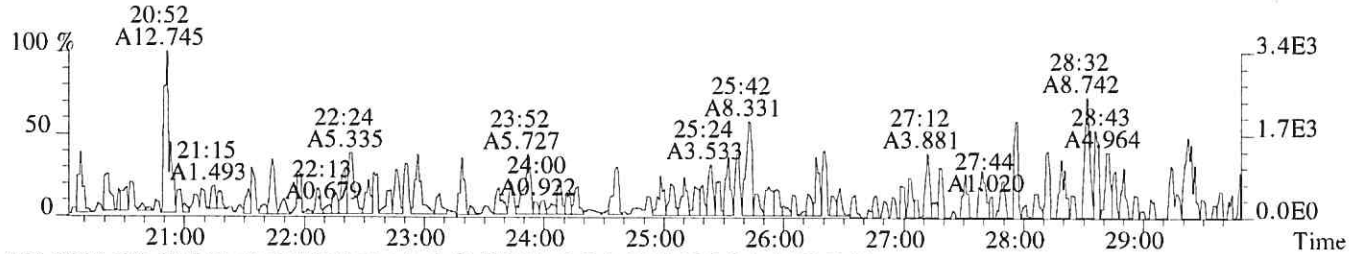
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



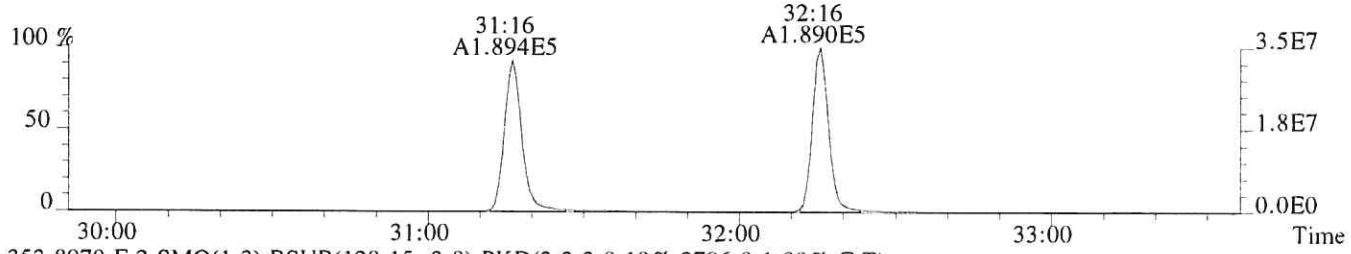
File:P609099 #1-694 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



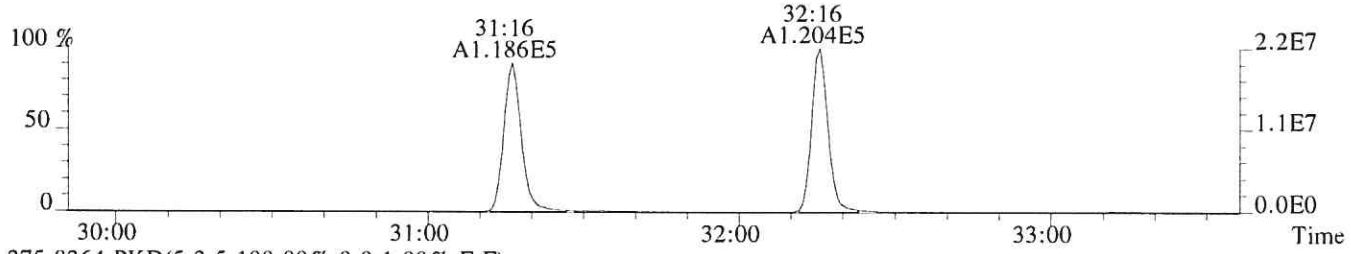
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



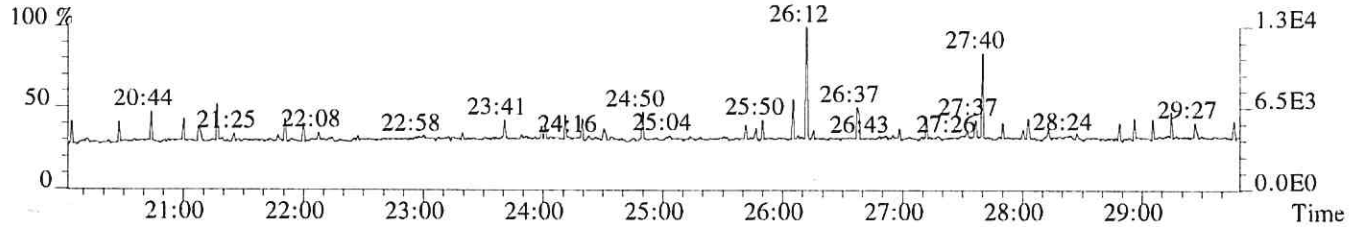
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



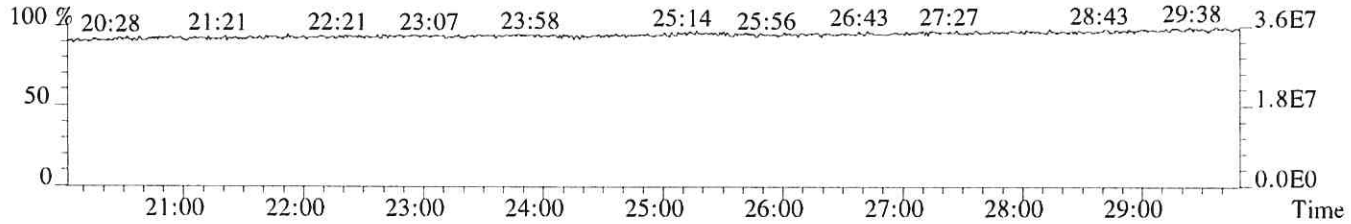
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2796.0,1.00%,F,T)



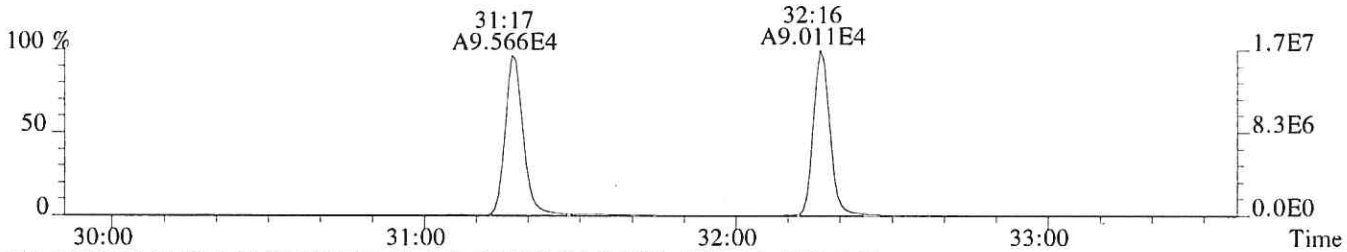
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



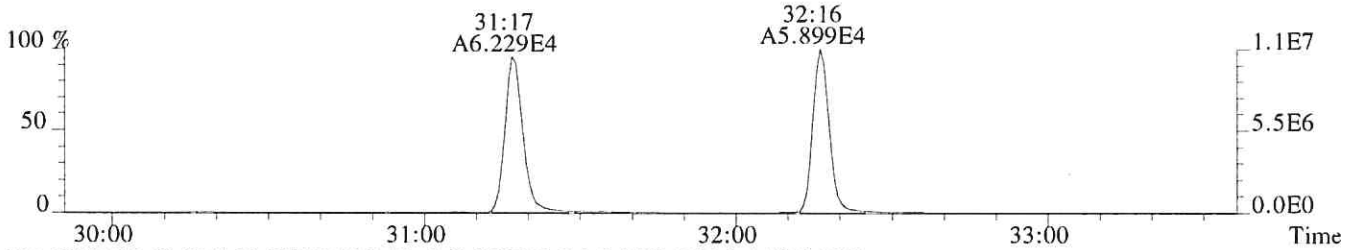
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



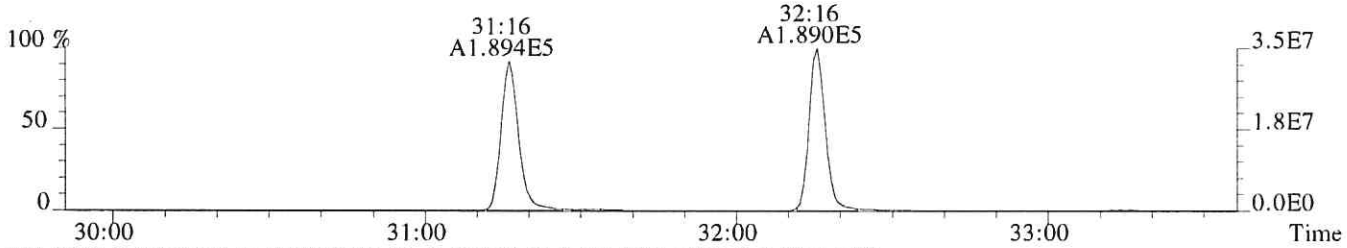
File:P609099 #1-339 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



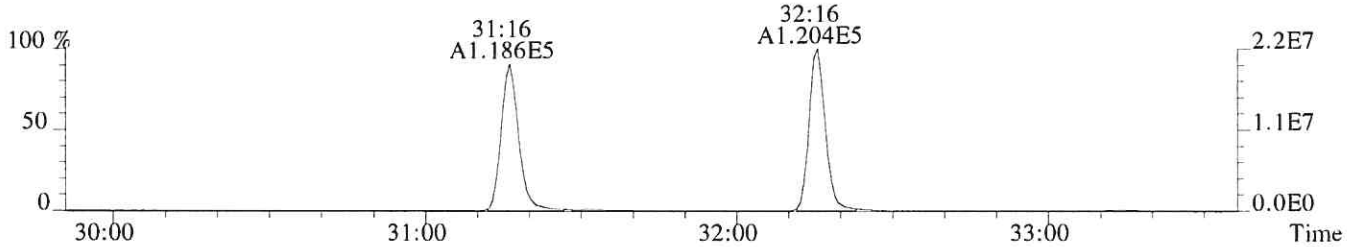
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4212.0,1.00%,F,T)



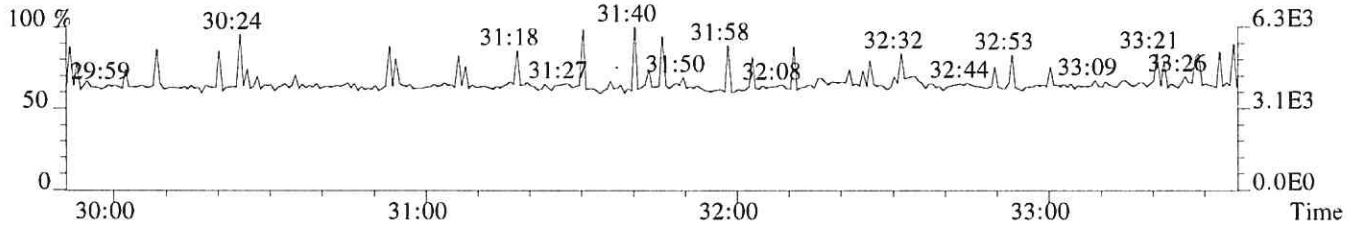
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



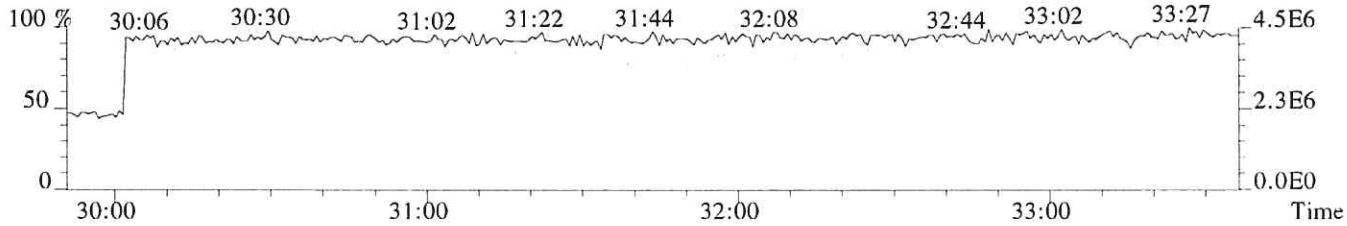
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2796.0,1.00%,F,T)



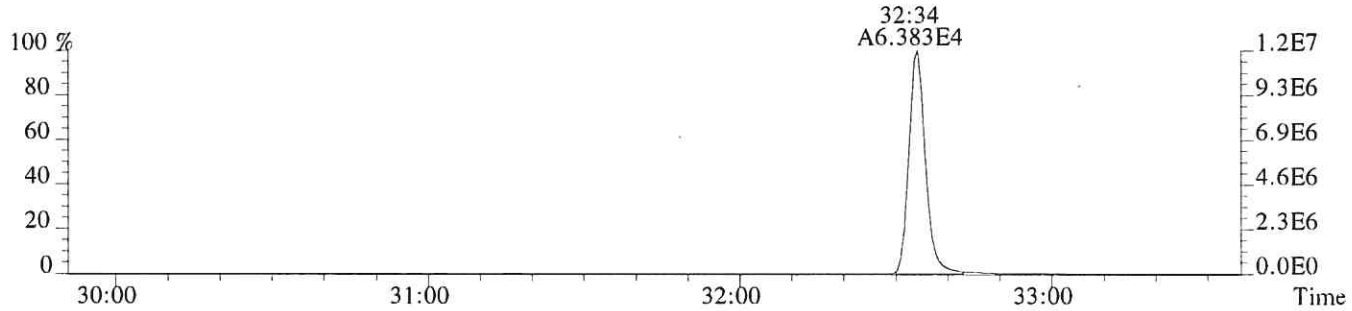
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



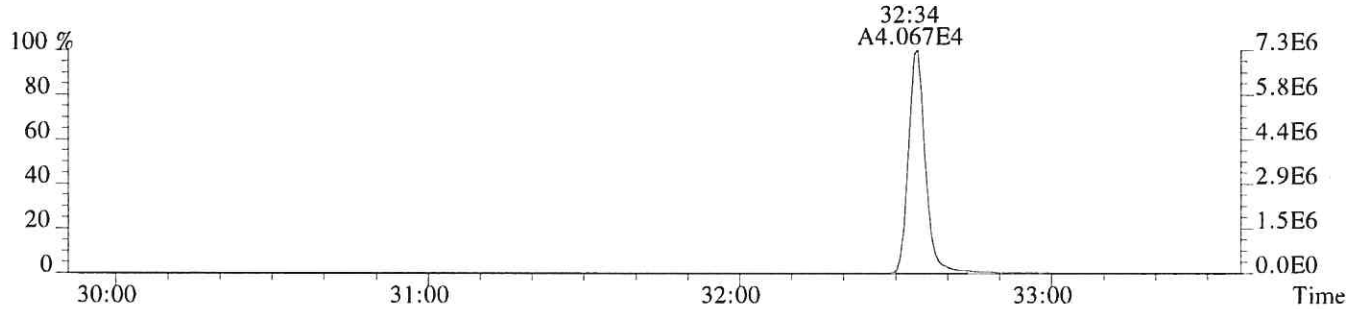
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



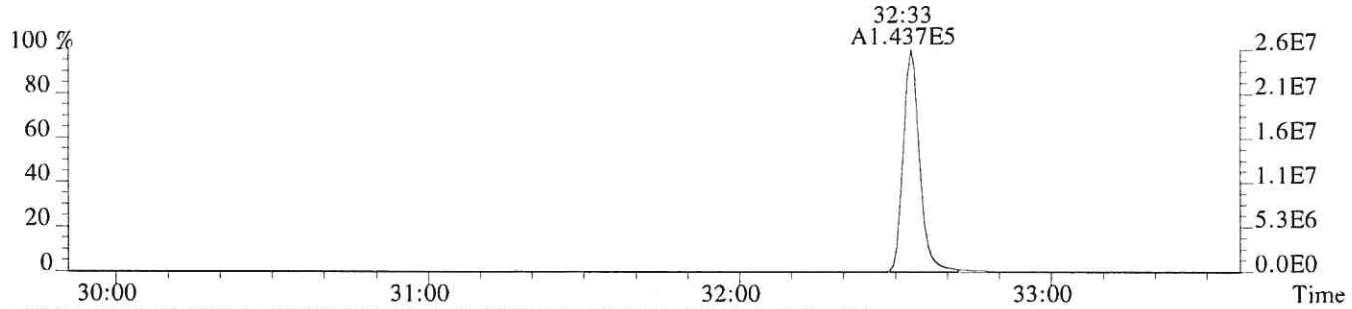
File:P609099 #1-339 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



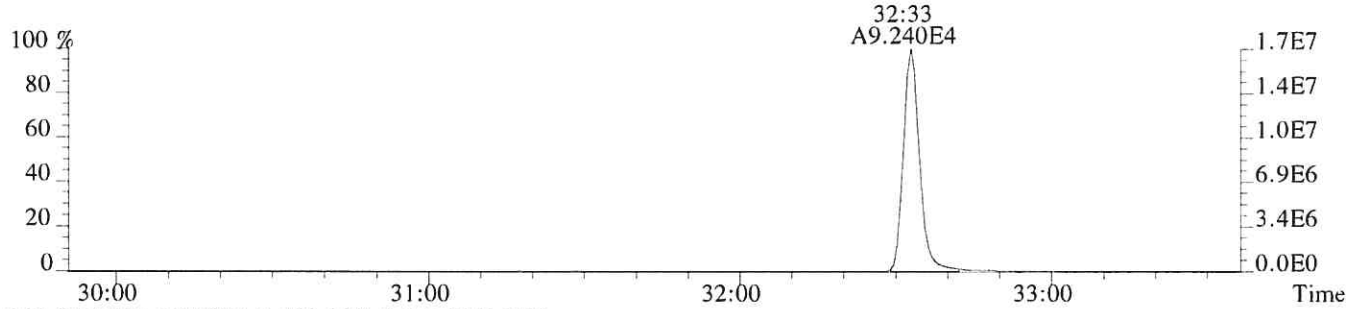
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



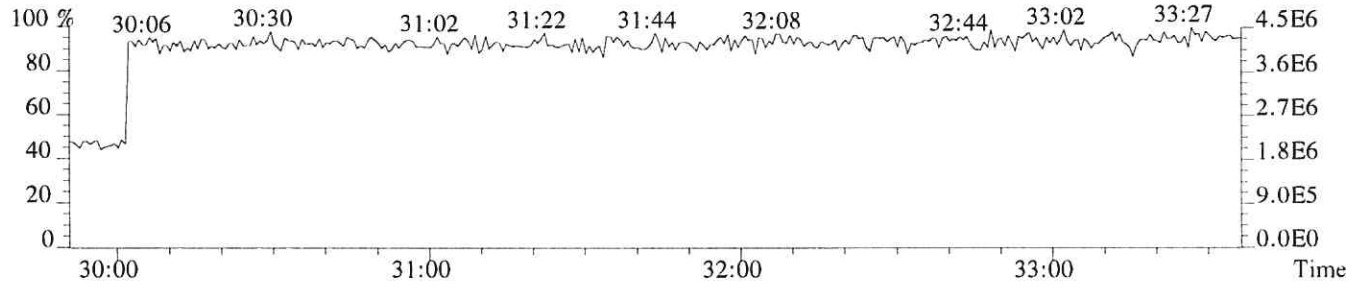
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



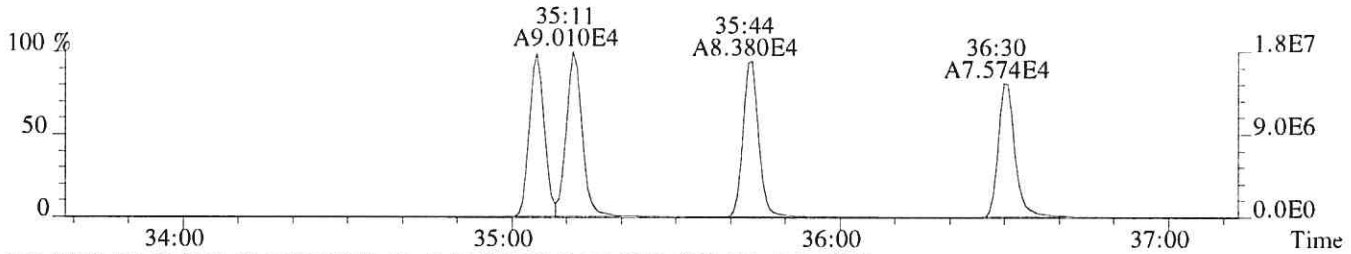
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



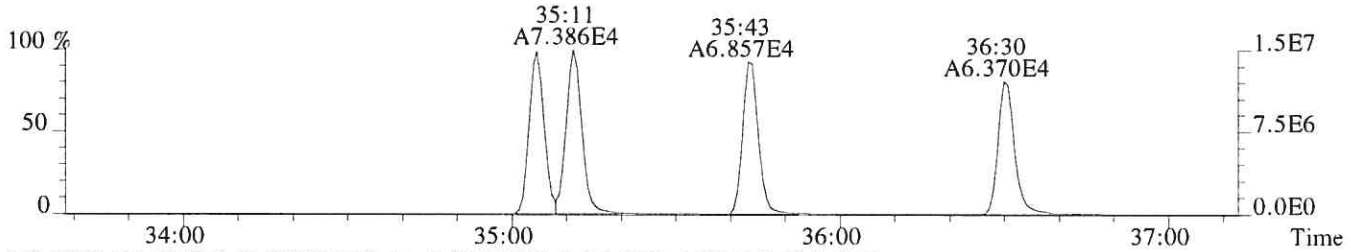
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



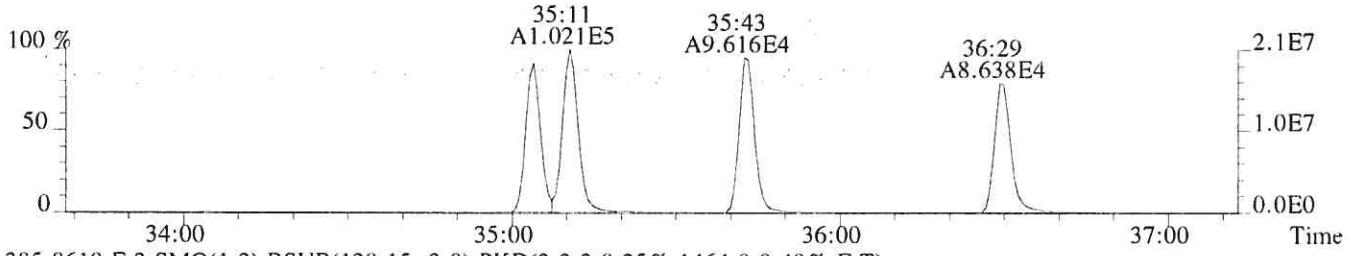
File:P609099 #1-322 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



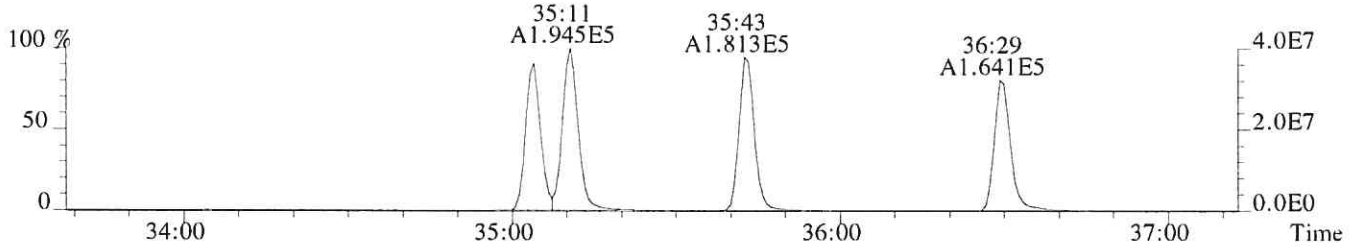
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



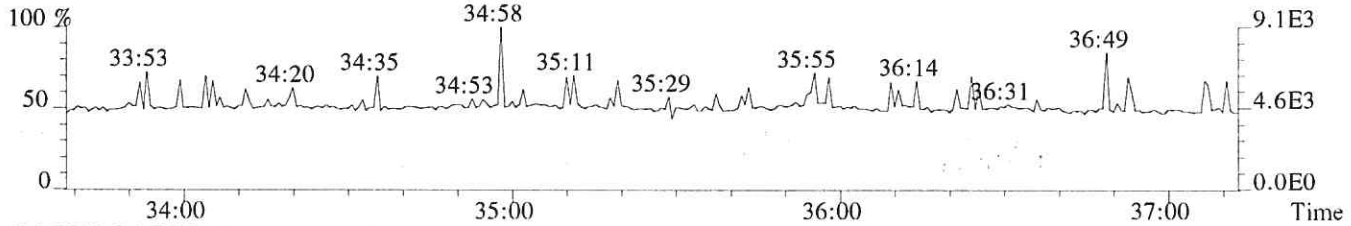
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



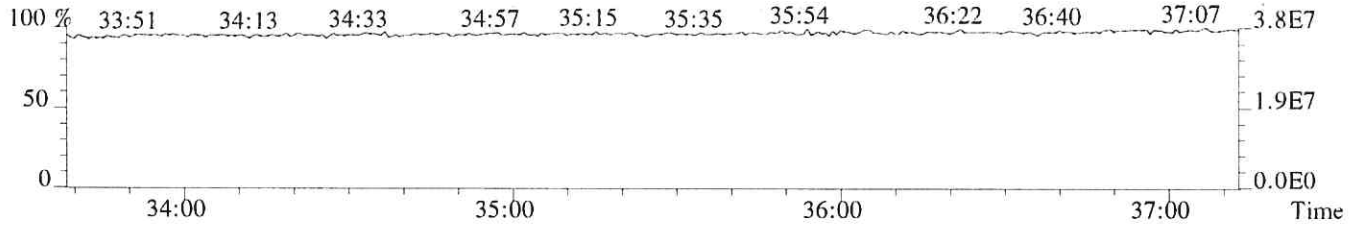
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



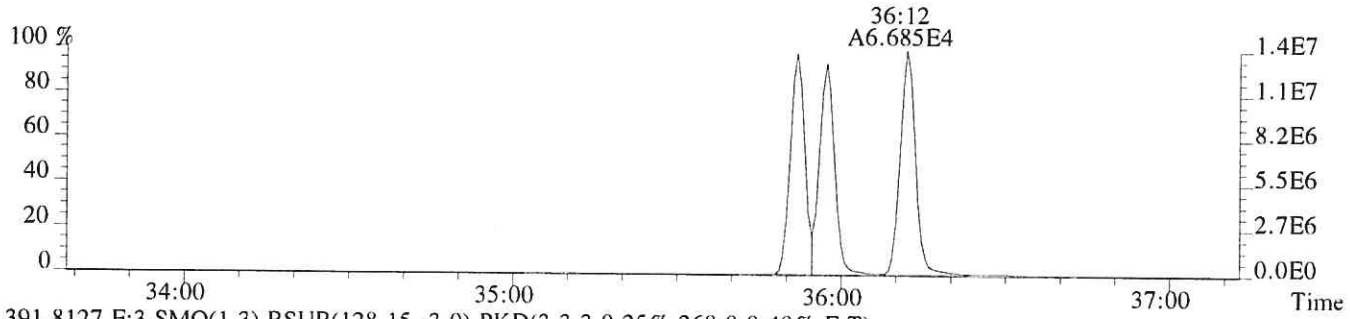
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



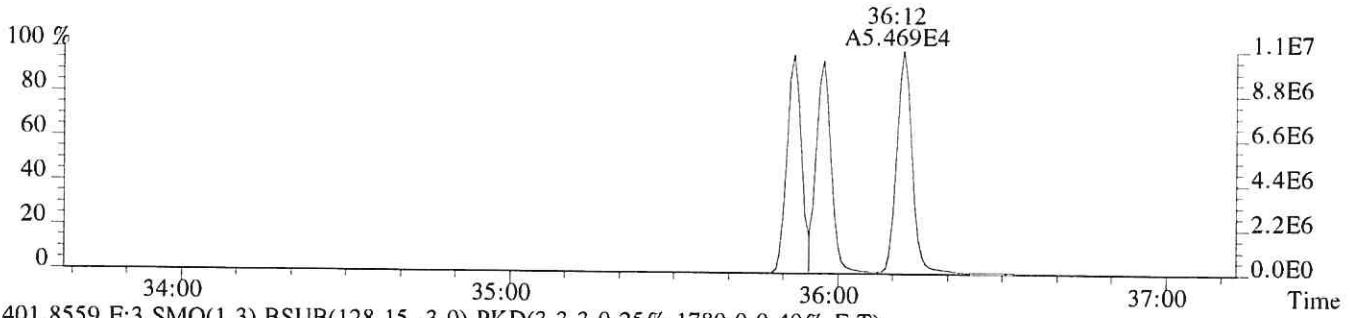
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



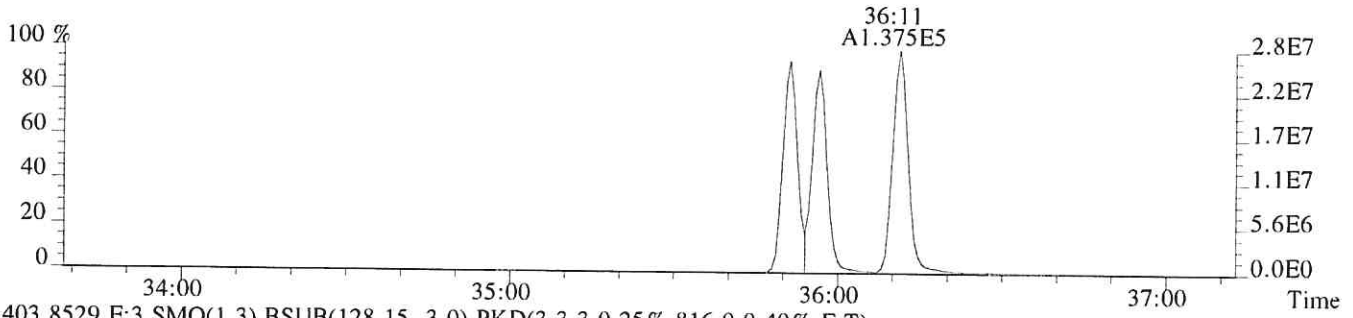
File:P609099 #1-322 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



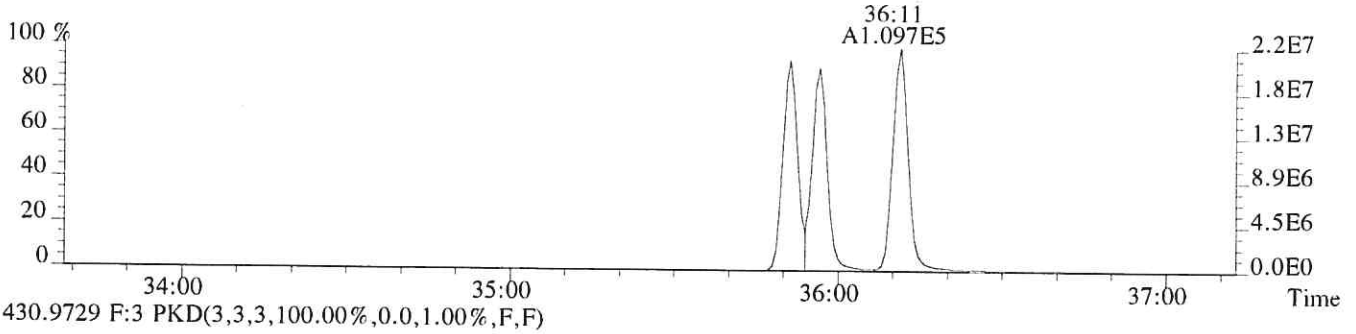
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



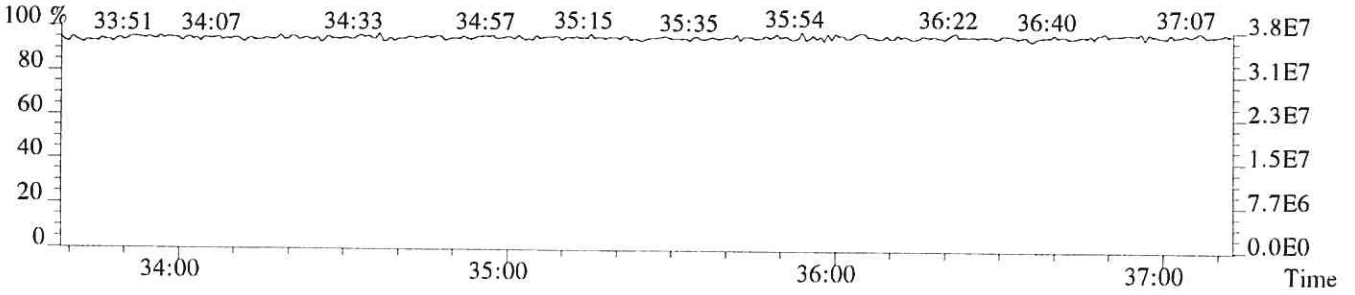
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1780.0,0.40%,F,T)



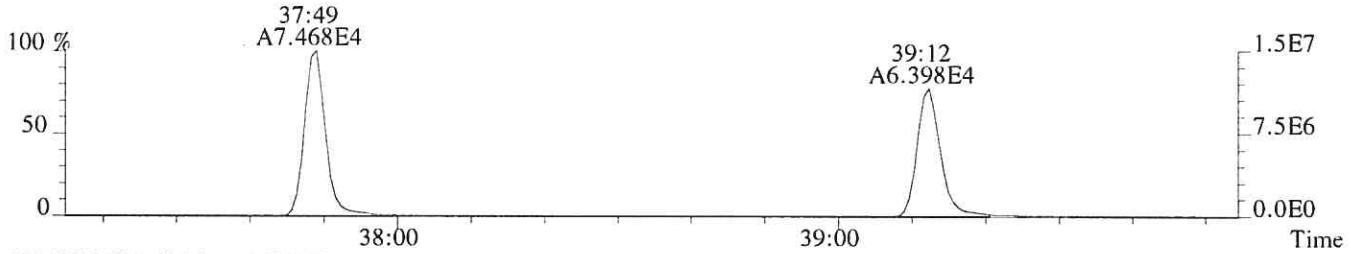
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



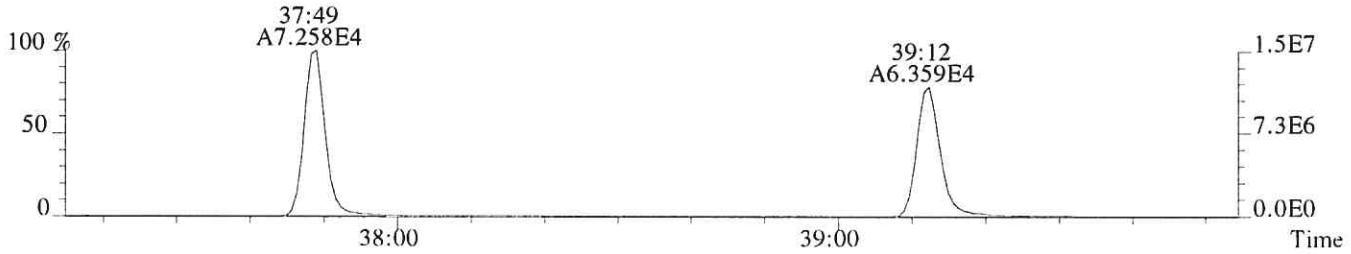
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



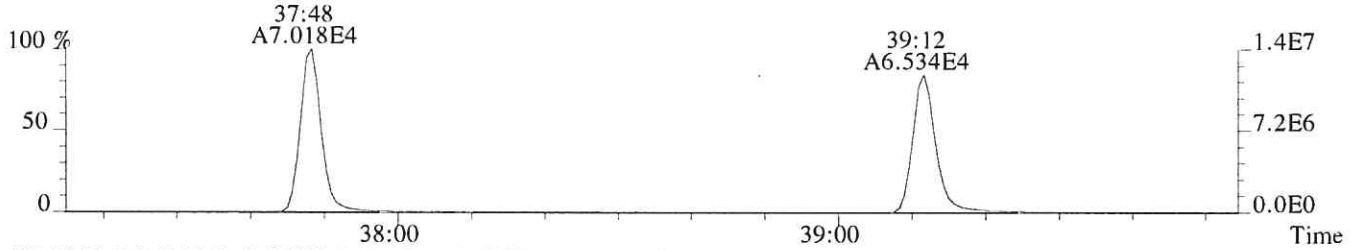
File:P609099 #1-240 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3392.0,0.50%,F,T)



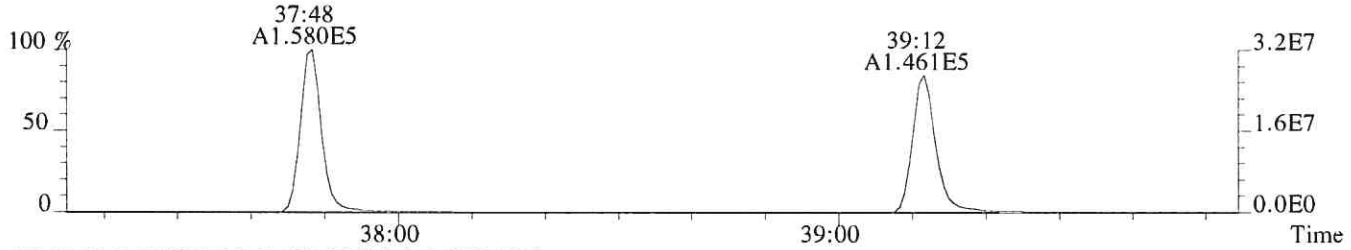
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3680.0,0.50%,F,T)



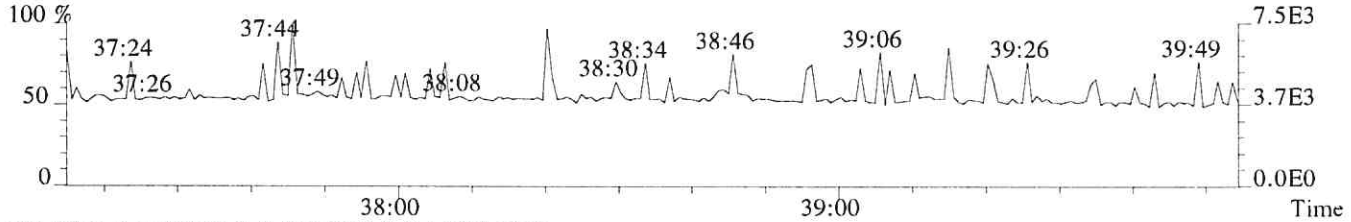
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6764.0,0.50%,F,T)



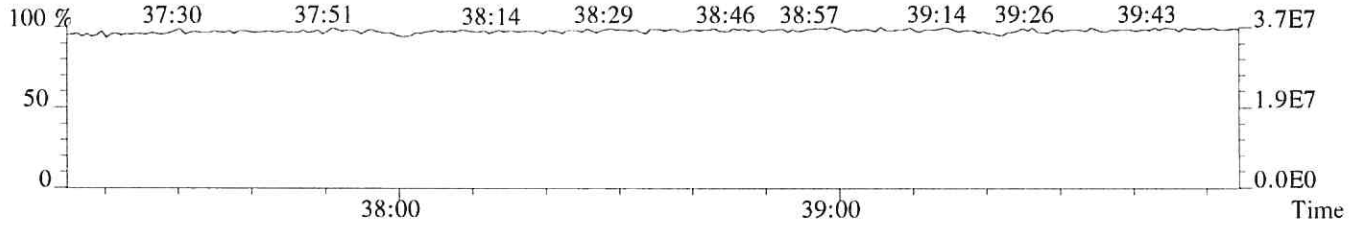
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4852.0,0.50%,F,T)



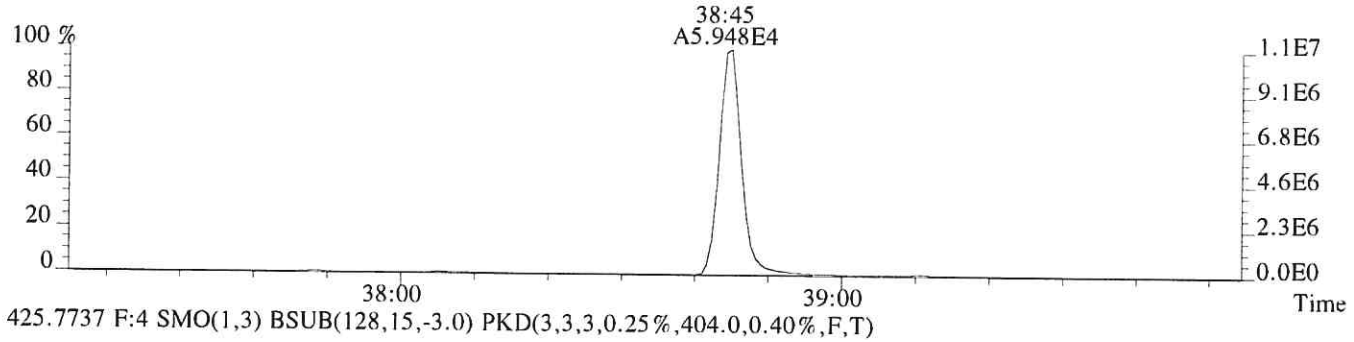
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



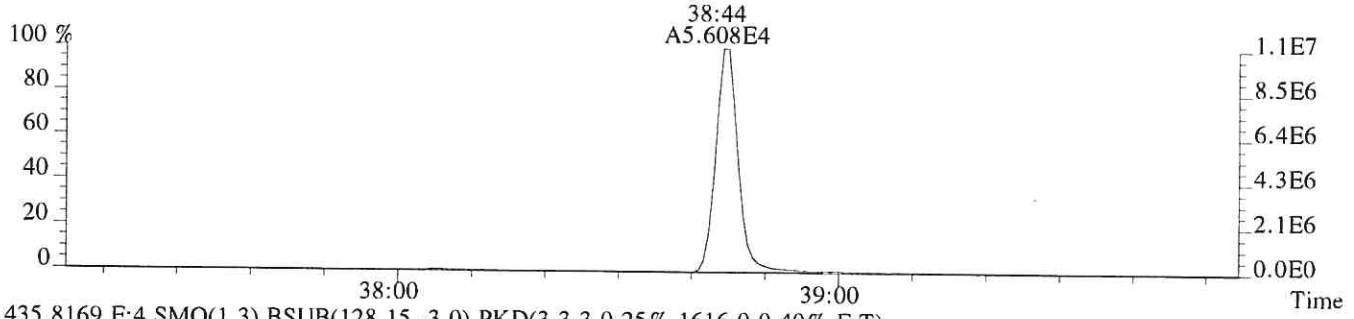
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



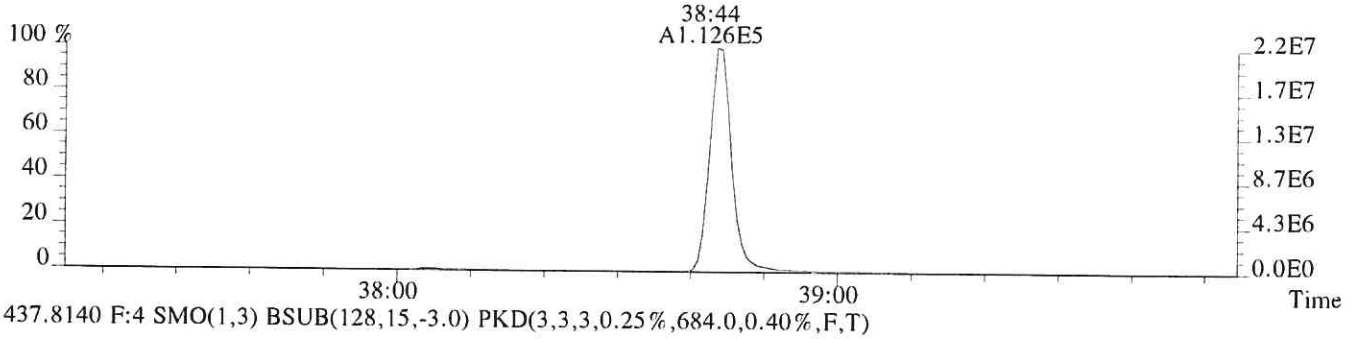
File:P609099 #1-240 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)



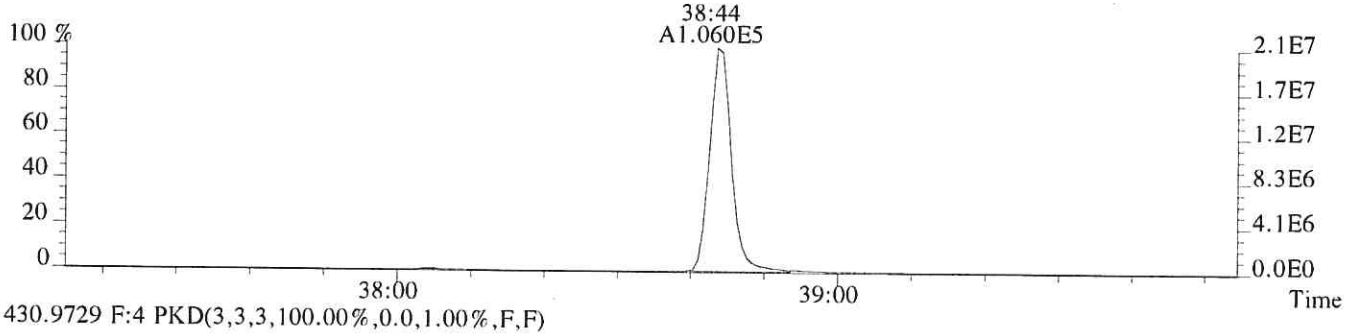
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



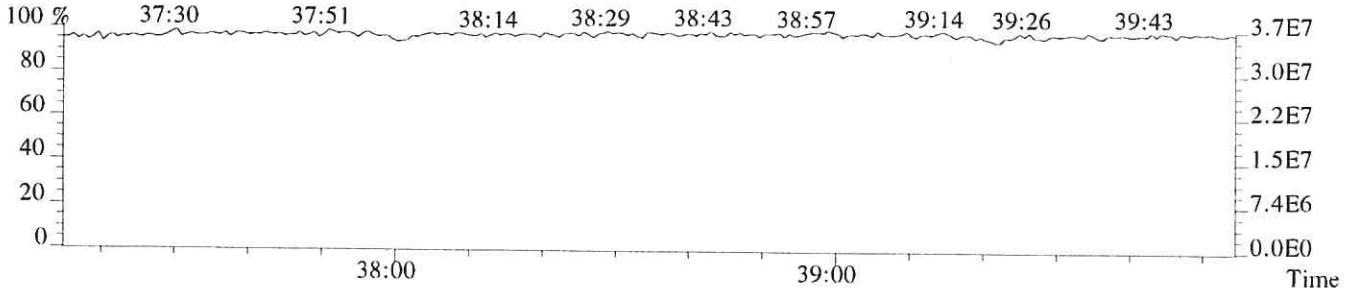
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1616.0,0.40%,F,T)



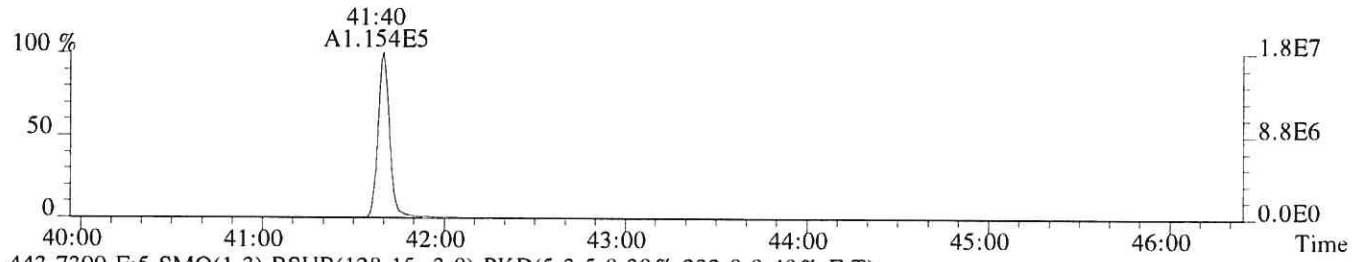
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



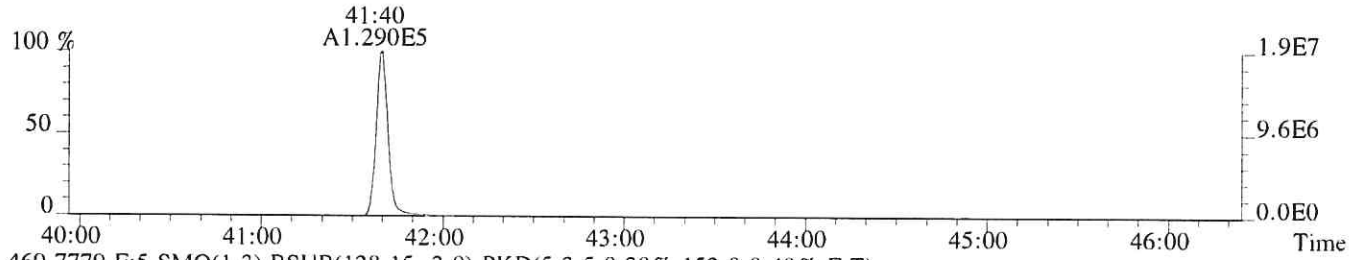
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



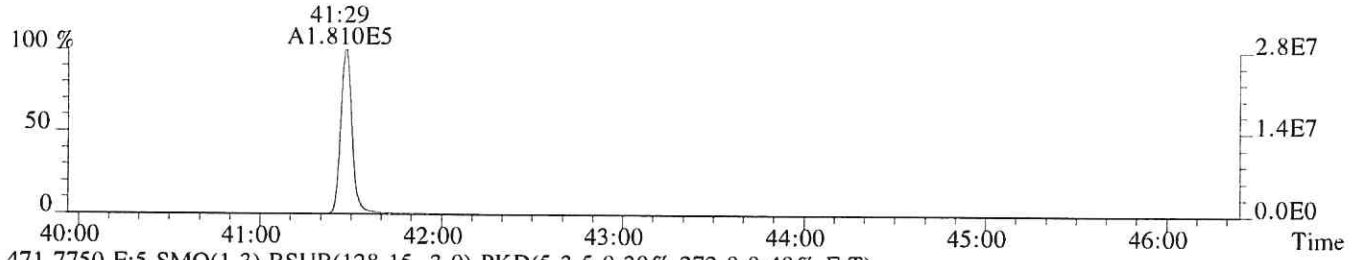
File:P609099 #1-582 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



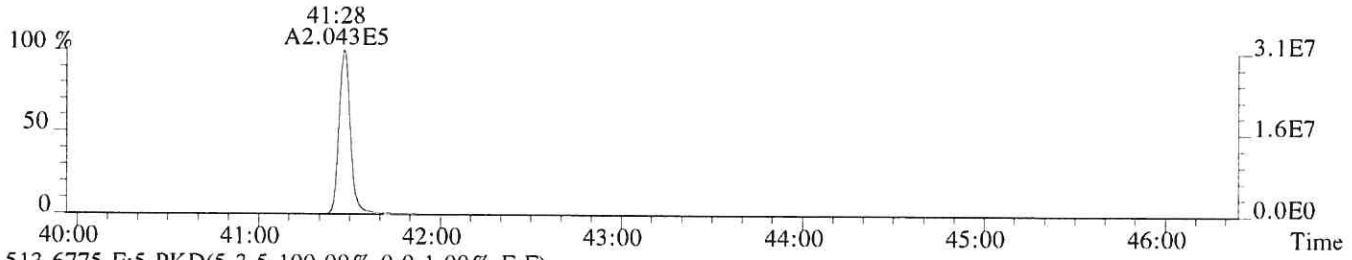
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



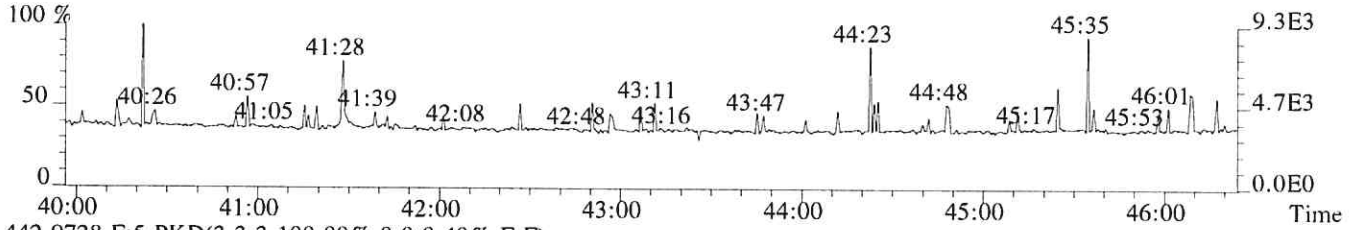
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



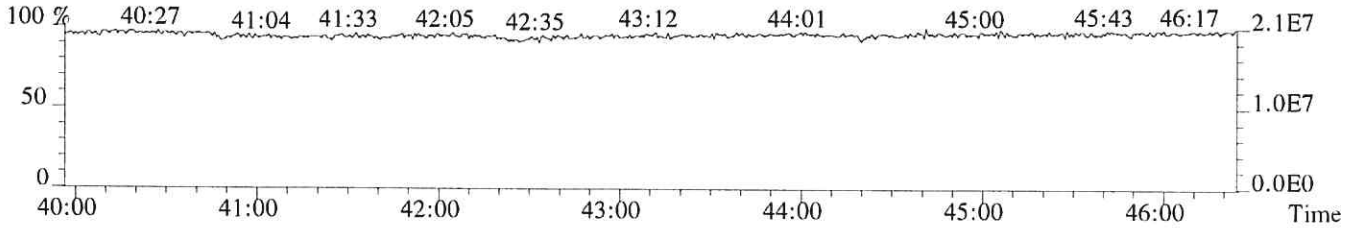
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



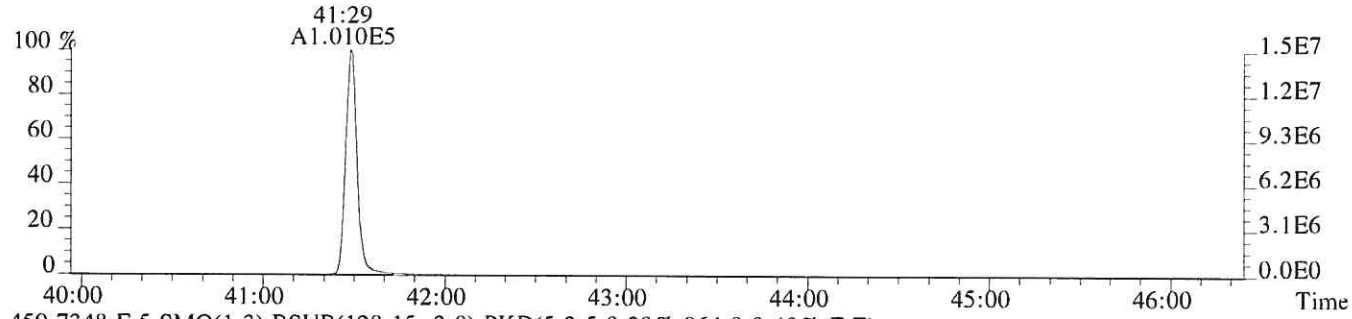
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



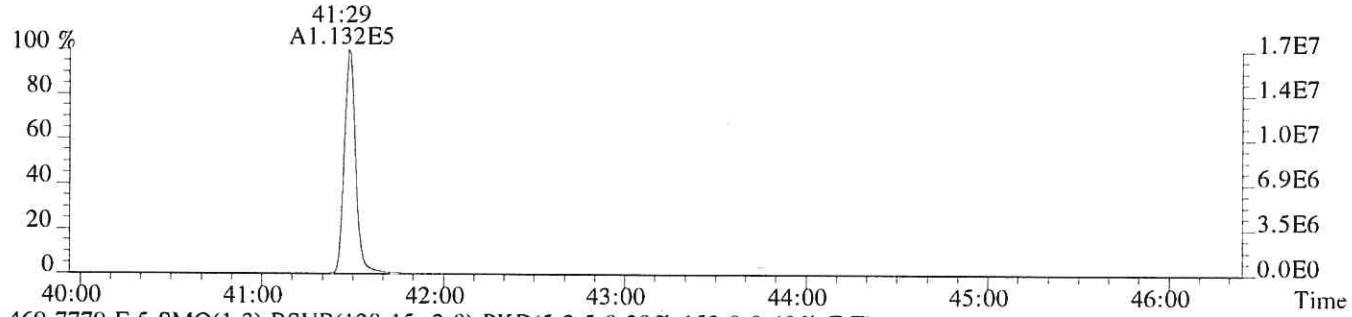
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



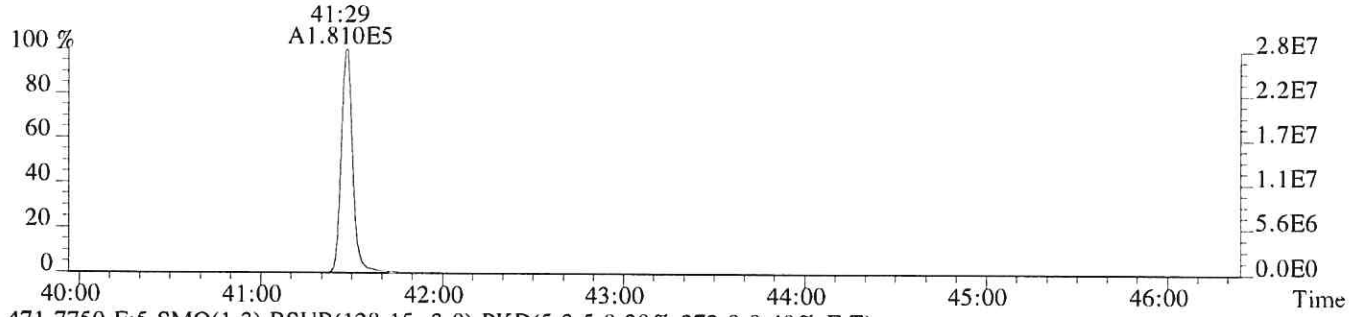
File:P609099 #1-582 Acq:15-SEP-2017 00:54:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



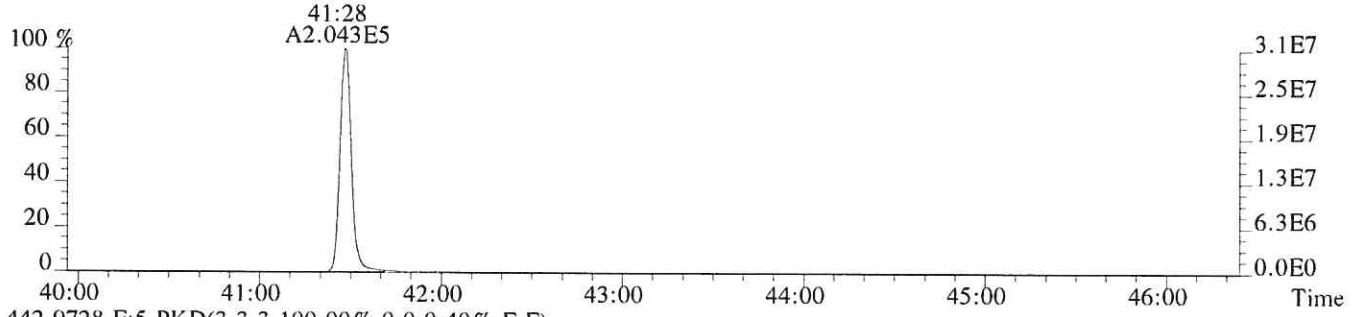
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,964.0,0.40%,F,T)



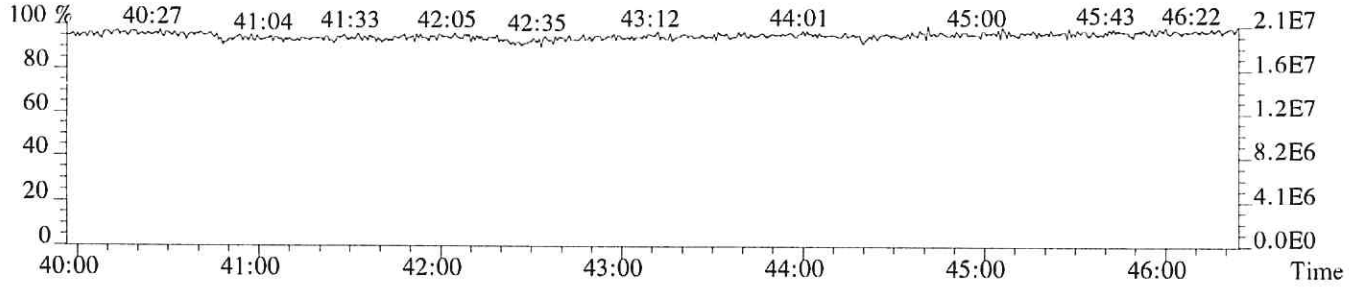
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,152.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,272.0,0.40%,F,T)



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



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P407852 - P407863

Circle one: Beginning / Ending

Date: 09/14 - 09/15/17

Method: 1613 / 1613E / 8290 / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: LKL

Second QC: VW.

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 09/01/17

Init. Calib.Times: 14:07

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
178397	WINDOW DEFINE	P407851	14-SEP-17	15:14:15
183361	CS3	P407852	14-SEP-17	16:02:11
183361	CS3	P407863	15-SEP-17	01:18:07
METHOD BLANK	EQ1700377-01	P407853	14-SEP-17	16:59:21
GW-0975	E1700861-005DL	P407854	14-SEP-17	17:47:16
LCS	EQ1700396-02	P407855	14-SEP-17	18:36:25
DLCS	EQ1700396-03	P407856	14-SEP-17	19:25:37
LCS	EQ1700398-02	P407857	14-SEP-17	20:14:48
DLCS	EQ1700398-03	P407858	14-SEP-17	21:03:59
LCS	EQ1700395-02	P407859	14-SEP-17	21:53:10
DLCS	EQ1700395-03	P407860	14-SEP-17	22:42:21
LCS	EQ1700401-02	P407861	14-SEP-17	23:31:31
DLCS	EQ1700401-03	P407862	15-SEP-17	00:20:42

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\ehrms06.PRO\SampleDB\20170914A.SPL
Last Modified: Friday, September 15, 2017 08:19:05 Central Daylight Time
Printed: Friday, September 15, 2017 08:19:07 Central Daylight Time

16/3/8290

OPUS 5 NET: P407852 RES

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	9/14/17	15:14	P407851	178397	WINDOW DEFINE	Tray1:1	epa1613_als	Dioxin_ALS	OLY	HRMS check 15:09
2		16:02	P407852	183361	CS3	Tray1:2	epa1613_als	Dioxin_ALS		
3		16:59	P407853	EQ1700377-01	MB	Tray1:3	epa1613_als	Dioxin_ALS		
4		17:47	P407854	E1700861-005DL	E1700861-005DL	Tray1:4	epa1613_als	Dioxin_ALS		1:10
5		18:36	P407855	EQ1700396-02	LCS	Tray1:5	epa1613_als	Dioxin_ALS		
6		19:25	P407856	EQ1700396-03	DLCS	Tray1:6	epa1613_als	Dioxin_ALS		
7		20:14	P407857	EQ1700398-02	LCS	Tray1:7	epa1613_als	Dioxin_ALS		
8		21:03	P407858	EQ1700398-03	DLCS	Tray1:8	epa1613_als	Dioxin_ALS		
9		21:53	P407859	EQ1700395-02	LCS	Tray1:9	epa1613_als	Dioxin_ALS		
10		22:42	P407860	EQ1700395-03	DLCS	Tray1:10	epa1613_als	Dioxin_ALS		
11		23:31	P407861	EQ1700401-02	LCS	Tray1:11	epa1613_als	Dioxin_ALS		
12	9/15/17	00:20	P407862	EQ1700401-03	DLCS	Tray1:12	epa1613_als	Dioxin_ALS		
13		01:18	P407863	183361	CS3	Tray1:2	epa1613_als	Dioxin_ALS		HRMS check 01:18
14	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
15	—	—	—	—	—	Tray1:1	epa1613_als	Dioxin_ALS	—	—
16	—	—	—	—	—	Tray1:16	epa1613_als	Dioxin_ALS	—	—
17	—	—	—	—	—	Tray1:17	epa1613_als	Dioxin_ALS	—	—
18	—	—	—	—	—	Tray1:18	epa1613_als	Dioxin_ALS	—	—
19	—	—	—	—	—	Tray1:19	epa1613_als	Dioxin_ALS	—	—
20	—	—	—	—	—	Tray1:20	epa1613_als	Dioxin_ALS	—	—
21	—	—	—	—	—	Tray1:21	epa1613_als	Dioxin_ALS	—	—
22	—	—	LKL 09/15/17	—	—	Tray1:22	epa1613_als	Dioxin_ALS	—	—
23	—	—	—	—	—	Tray1:23	epa1613_als	Dioxin_ALS	—	—
24	—	—	—	—	—	Tray1:24	epa1613_als	Dioxin_ALS	—	—
25	—	—	—	—	—	Tray1:25	epa1613_als	Dioxin_ALS	—	—
26	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
27	—	—	—	—	—	Tray1:27	epa1613_als	Dioxin_ALS	—	—
28	—	—	—	—	—	Tray1:28	epa1613_als	Dioxin_ALS	—	—
29	—	—	—	—	—	Tray1:29	epa1613_als	Dioxin_ALS	—	—
30	—	—	—	—	—	Tray1:30	epa1613_als	Dioxin_ALS	—	—
31	—	—	—	—	—	Tray1:31	epa1613_als	Dioxin_ALS	—	—
32	—	—	—	—	—	Tray1:32	epa1613_als	Dioxin_ALS	—	—
33	—	—	—	—	—	Tray1:33	epa1613_als	Dioxin_ALS	—	—
34	—	—	—	—	—	Tray1:34	epa1613_als	Dioxin_ALS	—	—
35	—	—	—	—	—	Tray1:35	epa1613_als	Dioxin_ALS	—	—
36	—	—	—	—	—	Tray1:36	epa1613_als	Dioxin_ALS	—	—
37	—	—	—	—	—	Tray1:37	epa1613_als	Dioxin_ALS	—	—
38	—	—	—	—	—	Tray1:38	epa1613_als	Dioxin_ALS	—	—
39	—	—	—	—	—	Tray1:39	epa1613_als	Dioxin_ALS	—	—

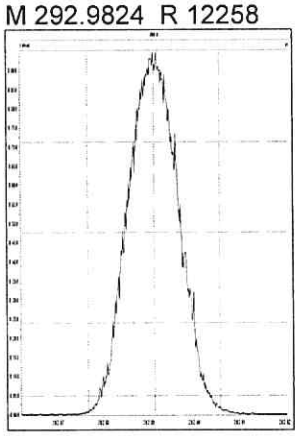
002

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

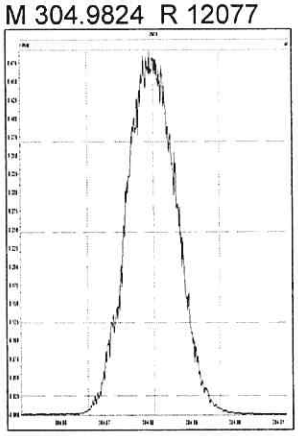
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, September 14, 2017 15:09:21 Central Daylight Time

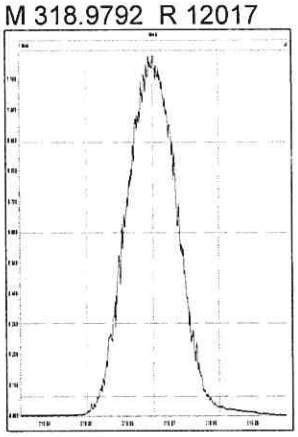
M 292.9824 R 12258



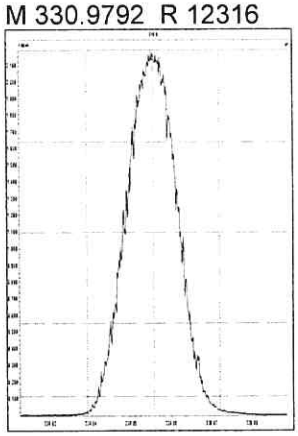
M 304.9824 R 12077



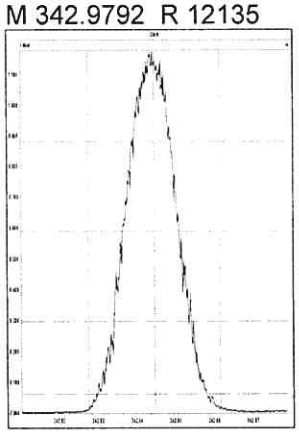
M 318.9792 R 12017



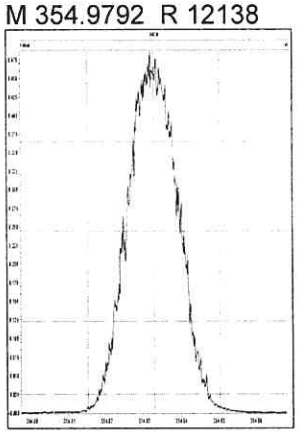
M 330.9792 R 12316



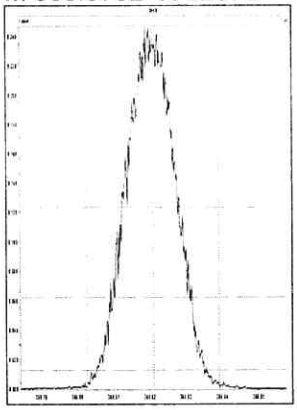
M 342.9792 R 12135



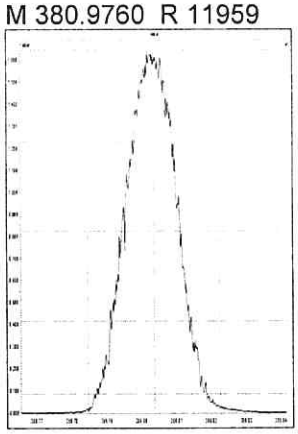
M 354.9792 R 12138



M 366.9792 R 12376



M 380.9760 R 11959

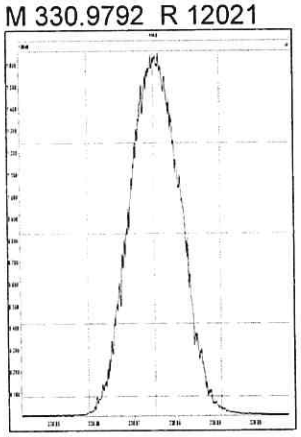


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

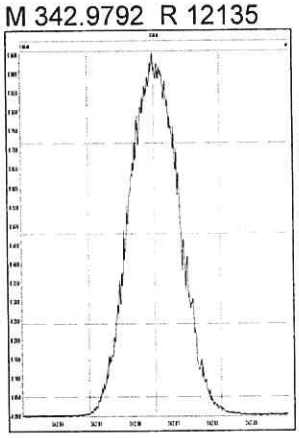
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, September 14, 2017 15:10:22 Central Daylight Time

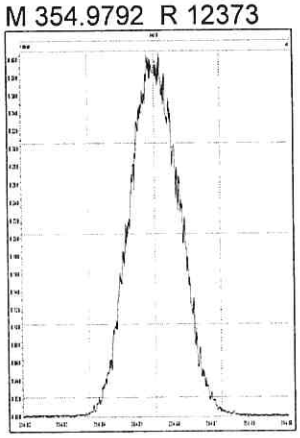
M 330.9792 R 12021



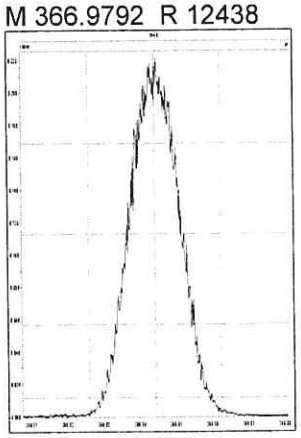
M 342.9792 R 12135



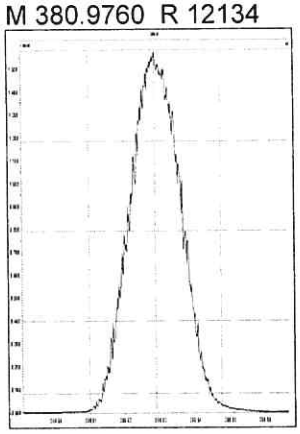
M 354.9792 R 12373



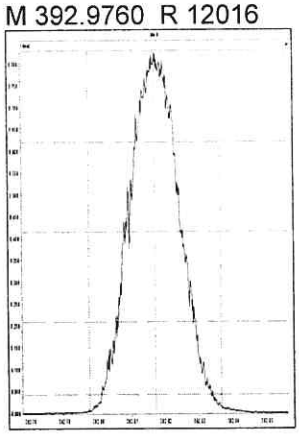
M 366.9792 R 12438



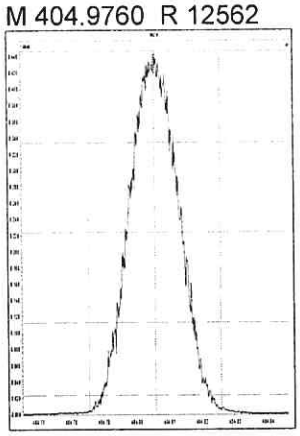
M 380.9760 R 12134



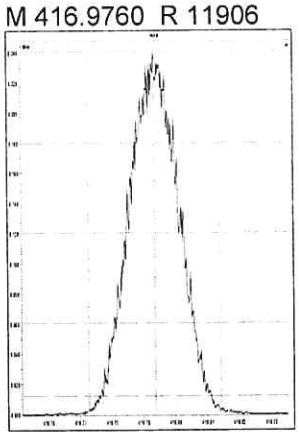
M 392.9760 R 12016



M 404.9760 R 12562



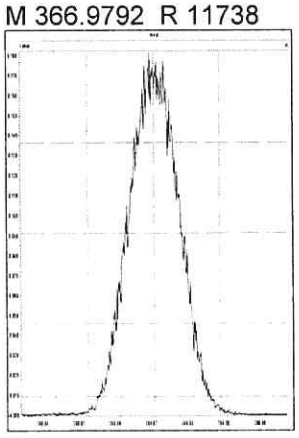
M 416.9760 R 11906



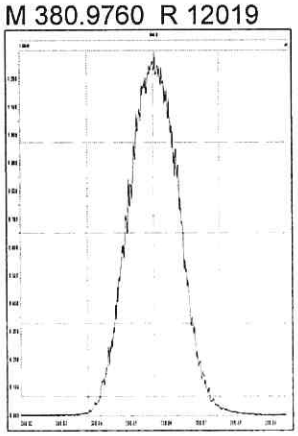
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, September 14, 2017 15:11:22 Central Daylight Time

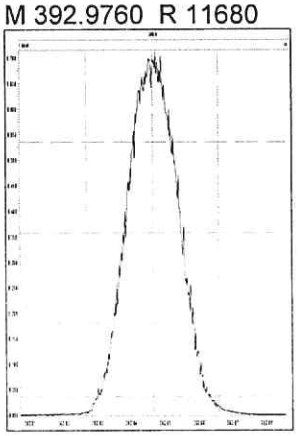
M 366.9792 R 11738



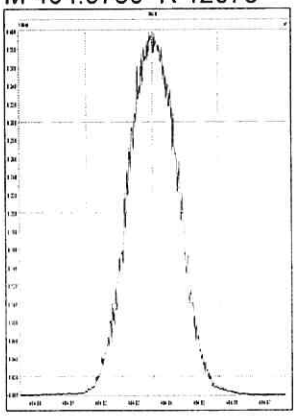
M 380.9760 R 12019



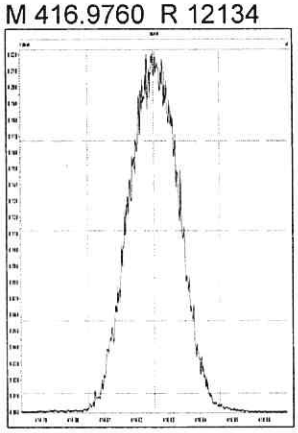
M 392.9760 R 11680



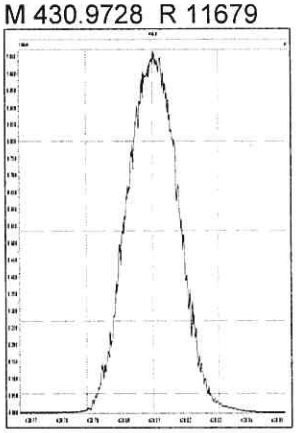
M 404.9760 R 12073



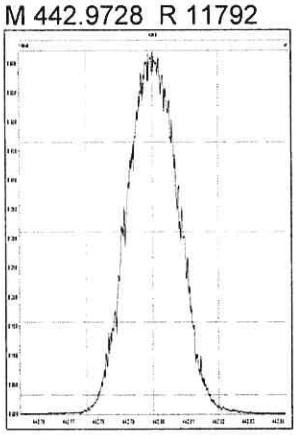
M 416.9760 R 12134



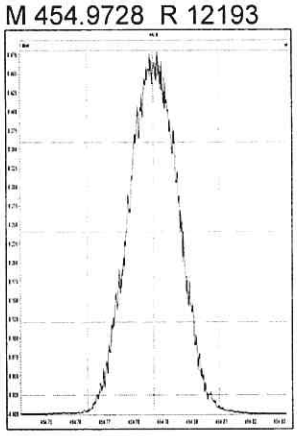
M 430.9728 R 11679



M 442.9728 R 11792



M 454.9728 R 12193



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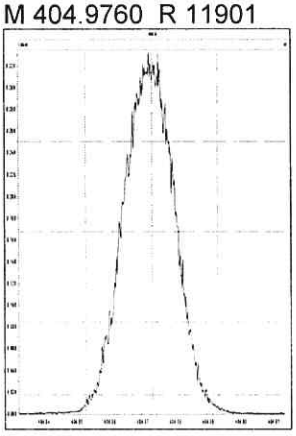
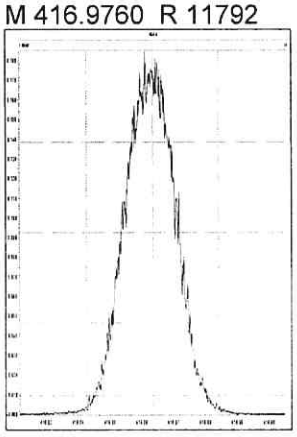
M 404.9760 R 11901



M 416.9760 R 11792



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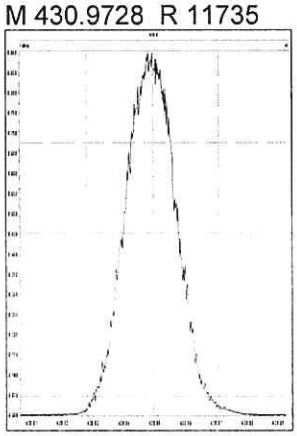
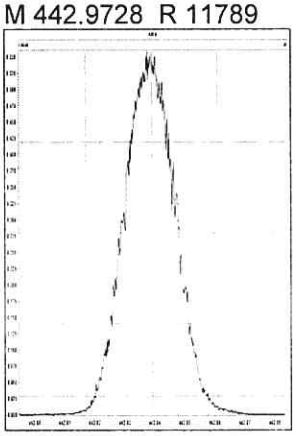


M 442.9728 R 11789



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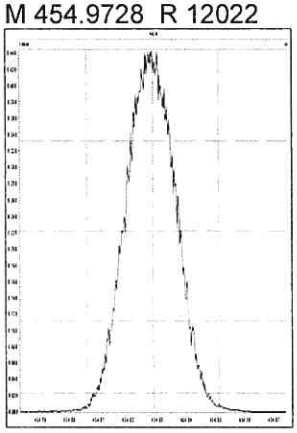
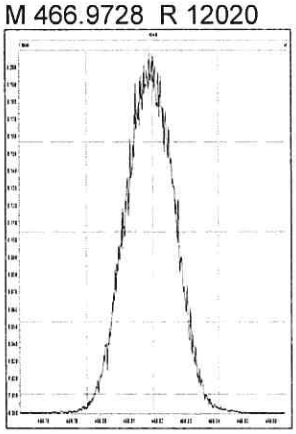
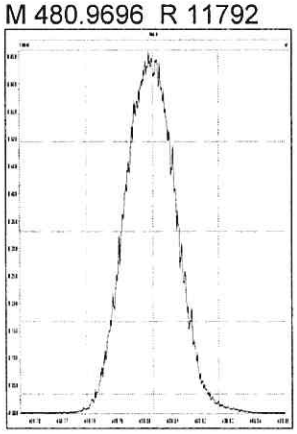


M 466.9728 R 12020



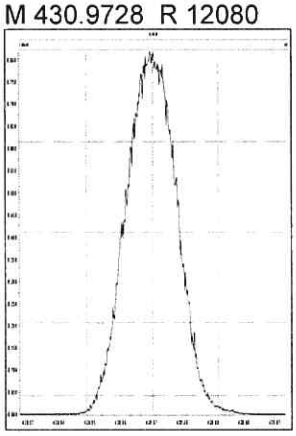
M 480.9696 R 11792



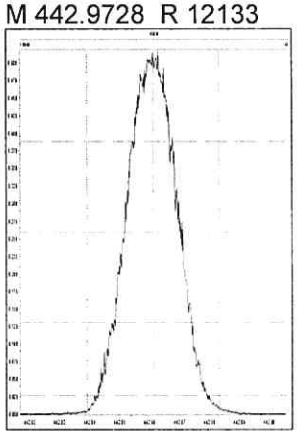
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, September 14, 2017 15:13:39 Central Daylight Time

M 430.9728 R 12080



M 442.9728 R 12133



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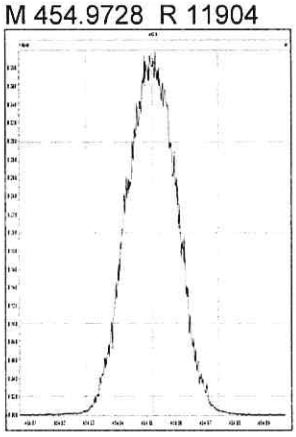

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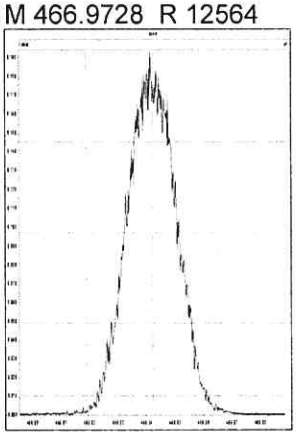

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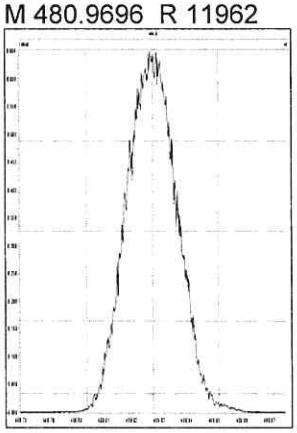

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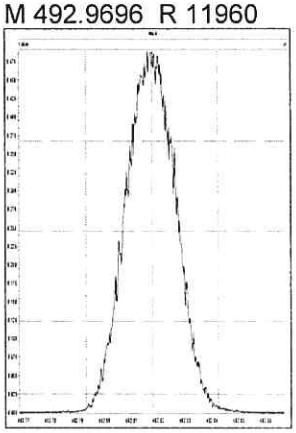

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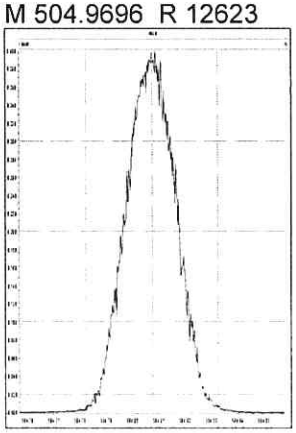

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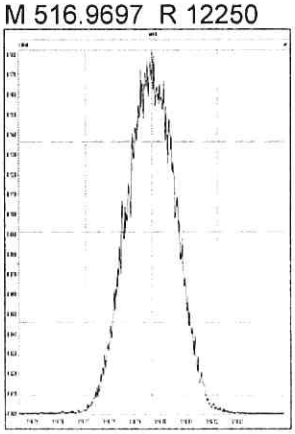

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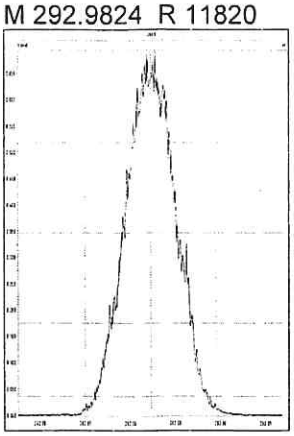
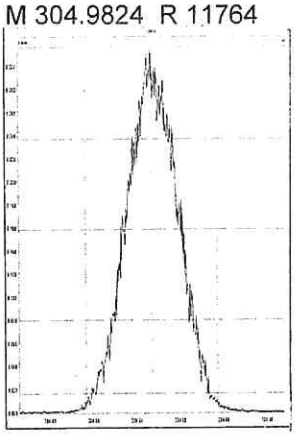


M 304.9824 R 11764



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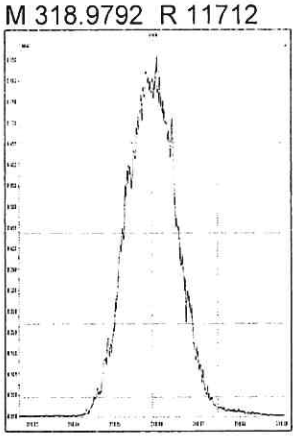

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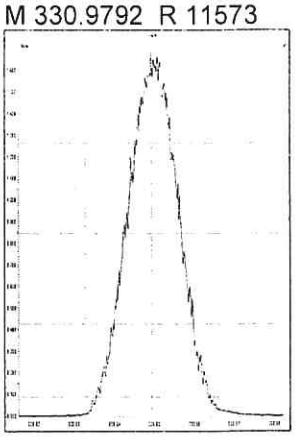

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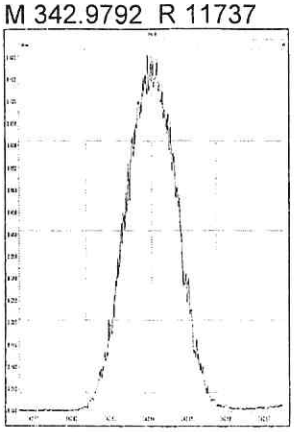

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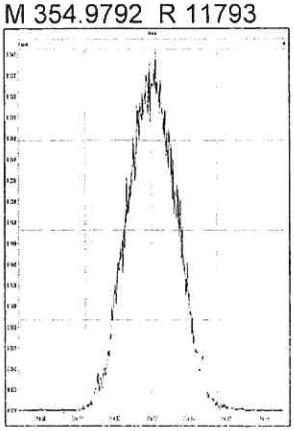

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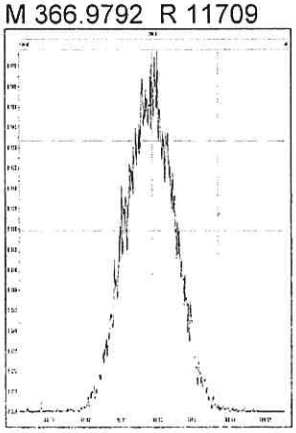

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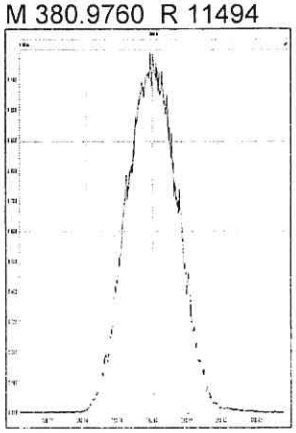

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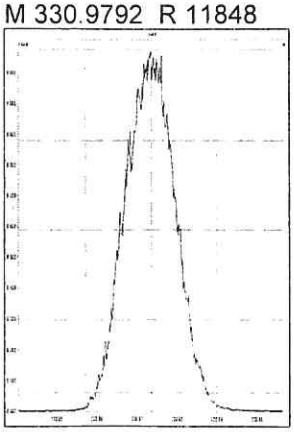
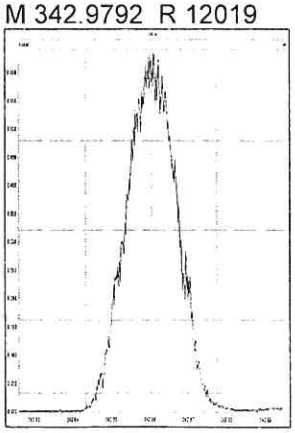


M 342.9792 R 12019



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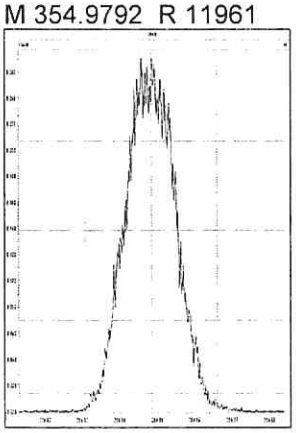

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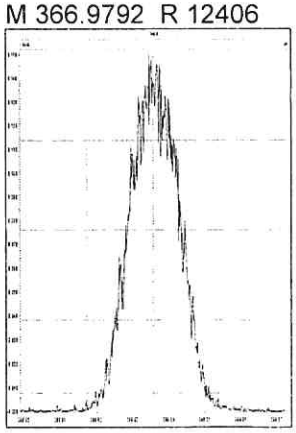
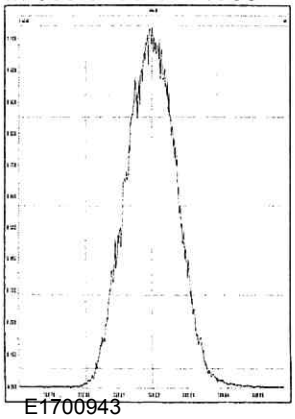


M 380.9760 R 11933



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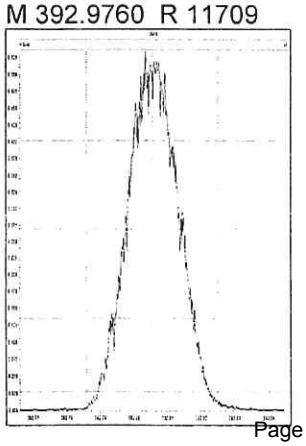

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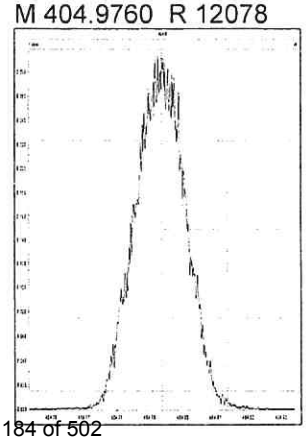
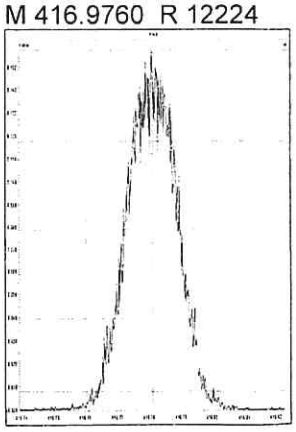


M 416.9760 R 12224



Resolution Check Report **MassLynx 4.1 SCN815 SCN795**

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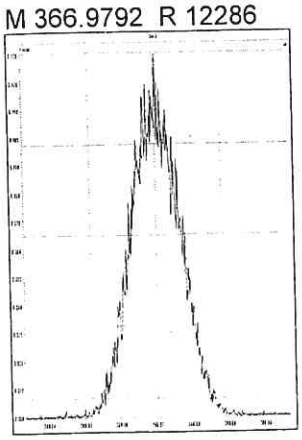

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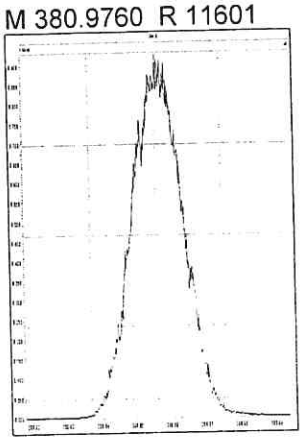

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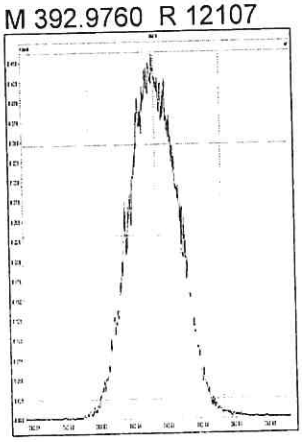

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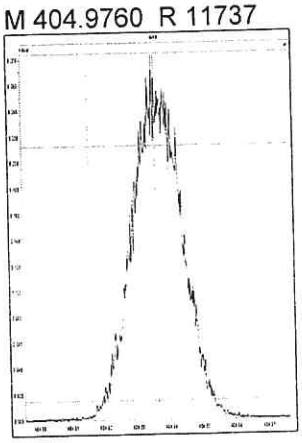

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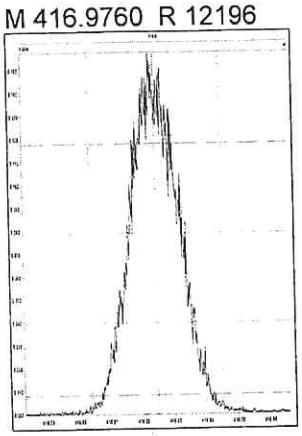

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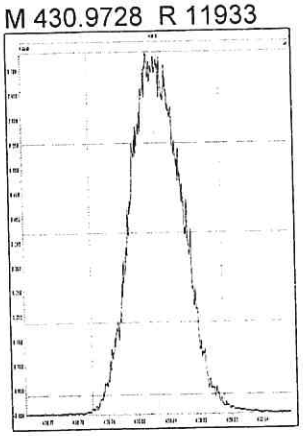

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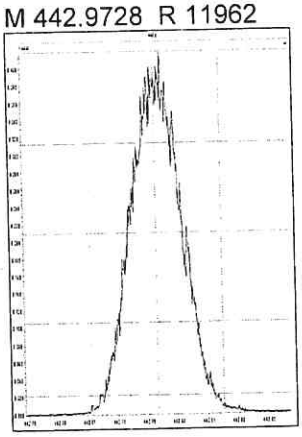
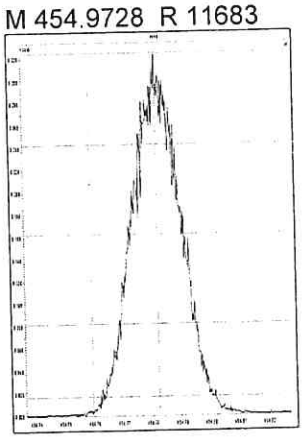


M 454.9728 R 11683



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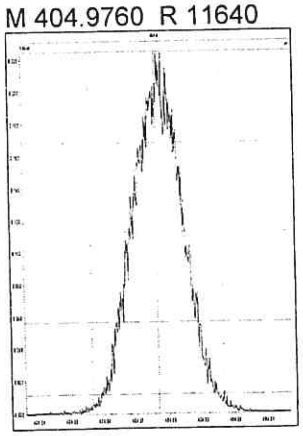

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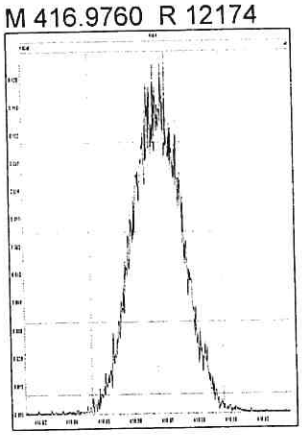

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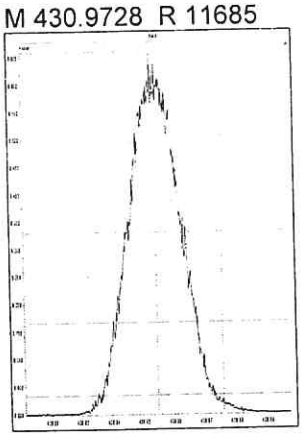

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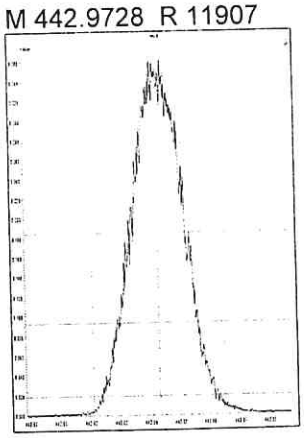

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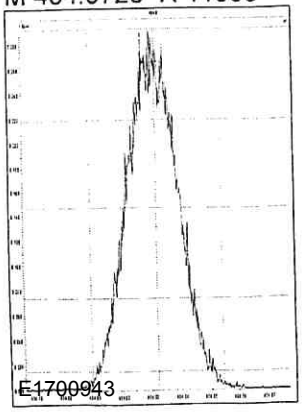

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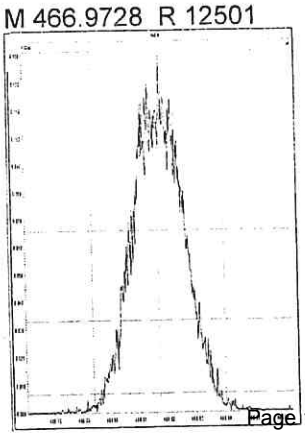

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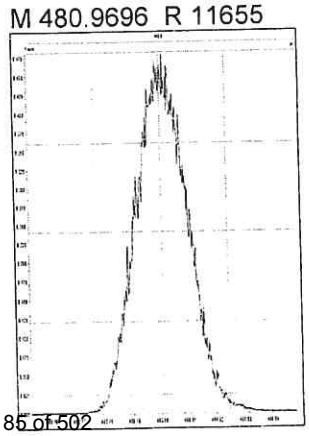
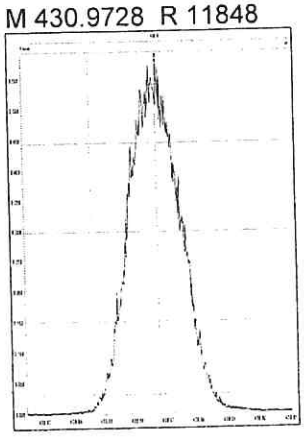


M 430.9728 R 11848



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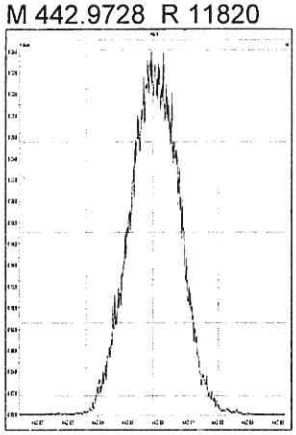
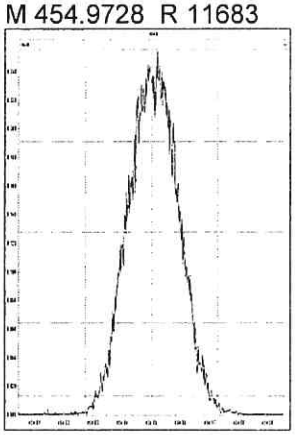
M 442.9728 R 11820



M 454.9728 R 11683



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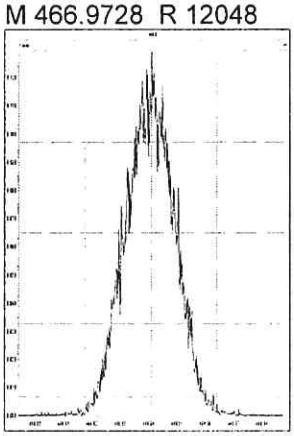
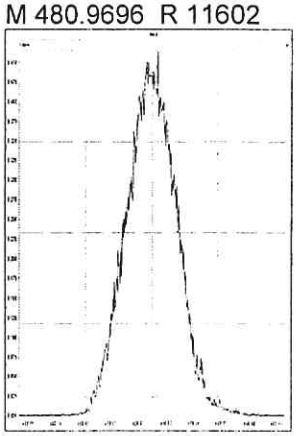


M 480.9696 R 11602



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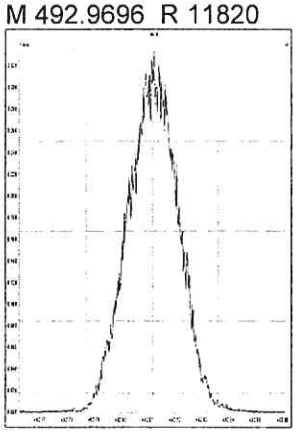
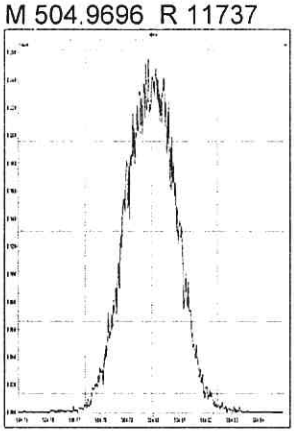
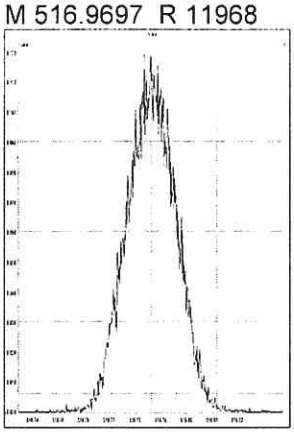


M 504.9696 R 11737



M 516.9697 R 11968



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P407851
Date Analyzed: 14-SEP-17
Time Analyzed: 15:14:15

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:34	29:57
TCDD	25:27	29:47
PeCDF	29:52	34:06
PeCDD	31:24	33:51
HxCDF	34:44	37:13
HxCDD	35:15	36:49
HpCDF	38:25	39:47
HpCDD	38:39	39:19

% Valley 2378-TCDD: 15 %

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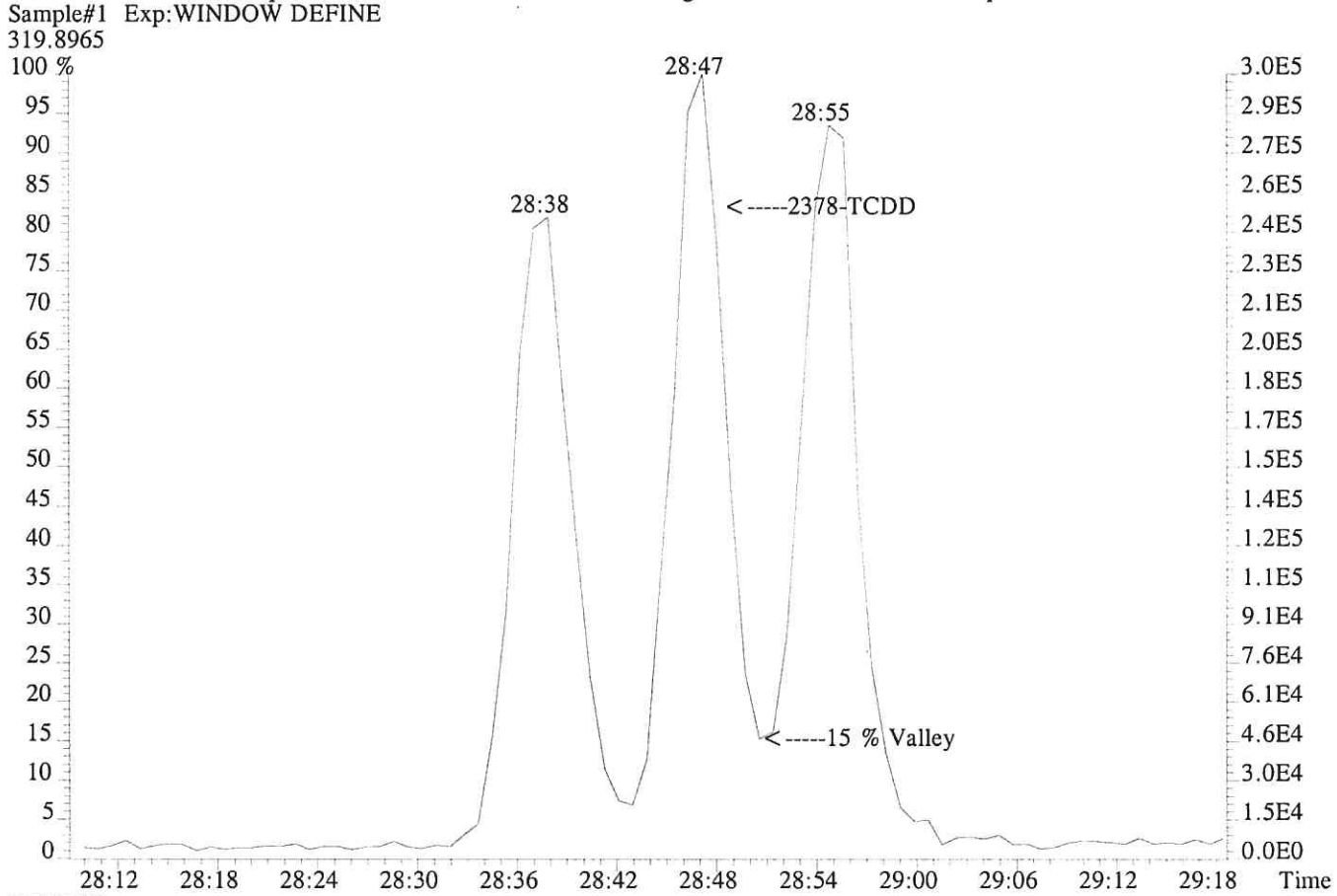

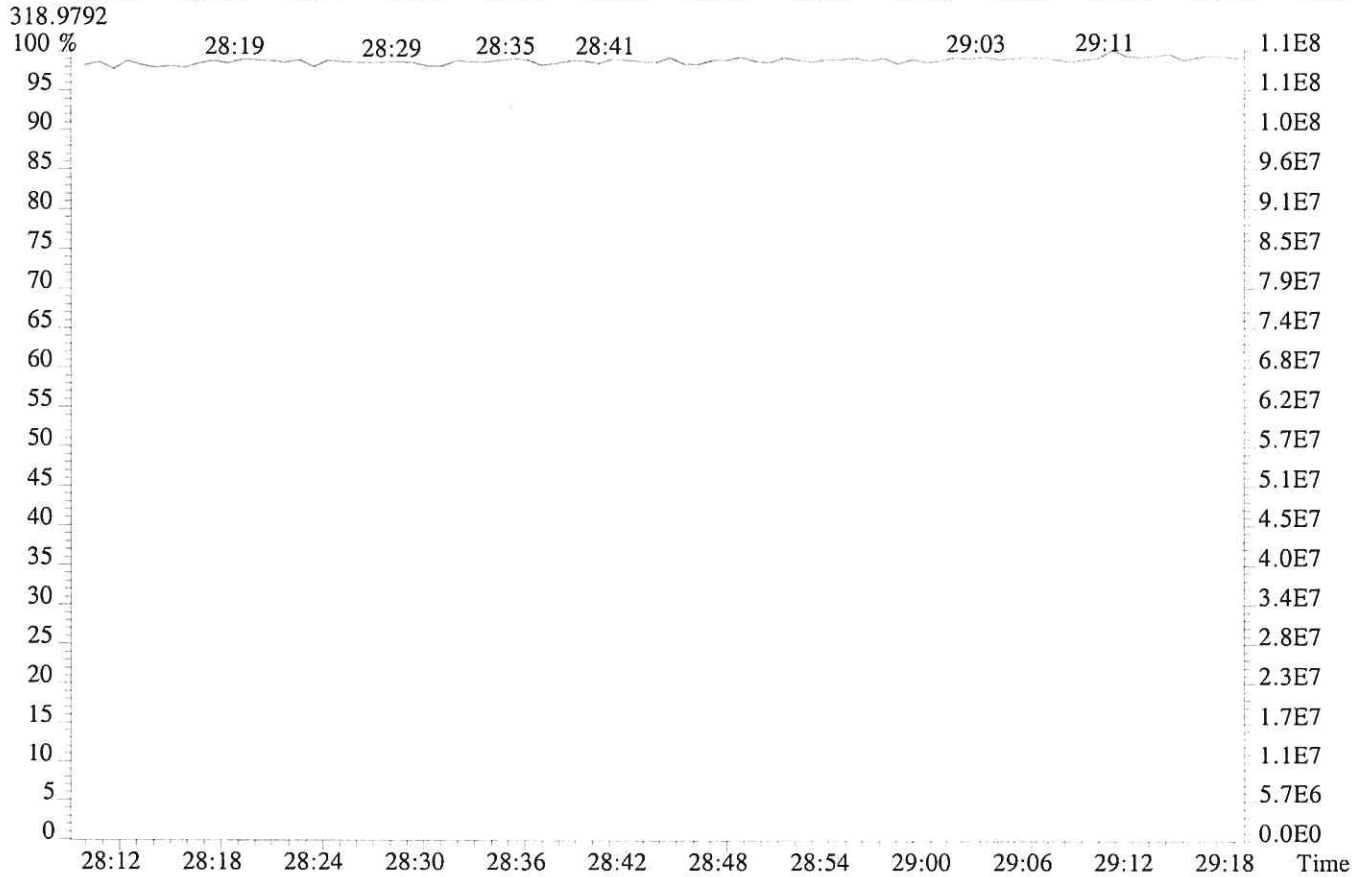

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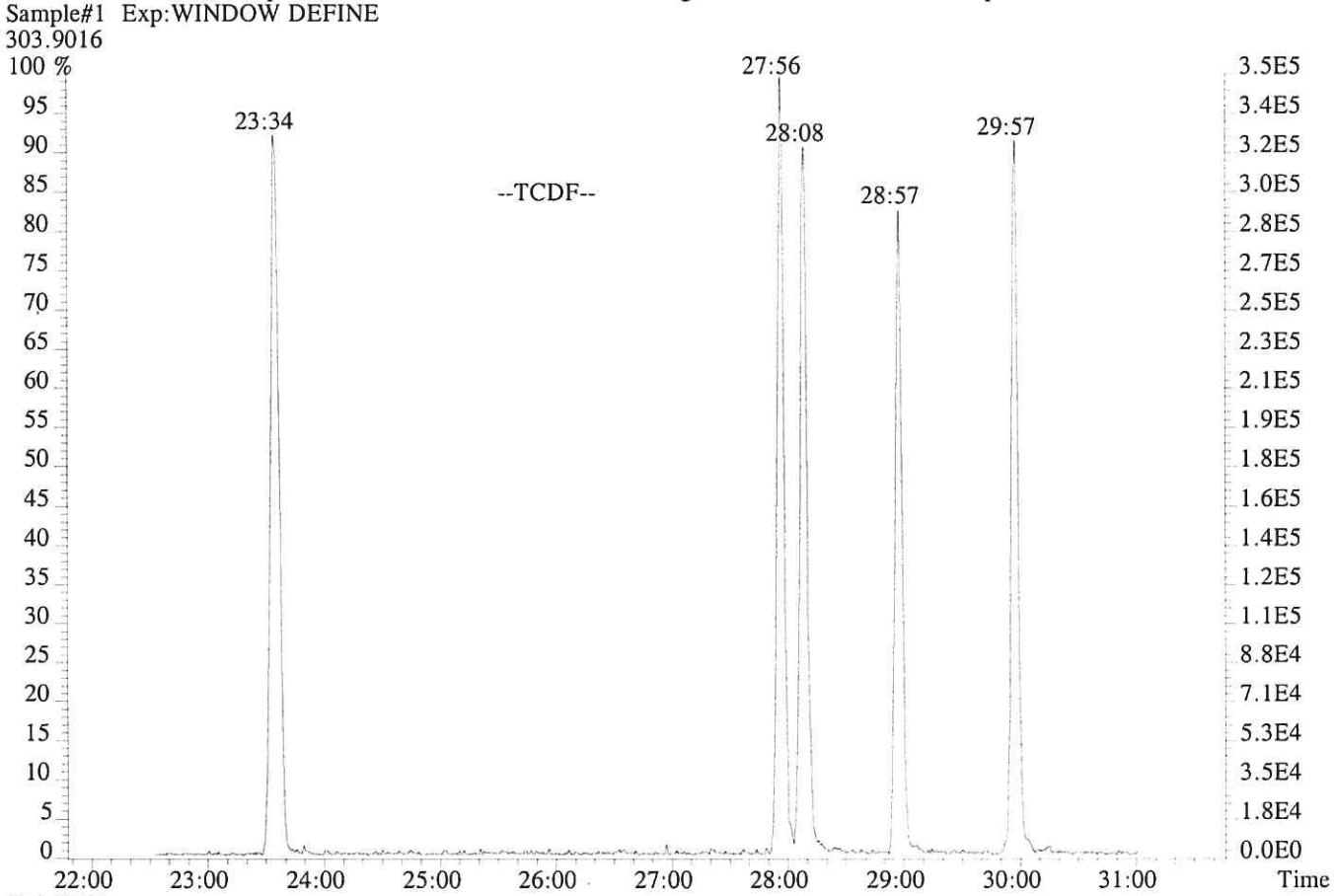

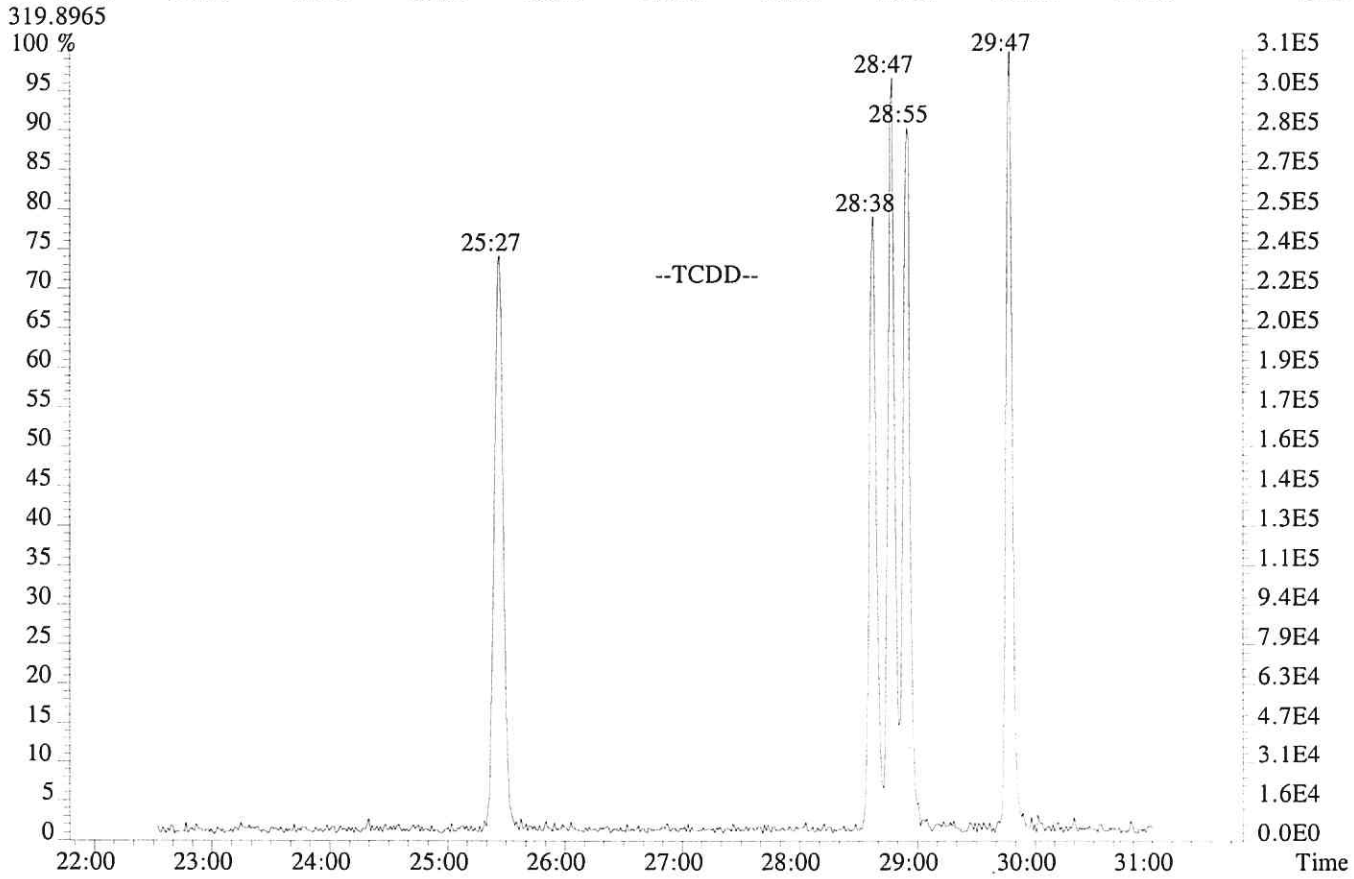

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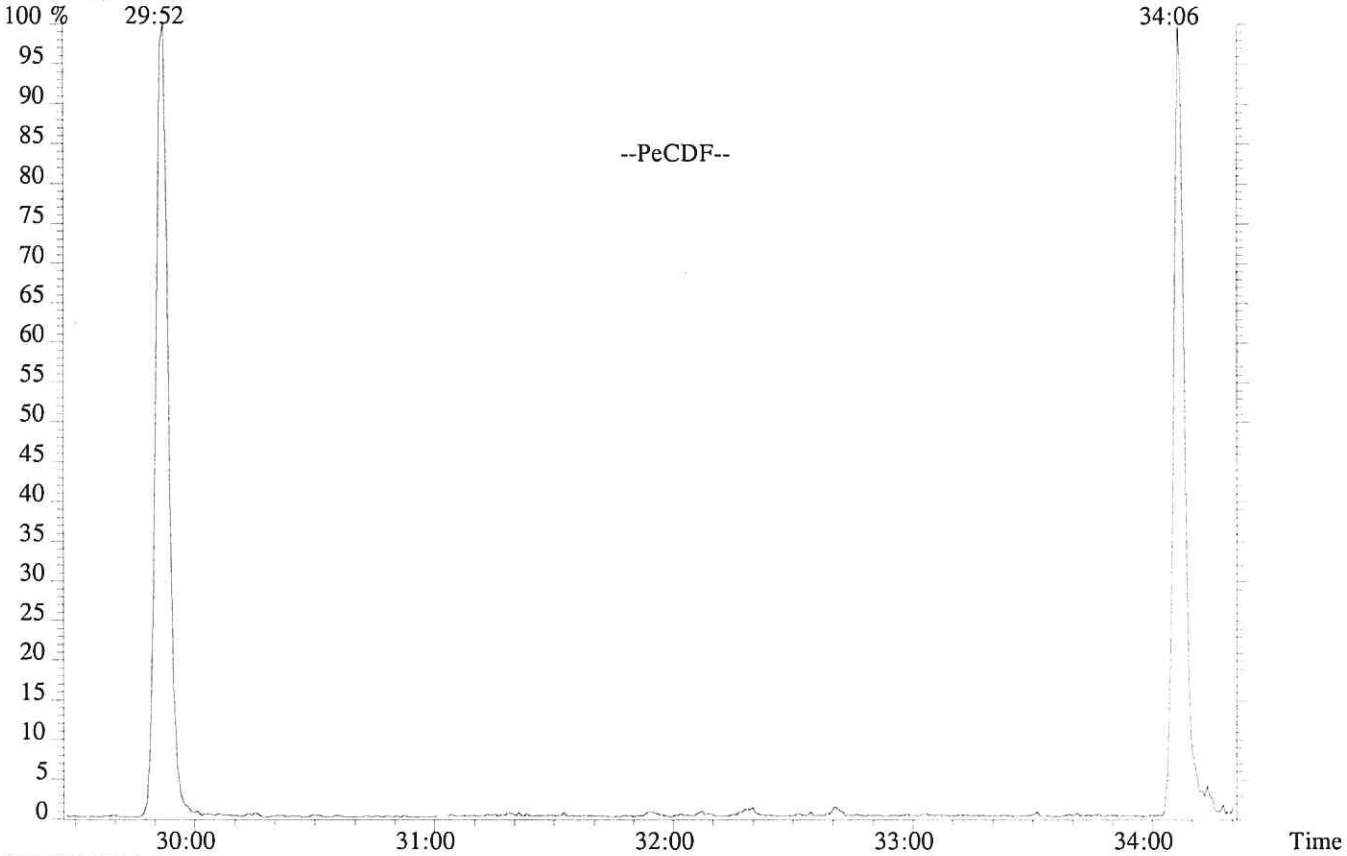

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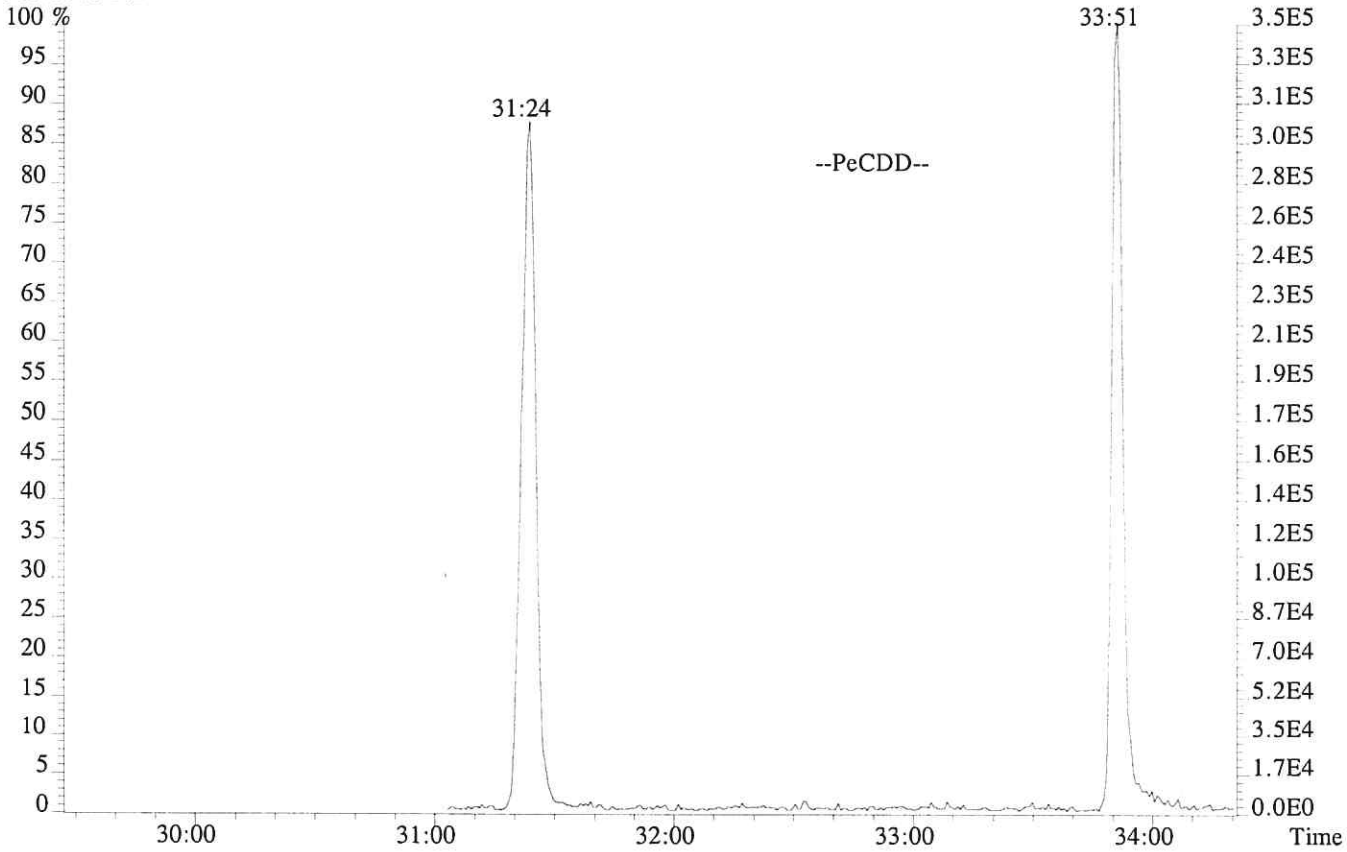

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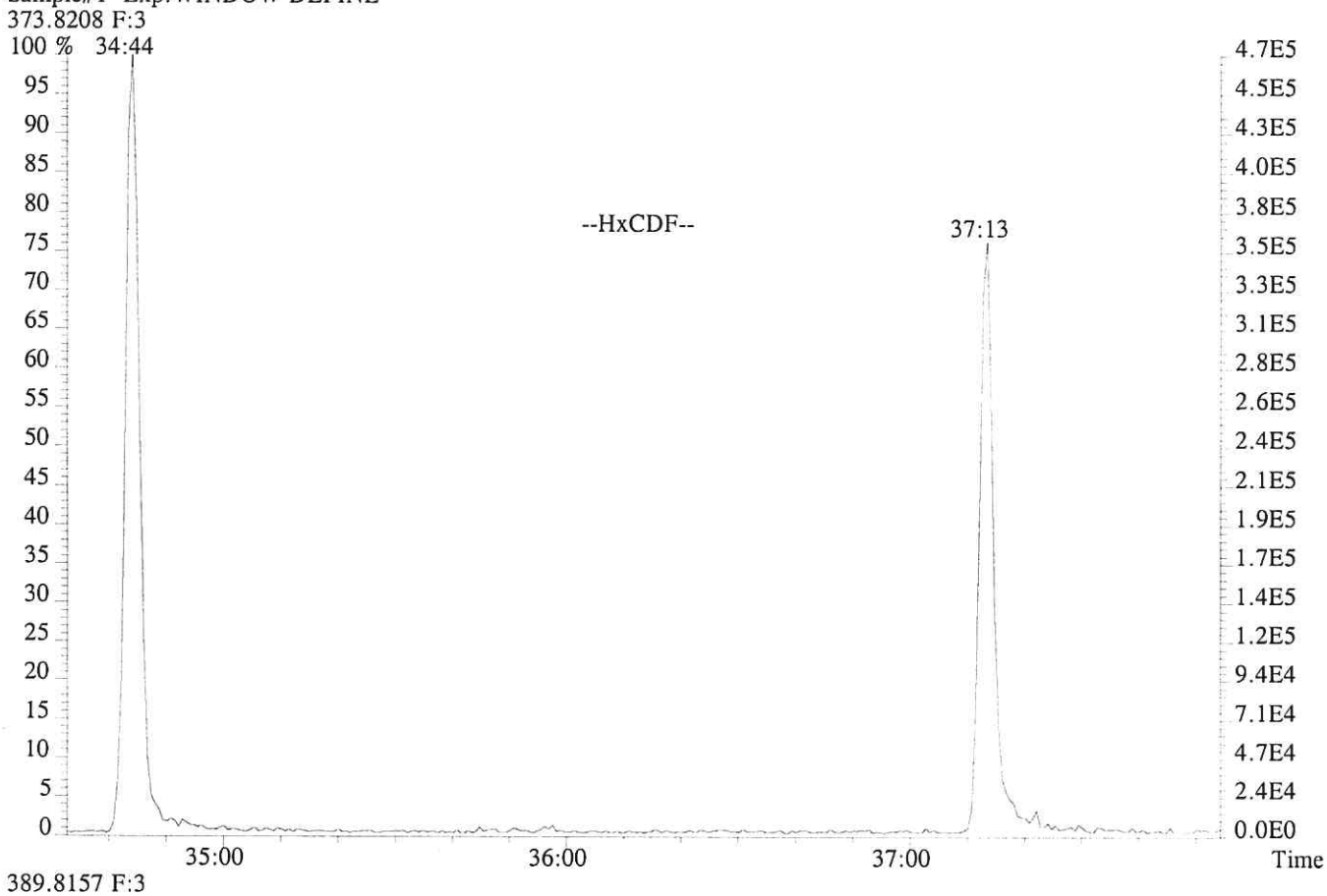
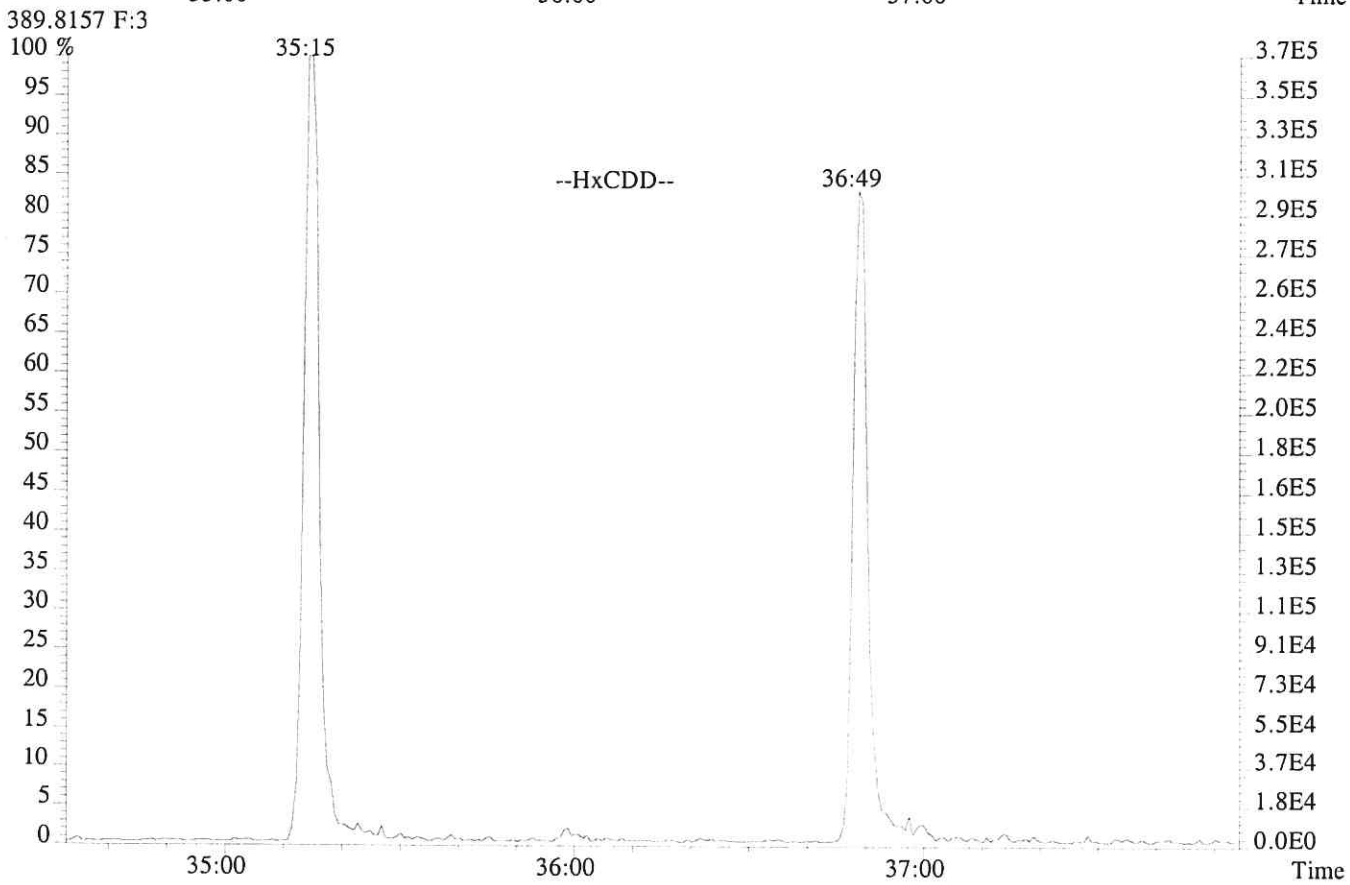
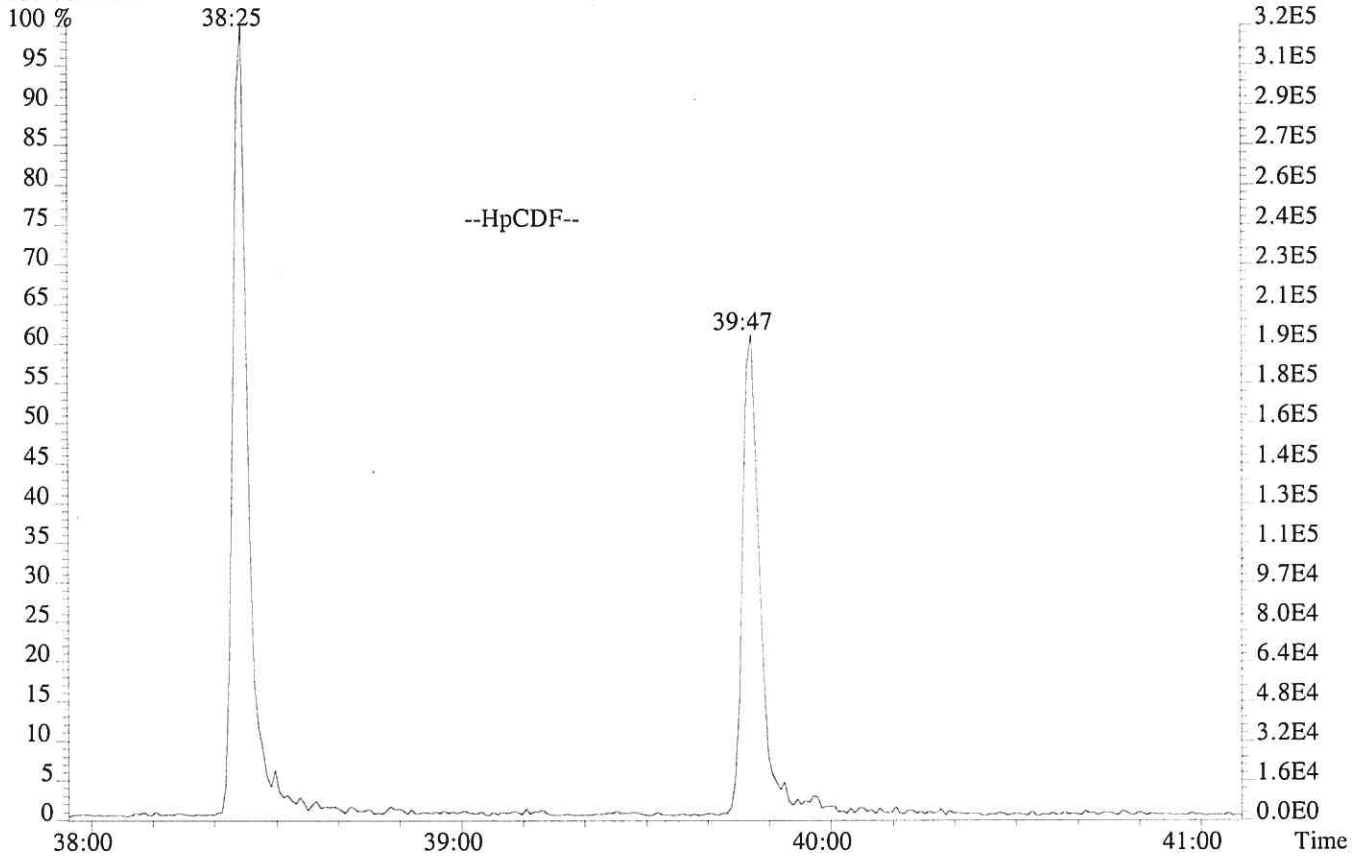
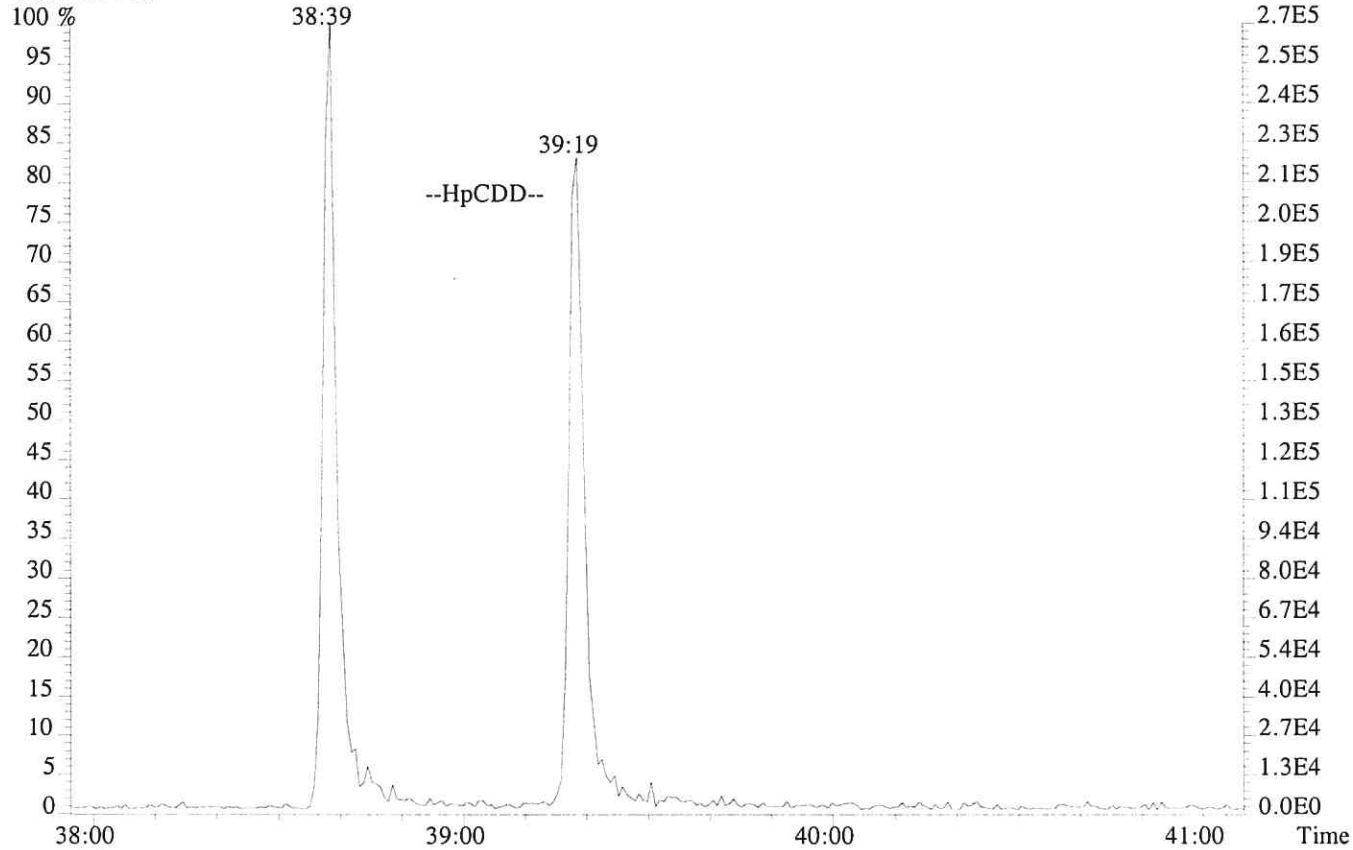




File:P407851 #1-602 Acq:14-SEP-2017 15:14:15 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/17

Instrument ID: E-HRMS-06 GC Column ID: DB-5MSUI

VER Data Filename: P407852 Analysis Date: 14-SEP-17 Time: 16:02:11

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.4	7.8 - 12.9	-5.8
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	50	39 - 65	-0.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	51	39 - 64	2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	52	39 - 64	3.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	53	41 - 61	6.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	50	43 - 58	-0.6
OCDD	M+2/M+4	0.89	0.76-1.02	102	79 - 126	2.3
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	10.0	8.4 - 12.0	0.4
1,2,3,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 60	-0.2
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	48	41 - 61	-4.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	48	45 - 56	-3.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	48	44 - 57	-3.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	47	45 - 56	-5.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.27	1.05-1.43	48	44 - 57	-3.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	48	45 - 55	-3.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	47	43 - 58	-6.9
OCDF	M+2/M+4	0.88	0.76-1.02	110	63 - 159	10.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/17

Instrument ID: E-HRMS-06 GC Column ID: DB-5MSUI

VER Data Filename: P407852 Analysis Date: 14-SEP-17 Time: 16:02:11

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	98	82 - 121	-2.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	97	62 - 160	-3.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	88	85 - 117	-12.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	99	85 - 118	-0.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	91	72 - 138	-8.9
13C-OCDD	M+2/M+4	0.89	0.76-1.02	178	96 - 415	-11.1
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	97	71 - 140	-3.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	101	76 - 130	0.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	77 - 130	2.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	92	76 - 131	-7.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	105	70 - 143	5.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	100	74 - 135	0.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	100	73 - 137	-0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	96	78 - 129	-4.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	98	77 - 129	-2.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.6	7.8 - 12.7	-4.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
183361

Run #7 Filename P407852 Samp: 1 Inj: 1 Acquired: 14-SEP-17 16:02:11
Processed: 15-SEP-17 08:34:52 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:08	9.767e+02	1.304e+03	0.75	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:18	7.954e+03	5.225e+03	1.52	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:12	7.192e+03	4.670e+03	1.54	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	35:50	6.222e+03	5.143e+03	1.21	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	35:57	7.229e+03	6.013e+03	1.20	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:27	6.393e+03	5.027e+03	1.27	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:11	5.456e+03	4.440e+03	1.23	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	5.536e+03	5.309e+03	1.04	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	39:47	4.213e+03	4.114e+03	1.02	yes	no	1.301
10	Unk	OCDF	42:13	6.610e+03	7.520e+03	0.88	yes	no	1.114
11	Unk	2,3,7,8-TCDD	28:55	8.557e+02	1.063e+03	0.81	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:28	5.427e+03	3.527e+03	1.54	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:34	4.545e+03	3.586e+03	1.27	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:39	5.070e+03	3.970e+03	1.28	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	36:53	5.121e+03	4.035e+03	1.27	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	3.707e+03	3.600e+03	1.03	yes	no	0.975
17	Unk	OCDD	42:00	5.719e+03	6.455e+03	0.89	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:07	1.119e+04	1.449e+04	0.77	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:17	1.644e+04	1.040e+04	1.58	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:12	1.619e+04	1.022e+04	1.58	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	6.539e+03	1.253e+04	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	35:56	8.161e+03	1.566e+04	0.52	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	7.009e+03	1.386e+04	0.51	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	6.107e+03	1.175e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	4.956e+03	1.129e+04	0.44	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	4.144e+03	9.604e+03	0.43	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	28:53	9.225e+03	1.185e+04	0.78	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:28	1.303e+04	8.196e+03	1.59	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	9.196e+03	7.271e+03	1.26	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.040e+04	8.213e+03	1.27	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	7.761e+03	7.313e+03	1.06	yes	no	0.854
32	IS	13C-OCDD	41:60	1.084e+04	1.218e+04	0.89	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:18	1.005e+04	1.247e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	1.076e+04	8.628e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:55	2.141e+03				no	0.992

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

CLIENT ID.
183361

Run #7 Filename P407852 Samp: 1 Inj: 1 Acquired: 14-SEP-17 16:02:11
Processed: 15-SEP-17 08:34:52 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.74e+05	8.40e+02	2.1e+02	2.34e+05	3.24e+03	7.2e+01
2	1,2,3,7,8-PeCDF	1.47e+06	4.92e+02	3.0e+03	9.58e+05	1.04e+03	9.2e+02
3	2,3,4,7,8-PeCDF	1.39e+06	4.92e+02	2.8e+03	8.81e+05	1.04e+03	8.5e+02
4	1,2.3,4,7,8-HxCDF	1.35e+06	9.96e+02	1.4e+03	1.11e+06	4.28e+02	2.6e+03
5	1,2,3,6,7,8-HxCDF	1.41e+06	9.96e+02	1.4e+03	1.18e+06	4.28e+02	2.7e+03
6	2,3,4,6,7,8-HxCDF	1.27e+06	9.96e+02	1.3e+03	1.02e+06	4.28e+02	2.4e+03
7	1,2,3,7,8,9-HxCDF	1.06e+06	9.96e+02	1.1e+03	8.56e+05	4.28e+02	2.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.11e+06	1.63e+03	6.8e+02	1.07e+06	6.60e+02	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	7.49e+05	1.63e+03	4.6e+02	7.45e+05	6.60e+02	1.1e+03
10	OCDF	1.06e+06	5.76e+02	1.8e+03	1.17e+06	1.07e+03	1.1e+03
11	2,3,7,8-TCDD	1.60e+05	2.30e+03	7.0e+01	2.09e+05	8.72e+02	2.4e+02
12	1,2,3,7,8-PeCDD	1.03e+06	1.32e+03	7.8e+02	6.74e+05	4.20e+02	1.6e+03
13	1,2,3,4,7,8-HxCDD	1.01e+06	5.64e+02	1.8e+03	7.93e+05	6.04e+02	1.3e+03
14	1,2,3,6,7,8-HxCDD	9.91e+05	5.64e+02	1.8e+03	7.83e+05	6.04e+02	1.3e+03
15	1,2,3,7,8,9-HxCDD	9.62e+05	5.64e+02	1.7e+03	7.70e+05	6.04e+02	1.3e+03
16	1,2,3,4,6,7,8-HpCDD	7.09e+05	9.48e+02	7.5e+02	6.91e+05	1.03e+03	6.7e+02
17	OCDD	9.20e+05	4.24e+02	2.2e+03	1.04e+06	1.58e+03	6.6e+02
18	13C-2,3,7,8-TCDF	2.08e+06	1.61e+04	1.3e+02	2.69e+06	5.65e+03	4.8e+02
19	13C-1,2,3,7,8-PeCDF	2.97e+06	8.84e+02	3.4e+03	1.89e+06	8.56e+02	2.2e+03
20	13C-2,3,4,7,8-PeCDF	3.05e+06	8.84e+02	3.4e+03	1.92e+06	8.56e+02	2.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.41e+06	7.64e+02	1.8e+03	2.70e+06	1.38e+03	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	1.60e+06	7.64e+02	2.1e+03	3.04e+06	1.38e+03	2.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.43e+06	7.64e+02	1.9e+03	2.75e+06	1.38e+03	2.0e+03
24	13C-1,2,3,7,8,9-HxCDF	1.17e+06	7.64e+02	1.5e+03	2.27e+06	1.38e+03	1.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+06	2.23e+03	4.5e+02	2.25e+06	2.30e+03	9.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.28e+05	2.23e+03	3.3e+02	1.71e+06	2.30e+03	7.4e+02
27	13C-2,3,7,8-TCDD	1.81e+06	6.81e+03	2.7e+02	2.26e+06	2.43e+03	9.3e+02
28	13C-1,2,3,7,8-PeCDD	2.53e+06	1.25e+03	2.0e+03	1.59e+06	1.33e+03	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	2.05e+06	1.70e+03	1.2e+03	1.61e+06	1.12e+03	1.4e+03
30	13C-1,2,3,6,7,8-HxCDD	2.02e+06	1.70e+03	1.2e+03	1.59e+06	1.12e+03	1.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.48e+06	1.35e+03	1.1e+03	1.42e+06	1.21e+03	1.2e+03
32	13C-OCDD	1.75e+06	2.86e+03	6.1e+02	1.98e+06	4.64e+02	4.3e+03
33	13C-1,2,3,4-TCDD	1.88e+06	6.81e+03	2.8e+02	2.37e+06	2.43e+03	9.7e+02
34	13C-1,2,3,7,8,9-HxCDD	2.01e+06	1.70e+03	1.2e+03	1.61e+06	1.12e+03	1.4e+03
35	37Cl-2,3,7,8-TCDD	4.11e+05	2.18e+03	1.9e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (2.304e{+}03 + 8.720e{+}02) \times 100}{(1.810e{+}06 + 2.260e{+}06) \times (\qquad\qquad) \times 0.966} =$$

ALS ENVIRONMENTAL
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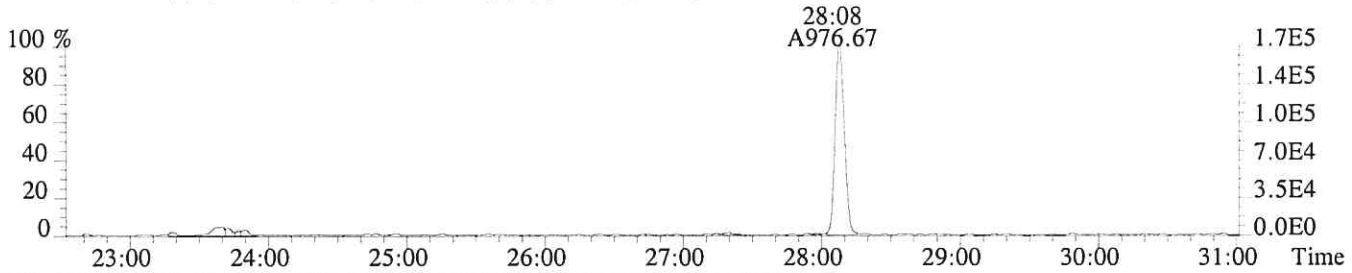
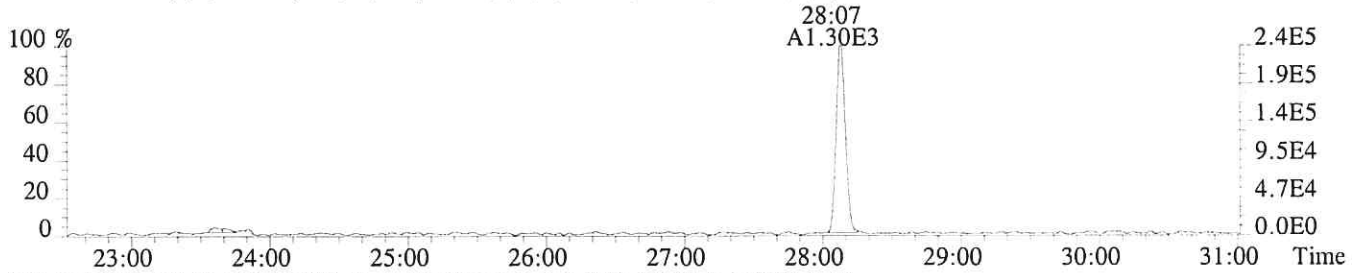
File:P407852 #1-602 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

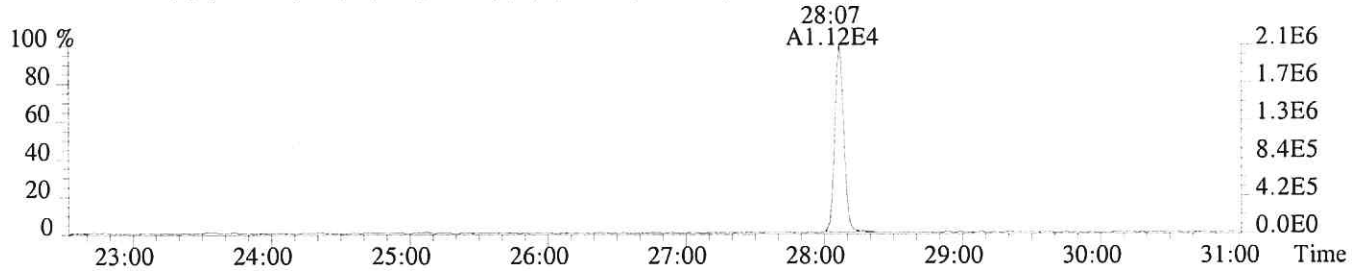
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



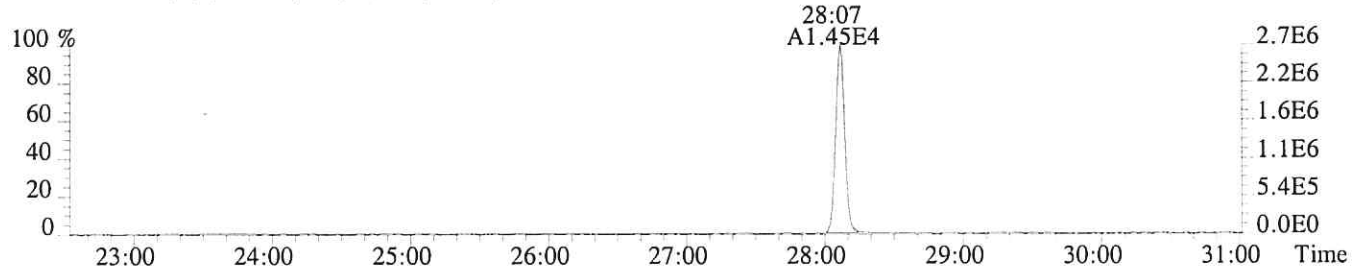
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



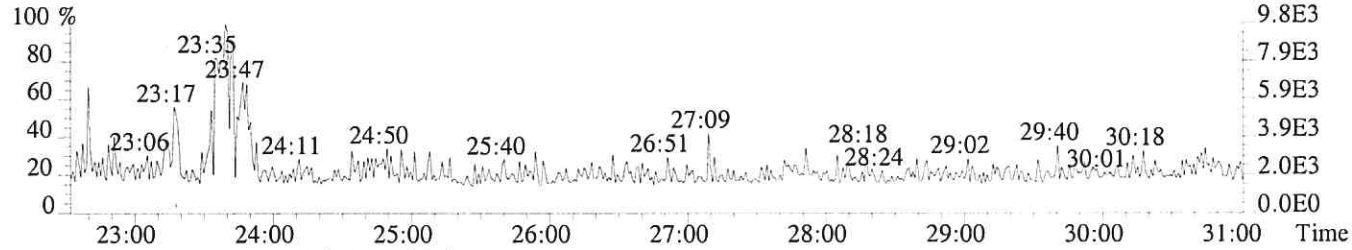
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16084.0,1.00%,F,T)



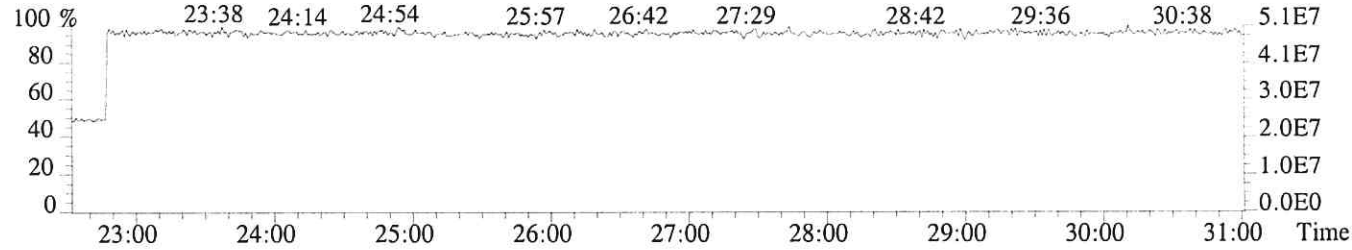
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5648.0,1.00%,F,T)



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

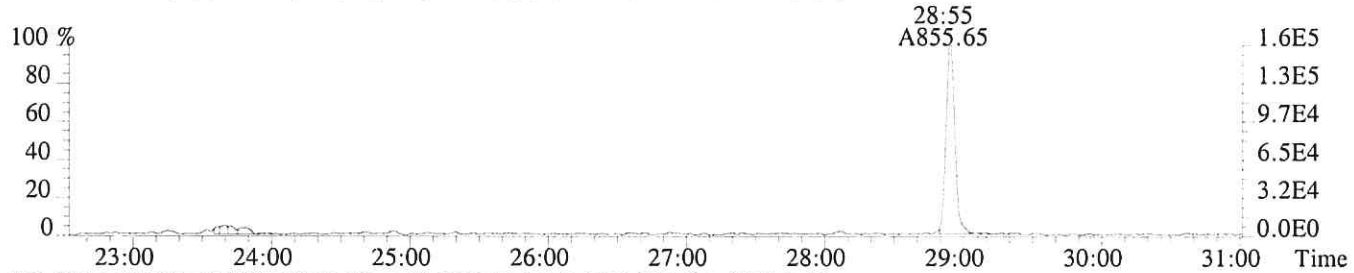


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

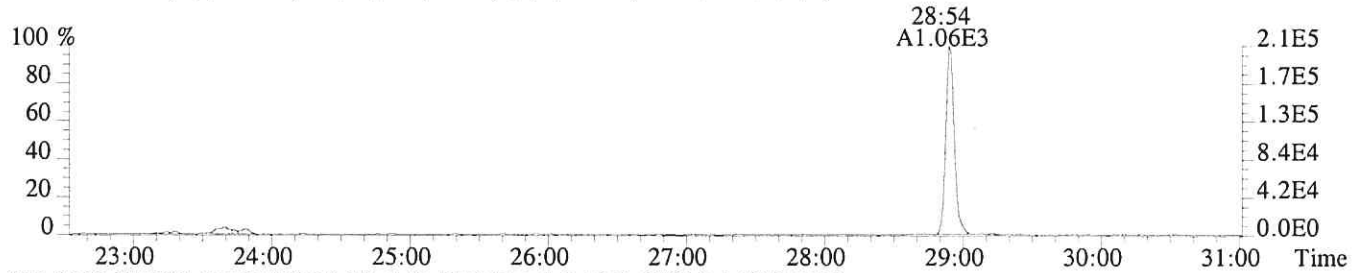


File:P407852 #1-602 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

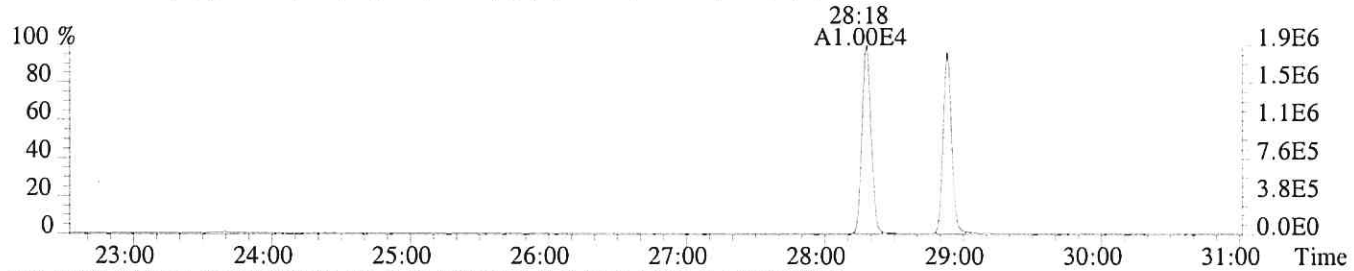
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)



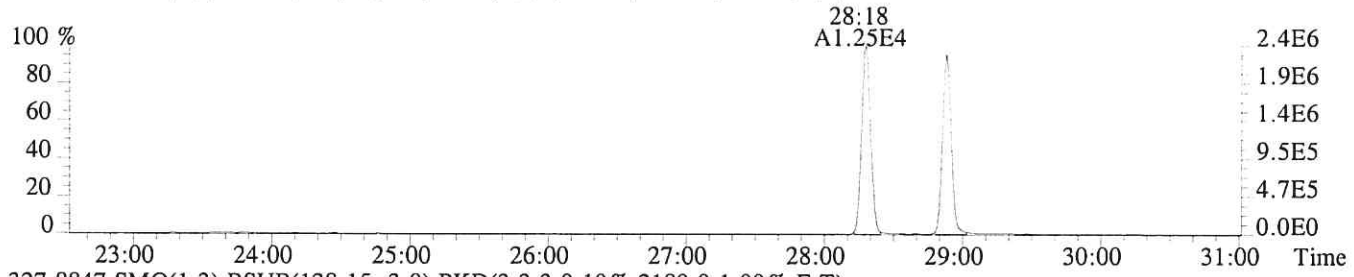
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



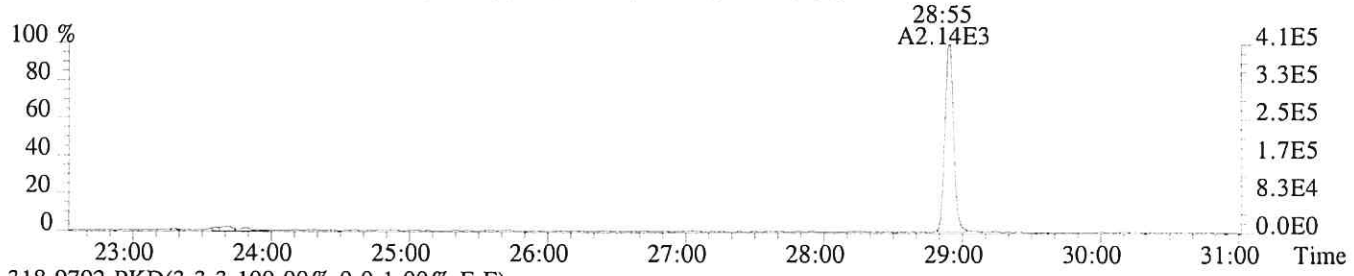
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6808.0,1.00%,F,T)



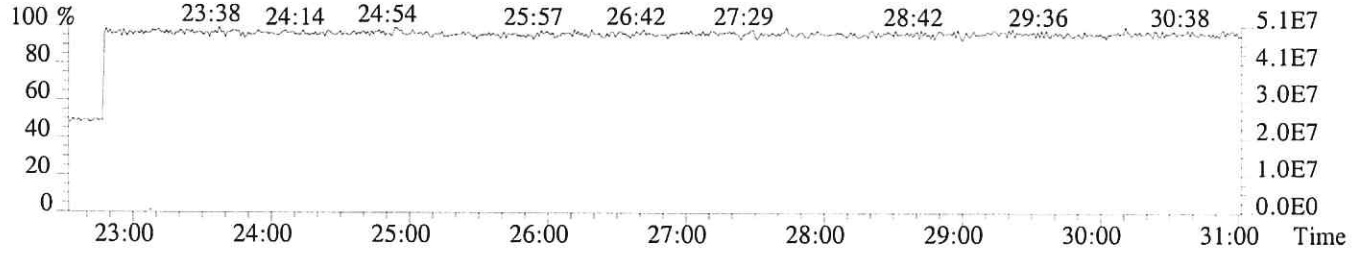
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)

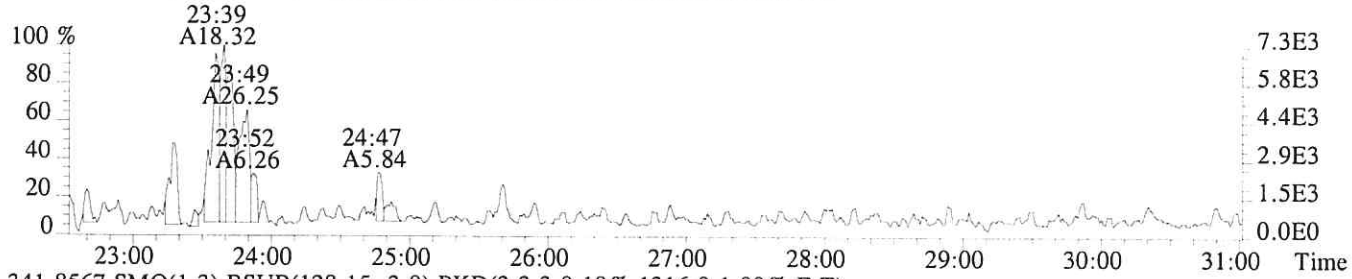


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

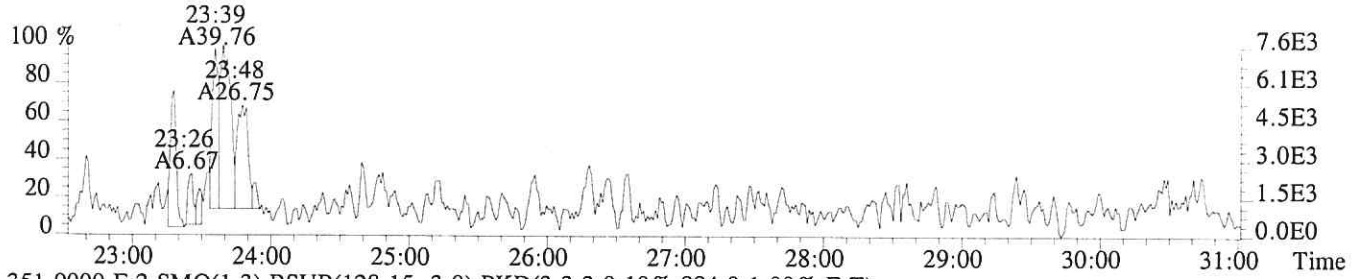


File:P407852 #1-602 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

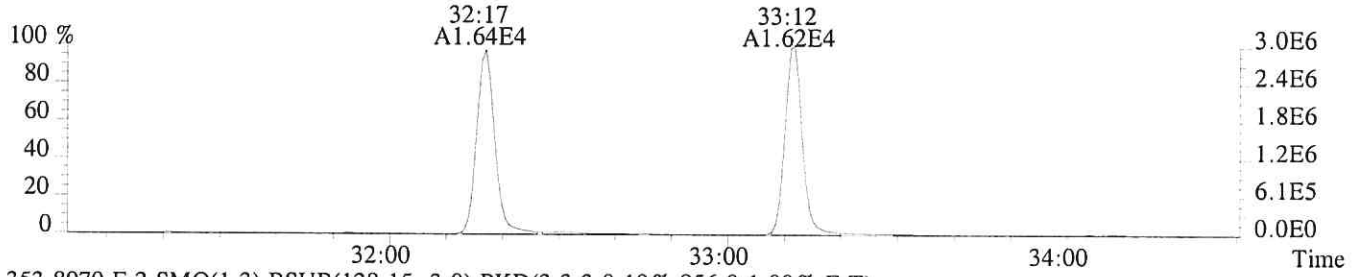
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



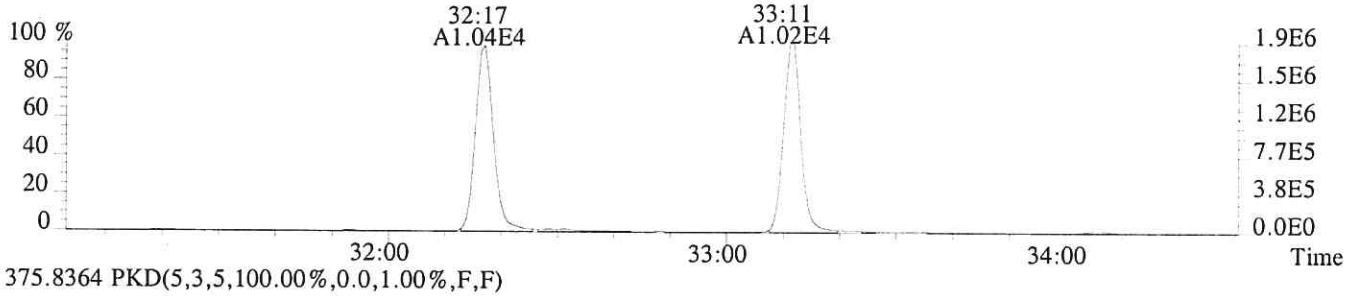
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



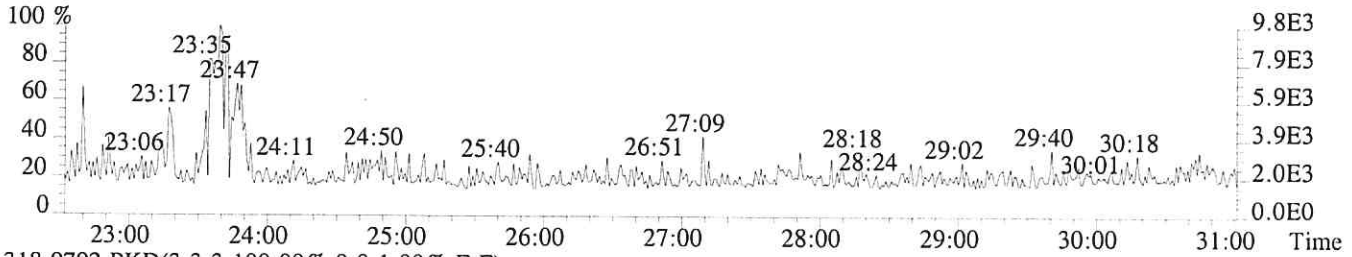
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



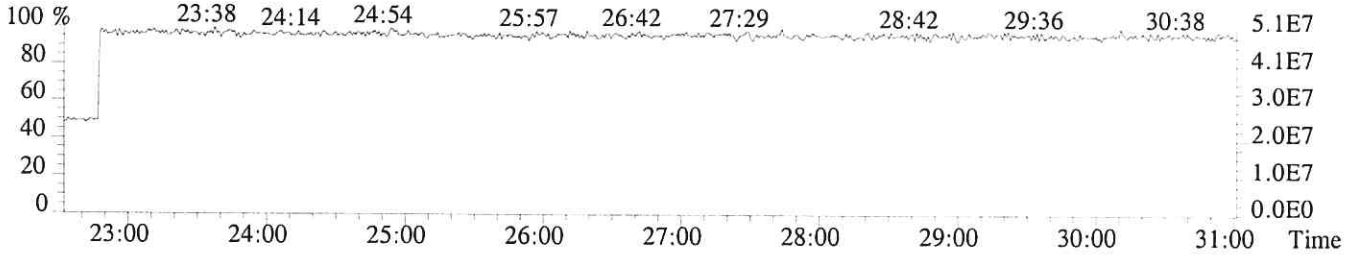
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



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

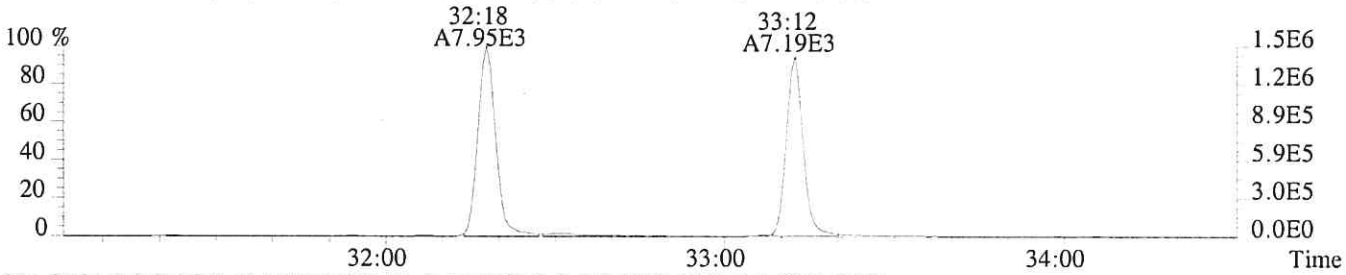


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

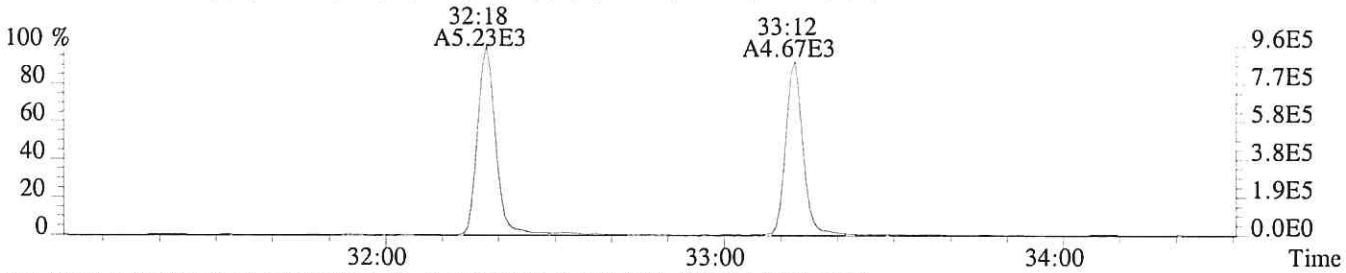


File:P407852 #1-312 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

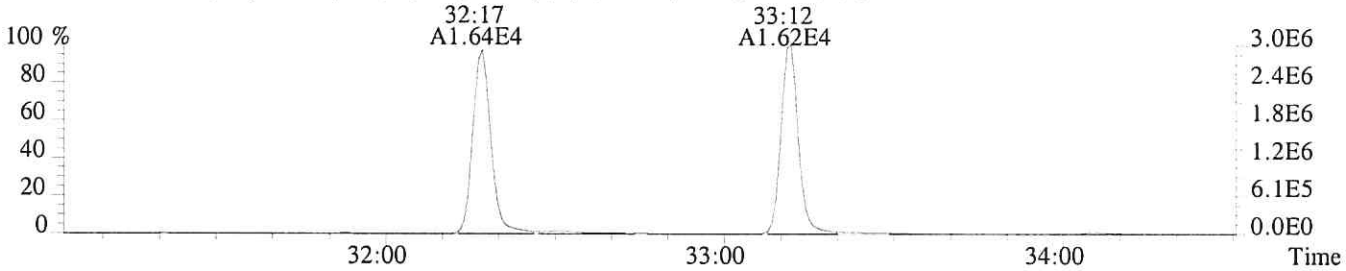
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



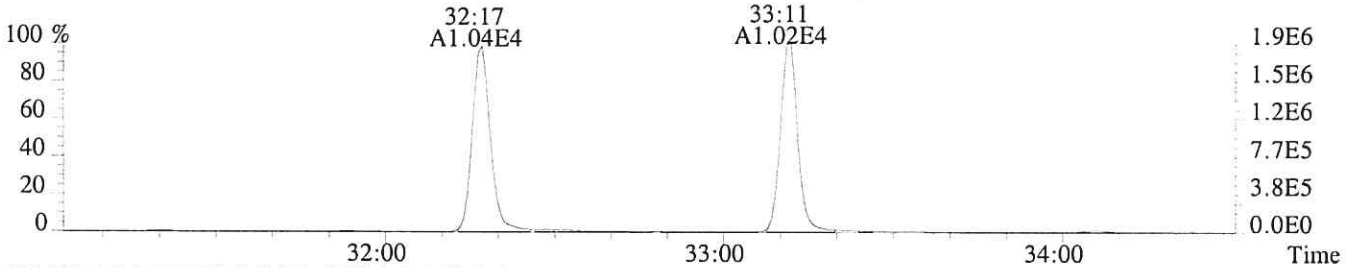
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



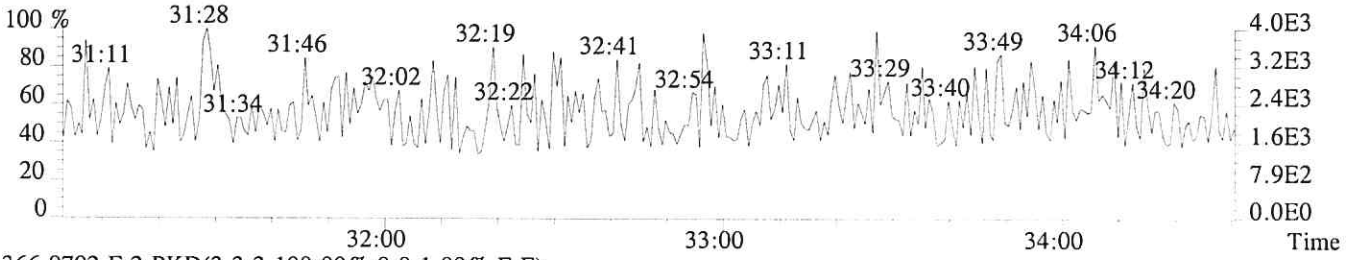
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



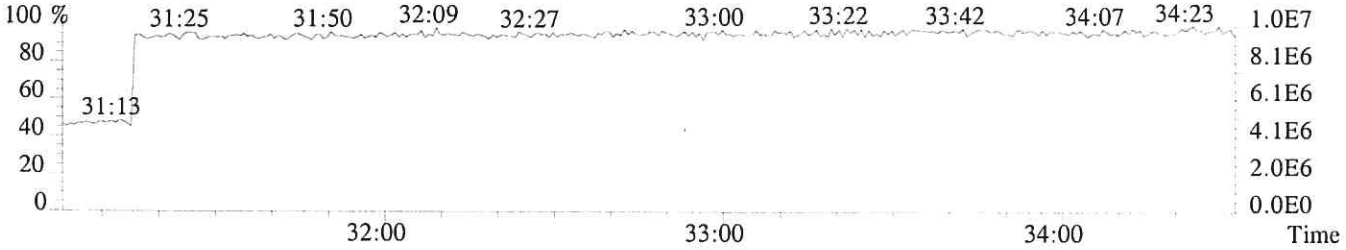
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



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

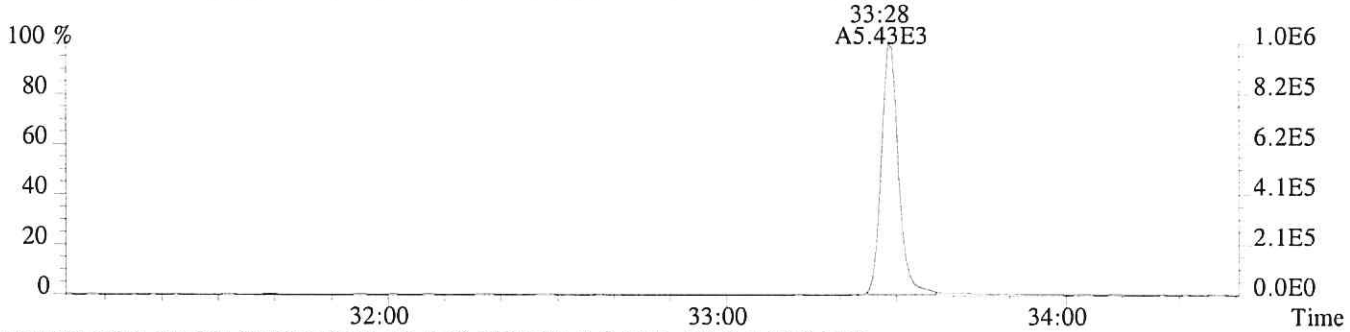


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

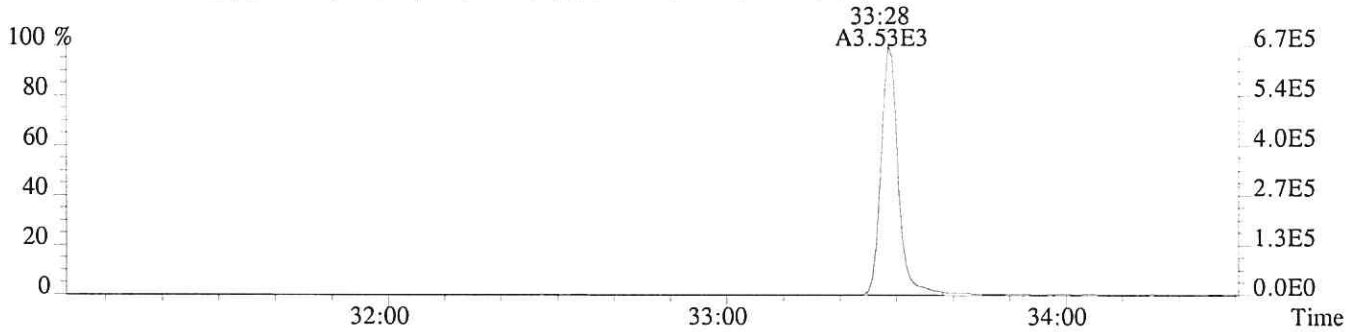


File:P407852 #1-312 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

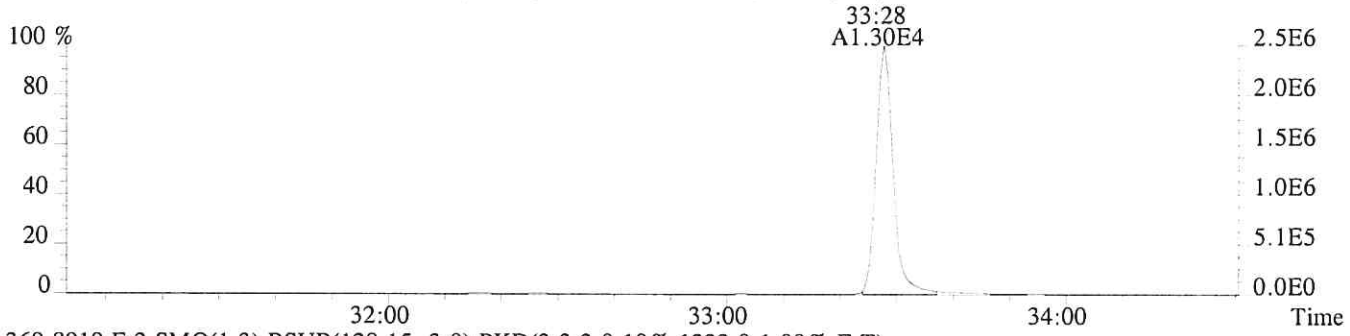
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



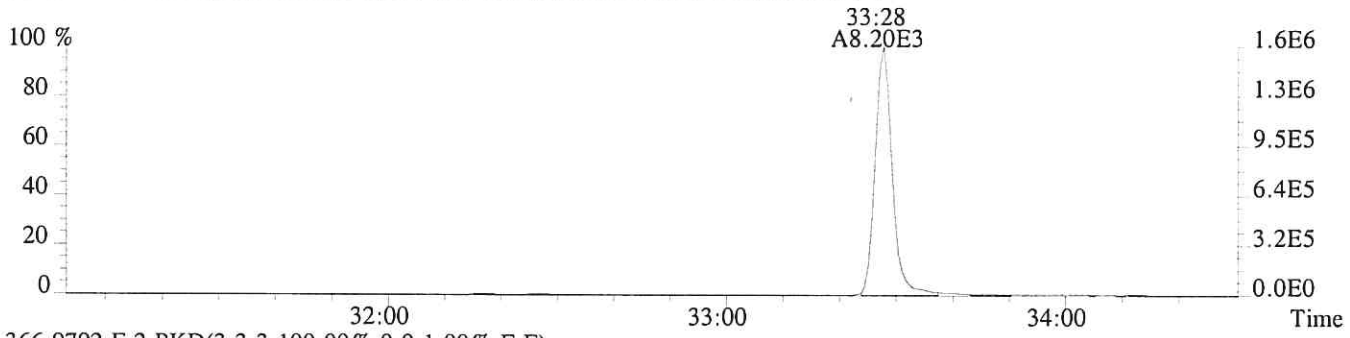
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



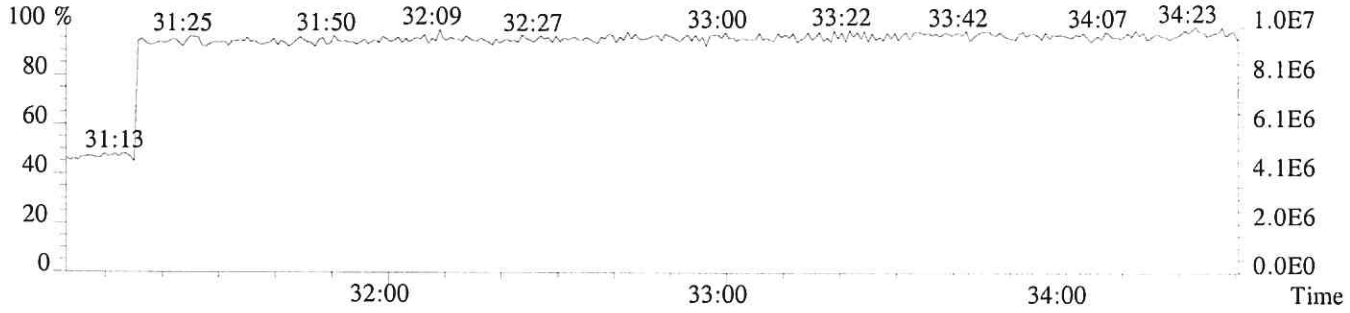
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)

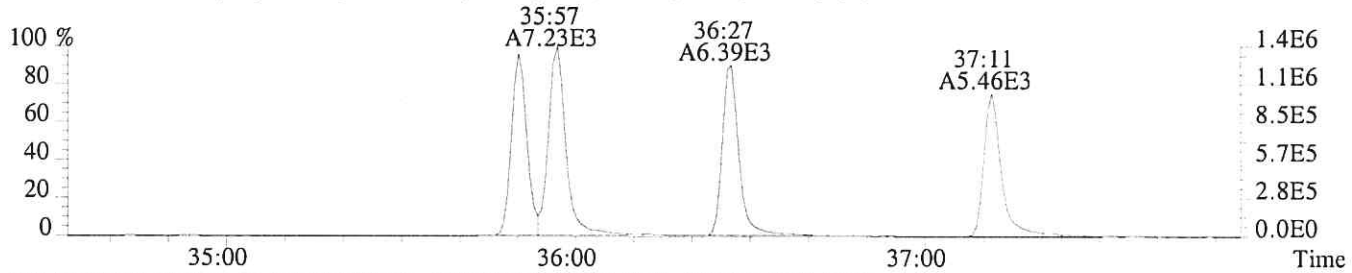


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

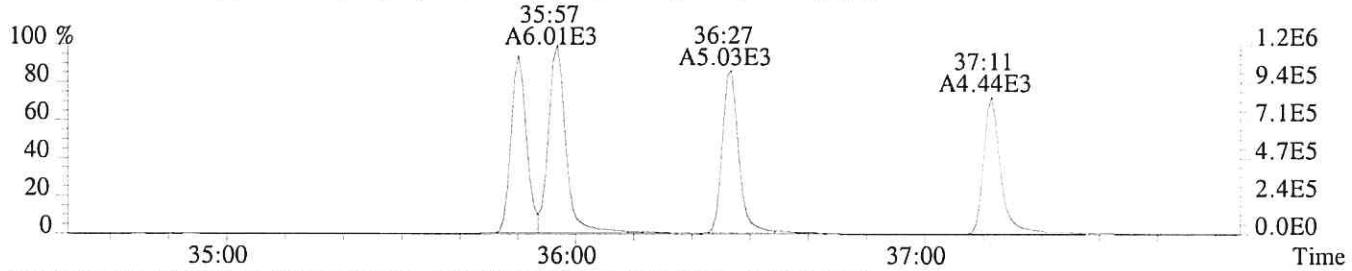


File:P407852 #1-303 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

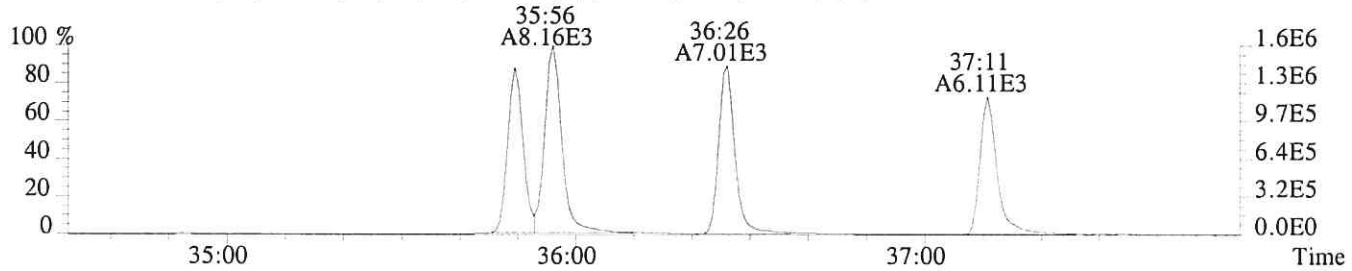
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



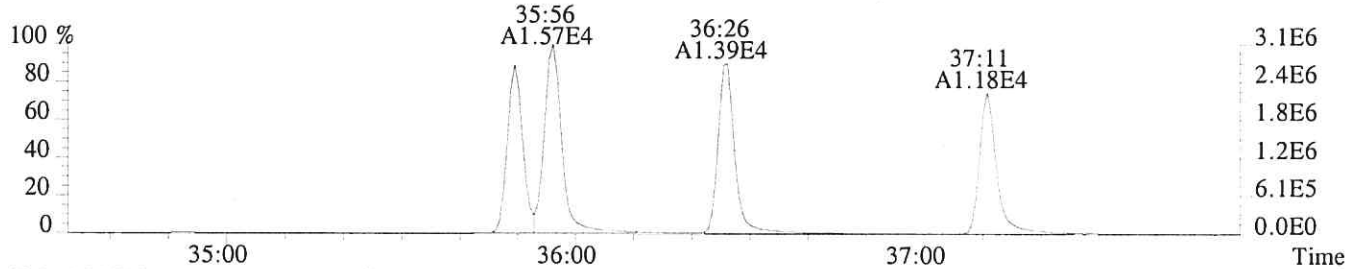
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



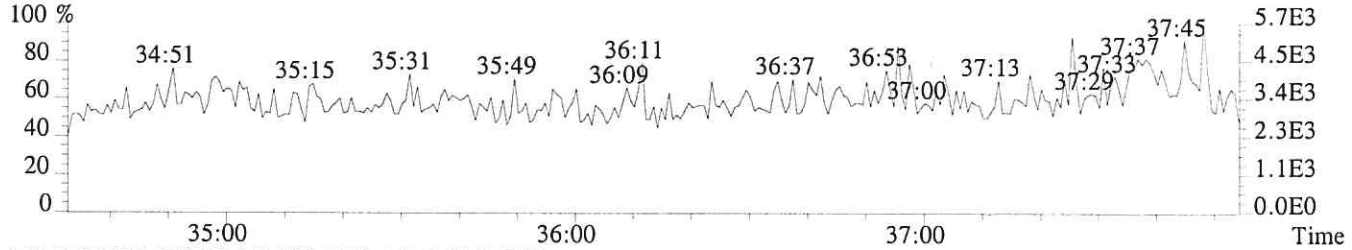
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



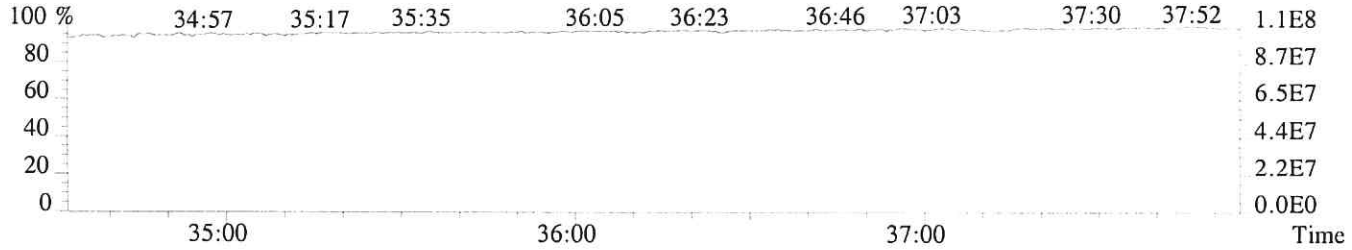
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



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

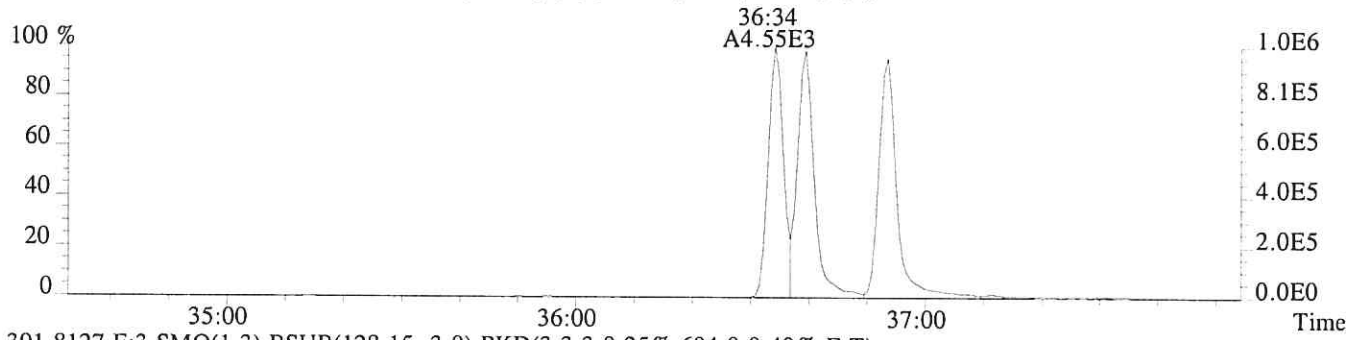


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

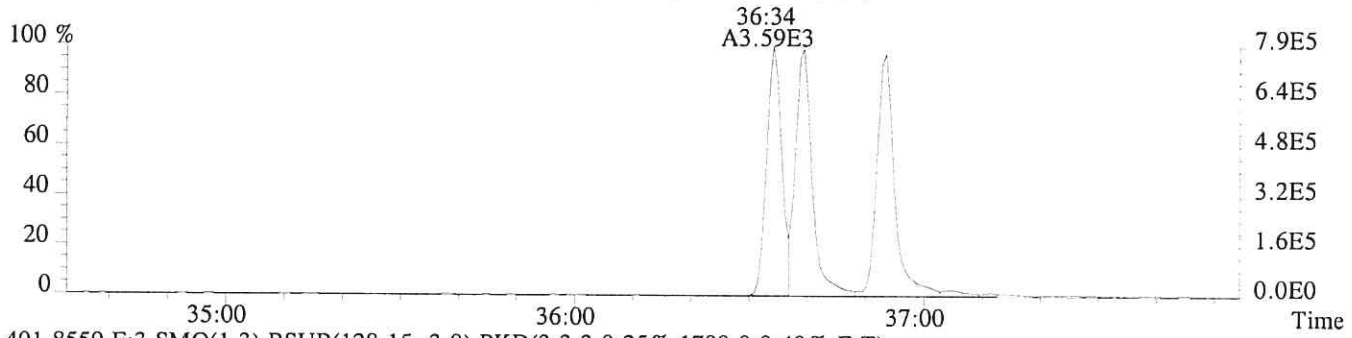


File:P407852 #1-303 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

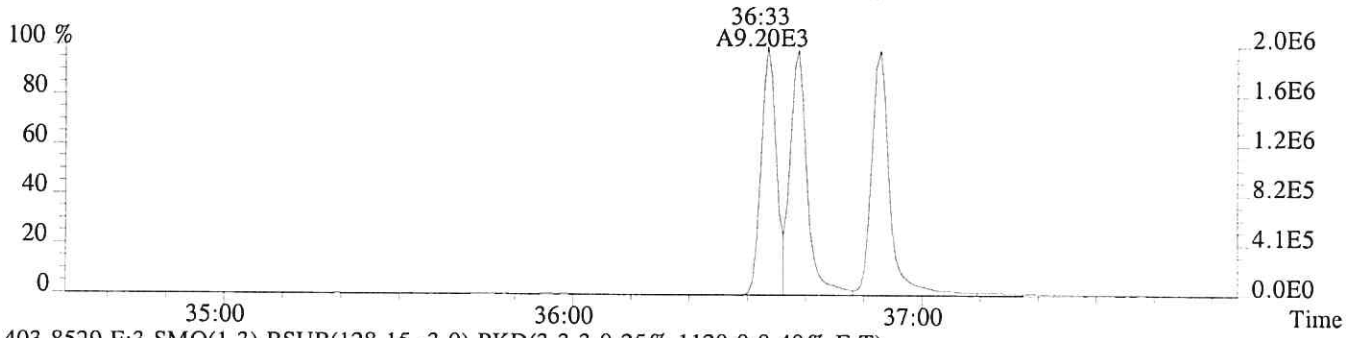
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



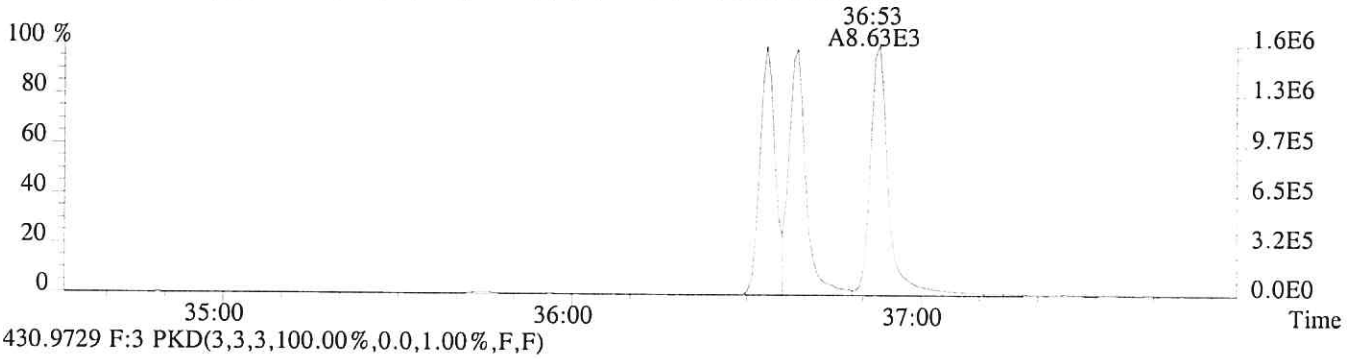
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



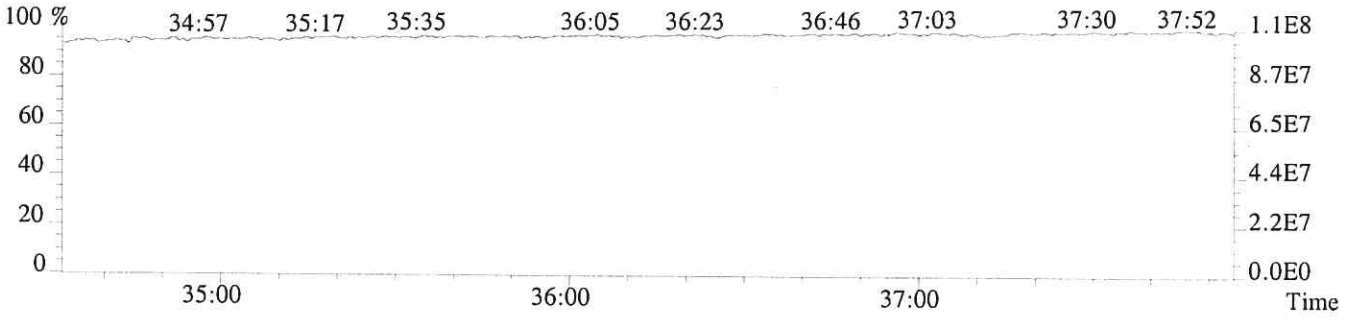
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1700.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)

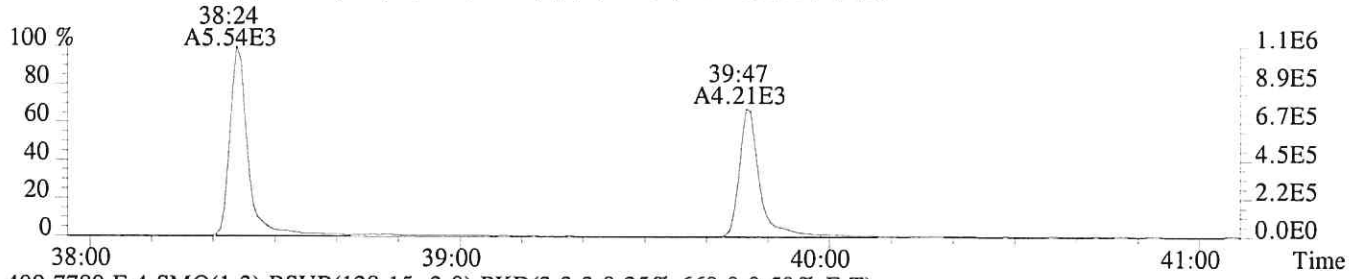


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

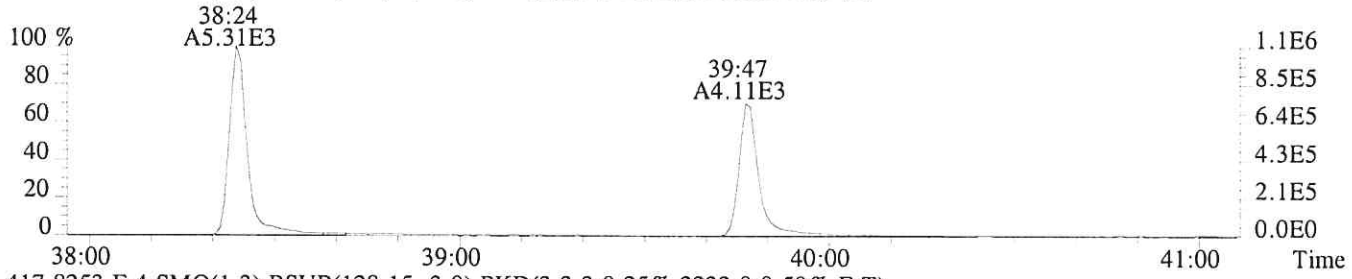


File:P407852 #1-286 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

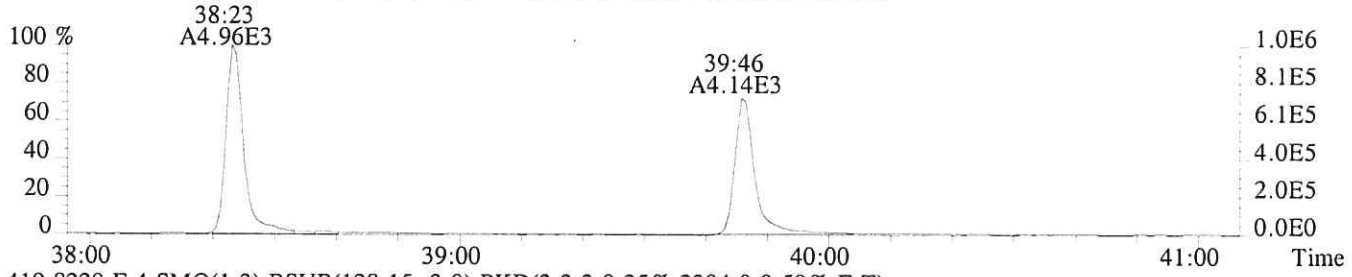
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.50%,F,T)



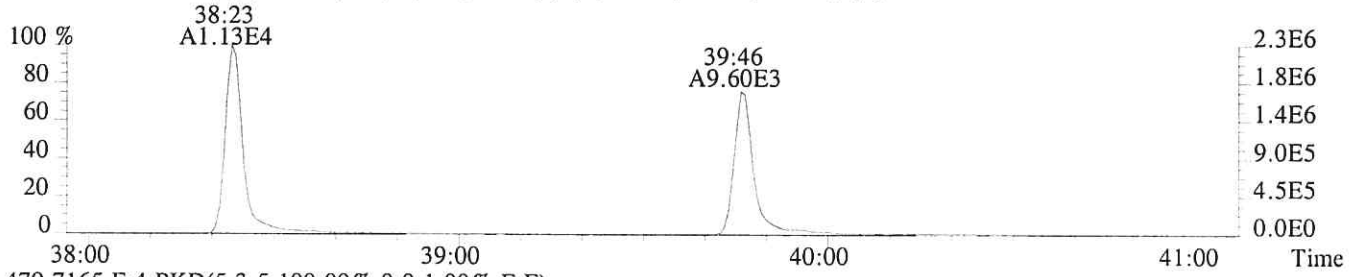
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.50%,F,T)



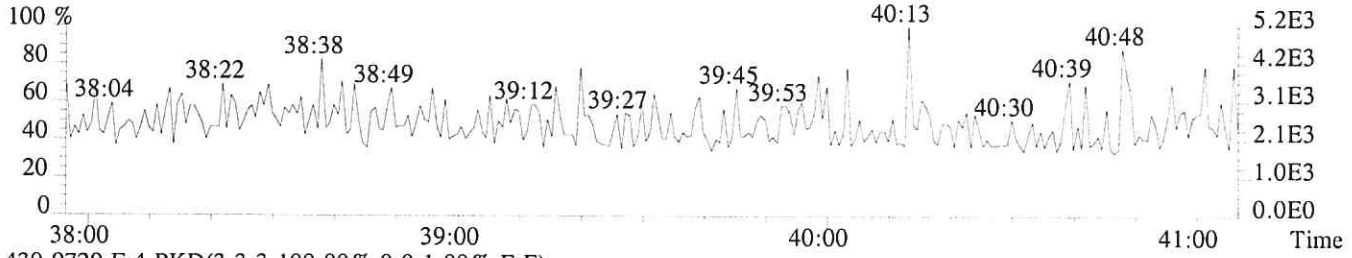
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2232.0,0.50%,F,T)



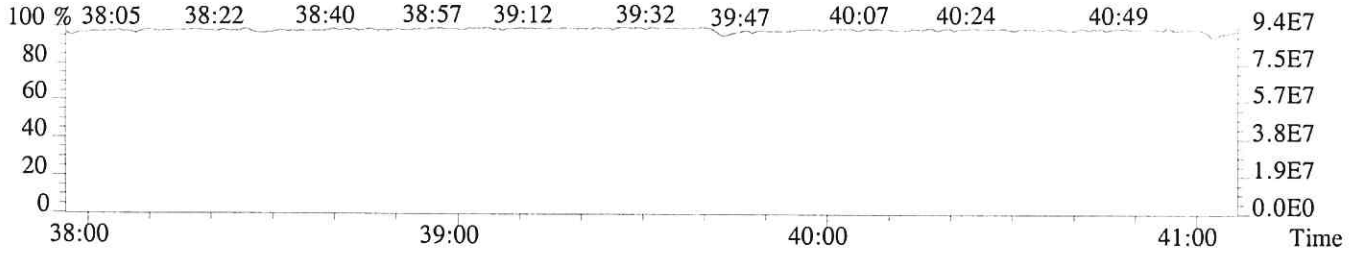
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2304.0,0.50%,F,T)



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

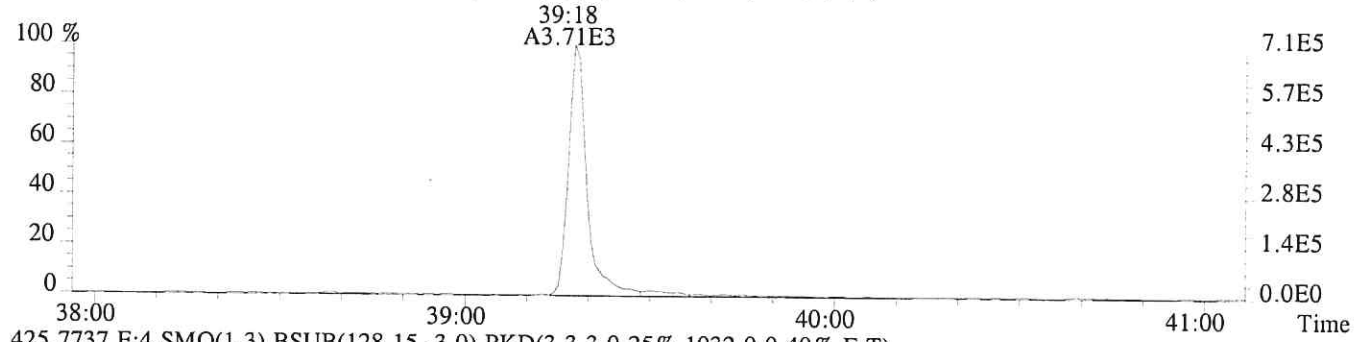


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

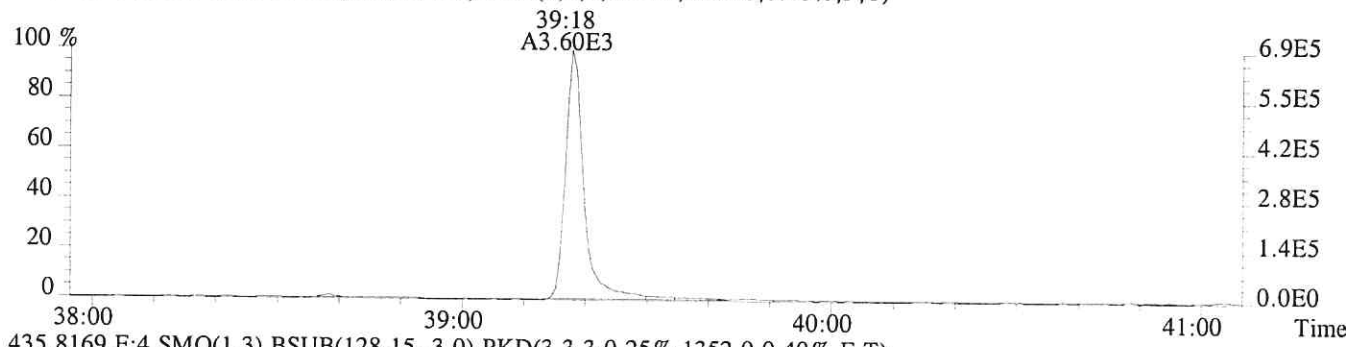


File:P407852 #1-286 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

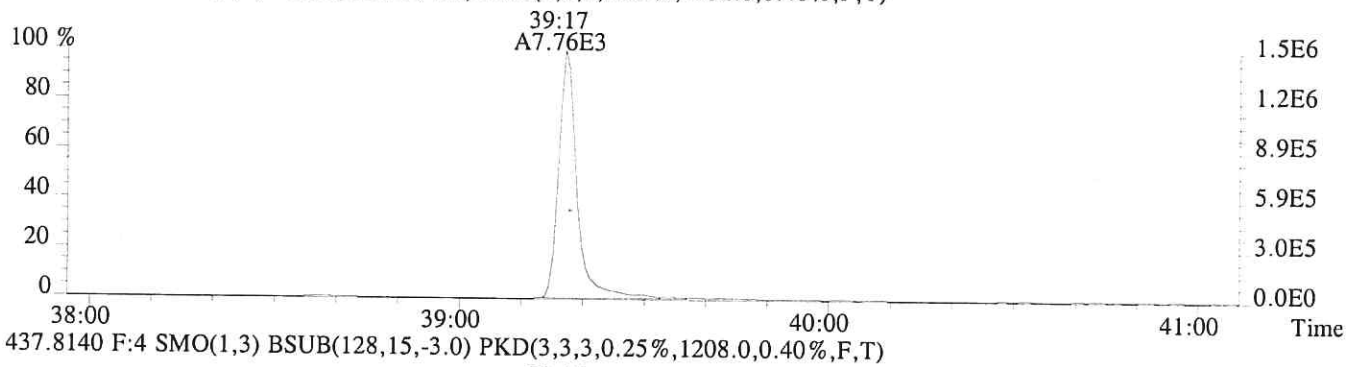
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



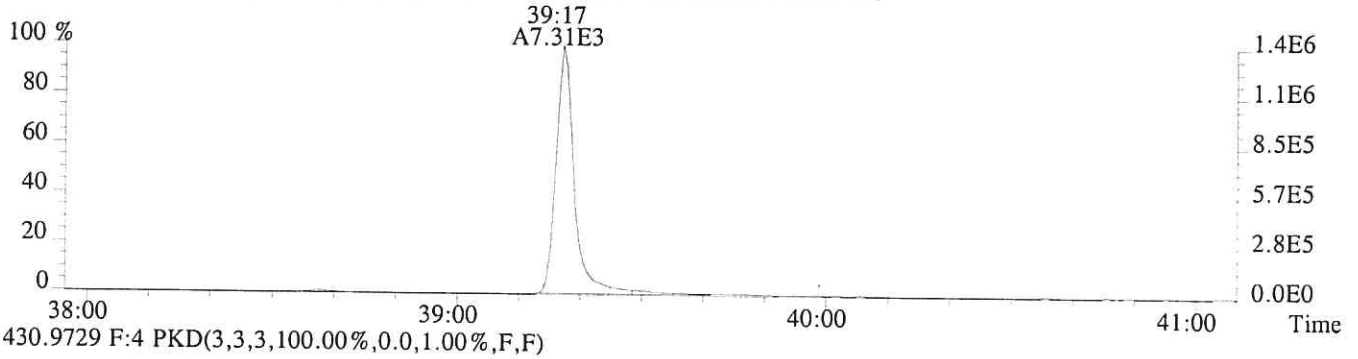
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



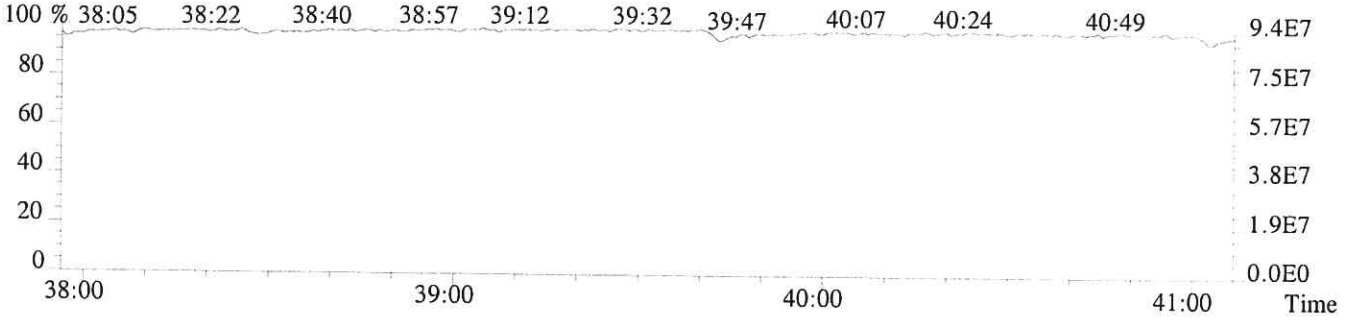
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)

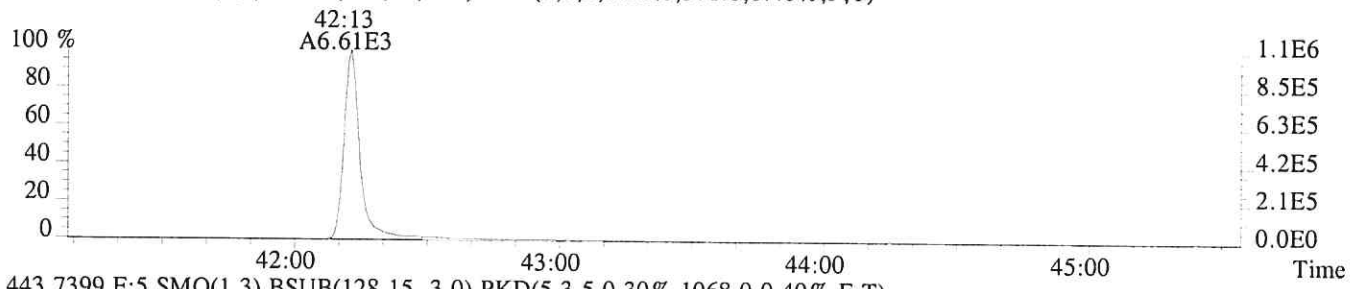


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

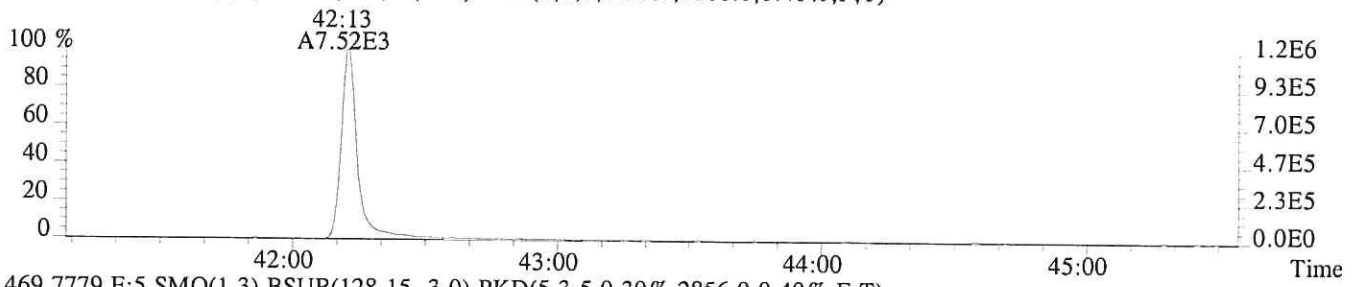


File:P407852 #1-399 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3

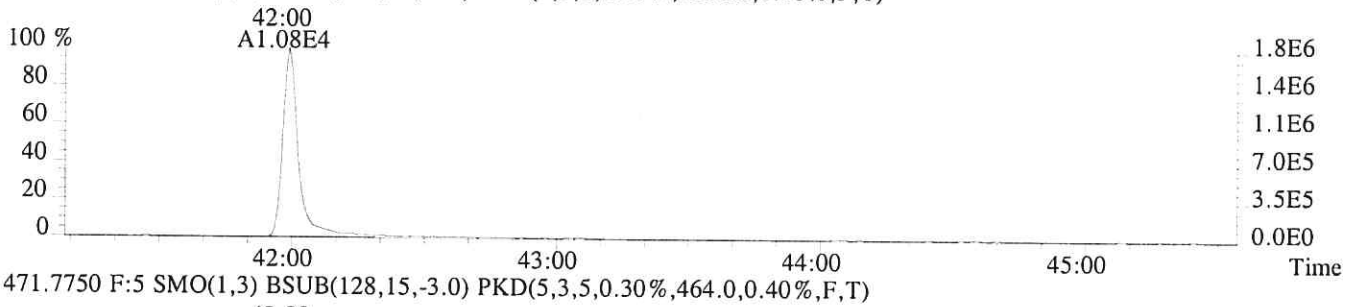
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



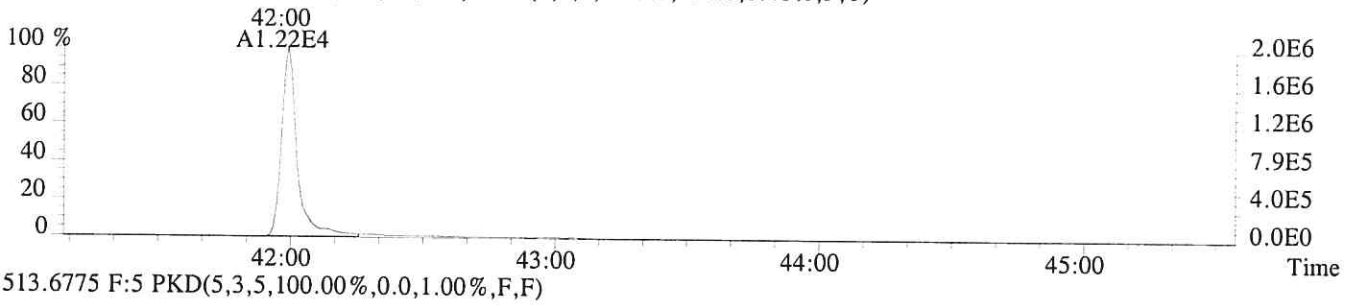
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



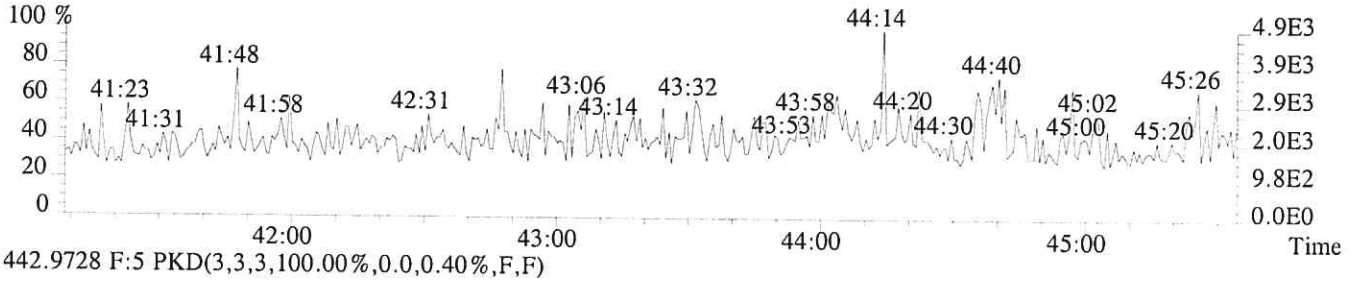
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2856.0,0.40%,F,T)



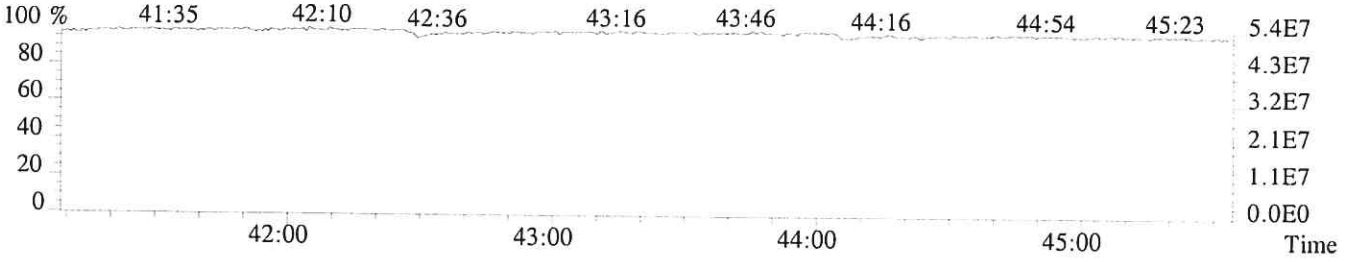
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



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

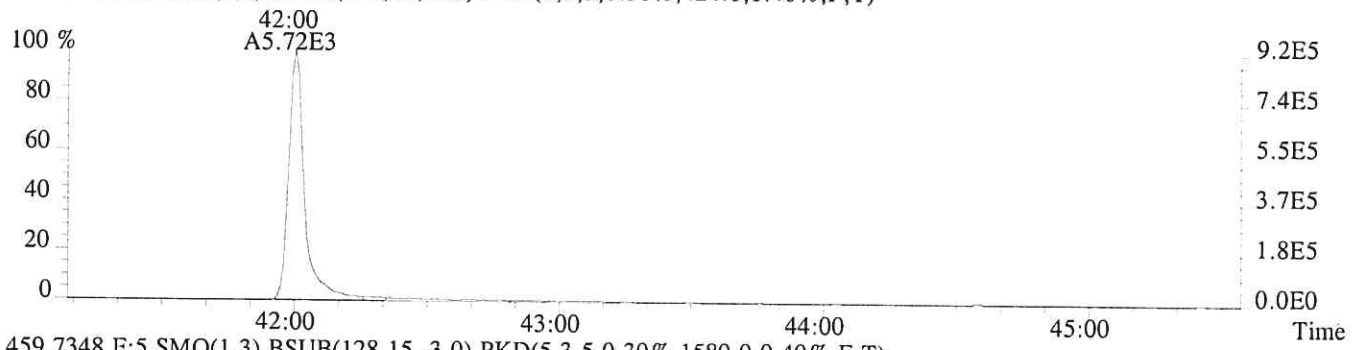


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

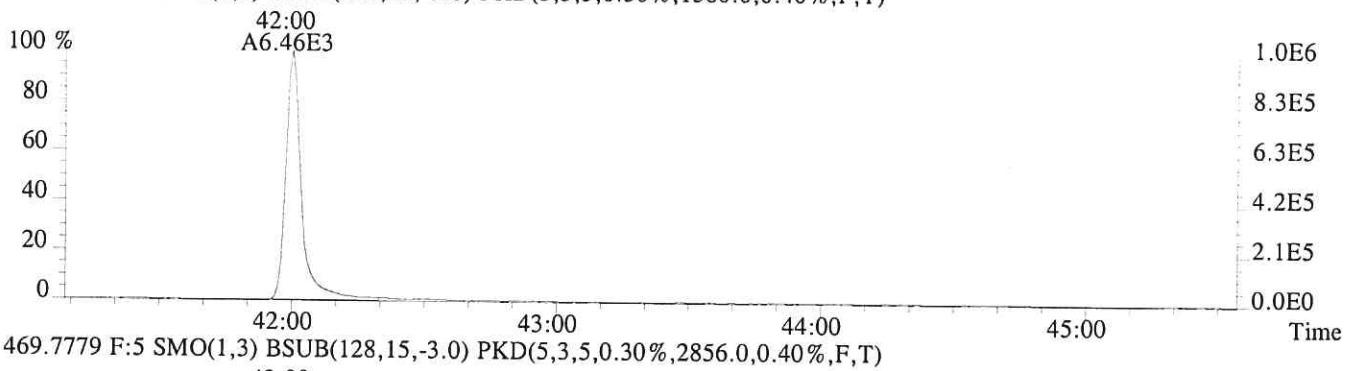


File:P407852 #1-399 Acq:14-SEP-2017 16:02:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

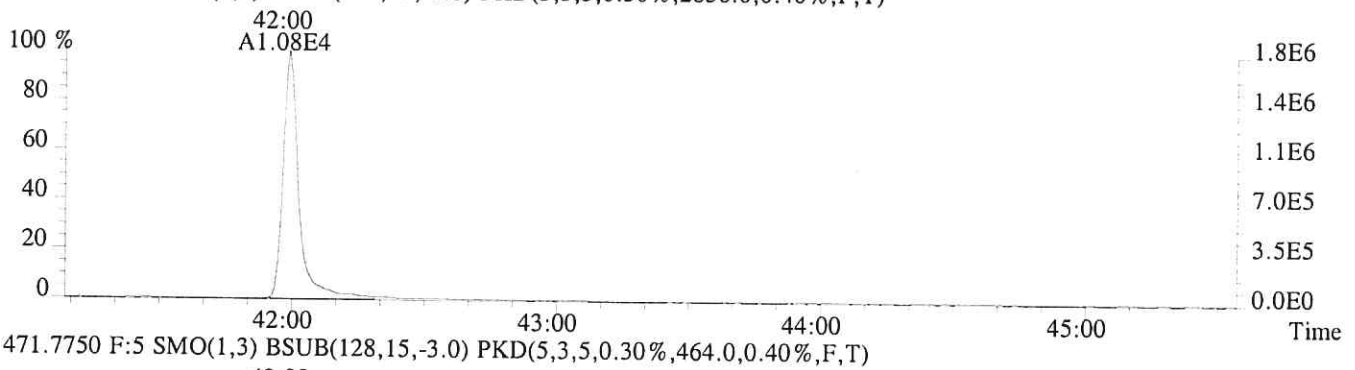
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



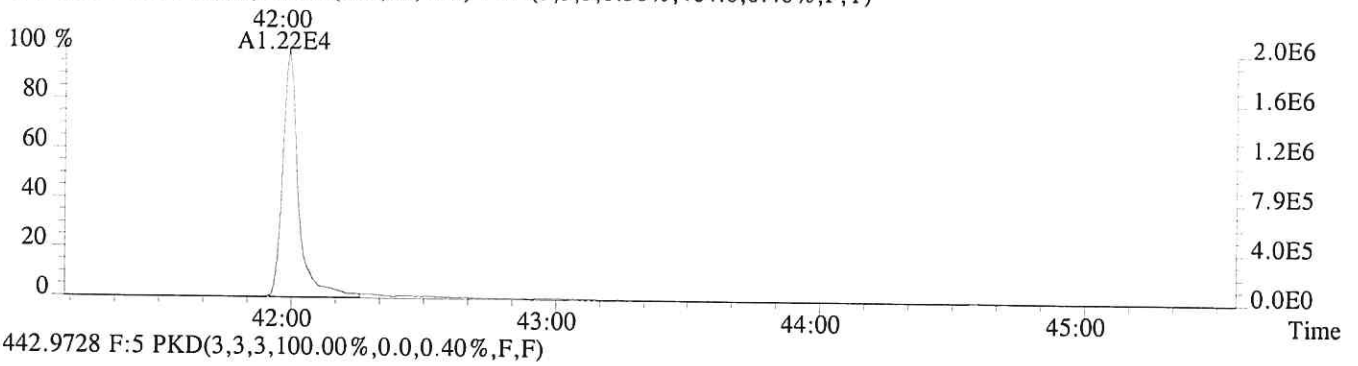
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1580.0,0.40%,F,T)



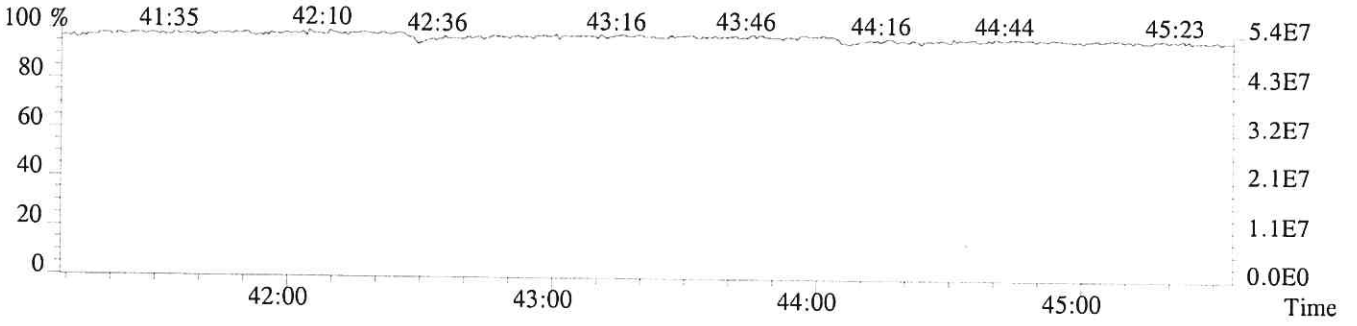
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2856.0,0.40%,F,T)



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



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/17

Instrument ID: E-HRMS-06 GC Column ID: DB-5MSUI

VER Data Filename: P407863 Analysis Date: 15-SEP-17 Time: 01:18:07

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.6	7.8 - 12.9	-4.0
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-2.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	1.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	51	39 - 64	2.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	53	41 - 61	5.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.3
OCDD	M+2/M+4	0.89	0.76-1.02	105	79 - 126	4.7
2,3,7,8-TCDF	M/M+2	0.83	0.65-0.89	10.0	8.4 - 12.0	0.3
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	49	41 - 60	-2.0
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	48	41 - 61	-3.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	48	45 - 56	-3.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	47	44 - 57	-5.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	47	45 - 56	-5.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	48	44 - 57	-3.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	47	45 - 55	-5.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-4.6
OCDF	M+2/M+4	0.88	0.76-1.02	110	63 - 159	10.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/17

Instrument ID: E-HRMS-06 GC Column ID: DB-5MSUI

VER Data Filename: P407863 Analysis Date: 15-SEP-17 Time: 01:18:07

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	101	82 - 121	0.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	102	62 - 160	1.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	92	85 - 117	-8.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	99	85 - 118	-1.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	95	72 - 138	-4.8
13C-OCDD	M+2/M+4	0.89	0.76-1.02	187	96 - 415	-6.3
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	99	71 - 140	-1.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	103	76 - 130	2.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	106	77 - 130	5.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	93	76 - 131	-6.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	104	70 - 143	3.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	99	74 - 135	-0.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	100	73 - 137	0.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	98	78 - 129	-1.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	97	77 - 129	-2.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.2	7.8 - 12.7	1.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
183361

Run #8 Filename P407863 Samp: 1 Inj: 1 Acquired: 15-SEP-17 01:18:07
Processed: 15-SEP-17 08:37:16 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:08	1.410e+03	1.705e+03	0.83	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:18	1.073e+04	6.956e+03	1.54	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:12	1.005e+04	6.581e+03	1.53	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	35:51	8.619e+03	7.036e+03	1.23	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	35:57	9.642e+03	7.709e+03	1.25	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:27	8.684e+03	6.978e+03	1.24	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:12	7.482e+03	5.871e+03	1.27	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:25	7.429e+03	7.381e+03	1.01	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	39:47	5.837e+03	5.697e+03	1.02	yes	no	1.301
10	Unk	OCDF	42:13	9.515e+03	1.076e+04	0.88	yes	no	1.114
11	Unk	2,3,7,8-TCDD	28:55	1.197e+03	1.507e+03	0.79	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:29	7.515e+03	4.843e+03	1.55	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:35	6.346e+03	5.076e+03	1.25	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:39	6.730e+03	5.445e+03	1.24	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	36:54	6.915e+03	5.604e+03	1.23	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:19	5.371e+03	5.051e+03	1.06	yes	no	0.975
17	Unk	OCDD	42:01	8.408e+03	9.460e+03	0.89	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:07	1.535e+04	1.975e+04	0.78	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:17	2.249e+04	1.421e+04	1.58	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:12	2.260e+04	1.399e+04	1.61	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	35:50	9.056e+03	1.723e+04	0.53	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	35:56	1.078e+04	2.122e+04	0.51	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:26	9.629e+03	1.893e+04	0.51	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	8.209e+03	1.584e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:24	6.813e+03	1.589e+04	0.43	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:47	5.629e+03	1.295e+04	0.43	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	28:53	1.271e+04	1.645e+04	0.77	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:28	1.819e+04	1.161e+04	1.57	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:34	1.304e+04	1.034e+04	1.26	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:39	1.401e+04	1.123e+04	1.25	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:18	1.100e+04	1.044e+04	1.05	yes	no	0.854
32	IS	13C-OCDD	42:00	1.553e+04	1.749e+04	0.89	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:18	1.329e+04	1.688e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	1.454e+04	1.184e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:55	3.044e+03				no	0.992

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
183361

Run #8 Filename P407863 Samp: 1 Inj: 1 Acquired: 15-SEP-17 01:18:07
Processed: 15-SEP-17 08:37:16 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.55e+05	7.92e+02	3.2e+02	3.20e+05	2.45e+03	1.3e+02
2	1,2,3,7,8-PeCDF	1.95e+06	2.52e+02	7.7e+03	1.24e+06	1.21e+03	1.0e+03
3	2,3,4,7,8-PeCDF	1.96e+06	2.52e+02	7.8e+03	1.28e+06	1.21e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	1.86e+06	8.80e+02	2.1e+03	1.49e+06	5.48e+02	2.7e+03
5	1,2,3,6,7,8-HxCDF	1.90e+06	8.80e+02	2.2e+03	1.49e+06	5.48e+02	2.7e+03
6	2,3,4,6,7,8-HxCDF	1.75e+06	8.80e+02	2.0e+03	1.43e+06	5.48e+02	2.6e+03
7	1,2,3,7,8,9-HxCDF	1.42e+06	8.80e+02	1.6e+03	1.13e+06	5.48e+02	2.1e+03
8	1,2,3,4,6,7,8-HpCDF	1.54e+06	1.98e+03	7.8e+02	1.53e+06	1.28e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.09e+06	1.98e+03	5.5e+02	1.06e+06	1.28e+03	8.3e+02
10	OCDF	1.49e+06	7.84e+02	1.9e+03	1.71e+06	2.07e+03	8.3e+02
11	2,3,7,8-TCDD	2.32e+05	1.10e+03	2.1e+02	2.94e+05	7.32e+02	4.0e+02
12	1,2,3,7,8-PeCDD	1.47e+06	6.48e+02	2.3e+03	9.51e+05	1.32e+02	7.2e+03
13	1,2,3,4,7,8-HxCDD	1.42e+06	5.40e+02	2.6e+03	1.11e+06	5.80e+02	1.9e+03
14	1,2,3,6,7,8-HxCDD	1.33e+06	5.40e+02	2.5e+03	1.08e+06	5.80e+02	1.9e+03
15	1,2,3,7,8,9-HxCDD	1.31e+06	5.40e+02	2.4e+03	1.04e+06	5.80e+02	1.8e+03
16	1,2,3,4,6,7,8-HpCDD	1.04e+06	9.72e+02	1.1e+03	9.69e+05	8.36e+02	1.2e+03
17	OCDD	1.31e+06	2.46e+03	5.3e+02	1.47e+06	3.12e+02	4.7e+03
18	13C-2,3,7,8-TCDF	2.85e+06	8.43e+03	3.4e+02	3.61e+06	3.78e+03	9.6e+02
19	13C-1,2,3,7,8-PeCDF	4.12e+06	5.36e+02	7.7e+03	2.62e+06	5.36e+02	4.9e+03
20	13C-2,3,4,7,8-PeCDF	4.47e+06	5.36e+02	8.3e+03	2.79e+06	5.36e+02	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.95e+06	6.64e+02	2.9e+03	3.65e+06	1.05e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.09e+06	6.64e+02	3.1e+03	4.13e+06	1.05e+03	3.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.97e+06	6.64e+02	3.0e+03	3.86e+06	1.05e+03	3.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.58e+06	6.64e+02	2.4e+03	3.06e+06	1.05e+03	2.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.44e+06	1.93e+03	7.4e+02	3.27e+06	3.93e+03	8.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.04e+06	1.93e+03	5.4e+02	2.35e+06	3.93e+03	6.0e+02
27	13C-2,3,7,8-TCDD	2.47e+06	4.40e+03	5.6e+02	3.16e+06	1.96e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	3.49e+06	9.56e+02	3.6e+03	2.18e+06	1.17e+03	1.9e+03
29	13C-1,2,3,4,7,8-HxCDD	2.92e+06	1.00e+03	2.9e+03	2.28e+06	7.68e+02	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.78e+06	1.00e+03	2.8e+03	2.25e+06	7.68e+02	2.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.13e+06	9.76e+02	2.2e+03	2.01e+06	1.06e+03	1.9e+03
32	13C-OCDD	2.42e+06	4.37e+03	5.5e+02	2.73e+06	5.47e+03	5.0e+02
33	13C-1,2,3,4-TCDD	2.53e+06	4.40e+03	5.8e+02	3.24e+06	1.96e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	2.75e+06	1.00e+03	2.8e+03	2.25e+06	7.68e+02	2.9e+03
35	37Cl-2,3,7,8-TCDD	5.87e+05	2.11e+03	2.8e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.096e{+}03 + 7.320e{+}02\ ) \times 100}{(2.470e{+}06 + 3.158e{+}06\ ) \times (\qquad\qquad\qquad\qquad) \times 0.966} =$$

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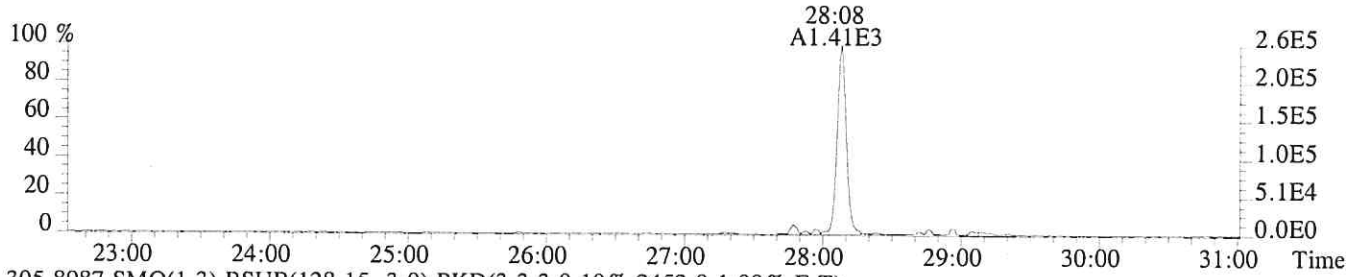
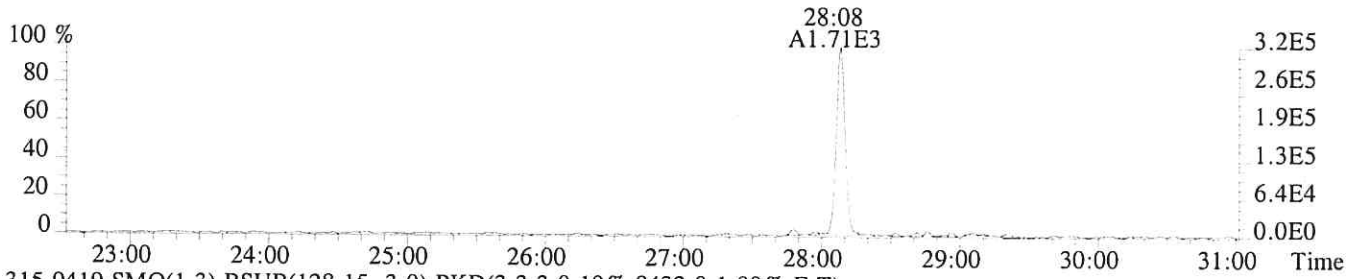
File:P407863 #1-602 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

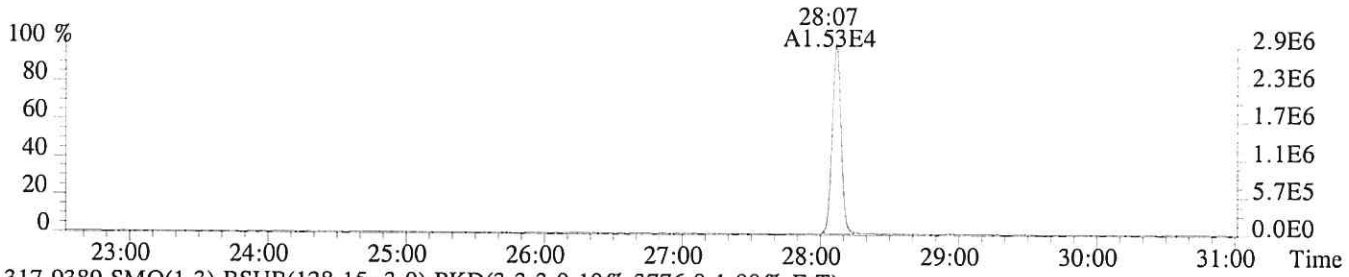
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



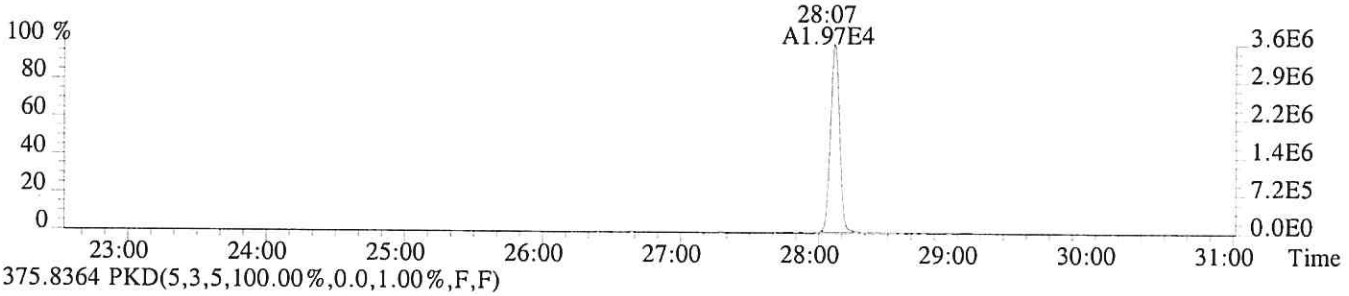
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2452.0,1.00%,F,T)



