February 20, 2017 Service Request No:E1700102

Tina Green
BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

Laboratory Results for: Former Naval Air Station Alameda Pt, CA

Dear Tina,

Enclosed are the results of the sample(s) submitted to our laboratory February 08, 2017
For your reference, these analyses have been assigned our service request number **E1700102.**

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 extension is 2284. You may also contact me via email at Nicole.Brown@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Nicole Brown

Nicole Brown
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
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ALS Environmental

Client:	BC Laboratories, Inc.	**Service Request No.:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA	**Date Received:**	02/08/17
Sample Matrix:	Water		

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 II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at ALS Environmental in Houston on 02/08/17.

The samples were received at 21.8 °C in good condition and are consistent with the accompanying chain of custody form. Dioxin/furan compounds are stable at room temperature. 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 EQ1700058-01 contained low levels of 1234678-HpCDF below the Method Reporting Limit (MRL). The associated compound in the samples is flagged with a 'B' flag where the sample result is less than ten times the level detected in the method blank. However, if the method blank result is less than ½ the LOQ then the corresponding sample result will not be qualified with a B flag per DOD guidelines.

MS/MSD

EQ1300019: One Laboratory Control Spike (LCS) sample was analyzed and reported in addition to an MS/MSD for this extraction batch.

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 MRL = DoD LOQ, but the EDL is not directly correlated to LOD. The LOD is instrument and prep-method specific.

Manual Integrations

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

Below is a list of the samples and their associated manually integrated compounds for this workorder:

E1700102-001: 12378-PeCDD, 123478-HxCDF, 234678-HxCDF, 123789-HxCDF123478-HxCDD, 123678-HxCDD, 123789-HxCDD

E1700102-002: 1234678-HpCDD
E1700102-003: 123789-HxCDD
E1700102-004: 1234678-HpCDF, 1234678-HpCDD

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)
- 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.

Client: BC Laboratories, Incorporated **Service Request:**E1700102

Project: Former Naval Air Station Alameda Pt, CA/1702917

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1700102-001	1702917-01	2/1/2017	0000
E1700102-002	1702917-04	2/1/2017	1415
E1700102-003	1702917-06	2/1/2017	0840
E1700102-004	1702917-07	2/1/2017	1315

Service Request Summary

Folder #: **E1700102**
Client Name: BC Laboratories, Incorporated
Project Name: Former Naval Air Station Alameda Pt, CA
Project Number: 1702917

Report To: Tina Green
BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308
USA
Phone Number: 661-327-4911
Cell Number:
Fax Number: (661) 327-1918
E-mail: tina@bclabs.com

Project Chemist: Nicole Brown
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 02/08/17
Internal Due Date: 2/20/2017
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: 1702917
EDD: NEDD NIRIS LOD wAnalyte

11 1000 mL-Glass Bottle WM AMBER Teflon Liner Unpreserved
Location: E-Disposed, EHRMS-WIC 8D
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON PCDD PCDF/8290
E1700102-001	1702917-01	Water	02/01/17 0000	**IV**
E1700102-002	1702917-04	Water	02/01/17 1415	**IV**
E1700102-003	1702917-06	Water	02/01/17 0840	**IV**
E1700102-004	1702917-07	Water	02/01/17 1315	**IV**

Service Request Summary

Folder #:	**E1700102**
Client Name:	BC Laboratories, Incorporated
Project Name:	Former Naval Air Station Alameda Pt, CA
Project Number:	1702917
Report To:	Tina Green BC Laboratories, Inc. 4100 Atlas Court Bakersfield, CA 93308 USA
Phone Number:	661-327-4911
Cell Number:	
Fax Number:	(661) 327-1918
E-mail:	tina@bclabs.com

Project Chemist:	Nicole Brown
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	02/08/17
Internal Due Date:	2/20/2017
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	Y
P.O. Number:	1702917
EDD:	NEDD NIRIS LOD wAnalyte

11 1000 mL-Glass Bottle WM AMBER Teflon Liner Unpreserved

Location: E-Disposed, EHRMS-WIC 8D

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	PCDD PCDF/8290	1	MS MSD on -004

Superset Summary

Service Request: E1700102 **SuperSet Reference:** 17-0000411664 rev 00

Analytical Method: **8290**

Calibrations: 04/28/16

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P405399	P405397	P405431	E1700102-001
P405400	P405397	P405431	E1700102-002
P405434	P405429	P405431	E1700102-003
P405402	P405397	P405431	E1700102-004
P405431	P405429	P405431	EQ1700058-01
P405404	P405397	P405431	EQ1700058-02
P405405	P405397	P405431	EQ1700058-05
P405406	P405397	P405431	EQ1700058-06

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	5/27/2017
Arkansas Department of Environmental Quality	14-038-0	6/16/2017
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2017
Hawaii Department of Health	TX02694	4/30/2017
Illinois Environmental Protection Agency	200057	5/9/2017
Kansas Department of Health and Environment	E-10406	7/31/2017
Louisiana Department of Environmental Quality	03048	6/30/2017
Maine Center for Disease Control and Prevention	2014019	6/5/2018
Maryland Department of the Environment	343	6/30/2017
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	4/30/2017
Nevada Department of Concervation and Natural Resources	TX014112013-2	7/31/2017
New Jersey Department of Environmental Protection	NLC140001	6/30/2017
New Mexico Environment Department	TX02694	4/17/2017
New York Department of Health	11707	4/1/2017
Oklahoma Department of Environmental Quality	2014 124	8/21/2017
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2017
Pennsylvania Department of Environmental Protection	68-03441	6/30/2017
Tennessee Department of Environment and Concervation	04016	6/30/2017
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2017
United States Department of Agriculture	P330-14-00067	6/19/2018
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2017
West Virginia Department of Environmental Protection	347	6/30/2017

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

SR# Unique ID E1700102

DB-5MSUI SPB-Octyl

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

Date:	Analyst:	Samples:
02/16/17	JC	001, 002, 004
		EQ1700058-05,
		EQ1700058-06

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

Date:	Analyst:	Samples:
02/17/17	LKL	001, 002, 004
		EQ 1700058-05, 06

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

SR# Unique ID E1700102 DB-5MSUI SPB-Octyl

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

Date:	Analyst:	Samples:
02/17/17	JC	003

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

Date:	Analyst:	Samples:
02/20/17	LKL	003

Chain of Custody

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

SUBCONTRACT ORDER
BC Laboratories
1702917

ALSHS

SENDING LABORATORY:

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Tina Green

tina@bclabs.com

RECEIVING LABORATORY:

ALS - Houston
10450 Stancliff Road
Houston, TX 77099
Phone: (713) 266-1599
FAX: (713) 266-0130

attn: Nicole

Analysis		Due	Expires	Comments
Sample ID: 1702917-01	**Water**	**Sampled:**	**02/01/17 00:00**	DOD/CLP
EPA 8290 - CDDs & CDFs		02/15/17 17:00	03/03/17 00:00	DOD/Level IV/ Groundwater
Containers supplied: Qt Amber				
Sample ID: 1702917-04	**Water**	**Sampled:**	**02/01/17 14:15**	DOD/CLP
EPA 8290 - CDDs & CDFs		02/15/17 17:00	03/03/17 14:15	DOD/Level IV/ Groundwater
Containers supplied:				
Sample ID: 1702917-06	**Water**	**Sampled:**	**02/01/17 08:40**	DOD/CLP
EPA 8290 - CDDs & CDFs		02/15/17 17:00	03/03/17 08:40	DOD/Level IV/ Groundwater
Containers supplied:				
Sample ID: 1702917-07	**Water**	**Sampled:**	**02/01/17 13:15**	DOD/CLP
EPA 8290 - CDDs & CDFs		02/15/17 17:00	03/03/17 13:15	DOD/Level IV/ Groundwater
Containers supplied: Qt Amber (4)				Use for QC

Samples from California
NEDD EDD

E1700102 5
BC Laboratories, Inc.
Former Naval Air Station Alameda Pt, CA

Released By	Date	Received By	Date
	2/3/17		2/8/17 10:08
Released By	Date	Received By	Date

Cooler Receipt Form

ALS Environmental

Project Chemist NB

Client/Project BC Laboratories

Thermometer ID SM04

Date/Time Received: 2/8/17 10:08 Initials: AL

Date/Time Logged in: 2/8/17 Initials AL

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? No seals
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?
1294 5376 0362 72 7934		2/8/17	10:30	TW	21.8/20.8	☐
						☐
						☐
						☐

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:

Received a broken container for sample 1702917-01 AL 2/8/17

Samples received out of temp 2/8/17 AL

Service request Label: E1700102 5

BC Laboratories, Inc.
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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#: 281260 **Prep WorkFlow:** OrgExtDioxAq-30 **Status:** Prepped
Team: Semivoa GCMS/TWOODS **Prep Method:** Method **Prep Date/Time:** 2/9/17 12:00 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1700061-001	SRTTP INFLUENT	.01	8290A/PCDD PCDF	7	x	Water	1037mL	brown
2	E1700073-001	WASTE-HT418-IDW-170201	.01	8290/PCDD PCDF	7	x	Water	987mL	black
3	E1700073-002	WASTE-HT3699-IDW-170201	.01	8290/PCDD PCDF	7	x	Water	953mL	brown
4	E1700084-001	2017 Mixed Leachate	.01	8290/PCDD PCDF	7		Water	1099mL	coca-cola
5	E1700093-001	1702613-03	.01	8290/PCDD PCDF	6		Water	1050mL	clear
6	E1700093-002	1702613-04	.01	8290/PCDD PCDF	7	x	Water	962mL	slight brown
7	E1700093-003	1702613-05	.01	8290/PCDD PCDF	7	x	Water	890mL	blackish grey
8	E1700093-004	1702613-07	.01	8290/PCDD PCDF	7	x	Water	960mL	slight brown
9	E1700093-005	1702613-08	.01	8290/PCDD PCDF	6	x	Water	1047mL	clear
10	E1700102-001	1702917-01	.01	8290/PCDD PCDF	7	x	Water	976mL	clear
11	E1700102-002	1702917-04	.01	8290/PCDD PCDF	5	x	Water	975mL	clear
12	E1700102-003	1702917-06	.01	8290/PCDD PCDF	7	x	Water	926mL	slighty grey
13	E1700102-004	1702917-07	.01	8290/PCDD PCDF	7	x	Water	988mL	clear
14	EQ1700058-01	MB		8290A/PCDD PCDF	5	x	Liquid	1000mL	
15	EQ1700058-02	LCS		8290A/PCDD PCDF	5	x	Liquid	1000mL	
16	EQ1700058-03	1702613-07 MS	.02	8290/PCDD PCDF	7	x	Liquid	972mL	
17	EQ1700058-04	1702613-07 DMS	.03	8290/PCDD PCDF	7	x	Liquid	956mL	
18	EQ1700058-05	1702917-07 MS	.02	8290/PCDD PCDF	7	x	Liquid	948mL	
19	EQ1700058-06	1702917-07 DMS	.03	8290/PCDD PCDF	7	x	Liquid	995mL	

Preparation Information Benchsheet

Prep Run#: 281260 **Prep WorkFlow:** OrgExtDioxAq-30 **Status:** Prepped
Team: Semivoa GCMS/TWOODS **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 2/9/17 12:00 PM

Spiking Solutions

Name:	8290/1613B Cleanup Working Standard	Inventory ID	178815	Logbook Ref:	178815 AL 1/23/17 8 ng/mL	Expires On:	02/10/2017

E1700061-001	100.00µL	E1700073-001	100.00µL	E1700073-002	100.00µL	E1700084-001	100.00µL	E1700093-001	100.00µL	E1700093-002	100.00µL
E1700093-003	100.00µL	E1700093-004	100.00µL	E1700093-005	100.00µL	E1700102-001	100.00µL	E1700102-002	100.00µL	E1700102-003	100.00µL
E1700102-004	100.00µL	EQ1700058-01	100.00µL	EQ1700058-01	100.00µL	EQ1700058-02	100.00µL	EQ1700058-02	100.00µL	EQ1700058-03	100.00µL
EQ1700058-04	100.00µL	EQ1700058-05	100.00µL	EQ1700058-06	100.00µL						

Name:	1613B Matrix Working Standard	Inventory ID	179101	Logbook Ref:	179101 JG 02/03/17 2-20 ng/mL	Expires On:	08/02/2017

EQ1700058-02	100.00µL	EQ1700058-02	100.00µL	EQ1700058-03	100.00µL	EQ1700058-04	100.00µL	EQ1700058-05	100.00µL	EQ1700058-06	100.00µL

Name:	1613B Labeled Working Standard	Inventory ID	179252	Logbook Ref:	179252 JG 02/09/2017	Expires On:	02/28/2017

E1700061-001	1,000.00µL	E1700073-001	1,000.00µL	E1700073-002	1,000.00µL	E1700084-001	1,000.00µL	E1700093-001	1,000.00µL	E1700093-002	1,000.00µL
E1700093-003	1,000.00µL	E1700093-004	1,000.00µL	E1700093-005	1,000.00µL	E1700102-001	1,000.00µL	E1700102-002	1,000.00µL	E1700102-003	1,000.00µL
E1700102-004	1,000.00µL	EQ1700058-01	1,000.00µL	EQ1700058-01	1,000.00µL	EQ1700058-02	1,000.00µL	EQ1700058-02	1,000.00µL	EQ1700058-03	1,000.00µL
EQ1700058-04	1,000.00µL	EQ1700058-05	1,000.00µL	EQ1700058-06	1,000.00µL						

Preparation Materials

Sensafe Free Chlorine WTR CHK	LM 3/19/15 (79756)	Carbon, High Purity	CID 12/22/16 (178181)	Ethyl Acetate 99.9% Minimum EtOAc	12/16/16 (178059)
Glass Wool	CID 12/22/16 (178182)	Hexanes 95%	9269-03 (179177)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JP 1/10/16 (178535)
Sodium Chloride Reagent Grade NaCl	X190-1KG (178499)	Sodium Hydroxide Reagent Grade NaOH	CID 5/23/2016 (172624)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 122816 300107005-09 (178440)
Tridecane (n-Tridecane)	AL 1/25/17 (178887)	Silica Gel	CID 1/9/17 (178503)	sulfuric acid	CID 10/11/16 (176335)
Toluene 99.9% Minimum	CID 1/16/17 (178631)	ColorpHast pH-Indicator Strips	AL 8/17/16 (175089)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	2/9/17 12:00	Started:	2/10/17 15:30	Started:	2/13/17 08:45	Started:	2/14/17 14:00
Finished:	2/10/17 13:00	Finished:	2/10/17 15:35	Finished:	2/13/17 10:20	Finished:	2/14/17 14:40
By:	TWOODS	By:	CDIAZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Comments: _____

Preparation Information Benchsheet

Prep Run#: 281260 **Prep WorkFlow:** OrgExtDioxAq-30 **Status:** Prepped
Team: Semivoa GCMS/TWOODS **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 2/9/17 12:00 PM

Reviewed By: CID Date: 2/16/17

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 00:00
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-01	**Units:**	pg/L
Lab Code:	E1700102-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 18:59
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	976mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405399	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	2.54	3.07	5.12			1
1,2,3,7,8-PeCDD	2.32**J**		1.26	15.4	25.6	1.47	1.001	1
1,2,3,4,7,8-HxCDD	2.15**J**		0.721	15.4	25.6	1.35	1.000	1
1,2,3,6,7,8-HxCDD	2.05**JK**		0.738	15.4	25.6	1.46	1.000	1
1,2,3,7,8,9-HxCDD	1.82**JK**		0.685	15.4	25.6	2.37	1.006	1
1,2,3,4,6,7,8-HpCDD	18.2**JK**		2.85	15.4	25.6	1.35	1.000	1
OCDD	113		2.22	30.7	51.2	0.93	1.000	1
2,3,7,8-TCDF	ND	U	2.33	3.07	5.12			1
1,2,3,7,8-PeCDF	1.77**JK**		0.645	15.4	25.6	1.22	1.001	1
2,3,4,7,8-PeCDF	ND	U	0.677	15.4	25.6			1
1,2,3,4,7,8-HxCDF	1.70**JK**		0.605	15.4	25.6	1.59	1.000	1
1,2,3,6,7,8-HxCDF	1.92**JK**		0.567	15.4	25.6	1.46	1.000	1
1,2,3,7,8,9-HxCDF	2.16**JK**		0.798	15.4	25.6	1.82	1.000	1
2,3,4,6,7,8-HxCDF	2.00**JK**		0.669	15.4	25.6	0.95	1.000	1
1,2,3,4,6,7,8-HpCDF	4.69**JK**		0.884	15.4	25.6	1.34	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.975	15.4	25.6			1
OCDF	13.4**J**		2.09	30.7	51.2	0.97	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 00:00
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-01	**Units:**	pg/L
Lab Code:	E1700102-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 18:59
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	976mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405399	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	2.54	15.4	15.4			1
Total Penta-Dioxins	2.32**J**		1.26	15.4	25.6	1.47		1
Total Hexa-Dioxins	2.15**J**		0.714	46.1	46.1	1.35		1
Total Hepta-Dioxins	ND	U	2.85	15.4	25.6			1
Total Tetra-Furans	ND	U	2.33	15.4	15.4			1
Total Penta-Furans	ND	U	0.660	30.7	30.7			1
Total Hexa-Furans	ND	U	0.649	61.5	61.5			1
Total Hepta-Furans	6.73**J**		0.928	30.7	30.7	1.07		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 00:00
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-01	**Units:**	Percent
Lab Code:	E1700102-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 18:59
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	976mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405399	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

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	1456.468	73		40-135	0.78	1.024
13C-1,2,3,7,8-PeCDD	2000	1673.054	84		40-135	1.60	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1516.466	76		40-135	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1460.507	73		40-135	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1333.024	67		40-135	1.03	1.067
13C-OCDD	4000	2130.102	53		40-135	0.89	1.138
13C-2,3,7,8-TCDF	2000	1252.617	63		40-135	0.76	0.991
13C-1,2,3,7,8-PeCDF	2000	1622.737	81		40-135	1.56	1.158
13C-2,3,4,7,8-PeCDF	2000	1519.561	76		40-135	1.57	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1510.281	76		40-135	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1523.122	76		40-135	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1316.544	66		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1338.043	67		40-135	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1186.996	59		40-135	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1426.100	71		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	677.033	85		40-135	NA	1.024

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 00:00
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-01	**Units:**	pg/L
Lab Code:	E1700102-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	2.54	5.12	1	1	
1,2,3,7,8-PeCDD	**2.32**	1.26	25.6	1	1	2.32
1,2,3,4,7,8-HxCDD	**2.15**	0.721	25.6	1	0.1	0.215
1,2,3,6,7,8-HxCDD	**2.05**	0.738	25.6	1	0.1	0.205
1,2,3,7,8,9-HxCDD	**1.82**	0.685	25.6	1	0.1	0.182
1,2,3,4,6,7,8-HpCDD	**18.2**	2.85	25.6	1	0.01	0.182
OCDD	**113**	2.22	51.2	1	0.0003	0.0339
2,3,7,8-TCDF	ND	2.33	5.12	1	0.1	
1,2,3,7,8-PeCDF	**1.77**	0.645	25.6	1	0.03	0.0531
2,3,4,7,8-PeCDF	ND	0.677	25.6	1	0.3	
1,2,3,4,7,8-HxCDF	**1.70**	0.605	25.6	1	0.1	0.170
1,2,3,6,7,8-HxCDF	**1.92**	0.567	25.6	1	0.1	0.192
1,2,3,7,8,9-HxCDF	**2.16**	0.798	25.6	1	0.1	0.216
2,3,4,6,7,8-HxCDF	**2.00**	0.669	25.6	1	0.1	0.200
1,2,3,4,6,7,8-HpCDF	**4.69**	0.884	25.6	1	0.01	0.0469
1,2,3,4,7,8,9-HpCDF	ND	0.975	25.6	1	0.01	
OCDF	**13.4**	2.09	51.2	1	0.0003	0.00402
		Total TEQ				4.02

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 14:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-04	**Units:**	pg/L
Lab Code:	E1700102-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 19:48
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	975mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405400	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.89	3.08	5.13			1
1,2,3,7,8-PeCDD	ND	U	1.99	15.4	25.6			1
1,2,3,4,7,8-HxCDD	ND	U	1.24	15.4	25.6			1
1,2,3,6,7,8-HxCDD	ND	U	1.27	15.4	25.6			1
1,2,3,7,8,9-HxCDD	ND	U	1.18	15.4	25.6			1
1,2,3,4,6,7,8-HpCDD	6.91**J**		2.25	15.4	25.6	0.92	1.000	1
OCDD	23.4**J**		1.80	30.8	51.3	0.97	1.000	1
2,3,7,8-TCDF	ND	U	1.89	3.08	5.13			1
1,2,3,7,8-PeCDF	ND	U	1.13	15.4	25.6			1
2,3,4,7,8-PeCDF	ND	U	1.19	15.4	25.6			1
1,2,3,4,7,8-HxCDF	ND	U	1.15	15.4	25.6			1
1,2,3,6,7,8-HxCDF	ND	U	1.07	15.4	25.6			1
1,2,3,7,8,9-HxCDF	ND	U	1.47	15.4	25.6			1
2,3,4,6,7,8-HxCDF	ND	U	1.32	15.4	25.6			1
1,2,3,4,6,7,8-HpCDF	ND	U	2.54	15.4	25.6			1
1,2,3,4,7,8,9-HpCDF	ND	U	2.66	15.4	25.6			1
OCDF	9.31**J**		2.49	30.8	51.3	0.79	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 14:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-04	**Units:**	pg/L
Lab Code:	E1700102-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 19:48
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	975mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405400	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.89	15.4	15.4			1
Total Penta-Dioxins	ND	U	1.99	15.4	25.6			1
Total Hexa-Dioxins	ND	U	1.23	46.2	46.2			1
Total Hepta-Dioxins	6.91**J**		2.25	15.4	25.6	0.92		1
Total Tetra-Furans	ND	U	1.89	15.4	15.4			1
Total Penta-Furans	ND	U	1.16	30.8	30.8			1
Total Hexa-Furans	ND	U	1.23	61.5	61.5			1
Total Hepta-Furans	ND	U	2.59	30.8	30.8			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 14:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-04	**Units:**	Percent
Lab Code:	E1700102-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 19:48
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	975mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405400	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

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	1551.253	78		40-135	0.77	1.024
13C-1,2,3,7,8-PeCDD	2000	1797.963	90		40-135	1.53	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1640.576	82		40-135	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1578.319	79		40-135	1.21	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1468.506	73		40-135	1.04	1.067
13C-OCDD	4000	2302.917	58		40-135	0.90	1.138
13C-2,3,7,8-TCDF	2000	1340.883	67		40-135	0.77	0.991
13C-1,2,3,7,8-PeCDF	2000	1756.931	88		40-135	1.55	1.158
13C-2,3,4,7,8-PeCDF	2000	1644.997	82		40-135	1.54	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1618.801	81		40-135	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1644.071	82		40-135	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1473.278	74		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1430.994	72		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1336.703	67		40-135	0.43	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1655.750	83		40-135	0.43	1.079
37Cl-2,3,7,8-TCDD	800	699.461	87		40-135	NA	1.024

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 14:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-04	**Units:**	pg/L
Lab Code:	E1700102-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	1.89	5.13	1	1	
1,2,3,7,8-PeCDD	ND	1.99	25.6	1	1	
1,2,3,4,7,8-HxCDD	ND	1.24	25.6	1	0.1	
1,2,3,6,7,8-HxCDD	ND	1.27	25.6	1	0.1	
1,2,3,7,8,9-HxCDD	ND	1.18	25.6	1	0.1	
1,2,3,4,6,7,8-HpCDD	**6.91**	2.25	25.6	1	0.01	0.0691
OCDD	**23.4**	1.80	51.3	1	0.0003	0.00702
2,3,7,8-TCDF	ND	1.89	5.13	1	0.1	
1,2,3,7,8-PeCDF	ND	1.13	25.6	1	0.03	
2,3,4,7,8-PeCDF	ND	1.19	25.6	1	0.3	
1,2,3,4,7,8-HxCDF	ND	1.15	25.6	1	0.1	
1,2,3,6,7,8-HxCDF	ND	1.07	25.6	1	0.1	
1,2,3,7,8,9-HxCDF	ND	1.47	25.6	1	0.1	
2,3,4,6,7,8-HxCDF	ND	1.32	25.6	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	2.54	25.6	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	2.66	25.6	1	0.01	
OCDF	**9.31**	2.49	51.3	1	0.0003	0.00279
	Total TEQ					0.0789

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 08:40
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-06	**Units:**	pg/L
Lab Code:	E1700102-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/17/17 02:31
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	926mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405434	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405429

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	7.67	7.67	7.67			1
1,2,3,7,8-PeCDD	ND	U	4.87	16.2	27.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.13	16.2	27.0			1
1,2,3,6,7,8-HxCDD	ND	U	2.17	16.2	27.0			1
1,2,3,7,8,9-HxCDD	3.26**J**		2.01	16.2	27.0	1.10	1.007	1
1,2,3,4,6,7,8-HpCDD	19.1**J**		1.16	16.2	27.0	1.01	1.000	1
OCDD	107		3.00	32.4	54.0	0.97	1.000	1
2,3,7,8-TCDF	ND	U	8.89	8.89	8.89			1
1,2,3,7,8-PeCDF	ND	U	4.00	16.2	27.0			1
2,3,4,7,8-PeCDF	ND	U	4.19	16.2	27.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.14	16.2	27.0			1
1,2,3,6,7,8-HxCDF	ND	U	2.04	16.2	27.0			1
1,2,3,7,8,9-HxCDF	ND	U	2.93	16.2	27.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.50	16.2	27.0			1
1,2,3,4,6,7,8-HpCDF	7.07**JK**		1.89	16.2	27.0	0.80	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.97	16.2	27.0			1
OCDF	18.4**J**		3.01	32.4	54.0	0.92	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 08:40
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-06	**Units:**	pg/L
Lab Code:	E1700102-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/17/17 02:31
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	926mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405434	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405429

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	7.67	16.2	16.2			1
Total Penta-Dioxins	ND	U	4.87	16.2	27.0			1
Total Hexa-Dioxins	3.26**J**		2.10	48.6	48.6	1.10		1
Total Hepta-Dioxins	45.4		1.16	16.2	27.0	1.13		1
Total Tetra-Furans	ND	U	8.89	16.2	16.2			1
Total Penta-Furans	ND	U	4.09	32.4	32.4			1
Total Hexa-Furans	2.80**J**		2.36	64.8	64.8	1.10		1
Total Hepta-Furans	8.84**J**		1.92	32.4	32.4	1.14		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 08:40
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-06	**Units:**	Percent
Lab Code:	E1700102-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/17/17 02:31
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	926mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405434	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405429

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	1415.329	71		40-135	0.76	1.023
13C-1,2,3,7,8-PeCDD	2000	1637.145	82		40-135	1.55	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1500.424	75		40-135	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1451.079	73		40-135	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1359.338	68		40-135	1.05	1.067
13C-OCDD	4000	2163.613	54		40-135	0.88	1.138
13C-2,3,7,8-TCDF	2000	1195.210	60		40-135	0.76	0.991
13C-1,2,3,7,8-PeCDF	2000	1605.448	80		40-135	1.53	1.159
13C-2,3,4,7,8-PeCDF	2000	1491.824	75		40-135	1.57	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1464.318	73		40-135	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1457.526	73		40-135	0.50	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1238.899	62		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1249.131	62		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1169.285	58		40-135	0.45	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1424.144	71		40-135	0.43	1.079
37Cl-2,3,7,8-TCDD	800	654.208	82		40-135	NA	1.025

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 08:40
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-06	**Units:**	pg/L
Lab Code:	E1700102-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	7.67	7.67	1	1	
1,2,3,7,8-PeCDD	ND	4.87	27.0	1	1	
1,2,3,4,7,8-HxCDD	ND	2.13	27.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	2.17	27.0	1	0.1	
1,2,3,7,8,9-HxCDD	**3.26**	2.01	27.0	1	0.1	0.326
1,2,3,4,6,7,8-HpCDD	**19.1**	1.16	27.0	1	0.01	0.191
OCDD	**107**	3.00	54.0	1	0.0003	0.0321
2,3,7,8-TCDF	ND	8.89	8.89	1	0.1	
1,2,3,7,8-PeCDF	ND	4.00	27.0	1	0.03	
2,3,4,7,8-PeCDF	ND	4.19	27.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	2.14	27.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	2.04	27.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	2.93	27.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	2.50	27.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	**7.07**	1.89	27.0	1	0.01	0.0707
1,2,3,4,7,8,9-HpCDF	ND	1.97	27.0	1	0.01	
OCDF	**18.4**	3.01	54.0	1	0.0003	0.00552
	Total TEQ					0.625

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	pg/L
Lab Code:	E1700102-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 21:26
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	988mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405402	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	2.04	3.04	5.06			1
1,2,3,7,8-PeCDD	ND	U	1.54	15.2	25.3			1
1,2,3,4,7,8-HxCDD	ND	U	0.592	15.2	25.3			1
1,2,3,6,7,8-HxCDD	ND	U	0.602	15.2	25.3			1
1,2,3,7,8,9-HxCDD	1.67**JK**		0.560	15.2	25.3	0.81	1.006	1
1,2,3,4,6,7,8-HpCDD	7.96**J**		2.14	15.2	25.3	1.08	1.000	1
OCDD	52.7		2.65	30.4	50.6	0.98	1.000	1
2,3,7,8-TCDF	ND	U	2.00	3.04	5.06			1
1,2,3,7,8-PeCDF	ND	U	1.43	15.2	25.3			1
2,3,4,7,8-PeCDF	ND	U	1.53	15.2	25.3			1
1,2,3,4,7,8-HxCDF	ND	U	0.549	15.2	25.3			1
1,2,3,6,7,8-HxCDF	ND	U	0.522	15.2	25.3			1
1,2,3,7,8,9-HxCDF	ND	U	0.719	15.2	25.3			1
2,3,4,6,7,8-HxCDF	ND	U	0.623	15.2	25.3			1
1,2,3,4,6,7,8-HpCDF	2.57**JK**		1.49	15.2	25.3	0.66	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.64	15.2	25.3			1
OCDF	7.53**J**		2.08	30.4	50.6	0.77	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	pg/L
Lab Code:	E1700102-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 21:26
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	988mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405402	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	2.04	15.2	15.2			1
Total Penta-Dioxins	ND	U	1.54	15.2	25.3			1
Total Hexa-Dioxins	2.21**J**		0.585	45.5	45.5	1.11		1
Total Hepta-Dioxins	7.96**J**		2.14	15.2	25.3	1.08		1
Total Tetra-Furans	4.67**J**		2.00	15.2	15.2	0.76		1
Total Penta-Furans	ND	U	1.48	30.4	30.4			1
Total Hexa-Furans	ND	U	0.595	60.7	60.7			1
Total Hepta-Furans	4.43**J**		1.57	30.4	30.4	1.13		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	Percent
Lab Code:	E1700102-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 21:26
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	988mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405402	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

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	1442.697	72		40-135	0.78	1.024
13C-1,2,3,7,8-PeCDD	2000	1641.834	82		40-135	1.56	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1516.954	76		40-135	1.22	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1476.123	74		40-135	1.24	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1393.455	70		40-135	1.07	1.067
13C-OCDD	4000	2260.693	57		40-135	0.89	1.138
13C-2,3,7,8-TCDF	2000	1235.021	62		40-135	0.77	0.991
13C-1,2,3,7,8-PeCDF	2000	1619.474	81		40-135	1.55	1.158
13C-2,3,4,7,8-PeCDF	2000	1509.302	75		40-135	1.52	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1508.335	75		40-135	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1510.502	76		40-135	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1351.235	68		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1363.074	68		40-135	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1229.455	61		40-135	0.43	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1449.638	72		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	668.955	84		40-135	NA	1.024

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	pg/L
Lab Code:	E1700102-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290

Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	2.04	5.06	1	1	
1,2,3,7,8-PeCDD	ND	1.54	25.3	1	1	
1,2,3,4,7,8-HxCDD	ND	0.592	25.3	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.602	25.3	1	0.1	
1,2,3,7,8,9-HxCDD	**1.67**	0.560	25.3	1	0.1	0.167
1,2,3,4,6,7,8-HpCDD	**7.96**	2.14	25.3	1	0.01	0.0796
OCDD	**52.7**	2.65	50.6	1	0.0003	0.0158
2,3,7,8-TCDF	ND	2.00	5.06	1	0.1	
1,2,3,7,8-PeCDF	ND	1.43	25.3	1	0.03	
2,3,4,7,8-PeCDF	ND	1.53	25.3	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.549	25.3	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.522	25.3	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.719	25.3	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.623	25.3	1	0.1	
1,2,3,4,6,7,8-HpCDF	**2.57**	1.49	25.3	1	0.01	0.0257
1,2,3,4,7,8,9-HpCDF	ND	1.64	25.3	1	0.01	
OCDF	**7.53**	2.08	50.6	1	0.0003	0.00226
	Total TEQ					0.290

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ1700058-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/16/17 23:59
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405431	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405429

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	5.54	5.54	5.54			1
1,2,3,7,8-PeCDD	ND	U	2.44	15.0	25.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.12	15.0	25.0			1
1,2,3,6,7,8-HxCDD	ND	U	2.14	15.0	25.0			1
1,2,3,7,8,9-HxCDD	ND	U	2.00	15.0	25.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	3.00	15.0	25.0			1
OCDD	ND	U	4.64	30.0	50.0			1
2,3,7,8-TCDF	ND	U	4.00	4.00	5.00			1
1,2,3,7,8-PeCDF	ND	U	2.23	15.0	25.0			1
2,3,4,7,8-PeCDF	ND	U	2.38	15.0	25.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.60	15.0	25.0			1
1,2,3,6,7,8-HxCDF	ND	U	2.37	15.0	25.0			1
1,2,3,7,8,9-HxCDF	ND	U	3.29	15.0	25.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.96	15.0	25.0			1
1,2,3,4,6,7,8-HpCDF	2.97**J**		1.95	15.0	25.0	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	2.01	15.0	25.0			1
OCDF	ND	U	4.29	30.0	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ1700058-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/16/17 23:59
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405431	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405429

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	5.54	15.0	15.0			1
Total Penta-Dioxins	ND	U	2.44	15.0	25.0			1
Total Hexa-Dioxins	ND	U	2.09	45.0	45.0			1
Total Hepta-Dioxins	ND	U	3.00	15.0	25.0			1
Total Tetra-Furans	ND	U	4.00	15.0	15.0			1
Total Penta-Furans	ND	U	2.30	30.0	30.0			1
Total Hexa-Furans	ND	U	2.76	60.0	60.0			1
Total Hepta-Furans	2.97**J**		1.98	30.0	30.0	0.97		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1700058-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/16/17 23:59
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405431	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405429

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	1344.132	67		40-135	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	1504.080	75		40-135	1.58	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1476.143	74		40-135	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1433.404	72		40-135	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1387.917	69		40-135	1.05	1.067
13C-OCDD	4000	2430.616	61		40-135	0.88	1.138
13C-2,3,7,8-TCDF	2000	1106.430	55		40-135	0.76	0.991
13C-1,2,3,7,8-PeCDF	2000	1487.447	74		40-135	1.56	1.158
13C-2,3,4,7,8-PeCDF	2000	1368.203	68		40-135	1.57	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1422.701	71		40-135	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1478.765	74		40-135	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1294.042	65		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1245.989	62		40-135	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1252.987	63		40-135	0.42	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1554.470	78		40-135	0.43	1.079
37Cl-2,3,7,8-TCDD	800	604.382	76		40-135	NA	1.024

Accuracy & Precision

ALS Environmental - Houston HRMS
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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Analyzed:**	02/15/17
Sample Matrix:	Water	**Date Extracted:**	02/09/17

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

Analysis Method:	8290	**Units:**	pg/L
Prep Method:	Method Sep Funnel/Jar	**Basis:**	NA
		Analysis Lot:	535162

Lab Control Sample
EQ1700058-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	932	1000	93	79-122
1,2,3,4,7,8-HxCDD	1010	1000	101	80-126
1,2,3,6,7,8-HxCDD	1020	1000	102	78-134
1,2,3,7,8,9-HxCDD	968	1000	97	76-137
1,2,3,7,8-PeCDD	981	1000	98	76-121
2,3,7,8-TCDD	189	200	95	71-125
OCDD	2000	2000	100	81-135
1,2,3,4,6,7,8-HpCDF	1020	1000	102	81-130
1,2,3,4,7,8,9-HpCDF	915	1000	91	77-128
1,2,3,4,7,8-HxCDF	969	1000	97	80-130
1,2,3,6,7,8-HxCDF	911	1000	91	79-131
1,2,3,7,8,9-HxCDF	1020	1000	102	83-130
1,2,3,7,8-PeCDF	928	1000	93	82-130
2,3,4,6,7,8-HxCDF	1030	1000	103	81-130
2,3,4,7,8-PeCDF	1030	1000	103	77-129
2,3,7,8-TCDF	206	200	103	72-138
OCDF	2300	2000	115	66-150

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Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ1700058-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 23:05
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405404	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	189		10.6	10.6	10.6	0.72	1.001	1
1,2,3,7,8-PeCDD	981		5.61	15.0	25.0	1.44	1.001	1
1,2,3,4,7,8-HxCDD	1010		18.9	18.9	25.0	1.33	1.000	1
1,2,3,6,7,8-HxCDD	1020		18.5	18.5	25.0	1.30	1.000	1
1,2,3,7,8,9-HxCDD	968		17.5	17.5	25.0	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	932		40.7	40.7	40.7	1.09	1.000	1
OCDD	2000		19.0	30.0	50.0	0.83	1.000	1
2,3,7,8-TCDF	206		7.65	7.65	7.65	0.67	1.001	1
1,2,3,7,8-PeCDF	928		6.03	15.0	25.0	1.55	1.001	1
2,3,4,7,8-PeCDF	1030		6.30	15.0	25.0	1.55	1.000	1
1,2,3,4,7,8-HxCDF	969		17.2	17.2	25.0	1.19	1.000	1
1,2,3,6,7,8-HxCDF	911		15.9	15.9	25.0	1.13	1.000	1
1,2,3,7,8,9-HxCDF	1020		23.0	23.0	25.0	1.29	1.000	1
2,3,4,6,7,8-HxCDF	1030		19.3	19.3	25.0	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	1020		42.0	42.0	42.0	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	915		44.5	44.5	44.5	1.03	1.000	1
OCDF	2300		19.8	30.0	50.0	0.96	1.005	1

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Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ1700058-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 23:05
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405404	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	191		10.6	15.0	15.0	0.72		1
Total Penta-Dioxins	999		5.61	15.0	25.0	1.60		1
Total Hexa-Dioxins	3000		18.3	45.0	45.0	1.33		1
Total Hepta-Dioxins	932		40.7	40.7	40.7	1.09		1
Total Tetra-Furans	206		7.65	15.0	15.0	0.67		1
Total Penta-Furans	2000		6.16	30.0	30.0	1.55		1
Total Hexa-Furans	3930		18.5	60.0	60.0	1.19		1
Total Hepta-Furans	1930		43.2	43.2	43.2	1.05		1

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Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1700058-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 23:05
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405404	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

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	1530.205	77		40-135	0.77	1.024
13C-1,2,3,7,8-PeCDD	2000	1894.386	95		40-135	1.50	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1470.858	74		40-135	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1552.067	78		40-135	1.20	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1556.254	78		40-135	1.01	1.067
13C-OCDD	4000	2756.181	69		40-135	0.86	1.137
13C-2,3,7,8-TCDF	2000	1280.316	64		40-135	0.68	0.992
13C-1,2,3,7,8-PeCDF	2000	1823.824	91		40-135	1.52	1.158
13C-2,3,4,7,8-PeCDF	2000	1703.328	85		40-135	1.55	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1478.848	74		40-135	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1577.917	79		40-135	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1399.421	70		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1334.777	67		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1416.208	71		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1645.707	82		40-135	0.40	1.079
37Cl-2,3,7,8-TCDD	800	693.008	87		40-135	NA	1.025

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QA/QC Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17
Sample Matrix:	Water	**Date Received:**	02/08/17
		Date Analyzed:	02/15/17
		Date Extracted:	02/9/17

Duplicate Matrix Spike Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Sample Name:	1702917-07	**Units:**	pg/L
Lab Code:	E1700102-004	**Basis:**	NA
Analysis Method:	8290		
Prep Method:	Method Sep Funnel/Jar		

		Matrix Spike EQ1700058-05			**Duplicate Matrix Spike** EQ1700058-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	7.96 J	1100	1050	104	1050	1010	104	79-122	5	20
1,2,3,4,7,8-HxCDD	ND U	1110	1050	105	1040	1010	103	80-126	7	20
1,2,3,6,7,8-HxCDD	ND U	1060	1050	100	1010	1010	100	78-134	5	20
1,2,3,7,8,9-HxCDD	1.67 JK	1010	1050	96	958	1010	95	76-137	5	20
1,2,3,7,8-PeCDD	ND U	1060	1050	101	1020	1010	101	76-121	4	20
2,3,7,8-TCDD	ND U	209	211	99	199	201	99	71-125	5	20
OCDD	52.7	2190	2110	101	2040	2010	99	81-135	7	20
1,2,3,4,6,7,8-HpCDF	2.57 JK	1160	1050	109	1090	1010	108	81-130	6	20
1,2,3,4,7,8,9-HpCDF	ND U	1010	1050	96	955	1010	95	77-128	5	20
1,2,3,4,7,8-HxCDF	ND U	1080	1050	102	1040	1010	103	80-130	4	20
1,2,3,6,7,8-HxCDF	ND U	1010	1050	95	938	1010	93	79-131	7	20
1,2,3,7,8,9-HxCDF	ND U	1070	1050	102	999	1010	99	83-130	7	20
1,2,3,7,8-PeCDF	ND U	964	1050	91	898	1010	89	82-130	7	20
2,3,4,6,7,8-HxCDF	ND U	1130	1050	107	1050	1010	104	81-130	7	20
2,3,4,7,8-PeCDF	ND U	1070	1050	101	1030	1010	102	77-129	4	20
2,3,7,8-TCDF	ND U	229	211	109	212	201	106	72-138	8	20
OCDF	7.53 J	2380	2110	112	2260	2010	112	66-150	5	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	pg/L
Lab Code:	EQ1700058-05	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 23:54
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	948mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405405	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	209		1.21	3.16	5.27	0.79	1.000	1
1,2,3,7,8-PeCDD	1060		0.768	15.8	26.4	1.53	1.001	1
1,2,3,4,7,8-HxCDD	1110		0.581	15.8	26.4	1.23	1.000	1
1,2,3,6,7,8-HxCDD	1060		0.585	15.8	26.4	1.22	1.000	1
1,2,3,7,8,9-HxCDD	1010		0.547	15.8	26.4	1.25	1.006	1
1,2,3,4,6,7,8-HpCDD	1100		1.70	15.8	26.4	1.05	1.000	1
OCDD	2190		5.28	31.6	52.7	0.86	1.000	1
2,3,7,8-TCDF	229		1.33	3.16	5.27	0.79	1.001	1
1,2,3,7,8-PeCDF	964		1.05	15.8	26.4	1.56	1.001	1
2,3,4,7,8-PeCDF	1070		1.10	15.8	26.4	1.55	1.001	1
1,2,3,4,7,8-HxCDF	1080		0.364	15.8	26.4	1.22	1.000	1
1,2,3,6,7,8-HxCDF	1010		0.334	15.8	26.4	1.25	1.000	1
1,2,3,7,8,9-HxCDF	1070		0.460	15.8	26.4	1.22	1.000	1
2,3,4,6,7,8-HxCDF	1130		0.412	15.8	26.4	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	1160		3.63	15.8	26.4	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	1010		3.94	15.8	26.4	1.03	1.000	1
OCDF	2380		3.91	31.6	52.7	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	pg/L
Lab Code:	EQ1700058-05	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 23:54
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	948mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405405	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	209		1.21	15.8	15.8	0.79		1
Total Penta-Dioxins	1060		0.768	15.8	26.4	1.53		1
Total Hexa-Dioxins	3170		0.570	47.5	47.5	1.23		1
Total Hepta-Dioxins	1100		1.70	15.8	26.4	1.05		1
Total Tetra-Furans	229		1.33	15.8	15.8	0.79		1
Total Penta-Furans	2070		1.08	31.6	31.6	1.35		1
Total Hexa-Furans	4280		0.387	63.3	63.3	1.22		1
Total Hepta-Furans	2190		3.78	31.6	31.6	1.03		1

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	Percent
Lab Code:	EQ1700058-05	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/15/17 23:54
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	948mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405405	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

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	1497.101	75		40-135	0.78	1.024
13C-1,2,3,7,8-PeCDD	2000	1703.124	85		40-135	1.57	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1612.728	81		40-135	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1569.995	78		40-135	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1451.446	73		40-135	1.03	1.067
13C-OCDD	4000	2334.792	58		40-135	0.88	1.138
13C-2,3,7,8-TCDF	2000	1253.812	63		40-135	0.76	0.991
13C-1,2,3,7,8-PeCDF	2000	1680.792	84		40-135	1.53	1.158
13C-2,3,4,7,8-PeCDF	2000	1576.877	79		40-135	1.58	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1573.766	79		40-135	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1617.638	81		40-135	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1447.862	72		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1369.969	68		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1343.045	67		40-135	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1597.384	80		40-135	0.43	1.079
37Cl-2,3,7,8-TCDD	800	667.301	83		40-135	NA	1.024

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	pg/L
Lab Code:	EQ1700058-06	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/16/17 00:43
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	995mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405406	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	199		2.29	3.02	5.03	0.72	1.001	1
1,2,3,7,8-PeCDD	1020		2.58	15.1	25.1	1.55	1.001	1
1,2,3,4,7,8-HxCDD	1040		1.11	15.1	25.1	1.21	1.000	1
1,2,3,6,7,8-HxCDD	1010		1.09	15.1	25.1	1.23	1.000	1
1,2,3,7,8,9-HxCDD	958		1.03	15.1	25.1	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	1050		1.37	15.1	25.1	1.07	1.000	1
OCDD	2040		3.36	30.2	50.3	0.89	1.000	1
2,3,7,8-TCDF	212		1.87	3.02	5.03	0.74	1.001	1
1,2,3,7,8-PeCDF	898		1.57	15.1	25.1	1.54	1.000	1
2,3,4,7,8-PeCDF	1030		1.71	15.1	25.1	1.53	1.001	1
1,2,3,4,7,8-HxCDF	1040		0.902	15.1	25.1	1.28	1.000	1
1,2,3,6,7,8-HxCDF	938		0.810	15.1	25.1	1.20	1.000	1
1,2,3,7,8,9-HxCDF	999		1.15	15.1	25.1	1.23	1.000	1
2,3,4,6,7,8-HxCDF	1050		1.03	15.1	25.1	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	1090		2.40	15.1	25.1	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	955		2.46	15.1	25.1	1.01	1.000	1
OCDF	2260		9.35	30.2	50.3	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	pg/L
Lab Code:	EQ1700058-06	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/16/17 00:43
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	995mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405406	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

Native Analyte Results

Analyte Name	Result	Q	EDL	LOD	LOQ	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	199		2.29	15.1	15.1	0.72		1
Total Penta-Dioxins	1020		2.58	15.1	25.1	1.55		1
Total Hexa-Dioxins	3000		1.08	45.2	45.2	1.21		1
Total Hepta-Dioxins	1050		1.37	15.1	25.1	1.07		1
Total Tetra-Furans	212		1.87	15.1	15.1	0.74		1
Total Penta-Furans	1940		1.64	30.2	30.2	1.42		1
Total Hexa-Furans	4030		0.954	60.3	60.3	1.18		1
Total Hepta-Furans	2070		2.43	30.2	30.2	1.03		1

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Analytical Report

Client:	BC Laboratories, Incorporated	**Service Request:**	E1700102
Project:	Former Naval Air Station Alameda Pt, CA/1702917	**Date Collected:**	02/01/17 13:15
Sample Matrix:	Water	**Date Received:**	02/08/17 10:08
Sample Name:	1702917-07	**Units:**	Percent
Lab Code:	EQ1700058-06	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290	**Date Analyzed:**	02/16/17 00:43
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	2/9/17
Sample Amount:	995mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P405406	**Blank File Name:**	P405431
ICAL Date:	04/28/16	**Cal Ver. File Name:**	P405397

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	1477.777	74		40-135	0.77	1.024
13C-1,2,3,7,8-PeCDD	2000	1740.631	87		40-135	1.54	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1657.774	83		40-135	1.24	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1551.542	78		40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1429.015	71		40-135	1.03	1.067
13C-OCDD	4000	2284.945	57		40-135	0.88	1.138
13C-2,3,7,8-TCDF	2000	1280.302	64		40-135	0.74	0.991
13C-1,2,3,7,8-PeCDF	2000	1717.941	86		40-135	1.53	1.159
13C-2,3,4,7,8-PeCDF	2000	1590.080	80		40-135	1.55	1.194
13C-1,2,3,4,7,8-HxCDF	2000	1582.530	79		40-135	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1647.886	82		40-135	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1445.687	72		40-135	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1407.545	70		40-135	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1291.757	65		40-135	0.43	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1625.601	81		40-135	0.45	1.079
37Cl-2,3,7,8-TCDD	800	672.300	84		40-135	NA	1.025

Chromatograms and Selected Ion Monitoring

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Sample Response Summary

CLIENT ID.
1702917-01

Run #9 Filename P405399 Samp: 1 Inj: 1 Acquired: 15-FEB-17 18:59:19
Processed: 16-FEB-17 14:18:45 Sample ID: E1700102-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.769
2	Unk	1,2,3,7,8-PeCDF	31:24	1.601e+01	1.315e+01	1.22	no	yes	0.872
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.826
4	Unk	1,2,3,4,7,8-HxCDF	35:06	1.537e+01	9.677e+00	1.59	no	yes	1.097
5	Unk	1,2,3,6,7,8-HxCDF	35:12	1.780e+01	1.222e+01	1.46	no	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	35:42	1.246e+01	1.314e+01	0.95	no	yes	1.015
7	Unk	1,2,3,7,8,9-HxCDF	36:27	1.745e+01	9.570e+00	1.82	no	yes	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	2.895e+01	2.169e+01	1.34	no	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.187
10	Unk	OCDF	41:20	3.990e+01	4.110e+01	0.97	yes	no	1.035
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.873
12	Unk	1,2,3,7,8-PeCDD	32:40	1.644e+01	1.117e+01	1.47	yes	yes	0.806
13	Unk	1,2,3,4,7,8-HxCDD	35:50	1.252e+01	9.255e+00	1.35	yes	yes	0.881
14	Unk	1,2,3,6,7,8-HxCDD	35:57	1.404e+01	9.596e+00	1.46	no	yes	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	2.113e+01	8.915e+00	2.37	no	yes	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:36	9.960e+01	7.382e+01	1.35	no	no	0.882
17	Unk	OCDD	41:09	3.113e+02	3.344e+02	0.93	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:52	1.211e+04	1.589e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	2.133e+04	1.368e+04	1.56	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:21	1.982e+04	1.262e+04	1.57	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:05	8.133e+03	1.574e+04	0.52	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:12	9.673e+03	1.878e+04	0.52	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	7.589e+03	1.512e+04	0.50	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:28	6.655e+03	1.298e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:43	4.749e+03	1.088e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:01	5.101e+03	1.149e+04	0.44	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:45	1.215e+04	1.562e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:38	1.864e+04	1.167e+04	1.60	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	1.302e+04	1.049e+04	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:56	1.337e+04	1.073e+04	1.25	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	9.790e+03	9.481e+03	1.03	yes	no	0.817
32	IS	13C-OCDD	41:09	1.122e+04	1.267e+04	0.89	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:06	1.723e+04	2.208e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:10	1.938e+04	1.600e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	1.275e+04				no	0.958

$$\text{OCDD} = \frac{(3.113e{+}02 + 3.344e{+}02) \times 4000 \text{ pg} \times}{(1.122e{+}04 + 1.267e{+}04) \times 976 \text{ mL} \times 100 \;/\; 100 \times 0.980} = 113 \text{ pg/L}$$

cm 02/17/17

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
1702917-01

Run #9 Filename P405399 Samp: 1 Inj: 1 Acquired: 15-FEB-17 18:59:19
Processed: 16-FEB-17 14:18:45 LAB. ID: E1700102-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.12e+02	*	*	9.84e+02	*
2	1,2,3,7,8-PeCDF	3.02e+03	3.28e+02	9.2e+00	2.42e+03	3.72e+02	6.5e+00
3	2,3,4,7,8-PeCDF	*	3.28e+02	*	*	3.72e+02	*
4	1,2,3,4,7,8-HxCDF	3.02e+03	3.24e+02	9.3e+00	2.04e+03	3.32e+02	6.2e+00
5	1,2,3,6,7,8-HxCDF	2.94e+03	3.24e+02	9.1e+00	2.78e+03	3.32e+02	8.4e+00
6	2,3,4,6,7,8-HxCDF	2.79e+03	3.24e+02	8.6e+00	3.19e+03	3.32e+02	9.6e+00
7	1,2,3,7,8,9-HxCDF	3.15e+03	3.24e+02	9.7e+00	1.87e+03	3.32e+02	5.6e+00
8	1,2,3,4,6,7,8-HpCDF	5.88e+03	2.84e+02	2.1e+01	4.14e+03	4.56e+02	9.1e+00
9	1,2,3,4,7,8,9-HpCDF	*	2.84e+02	*	*	4.56e+02	*
10	OCDF	6.74e+03	1.44e+02	4.7e+01	7.29e+03	7.72e+02	9.4e+00
11	2,3,7,8-TCDD	*	1.34e+03	*	*	7.64e+02	*
12	1,2,3,7,8-PeCDD	3.15e+03	7.68e+02	4.1e+00	2.70e+03	4.00e+02	6.7e+00
13	1,2,3,4,7,8-HxCDD	2.94e+03	4.12e+02	7.1e+00	2.60e+03	2.44e+02	1.1e+01
14	1,2,3,6,7,8-HxCDD	2.37e+03	4.12e+02	5.8e+00	2.06e+03	2.44e+02	8.4e+00
15	1,2,3,7,8,9-HxCDD	3.30e+03	4.12e+02	8.0e+00	2.01e+03	2.44e+02	8.2e+00
16	1,2,3,4,6,7,8-HpCDD	2.01e+04	1.10e+03	1.8e+01	1.49e+04	9.04e+02	1.6e+01
17	OCDD	5.29e+04	3.68e+02	1.4e+02	6.38e+04	5.52e+02	1.2e+02
18	13C-2,3,7,8-TCDF	1.99e+06	6.50e+03	3.1e+02	2.56e+06	2.33e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	3.86e+06	3.28e+02	1.2e+04	2.49e+06	7.16e+02	3.5e+03
20	13C-2,3,4,7,8-PeCDF	3.90e+06	3.28e+02	1.2e+04	2.49e+06	7.16e+02	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.72e+06	5.56e+02	3.1e+03	3.32e+06	5.64e+02	5.9e+03
22	13C-1,2,3,6,7,8-HxCDF	1.96e+06	5.56e+02	3.5e+03	3.76e+06	5.64e+02	6.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.65e+06	5.56e+02	3.0e+03	3.28e+06	5.64e+02	5.8e+03
24	13C-1,2,3,7,8,9-HxCDF	1.38e+06	5.56e+02	2.5e+03	2.67e+06	5.64e+02	4.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.05e+06	2.95e+03	3.6e+02	2.41e+06	1.32e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.97e+05	2.95e+03	3.4e+02	2.28e+06	1.32e+03	1.7e+03
27	13C-2,3,7,8-TCDD	2.13e+06	3.10e+03	6.9e+02	2.69e+06	1.43e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	3.65e+06	3.44e+02	1.1e+04	2.27e+06	8.52e+02	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	2.92e+06	5.44e+02	5.4e+03	2.35e+06	5.52e+02	4.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.82e+06	5.44e+02	5.2e+03	2.26e+06	5.52e+02	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.06e+06	9.60e+02	2.1e+03	2.02e+06	9.48e+02	2.1e+03
32	13C-OCDD	2.03e+06	1.79e+03	1.1e+03	2.30e+06	2.02e+03	1.1e+03
33	13C-1,2,3,4-TCDD	2.94e+06	3.10e+03	9.5e+02	3.76e+06	1.43e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	4.20e+06	5.44e+02	7.7e+03	3.44e+06	5.52e+02	6.2e+03
35	37Cl-2,3,7,8-TCDD	2.27e+06	9.96e+02	2.3e+03			

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Peak List Summary

CLIENT ID.

1702917-01

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 9 File: P405399 Sample:1 Injection:1 Function:2

Acquired: 15-FEB-17 18:59:19 Processed: 16-FEB-17 14:18:45

Mass: 355.8550 357.8520 Tot Response: 2.76e+01 RRF: 0.8057

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:40	1.64e+01	1.12e+01	1.47	yes	2.76e+01	1,2,3,7,8-PeCDD	y	y

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Peak List Summary

CLIENT ID.

1702917-01

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 9 File: P405399 Sample:1 Injection:1 Function:3

Acquired: 15-FEB-17 18:59:19 Processed: 16-FEB-17 14:18:45

Mass: 389.8160 391.8130 Tot Response: 2.18e+01 RRF: 0.9067

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:50	1.25e+01	9.26e+00	1.35	yes	2.18e+01	1,2,3,4,7,8-HxCDD	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
1702917-01

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P405399 Sample:1 Injection:1 Function:4

Acquired: 15-FEB-17 18:59:19 Processed: 16-FEB-17 14:18:45

Mass: 407.7820 409.7790 Tot Response: 6.42e+01 RRF: 1.213

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:07	3.32e+01	3.10e+01	1.07	yes	6.42e+01	n	y

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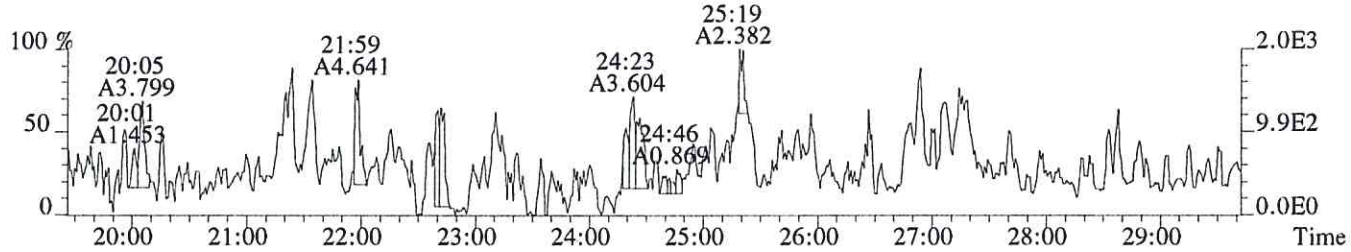
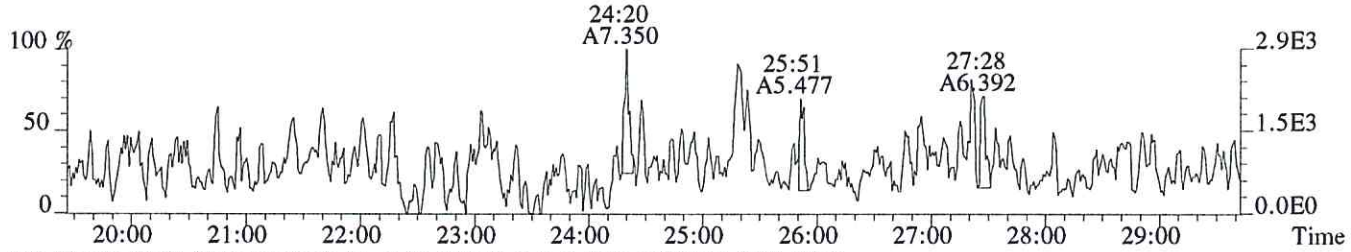
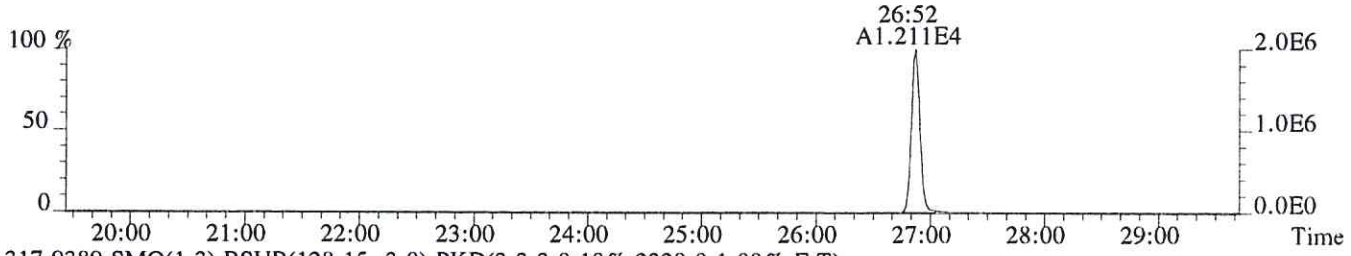
File:P405399 #1-729 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



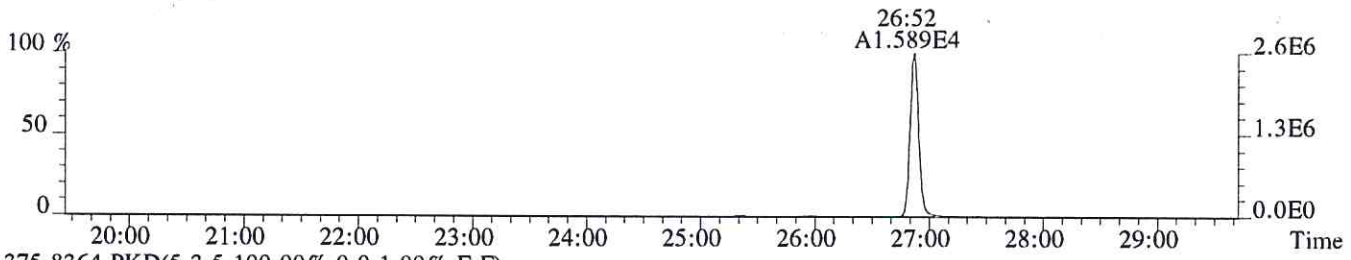
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



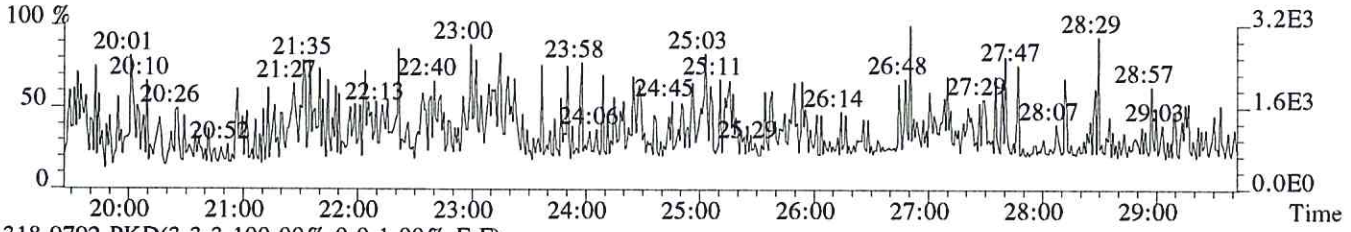
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6500.0,1.00%,F,T)



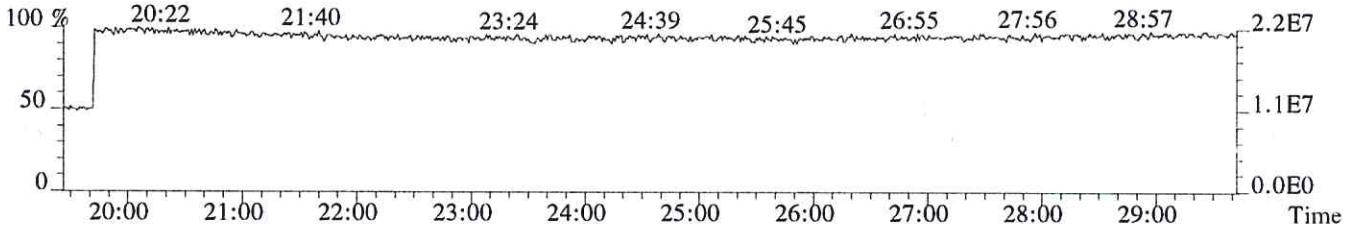
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2328.0,1.00%,F,T)



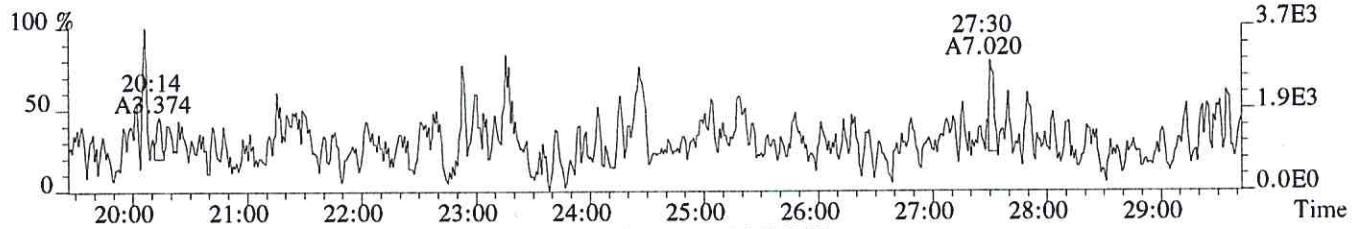
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



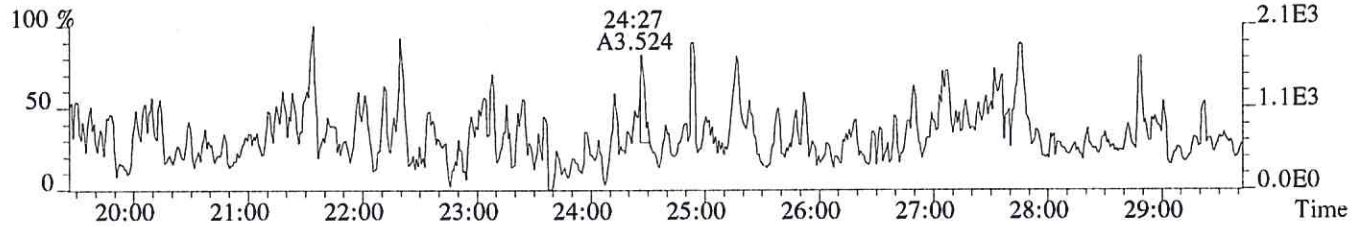
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



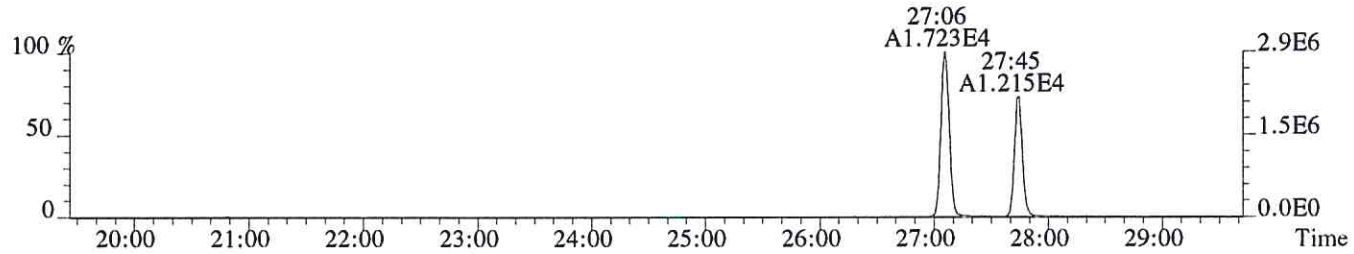
File:P405399 #1-729 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



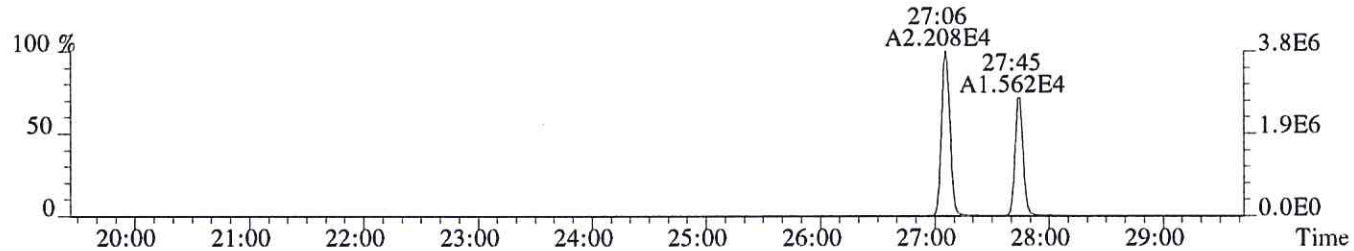
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



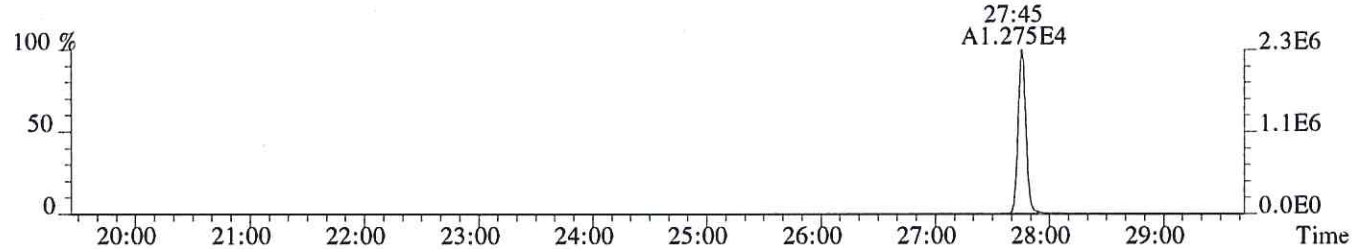
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3104.0,1.00%,F,T)



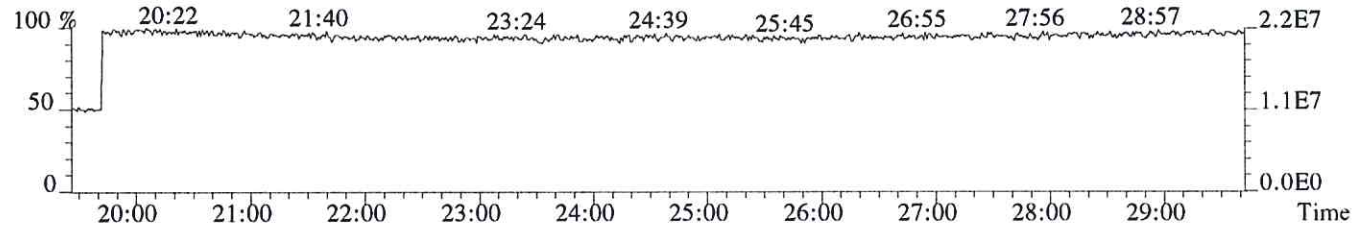
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



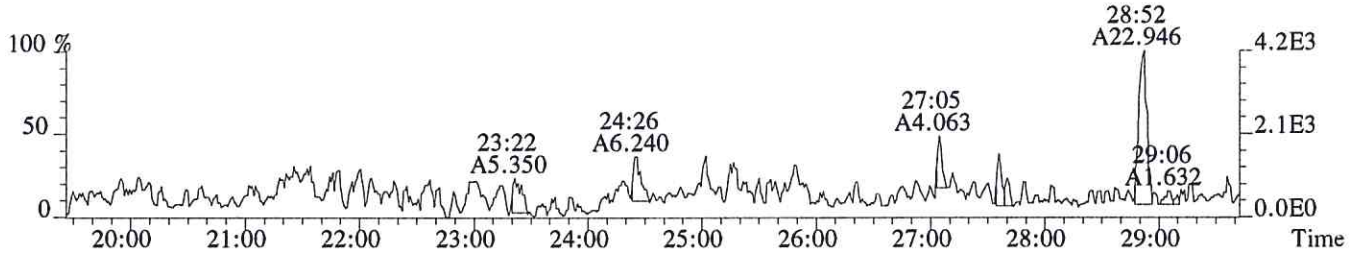
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



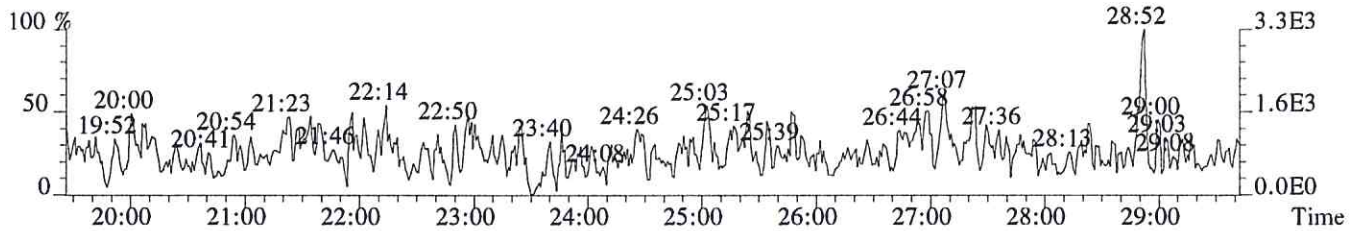
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



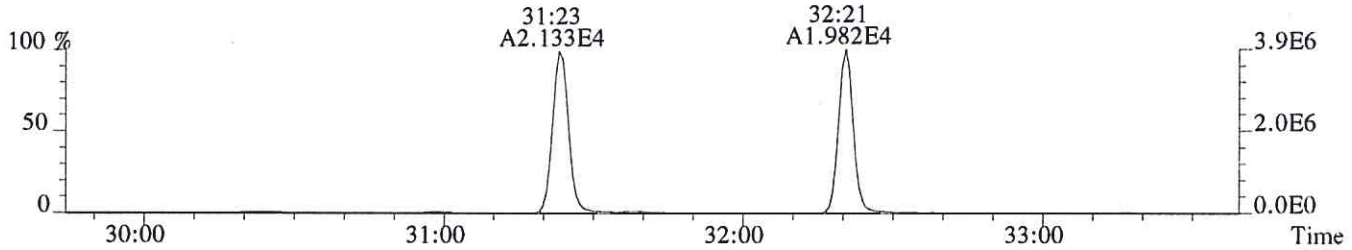
File:P405399 #1-729 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



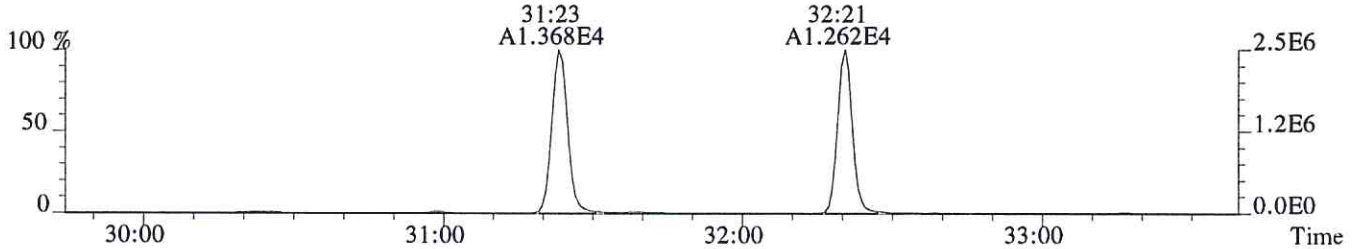
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



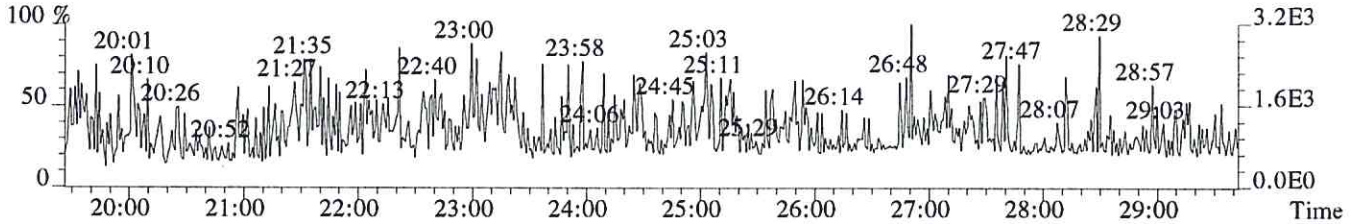
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



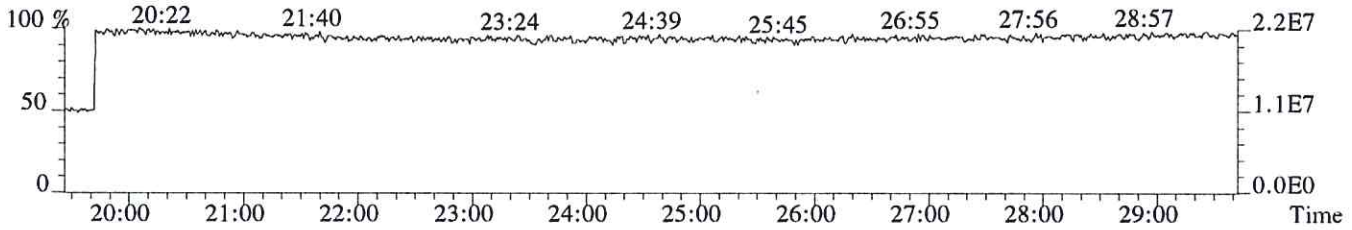
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



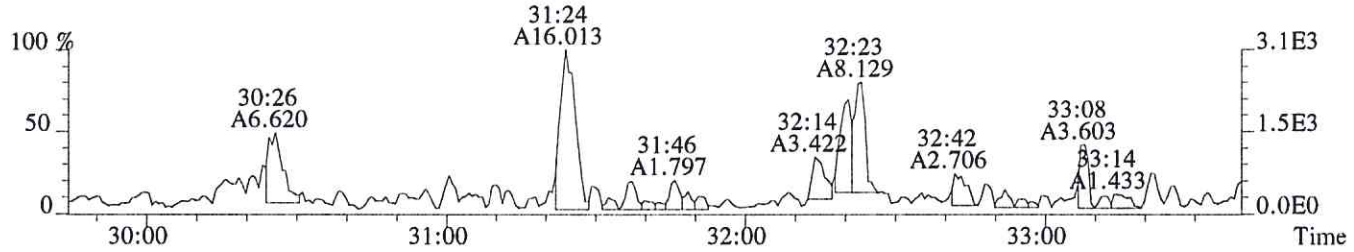
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



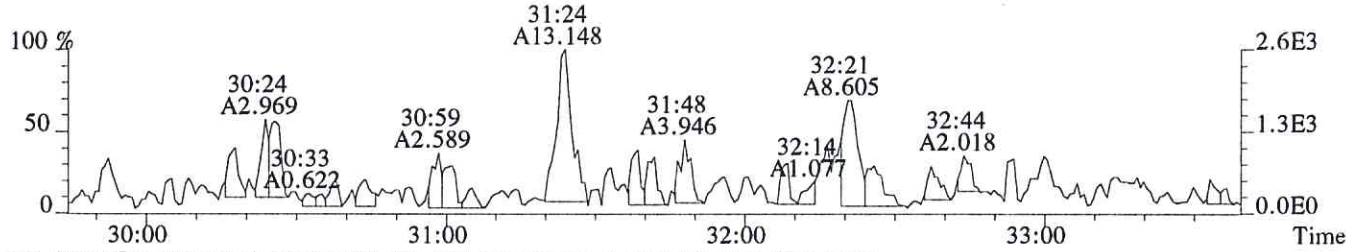
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



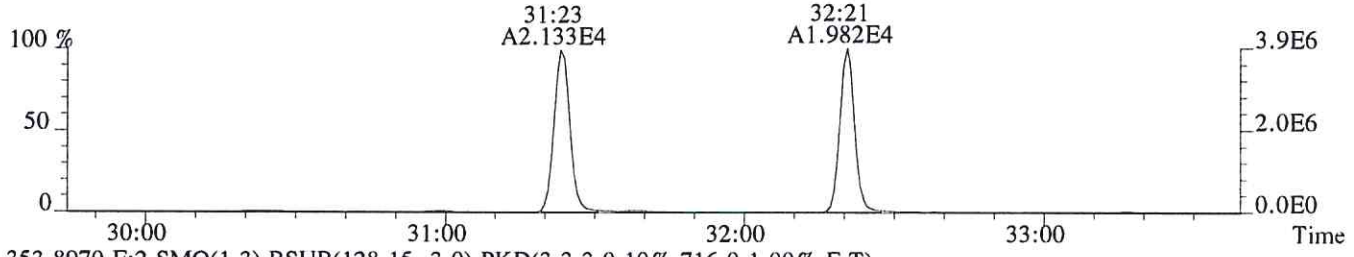
File:P405399 #1-353 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



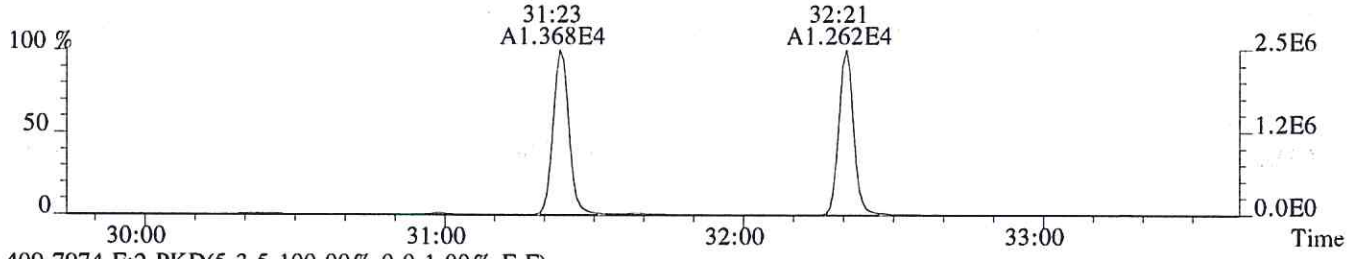
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



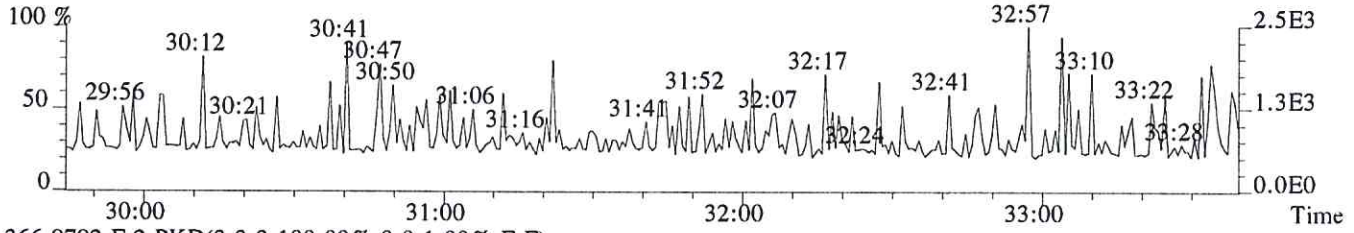
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



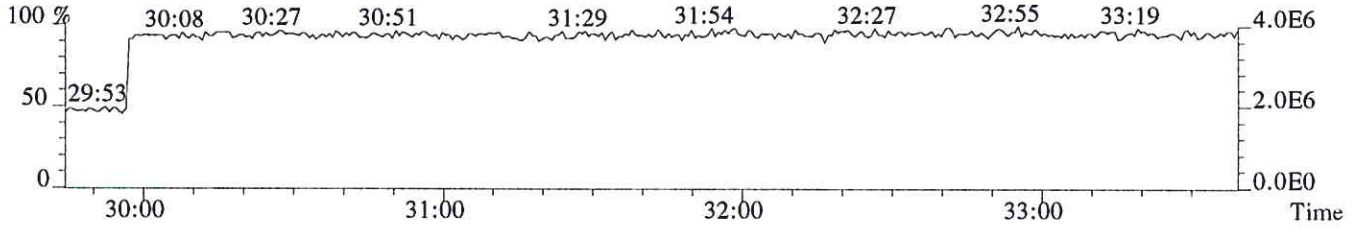
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



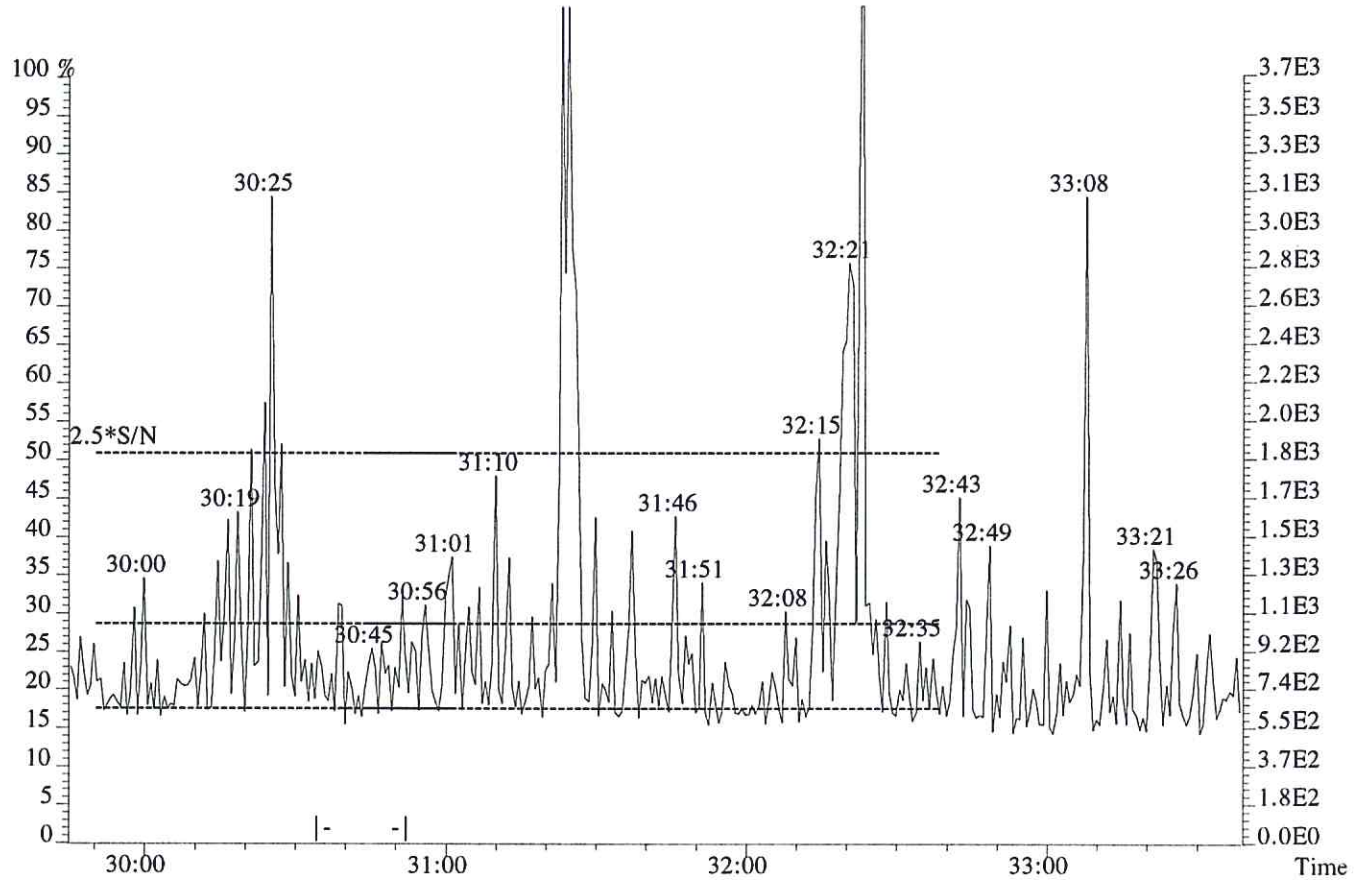
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



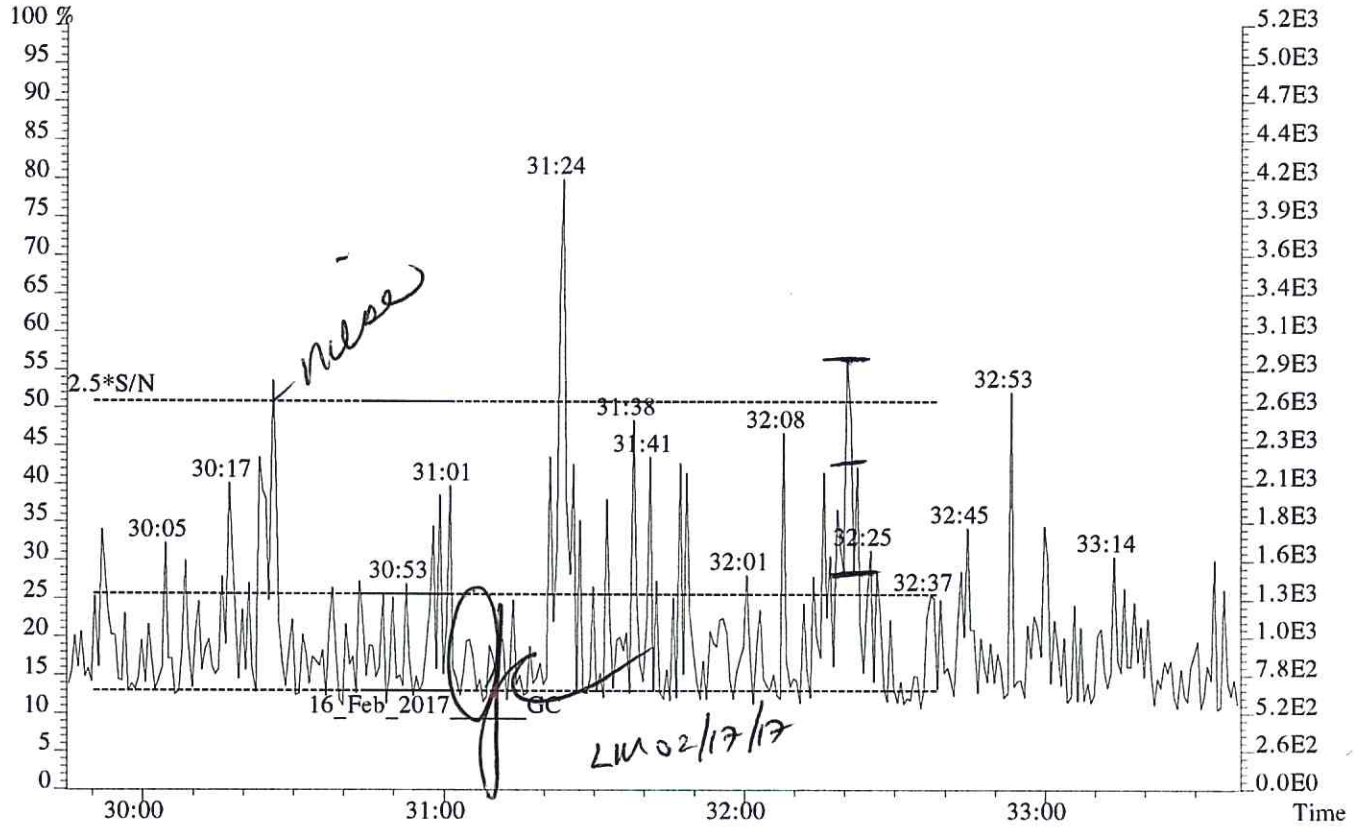
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



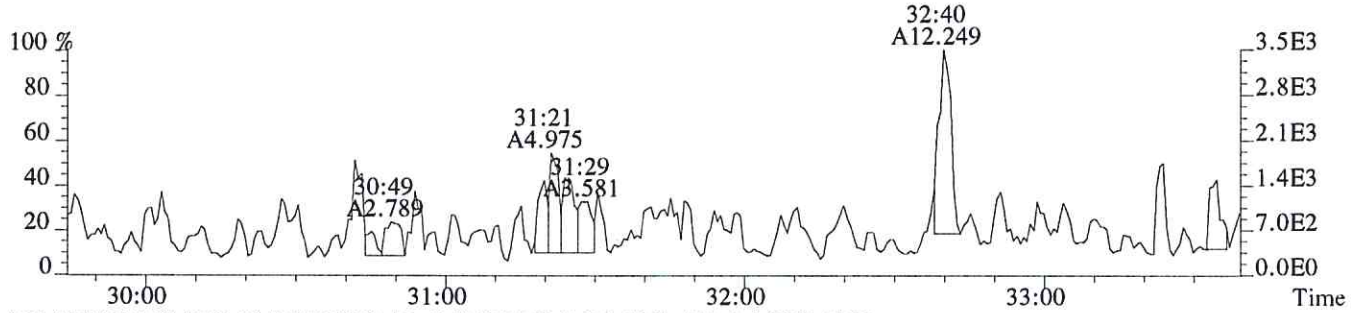
File:P405399 #1-353 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
339.8597 F:2



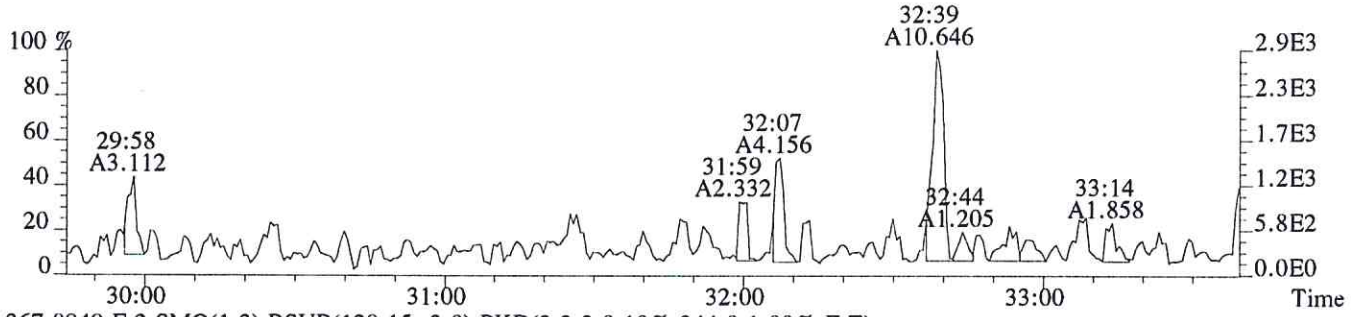
341.8567 F:2



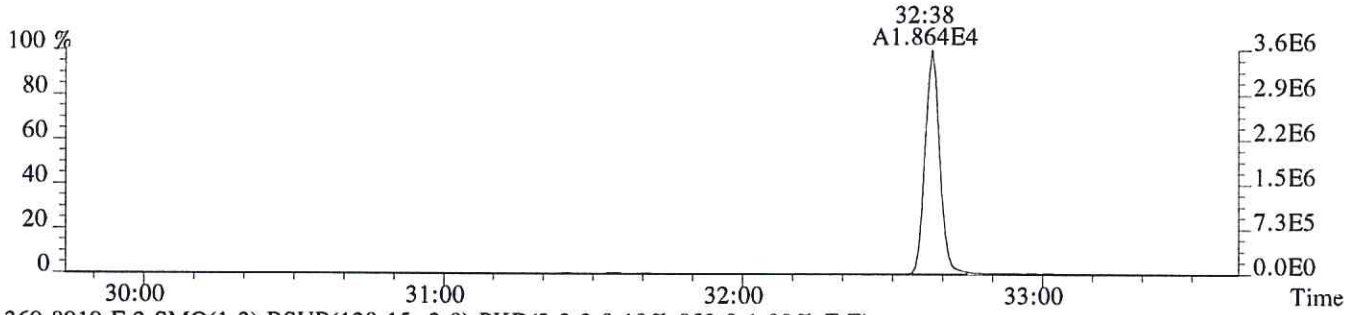
File:P405399 #1-353 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



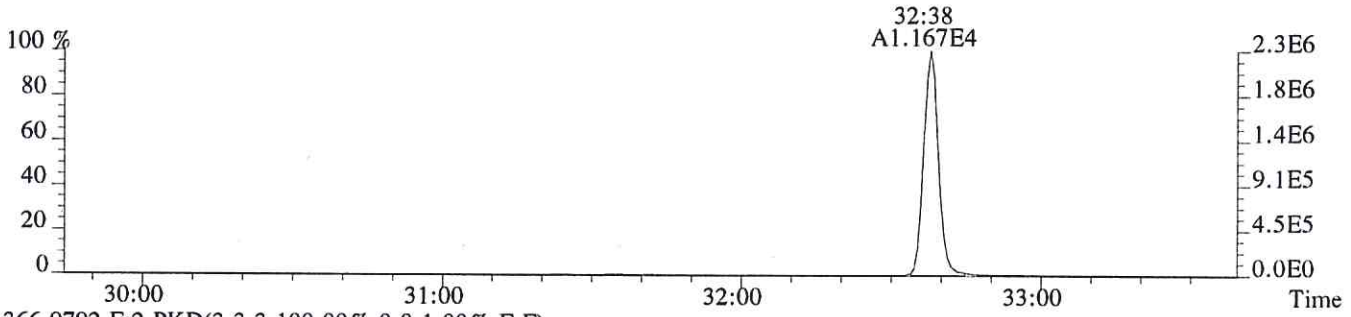
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



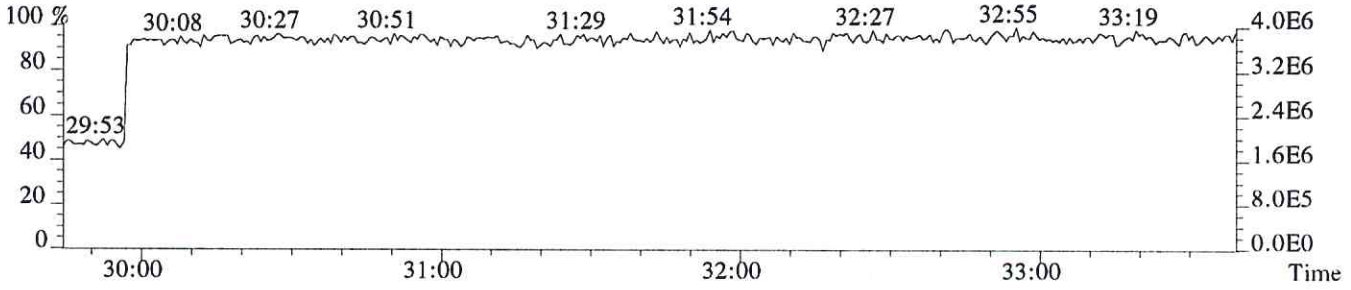
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



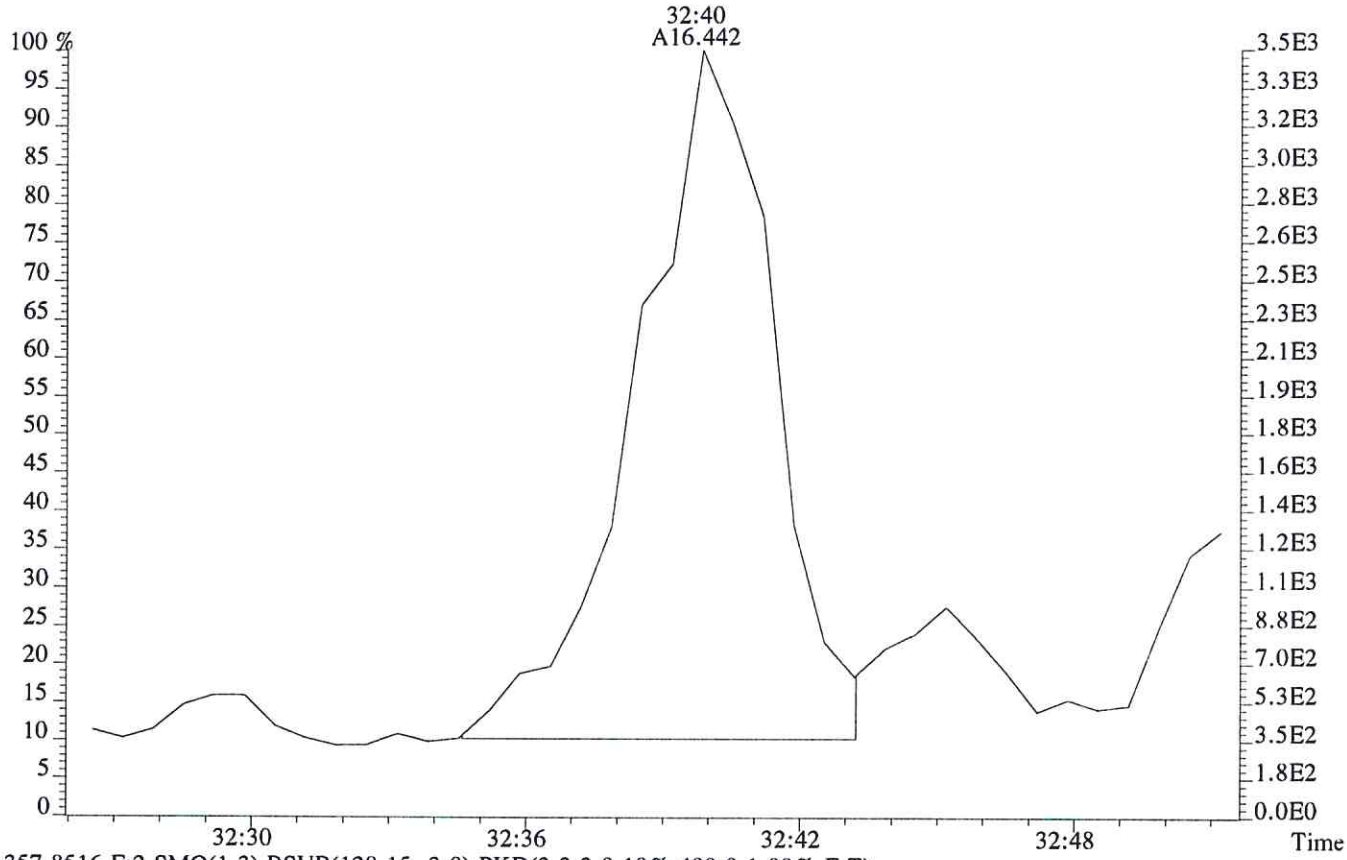
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



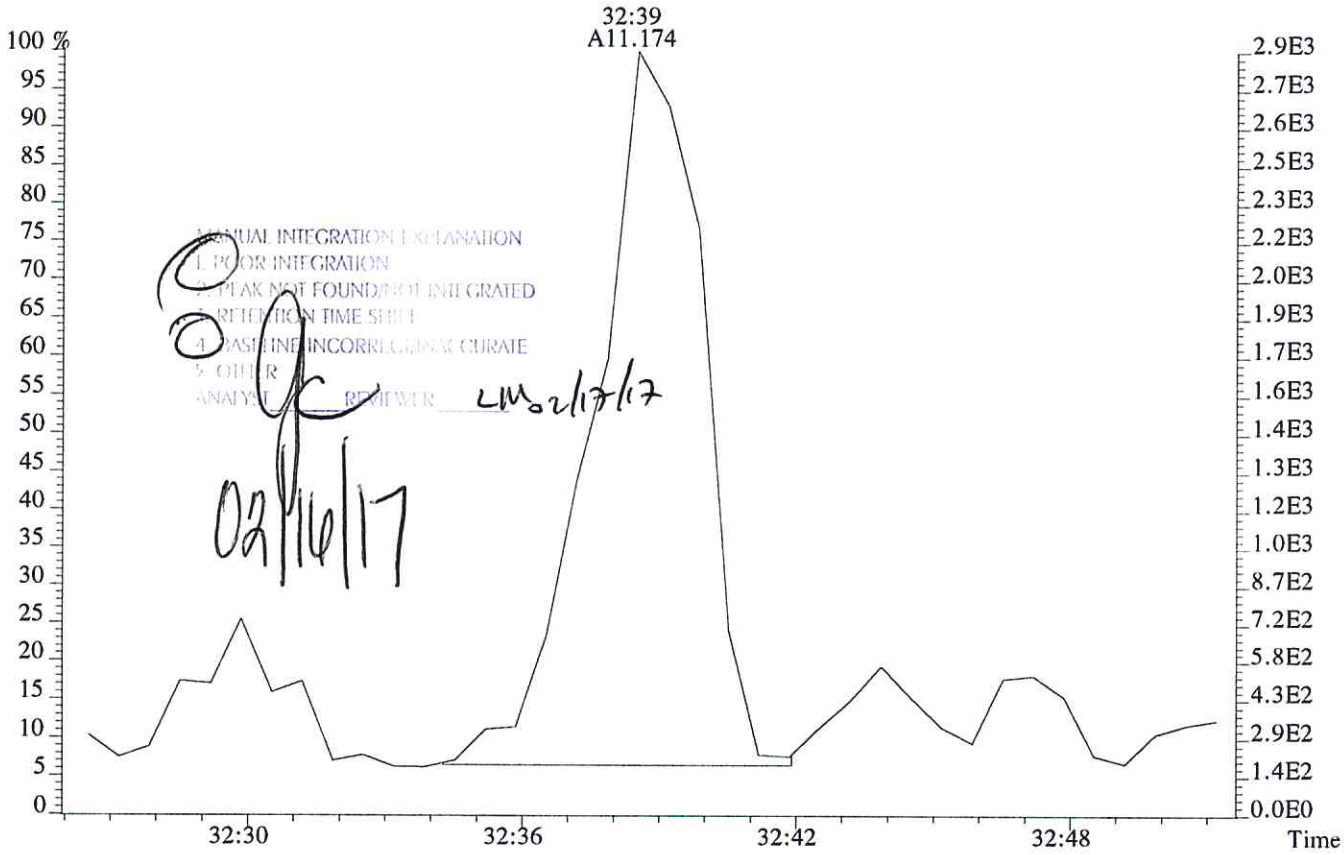
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



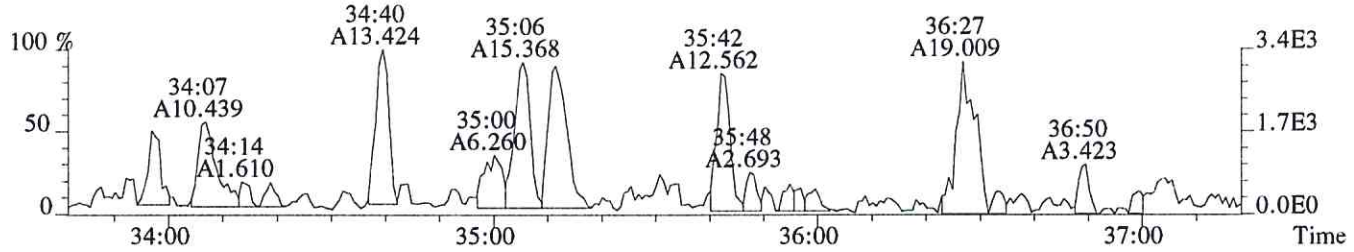
File:P405399 #1-353 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



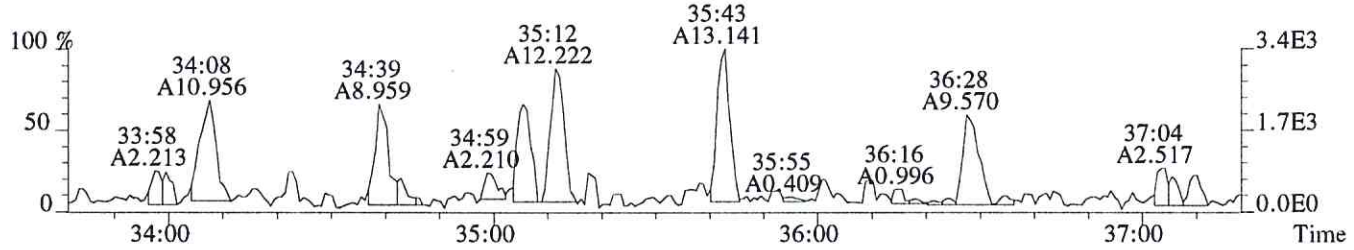
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



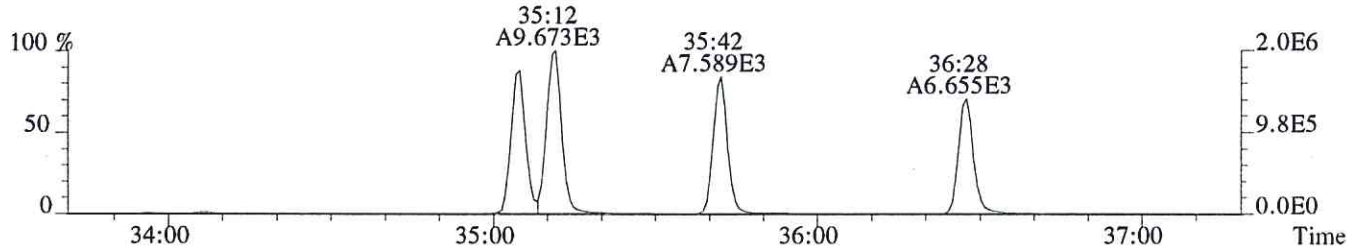
File:P405399 #1-326 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



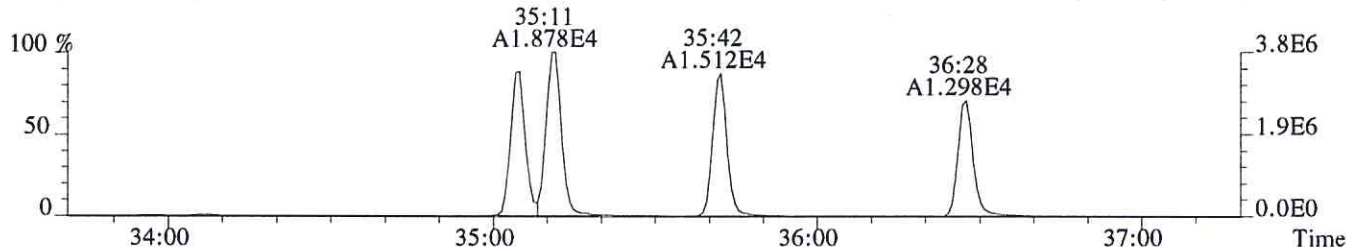
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



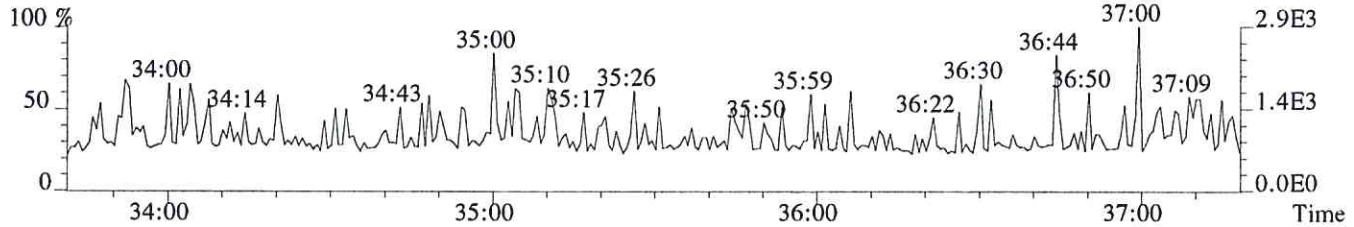
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



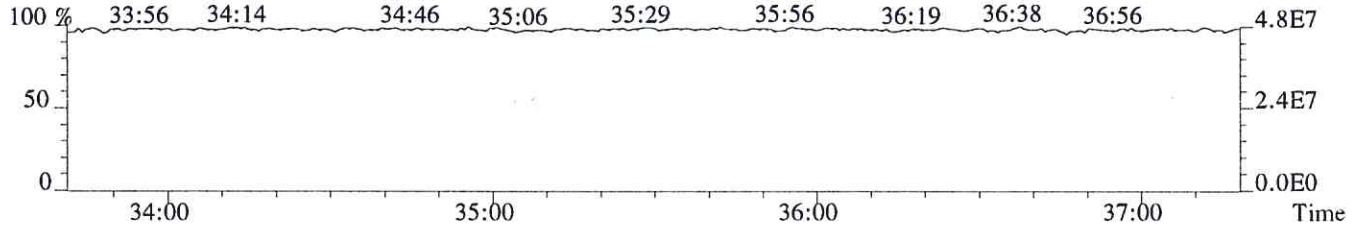
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



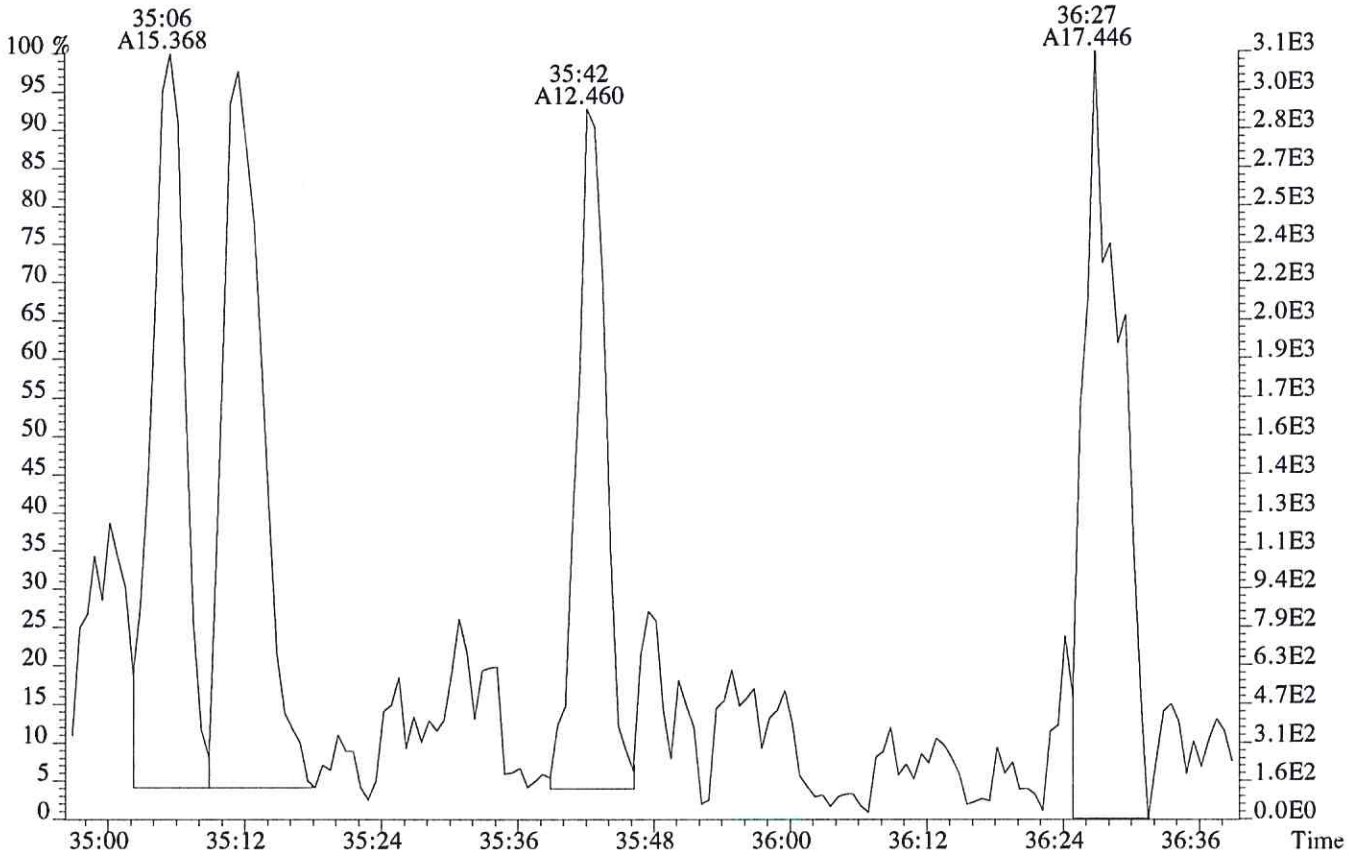
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



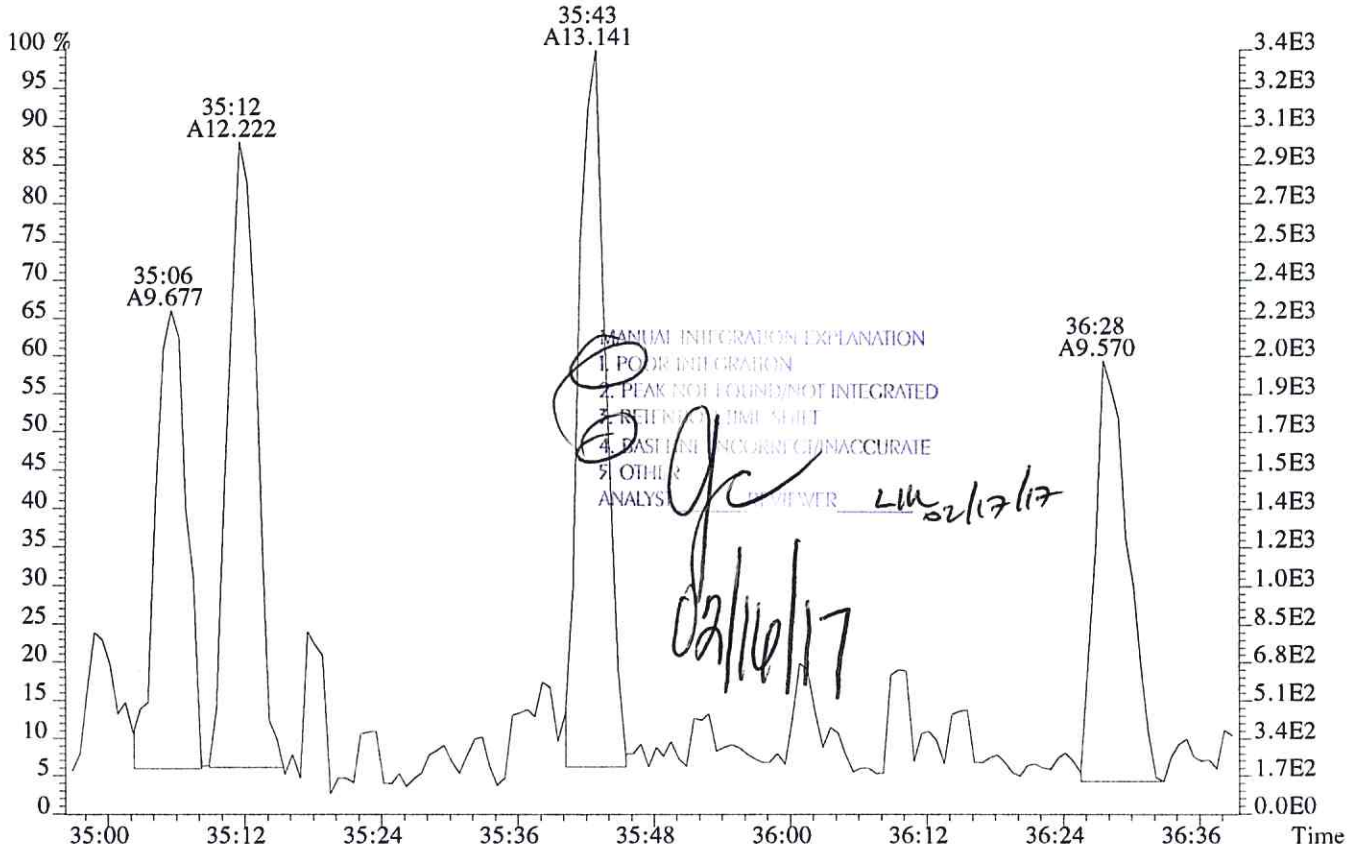
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P405399 #1-326 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)

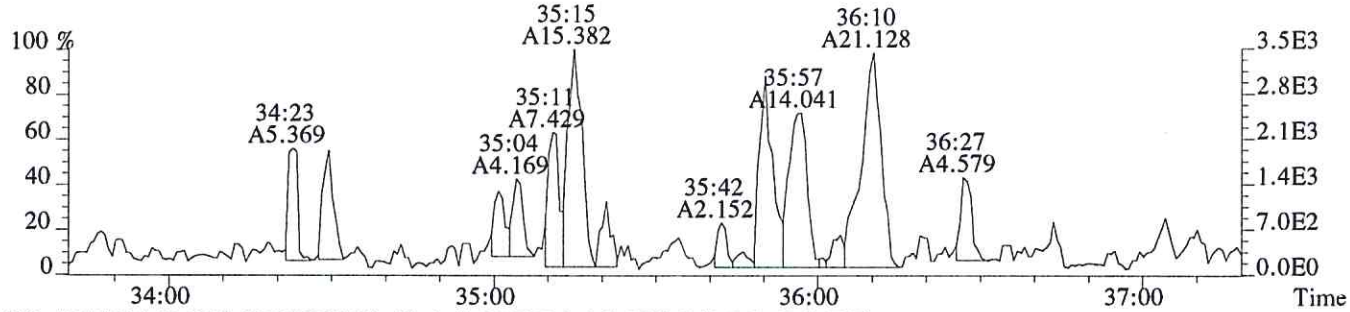


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

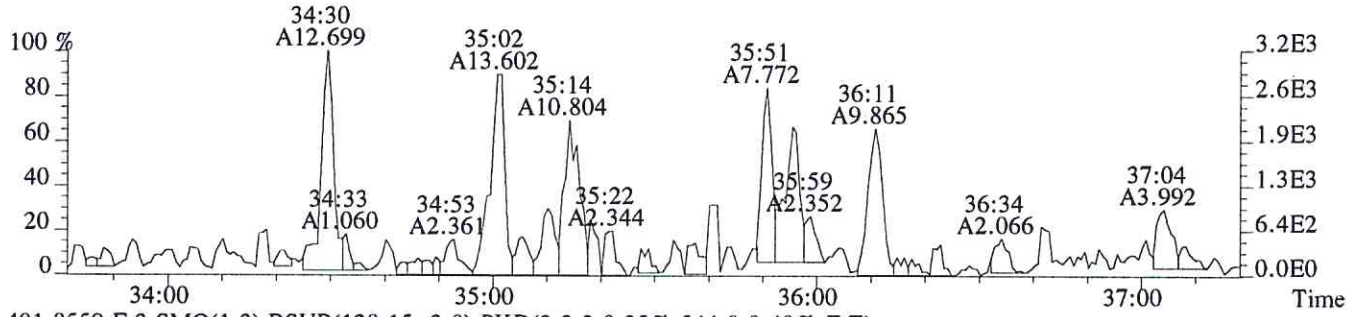


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT OR INACCURATE
5. OTHER
ANALYST REVIEWER LM 02/17/17
02/16/17

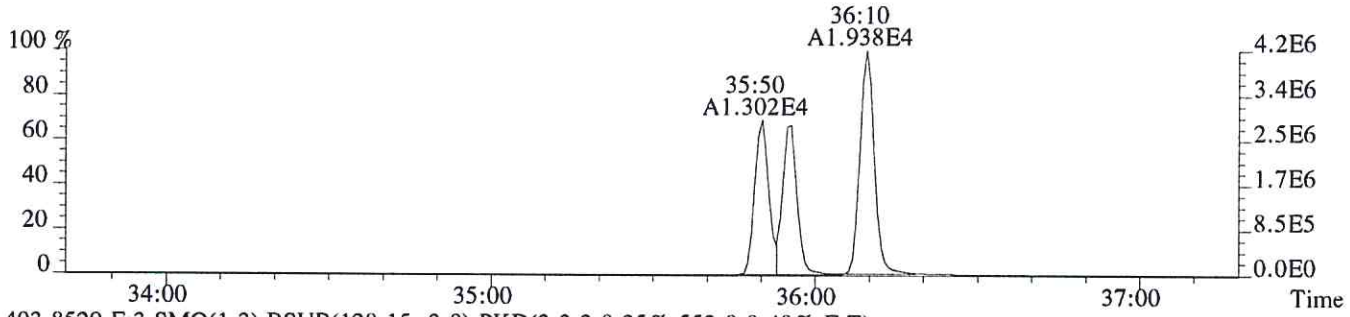
File:P405399 #1-326 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



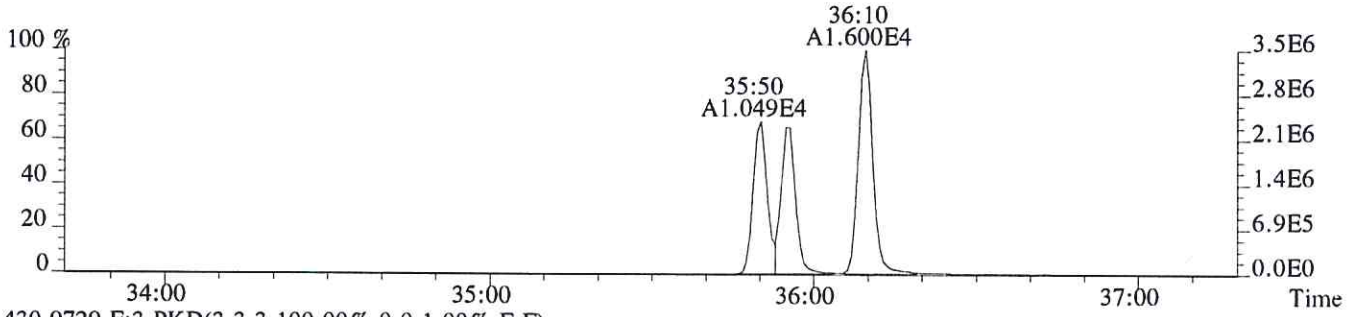
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



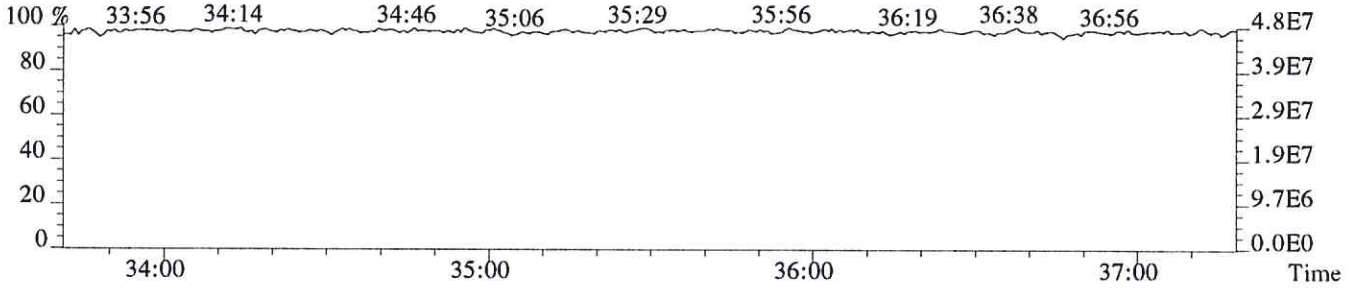
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



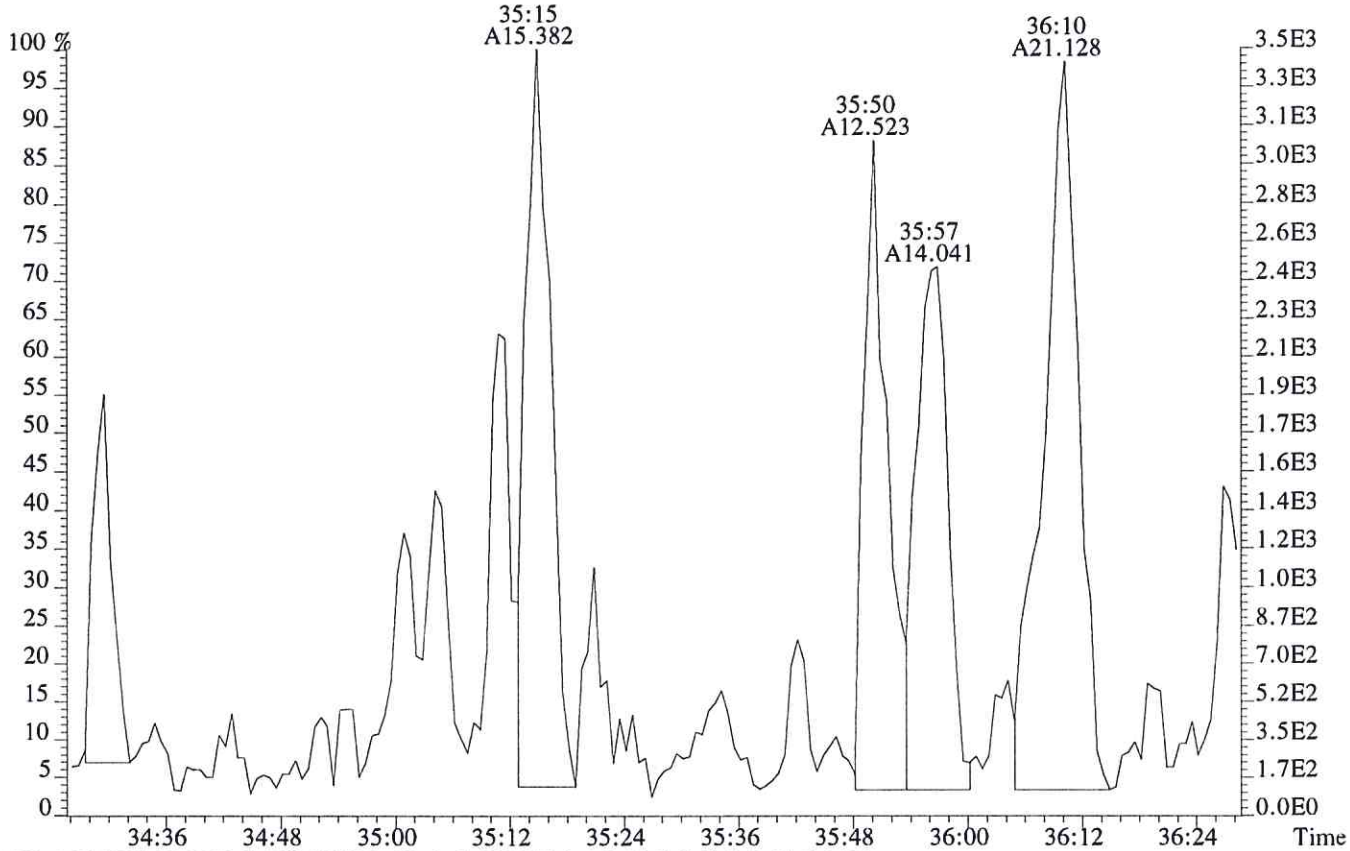
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



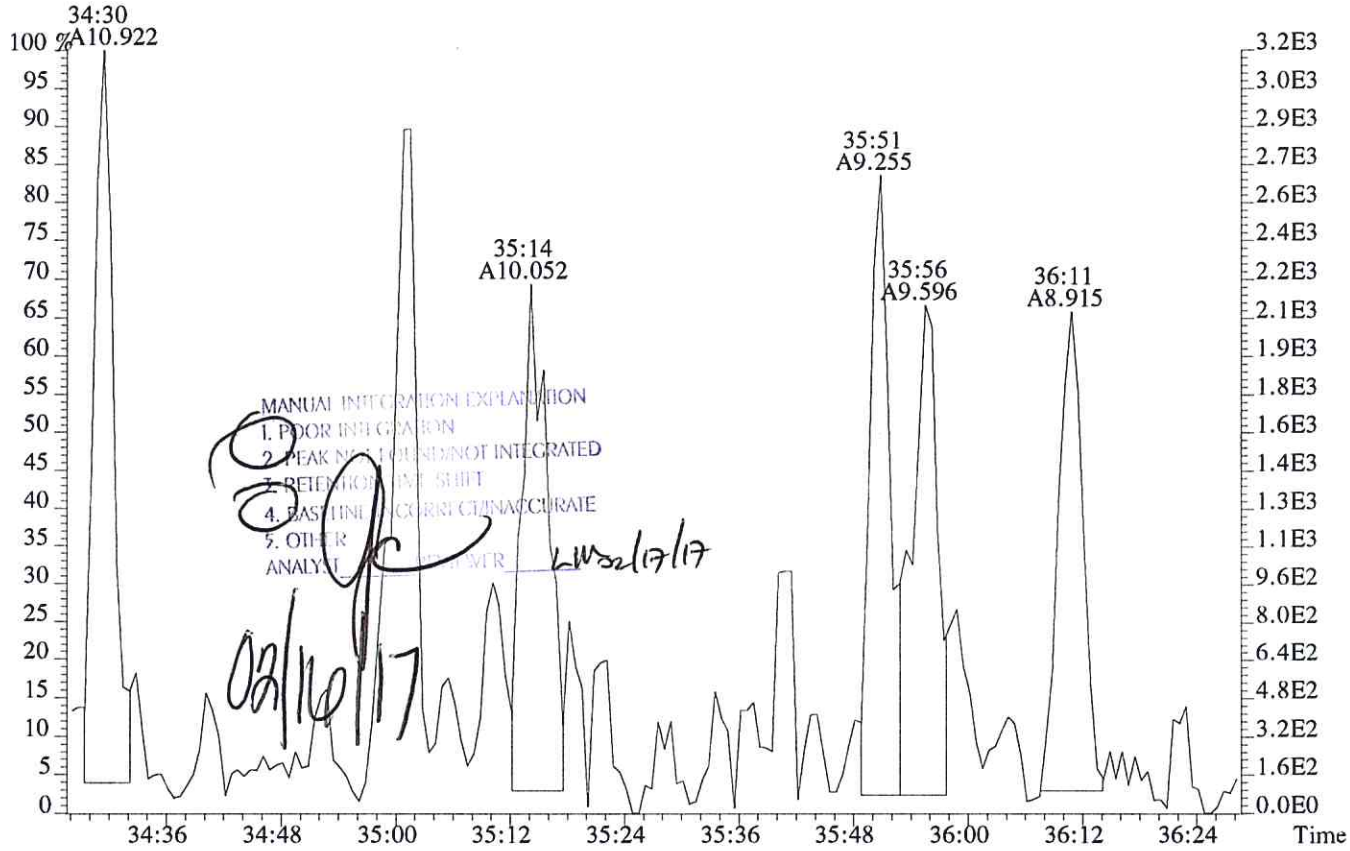
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



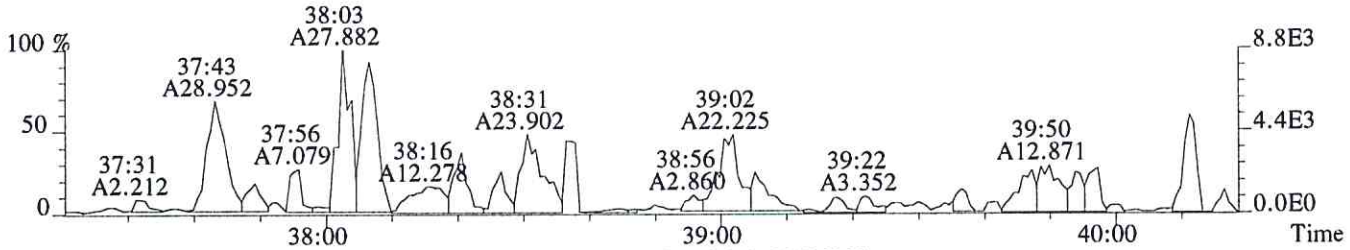
File:P405399 #1-326 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



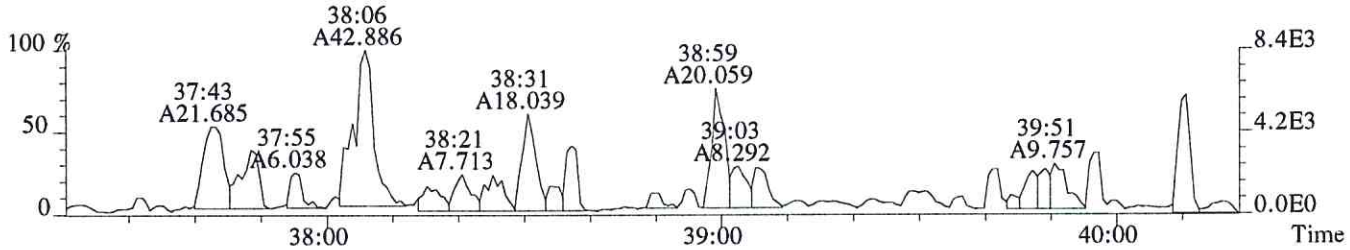
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



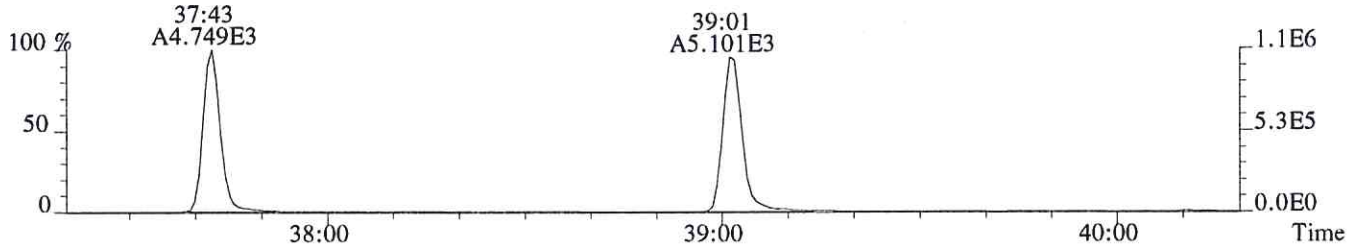
File:P405399 #1-268 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



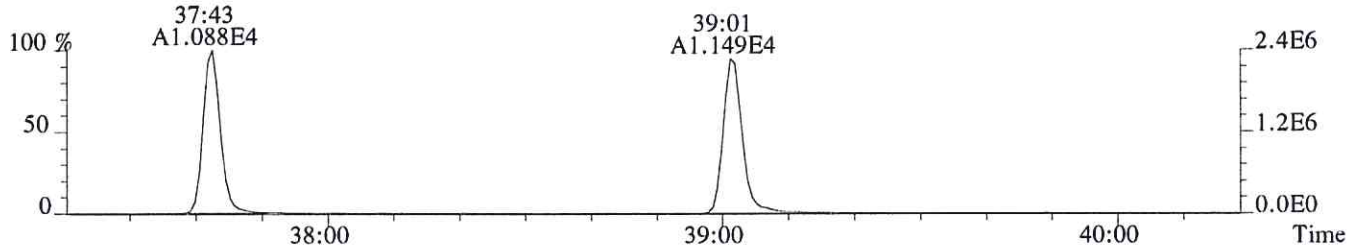
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.50%,F,T)



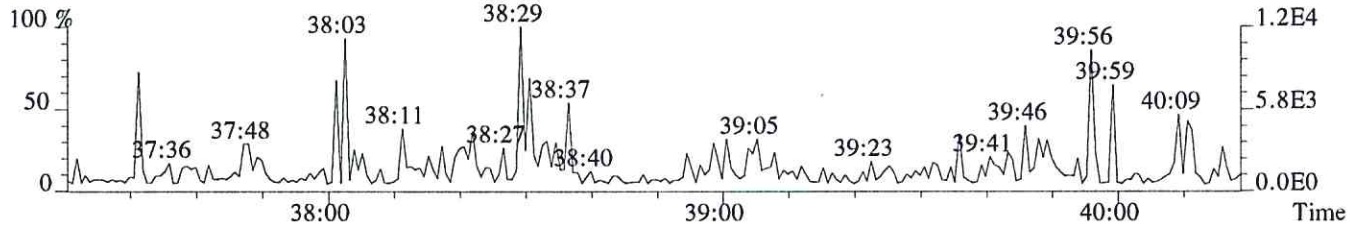
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2952.0,0.50%,F,T)



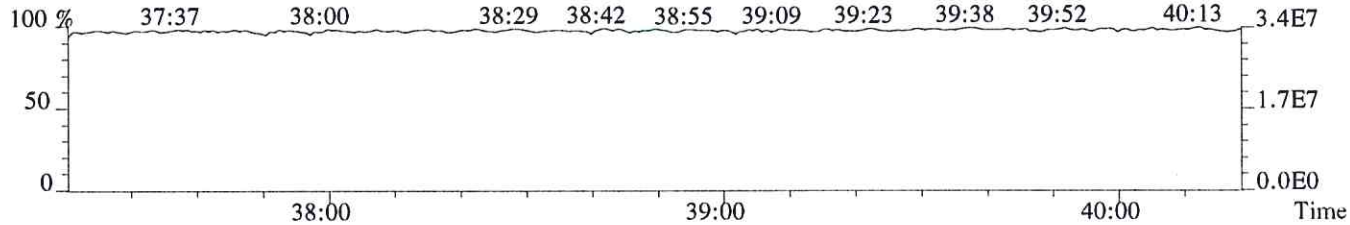
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.50%,F,T)



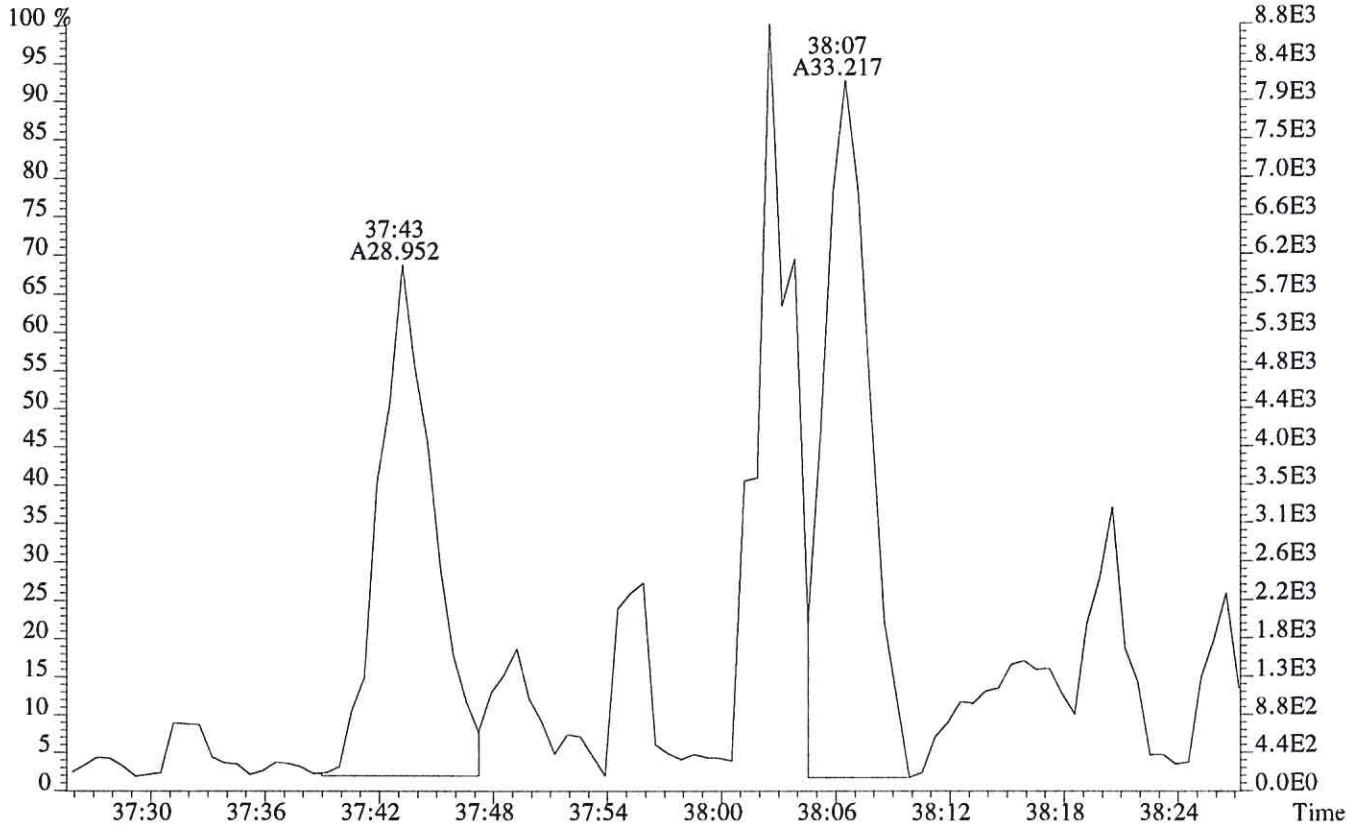
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