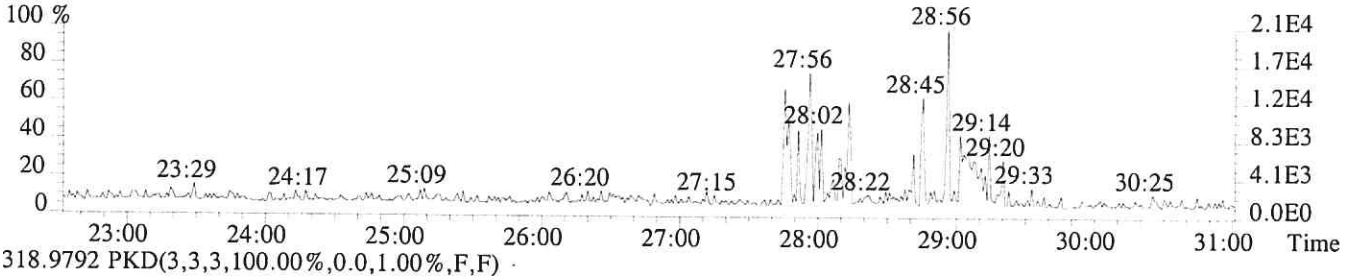
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8432.0,1.00%,F,T)



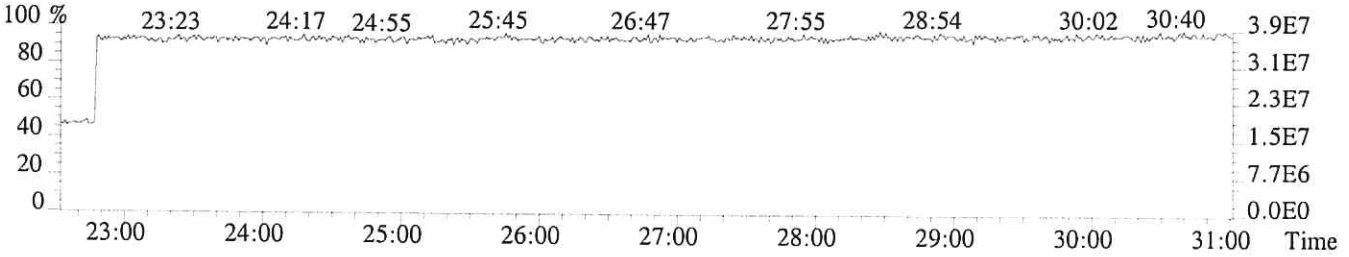
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3776.0,1.00%,F,T)



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

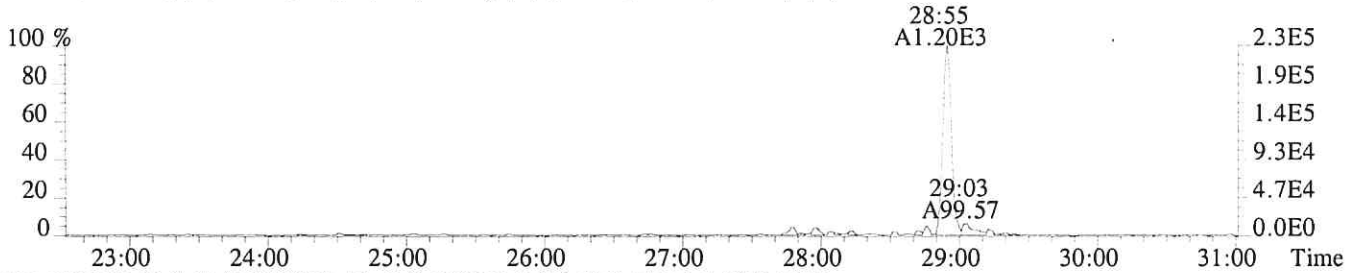


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

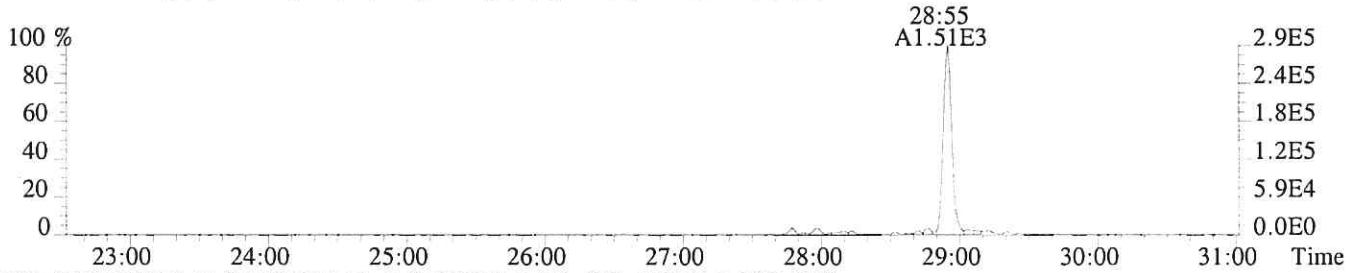


File:P407863 #1-602 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

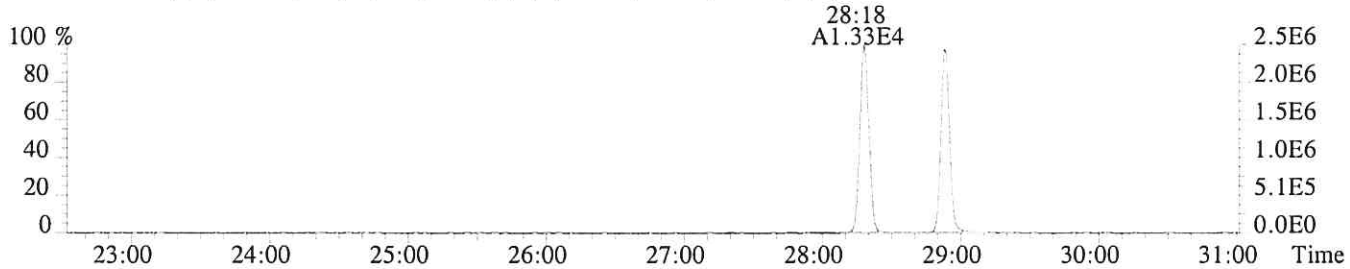
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



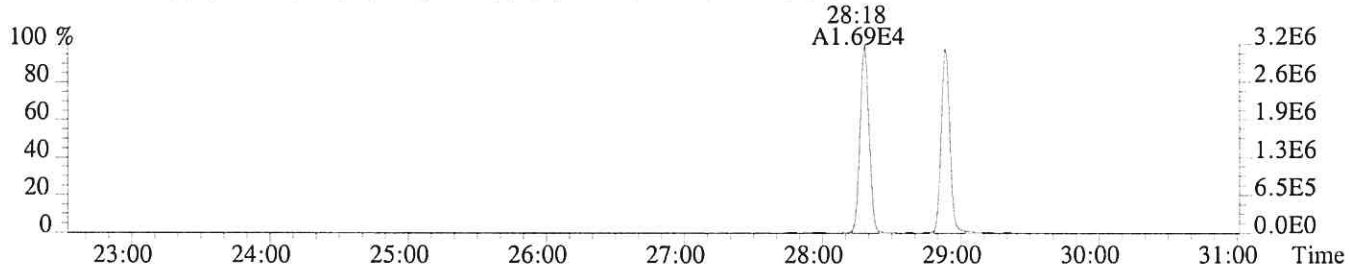
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



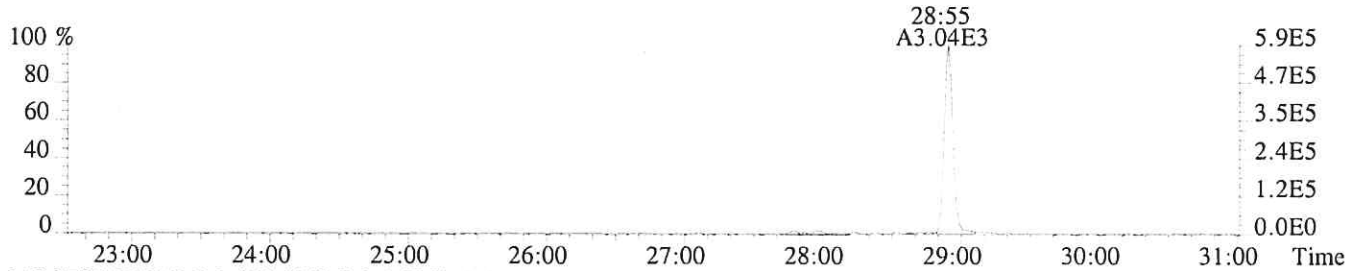
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4396.0,1.00%,F,T)



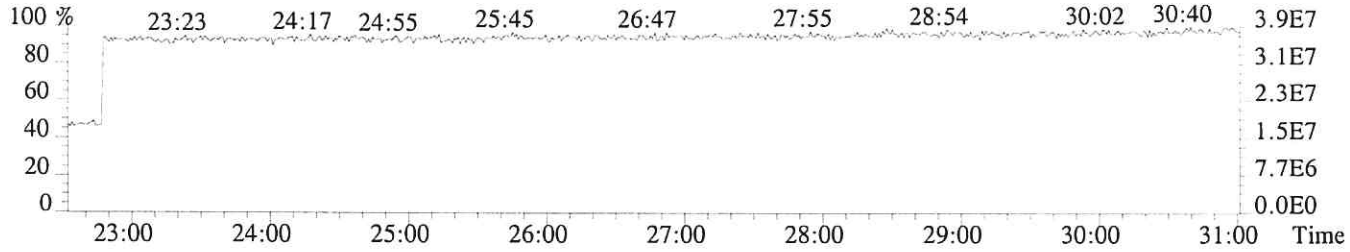
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)

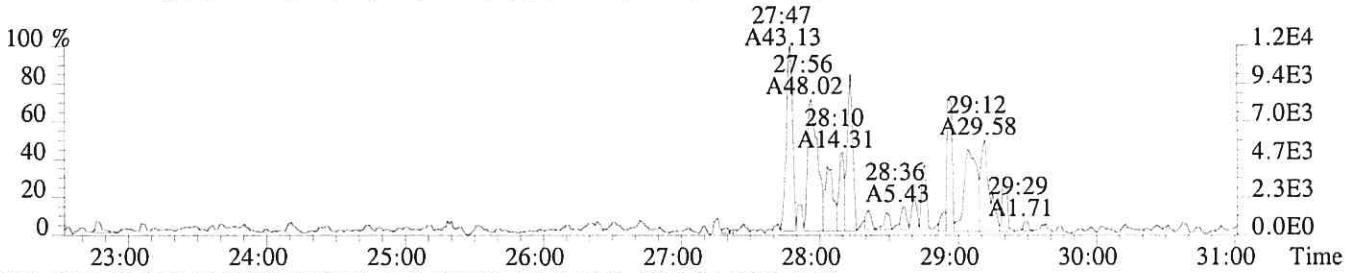


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

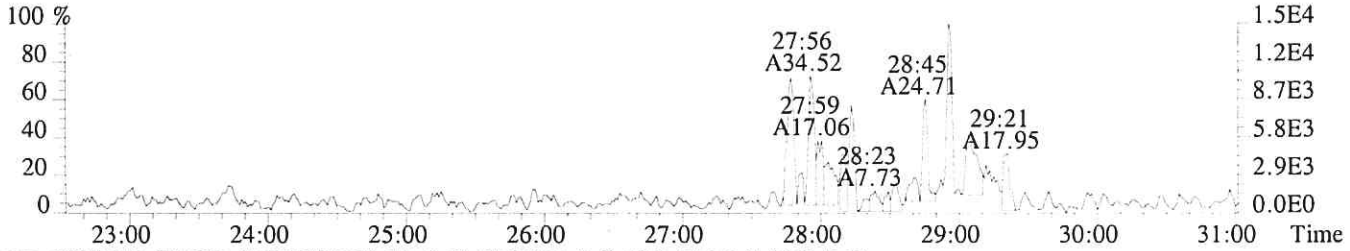


File:P407863 #1-602 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

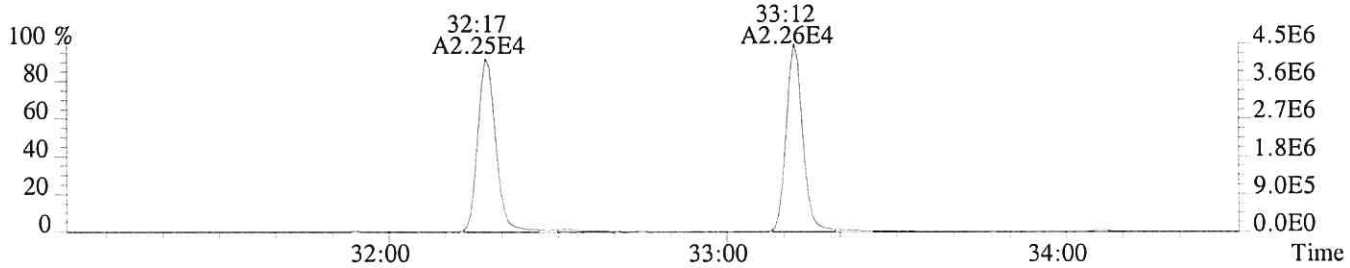
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



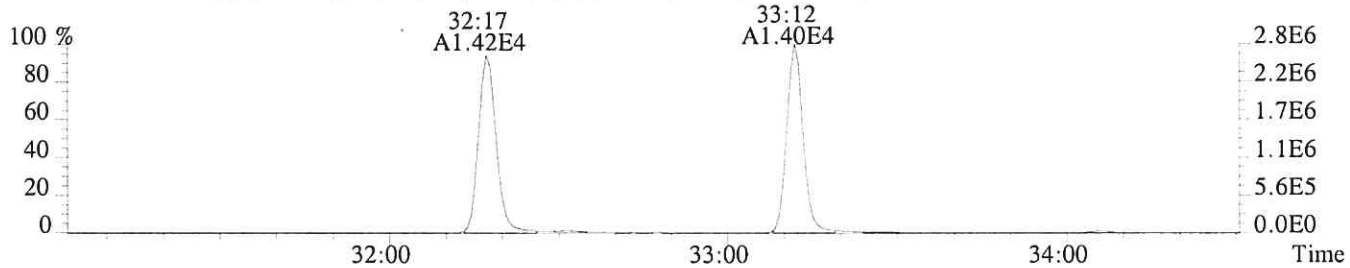
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



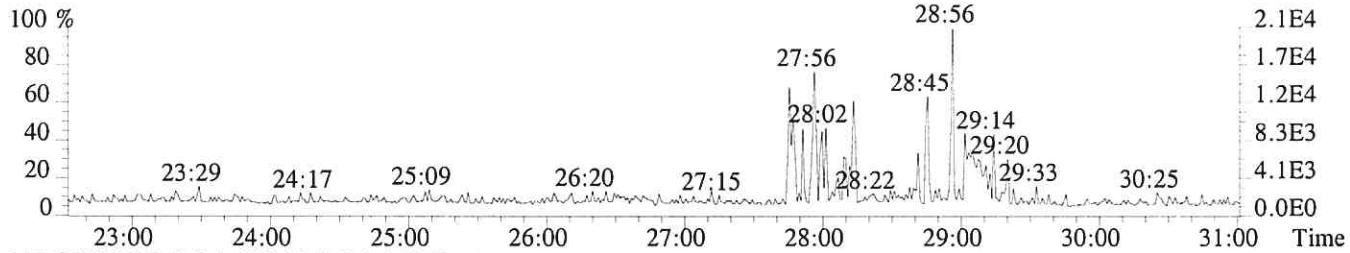
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



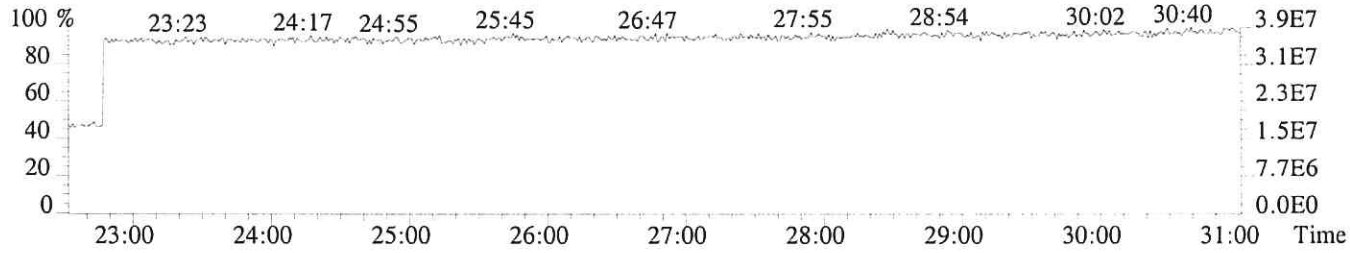
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



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

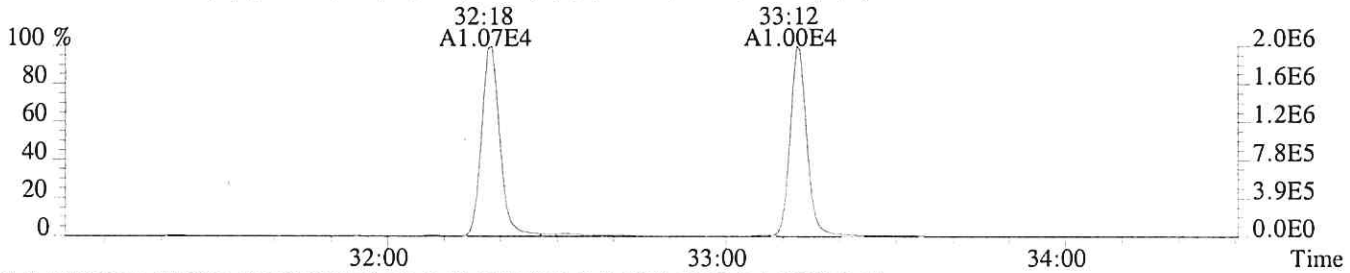


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

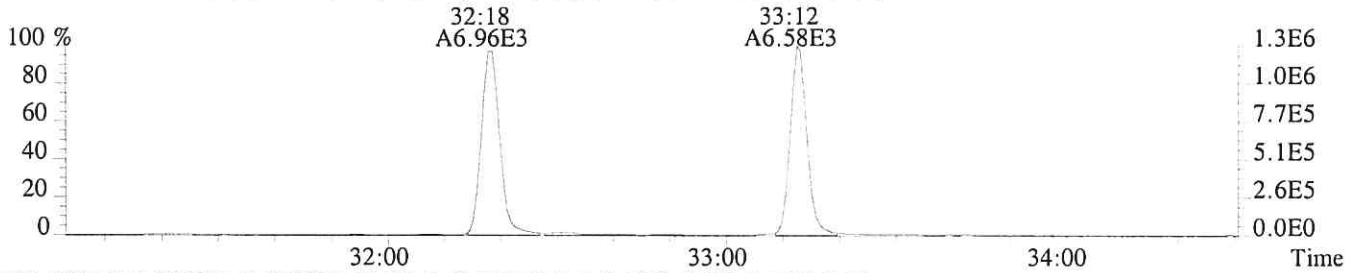


File:P407863 #1-312 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

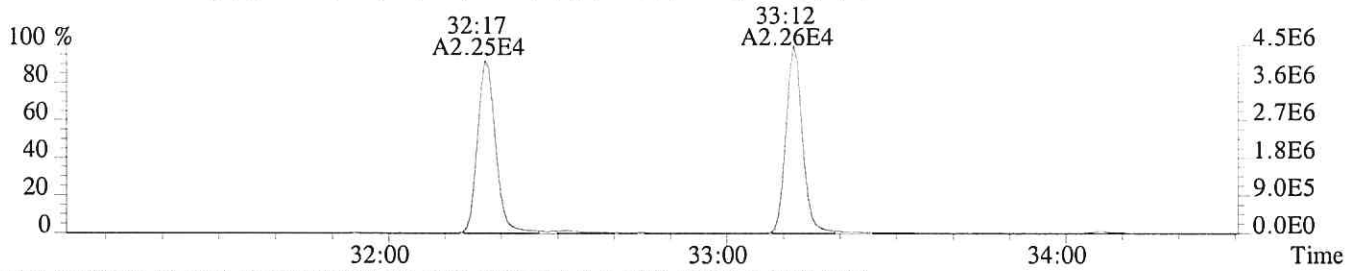
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



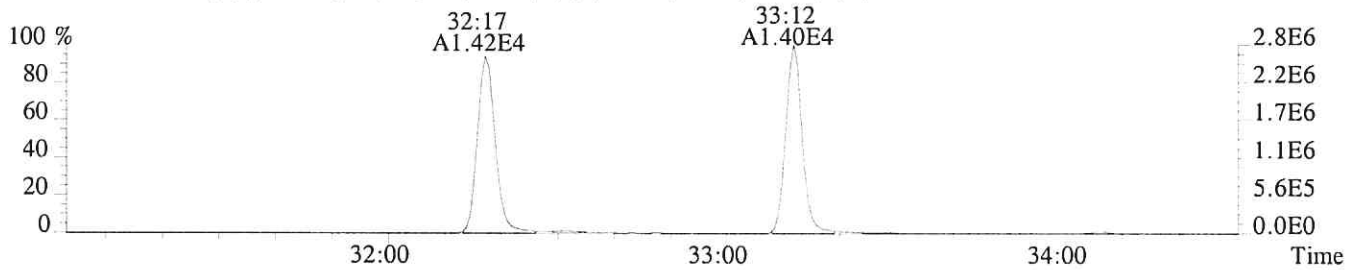
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



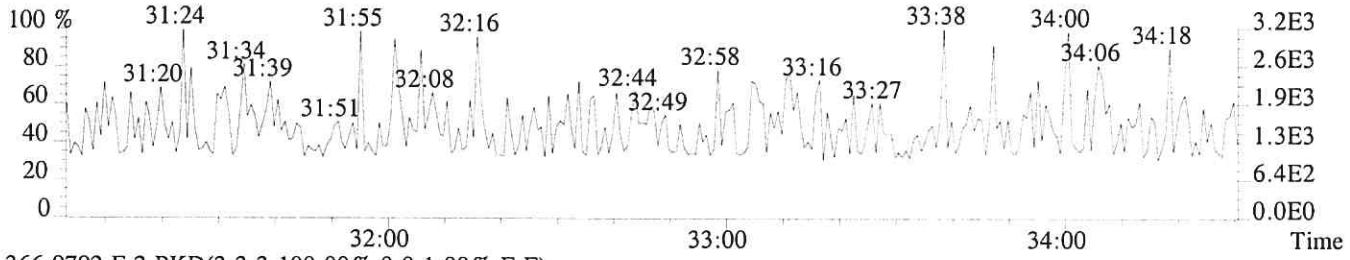
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



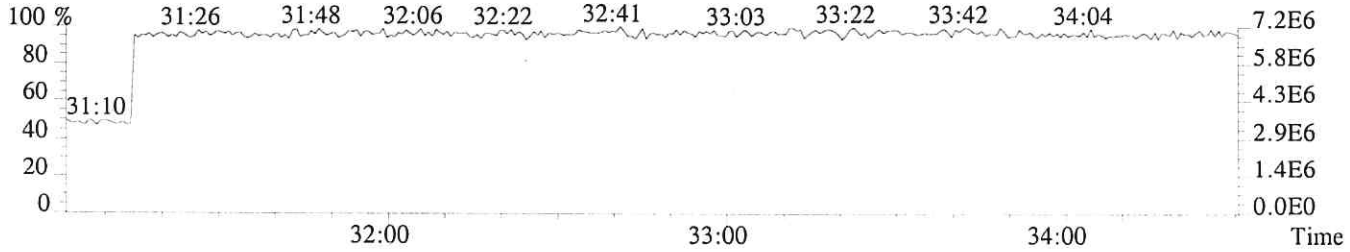
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



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

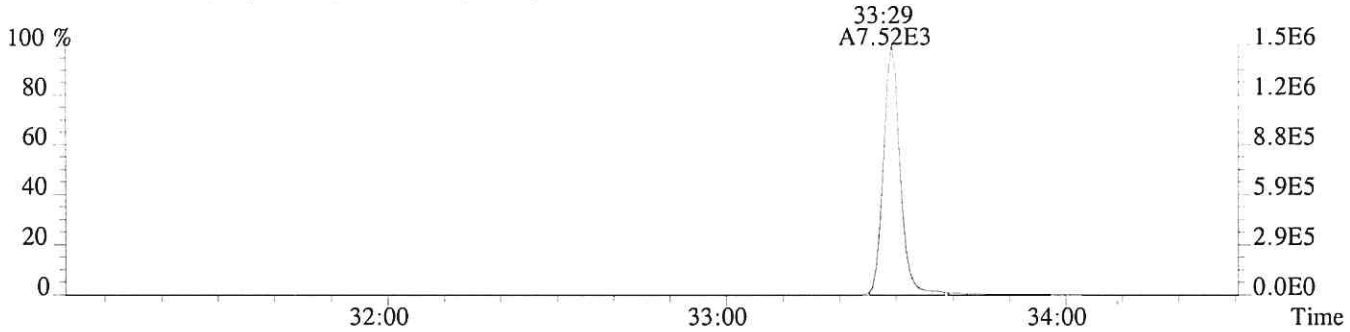


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

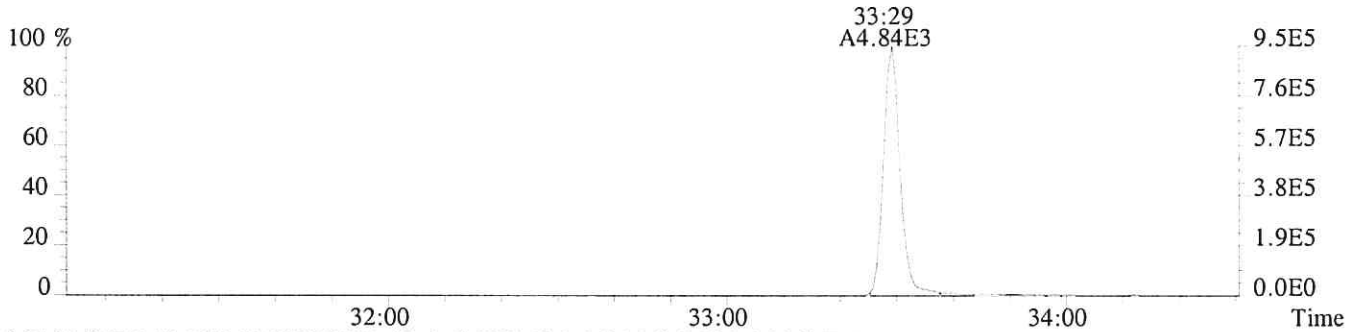


File:P407863 #1-312 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

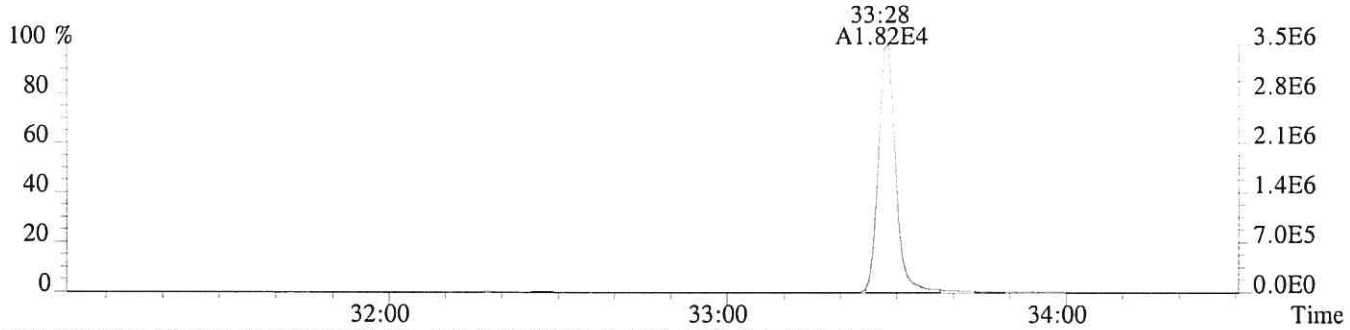
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



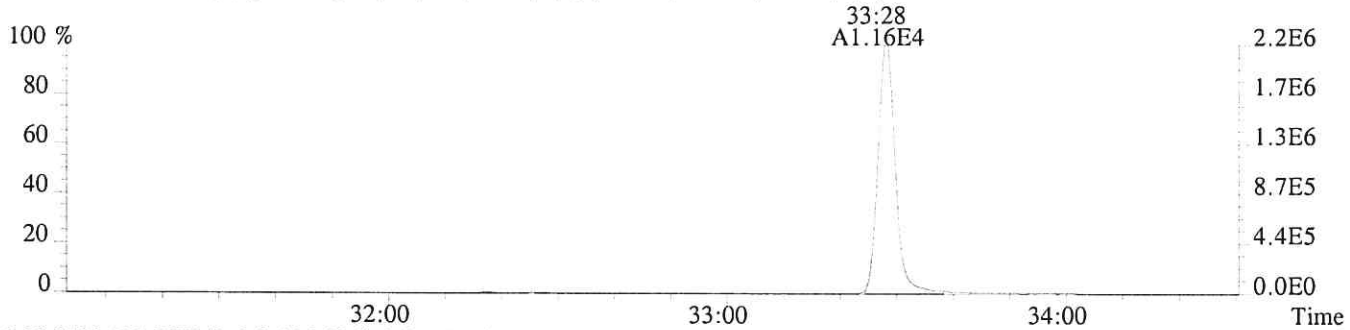
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,132.0,1.00%,F,T)



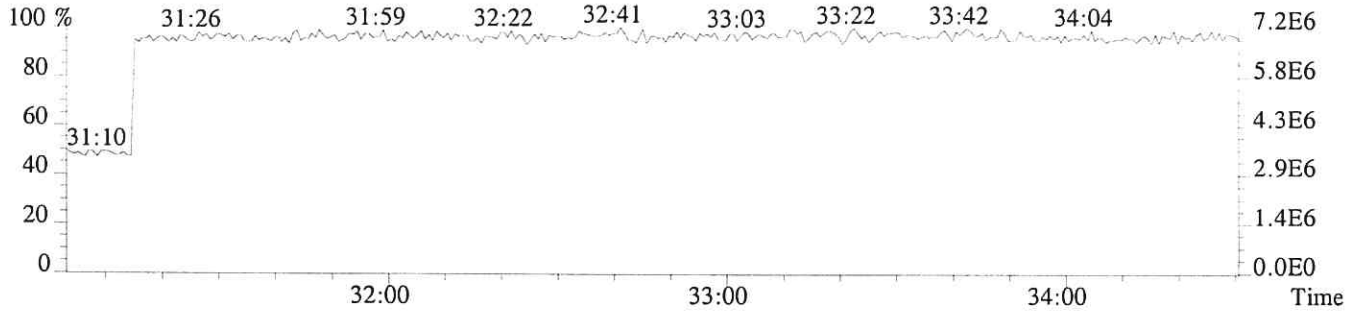
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)

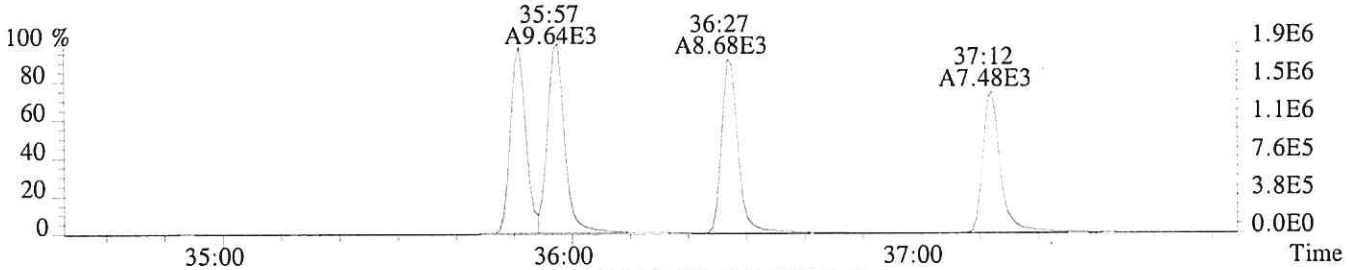


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

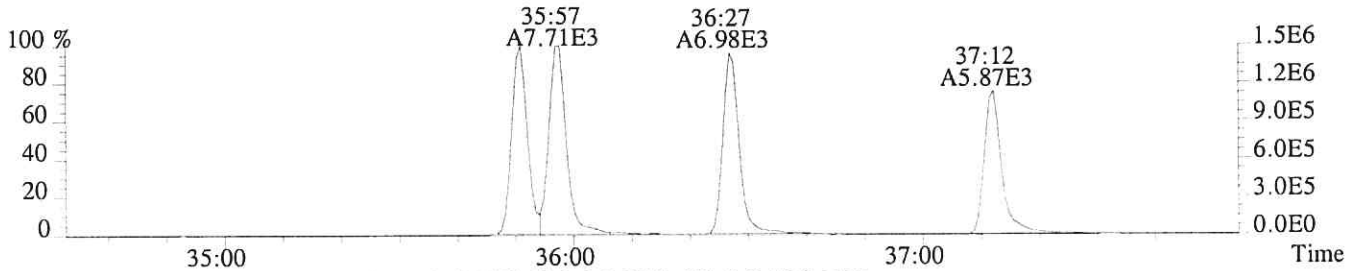


File:P407863 #1-303 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

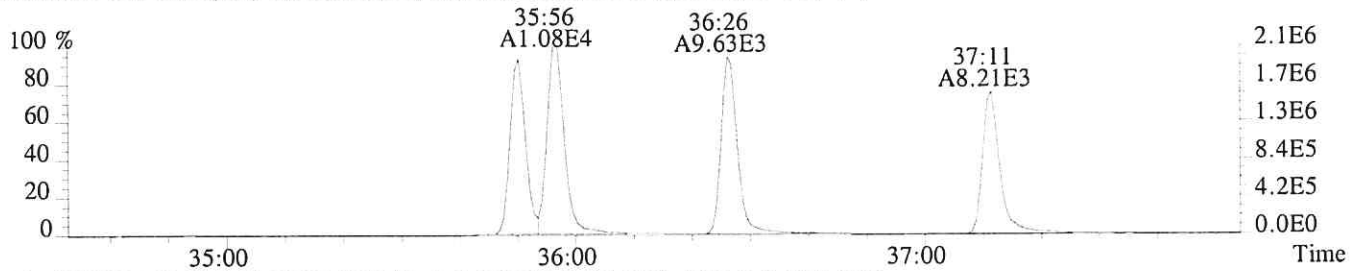
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



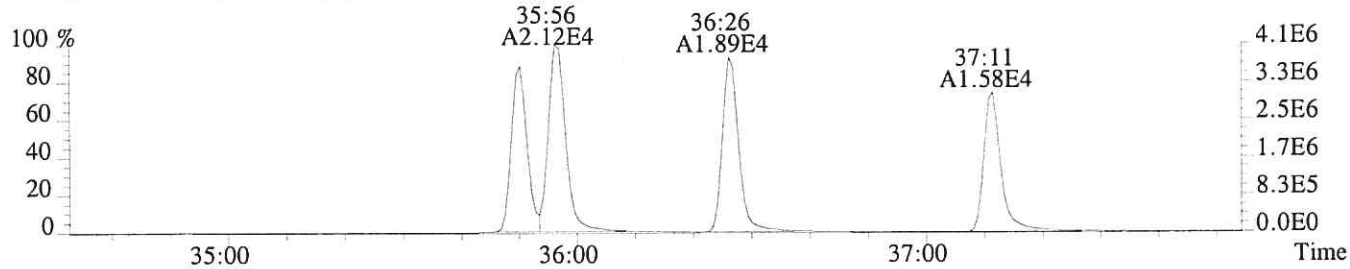
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



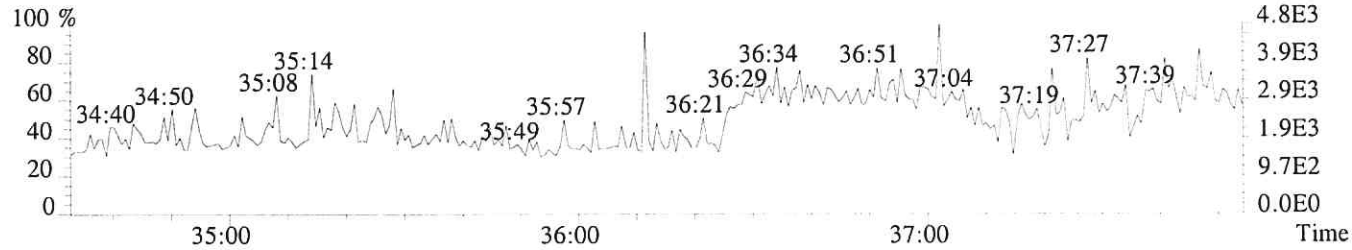
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



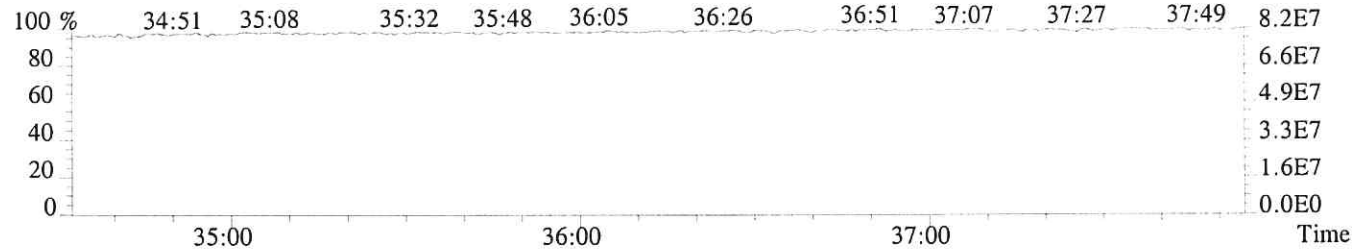
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



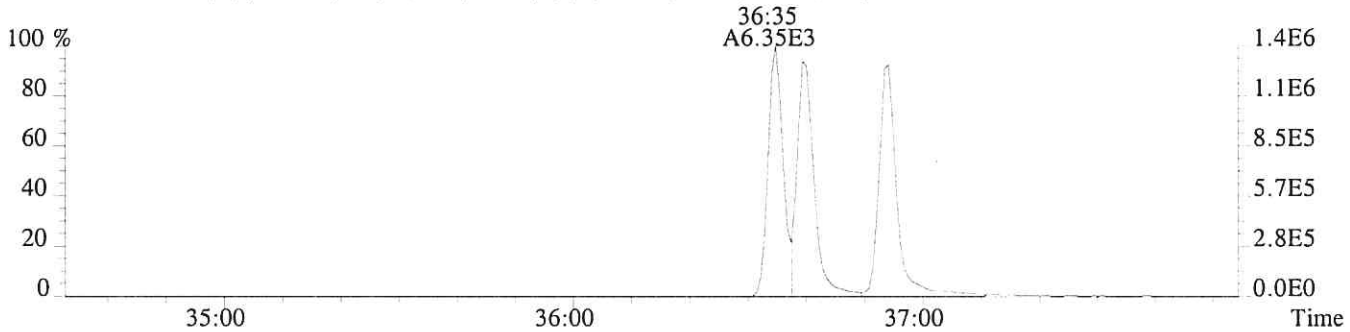
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



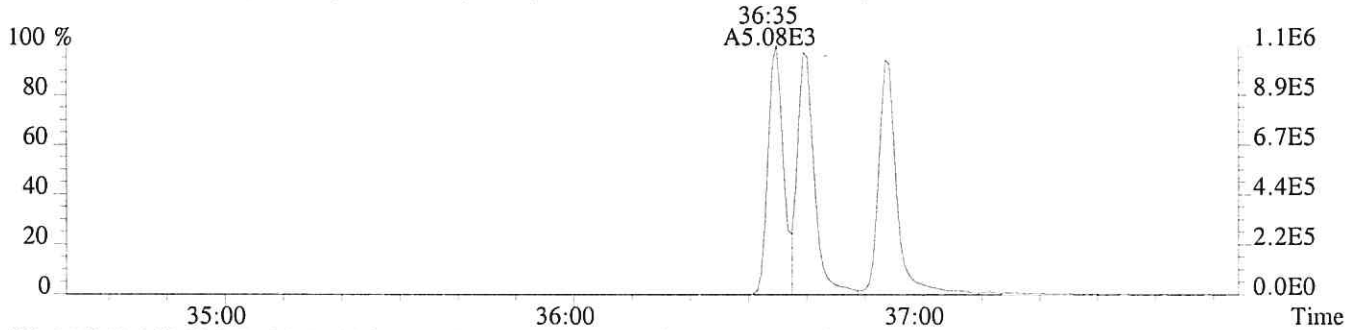
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



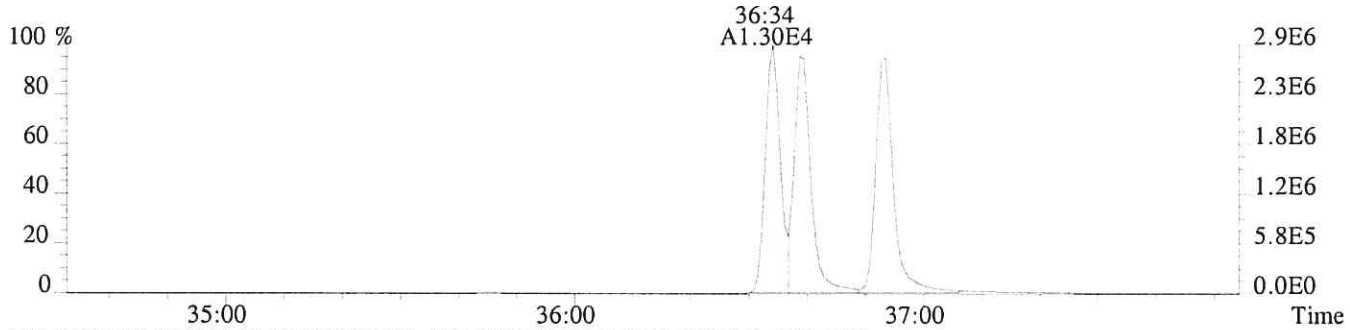
File:P407863 #1-303 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



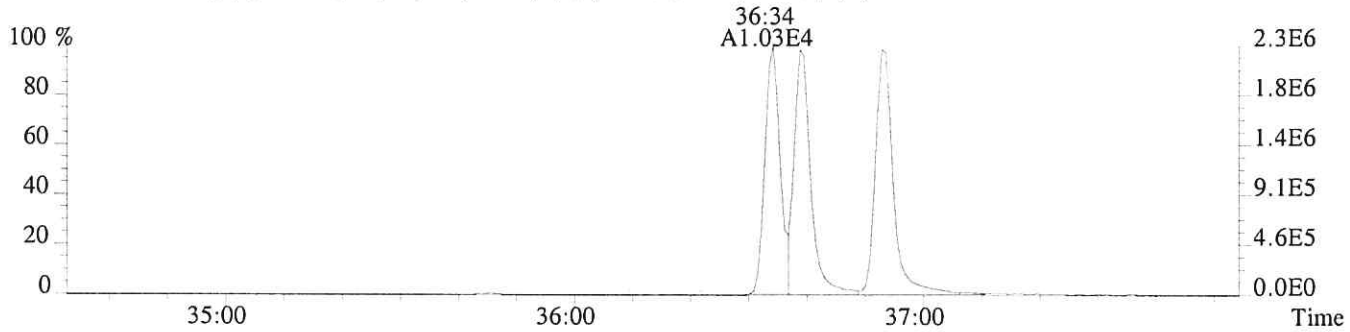
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



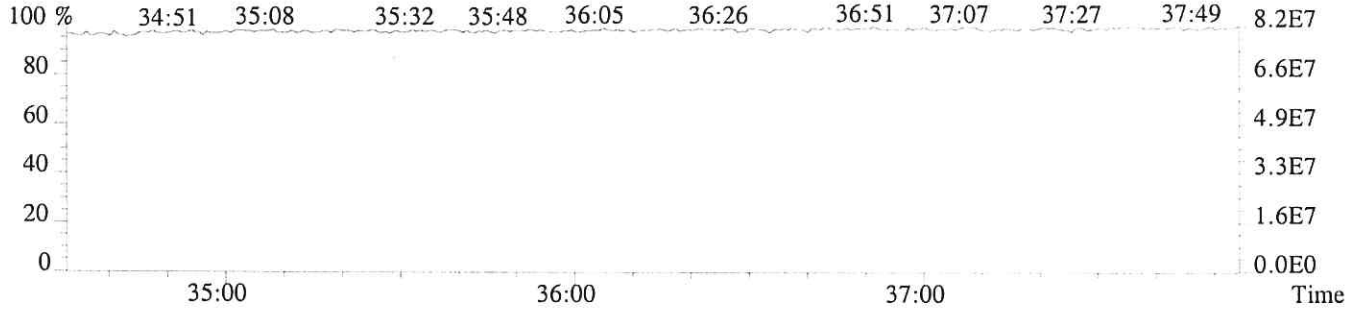
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)

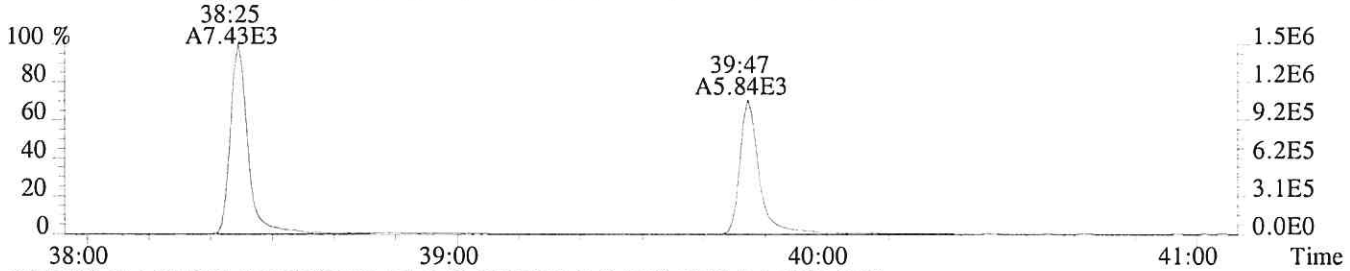


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

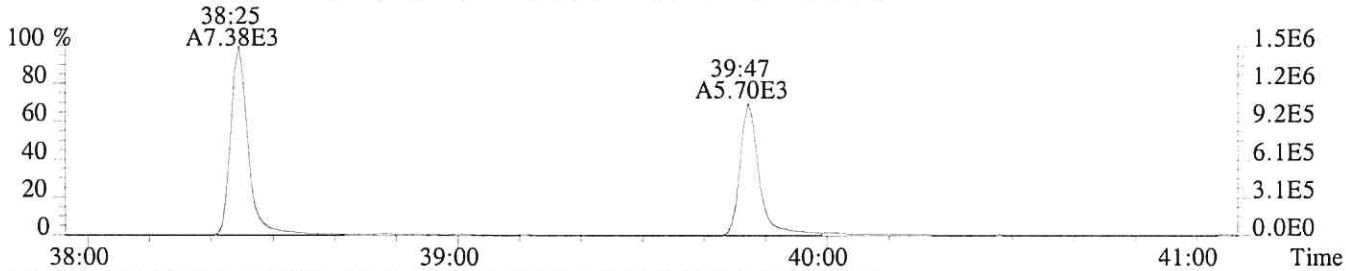


File:P407863 #1-286 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

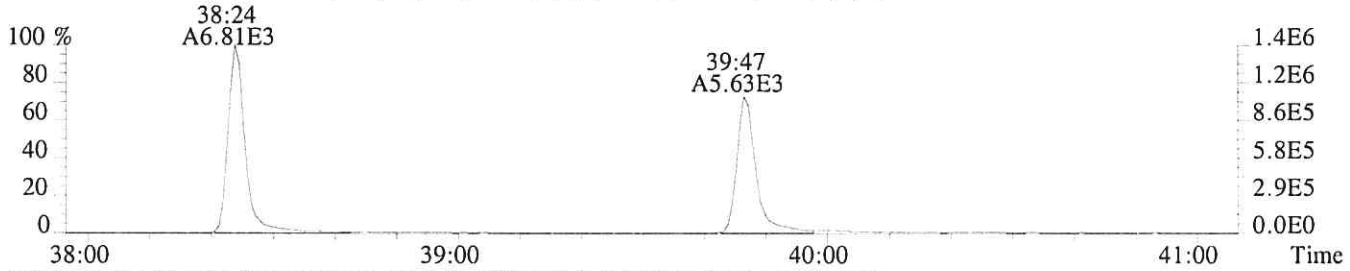
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1980.0,0.50%,F,T)



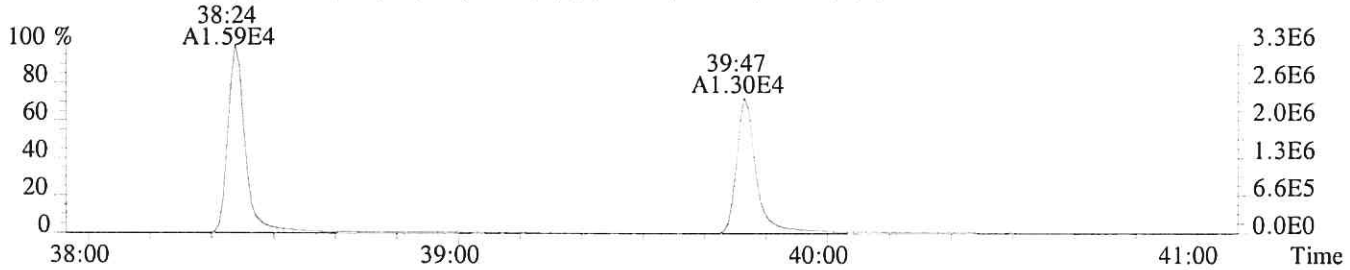
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.50%,F,T)



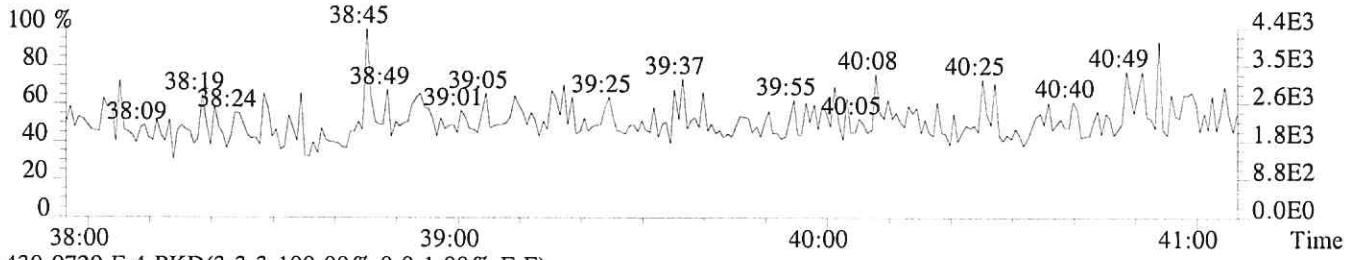
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1932.0,0.50%,F,T)



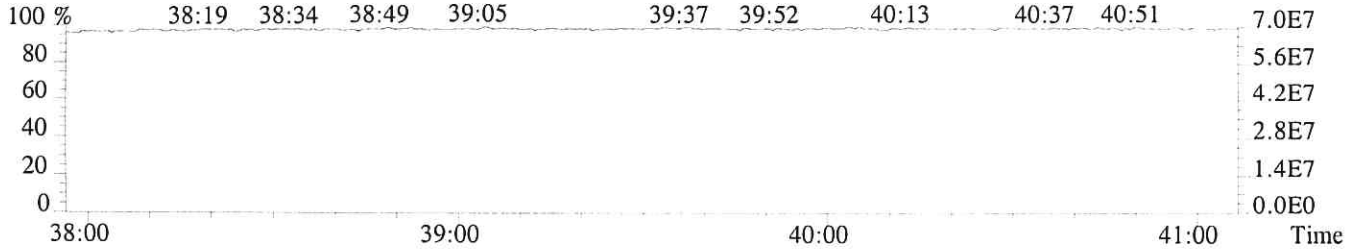
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3932.0,0.50%,F,T)



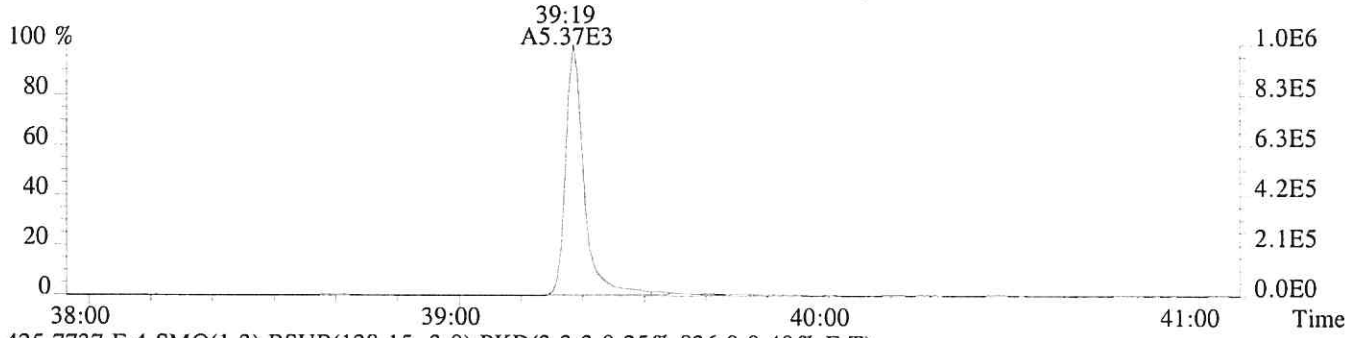
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



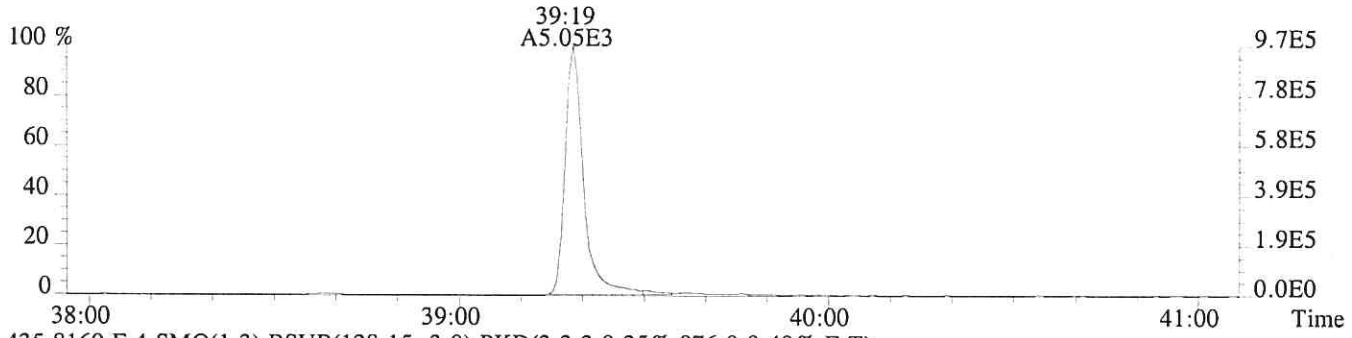
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



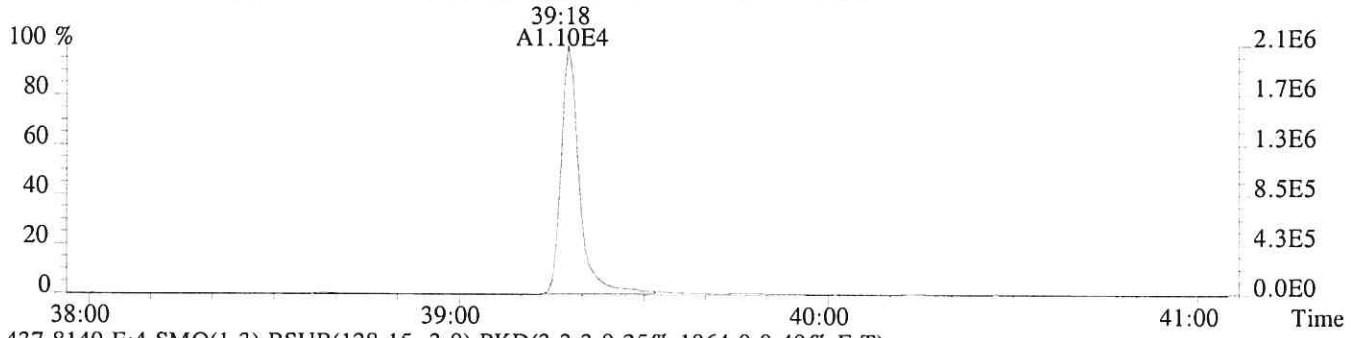
File:P407863 #1-286 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



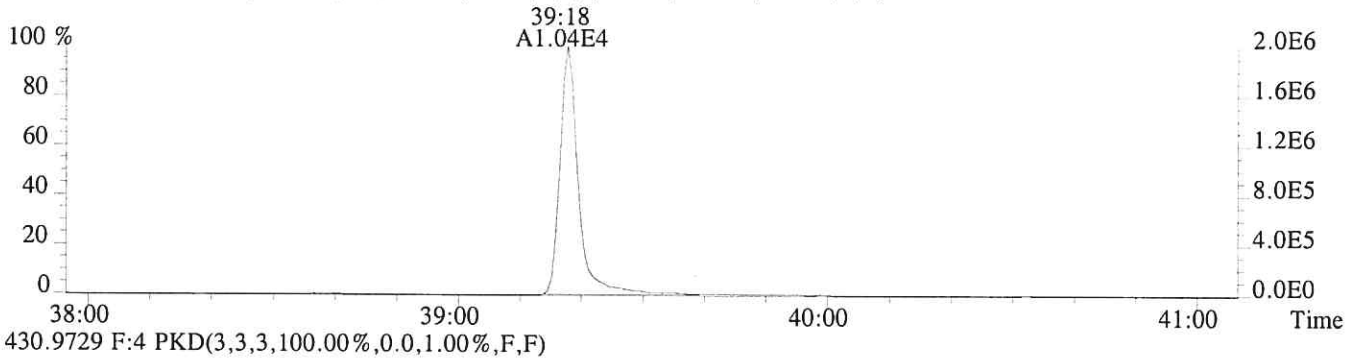
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



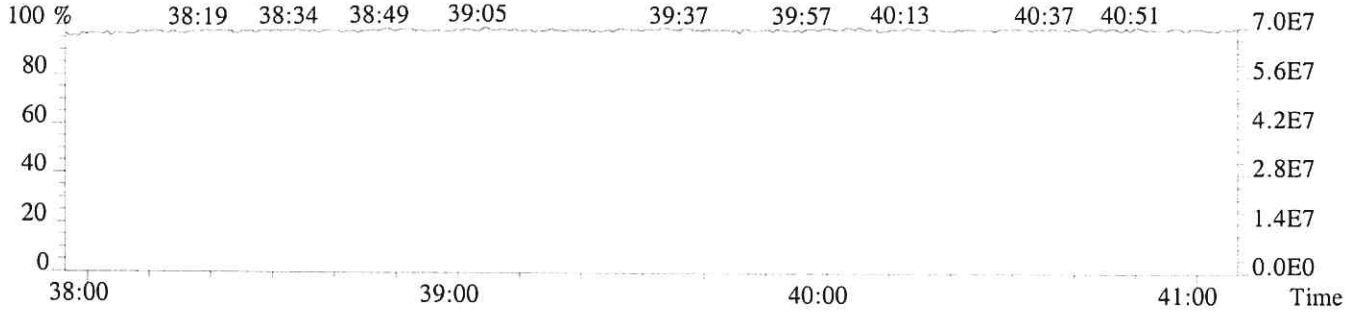
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)

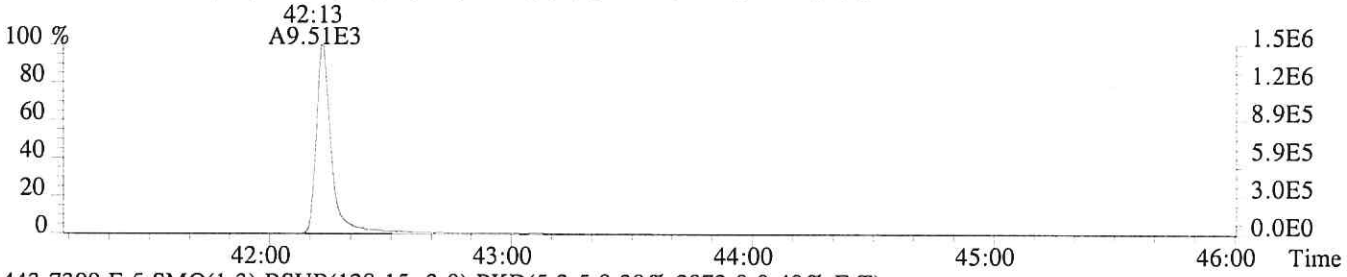


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

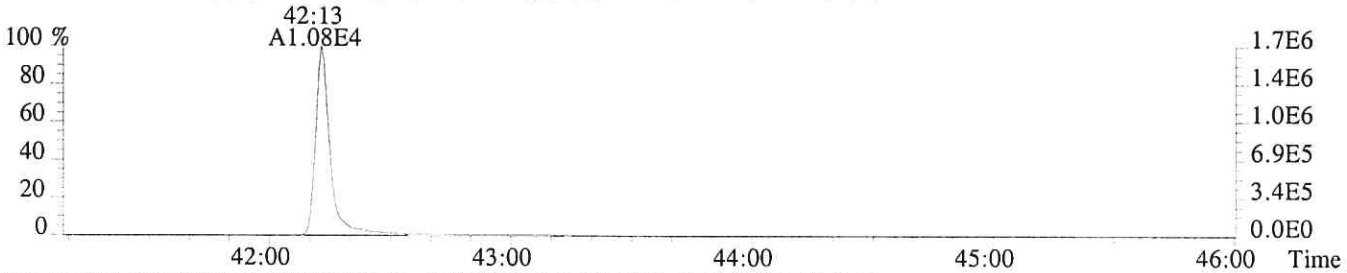


File:P407863 #1-438 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

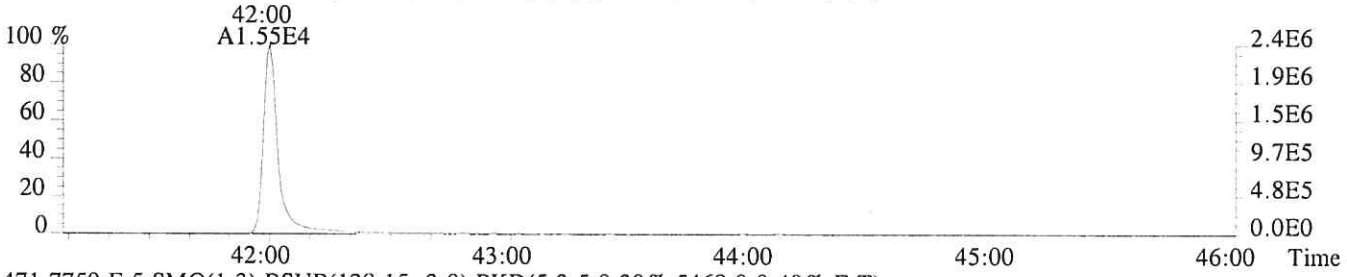
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



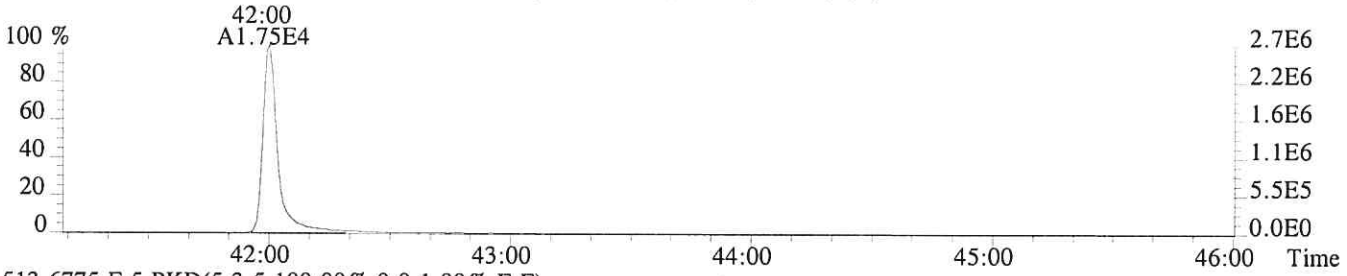
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2072.0,0.40%,F,T)



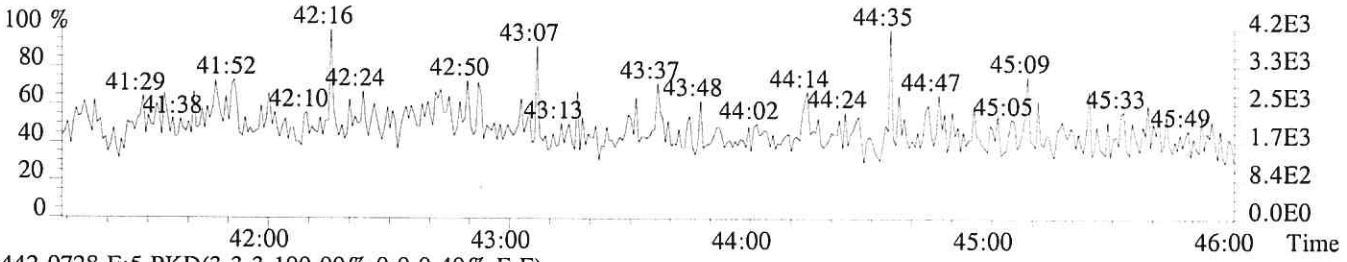
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4368.0,0.40%,F,T)



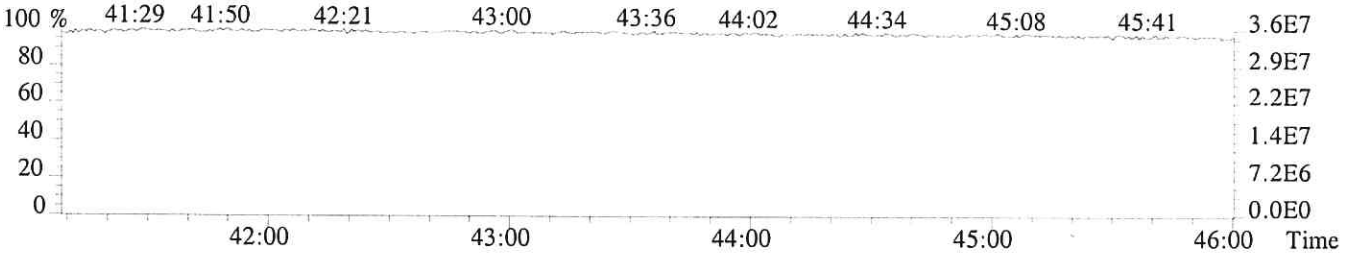
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5468.0,0.40%,F,T)



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

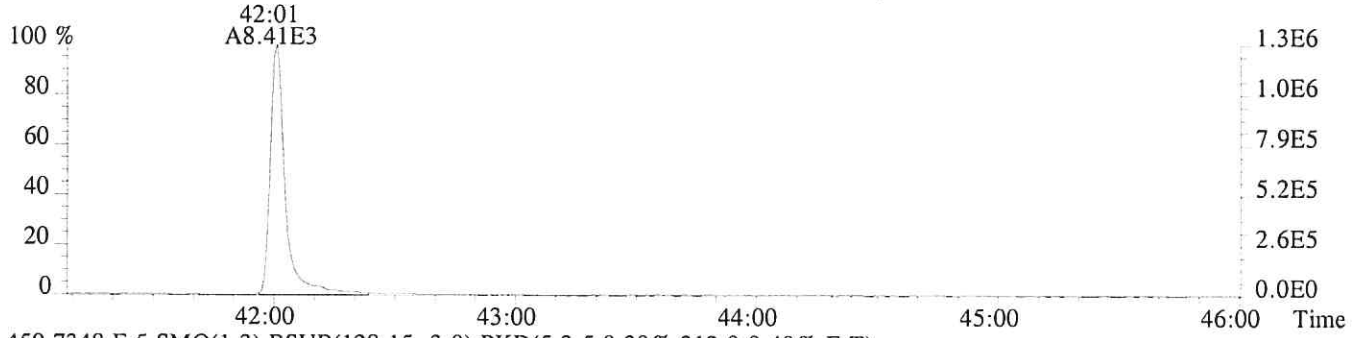


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

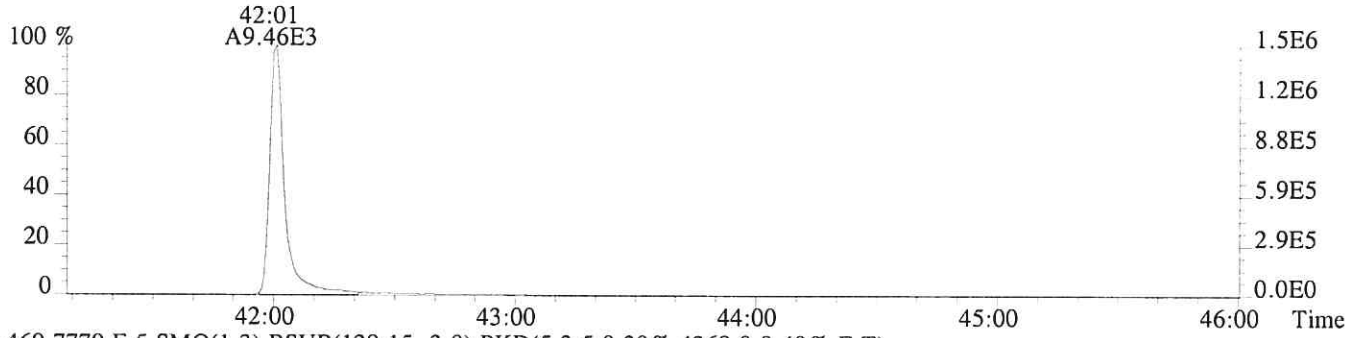


File:P407863 #1-438 Acq:15-SEP-2017 01:18:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

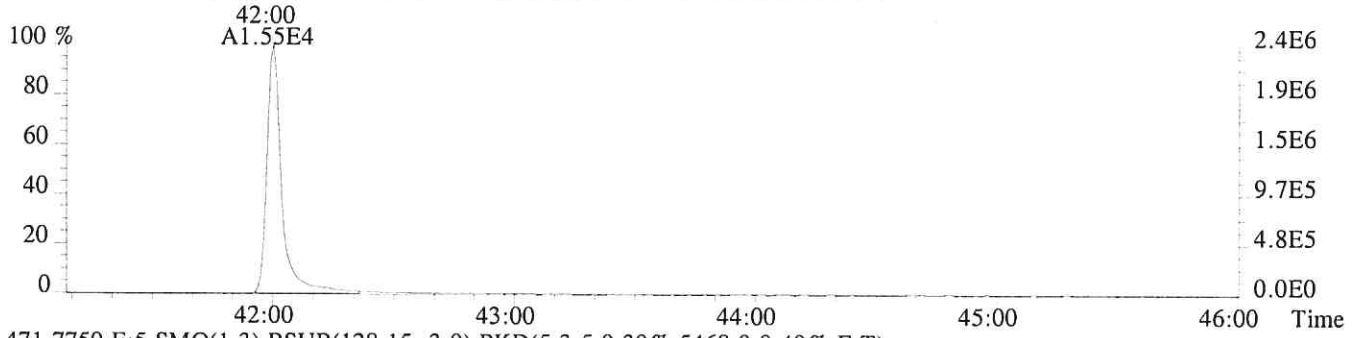
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2464.0,0.40%,F,T)



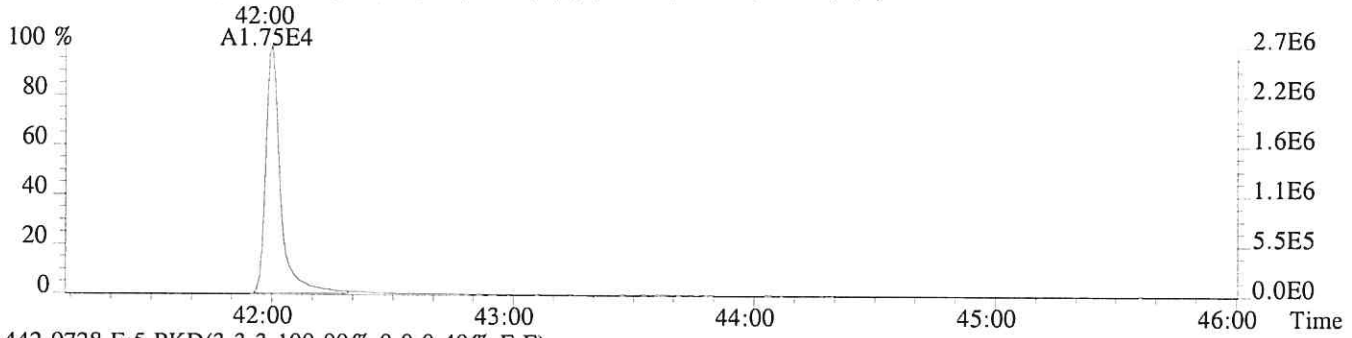
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



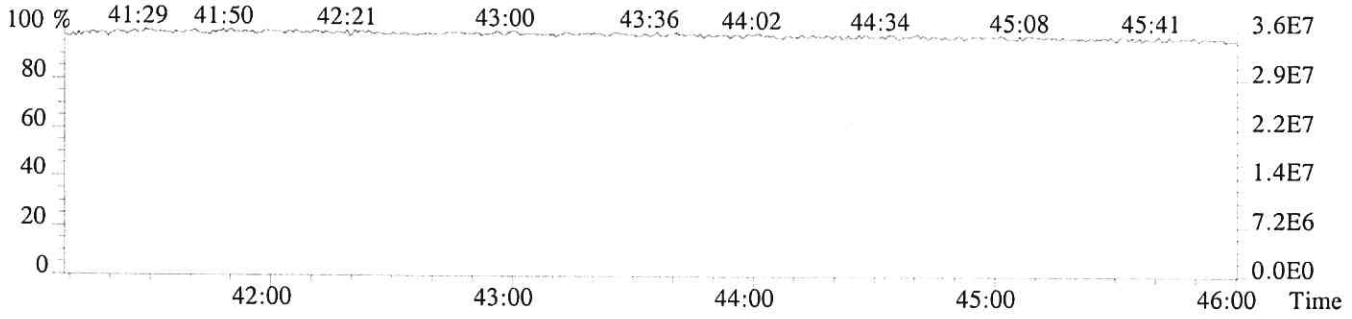
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4368.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5468.0,0.40%,F,T)



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



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P407876 – P407888 Circle one: Beginning / Ending

Date: 09/15/17

Method: 1613 / 1613E / 8290 / Tetra / TCDD Only / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: JC Second QC: LKL

ccalqc.xls 07/17/12

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID:E-HRMS-06

Init. Calib. Date: 09/01/2017

Init. Calib.Times: 14:07:08

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
87077	WINDOW DEFINE	P407877	15-SEP-17	13:06:32
183361	CS3	p407876	15-SEP-17	12:03:13
183361	CS3	p407888	15-SEP-17	22:14:48
METHOD BLANK	EQ1700377-01	p407878	15-SEP-17	13:54:28
IN53-17	K1708434-010	p407879	15-SEP-17	14:43:38
IN54-17	K1708434-011	p407880	15-SEP-17	15:32:46
IN56-17	K1708434-012	p407881	15-SEP-17	16:23:32
IN60-17	K1708434-013	p407882	15-SEP-17	17:11:26
IN61-17	K1708434-014	p407883	15-SEP-17	18:00:37
IN63-17	K1708434-015	p407884	15-SEP-17	18:49:49
IN73-17	K1708434-016	p407885	15-SEP-17	19:39:00
IN85-17	K1708434-017	p407886	15-SEP-17	20:28:10
LCS	EQ1700401-02	p407887	15-SEP-17	21:17:23

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\ehrms06.PRO\SampleDB\20170915A.SPL
Last Modified: Saturday, September 16, 2017 10:39:48 Central Daylight Time
Printed: Saturday, September 16, 2017 10:39:58 Central Daylight Time

8290

Page Position (1, 1)

OPUS-5: P407876 RES

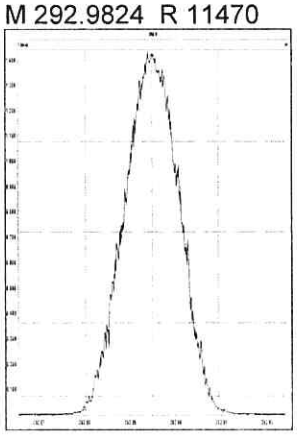
	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst (For LG)	Comments
1	09/15/17	12:03	P407876	183361	CS3	Tray1:2	epa1613_als	Dioxin_ALS	LKL	HRMS check 13:01
2		13:26	P407877	178397	WINDOW DEFINE	Tray1:1	epa1613_als	Dioxin_ALS		
3		13:54	P407878	EQ1700377-01	MB	Tray1:3	epa1613_als	Dioxin_ALS		
4		14:45	P407879	K1708434-010	K1708434-010	Tray1:4	epa1613_als	Dioxin_ALS		NEED RE-INJ
5		15:32	P407880	K1708434-011	K1708434-011	Tray1:5	epa1613_als	Dioxin_ALS		
6		16:23	P407881	K1708434-012	K1708434-012	Tray1:6	epa1613_als	Dioxin_ALS		
7		17:11	P407882	K1708434-013	K1708434-013	Tray1:7	epa1613_als	Dioxin_ALS		
8		18:00	P407883	K1708434-014	K1708434-014	Tray1:8	epa1613_als	Dioxin_ALS		
9		18:49	P407884	K1708434-015	K1708434-015	Tray1:9	epa1613_als	Dioxin_ALS		
10		19:39	P407885	K1708434-016	K1708434-016	Tray1:10	epa1613_als	Dioxin_ALS		
11		20:28	P407886	K1708434-017	K1708434-017	Tray1:11	epa1613_als	Dioxin_ALS		
12		21:17	P407887	EQ1700401-02	LCS	Tray1:12	epa1613_als	Dioxin_ALS		
13		22:14	P407888	183361	CS3	Tray1:2	epa1613_als	Dioxin_ALS		HRMS check 22:14
14	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
15	—	—	—	—	—	Tray1:1	epa1613_als	Dioxin_ALS	—	—
16	—	—	—	—	—	Tray1:16	epa1613_als	Dioxin_ALS	—	—
17	—	—	—	—	—	Tray1:17	epa1613_als	Dioxin_ALS	—	—
18	—	—	—	—	—	Tray1:18	epa1613_als	Dioxin_ALS	—	—
19	—	—	—	—	—	Tray1:19	epa1613_als	Dioxin_ALS	—	—
20	—	—	—	—	—	Tray1:20	epa1613_als	Dioxin_ALS	—	—
21	—	—	—	—	—	Tray1:21	epa1613_als	Dioxin_ALS	—	—
22	—	—	—	—	—	Tray1:22	epa1613_als	Dioxin_ALS	—	—
23	—	—	—	—	—	Tray1:23	epa1613_als	Dioxin_ALS	—	—
24	—	—	—	—	—	Tray1:24	epa1613_als	Dioxin_ALS	—	—
25	—	—	—	—	—	Tray1:25	epa1613_als	Dioxin_ALS	—	—
26	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
27	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
28	—	—	—	—	—	Tray1:28	epa1613_als	Dioxin_ALS	—	—
29	—	—	—	—	—	Tray1:29	epa1613_als	Dioxin_ALS	—	—
30	—	—	—	09/18/17	—	Tray1:30	epa1613_als	Dioxin_ALS	—	—
31	—	—	JC	—	—	Tray1:31	epa1613_als	Dioxin_ALS	—	—
32	—	—	—	—	—	Tray1:32	epa1613_als	Dioxin_ALS	—	—
33	—	—	—	—	—	Tray1:33	epa1613_als	Dioxin_ALS	—	—
34	—	—	—	—	—	Tray1:34	epa1613_als	Dioxin_ALS	—	—
35	—	—	—	—	—	Tray1:35	epa1613_als	Dioxin_ALS	—	—
36	—	—	—	—	—	Tray1:36	epa1613_als	Dioxin_ALS	—	—
37	—	—	—	—	—	Tray1:37	epa1613_als	Dioxin_ALS	—	—
38	—	—	—	—	—	Tray1:38	epa1613_als	Dioxin_ALS	—	—
39	—	—	—	—	—	Tray1:39	epa1613_als	Dioxin_ALS	—	—

004

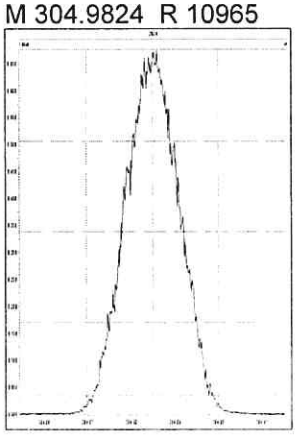
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, September 15, 2017 13:01:34 Central Daylight Time

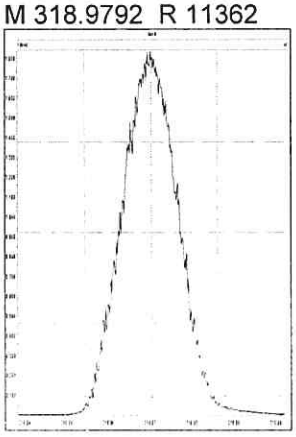
M 292.9824 R 11470



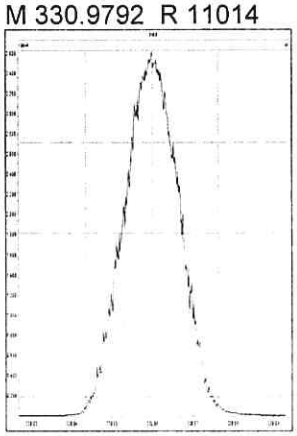
M 304.9824 R 10965



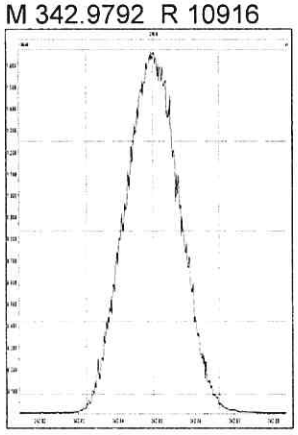
M 318.9792 R 11362



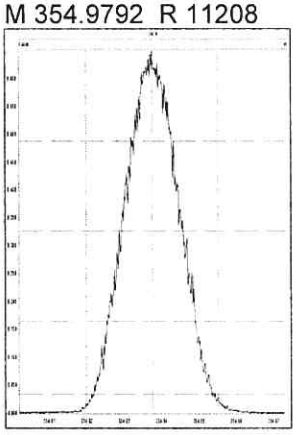
M 330.9792 R 11014



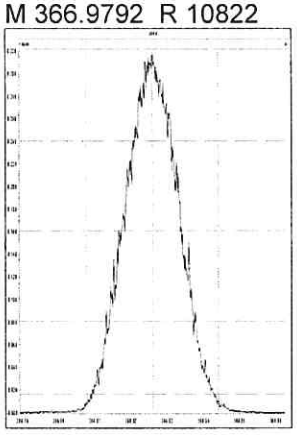
M 342.9792 R 10916



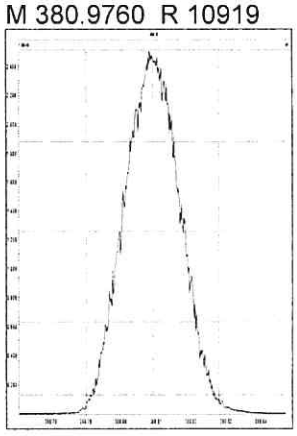
M 354.9792 R 11208



M 366.9792 R 10822



M 380.9760 R 10919

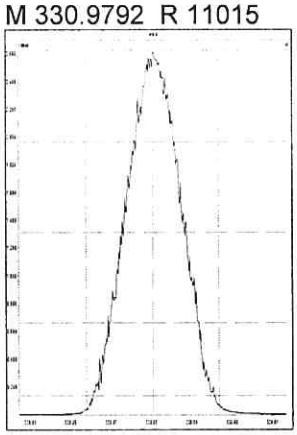


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

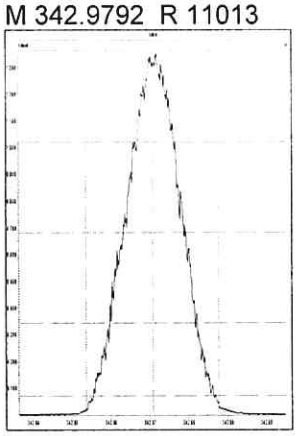
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, September 15, 2017 13:02:51 Central Daylight Time

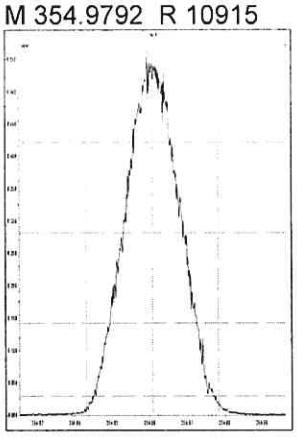
M 330.9792 R 11015



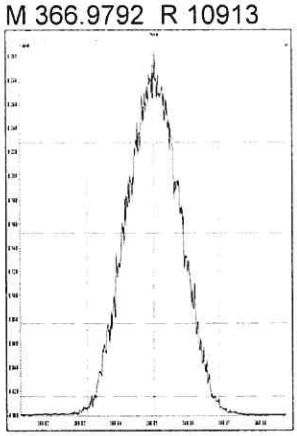
M 342.9792 R 11013



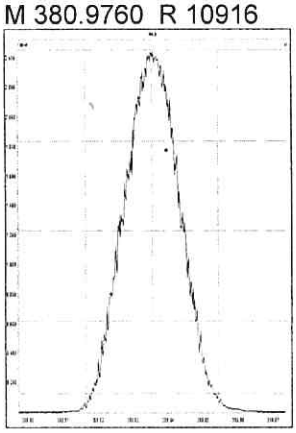
M 354.9792 R 10915



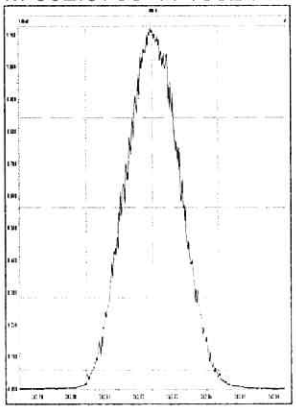
M 366.9792 R 10913



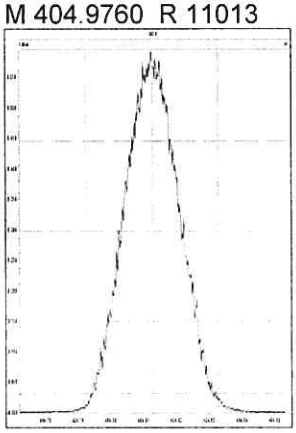
M 380.9760 R 10916



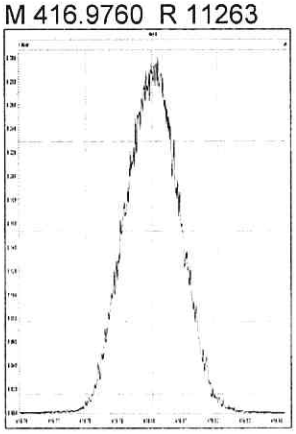
M 392.9760 R 10824



M 404.9760 R 11013



M 416.9760 R 11263

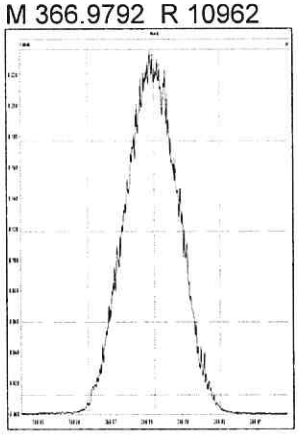


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

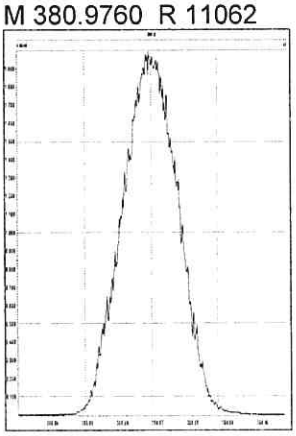
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, September 15, 2017 13:03:47 Central Daylight Time

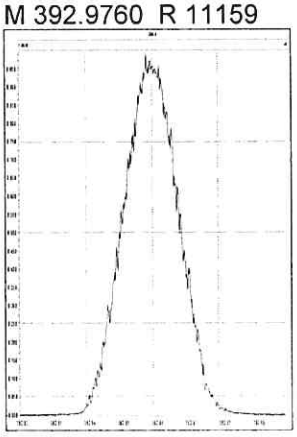
M 366.9792 R 10962



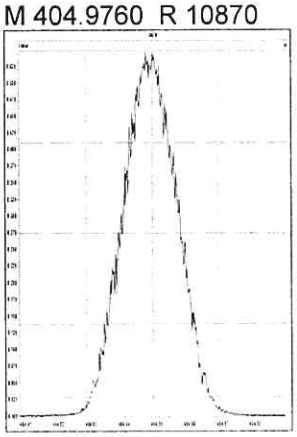
M 380.9760 R 11062



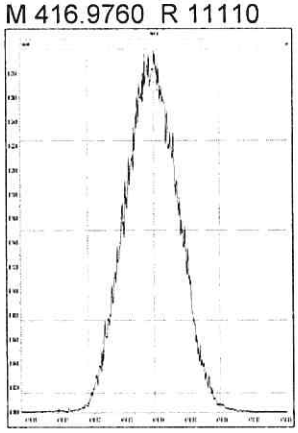
M 392.9760 R 11159



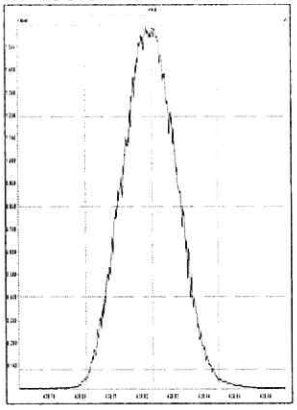
M 404.9760 R 10870



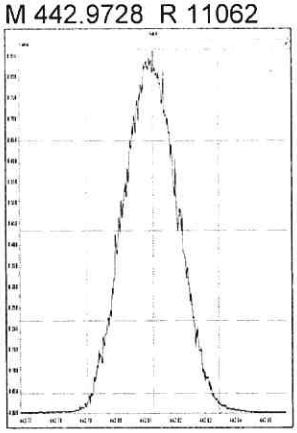
M 416.9760 R 11110



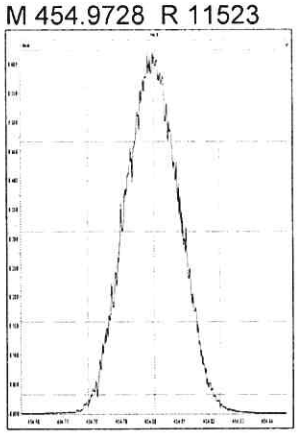
M 430.9728 R 10914



M 442.9728 R 11062



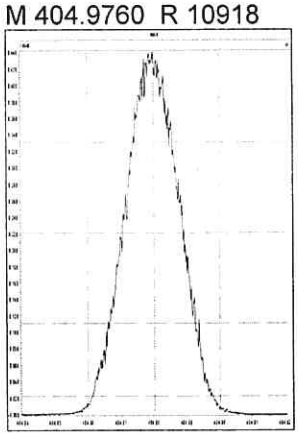
M 454.9728 R 11523



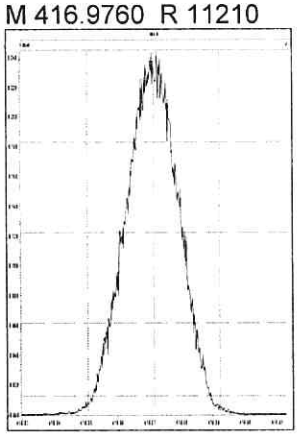
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, September 15, 2017 13:04:53 Central Daylight Time

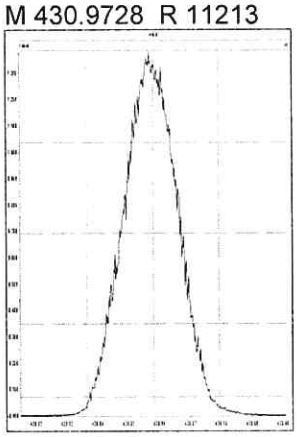
M 404.9760 R 10918



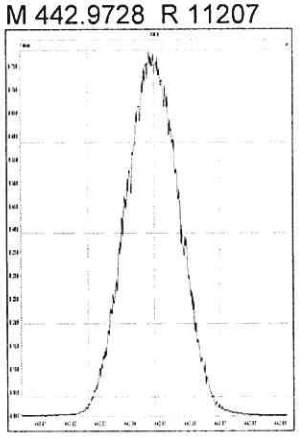
M 416.9760 R 11210



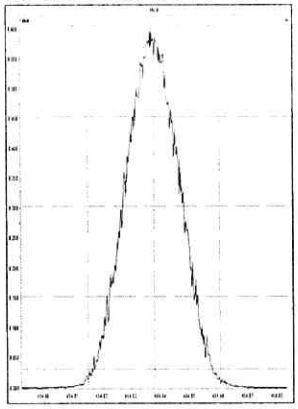
M 430.9728 R 11213



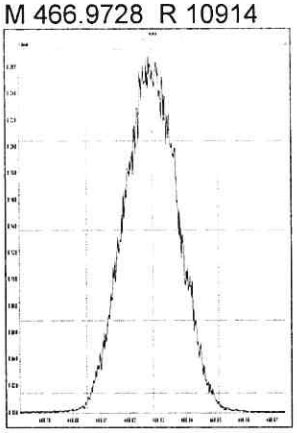
M 442.9728 R 11207



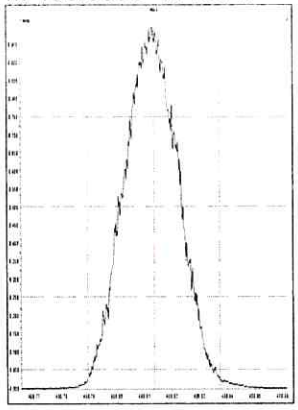
M 454.9728 R 11110



M 466.9728 R 10914



M 480.9696 R 10917



File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

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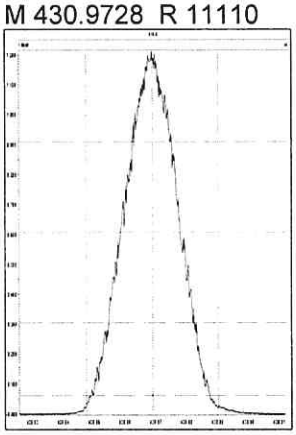
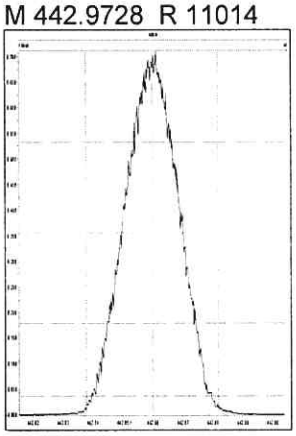
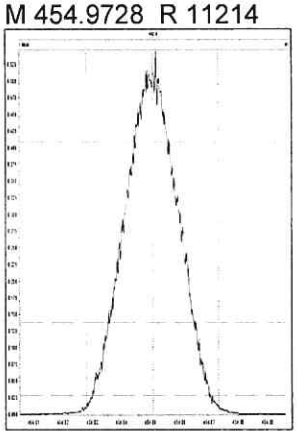
M 430.9728 R 11110



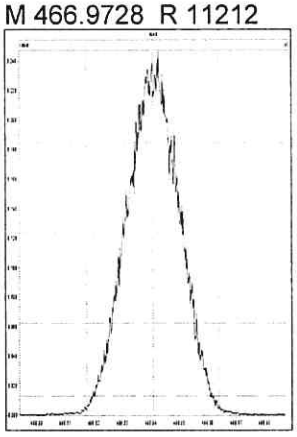
M 442.9728 R 11014



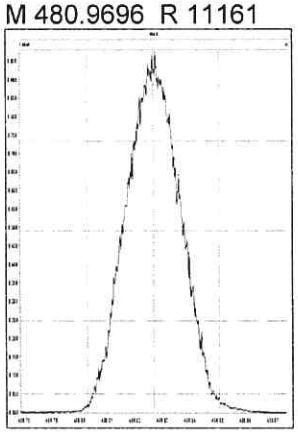
M 454.9728 R 11214



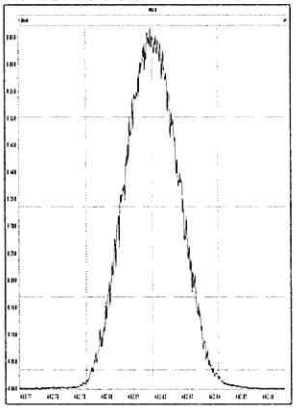
M 466.9728 R 11212



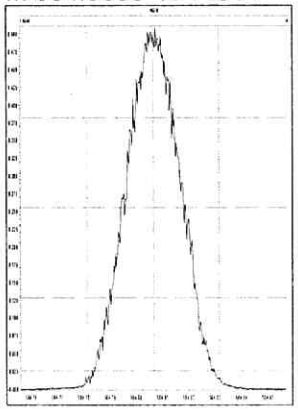
M 480.9696 R 11161



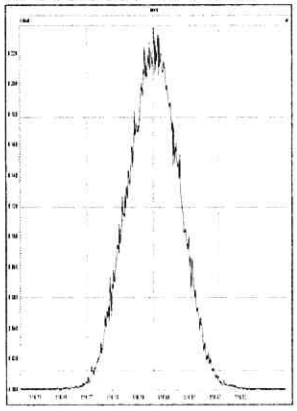
M 492.9696 R 11163



M 504.9696 R 11014



M 516.9697 R 11257



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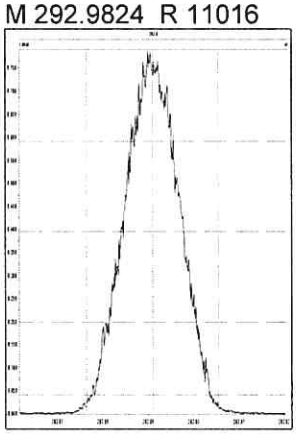
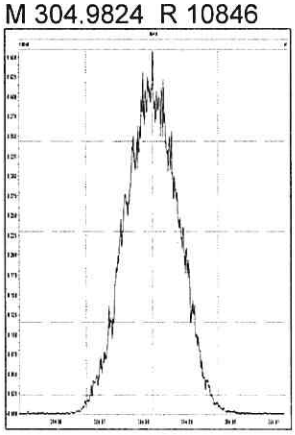
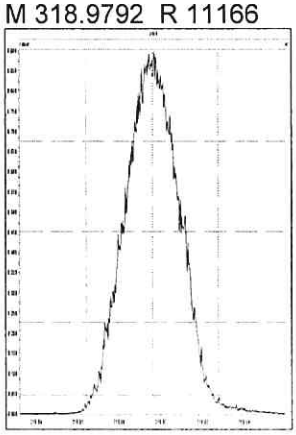
M 292.9824 R 11016



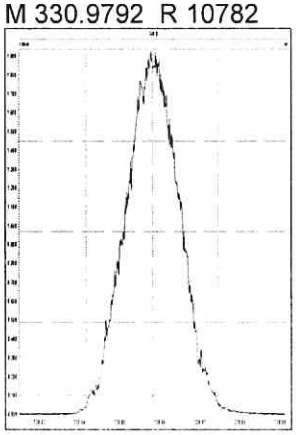
M 304.9824 R 10846



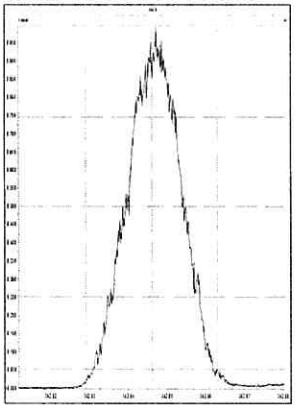
M 318.9792 R 11166



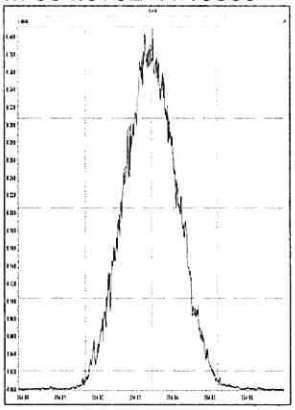
M 330.9792 R 10782



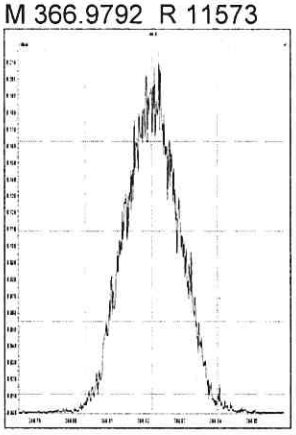
M 342.9792 R 10825



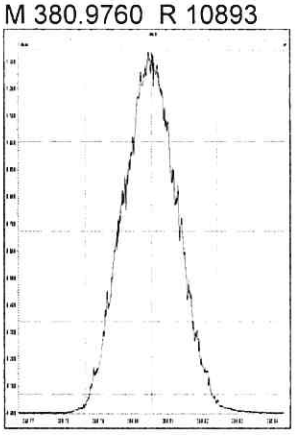
M 354.9792 R 10869



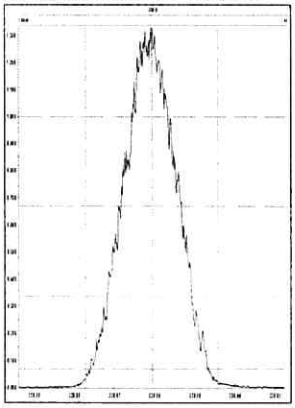
M 366.9792 R 11573



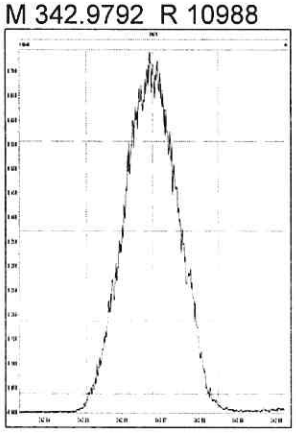
M 380.9760 R 10893



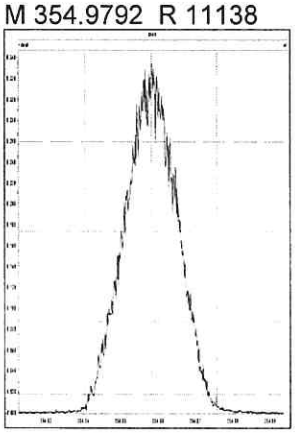
M 330.9792 R 11086



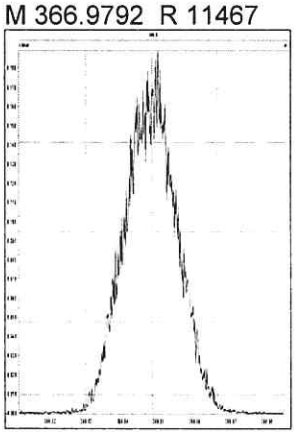
M 342.9792 R 10988



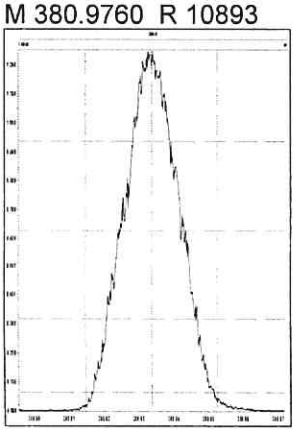
M 354.9792 R 11138



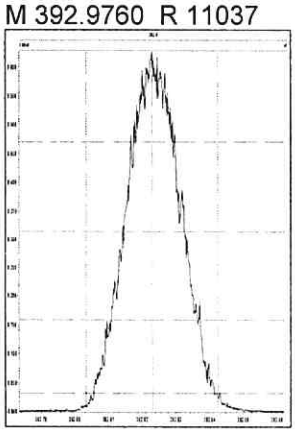
M 366.9792 R 11467



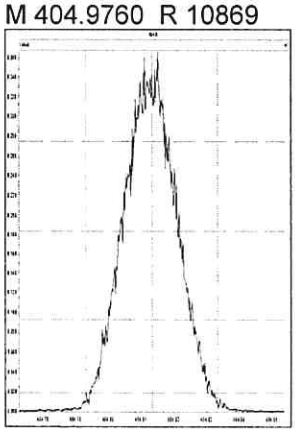
M 380.9760 R 10893



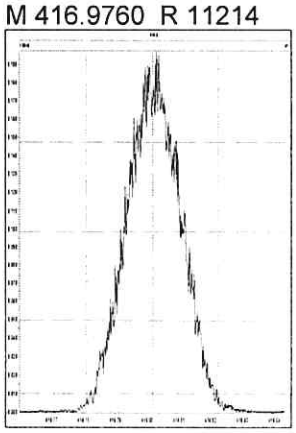
M 392.9760 R 11037



M 404.9760 R 10869



M 416.9760 R 11214



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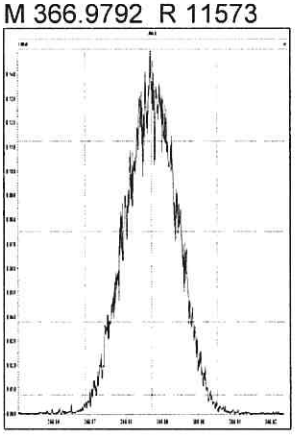
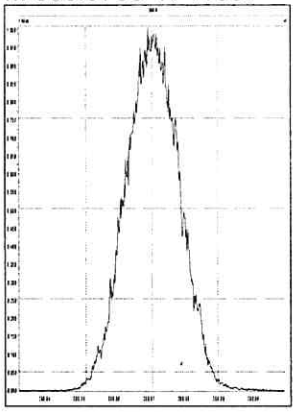
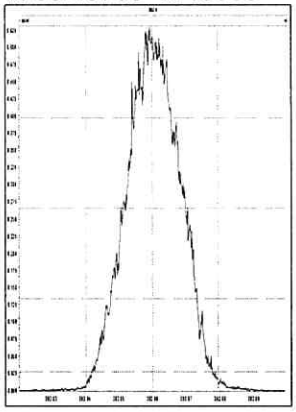
M 366.9792 R 11573



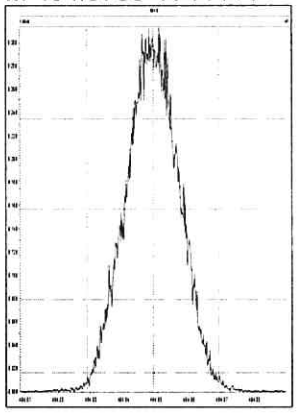
M 380.9760 R 11087



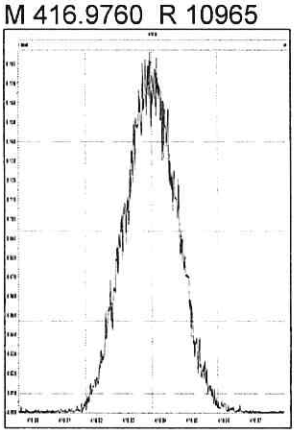
M 392.9760 R 10988



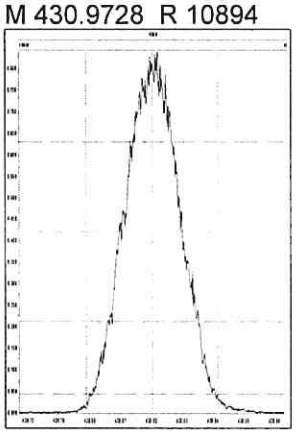
M 404.9760 R 11111



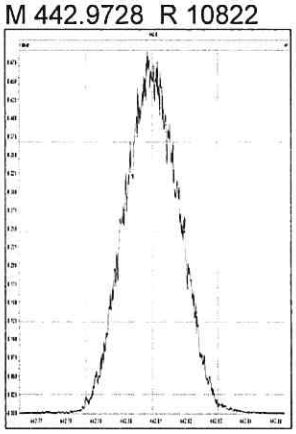
M 416.9760 R 10965



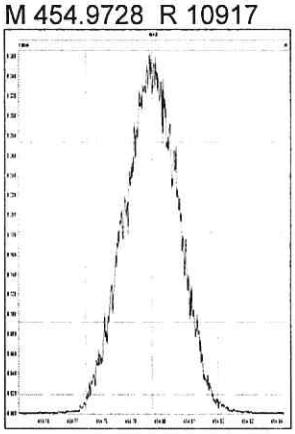
M 430.9728 R 10894



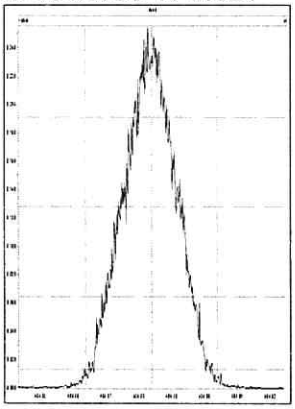
M 442.9728 R 10822



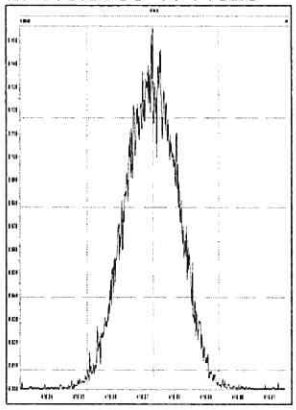
M 454.9728 R 10917



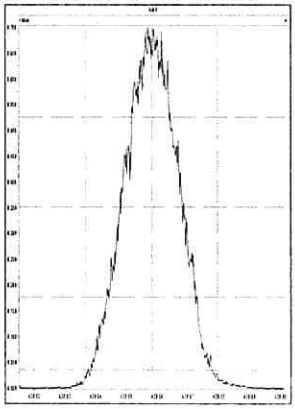
M 404.9760 R 11521



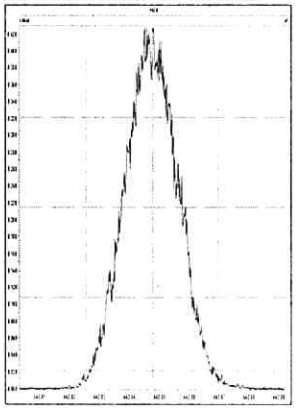
M 416.9760 R 11320



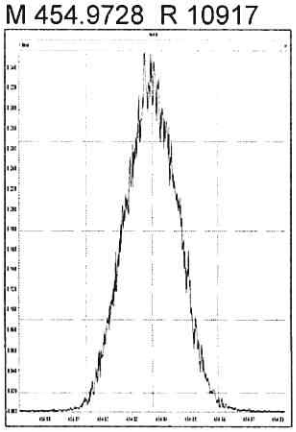
M 430.9728 R 10599



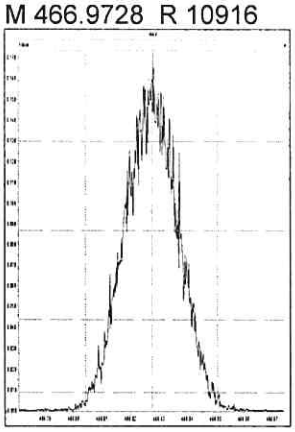
M 442.9728 R 10940



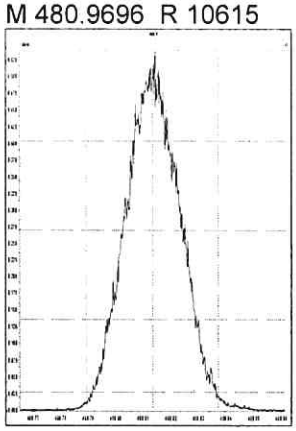
M 454.9728 R 10917



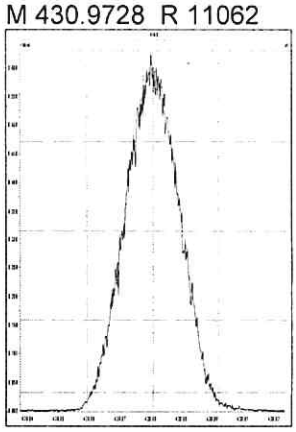
M 466.9728 R 10916



M 480.9696 R 10615

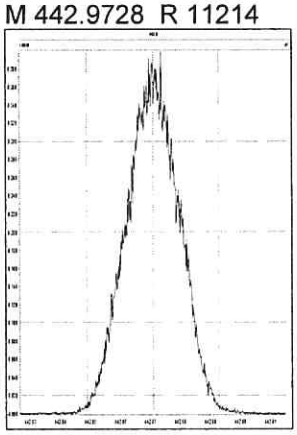


M 430.9728 R 11062

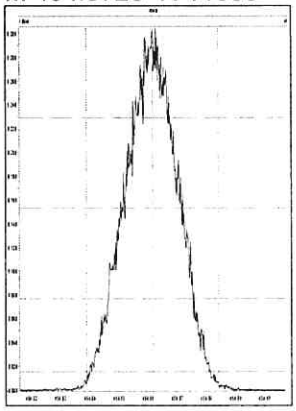


Printed: Friday, September 15, 2017 22:14:46 Central Daylight Time

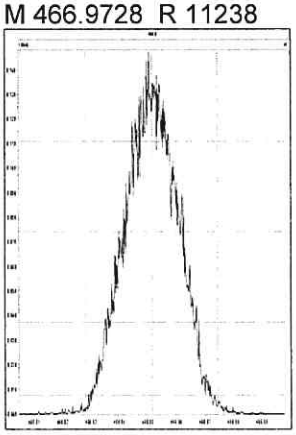
M 442.9728 R 11214



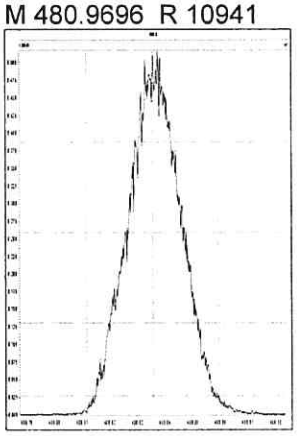
M 454.9728 R 11089



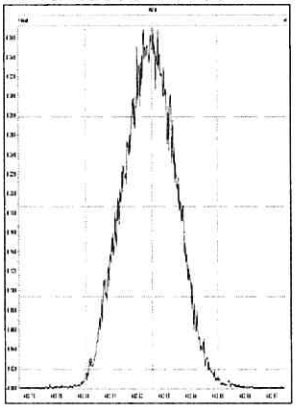
M 466.9728 R 11238



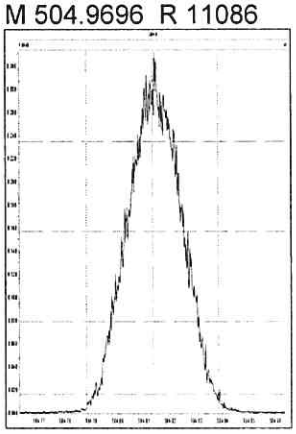
M 480.9696 R 10941



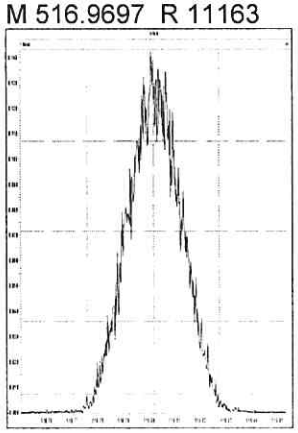
M 492.9696 R 10917



M 504.9696 R 11086



M 516.9697 R 11163



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

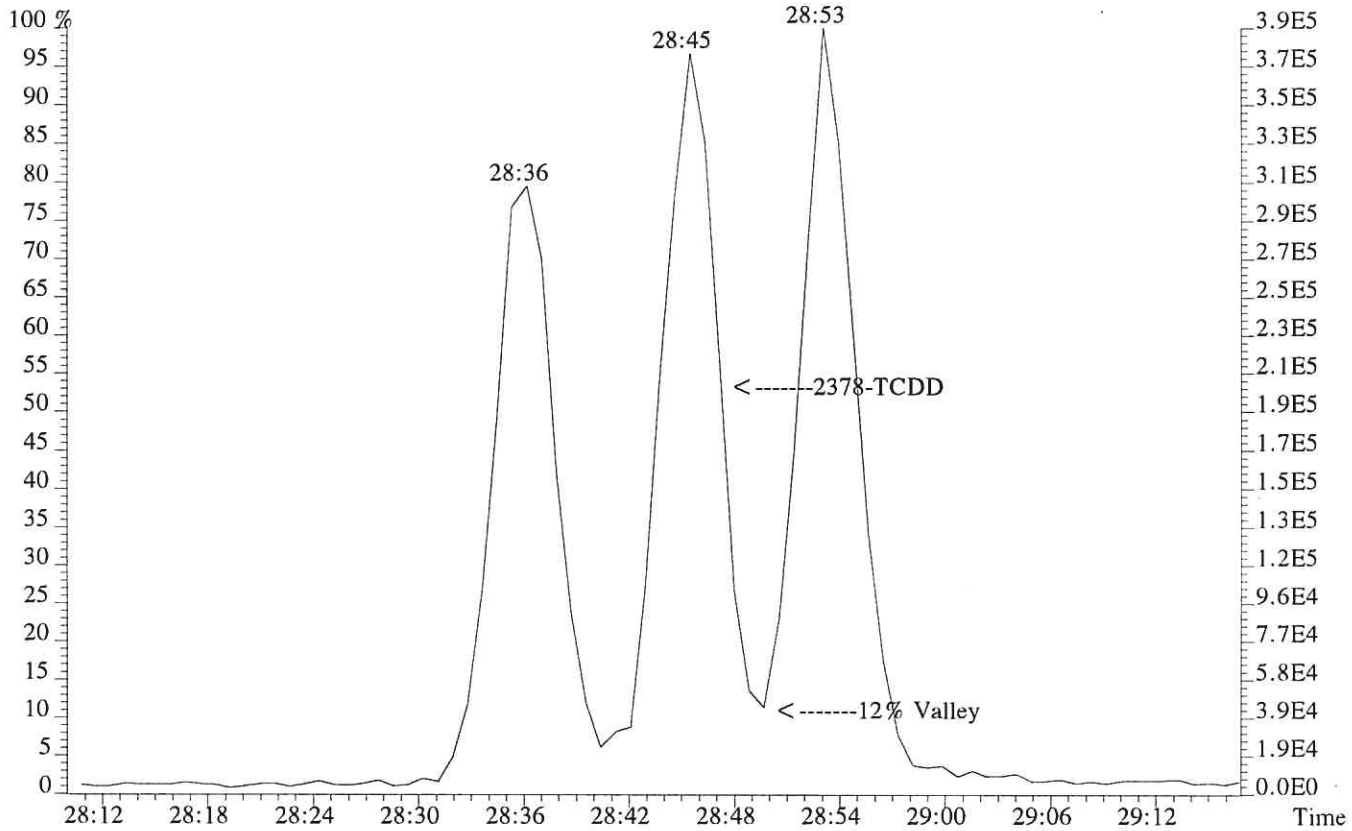
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P407877
Date Analyzed: 15-SEP-17
Time Analyzed: 13:06:32

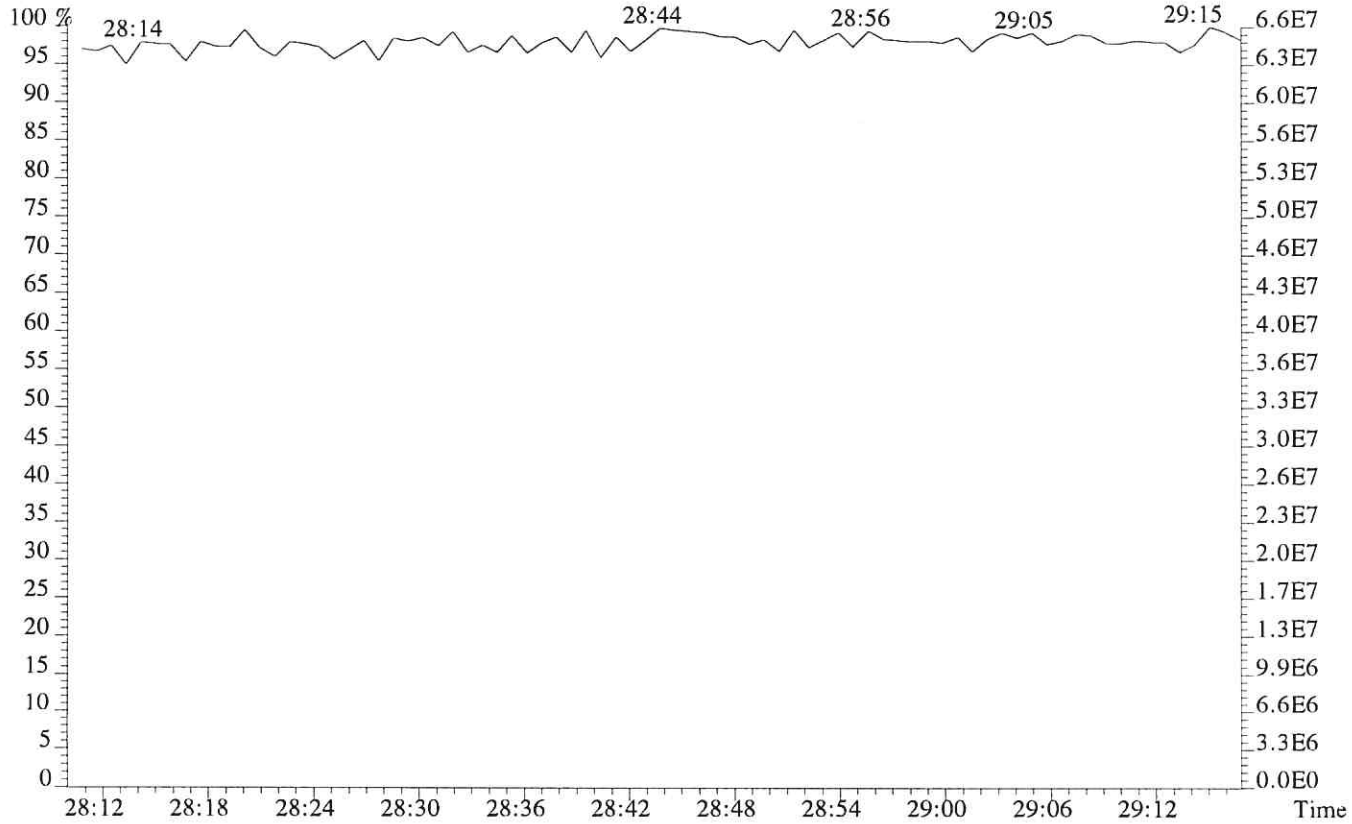
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:33	29:57
TCDD	25:24	29:46
PeCDF	29:51	34:06
PeCDD	31:22	33:50
HxCDF	34:43	37:12
HxCDD	35:13	36:48
HpCDF	38:23	39:47
HpCDD	38:38	39:17

% Valley 2378-TCDD: 12 %

File:P407877 #1-602 Acq:15-SEP-2017 13:06:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792



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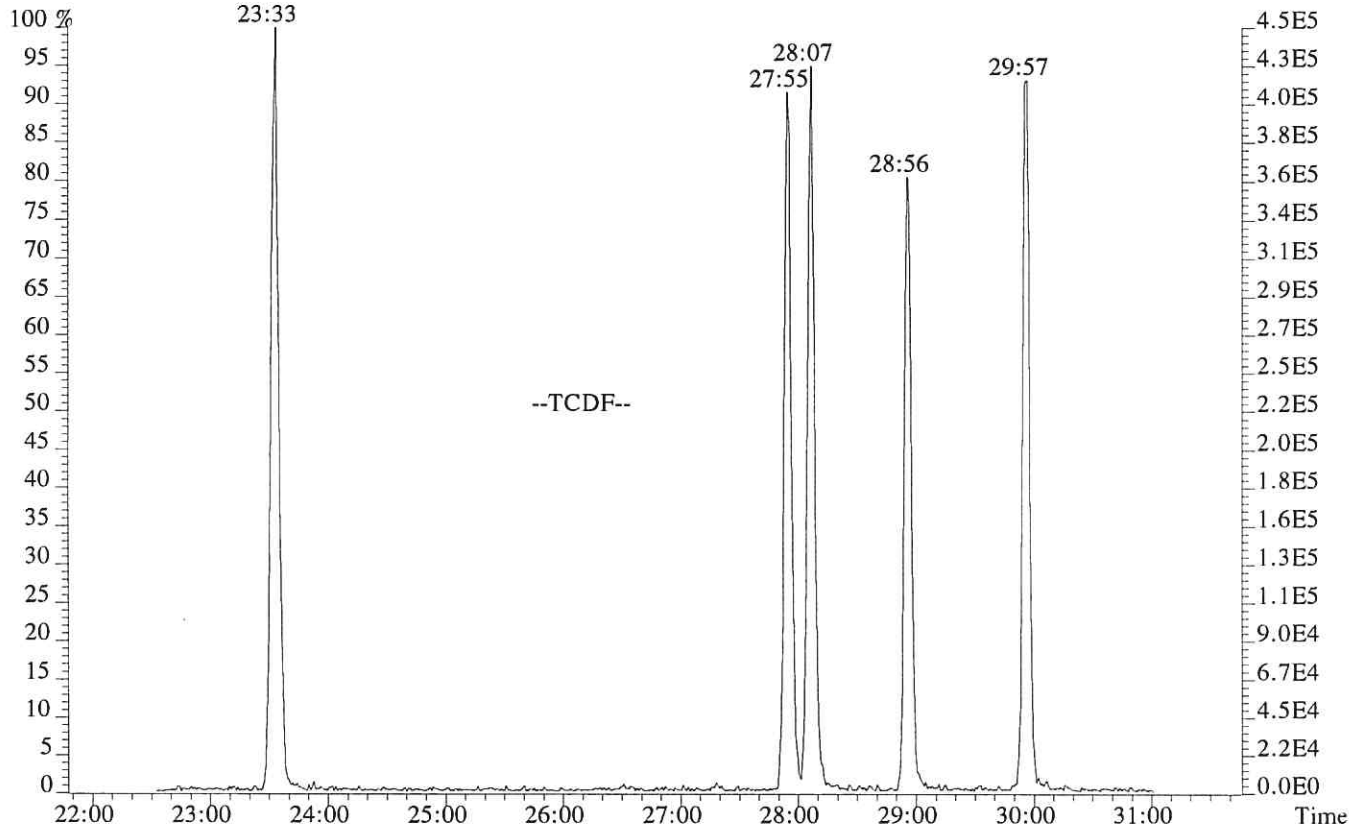
Sample#1 Exp:WINDOW DEFINE
303.9016



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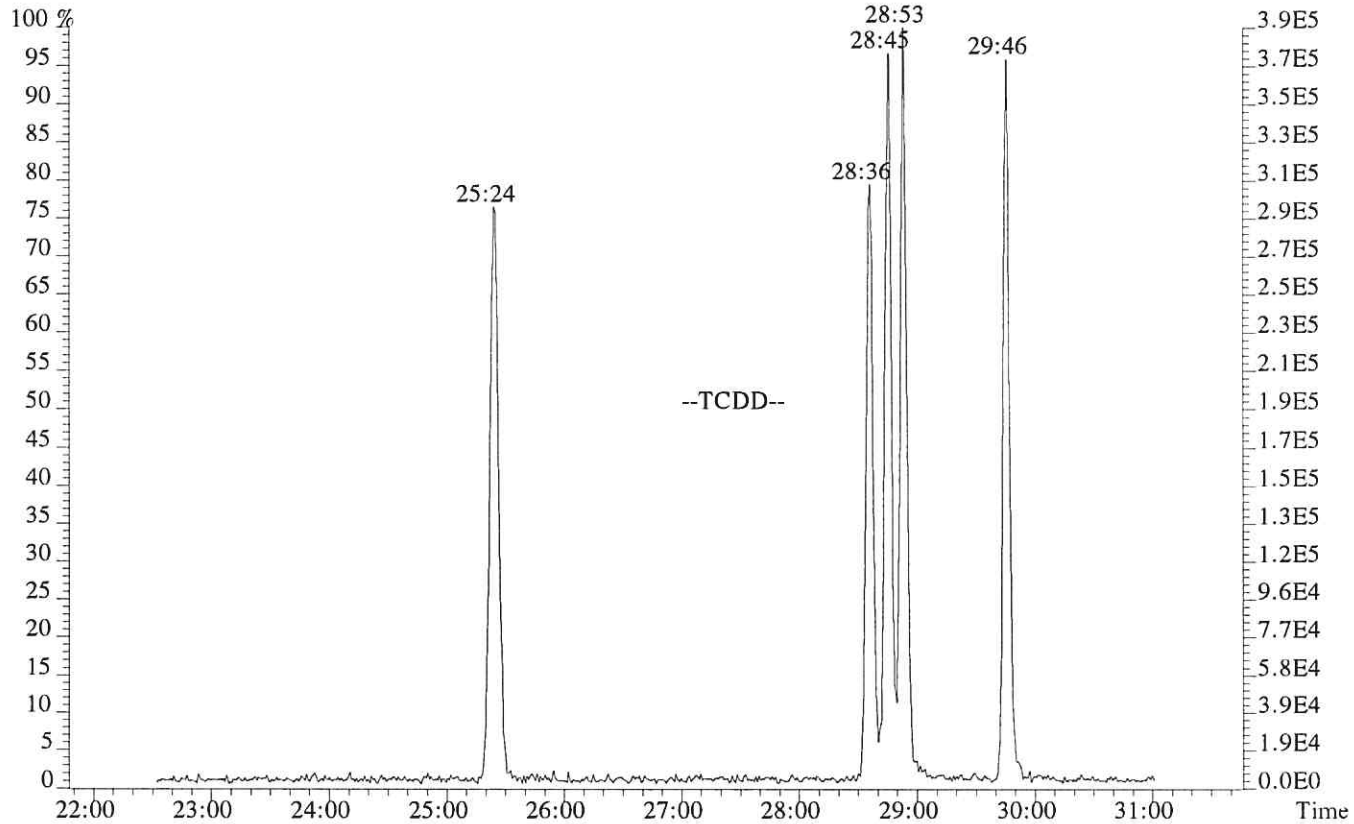
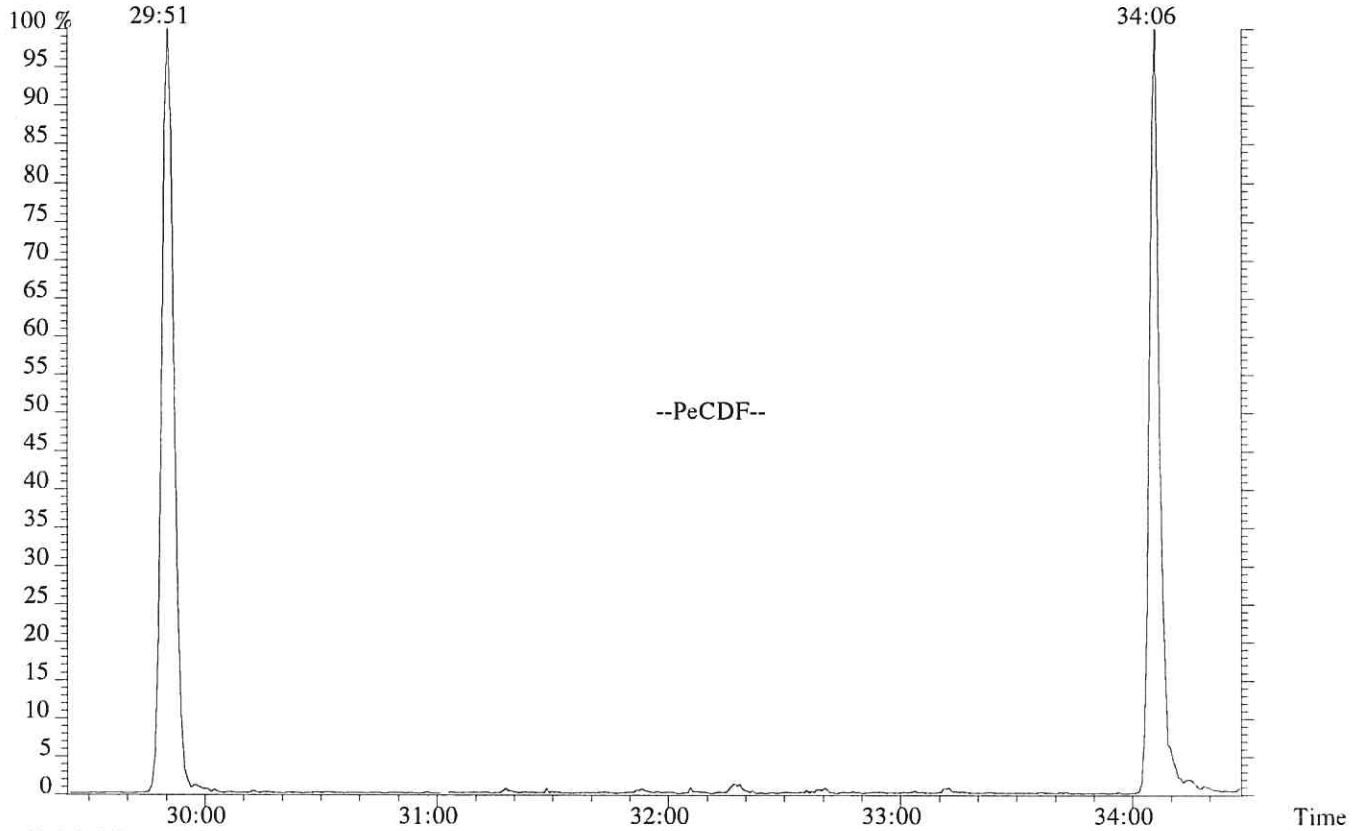
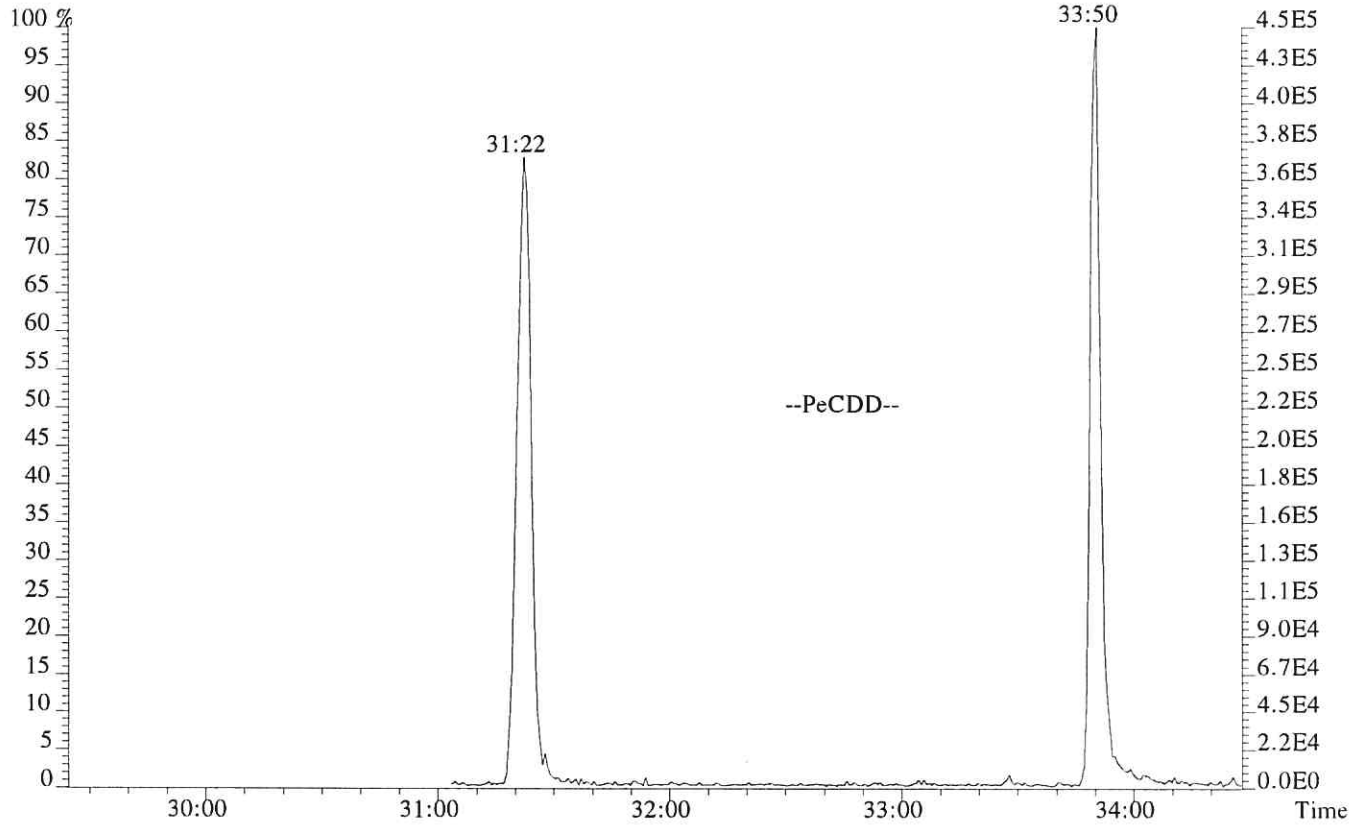


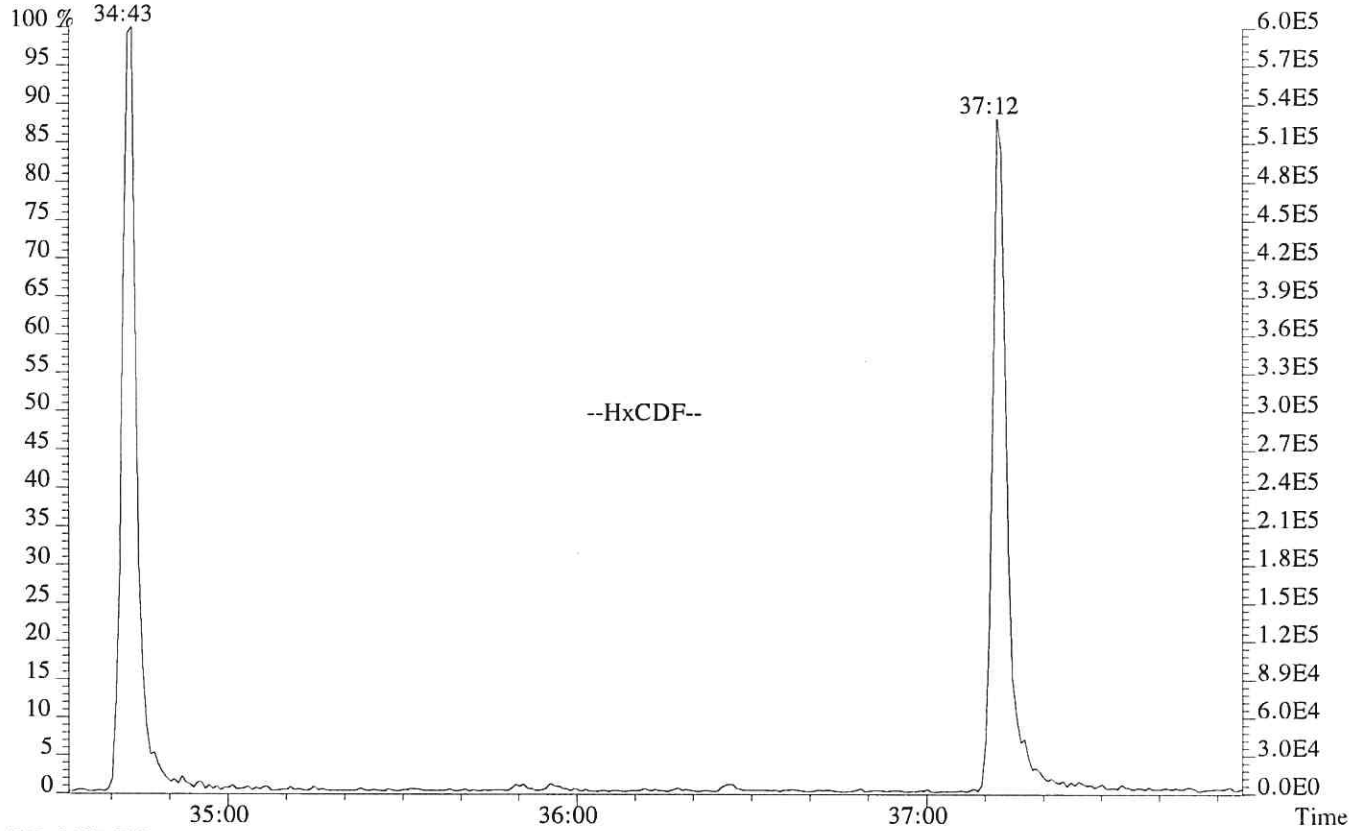
File:P407877 #1-602 Acq:15-SEP-2017 13:06:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



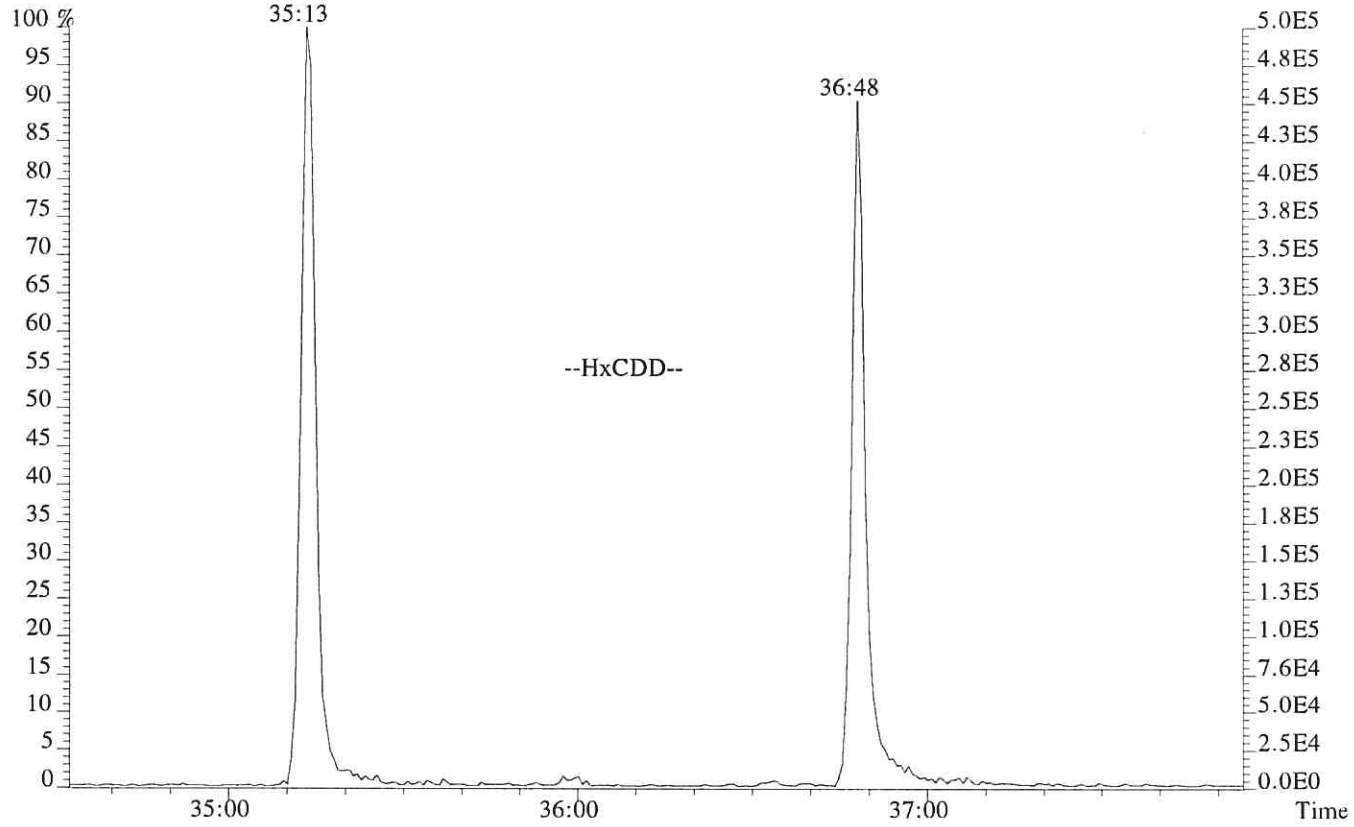
355.8546 F:2



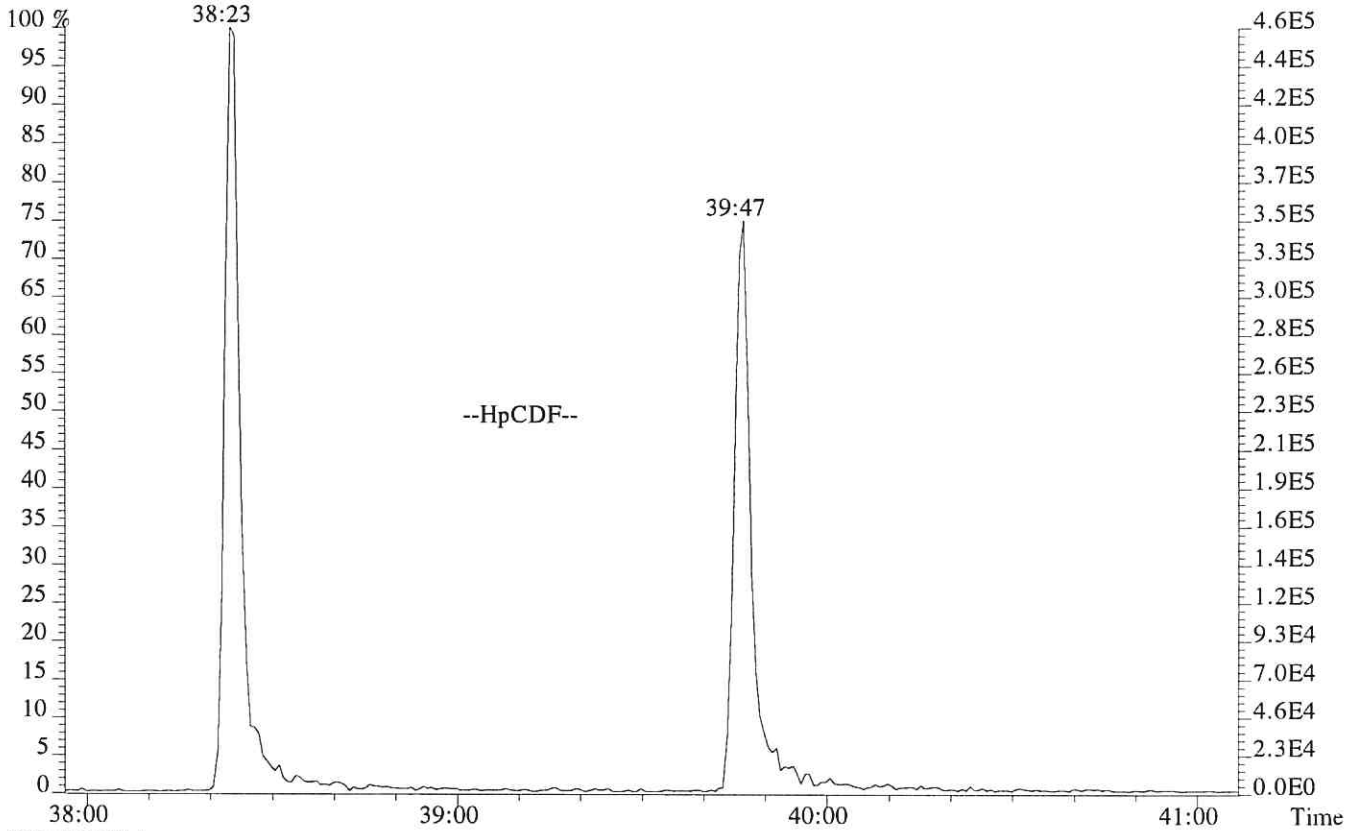
File:P407877 #1-303 Acq:15-SEP-2017 13:06:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



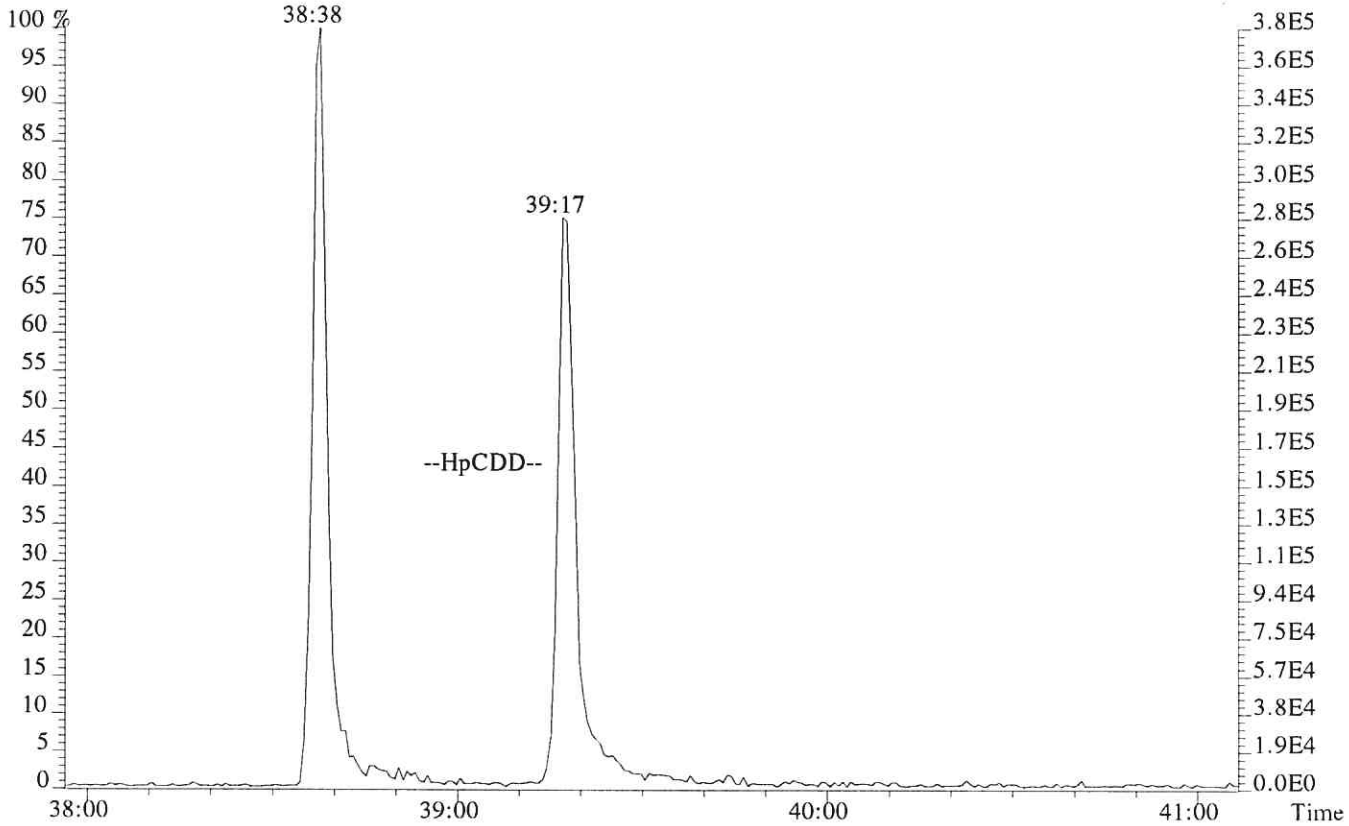
389.8157 F:3



File:P407877 #1-286 Acq:15-SEP-2017 13:06:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/17

Instrument ID: E-HRMS-06 GC Column ID : DB-5MSUI

VER Data Filename: p407876 Analysis Date: 15-SEP-17 Time: 12:03:13

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.3	7.8 - 12.9	-7.1
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	50	39 - 65	-0.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-2.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	1.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	49	41 - 61	-2.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-2.0
OCDD	M+2/M+4	0.88	0.76-1.02	100	79 - 126	0.0
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.7	8.4 - 12.0	-3.2
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	48	41 - 60	-3.4
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	47	41 - 61	-6.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	48	45 - 56	-4.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	48	44 - 57	-4.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	46	45 - 56	-8.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	48	44 - 57	-4.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	46	45 - 55	-7.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.99	0.88-1.20	47	43 - 58	-6.7
OCDF	M+2/M+4	0.89	0.76-1.02	104	63 - 159	4.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/17

Instrument ID: E-HRMS-06 GC Column ID : DB-5MSUI

VER Data Filename: p407876 Analysis Date: 15-SEP-17 Time: 12:03:13

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	100	82 - 121	-0.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	95	62 - 160	-4.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	96	85 - 117	-3.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	100	85 - 118	0.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	92	72 - 138	-8.2
13C-OCDD	M+2/M+4	0.92	0.76-1.02	170	96 - 415	-15.2
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	96	71 - 140	-3.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	98	76 - 130	-2.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	99	77 - 130	-0.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	103	70 - 143	2.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	94	74 - 135	-6.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.50	0.43-0.59	99	73 - 137	-0.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	98	78 - 129	-2.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	88	77 - 129	-12.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-2.9

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
183361

Run #7 Filename p407876 Samp: 1 Inj: 1 Acquired: 15-SEP-17 12:03:13
Processed: 18-SEP-17 13:50:40 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:07	1.235e+03	1.597e+03	0.77	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:17	9.810e+03	6.328e+03	1.55	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:12	8.938e+03	5.763e+03	1.55	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	35:49	7.967e+03	6.307e+03	1.26	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	35:56	8.499e+03	6.955e+03	1.22	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:26	7.540e+03	6.026e+03	1.25	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:11	6.044e+03	4.773e+03	1.27	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:23	6.500e+03	6.347e+03	1.02	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	39:46	4.502e+03	4.561e+03	0.99	yes	no	1.301
10	Unk	OCDF	42:12	7.276e+03	8.156e+03	0.89	yes	no	1.114
11	Unk	2,3,7,8-TCDD	28:53	1.100e+03	1.410e+03	0.78	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:28	6.987e+03	4.517e+03	1.55	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:33	5.707e+03	4.534e+03	1.26	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:39	6.069e+03	4.732e+03	1.28	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	36:53	5.891e+03	4.744e+03	1.24	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:17	4.483e+03	4.306e+03	1.04	yes	no	0.975
17	Unk	OCDD	41:60	6.427e+03	7.305e+03	0.88	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:06	1.455e+04	1.852e+04	0.79	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:16	2.073e+04	1.320e+04	1.57	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:10	2.050e+04	1.278e+04	1.60	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	8.360e+03	1.598e+04	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	35:55	9.643e+03	1.856e+04	0.52	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	8.424e+03	1.671e+04	0.50	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:10	6.923e+03	1.326e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	6.050e+03	1.407e+04	0.43	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:45	4.484e+03	1.045e+04	0.43	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	28:52	1.222e+04	1.574e+04	0.78	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:27	1.657e+04	1.052e+04	1.57	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	1.212e+04	9.702e+03	1.25	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.264e+04	1.009e+04	1.25	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	9.331e+03	9.052e+03	1.03	yes	no	0.854
32	IS	13C-OCDD	41:59	1.274e+04	1.382e+04	0.92	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:17	1.270e+04	1.652e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:52	1.300e+04	1.046e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:53	2.815e+03				no	0.992

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
183361

Run #7 Filename p407876 Samp: 1 Inj: 1 Acquired: 15-SEP-17 12:03:13
Processed: 18-SEP-17 13:50:40 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.27e+05	1.16e+03	2.0e+02	2.92e+05	2.13e+03	1.4e+02
2	1,2,3,7,8-PeCDF	1.84e+06	3.16e+02	5.8e+03	1.17e+06	7.36e+02	1.6e+03
3	2,3,4,7,8-PeCDF	1.74e+06	3.16e+02	5.5e+03	1.15e+06	7.36e+02	1.6e+03
4	1,2,3,4,7,8-HxCDF	1.73e+06	5.20e+02	3.3e+03	1.37e+06	6.28e+02	2.2e+03
5	1,2,3,6,7,8-HxCDF	1.76e+06	5.20e+02	3.4e+03	1.42e+06	6.28e+02	2.3e+03
6	2,3,4,6,7,8-HxCDF	1.61e+06	5.20e+02	3.1e+03	1.27e+06	6.28e+02	2.0e+03
7	1,2,3,7,8,9-HxCDF	1.23e+06	5.20e+02	2.4e+03	1.00e+06	6.28e+02	1.6e+03
8	1,2,3,4,6,7,8-HpCDF	1.37e+06	1.27e+03	1.1e+03	1.35e+06	4.52e+02	3.0e+03
9	1,2,3,4,7,8,9-HpCDF	8.68e+05	1.27e+03	6.8e+02	8.49e+05	4.52e+02	1.9e+03
10	OCDF	1.19e+06	2.20e+02	5.4e+03	1.36e+06	6.76e+02	2.0e+03
11	2,3,7,8-TCDD	2.12e+05	1.91e+03	1.1e+02	2.74e+05	1.22e+03	2.2e+02
12	1,2,3,7,8-PeCDD	1.36e+06	1.04e+03	1.3e+03	8.93e+05	2.60e+02	3.4e+03
13	1,2,3,4,7,8-HxCDD	1.29e+06	4.72e+02	2.7e+03	1.03e+06	6.24e+02	1.6e+03
14	1,2,3,6,7,8-HxCDD	1.25e+06	4.72e+02	2.6e+03	9.91e+05	6.24e+02	1.6e+03
15	1,2,3,7,8,9-HxCDD	1.19e+06	4.72e+02	2.5e+03	9.78e+05	6.24e+02	1.6e+03
16	1,2,3,4,6,7,8-HpCDD	8.91e+05	7.24e+02	1.2e+03	8.43e+05	6.28e+02	1.3e+03
17	OCDD	1.06e+06	1.04e+02	1.0e+04	1.21e+06	1.66e+03	7.3e+02
18	13C-2,3,7,8-TCDF	2.65e+06	8.70e+03	3.0e+02	3.32e+06	3.03e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	3.86e+06	6.00e+02	6.4e+03	2.47e+06	3.72e+02	6.6e+03
20	13C-2,3,4,7,8-PeCDF	4.10e+06	6.00e+02	6.8e+03	2.60e+06	3.72e+02	7.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.84e+06	6.48e+02	2.8e+03	3.44e+06	1.02e+03	3.4e+03
22	13C-1,2,3,6,7,8-HxCDF	2.01e+06	6.48e+02	3.1e+03	3.83e+06	1.02e+03	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.77e+06	6.48e+02	2.7e+03	3.54e+06	1.02e+03	3.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.39e+06	6.48e+02	2.1e+03	2.70e+06	1.02e+03	2.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.26e+06	1.46e+03	8.6e+02	2.89e+06	2.48e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.51e+05	1.46e+03	5.8e+02	1.94e+06	2.48e+03	7.8e+02
27	13C-2,3,7,8-TCDD	2.37e+06	2.98e+03	8.0e+02	3.04e+06	2.09e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	3.25e+06	7.24e+02	4.5e+03	2.06e+06	1.04e+03	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.75e+06	1.02e+03	2.7e+03	2.19e+06	7.00e+02	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	2.61e+06	1.02e+03	2.6e+03	2.10e+06	7.00e+02	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+06	7.40e+02	2.5e+03	1.79e+06	6.28e+02	2.8e+03
32	13C-OCDD	2.03e+06	5.44e+02	3.7e+03	2.22e+06	2.52e+02	8.8e+03
33	13C-1,2,3,4-TCDD	2.43e+06	2.98e+03	8.2e+02	3.14e+06	2.09e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.67e+06	1.02e+03	2.6e+03	2.09e+06	7.00e+02	3.0e+03
35	37Cl-2,3,7,8-TCDD	5.59e+05	2.20e+03	2.5e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.908e+03 + 1.220e+03) \times 100}{(2.373e+06 + 3.041e+06) \times (\qquad) \times 0.966} =$$

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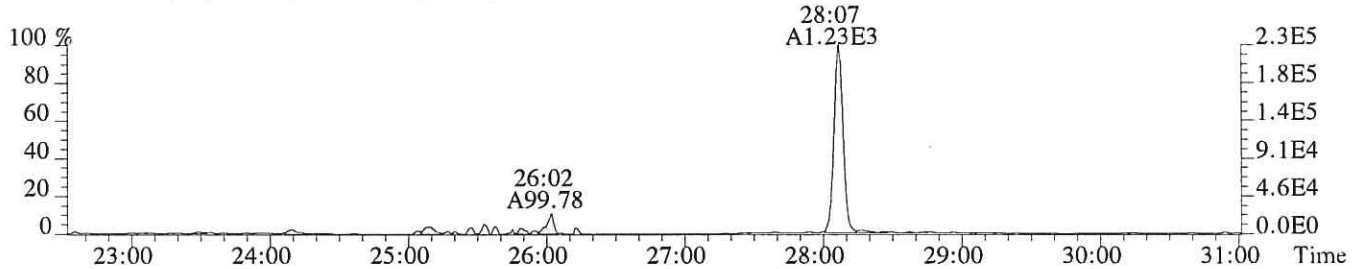
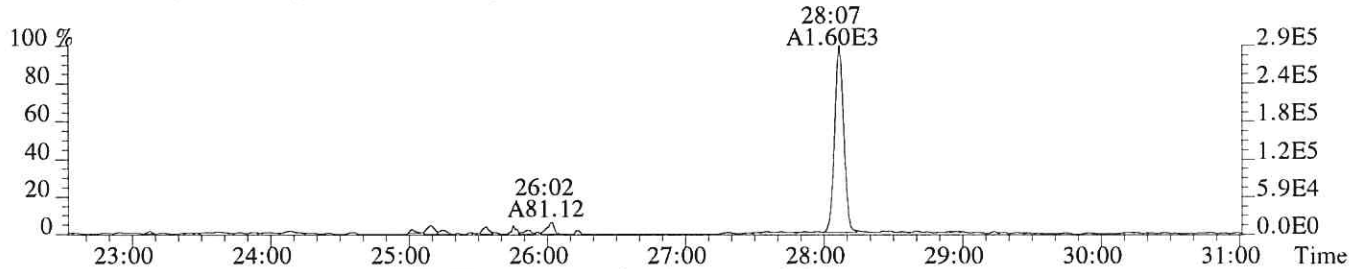
File:P407876 #1-602 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

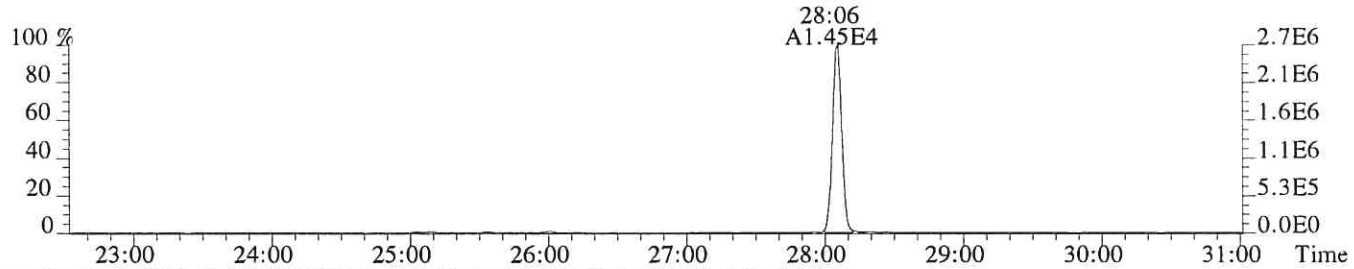
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



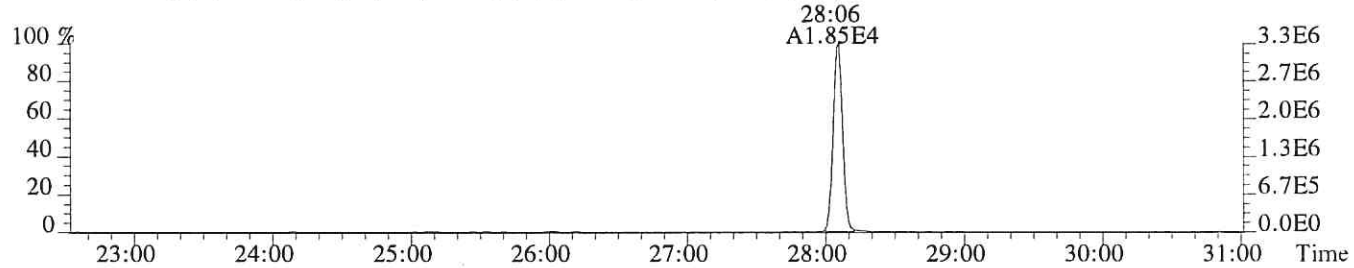
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



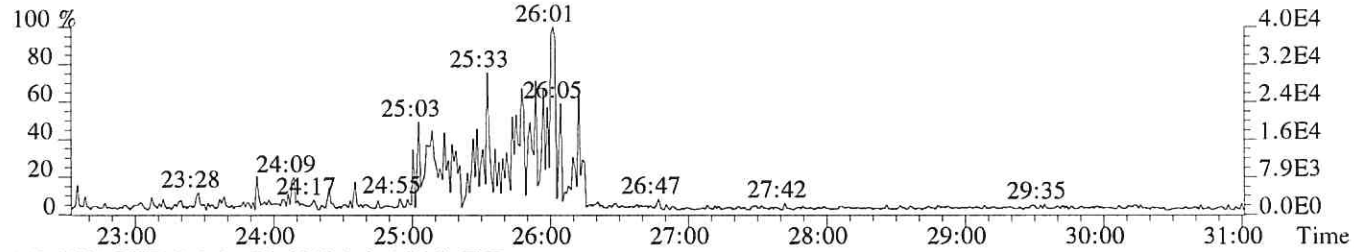
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8704.0,1.00%,F,T)



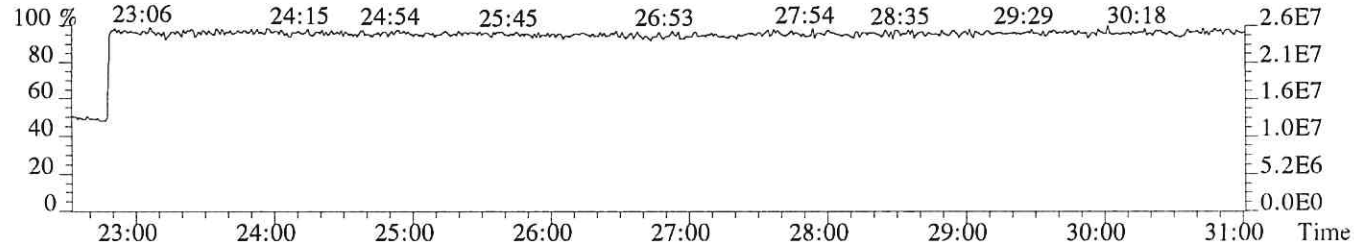
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3032.0,1.00%,F,T)



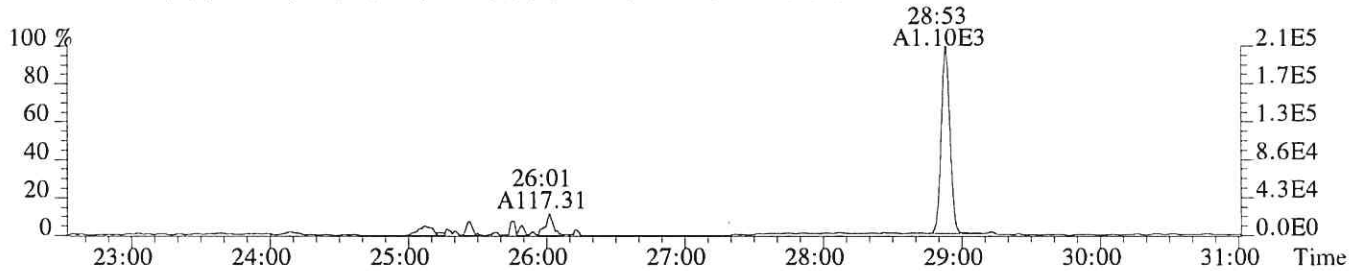
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



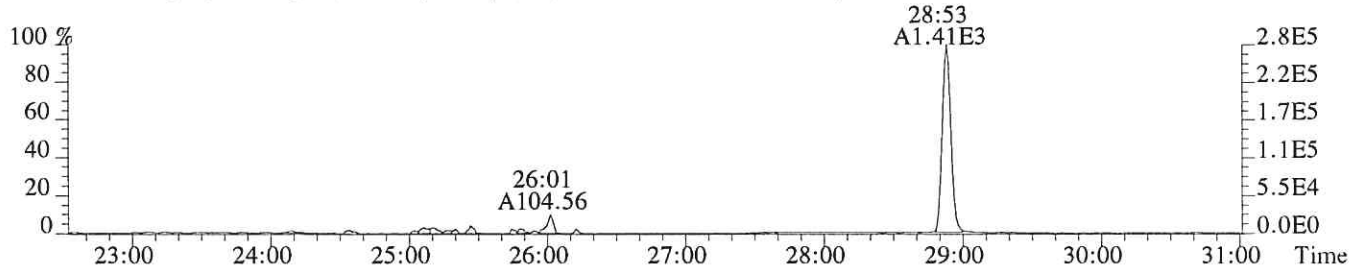
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



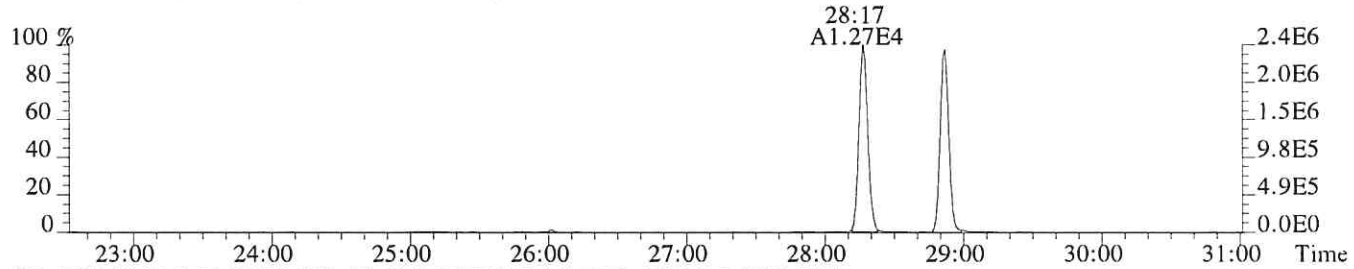
File:P407876 #1-602 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



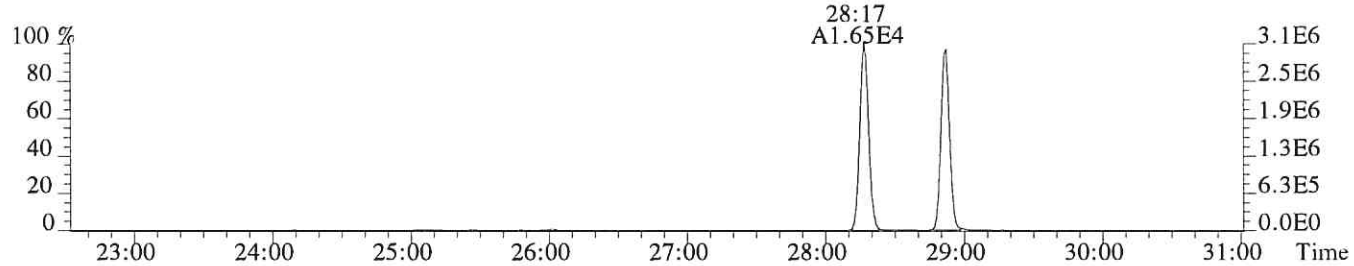
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



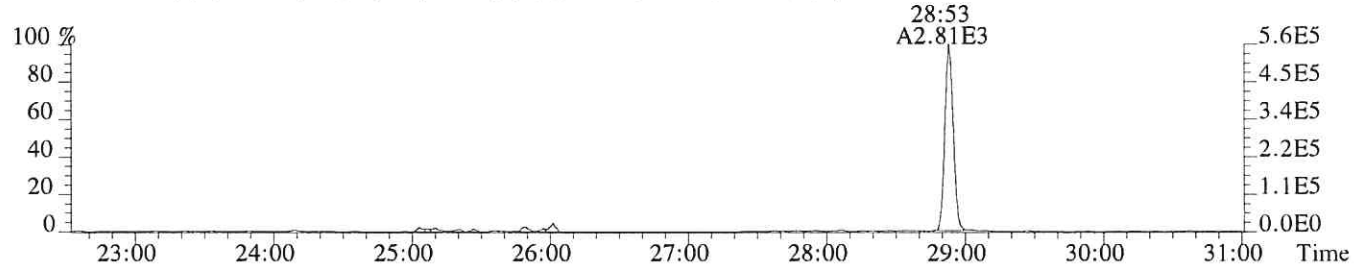
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2980.0,1.00%,F,T)



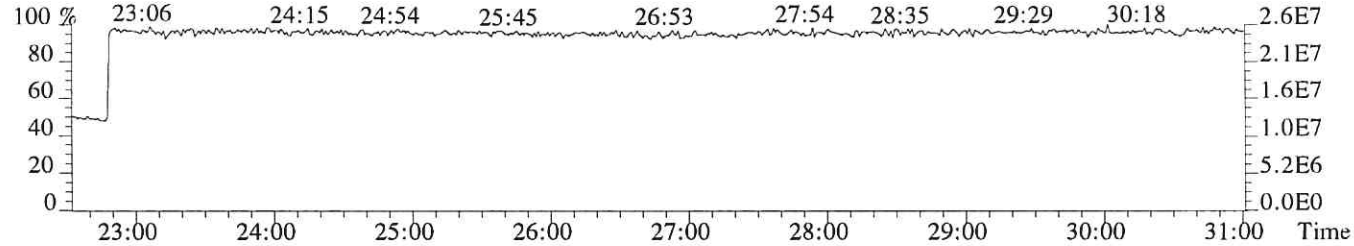
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2092.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)

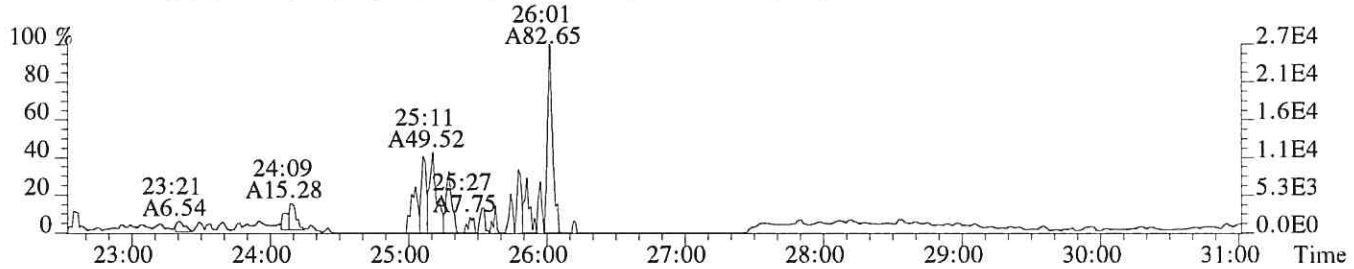


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

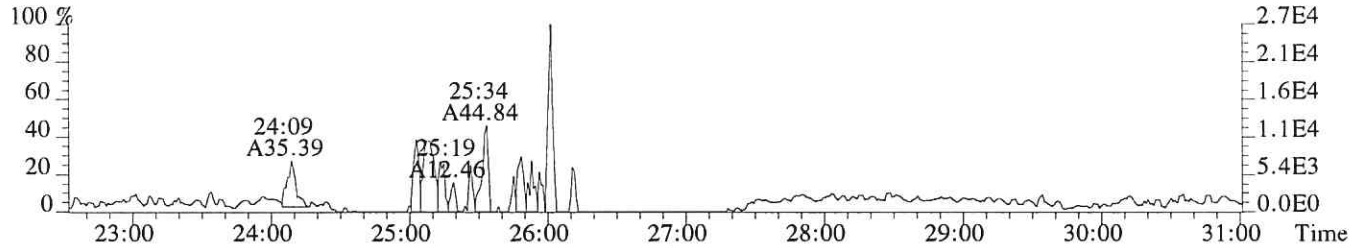


File:P407876 #1-602 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

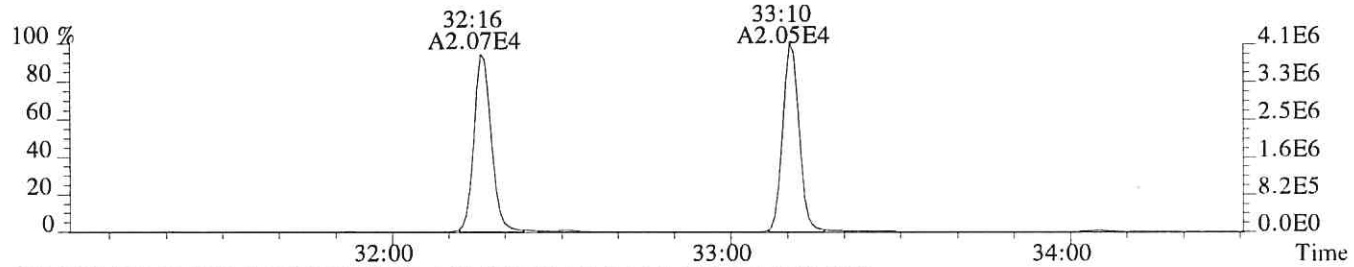
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



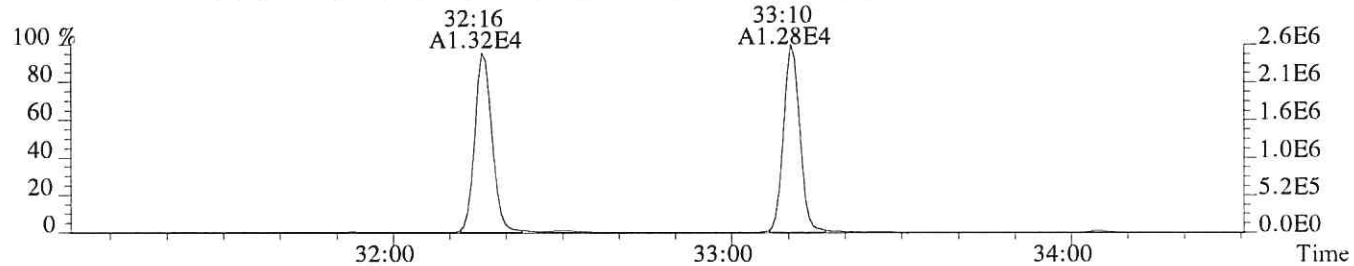
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



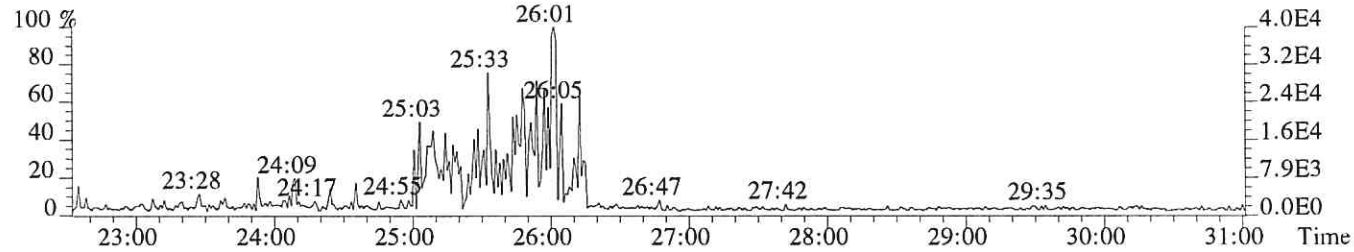
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



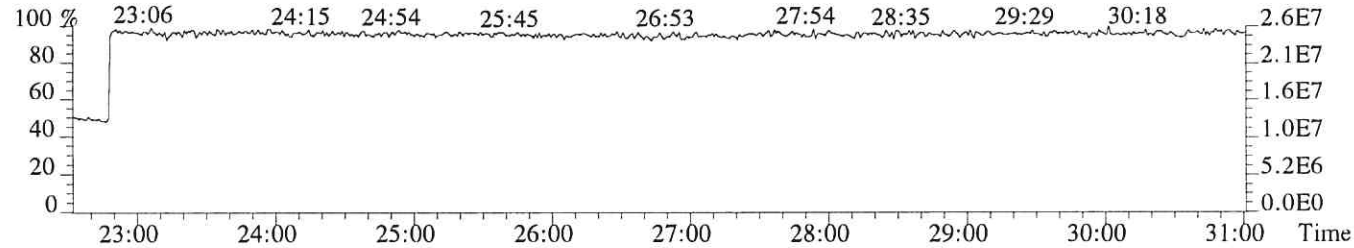
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



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

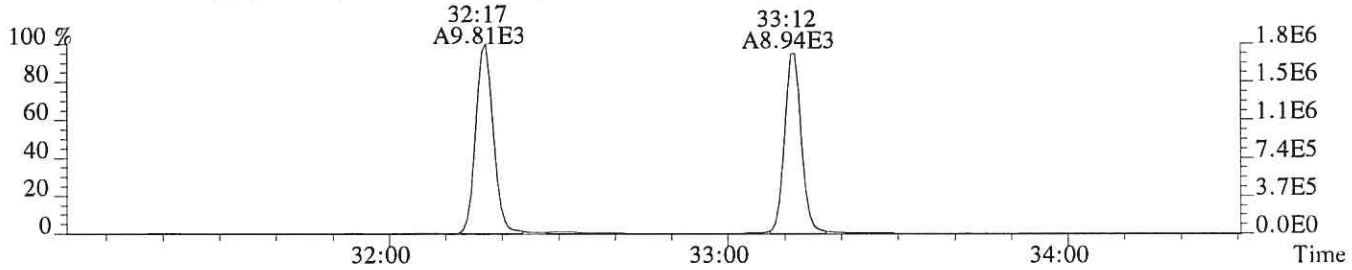


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

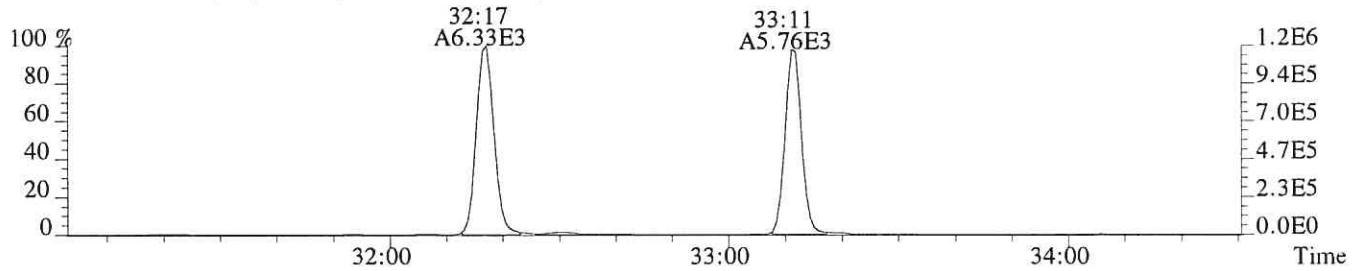


File:P407876 #1-312 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

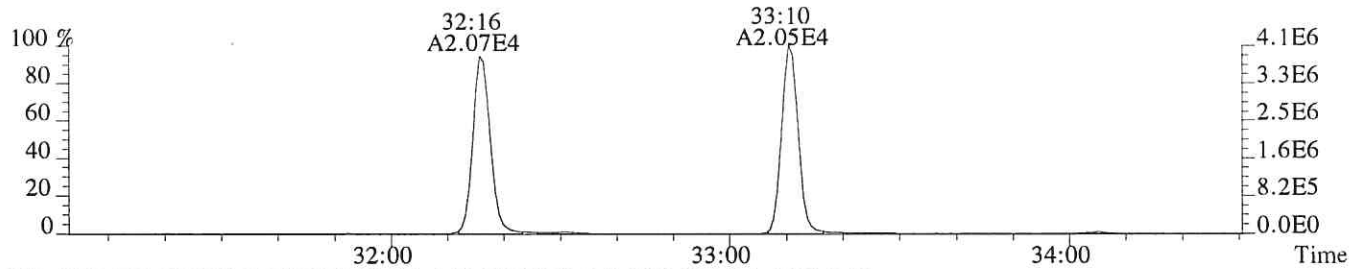
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



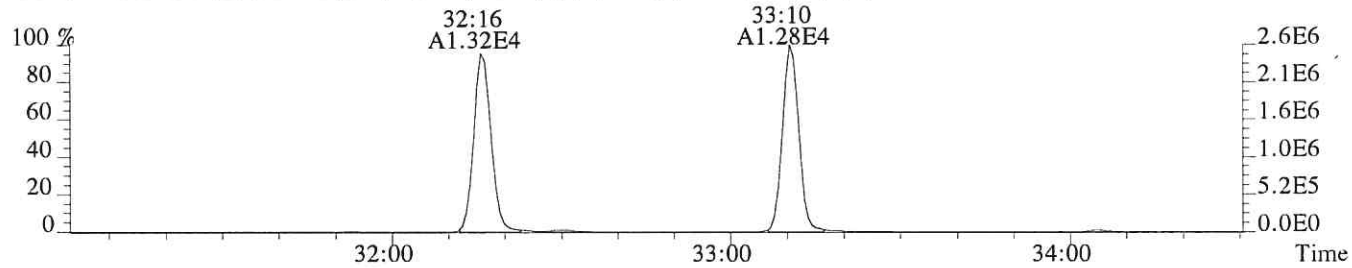
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



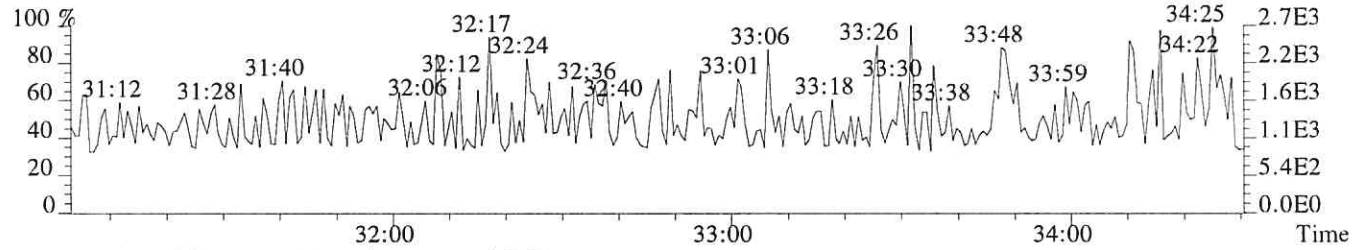
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



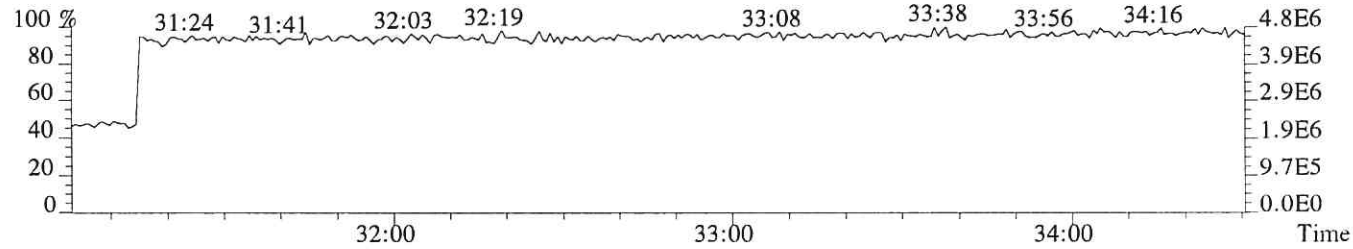
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



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

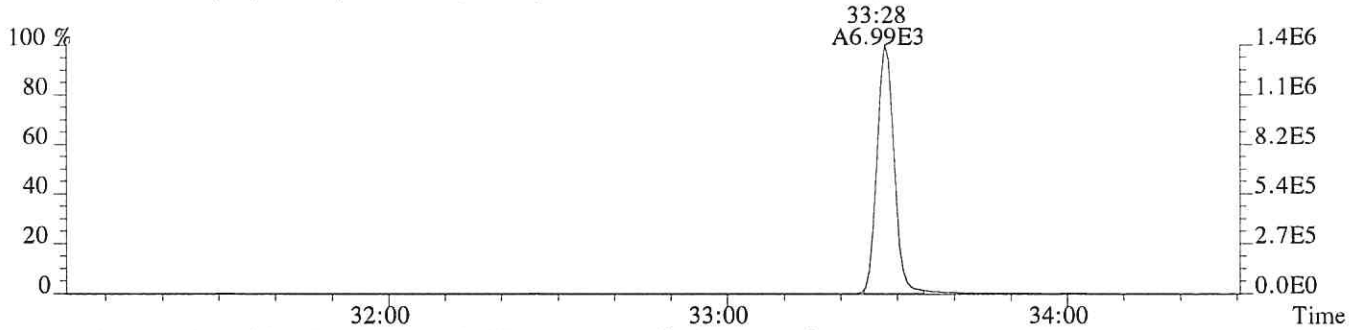


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

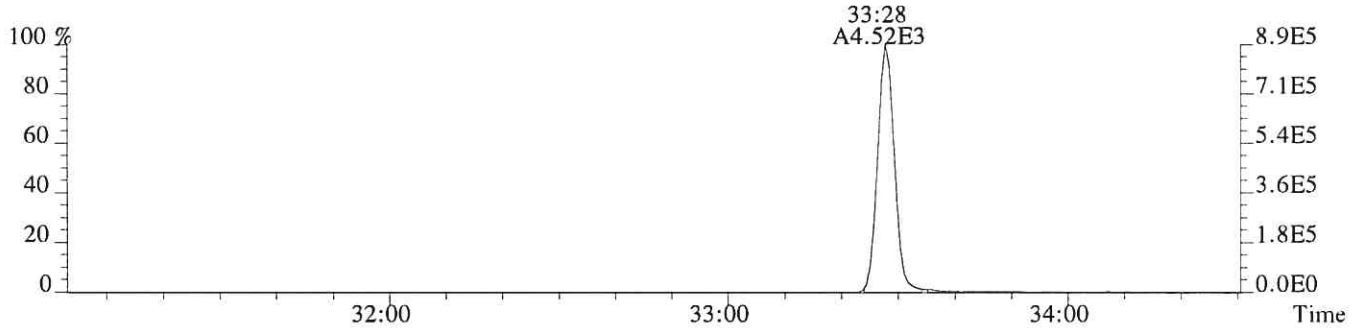


File:P407876 #1-312 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

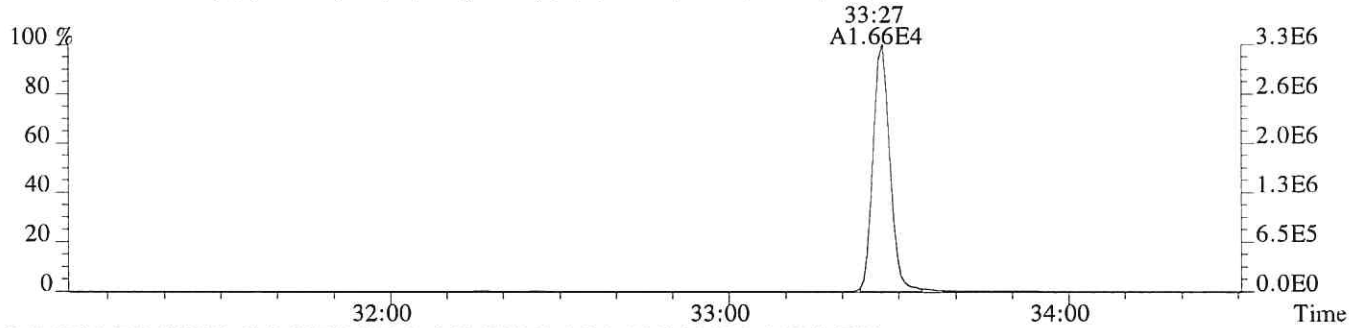
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



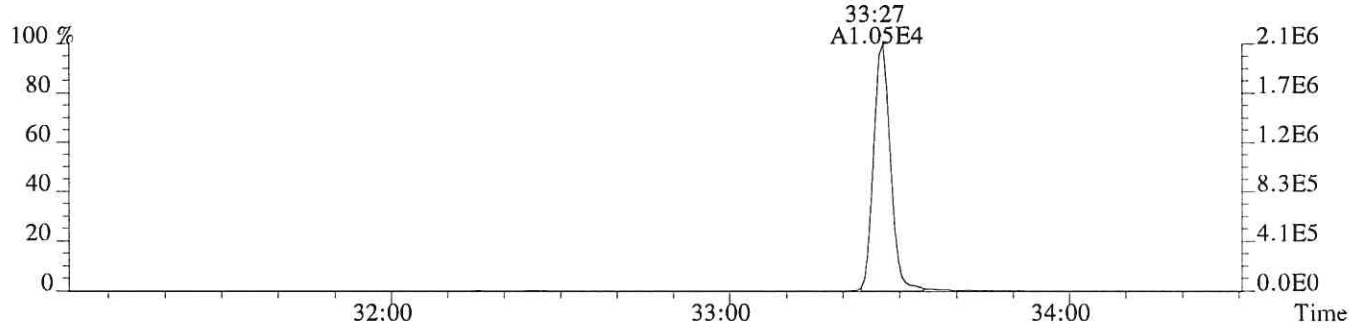
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



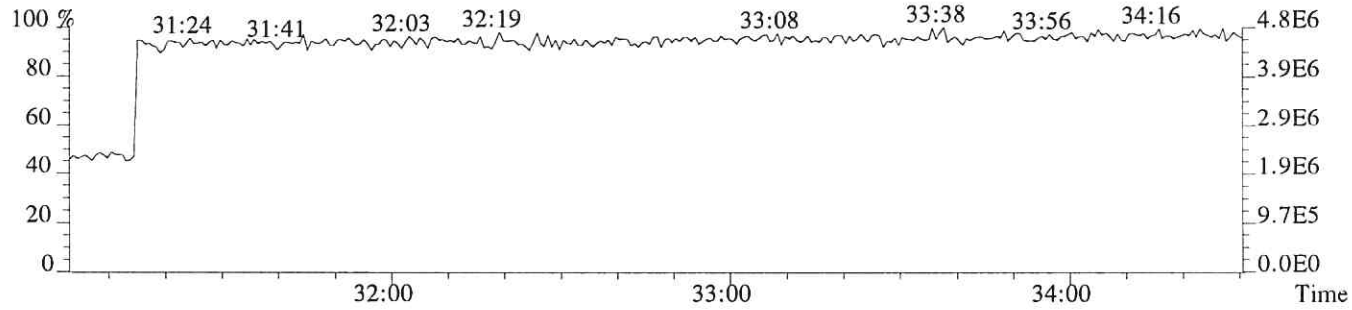
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)

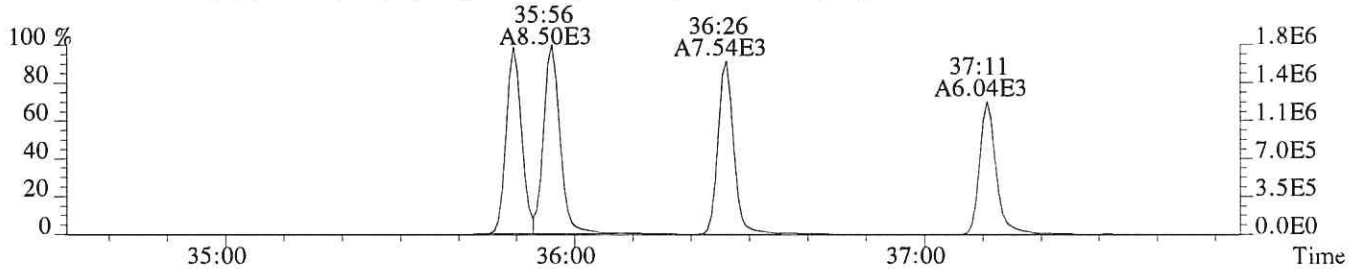


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

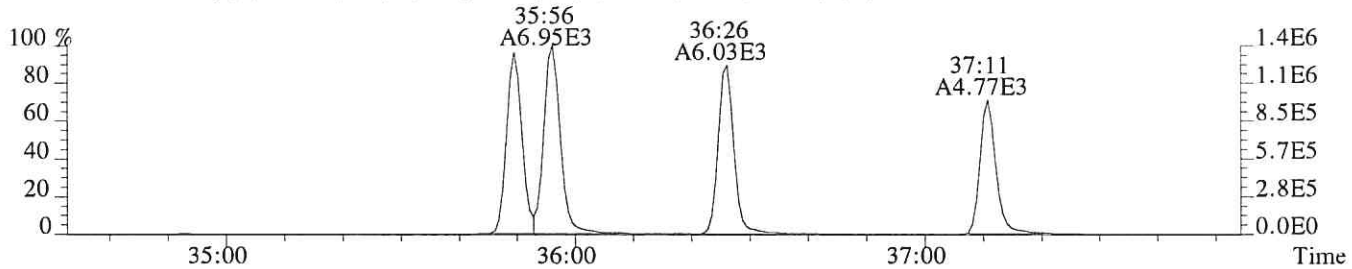


File:P407876 #1-303 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

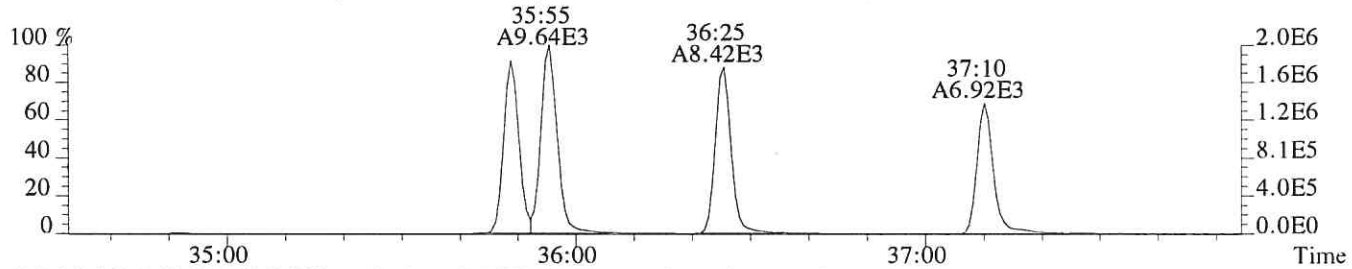
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



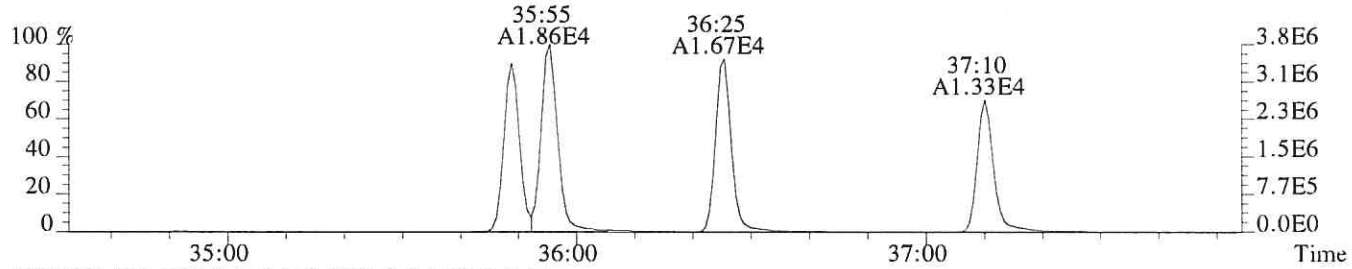
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



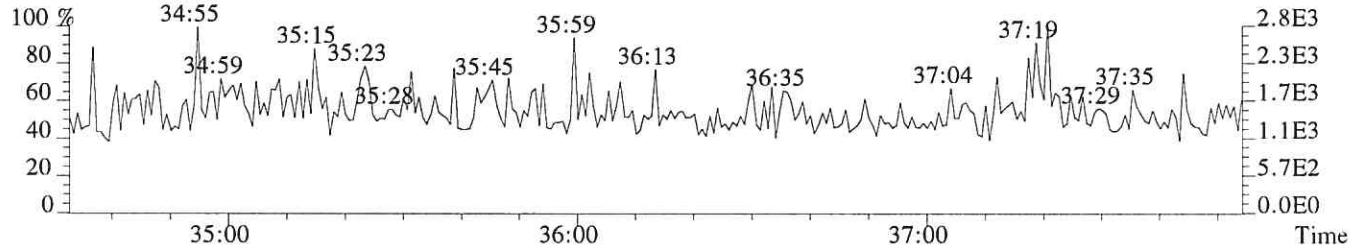
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



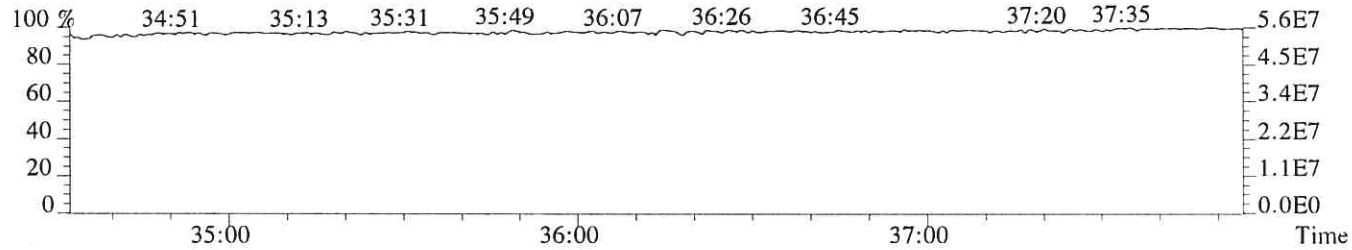
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



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

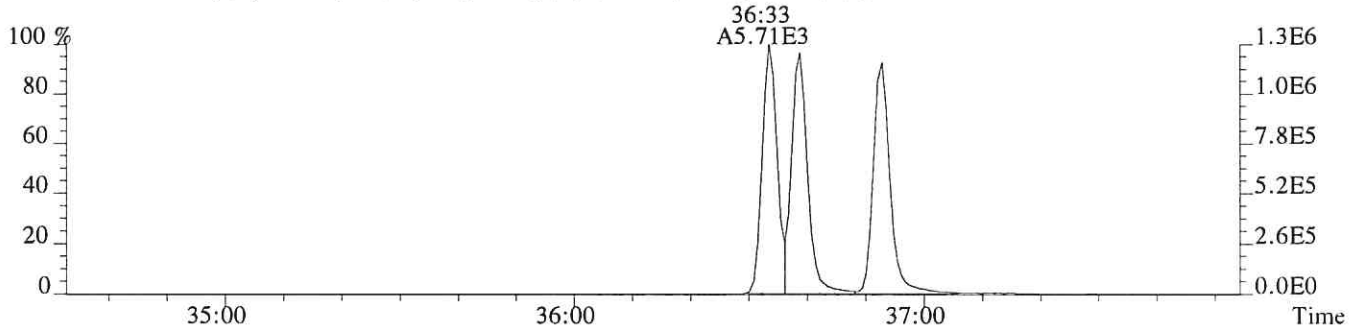


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

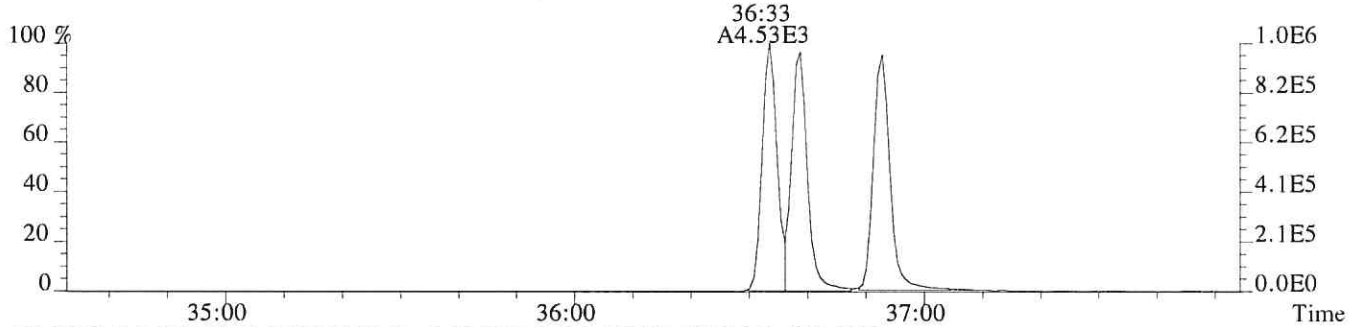


File:P407876 #1-303 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

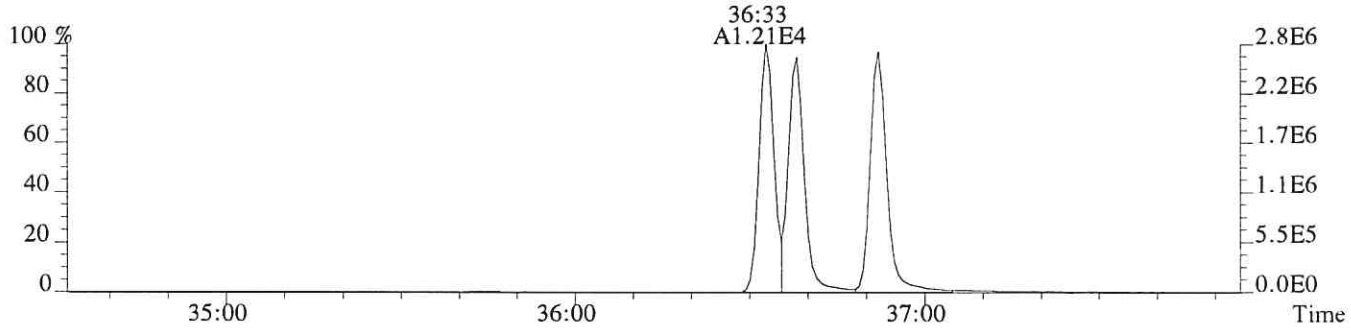
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



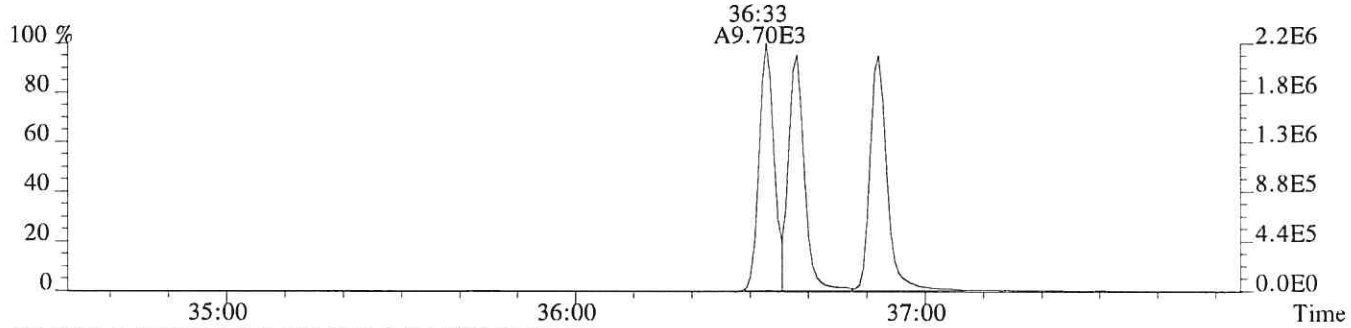
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



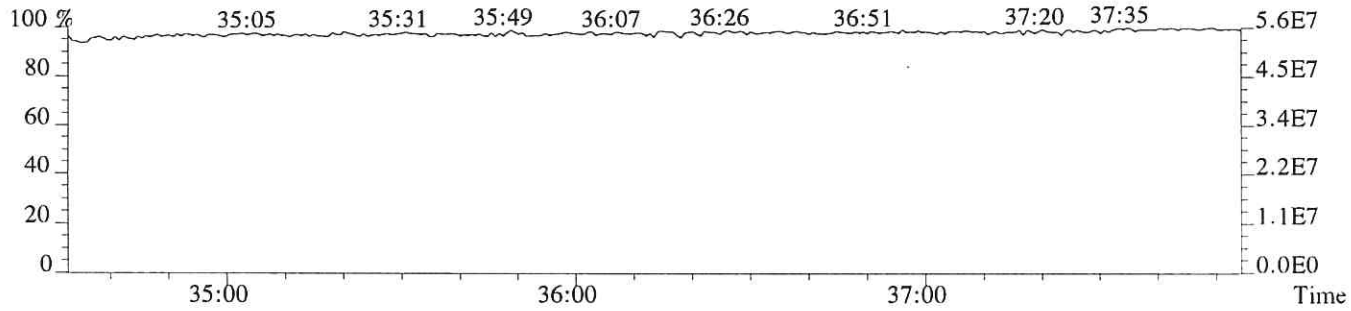
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

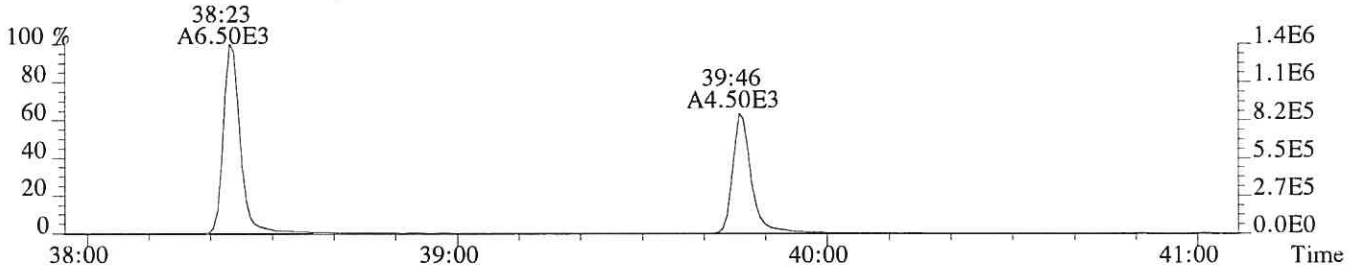


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

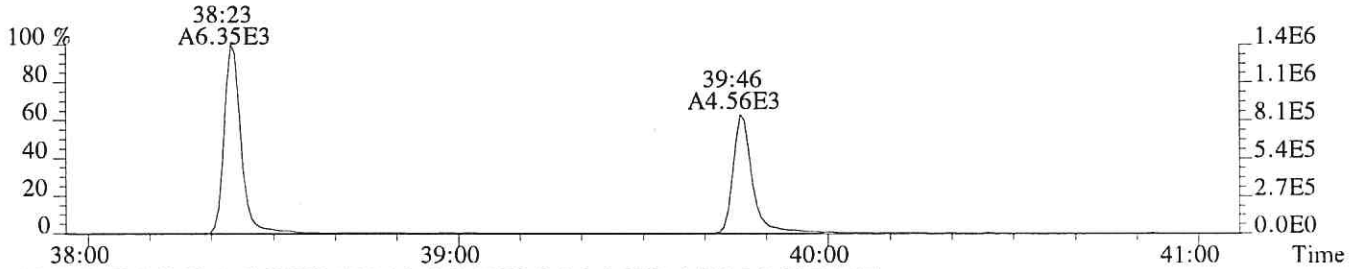


File:P407876 #1-286 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

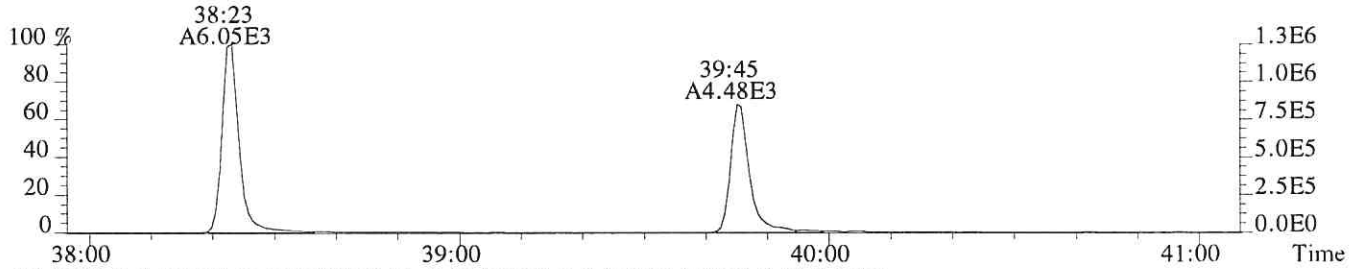
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.50%,F,T)



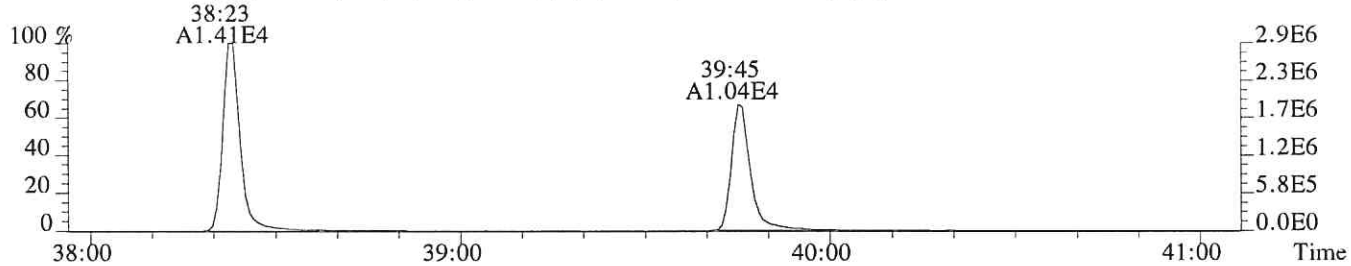
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.50%,F,T)



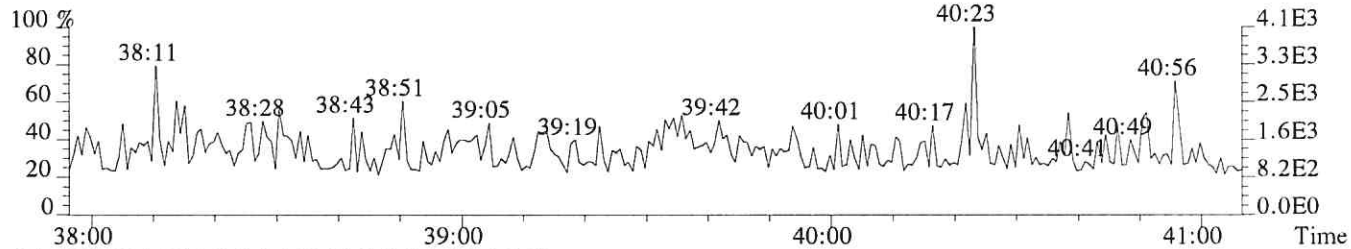
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.50%,F,T)



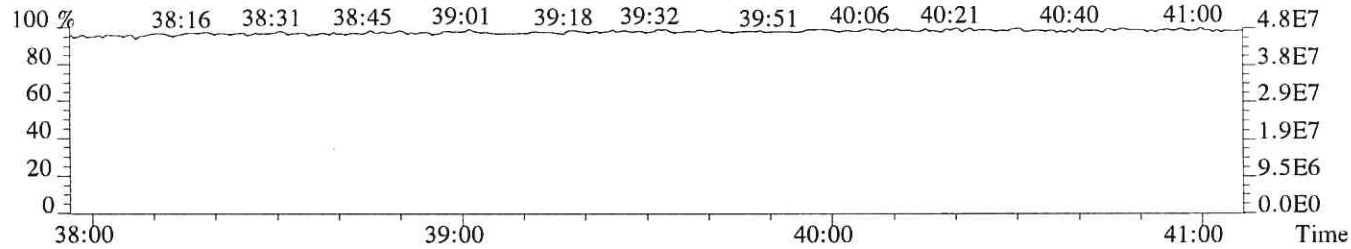
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.50%,F,T)



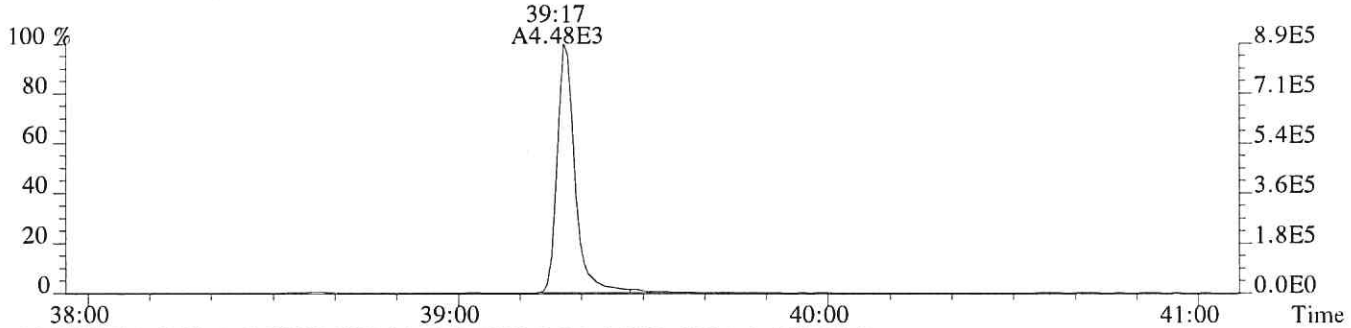
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



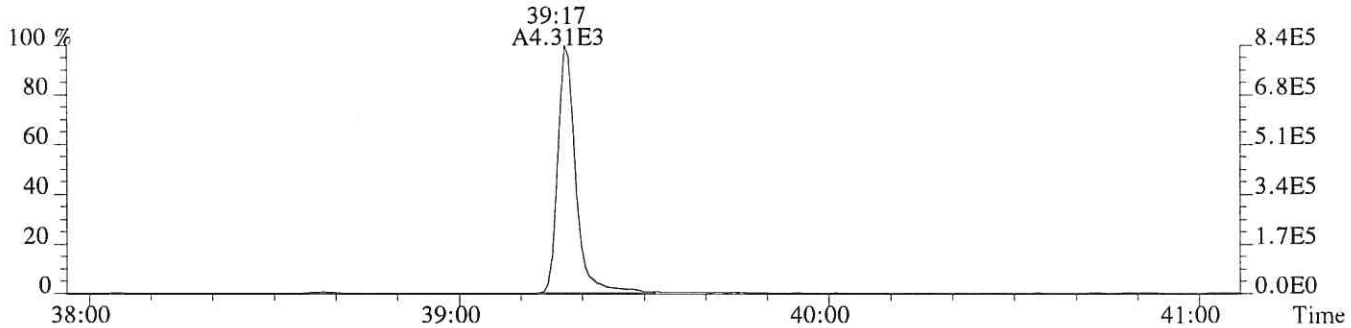
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



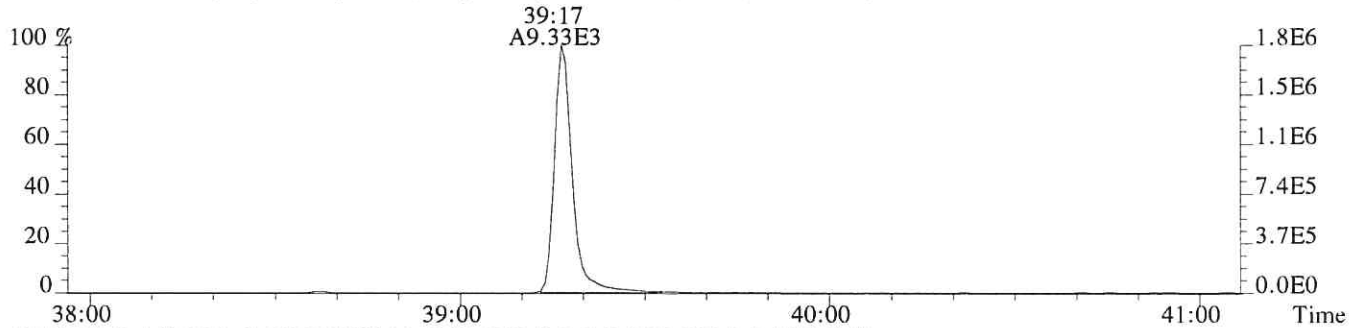
File:P407876 #1-286 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



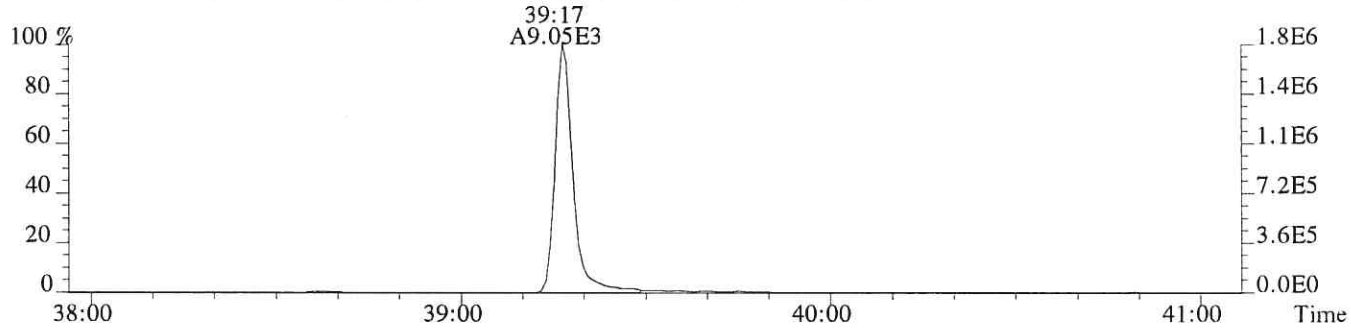
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



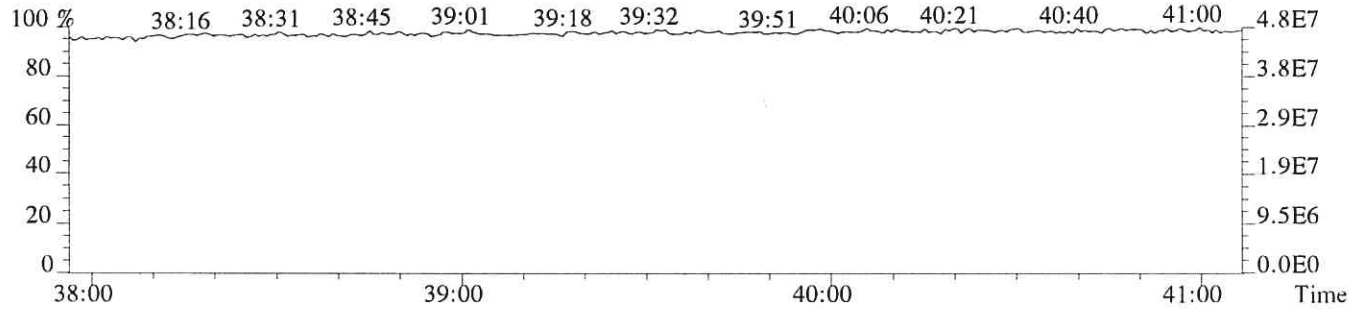
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)

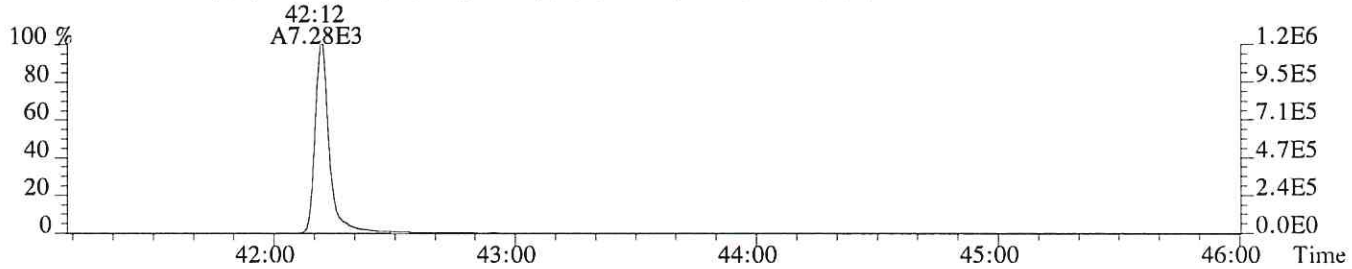


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

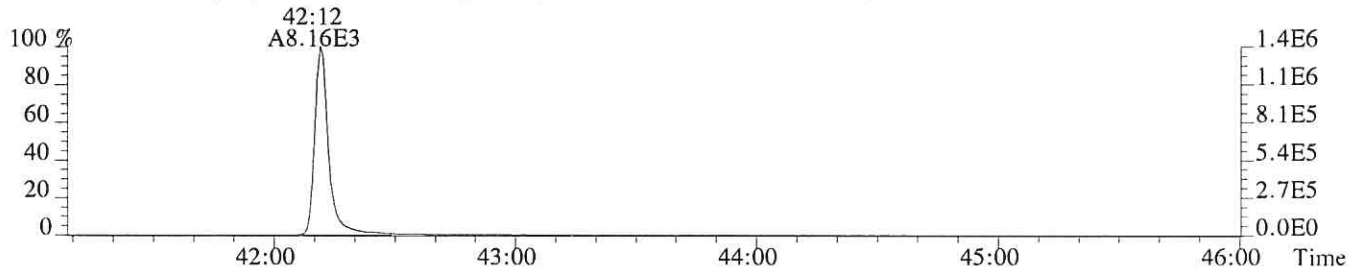


File:P407876 #1-438 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

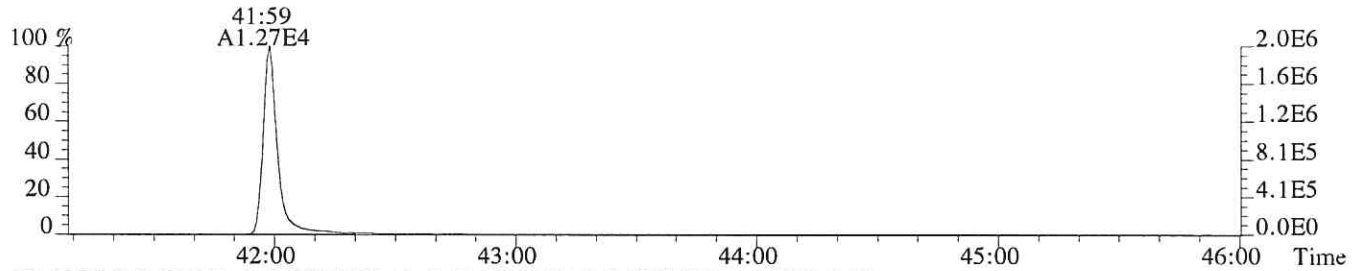
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



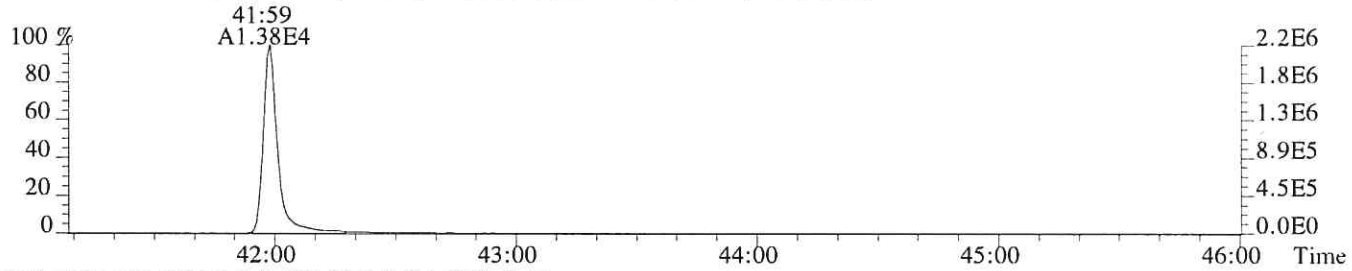
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



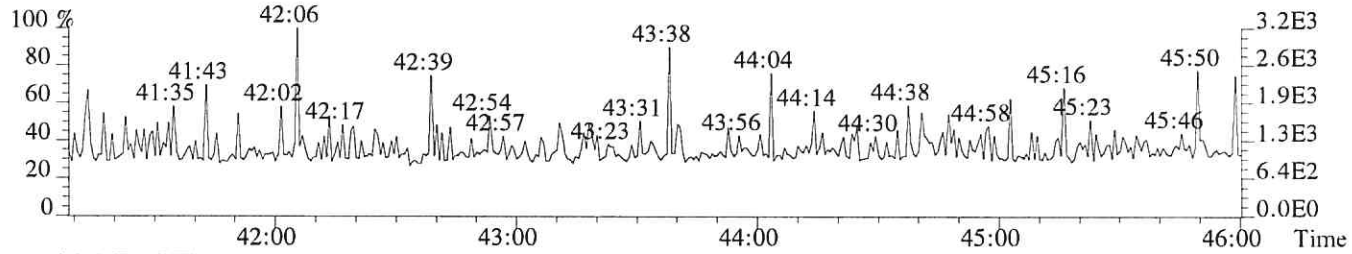
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



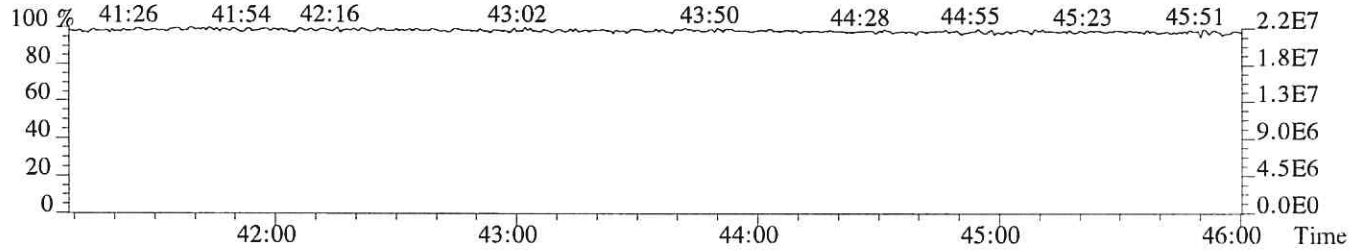
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



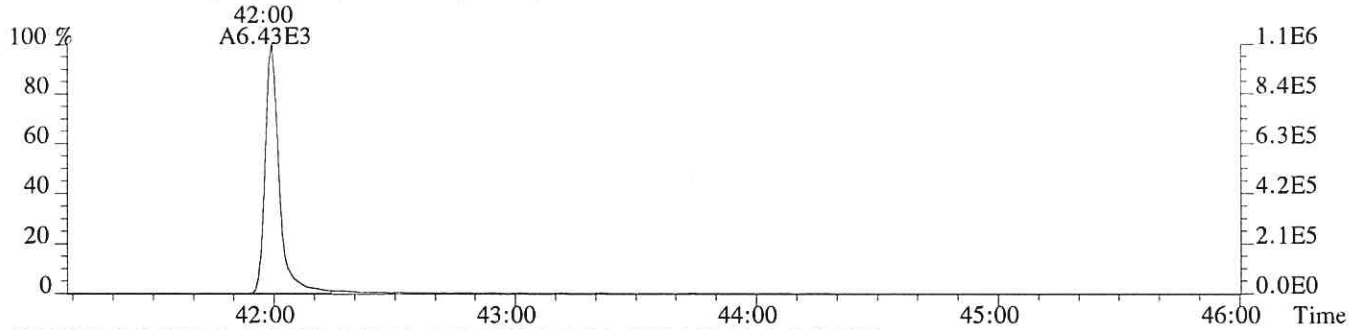
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



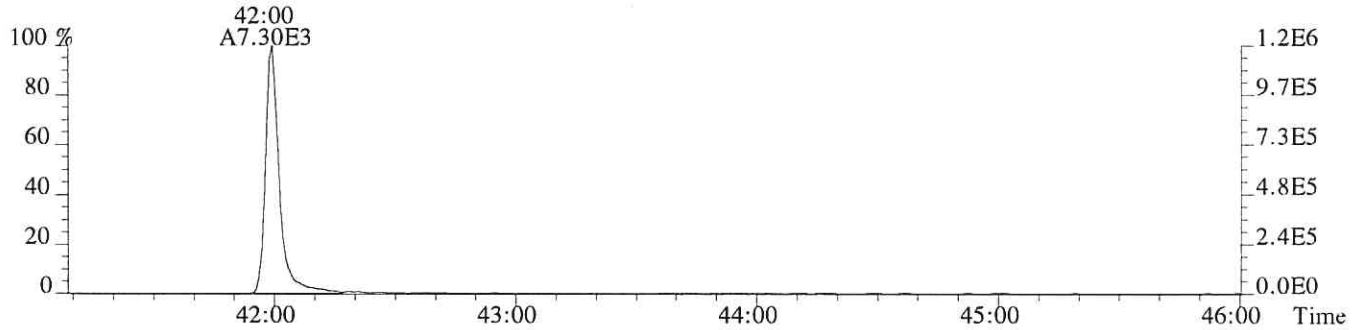
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



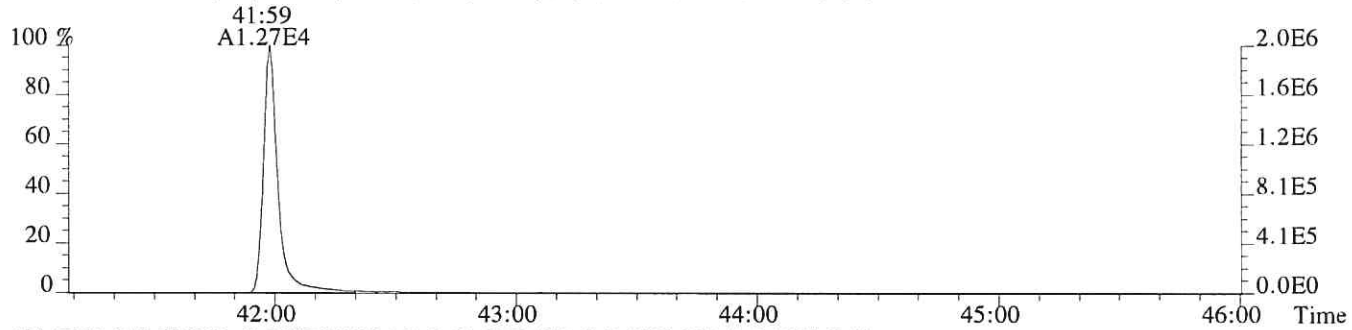
File:P407876 #1-438 Acq:15-SEP-2017 12:03:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,104.0,0.40%,F,T)



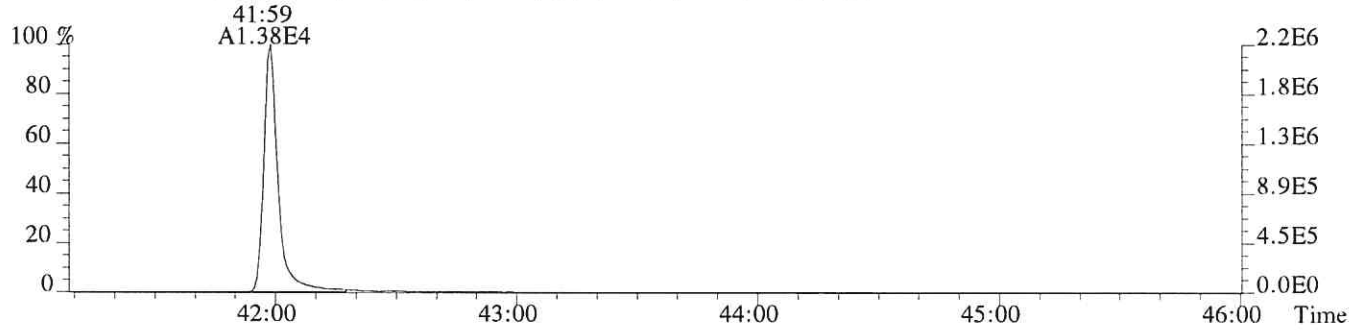
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1664.0,0.40%,F,T)



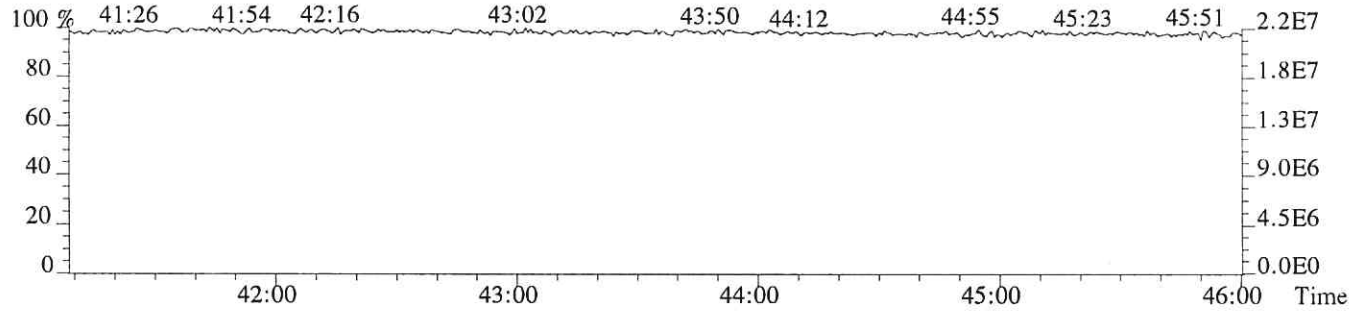
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,252.0,0.40%,F,T)



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/17

Instrument ID: E-HRMS-06 GC Column ID : DB-5MSUI

VER Data Filename: p407888 Analysis Date: 15-SEP-17 Time: 22:14:48

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.1	7.8 - 12.9	-8.9
1,2,3,7,8-PeCDD	M+2/M+4	1.52	1.32-1.78	50	39 - 65	-0.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-1.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.20	1.05-1.43	51	39 - 64	2.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.19	1.05-1.43	51	41 - 61	1.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-3.1
OCDD	M+2/M+4	0.91	0.76-1.02	102	79 - 126	2.0
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.7	8.4 - 12.0	-3.4
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	49	41 - 60	-2.8
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	47	41 - 61	-6.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	48	45 - 56	-4.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	47	44 - 57	-5.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	47	45 - 56	-5.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	47	44 - 57	-5.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	48	45 - 55	-4.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	45	43 - 58	-9.3
OCDF	M+2/M+4	0.90	0.76-1.02	107	63 - 159	7.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/17

Instrument ID: E-HRMS-06 GC Column ID : DB-5MSUI

VER Data Filename: p407888 Analysis Date: 15-SEP-17 Time: 22:14:48

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	99	82 - 121	-1.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	94	62 - 160	-5.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	91	85 - 117	-8.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 118	1.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	89	72 - 138	-10.6
13C-OCDD	M+2/M+4	0.93	0.76-1.02	160	96 - 415	-20.0
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	97	71 - 140	-3.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	99	76 - 130	-0.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	99	77 - 130	-0.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.50	0.43-0.59	93	76 - 131	-6.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	107	70 - 143	6.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.49	0.43-0.59	90	74 - 135	-9.9
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	99	73 - 137	-1.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	94	78 - 129	-6.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	87	77 - 129	-13.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-3.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
183361

Run #8 Filename p407888 Samp: 1 Inj: 1 Acquired: 15-SEP-17 22:14:48
Processed: 18-SEP-17 13:52:51 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:07	1.120e+03	1.452e+03	0.77	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:17	9.094e+03	5.755e+03	1.58	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:12	8.109e+03	5.246e+03	1.55	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	35:50	6.577e+03	5.301e+03	1.24	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	35:57	7.523e+03	6.203e+03	1.21	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:27	6.294e+03	5.306e+03	1.19	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:11	5.195e+03	4.133e+03	1.26	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:24	5.541e+03	5.366e+03	1.03	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	39:47	3.794e+03	3.709e+03	1.02	yes	no	1.301
10	Unk	OCDF	42:12	6.129e+03	6.840e+03	0.90	yes	no	1.114
11	Unk	2,3,7,8-TCDD	28:54	9.522e+02	1.248e+03	0.76	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:28	6.202e+03	4.072e+03	1.52	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:34	4.717e+03	3.772e+03	1.25	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:39	5.214e+03	4.353e+03	1.20	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	36:53	5.123e+03	4.289e+03	1.19	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:18	3.698e+03	3.613e+03	1.02	yes	no	0.975
17	Unk	OCDD	41:60	5.453e+03	5.970e+03	0.91	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:06	1.308e+04	1.699e+04	0.77	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:16	1.894e+04	1.212e+04	1.56	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:11	1.838e+04	1.183e+04	1.55	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	35:49	6.753e+03	1.346e+04	0.50	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	35:56	8.643e+03	1.670e+04	0.52	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:25	7.299e+03	1.434e+04	0.51	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	5.508e+03	1.128e+04	0.49	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:23	5.083e+03	1.156e+04	0.44	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:46	3.833e+03	8.881e+03	0.43	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	28:52	1.092e+04	1.407e+04	0.78	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:28	1.483e+04	9.469e+03	1.57	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:33	9.952e+03	7.957e+03	1.25	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:38	1.112e+04	8.766e+03	1.27	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:17	7.937e+03	7.536e+03	1.05	yes	no	0.854
32	IS	13C-OCDD	41:59	1.043e+04	1.124e+04	0.93	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:18	1.166e+04	1.478e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:53	1.130e+04	8.980e+03	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	28:54	2.540e+03				no	0.992

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
183361

Run #8 Filename p407888 Samp: 1 Inj: 1 Acquired: 15-SEP-17 22:14:48
Processed: 18-SEP-17 13:52:51 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.96e+05	1.05e+03	1.9e+02	2.60e+05	3.04e+03	8.5e+01
2	1,2,3,7,8-PeCDF	1.61e+06	3.24e+02	5.0e+03	1.02e+06	1.46e+03	7.0e+02
3	2,3,4,7,8-PeCDF	1.56e+06	3.24e+02	4.8e+03	1.01e+06	1.46e+03	7.0e+02
4	1,2,3,4,7,8-HxCDF	1.38e+06	8.00e+02	1.7e+03	1.11e+06	5.56e+02	2.0e+03
5	1,2,3,6,7,8-HxCDF	1.39e+06	8.00e+02	1.7e+03	1.15e+06	5.56e+02	2.1e+03
6	2,3,4,6,7,8-HxCDF	1.26e+06	8.00e+02	1.6e+03	1.07e+06	5.56e+02	1.9e+03
7	1,2,3,7,8,9-HxCDF	9.64e+05	8.00e+02	1.2e+03	7.56e+05	5.56e+02	1.4e+03
8	1,2,3,4,6,7,8-HpCDF	1.10e+06	2.80e+02	3.9e+03	1.06e+06	2.25e+03	4.7e+02
9	1,2,3,4,7,8,9-HpCDF	6.69e+05	2.80e+02	2.4e+03	6.58e+05	2.25e+03	2.9e+02
10	OCDF	9.05e+05	4.20e+02	2.2e+03	1.00e+06	1.14e+03	8.8e+02
11	2,3,7,8-TCDD	1.73e+05	1.37e+03	1.3e+02	2.42e+05	6.36e+02	3.8e+02
12	1,2,3,7,8-PeCDD	1.18e+06	8.96e+02	1.3e+03	7.63e+05	1.28e+02	6.0e+03
13	1,2,3,4,7,8-HxCDD	1.02e+06	3.68e+02	2.8e+03	8.05e+05	5.20e+02	1.5e+03
14	1,2,3,6,7,8-HxCDD	9.75e+05	3.68e+02	2.6e+03	8.18e+05	5.20e+02	1.6e+03
15	1,2,3,7,8,9-HxCDD	9.04e+05	3.68e+02	2.5e+03	7.56e+05	5.20e+02	1.5e+03
16	1,2,3,4,6,7,8-HpCDD	6.86e+05	4.80e+02	1.4e+03	6.44e+05	4.40e+02	1.5e+03
17	OCDD	7.92e+05	3.52e+02	2.3e+03	8.80e+05	3.59e+03	2.5e+02
18	13C-2,3,7,8-TCDF	2.43e+06	7.67e+03	3.2e+02	3.15e+06	4.57e+03	6.9e+02
19	13C-1,2,3,7,8-PeCDF	3.44e+06	6.20e+02	5.5e+03	2.18e+06	4.56e+02	4.8e+03
20	13C-2,3,4,7,8-PeCDF	3.57e+06	6.20e+02	5.8e+03	2.29e+06	4.56e+02	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.39e+06	4.56e+02	3.1e+03	2.81e+06	1.63e+03	1.7e+03
22	13C-1,2,3,6,7,8-HxCDF	1.59e+06	4.56e+02	3.5e+03	3.08e+06	1.63e+03	1.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.46e+06	4.56e+02	3.2e+03	2.86e+06	1.63e+03	1.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.03e+06	4.56e+02	2.3e+03	2.08e+06	1.63e+03	1.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.73e+05	2.34e+03	4.1e+02	2.28e+06	1.80e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.65e+05	2.34e+03	2.8e+02	1.55e+06	1.80e+03	8.6e+02
27	13C-2,3,7,8-TCDD	2.10e+06	4.06e+03	5.2e+02	2.75e+06	2.11e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	2.73e+06	8.64e+02	3.2e+03	1.78e+06	9.72e+02	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	2.15e+06	1.42e+03	1.5e+03	1.70e+06	7.44e+02	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.12e+06	1.42e+03	1.5e+03	1.66e+06	7.44e+02	2.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.40e+06	7.04e+02	2.0e+03	1.36e+06	2.32e+02	5.9e+03
32	13C-OCDD	1.49e+06	9.60e+02	1.5e+03	1.63e+06	4.10e+03	4.0e+02
33	13C-1,2,3,4-TCDD	2.23e+06	4.06e+03	5.5e+02	2.77e+06	2.11e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.98e+06	1.42e+03	1.4e+03	1.60e+06	7.44e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	4.91e+05	2.60e+03	1.9e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (1.368e{+}03 + 6.360e{+}02) \times 100}{(2.096e{+}06 + 2.748e{+}06) \times (\qquad\qquad) \times 0.966} =$$

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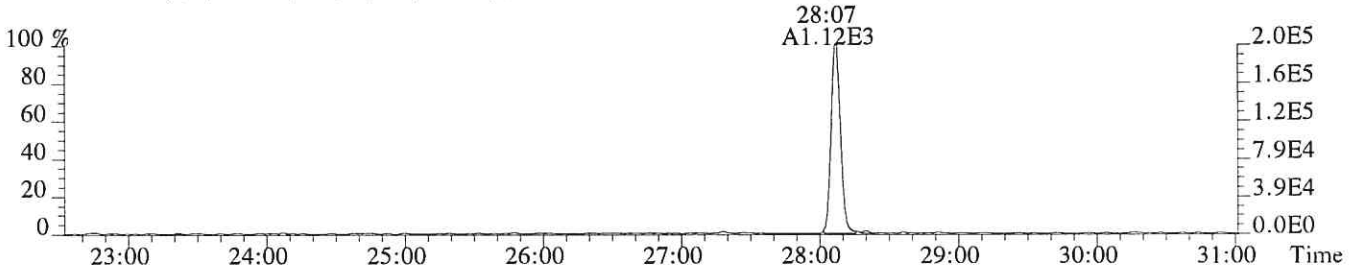
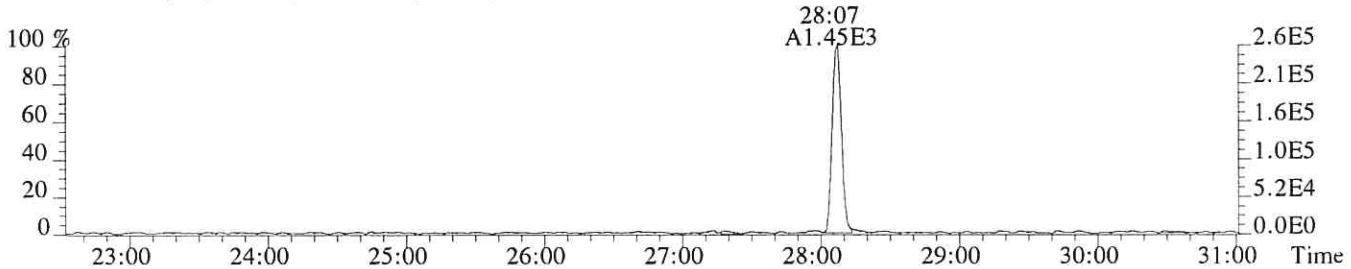
File:P407888 #1-602 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

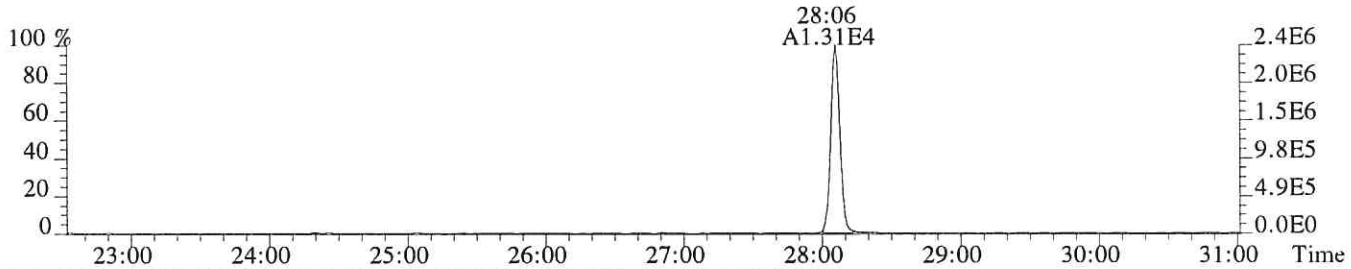
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



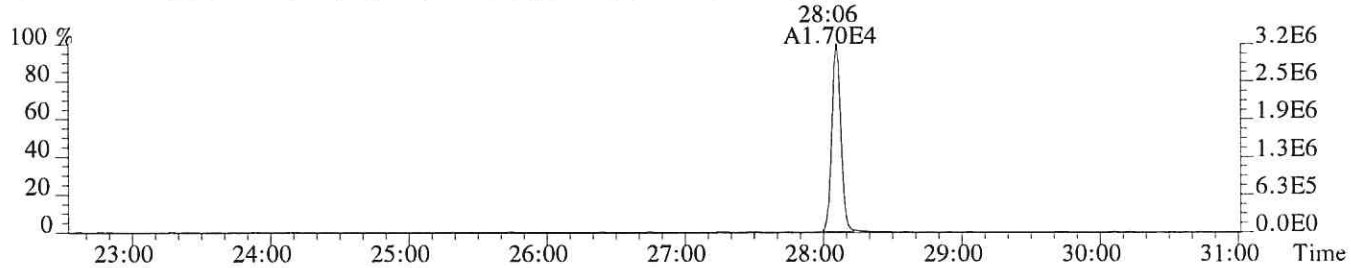
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3040.0,1.00%,F,T)



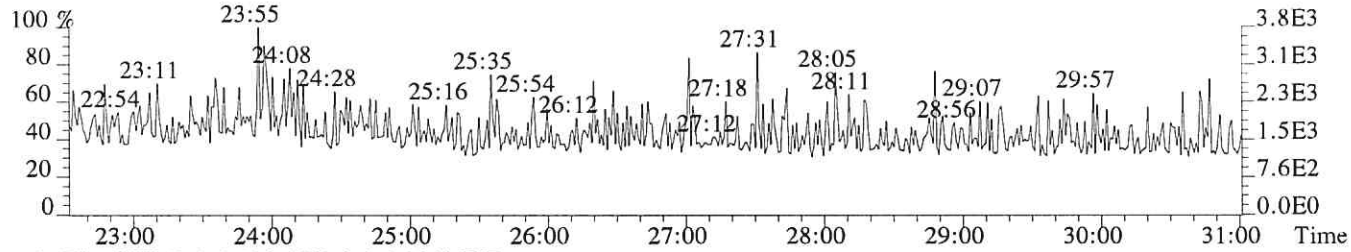
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7668.0,1.00%,F,T)



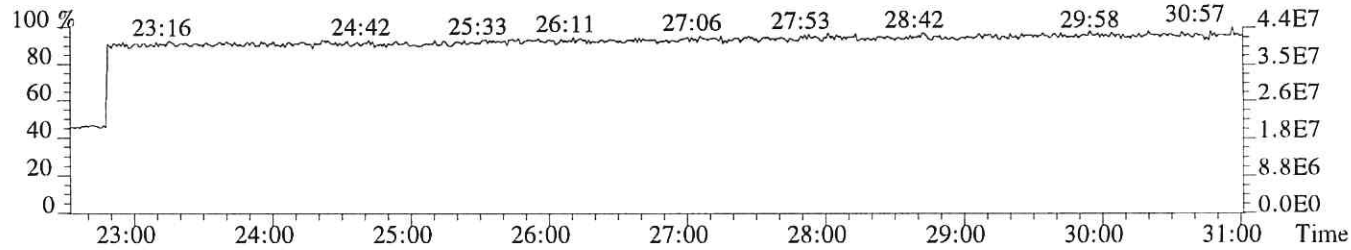
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4572.0,1.00%,F,T)



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

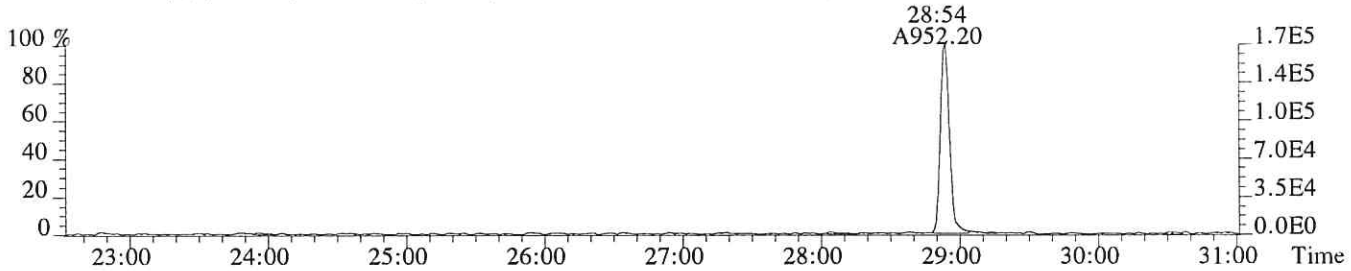


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

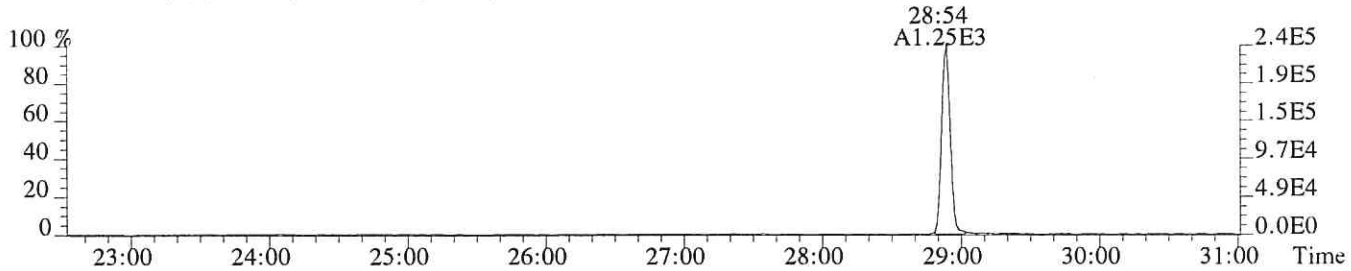


File:P407888 #1-602 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

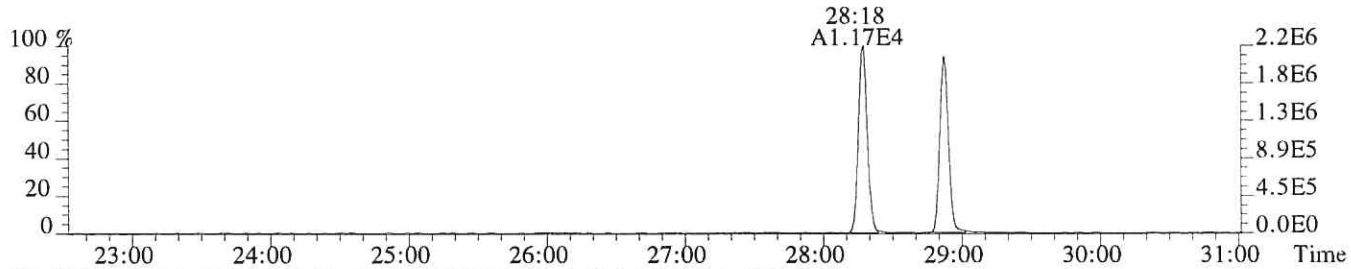
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



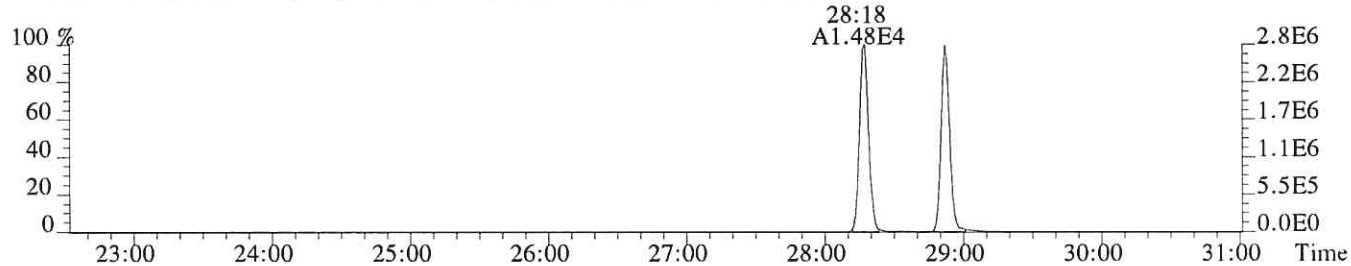
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



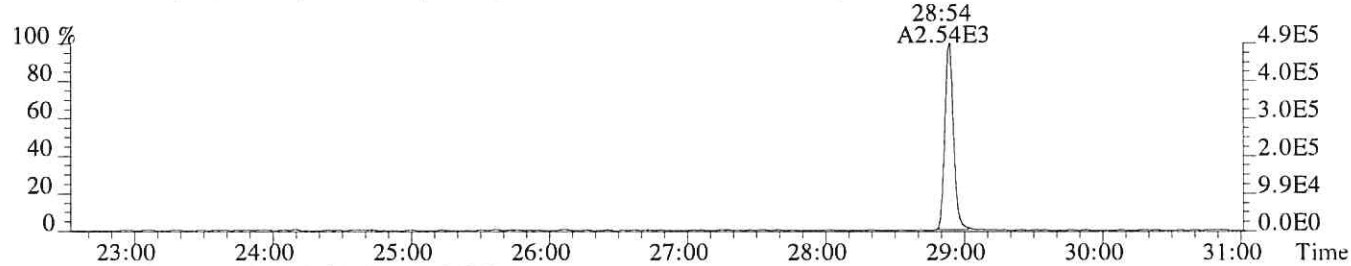
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4056.0,1.00%,F,T)



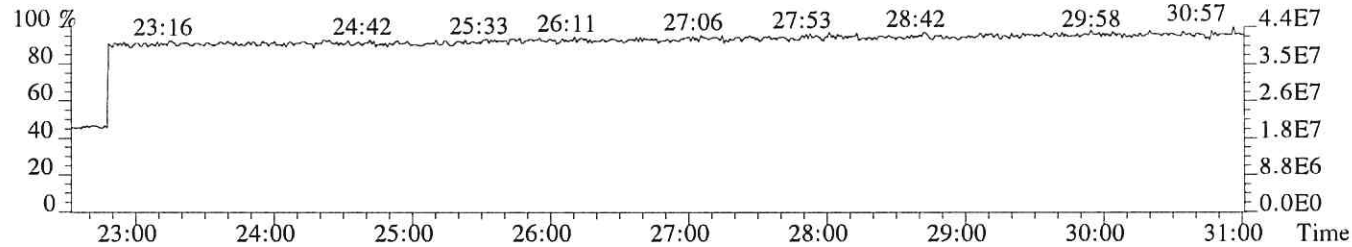
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



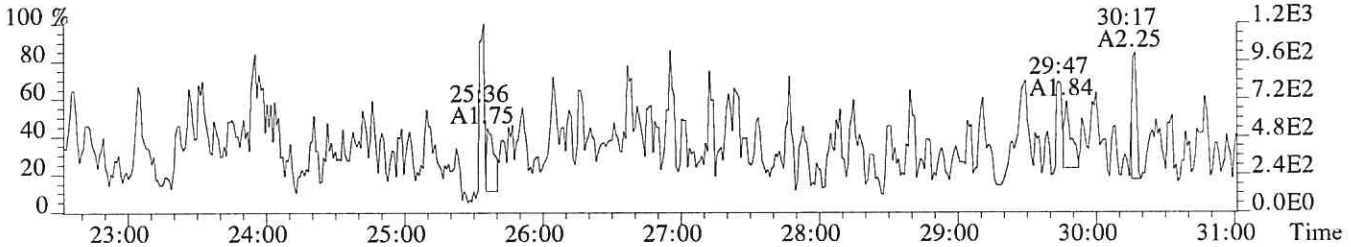
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2604.0,1.00%,F,T)



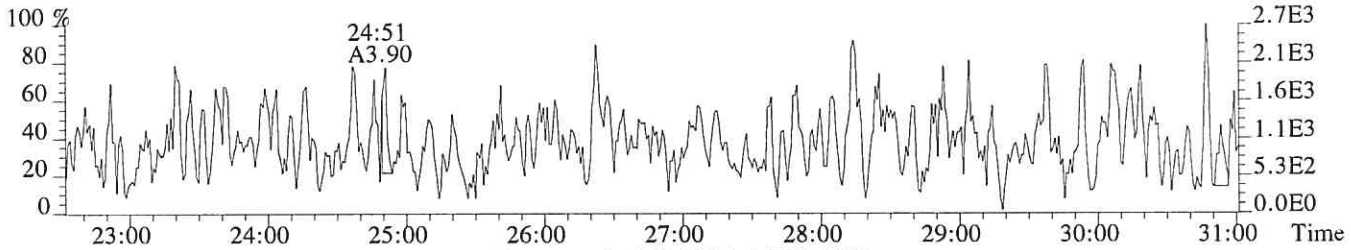
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



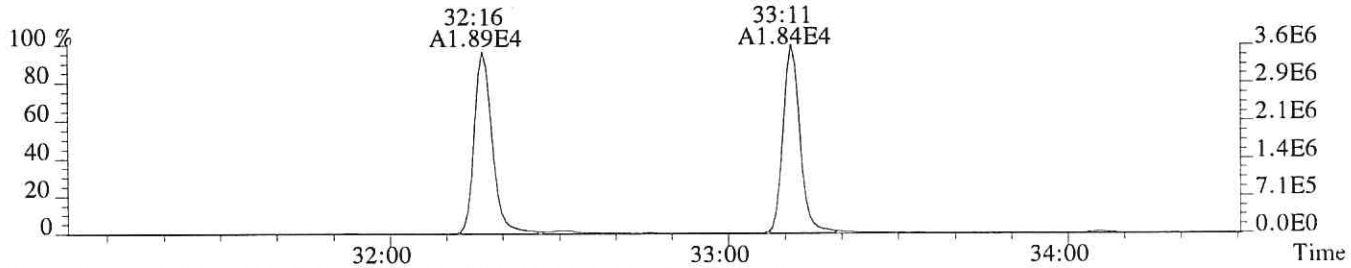
File:P407888 #1-602 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



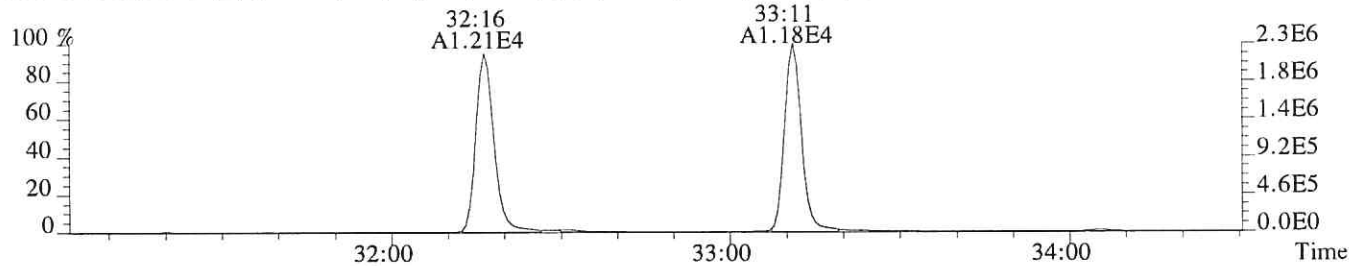
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



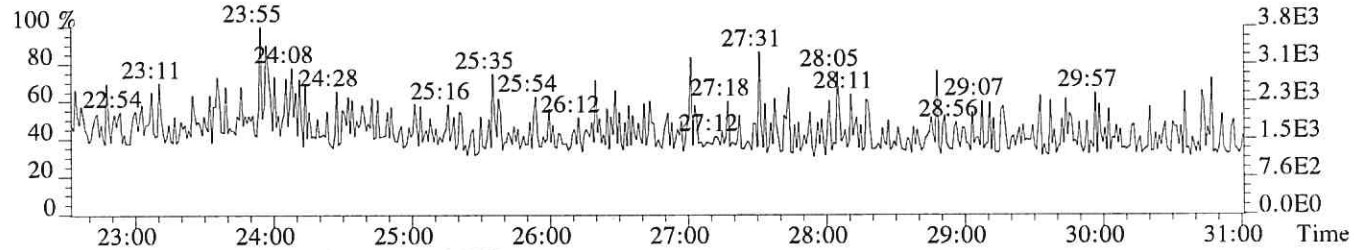
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



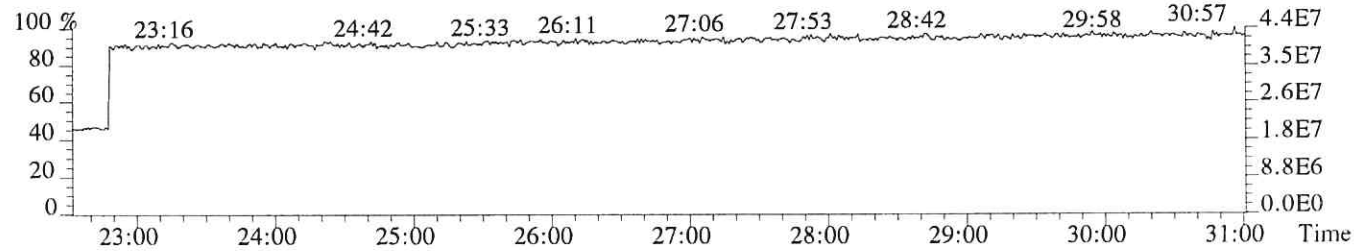
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



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

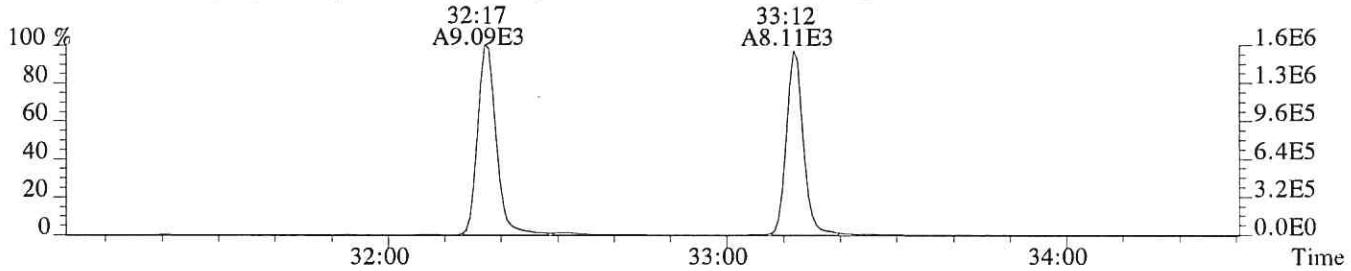


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

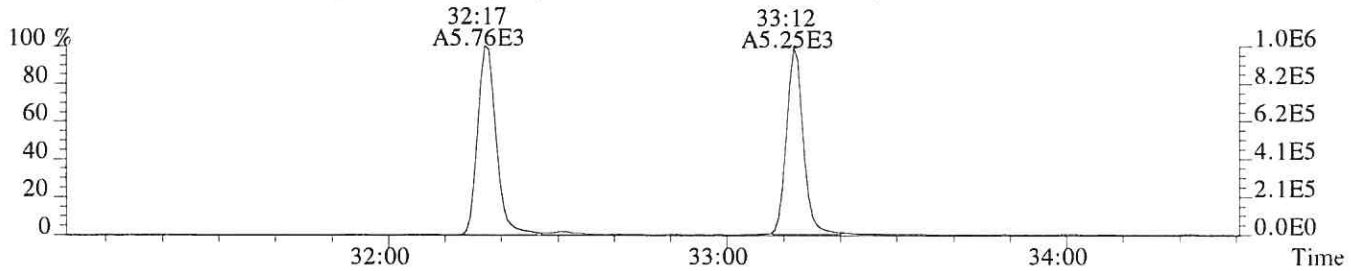


File:P407888 #1-312 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

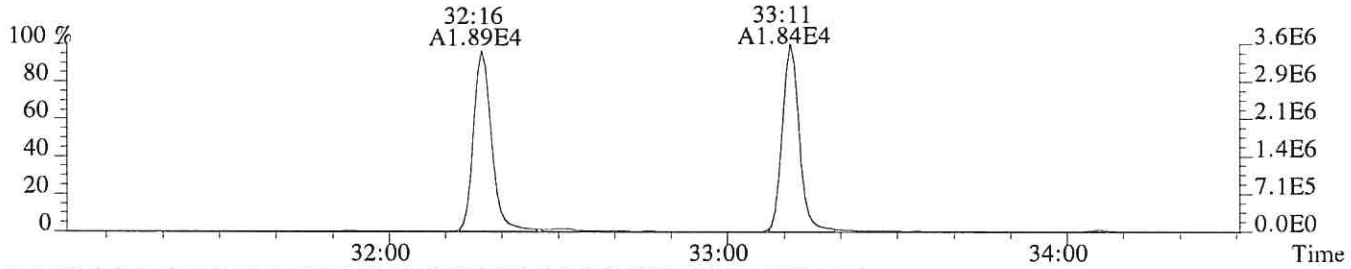
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



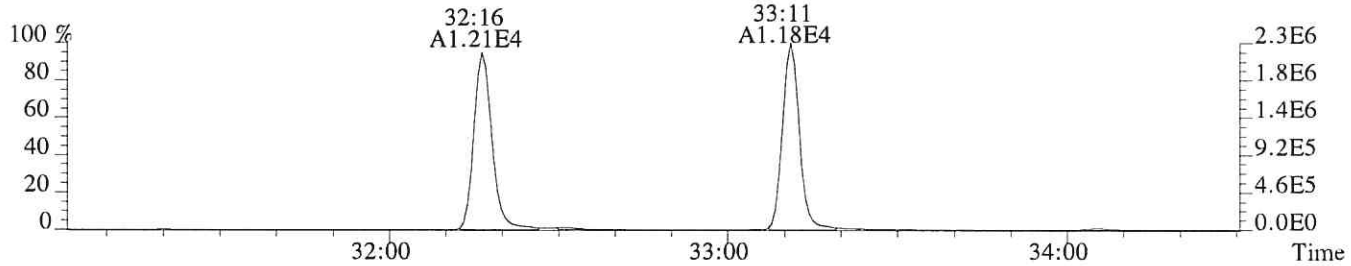
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



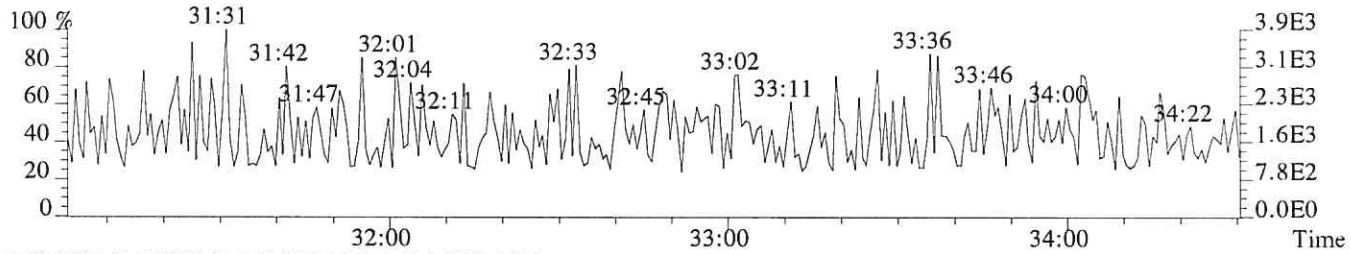
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



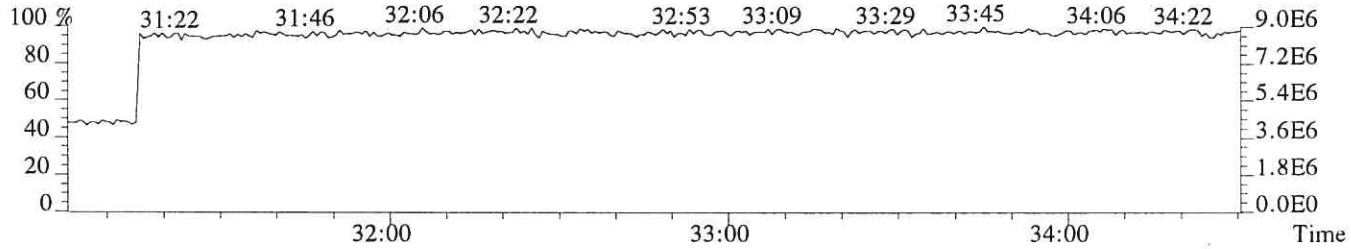
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



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

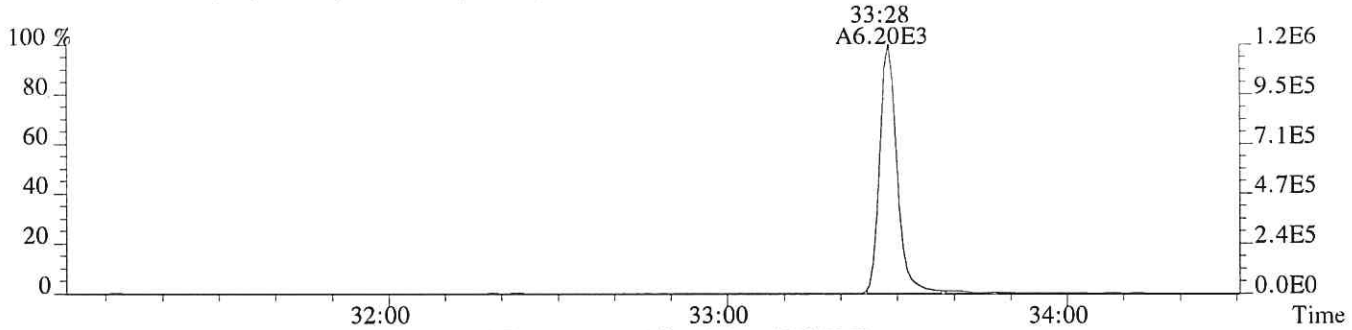


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

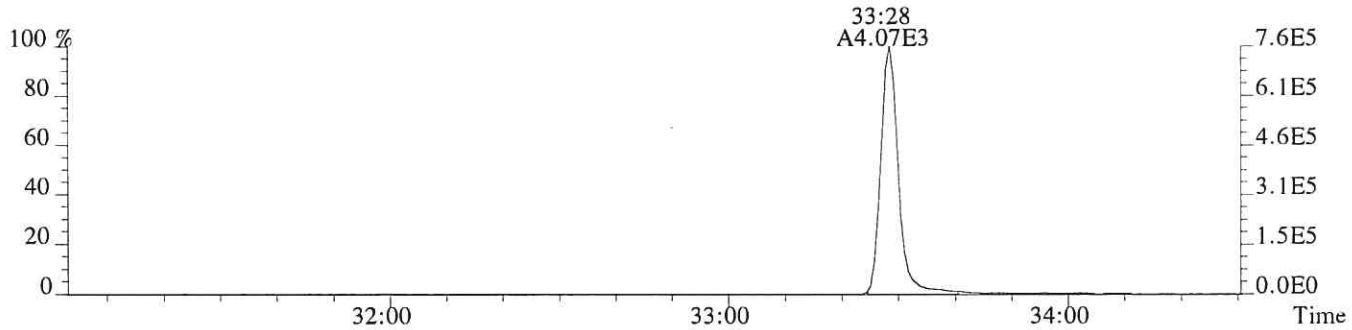


File:P407888 #1-312 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

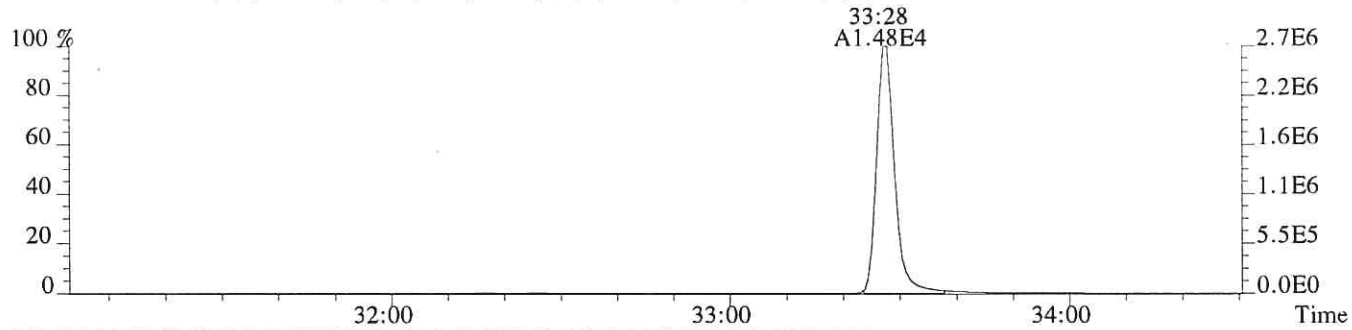
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



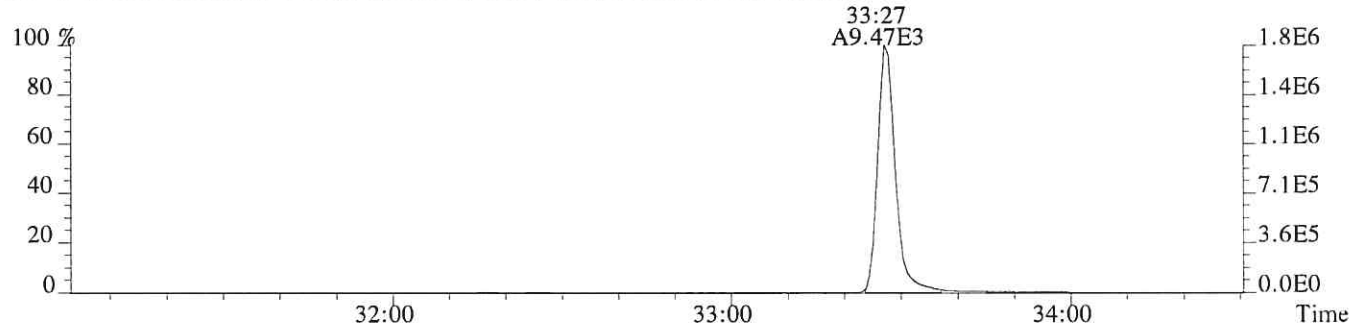
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



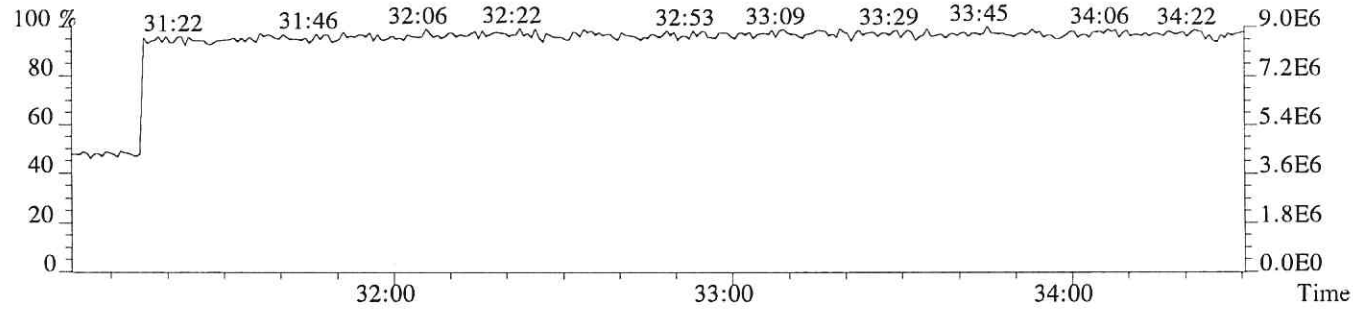
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)

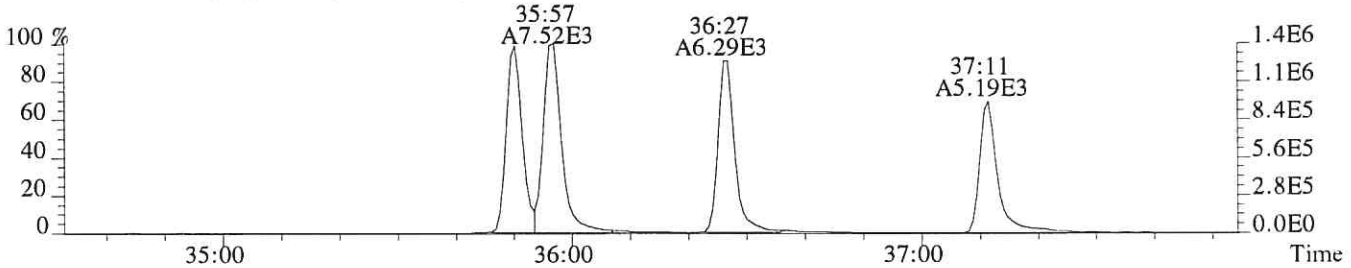


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

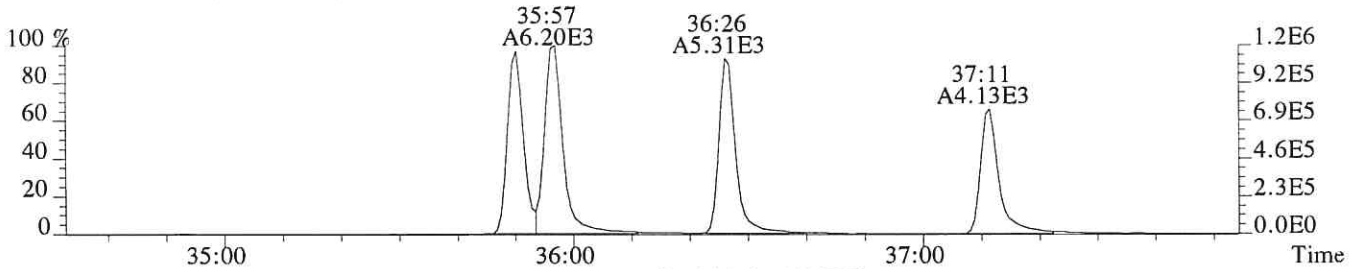


File:P407888 #1-303 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

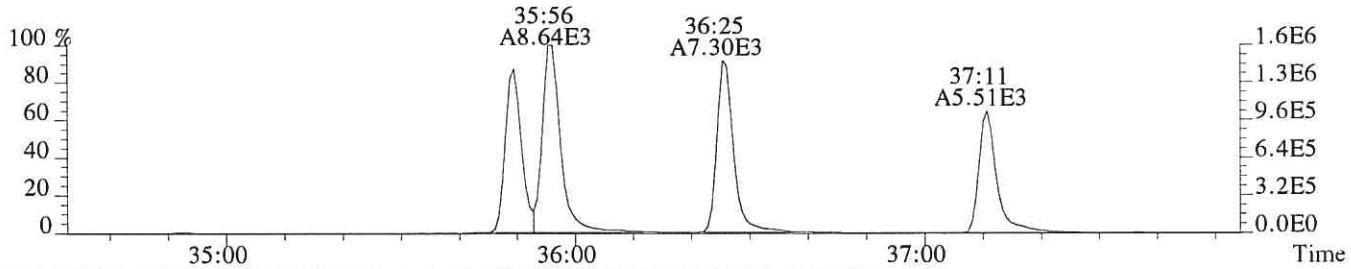
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



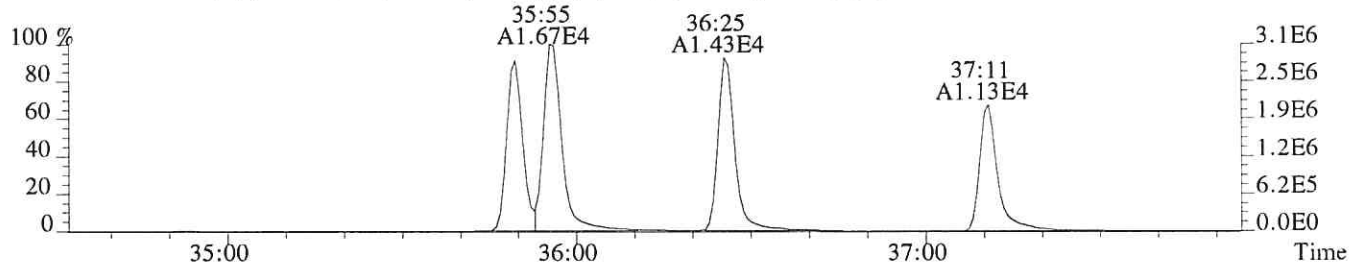
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



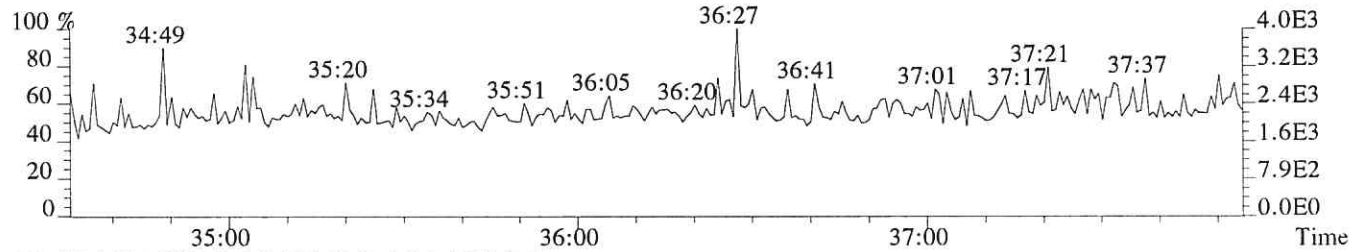
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



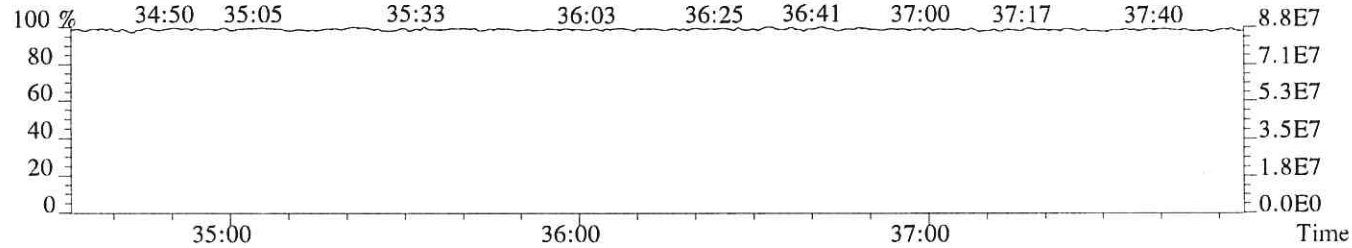
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



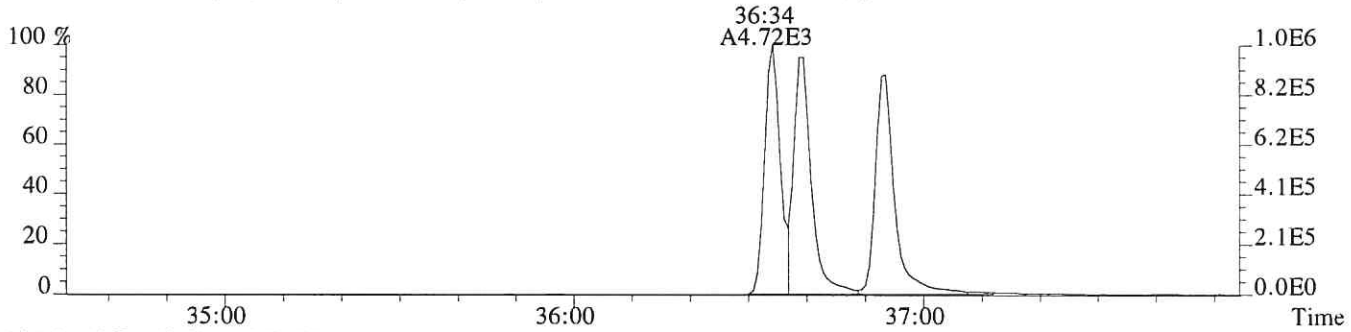
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



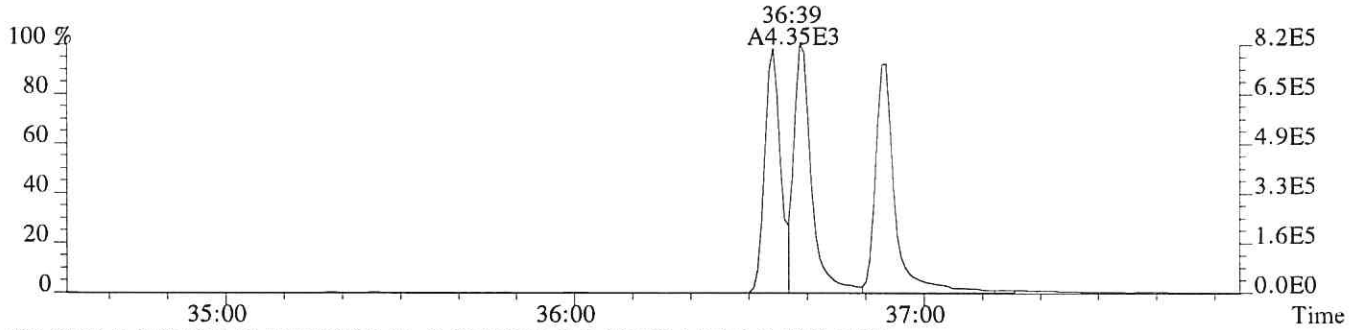
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



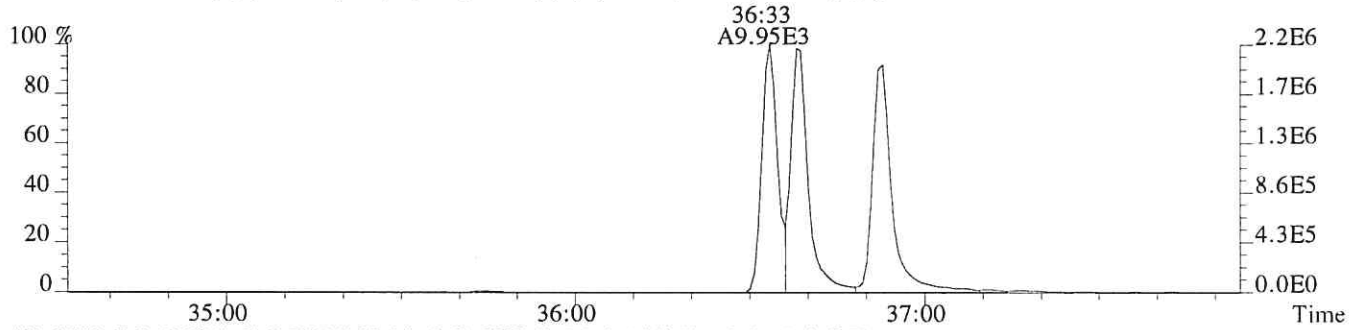
File:P407888 #1-303 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,368.0,0.40%,F,T)



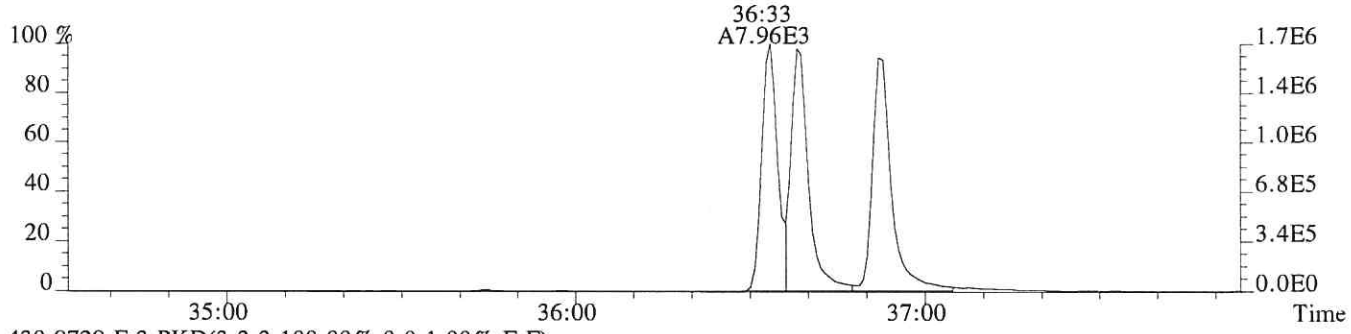
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



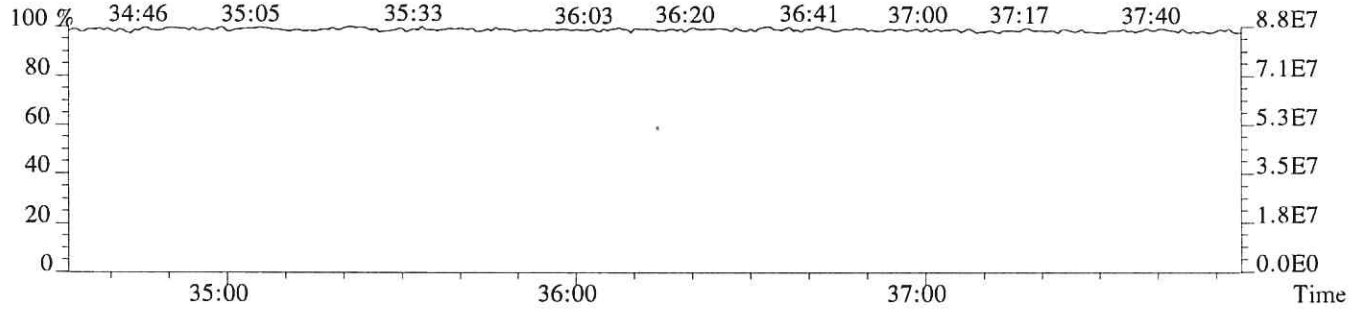
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)

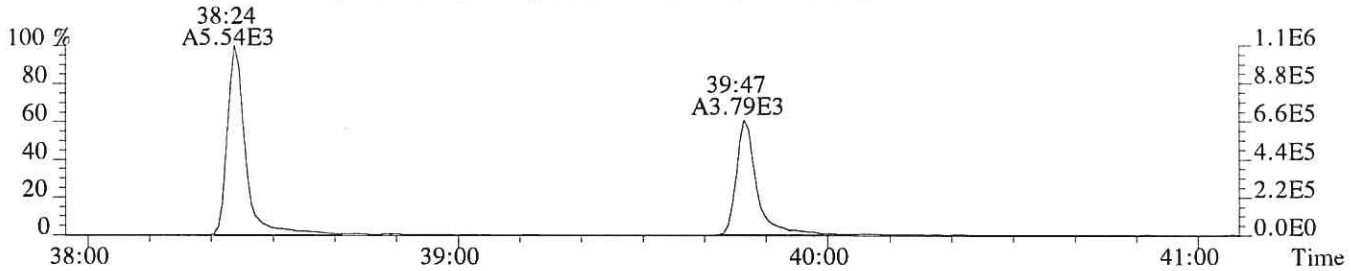


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

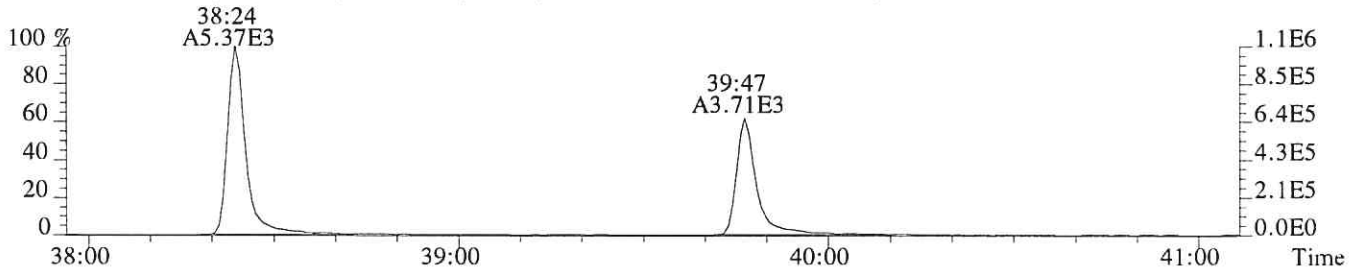


File:P407888 #1-286 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

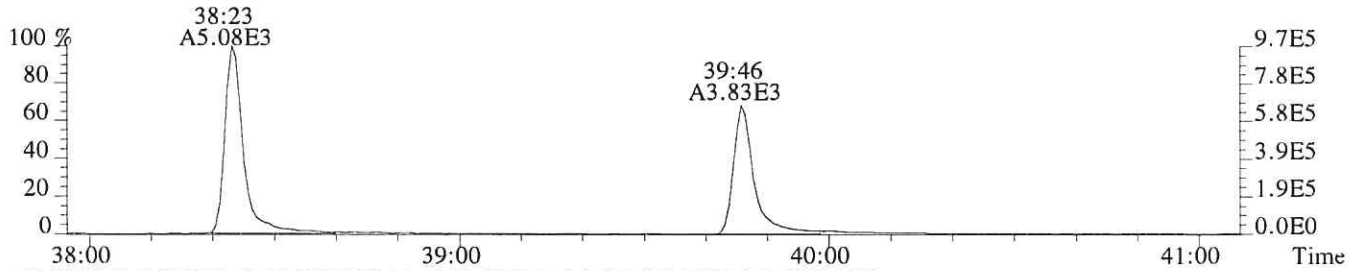
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.50%,F,T)



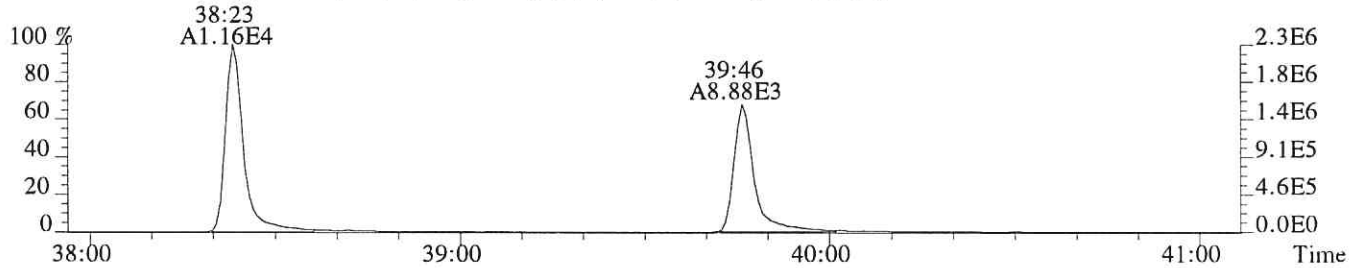
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2252.0,0.50%,F,T)



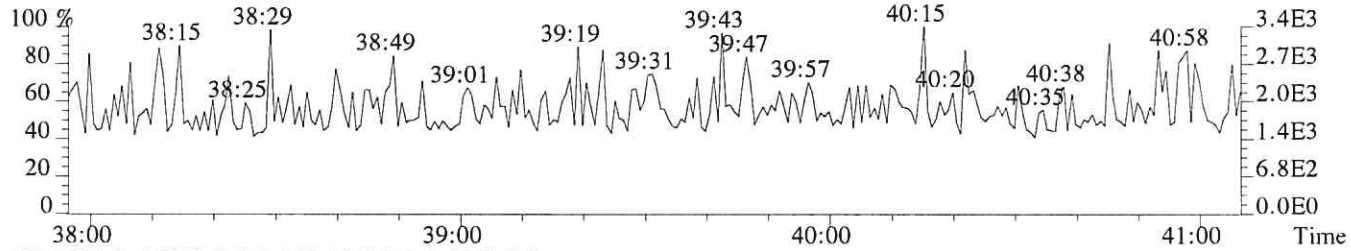
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2344.0,0.50%,F,T)



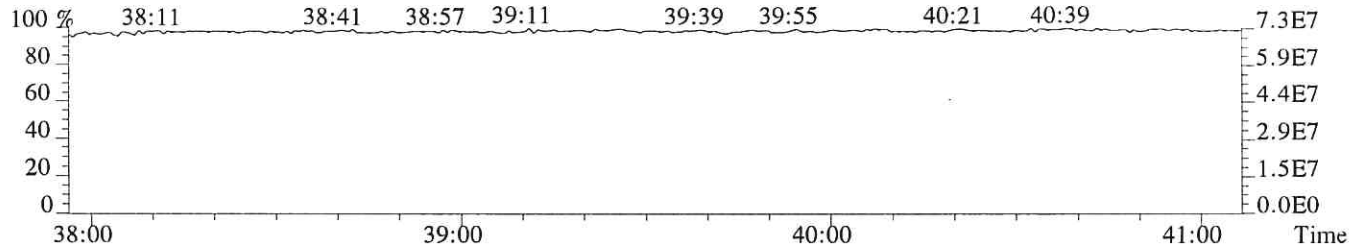
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.50%,F,T)



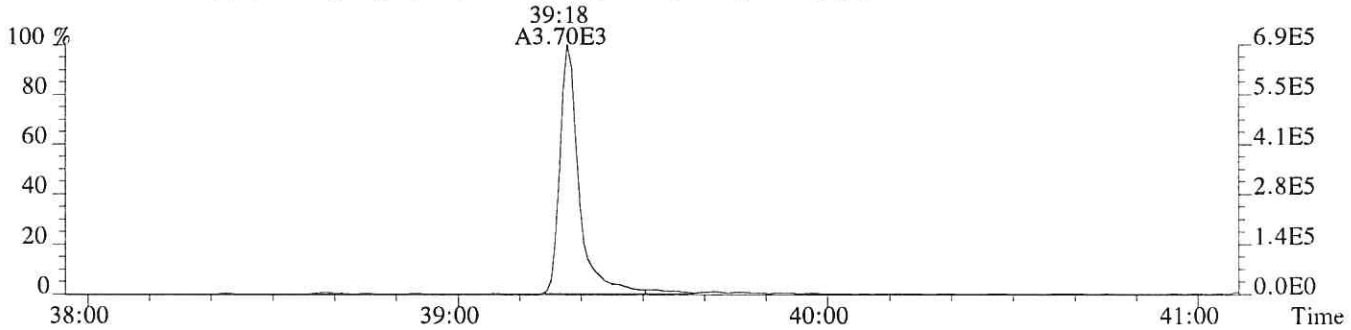
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



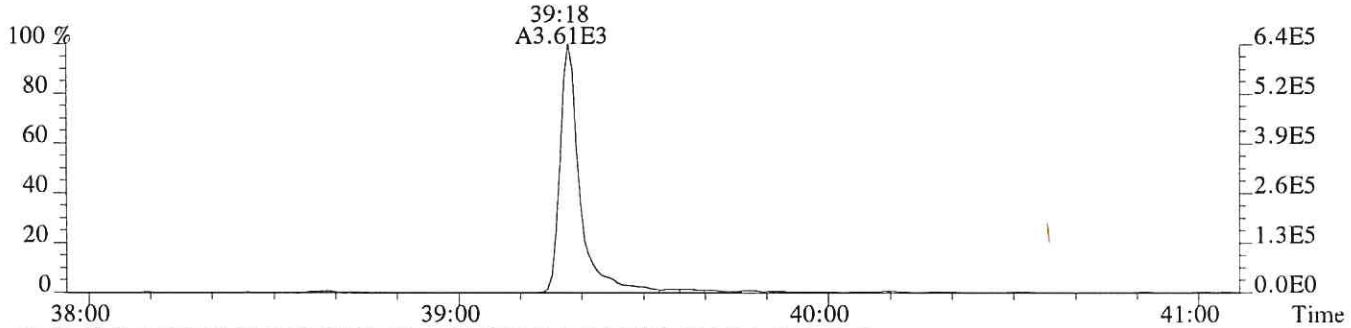
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



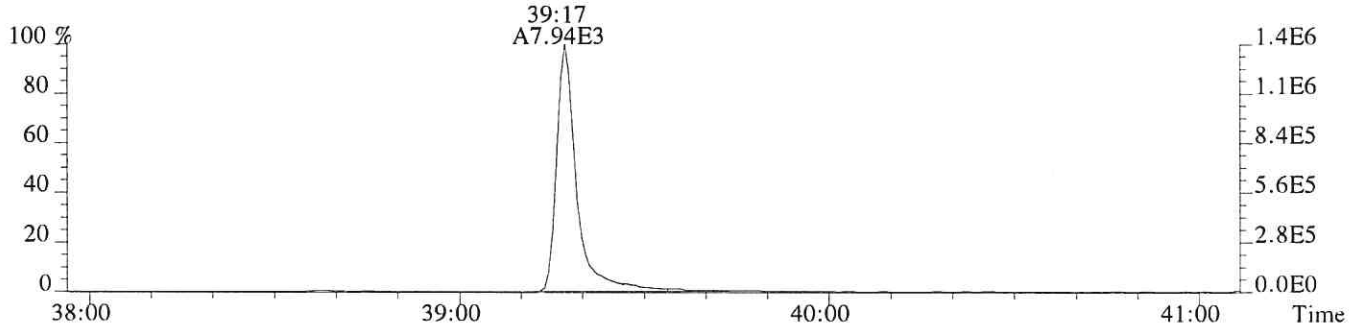
File:P407888 #1-286 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



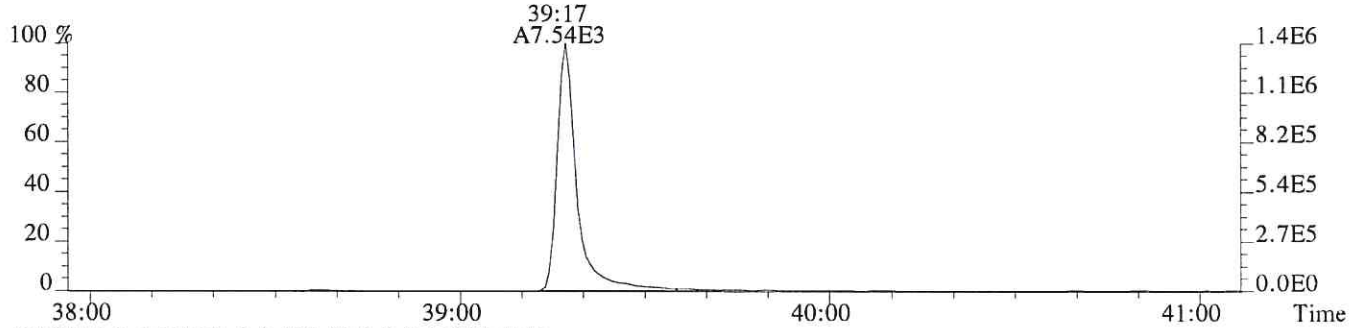
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



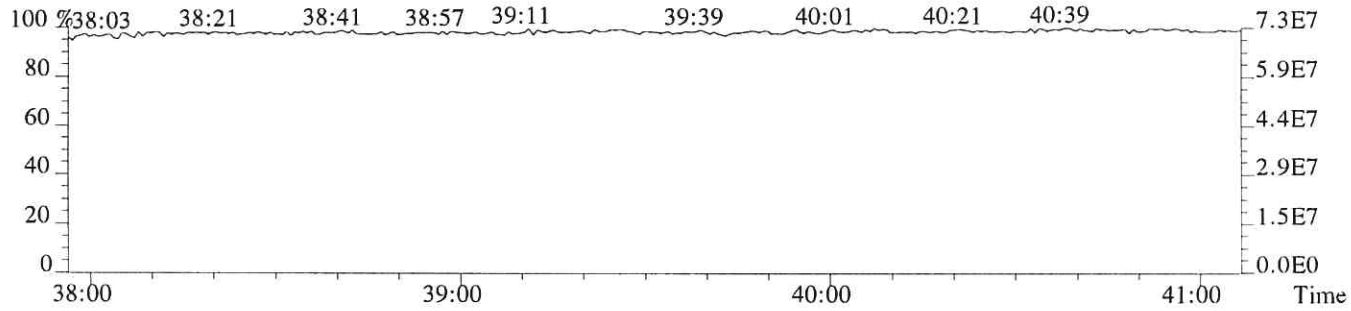
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)

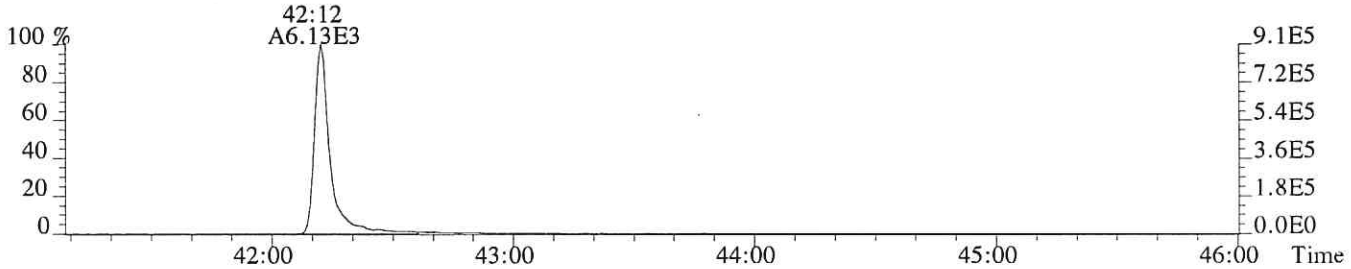


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

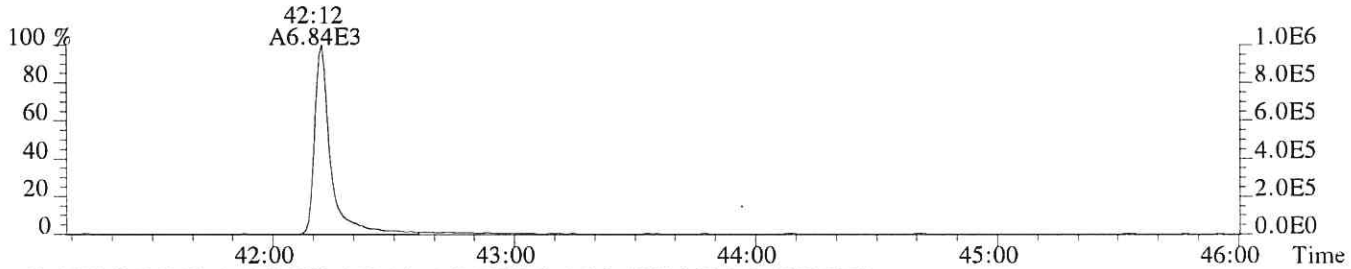


File:P407888 #1-438 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

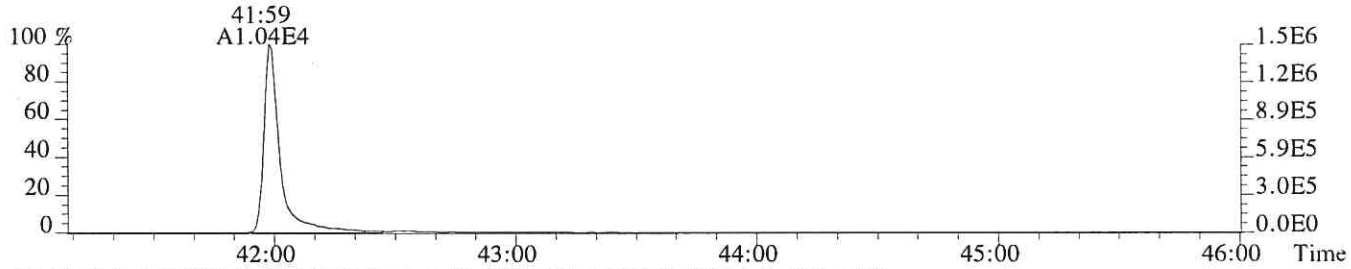
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



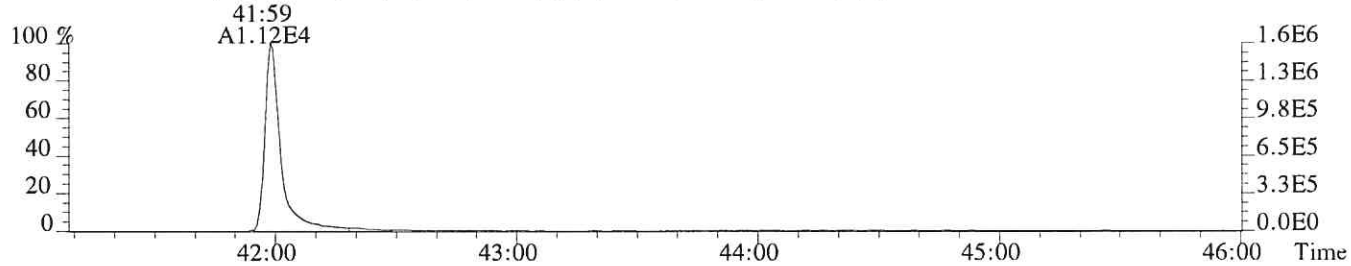
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1144.0,0.40%,F,T)



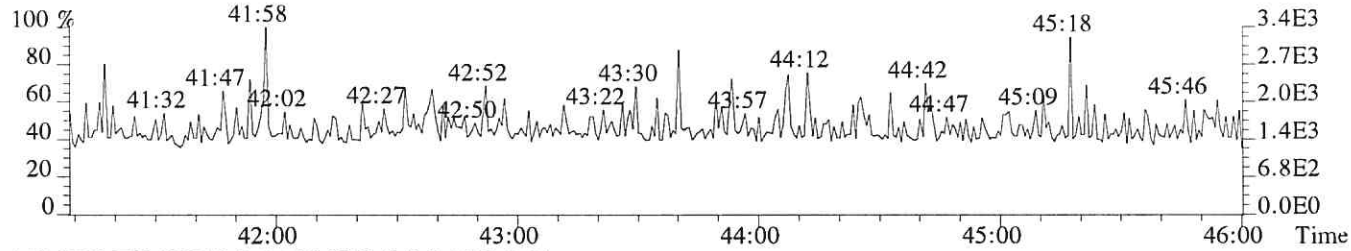
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



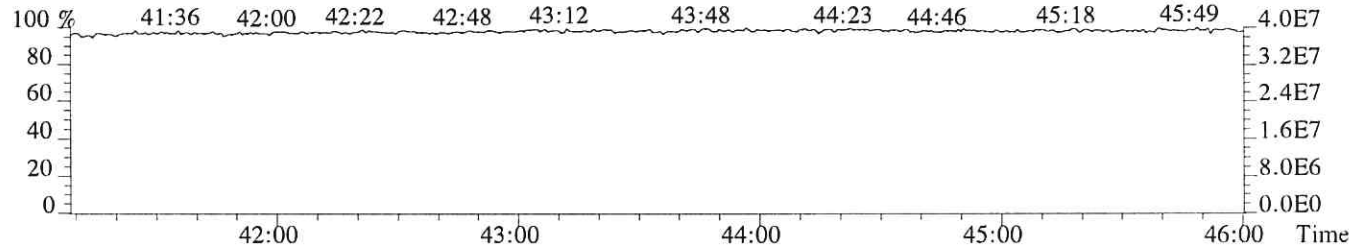
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4096.0,0.40%,F,T)



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

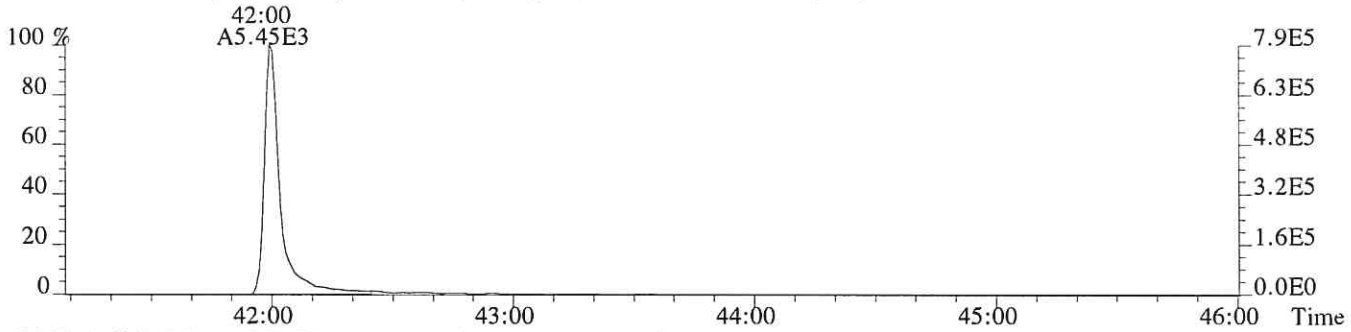


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

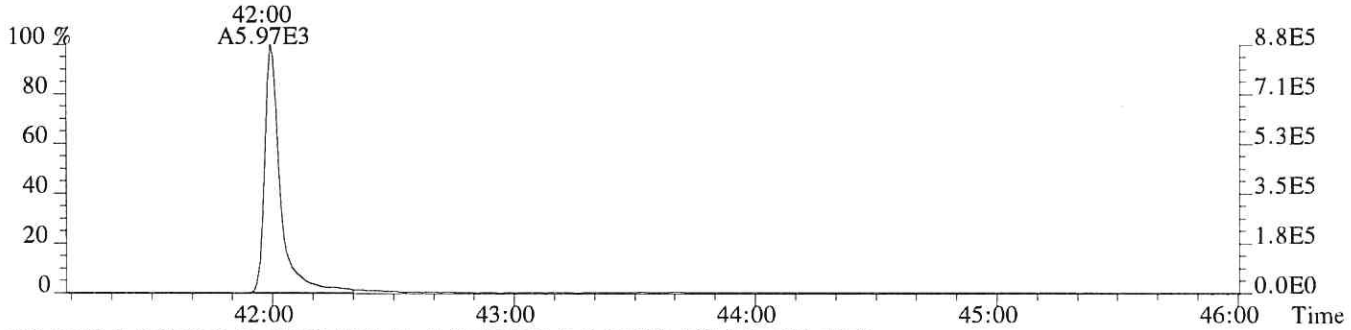


File:P407888 #1-438 Acq:15-SEP-2017 22:14:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

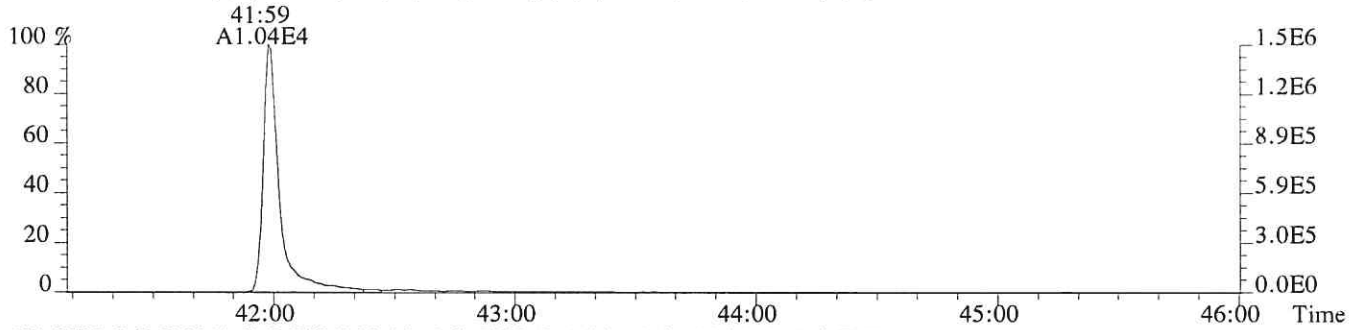
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



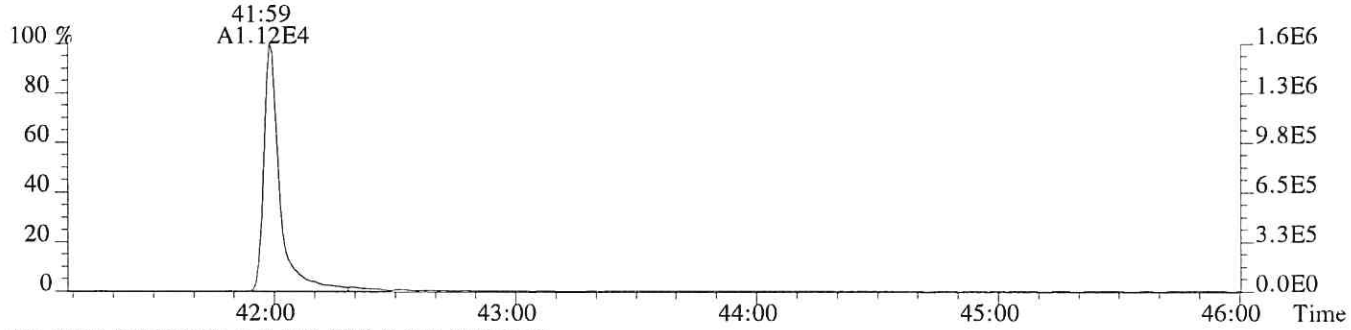
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3588.0,0.40%,F,T)



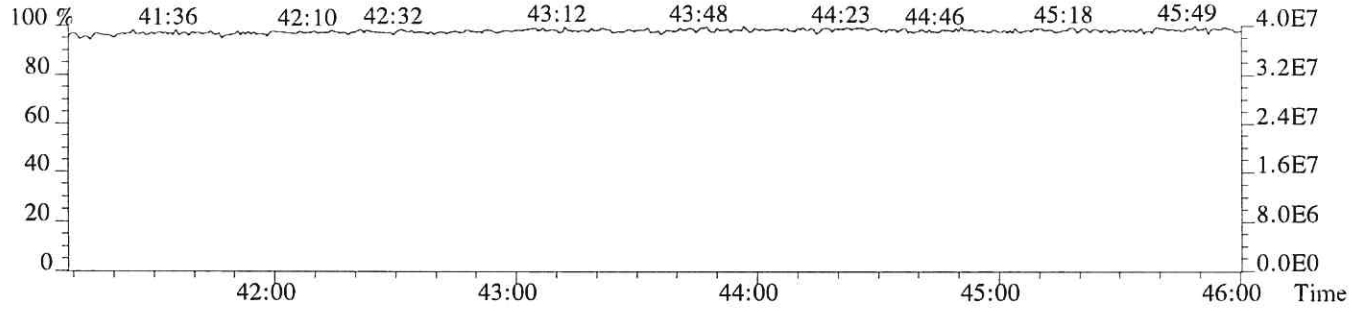
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,960.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4096.0,0.40%,F,T)



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



Initial Calibration

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

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 09/04/2017
Instrument Name: E-HRMS-06	Calibration File Name: P4-170901161 3I
Processor Name: JIMMY CHAU	Reviewer Name: LOAN LUONG
Supervisor Signature: Kristin Neir	

	Yes	No	NA	NR	ER#
Description					
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?					1
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 09/04/2017
Instrument Name: E-HRMS-06	Calibration File Name: P4-170901161 3I
Processor Name: JIMMY CHAU	Reviewer Name: LOAN LUONG
Supervisor Signature: Kristin Neir	

	Yes	No	NA	NR	ER#
Description					
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?			√		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 09/04/2017
Instrument Name: E-HRMS-06	Calibration File Name: P4-170901161 3I
Processor Name: JIMMY CHAU	Reviewer Name: LOAN LUONG

ER#[5]	Description
1	ICV second source was analyzed the next day before analyzing samples.

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Episode No.: SDG No.:

GC column ID : DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-06

Init. Calib. Date: 09/01/2017

Init. Calib.Times: 14:07:08

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
178397	WINDOW DEFINE	p407613	1-SEP-17	14:07:08
76554	CS0.5	p407614	1-SEP-17	14:55:03
76555	CS1	p407615	1-SEP-17	15:54:29
76556	CS2	p407616	1-SEP-17	16:55:05
76557	CS3	p407617	1-SEP-17	17:42:58
76558	CS4	p407618	1-SEP-17	18:32:08
82168	CS5	p407619	1-SEP-17	19:21:19
75080	2ND SOURCE	p407621	1-SEP-17	20:59:42
75080	2ND SOURCE	p407623	2-SEP-17	08:16:56

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\ehrms06.PRO\SampleDB\20170901.spl
Last Modified: Saturday, September 02, 2017 08:19:04 Central Daylight Time
Printed: Saturday, September 02, 2017 08:19:07 Central Daylight Time

Page Position (1, 1)

OPUS-5: P4-170901613I/RES OPUS-5: P4-170901M23I/RESM

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	9/1/17	14:07	P407613	178397	WINDOW DEFINE	Tray1:1	epa1613_als	Dioxin_ALS	LY	HRMS check 13:59
2		14:55	P407614	76554	CS0.5	Tray1:2	epa1613_als	Dioxin_ALS		
3		15:54	P407615	76555	CS1	Tray1:3	epa1613_als	Dioxin_ALS		
4		16:55	P407616	76556	CS2	Tray1:4	epa1613_als	Dioxin_ALS		
5		17:42	P407617	76557	CS3	Tray1:5	epa1613_als	Dioxin_ALS		
6		18:32	P407618	76558	CS4	Tray1:6	epa1613_als	Dioxin_ALS		
7		19:25	P407619	82168	CS5	Tray1:7	epa1613_als	Dioxin_ALS		
8		20:10	P407620	NONANE	NONANE	Tray1:8	epa1613_als	Dioxin_ALS		
9		20:59	P407621	75080	2NDSOURCE	Tray1:9	epa1613_als	Dioxin_ALS		
10		21:57	P407622	NONANE	NONANE	Tray1:10	epa1613_als	Dioxin_ALS		HRMS check 21:57
11	—	—	—	—	—	Tray1:11	epa1613_als	Dioxin_ALS	—	—
12	—	—	—	—	—	Tray1:12	epa1613_als	Dioxin_ALS	—	—
13	—	—	—	—	—	Tray1:13	epa1613_als	Dioxin_ALS	—	—
14	—	—	—	—	—	Tray1:14	epa1613_als	Dioxin_ALS	—	—
15	—	—	—	—	—	Tray1:15	epa1613_als	Dioxin_ALS	—	—
16	—	—	—	—	—	Tray1:16	epa1613_als	Dioxin_ALS	—	—
17	—	—	—	—	—	Tray1:17	epa1613_als	Dioxin_ALS	—	—
18	—	—	—	—	—	Tray1:18	epa1613_als	Dioxin_ALS	—	—
19	—	—	—	—	—	Tray1:19	epa1613_als	Dioxin_ALS	—	—
20	—	—	—	—	—	Tray1:20	epa1613_als	Dioxin_ALS	—	—
21	—	—	—	—	—	Tray1:21	epa1613_als	Dioxin_ALS	—	—
22	—	—	—	—	—	Tray1:22	epa1613_als	Dioxin_ALS	—	—
23	—	—	—	—	—	Tray1:23	epa1613_als	Dioxin_ALS	—	—
24	—	—	—	—	—	Tray1:24	epa1613_als	Dioxin_ALS	—	—
25	—	—	—	—	—	Tray1:25	epa1613_als	Dioxin_ALS	—	—
26	—	—	—	—	—	Tray1:26	epa1613_als	Dioxin_ALS	—	—
27	—	—	—	—	—	Tray1:27	epa1613_als	Dioxin_ALS	—	—
28	—	—	—	—	—	Tray1:28	epa1613_als	Dioxin_ALS	—	—
29	—	—	—	—	—	Tray1:29	epa1613_als	Dioxin_ALS	—	—
30	—	—	—	—	—	Tray1:30	epa1613_als	Dioxin_ALS	—	—
31	—	—	—	—	—	Tray1:31	epa1613_als	Dioxin_ALS	—	—
32	—	—	—	—	—	Tray1:32	epa1613_als	Dioxin_ALS	—	—
33	—	—	—	—	—	Tray1:33	epa1613_als	Dioxin_ALS	—	—
34	—	—	—	—	—	Tray1:34	epa1613_als	Dioxin_ALS	—	—
35	—	—	—	—	—	Tray1:35	epa1613_als	Dioxin_ALS	—	—
36	—	—	—	—	—	Tray1:36	epa1613_als	Dioxin_ALS	—	—
37	—	—	—	—	—	Tray1:37	epa1613_als	Dioxin_ALS	—	—
38	—	—	—	—	—	Tray1:38	epa1613_als	Dioxin_ALS	—	—
39	—	—	—	—	—	Tray1:39	epa1613_als	Dioxin_ALS	—	—

TC 09/01/17

9/2/17 084

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\ehrms06.PRO\SampleDB\20170902I.spl
Last Modified: Wednesday, September 13, 2017 08:47:17 Central Daylight Time
Printed: Wednesday, September 13, 2017 08:47:30 Central Daylight Time

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	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	09/02/17	08:16	P407623	75080	2ND SOURCE	Tray1:2	epa1613_als	Dioxin_ALS	LG	HRMS check 08:09
2			—	—	—	Tray1:1	epa1613_als	Dioxin_ALS		
3			—	—	—	Tray1:3	epa1613_als	Dioxin_ALS		
4			—	—	—	Tray1:4	epa1613_als	Dioxin_ALS		
5			—	—	—	Tray1:5	epa1613_als	Dioxin_ALS		
6			—	—	—	Tray1:6	epa1613_als	Dioxin_ALS		
7			—	—	—	Tray1:7	epa1613_als	Dioxin_ALS		
8			—	—	—	Tray1:8	epa1613_als	Dioxin_ALS		
9			—	—	—	Tray1:9	epa1613_als	Dioxin_ALS		
10			—	—	—	Tray1:10	epa1613_als	Dioxin_ALS		
11			—	—	—	Tray1:11	epa1613_als	Dioxin_ALS		
12			—	—	—	Tray1:12	epa1613_als	Dioxin_ALS		
13	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
14	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
15	—	—	—	—	—	Tray1:1	epa1613_als	Dioxin_ALS	—	—
16	—	—	—	—	—	Tray1:16	epa1613_als	Dioxin_ALS	—	—
17	—	—	—	—	—	Tray1:17	epa1613_als	Dioxin_ALS	—	—
18	—	—	—	—	—	Tray1:18	epa1613_als	Dioxin_ALS	—	—
19	—	—	—	—	—	Tray1:19	epa1613_als	Dioxin_ALS	—	—
20	—	—	—	—	—	Tray1:20	epa1613_als	Dioxin_ALS	—	—
21	—	—	—	—	—	Tray1:21	epa1613_als	Dioxin_ALS	—	—
22	—	—	—	—	—	Tray1:22	epa1613_als	Dioxin_ALS	—	—
23	—	—	—	—	—	Tray1:23	epa1613_als	Dioxin_ALS	—	—
24	—	—	—	—	—	Tray1:24	epa1613_als	Dioxin_ALS	—	—
25	—	—	—	—	—	Tray1:25	epa1613_als	Dioxin_ALS	—	—
26	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
27	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—
28	—	—	—	—	—	Tray1:1	epa1613_als	Dioxin_ALS	—	—
29	—	—	—	—	—	Tray1:29	epa1613_als	Dioxin_ALS	—	—
30	—	—	—	—	—	Tray1:30	epa1613_als	Dioxin_ALS	—	—
31	—	—	—	JC — 09/02/17	—	Tray1:31	epa1613_als	Dioxin_ALS	—	—
32	—	—	—	—	—	Tray1:32	epa1613_als	Dioxin_ALS	—	—
33	—	—	—	—	—	Tray1:33	epa1613_als	Dioxin_ALS	—	—
34	—	—	—	—	—	Tray1:34	epa1613_als	Dioxin_ALS	—	—
35	—	—	—	—	—	Tray1:35	epa1613_als	Dioxin_ALS	—	—
36	—	—	—	—	—	Tray1:36	epa1613_als	Dioxin_ALS	—	—
37	—	—	—	—	—	Tray1:37	epa1613_als	Dioxin_ALS	—	—
38	—	—	—	—	—	Tray1:38	epa1613_als	Dioxin_ALS	—	—
39	—	—	—	—	—	Tray1:2	epa1613_als	Dioxin_ALS	—	—

085

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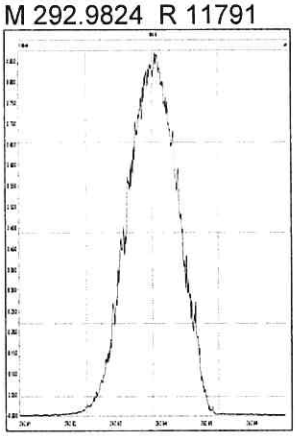

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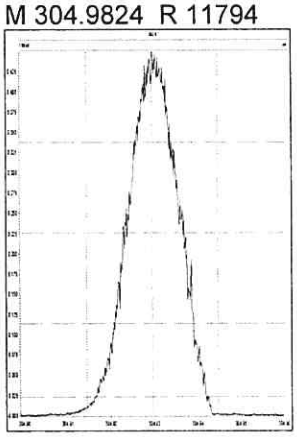

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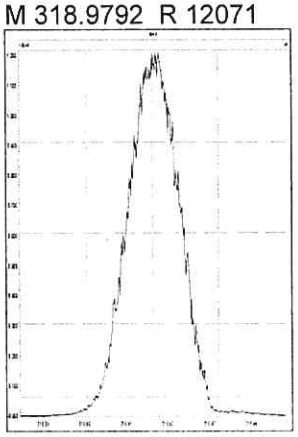

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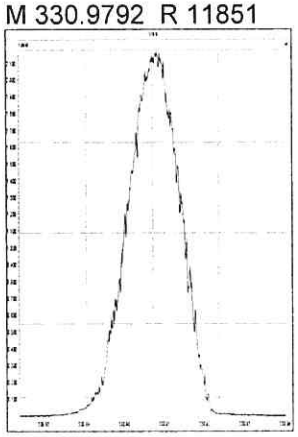

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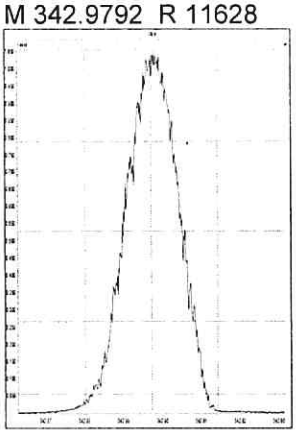

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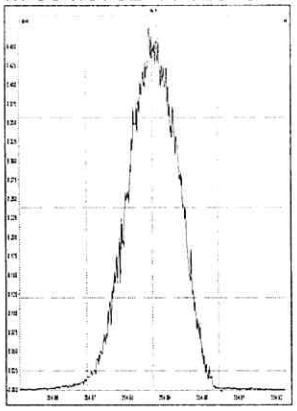

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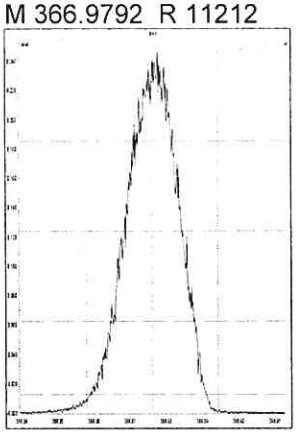

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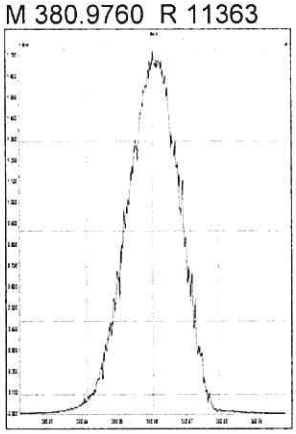

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

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Printed: Friday, September 01, 2017 14:00:55 Central Daylight Time

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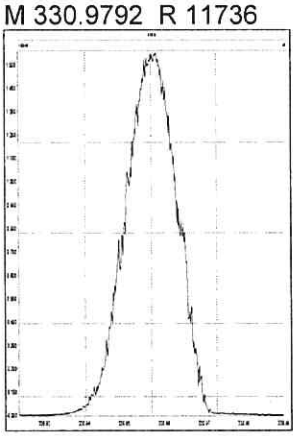

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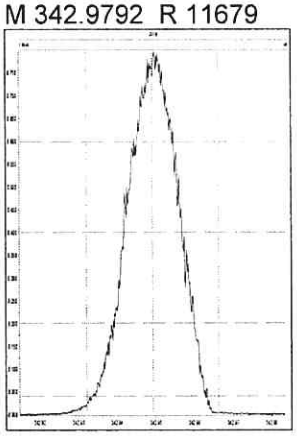

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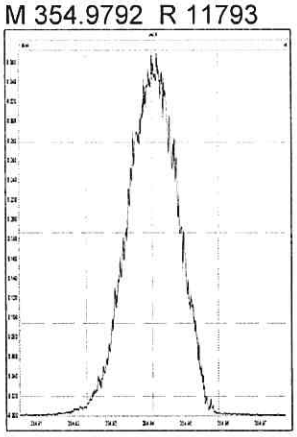

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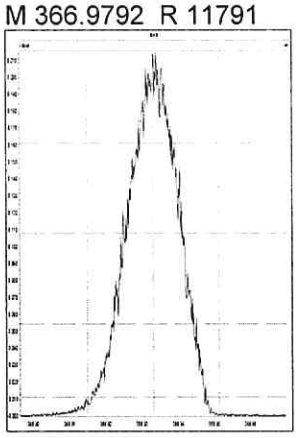

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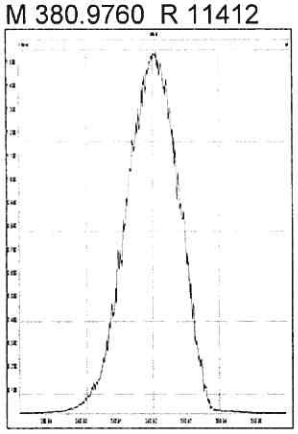

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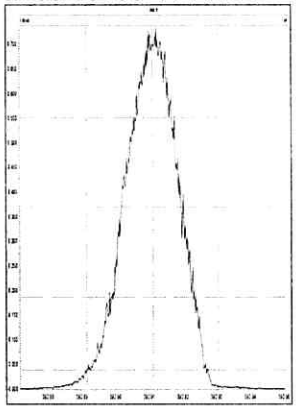

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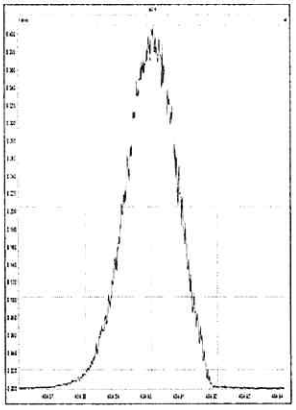

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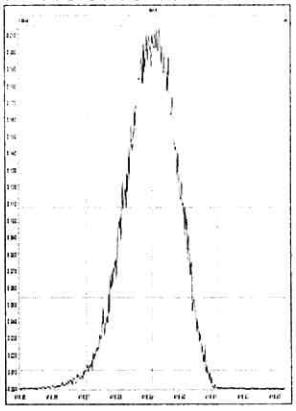

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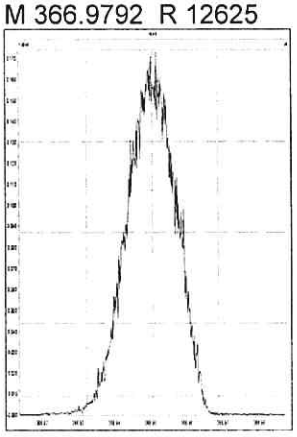

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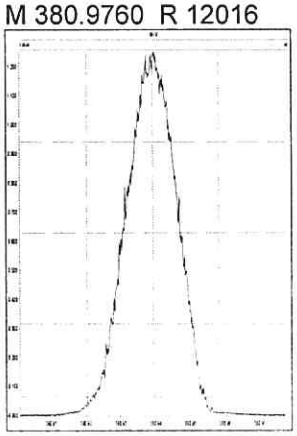

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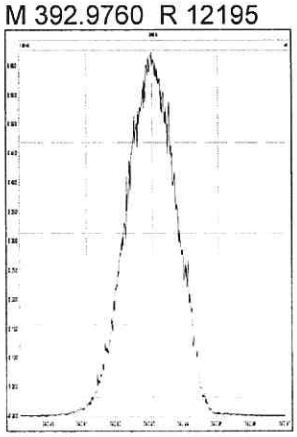

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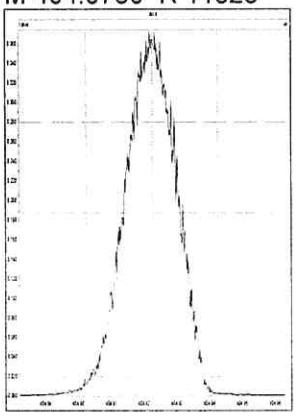

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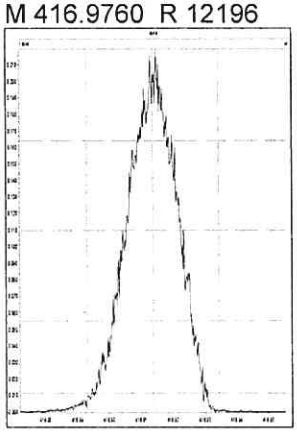

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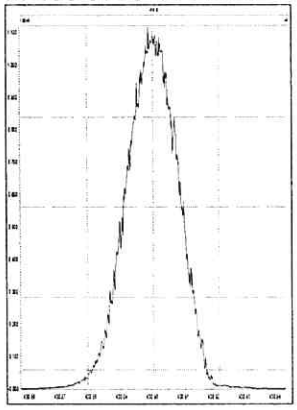

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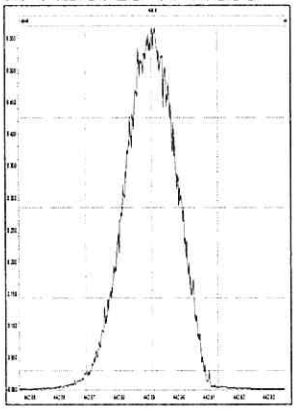

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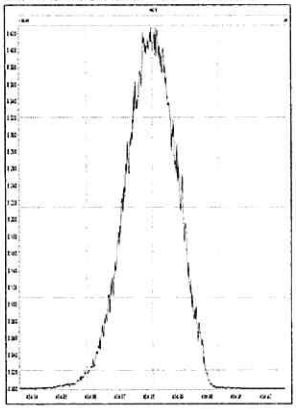

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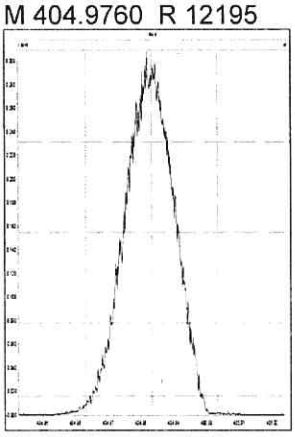

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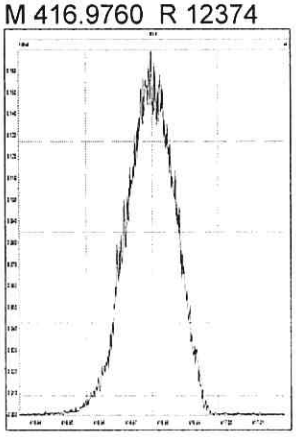
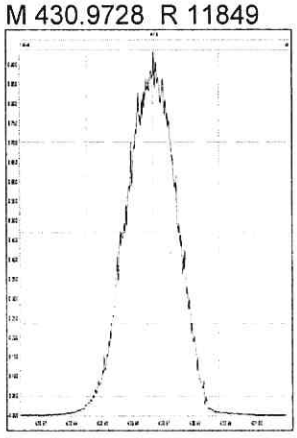


M 430.9728 R 11849



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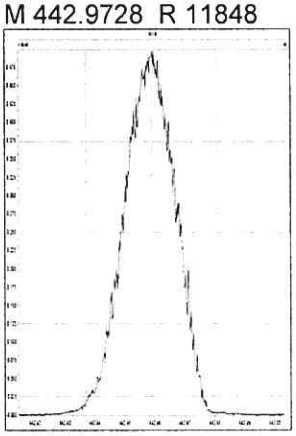

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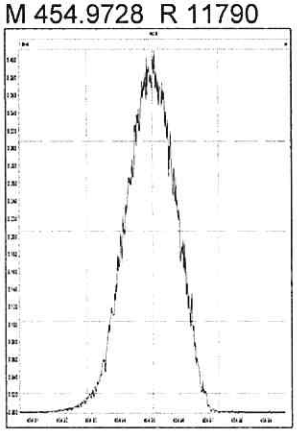
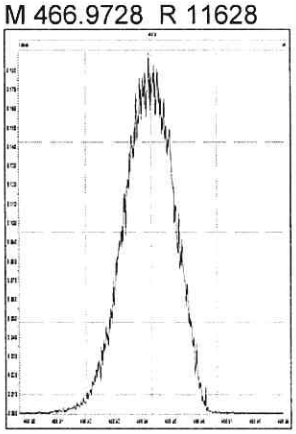


M 466.9728 R 11628



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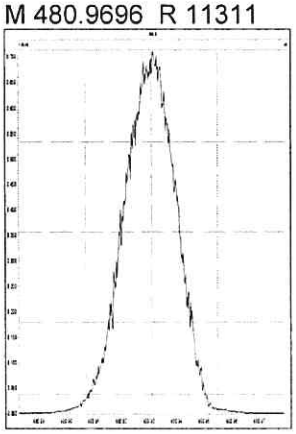

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, September 01, 2017 14:04:38 Central Daylight Time

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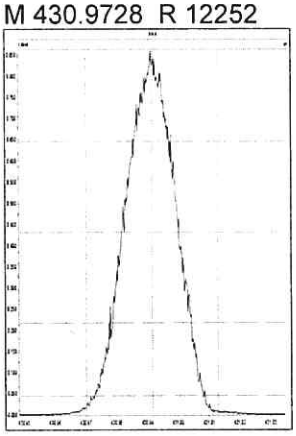
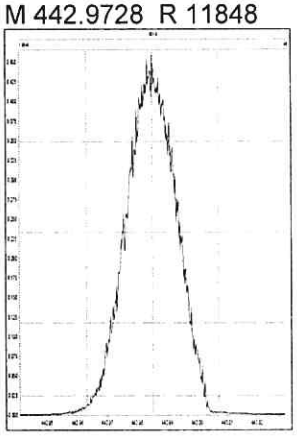


M 442.9728 R 11848



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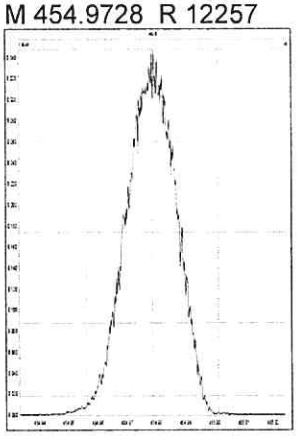
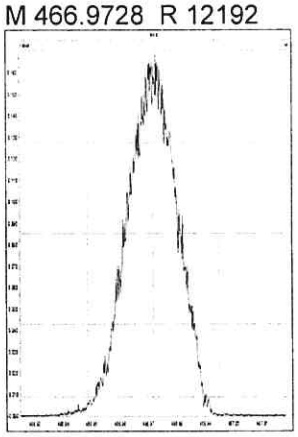


M 466.9728 R 12192



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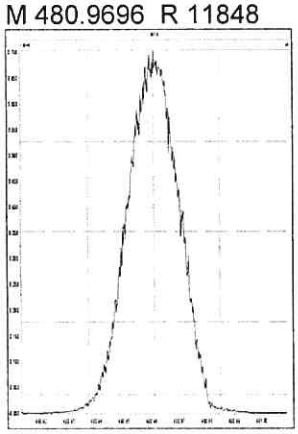

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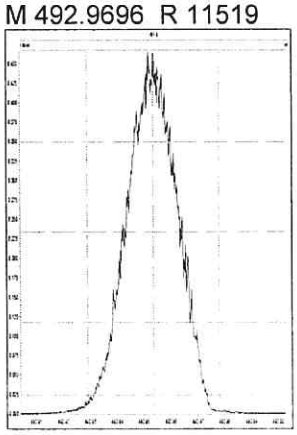
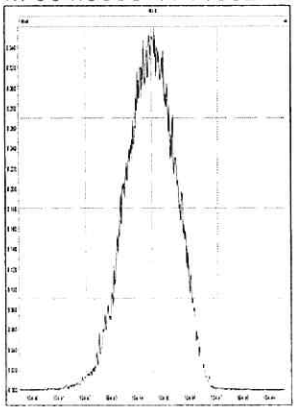


M 504.9696 R 11682



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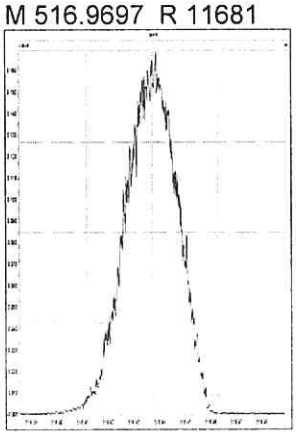

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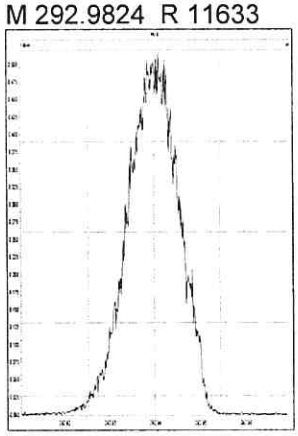
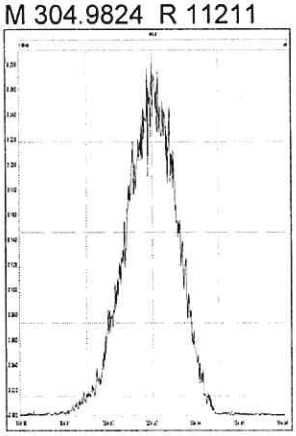


M 304.9824 R 11211



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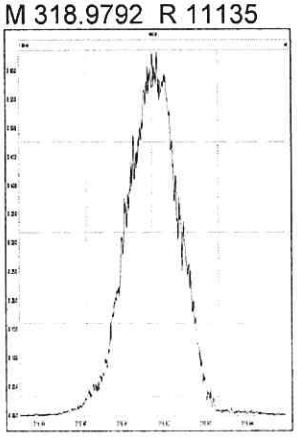

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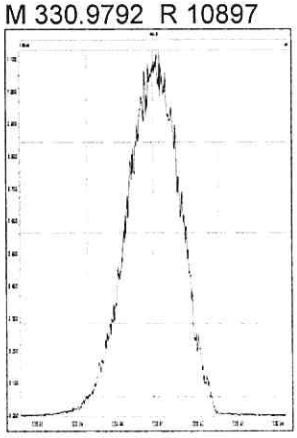

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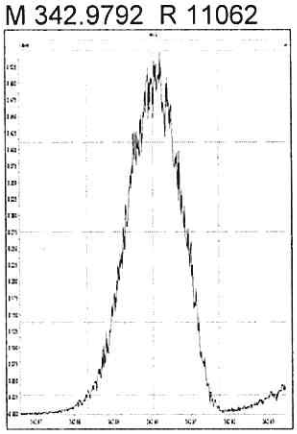

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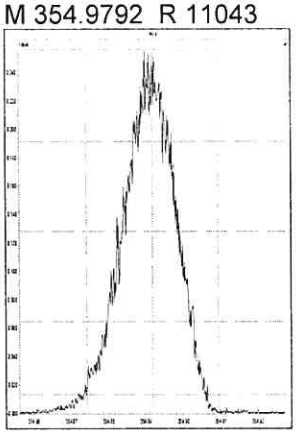

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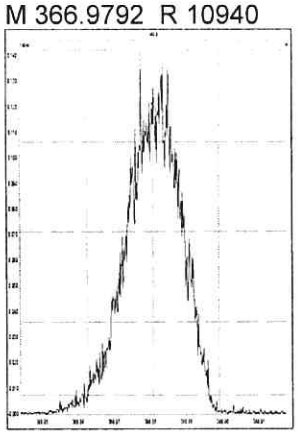

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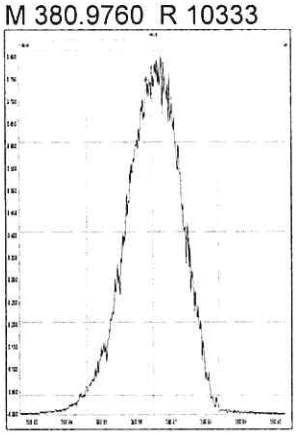

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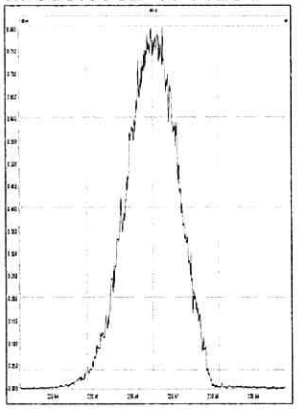

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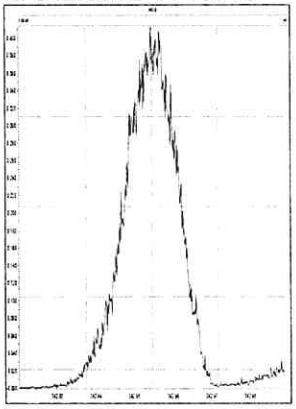
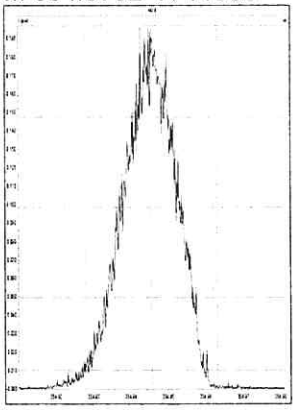


M 354.9792 R 11338



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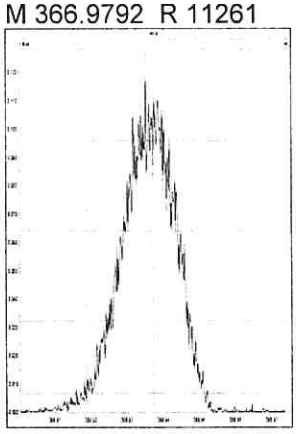

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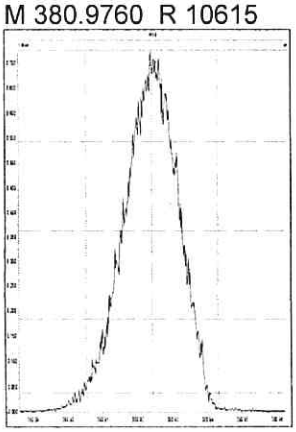

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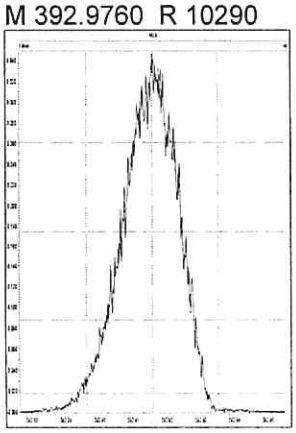

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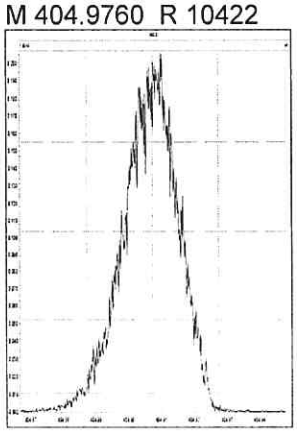

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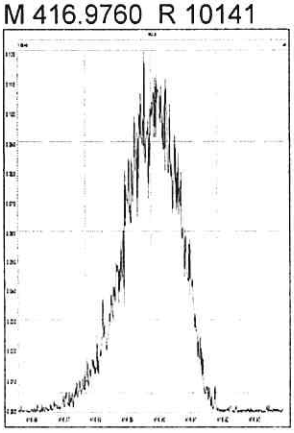

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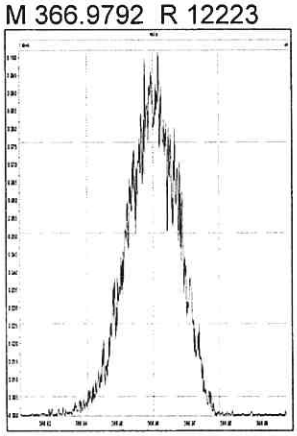

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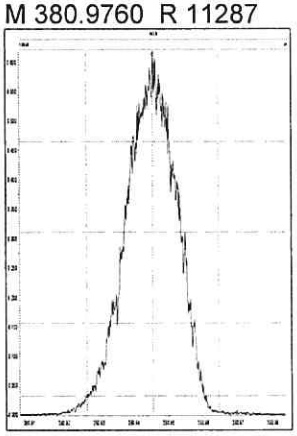

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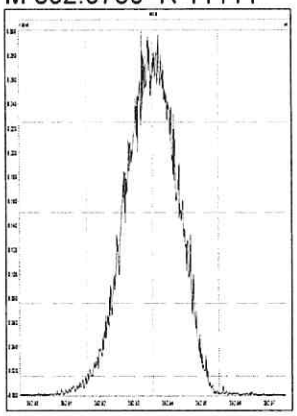

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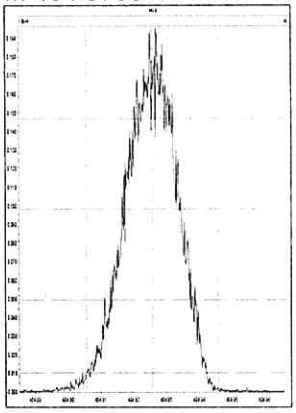
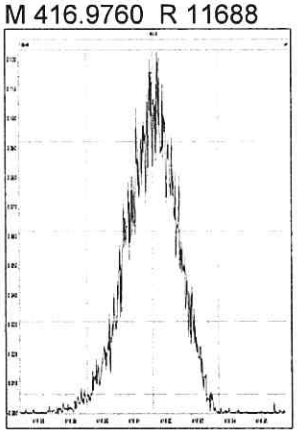
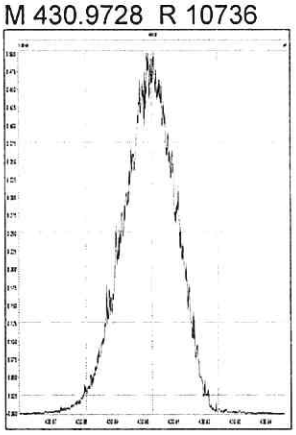


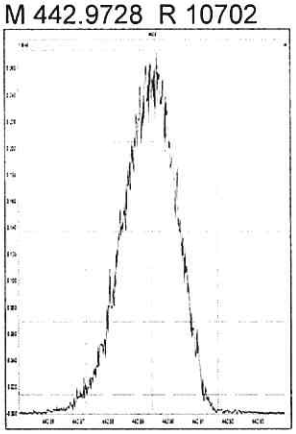
M 416.9760 R 11688



M 430.9728 R 10736



M 442.9728 R 10702



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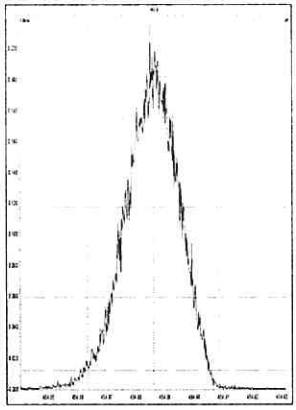

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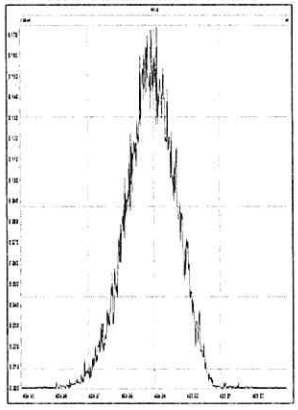

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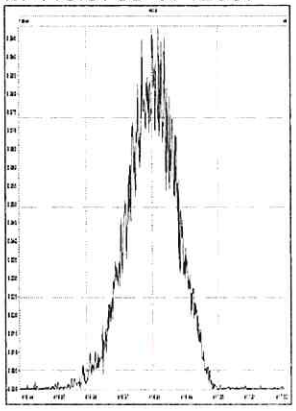

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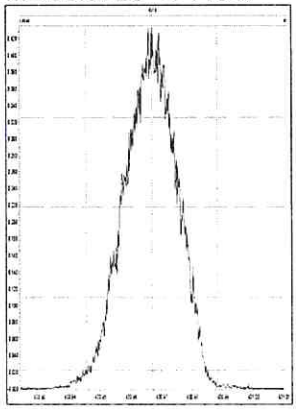

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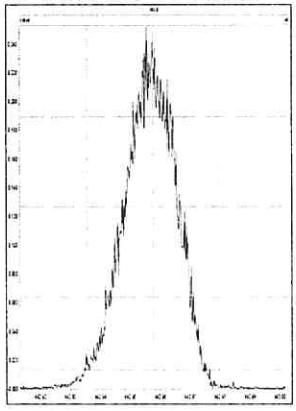

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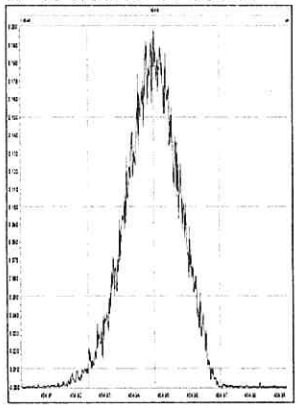

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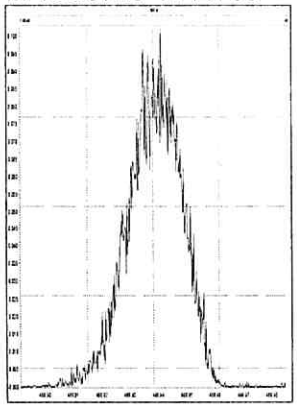
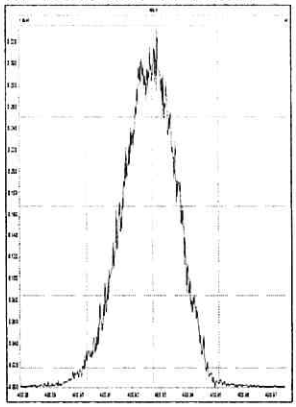


M 480.9696 R 10822



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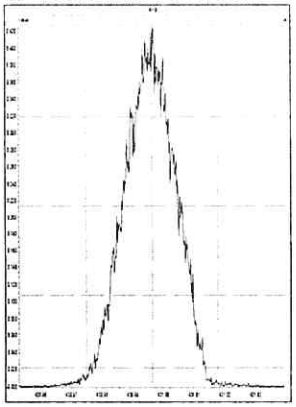

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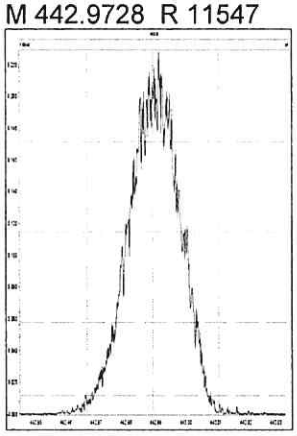

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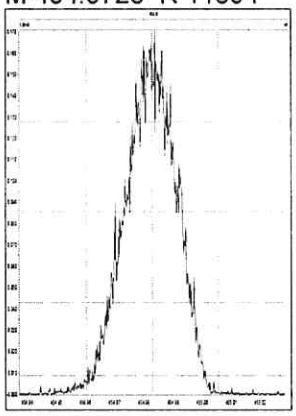

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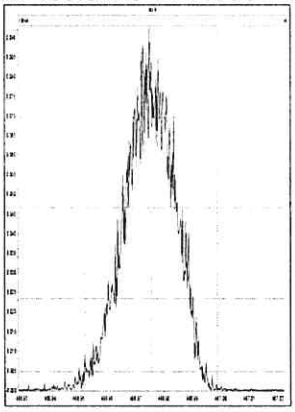

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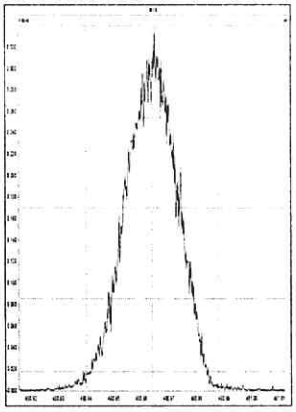

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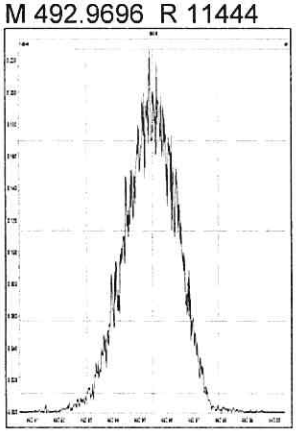

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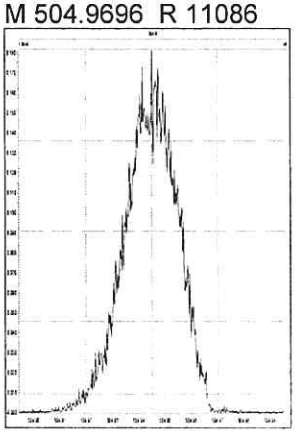

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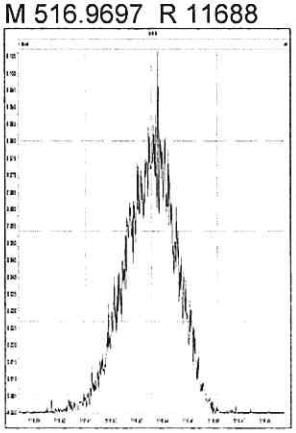

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795** Page 1 of 1

File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, September 02, 2017 08:09:31 Central Daylight Time

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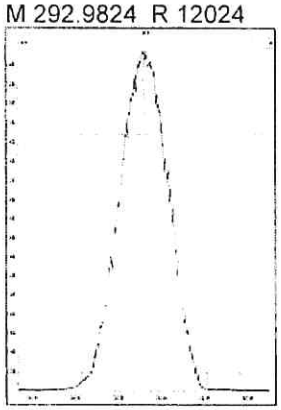

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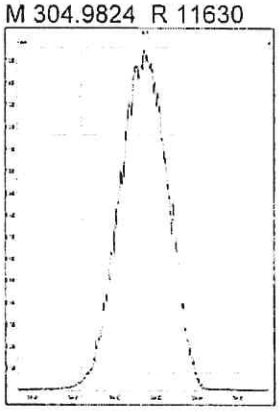

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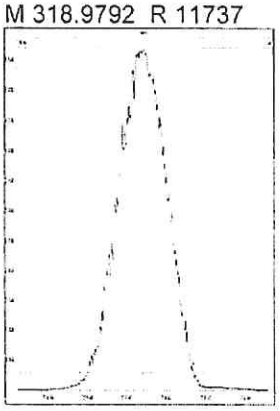
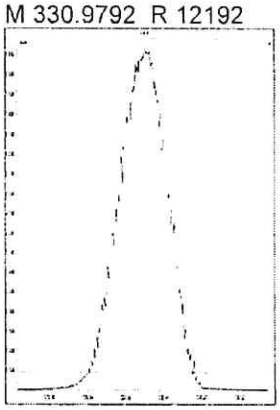
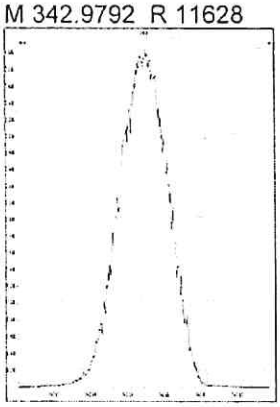


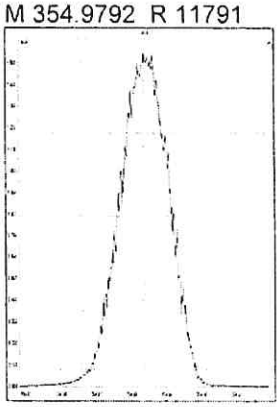
M 330.9792 R 12192



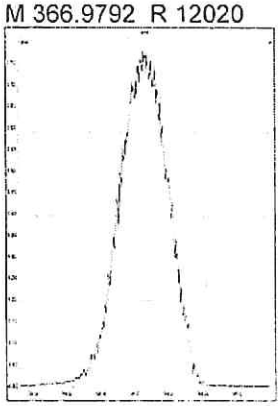
M 342.9792 R 11628



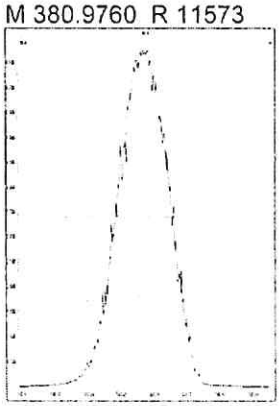
M 354.9792 R 11791



M 366.9792 R 12020



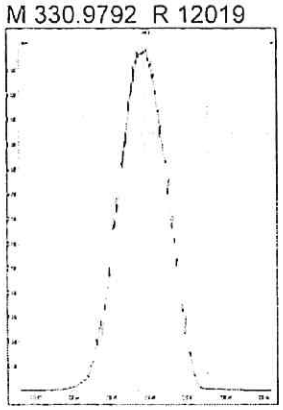
M 380.9760 R 11573



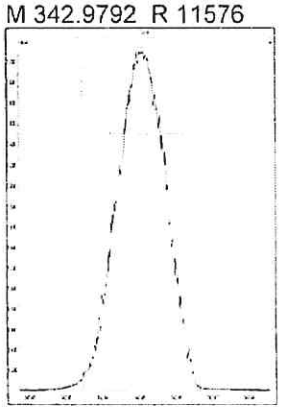
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, September 02, 2017 08:10:31 Central Daylight Time

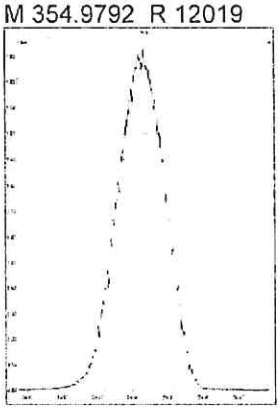
M 330.9792 R 12019



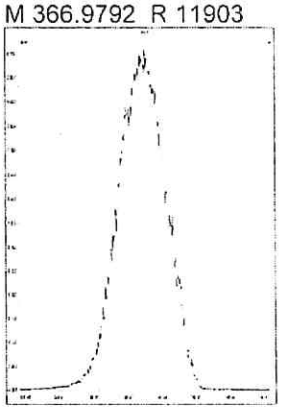
M 342.9792 R 11576



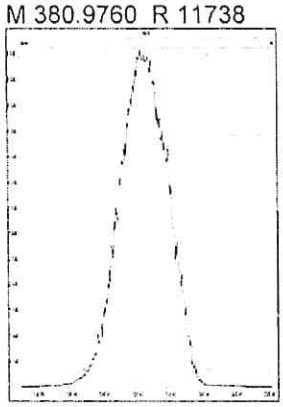
M 354.9792 R 12019



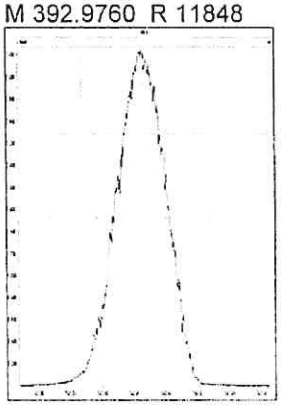
M 366.9792 R 11903



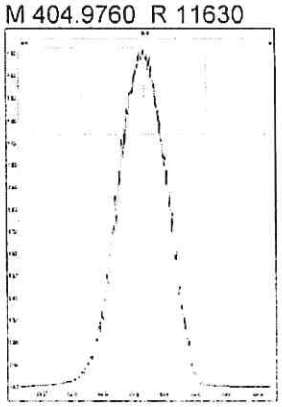
M 380.9760 R 11738



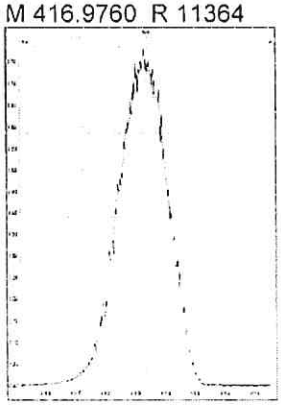
M 392.9760 R 11848



M 404.9760 R 11630



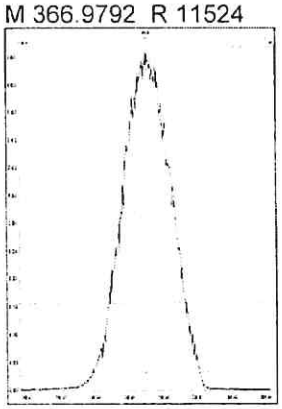
M 416.9760 R 11364



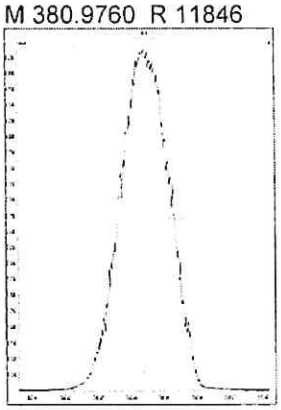
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, September 02, 2017 08:11:28 Central Daylight Time

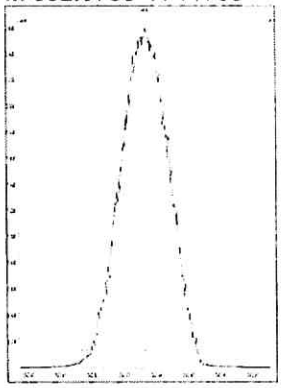
M 366.9792 R 11524



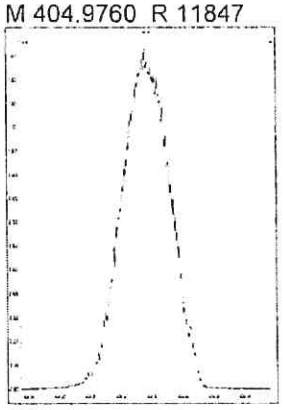
M 380.9760 R 11846



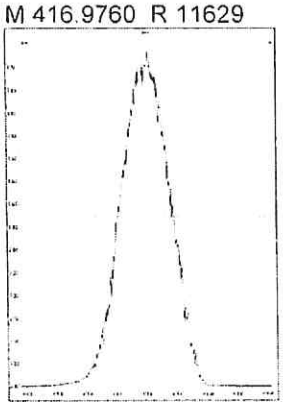
M 392.9760 R 11793



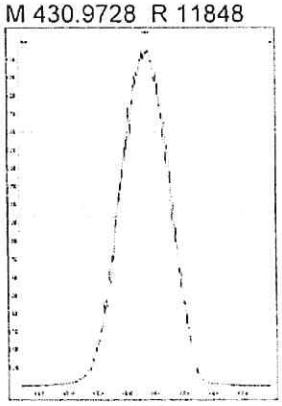
M 404.9760 R 11847



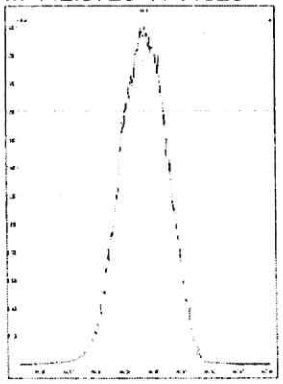
M 416.9760 R 11629



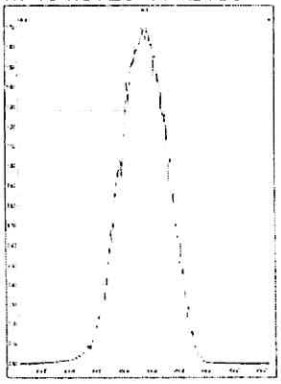
M 430.9728 R 11848



M 442.9728 R 11626



M 454.9728 R 12136

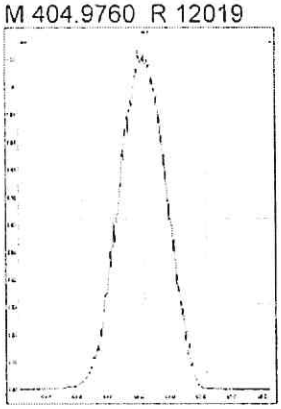


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

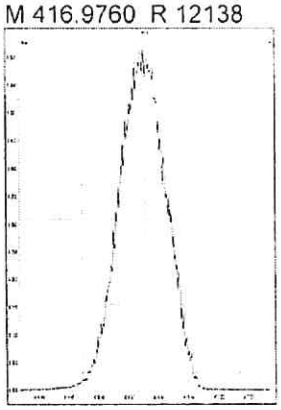
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, September 02, 2017 08:12:23 Central Daylight Time

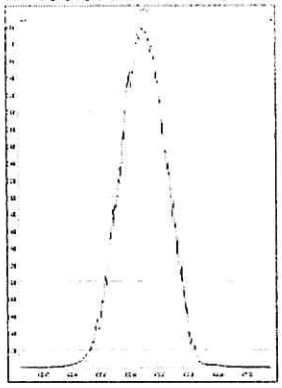
M 404.9760 R 12019



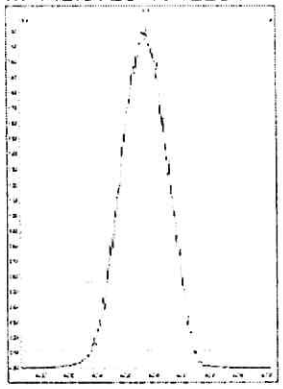
M 416.9760 R 12138



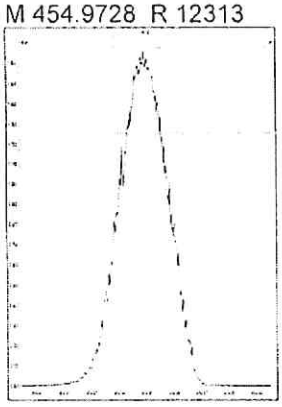
M 430.9728 R 12137



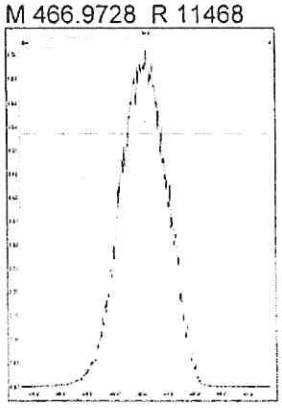
M 442.9728 R 12254



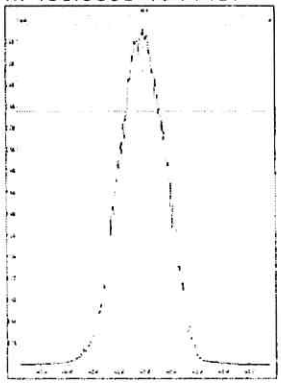
M 454.9728 R 12313



M 466.9728 R 11468



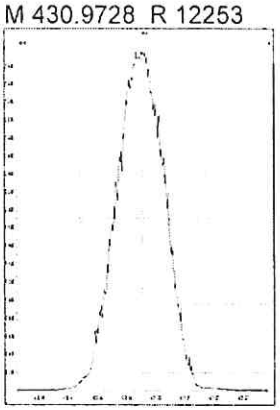
M 480.9696 R 11467



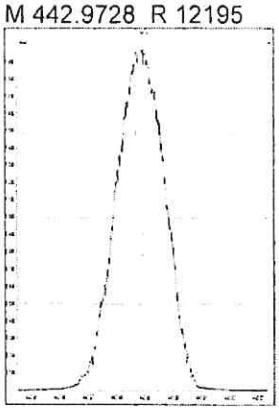
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, September 02, 2017 08:13:42 Central Daylight Time

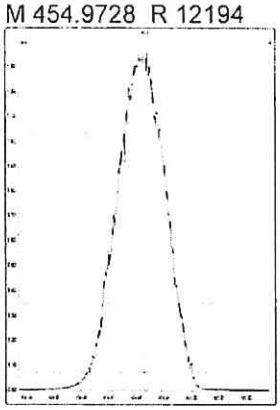
M 430.9728 R 12253



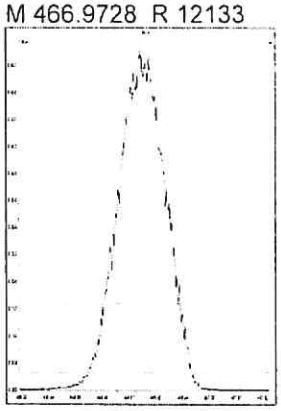
M 442.9728 R 12195



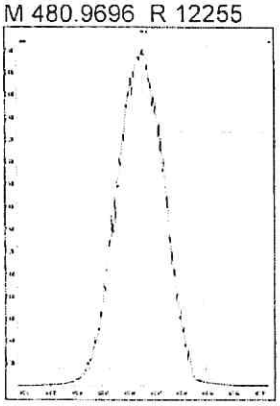
M 454.9728 R 12194



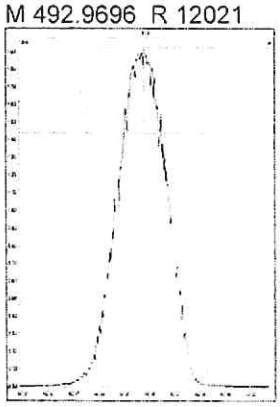
M 466.9728 R 12133



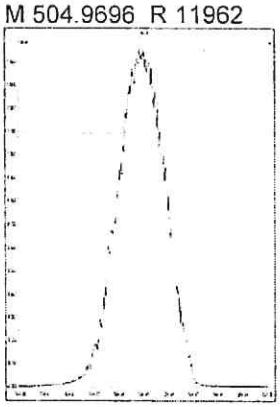
M 480.9696 R 12255



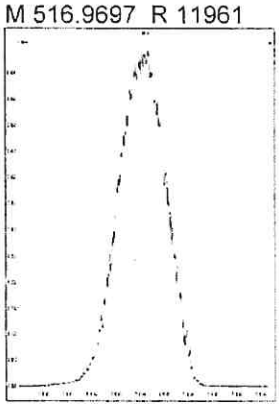
M 492.9696 R 12021



M 504.9696 R 11962



M 516.9697 R 11961



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

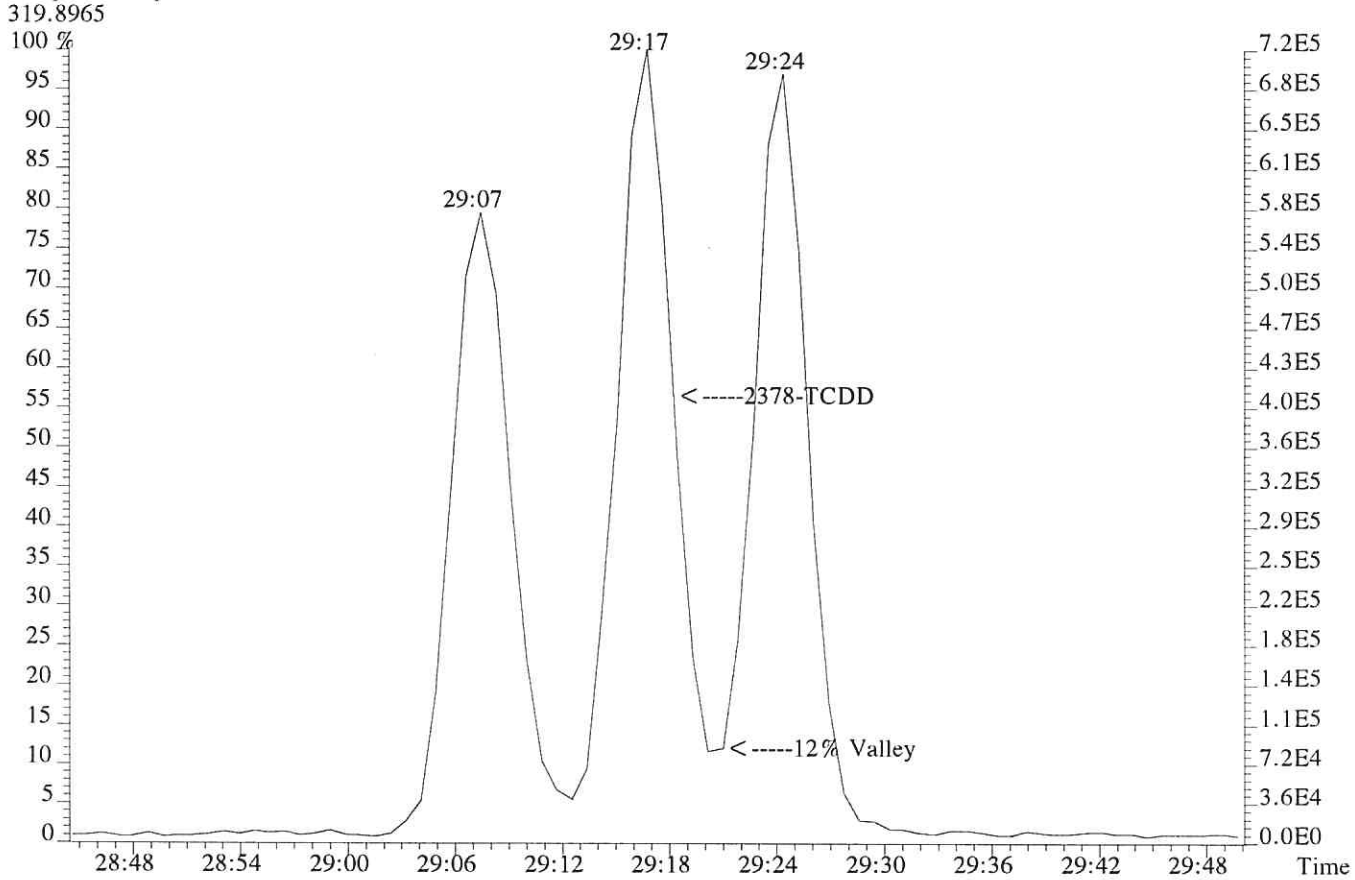
Case No.: _____ SDG No.:
ID: 0.25 (mm)

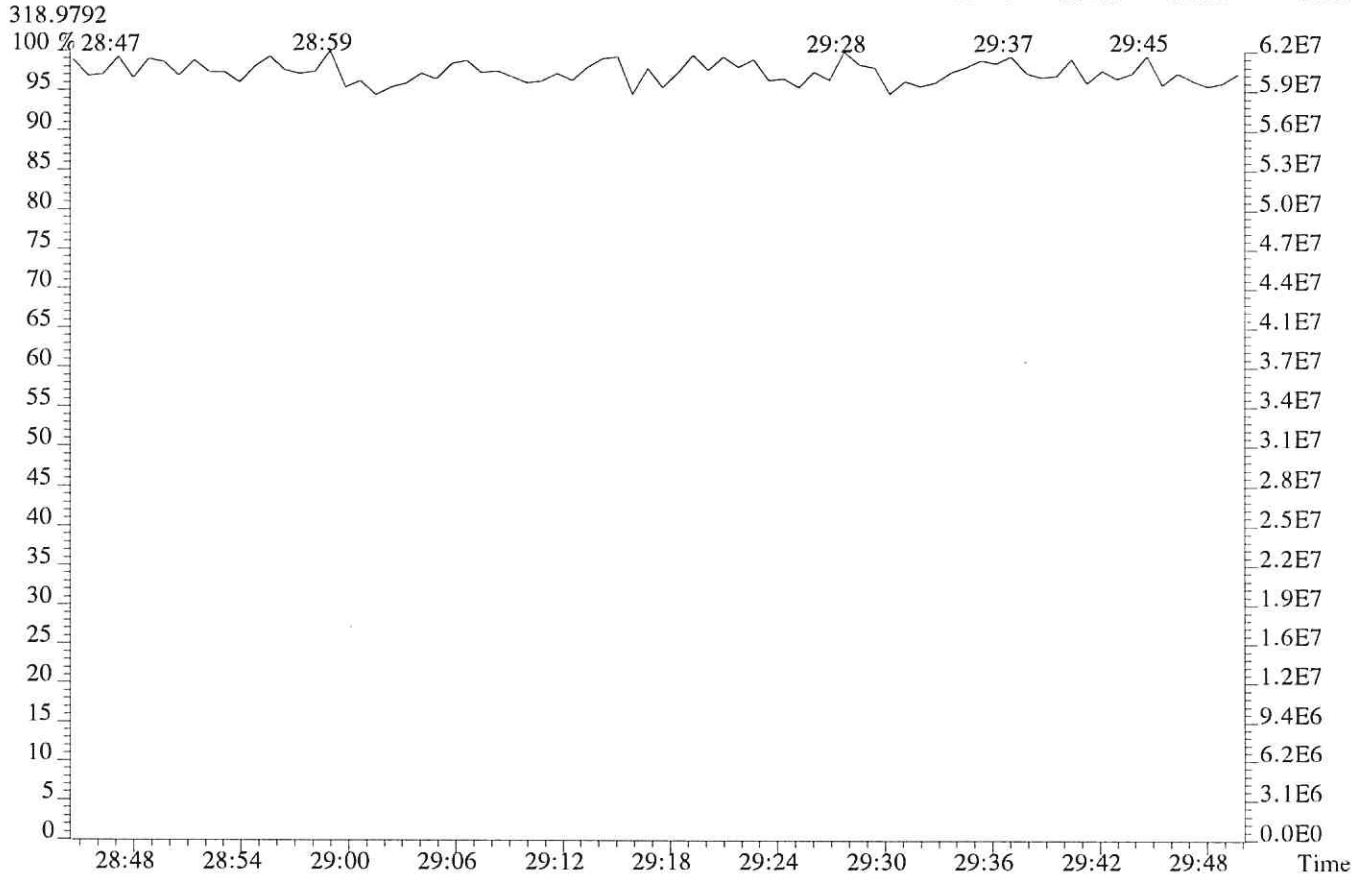
Lab File ID: P407613
Date Analyzed: 01-SEP-17
Time Analyzed: 14:07:08

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:13	30:24
TCDD	26:06	30:14
PeCDF	30:19	34:28
PeCDD	31:48	34:12
HxCDF	35:05	37:32
HxCDD	35:34	37:07
HpCDF	38:42	40:06
HpCDD	38:56	39:37

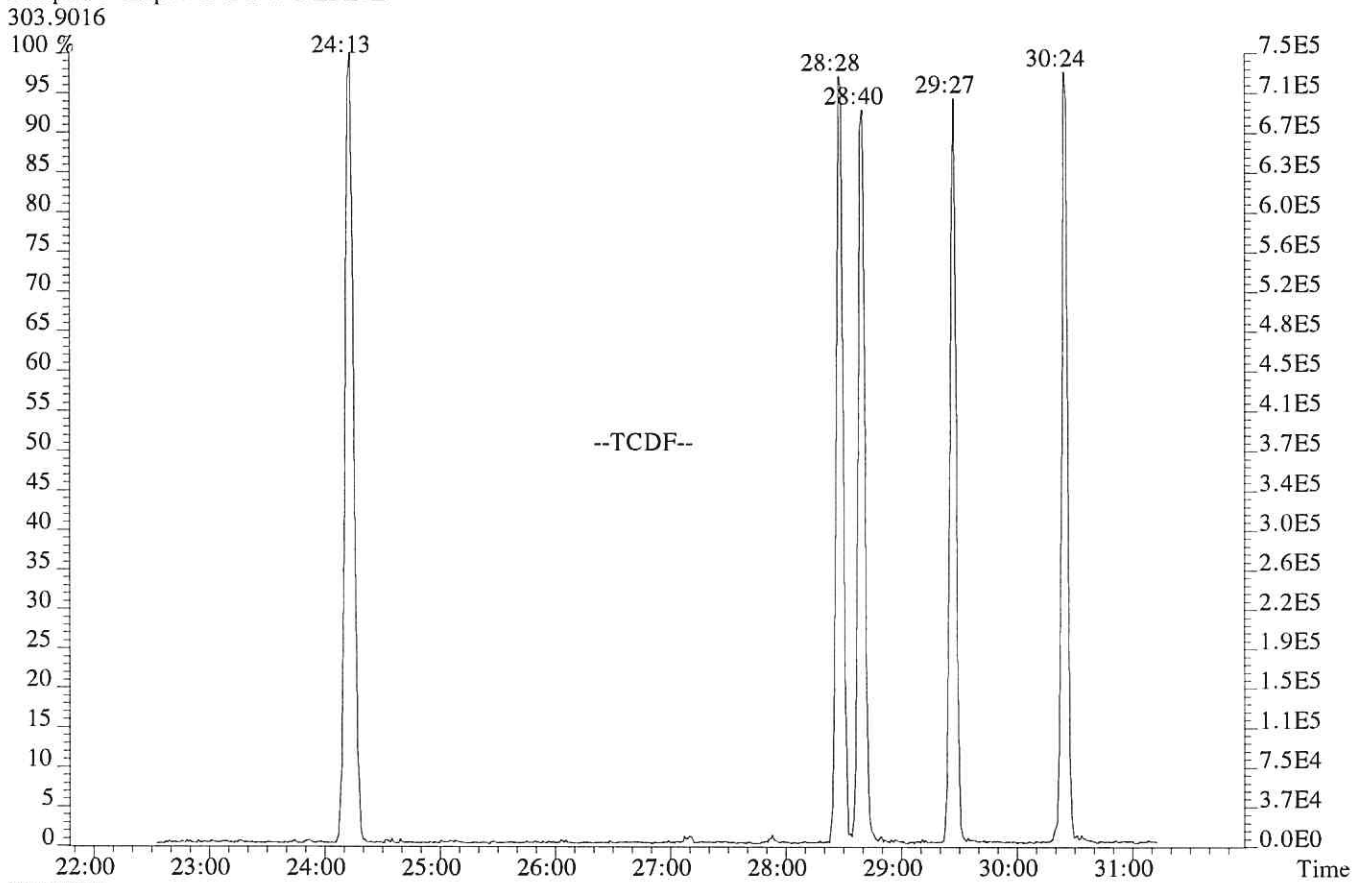
% Valley 2378-TCDD: 12 %

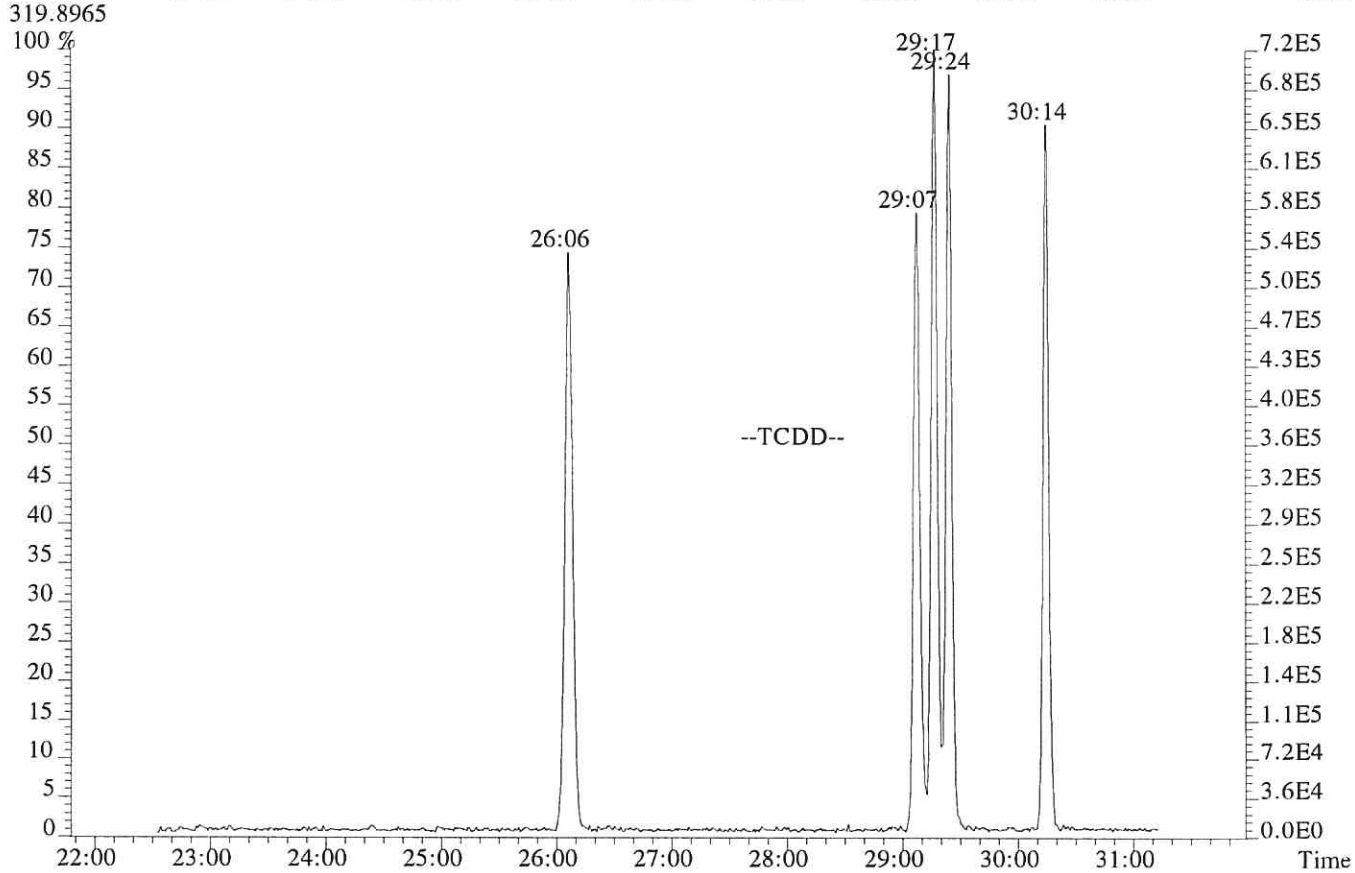
File:P407613 #1-616 Acq: 1-SEP-2017 14:07:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



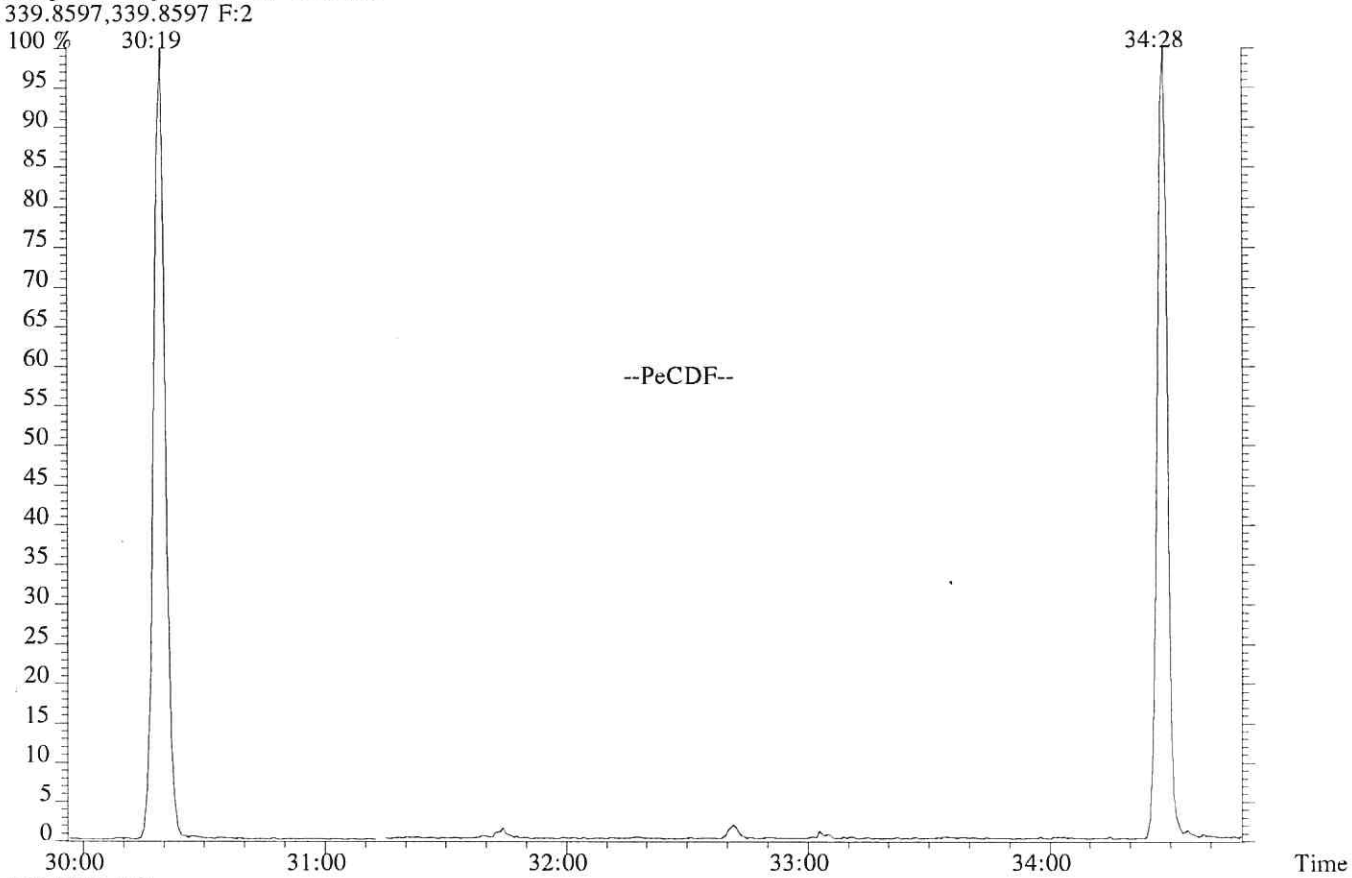


File:P407613 #1-616 Acq: 1-SEP-2017 14:07:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

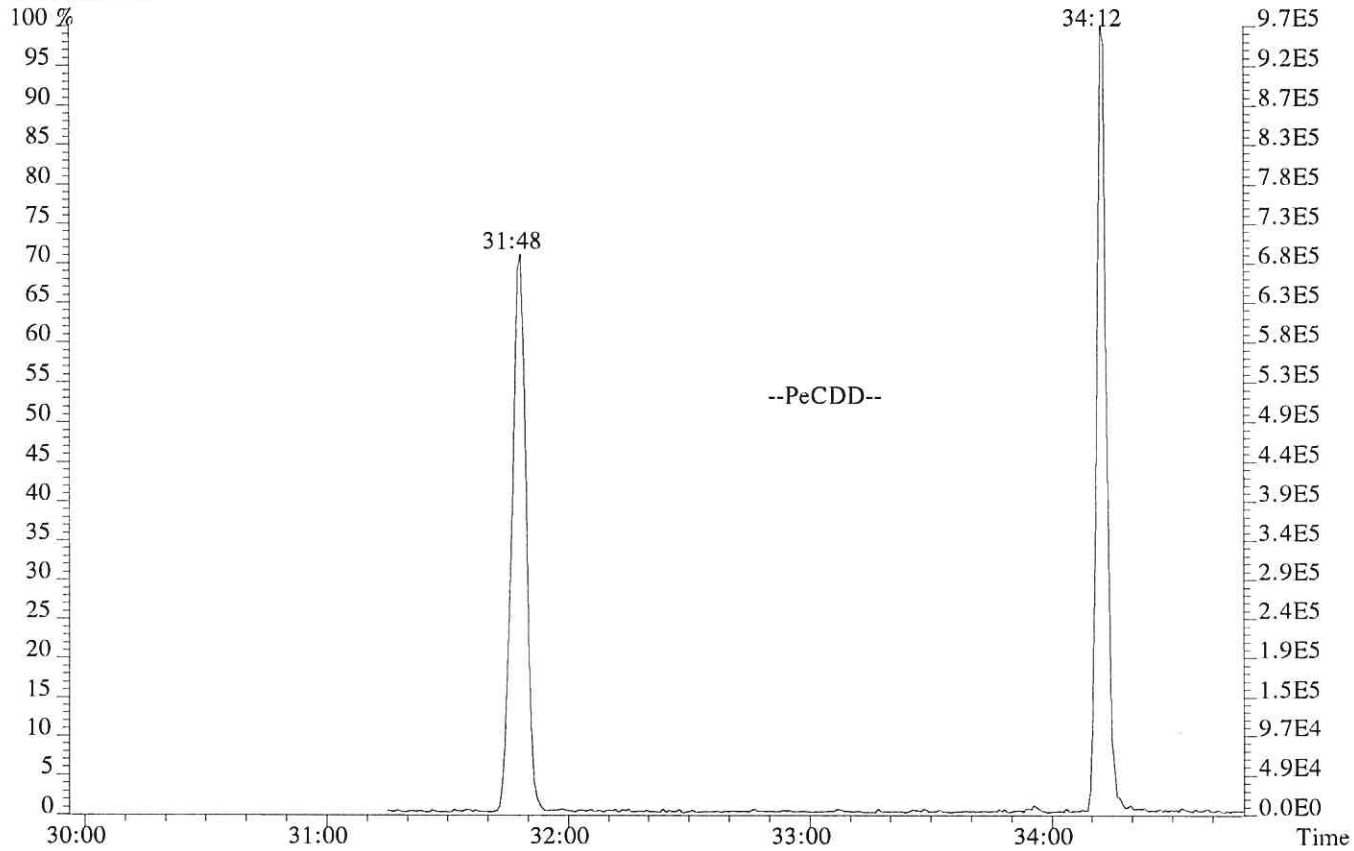




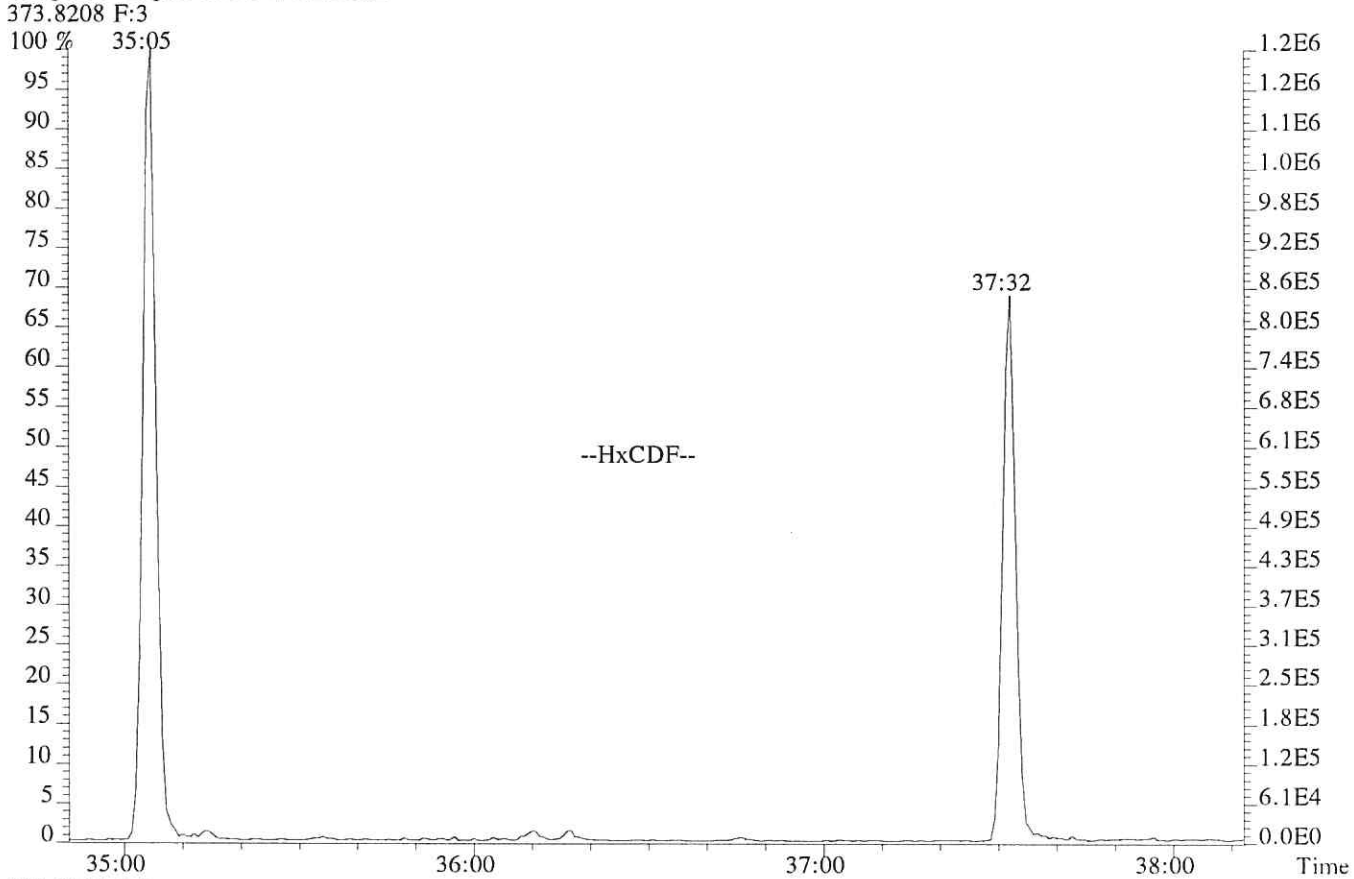
File:P407613 #1-616 Acq: 1-SEP-2017 14:07:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

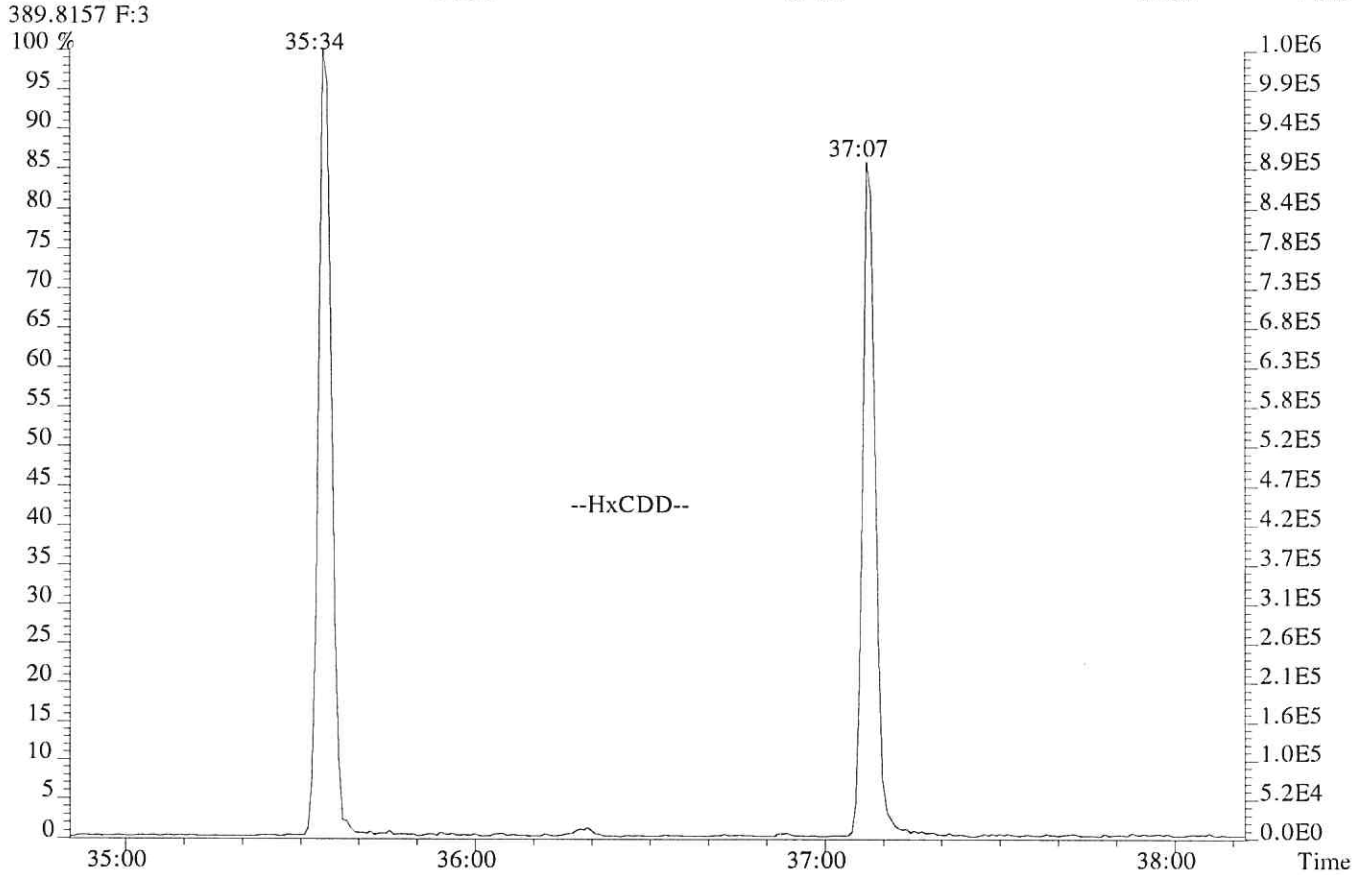


355.8546 F:2

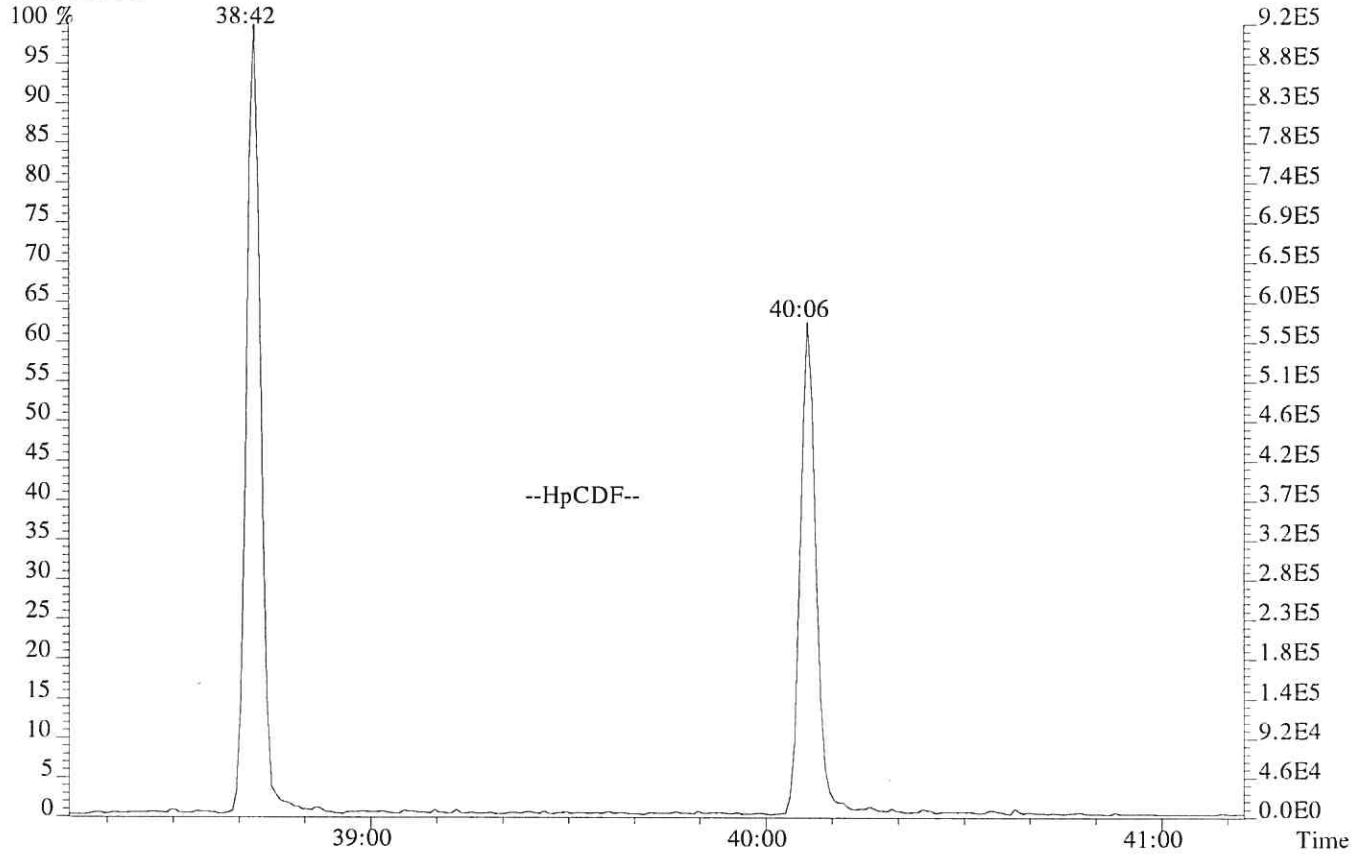


File:P407613 #1-303 Acq: 1-SEP-2017 14:07:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

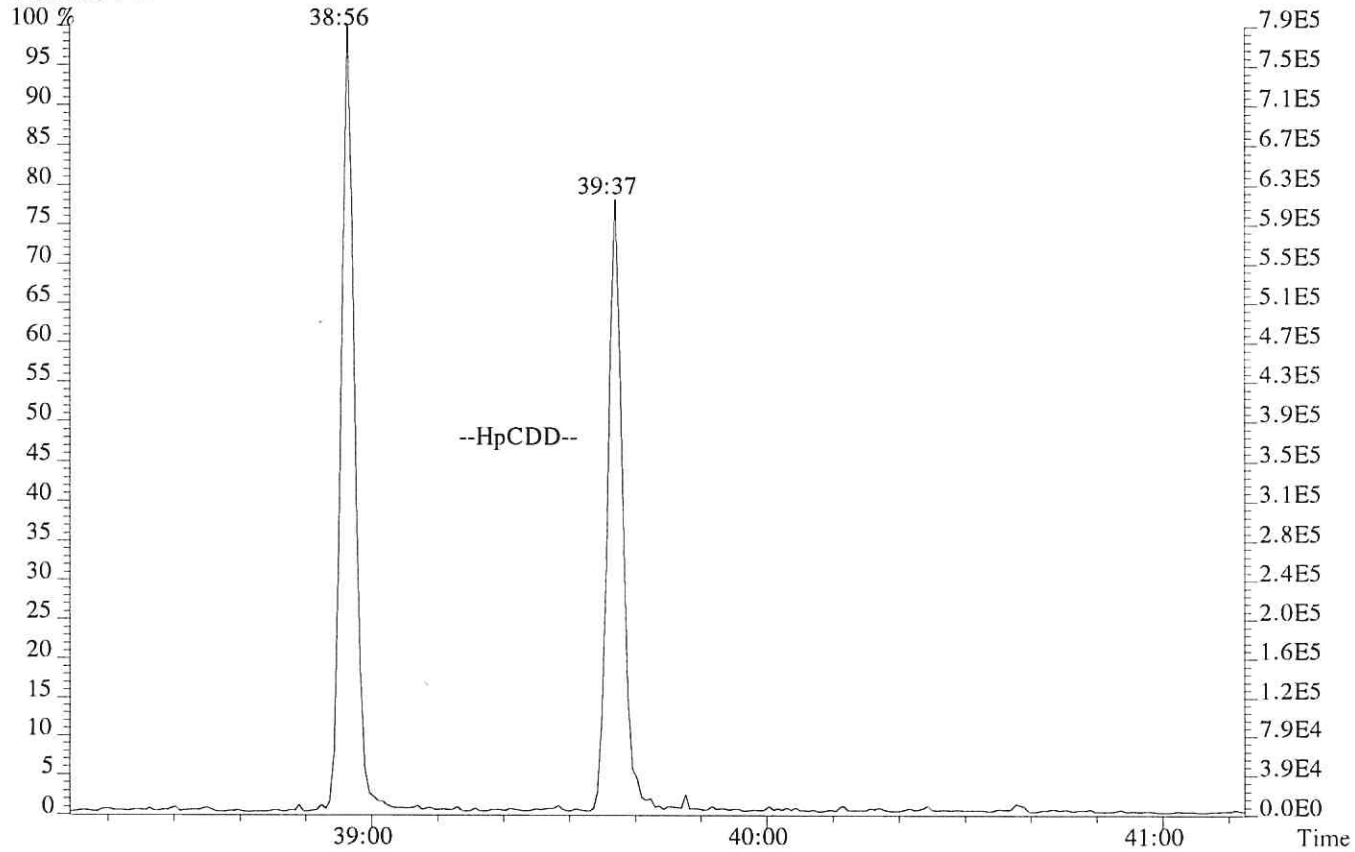




File:P407613 #1-268 Acq: 1-SEP-2017 14:07:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-06
Init. Calib. Date(s).: 09/01/17 Method 1613/8290
Init. Calib. Time.: 14:07:08

	RR/RRF								
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.05	0.99	0.92	0.95	0.96	0.93	0.97	4.67	+/-20%
2,3,7,8-TCDF	0.86	0.89	0.88	0.88	0.90	0.90	0.89	1.72	+/-20%
1,2,3,7,8-PeCDF	0.95	1.00	0.99	1.00	1.02	0.95	0.98	3.00	+/-20%
1,2,3,7,8-PeCDD	0.80	0.88	0.84	0.86	0.86	0.87	0.85	3.04	+/-20%
2,3,4,7,8-PeCDF	0.86	0.94	0.94	0.95	0.96	1.00	0.94	5.15	+/-20%
1,2,3,4,7,8-HxCDF	1.25	1.23	1.23	1.22	1.25	1.20	1.23	1.73	+/-20%
1,2,3,6,7,8-HxCDF	1.09	1.16	1.16	1.14	1.16	1.18	1.15	2.77	+/-20%
1,2,3,4,7,8-HxCDD	0.91	0.97	0.97	0.95	0.96	1.04	0.97	4.34	+/-20%
1,2,3,6,7,8-HxCDD	0.93	0.95	0.97	0.96	0.97	0.85	0.94	4.86	+/-20%
1,2,3,7,8,9-HxCDD	0.97	1.00	0.99	0.98	0.98	0.96	0.98	1.53	+/-20%
2,3,4,6,7,8-HxCDF	1.12	1.12	1.14	1.15	1.15	1.12	1.13	1.31	+/-20%
1,2,3,7,8,9-HxCDF	1.16	1.19	1.17	1.18	1.19	1.15	1.17	1.30	+/-20%
1,2,3,4,6,7,8-HpCDF	1.36	1.41	1.37	1.39	1.40	1.34	1.38	2.06	+/-20%
1,2,3,4,6,7,8-HpCDD	0.95	1.00	0.96	0.98	0.99	0.96	0.98	2.01	+/-20%
1,2,3,4,7,8,9-HpCDF	1.26	1.32	1.29	1.28	1.31	1.35	1.30	2.48	+/-20%
OCDD	1.04	1.04	1.07	1.05	1.07	0.94	1.03	4.72	+/-20%
OCDF	1.01	1.13	1.14	1.16	1.19	1.06	1.11	5.91	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.97	0.95	0.95	0.95	0.95	0.98	0.96	1.24	+/-35%
13C-1,2,3,7,8-PeCDD	0.95	0.95	0.98	0.98	0.97	1.00	0.97	2.01	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.97	0.98	0.97	0.97	0.95	0.95	0.97	1.37	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.97	0.97	0.94	0.93	1.04	0.97	4.05	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.85	0.85	0.84	0.86	0.84	0.89	0.85	2.35	+/-35%
13C-OCDD	0.65	0.65	0.65	0.66	0.65	0.75	0.67	5.77	+/-35%
13C-2,3,7,8-TCDF	1.17	1.18	1.16	1.23	1.17	1.15	1.18	2.36	+/-35%
13C-1,2,3,7,8-PeCDF	1.16	1.17	1.18	1.20	1.19	1.22	1.19	1.94	+/-35%
13C-2,3,4,7,8-PeCDF	1.13	1.12	1.16	1.16	1.16	1.16	1.15	1.46	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.05	1.09	1.06	1.06	1.05	1.09	1.07	2.01	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.17	1.20	1.18	1.17	1.17	1.14	1.17	1.60	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.08	1.09	1.09	1.07	1.06	1.08	1.08	0.99	+/-35%
13C-1,2,3,7,8,9-HxCDF	0.90	0.91	0.91	0.95	0.90	0.94	0.92	2.23	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.87	0.88	0.88	0.87	0.86	0.91	0.88	2.13	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.71	0.69	0.72	0.75	0.72	0.74	0.72	2.72	+/-35%
37Cl-2,3,7,8-TCDD	0.97	0.98	1.00	0.98	1.00	1.02	0.99	1.93	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-06
Init. Calib. Date(s).: 09/01/17 Method 1613/8290
Init. Calib. Time.: 14:07:08

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.76	0.77	0.78	0.79	0.78		0.65-0.89
2,3,7,8-TCDD	320/322	0.88	0.68	0.78	0.75	0.76	0.76		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.52	1.55	1.54	1.55	1.55	1.56		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.58	1.51	1.56	1.55	1.55	1.55		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.60	1.56	1.54	1.54	1.54	1.54		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.26	1.31	1.25	1.23	1.24	1.25		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.25	1.22	1.24	1.24	1.25	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.34	1.25	1.23	1.23	1.24	1.24		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.27	1.24	1.23	1.25	1.25	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.20	1.22	1.22	1.23	1.24	1.24		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.23	1.33	1.26	1.25	1.25	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.19	1.24	1.22	1.23	1.24		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.06	1.02	1.00	1.03	1.04	1.03		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	0.98	1.04	1.05	1.02	1.04	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.07	1.00	1.06	1.05	1.04	1.05		0.88-1.20
OCDF	442/444	0.93	0.92	0.90	0.90	0.90	0.91		0.76-1.02
OCDD	458/460	0.87	0.90	0.91	0.88	0.88	0.88		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.79	0.79	0.79	0.79	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.55	1.56	1.54	1.56	1.56	1.56		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.24	1.25	1.26	1.24	1.25	1.25		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.25	1.25	1.25	1.24	1.25	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.05	1.05	1.05	1.05	1.04	1.04		0.88-1.20
13C-OCDD	470/472	0.88	0.89	0.89	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.77	0.78	0.78	0.77	0.78	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.57	1.55	1.56	1.56	1.55	1.54		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.55	1.57	1.56	1.56	1.55	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.52	0.51	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.52	0.52	0.53	0.52	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.52	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.44	0.45	0.44	0.45	0.44	0.44		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.45	0.44	0.44	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.80	0.80	0.80	0.80	0.79	0.80		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.25	1.23	1.24	1.23	1.25	1.24		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

FORM VI-HR CDD-2 DLM02.2

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename p407614 #1 Samp: 1 Inj: 1 Acquired: 1-SEP-17 14:55:03
Processed: 5-SEP-17 09:15:29 LAB. ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:38	1.282e+02	1.692e+02	0.76	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:41	9.713e+02	6.384e+02	1.52	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:34	8.731e+02	5.541e+02	1.58	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	36:09	9.152e+02	7.290e+02	1.26	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	36:16	8.827e+02	7.058e+02	1.25	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:45	8.624e+02	6.450e+02	1.34	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:30	7.372e+02	5.797e+02	1.27	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	7.586e+02	7.160e+02	1.06	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	5.557e+02	5.691e+02	0.98	yes	no	1.301
10	Unk	OCDF	42:35	7.958e+02	8.530e+02	0.93	yes	no	1.114
11	Unk	2,3,7,8-TCDD	29:24	1.394e+02	1.582e+02	0.88	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:50	6.931e+02	4.335e+02	1.60	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:53	6.019e+02	5.018e+02	1.20	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:58	6.167e+02	5.020e+02	1.23	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	37:12	6.447e+02	5.256e+02	1.23	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	5.242e+02	4.913e+02	1.07	yes	no	0.975
17	Unk	OCDD	42:22	7.872e+02	9.042e+02	0.87	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:38	6.013e+04	7.810e+04	0.77	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:40	8.319e+04	5.285e+04	1.57	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:34	8.108e+04	5.227e+04	1.55	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	36:09	3.600e+04	6.893e+04	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	36:15	4.035e+04	7.659e+04	0.53	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:45	3.692e+04	7.110e+04	0.52	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:29	3.094e+04	5.982e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	2.678e+04	6.018e+04	0.44	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	2.207e+04	4.941e+04	0.45	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	29:23	5.025e+04	6.353e+04	0.79	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:50	6.809e+04	4.397e+04	1.55	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:52	5.403e+04	4.349e+04	1.24	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:57	5.334e+04	4.279e+04	1.25	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	4.370e+04	4.144e+04	1.05	yes	no	0.854
32	IS	13C-OCDD	42:21	6.105e+04	6.932e+04	0.88	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:49	5.219e+04	6.546e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:11	5.569e+04	4.466e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	2.843e+02				no	0.992

ALS ENVIRONMENTAL
10450 Stancliff Road
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename p407614 Samp: 1 Inj: 1 Acquired: 1-SEP-17 14:55:03
Processed: 5-SEP-17 09:15:291 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.30e+04	1.95e+03	1.2e+01	3.41e+04	2.29e+03	1.5e+01
2	1,2,3,7,8-PeCDF	1.89e+05	9.12e+02	2.1e+02	1.20e+05	1.59e+03	7.6e+01
3	2,3,4,7,8-PeCDF	1.79e+05	9.12e+02	2.0e+02	1.18e+05	1.59e+03	7.4e+01
4	1,2,3,4,7,8-HxCDF	1.94e+05	9.60e+02	2.0e+02	1.63e+05	9.40e+02	1.7e+02
5	1,2,3,6,7,8-HxCDF	1.96e+05	9.60e+02	2.0e+02	1.55e+05	9.40e+02	1.7e+02
6	2,3,4,6,7,8-HxCDF	1.87e+05	9.60e+02	1.9e+02	1.42e+05	9.40e+02	1.5e+02
7	1,2,3,7,8,9-HxCDF	1.63e+05	9.60e+02	1.7e+02	1.35e+05	9.40e+02	1.4e+02
8	1,2,3,4,6,7,8-HpCDF	1.69e+05	8.40e+02	2.0e+02	1.60e+05	8.52e+02	1.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.10e+05	8.40e+02	1.3e+02	1.18e+05	8.52e+02	1.4e+02
10	OCDF	1.45e+05	1.13e+03	1.3e+02	1.53e+05	1.29e+03	1.2e+02
11	2,3,7,8-TCDD	2.73e+04	2.69e+03	1.0e+01	3.41e+04	2.08e+03	1.6e+01
12	1,2,3,7,8-PeCDD	1.48e+05	1.48e+03	1.0e+02	9.10e+04	5.00e+02	1.8e+02
13	1,2,3,4,7,8-HxCDD	1.42e+05	6.76e+02	2.1e+02	1.18e+05	8.76e+02	1.3e+02
14	1,2,3,6,7,8-HxCDD	1.33e+05	6.76e+02	2.0e+02	1.10e+05	8.76e+02	1.3e+02
15	1,2,3,7,8,9-HxCDD	1.33e+05	6.76e+02	2.0e+02	1.15e+05	8.76e+02	1.3e+02
16	1,2,3,4,6,7,8-HpCDD	1.10e+05	8.92e+02	1.2e+02	1.07e+05	1.11e+03	9.6e+01
17	OCDD	1.52e+05	9.84e+02	1.5e+02	1.62e+05	8.72e+02	1.9e+02
18	13C-2,3,7,8-TCDF	1.17e+07	1.71e+04	6.8e+02	1.51e+07	4.94e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.63e+07	1.06e+03	1.5e+04	1.03e+07	9.84e+02	1.0e+04
20	13C-2,3,4,7,8-PeCDF	1.68e+07	1.06e+03	1.6e+04	1.07e+07	9.84e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	8.11e+06	9.08e+02	8.9e+03	1.56e+07	1.26e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	8.99e+06	9.08e+02	9.9e+03	1.70e+07	1.26e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	8.30e+06	9.08e+02	9.1e+03	1.60e+07	1.26e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	6.87e+06	9.08e+02	7.6e+03	1.31e+07	1.26e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.08e+06	1.39e+03	4.4e+03	1.37e+07	1.08e+03	1.3e+04
26	13C-1,2,3,4,7,8,9-HpCDF	4.42e+06	1.39e+03	3.2e+03	1.01e+07	1.08e+03	9.3e+03
27	13C-2,3,7,8-TCDD	1.01e+07	3.95e+03	2.6e+03	1.29e+07	2.64e+03	4.9e+03
28	13C-1,2,3,7,8-PeCDD	1.40e+07	1.62e+03	8.6e+03	8.95e+06	1.46e+03	6.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.26e+07	1.60e+03	7.9e+03	1.01e+07	7.24e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	1.16e+07	1.60e+03	7.3e+03	9.34e+06	7.24e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	9.33e+06	1.20e+03	7.8e+03	8.84e+06	8.28e+02	1.1e+04
32	13C-OCDD	1.12e+07	1.72e+03	6.5e+03	1.27e+07	5.84e+02	2.2e+04
33	13C-1,2,3,4-TCDD	1.05e+07	3.95e+03	2.6e+03	1.31e+07	2.64e+03	5.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	1.60e+03	7.5e+03	9.69e+06	7.24e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	5.70e+04	1.99e+03	2.9e+01			

ALS ENVIRONMENTAL
10450 Stancliff Road
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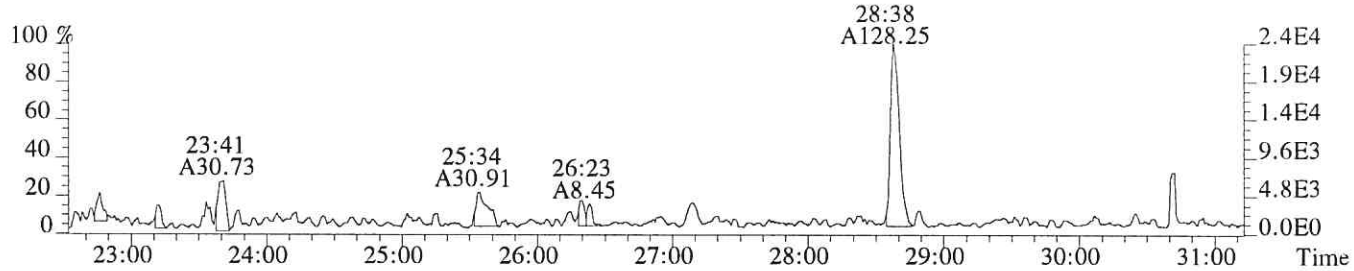
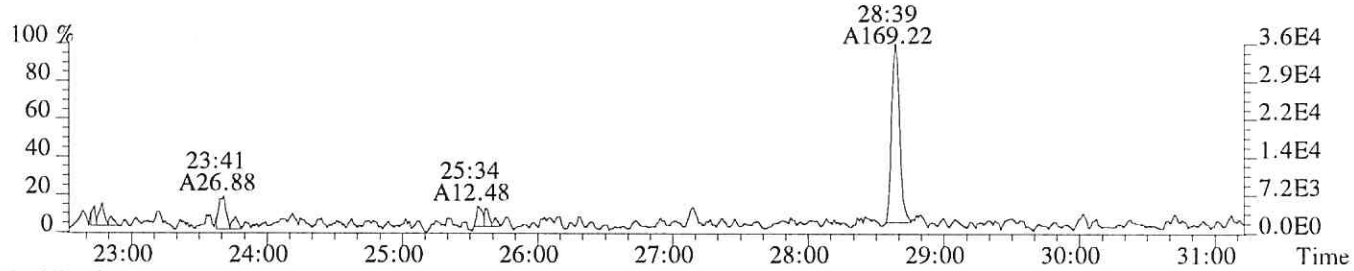
Office:(281)-530-5656. Fax:(281)530-5887

File:P407614 #1-616 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

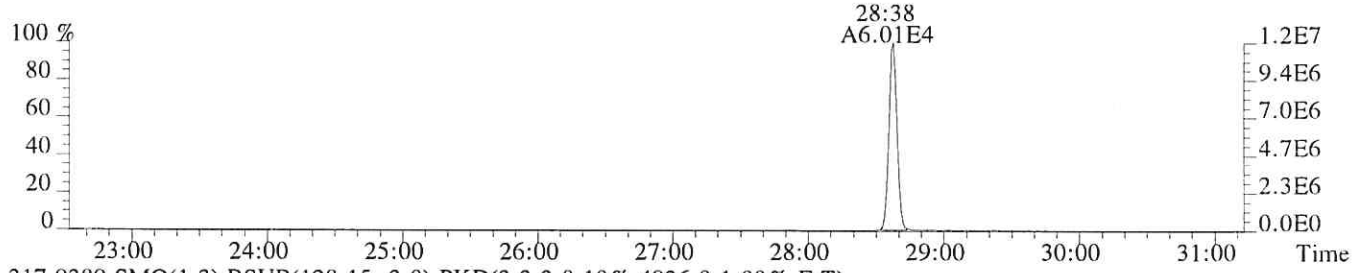
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



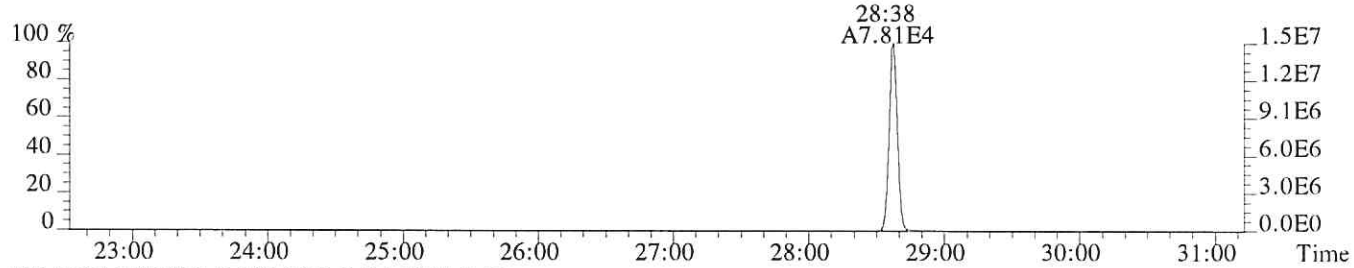
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2292.0,1.00%,F,T)



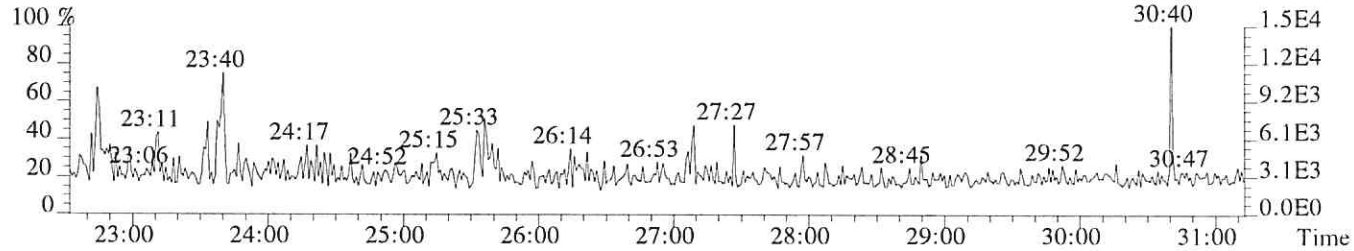
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,17128.0,1.00%,F,T)



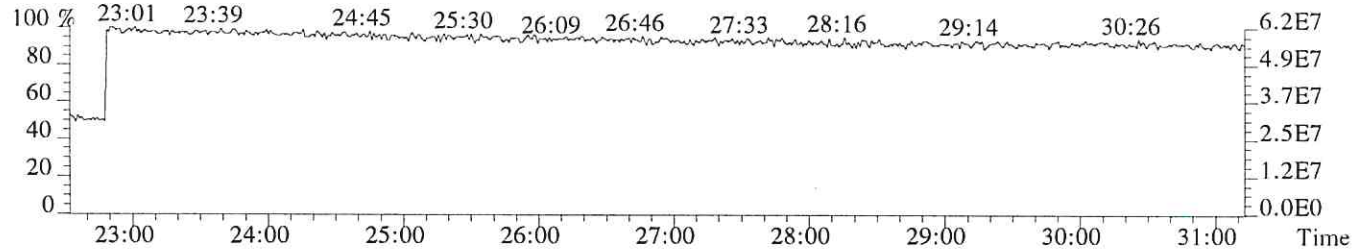
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4936.0,1.00%,F,T)



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

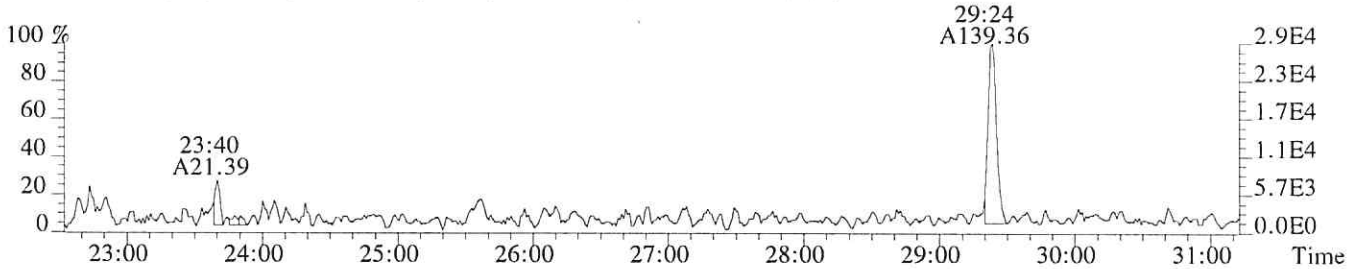


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

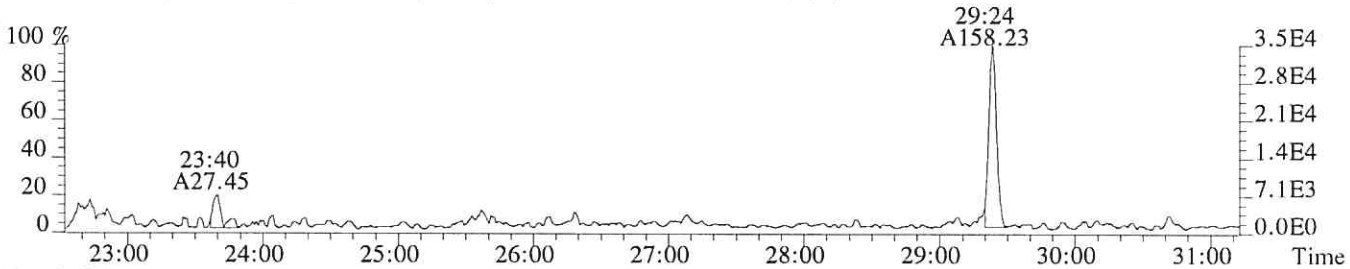


File:P407614 #1-616 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

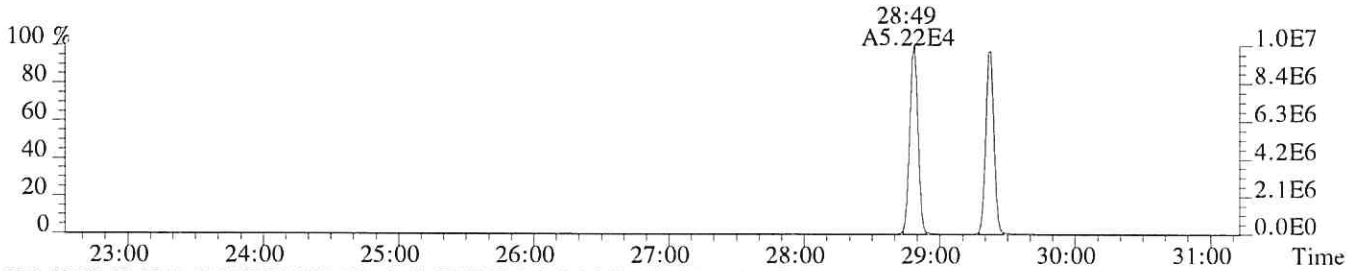
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2692.0,1.00%,F,T)



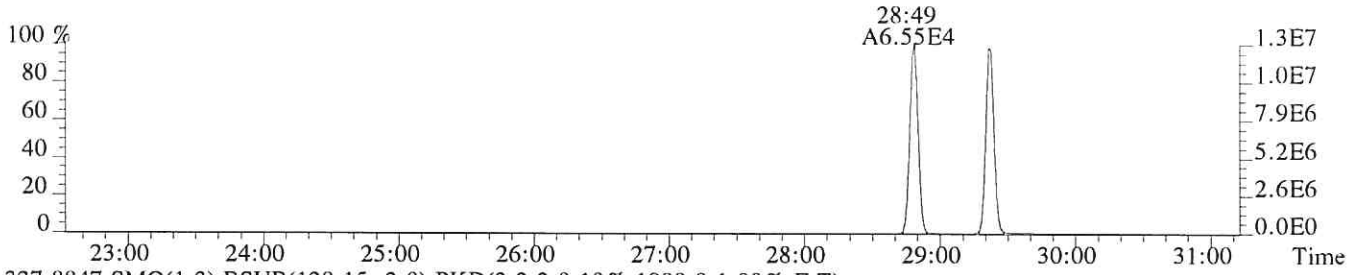
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



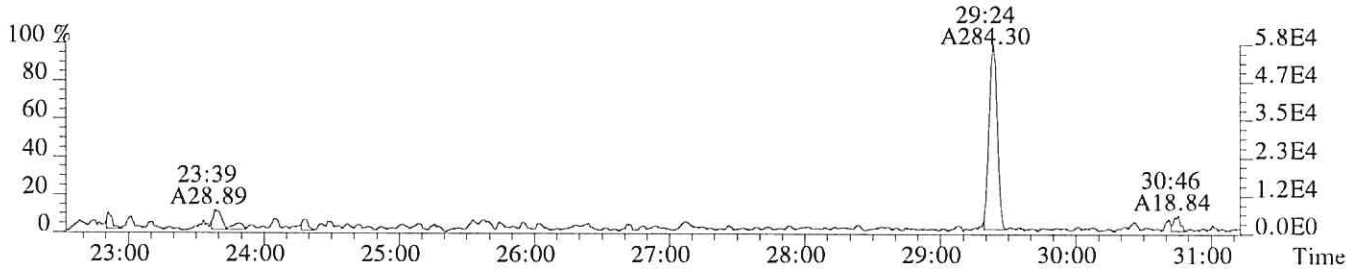
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3952.0,1.00%,F,T)



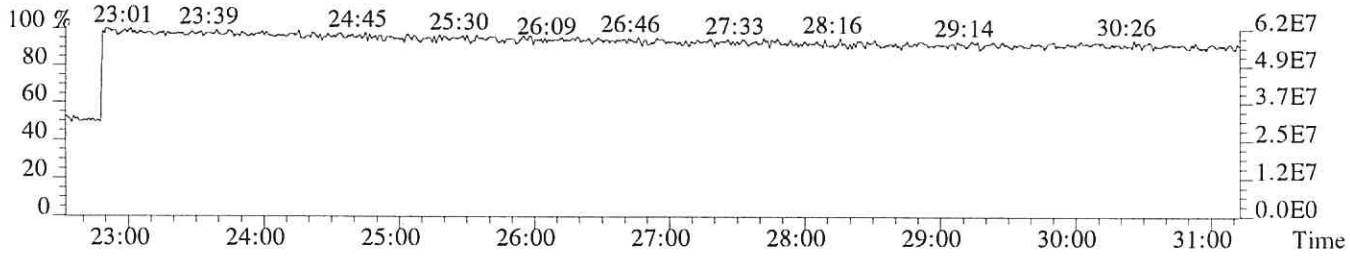
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2640.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)

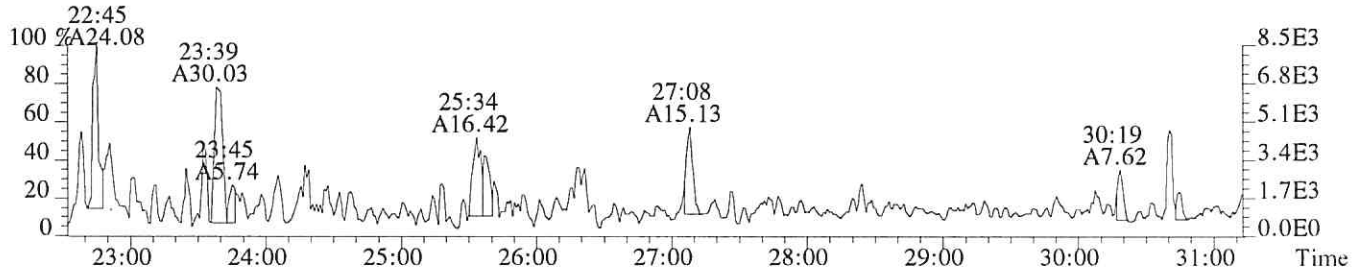


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

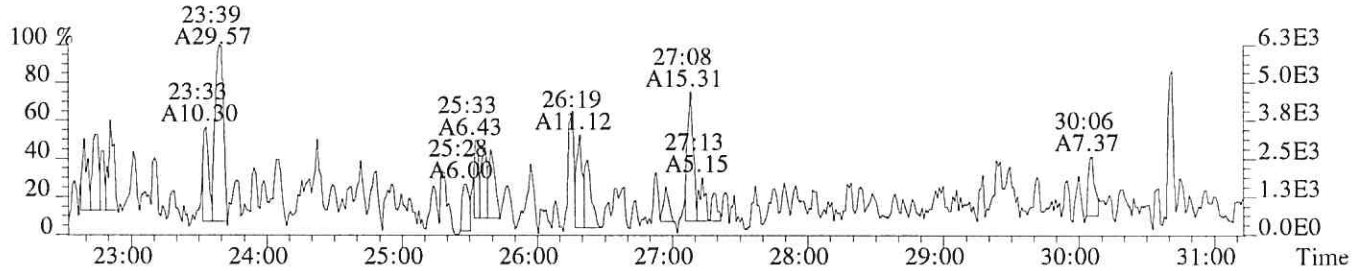


File:P407614 #1-616 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

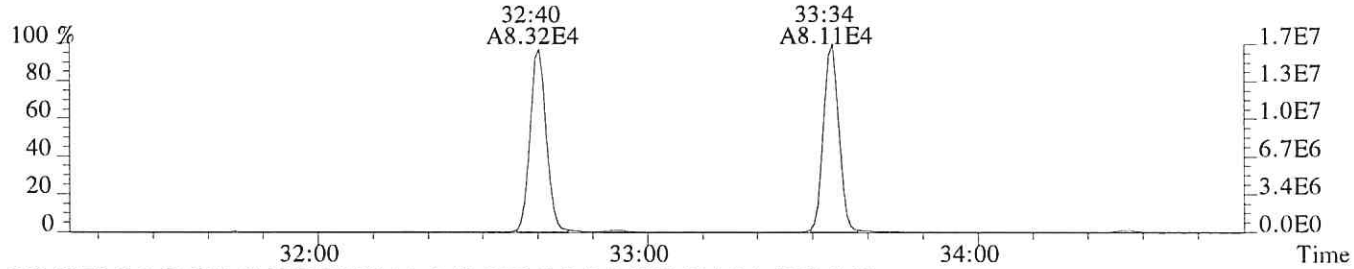
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1516.0,1.00%,F,T)



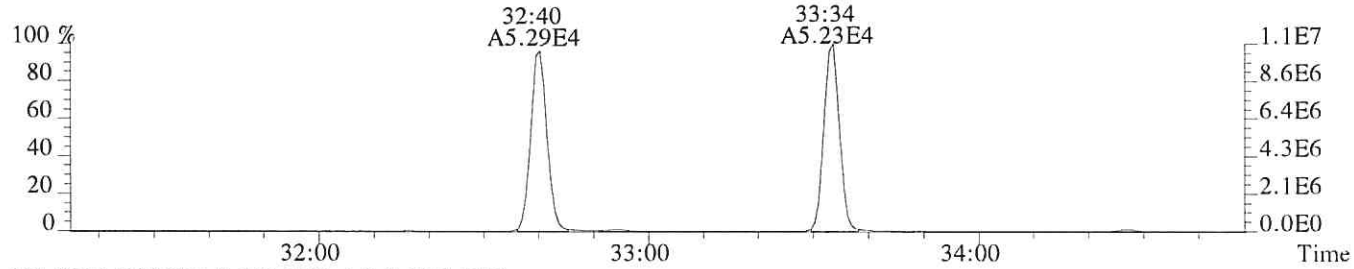
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



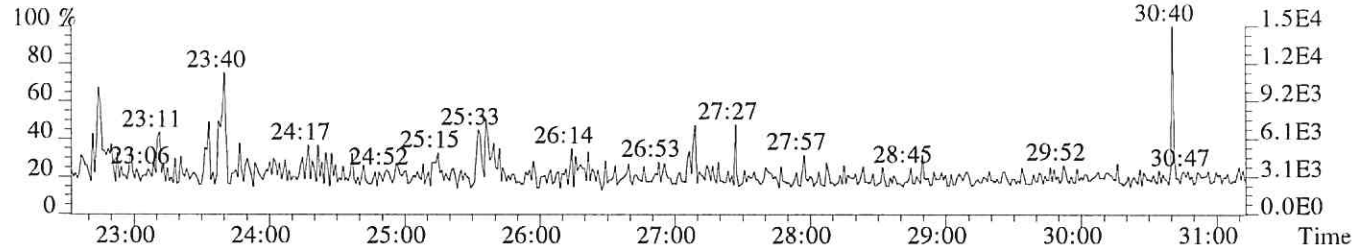
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



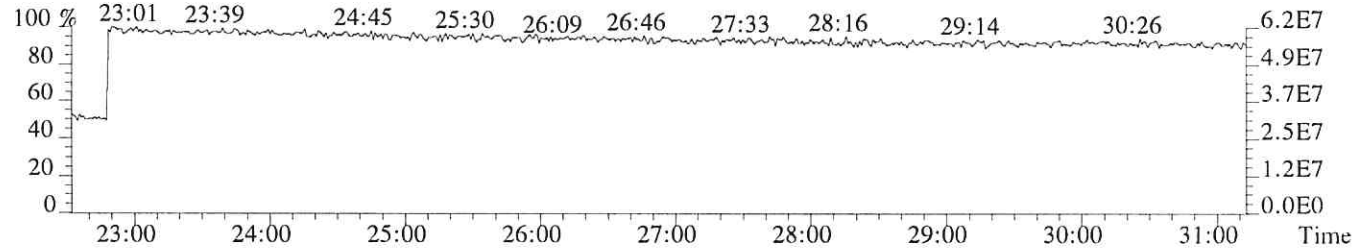
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



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

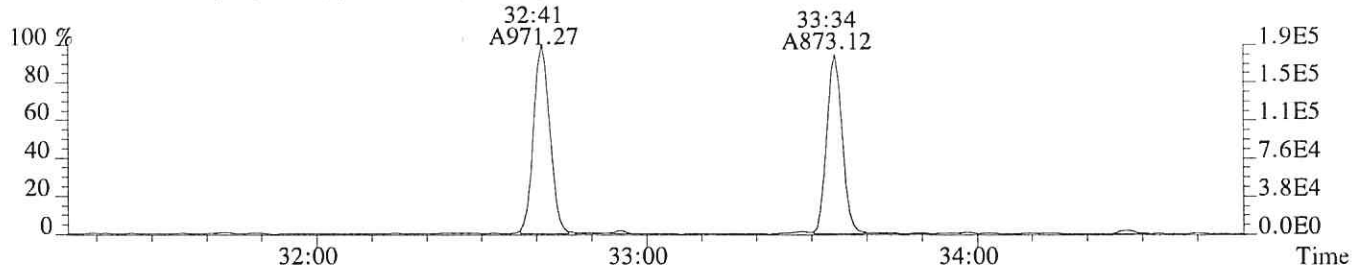


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

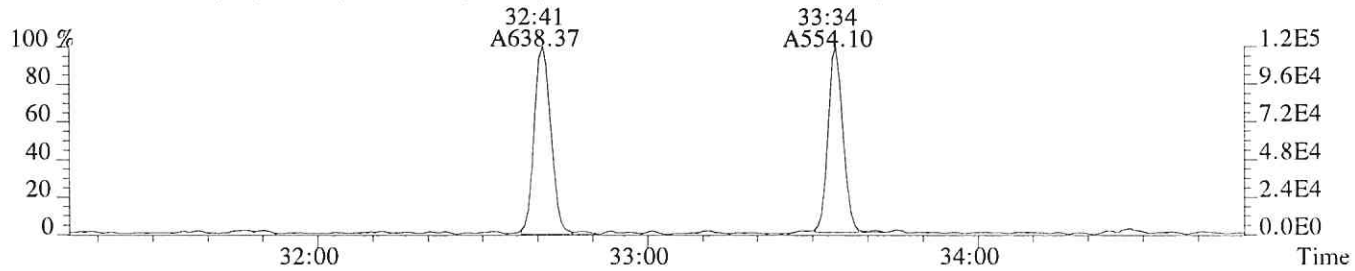


File:P407614 #1-321 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

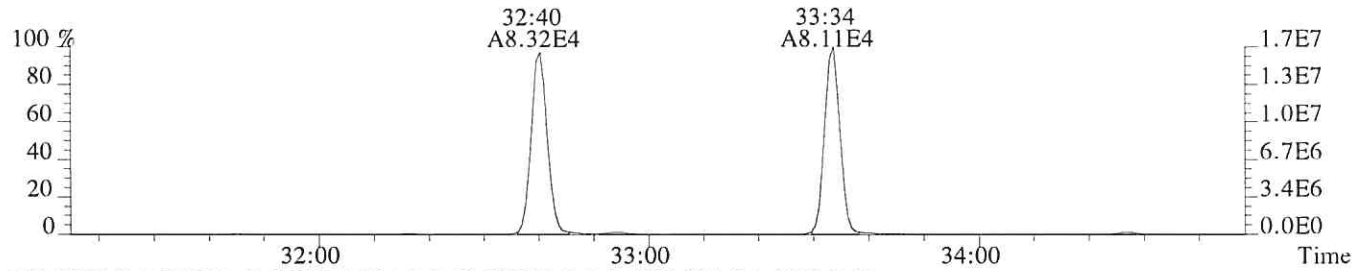
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



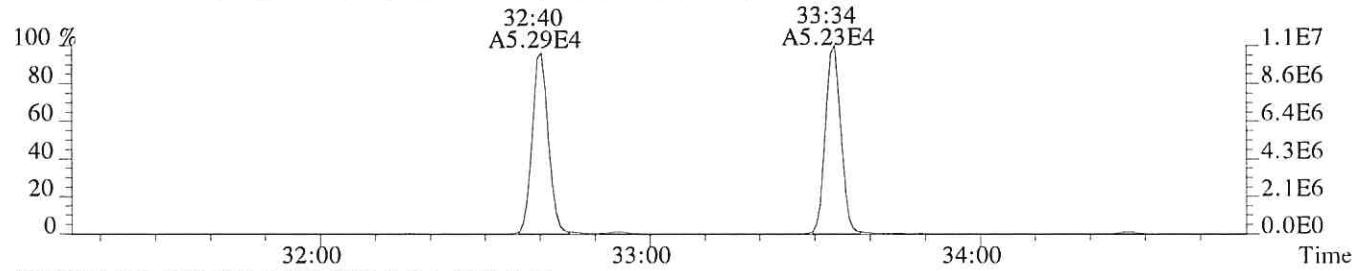
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



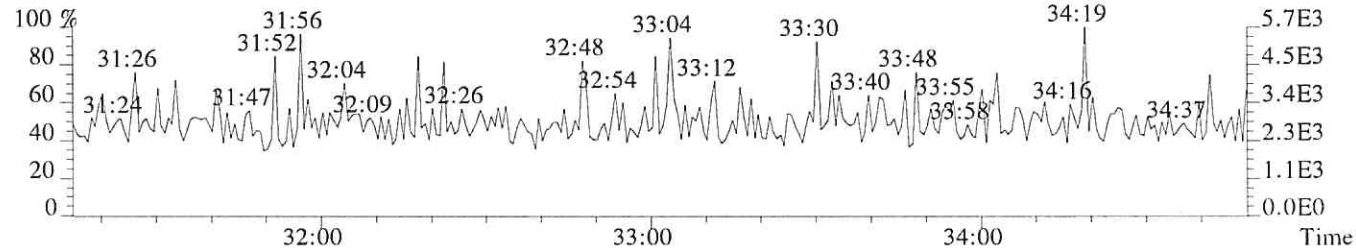
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



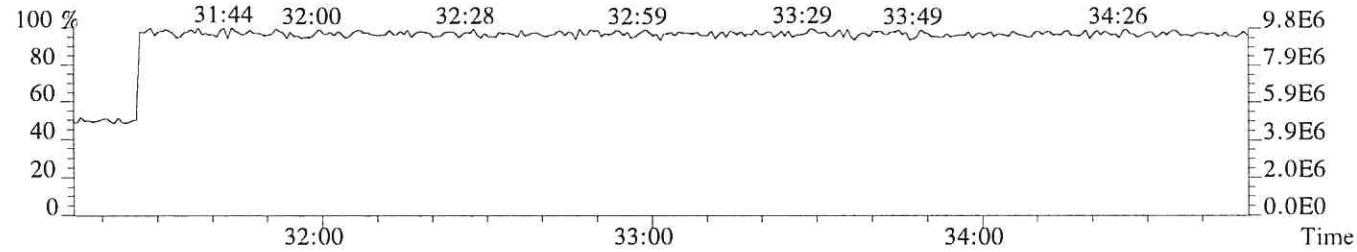
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



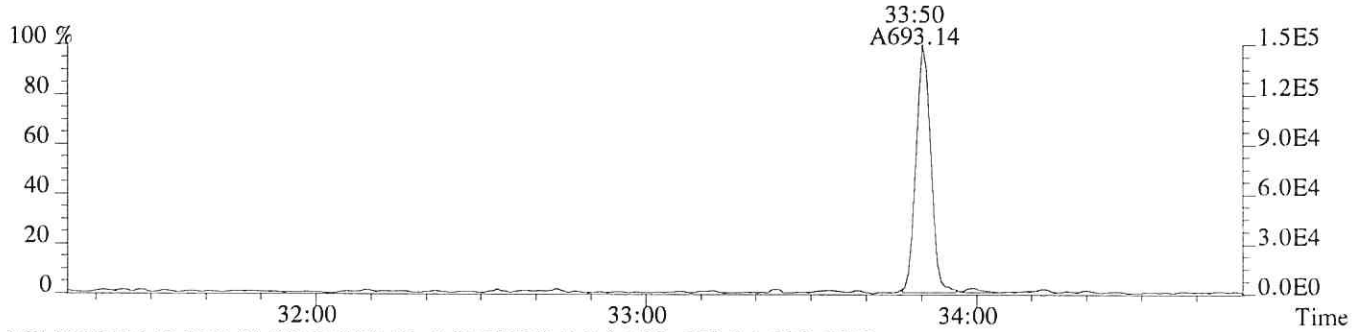
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



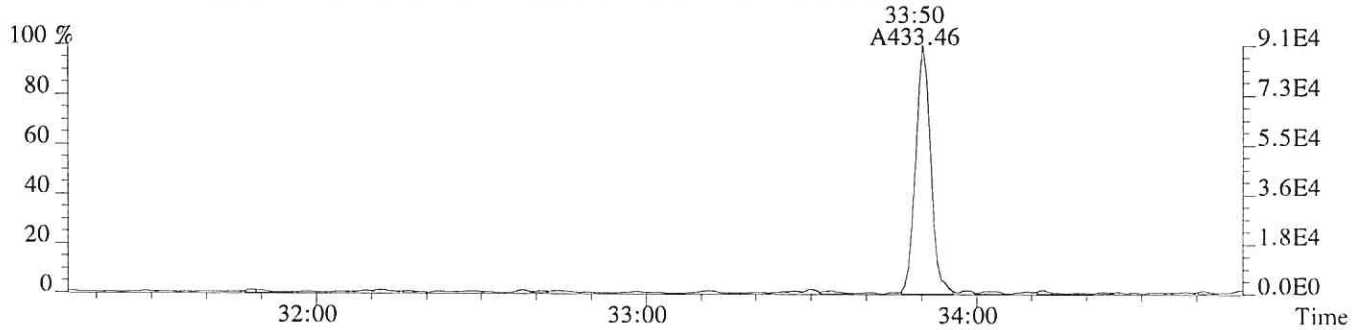
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



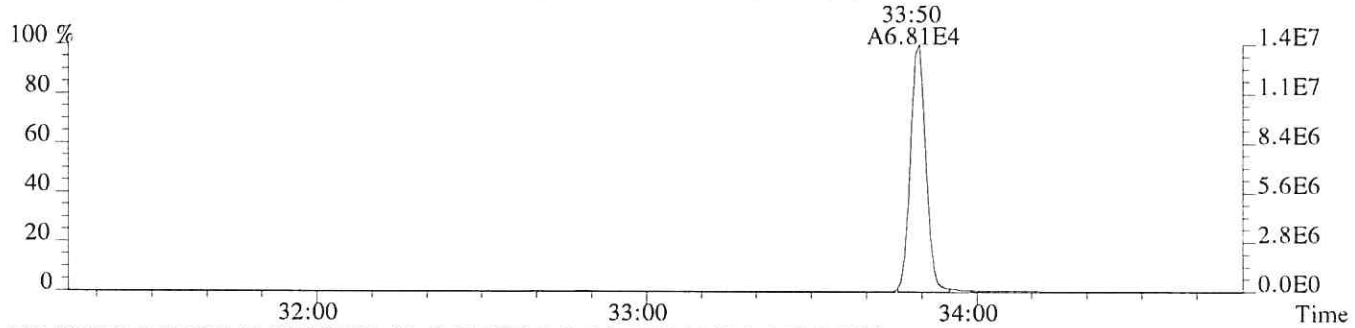
File:P407614 #1-321 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



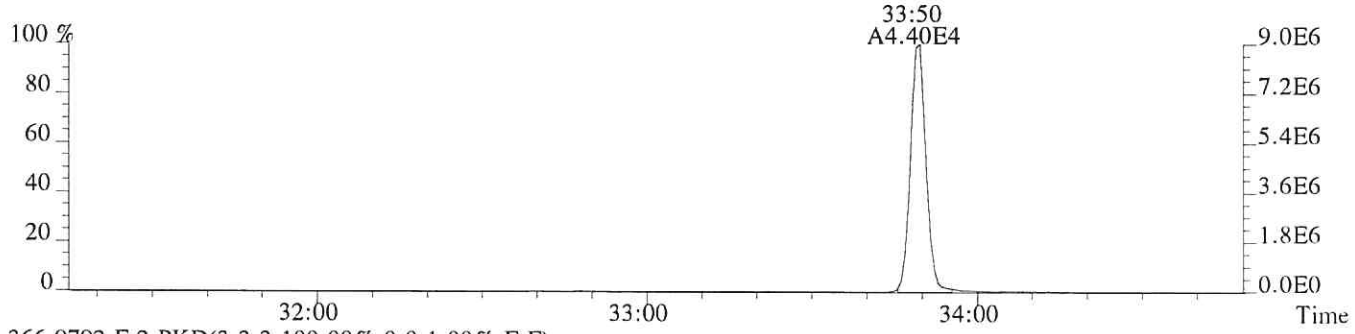
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



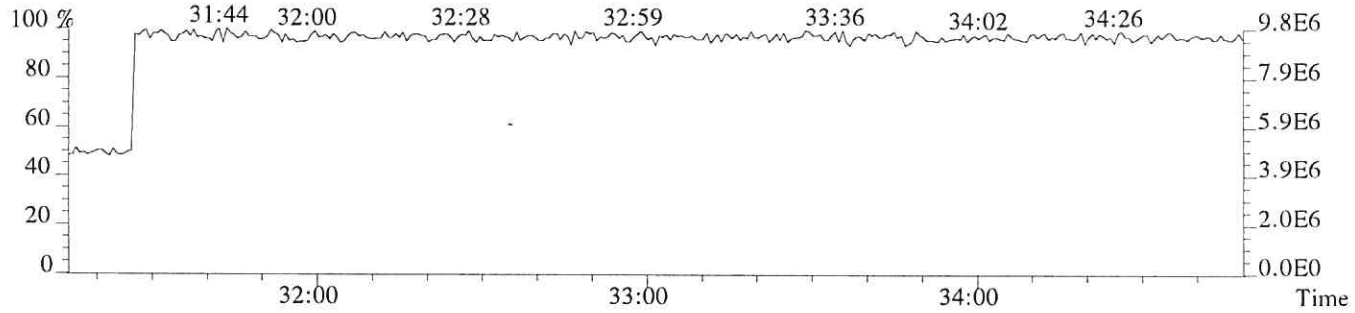
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)

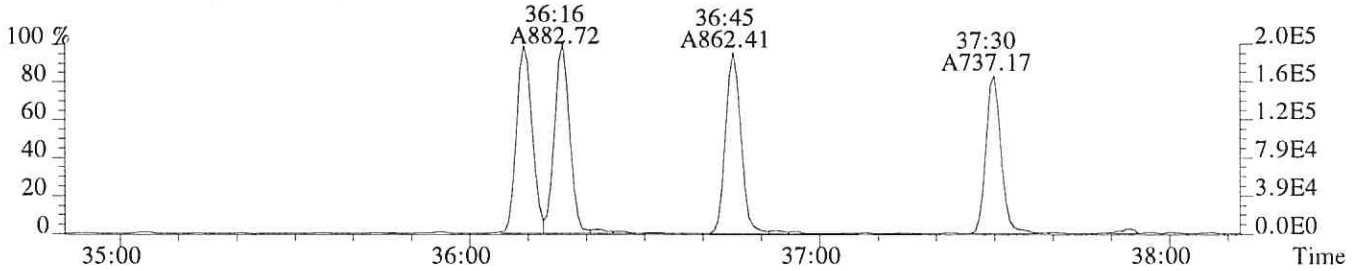


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

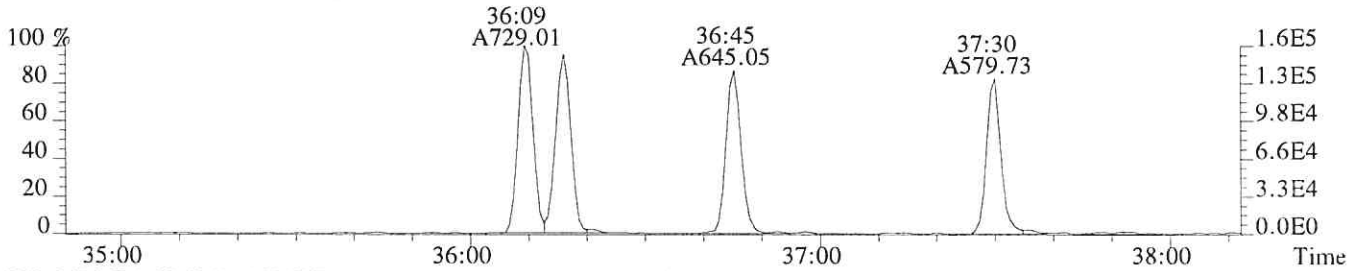


File:P407614 #1-303 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

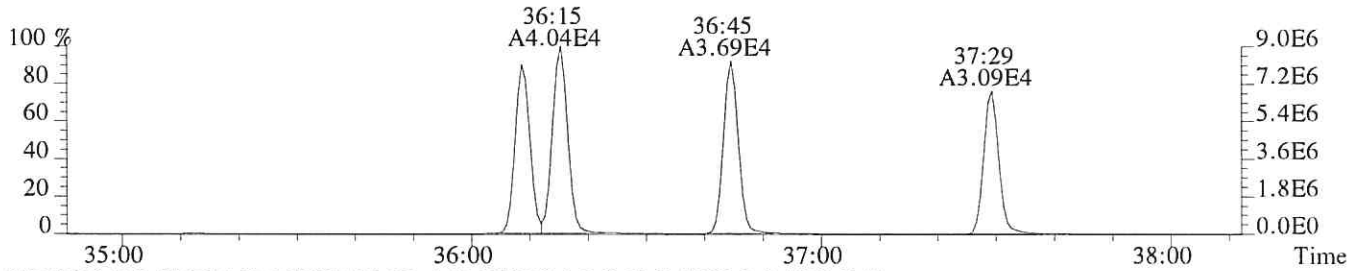
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



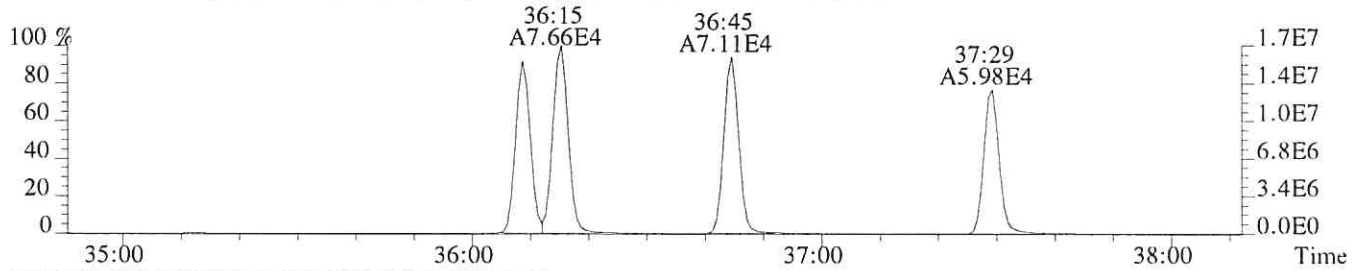
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



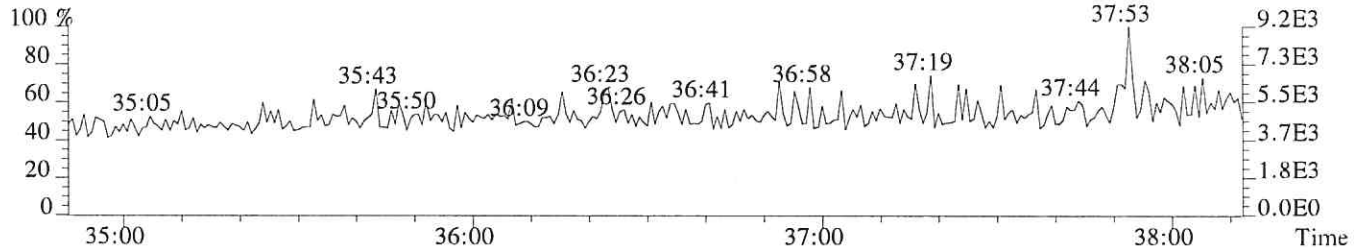
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



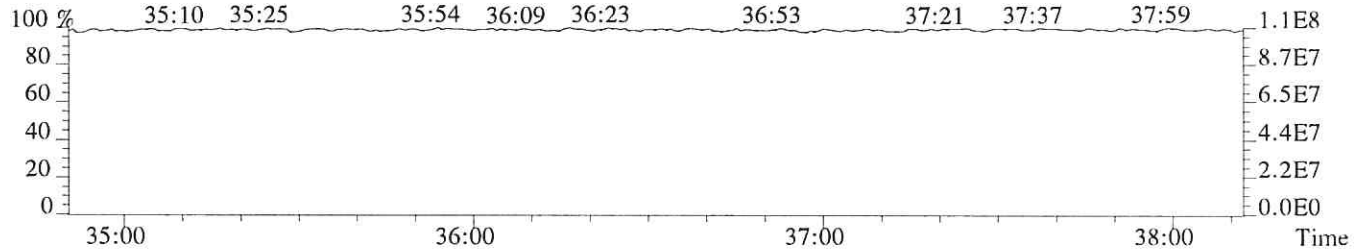
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



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

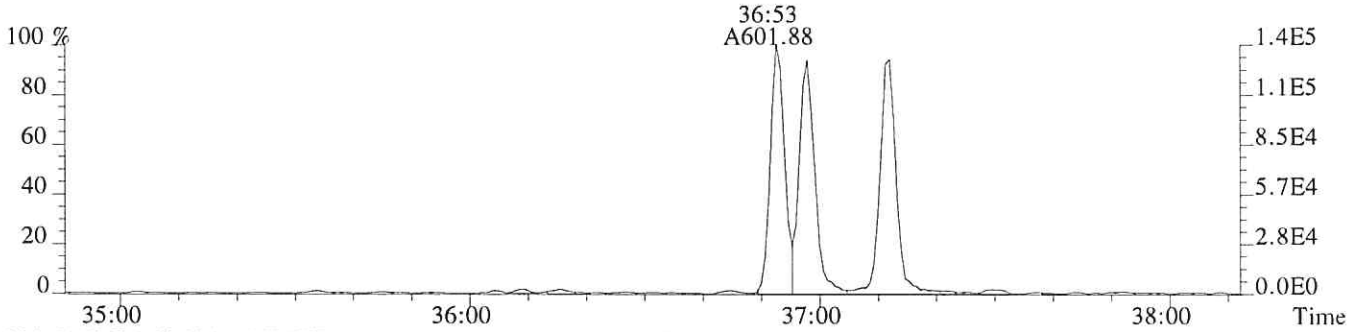


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

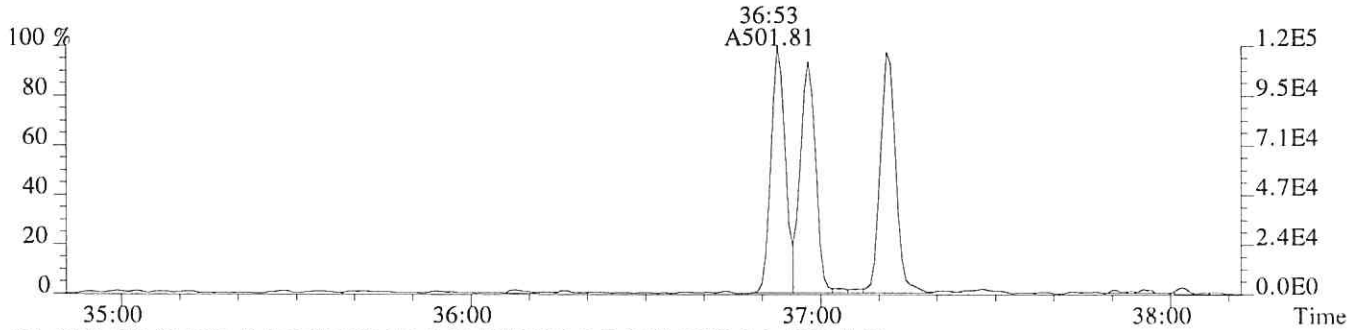


File:P407614 #1-303 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

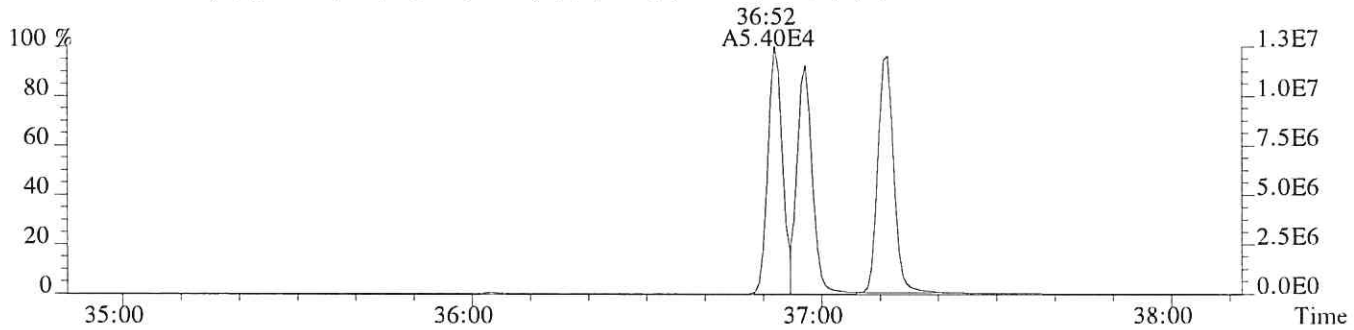
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



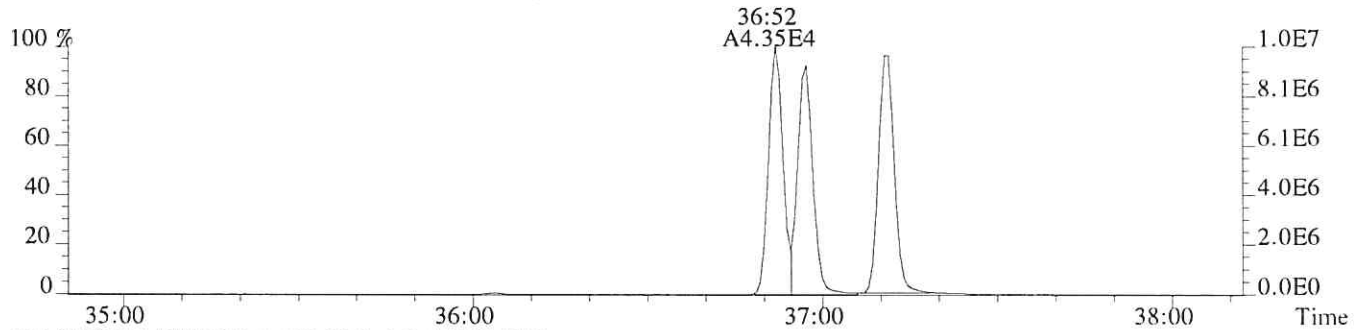
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



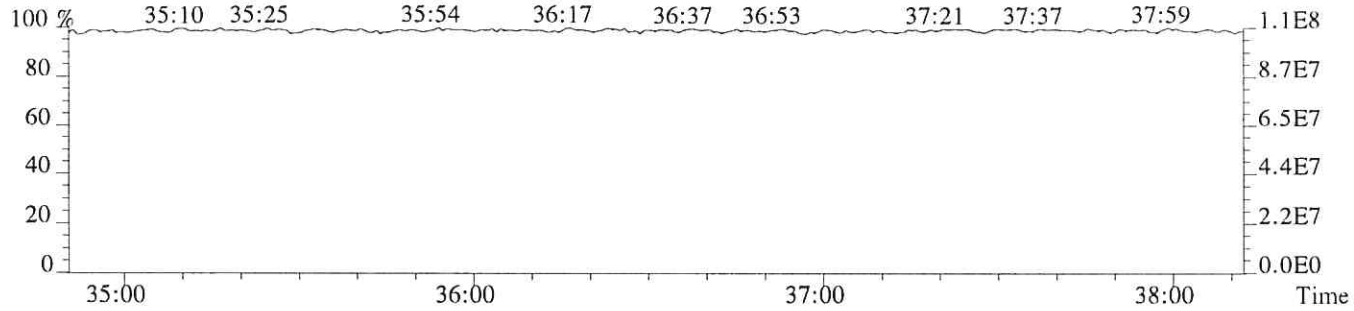
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



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

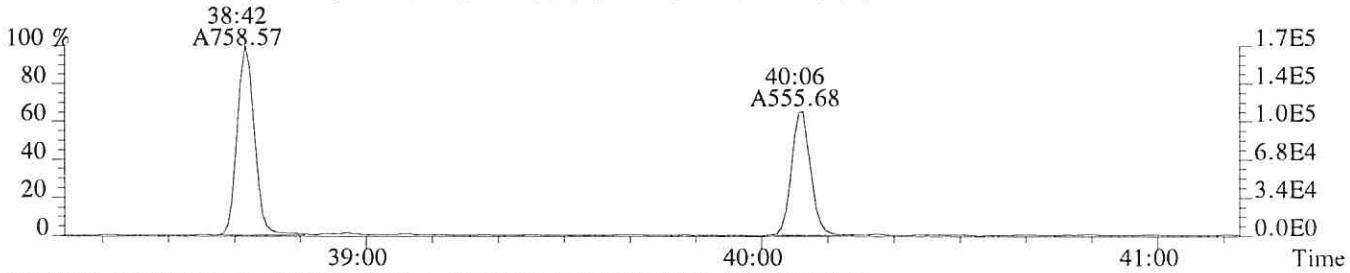


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

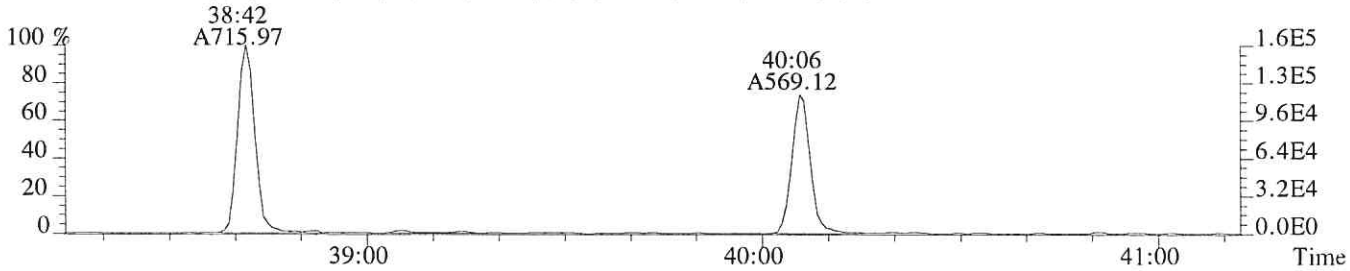


File:P407614 #1-268 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

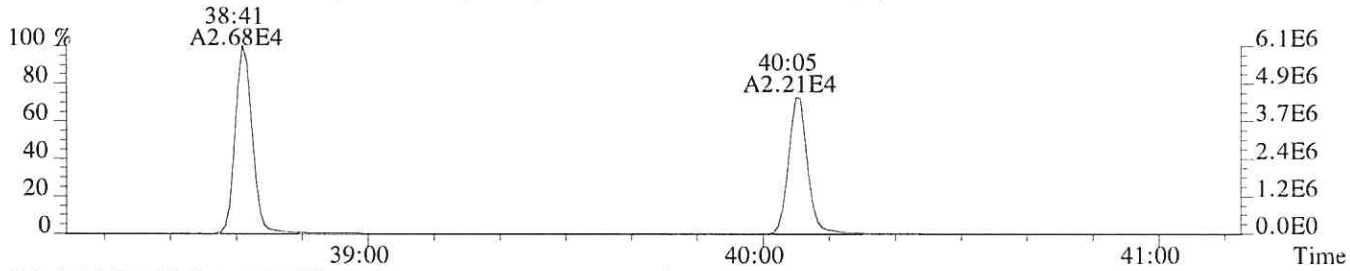
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.50%,F,T)