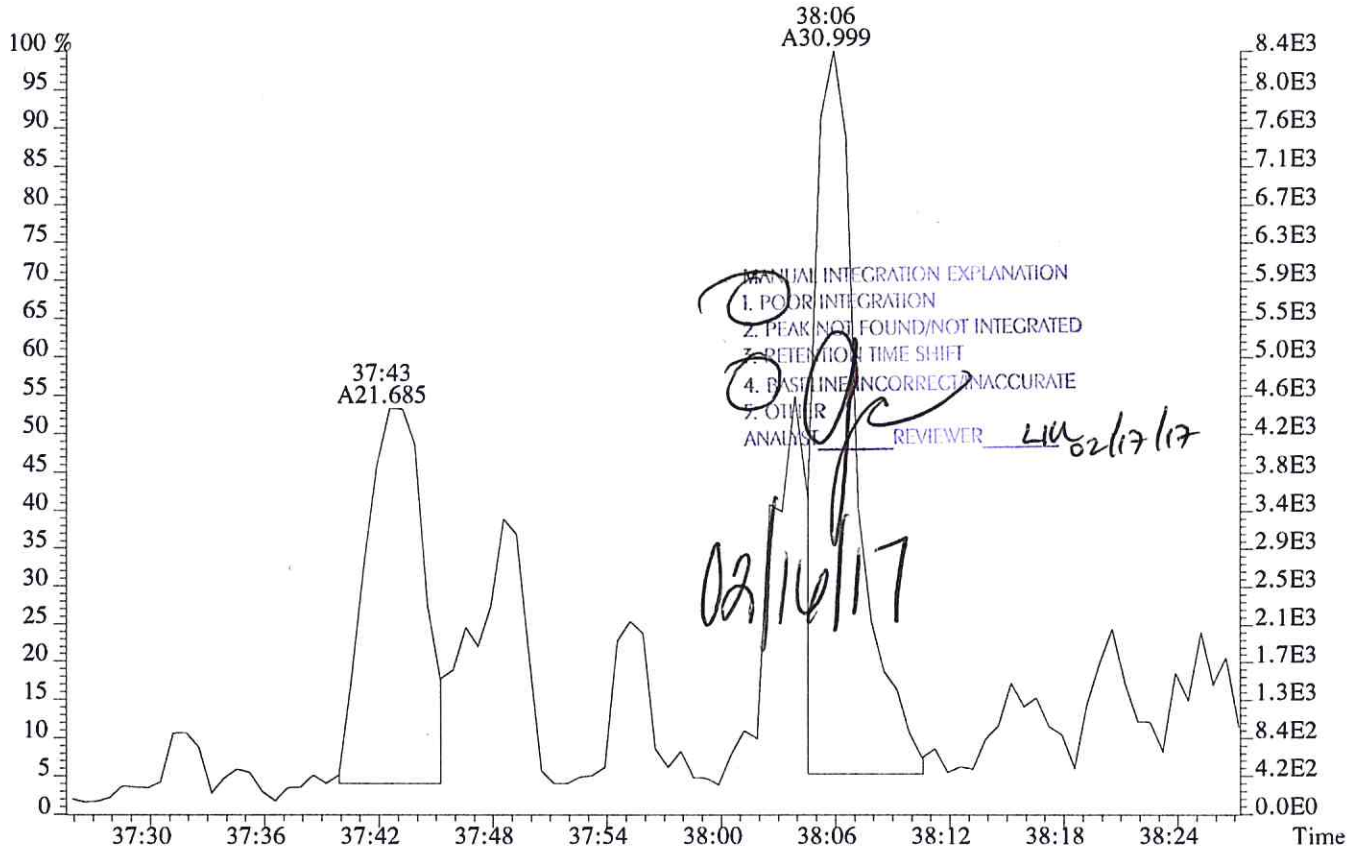
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



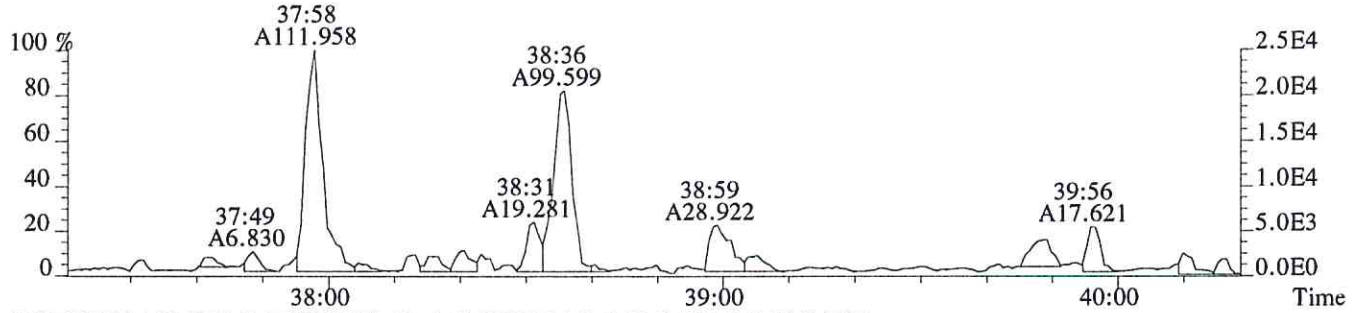
File:P405399 #1-268 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.50%,F,T)



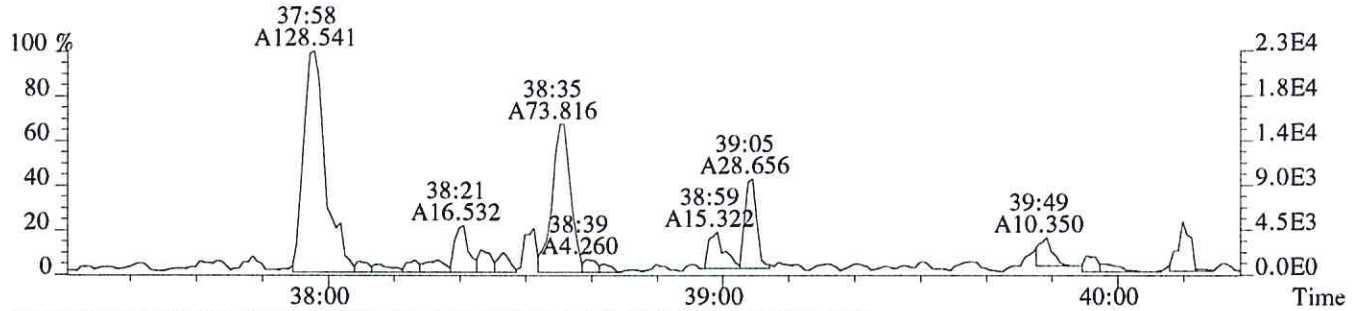
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.50%,F,T)



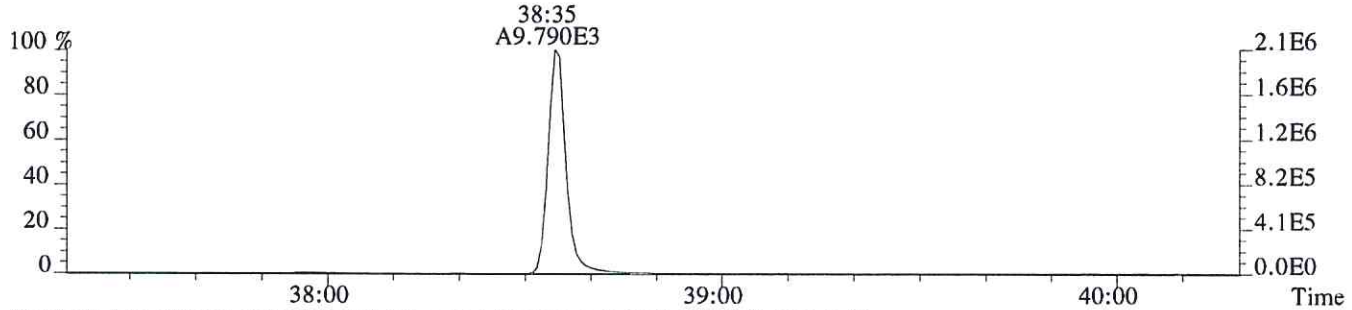
File:P405399 #1-268 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



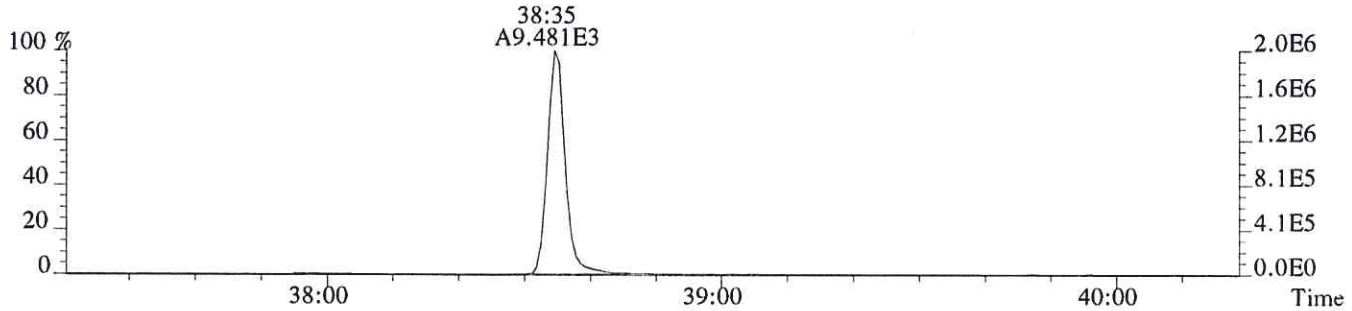
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



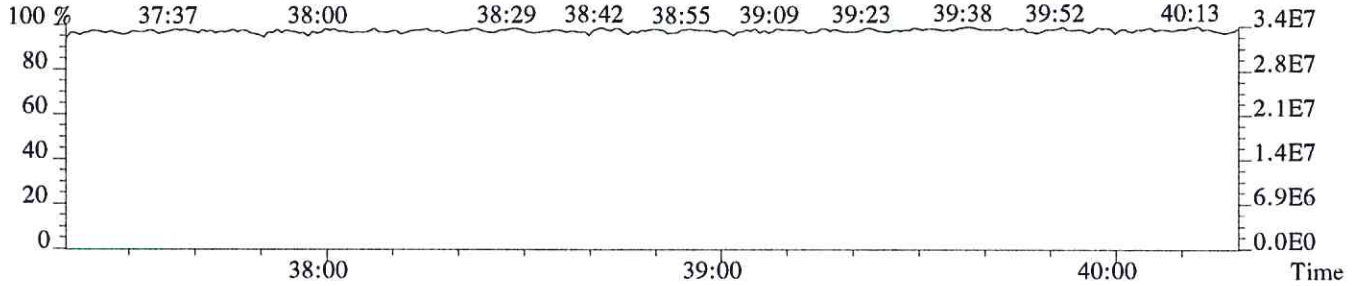
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



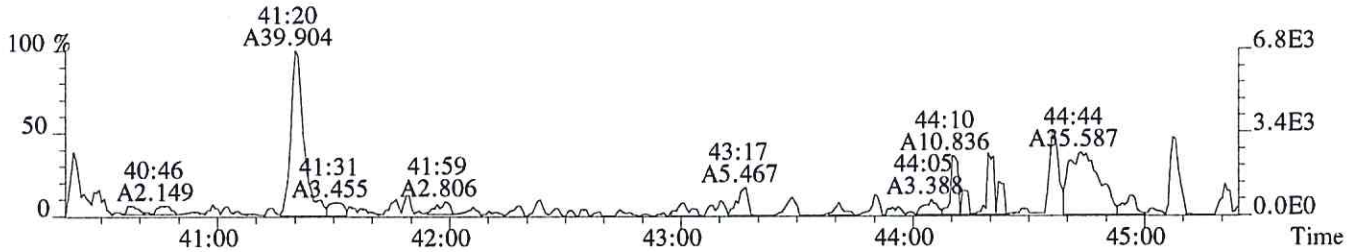
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



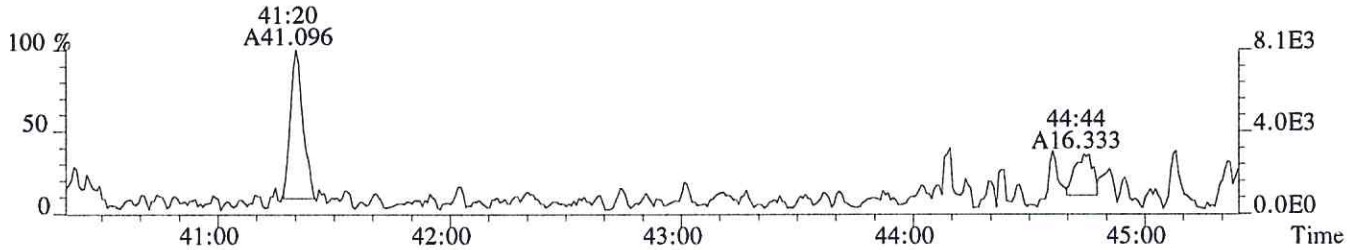
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



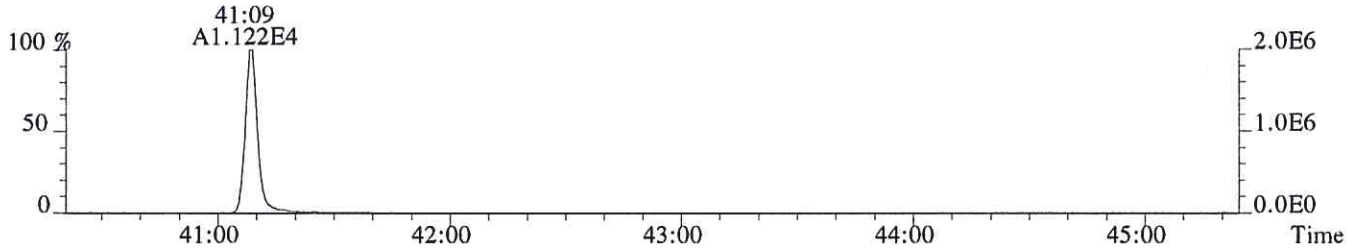
File:P405399 #1-456 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



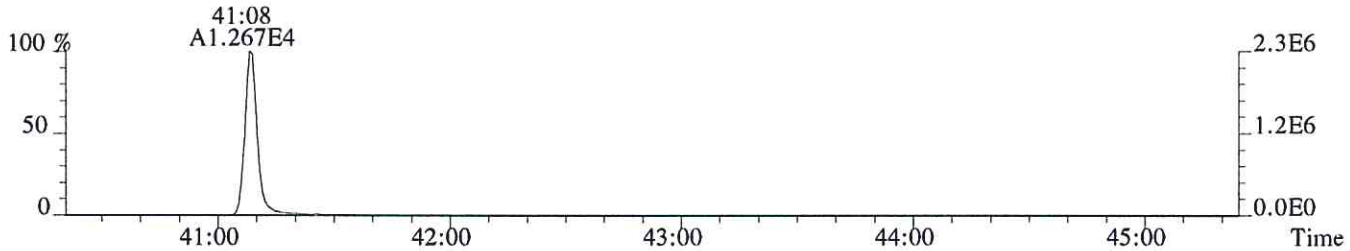
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



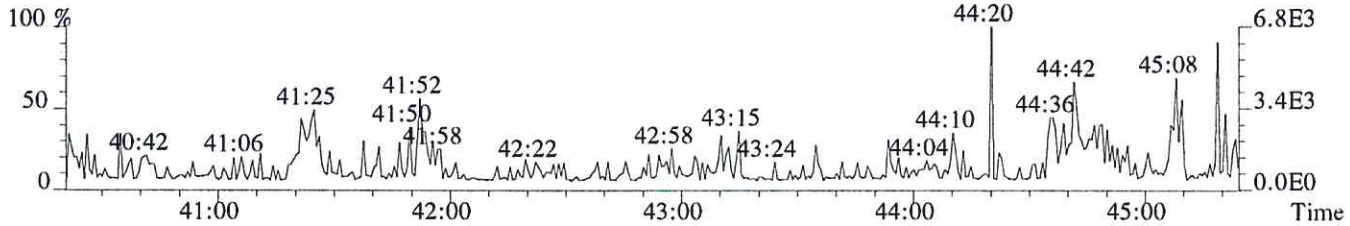
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1792.0,0.40%,F,T)



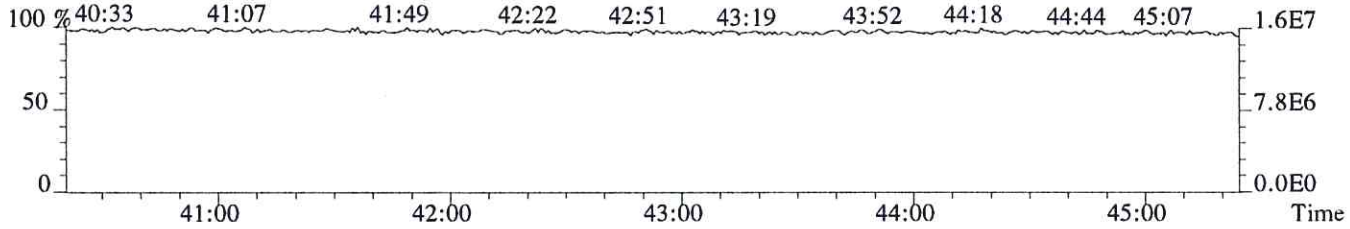
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2016.0,0.40%,F,T)



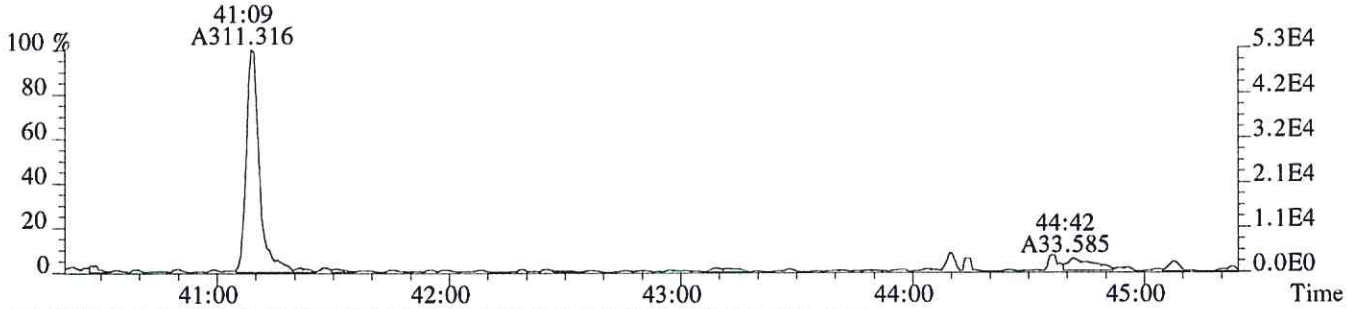
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



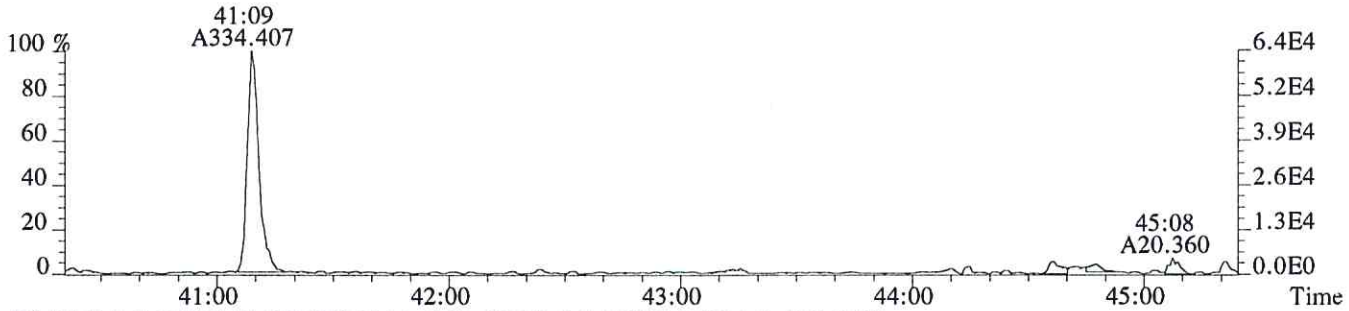
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



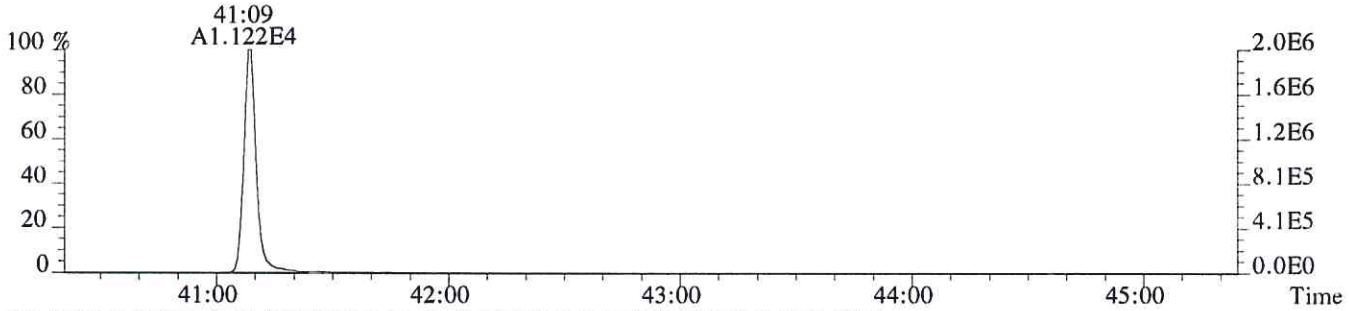
File:P405399 #1-456 Acq:15-FEB-2017 18:59:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



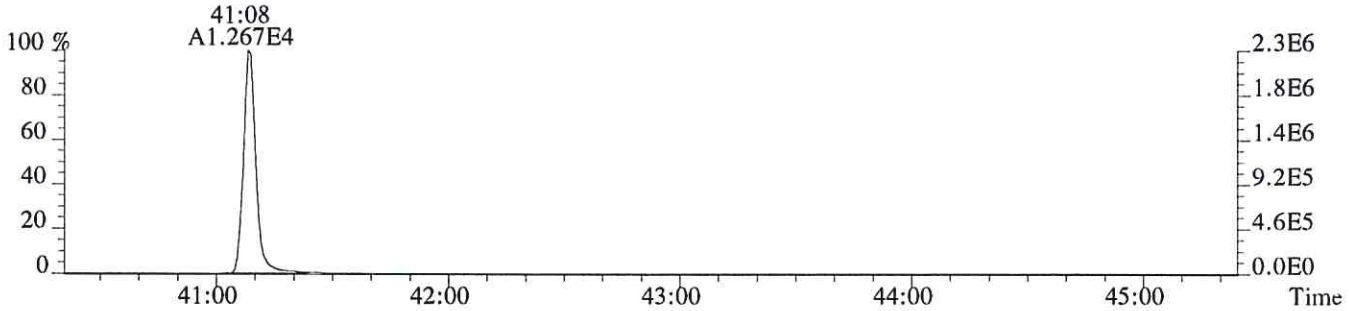
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



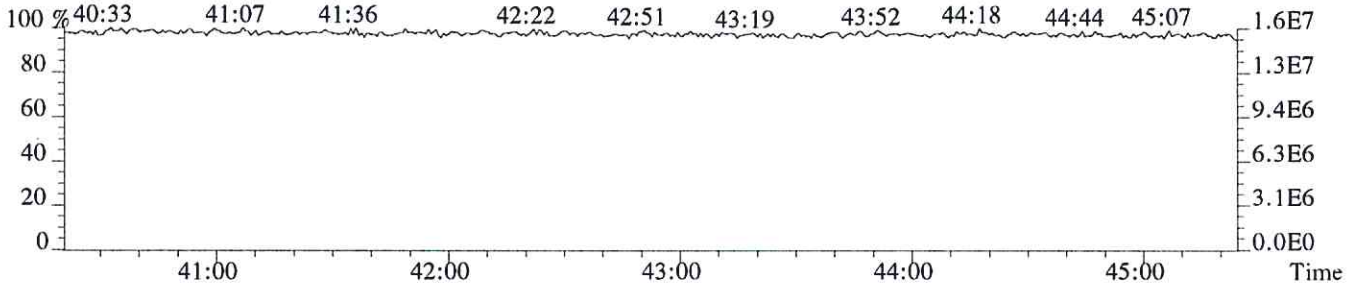
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1792.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2016.0,0.40%,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.
1702917-04

Run #10 Filename P405400 Samp: 1 Inj: 1 Acquired: 15-FEB-17 19:48:21
Processed: 16-FEB-17 14:18:45 Sample ID: E1700102-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.769
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.872
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.029
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.015
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.187
10	Unk	OCDF	41:21	2.798e+01	3.534e+01	0.79	yes	no	1.035
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.873
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.881
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.893
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:36	3.155e+01	3.429e+01	0.92	yes	yes	0.882
17	Unk	OCDD	41:10	7.420e+01	7.633e+01	0.97	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:52	1.319e+04	1.722e+04	0.77	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	2.335e+04	1.510e+04	1.55	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:21	2.161e+04	1.402e+04	1.54	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:05	8.998e+03	1.771e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:12	1.081e+04	2.123e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	8.604e+03	1.674e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:28	7.697e+03	1.524e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:43	5.519e+03	1.285e+04	0.43	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:02	6.079e+03	1.402e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:45	1.302e+04	1.698e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:38	1.999e+04	1.305e+04	1.53	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	1.471e+04	1.183e+04	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:56	1.490e+04	1.228e+04	1.21	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	1.131e+04	1.085e+04	1.04	yes	no	0.817
32	IS	13C-OCDD	41:09	1.275e+04	1.421e+04	0.90	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:06	1.742e+04	2.246e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:10	2.027e+04	1.665e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	1.336e+04				no	0.958

$$\text{OCDD} = \frac{(7.420e{+}01 + 7.633e{+}01) \times 4000\ \text{pg} \times}{(1.275e{+}04 + 1.421e{+}04) \times 975\ \text{mL}/\text{g} \times 100\ / 100 \times 0.980} = 23.37\ \text{pg/L}$$

WM 02/17/17

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
1702917-04

Run #10 Filename P405400 Samp: 1 Inj: 1 Acquired: 15-FEB-17 19:48:21
Processed: 16-FEB-17 14:18:45 LAB. ID: E1700102-002

	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+02	*	*	1.13e+03	*
2	1,2,3,7,8-PeCDF	*	8.16e+02	*	*	5.20e+02	*
3	2,3,4,7,8-PeCDF	*	8.16e+02	*	*	5.20e+02	*
4	1,2,3,4,7,8-HxCDF	*	5.36e+02	*	*	8.72e+02	*
5	1,2,3,6,7,8-HxCDF	*	5.36e+02	*	*	8.72e+02	*
6	2,3,4,6,7,8-HxCDF	*	5.36e+02	*	*	8.72e+02	*
7	1,2,3,7,8,9-HxCDF	*	5.36e+02	*	*	8.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	1.42e+03	*	*	1.09e+03	*
9	1,2,3,4,7,8,9-HpCDF	*	1.42e+03	*	*	1.09e+03	*
10	OCDF	4.05e+03	6.44e+02	6.3e+00	5.61e+03	6.24e+02	9.0e+00
11	2,3,7,8-TCDD	*	1.29e+03	*	*	3.92e+02	*
12	1,2,3,7,8-PeCDD	*	1.07e+03	*	*	9.76e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.60e+02	*	*	6.20e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.60e+02	*	*	6.20e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.60e+02	*	*	6.20e+02	*
16	1,2,3,4,6,7,8-HpCDD	6.46e+03	9.76e+02	6.6e+00	5.70e+03	8.84e+02	6.4e+00
17	OCDD	1.51e+04	3.96e+02	3.8e+01	1.61e+04	4.72e+02	3.4e+01
18	13C-2,3,7,8-TCDF	2.15e+06	4.69e+03	4.6e+02	2.82e+06	3.49e+03	8.1e+02
19	13C-1,2,3,7,8-PeCDF	4.22e+06	5.20e+02	8.1e+03	2.74e+06	8.20e+02	3.3e+03
20	13C-2,3,4,7,8-PeCDF	4.22e+06	5.20e+02	8.1e+03	2.76e+06	8.20e+02	3.4e+03
21	13C-1,2,3,4,7,8-HxCDF	1.92e+06	9.44e+02	2.0e+03	3.80e+06	4.48e+02	8.5e+03
22	13C-1,2,3,6,7,8-HxCDF	2.23e+06	9.44e+02	2.4e+03	4.35e+06	4.48e+02	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.85e+06	9.44e+02	2.0e+03	3.52e+06	4.48e+02	7.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.60e+06	9.44e+02	1.7e+03	3.13e+06	4.48e+02	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.23e+06	1.60e+03	7.7e+02	2.88e+06	2.03e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.25e+06	1.60e+03	7.8e+02	2.83e+06	2.03e+03	1.4e+03
27	13C-2,3,7,8-TCDD	2.26e+06	3.16e+03	7.1e+02	2.96e+06	1.70e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	3.94e+06	9.00e+02	4.4e+03	2.59e+06	1.32e+03	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	3.34e+06	9.32e+02	3.6e+03	2.67e+06	7.40e+02	3.6e+03
30	13C-1,2,3,6,7,8-HxCDD	3.20e+06	9.32e+02	3.4e+03	2.61e+06	7.40e+02	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.44e+06	1.04e+03	2.3e+03	2.35e+06	5.72e+02	4.1e+03
32	13C-OCDD	2.39e+06	1.37e+03	1.7e+03	2.65e+06	1.75e+03	1.5e+03
33	13C-1,2,3,4-TCDD	2.94e+06	3.16e+03	9.3e+02	3.80e+06	1.70e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	4.28e+06	9.32e+02	4.6e+03	3.51e+06	7.40e+02	4.7e+03
35	37Cl-2,3,7,8-TCDD	2.32e+06	6.60e+02	3.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-04

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P405400 Sample:1 Injection:1 Function:4

Acquired: 15-FEB-17 19:48:21 Processed: 16-FEB-17 14:18:45

Mass: 423.7770 425.7740 Tot Response: 6.58e+01 RRF: 0.8816

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	3.15e+01	3.43e+01	0.92	yes	6.58e+01	1,2,3,4,6,7,8-HpCDD	y	y

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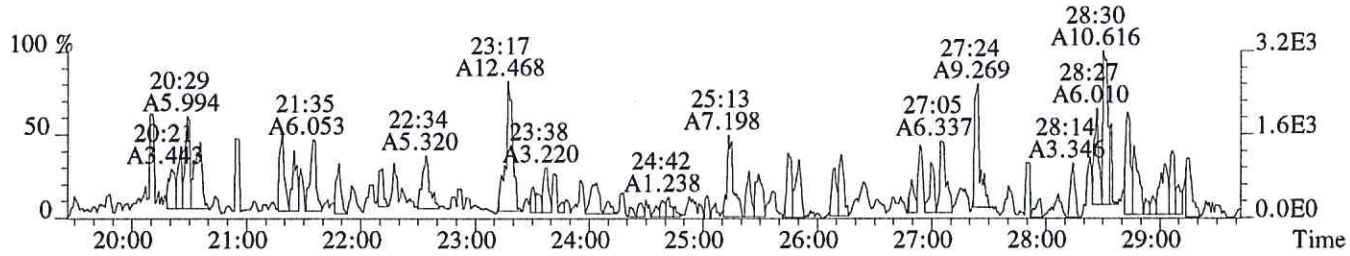
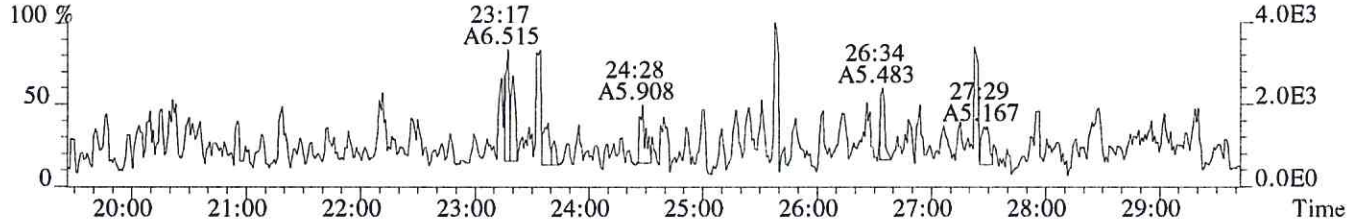
Office(281)530-5656. Fax(281)530-5887

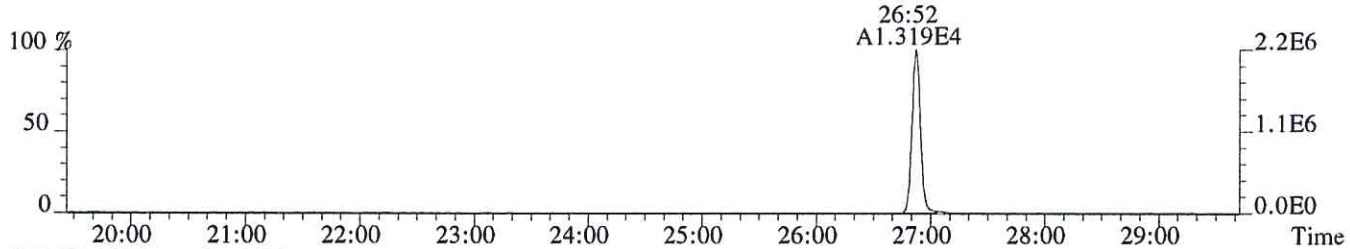
File:P405400 #1-729 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



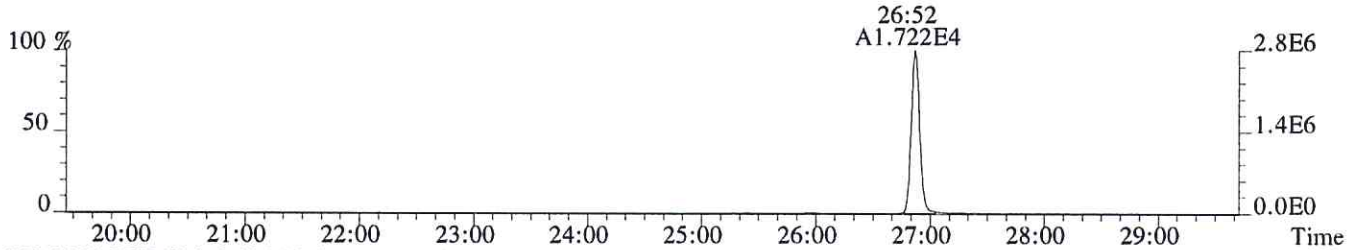
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



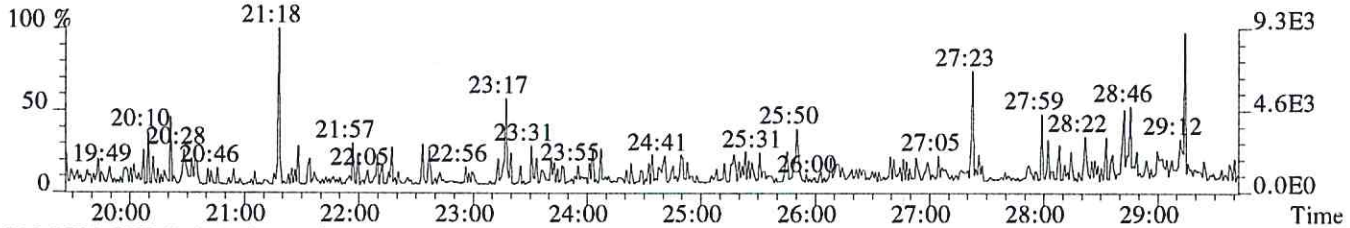
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4692.0,1.00%,F,T)



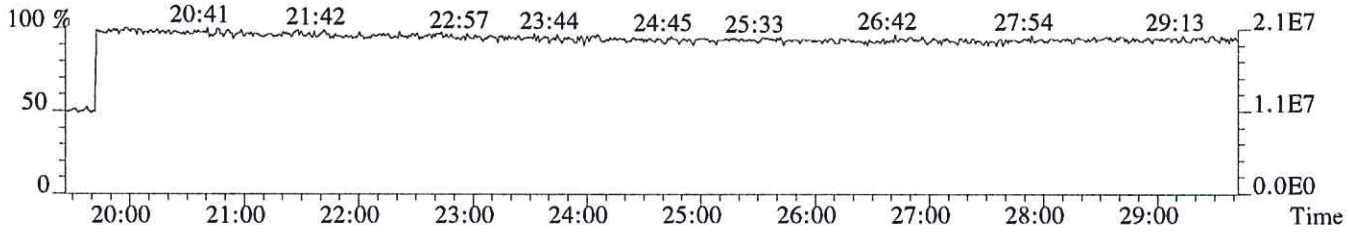
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3492.0,1.00%,F,T)



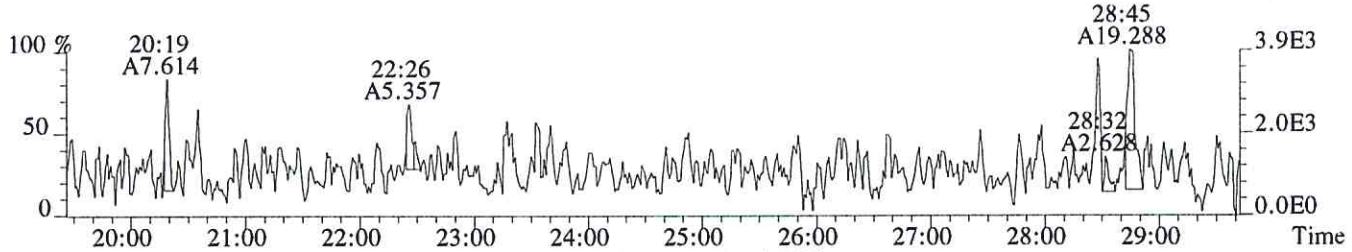
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



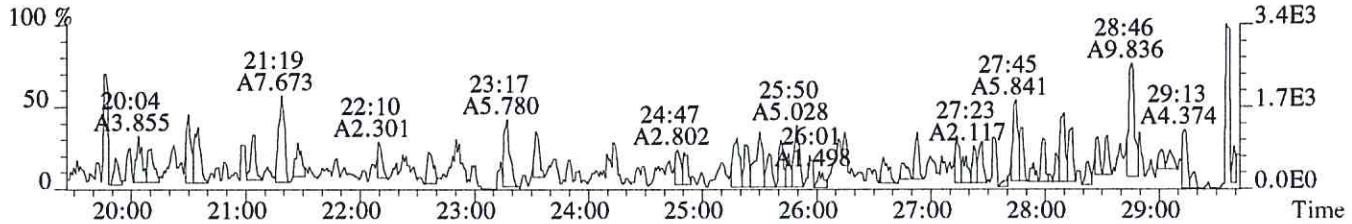
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



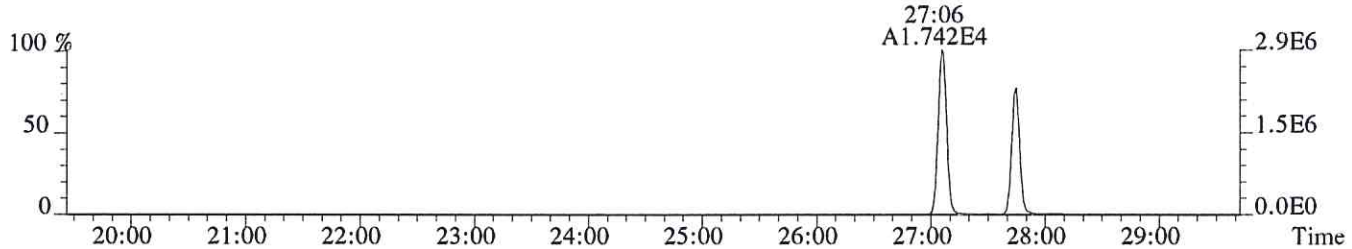
File:P405400 #1-729 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



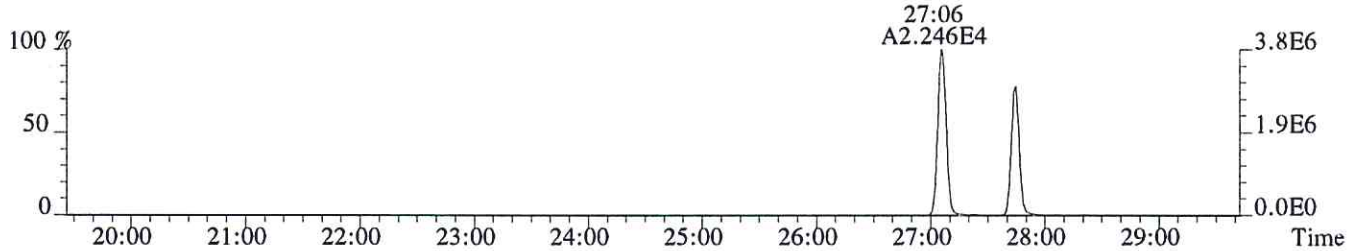
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



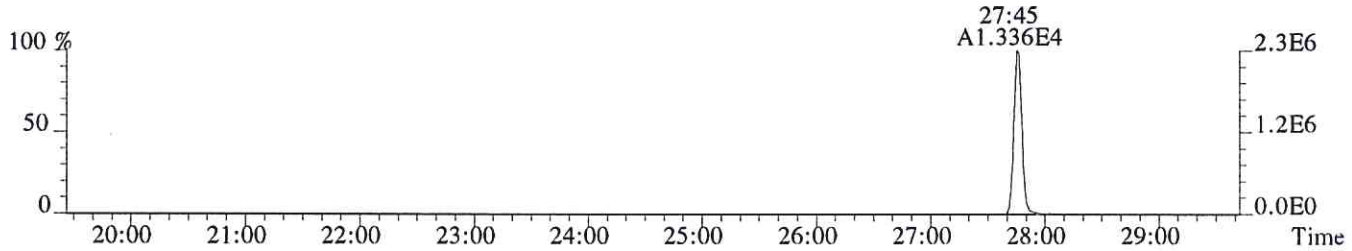
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3160.0,1.00%,F,T)



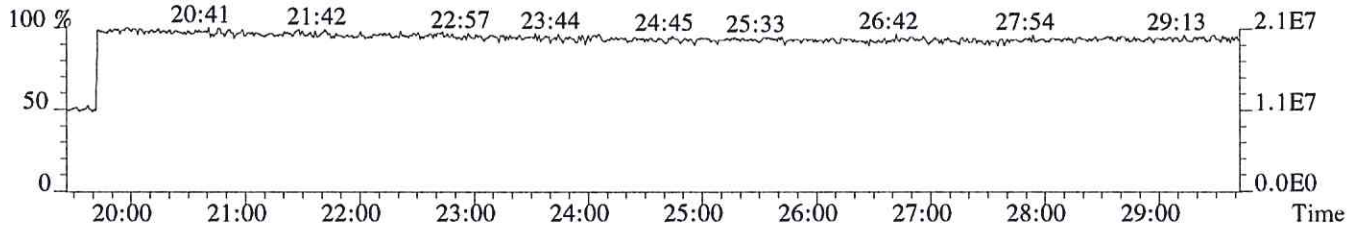
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



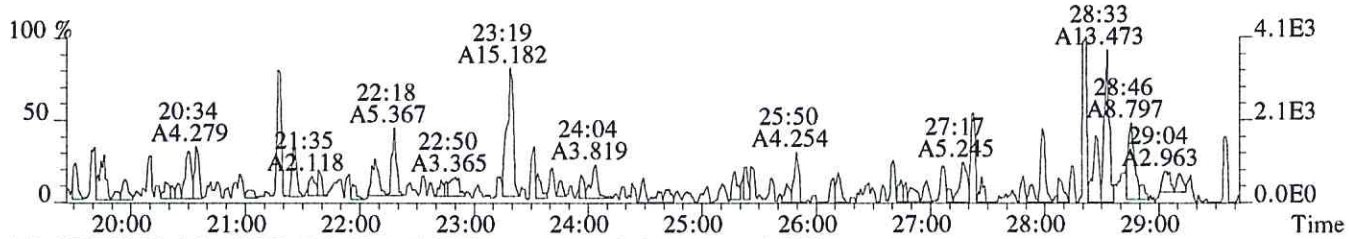
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



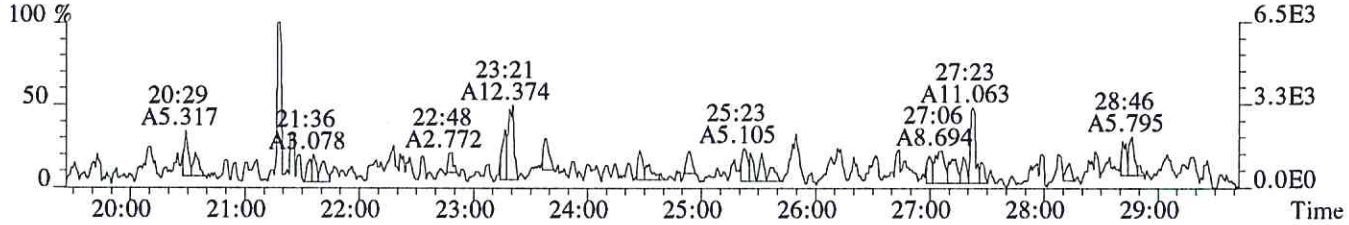
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



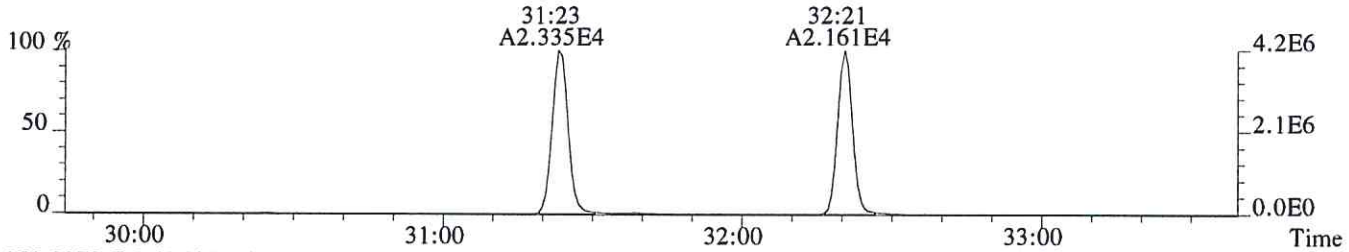
File:P405400 #1-729 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,272.0,1.00%,F,T)



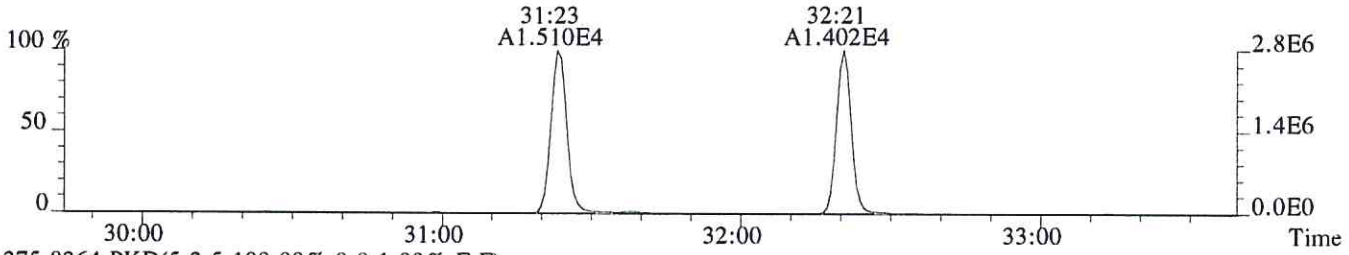
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



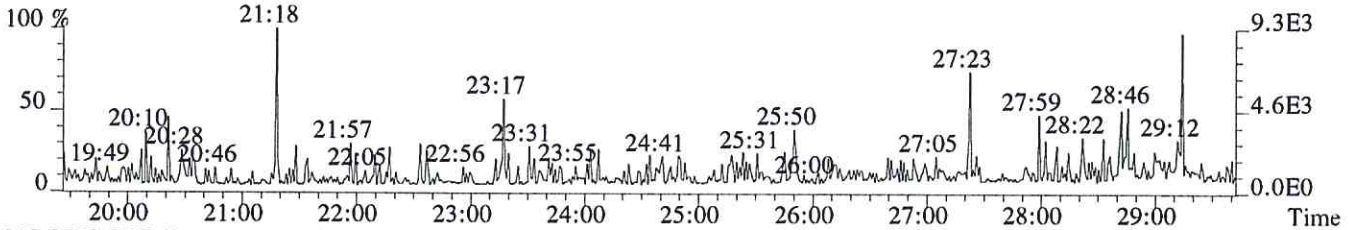
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



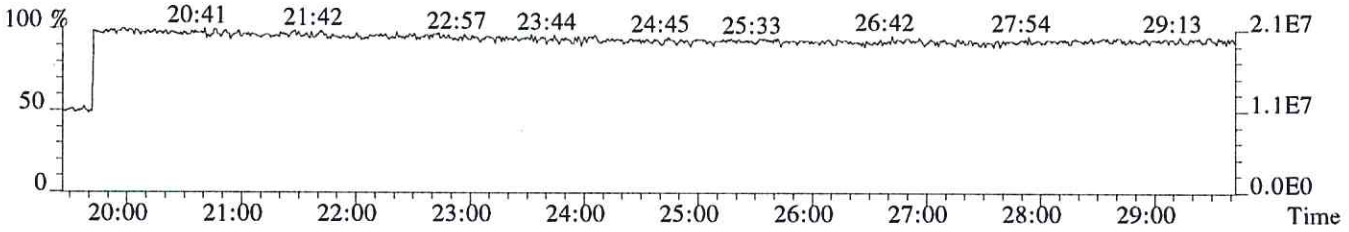
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



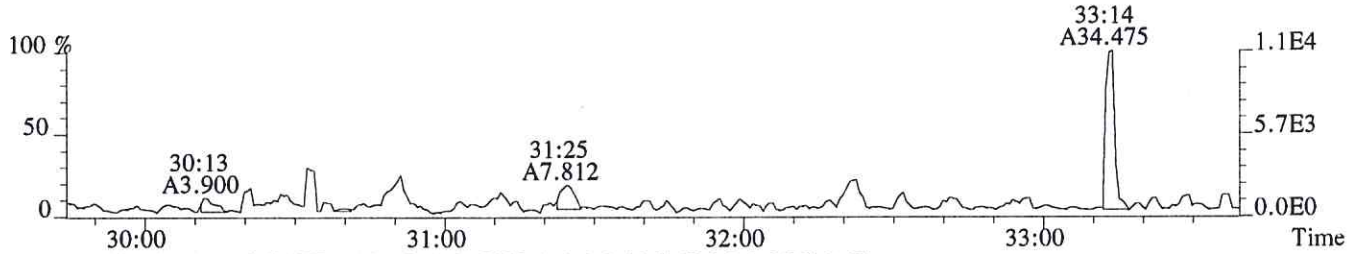
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



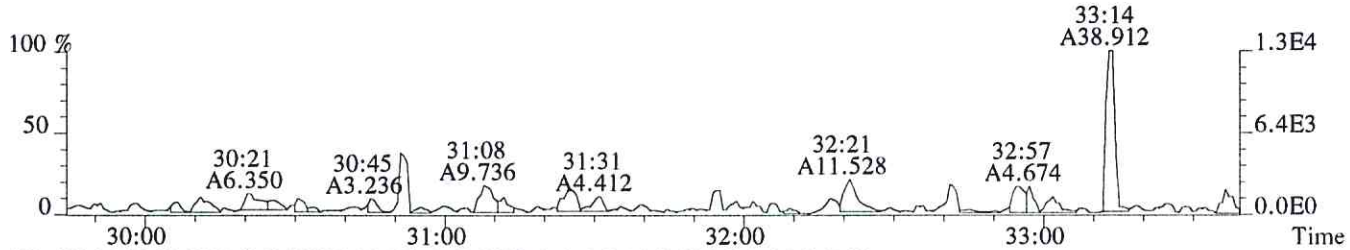
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



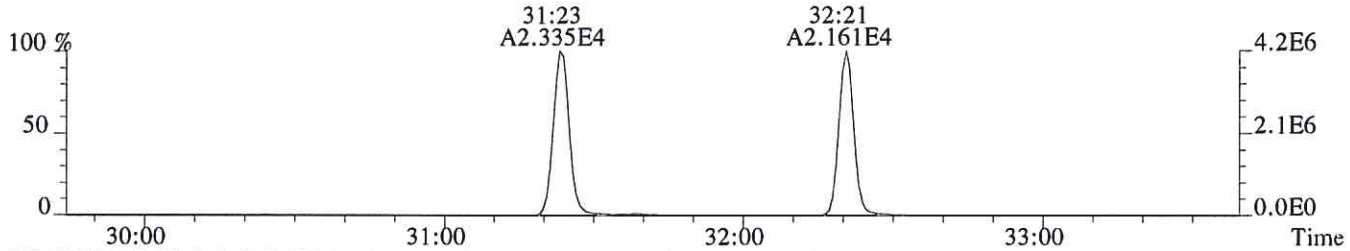
File:P405400 #1-353 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



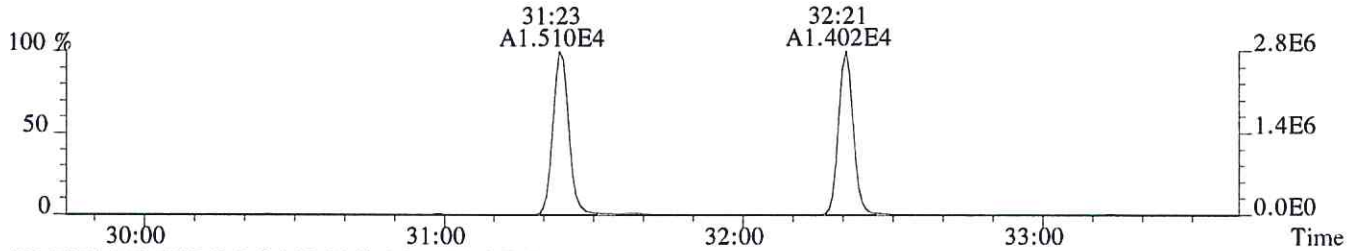
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



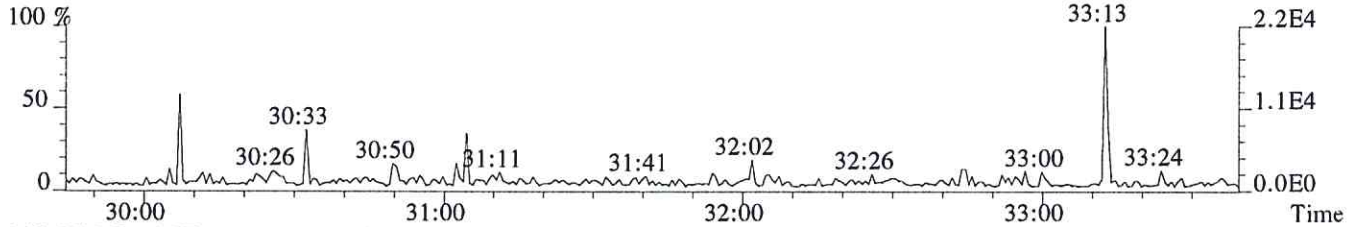
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



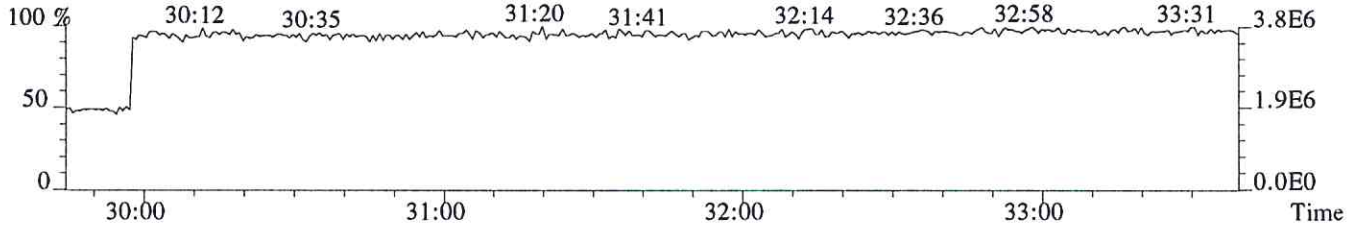
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



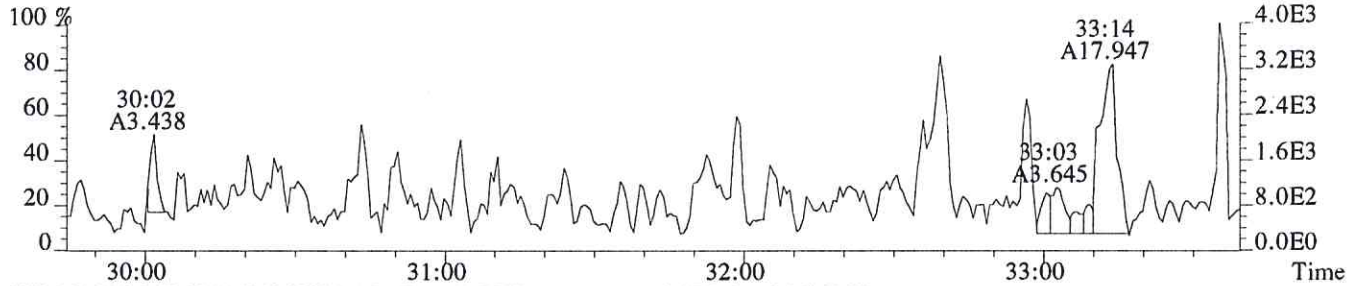
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



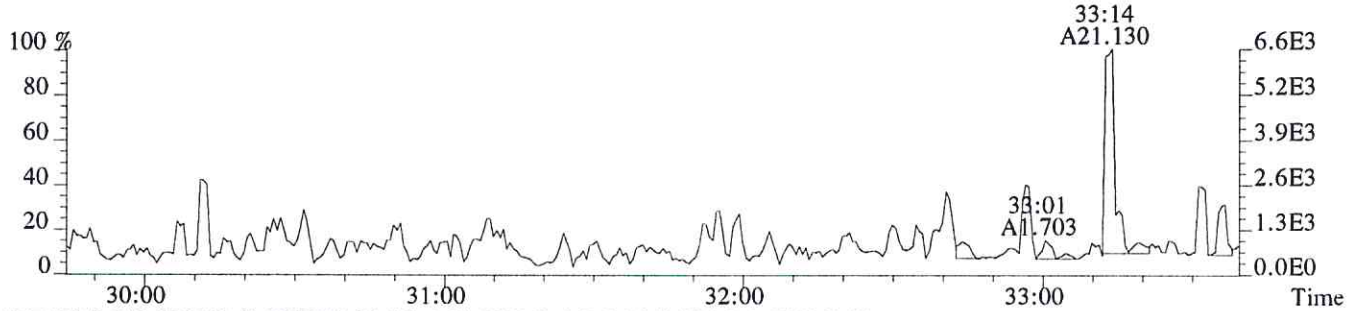
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



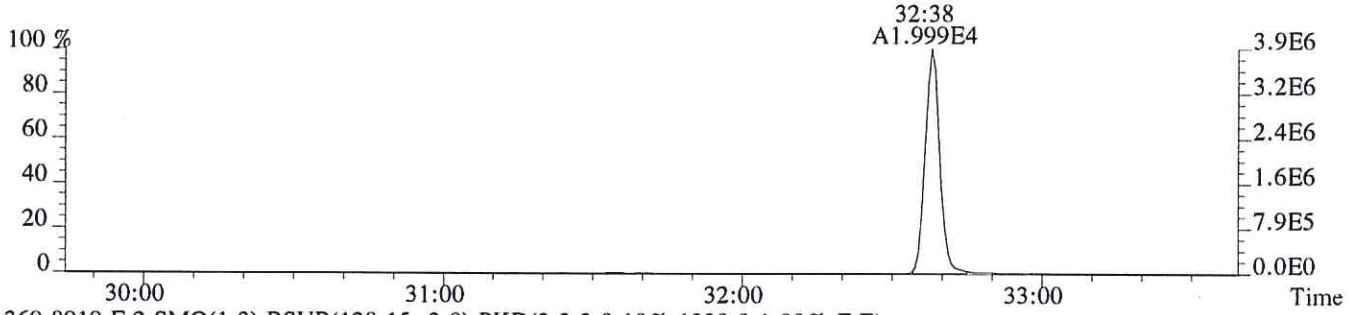
File:P405400 #1-353 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



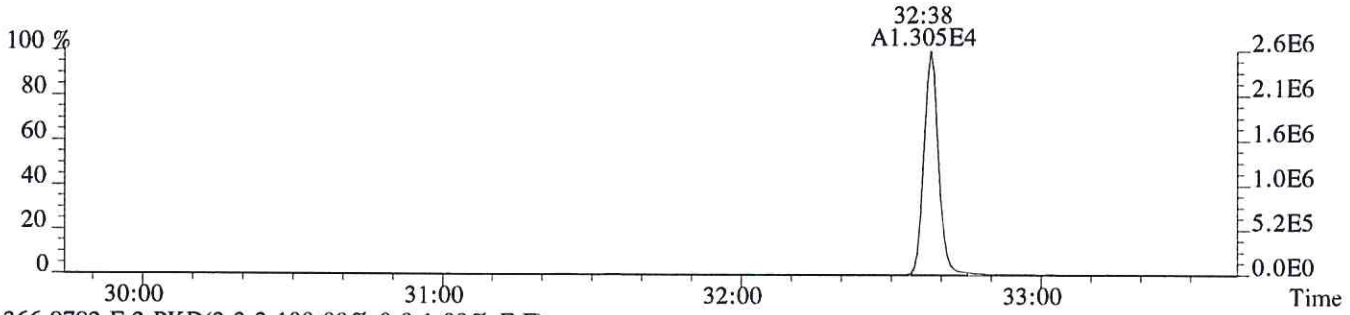
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



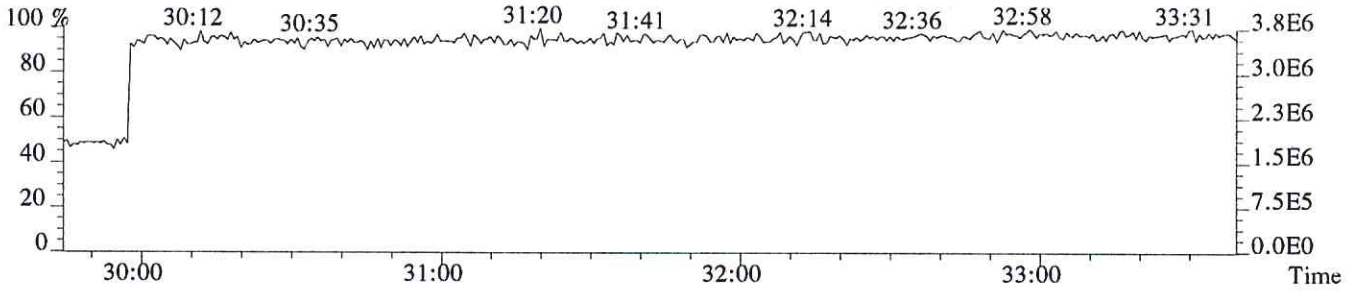
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



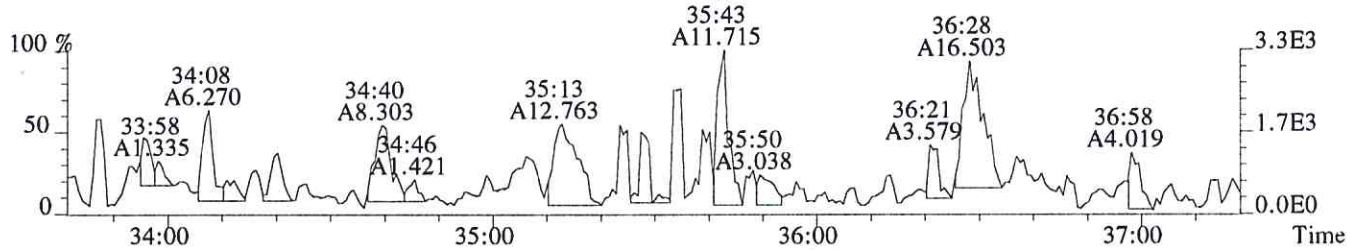
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



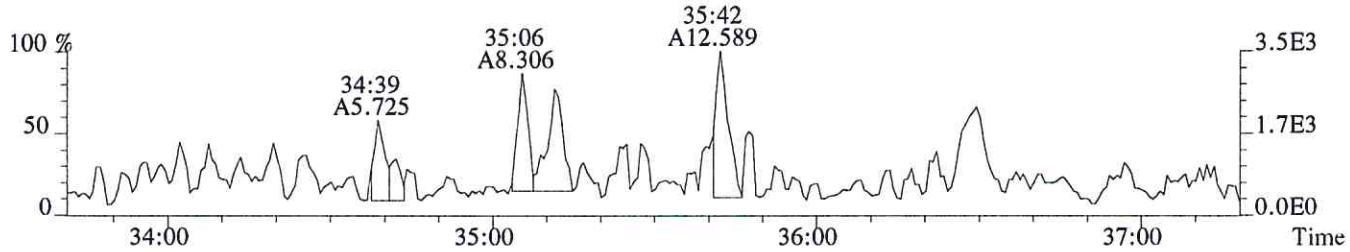
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



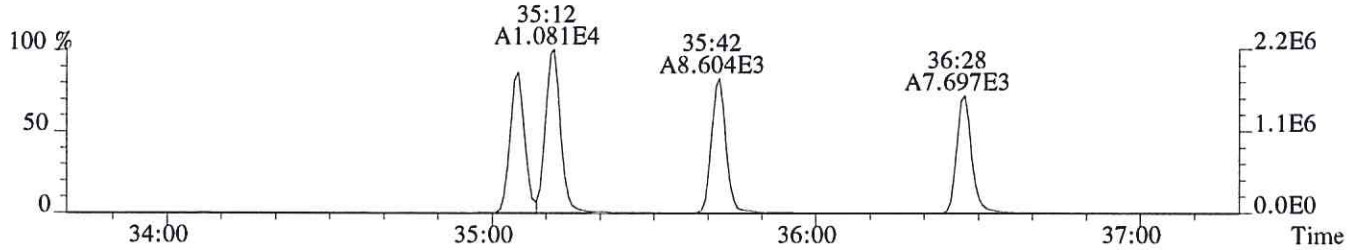
File:P405400 #1-326 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



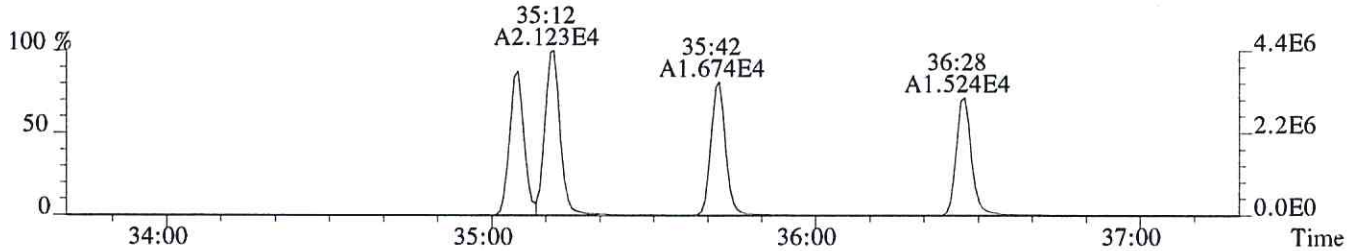
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



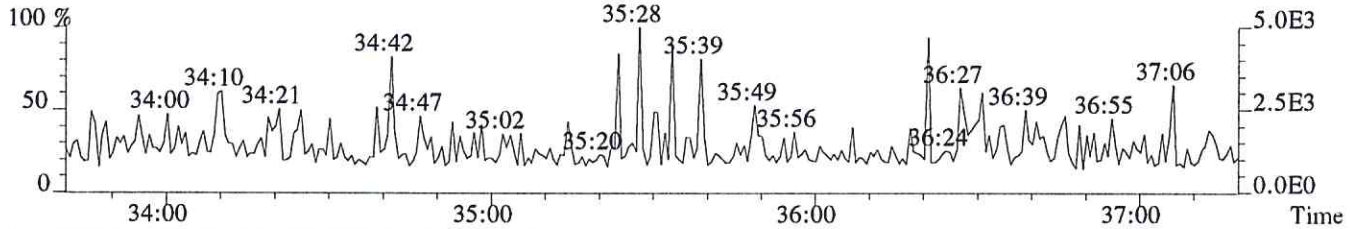
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.40%,F,T)



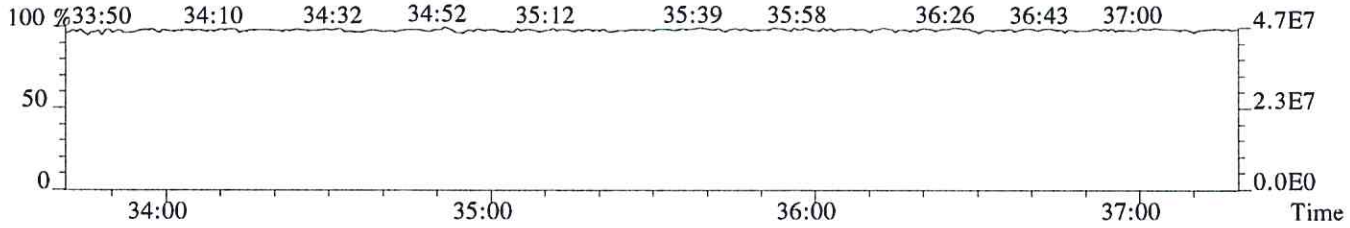
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



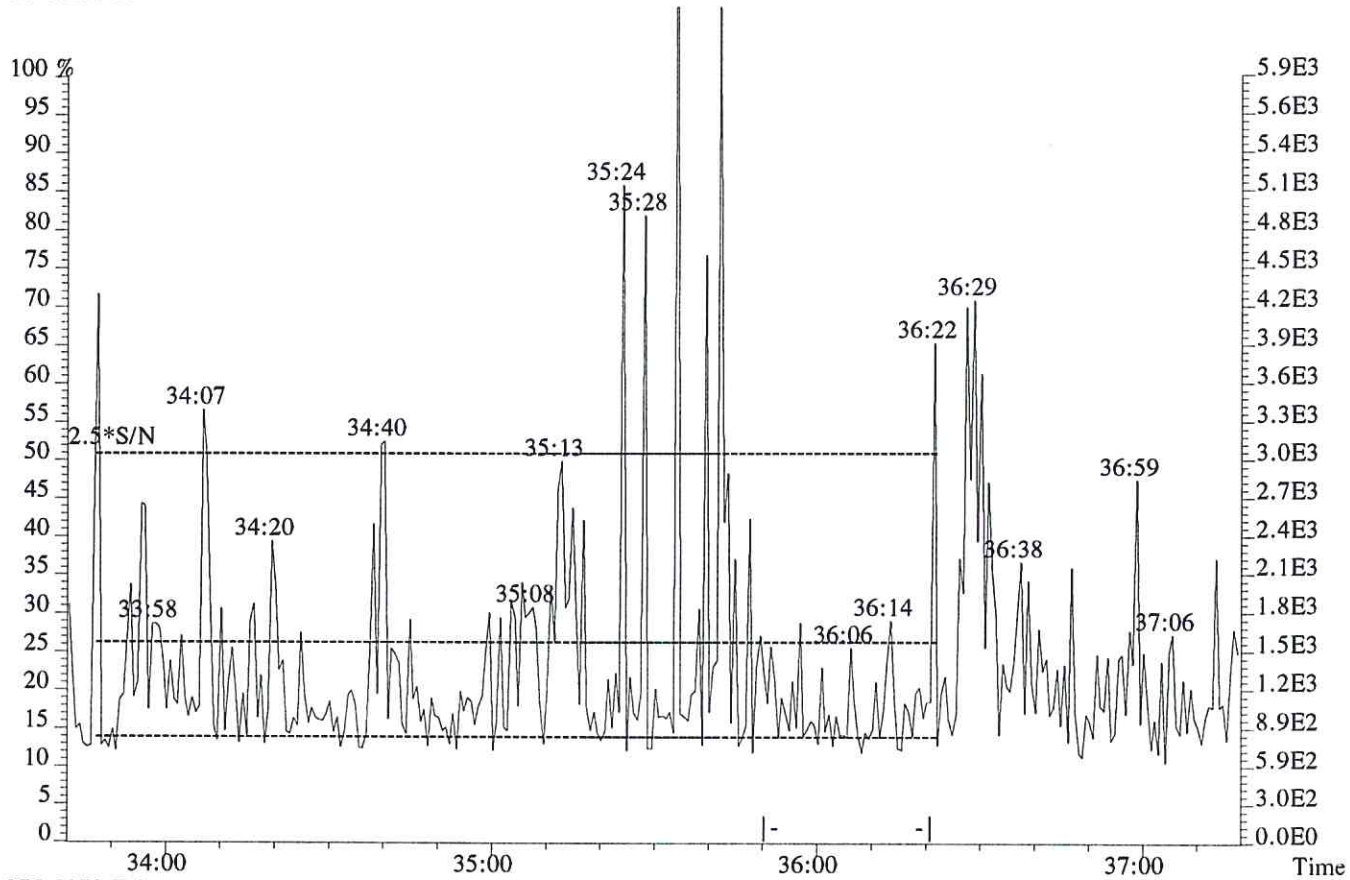
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



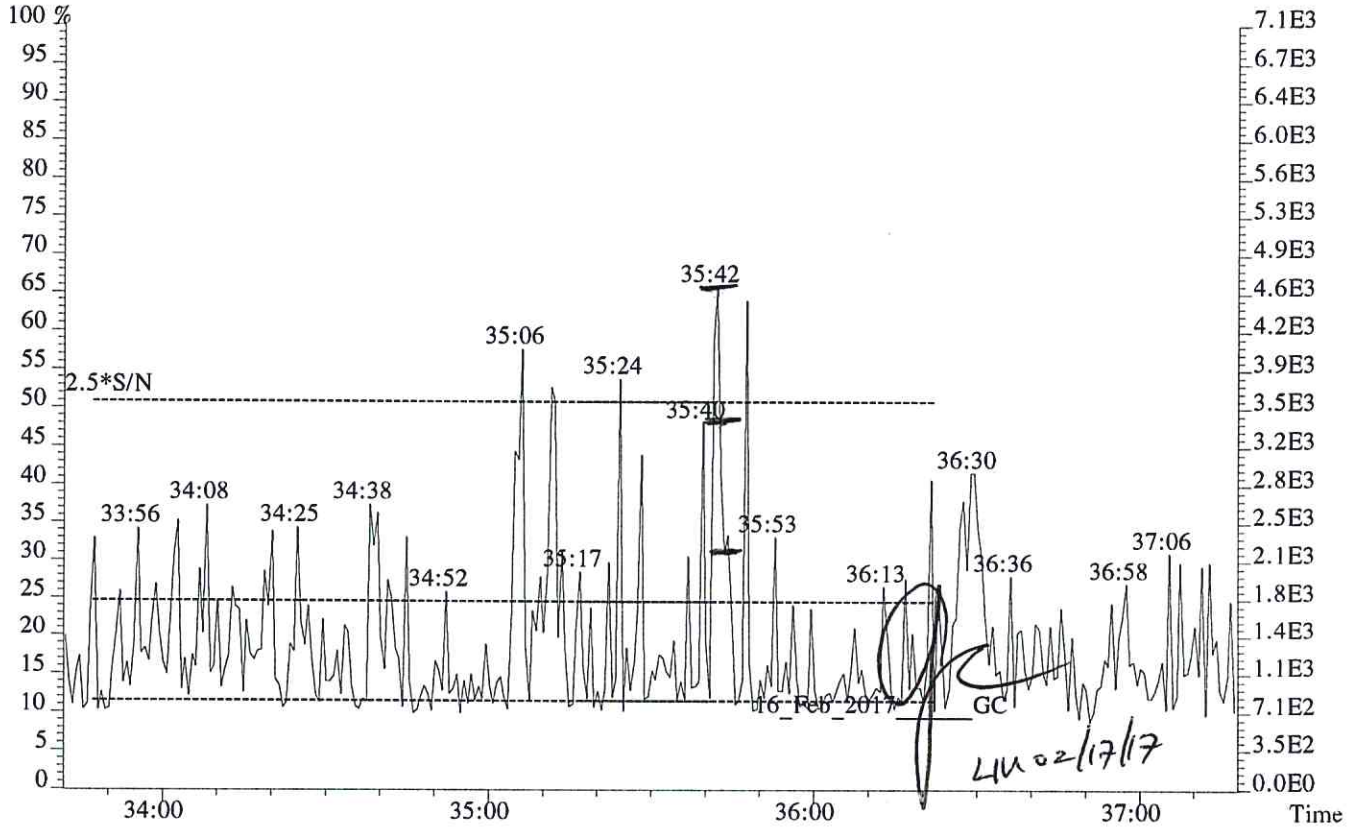
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



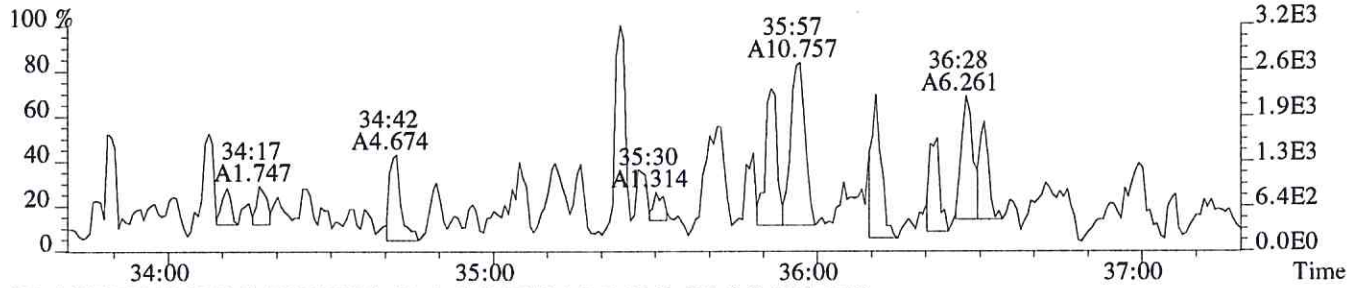
File:P405400 #1-326 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
373.8208 F:3



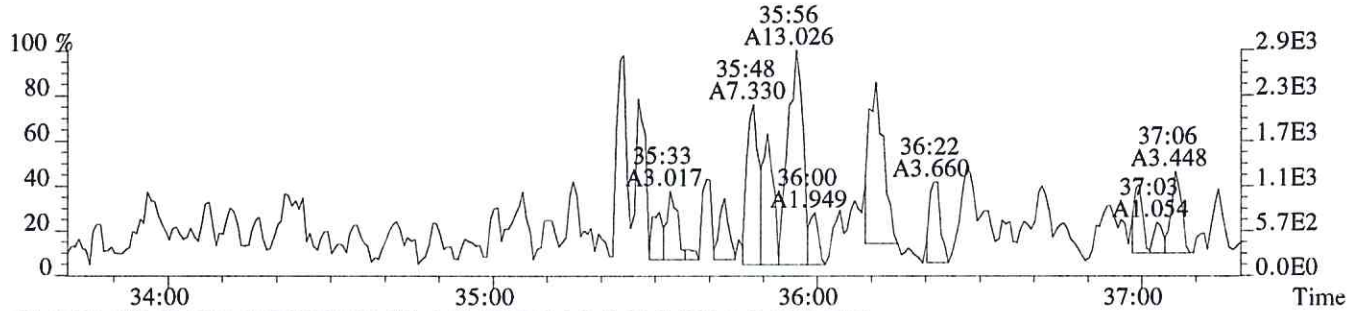
375.8178 F:3



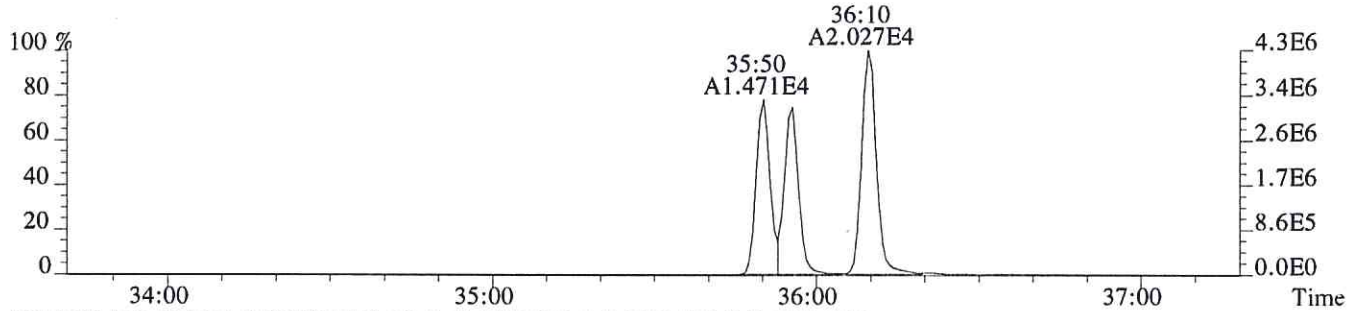
File:P405400 #1-326 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



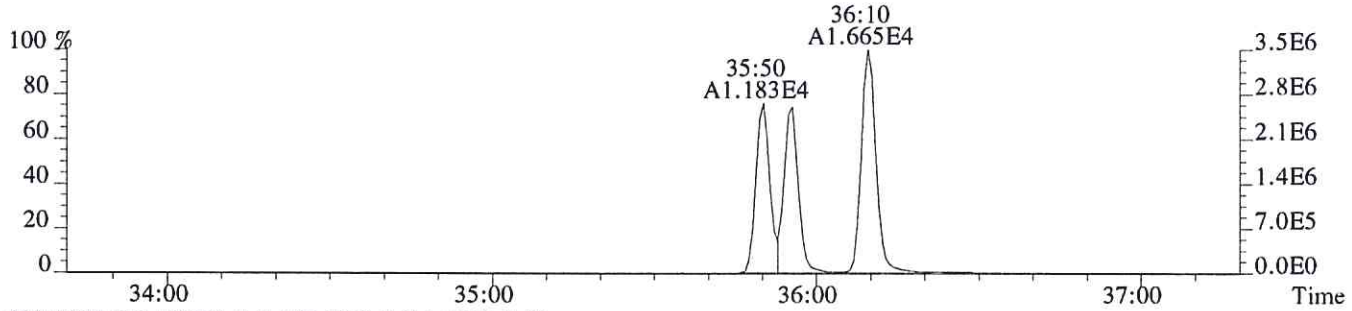
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



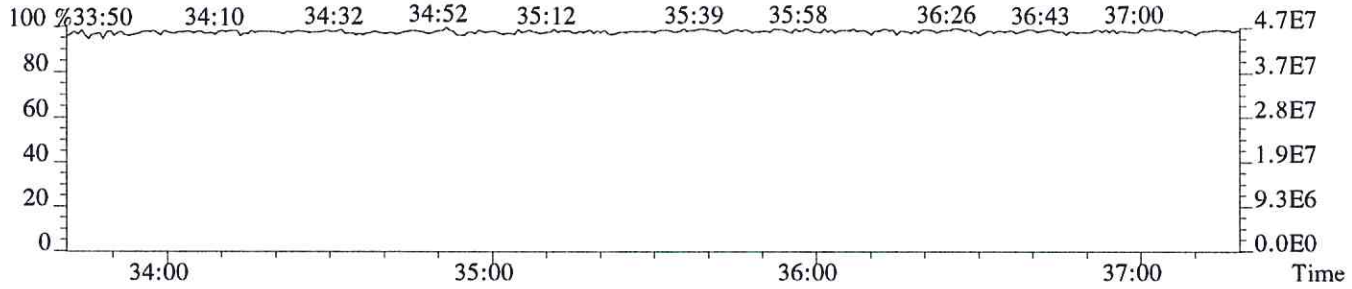
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



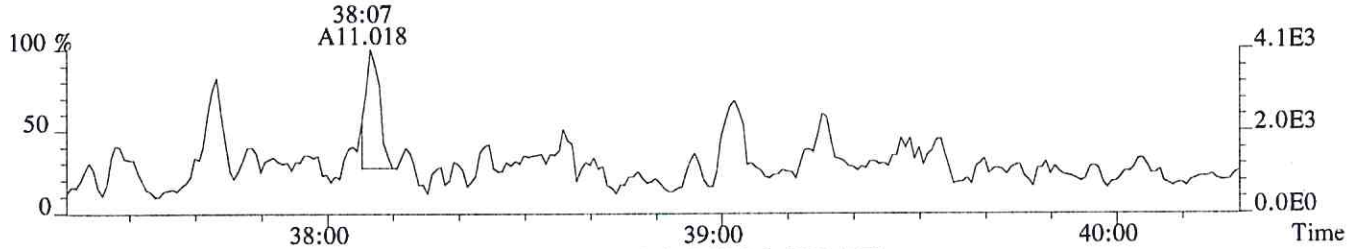
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



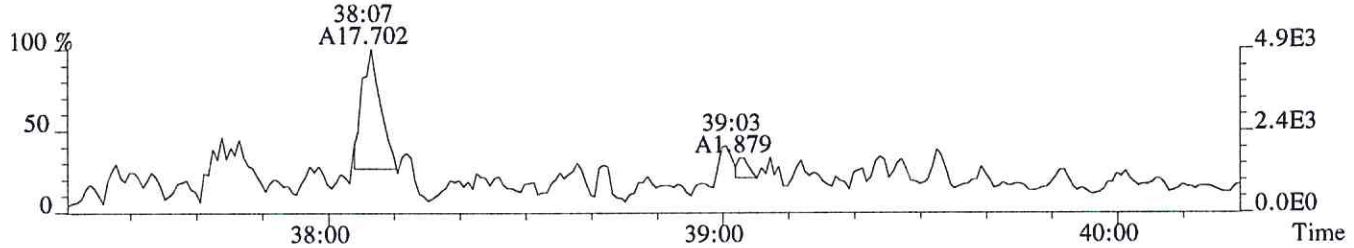
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



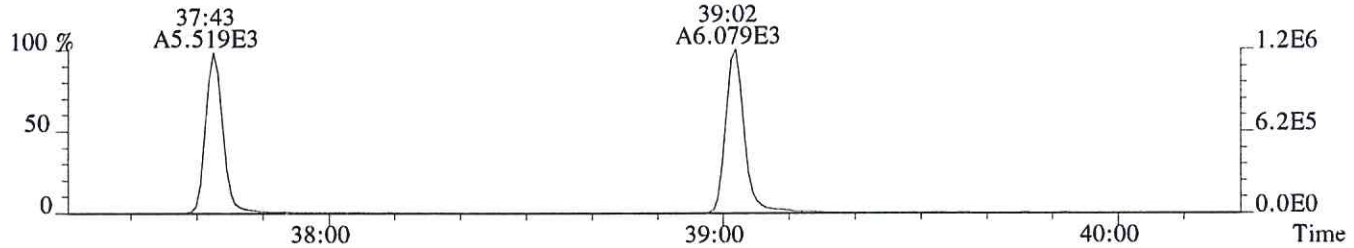
File:P405400 #1-268 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.50%,F,T)



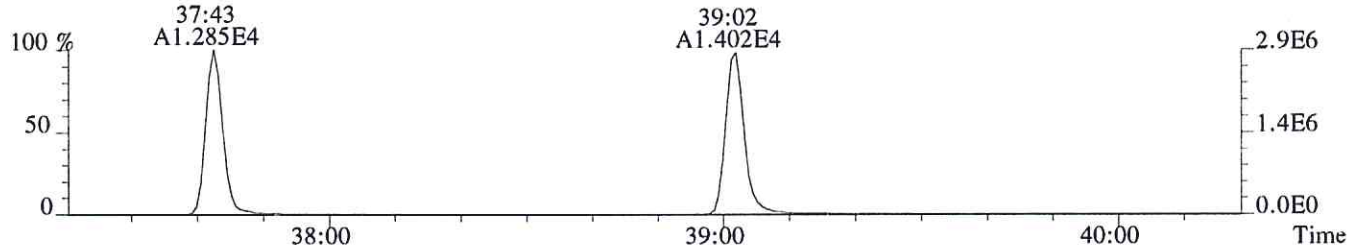
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.50%,F,T)



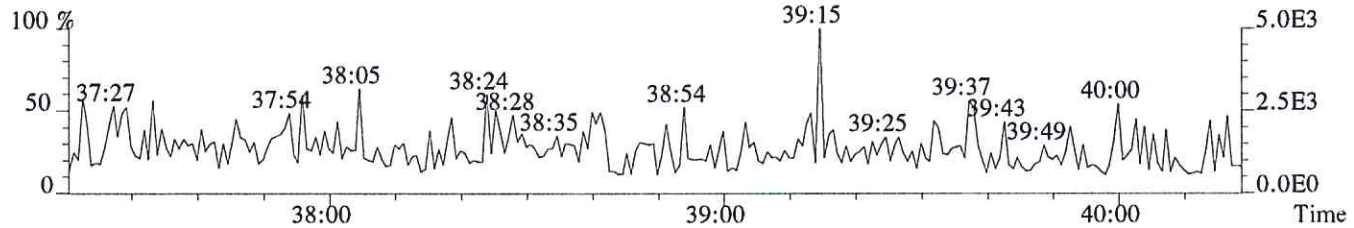
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.50%,F,T)



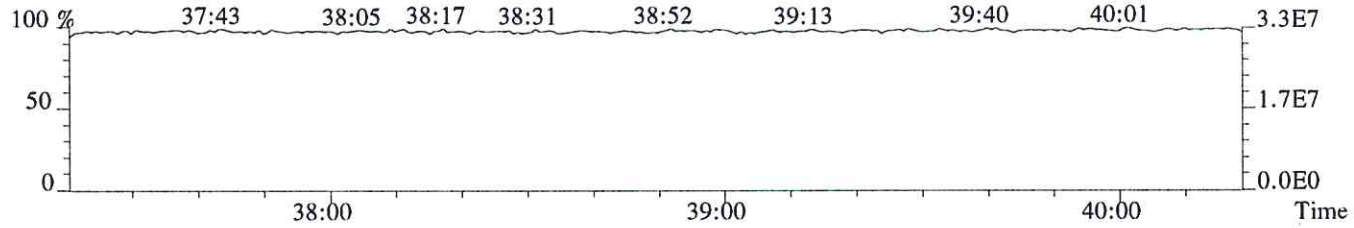
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2028.0,0.50%,F,T)



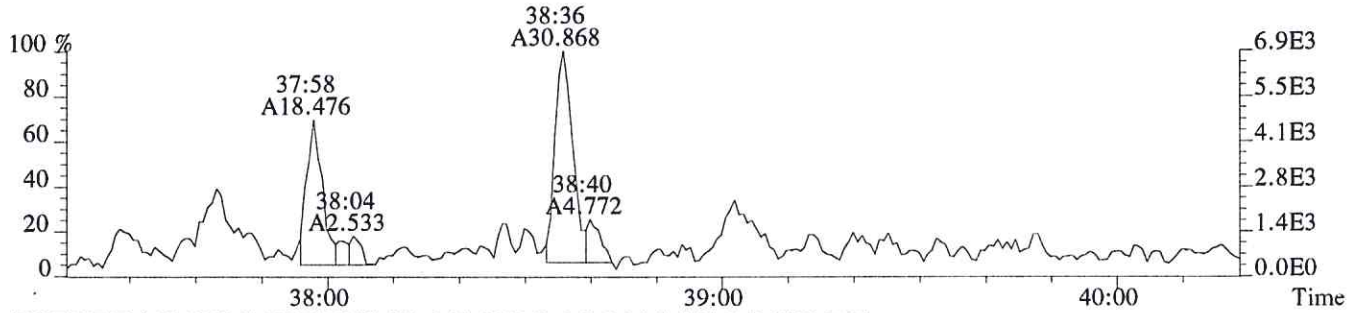
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



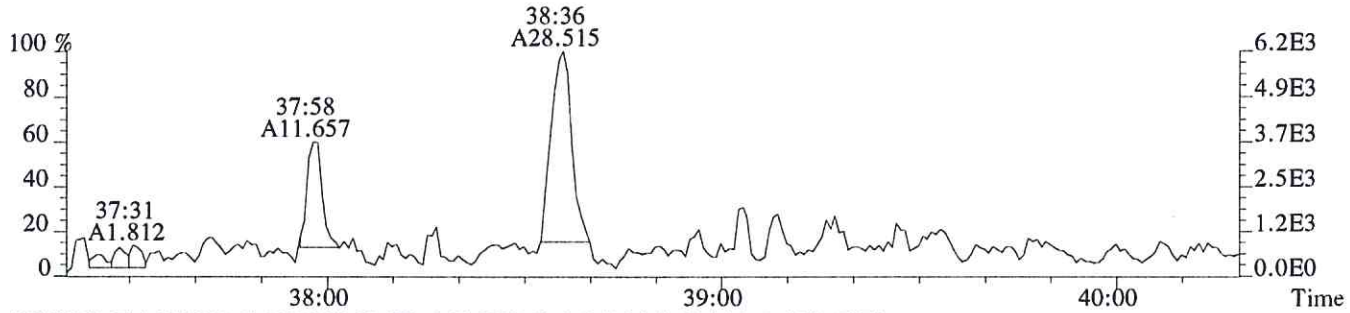
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



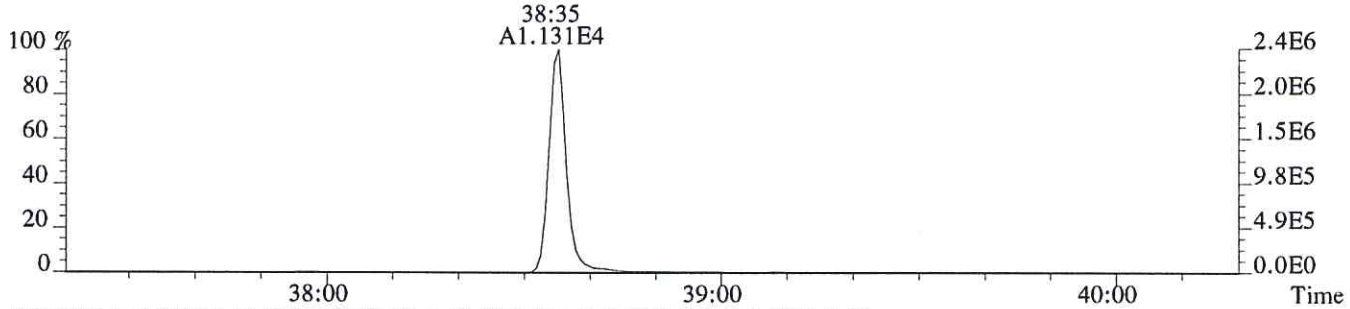
File:P405400 #1-268 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



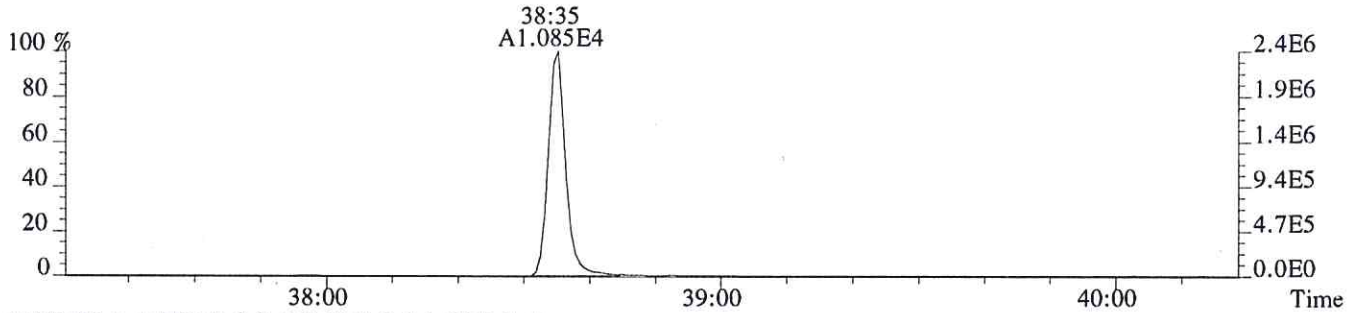
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



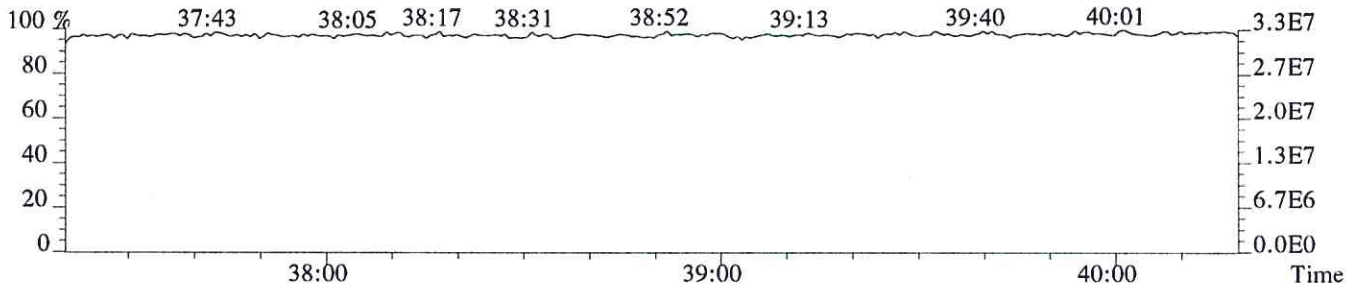
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



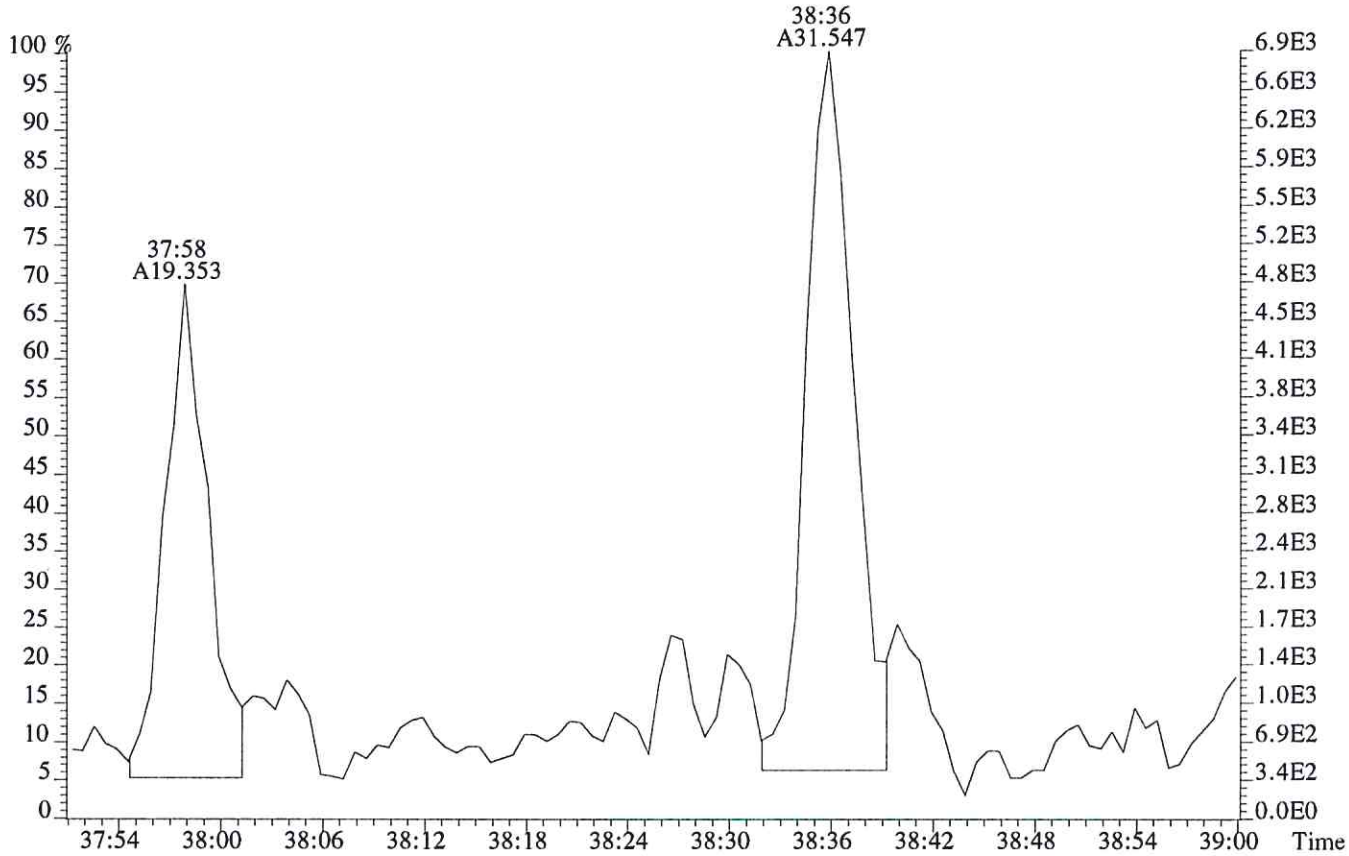
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



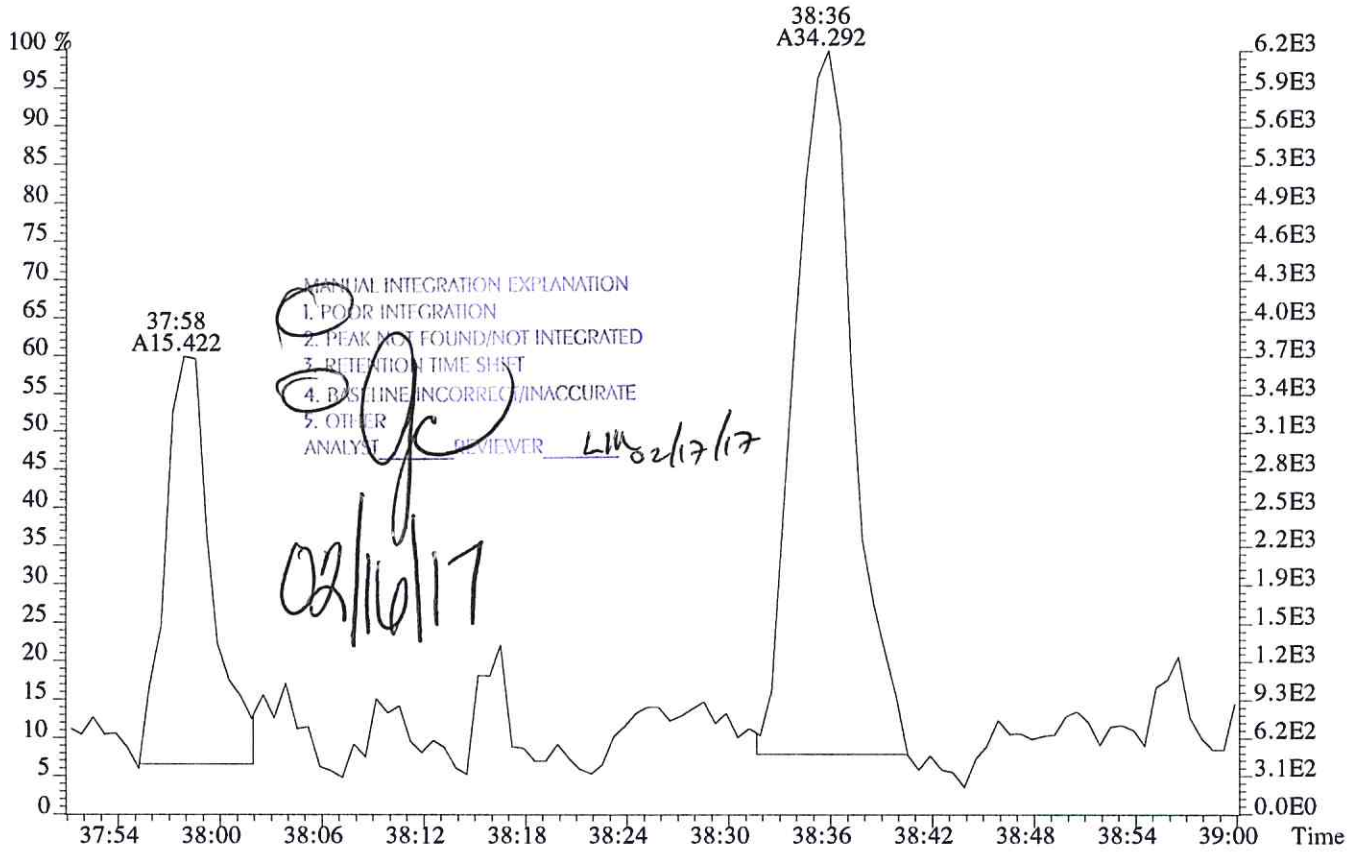
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P405400 #1-268 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)

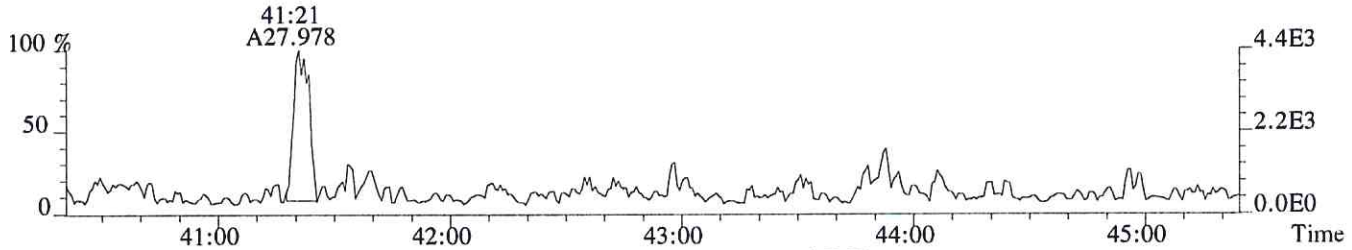


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)

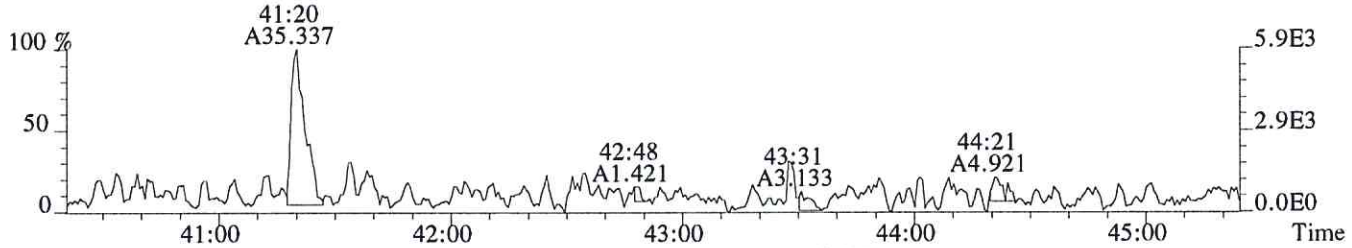


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST ____ REVIEWER LM 02/17/17
02/16/17

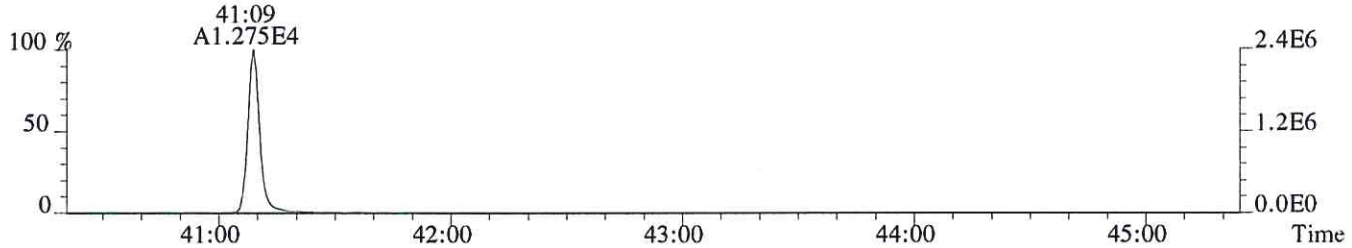
File:P405400 #1-456 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



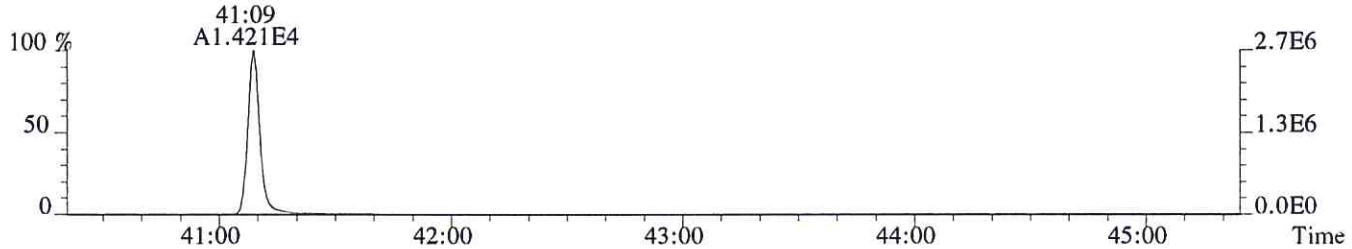
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



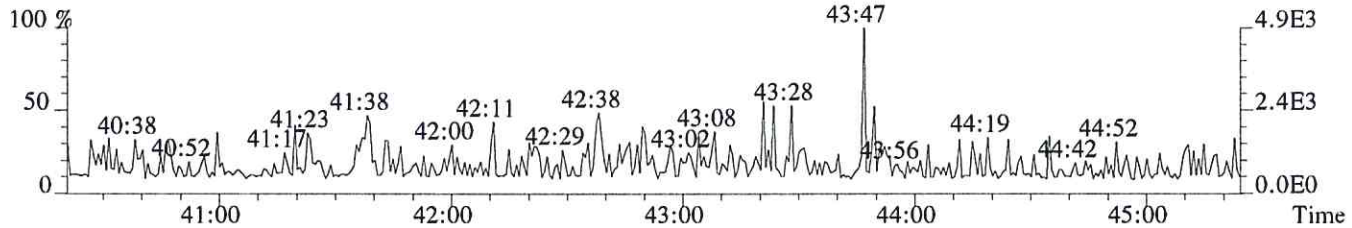
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1368.0,0.40%,F,T)



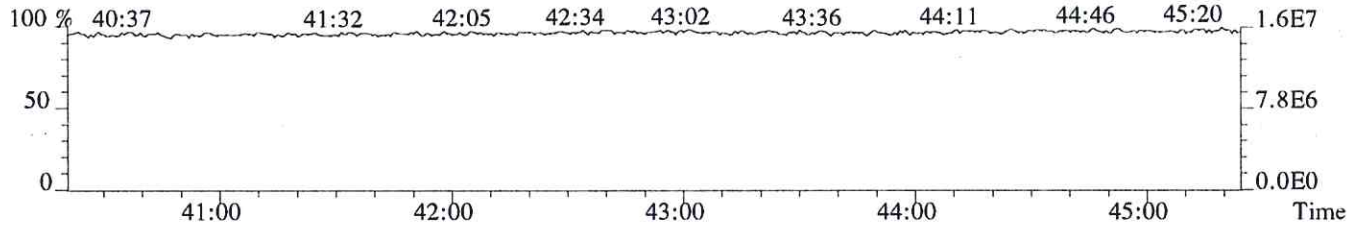
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1748.0,0.40%,F,T)



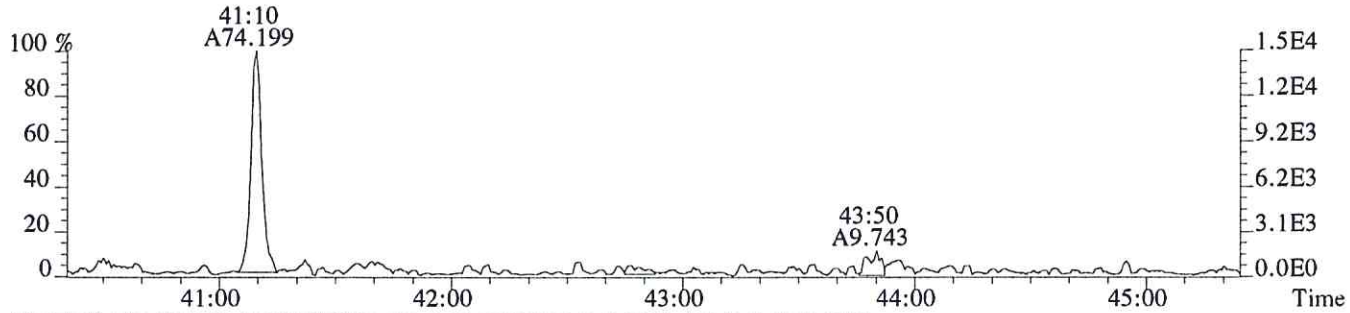
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



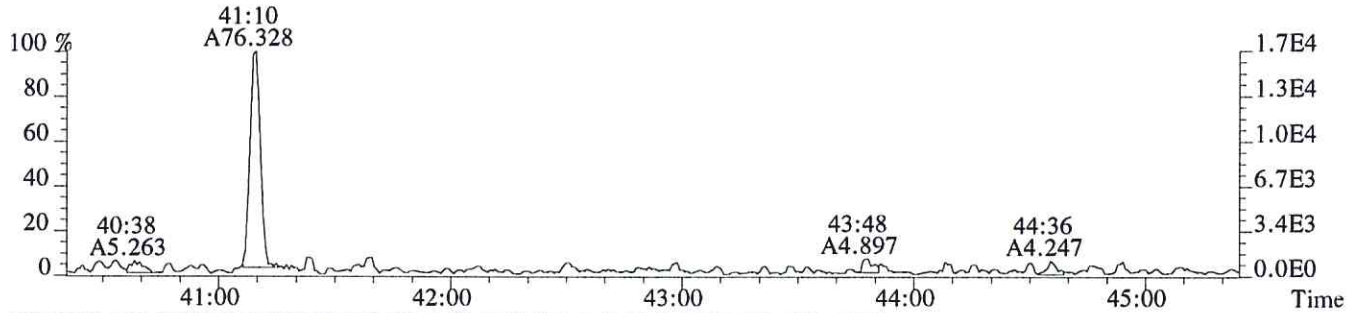
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



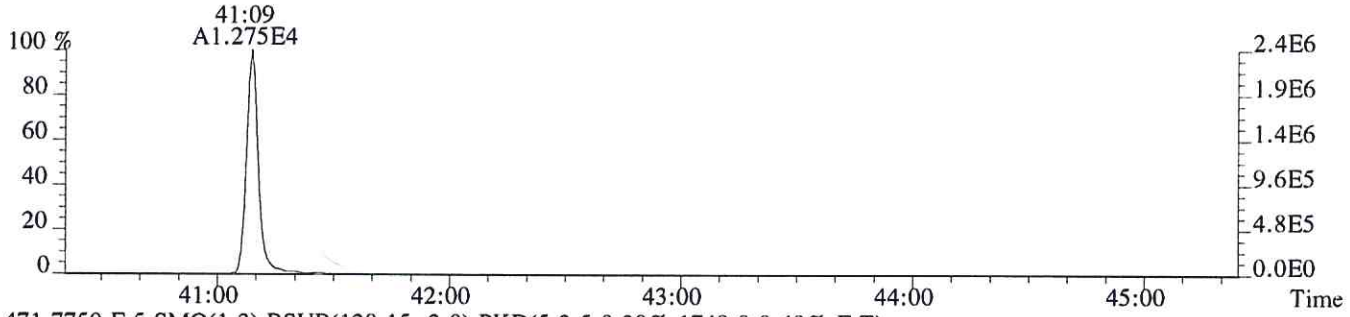
File:P405400 #1-456 Acq:15-FEB-2017 19:48:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,396.0,0.40%,F,T)



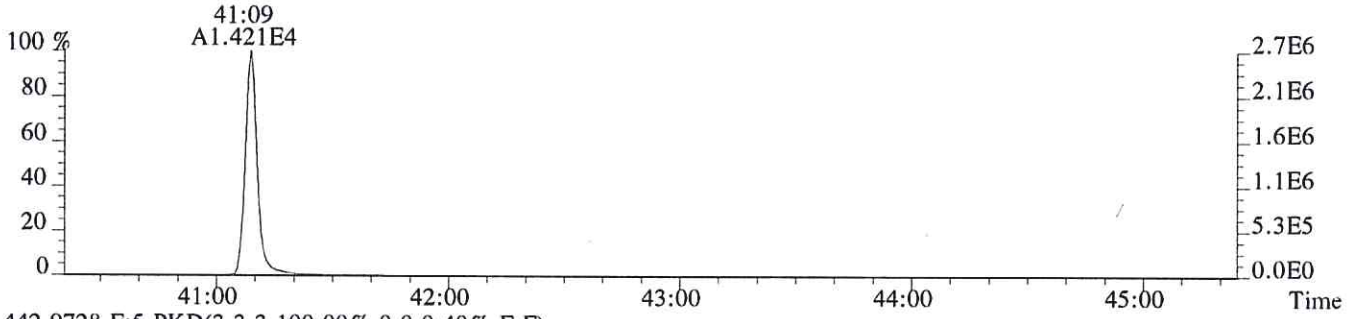
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



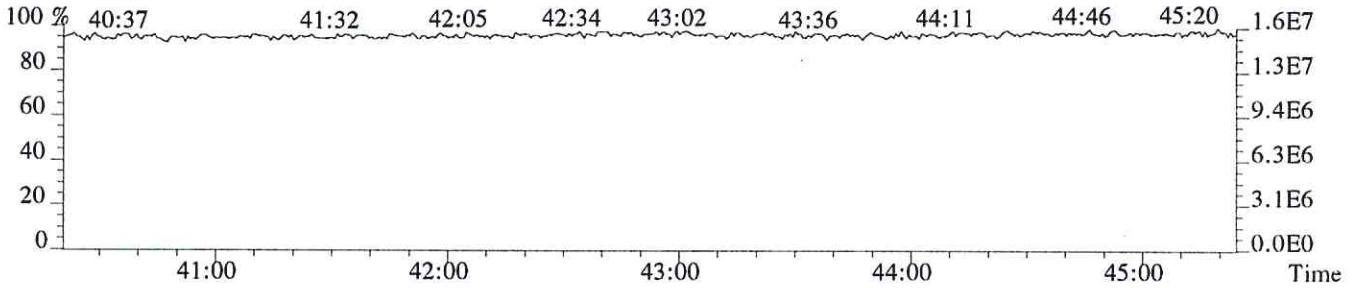
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1368.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1748.0,0.40%,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.
1702917-06

Run #12 Filename P405434 Samp: 1 Inj: 1 Acquired: 17-FEB-17 02:31:53
Processed: 17-FEB-17 10:42:58 Sample ID: E1700102-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.769
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.872
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	3.367e+01	4.195e+01	0.80	no	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.187
10	Unk	OCDF	41:20	5.427e+01	5.876e+01	0.92	yes	no	1.035
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.873
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	1.869e+01	1.697e+01	1.10	yes	yes	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:35	8.130e+01	8.085e+01	1.01	yes	no	0.882
17	Unk	OCDD	41:09	3.080e+02	3.177e+02	0.97	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:51	1.210e+04	1.585e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	2.194e+04	1.430e+04	1.53	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:20	2.036e+04	1.297e+04	1.57	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	8.213e+03	1.630e+04	0.50	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:11	9.632e+03	1.920e+04	0.50	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	7.698e+03	1.475e+04	0.52	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	6.551e+03	1.302e+04	0.50	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:42	5.037e+03	1.127e+04	0.45	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:01	5.245e+03	1.230e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:43	1.222e+04	1.600e+04	0.76	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:37	1.887e+04	1.215e+04	1.55	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	1.363e+04	1.101e+04	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:55	1.399e+04	1.138e+04	1.23	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	1.064e+04	1.017e+04	1.05	yes	no	0.817
32	IS	13C-OCDD	41:08	1.205e+04	1.365e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:05	1.800e+04	2.312e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	2.048e+04	1.698e+04	1.21	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	1.289e+04				no	0.958

$$\text{OCDD} = \frac{(3.080e{+}02 + 3.177e{+}02) \times 4000 \text{ pg} \times 1}{(1.205e{+}04 + 1.365e{+}04) \times 926\text{ml} \times 100 \;/\; 100 \times 0.980} = 107.3 \text{ pg/L}$$

UM 02/20/17

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
1702917-06

Run #12 Filename P405434 Samp: 1 Inj: 1 Acquired: 17-FEB-17 02:31:53
Processed: 17-FEB-17 10:42:58 LAB. ID: E1700102-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	2.48e+03	*	*	3.20e+03	*
2	1,2,3,7,8-PeCDF	*	2.18e+03	*	*	2.12e+03	*
3	2,3,4,7,8-PeCDF	*	2.18e+03	*	*	2.12e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.42e+03	*	*	8.84e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.42e+03	*	*	8.84e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.42e+03	*	*	8.84e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.42e+03	*	*	8.84e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.58e+03	8.28e+02	8.0e+00	9.18e+03	7.24e+02	1.3e+01
9	1,2,3,4,7,8,9-HpCDF	*	8.28e+02	*	*	7.24e+02	*
10	OCDF	1.03e+04	4.40e+02	2.3e+01	8.07e+03	9.40e+02	8.6e+00
11	2,3,7,8-TCDD	*	3.10e+03	*	*	3.12e+03	*
12	1,2,3,7,8-PeCDD	*	1.96e+03	*	*	2.51e+03	*
13	1,2,3,4,7,8-HxCDD	*	9.56e+02	*	*	9.88e+02	*
14	1,2,3,6,7,8-HxCDD	*	9.56e+02	*	*	9.88e+02	*
15	1,2,3,7,8,9-HxCDD	3.39e+03	9.56e+02	3.5e+00	3.07e+03	9.88e+02	3.1e+00
16	1,2,3,4,6,7,8-HpCDD	1.85e+04	5.60e+02	3.3e+01	1.69e+04	2.92e+02	5.8e+01
17	OCDD	6.05e+04	4.36e+02	1.4e+02	6.15e+04	8.64e+02	7.1e+01
18	13C-2,3,7,8-TCDF	1.94e+06	5.10e+03	3.8e+02	2.53e+06	5.02e+03	5.0e+02
19	13C-1,2,3,7,8-PeCDF	4.02e+06	1.98e+03	2.0e+03	2.60e+06	2.57e+03	1.0e+03
20	13C-2,3,4,7,8-PeCDF	4.07e+06	1.98e+03	2.1e+03	2.60e+06	2.57e+03	1.0e+03
21	13C-1,2,3,4,7,8-HxCDF	1.78e+06	1.16e+03	1.5e+03	3.49e+06	9.76e+02	3.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.98e+06	1.16e+03	1.7e+03	3.90e+06	9.76e+02	4.0e+03
23	13C-2,3,4,6,7,8-HxCDF	1.67e+06	1.16e+03	1.4e+03	3.21e+06	9.76e+02	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	1.37e+06	1.16e+03	1.2e+03	2.73e+06	9.76e+02	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.10e+06	1.51e+03	7.3e+02	2.50e+06	1.46e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.09e+06	1.51e+03	7.2e+02	2.47e+06	1.46e+03	1.7e+03
27	13C-2,3,7,8-TCDD	2.16e+06	4.70e+03	4.6e+02	2.84e+06	2.95e+03	9.6e+02
28	13C-1,2,3,7,8-PeCDD	3.71e+06	2.92e+03	1.3e+03	2.40e+06	2.62e+03	9.2e+02
29	13C-1,2,3,4,7,8-HxCDD	3.10e+06	1.12e+03	2.8e+03	2.50e+06	1.21e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.00e+06	1.12e+03	2.7e+03	2.41e+06	1.21e+03	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.30e+06	7.80e+02	3.0e+03	2.19e+06	5.92e+02	3.7e+03
32	13C-OCDD	2.23e+06	1.19e+03	1.9e+03	2.54e+06	1.27e+03	2.0e+03
33	13C-1,2,3,4-TCDD	3.08e+06	4.70e+03	6.6e+02	3.89e+06	2.95e+03	1.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.52e+06	1.12e+03	4.1e+03	3.71e+06	1.21e+03	3.1e+03
35	37Cl-2,3,7,8-TCDD	2.28e+06	2.64e+03	8.6e+02			

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Peak List Summary

CLIENT ID.

1702917-06

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P405434 Sample:1 Injection:1 Function:3

Acquired: 17-FEB-17 02:31:53 Processed: 17-FEB-17 10:42:58

Mass: 373.8210 375.8180 Tot Response: 3.22e+01 RRF: 1.043

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:39	1.69e+01	1.53e+01	1.10	yes	3.22e+01	n	n

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Peak List Summary

CLIENT ID.

1702917-06

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P405434 Sample:1 Injection:1 Function:3

Acquired: 17-FEB-17 02:31:53 Processed: 17-FEB-17 10:42:58

Mass: 389.8160 391.8130 Tot Response: 3.57e+01 RRF: 0.9067

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:10	1.87e+01	1.70e+01	1.10	yes	3.57e+01	1,2,3,7,8,9-HxCDD	n	y

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Peak List Summary

CLIENT ID.