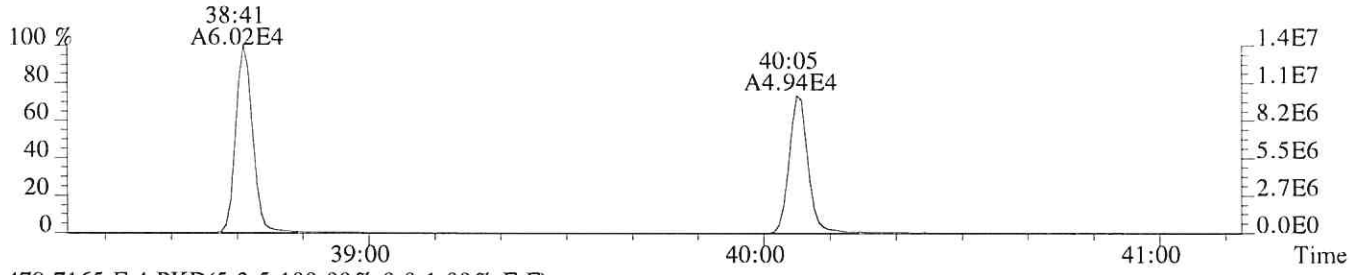
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.50%,F,T)



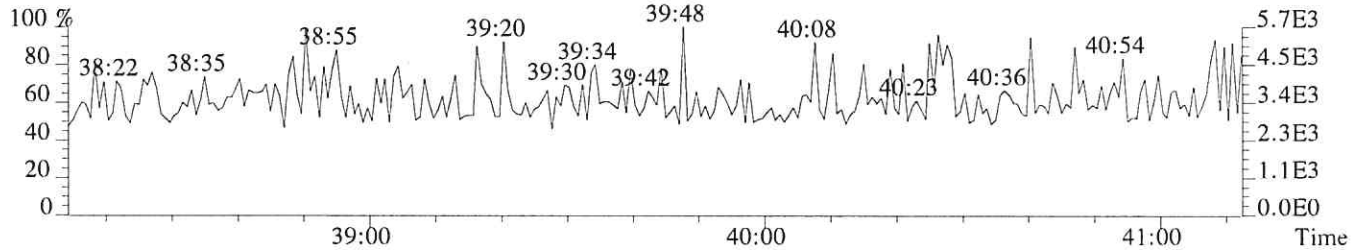
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.50%,F,T)



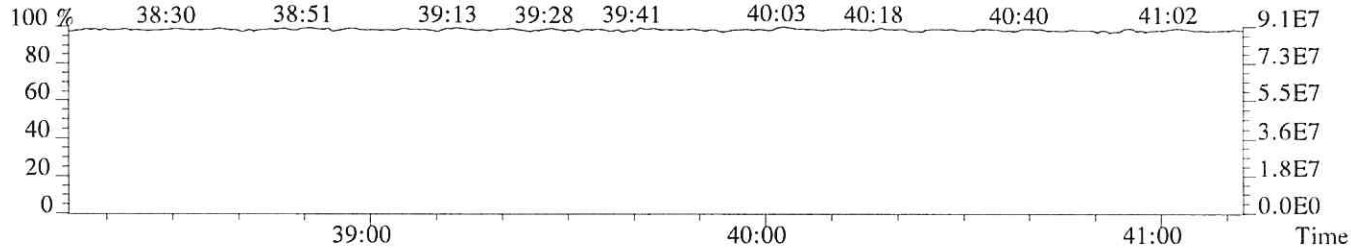
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.50%,F,T)



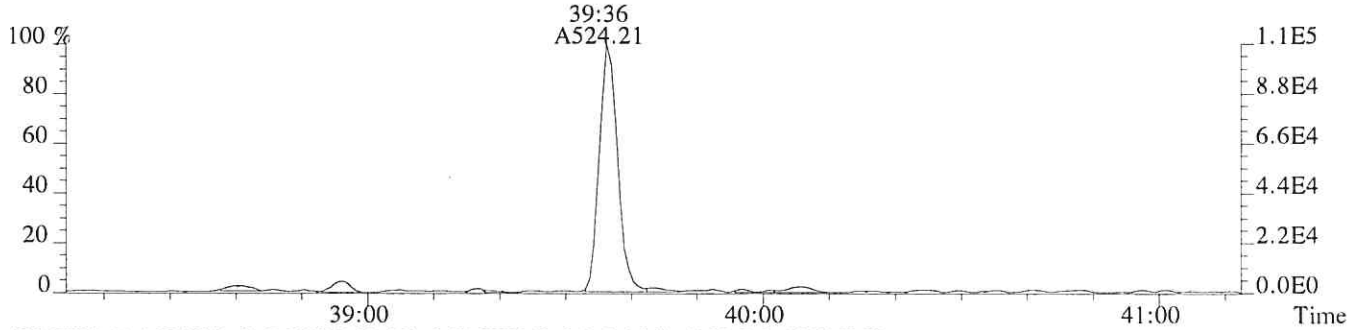
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



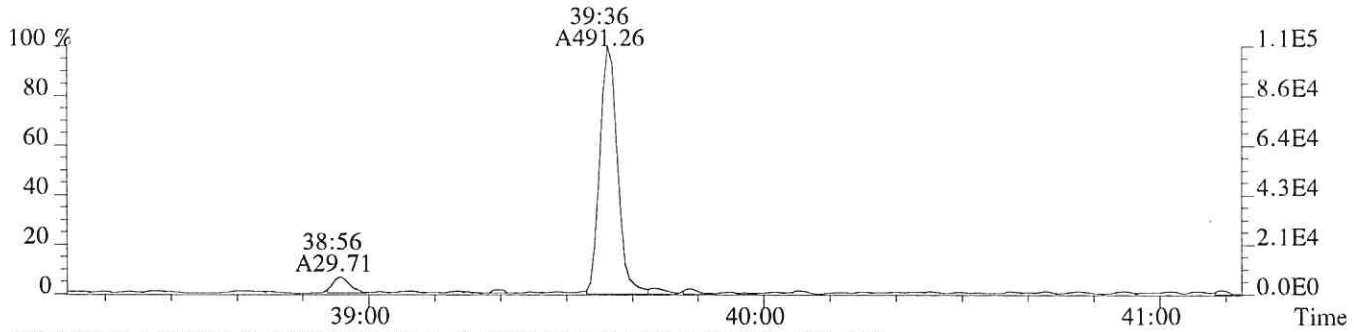
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



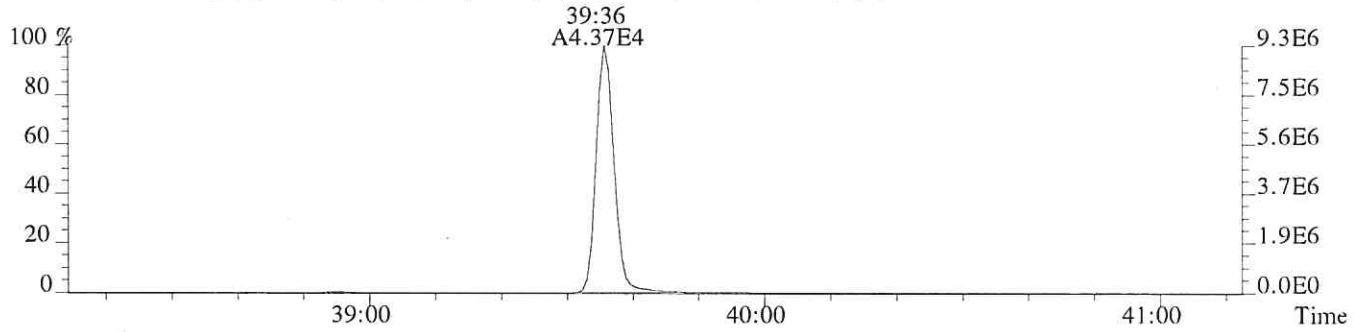
File:P407614 #1-268 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



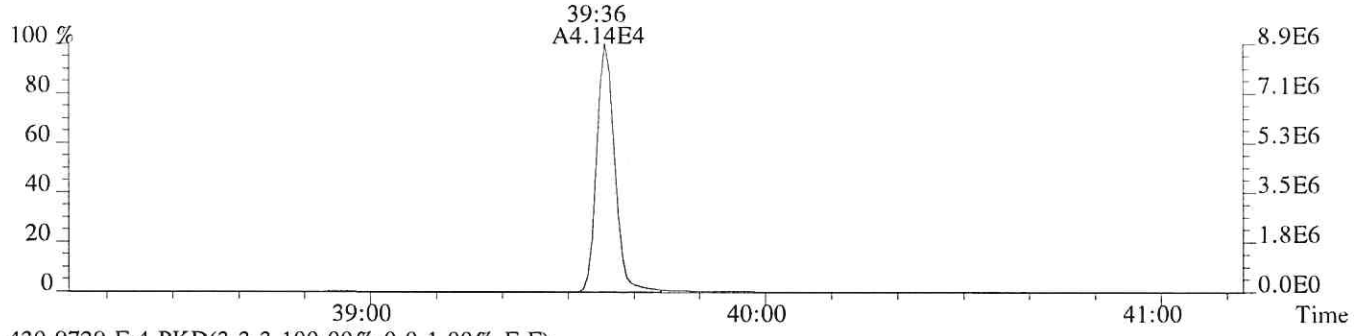
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



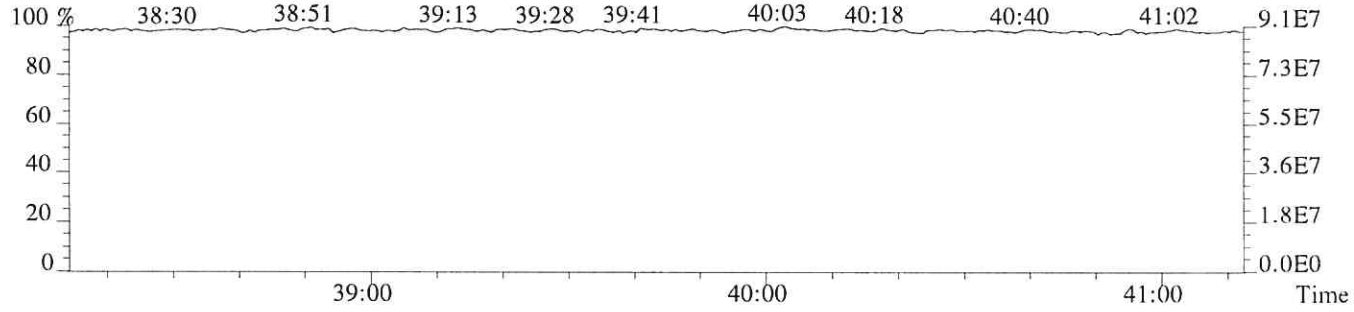
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)

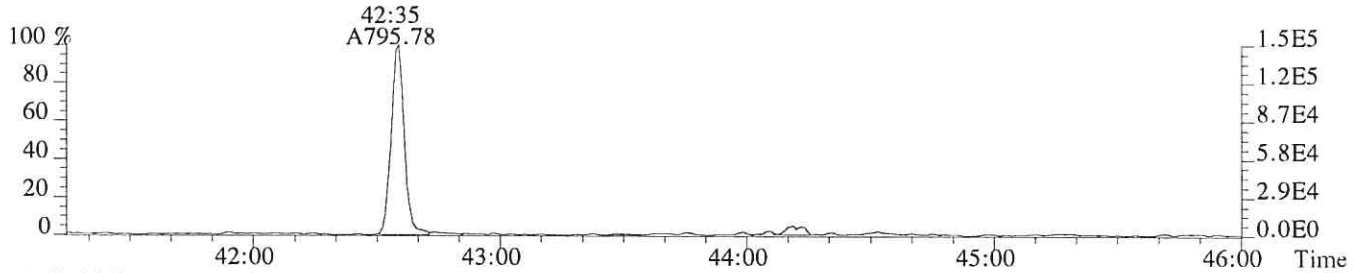


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

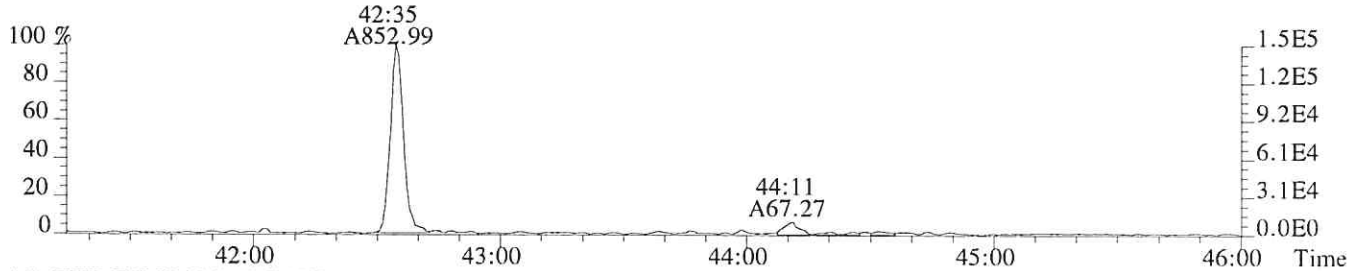


File:P407614 #1-429 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

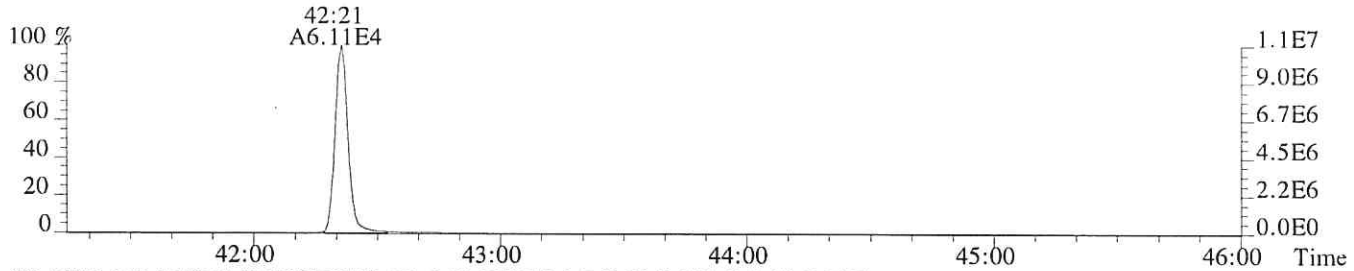
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1132.0,0.40%,F,T)



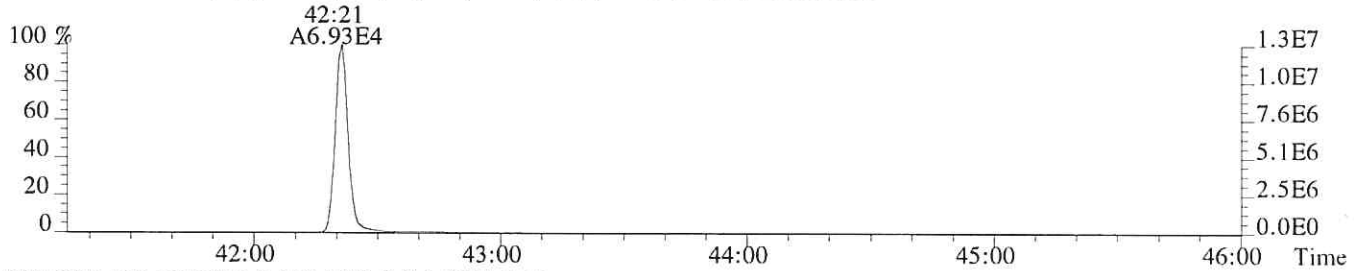
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1288.0,0.40%,F,T)



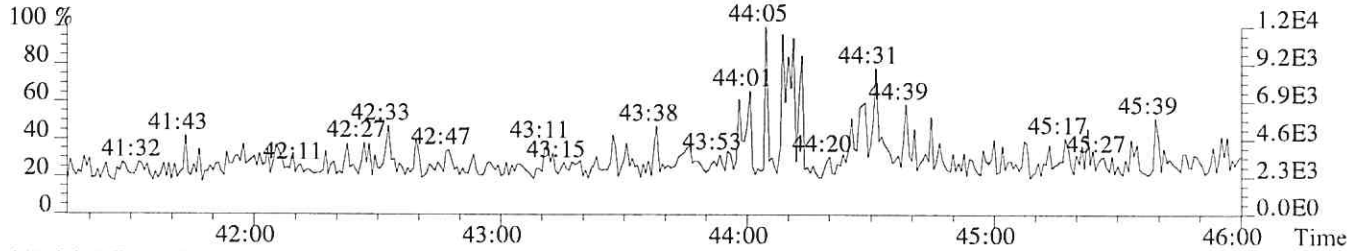
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1716.0,0.40%,F,T)



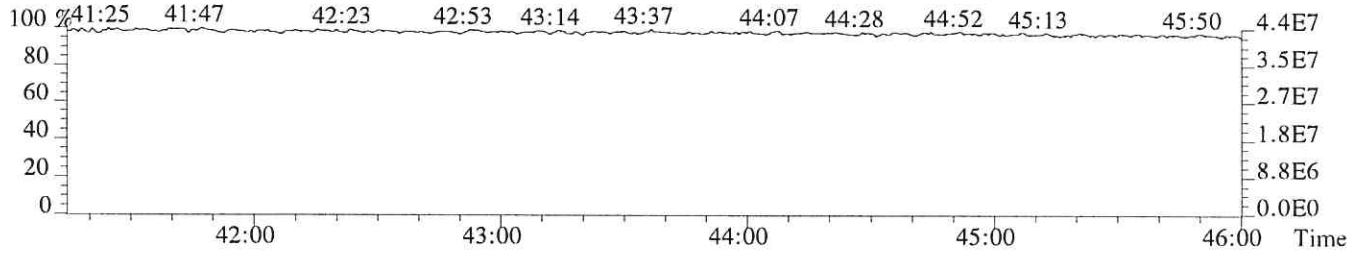
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



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

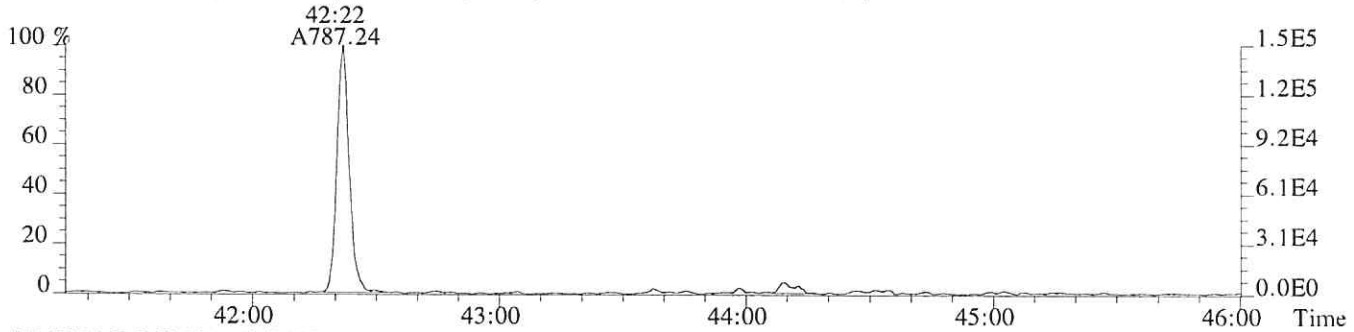


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

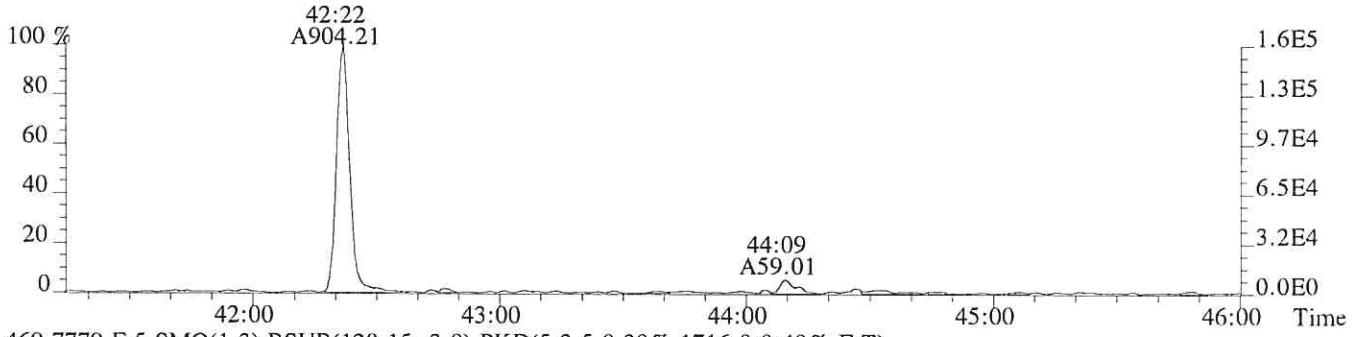


File:P407614 #1-429 Acq: 1-SEP-2017 14:55:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

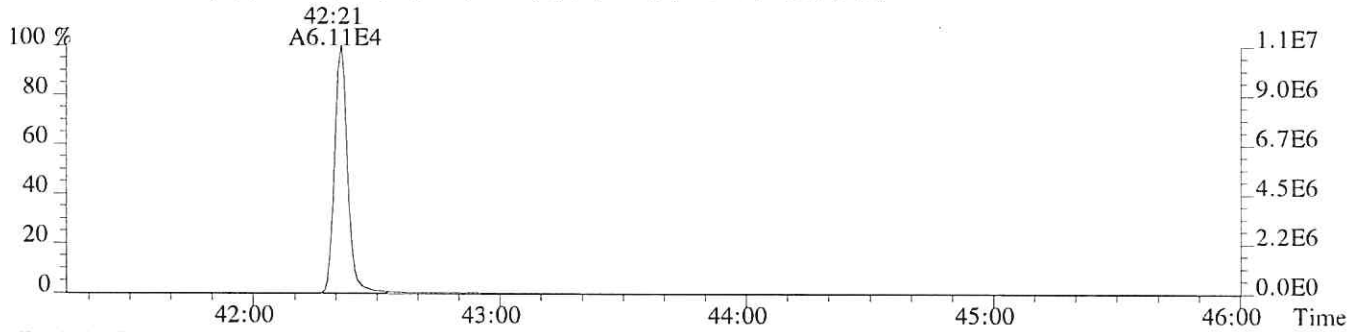
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,984.0,0.40%,F,T)



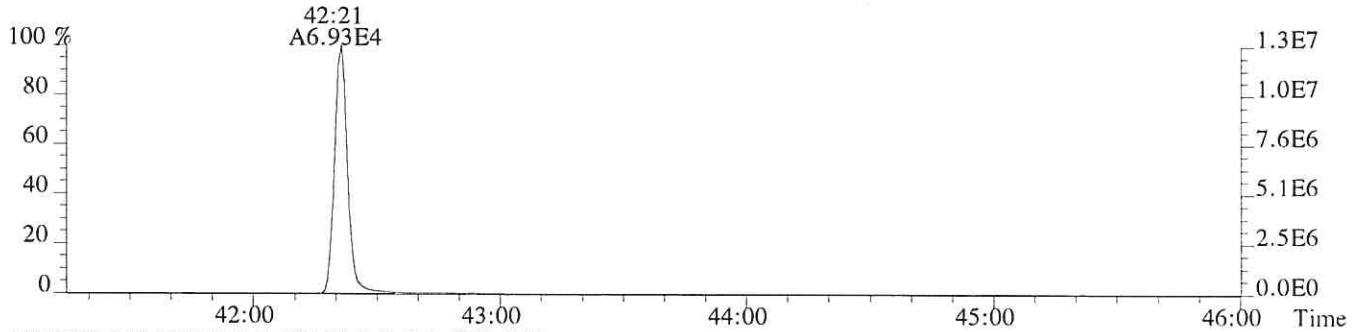
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



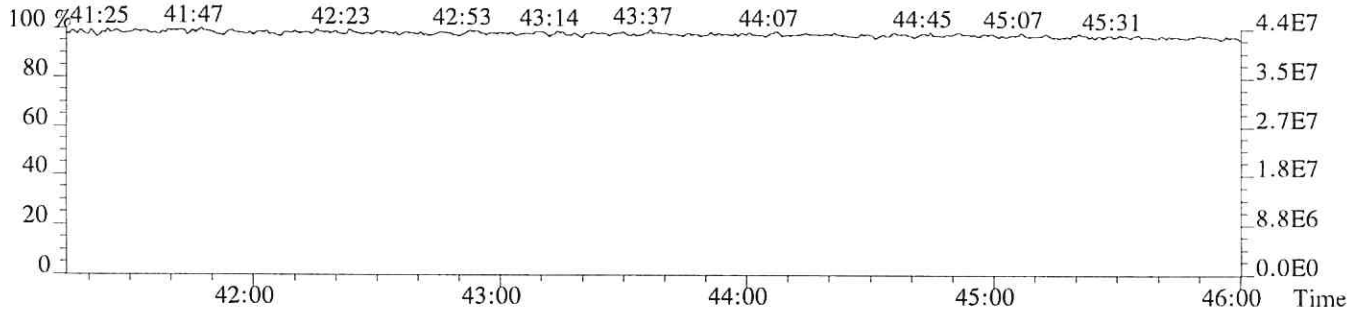
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename p407615 #1 Samp: 1 Inj: 1 Acquired: 1-SEP-17 15:54:29
Processed: 5-SEP-17 09:15:29 LAB. ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:39	2.970e+02	3.910e+02	0.76	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:41	2.339e+03	1.508e+03	1.55	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:34	2.093e+03	1.387e+03	1.51	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	36:09	2.092e+03	1.592e+03	1.31	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	36:16	2.078e+03	1.701e+03	1.22	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:45	1.861e+03	1.483e+03	1.25	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:30	1.633e+03	1.313e+03	1.24	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	1.714e+03	1.675e+03	1.02	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	1.275e+03	1.230e+03	1.04	yes	no	1.301
10	Unk	OCDF	42:35	1.922e+03	2.080e+03	0.92	yes	no	1.114
11	Unk	2,3,7,8-TCDD	29:24	2.507e+02	3.663e+02	0.68	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:50	1.677e+03	1.078e+03	1.56	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:53	1.431e+03	1.174e+03	1.22	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:58	1.435e+03	1.075e+03	1.33	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	37:11	1.451e+03	1.223e+03	1.19	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	1.158e+03	1.162e+03	1.00	yes	no	0.975
17	Unk	OCDD	42:22	1.750e+03	1.940e+03	0.90	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:38	6.767e+04	8.731e+04	0.78	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:40	9.349e+04	6.014e+04	1.55	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:34	9.031e+04	5.763e+04	1.57	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	36:09	4.065e+04	7.875e+04	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	36:15	4.492e+04	8.574e+04	0.52	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:45	4.089e+04	7.820e+04	0.52	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:29	3.379e+04	6.529e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	2.977e+04	6.623e+04	0.45	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	2.334e+04	5.250e+04	0.44	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	29:23	5.529e+04	6.970e+04	0.79	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:50	7.643e+04	4.888e+04	1.56	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:52	5.955e+04	4.783e+04	1.25	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:57	5.859e+04	4.701e+04	1.25	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	4.728e+04	4.520e+04	1.05	yes	no	0.854
32	IS	13C-OCDD	42:21	6.670e+04	7.510e+04	0.89	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:49	5.855e+04	7.327e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:11	6.022e+04	4.892e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	6.491e+02				no	0.992

ALS ENVIRONMENTAL
10450 Stancliff Road
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

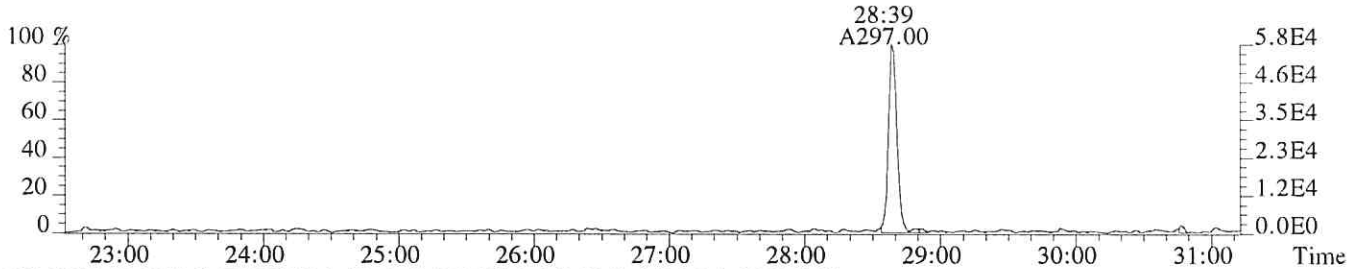
Run #2 Filename p407615 Samp: 1 Inj: 1 Acquired: 1-SEP-17 15:54:29
Processed: 5-SEP-17 09:15:291 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.75e+04	9.60e+02	6.0e+01	7.59e+04	1.64e+03	4.6e+01
2	1,2,3,7,8-PeCDF	4.66e+05	1.09e+03	4.3e+02	2.98e+05	1.18e+03	2.5e+02
3	2,3,4,7,8-PeCDF	4.39e+05	1.09e+03	4.0e+02	2.88e+05	1.18e+03	2.4e+02
4	1,2,3,4,7,8-HxCDF	4.69e+05	1.29e+03	3.6e+02	3.58e+05	9.64e+02	3.7e+02
5	1,2,3,6,7,8-HxCDF	4.61e+05	1.29e+03	3.6e+02	3.66e+05	9.64e+02	3.8e+02
6	2,3,4,6,7,8-HxCDF	4.10e+05	1.29e+03	3.2e+02	3.38e+05	9.64e+02	3.5e+02
7	1,2,3,7,8,9-HxCDF	3.50e+05	1.29e+03	2.7e+02	2.93e+05	9.64e+02	3.0e+02
8	1,2,3,4,6,7,8-HpCDF	3.94e+05	8.76e+02	4.5e+02	3.84e+05	9.12e+02	4.2e+02
9	1,2,3,4,7,8,9-HpCDF	2.69e+05	8.76e+02	3.1e+02	2.69e+05	9.12e+02	3.0e+02
10	OCDF	3.36e+05	1.03e+03	3.3e+02	3.89e+05	1.20e+03	3.2e+02
11	2,3,7,8-TCDD	4.99e+04	2.16e+03	2.3e+01	7.15e+04	1.11e+03	6.5e+01
12	1,2,3,7,8-PeCDD	3.51e+05	1.04e+03	3.4e+02	2.27e+05	6.48e+02	3.5e+02
13	1,2,3,4,7,8-HxCDD	3.40e+05	4.60e+02	7.4e+02	2.76e+05	1.14e+03	2.4e+02
14	1,2,3,6,7,8-HxCDD	3.16e+05	4.60e+02	6.9e+02	2.45e+05	1.14e+03	2.1e+02
15	1,2,3,7,8,9-HxCDD	3.16e+05	4.60e+02	6.9e+02	2.68e+05	1.14e+03	2.3e+02
16	1,2,3,4,6,7,8-HpCDD	2.44e+05	9.32e+02	2.6e+02	2.57e+05	1.17e+03	2.2e+02
17	OCDD	3.41e+05	5.56e+02	6.1e+02	3.64e+05	9.32e+02	3.9e+02
18	13C-2,3,7,8-TCDF	1.33e+07	1.03e+04	1.3e+03	1.71e+07	5.75e+03	3.0e+03
19	13C-1,2,3,7,8-PeCDF	1.88e+07	5.08e+02	3.7e+04	1.20e+07	8.56e+02	1.4e+04
20	13C-2,3,4,7,8-PeCDF	1.88e+07	5.08e+02	3.7e+04	1.20e+07	8.56e+02	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	9.24e+06	1.27e+03	7.3e+03	1.80e+07	1.27e+03	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	9.97e+06	1.27e+03	7.8e+03	1.90e+07	1.27e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	9.36e+06	1.27e+03	7.4e+03	1.78e+07	1.27e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	7.50e+06	1.27e+03	5.9e+03	1.44e+07	1.27e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.74e+06	2.52e+03	2.7e+03	1.50e+07	3.15e+03	4.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.94e+06	2.52e+03	2.0e+03	1.11e+07	3.15e+03	3.5e+03
27	13C-2,3,7,8-TCDD	1.14e+07	4.66e+03	2.4e+03	1.43e+07	2.06e+03	6.9e+03
28	13C-1,2,3,7,8-PeCDD	1.61e+07	1.17e+03	1.4e+04	1.01e+07	1.75e+03	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.40e+07	1.35e+03	1.0e+04	1.12e+07	9.48e+02	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.30e+07	1.35e+03	9.6e+03	1.04e+07	9.48e+02	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.03e+07	7.48e+02	1.4e+04	9.78e+06	1.02e+03	9.6e+03
32	13C-OCDD	1.24e+07	8.04e+02	1.5e+04	1.39e+07	8.96e+02	1.6e+04
33	13C-1,2,3,4-TCDD	1.15e+07	4.66e+03	2.5e+03	1.45e+07	2.06e+03	7.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.32e+07	1.35e+03	9.8e+03	1.08e+07	9.48e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	1.36e+05	1.30e+03	1.0e+02			

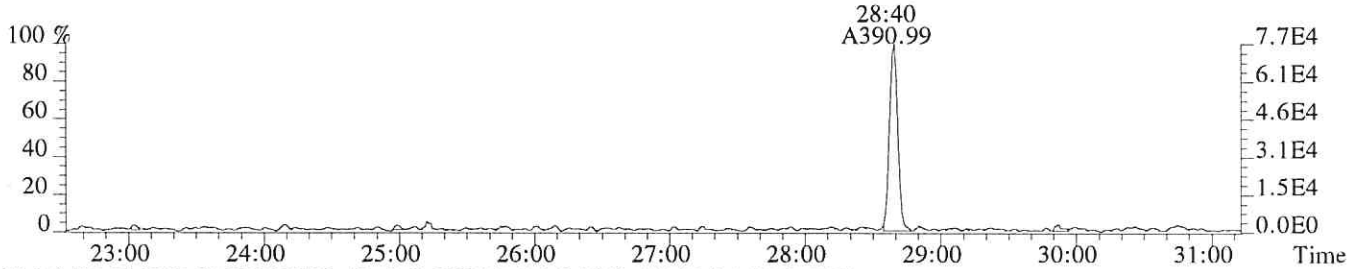
ALS ENVIRONMENTAL
10450 Stancliff Road
Houston, TX 77099
Office:(281)-530-5656. Fax:(281)530-5887

File:P407615 #1-616 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

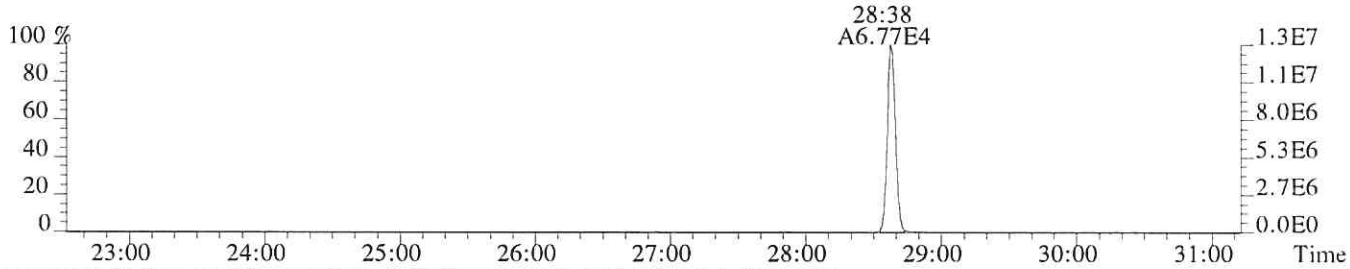
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



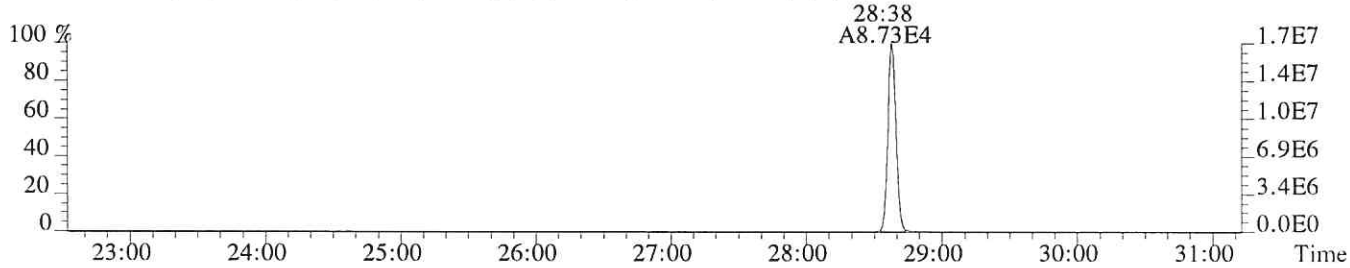
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



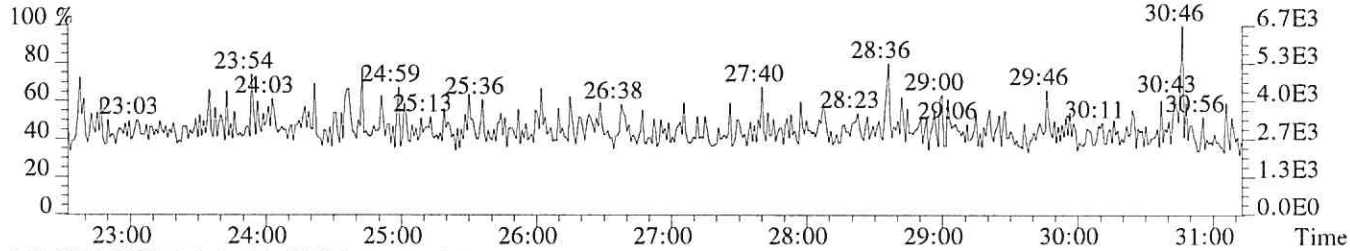
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10312.0,1.00%,F,T)



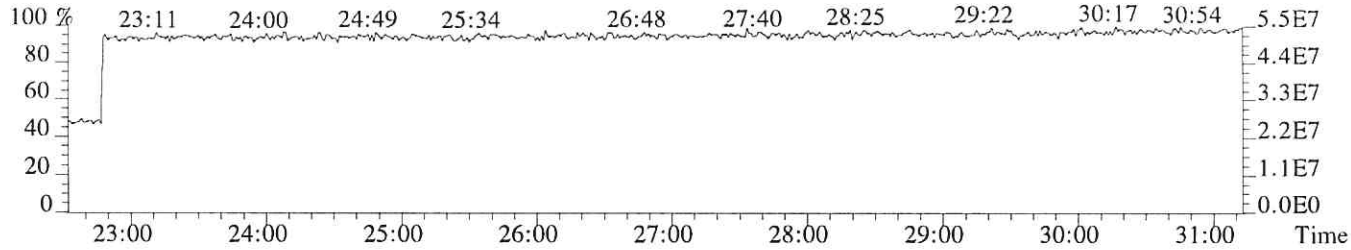
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5748.0,1.00%,F,T)



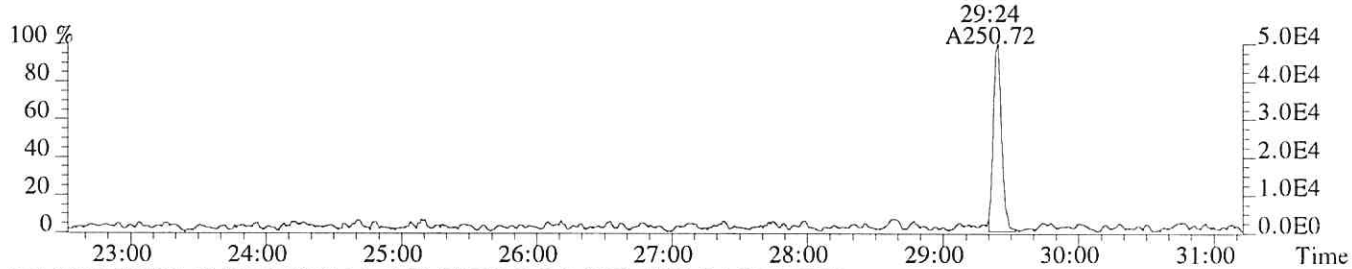
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



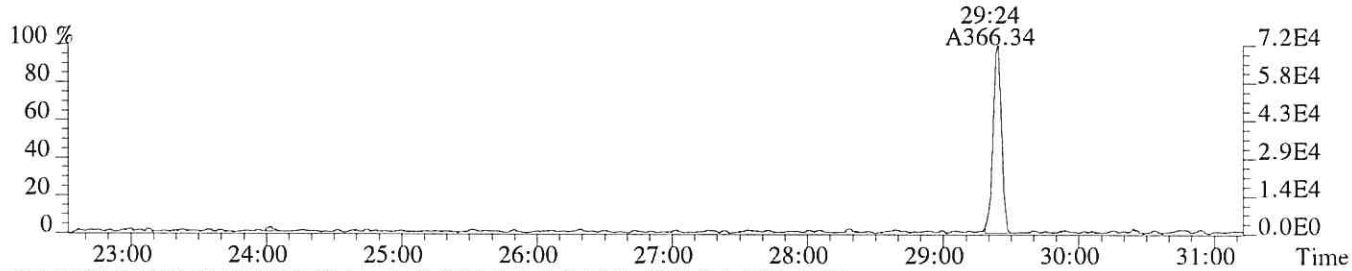
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



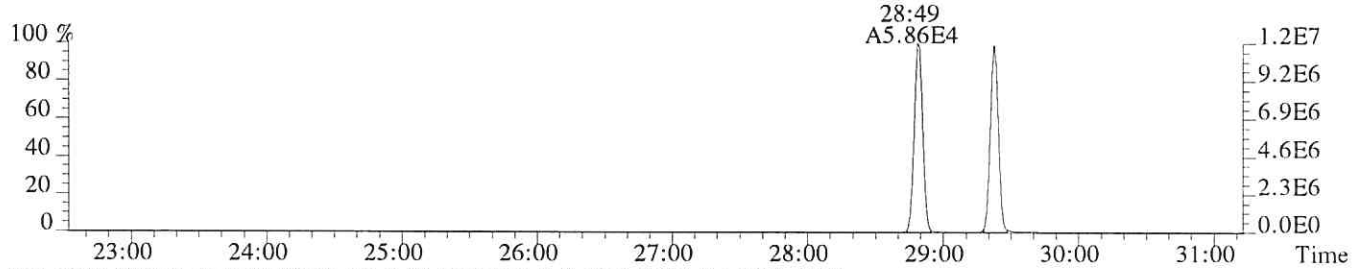
File:P407615 #1-616 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2164.0,1.00%,F,T)



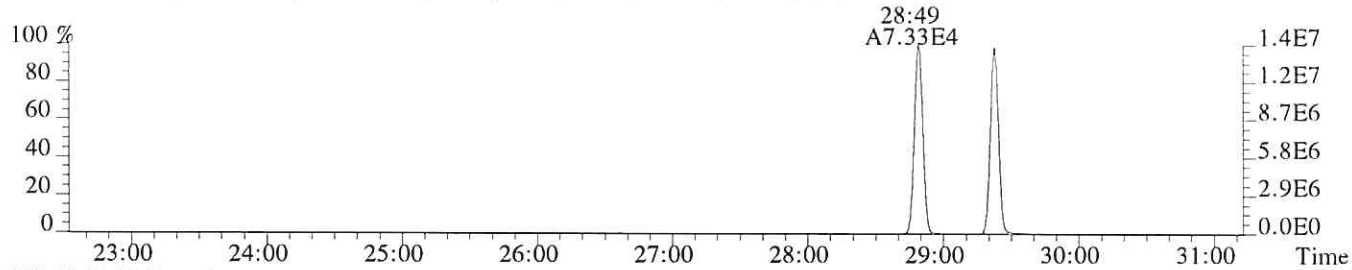
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



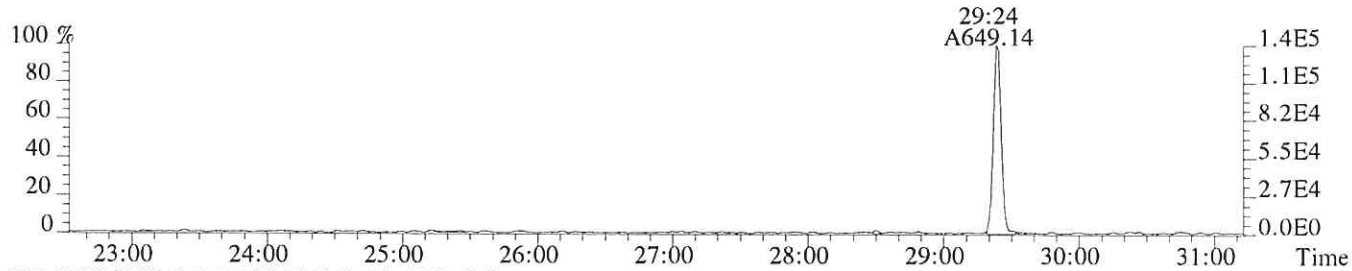
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4660.0,1.00%,F,T)



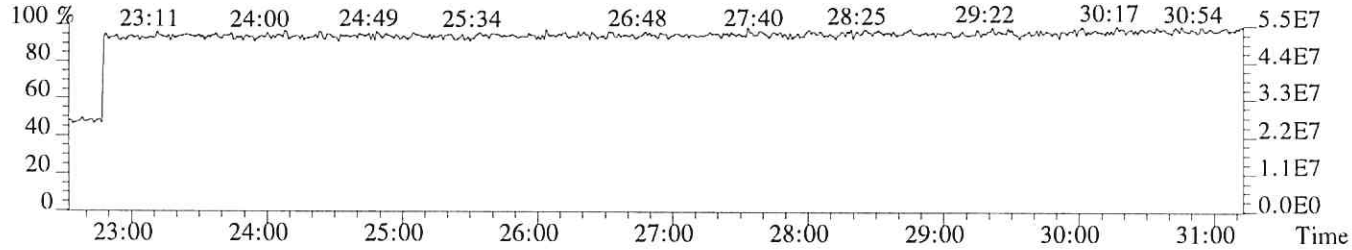
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2064.0,1.00%,F,T)



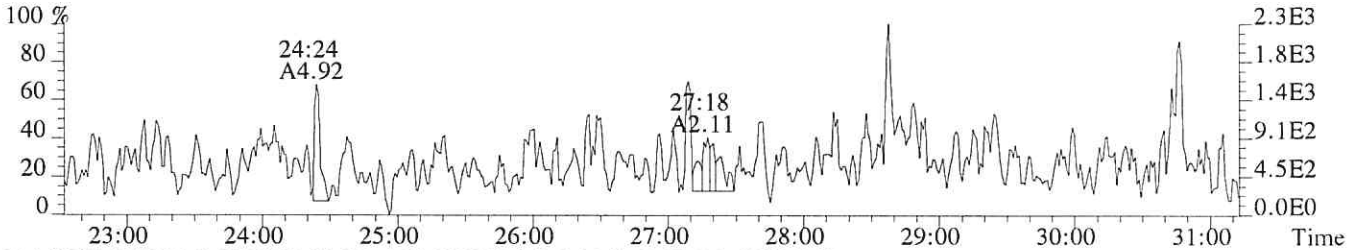
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



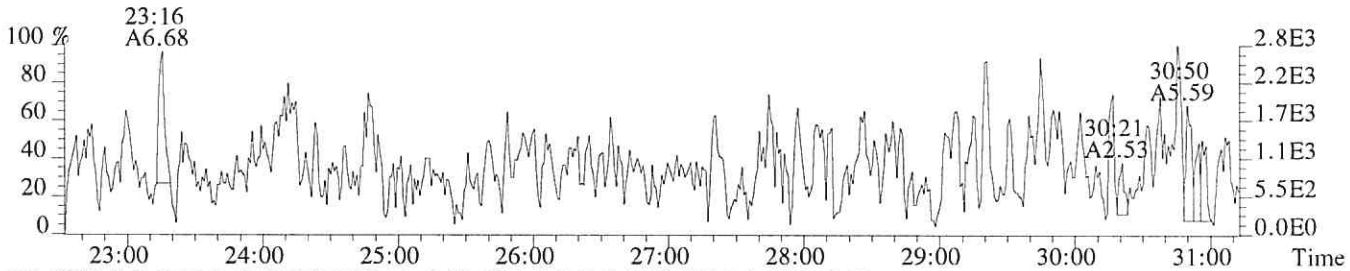
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



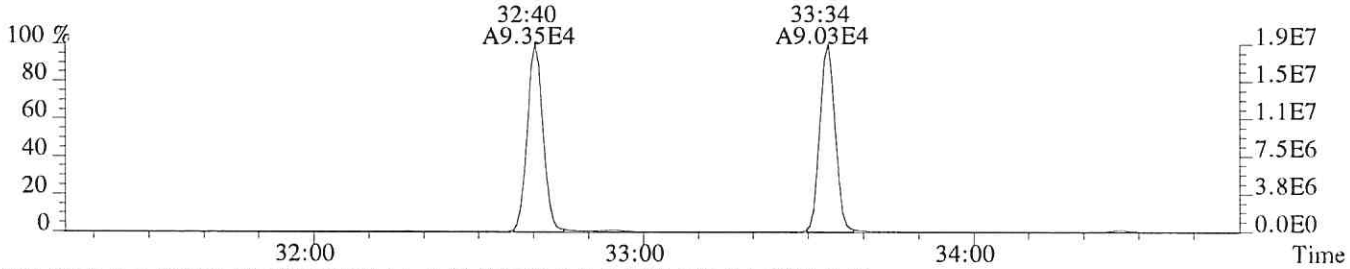
File:P407615 #1-616 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



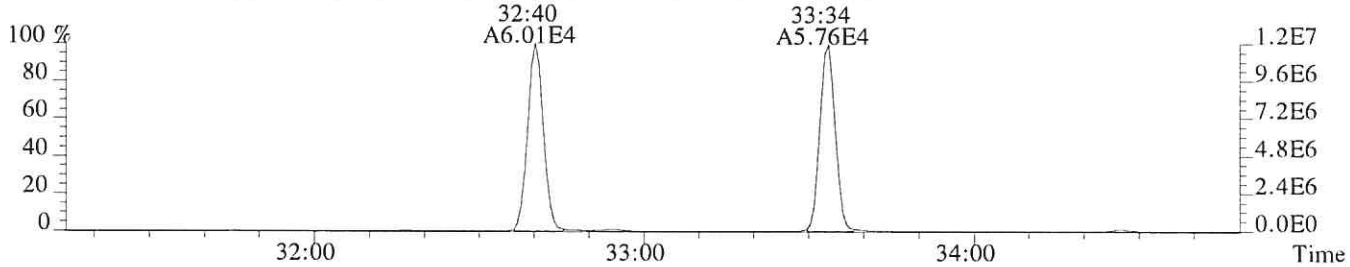
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



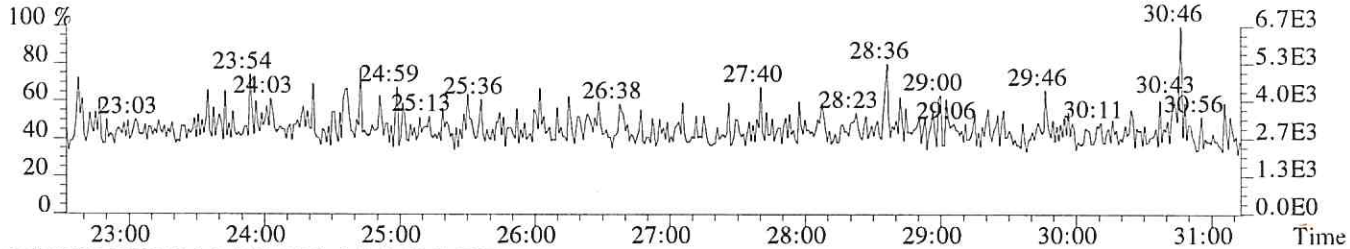
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



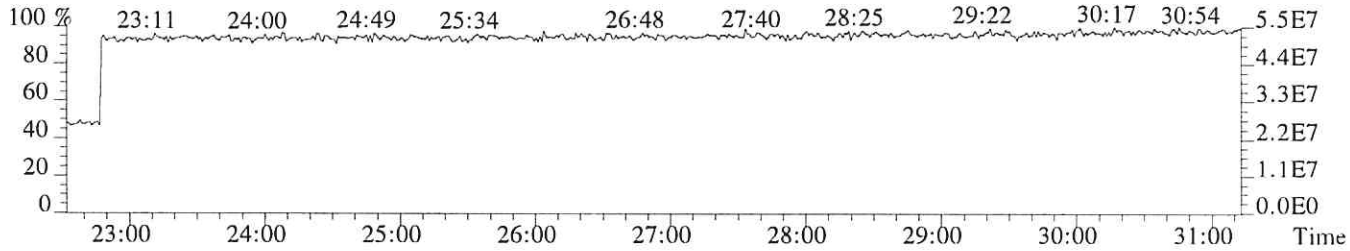
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



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

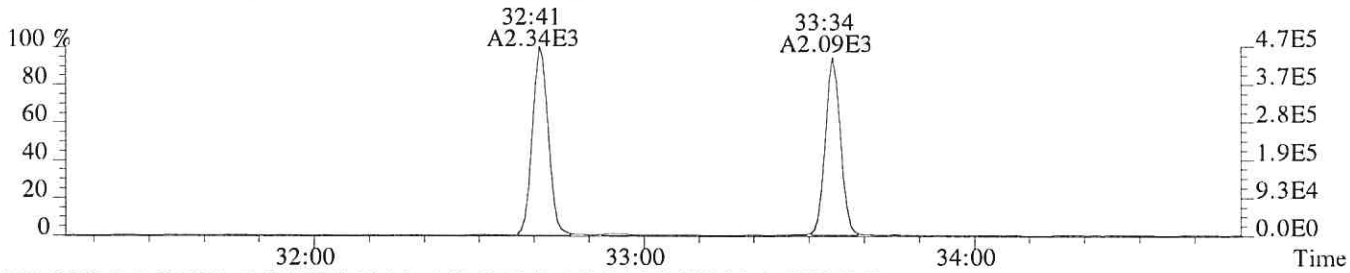


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

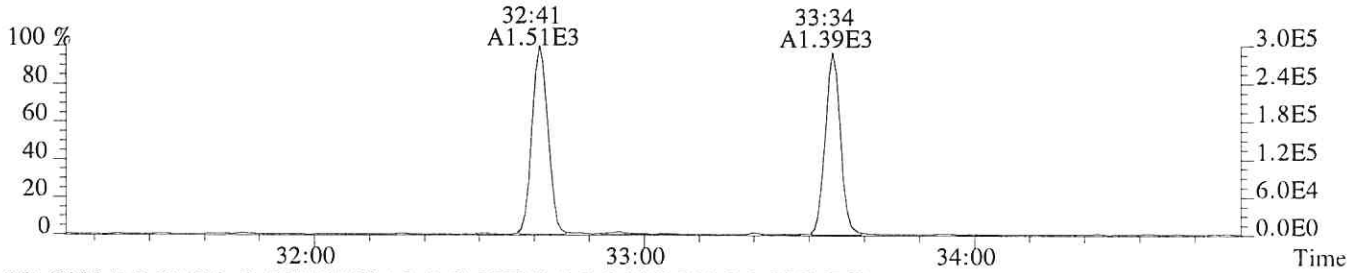


File:P407615 #1-321 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

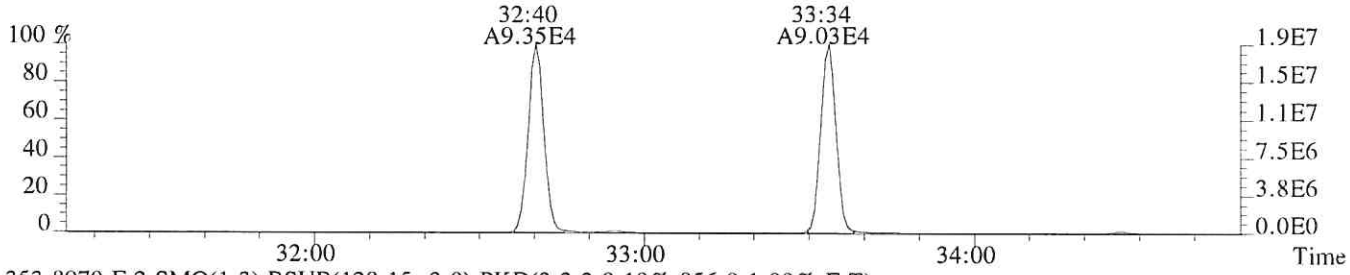
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



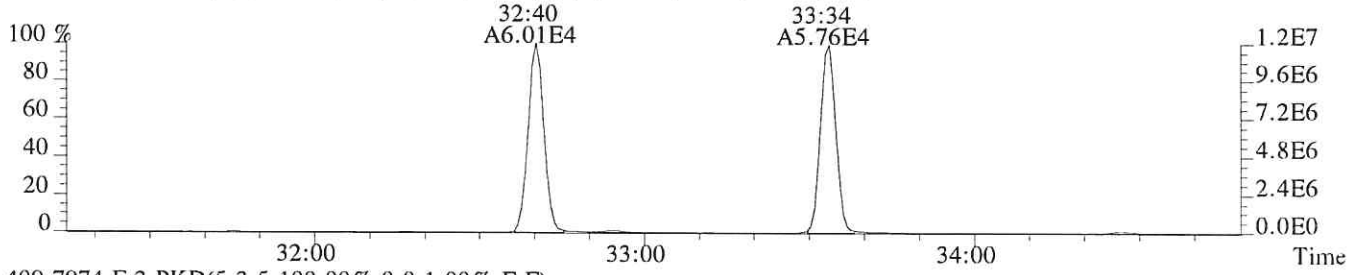
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



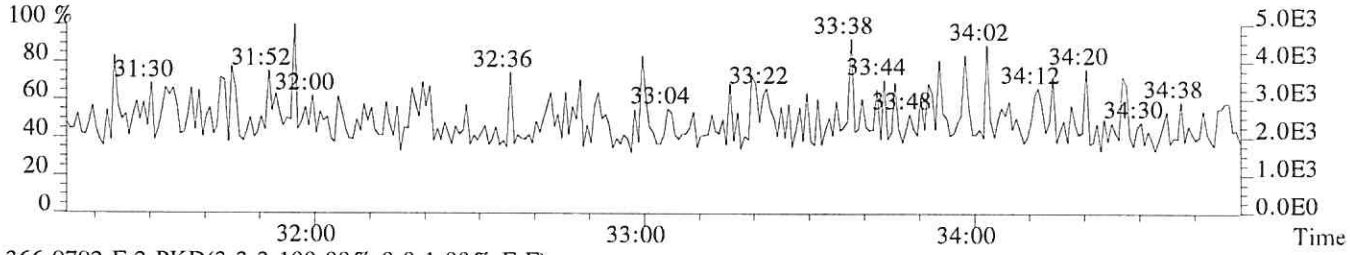
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



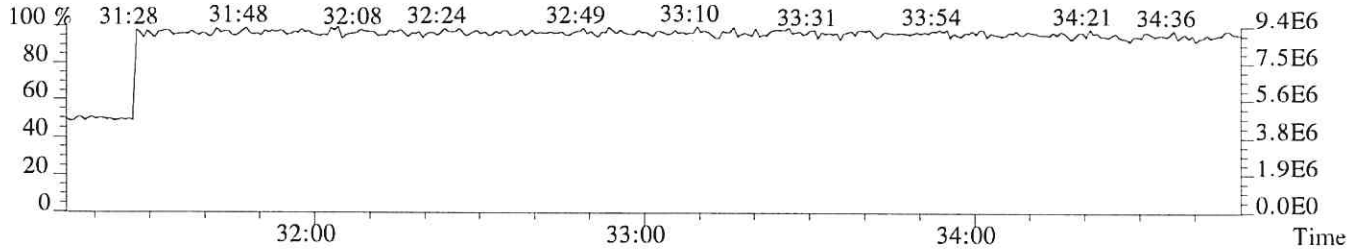
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



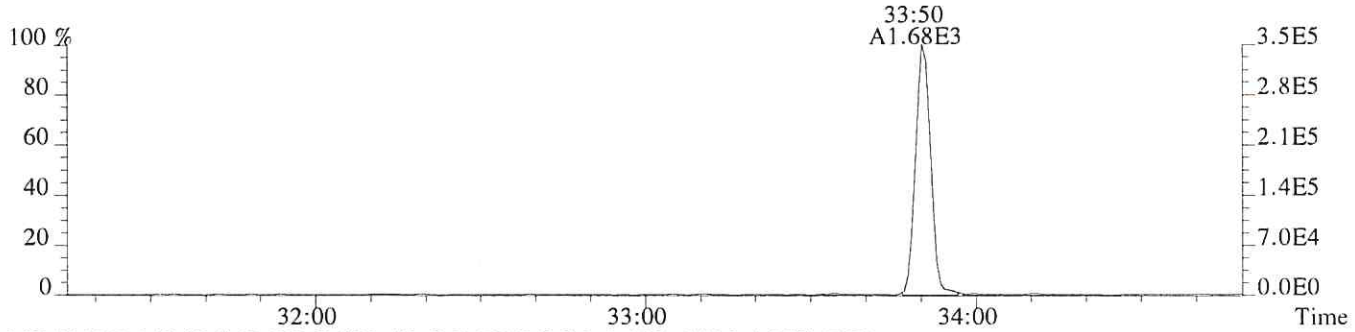
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



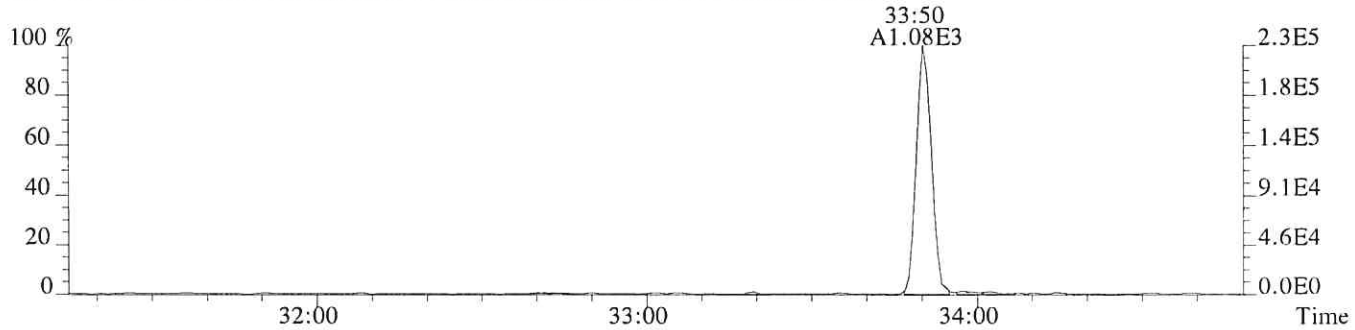
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



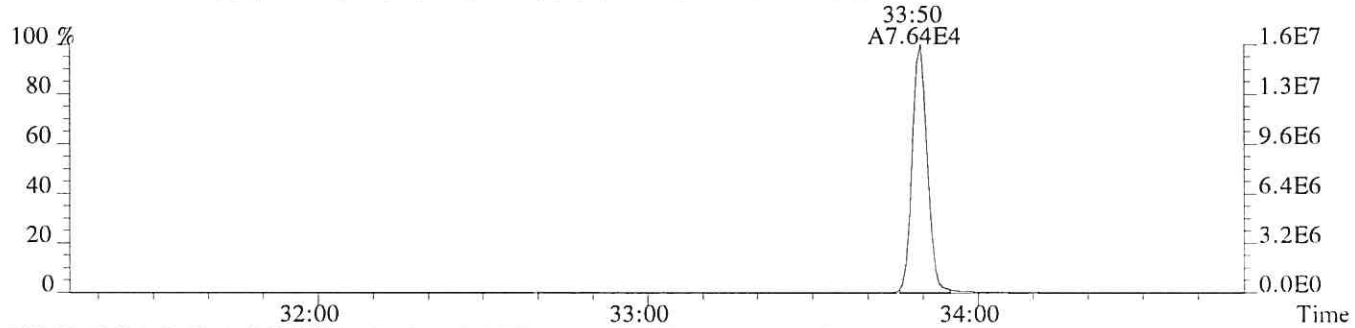
File:P407615 #1-321 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



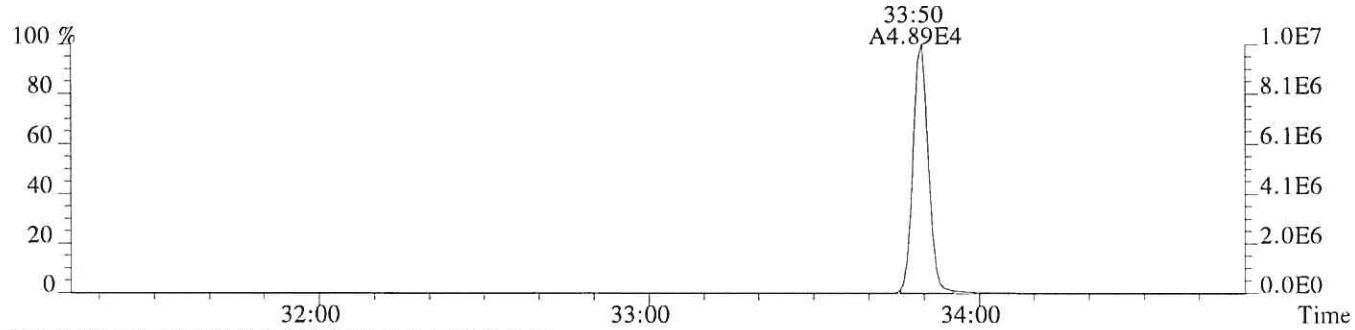
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



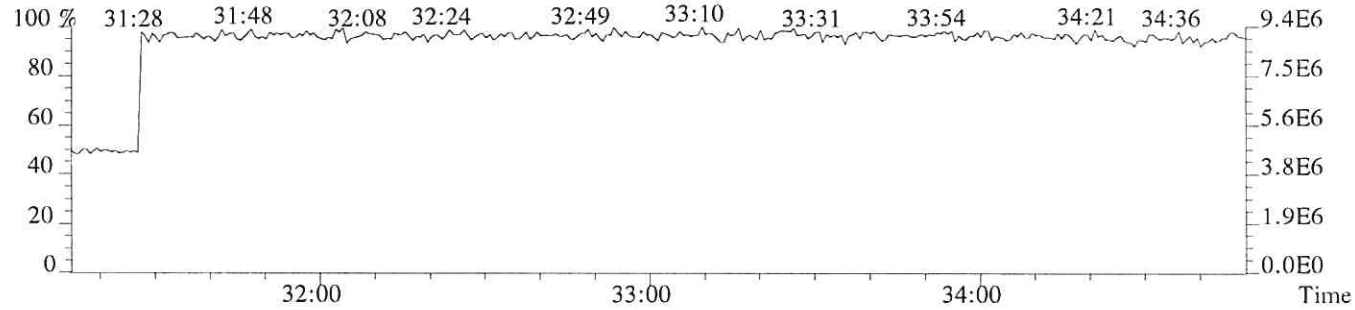
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1748.0,1.00%,F,T)

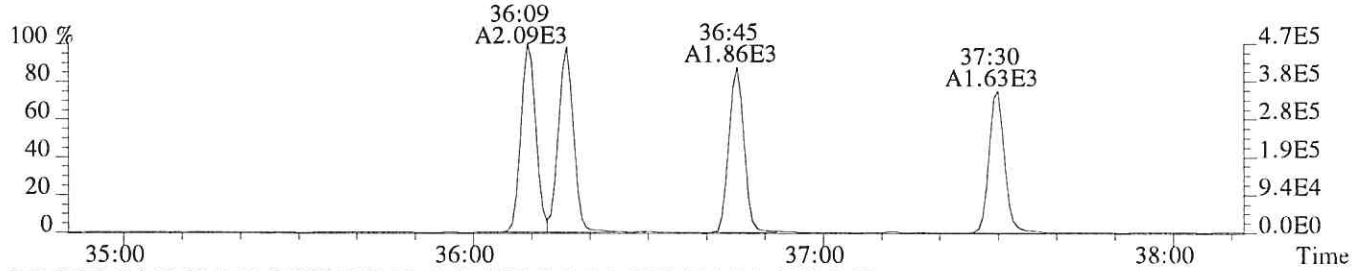


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

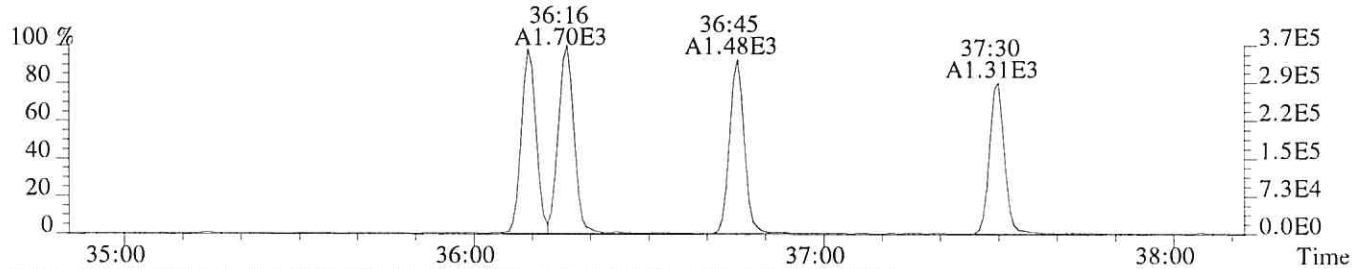


File:P407615 #1-303 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

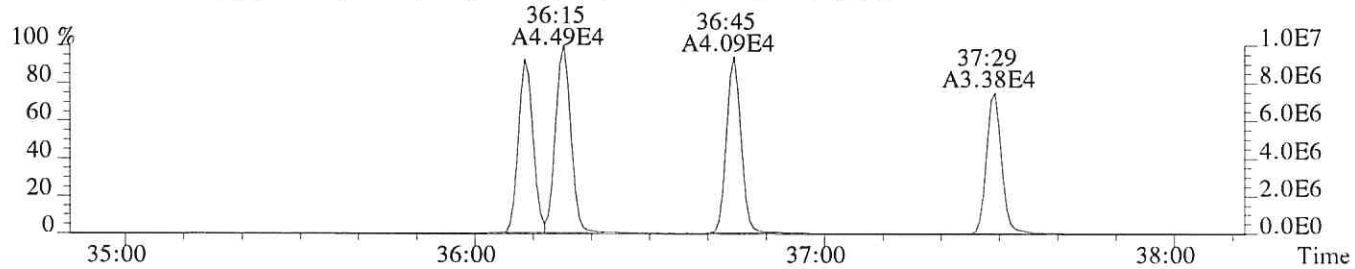
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)



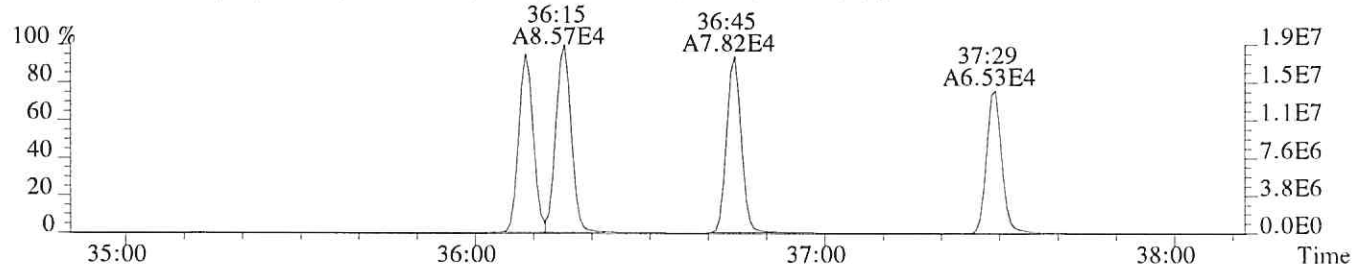
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



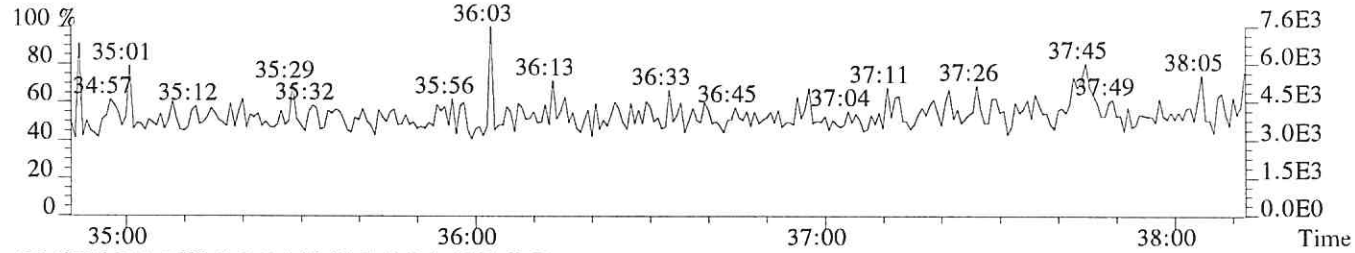
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.40%,F,T)



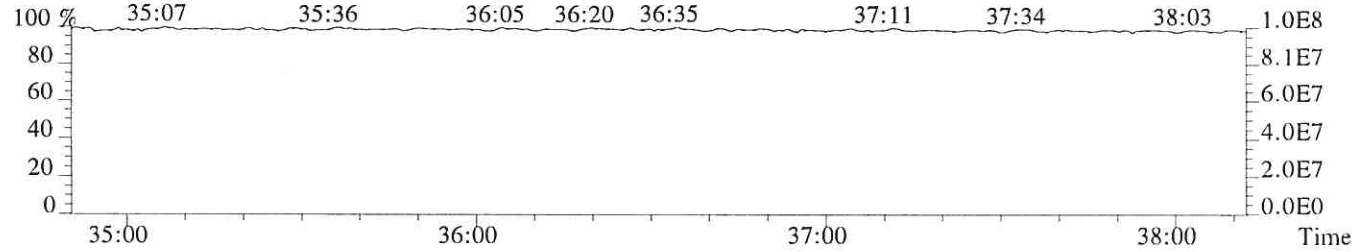
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.40%,F,T)



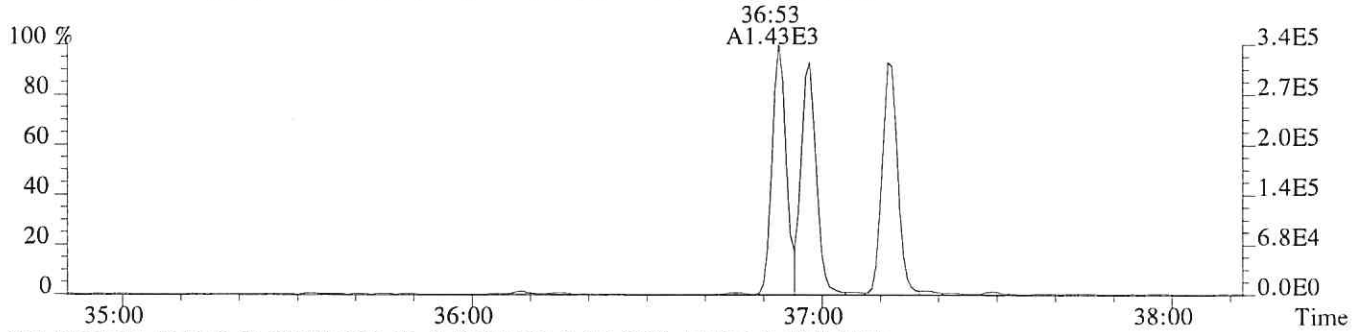
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



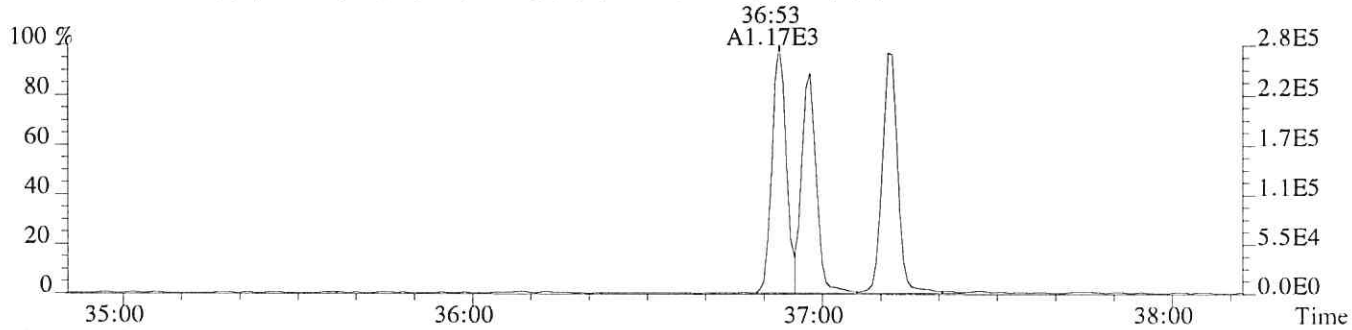
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



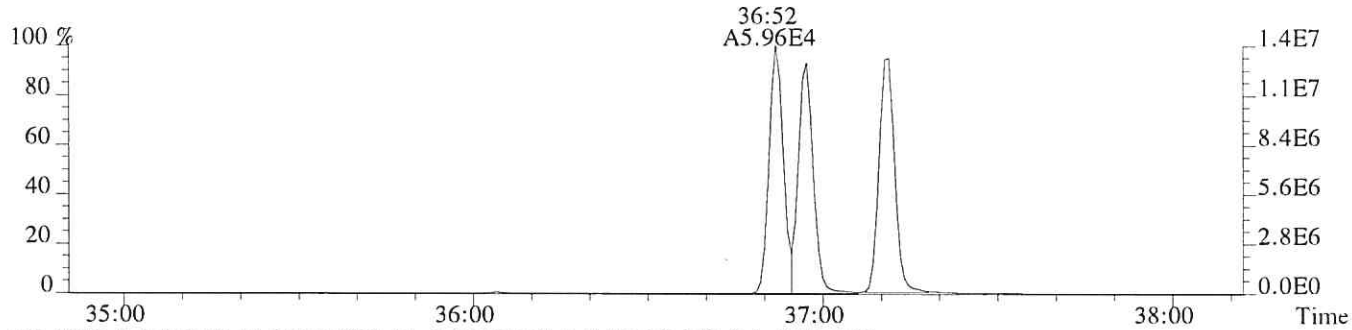
File:P407615 #1-303 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



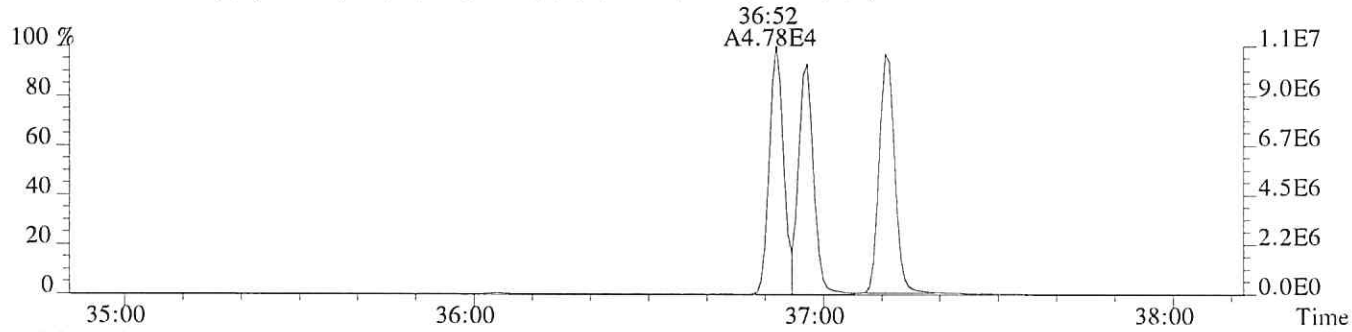
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



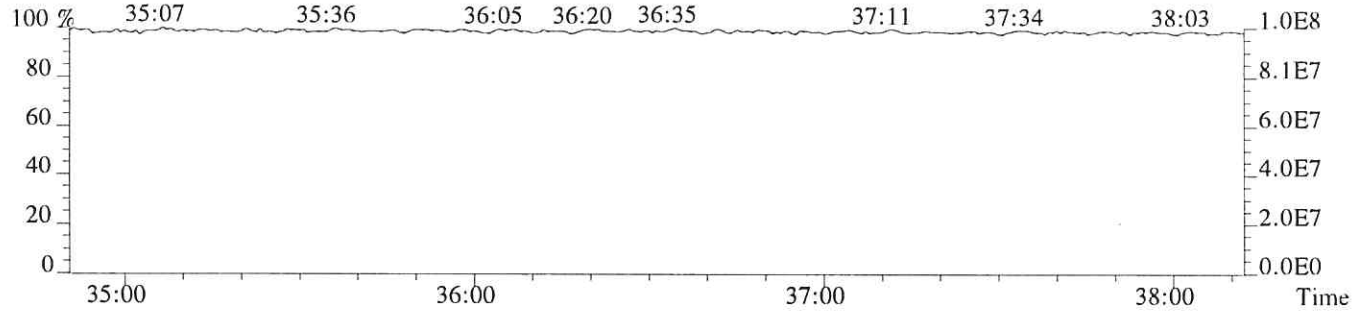
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



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

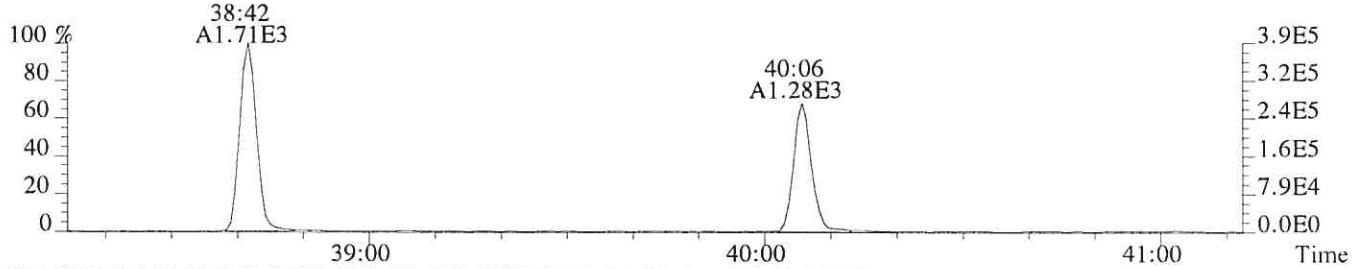


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

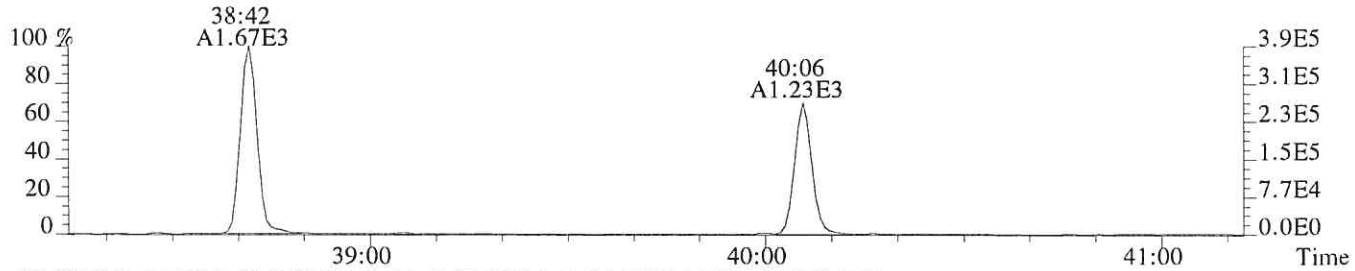


File:P407615 #1-268 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

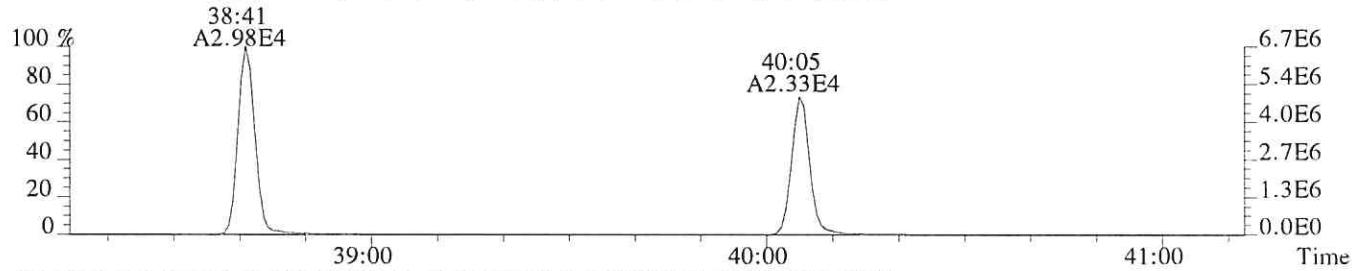
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.50%,F,T)



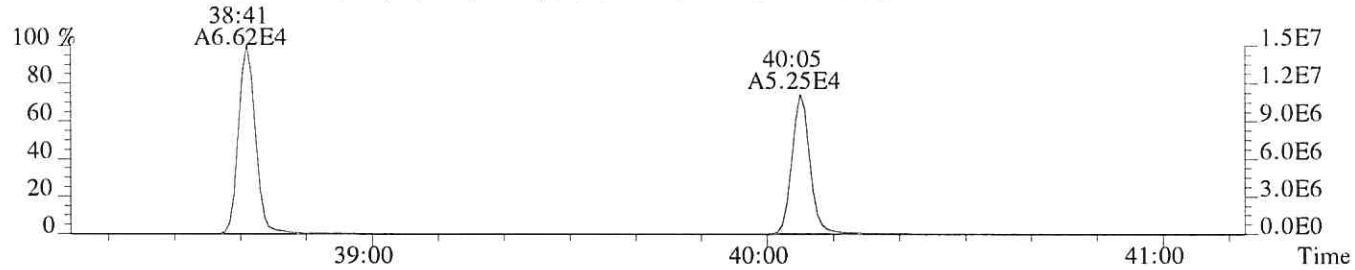
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.50%,F,T)



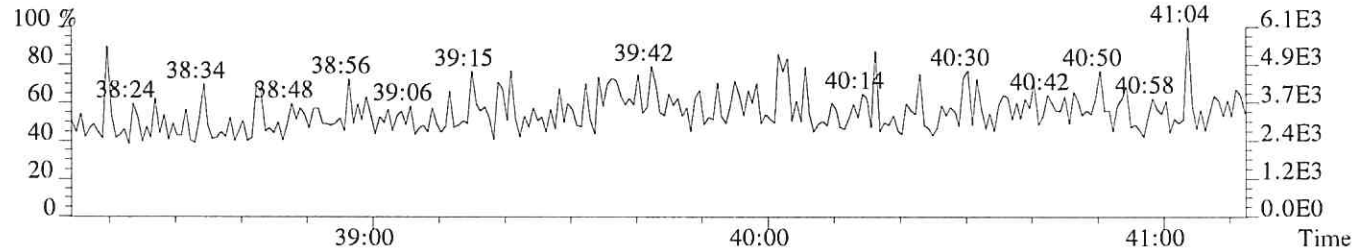
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2516.0,0.50%,F,T)



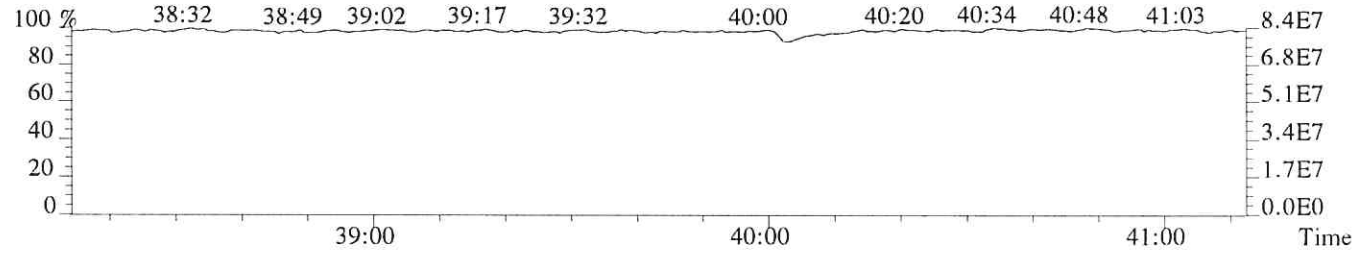
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3148.0,0.50%,F,T)



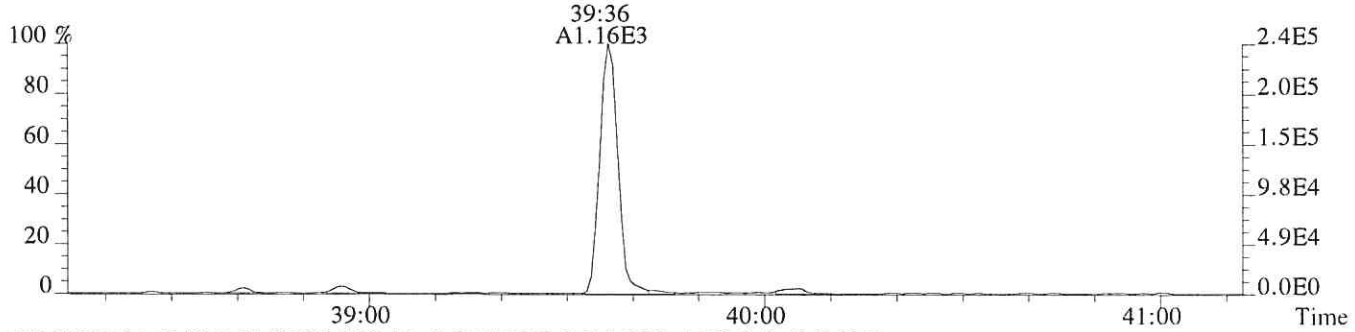
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



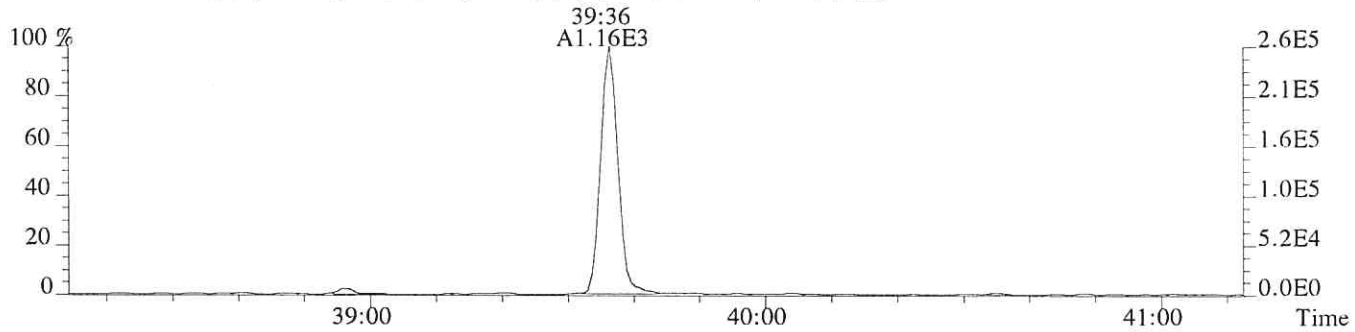
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



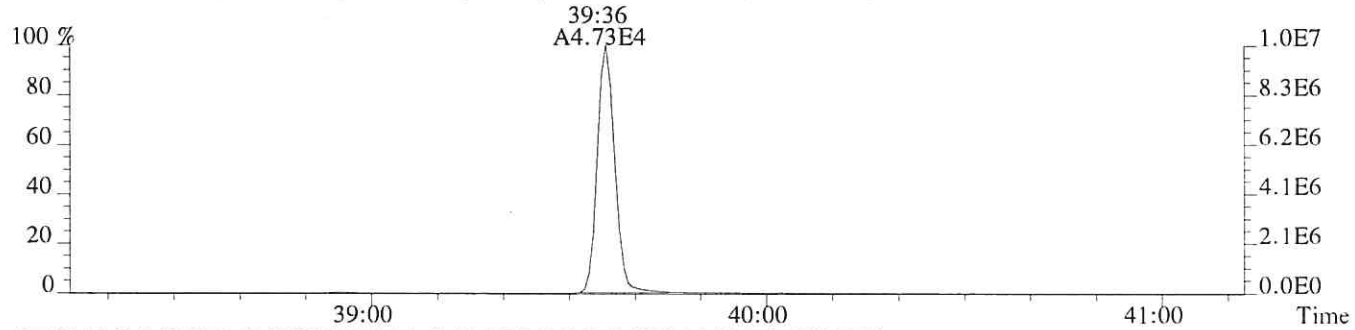
File:P407615 #1-268 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



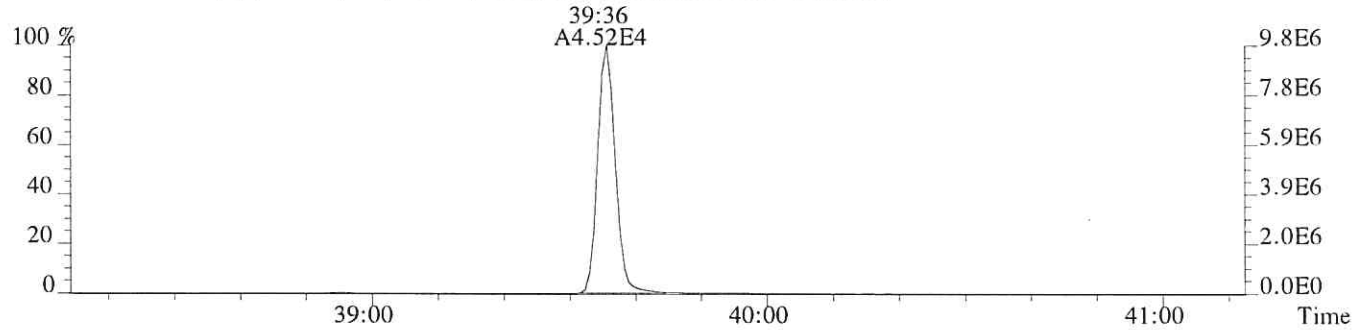
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



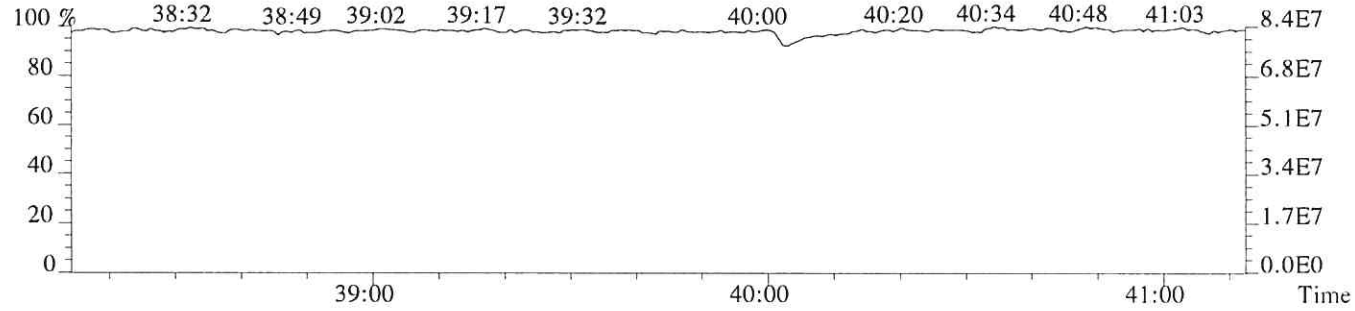
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)

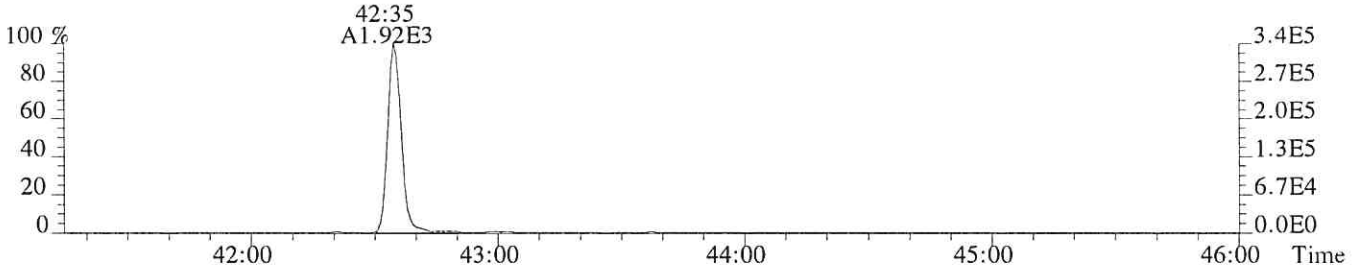


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

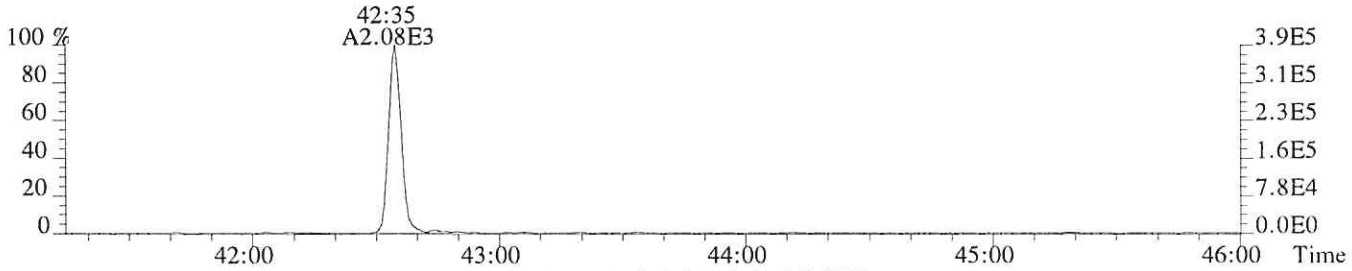


File:P407615 #1-429 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

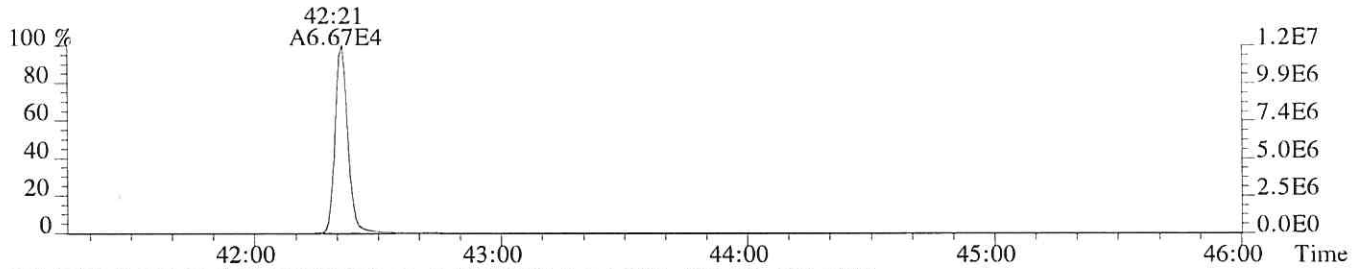
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1028.0,0.40%,F,T)



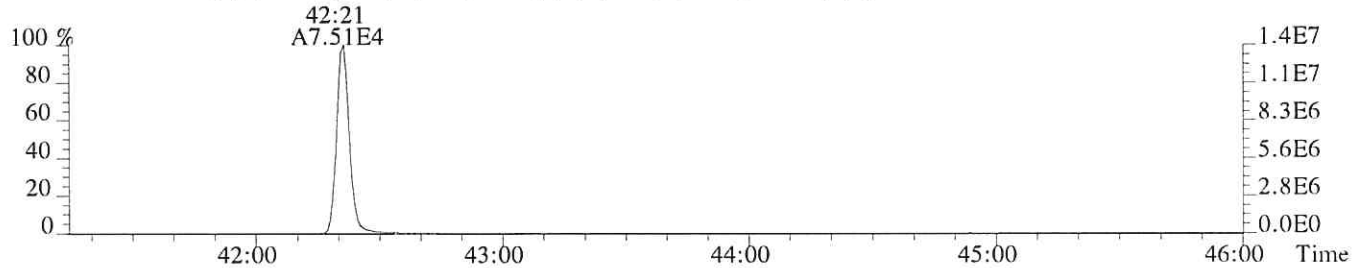
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1200.0,0.40%,F,T)



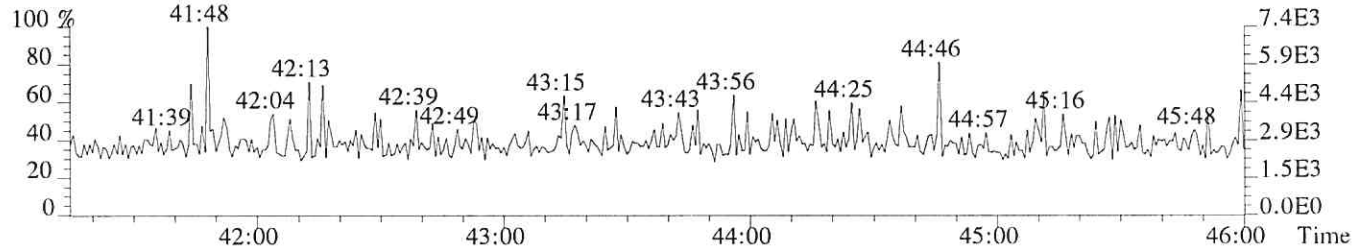
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,804.0,0.40%,F,T)



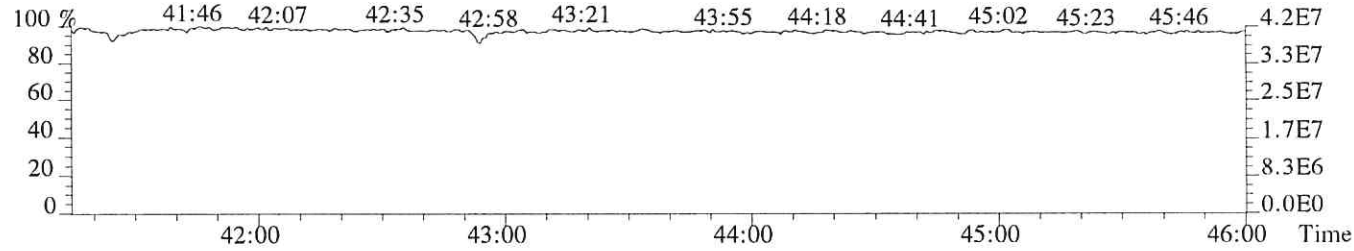
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,896.0,0.40%,F,T)



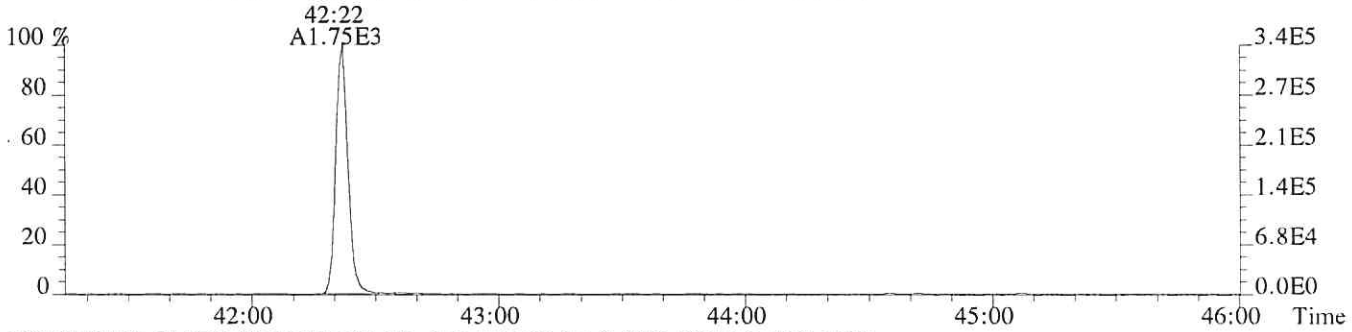
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



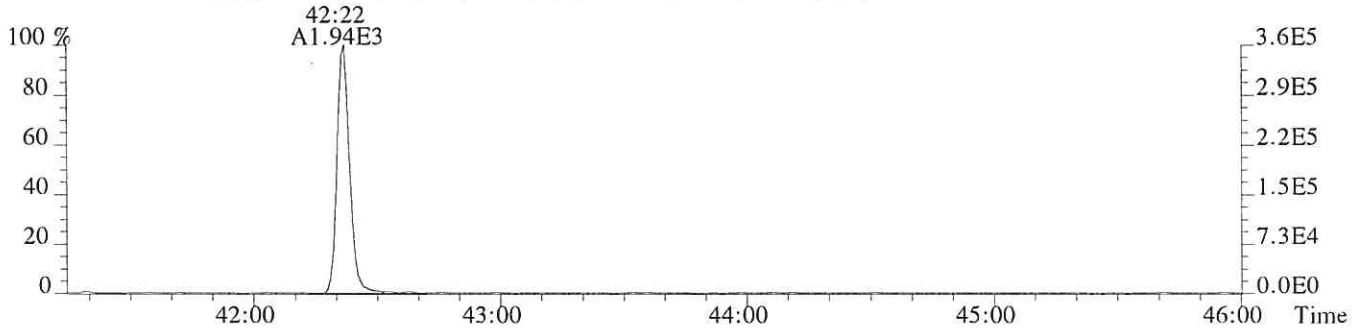
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



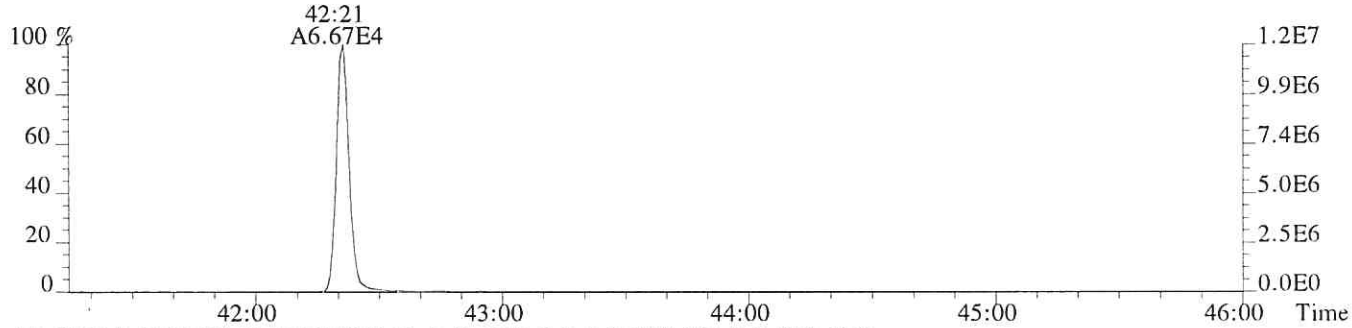
File:P407615 #1-429 Acq: 1-SEP-2017 15:54:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



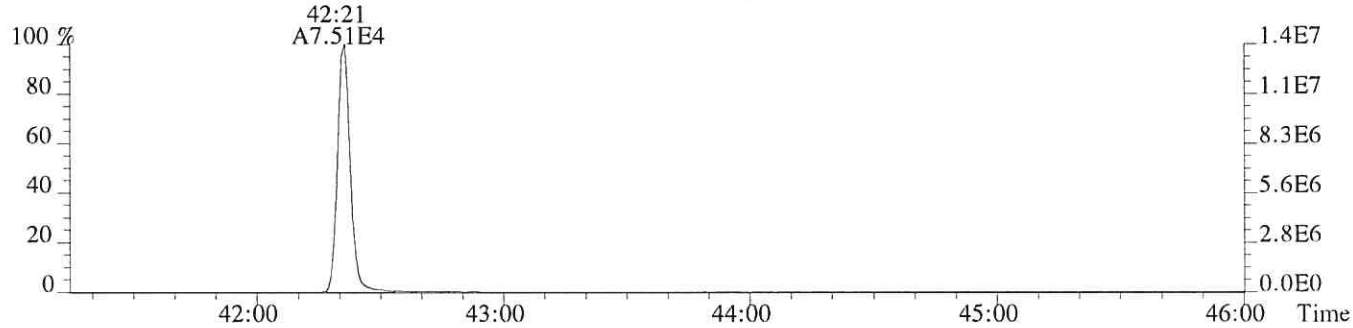
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



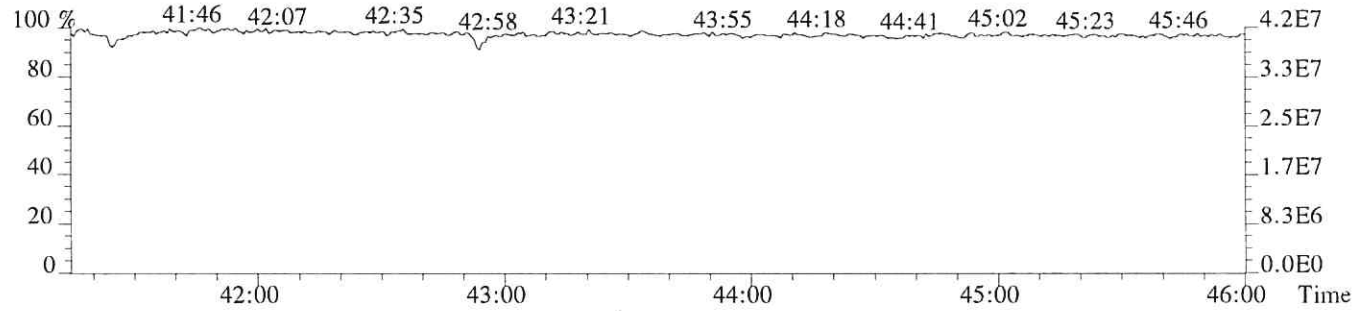
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,804.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,896.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename p407616 #1 Samp: 1 Inj: 1 Acquired: 1-SEP-17 16:55:05
Processed: 5-SEP-17 09:15:29 LAB. ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:40	1.019e+03	1.326e+03	0.77	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:42	8.176e+03	5.303e+03	1.54	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:35	7.619e+03	4.892e+03	1.56	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	36:10	7.590e+03	6.074e+03	1.25	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	36:17	7.975e+03	6.442e+03	1.24	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:46	7.188e+03	5.835e+03	1.23	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:31	6.126e+03	4.984e+03	1.23	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	6.276e+03	6.286e+03	1.00	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	4.986e+03	4.767e+03	1.05	yes	no	1.301
10	Unk	OCDF	42:35	7.374e+03	8.186e+03	0.90	yes	no	1.114
11	Unk	2,3,7,8-TCDD	29:24	8.813e+02	1.128e+03	0.78	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:51	5.750e+03	3.744e+03	1.54	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:53	5.367e+03	4.409e+03	1.22	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:59	5.522e+03	4.368e+03	1.26	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	37:12	5.568e+03	4.476e+03	1.24	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:37	4.363e+03	4.110e+03	1.06	yes	no	0.975
17	Unk	OCDD	42:23	6.909e+03	7.601e+03	0.91	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:39	5.833e+04	7.510e+04	0.78	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:41	8.263e+04	5.298e+04	1.56	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:34	8.110e+04	5.201e+04	1.56	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	36:09	3.774e+04	7.358e+04	0.51	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	36:16	4.239e+04	8.156e+04	0.52	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:45	3.937e+04	7.502e+04	0.52	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:30	3.252e+04	6.258e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:42	2.827e+04	6.367e+04	0.44	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	2.332e+04	5.214e+04	0.45	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	29:24	4.829e+04	6.080e+04	0.79	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:50	6.829e+04	4.438e+04	1.54	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:53	5.639e+04	4.487e+04	1.26	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:58	5.675e+04	4.545e+04	1.25	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	4.518e+04	4.286e+04	1.05	yes	no	0.854
32	IS	13C-OCDD	42:22	6.400e+04	7.211e+04	0.89	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:50	5.092e+04	6.396e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:12	5.799e+04	4.684e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	2.293e+03				no	0.992

ALS ENVIRONMENTAL
10450 Stancliff Road
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename p407616 Samp: 1 Inj: 1 Acquired: 1-SEP-17 16:55:05
Processed: 5-SEP-17 09:15:291 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.96e+05	8.12e+02	2.4e+02	2.63e+05	1.62e+03	1.6e+02
2	1,2,3,7,8-PeCDF	1.61e+06	8.36e+02	1.9e+03	1.06e+06	1.00e+03	1.1e+03
3	2,3,4,7,8-PeCDF	1.60e+06	8.36e+02	1.9e+03	1.02e+06	1.00e+03	1.0e+03
4	1,2,3,4,7,8-HxCDF	1.71e+06	9.16e+02	1.9e+03	1.38e+06	7.44e+02	1.8e+03
5	1,2,3,6,7,8-HxCDF	1.72e+06	9.16e+02	1.9e+03	1.40e+06	7.44e+02	1.9e+03
6	2,3,4,6,7,8-HxCDF	1.63e+06	9.16e+02	1.8e+03	1.31e+06	7.44e+02	1.8e+03
7	1,2,3,7,8,9-HxCDF	1.36e+06	9.16e+02	1.5e+03	1.07e+06	7.44e+02	1.4e+03
8	1,2,3,4,6,7,8-HpCDF	1.41e+06	1.18e+03	1.2e+03	1.42e+06	1.56e+03	9.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.05e+06	1.18e+03	8.8e+02	1.00e+06	1.56e+03	6.4e+02
10	OCDF	1.32e+06	6.08e+02	2.2e+03	1.47e+06	9.28e+02	1.6e+03
11	2,3,7,8-TCDD	1.79e+05	2.05e+03	8.7e+01	2.31e+05	8.08e+02	2.9e+02
12	1,2,3,7,8-PeCDD	1.20e+06	1.16e+03	1.0e+03	7.66e+05	6.20e+02	1.2e+03
13	1,2,3,4,7,8-HxCDD	1.24e+06	1.03e+03	1.2e+03	1.01e+06	9.76e+02	1.0e+03
14	1,2,3,6,7,8-HxCDD	1.24e+06	1.03e+03	1.2e+03	9.53e+05	9.76e+02	9.8e+02
15	1,2,3,7,8,9-HxCDD	1.16e+06	1.03e+03	1.1e+03	9.60e+05	9.76e+02	9.8e+02
16	1,2,3,4,6,7,8-HpCDD	9.35e+05	7.56e+02	1.2e+03	8.80e+05	6.68e+02	1.3e+03
17	OCDD	1.29e+06	5.68e+02	2.3e+03	1.39e+06	4.88e+02	2.8e+03
18	13C-2,3,7,8-TCDF	1.15e+07	1.18e+04	9.7e+02	1.47e+07	3.89e+03	3.8e+03
19	13C-1,2,3,7,8-PeCDF	1.63e+07	5.48e+02	3.0e+04	1.04e+07	1.01e+03	1.0e+04
20	13C-2,3,4,7,8-PeCDF	1.67e+07	5.48e+02	3.0e+04	1.06e+07	1.01e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	8.60e+06	1.16e+03	7.4e+03	1.67e+07	1.40e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	9.38e+06	1.16e+03	8.1e+03	1.80e+07	1.40e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	8.94e+06	1.16e+03	7.7e+03	1.70e+07	1.40e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	7.09e+06	1.16e+03	6.1e+03	1.35e+07	1.40e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.41e+06	2.58e+03	2.5e+03	1.44e+07	5.03e+03	2.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	2.58e+03	1.9e+03	1.08e+07	5.03e+03	2.1e+03
27	13C-2,3,7,8-TCDD	9.77e+06	4.05e+03	2.4e+03	1.22e+07	2.26e+03	5.4e+03
28	13C-1,2,3,7,8-PeCDD	1.41e+07	1.25e+03	1.1e+04	9.16e+06	1.50e+03	6.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.31e+07	1.52e+03	8.6e+03	1.04e+07	1.50e+03	6.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.25e+07	1.52e+03	8.2e+03	9.93e+06	1.50e+03	6.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.62e+06	1.38e+03	6.9e+03	9.15e+06	9.16e+02	1.0e+04
32	13C-OCDD	1.17e+07	8.80e+02	1.3e+04	1.31e+07	6.56e+02	2.0e+04
33	13C-1,2,3,4-TCDD	1.01e+07	4.05e+03	2.5e+03	1.28e+07	2.26e+03	5.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.27e+07	1.52e+03	8.4e+03	1.01e+07	1.50e+03	6.7e+03
35	37Cl-2,3,7,8-TCDD	4.74e+05	1.30e+03	3.6e+02			

ALS ENVIRONMENTAL
10450 Stancliff Road
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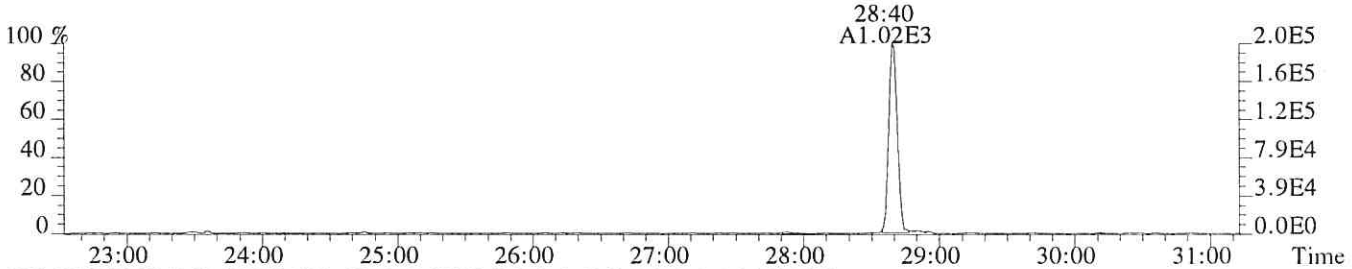
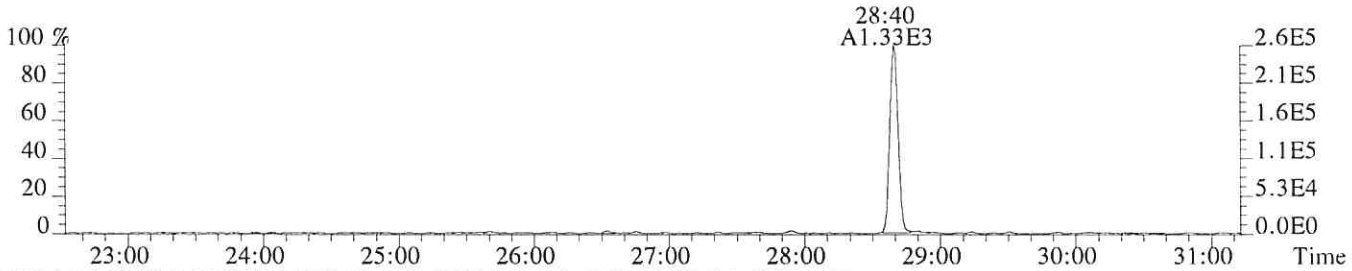
Office:(281)-530-5656. Fax:(281)530-5887

File:P407616 #1-616 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

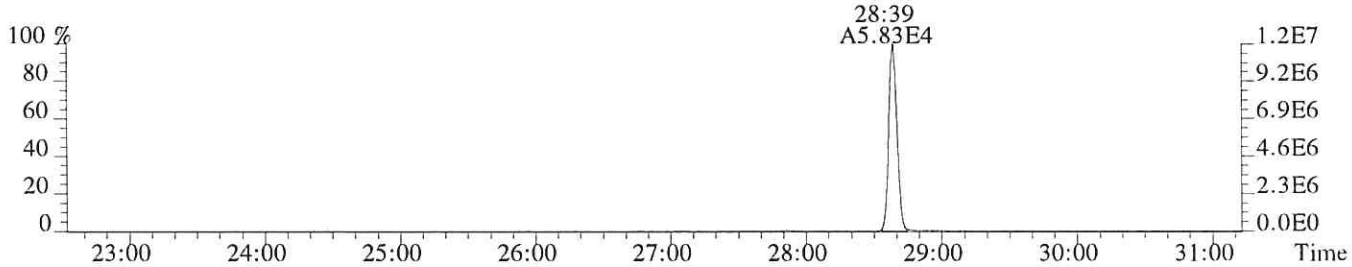
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



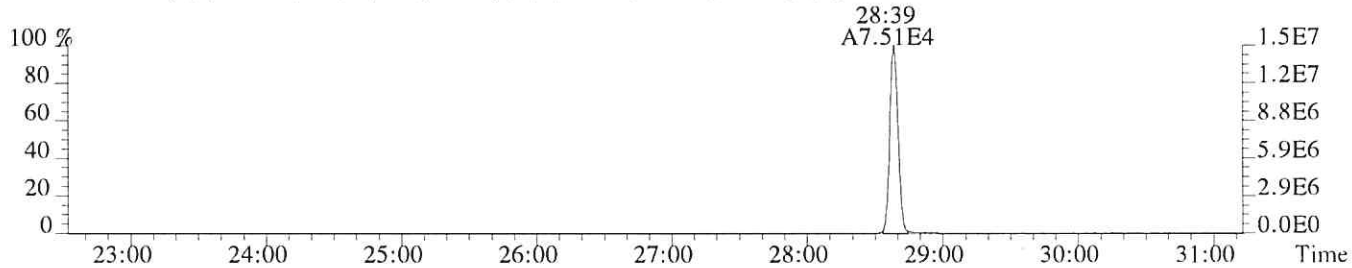
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



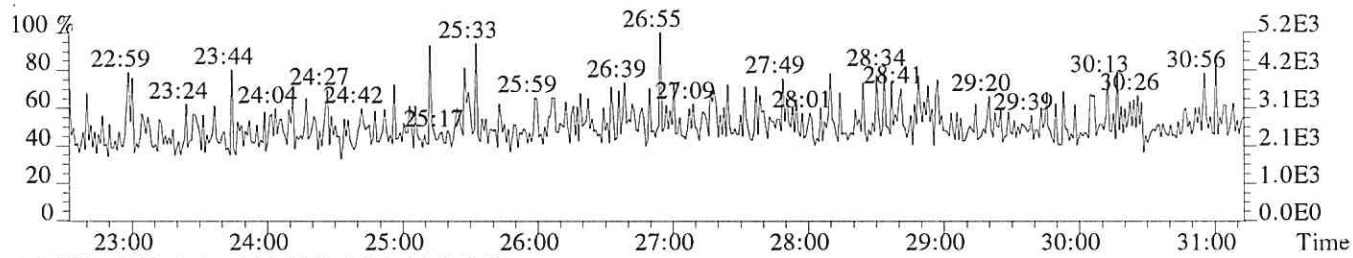
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11828.0,1.00%,F,T)



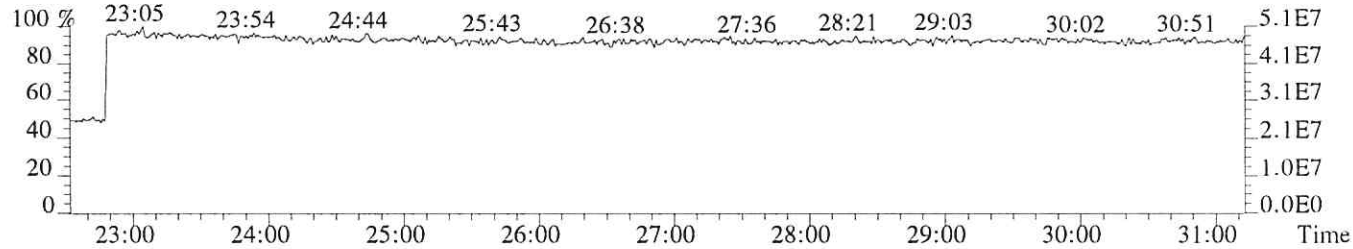
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3888.0,1.00%,F,T)



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

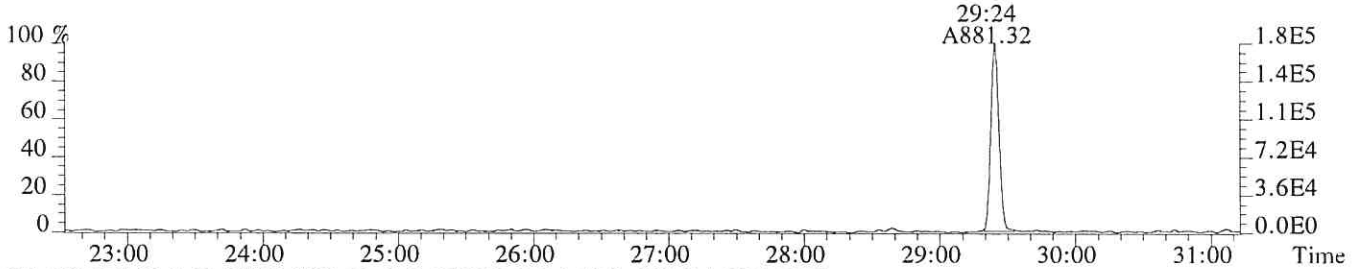


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

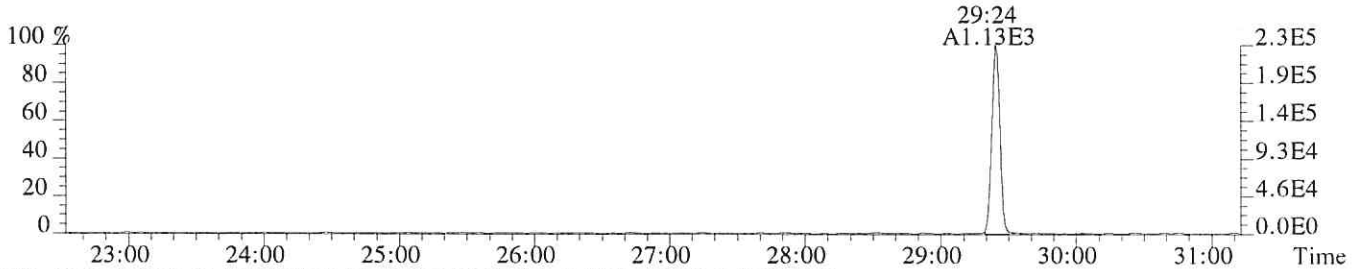


File:P407616 #1-616 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

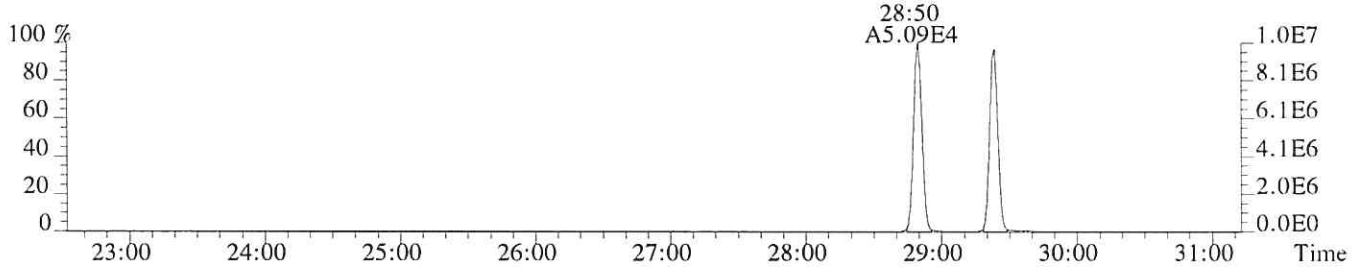
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2048.0,1.00%,F,T)



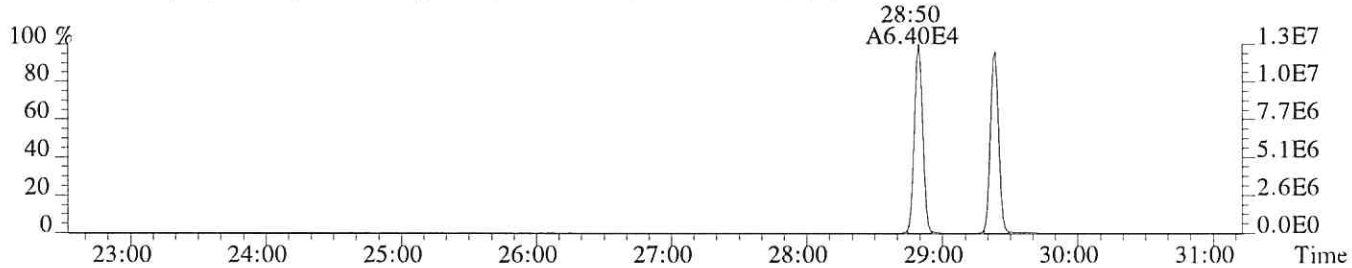
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



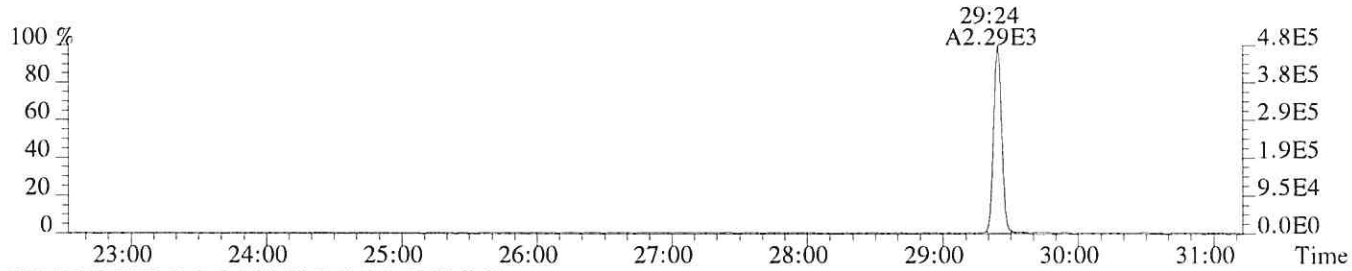
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4052.0,1.00%,F,T)



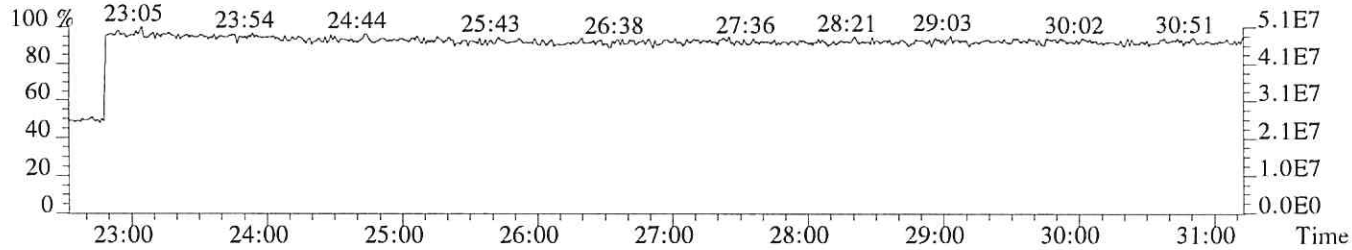
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2260.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)

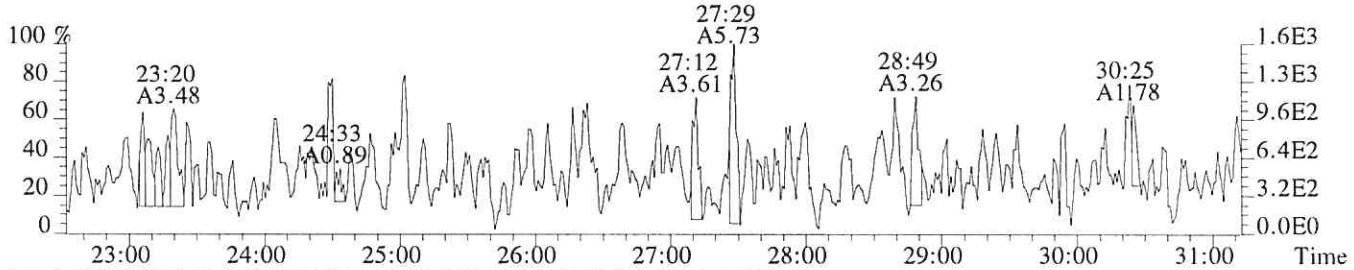


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

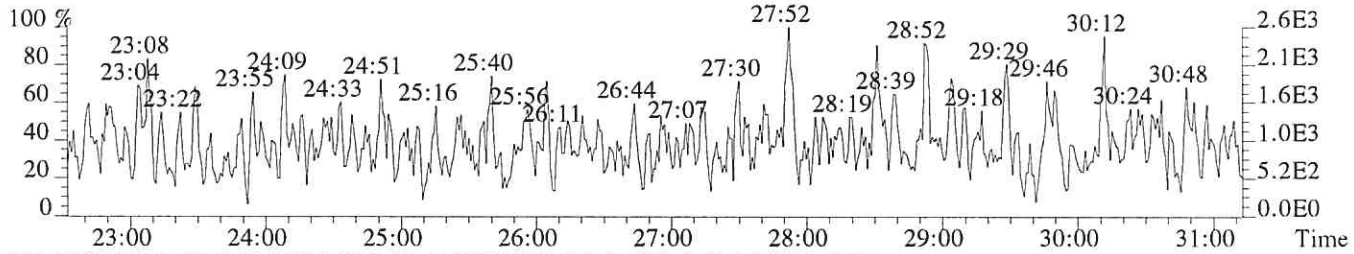


File:P407616 #1-616 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

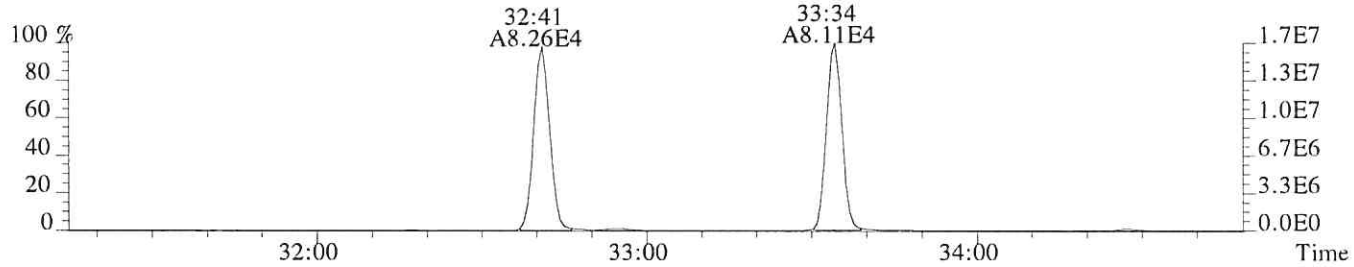
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



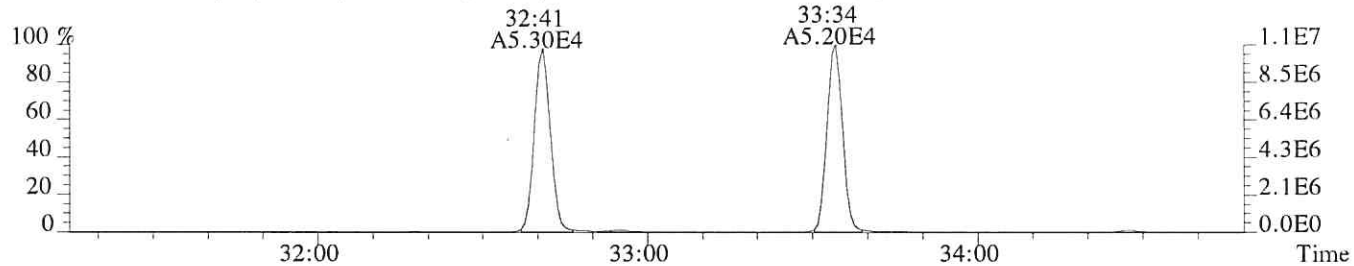
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



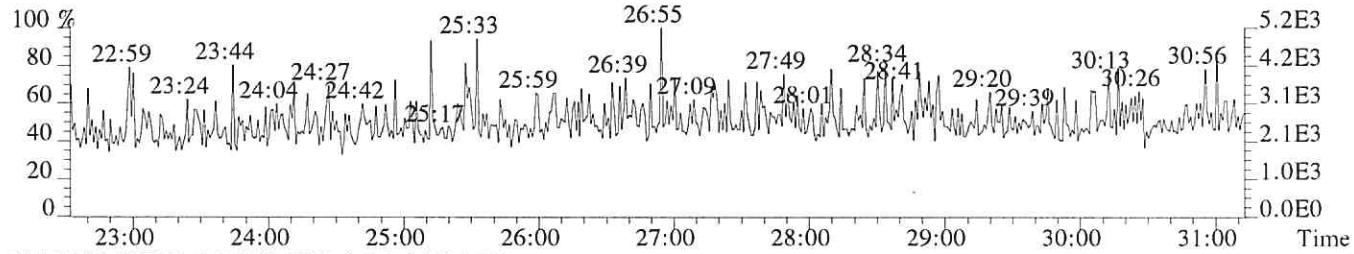
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



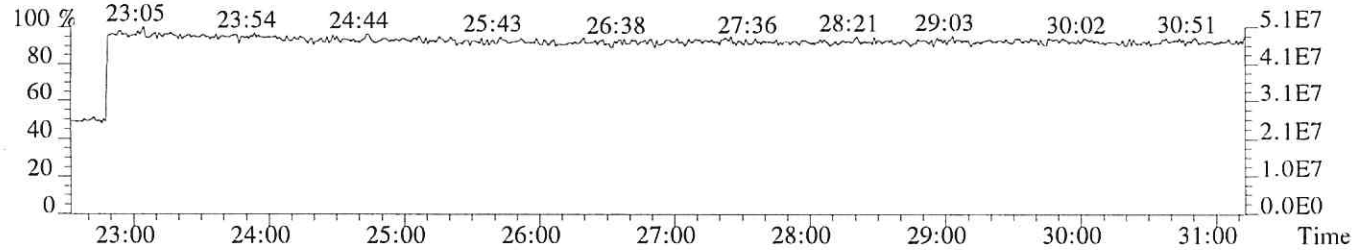
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



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

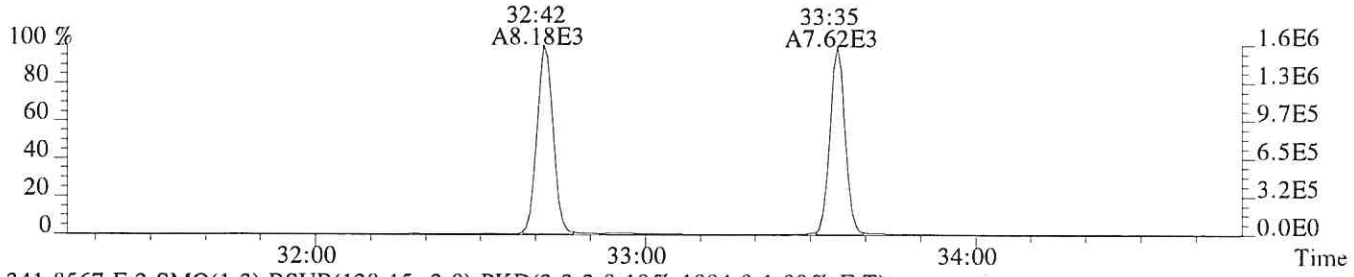


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

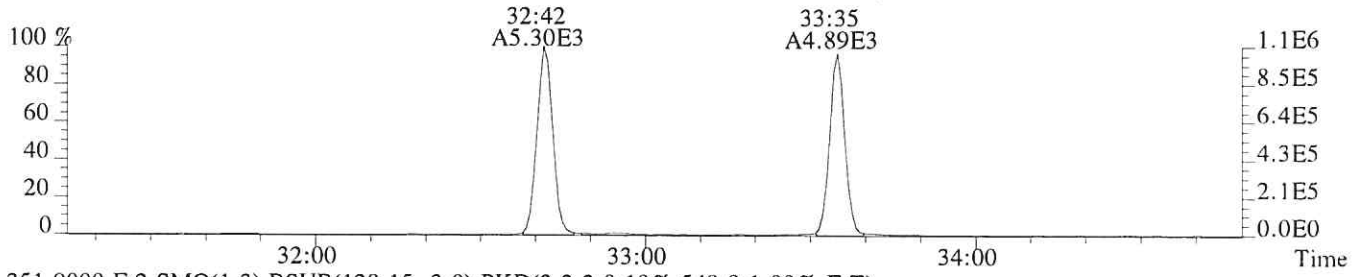


File:P407616 #1-321 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

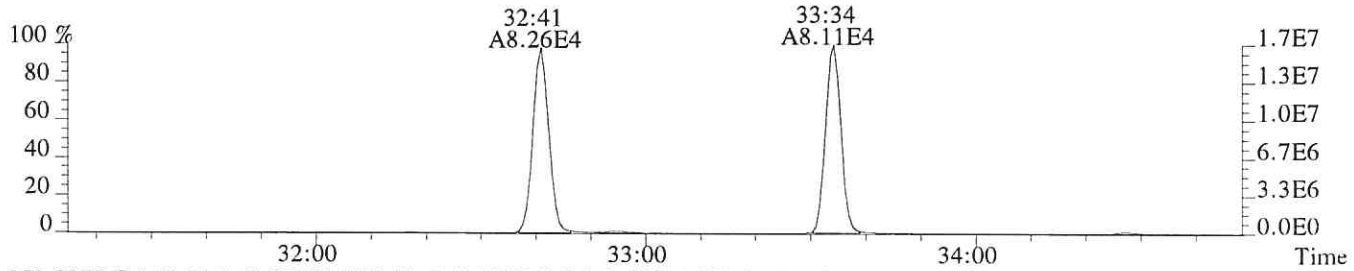
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



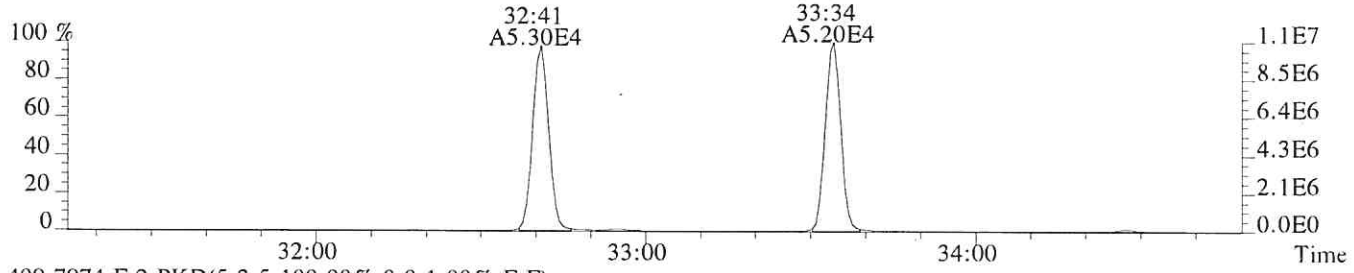
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



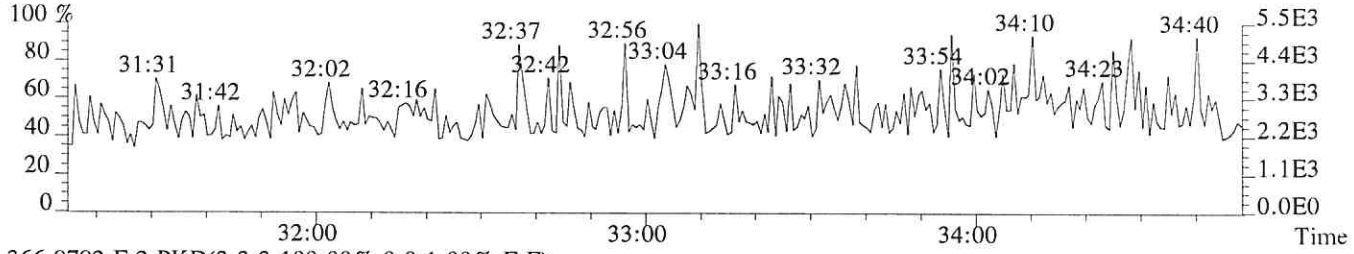
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



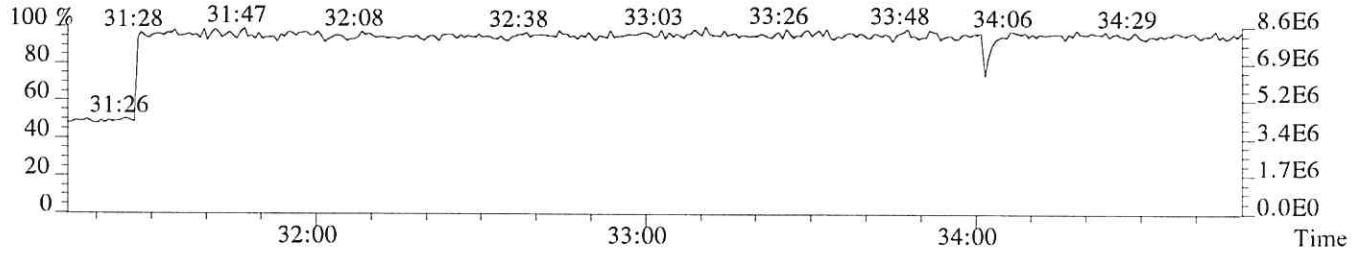
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



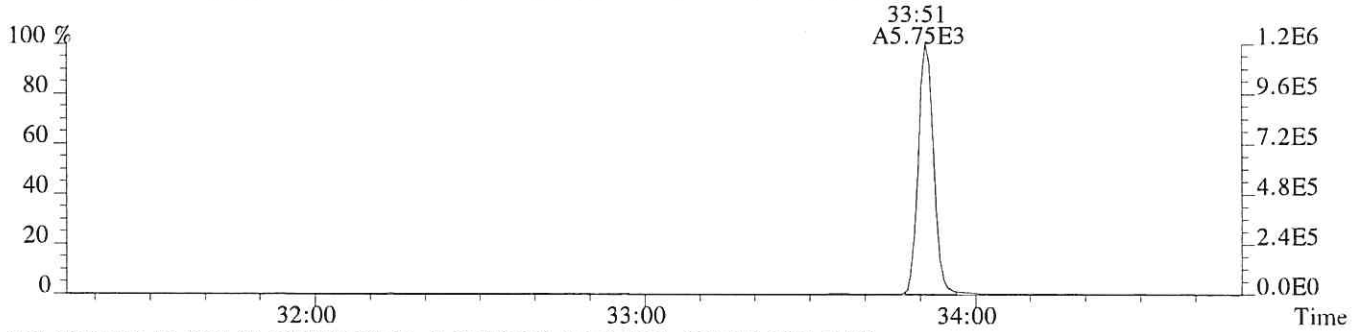
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



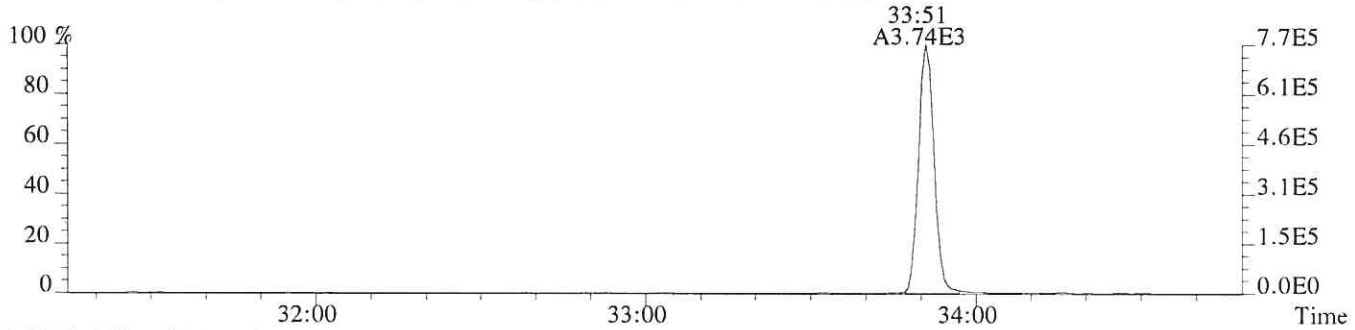
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



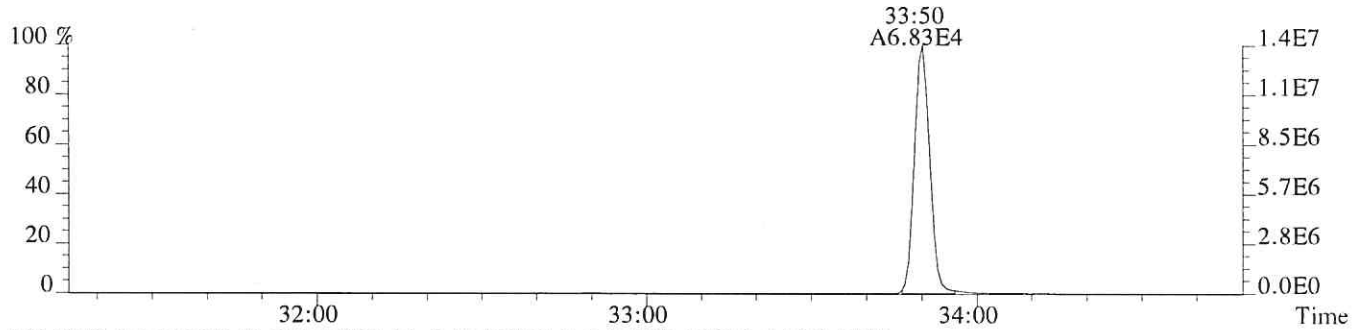
File:P407616 #1-321 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



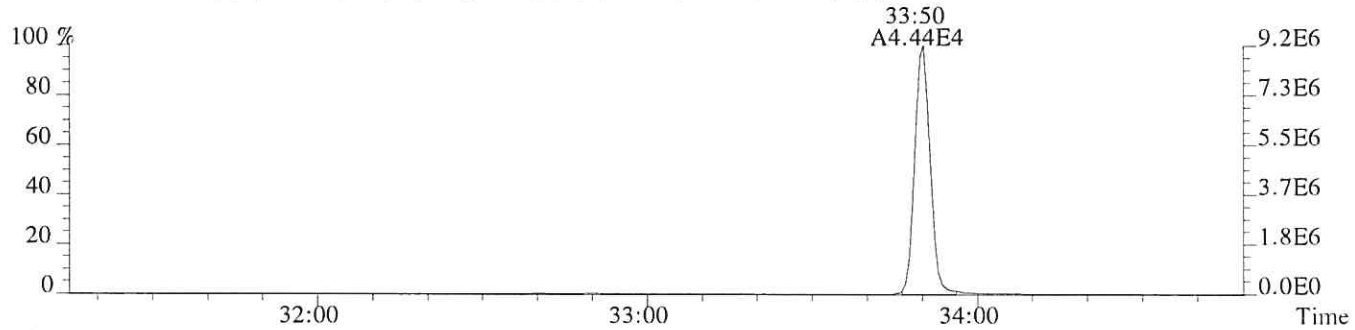
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



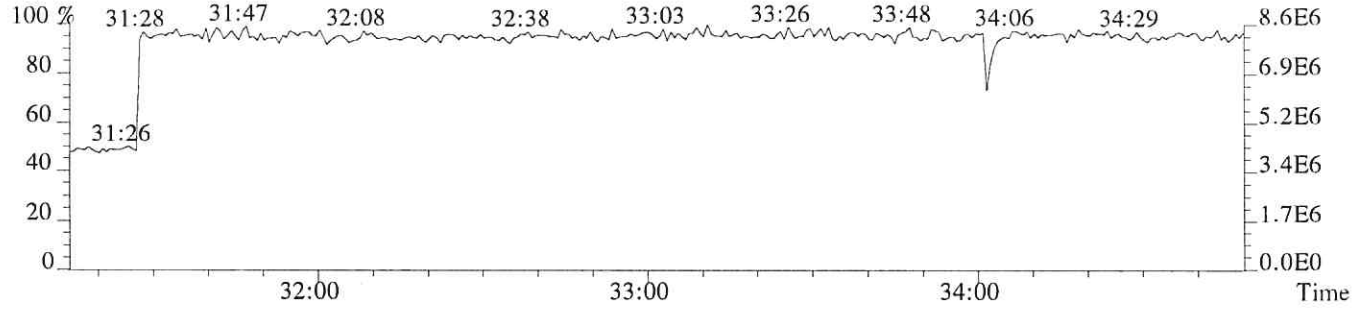
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)

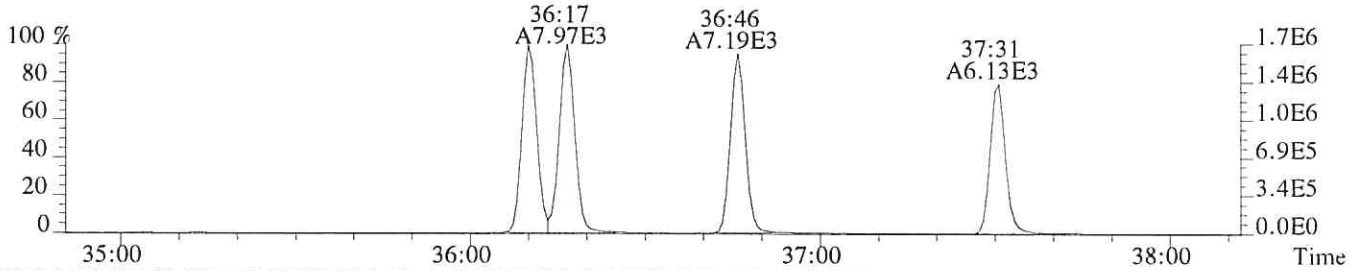


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

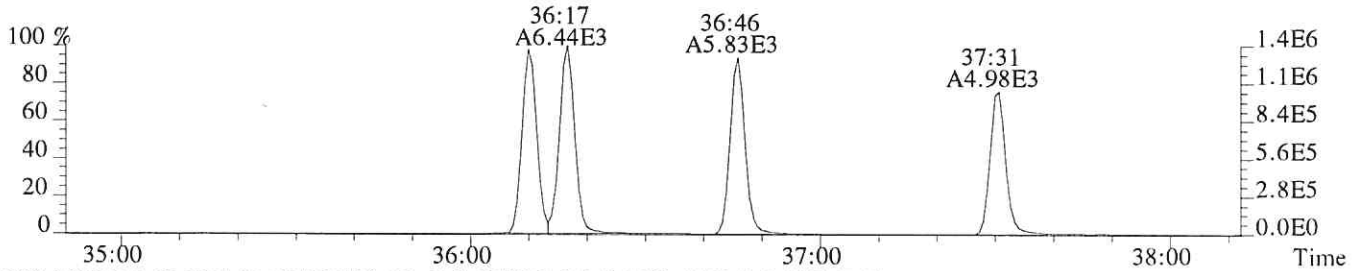


File:P407616 #1-303 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

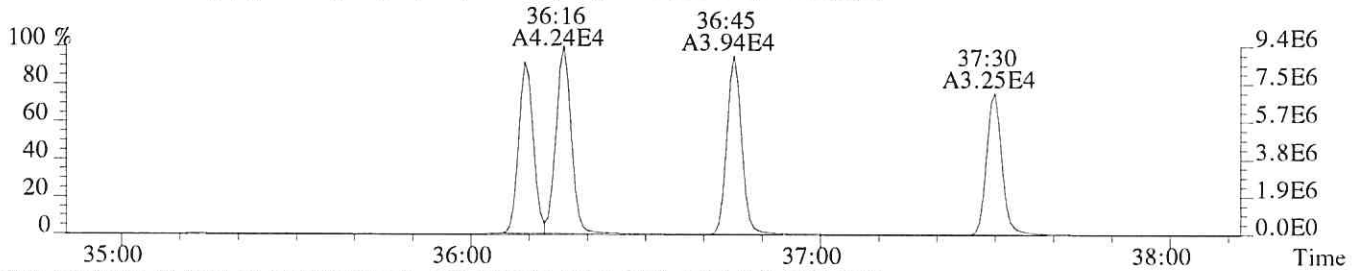
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



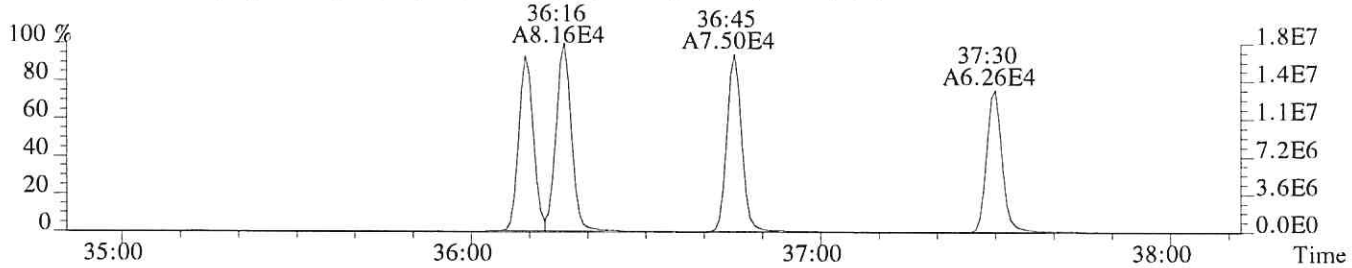
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



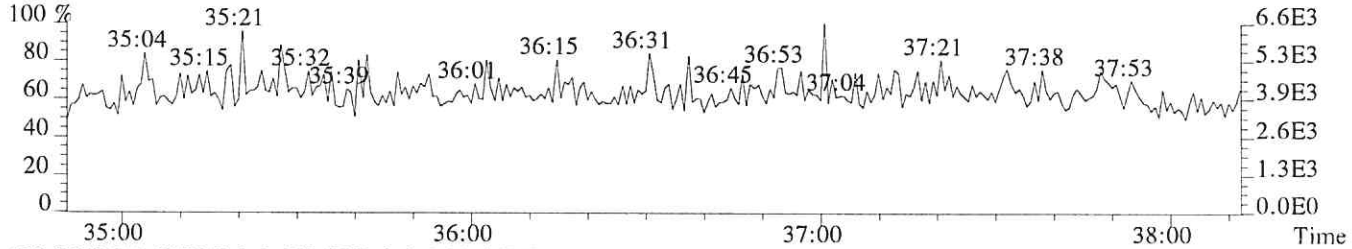
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



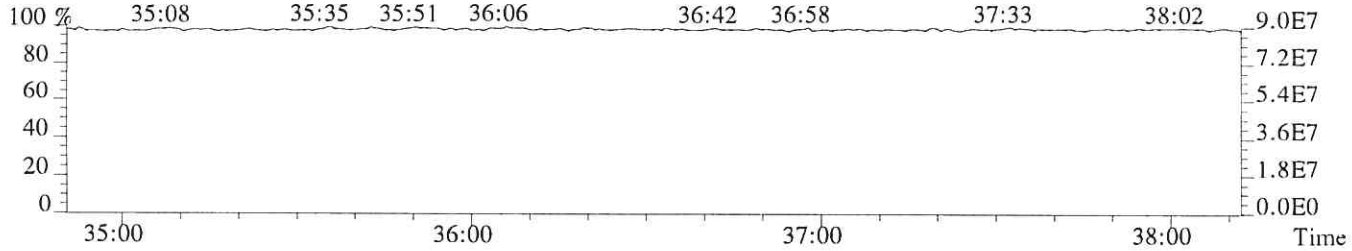
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



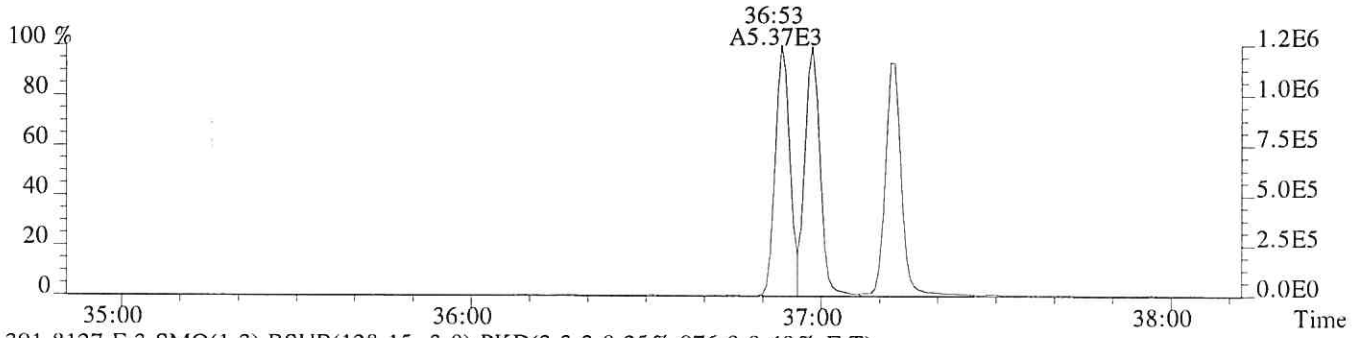
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



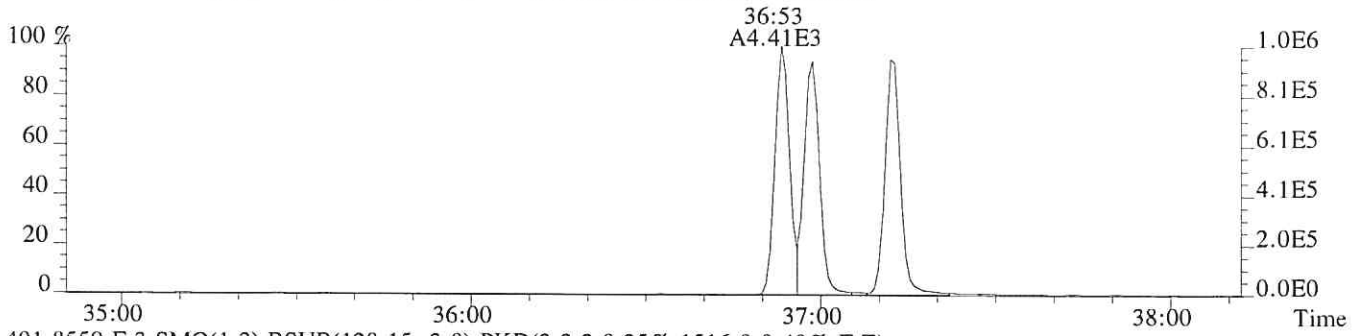
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



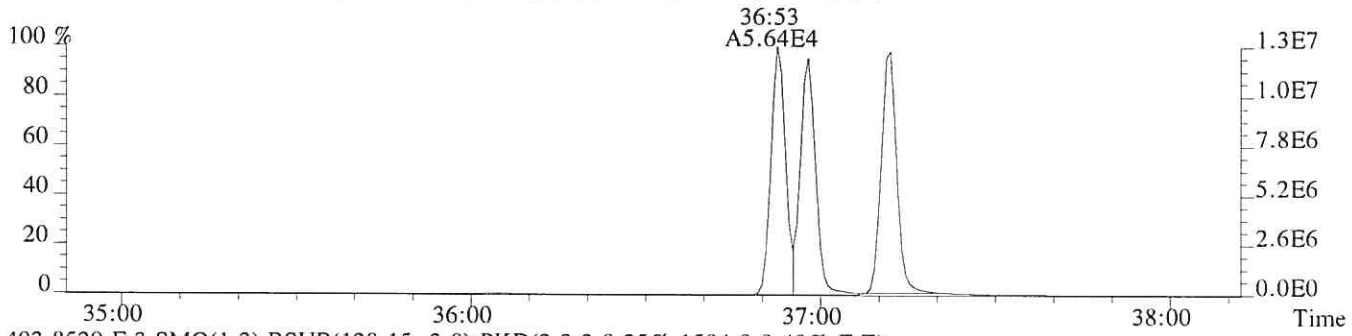
File:P407616 #1-303 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



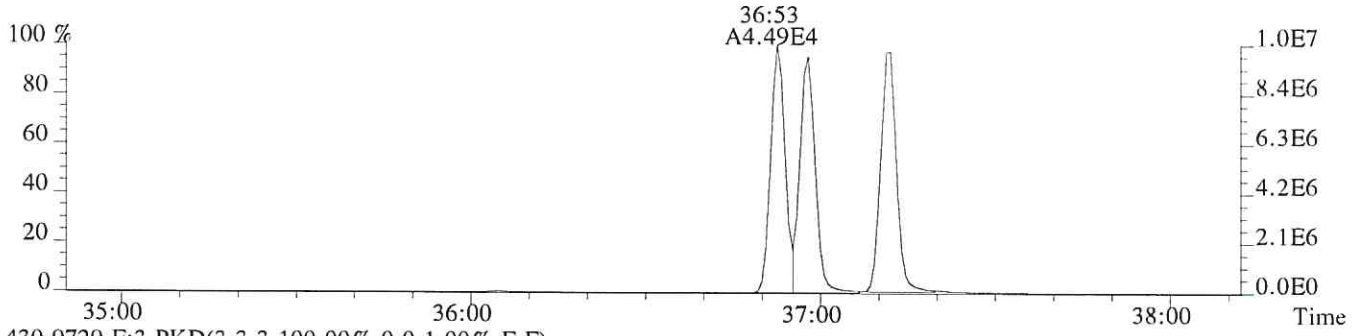
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



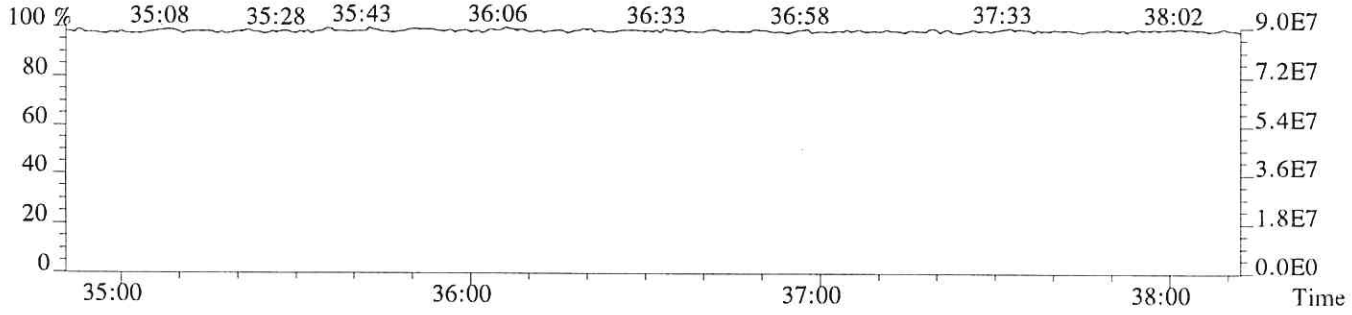
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1504.0,0.40%,F,T)

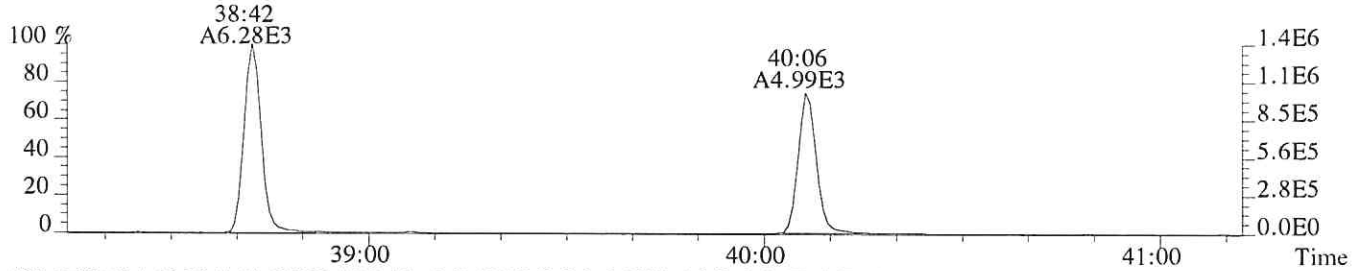


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

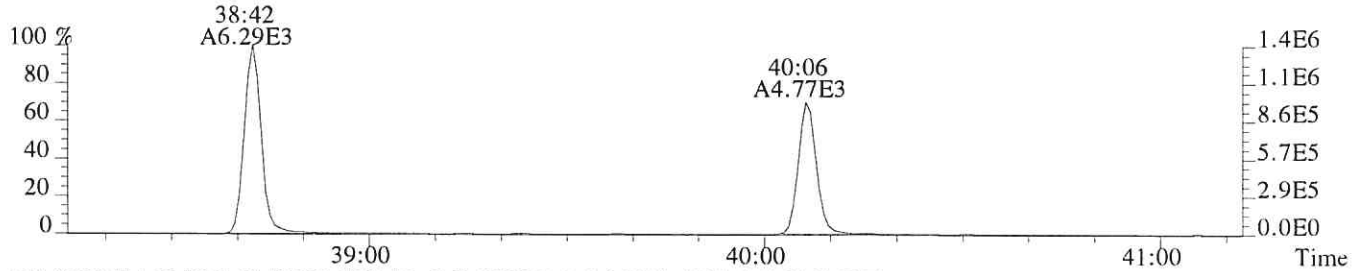


File:P407616 #1-268 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

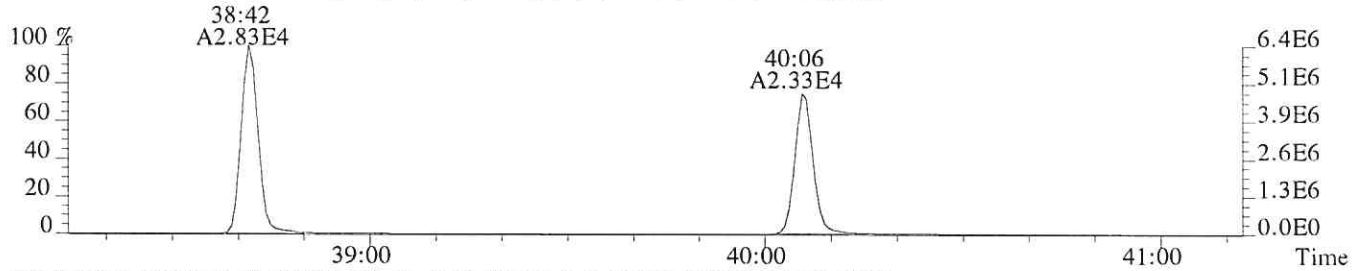
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.50%,F,T)



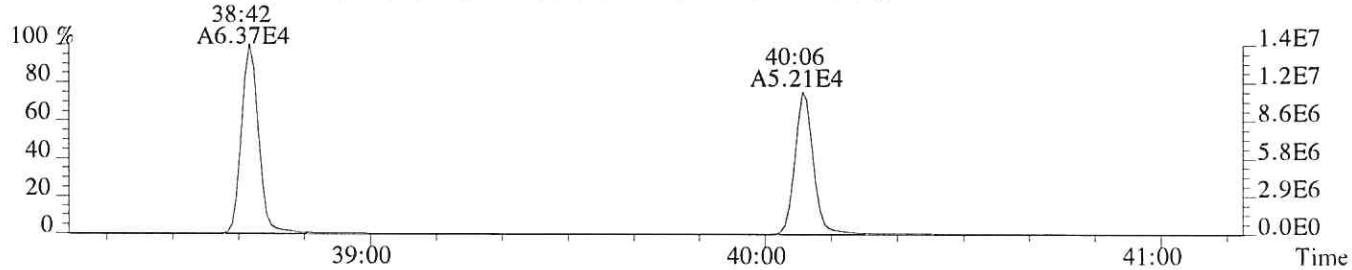
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1560.0,0.50%,F,T)



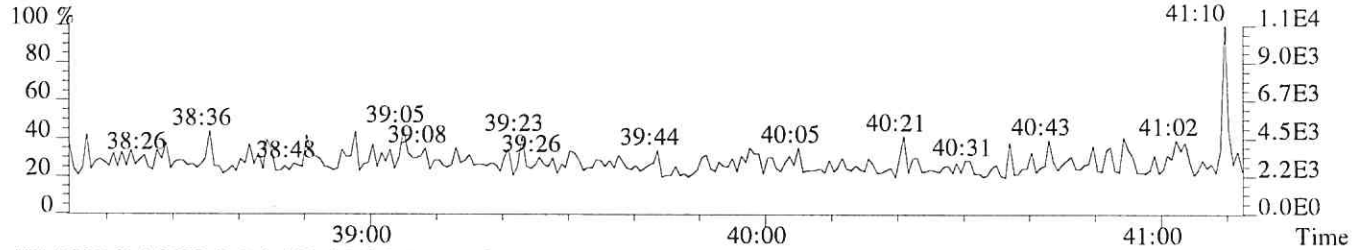
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2584.0,0.50%,F,T)



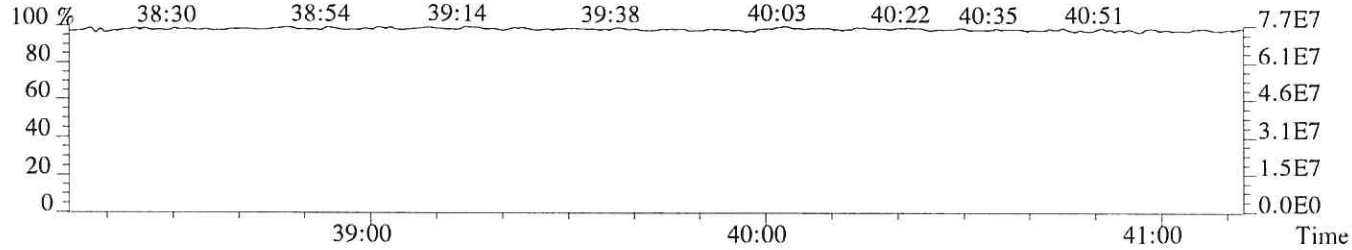
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5028.0,0.50%,F,T)



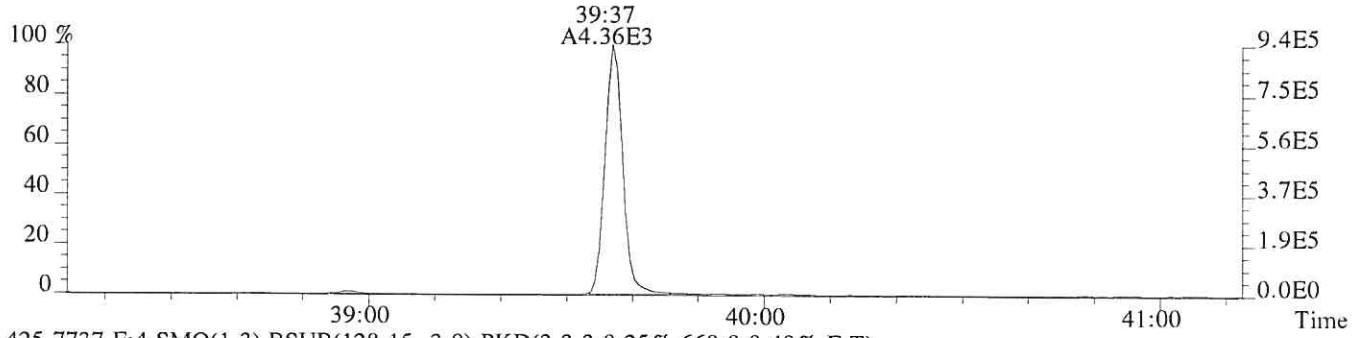
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



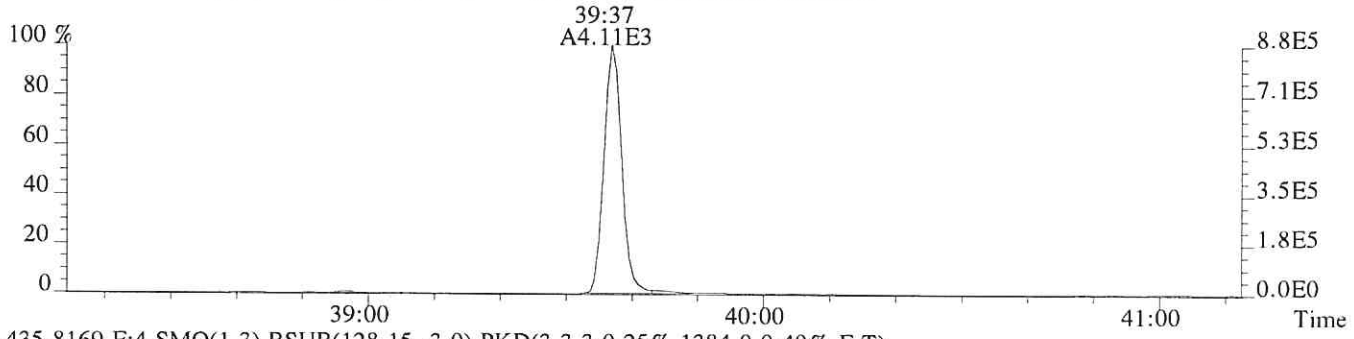
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



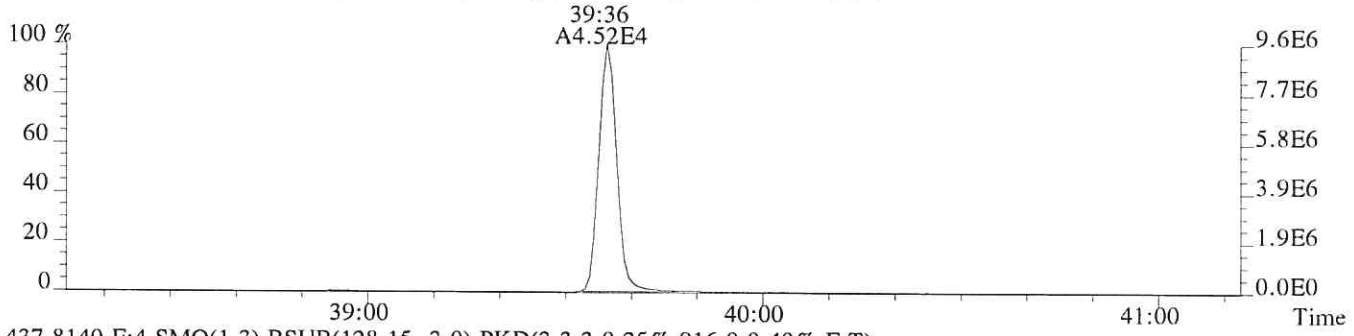
File:P407616 #1-268 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



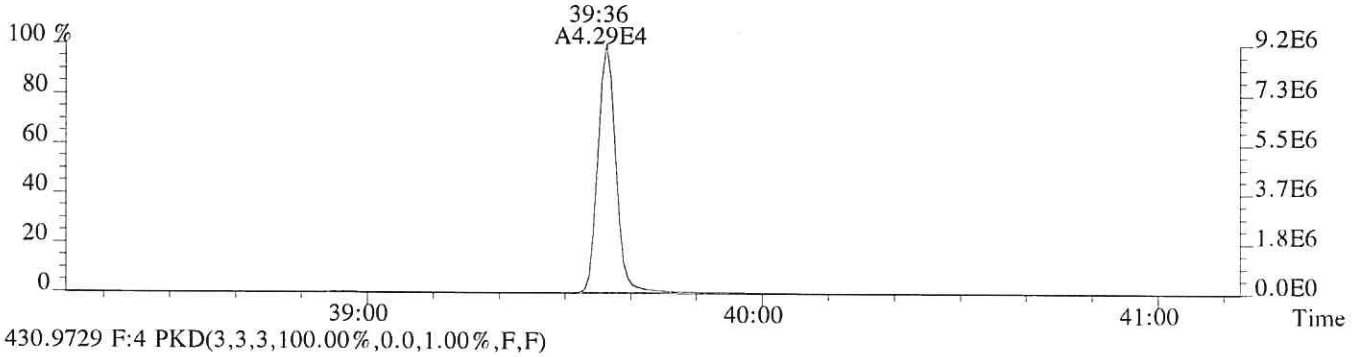
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



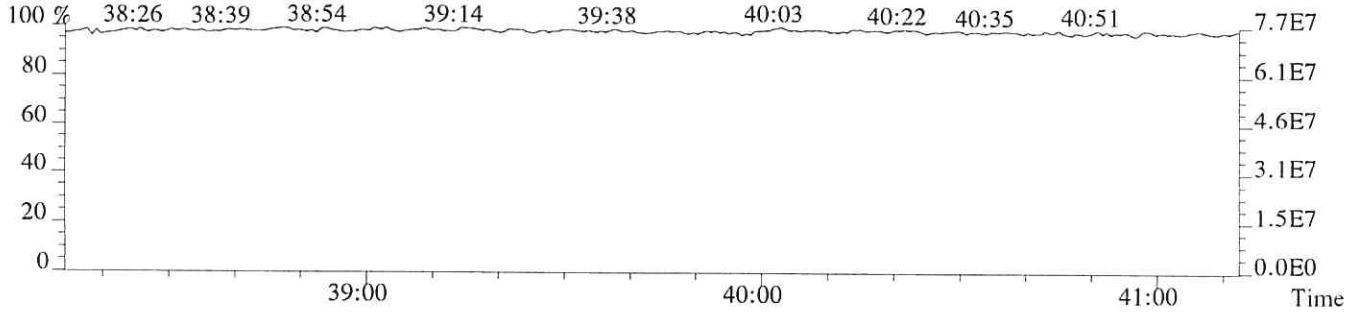
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)

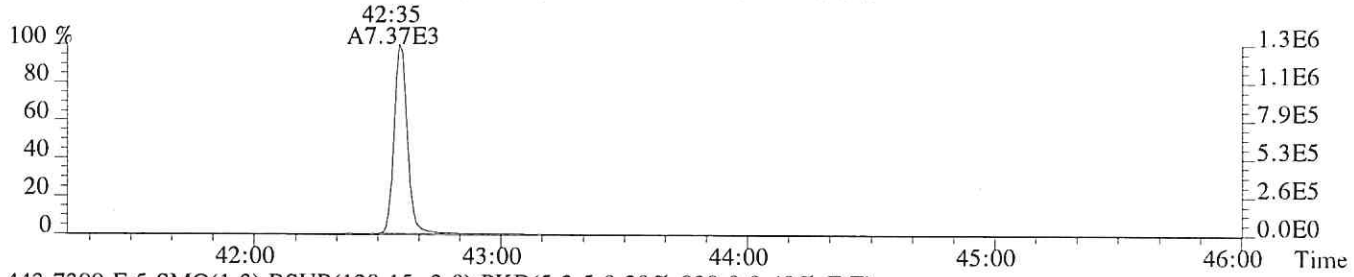


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

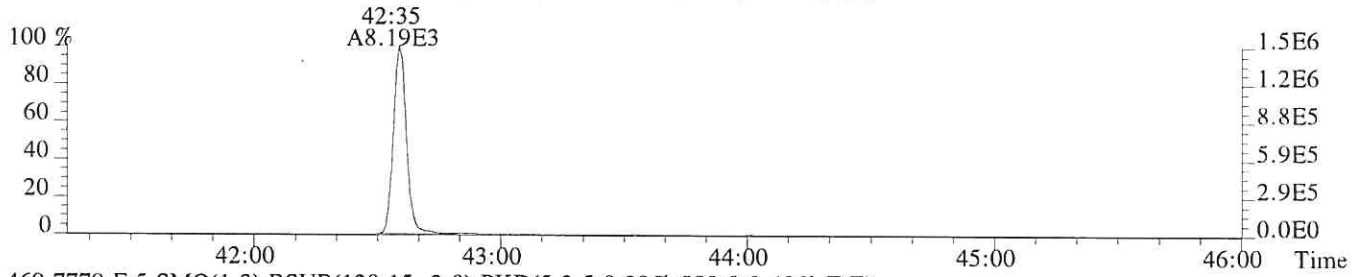


File:P407616 #1-429 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

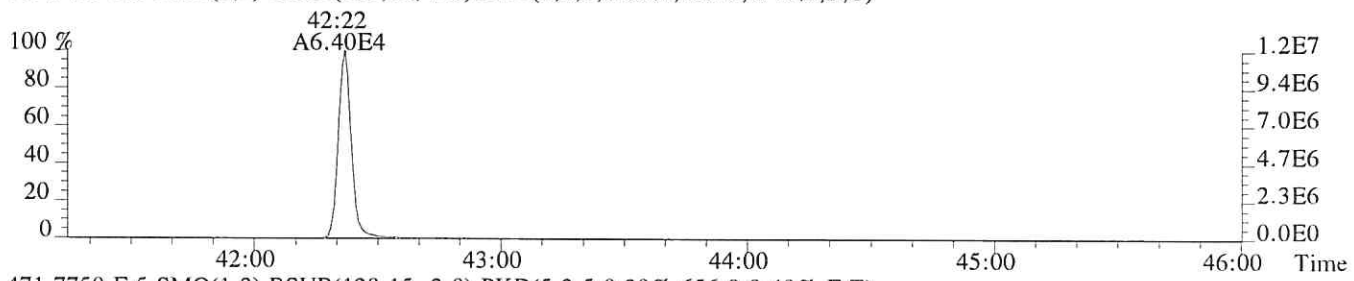
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



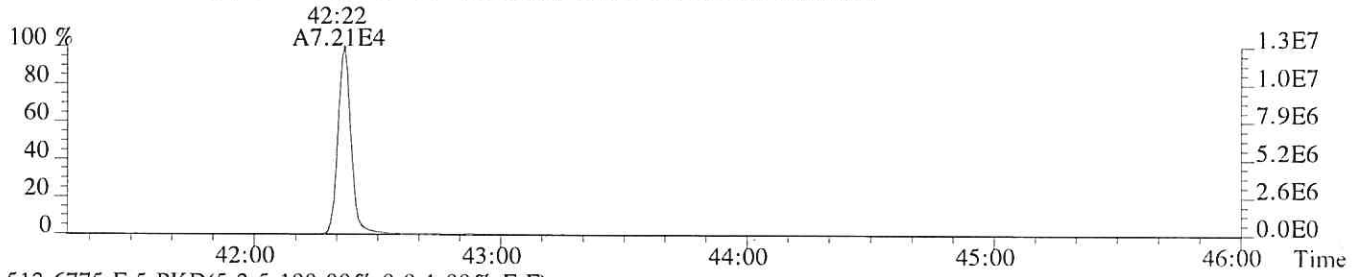
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,928.0,0.40%,F,T)



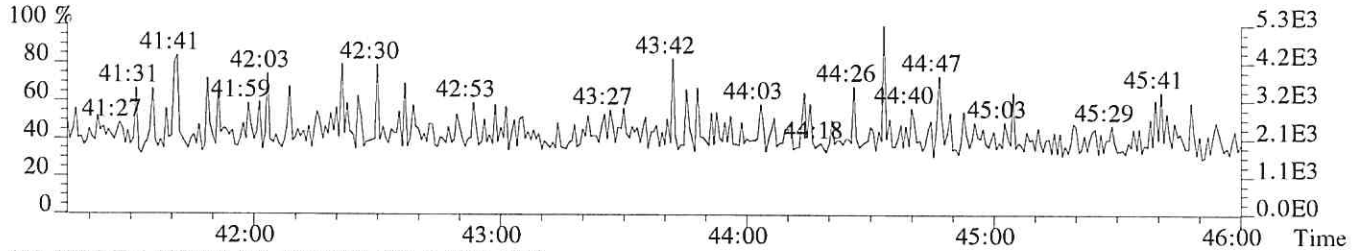
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



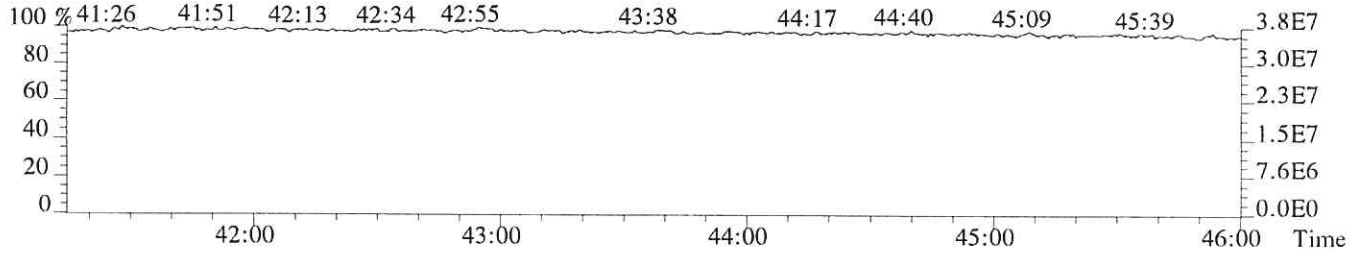
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



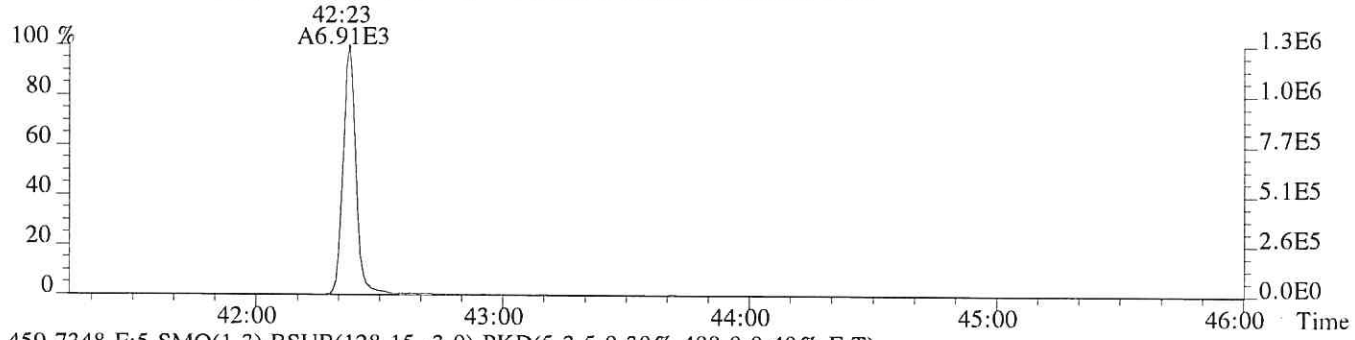
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



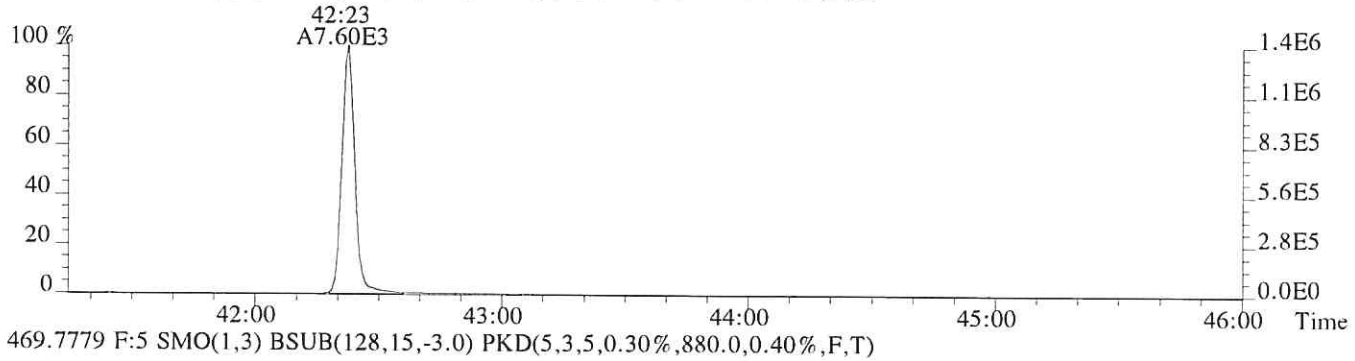
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



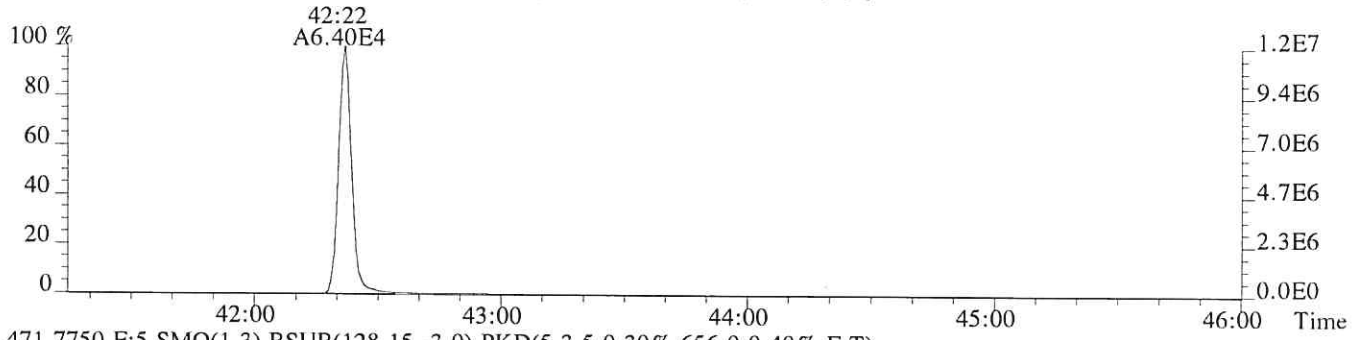
File:P407616 #1-429 Acq: 1-SEP-2017 16:55:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



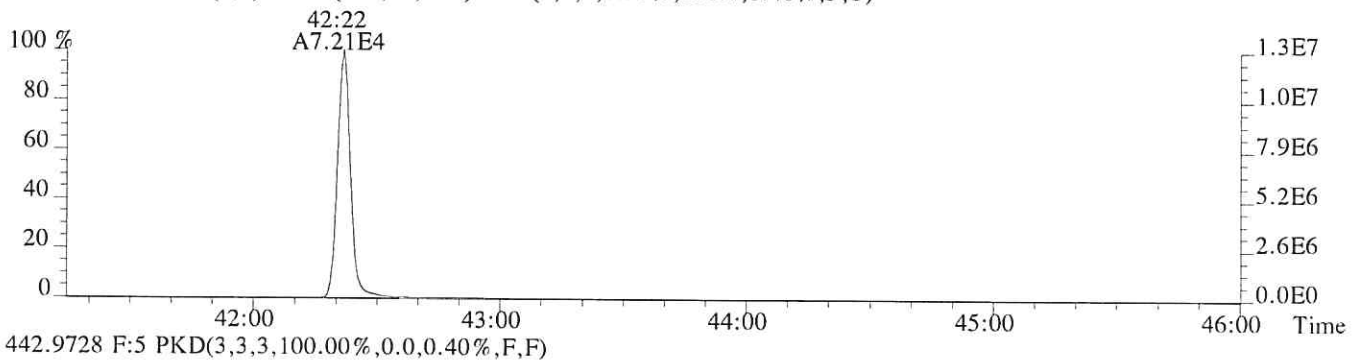
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



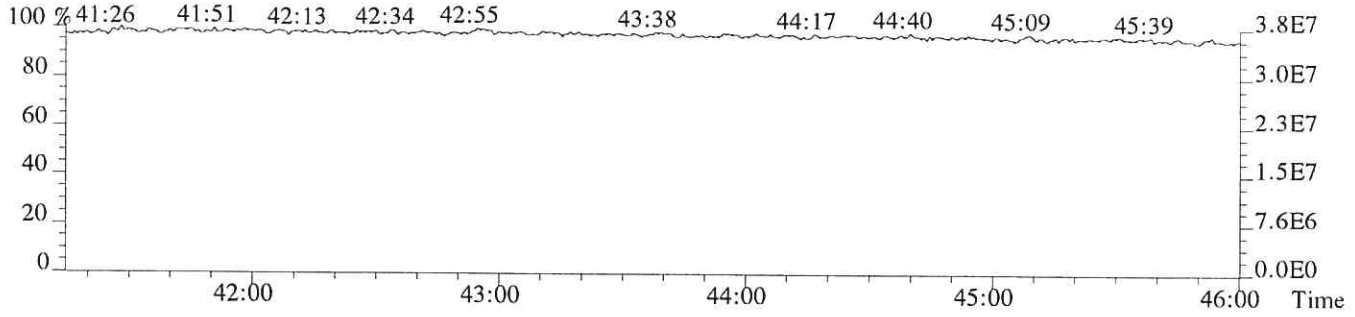
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



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



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename p407617 #1 Samp: 1 Inj: 1 Acquired: 1-SEP-17 17:42:58
Processed: 5-SEP-17 09:15:29 LAB. ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:39	6.589e+03	8.449e+03	0.78	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:41	5.049e+04	3.250e+04	1.55	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:34	4.637e+04	2.998e+04	1.55	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	36:09	4.511e+04	3.661e+04	1.23	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	36:16	4.670e+04	3.771e+04	1.24	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:45	4.279e+04	3.477e+04	1.23	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:29	3.926e+04	3.142e+04	1.25	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	3.877e+04	3.753e+04	1.03	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	3.058e+04	2.995e+04	1.02	yes	no	1.301
10	Unk	OCDF	42:35	4.571e+04	5.063e+04	0.90	yes	no	1.114
11	Unk	2,3,7,8-TCDD	29:24	5.390e+03	7.179e+03	0.75	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:50	3.526e+04	2.291e+04	1.54	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:53	3.228e+04	2.627e+04	1.23	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:58	3.148e+04	2.522e+04	1.25	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	37:11	3.236e+04	2.647e+04	1.22	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	2.728e+04	2.603e+04	1.05	yes	no	0.975
17	Unk	OCDD	42:22	4.101e+04	4.686e+04	0.88	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:38	7.413e+04	9.636e+04	0.77	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:40	1.014e+05	6.500e+04	1.56	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:34	9.786e+04	6.280e+04	1.56	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	36:09	4.605e+04	8.825e+04	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	36:15	5.096e+04	9.679e+04	0.53	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:45	4.620e+04	8.921e+04	0.52	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:29	4.094e+04	7.891e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	3.416e+04	7.586e+04	0.45	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	2.914e+04	6.568e+04	0.44	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	29:23	5.833e+04	7.386e+04	0.79	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:50	8.280e+04	5.324e+04	1.56	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:52	6.787e+04	5.477e+04	1.24	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:57	6.538e+04	5.273e+04	1.24	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	5.560e+04	5.303e+04	1.05	yes	no	0.854
32	IS	13C-OCDD	42:21	7.847e+04	8.828e+04	0.89	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:49	6.176e+04	7.712e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:11	6.977e+04	5.652e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	1.364e+04				no	0.992

ALS ENVIRONMENTAL
10450 Stancliff Road
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename p407617 Samp: 1 Inj: 1 Acquired: 1-SEP-17 17:42:58
Processed: 5-SEP-17 09:15:291 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.31e+06	7.20e+02	1.8e+03	1.67e+06	1.26e+03	1.3e+03
2	1,2,3,7,8-PeCDF	1.00e+07	1.02e+03	9.8e+03	6.51e+06	1.15e+03	5.7e+03
3	2,3,4,7,8-PeCDF	9.76e+06	1.02e+03	9.5e+03	6.25e+06	1.15e+03	5.4e+03
4	1,2,3,4,7,8-HxCDF	1.01e+07	1.12e+03	9.0e+03	8.26e+06	7.84e+02	1.1e+04
5	1,2,3,6,7,8-HxCDF	1.03e+07	1.12e+03	9.1e+03	8.26e+06	7.84e+02	1.1e+04
6	2,3,4,6,7,8-HxCDF	9.62e+06	1.12e+03	8.6e+03	7.71e+06	7.84e+02	9.8e+03
7	1,2,3,7,8,9-HxCDF	8.52e+06	1.12e+03	7.6e+03	6.94e+06	7.84e+02	8.9e+03
8	1,2,3,4,6,7,8-HpCDF	8.83e+06	3.14e+03	2.8e+03	8.48e+06	2.56e+03	3.3e+03
9	1,2,3,4,7,8,9-HpCDF	6.49e+06	3.14e+03	2.1e+03	6.28e+06	2.56e+03	2.5e+03
10	OCDF	8.26e+06	6.96e+02	1.2e+04	9.10e+06	1.15e+03	7.9e+03
11	2,3,7,8-TCDD	1.10e+06	1.71e+03	6.4e+02	1.48e+06	1.06e+03	1.4e+03
12	1,2,3,7,8-PeCDD	7.46e+06	1.43e+03	5.2e+03	4.86e+06	4.16e+02	1.2e+04
13	1,2,3,4,7,8-HxCDD	7.52e+06	8.44e+02	8.9e+03	6.08e+06	7.56e+02	8.0e+03
14	1,2,3,6,7,8-HxCDD	6.97e+06	8.44e+02	8.3e+03	5.61e+06	7.56e+02	7.4e+03
15	1,2,3,7,8,9-HxCDD	7.26e+06	8.44e+02	8.6e+03	5.96e+06	7.56e+02	7.9e+03
16	1,2,3,4,6,7,8-HpCDD	5.97e+06	1.05e+03	5.7e+03	5.61e+06	1.11e+03	5.0e+03
17	OCDD	7.49e+06	5.68e+02	1.3e+04	8.52e+06	8.12e+02	1.0e+04
18	13C-2,3,7,8-TCDF	1.46e+07	1.03e+04	1.4e+03	1.89e+07	5.23e+03	3.6e+03
19	13C-1,2,3,7,8-PeCDF	1.99e+07	7.00e+02	2.8e+04	1.27e+07	1.00e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	2.03e+07	7.00e+02	2.9e+04	1.29e+07	1.00e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.03e+07	8.76e+02	1.2e+04	1.98e+07	1.78e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	1.11e+07	8.76e+02	1.3e+04	2.10e+07	1.78e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	1.05e+07	8.76e+02	1.2e+04	2.00e+07	1.78e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	8.66e+06	8.76e+02	9.9e+03	1.70e+07	1.78e+03	9.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.79e+06	3.38e+03	2.3e+03	1.73e+07	4.31e+03	4.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.18e+06	3.38e+03	1.8e+03	1.37e+07	4.31e+03	3.2e+03
27	13C-2,3,7,8-TCDD	1.19e+07	3.99e+03	3.0e+03	1.49e+07	2.04e+03	7.3e+03
28	13C-1,2,3,7,8-PeCDD	1.68e+07	1.13e+03	1.5e+04	1.08e+07	1.22e+03	8.9e+03
29	13C-1,2,3,4,7,8-HxCDD	1.58e+07	1.60e+03	9.9e+03	1.26e+07	1.11e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	1.44e+07	1.60e+03	9.0e+03	1.17e+07	1.11e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.20e+07	1.47e+03	8.2e+03	1.13e+07	8.72e+02	1.3e+04
32	13C-OCDD	1.44e+07	9.48e+02	1.5e+04	1.60e+07	9.12e+02	1.8e+04
33	13C-1,2,3,4-TCDD	1.24e+07	3.99e+03	3.1e+03	1.56e+07	2.04e+03	7.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.55e+07	1.60e+03	9.7e+03	1.27e+07	1.11e+03	1.1e+04
35	37Cl-2,3,7,8-TCDD	2.80e+06	9.92e+02	2.8e+03			

ALS ENVIRONMENTAL
10450 Stancliff Road
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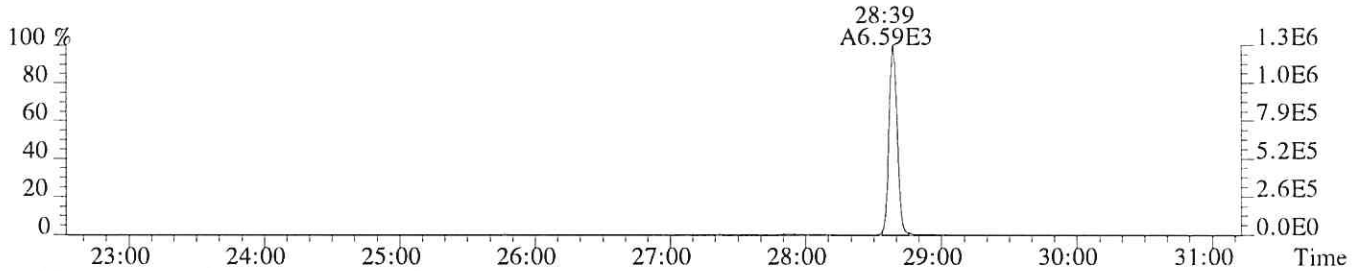
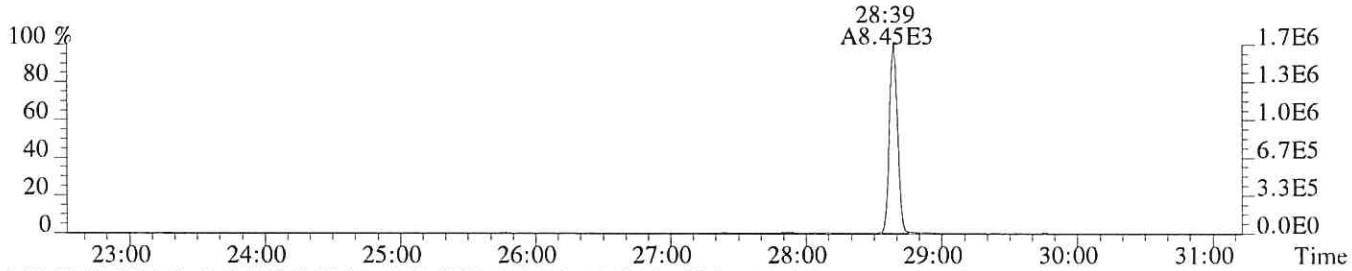
File:P407617 #1-616 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

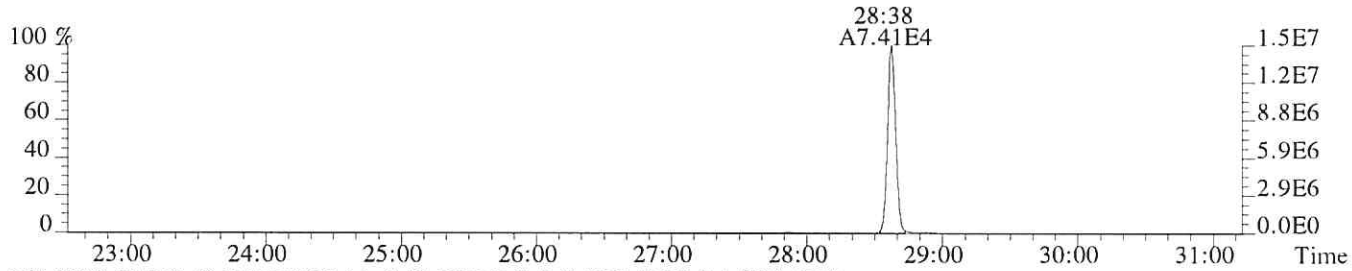
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



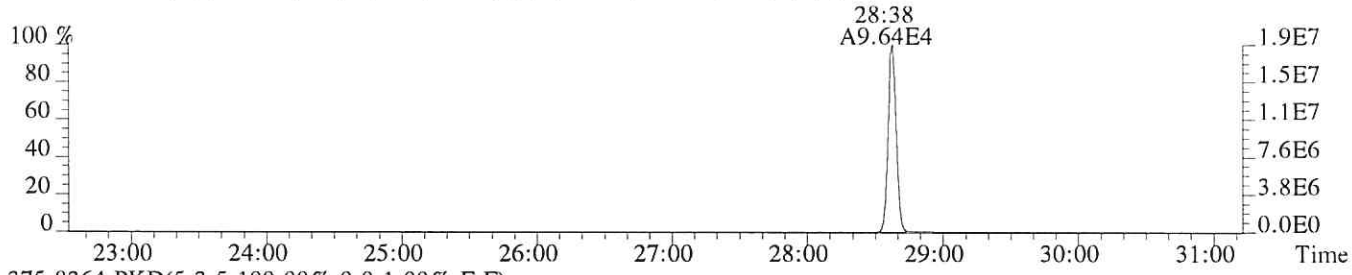
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



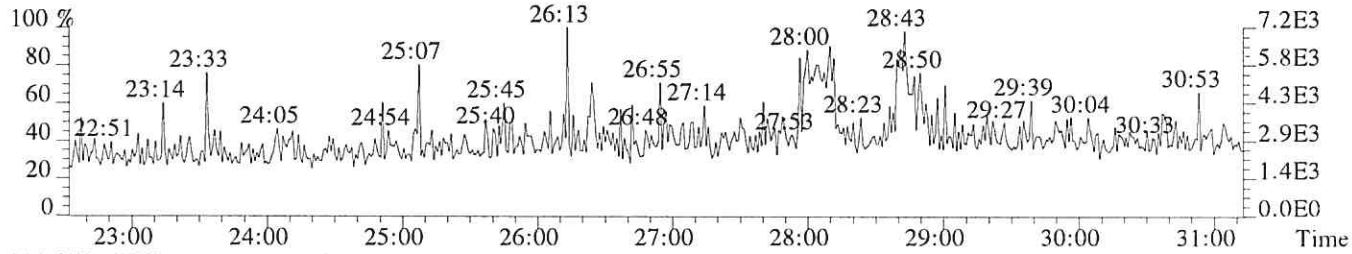
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10276.0,1.00%,F,T)



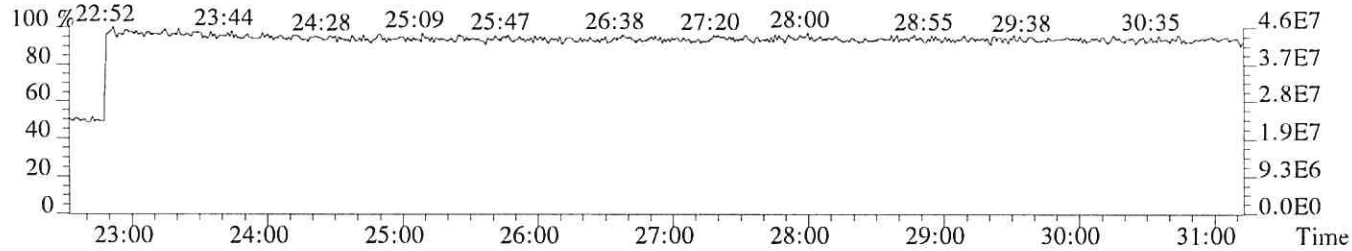
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5228.0,1.00%,F,T)



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

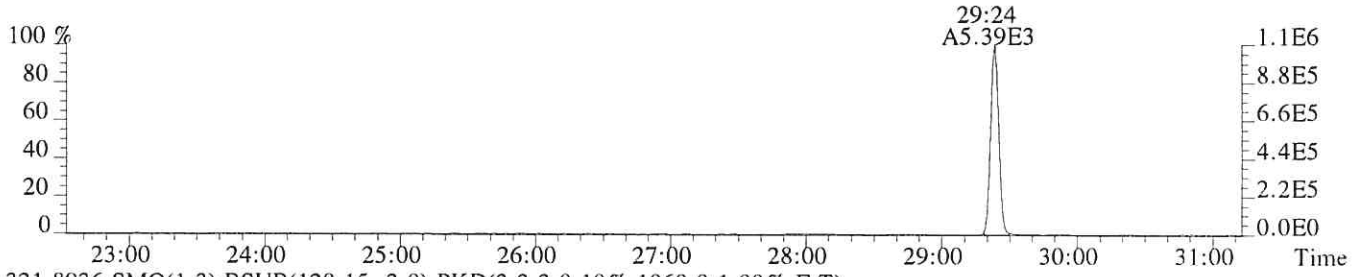


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

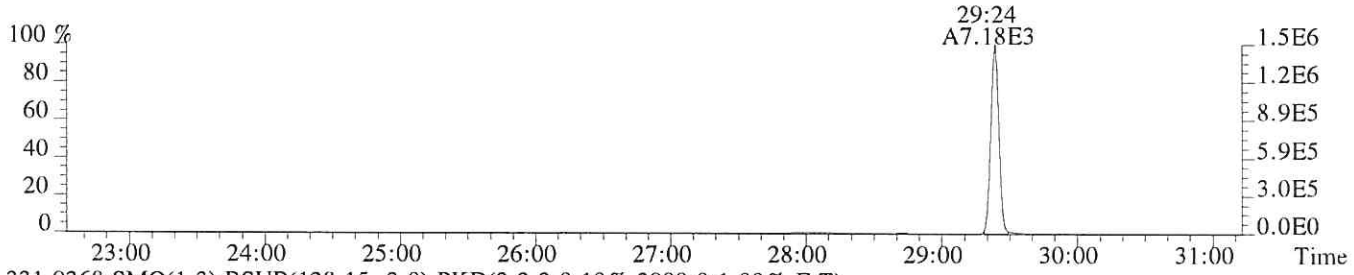


File:P407617 #1-616 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

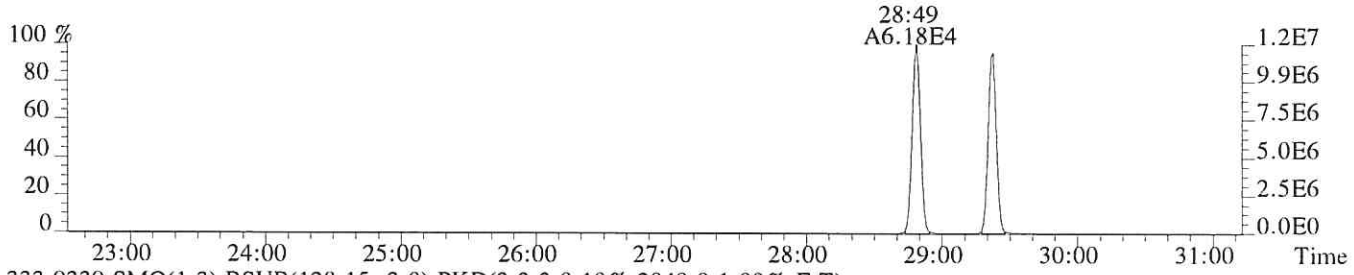
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



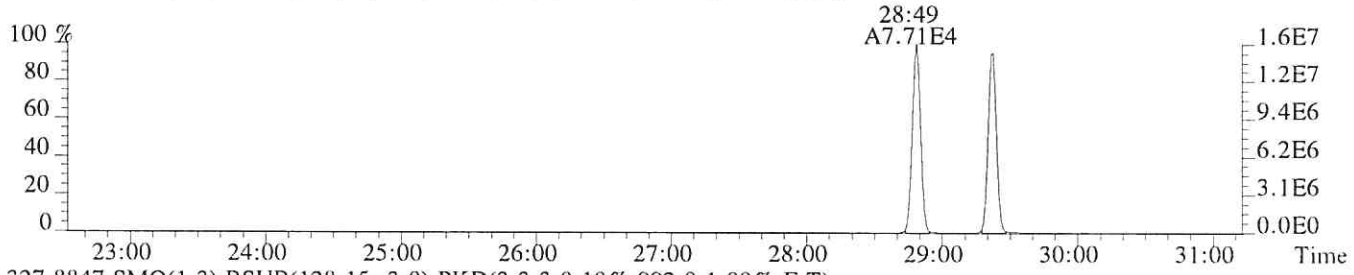
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



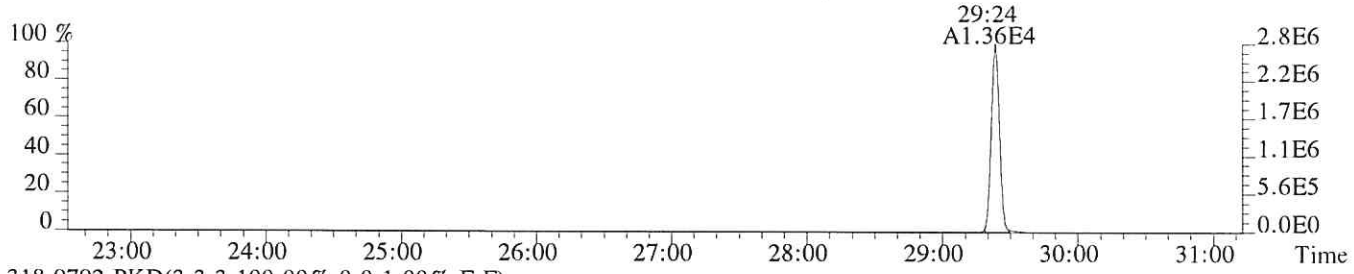
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3988.0,1.00%,F,T)



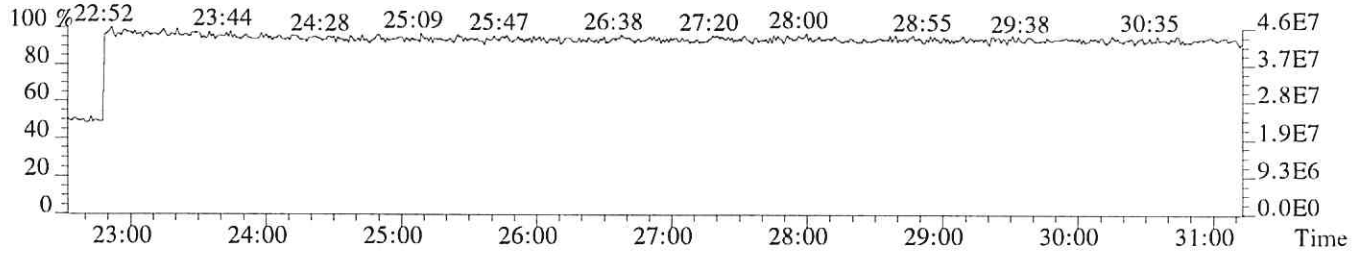
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2040.0,1.00%,F,T)



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

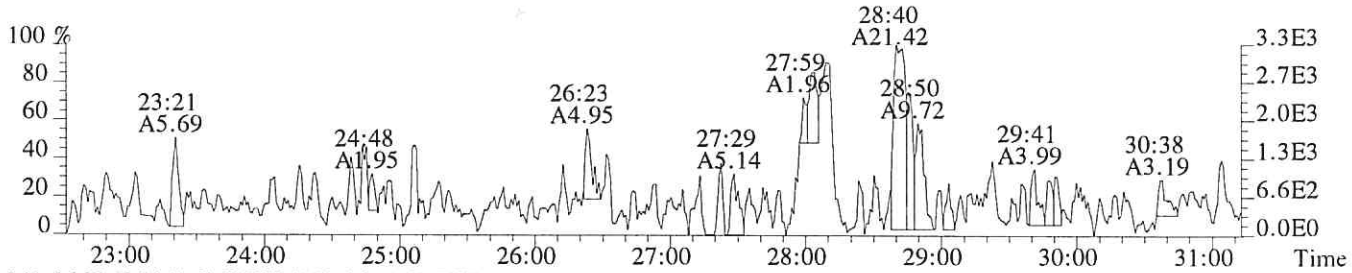


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

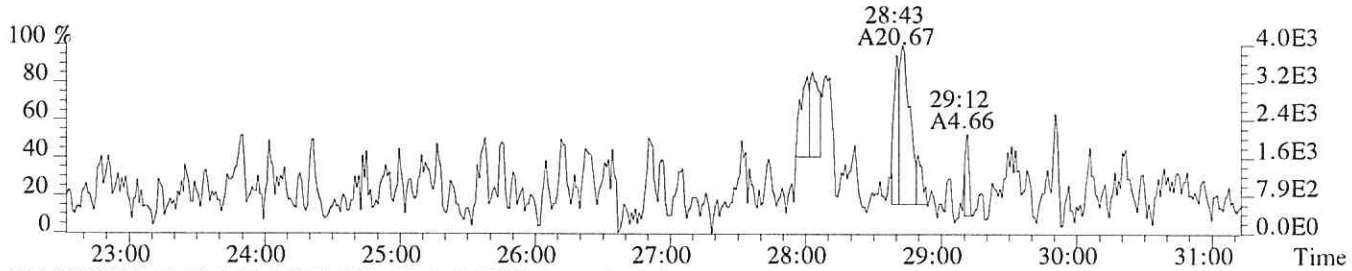


File:P407617 #1-616 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

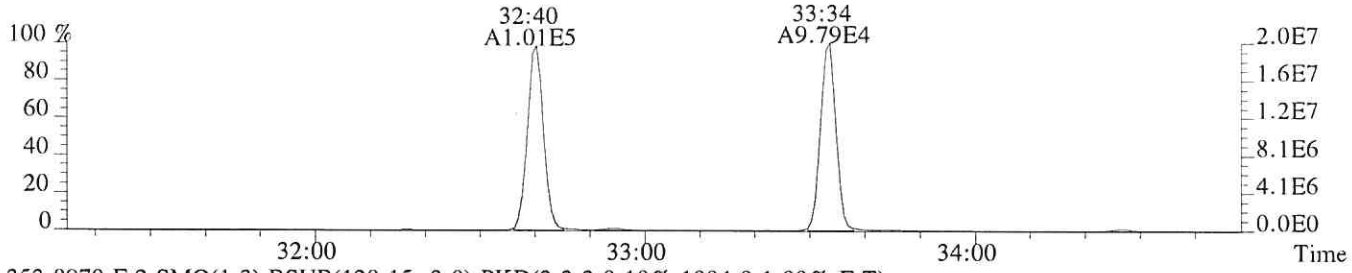
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



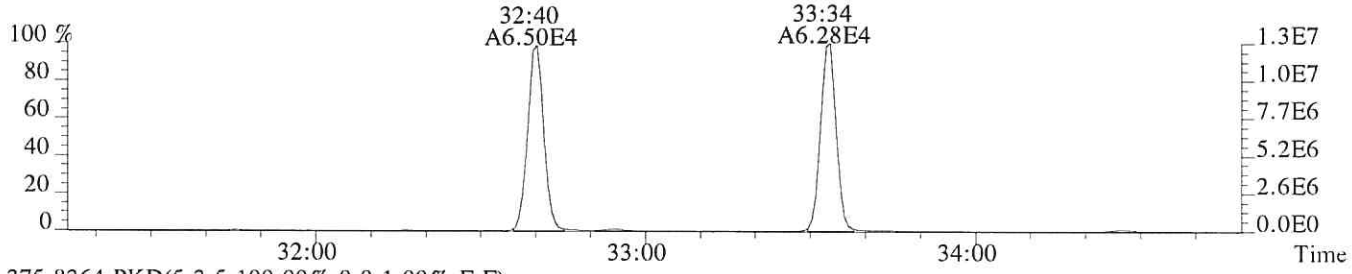
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



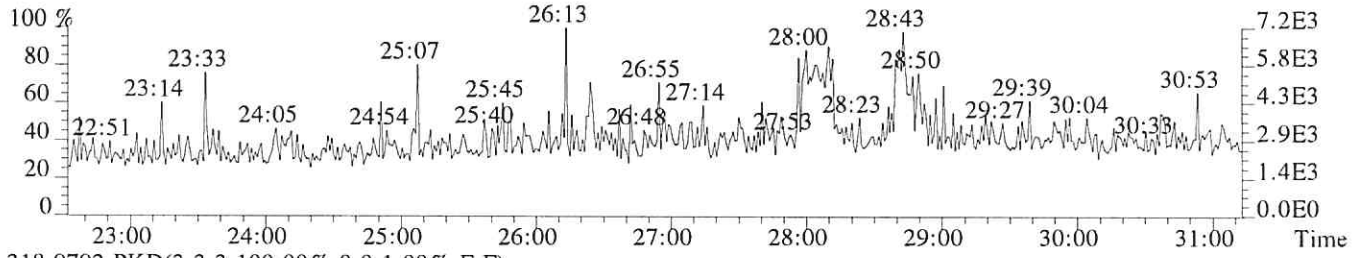
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



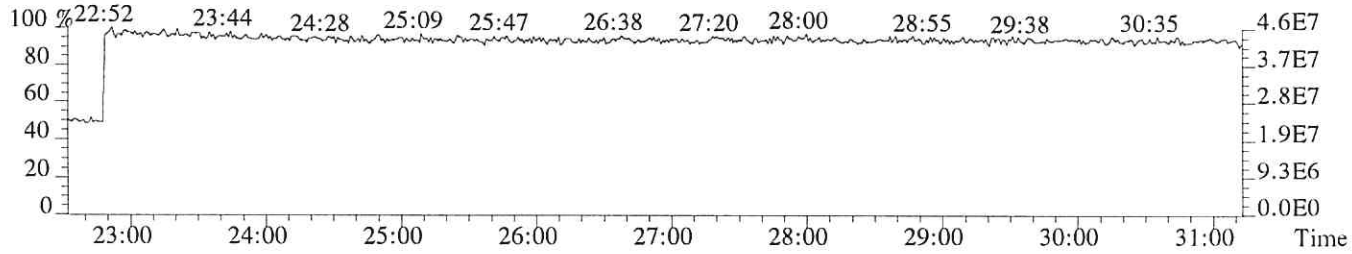
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



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

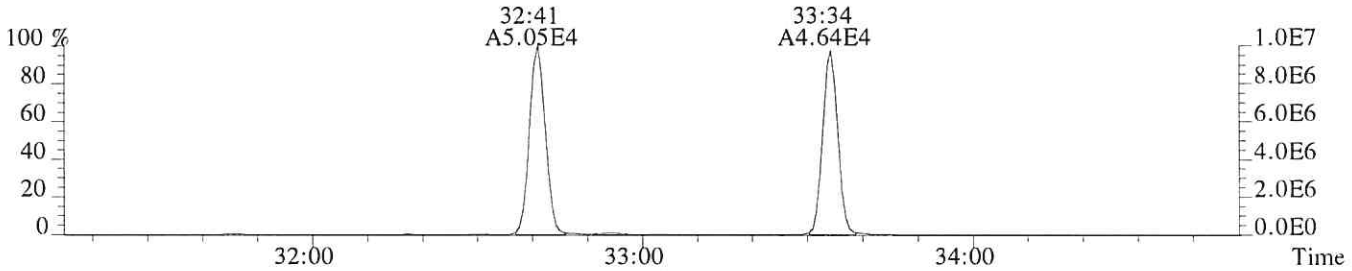


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

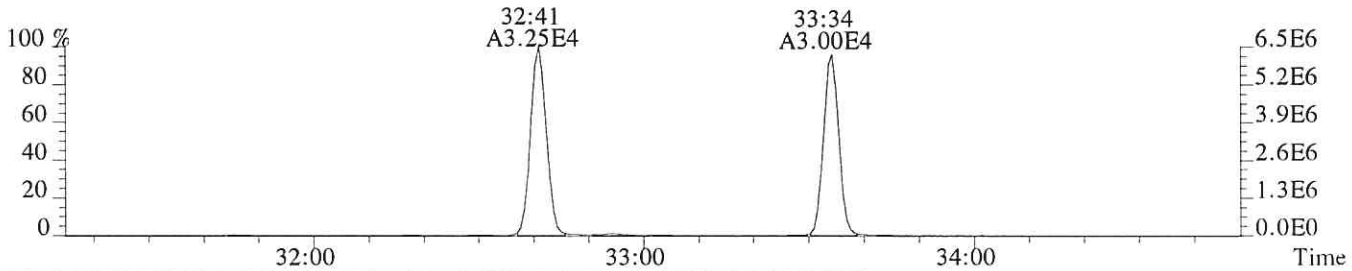


File:P407617 #1-321 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

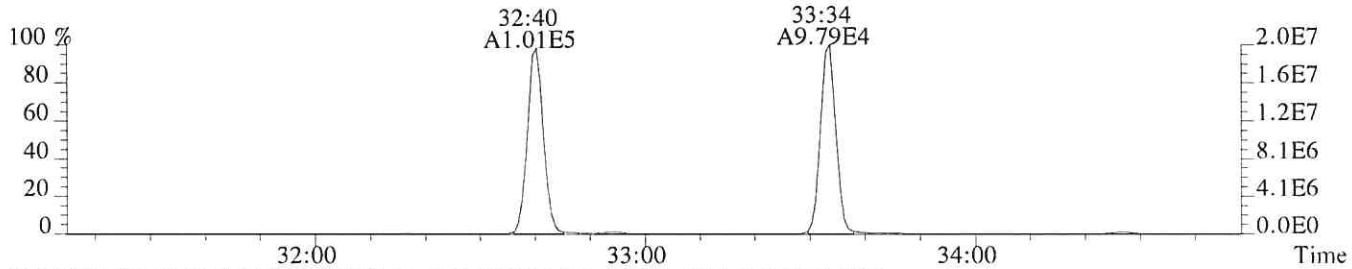
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



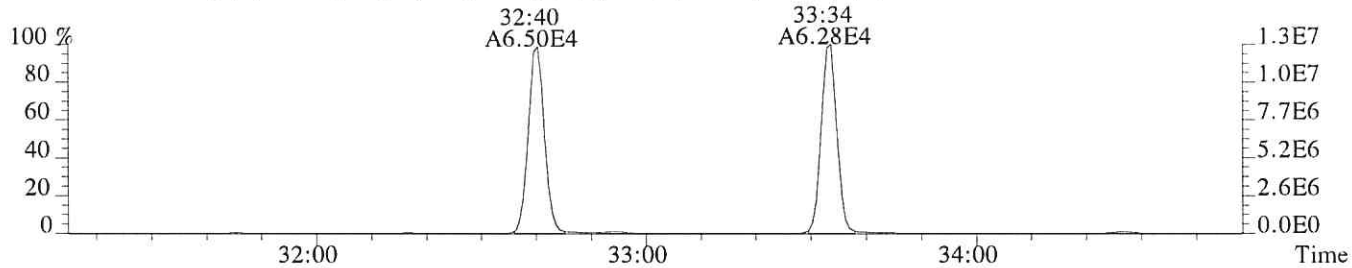
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



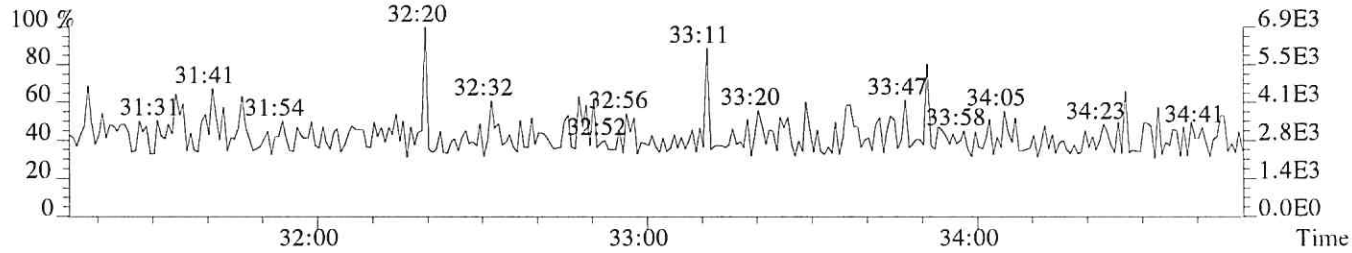
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



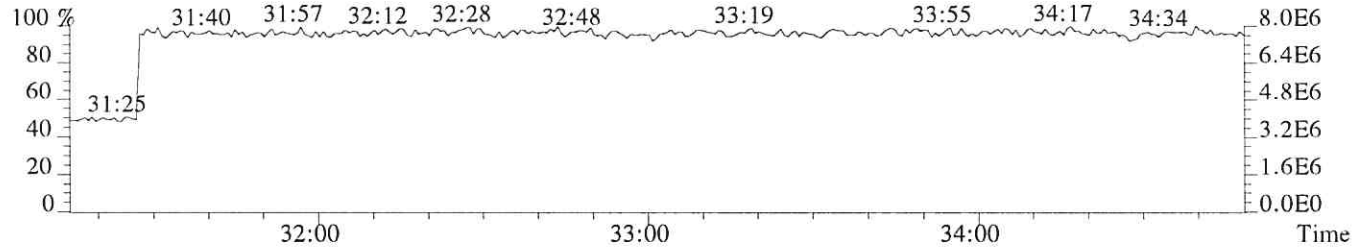
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



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

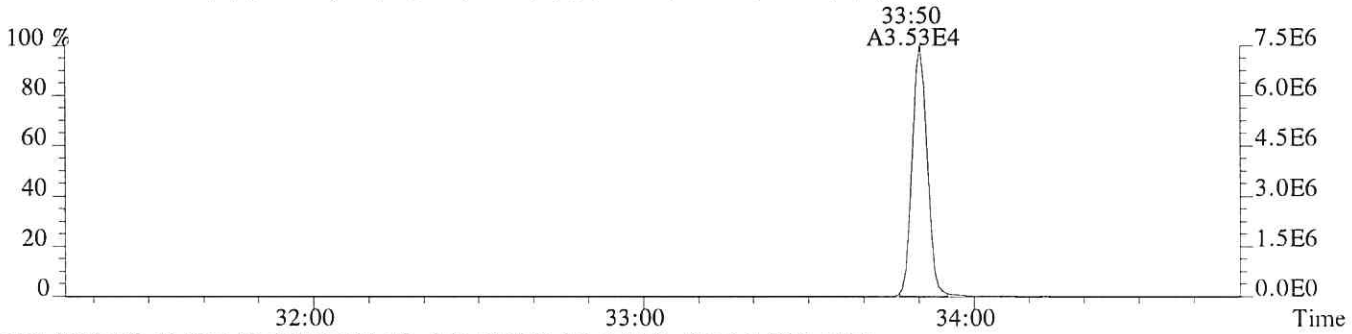


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

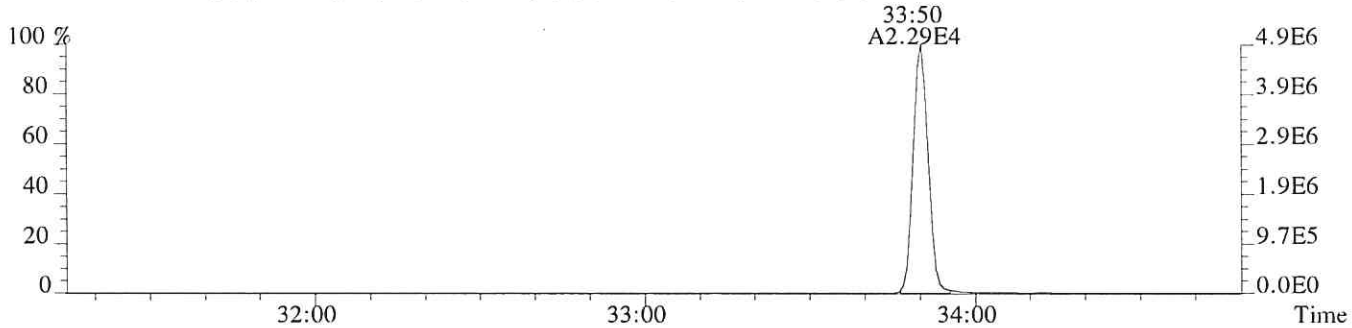


File:P407617 #1-321 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

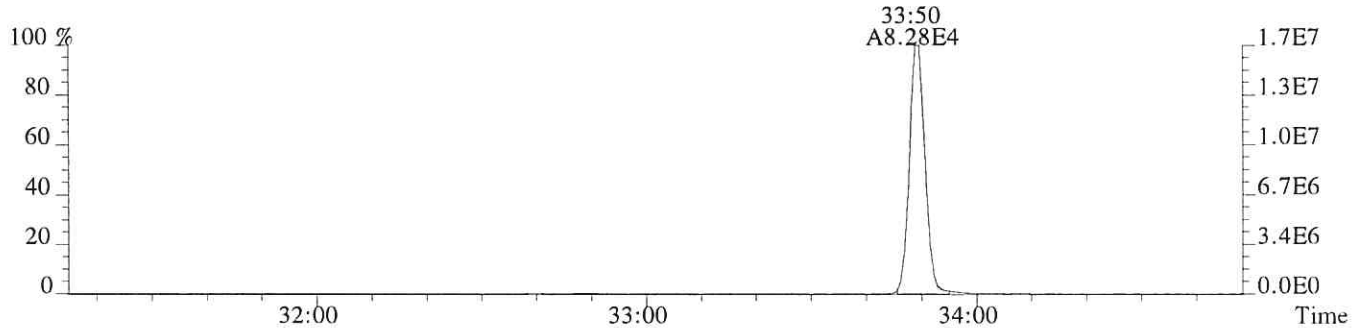
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



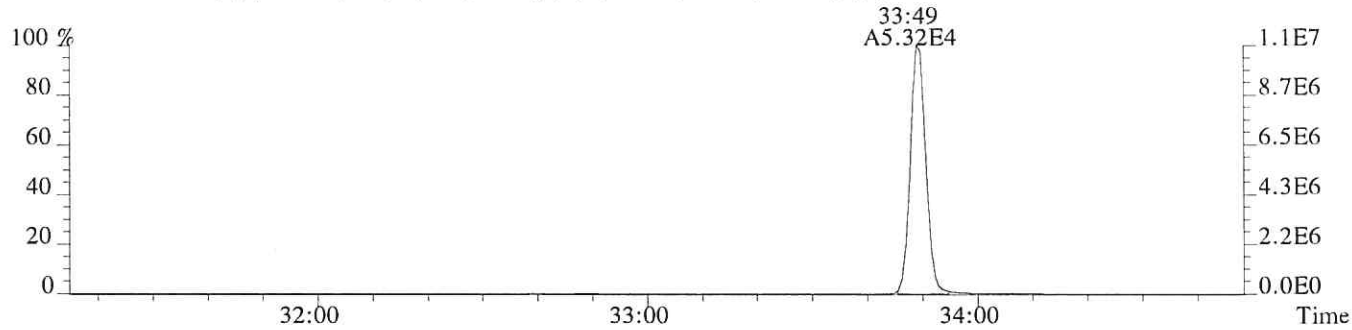
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



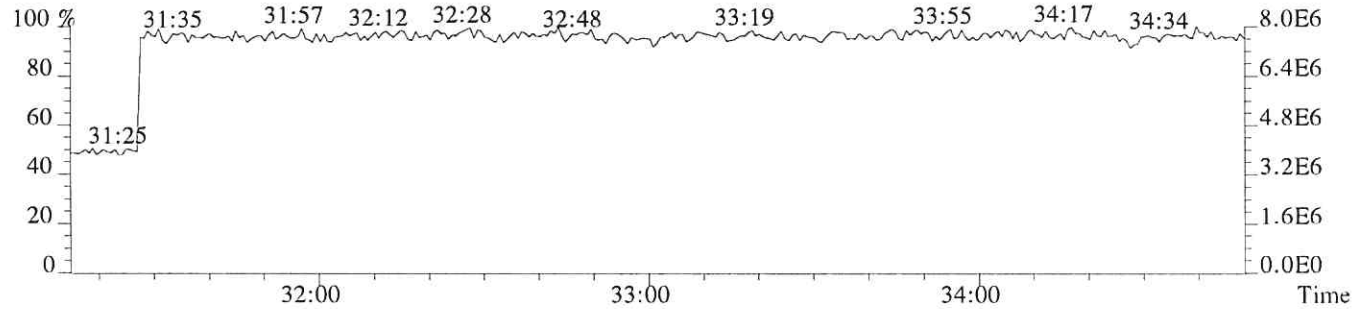
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)

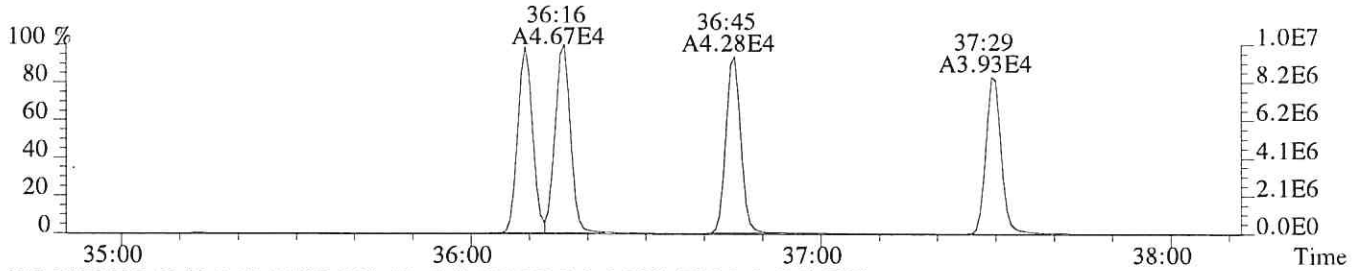


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

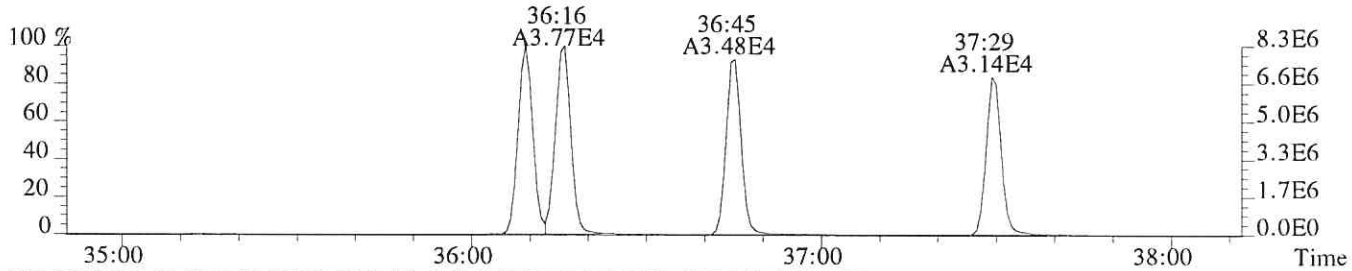


File:P407617 #1-303 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

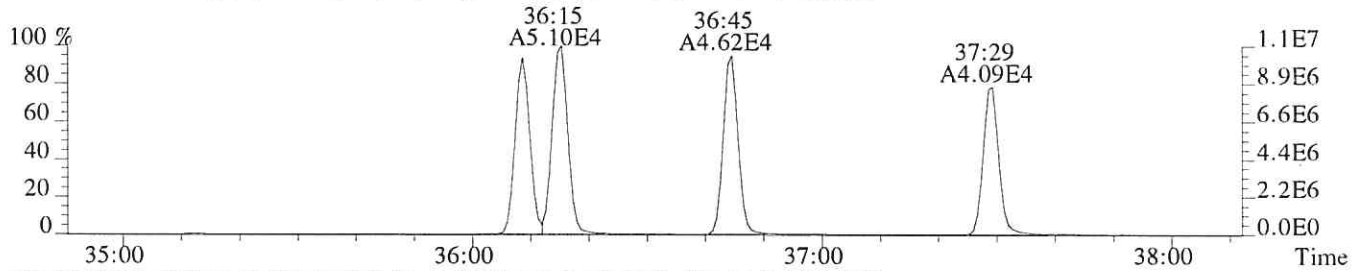
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



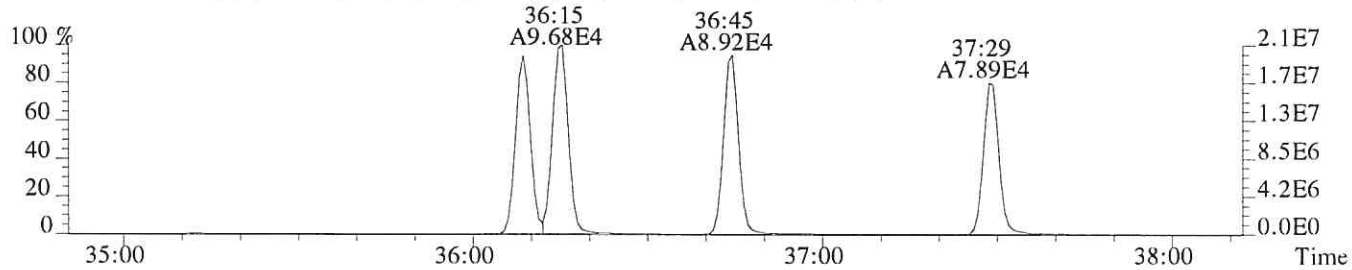
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



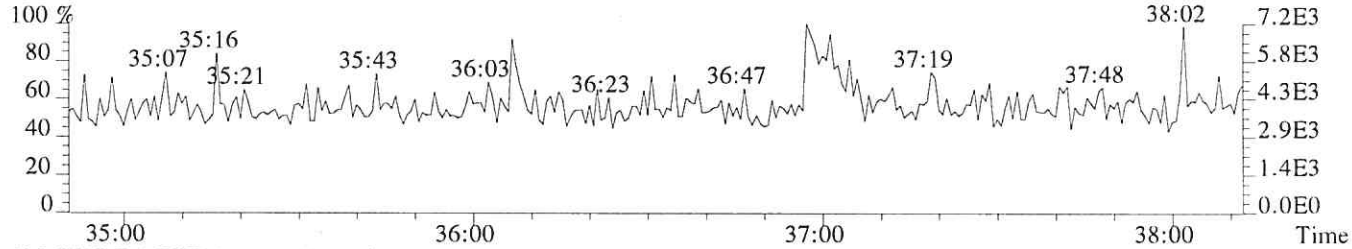
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



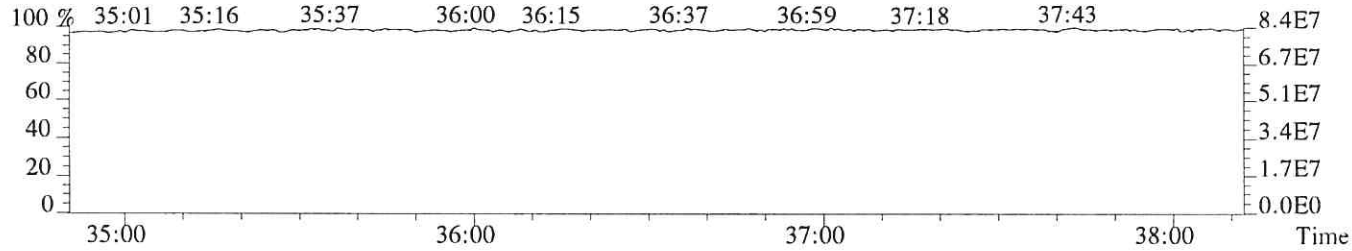
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1780.0,0.40%,F,T)



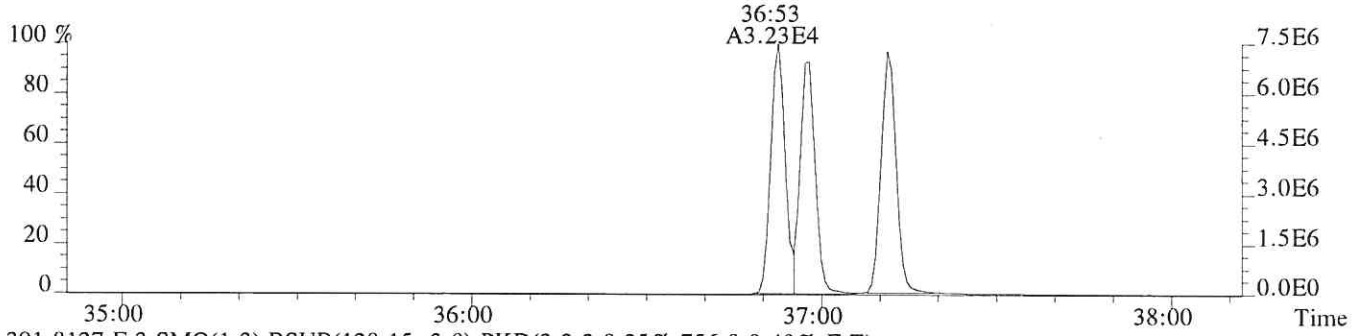
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



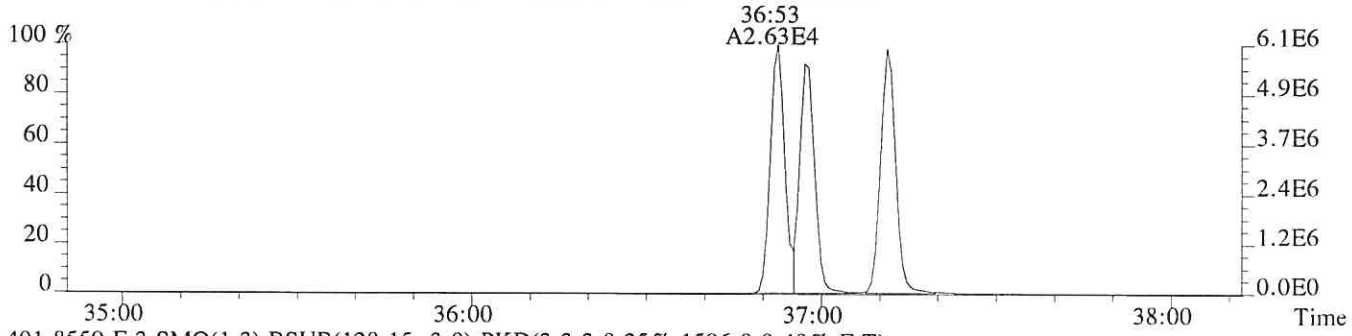
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



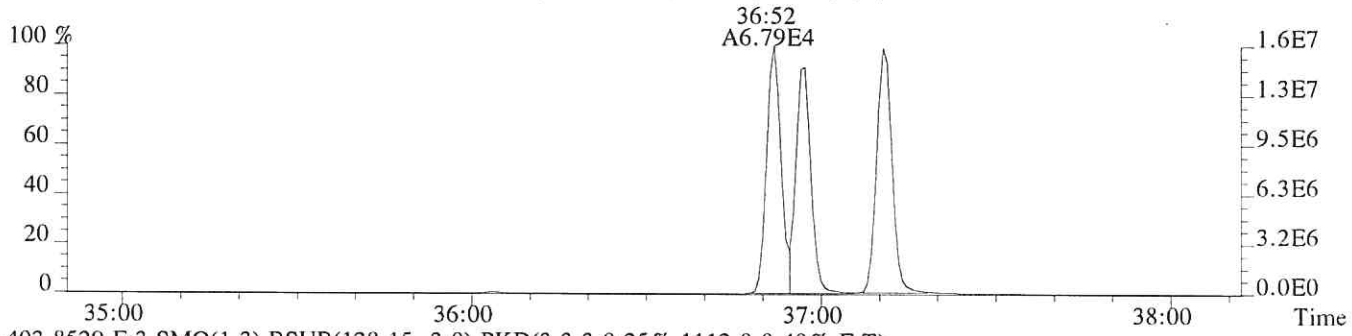
File:P407617 #1-303 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



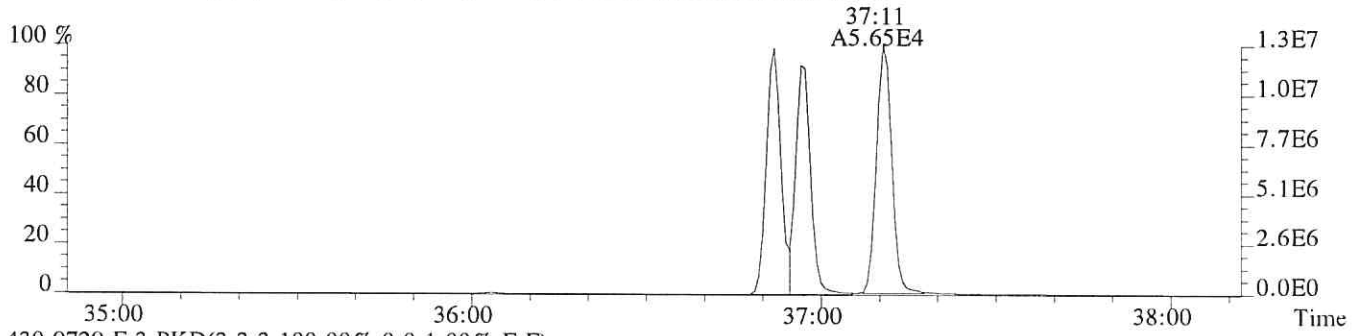
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



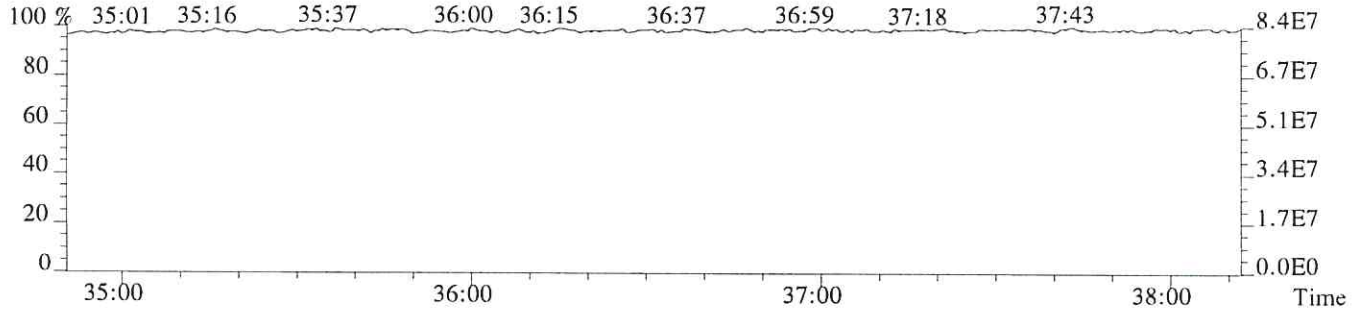
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)

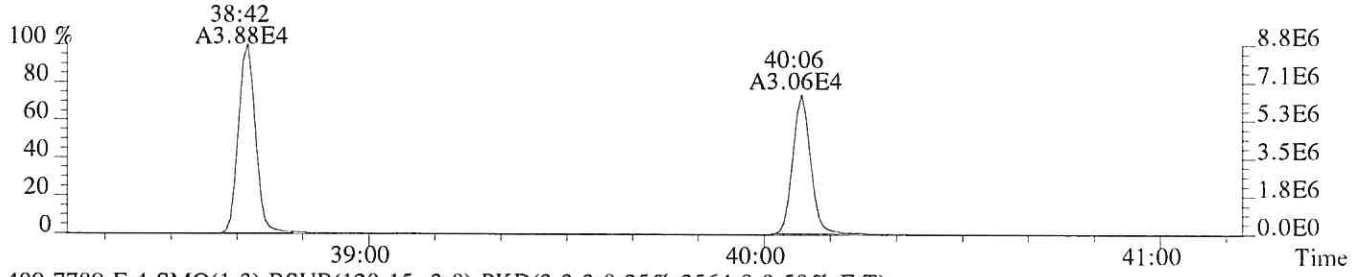


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

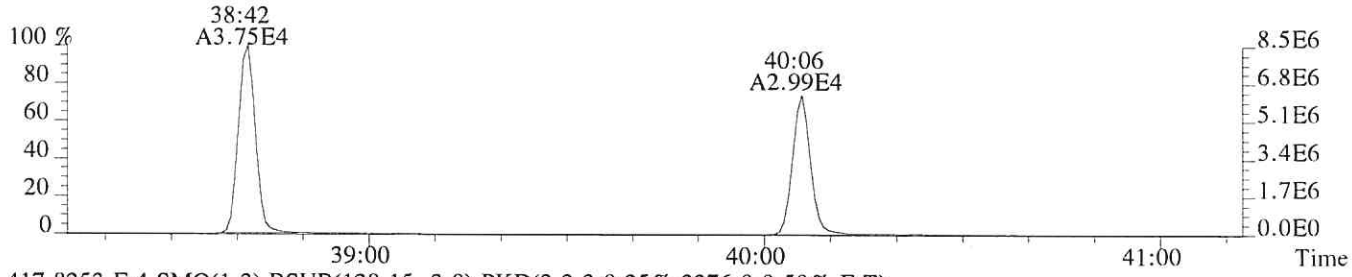


File:P407617 #1-268 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

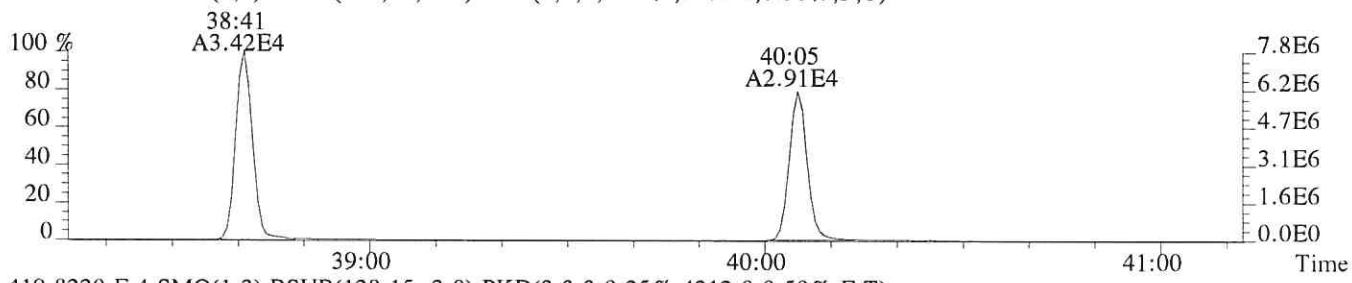
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3140.0,0.50%,F,T)



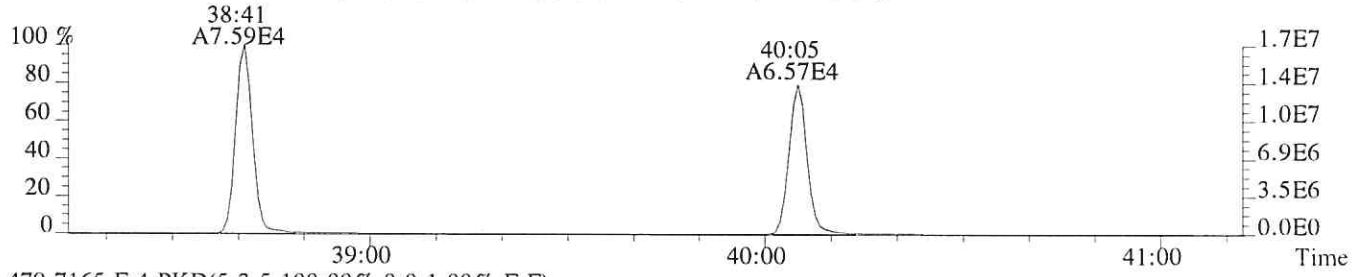
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2564.0,0.50%,F,T)



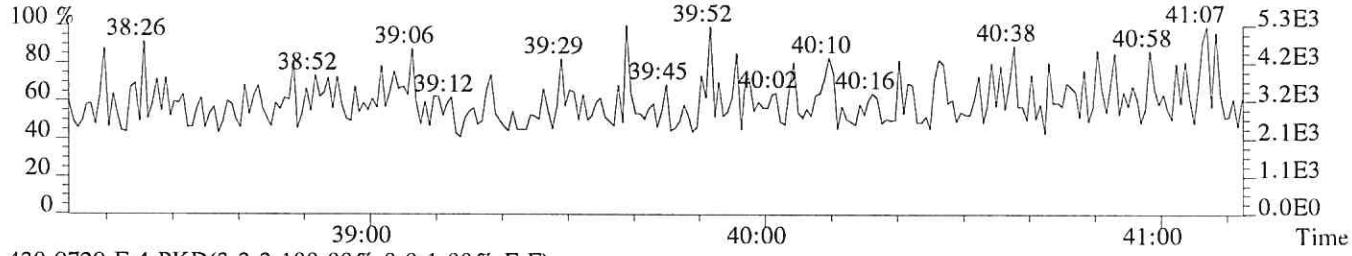
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3376.0,0.50%,F,T)



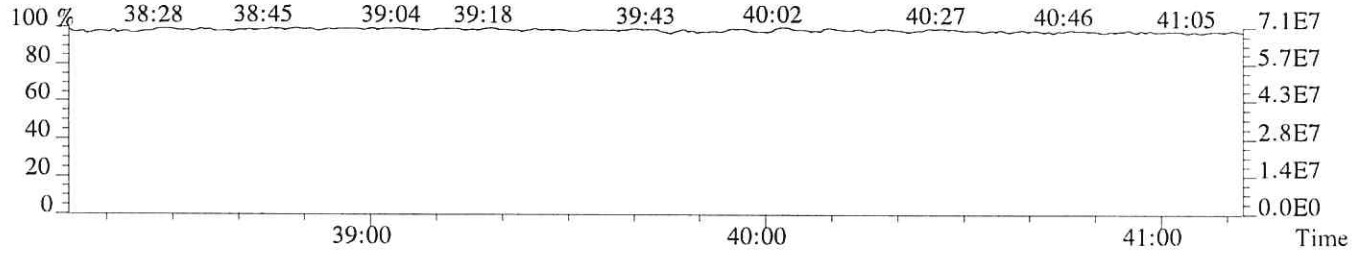
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4312.0,0.50%,F,T)



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

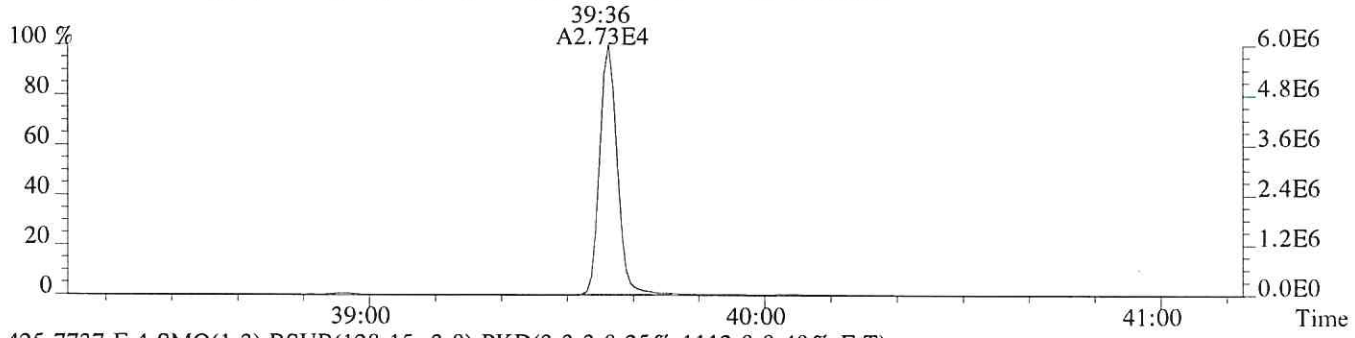


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

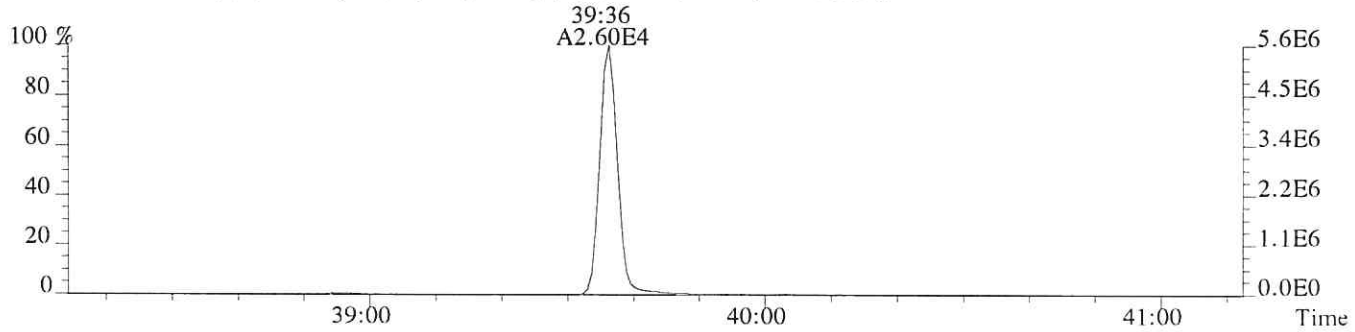


File:P407617 #1-268 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

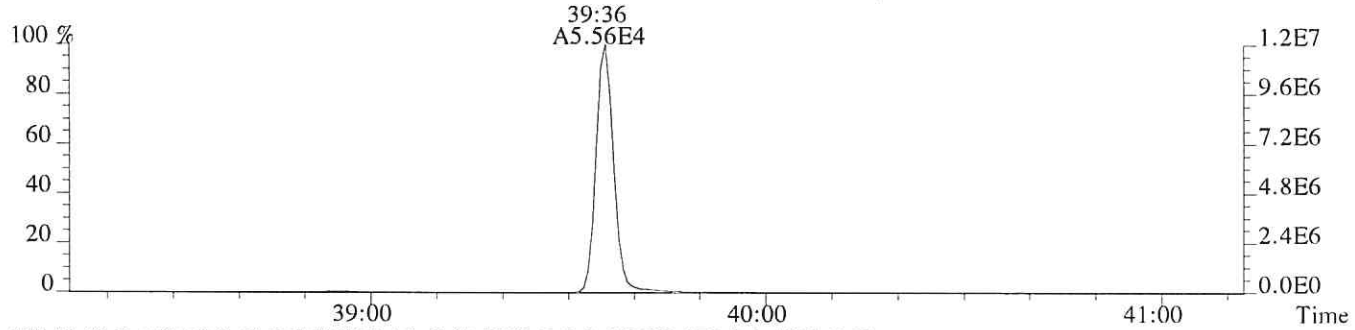
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



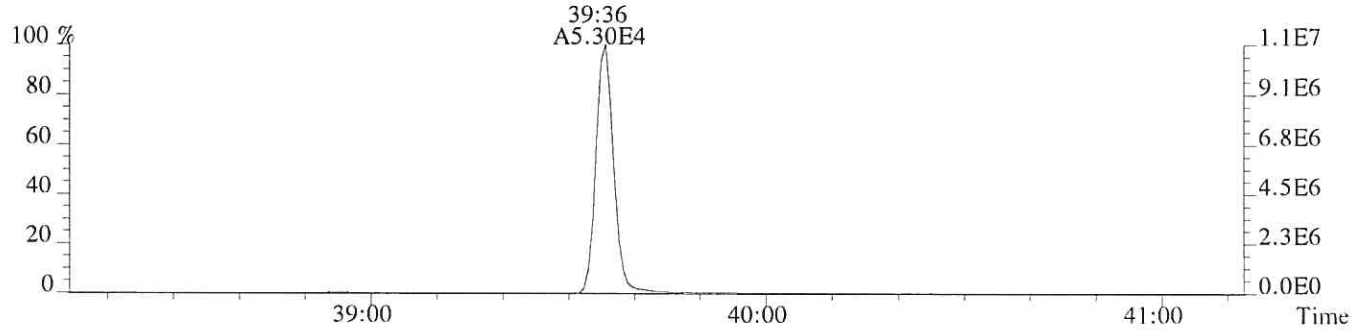
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)



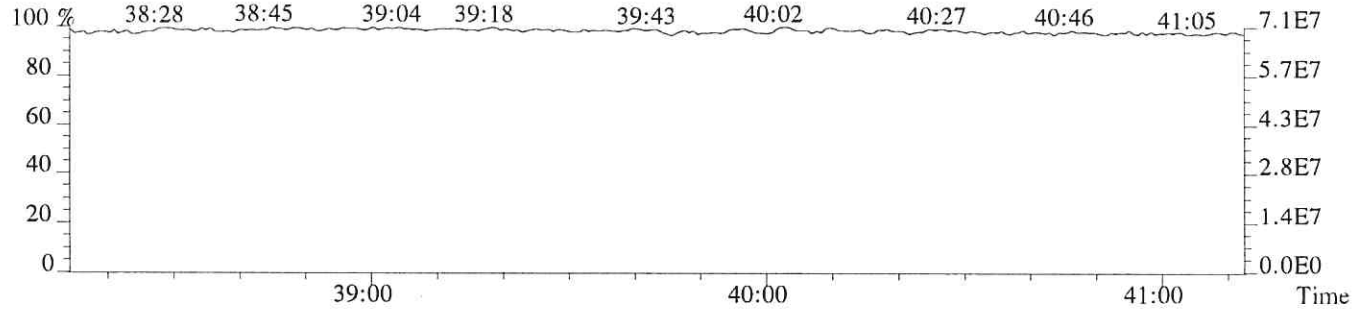
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)

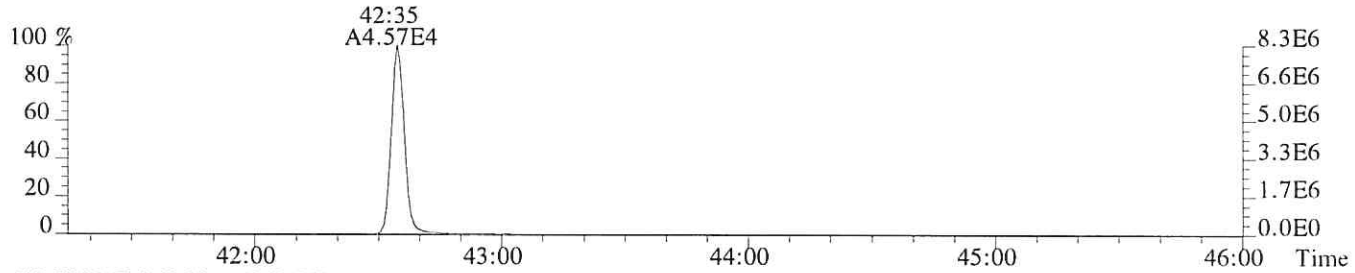


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

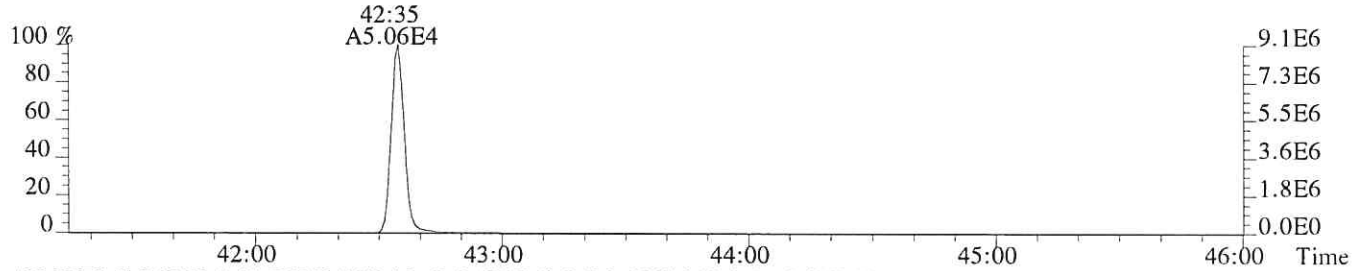


File:P407617 #1-429 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

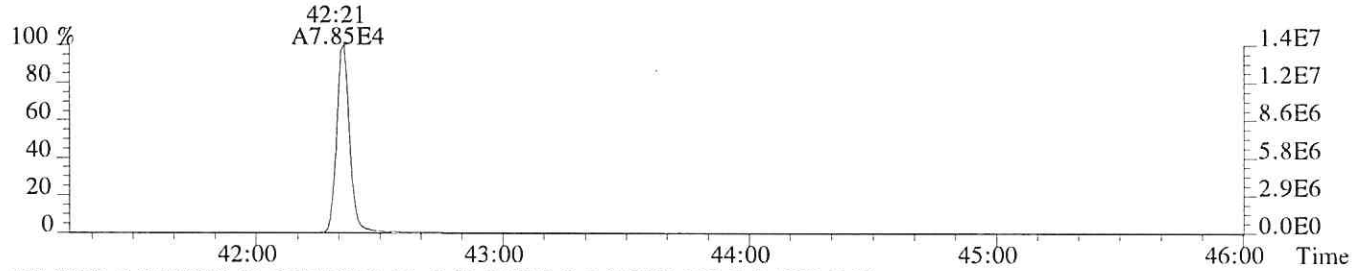
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



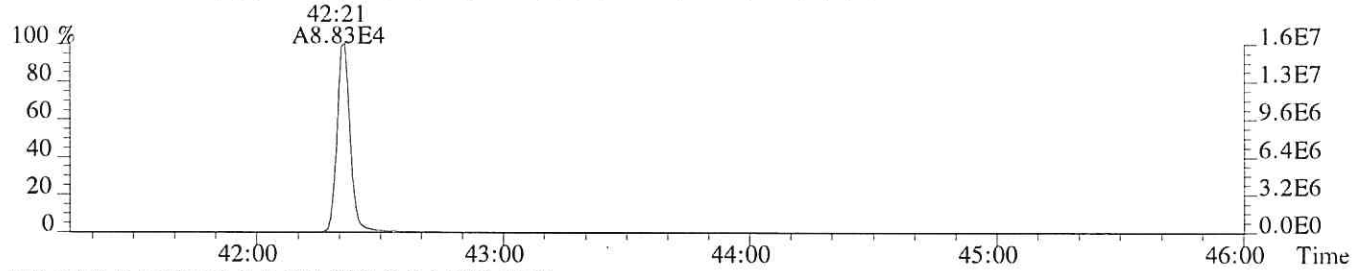
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



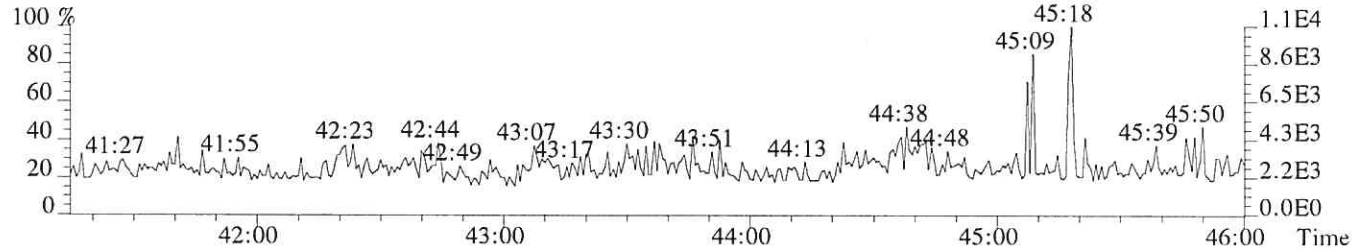
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,948.0,0.40%,F,T)



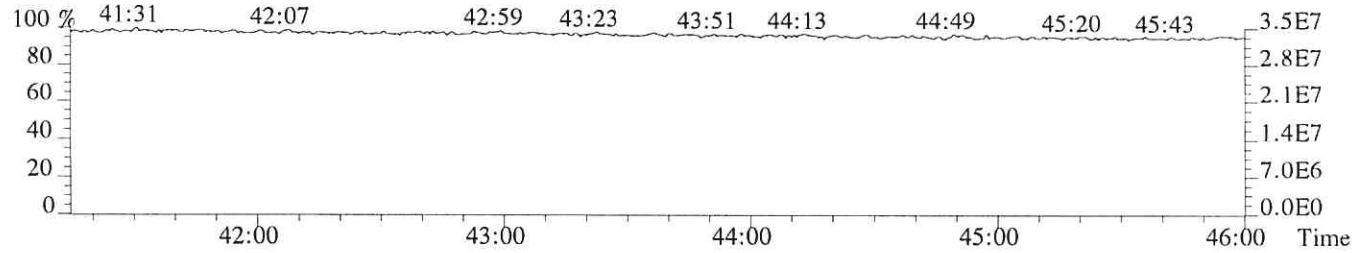
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



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

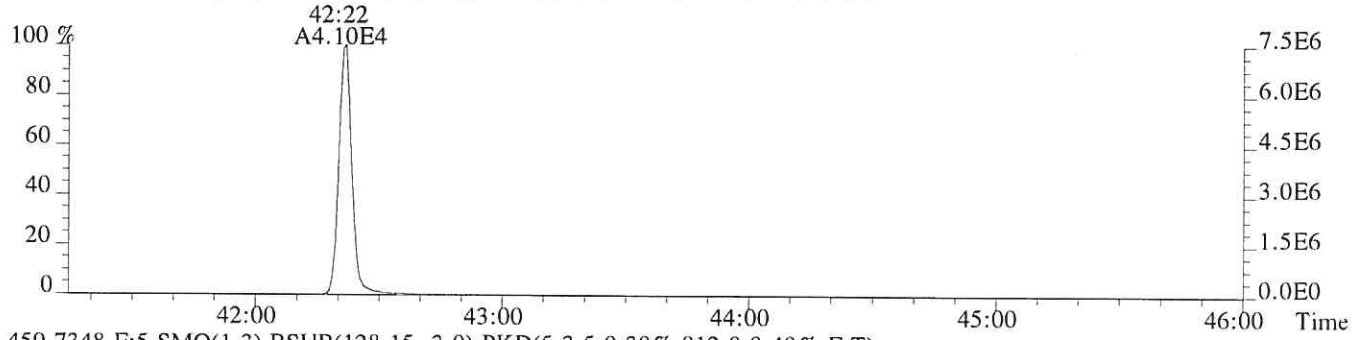


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

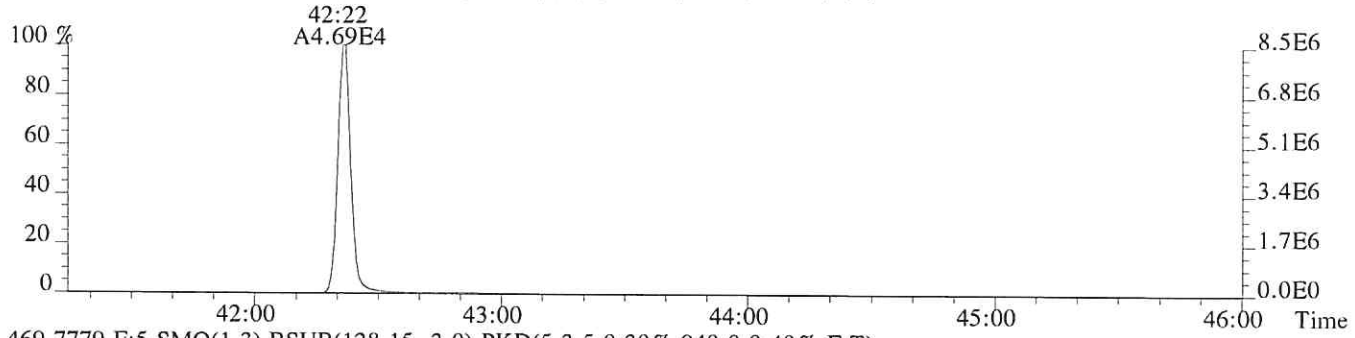


File:P407617 #1-429 Acq: 1-SEP-2017 17:42:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

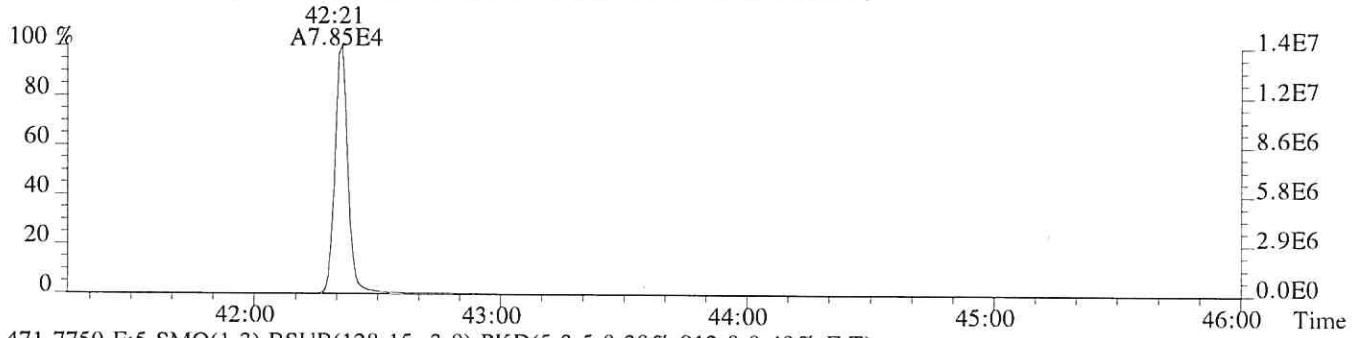
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



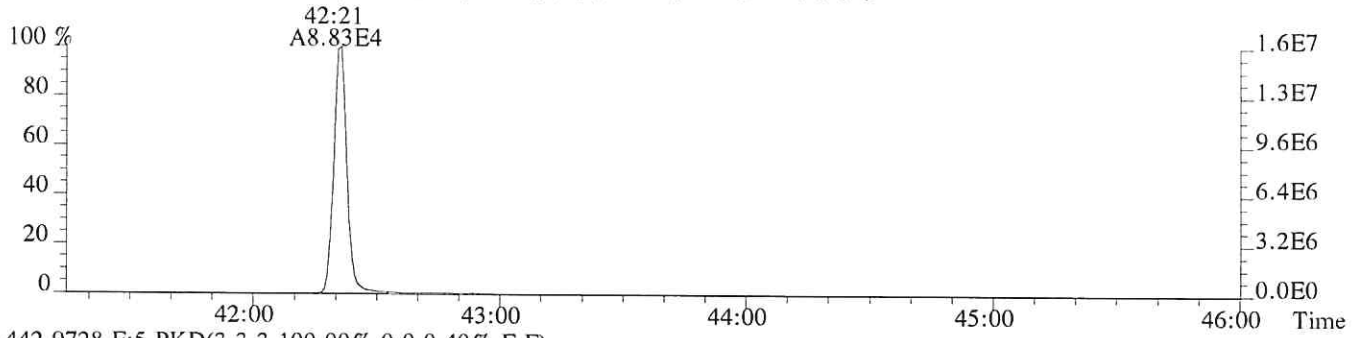
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,812.0,0.40%,F,T)



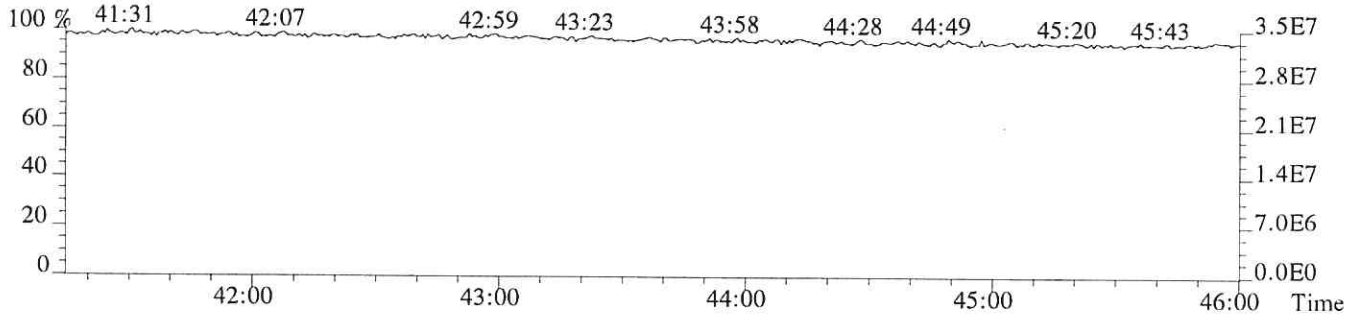
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,948.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename p407618 #1 Samp: 1 Inj: 1 Acquired: 1-SEP-17 18:32:08
Processed: 5-SEP-17 09:15:29 LAB. ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:39	1.786e+04	2.264e+04	0.79	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:41	1.410e+05	9.068e+04	1.55	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:34	1.301e+05	8.366e+04	1.55	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	36:09	1.252e+05	1.007e+05	1.24	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	36:16	1.301e+05	1.044e+05	1.25	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:45	1.175e+05	9.444e+04	1.24	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:30	1.029e+05	8.211e+04	1.25	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	1.056e+05	1.017e+05	1.04	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	8.364e+04	8.005e+04	1.04	yes	no	1.301
10	Unk	OCDF	42:35	1.268e+05	1.406e+05	0.90	yes	no	1.114
11	Unk	2,3,7,8-TCDD	29:24	1.501e+04	1.984e+04	0.76	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:50	9.643e+04	6.282e+04	1.54	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:53	8.754e+04	7.067e+04	1.24	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:58	8.672e+04	6.957e+04	1.25	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	37:11	8.832e+04	7.163e+04	1.23	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	7.282e+04	7.011e+04	1.04	yes	no	0.975
17	Unk	OCDD	42:22	1.126e+05	1.275e+05	0.88	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:38	4.906e+04	6.297e+04	0.78	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:40	6.931e+04	4.462e+04	1.55	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:34	6.734e+04	4.342e+04	1.55	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	36:09	3.105e+04	5.942e+04	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	36:15	3.442e+04	6.642e+04	0.52	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:45	3.132e+04	6.053e+04	0.52	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:29	2.661e+04	5.140e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	2.271e+04	5.124e+04	0.44	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	1.907e+04	4.339e+04	0.44	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	29:23	4.013e+04	5.082e+04	0.79	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:50	5.655e+04	3.624e+04	1.56	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:52	4.558e+04	3.656e+04	1.25	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:57	4.480e+04	3.579e+04	1.25	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	3.670e+04	3.539e+04	1.04	yes	no	0.854
32	IS	13C-OCDD	42:21	5.292e+04	5.977e+04	0.89	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:49	4.231e+04	5.324e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:11	4.788e+04	3.842e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	3.810e+04				no	0.992

ALS ENVIRONMENTAL
10450 Stancliff Road
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Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename p407618 Samp: 1 Inj: 1 Acquired: 1-SEP-17 18:32:08
Processed: 5-SEP-17 09:15:291 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.55e+06	7.56e+02	4.7e+03	4.47e+06	1.45e+03	3.1e+03
2	1,2,3,7,8-PeCDF	2.85e+07	7.32e+02	3.9e+04	1.83e+07	1.13e+03	1.6e+04
3	2,3,4,7,8-PeCDF	2.73e+07	7.32e+02	3.7e+04	1.75e+07	1.13e+03	1.5e+04
4	1,2,3,4,7,8-HxCDF	2.82e+07	1.10e+03	2.6e+04	2.27e+07	7.08e+02	3.2e+04
5	1,2,3,6,7,8-HxCDF	2.91e+07	1.10e+03	2.6e+04	2.32e+07	7.08e+02	3.3e+04
6	2,3,4,6,7,8-HxCDF	2.69e+07	1.10e+03	2.4e+04	2.15e+07	7.08e+02	3.0e+04
7	1,2,3,7,8,9-HxCDF	2.23e+07	1.10e+03	2.0e+04	1.77e+07	7.08e+02	2.5e+04
8	1,2,3,4,6,7,8-HpCDF	2.42e+07	3.84e+03	6.3e+03	2.32e+07	8.30e+03	2.8e+03
9	1,2,3,4,7,8,9-HpCDF	1.74e+07	3.84e+03	4.5e+03	1.68e+07	8.30e+03	2.0e+03
10	OCDF	2.31e+07	6.08e+02	3.8e+04	2.61e+07	1.03e+03	2.5e+04
11	2,3,7,8-TCDD	3.11e+06	1.88e+03	1.7e+03	4.08e+06	5.72e+02	7.1e+03
12	1,2,3,7,8-PeCDD	2.05e+07	9.32e+02	2.2e+04	1.34e+07	5.72e+02	2.3e+04
13	1,2,3,4,7,8-HxCDD	2.06e+07	4.80e+02	4.3e+04	1.66e+07	7.84e+02	2.1e+04
14	1,2,3,6,7,8-HxCDD	1.94e+07	4.80e+02	4.0e+04	1.56e+07	7.84e+02	2.0e+04
15	1,2,3,7,8,9-HxCDD	1.97e+07	4.80e+02	4.1e+04	1.61e+07	7.84e+02	2.1e+04
16	1,2,3,4,6,7,8-HpCDD	1.60e+07	6.36e+02	2.5e+04	1.55e+07	1.03e+03	1.5e+04
17	OCDD	2.07e+07	7.76e+02	2.7e+04	2.35e+07	7.00e+02	3.4e+04
18	13C-2,3,7,8-TCDF	9.59e+06	1.01e+04	9.5e+02	1.24e+07	5.11e+03	2.4e+03
19	13C-1,2,3,7,8-PeCDF	1.39e+07	4.72e+02	2.9e+04	8.92e+06	7.68e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.39e+07	4.72e+02	2.9e+04	8.90e+06	7.68e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	6.99e+06	6.12e+02	1.1e+04	1.34e+07	1.20e+03	1.1e+04
22	13C-1,2,3,6,7,8-HxCDF	7.68e+06	6.12e+02	1.3e+04	1.48e+07	1.20e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	7.14e+06	6.12e+02	1.2e+04	1.38e+07	1.20e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	5.84e+06	6.12e+02	9.5e+03	1.12e+07	1.20e+03	9.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.19e+06	1.29e+03	4.0e+03	1.18e+07	2.07e+03	5.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.95e+06	1.29e+03	3.1e+03	8.98e+06	2.07e+03	4.3e+03
27	13C-2,3,7,8-TCDD	8.11e+06	3.65e+03	2.2e+03	1.02e+07	2.34e+03	4.4e+03
28	13C-1,2,3,7,8-PeCDD	1.17e+07	1.02e+03	1.1e+04	7.50e+06	1.04e+03	7.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.06e+07	1.64e+03	6.5e+03	8.50e+06	1.19e+03	7.1e+03
30	13C-1,2,3,6,7,8-HxCDD	9.93e+06	1.64e+03	6.1e+03	7.91e+06	1.19e+03	6.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.00e+06	1.07e+03	7.5e+03	7.76e+06	1.06e+03	7.3e+03
32	13C-OCDD	9.74e+06	8.60e+02	1.1e+04	1.10e+07	4.12e+02	2.7e+04
33	13C-1,2,3,4-TCDD	8.37e+06	3.65e+03	2.3e+03	1.06e+07	2.34e+03	4.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.04e+07	1.64e+03	6.3e+03	8.39e+06	1.19e+03	7.0e+03
35	37Cl-2,3,7,8-TCDD	7.85e+06	1.45e+03	5.4e+03			

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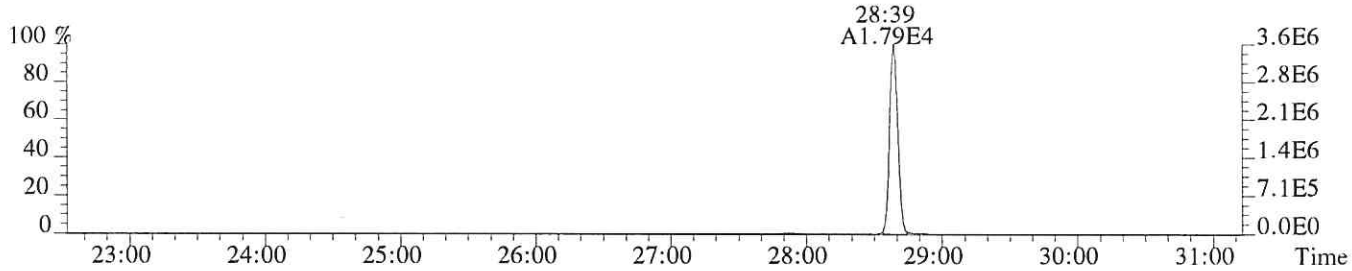
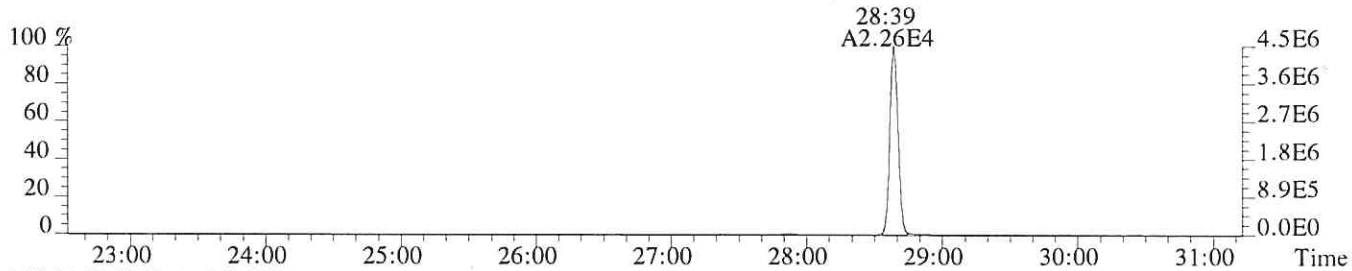
File:P407618 #1-616 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

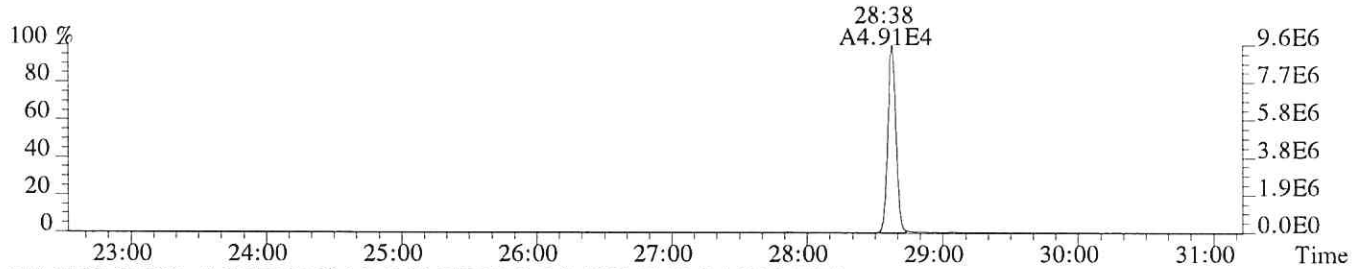
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



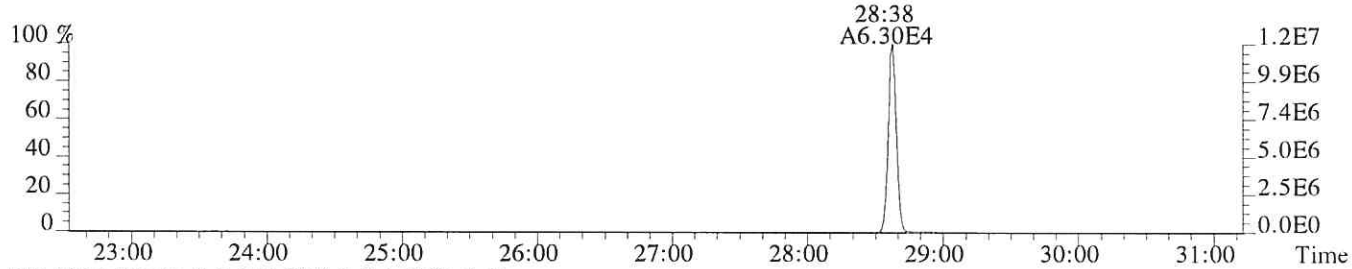
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



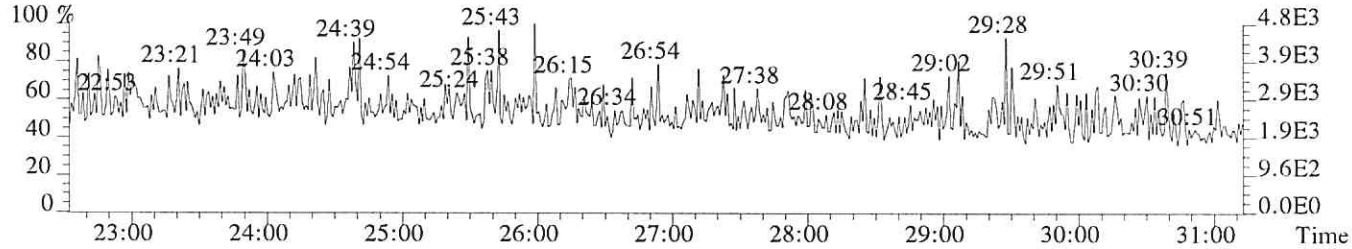
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10084.0,1.00%,F,T)



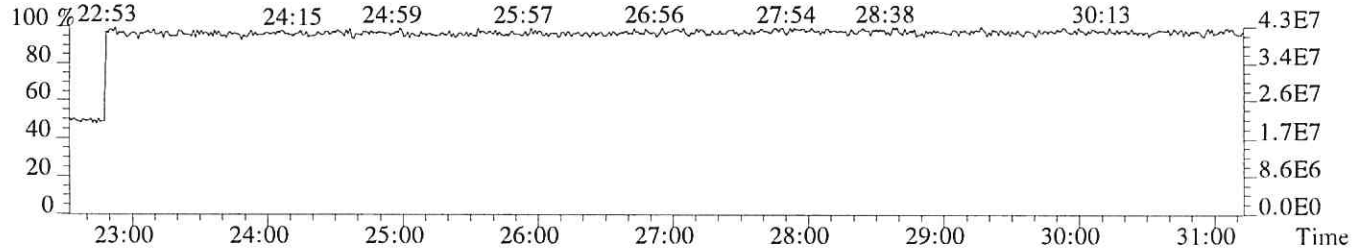
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5112.0,1.00%,F,T)



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

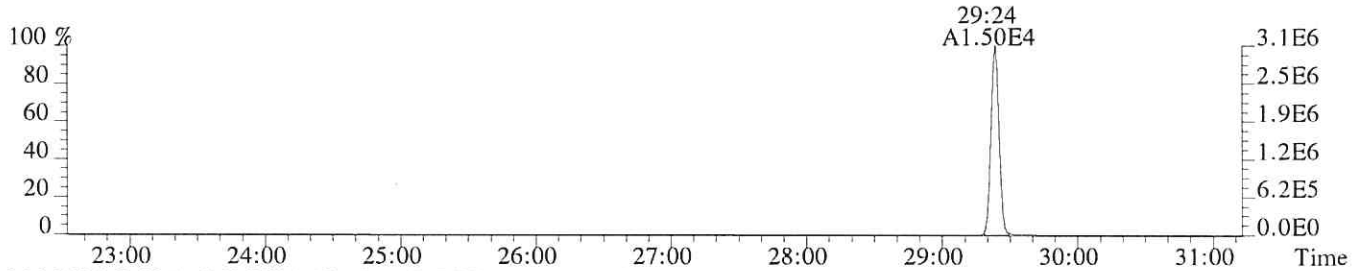


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

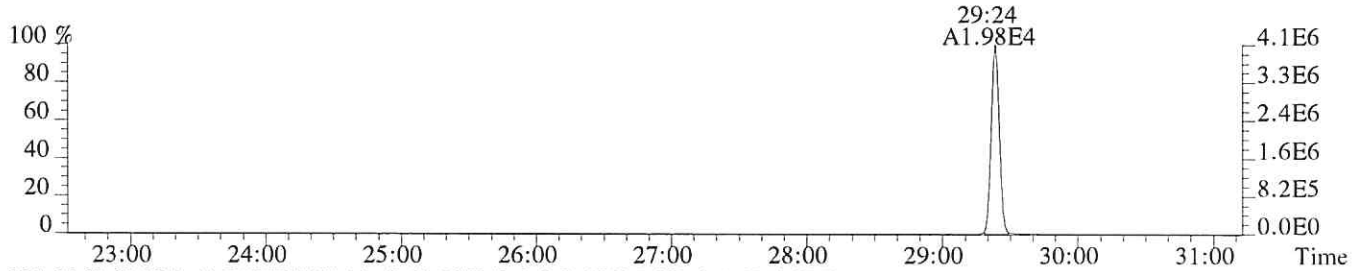


File:P407618 #1-616 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

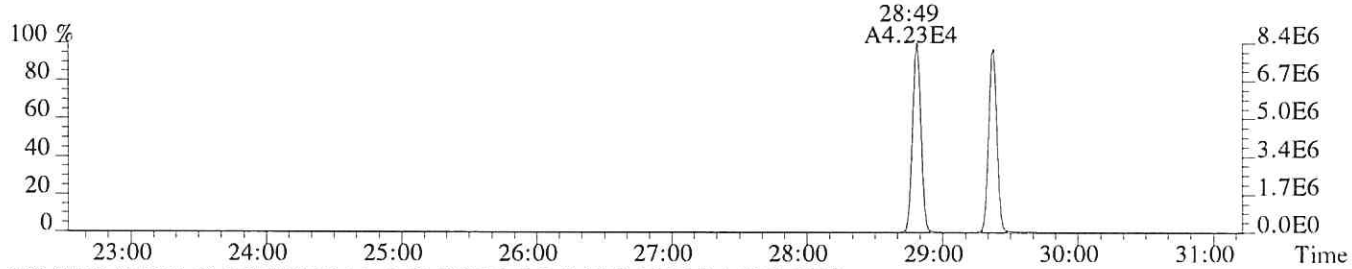
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



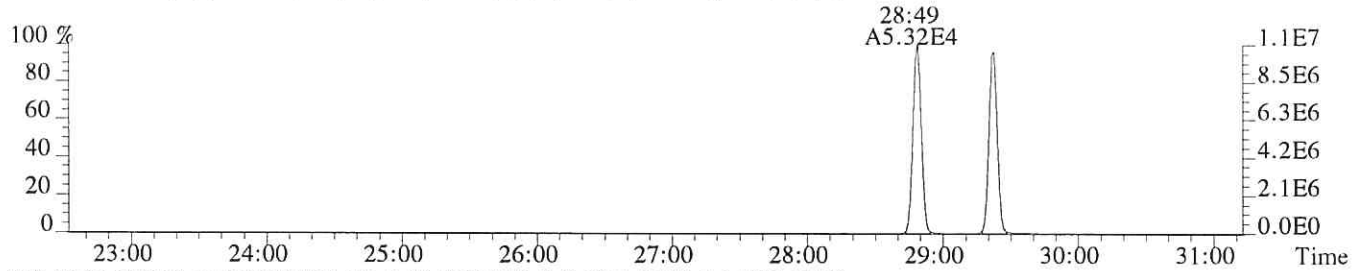
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



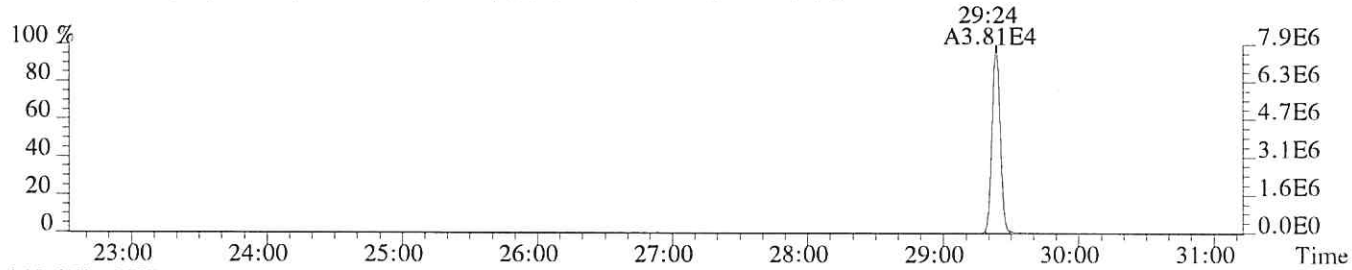
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3652.0,1.00%,F,T)



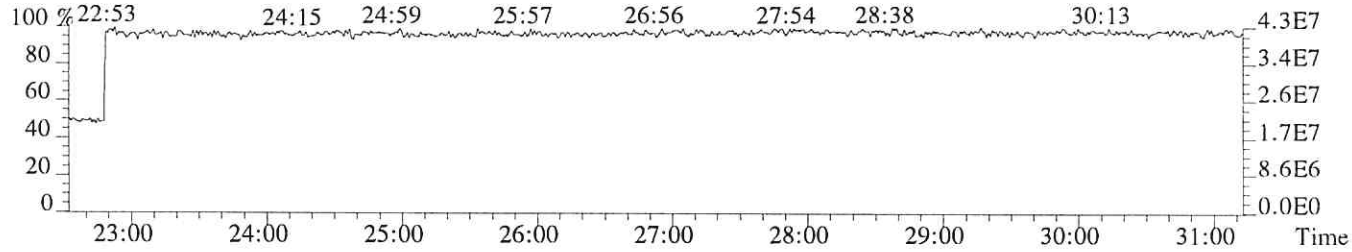
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)



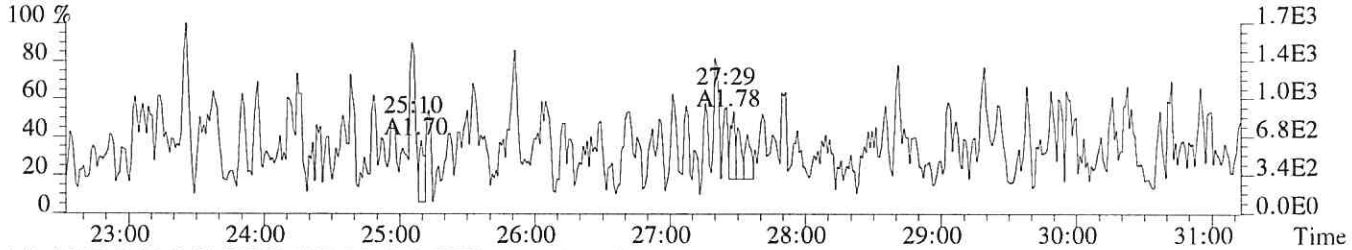
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



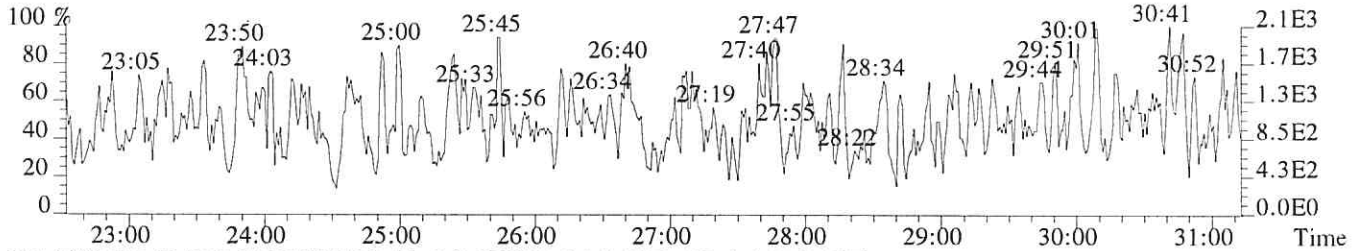
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



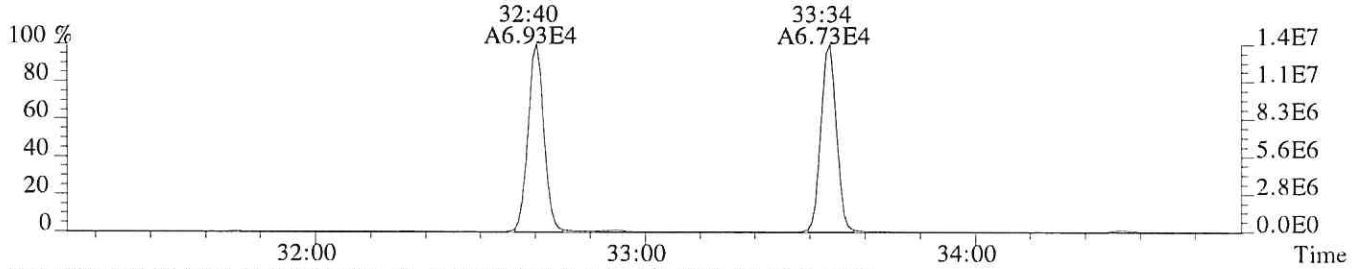
File:P407618 #1-616 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



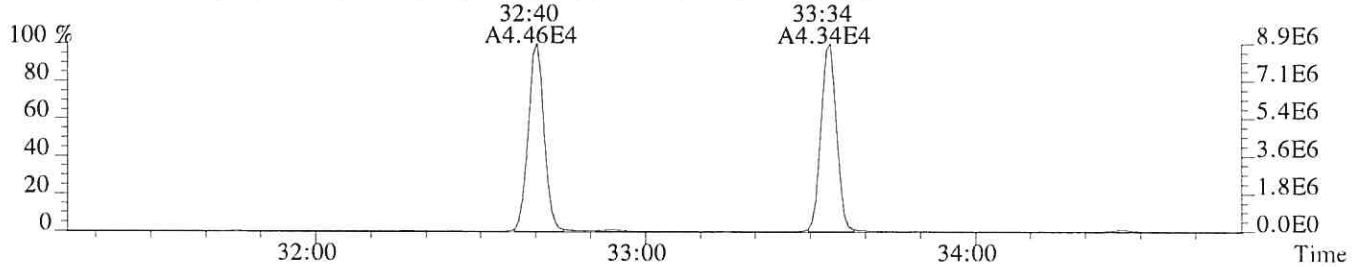
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)



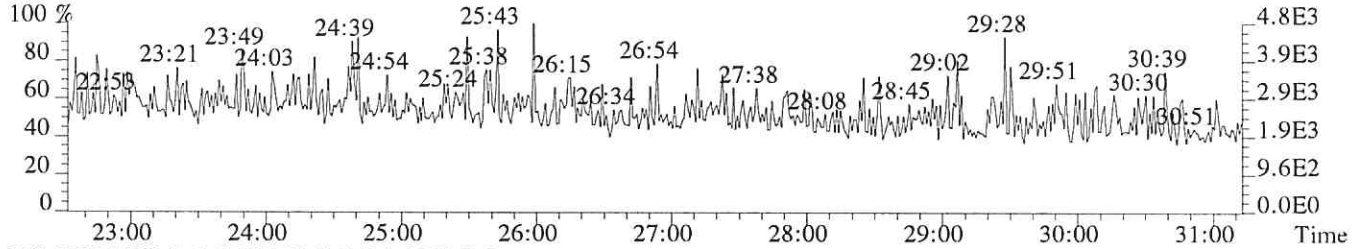
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



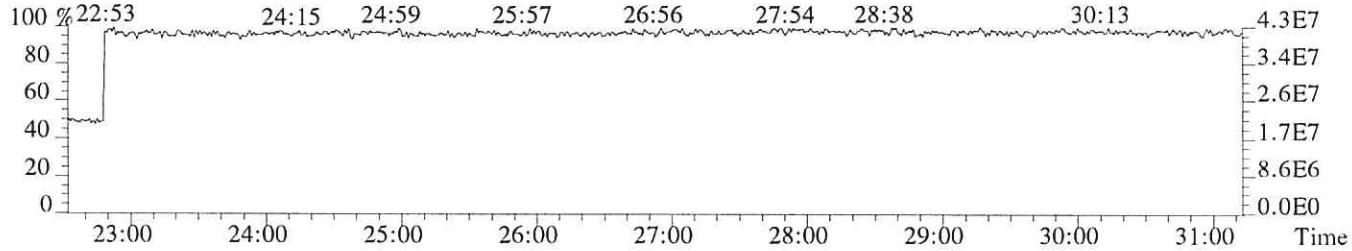
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



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

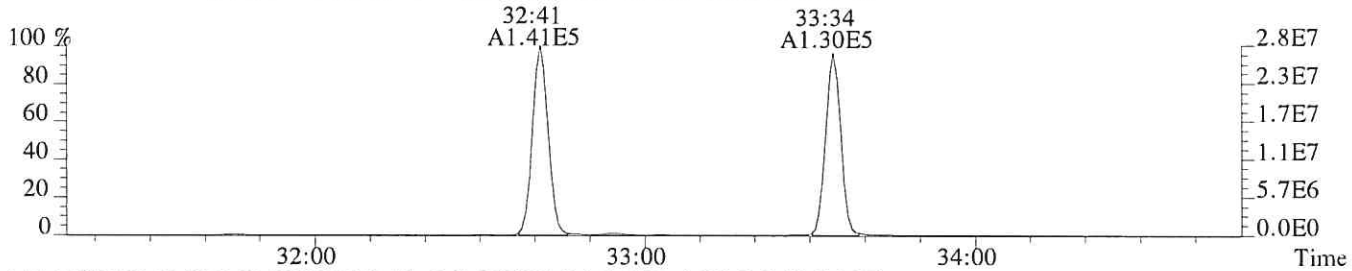


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

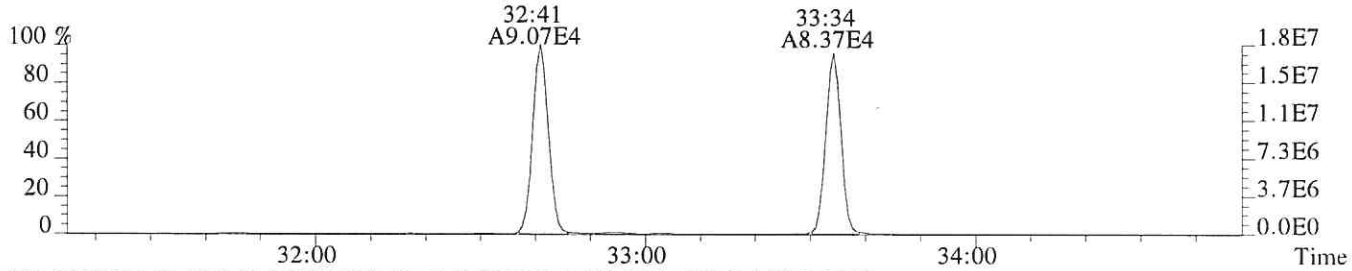


File:P407618 #1-321 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

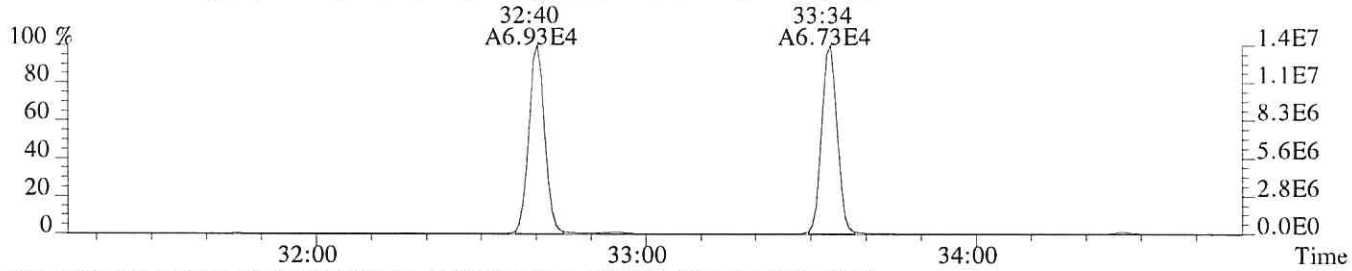
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



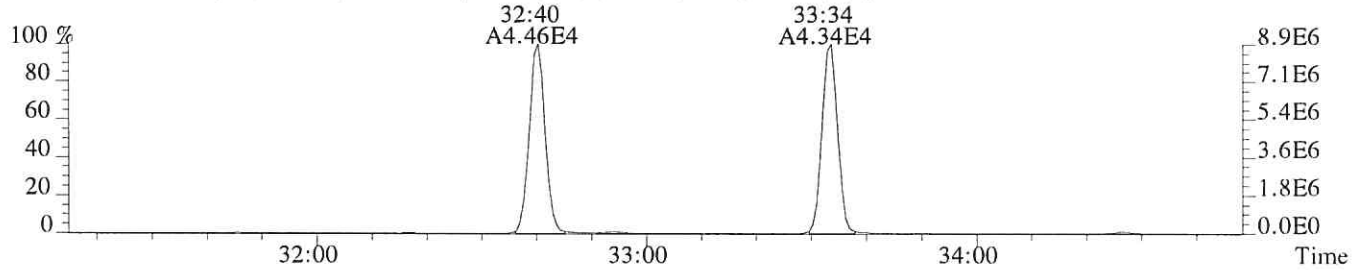
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



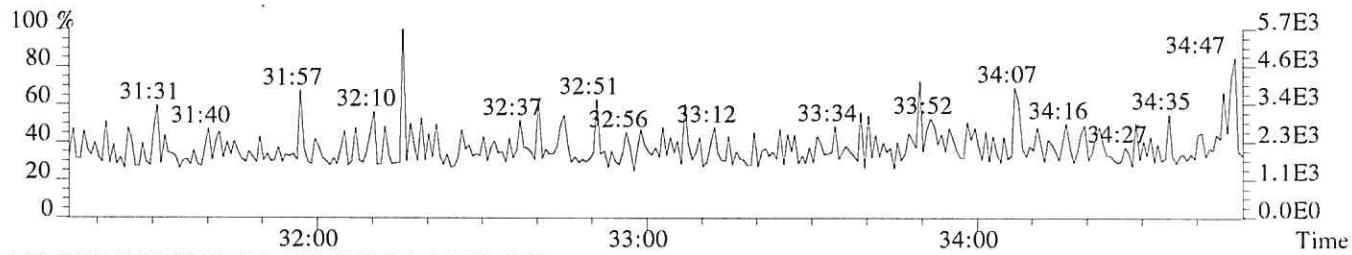
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



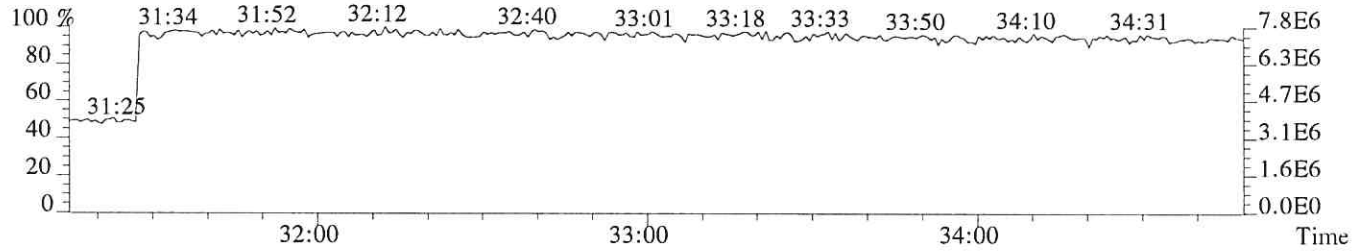
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



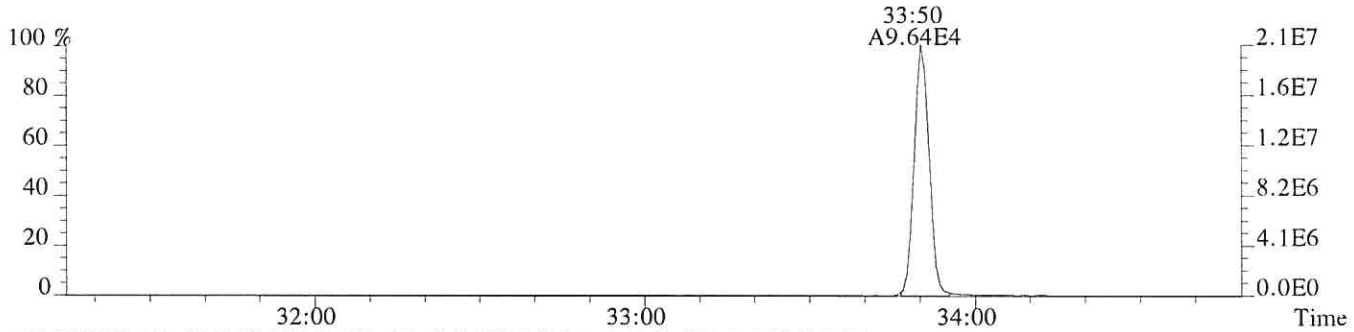
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



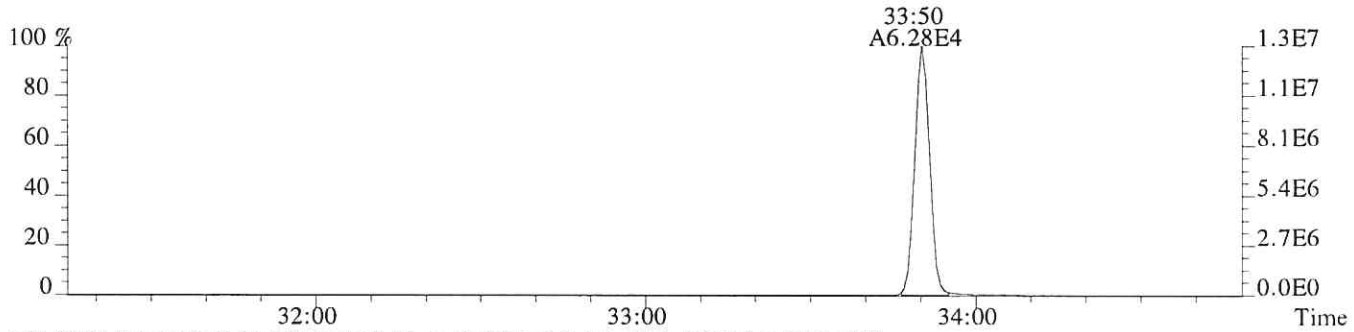
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



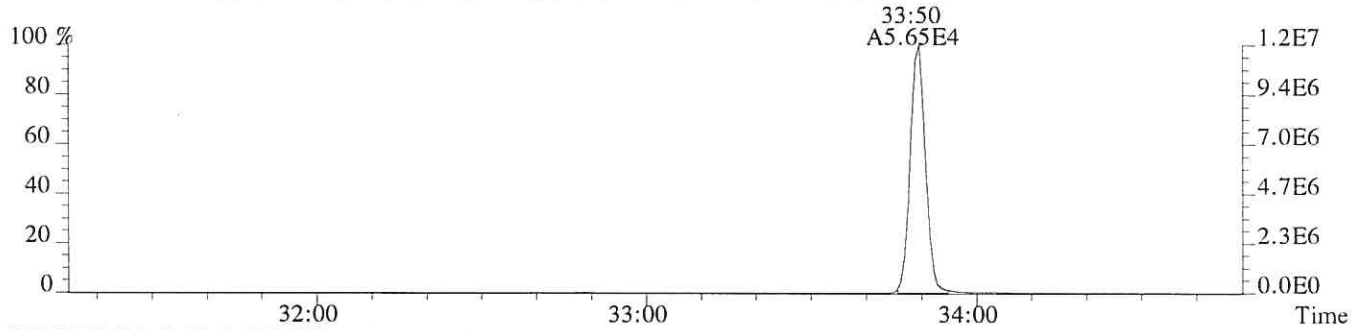
File:P407618 #1-321 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



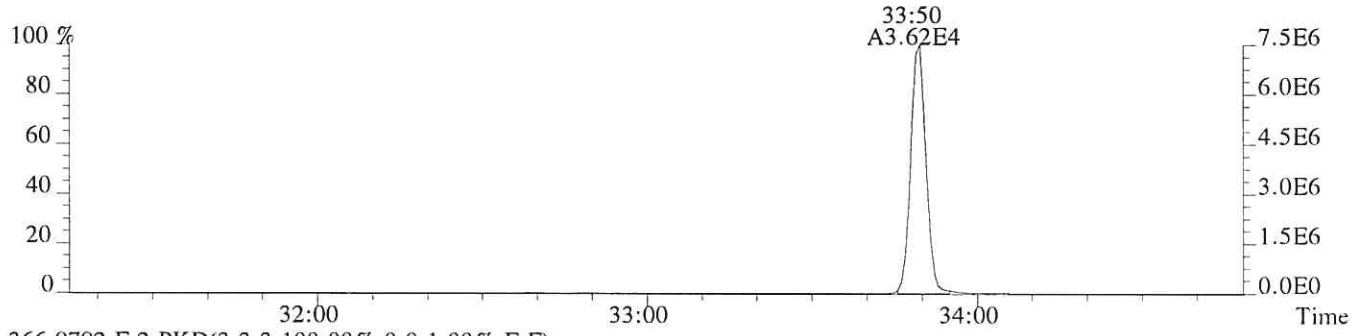
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



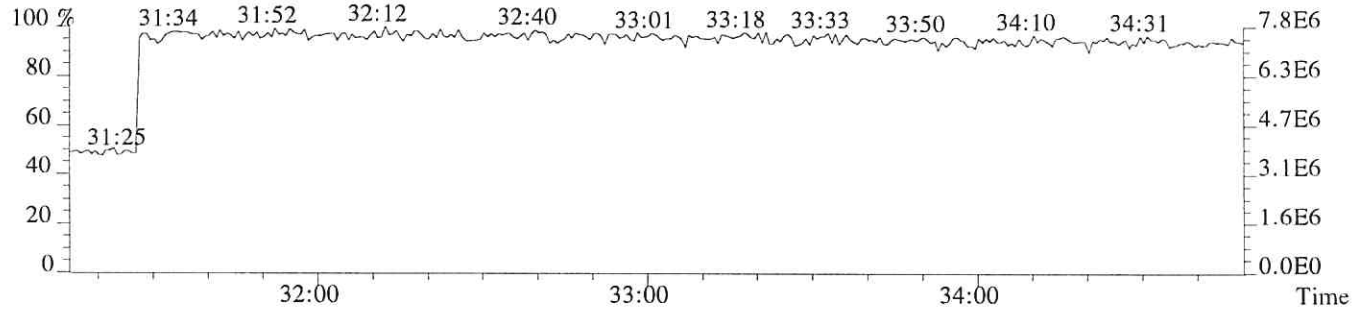
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

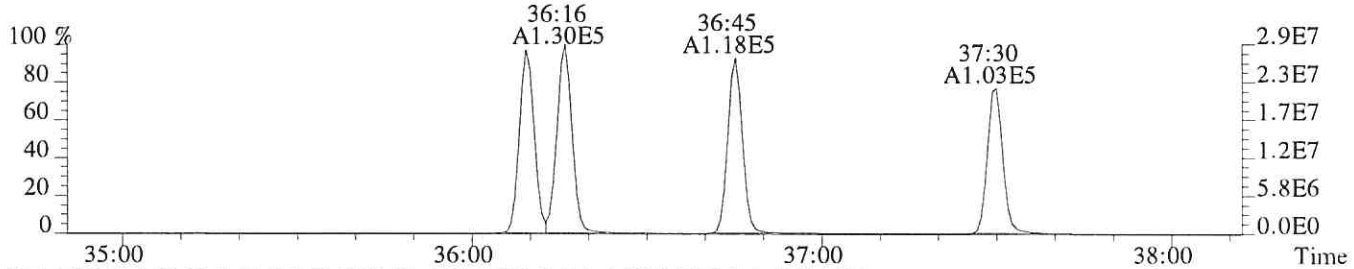


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

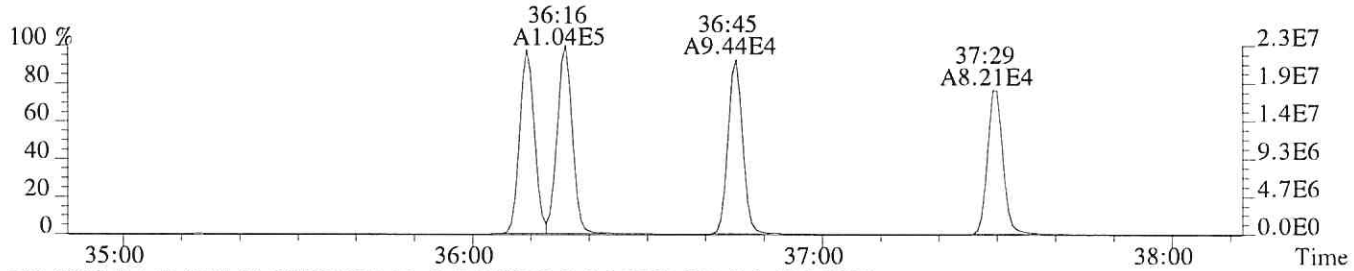


File:P407618 #1-303 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

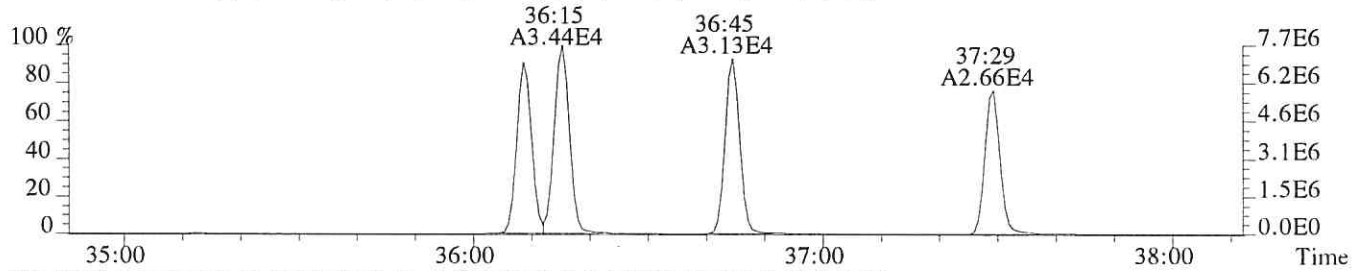
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



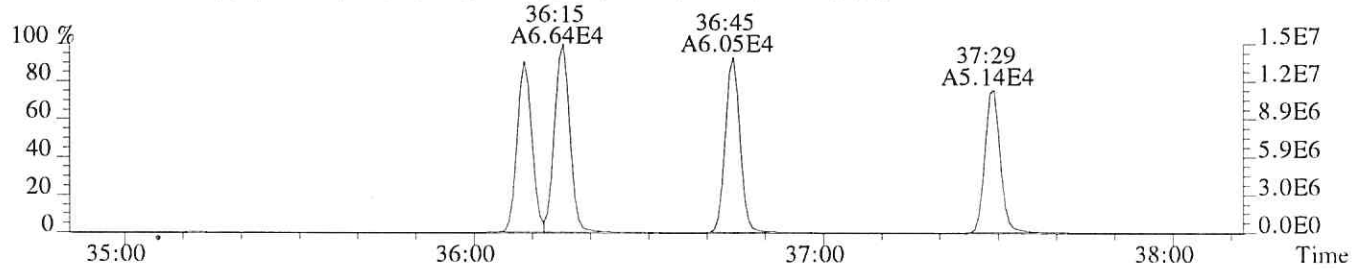
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



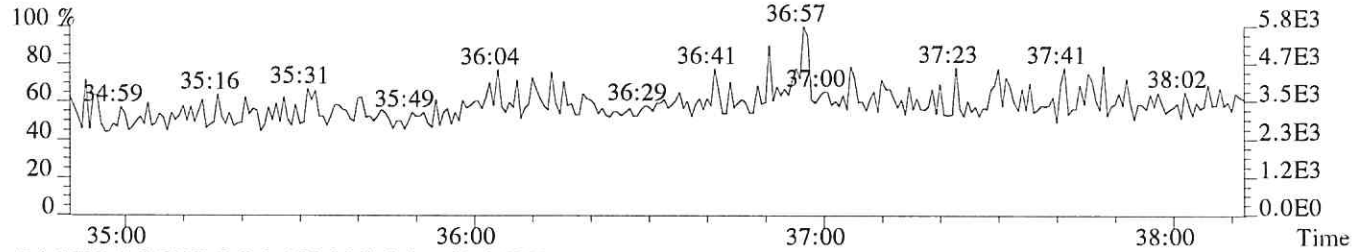
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



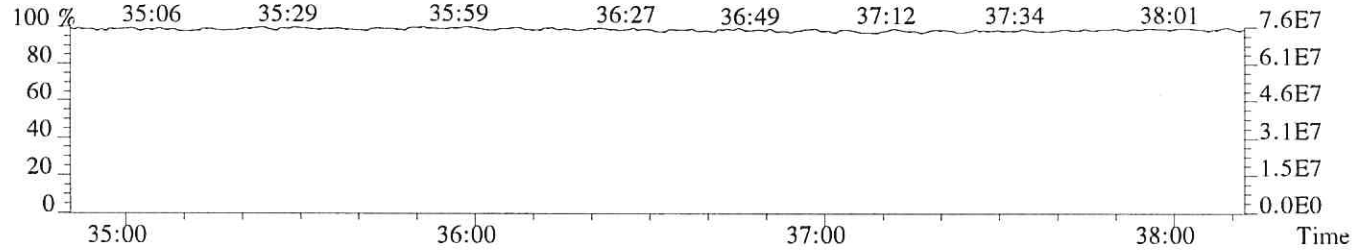
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



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

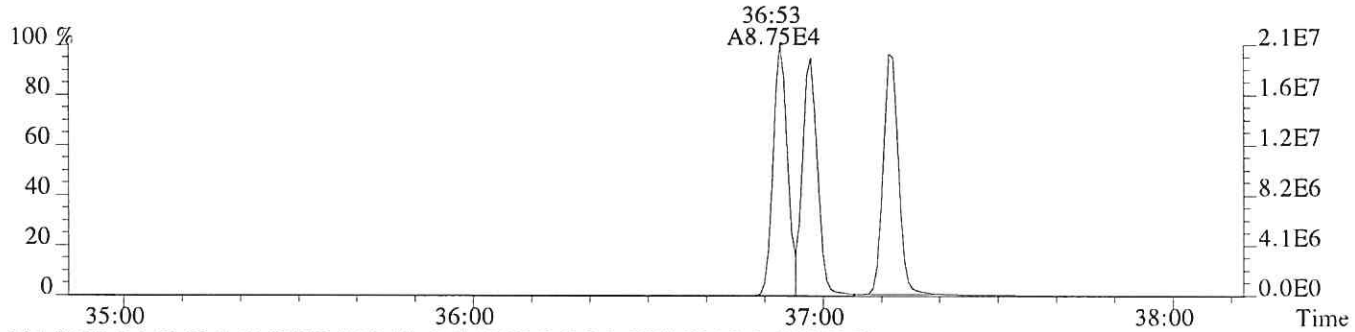


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

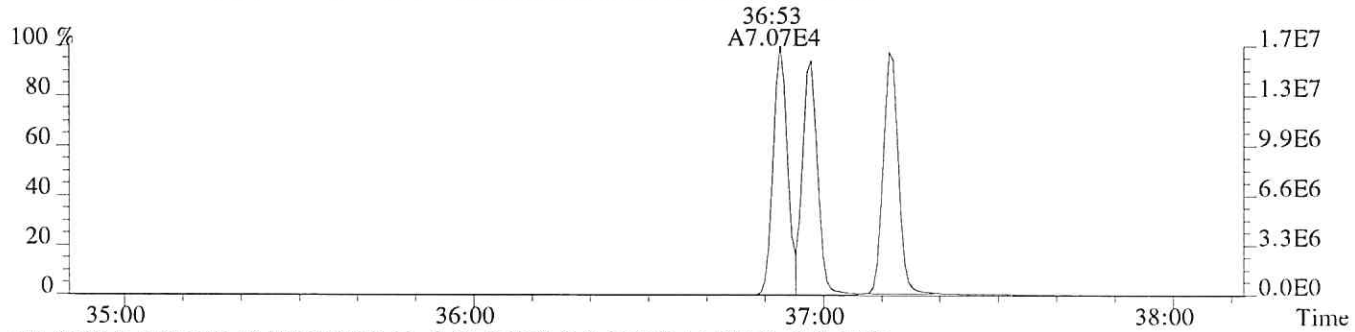


File:P407618 #1-303 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

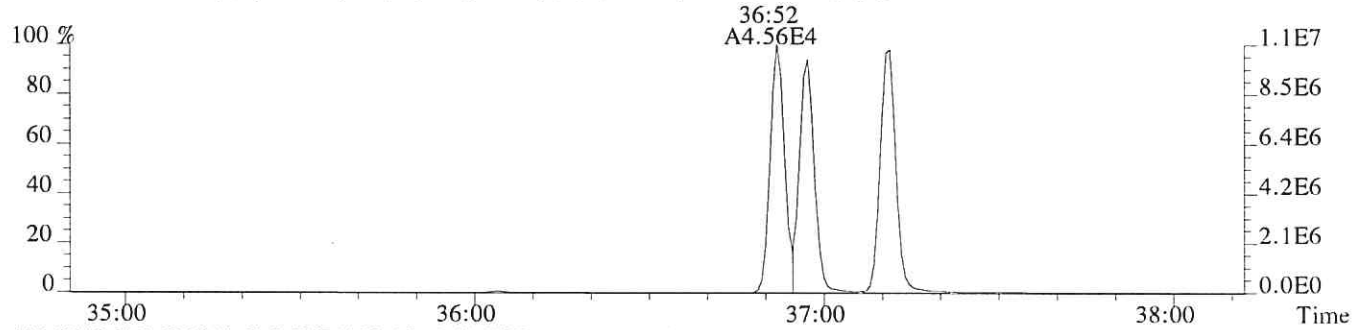
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



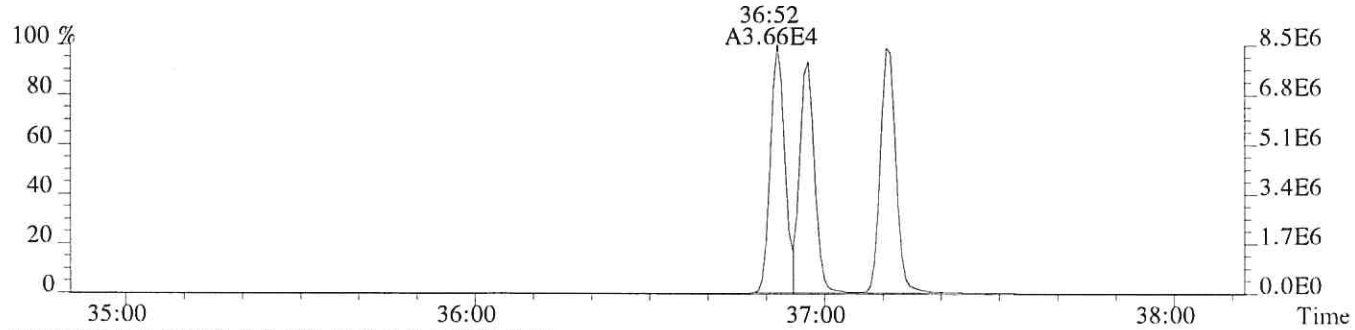
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



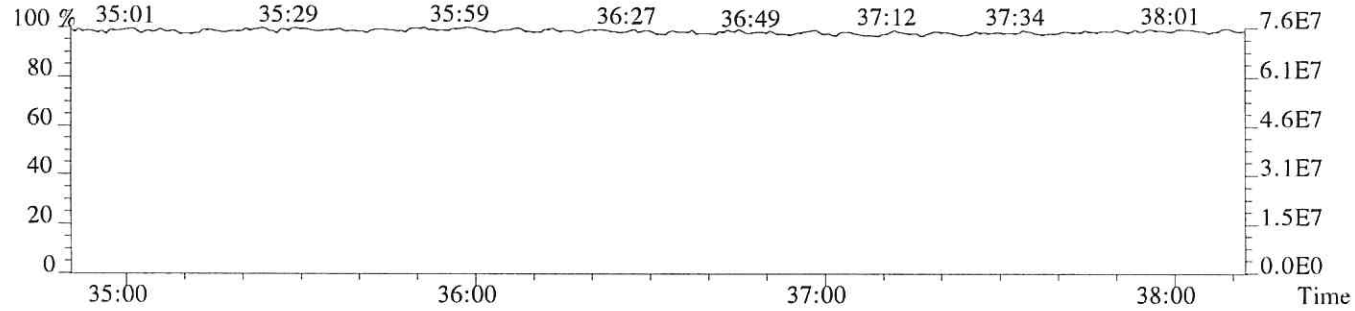
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)

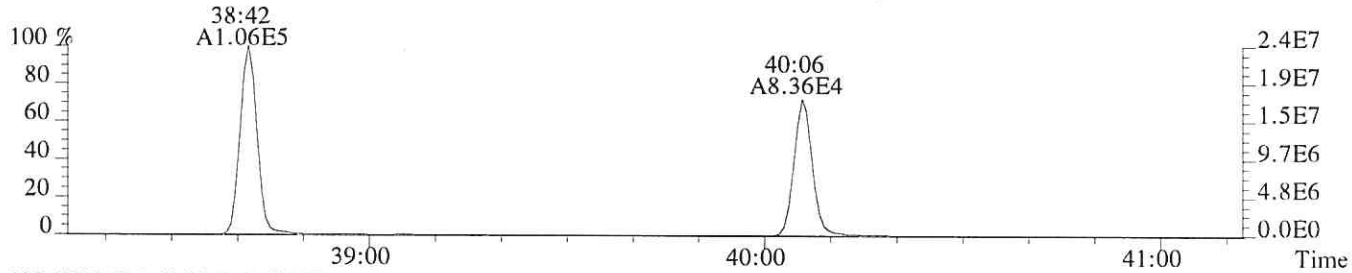


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

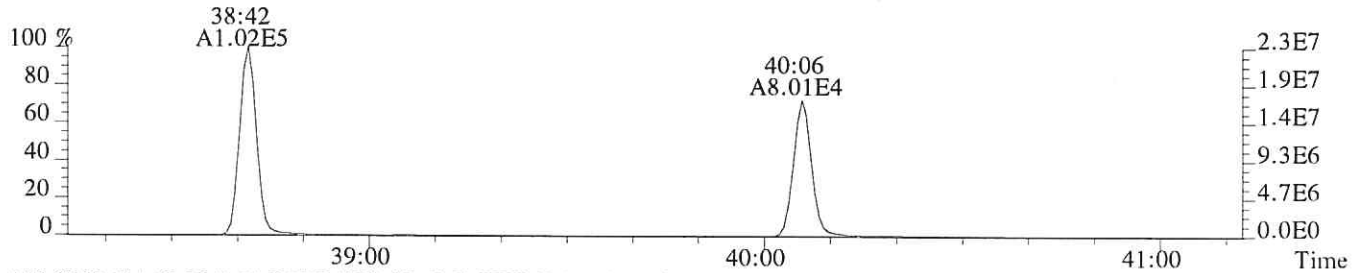


File:P407618 #1-268 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

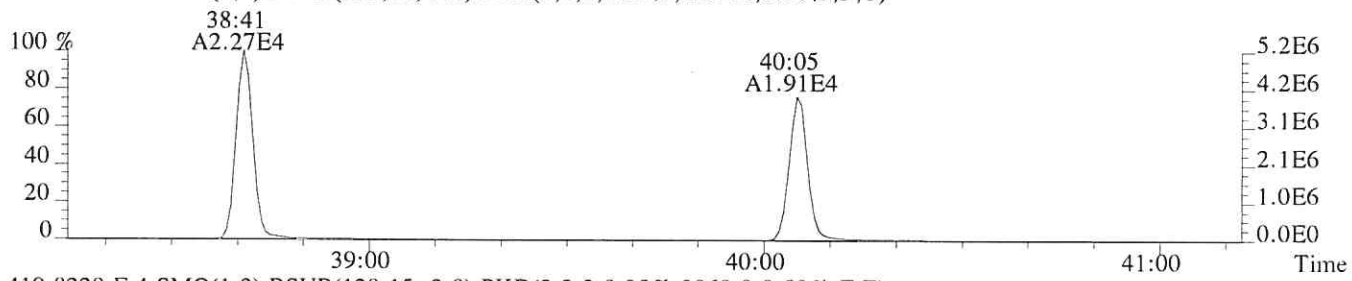
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3840.0,0.50%,F,T)



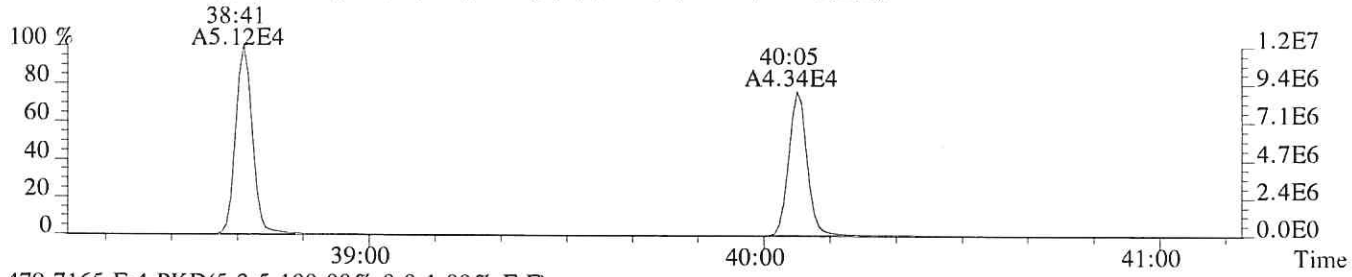
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8300.0,0.50%,F,T)



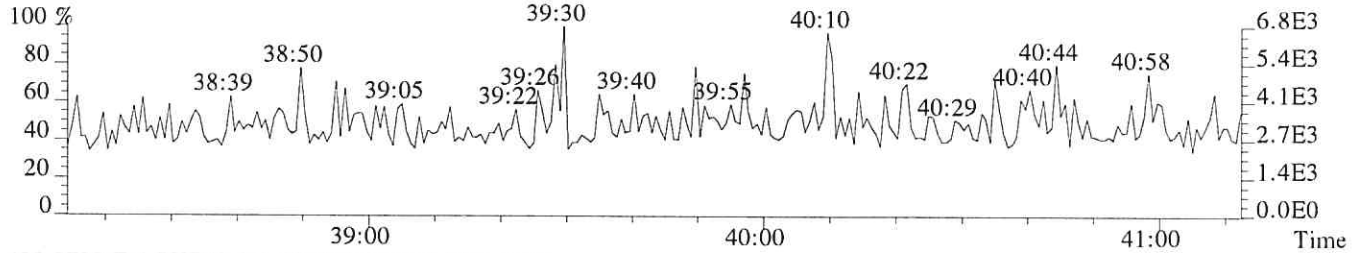
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.50%,F,T)



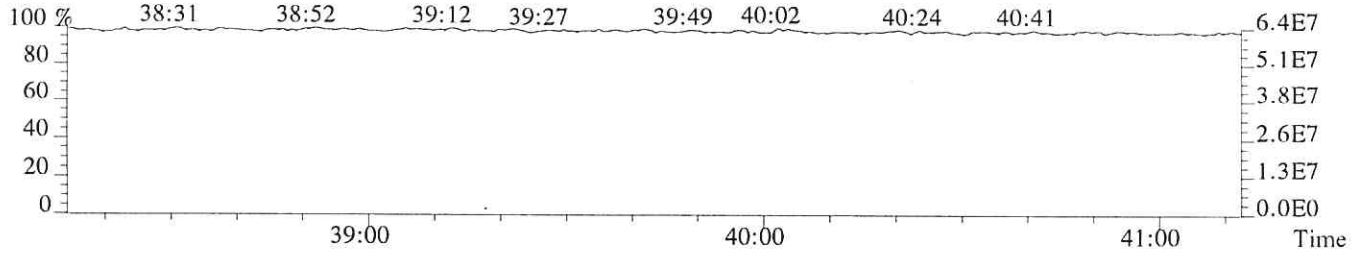
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.50%,F,T)



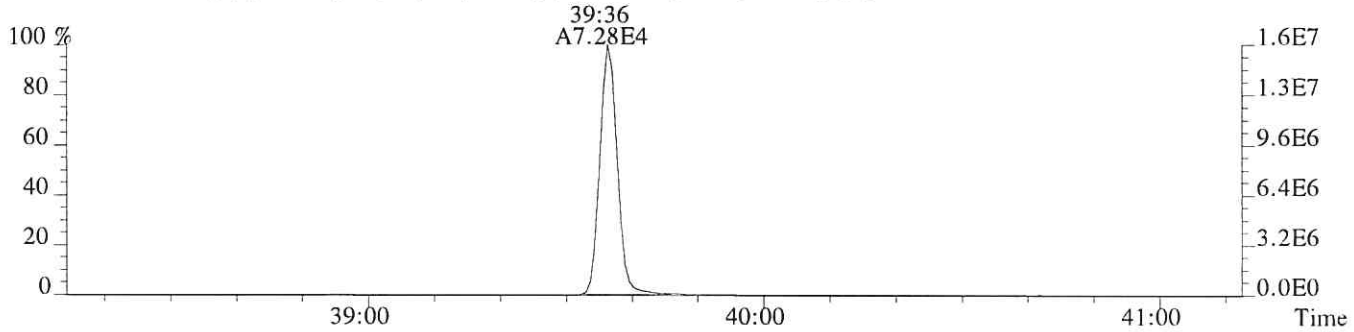
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



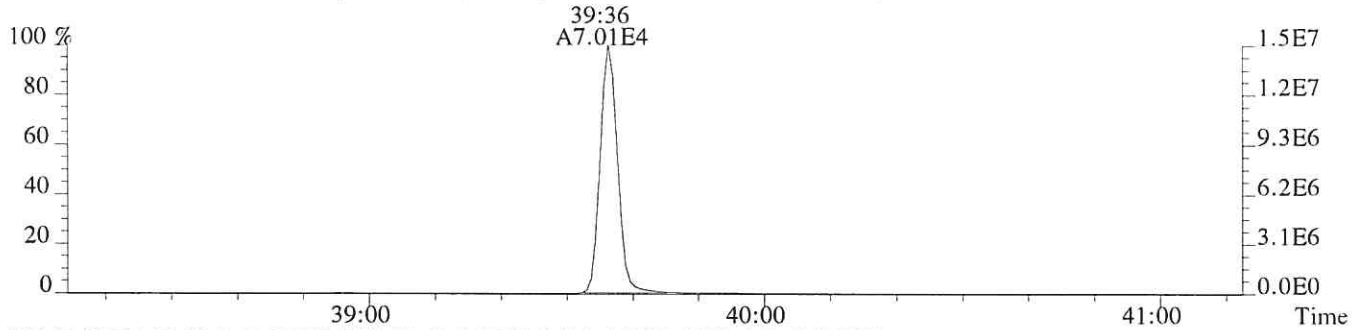
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



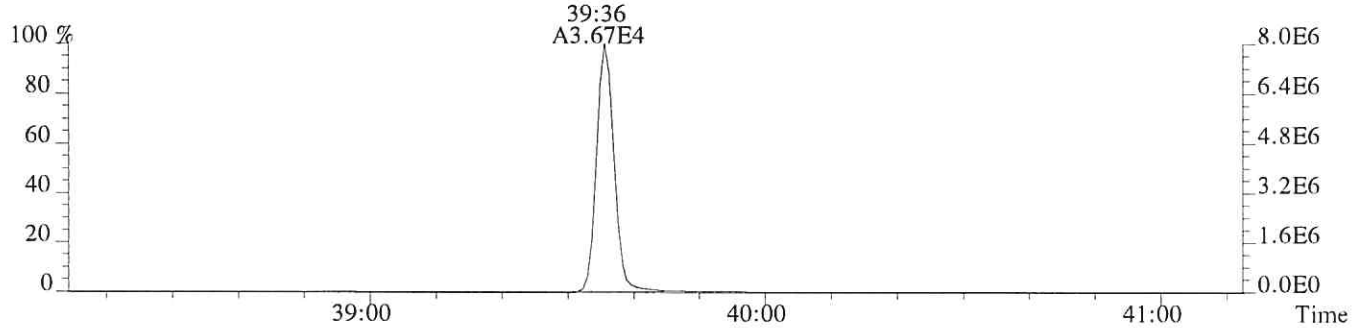
File:P407618 #1-268 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



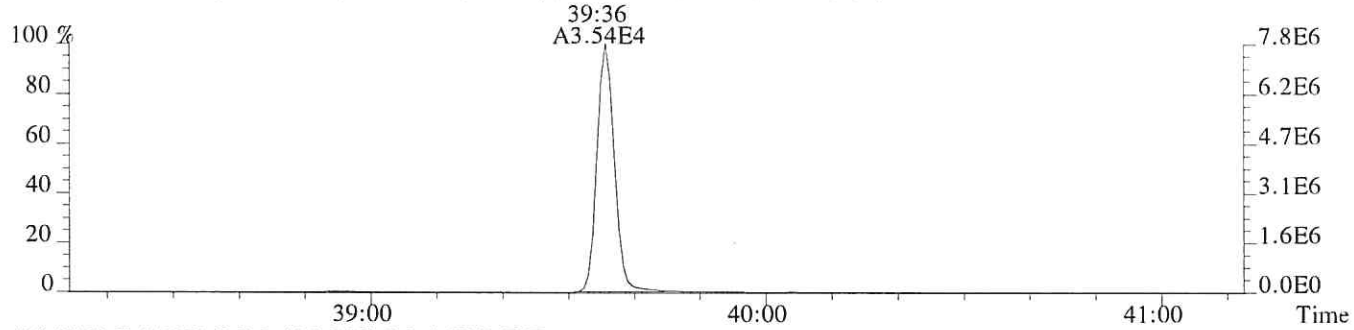
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



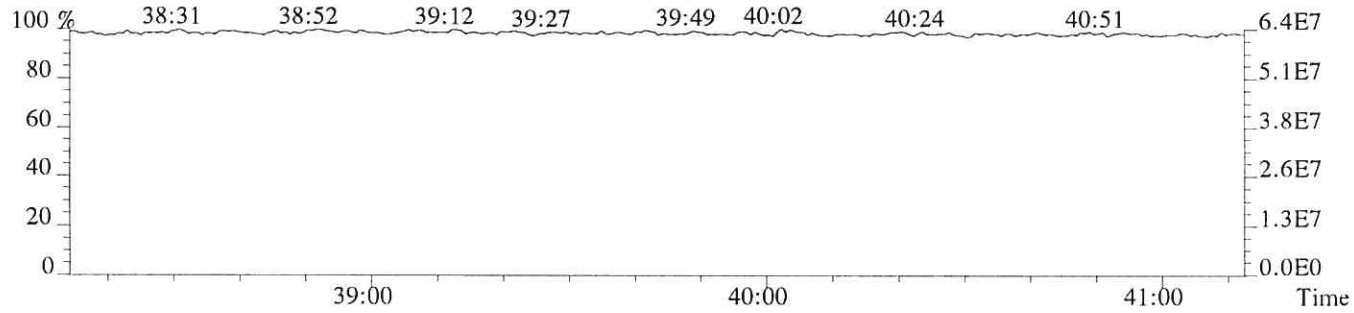
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)

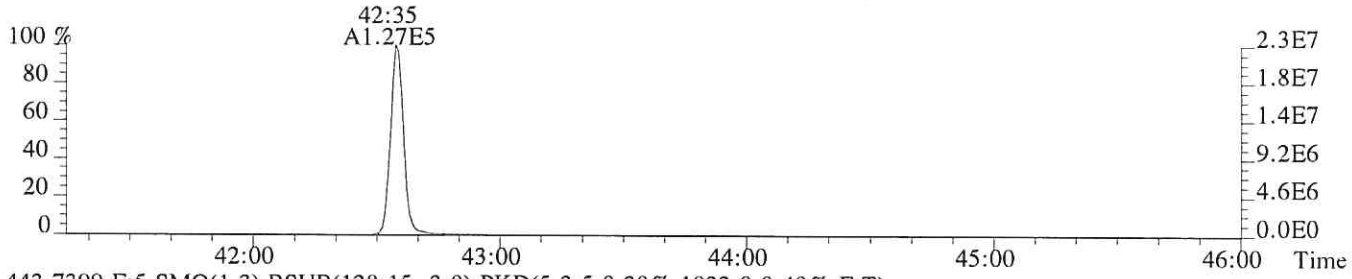


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

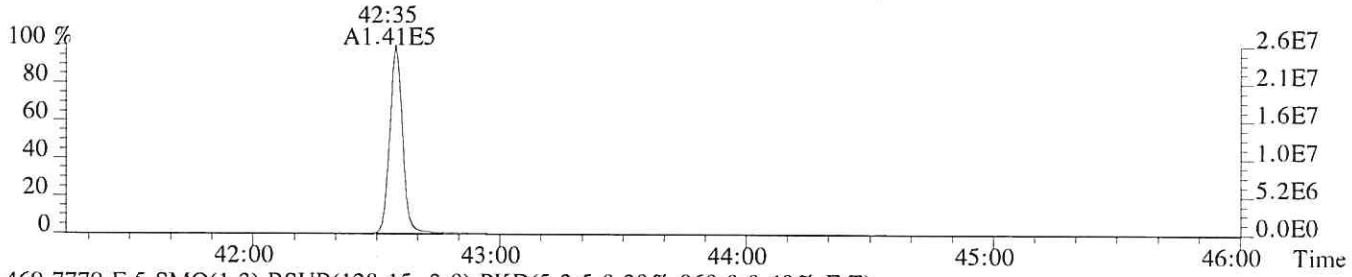


File:P407618 #1-429 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

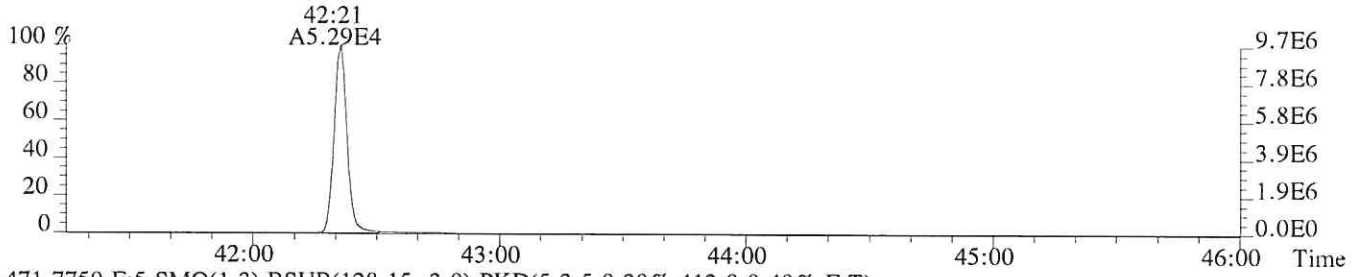
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



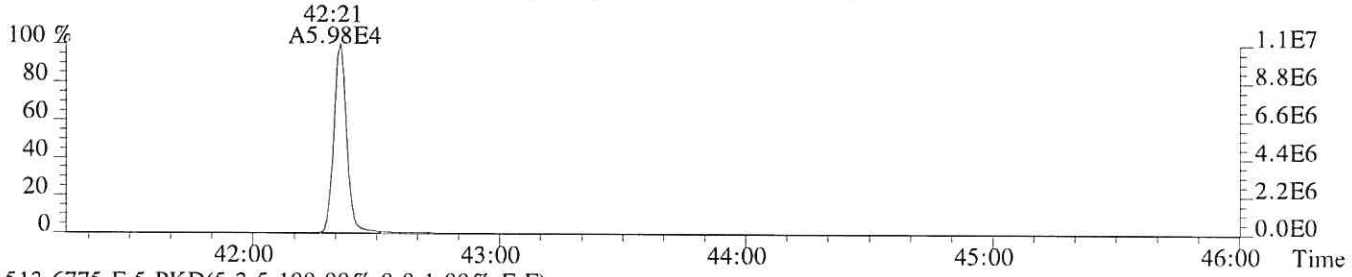
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1032.0,0.40%,F,T)



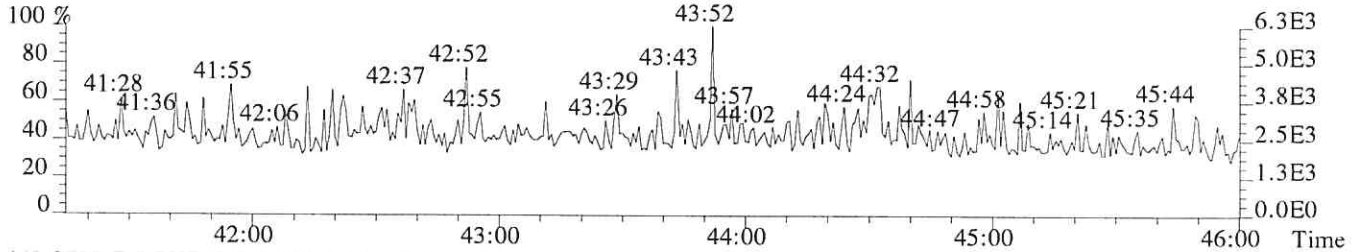
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



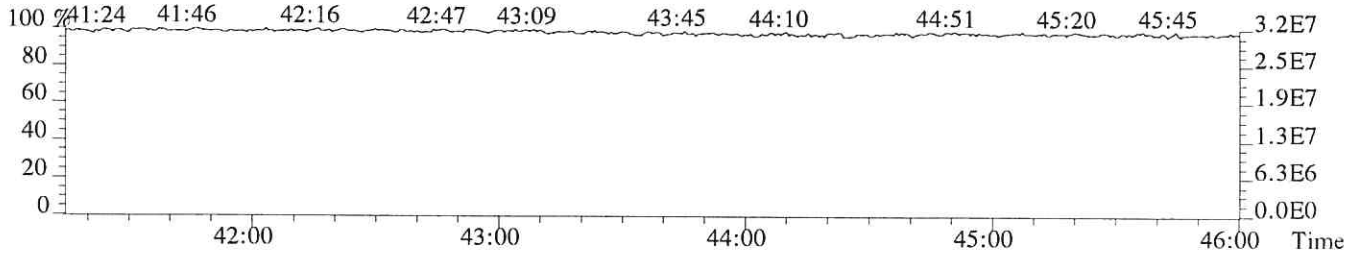
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



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

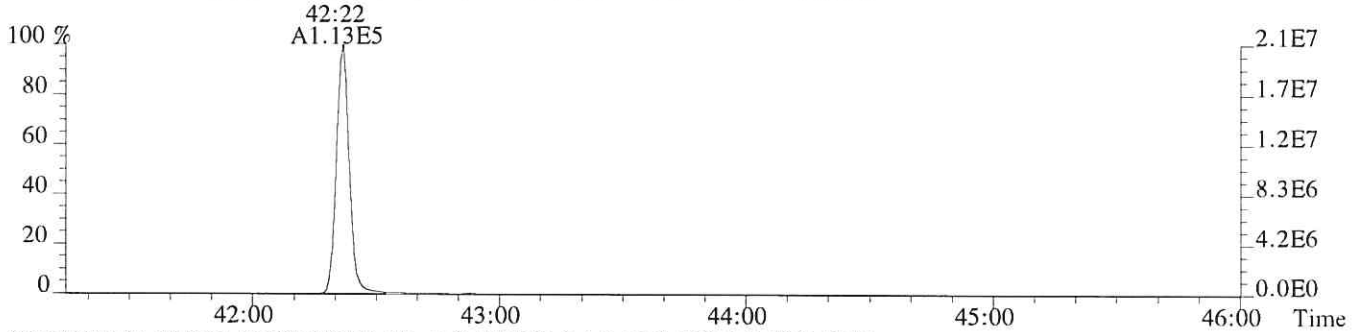


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

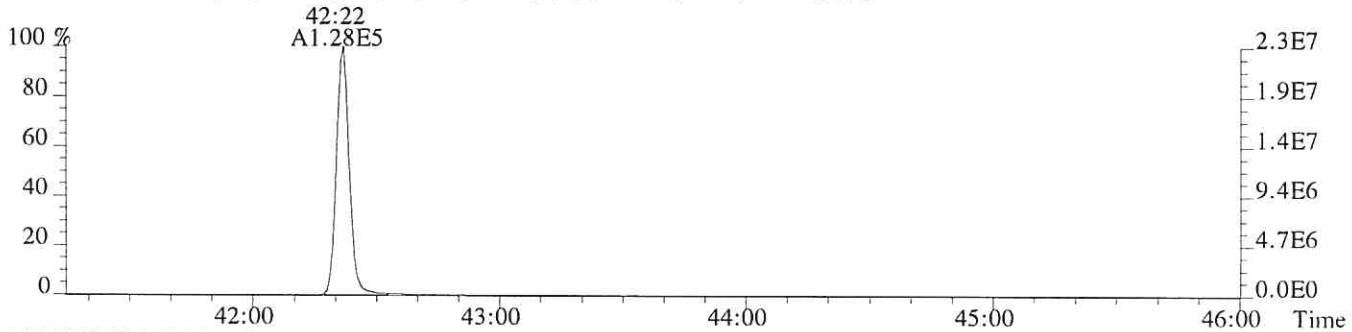


File:P407618 #1-429 Acq: 1-SEP-2017 18:32:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

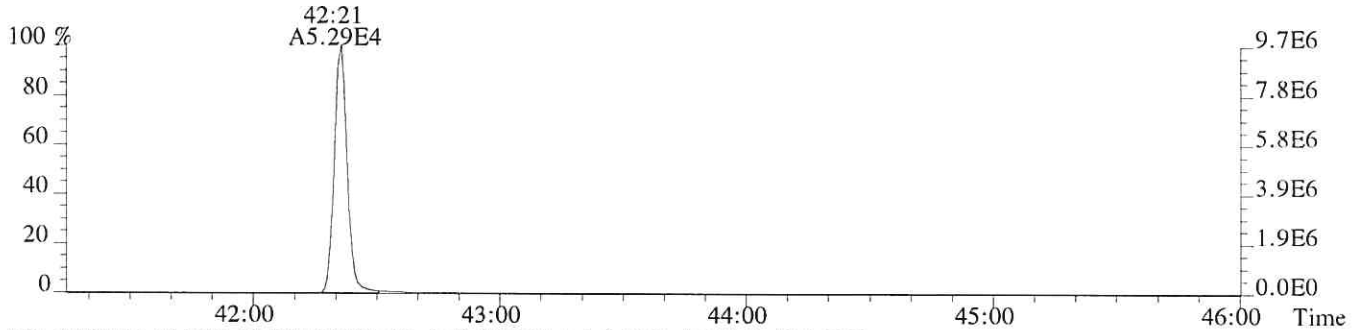
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



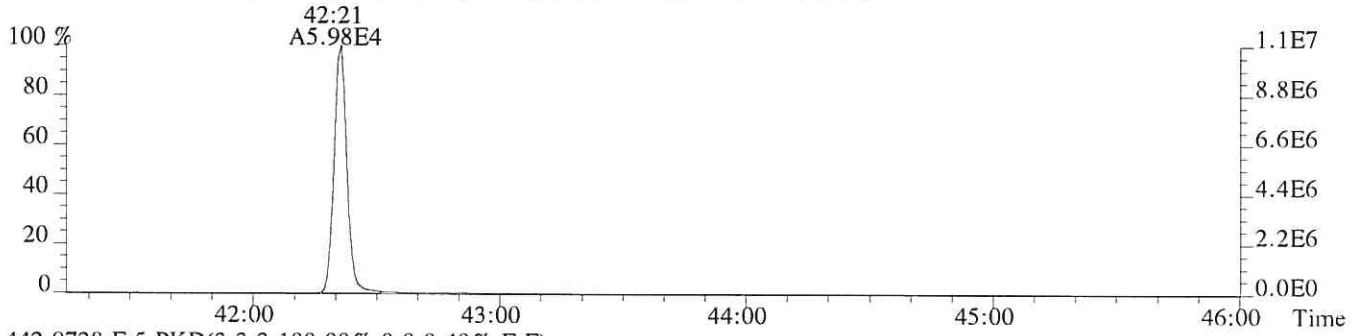
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



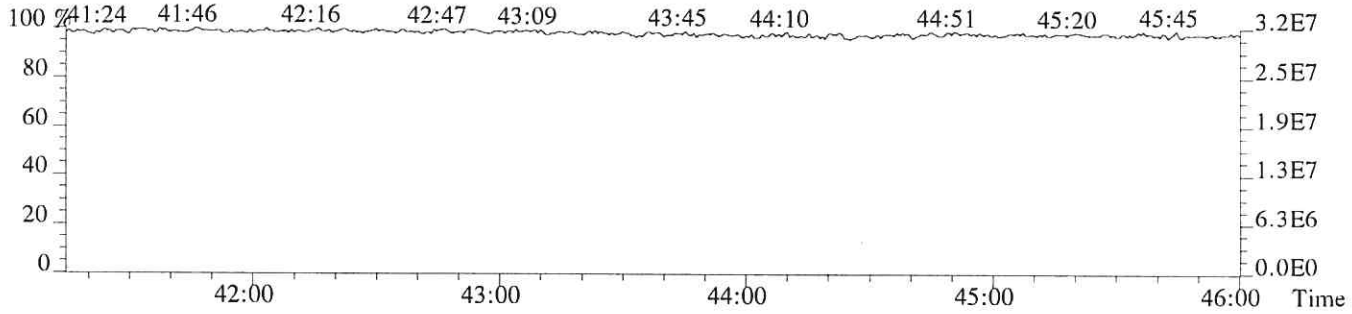
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82168

Run #6 Filename p407619 #1 Samp: 1 Inj: 1 Acquired: 1-SEP-17 19:21:19
Processed: 5-SEP-17 09:15:30 LAB. ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:39	6.486e+04	8.314e+04	0.78	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:41	5.076e+05	3.251e+05	1.56	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:34	5.113e+05	3.293e+05	1.55	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	36:09	4.921e+05	3.949e+05	1.25	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	36:16	5.037e+05	4.052e+05	1.24	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:45	4.549e+05	3.671e+05	1.24	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:30	4.049e+05	3.290e+05	1.23	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	4.198e+05	4.066e+05	1.03	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	3.439e+05	3.314e+05	1.04	yes	no	1.301
10	Unk	OCDF	42:35	5.093e+05	5.608e+05	0.91	yes	no	1.114
11	Unk	2,3,7,8-TCDD	29:24	5.680e+04	7.479e+04	0.76	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:50	3.787e+05	2.460e+05	1.54	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:53	3.686e+05	2.980e+05	1.24	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:58	3.331e+05	2.665e+05	1.25	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	37:11	3.598e+05	2.897e+05	1.24	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	2.963e+05	2.834e+05	1.05	yes	no	0.975
17	Unk	OCDD	42:22	4.441e+05	5.039e+05	0.88	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:37	3.623e+04	4.622e+04	0.78	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:40	5.330e+04	3.453e+04	1.54	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:34	5.109e+04	3.263e+04	1.57	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	36:09	2.534e+04	4.883e+04	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	36:15	2.673e+04	5.061e+04	0.53	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:45	2.503e+04	4.815e+04	0.52	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:29	2.170e+04	4.211e+04	0.52	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	1.898e+04	4.280e+04	0.44	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:05	1.544e+04	3.463e+04	0.45	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	29:22	3.120e+04	3.918e+04	0.80	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:49	4.396e+04	2.825e+04	1.56	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:52	3.574e+04	2.858e+04	1.25	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:57	3.939e+04	3.117e+04	1.26	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	3.080e+04	2.959e+04	1.04	yes	no	0.854
32	IS	13C-OCDD	42:21	4.762e+04	5.356e+04	0.89	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:49	3.191e+04	4.010e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:11	3.751e+04	3.029e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	1.474e+05				no	0.992

ALS ENVIRONMENTAL
10450 Stancliff Road
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82168

Run #6 Filename p407619 Samp: 1 Inj: 1 Acquired: 1-SEP-17 19:21:19
Processed: 5-SEP-17 09:15:301 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.26e+07	1.07e+03	1.2e+04	1.61e+07	2.24e+03	7.2e+03
2	1,2,3,7,8-PeCDF	1.03e+08	1.32e+03	7.7e+04	6.56e+07	1.20e+03	5.5e+04
3	2,3,4,7,8-PeCDF	1.07e+08	1.32e+03	8.1e+04	6.88e+07	1.20e+03	5.7e+04
4	1,2,3,4,7,8-HxCDF	1.13e+08	2.12e+03	5.3e+04	9.10e+07	1.88e+03	4.8e+04
5	1,2,3,6,7,8-HxCDF	1.14e+08	2.12e+03	5.4e+04	9.09e+07	1.88e+03	4.8e+04
6	2,3,4,6,7,8-HxCDF	1.04e+08	2.12e+03	4.9e+04	8.41e+07	1.88e+03	4.5e+04
7	1,2,3,7,8,9-HxCDF	8.99e+07	2.12e+03	4.2e+04	7.19e+07	1.88e+03	3.8e+04
8	1,2,3,4,6,7,8-HpCDF	9.75e+07	5.92e+03	1.6e+04	9.45e+07	1.84e+04	5.1e+03
9	1,2,3,4,7,8,9-HpCDF	7.42e+07	5.92e+03	1.3e+04	7.15e+07	1.84e+04	3.9e+03
10	OCDF	9.27e+07	6.92e+02	1.3e+05	1.04e+08	1.52e+03	6.8e+04
11	2,3,7,8-TCDD	1.17e+07	1.53e+03	7.7e+03	1.55e+07	1.16e+03	1.3e+04
12	1,2,3,7,8-PeCDD	8.01e+07	1.15e+03	7.0e+04	5.19e+07	6.20e+02	8.4e+04
13	1,2,3,4,7,8-HxCDD	8.66e+07	6.52e+02	1.3e+05	7.00e+07	1.43e+03	4.9e+04
14	1,2,3,6,7,8-HxCDD	7.55e+07	6.52e+02	1.2e+05	5.99e+07	1.43e+03	4.2e+04
15	1,2,3,7,8,9-HxCDD	8.08e+07	6.52e+02	1.2e+05	6.58e+07	1.43e+03	4.6e+04
16	1,2,3,4,6,7,8-HpCDD	6.56e+07	2.53e+03	2.6e+04	6.29e+07	2.16e+03	2.9e+04
17	OCDD	8.40e+07	1.14e+03	7.3e+04	9.52e+07	6.48e+02	1.5e+05
18	13C-2,3,7,8-TCDF	6.84e+06	9.59e+03	7.1e+02	8.85e+06	4.64e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	1.07e+07	1.02e+03	1.1e+04	6.89e+06	7.88e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	1.03e+07	1.02e+03	1.0e+04	6.61e+06	7.88e+02	8.4e+03
21	13C-1,2,3,4,7,8-HxCDF	5.77e+06	8.48e+02	6.8e+03	1.11e+07	1.74e+03	6.4e+03
22	13C-1,2,3,6,7,8-HxCDF	6.08e+06	8.48e+02	7.2e+03	1.14e+07	1.74e+03	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	5.75e+06	8.48e+02	6.8e+03	1.09e+07	1.74e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	4.77e+06	8.48e+02	5.6e+03	9.14e+06	1.74e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.42e+06	9.92e+02	4.5e+03	9.88e+06	3.21e+03	3.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.31e+06	9.92e+02	3.3e+03	7.45e+06	3.21e+03	2.3e+03
27	13C-2,3,7,8-TCDD	6.22e+06	4.20e+03	1.5e+03	7.82e+06	2.59e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	9.02e+06	1.32e+03	6.8e+03	5.77e+06	1.70e+03	3.4e+03
29	13C-1,2,3,4,7,8-HxCDD	8.32e+06	2.50e+03	3.3e+03	6.64e+06	1.28e+03	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	8.93e+06	2.50e+03	3.6e+03	7.06e+06	1.28e+03	5.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.71e+06	1.62e+03	4.1e+03	6.50e+06	1.06e+03	6.1e+03
32	13C-OCDD	9.01e+06	7.32e+02	1.2e+04	1.02e+07	6.56e+02	1.5e+04
33	13C-1,2,3,4-TCDD	6.23e+06	4.20e+03	1.5e+03	7.85e+06	2.59e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	8.37e+06	2.50e+03	3.3e+03	6.81e+06	1.28e+03	5.3e+03
35	37Cl-2,3,7,8-TCDD	3.04e+07	1.82e+03	1.7e+04			

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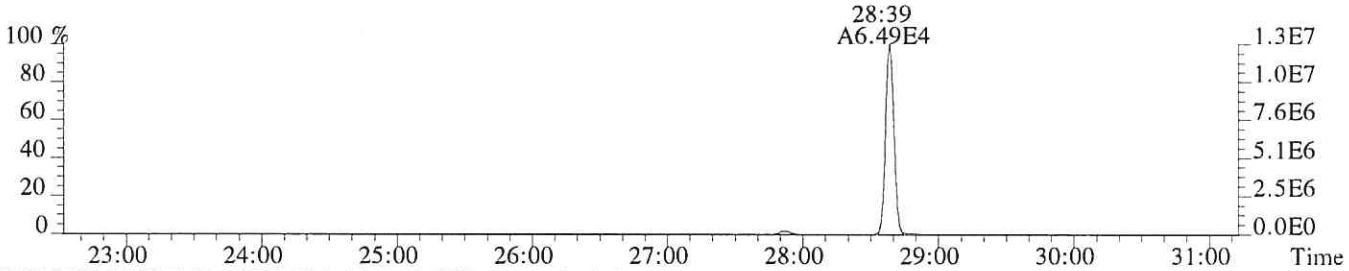
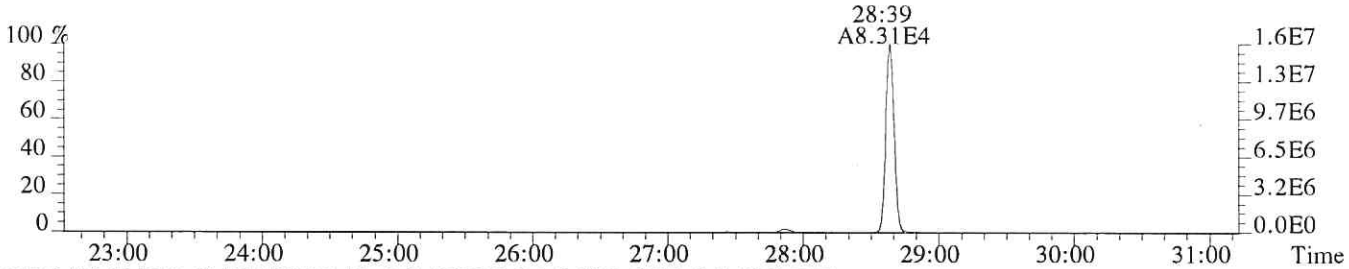
File:P407619 #1-616 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

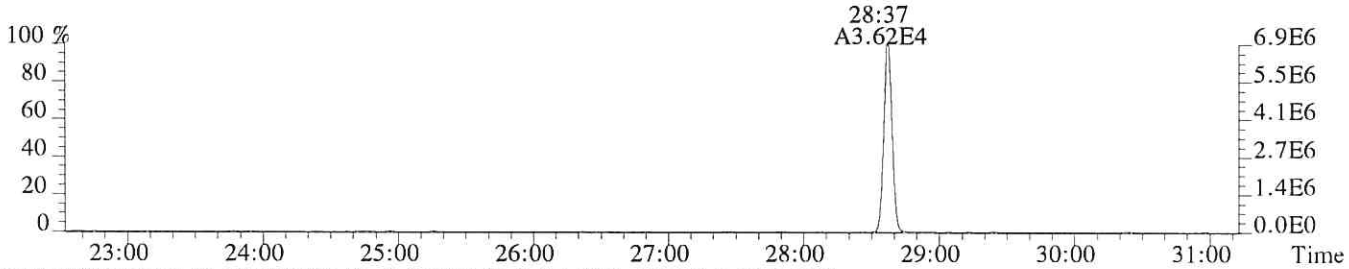
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



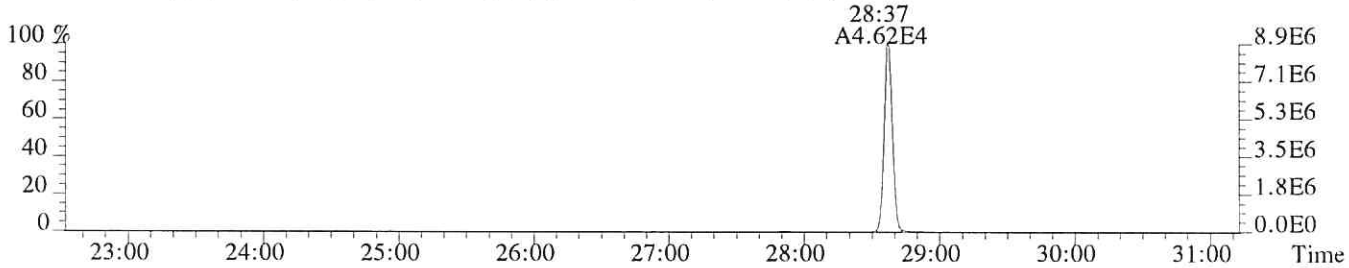
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2240.0,1.00%,F,T)



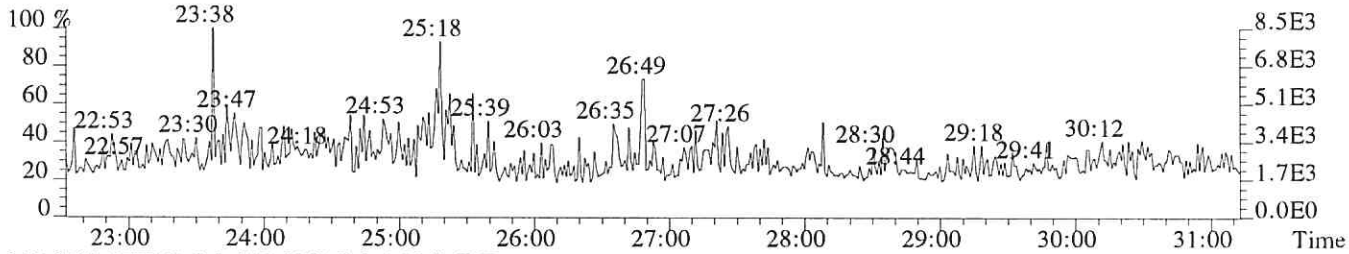
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9588.0,1.00%,F,T)



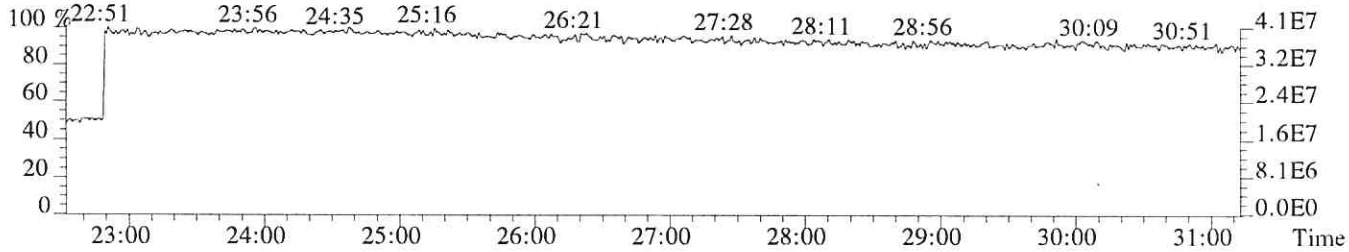
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4636.0,1.00%,F,T)



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

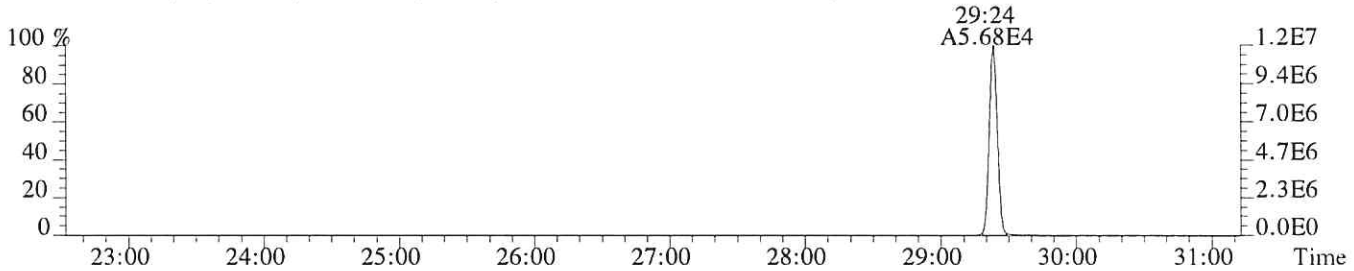


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

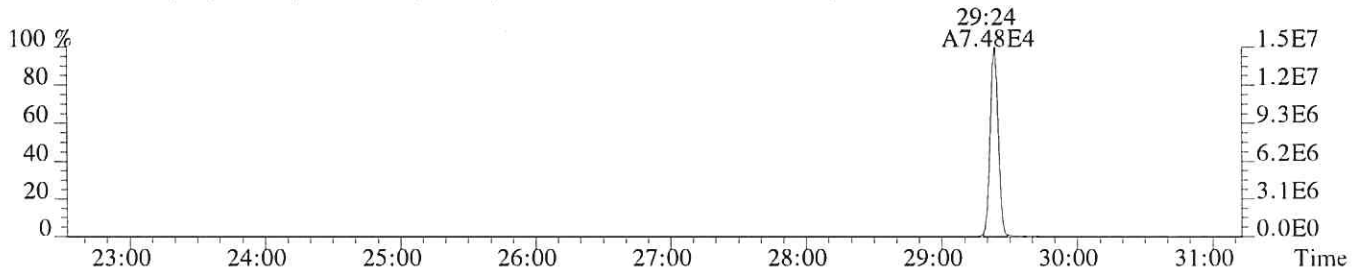


File:P407619 #1-616 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

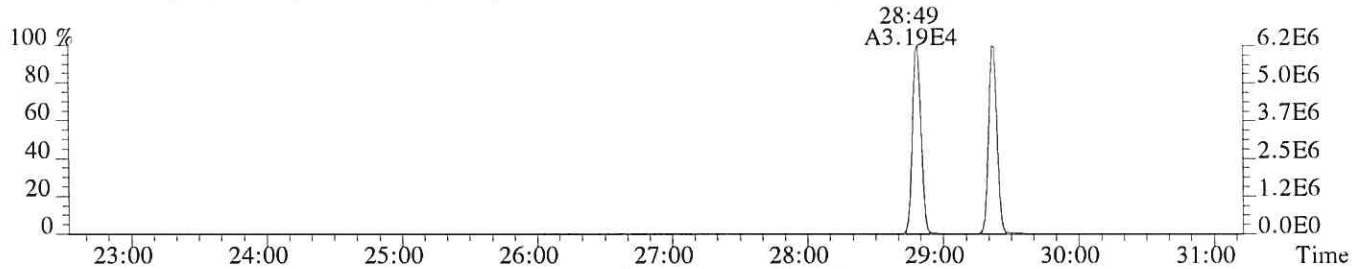
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



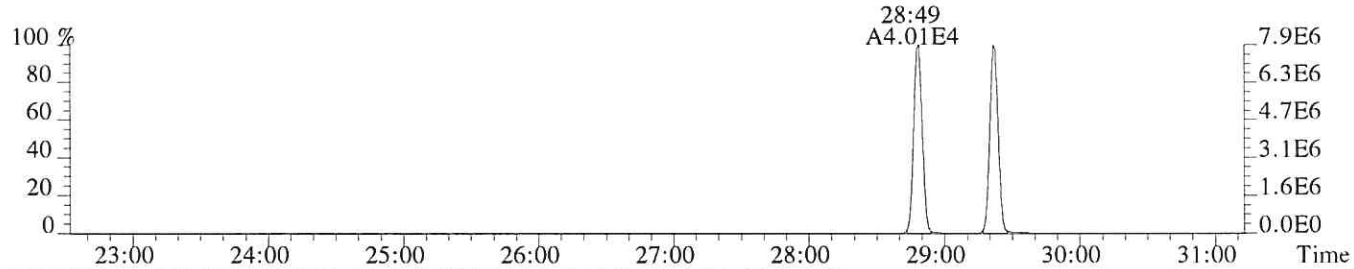
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



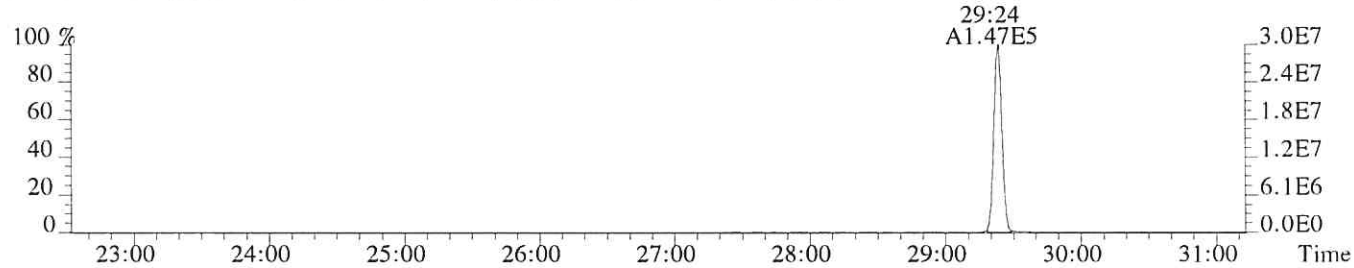
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4196.0,1.00%,F,T)



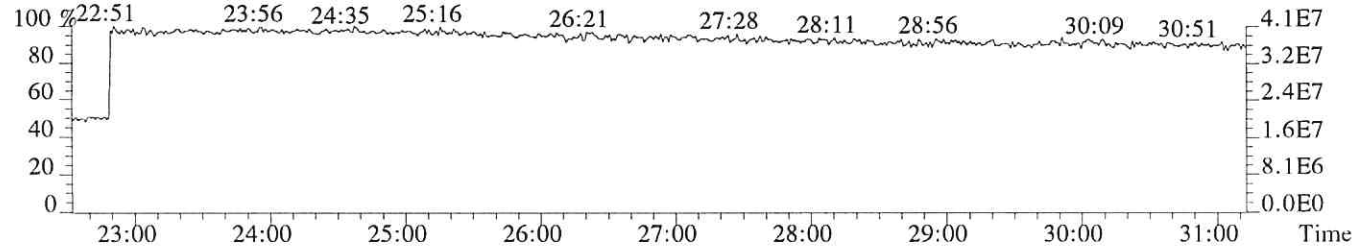
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)

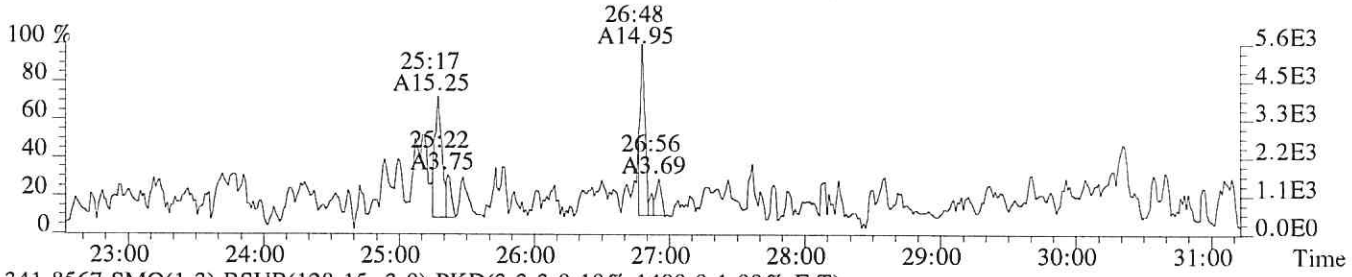


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

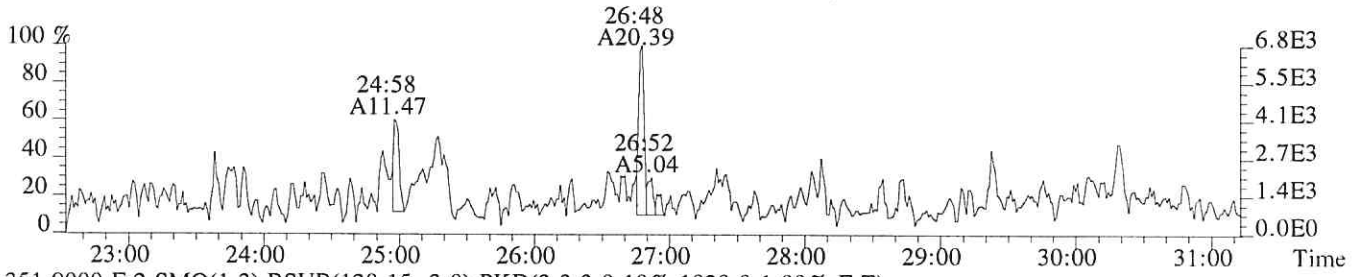


File:P407619 #1-616 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

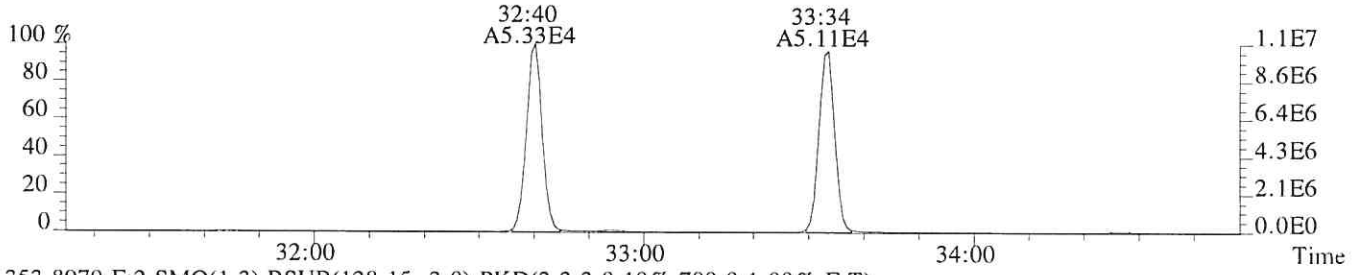
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



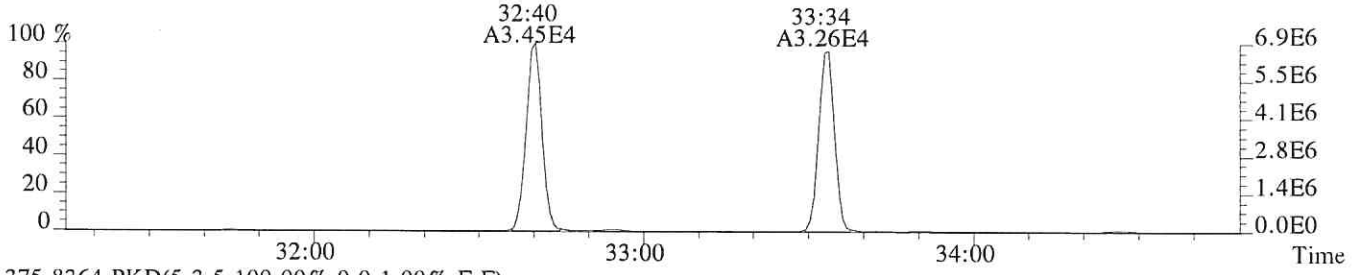
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



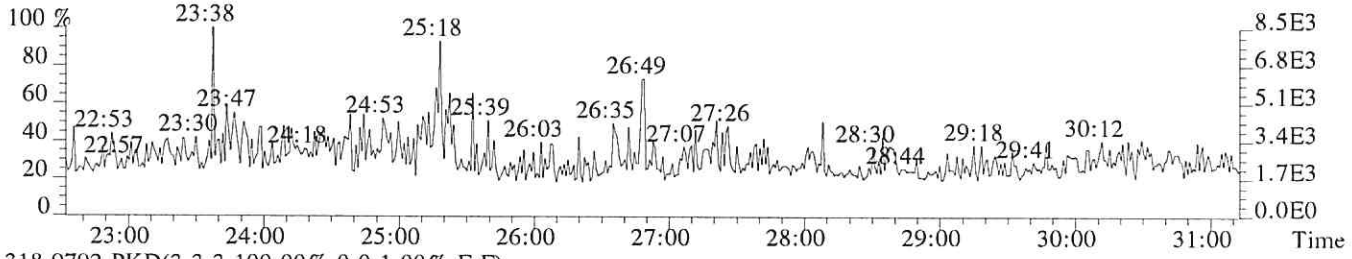
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



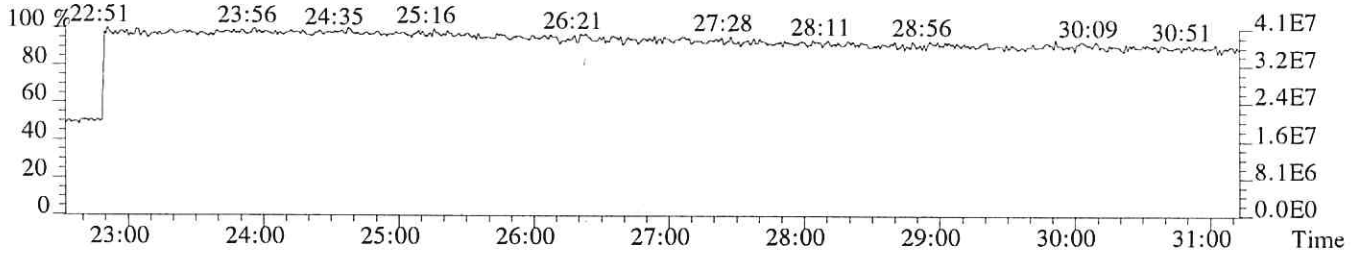
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



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

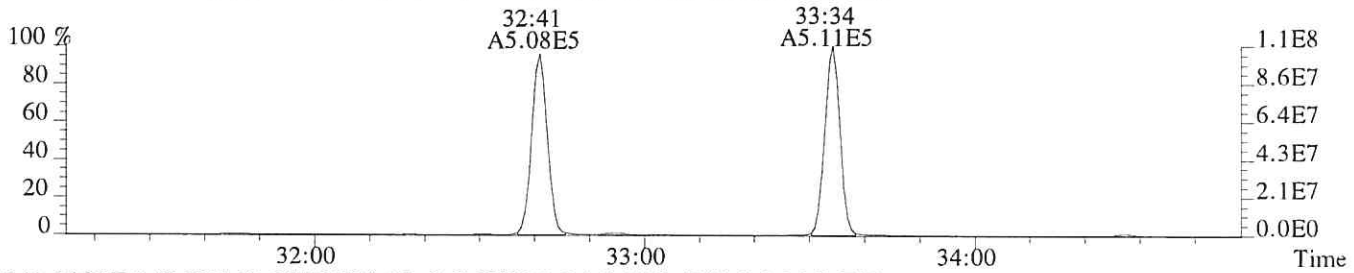


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

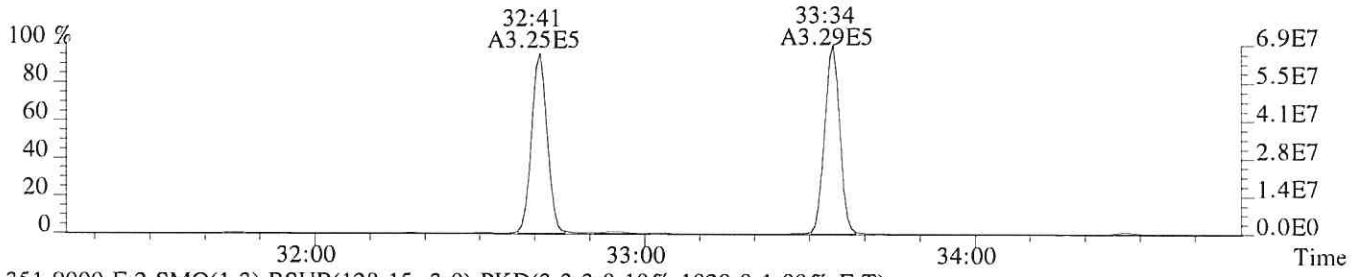


File:P407619 #1-321 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

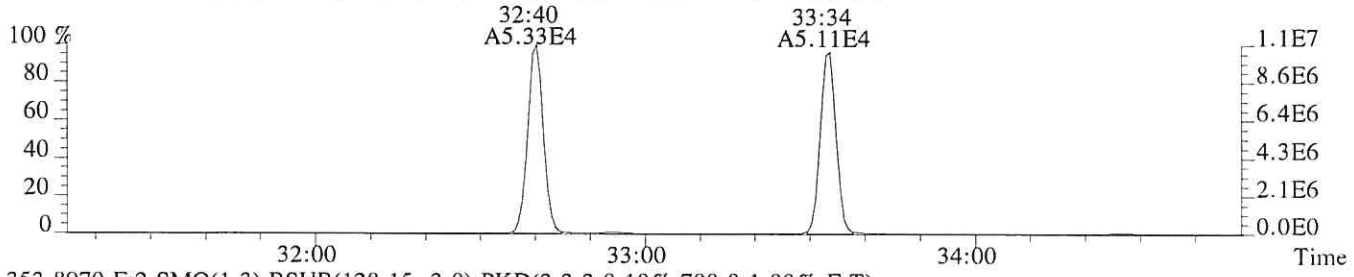
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



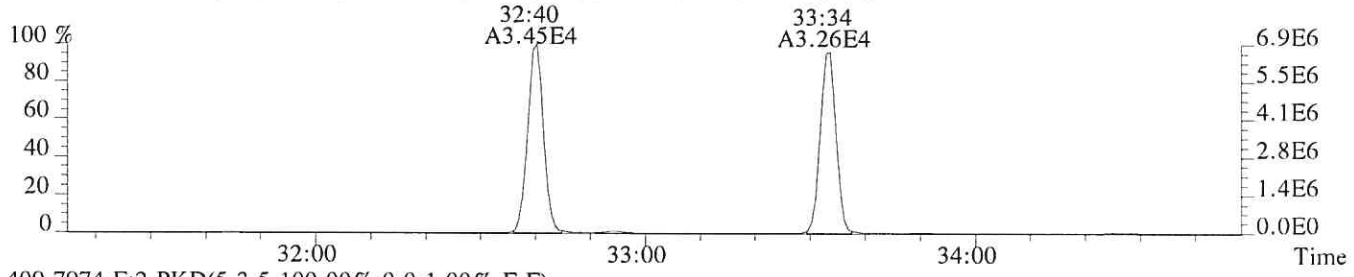
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



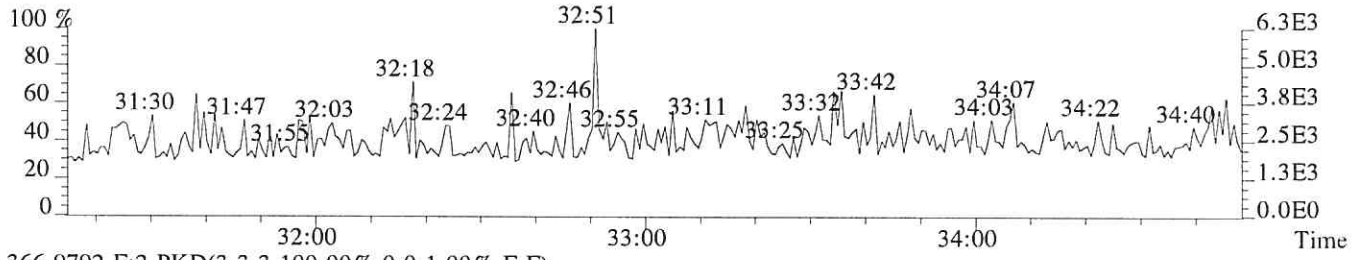
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



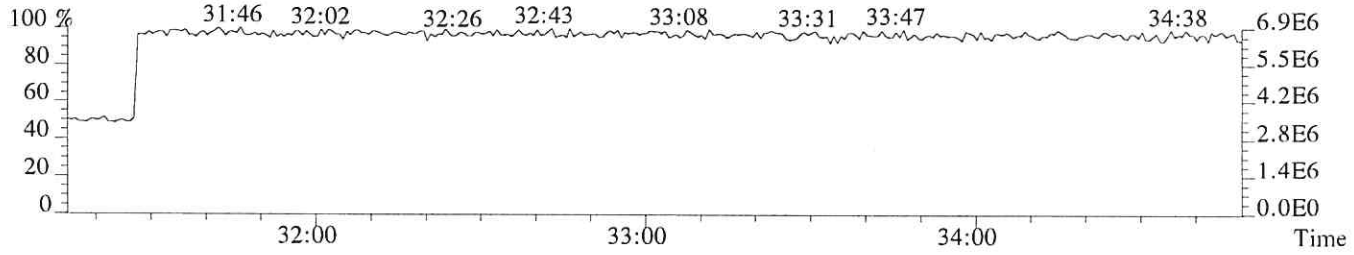
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



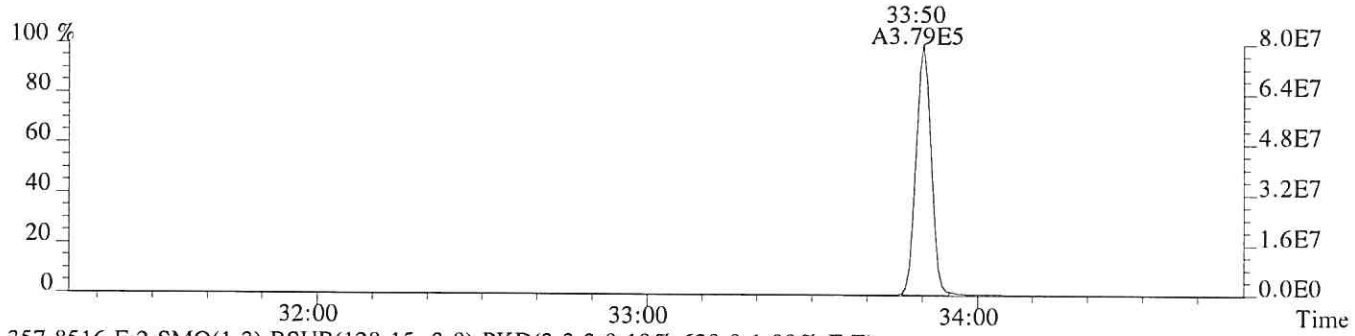
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



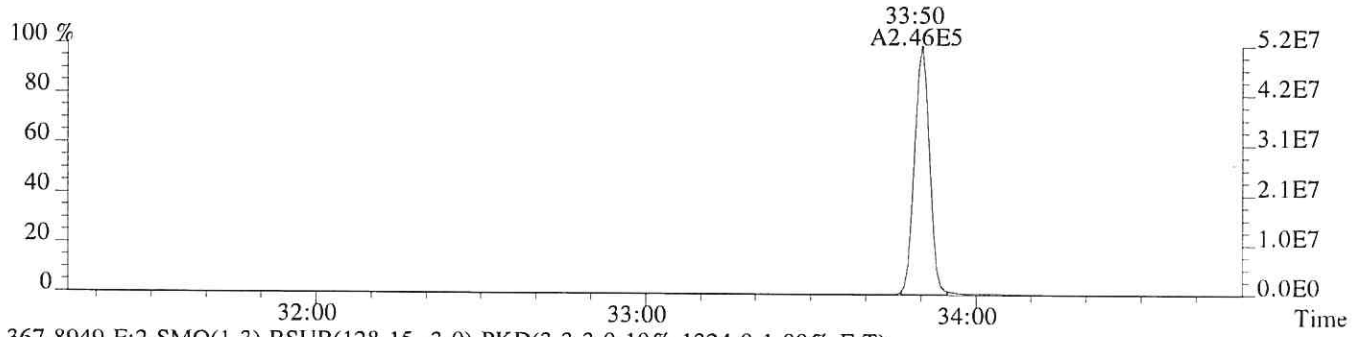
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



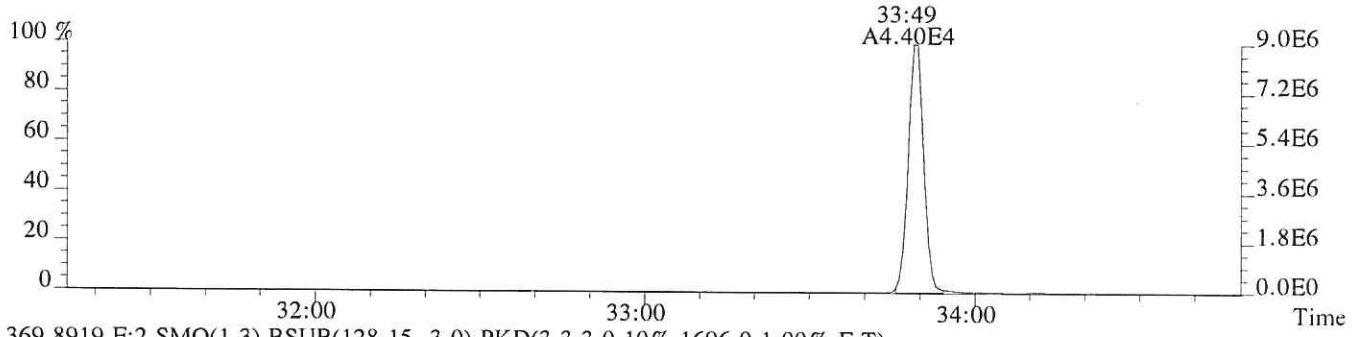
File:P407619 #1-321 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



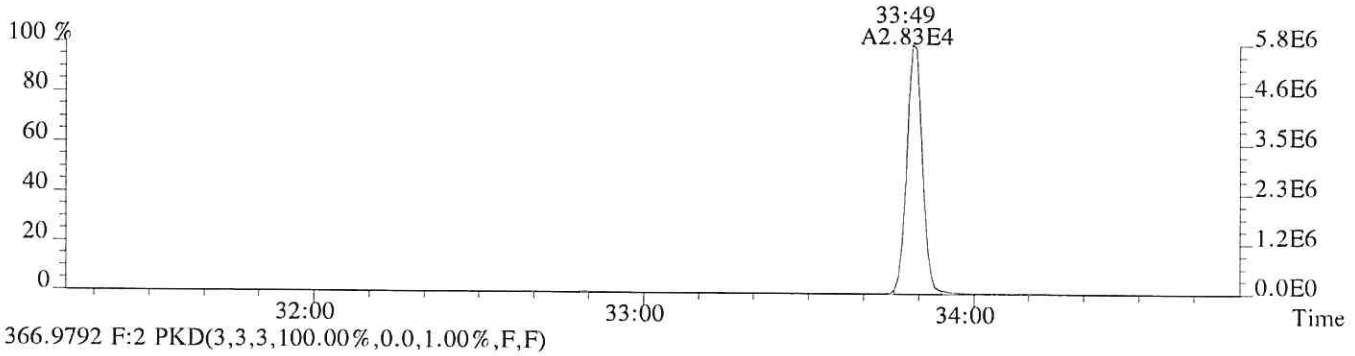
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



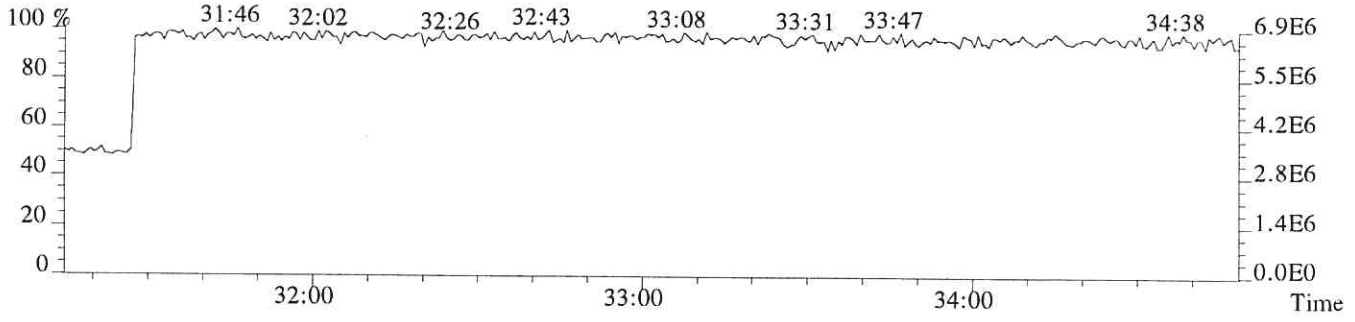
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)

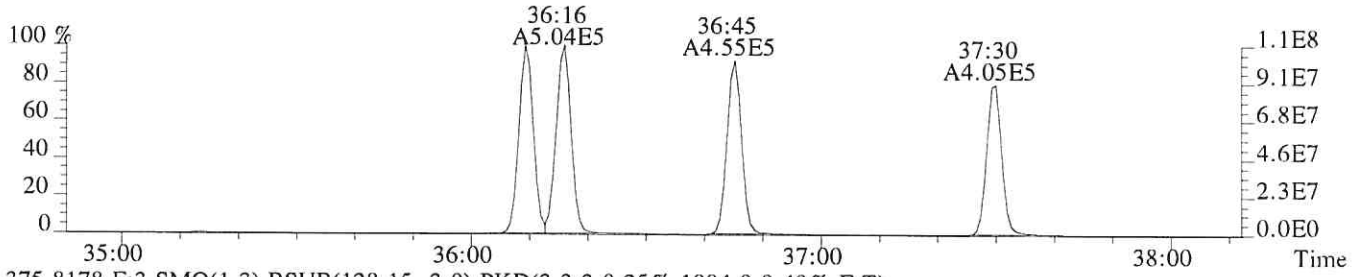


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

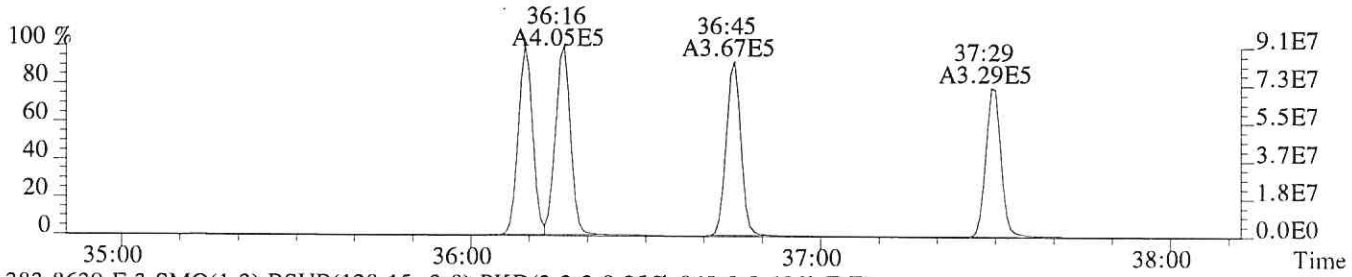


File:P407619 #1-303 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

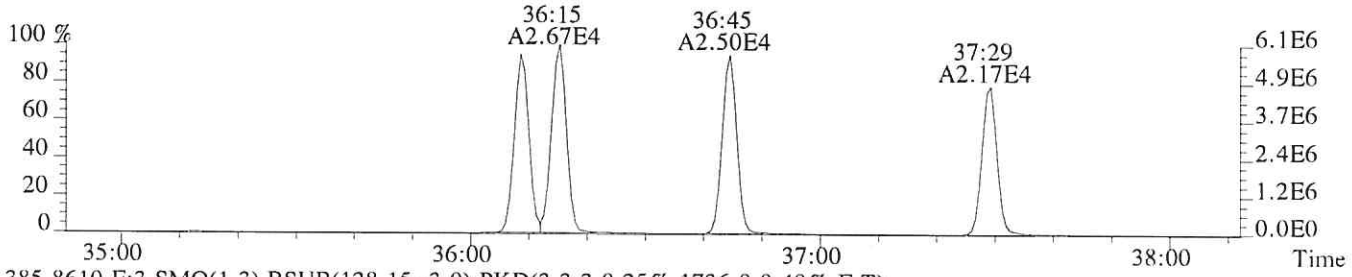
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2120.0,0.40%,F,T)



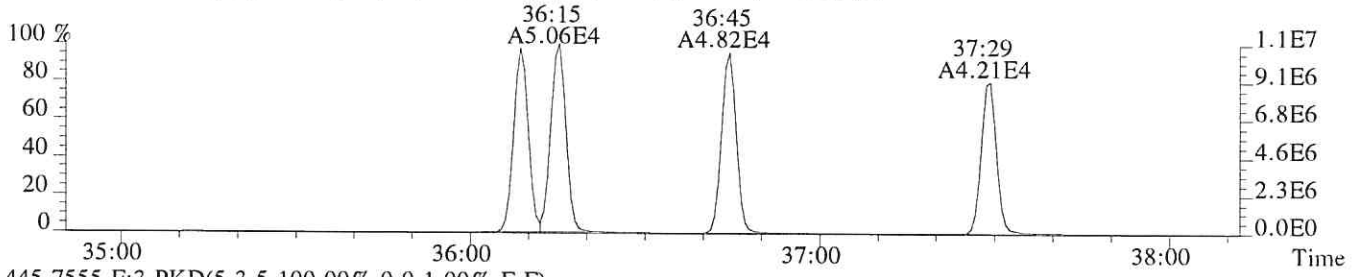
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1884.0,0.40%,F,T)



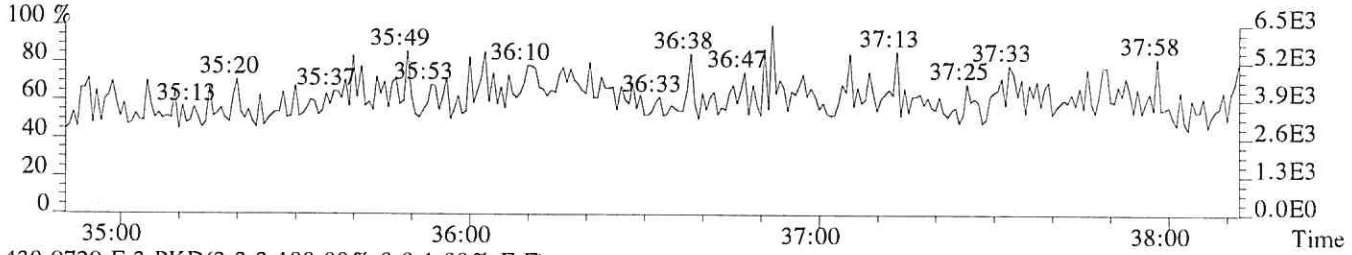
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



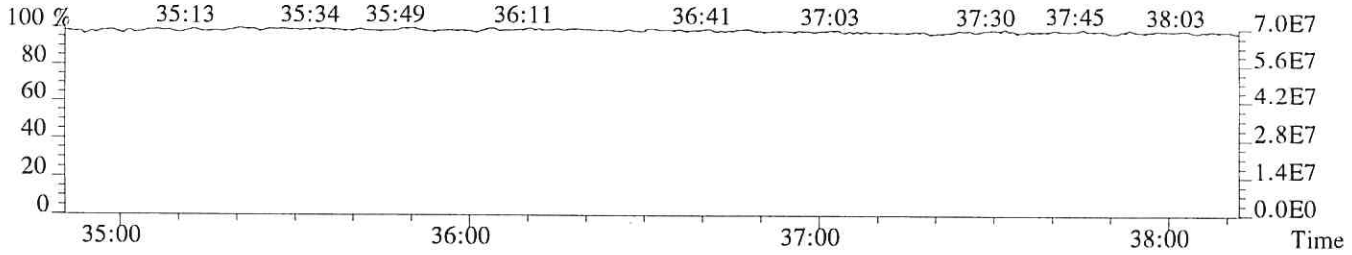
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1736.0,0.40%,F,T)



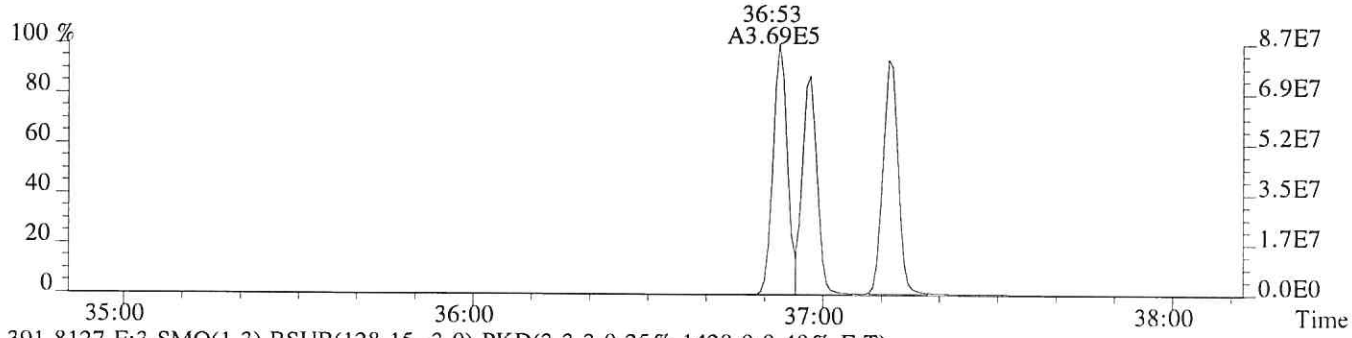
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



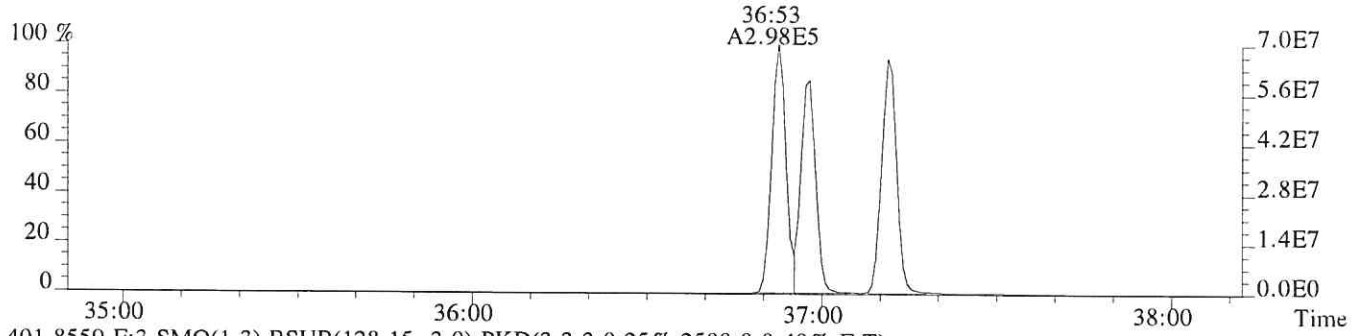
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



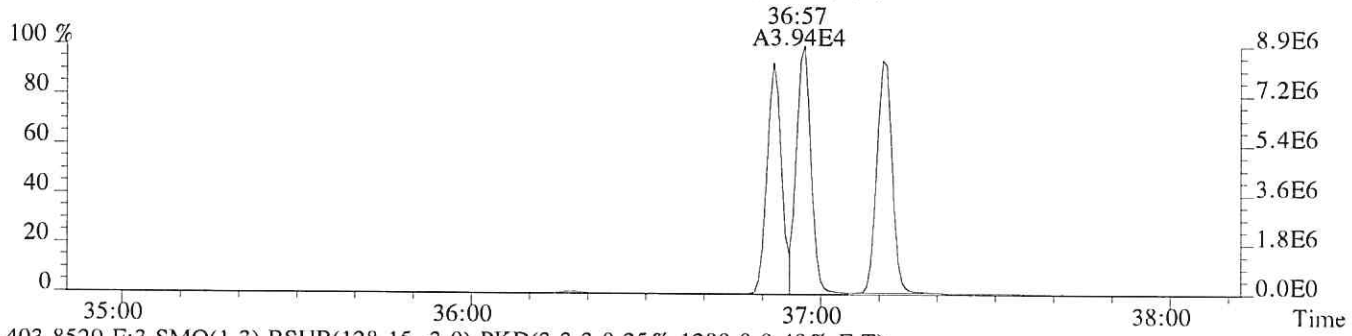
File:P407619 #1-303 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



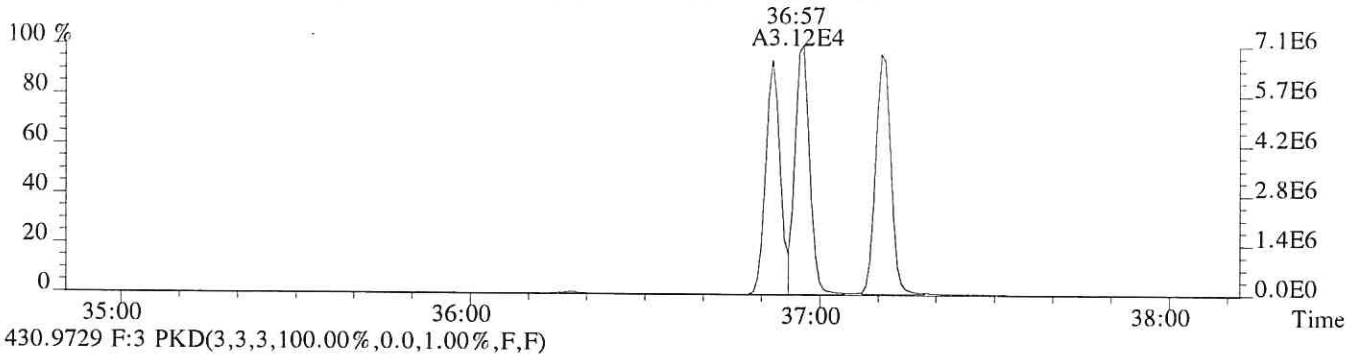
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



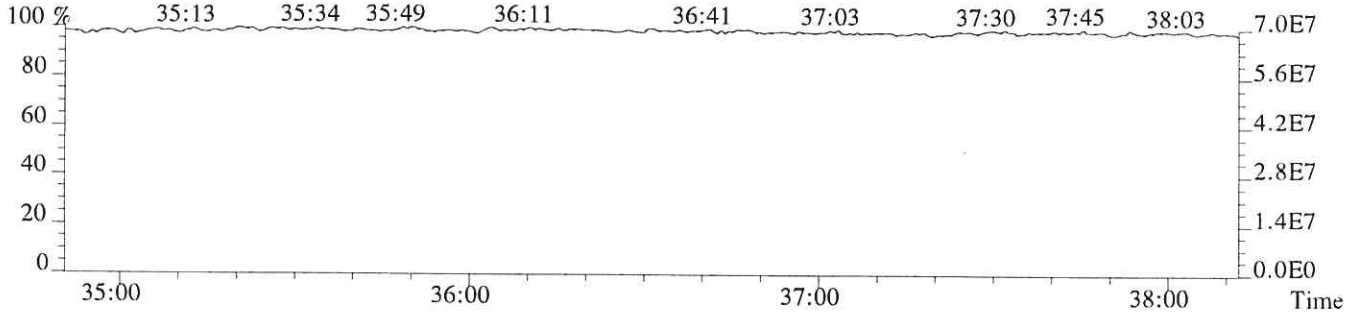
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2500.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)

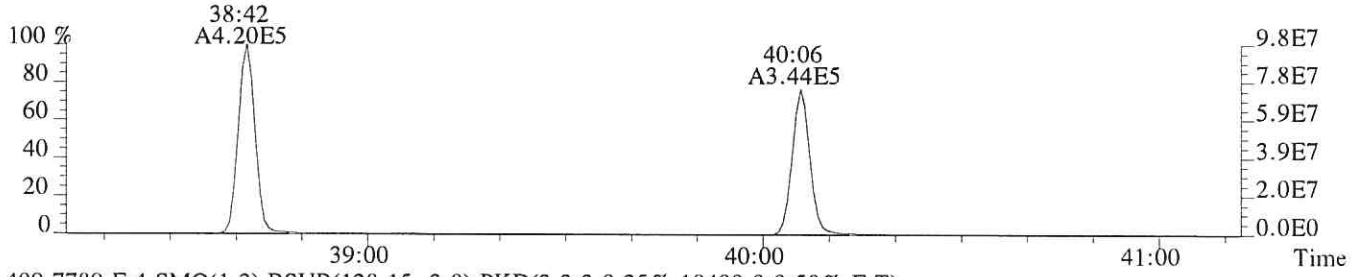


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

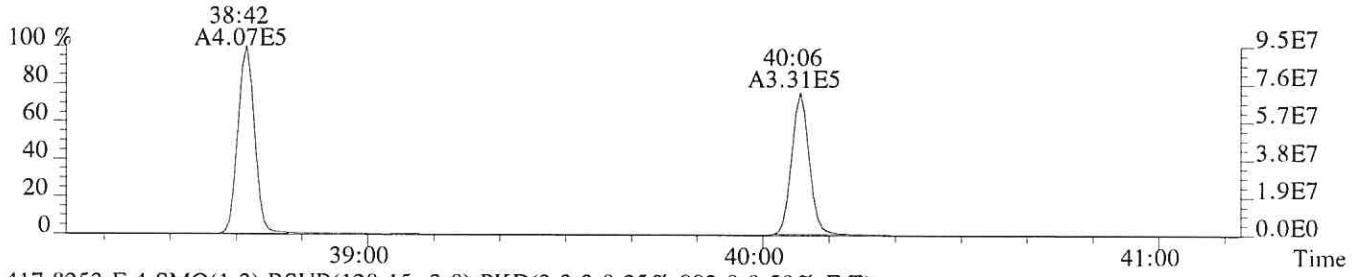


File:P407619 #1-268 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

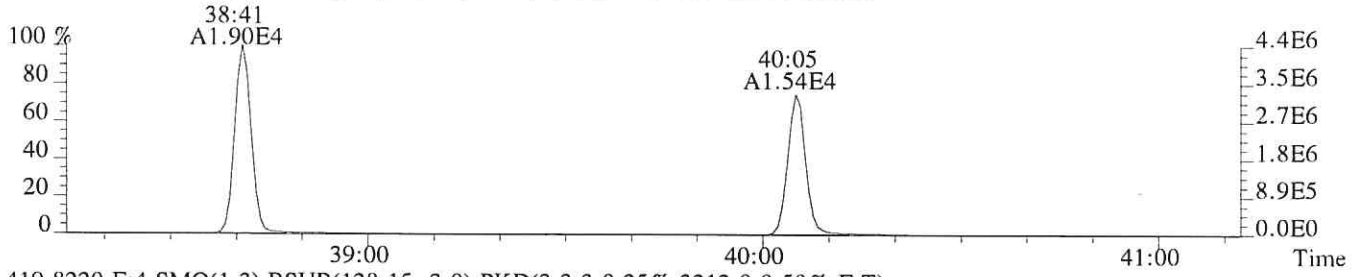
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5920.0,0.50%,F,T)



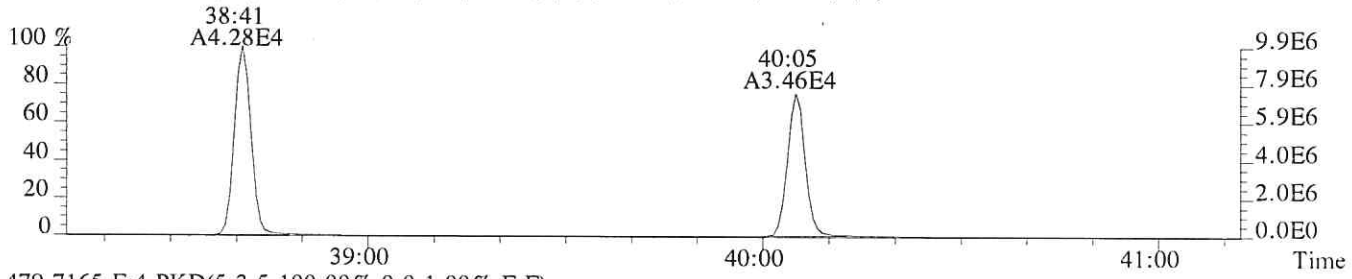
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18400.0,0.50%,F,T)



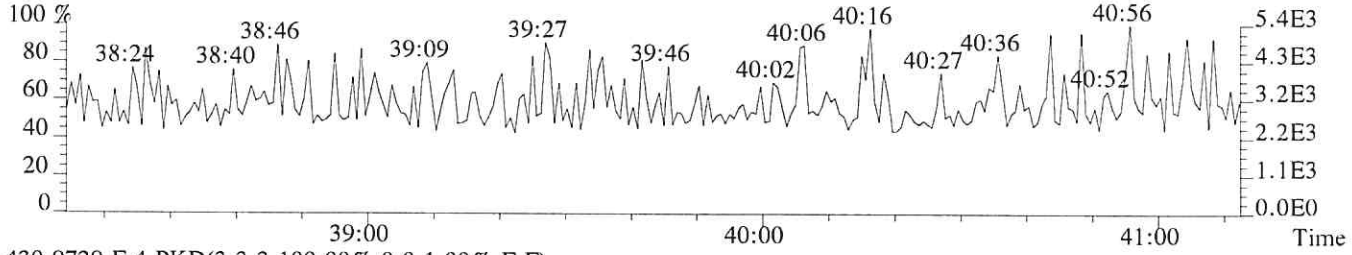
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.50%,F,T)



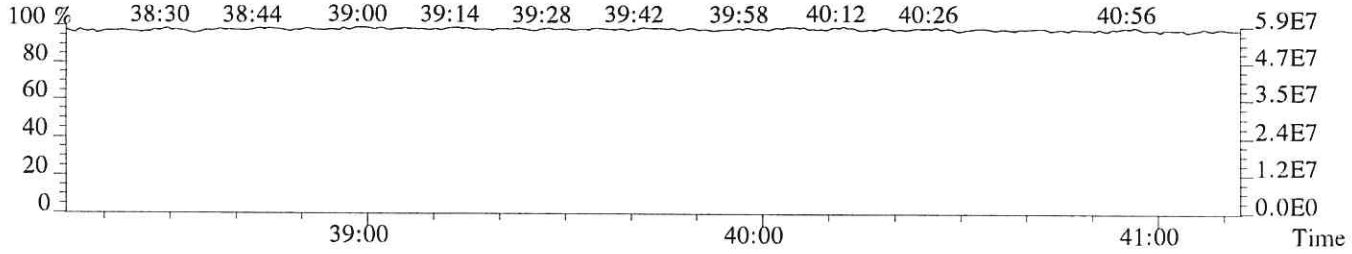
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3212.0,0.50%,F,T)



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

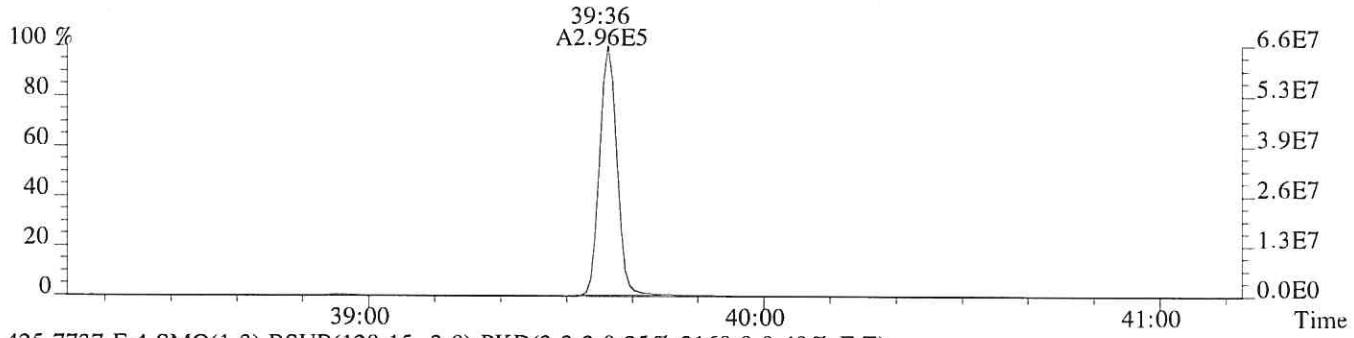


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

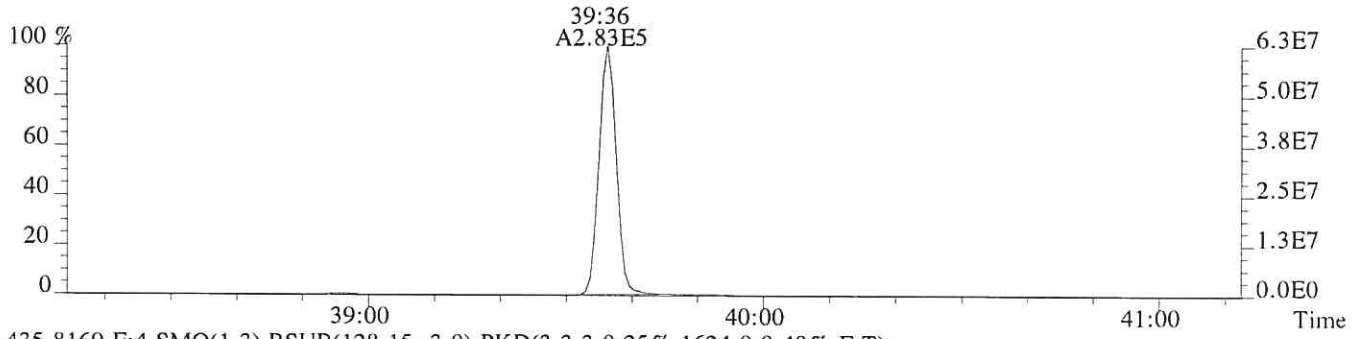


File:P407619 #1-268 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

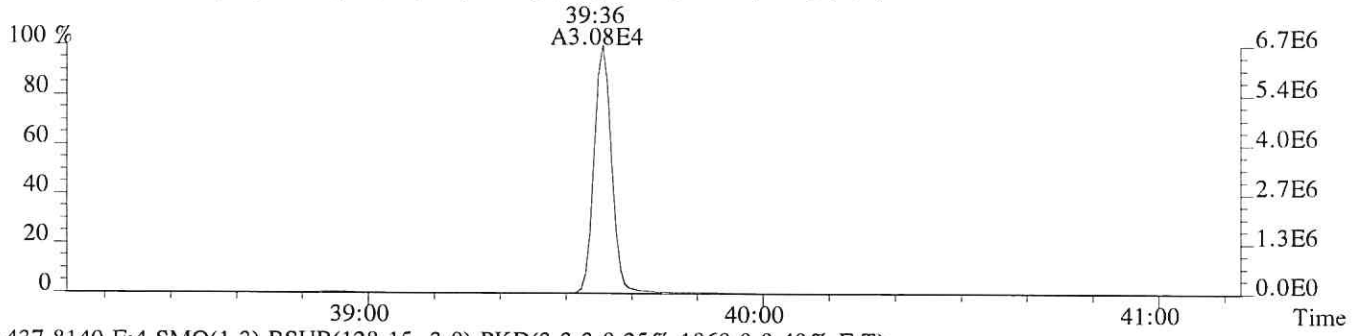
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2532.0,0.40%,F,T)



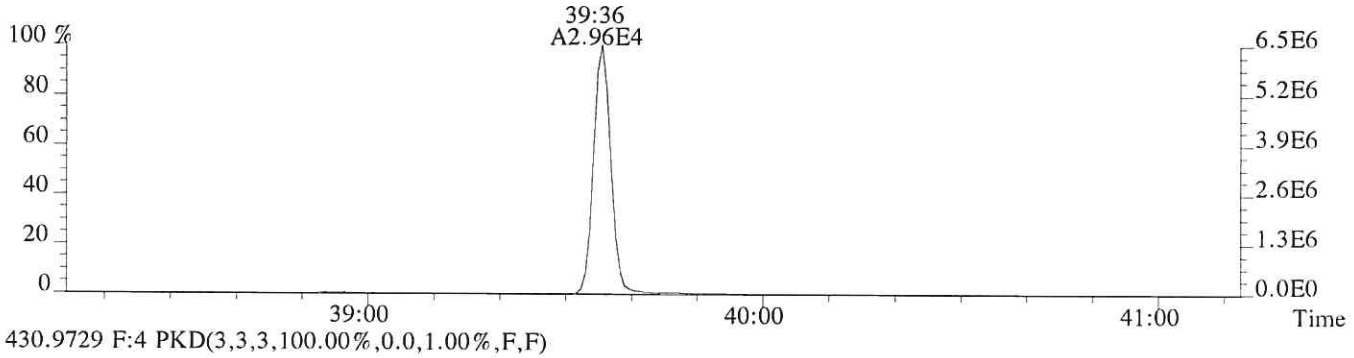
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2160.0,0.40%,F,T)



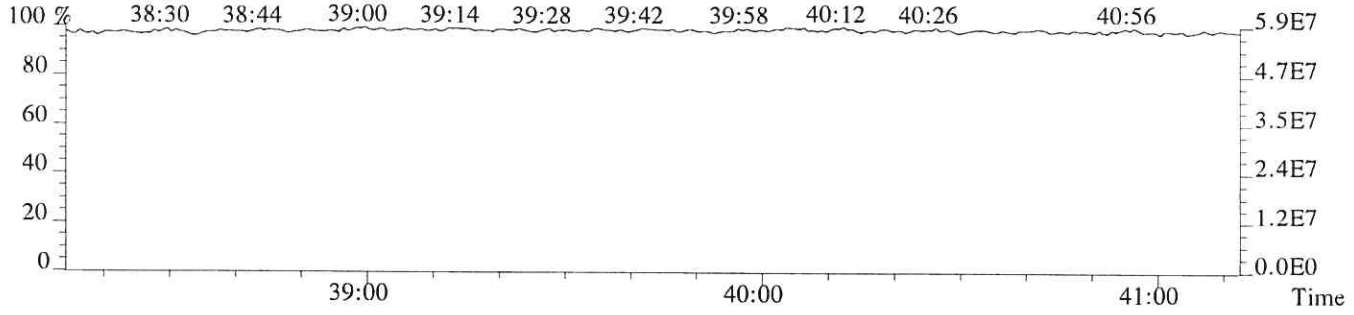
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)

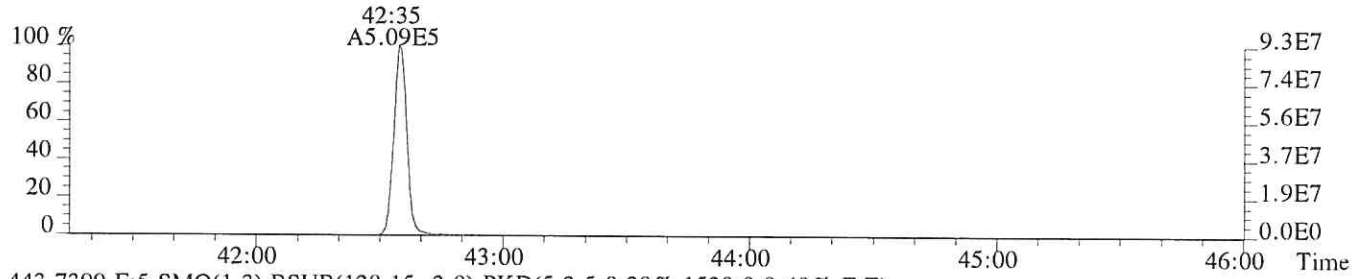


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

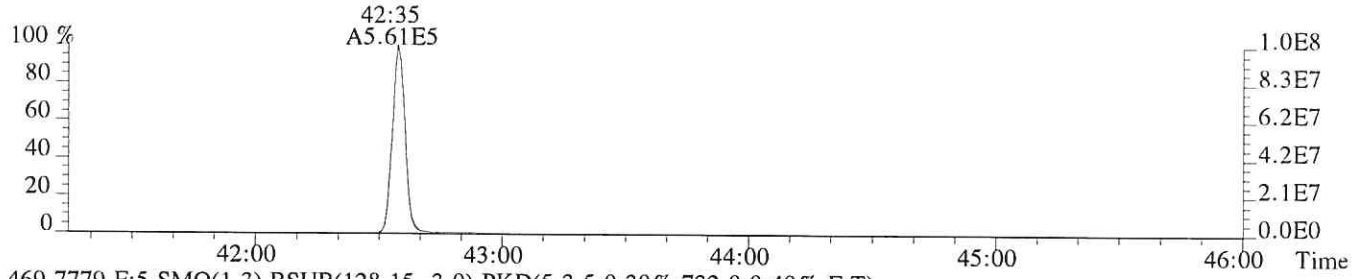


File:P407619 #1-429 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

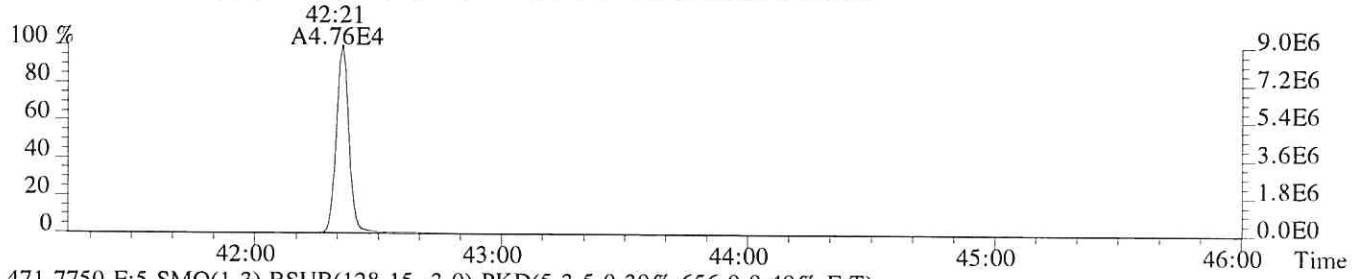
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



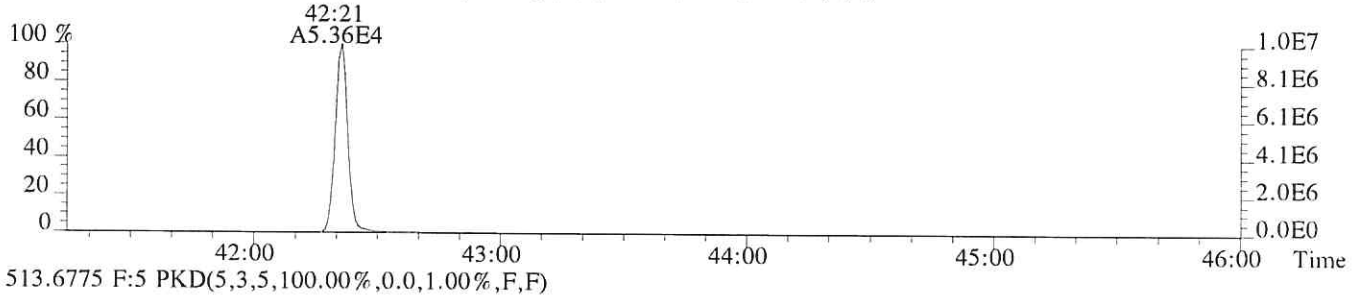
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1520.0,0.40%,F,T)



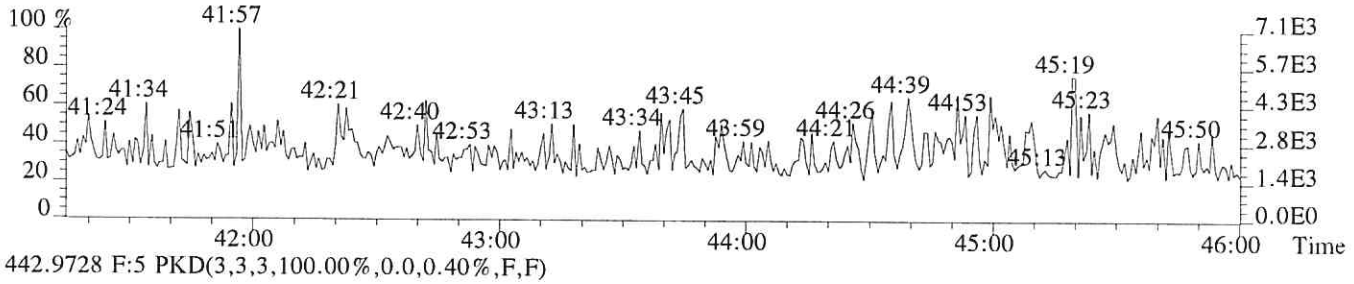
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



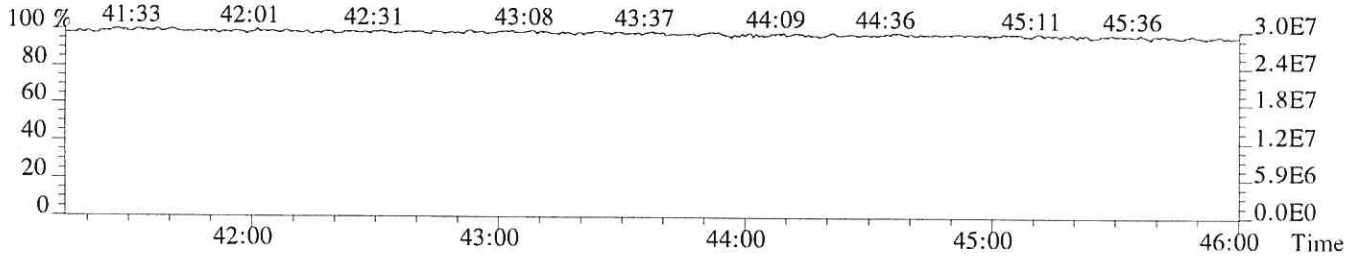
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



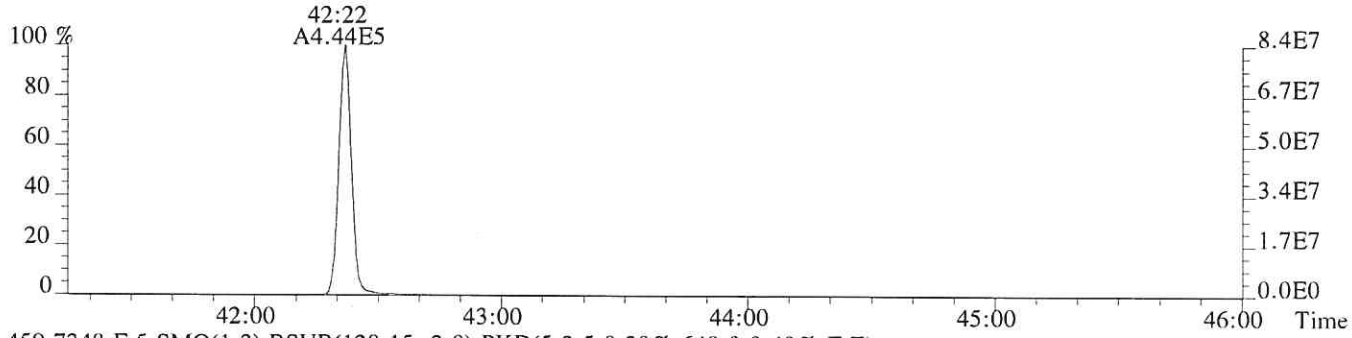
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



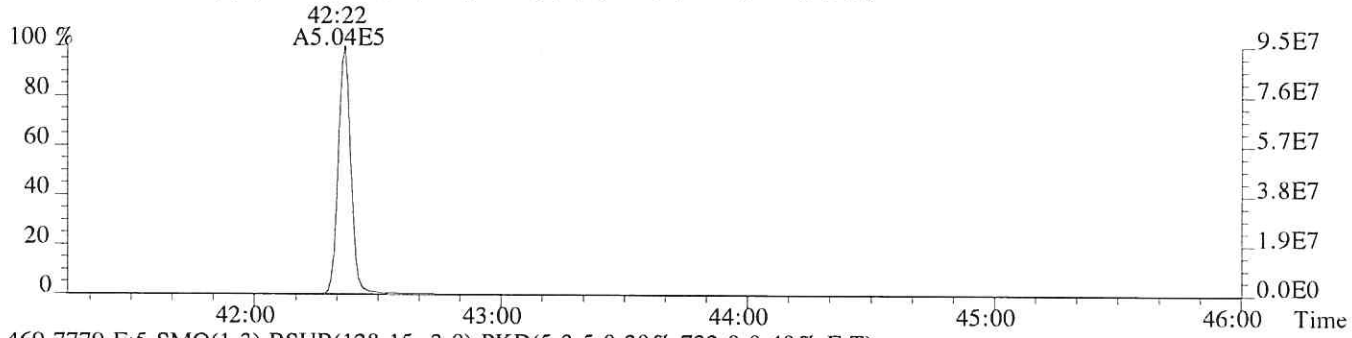
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



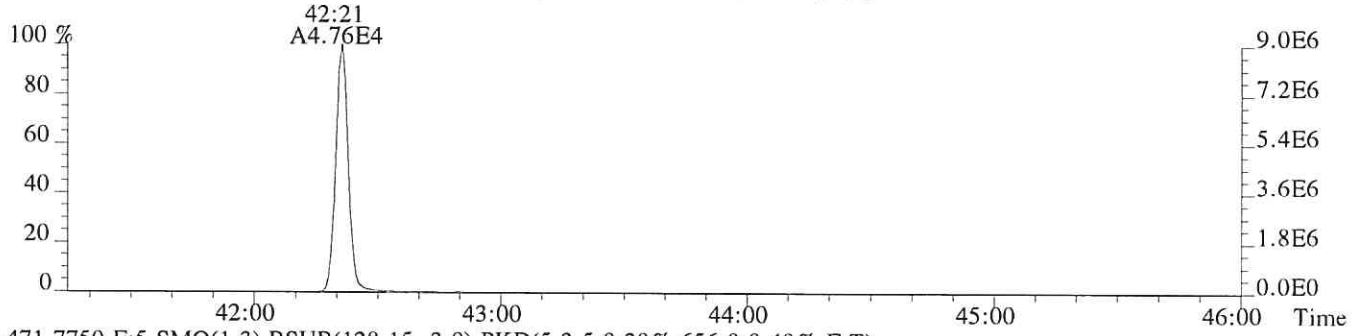
File:P407619 #1-429 Acq: 1-SEP-2017 19:21:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1144.0,0.40%,F,T)



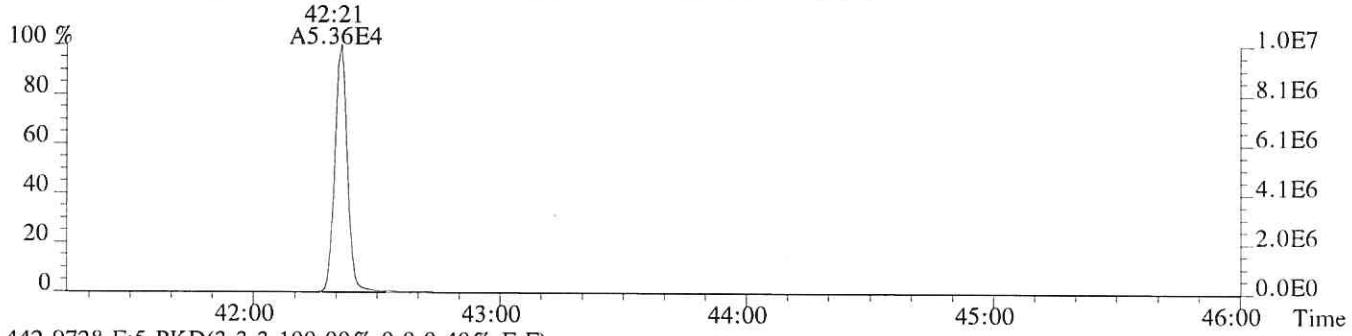
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



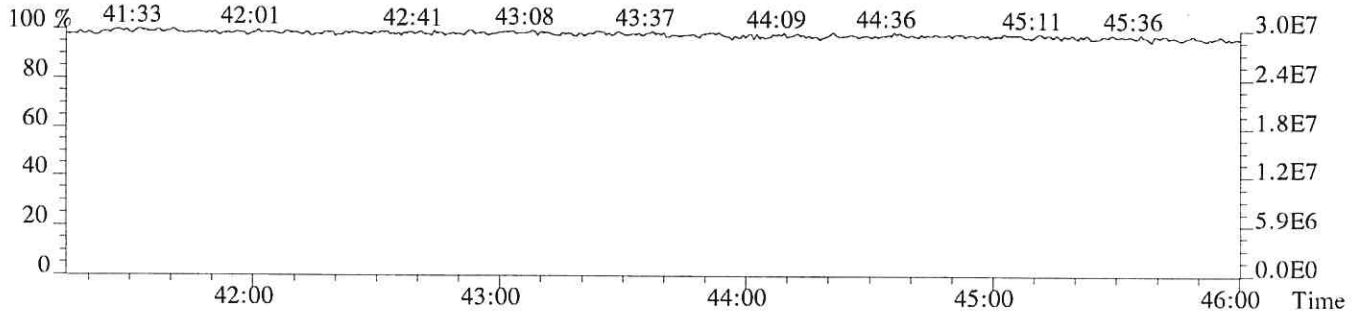
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



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



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/2017

Instrument ID: E-HRMS-06 GC Column ID : DB-5MSUI

VER Data Filename: p407623 Analysis Date: 2-SEP-17 Time: 08:16:56

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.71	0.65-0.89	9.6	7.8 - 12.9	-3.7
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	50	39 - 65	0.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-2.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	50	39 - 64	-0.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.21	1.05-1.43	51	41 - 61	1.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.90	0.76-1.02	101	79 - 126	1.1
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.1	8.4 - 12.0	0.6
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 60	1.2
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	1.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	52	45 - 56	4.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	52	44 - 57	4.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	52	45 - 56	3.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	44 - 57	3.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	52	45 - 55	4.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	51	43 - 58	2.5
OCDF	M+2/M+4	0.88	0.76-1.02	107	63 - 159	7.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 09/01/2017

Instrument ID: E-HRMS-06 GC Column ID : DB-5MSUI

VER Data Filename: p407623 Analysis Date: 2-SEP-17 Time: 08:16:56

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	101	82 - 121	0.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	111	62 - 160	11.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	86	85 - 117	-13.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	108	85 - 118	7.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	95	72 - 138	-4.7
13C-OCDD	M+2/M+4	0.91	0.76-1.02	192	96 - 415	-4.1
13C-2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	98	71 - 140	-2.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	110	76 - 130	9.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	112	77 - 130	11.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	76 - 131	-12.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	106	70 - 143	6.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.54	0.43-0.59	89	74 - 135	-11.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	95	73 - 137	-4.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	103	78 - 129	3.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	100	77 - 129	-0.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			9.7	7.8 - 12.7	-3.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #8 Filename p407623 Samp: 1 Inj: 1 Acquired: 2-SEP-17 08:16:56
Processed: 5-SEP-17 15:56:38 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:39	1.595e+03	2.087e+03	0.76	yes	no	0.885
2	Unk	1,2,3,7,8-PeCDF	32:41	1.415e+04	9.082e+03	1.56	yes	no	0.984
3	Unk	2,3,4,7,8-PeCDF	33:34	1.338e+04	8.565e+03	1.56	yes	no	0.943
4	Unk	1,2,3,4,7,8-HxCDF	36:09	1.247e+04	9.773e+03	1.28	yes	no	1.230
5	Unk	1,2,3,6,7,8-HxCDF	36:16	1.542e+04	1.206e+04	1.28	yes	no	1.148
6	Unk	2,3,4,6,7,8-HxCDF	36:45	1.245e+04	9.973e+03	1.25	yes	no	1.133
7	Unk	1,2,3,7,8,9-HxCDF	37:30	1.021e+04	8.124e+03	1.26	yes	no	1.172
8	Unk	1,2,3,4,6,7,8-HpCDF	38:42	1.229e+04	1.182e+04	1.04	yes	no	1.377
9	Unk	1,2,3,4,7,8,9-HpCDF	40:06	9.133e+03	8.682e+03	1.05	yes	no	1.301
10	Unk	OCDF	42:35	1.324e+04	1.503e+04	0.88	yes	no	1.114
11	Unk	2,3,7,8-TCDD	29:24	1.336e+03	1.881e+03	0.71	yes	no	0.966
12	Unk	1,2,3,7,8-PeCDD	33:51	1.013e+04	6.452e+03	1.57	yes	no	0.851
13	Unk	1,2,3,4,7,8-HxCDD	36:53	8.127e+03	6.449e+03	1.26	yes	no	0.966
14	Unk	1,2,3,6,7,8-HxCDD	36:58	1.005e+04	7.905e+03	1.27	yes	no	0.938
15	Unk	1,2,3,7,8,9-HxCDD	37:12	9.467e+03	7.795e+03	1.21	yes	no	0.980
16	Unk	1,2,3,4,6,7,8-HpCDD	39:36	7.420e+03	7.136e+03	1.04	yes	no	0.975
17	Unk	OCDD	42:22	1.173e+04	1.303e+04	0.90	yes	no	1.033
18	IS	13C-2,3,7,8-TCDF	28:38	1.779e+04	2.355e+04	0.76	yes	no	1.176
19	IS	13C-1,2,3,7,8-PeCDF	32:40	2.854e+04	1.812e+04	1.58	yes	no	1.185
20	IS	13C-2,3,4,7,8-PeCDF	33:34	2.818e+04	1.790e+04	1.57	yes	no	1.149
21	IS	13C-1,2,3,4,7,8-HxCDF	36:09	1.190e+04	2.285e+04	0.52	yes	no	1.068
22	IS	13C-1,2,3,6,7,8-HxCDF	36:15	1.596e+04	3.001e+04	0.53	yes	no	1.171
23	IS	13C-2,3,4,6,7,8-HxCDF	36:45	1.286e+04	2.521e+04	0.51	yes	no	1.079
24	IS	13C-1,2,3,7,8,9-HxCDF	37:29	1.054e+04	1.966e+04	0.54	yes	no	0.919
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:41	1.038e+04	2.311e+04	0.45	yes	no	0.877
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:06	8.441e+03	1.826e+04	0.46	yes	no	0.723
27	IS	13C-2,3,7,8-TCDD	29:23	1.533e+04	1.927e+04	0.80	yes	no	0.958
28	IS	13C-1,2,3,7,8-PeCDD	33:50	2.380e+04	1.503e+04	1.58	yes	no	0.973
29	IS	13C-1,2,3,4,7,8-HxCDD	36:52	1.709e+04	1.373e+04	1.25	yes	no	0.966
30	IS	13C-1,2,3,6,7,8-HxCDD	36:57	2.144e+04	1.718e+04	1.25	yes	no	0.968
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:36	1.542e+04	1.469e+04	1.05	yes	no	0.854
32	IS	13C-OCDD	42:21	2.259e+04	2.480e+04	0.91	yes	no	0.668
33	RS/RT	13C-1,2,3,4-TCDD	28:49	1.588e+04	2.003e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:11	2.046e+04	1.654e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	3.451e+03				no	0.992

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

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #8 Filename p407623 Samp: 1 Inj: 1 Acquired: 2-SEP-17 08:16:56
Processed: 5-SEP-17 15:56:38 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.80e+05	1.69e+03	1.7e+02	3.79e+05	4.91e+03	7.7e+01
2	1,2,3,7,8-PeCDF	2.47e+06	9.96e+02	2.5e+03	1.58e+06	2.66e+03	6.0e+02
3	2,3,4,7,8-PeCDF	2.45e+06	9.96e+02	2.5e+03	1.58e+06	2.66e+03	6.0e+02
4	1,2,3,4,7,8-HxCDF	2.60e+06	3.75e+03	6.9e+02	2.04e+06	2.78e+03	7.3e+02
5	1,2,3,6,7,8-HxCDF	2.76e+06	3.75e+03	7.4e+02	2.22e+06	2.78e+03	8.0e+02
6	2,3,4,6,7,8-HxCDF	2.40e+06	3.75e+03	6.4e+02	1.99e+06	2.78e+03	7.1e+02
7	1,2,3,7,8,9-HxCDF	1.86e+06	3.75e+03	5.0e+02	1.48e+06	2.78e+03	5.3e+02
8	1,2,3,4,6,7,8-HpCDF	2.26e+06	1.87e+03	1.2e+03	2.20e+06	5.69e+03	3.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.54e+06	1.87e+03	8.2e+02	1.46e+06	5.69e+03	2.6e+02
10	OCDF	2.05e+06	1.40e+03	1.5e+03	2.33e+06	2.93e+03	8.0e+02
11	2,3,7,8-TCDD	2.55e+05	7.58e+03	3.4e+01	3.51e+05	3.66e+03	9.6e+01
12	1,2,3,7,8-PeCDD	1.74e+06	2.42e+03	7.2e+02	1.13e+06	6.20e+02	1.8e+03
13	1,2,3,4,7,8-HxCDD	1.76e+06	1.76e+03	1.0e+03	1.41e+06	1.92e+03	7.4e+02
14	1,2,3,6,7,8-HxCDD	1.82e+06	1.76e+03	1.0e+03	1.41e+06	1.92e+03	7.3e+02
15	1,2,3,7,8,9-HxCDD	1.61e+06	1.76e+03	9.1e+02	1.31e+06	1.92e+03	6.8e+02
16	1,2,3,4,6,7,8-HpCDD	1.30e+06	1.93e+03	6.8e+02	1.30e+06	1.08e+03	1.2e+03
17	OCDD	1.79e+06	1.35e+03	1.3e+03	1.98e+06	1.00e+03	2.0e+03
18	13C-2,3,7,8-TCDF	3.27e+06	3.12e+04	1.0e+02	4.27e+06	1.27e+04	3.4e+02
19	13C-1,2,3,7,8-PeCDF	5.00e+06	1.31e+03	3.8e+03	3.15e+06	2.18e+03	1.4e+03
20	13C-2,3,4,7,8-PeCDF	5.13e+06	1.31e+03	3.9e+03	3.22e+06	2.18e+03	1.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.46e+06	1.92e+03	1.3e+03	4.73e+06	3.95e+03	1.2e+03
22	13C-1,2,3,6,7,8-HxCDF	2.84e+06	1.92e+03	1.5e+03	5.47e+06	3.95e+03	1.4e+03
23	13C-2,3,4,6,7,8-HxCDF	2.52e+06	1.92e+03	1.3e+03	4.88e+06	3.95e+03	1.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.91e+06	1.92e+03	9.9e+02	3.59e+06	3.95e+03	9.1e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.90e+06	4.27e+03	4.4e+02	4.37e+06	5.30e+03	8.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.41e+06	4.27e+03	3.3e+02	3.06e+06	5.30e+03	5.8e+02
27	13C-2,3,7,8-TCDD	2.80e+06	7.33e+03	3.8e+02	3.52e+06	2.86e+03	1.2e+03
28	13C-1,2,3,7,8-PeCDD	4.13e+06	2.96e+03	1.4e+03	2.65e+06	2.89e+03	9.2e+02
29	13C-1,2,3,4,7,8-HxCDD	3.68e+06	2.27e+03	1.6e+03	2.92e+06	1.46e+03	2.0e+03
30	13C-1,2,3,6,7,8-HxCDD	3.83e+06	2.27e+03	1.7e+03	3.08e+06	1.46e+03	2.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.75e+06	3.75e+03	7.3e+02	2.63e+06	2.08e+03	1.3e+03
32	13C-OCDD	3.33e+06	2.13e+03	1.6e+03	3.75e+06	9.12e+02	4.1e+03
33	13C-1,2,3,4-TCDD	3.06e+06	7.33e+03	4.2e+02	3.90e+06	2.86e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	3.45e+06	2.27e+03	1.5e+03	2.81e+06	1.46e+03	1.9e+03
35	37Cl-2,3,7,8-TCDD	6.25e+05	3.90e+03	1.6e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (7.584e{+}03 + 3.656e{+}03\ ) \times 100}{(2.799e{+}06 + 3.520e{+}06\ ) \times (\qquad\qquad\qquad\qquad) \times 0.966} =$$

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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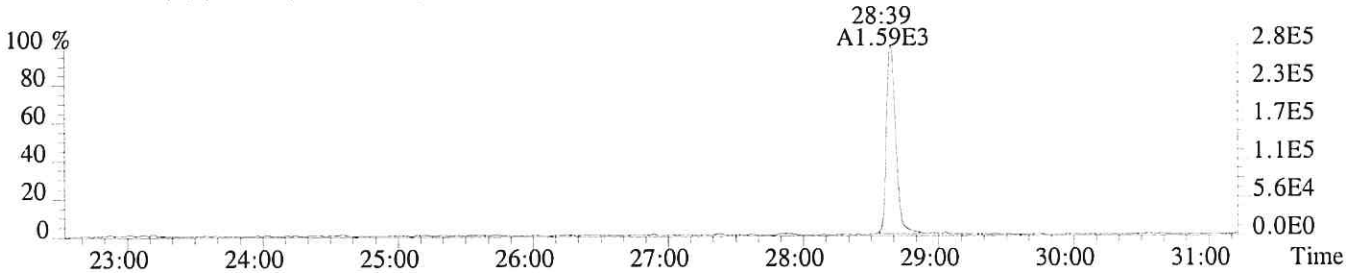
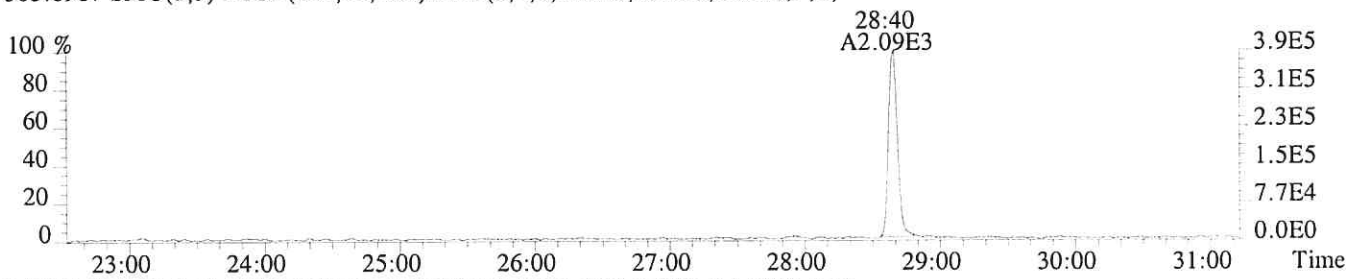
Office:(281)530-5656. Fax:(281)530-5887

File:P407623 #1-616 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

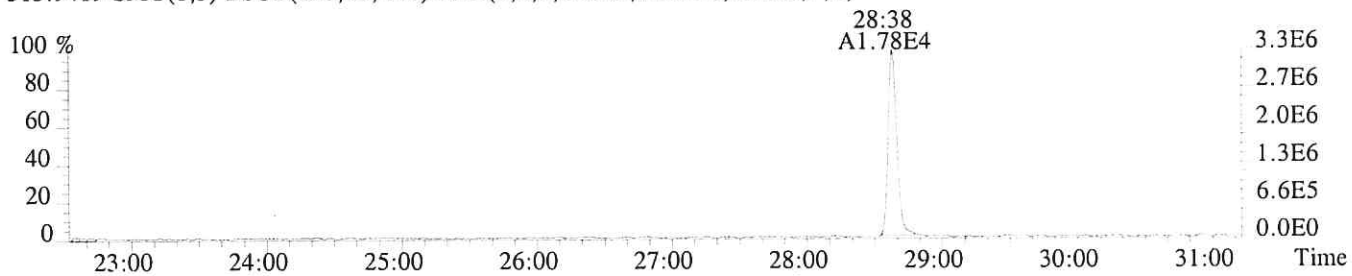
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



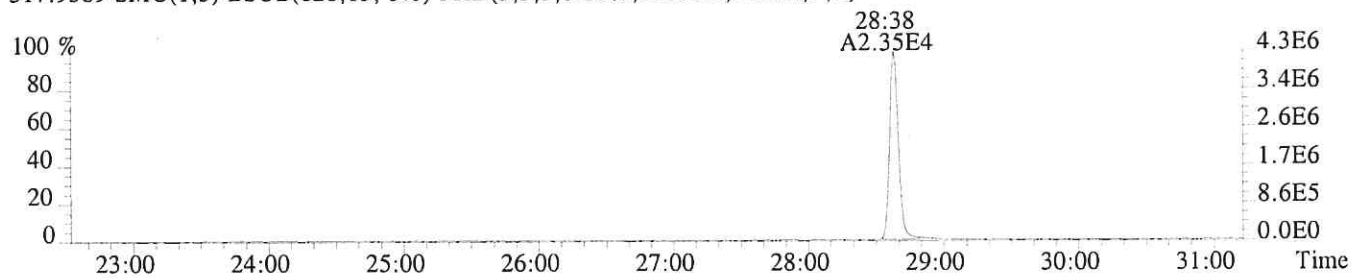
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4908.0,1.00%,F,T)



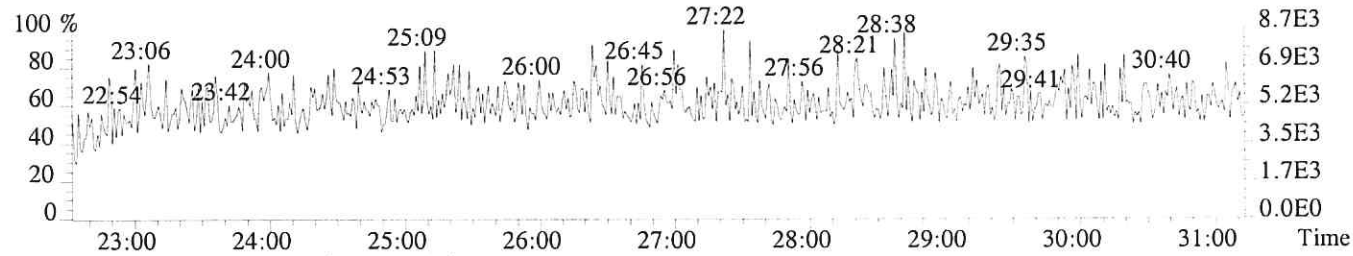
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,31240.0,1.00%,F,T)



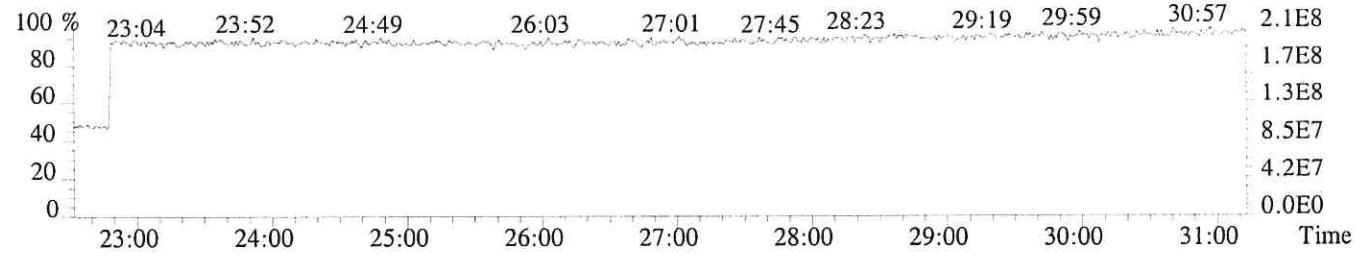
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12696.0,1.00%,F,T)



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

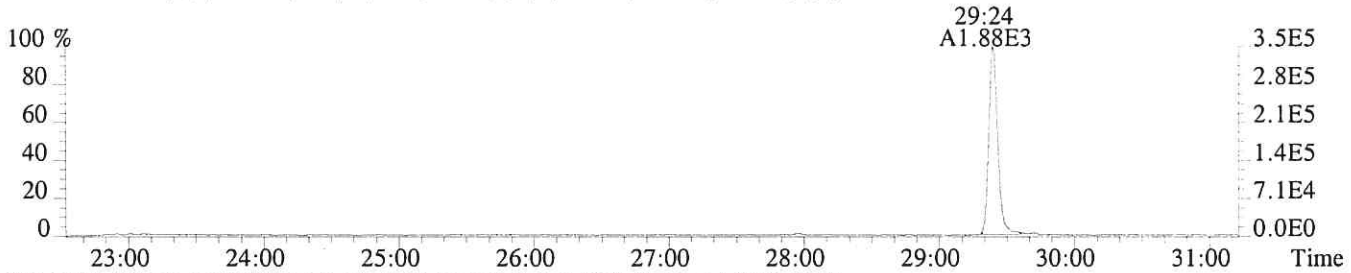


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

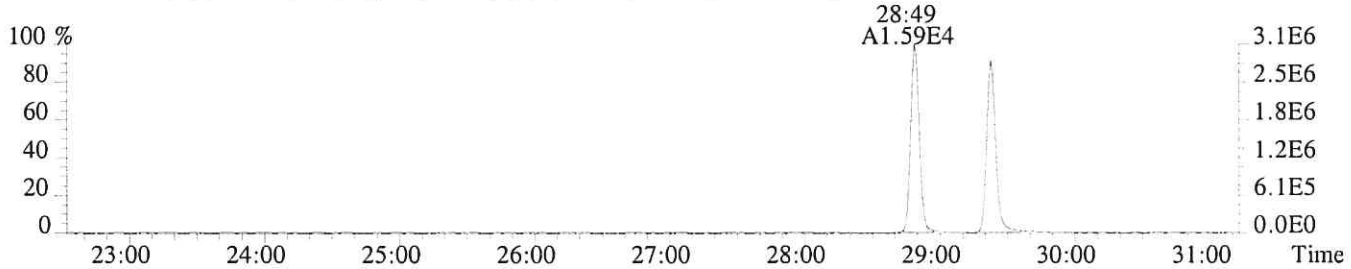


File:P407623 #1-616 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7584.0,1.00%,F,T)

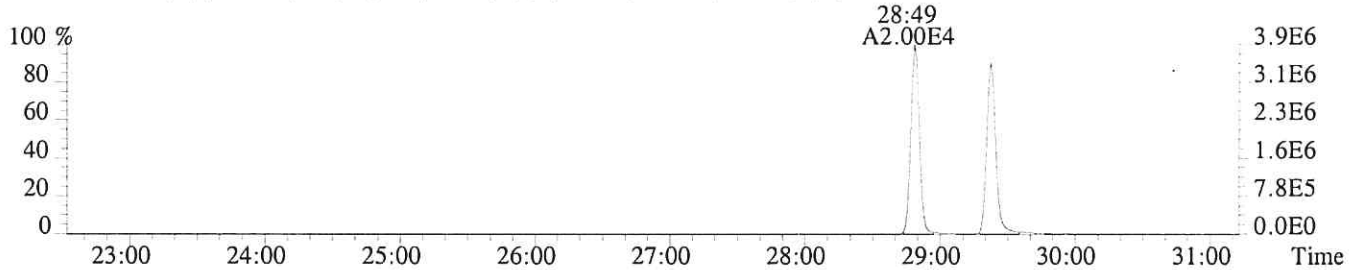
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3656.0,1.00%,F,T)



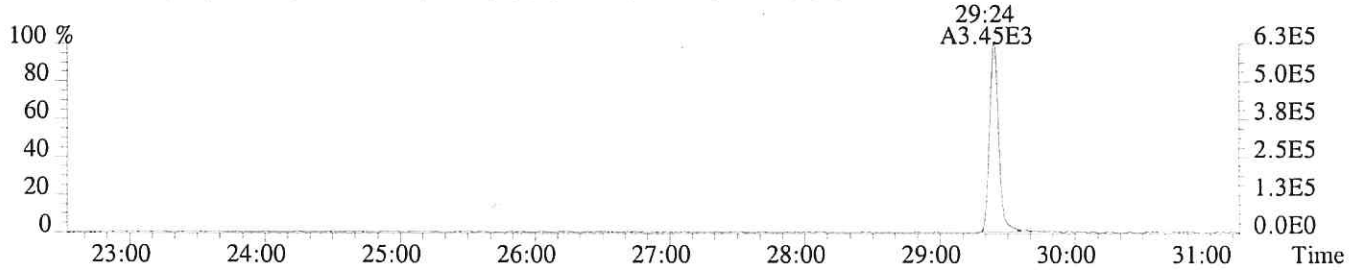
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7332.0,1.00%,F,T)



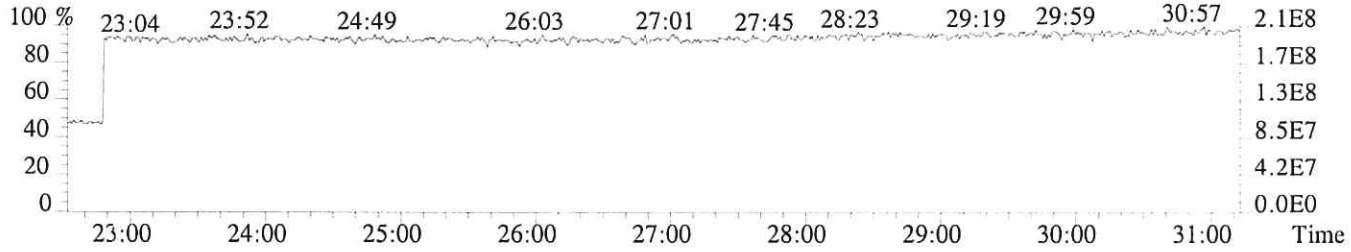
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2864.0,1.00%,F,T)



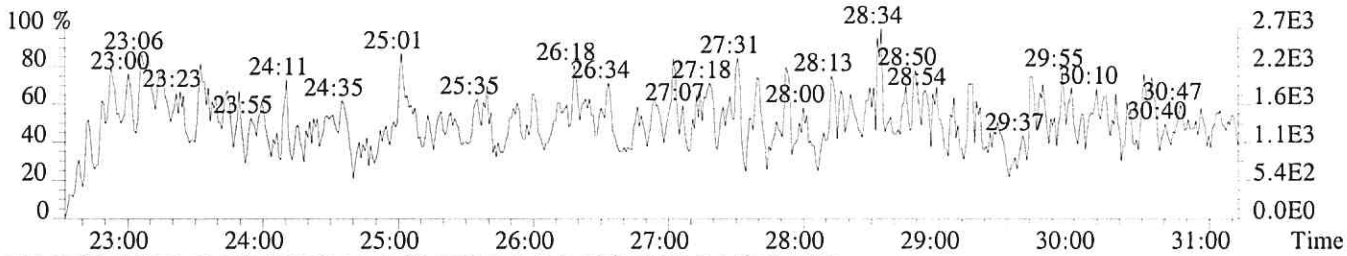
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3900.0,1.00%,F,T)



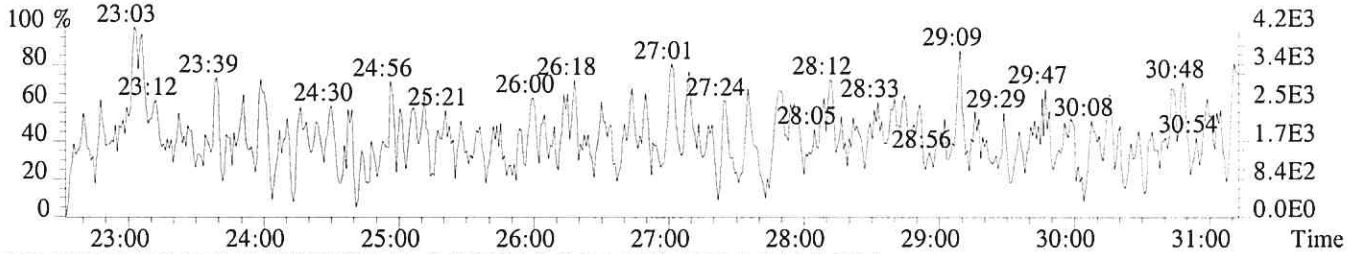
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



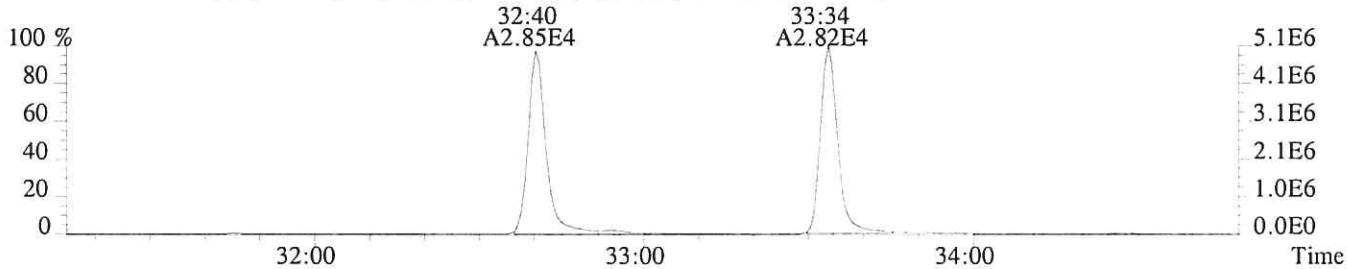
File:P407623 #1-616 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



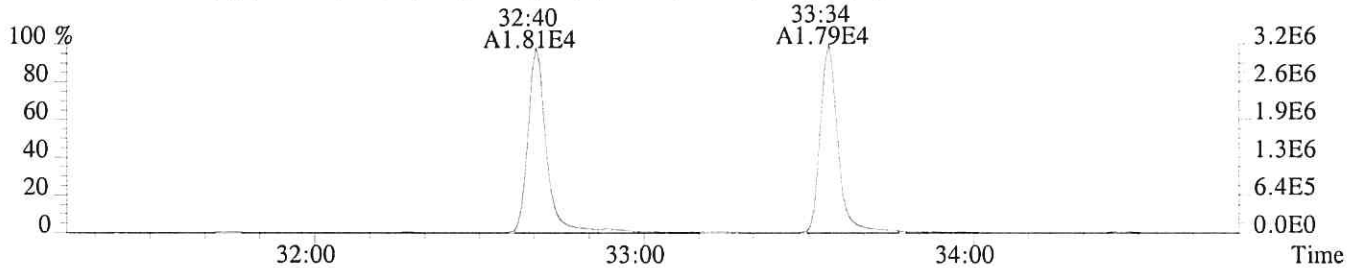
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



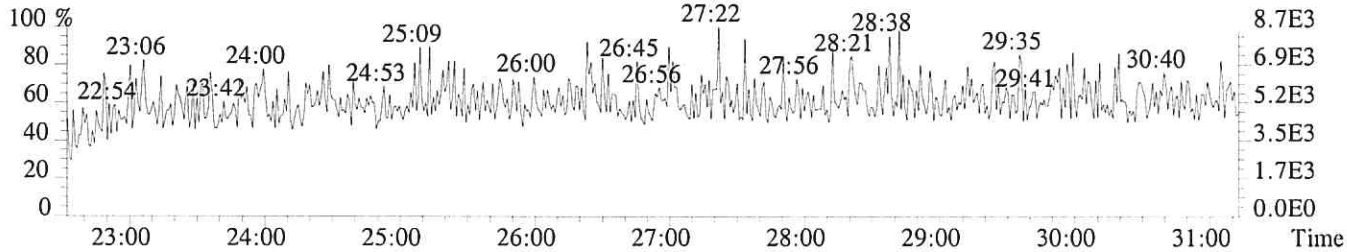
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