1702917-06

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P405434 Sample:1 Injection:1 Function:4

Acquired: 17-FEB-17 02:31:53 Processed: 17-FEB-17 10:42:58

Mass: 407.7820 409.7790 Tot Response: 8.40e+01 RRF: 1.213

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:06	4.48e+01	3.92e+01	1.14	yes	8.40e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-06

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P405434 Sample:1 Injection:1 Function:4

Acquired: 17-FEB-17 02:31:53 Processed: 17-FEB-17 10:42:58

Mass: 423.7770 425.7740 Tot Response: 3.85e+02 RRF: 0.8816

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:57	1.18e+02	1.05e+02	1.13	yes	2.23e+02		n	n
2	38:35	8.13e+01	8.08e+01	1.01	yes	1.62e+02	1,2,3,4,6,7,8-HpCDD	n	n

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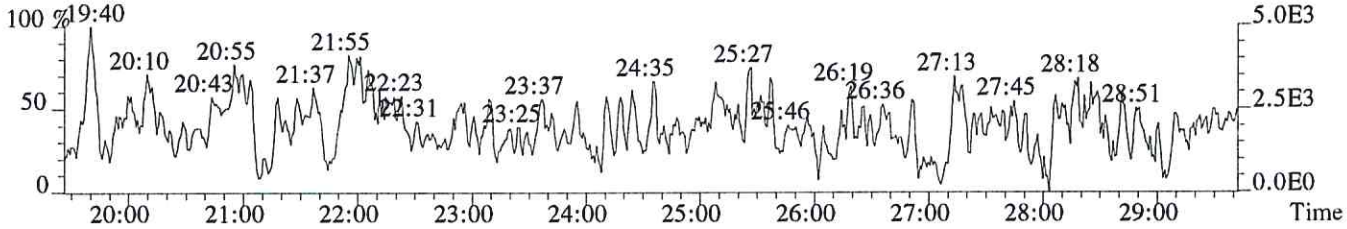
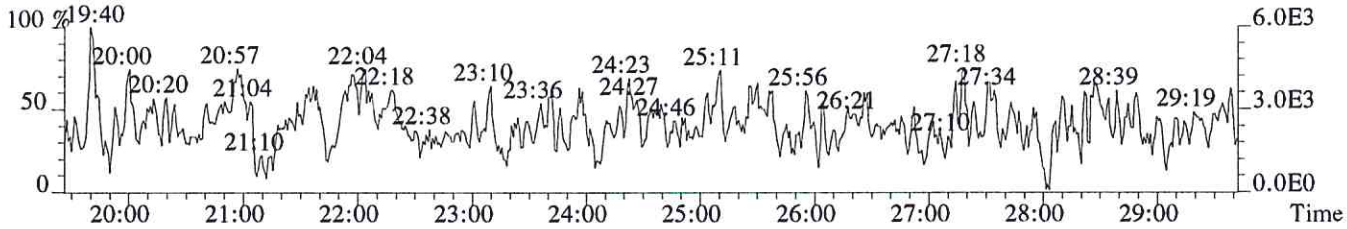
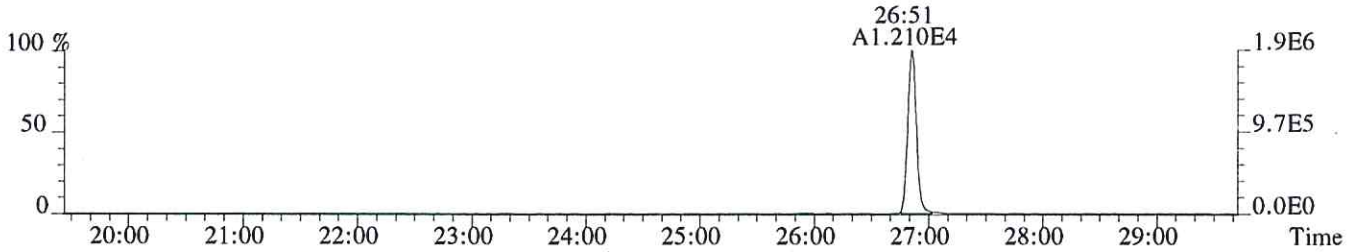
File:P405434 #1-729 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



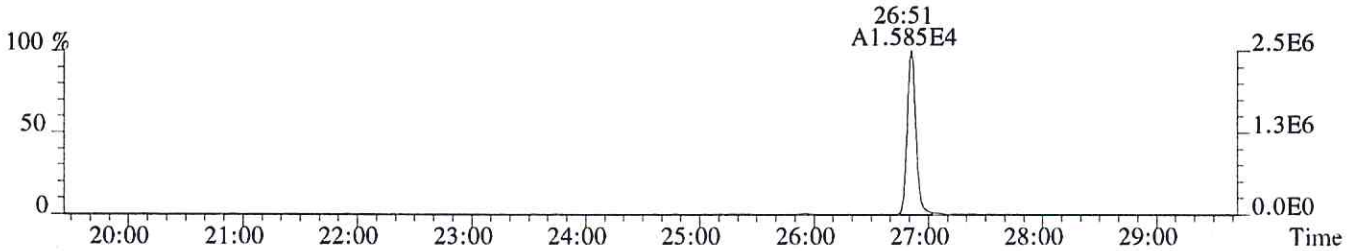
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3204.0,1.00%,F,T)



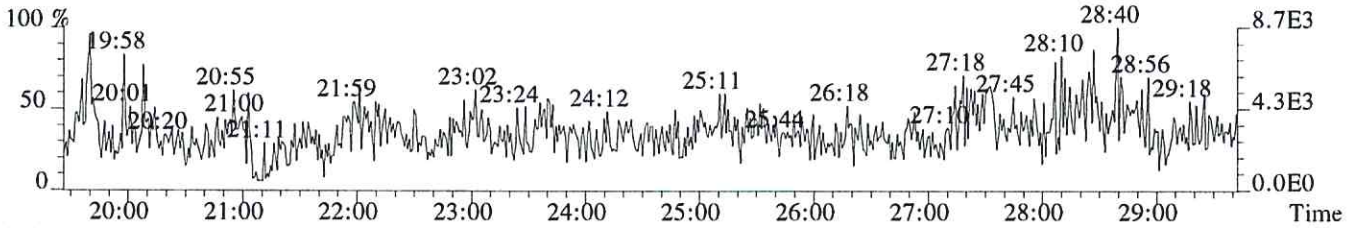
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5100.0,1.00%,F,T)



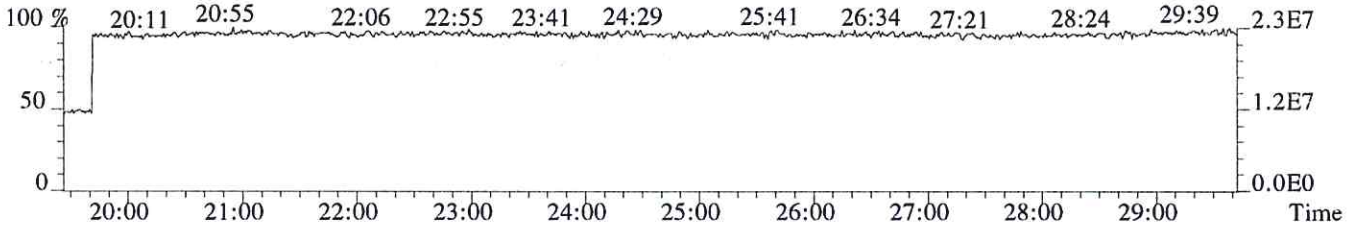
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5024.0,1.00%,F,T)



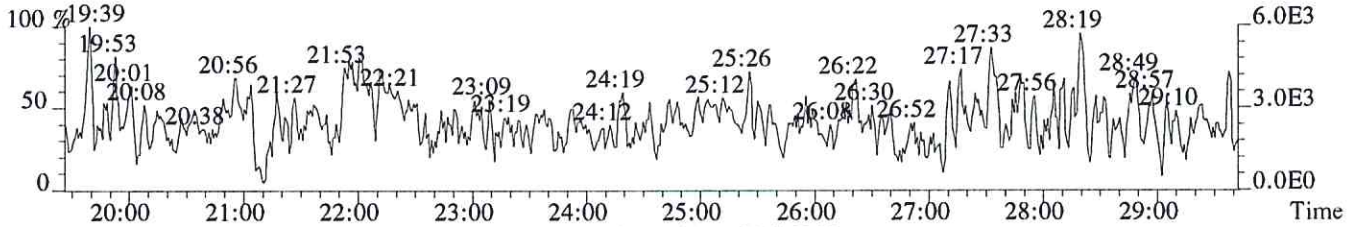
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



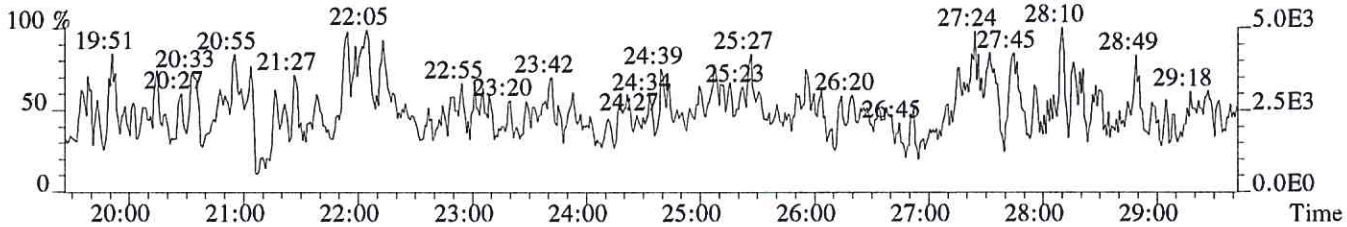
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



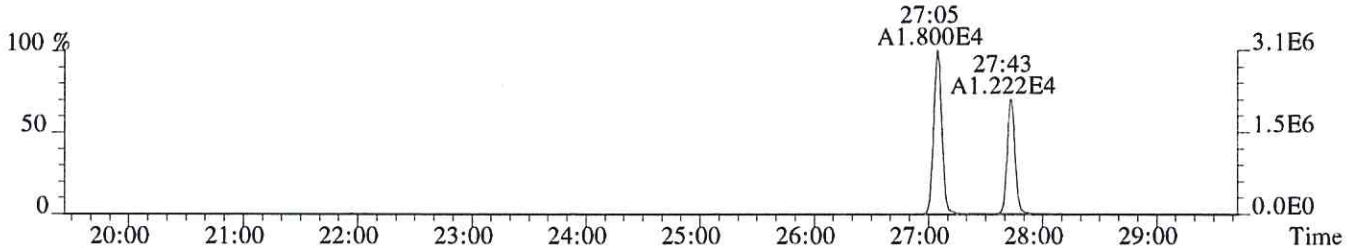
File:P405434 #1-729 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



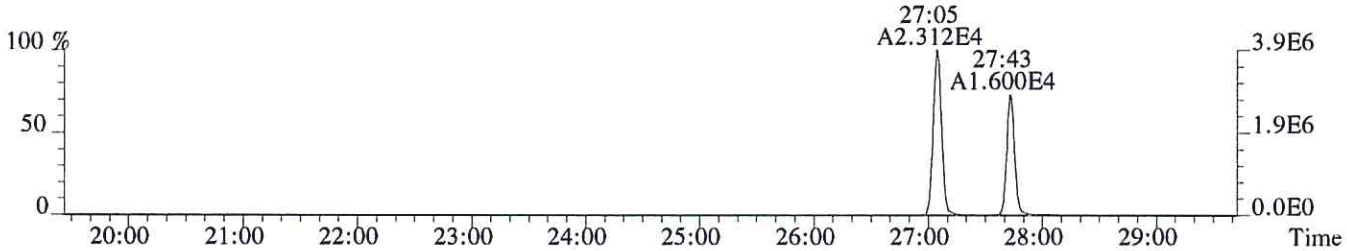
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3116.0,1.00%,F,T)



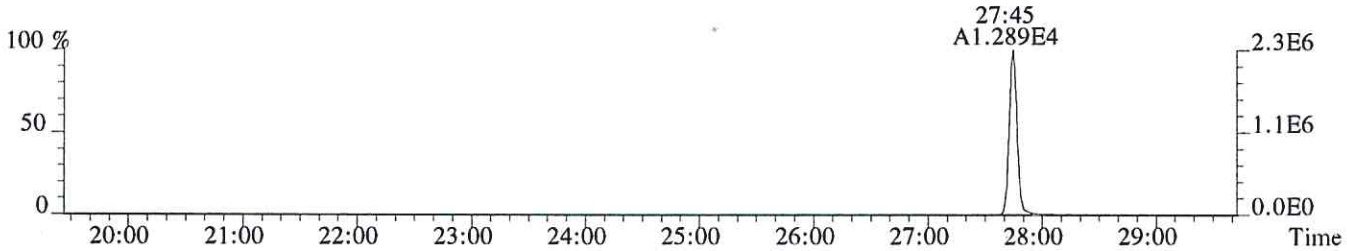
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4704.0,1.00%,F,T)



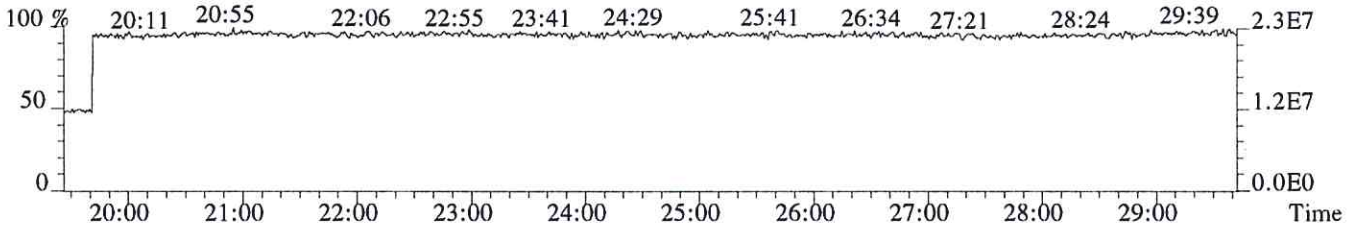
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2948.0,1.00%,F,T)



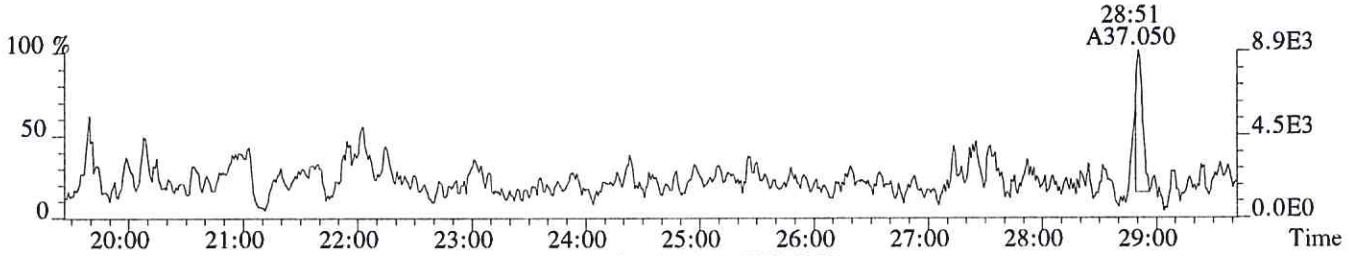
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



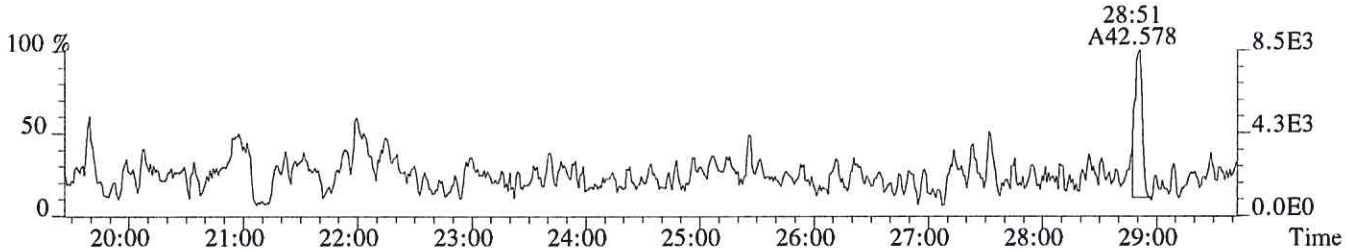
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



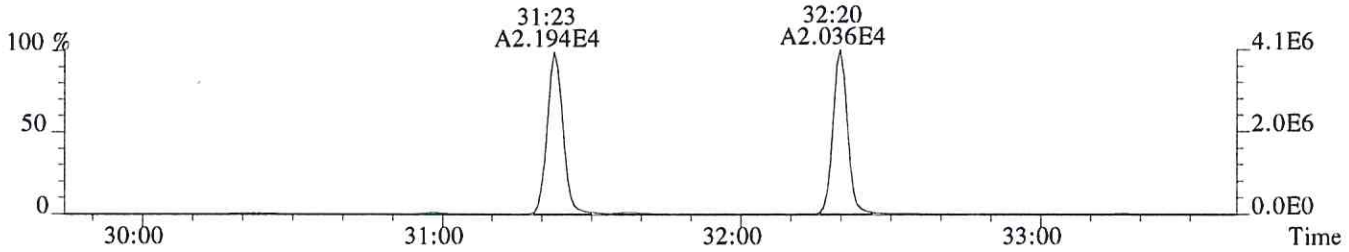
File:P405434 #1-729 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2496.0,1.00%,F,T)



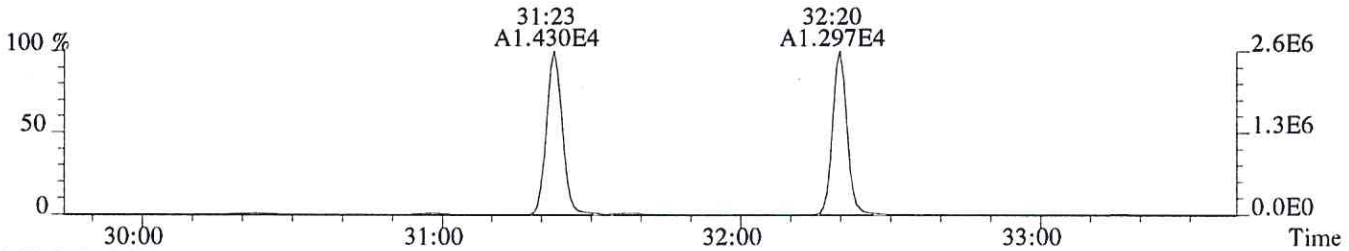
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2616.0,1.00%,F,T)



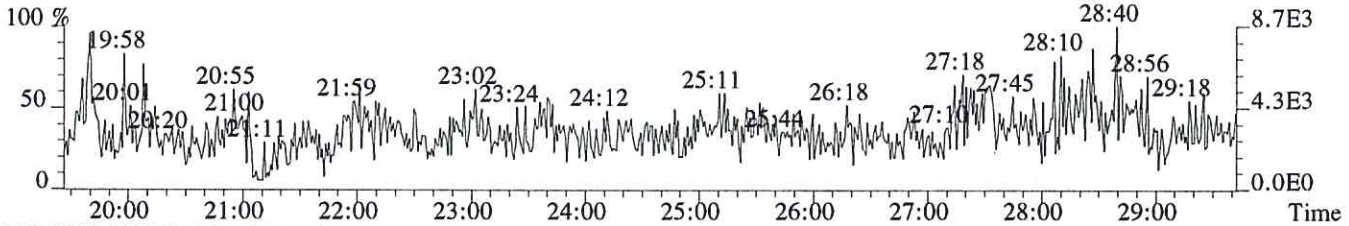
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



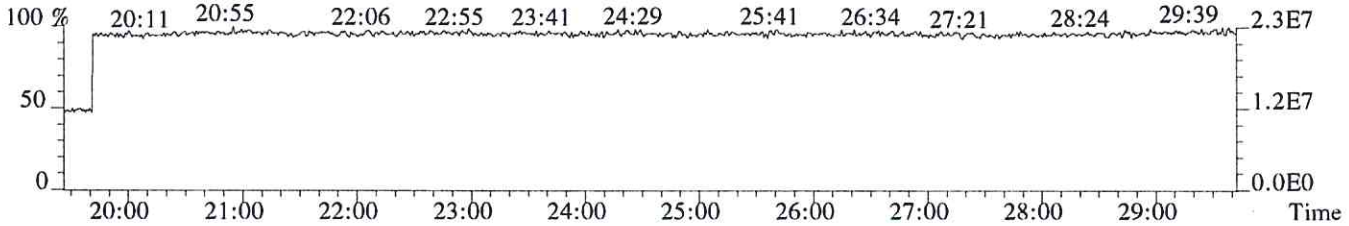
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



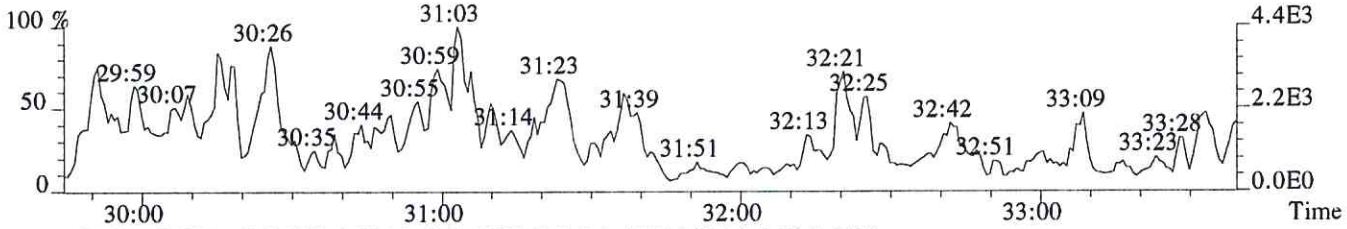
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



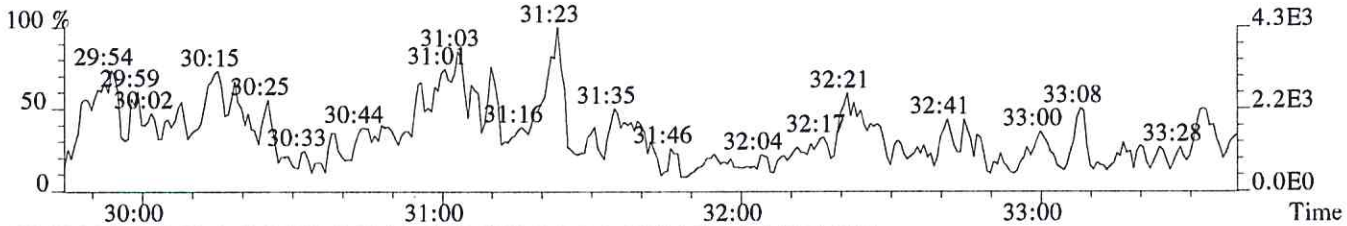
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



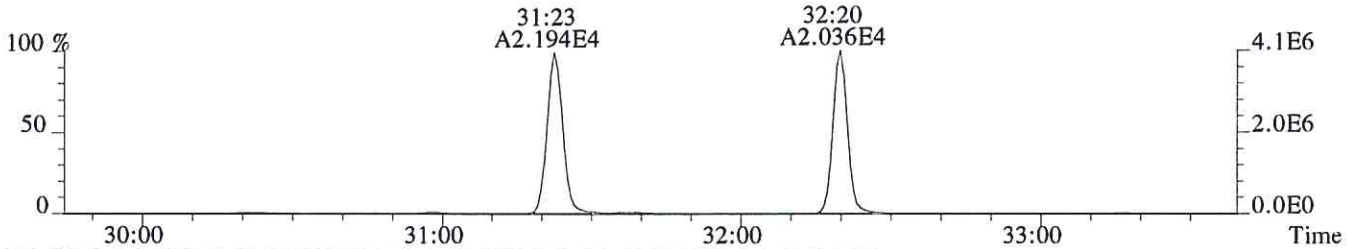
File:P405434 #1-353 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



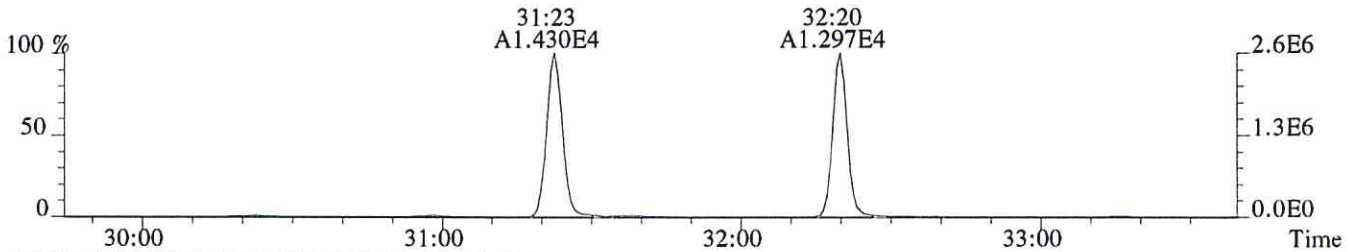
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



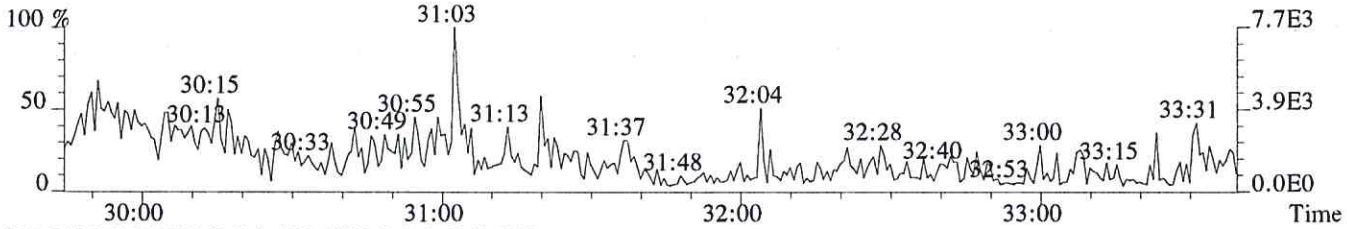
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



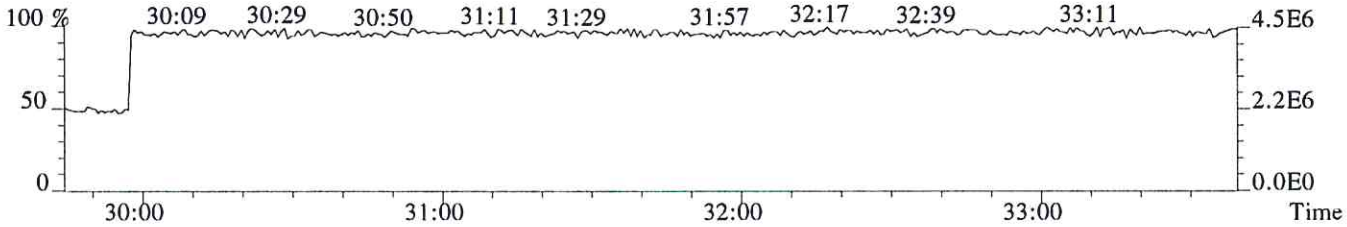
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



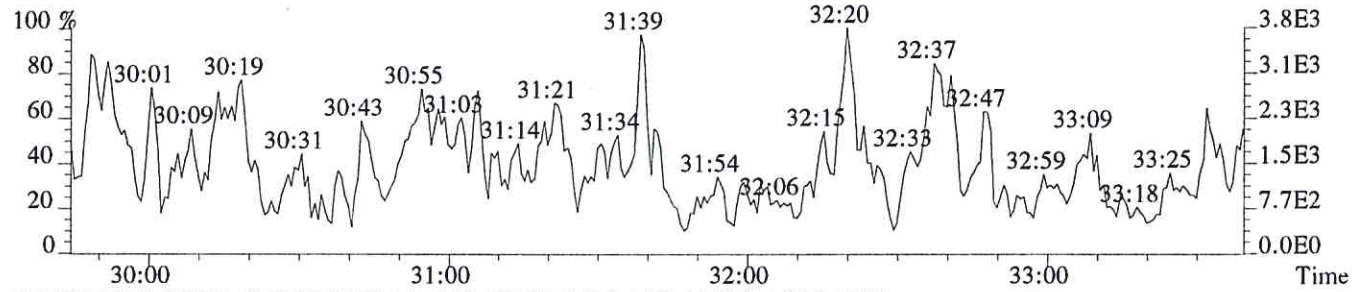
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



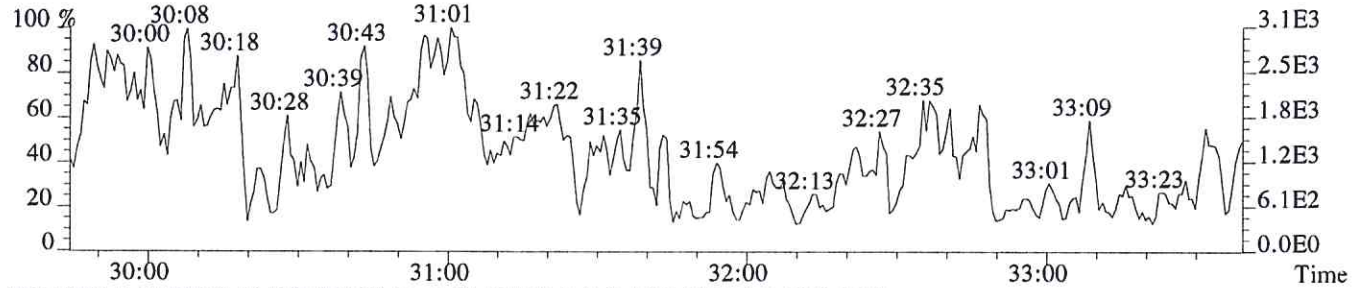
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



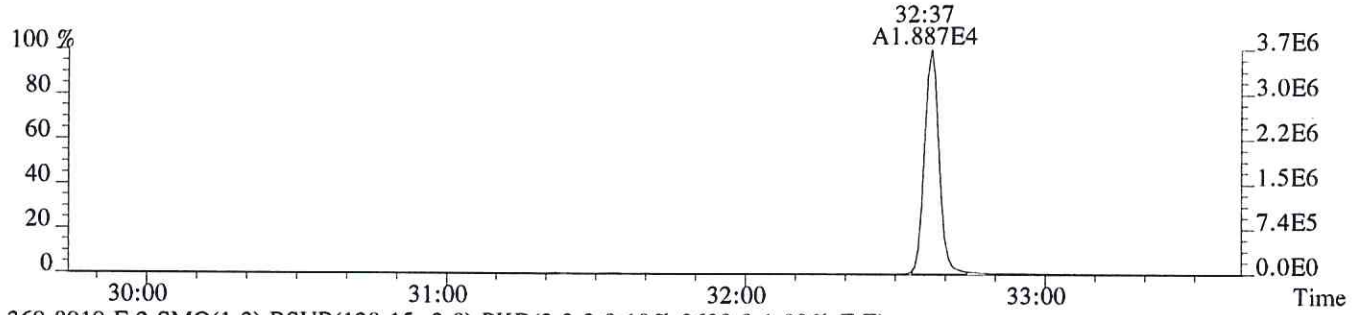
File:P405434 #1-353 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1956.0,1.00%,F,T)



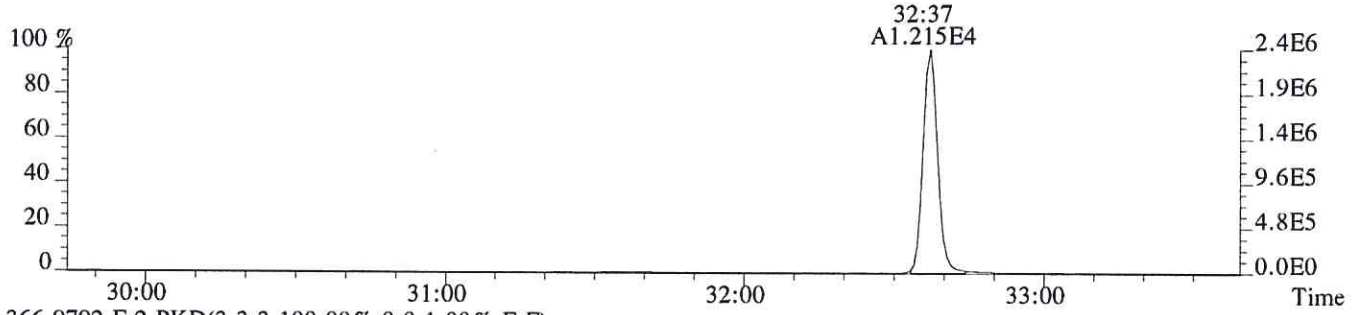
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



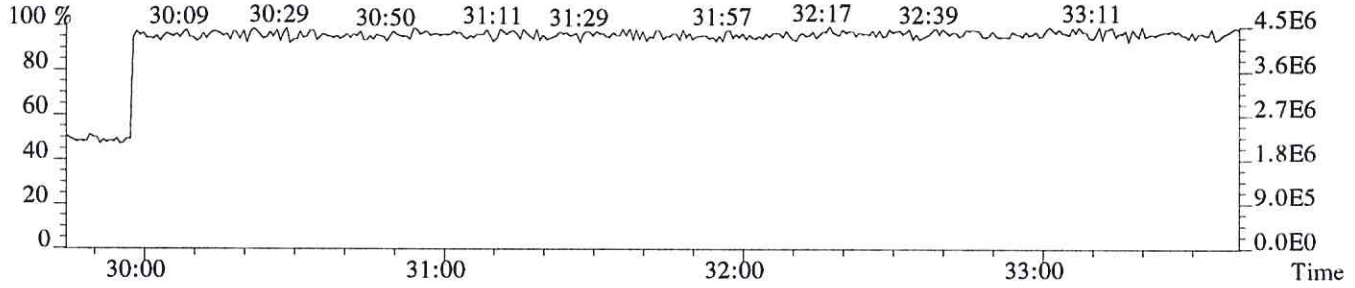
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2924.0,1.00%,F,T)



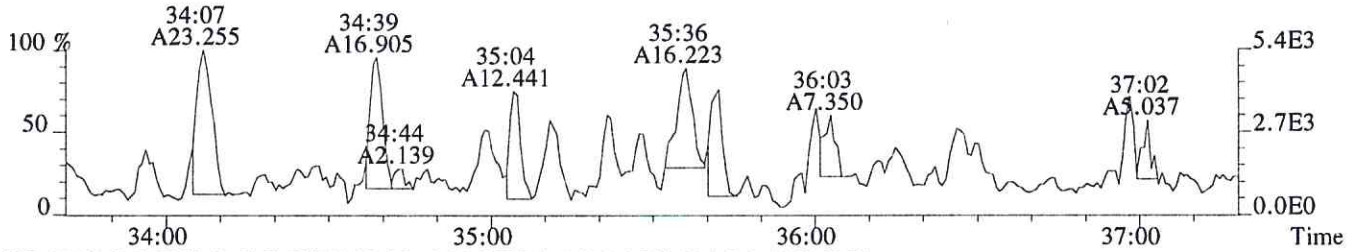
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2620.0,1.00%,F,T)



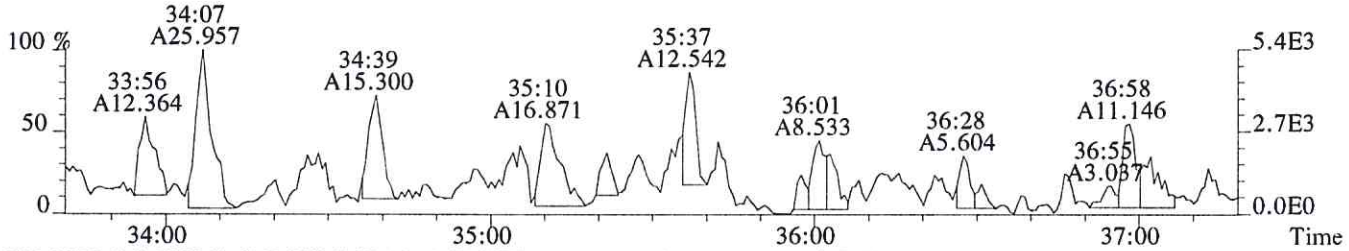
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



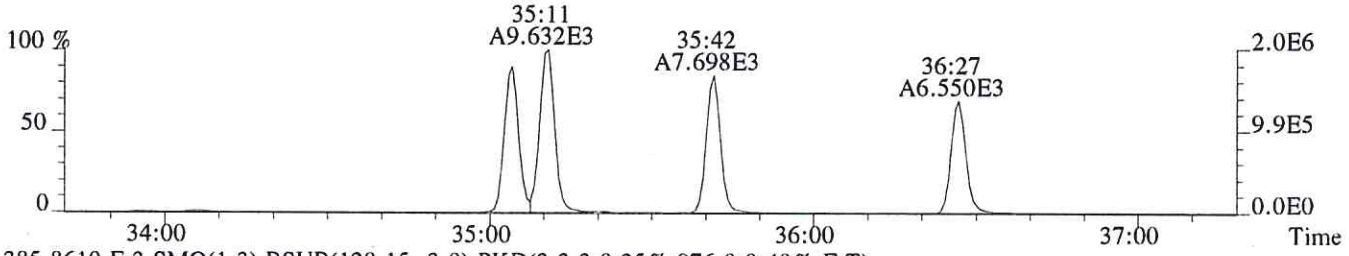
File:P405434 #1-326 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.40%,F,T)



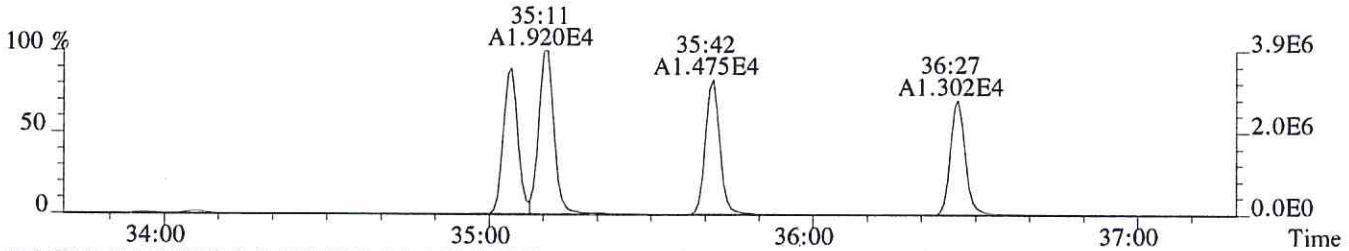
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



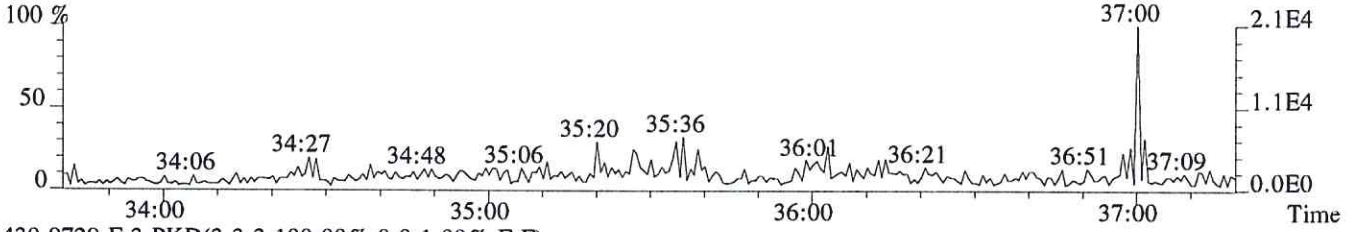
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



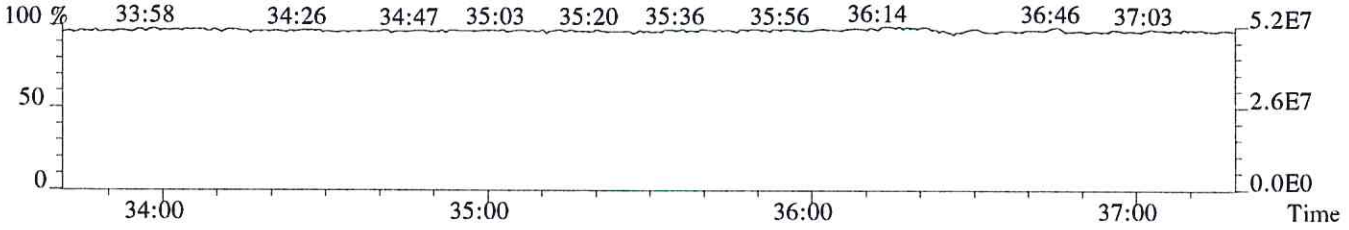
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



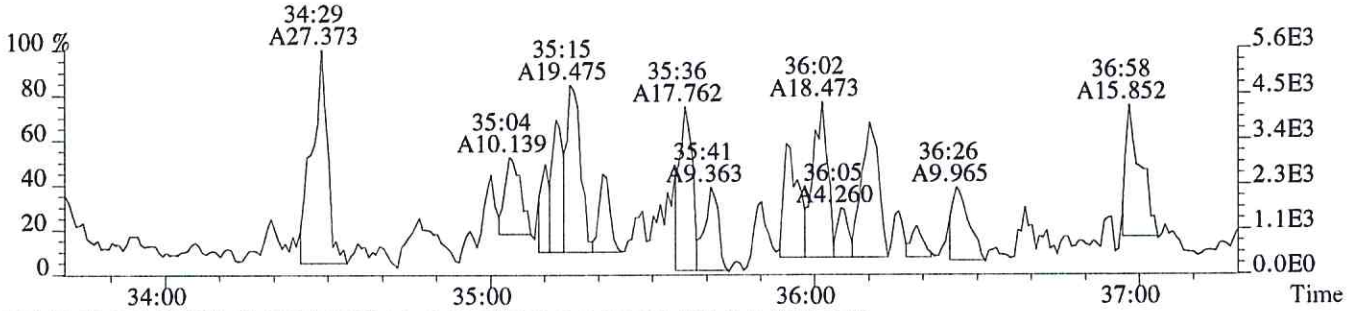
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



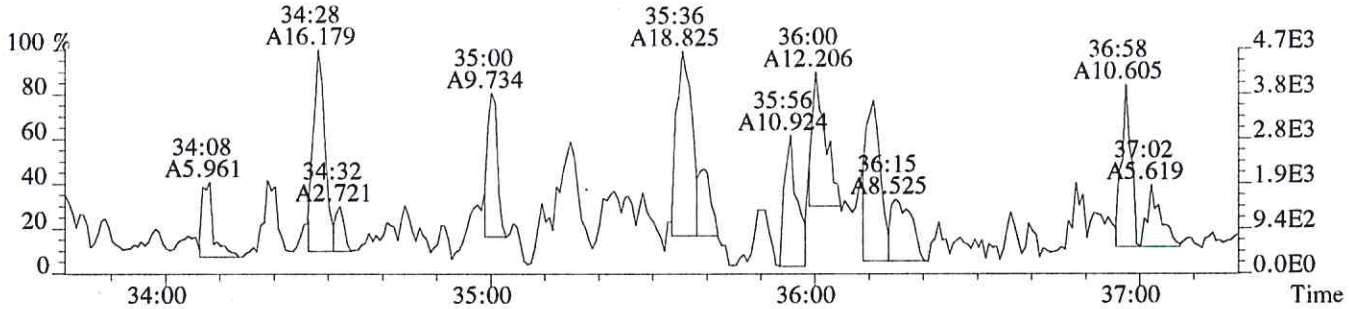
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



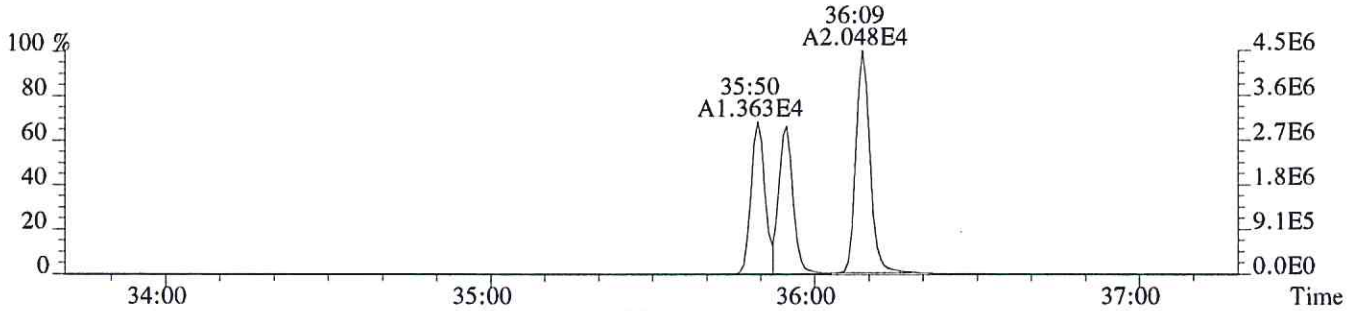
File:P405434 #1-326 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



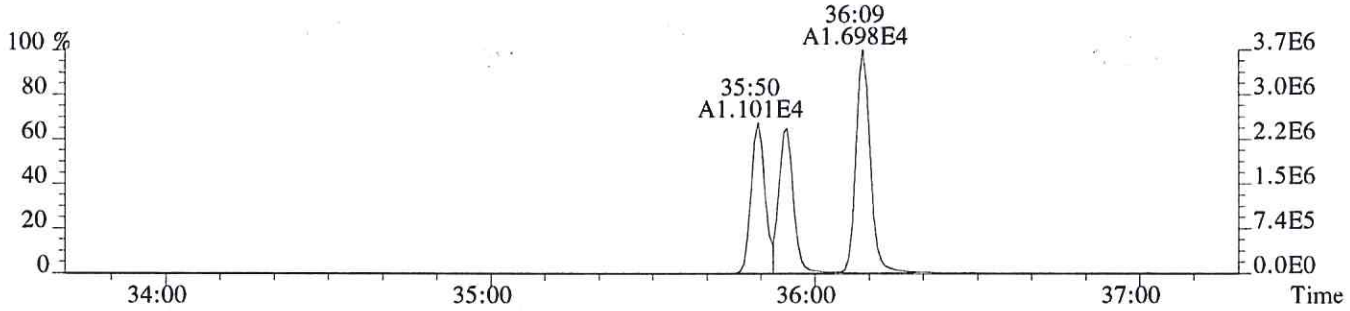
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



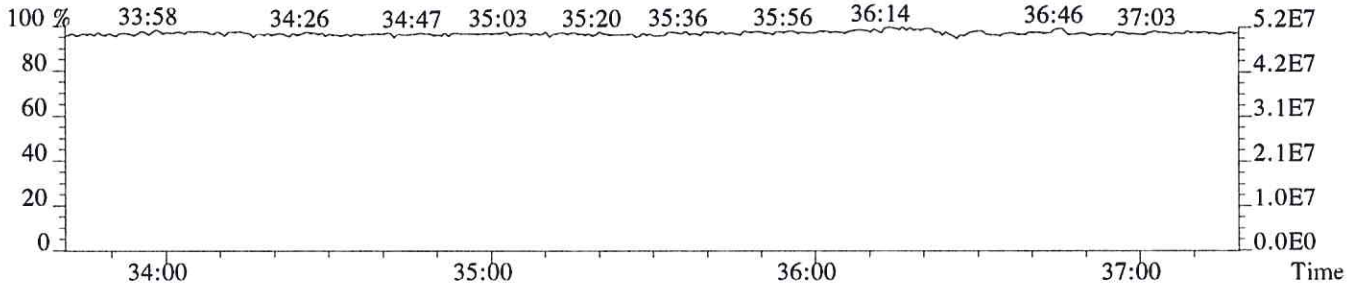
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



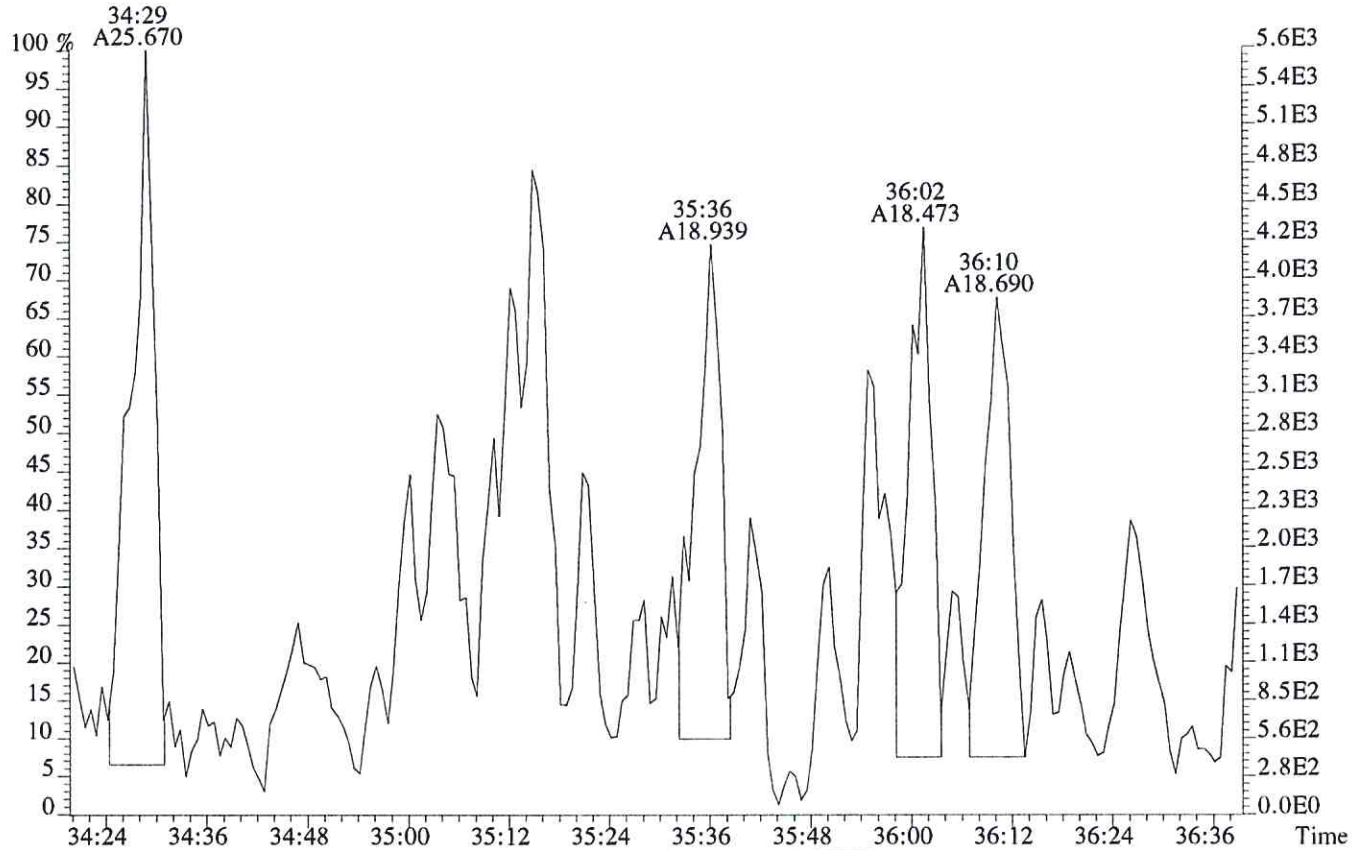
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



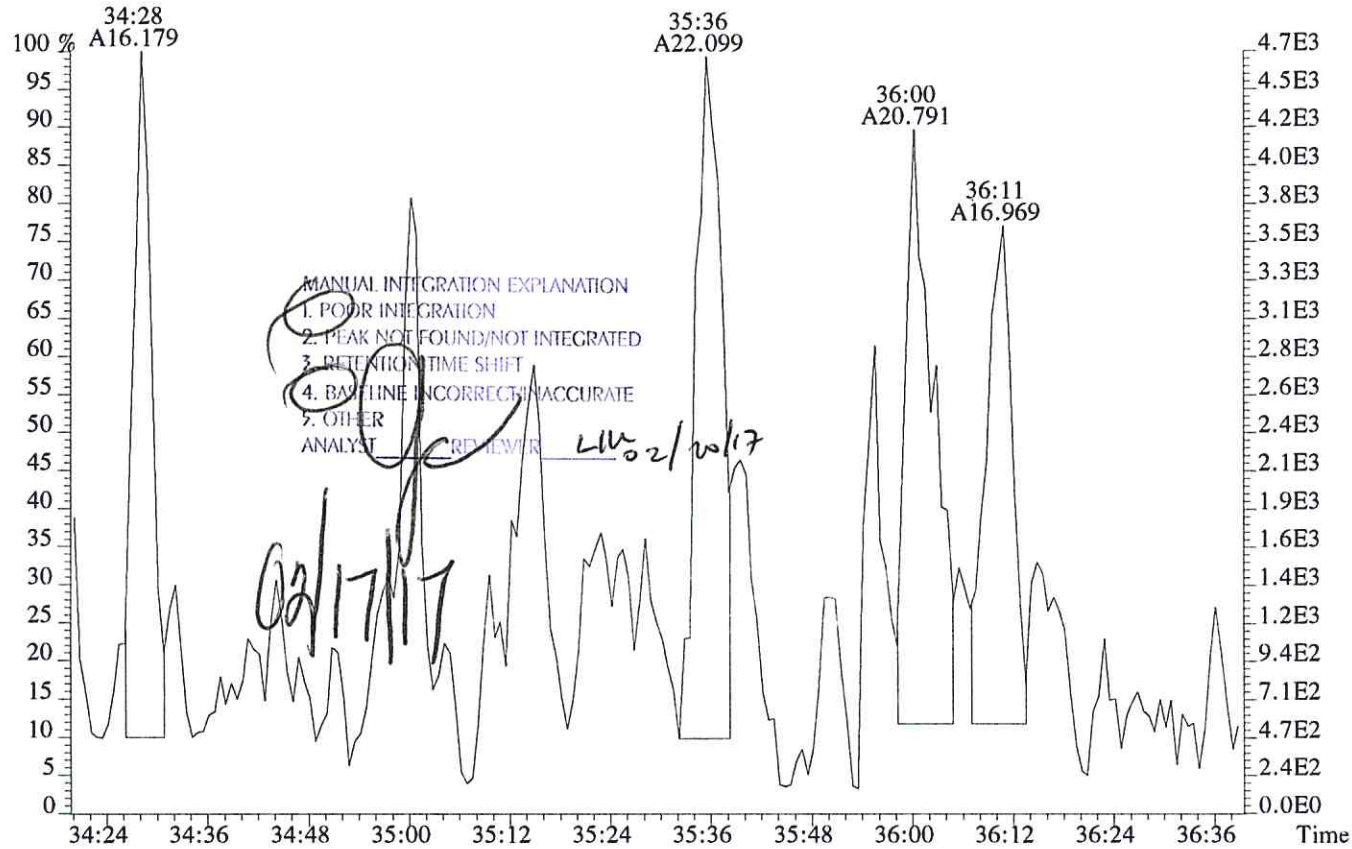
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P405434 #1-326 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



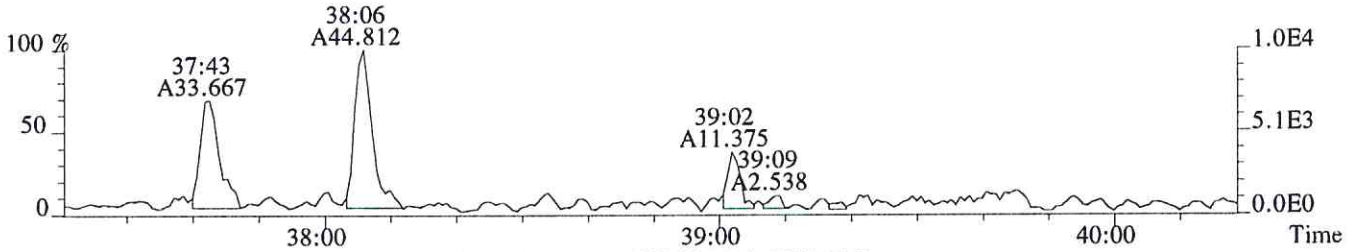
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



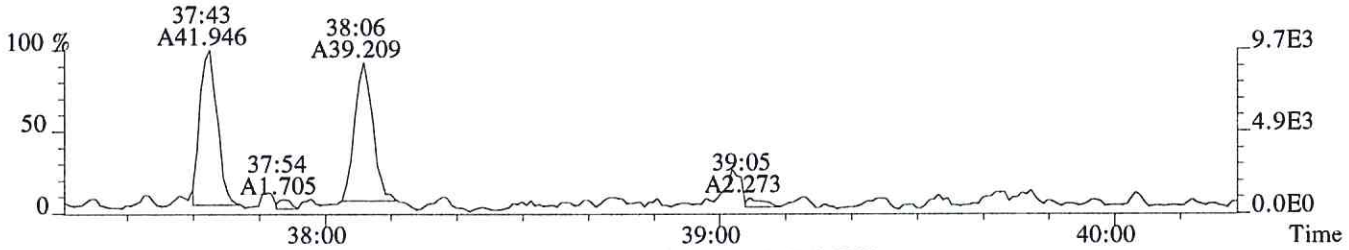
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER LW 02/20/17

02/17/17

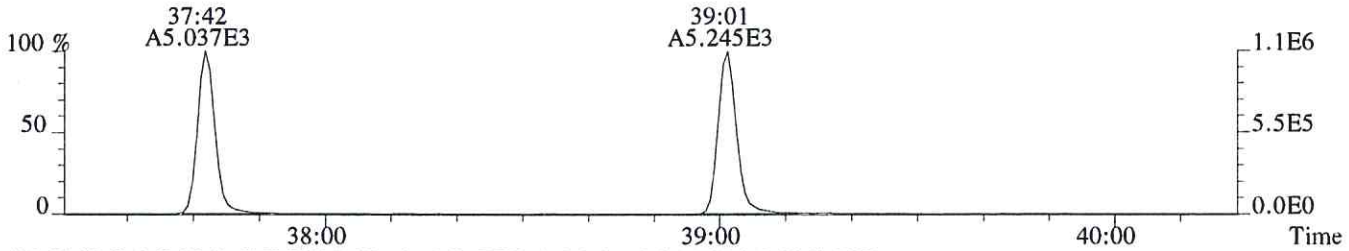
File:P405434 #1-268 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.50%,F,T)



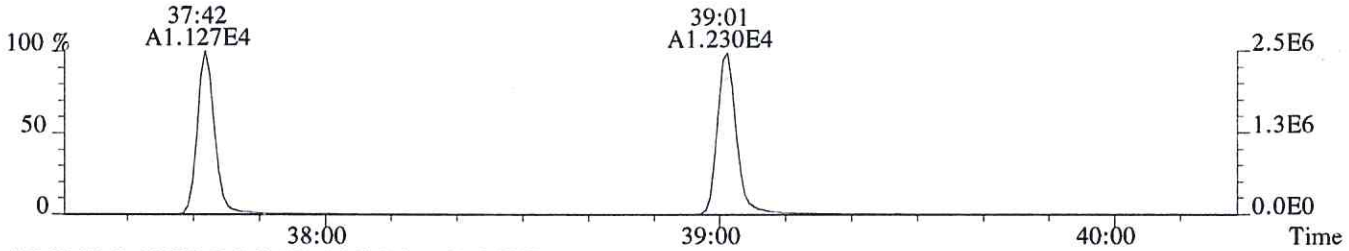
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.50%,F,T)



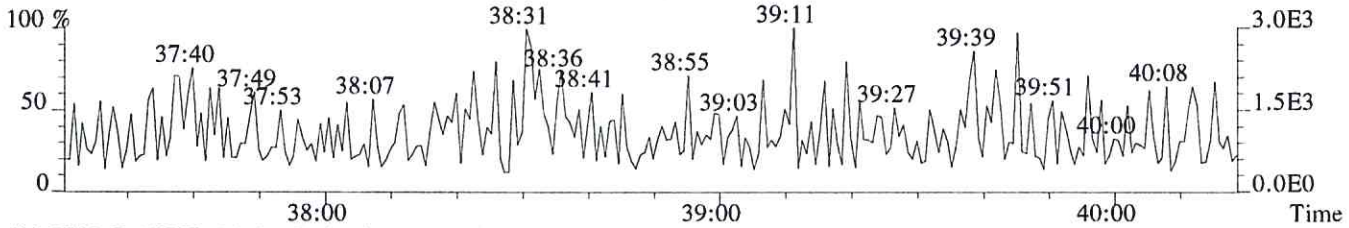
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1508.0,0.50%,F,T)



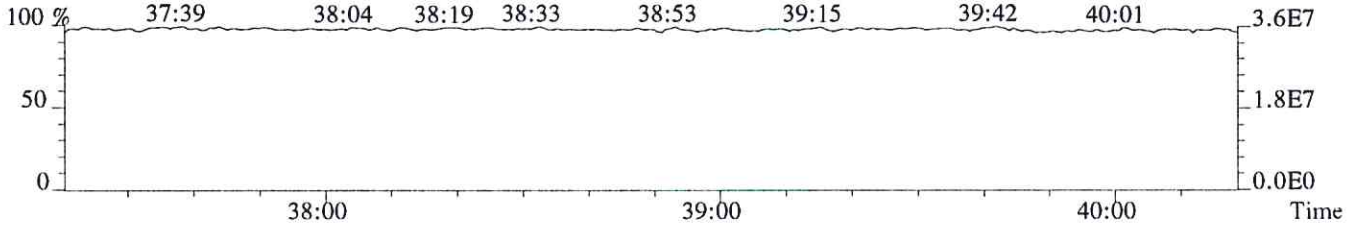
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.50%,F,T)



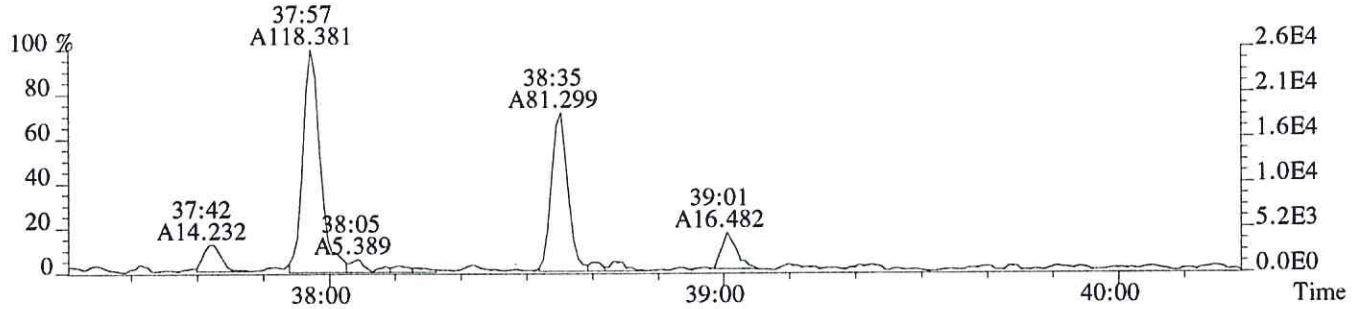
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



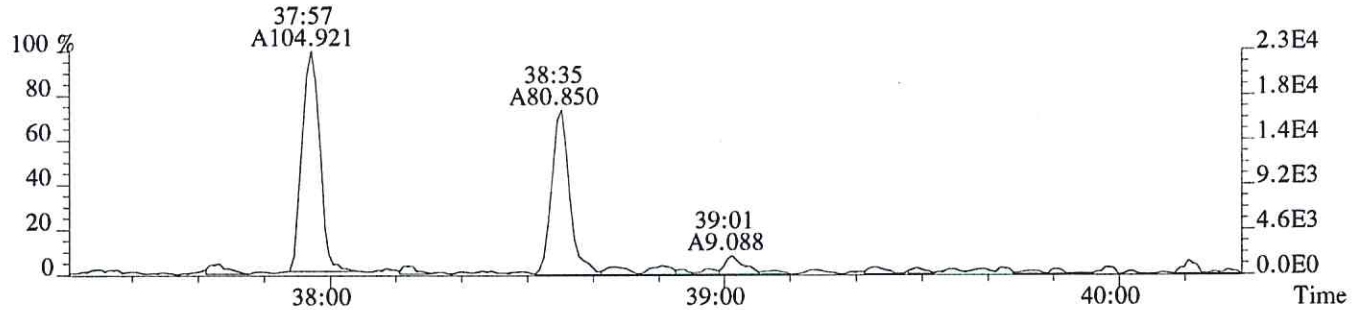
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



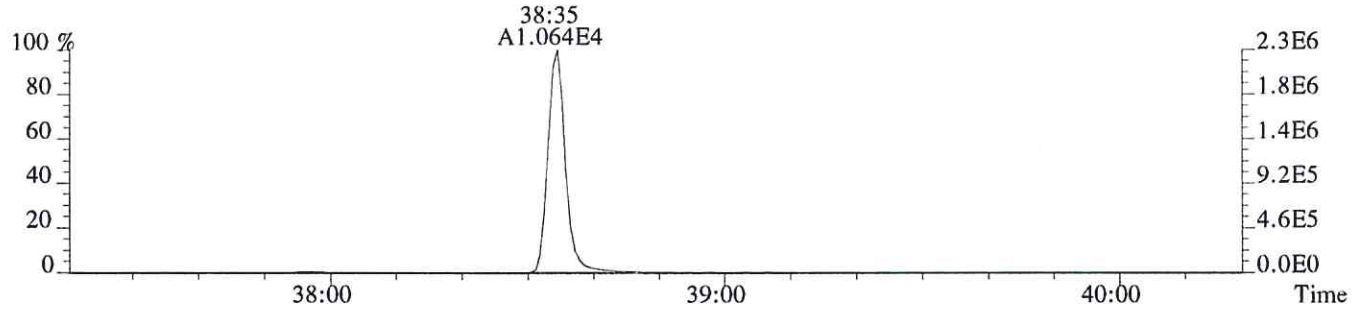
File:P405434 #1-268 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



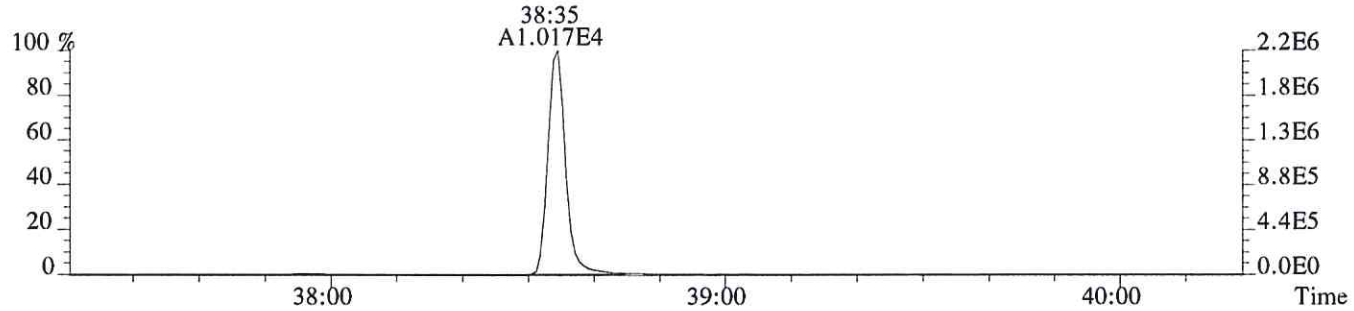
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



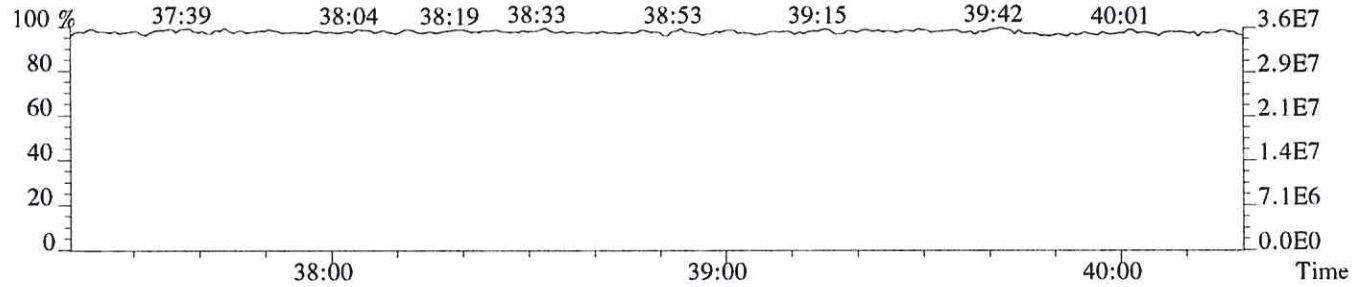
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



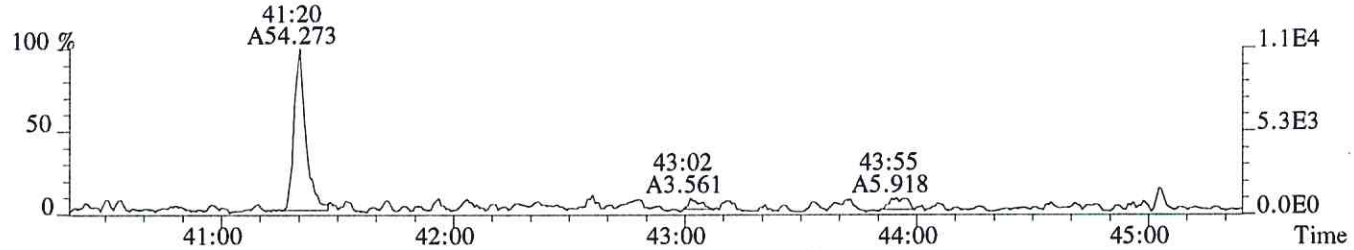
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



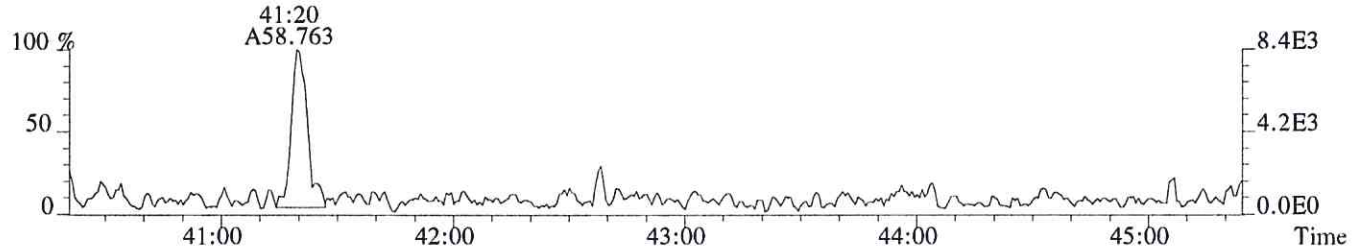
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



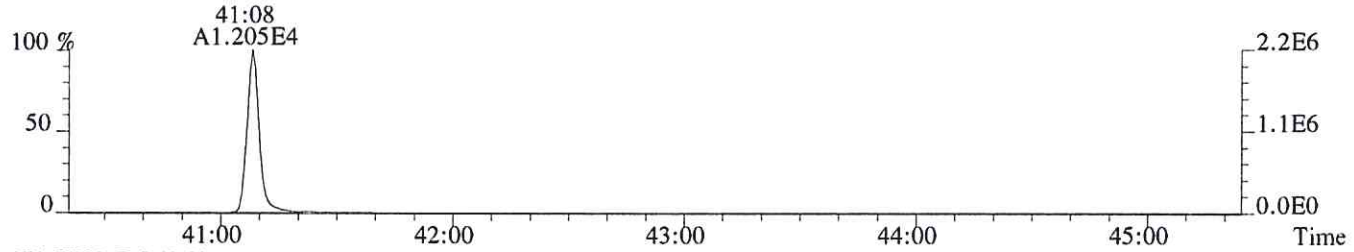
File:P405434 #1-456 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



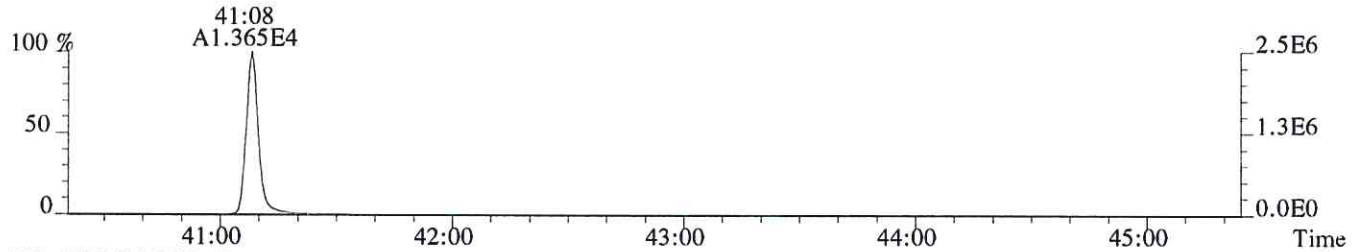
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,940.0,0.40%,F,T)



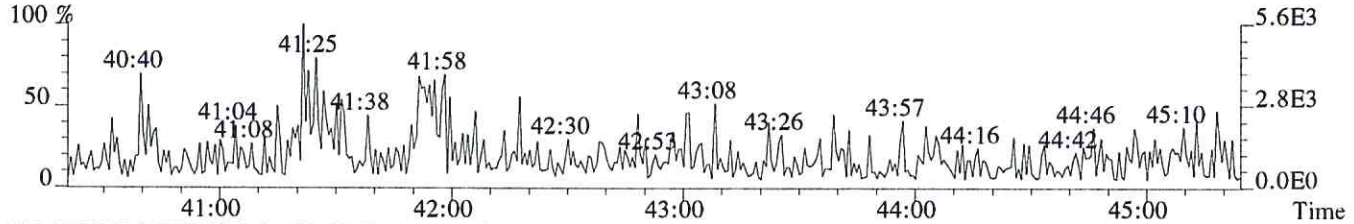
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



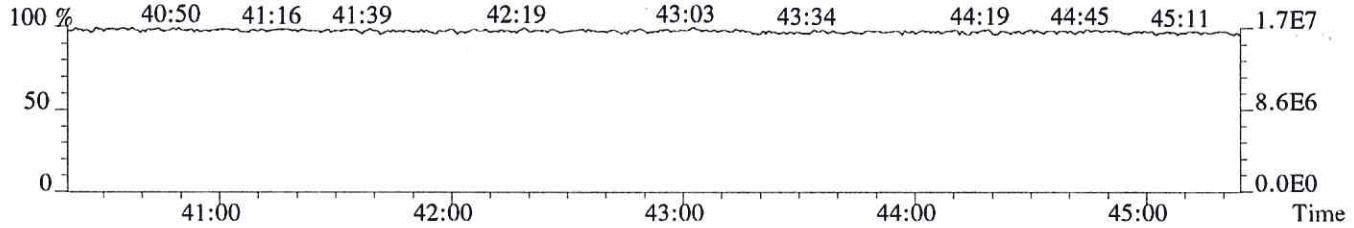
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1268.0,0.40%,F,T)



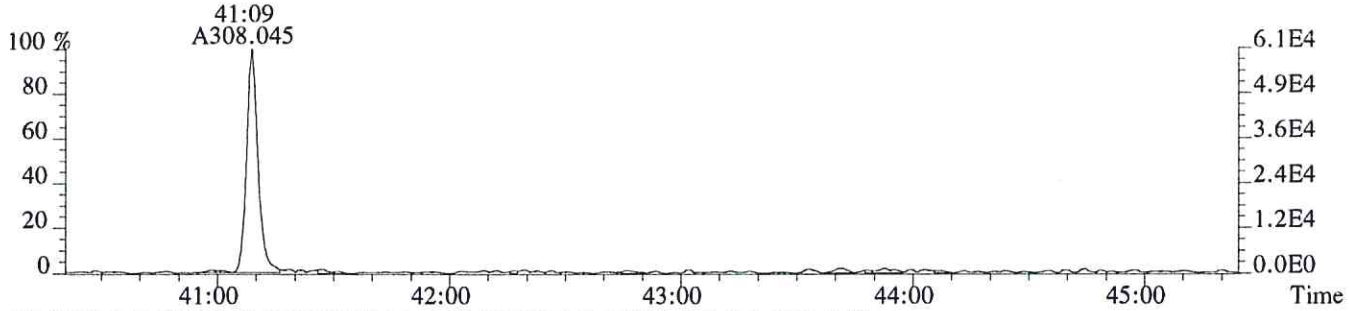
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



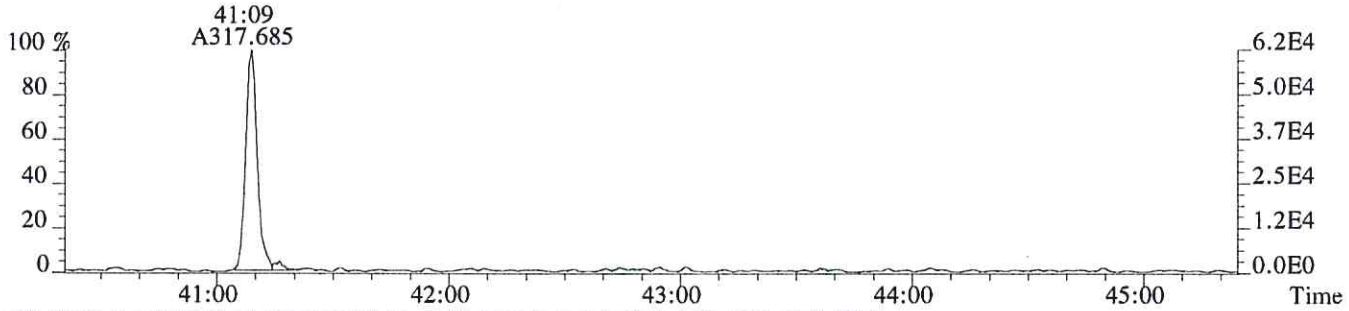
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



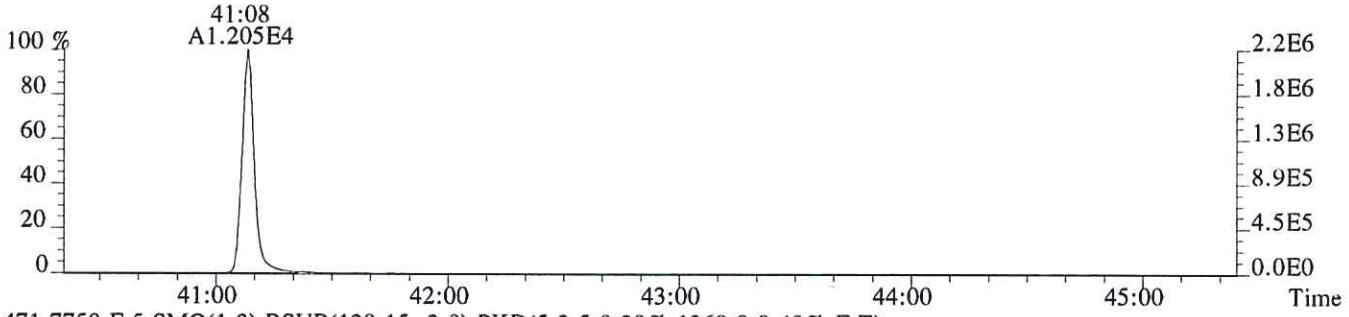
File:P405434 #1-456 Acq:17-FEB-2017 02:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



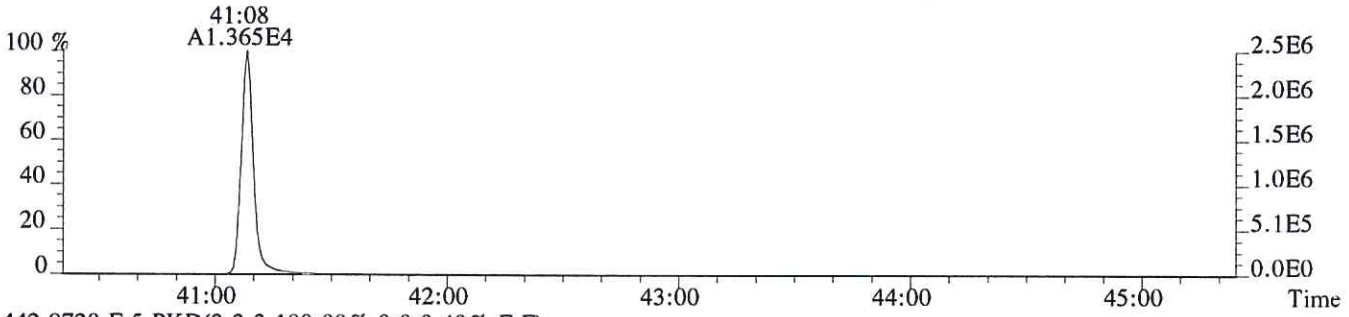
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)



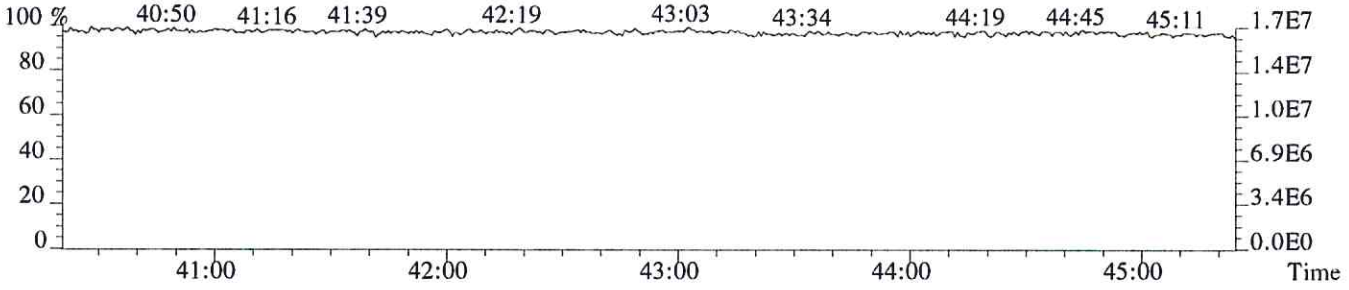
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1268.0,0.40%,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.
1702917-07

Run #12 Filename P405402 Samp: 1 Inj: 1 Acquired: 15-FEB-17 21:26:43
Processed: 16-FEB-17 14:18:46 Sample ID: E1700102-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.769
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.872
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.097
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.029
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.015
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	1.440e+01	2.188e+01	0.66	no	yes	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.187
10	Unk	OCDF	41:21	2.361e+01	3.059e+01	0.77	yes	no	1.035
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.873
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	1.148e+01	1.418e+01	0.81	no	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:36	4.025e+01	3.727e+01	1.08	yes	yes	0.882
17	Unk	OCDD	41:10	1.780e+02	1.809e+02	0.98	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:52	1.341e+04	1.742e+04	0.77	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	2.369e+04	1.533e+04	1.55	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:21	2.171e+04	1.428e+04	1.52	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:05	8.864e+03	1.760e+04	0.50	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:12	1.057e+04	2.074e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	8.594e+03	1.708e+04	0.50	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:28	7.483e+03	1.489e+04	0.50	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:43	5.438e+03	1.253e+04	0.43	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:02	5.717e+03	1.300e+04	0.44	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:45	1.345e+04	1.726e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:38	2.025e+04	1.296e+04	1.56	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	1.432e+04	1.178e+04	1.22	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:56	1.494e+04	1.210e+04	1.24	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	1.155e+04	1.081e+04	1.07	yes	no	0.817
32	IS	13C-OCDD	41:09	1.322e+04	1.492e+04	0.89	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:06	1.916e+04	2.474e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:10	2.165e+04	1.761e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	1.407e+04				no	0.958

$$\text{OCDD} = \frac{(1.780e+02 + 1.809e+02) \times 4000 \text{ pg} \times}{(1.322e+04 + 1.492e+04) \times 988 \text{ mL} \times 100 \;/\; 100 \times 0.980} = 52.68 \text{ pg/L}$$

cm 02/17/17

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
1702917-07

Run #12 Filename P405402 Samp: 1 Inj: 1 Acquired: 15-FEB-17 21:26:43
Processed: 16-FEB-17 14:18:46 LAB. ID: E1700102-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.52e+02	*	*	9.68e+02	*
2	1,2,3,7,8-PeCDF	*	8.40e+02	*	*	9.00e+02	*
3	2,3,4,7,8-PeCDF	*	8.40e+02	*	*	9.00e+02	*
4	1,2,3,4,7,8-HxCDF	*	2.48e+02	*	*	4.32e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.48e+02	*	*	4.32e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.48e+02	*	*	4.32e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.48e+02	*	*	4.32e+02	*
8	1,2,3,4,6,7,8-HpCDF	2.50e+03	7.60e+02	3.3e+00	4.60e+03	6.88e+02	6.7e+00
9	1,2,3,4,7,8,9-HpCDF	*	7.60e+02	*	*	6.88e+02	*
10	OCDF	4.43e+03	5.12e+02	8.7e+00	6.13e+03	5.84e+02	1.0e+01
11	2,3,7,8-TCDD	*	1.20e+03	*	*	6.96e+02	*
12	1,2,3,7,8-PeCDD	*	1.15e+03	*	*	4.48e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.64e+02	*	*	4.48e+02	*
14	1,2,3,6,7,8-HxCDD	*	1.64e+02	*	*	4.48e+02	*
15	1,2,3,7,8,9-HxCDD	2.72e+03	1.64e+02	1.7e+01	2.85e+03	4.48e+02	6.4e+00
16	1,2,3,4,6,7,8-HpCDD	8.20e+03	7.72e+02	1.1e+01	8.85e+03	9.88e+02	9.0e+00
17	OCDD	3.19e+04	5.76e+02	5.5e+01	3.69e+04	7.44e+02	5.0e+01
18	13C-2,3,7,8-TCDF	2.16e+06	5.69e+03	3.8e+02	2.85e+06	3.38e+03	8.4e+02
19	13C-1,2,3,7,8-PeCDF	4.27e+06	1.16e+03	3.7e+03	2.78e+06	5.32e+02	5.2e+03
20	13C-2,3,4,7,8-PeCDF	4.20e+06	1.16e+03	3.6e+03	2.76e+06	5.32e+02	5.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.92e+06	8.20e+02	2.3e+03	3.77e+06	4.16e+02	9.1e+03
22	13C-1,2,3,6,7,8-HxCDF	2.17e+06	8.20e+02	2.6e+03	4.21e+06	4.16e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	1.84e+06	8.20e+02	2.2e+03	3.57e+06	4.16e+02	8.6e+03
24	13C-1,2,3,7,8,9-HxCDF	1.55e+06	8.20e+02	1.9e+03	3.06e+06	4.16e+02	7.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.20e+06	1.62e+03	7.4e+02	2.77e+06	1.40e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.14e+06	1.62e+03	7.0e+02	2.62e+06	1.40e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.36e+06	2.71e+03	8.7e+02	3.02e+06	2.14e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	3.94e+06	1.17e+03	3.4e+03	2.56e+06	1.02e+03	2.5e+03
29	13C-1,2,3,4,7,8-HxCDD	3.26e+06	3.64e+02	9.0e+03	2.66e+06	4.12e+02	6.5e+03
30	13C-1,2,3,6,7,8-HxCDD	3.17e+06	3.64e+02	8.7e+03	2.57e+06	4.12e+02	6.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.43e+06	7.20e+02	3.4e+03	2.29e+06	9.28e+02	2.5e+03
32	13C-OCDD	2.40e+06	1.42e+03	1.7e+03	2.74e+06	1.56e+03	1.8e+03
33	13C-1,2,3,4-TCDD	3.27e+06	2.71e+03	1.2e+03	4.22e+06	2.14e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	4.66e+06	3.64e+02	1.3e+04	3.77e+06	4.12e+02	9.1e+03
35	37Cl-2,3,7,8-TCDD	2.48e+06	9.40e+02	2.6e+03			

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Peak List Summary

CLIENT ID.

1702917-07

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P405402 Sample:1 Injection:1 Function:1

Acquired: 15-FEB-17 21:26:43 Processed: 16-FEB-17 14:18:46

Mass: 303.9020 305.8990 Tot Response: 5.47e+01 RRF: 0.7687

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:55	2.37e+01	3.10e+01	0.76	yes	5.47e+01	n	n

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Peak List Summary

CLIENT ID.

1702917-07

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P405402 Sample:1 Injection:1 Function:3

Acquired: 15-FEB-17 21:26:43 Processed: 16-FEB-17 14:18:46

Mass: 389.8160 391.8130 Tot Response: 2.63e+01 RRF: 0.9067

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:32	1.38e+01	1.25e+01	1.11	yes	2.63e+01	n	y

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Peak List Summary

CLIENT ID.

1702917-07

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P405402 Sample:1 Injection:1 Function:4

Acquired: 15-FEB-17 21:26:43 Processed: 16-FEB-17 14:18:46

Mass: 407.7820 409.7790 Tot Response: 4.87e+01 RRF: 1.213

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:07	2.59e+01	2.28e+01	1.13	yes	4.87e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P405402 Sample:1 Injection:1 Function:4

Acquired: 15-FEB-17 21:26:43 Processed: 16-FEB-17 14:18:46

Mass: 423.7770 425.7740 Tot Response: 7.75e+01 RRF: 0.8816

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	4.03e+01	3.73e+01	1.08	yes	7.75e+01	1,2,3,4,6,7,8-HpCDD	y	y

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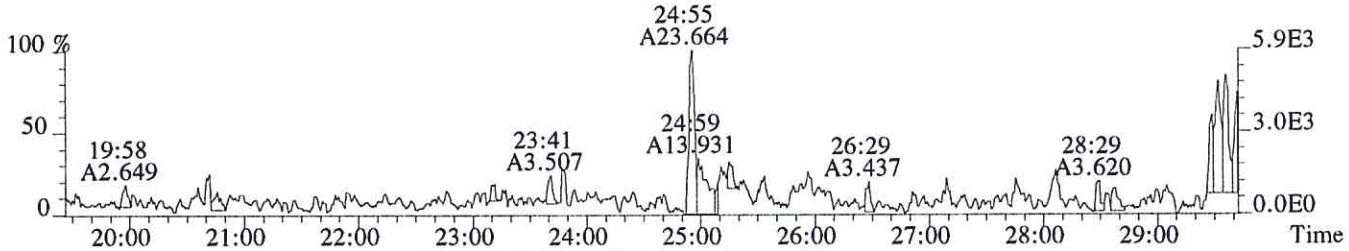
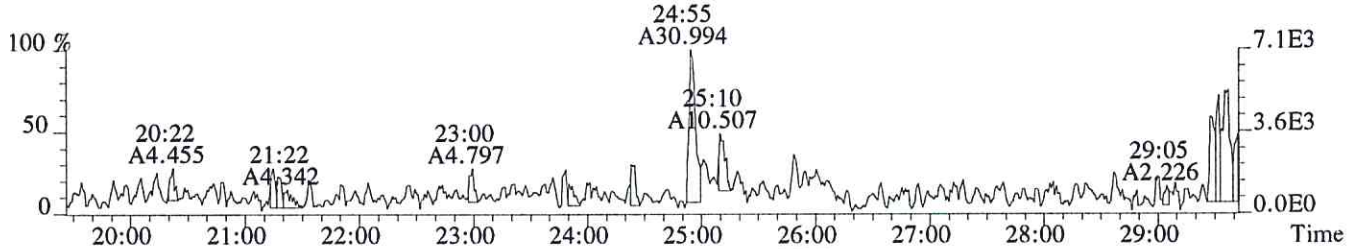
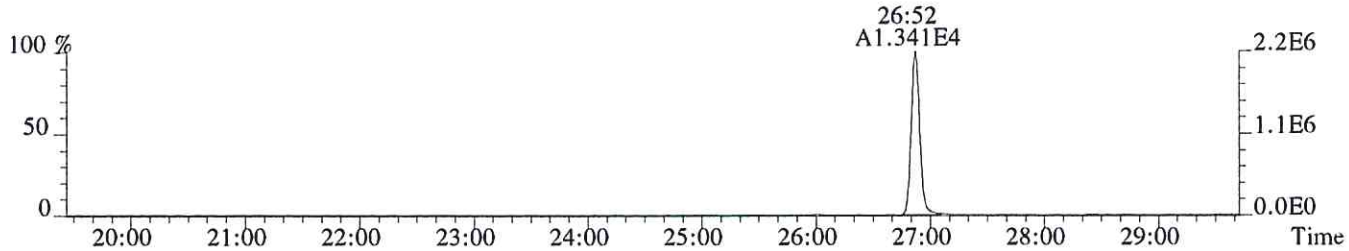
File:P405402 #1-729 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



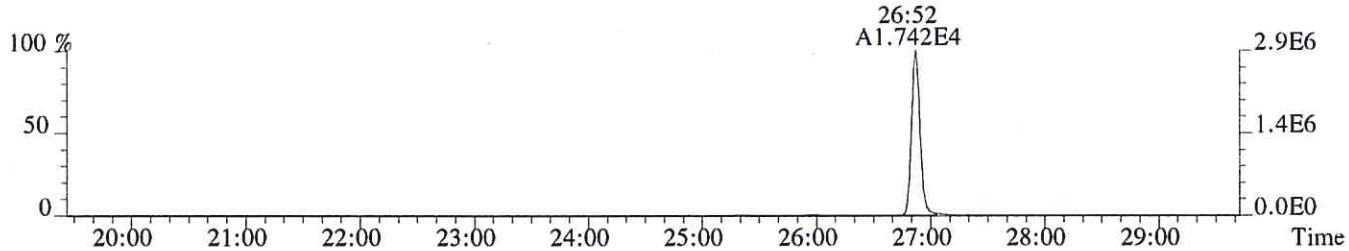
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



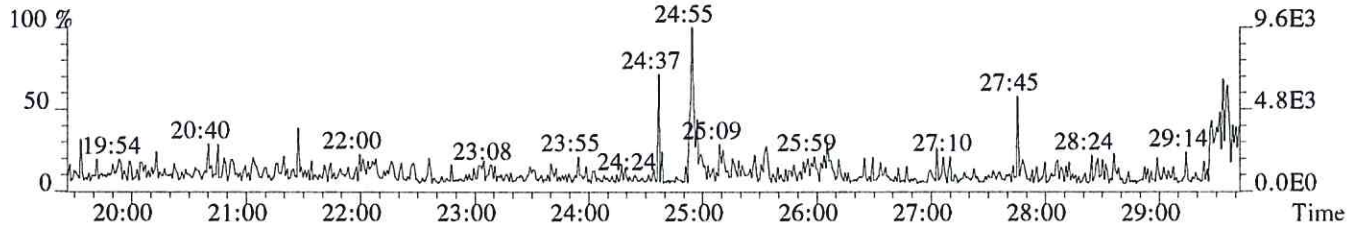
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5692.0,1.00%,F,T)



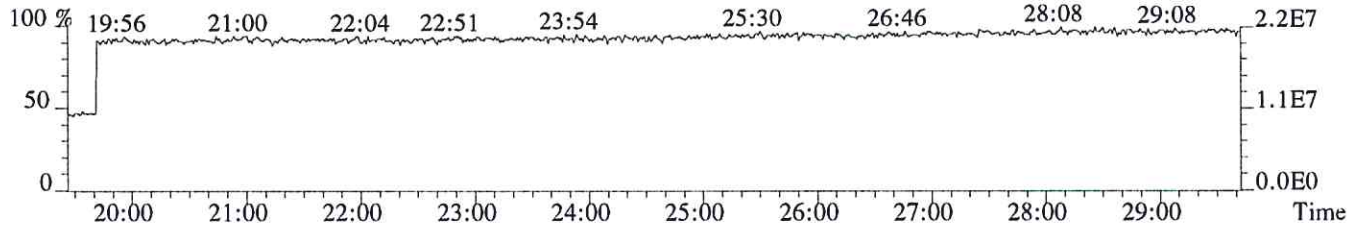
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3384.0,1.00%,F,T)



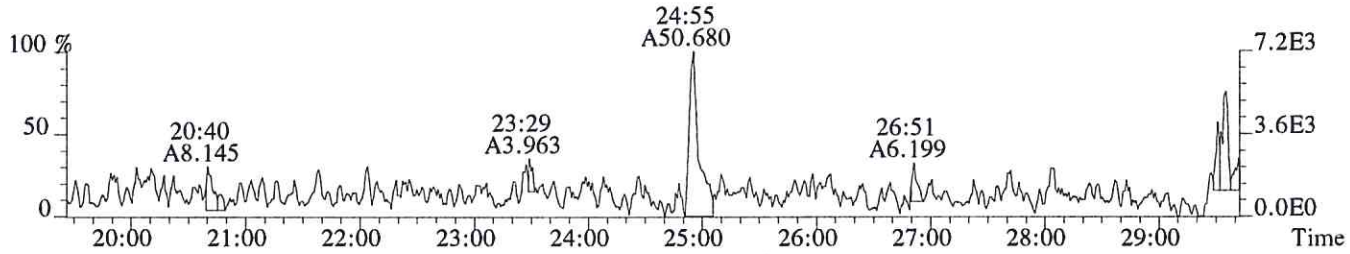
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



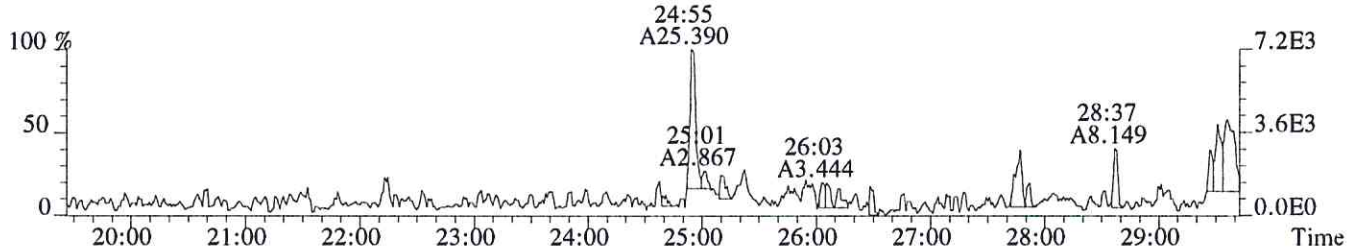
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



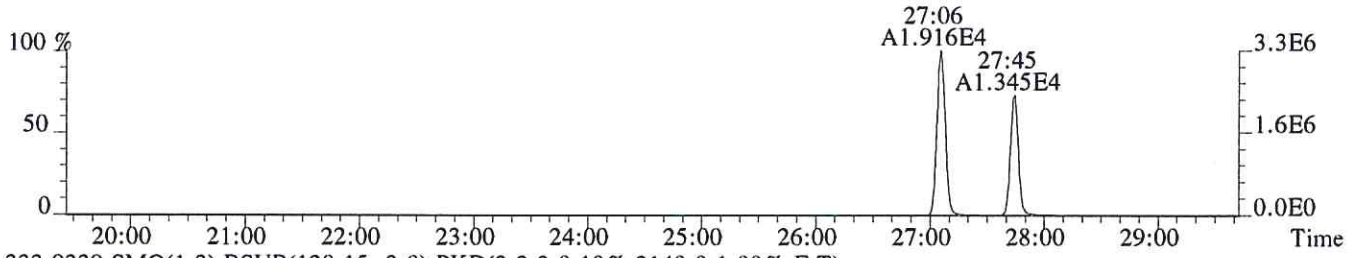
File:P405402 #1-729 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



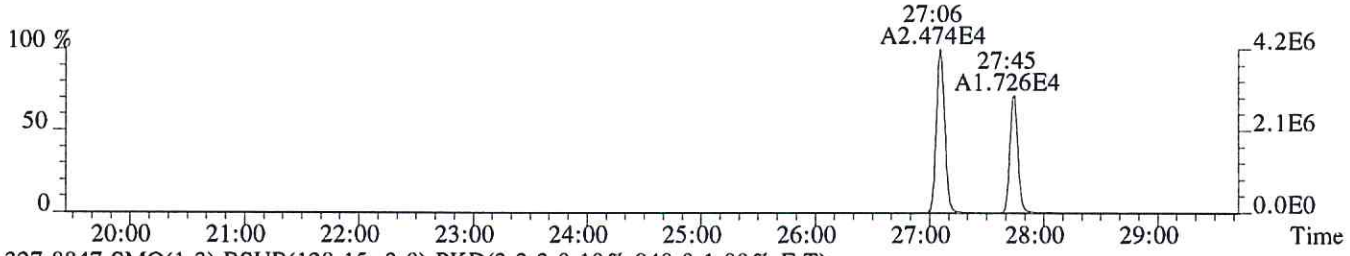
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



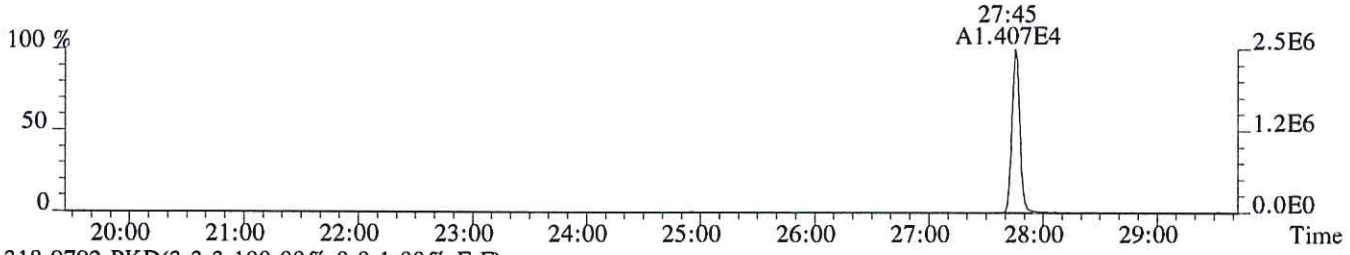
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



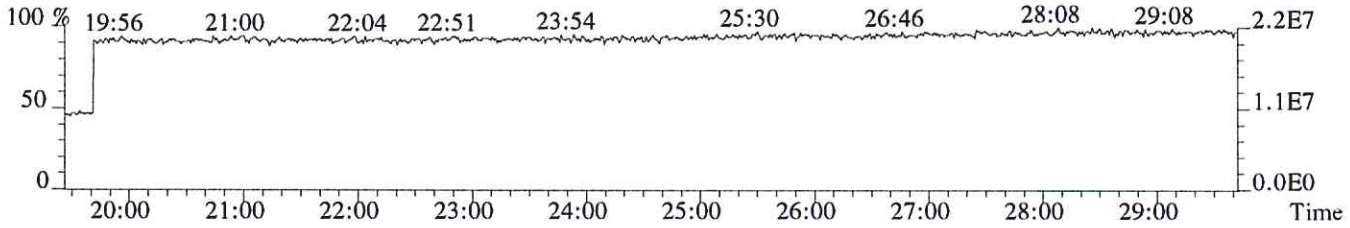
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2140.0,1.00%,F,T)



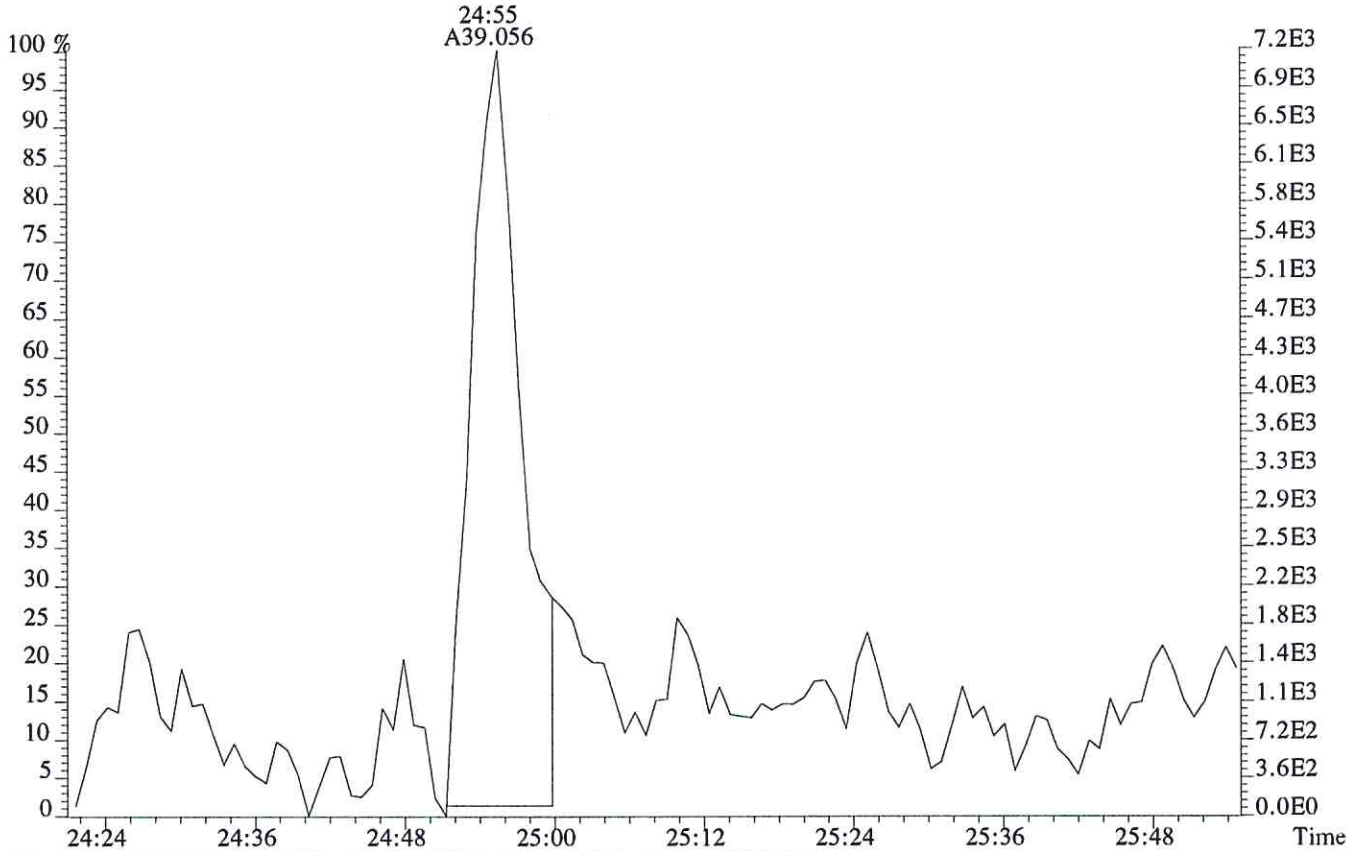
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



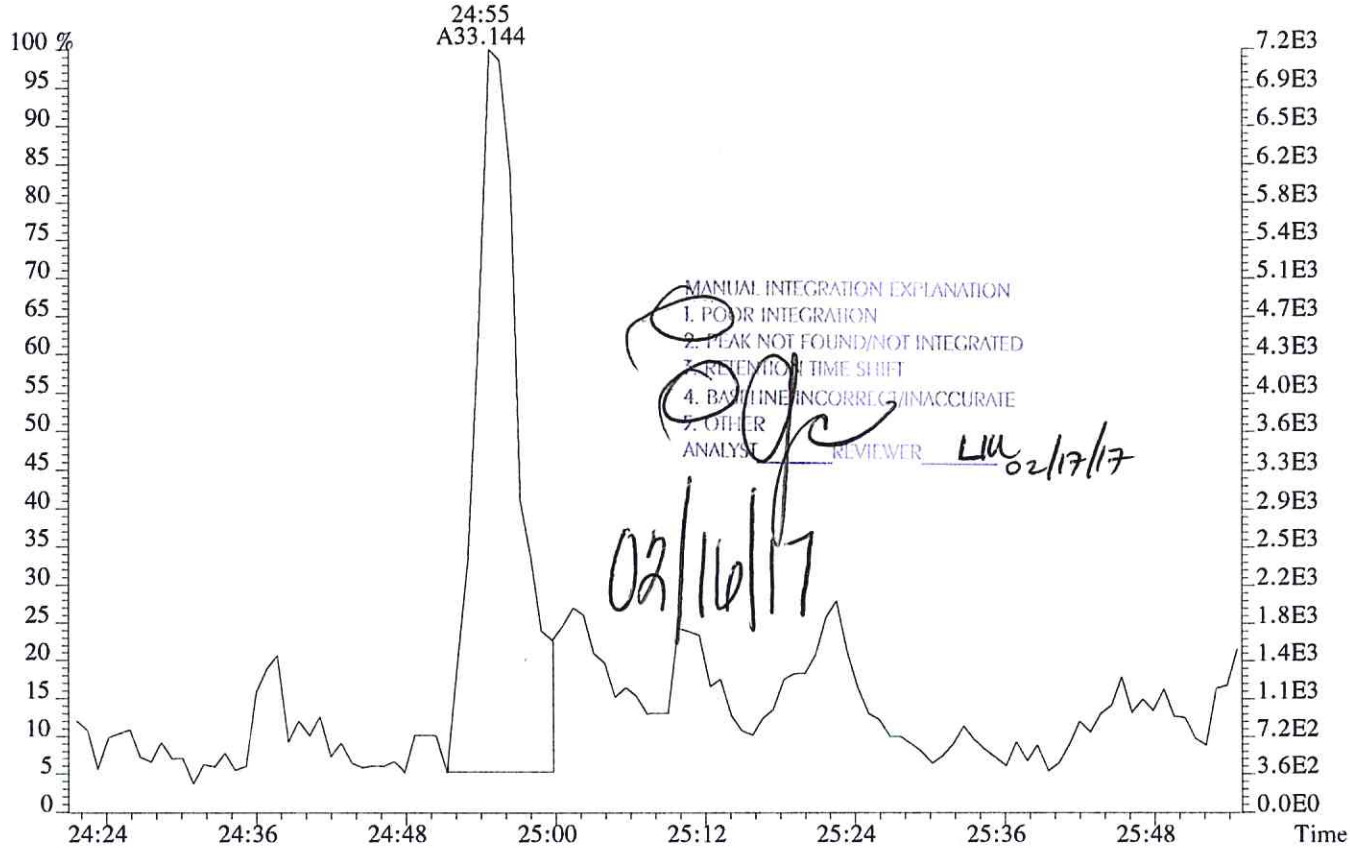
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



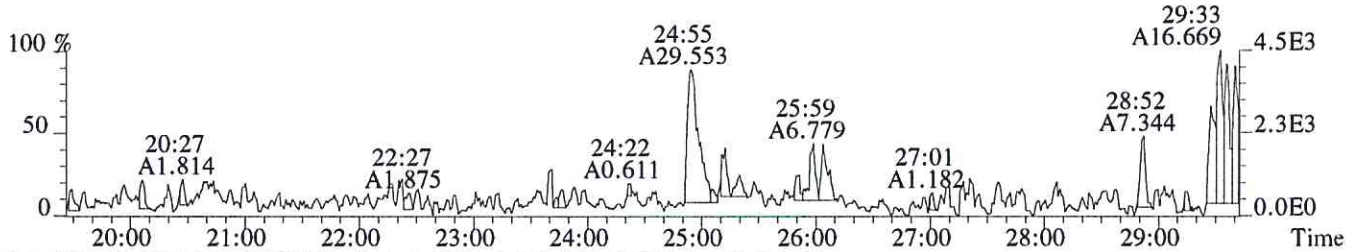
File:P405402 #1-729 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



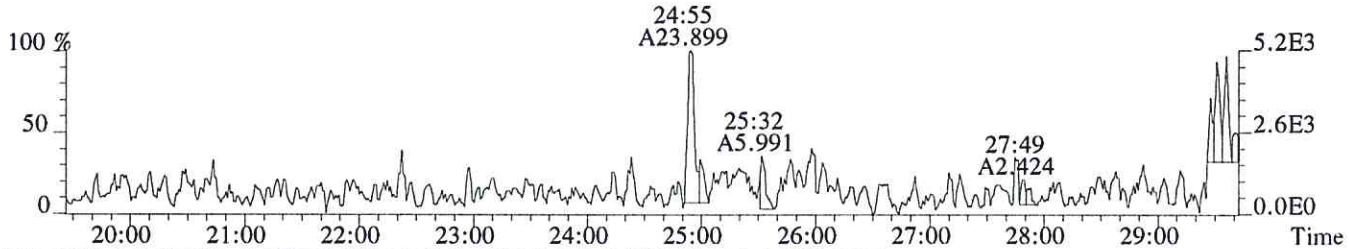
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



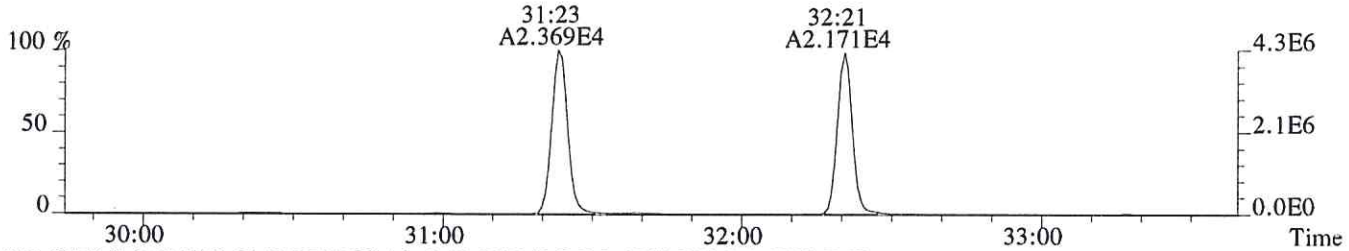
File:P405402 #1-729 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



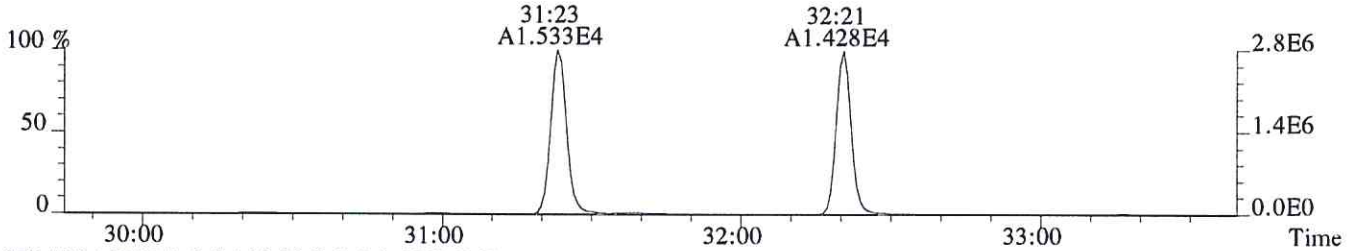
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



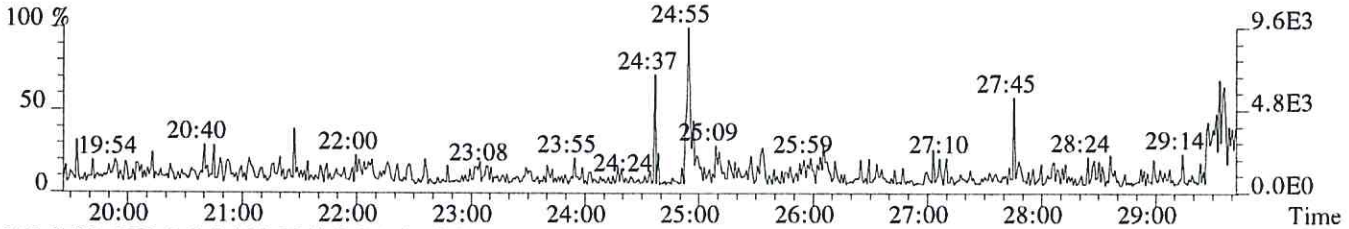
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



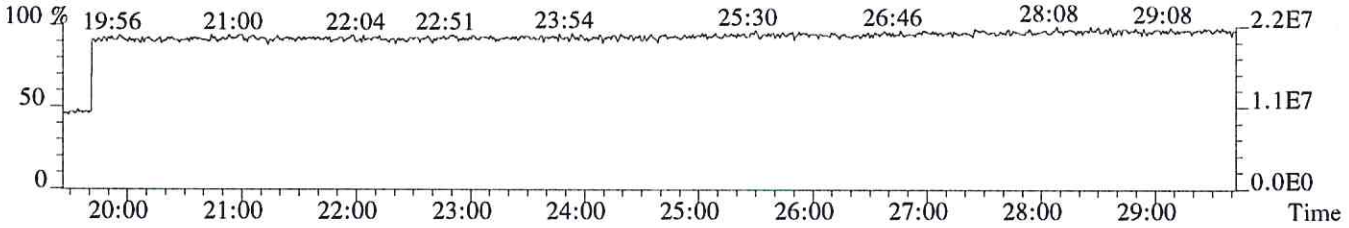
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



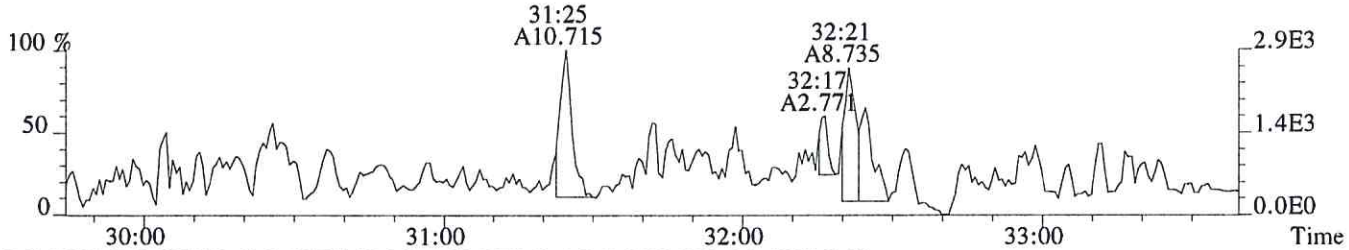
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



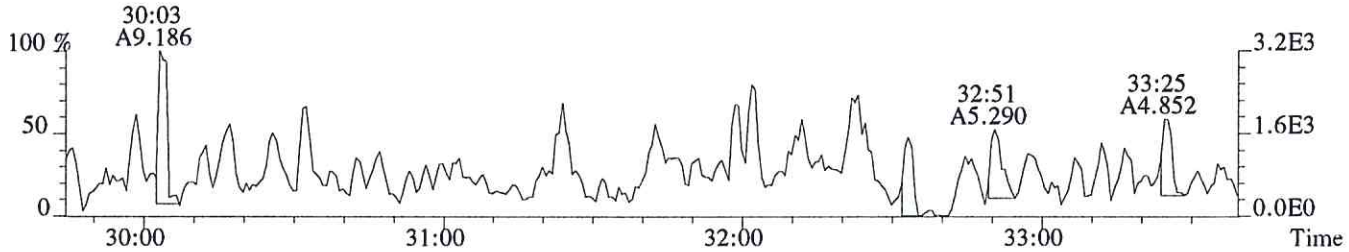
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



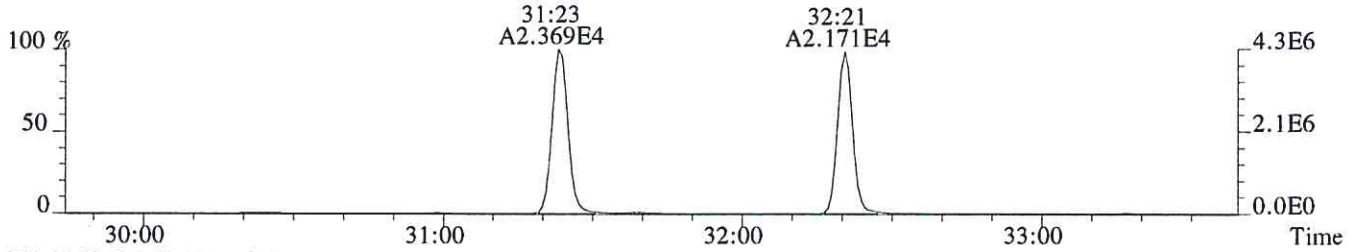
File:P405402 #1-353 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



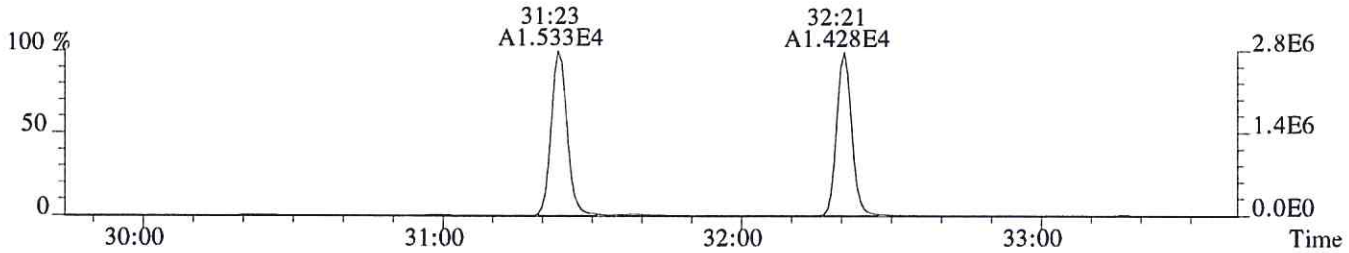
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



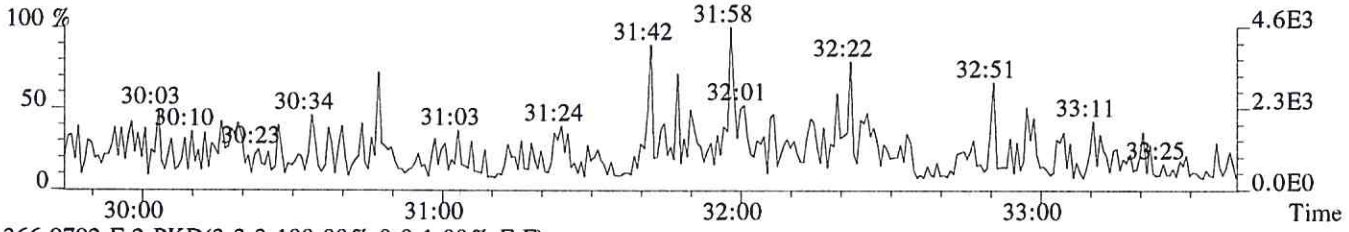
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



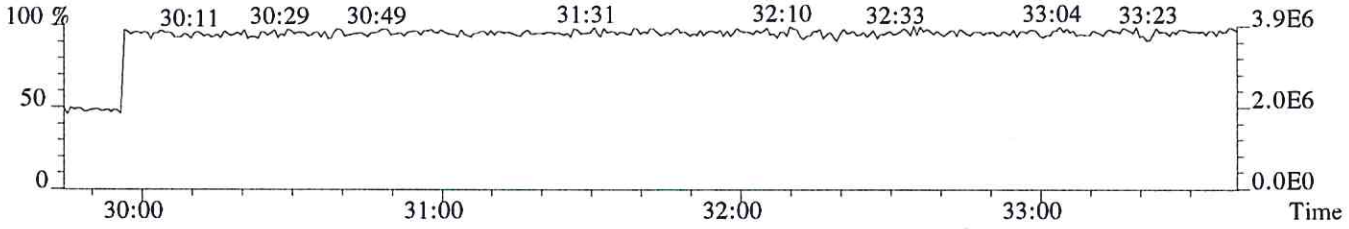
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



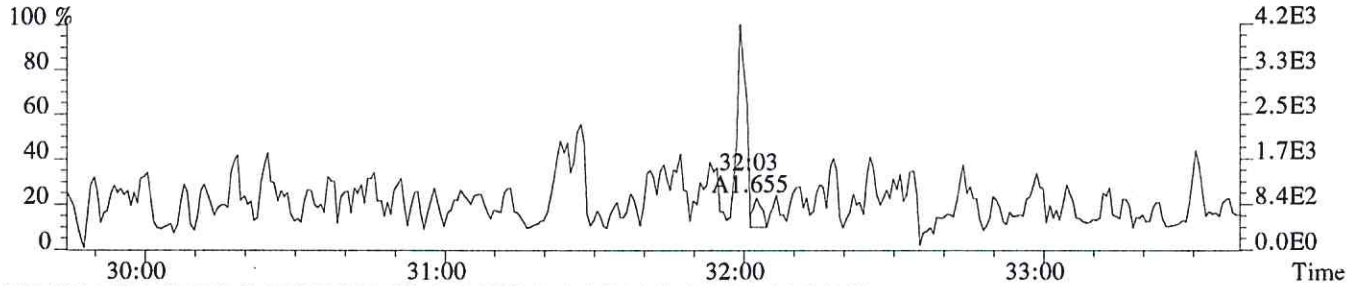
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



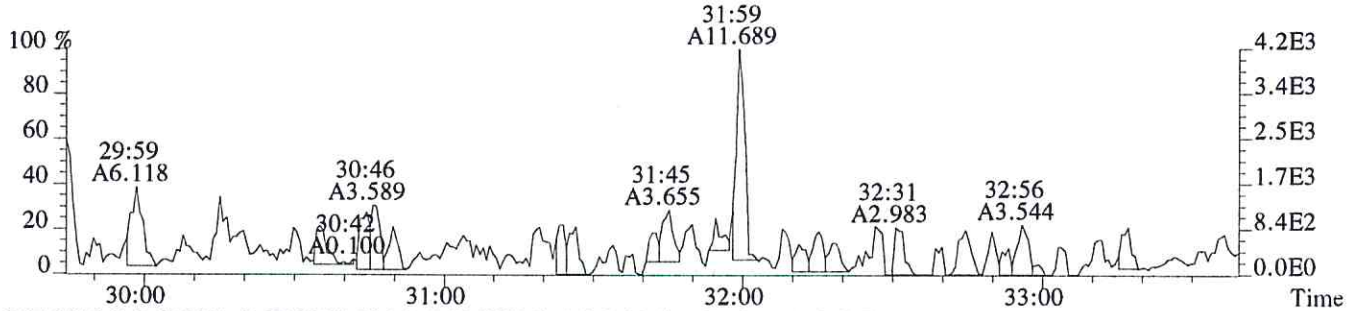
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



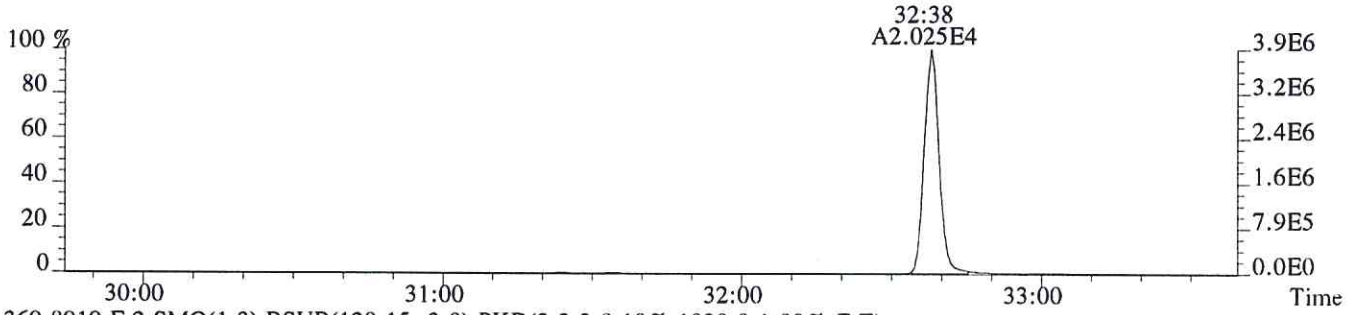
File:P405402 #1-353 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



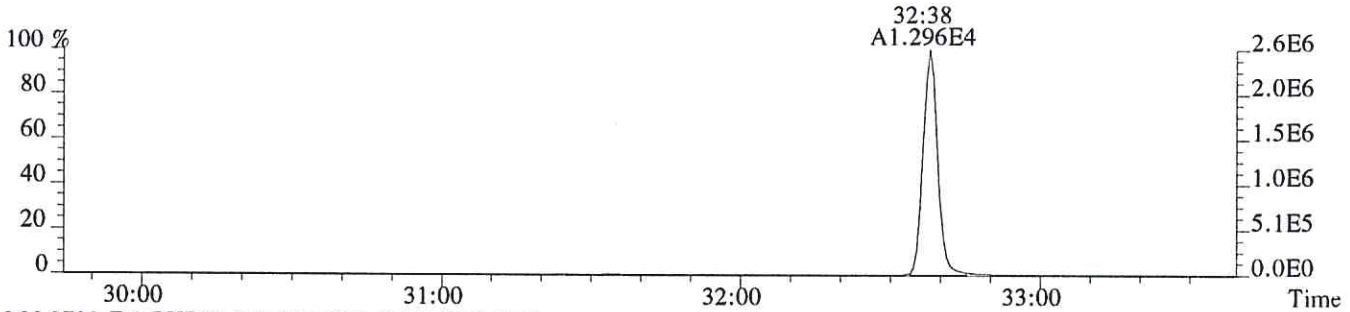
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



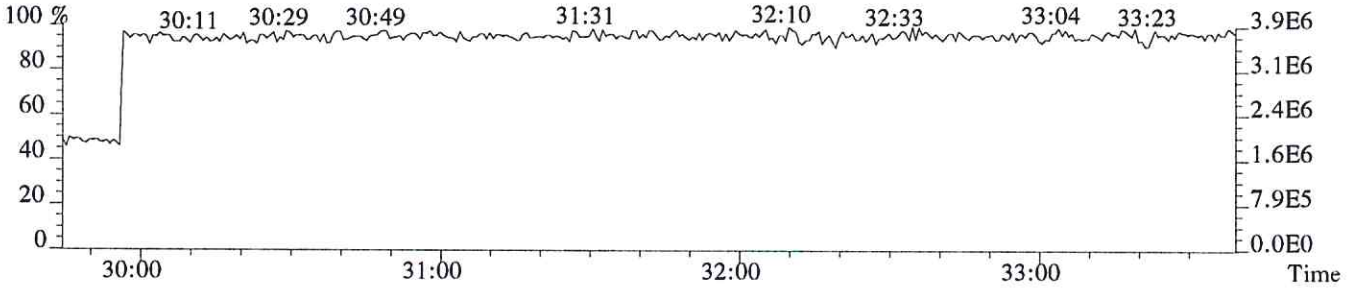
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



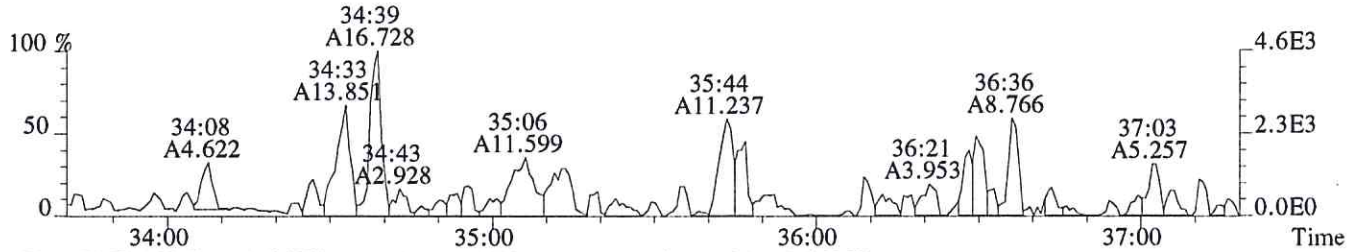
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



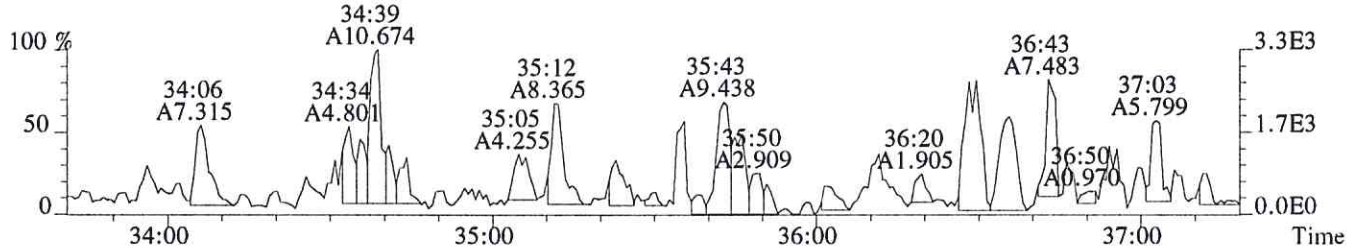
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



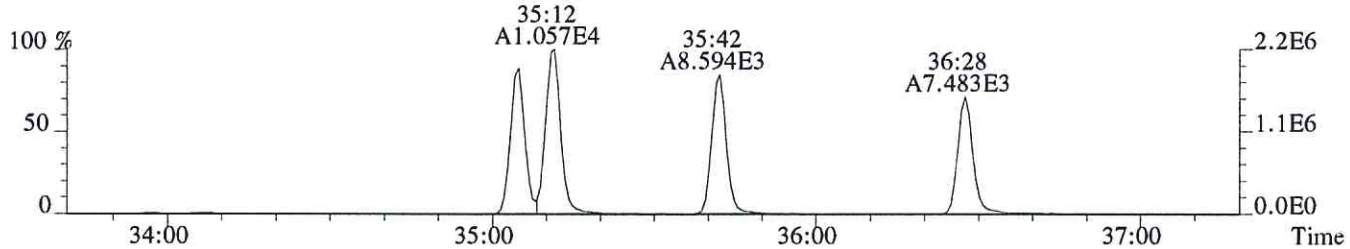
File:P405402 #1-326 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,248.0,0.40%,F,T)



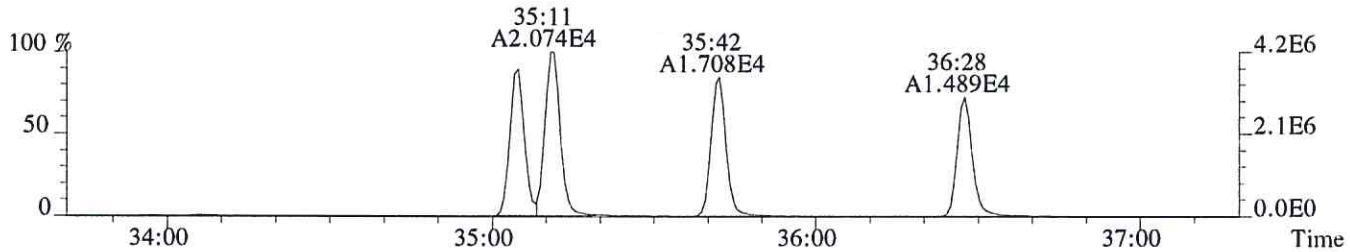
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



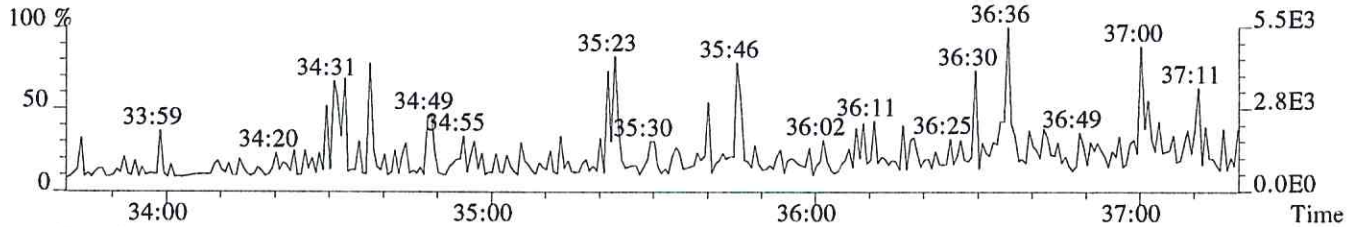
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



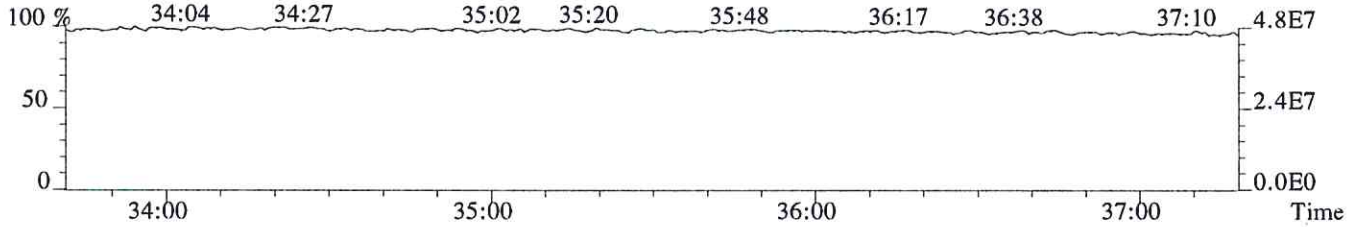
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



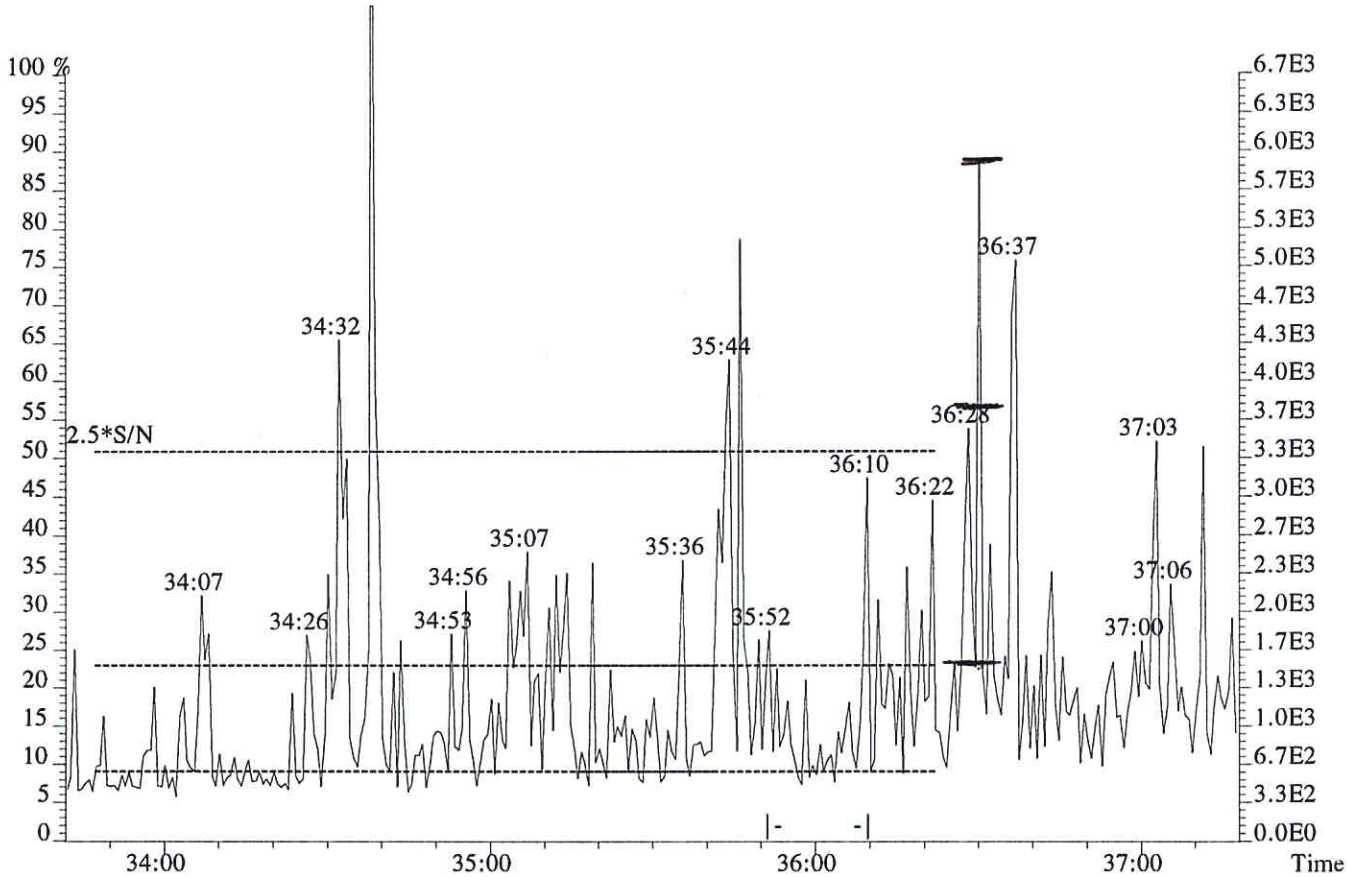
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



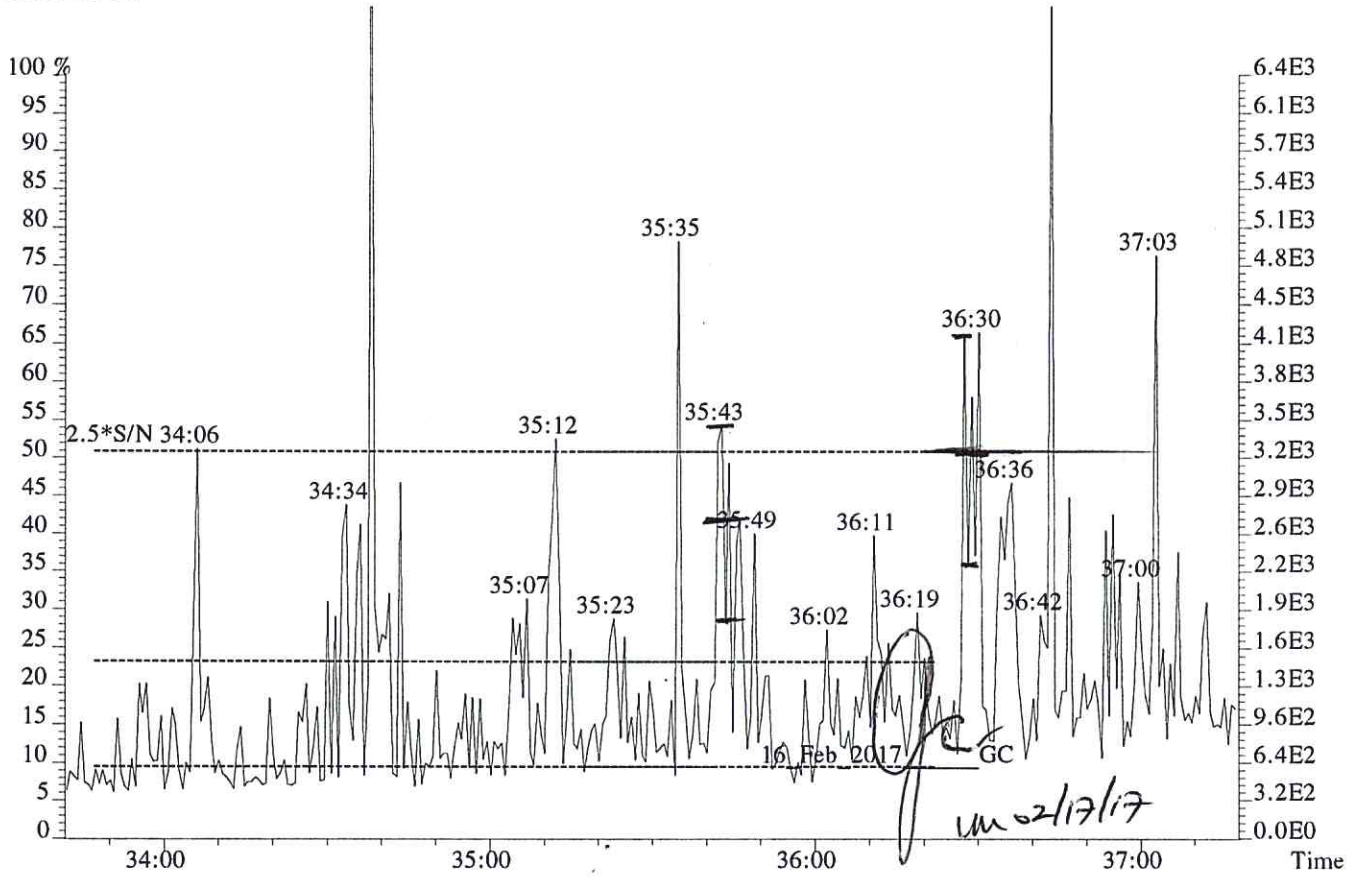
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



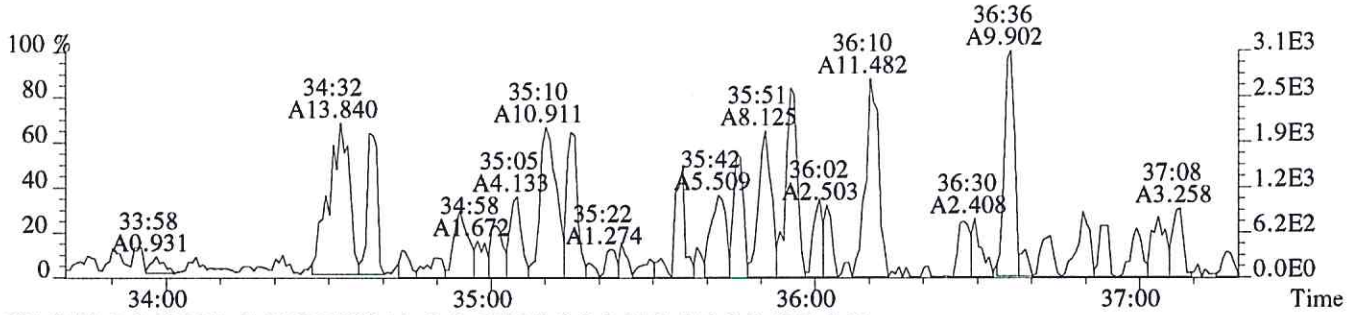
File:P405402 #1-326 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
373.8208 F:3



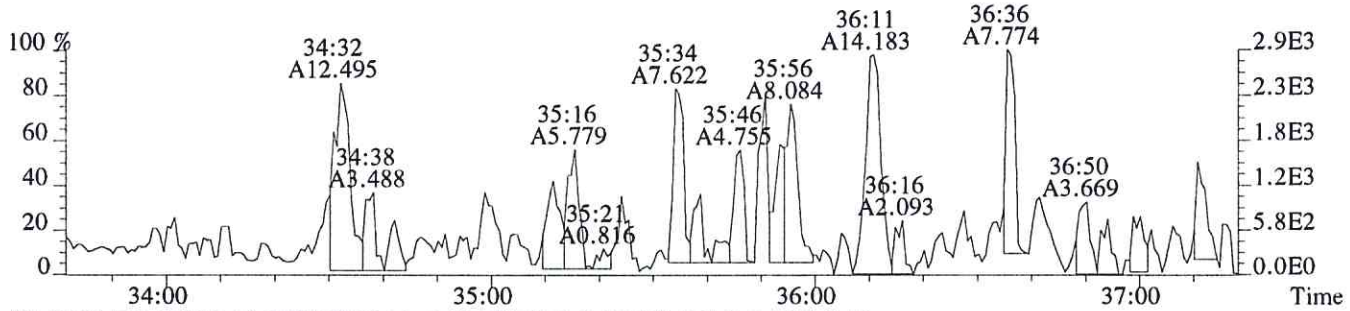
375.8178 F:3



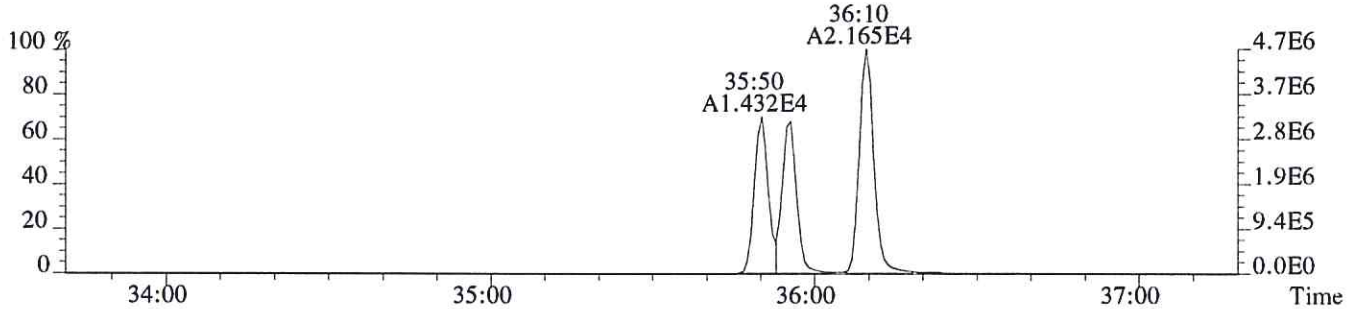
File:P405402 #1-326 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



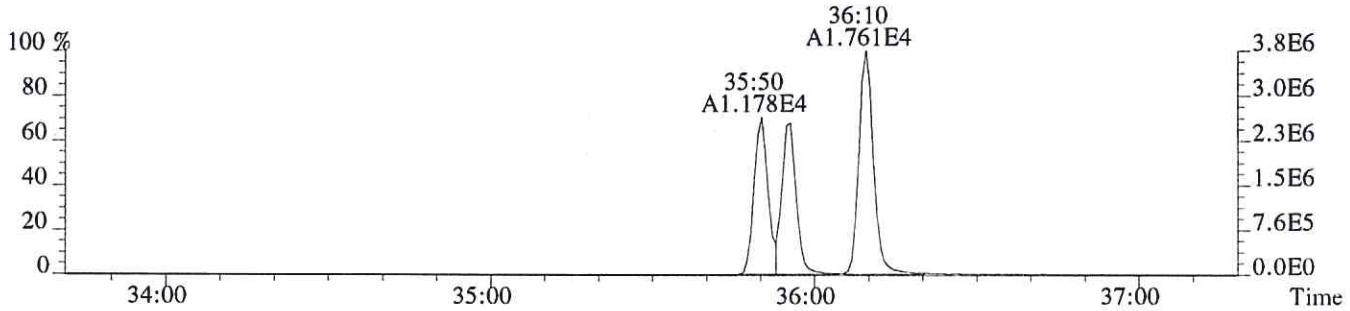
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



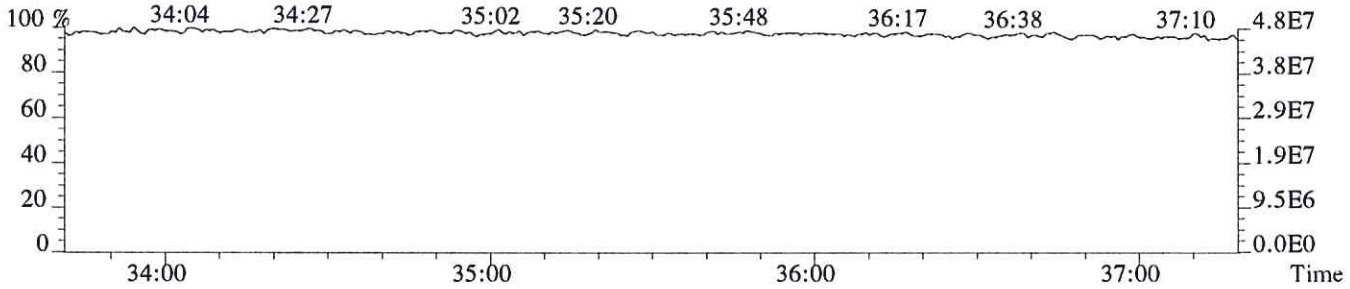
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



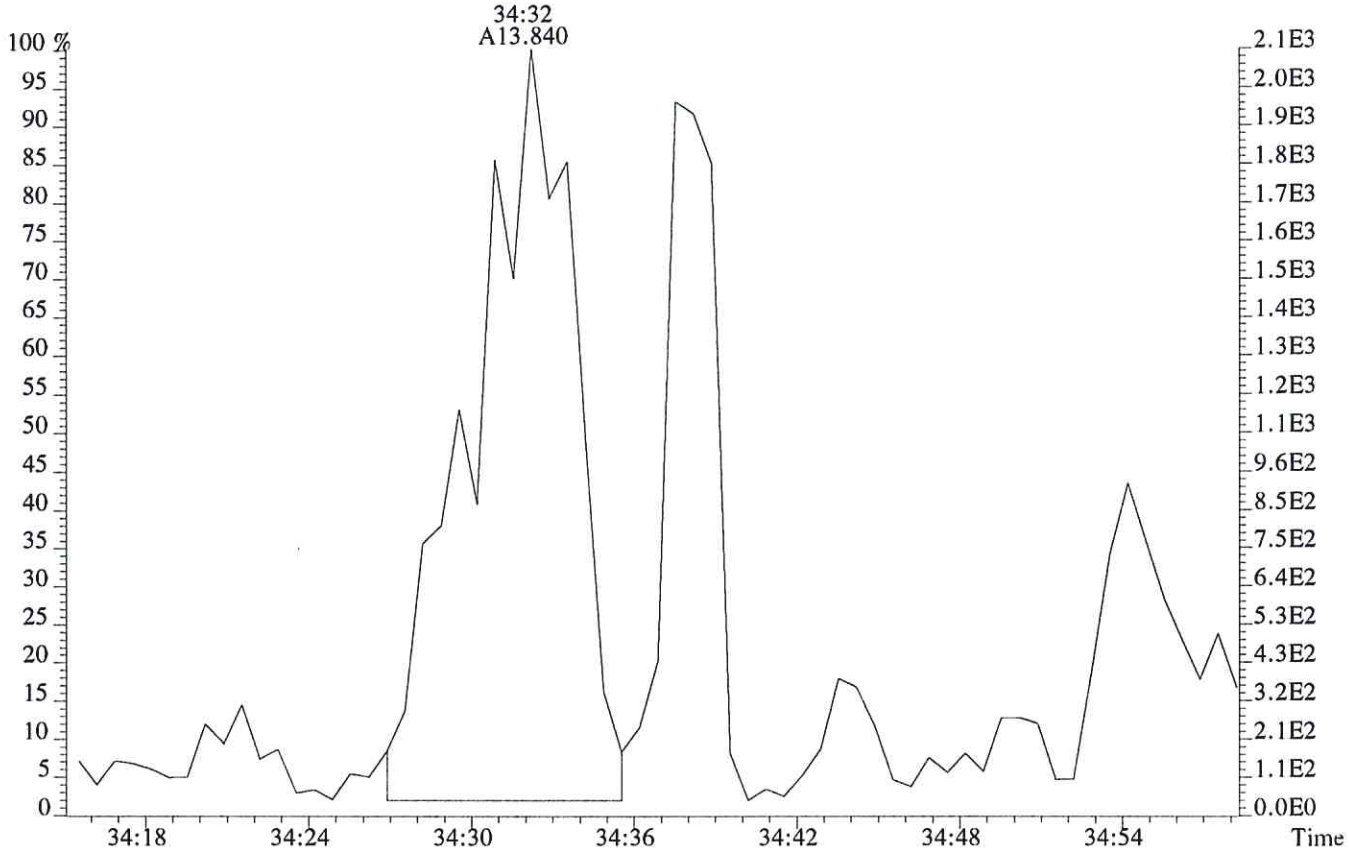
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



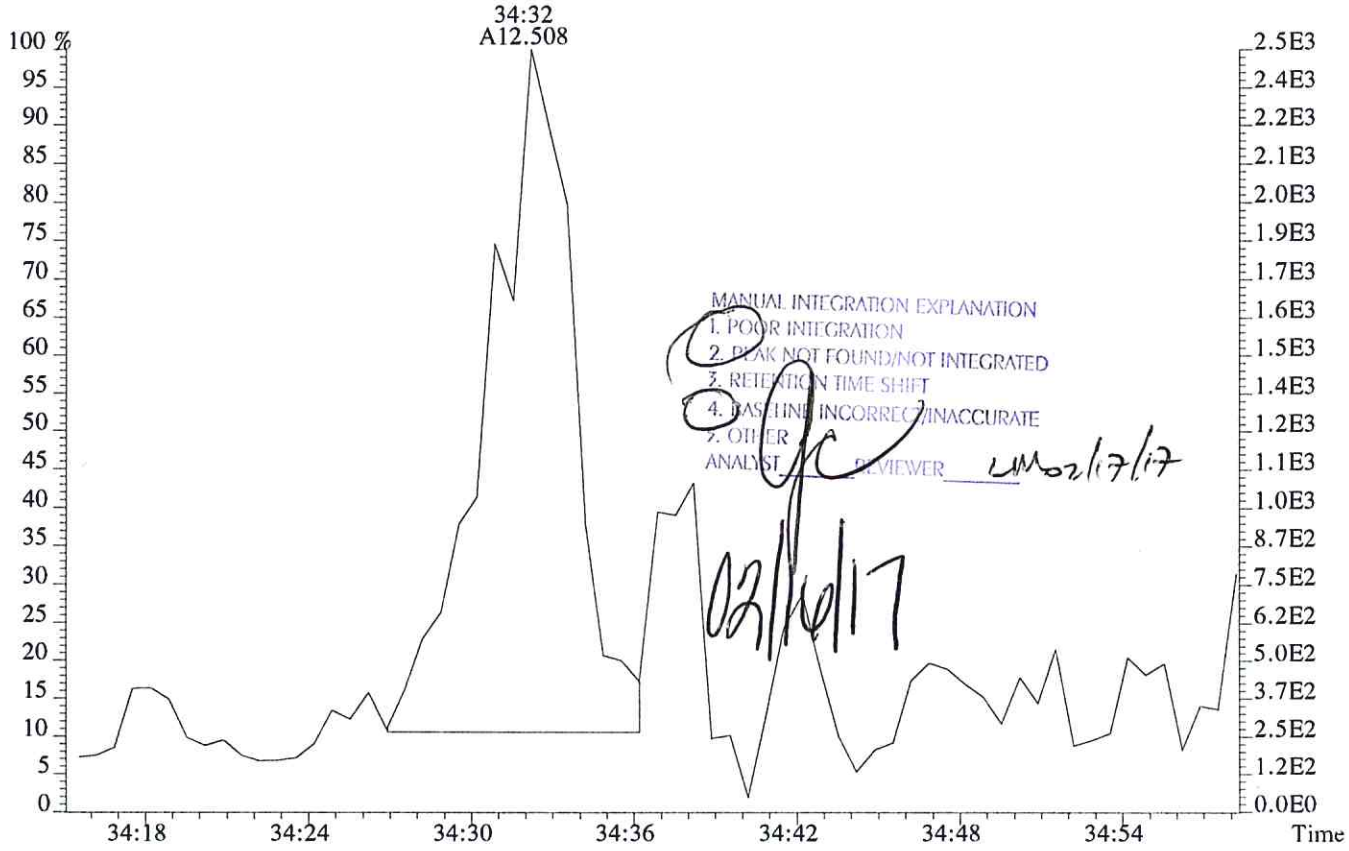
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



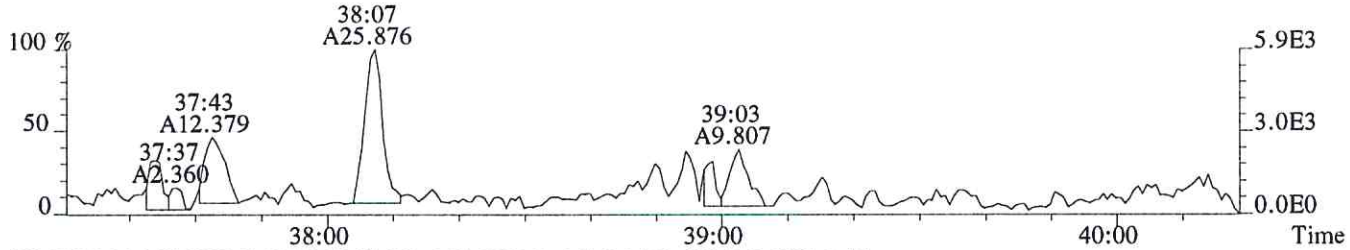
File:P405402 #1-326 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



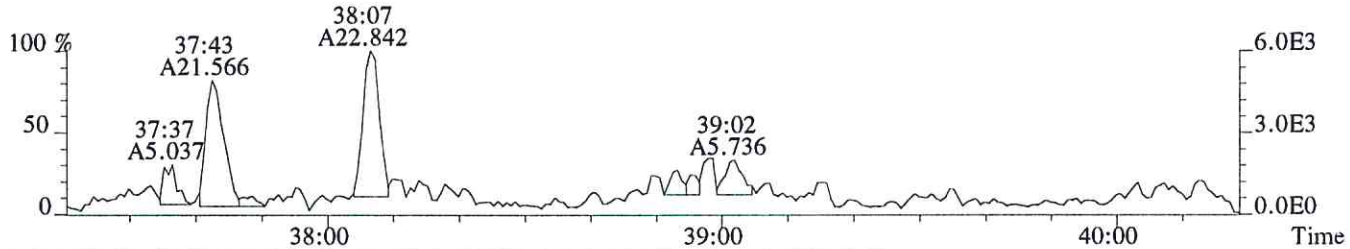
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



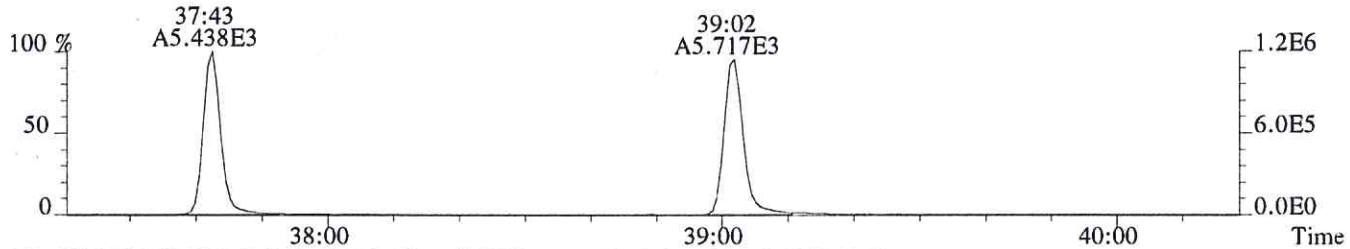
File:P405402 #1-268 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.50%,F,T)



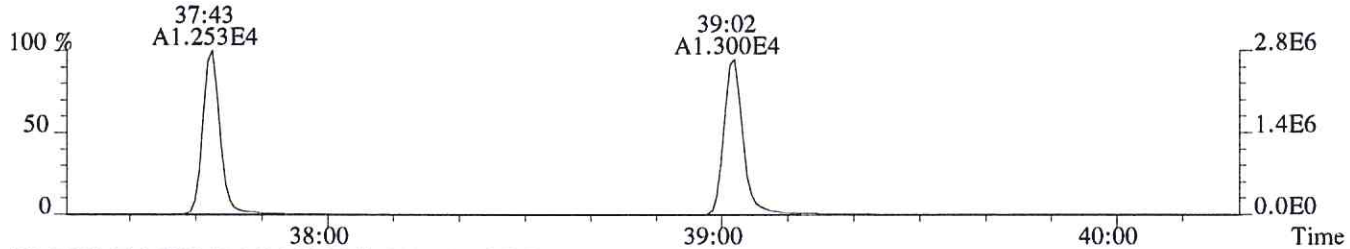
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.50%,F,T)



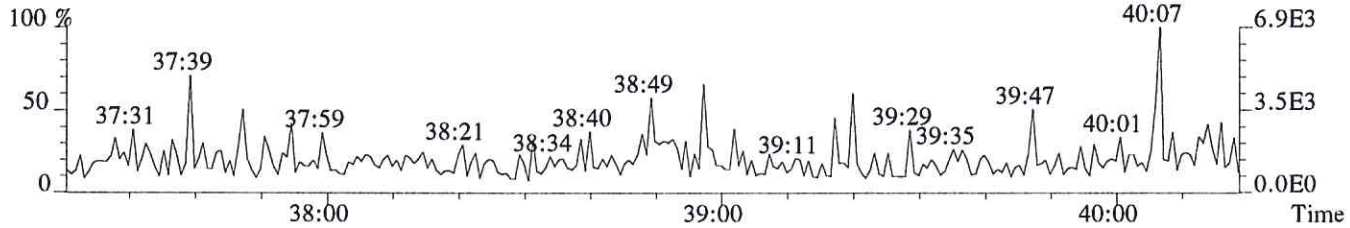
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.50%,F,T)



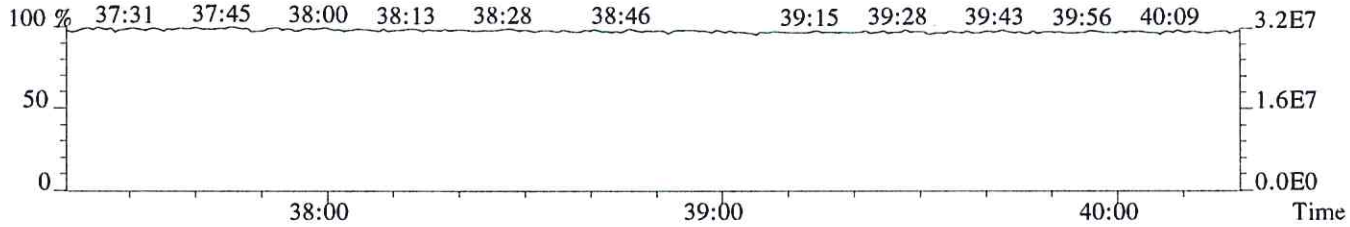
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.50%,F,T)



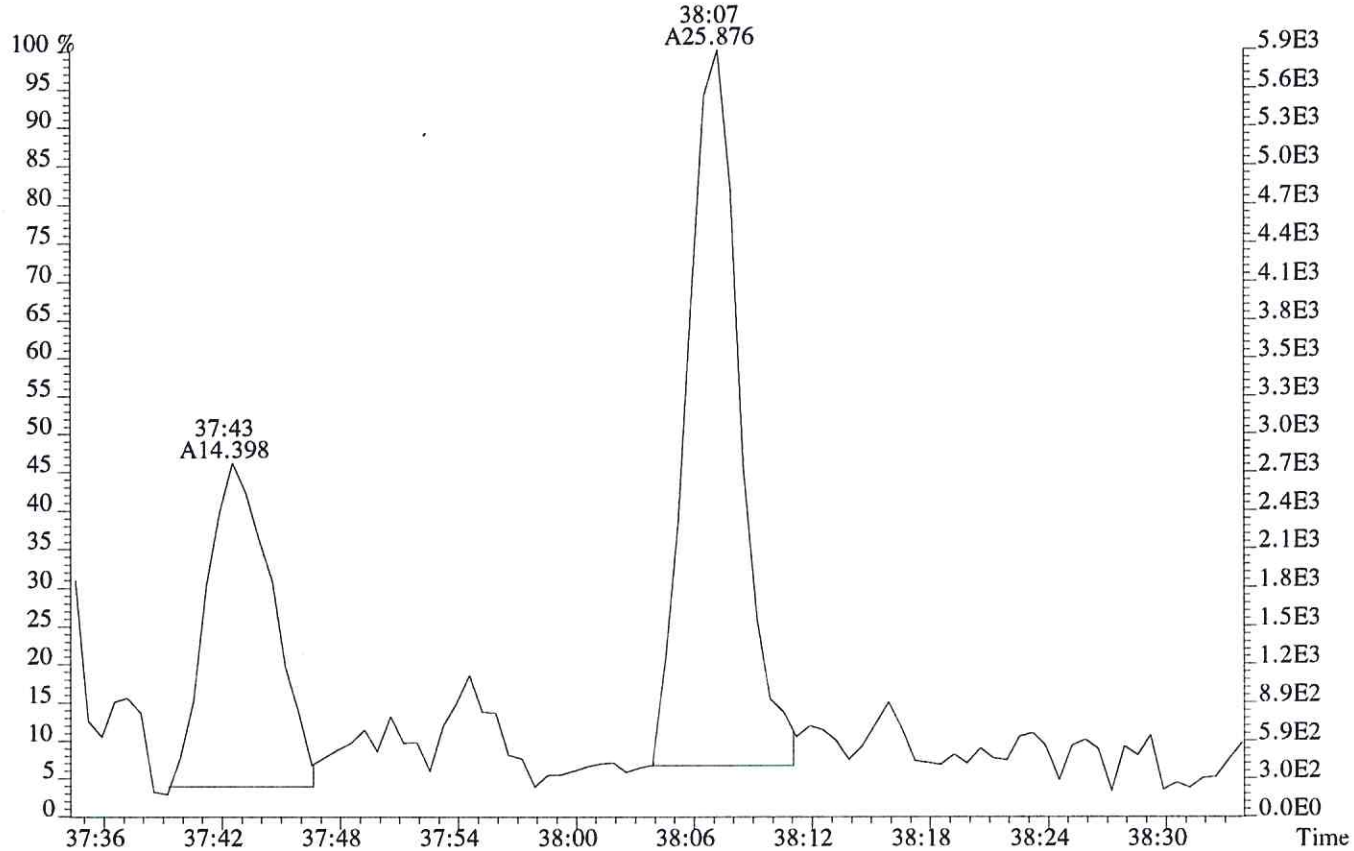
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



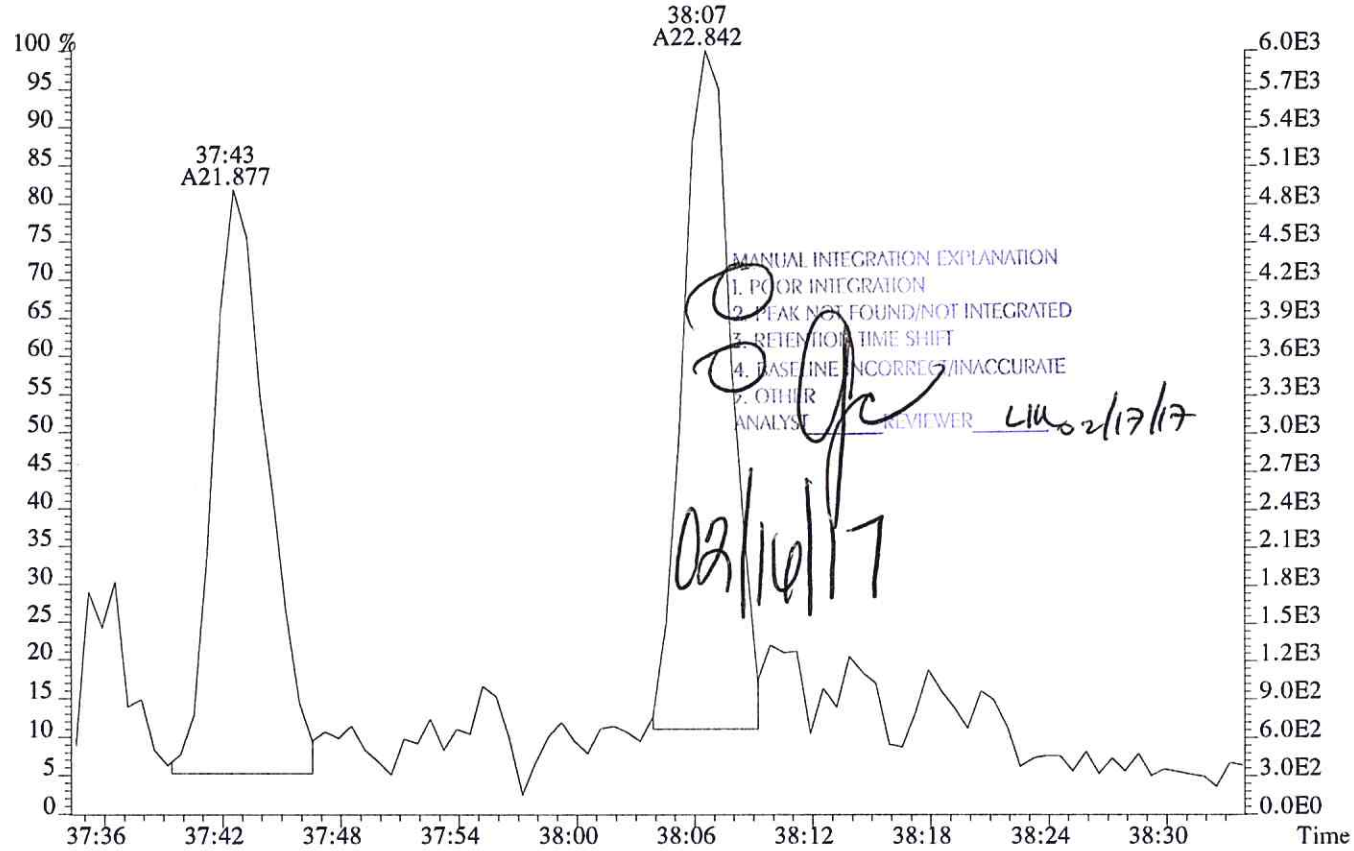
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



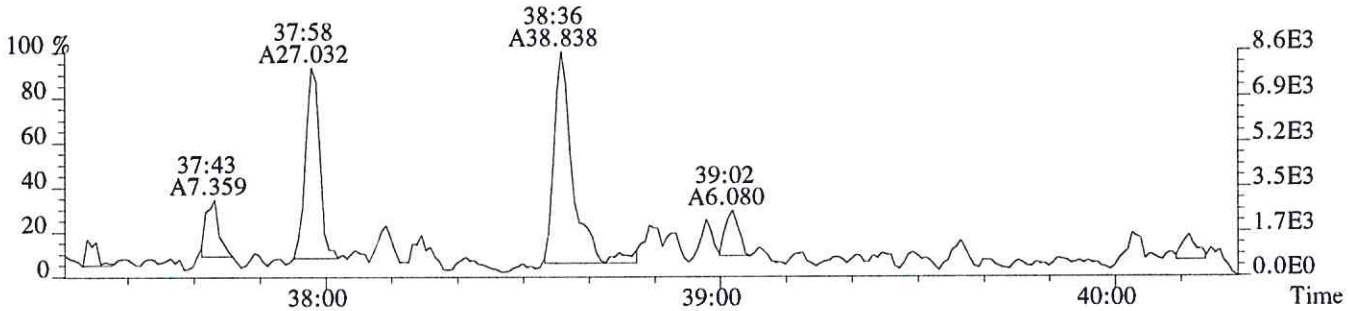
File:P405402 #1-268 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.50%,F,T)



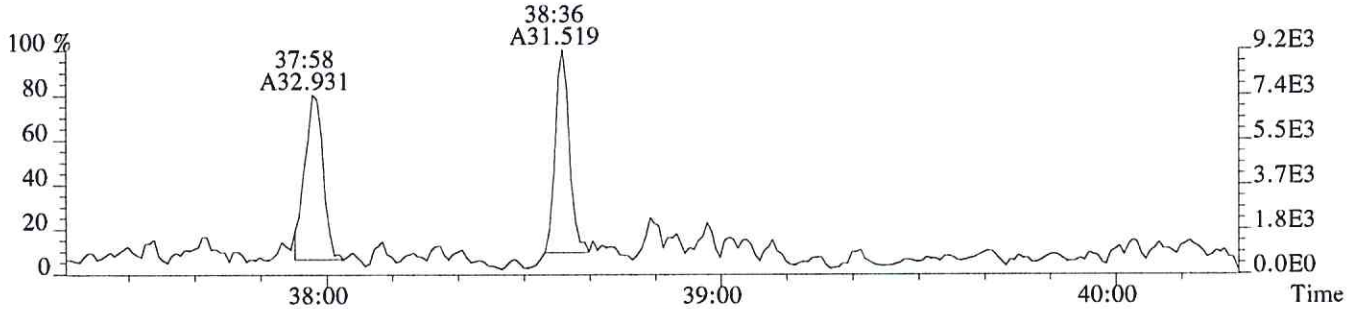
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.50%,F,T)



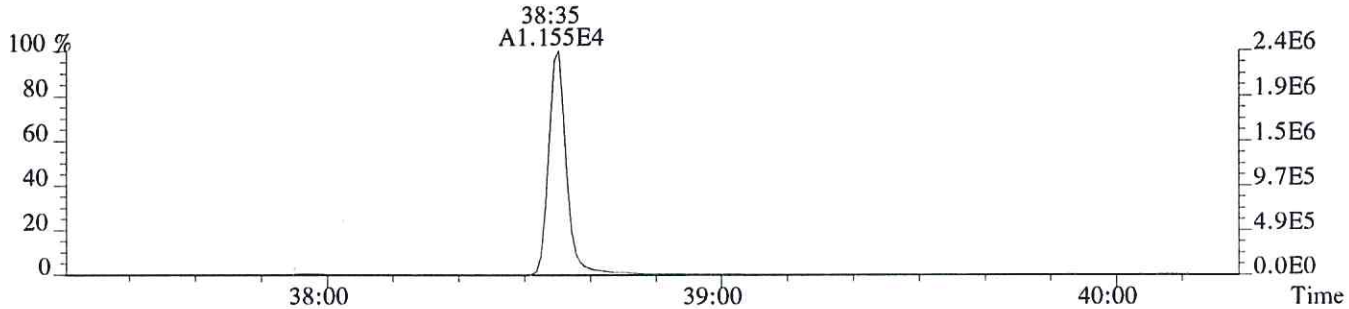
File:P405402 #1-268 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



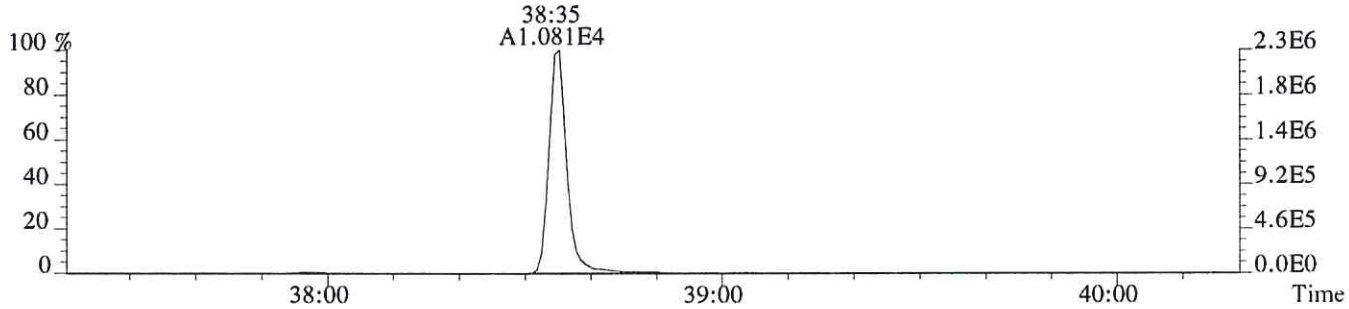
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



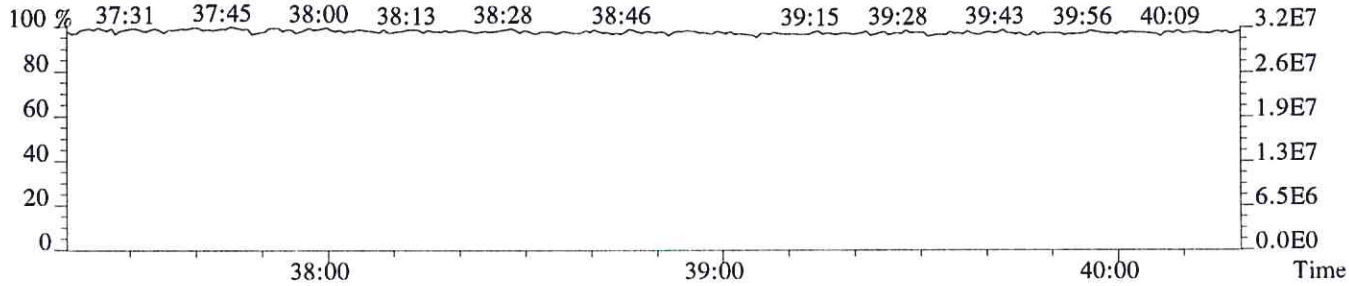
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



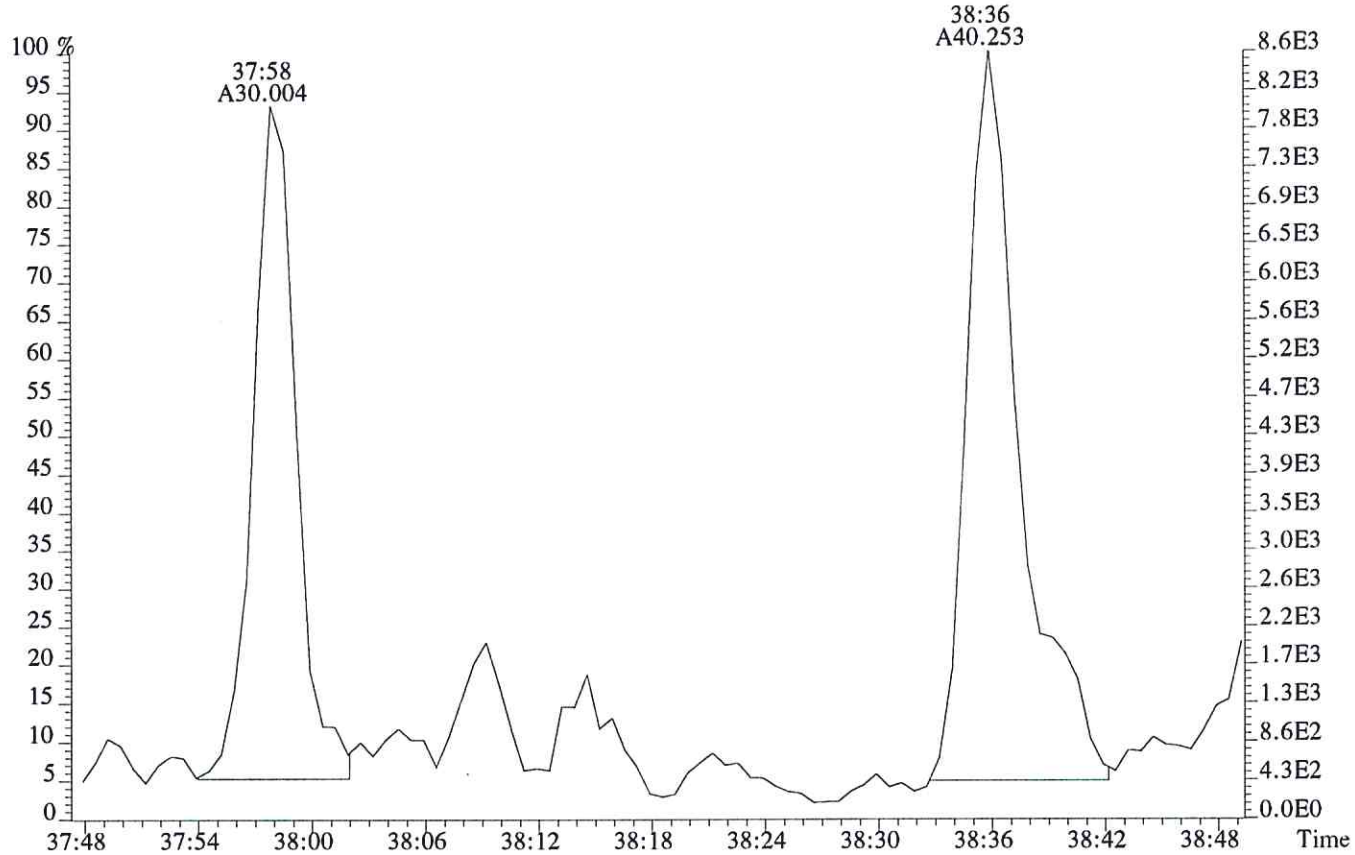
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



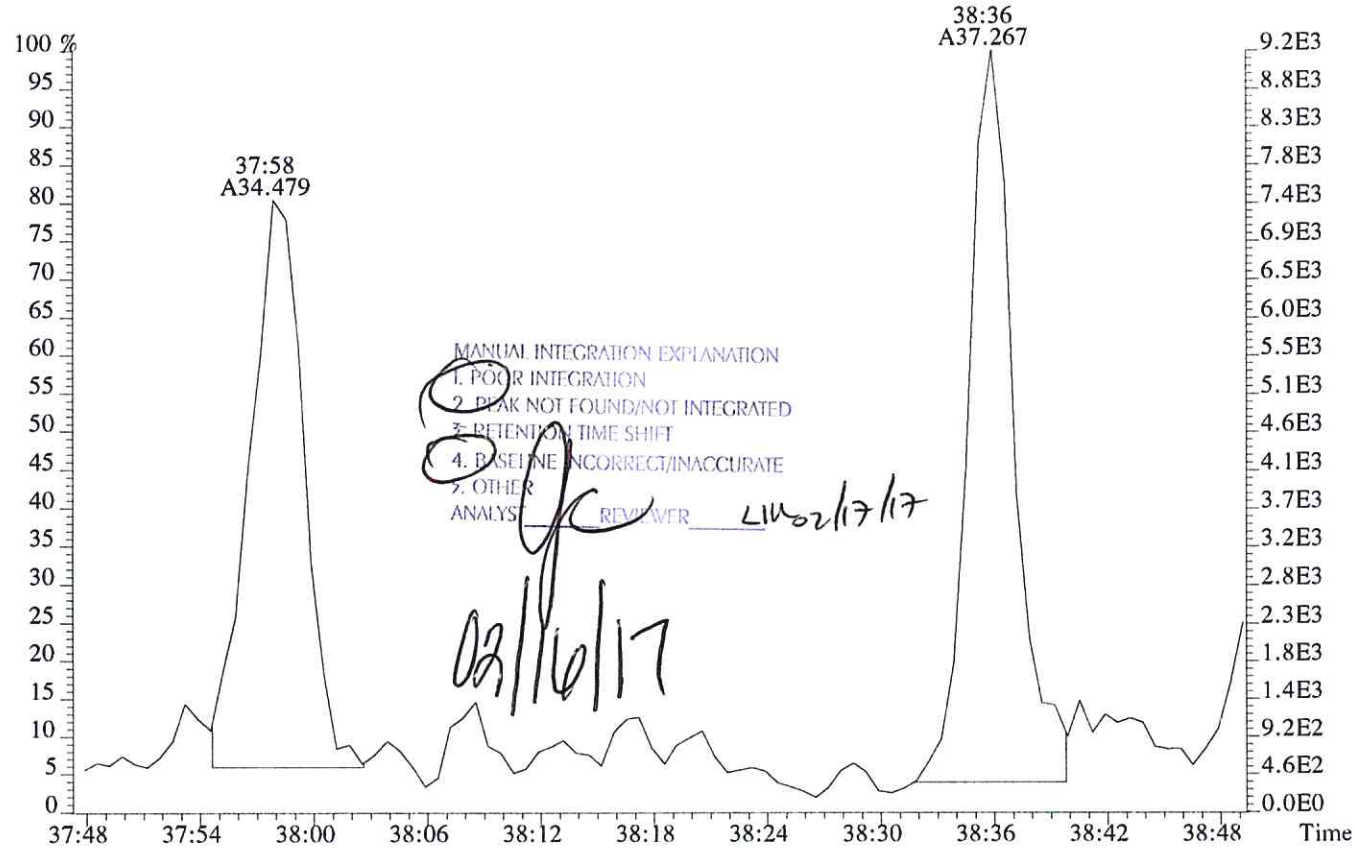
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P405402 #1-268 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)

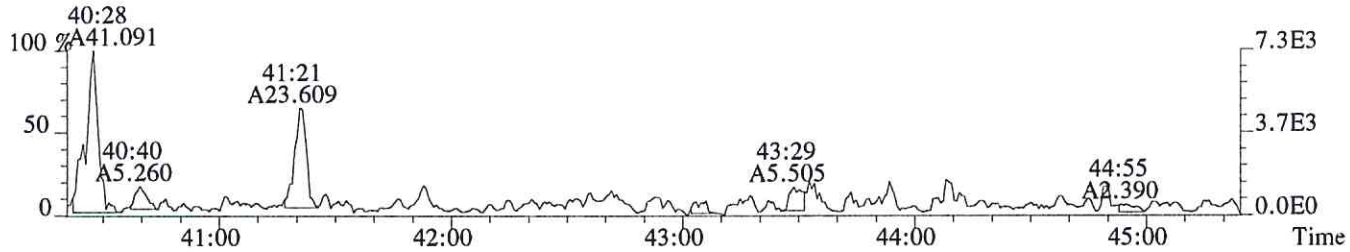


425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)

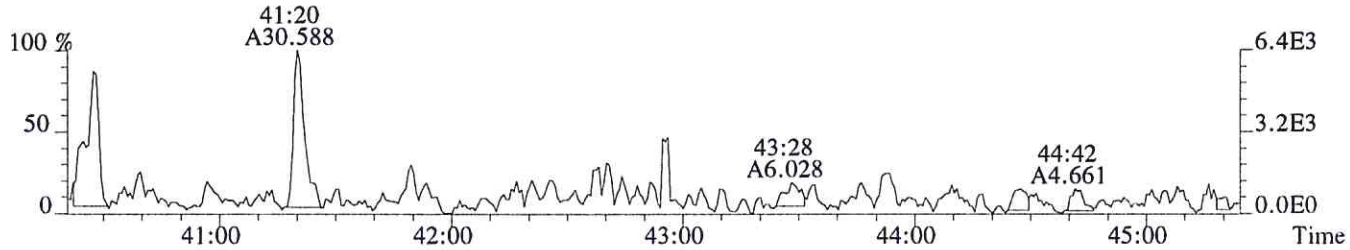


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST ____ REVIEWER LW 02/17/17
02/16/17

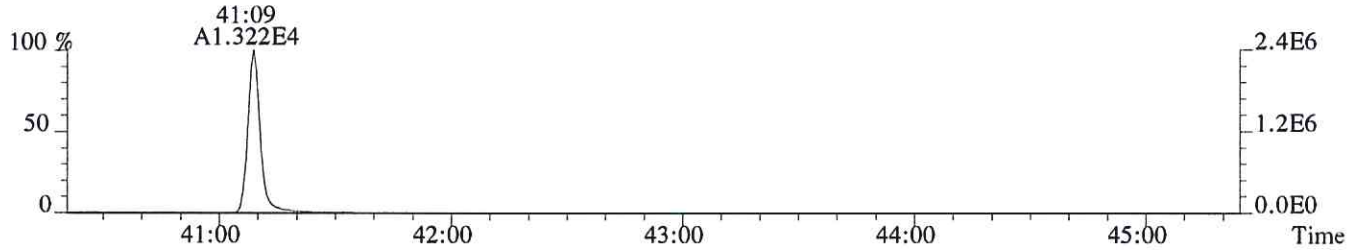
File:P405402 #1-456 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,512.0,0.40%,F,T)



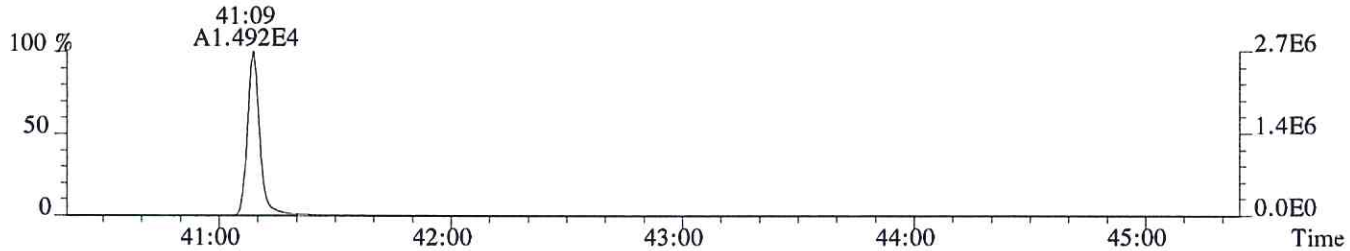
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



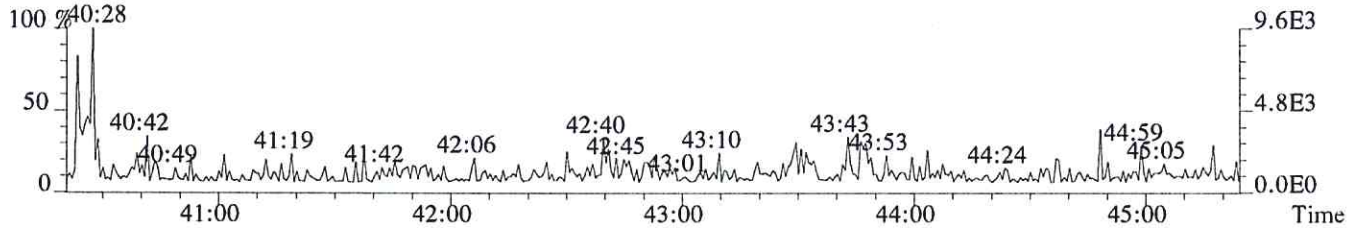
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1420.0,0.40%,F,T)



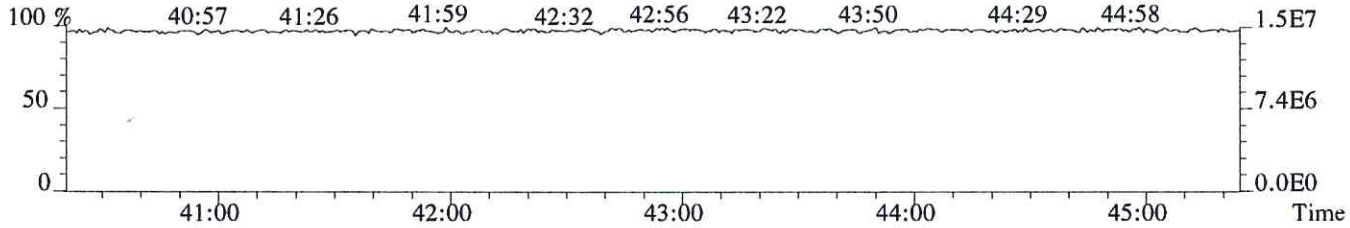
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1564.0,0.40%,F,T)



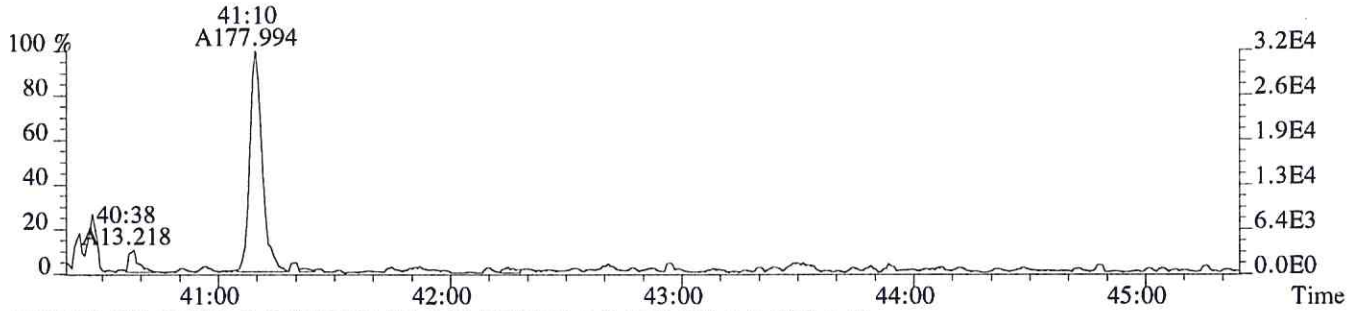
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



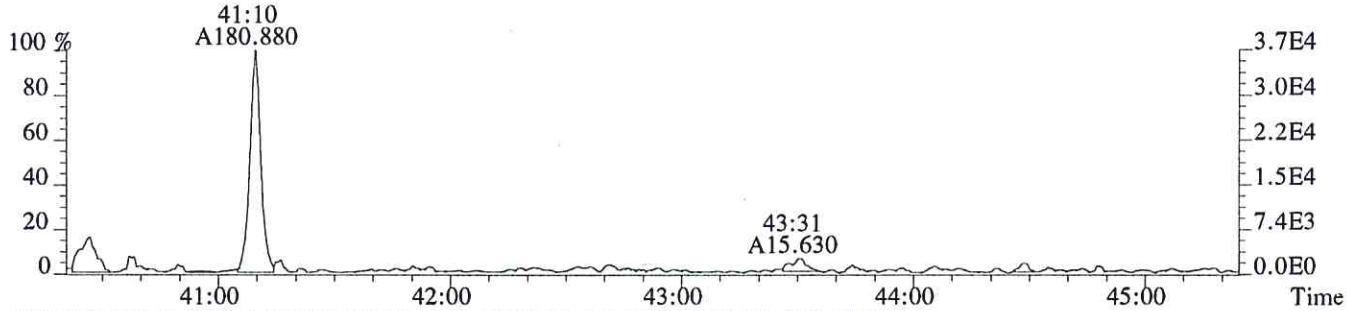
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



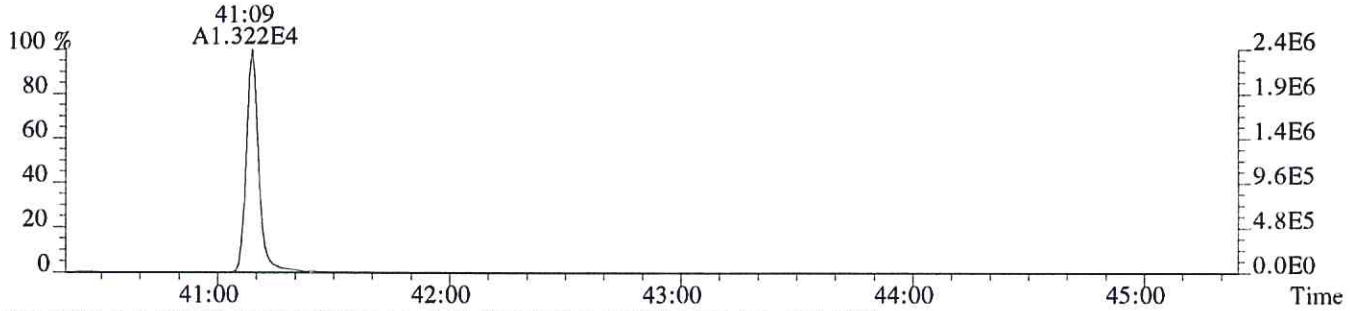
File:P405402 #1-456 Acq:15-FEB-2017 21:26:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1700102-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



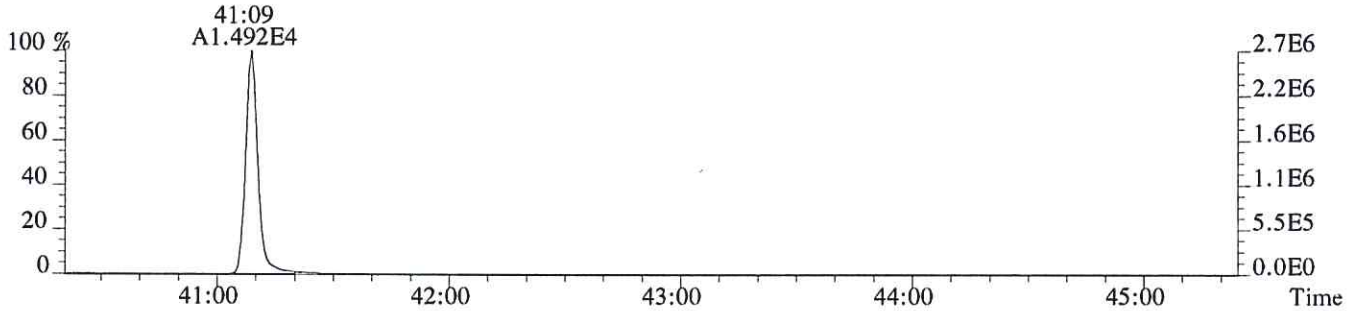
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



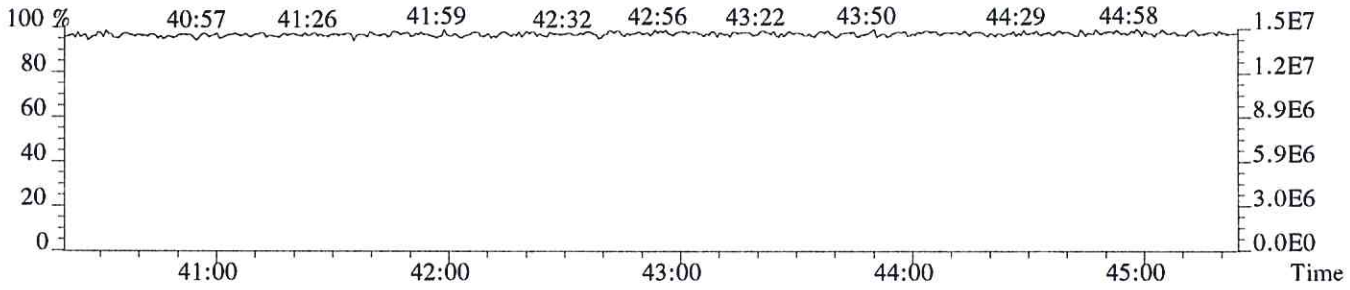
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1420.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1564.0,0.40%,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 #9 Filename P405431 Samp: 1 Inj: 1 Acquired: 16-FEB-17 23:59:54
Processed: 17-FEB-17 10:42:57 Sample ID: EQ1700058-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.769
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.872
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.826
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.015
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	1.409e+01	1.459e+01	0.97	yes	yes	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.187
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.035
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.873
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.881
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	0.882
17	Unk	OCDD	NotFnd	*	*	*	no	yes	0.980
18	IS	13C-2,3,7,8-TCDF	26:52	1.047e+04	1.382e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	1.919e+04	1.232e+04	1.56	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:21	1.751e+04	1.118e+04	1.57	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:05	7.184e+03	1.412e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:12	8.963e+03	1.721e+04	0.52	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	6.714e+03	1.332e+04	0.50	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:28	6.162e+03	1.213e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:43	4.658e+03	1.097e+04	0.42	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:02	5.164e+03	1.197e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:44	1.101e+04	1.415e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:38	1.638e+04	1.038e+04	1.58	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	1.199e+04	9.697e+03	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:56	1.246e+04	9.950e+03	1.25	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	9.726e+03	9.283e+03	1.05	yes	no	0.817
32	IS	13C-OCDD	41:09	1.210e+04	1.373e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:06	1.690e+04	2.171e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:10	1.842e+04	1.509e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	1.118e+04				no	0.958

```
        (*          + *          ) x 4000 pg x 1
OCDD =-------------------------------------------------------- =
        (1.210e+04 + 1.373e+04) x        g  x      / 100 x 0.980
```

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

CLIENT ID.
METHOD BLANK

Run #9 Filename P405431 Samp: 1 Inj: 1 Acquired: 16-FEB-17 23:59:54
Processed: 17-FEB-17 10:42:57 LAB. ID: EQ1700058-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	8.52e+02	*	*	1.55e+03	*
2	1,2,3,7,8-PeCDF	*	1.02e+03	*	*	1.18e+03	*
3	2,3,4,7,8-PeCDF	*	1.02e+03	*	*	1.18e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.26e+03	*	*	1.34e+03	*
5	1,2,3,6,7,8-HxCDF	*	1.26e+03	*	*	1.34e+03	*
6	2,3,4,6,7,8-HxCDF	*	1.26e+03	*	*	1.34e+03	*
7	1,2,3,7,8,9-HxCDF	*	1.26e+03	*	*	1.34e+03	*
8	1,2,3,4,6,7,8-HpCDF	3.70e+03	7.92e+02	4.7e+00	2.97e+03	8.72e+02	3.4e+00
9	1,2,3,4,7,8,9-HpCDF	*	7.92e+02	*	*	8.72e+02	*
10	OCDF	*	1.02e+03	*	*	1.08e+03	*
11	2,3,7,8-TCDD	*	2.22e+03	*	*	1.99e+03	*
12	1,2,3,7,8-PeCDD	*	1.26e+03	*	*	7.96e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.12e+02	*	*	1.12e+03	*
14	1,2,3,6,7,8-HxCDD	*	7.12e+02	*	*	1.12e+03	*
15	1,2,3,7,8,9-HxCDD	*	7.12e+02	*	*	1.12e+03	*
16	1,2,3,4,6,7,8-HpCDD	*	1.14e+03	*	*	1.05e+03	*
17	OCDD	*	1.46e+03	*	*	7.00e+02	*
18	13C-2,3,7,8-TCDF	1.70e+06	5.18e+03	3.3e+02	2.19e+06	3.88e+03	5.6e+02
19	13C-1,2,3,7,8-PeCDF	3.43e+06	8.16e+02	4.2e+03	2.23e+06	9.64e+02	2.3e+03
20	13C-2,3,4,7,8-PeCDF	3.41e+06	8.16e+02	4.2e+03	2.19e+06	9.64e+02	2.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.54e+06	1.15e+03	1.3e+03	3.01e+06	1.27e+03	2.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.83e+06	1.15e+03	1.6e+03	3.49e+06	1.27e+03	2.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.46e+06	1.15e+03	1.3e+03	2.85e+06	1.27e+03	2.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.29e+06	1.15e+03	1.1e+03	2.52e+06	1.27e+03	2.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.02e+06	1.76e+03	5.8e+02	2.42e+06	2.53e+03	9.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.04e+06	1.76e+03	5.9e+02	2.46e+06	2.53e+03	9.7e+02
27	13C-2,3,7,8-TCDD	1.88e+06	3.18e+03	5.9e+02	2.46e+06	2.58e+03	9.5e+02
28	13C-1,2,3,7,8-PeCDD	3.18e+06	1.22e+03	2.6e+03	2.03e+06	1.35e+03	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	2.69e+06	7.72e+02	3.5e+03	2.19e+06	8.36e+02	2.6e+03
30	13C-1,2,3,6,7,8-HxCDD	2.65e+06	7.72e+02	3.4e+03	2.12e+06	8.36e+02	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.13e+06	1.14e+03	1.9e+03	2.00e+06	1.40e+03	1.4e+03
32	13C-OCDD	2.22e+06	1.96e+03	1.1e+03	2.51e+06	2.05e+03	1.2e+03
33	13C-1,2,3,4-TCDD	2.89e+06	3.18e+03	9.1e+02	3.67e+06	2.58e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	3.93e+06	7.72e+02	5.1e+03	3.24e+06	8.36e+02	3.9e+03
35	37Cl-2,3,7,8-TCDD	1.98e+06	1.89e+03	1.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P405431 Sample:1 Injection:1 Function:4

Acquired: 16-FEB-17 23:59:54 Processed: 17-FEB-17 10:42:57

Mass: 407.7820 409.7790 Tot Response: 2.87e+01 RRF: 1.213

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:43	1.41e+01	1.46e+01	0.97	yes	2.87e+01	1,2,3,4,6,7,8-HpCDF	y	y

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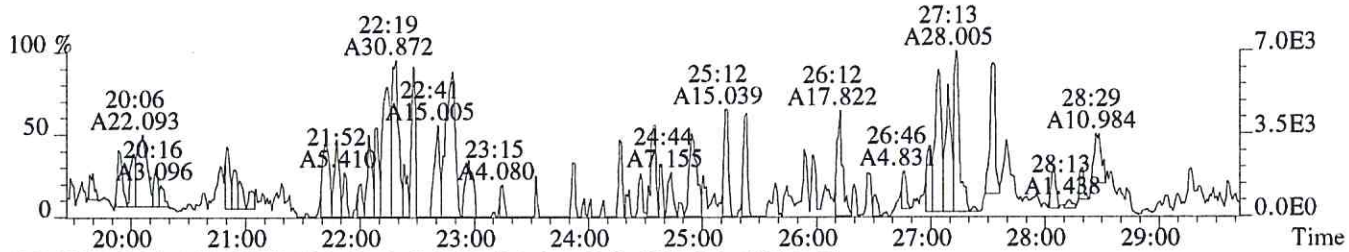
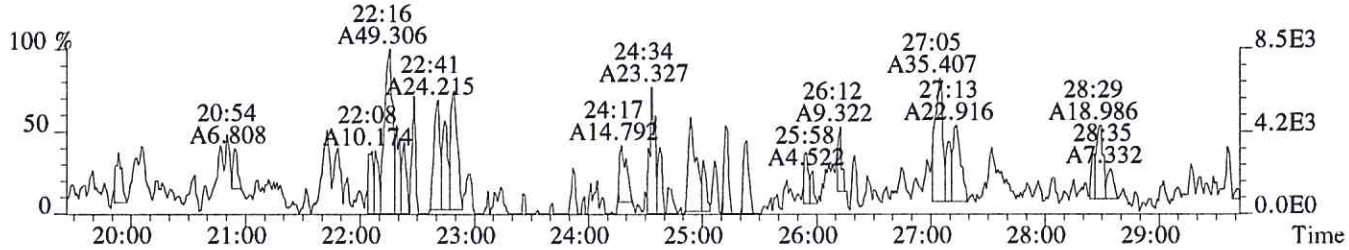
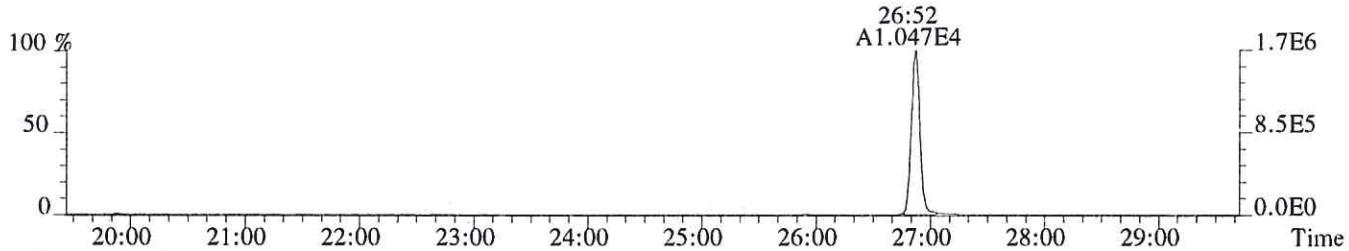
File:P405431 #1-729 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



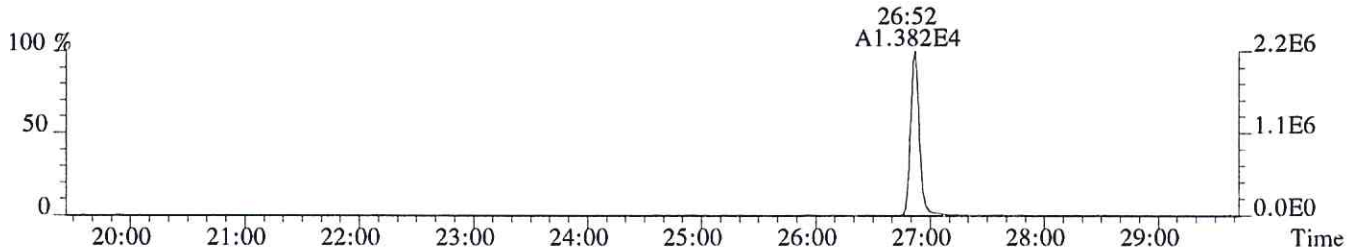
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



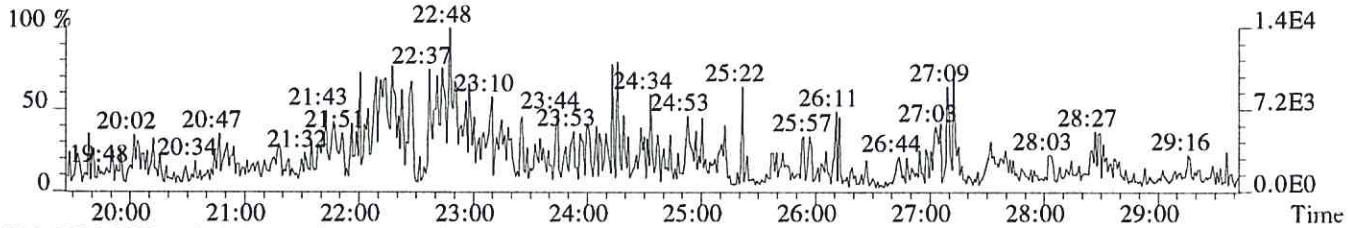
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5176.0,1.00%,F,T)



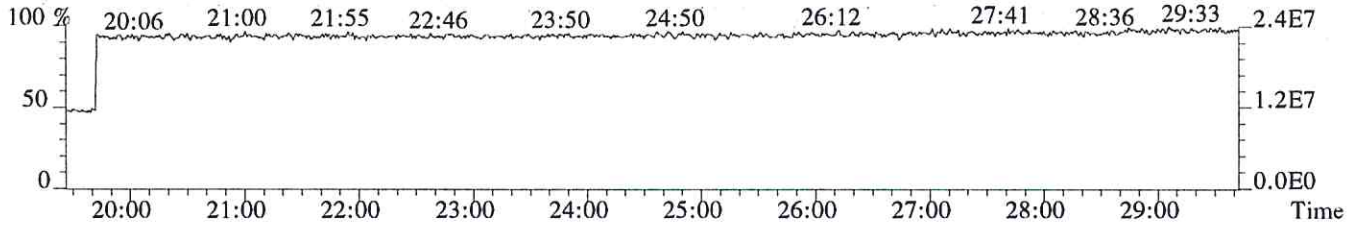
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3884.0,1.00%,F,T)



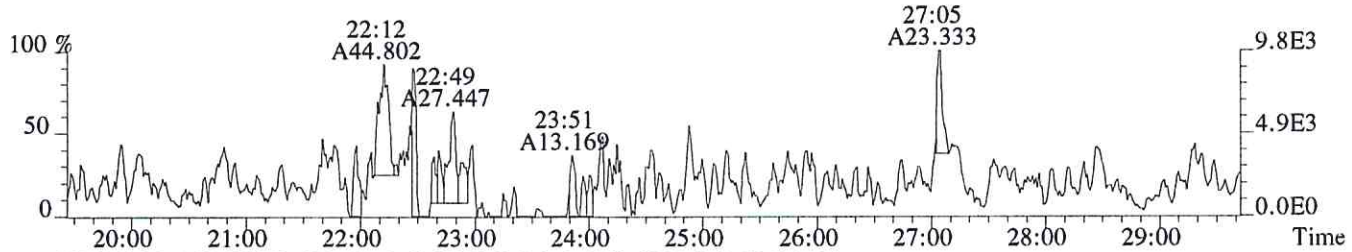
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



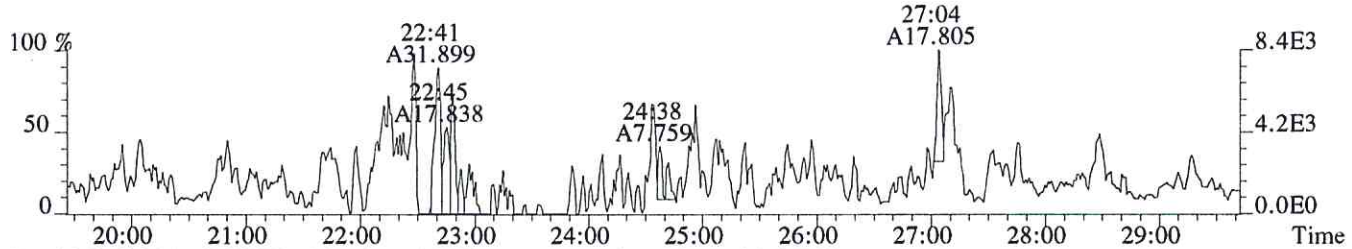
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



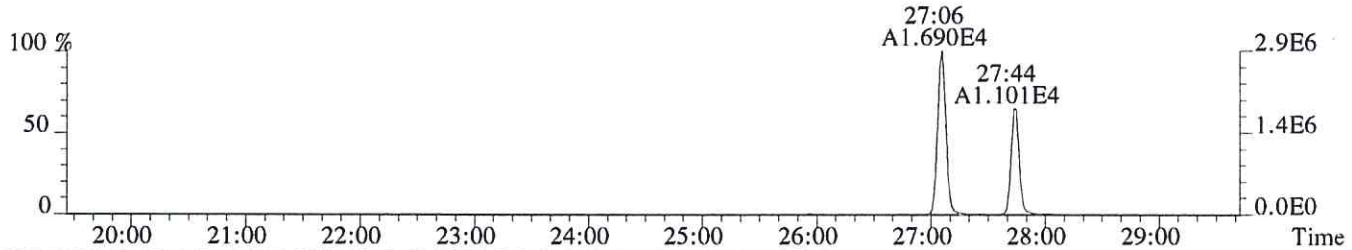
File:P405431 #1-729 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



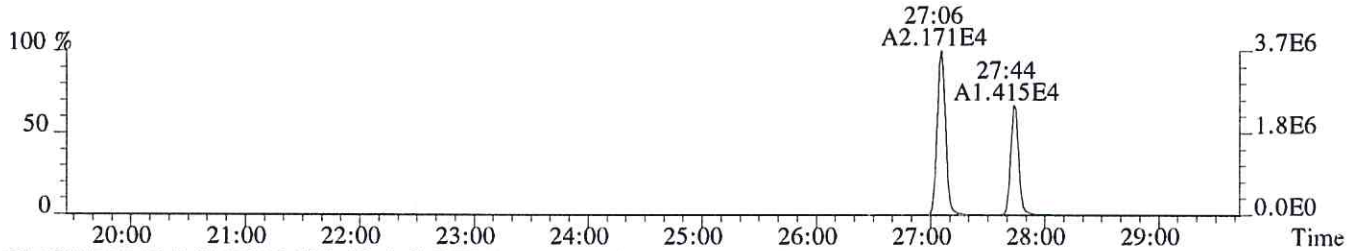
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



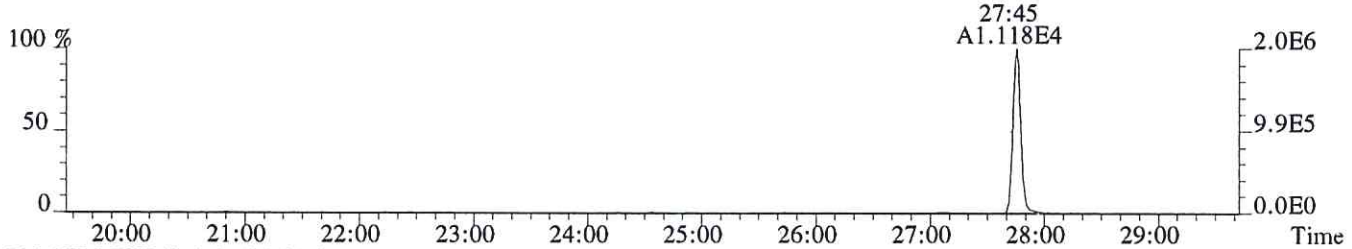
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3176.0,1.00%,F,T)



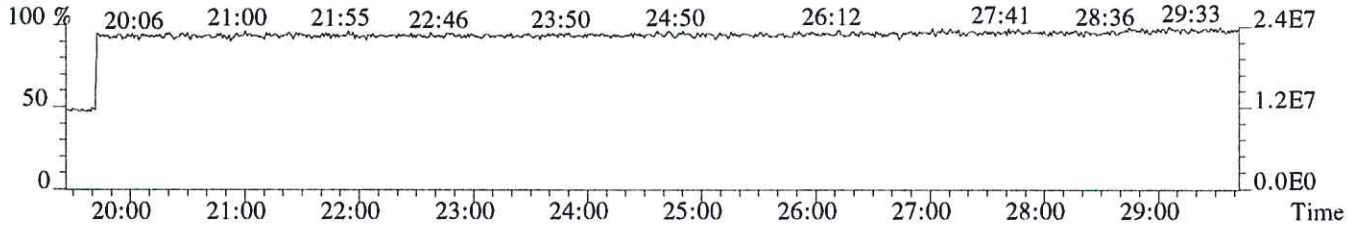
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2584.0,1.00%,F,T)



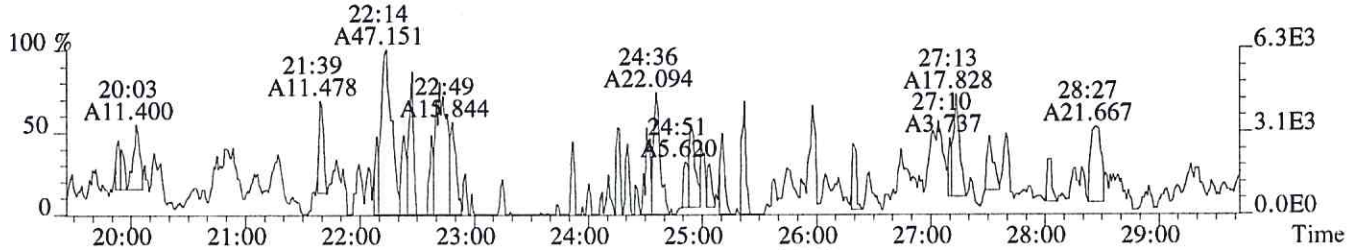
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



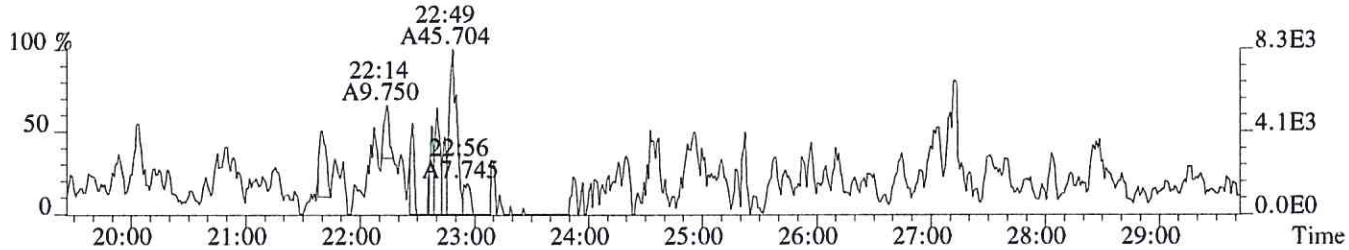
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



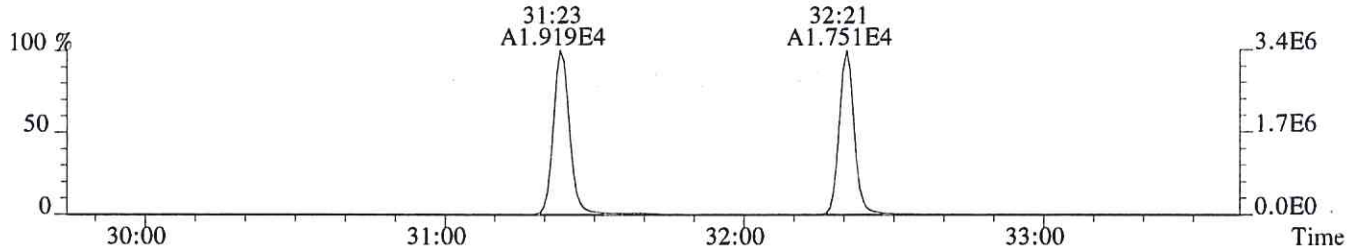
File:P405431 #1-729 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



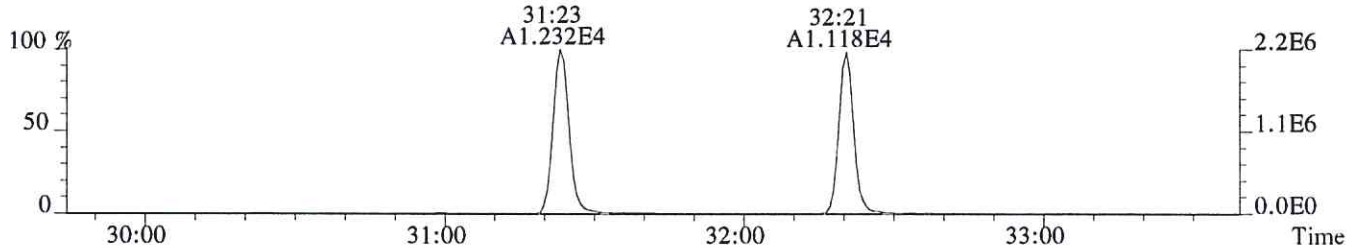
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



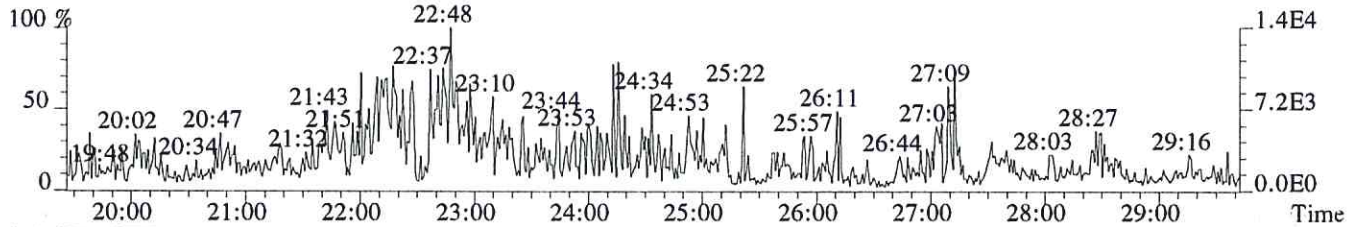
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



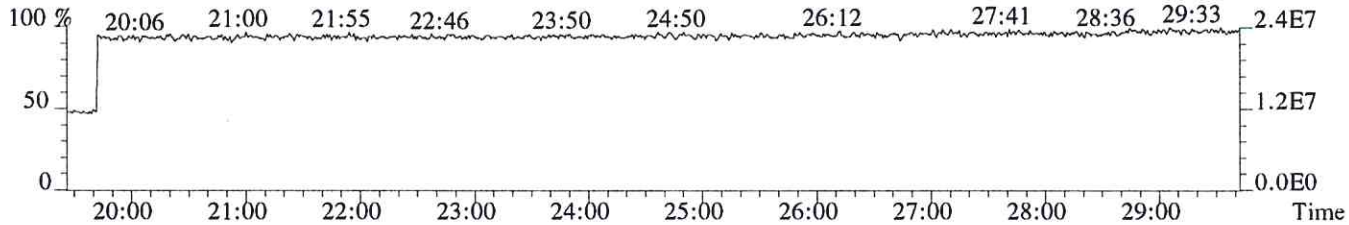
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



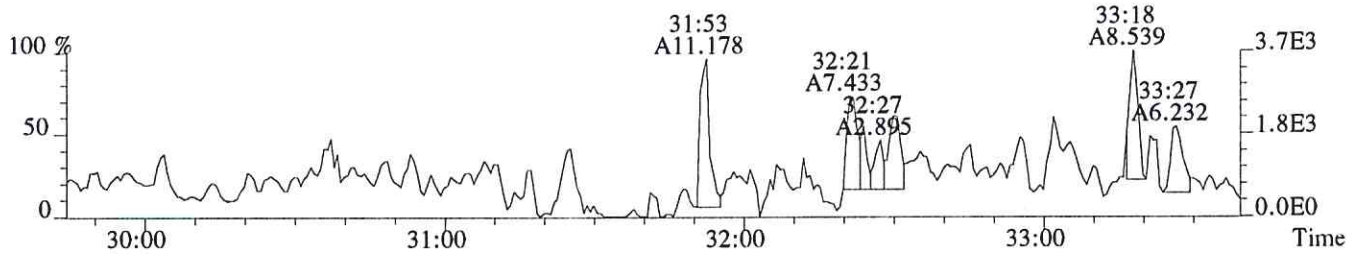
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



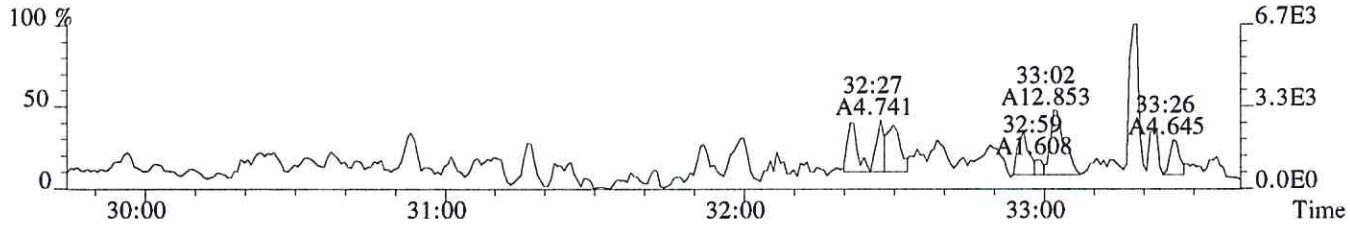
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



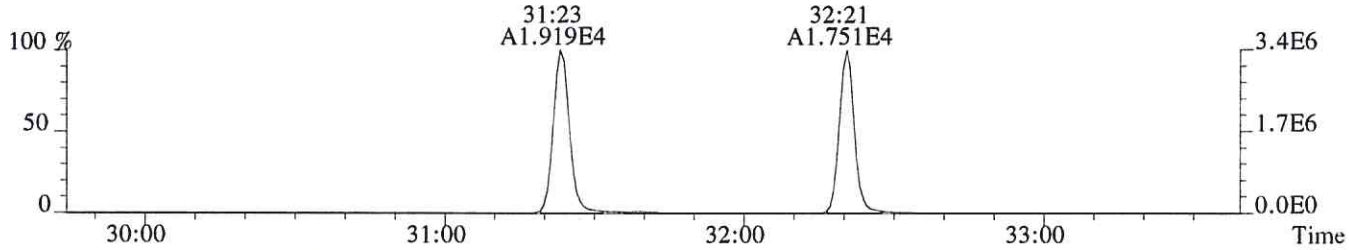
File:P405431 #1-353 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



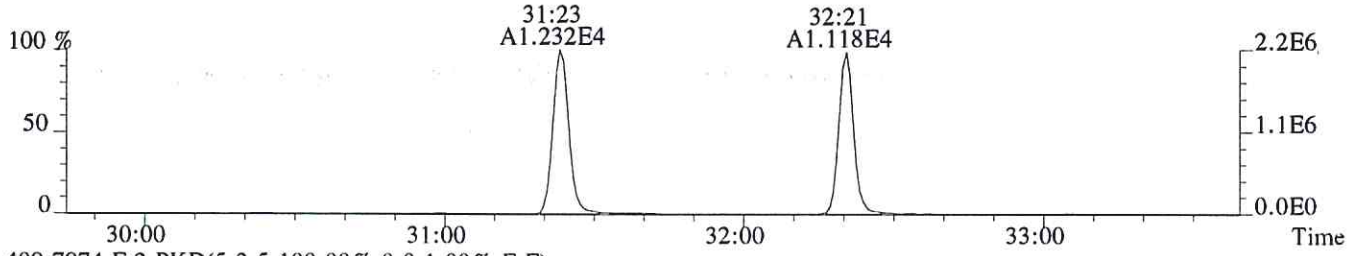
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



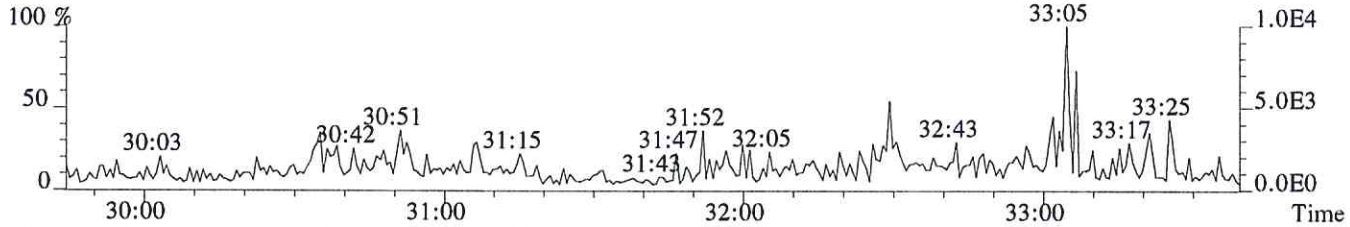
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



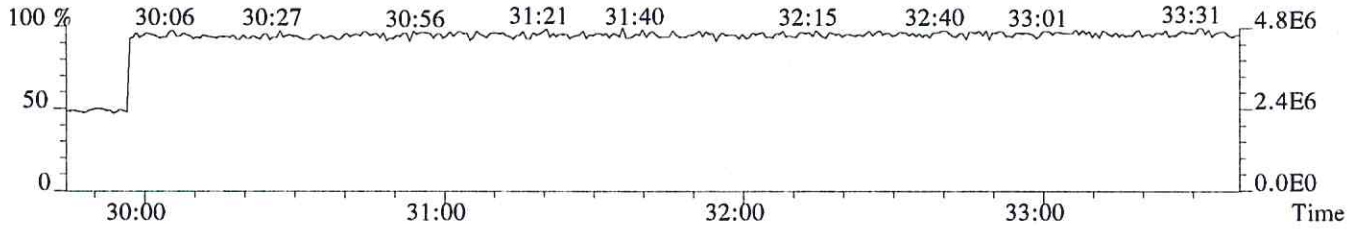
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



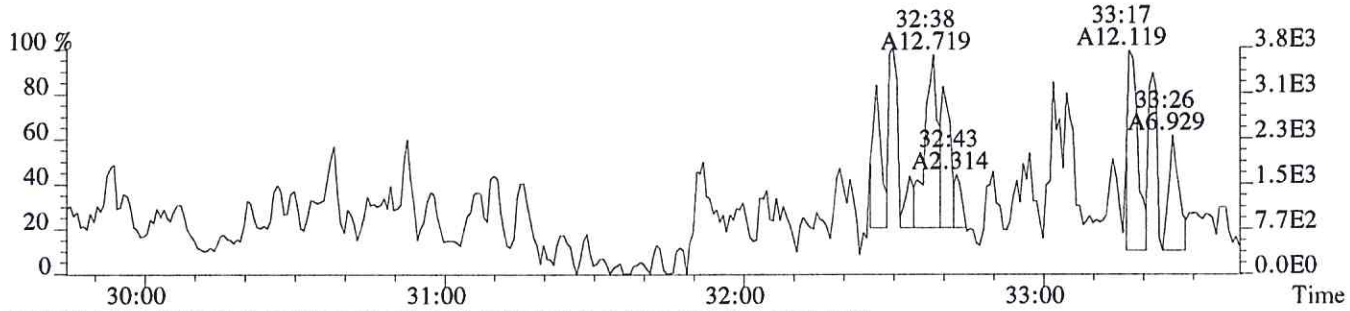
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



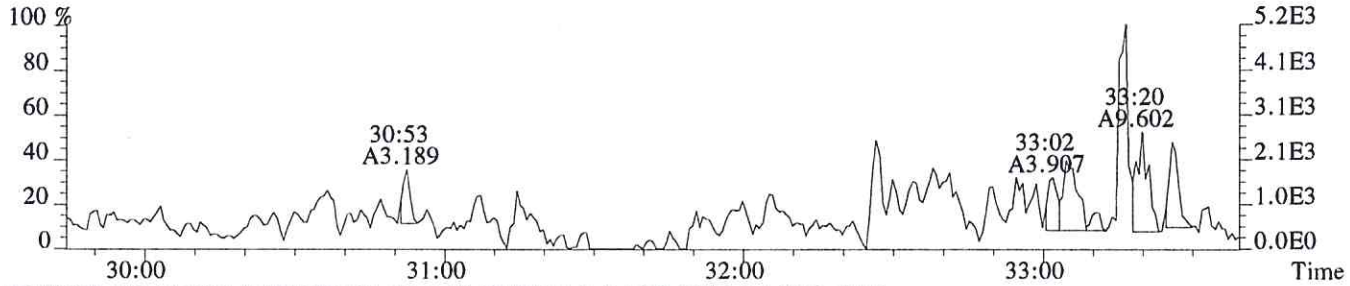
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



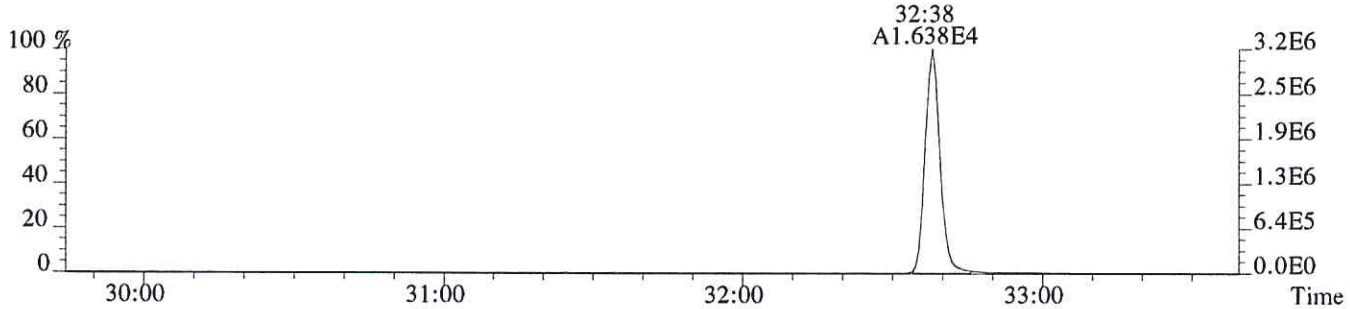
File:P405431 #1-353 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



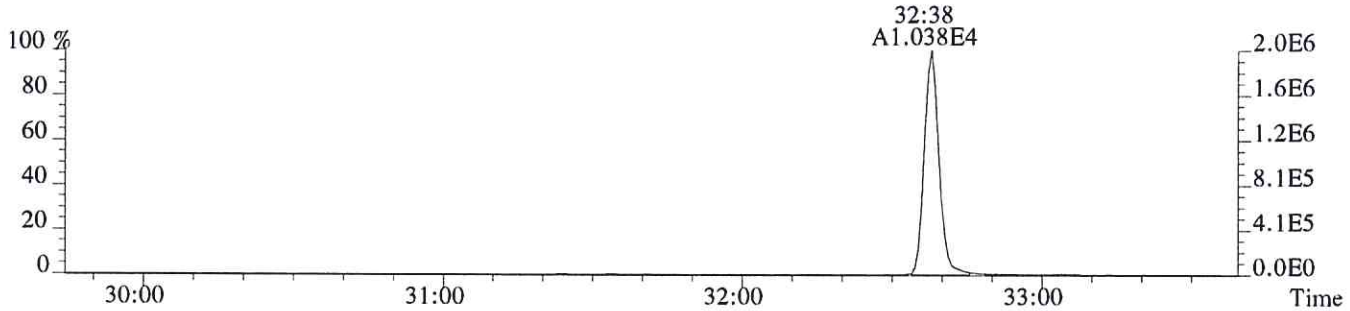
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



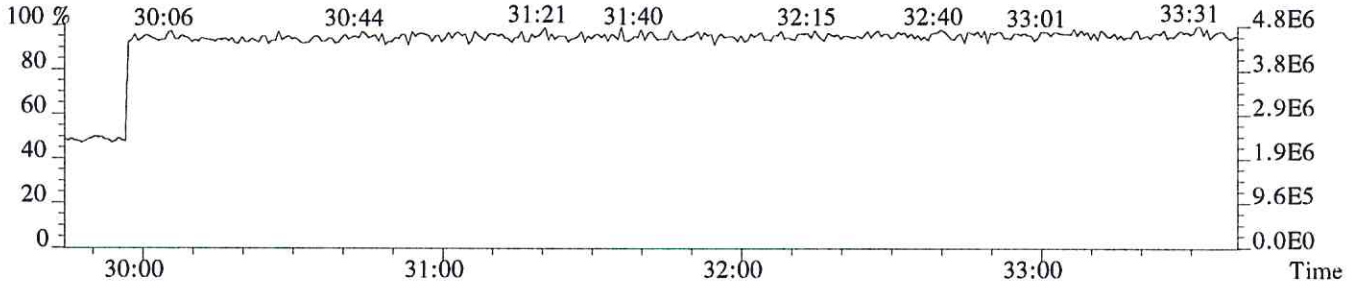
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



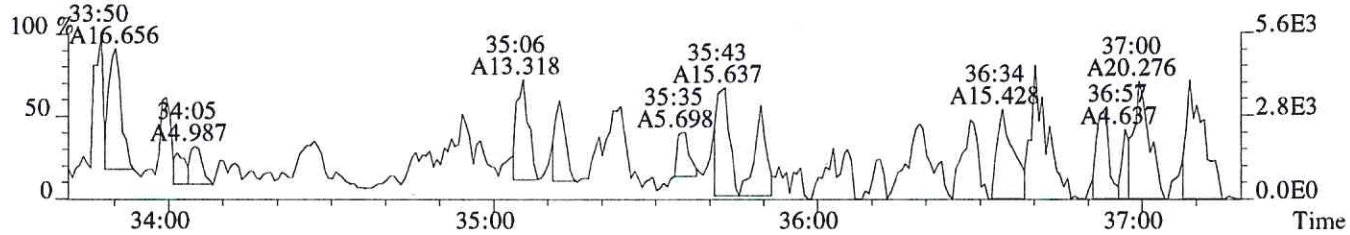
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



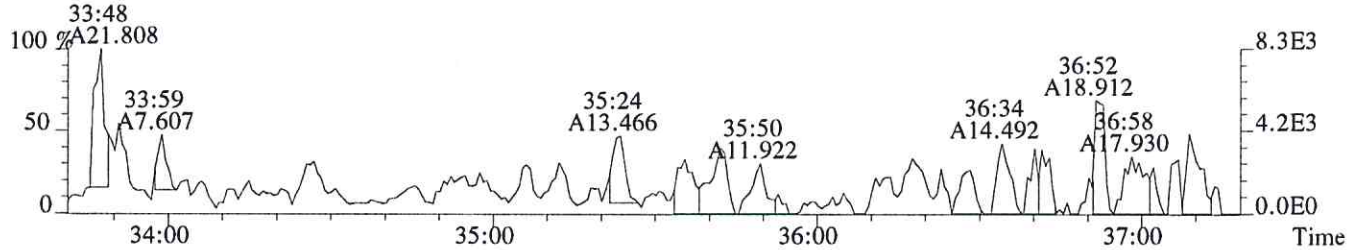
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



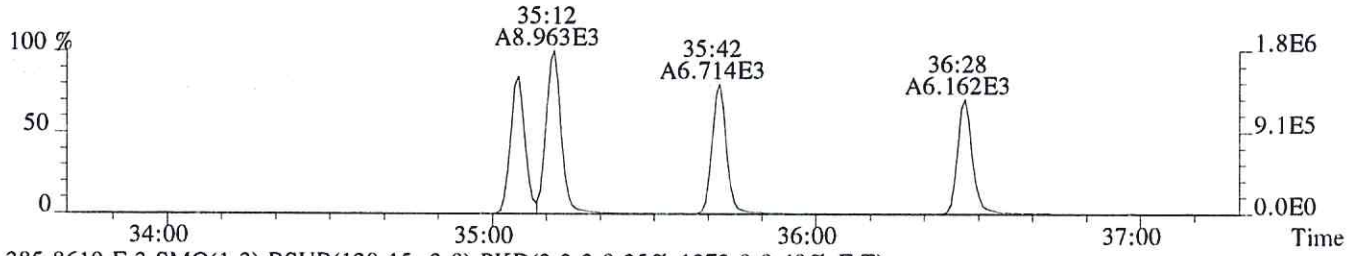
File:P405431 #1-326 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.40%,F,T)



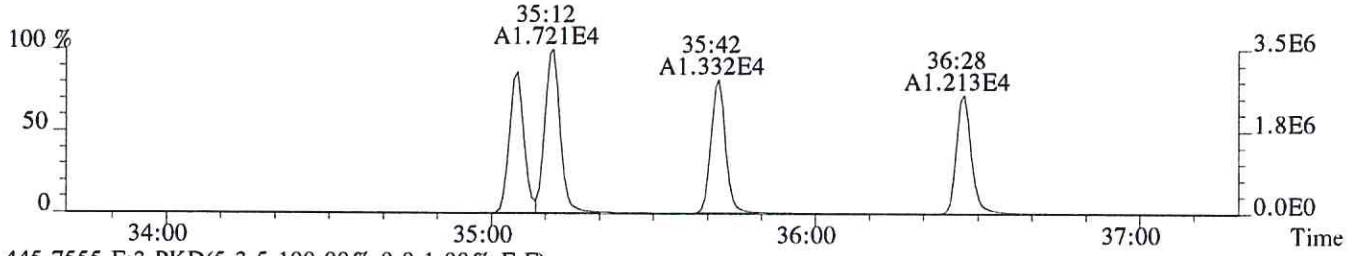
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1336.0,0.40%,F,T)



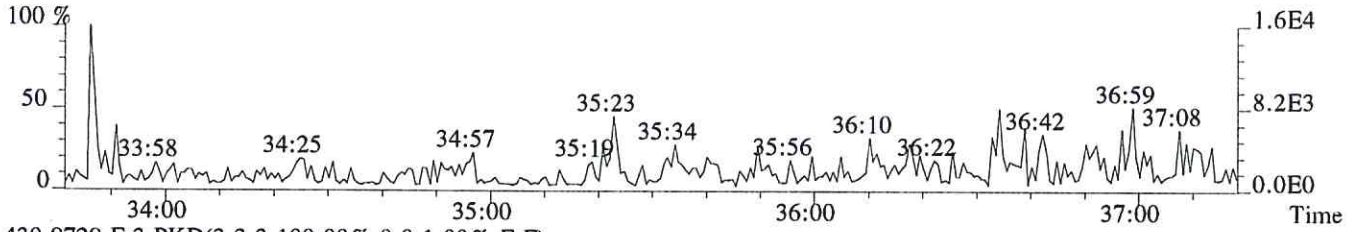
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



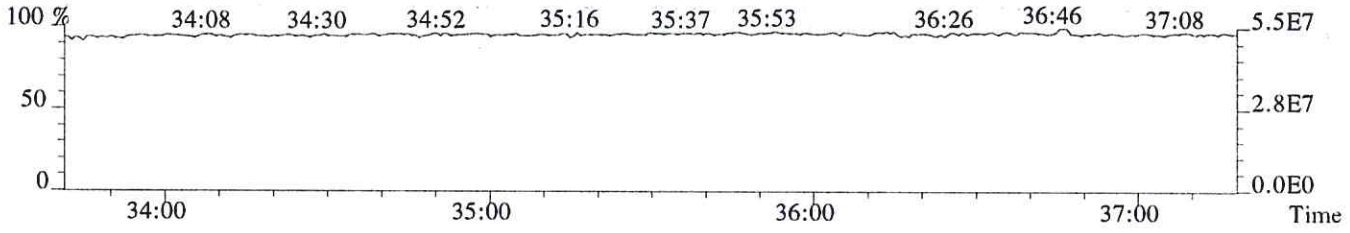
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.40%,F,T)



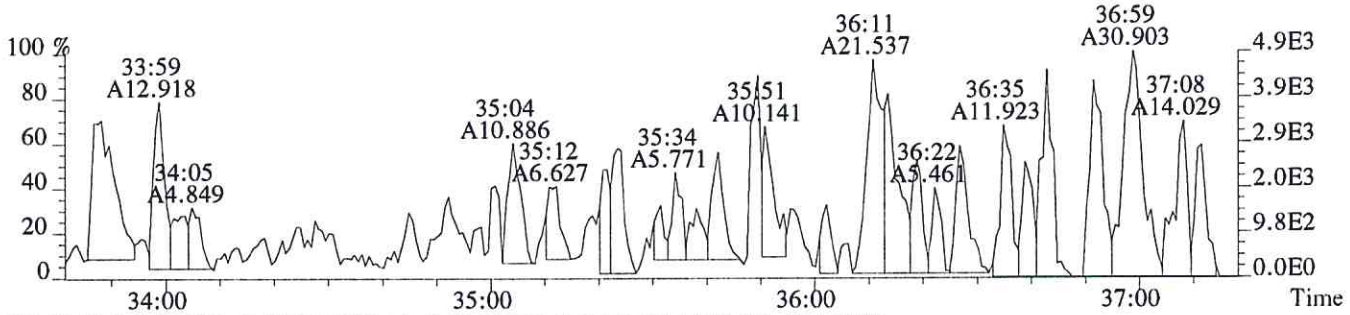
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



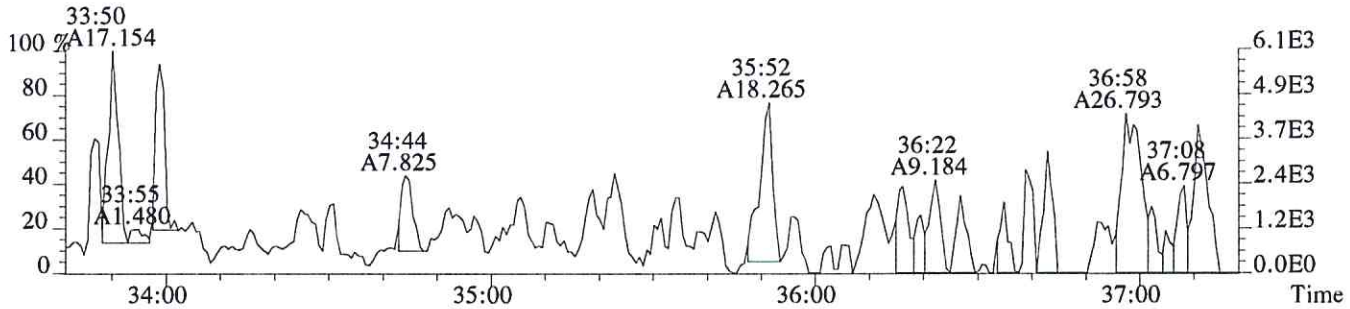
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



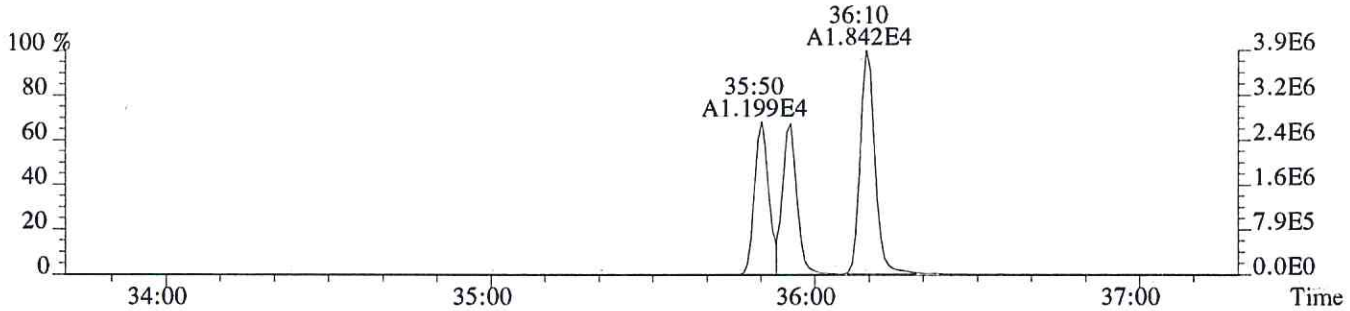
File:P405431 #1-326 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



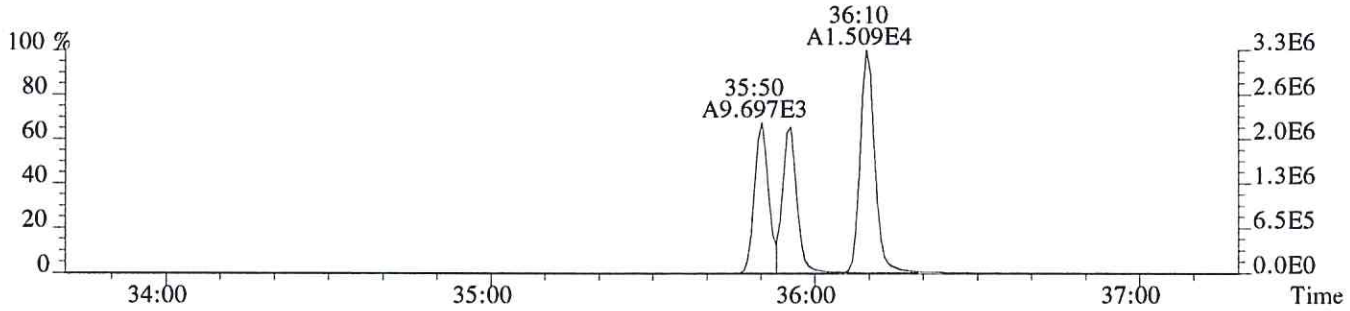
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



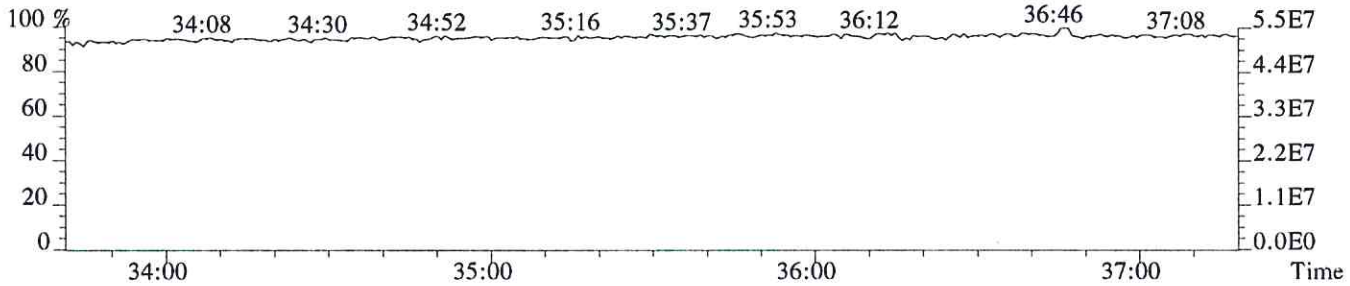
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



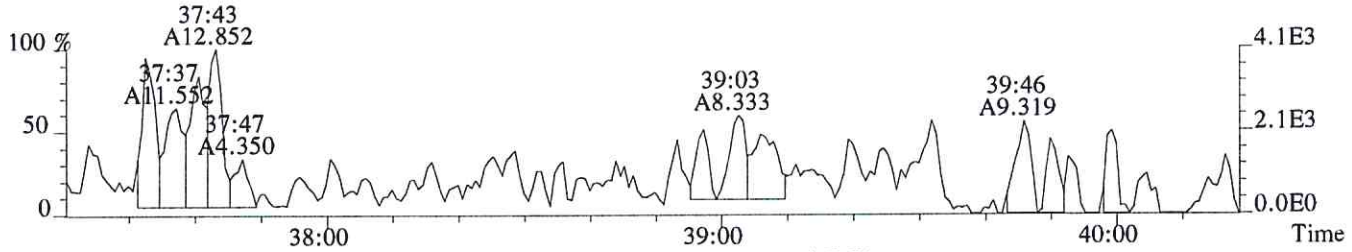
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



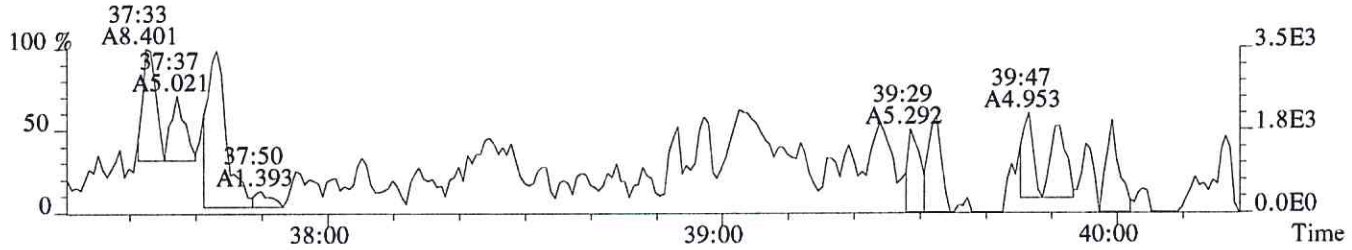
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



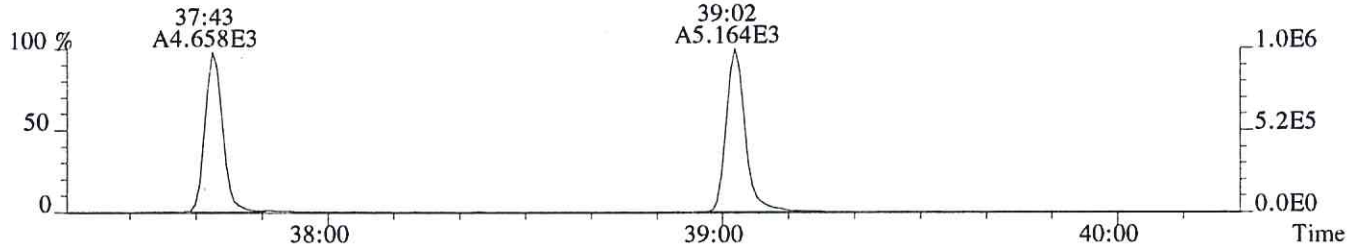
File:P405431 #1-268 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.50%,F,T)



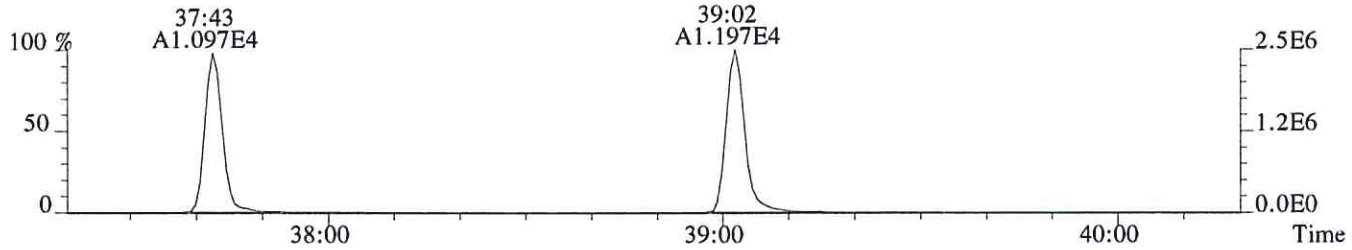
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.50%,F,T)



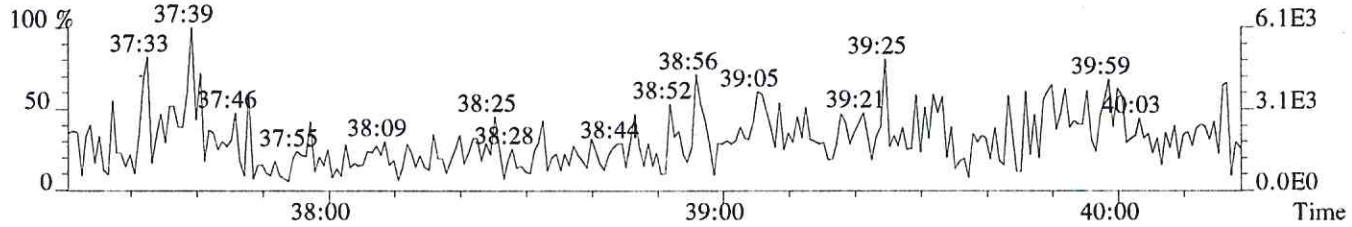
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.50%,F,T)



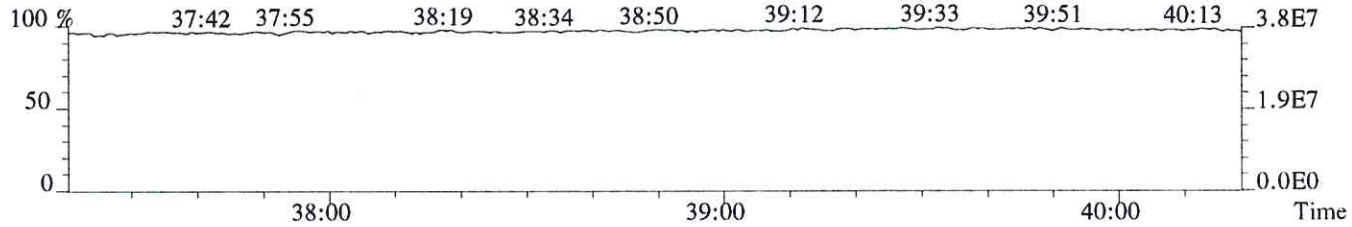
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.50%,F,T)



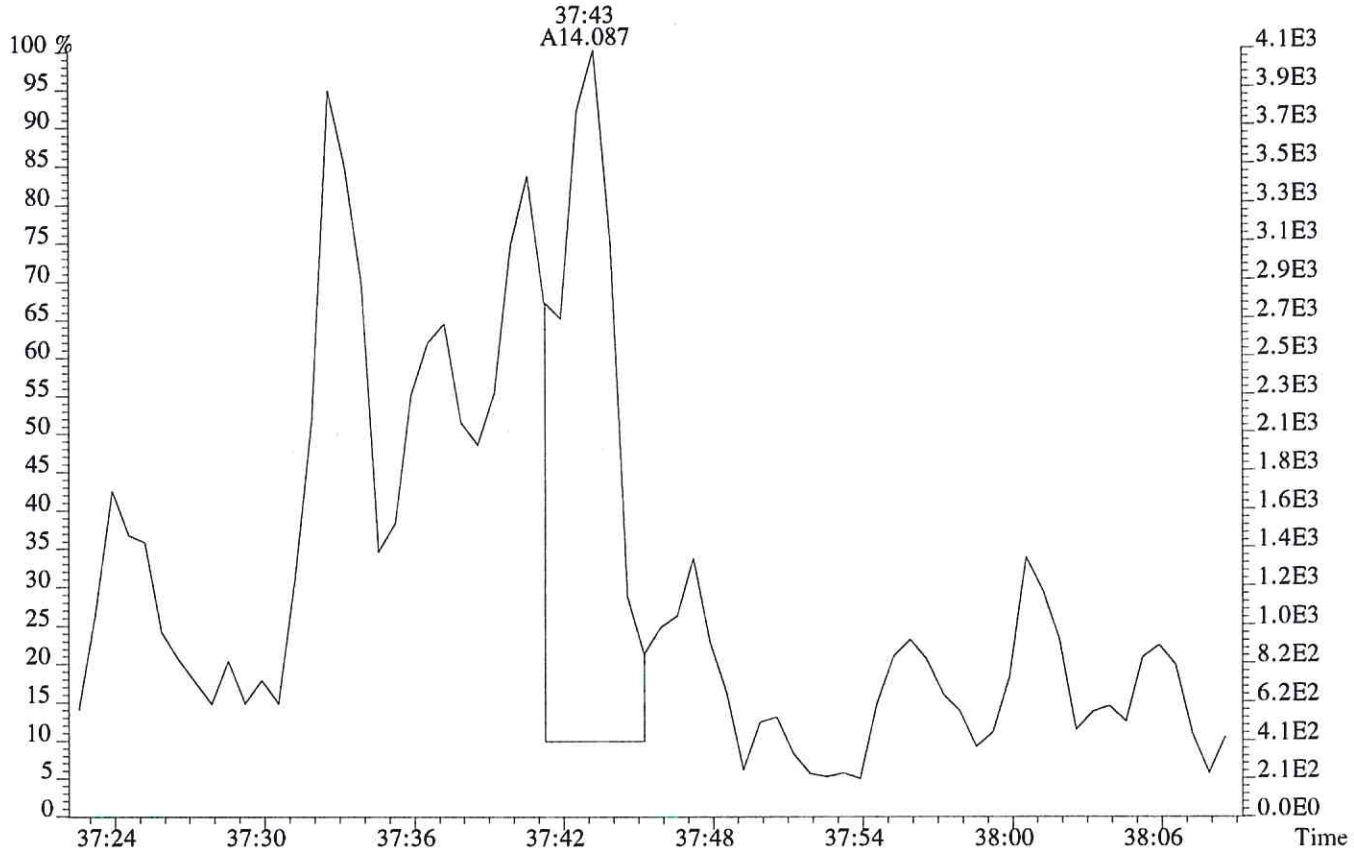
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



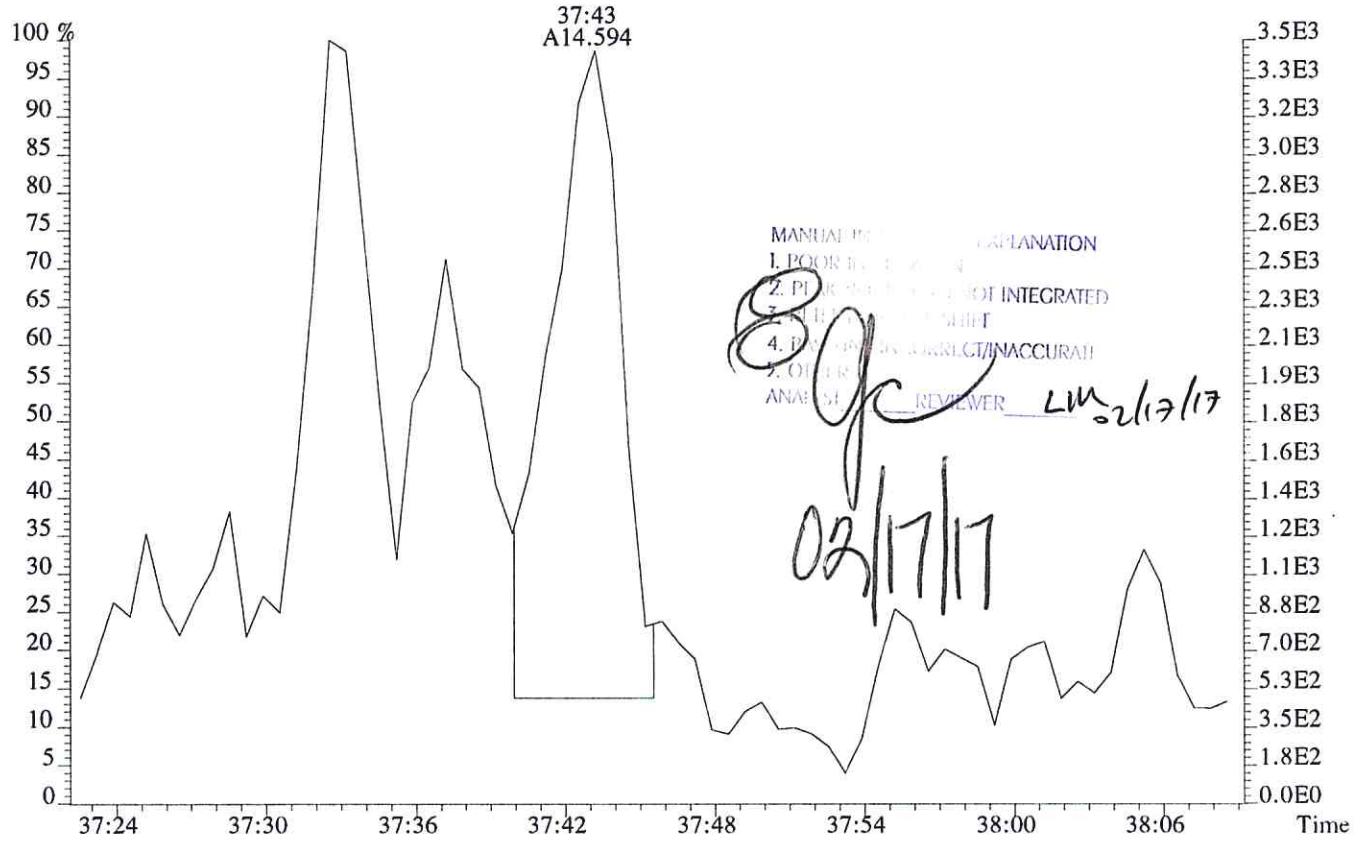
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



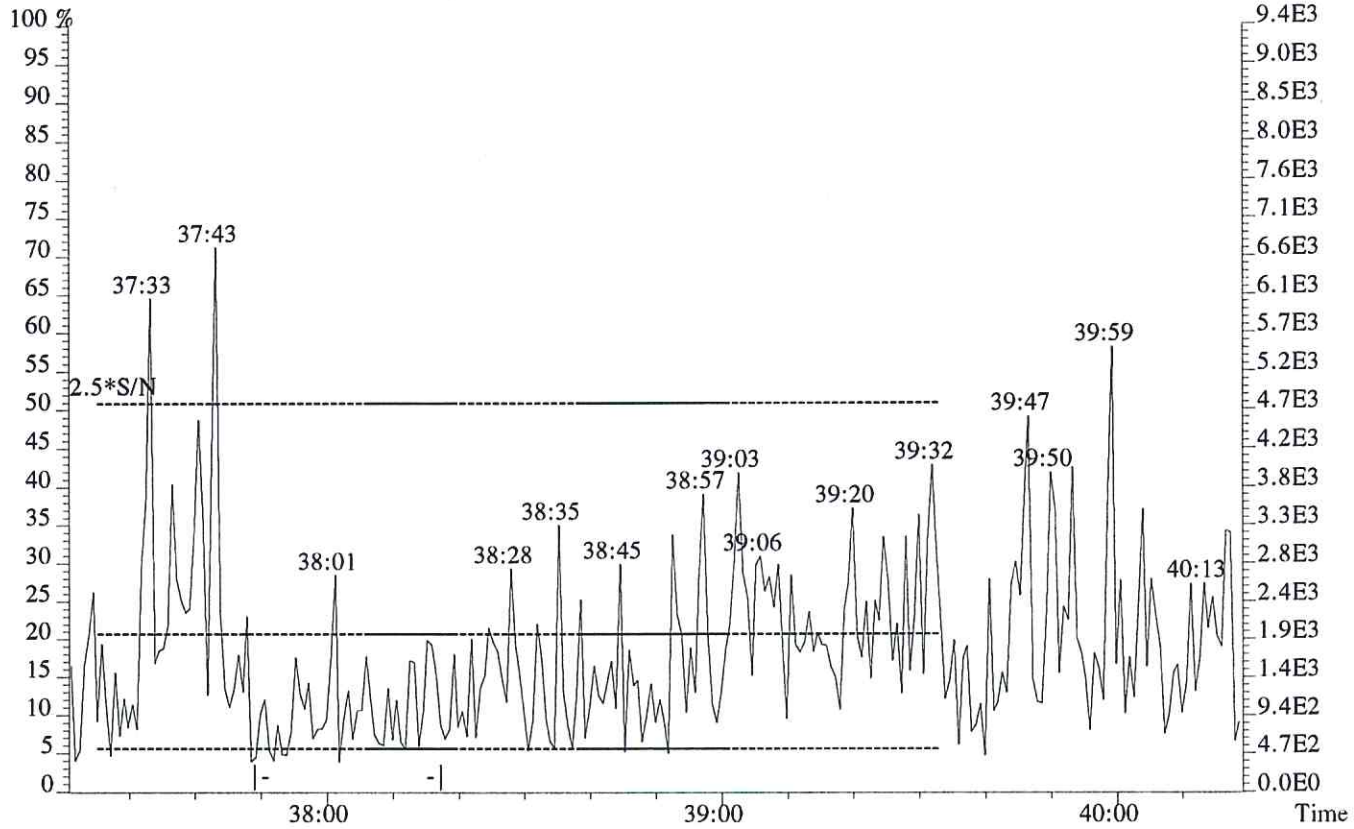
File:P405431 #1-268 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0)



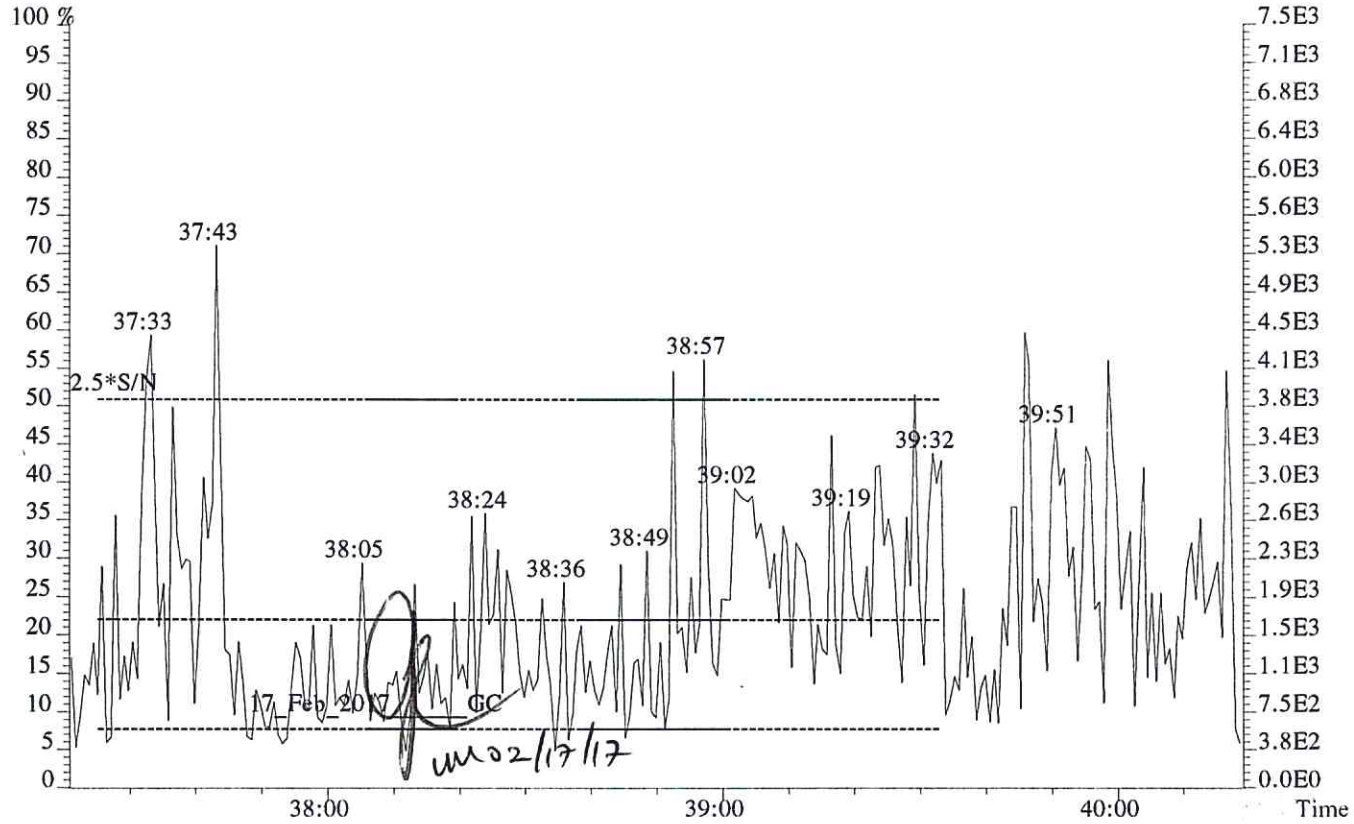
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0)



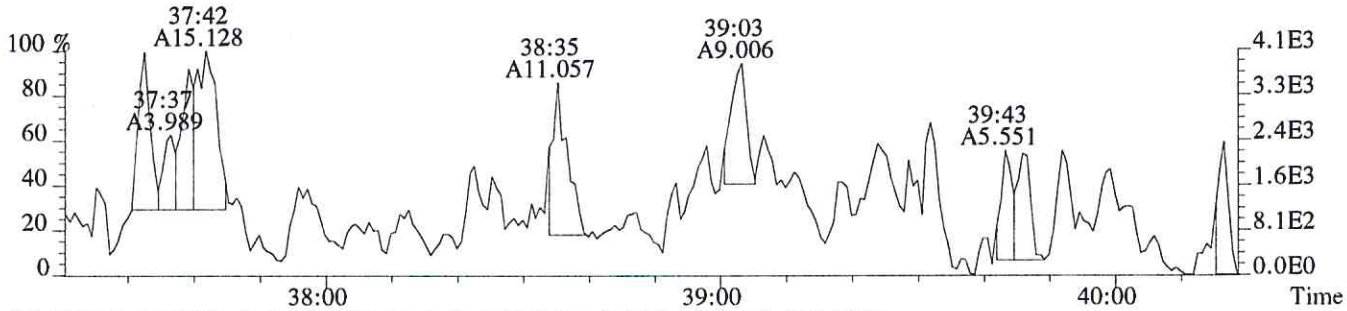
File:P405431 #1-268 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
407.7818 F:4



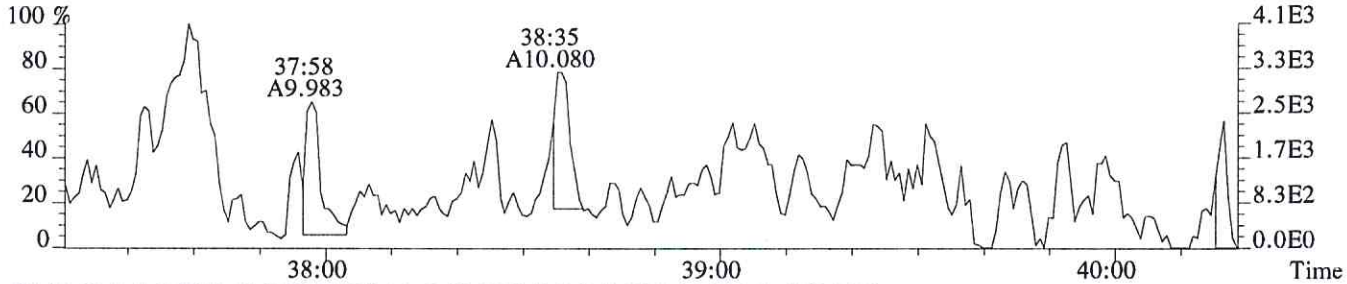
409.7789 F:4



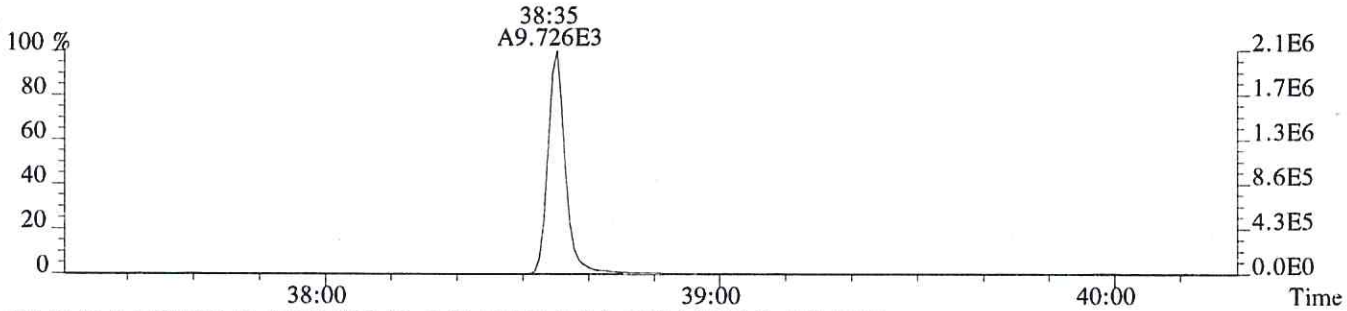
File:P405431 #1-268 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



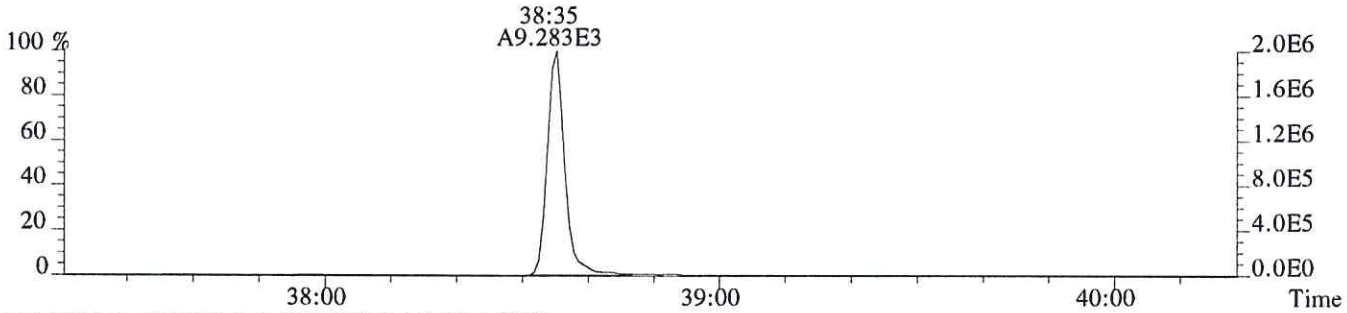
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



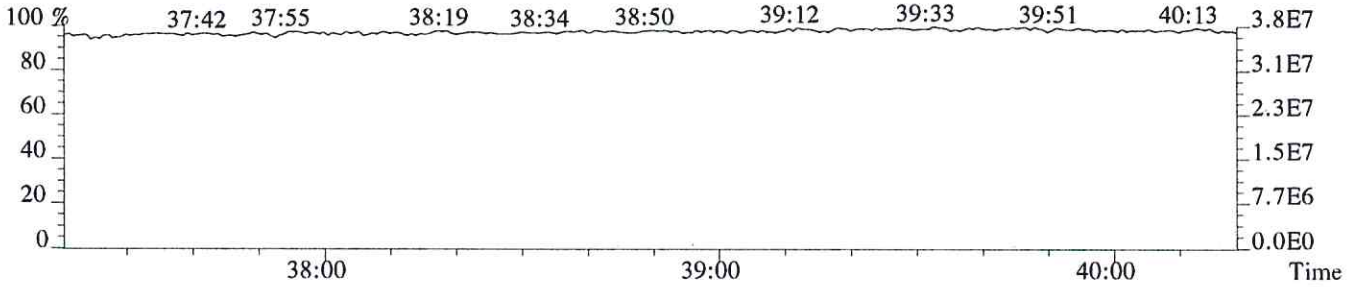
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



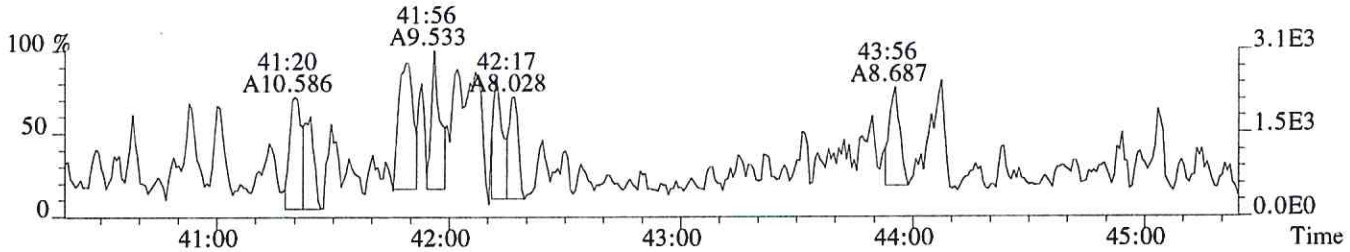
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



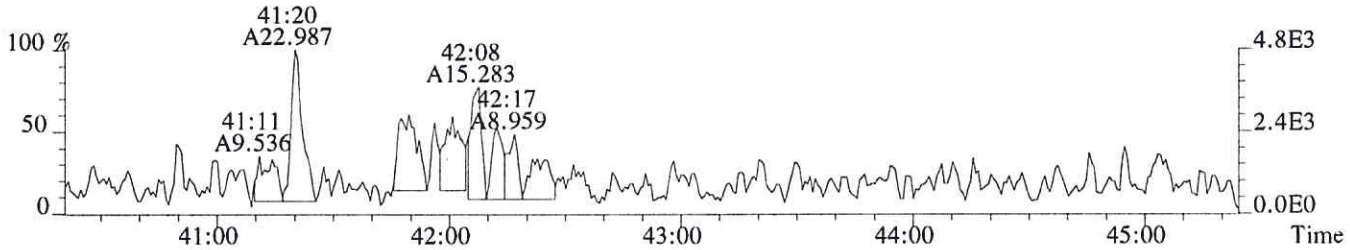
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



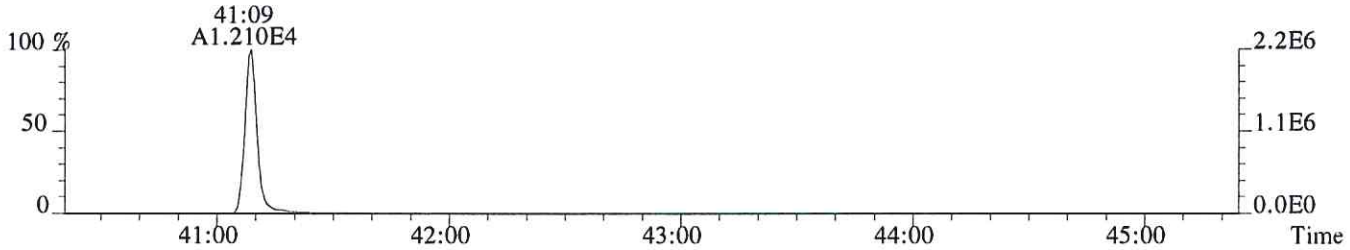
File:P405431 #1-456 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



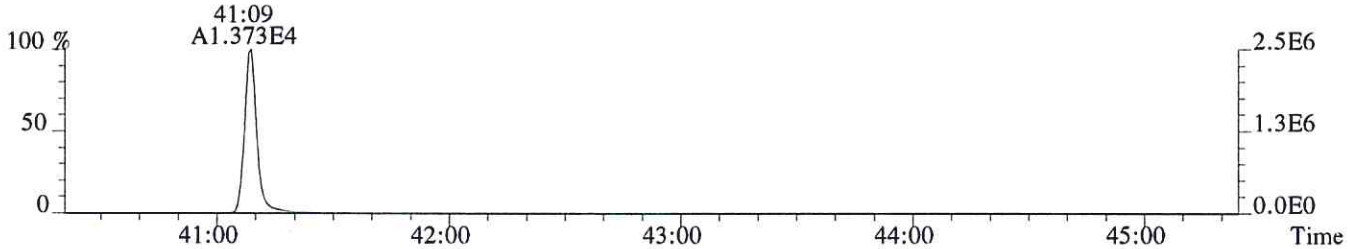
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1084.0,0.40%,F,T)



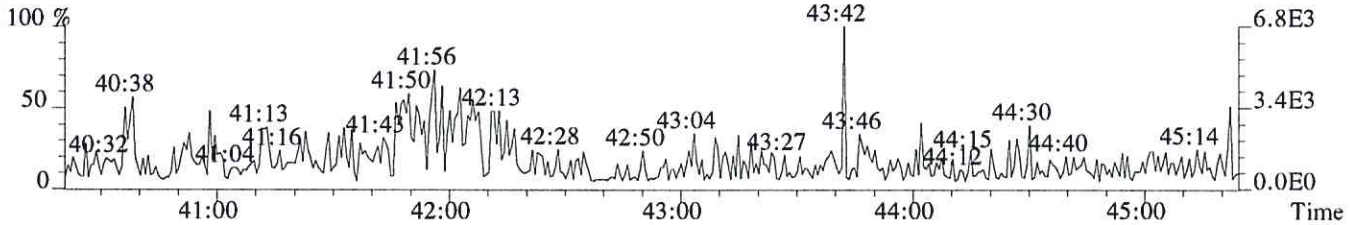
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



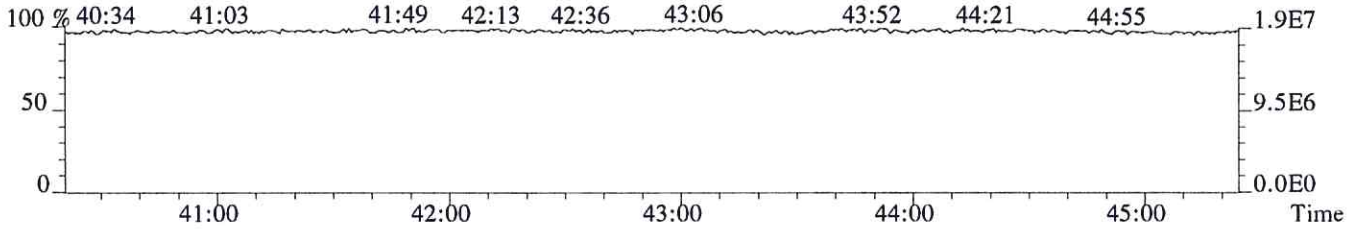
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2048.0,0.40%,F,T)



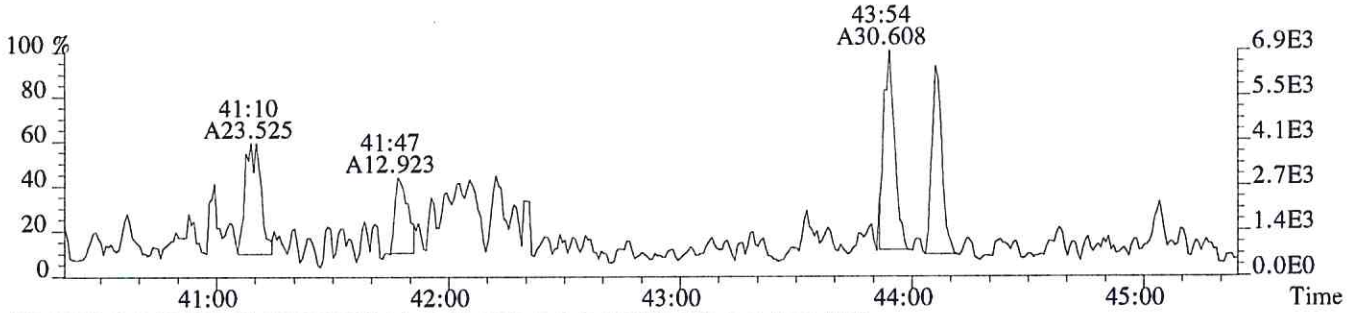
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



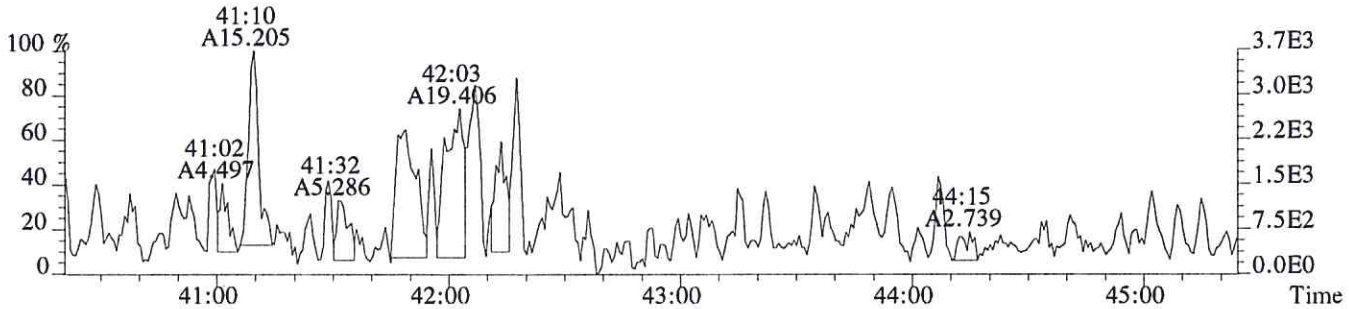
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



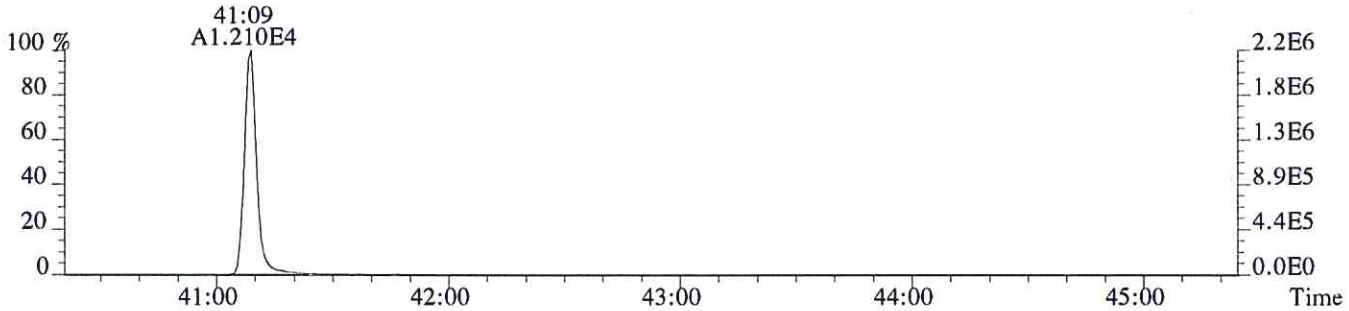
File:P405431 #1-456 Acq:16-FEB-2017 23:59:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1456.0,0.40%,F,T)



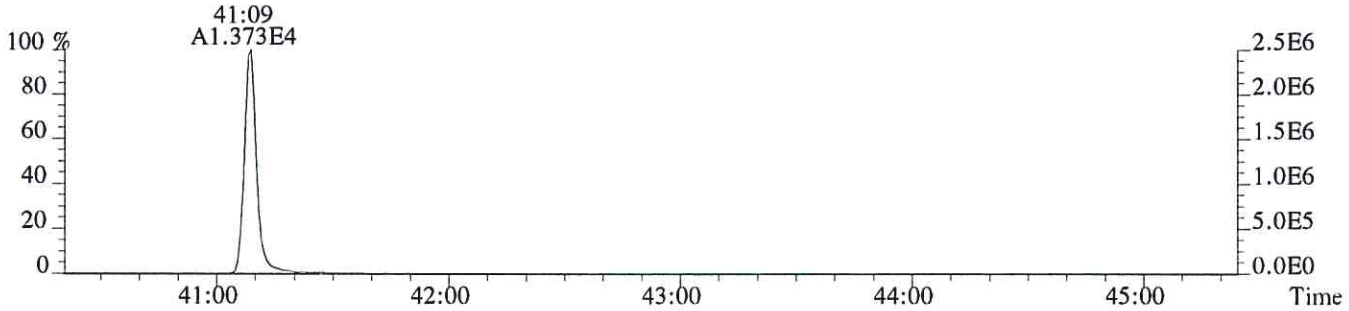
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



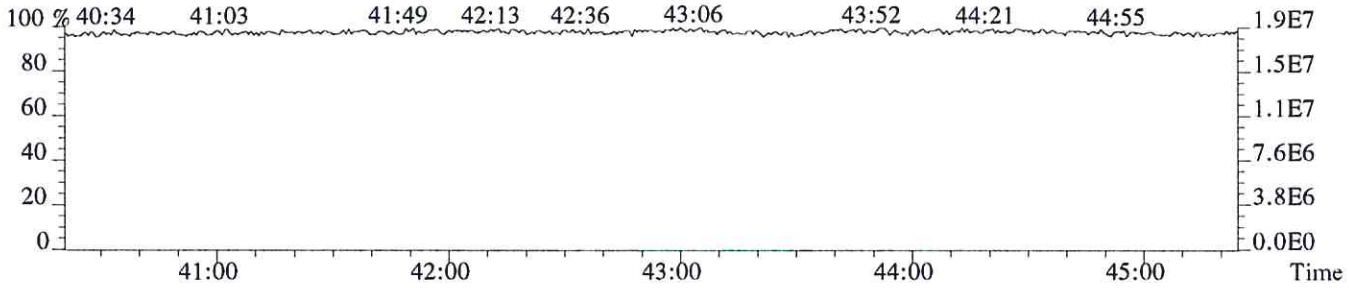
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2048.0,0.40%,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 #14 Filename P405404 Samp: 1 Inj: 1 Acquired: 15-FEB-17 23:05:04
Processed: 16-FEB-17 14:18:47 Sample ID: EQ1700058-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:54	1.125e+02	1.672e+02	0.67	yes	yes	0.769
2	Unk	1,2,3,7,8-PeCDF	31:25	1.197e+03	7.717e+02	1.55	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	32:21	1.163e+03	7.508e+02	1.55	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	35:05	1.057e+03	8.914e+02	1.19	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	35:12	1.148e+03	1.019e+03	1.13	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	35:42	1.034e+03	8.309e+02	1.24	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	36:28	9.692e+02	7.521e+02	1.29	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	9.454e+02	8.975e+02	1.05	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:02	8.256e+02	8.040e+02	1.03	yes	no	1.187
10	Unk	OCDF	41:20	1.409e+03	1.472e+03	0.96	yes	no	1.035
11	Unk	2,3,7,8-TCDD	27:47	1.242e+02	1.733e+02	0.72	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	32:39	9.899e+02	6.862e+02	1.44	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	35:51	9.104e+02	6.869e+02	1.33	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	35:56	1.034e+03	7.922e+02	1.30	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	9.725e+02	7.645e+02	1.27	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:35	7.566e+02	6.928e+02	1.09	yes	no	0.882
17	Unk	OCDD	41:09	1.076e+03	1.299e+03	0.83	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:53	1.437e+03	2.100e+03	0.68	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	2.936e+03	1.927e+03	1.52	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:21	2.734e+03	1.761e+03	1.55	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	1.229e+03	2.436e+03	0.50	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:11	1.567e+03	3.054e+03	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	1.204e+03	2.348e+03	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:28	1.101e+03	2.172e+03	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:42	9.016e+02	2.022e+03	0.45	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:01	8.527e+02	2.149e+03	0.40	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:45	1.564e+03	2.042e+03	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:38	2.543e+03	1.698e+03	1.50	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	1.996e+03	1.580e+03	1.26	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:55	2.194e+03	1.822e+03	1.20	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	1.772e+03	1.756e+03	1.01	yes	no	0.817
32	IS	13C-OCDD	41:08	2.243e+03	2.605e+03	0.86	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:06	2.137e+03	2.721e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:10	3.061e+03	2.486e+03	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:46	1.613e+03				no	0.958

$$\text{OCDD} = \frac{(1.076e+03 + 1.299e+03) \times 4000 \text{ pg} \times}{(2.243e+03 + 2.605e+03) \times \quad \text{g} \times \quad / 100 \times 0.980} =$$

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10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

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Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #14 Filename P405404 Samp: 1 Inj: 1 Acquired: 15-FEB-17 23:05:04
Processed: 16-FEB-17 14:18:47 LAB. ID: EQ1700058-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.45e+04	1.56e+02	9.3e+01	2.86e+04	4.60e+02	6.2e+01
2	1,2,3,7,8-PeCDF	2.00e+05	3.08e+02	6.5e+02	1.25e+05	5.48e+02	2.3e+02
3	2,3,4,7,8-PeCDF	2.10e+05	3.08e+02	6.8e+02	1.38e+05	5.48e+02	2.5e+02
4	1,2,3,4,7,8-HxCDF	2.14e+05	1.37e+03	1.6e+02	1.83e+05	1.55e+03	1.2e+02
5	1,2,3,6,7,8-HxCDF	2.23e+05	1.37e+03	1.6e+02	1.92e+05	1.55e+03	1.2e+02
6	2,3,4,6,7,8-HxCDF	2.15e+05	1.37e+03	1.6e+02	1.70e+05	1.55e+03	1.1e+02
7	1,2,3,7,8,9-HxCDF	1.71e+05	1.37e+03	1.2e+02	1.37e+05	1.55e+03	8.8e+01
8	1,2,3,4,6,7,8-HpCDF	1.95e+05	2.95e+03	6.6e+01	1.88e+05	3.23e+03	5.8e+01
9	1,2,3,4,7,8,9-HpCDF	1.65e+05	2.95e+03	5.6e+01	1.61e+05	3.23e+03	5.0e+01
10	OCDF	2.41e+05	8.00e+02	3.0e+02	2.47e+05	9.28e+02	2.7e+02
11	2,3,7,8-TCDD	1.85e+04	8.88e+02	2.1e+01	2.78e+04	1.84e+02	1.5e+02
12	1,2,3,7,8-PeCDD	1.77e+05	5.24e+02	3.4e+02	1.29e+05	1.80e+02	7.2e+02
13	1,2,3,4,7,8-HxCDD	2.00e+05	1.19e+03	1.7e+02	1.48e+05	1.44e+03	1.0e+02
14	1,2,3,6,7,8-HxCDD	2.09e+05	1.19e+03	1.8e+02	1.59e+05	1.44e+03	1.1e+02
15	1,2,3,7,8,9-HxCDD	1.91e+05	1.19e+03	1.6e+02	1.52e+05	1.44e+03	1.1e+02
16	1,2,3,4,6,7,8-HpCDD	1.53e+05	2.50e+03	6.1e+01	1.48e+05	2.88e+03	5.1e+01
17	OCDD	1.91e+05	7.68e+02	2.5e+02	2.37e+05	8.00e+02	3.0e+02
18	13C-2,3,7,8-TCDF	2.18e+05	4.66e+03	4.7e+01	3.01e+05	2.61e+03	1.2e+02
19	13C-1,2,3,7,8-PeCDF	4.98e+05	3.72e+02	1.3e+03	3.16e+05	3.24e+02	9.8e+02
20	13C-2,3,4,7,8-PeCDF	5.03e+05	3.72e+02	1.4e+03	3.18e+05	3.24e+02	9.8e+02
21	13C-1,2,3,4,7,8-HxCDF	2.61e+05	1.44e+03	1.8e+02	5.10e+05	1.58e+03	3.2e+02
22	13C-1,2,3,6,7,8-HxCDF	2.99e+05	1.44e+03	2.1e+02	5.96e+05	1.58e+03	3.8e+02
23	13C-2,3,4,6,7,8-HxCDF	2.52e+05	1.44e+03	1.7e+02	4.91e+05	1.58e+03	3.1e+02
24	13C-1,2,3,7,8,9-HxCDF	2.07e+05	1.44e+03	1.4e+02	4.07e+05	1.58e+03	2.6e+02
25	13C-1,2,3,4,6,7,8-HpCDF	1.83e+05	3.55e+03	5.2e+01	4.09e+05	2.51e+03	1.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.68e+05	3.55e+03	4.7e+01	4.13e+05	2.51e+03	1.6e+02
27	13C-2,3,7,8-TCDD	2.52e+05	2.42e+03	1.0e+02	3.28e+05	1.40e+03	2.3e+02
28	13C-1,2,3,7,8-PeCDD	4.72e+05	5.64e+02	8.4e+02	3.06e+05	8.76e+02	3.5e+02
29	13C-1,2,3,4,7,8-HxCDD	4.31e+05	1.22e+03	3.5e+02	3.54e+05	1.16e+03	3.1e+02
30	13C-1,2,3,6,7,8-HxCDD	4.31e+05	1.22e+03	3.5e+02	3.64e+05	1.16e+03	3.1e+02
31	13C-1,2,3,4,6,7,8-HpCDD	3.78e+05	3.28e+03	1.2e+02	3.71e+05	2.41e+03	1.5e+02
32	13C-OCDD	3.89e+05	5.44e+02	7.2e+02	4.52e+05	1.50e+03	3.0e+02
33	13C-1,2,3,4-TCDD	3.39e+05	2.42e+03	1.4e+02	4.46e+05	1.40e+03	3.2e+02
34	13C-1,2,3,7,8,9-HxCDD	6.27e+05	1.22e+03	5.2e+02	5.07e+05	1.16e+03	4.4e+02
35	37Cl-2,3,7,8-TCDD	2.53e+05	4.12e+02	6.1e+02			

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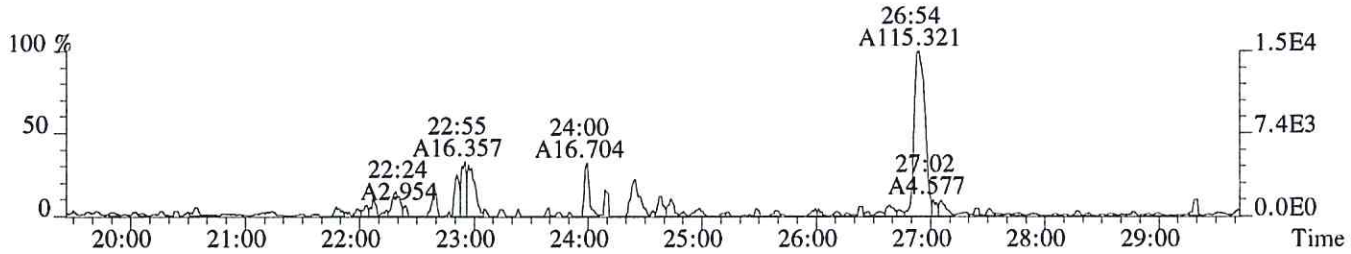
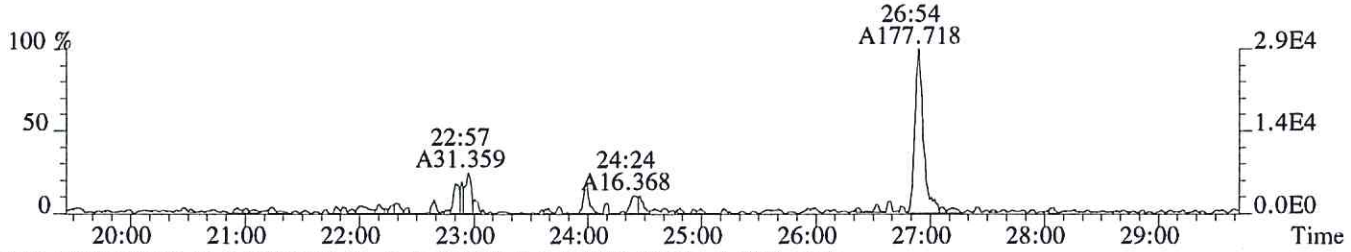
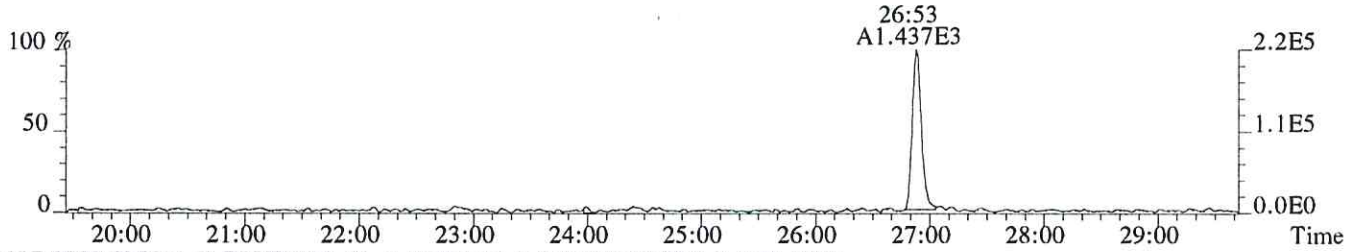
File:P405404 #1-729 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,156.0,1.00%,F,T)



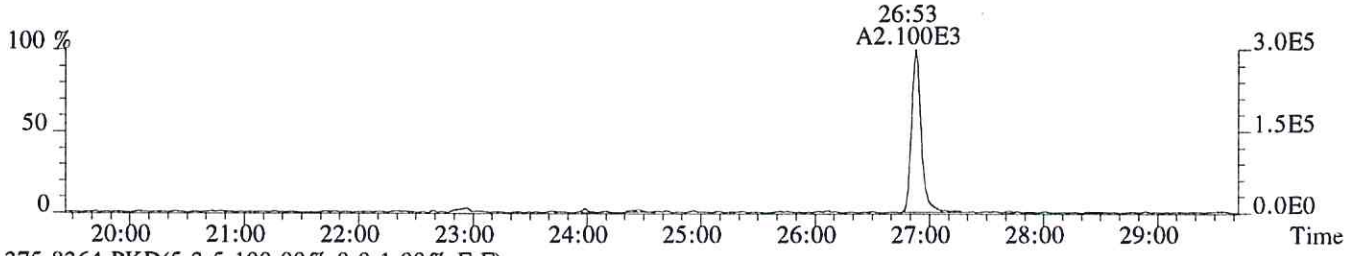
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



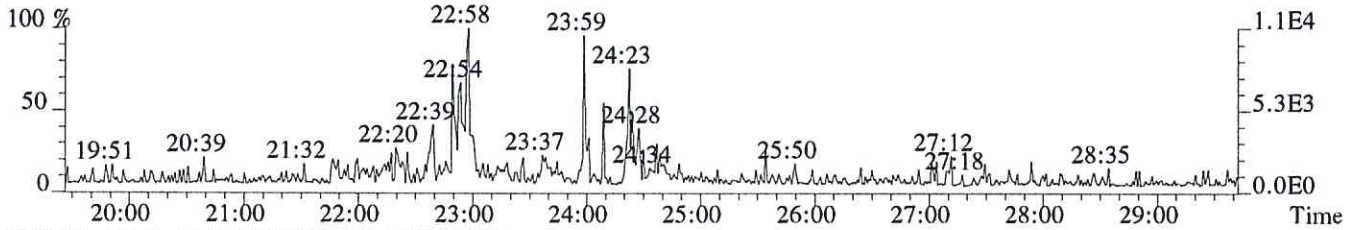
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4660.0,1.00%,F,T)