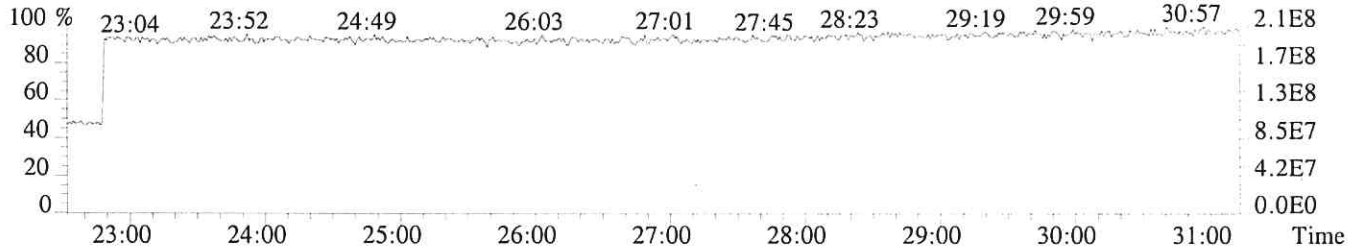
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



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

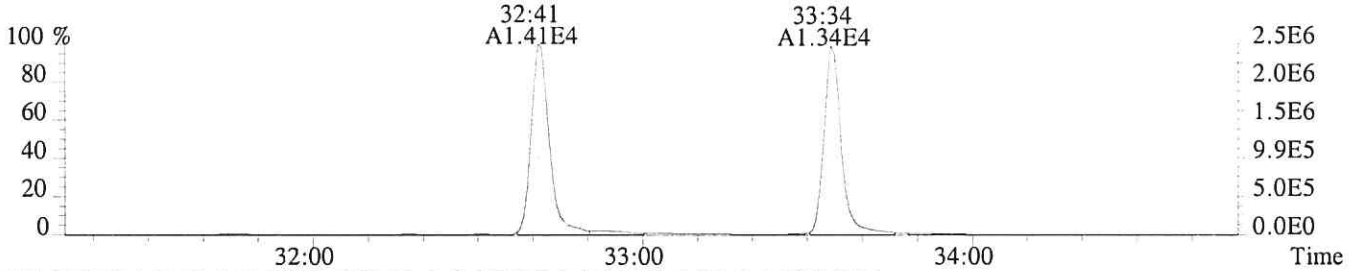


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

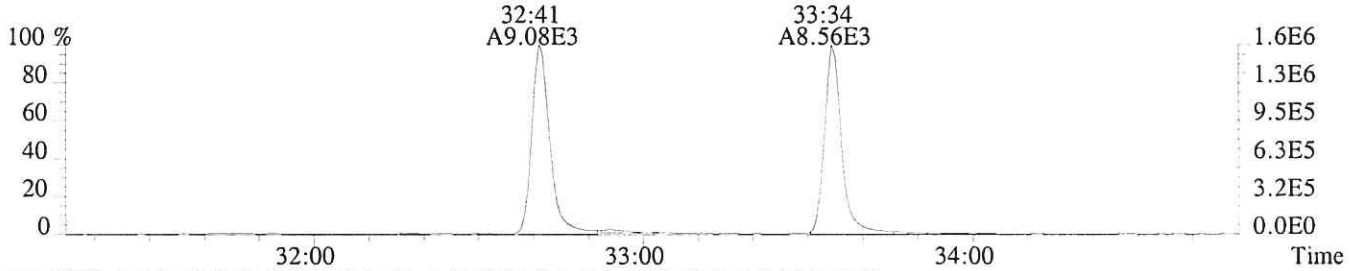


File:P407623 #1-321 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

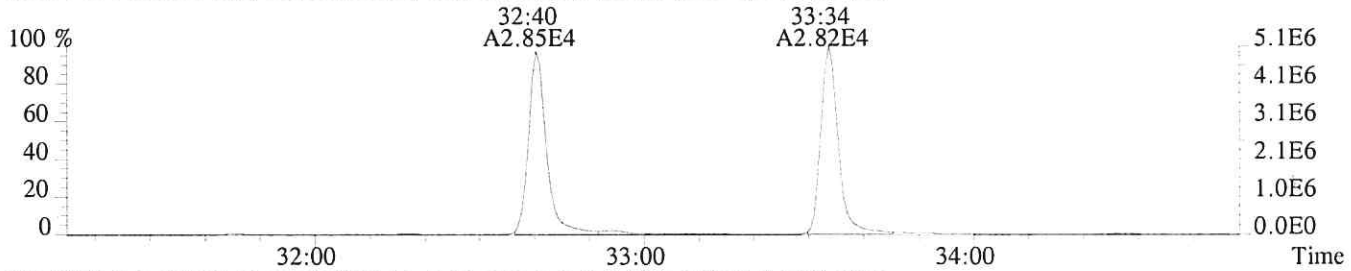
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



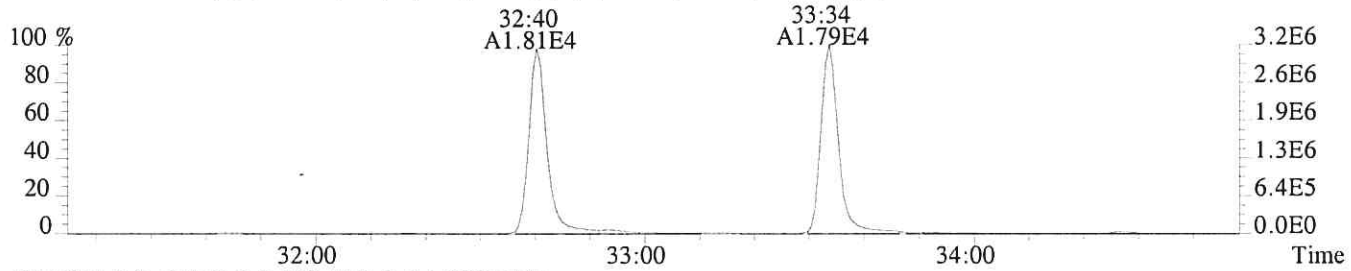
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2660.0,1.00%,F,T)



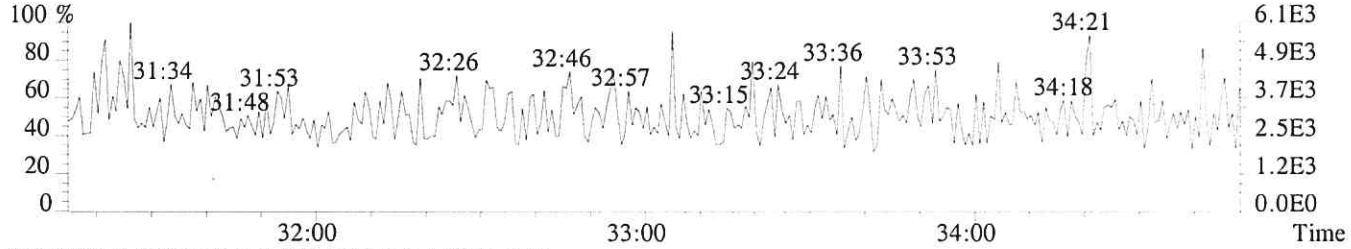
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



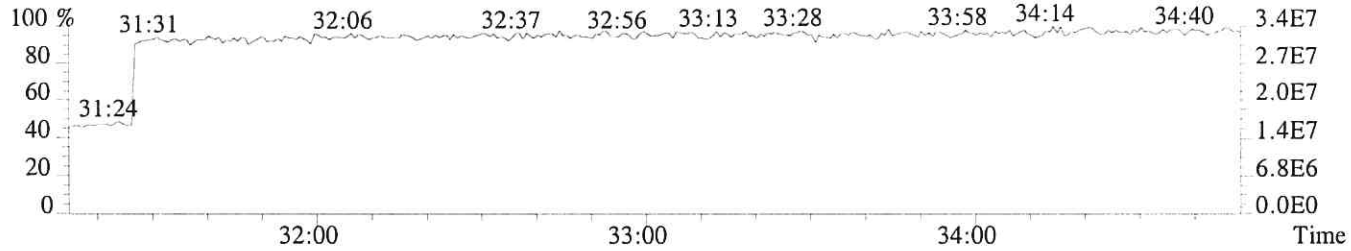
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



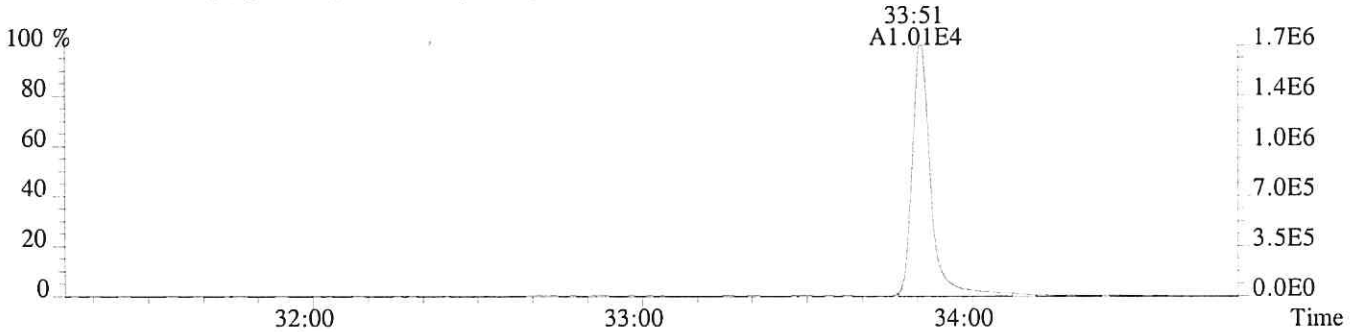
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



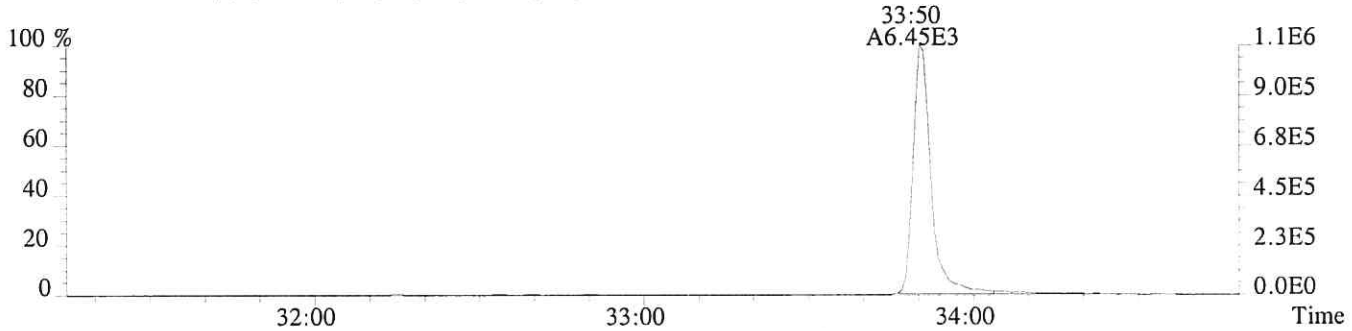
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



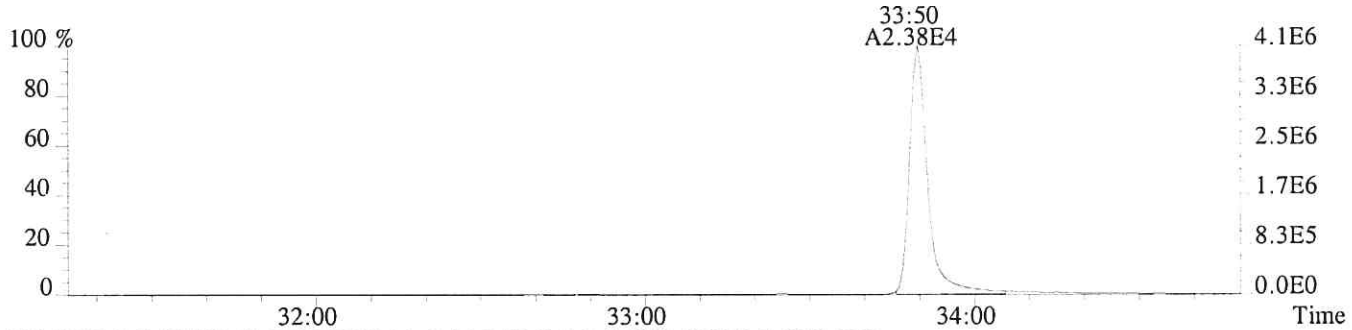
File:P407623 #1-321 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



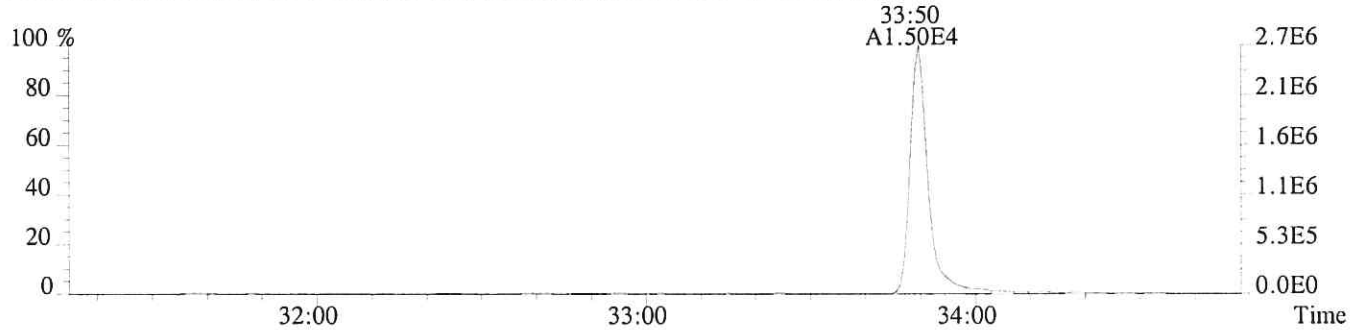
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



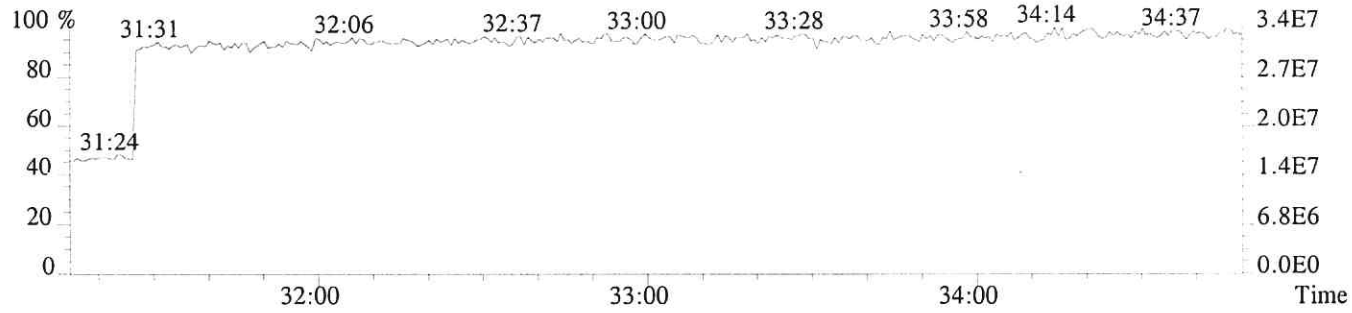
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2888.0,1.00%,F,T)

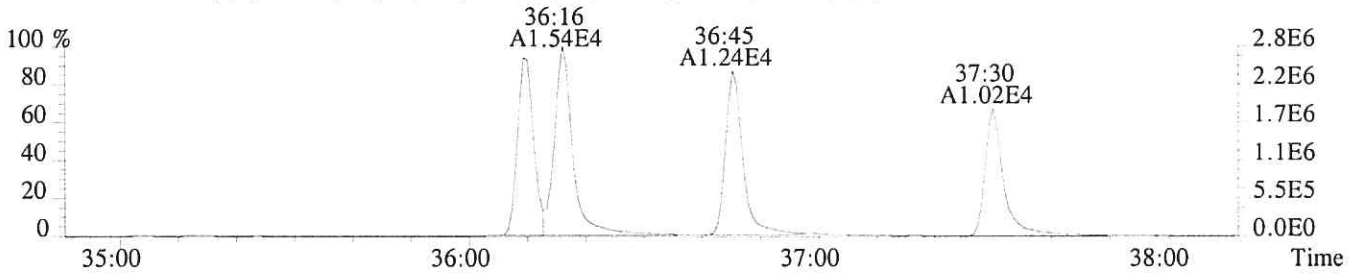


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

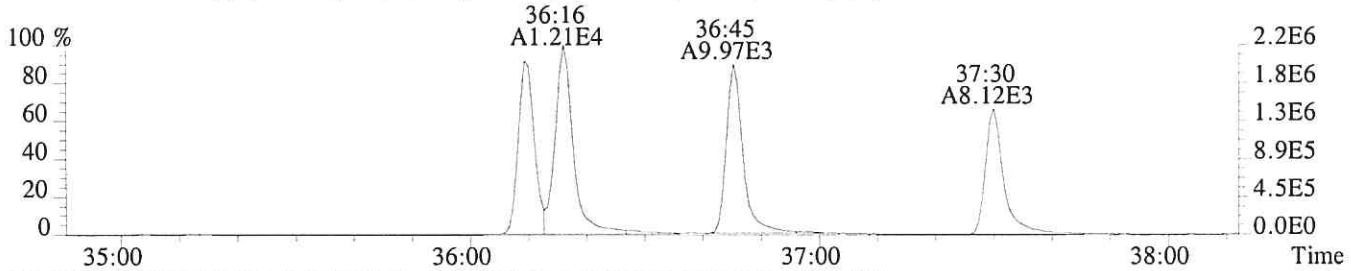


File:P407623 #1-303 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

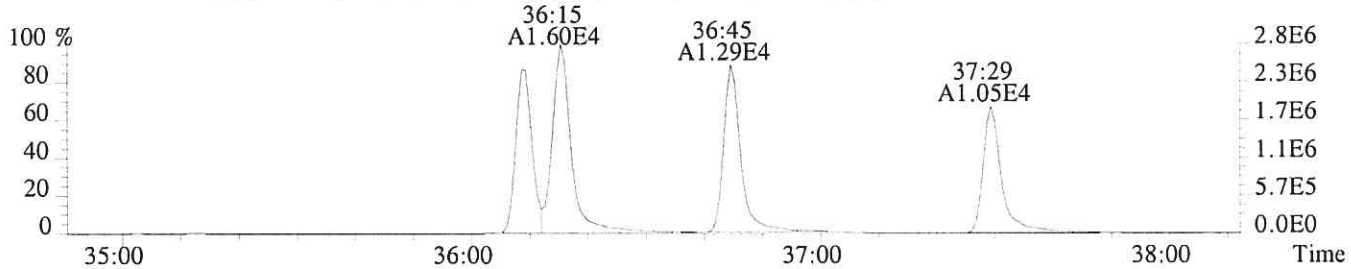
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3748.0,0.40%,F,T)



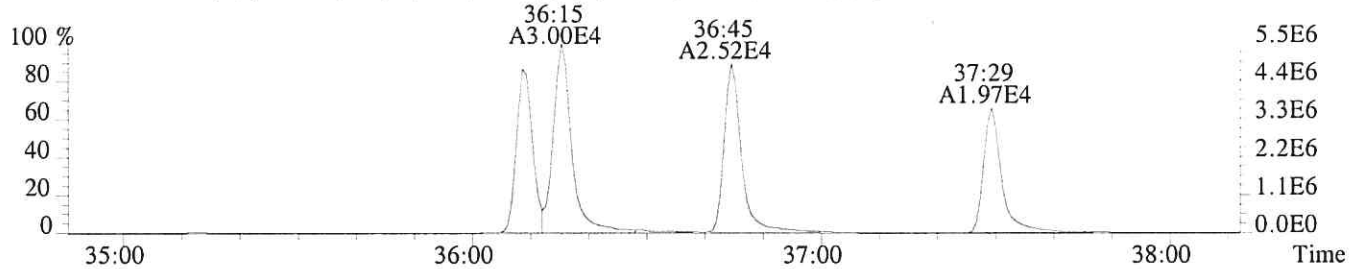
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2780.0,0.40%,F,T)



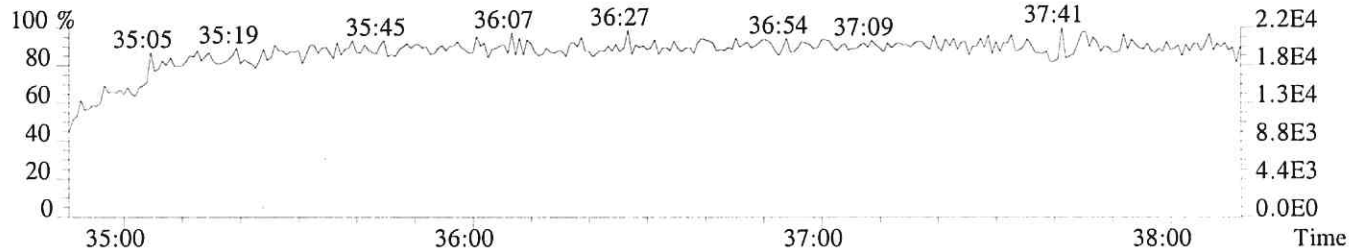
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1924.0,0.40%,F,T)



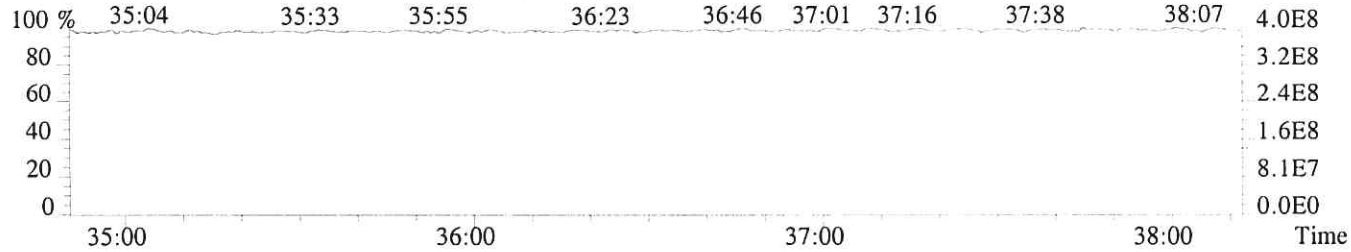
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3952.0,0.40%,F,T)



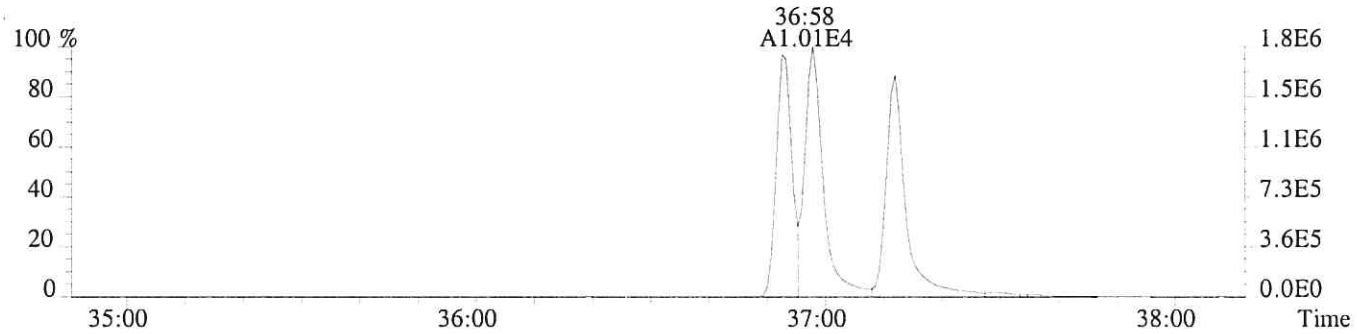
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



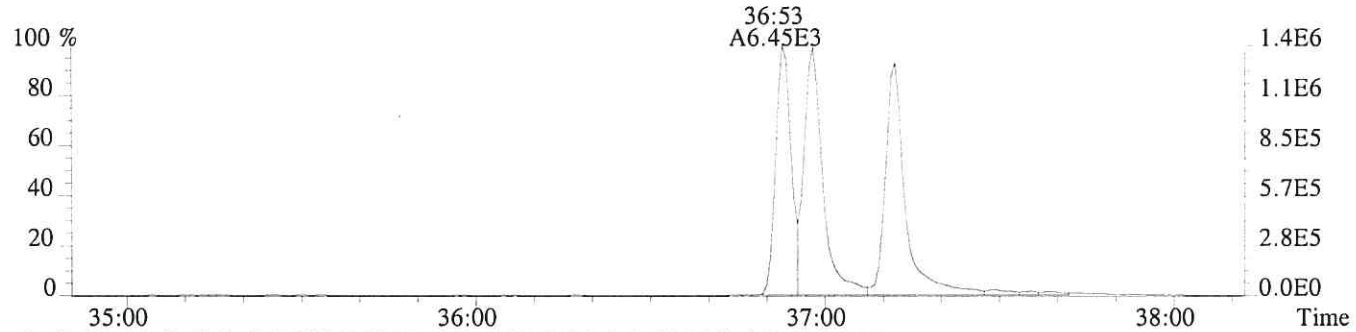
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



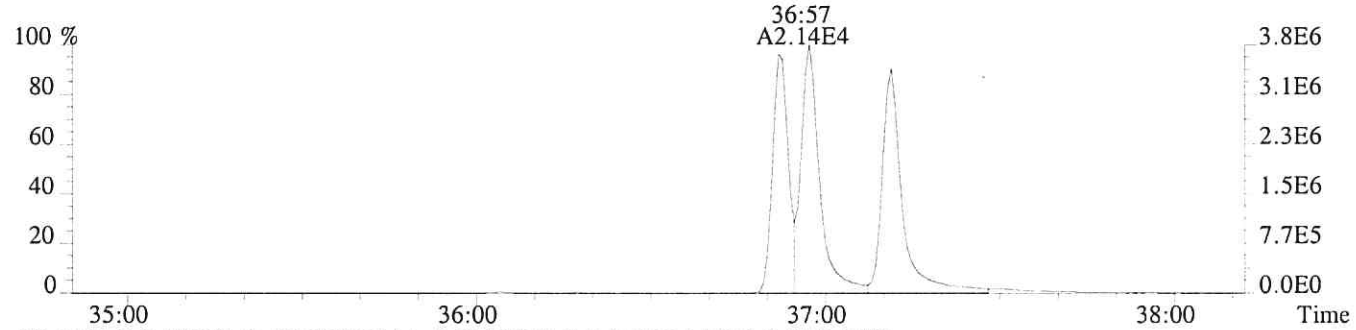
File:P407623 #1-303 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1764.0,0.40%,F,T)



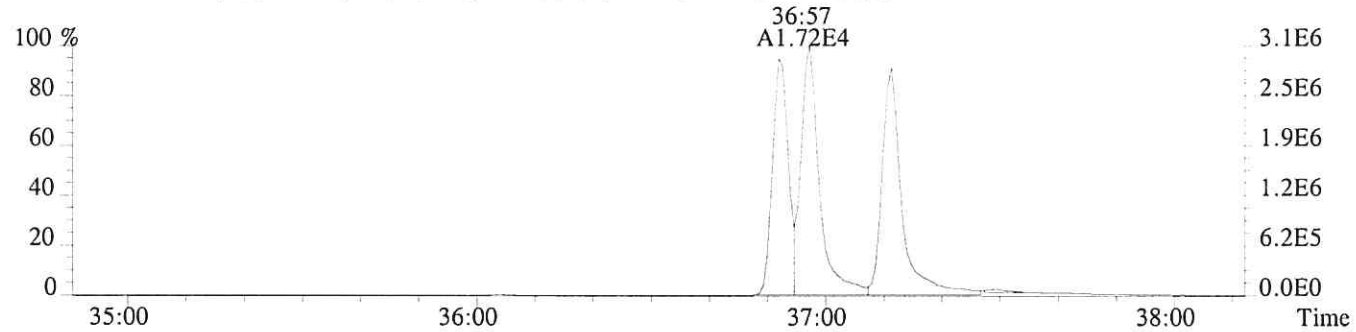
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.40%,F,T)



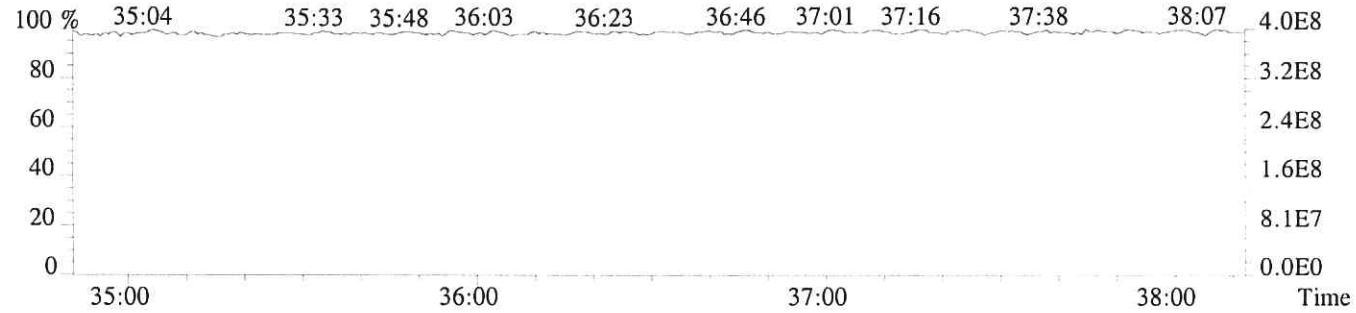
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2268.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.40%,F,T)

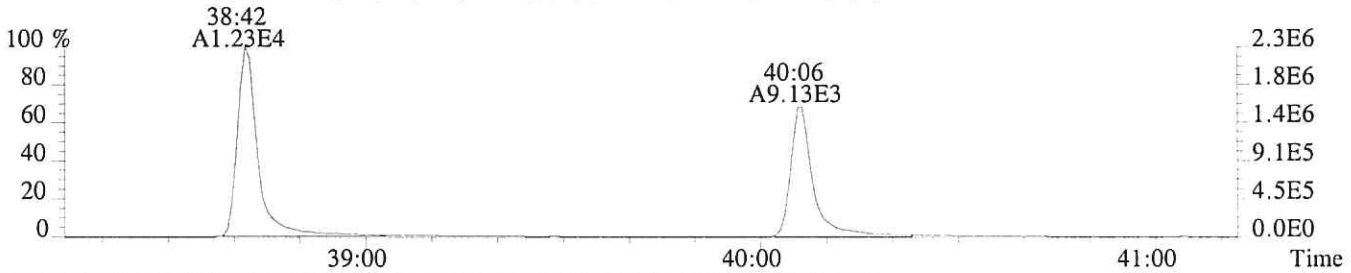


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

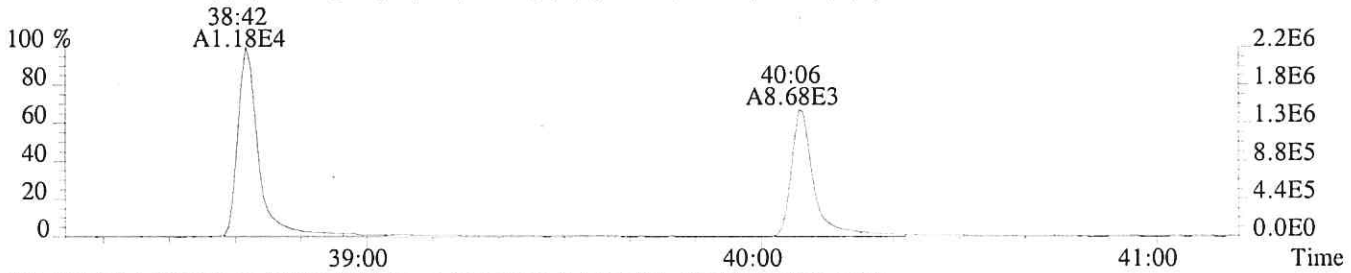


File:P407623 #1-268 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

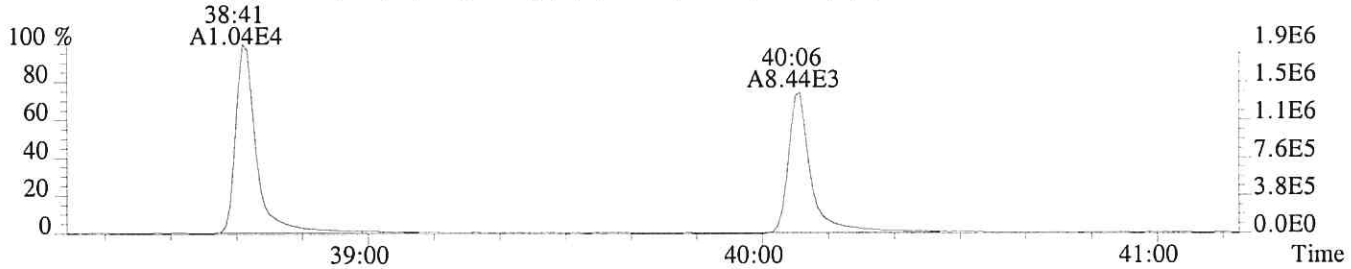
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1868.0,0.50%,F,T)



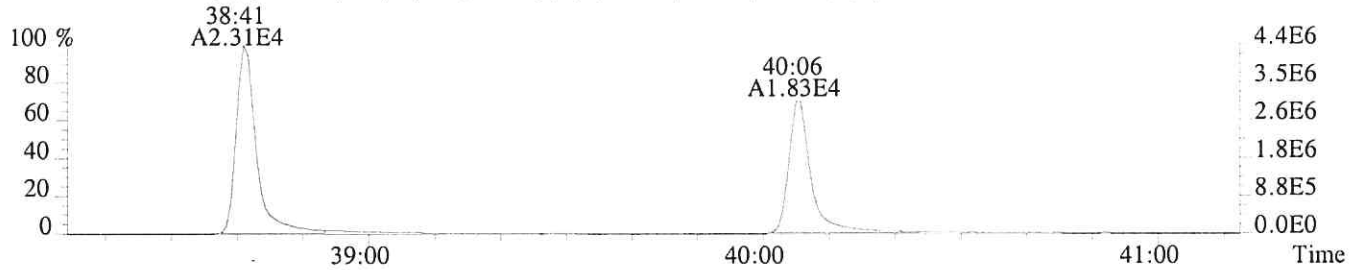
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5692.0,0.50%,F,T)



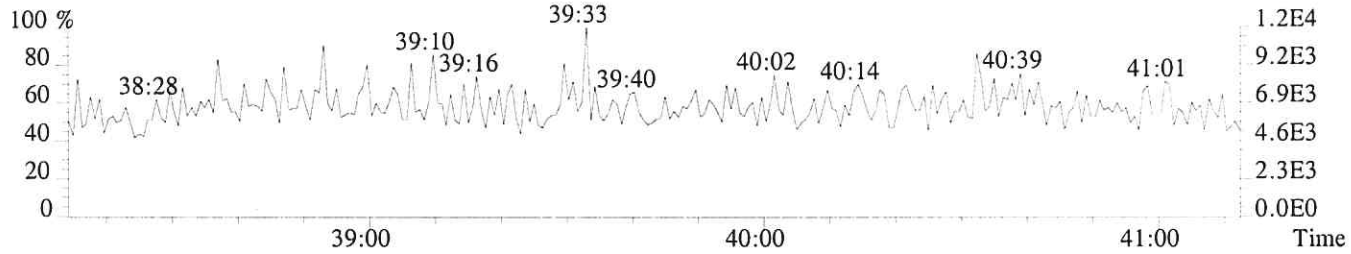
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4268.0,0.50%,F,T)



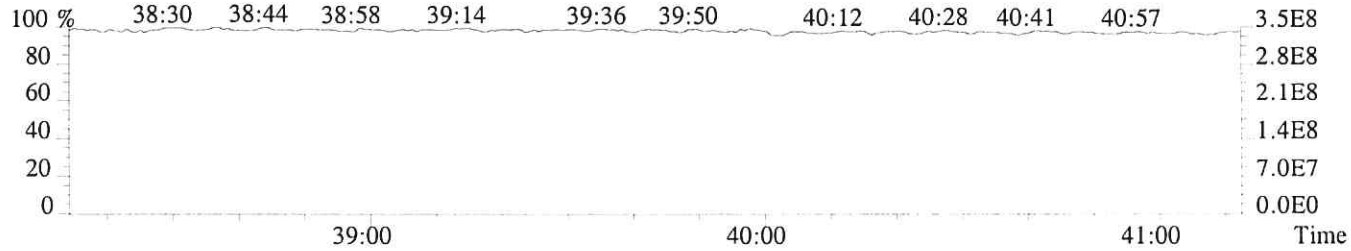
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5300.0,0.50%,F,T)



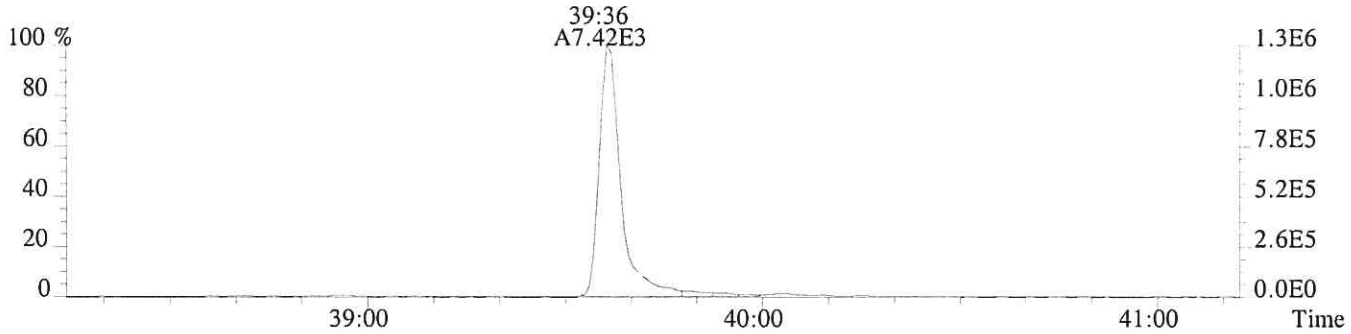
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



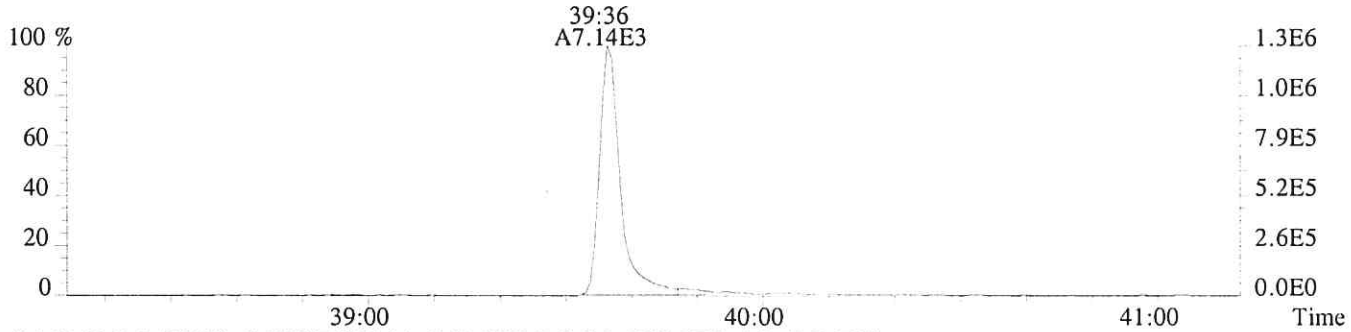
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



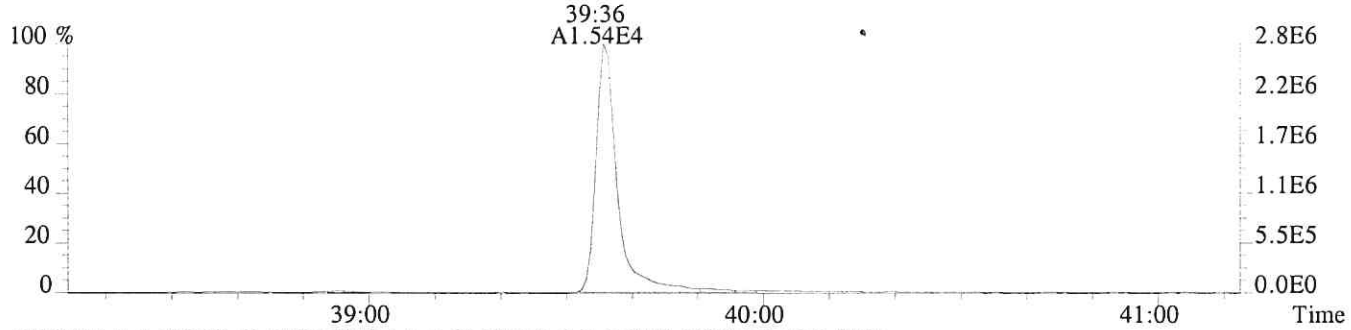
File:P407623 #1-268 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)



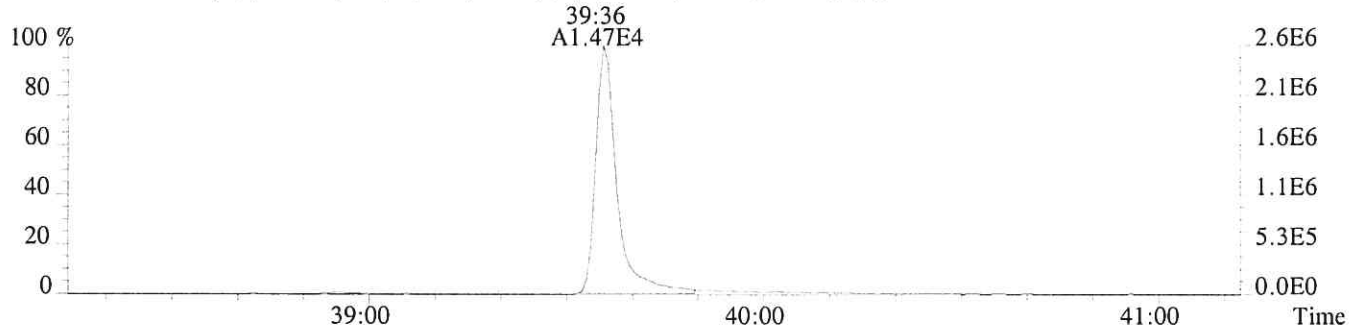
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



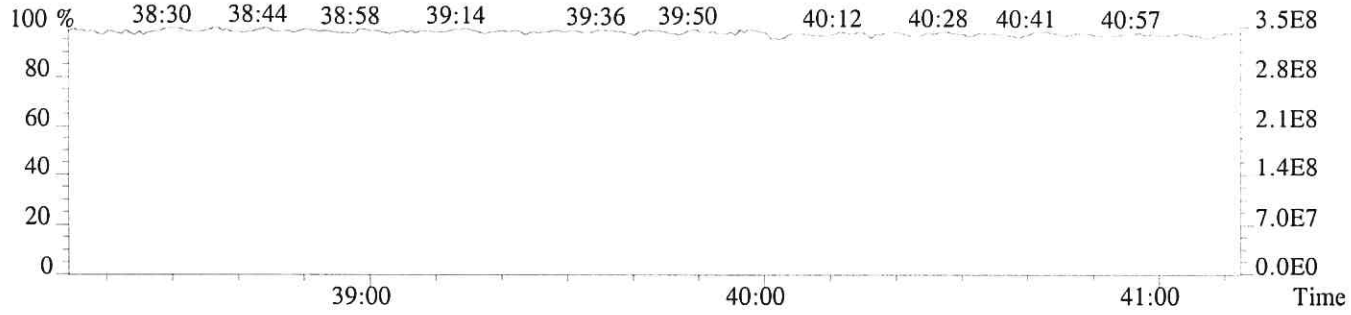
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3752.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.40%,F,T)

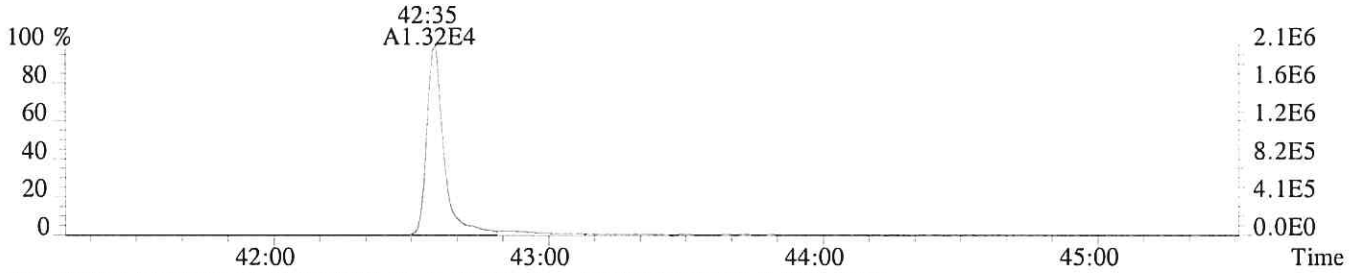


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

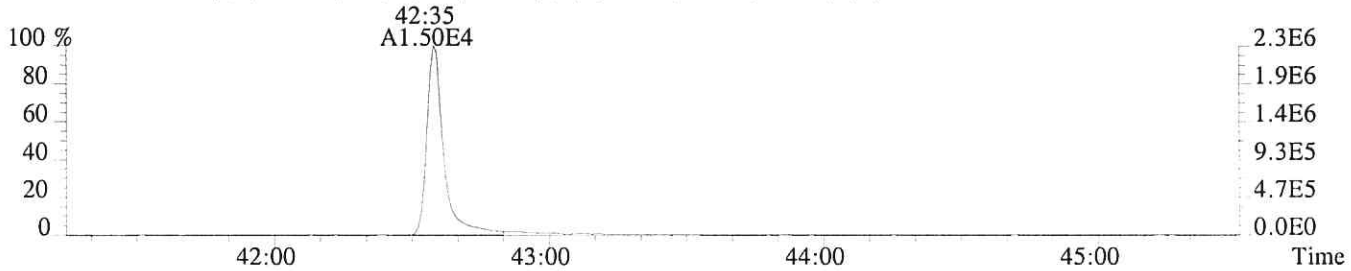


File:P407623 #1-385 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

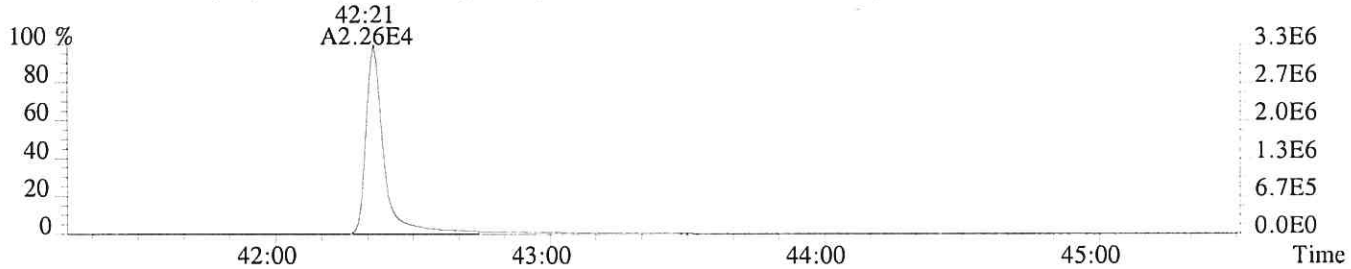
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1396.0,0.40%,F,T)



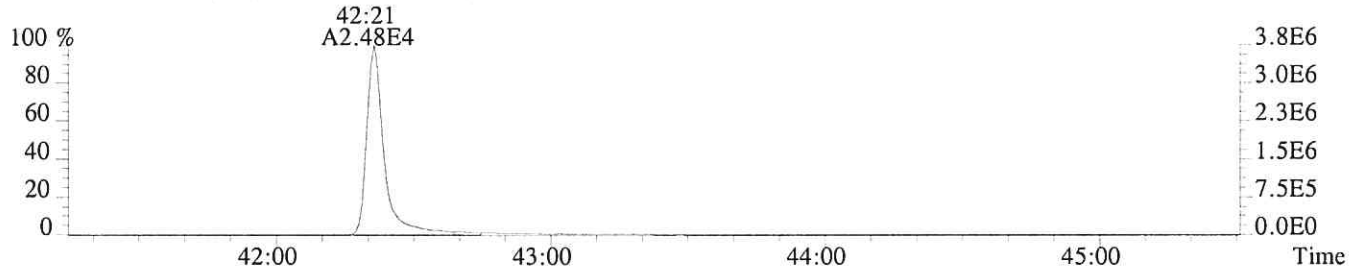
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2928.0,0.40%,F,T)



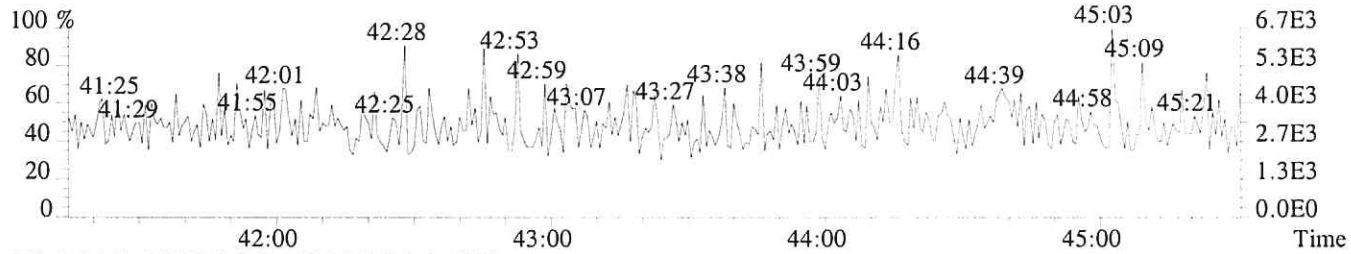
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2132.0,0.40%,F,T)



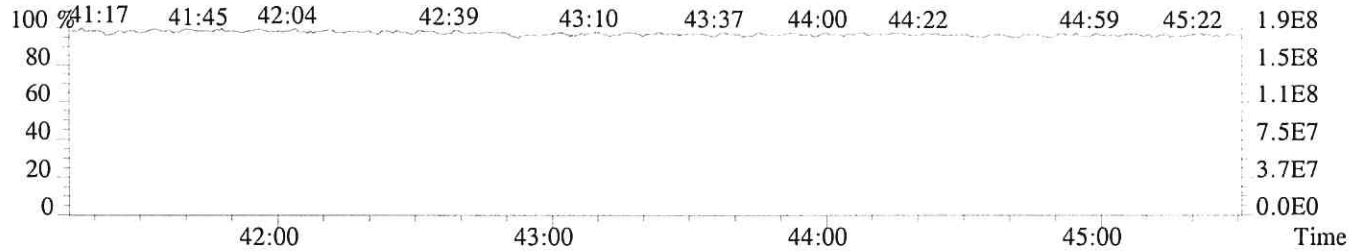
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



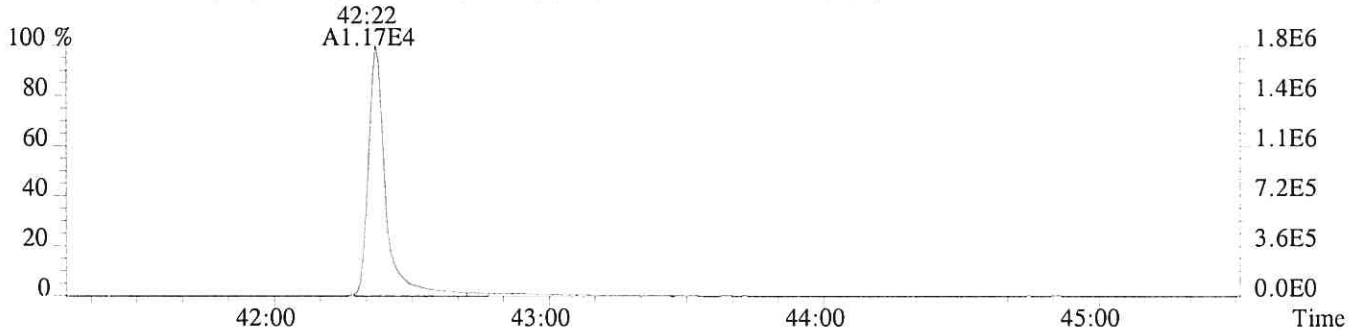
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



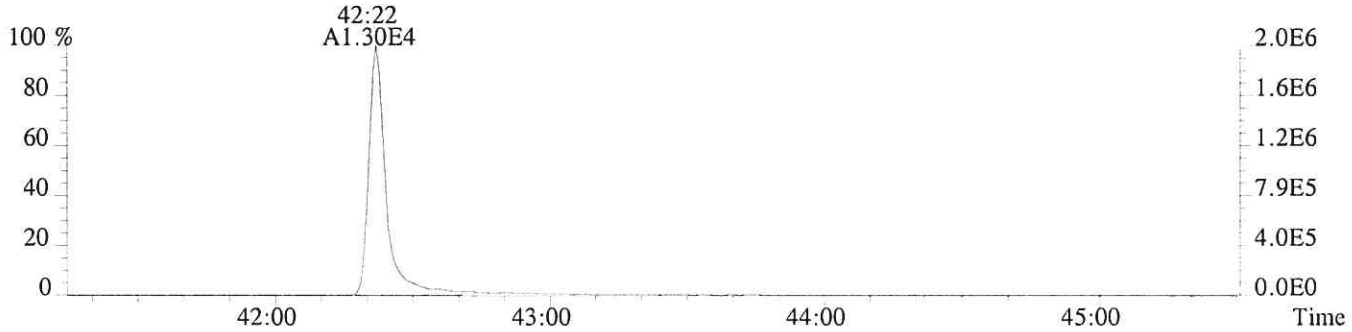
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



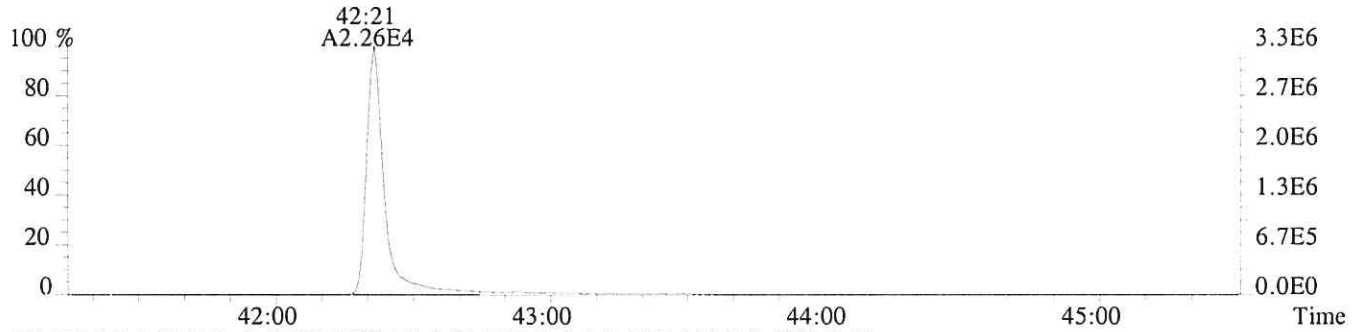
File:P407623 #1-385 Acq: 2-SEP-2017 08:16:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1348.0,0.40%,F,T)



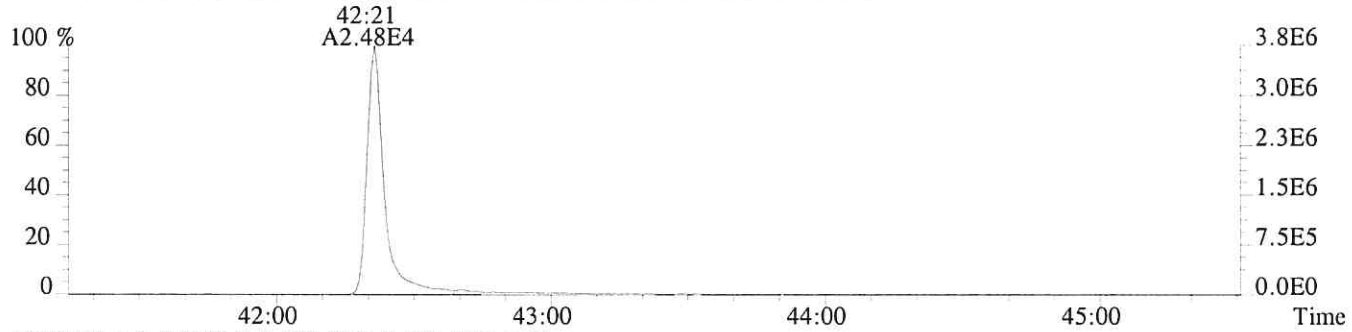
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



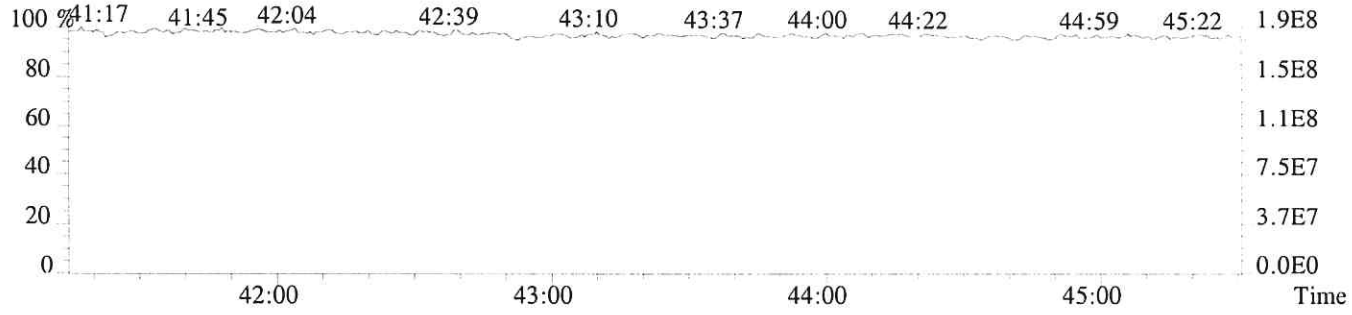
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2132.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



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



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 05/17/17
Instrument Name: E/HRMS-08	Calibration File Name: P6-1705161613I
Processor Name: Rosela Cruz	Reviewer Name: LOAN LUONG
Supervisor: Hien Nin	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 05/17/17
Instrument Name: E-HRMS-08	Calibration File Name: P6-1705161613I
Processor Name: Gisela Cruz	Reviewer Name: LOAN LUONG
Supervisor: [illegible]	

Description	Yes	No	NA	NR	ER#
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?			√		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 05/17/17
Instrument Name: E-HRMS-08	Calibration File Name: P6-1705161613I
Processor Name: Gisela Cruz	Reviewer Name: LOAN LUONG

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 05/16/17

Init. Calib.Times: 11:03

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
178397	WINDOW DEFINE	P607178	16-MAY-17	11:03:07
76554	CS0.5	P607179	16-MAY-17	12:44:15
76555	CS1	P607180	16-MAY-17	13:34:34
76556	CS2	P607181	16-MAY-17	14:24:51
76557	CS3	P607182	16-MAY-17	15:15:09
76558	CS4	P607183	16-MAY-17	16:05:29
82168	CS5	P607184	16-MAY-17	16:55:47
75080	2ND SOURCE	P607186	16-MAY-17	18:45:06

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20170516.SPL
Last Modified: Wednesday, May 17, 2017 09:44:00 Central Daylight Time
Printed: Wednesday, May 17, 2017 09:44:02 Central Daylight Time

Page Position (1, 1)

OPUS 4: P6-170516613I; P607186res

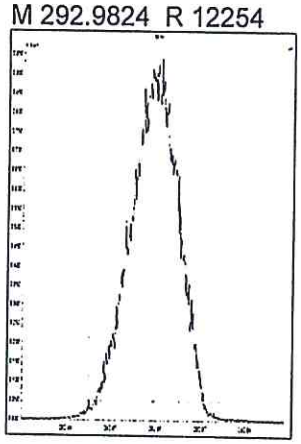
	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	5/16/17	11:03	P607178	178397	WINDOWDEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LG	HRMScheck 10:00
2		12:44	P607179	76554	CS0.5	Tray1:3	EPA1613_ALS	Dioxin_ALS		
3		13:34	P607180	76555	CS1	Tray1:4	EPA1613_ALS	Dioxin_ALS		
4		14:24	P607181	76556	CS2	Tray1:5	EPA1613_ALS	Dioxin_ALS		
5		15:15	P607182	76557	CS3	Tray1:6	EPA1613_ALS	Dioxin_ALS		
6		16:05	P607183	76558	CS4	Tray1:7	EPA1613_ALS	Dioxin_ALS		
7		16:55	P607184	82168	CS5	Tray1:8	EPA1613_ALS	Dioxin_ALS		
8		17:54	P607185	NONANE	NONANE	Tray1:9	EPA1613_ALS	Dioxin_ALS		
9		18:45	P607186	75080	2ND SOURCE	Tray1:10	EPA1613_ALS	Dioxin_ALS		
10		19:43	P607187	NONANE	NONANE	Tray1:10	EPA1613_ALS	Dioxin_ALS		HRMScheck 19:43
11	---	---	P607188	---	---	Tray1:12	EPA1613_ALS	Dioxin_ALS	---	---
12	---	---	P607189	---	---	Tray1:13	EPA1613_ALS	Dioxin_ALS	---	---
13	---	---	P607190	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS	---	---
14	---	---	P607191	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS	---	---
15	---	---	P607192	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
16	---	---	P607193	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS	---	---
17	---	---	P607194	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
18	---	---	P607195	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS	---	---
19	---	---	P607196	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
20	---	---	P607197	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	P607198	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	P607199	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	P607200	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	P607201	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	P607202	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	P607203	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	P607204	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	P607205	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	P607206	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	P607207	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	P607208	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	P607209	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	P607210	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

gc 05/17/17

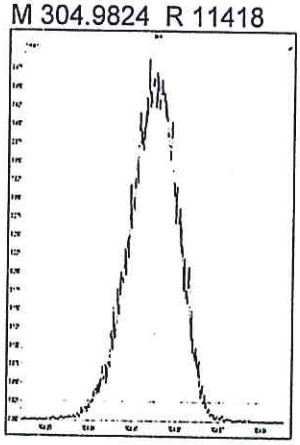
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, May 16, 2017 10:00:51 Central Daylight Time

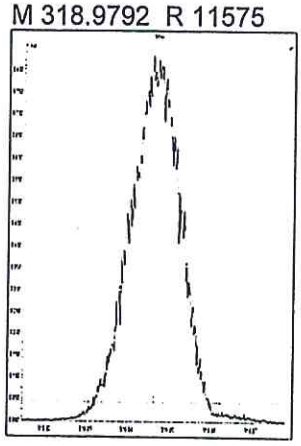
M 292.9824 R 12254



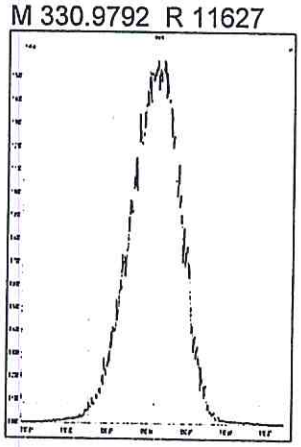
M 304.9824 R 11418



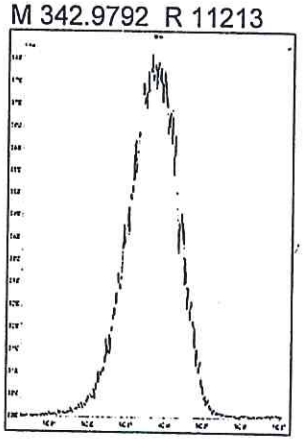
M 318.9792 R 11575



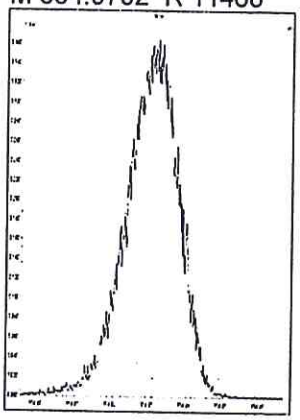
M 330.9792 R 11627



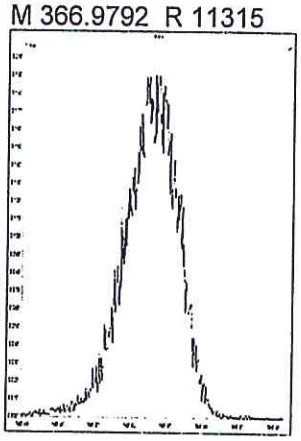
M 342.9792 R 11213



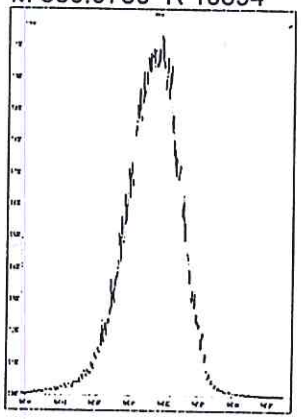
M 354.9792 R 11468



M 366.9792 R 11315



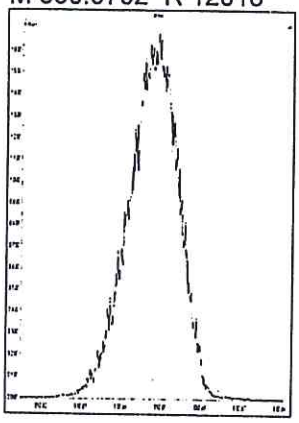
M 380.9760 R 10594



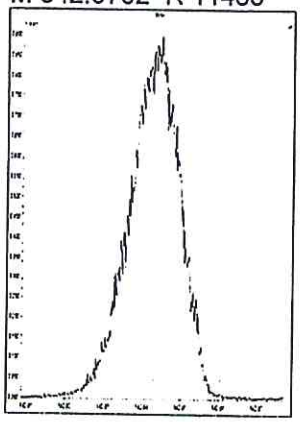
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, May 16, 2017 10:02:42 Central Daylight Time

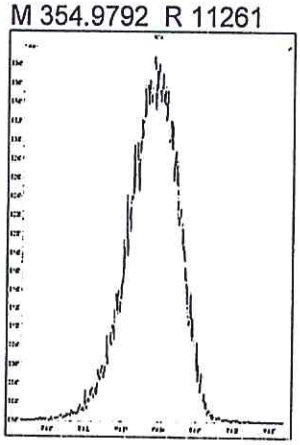
M 330.9792 R 12018



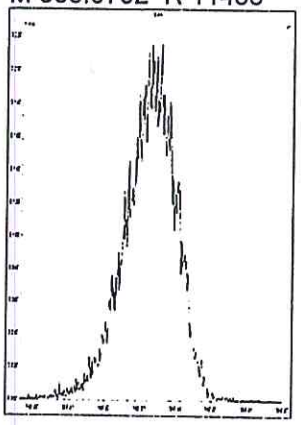
M 342.9792 R 11465



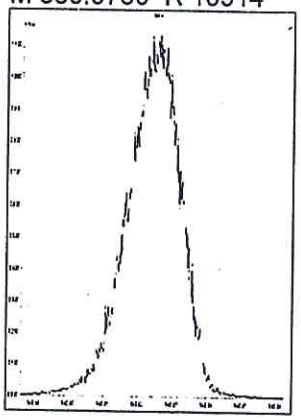
M 354.9792 R 11261



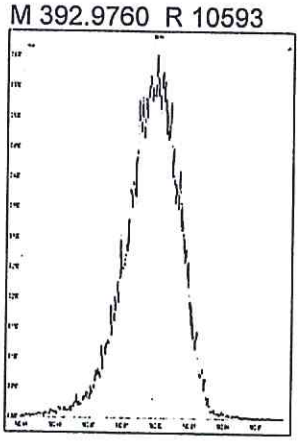
M 366.9792 R 11466



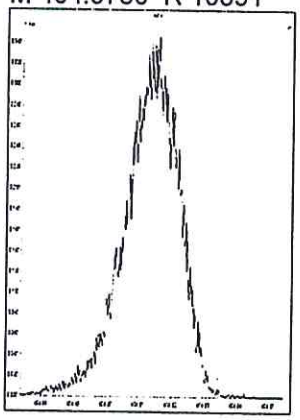
M 380.9760 R 10914



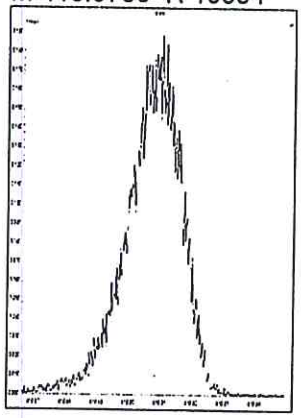
M 392.9760 R 10593



M 404.9760 R 10591



M 416.9760 R 10594

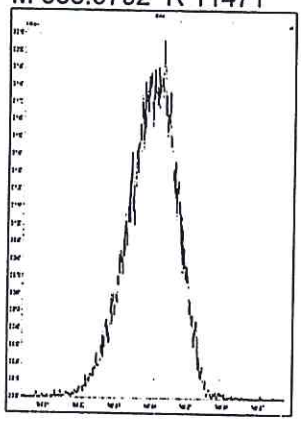


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

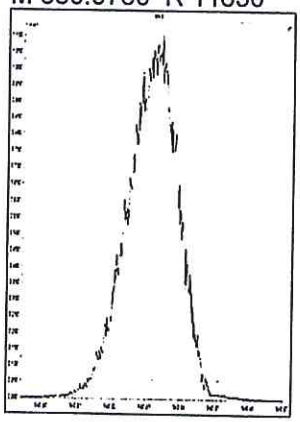
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, May 16, 2017 10:03:51 Central Daylight Time

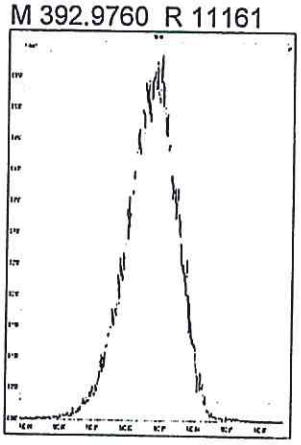
M 366.9792 R 11471



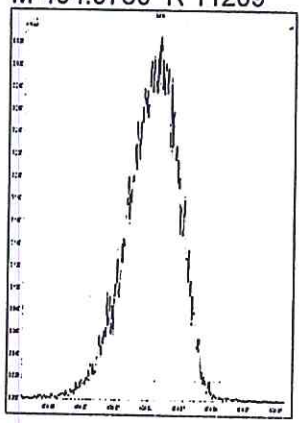
M 380.9760 R 11630



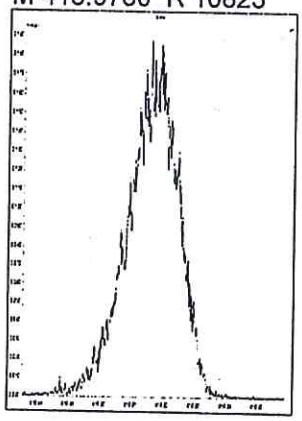
M 392.9760 R 11161



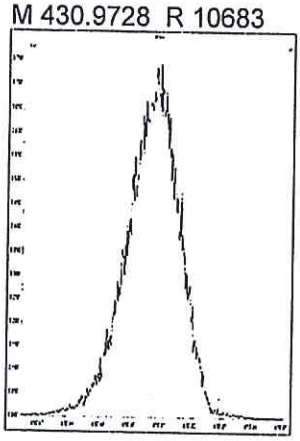
M 404.9760 R 11209



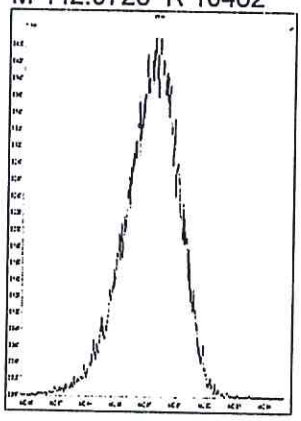
M 416.9760 R 10823



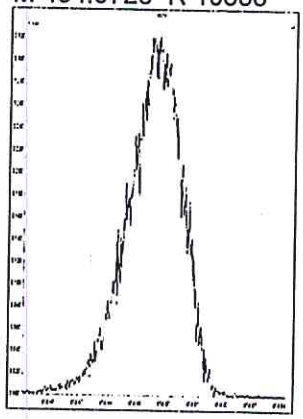
M 430.9728 R 10683



M 442.9728 R 10462



M 454.9728 R 10638

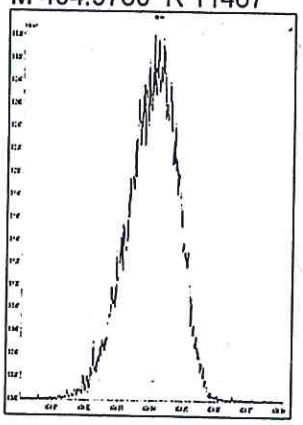


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

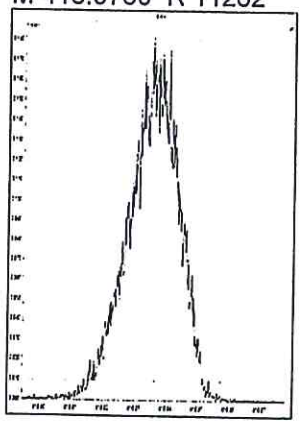
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, May 16, 2017 10:05:27 Central Daylight Time

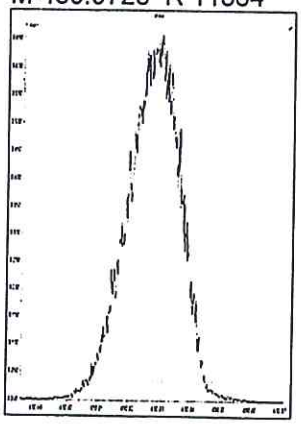
M 404.9760 R 11467



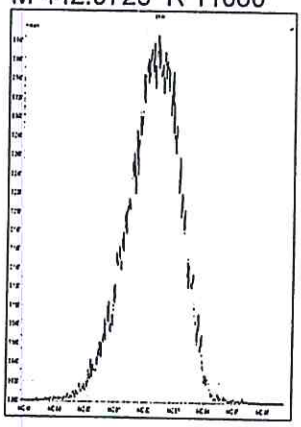
M 416.9760 R 11262



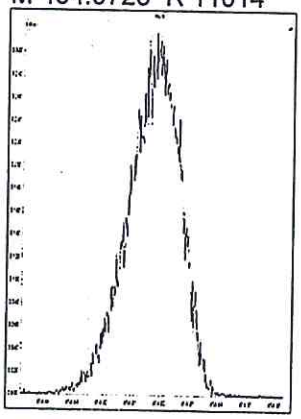
M 430.9728 R 11364



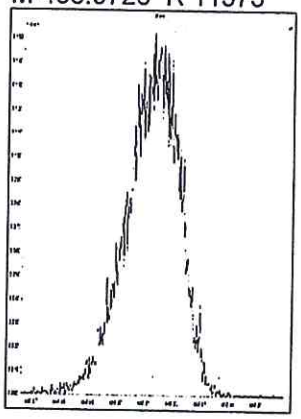
M 442.9728 R 11060



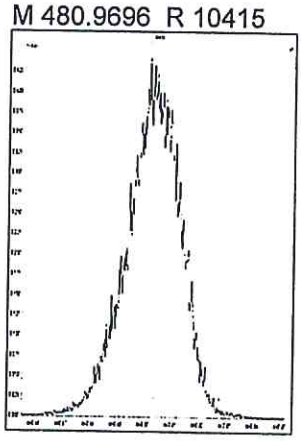
M 454.9728 R 11014



M 466.9728 R 11573



M 480.9696 R 10415

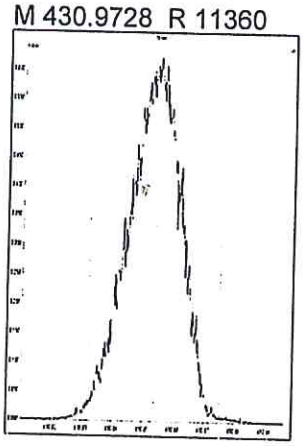


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

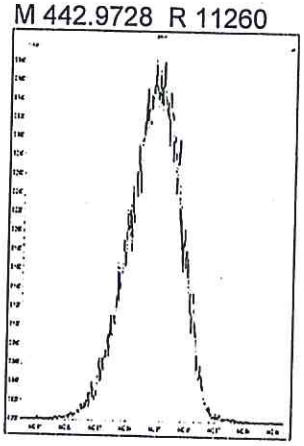
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, May 16, 2017 10:07:03 Central Daylight Time

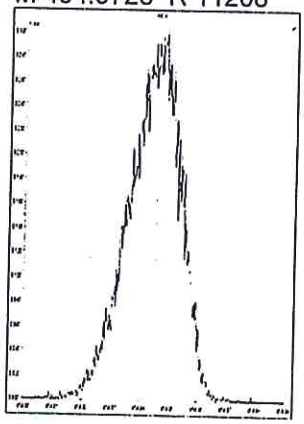
M 430.9728 R 11360



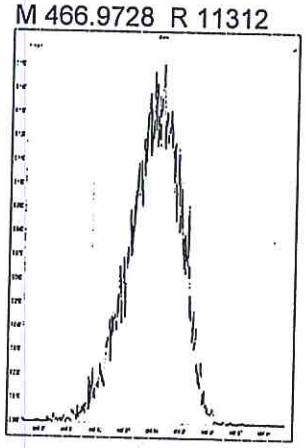
M 442.9728 R 11260



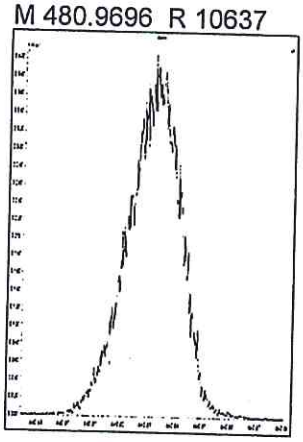
M 454.9728 R 11208



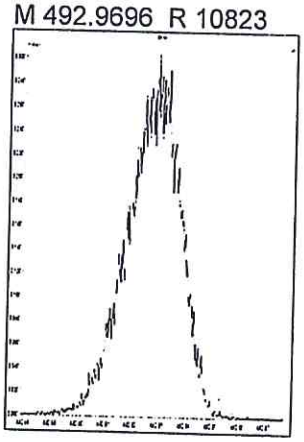
M 466.9728 R 11312



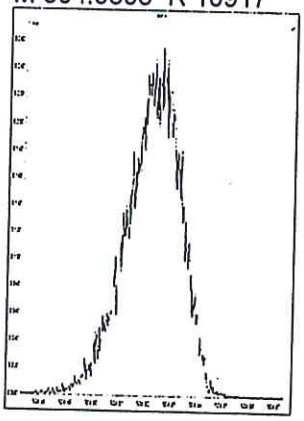
M 480.9696 R 10637



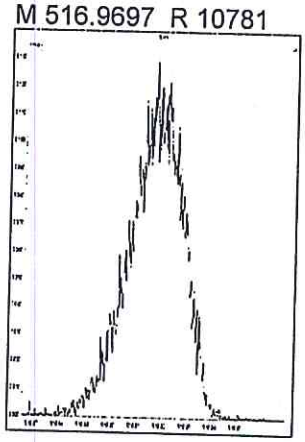
M 492.9696 R 10823



M 504.9696 R 10917

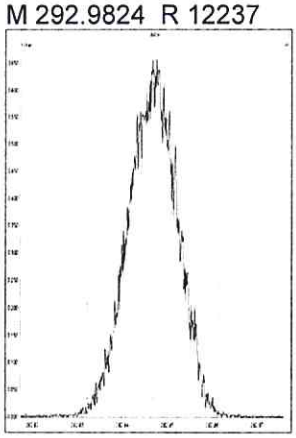


M 516.9697 R 10781

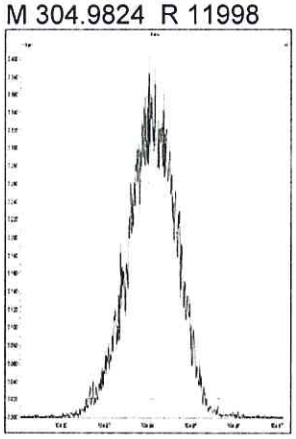


Printed: Tuesday, May 16, 2017 19:43:37 Central Daylight Time

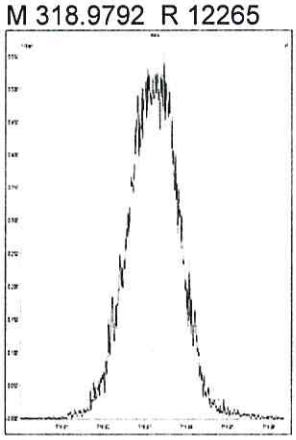
M 292.9824 R 12237



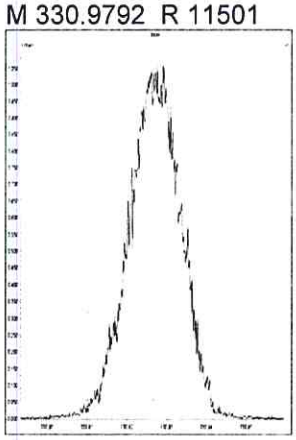
M 304.9824 R 11998



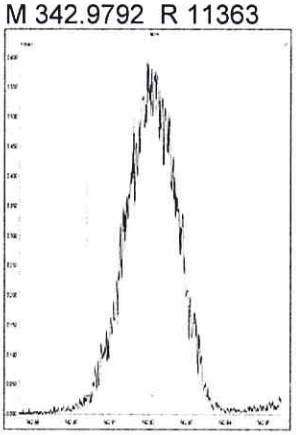
M 318.9792 R 12265



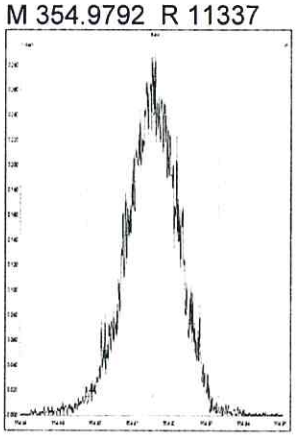
M 330.9792 R 11501



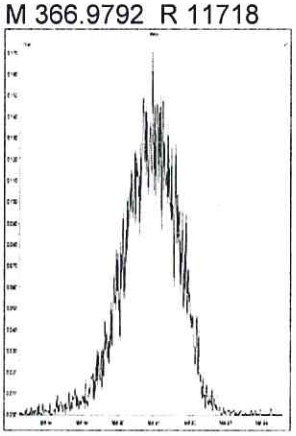
M 342.9792 R 11363



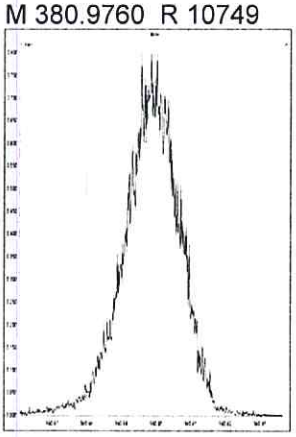
M 354.9792 R 11337



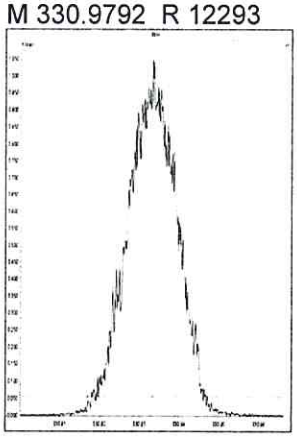
M 366.9792 R 11718



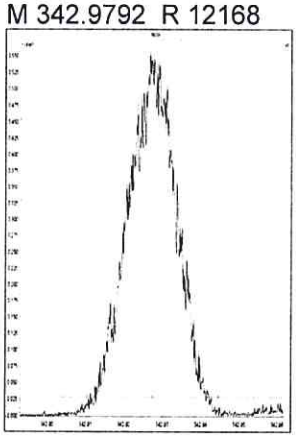
M 380.9760 R 10749



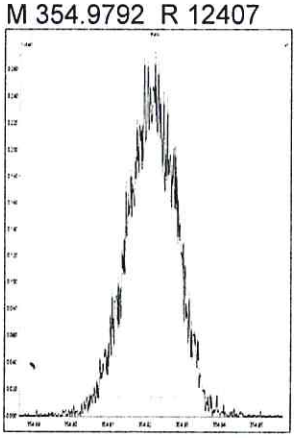
M 330.9792 R 12293



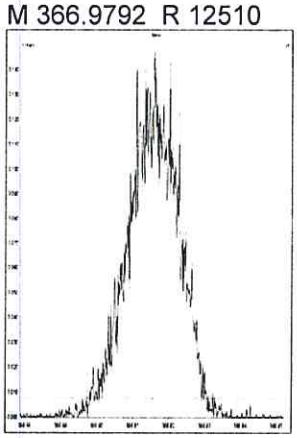
M 342.9792 R 12168



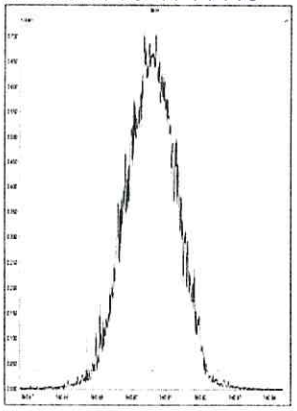
M 354.9792 R 12407



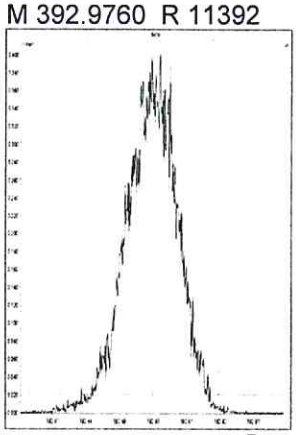
M 366.9792 R 12510



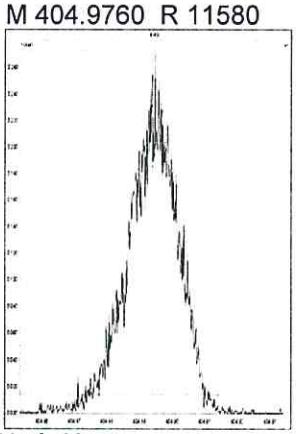
M 380.9760 R 11418



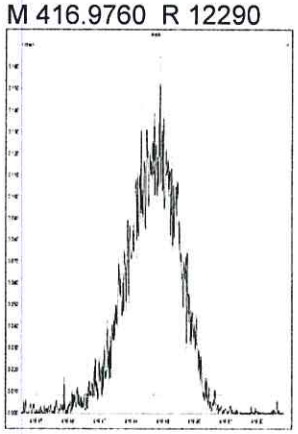
M 392.9760 R 11392



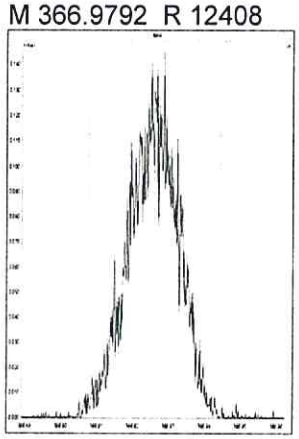
M 404.9760 R 11580



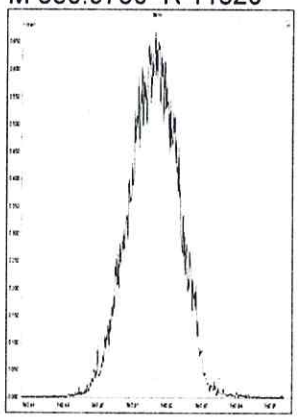
M 416.9760 R 12290



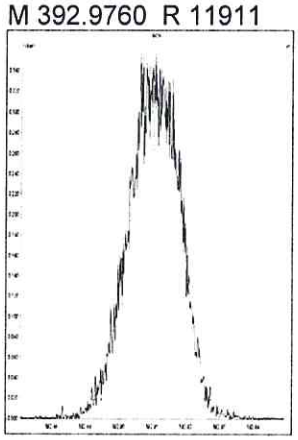
M 366.9792 R 12408



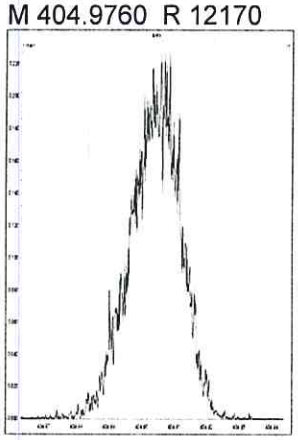
M 380.9760 R 11820



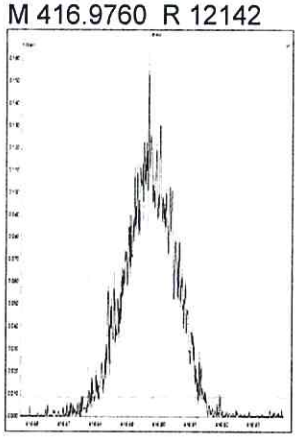
M 392.9760 R 11911



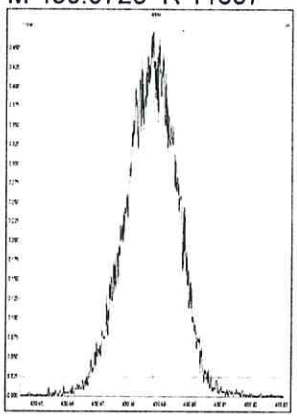
M 404.9760 R 12170



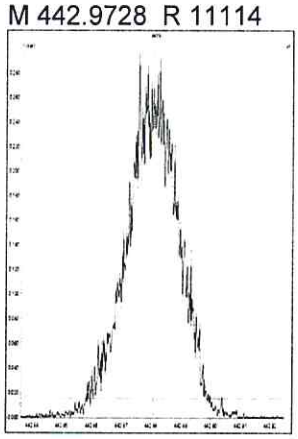
M 416.9760 R 12142



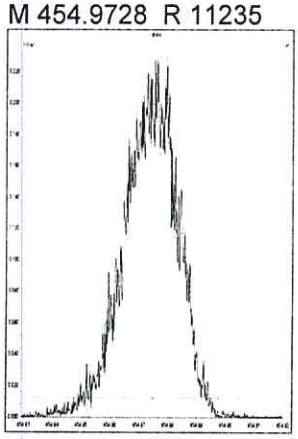
M 430.9728 R 11657



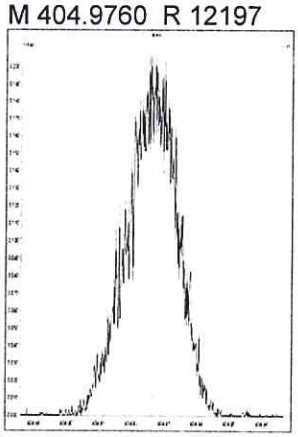
M 442.9728 R 11114



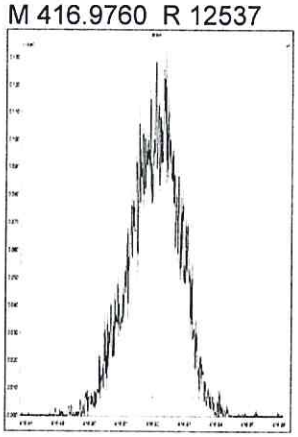
M 454.9728 R 11235



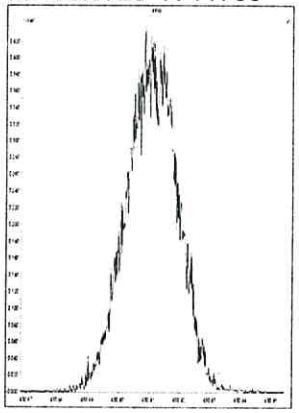
M 404.9760 R 12197



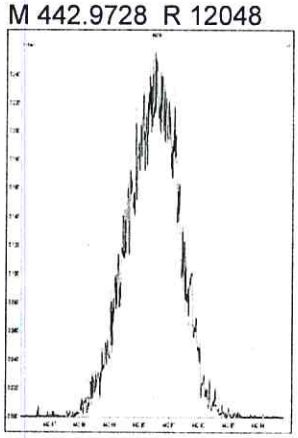
M 416.9760 R 12537



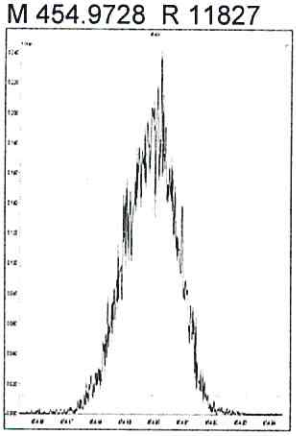
M 430.9728 R 11788



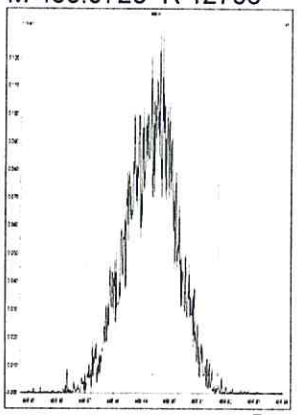
M 442.9728 R 12048



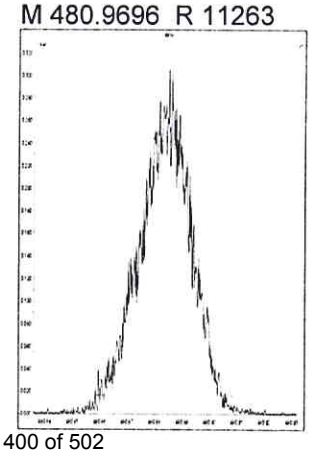
M 454.9728 R 11827



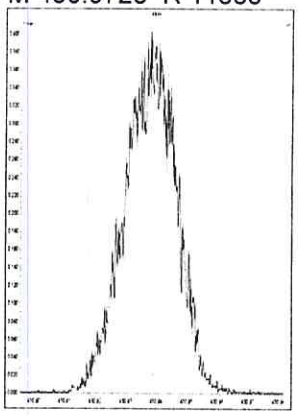
M 466.9728 R 12756



M 480.9696 R 11263

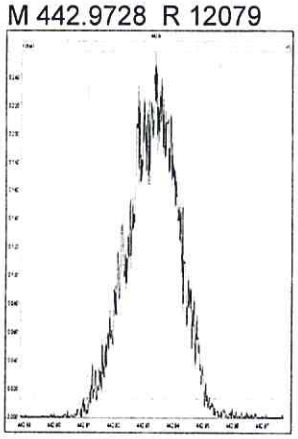


M 430.9728 R 11685

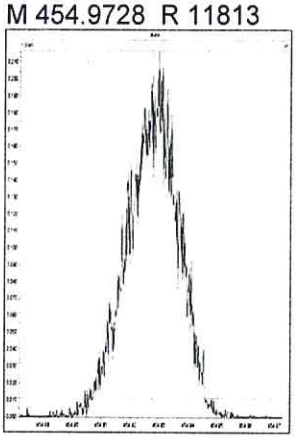


Printed: Tuesday, May 16, 2017 19:43:37 Central Daylight Time

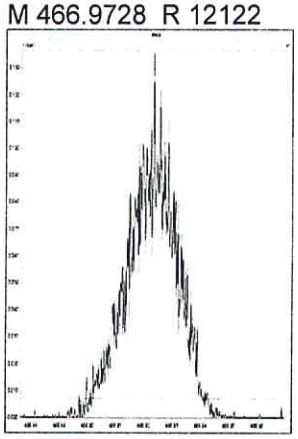
M 442.9728 R 12079



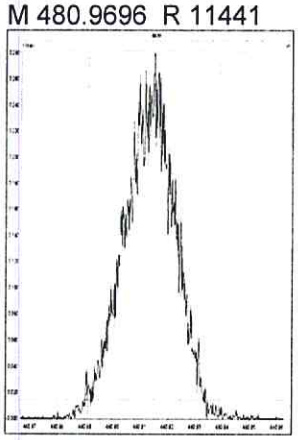
M 454.9728 R 11813



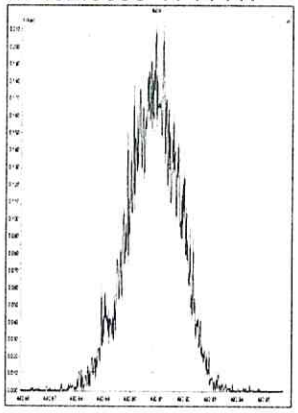
M 466.9728 R 12122



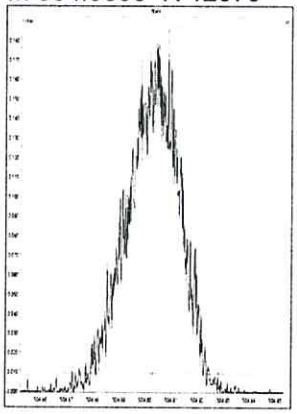
M 480.9696 R 11441



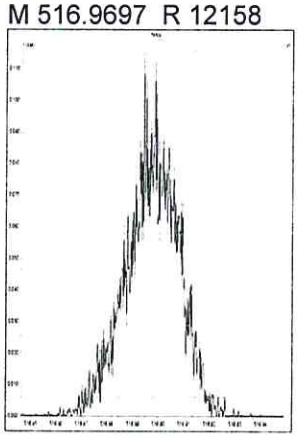
M 492.9696 R 11417



M 504.9696 R 12079



M 516.9697 R 12158



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

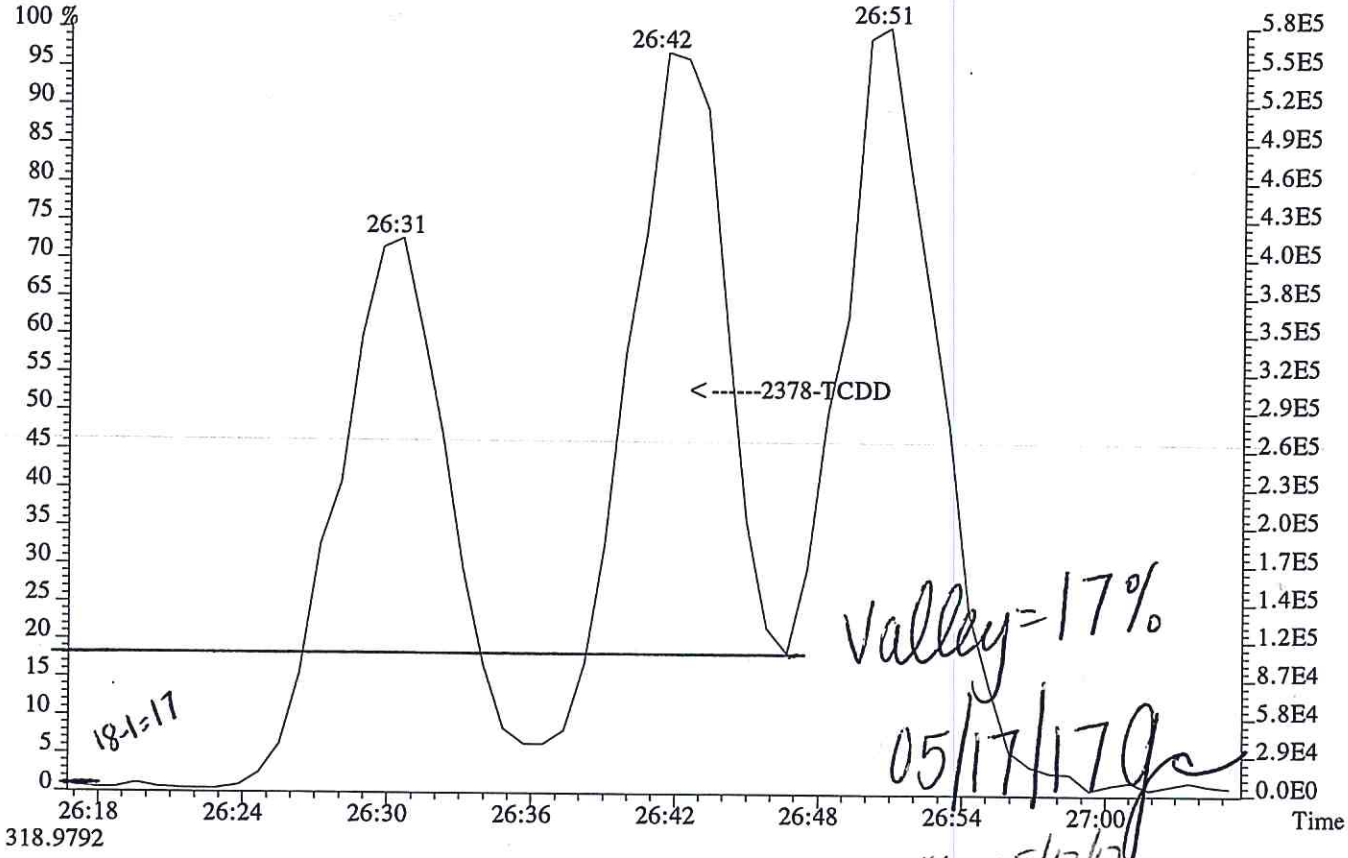
Case No.:
ID: 0.25 (mm)

SDG No.:
Lab File ID: P607178
Date Analyzed: 16-MAY-17
Time Analyzed: 11:03:07

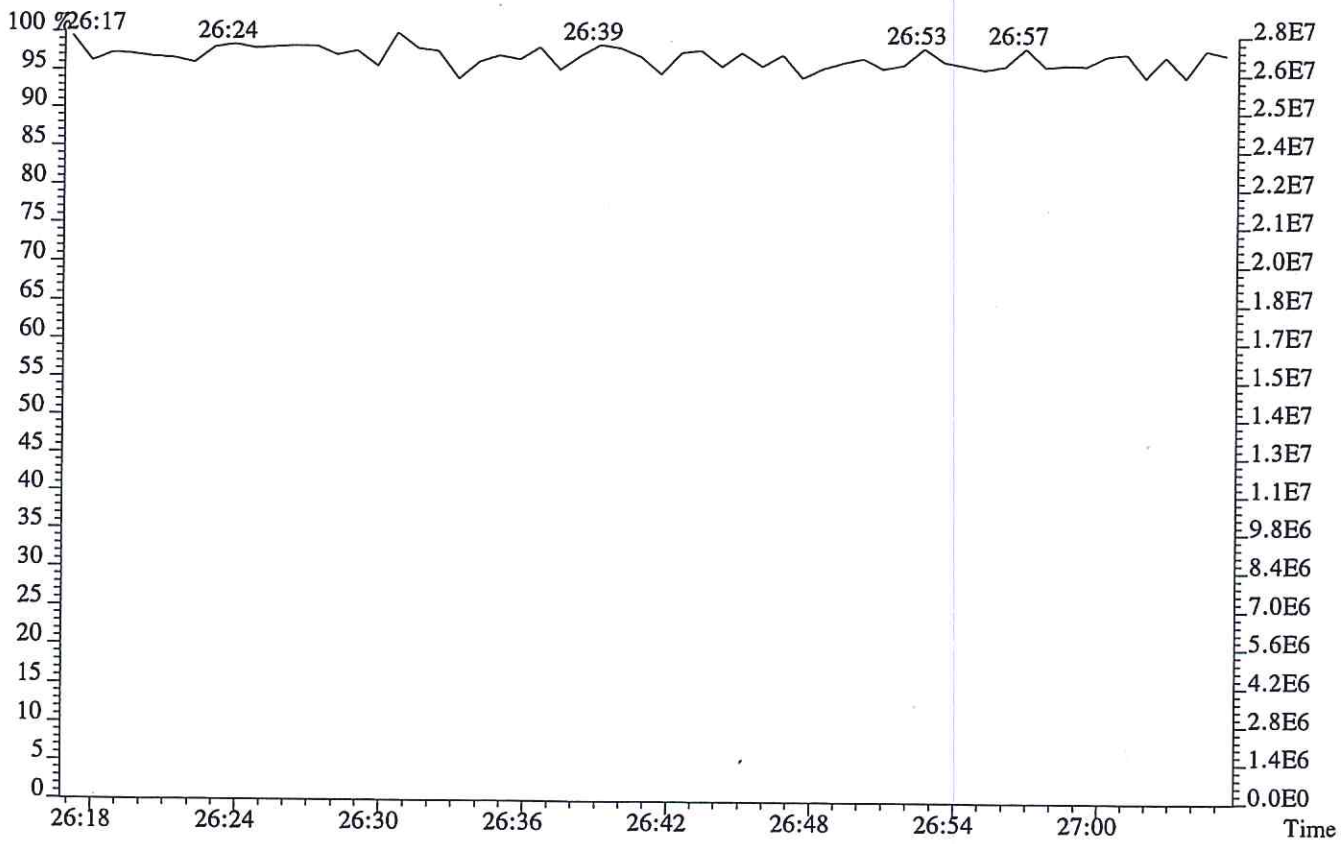
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:22	28:03
TCDD	22:58	27:53
PeCDF	28:02	32:42
PeCDD	29:47	32:28
HxCDF	33:25	36:01
HxCDD	33:59	35:37
HpCDF	37:17	38:35
HpCDD	37:32	38:10

% Valley 2378-TCDD: 17 %

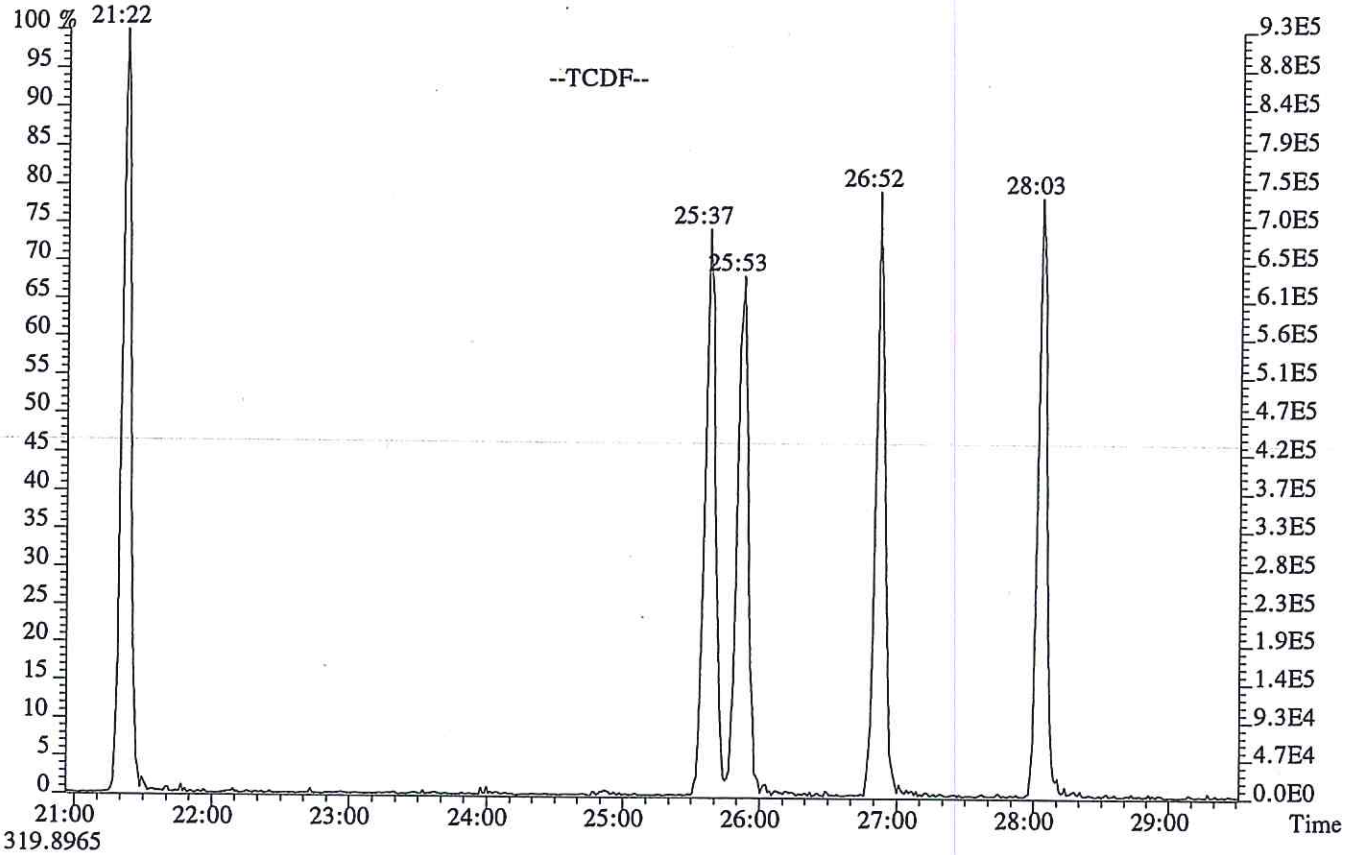
File:P607178 #1-609 Acq:16-MAY-2017 11:03:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOWDEFINE
319.8965

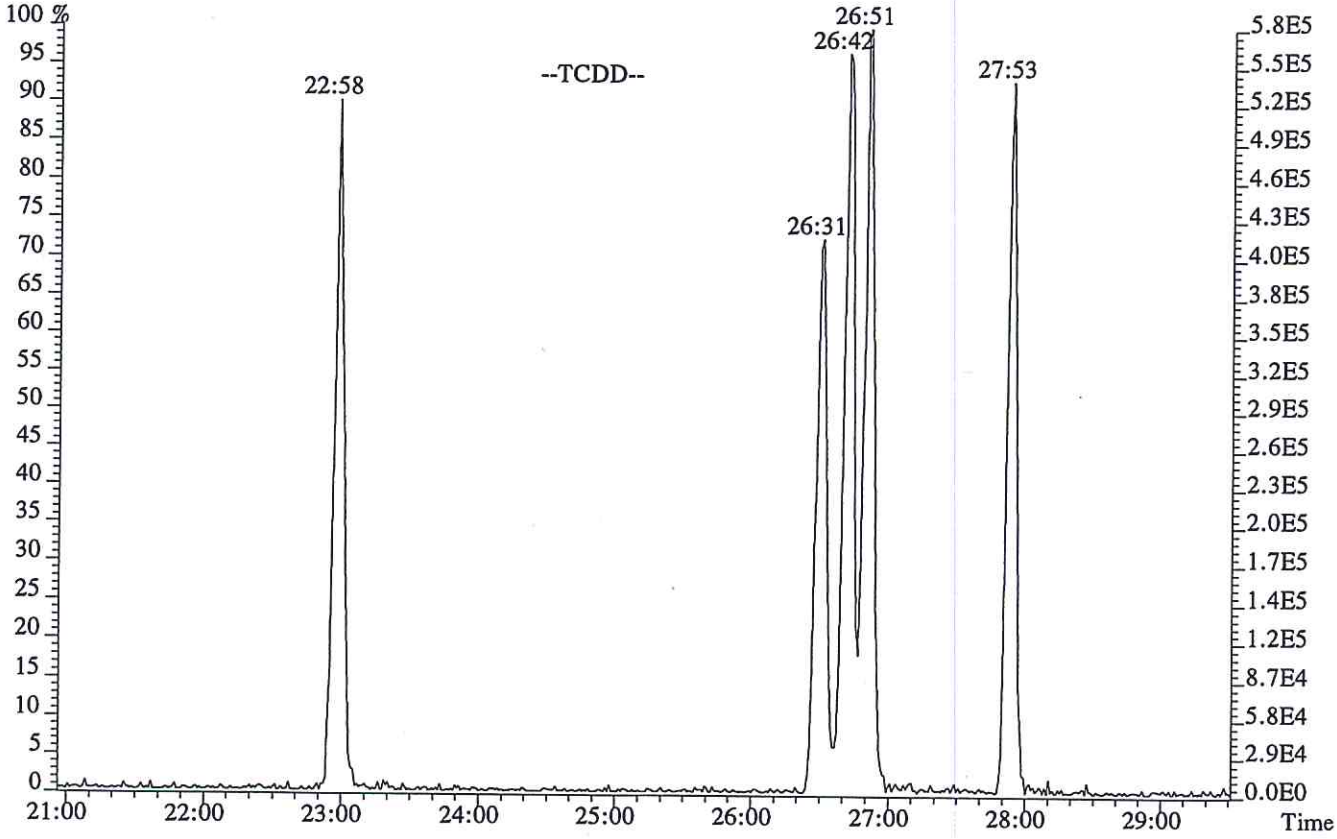


318.9792

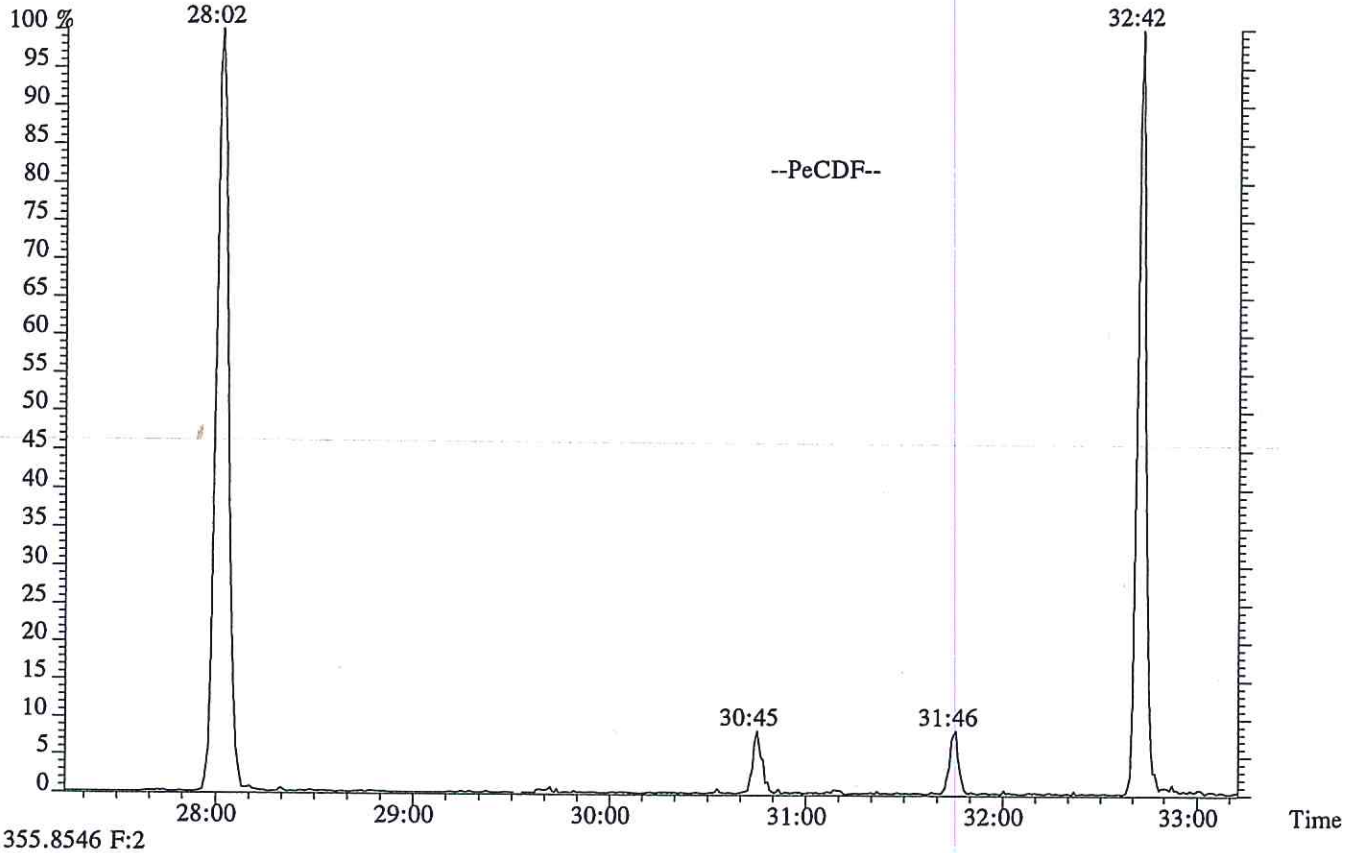


File:P607178 #1-609 Acq:16-MAY-2017 11:03:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOWDEFINE
303.9016

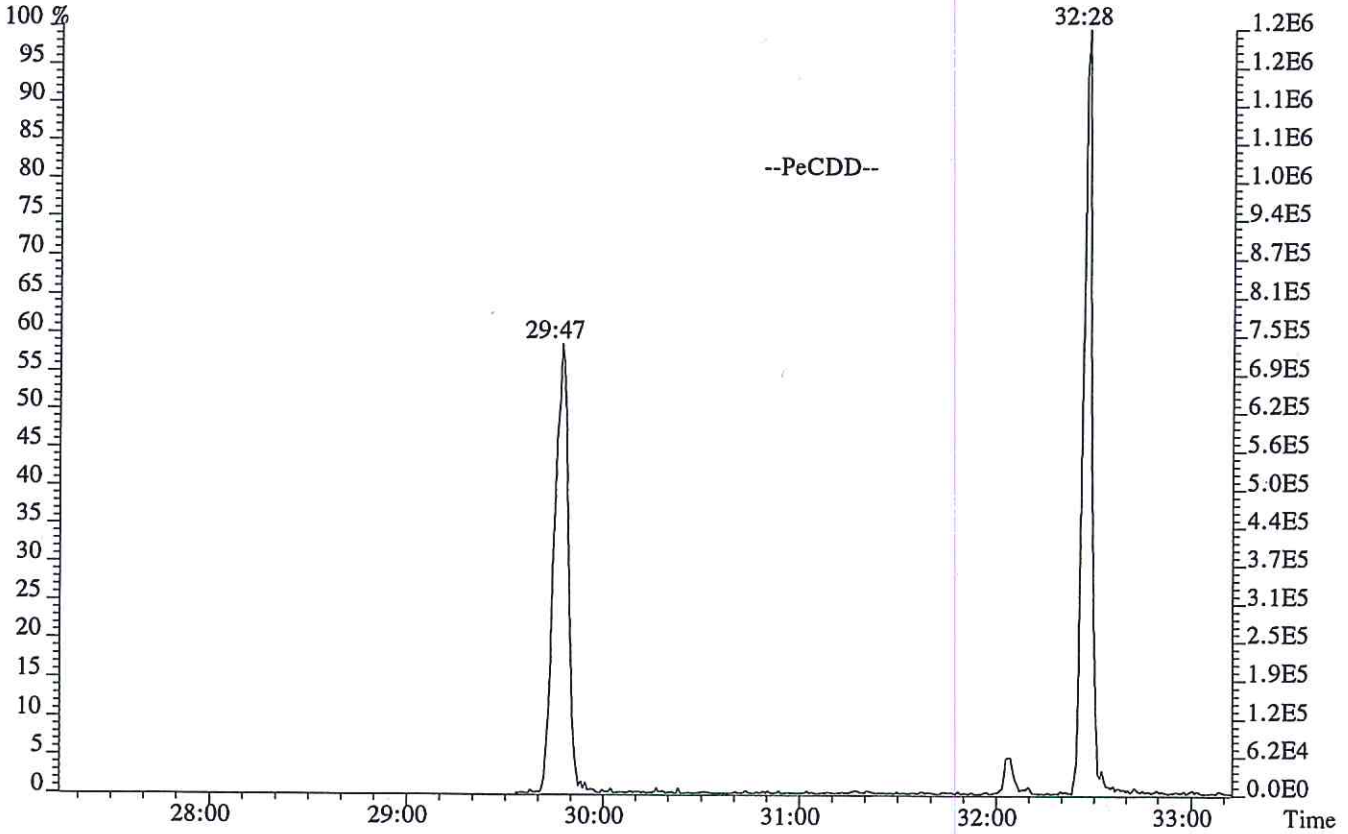




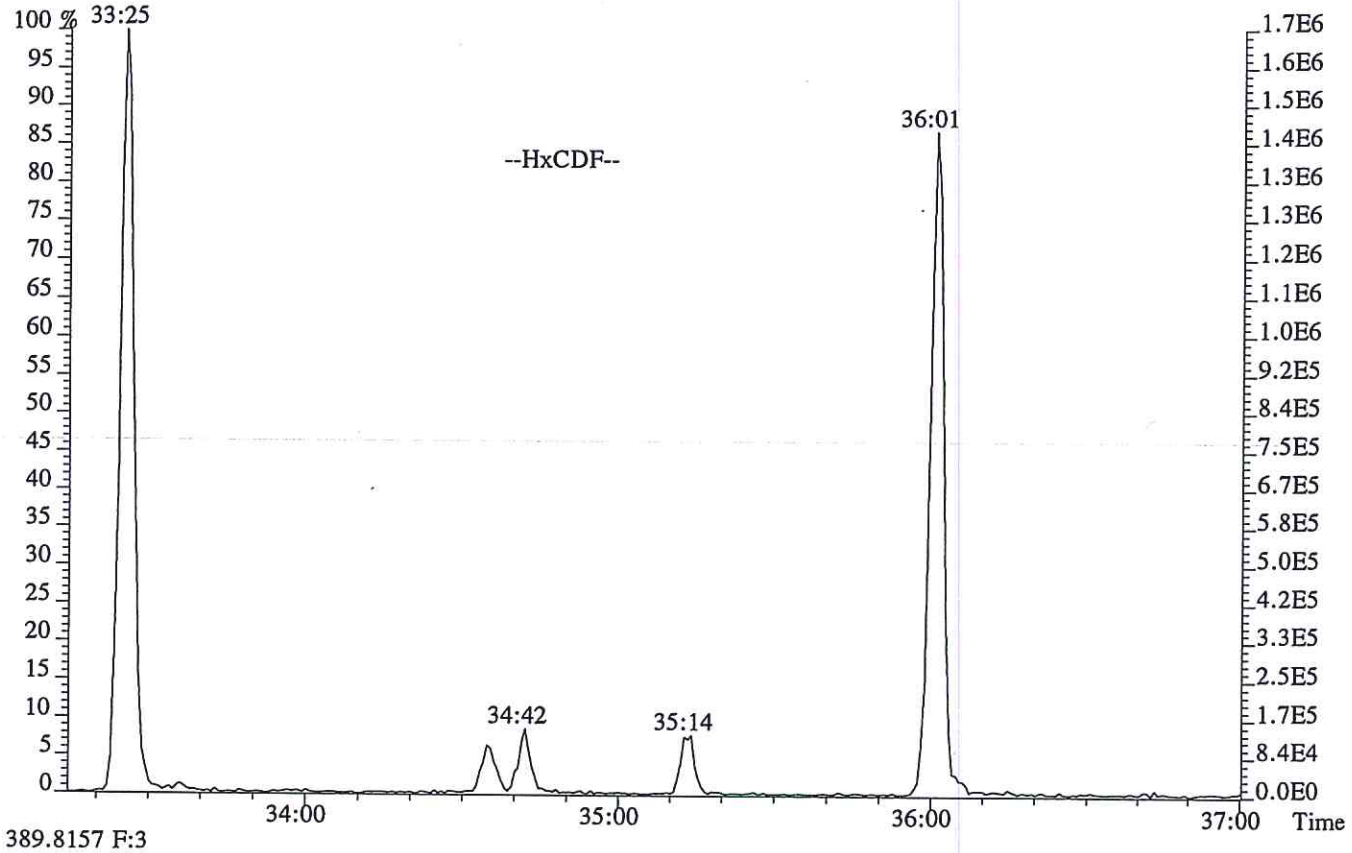
File:P607178 #1-609 Acq:16-MAY-2017 11:03:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOWDEFINE
339.8597,339.8597 F:2



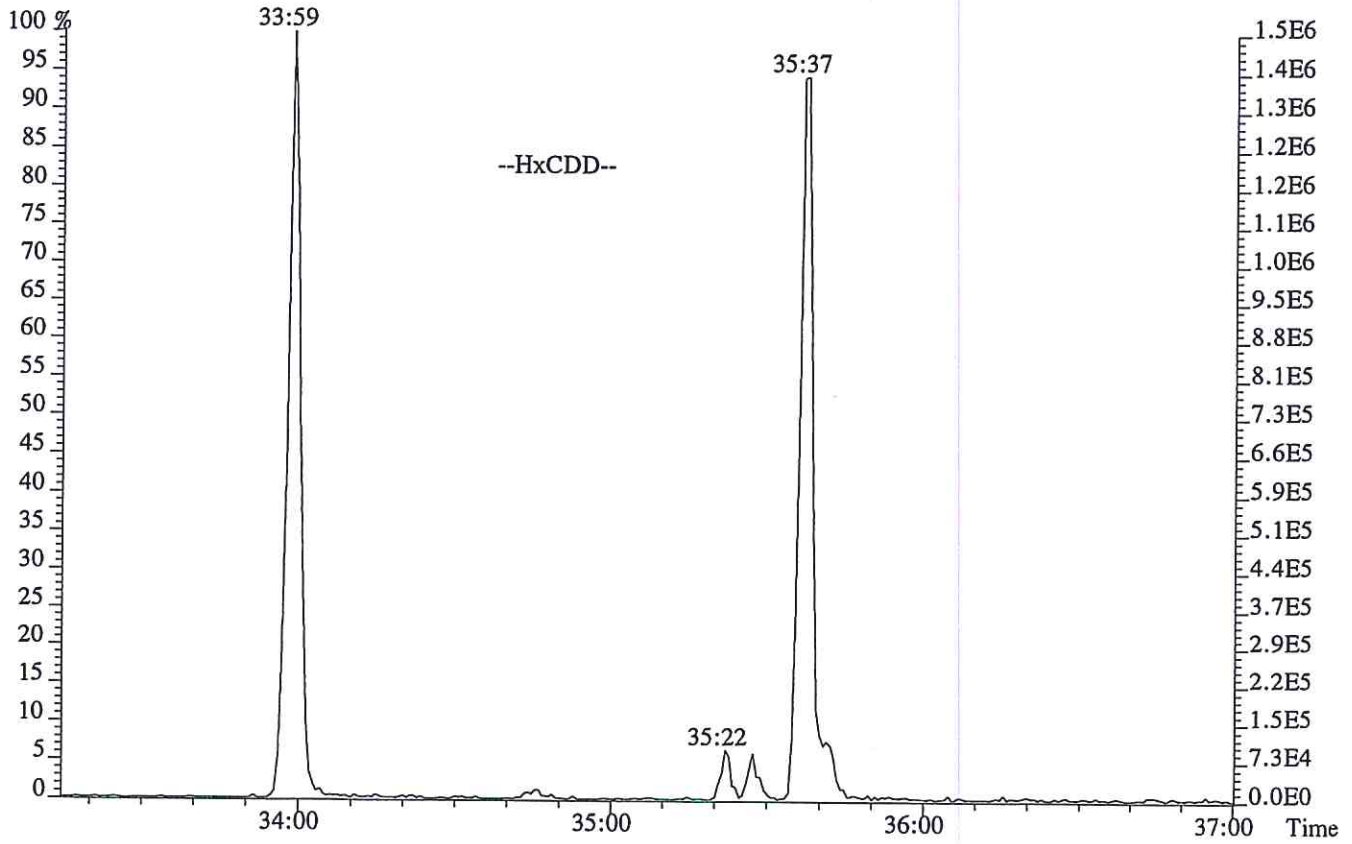
355.8546 F:2



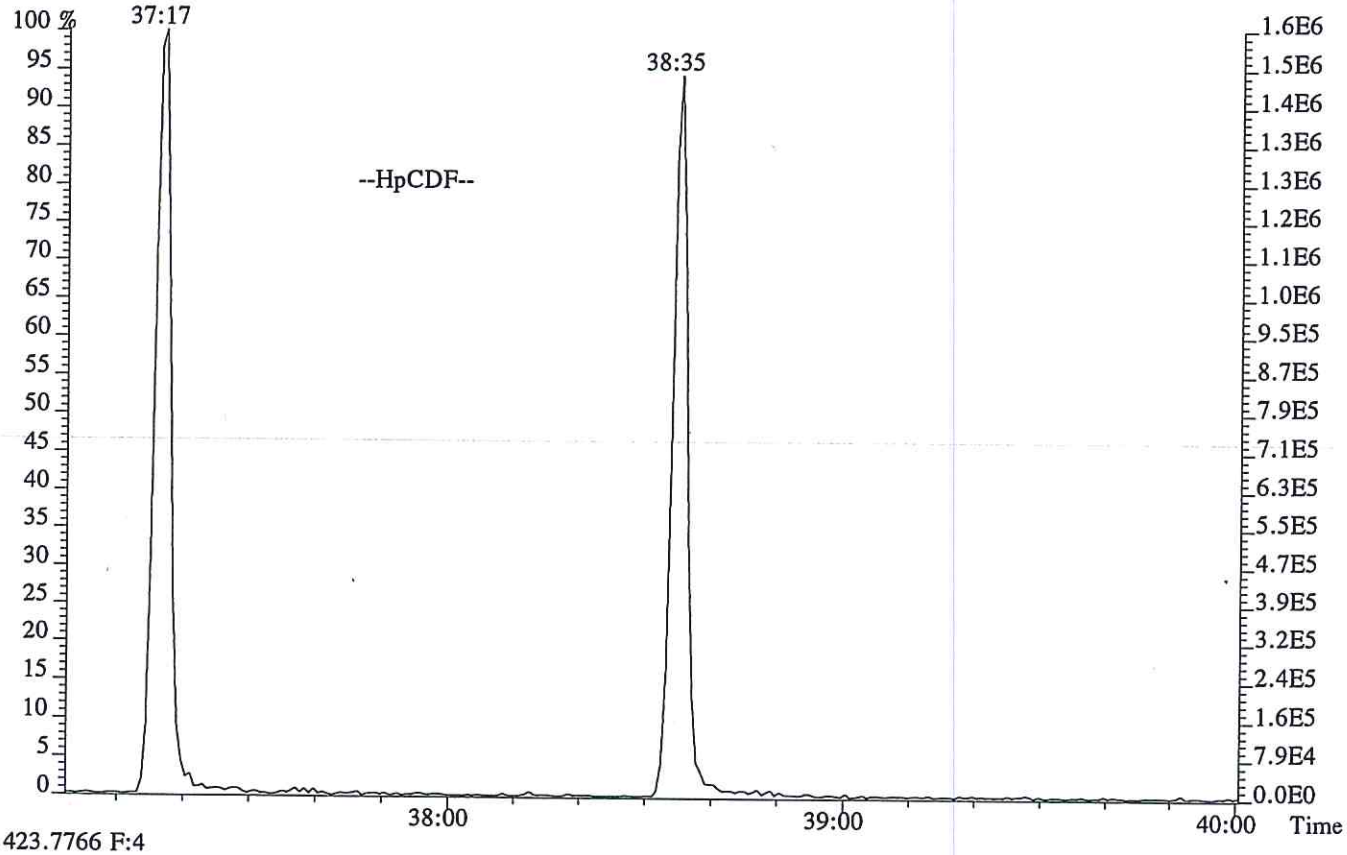
File:P607178 #1-339 Acq:16-MAY-2017 11:03:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOWDEFINE
373.8208 F:3



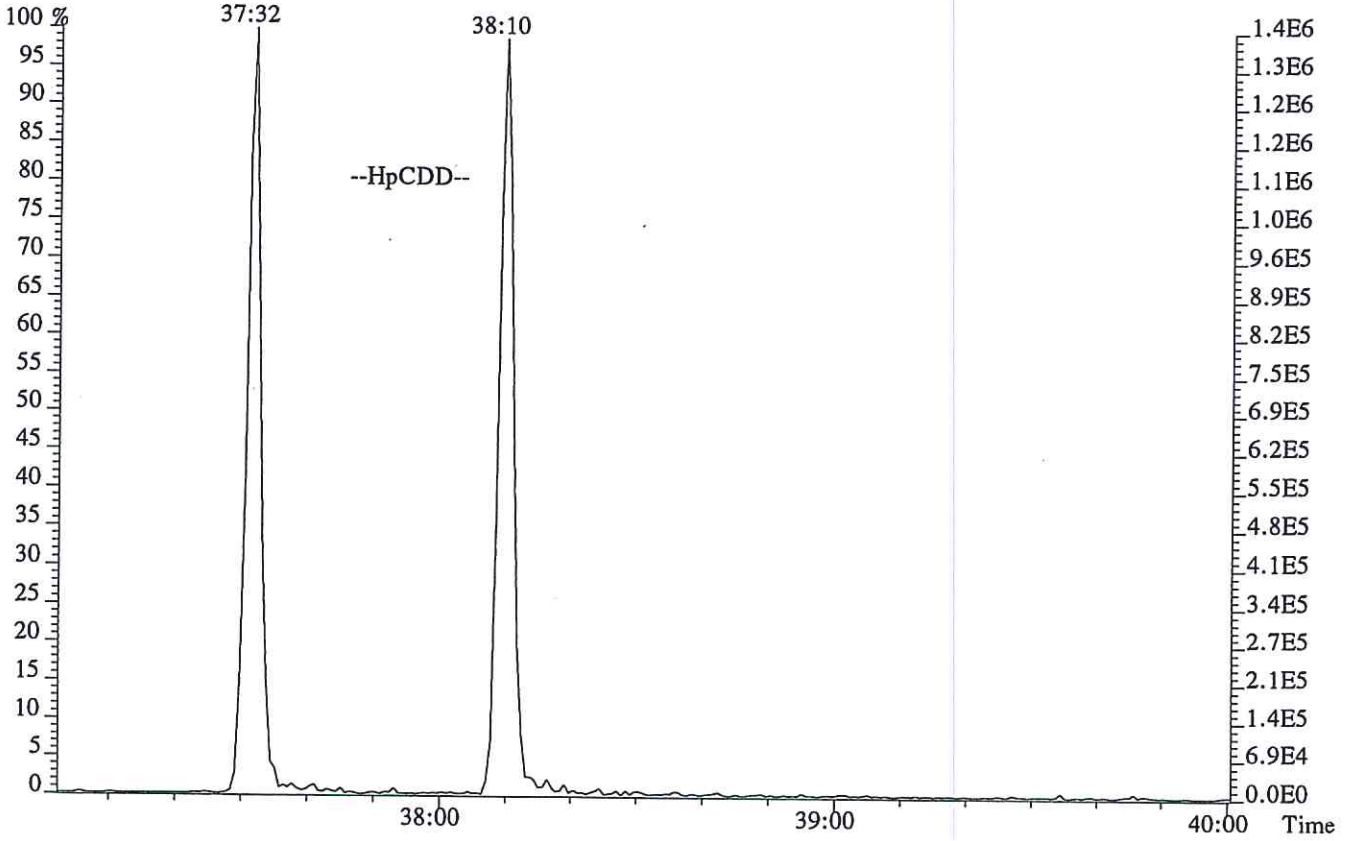
389.8157 F:3



File:P607178 #1-268 Acq:16-MAY-2017 11:03:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOWDEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 05/16/17 Method 1613/8290
Init. Calib. Time.: 11:03

	RR/RRF								
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	MEAN %RSD	QC LIMITS
2,3,7,8-TCDD	1.16	1.02	1.08	1.04	1.03	1.00	1.05	5.40	+/-20%
2,3,7,8-TCDF	1.03	1.14	1.02	0.99	0.98	0.97	1.02	5.95	+/-20%
1,2,3,7,8-PeCDF	1.06	1.12	1.06	1.06	1.06	0.97	1.06	4.56	+/-20%
1,2,3,7,8-PeCDD	0.95	1.03	0.97	0.94	0.95	0.94	0.96	3.49	+/-20%
2,3,4,7,8-PeCDF	1.01	1.05	1.01	0.99	1.00	1.04	1.01	2.15	+/-20%
1,2,3,4,7,8-HxCDF	1.26	1.31	1.28	1.24	1.26	1.19	1.26	3.19	+/-20%
1,2,3,6,7,8-HxCDF	1.19	1.24	1.21	1.17	1.17	1.17	1.19	2.29	+/-20%
1,2,3,4,7,8-HxCDD	1.04	1.15	1.06	1.03	1.06	1.11	1.07	4.29	+/-20%
1,2,3,6,7,8-HxCDD	1.04	1.10	1.05	1.06	1.06	0.91	1.04	6.17	+/-20%
1,2,3,7,8,9-HxCDD	1.22	1.24	1.15	1.11	1.11	1.06	1.15	6.10	+/-20%
2,3,4,6,7,8-HxCDF	1.21	1.23	1.17	1.15	1.17	1.12	1.18	3.29	+/-20%
1,2,3,7,8,9-HxCDF	1.27	1.30	1.19	1.18	1.19	1.13	1.21	5.22	+/-20%
1,2,3,4,6,7,8-HpCDF	1.41	1.44	1.42	1.38	1.37	1.32	1.39	3.26	+/-20%
1,2,3,4,6,7,8-HpCDD	1.08	1.07	1.05	1.05	1.04	1.01	1.05	2.42	+/-20%
1,2,3,4,7,8,9-HpCDF	1.31	1.44	1.34	1.30	1.31	1.36	1.34	3.87	+/-20%
OCDD	1.16	1.22	1.14	1.11	1.11	0.98	1.12	7.13	+/-20%
OCDF	1.35	1.42	1.35	1.34	1.36	1.19	1.34	5.74	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.99	0.96	0.99	0.97	0.99	1.02	0.99	2.07	+/-35%
13C-1,2,3,7,8-PeCDD	1.04	1.25	1.07	1.05	1.07	1.07	1.09	7.35	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.93	0.93	0.93	0.94	0.94	0.93	0.93	0.60	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.89	0.91	0.91	0.91	0.91	1.02	0.93	5.21	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.87	0.97	0.85	0.86	0.87	0.89	0.88	4.81	+/-35%
13C-OCDD	0.66	0.79	0.62	0.67	0.66	0.75	0.69	9.28	+/-35%
13C-2,3,7,8-TCDF	1.37	1.31	1.37	1.36	1.40	1.38	1.36	2.22	+/-35%
13C-1,2,3,7,8-PeCDF	1.45	1.67	1.49	1.45	1.48	1.49	1.51	5.39	+/-35%
13C-2,3,4,7,8-PeCDF	1.45	1.73	1.49	1.46	1.49	1.44	1.51	7.21	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.08	1.07	1.08	1.10	1.11	1.16	1.10	2.84	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.33	1.28	1.31	1.32	1.36	1.31	1.32	1.88	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.20	1.18	1.21	1.20	1.21	1.21	1.20	0.87	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.06	1.06	1.07	1.06	1.07	1.08	1.07	0.72	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.92	1.00	0.90	0.91	0.93	0.94	0.93	3.97	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.83	0.94	0.80	0.82	0.83	0.79	0.84	6.38	+/-35%
37Cl-2,3,7,8-TCDD	1.07	1.13	1.07	1.04	1.06	1.06	1.07	2.63	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 05/16/17 Method 1613/8290
Init. Calib. Time.: 11:03

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	304/306	0.86	0.76	0.78	0.78	0.77	0.78		0.65-0.89
2,3,7,8-TCDD	320/322	0.74	0.72	0.85	0.77	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.54	1.59	1.55	1.57	1.56	1.56		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.50	1.53	1.57	1.54	1.55	1.55		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.54	1.48	1.57	1.55	1.56	1.56		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.16	1.27	1.25	1.25	1.24	1.24		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.23	1.24	1.24	1.25	1.24	1.25		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.27	1.26	1.21	1.24	1.24	1.24		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.27	1.24	1.26	1.25	1.25	1.25		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.20	1.22	1.29	1.24	1.25	1.25		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.22	1.37	1.27	1.24	1.24	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.30	1.27	1.23	1.20	1.25	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.05	1.04	1.04	1.02	1.04	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.09	1.01	1.03	1.02	1.03	1.03		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.07	1.00	1.04	1.05	1.04	1.04		0.88-1.20
OCDF	442/444	0.92	0.93	0.88	0.90	0.90	0.91		0.76-1.02
OCDD	458/460	0.86	0.87	0.89	0.89	0.88	0.88		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.78	0.79	0.80	0.78	0.79	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.57	1.57	1.57	1.57	1.58	1.56		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.26	1.32	1.27	1.26	1.26	1.25		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.20	1.27	1.26	1.25	1.25		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.05	1.07	1.06	1.06	1.05	1.05		0.88-1.20
13C-OCDD	470/472	0.91	0.89	0.90	0.90	0.90	0.91		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.55	1.59	1.58	1.59	1.58		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.58	1.59	1.58	1.57	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.52	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.53	0.52		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.53	0.53	0.53	0.52	0.53	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.46	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.45	0.45	0.45	0.46	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.80	0.79	0.79	0.80	0.81	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.25	1.22	1.23	1.24	1.26	1.27		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P607179 Samp: 1 Inj: 1 Acquired: 16-MAY-17 12:44:15
Processed: 17-MAY-17 07:52:56 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:51	4.015e+02	4.653e+02	0.86	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	30:45	2.886e+03	1.876e+03	1.54	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	31:44	2.704e+03	1.798e+03	1.50	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	34:35	2.251e+03	1.948e+03	1.16	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	34:41	2.682e+03	2.184e+03	1.23	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:13	2.488e+03	1.954e+03	1.27	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	35:59	2.310e+03	1.814e+03	1.27	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	2.038e+03	1.948e+03	1.05	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	1.743e+03	1.596e+03	1.09	yes	no	1.341
10	Unk	OCDF	40:49	2.607e+03	2.845e+03	0.92	yes	no	1.337
11	Unk	2,3,7,8-TCDD	26:49	3.011e+02	4.047e+02	0.74	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:04	1.835e+03	1.190e+03	1.54	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:22	1.613e+03	1.346e+03	1.20	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:27	1.559e+03	1.275e+03	1.22	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	35:41	1.928e+03	1.488e+03	1.30	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.482e+03	1.390e+03	1.07	yes	no	1.048
17	Unk	OCDD	40:39	2.163e+03	2.511e+03	0.86	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	25:50	1.490e+05	1.891e+05	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	30:44	2.190e+05	1.389e+05	1.58	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	31:44	2.176e+05	1.383e+05	1.57	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	34:34	9.173e+04	1.739e+05	0.53	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	34:41	1.137e+05	2.127e+05	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:12	1.011e+05	1.919e+05	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	35:58	8.982e+04	1.699e+05	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:16	7.038e+04	1.551e+05	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.384e+04	1.407e+05	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	26:49	1.068e+05	1.373e+05	0.78	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:02	1.565e+05	9.952e+04	1.57	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:21	1.269e+05	1.006e+05	1.26	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:27	1.223e+05	9.638e+04	1.27	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.093e+05	1.038e+05	1.05	yes	no	0.884
32	IS	13C-OCDD	40:38	1.533e+05	1.693e+05	0.91	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:07	1.091e+05	1.371e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:41	1.360e+05	1.090e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:50	6.612e+02				no	1.072

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Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P607179 Samp: 1 Inj: 1 Acquired: 16-MAY-17 12:44:15
Processed: 17-MAY-17 07:52:56 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.70e+04	1.96e+02	2.9e+02	7.05e+04	2.00e+03	3.5e+01
2	1,2,3,7,8-PeCDF	5.01e+05	1.24e+03	4.0e+02	3.19e+05	5.72e+02	5.6e+02
3	2,3,4,7,8-PeCDF	4.93e+05	1.24e+03	4.0e+02	3.22e+05	5.72e+02	5.6e+02
4	1,2,3,4,7,8-HxCDF	4.63e+05	4.92e+02	9.4e+02	4.05e+05	1.76e+02	2.3e+03
5	1,2,3,6,7,8-HxCDF	5.50e+05	4.92e+02	1.1e+03	4.50e+05	1.76e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	5.20e+05	4.92e+02	1.1e+03	4.12e+05	1.76e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	5.13e+05	4.92e+02	1.0e+03	3.76e+05	1.76e+02	2.1e+03
8	1,2,3,4,6,7,8-HpCDF	4.47e+05	1.28e+03	3.5e+02	4.50e+05	2.80e+02	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	3.79e+05	1.28e+03	2.9e+02	3.42e+05	2.80e+02	1.2e+03
10	OCDF	5.14e+05	1.44e+03	3.6e+02	5.73e+05	1.06e+03	5.4e+02
11	2,3,7,8-TCDD	5.13e+04	6.12e+02	8.4e+01	6.57e+04	2.84e+02	2.3e+02
12	1,2,3,7,8-PeCDD	3.38e+05	1.70e+03	2.0e+02	2.28e+05	2.24e+02	1.0e+03
13	1,2,3,4,7,8-HxCDD	3.38e+05	1.68e+02	2.0e+03	2.89e+05	2.20e+02	1.3e+03
14	1,2,3,6,7,8-HxCDD	3.25e+05	1.68e+02	1.9e+03	2.69e+05	2.20e+02	1.2e+03
15	1,2,3,7,8,9-HxCDD	4.12e+05	1.68e+02	2.5e+03	3.20e+05	2.20e+02	1.5e+03
16	1,2,3,4,6,7,8-HpCDD	3.49e+05	1.24e+03	2.8e+02	3.14e+05	1.32e+02	2.4e+03
17	OCDD	4.42e+05	1.19e+03	3.7e+02	5.07e+05	1.02e+03	5.0e+02
18	13C-2,3,7,8-TCDF	2.17e+07	1.27e+04	1.7e+03	2.78e+07	7.08e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	3.81e+07	1.05e+03	3.6e+04	2.41e+07	1.31e+03	1.8e+04
20	13C-2,3,4,7,8-PeCDF	4.04e+07	1.05e+03	3.8e+04	2.56e+07	1.31e+03	2.0e+04
21	13C-1,2,3,4,7,8-HxCDF	1.93e+07	2.28e+02	8.5e+04	3.66e+07	1.43e+03	2.6e+04
22	13C-1,2,3,6,7,8-HxCDF	2.38e+07	2.28e+02	1.0e+05	4.49e+07	1.43e+03	3.1e+04
23	13C-2,3,4,6,7,8-HxCDF	2.11e+07	2.28e+02	9.3e+04	4.05e+07	1.43e+03	2.8e+04
24	13C-1,2,3,7,8,9-HxCDF	1.94e+07	2.28e+02	8.5e+04	3.64e+07	1.43e+03	2.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.58e+07	9.30e+03	1.7e+03	3.49e+07	1.79e+04	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.38e+07	9.30e+03	1.5e+03	3.03e+07	1.79e+04	1.7e+03
27	13C-2,3,7,8-TCDD	1.70e+07	5.26e+03	3.2e+03	2.18e+07	3.70e+03	5.9e+03
28	13C-1,2,3,7,8-PeCDD	2.97e+07	3.16e+02	9.4e+04	1.90e+07	5.84e+02	3.3e+04
29	13C-1,2,3,4,7,8-HxCDD	2.70e+07	2.20e+03	1.2e+04	2.12e+07	1.56e+02	1.4e+05
30	13C-1,2,3,6,7,8-HxCDD	2.56e+07	2.20e+03	1.2e+04	2.01e+07	1.56e+02	1.3e+05
31	13C-1,2,3,4,6,7,8-HpCDD	2.48e+07	8.60e+02	2.9e+04	2.34e+07	8.80e+01	2.7e+05
32	13C-OCDD	3.05e+07	1.16e+04	2.6e+03	3.36e+07	1.42e+04	2.4e+03
33	13C-1,2,3,4-TCDD	1.64e+07	5.26e+03	3.1e+03	2.07e+07	3.70e+03	5.6e+03
34	13C-1,2,3,7,8,9-HxCDD	2.96e+07	2.20e+03	1.3e+04	2.37e+07	1.56e+02	1.5e+05
35	37Cl-2,3,7,8-TCDD	1.15e+05	6.00e+02	1.9e+02			

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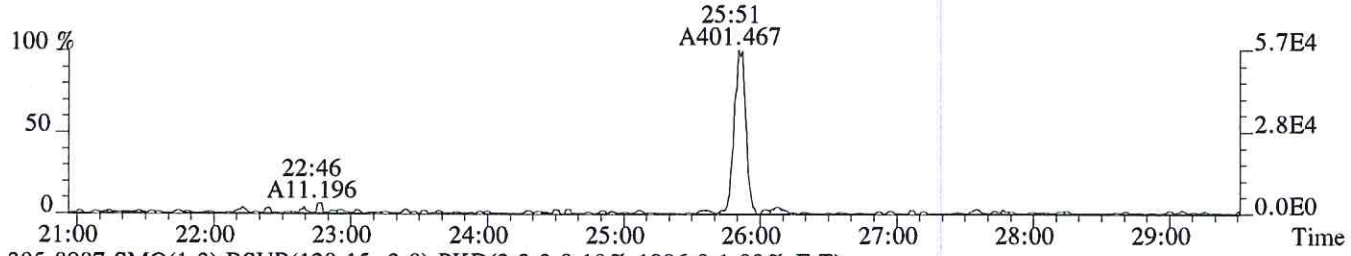
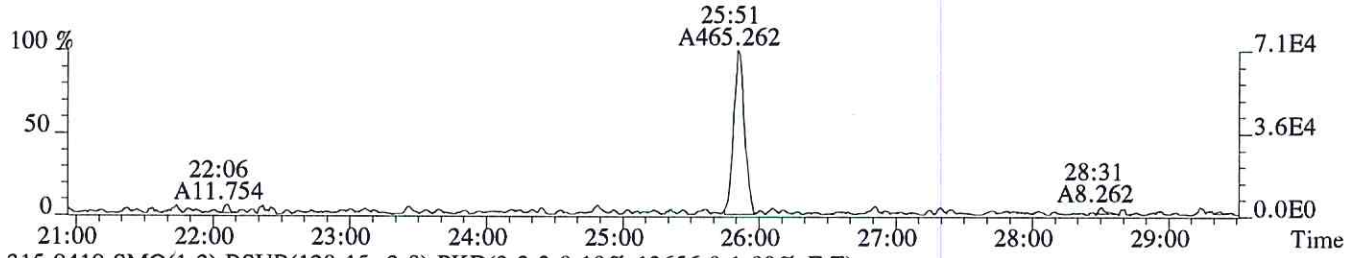
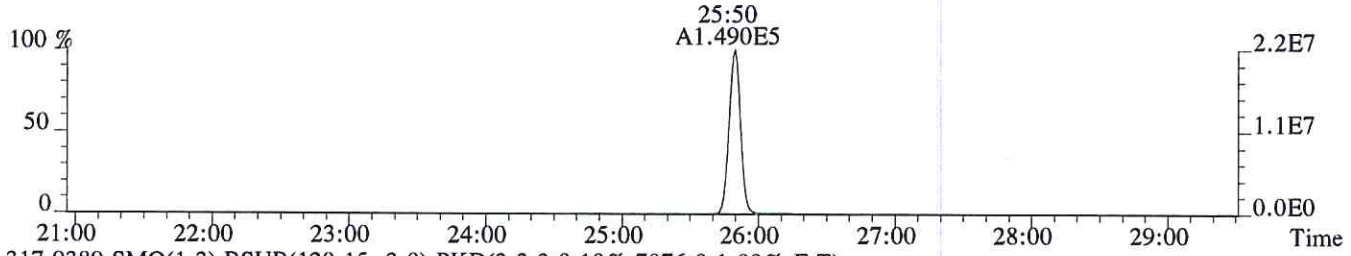
File:P607179 #1-609 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



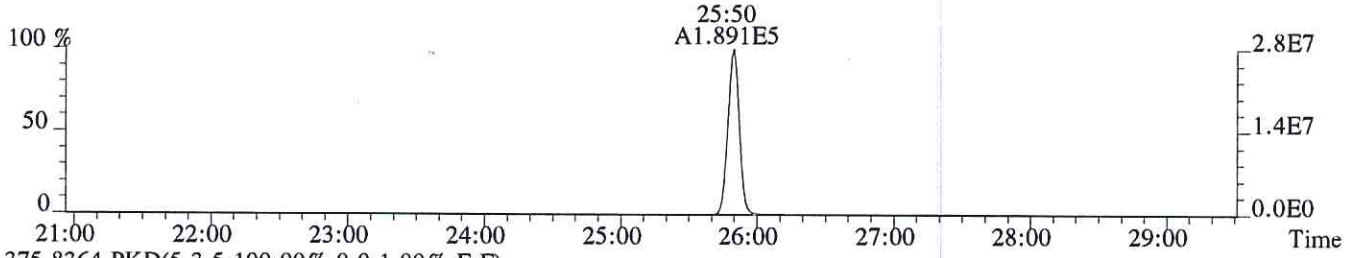
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



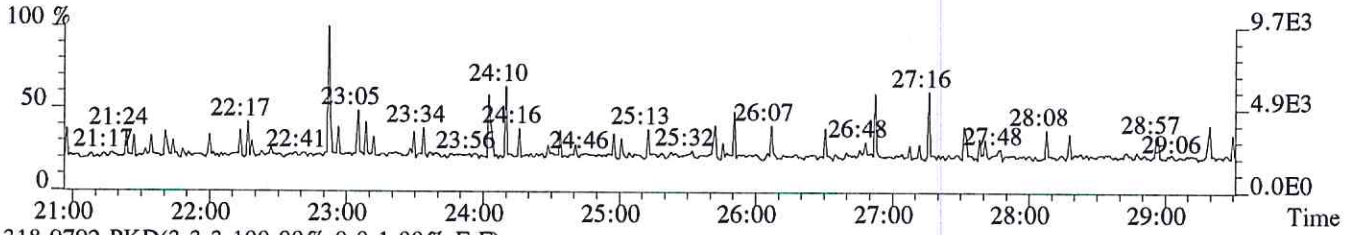
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12656.0,1.00%,F,T)



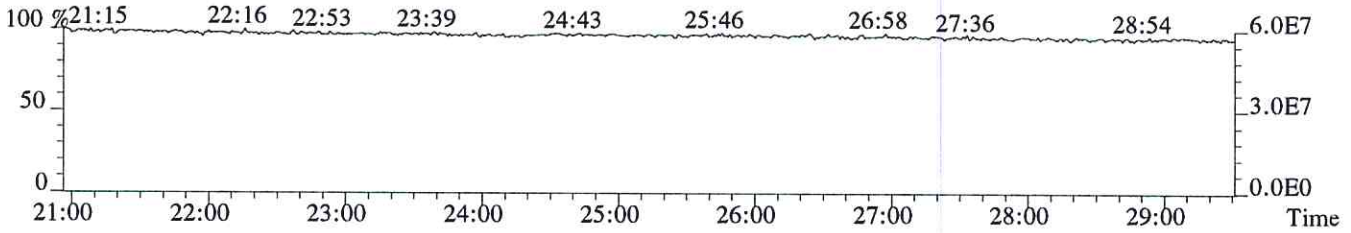
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7076.0,1.00%,F,T)



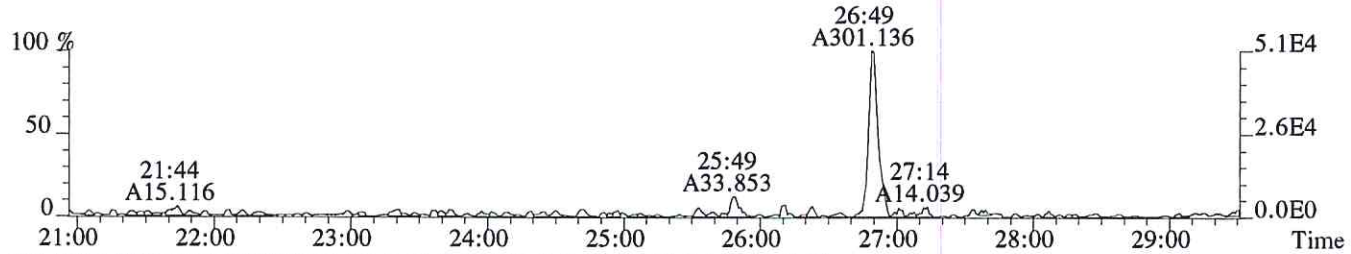
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



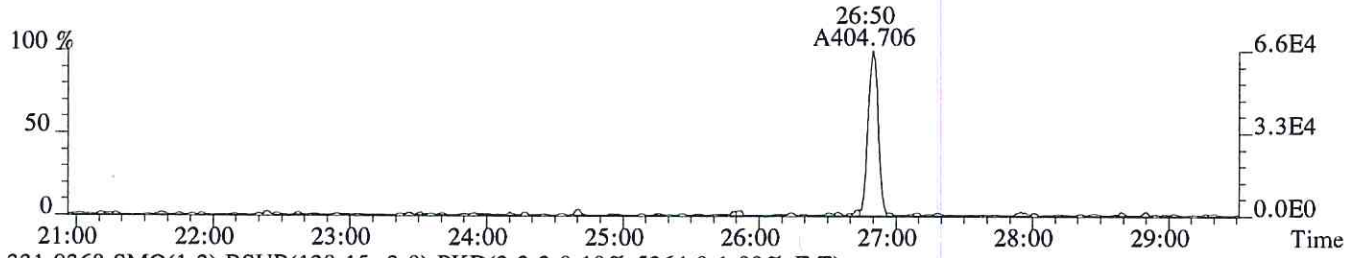
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



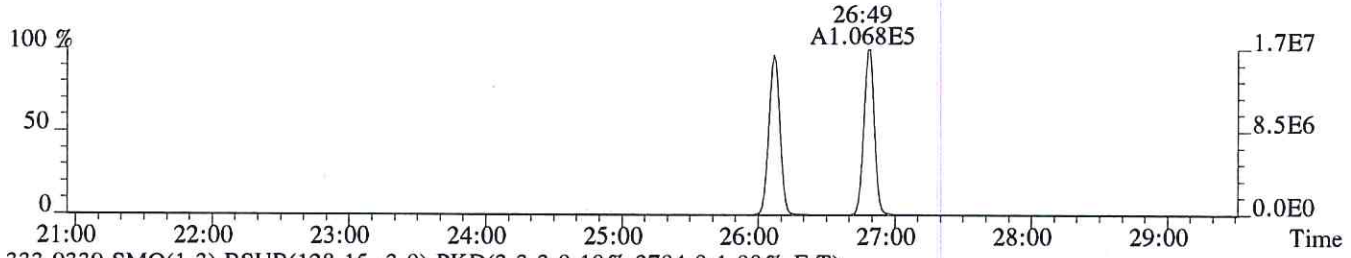
File:P607179 #1-609 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



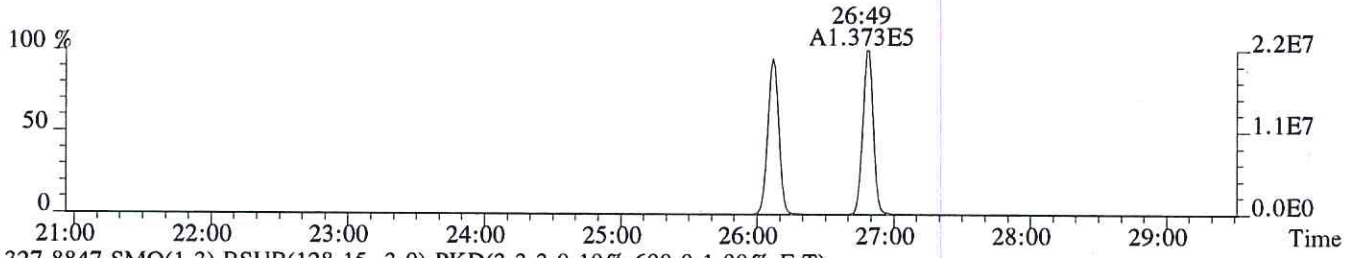
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



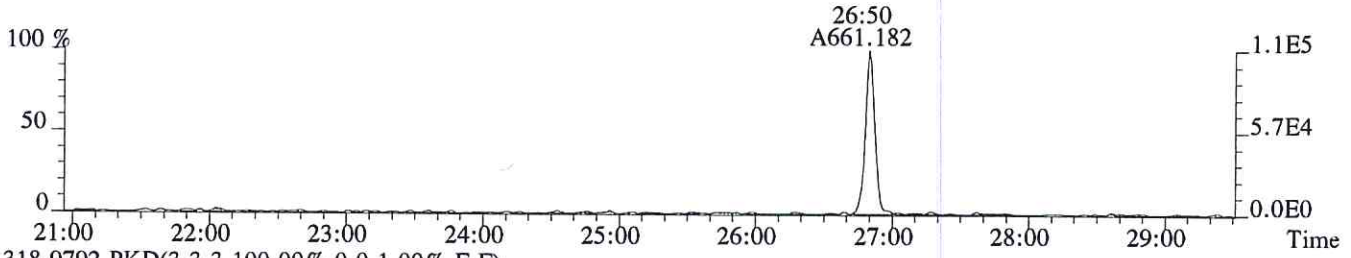
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5264.0,1.00%,F,T)



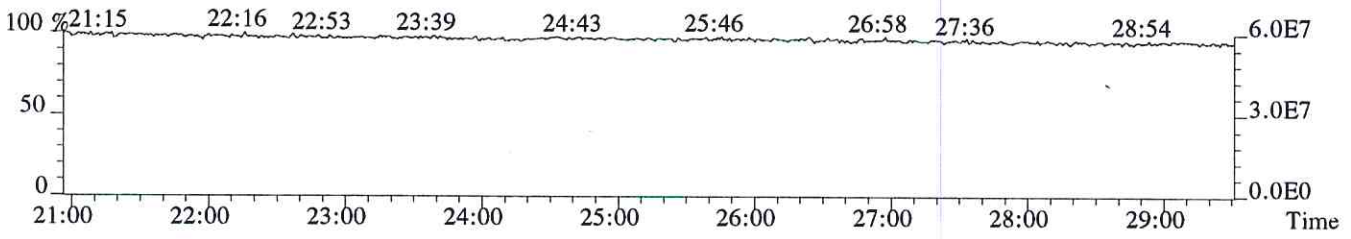
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3704.0,1.00%,F,T)



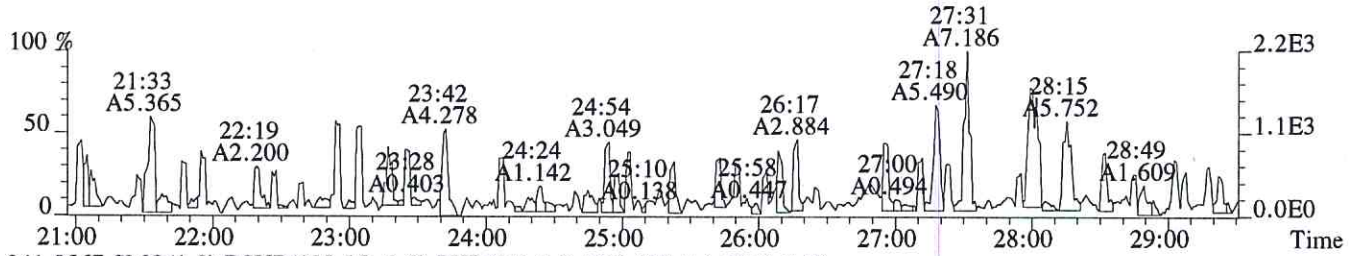
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



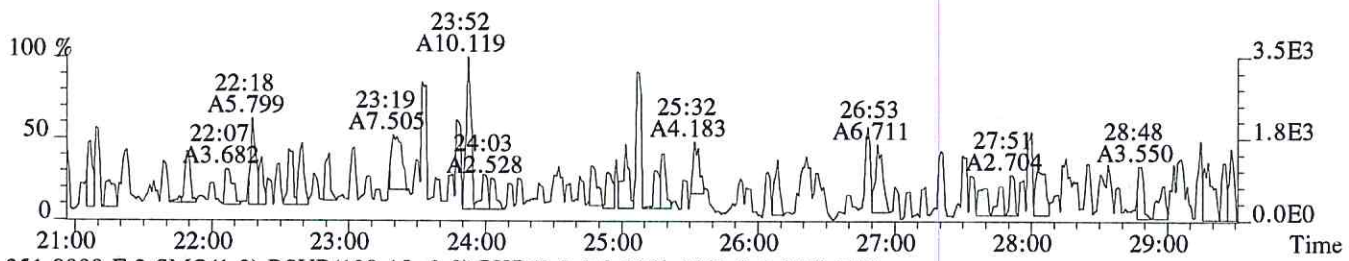
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



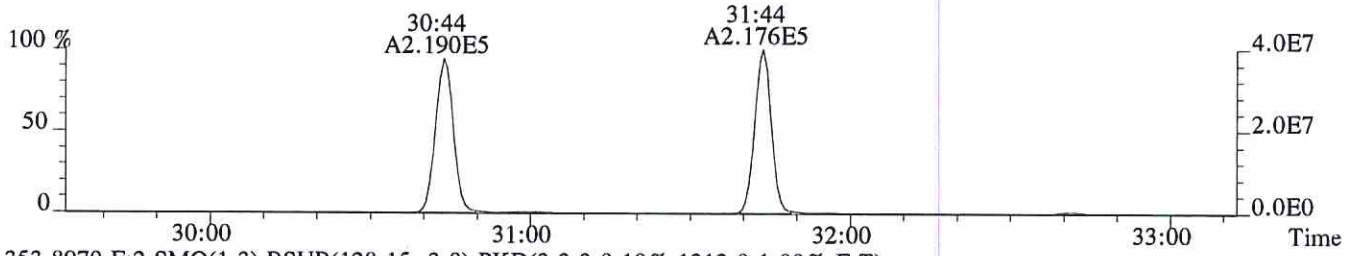
File:P607179 #1-609 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



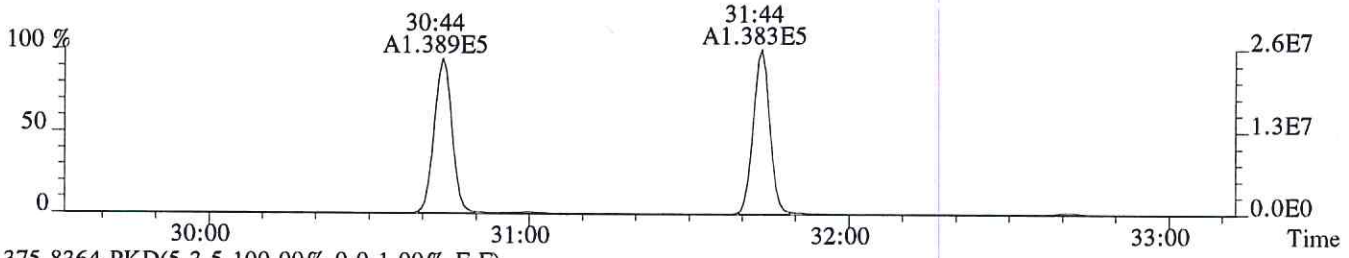
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



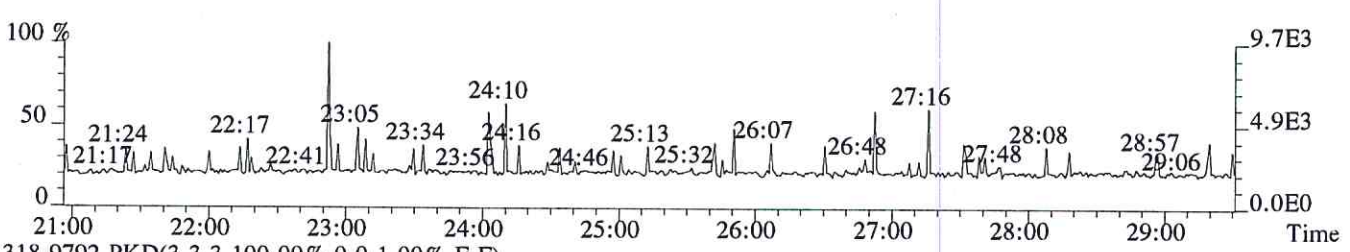
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



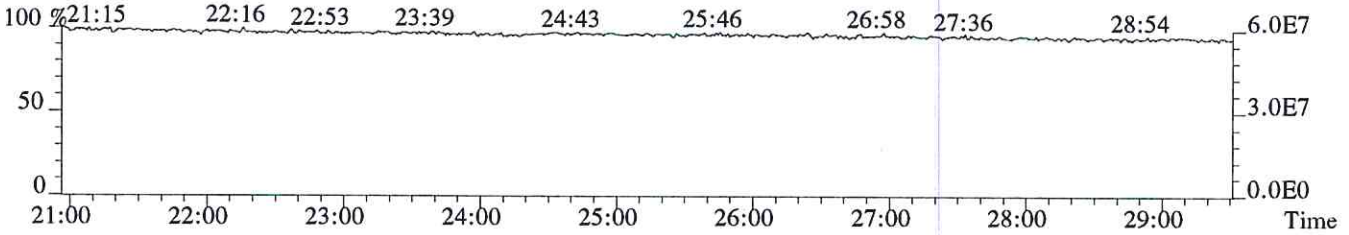
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



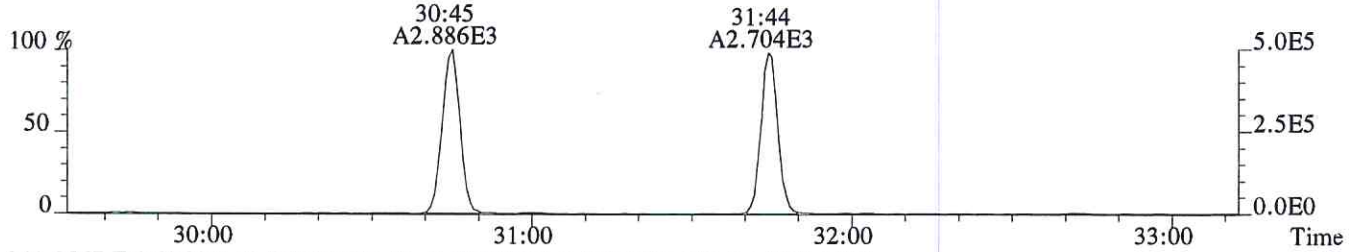
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



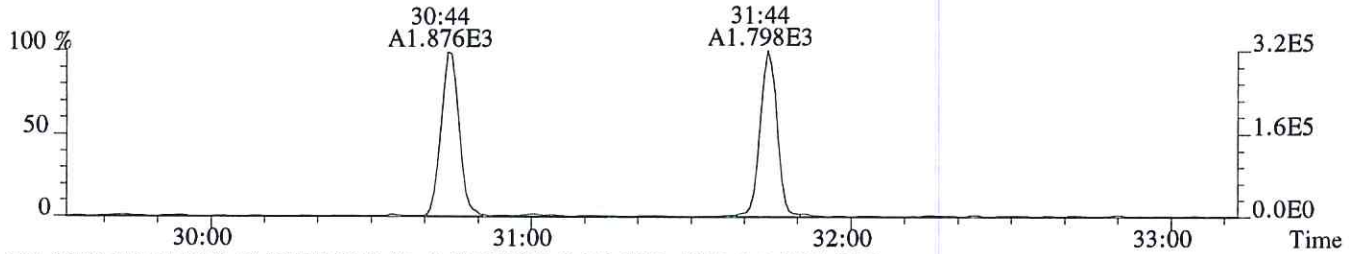
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



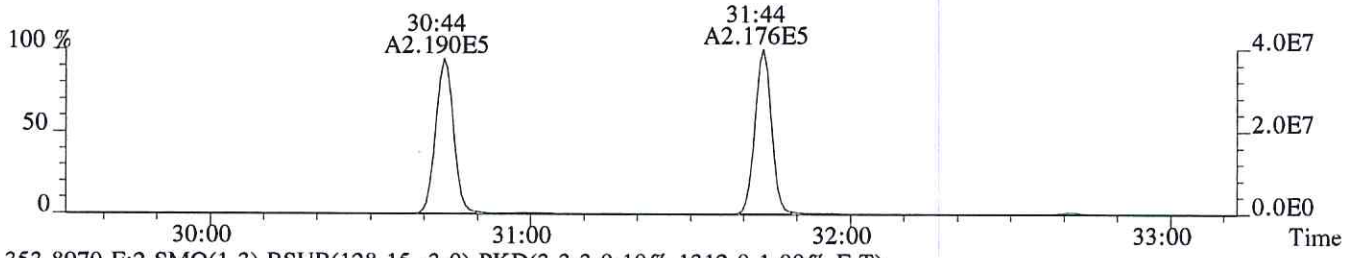
File:P607179 #1-330 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



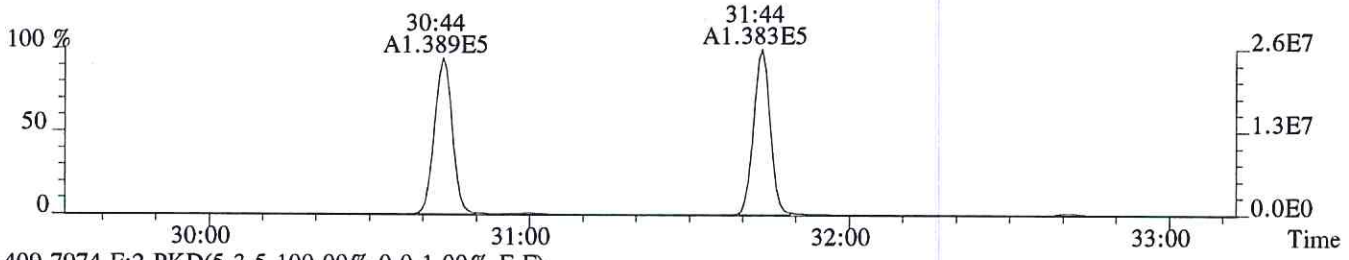
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



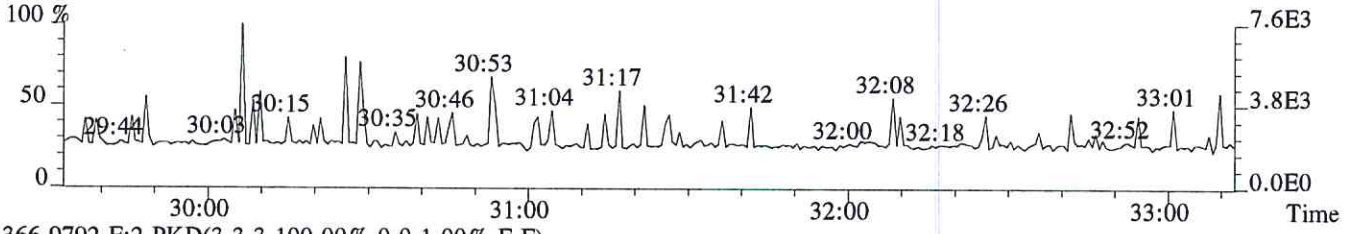
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



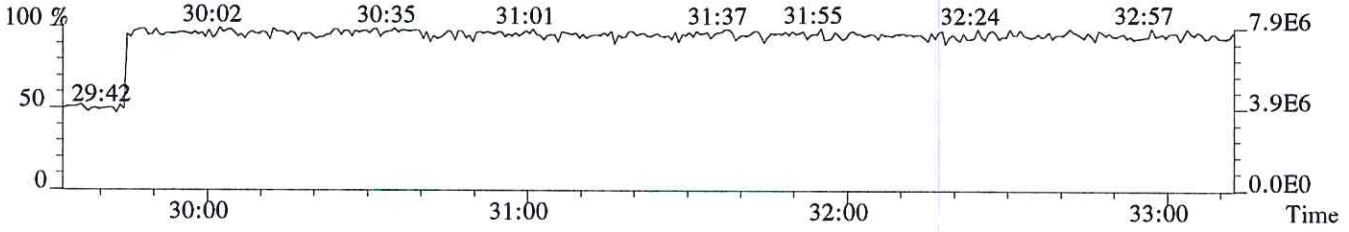
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



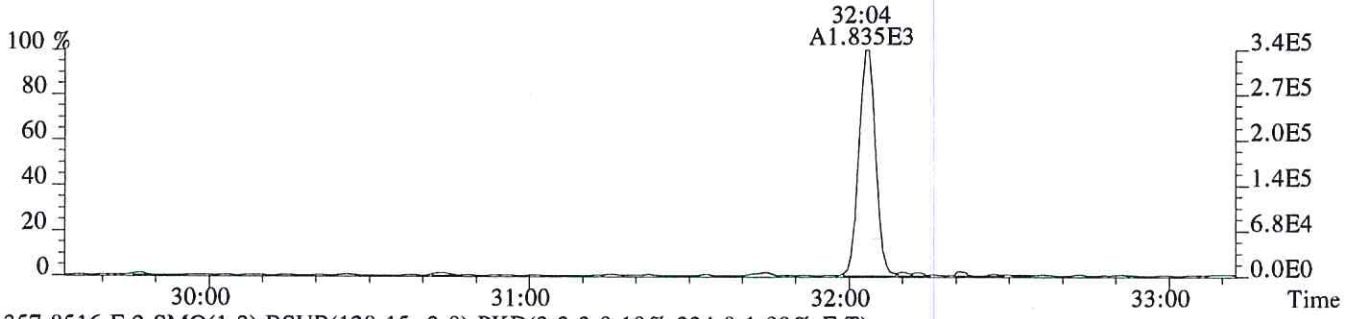
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



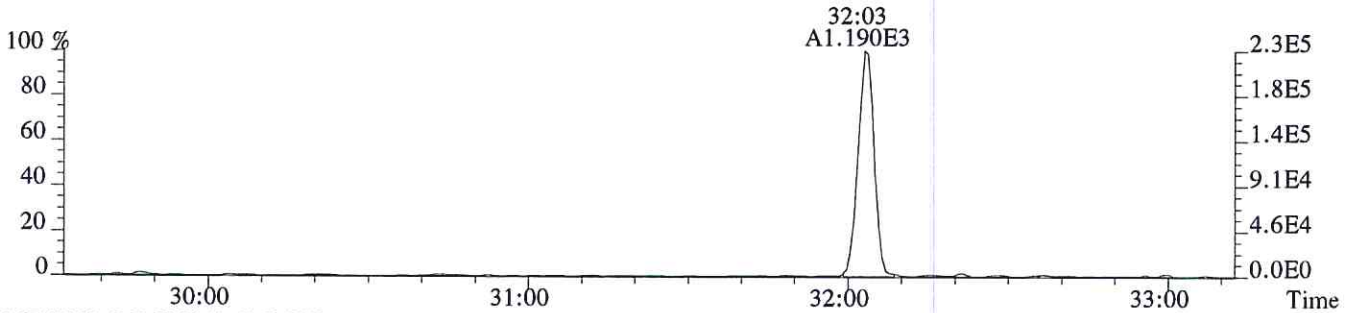
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



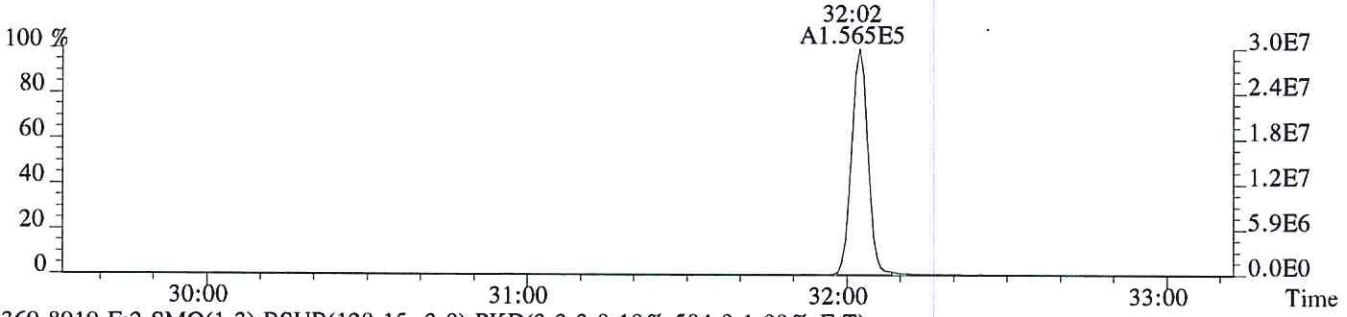
File:P607179 #1-330 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



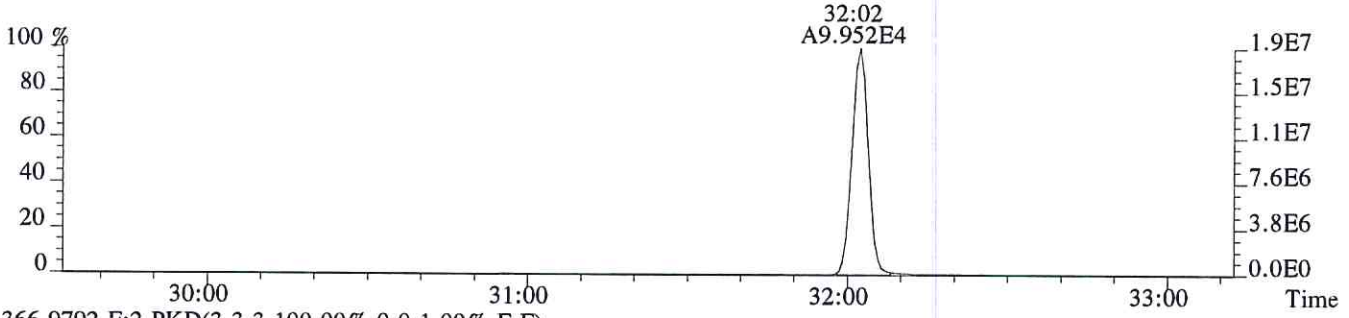
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)



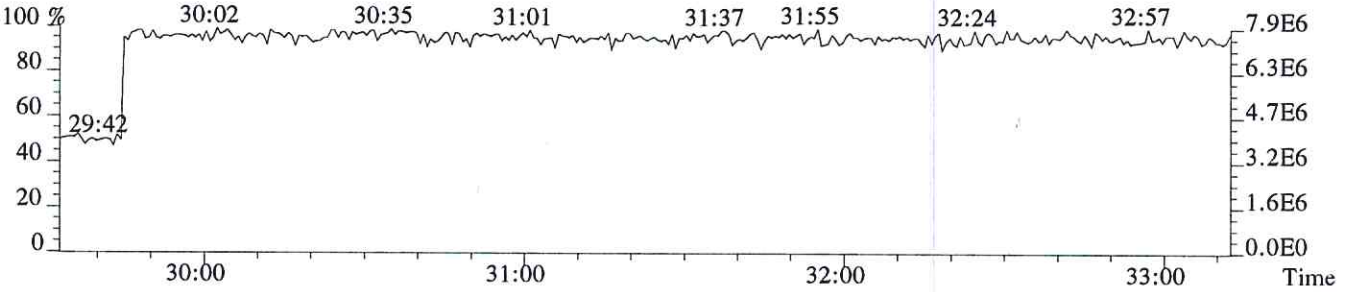
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)

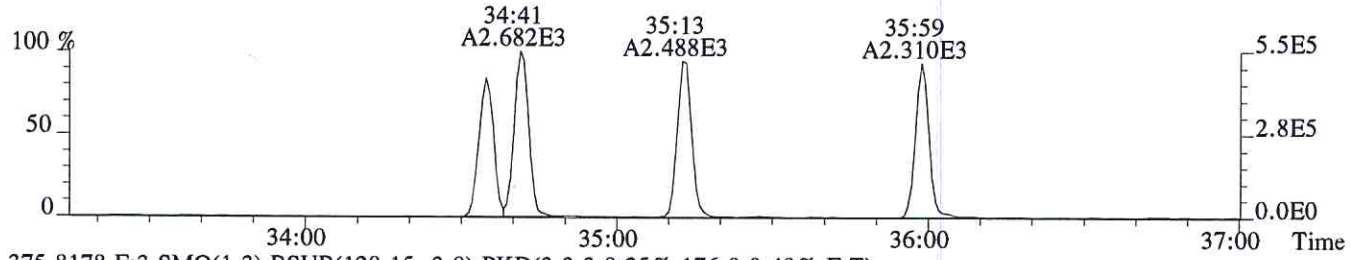


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

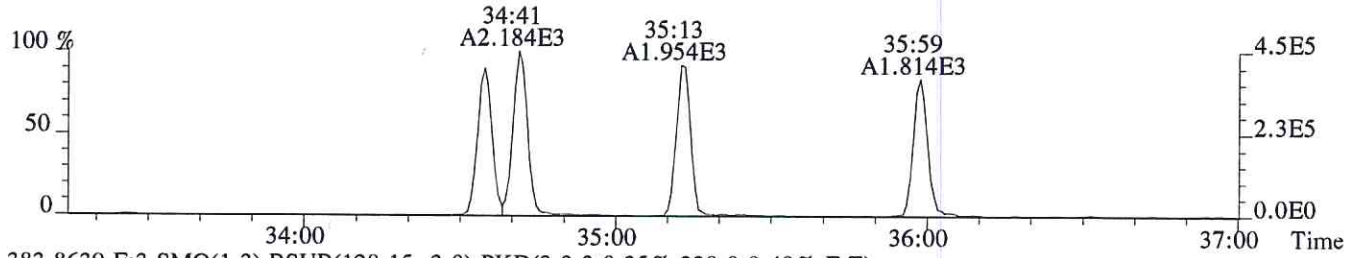


File:P607179 #1-339 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

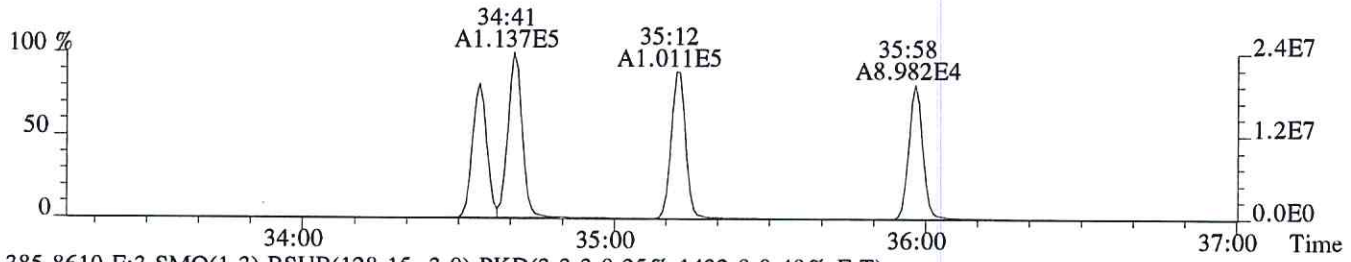
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



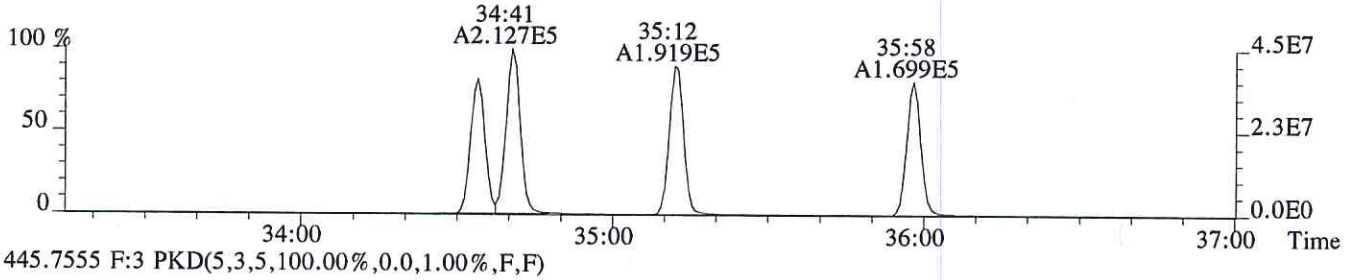
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,176.0,0.40%,F,T)



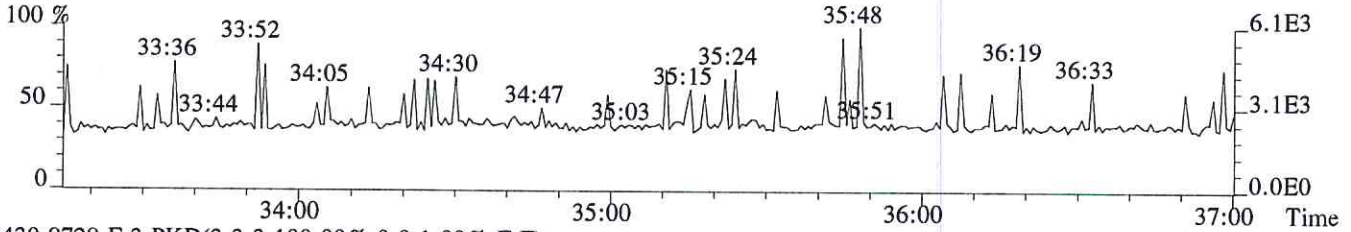
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



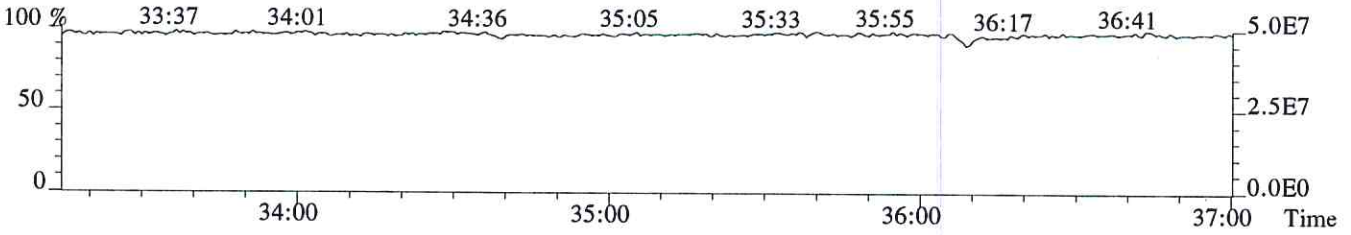
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



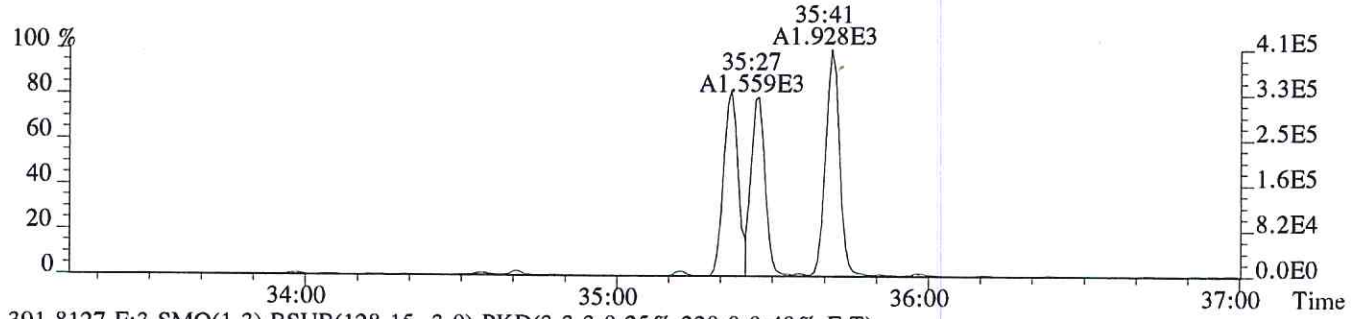
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



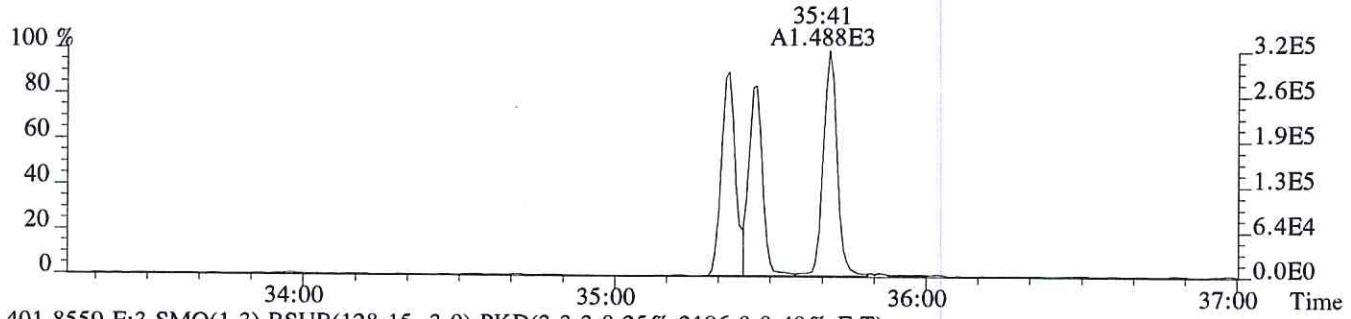
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



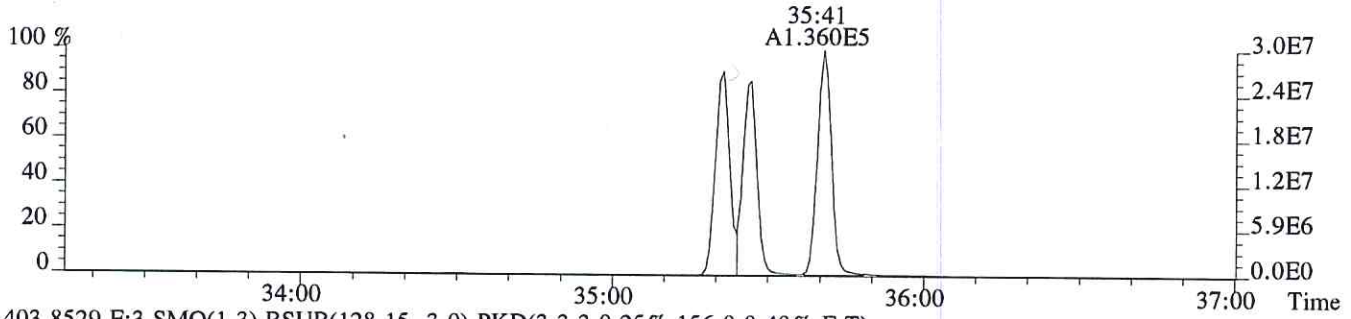
File:P607179 #1-339 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



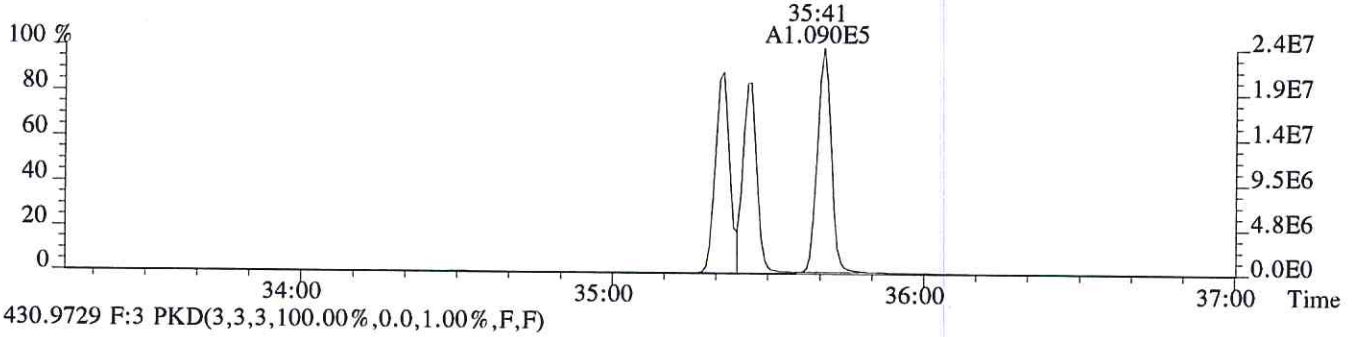
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



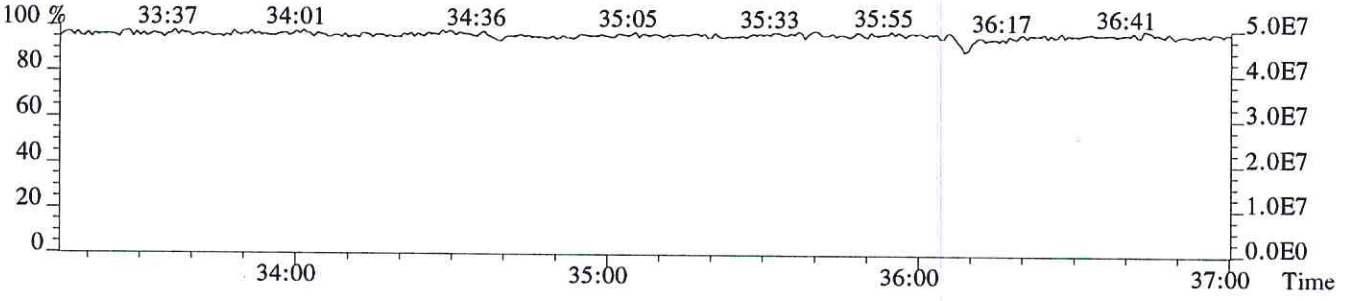
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2196.0,0.40%,F,T)



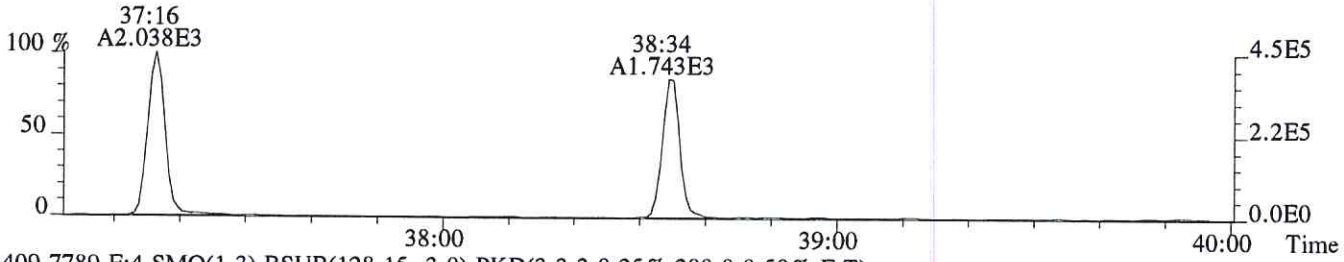
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,156.0,0.40%,F,T)



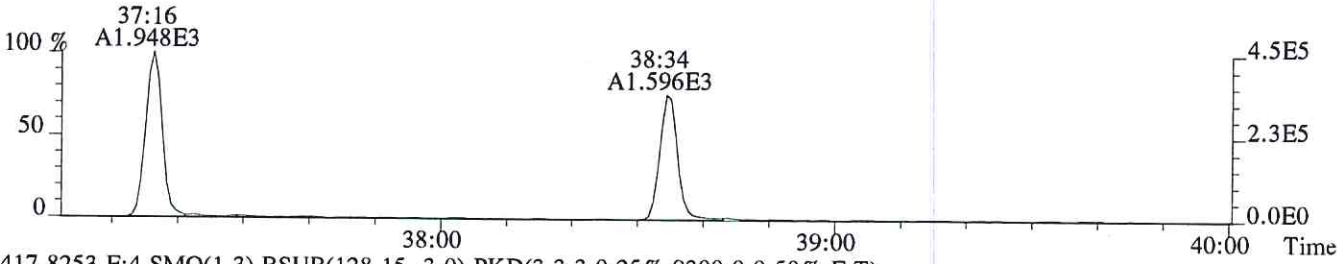
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



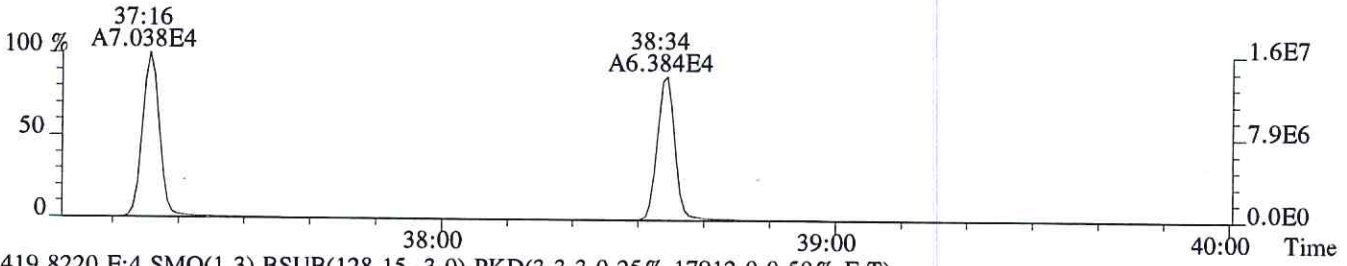
File:P607179 #1-268 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.50%,F,T)



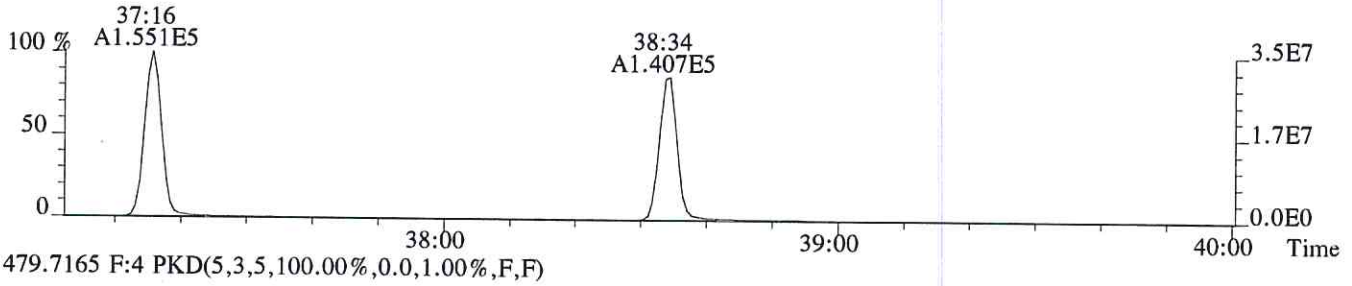
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.50%,F,T)



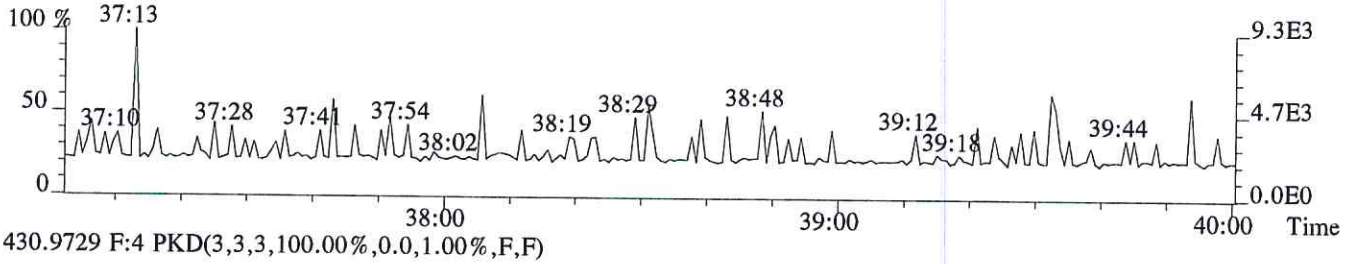
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9300.0,0.50%,F,T)



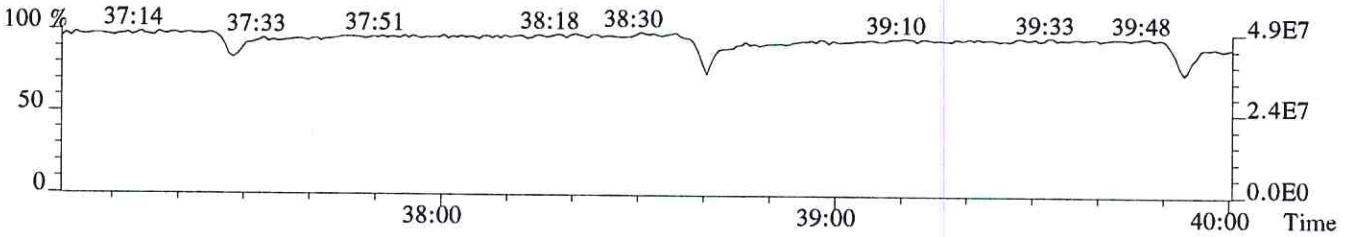
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17912.0,0.50%,F,T)



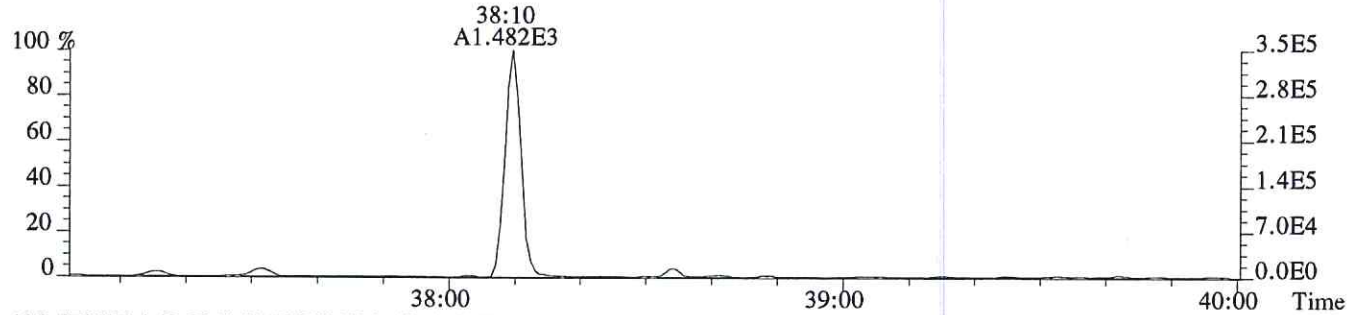
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



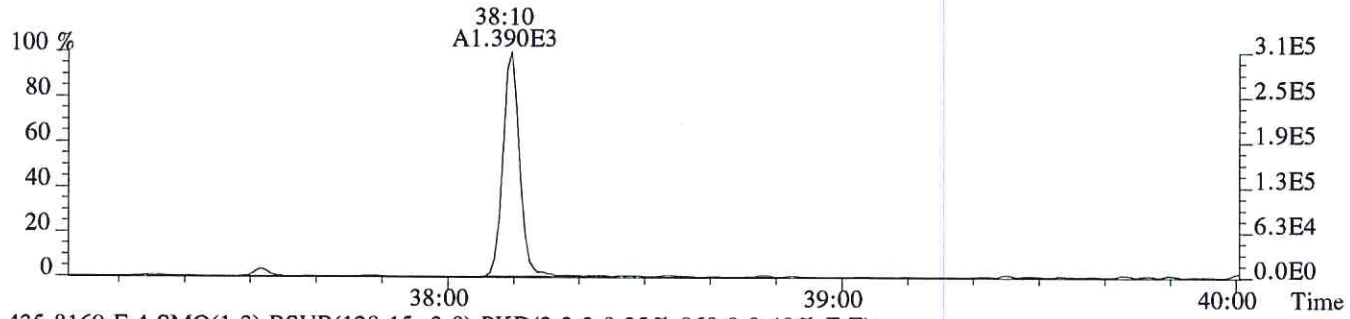
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



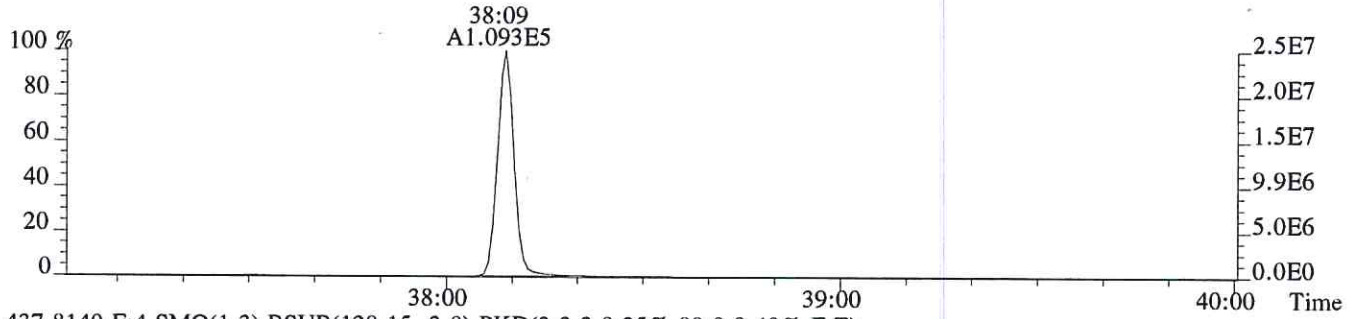
File:P607179 #1-268 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.40%,F,T)



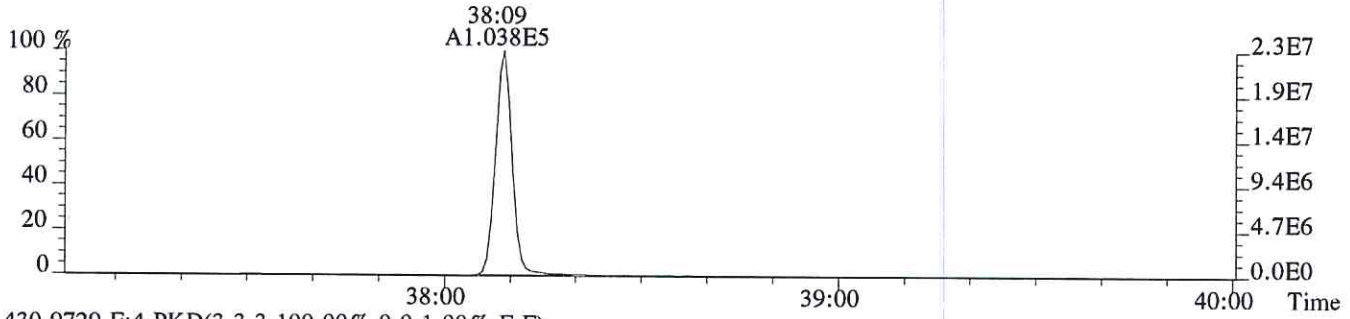
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.40%,F,T)



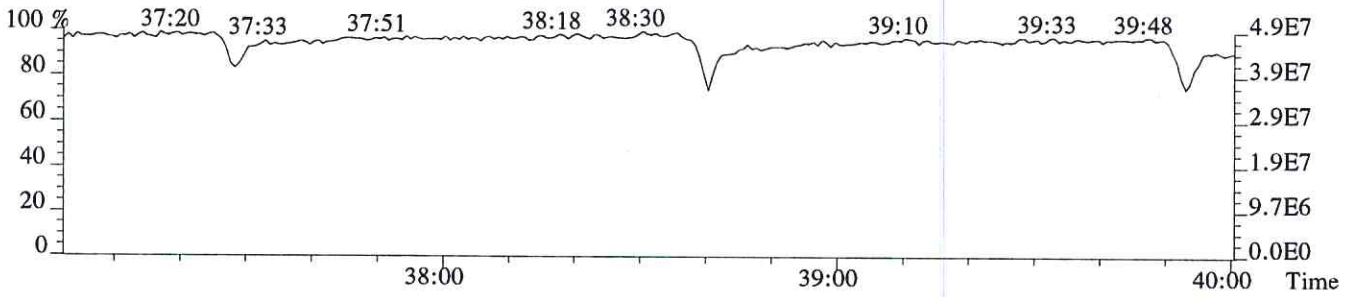
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



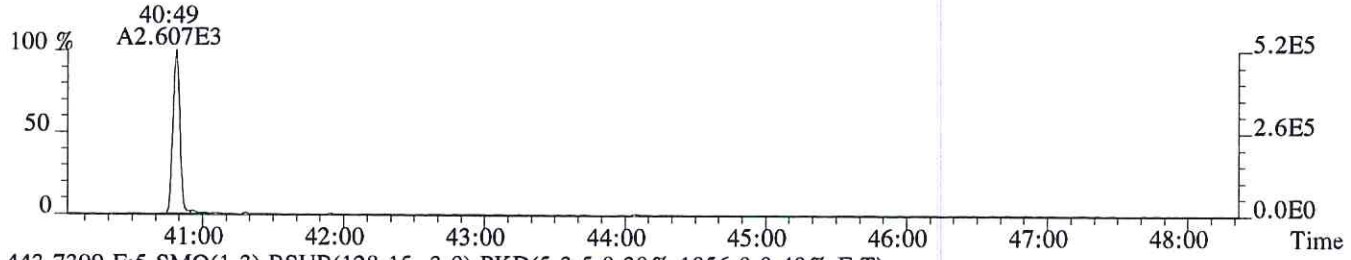
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,88.0,0.40%,F,T)



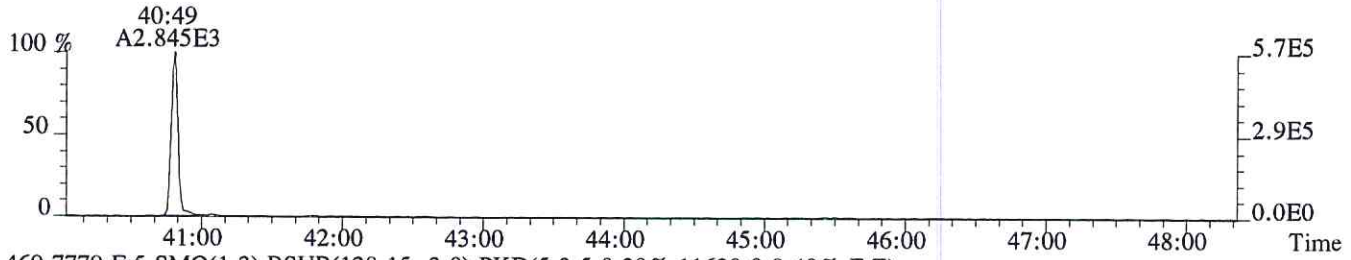
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



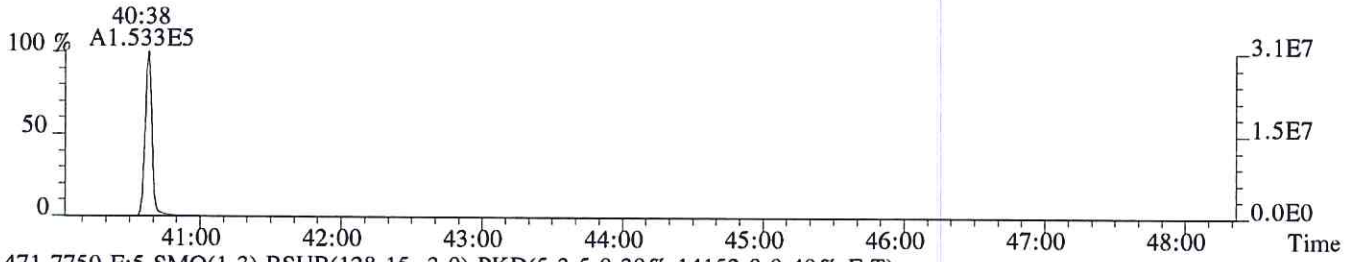
File:P607179 #1-749 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1444.0,0.40%,F,T)



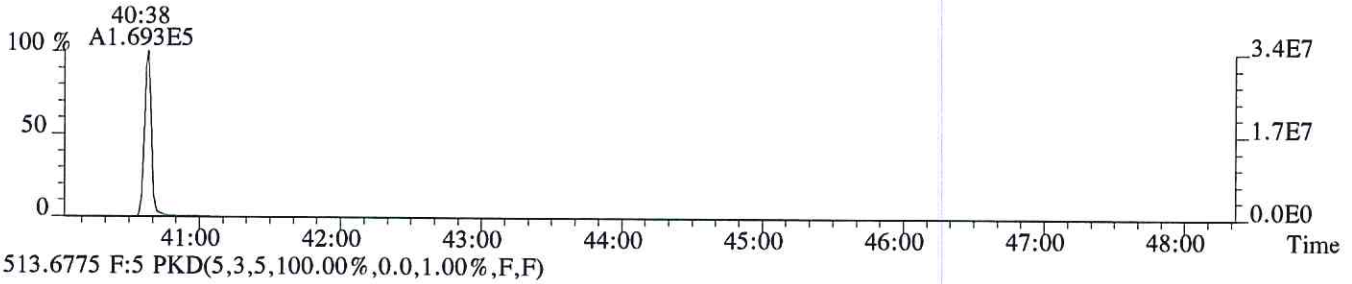
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



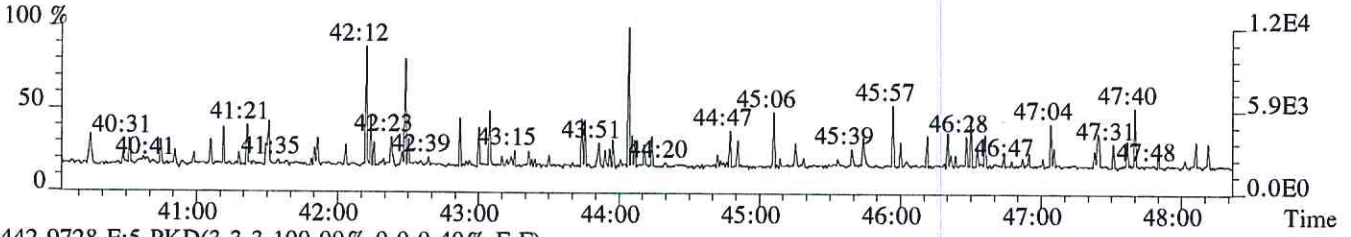
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,11620.0,0.40%,F,T)



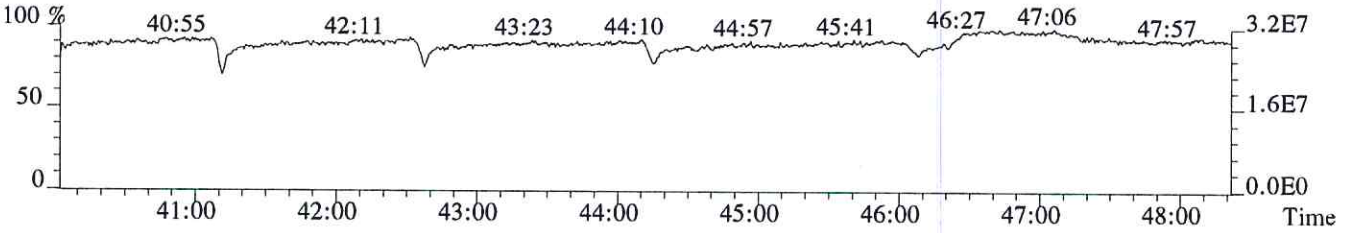
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14152.0,0.40%,F,T)



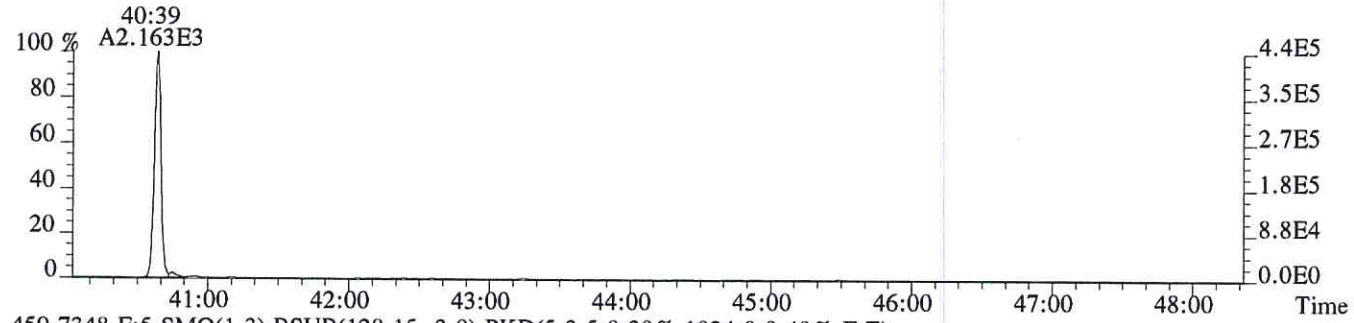
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



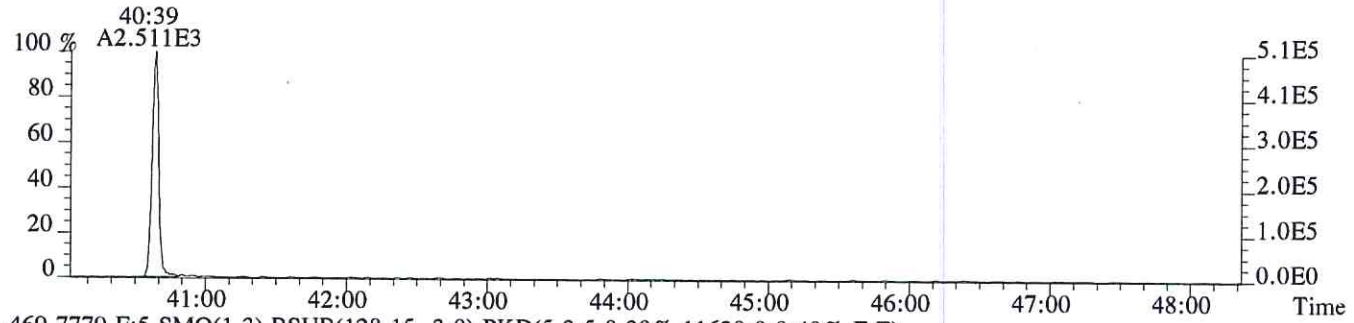
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



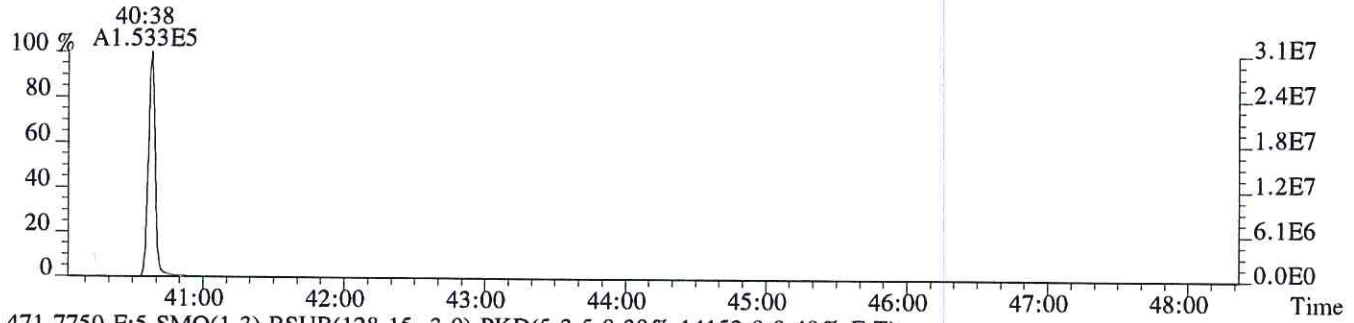
File:P607179 #1-749 Acq:16-MAY-2017 12:44:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1188.0,0.40%,F,T)



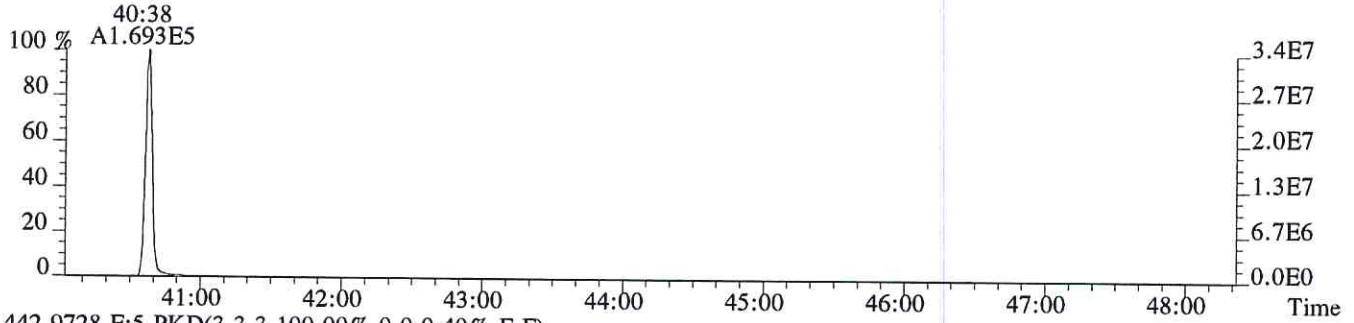
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



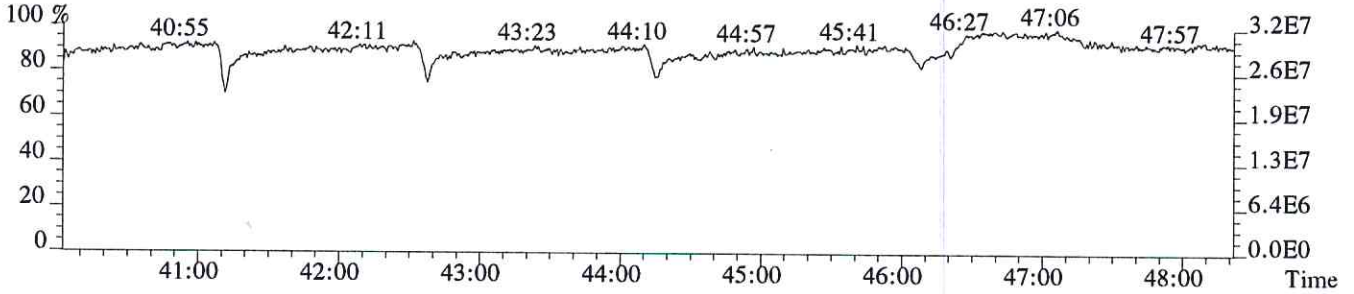
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,11620.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14152.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P607180 Samp: 1 Inj: 1 Acquired: 16-MAY-17 13:34:34
Processed: 17-MAY-17 07:52:56 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:51	2.786e+02	3.646e+02	0.76	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	30:45	2.490e+03	1.570e+03	1.59	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	31:44	2.370e+03	1.545e+03	1.53	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	34:35	2.374e+03	1.865e+03	1.27	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	34:41	2.670e+03	2.147e+03	1.24	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:13	2.455e+03	1.954e+03	1.26	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	35:59	2.330e+03	1.873e+03	1.24	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	2.238e+03	2.152e+03	1.04	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	2.053e+03	2.035e+03	1.01	yes	no	1.341
10	Unk	OCDF	40:49	3.280e+03	3.524e+03	0.93	yes	no	1.337
11	Unk	2,3,7,8-TCDD	26:51	1.782e+02	2.485e+02	0.72	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:03	1.664e+03	1.126e+03	1.48	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:22	1.789e+03	1.465e+03	1.22	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:27	1.764e+03	1.289e+03	1.37	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	35:41	1.938e+03	1.524e+03	1.27	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	1.569e+03	1.570e+03	1.00	yes	no	1.048
17	Unk	OCDD	40:38	2.717e+03	3.114e+03	0.87	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	25:50	4.990e+04	6.337e+04	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	30:44	8.786e+04	5.655e+04	1.55	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	31:44	9.173e+04	5.802e+04	1.58	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	34:34	4.455e+04	8.504e+04	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	34:41	5.401e+04	1.016e+05	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:12	4.976e+04	9.392e+04	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	35:58	4.440e+04	8.453e+04	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:16	3.779e+04	8.379e+04	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	3.547e+04	7.849e+04	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	26:49	3.670e+04	4.659e+04	0.79	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:02	6.637e+04	4.219e+04	1.57	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:21	6.455e+04	4.885e+04	1.32	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:26	6.037e+04	5.044e+04	1.20	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	6.052e+04	5.673e+04	1.07	yes	no	0.884
32	IS	13C-OCDD	40:38	9.024e+04	1.011e+05	0.89	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:07	3.824e+04	4.842e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:41	6.677e+04	5.455e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:51	4.878e+02				no	1.072

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Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P607180 Samp: 1 Inj: 1 Acquired: 16-MAY-17 13:34:34
Processed: 17-MAY-17 07:52:56 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.27e+04	2.64e+02	1.6e+02	5.58e+04	7.92e+02	7.0e+01
2	1,2,3,7,8-PeCDF	4.34e+05	1.64e+02	2.6e+03	2.59e+05	1.50e+03	1.7e+02
3	2,3,4,7,8-PeCDF	4.55e+05	1.64e+02	2.8e+03	2.71e+05	1.50e+03	1.8e+02
4	1,2,3,4,7,8-HxCDF	4.97e+05	1.05e+03	4.7e+02	3.90e+05	3.76e+02	1.0e+03
5	1,2,3,6,7,8-HxCDF	5.20e+05	1.05e+03	5.0e+02	4.62e+05	3.76e+02	1.2e+03
6	2,3,4,6,7,8-HxCDF	5.19e+05	1.05e+03	4.9e+02	4.02e+05	3.76e+02	1.1e+03
7	1,2,3,7,8,9-HxCDF	4.90e+05	1.05e+03	4.7e+02	3.90e+05	3.76e+02	1.0e+03
8	1,2,3,4,6,7,8-HpCDF	5.13e+05	6.96e+02	7.4e+02	4.88e+05	1.80e+02	2.7e+03
9	1,2,3,4,7,8,9-HpCDF	4.74e+05	6.96e+02	6.8e+02	4.47e+05	1.80e+02	2.5e+03
10	OCDF	6.47e+05	8.96e+02	7.2e+02	6.88e+05	2.94e+03	2.3e+02
11	2,3,7,8-TCDD	2.98e+04	1.60e+03	1.9e+01	3.48e+04	2.28e+02	1.5e+02
12	1,2,3,7,8-PeCDD	3.08e+05	1.32e+03	2.3e+02	1.95e+05	8.16e+02	2.4e+02
13	1,2,3,4,7,8-HxCDD	3.67e+05	2.64e+02	1.4e+03	3.10e+05	3.04e+02	1.0e+03
14	1,2,3,6,7,8-HxCDD	3.64e+05	2.64e+02	1.4e+03	2.81e+05	3.04e+02	9.3e+02
15	1,2,3,7,8,9-HxCDD	4.07e+05	2.64e+02	1.5e+03	3.23e+05	3.04e+02	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	3.70e+05	2.24e+02	1.7e+03	3.50e+05	3.08e+02	1.1e+03
17	OCDD	5.36e+05	1.18e+03	4.5e+02	6.01e+05	1.90e+03	3.2e+02
18	13C-2,3,7,8-TCDF	7.25e+06	1.24e+04	5.8e+02	9.21e+06	7.56e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	1.52e+07	1.28e+02	1.2e+05	9.81e+06	5.20e+02	1.9e+04
20	13C-2,3,4,7,8-PeCDF	1.70e+07	1.28e+02	1.3e+05	1.06e+07	5.20e+02	2.0e+04
21	13C-1,2,3,4,7,8-HxCDF	9.35e+06	1.36e+02	6.9e+04	1.78e+07	1.42e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.12e+07	1.36e+02	8.2e+04	2.12e+07	1.42e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.05e+07	1.36e+02	7.7e+04	2.00e+07	1.42e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	9.41e+06	1.36e+02	6.9e+04	1.78e+07	1.42e+03	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	8.51e+06	5.36e+03	1.6e+03	1.88e+07	1.84e+04	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.61e+06	5.36e+03	1.4e+03	1.71e+07	1.84e+04	9.3e+02
27	13C-2,3,7,8-TCDD	5.65e+06	5.45e+03	1.0e+03	7.28e+06	2.99e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	1.25e+07	1.41e+03	8.9e+03	7.89e+06	2.44e+02	3.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.35e+07	2.38e+03	5.6e+03	1.05e+07	8.96e+02	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.26e+07	2.38e+03	5.3e+03	1.02e+07	8.96e+02	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.36e+07	1.74e+03	7.8e+03	1.26e+07	5.48e+02	2.3e+04
32	13C-OCDD	1.80e+07	5.16e+03	3.5e+03	2.00e+07	1.45e+04	1.4e+03
33	13C-1,2,3,4-TCDD	5.78e+06	5.45e+03	1.1e+03	7.37e+06	2.99e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.45e+07	2.38e+03	6.1e+03	1.17e+07	8.96e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	7.87e+04	7.04e+02	1.1e+02			

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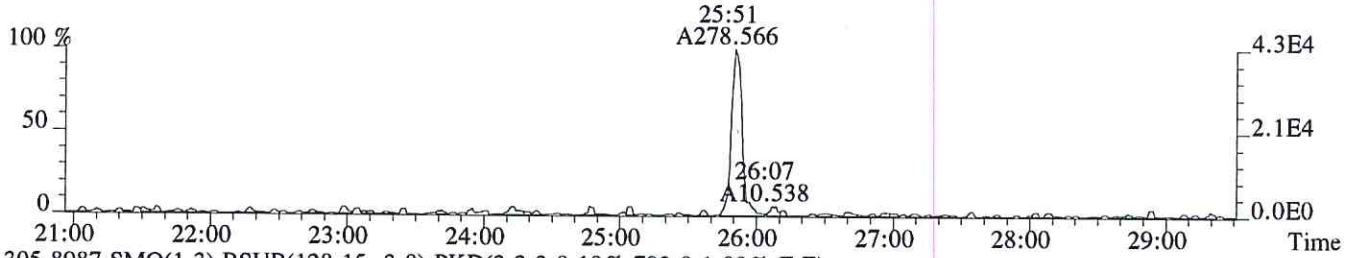
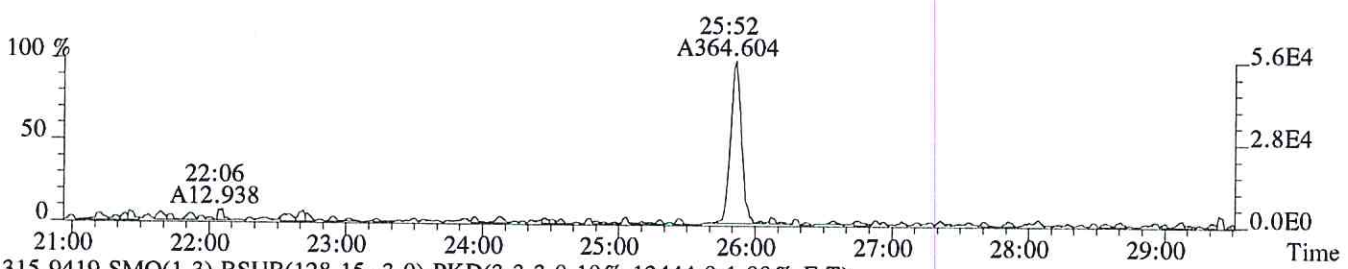
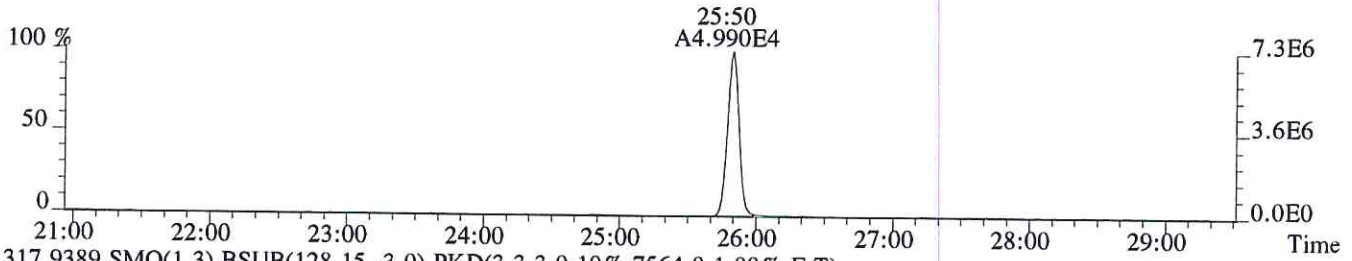
File:P607180 #1-609 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



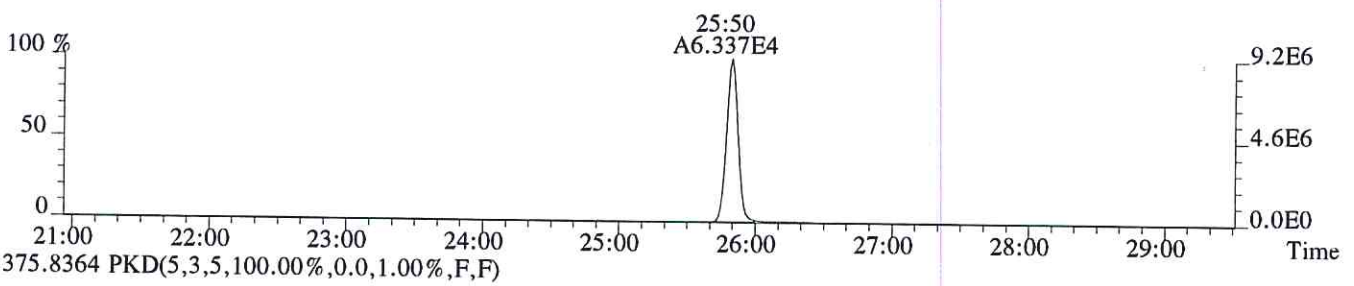
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



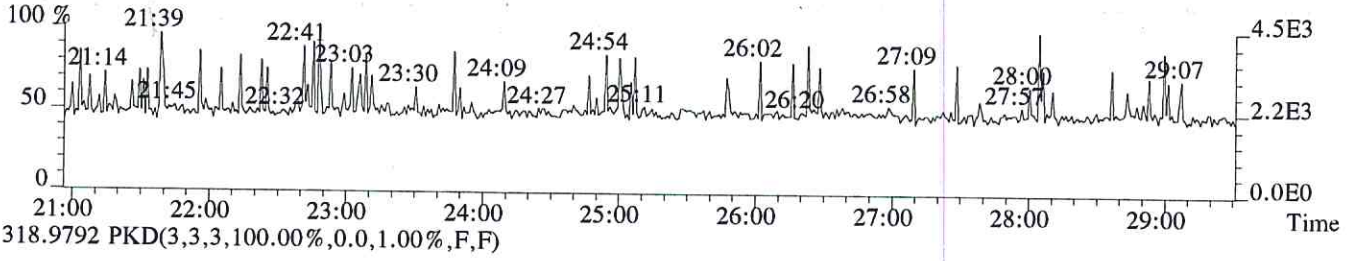
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12444.0,1.00%,F,T)



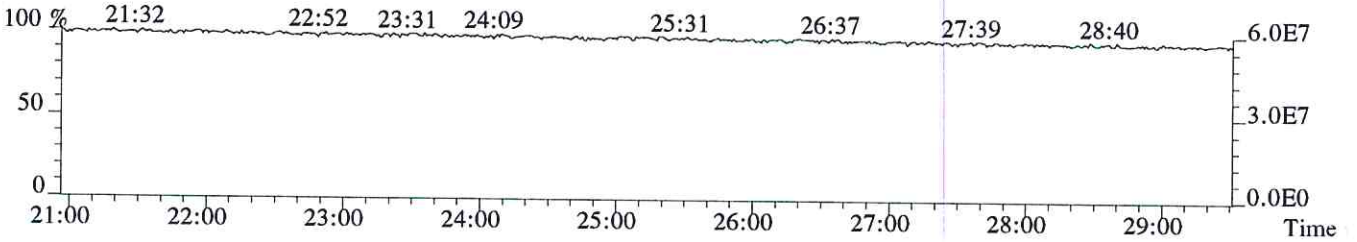
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7564.0,1.00%,F,T)



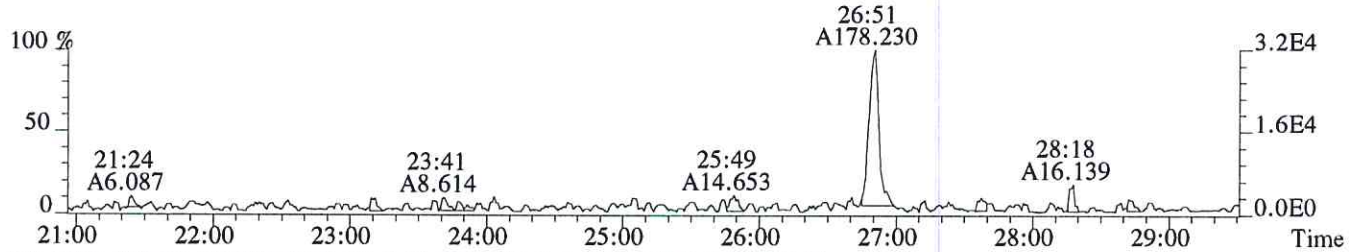
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



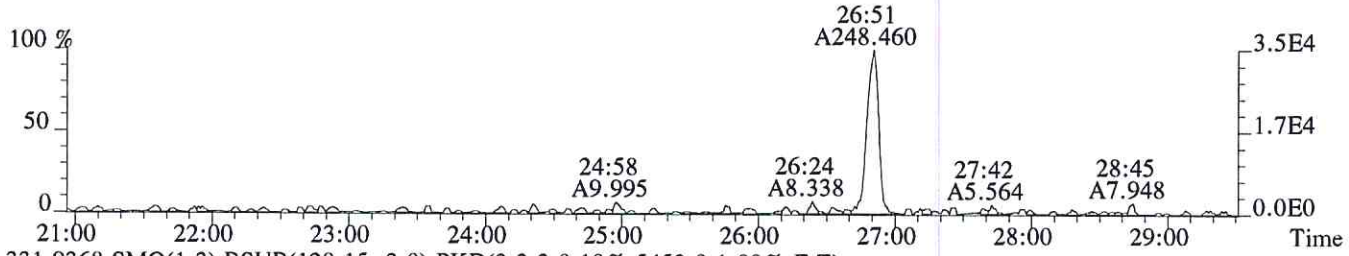
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



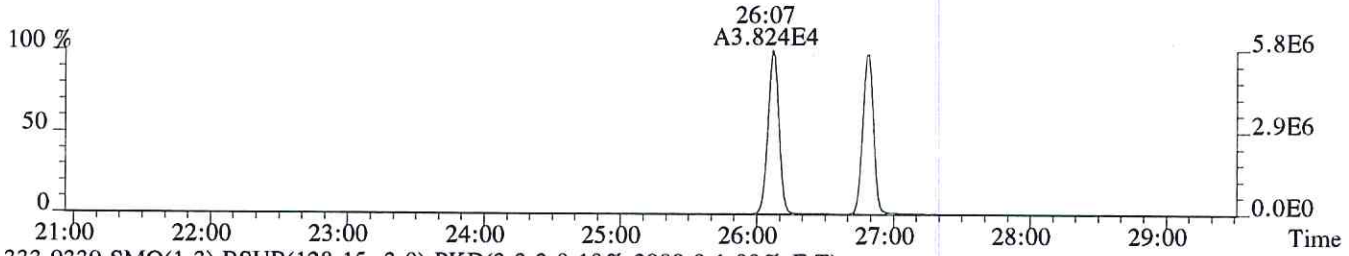
File:P607180 #1-609 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1604.0,1.00%,F,T)