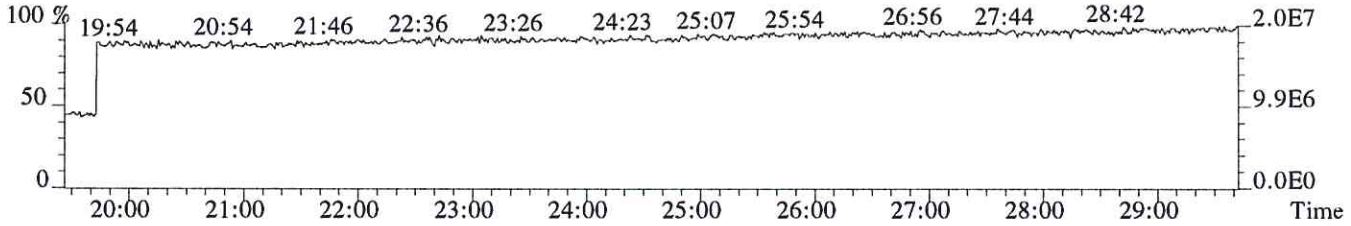
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2608.0,1.00%,F,T)



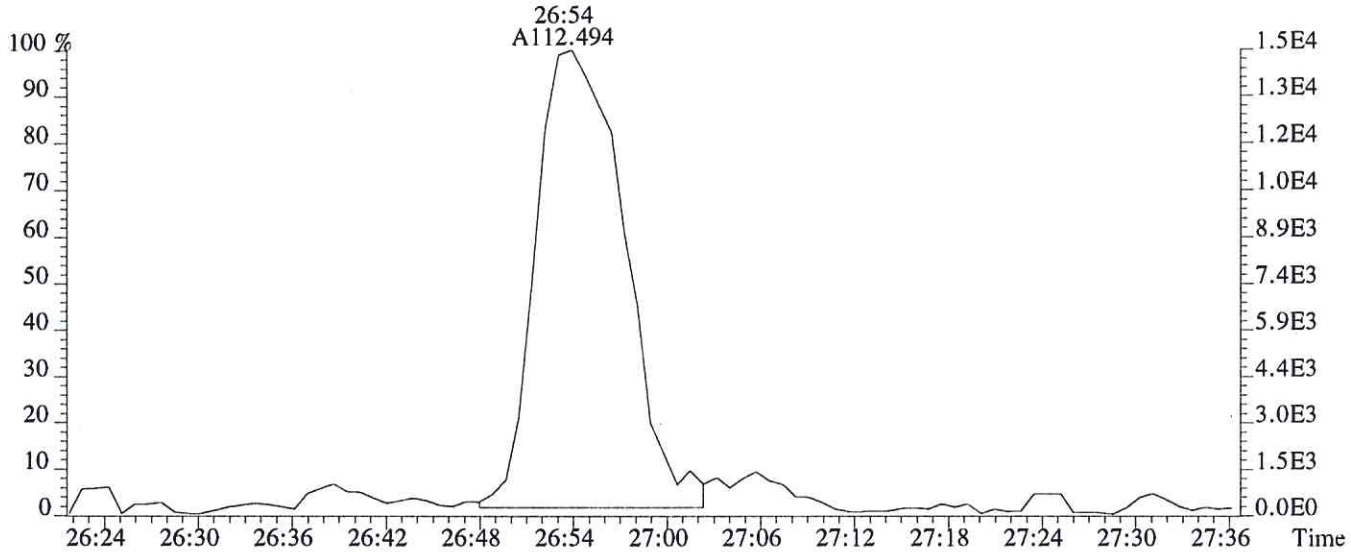
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



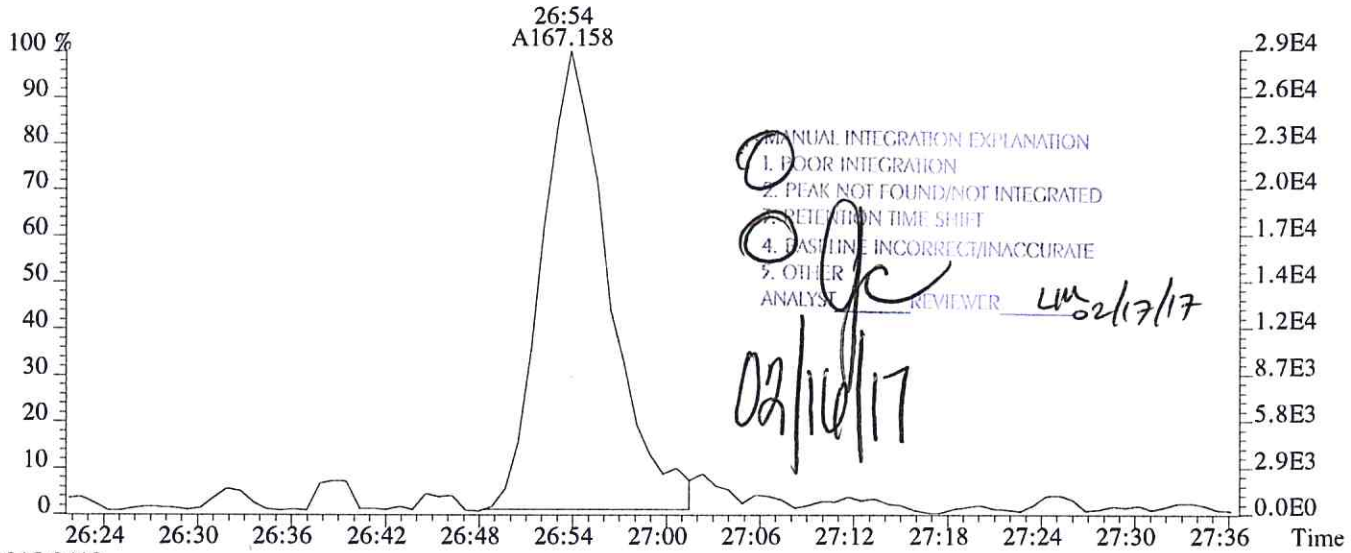
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



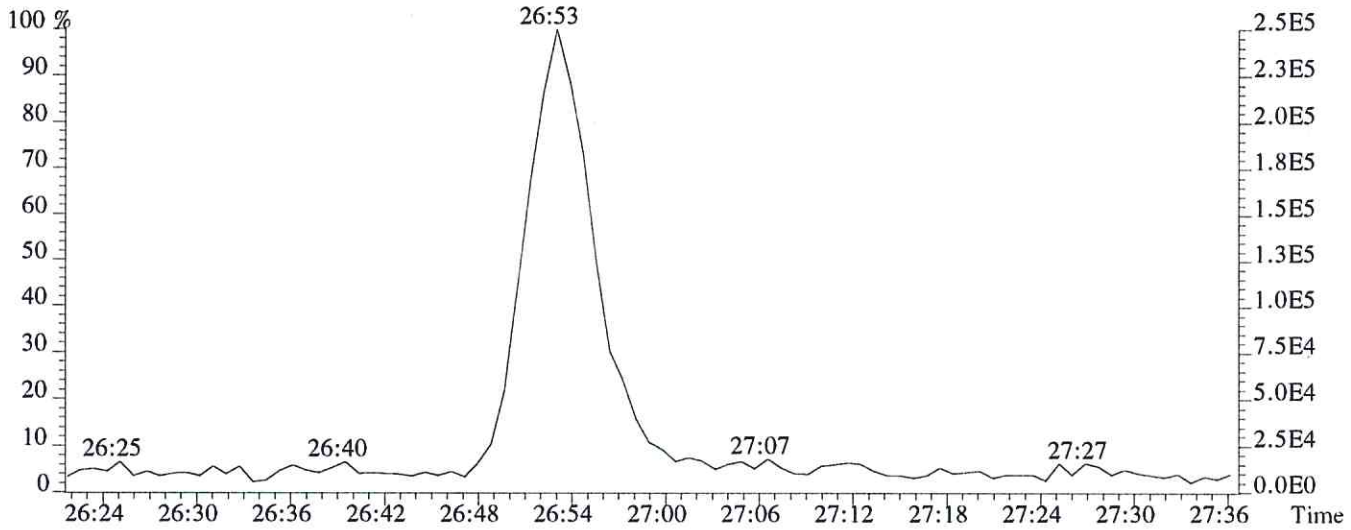
File:P405404 #1-729 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,156.0,1.00%,F,T)



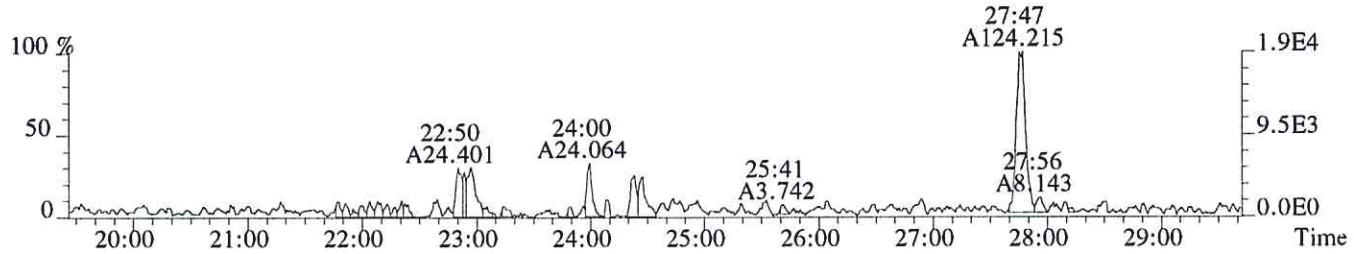
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



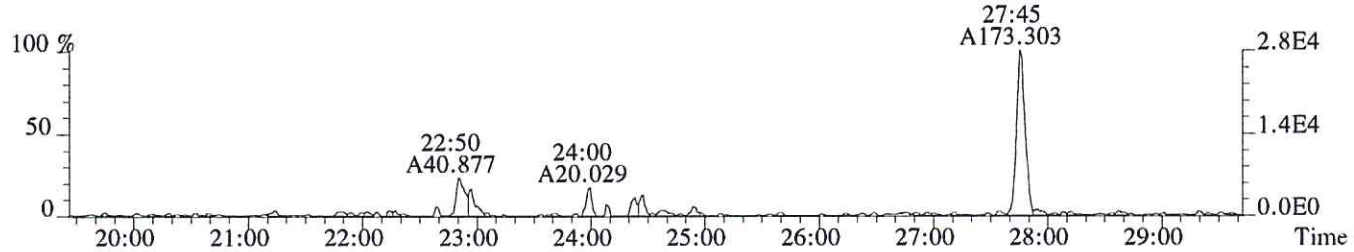
315.9419



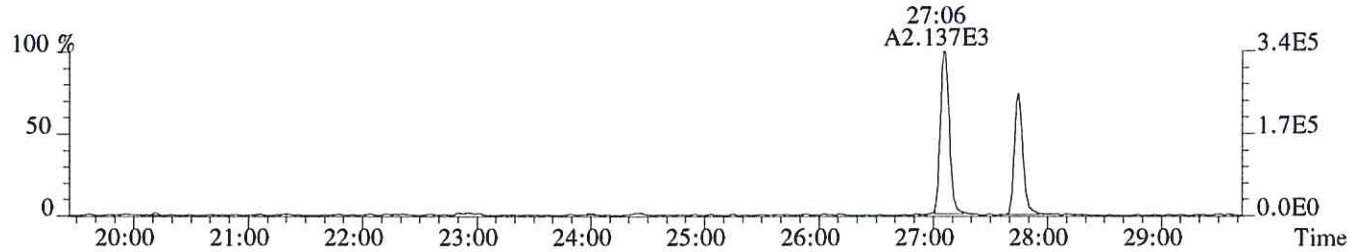
File:P405404 #1-729 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



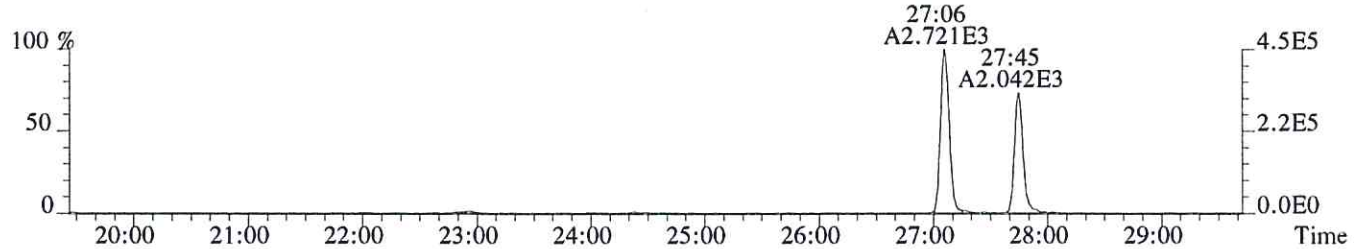
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



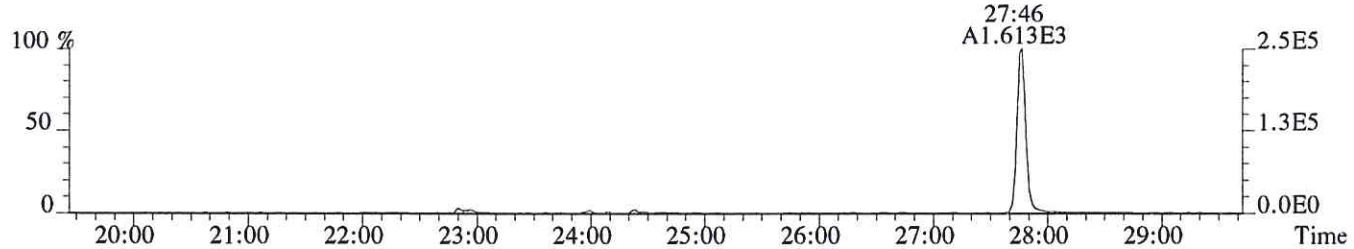
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2420.0,1.00%,F,T)



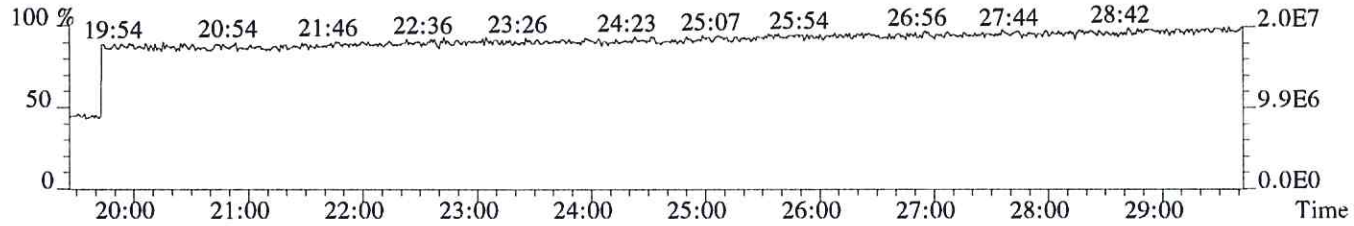
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



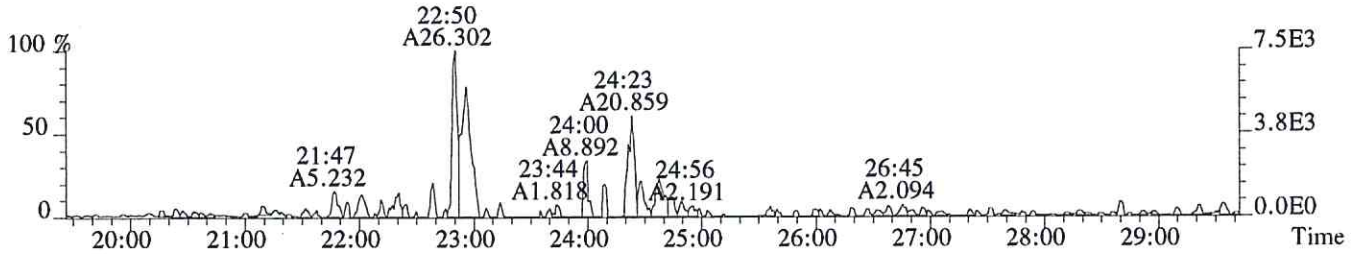
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



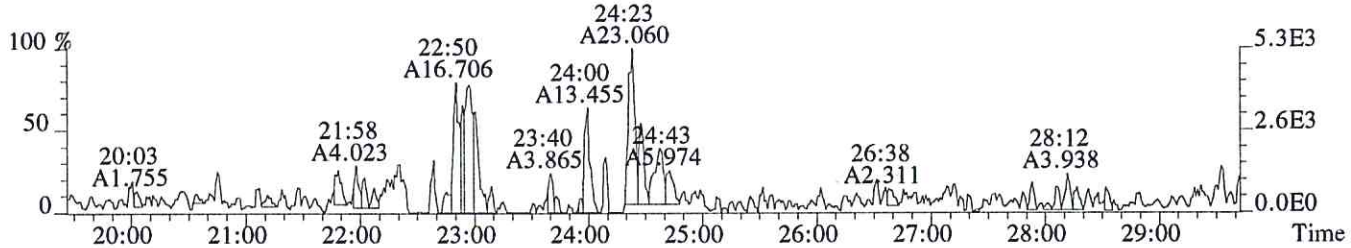
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



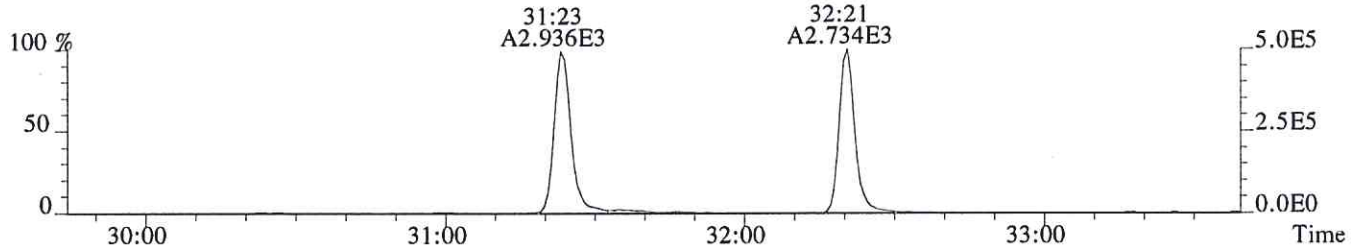
File:P405404 #1-729 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,92.0,1.00%,F,T)



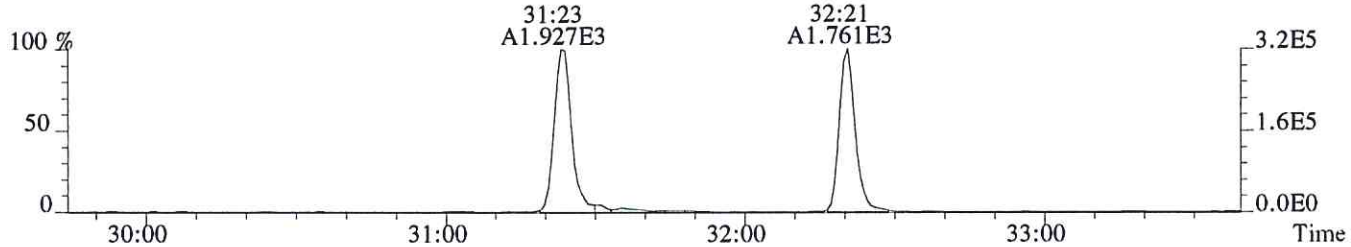
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



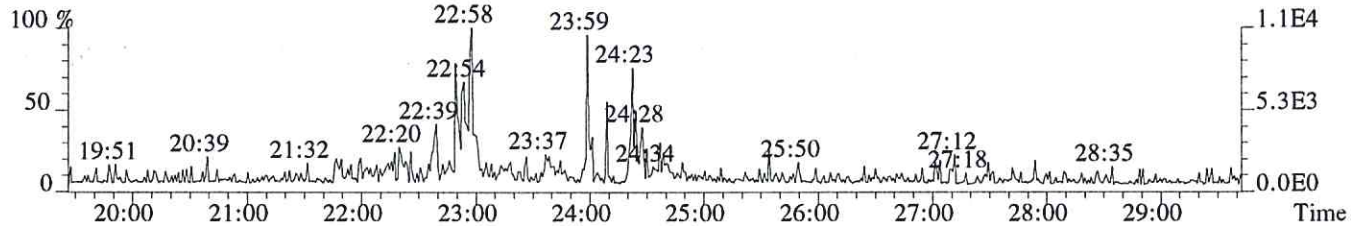
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



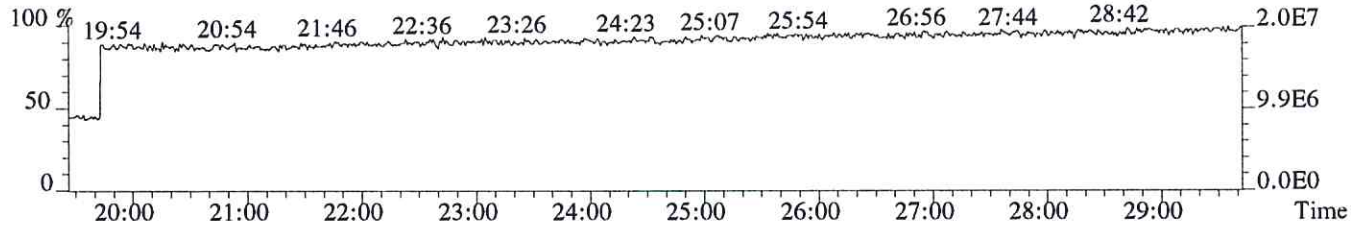
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



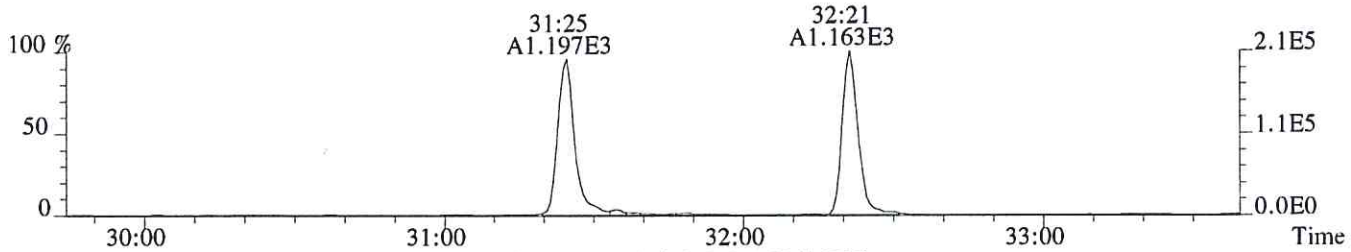
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



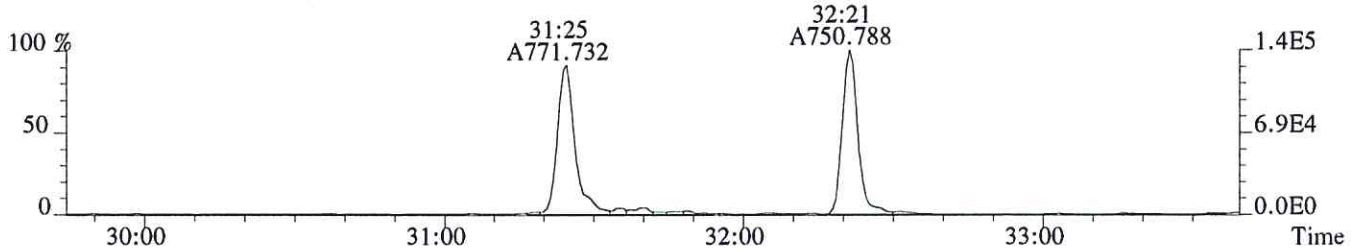
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



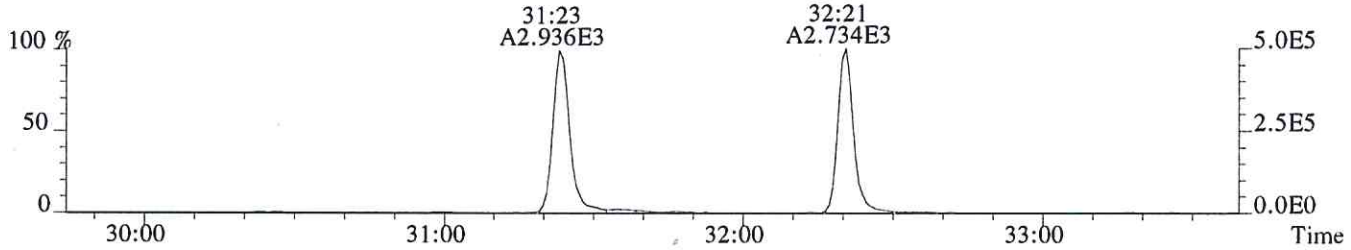
File:P405404 #1-353 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



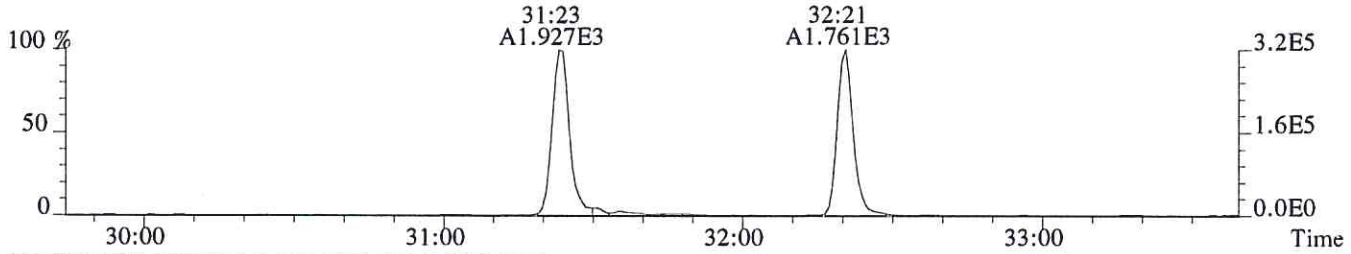
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



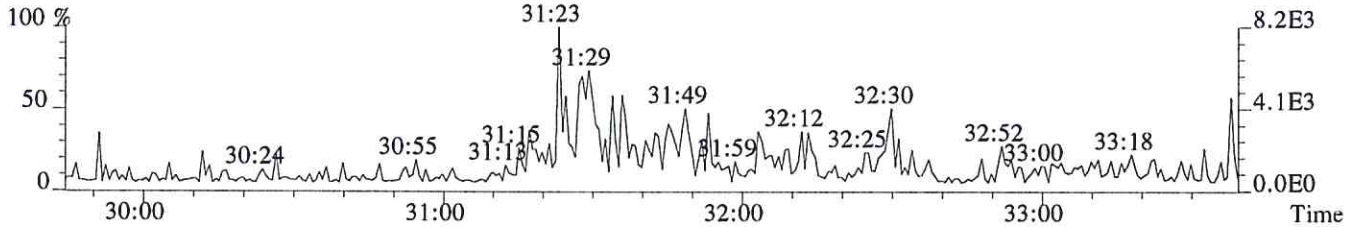
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



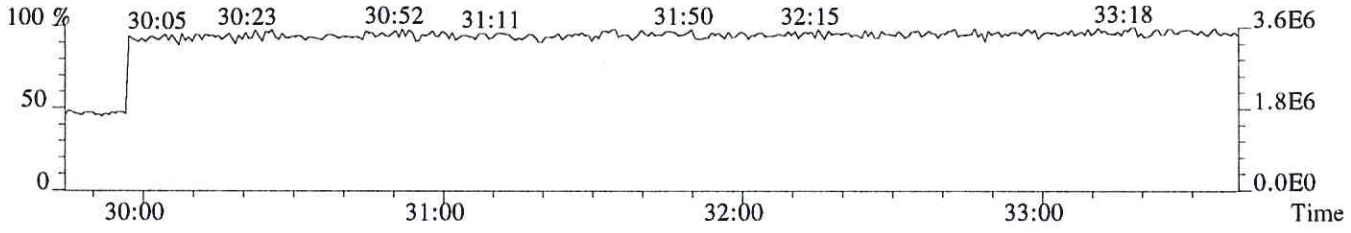
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



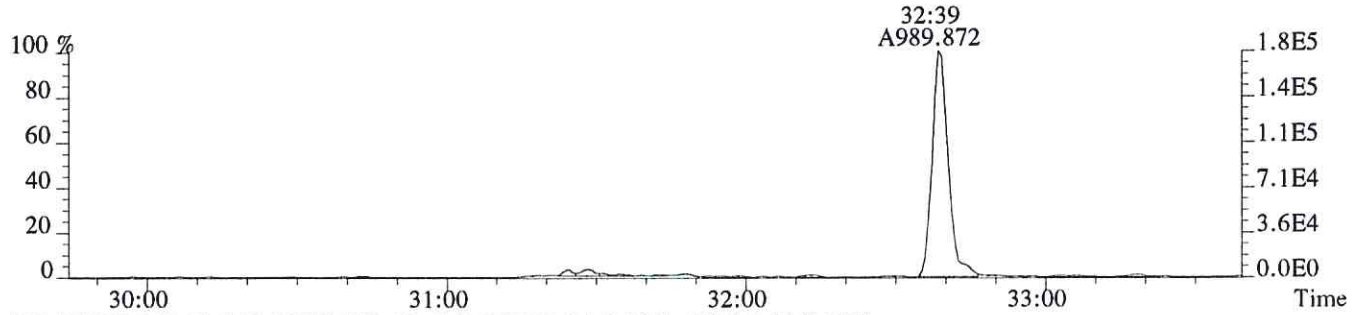
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



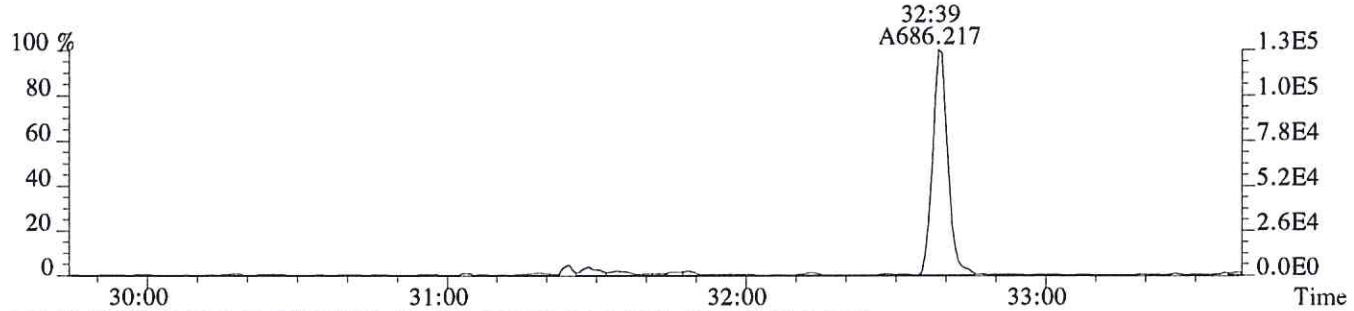
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



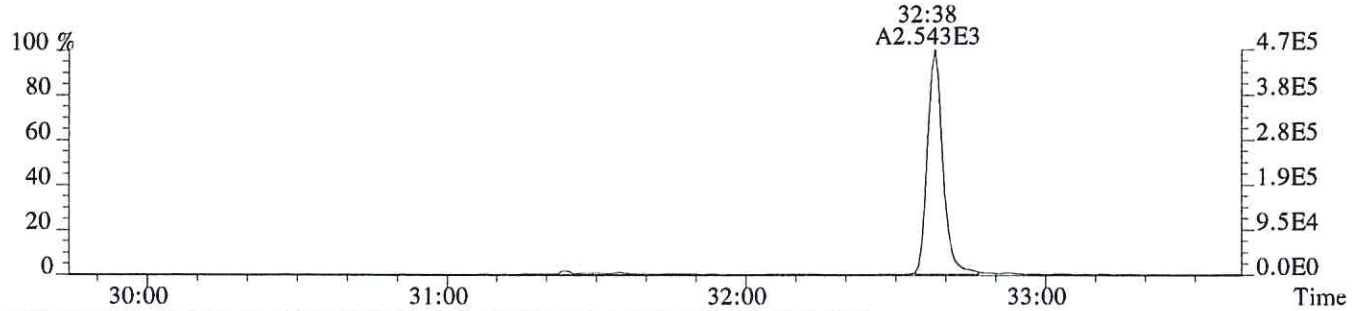
File:P405404 #1-353 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



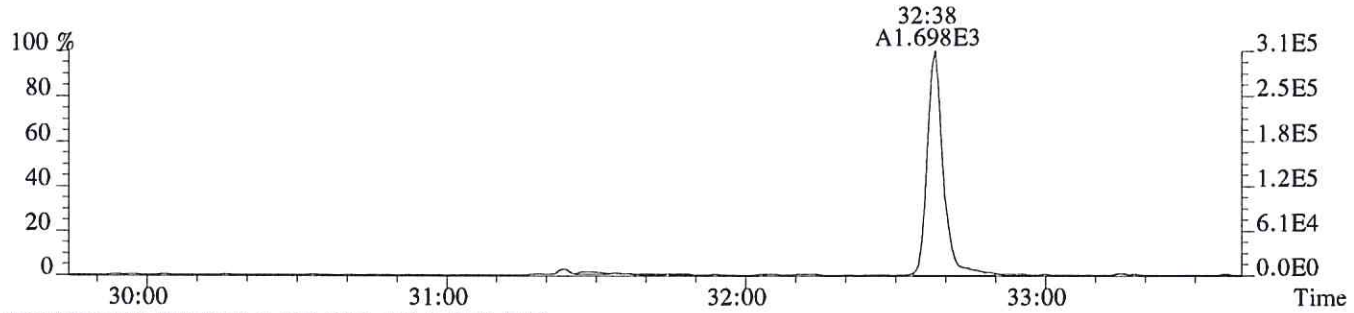
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



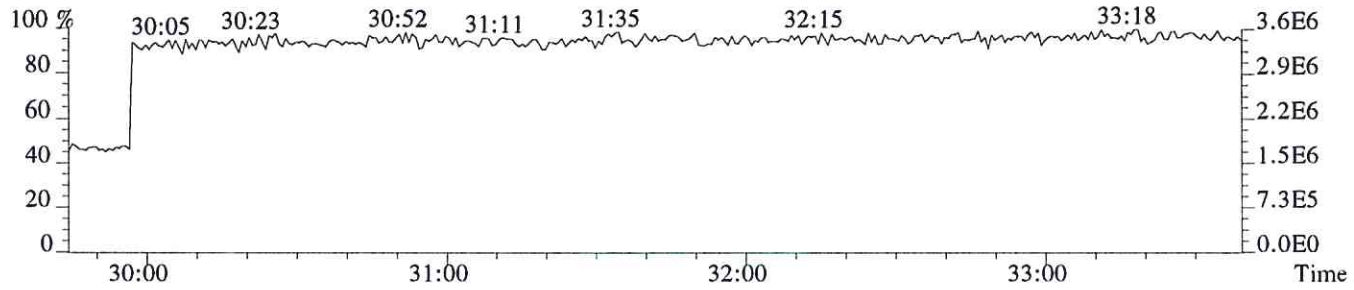
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



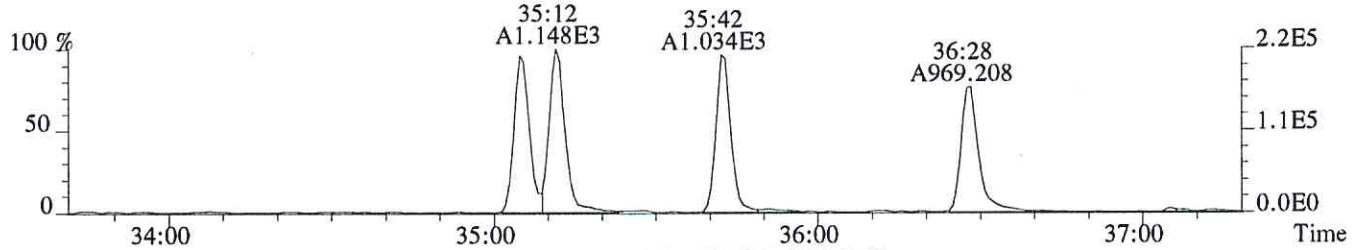
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



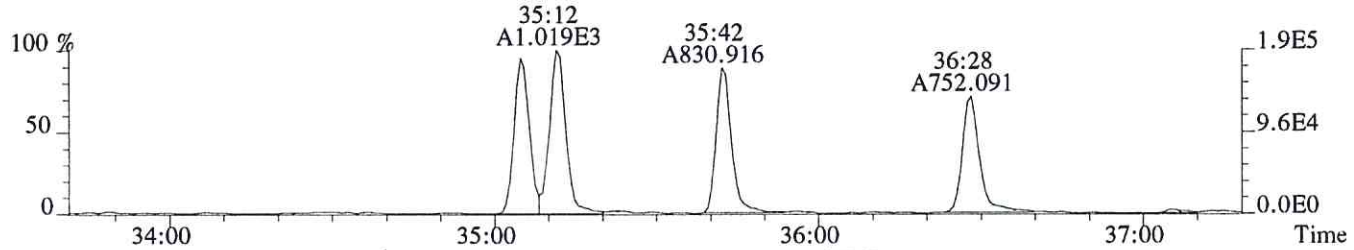
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



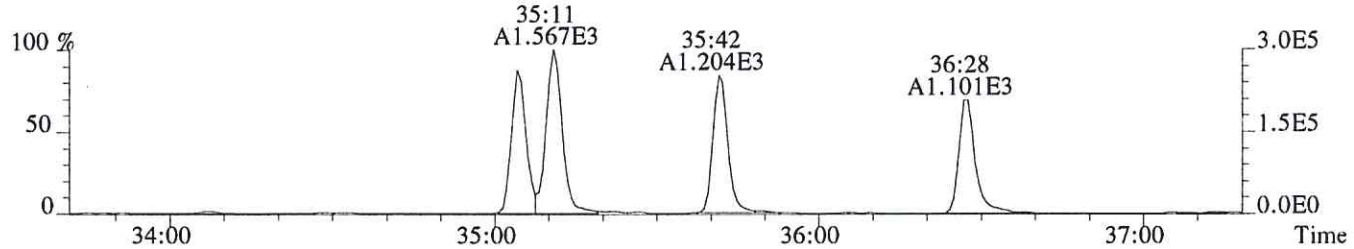
File:P405404 #1-326 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



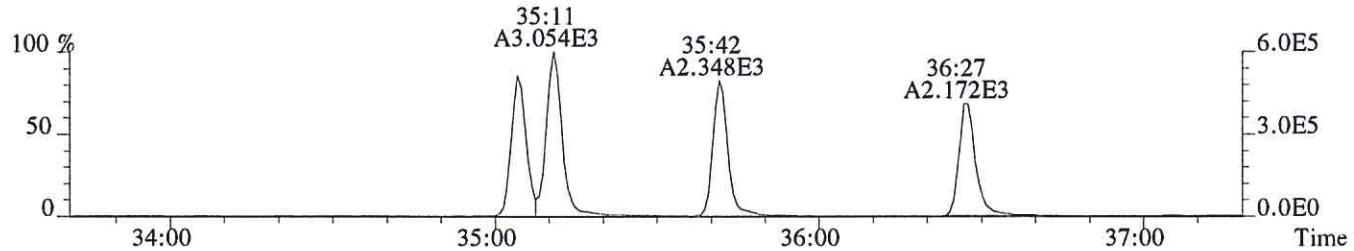
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



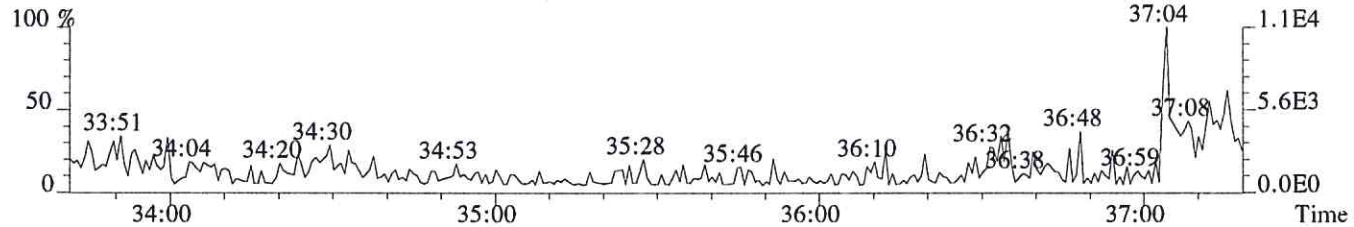
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



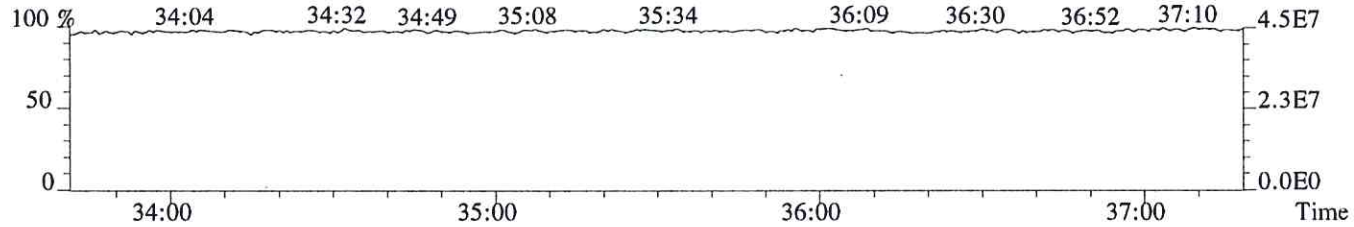
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



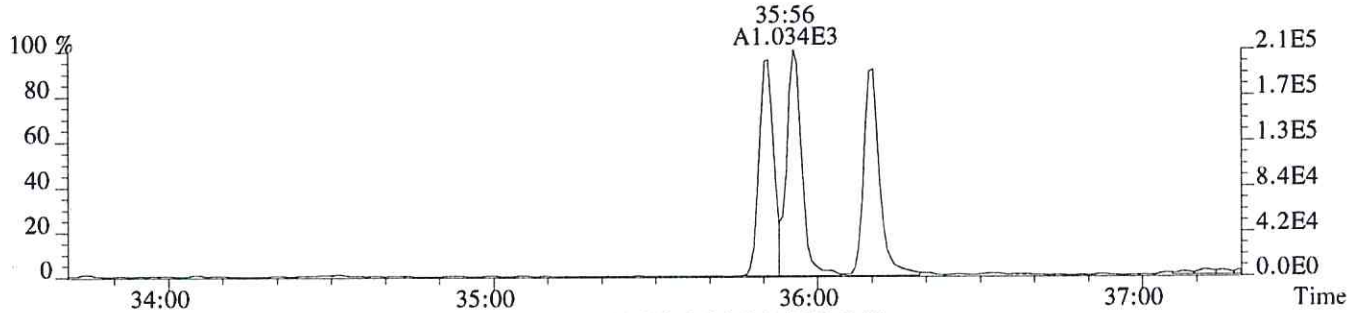
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



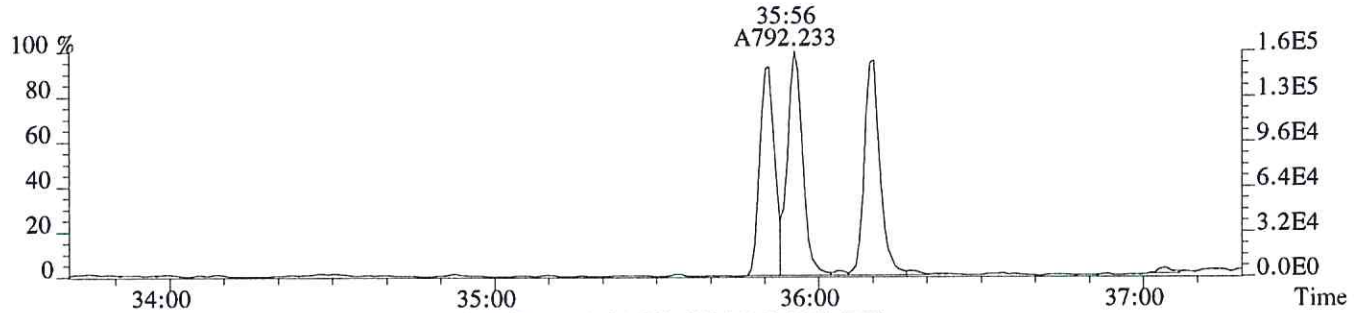
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



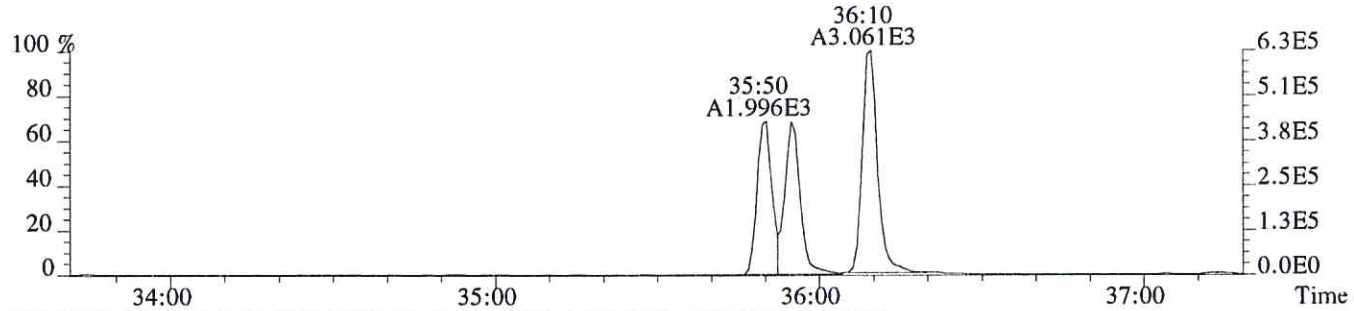
File:P405404 #1-326 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



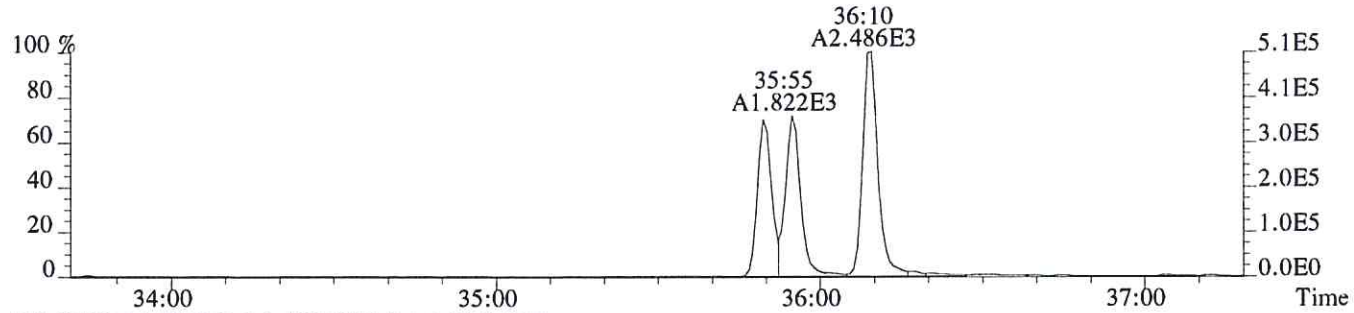
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1436.0,0.40%,F,T)



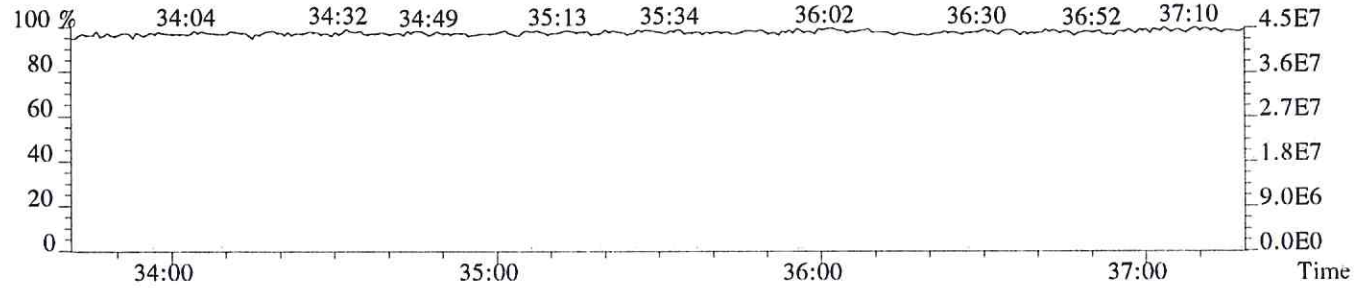
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



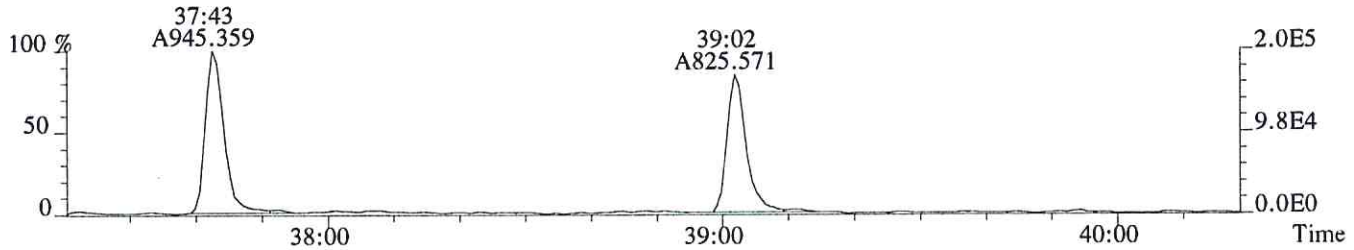
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



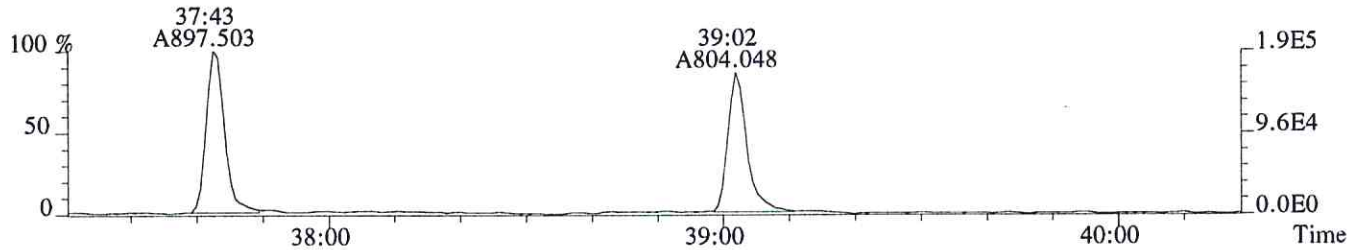
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



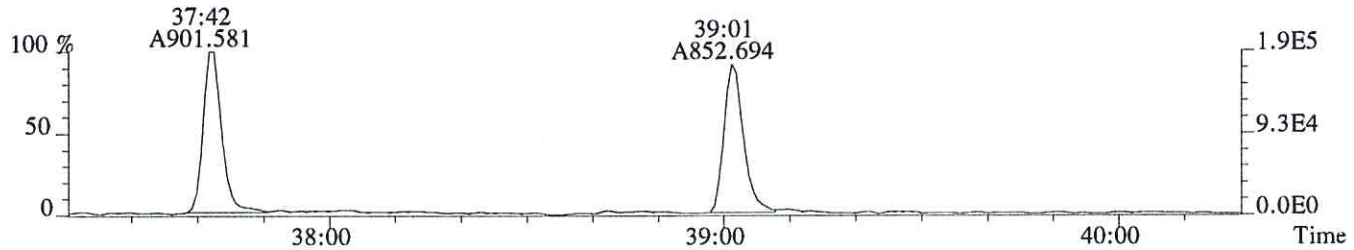
File:P405404 #1-268 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2948.0,0.50%,F,T)



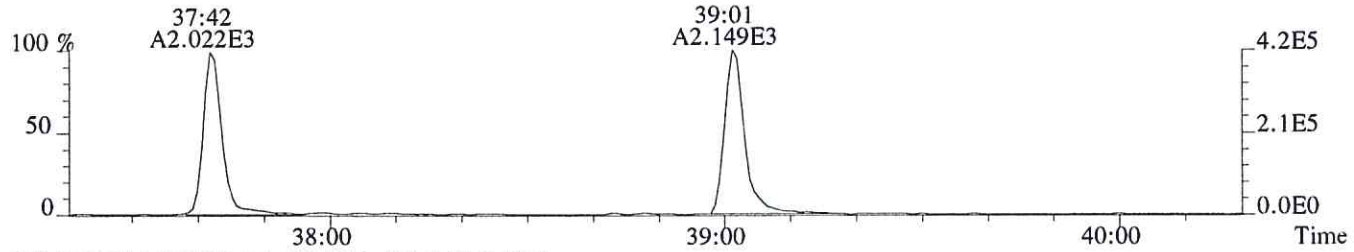
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3232.0,0.50%,F,T)



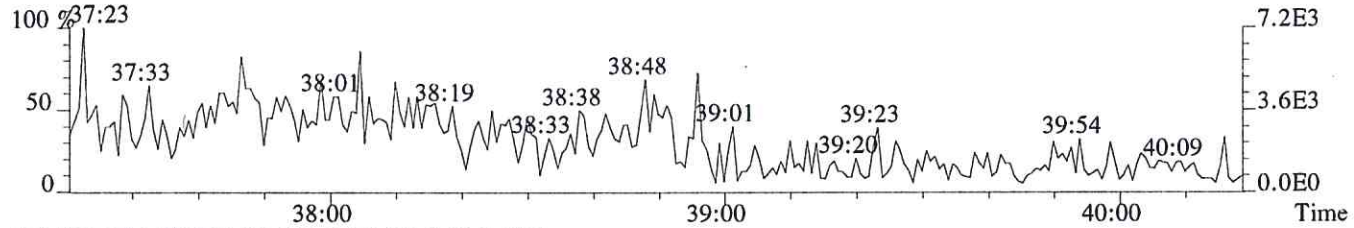
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3548.0,0.50%,F,T)



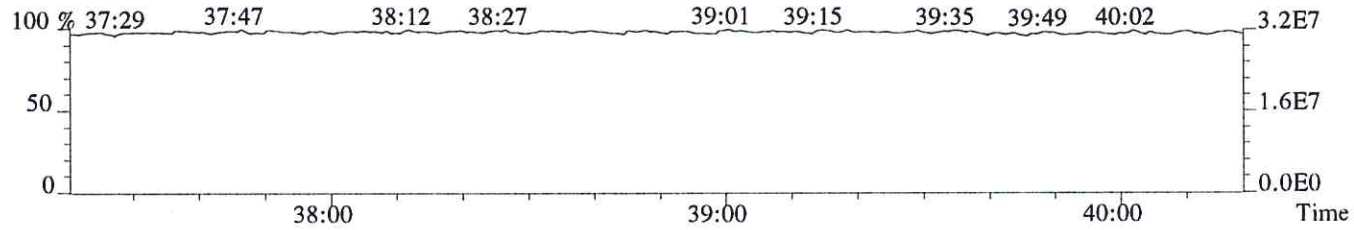
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.50%,F,T)



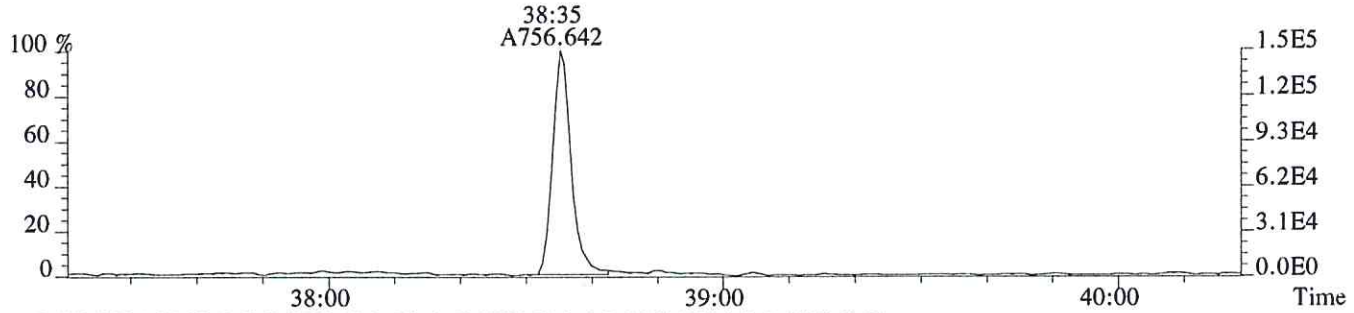
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



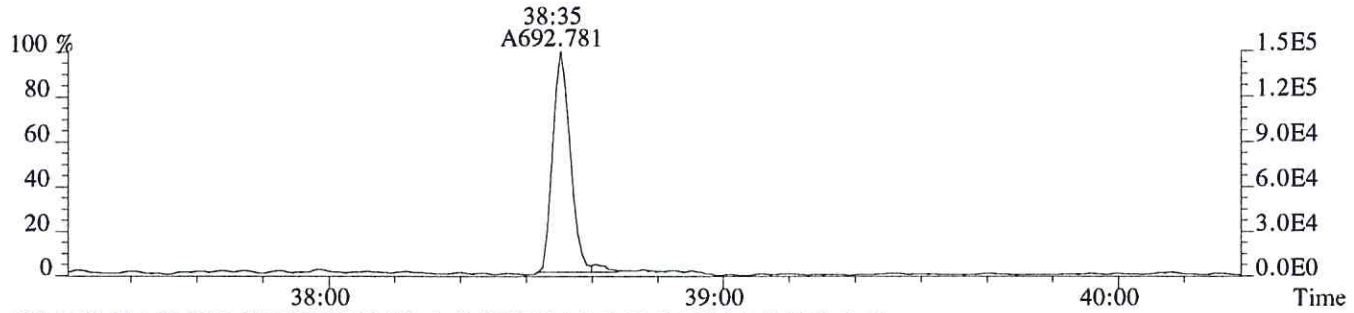
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



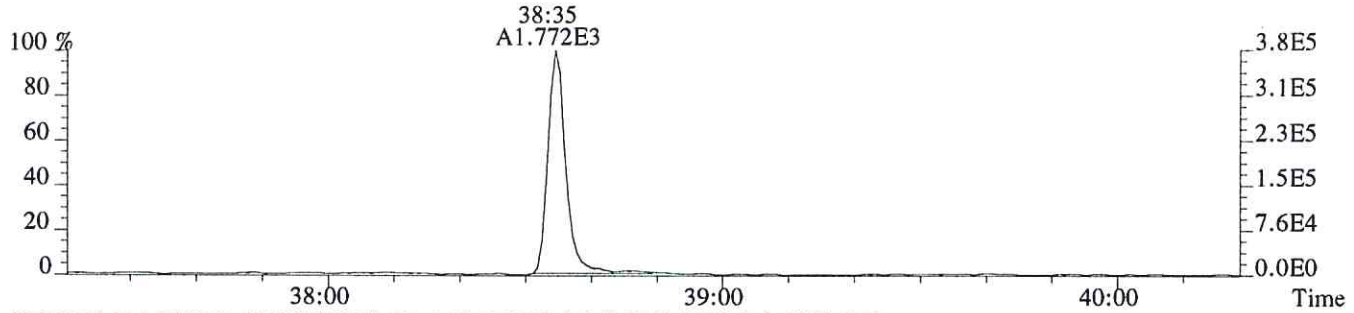
File:P405404 #1-268 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2500.0,0.40%,F,T)



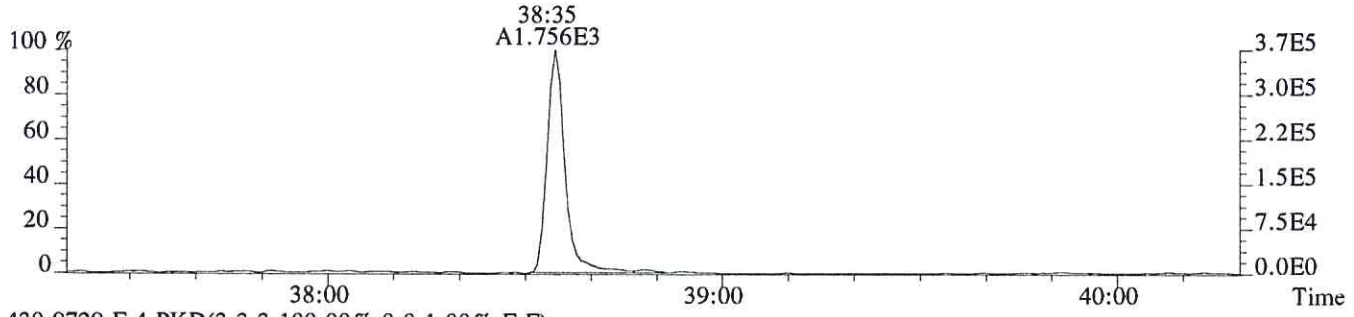
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.40%,F,T)



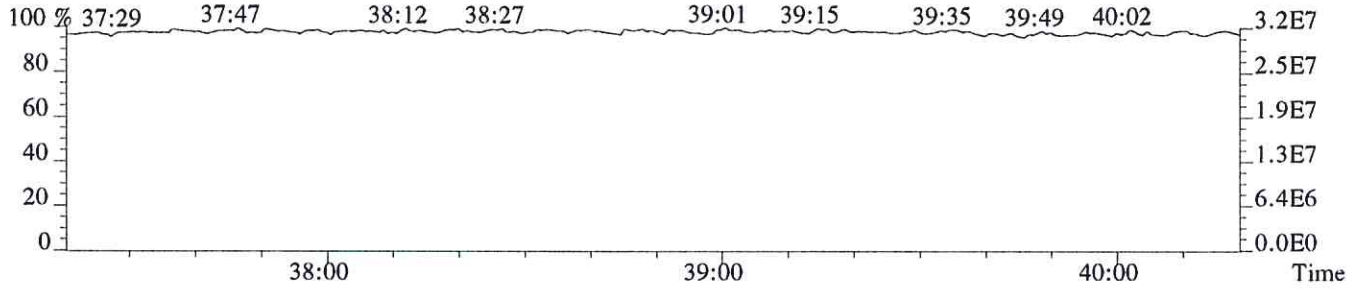
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3284.0,0.40%,F,T)



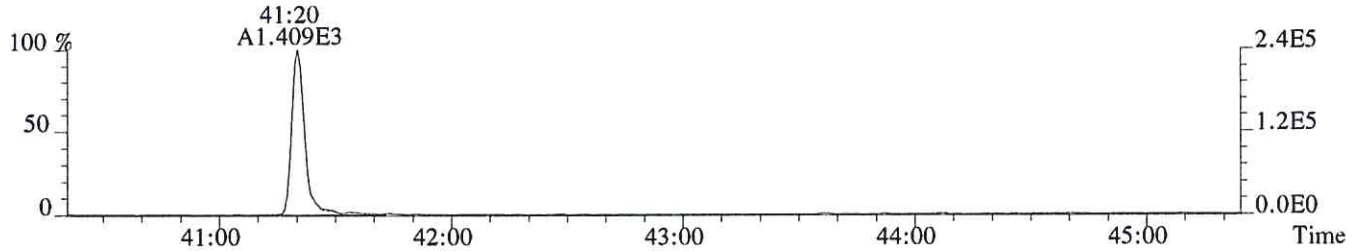
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2412.0,0.40%,F,T)



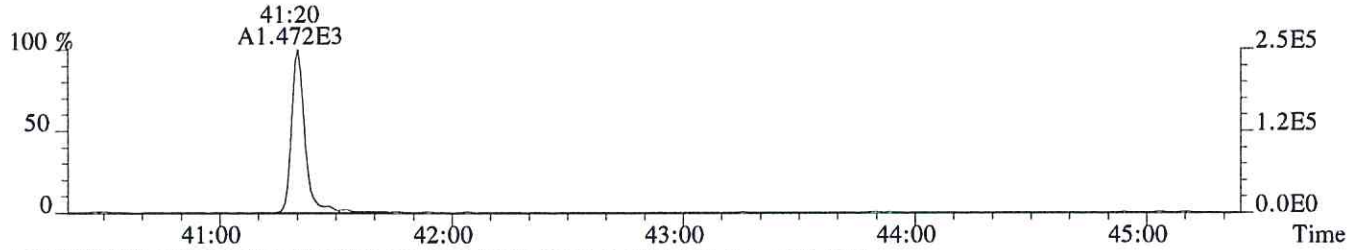
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



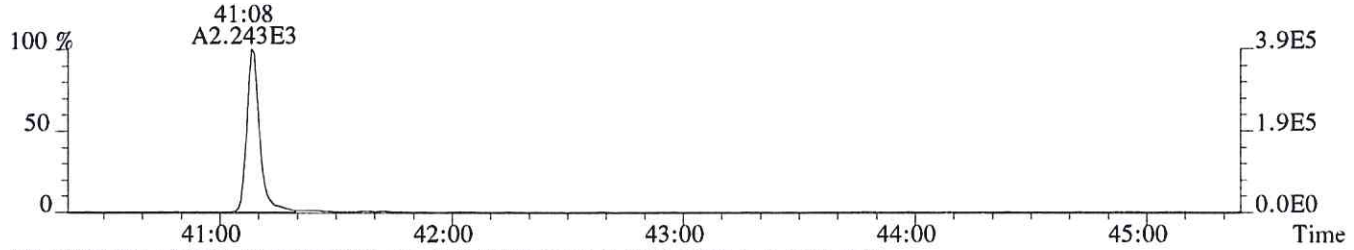
File:P405404 #1-456 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



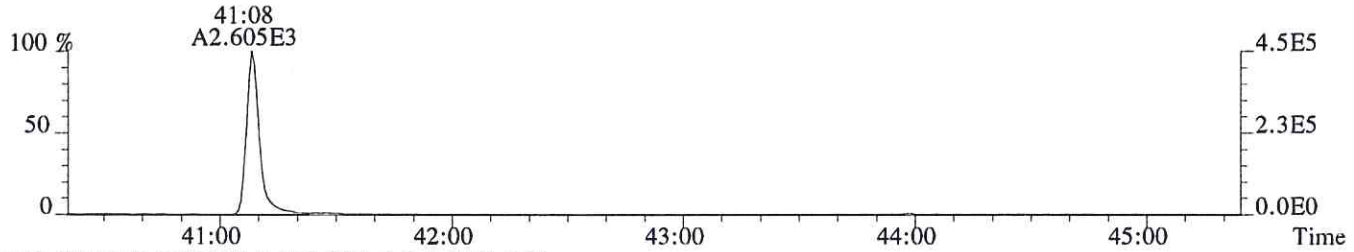
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,928.0,0.40%,F,T)



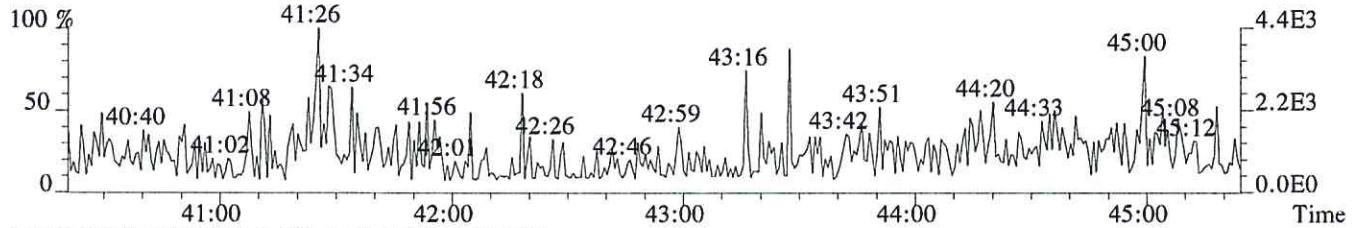
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



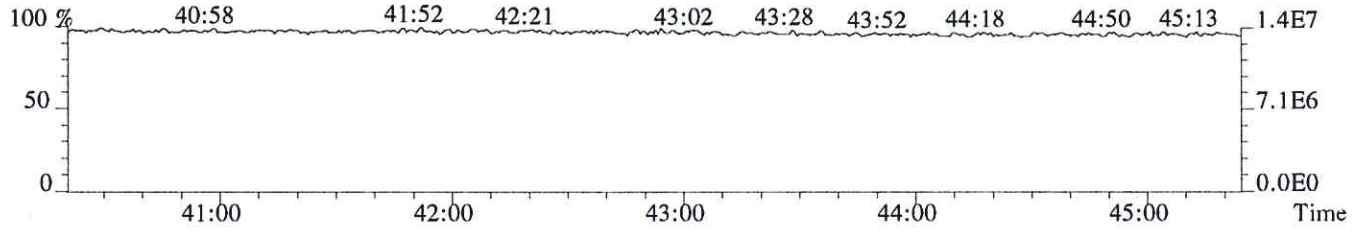
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1496.0,0.40%,F,T)



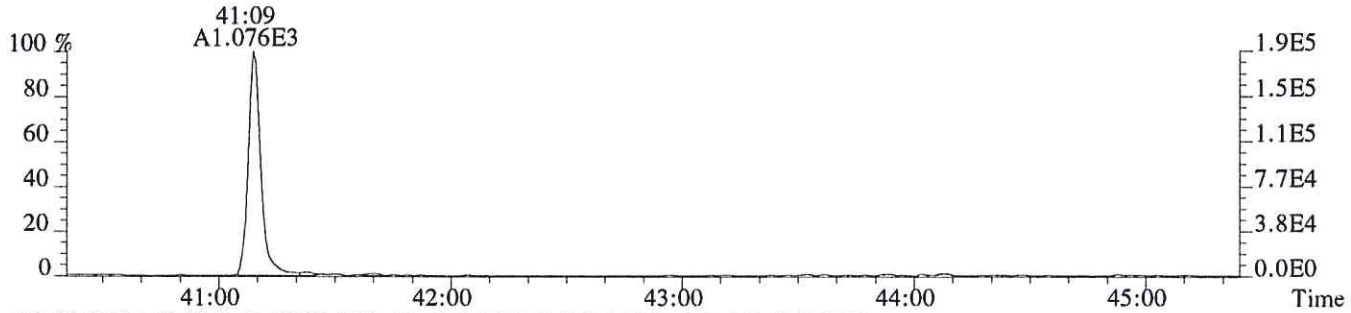
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



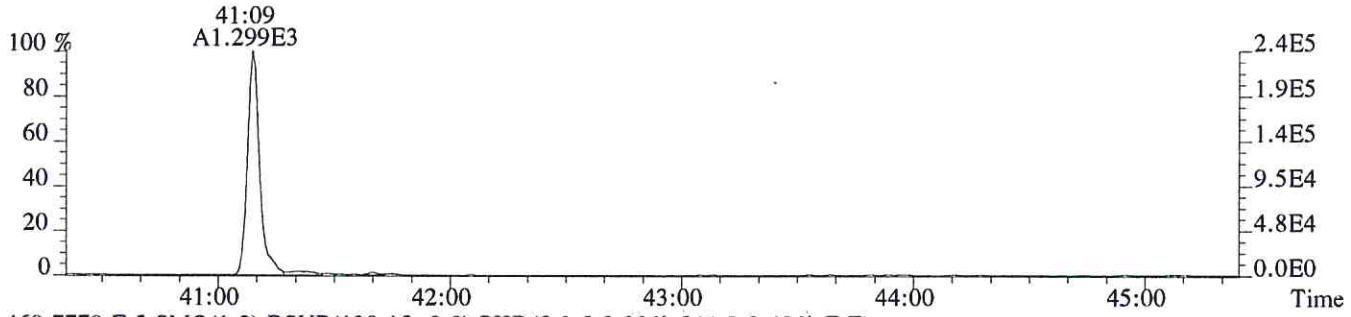
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



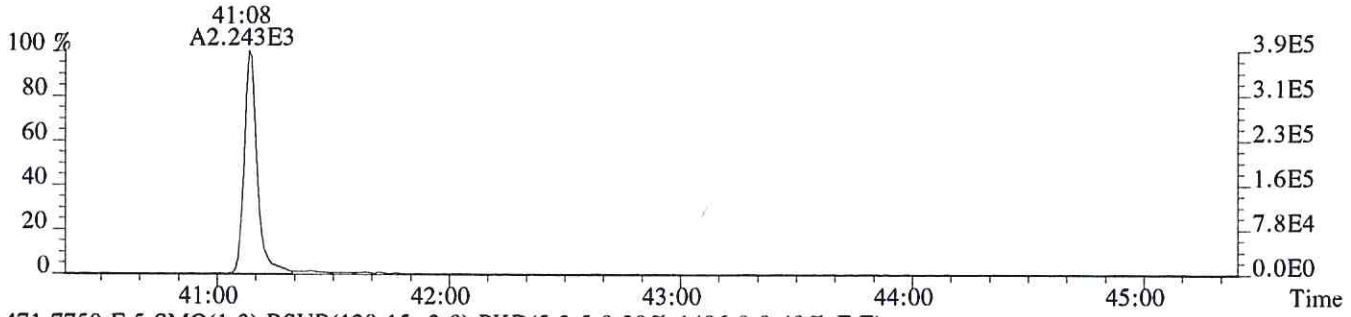
File:P405404 #1-456 Acq:15-FEB-2017 23:05:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



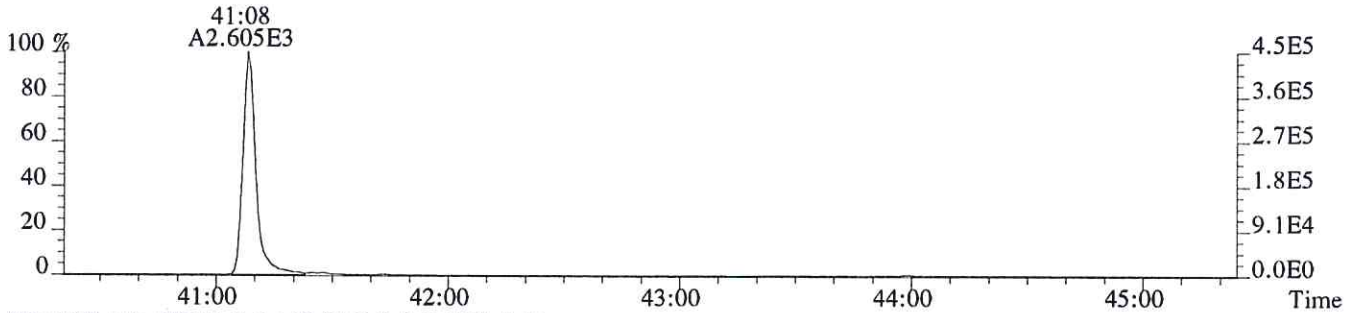
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



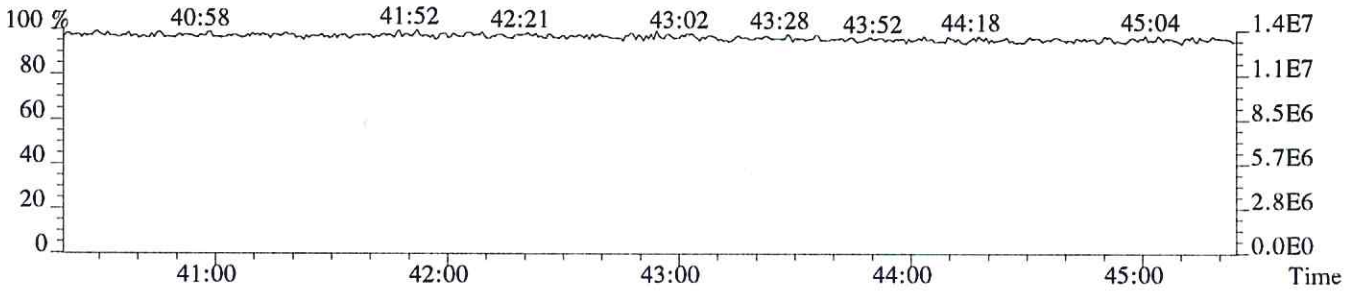
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1496.0,0.40%,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.
1702917-07 MS

Run #15 Filename P405405 Samp: 1 Inj: 1 Acquired: 15-FEB-17 23:54:16
Processed: 16-FEB-17 14:18:47 Sample ID: EQ1700058-05

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:54	1.175e+03	1.492e+03	0.79	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	31:25	1.004e+04	6.446e+03	1.56	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	32:22	9.796e+03	6.303e+03	1.55	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	35:06	8.874e+03	7.262e+03	1.22	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	35:12	9.530e+03	7.631e+03	1.25	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	35:43	8.046e+03	6.535e+03	1.23	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	36:28	7.220e+03	5.907e+03	1.22	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	7.047e+03	6.833e+03	1.03	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:03	6.174e+03	6.018e+03	1.03	yes	no	1.187
10	Unk	OCDF	41:21	8.309e+03	9.354e+03	0.89	yes	no	1.035
11	Unk	2,3,7,8-TCDD	27:45	1.247e+03	1.570e+03	0.79	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	32:39	8.621e+03	5.650e+03	1.53	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	35:51	7.394e+03	6.011e+03	1.23	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	35:56	7.359e+03	6.039e+03	1.22	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	7.406e+03	5.941e+03	1.25	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:36	5.717e+03	5.453e+03	1.05	yes	no	0.882
17	Unk	OCDD	41:10	7.125e+03	8.300e+03	0.86	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:52	1.376e+04	1.821e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	2.505e+04	1.632e+04	1.53	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:21	2.352e+04	1.489e+04	1.58	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:05	9.758e+03	1.904e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:12	1.182e+04	2.316e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	9.080e+03	1.784e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:28	8.483e+03	1.652e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:43	6.232e+03	1.424e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:02	6.455e+03	1.506e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:45	1.430e+04	1.826e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:38	2.150e+04	1.369e+04	1.57	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	1.606e+04	1.289e+04	1.25	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:56	1.666e+04	1.334e+04	1.25	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	1.235e+04	1.194e+04	1.03	yes	no	0.817
32	IS	13C-OCDD	41:09	1.422e+04	1.611e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:06	1.973e+04	2.511e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:10	2.250e+04	1.846e+04	1.22	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	1.433e+04				no	0.958

$$\text{OCDD} = \frac{(7.125e+03 + 8.300e+03) \times 4000 \text{ pg} \times}{(1.422e+04 + 1.611e+04) \times 948 \text{ mL}/g \times 100 / 100 \times 0.980} = 2189.6 \text{ pg/L}$$

MM 02/17/17

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
1702917-07 MS

Run #15 Filename P405405 Samp: 1 Inj: 1 Acquired: 15-FEB-17 23:54:16
Processed: 16-FEB-17 14:18:47 LAB. ID: EQ1700058-05

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.89e+05	2.52e+02	7.5e+02	2.45e+05	7.64e+02	3.2e+02
2	1,2,3,7,8-PeCDF	1.84e+06	5.04e+02	3.6e+03	1.16e+06	7.88e+02	1.5e+03
3	2,3,4,7,8-PeCDF	1.87e+06	5.04e+02	3.7e+03	1.18e+06	7.88e+02	1.5e+03
4	1,2,3,4,7,8-HxCDF	1.96e+06	2.64e+02	7.4e+03	1.61e+06	2.12e+02	7.6e+03
5	1,2,3,6,7,8-HxCDF	2.02e+06	2.64e+02	7.7e+03	1.62e+06	2.12e+02	7.6e+03
6	2,3,4,6,7,8-HxCDF	1.77e+06	2.64e+02	6.7e+03	1.44e+06	2.12e+02	6.8e+03
7	1,2,3,7,8,9-HxCDF	1.50e+06	2.64e+02	5.7e+03	1.22e+06	2.12e+02	5.8e+03
8	1,2,3,4,6,7,8-HpCDF	1.58e+06	1.66e+03	9.5e+02	1.55e+06	2.28e+03	6.8e+02
9	1,2,3,4,7,8,9-HpCDF	1.30e+06	1.66e+03	7.8e+02	1.24e+06	2.28e+03	5.4e+02
10	OCDF	1.53e+06	5.64e+02	2.7e+03	1.69e+06	1.65e+03	1.0e+03
11	2,3,7,8-TCDD	2.09e+05	8.48e+02	2.5e+02	2.75e+05	3.04e+02	9.0e+02
12	1,2,3,7,8-PeCDD	1.72e+06	4.36e+02	3.9e+03	1.09e+06	3.84e+02	2.9e+03
13	1,2,3,4,7,8-HxCDD	1.69e+06	2.80e+02	6.0e+03	1.36e+06	3.64e+02	3.7e+03
14	1,2,3,6,7,8-HxCDD	1.60e+06	2.80e+02	5.7e+03	1.31e+06	3.64e+02	3.6e+03
15	1,2,3,7,8,9-HxCDD	1.58e+06	2.80e+02	5.6e+03	1.30e+06	3.64e+02	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	1.24e+06	8.40e+02	1.5e+03	1.19e+06	6.68e+02	1.8e+03
17	OCDD	1.37e+06	3.72e+02	3.7e+03	1.58e+06	2.46e+03	6.4e+02
18	13C-2,3,7,8-TCDF	2.23e+06	4.87e+03	4.6e+02	2.99e+06	2.48e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	4.44e+06	5.72e+02	7.8e+03	2.96e+06	6.68e+02	4.4e+03
20	13C-2,3,4,7,8-PeCDF	4.59e+06	5.72e+02	8.0e+03	2.93e+06	6.68e+02	4.4e+03
21	13C-1,2,3,4,7,8-HxCDF	2.12e+06	3.08e+02	6.9e+03	4.15e+06	7.04e+02	5.9e+03
22	13C-1,2,3,6,7,8-HxCDF	2.47e+06	3.08e+02	8.0e+03	4.83e+06	7.04e+02	6.9e+03
23	13C-2,3,4,6,7,8-HxCDF	2.02e+06	3.08e+02	6.5e+03	3.97e+06	7.04e+02	5.6e+03
24	13C-1,2,3,7,8,9-HxCDF	1.81e+06	3.08e+02	5.9e+03	3.43e+06	7.04e+02	4.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.40e+06	1.40e+03	1.0e+03	3.23e+06	3.05e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.35e+06	1.40e+03	9.7e+02	3.07e+06	3.05e+03	1.0e+03
27	13C-2,3,7,8-TCDD	2.54e+06	3.02e+03	8.4e+02	3.22e+06	1.34e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	4.24e+06	5.20e+02	8.1e+03	2.72e+06	5.92e+02	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	3.68e+06	4.96e+02	7.4e+03	2.94e+06	5.28e+02	5.6e+03
30	13C-1,2,3,6,7,8-HxCDD	3.60e+06	4.96e+02	7.2e+03	2.88e+06	5.28e+02	5.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.72e+06	1.04e+03	2.6e+03	2.59e+06	1.29e+03	2.0e+03
32	13C-OCDD	2.72e+06	1.97e+03	1.4e+03	3.02e+06	1.16e+03	2.6e+03
33	13C-1,2,3,4-TCDD	3.31e+06	3.02e+03	1.1e+03	4.26e+06	1.34e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	4.89e+06	4.96e+02	9.9e+03	3.95e+06	5.28e+02	7.5e+03
35	37Cl-2,3,7,8-TCDD	2.49e+06	4.84e+02	5.2e+03			

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Peak List Summary

CLIENT ID.

1702917-07 MS

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P405405 Sample:1 Injection:1 Function:1

Acquired: 15-FEB-17 23:54:16 Processed: 16-FEB-17 14:18:47

Mass: 303.9020 305.8990 Tot Response: 2.67e+03 RRF: 0.7687

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:54	1.17e+03	1.49e+03	0.79	yes	2.67e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 MS

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P405405 Sample:1 Injection:1 Function:1

Acquired: 15-FEB-17 23:54:16 Processed: 16-FEB-17 14:18:47

Mass: 319.8970 321.8940 Tot Response: 2.82e+03 RRF: 0.8730

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:45	1.25e+03	1.57e+03	0.79	yes	2.82e+03	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

1702917-07 MS

Entry: 39 Totals Name: Total Penta-Furans2

Run: 15 File: P405405 Sample:1 Injection:1 Function:2

Acquired: 15-FEB-17 23:54:16 Processed: 16-FEB-17 14:18:47

Mass: 339.8600 341.8570 Tot Response: 3.31e+04 RRF: 0.8493

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:01	4.74e+01	3.53e+01	1.35	yes	8.27e+01		n	n
2	31:25	1.00e+04	6.45e+03	1.56	yes	1.65e+04	1,2,3,7,8-PeCDF	n	n
3	31:39	2.03e+02	1.43e+02	1.42	yes	3.46e+02		n	n
4	31:47	3.97e+01	2.88e+01	1.38	yes	6.85e+01		n	n
5	32:16	1.92e+01	1.32e+01	1.46	yes	3.24e+01		n	n
6	32:22	9.80e+03	6.30e+03	1.55	yes	1.61e+04	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.

1702917-07 MS

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 15 File: P405405 Sample:1 Injection:1 Function:2

Acquired: 15-FEB-17 23:54:16 Processed: 16-FEB-17 14:18:47

Mass: 355.8550 357.8520 Tot Response: 1.43e+04 RRF: 0.8057

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:39	8.62e+03	5.65e+03	1.53	yes	1.43e+04	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 MS

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P405405 Sample:1 Injection:1 Function:3

Acquired: 15-FEB-17 23:54:16 Processed: 16-FEB-17 14:18:47

Mass: 373.8210 375.8180 Tot Response: 6.10e+04 RRF: 1.043

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:06	8.87e+03	7.26e+03	1.22	yes	1.61e+04	1,2,3,4,7,8-HxCDF	n	n
2	35:12	9.53e+03	7.63e+03	1.25	yes	1.72e+04	1,2,3,6,7,8-HxCDF	n	n
3	35:43	8.05e+03	6.53e+03	1.23	yes	1.46e+04	2,3,4,6,7,8-HxCDF	n	n
4	36:28	7.22e+03	5.91e+03	1.22	yes	1.31e+04	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.

1702917-07 MS

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P405405 Sample:1 Injection:1 Function:3

Acquired: 15-FEB-17 23:54:16 Processed: 16-FEB-17 14:18:47

Mass: 389.8160 391.8130 Tot Response: 4.01e+04 RRF: 0.9067

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:51	7.39e+03	6.01e+03	1.23	yes	1.34e+04	1,2,3,4,7,8-HxCDD	n	n
2	35:56	7.36e+03	6.04e+03	1.22	yes	1.34e+04	1,2,3,6,7,8-HxCDD	n	n
3	36:10	7.41e+03	5.94e+03	1.25	yes	1.33e+04	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.

1702917-07 MS

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P405405 Sample:1 Injection:1 Function:4

Acquired: 15-FEB-17 23:54:16 Processed: 16-FEB-17 14:18:47

Mass: 407.7820 409.7790 Tot Response: 2.64e+04 RRF: 1.213

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:43	7.05e+03	6.83e+03	1.03	yes	1.39e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:07	1.81e+02	1.67e+02	1.08	yes	3.48e+02		n	n
3	39:03	6.17e+03	6.02e+03	1.03	yes	1.22e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 MS

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P405405 Sample:1 Injection:1 Function:4

Acquired: 15-FEB-17 23:54:16 Processed: 16-FEB-17 14:18:47

Mass: 423.7770 425.7740 Tot Response: 1.12e+04 RRF: 0.8816

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:36	5.72e+03	5.45e+03	1.05	yes	1.12e+04	1,2,3,4,6,7,8-HpCDD	n	n

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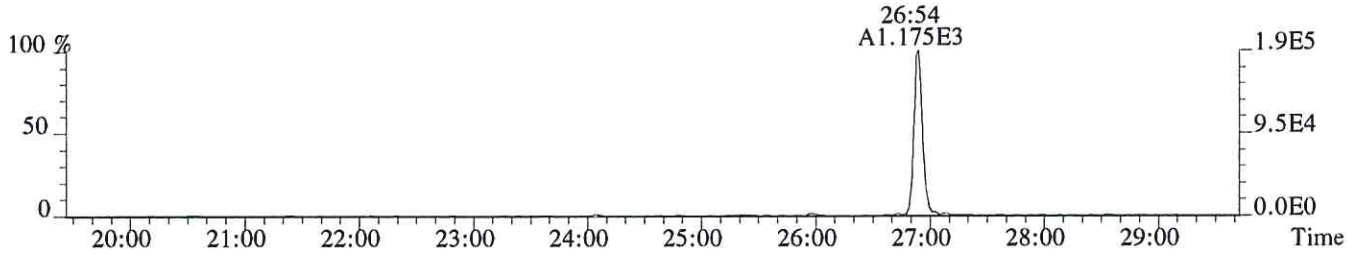
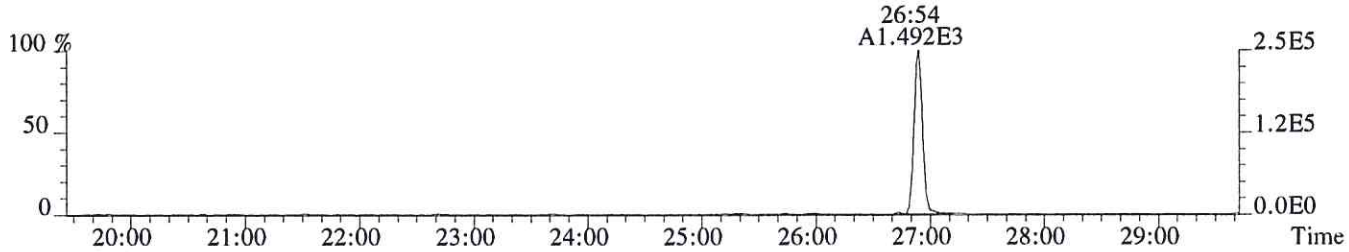
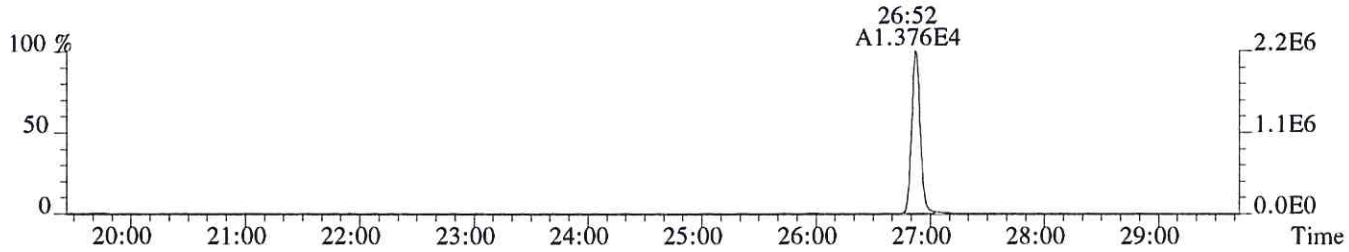
File:P405405 #1-729 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



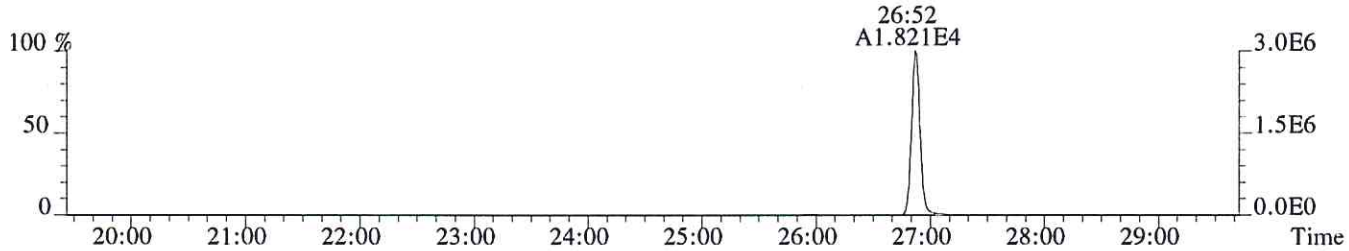
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



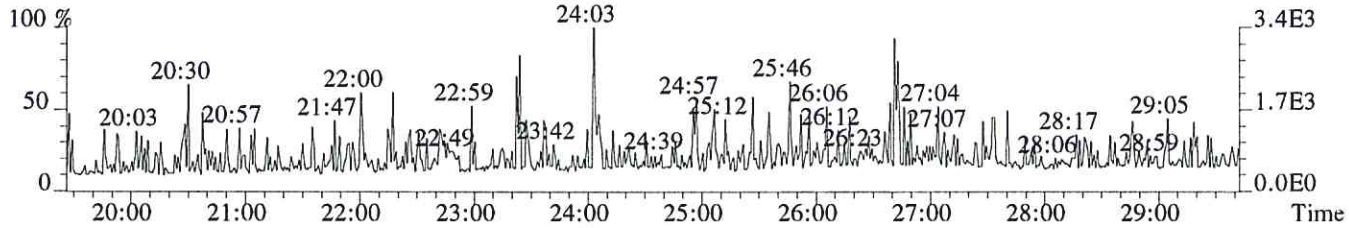
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4868.0,1.00%,F,T)



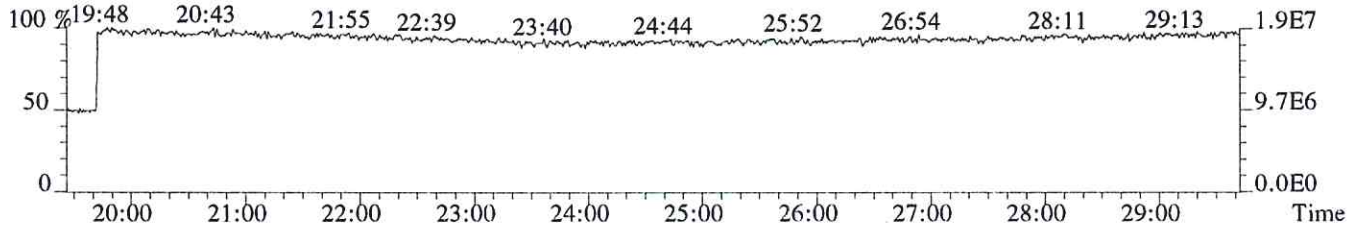
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2476.0,1.00%,F,T)



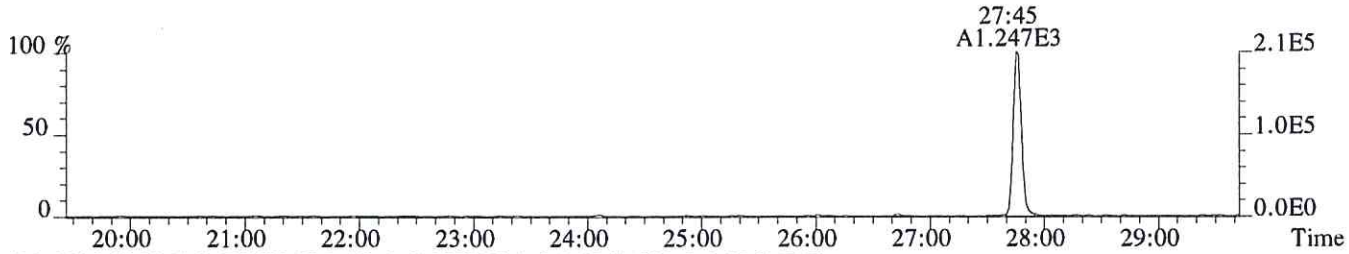
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



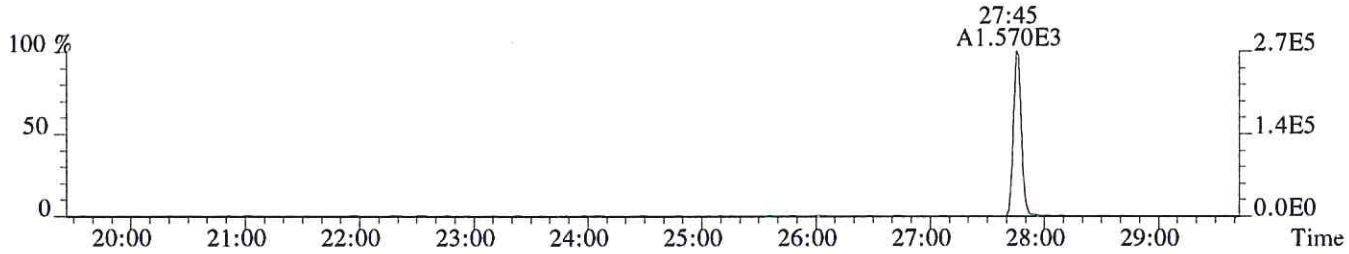
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



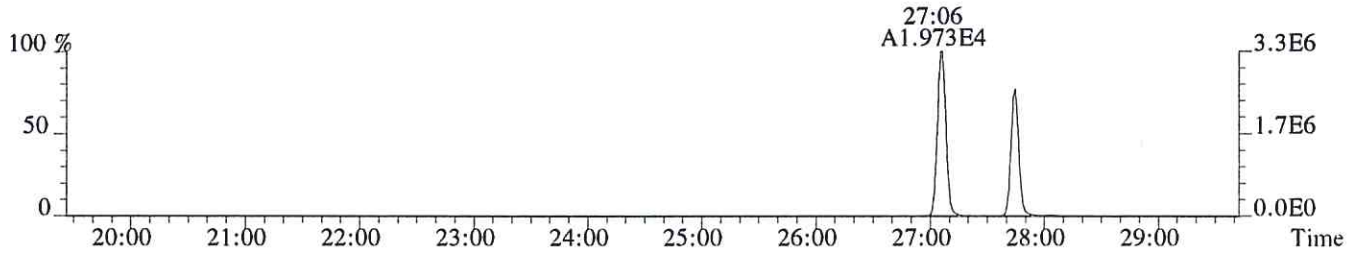
File:P405405 #1-729 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



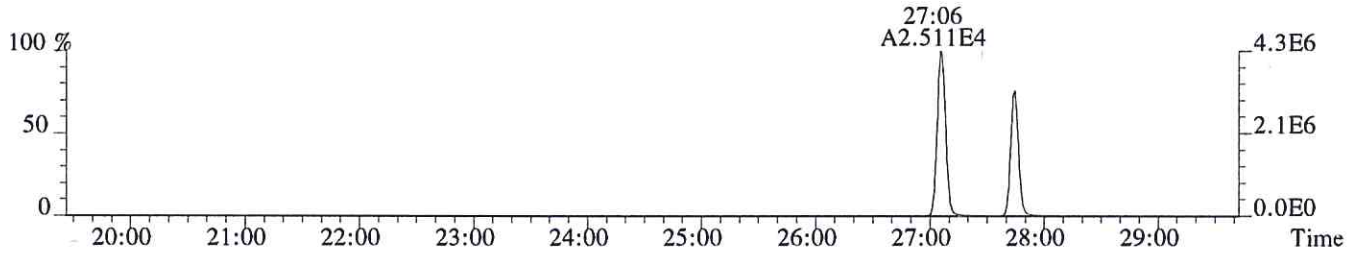
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



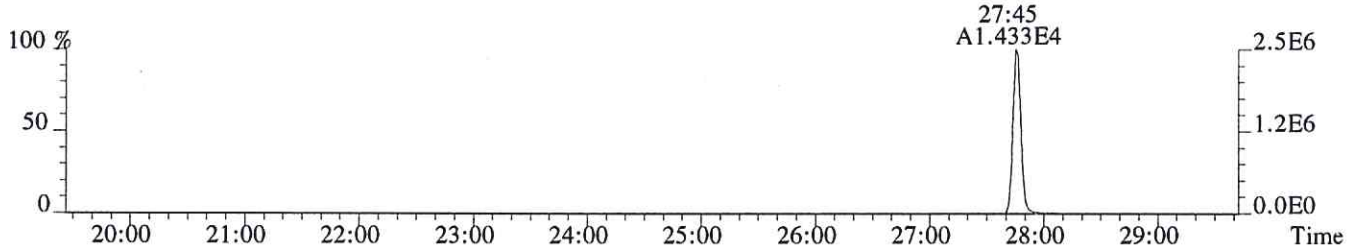
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3020.0,1.00%,F,T)



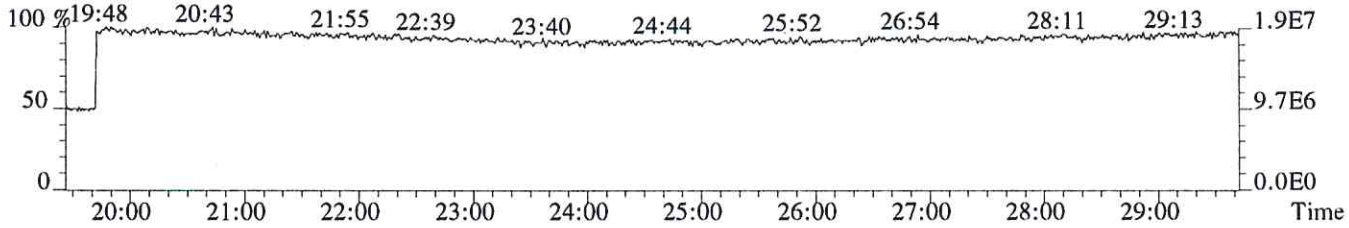
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



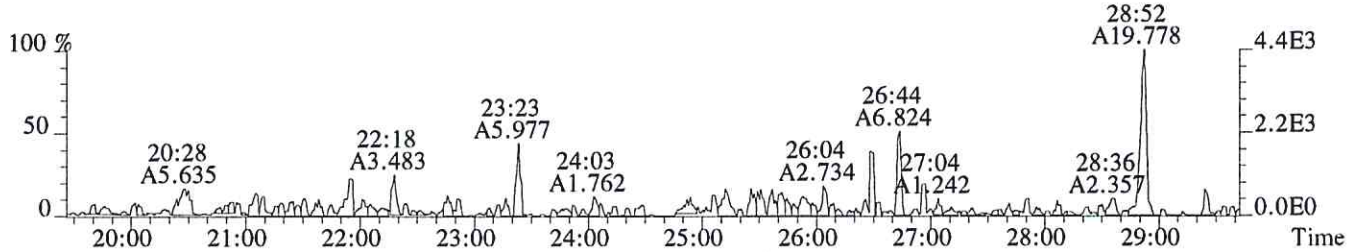
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



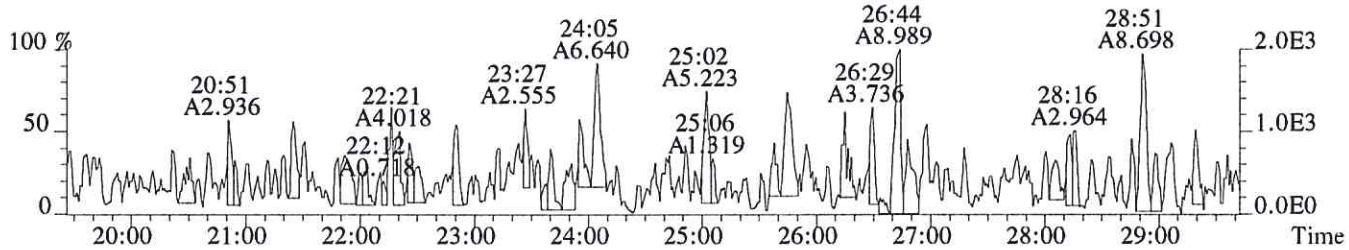
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



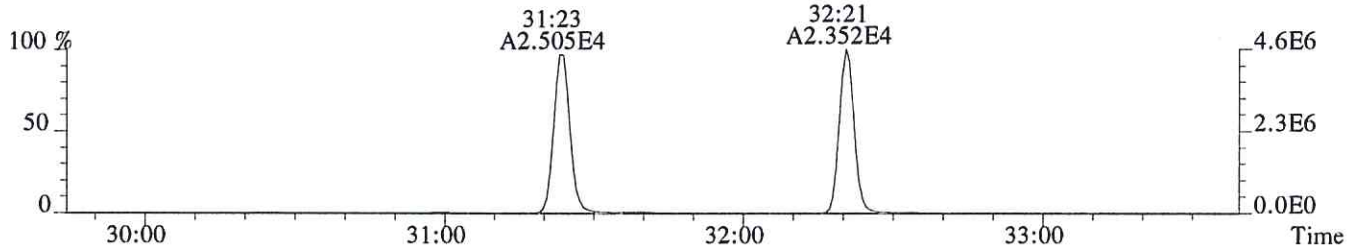
File:P405405 #1-729 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,92.0,1.00%,F,T)



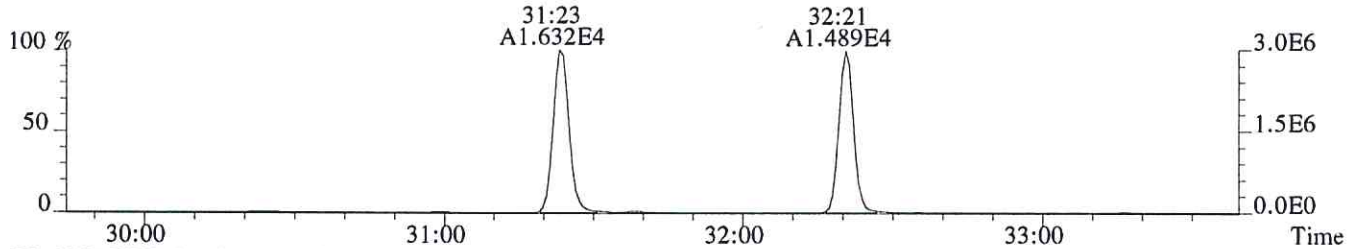
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



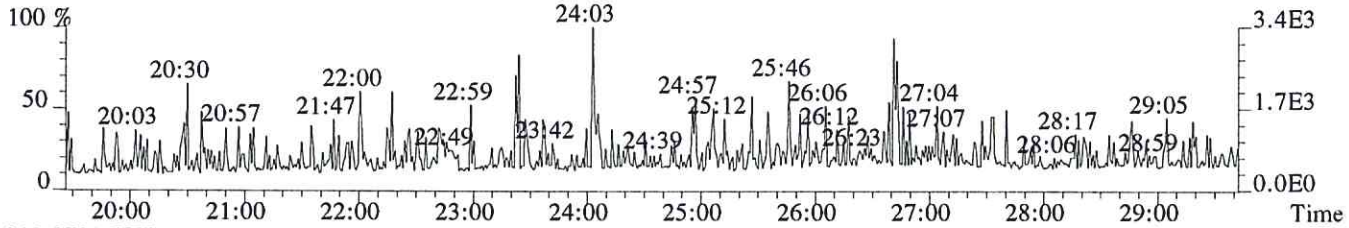
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



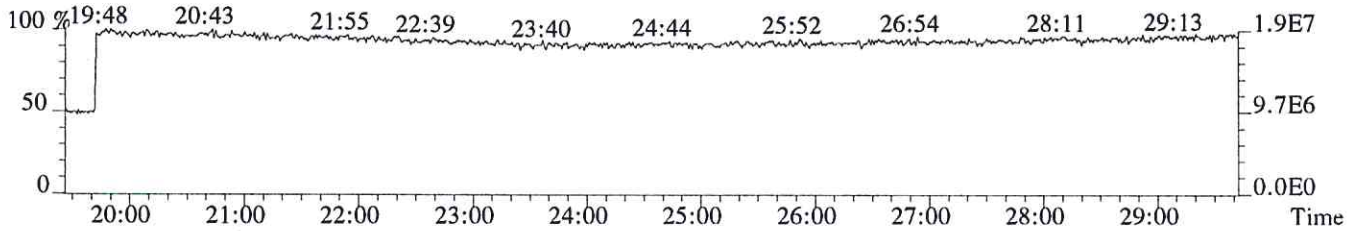
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



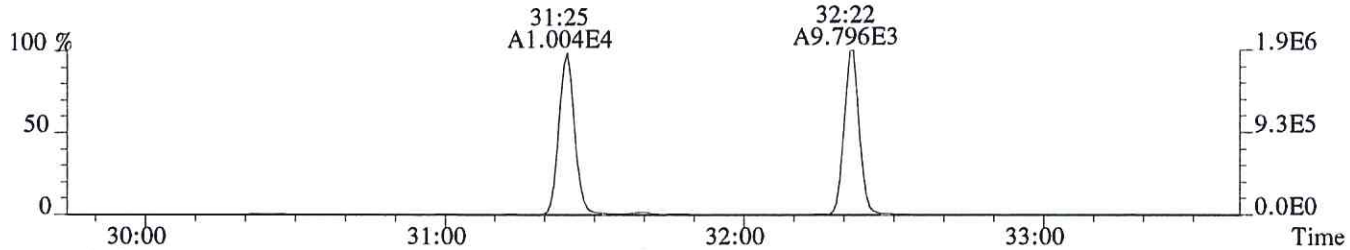
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



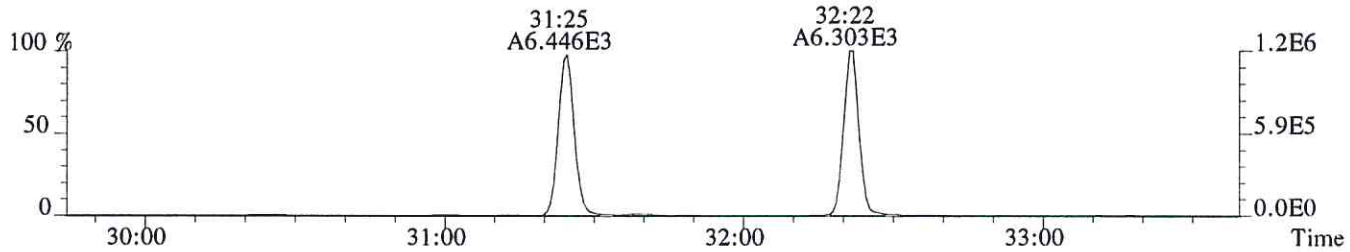
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



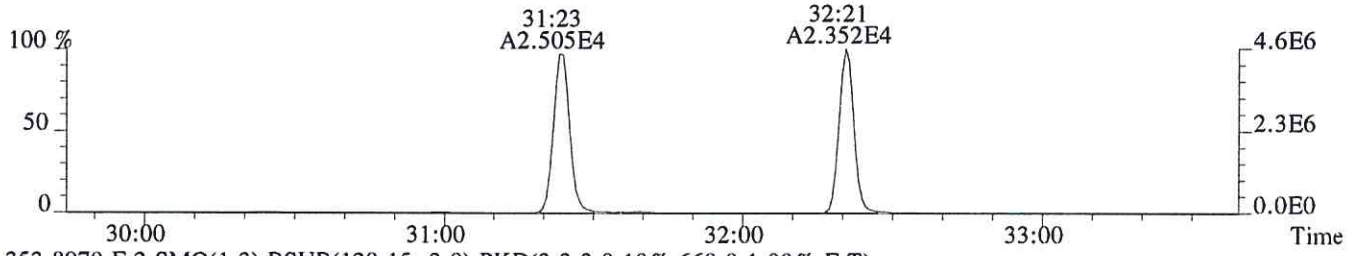
File:P405405 #1-353 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



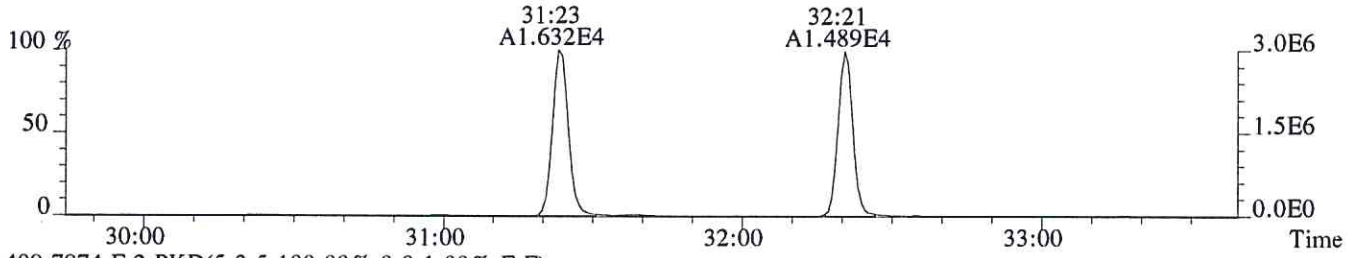
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



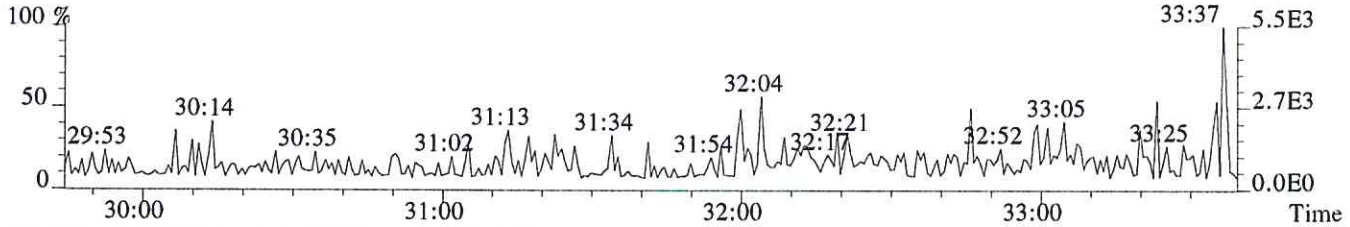
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



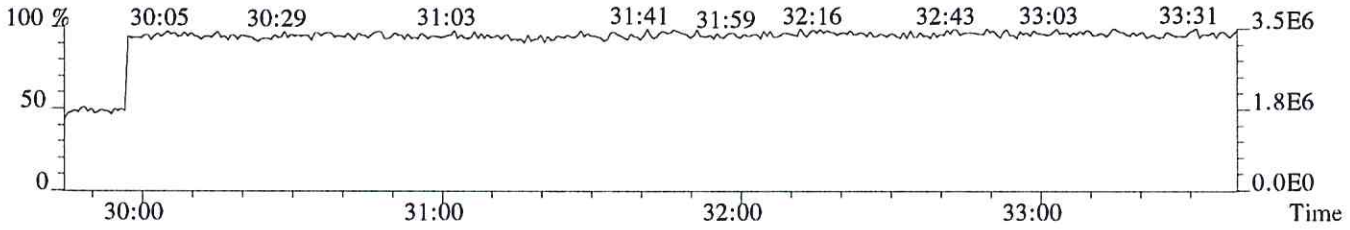
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



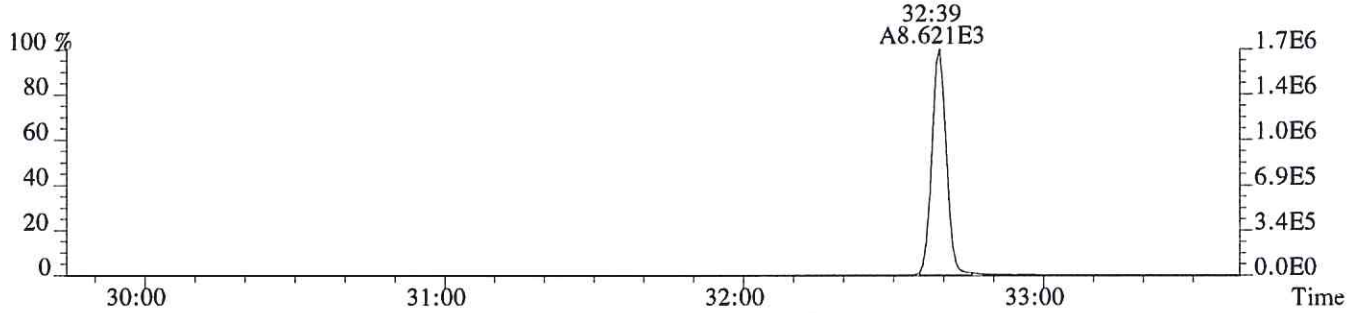
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



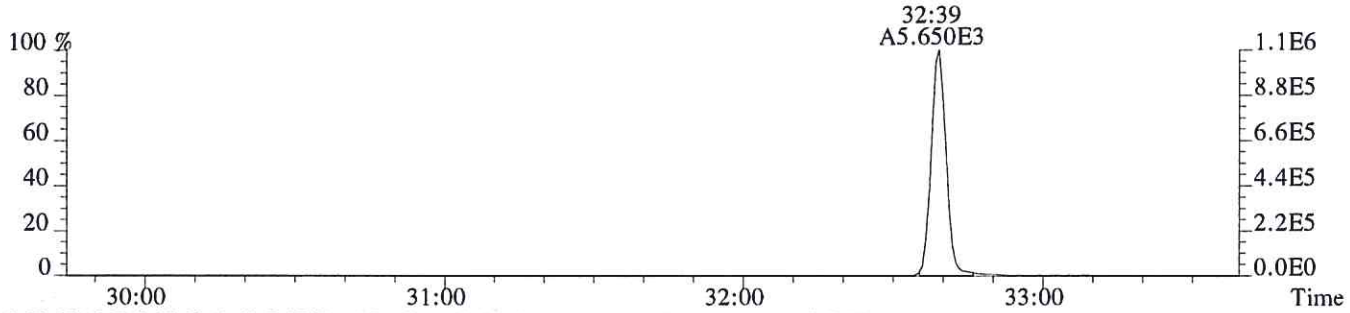
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



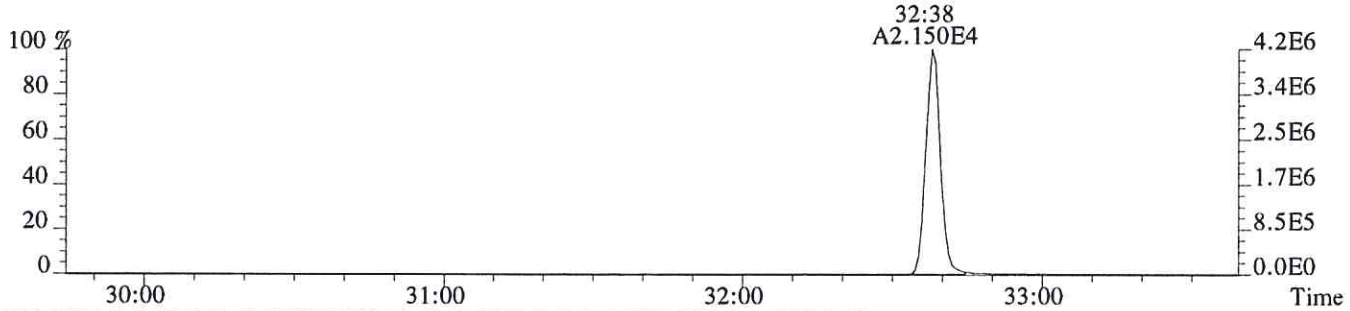
File:P405405 #1-353 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



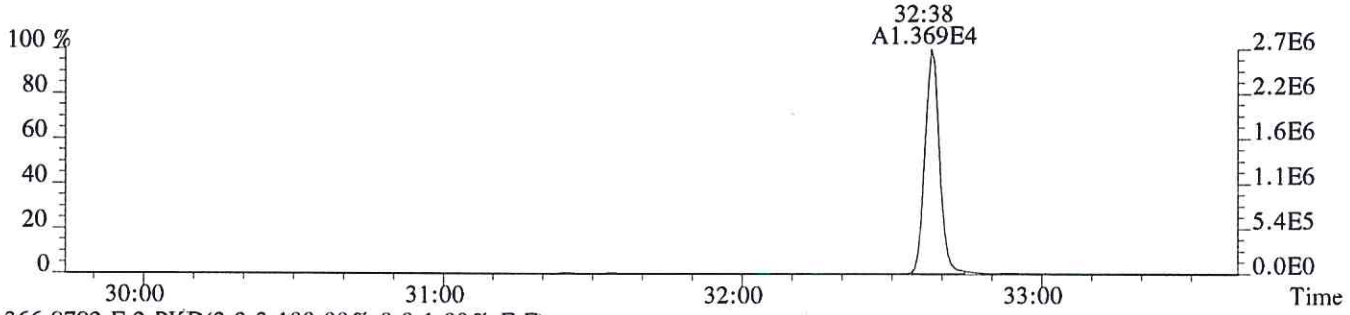
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



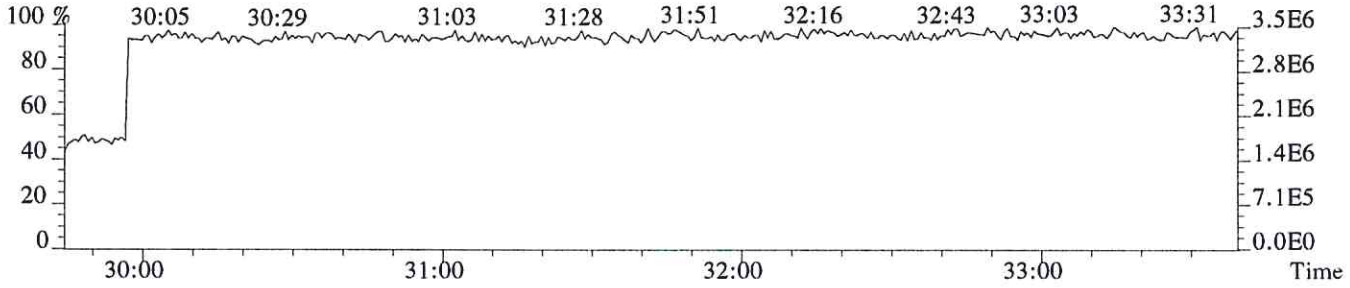
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



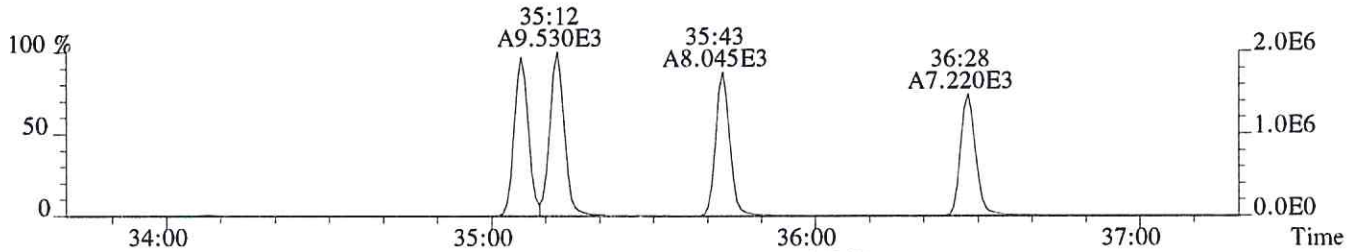
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



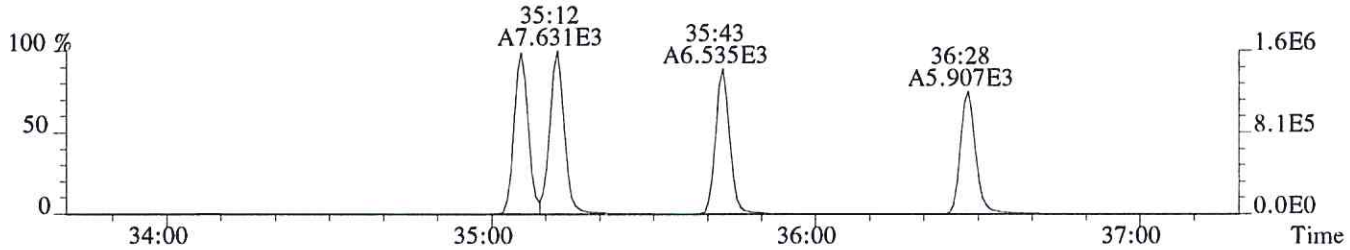
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



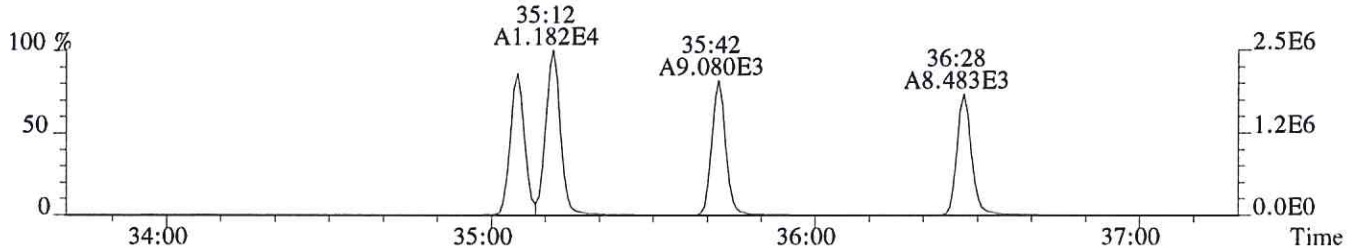
File:P405405 #1-326 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



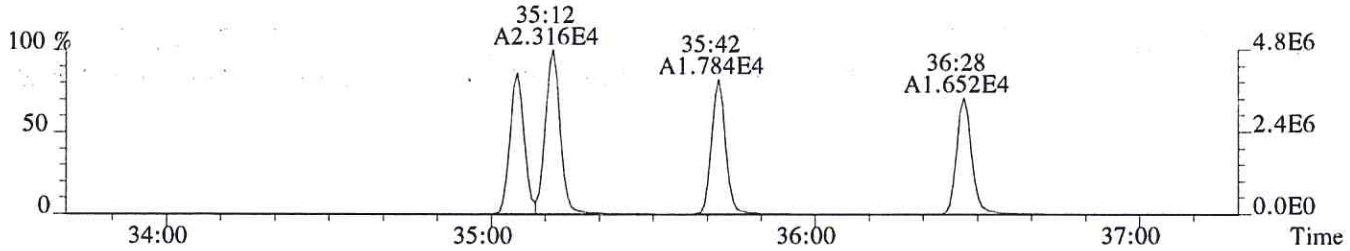
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)



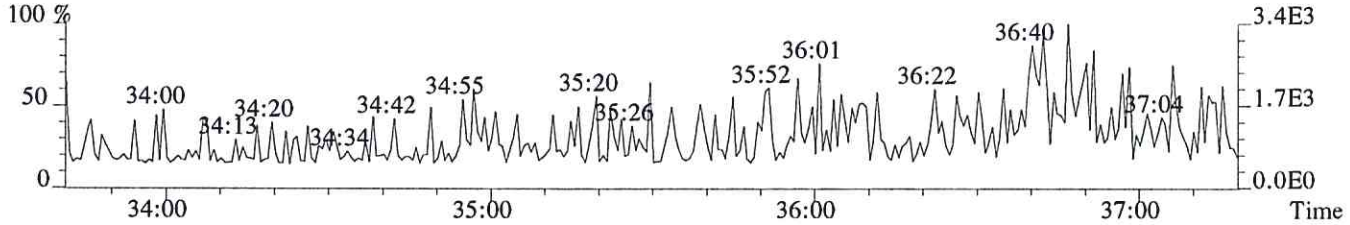
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



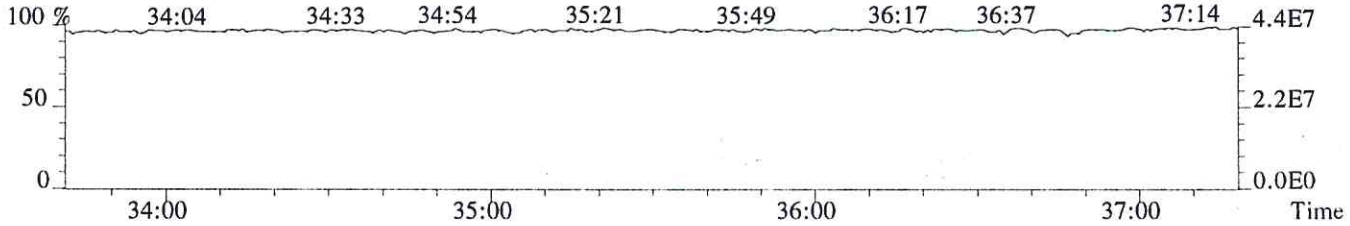
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



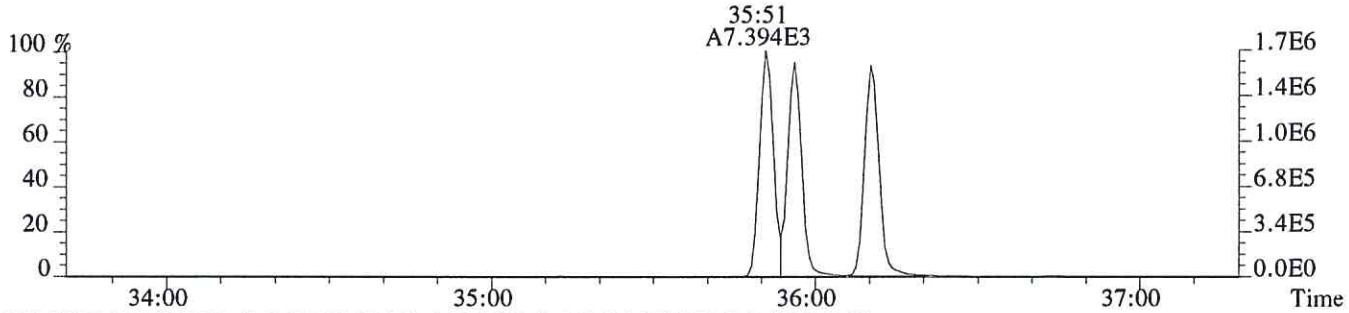
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



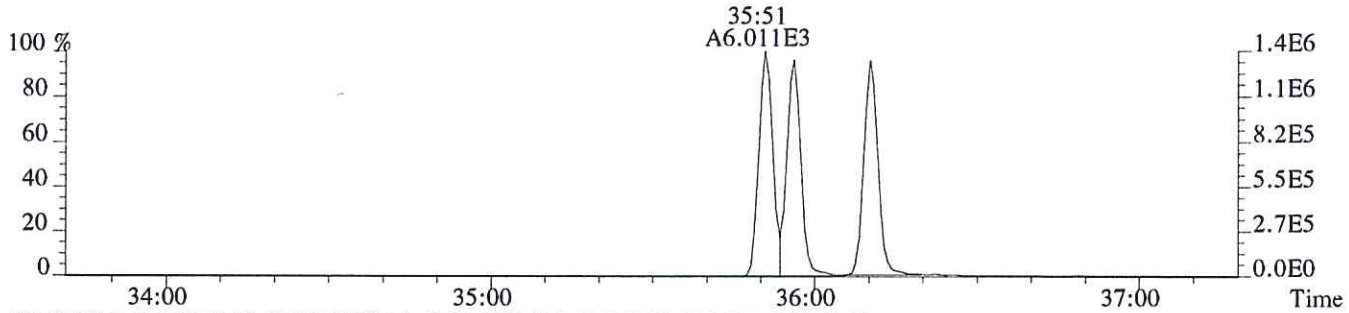
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



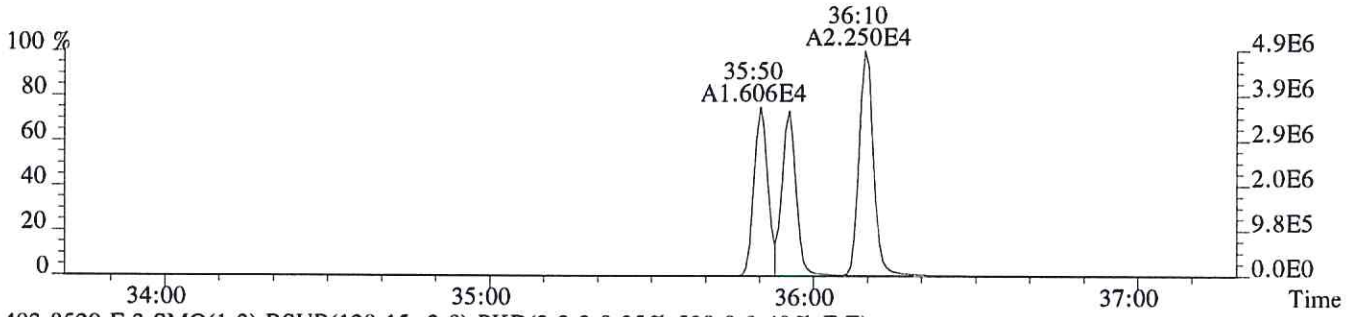
File:P405405 #1-326 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



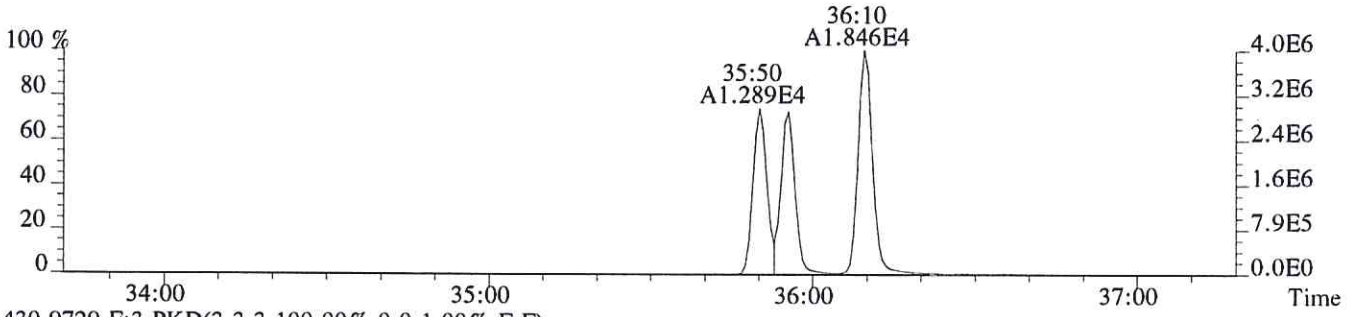
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



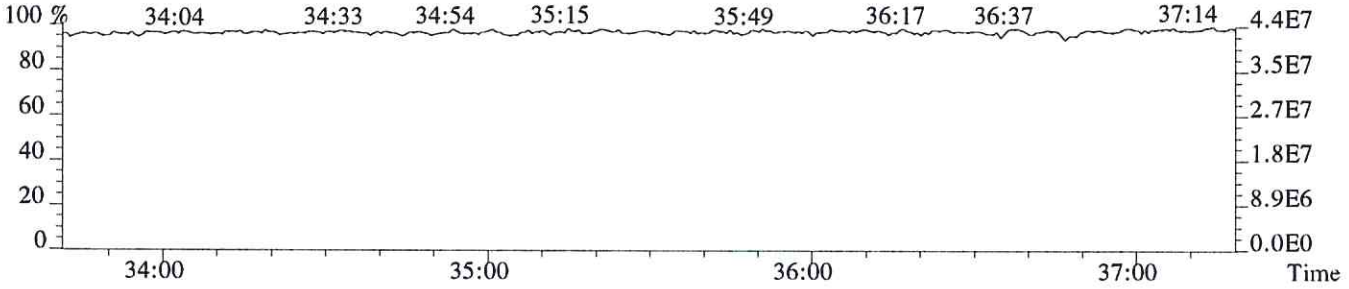
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



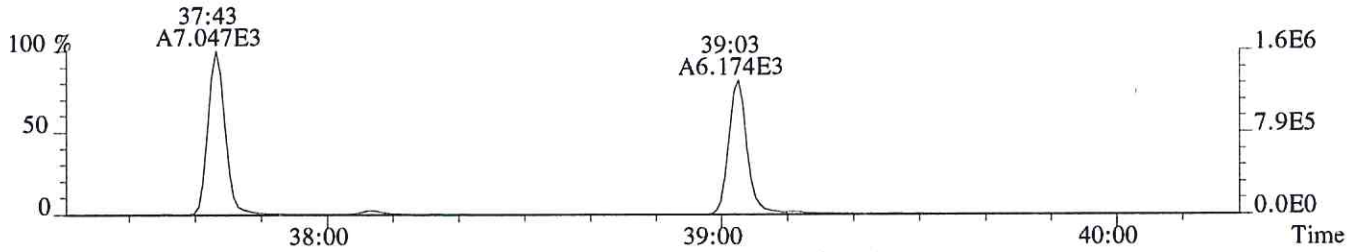
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



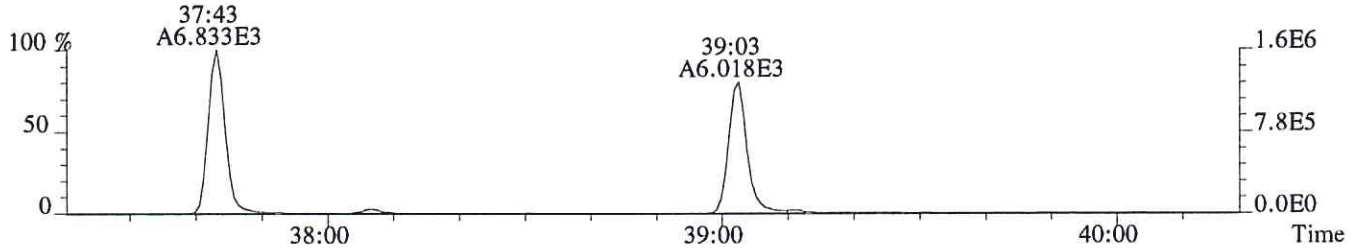
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



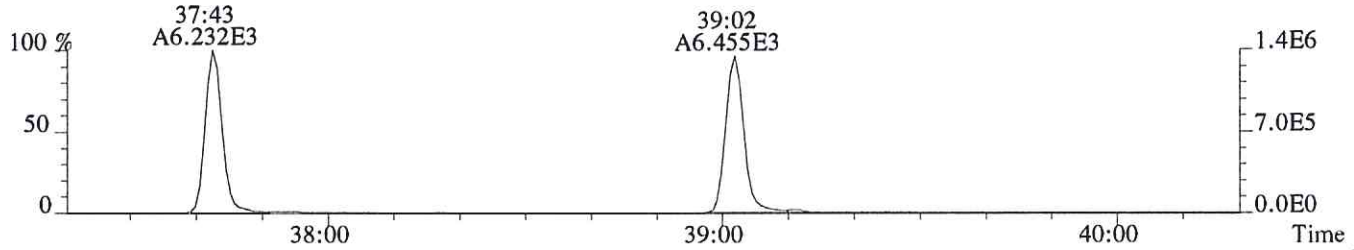
File:P405405 #1-268 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1660.0,0.50%,F,T)



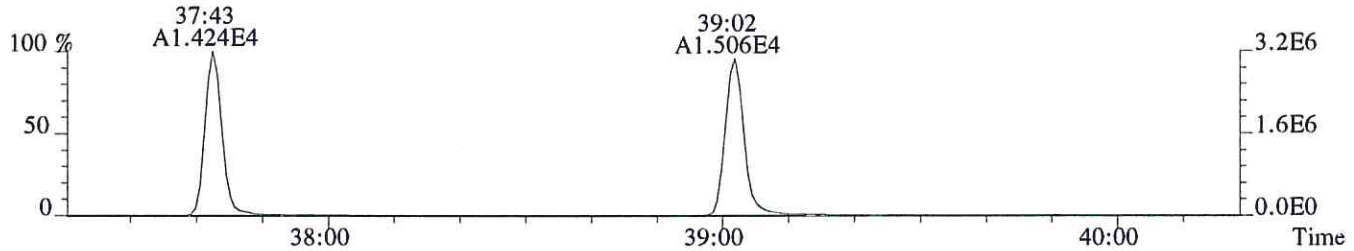
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.50%,F,T)



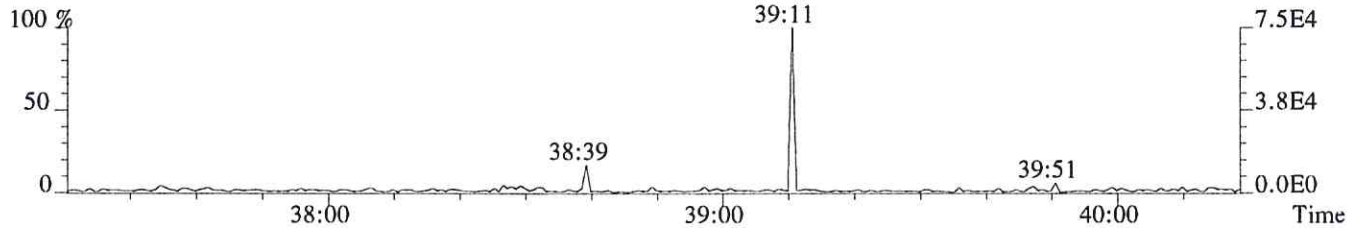
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.50%,F,T)



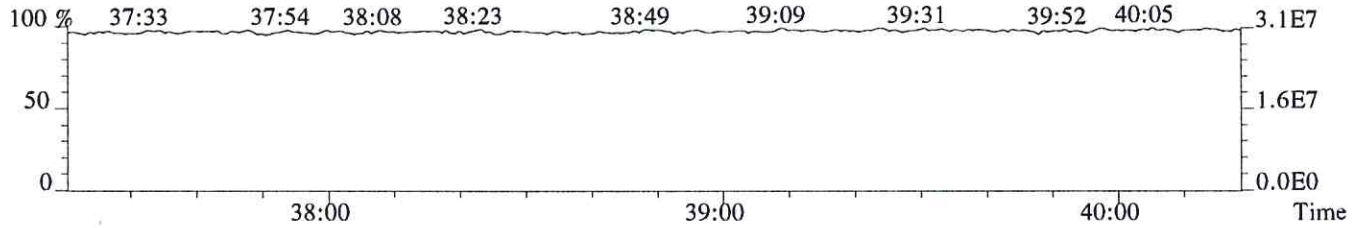
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3048.0,0.50%,F,T)



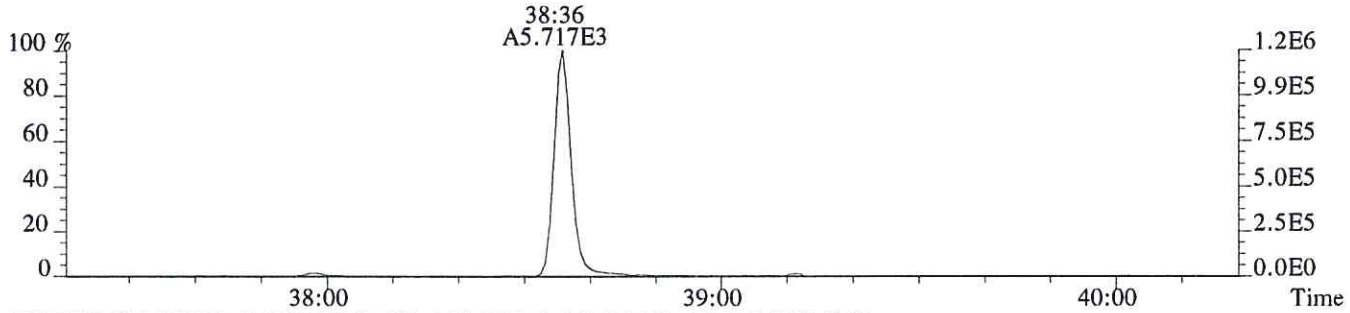
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



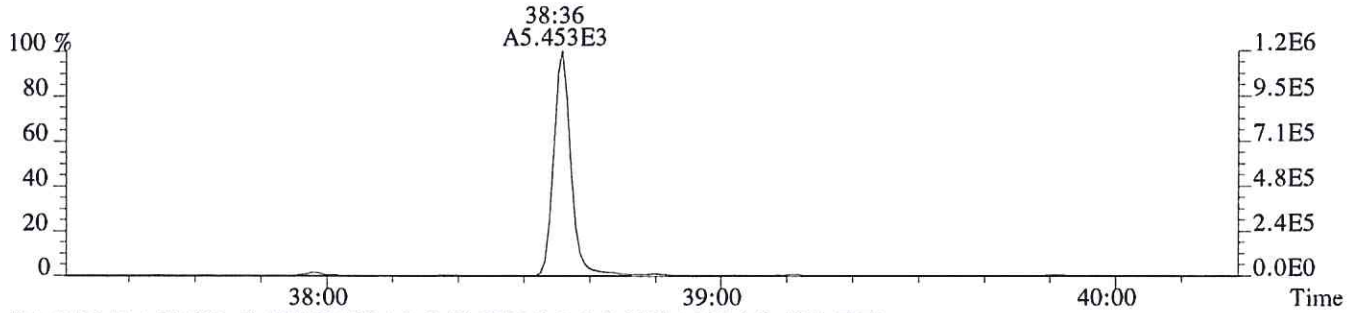
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



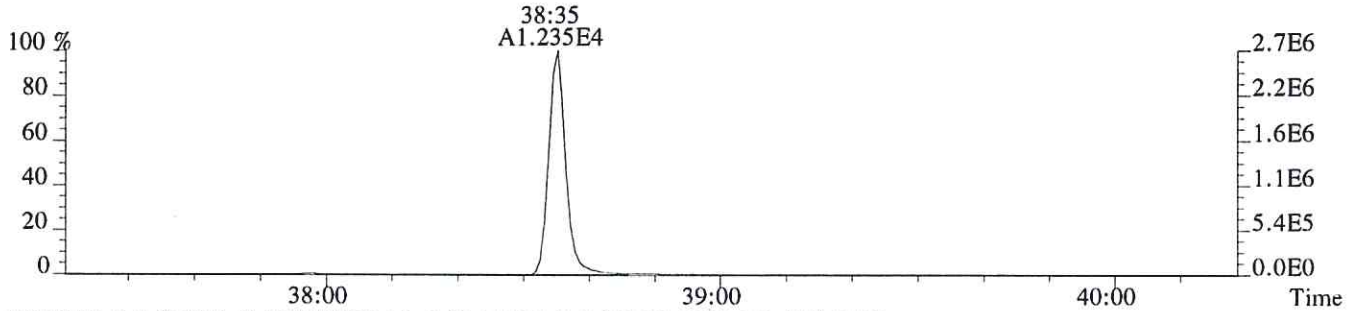
File:P405405 #1-268 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