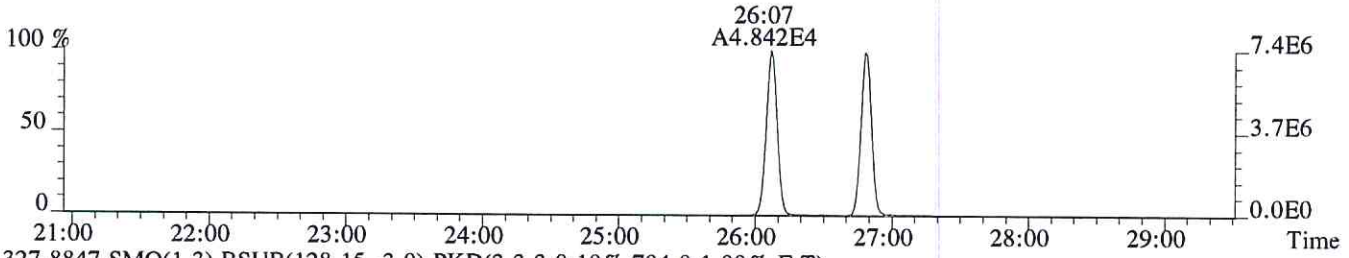
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



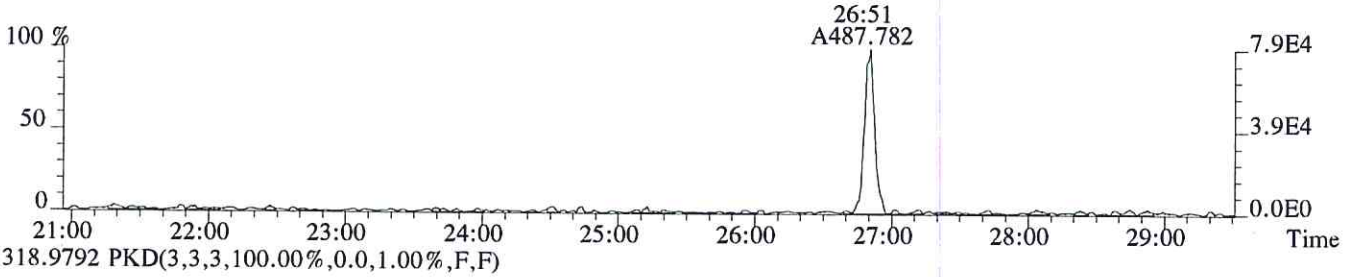
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5452.0,1.00%,F,T)



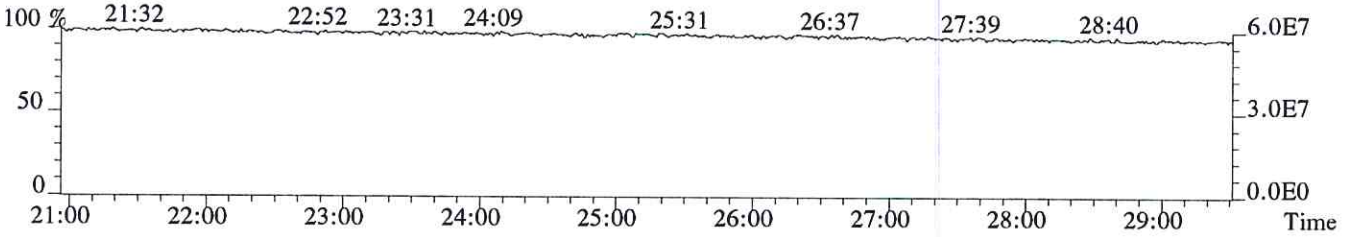
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2988.0,1.00%,F,T)



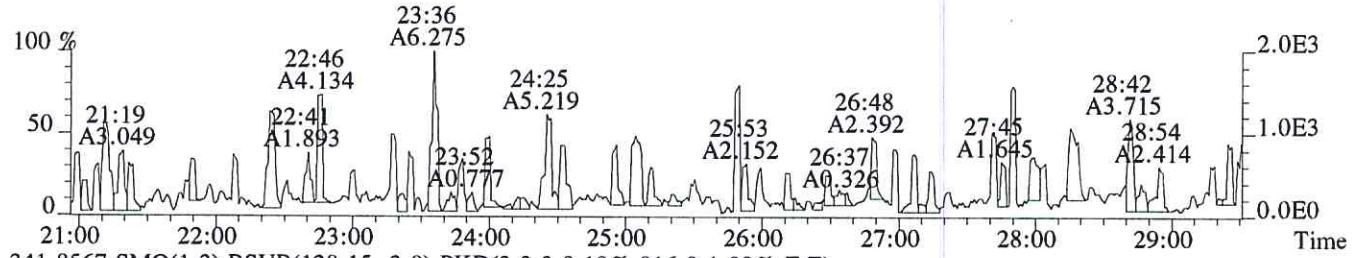
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



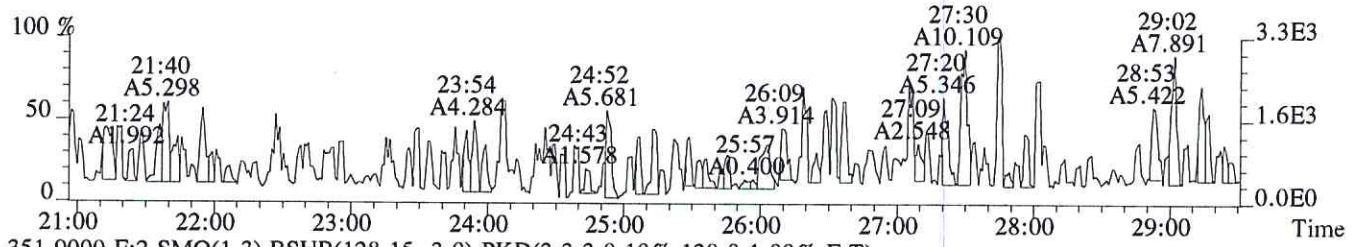
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



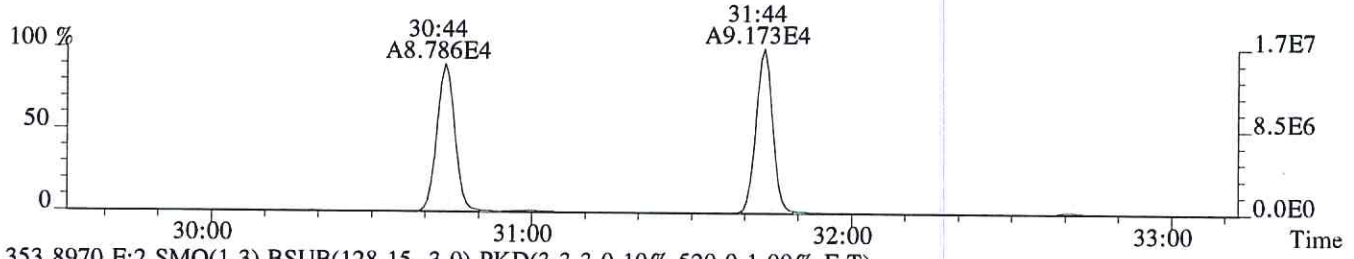
File:P607180 #1-609 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



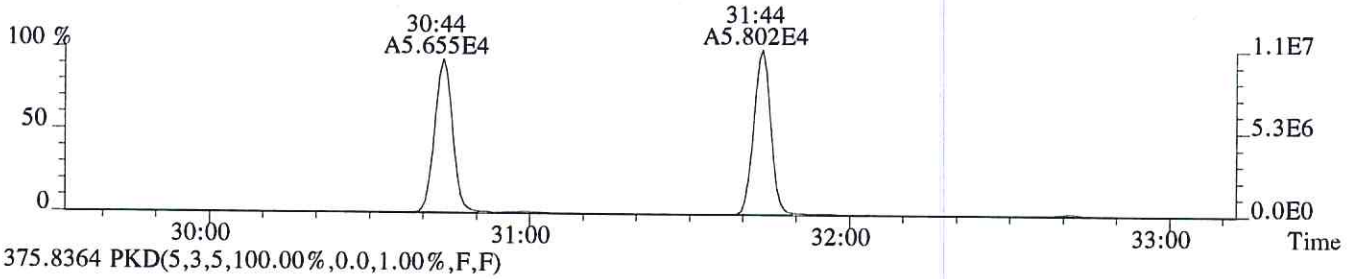
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



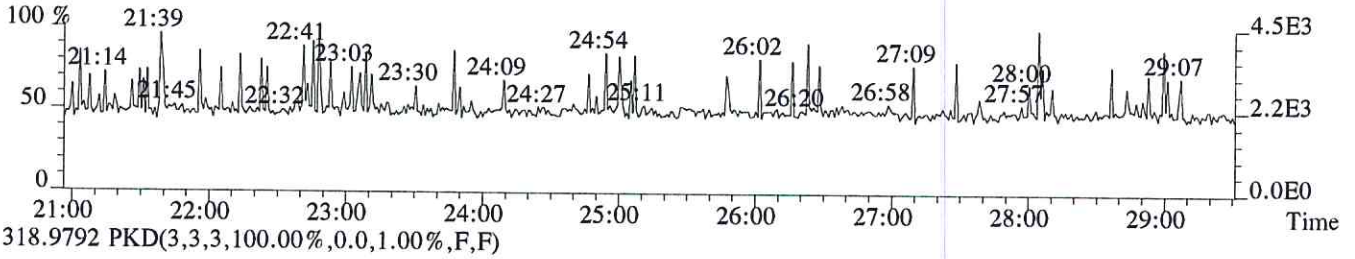
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



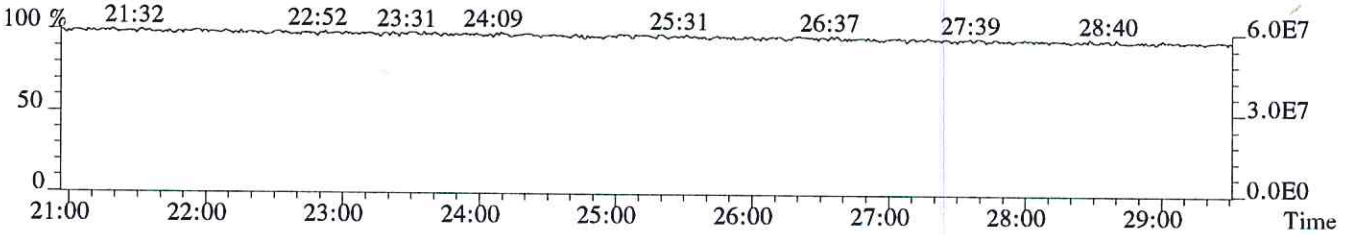
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



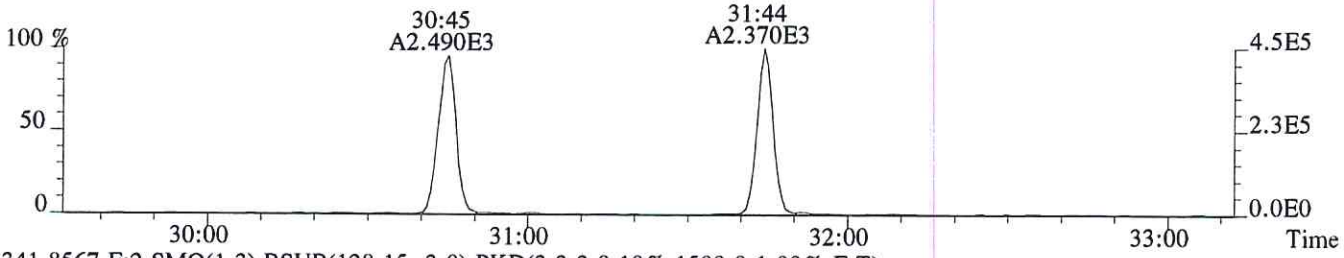
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



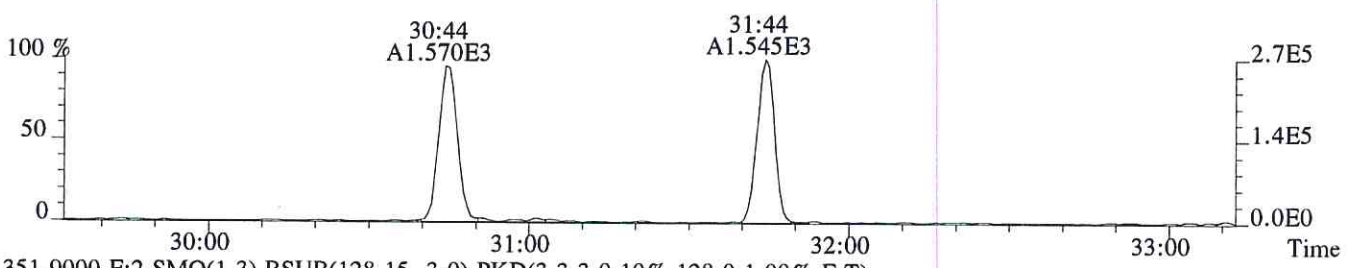
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



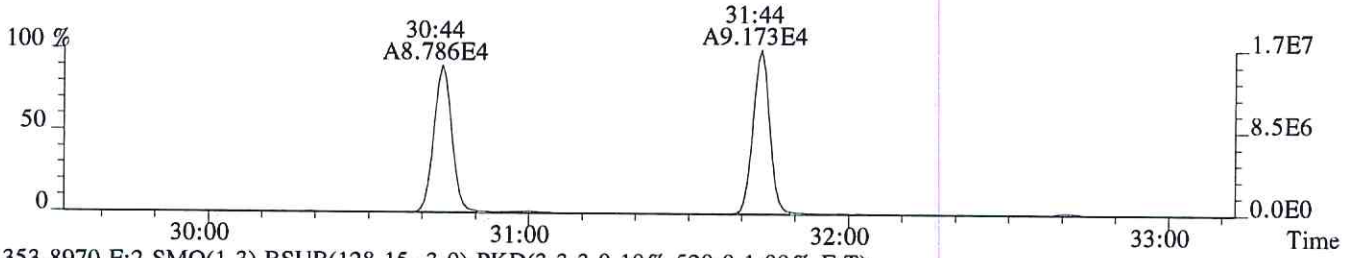
File:P607180 #1-330 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



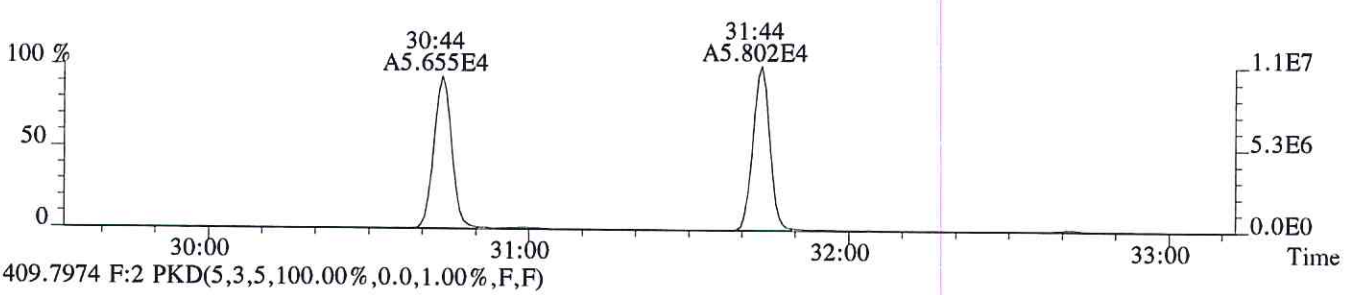
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



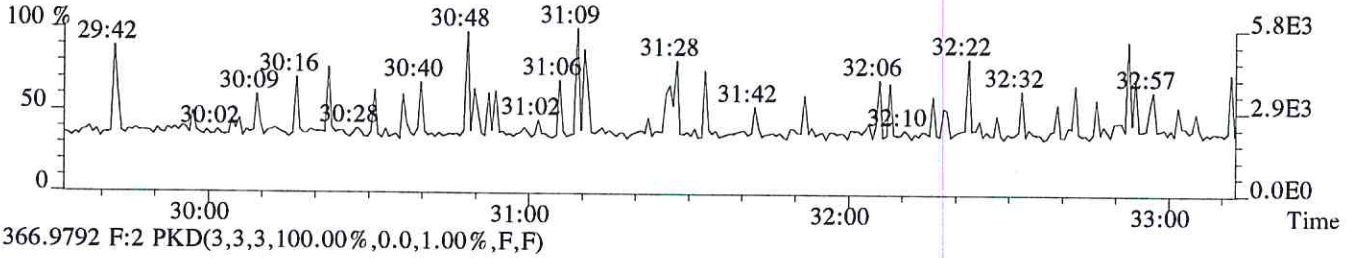
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



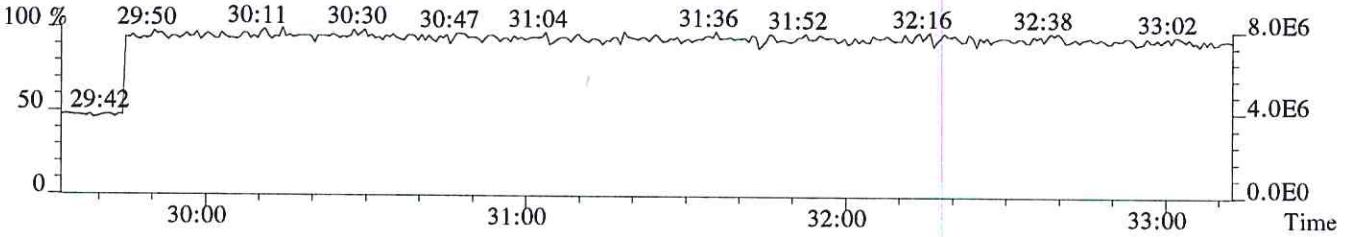
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



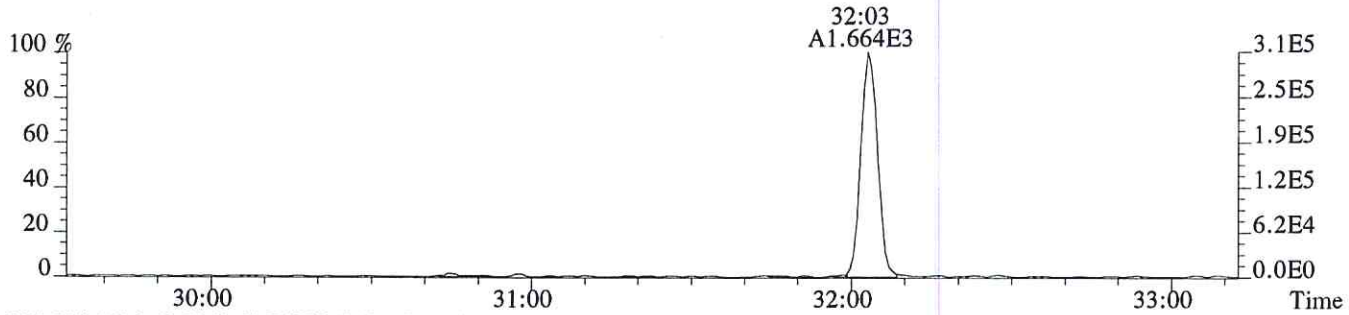
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



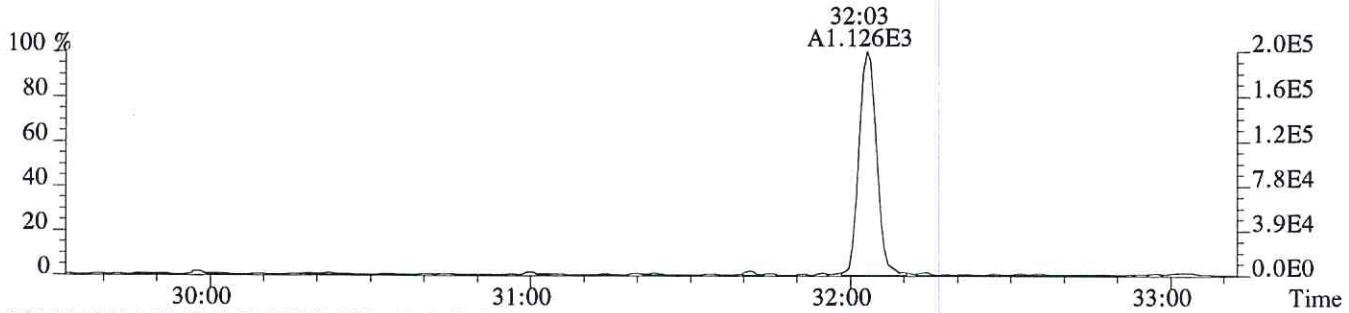
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



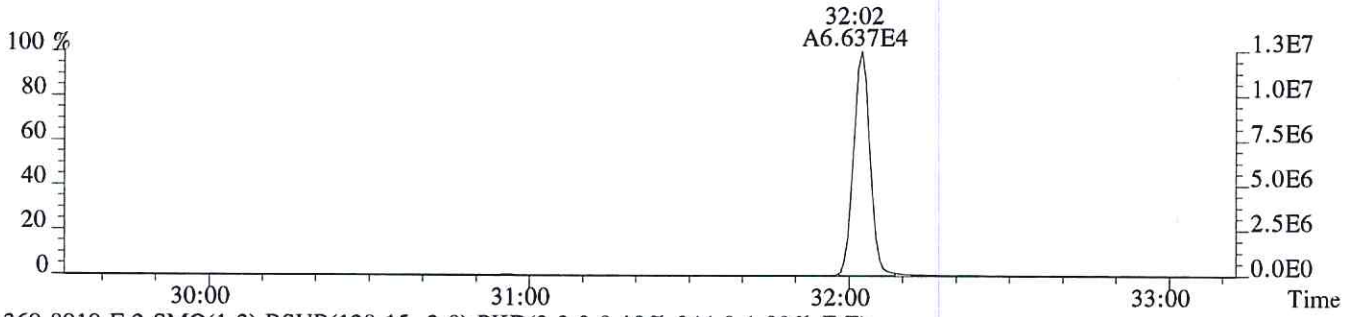
File:P607180 #1-330 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



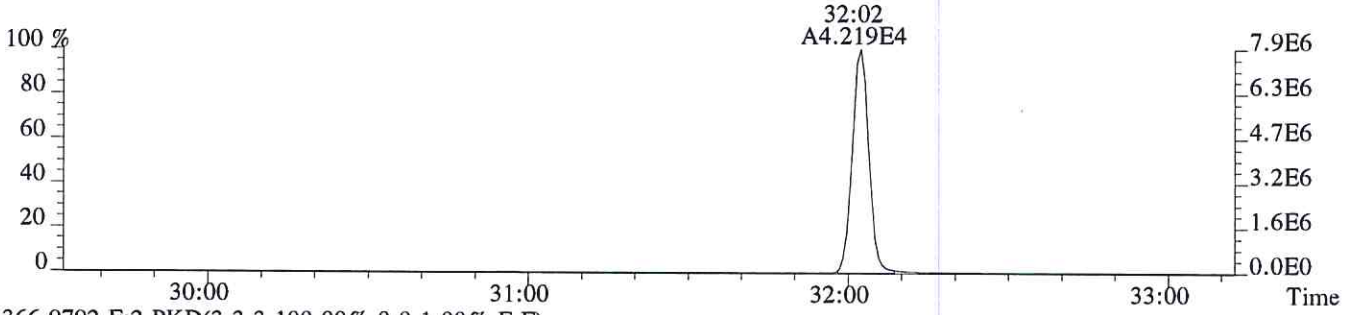
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



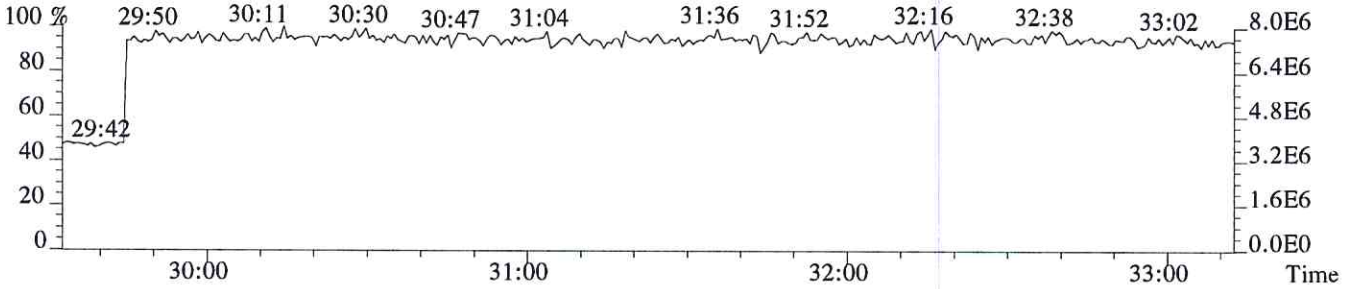
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



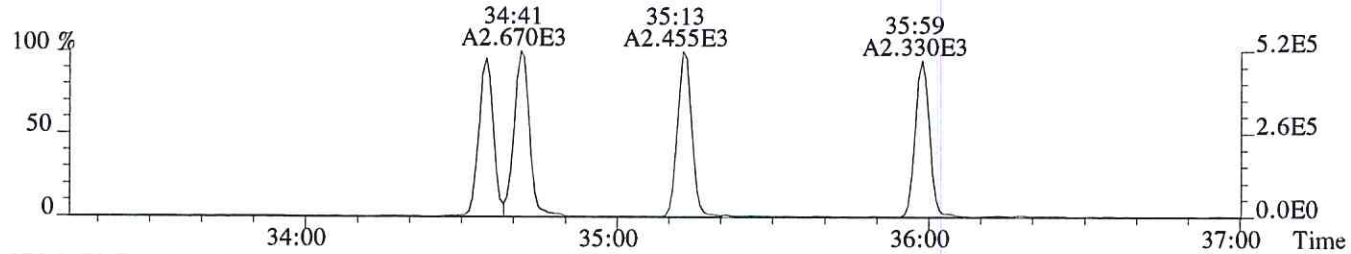
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,244.0,1.00%,F,T)



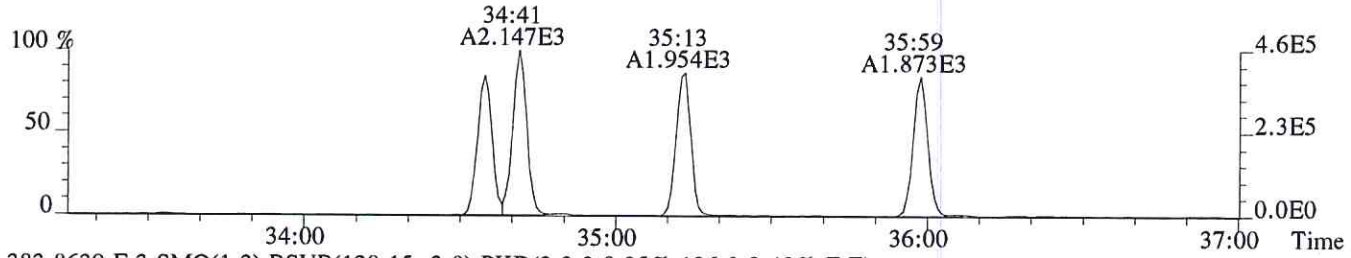
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



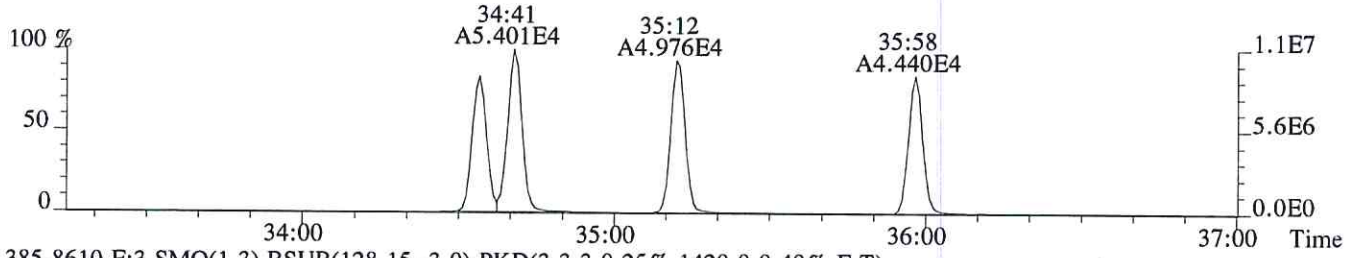
File:P607180 #1-339 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



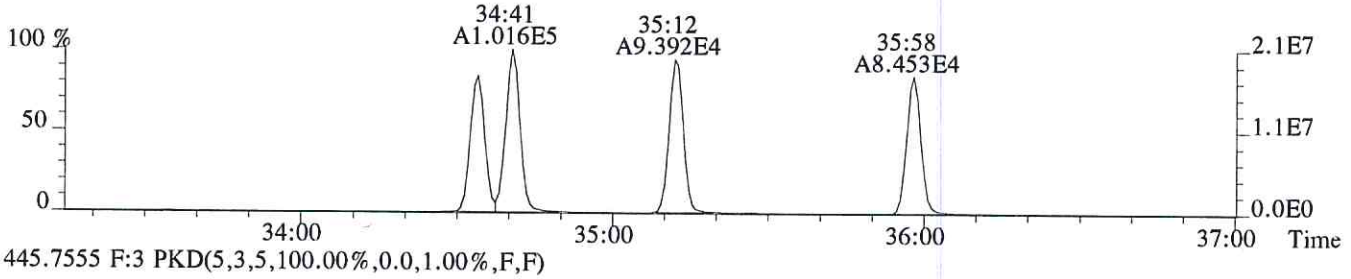
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



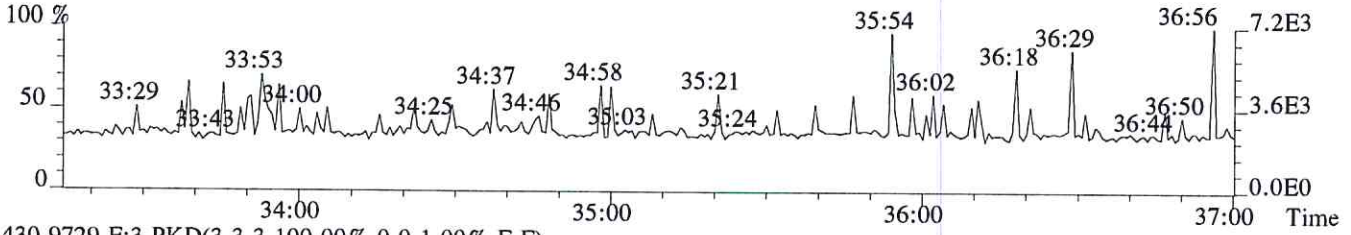
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.40%,F,T)



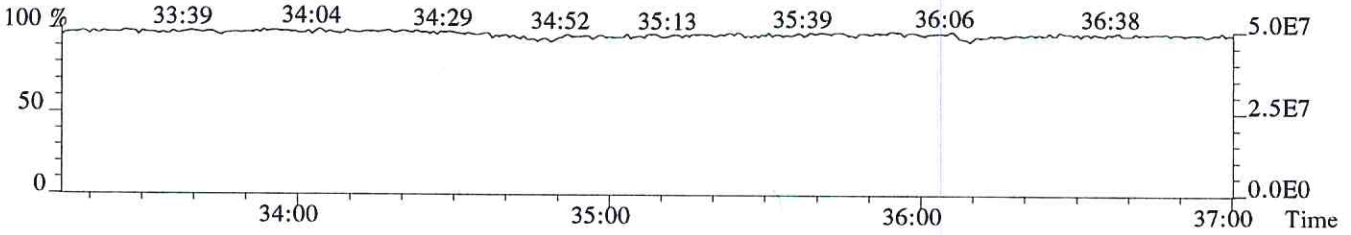
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



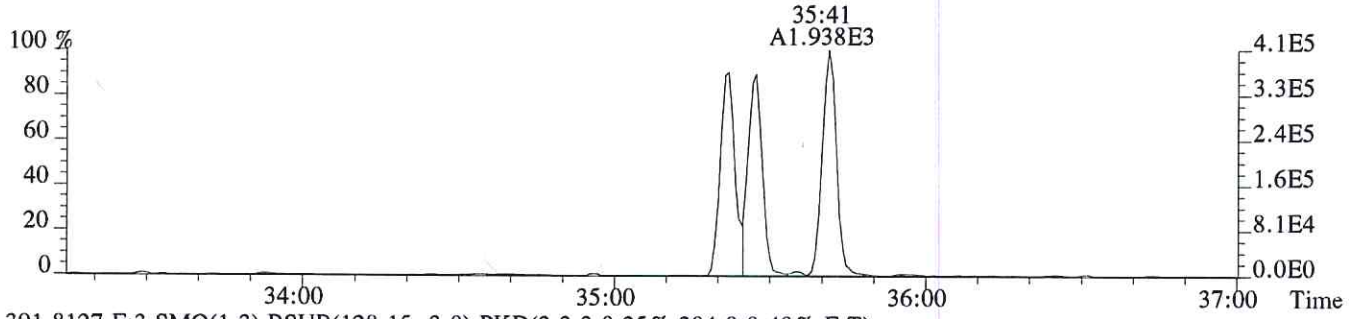
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



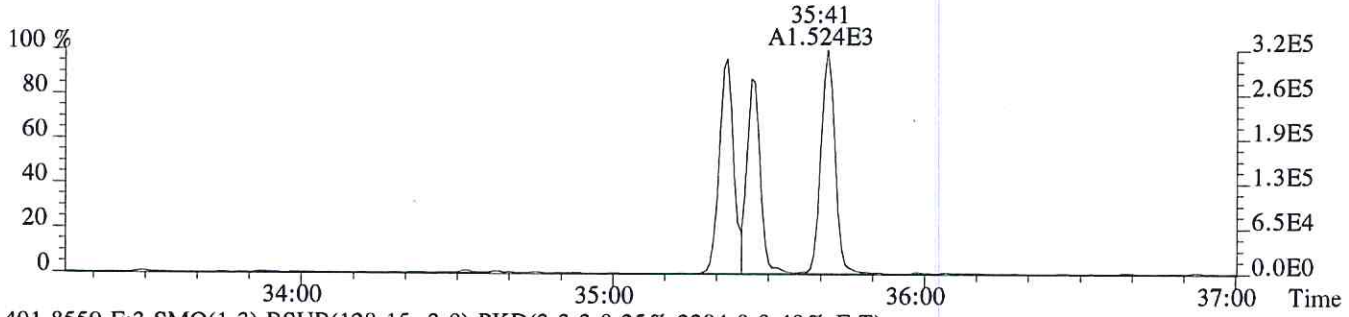
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



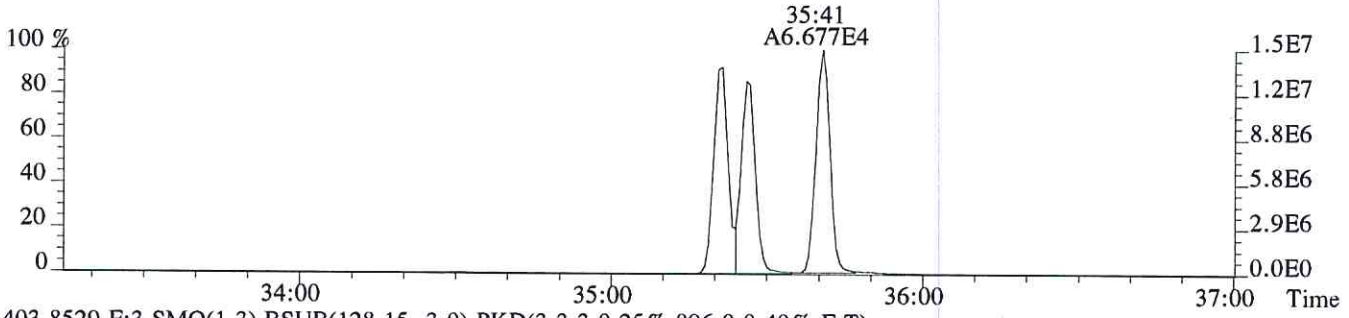
File:P607180 #1-339 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



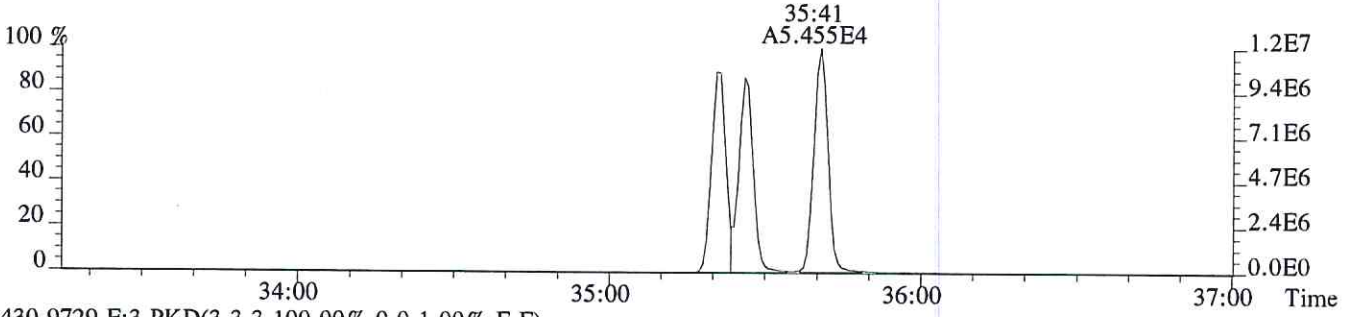
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



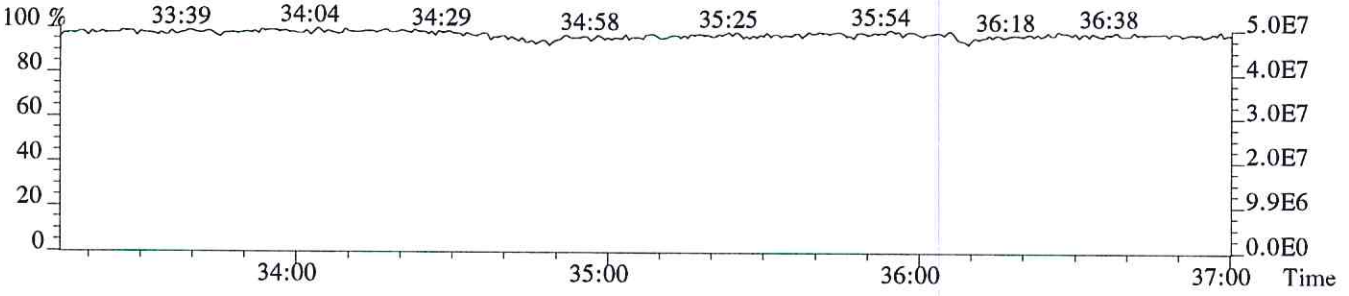
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



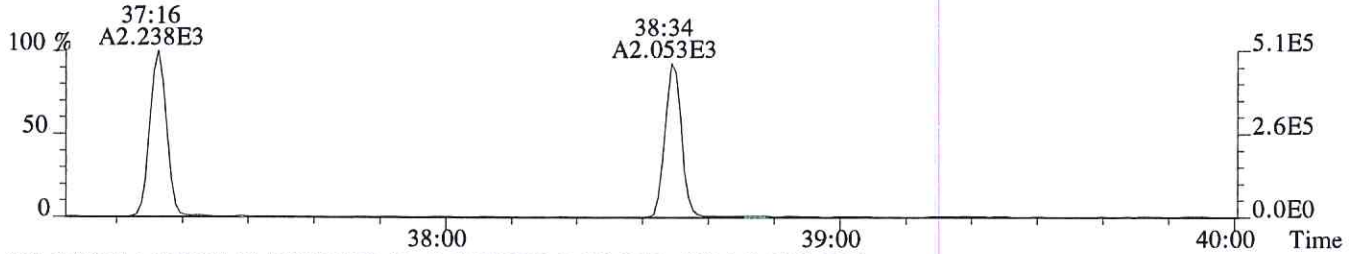
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



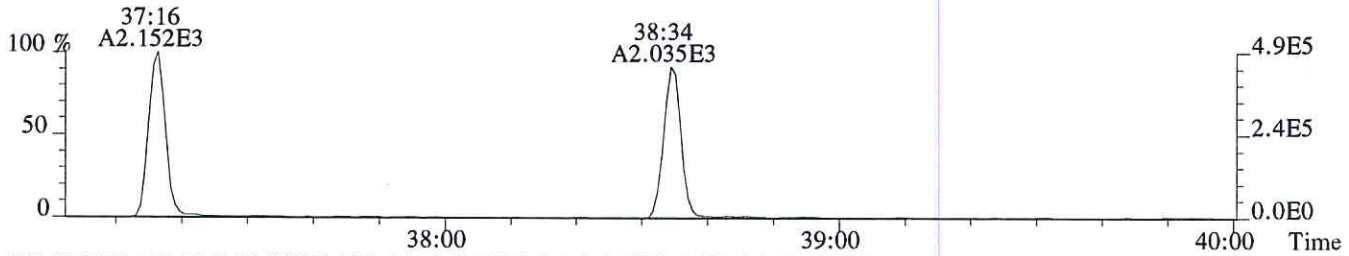
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



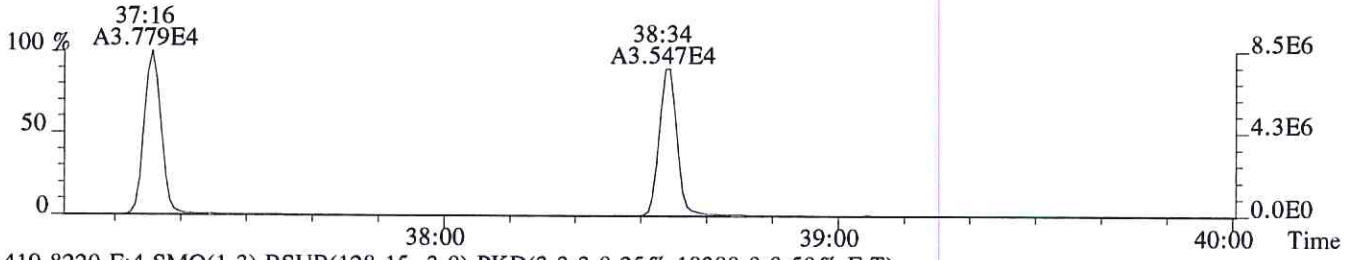
File:P607180 #1-268 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.50%,F,T)



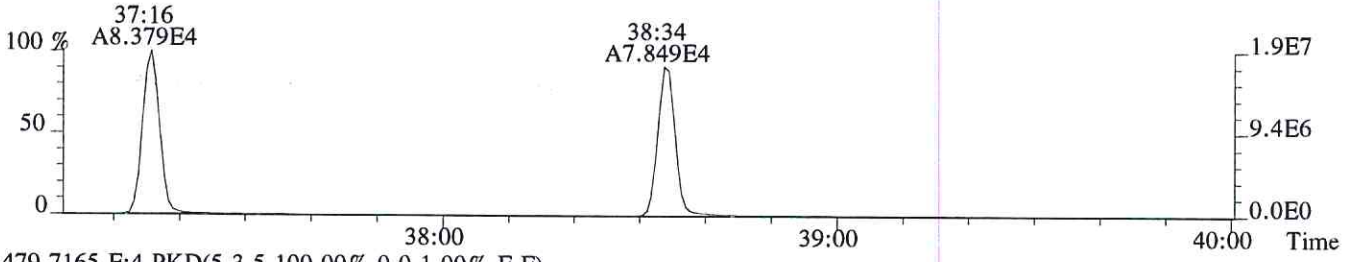
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.50%,F,T)



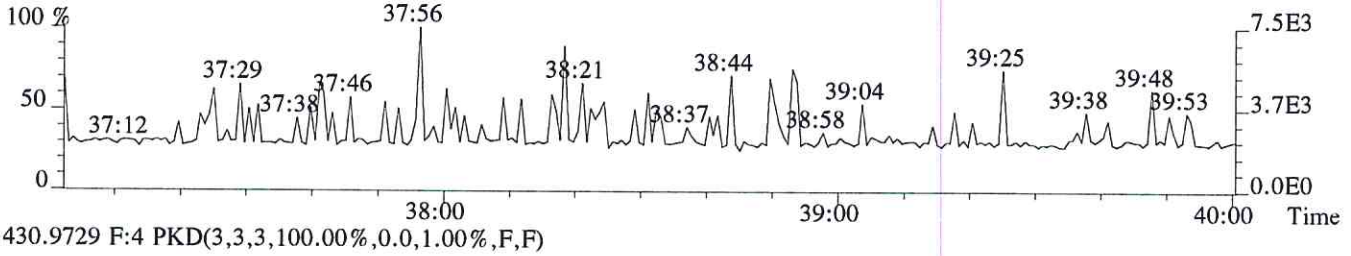
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5356.0,0.50%,F,T)



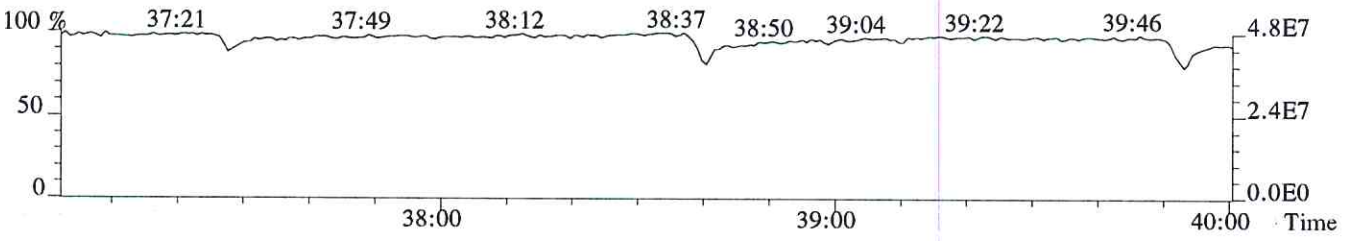
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18380.0,0.50%,F,T)



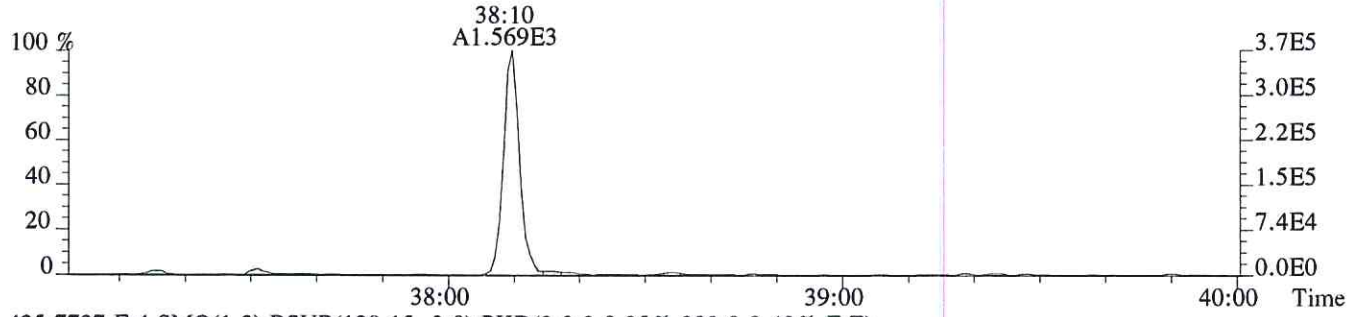
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



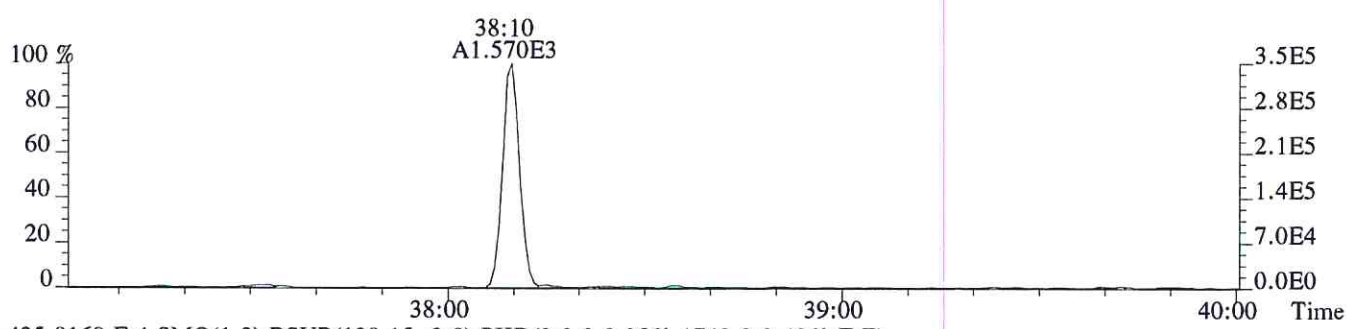
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



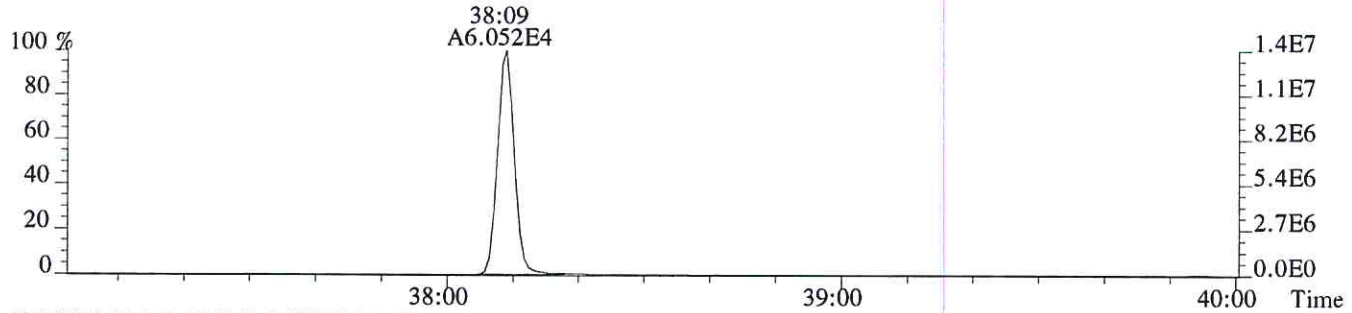
File:P607180 #1-268 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



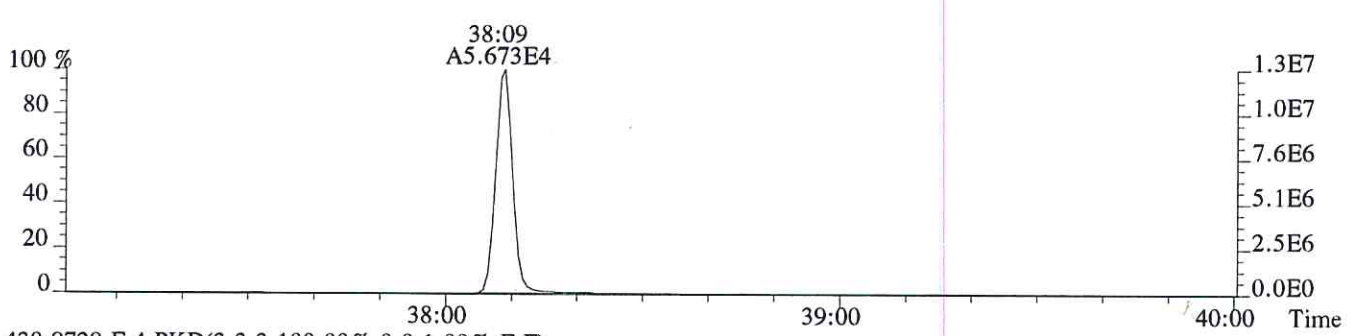
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



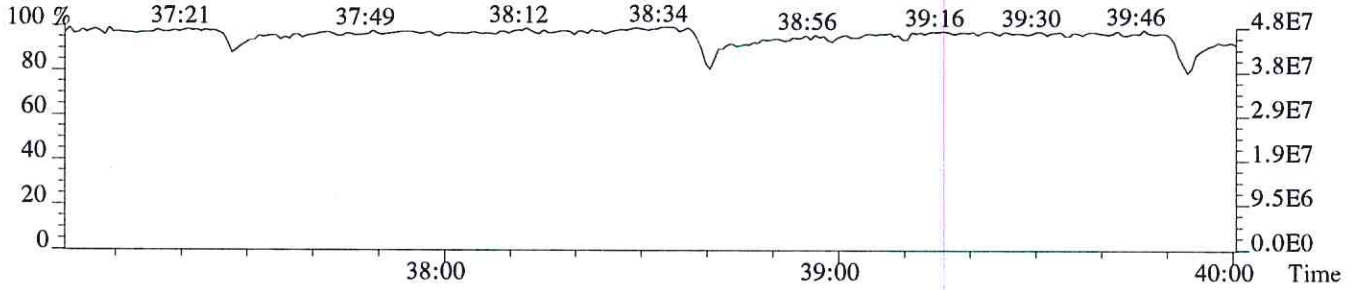
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.40%,F,T)



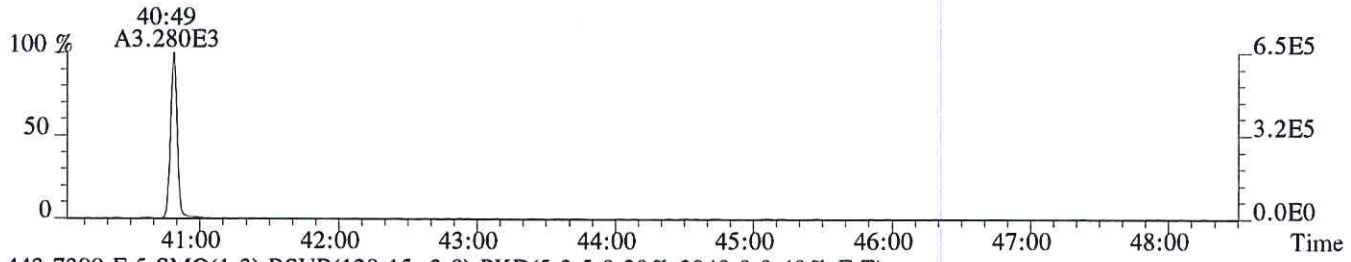
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



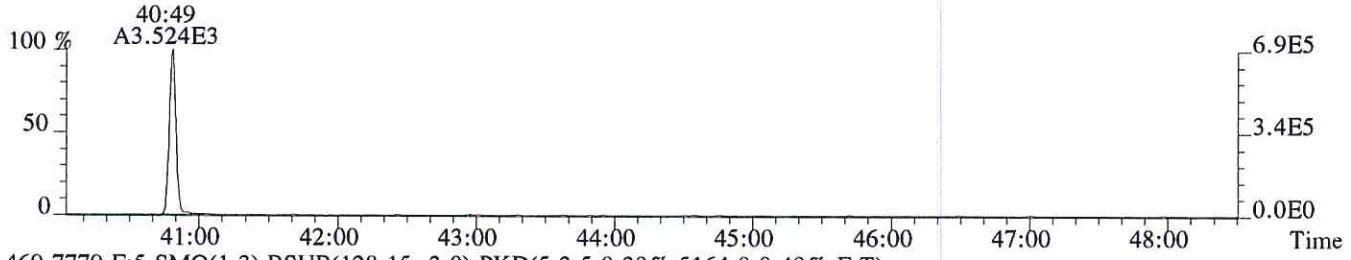
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



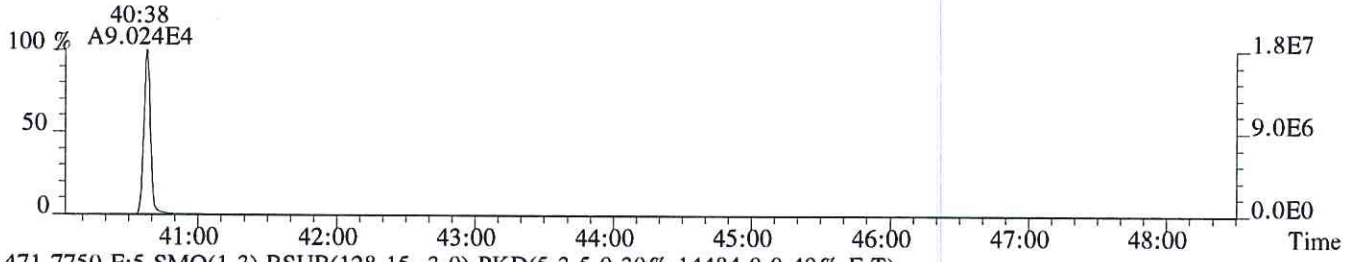
File:P607180 #1-762 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,896.0,0.40%,F,T)



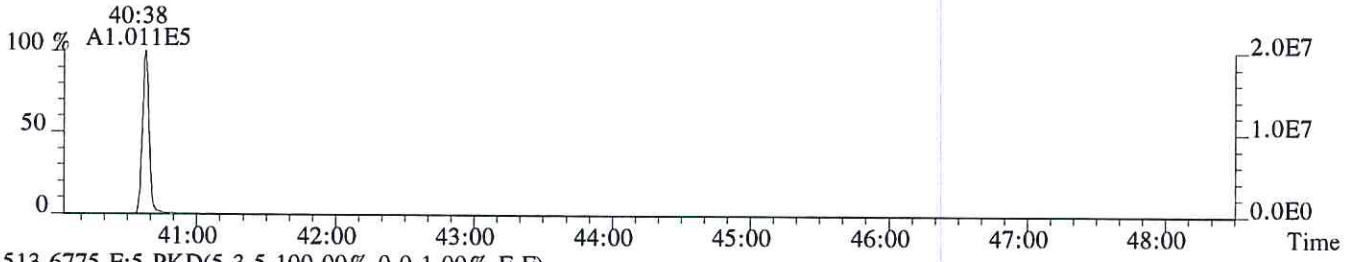
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2940.0,0.40%,F,T)



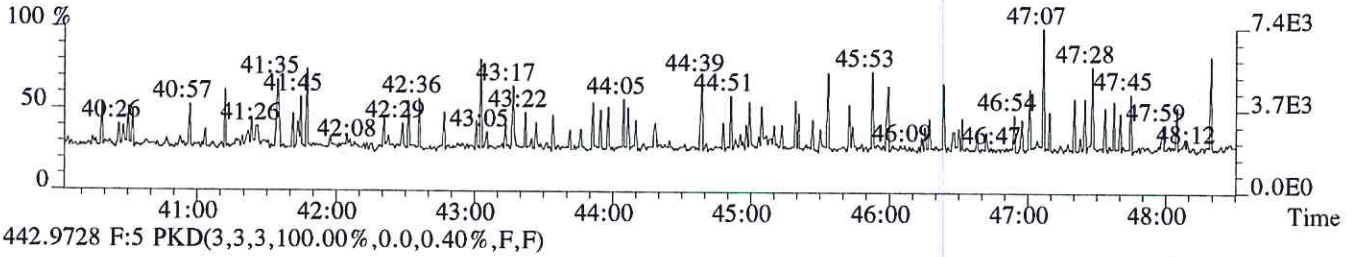
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5164.0,0.40%,F,T)



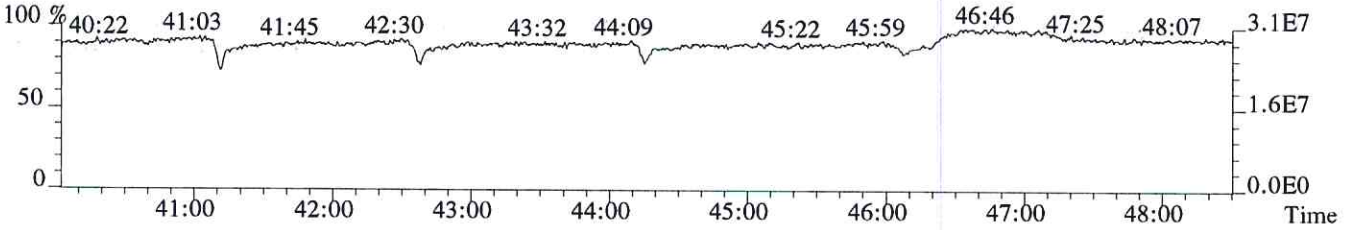
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14484.0,0.40%,F,T)



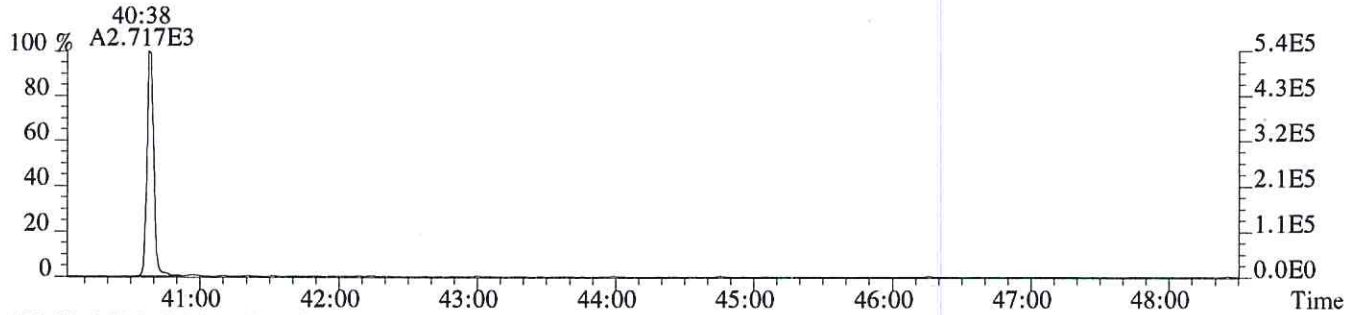
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



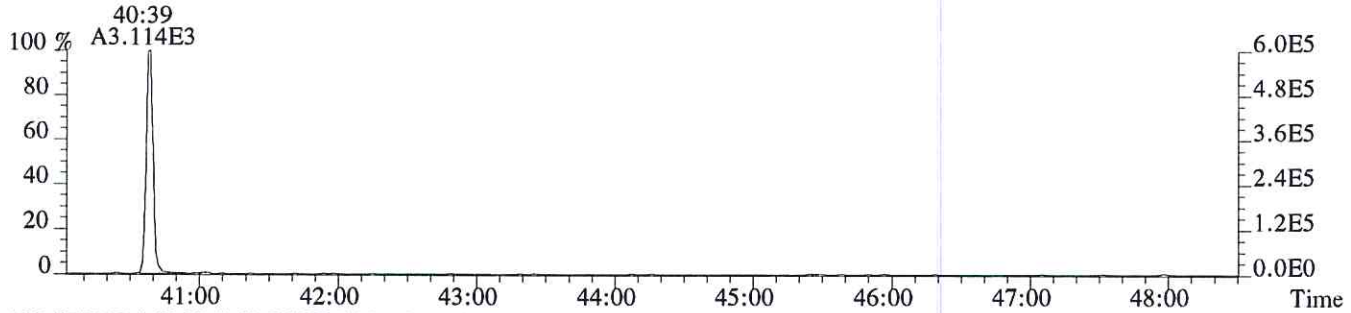
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



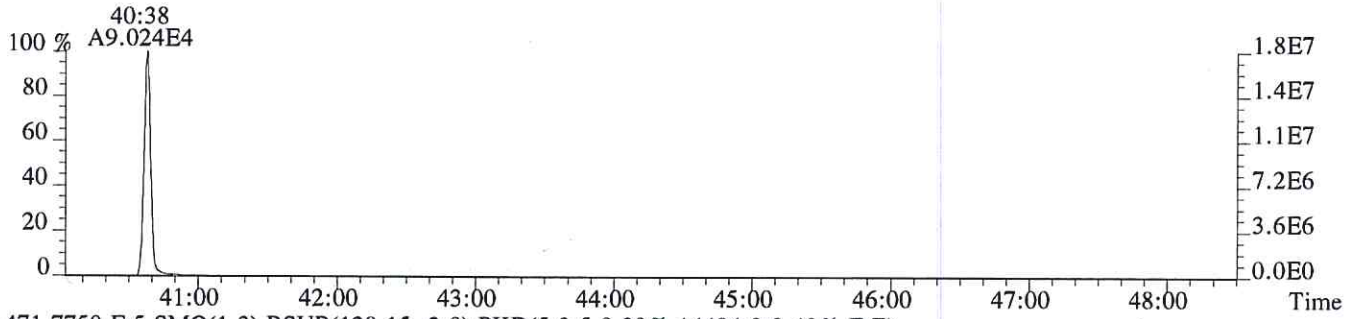
File:P607180 #1-762 Acq:16-MAY-2017 13:34:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1180.0,0.40%,F,T)



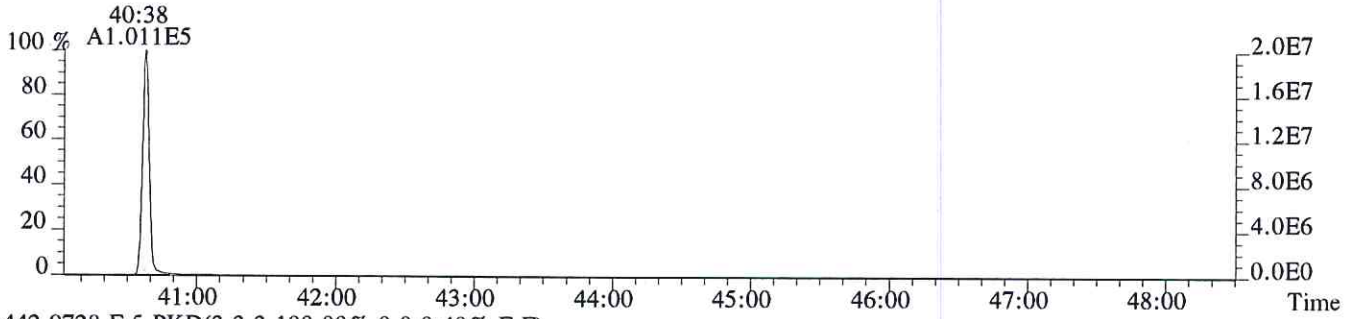
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1900.0,0.40%,F,T)



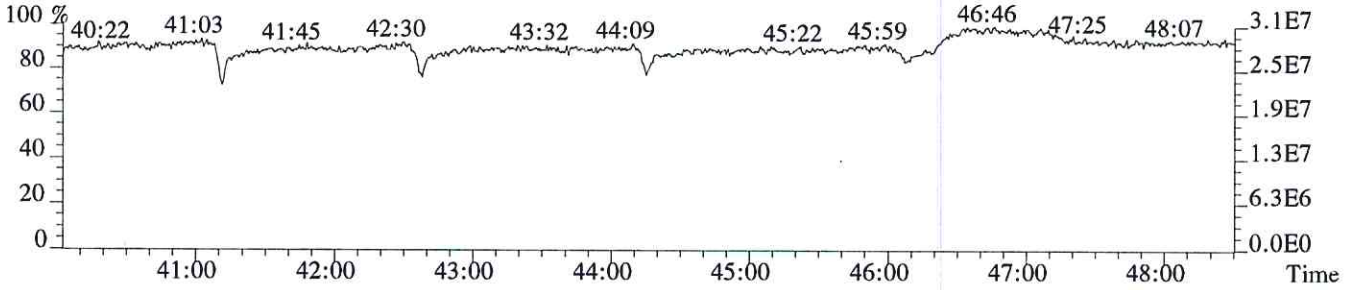
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5164.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14484.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P607181 Samp: 1 Inj: 1 Acquired: 16-MAY-17 14:24:51
Processed: 17-MAY-17 07:52:57 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:51	2.386e+03	3.044e+03	0.78	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	30:45	1.873e+04	1.205e+04	1.55	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	31:44	1.782e+04	1.132e+04	1.57	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	34:35	1.533e+04	1.224e+04	1.25	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	34:41	1.747e+04	1.410e+04	1.24	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:13	1.545e+04	1.279e+04	1.21	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	35:59	1.414e+04	1.119e+04	1.26	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	1.297e+04	1.250e+04	1.04	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	1.081e+04	1.045e+04	1.03	yes	no	1.341
10	Unk	OCDF	40:49	1.570e+04	1.794e+04	0.88	yes	no	1.337
11	Unk	2,3,7,8-TCDD	26:51	1.912e+03	2.246e+03	0.85	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:04	1.230e+04	7.854e+03	1.57	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:22	1.103e+04	8.554e+03	1.29	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:27	1.070e+04	8.425e+03	1.27	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	35:41	1.163e+04	9.448e+03	1.23	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	9.034e+03	8.697e+03	1.04	yes	no	1.048
17	Unk	OCDD	40:39	1.332e+04	1.500e+04	0.89	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	25:50	1.182e+05	1.489e+05	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	30:44	1.779e+05	1.120e+05	1.59	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	31:44	1.777e+05	1.118e+05	1.59	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	34:34	7.429e+04	1.418e+05	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	34:41	9.014e+04	1.714e+05	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:13	8.320e+04	1.573e+05	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	35:58	7.343e+04	1.393e+05	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:16	5.629e+04	1.225e+05	0.46	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	4.930e+04	1.095e+05	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	26:49	8.544e+04	1.066e+05	0.80	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:02	1.268e+05	8.063e+04	1.57	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:21	1.036e+05	8.176e+04	1.27	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:27	1.018e+05	8.041e+04	1.27	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	8.739e+04	8.214e+04	1.06	yes	no	0.884
32	IS	13C-OCDD	40:38	1.177e+05	1.307e+05	0.90	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:07	8.582e+04	1.086e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:41	1.100e+05	8.941e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:50	4.153e+03				no	1.072

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Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P607181 Samp: 1 Inj: 1 Acquired: 16-MAY-17 14:24:51
Processed: 17-MAY-17 07:52:57 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.41e+05	2.28e+02	1.5e+03	4.26e+05	1.24e+03	3.4e+02
2	1,2,3,7,8-PeCDF	3.23e+06	2.20e+02	1.5e+04	2.08e+06	1.54e+03	1.3e+03
3	2,3,4,7,8-PeCDF	3.32e+06	2.20e+02	1.5e+04	2.11e+06	1.54e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	3.21e+06	2.32e+02	1.4e+04	2.62e+06	2.96e+02	8.9e+03
5	1,2,3,6,7,8-HxCDF	3.44e+06	2.32e+02	1.5e+04	2.84e+06	2.96e+02	9.6e+03
6	2,3,4,6,7,8-HxCDF	3.22e+06	2.32e+02	1.4e+04	2.65e+06	2.96e+02	8.9e+03
7	1,2,3,7,8,9-HxCDF	2.95e+06	2.32e+02	1.3e+04	2.33e+06	2.96e+02	7.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.95e+06	1.25e+03	2.4e+03	2.83e+06	2.92e+03	9.7e+02
9	1,2,3,4,7,8,9-HpCDF	2.35e+06	1.25e+03	1.9e+03	2.30e+06	2.92e+03	7.9e+02
10	OCDF	3.02e+06	1.31e+03	2.3e+03	3.47e+06	3.74e+03	9.3e+02
11	2,3,7,8-TCDD	2.89e+05	1.26e+03	2.3e+02	3.43e+05	2.48e+02	1.4e+03
12	1,2,3,7,8-PeCDD	2.38e+06	1.26e+03	1.9e+03	1.47e+06	9.68e+02	1.5e+03
13	1,2,3,4,7,8-HxCDD	2.37e+06	2.24e+02	1.1e+04	1.85e+06	2.52e+02	7.3e+03
14	1,2,3,6,7,8-HxCDD	2.25e+06	2.24e+02	1.0e+04	1.76e+06	2.52e+02	7.0e+03
15	1,2,3,7,8,9-HxCDD	2.46e+06	2.24e+02	1.1e+04	1.98e+06	2.52e+02	7.8e+03
16	1,2,3,4,6,7,8-HpCDD	2.05e+06	1.36e+02	1.5e+04	1.98e+06	2.20e+02	9.0e+03
17	OCDD	2.63e+06	2.52e+03	1.0e+03	2.97e+06	2.03e+03	1.5e+03
18	13C-2,3,7,8-TCDF	1.71e+07	1.81e+04	9.5e+02	2.16e+07	6.03e+03	3.6e+03
19	13C-1,2,3,7,8-PeCDF	3.04e+07	7.72e+02	3.9e+04	1.93e+07	8.28e+02	2.3e+04
20	13C-2,3,4,7,8-PeCDF	3.31e+07	7.72e+02	4.3e+04	2.10e+07	8.28e+02	2.5e+04
21	13C-1,2,3,4,7,8-HxCDF	1.58e+07	2.96e+02	5.3e+04	2.99e+07	1.41e+03	2.1e+04
22	13C-1,2,3,6,7,8-HxCDF	1.80e+07	2.96e+02	6.1e+04	3.48e+07	1.41e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.74e+07	2.96e+02	5.9e+04	3.26e+07	1.41e+03	2.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.55e+07	2.96e+02	5.2e+04	2.96e+07	1.41e+03	2.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.25e+07	1.31e+04	9.6e+02	2.77e+07	2.21e+04	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.08e+07	1.31e+04	8.3e+02	2.39e+07	2.21e+04	1.1e+03
27	13C-2,3,7,8-TCDD	1.36e+07	6.41e+03	2.1e+03	1.69e+07	3.18e+03	5.3e+03
28	13C-1,2,3,7,8-PeCDD	2.39e+07	9.08e+02	2.6e+04	1.52e+07	1.34e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	2.26e+07	2.50e+03	9.0e+03	1.77e+07	7.20e+02	2.5e+04
30	13C-1,2,3,6,7,8-HxCDD	2.13e+07	2.50e+03	8.5e+03	1.67e+07	7.20e+02	2.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.98e+07	9.52e+02	2.1e+04	1.86e+07	1.94e+03	9.6e+03
32	13C-OCDD	2.37e+07	1.71e+04	1.4e+03	2.60e+07	8.06e+03	3.2e+03
33	13C-1,2,3,4-TCDD	1.30e+07	6.41e+03	2.0e+03	1.65e+07	3.18e+03	5.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.35e+07	2.50e+03	9.4e+03	1.92e+07	7.20e+02	2.7e+04
35	37Cl-2,3,7,8-TCDD	6.57e+05	1.05e+03	6.3e+02			

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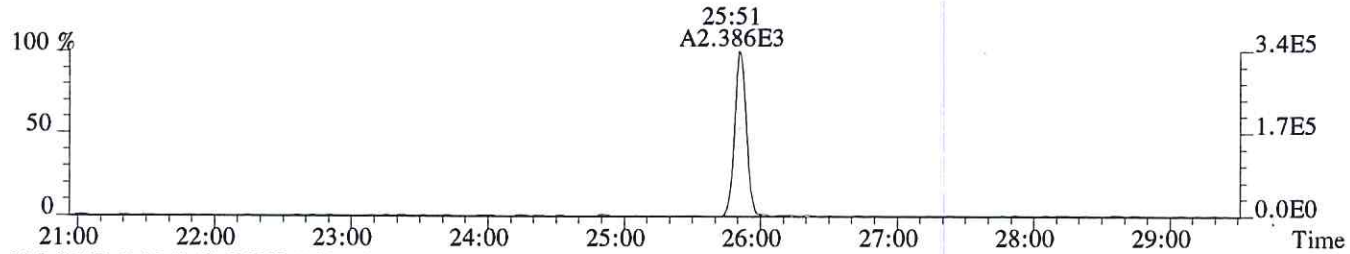
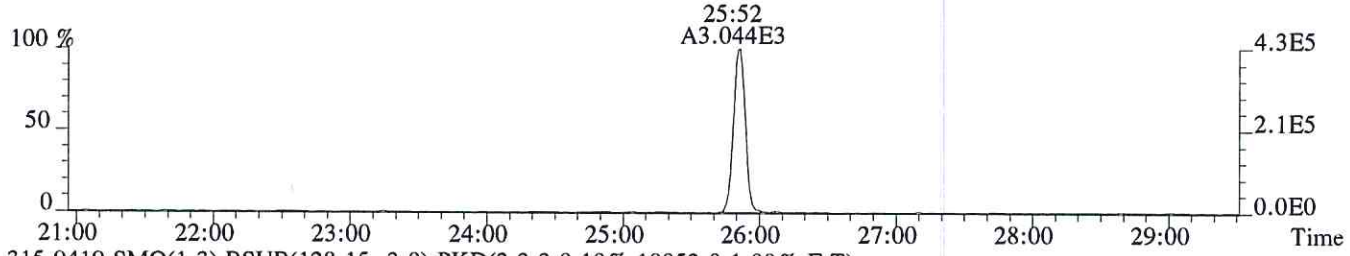
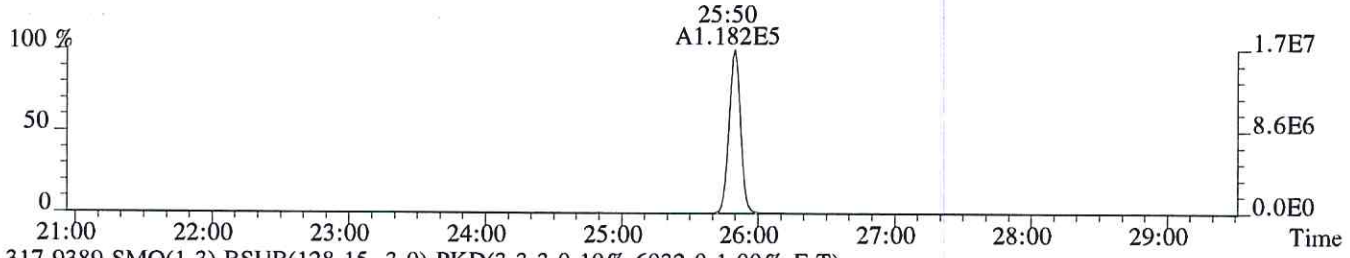
File:P607181 #1-609 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



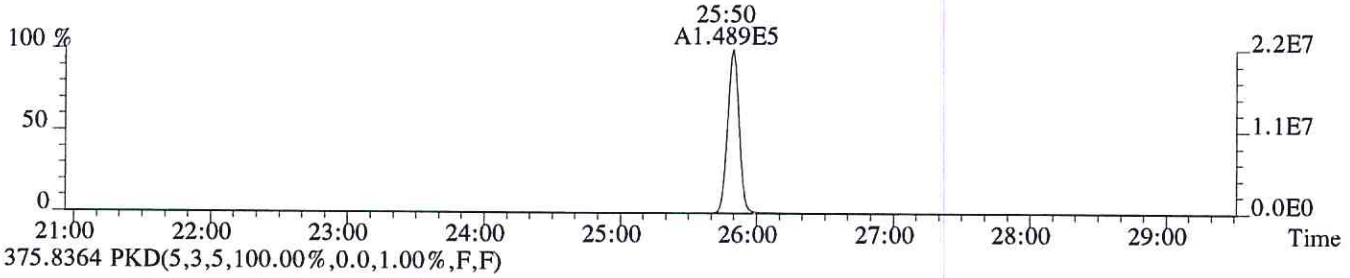
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



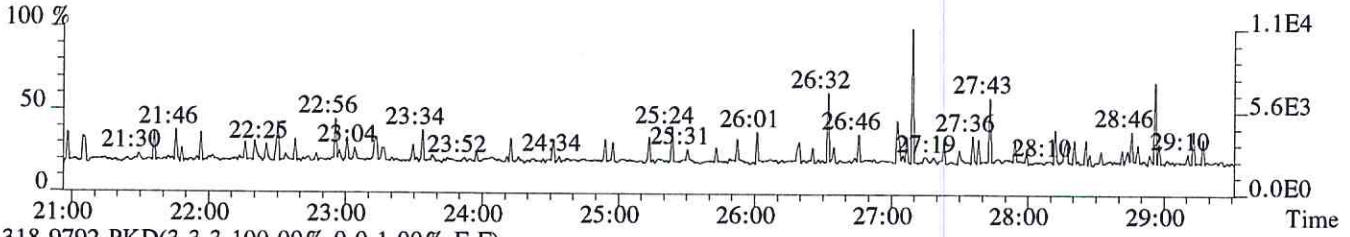
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,18052.0,1.00%,F,T)



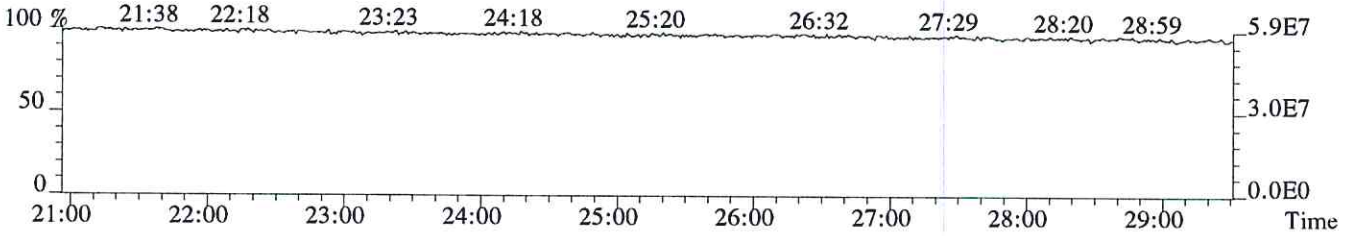
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6032.0,1.00%,F,T)



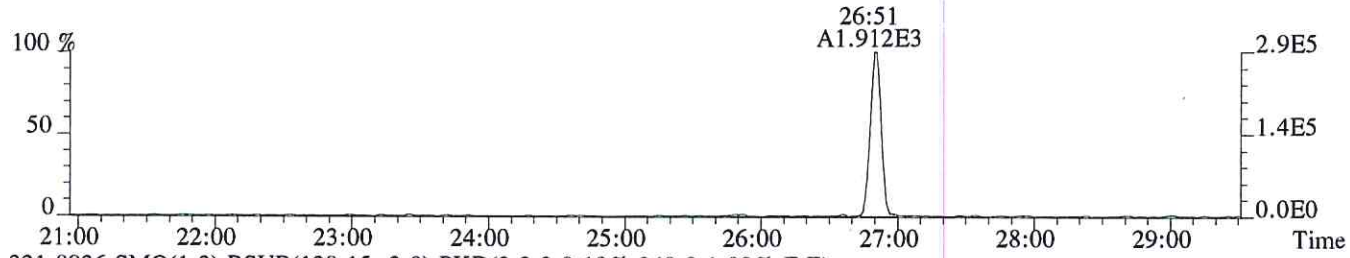
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



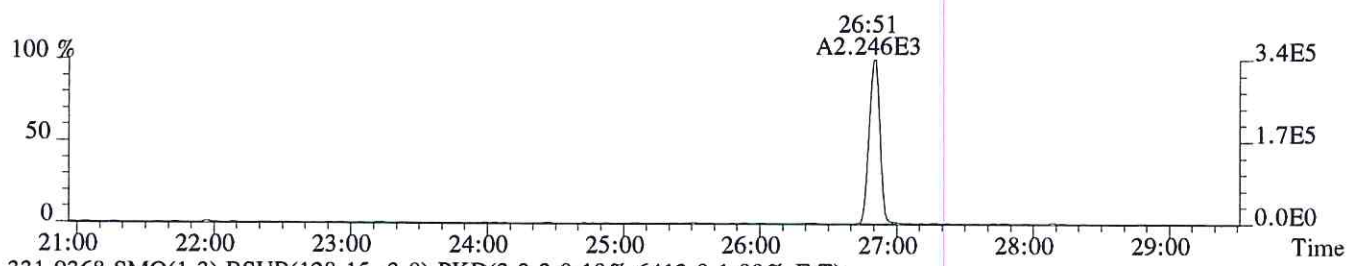
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



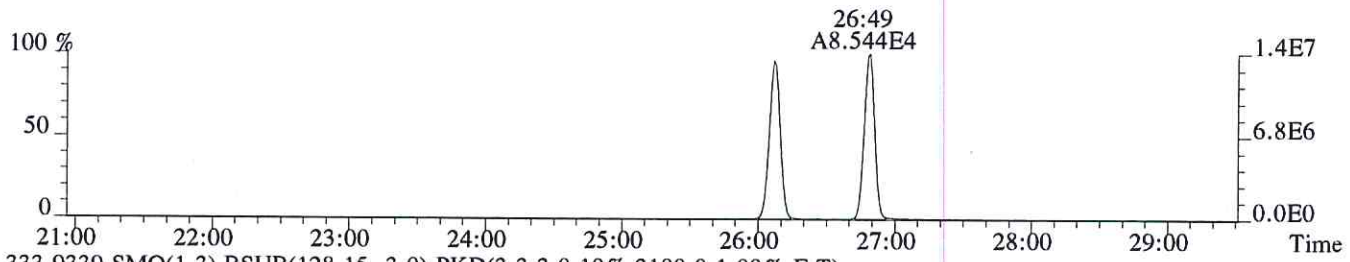
File:P607181 #1-609 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



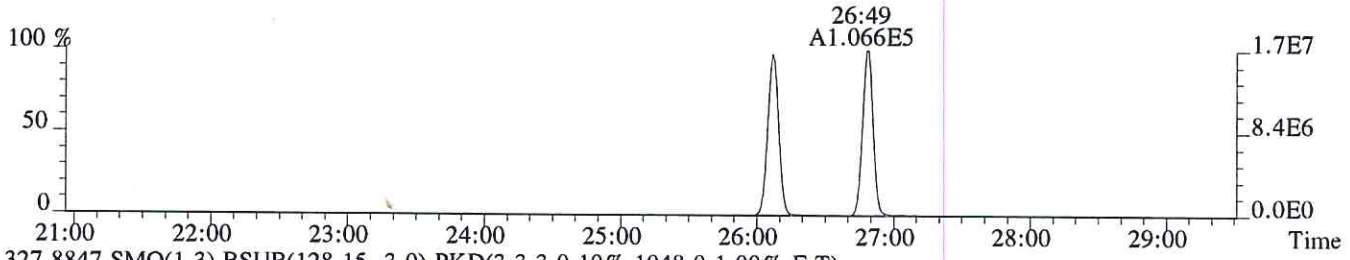
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



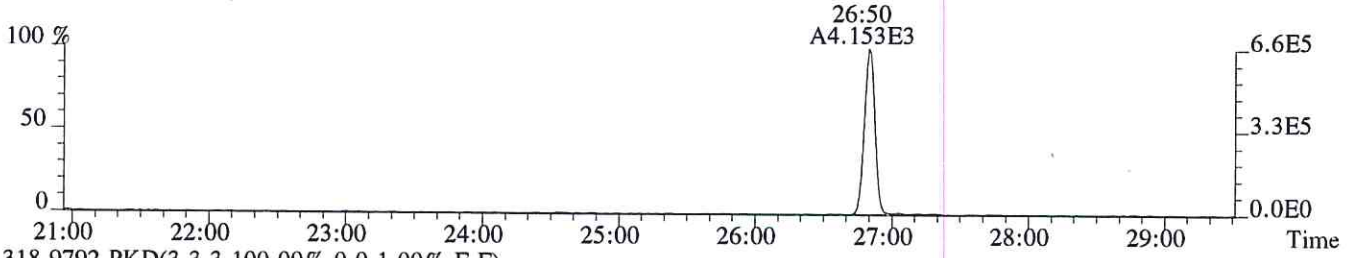
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6412.0,1.00%,F,T)



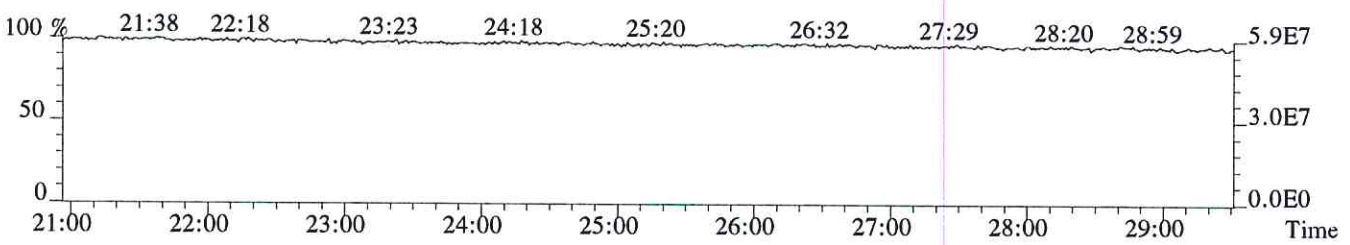
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3180.0,1.00%,F,T)



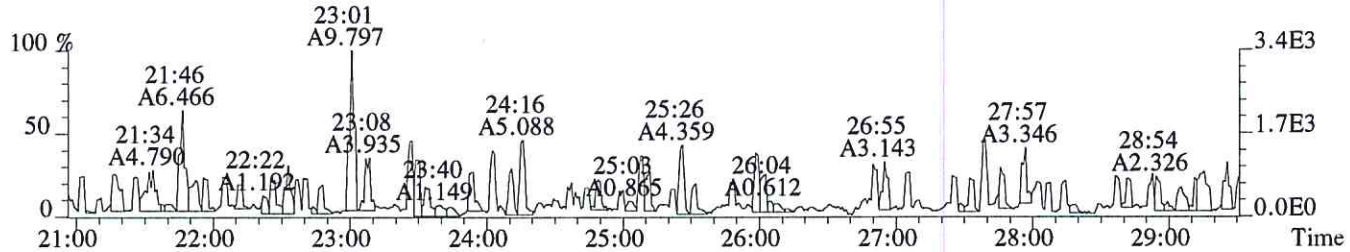
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



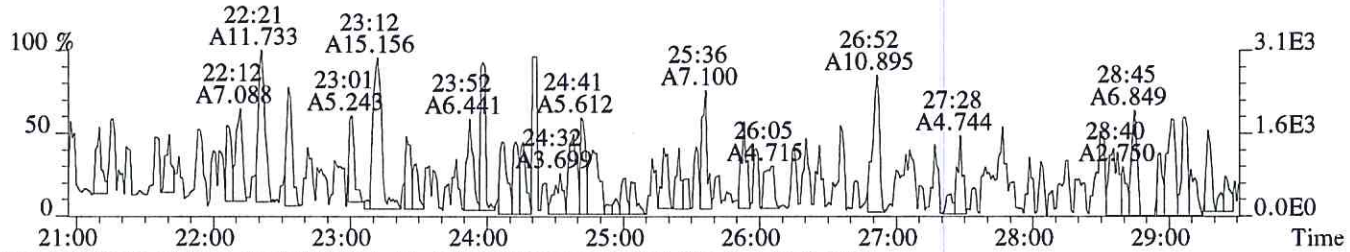
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



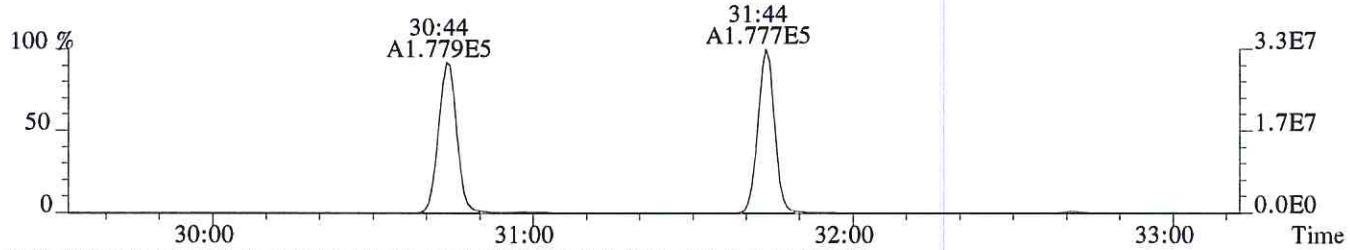
File:P607181 #1-609 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



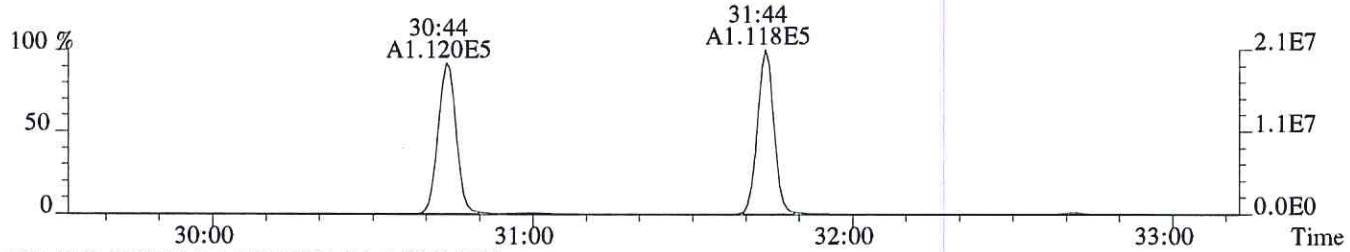
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



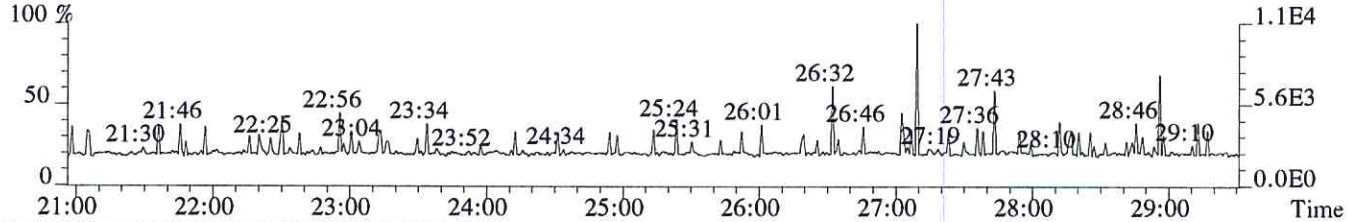
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



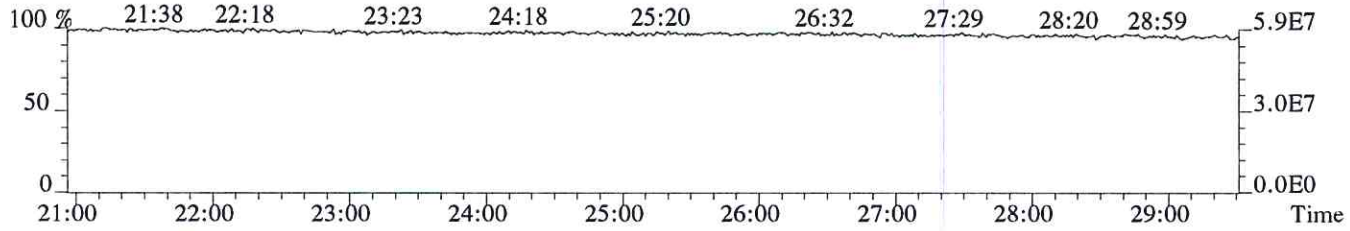
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



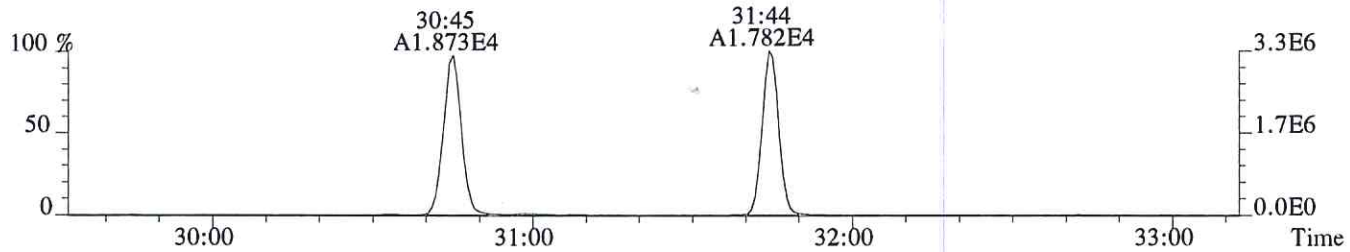
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



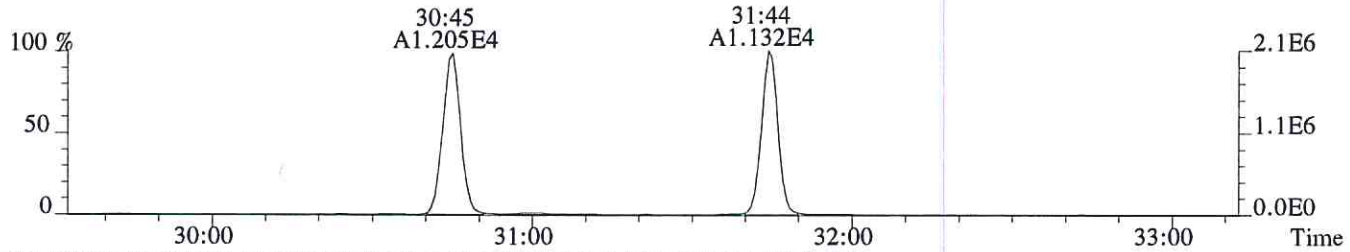
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



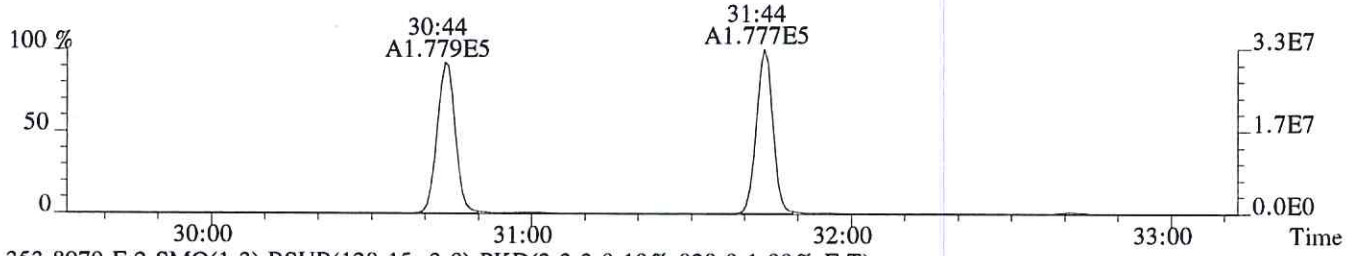
File:P607181 #1-330 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



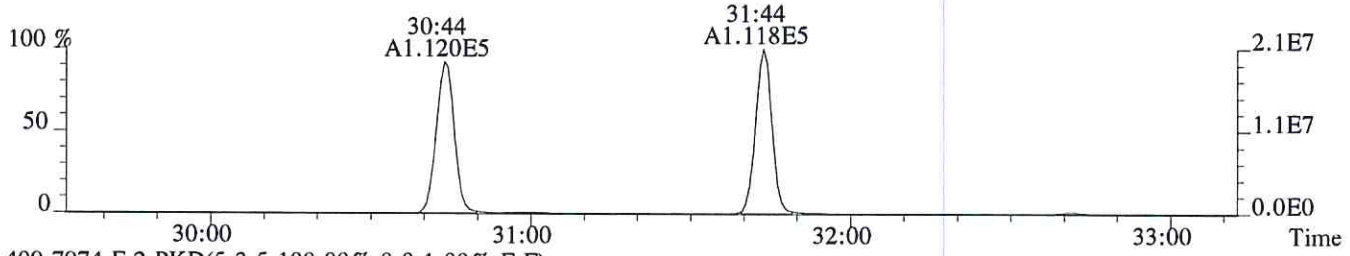
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



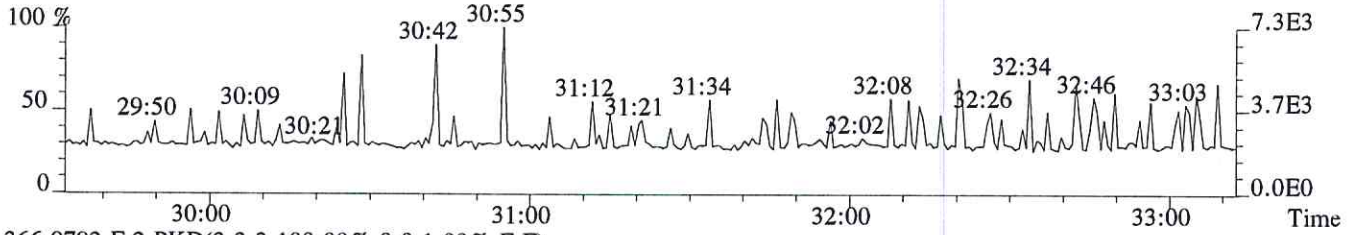
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



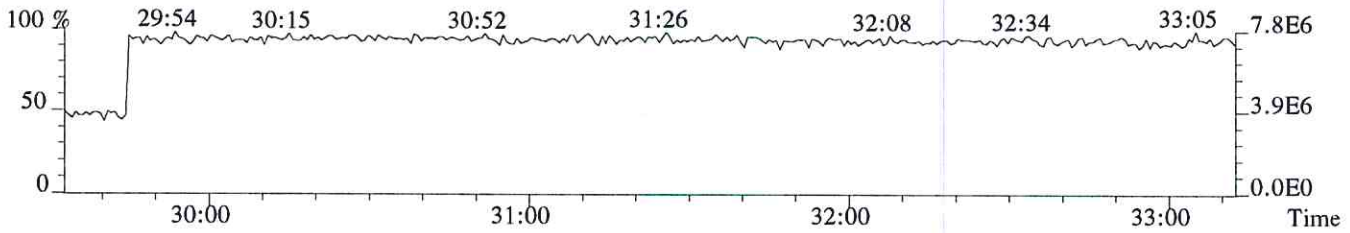
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



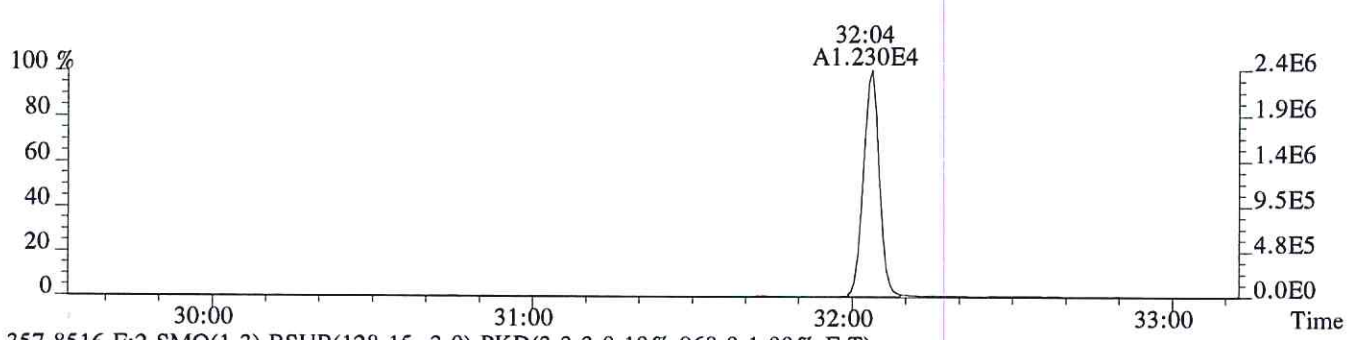
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



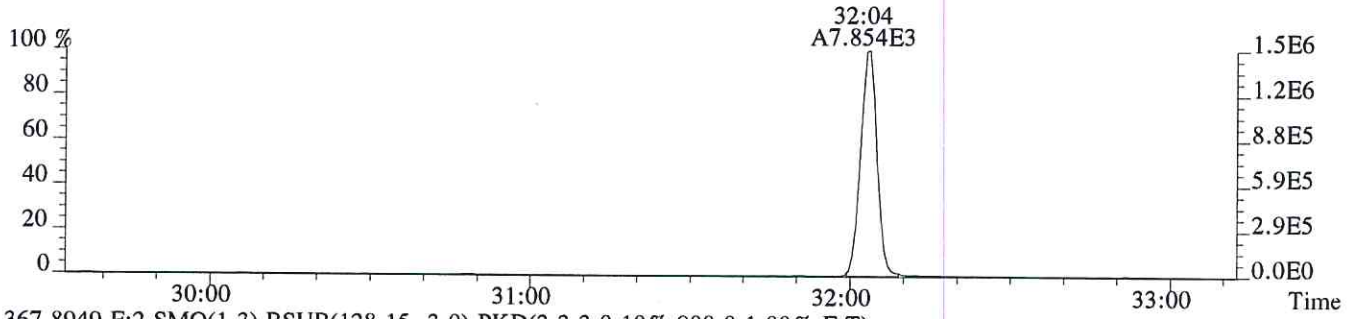
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



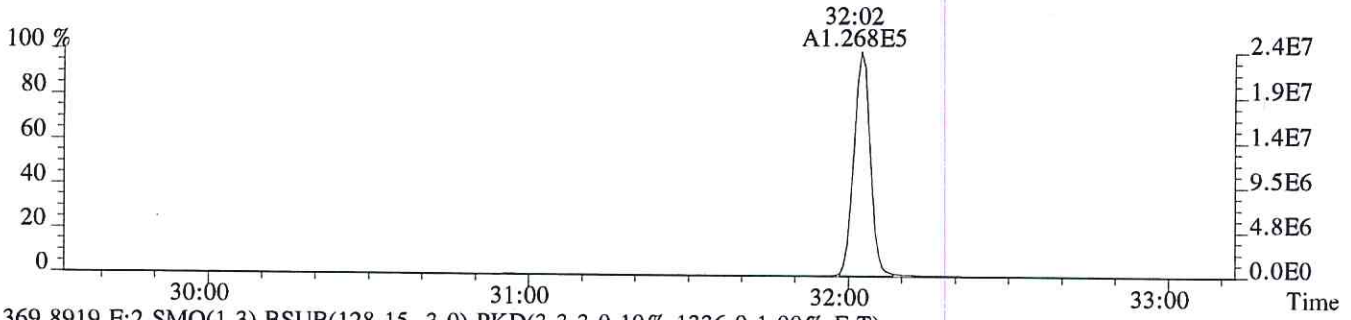
File:P607181 #1-330 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



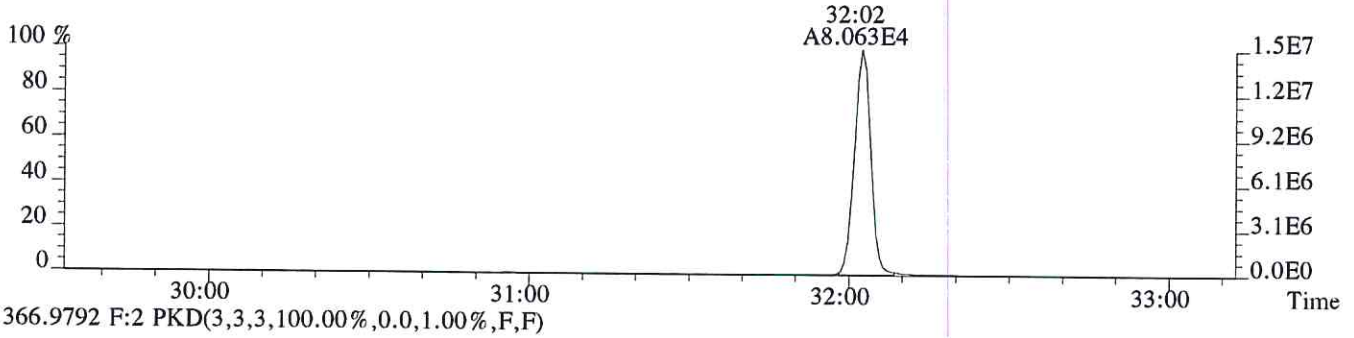
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



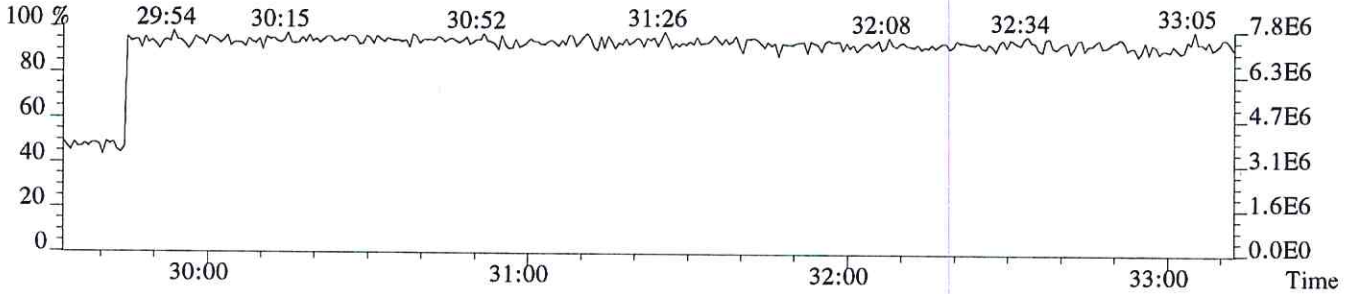
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



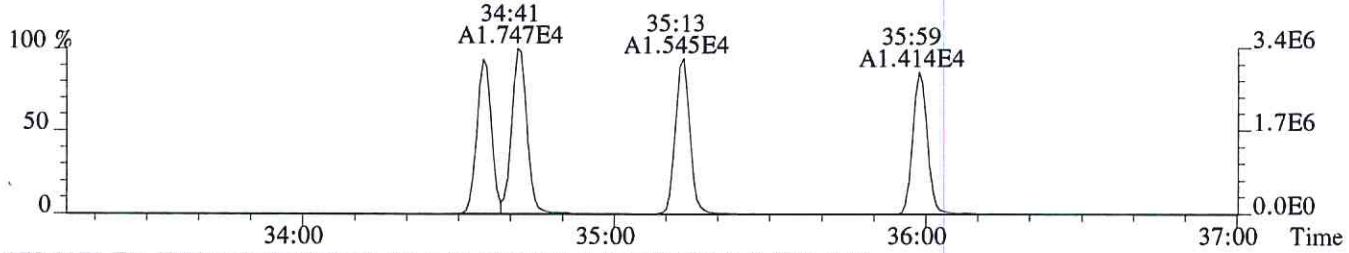
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



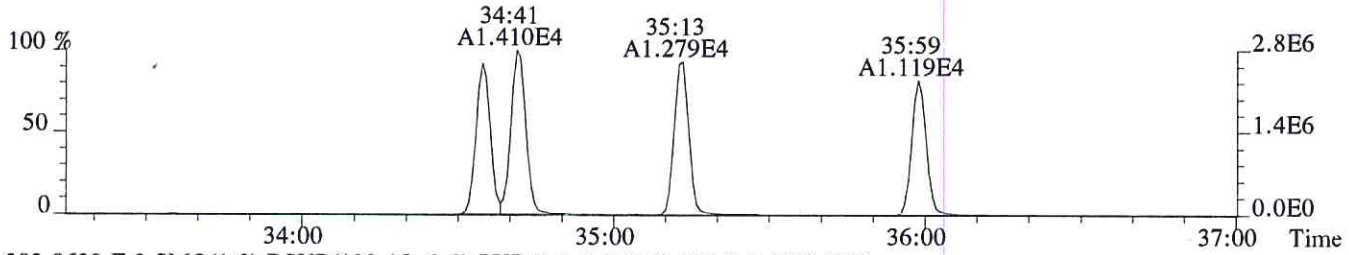
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



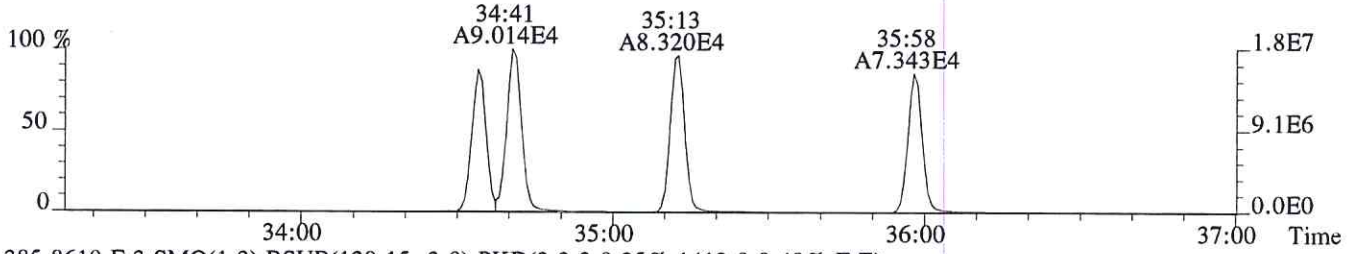
File:P607181 #1-339 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



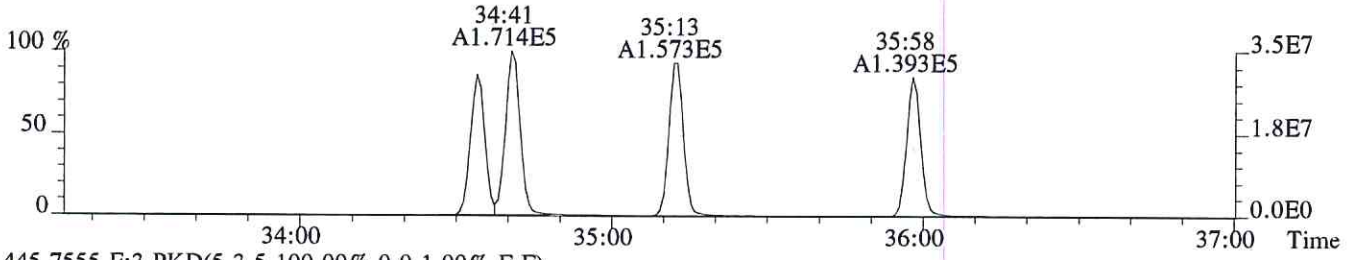
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



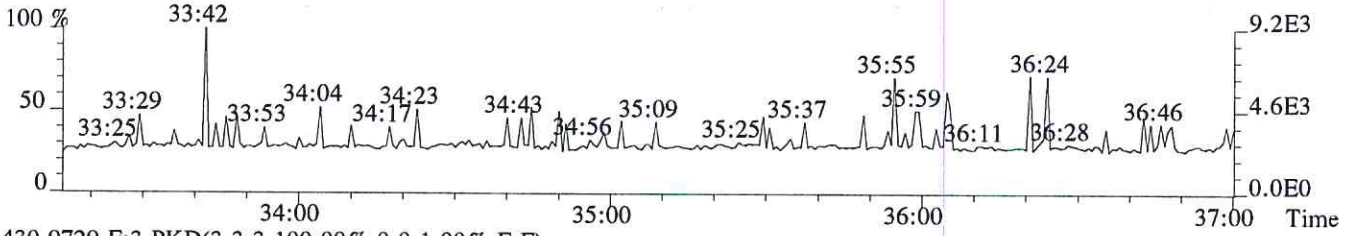
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



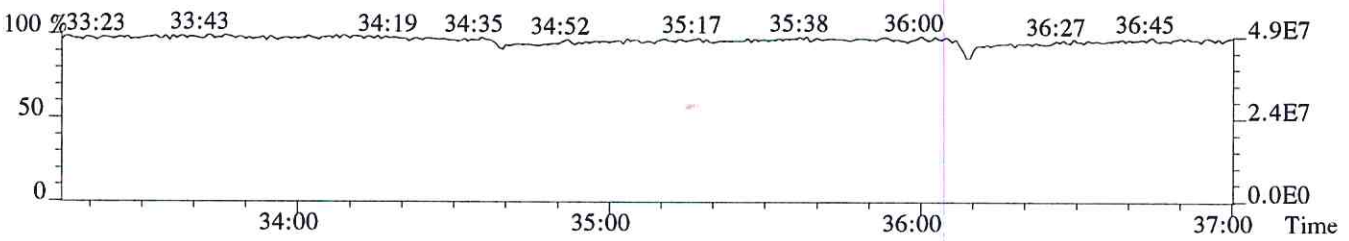
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



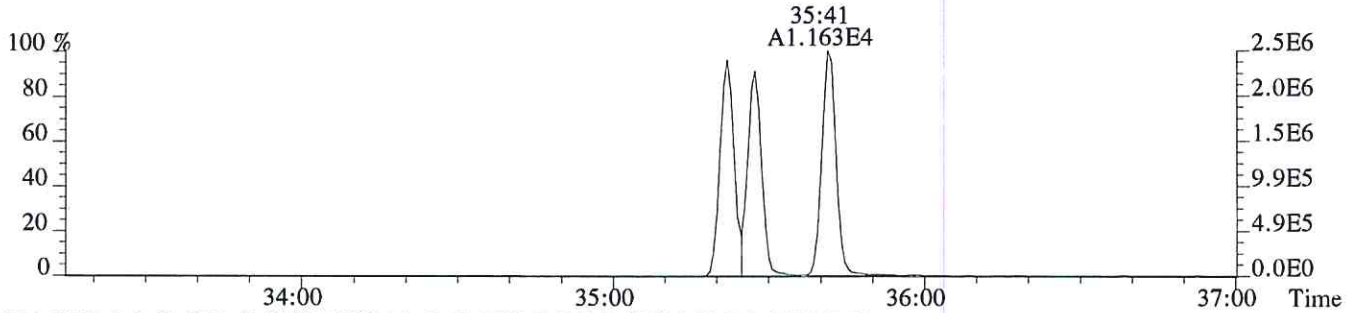
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



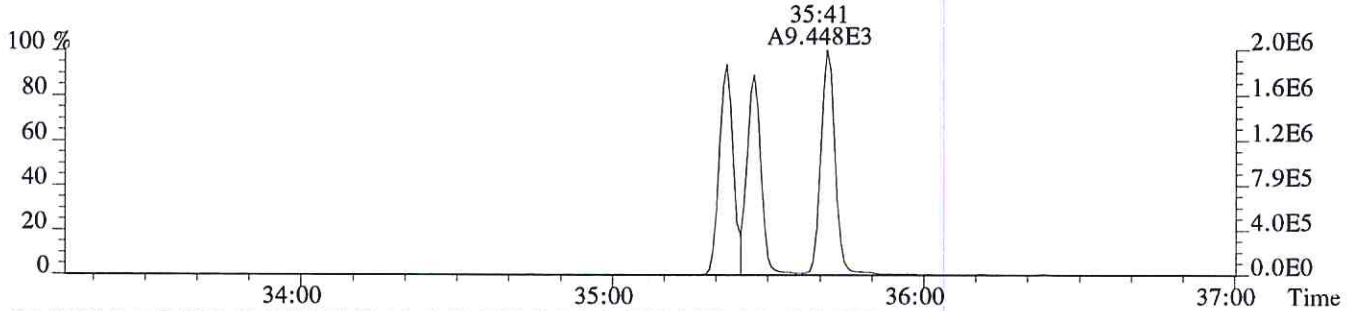
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



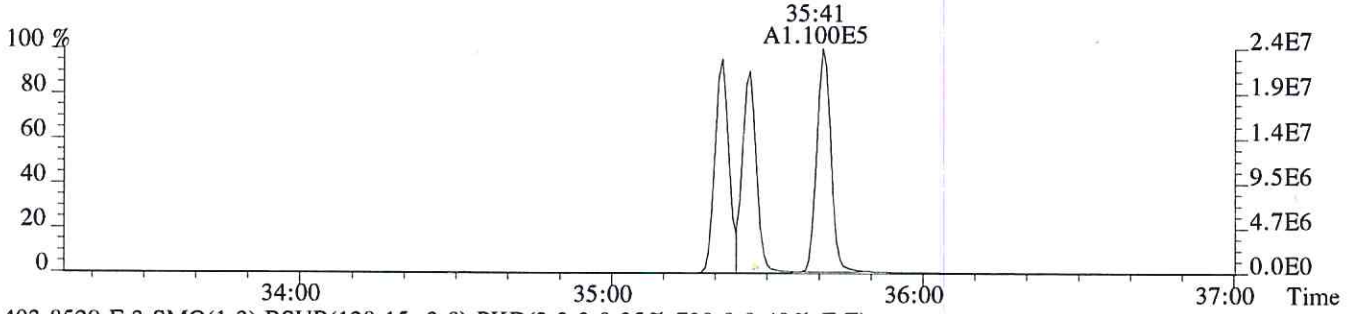
File:P607181 #1-339 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



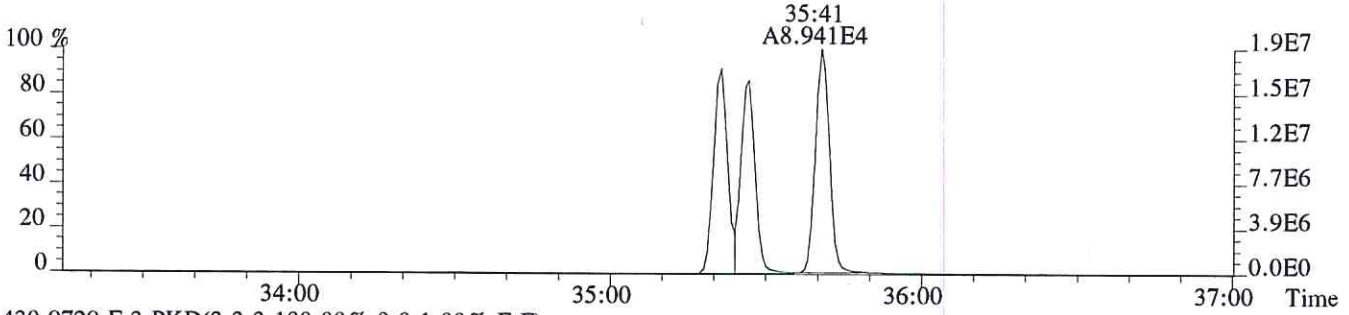
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



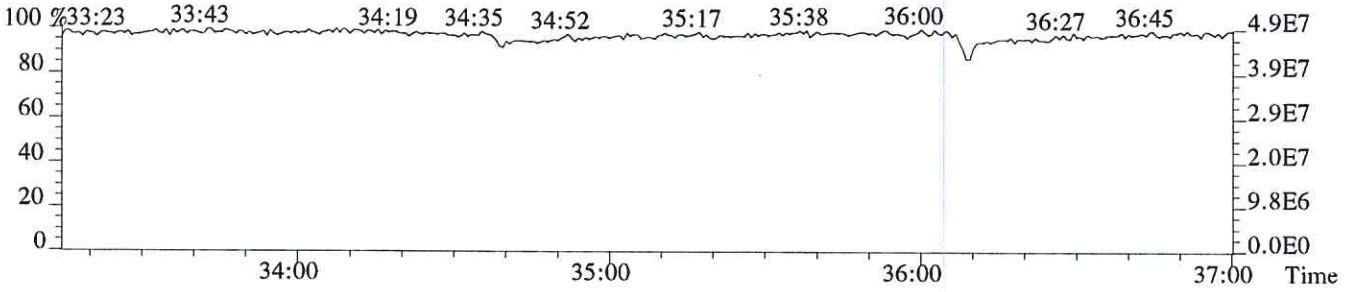
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2500.0,0.40%,F,T)



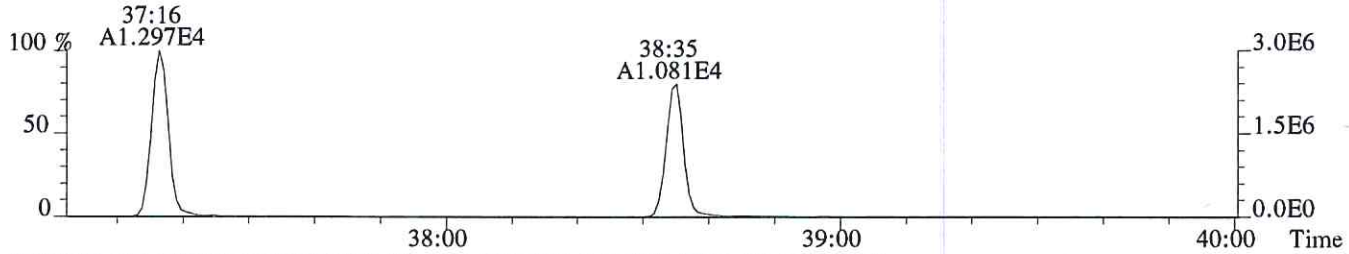
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



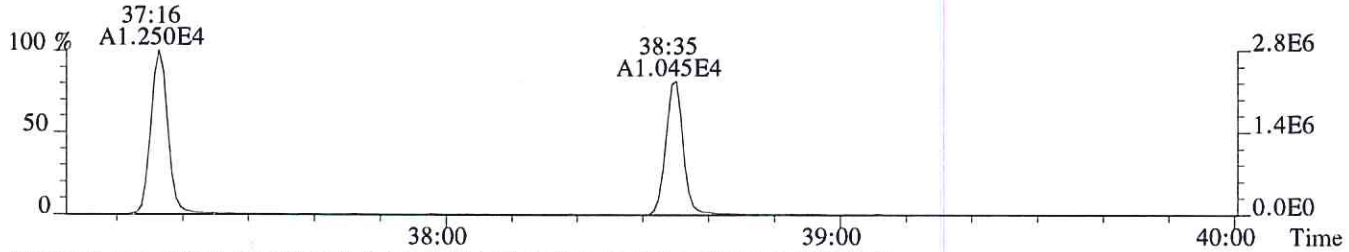
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



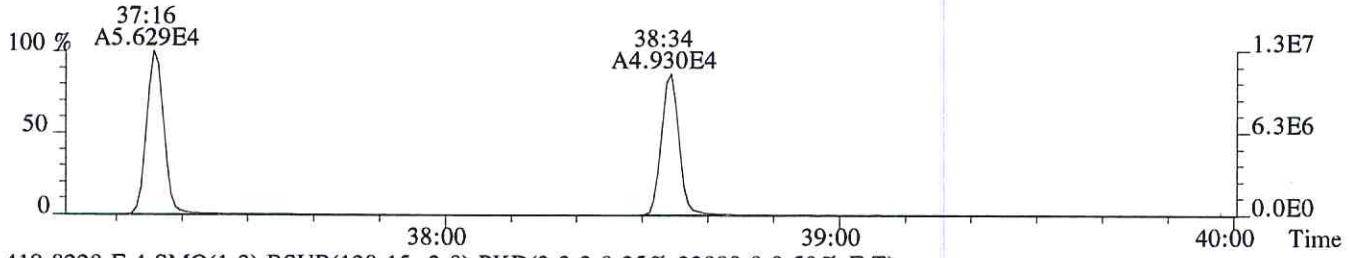
File:P607181 #1-268 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.50%,F,T)



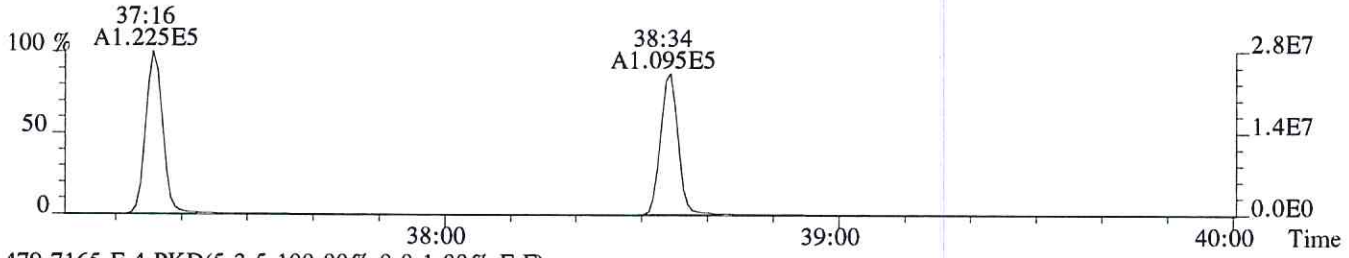
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2916.0,0.50%,F,T)



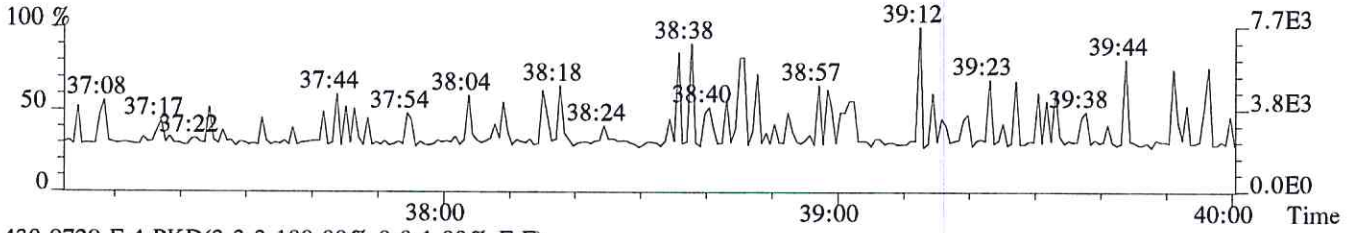
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13056.0,0.50%,F,T)



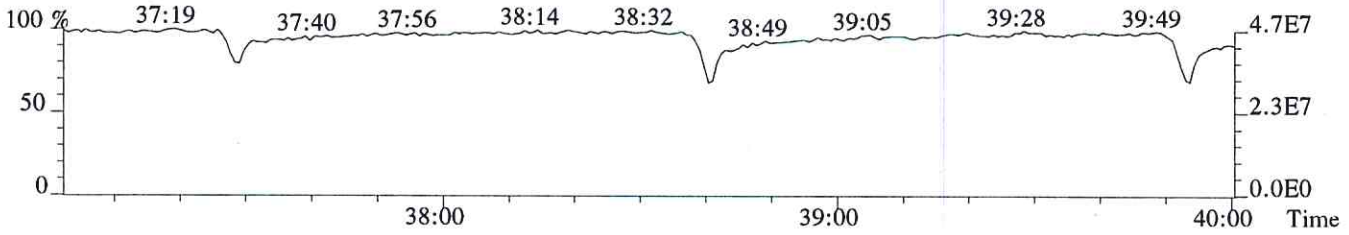
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,22080.0,0.50%,F,T)



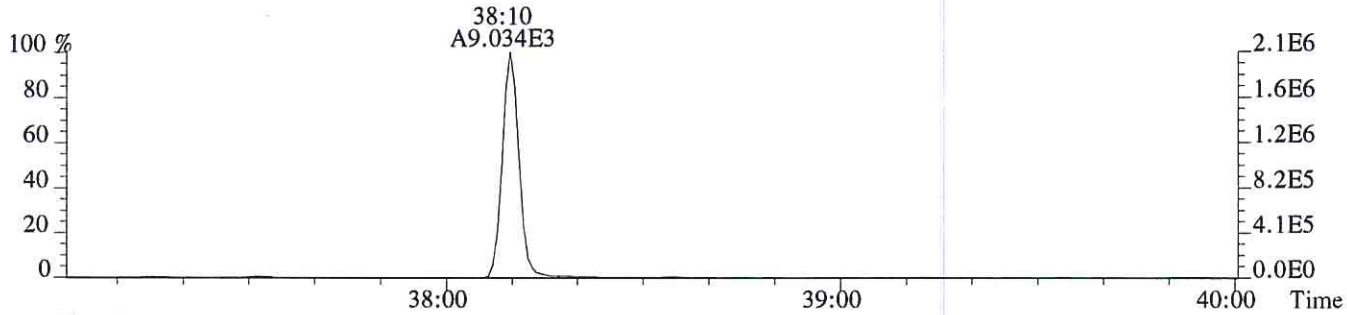
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



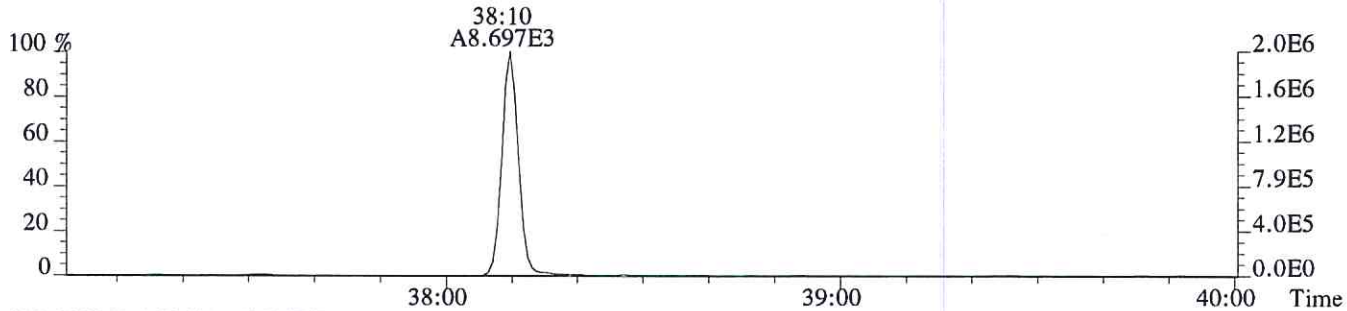
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



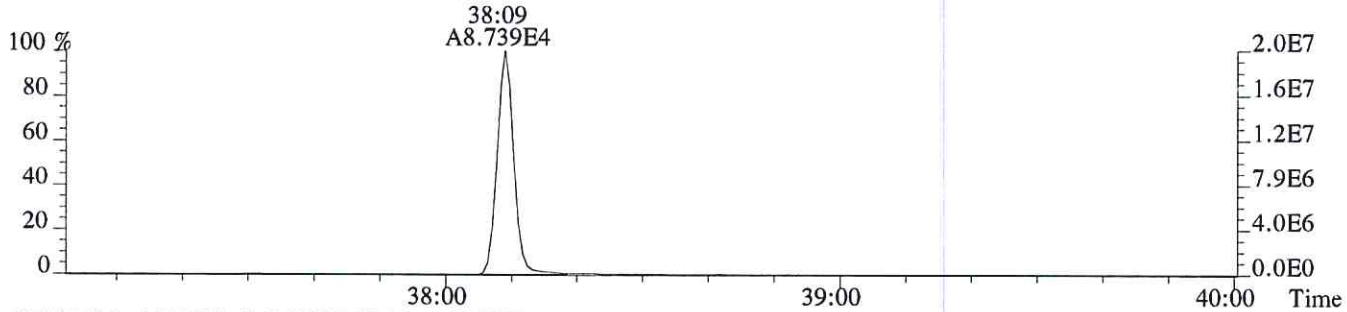
File:P607181 #1-268 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.40%,F,T)



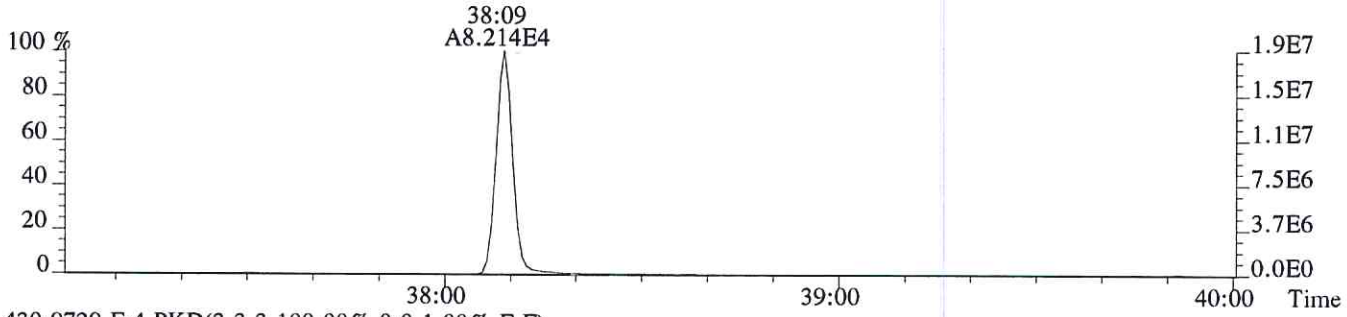
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



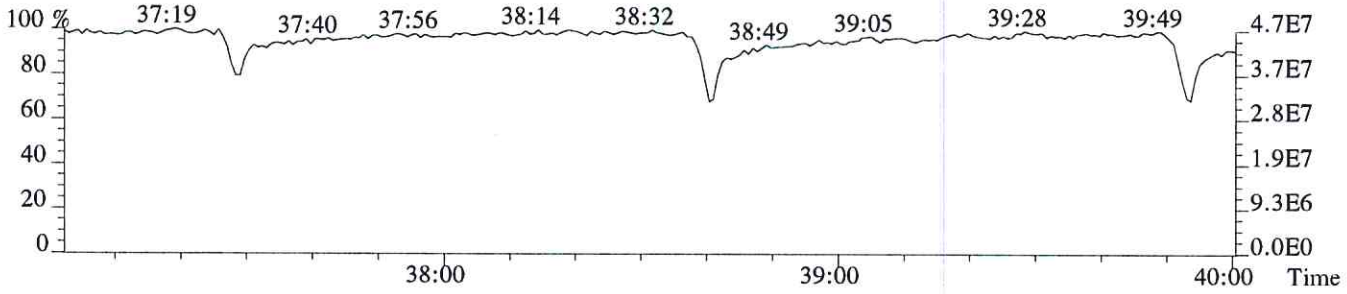
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



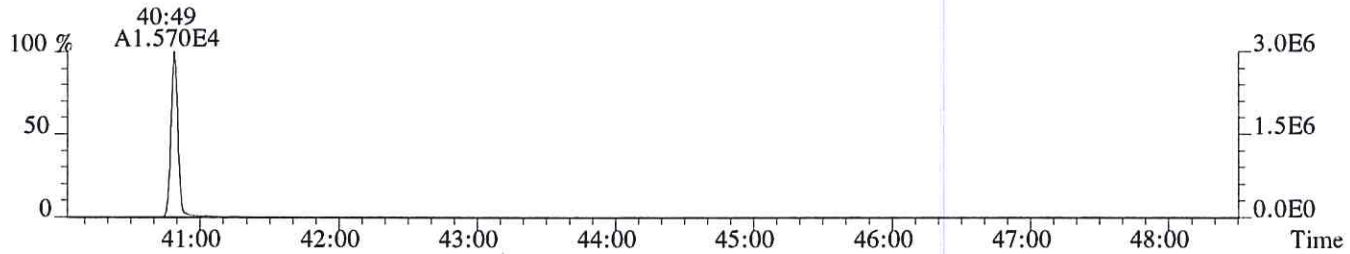
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1940.0,0.40%,F,T)



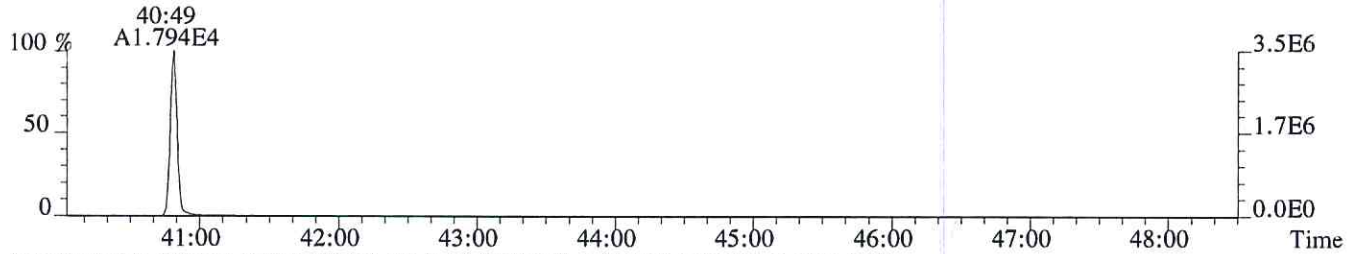
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



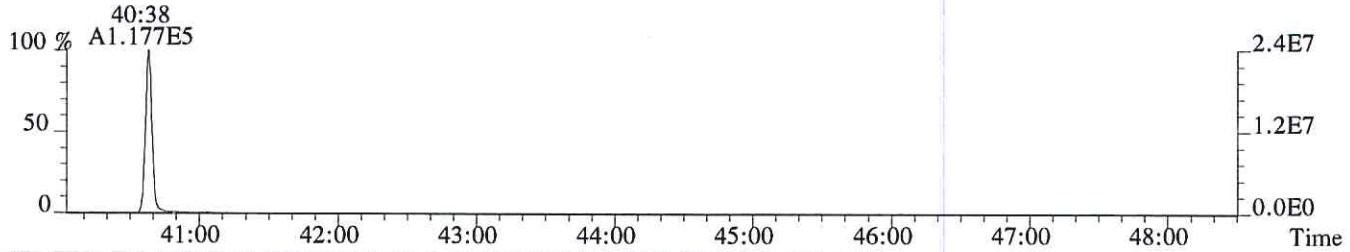
File:P607181 #1-762 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



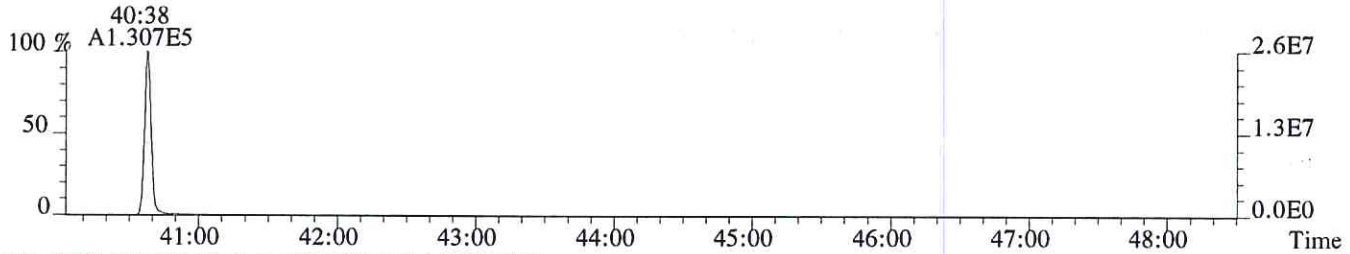
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3736.0,0.40%,F,T)



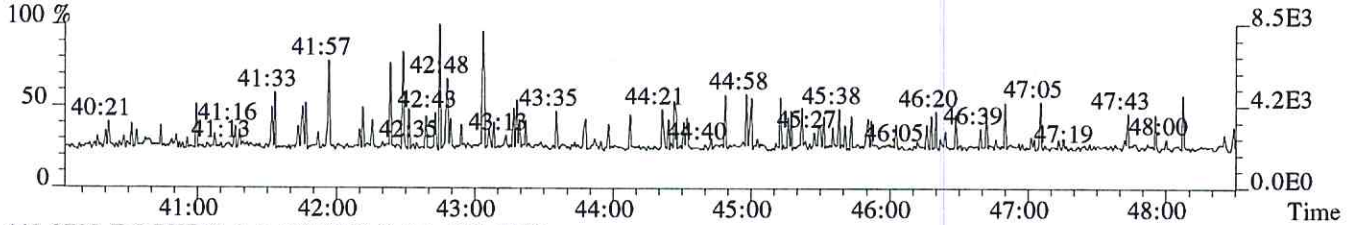
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,17120.0,0.40%,F,T)



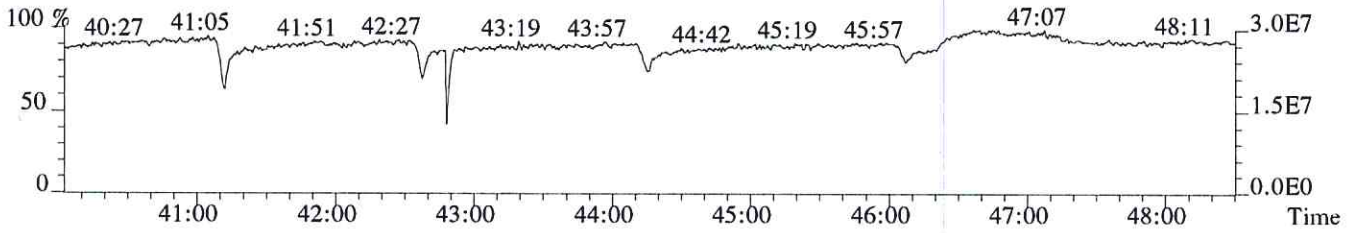
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8060.0,0.40%,F,T)



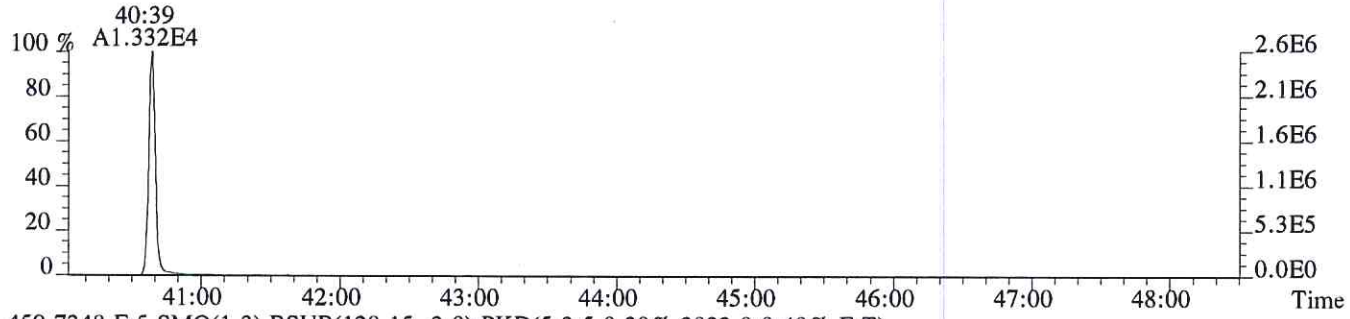
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



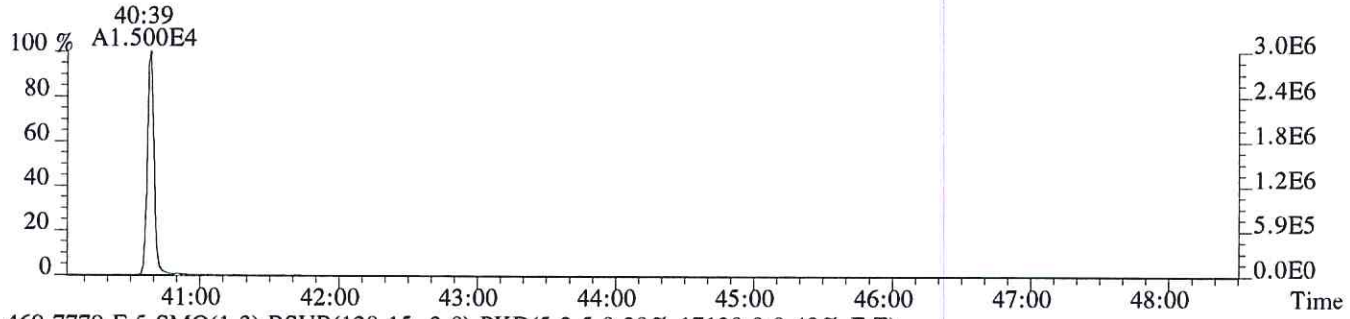
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



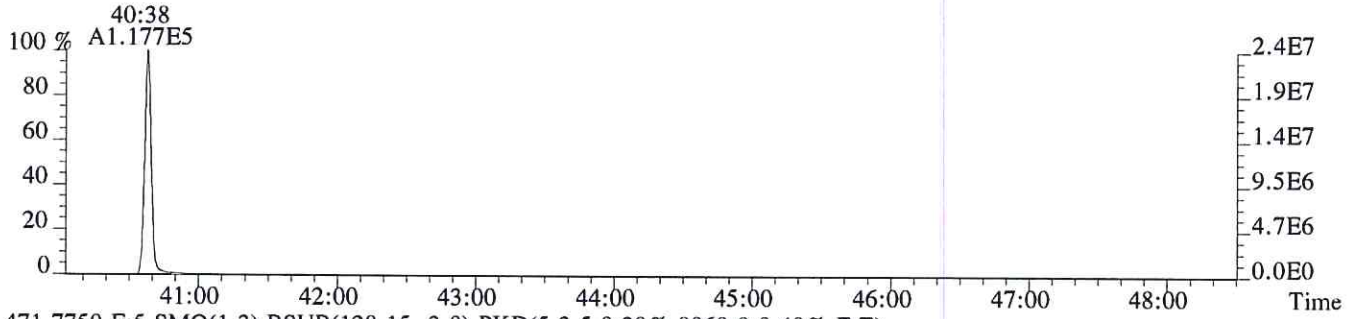
File:P607181 #1-762 Acq:16-MAY-2017 14:24:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2520.0,0.40%,F,T)



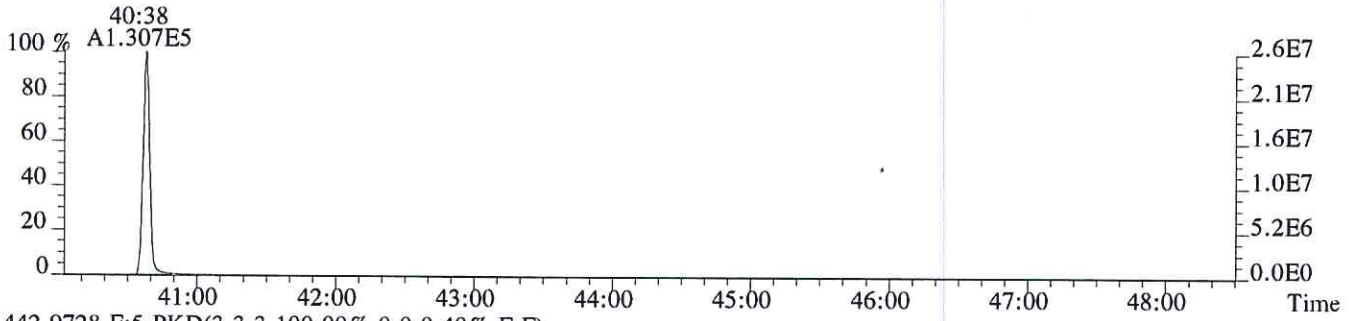
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2032.0,0.40%,F,T)



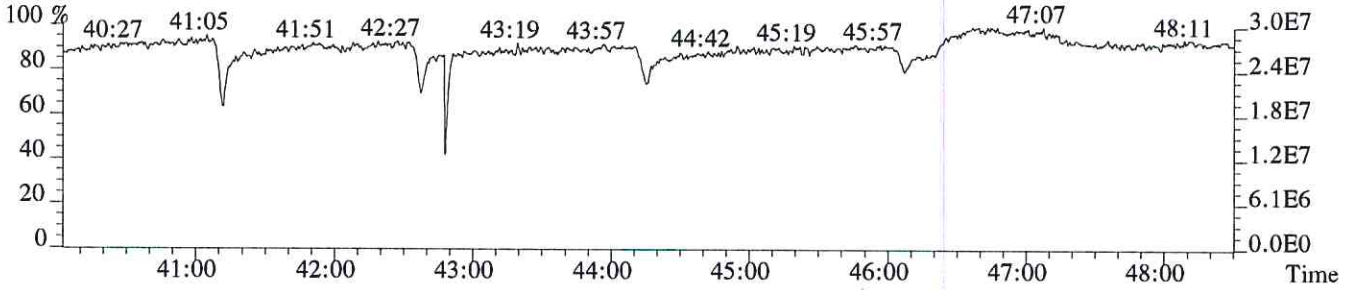
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,17120.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8060.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P607182 Samp: 1 Inj: 1 Acquired: 16-MAY-17 15:15:09
Processed: 17-MAY-17 07:52:58 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:51	2.103e+04	2.695e+04	0.78	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	30:44	1.681e+05	1.072e+05	1.57	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	31:44	1.575e+05	1.020e+05	1.54	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	34:34	1.359e+05	1.089e+05	1.25	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	34:41	1.536e+05	1.232e+05	1.25	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:13	1.372e+05	1.109e+05	1.24	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	35:58	1.249e+05	1.001e+05	1.25	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	1.138e+05	1.115e+05	1.02	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	9.665e+04	9.477e+04	1.02	yes	no	1.341
10	Unk	OCDF	40:48	1.516e+05	1.689e+05	0.90	yes	no	1.337
11	Unk	2,3,7,8-TCDD	26:49	1.568e+04	2.033e+04	0.77	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:03	1.076e+05	6.918e+04	1.55	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:21	9.560e+04	7.714e+04	1.24	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:27	9.479e+04	7.643e+04	1.24	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	35:41	1.002e+05	8.339e+04	1.20	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	8.246e+04	7.874e+04	1.05	yes	no	1.048
17	Unk	OCDD	40:38	1.247e+05	1.407e+05	0.89	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	25:49	2.148e+05	2.714e+05	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	30:43	3.172e+05	2.010e+05	1.58	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	31:43	3.204e+05	2.023e+05	1.58	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	34:33	1.351e+05	2.585e+05	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	34:40	1.645e+05	3.095e+05	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:12	1.478e+05	2.826e+05	0.52	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	35:57	1.311e+05	2.502e+05	0.52	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:15	1.017e+05	2.244e+05	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	9.181e+04	2.033e+05	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	26:48	1.527e+05	1.948e+05	0.78	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:02	2.300e+05	1.461e+05	1.57	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:21	1.875e+05	1.484e+05	1.26	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:26	1.809e+05	1.433e+05	1.26	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.583e+05	1.492e+05	1.06	yes	no	0.884
32	IS	13C-OCDD	40:37	2.261e+05	2.514e+05	0.90	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:06	1.586e+05	1.990e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:40	1.984e+05	1.597e+05	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:49	3.730e+04				no	1.072

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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P607182 Samp: 1 Inj: 1 Acquired: 16-MAY-17 15:15:09
Processed: 17-MAY-17 07:52:58 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+06	2.36e+02	1.3e+04	3.95e+06	1.76e+03	2.2e+03
2	1,2,3,7,8-PeCDF	2.87e+07	1.33e+03	2.2e+04	1.81e+07	3.27e+03	5.5e+03
3	2,3,4,7,8-PeCDF	2.93e+07	1.33e+03	2.2e+04	1.90e+07	3.27e+03	5.8e+03
4	1,2,3,4,7,8-HxCDF	2.89e+07	9.56e+02	3.0e+04	2.33e+07	2.24e+02	1.0e+05
5	1,2,3,6,7,8-HxCDF	3.14e+07	9.56e+02	3.3e+04	2.54e+07	2.24e+02	1.1e+05
6	2,3,4,6,7,8-HxCDF	2.89e+07	9.56e+02	3.0e+04	2.33e+07	2.24e+02	1.0e+05
7	1,2,3,7,8,9-HxCDF	2.68e+07	9.56e+02	2.8e+04	2.15e+07	2.24e+02	9.6e+04
8	1,2,3,4,6,7,8-HpCDF	2.57e+07	1.98e+03	1.3e+04	2.52e+07	6.98e+03	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+07	1.98e+03	1.1e+04	2.03e+07	6.98e+03	2.9e+03
10	OCDF	2.97e+07	9.76e+03	3.0e+03	3.30e+07	1.41e+04	2.3e+03
11	2,3,7,8-TCDD	2.52e+06	1.41e+03	1.8e+03	3.29e+06	3.04e+02	1.1e+04
12	1,2,3,7,8-PeCDD	2.01e+07	1.53e+03	1.3e+04	1.28e+07	1.01e+03	1.3e+04
13	1,2,3,4,7,8-HxCDD	2.10e+07	2.32e+02	9.0e+04	1.69e+07	1.80e+02	9.4e+04
14	1,2,3,6,7,8-HxCDD	2.03e+07	2.32e+02	8.7e+04	1.63e+07	1.80e+02	9.0e+04
15	1,2,3,7,8,9-HxCDD	2.14e+07	2.32e+02	9.2e+04	1.77e+07	1.80e+02	9.8e+04
16	1,2,3,4,6,7,8-HpCDD	1.88e+07	1.15e+03	1.6e+04	1.79e+07	7.52e+02	2.4e+04
17	OCDD	2.46e+07	6.92e+03	3.6e+03	2.79e+07	8.76e+03	3.2e+03
18	13C-2,3,7,8-TCDF	3.15e+07	1.20e+04	2.6e+03	3.98e+07	5.73e+03	6.9e+03
19	13C-1,2,3,7,8-PeCDF	5.53e+07	1.49e+03	3.7e+04	3.49e+07	1.28e+03	2.7e+04
20	13C-2,3,4,7,8-PeCDF	6.04e+07	1.49e+03	4.1e+04	3.83e+07	1.28e+03	3.0e+04
21	13C-1,2,3,4,7,8-HxCDF	2.88e+07	9.80e+02	2.9e+04	5.50e+07	1.92e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	3.36e+07	9.80e+02	3.4e+04	6.38e+07	1.92e+03	3.3e+04
23	13C-2,3,4,6,7,8-HxCDF	3.13e+07	9.80e+02	3.2e+04	5.91e+07	1.92e+03	3.1e+04
24	13C-1,2,3,7,8,9-HxCDF	2.84e+07	9.80e+02	2.9e+04	5.43e+07	1.92e+03	2.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+07	1.79e+04	1.3e+03	5.05e+07	1.14e+04	4.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.06e+07	1.79e+04	1.1e+03	4.54e+07	1.14e+04	4.0e+03
27	13C-2,3,7,8-TCDD	2.47e+07	6.44e+03	3.8e+03	3.12e+07	3.69e+03	8.5e+03
28	13C-1,2,3,7,8-PeCDD	4.35e+07	9.08e+02	4.8e+04	2.74e+07	6.40e+02	4.3e+04
29	13C-1,2,3,4,7,8-HxCDD	4.07e+07	1.50e+03	2.7e+04	3.21e+07	2.16e+02	1.5e+05
30	13C-1,2,3,6,7,8-HxCDD	3.86e+07	1.50e+03	2.6e+04	3.06e+07	2.16e+02	1.4e+05
31	13C-1,2,3,4,6,7,8-HpCDD	3.63e+07	1.29e+03	2.8e+04	3.41e+07	1.08e+03	3.1e+04
32	13C-OCDD	4.50e+07	3.03e+04	1.5e+03	5.06e+07	2.05e+04	2.5e+03
33	13C-1,2,3,4-TCDD	2.40e+07	6.44e+03	3.7e+03	2.98e+07	3.69e+03	8.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.25e+07	1.50e+03	2.8e+04	3.45e+07	2.16e+02	1.6e+05
35	37Cl-2,3,7,8-TCDD	6.02e+06	8.12e+02	7.4e+03			

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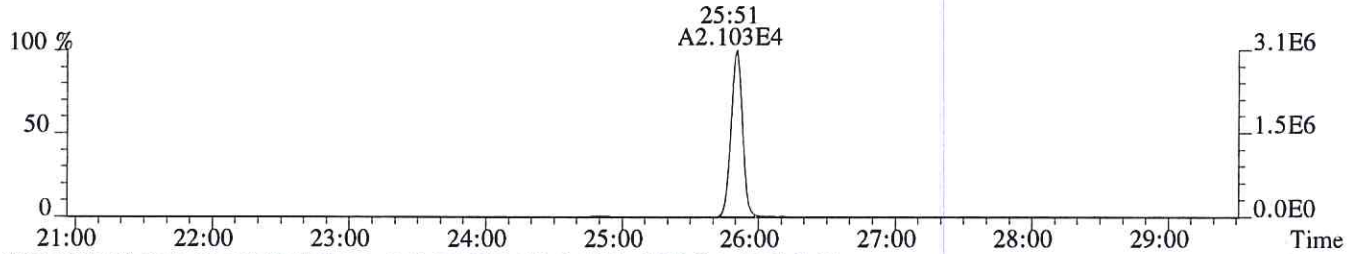
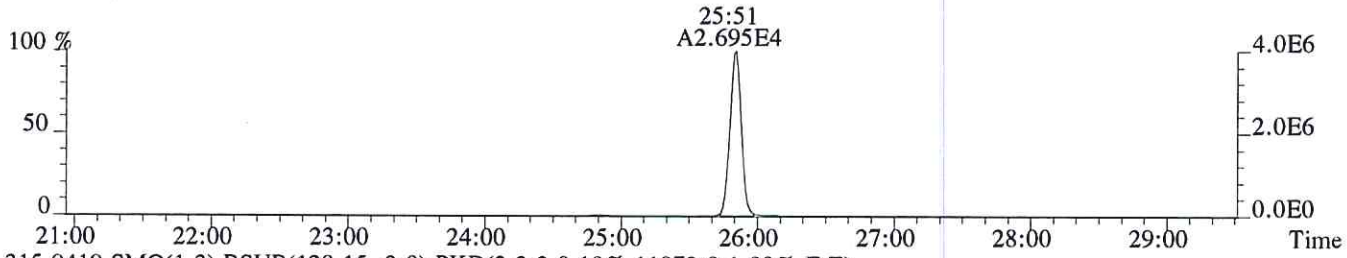
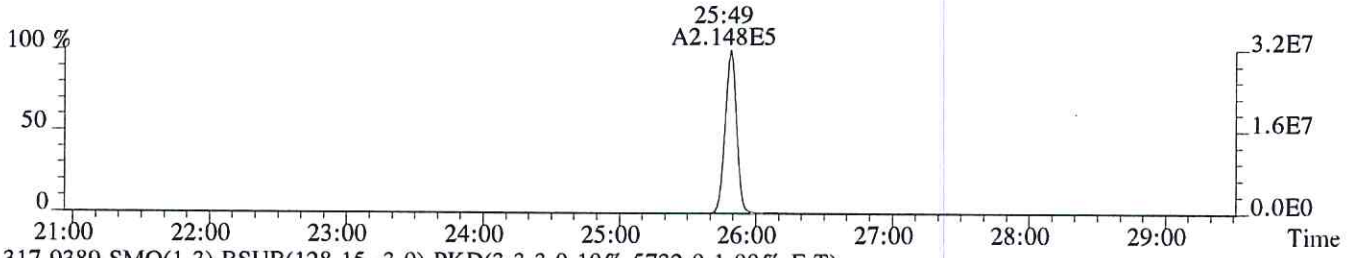
File:P607182 #1-609 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



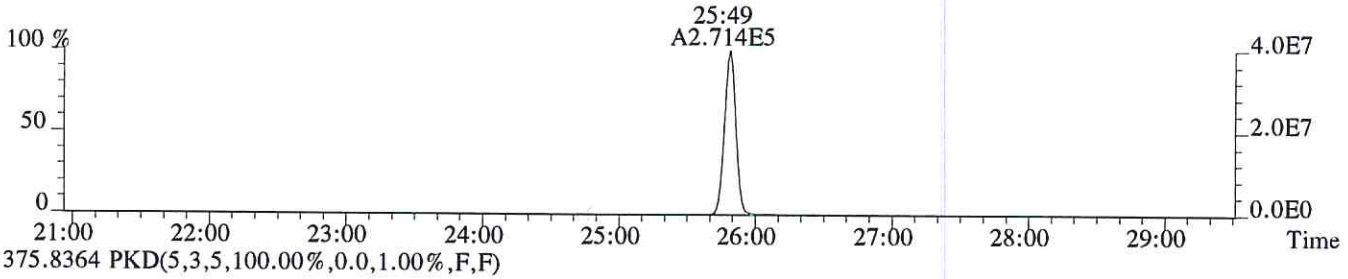
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



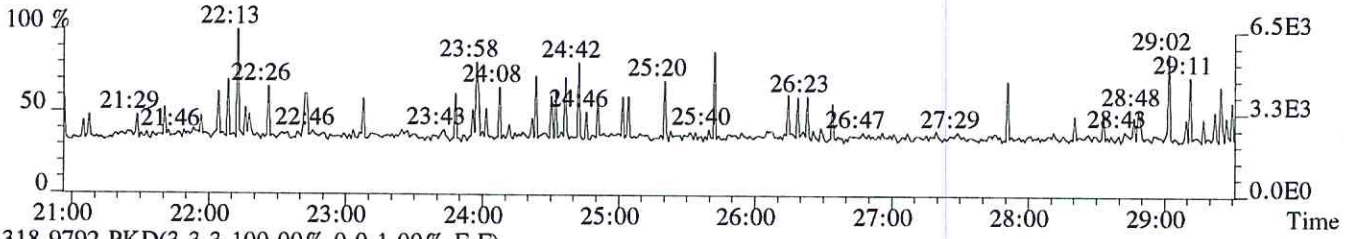
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11972.0,1.00%,F,T)



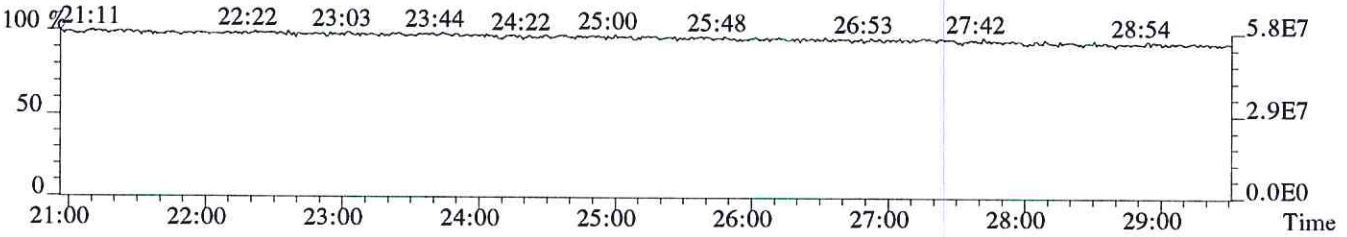
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5732.0,1.00%,F,T)



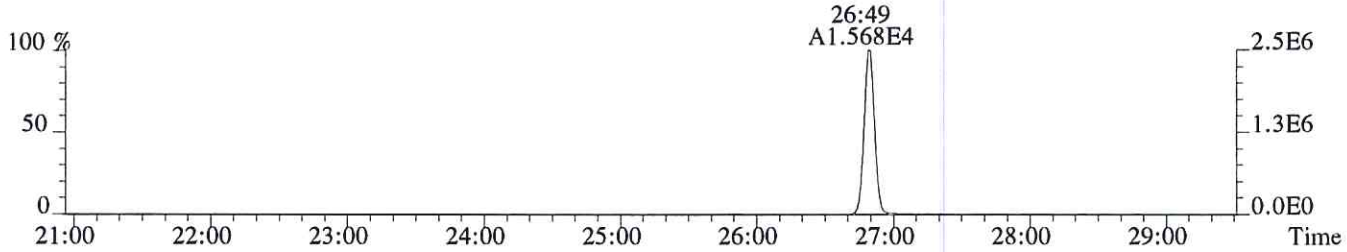
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



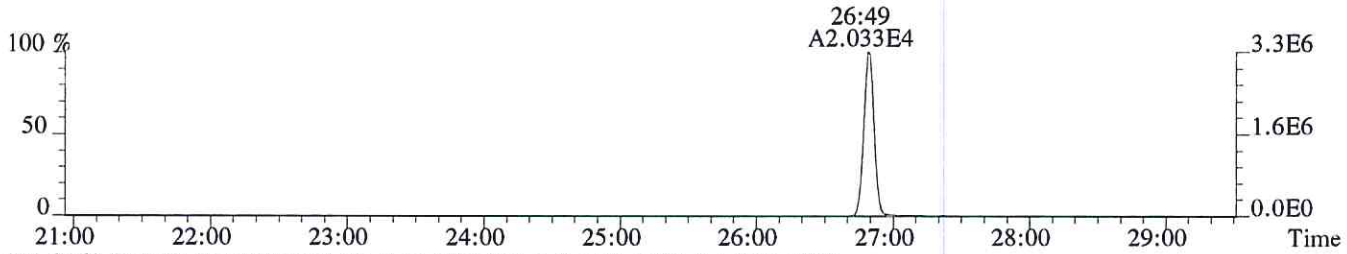
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



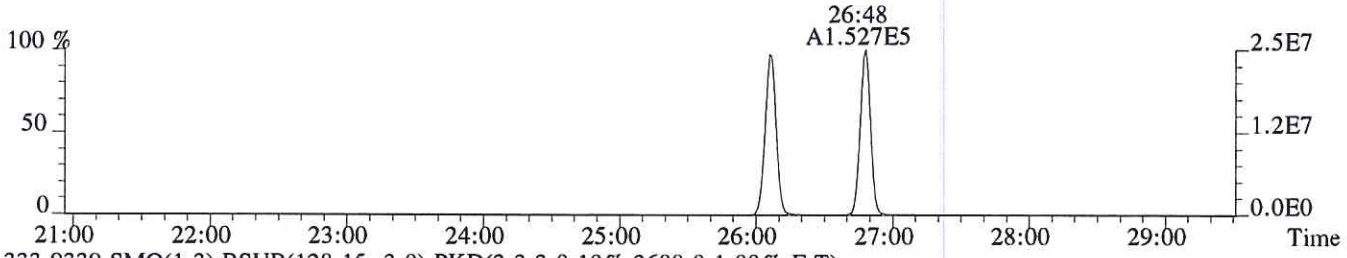
File:P607182 #1-609 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



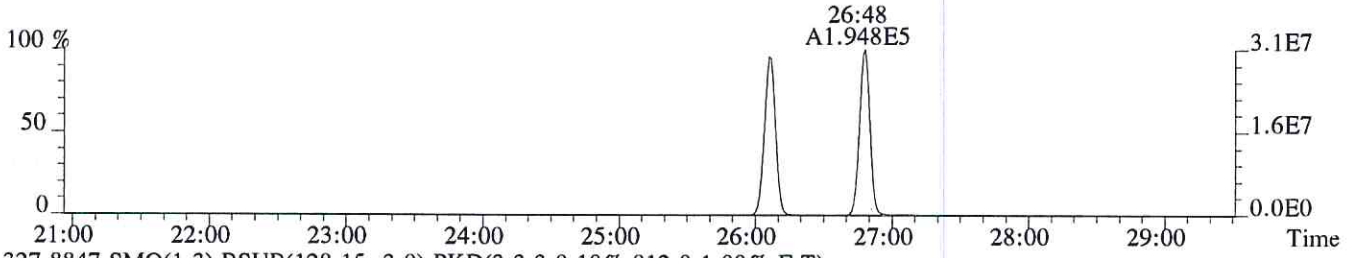
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



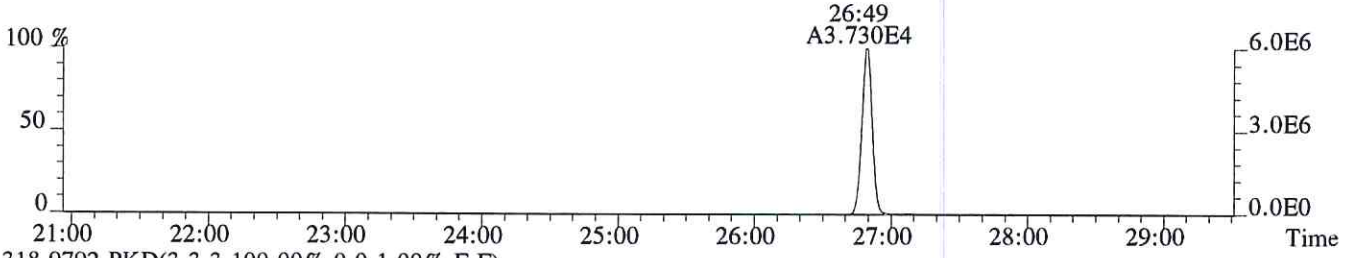
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6440.0,1.00%,F,T)



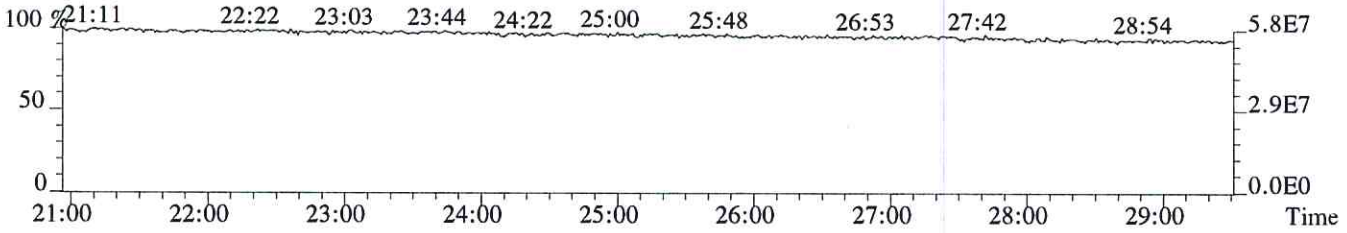
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3688.0,1.00%,F,T)



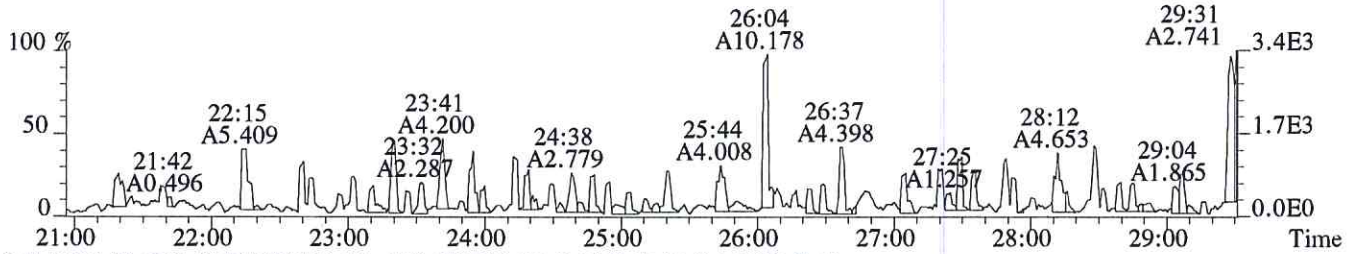
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



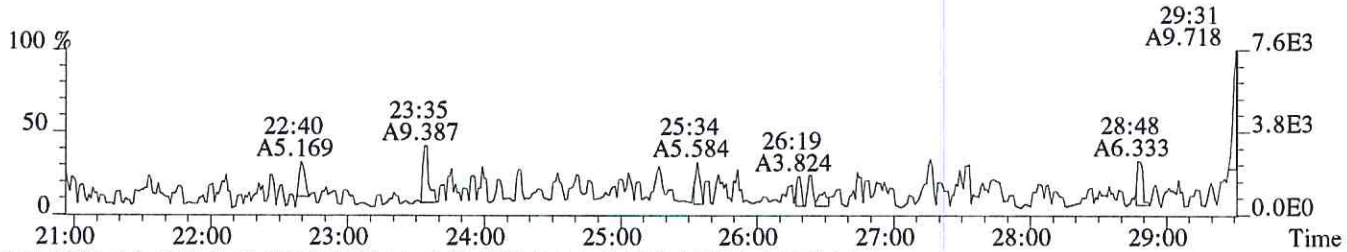
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



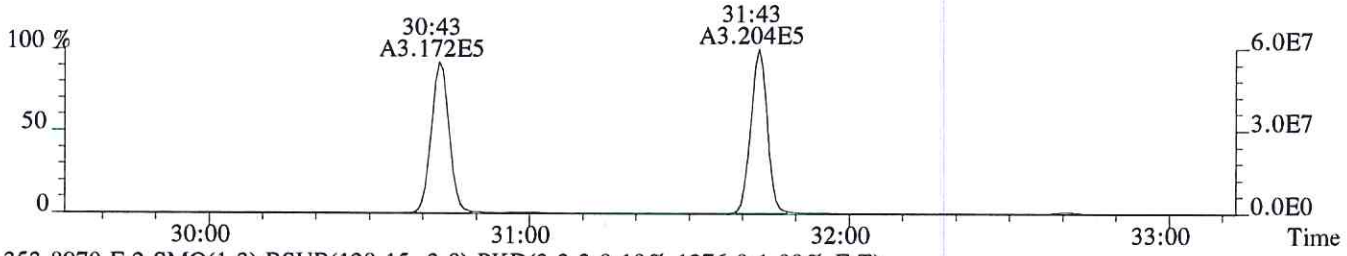
File:P607182 #1-609 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



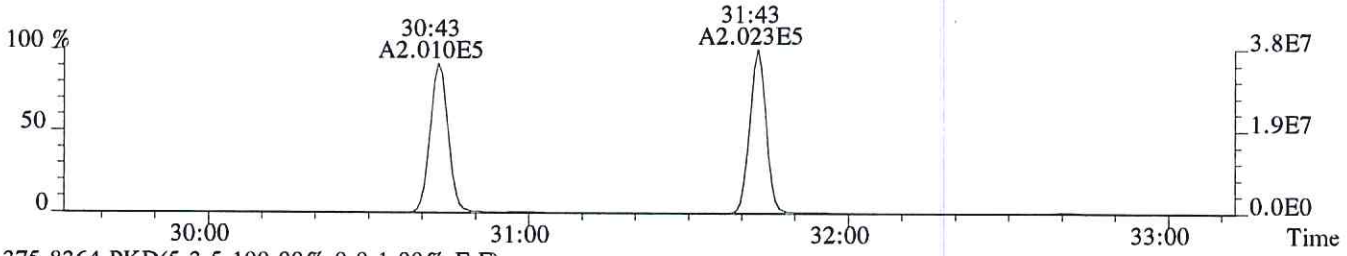
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



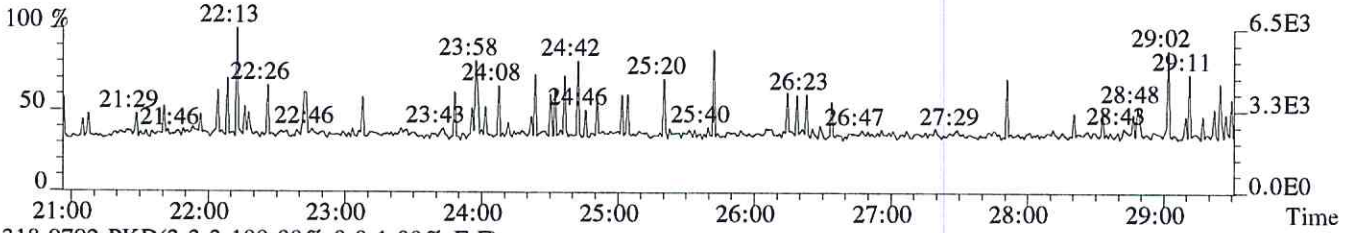
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



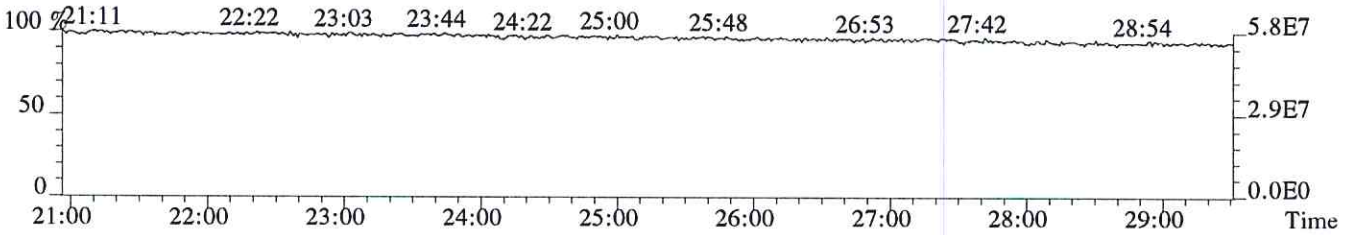
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



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

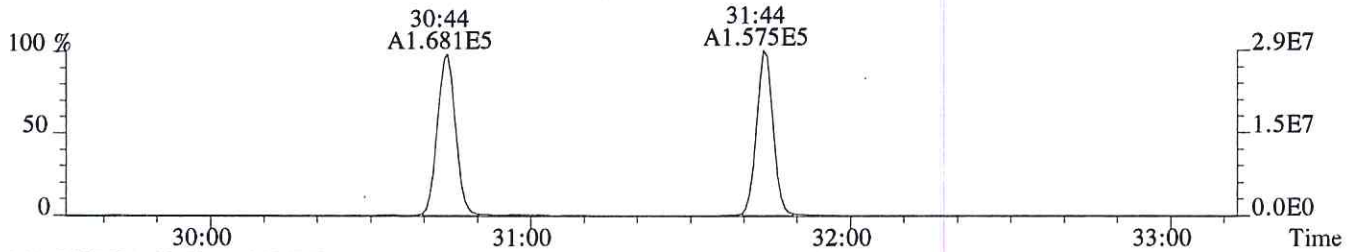


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

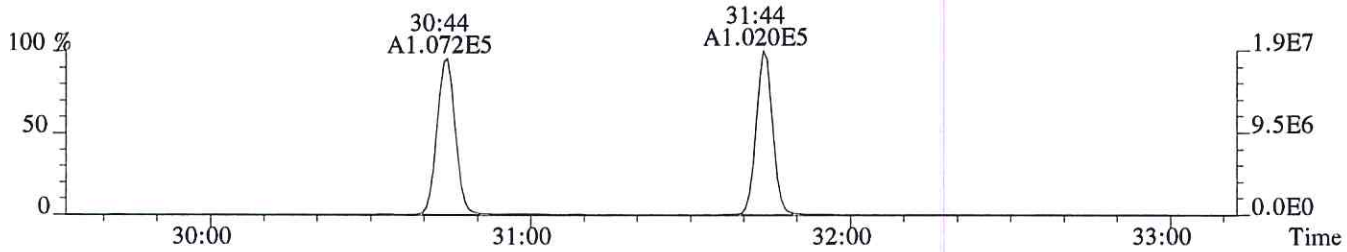


File:P607182 #1-330 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

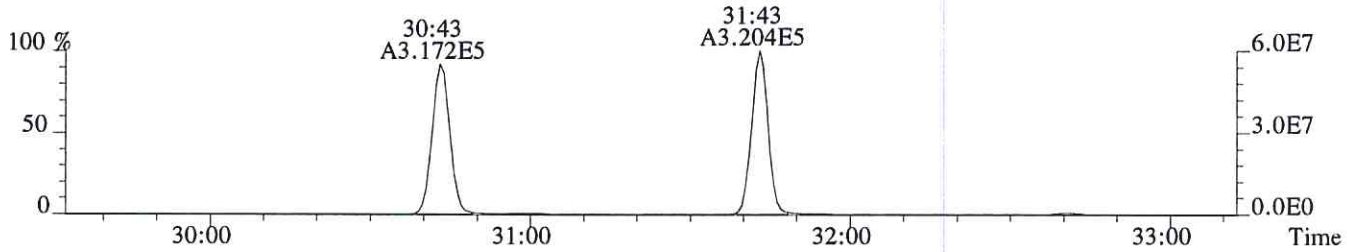
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



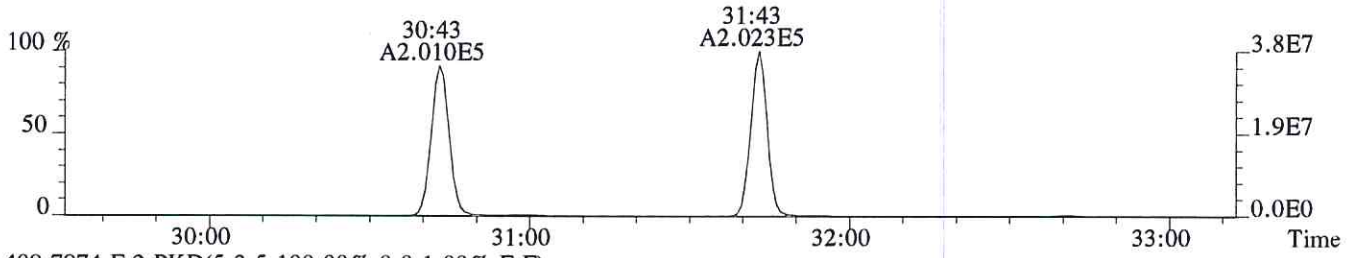
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3268.0,1.00%,F,T)



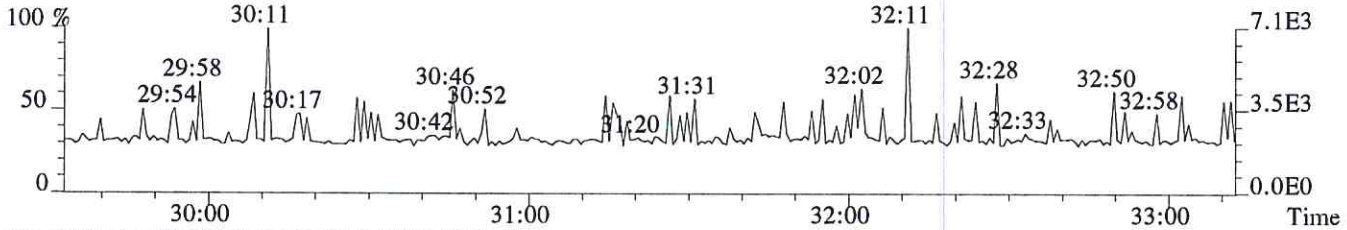
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



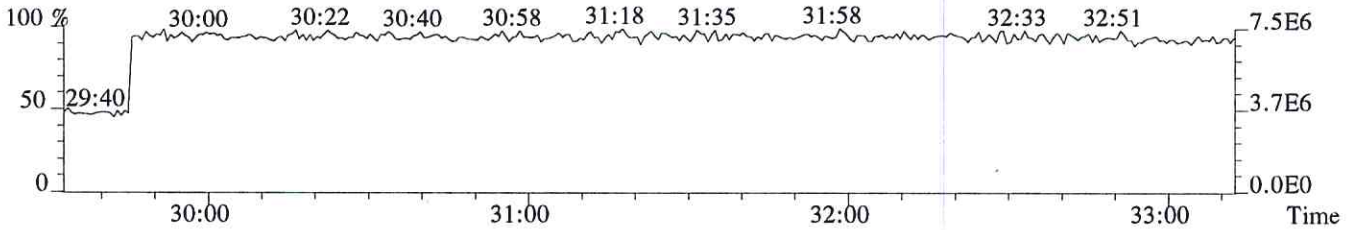
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



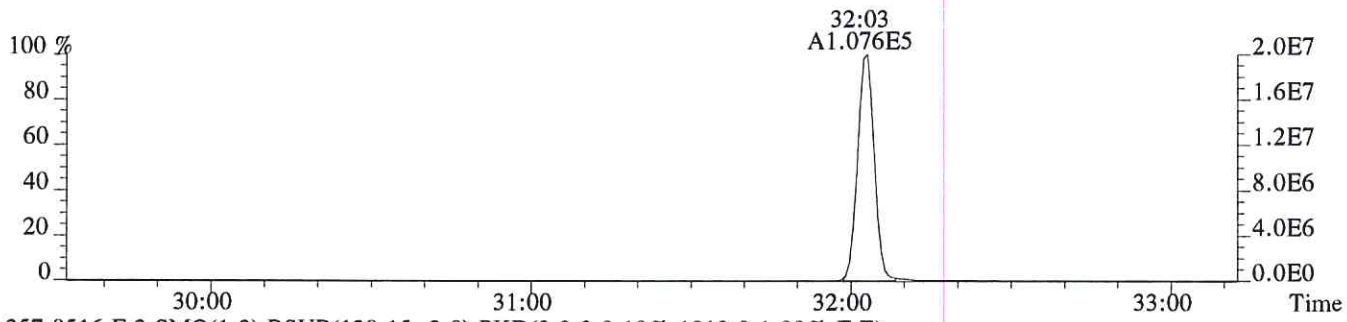
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



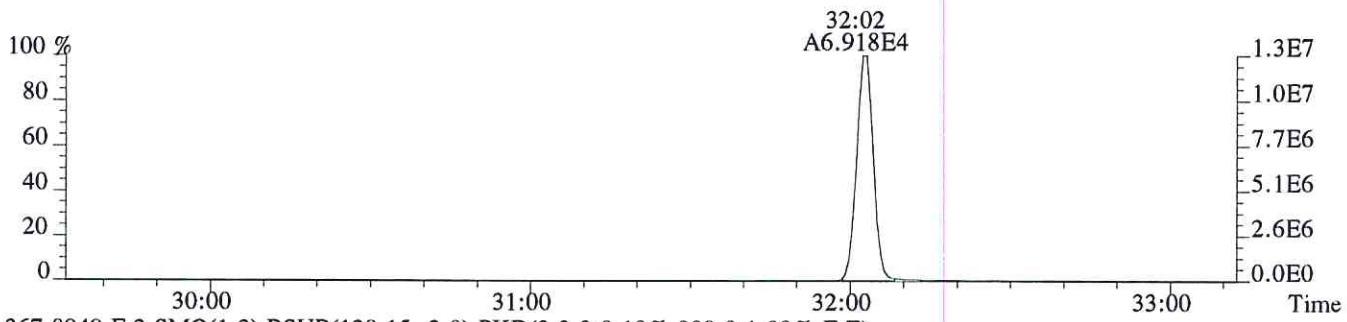
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



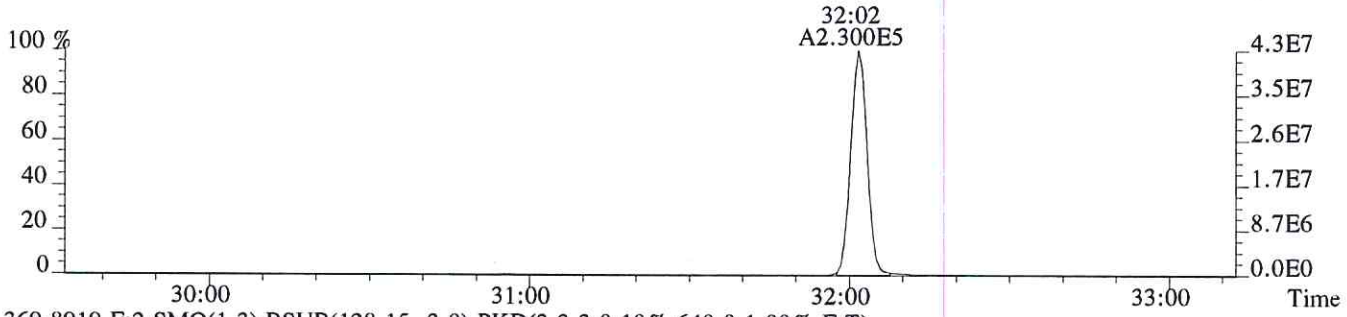
File:P607182 #1-330 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



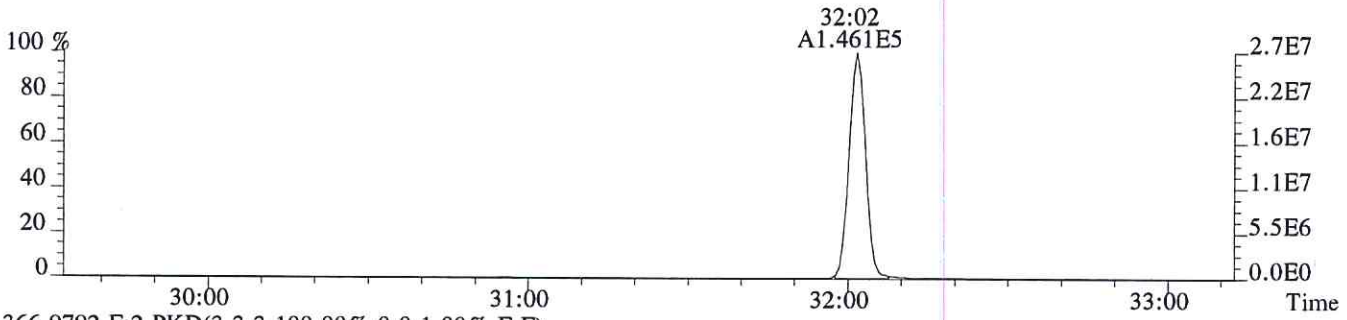
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



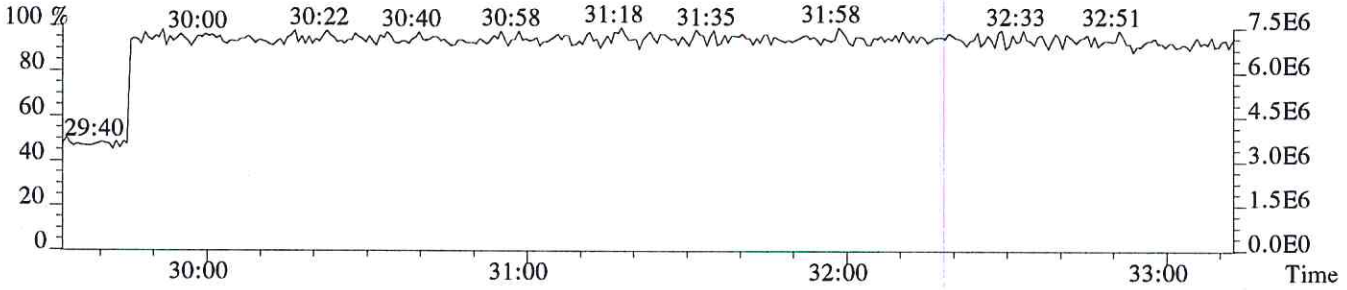
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



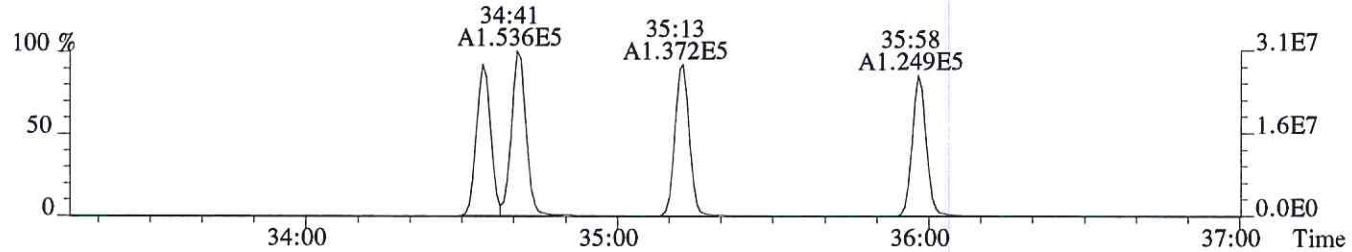
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



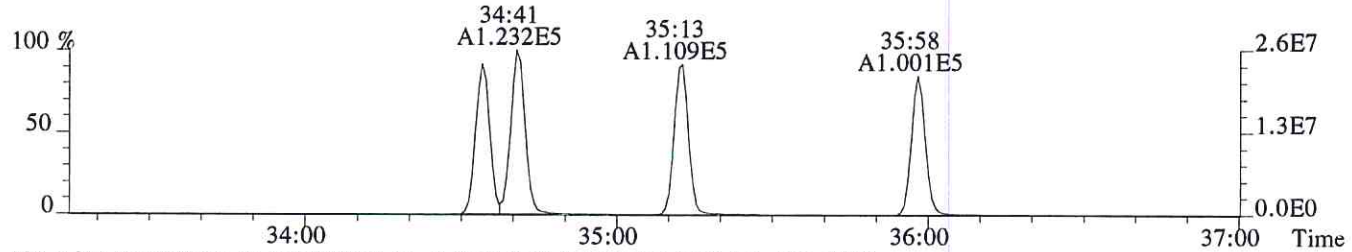
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



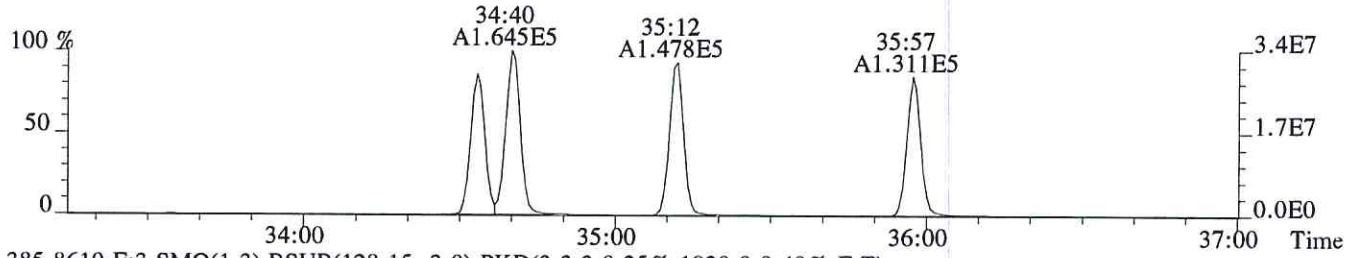
File:P607182 #1-339 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



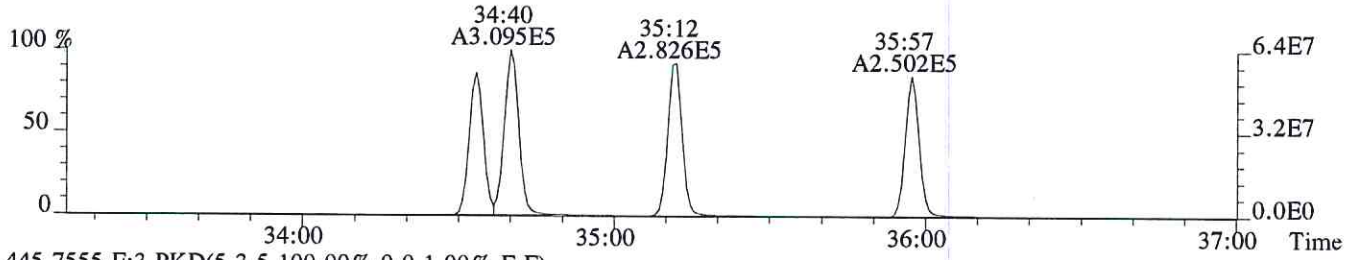
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



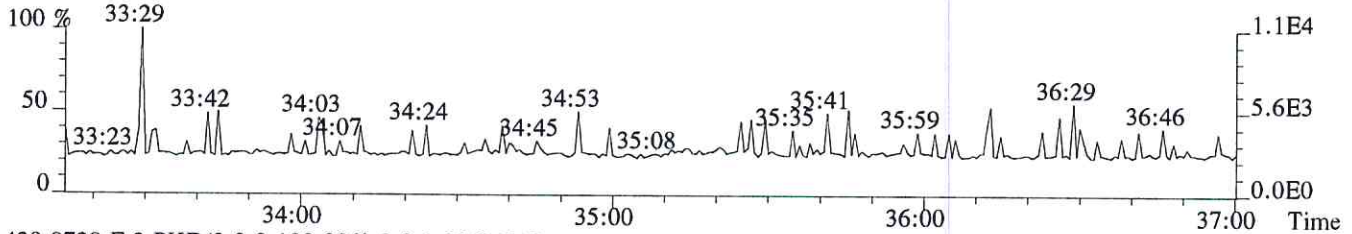
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



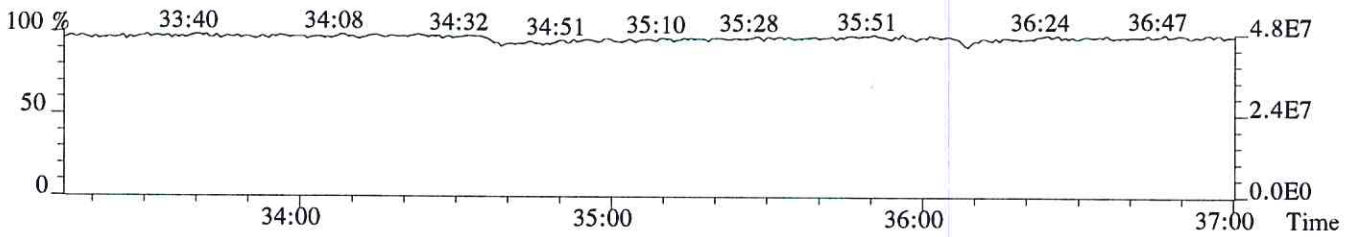
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.40%,F,T)



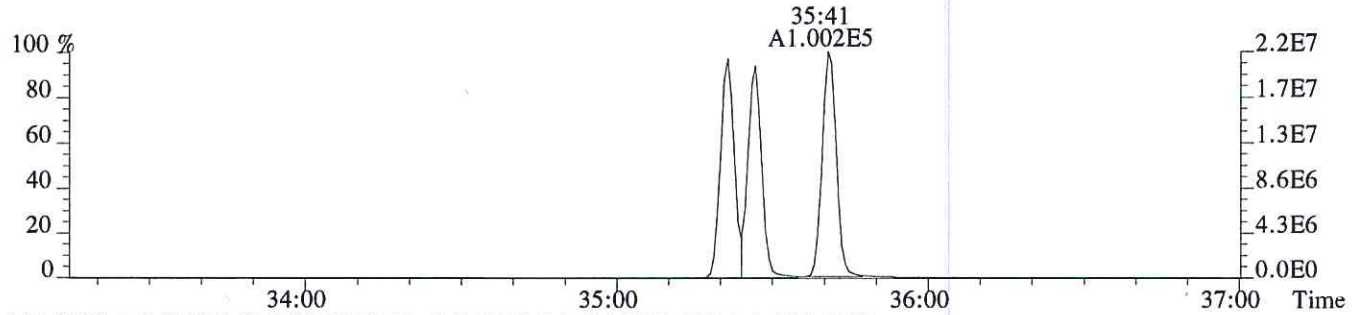
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



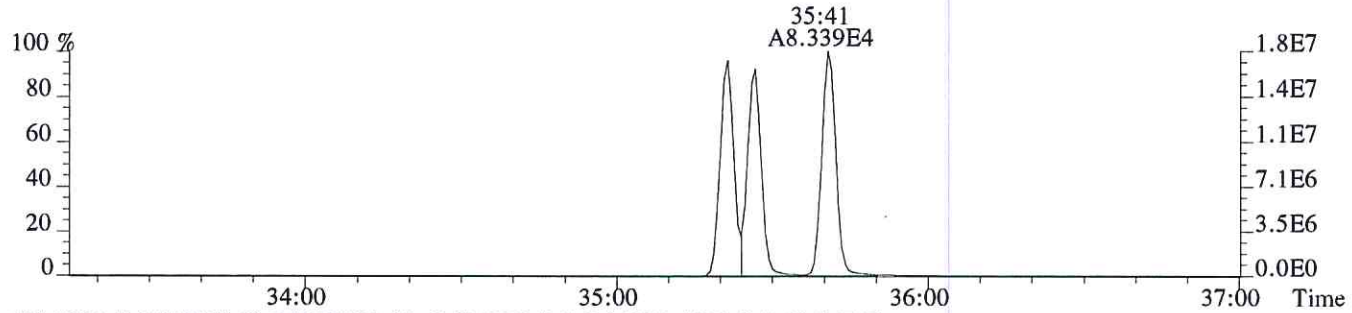
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



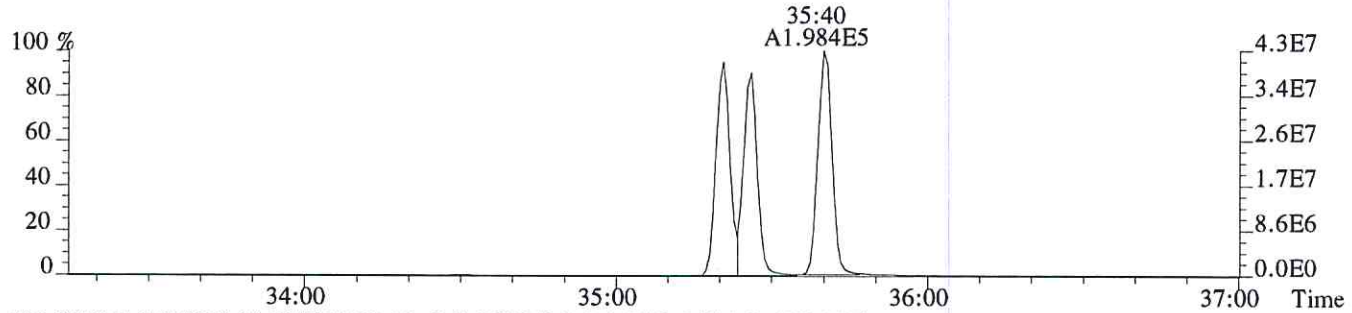
File:P607182 #1-339 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)



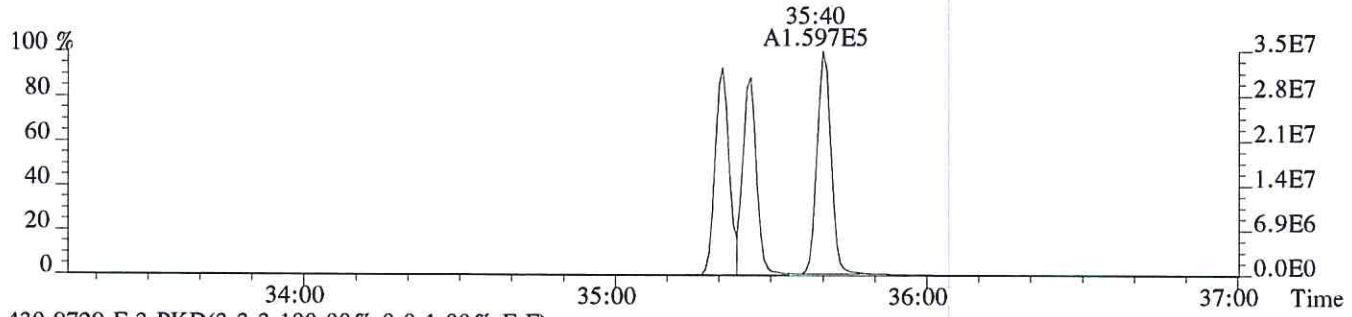
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,180.0,0.40%,F,T)



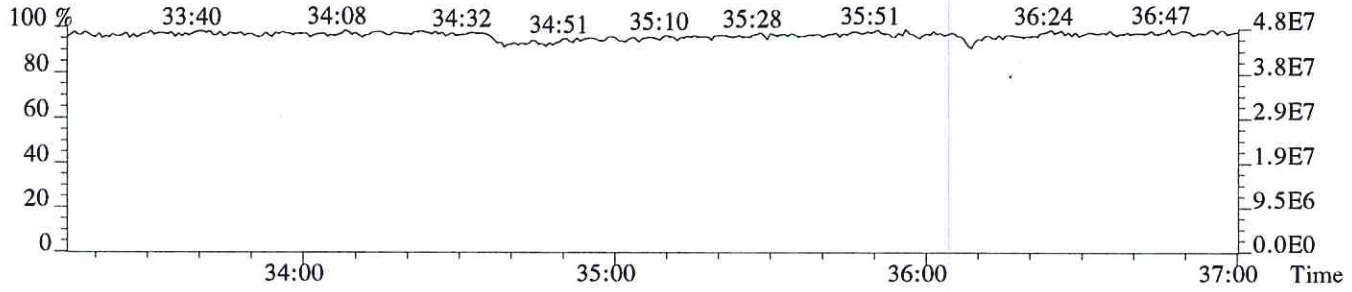
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



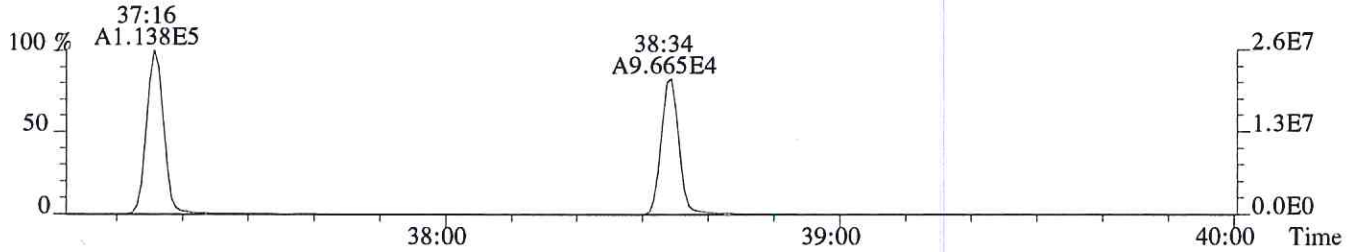
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



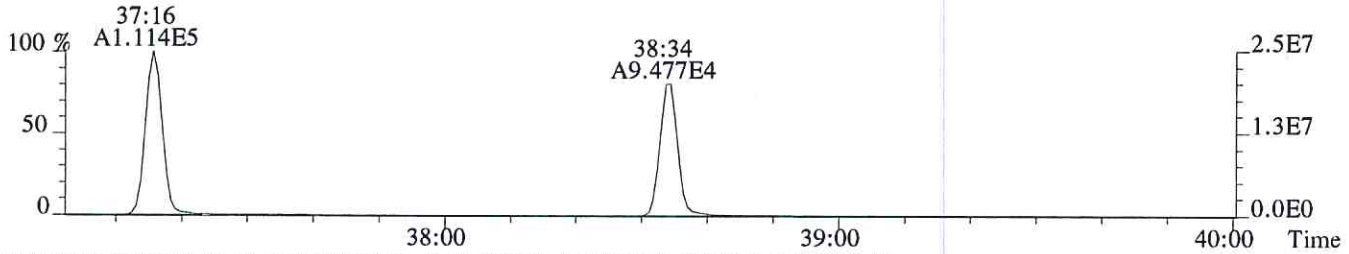
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



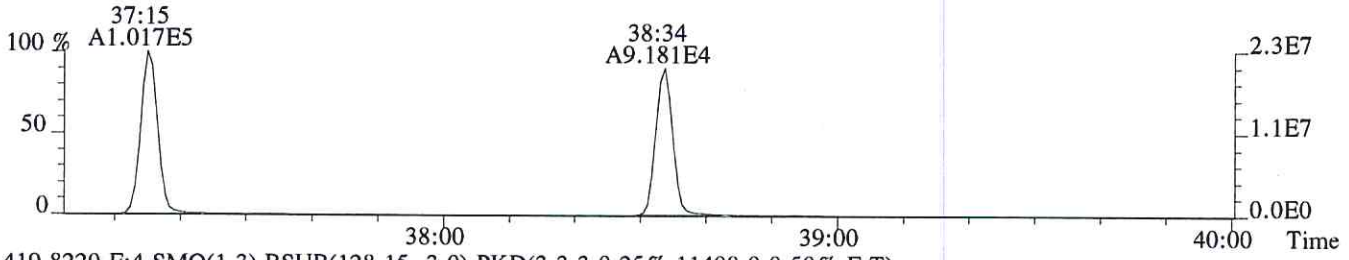
File:P607182 #1-268 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1980.0,0.50%,F,T)



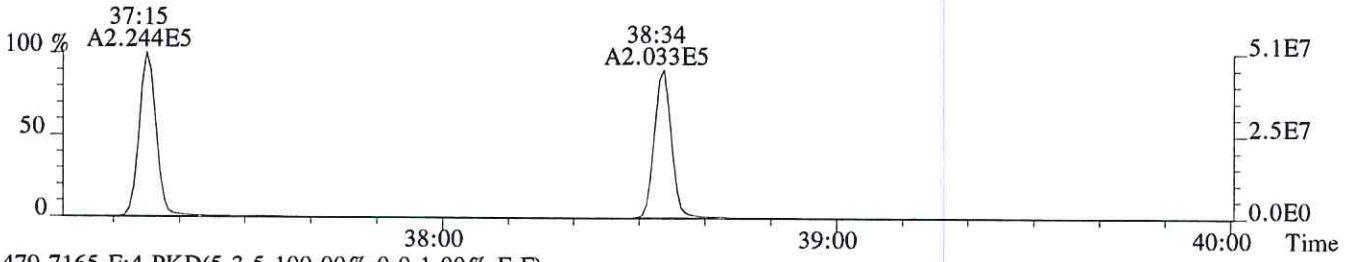
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6976.0,0.50%,F,T)



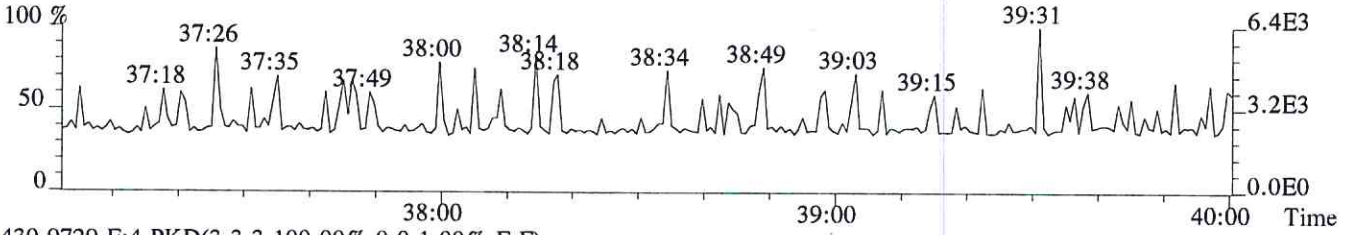
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17904.0,0.50%,F,T)



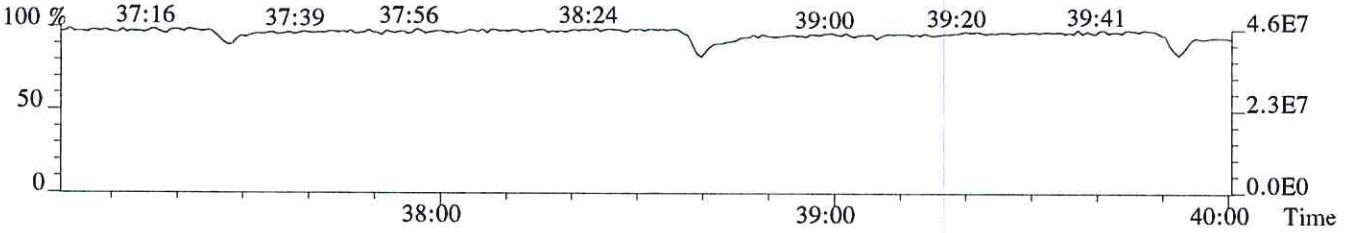
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11408.0,0.50%,F,T)



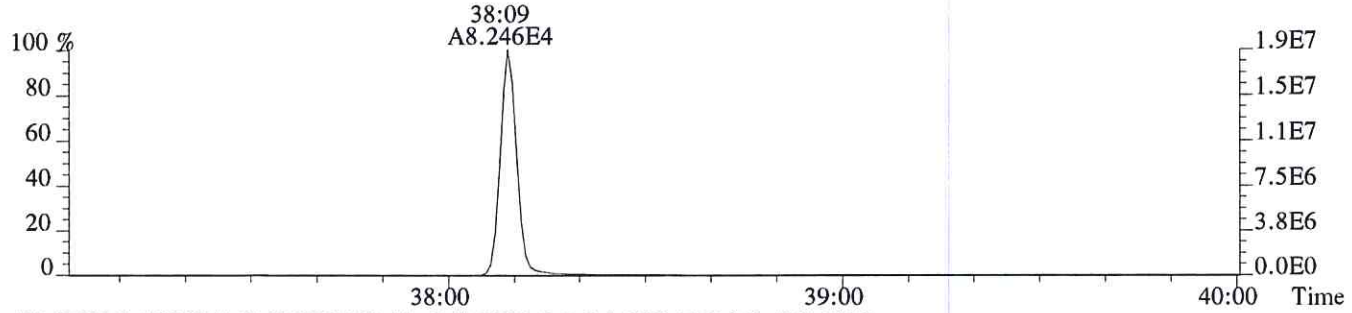
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



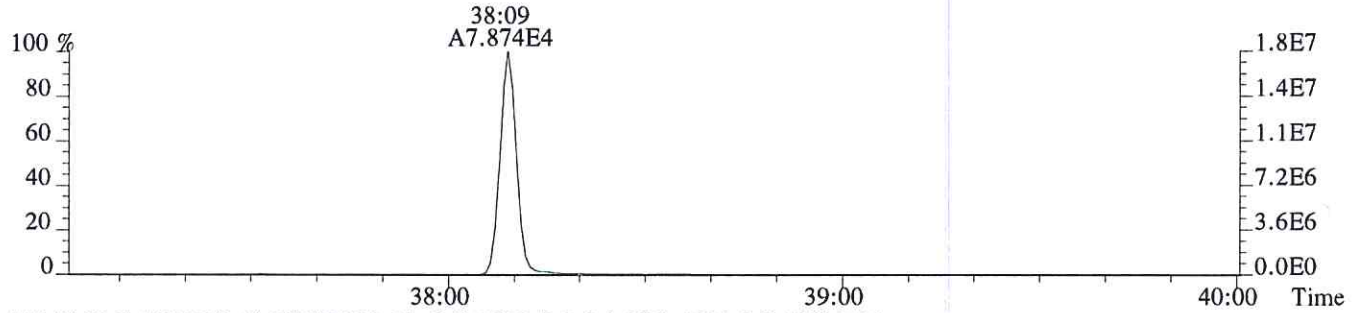
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



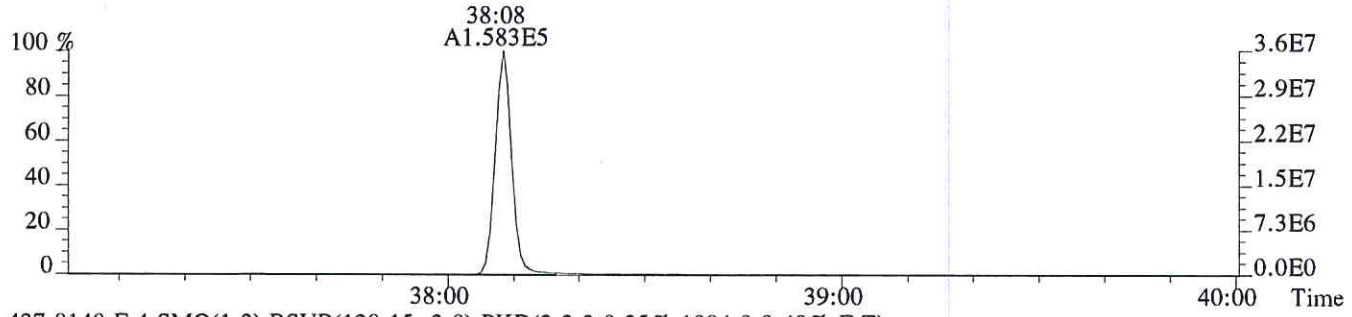
File:P607182 #1-268 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



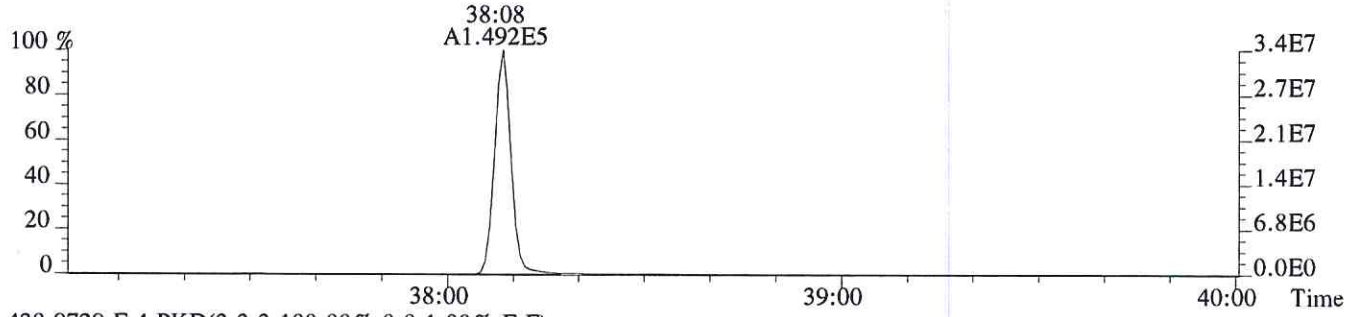
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



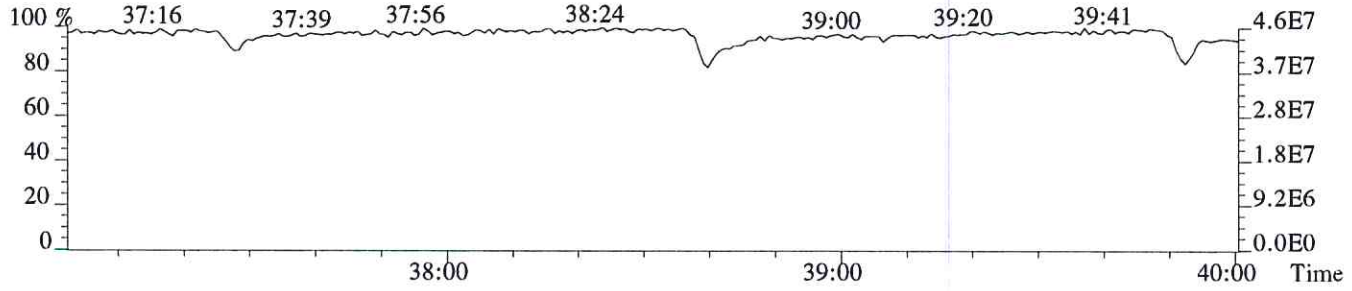
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)



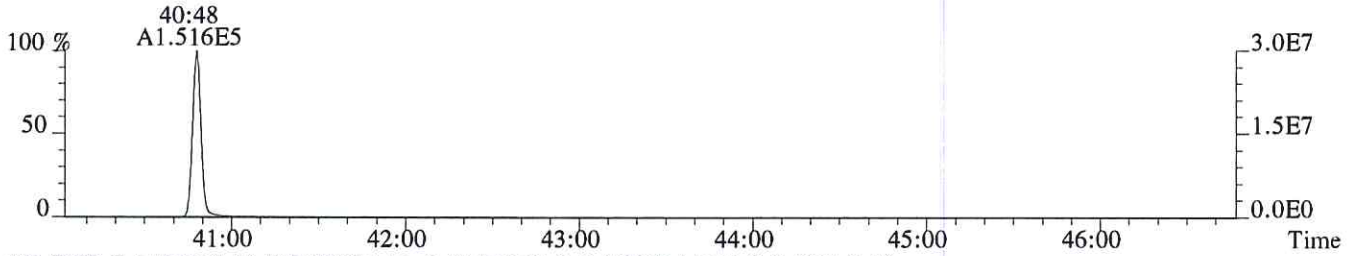
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



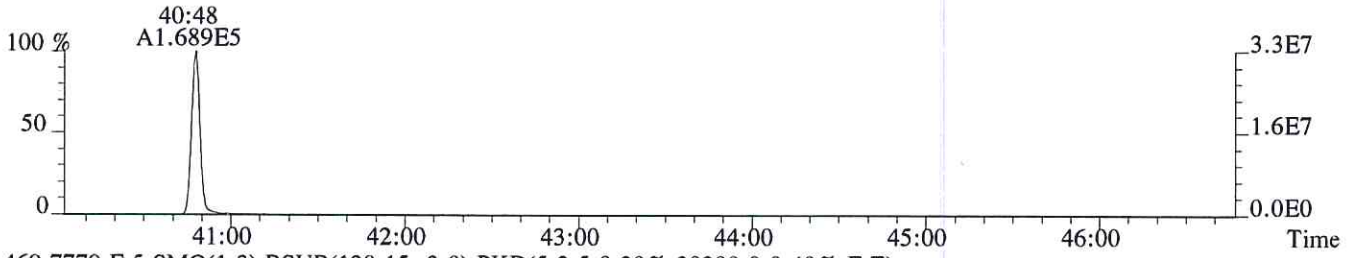
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



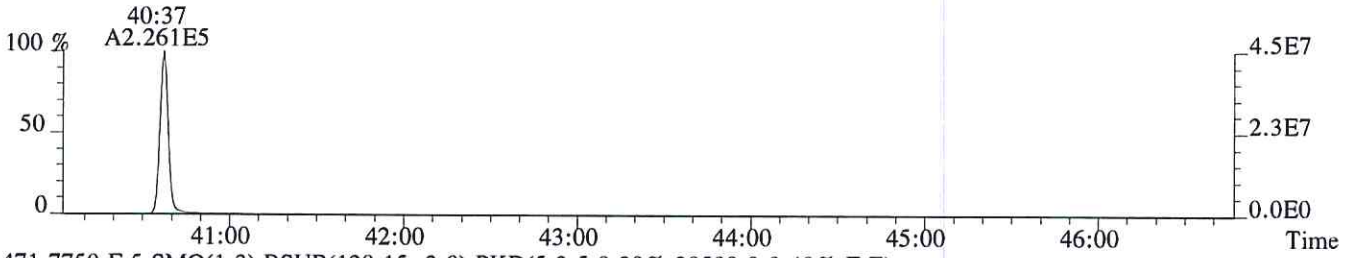
File:P607182 #1-607 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9756.0,0.40%,F,T)



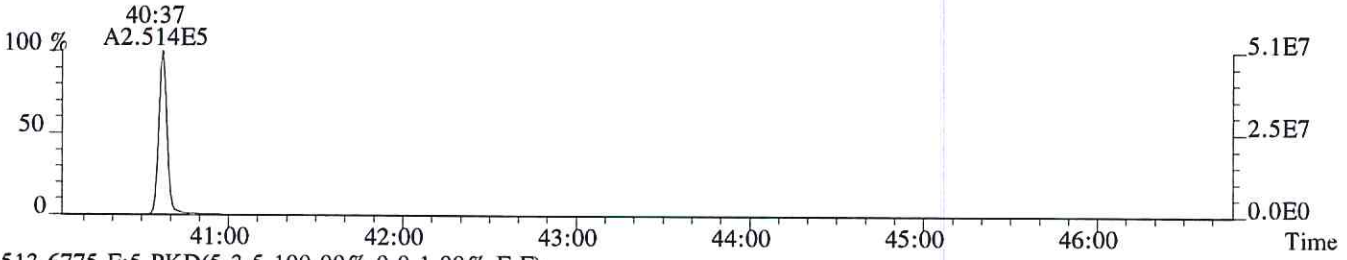
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14120.0,0.40%,F,T)



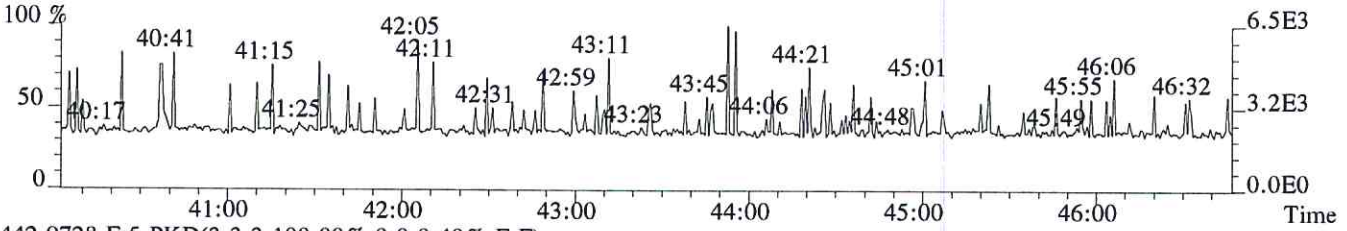
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,30300.0,0.40%,F,T)



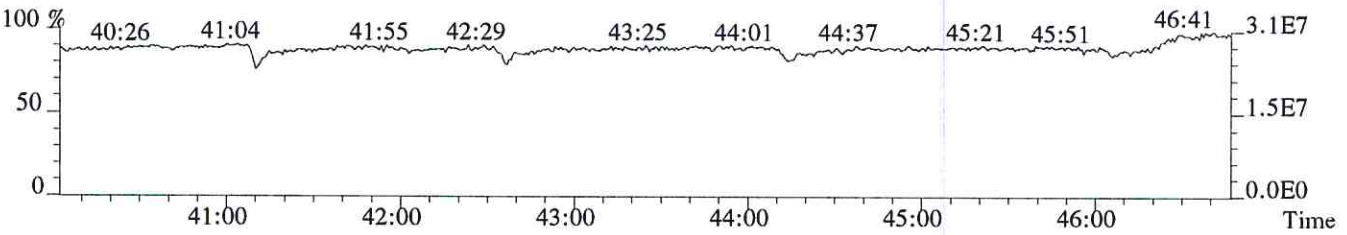
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,20500.0,0.40%,F,T)



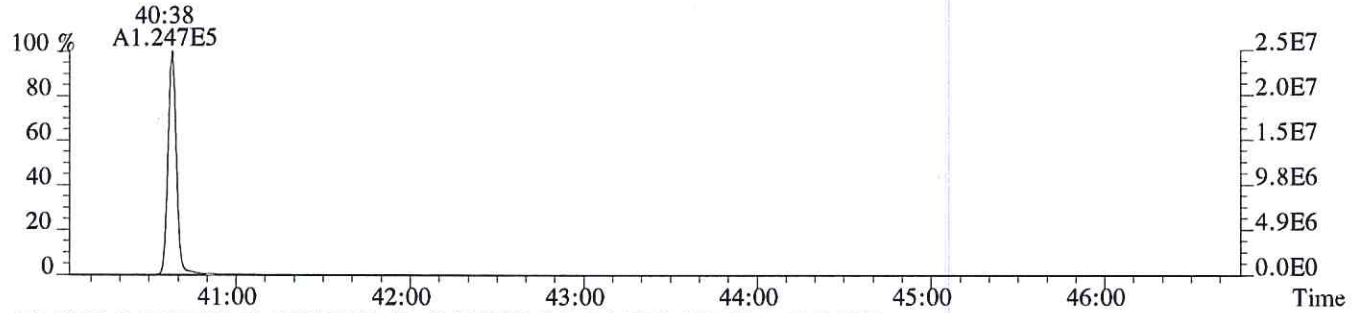
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



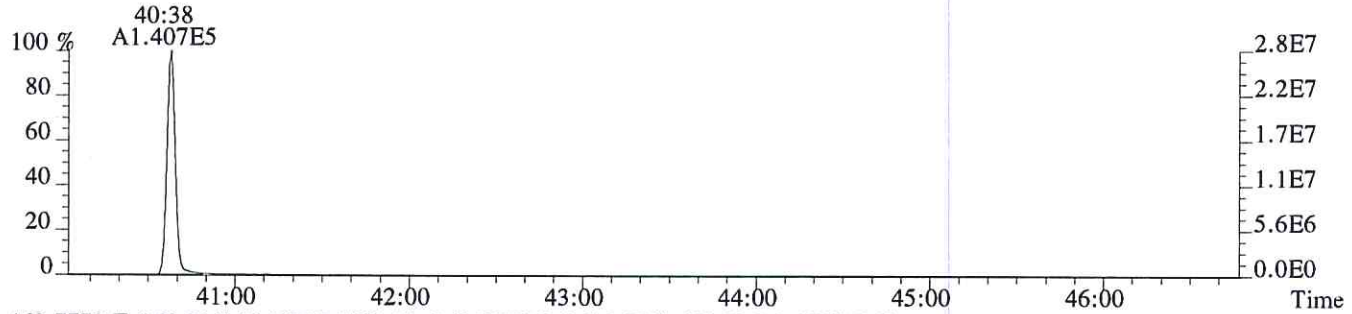
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



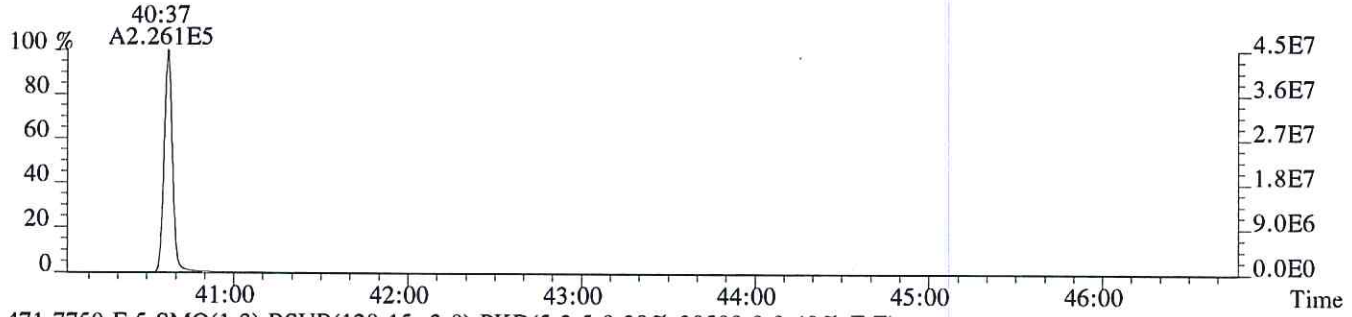
File:P607182 #1-607 Acq:16-MAY-2017 15:15:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6924.0,0.40%,F,T)



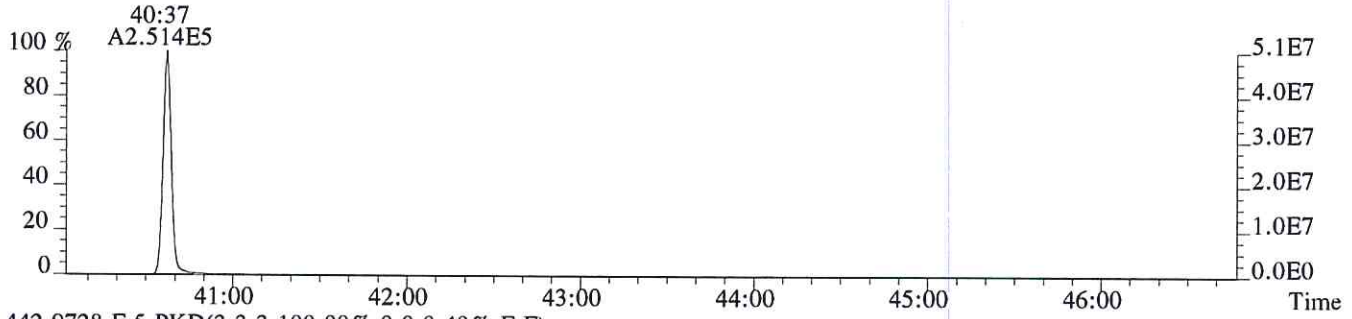
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8756.0,0.40%,F,T)



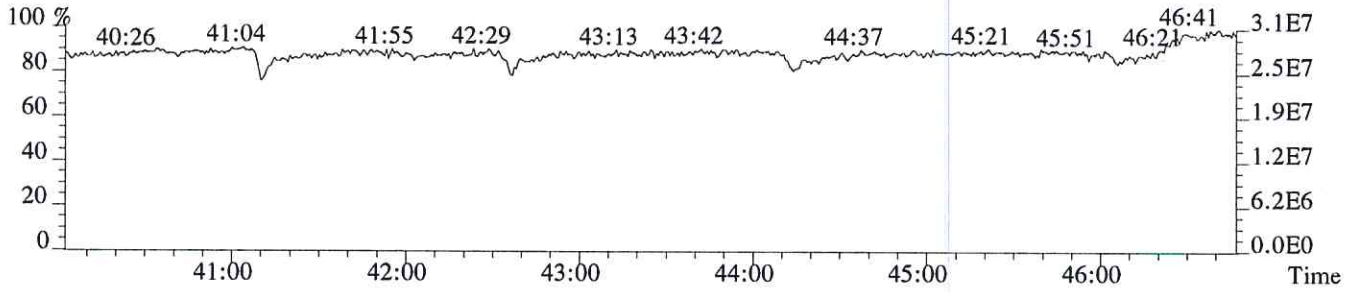
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,30300.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,20500.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P607183 Samp: 1 Inj: 1 Acquired: 16-MAY-17 16:05:29
Processed: 17-MAY-17 07:52:59 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:52	7.595e+04	9.857e+04	0.77	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	30:45	6.078e+05	3.894e+05	1.56	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	31:44	5.718e+05	3.687e+05	1.55	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	34:35	4.949e+05	4.000e+05	1.24	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	34:41	5.624e+05	4.533e+05	1.24	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:13	4.994e+05	4.037e+05	1.24	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	35:59	4.513e+05	3.624e+05	1.25	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	4.147e+05	3.998e+05	1.04	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	3.490e+05	3.404e+05	1.03	yes	no	1.341
10	Unk	OCDF	40:49	5.372e+05	5.981e+05	0.90	yes	no	1.337
11	Unk	2,3,7,8-TCDD	26:50	5.666e+04	7.291e+04	0.78	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:04	3.937e+05	2.518e+05	1.56	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:22	3.517e+05	2.822e+05	1.25	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:27	3.395e+05	2.745e+05	1.24	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	35:41	3.627e+05	2.906e+05	1.25	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	2.941e+05	2.815e+05	1.04	yes	no	1.048
17	Unk	OCDD	40:39	4.374e+05	4.944e+05	0.88	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	25:50	1.955e+05	2.475e+05	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	30:44	2.882e+05	1.816e+05	1.59	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	31:44	2.889e+05	1.835e+05	1.57	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	34:34	1.227e+05	2.325e+05	0.53	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	34:41	1.500e+05	2.824e+05	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:13	1.337e+05	2.534e+05	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	35:58	1.179e+05	2.244e+05	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:16	9.217e+04	2.044e+05	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	8.247e+04	1.809e+05	0.46	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	26:48	1.387e+05	1.755e+05	0.79	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:02	2.070e+05	1.311e+05	1.58	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:21	1.672e+05	1.326e+05	1.26	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:27	1.606e+05	1.288e+05	1.25	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	1.420e+05	1.351e+05	1.05	yes	no	0.884
32	IS	13C-OCDD	40:38	1.985e+05	2.200e+05	0.90	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:07	1.415e+05	1.758e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:41	1.780e+05	1.408e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:50	1.347e+05				no	1.072

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Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P607183 Samp: 1 Inj: 1 Acquired: 16-MAY-17 16:05:29
Processed: 17-MAY-17 07:52:59 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.11e+07	2.28e+02	4.9e+04	1.44e+07	1.42e+03	1.0e+04
2	1,2,3,7,8-PeCDF	1.07e+08	8.04e+02	1.3e+05	6.86e+07	2.58e+03	2.7e+04
3	2,3,4,7,8-PeCDF	1.06e+08	8.04e+02	1.3e+05	6.91e+07	2.58e+03	2.7e+04
4	1,2,3,4,7,8-HxCDF	1.05e+08	7.12e+02	1.5e+05	8.50e+07	1.34e+03	6.4e+04
5	1,2,3,6,7,8-HxCDF	1.14e+08	7.12e+02	1.6e+05	9.25e+07	1.34e+03	6.9e+04
6	2,3,4,6,7,8-HxCDF	1.06e+08	7.12e+02	1.5e+05	8.50e+07	1.34e+03	6.4e+04
7	1,2,3,7,8,9-HxCDF	9.55e+07	7.12e+02	1.3e+05	7.73e+07	1.34e+03	5.8e+04
8	1,2,3,4,6,7,8-HpCDF	9.29e+07	2.11e+04	4.4e+03	9.00e+07	4.37e+03	2.1e+04
9	1,2,3,4,7,8,9-HpCDF	7.70e+07	2.11e+04	3.6e+03	7.41e+07	4.37e+03	1.7e+04
10	OCDF	1.07e+08	2.56e+04	4.2e+03	1.20e+08	3.83e+04	3.1e+03
11	2,3,7,8-TCDD	9.22e+06	1.64e+03	5.6e+03	1.19e+07	8.40e+02	1.4e+04
12	1,2,3,7,8-PeCDD	7.33e+07	1.69e+03	4.3e+04	4.65e+07	1.04e+03	4.5e+04
13	1,2,3,4,7,8-HxCDD	7.80e+07	2.56e+02	3.0e+05	6.19e+07	2.40e+02	2.6e+05
14	1,2,3,6,7,8-HxCDD	7.31e+07	2.56e+02	2.9e+05	5.87e+07	2.40e+02	2.4e+05
15	1,2,3,7,8,9-HxCDD	7.74e+07	2.56e+02	3.0e+05	6.26e+07	2.40e+02	2.6e+05
16	1,2,3,4,6,7,8-HpCDD	6.69e+07	2.90e+03	2.3e+04	6.43e+07	2.50e+03	2.6e+04
17	OCDD	8.66e+07	1.61e+04	5.4e+03	9.81e+07	3.51e+04	2.8e+03
18	13C-2,3,7,8-TCDF	2.87e+07	1.22e+04	2.3e+03	3.63e+07	6.29e+03	5.8e+03
19	13C-1,2,3,7,8-PeCDF	4.98e+07	1.62e+03	3.1e+04	3.15e+07	2.38e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	5.43e+07	1.62e+03	3.4e+04	3.46e+07	2.38e+03	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	2.62e+07	1.46e+03	1.8e+04	4.97e+07	2.35e+03	2.1e+04
22	13C-1,2,3,6,7,8-HxCDF	3.08e+07	1.46e+03	2.1e+04	5.86e+07	2.35e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	2.81e+07	1.46e+03	1.9e+04	5.29e+07	2.35e+03	2.3e+04
24	13C-1,2,3,7,8,9-HxCDF	2.49e+07	1.46e+03	1.7e+04	4.77e+07	2.35e+03	2.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.06e+07	3.10e+03	6.6e+03	4.57e+07	2.12e+04	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.83e+07	3.10e+03	5.9e+03	3.99e+07	2.12e+04	1.9e+03
27	13C-2,3,7,8-TCDD	2.20e+07	5.38e+03	4.1e+03	2.77e+07	3.72e+03	7.5e+03
28	13C-1,2,3,7,8-PeCDD	3.86e+07	9.40e+02	4.1e+04	2.46e+07	2.12e+02	1.2e+05
29	13C-1,2,3,4,7,8-HxCDD	3.67e+07	1.43e+03	2.6e+04	2.87e+07	7.20e+02	4.0e+04
30	13C-1,2,3,6,7,8-HxCDD	3.45e+07	1.43e+03	2.4e+04	2.75e+07	7.20e+02	3.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.23e+07	1.99e+03	1.6e+04	3.04e+07	8.40e+02	3.6e+04
32	13C-OCDD	3.92e+07	1.53e+04	2.6e+03	4.33e+07	8.96e+03	4.8e+03
33	13C-1,2,3,4-TCDD	2.13e+07	5.38e+03	4.0e+03	2.65e+07	3.72e+03	7.1e+03
34	13C-1,2,3,7,8,9-HxCDD	3.76e+07	1.43e+03	2.6e+04	3.02e+07	7.20e+02	4.2e+04
35	37Cl-2,3,7,8-TCDD	2.21e+07	1.39e+03	1.6e+04			

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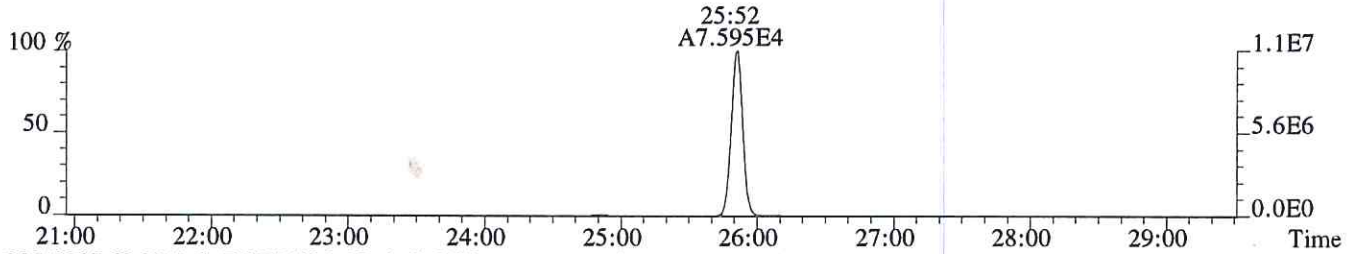
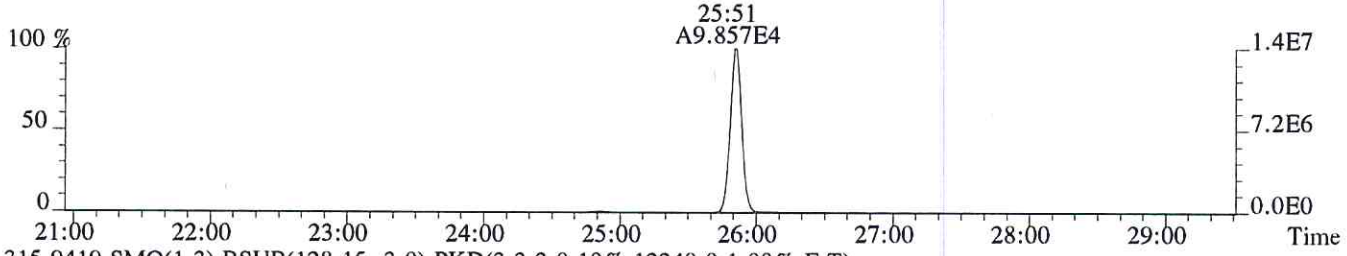
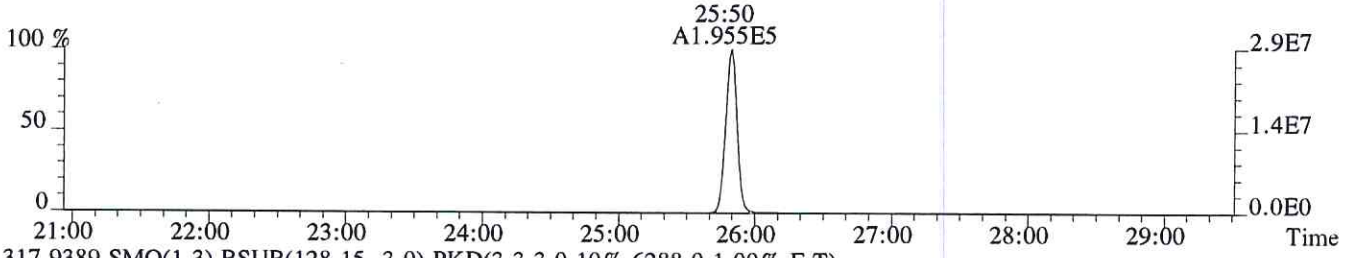
File:P607183 #1-609 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