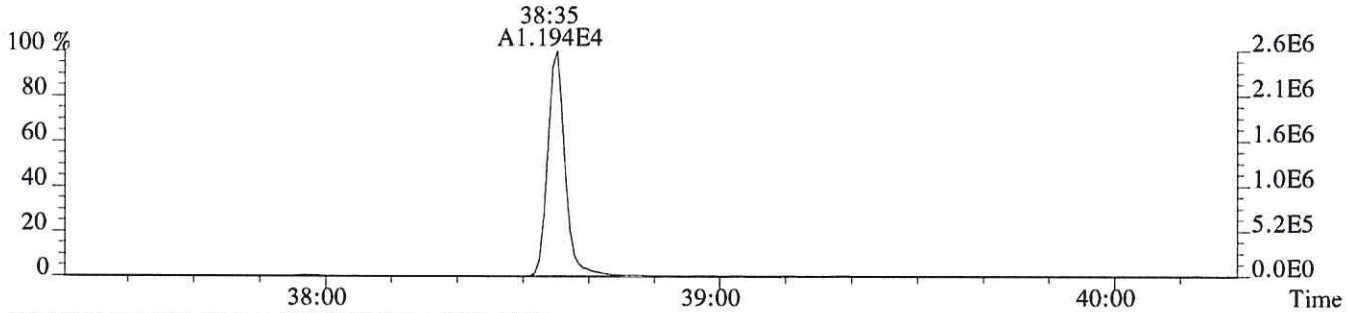
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



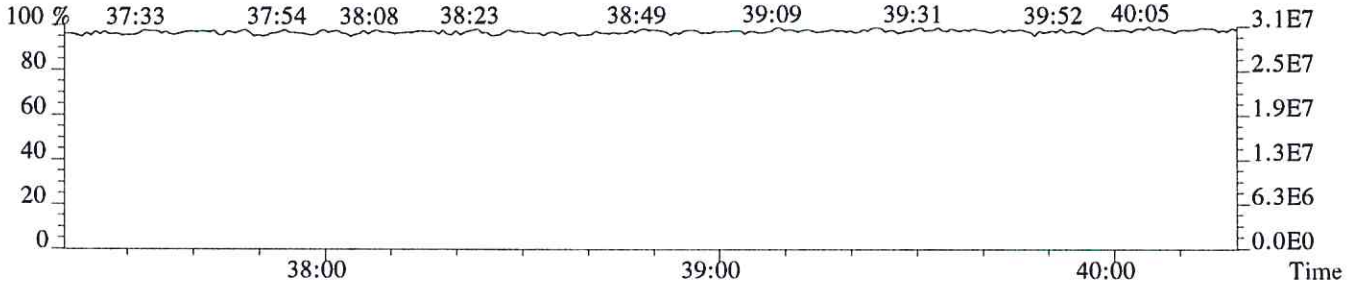
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



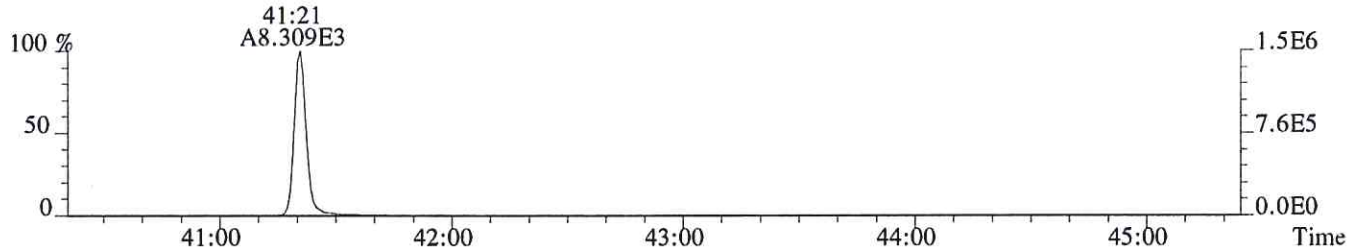
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)



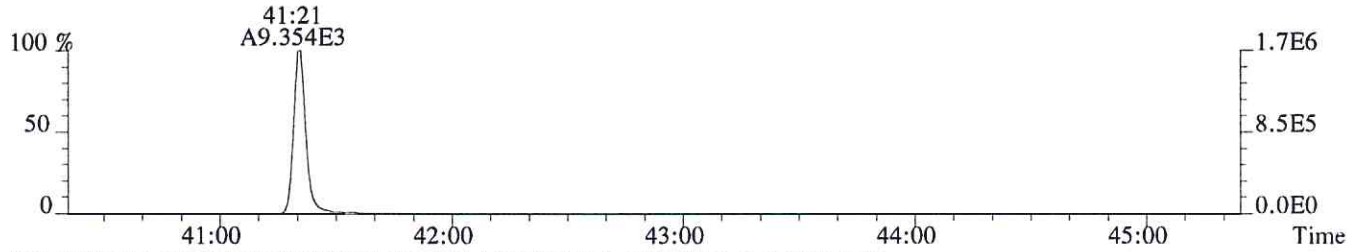
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



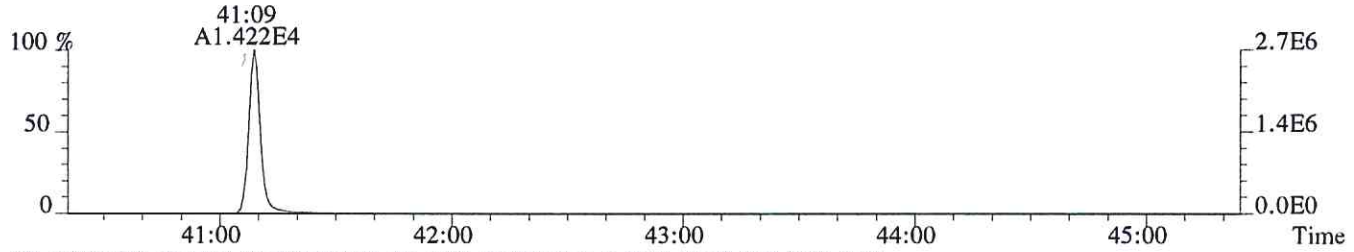
File:P405405 #1-456 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



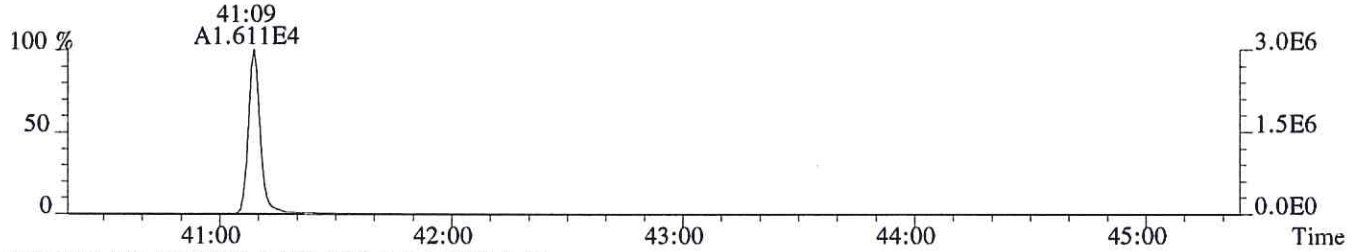
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1648.0,0.40%,F,T)



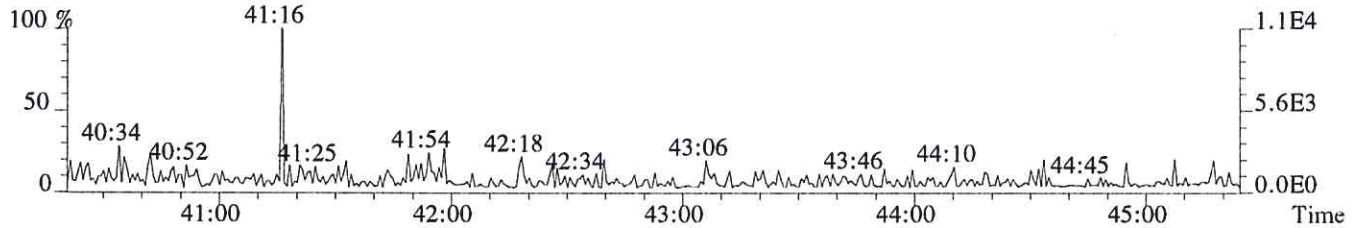
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1968.0,0.40%,F,T)



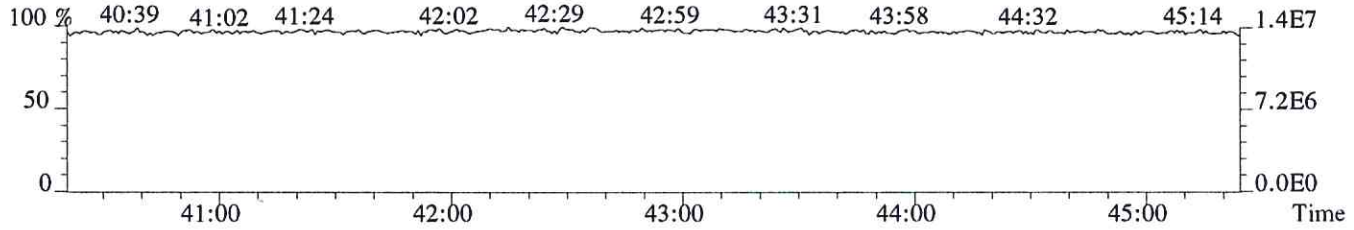
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1160.0,0.40%,F,T)



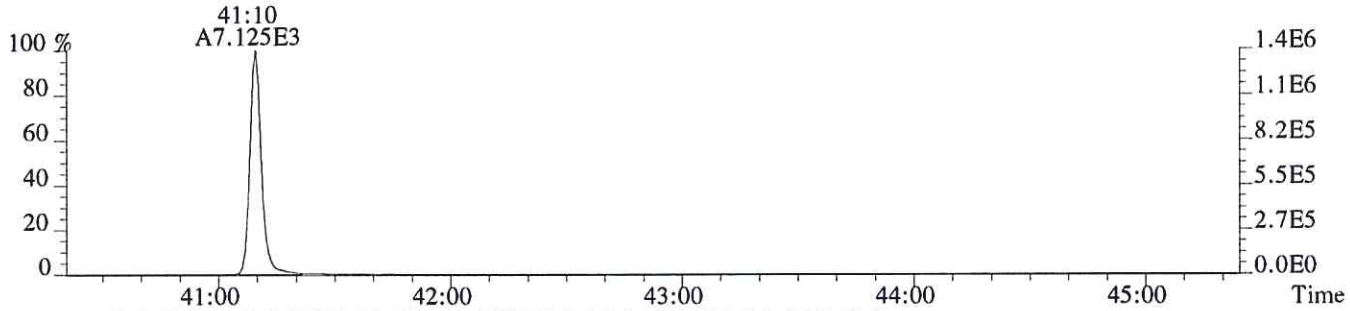
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



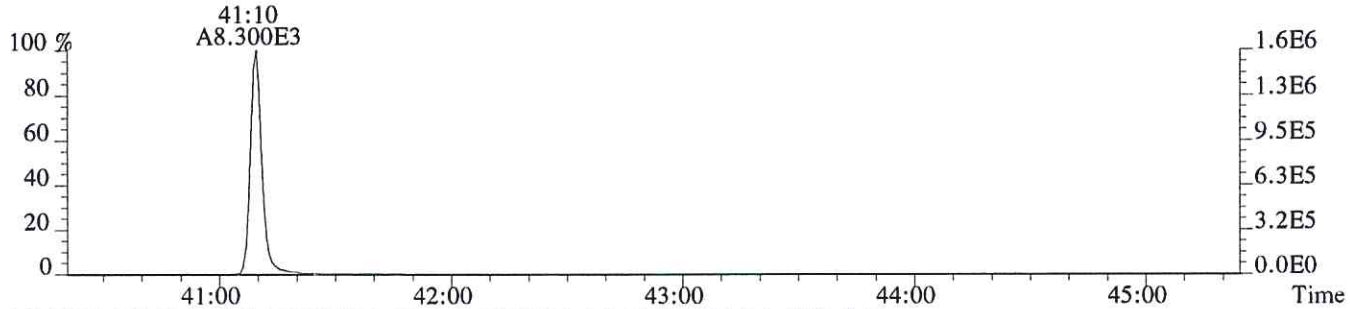
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



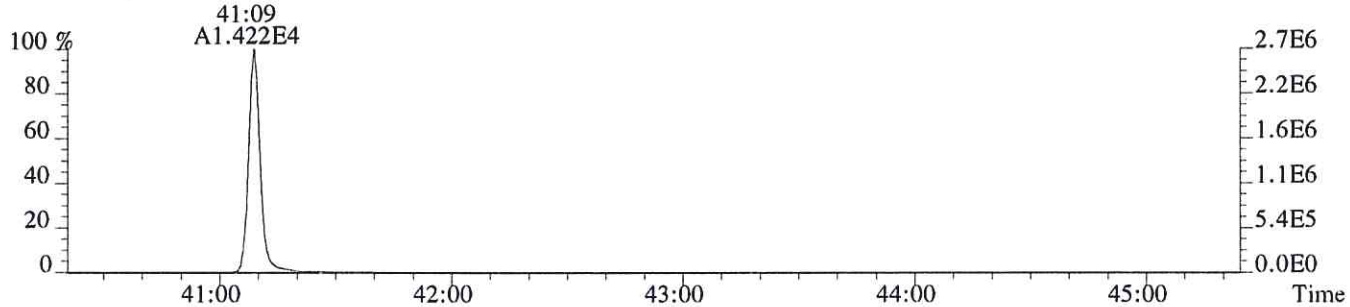
File:P405405 #1-456 Acq:15-FEB-2017 23:54:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-05
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



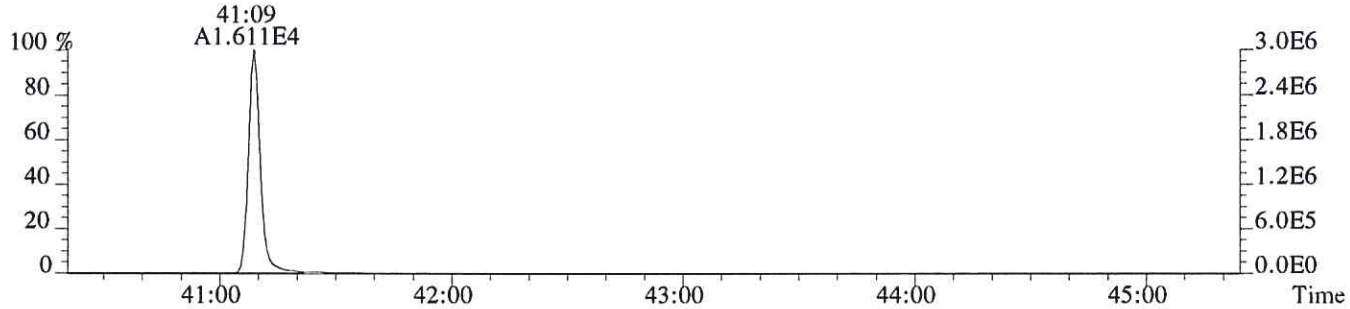
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2456.0,0.40%,F,T)



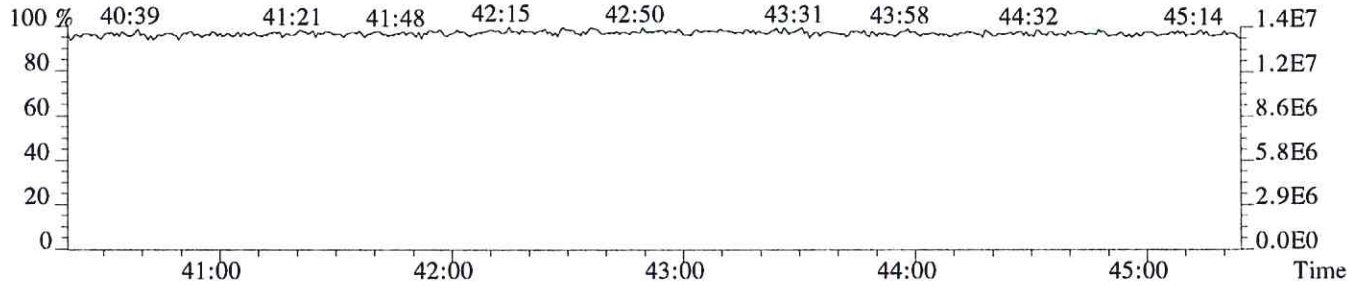
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1968.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1160.0,0.40%,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.
1702917-07 DMS

Run #16 Filename P405406 Samp: 1 Inj: 1 Acquired: 16-FEB-17 00:43:26
Processed: 16-FEB-17 14:18:47 Sample ID: EQ1700058-06

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:53	1.067e+03	1.444e+03	0.74	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	31:23	9.466e+03	6.145e+03	1.54	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	32:21	9.371e+03	6.113e+03	1.53	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	35:05	8.866e+03	6.919e+03	1.28	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	35:11	8.971e+03	7.491e+03	1.20	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	35:42	7.730e+03	6.339e+03	1.22	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	36:27	6.793e+03	5.529e+03	1.23	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	6.435e+03	6.260e+03	1.03	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:01	5.972e+03	5.893e+03	1.01	yes	no	1.187
10	Unk	OCDF	41:20	7.862e+03	8.727e+03	0.90	yes	no	1.035
11	Unk	2,3,7,8-TCDD	27:45	1.100e+03	1.536e+03	0.72	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	32:38	8.448e+03	5.450e+03	1.55	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	35:50	7.134e+03	5.876e+03	1.21	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	35:55	7.033e+03	5.697e+03	1.23	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	7.126e+03	5.744e+03	1.24	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:35	5.482e+03	5.106e+03	1.07	yes	no	0.882
17	Unk	OCDD	41:09	6.666e+03	7.494e+03	0.89	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:51	1.316e+04	1.776e+04	0.74	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	2.422e+04	1.583e+04	1.53	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:20	2.228e+04	1.441e+04	1.55	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	9.418e+03	1.842e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:10	1.153e+04	2.272e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:41	8.855e+03	1.773e+04	0.50	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	7.881e+03	1.612e+04	0.49	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:42	5.731e+03	1.320e+04	0.43	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:01	6.503e+03	1.454e+04	0.45	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:44	1.326e+04	1.718e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:37	2.067e+04	1.340e+04	1.54	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	1.585e+04	1.276e+04	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:54	1.586e+04	1.263e+04	1.26	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:34	1.167e+04	1.132e+04	1.03	yes	no	0.817
32	IS	13C-OCDD	41:08	1.334e+04	1.518e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:05	1.867e+04	2.380e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	2.182e+04	1.755e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	1.368e+04				no	0.958

$$\text{OCDD} = \frac{(6.666e+03 + 7.494e+03) \times 4000 \text{ pg} \times}{(1.334e+04 + 1.518e+04) \times 995 \text{ mL/g} \times 100 / 100 \times 0.980} = 2036.68 \text{ pg/L}$$

MM 02/17/17

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
1702917-07 DMS

Run #16 Filename P405406 Samp: 1 Inj: 1 Acquired: 16-FEB-17 00:43:26
Processed: 16-FEB-17 14:18:47 LAB. ID: EQ1700058-06

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.70e+05	5.44e+02	3.1e+02	2.35e+05	8.76e+02	2.7e+02
2	1,2,3,7,8-PeCDF	1.72e+06	1.02e+03	1.7e+03	1.12e+06	9.76e+02	1.2e+03
3	2,3,4,7,8-PeCDF	1.86e+06	1.02e+03	1.8e+03	1.18e+06	9.76e+02	1.2e+03
4	1,2,3,4,7,8-HxCDF	1.85e+06	5.92e+02	3.1e+03	1.49e+06	5.80e+02	2.6e+03
5	1,2,3,6,7,8-HxCDF	1.84e+06	5.92e+02	3.1e+03	1.51e+06	5.80e+02	2.6e+03
6	2,3,4,6,7,8-HxCDF	1.65e+06	5.92e+02	2.8e+03	1.34e+06	5.80e+02	2.3e+03
7	1,2,3,7,8,9-HxCDF	1.39e+06	5.92e+02	2.3e+03	1.14e+06	5.80e+02	2.0e+03
8	1,2,3,4,6,7,8-HpCDF	1.43e+06	1.45e+03	9.8e+02	1.37e+06	1.05e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	1.21e+06	1.45e+03	8.3e+02	1.22e+06	1.05e+03	1.2e+03
10	OCDF	1.43e+06	7.00e+02	2.0e+03	1.63e+06	4.36e+03	3.7e+02
11	2,3,7,8-TCDD	1.99e+05	1.41e+03	1.4e+02	2.79e+05	7.04e+02	4.0e+02
12	1,2,3,7,8-PeCDD	1.67e+06	1.32e+03	1.3e+03	1.05e+06	1.43e+03	7.4e+02
13	1,2,3,4,7,8-HxCDD	1.56e+06	7.48e+02	2.1e+03	1.28e+06	4.76e+02	2.7e+03
14	1,2,3,6,7,8-HxCDD	1.52e+06	7.48e+02	2.0e+03	1.25e+06	4.76e+02	2.6e+03
15	1,2,3,7,8,9-HxCDD	1.51e+06	7.48e+02	2.0e+03	1.22e+06	4.76e+02	2.6e+03
16	1,2,3,4,6,7,8-HpCDD	1.16e+06	5.52e+02	2.1e+03	1.10e+06	6.24e+02	1.8e+03
17	OCDD	1.20e+06	1.05e+03	1.1e+03	1.36e+06	6.72e+02	2.0e+03
18	13C-2,3,7,8-TCDF	2.13e+06	5.94e+03	3.6e+02	2.83e+06	2.62e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	4.46e+06	1.33e+03	3.4e+03	2.90e+06	9.96e+02	2.9e+03
20	13C-2,3,4,7,8-PeCDF	4.29e+06	1.33e+03	3.2e+03	2.79e+06	9.96e+02	2.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.99e+06	8.24e+02	2.4e+03	3.95e+06	1.40e+03	2.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.37e+06	8.24e+02	2.9e+03	4.67e+06	1.40e+03	3.3e+03
23	13C-2,3,4,6,7,8-HxCDF	1.88e+06	8.24e+02	2.3e+03	3.80e+06	1.40e+03	2.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.64e+06	8.24e+02	2.0e+03	3.30e+06	1.40e+03	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.28e+06	1.50e+03	8.6e+02	2.94e+06	1.60e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.32e+06	1.50e+03	8.9e+02	2.98e+06	1.60e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.31e+06	3.52e+03	6.6e+02	3.00e+06	2.16e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	4.02e+06	1.56e+03	2.6e+03	2.59e+06	1.75e+03	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	3.49e+06	8.68e+02	4.0e+03	2.79e+06	6.64e+02	4.2e+03
30	13C-1,2,3,6,7,8-HxCDD	3.50e+06	8.68e+02	4.0e+03	2.81e+06	6.64e+02	4.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.49e+06	7.16e+02	3.5e+03	2.41e+06	6.96e+02	3.5e+03
32	13C-OCDD	2.46e+06	1.17e+03	2.1e+03	2.78e+06	1.34e+03	2.1e+03
33	13C-1,2,3,4-TCDD	3.29e+06	3.52e+03	9.4e+02	4.19e+06	2.16e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	4.71e+06	8.68e+02	5.4e+03	3.74e+06	6.64e+02	5.6e+03
35	37Cl-2,3,7,8-TCDD	2.43e+06	8.36e+02	2.9e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 DMS

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P405406 Sample:1 Injection:1 Function:1

Acquired: 16-FEB-17 00:43:26 Processed: 16-FEB-17 14:18:47

Mass: 303.9020 305.8990 Tot Response: 2.51e+03 RRF: 0.7687

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:53	1.07e+03	1.44e+03	0.74	yes	2.51e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 DMS

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P405406 Sample:1 Injection:1 Function:1

Acquired: 16-FEB-17 00:43:26 Processed: 16-FEB-17 14:18:47

Mass: 319.8970 321.8940 Tot Response: 2.64e+03 RRF: 0.8730

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:45	1.10e+03	1.54e+03	0.72	yes	2.64e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 DMS

Entry: 39 Totals Name: Total Penta-Furans2

Run: 16 File: P405406 Sample:1 Injection:1 Function:2

Acquired: 16-FEB-17 00:43:26 Processed: 16-FEB-17 14:18:47

Mass: 339.8600 341.8570 Tot Response: 3.13e+04 RRF: 0.8493

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:26	5.46e+01	3.84e+01	1.42	yes	9.30e+01		n	n
2	31:12	2.38e+01	1.67e+01	1.42	yes	4.05e+01		n	n
3	31:23	9.47e+03	6.15e+03	1.54	yes	1.56e+04	1,2,3,7,8-PeCDF	n	n
4	32:21	9.37e+03	6.11e+03	1.53	yes	1.55e+04	2,3,4,7,8-PeCDF	n	n
5	32:37	1.41e+01	9.52e+00	1.48	yes	2.36e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 DMS

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: P405406 Sample:1 Injection:1 Function:2

Acquired: 16-FEB-17 00:43:26 Processed: 16-FEB-17 14:18:47

Mass: 355.8550 357.8520 Tot Response: 1.40e+04 RRF: 0.8057

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:38	8.45e+03	5.45e+03	1.55	yes	1.39e+04	1,2,3,7,8-PeCDD	n	n
2	32:47	3.81e+01	2.86e+01	1.33	yes	6.67e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 DMS

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P405406 Sample:1 Injection:1 Function:3

Acquired: 16-FEB-17 00:43:26 Processed: 16-FEB-17 14:18:47

Mass: 373.8210 375.8180 Tot Response: 5.87e+04 RRF: 1.043

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:07	3.38e+01	2.87e+01	1.18	yes	6.25e+01		n	n
2	35:05	8.87e+03	6.92e+03	1.28	yes	1.58e+04	1,2,3,4,7,8-HxCDF	n	n
3	35:11	8.97e+03	7.49e+03	1.20	yes	1.65e+04	1,2,3,6,7,8-HxCDF	n	n
4	35:42	7.73e+03	6.34e+03	1.22	yes	1.41e+04	2,3,4,6,7,8-HxCDF	n	n
5	36:27	6.79e+03	5.53e+03	1.23	yes	1.23e+04	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 DMS

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P405406 Sample:1 Injection:1 Function:3

Acquired: 16-FEB-17 00:43:26 Processed: 16-FEB-17 14:18:47

Mass: 389.8160 391.8130 Tot Response: 3.86e+04 RRF: 0.9067

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:50	7.13e+03	5.88e+03	1.21	yes	1.30e+04	1,2,3,4,7,8-HxCDD	n	n
2	35:55	7.03e+03	5.70e+03	1.23	yes	1.27e+04	1,2,3,6,7,8-HxCDD	n	n
3	36:10	7.13e+03	5.74e+03	1.24	yes	1.29e+04	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.

1702917-07 DMS

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P405406 Sample:1 Injection:1 Function:4

Acquired: 16-FEB-17 00:43:26 Processed: 16-FEB-17 14:18:47

Mass: 407.7820 409.7790 Tot Response: 2.48e+04 RRF: 1.213

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:43	6.44e+03	6.26e+03	1.03	yes	1.27e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	38:06	1.34e+02	1.36e+02	0.99	yes	2.69e+02		n	n
3	39:01	5.97e+03	5.89e+03	1.01	yes	1.19e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1702917-07 DMS

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P405406 Sample:1 Injection:1 Function:4

Acquired: 16-FEB-17 00:43:26 Processed: 16-FEB-17 14:18:47

Mass: 423.7770 425.7740 Tot Response: 1.06e+04 RRF: 0.8816

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:35	5.48e+03	5.11e+03	1.07	yes	1.06e+04	1,2,3,4,6,7,8-HpCDD	n	n

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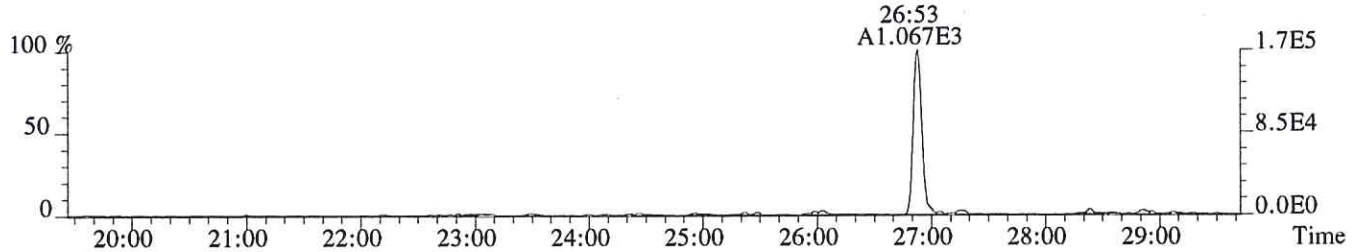
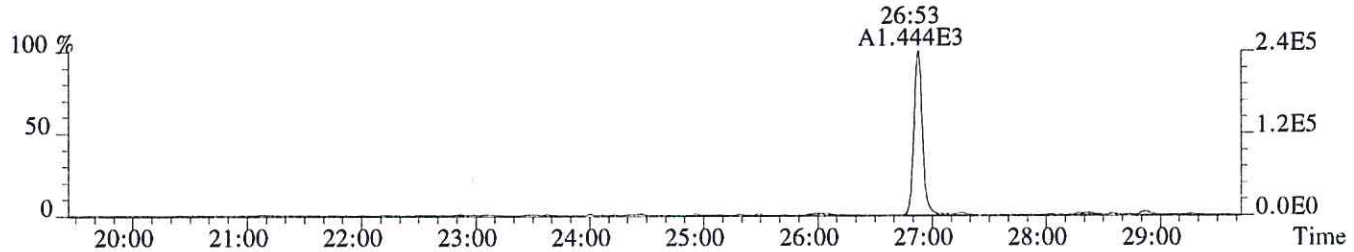
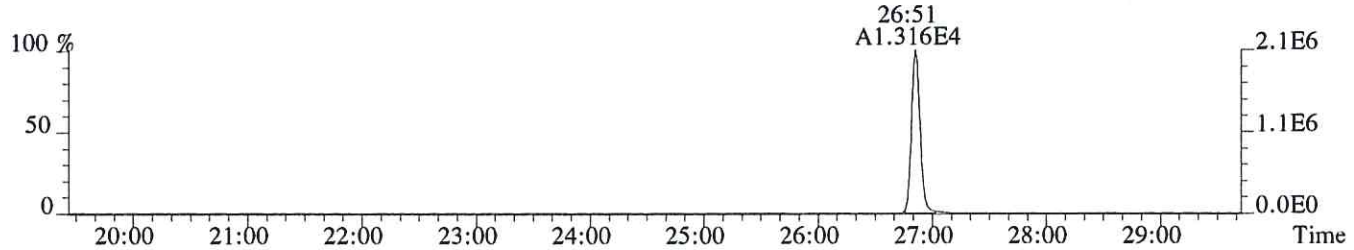
File:P405406 #1-729 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



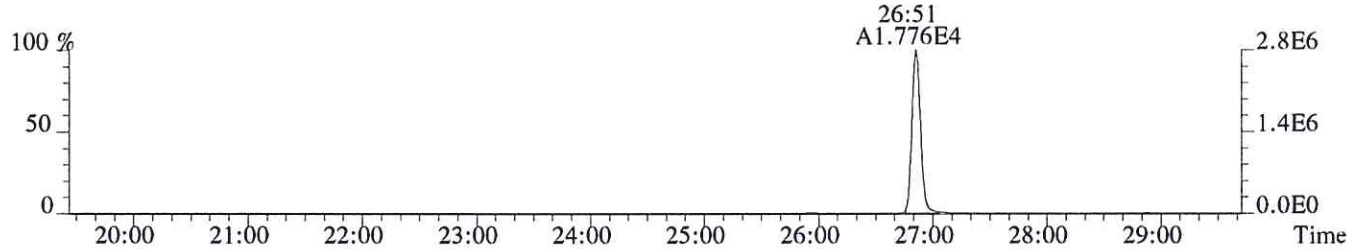
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



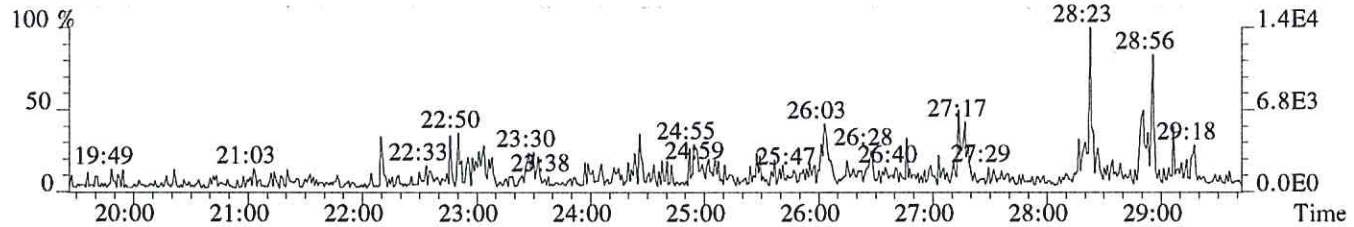
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5936.0,1.00%,F,T)



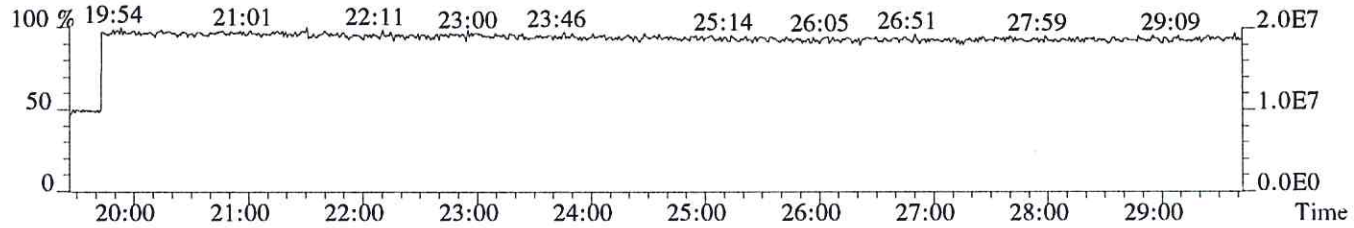
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2616.0,1.00%,F,T)



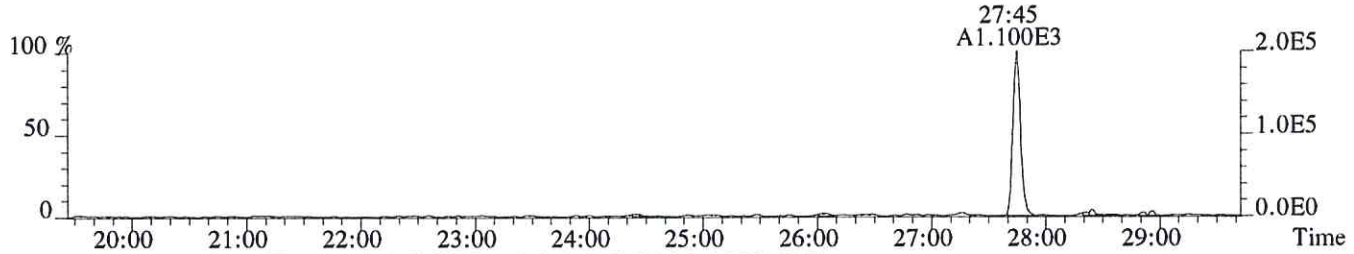
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



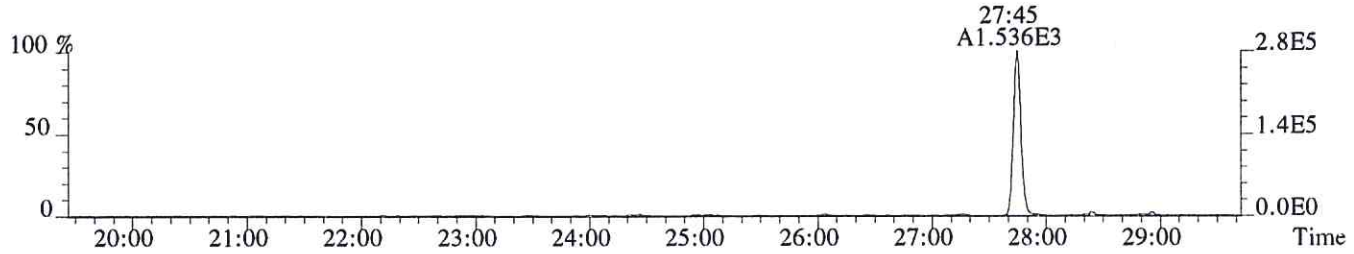
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



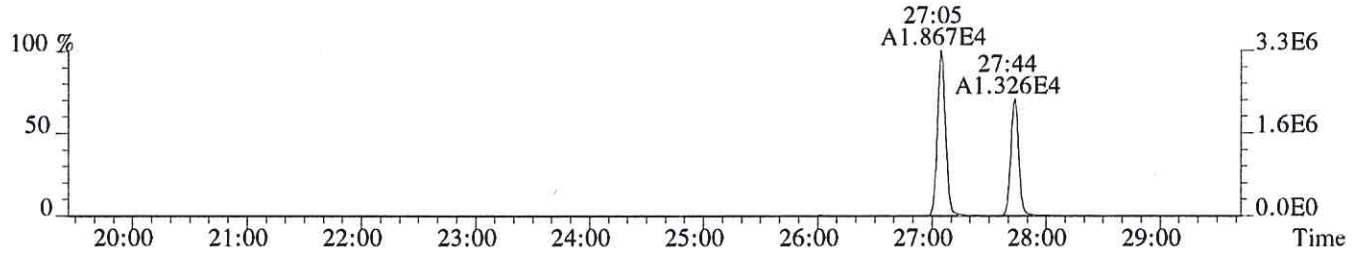
File:P405406 #1-729 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



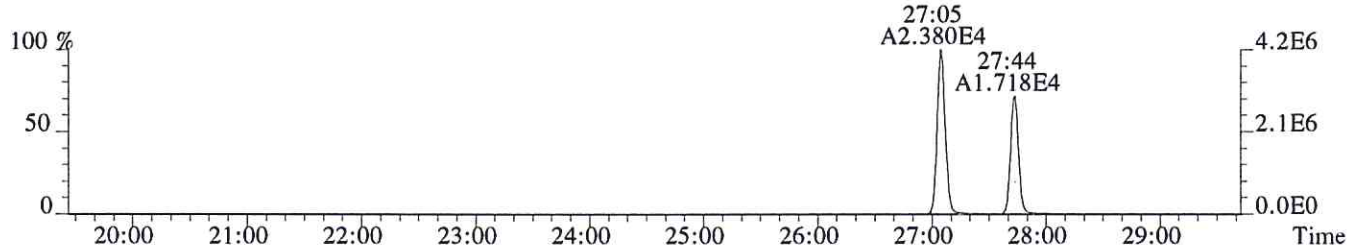
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



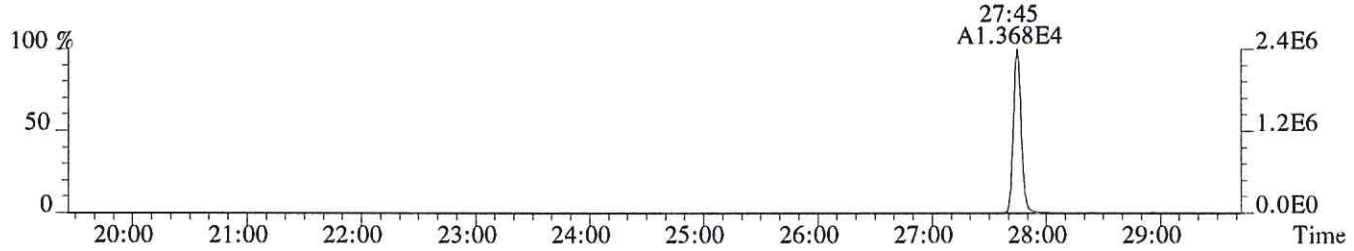
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)



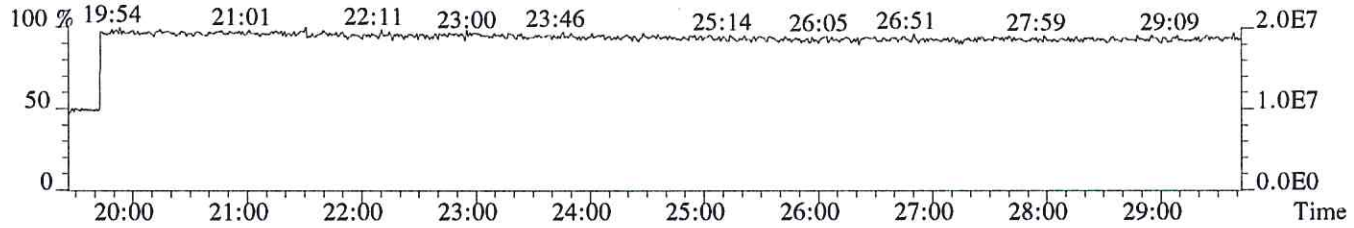
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



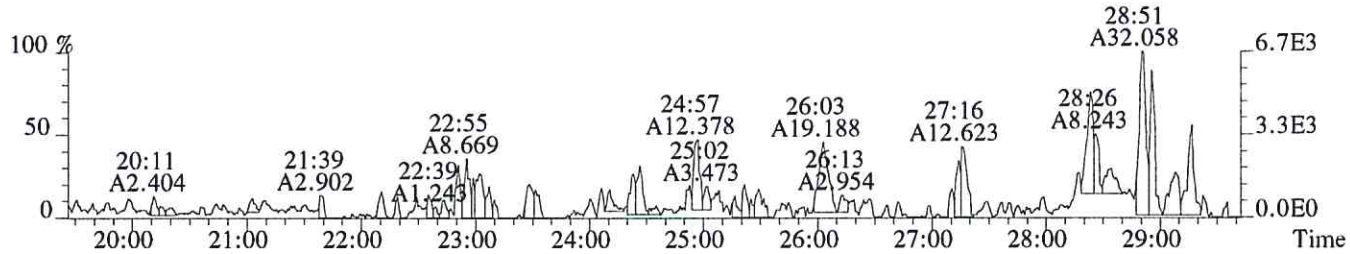
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



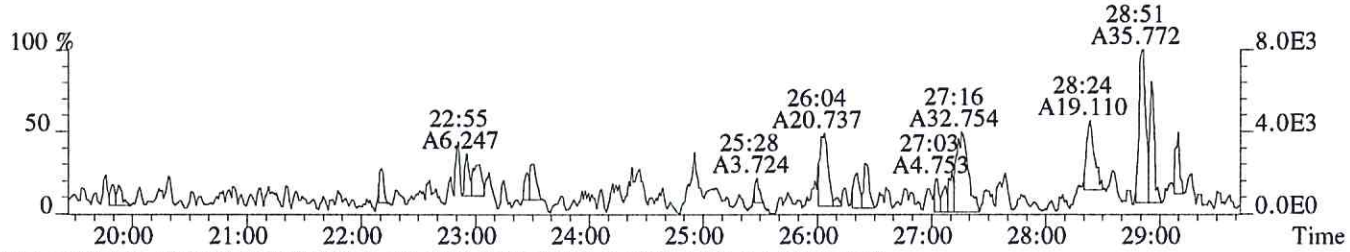
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



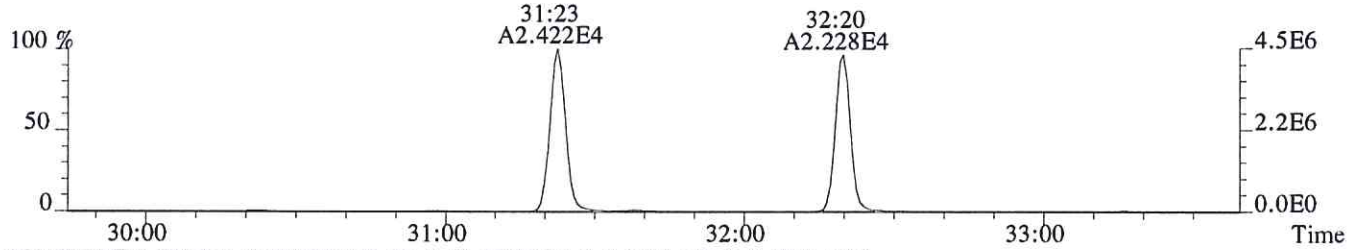
File:P405406 #1-729 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)



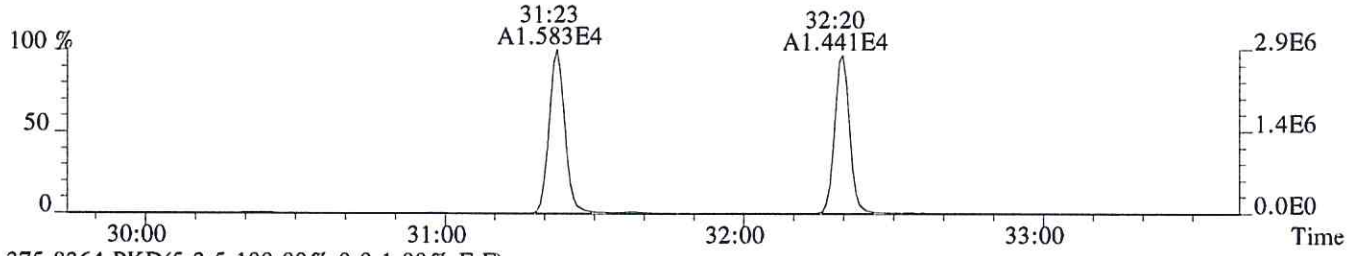
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



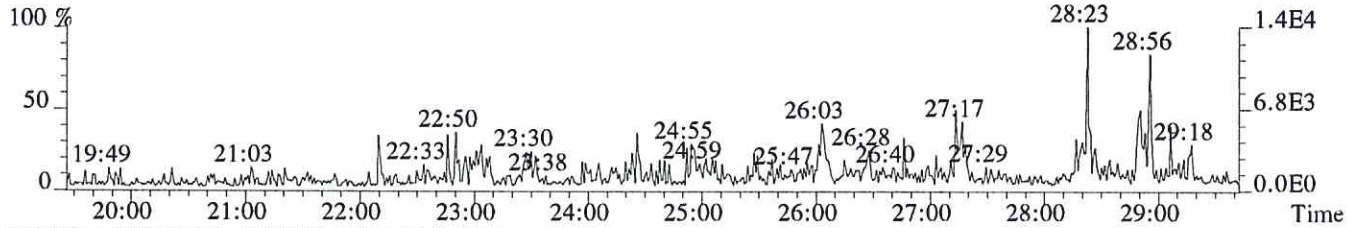
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



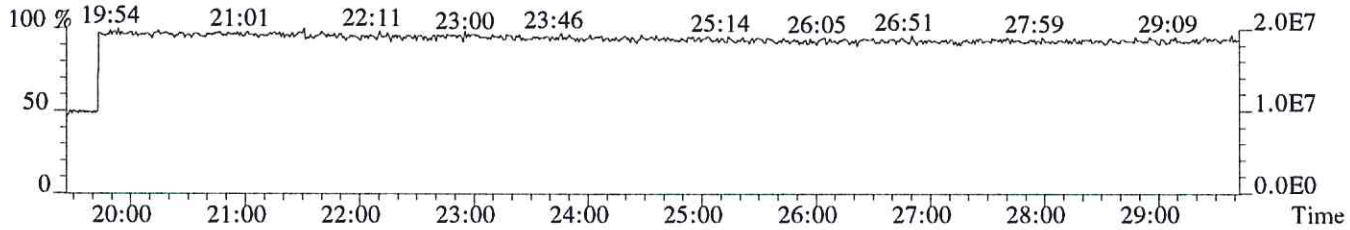
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



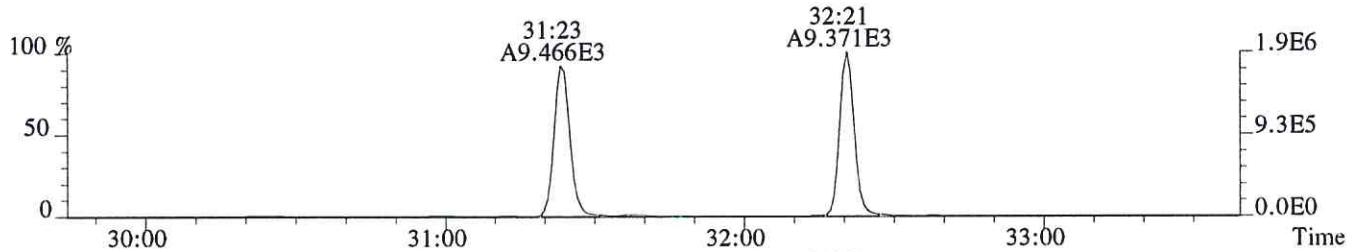
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



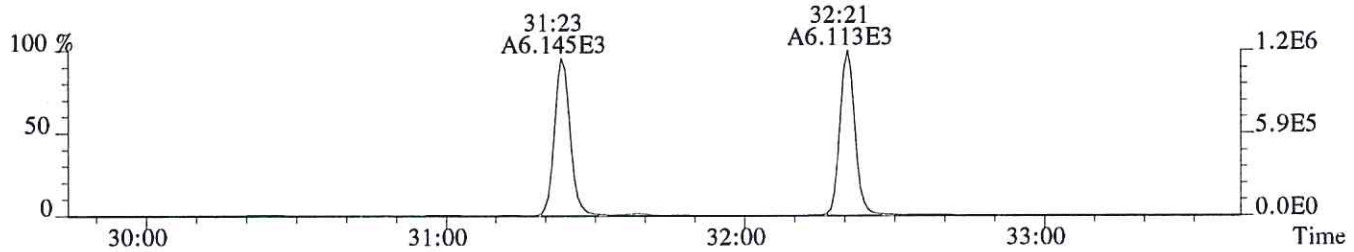
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



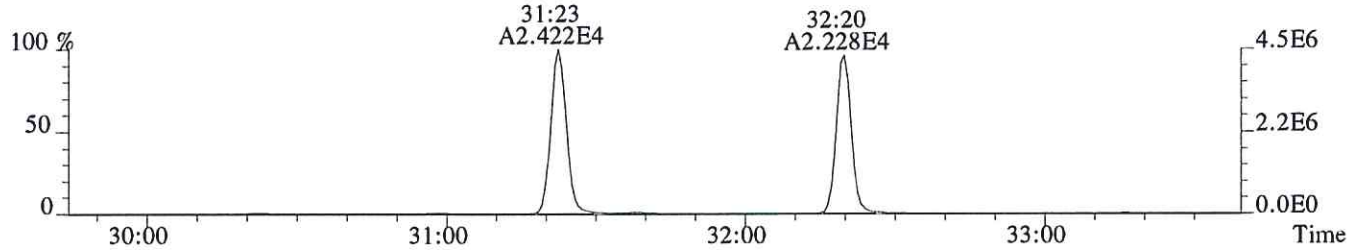
File:P405406 #1-353 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



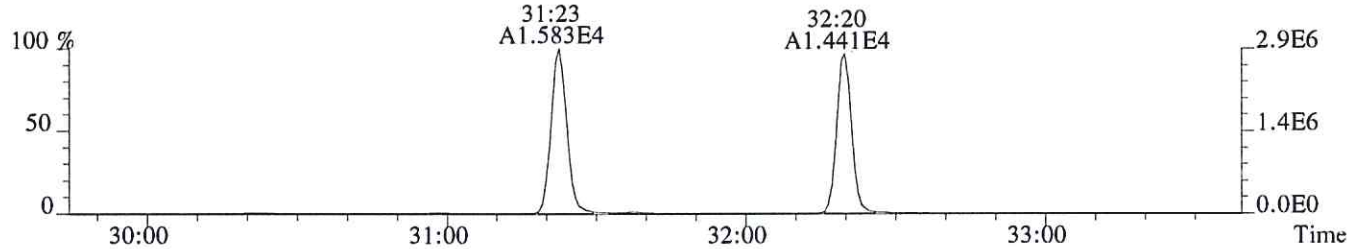
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



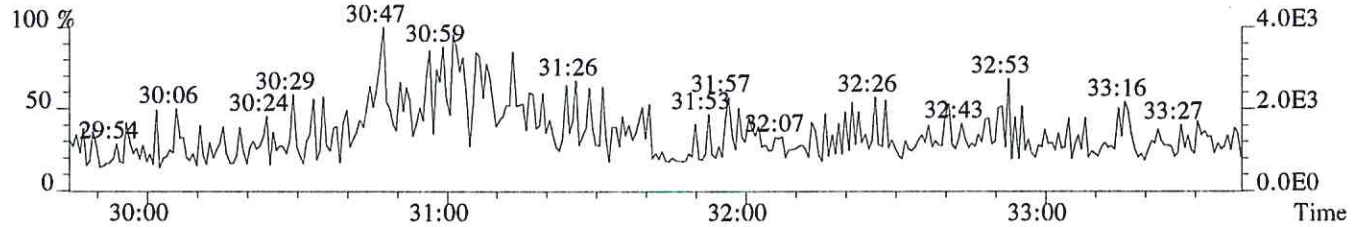
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



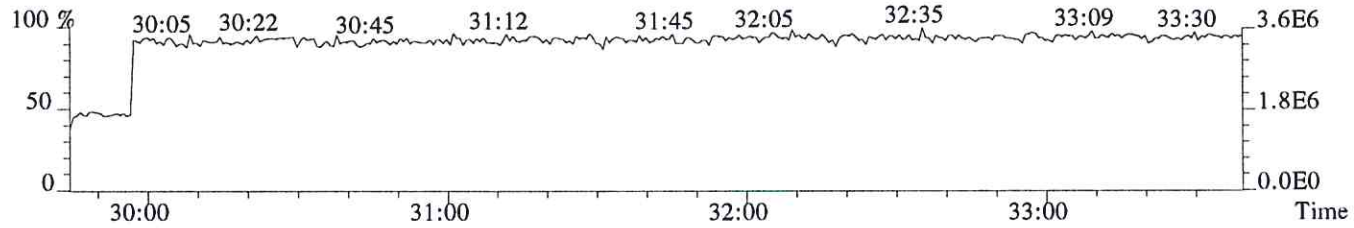
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



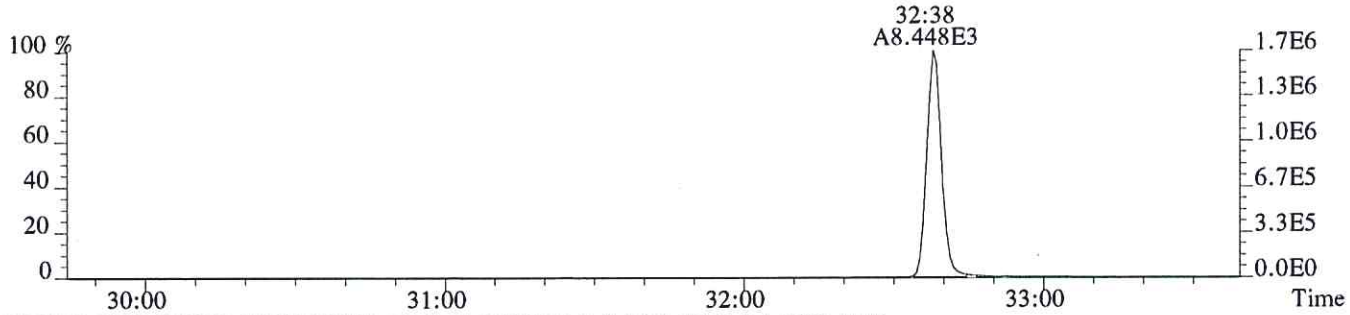
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



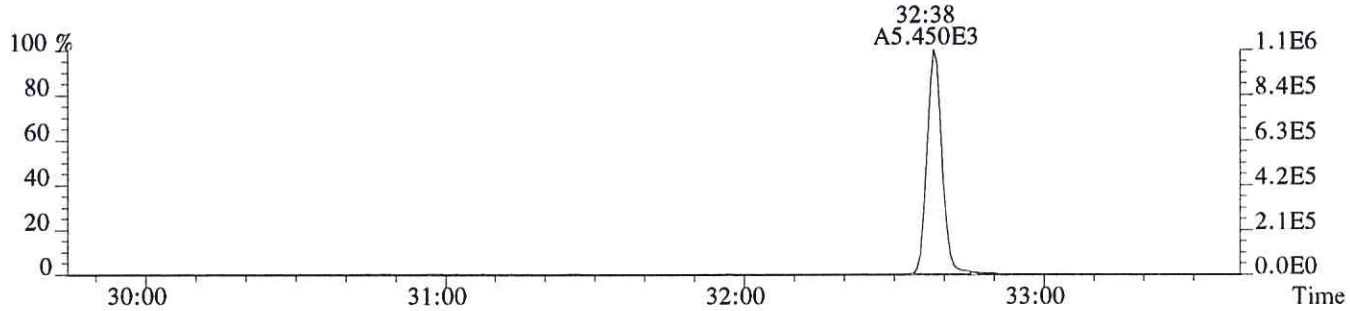
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



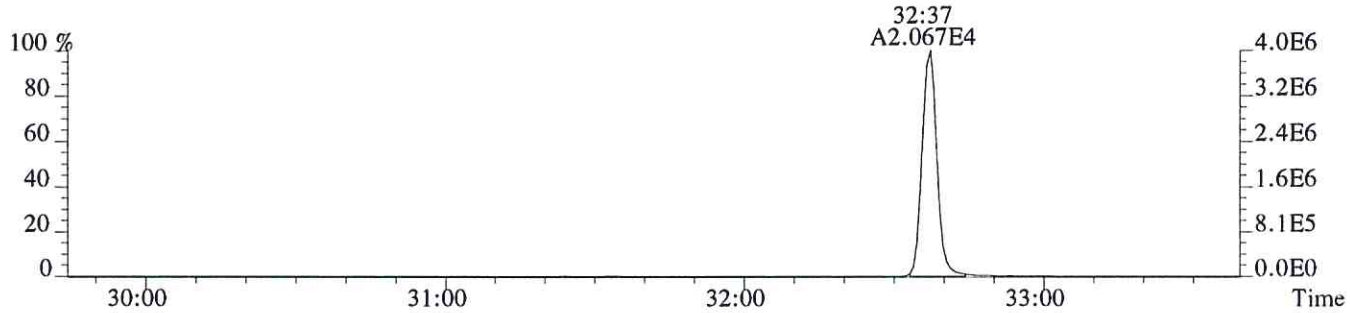
File:P405406 #1-353 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



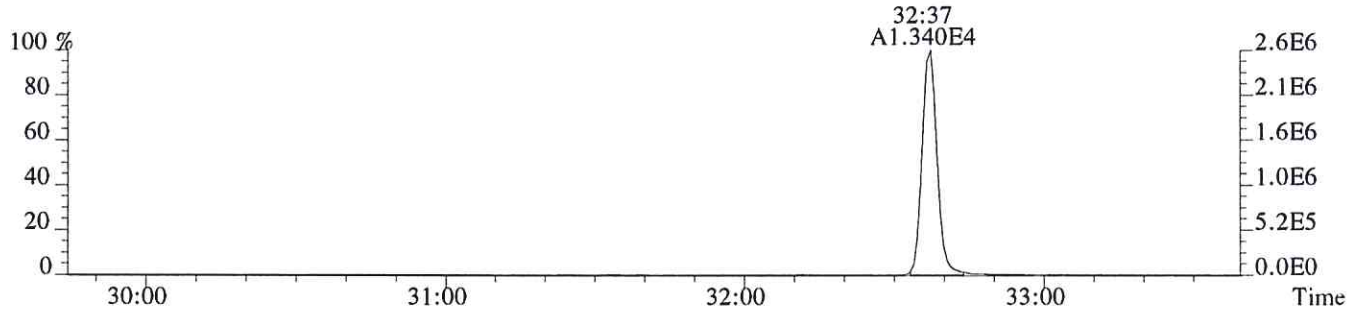
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



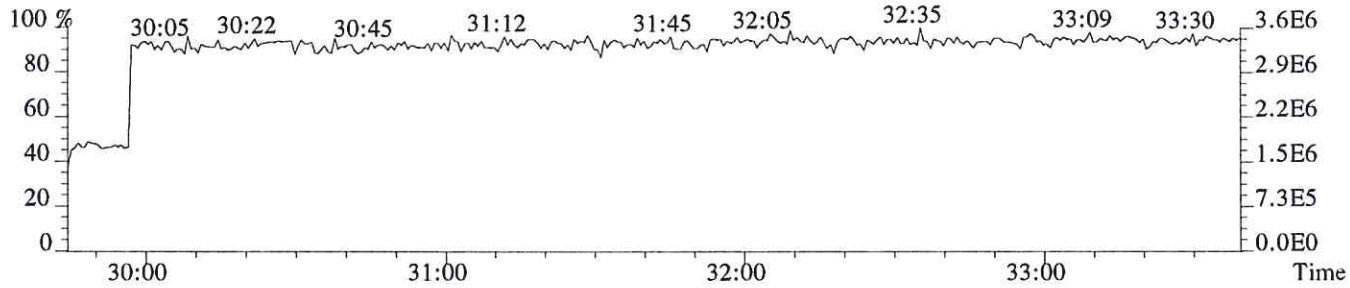
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



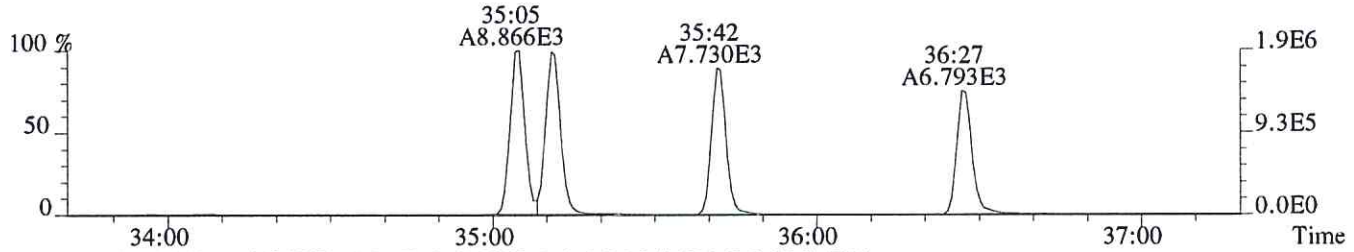
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1748.0,1.00%,F,T)



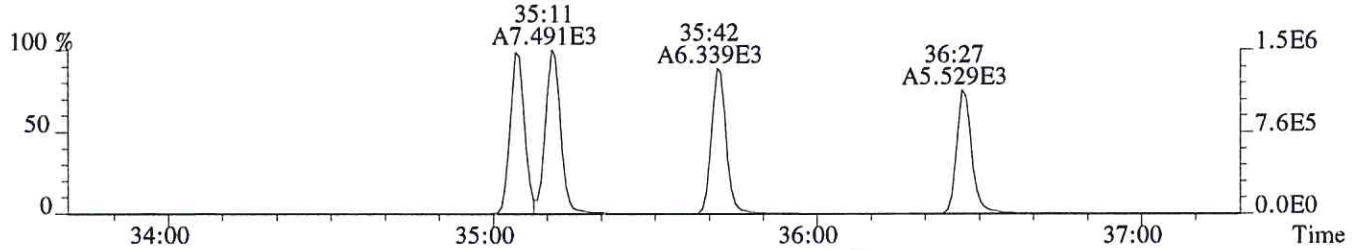
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



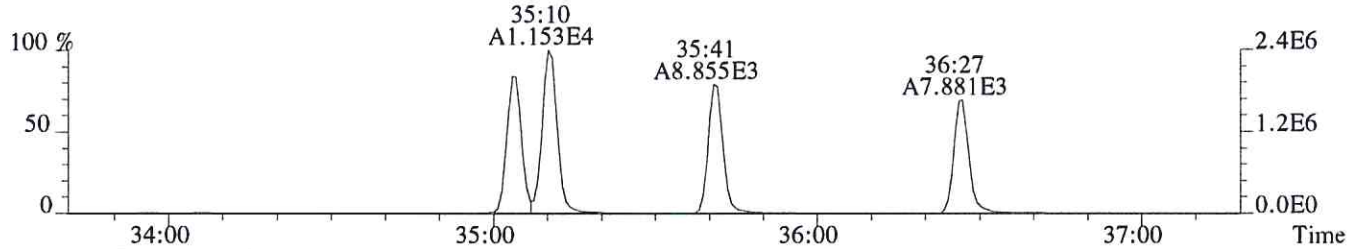
File:P405406 #1-326 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



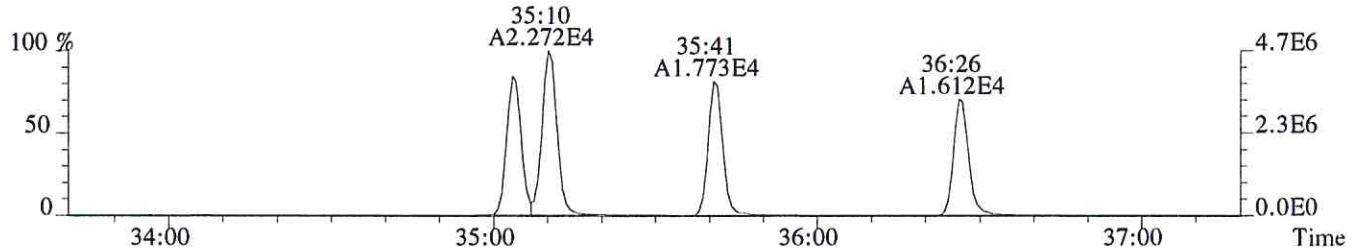
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



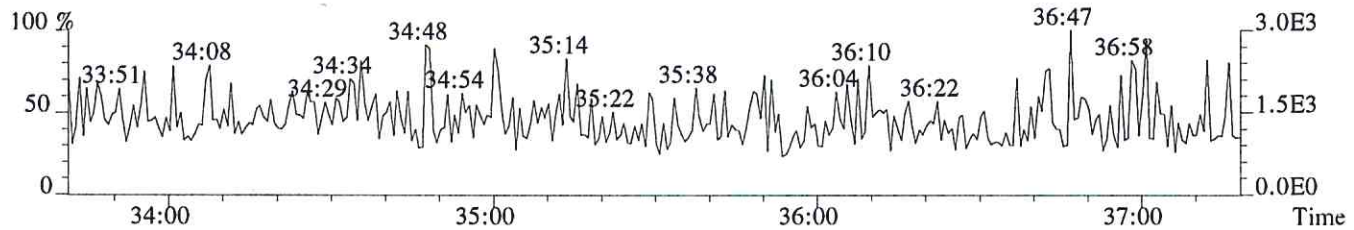
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



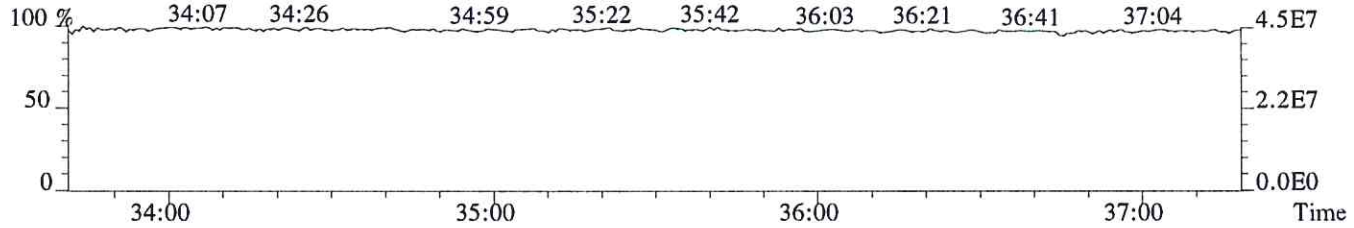
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



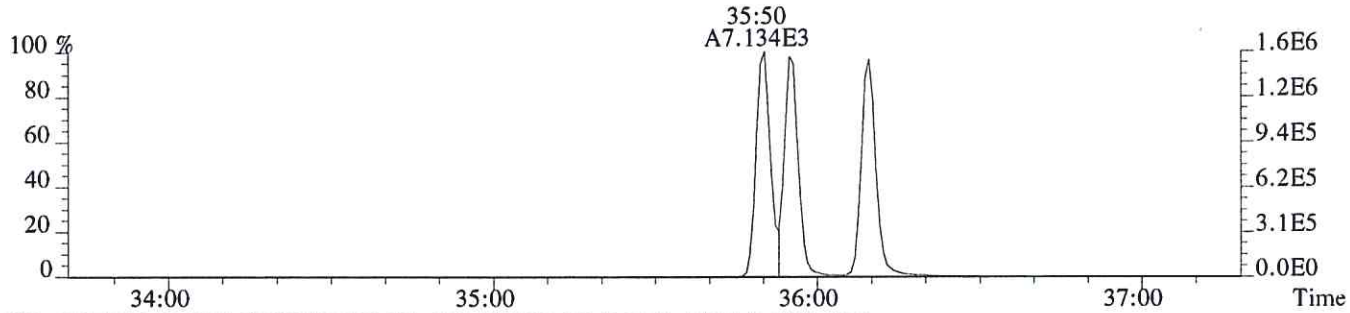
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



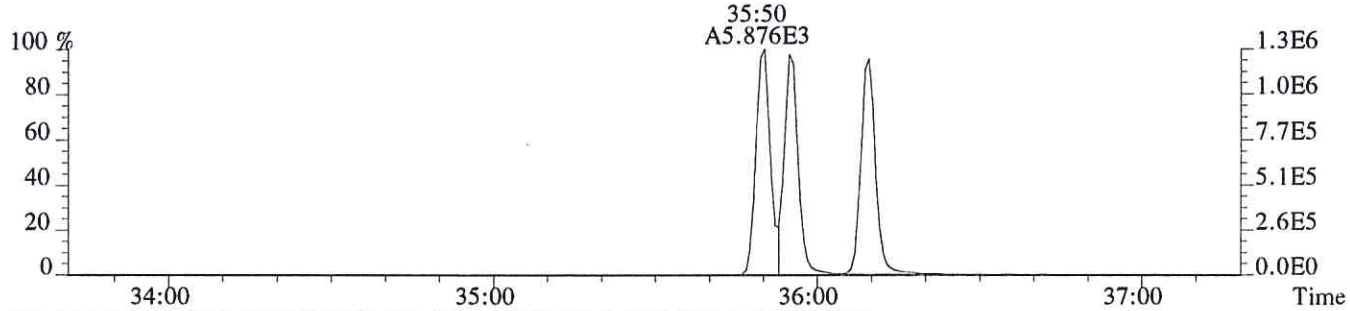
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



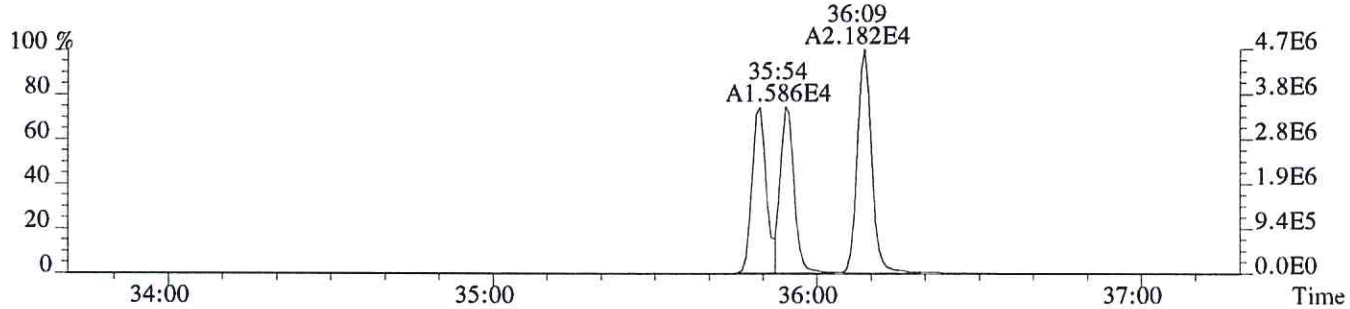
File:P405406 #1-326 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



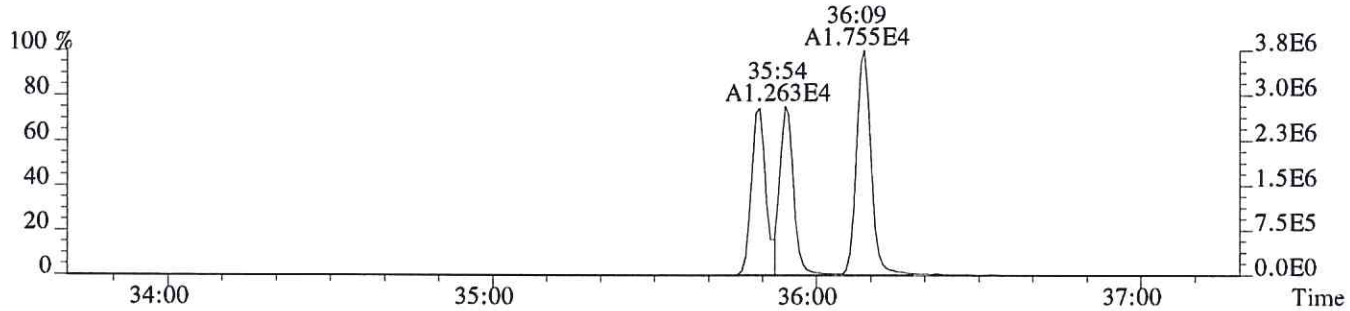
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.40%,F,T)



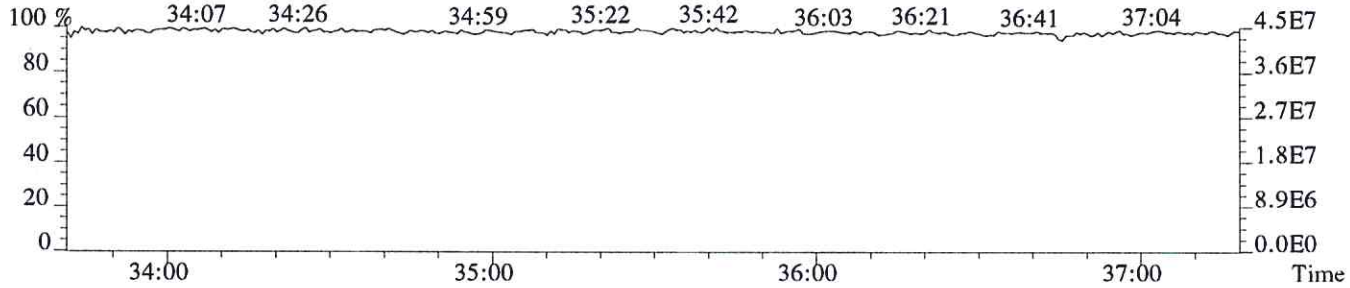
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



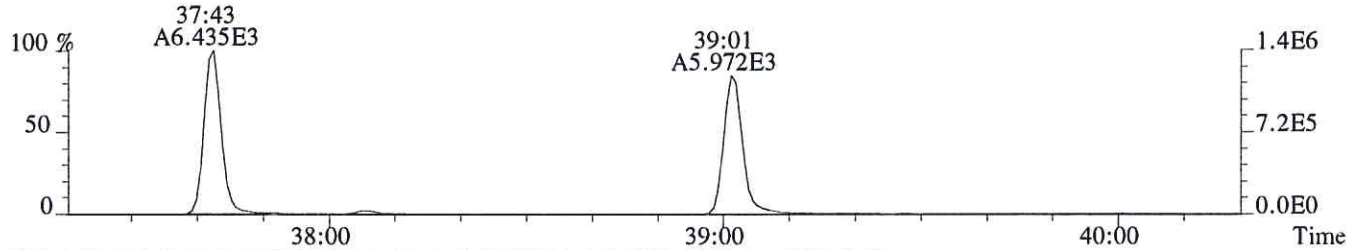
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



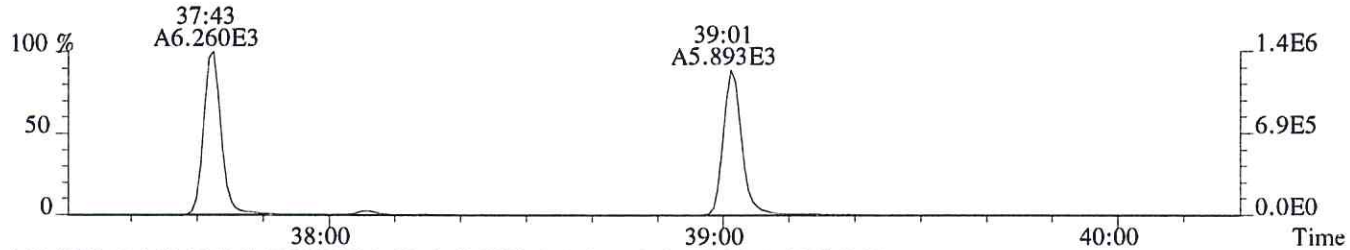
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



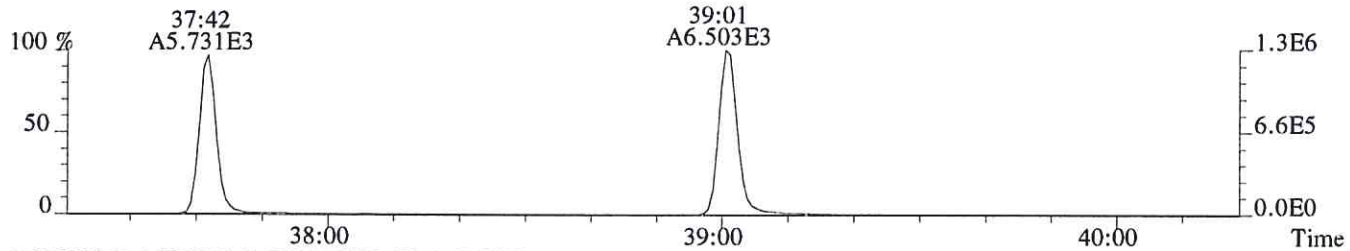
File:P405406 #1-268 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.50%,F,T)



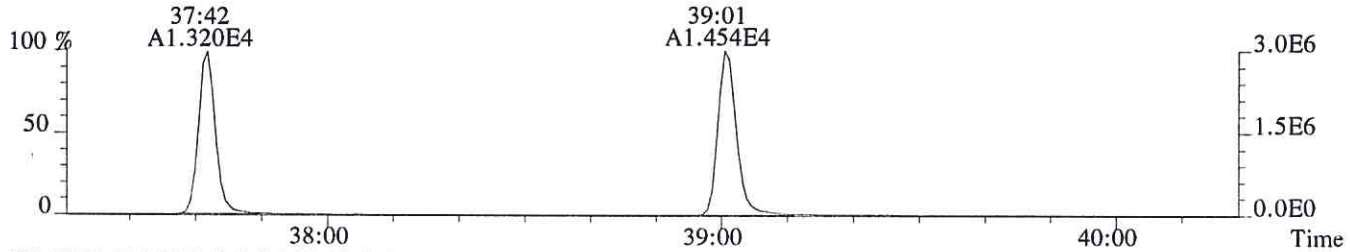
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.50%,F,T)



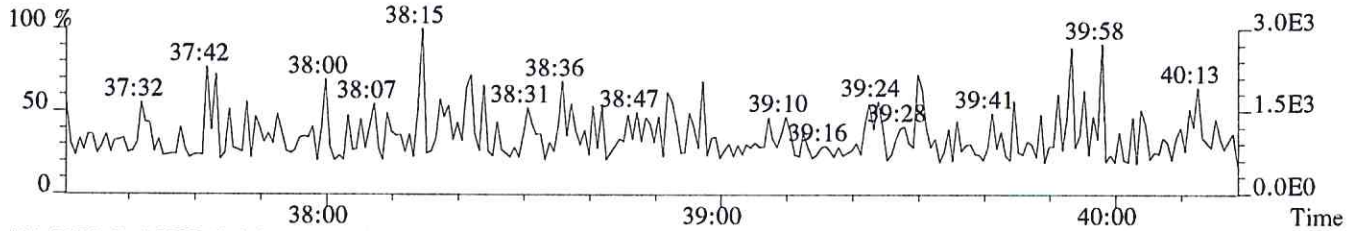
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.50%,F,T)



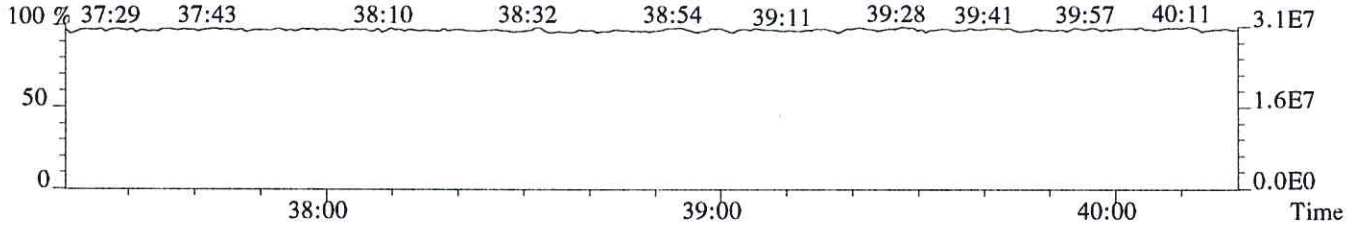
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.50%,F,T)



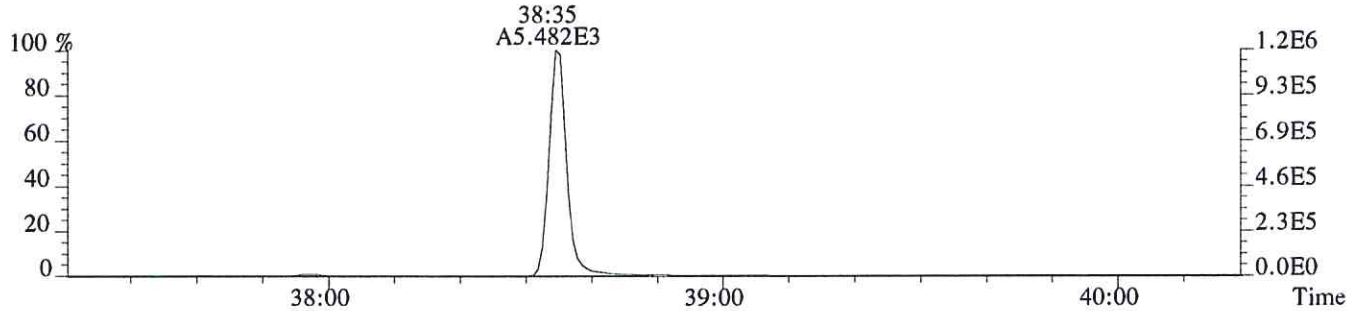
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



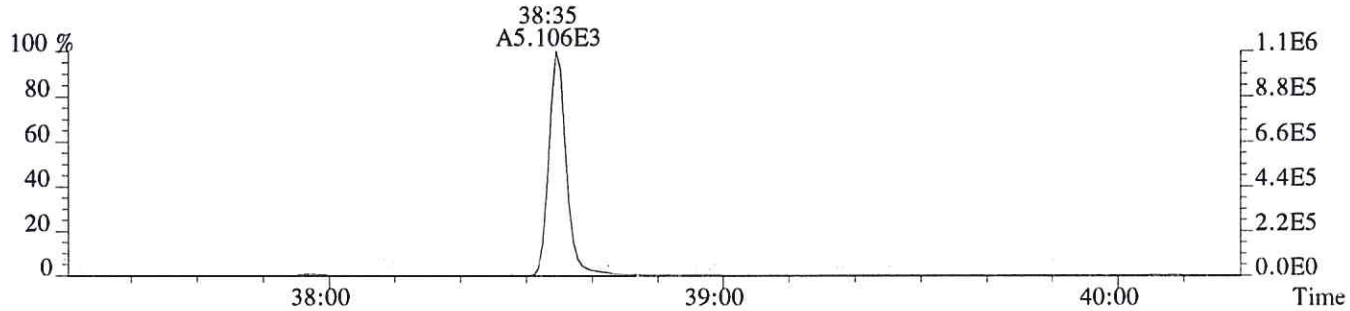
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



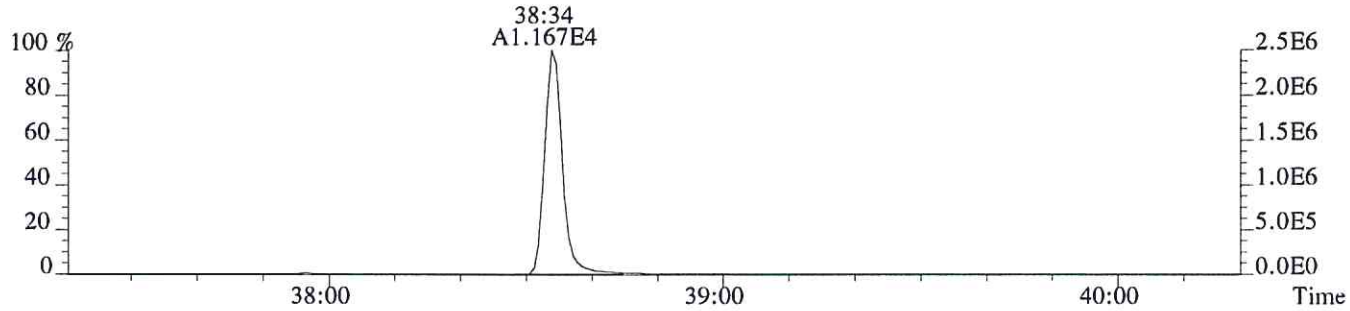
File:P405406 #1-268 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



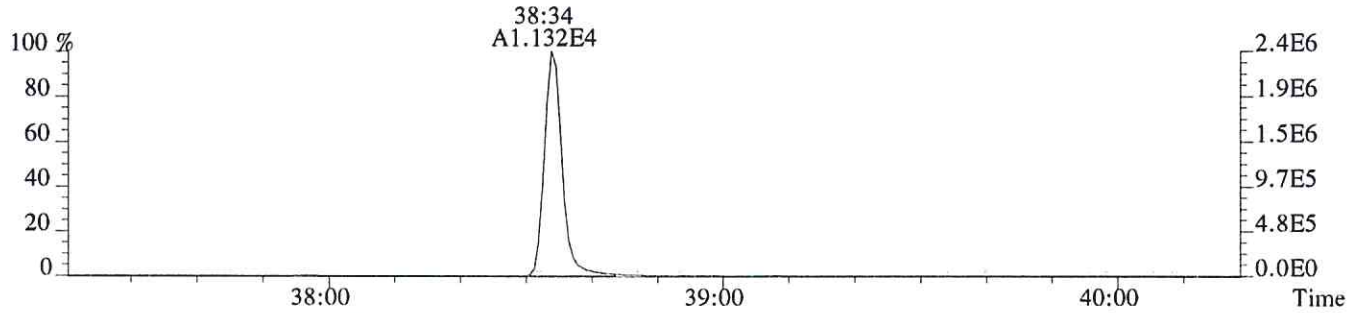
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



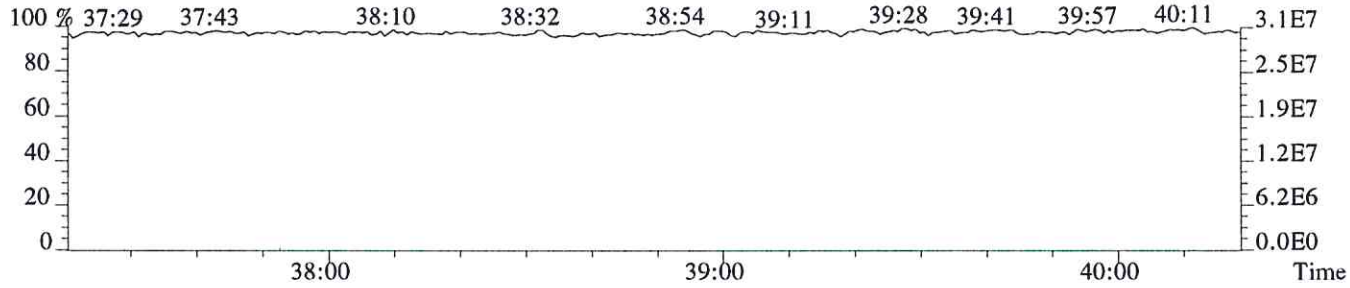
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



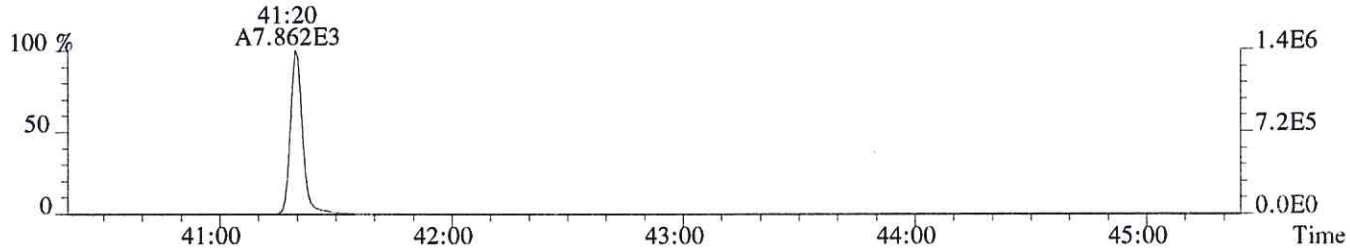
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



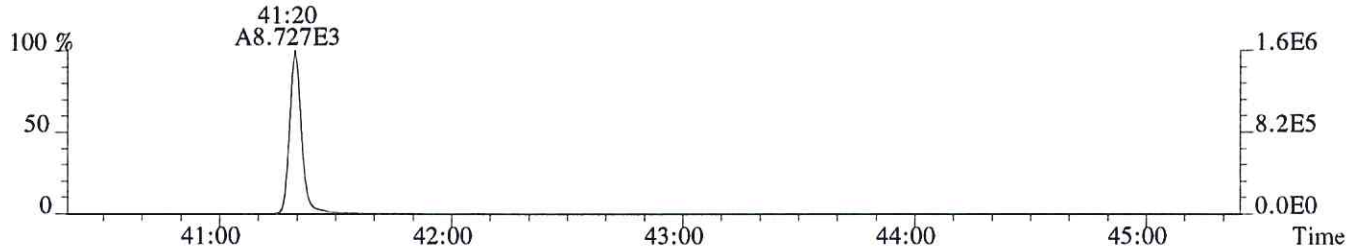
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



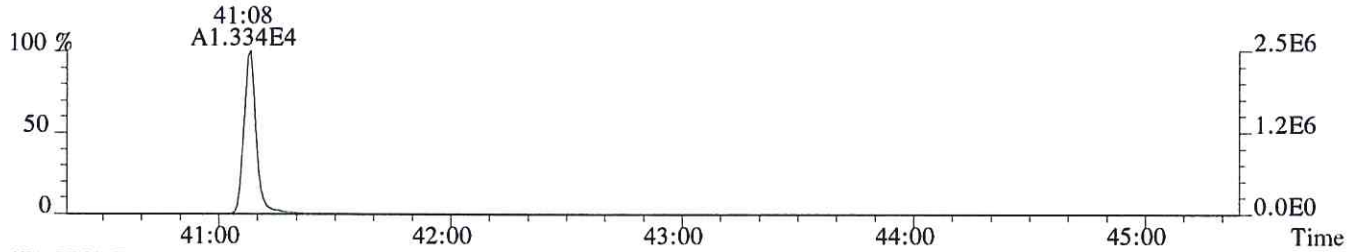
File:P405406 #1-456 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



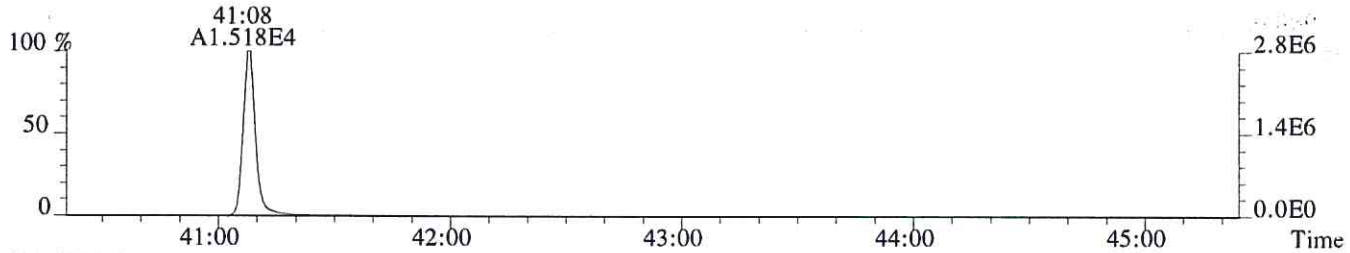
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4364.0,0.40%,F,T)



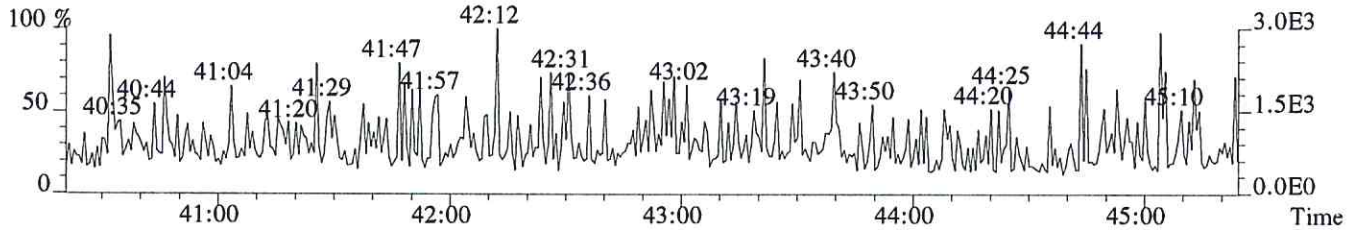
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1168.0,0.40%,F,T)



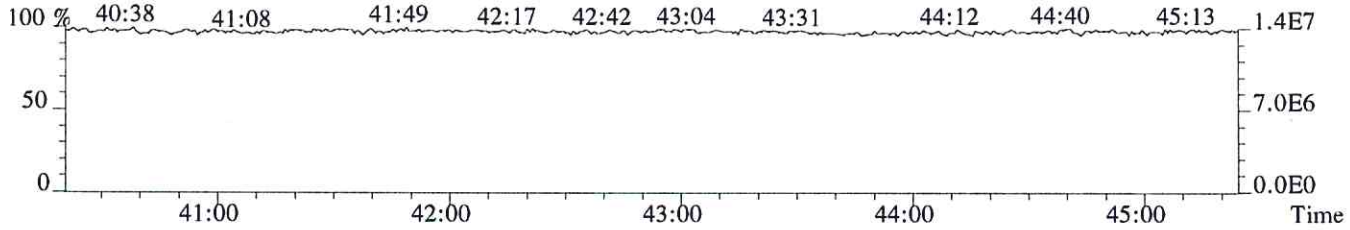
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1344.0,0.40%,F,T)



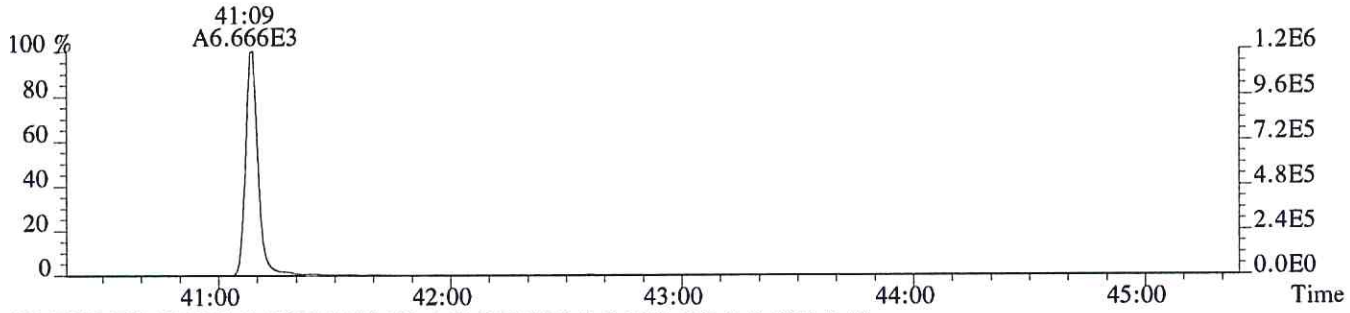
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



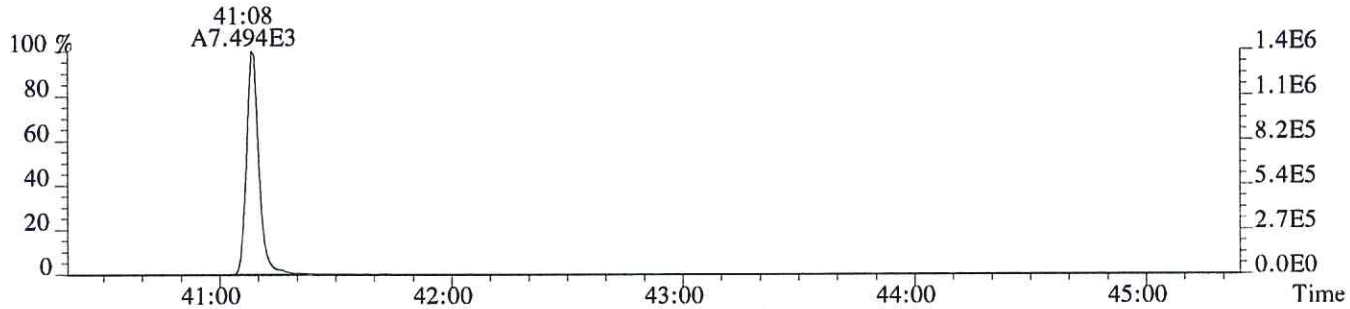
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



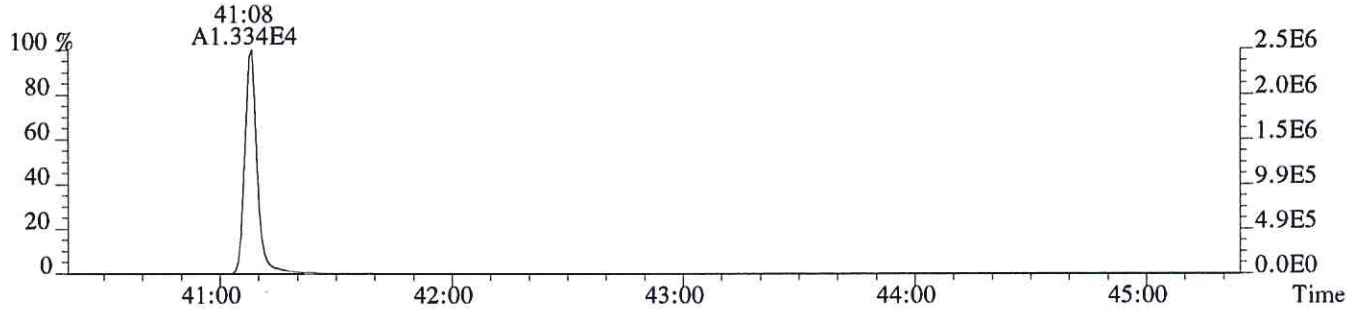
File:P405406 #1-456 Acq:16-FEB-2017 00:43:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1700058-06
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1048.0,0.40%,F,T)



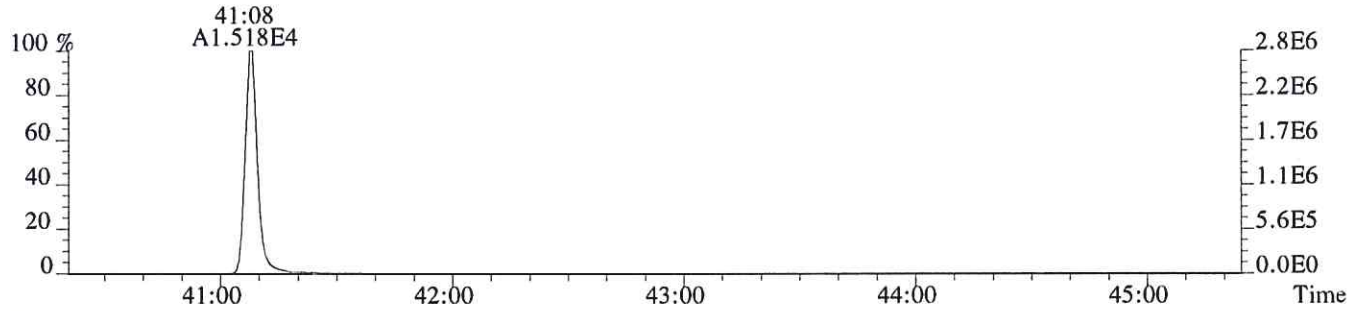
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



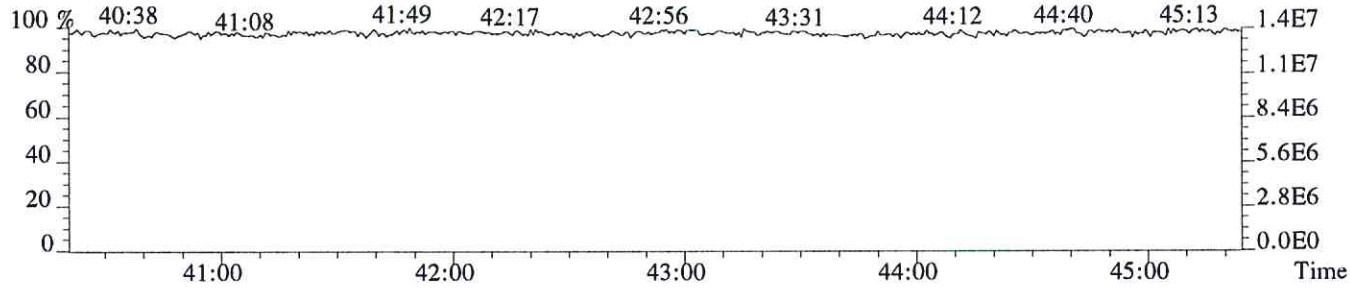
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1344.0,0.40%,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: P405397 – P405407

Date: 02/15/17 – 02/16/17

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: JC

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: 04/28/16

Init. Calib.Times: 09:34

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	P405396	15-FEB-17	16:33:49
178519	CS3	P405397	15-FEB-17	17:21:04
METHOD BLANK	EQ1700058-01	P405398	15-FEB-17	18:10:11
1702917-01	E1700102-001	P405399	15-FEB-17	18:59:19
1702917-04	E1700102-002	P405400	15-FEB-17	19:48:21
NEEDS REINJECTION	E1700102-003*	P405401	15-FEB-17	20:37:32
1702917-07	E1700102-004	P405402	15-FEB-17	21:26:43
NEEDS REINJECTION	E1700061-001*	P405403	15-FEB-17	22:15:54
LCS	EQ1700058-02	P405404	15-FEB-17	23:05:04
1702917-07 MS	EQ1700058-05	P405405	15-FEB-17	23:54:16
1702917-07 DMS	EQ1700058-06	P405406	16-FEB-17	00:43:26
178519	DO NOT USE	P405407	16-FEB-17	01:32:37
178519	CS3	P405407	16-FEB-17	01:32:37

P4 8290

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\ehrms06.PRO\SampleDB\20170215B.spl
Last Modified: Thursday, February 16, 2017 10:05:40 Central Standard Time
Printed: Thursday, February 16, 2017 10:06:07 Central Standard Time

Page Position (1, 1)

opus4: P405397res

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	02/15/17	16:33	P405396	WINDOW DEFINE	178397	Tray1:1	epa1613_als	Dioxin_ALS	KW	HRMS Check 16:2
2		17:21	P405397	CS3	178519	Tray1:2	epa1613_als	Dioxin_ALS		
3		18:10	P405398	MBLK	EQ1700058-01	Tray1:3	epa1613_als	Dioxin_ALS		
4		18:59	P405399	E1700102-001	E1700102-001	Tray1:4	epa1613_als	Dioxin_ALS		
5		19:48	P405400	E1700102-002	E1700102-002	Tray1:5	epa1613_als	Dioxin_ALS		
6		20:37	P405401	E1700102-003	E1700102-003	Tray1:6	epa1613_als	Dioxin_ALS		Needs reinjection
7		21:26	P405402	E1700102-004	E1700102-004	Tray1:7	epa1613_als	Dioxin_ALS		
8		22:15	P405403	E1700061-001	E1700061-001	Tray1:8	epa1613_als	Dioxin_ALS		Needs reinjection
9		23:05	P405404	LCS	EQ1700058-02	Tray1:9	epa1613_als	Dioxin_ALS		
10		23:54	P405405	MS	EQ1700102-004MS	Tray1:10	epa1613_als	Dioxin_ALS		
11	02/16/17	00:43	P405406	DMS	EQ1700102-004DMS	Tray1:11	epa1613_als	Dioxin_ALS		
12		01:32	P405407	CS3	178519	Tray1:2	epa1613_als	Dioxin_ALS		
13			P405408	CS3	178519	Tray1:2	epa1613_als	Dioxin_ALS		HRMS Check 02:2
14	---	---	---	---	---	Tray1:2	epa1613_als	Dioxin_ALS	---	---
15	---	---	---	---	---	Tray1:2	epa1613_als	Dioxin_ALS	---	---
16	---	---	---	---	---	Tray1:2	epa1613_als	Dioxin_ALS	---	---
17	---	---	---	---	---	Tray1:27	epa1613_als	Dioxin_ALS	---	---
18	---	---	---	---	---	Tray1:28	epa1613_als	Dioxin_ALS	---	---
19	---	---	---	---	---	Tray1:29	epa1613_als	Dioxin_ALS	---	---
20	---	---	---	---	---	Tray1:30	epa1613_als	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:31	epa1613_als	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:32	epa1613_als	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:33	epa1613_als	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:34	epa1613_als	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:35	epa1613_als	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:36	epa1613_als	Dioxin_ALS	---	---

gc 02/16/17

018

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

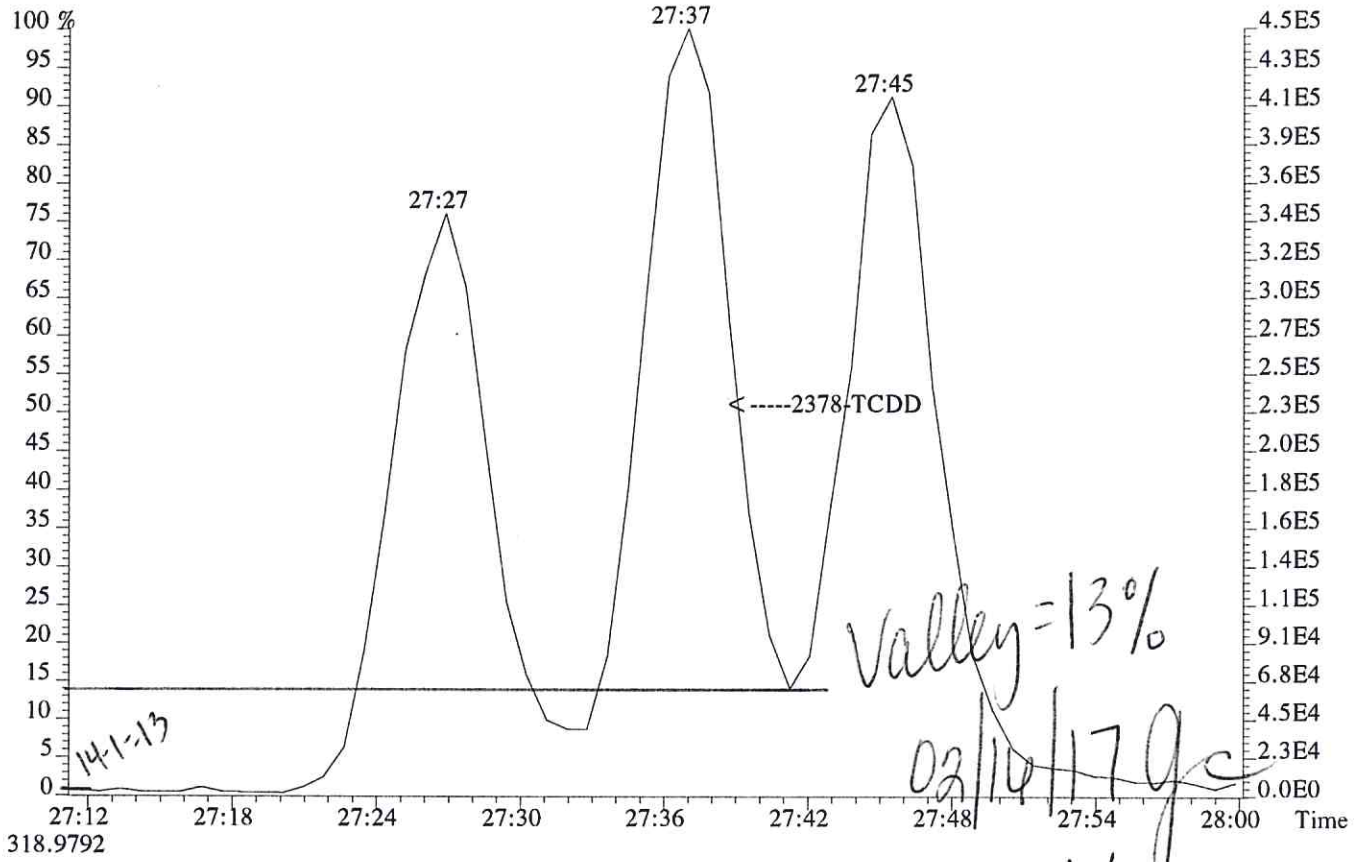
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P405396
Date Analyzed: 15-FEB-2017
Time Analyzed: 16:33:49

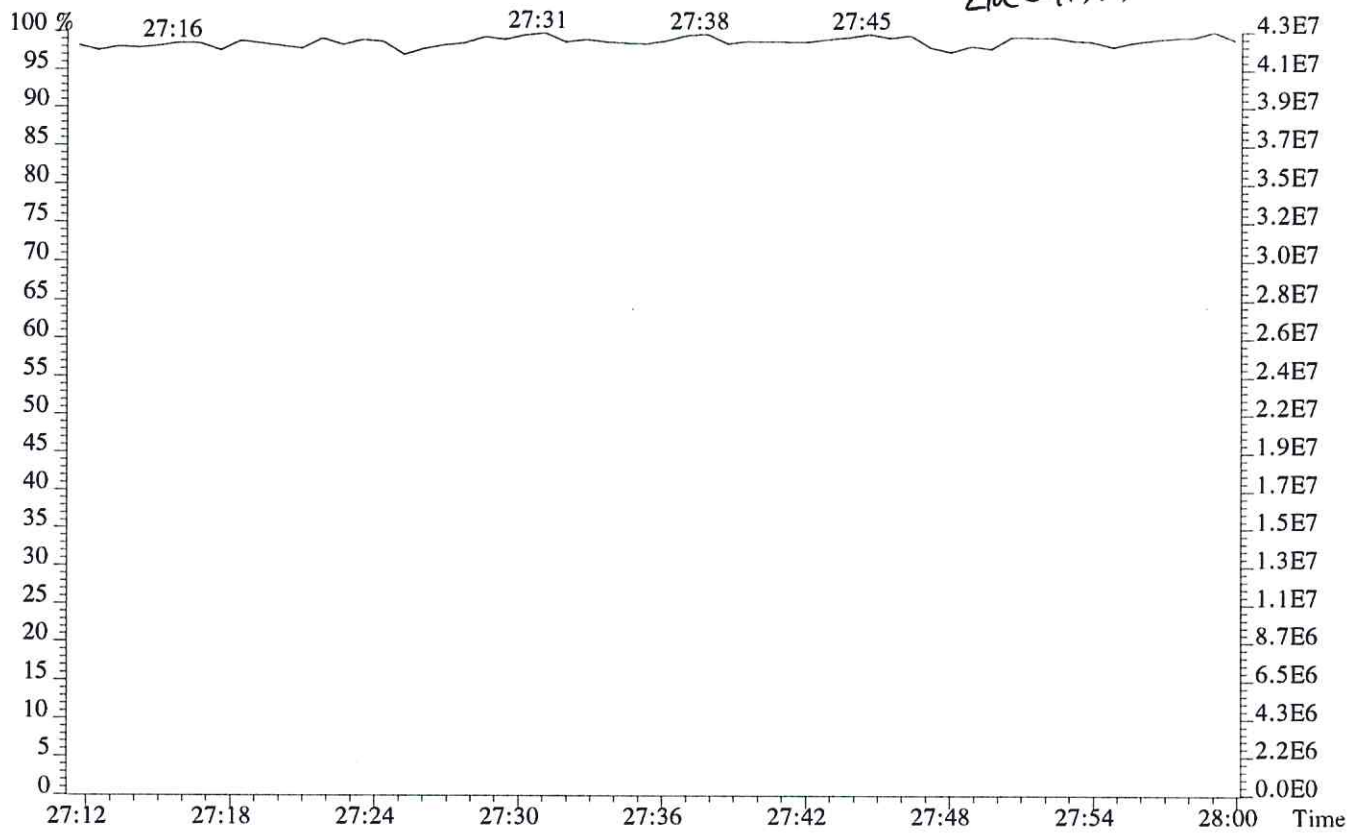
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:15	28:52
TCDD	23:57	28:43
PeCDF	28:49	33:17
PeCDD	30:28	33:01
HxCDF	33:57	36:30
HxCDD	34:29	36:06
HpCDF	37:43	39:02
HpCDD	37:57	38:35

% Valley 2378-TCDD: 13 %

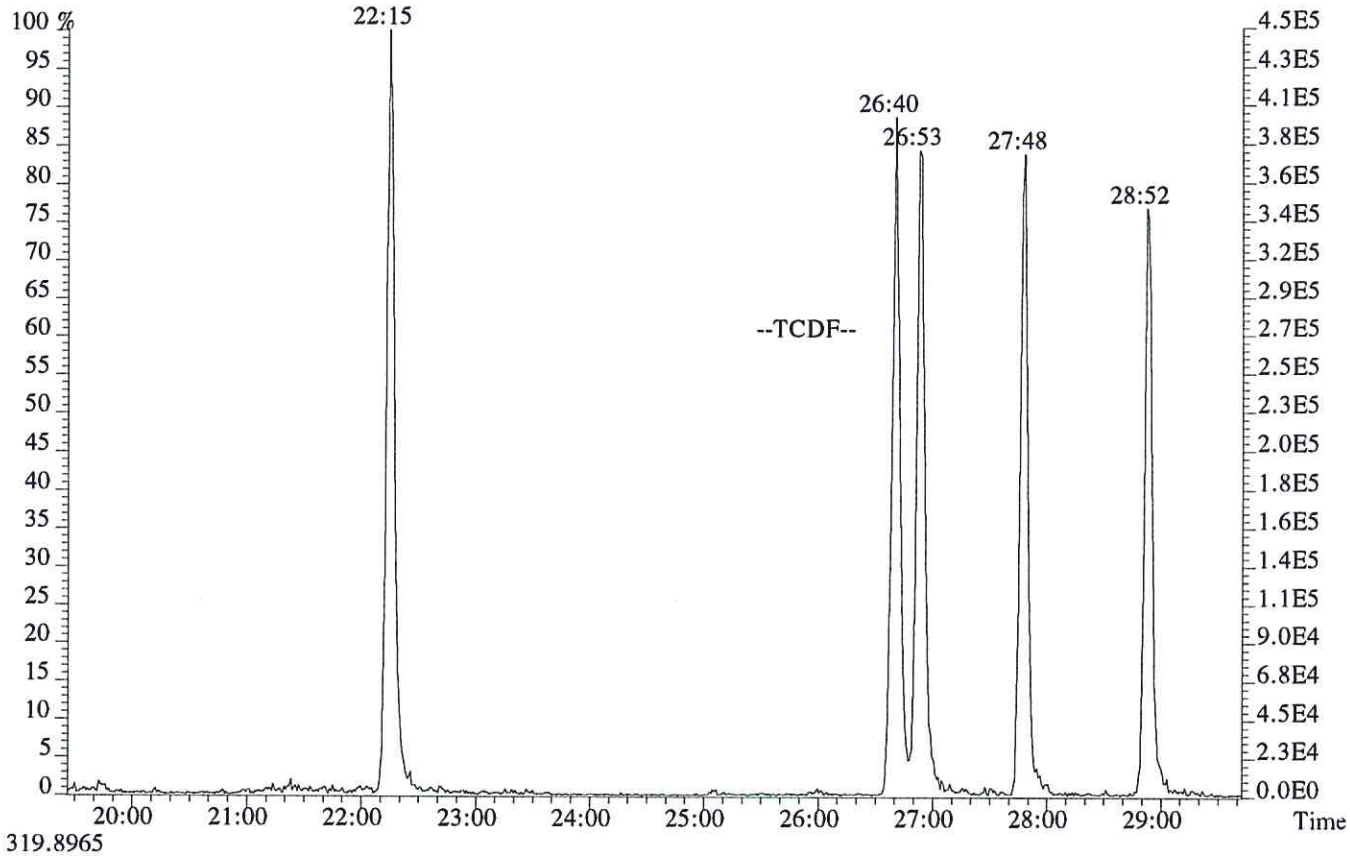
File:P405396 #1-729 Acq:15-FEB-2017 16:33:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
319.8965



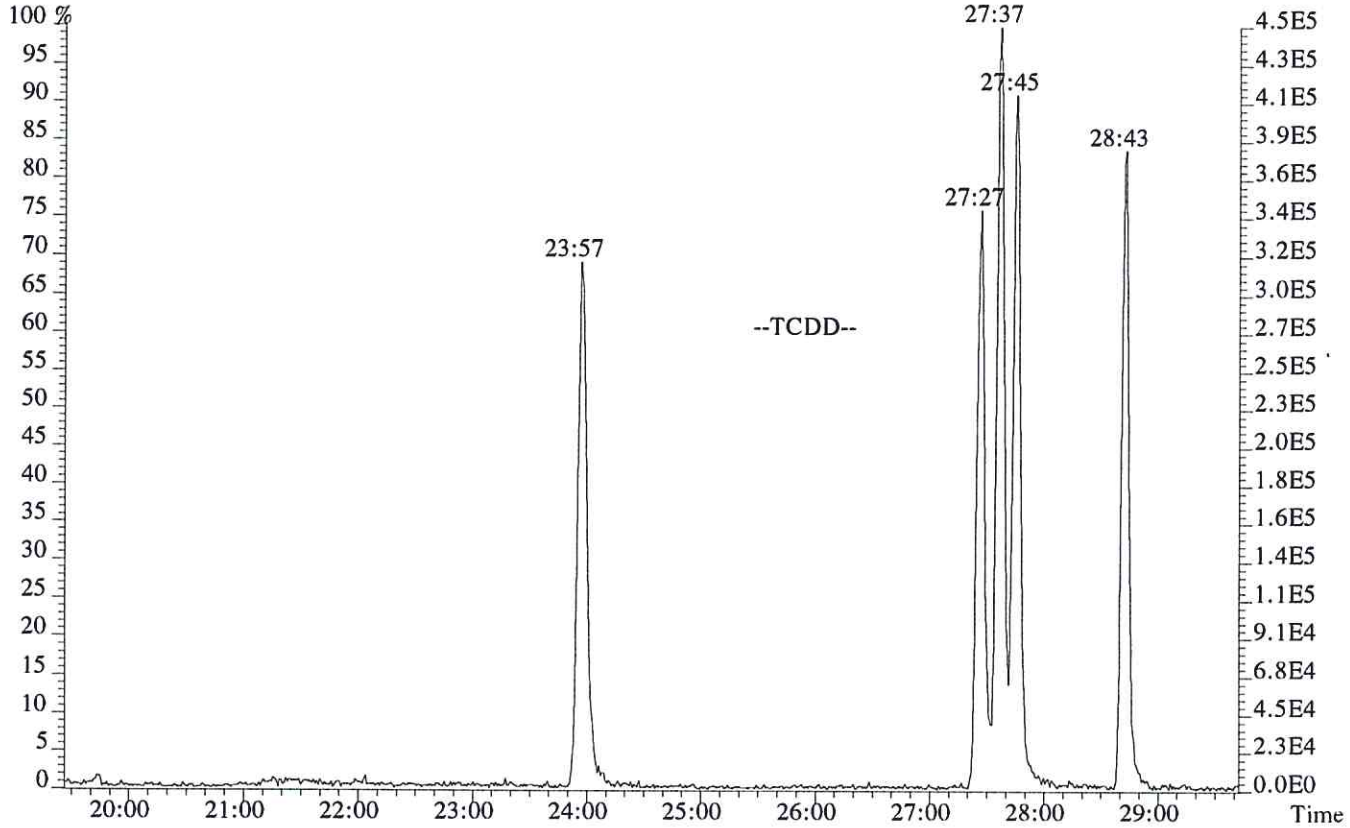
318.9792



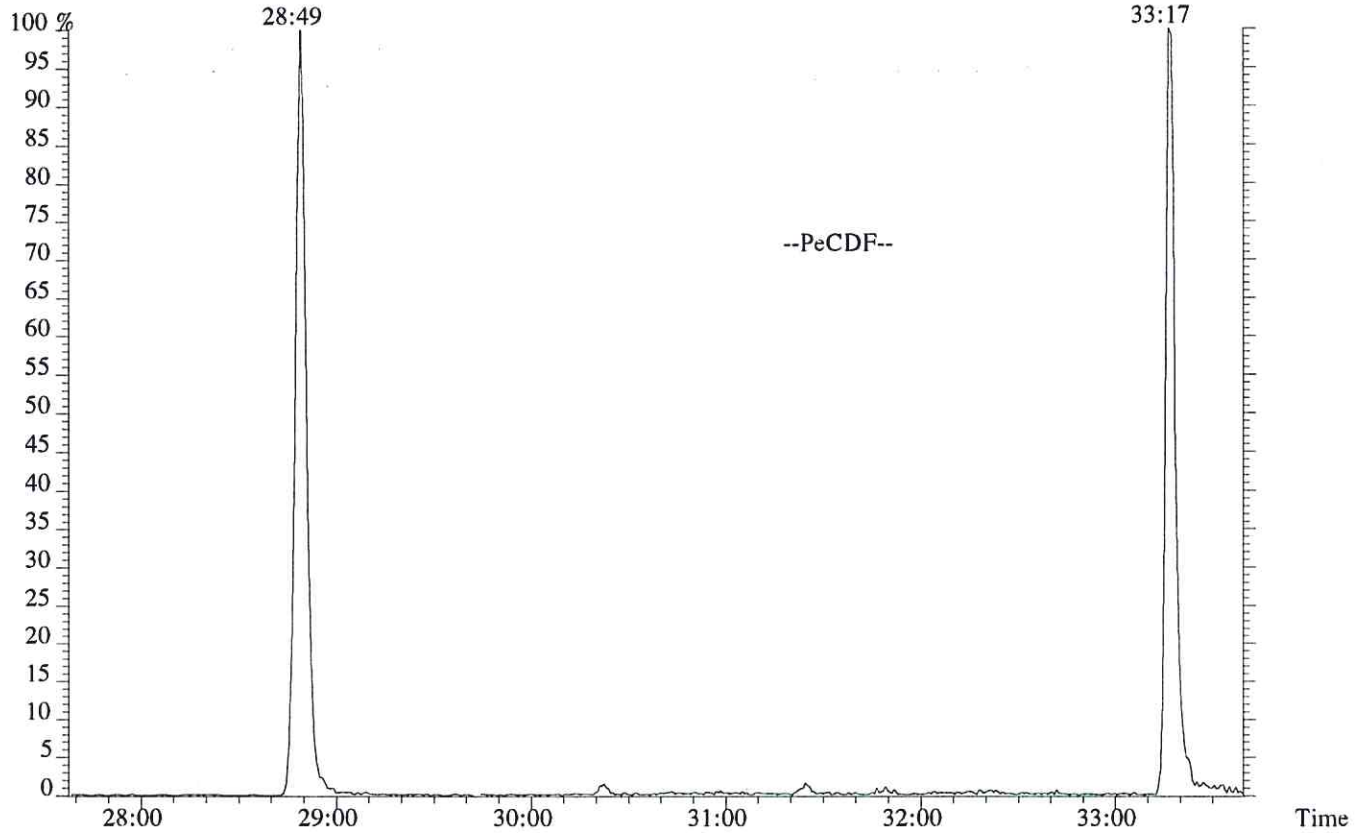
File:P405396 #1-729 Acq:15-FEB-2017 16:33:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
303.9016



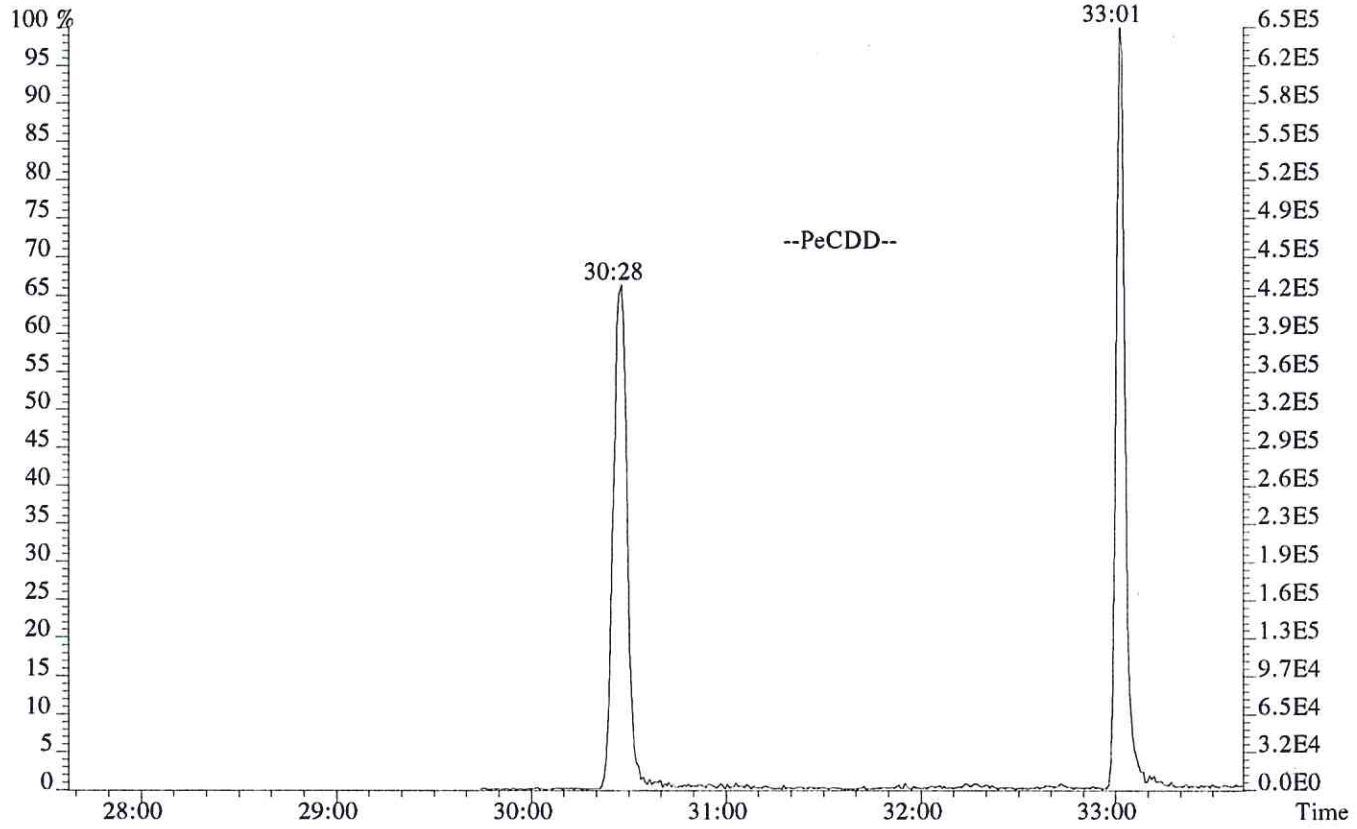
319.8965



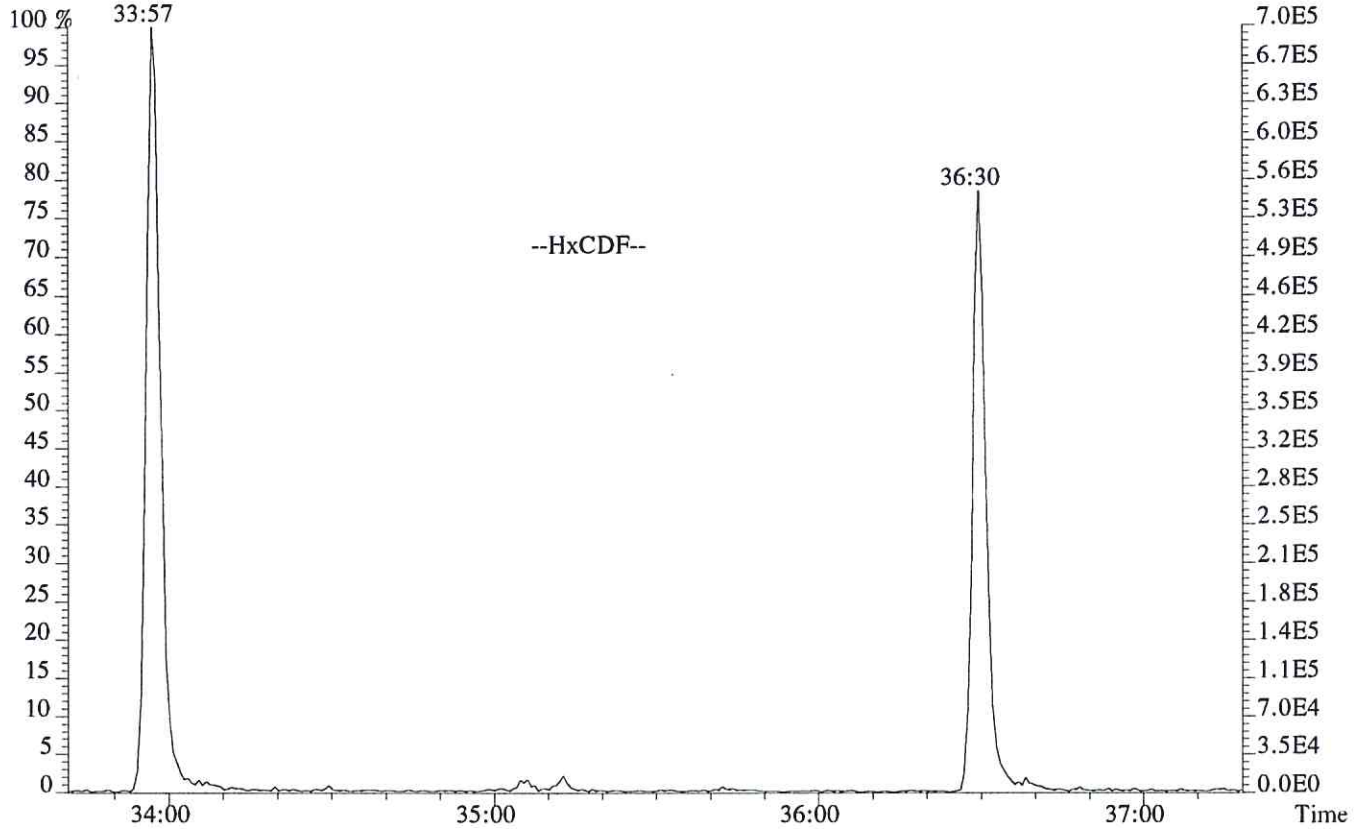
File:P405396 #1-729 Acq:15-FEB-2017 16:33:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
339.8597,339.8597 F:2



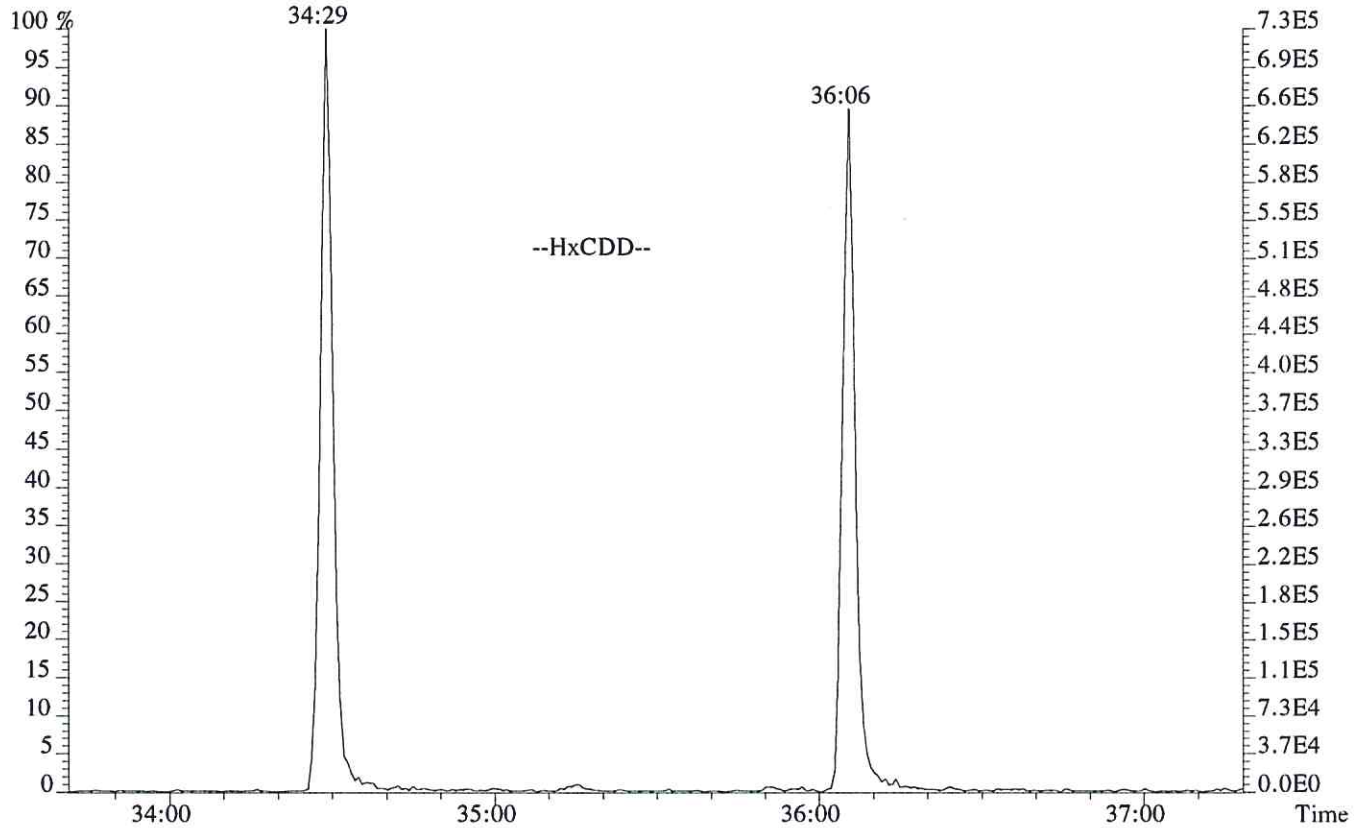
355.8546 F:2



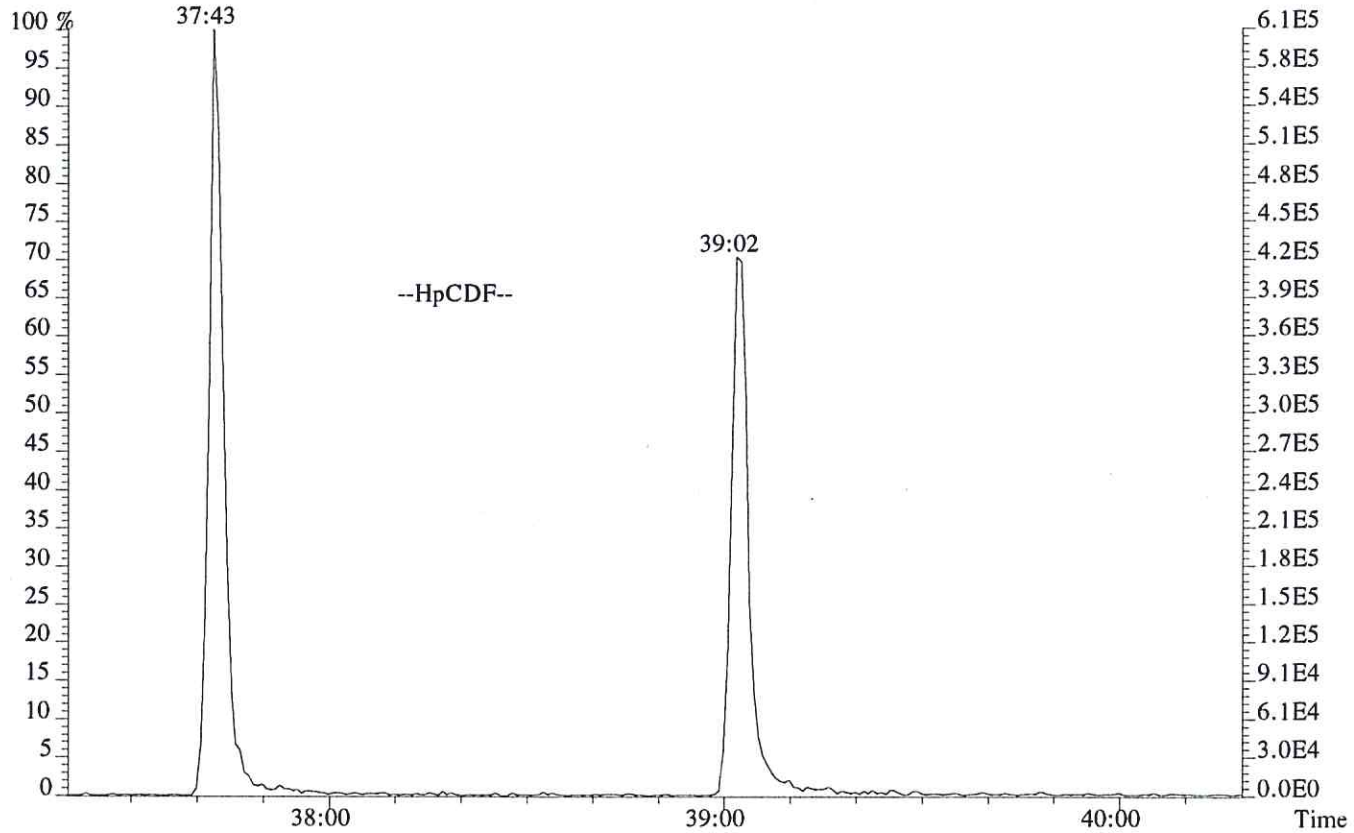
File:P405396 #1-326 Acq:15-FEB-2017 16:33:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
373.8208 F:3



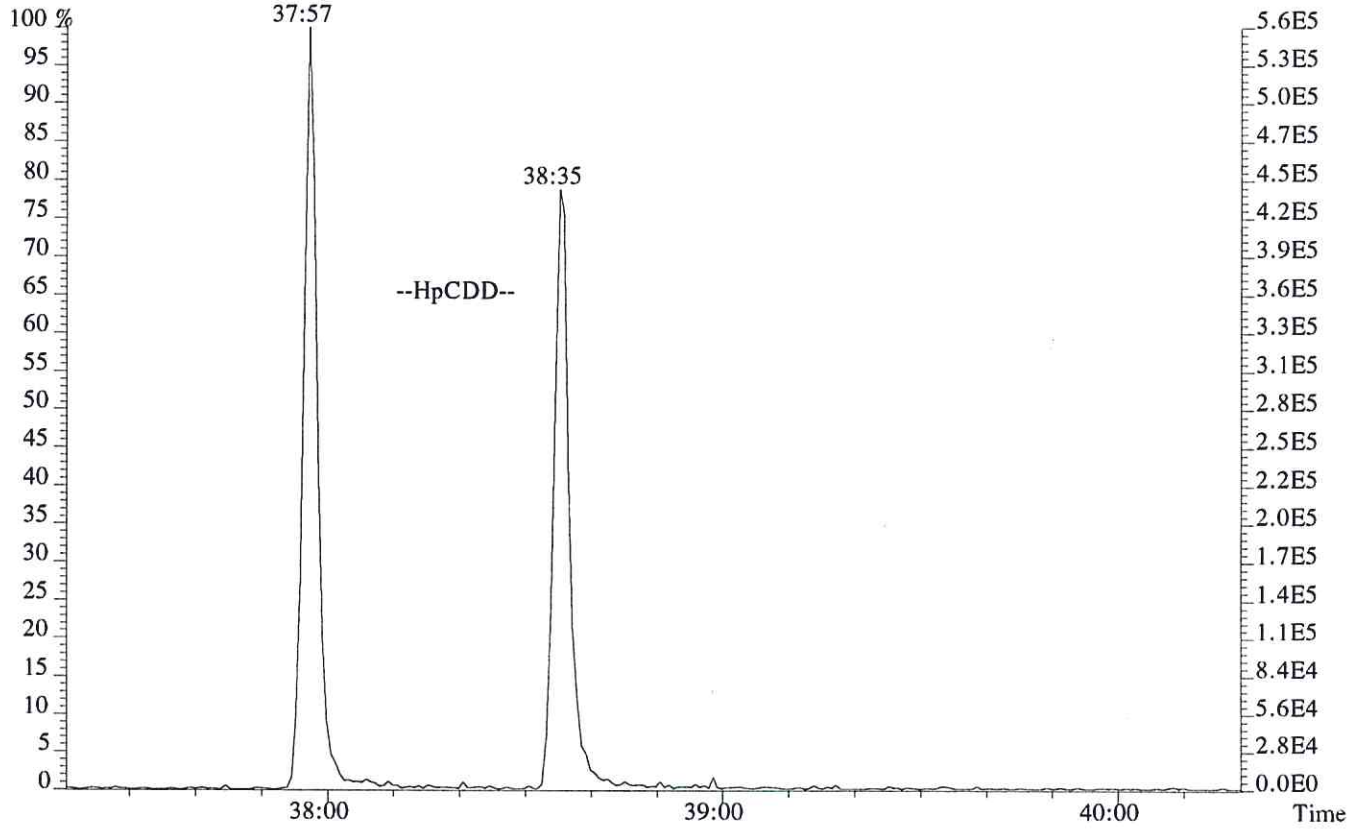
389.8157 F:3



File:P405396 #1-268 Acq:15-FEB-2017 16:33:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
407.7818 F:4



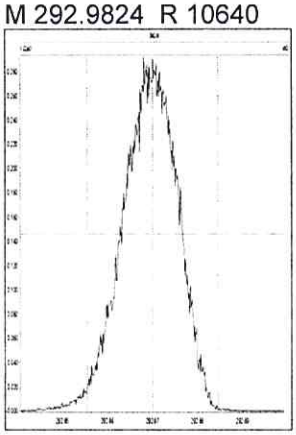
423.7766 F:4



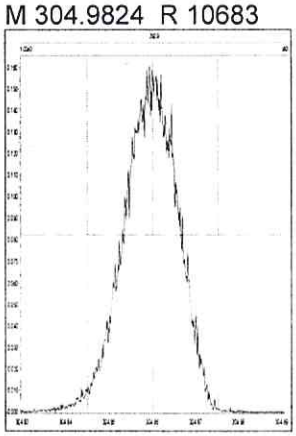
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, February 15, 2017 16:29:27 Central Standard Time

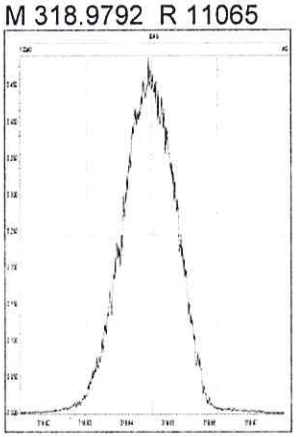
M 292.9824 R 10640



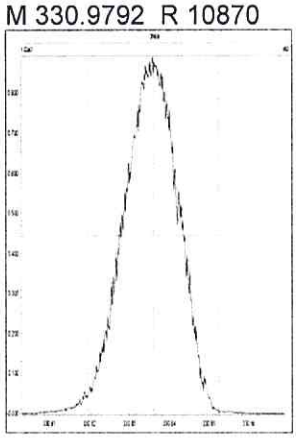
M 304.9824 R 10683



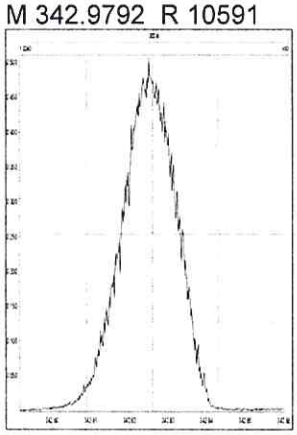
M 318.9792 R 11065



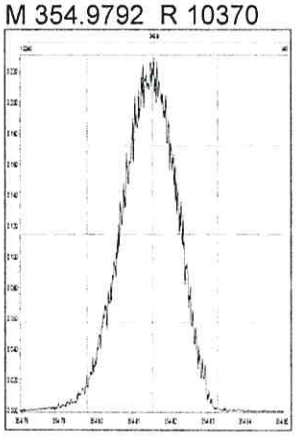
M 330.9792 R 10870



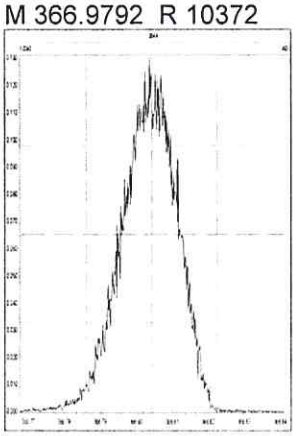
M 342.9792 R 10591



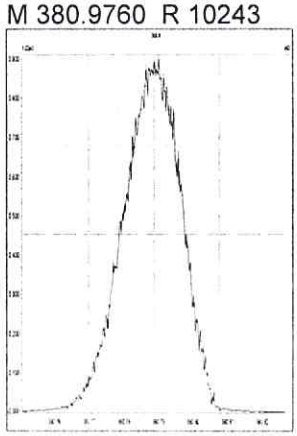
M 354.9792 R 10370



M 366.9792 R 10372



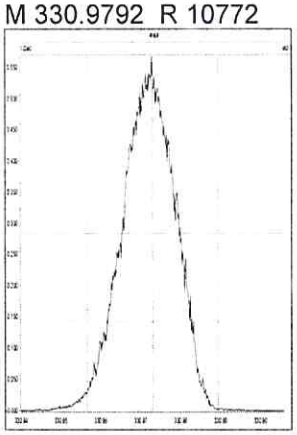
M 380.9760 R 10243



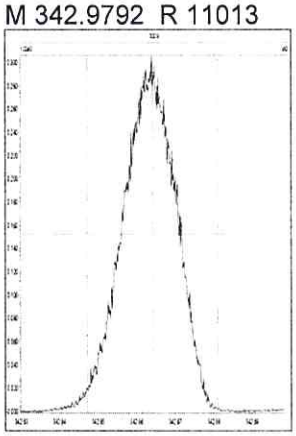
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, February 15, 2017 16:30:15 Central Standard Time

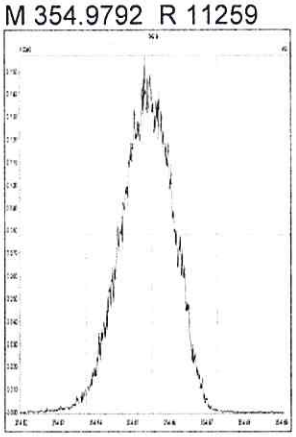
M 330.9792 R 10772



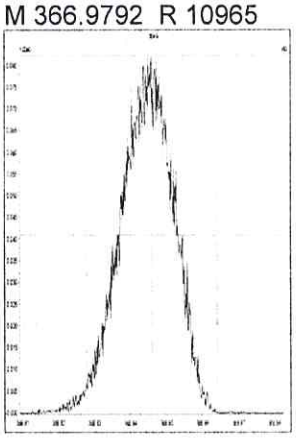
M 342.9792 R 11013



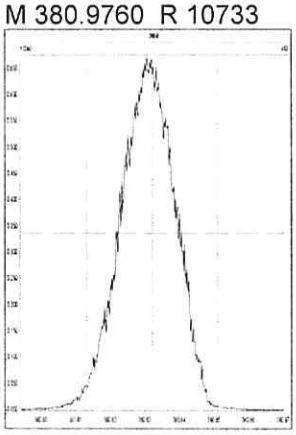
M 354.9792 R 11259



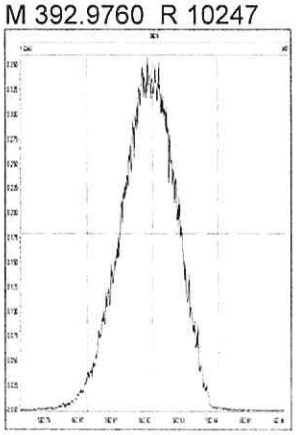
M 366.9792 R 10965



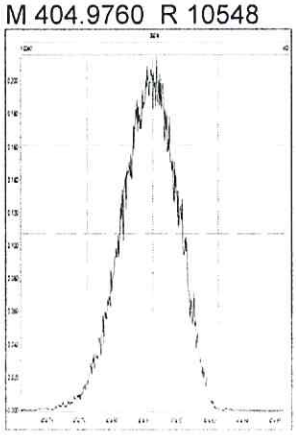
M 380.9760 R 10733



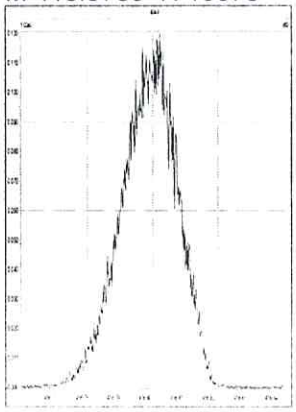
M 392.9760 R 10247



M 404.9760 R 10548



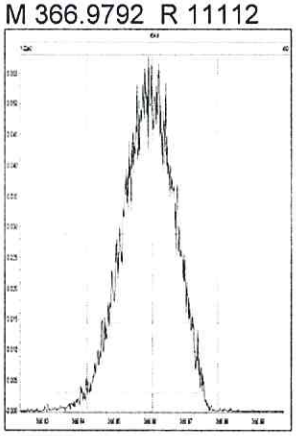
M 416.9760 R 10078



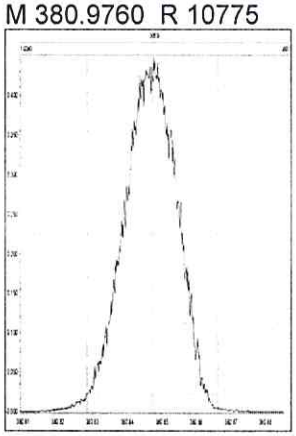
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, February 15, 2017 16:31:03 Central Standard Time

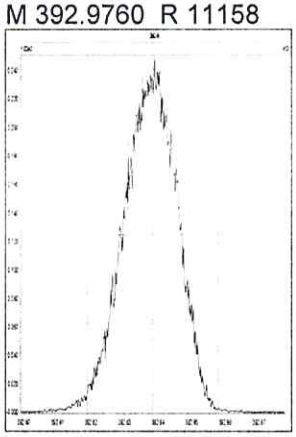
M 366.9792 R 11112



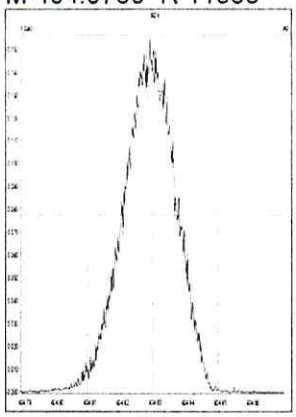
M 380.9760 R 10775



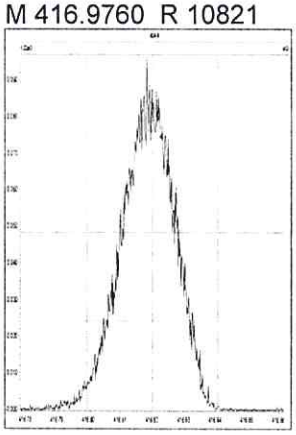
M 392.9760 R 11158



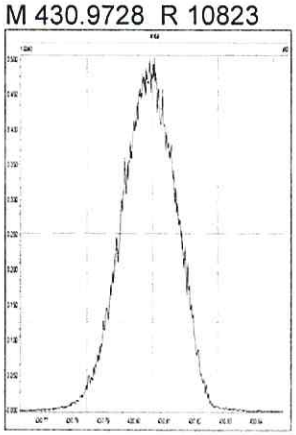
M 404.9760 R 11363



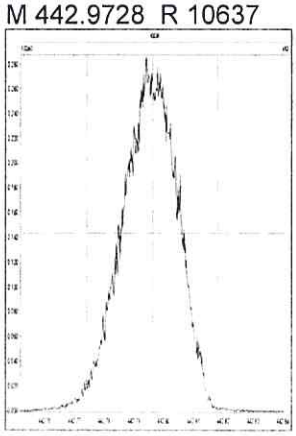
M 416.9760 R 10821



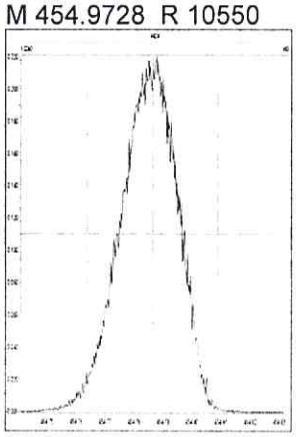
M 430.9728 R 10823



M 442.9728 R 10637



M 454.9728 R 10550



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

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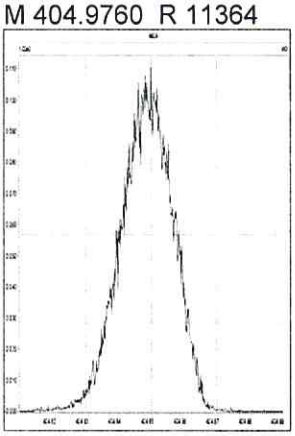
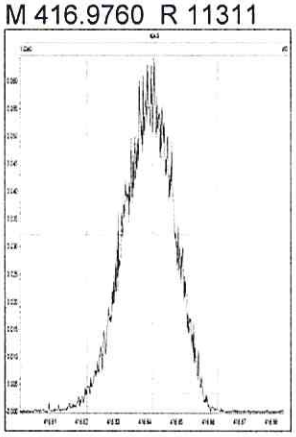
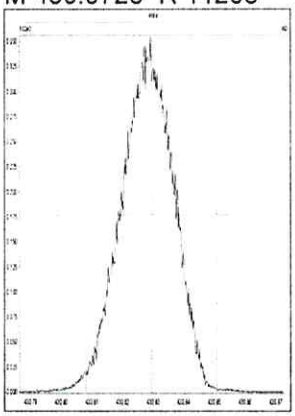
M 404.9760 R 11364



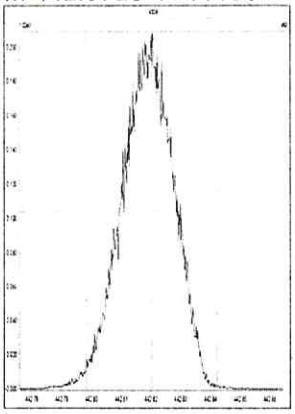
M 416.9760 R 11311



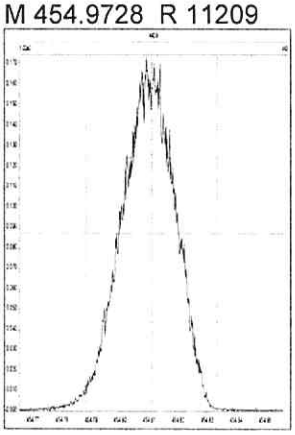
M 430.9728 R 11208



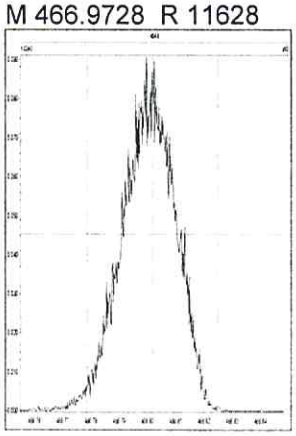
M 442.9728 R 11160



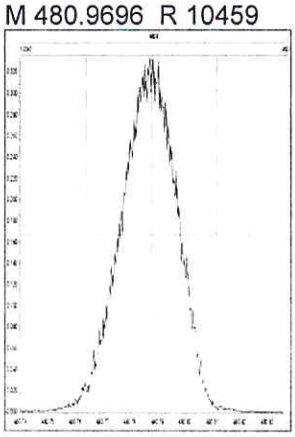
M 454.9728 R 11209



M 466.9728 R 11628



M 480.9696 R 10459



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

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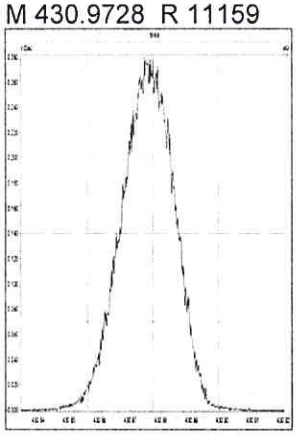
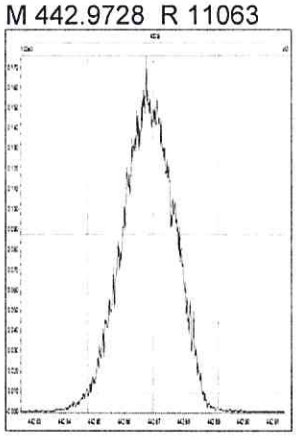
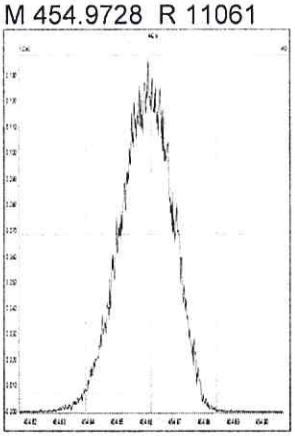
M 430.9728 R 11159



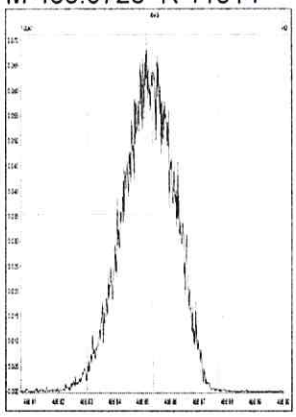
M 442.9728 R 11063



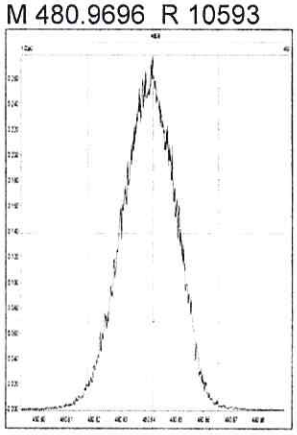
M 454.9728 R 11061



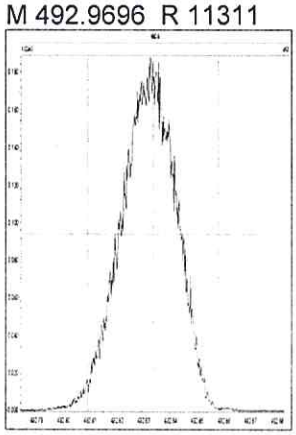
M 466.9728 R 11314



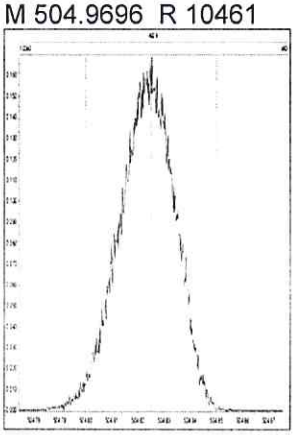
M 480.9696 R 10593



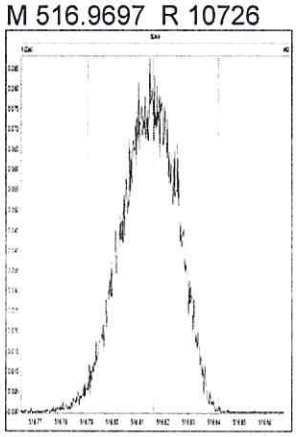
M 492.9696 R 11311



M 504.9696 R 10461



M 516.9697 R 10726



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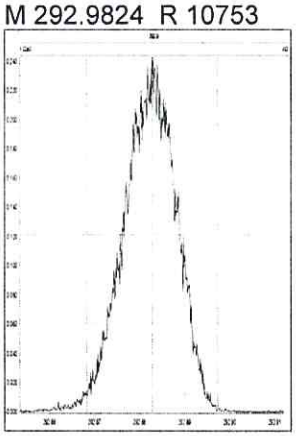
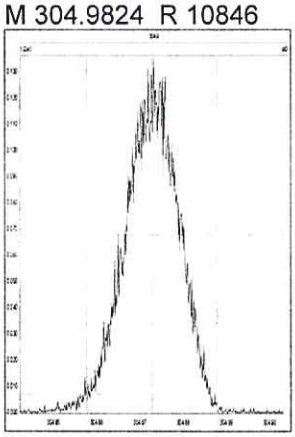
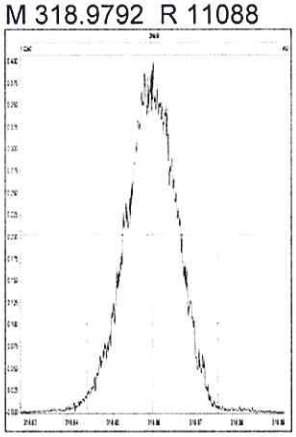
M 292.9824 R 10753



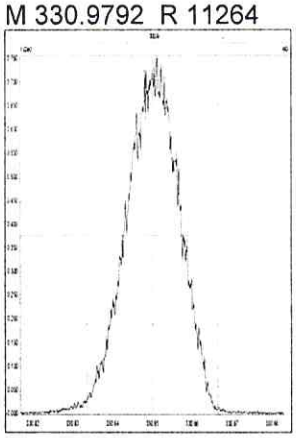
M 304.9824 R 10846



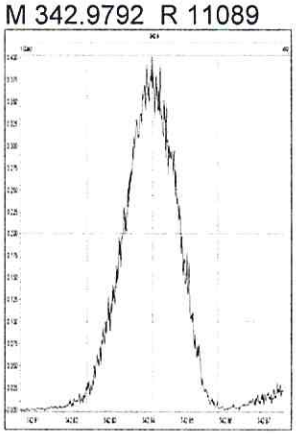
M 318.9792 R 11088



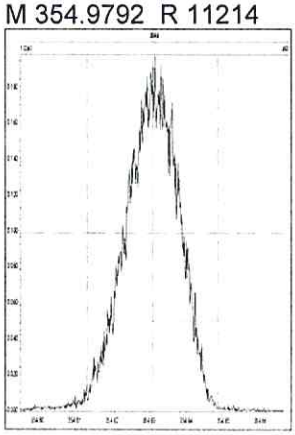
M 330.9792 R 11264



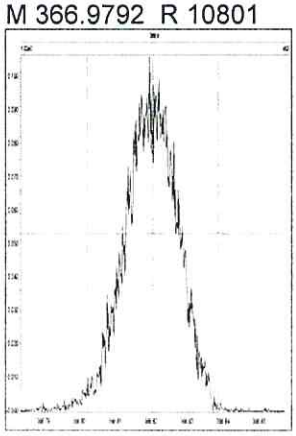
M 342.9792 R 11089



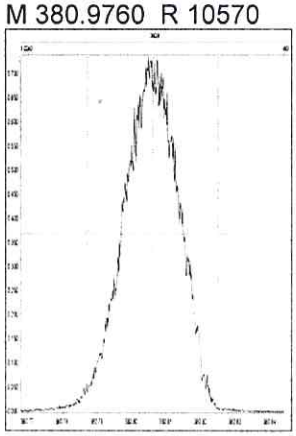
M 354.9792 R 11214



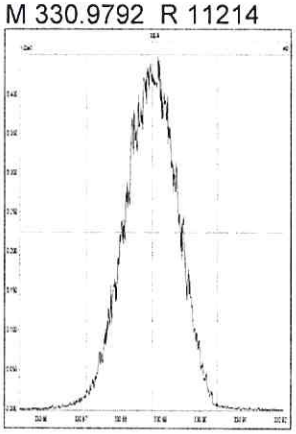
M 366.9792 R 10801



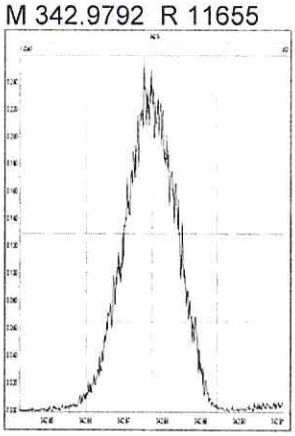
M 380.9760 R 10570



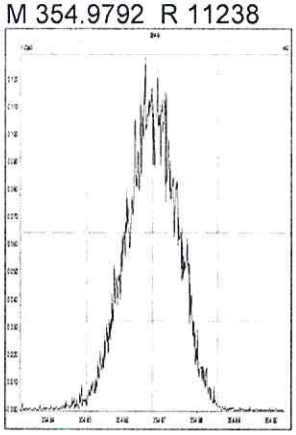
M 330.9792 R 11214



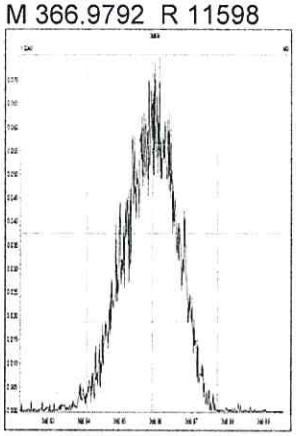
M 342.9792 R 11655



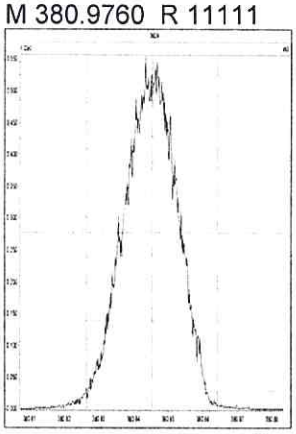
M 354.9792 R 11238



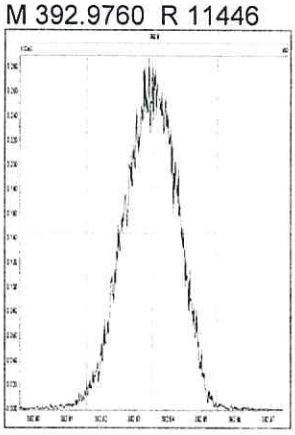
M 366.9792 R 11598



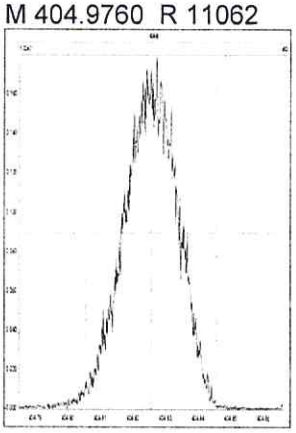
M 380.9760 R 11111



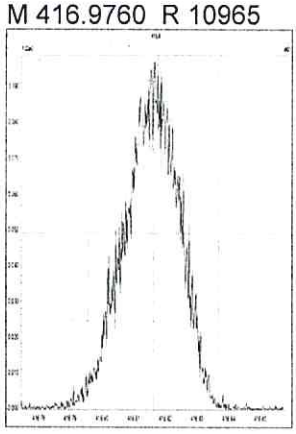
M 392.9760 R 11446



M 404.9760 R 11062

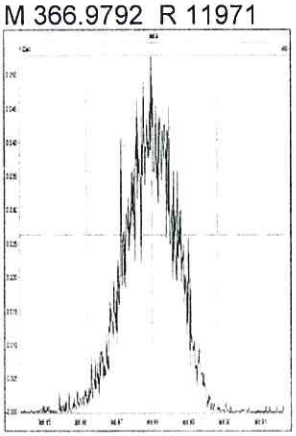


M 416.9760 R 10965

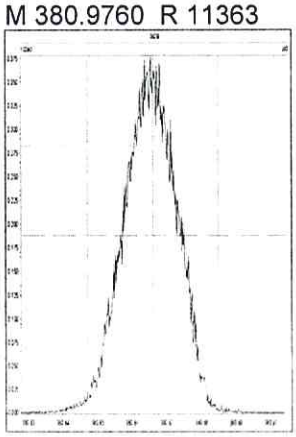


Printed: Thursday, February 16, 2017 02:29:53 Central Standard Time

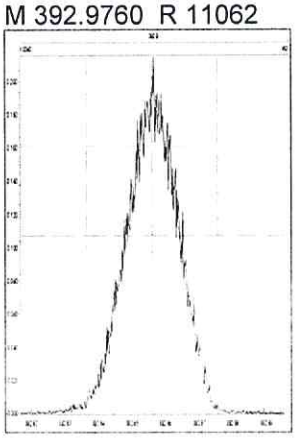
M 366.9792 R 11971



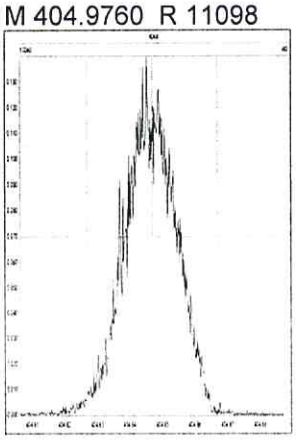
M 380.9760 R 11363



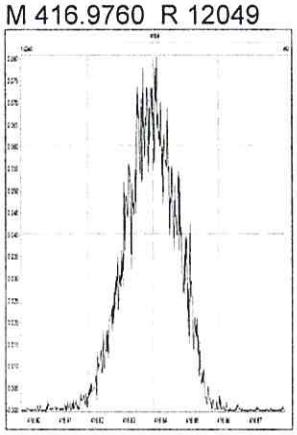
M 392.9760 R 11062



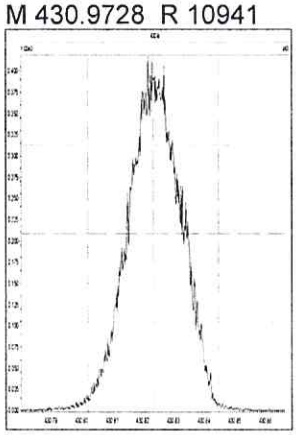
M 404.9760 R 11098



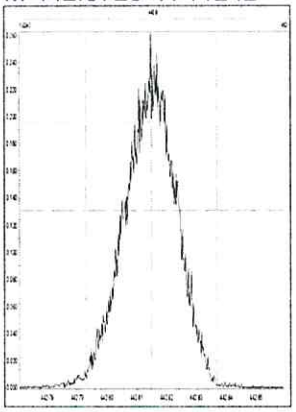
M 416.9760 R 12049



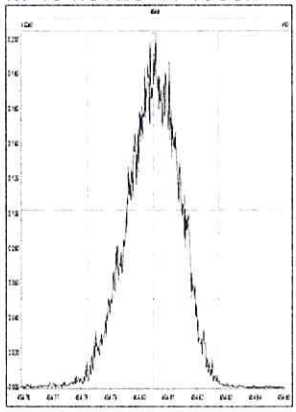
M 430.9728 R 10941



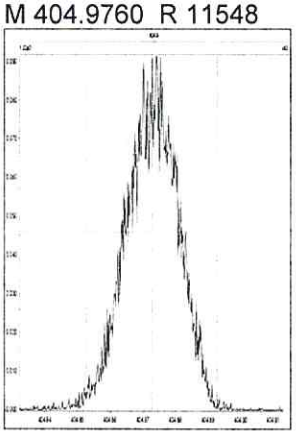
M 442.9728 R 11242



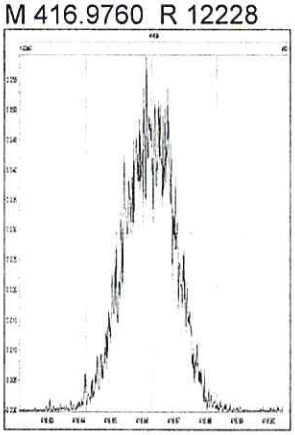
M 454.9728 R 10992



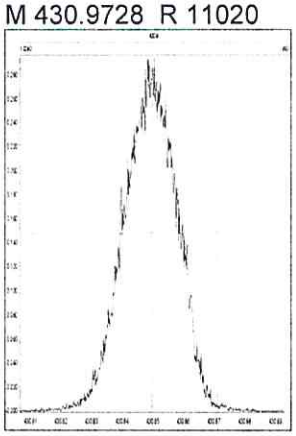
M 404.9760 R 11548



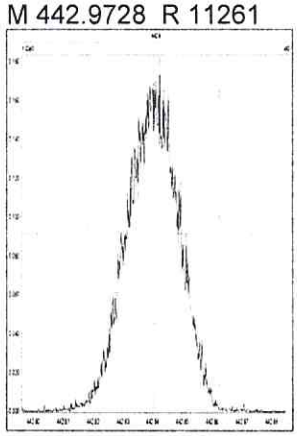
M 416.9760 R 12228



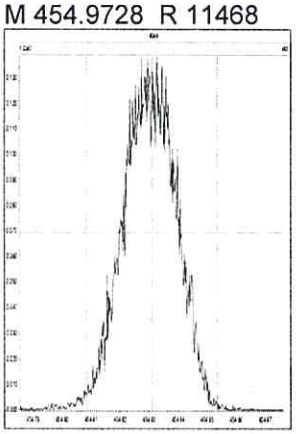
M 430.9728 R 11020



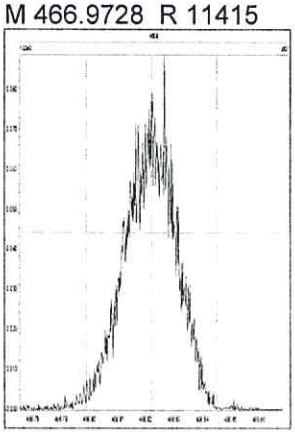
M 442.9728 R 11261



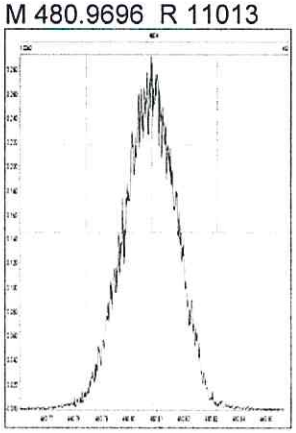
M 454.9728 R 11468



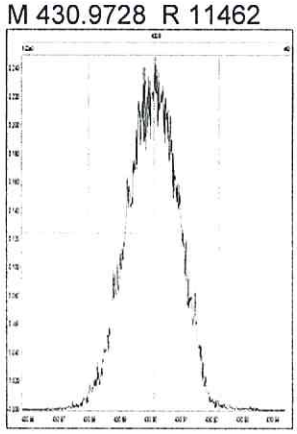
M 466.9728 R 11415



M 480.9696 R 11013



M 430.9728 R 11462



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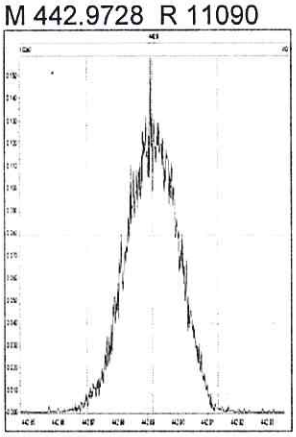
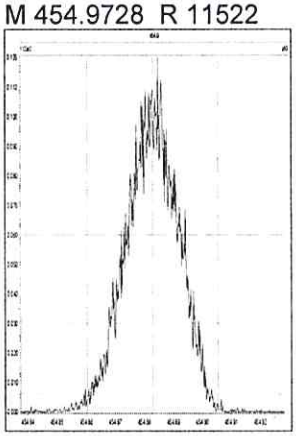
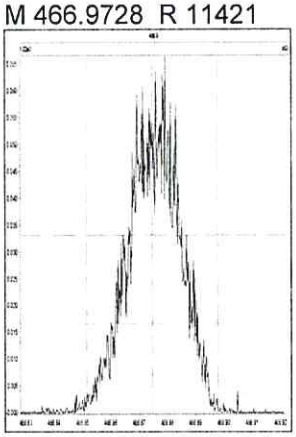
M 442.9728 R 11090



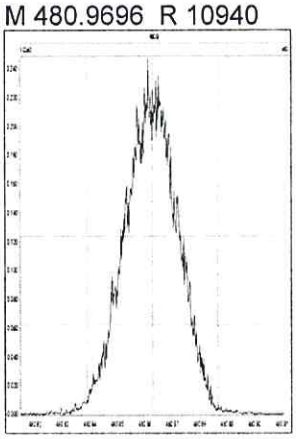
M 454.9728 R 11522



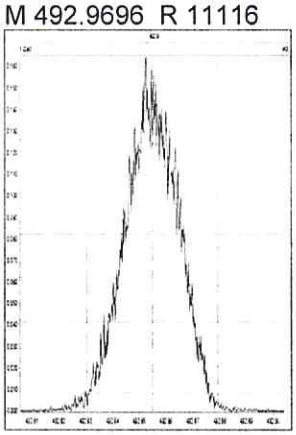
M 466.9728 R 11421



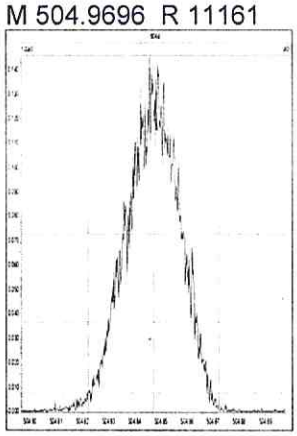
M 480.9696 R 10940



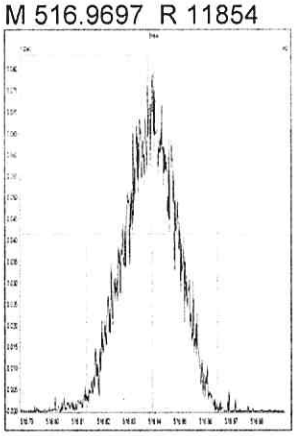
M 492.9696 R 11116



M 504.9696 R 11161



M 516.9697 R 11854



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 04/28/16

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

VER Data Filename: P405397 Analysis Date: 15-FEB-17 Time: 17:21:04

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	9.8	7.8 - 12.9	-2.2
1,2,3,7,8-PeCDD	M+2/M+4	1.55	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	51	39 - 64	2.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	51	39 - 64	2.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	51	41 - 61	2.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	52	43 - 58	3.5
OCDD	M+2/M+4	0.86	0.76-1.02	102	79 - 126	1.7
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.7	8.4 - 12.0	-2.8
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	52	41 - 60	3.5
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 61	2.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	45 - 56	3.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	3.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	52	45 - 56	4.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	4.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	54	45 - 55	7.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	51	43 - 58	2.6
OCDF	M+2/M+4	0.91	0.76-1.02	101	63 - 159	0.9

(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) 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: 04/28/16

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

VER Data Filename: P405397 Analysis Date: 15-FEB-17 Time: 17:21:04

	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	100	82 - 121	0.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	105	62 - 160	5.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	101	85 - 117	1.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	100	85 - 118	0.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	103	72 - 138	2.6
13C-OCDD	M+2/M+4	0.88	0.76-1.02	217	96 - 415	8.7
13C-2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	93	71 - 140	-6.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	98	76 - 130	-2.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	98	77 - 130	-2.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	97	76 - 131	-2.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	95	70 - 143	-5.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	100	74 - 135	-0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.50	0.43-0.59	97	73 - 137	-2.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	96	78 - 129	-3.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	100	77 - 129	0.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.9

(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.
178519

Run #7 Filename P405397 Samp: 1 Inj: 1 Acquired: 15-FEB-17 17:21:04
Processed: 16-FEB-17 14:18:44 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:53	1.598e+03	2.083e+03	0.77	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	31:23	1.364e+04	8.801e+03	1.55	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	32:21	1.270e+04	8.202e+03	1.55	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	35:04	1.146e+04	9.246e+03	1.24	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	35:11	1.242e+04	1.012e+04	1.23	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	35:42	1.157e+04	9.427e+03	1.23	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	36:27	1.060e+04	8.477e+03	1.25	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:42	1.011e+04	9.946e+03	1.02	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:01	8.548e+03	8.449e+03	1.01	yes	no	1.187
10	Unk	OCDF	41:20	1.449e+04	1.592e+04	0.91	yes	no	1.035
11	Unk	2,3,7,8-TCDD	27:45	1.645e+03	2.194e+03	0.75	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	32:38	1.108e+04	7.153e+03	1.55	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	35:50	9.418e+03	7.556e+03	1.25	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	35:55	9.855e+03	8.154e+03	1.21	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	1.030e+04	8.418e+03	1.22	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:35	8.238e+03	7.916e+03	1.04	yes	no	0.882
17	Unk	OCDD	41:08	1.339e+04	1.562e+04	0.86	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:51	2.127e+04	2.796e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	3.015e+04	1.956e+04	1.54	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:20	2.997e+04	1.926e+04	1.56	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	1.239e+04	2.427e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:10	1.426e+04	2.803e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:41	1.321e+04	2.628e+04	0.50	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:26	1.186e+04	2.363e+04	0.50	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:42	9.301e+03	2.098e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:01	8.359e+03	1.956e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:43	1.955e+04	2.542e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:37	2.738e+04	1.761e+04	1.56	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	2.079e+04	1.669e+04	1.25	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:54	2.185e+04	1.758e+04	1.24	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:34	1.791e+04	1.751e+04	1.02	yes	no	0.817
32	IS	13C-OCDD	41:08	2.733e+04	3.093e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:05	2.023e+04	2.609e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	2.355e+04	1.870e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	4.262e+03				no	0.958

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Signal/Noise Height Ratio Summary

CLIENT ID.
178519

Run #7 Filename P405397 Samp: 1 Inj: 1 Acquired: 15-FEB-17 17:21:04
Processed: 16-FEB-17 14:18:44 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	2.41e+05	8.32e+02	2.9e+02	3.35e+05	1.03e+03	3.3e+02
2	1,2,3,7,8-PeCDF	2.48e+06	5.48e+02	4.5e+03	1.60e+06	9.96e+02	1.6e+03
3	2,3,4,7,8-PeCDF	2.49e+06	5.48e+02	4.5e+03	1.60e+06	9.96e+02	1.6e+03
4	1,2,3,4,7,8-HxCDF	2.47e+06	4.56e+02	5.4e+03	2.00e+06	4.84e+02	4.1e+03
5	1,2,3,6,7,8-HxCDF	2.56e+06	4.56e+02	5.6e+03	2.08e+06	4.84e+02	4.3e+03
6	2,3,4,6,7,8-HxCDF	2.51e+06	4.56e+02	5.5e+03	2.07e+06	4.84e+02	4.3e+03
7	1,2,3,7,8,9-HxCDF	2.18e+06	4.56e+02	4.8e+03	1.73e+06	4.84e+02	3.6e+03
8	1,2,3,4,6,7,8-HpCDF	2.19e+06	7.80e+02	2.8e+03	2.21e+06	1.24e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	1.79e+06	7.80e+02	2.3e+03	1.74e+06	1.24e+03	1.4e+03
10	OCDF	2.67e+06	3.72e+02	7.2e+03	2.96e+06	2.71e+03	1.1e+03
11	2,3,7,8-TCDD	2.81e+05	1.31e+03	2.1e+02	3.76e+05	9.04e+02	4.2e+02
12	1,2,3,7,8-PeCDD	2.13e+06	8.80e+02	2.4e+03	1.39e+06	7.68e+02	1.8e+03
13	1,2,3,4,7,8-HxCDD	2.14e+06	3.04e+02	7.0e+03	1.72e+06	6.68e+02	2.6e+03
14	1,2,3,6,7,8-HxCDD	2.10e+06	3.04e+02	6.9e+03	1.75e+06	6.68e+02	2.6e+03
15	1,2,3,7,8,9-HxCDD	2.21e+06	3.04e+02	7.3e+03	1.76e+06	6.68e+02	2.6e+03
16	1,2,3,4,6,7,8-HpCDD	1.81e+06	4.48e+02	4.0e+03	1.76e+06	4.48e+02	3.9e+03
17	OCDD	2.60e+06	2.84e+02	9.2e+03	3.04e+06	1.75e+03	1.7e+03
18	13C-2,3,7,8-TCDF	3.45e+06	6.06e+03	5.7e+02	4.49e+06	3.40e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	5.46e+06	6.92e+02	7.9e+03	3.55e+06	1.03e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	5.67e+06	6.92e+02	8.2e+03	3.63e+06	1.03e+03	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	2.69e+06	6.00e+02	4.5e+03	5.27e+06	6.00e+02	8.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.94e+06	6.00e+02	4.9e+03	5.85e+06	6.00e+02	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	2.87e+06	6.00e+02	4.8e+03	5.72e+06	6.00e+02	9.5e+03
24	13C-1,2,3,7,8,9-HxCDF	2.41e+06	6.00e+02	4.0e+03	4.87e+06	6.00e+02	8.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.01e+06	1.18e+03	1.7e+03	4.61e+06	3.22e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.77e+06	1.18e+03	1.5e+03	4.04e+06	3.22e+03	1.3e+03
27	13C-2,3,7,8-TCDD	3.30e+06	3.78e+03	8.7e+02	4.28e+06	1.54e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	5.27e+06	7.96e+02	6.6e+03	3.34e+06	1.22e+03	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	4.73e+06	5.56e+02	8.5e+03	3.76e+06	4.04e+02	9.3e+03
30	13C-1,2,3,6,7,8-HxCDD	4.64e+06	5.56e+02	8.3e+03	3.73e+06	4.04e+02	9.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.95e+06	5.32e+02	7.4e+03	3.87e+06	4.32e+02	9.0e+03
32	13C-OCDD	5.14e+06	3.15e+03	1.6e+03	5.82e+06	2.58e+03	2.3e+03
33	13C-1,2,3,4-TCDD	3.43e+06	3.78e+03	9.1e+02	4.45e+06	1.54e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.04e+06	5.56e+02	9.1e+03	4.00e+06	4.04e+02	9.9e+03
35	37Cl-2,3,7,8-TCDD	7.41e+05	9.36e+02	7.9e+02			

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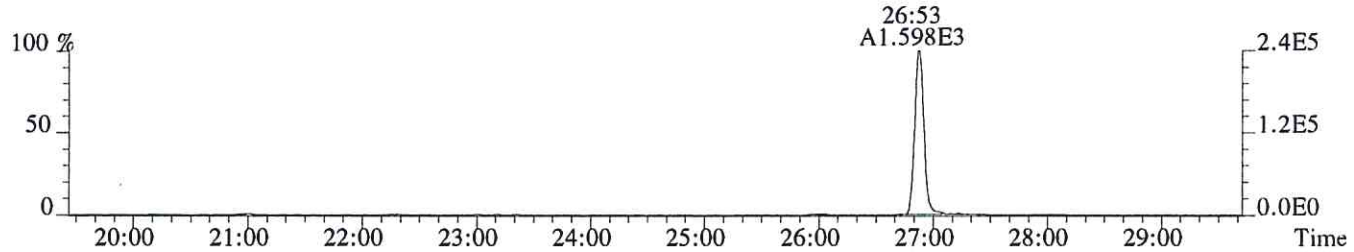
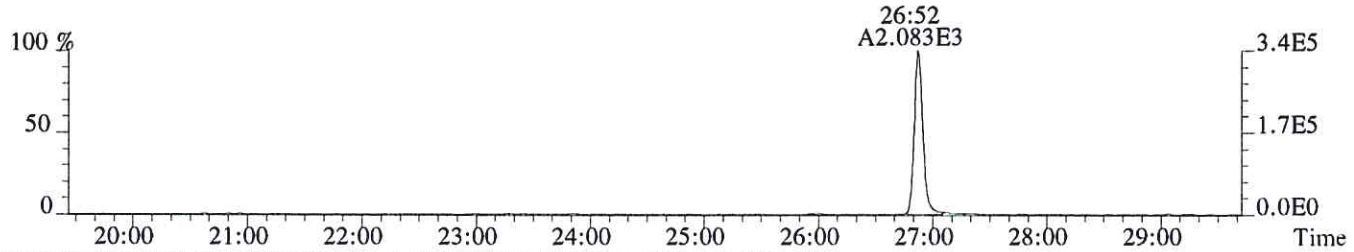
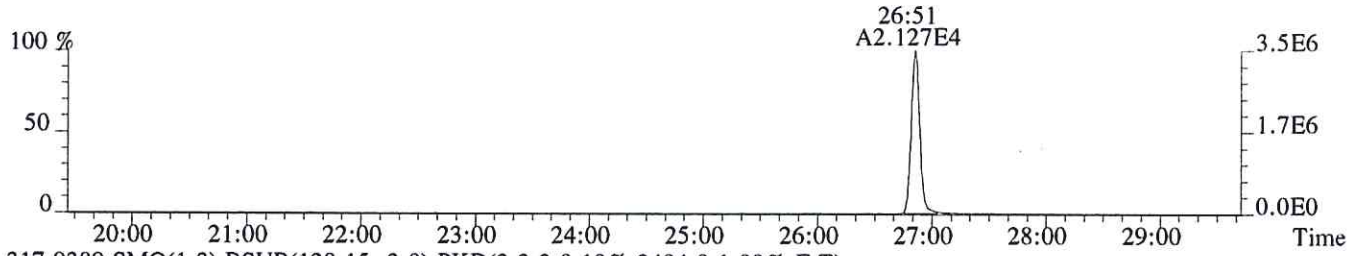
File:P405397 #1-729 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



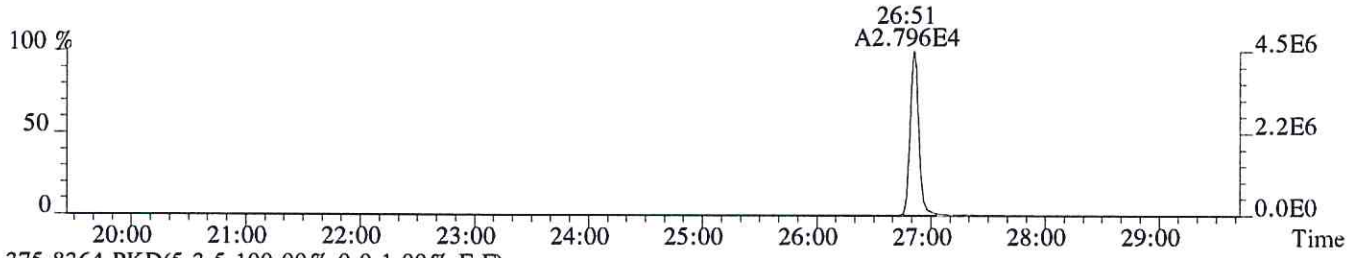
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



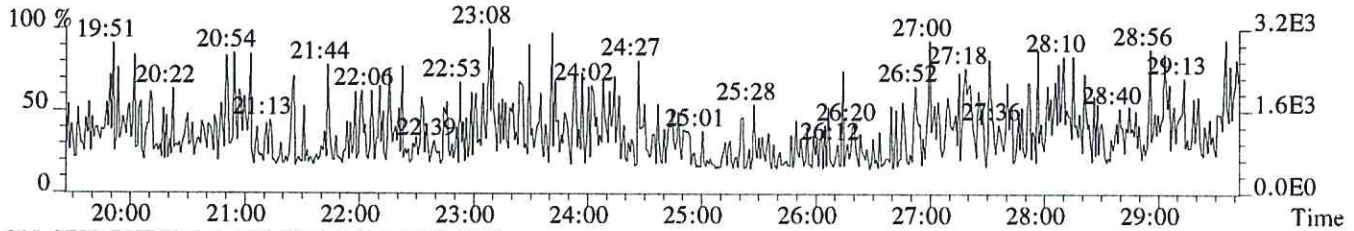
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6060.0,1.00%,F,T)



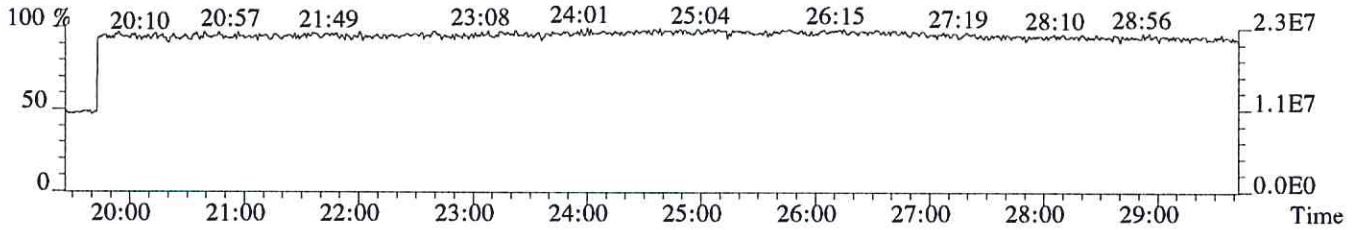
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3404.0,1.00%,F,T)



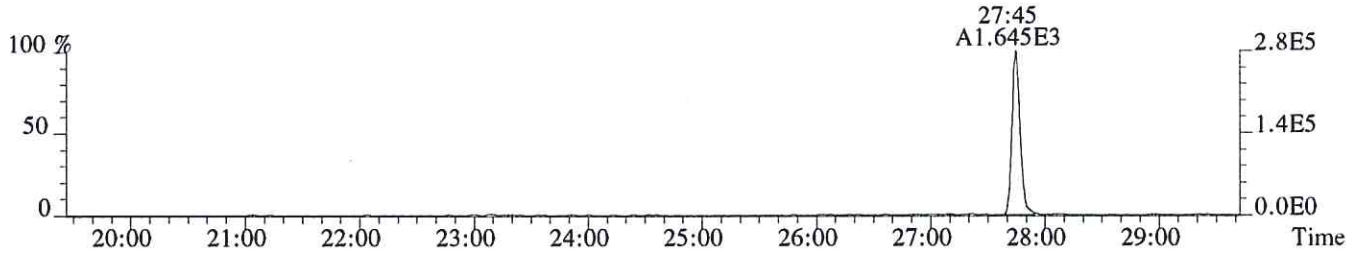
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



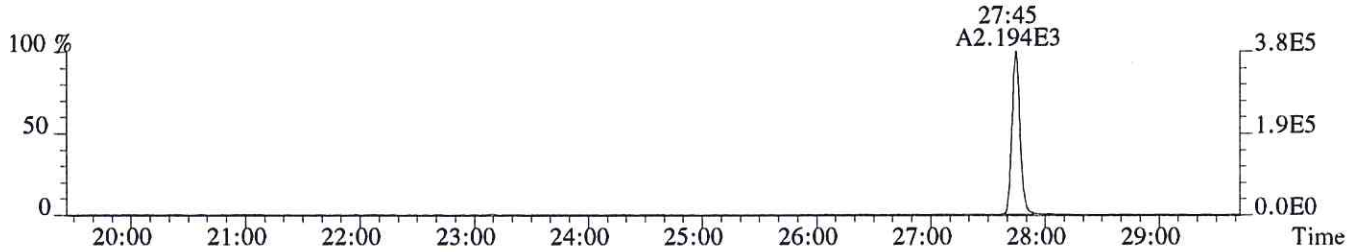
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



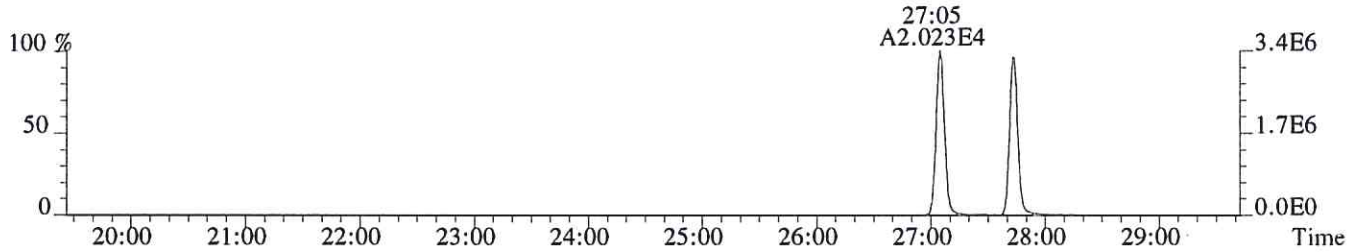
File:P405397 #1-729 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



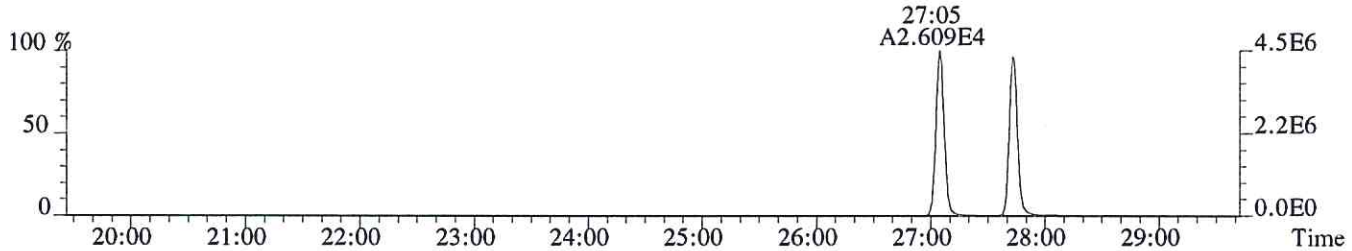
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



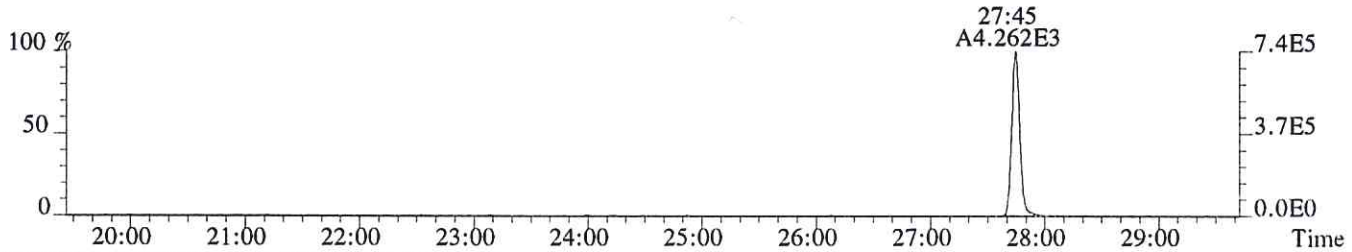
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3776.0,1.00%,F,T)



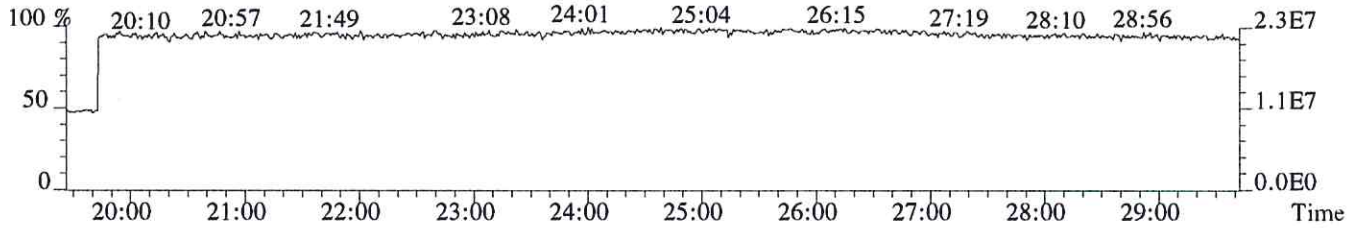
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



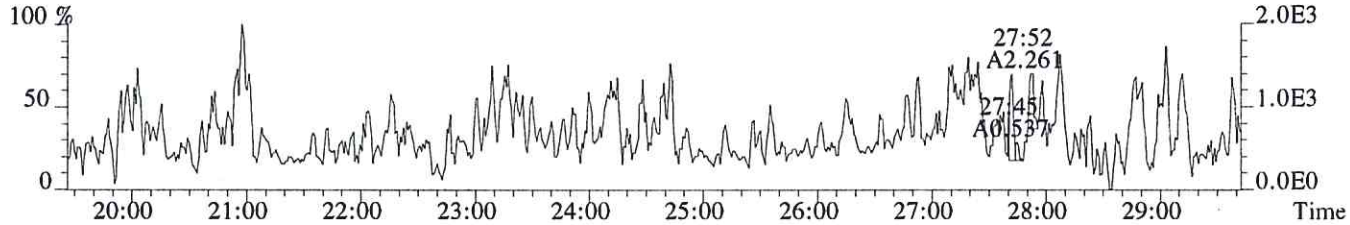
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



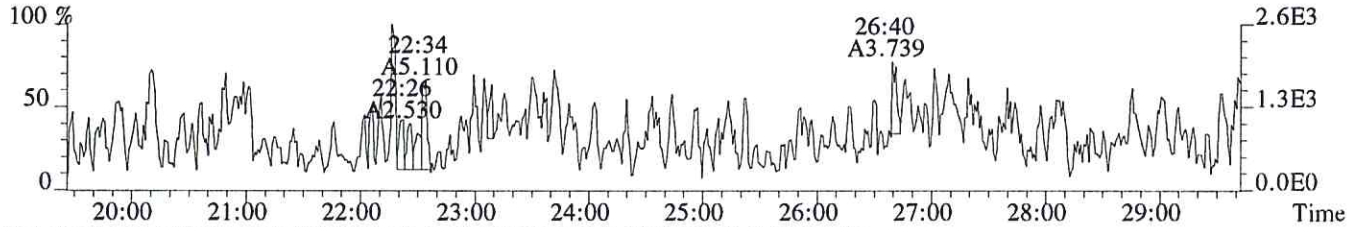
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



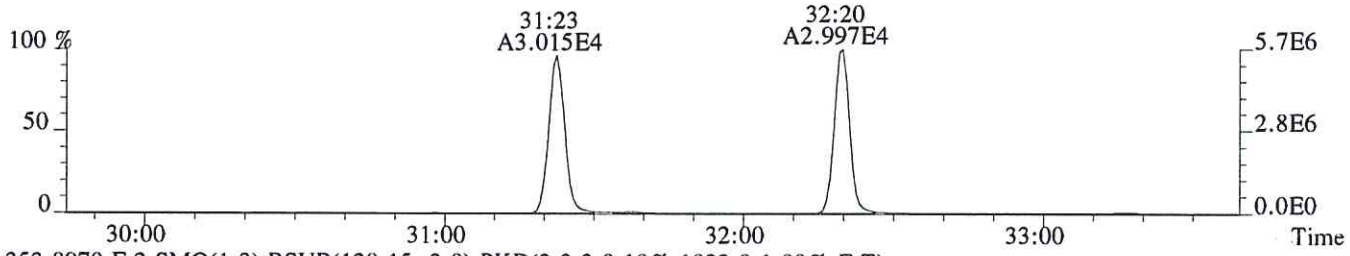
File:P405397 #1-729 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



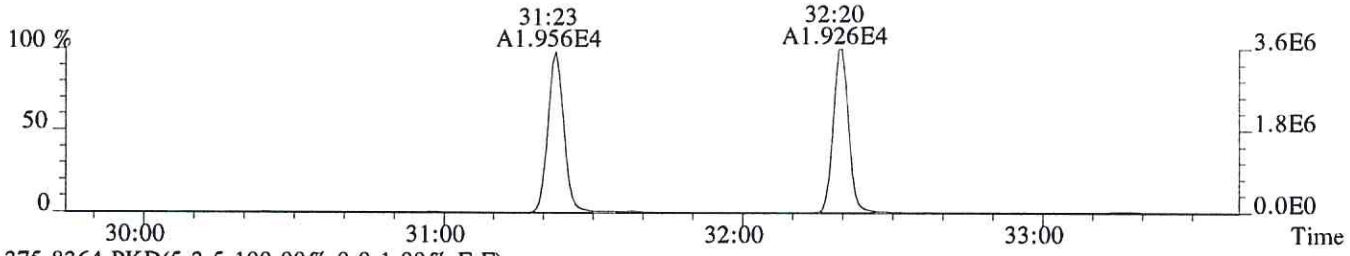
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



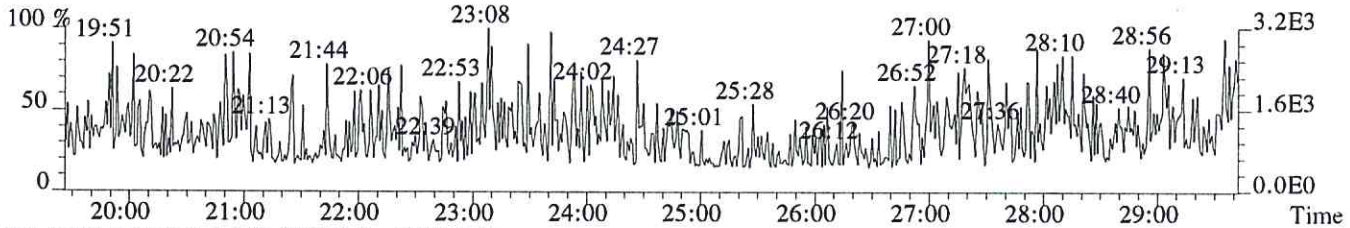
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



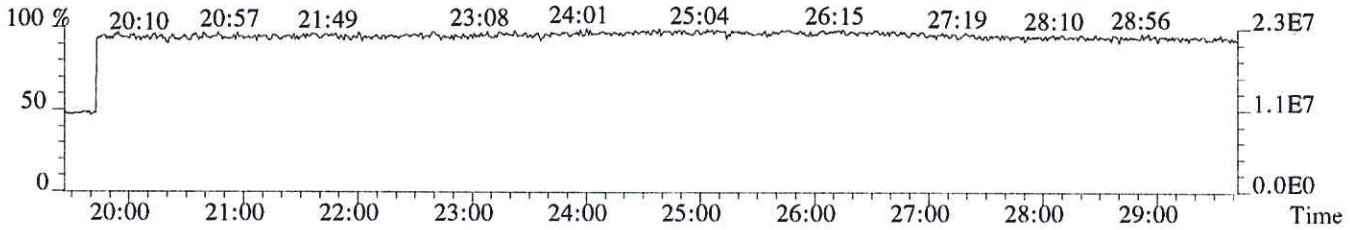
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



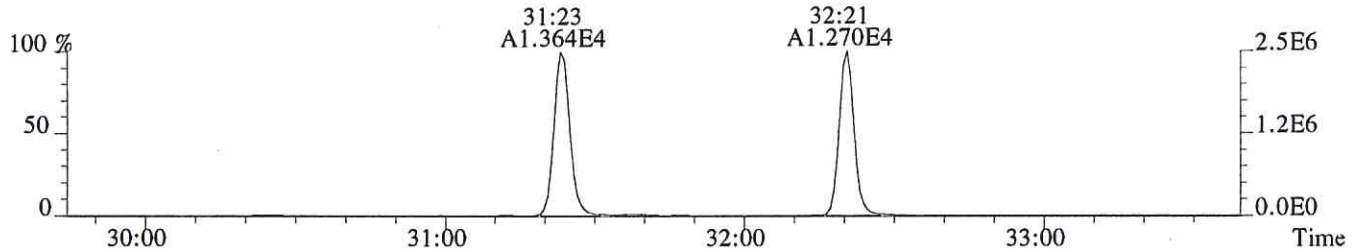
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



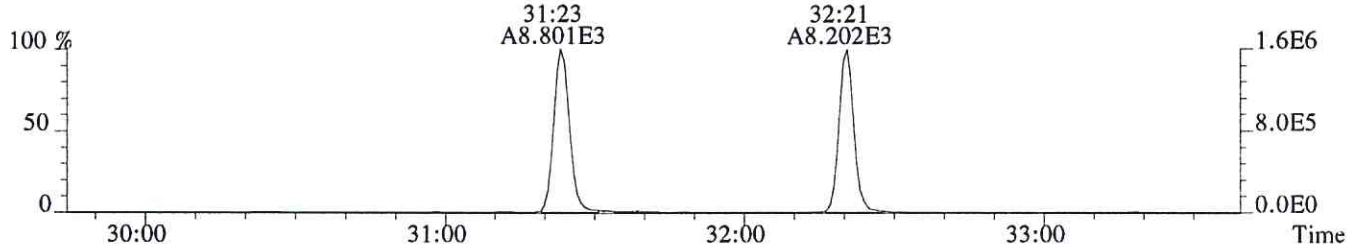
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



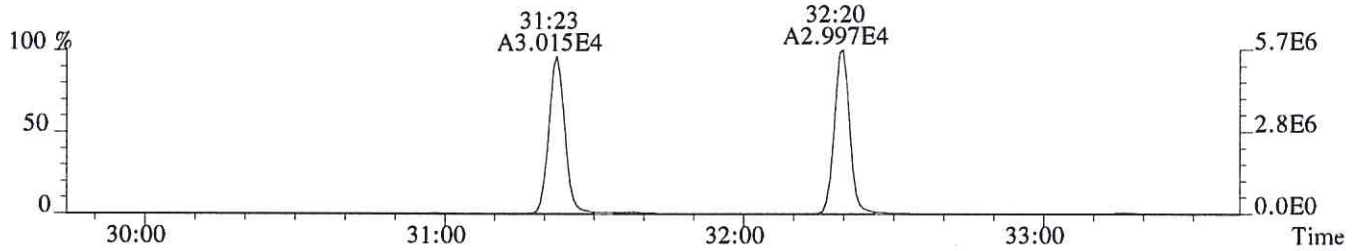
File:P405397 #1-353 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



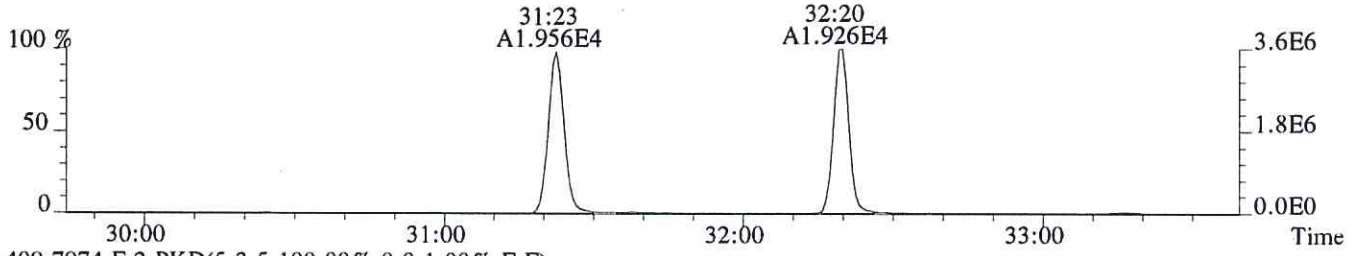
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



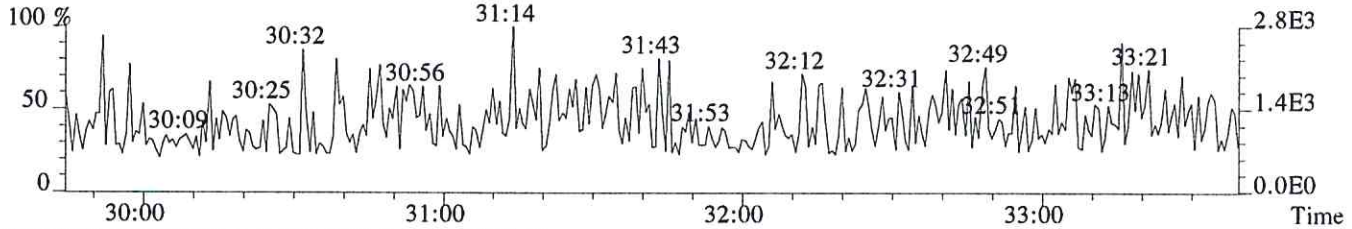
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



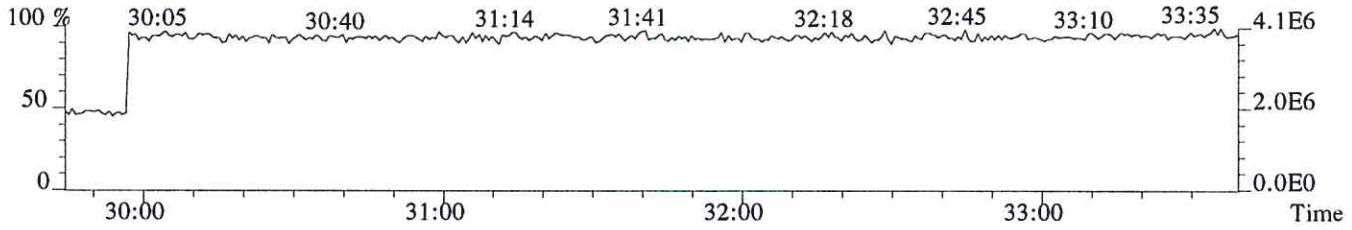
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



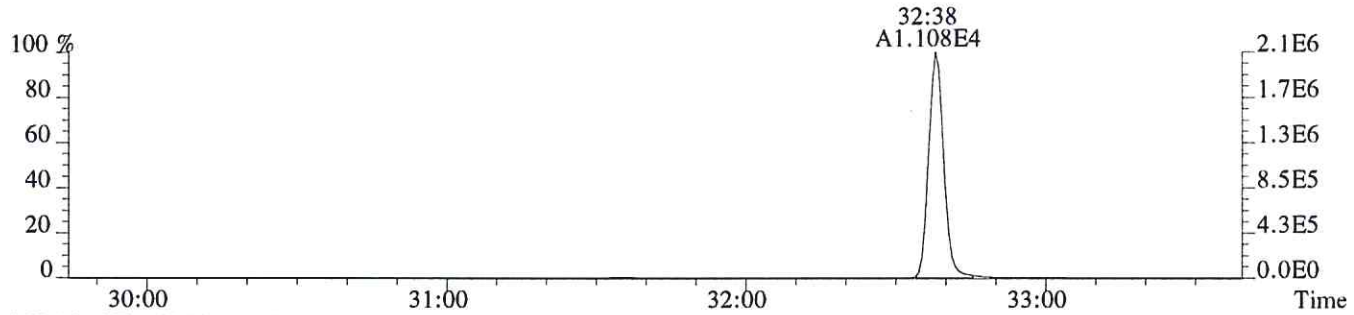
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



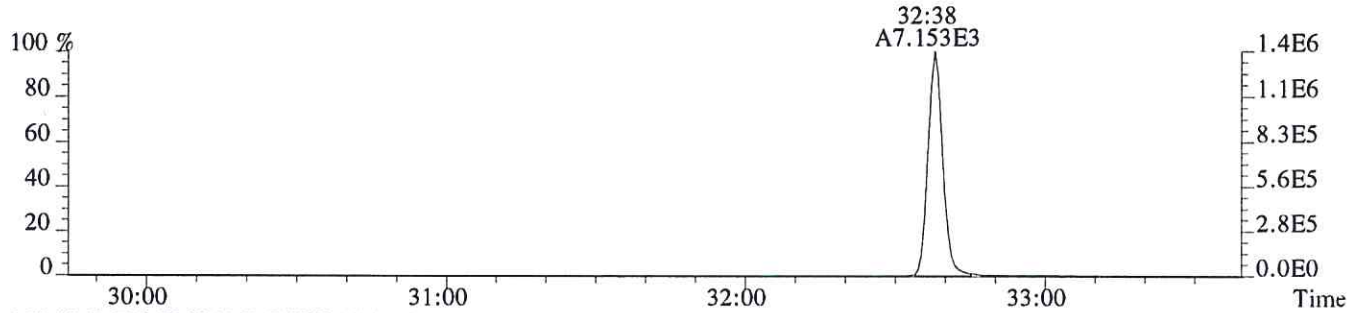
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



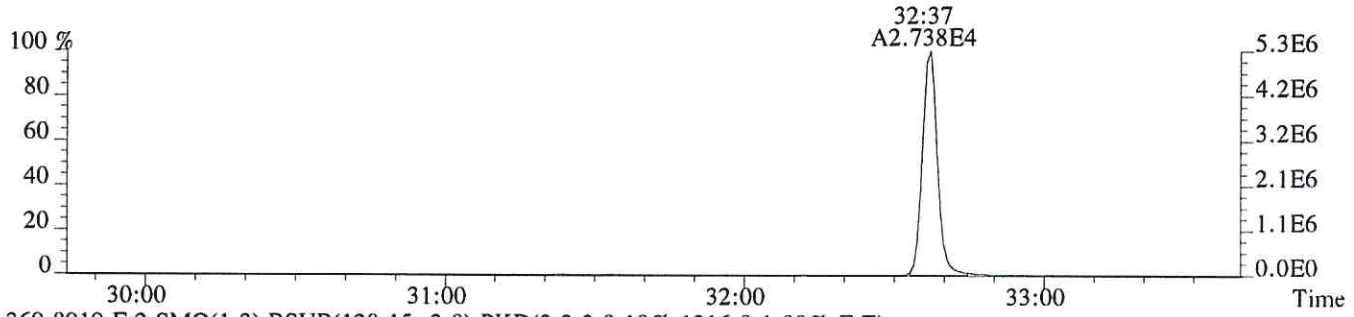
File:P405397 #1-353 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



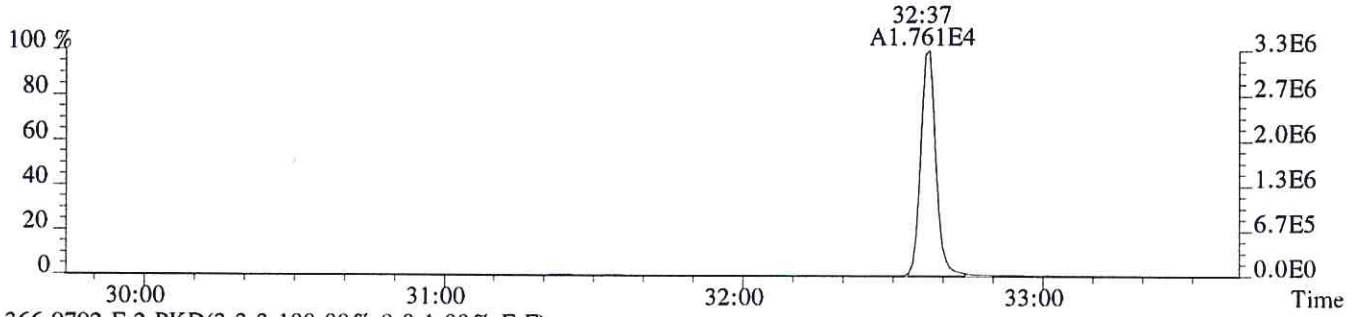
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



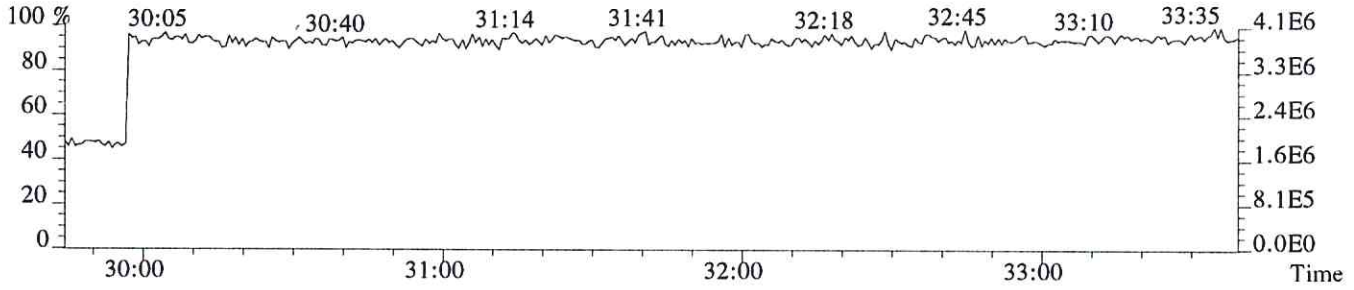
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



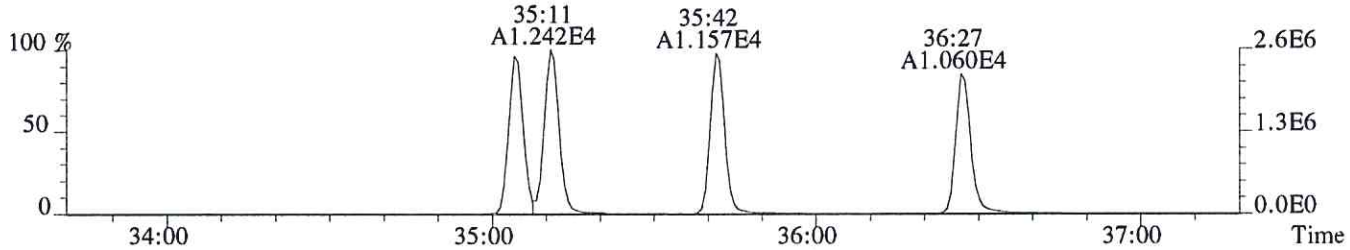
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



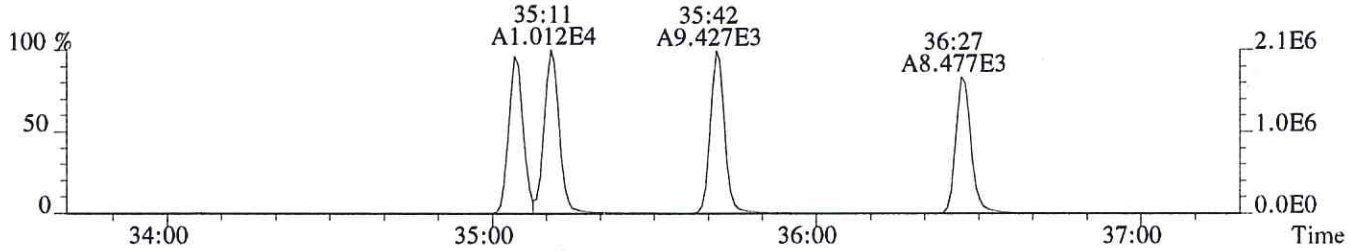
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



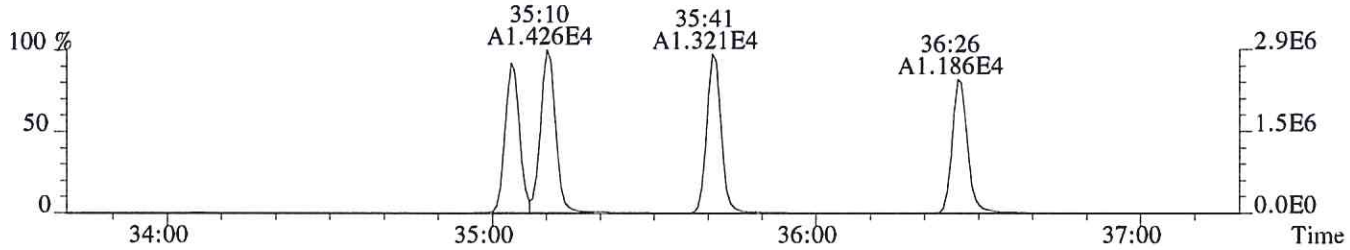
File:P405397 #1-326 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



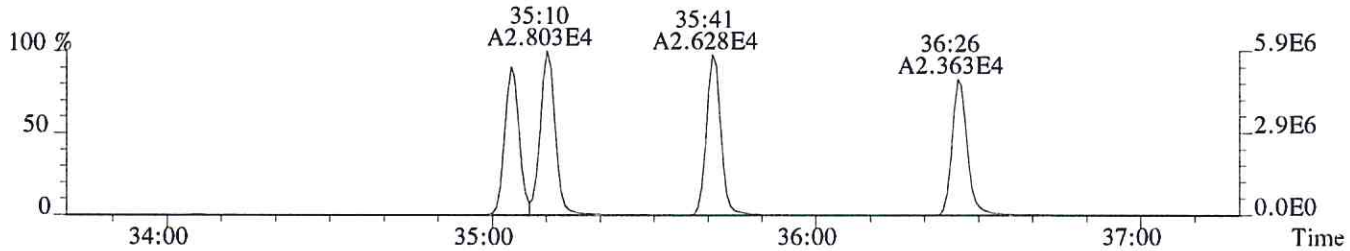
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



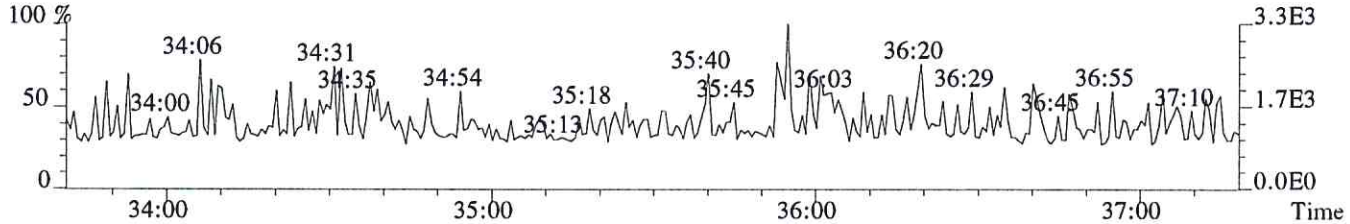
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



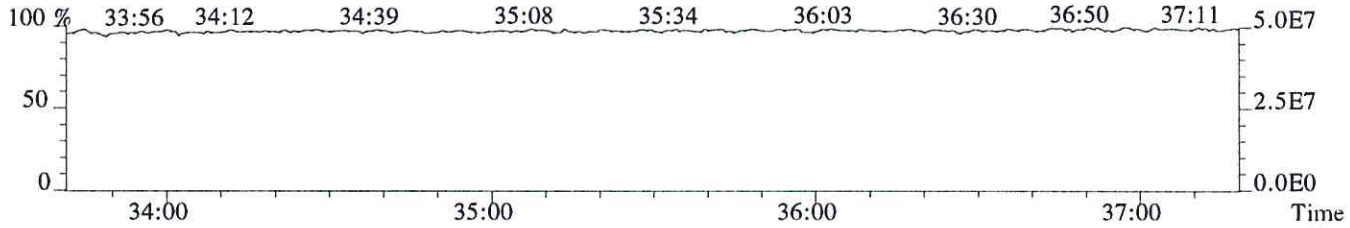
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



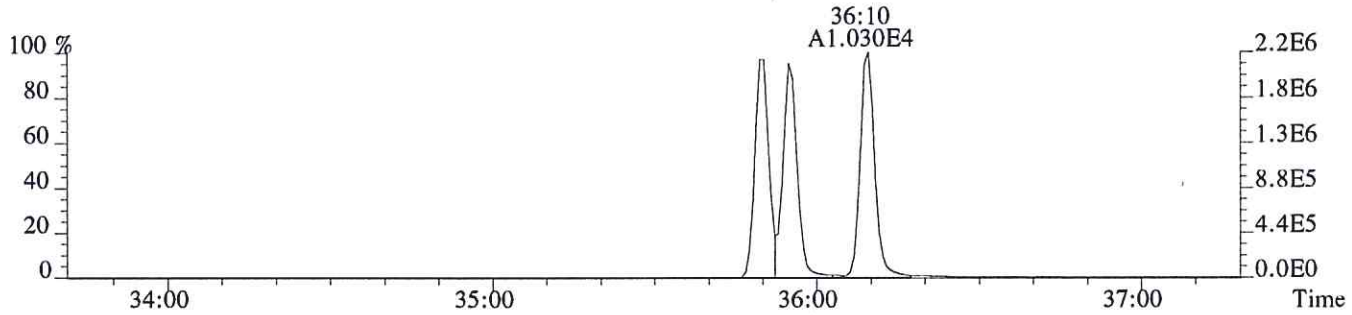
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



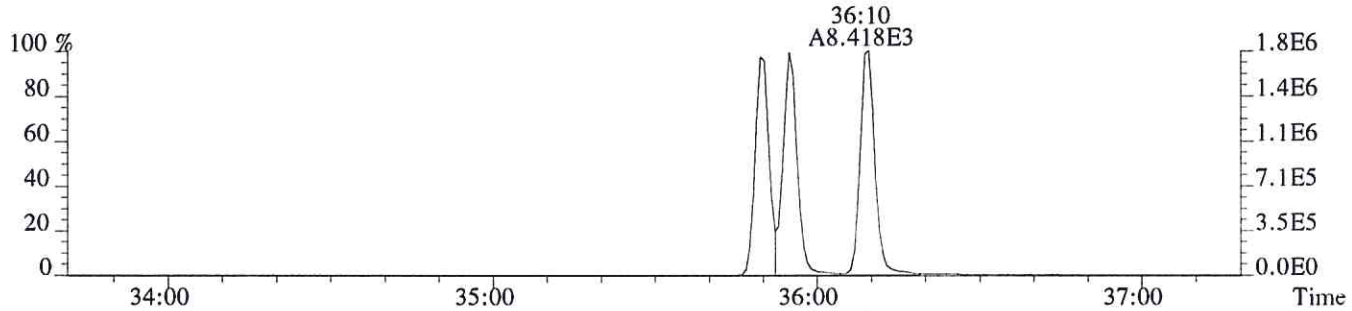
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



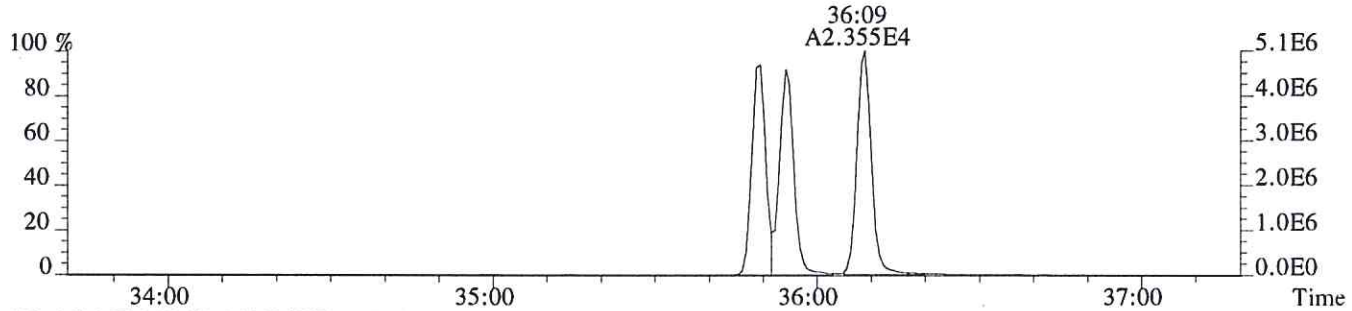
File:P405397 #1-326 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



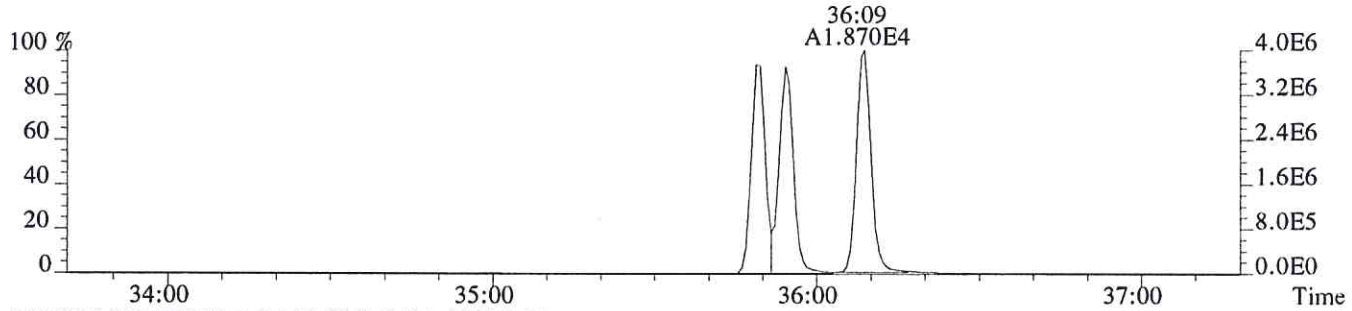
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



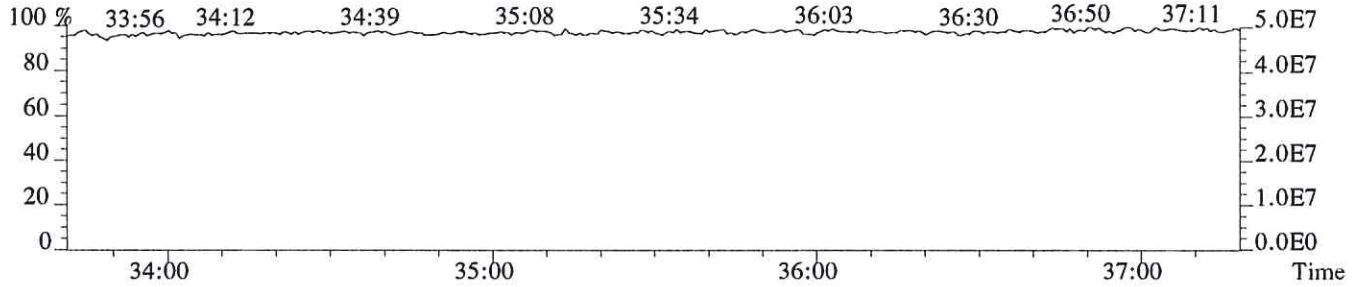
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



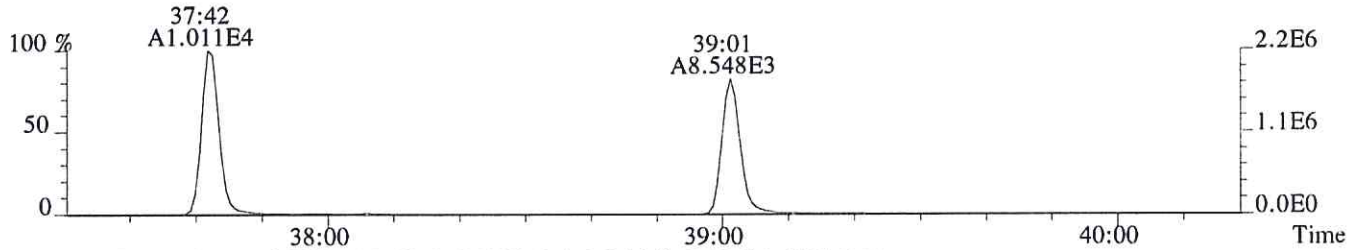
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



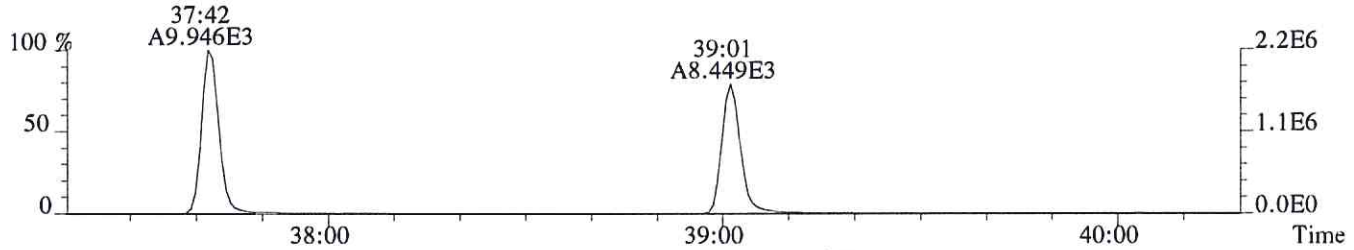
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



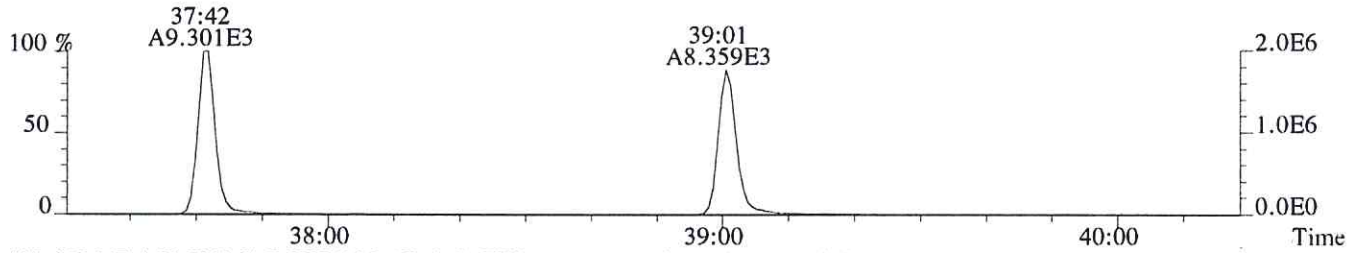
File:P405397 #1-268 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.50%,F,T)



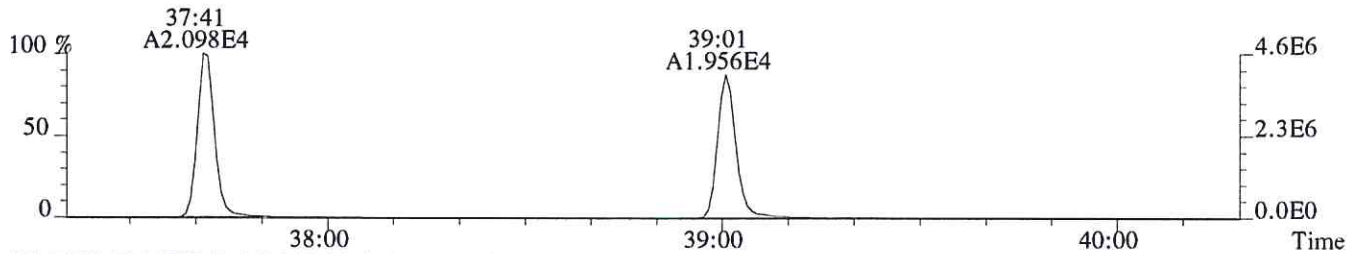
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.50%,F,T)



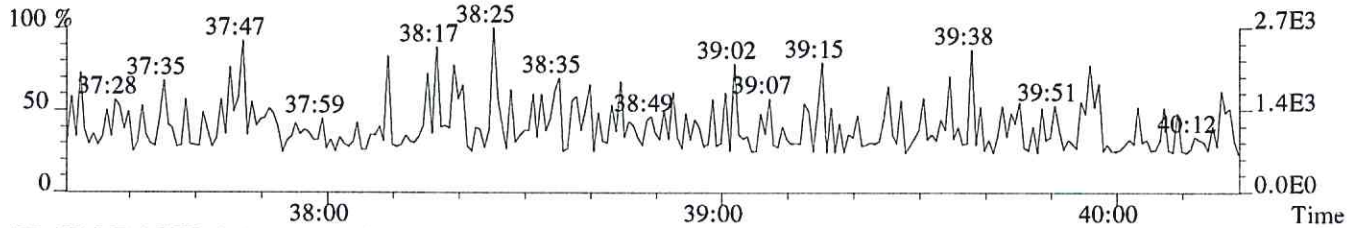
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.50%,F,T)



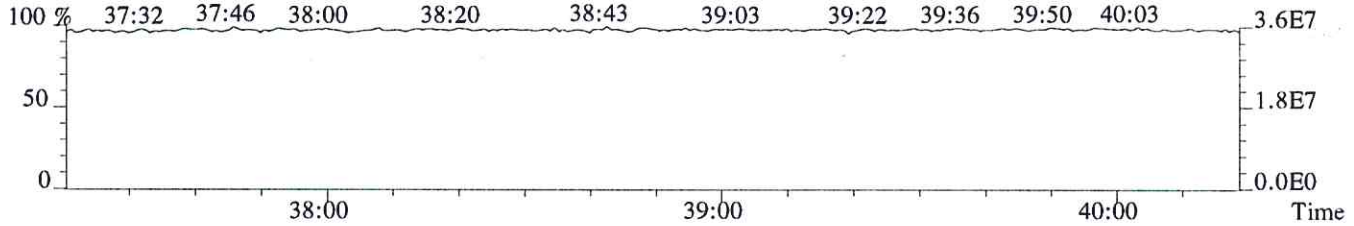
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3216.0,0.50%,F,T)



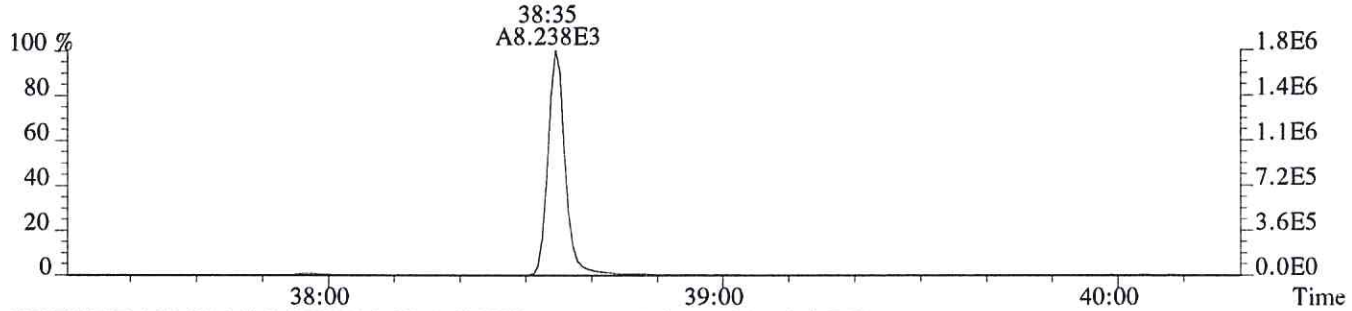
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



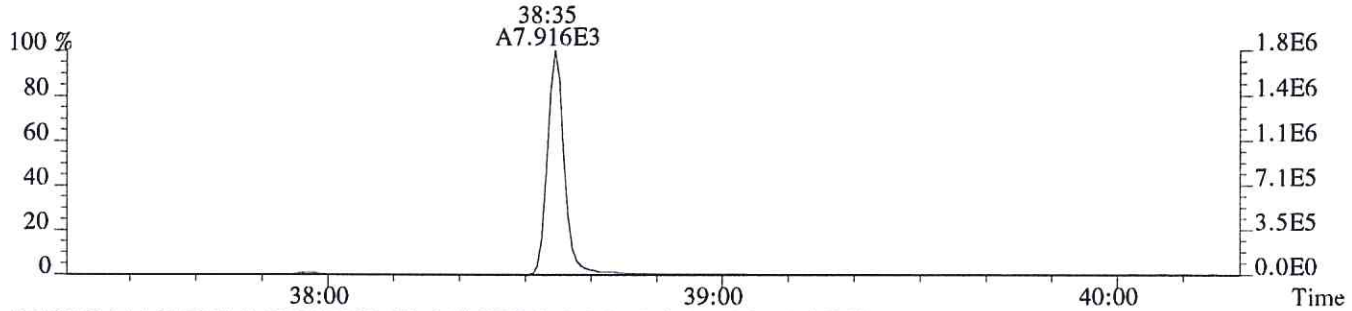
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



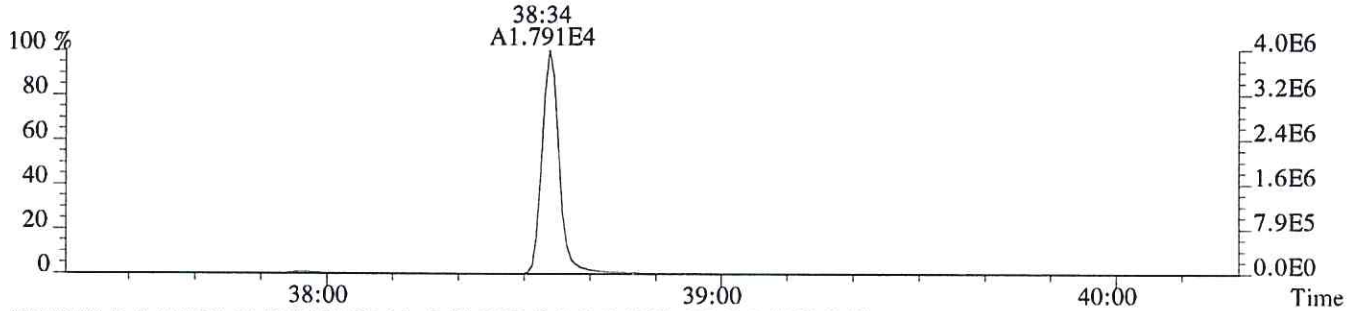
File:P405397 #1-268 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



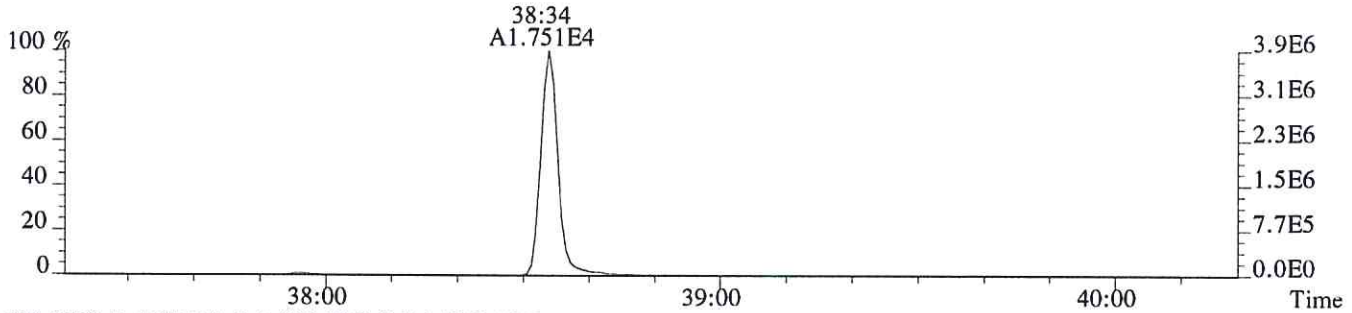
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



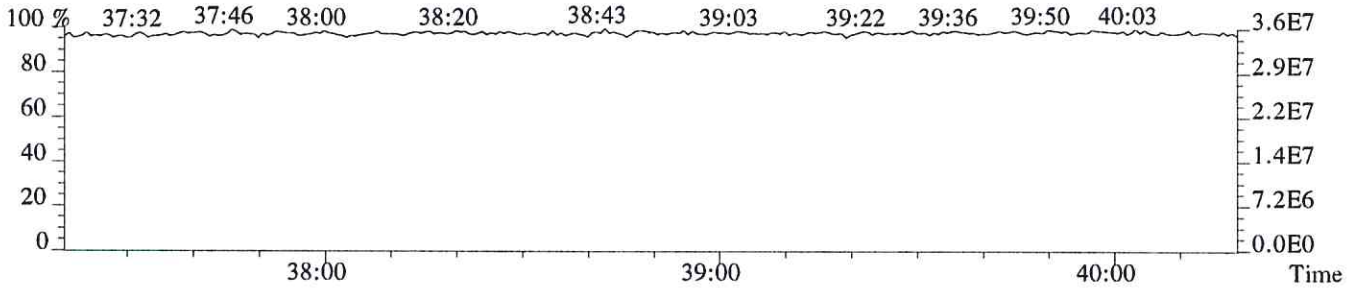
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



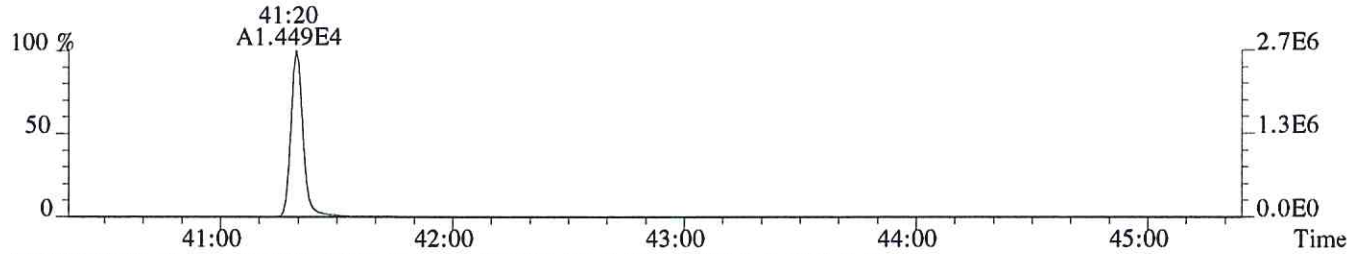
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



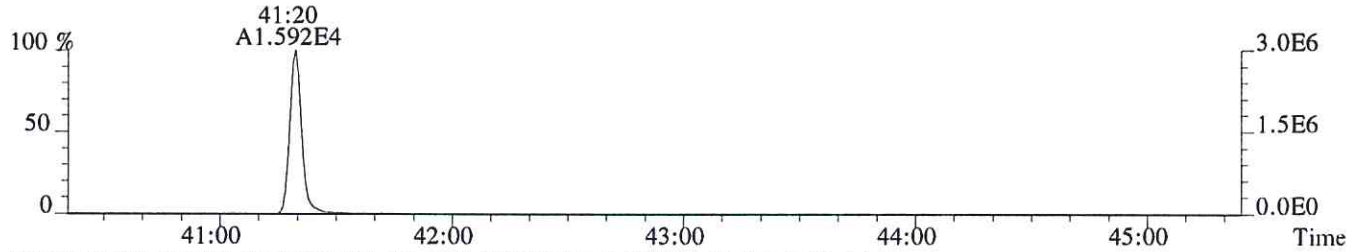
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



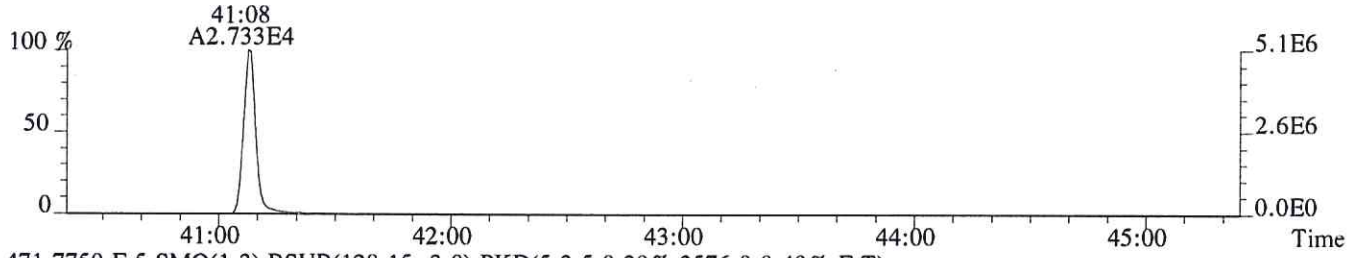
File:P405397 #1-456 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,372.0,0.40%,F,T)



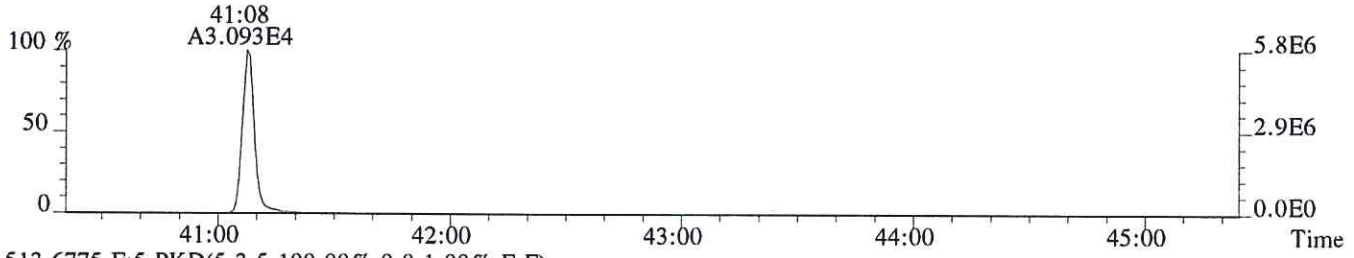
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2708.0,0.40%,F,T)



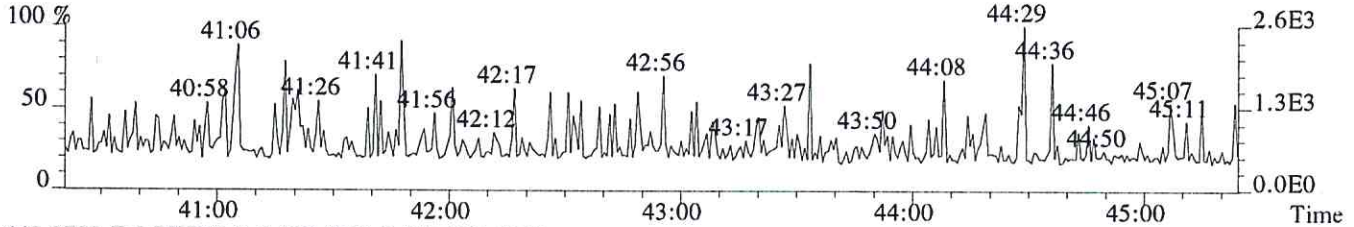
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3148.0,0.40%,F,T)



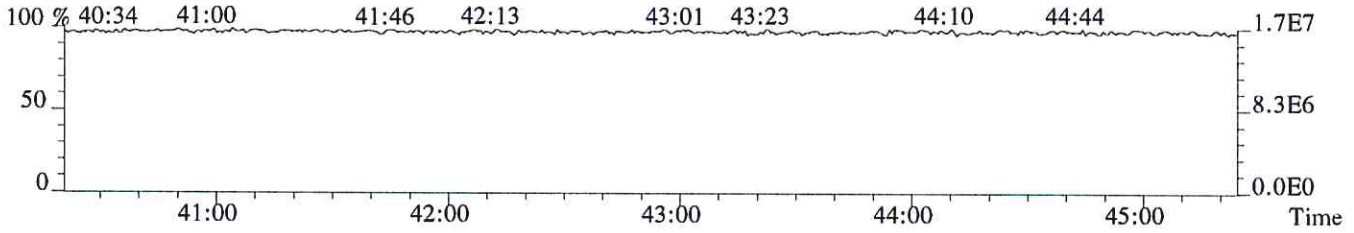
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2576.0,0.40%,F,T)



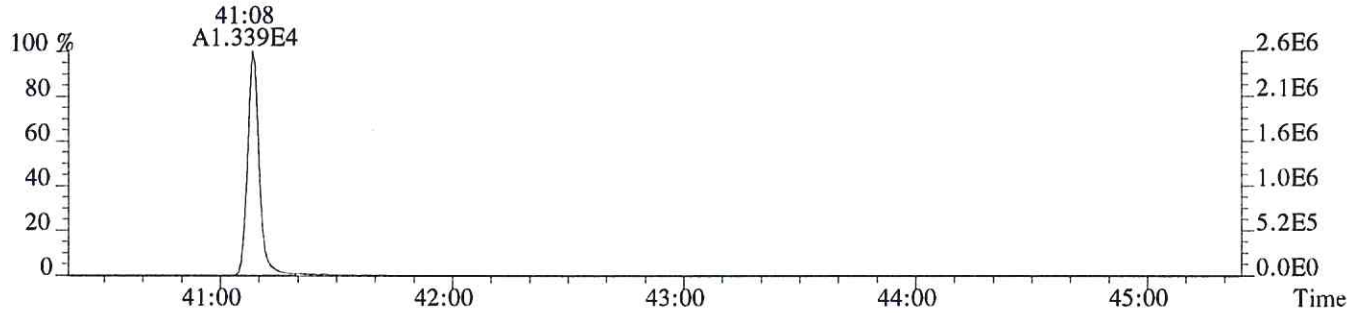
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



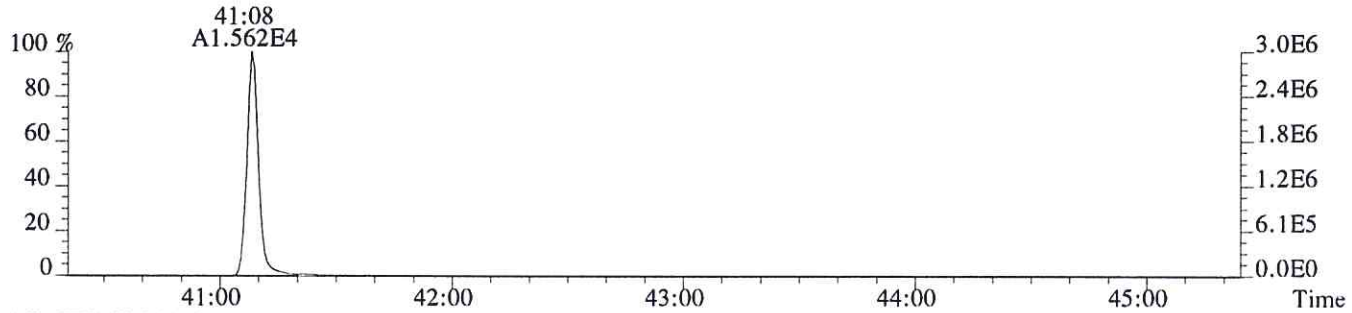
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



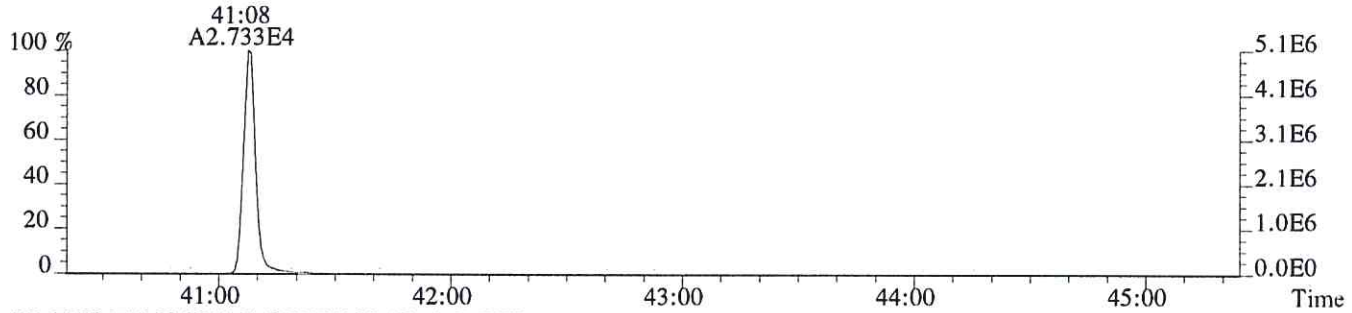
File:P405397 #1-456 Acq:15-FEB-2017 17:21:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



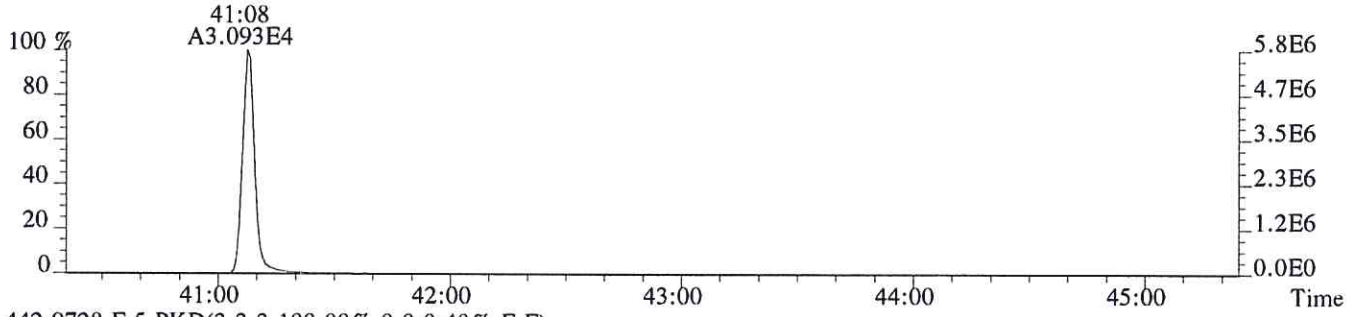
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1752.0,0.40%,F,T)



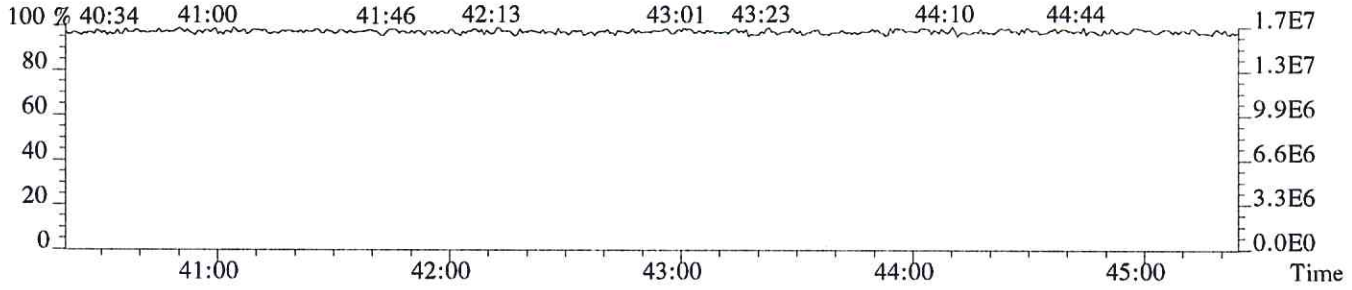
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3148.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2576.0,0.40%,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: 04/28/16

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

VER Data Filename: P405407 Analysis Date: 16-FEB-17 Time: 01:32:37

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	0.77	0.65-0.89	9.8	7.8 - 12.9	-1.8
1,2,3,7,8-PeCDD	M+2/M+4	1.52	1.32-1.78	50	39 - 65	-0.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.19	1.05-1.43	51	39 - 64	1.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	51	39 - 64	1.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	52	41 - 61	3.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.87	0.76-1.02	101	79 - 126	1.3
2,3,7,8-TCDF	M/M+2	0.73	0.65-0.89	10.1	8.4 - 12.0	1.5
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	52	41 - 60	3.5
2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	52	41 - 61	3.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	45 - 56	3.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	52	44 - 57	3.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	52	45 - 56	4.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	44 - 57	3.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	53	45 - 55	5.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	52	43 - 58	3.6
OCDF	M+2/M+4	0.89	0.76-1.02	101	63 - 159	0.6

(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: 04/28/16

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

VER Data Filename: P405407 Analysis Date: 16-FEB-17 Time: 01:32:37

	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	98	82 - 121	-2.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	109	62 - 160	9.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	102	85 - 117	1.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	102	85 - 118	2.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	106	72 - 138	6.4
13C-OCDD	M+2/M+4	0.87	0.76-1.02	226	96 - 415	13.2
13C-2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	92	71 - 140	-8.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	101	76 - 130	1.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	101	77 - 130	1.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.50	0.43-0.59	98	76 - 131	-2.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	97	70 - 143	-3.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.49	0.43-0.59	99	74 - 135	-1.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	98	73 - 137	-2.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	101	78 - 129	0.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	101	77 - 129	0.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-2.7

(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.
178519

Run #18 Filename P405407 Samp: 1 Inj: 1 Acquired: 16-FEB-17 01:32:37
Processed: 16-FEB-17 14:19:16 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:53	1.782e+03	2.440e+03	0.73	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	31:24	1.577e+04	1.031e+04	1.53	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	32:21	1.487e+04	9.445e+03	1.57	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	35:05	1.349e+04	1.093e+04	1.23	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	35:12	1.463e+04	1.203e+04	1.22	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	35:42	1.341e+04	1.085e+04	1.24	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	36:28	1.218e+04	9.904e+03	1.23	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	1.218e+04	1.194e+04	1.02	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:02	1.004e+04	9.931e+03	1.01	yes	no	1.187
10	Unk	OCDF	41:20	1.726e+04	1.946e+04	0.89	yes	no	1.035
11	Unk	2,3,7,8-TCDD	27:45	1.831e+03	2.394e+03	0.77	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	32:39	1.261e+04	8.282e+03	1.52	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	35:51	1.072e+04	8.969e+03	1.19	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	35:56	1.182e+04	9.321e+03	1.27	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	1.231e+04	9.982e+03	1.23	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:35	9.814e+03	9.443e+03	1.04	yes	no	0.882
17	Unk	OCDD	41:09	1.626e+04	1.875e+04	0.87	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:52	2.333e+04	3.078e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	3.512e+04	2.263e+04	1.55	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:21	3.486e+04	2.226e+04	1.57	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	1.424e+04	2.870e+04	0.50	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:11	1.692e+04	3.334e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	1.561e+04	3.040e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	1.357e+04	2.741e+04	0.49	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:43	1.125e+04	2.559e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:01	9.894e+03	2.261e+04	0.44	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:44	2.151e+04	2.777e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:38	3.178e+04	2.051e+04	1.55	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	2.422e+04	1.967e+04	1.23	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:55	2.590e+04	2.096e+04	1.24	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	2.184e+04	2.091e+04	1.04	yes	no	0.817
32	IS	13C-OCDD	41:08	3.292e+04	3.766e+04	0.87	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:06	2.268e+04	2.921e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:10	2.726e+04	2.188e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	4.838e+03				no	0.958

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Signal/Noise Height Ratio Summary

CLIENT ID.
178519

Run #18 Filename P405407 Samp: 1 Inj: 1 Acquired: 16-FEB-17 01:32:37
Processed: 16-FEB-17 14:19:16 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	2.73e+05	5.88e+02	4.6e+02	3.78e+05	8.36e+02	4.5e+02
2	1,2,3,7,8-PeCDF	2.82e+06	4.60e+02	6.1e+03	1.84e+06	4.12e+02	4.5e+03
3	2,3,4,7,8-PeCDF	2.89e+06	4.60e+02	6.3e+03	1.81e+06	4.12e+02	4.4e+03
4	1,2,3,4,7,8-HxCDF	2.93e+06	4.40e+02	6.7e+03	2.37e+06	4.96e+02	4.8e+03
5	1,2,3,6,7,8-HxCDF	3.00e+06	4.40e+02	6.8e+03	2.46e+06	4.96e+02	5.0e+03
6	2,3,4,6,7,8-HxCDF	2.87e+06	4.40e+02	6.5e+03	2.37e+06	4.96e+02	4.8e+03
7	1,2,3,7,8,9-HxCDF	2.44e+06	4.40e+02	5.5e+03	2.00e+06	4.96e+02	4.0e+03
8	1,2,3,4,6,7,8-HpCDF	2.64e+06	1.17e+03	2.3e+03	2.61e+06	1.64e+03	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	2.08e+06	1.17e+03	1.8e+03	2.06e+06	1.64e+03	1.3e+03
10	OCDF	3.21e+06	5.96e+02	5.4e+03	3.58e+06	8.36e+02	4.3e+03
11	2,3,7,8-TCDD	3.10e+05	9.12e+02	3.4e+02	4.04e+05	5.48e+02	7.4e+02
12	1,2,3,7,8-PeCDD	2.43e+06	4.52e+02	5.4e+03	1.59e+06	2.64e+02	6.0e+03
13	1,2,3,4,7,8-HxCDD	2.45e+06	2.52e+02	9.7e+03	2.05e+06	2.44e+02	8.4e+03
14	1,2,3,6,7,8-HxCDD	2.47e+06	2.52e+02	9.8e+03	1.95e+06	2.44e+02	8.0e+03
15	1,2,3,7,8,9-HxCDD	2.53e+06	2.52e+02	1.0e+04	2.06e+06	2.44e+02	8.5e+03
16	1,2,3,4,6,7,8-HpCDD	2.12e+06	7.84e+02	2.7e+03	2.08e+06	5.40e+02	3.8e+03
17	OCDD	3.09e+06	2.17e+03	1.4e+03	3.54e+06	1.20e+03	3.0e+03
18	13C-2,3,7,8-TCDF	3.61e+06	6.03e+03	6.0e+02	4.78e+06	2.32e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	6.25e+06	1.60e+02	3.9e+04	4.00e+06	4.96e+02	8.1e+03
20	13C-2,3,4,7,8-PeCDF	6.60e+06	1.60e+02	4.1e+04	4.17e+06	4.96e+02	8.4e+03
21	13C-1,2,3,4,7,8-HxCDF	3.09e+06	4.36e+02	7.1e+03	6.31e+06	6.44e+02	9.8e+03
22	13C-1,2,3,6,7,8-HxCDF	3.49e+06	4.36e+02	8.0e+03	6.91e+06	6.44e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	3.34e+06	4.36e+02	7.7e+03	6.51e+06	6.44e+02	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	2.78e+06	4.36e+02	6.4e+03	5.46e+06	6.44e+02	8.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.42e+06	1.54e+03	1.6e+03	5.51e+06	2.57e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.03e+06	1.54e+03	1.3e+03	4.62e+06	2.57e+03	1.8e+03
27	13C-2,3,7,8-TCDD	3.71e+06	2.78e+03	1.3e+03	4.80e+06	1.77e+03	2.7e+03
28	13C-1,2,3,7,8-PeCDD	5.96e+06	4.80e+02	1.2e+04	3.83e+06	7.40e+02	5.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.49e+06	5.16e+02	1.1e+04	4.45e+06	3.40e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.41e+06	5.16e+02	1.0e+04	4.46e+06	3.40e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.79e+06	8.08e+02	5.9e+03	4.60e+06	8.40e+02	5.5e+03
32	13C-OCDD	6.18e+06	2.59e+03	2.4e+03	7.10e+06	6.10e+03	1.2e+03
33	13C-1,2,3,4-TCDD	3.80e+06	2.78e+03	1.4e+03	4.94e+06	1.77e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.83e+06	5.16e+02	1.1e+04	4.65e+06	3.40e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	8.17e+05	8.76e+02	9.3e+02			

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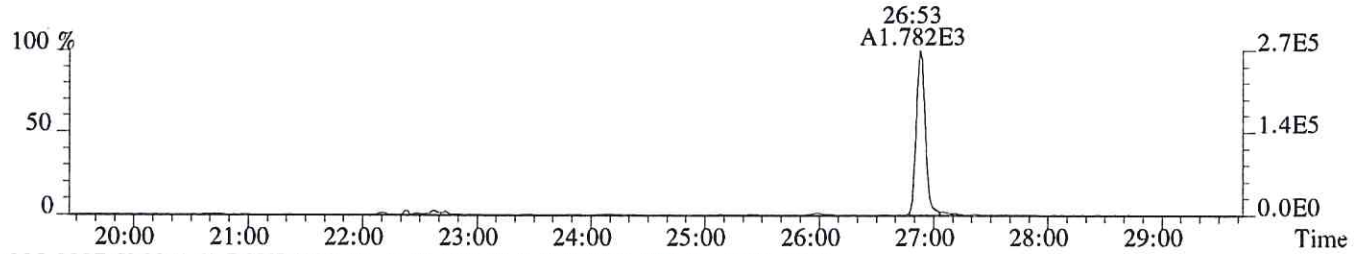
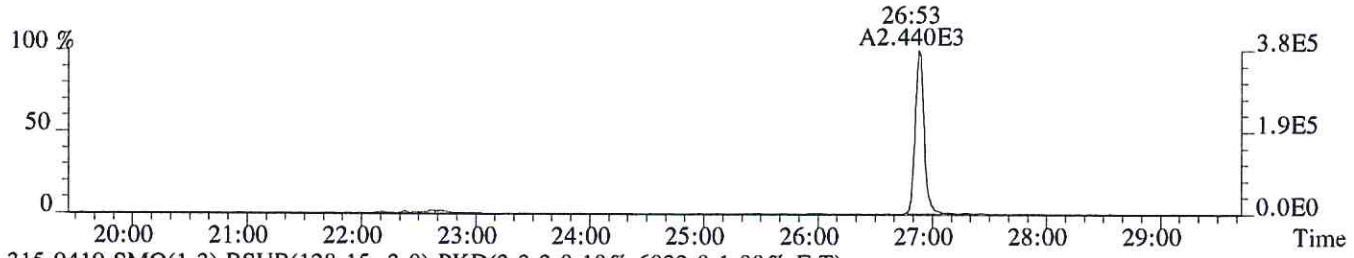
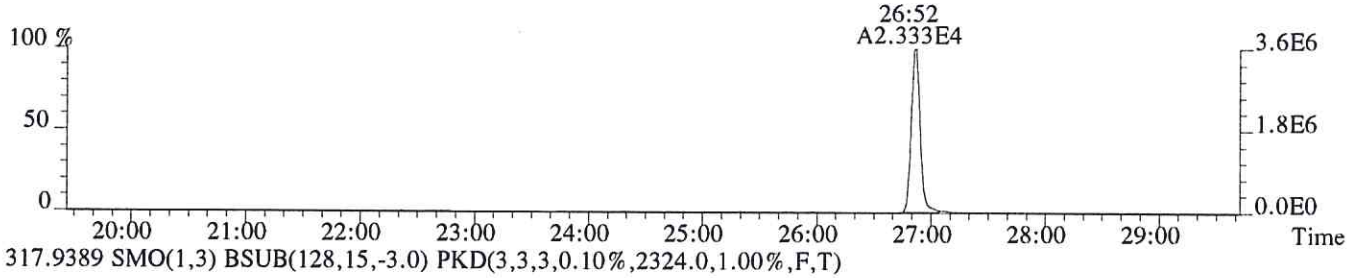
File:P405407 #1-729 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



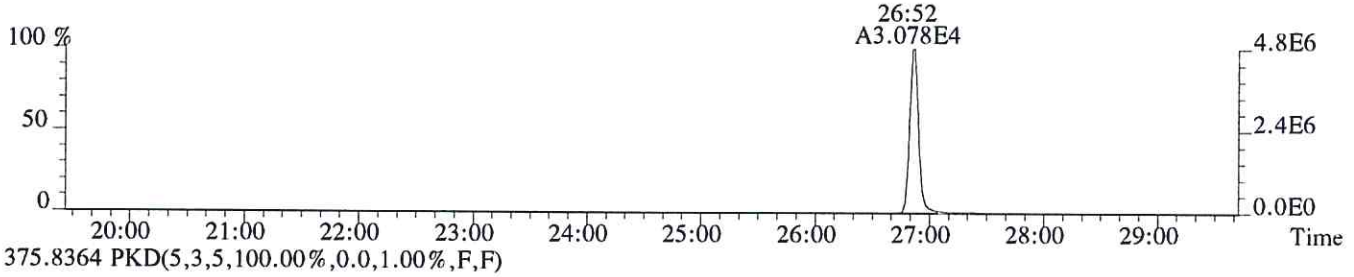
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



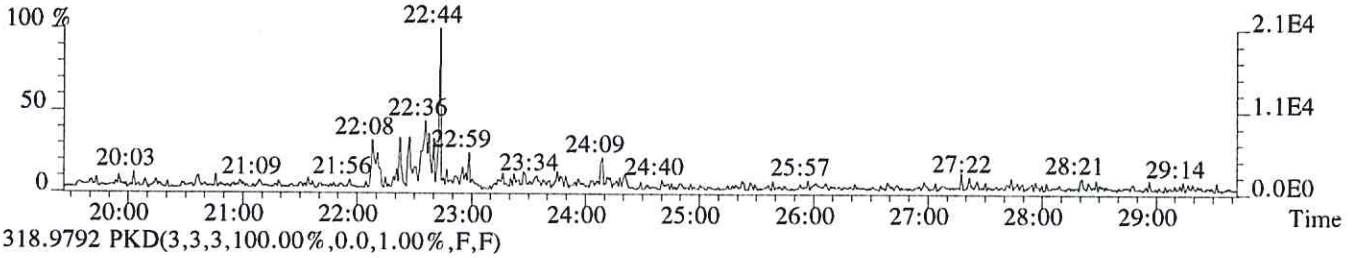
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6032.0,1.00%,F,T)



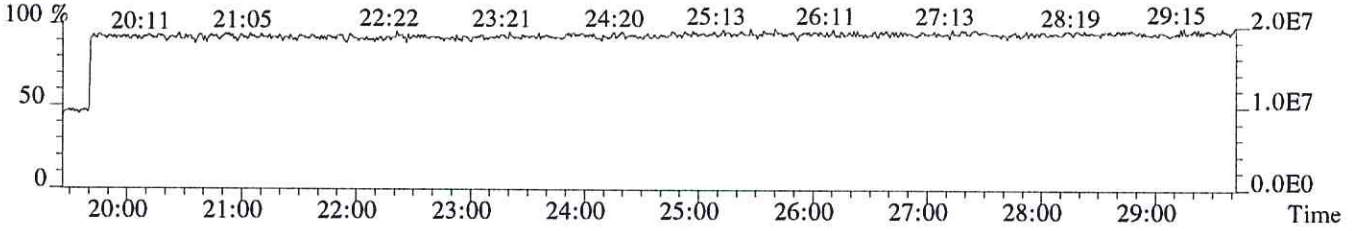
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2324.0,1.00%,F,T)



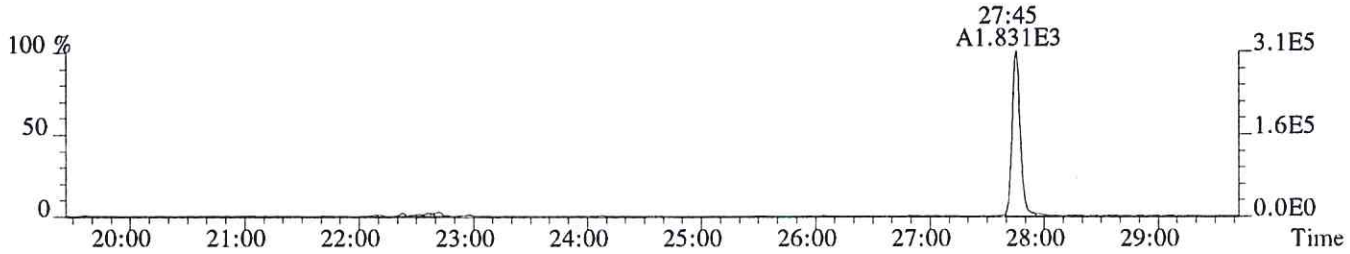
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



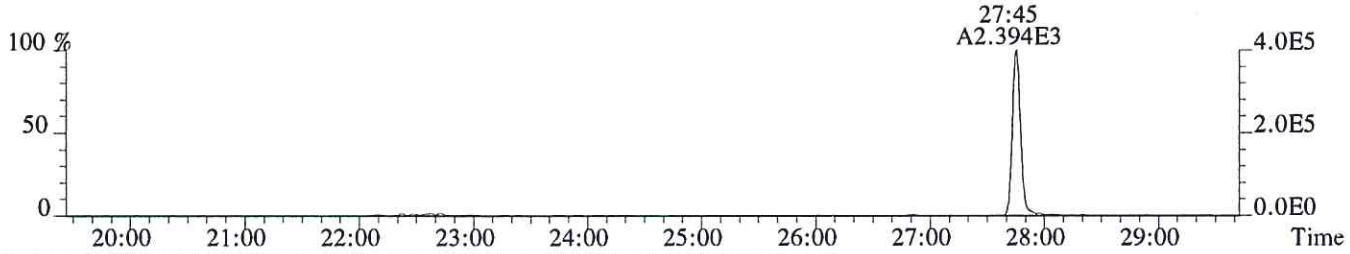
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



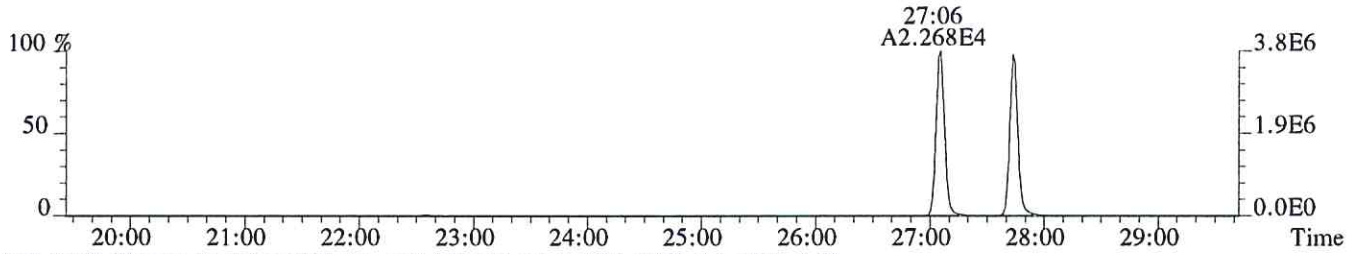
File:P405407 #1-729 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



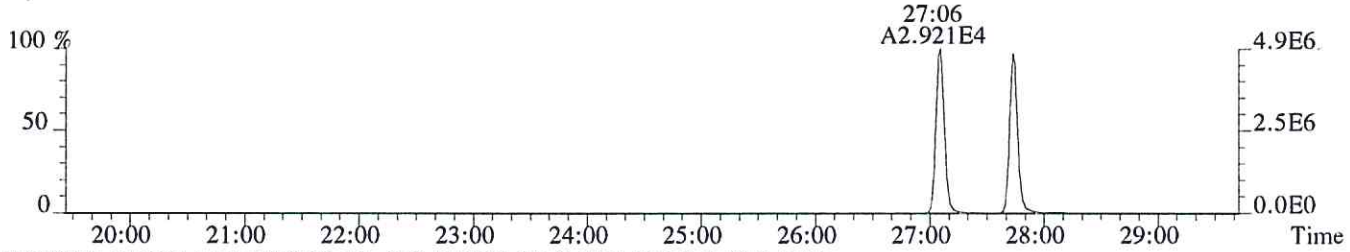
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



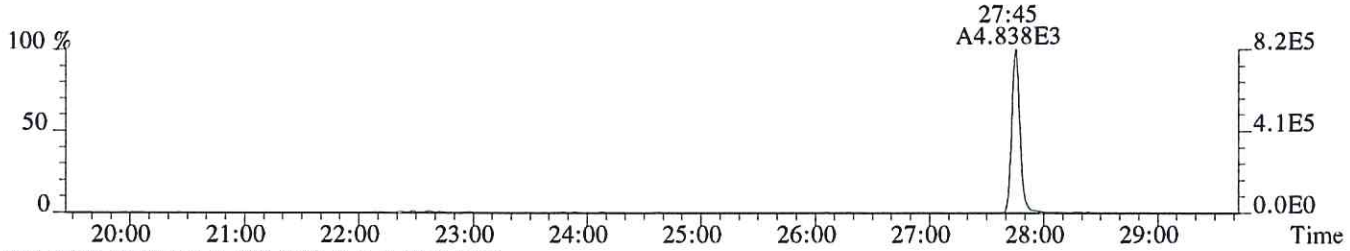
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2784.0,1.00%,F,T)



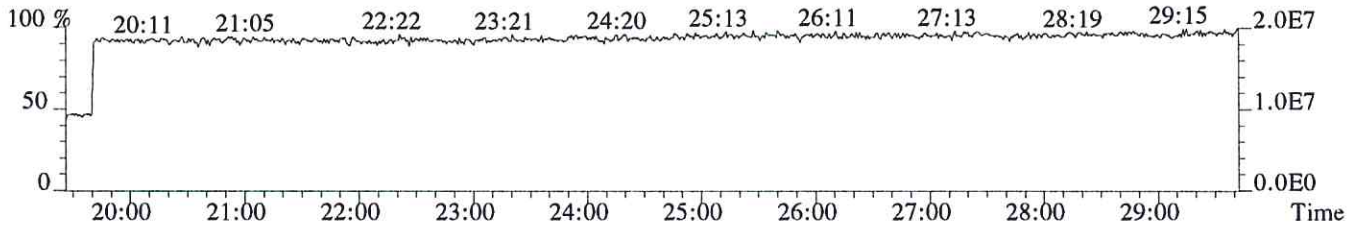
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



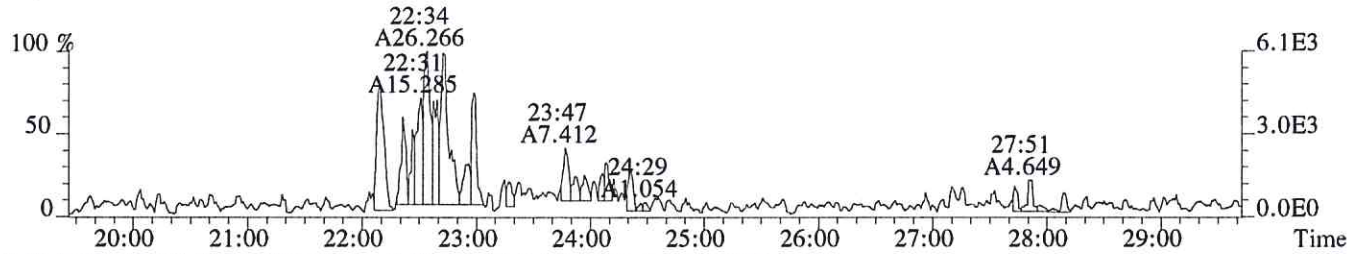
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



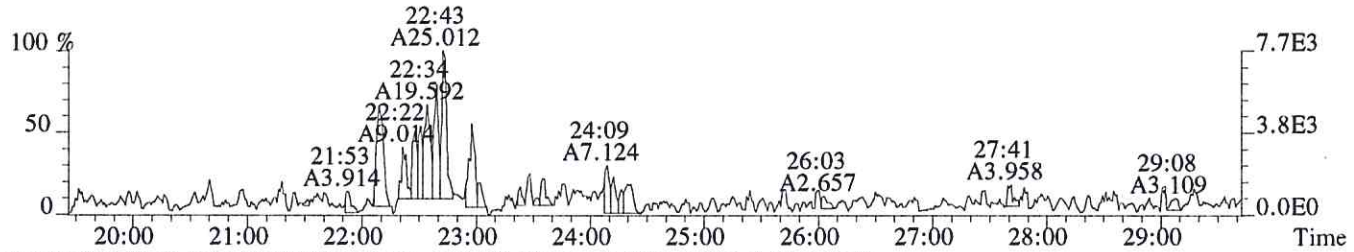
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



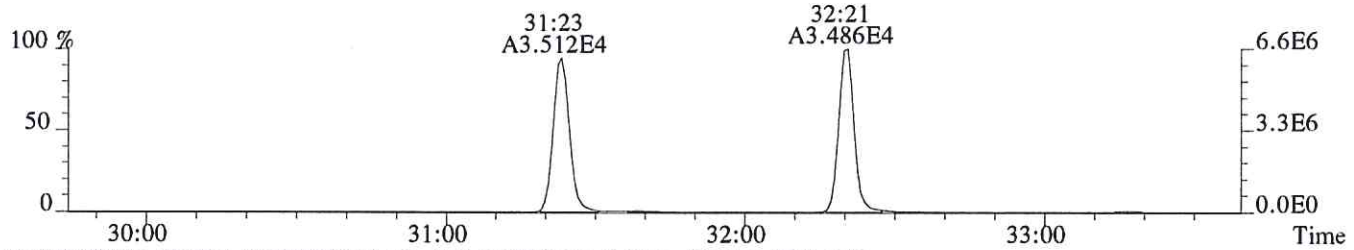
File:P405407 #1-729 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



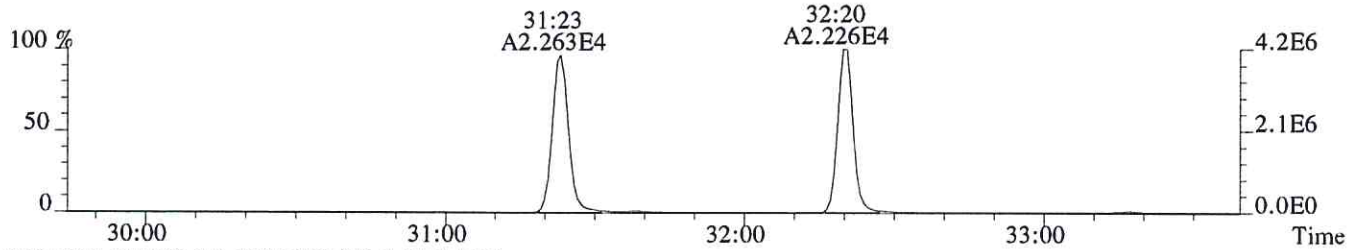
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



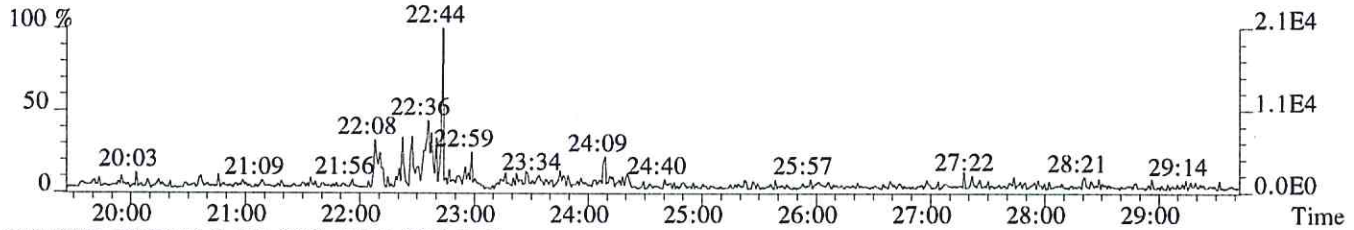
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