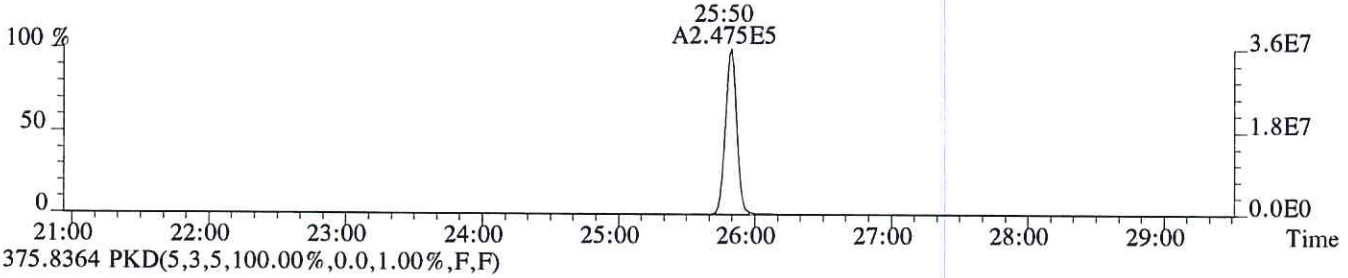
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



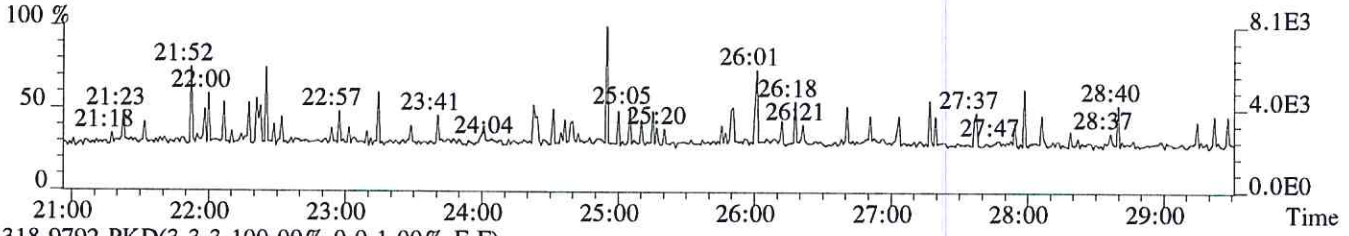
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12248.0,1.00%,F,T)



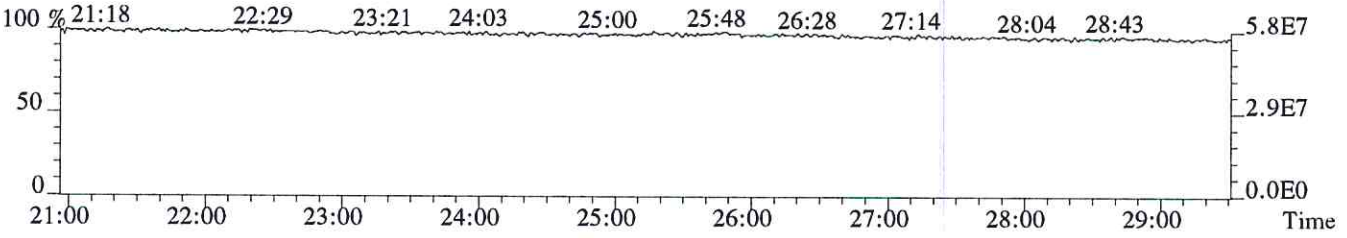
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6288.0,1.00%,F,T)



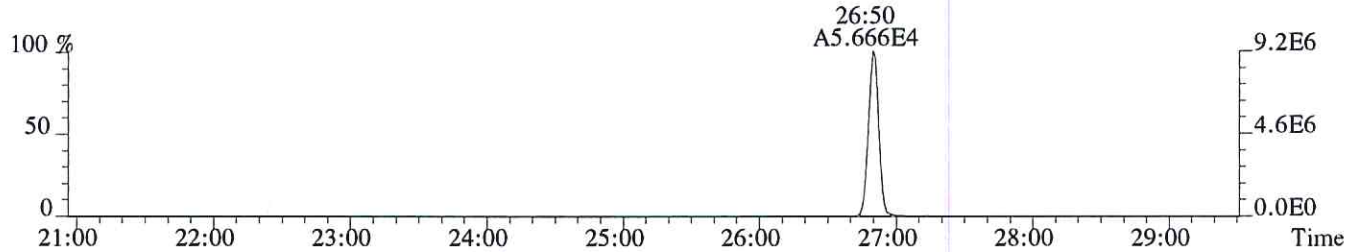
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



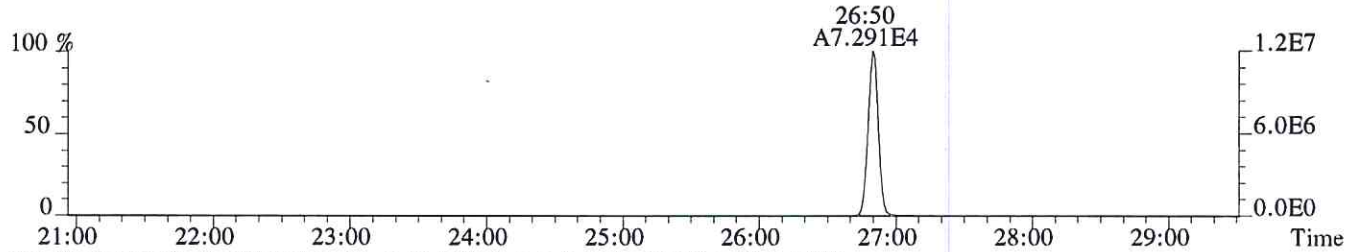
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



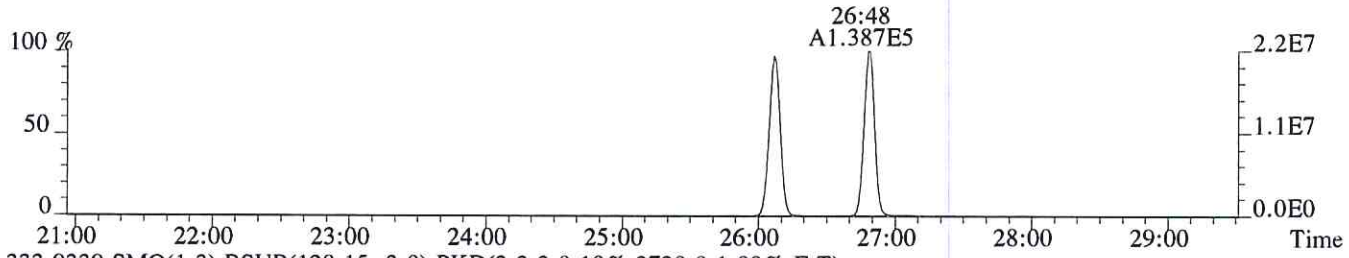
File:P607183 #1-609 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



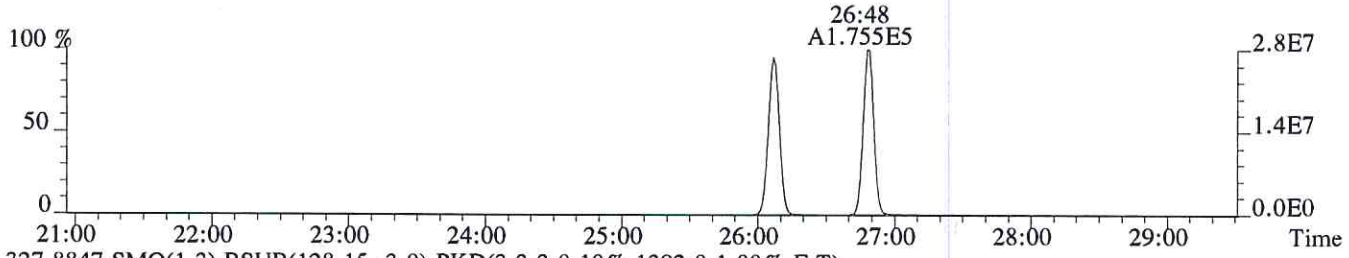
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



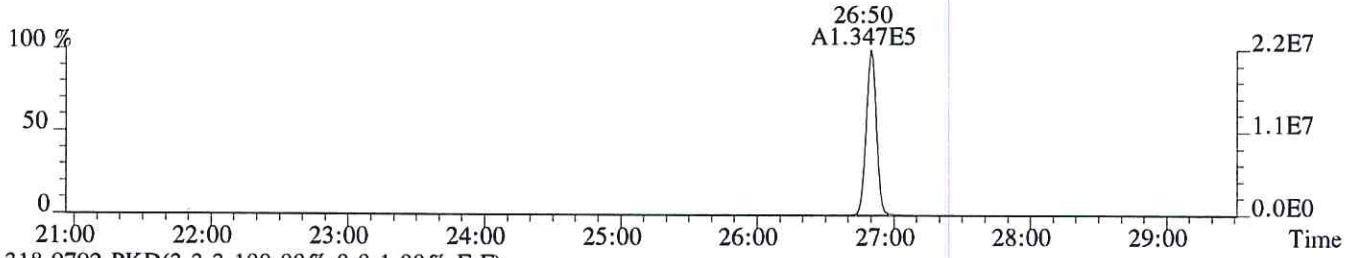
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5384.0,1.00%,F,T)



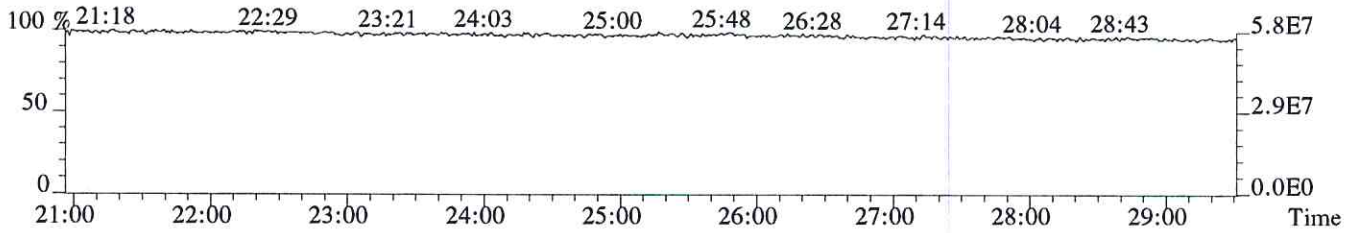
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3720.0,1.00%,F,T)



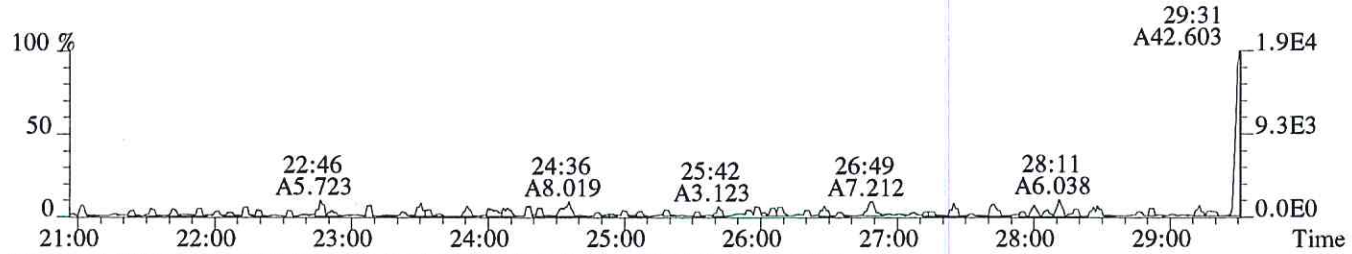
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



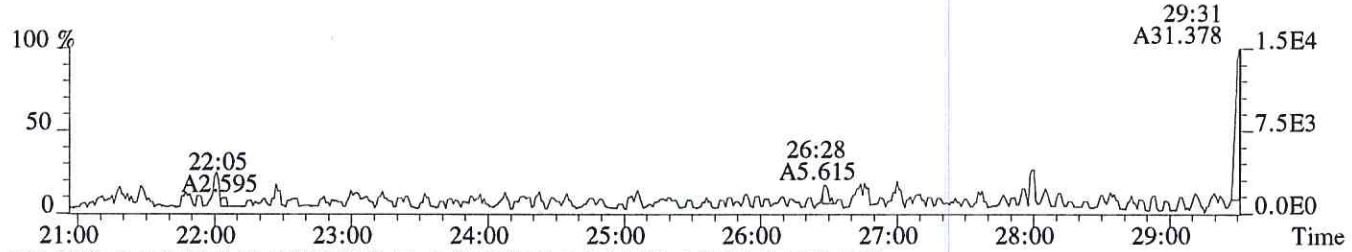
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



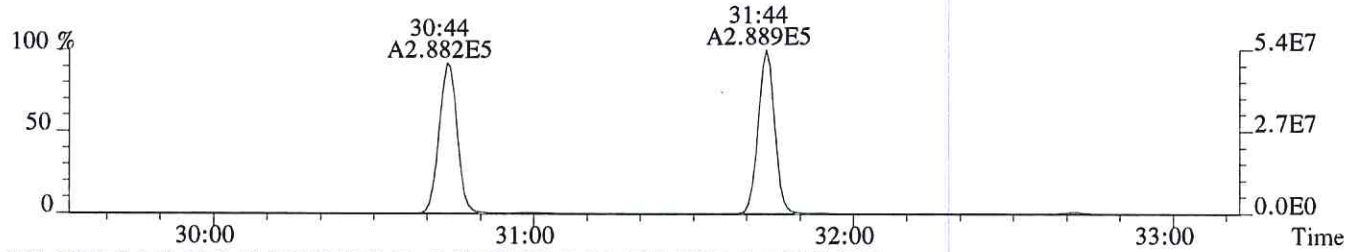
File:P607183 #1-609 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,208.0,1.00%,F,T)



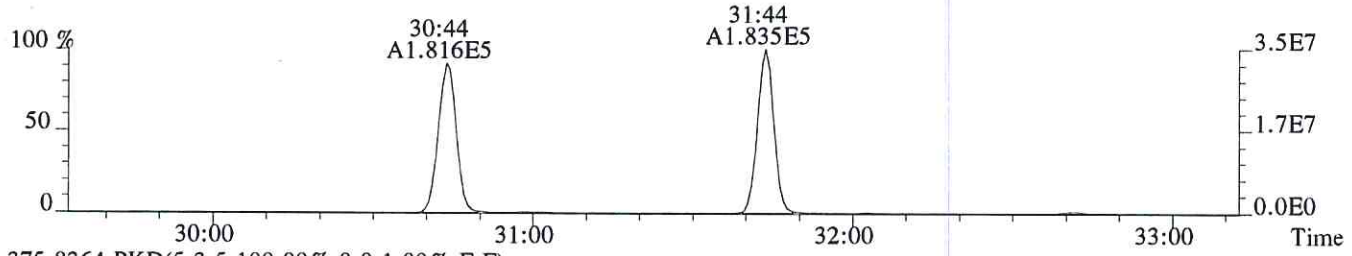
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



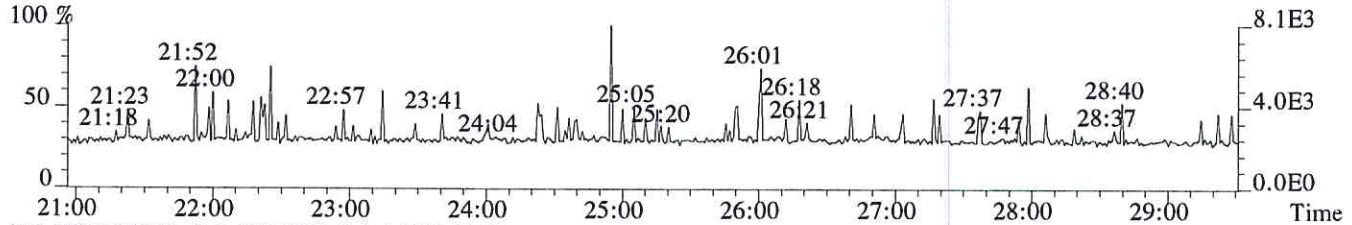
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)



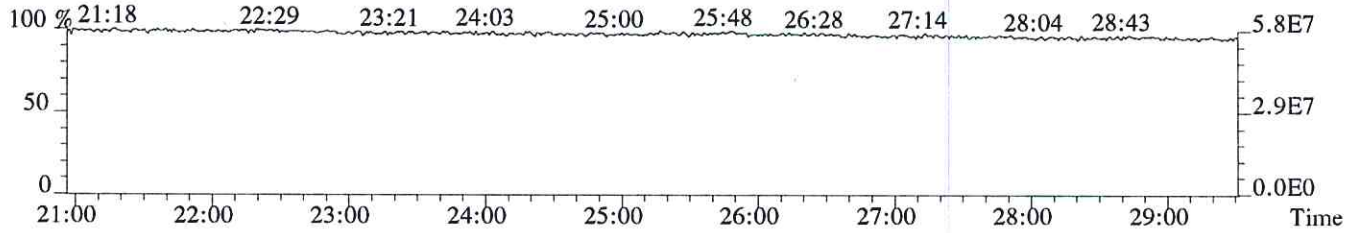
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



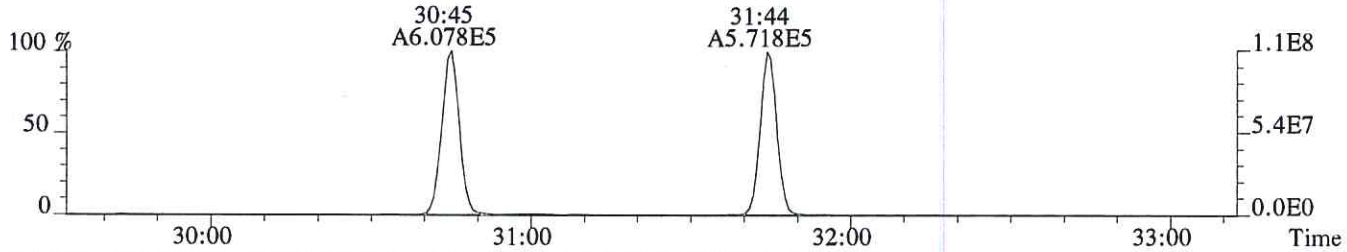
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



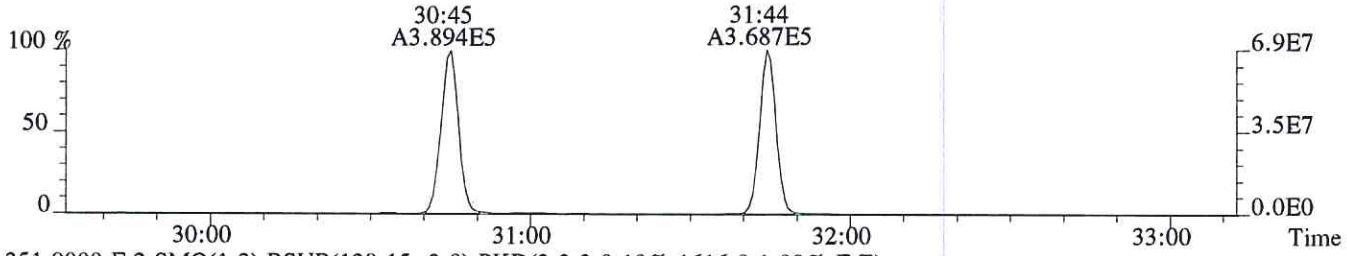
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



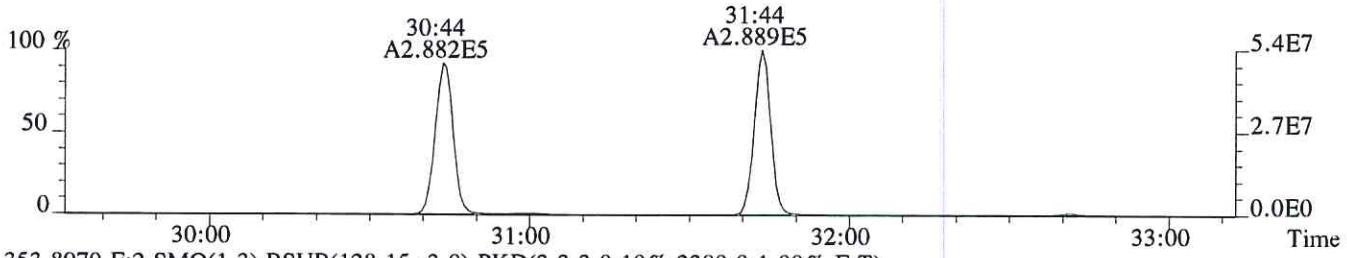
File:P607183 #1-330 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



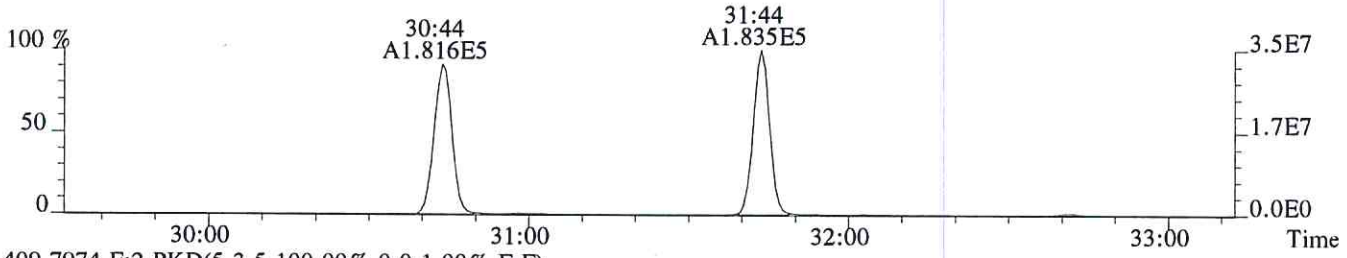
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2584.0,1.00%,F,T)



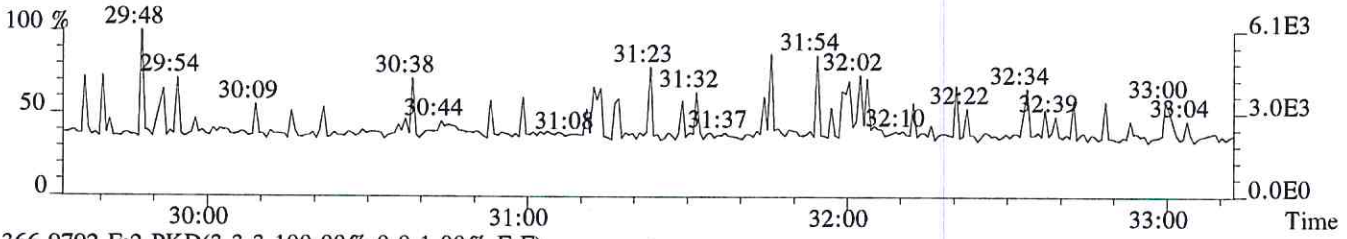
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)



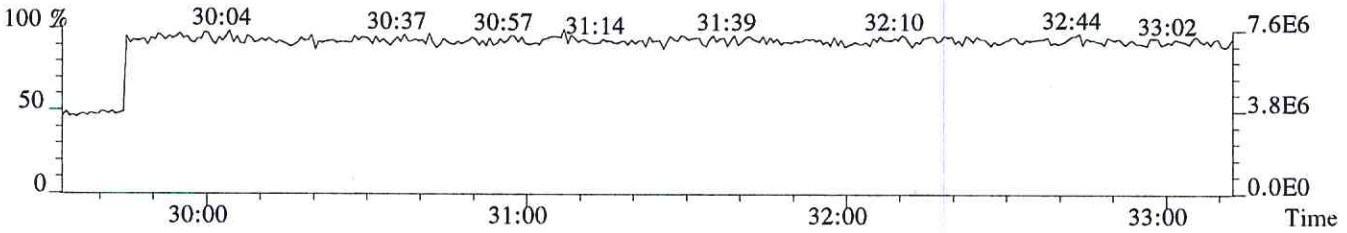
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



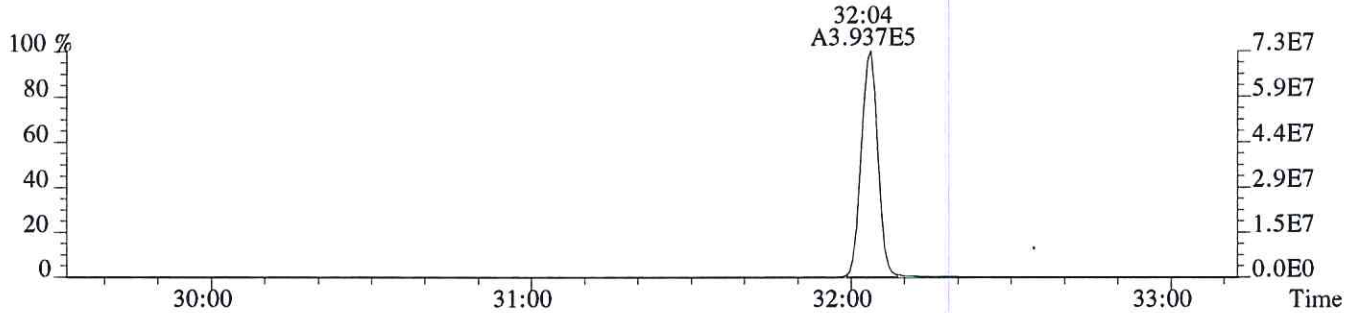
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



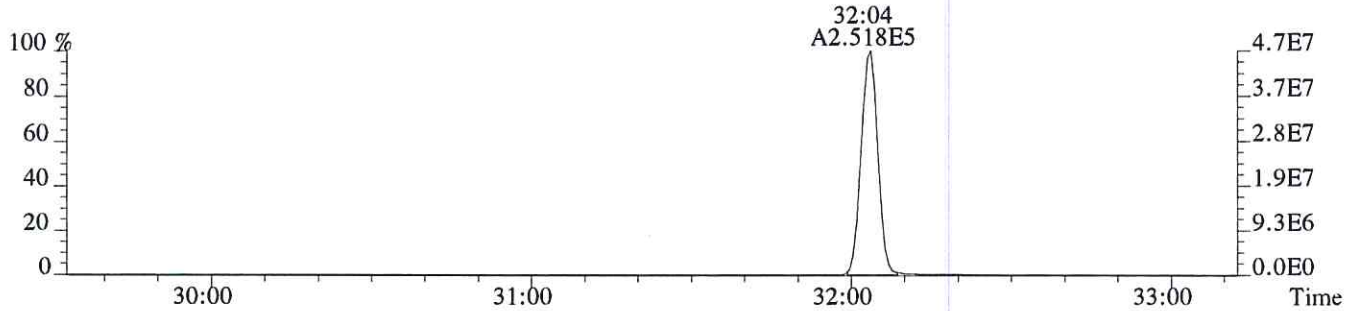
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



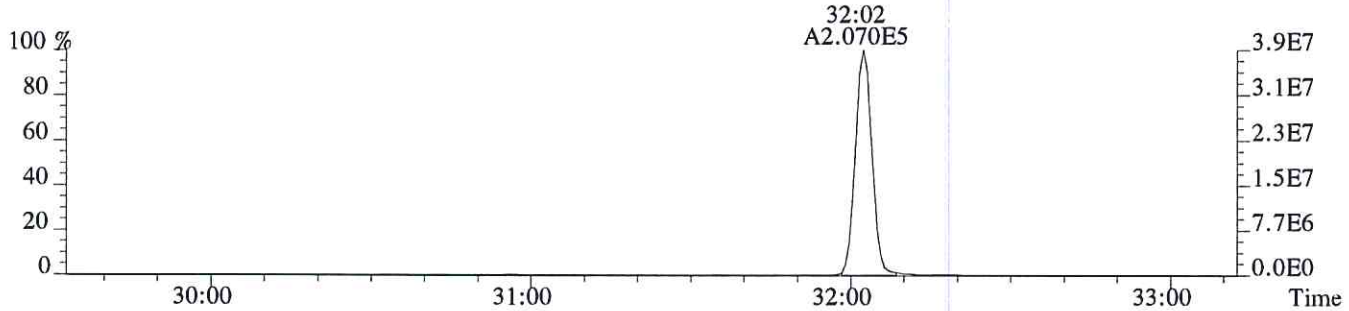
File:P607183 #1-330 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



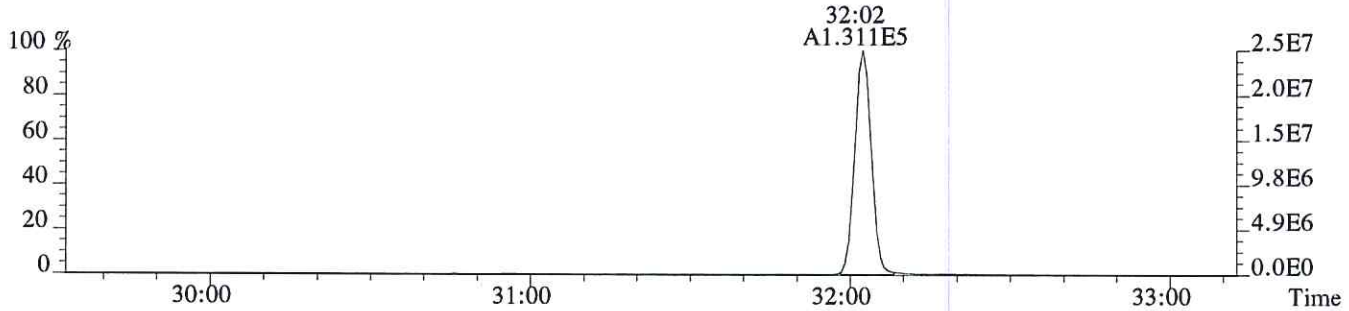
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



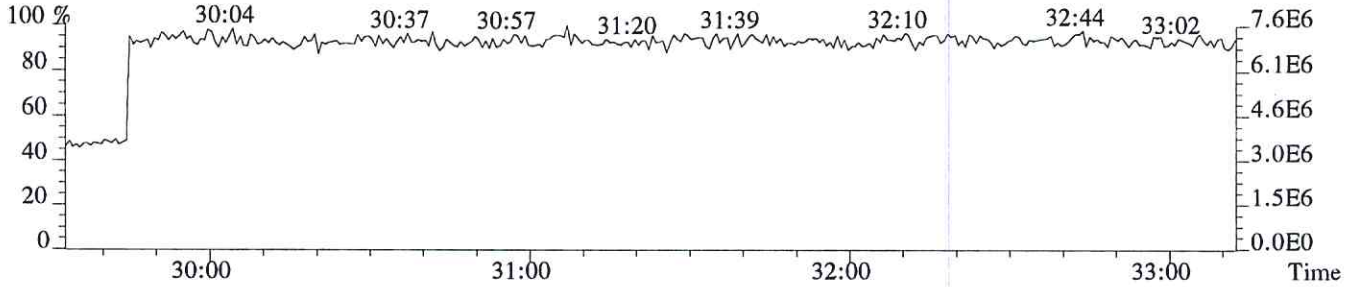
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



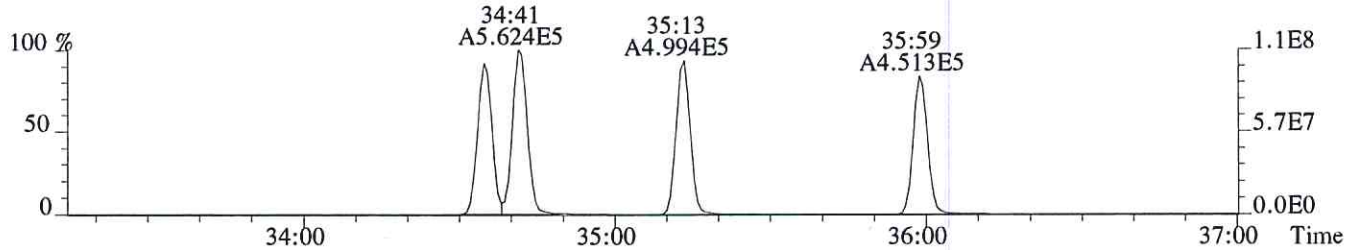
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



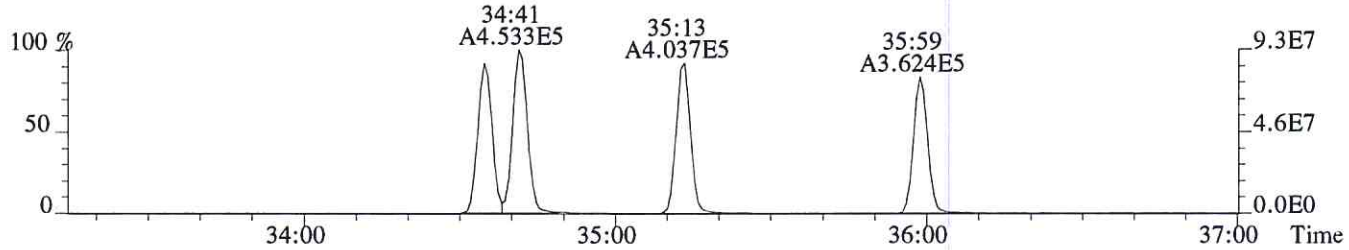
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



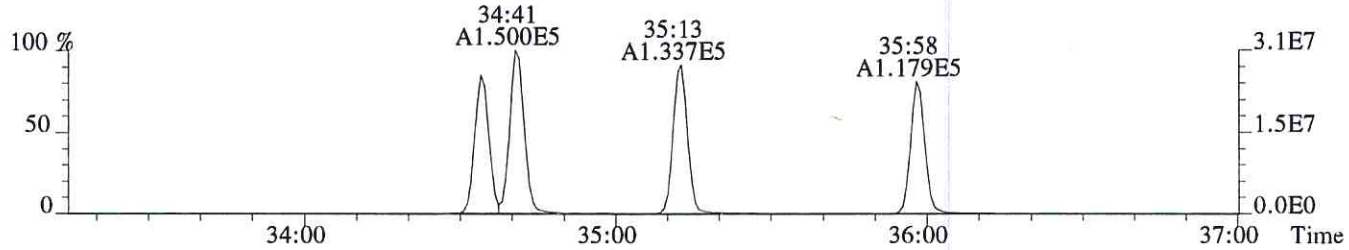
File:P607183 #1-339 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



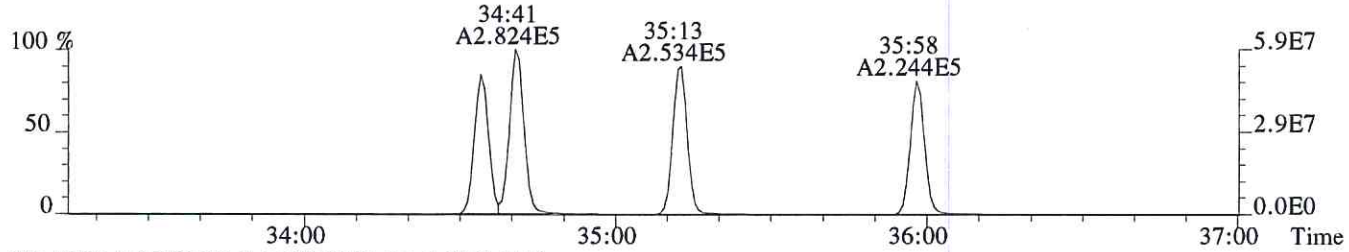
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.40%,F,T)



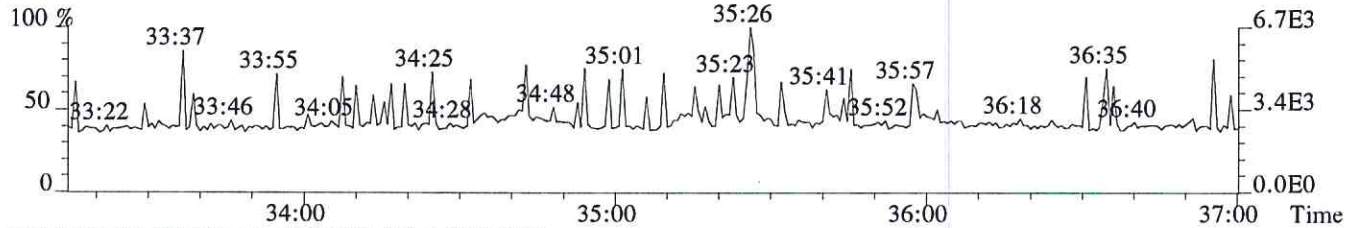
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.40%,F,T)



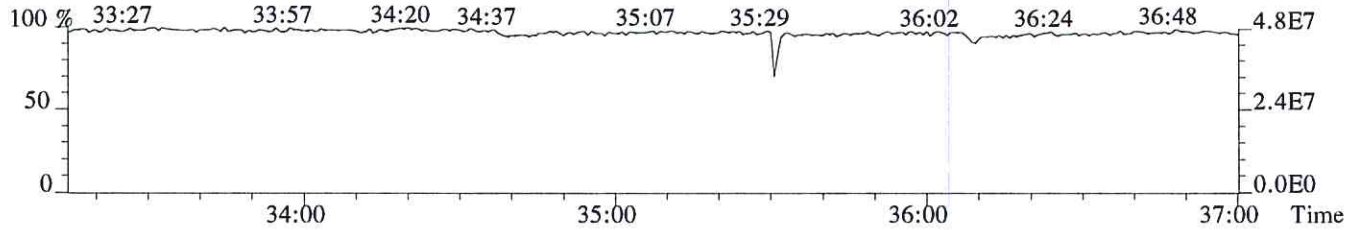
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2348.0,0.40%,F,T)



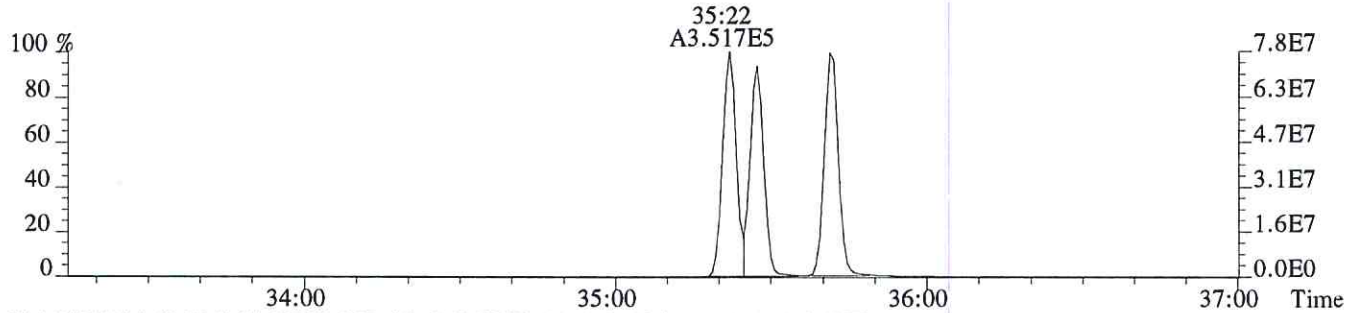
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



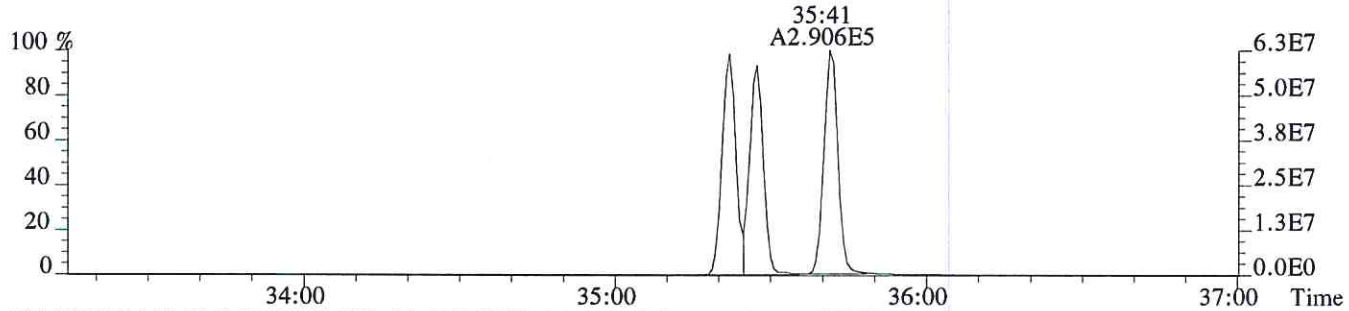
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



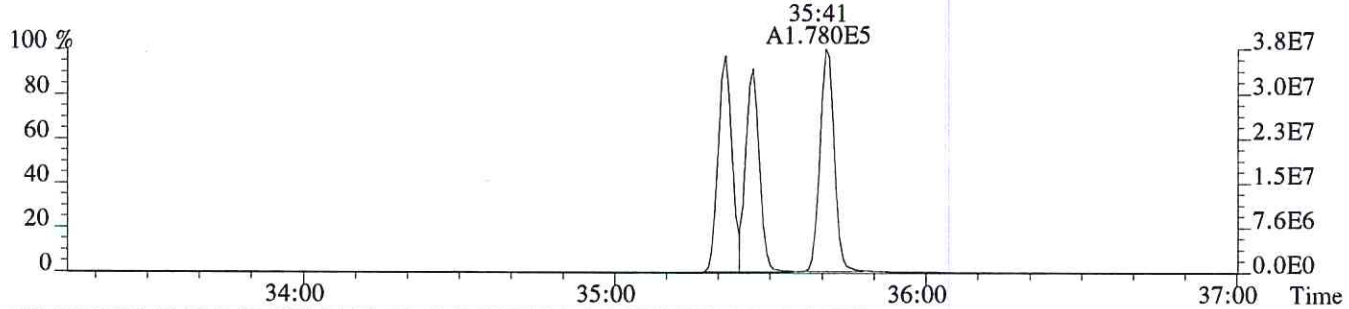
File:P607183 #1-339 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



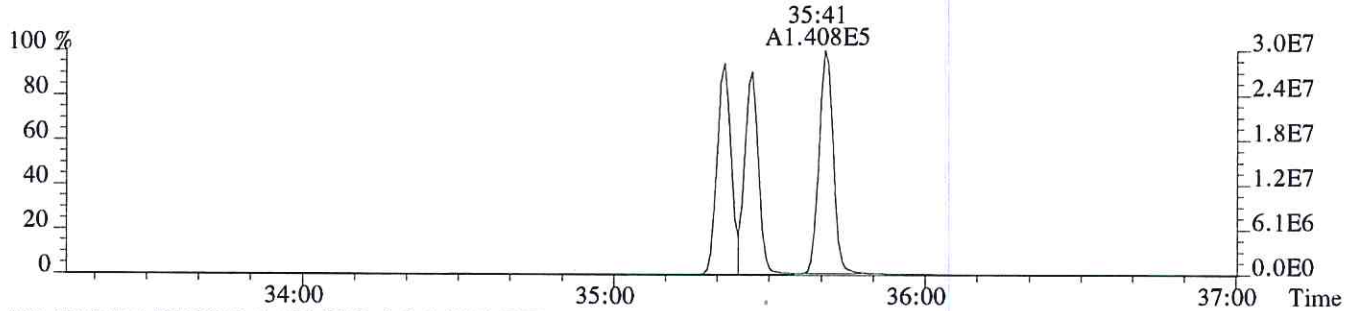
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



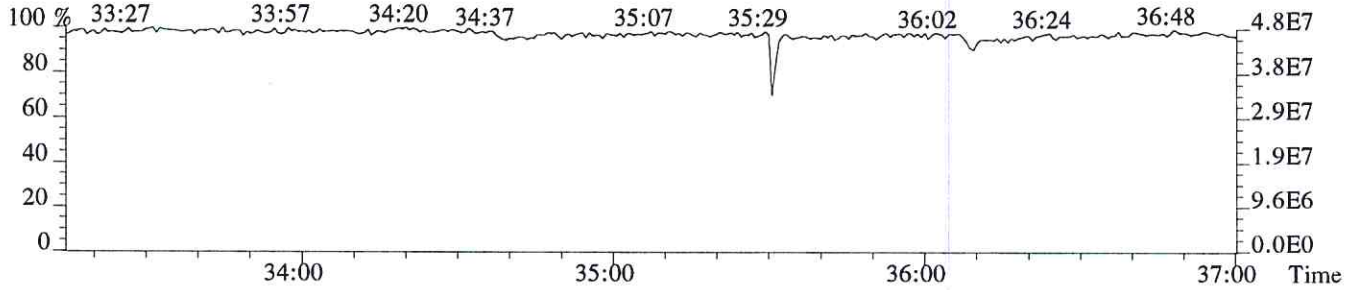
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



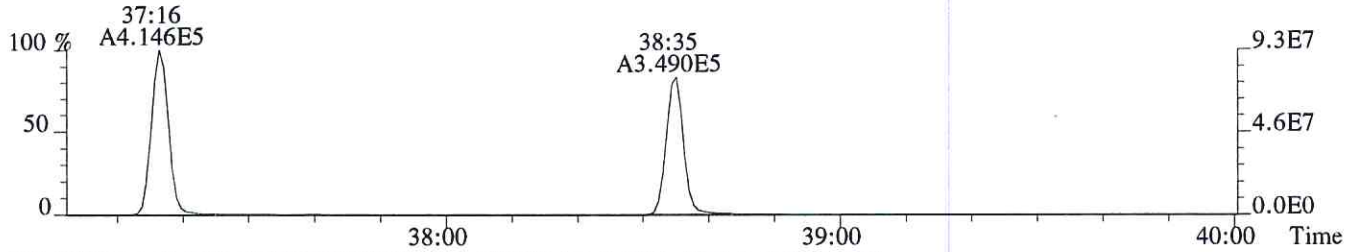
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



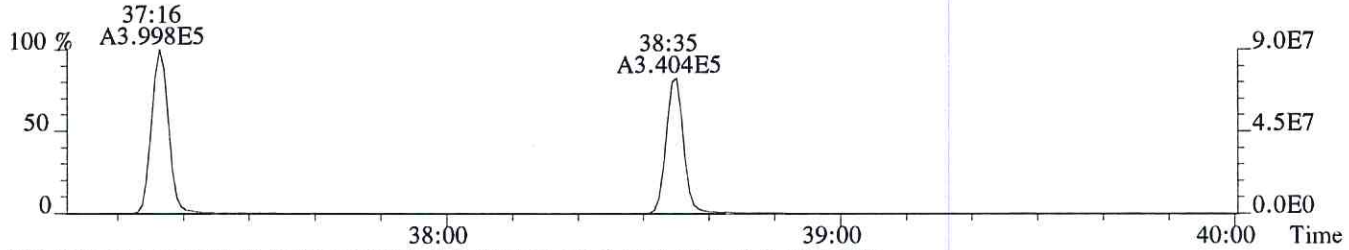
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



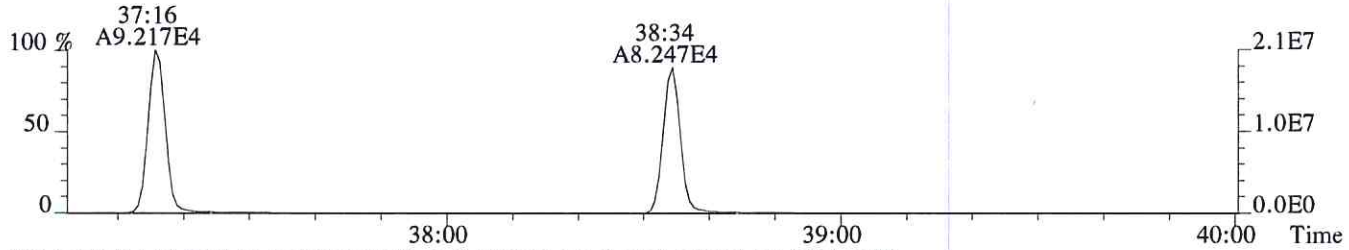
File:P607183 #1-268 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,21144.0,0.50%,F,T)



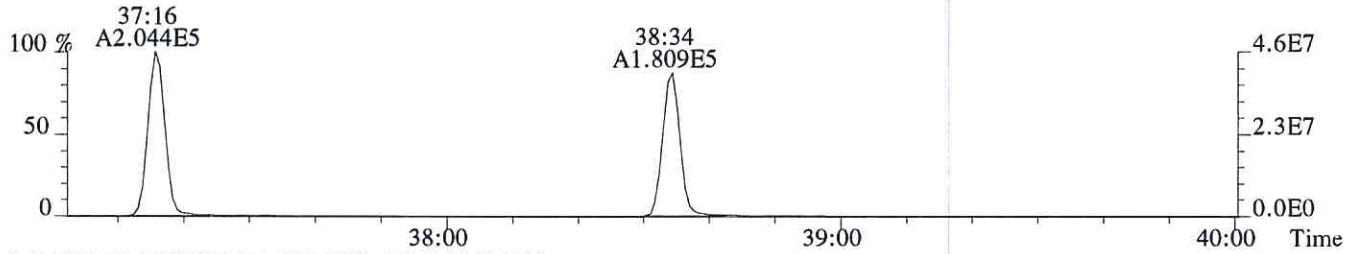
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4368.0,0.50%,F,T)



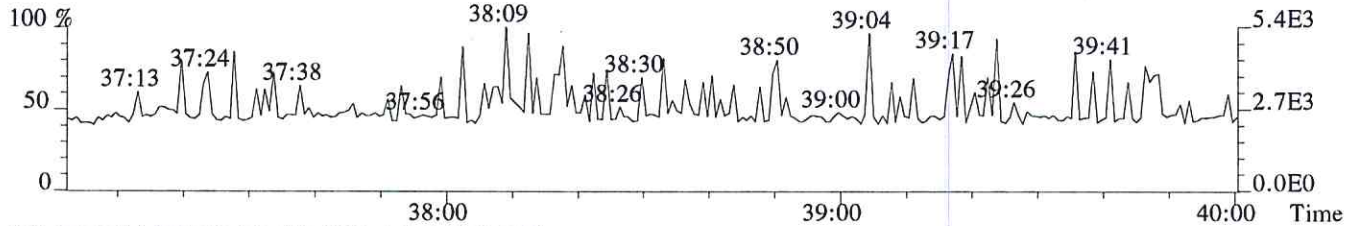
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3096.0,0.50%,F,T)



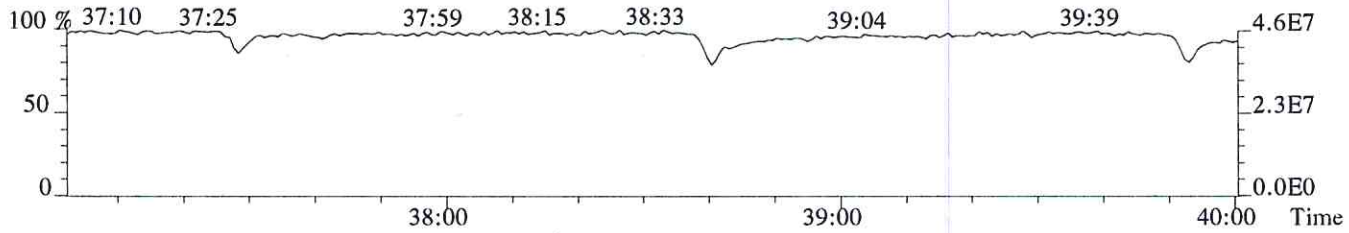
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,21224.0,0.50%,F,T)



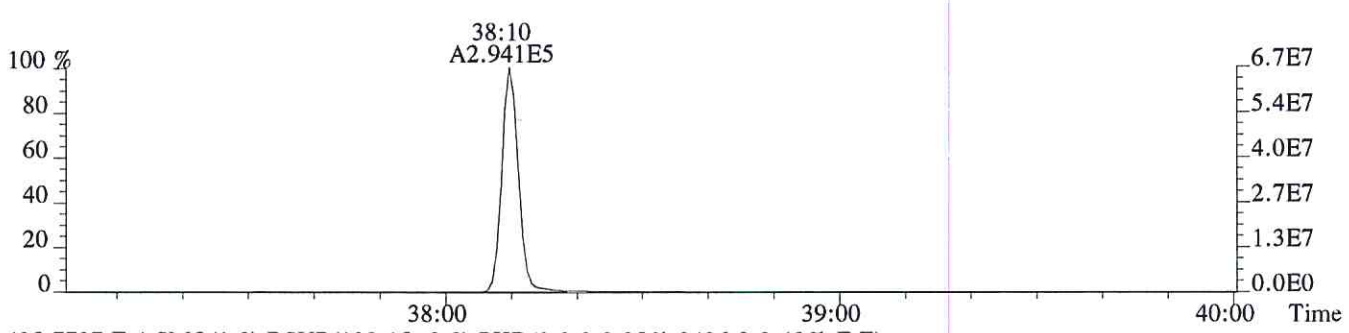
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



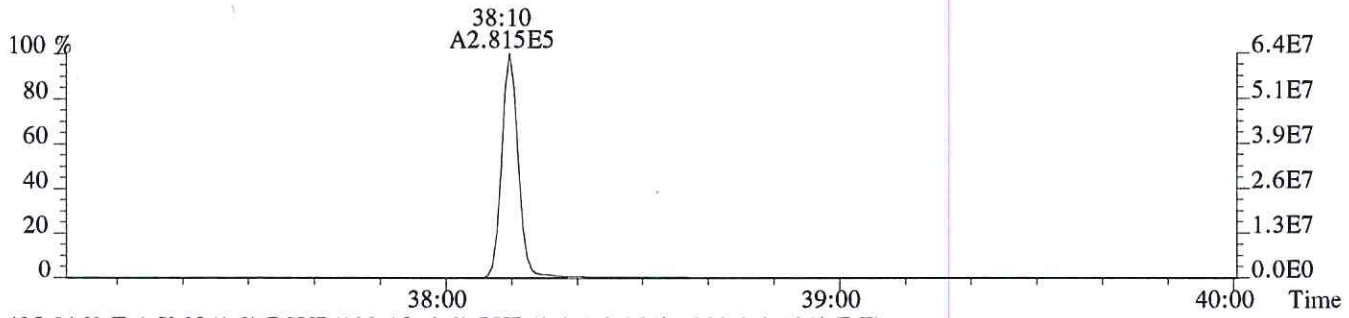
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



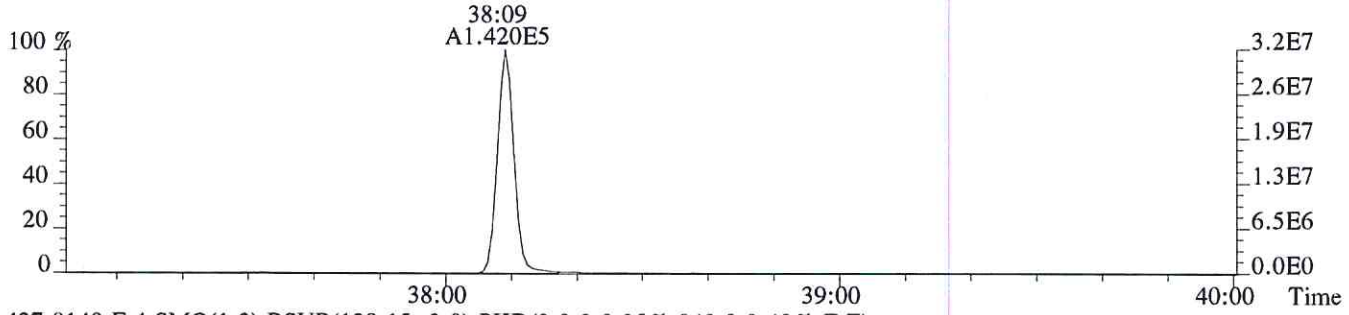
File:P607183 #1-268 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2904.0,0.40%,F,T)



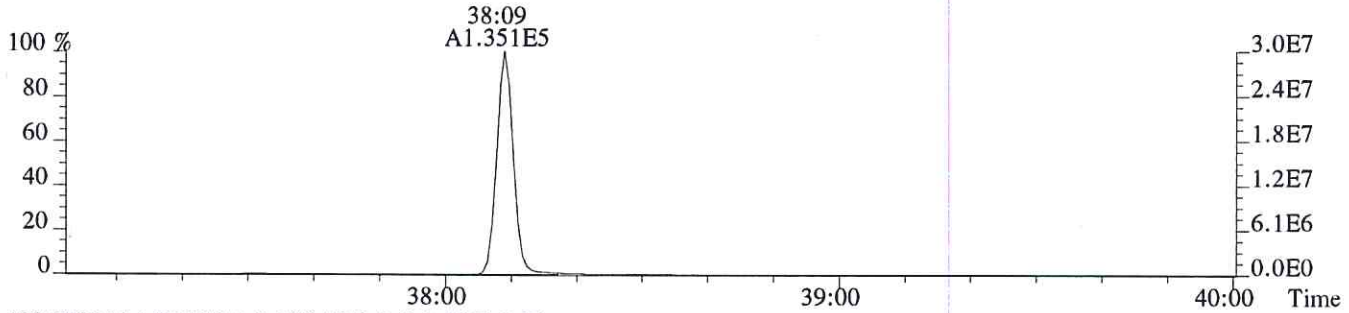
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2496.0,0.40%,F,T)



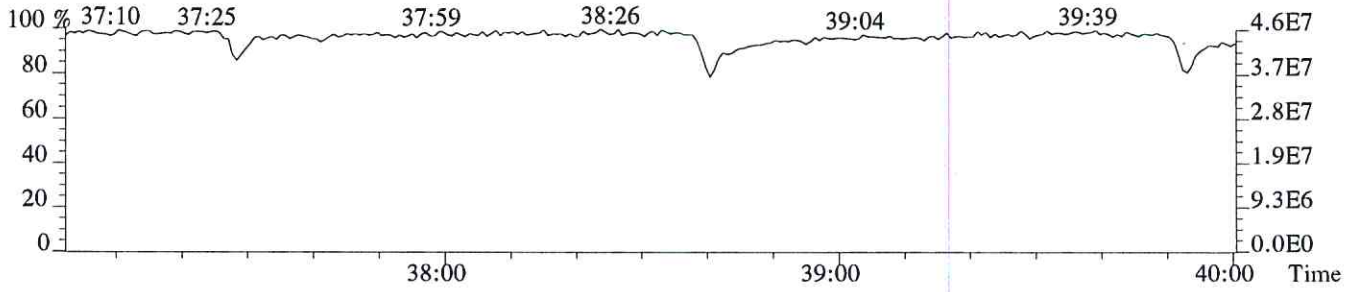
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1988.0,0.40%,F,T)



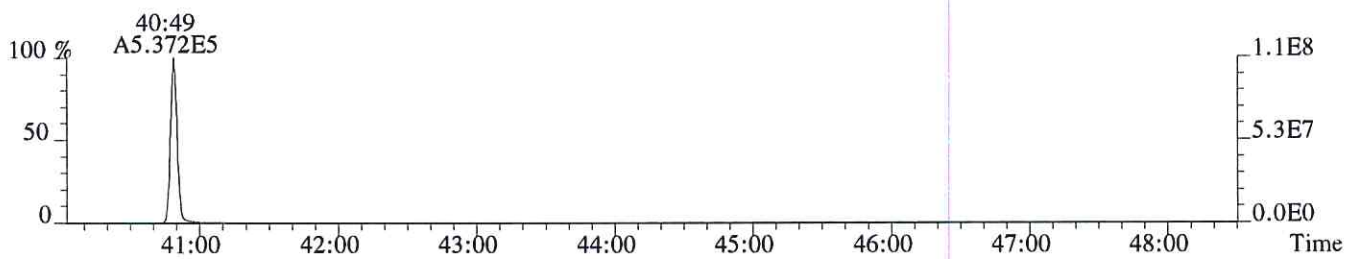
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



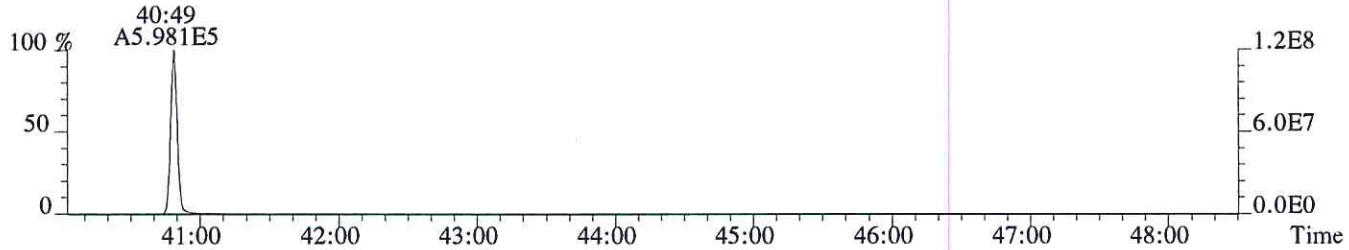
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



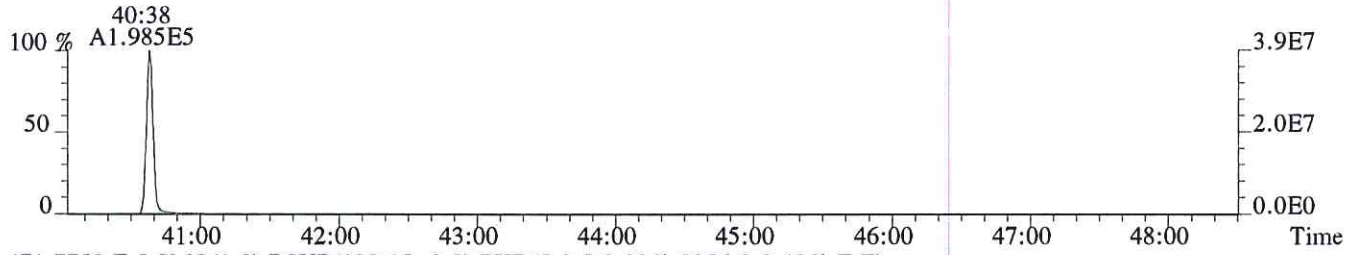
File:P607183 #1-762 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,25616.0,0.40%,F,T)



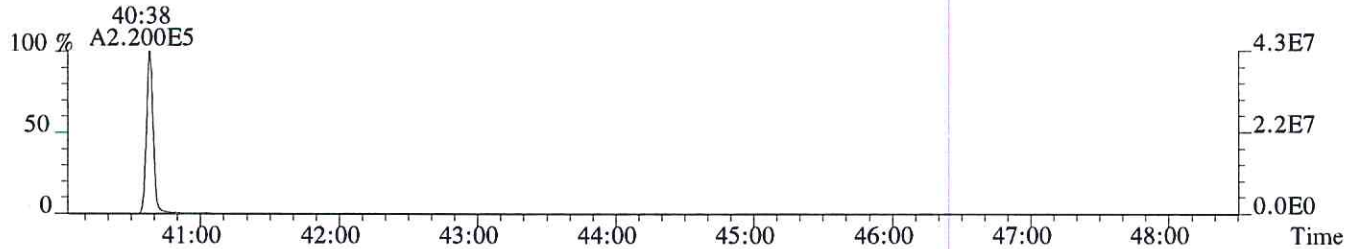
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,38344.0,0.40%,F,T)



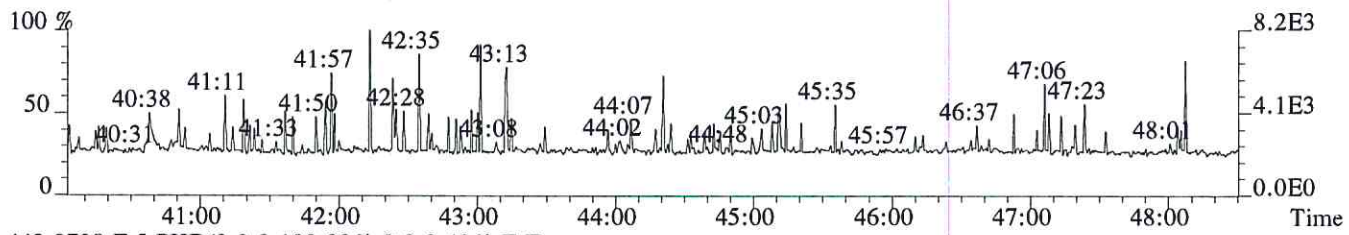
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,15288.0,0.40%,F,T)



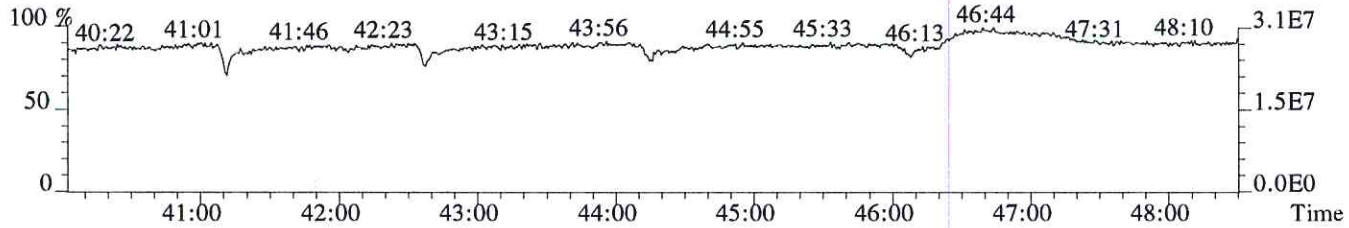
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8956.0,0.40%,F,T)



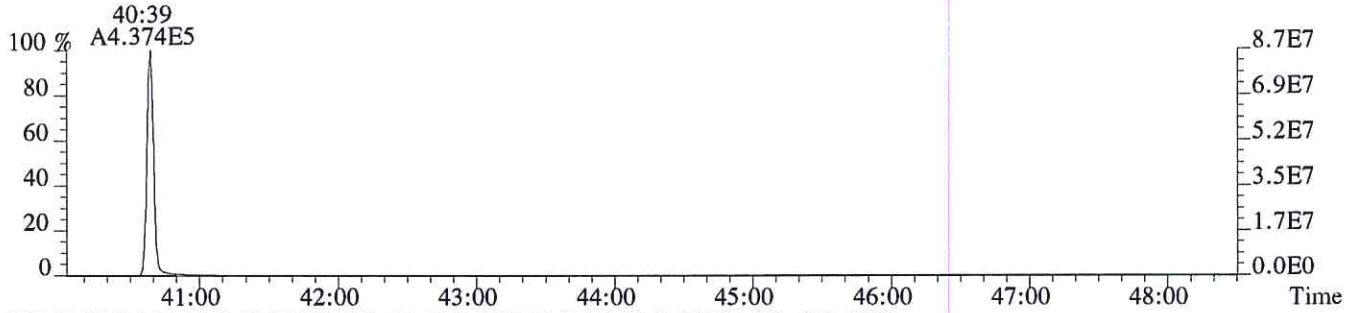
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



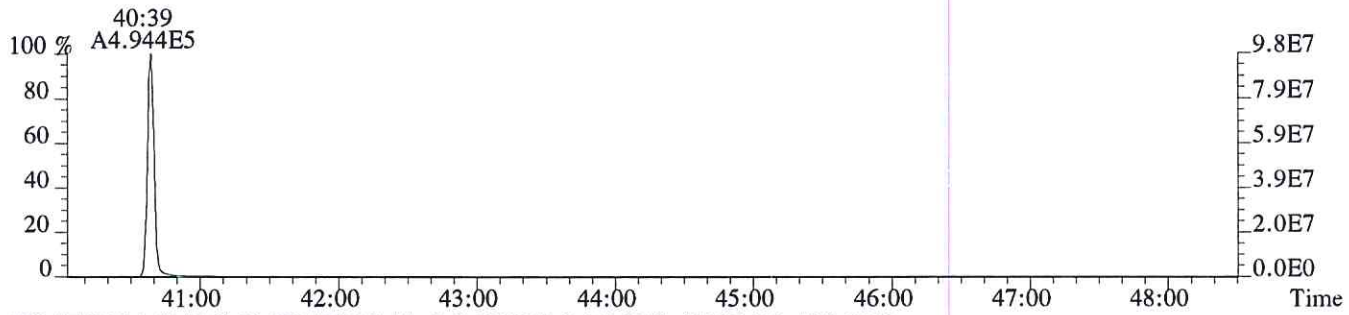
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



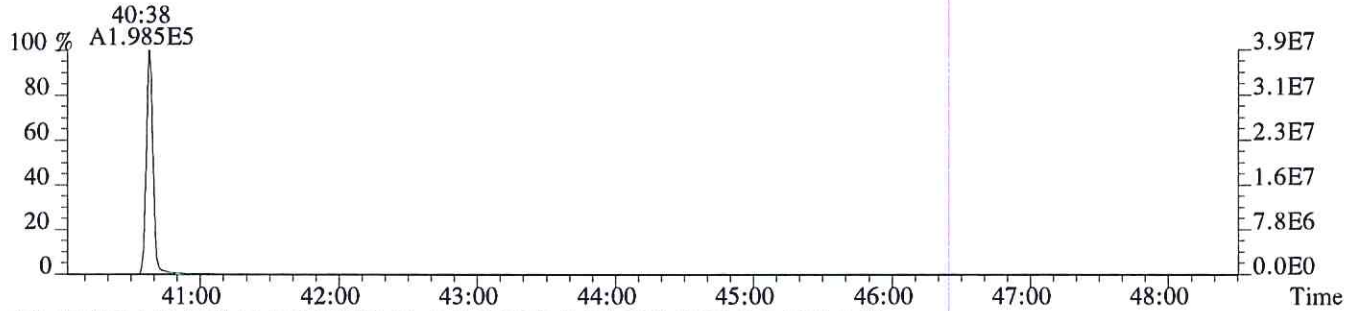
File:P607183 #1-762 Acq:16-MAY-2017 16:05:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,16144.0,0.40%,F,T)



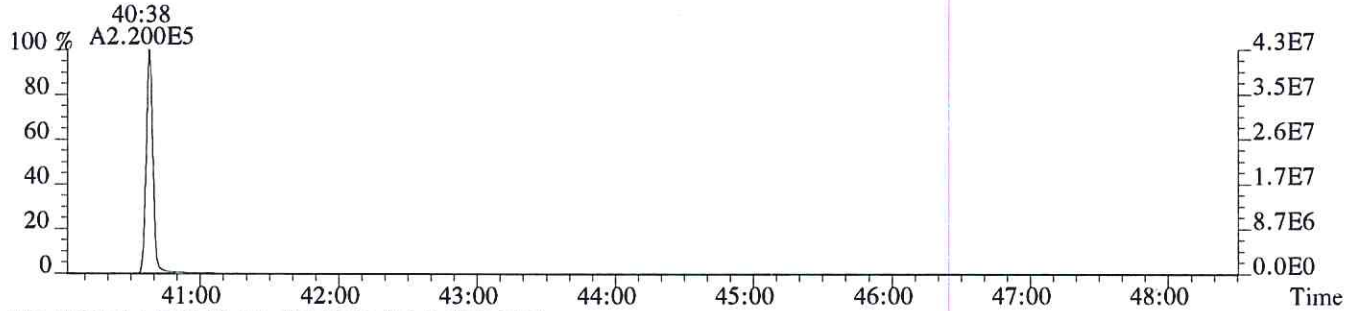
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,35104.0,0.40%,F,T)



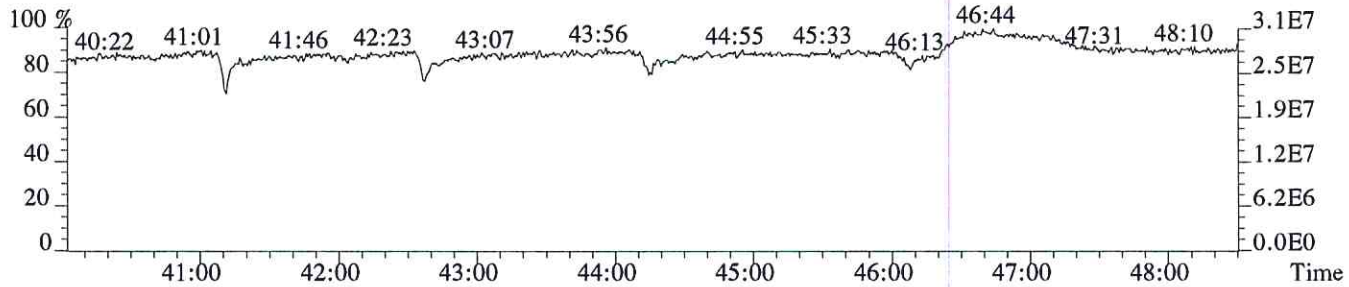
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,15288.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8956.0,0.40%,F,T)



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



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
82168

Run #6 Filename P607184 Samp: 1 Inj: 1 Acquired: 16-MAY-17 16:55:47
Processed: 17-MAY-17 07:53:00 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:51	1.497e+05	1.912e+05	0.78	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	30:45	1.130e+06	7.268e+05	1.56	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	31:44	1.167e+06	7.508e+05	1.55	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	34:35	9.742e+05	7.856e+05	1.24	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	34:41	1.089e+06	8.739e+05	1.25	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:13	9.619e+05	7.735e+05	1.24	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	35:59	8.721e+05	6.979e+05	1.25	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	8.107e+05	7.806e+05	1.04	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	38:35	7.029e+05	6.833e+05	1.03	yes	no	1.341
10	Unk	OCDF	40:49	1.091e+06	1.201e+06	0.91	yes	no	1.337
11	Unk	2,3,7,8-TCDD	26:50	1.147e+05	1.461e+05	0.78	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:04	7.854e+05	5.019e+05	1.56	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:22	7.321e+05	5.872e+05	1.25	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:27	6.649e+05	5.336e+05	1.25	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	35:41	7.344e+05	5.870e+05	1.25	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:10	5.824e+05	5.623e+05	1.04	yes	no	1.048
17	Unk	OCDD	40:39	8.817e+05	1.000e+06	0.88	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	25:50	7.771e+04	9.829e+04	0.79	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	30:44	1.168e+05	7.392e+04	1.58	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	31:44	1.131e+05	7.188e+04	1.57	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	34:34	5.081e+04	9.735e+04	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	34:41	5.746e+04	1.103e+05	0.52	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:13	5.300e+04	1.016e+05	0.52	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	35:58	4.784e+04	9.061e+04	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:16	3.767e+04	8.314e+04	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	3.155e+04	7.023e+04	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	26:48	5.746e+04	7.322e+04	0.78	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:02	8.338e+04	5.330e+04	1.56	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:21	6.604e+04	5.272e+04	1.25	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:27	7.279e+04	5.834e+04	1.25	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:09	5.836e+04	5.533e+04	1.05	yes	no	0.884
32	IS	13C-OCDD	40:38	9.149e+04	1.008e+05	0.91	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:07	5.652e+04	7.147e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:41	7.174e+04	5.639e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:50	2.718e+05				no	1.072

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
82168

Run #6 Filename P607184 Samp: 1 Inj: 1 Acquired: 16-MAY-17 16:55:47
Processed: 17-MAY-17 07:53:00 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.17e+07	1.33e+03	1.6e+04	2.79e+07	1.18e+03	2.4e+04
2	1,2,3,7,8-PeCDF	1.97e+08	1.65e+04	1.2e+04	1.27e+08	9.81e+03	1.3e+04
3	2,3,4,7,8-PeCDF	2.17e+08	1.65e+04	1.3e+04	1.40e+08	9.81e+03	1.4e+04
4	1,2,3,4,7,8-HxCDF	2.04e+08	4.58e+03	4.4e+04	1.65e+08	2.35e+03	7.0e+04
5	1,2,3,6,7,8-HxCDF	2.23e+08	4.58e+03	4.9e+04	1.81e+08	2.35e+03	7.7e+04
6	2,3,4,6,7,8-HxCDF	2.03e+08	4.58e+03	4.4e+04	1.62e+08	2.35e+03	6.9e+04
7	1,2,3,7,8,9-HxCDF	1.87e+08	4.58e+03	4.1e+04	1.50e+08	2.35e+03	6.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.79e+08	1.85e+04	9.7e+03	1.73e+08	5.49e+04	3.1e+03
9	1,2,3,4,7,8,9-HpCDF	1.52e+08	1.85e+04	8.2e+03	1.46e+08	5.49e+04	2.7e+03
10	OCDF	2.15e+08	1.36e+05	1.6e+03	2.39e+08	6.27e+04	3.8e+03
11	2,3,7,8-TCDD	1.87e+07	1.50e+03	1.2e+04	2.38e+07	3.48e+02	6.8e+04
12	1,2,3,7,8-PeCDD	1.48e+08	1.20e+03	1.2e+05	9.35e+07	1.00e+03	9.3e+04
13	1,2,3,4,7,8-HxCDD	1.62e+08	6.84e+02	2.4e+05	1.29e+08	3.16e+02	4.1e+05
14	1,2,3,6,7,8-HxCDD	1.41e+08	6.84e+02	2.1e+05	1.13e+08	3.16e+02	3.6e+05
15	1,2,3,7,8,9-HxCDD	1.57e+08	6.84e+02	2.3e+05	1.27e+08	3.16e+02	4.0e+05
16	1,2,3,4,6,7,8-HpCDD	1.33e+08	6.68e+03	2.0e+04	1.28e+08	3.04e+03	4.2e+04
17	OCDD	1.80e+08	5.70e+04	3.1e+03	2.03e+08	4.18e+04	4.9e+03
18	13C-2,3,7,8-TCDF	1.13e+07	1.70e+04	6.7e+02	1.41e+07	5.63e+03	2.5e+03
19	13C-1,2,3,7,8-PeCDF	2.02e+07	1.22e+03	1.7e+04	1.29e+07	2.11e+03	6.1e+03
20	13C-2,3,4,7,8-PeCDF	2.11e+07	1.22e+03	1.7e+04	1.34e+07	2.11e+03	6.4e+03
21	13C-1,2,3,4,7,8-HxCDF	1.07e+07	8.04e+02	1.3e+04	2.05e+07	1.51e+03	1.4e+04
22	13C-1,2,3,6,7,8-HxCDF	1.19e+07	8.04e+02	1.5e+04	2.27e+07	1.51e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.12e+07	8.04e+02	1.4e+04	2.13e+07	1.51e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.01e+07	8.04e+02	1.3e+04	1.93e+07	1.51e+03	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	8.24e+06	4.42e+03	1.9e+03	1.84e+07	9.41e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.99e+06	4.42e+03	1.6e+03	1.54e+07	9.41e+03	1.6e+03
27	13C-2,3,7,8-TCDD	9.11e+06	5.94e+03	1.5e+03	1.15e+07	1.78e+03	6.5e+03
28	13C-1,2,3,7,8-PeCDD	1.57e+07	1.10e+03	1.4e+04	1.01e+07	2.20e+02	4.6e+04
29	13C-1,2,3,4,7,8-HxCDD	1.44e+07	2.46e+03	5.8e+03	1.13e+07	8.20e+02	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	1.54e+07	2.46e+03	6.3e+03	1.22e+07	8.20e+02	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.33e+07	1.90e+03	7.0e+03	1.26e+07	1.01e+03	1.2e+04
32	13C-OCDD	1.79e+07	5.02e+03	3.6e+03	2.00e+07	1.04e+04	1.9e+03
33	13C-1,2,3,4-TCDD	8.41e+06	5.94e+03	1.4e+03	1.09e+07	1.78e+03	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.56e+07	2.46e+03	6.3e+03	1.23e+07	8.20e+02	1.5e+04
35	37Cl-2,3,7,8-TCDD	4.44e+07	1.06e+03	4.2e+04			

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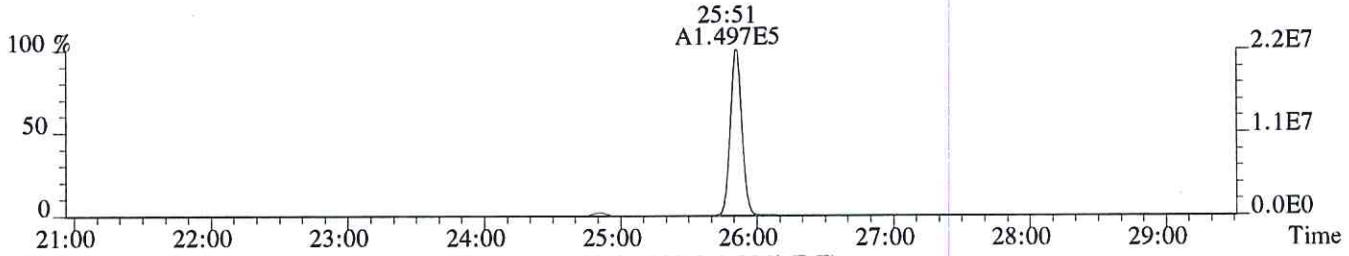
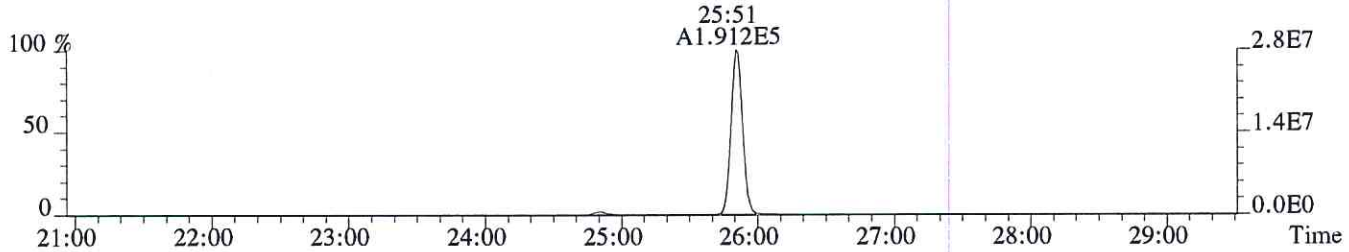
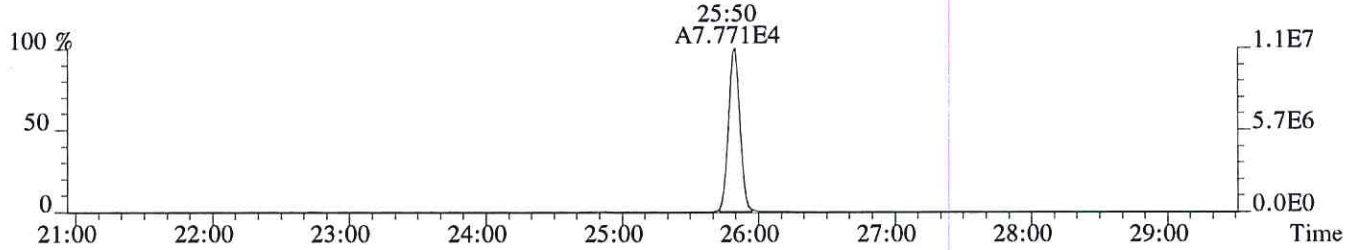
File:P607184 #1-609 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



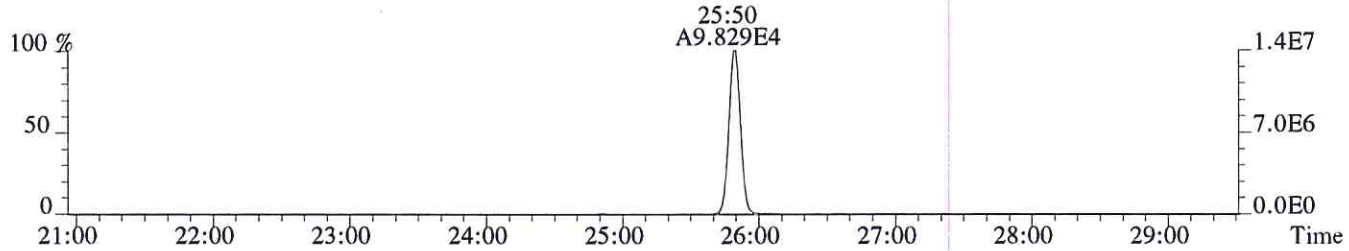
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



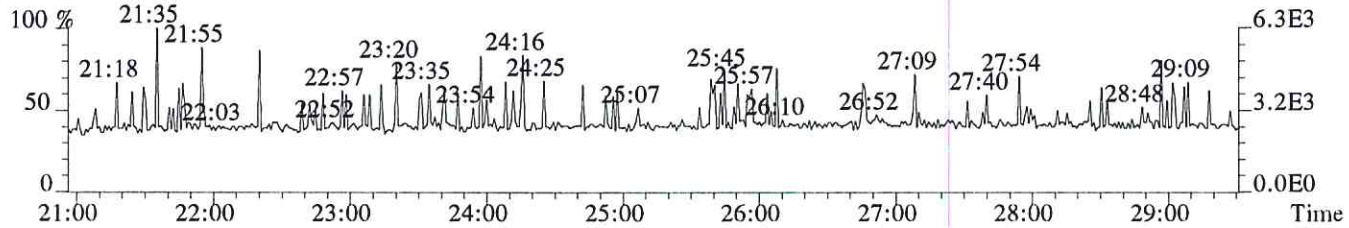
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16952.0,1.00%,F,T)



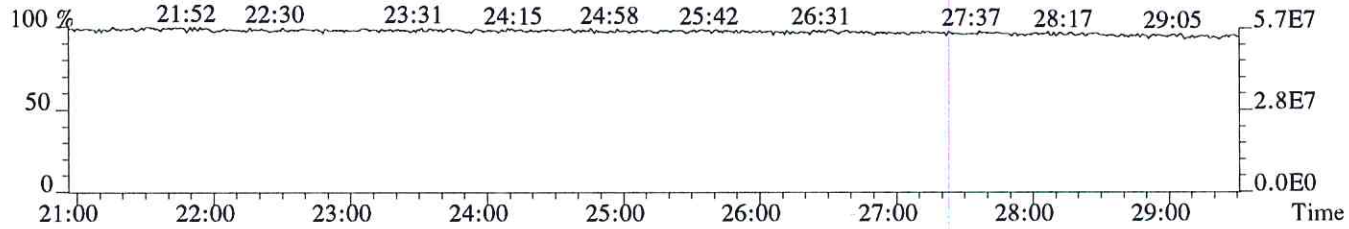
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5628.0,1.00%,F,T)



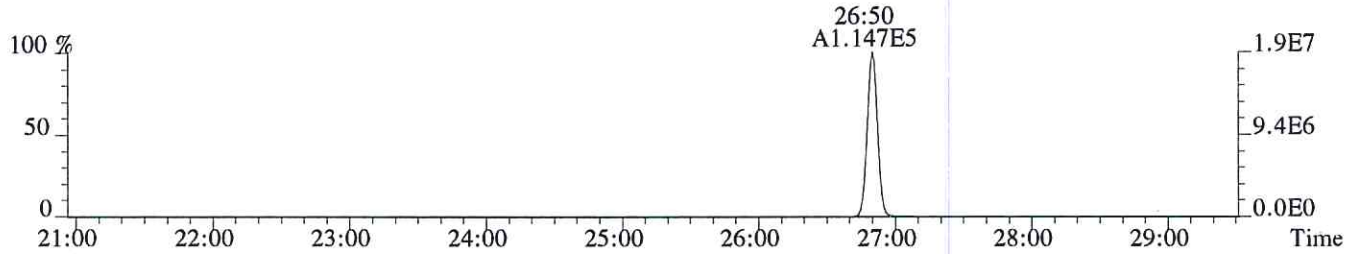
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



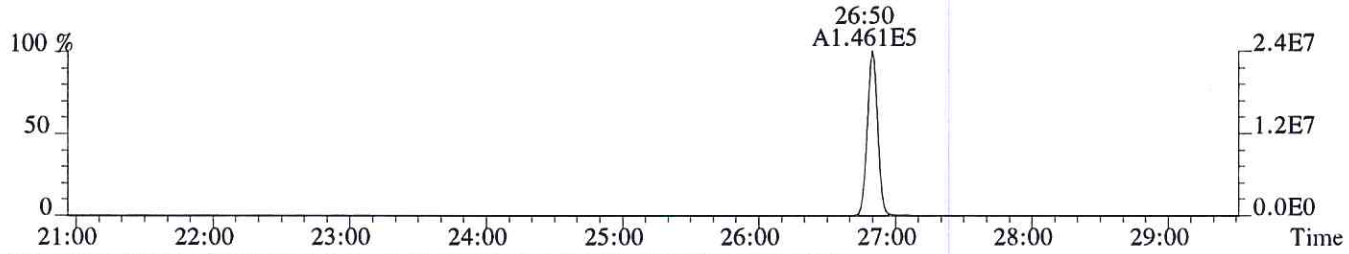
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



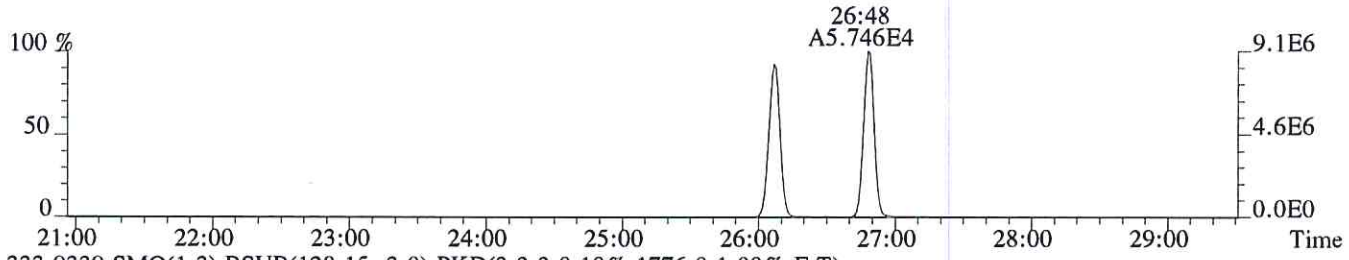
File:P607184 #1-609 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



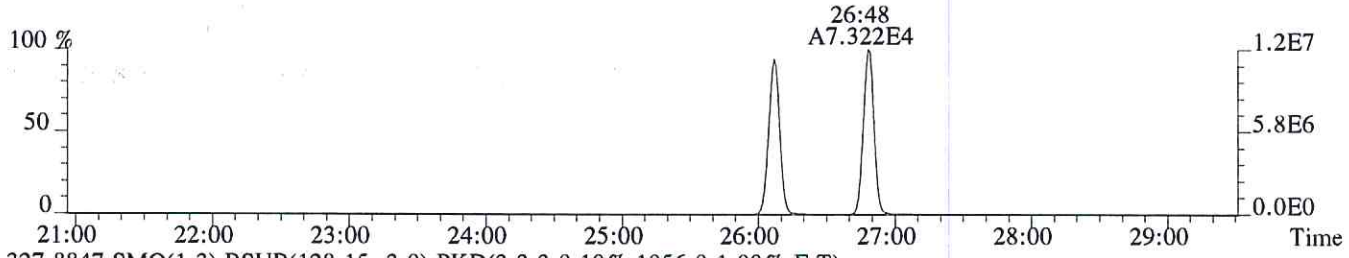
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



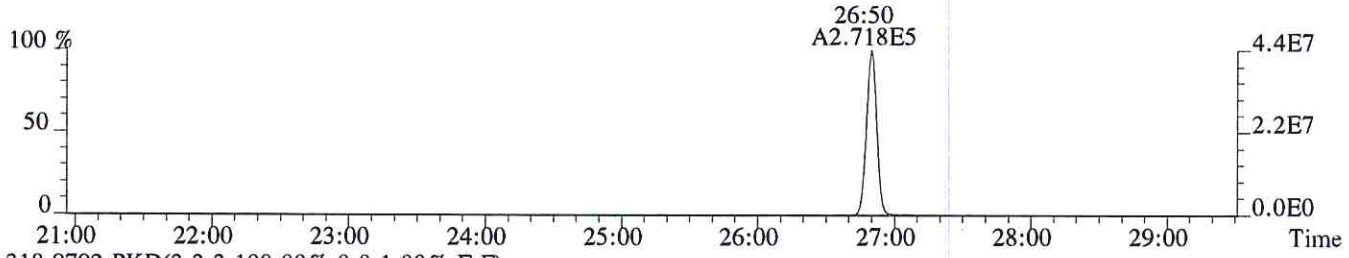
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5940.0,1.00%,F,T)



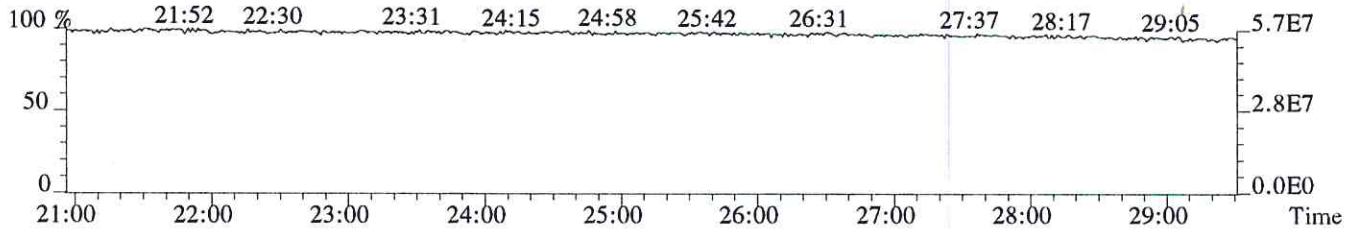
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1056.0,1.00%,F,T)

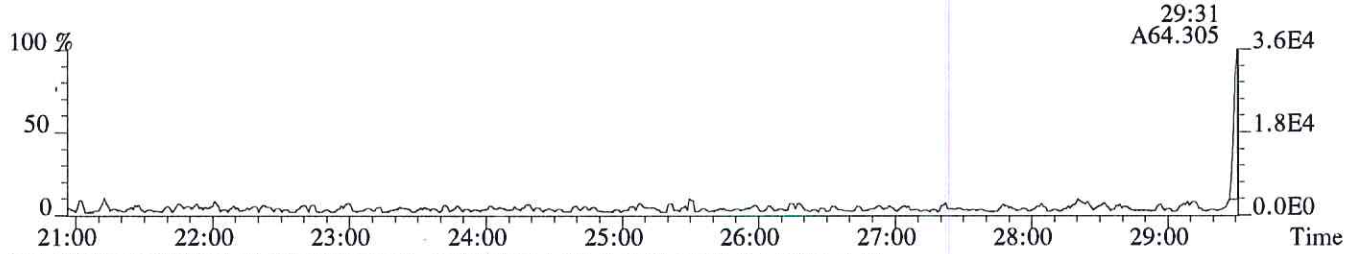


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

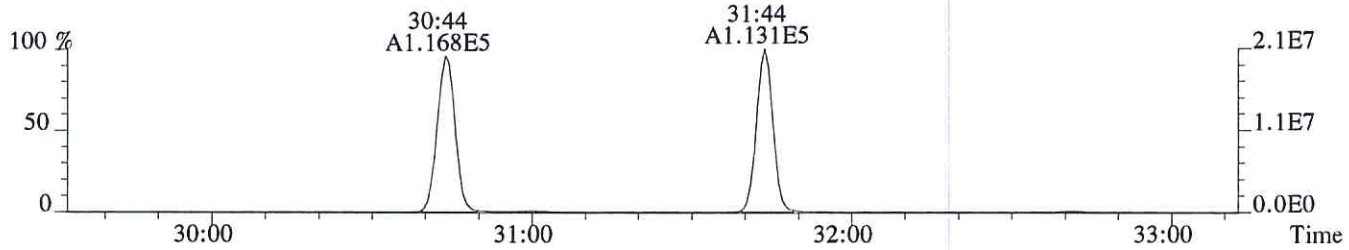


File:P607184 #1-609 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,132.0,1.00%,F,T)

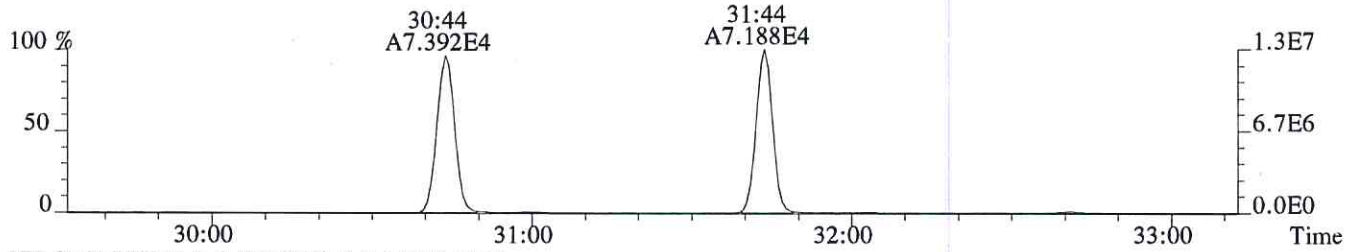
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



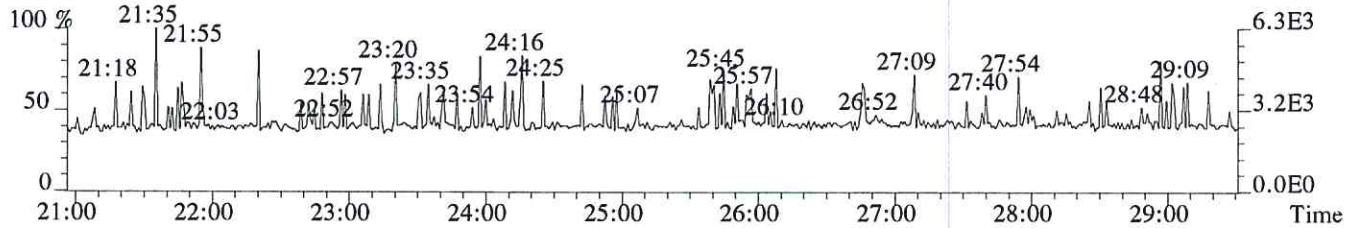
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



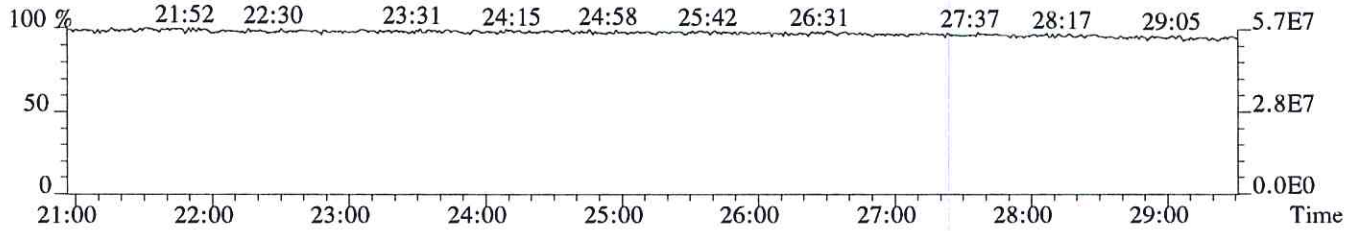
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



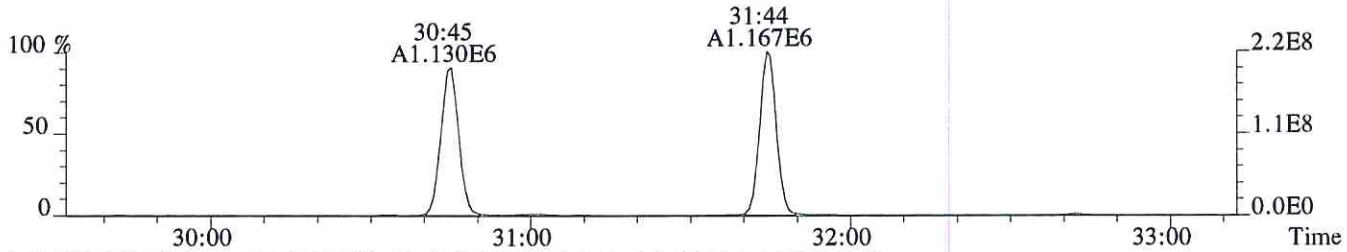
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



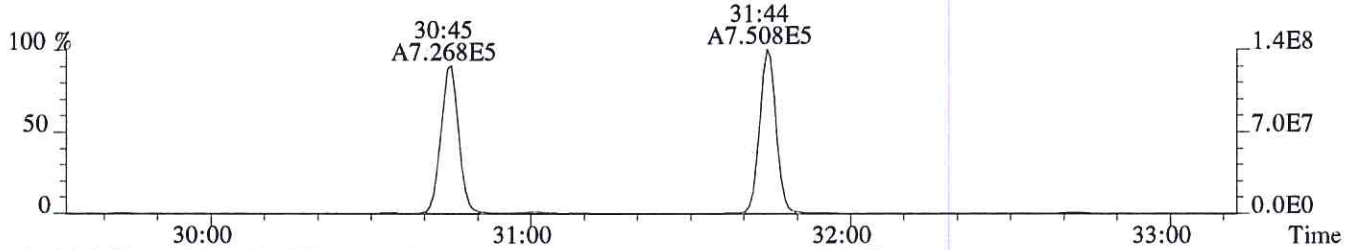
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



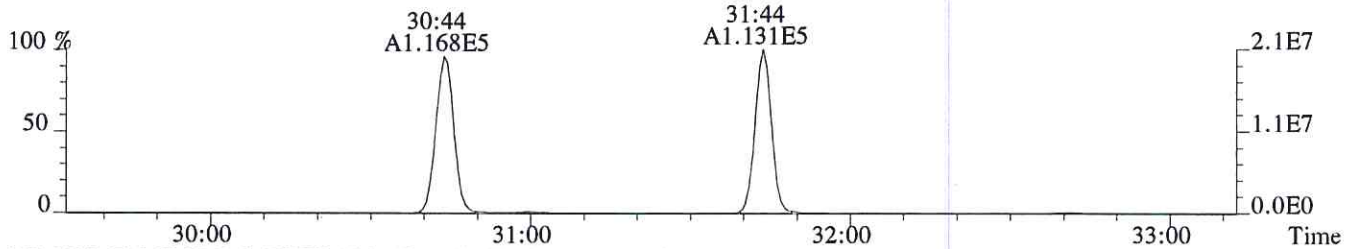
File:P607184 #1-330 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,16496.0,1.00%,F,T)



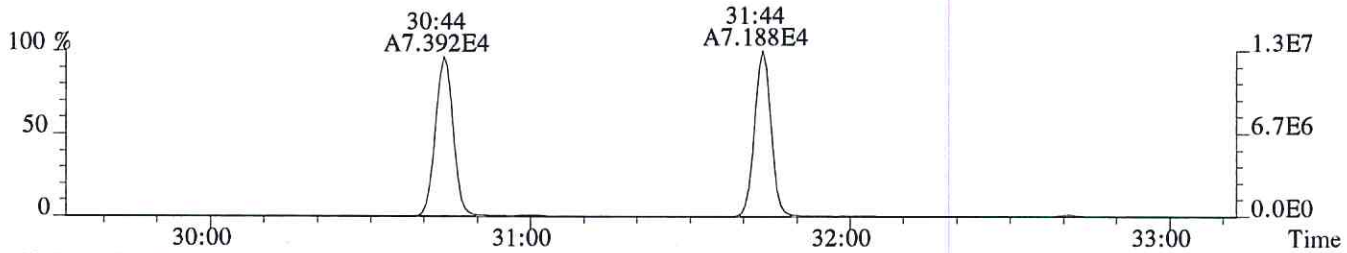
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9812.0,1.00%,F,T)



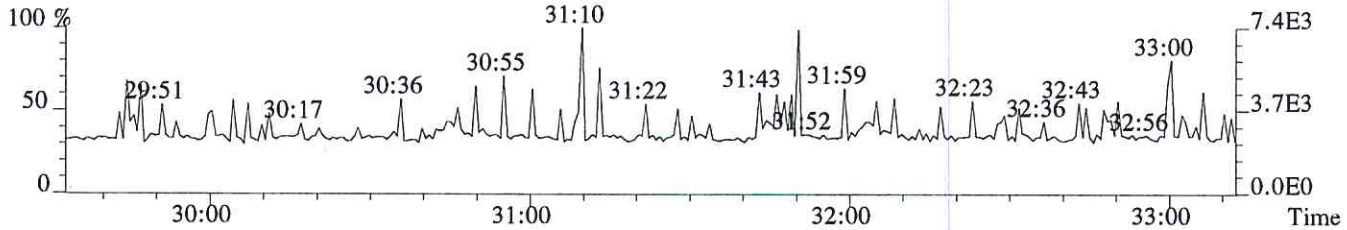
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



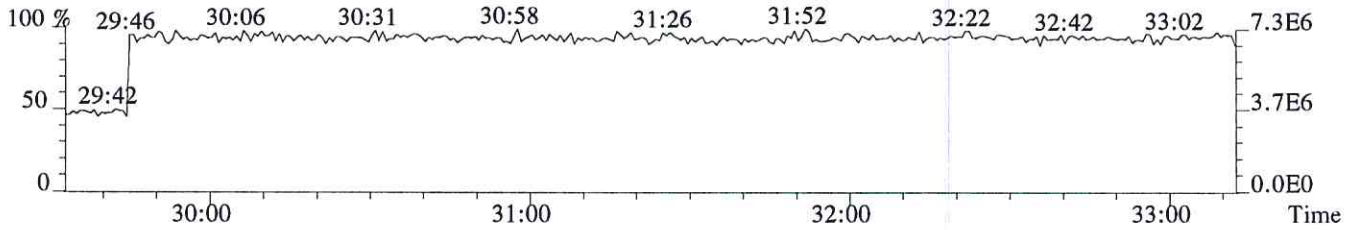
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2108.0,1.00%,F,T)



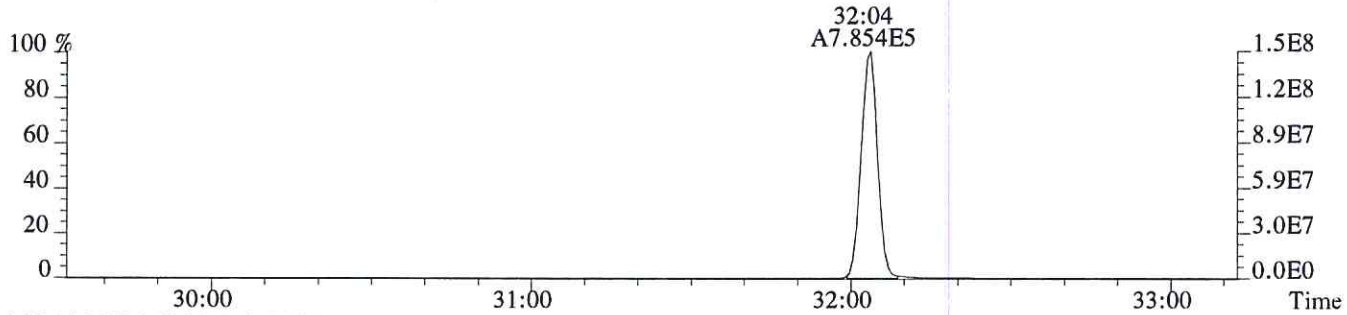
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



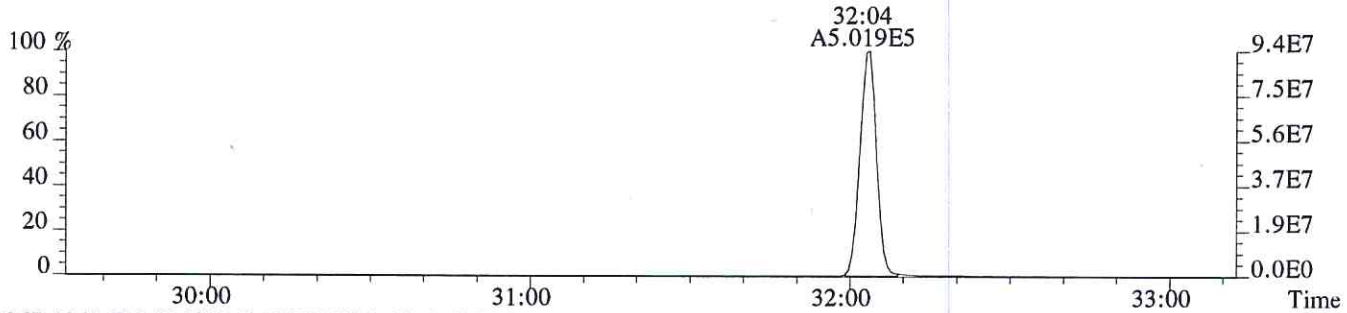
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



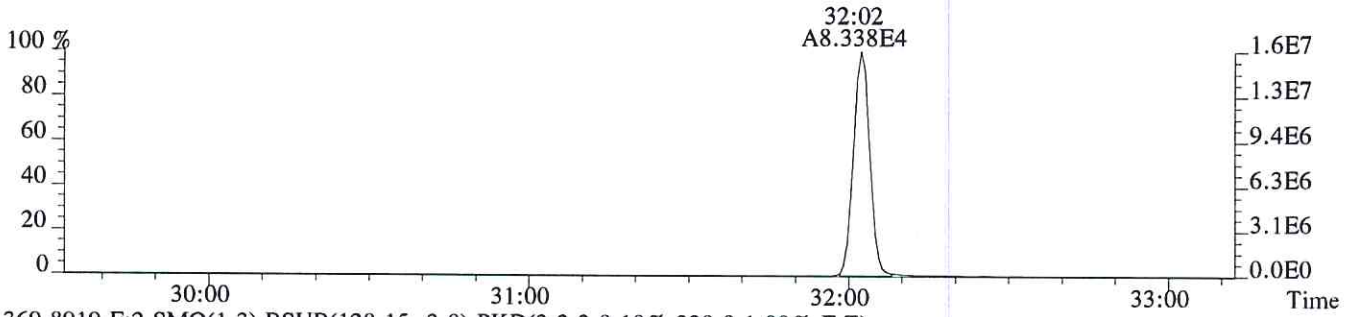
File:P607184 #1-330 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



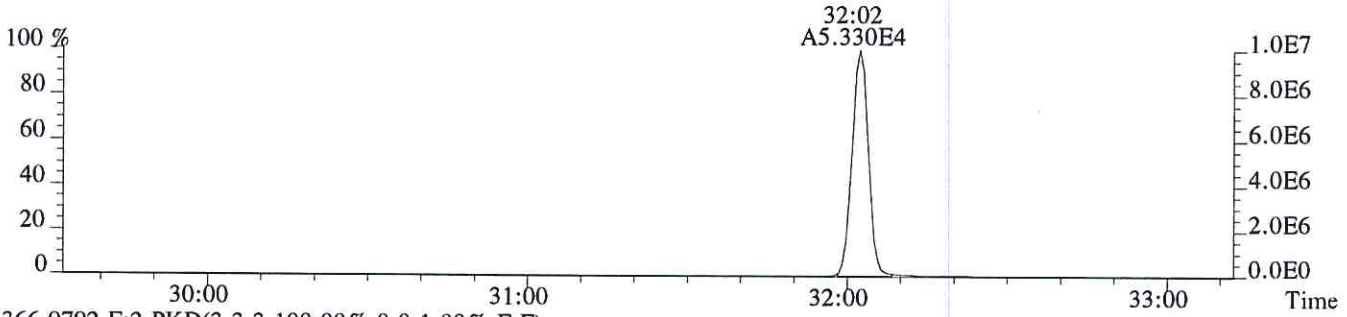
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



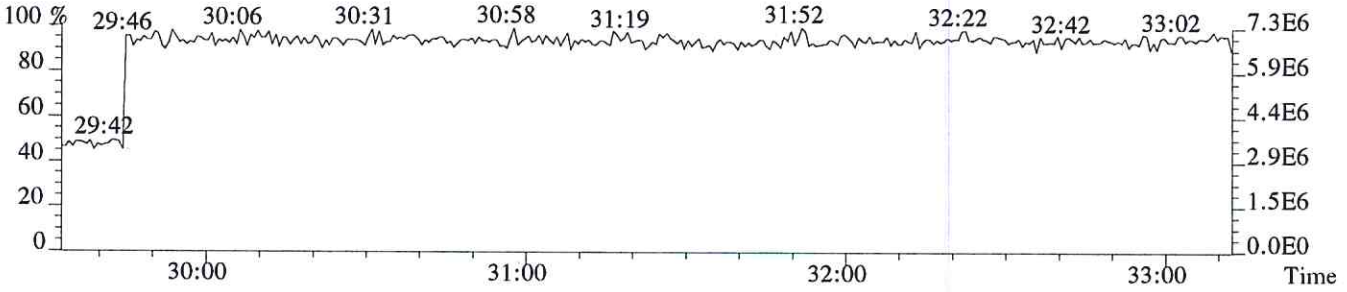
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



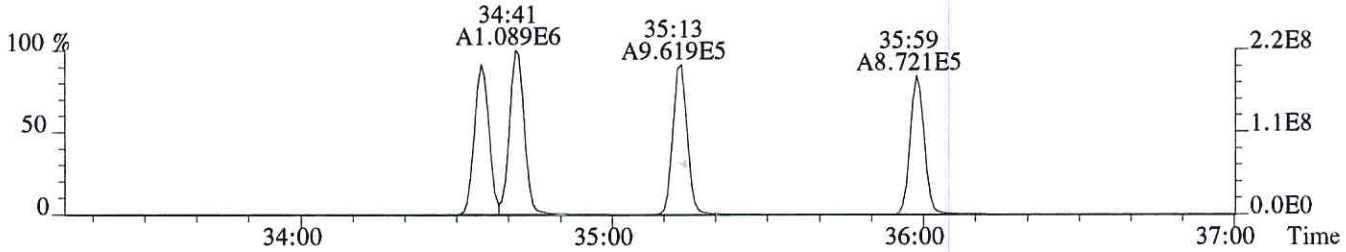
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



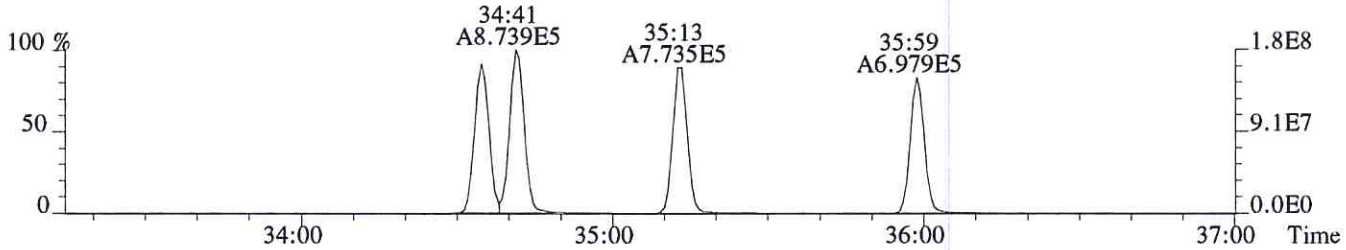
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



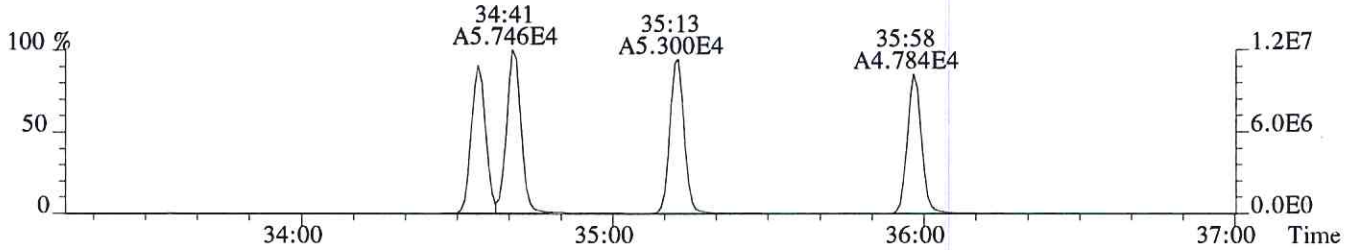
File:P607184 #1-339 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4584.0,0.40%,F,T)



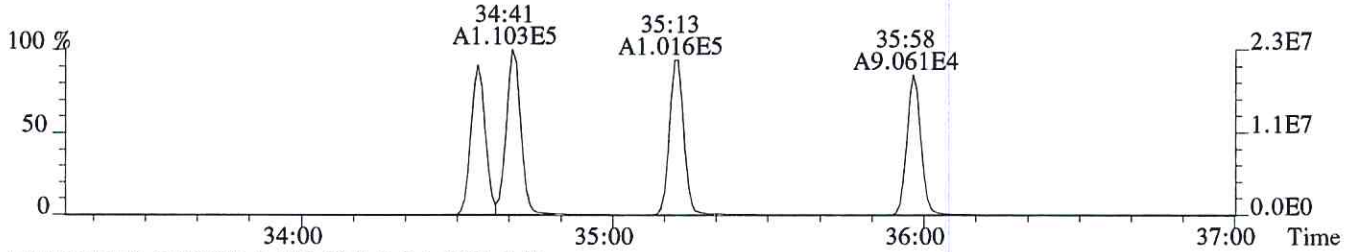
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2352.0,0.40%,F,T)



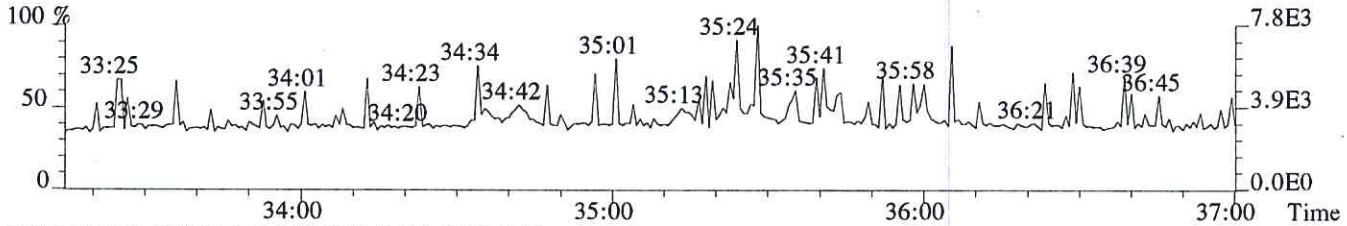
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



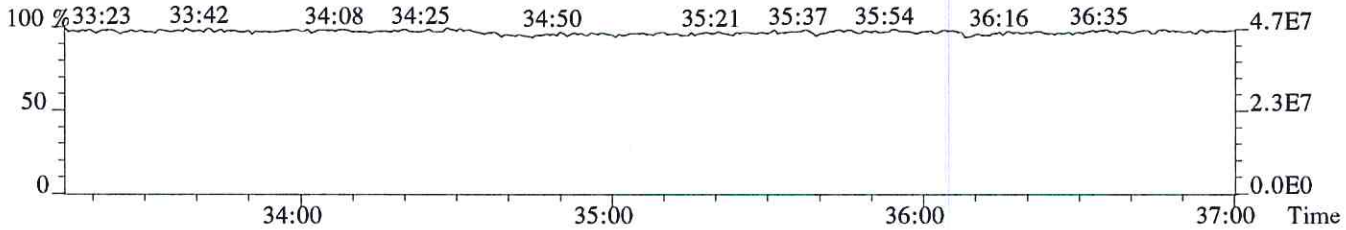
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.40%,F,T)



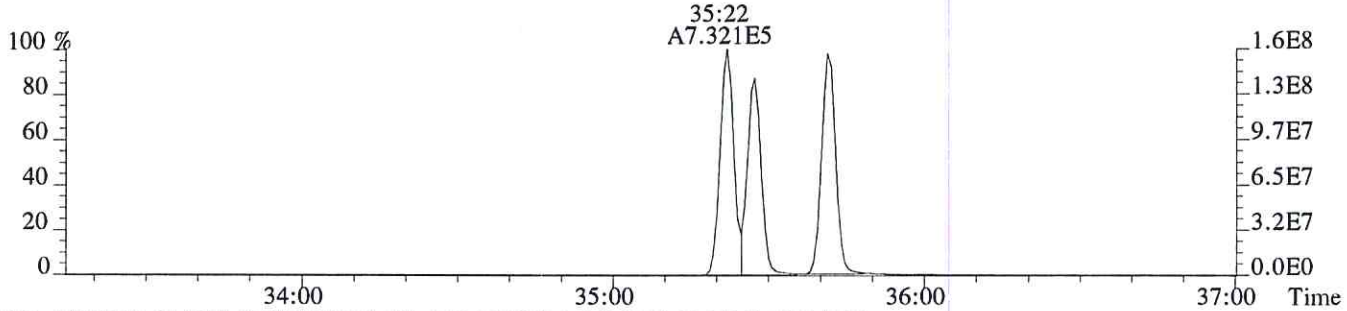
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



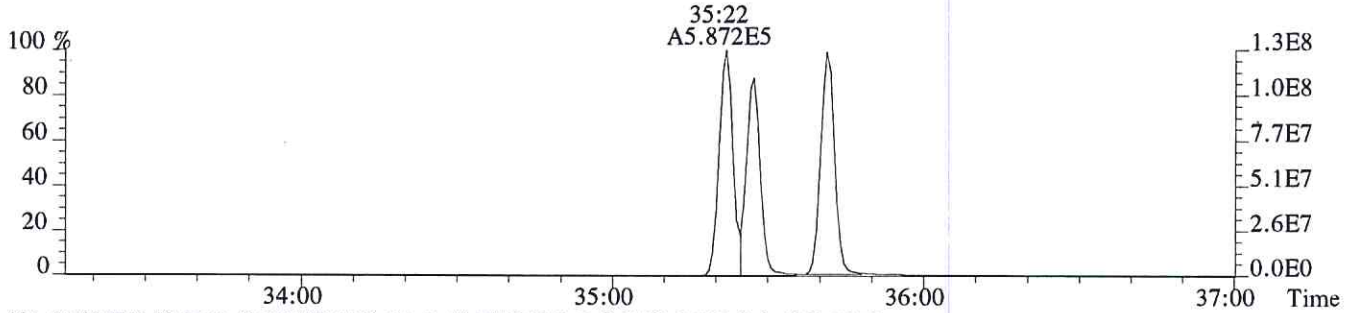
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



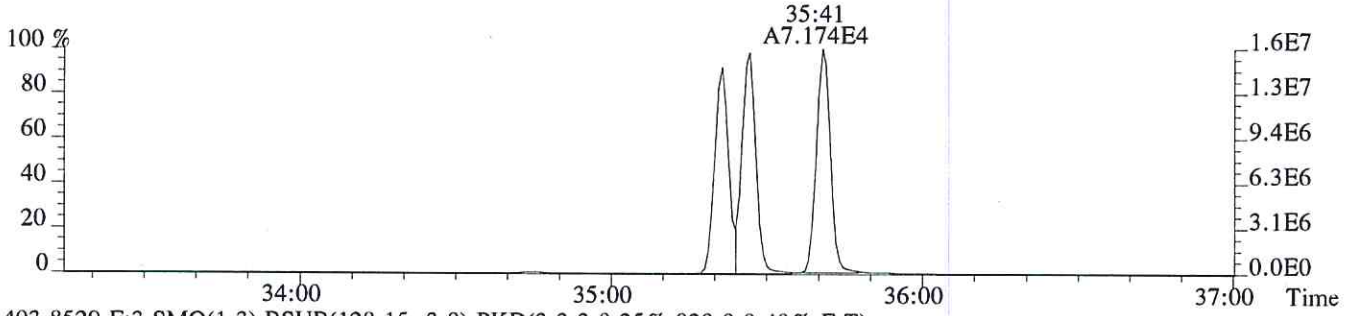
File:P607184 #1-339 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



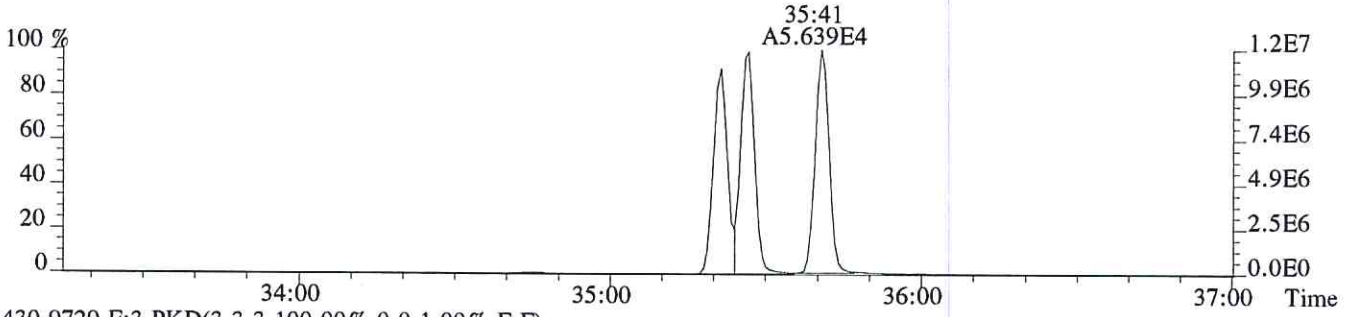
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



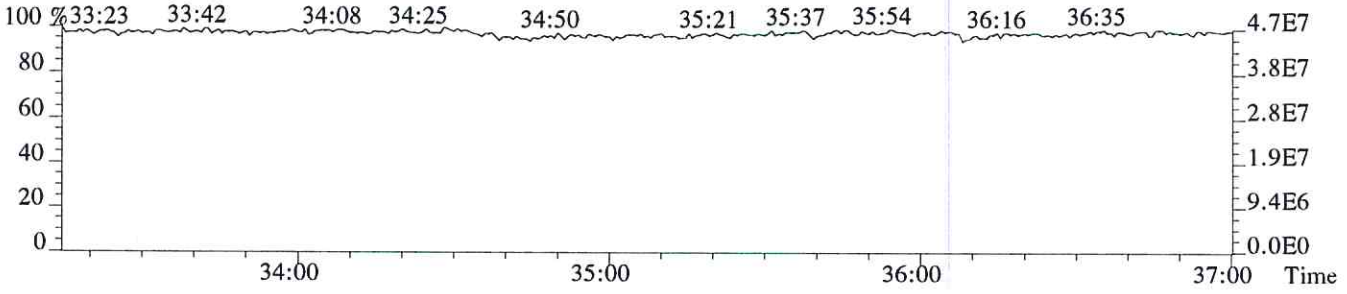
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.40%,F,T)



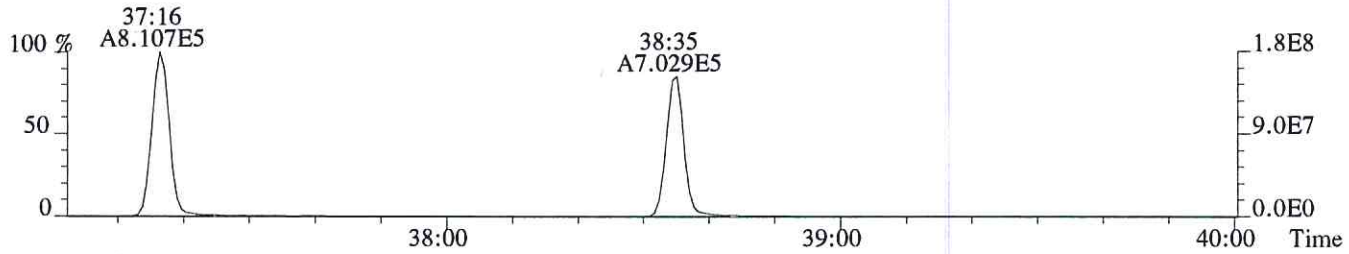
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



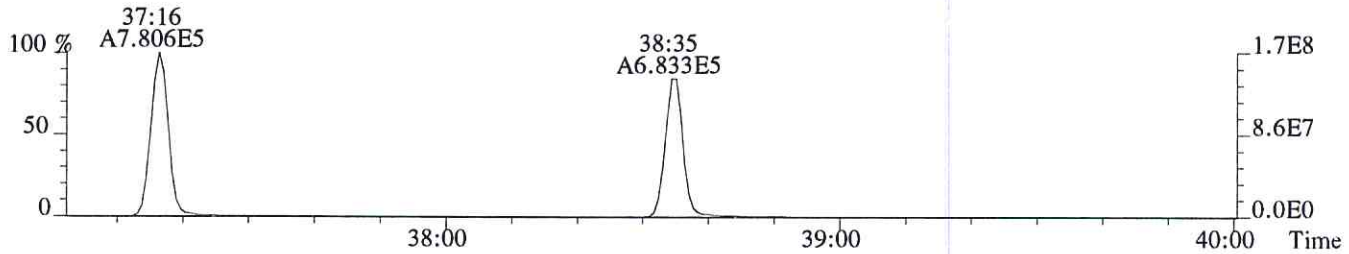
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



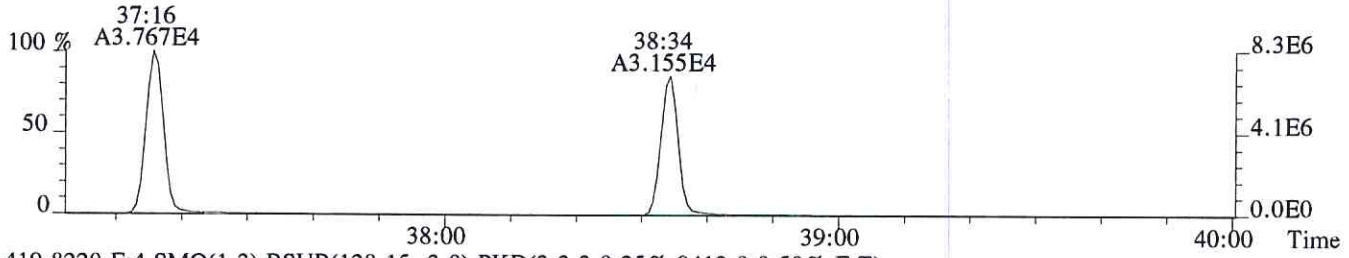
File:P607184 #1-268 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18456.0,0.50%,F,T)



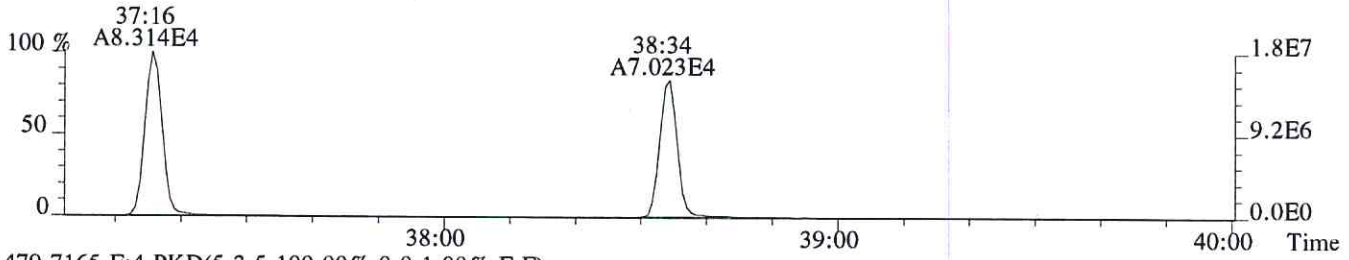
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,54876.0,0.50%,F,T)



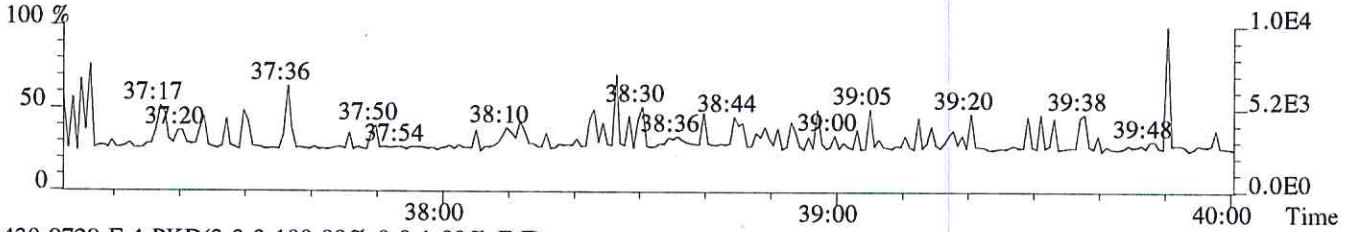
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4424.0,0.50%,F,T)



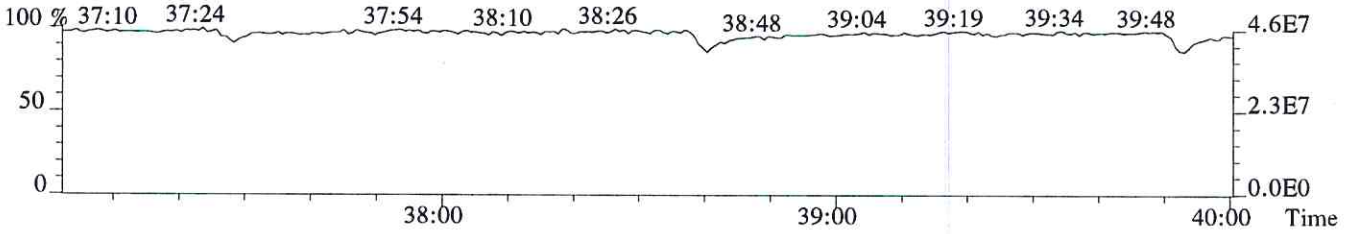
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9412.0,0.50%,F,T)



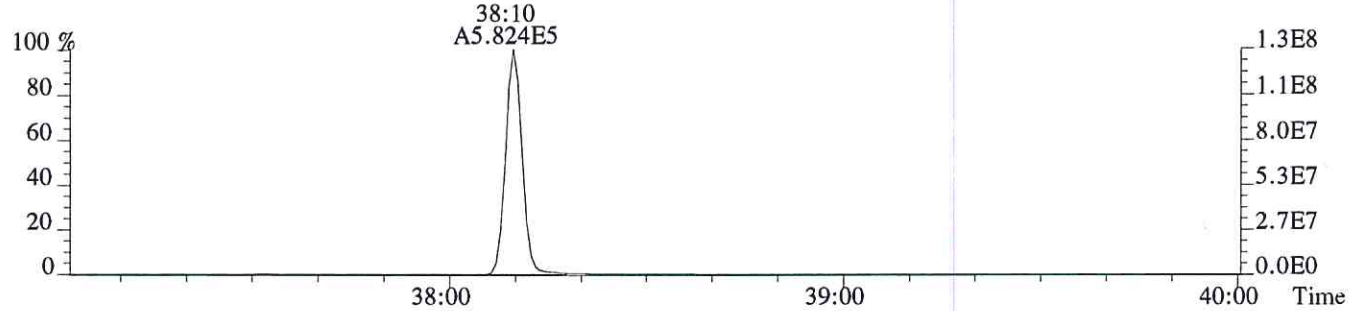
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



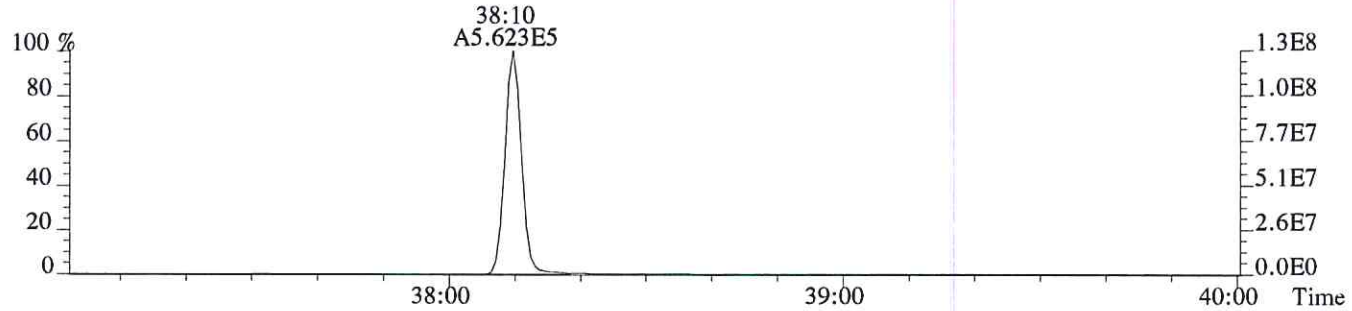
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



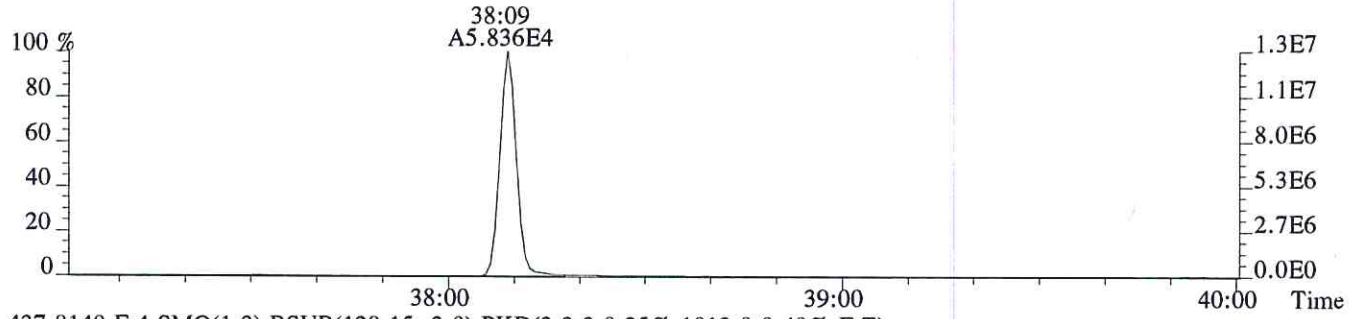
File:P607184 #1-268 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6684.0,0.40%,F,T)



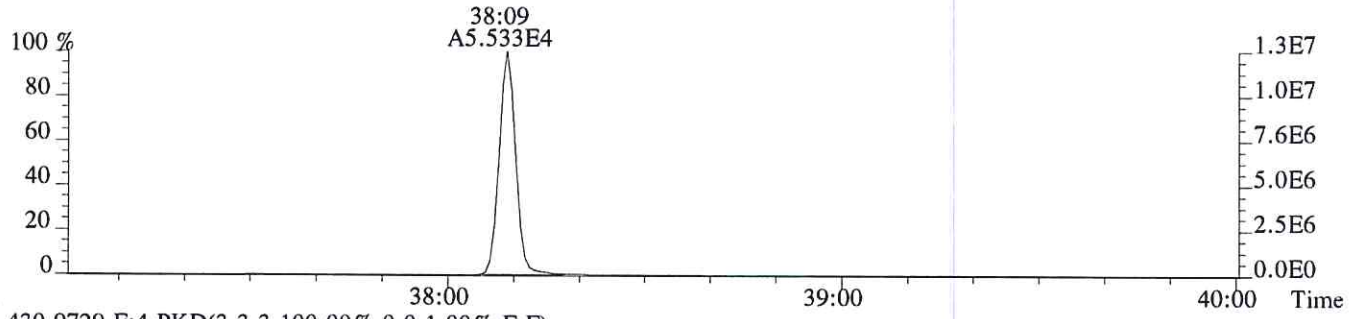
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3036.0,0.40%,F,T)



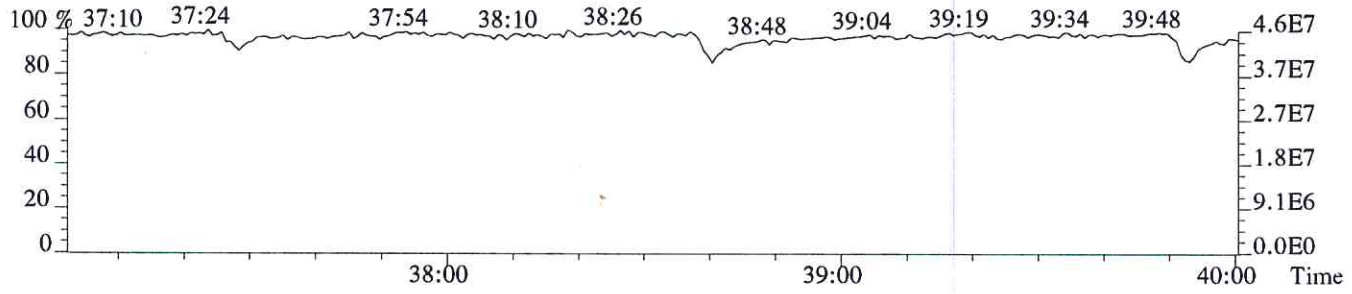
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



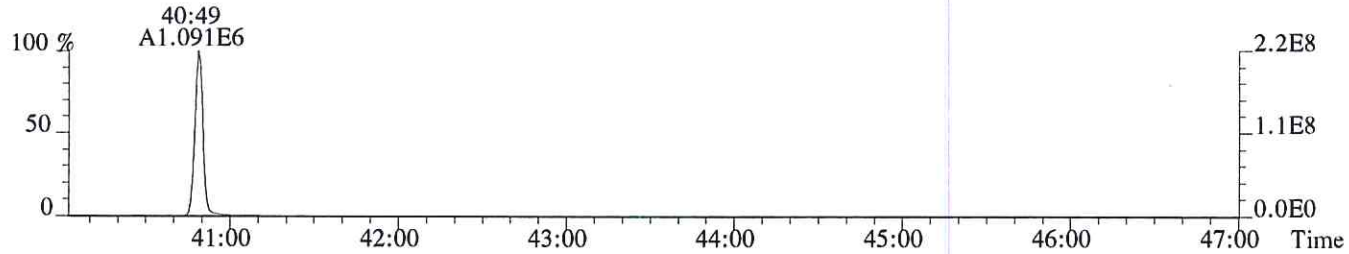
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



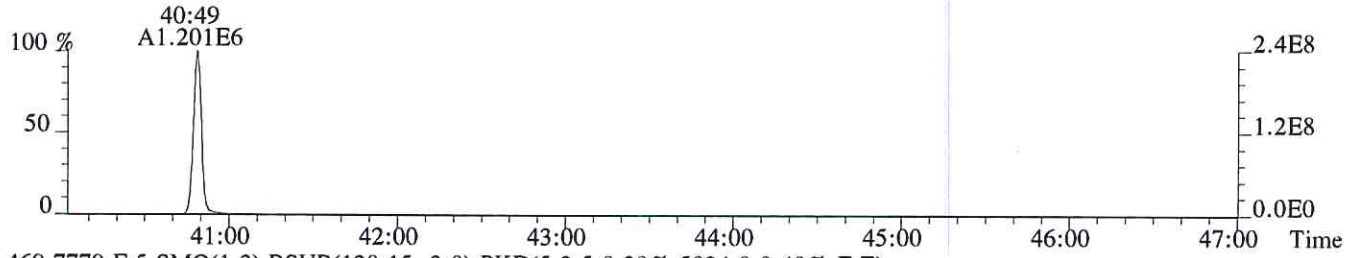
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



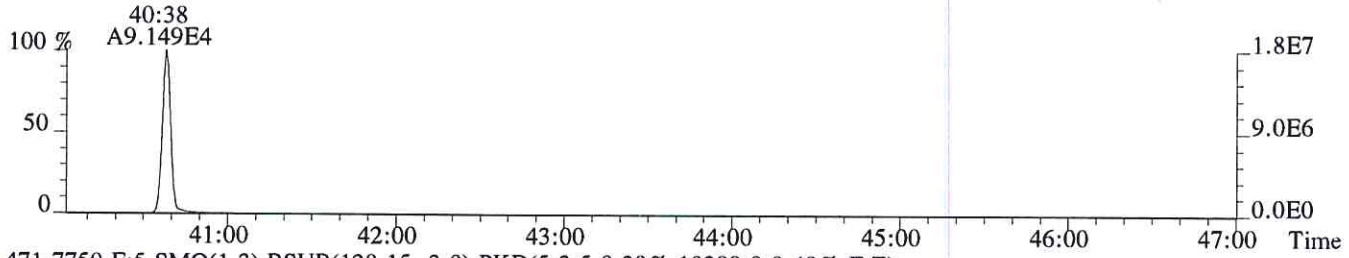
File:P607184 #1-627 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,136040.0,0.40%,F,T)



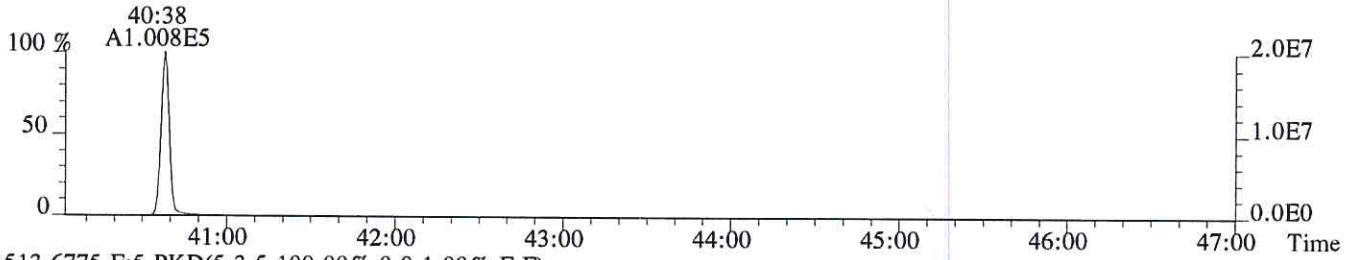
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,62728.0,0.40%,F,T)



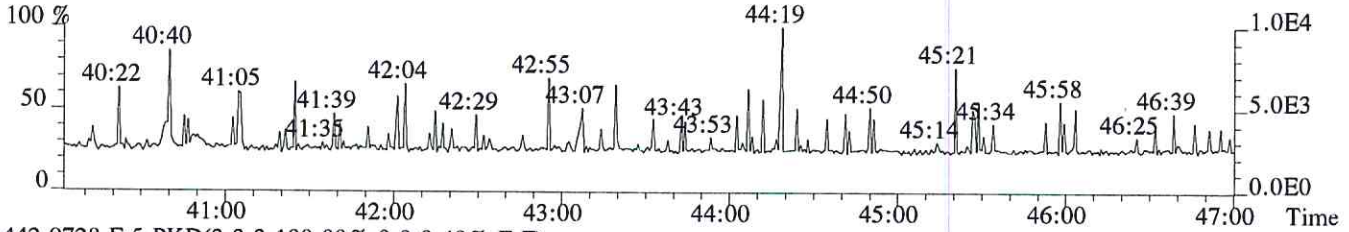
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5024.0,0.40%,F,T)



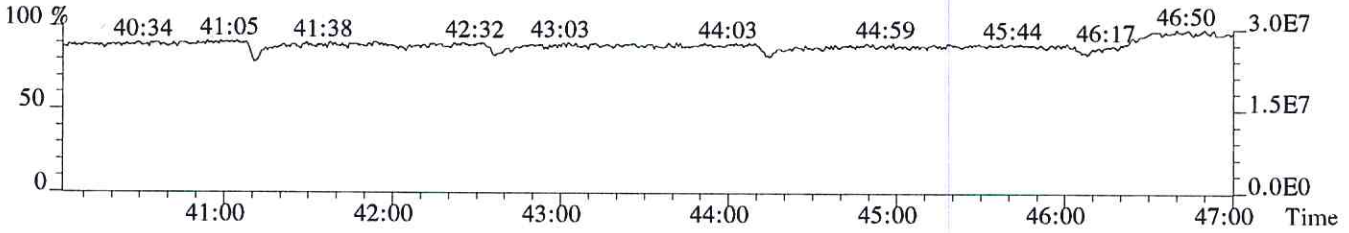
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10388.0,0.40%,F,T)



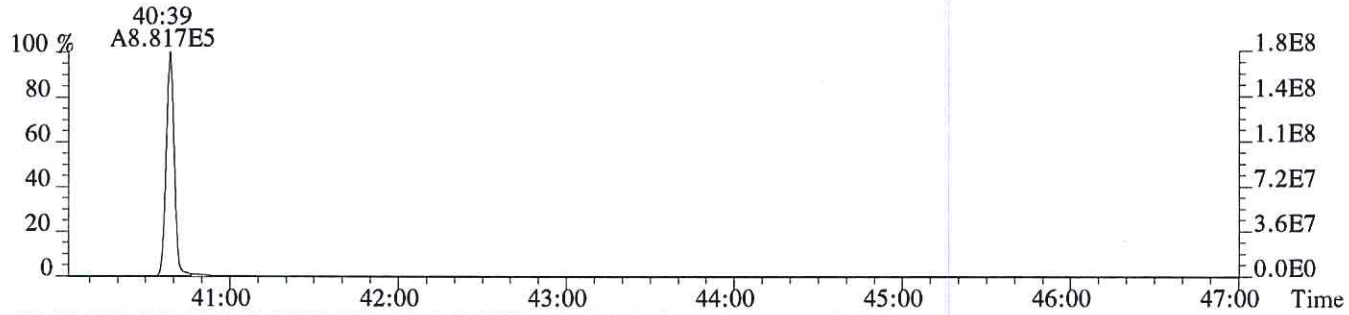
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



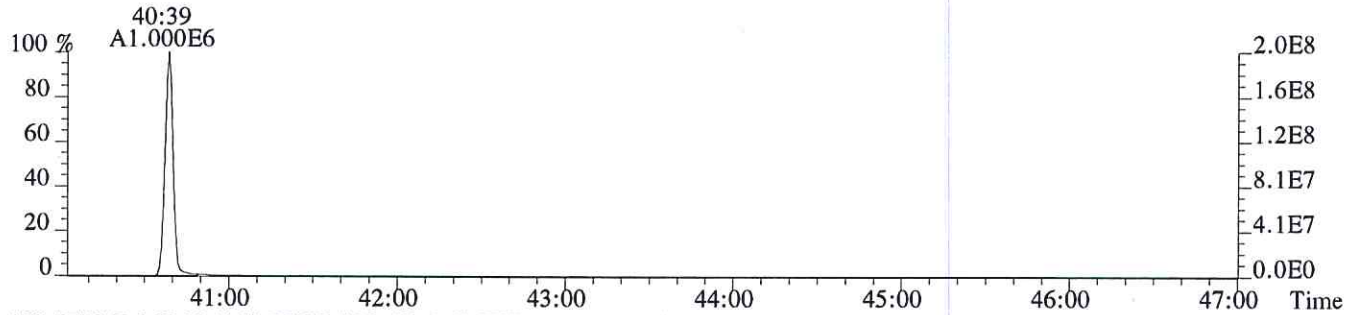
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



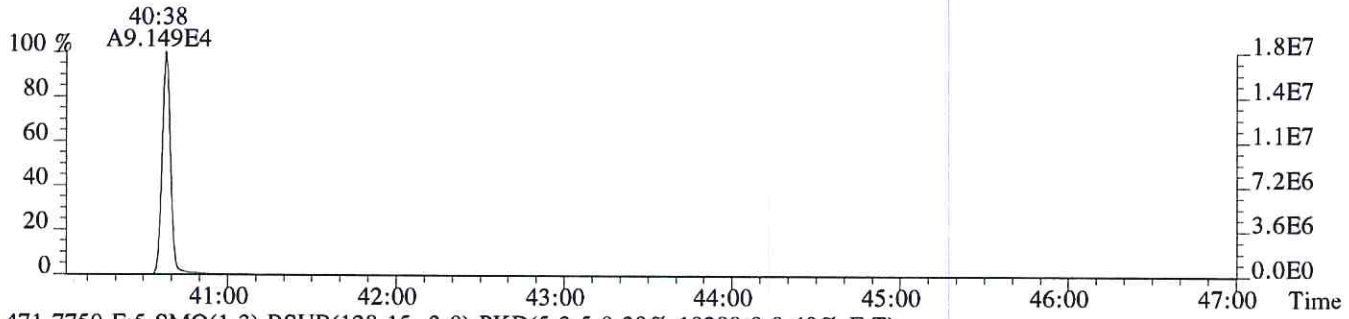
File:P607184 #1-627 Acq:16-MAY-2017 16:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,57044.0,0.40%,F,T)



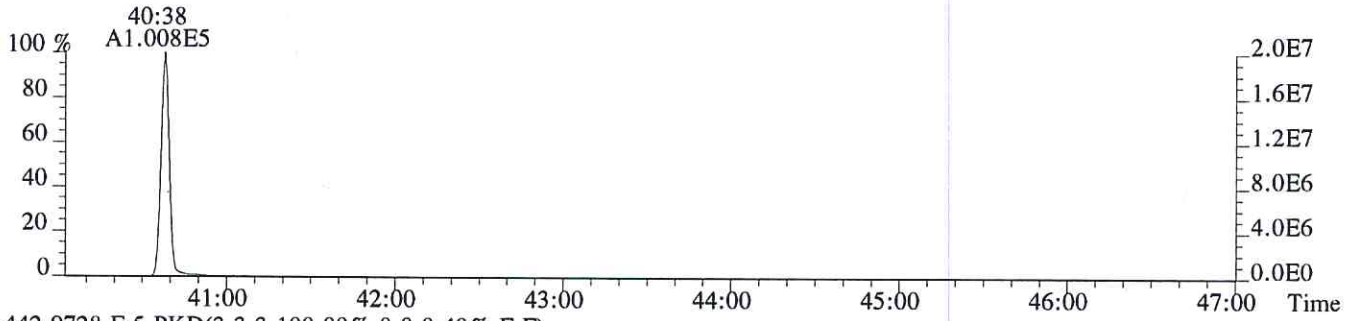
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,41804.0,0.40%,F,T)



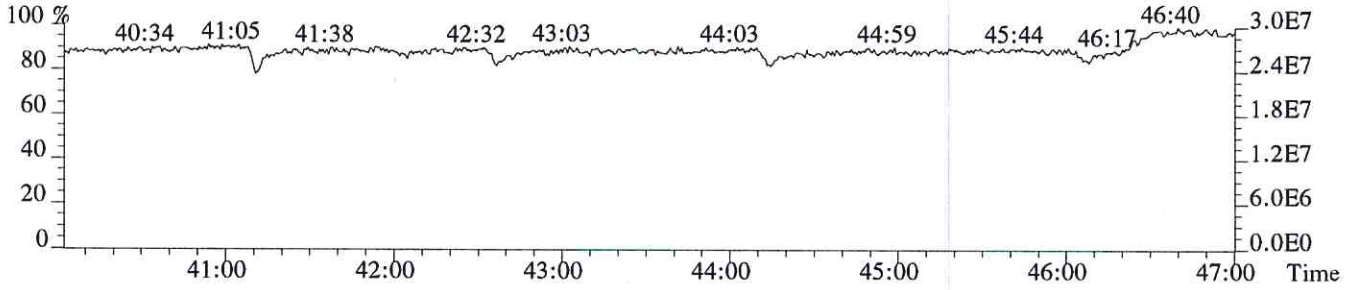
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5024.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10388.0,0.40%,F,T)



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



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/16/17

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P607186 Analysis Date: 16-MAY-17 Time: 18:45:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.8	7.8 - 12.9	-2.1
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-1.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	48	39 - 64	-3.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	1.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	49	41 - 61	-1.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.90	0.76-1.02	100	79 - 126	0.0
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	9.7	8.4 - 12.0	-3.4
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	50	41 - 60	-0.5
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 61	-2.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	-0.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	49	44 - 57	-1.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	49	45 - 56	-1.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	49	44 - 57	-1.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	50	45 - 55	-0.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	48	43 - 58	-3.8
OCDF	M+2/M+4	0.91	0.76-1.02	100	63 - 159	0.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/16/17

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P607186 Analysis Date: 16-MAY-17 Time: 18:45:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	100	82 - 121	-0.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	95	62 - 160	-4.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	101	85 - 117	1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	97	85 - 118	-3.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	99	72 - 138	-1.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	195	96 - 415	-2.6
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	101	71 - 140	1.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	97	76 - 130	-3.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	96	77 - 130	-4.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	76 - 131	0.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	70 - 143	-2.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	99	74 - 135	-1.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	99	73 - 137	-0.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	98	78 - 129	-1.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	101	77 - 129	0.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-2.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P607186 Samp: 1 Inj: 1 Acquired: 16-MAY-17 18:45:06
Processed: 17-MAY-17 07:57:37 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	25:50	1.553e+04	1.967e+04	0.79	yes	no	1.020
2	Unk	1,2,3,7,8-PeCDF	30:44	1.217e+05	7.783e+04	1.56	yes	no	1.058
3	Unk	2,3,4,7,8-PeCDF	31:44	1.135e+05	7.296e+04	1.56	yes	no	1.015
4	Unk	1,2,3,4,7,8-HxCDF	34:34	9.768e+04	8.003e+04	1.22	yes	no	1.257
5	Unk	1,2,3,6,7,8-HxCDF	34:41	1.060e+05	8.666e+04	1.22	yes	no	1.192
6	Unk	2,3,4,6,7,8-HxCDF	35:12	9.781e+04	7.934e+04	1.23	yes	no	1.176
7	Unk	1,2,3,7,8,9-HxCDF	35:58	8.937e+04	7.235e+04	1.24	yes	no	1.211
8	Unk	1,2,3,4,6,7,8-HpCDF	37:16	8.292e+04	7.993e+04	1.04	yes	no	1.392
9	Unk	1,2,3,4,7,8,9-HpCDF	38:34	7.090e+04	6.844e+04	1.04	yes	no	1.341
10	Unk	OCDF	40:48	1.101e+05	1.214e+05	0.91	yes	no	1.337
11	Unk	2,3,7,8-TCDD	26:49	1.162e+04	1.478e+04	0.79	yes	no	1.055
12	Unk	1,2,3,7,8-PeCDD	32:02	7.808e+04	5.026e+04	1.55	yes	no	0.964
13	Unk	1,2,3,4,7,8-HxCDD	35:21	6.991e+04	5.640e+04	1.24	yes	no	1.074
14	Unk	1,2,3,6,7,8-HxCDD	35:27	6.745e+04	5.397e+04	1.25	yes	no	1.037
15	Unk	1,2,3,7,8,9-HxCDD	35:41	7.459e+04	5.897e+04	1.26	yes	no	1.148
16	Unk	1,2,3,4,6,7,8-HpCDD	38:09	5.933e+04	5.705e+04	1.04	yes	no	1.048
17	Unk	OCDD	40:38	9.158e+04	1.016e+05	0.90	yes	no	1.120
18	IS	13C-2,3,7,8-TCDF	25:49	1.586e+05	1.989e+05	0.80	yes	no	1.364
19	IS	13C-1,2,3,7,8-PeCDF	30:43	2.322e+05	1.468e+05	1.58	yes	no	1.505
20	IS	13C-2,3,4,7,8-PeCDF	31:43	2.302e+05	1.456e+05	1.58	yes	no	1.510
21	IS	13C-1,2,3,4,7,8-HxCDF	34:33	9.775e+04	1.865e+05	0.52	yes	no	1.101
22	IS	13C-1,2,3,6,7,8-HxCDF	34:40	1.137e+05	2.152e+05	0.53	yes	no	1.319
23	IS	13C-2,3,4,6,7,8-HxCDF	35:11	1.055e+05	2.006e+05	0.53	yes	no	1.202
24	IS	13C-1,2,3,7,8,9-HxCDF	35:57	9.333e+04	1.768e+05	0.53	yes	no	1.068
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:15	7.299e+04	1.621e+05	0.45	yes	no	0.934
26	IS	13C-1,2,3,4,7,8,9-HpCDF	38:34	6.677e+04	1.493e+05	0.45	yes	no	0.836
27	IS	13C-2,3,7,8-TCDD	26:47	1.124e+05	1.432e+05	0.78	yes	no	0.987
28	IS	13C-1,2,3,7,8-PeCDD	32:02	1.652e+05	1.048e+05	1.58	yes	no	1.091
29	IS	13C-1,2,3,4,7,8-HxCDD	35:21	1.349e+05	1.077e+05	1.25	yes	no	0.933
30	IS	13C-1,2,3,6,7,8-HxCDD	35:26	1.286e+05	1.016e+05	1.27	yes	no	0.926
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:08	1.152e+05	1.088e+05	1.06	yes	no	0.884
32	IS	13C-OCDD	40:37	1.635e+05	1.815e+05	0.90	yes	no	0.691
33	RS/RT	13C-1,2,3,4-TCDD	26:06	1.152e+05	1.443e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	35:40	1.427e+05	1.138e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	26:49	2.716e+04				no	1.072

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Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P607186 Samp: 1 Inj: 1 Acquired: 16-MAY-17 18:45:06
Processed: 17-MAY-17 07:57:37 LAB. ID: 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.24e+06	2.40e+02	9.3e+03	2.86e+06	1.97e+03	1.5e+03
2	1,2,3,7,8-PeCDF	2.09e+07	9.88e+02	2.1e+04	1.35e+07	2.46e+03	5.5e+03
3	2,3,4,7,8-PeCDF	2.11e+07	9.88e+02	2.1e+04	1.37e+07	2.46e+03	5.6e+03
4	1,2,3,4,7,8-HxCDF	2.08e+07	1.11e+03	1.9e+04	1.69e+07	1.54e+03	1.1e+04
5	1,2,3,6,7,8-HxCDF	2.22e+07	1.11e+03	2.0e+04	1.82e+07	1.54e+03	1.2e+04
6	2,3,4,6,7,8-HxCDF	2.07e+07	1.11e+03	1.9e+04	1.69e+07	1.54e+03	1.1e+04
7	1,2,3,7,8,9-HxCDF	1.93e+07	1.11e+03	1.7e+04	1.54e+07	1.54e+03	1.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.87e+07	8.43e+03	2.2e+03	1.79e+07	8.37e+03	2.1e+03
9	1,2,3,4,7,8,9-HpCDF	1.53e+07	8.43e+03	1.8e+03	1.49e+07	8.37e+03	1.8e+03
10	OCDF	2.15e+07	8.60e+03	2.5e+03	2.31e+07	1.30e+04	1.8e+03
11	2,3,7,8-TCDD	1.89e+06	1.32e+03	1.4e+03	2.42e+06	1.48e+02	1.6e+04
12	1,2,3,7,8-PeCDD	1.45e+07	1.49e+03	9.8e+03	9.38e+06	7.16e+02	1.3e+04
13	1,2,3,4,7,8-HxCDD	1.49e+07	3.48e+02	4.3e+04	1.19e+07	2.20e+02	5.4e+04
14	1,2,3,6,7,8-HxCDD	1.41e+07	3.48e+02	4.1e+04	1.12e+07	2.20e+02	5.1e+04
15	1,2,3,7,8,9-HxCDD	1.59e+07	3.48e+02	4.6e+04	1.28e+07	2.20e+02	5.8e+04
16	1,2,3,4,6,7,8-HpCDD	1.36e+07	1.88e+03	7.2e+03	1.31e+07	9.16e+02	1.4e+04
17	OCDD	1.77e+07	9.67e+03	1.8e+03	1.96e+07	1.30e+04	1.5e+03
18	13C-2,3,7,8-TCDF	2.33e+07	1.17e+04	2.0e+03	2.90e+07	5.70e+03	5.1e+03
19	13C-1,2,3,7,8-PeCDF	3.99e+07	2.71e+03	1.5e+04	2.53e+07	2.37e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	4.30e+07	2.71e+03	1.6e+04	2.71e+07	2.37e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	2.06e+07	1.31e+03	1.6e+04	3.95e+07	1.62e+03	2.4e+04
22	13C-1,2,3,6,7,8-HxCDF	2.35e+07	1.31e+03	1.8e+04	4.45e+07	1.62e+03	2.7e+04
23	13C-2,3,4,6,7,8-HxCDF	2.25e+07	1.31e+03	1.7e+04	4.31e+07	1.62e+03	2.7e+04
24	13C-1,2,3,7,8,9-HxCDF	2.02e+07	1.31e+03	1.5e+04	3.80e+07	1.62e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.66e+07	1.18e+04	1.4e+03	3.64e+07	3.31e+04	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.44e+07	1.18e+04	1.2e+03	3.18e+07	3.31e+04	9.6e+02
27	13C-2,3,7,8-TCDD	1.79e+07	5.52e+03	3.2e+03	2.30e+07	3.63e+03	6.3e+03
28	13C-1,2,3,7,8-PeCDD	3.12e+07	1.19e+03	2.6e+04	1.96e+07	2.36e+02	8.3e+04
29	13C-1,2,3,4,7,8-HxCDD	2.85e+07	1.74e+03	1.6e+04	2.23e+07	1.27e+03	1.8e+04
30	13C-1,2,3,6,7,8-HxCDD	2.69e+07	1.74e+03	1.5e+04	2.12e+07	1.27e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.62e+07	8.52e+02	3.1e+04	2.44e+07	1.43e+03	1.7e+04
32	13C-OCDD	3.20e+07	1.06e+04	3.0e+03	3.52e+07	1.47e+04	2.4e+03
33	13C-1,2,3,4-TCDD	1.74e+07	5.52e+03	3.1e+03	2.17e+07	3.63e+03	6.0e+03
34	13C-1,2,3,7,8,9-HxCDD	3.10e+07	1.74e+03	1.8e+04	2.47e+07	1.27e+03	2.0e+04
35	37Cl-2,3,7,8-TCDD	4.50e+06	1.38e+03	3.3e+03			

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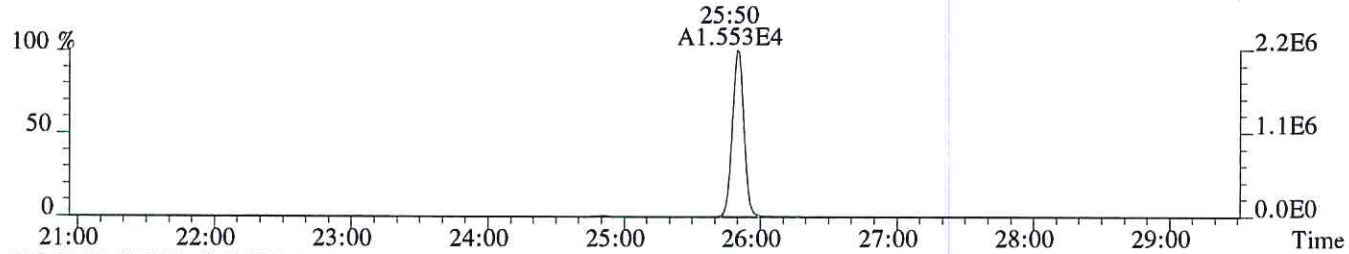
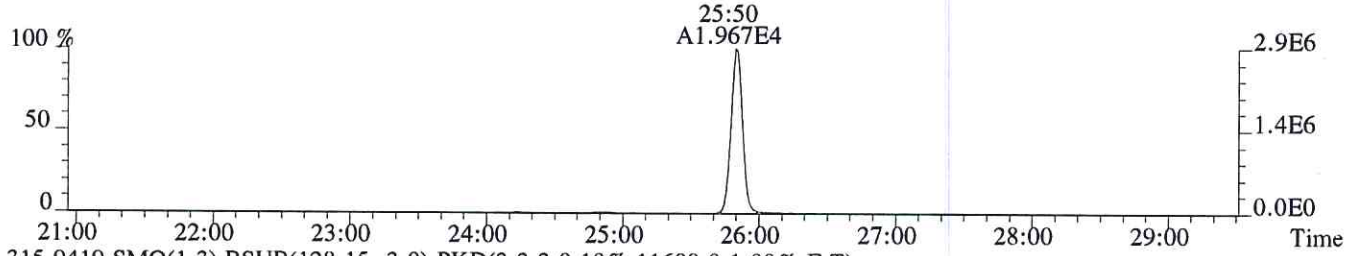
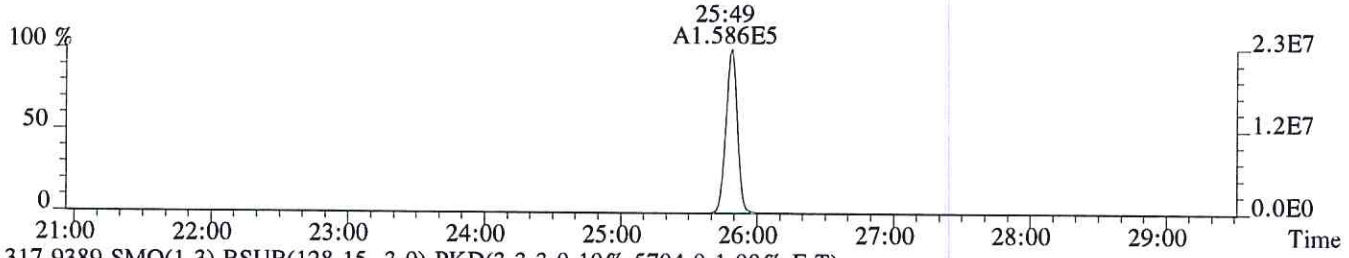
File:P607186 #1-609 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



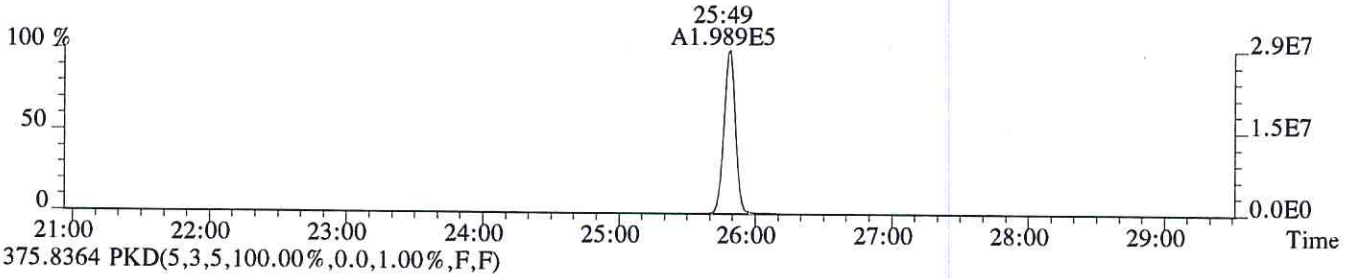
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1968.0,1.00%,F,T)



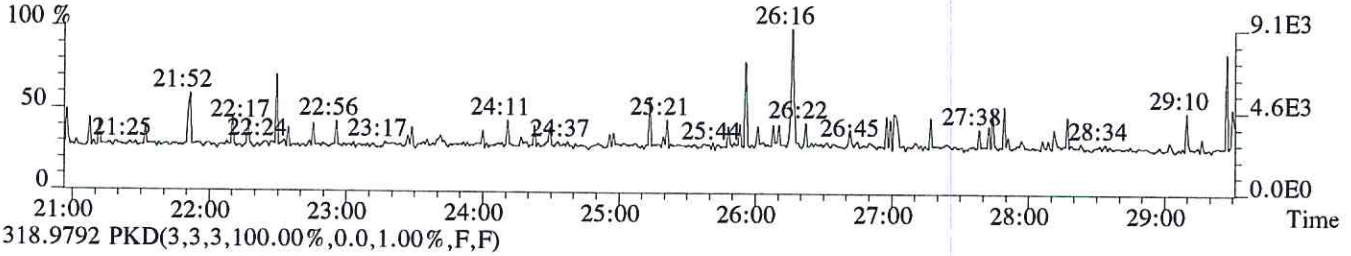
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11688.0,1.00%,F,T)



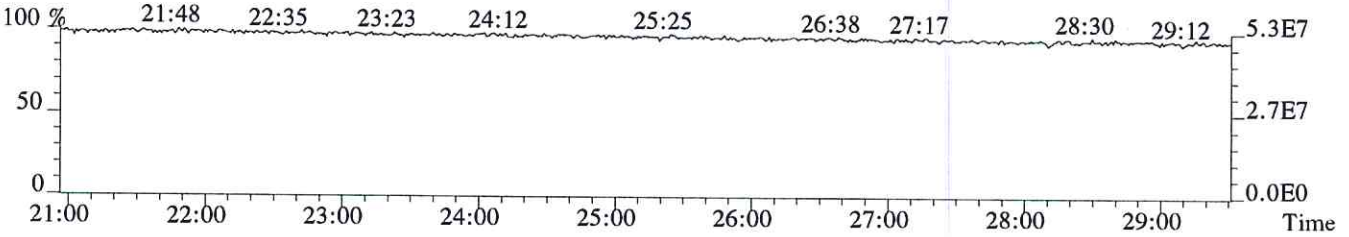
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5704.0,1.00%,F,T)



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

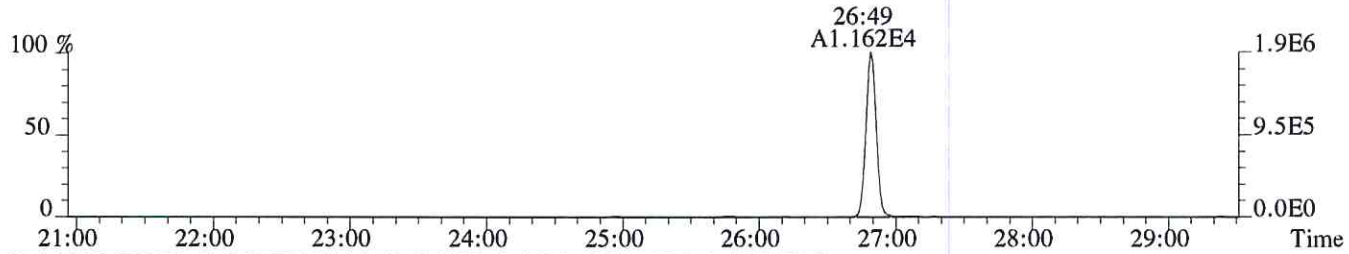


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

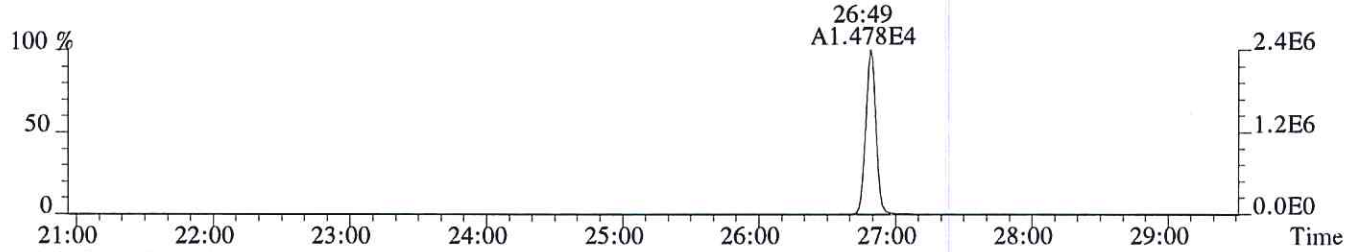


File:P607186 #1-609 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

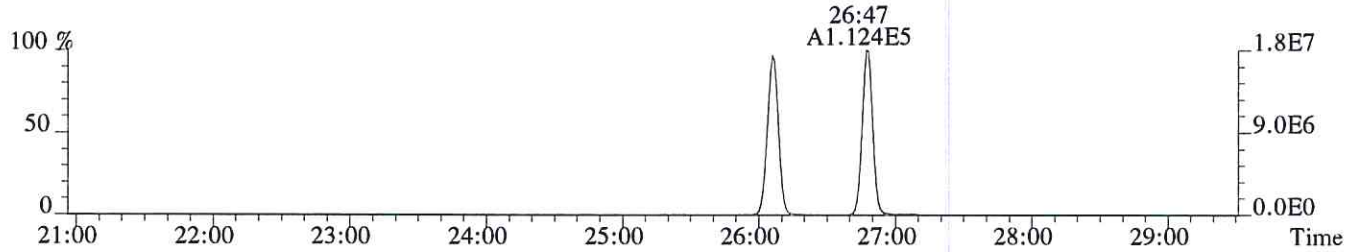
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



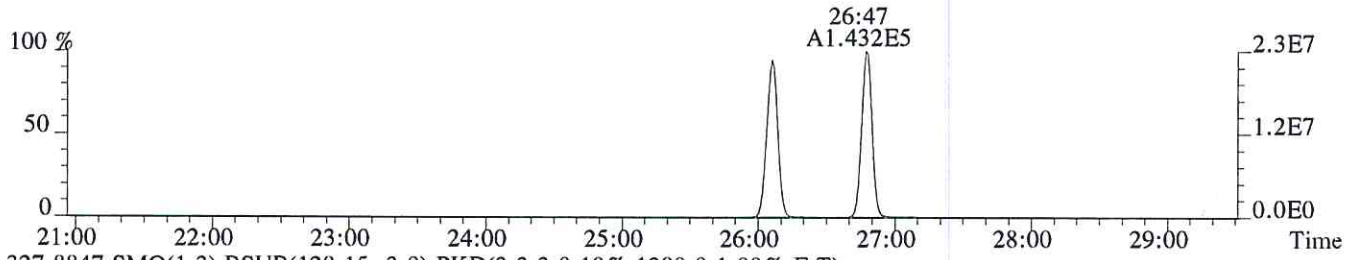
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)



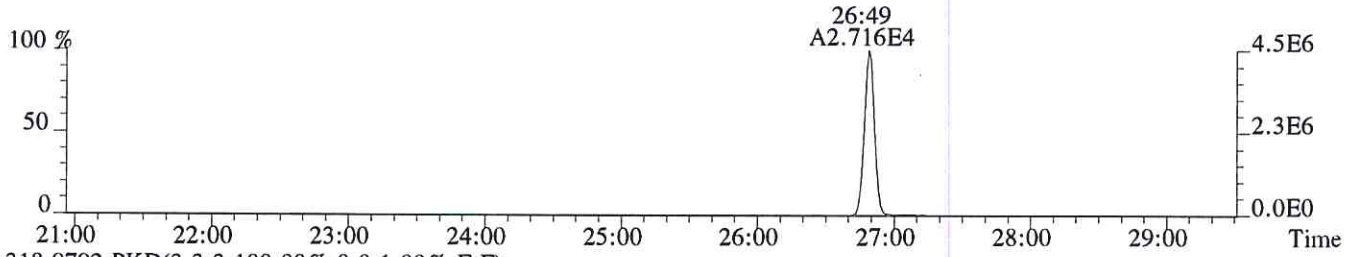
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5524.0,1.00%,F,T)



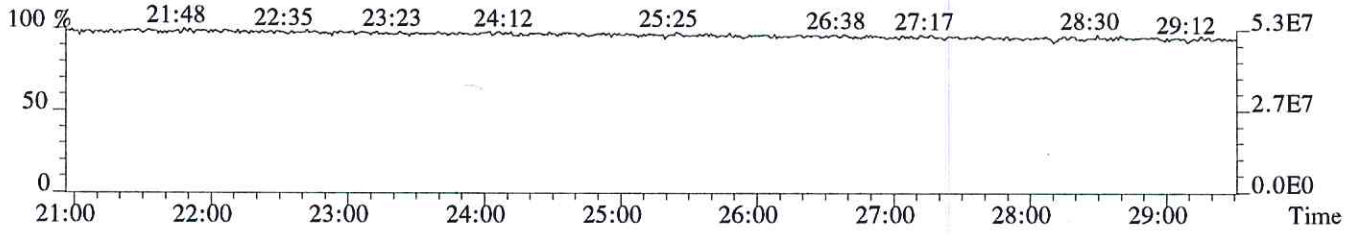
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3632.0,1.00%,F,T)



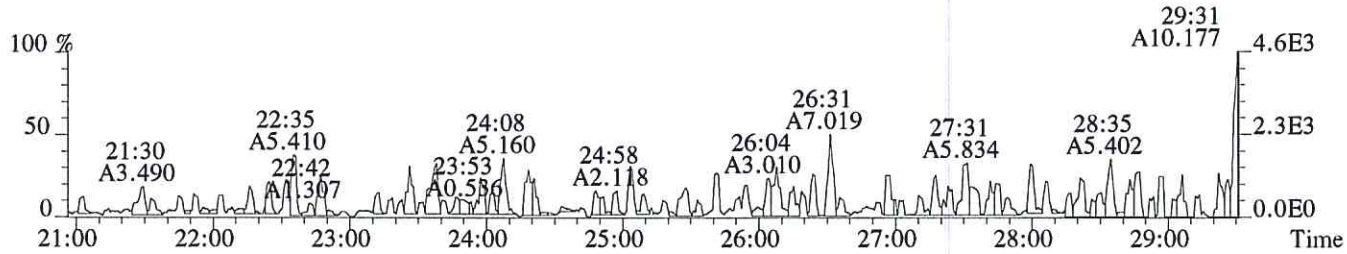
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



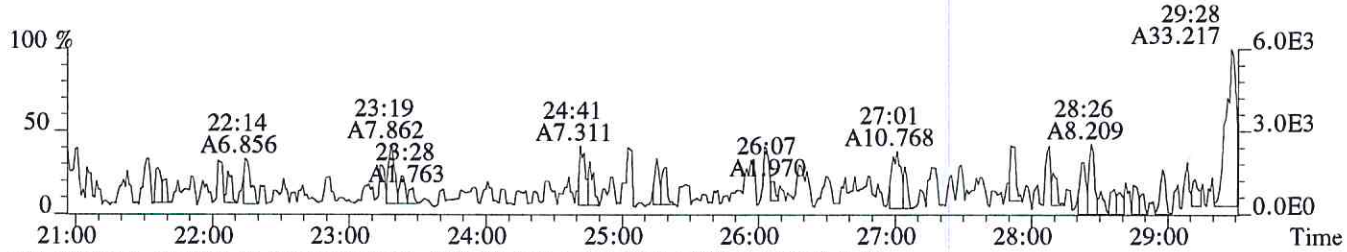
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



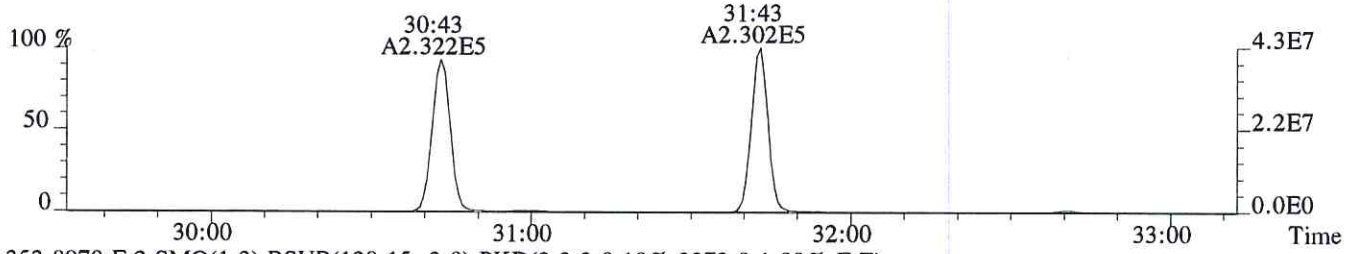
File:P607186 #1-609 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



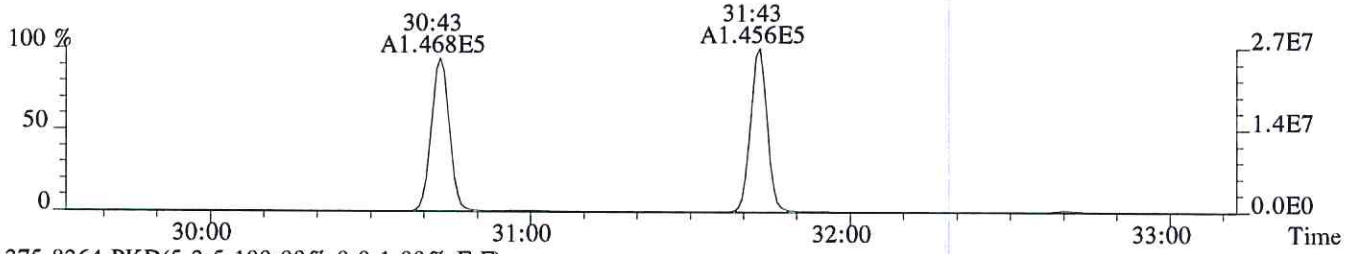
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



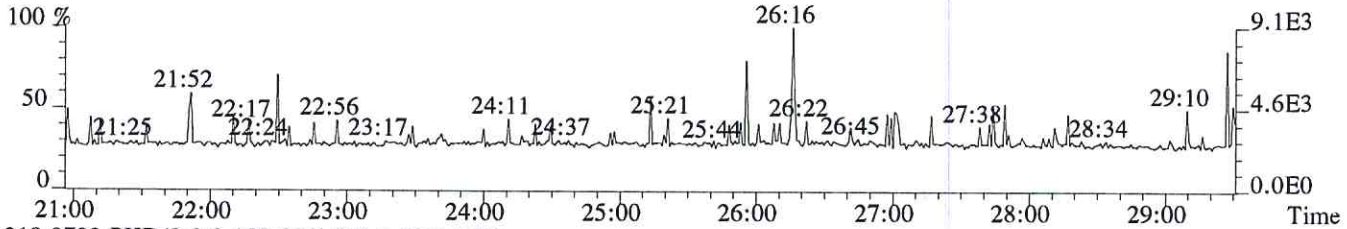
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2708.0,1.00%,F,T)



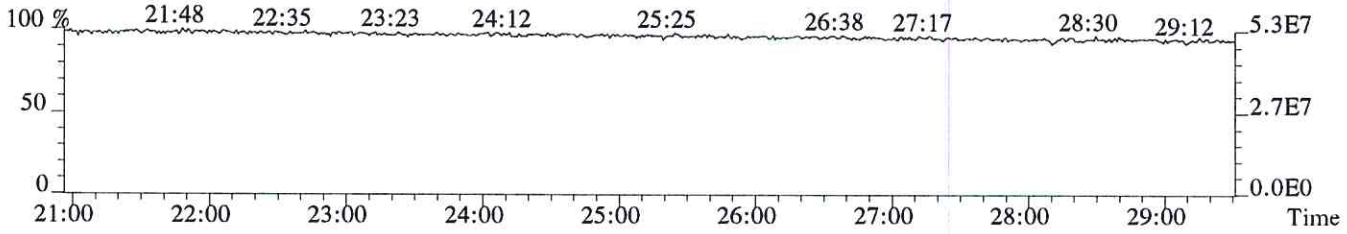
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



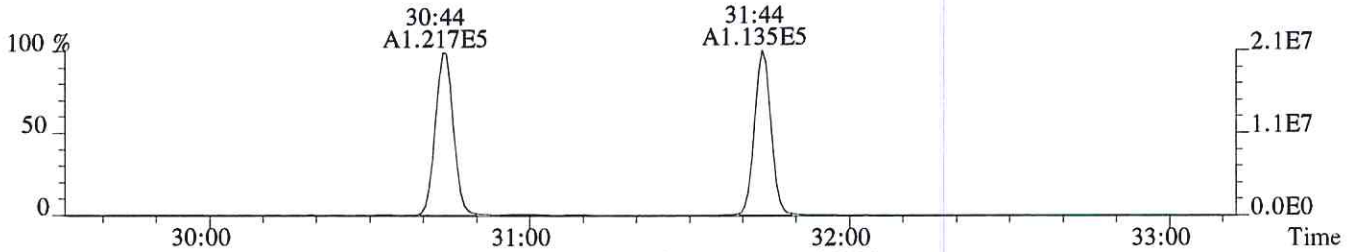
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



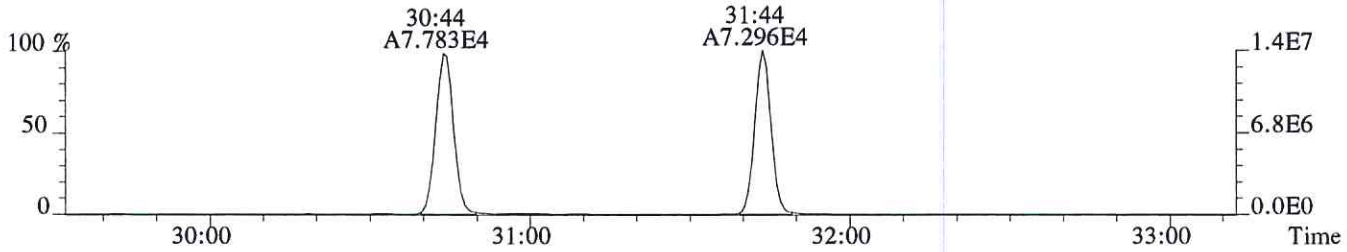
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



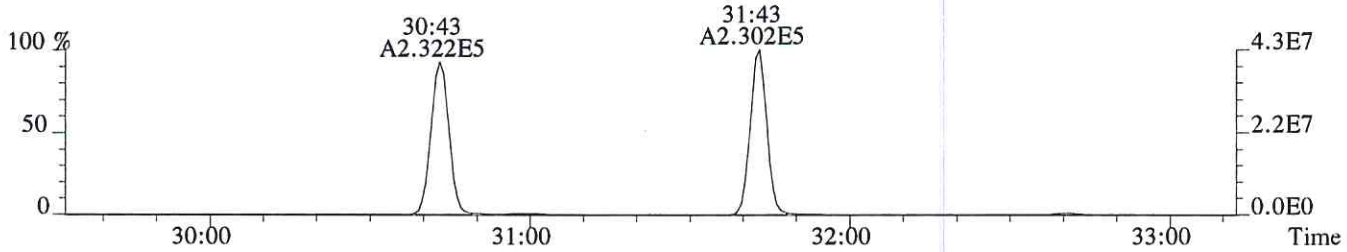
File:P607186 #1-330 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



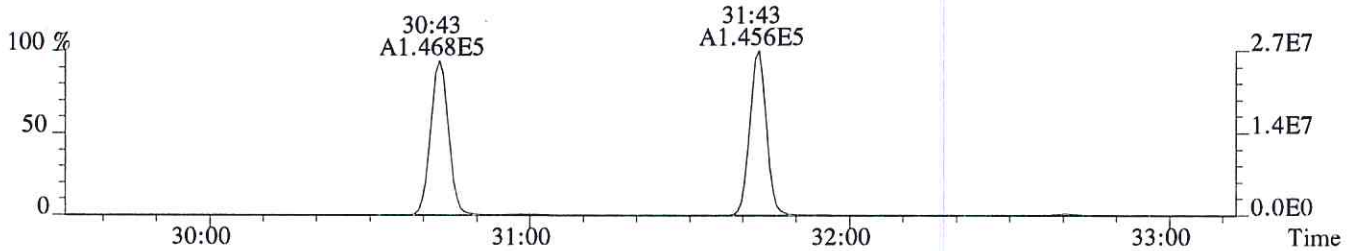
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



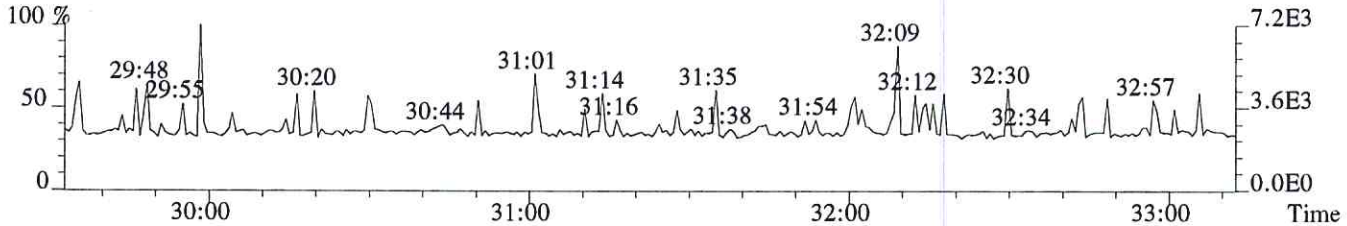
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2708.0,1.00%,F,T)



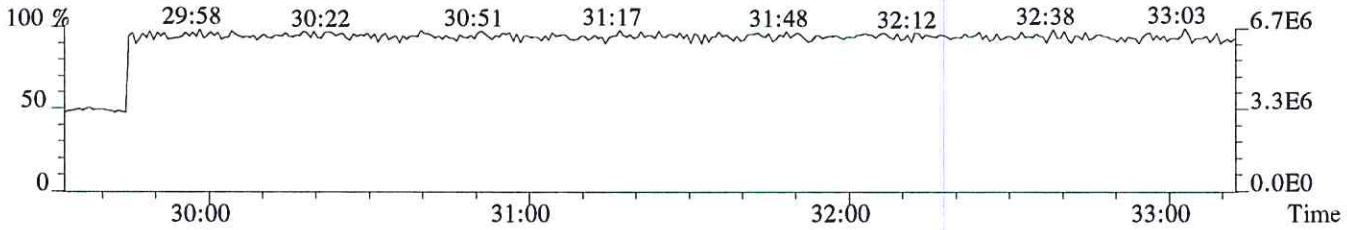
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



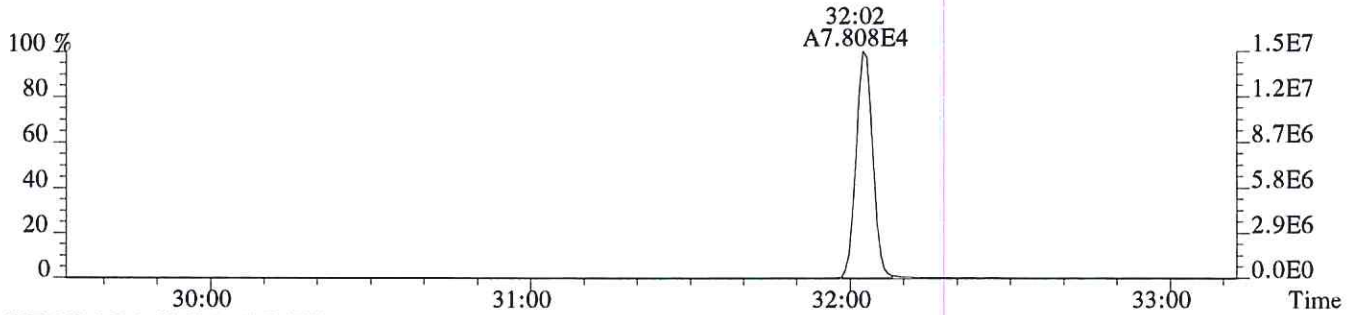
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



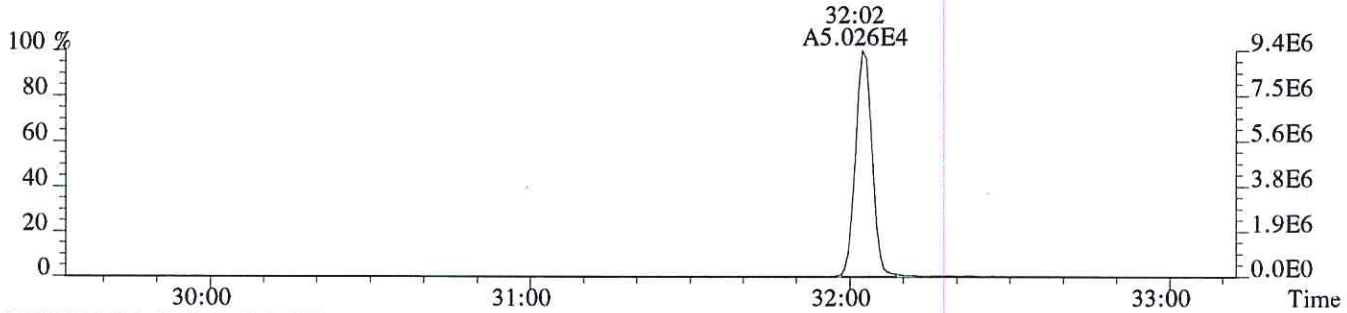
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



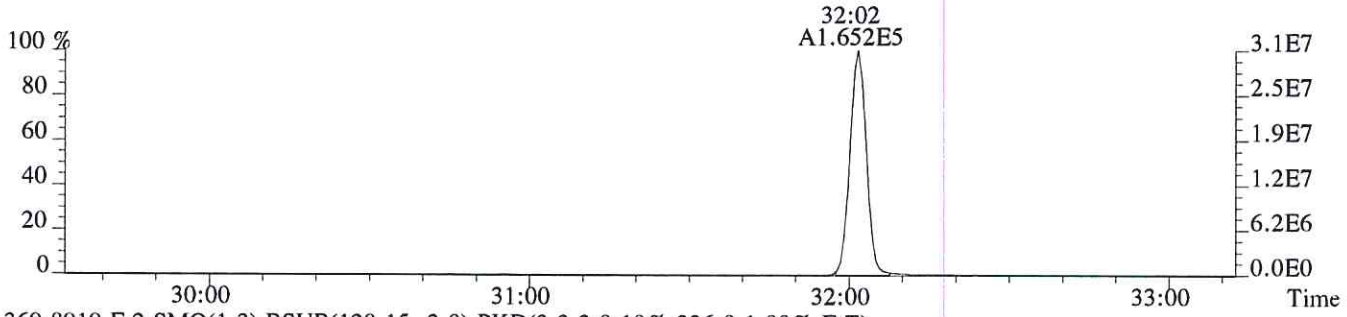
File:P607186 #1-330 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



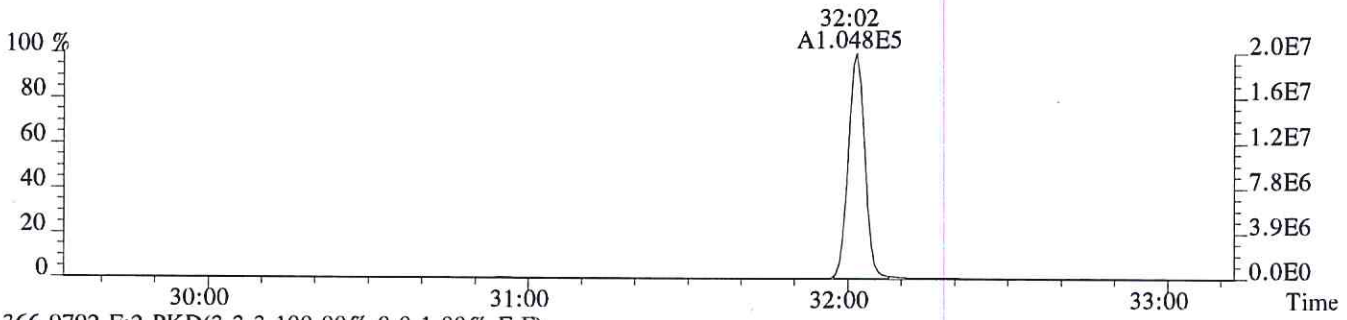
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



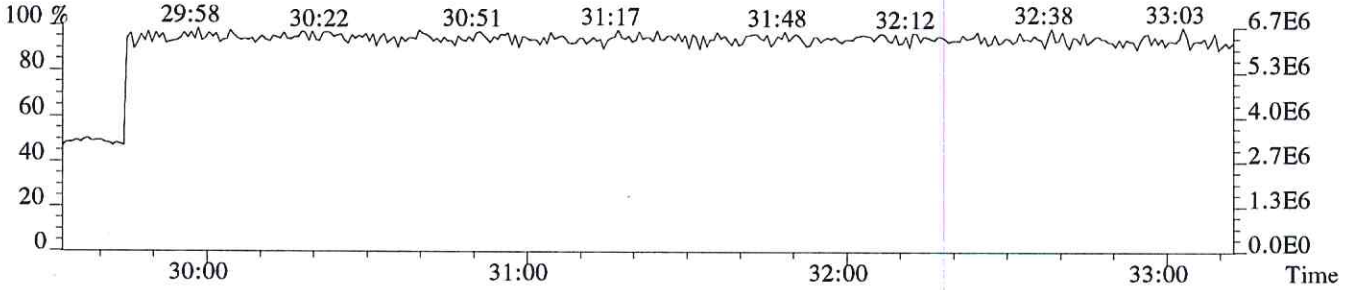
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



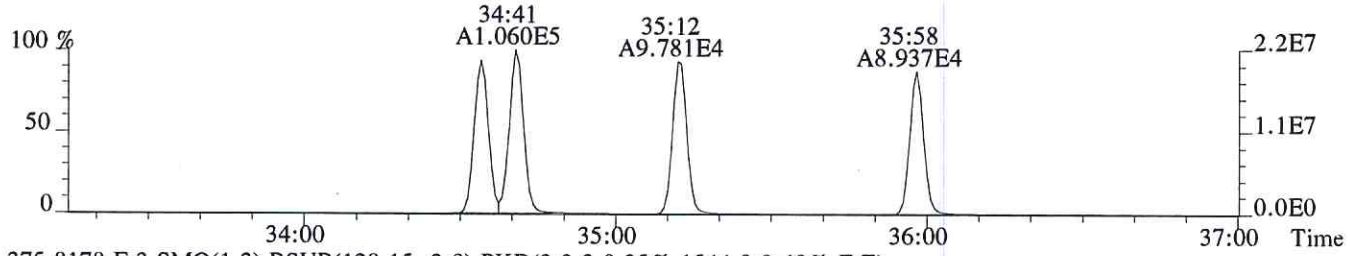
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



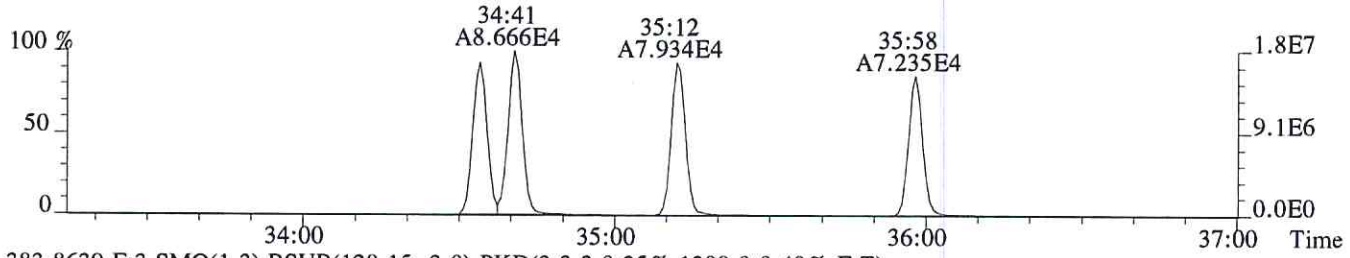
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



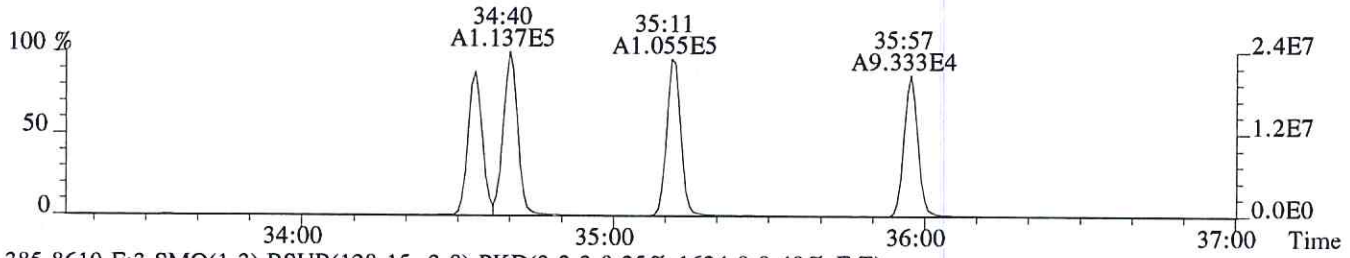
File:P607186 #1-339 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)



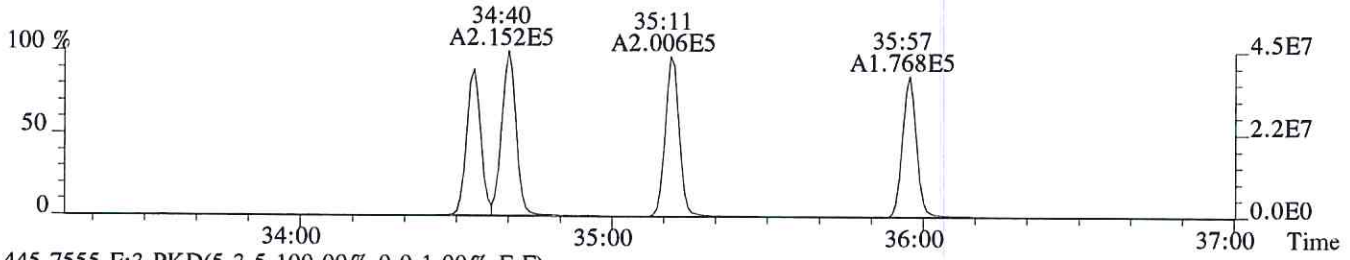
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



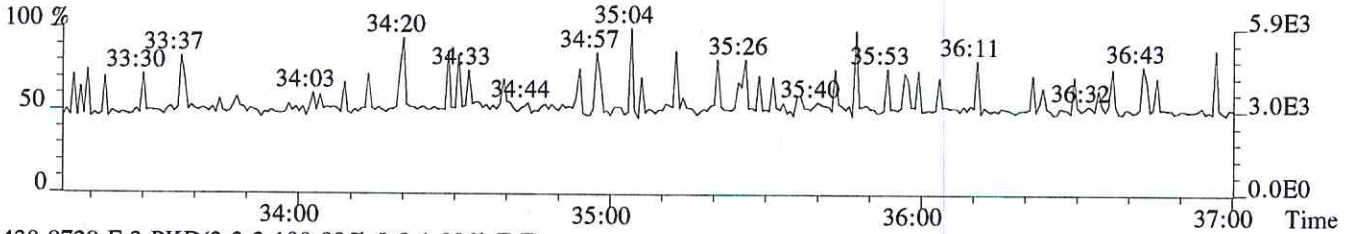
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



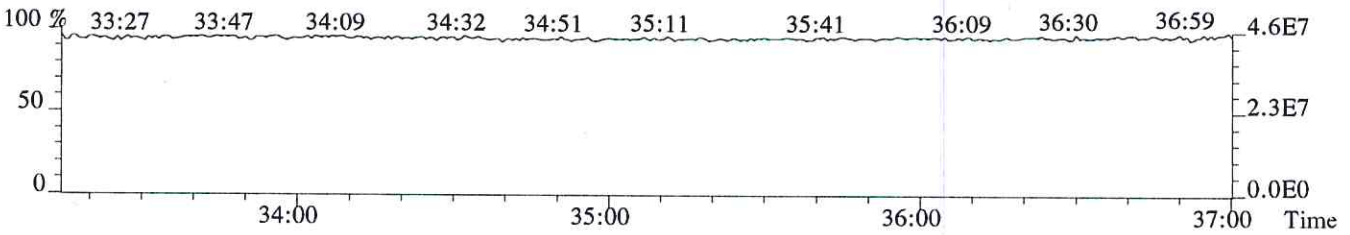
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



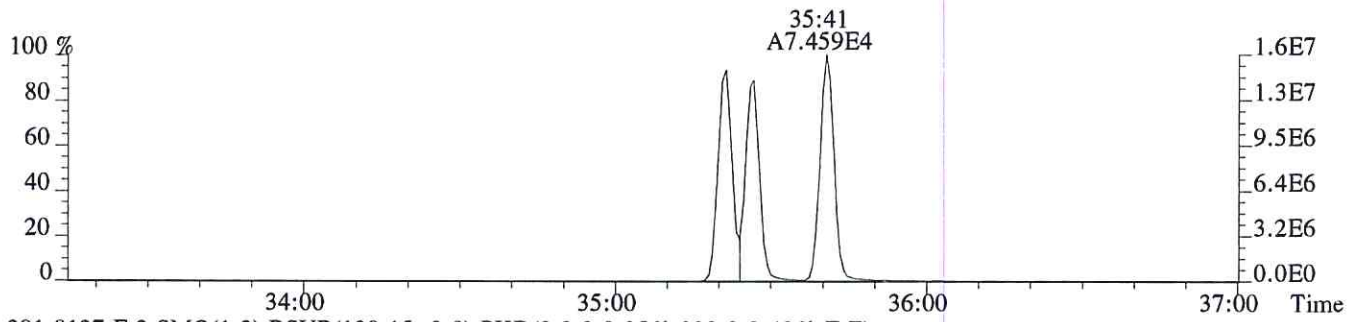
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



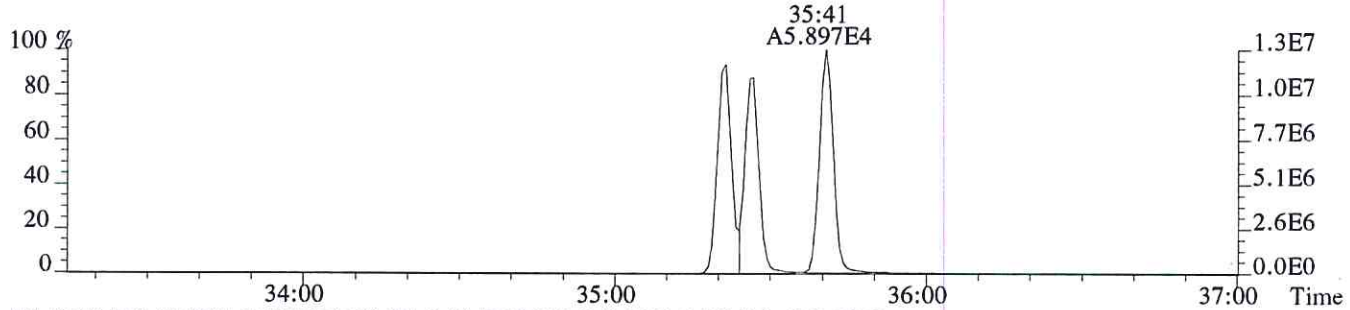
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



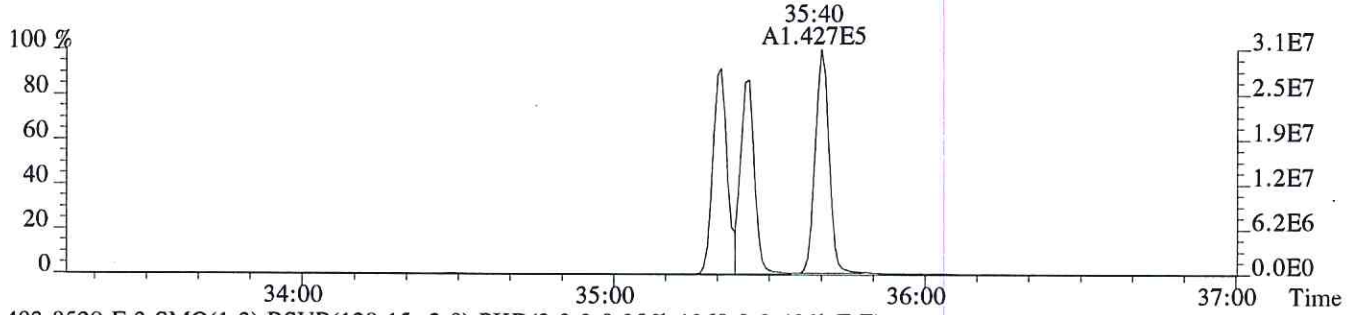
File:P607186 #1-339 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



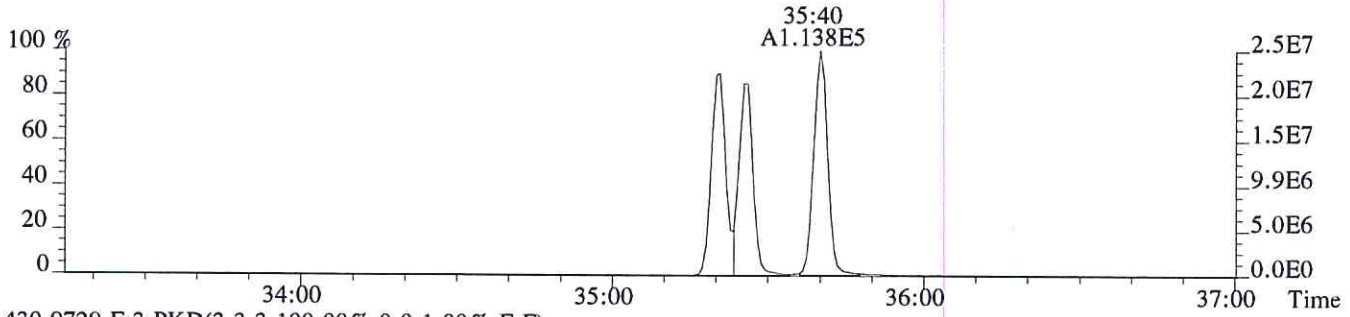
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,220.0,0.40%,F,T)



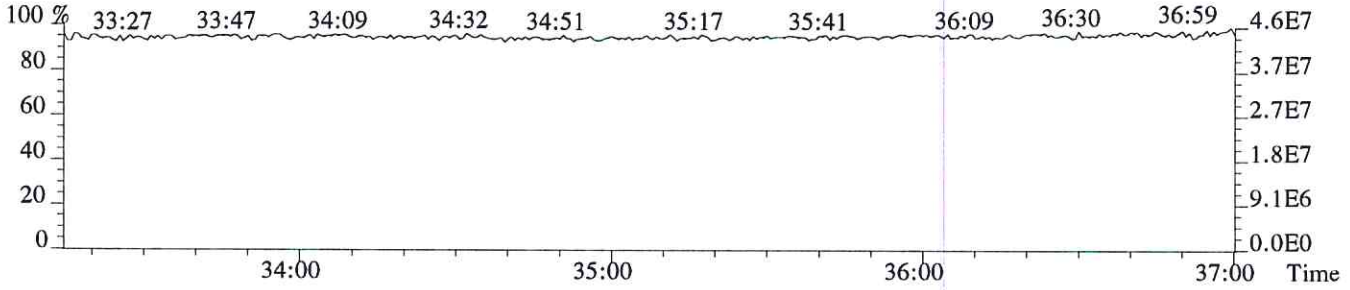
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.40%,F,T)



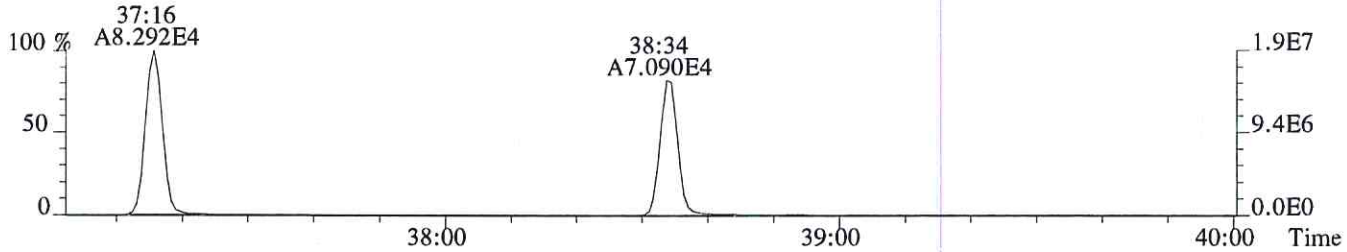
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



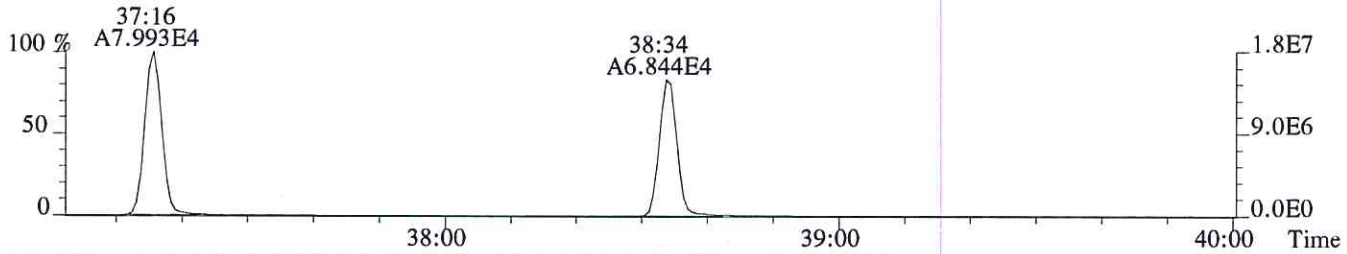
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



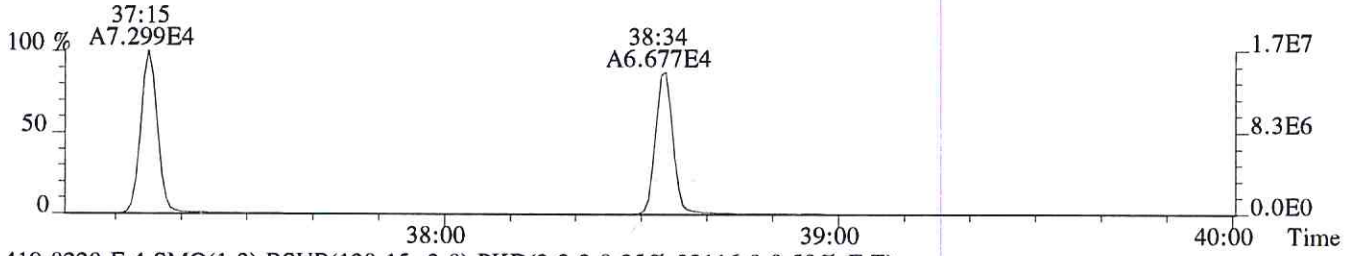
File:P607186 #1-268 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8428.0,0.50%,F,T)



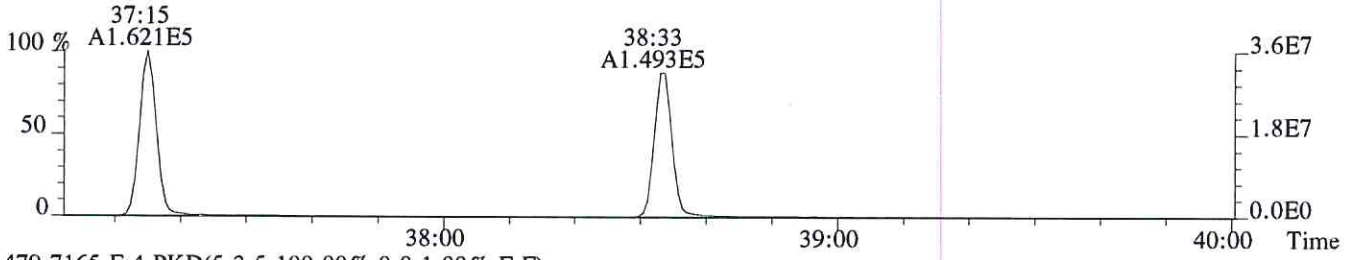
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8372.0,0.50%,F,T)



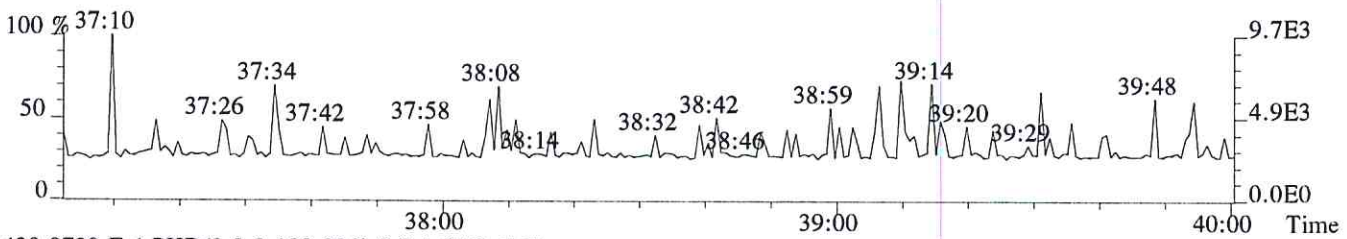
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11848.0,0.50%,F,T)



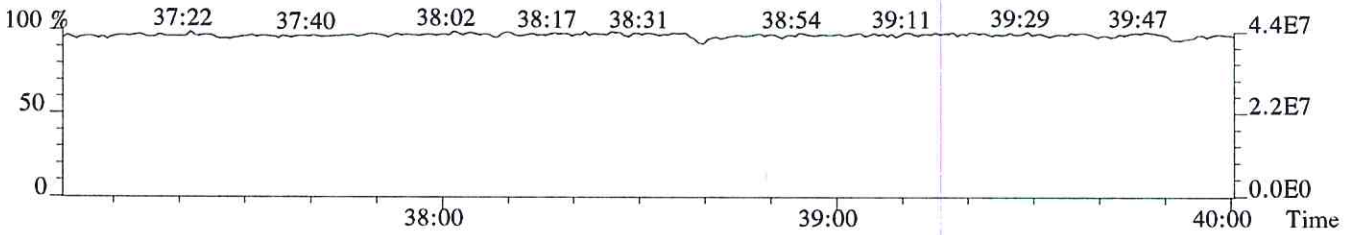
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,33116.0,0.50%,F,T)



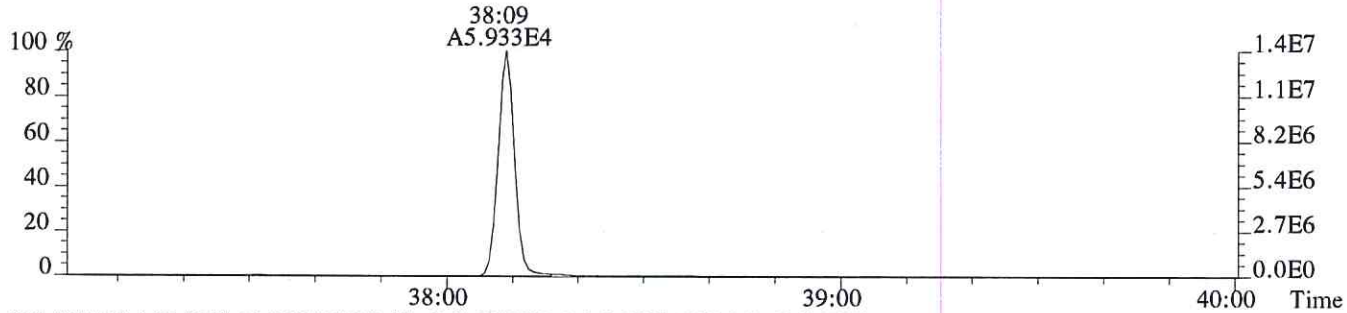
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



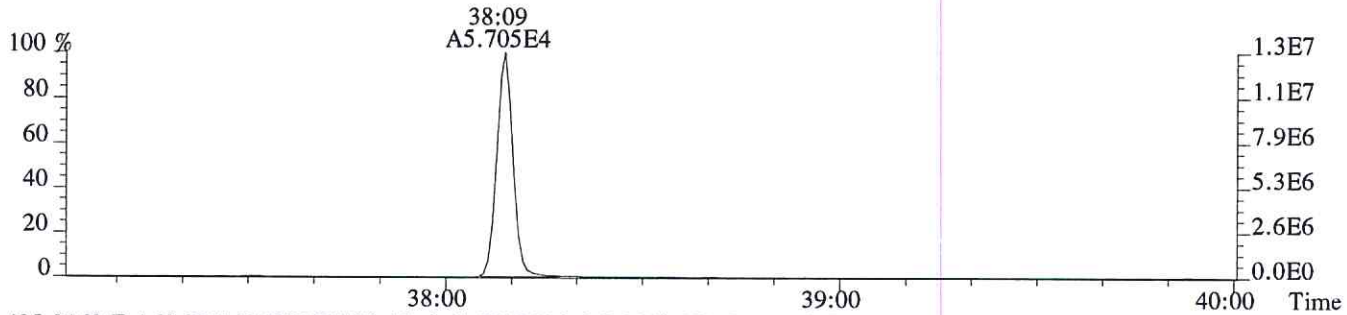
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



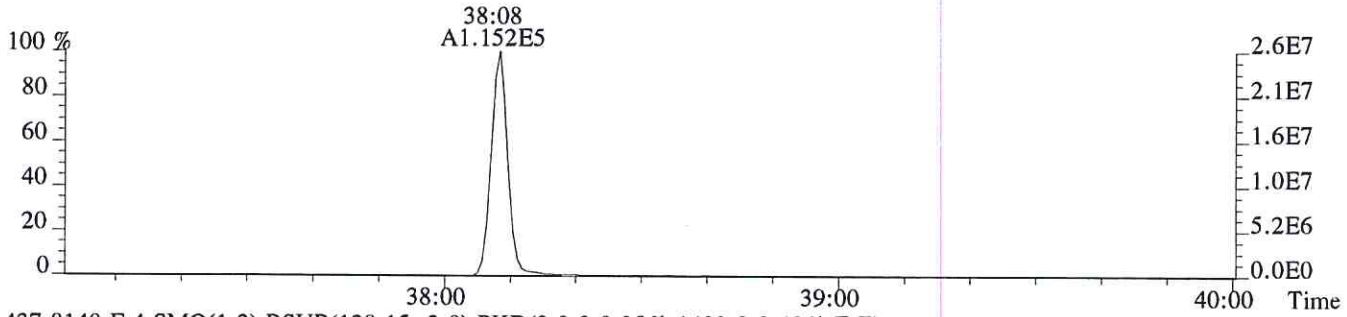
File:P607186 #1-268 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1880.0,0.40%,F,T)



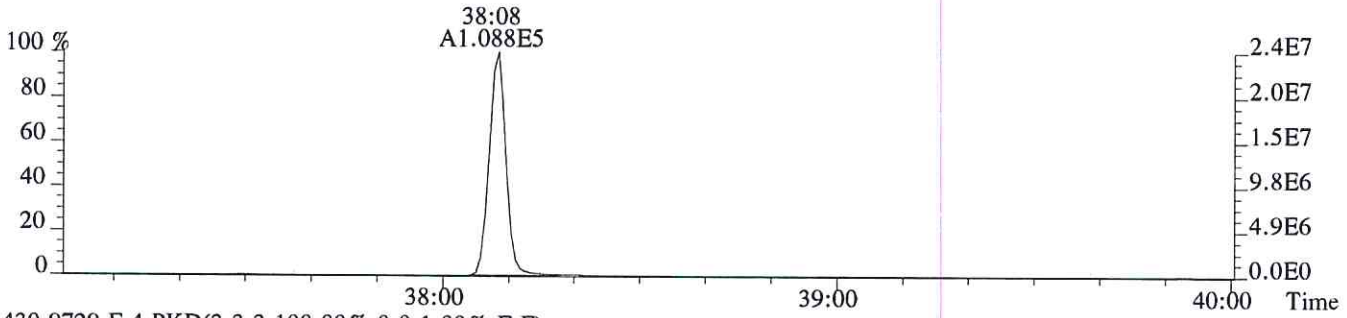
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



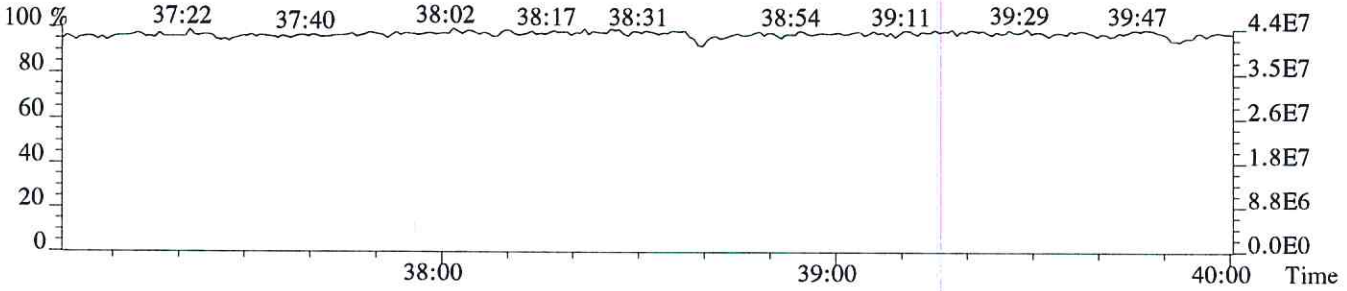
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



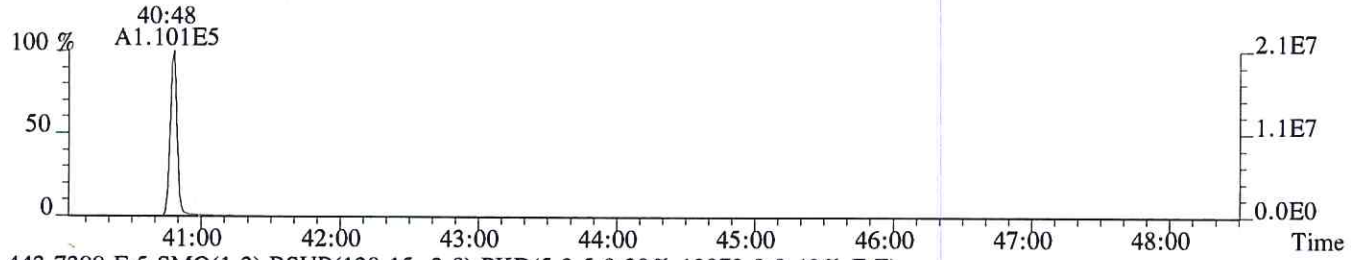
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



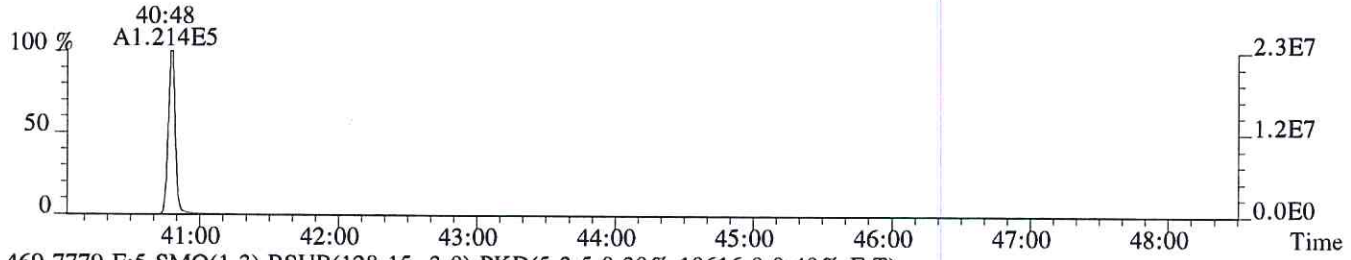
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



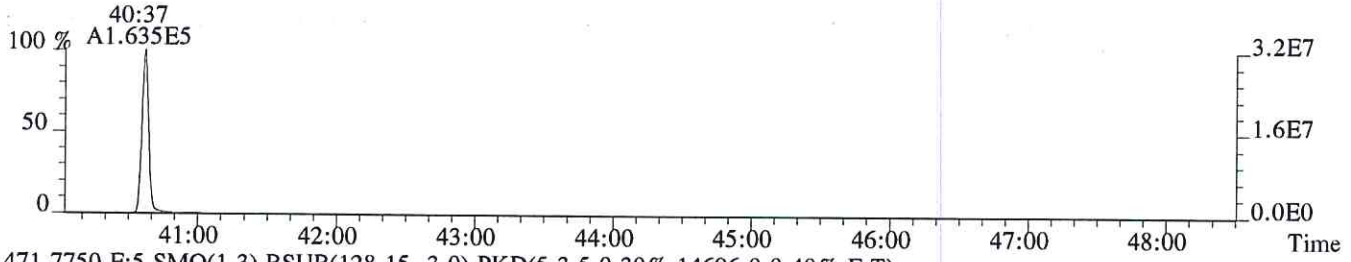
File:P607186 #1-762 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8596.0,0.40%,F,T)



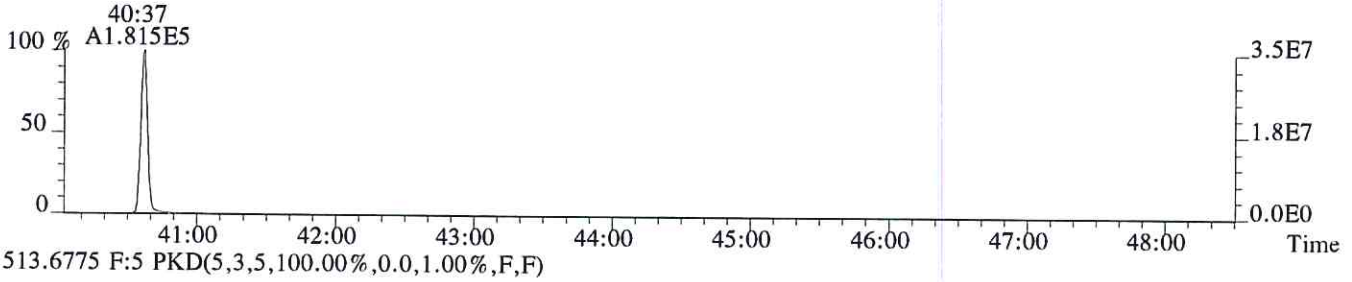
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,12972.0,0.40%,F,T)



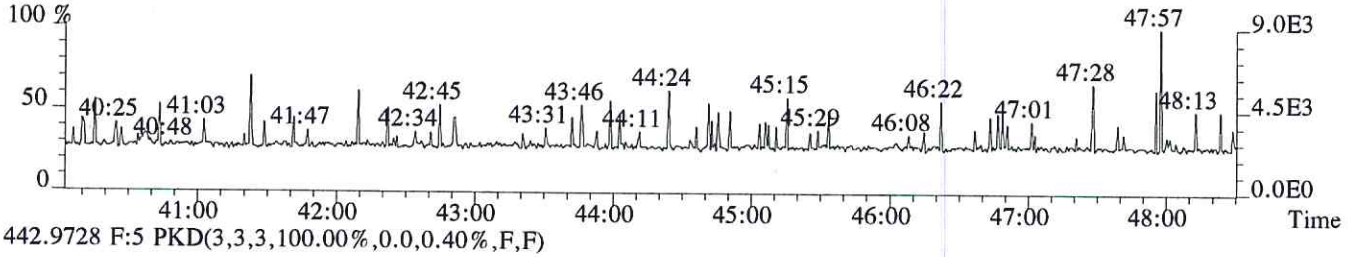
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10616.0,0.40%,F,T)



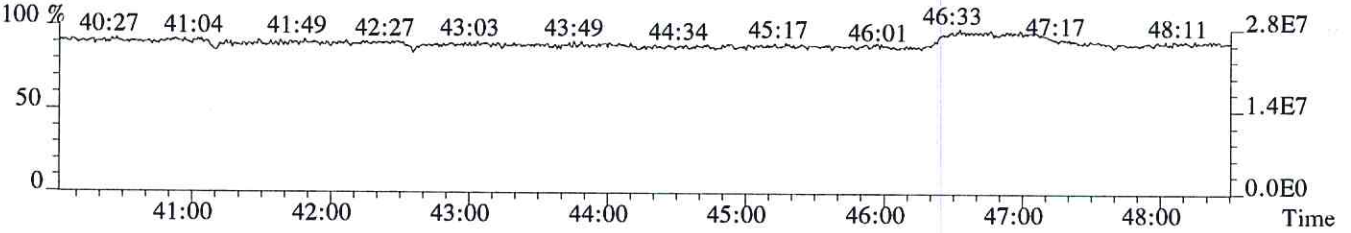
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14696.0,0.40%,F,T)



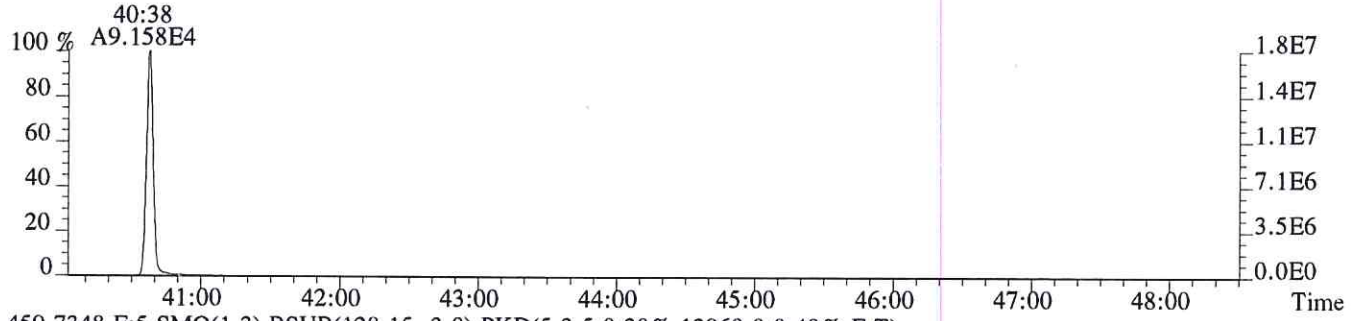
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



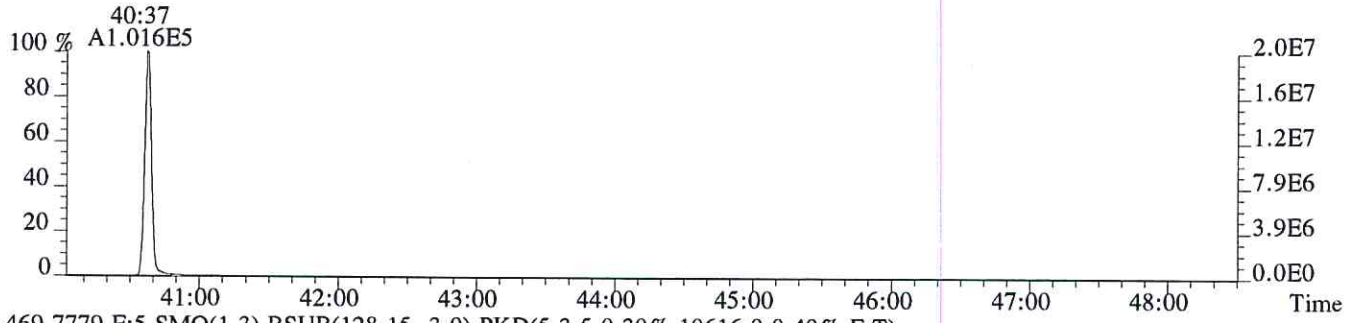
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



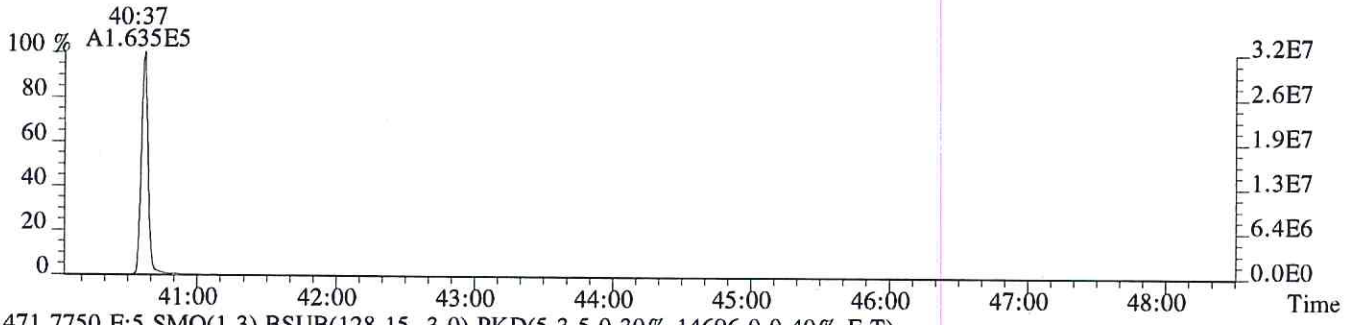
File:P607186 #1-762 Acq:16-MAY-2017 18:45:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9668.0,0.40%,F,T)



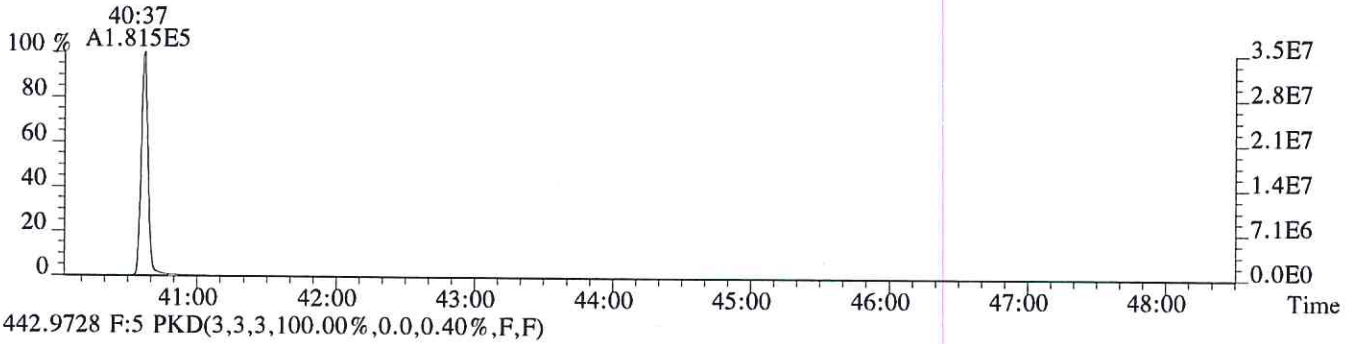
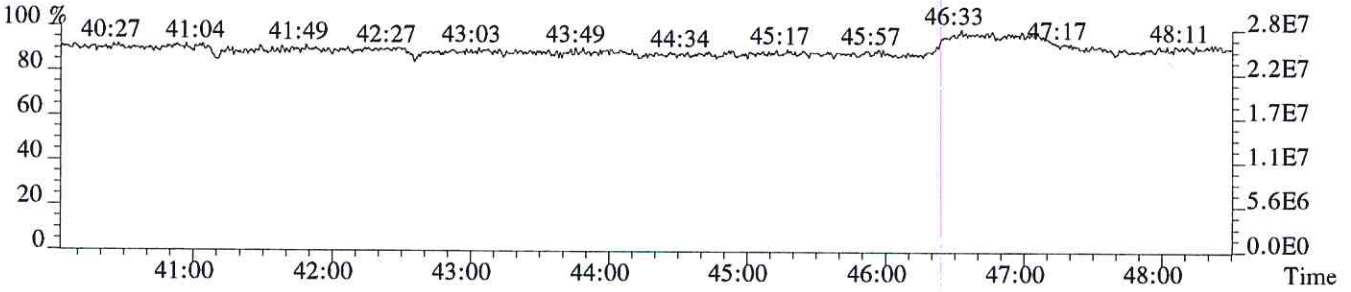
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,12960.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10616.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14696.0,0.40%,F,T)



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