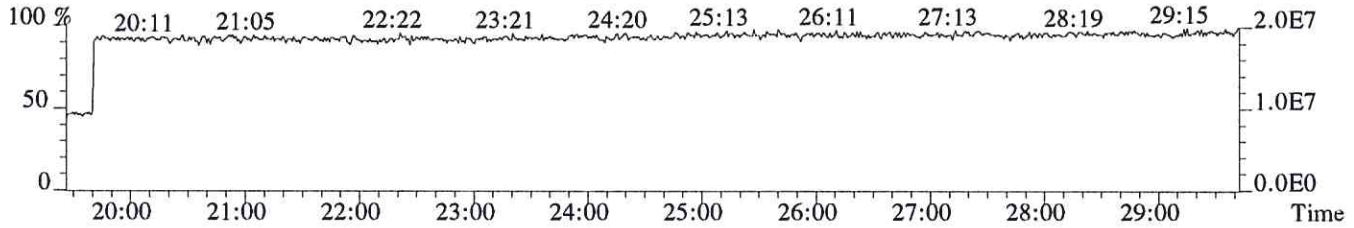
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



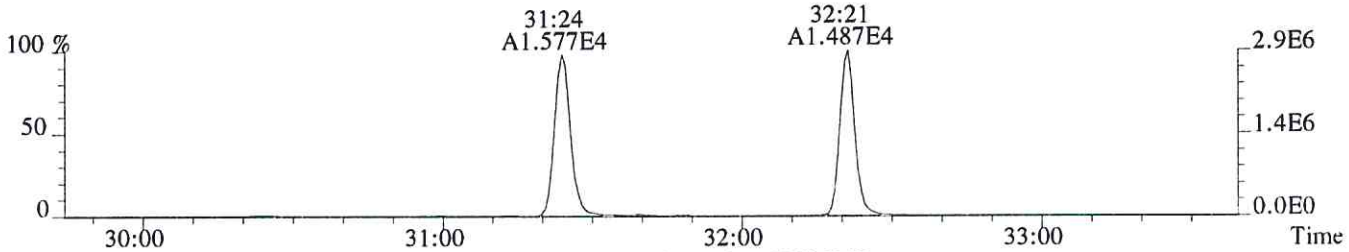
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



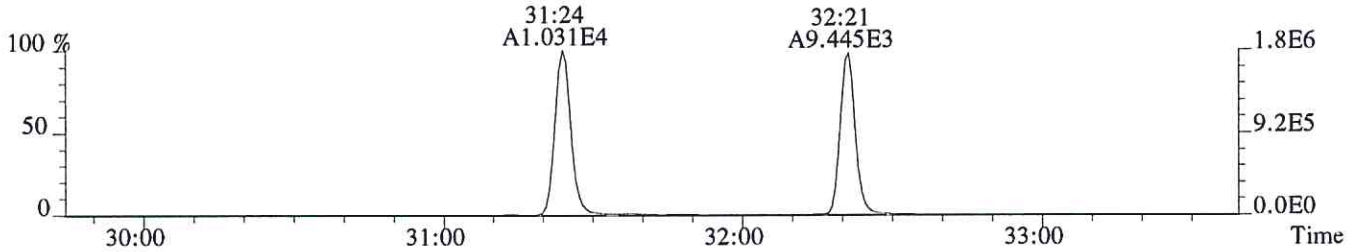
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



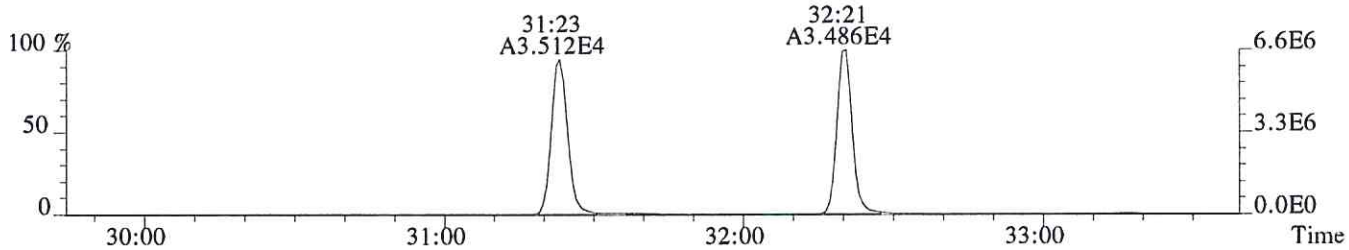
File:P405407 #1-353 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



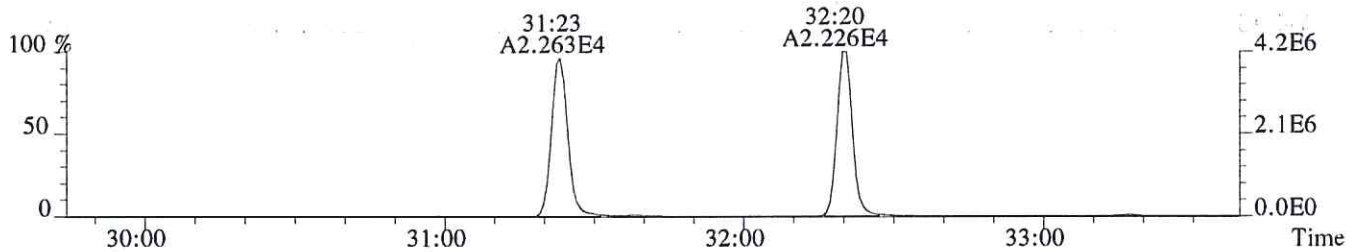
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



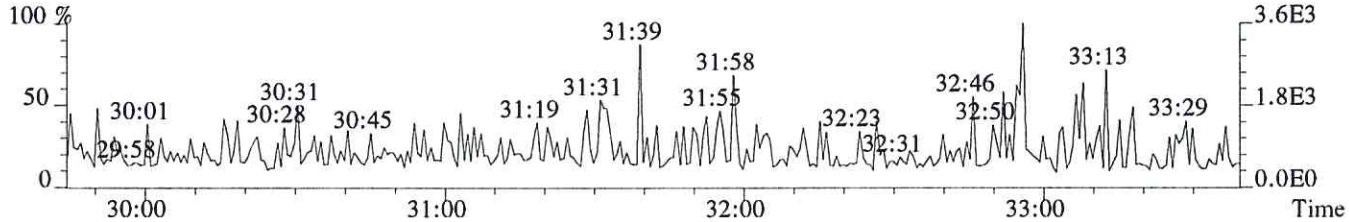
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)



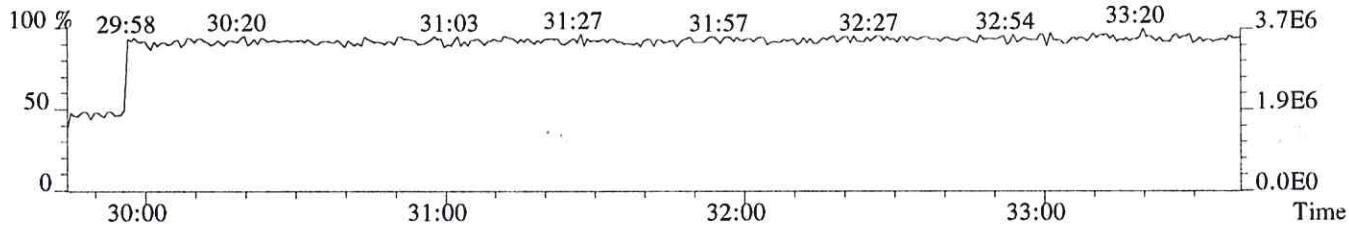
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



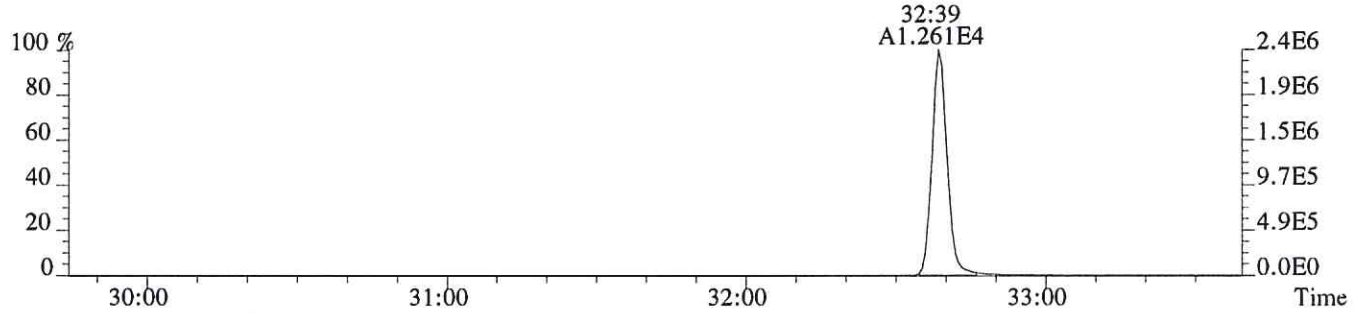
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



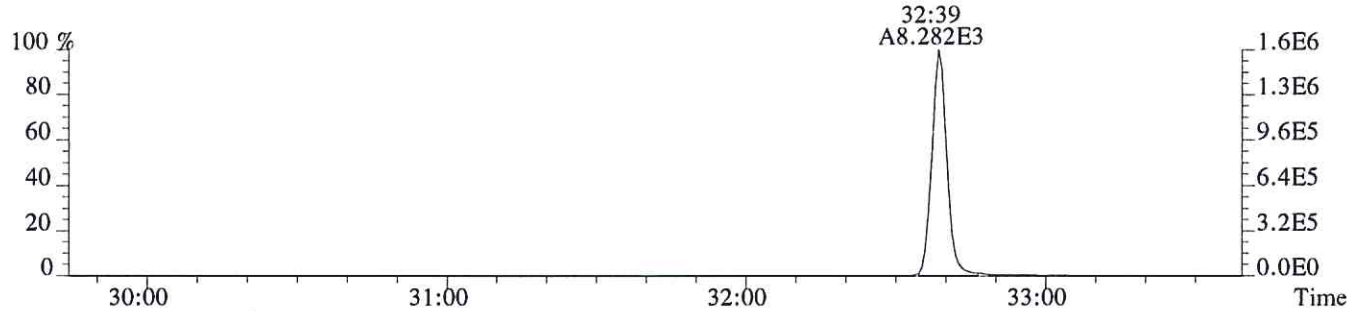
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



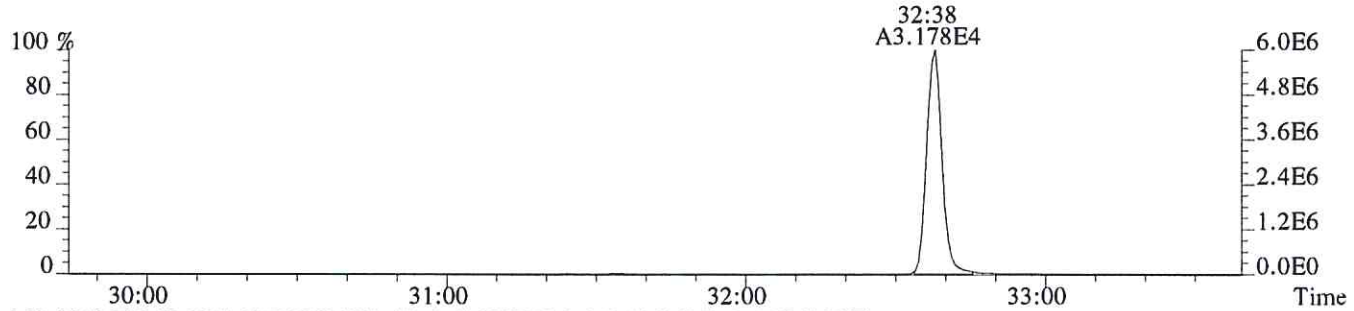
File:P405407 #1-353 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



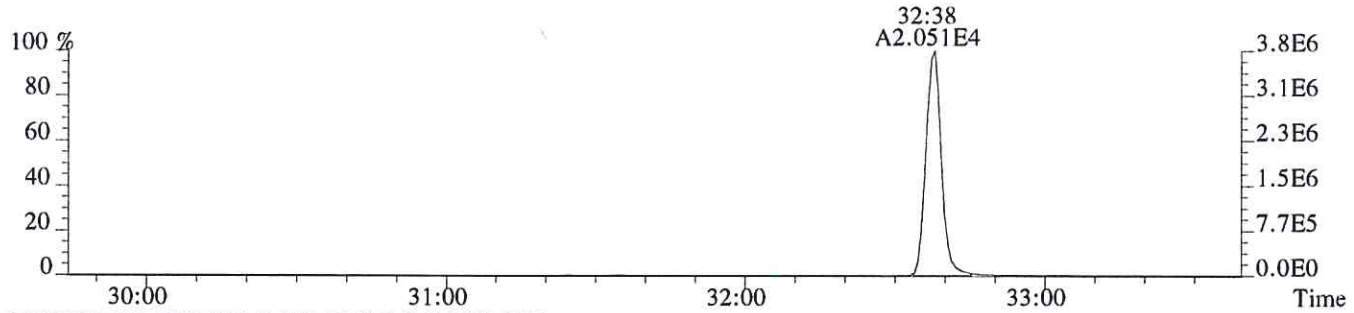
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



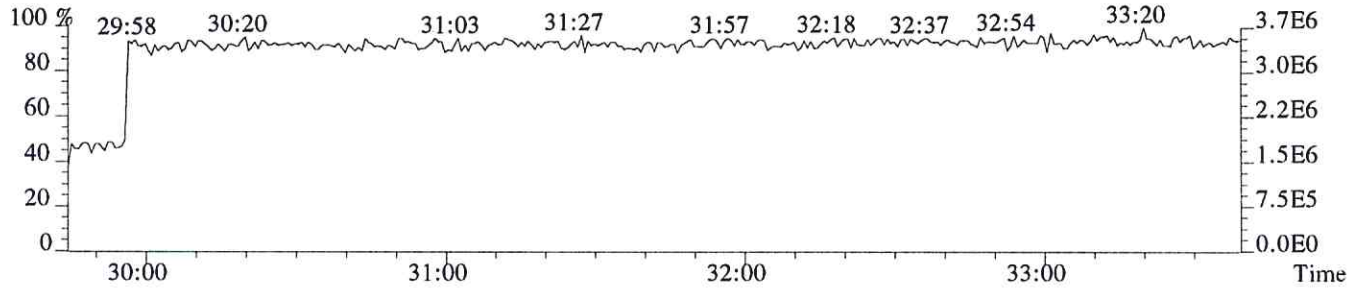
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



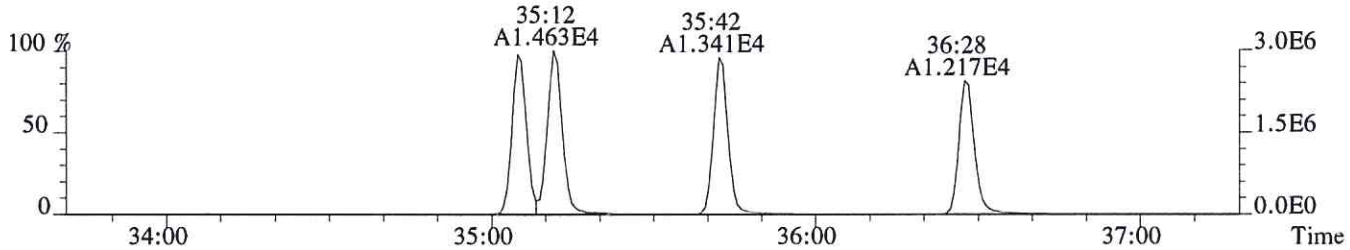
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



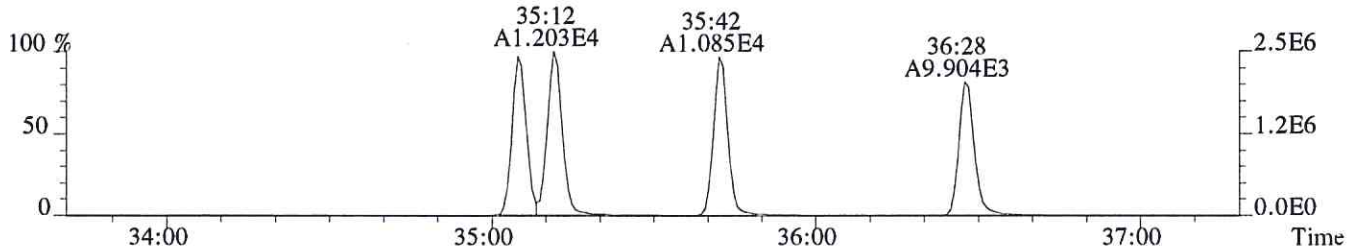
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



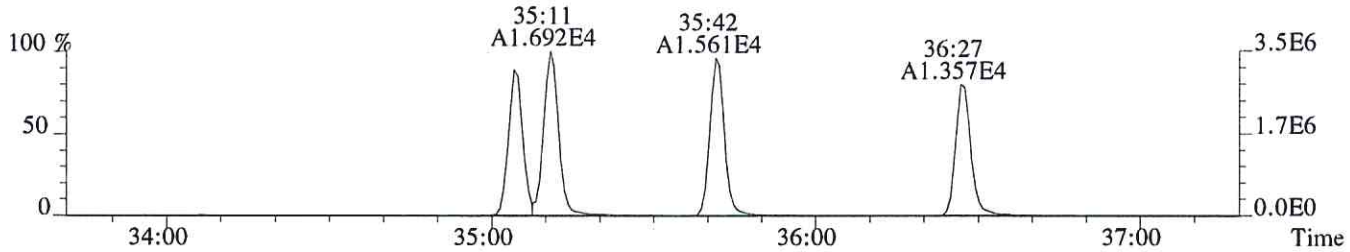
File:P405407 #1-326 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



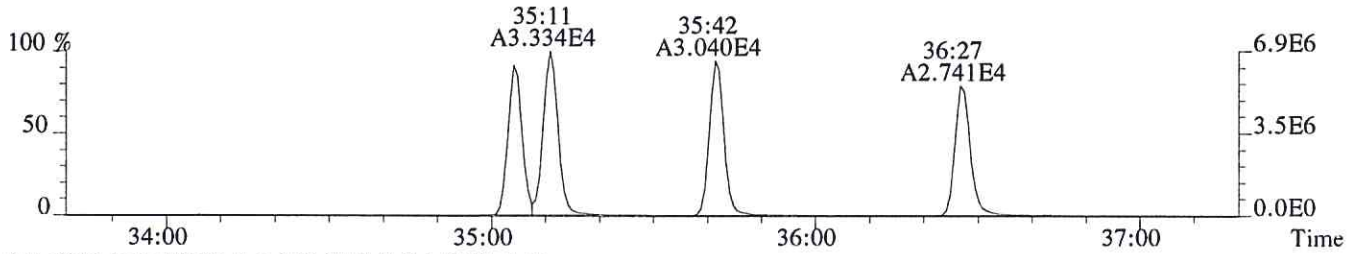
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



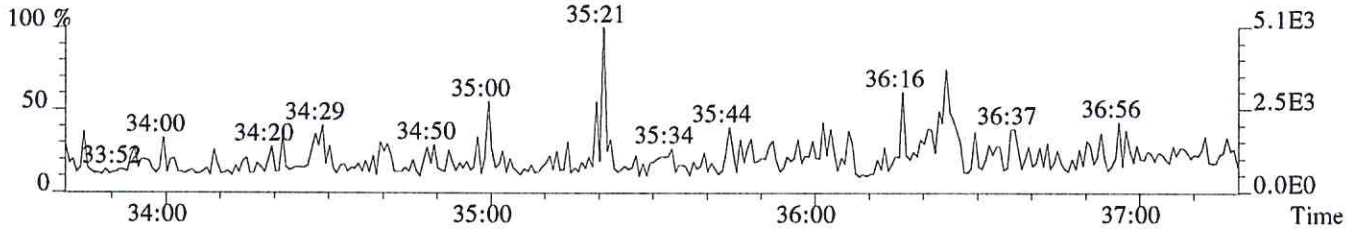
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



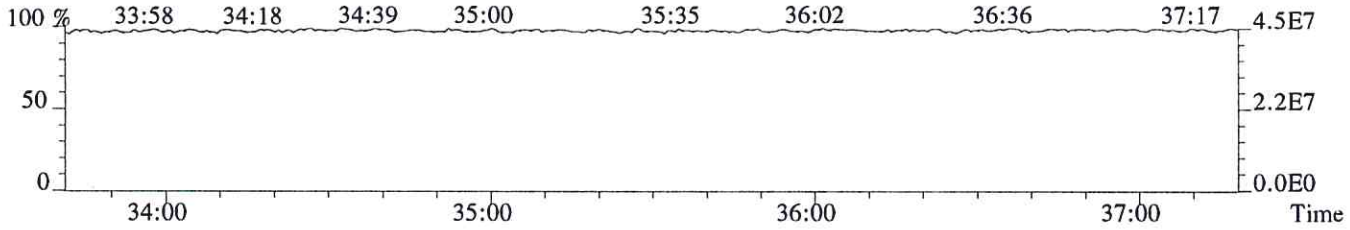
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



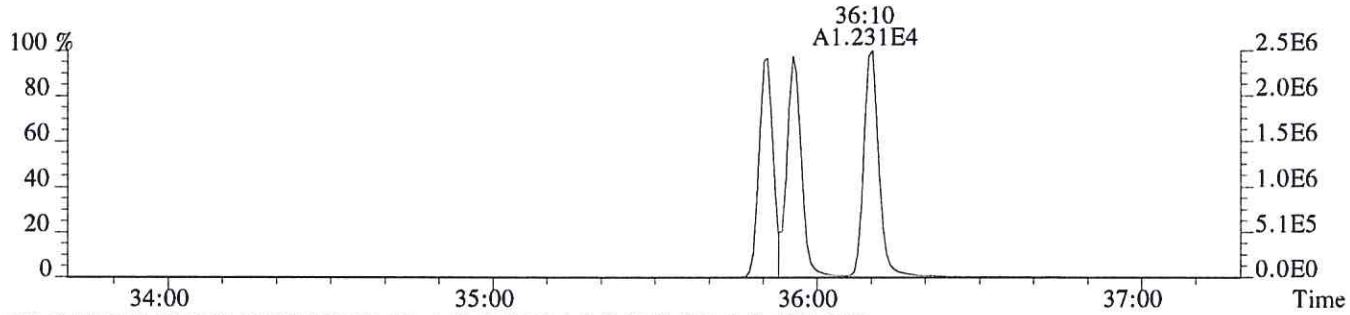
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



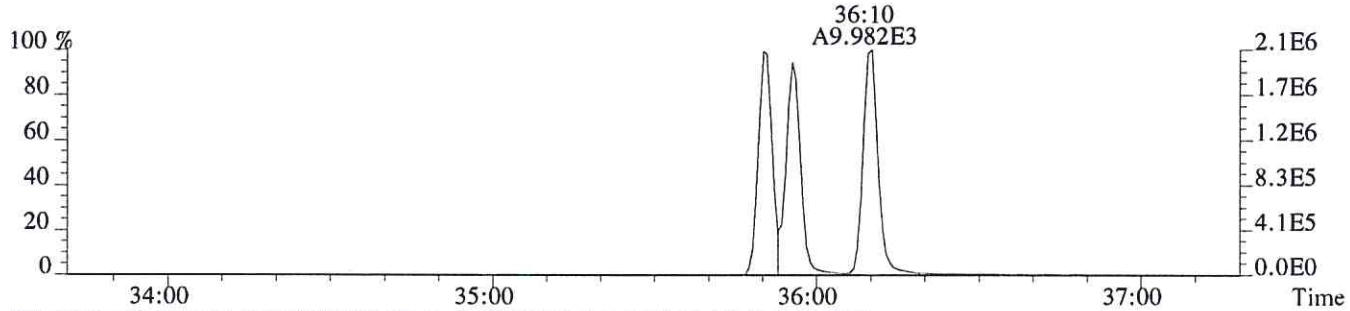
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



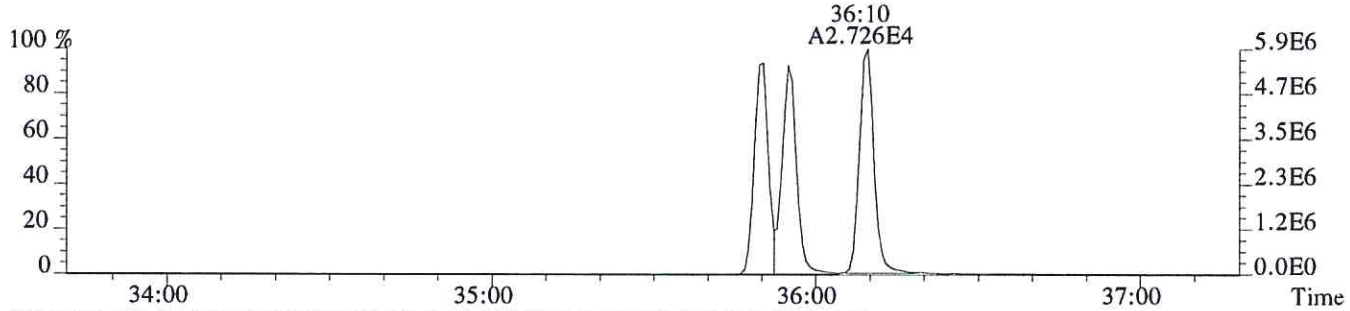
File:P405407 #1-326 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



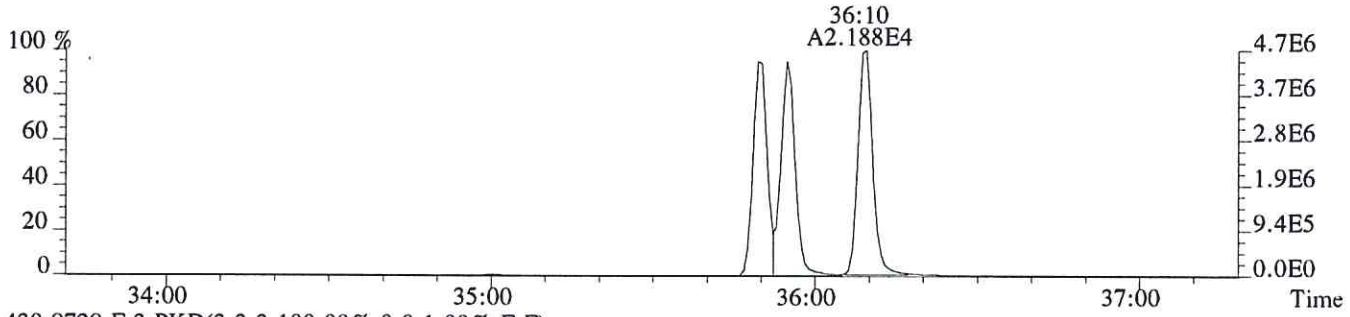
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



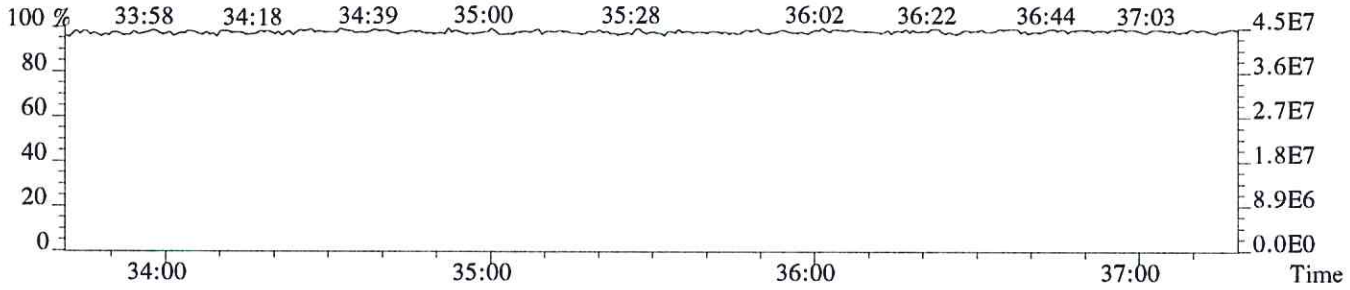
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



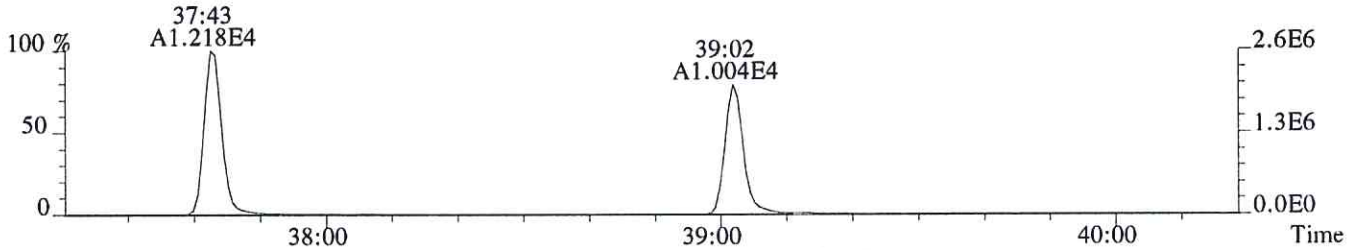
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



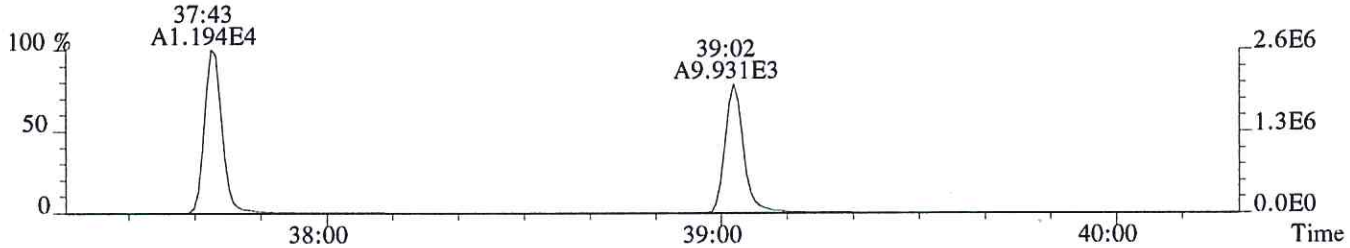
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



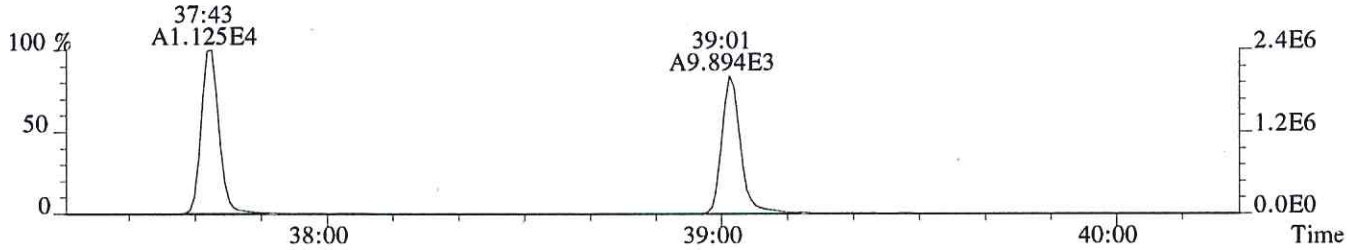
File:P405407 #1-268 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.50%,F,T)



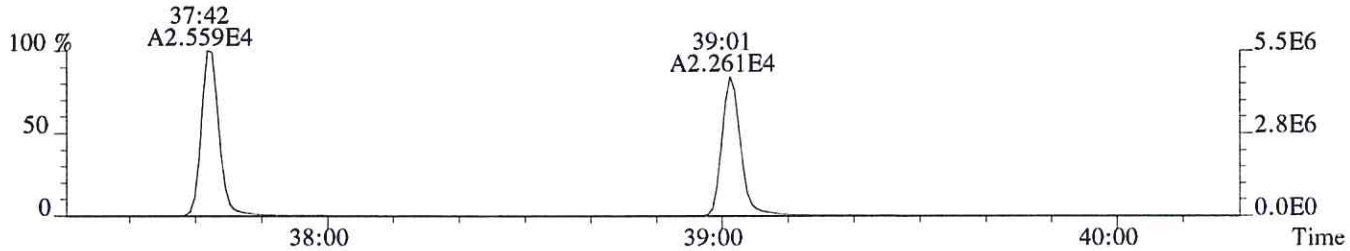
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.50%,F,T)



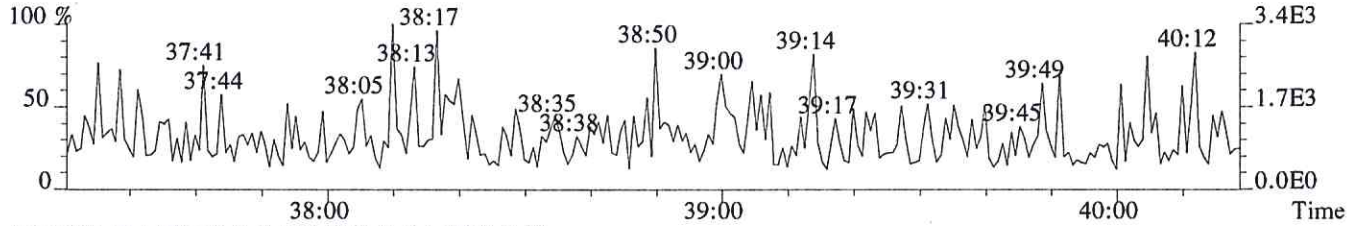
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.50%,F,T)



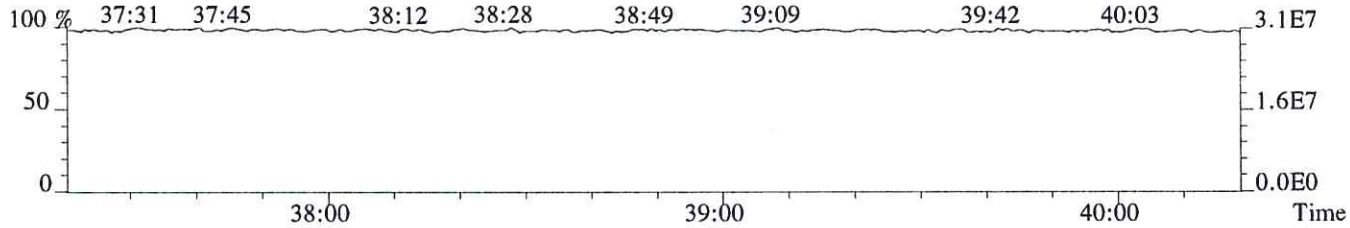
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2568.0,0.50%,F,T)



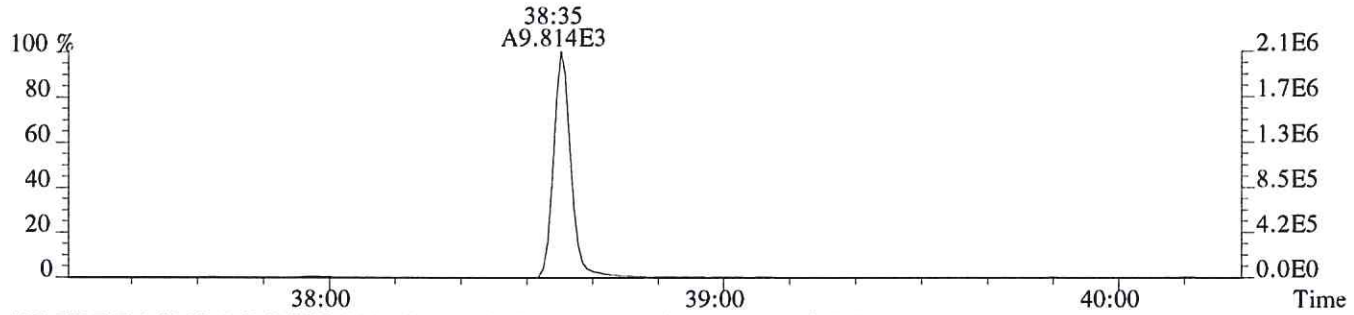
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



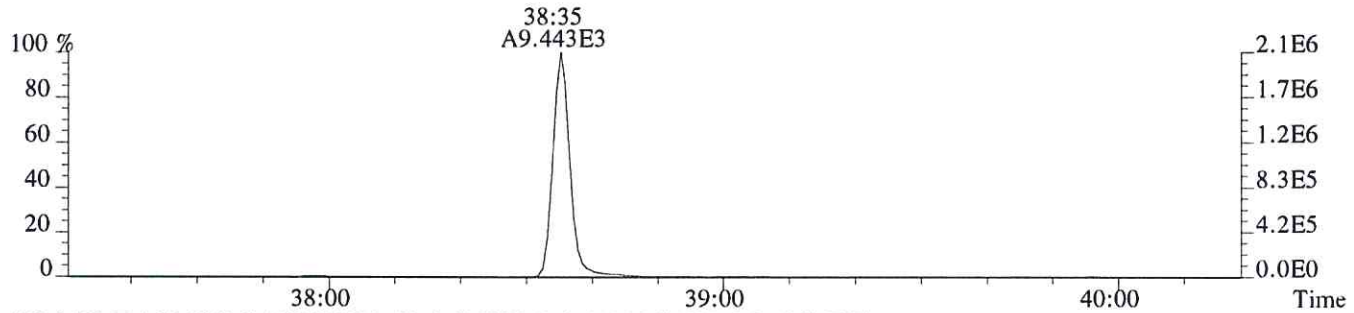
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



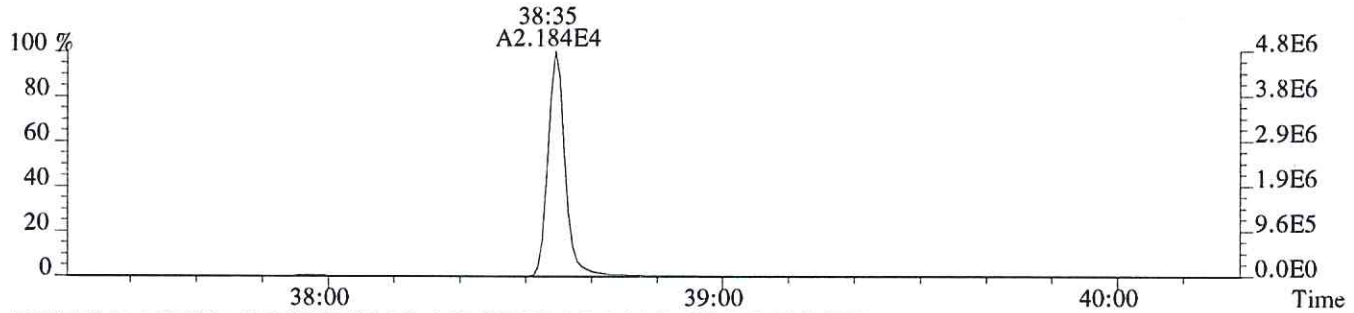
File:P405407 #1-268 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



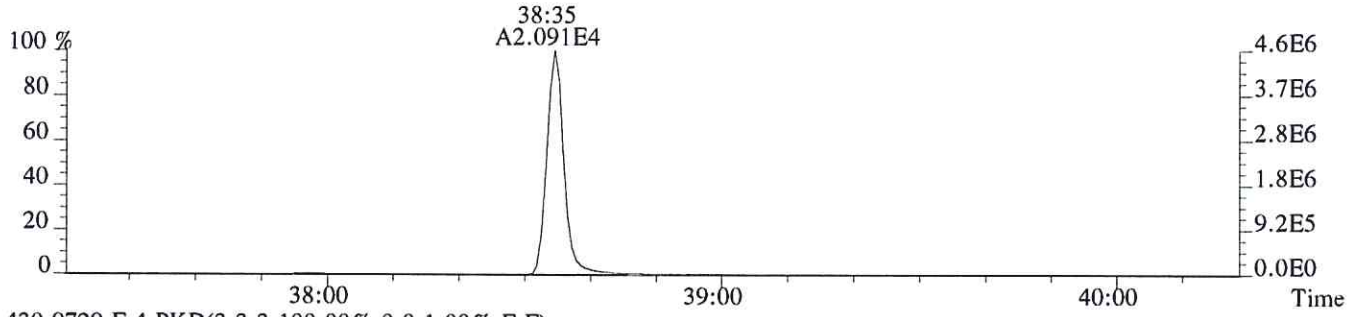
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



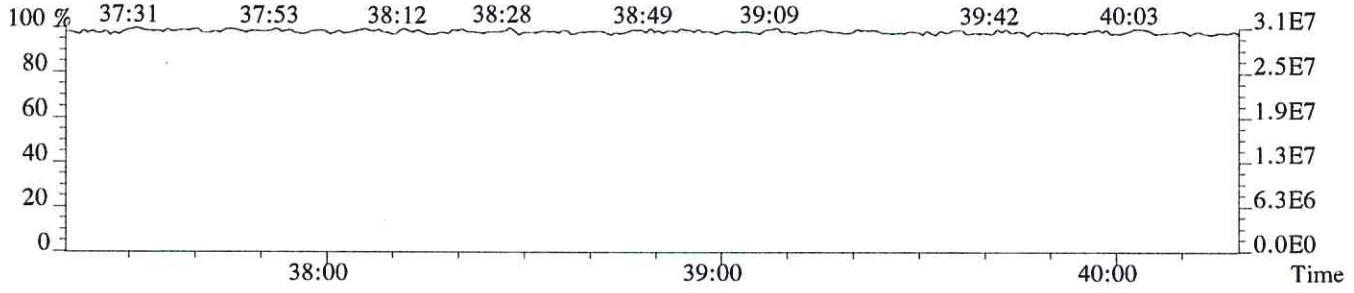
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



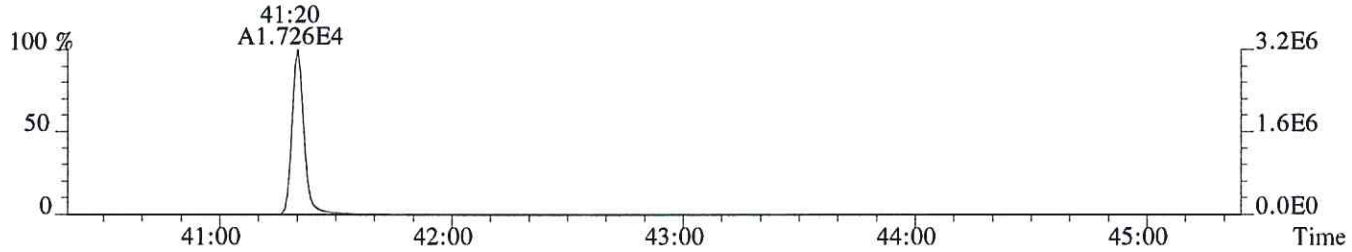
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



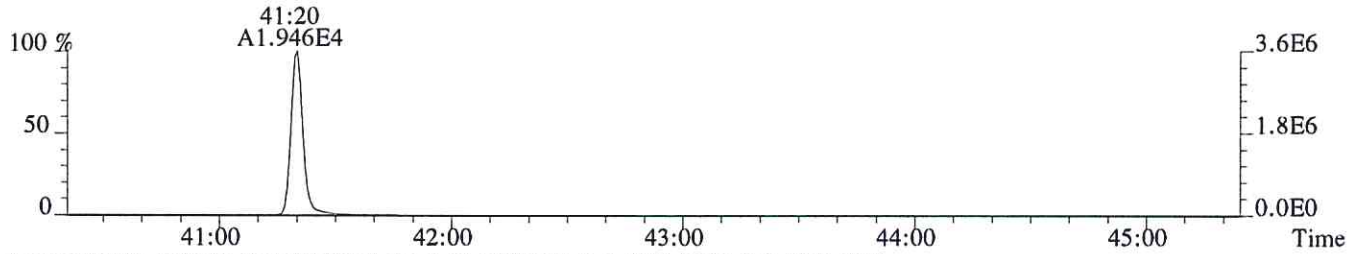
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



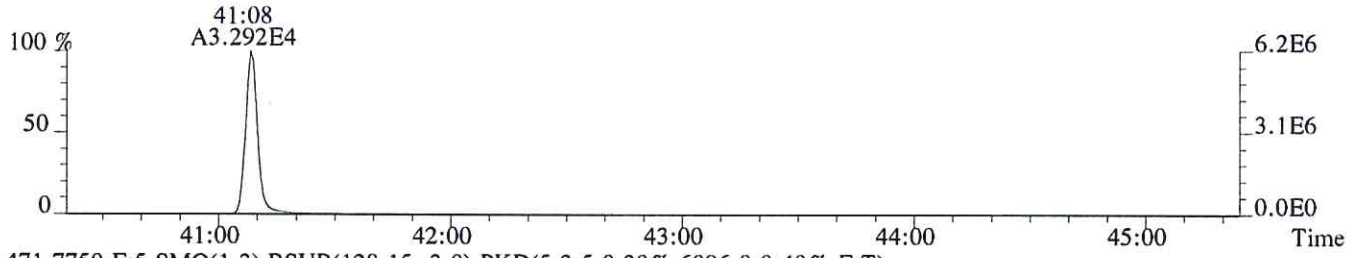
File:P405407 #1-456 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



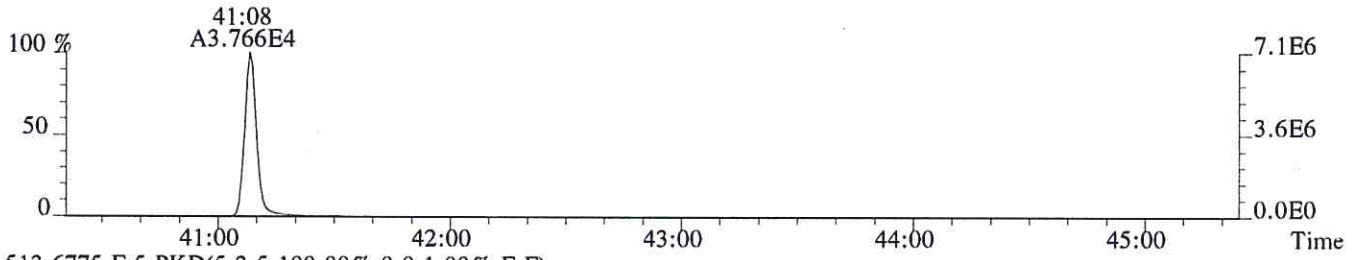
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



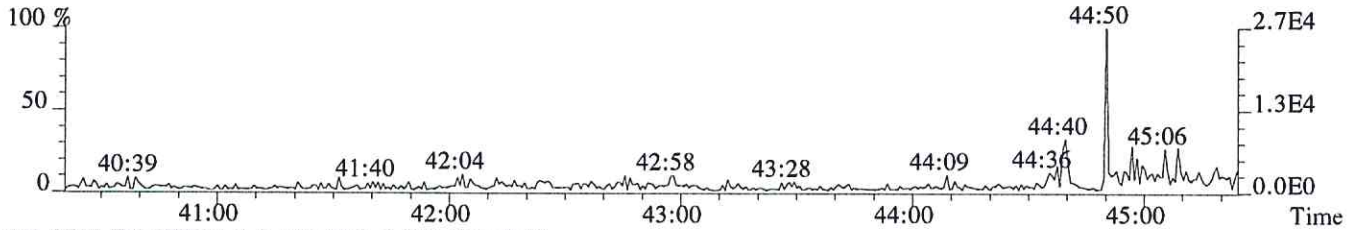
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2588.0,0.40%,F,T)



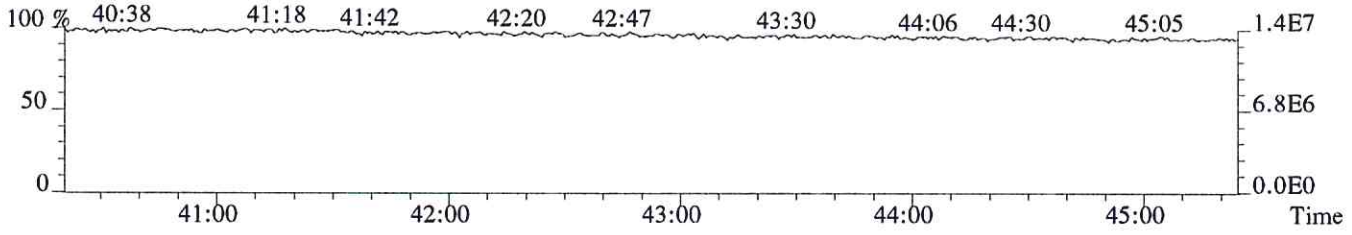
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6096.0,0.40%,F,T)



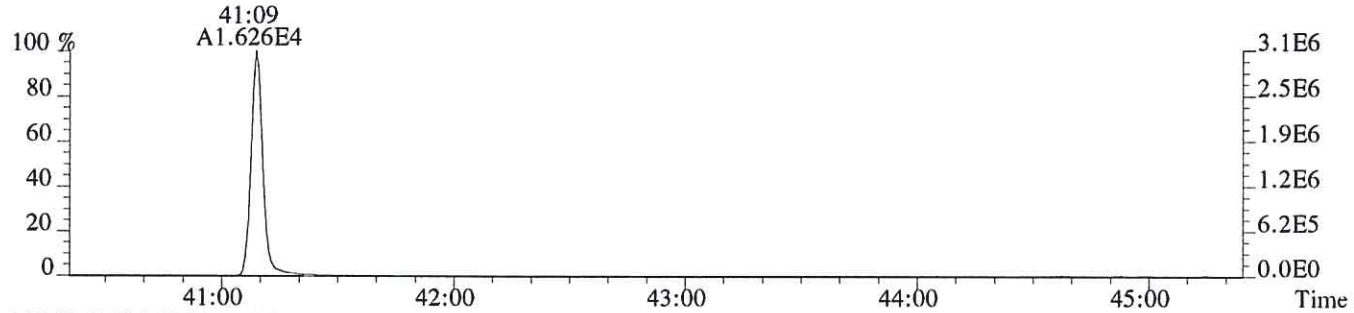
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



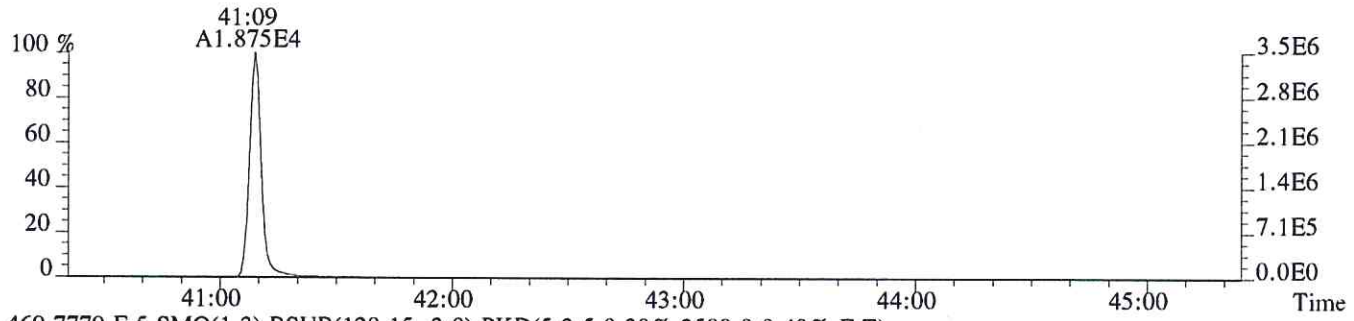
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



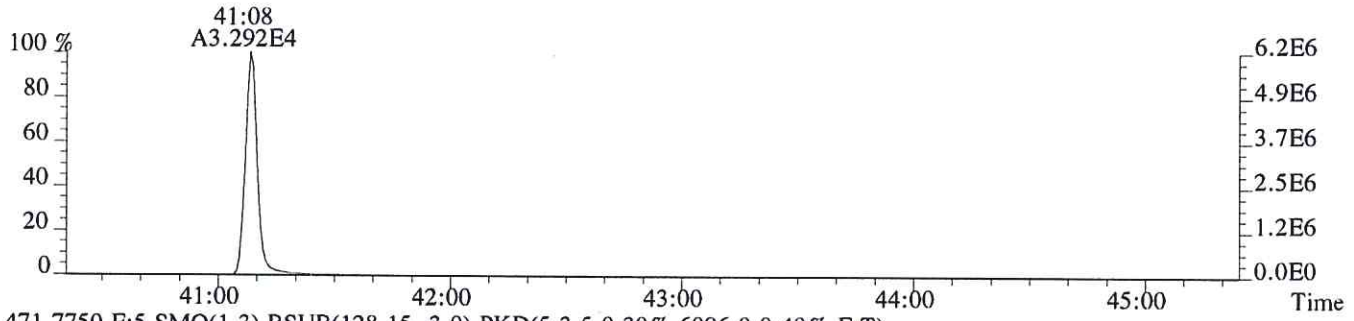
File:P405407 #1-456 Acq:16-FEB-2017 01:32:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2168.0,0.40%,F,T)



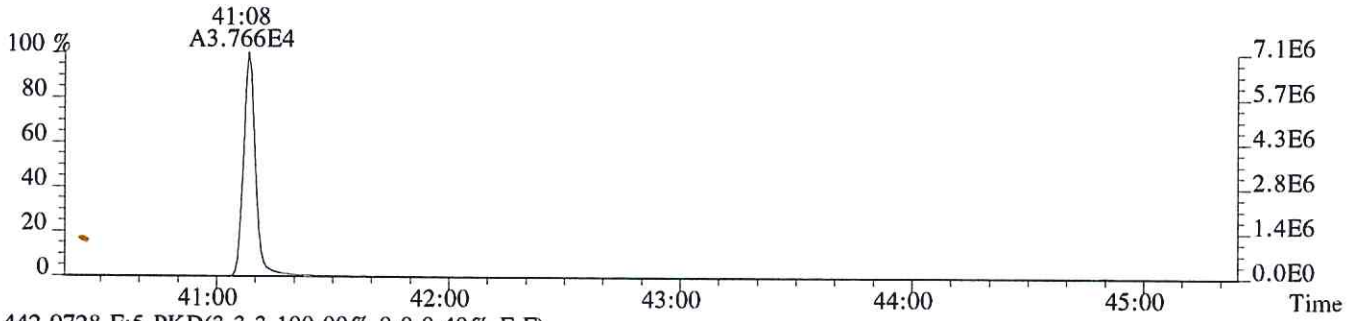
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1200.0,0.40%,F,T)



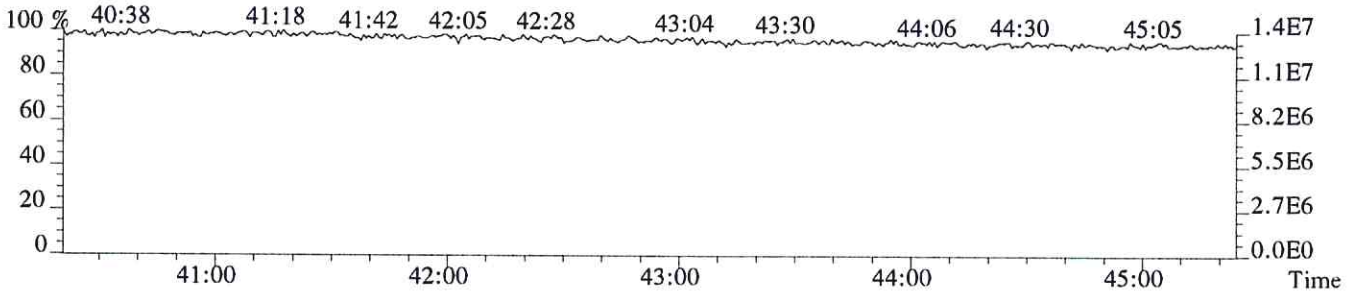
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2588.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6096.0,0.40%,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: P405429-P405440 Circle one: Beginning / Ending

Date: 02/16-02/17/17

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: gc 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: 04/28/16

Init. Calib.Times: 09:34

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	P405427	16-FEB-17	20:34:58
178519	CS3	P405429	16-FEB-17	22:13:20
NEEDS REINJECTION	EQ1700051-01	P405430	16-FEB-17	23:02:32
METHOD BLANK	EQ1700058-01	P405431	16-FEB-17	23:59:54
HARDWOOD	K1615431-001	P405432	17-FEB-17	00:55:23
SRTTP INFLUENT	E1700061-001	P405433	17-FEB-17	01:42:40
1702917-06	E1700102-003	P405434	17-FEB-17	02:31:53
NEEDS REINJECTION	E1700073-001*	P405435	17-FEB-17	03:21:04
NEEDS REINJECTION	E1700073-002*	P405436	17-FEB-17	04:10:13
1-065-SS-10	E1700074-004	P405437	17-FEB-17	04:59:24
1-065-SS-11	E1700074-005	P405438	17-FEB-17	05:48:35
178519	DO NOT USE	P405439	17-FEB-17	06:37:46
178519	CS3	P405440	17-FEB-17	07:35:10

Sample List Report MassLynx 4.1 SCN815 SCN795

1613/8290

Sample List: C:\MassLynx\ehrms06.PRO\SampleDB\20170216B.spl
Last Modified: Friday, February 17, 2017 09:48:05 Central Standard Time
Printed: Friday, February 17, 2017 09:48:07 Central Standard Time

Page Position (1, 1)

Opus 4: P405429res

for KN

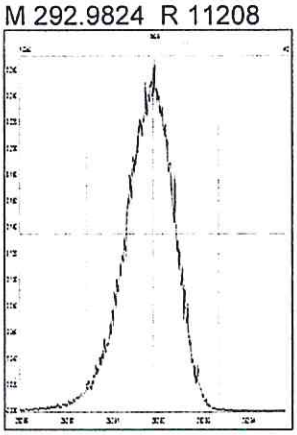
	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	02/16/17	20:34	P405427	WINDOW DEFINE	178397	Tray1:1	epa1613_als	Dioxin_ALS	LKL	HRMS check 11:18
2		21:24	P405428	CS3	178519	Tray1:2	epa1613_als	Dioxin_ALS		DO NOT USE
3		22:13	P405429	CS3	178519	Tray1:3	epa1613_als	Dioxin_ALS		
4		23:02	P405430	MBLK	EQ1700051-01	Tray1:4	epa1613_als	Dioxin_ALS		Needs reinjection
5		23:59	P405431	MBLK	EQ1700058-01	Tray1:5	epa1613_als	Dioxin_ALS		
6	02/17/17	00:55	P405432	K1615431-001	K1615431-001	Tray1:6	epa1613_als	Dioxin_ALS		
7		01:42	P405433	E1700061-001	E1700061-001	Tray1:7	epa1613_als	Dioxin_ALS		
8		02:31	P405434	E1700102-003	E1700102-003	Tray1:8	epa1613_als	Dioxin_ALS		
9		03:21	P405435	E1700073-001	E1700073-001	Tray1:9	epa1613_als	Dioxin_ALS		Needs reinjection
10		04:10	P405436	E1700073-002	E1700073-002	Tray1:10	epa1613_als	Dioxin_ALS		
11		04:59	P405437	E1700074-004	E1700074-004	Tray1:11	epa1613_als	Dioxin_ALS		
12		05:48	P405438	E1700074-005	E1700074-005	Tray1:1	epa1613_als	Dioxin_ALS		
13		06:37	P405439	CS3	178519	Tray1:2	epa1613_als	Dioxin_ALS		DO NOT USE
14		07:35	P405440	CS3	178519	Tray1:2	epa1613_als	Dioxin_ALS		HRMS check 09:00
15	---	---	---	---	---	Tray1:12	epa1613_als	Dioxin_ALS	---	---
16	---	---	---	---	---	Tray1:13	epa1613_als	Dioxin_ALS	---	---
17	---	---	---	---	---	Tray1:14	epa1613_als	Dioxin_ALS	---	---
18	---	---	---	---	---	Tray1:15	epa1613_als	Dioxin_ALS	---	---
19	---	---	---	---	---	Tray1:16	epa1613_als	Dioxin_ALS	---	---
20	---	---	---	---	---	Tray1:17	epa1613_als	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:18	epa1613_als	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:19	epa1613_als	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:20	epa1613_als	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:2	epa1613_als	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:2	epa1613_als	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:21	epa1613_als	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:22	epa1613_als	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:23	epa1613_als	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:24	epa1613_als	Dioxin_ALS	---	---

gc 02/17/17

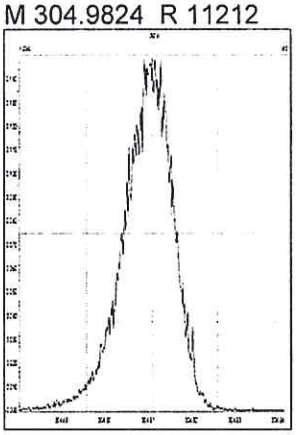
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, February 16, 2017 11:18:06 Central Standard Time

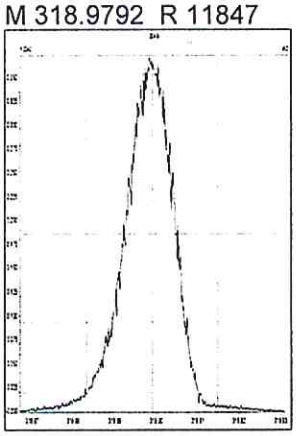
M 292.9824 R 11208



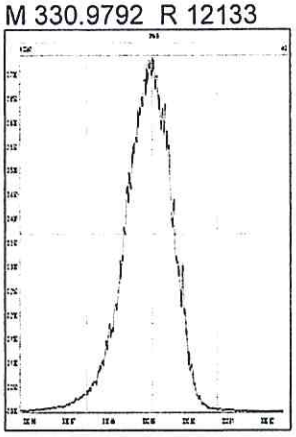
M 304.9824 R 11212



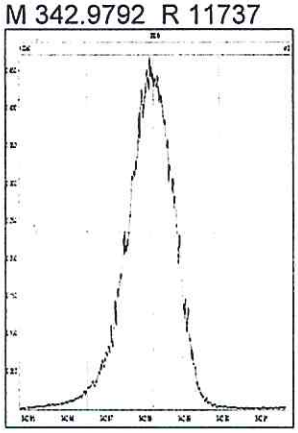
M 318.9792 R 11847



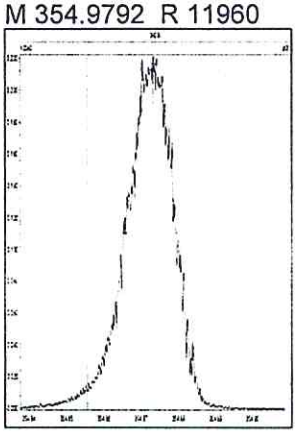
M 330.9792 R 12133



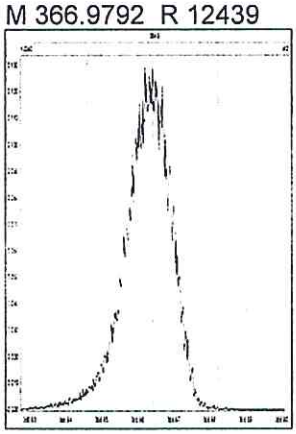
M 342.9792 R 11737



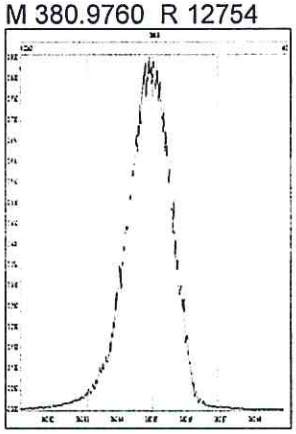
M 354.9792 R 11960



M 366.9792 R 12439



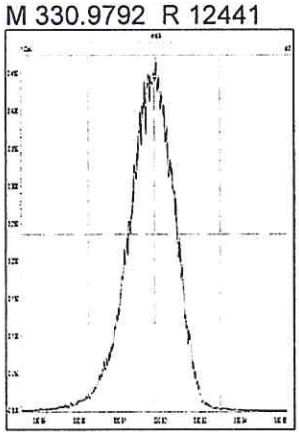
M 380.9760 R 12754



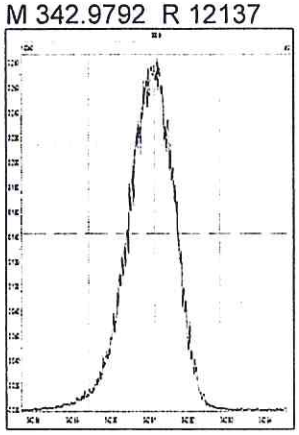
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, February 16, 2017 11:18:46 Central Standard Time

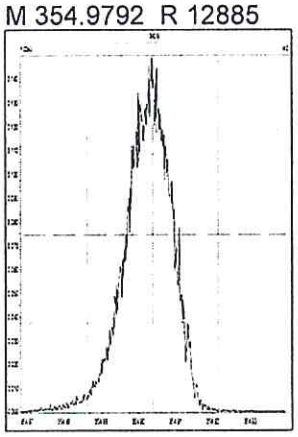
M 330.9792 R 12441



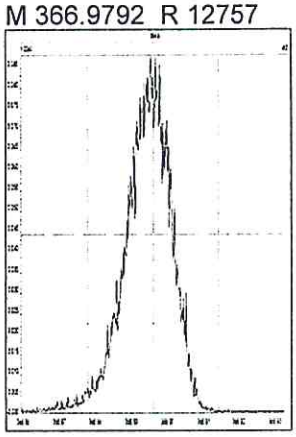
M 342.9792 R 12137



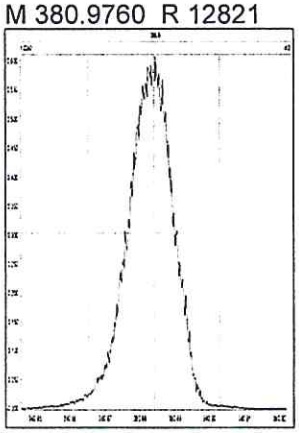
M 354.9792 R 12885



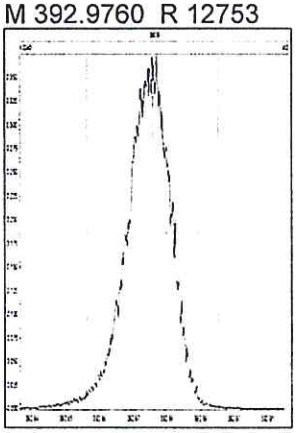
M 366.9792 R 12757



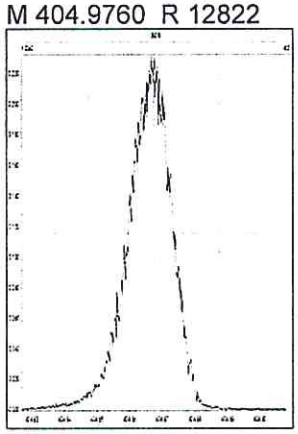
M 380.9760 R 12821



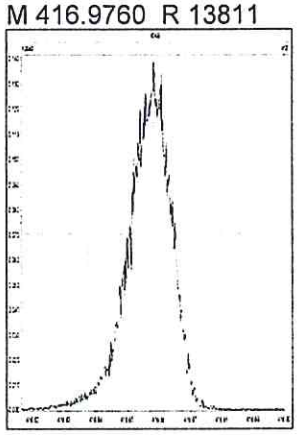
M 392.9760 R 12753



M 404.9760 R 12822



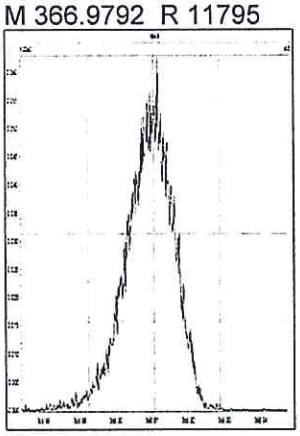
M 416.9760 R 13811



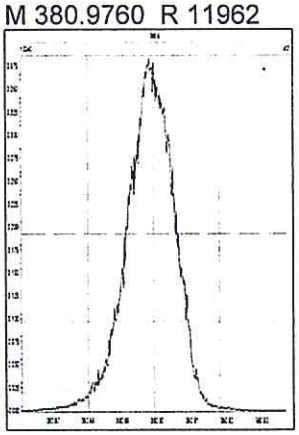
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, February 16, 2017 11:19:25 Central Standard Time

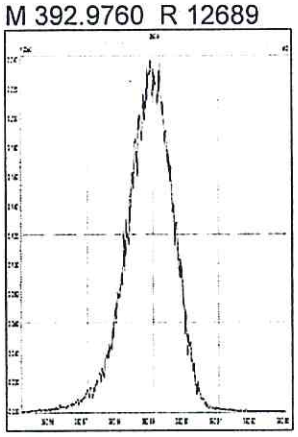
M 366.9792 R 11795



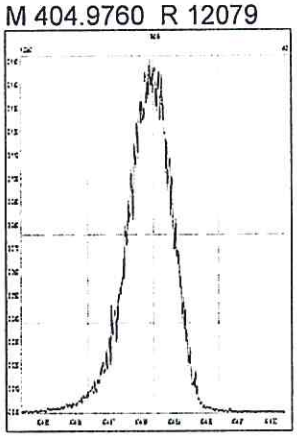
M 380.9760 R 11962



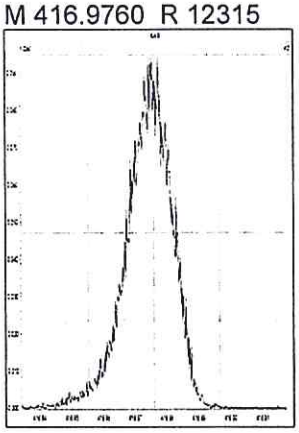
M 392.9760 R 12689



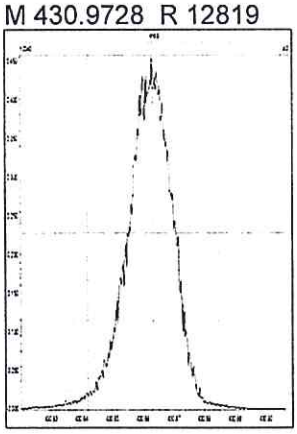
M 404.9760 R 12079



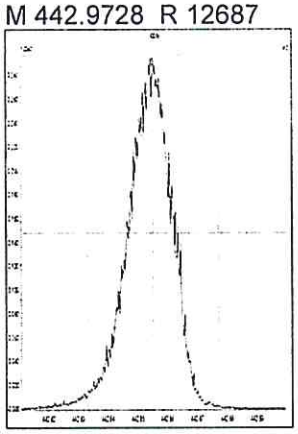
M 416.9760 R 12315



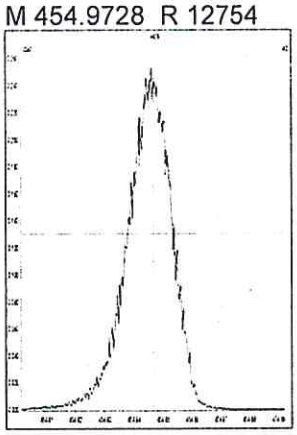
M 430.9728 R 12819



M 442.9728 R 12687



M 454.9728 R 12754

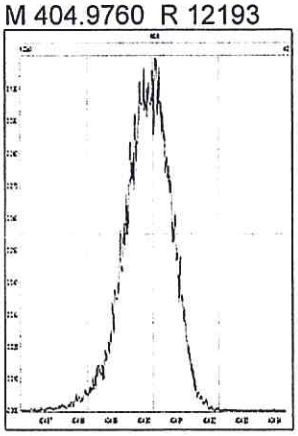


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

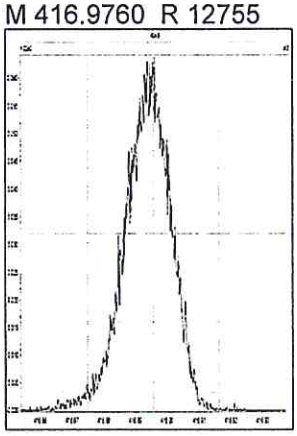
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, February 16, 2017 11:20:02 Central Standard Time

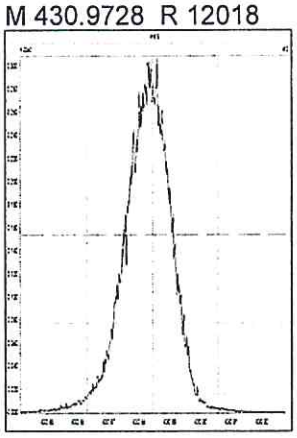
M 404.9760 R 12193



M 416.9760 R 12755



M 430.9728 R 12018



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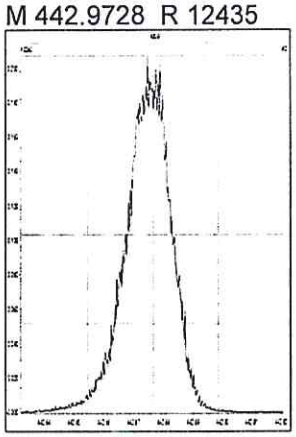

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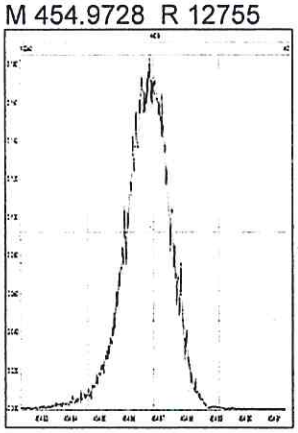
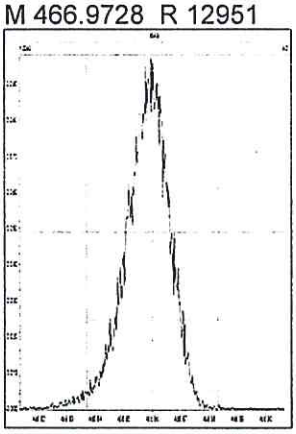
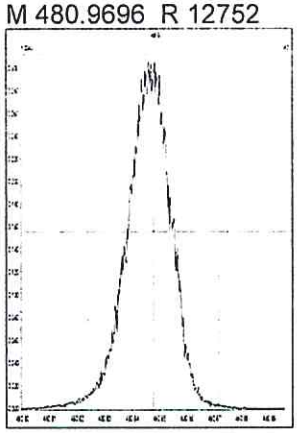


M 466.9728 R 12951



M 480.9696 R 12752

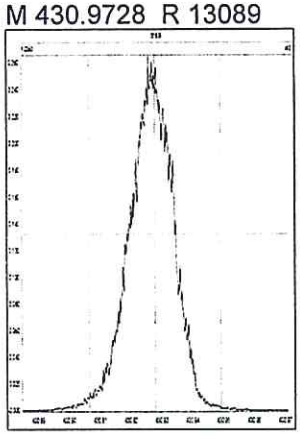


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

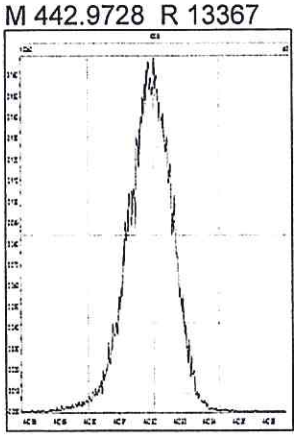
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, February 16, 2017 11:20:39 Central Standard Time

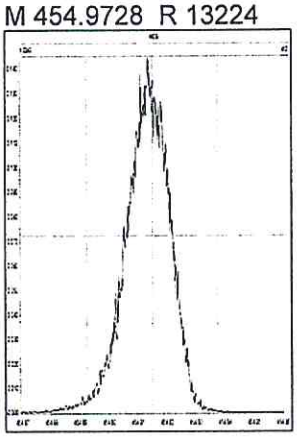
M 430.9728 R 13089



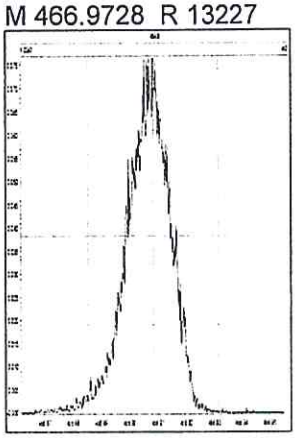
M 442.9728 R 13367



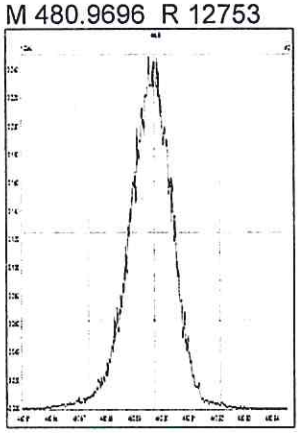
M 454.9728 R 13224



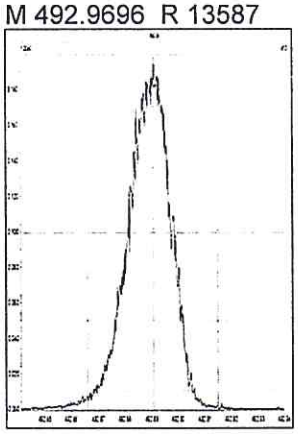
M 466.9728 R 13227



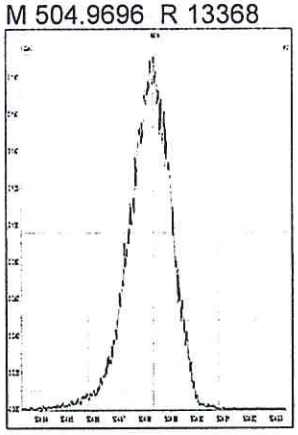
M 480.9696 R 12753



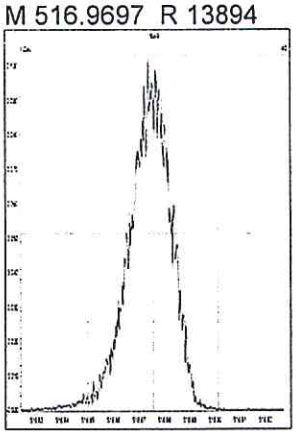
M 492.9696 R 13587



M 504.9696 R 13368



M 516.9697 R 13894

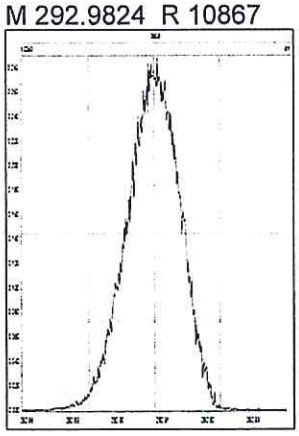


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

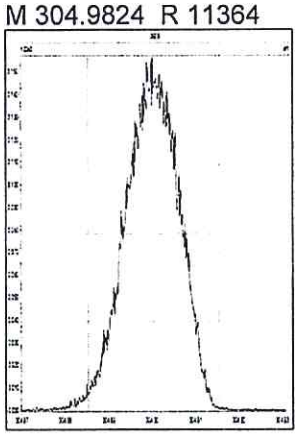
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, February 17, 2017 09:00:39 Central Standard Time

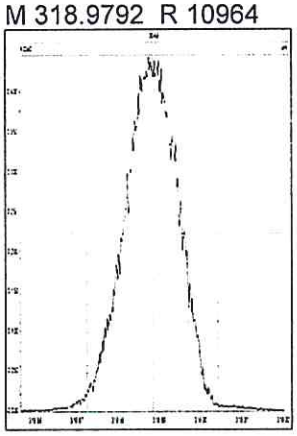
M 292.9824 R 10867



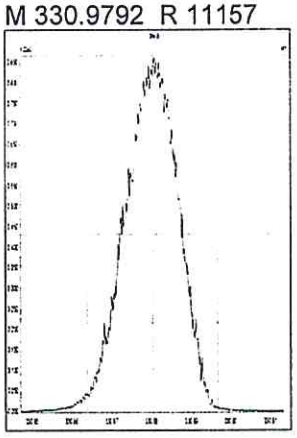
M 304.9824 R 11364



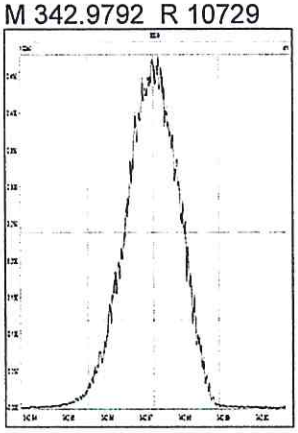
M 318.9792 R 10964



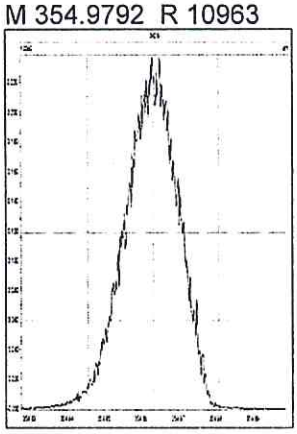
M 330.9792 R 11157



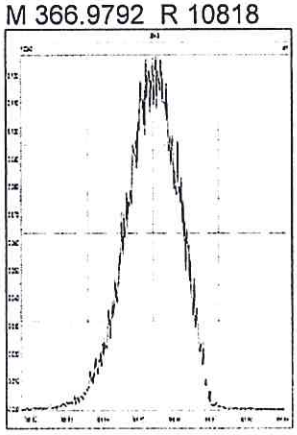
M 342.9792 R 10729



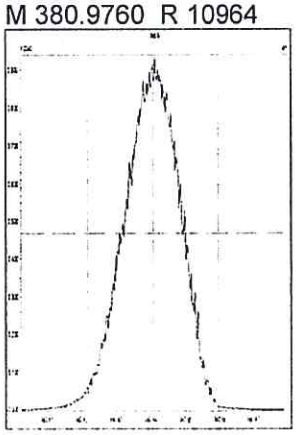
M 354.9792 R 10963



M 366.9792 R 10818



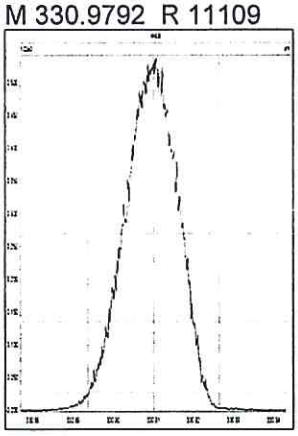
M 380.9760 R 10964



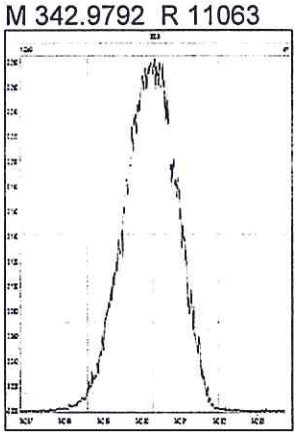
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, February 17, 2017 09:01:52 Central Standard Time

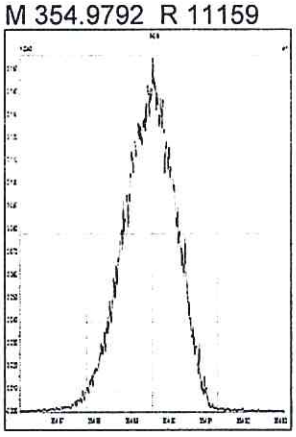
M 330.9792 R 11109



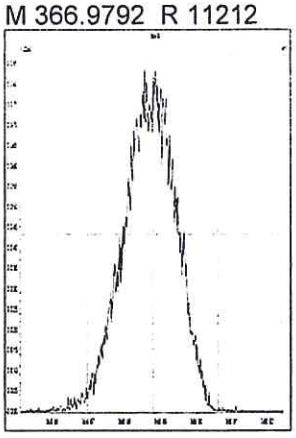
M 342.9792 R 11063



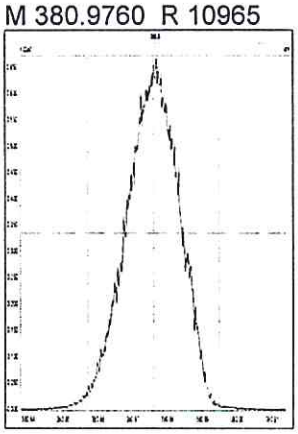
M 354.9792 R 11159



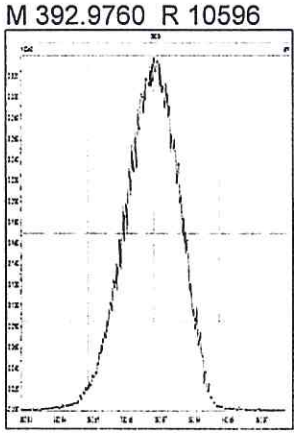
M 366.9792 R 11212



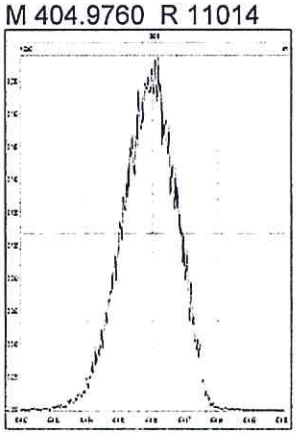
M 380.9760 R 10965



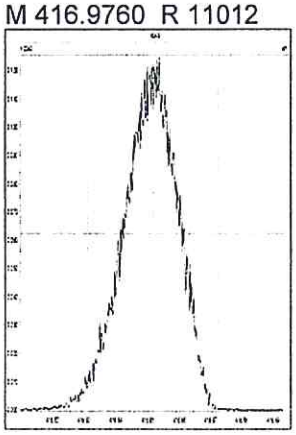
M 392.9760 R 10596



M 404.9760 R 11014



M 416.9760 R 11012

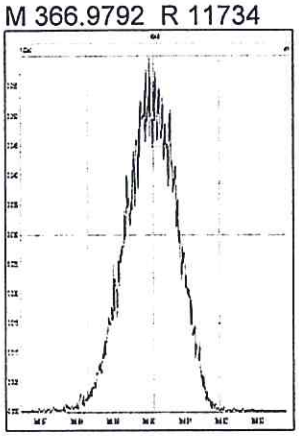


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

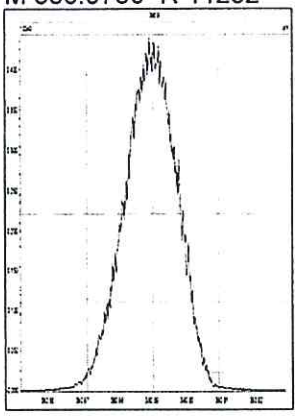
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, February 17, 2017 09:03:05 Central Standard Time

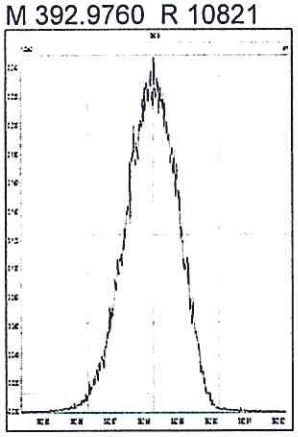
M 366.9792 R 11734



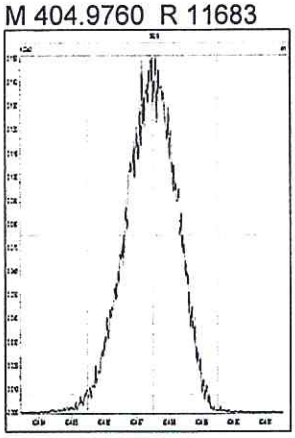
M 380.9760 R 11262



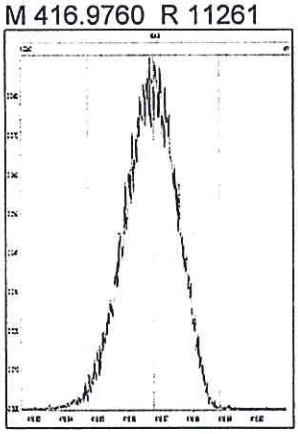
M 392.9760 R 10821



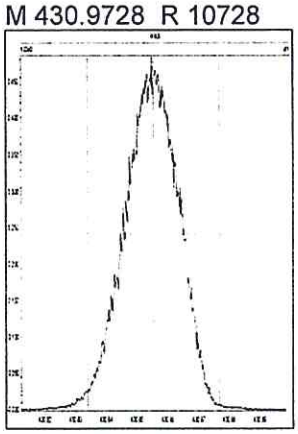
M 404.9760 R 11683



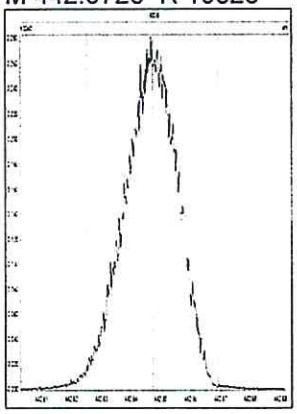
M 416.9760 R 11261



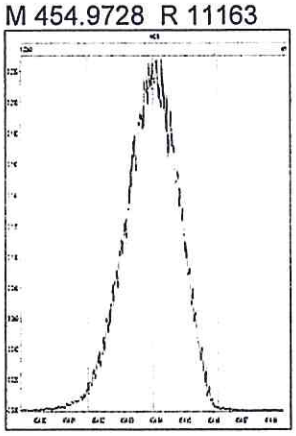
M 430.9728 R 10728



M 442.9728 R 10823



M 454.9728 R 11163

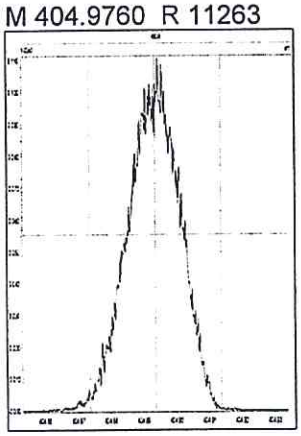


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

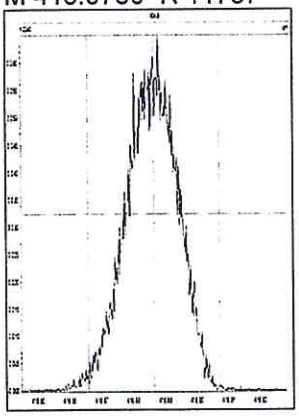
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, February 17, 2017 09:05:13 Central Standard Time

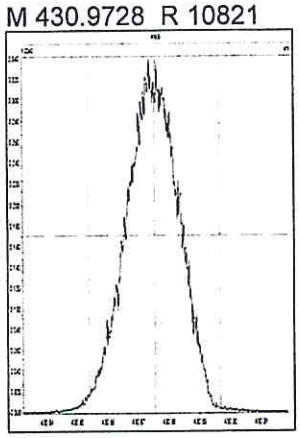
M 404.9760 R 11263



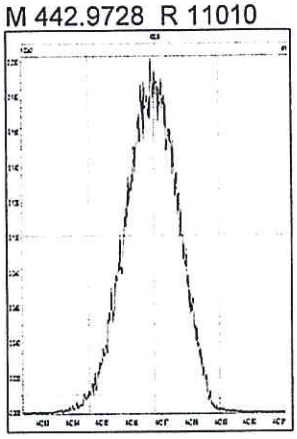
M 416.9760 R 11737



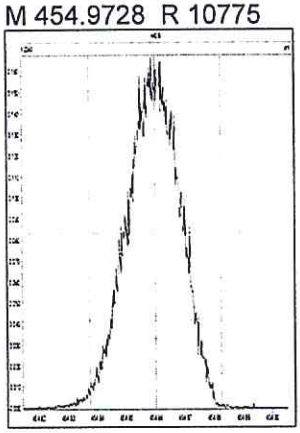
M 430.9728 R 10821



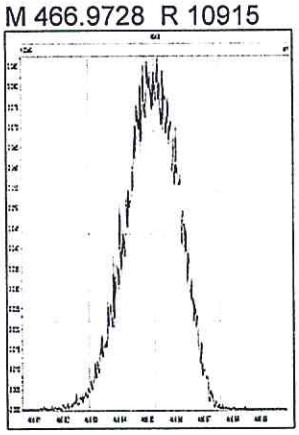
M 442.9728 R 11010



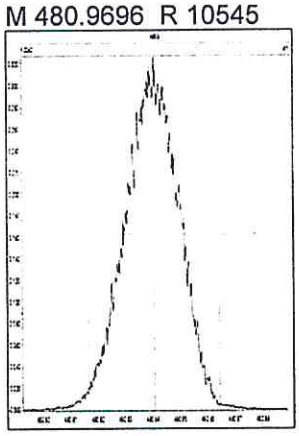
M 454.9728 R 10775



M 466.9728 R 10915



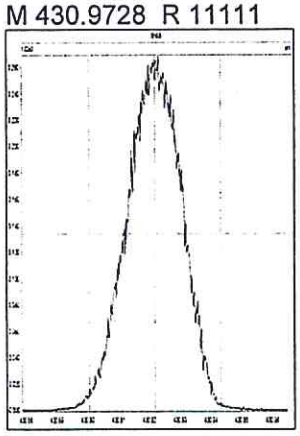
M 480.9696 R 10545



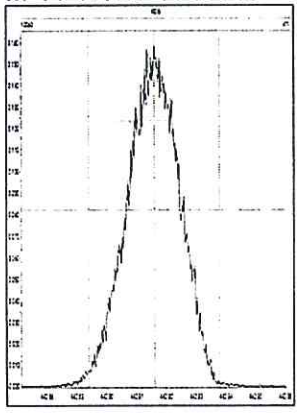
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, February 17, 2017 09:06:27 Central Standard Time

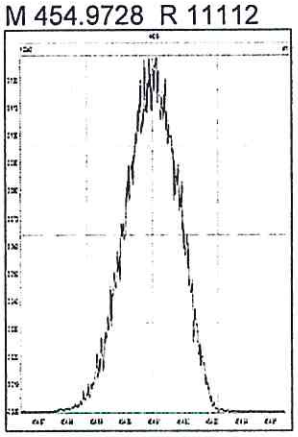
M 430.9728 R 11111



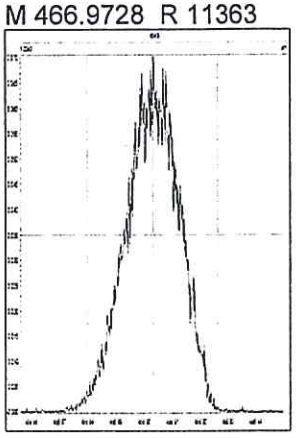
M 442.9728 R 11015



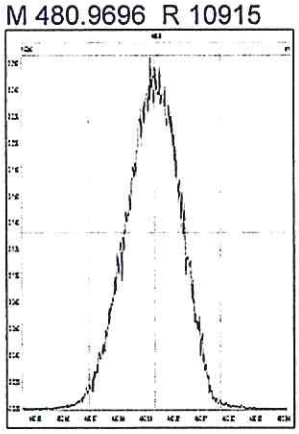
M 454.9728 R 11112



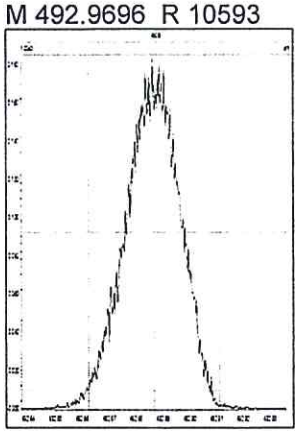
M 466.9728 R 11363



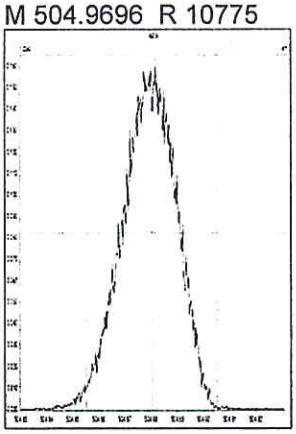
M 480.9696 R 10915



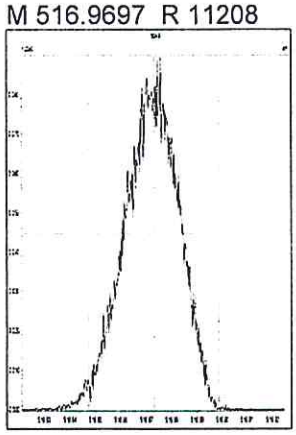
M 492.9696 R 10593



M 504.9696 R 10775



M 516.9697 R 11208



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

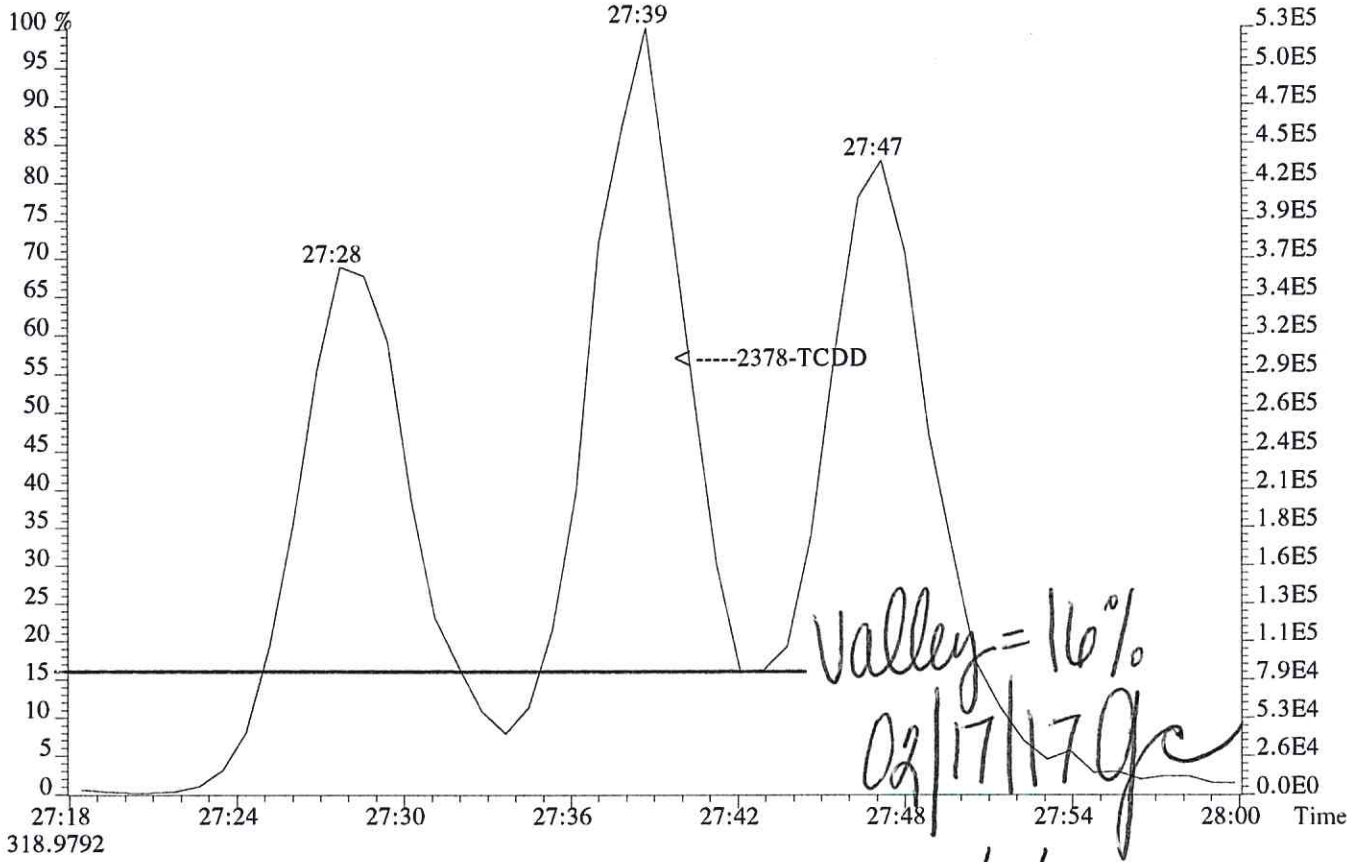
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P405427
Date Analyzed: 16-FEB-2017
Time Analyzed: 20:34:58

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:17	28:54
TCDD	23:59	28:44
PeCDF	28:51	33:18
PeCDD	30:29	33:03
HxCDF	33:59	36:31
HxCDD	34:31	36:06
HpCDF	37:44	39:03
HpCDD	37:59	38:37

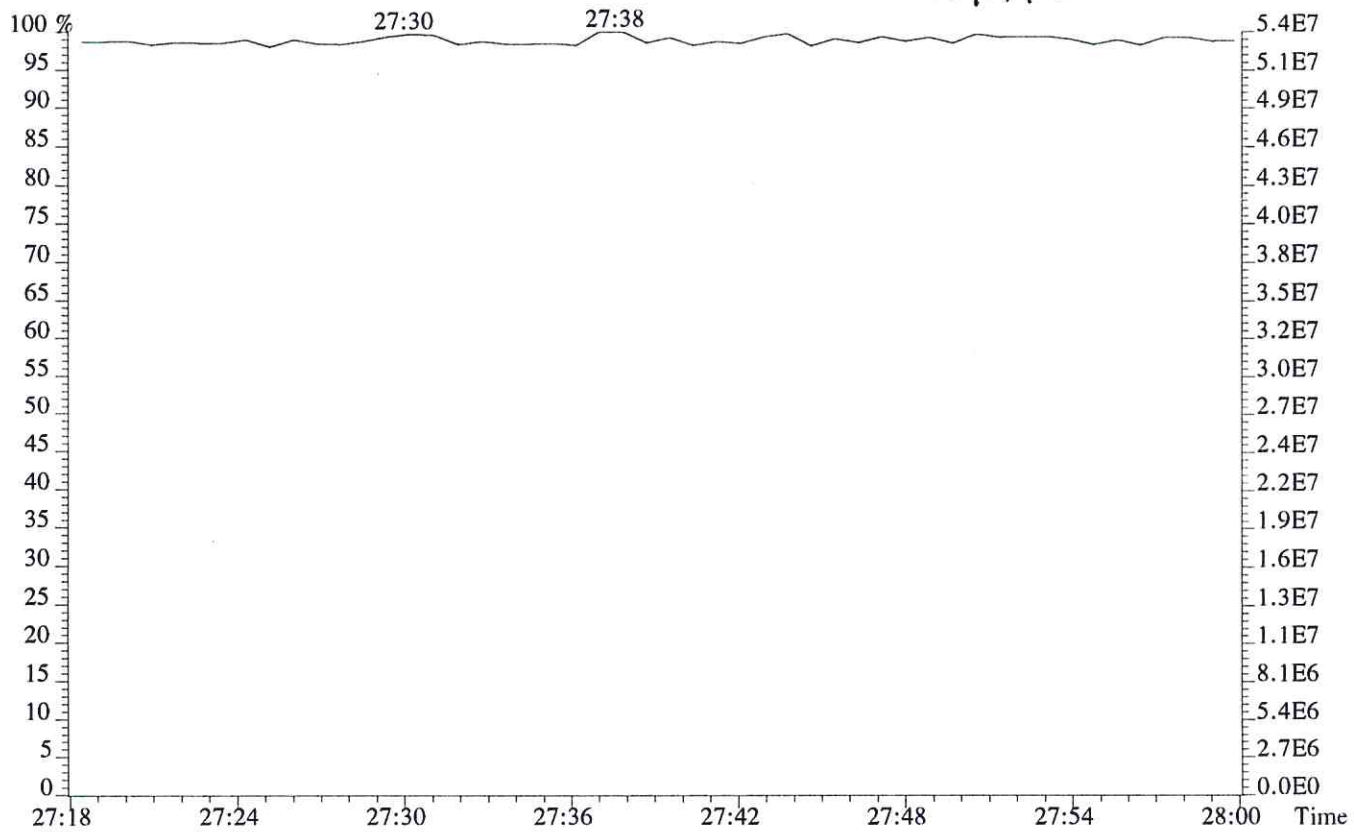
% Valley 2378-TCDD: 16 %

File:P405427 #1-729 Acq:16-FEB-2017 20:34:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
319.8965

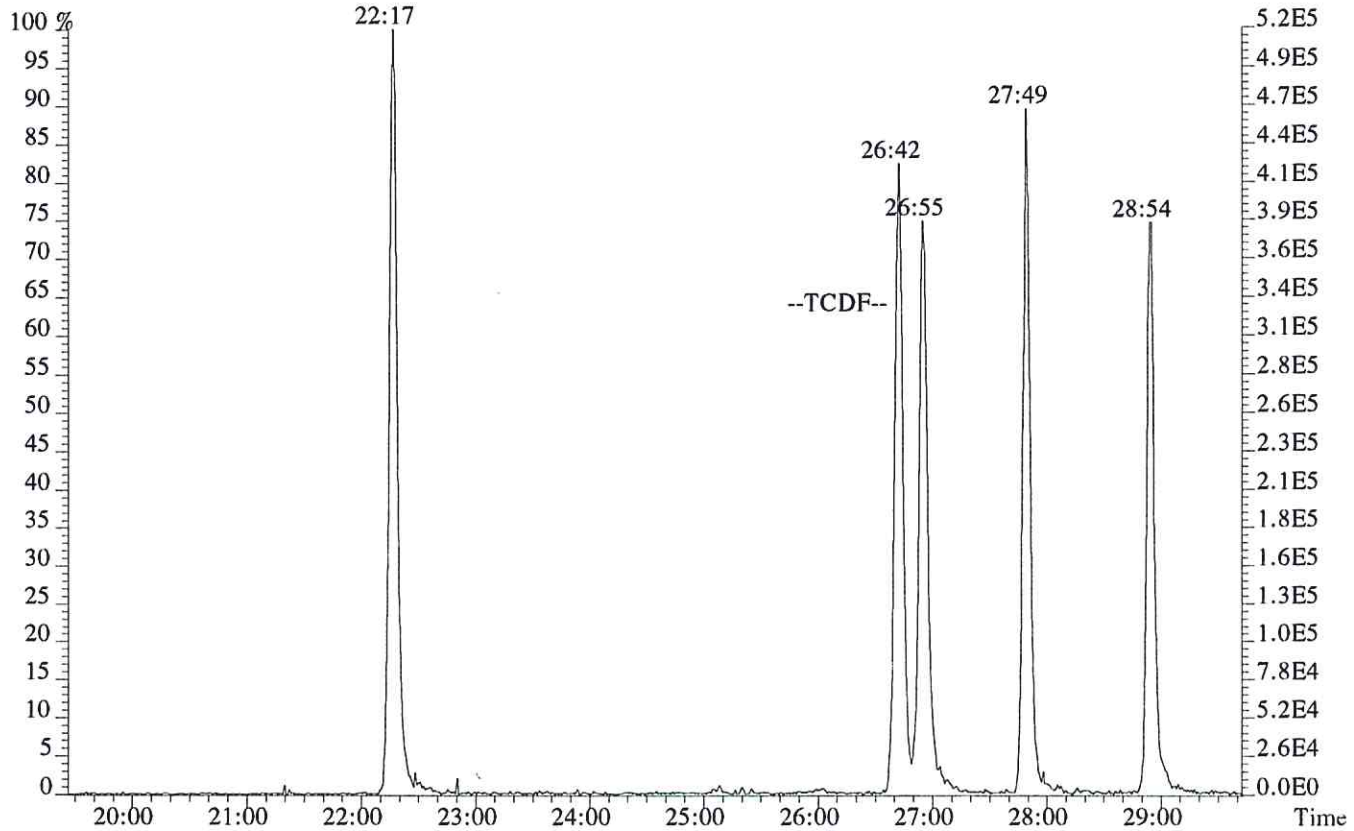


318.9792

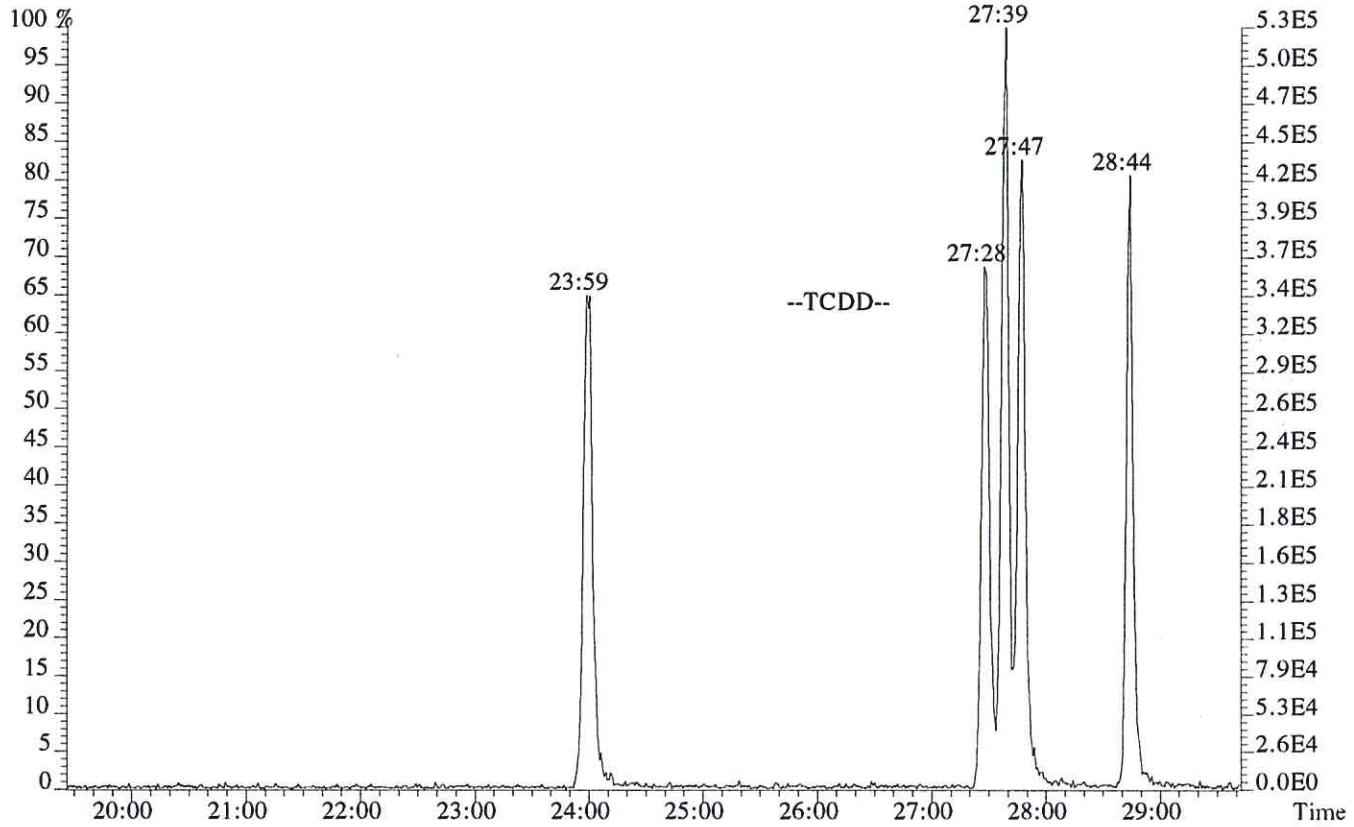
02/17/17



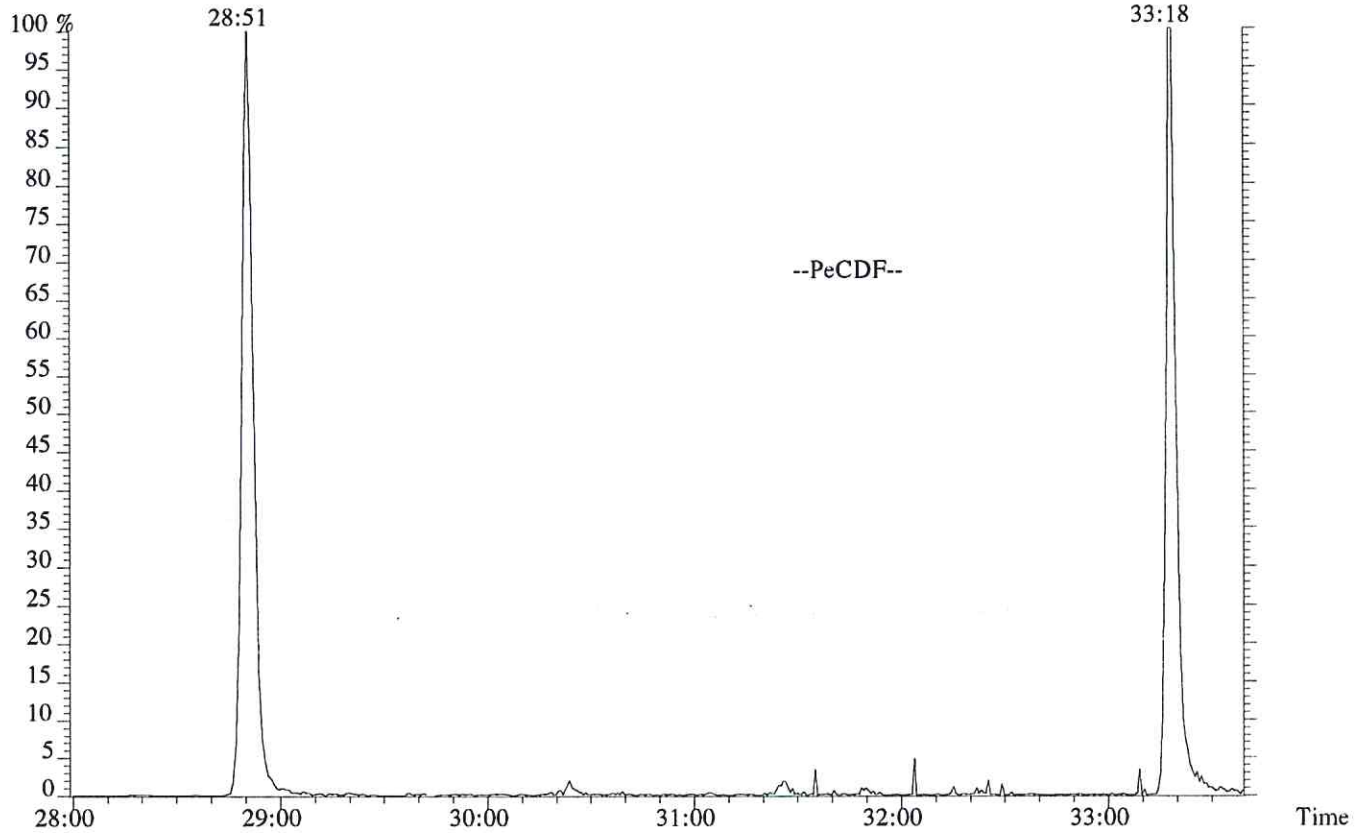
File:P405427 #1-729 Acq:16-FEB-2017 20:34:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
303.9016



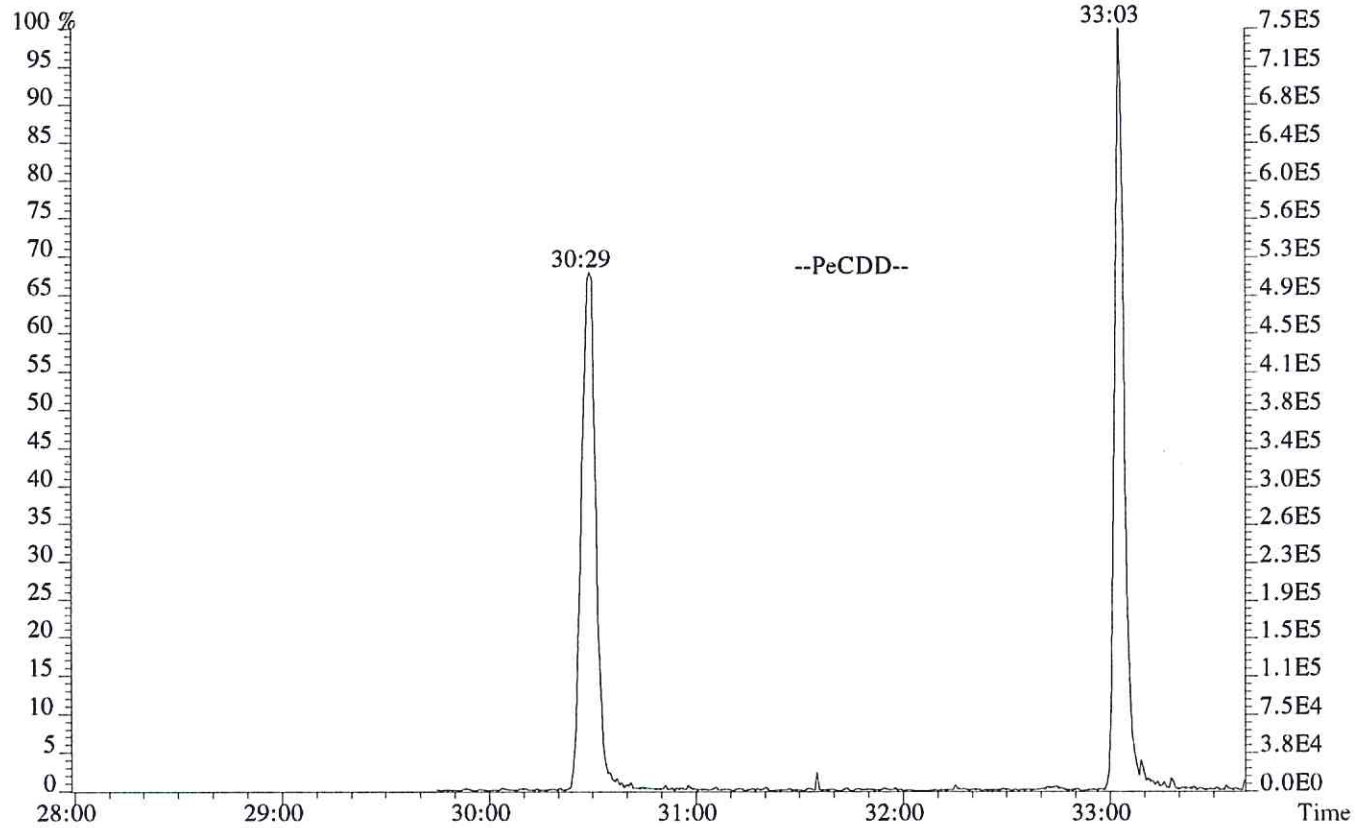
319.8965



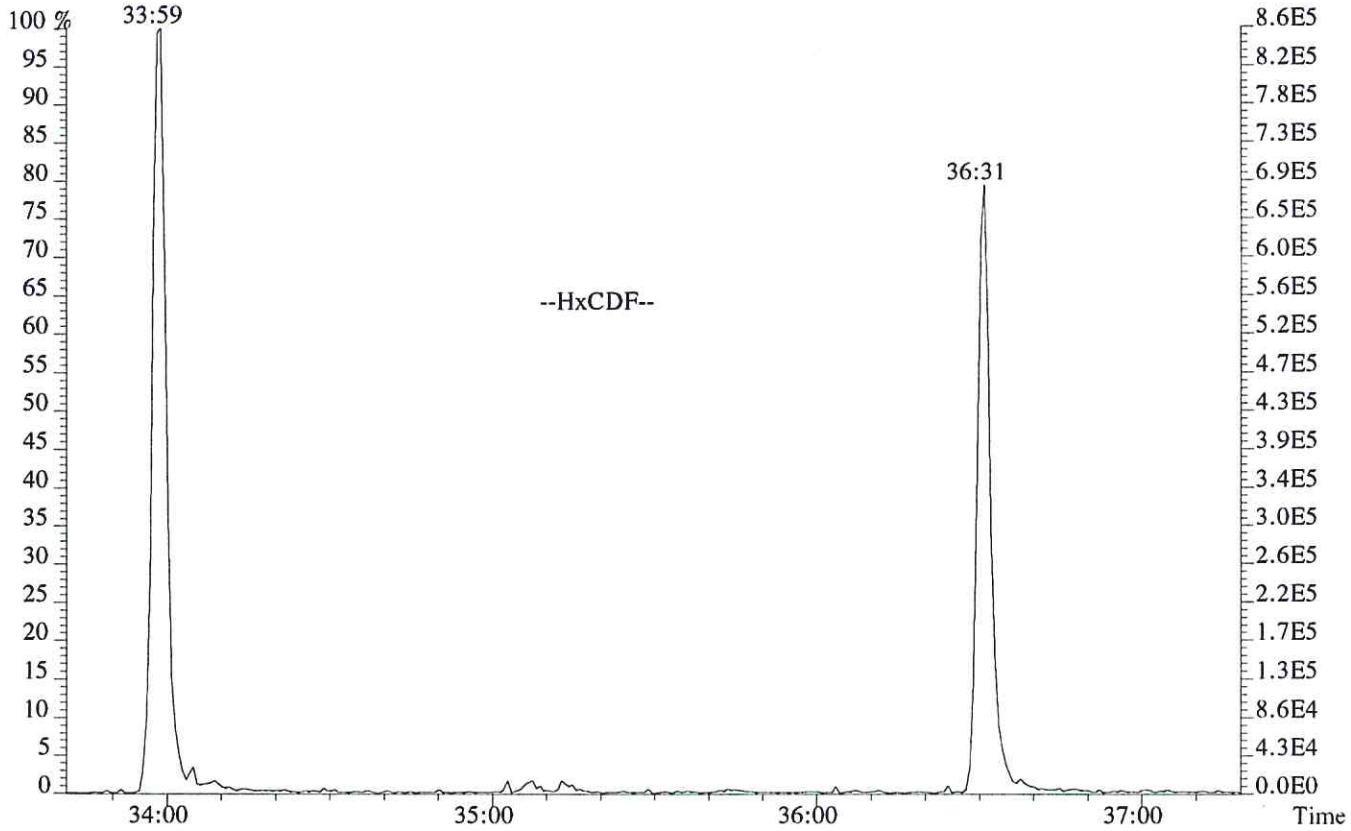
File:P405427 #1-729 Acq:16-FEB-2017 20:34:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
339.8597,339.8597 F:2



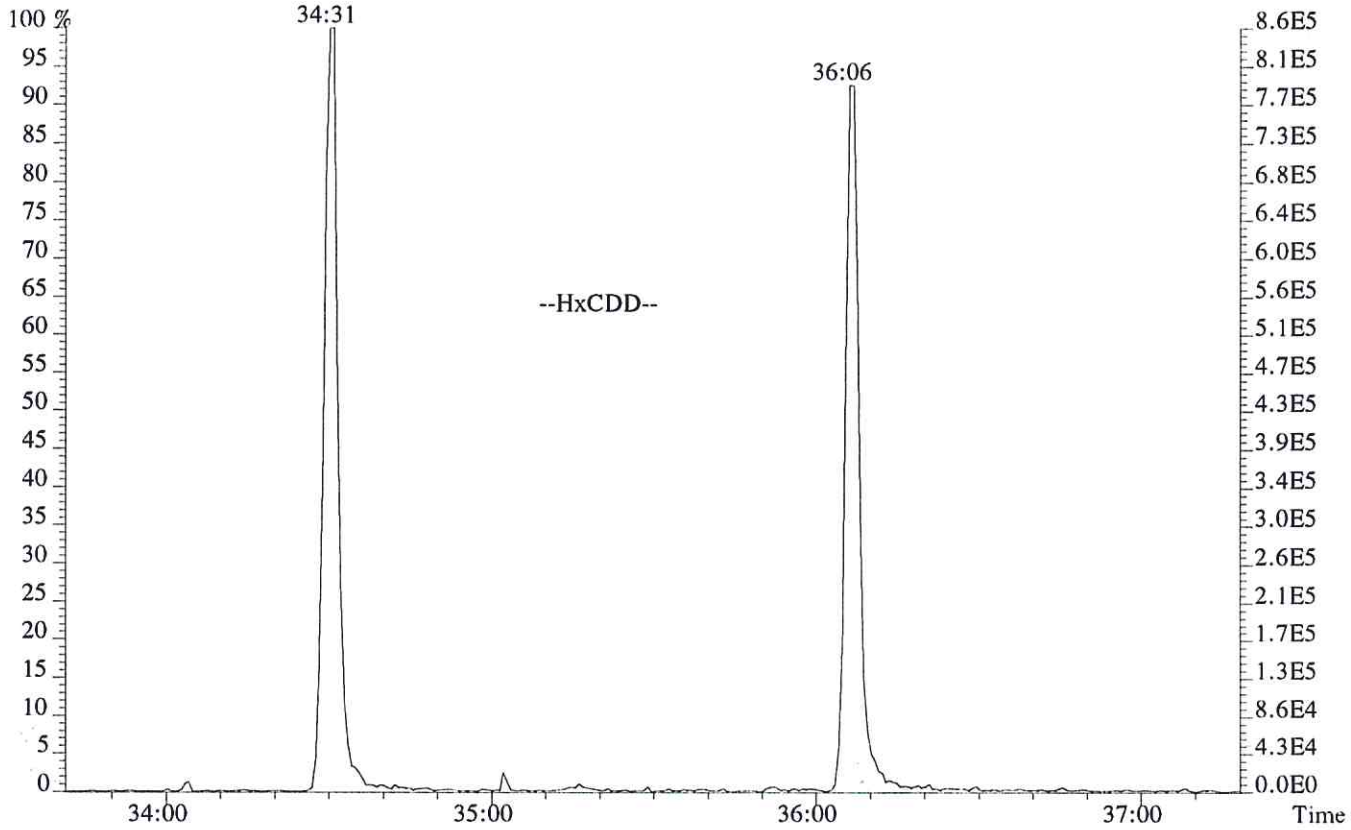
355.8546 F:2



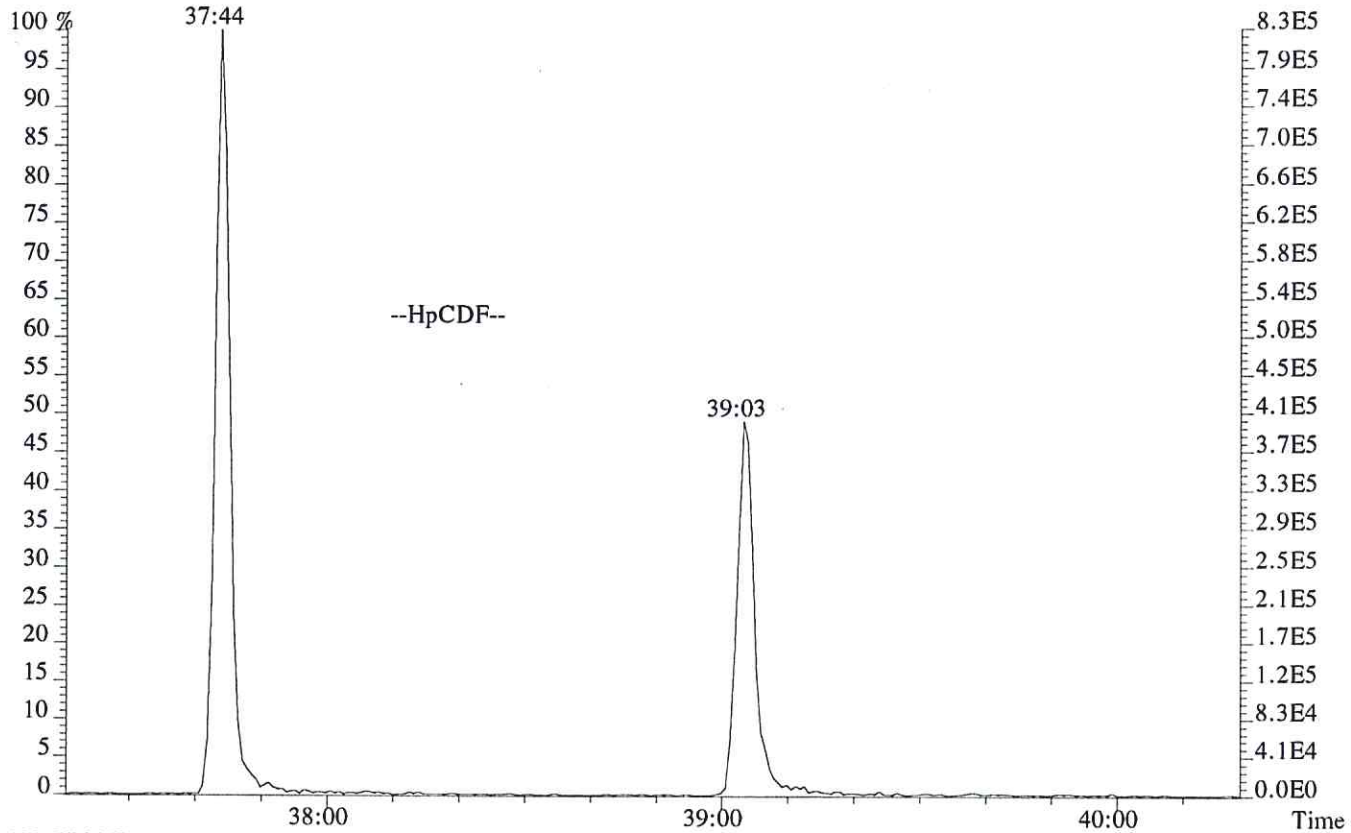
File:P405427 #1-326 Acq:16-FEB-2017 20:34:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
373.8208 F:3



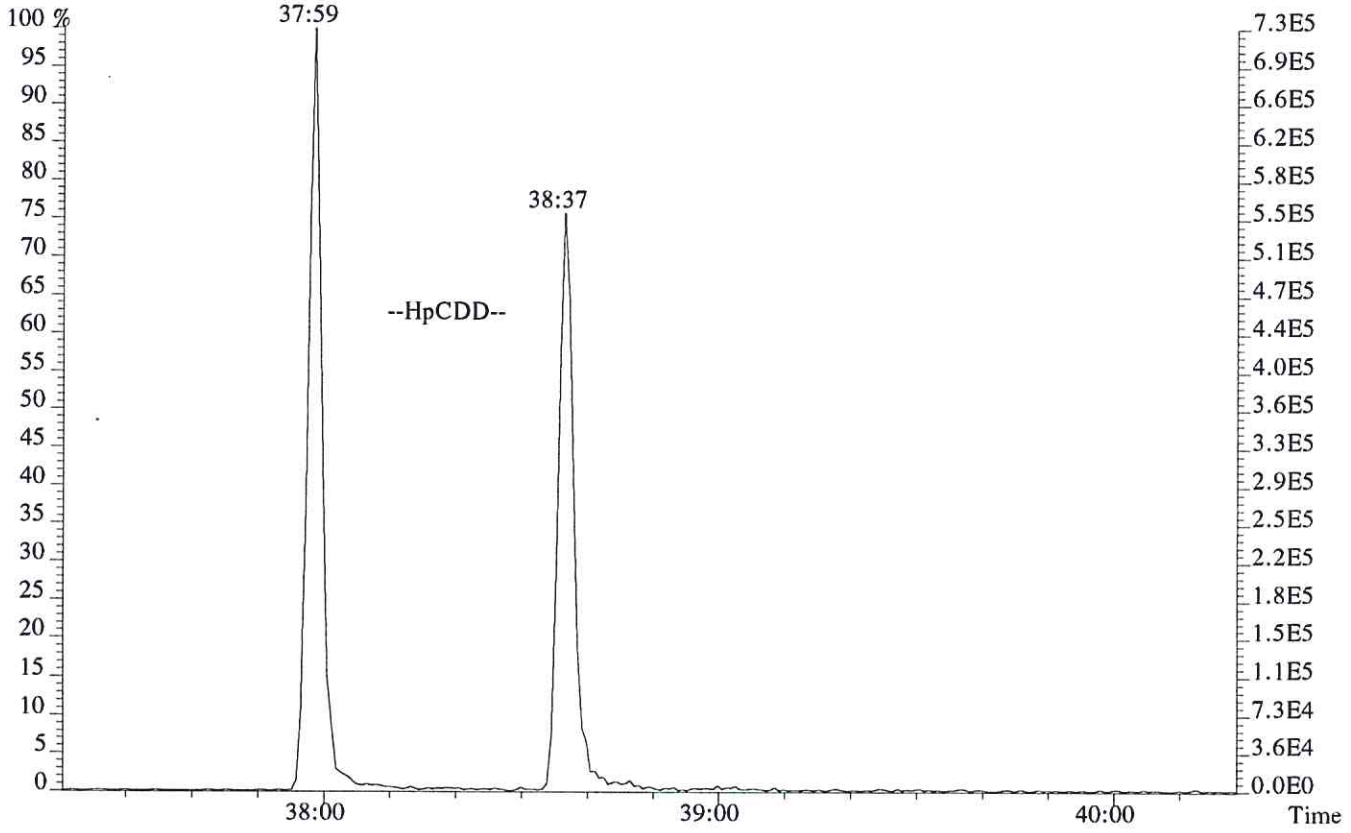
389.8157 F:3



File:P405427 #1-268 Acq:16-FEB-2017 20:34:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178397
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: 04/28/16

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

VER Data Filename: P405429 Analysis Date: 16-FEB-17 Time: 22:13:20

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	9.8	7.8 - 12.9	-1.8
1,2,3,7,8-PeCDD	M+2/M+4	1.52	1.32-1.78	49	39 - 65	-1.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	50	39 - 64	0.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	50	39 - 64	-0.7
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	49	41 - 61	-1.2
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	0.88	0.76-1.02	100	79 - 126	0.1
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.2	8.4 - 12.0	1.9
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 60	2.9
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	51	41 - 61	2.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	51	45 - 56	2.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	52	44 - 57	3.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	52	45 - 56	4.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	2.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	52	45 - 55	4.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	52	43 - 58	3.1
OCDF	M+2/M+4	0.88	0.76-1.02	98	63 - 159	-2.5

(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: 04/28/16

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

VER Data Filename: P405429 Analysis Date: 16-FEB-17 Time: 22:13:20

	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	96	82 - 121	-4.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	113	62 - 160	12.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	106	85 - 117	6.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	99	85 - 118	-0.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	108	72 - 138	7.8
13C-OCDD	M+2/M+4	0.88	0.76-1.02	232	96 - 415	16.0
13C-2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	89	71 - 140	-11.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	103	76 - 130	2.7
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	103	77 - 130	2.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	98	76 - 131	-2.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	92	70 - 143	-8.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	97	74 - 135	-3.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.50	0.43-0.59	96	73 - 137	-3.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	103	78 - 129	2.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	97	77 - 129	-3.2
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.7

(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.
178519

Run #7 Filename P405429 Samp: 1 Inj: 1 Acquired: 16-FEB-17 22:13:20
Processed: 17-FEB-17 10:42:57 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:54	1.600e+03	2.107e+03	0.76	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	31:25	1.444e+04	9.302e+03	1.55	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	32:21	1.347e+04	8.742e+03	1.54	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	35:06	1.247e+04	1.027e+04	1.21	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	35:12	1.316e+04	1.091e+04	1.21	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	35:43	1.238e+04	9.984e+03	1.24	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	36:28	1.127e+04	9.161e+03	1.23	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	1.161e+04	1.122e+04	1.03	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:03	9.207e+03	8.852e+03	1.04	yes	no	1.187
10	Unk	OCDF	41:21	1.616e+04	1.828e+04	0.88	yes	no	1.035
11	Unk	2,3,7,8-TCDD	27:45	1.599e+03	2.145e+03	0.75	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	32:39	1.168e+04	7.698e+03	1.52	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	35:51	1.059e+04	8.591e+03	1.23	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	35:56	1.046e+04	8.555e+03	1.22	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	1.118e+04	8.931e+03	1.25	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:36	9.277e+03	8.897e+03	1.04	yes	no	0.882
17	Unk	OCDD	41:10	1.563e+04	1.782e+04	0.88	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:52	2.035e+04	2.695e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	3.227e+04	2.064e+04	1.56	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:21	3.185e+04	2.055e+04	1.55	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:05	1.373e+04	2.689e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:12	1.529e+04	2.976e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	1.420e+04	2.863e+04	0.50	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:28	1.270e+04	2.514e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:43	1.076e+04	2.472e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:02	8.933e+03	2.058e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:45	1.896e+04	2.469e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:38	2.959e+04	1.913e+04	1.55	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	2.398e+04	1.921e+04	1.25	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:56	2.373e+04	1.916e+04	1.24	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	2.076e+04	2.009e+04	1.03	yes	no	0.817
32	IS	13C-OCDD	41:09	3.188e+04	3.636e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:06	2.070e+04	2.624e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:10	2.559e+04	2.077e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	4.330e+03				no	0.958

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
178519

Run #7 Filename P405429 Samp: 1 Inj: 1 Acquired: 16-FEB-17 22:13:20
Processed: 17-FEB-17 10:42:57 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	2.52e+05	7.92e+02	3.2e+02	3.33e+05	1.36e+03	2.4e+02
2	1,2,3,7,8-PeCDF	2.54e+06	6.16e+02	4.1e+03	1.62e+06	7.08e+02	2.3e+03
3	2,3,4,7,8-PeCDF	2.53e+06	6.16e+02	4.1e+03	1.65e+06	7.08e+02	2.3e+03
4	1,2,3,4,7,8-HxCDF	2.76e+06	2.04e+03	1.4e+03	2.25e+06	1.92e+03	1.2e+03
5	1,2,3,6,7,8-HxCDF	2.78e+06	2.04e+03	1.4e+03	2.24e+06	1.92e+03	1.2e+03
6	2,3,4,6,7,8-HxCDF	2.66e+06	2.04e+03	1.3e+03	2.14e+06	1.92e+03	1.1e+03
7	1,2,3,7,8,9-HxCDF	2.36e+06	2.04e+03	1.2e+03	1.89e+06	1.92e+03	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	2.63e+06	1.82e+03	1.5e+03	2.52e+06	3.20e+03	7.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.92e+06	1.82e+03	1.1e+03	1.85e+06	3.20e+03	5.8e+02
10	OCDF	3.05e+06	1.24e+03	2.5e+03	3.37e+06	2.36e+03	1.4e+03
11	2,3,7,8-TCDD	2.54e+05	1.12e+03	2.3e+02	3.43e+05	6.52e+02	5.3e+02
12	1,2,3,7,8-PeCDD	2.21e+06	1.22e+03	1.8e+03	1.46e+06	7.64e+02	1.9e+03
13	1,2,3,4,7,8-HxCDD	2.42e+06	1.06e+03	2.3e+03	1.96e+06	1.63e+03	1.2e+03
14	1,2,3,6,7,8-HxCDD	2.24e+06	1.06e+03	2.1e+03	1.84e+06	1.63e+03	1.1e+03
15	1,2,3,7,8,9-HxCDD	2.45e+06	1.06e+03	2.3e+03	2.01e+06	1.63e+03	1.2e+03
16	1,2,3,4,6,7,8-HpCDD	2.04e+06	1.63e+03	1.3e+03	1.96e+06	1.46e+03	1.3e+03
17	OCDD	2.96e+06	2.53e+03	1.2e+03	3.41e+06	4.02e+03	8.5e+02
18	13C-2,3,7,8-TCDF	3.20e+06	7.08e+03	4.5e+02	4.21e+06	3.71e+03	1.1e+03
19	13C-1,2,3,7,8-PeCDF	5.76e+06	8.72e+02	6.6e+03	3.68e+06	1.00e+03	3.7e+03
20	13C-2,3,4,7,8-PeCDF	6.07e+06	8.72e+02	7.0e+03	3.94e+06	1.00e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	3.00e+06	1.27e+03	2.4e+03	5.83e+06	1.67e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.16e+06	1.27e+03	2.5e+03	6.08e+06	1.67e+03	3.6e+03
23	13C-2,3,4,6,7,8-HxCDF	3.10e+06	1.27e+03	2.4e+03	6.08e+06	1.67e+03	3.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.69e+06	1.27e+03	2.1e+03	5.30e+06	1.67e+03	3.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.47e+06	2.81e+03	8.8e+02	5.59e+06	2.95e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.89e+06	2.81e+03	6.7e+02	4.31e+06	2.95e+03	1.5e+03
27	13C-2,3,7,8-TCDD	3.18e+06	3.08e+03	1.0e+03	4.09e+06	2.16e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	5.71e+06	1.06e+03	5.4e+03	3.68e+06	1.34e+03	2.8e+03
29	13C-1,2,3,4,7,8-HxCDD	5.49e+06	1.37e+03	4.0e+03	4.39e+06	1.12e+03	3.9e+03
30	13C-1,2,3,6,7,8-HxCDD	5.11e+06	1.37e+03	3.7e+03	4.05e+06	1.12e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.57e+06	2.48e+03	1.8e+03	4.40e+06	1.95e+03	2.3e+03
32	13C-OCDD	6.11e+06	2.87e+03	2.1e+03	7.00e+06	3.93e+03	1.8e+03
33	13C-1,2,3,4-TCDD	3.48e+06	3.08e+03	1.1e+03	4.42e+06	2.16e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.65e+06	1.37e+03	4.1e+03	4.58e+06	1.12e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	7.19e+05	7.56e+02	9.5e+02			

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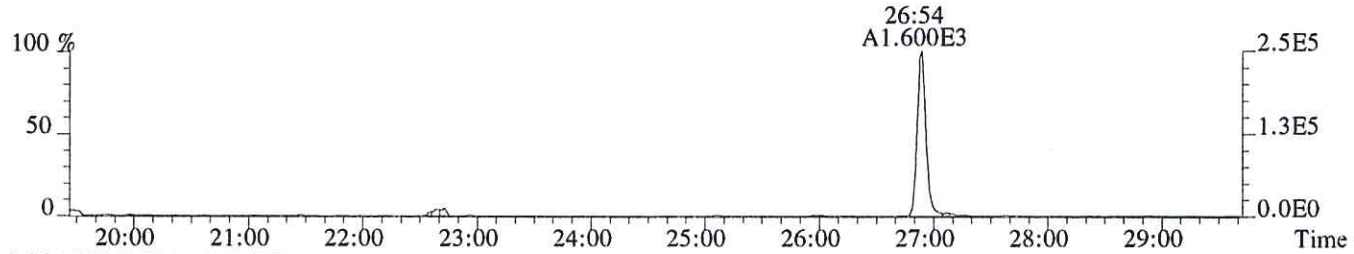
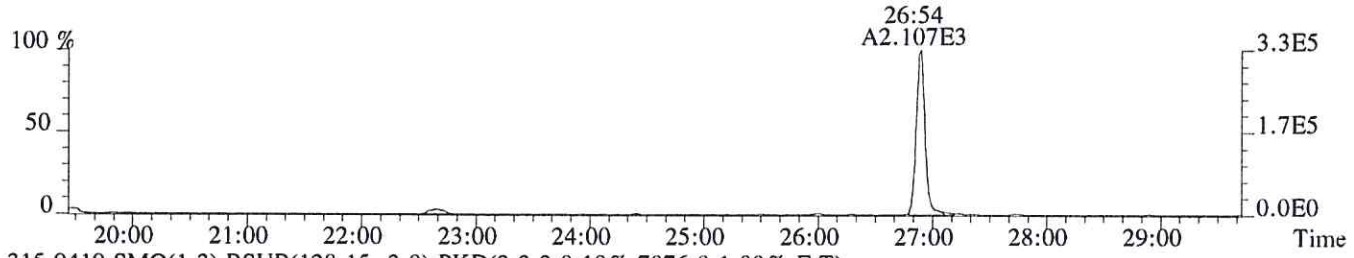
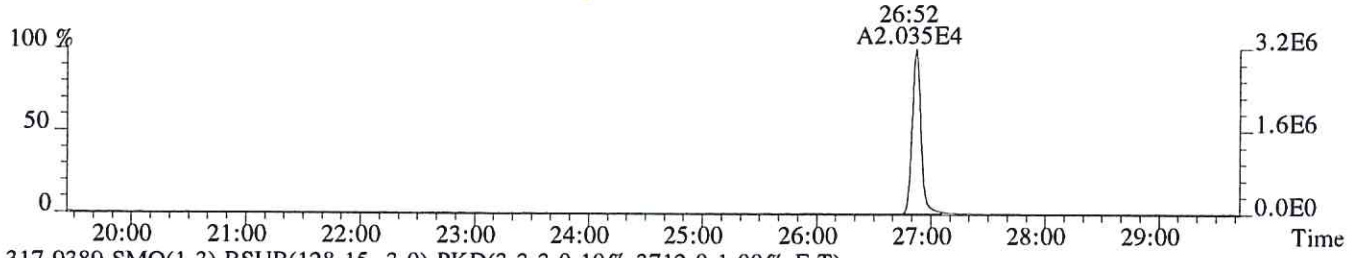
File:P405429 #1-729 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



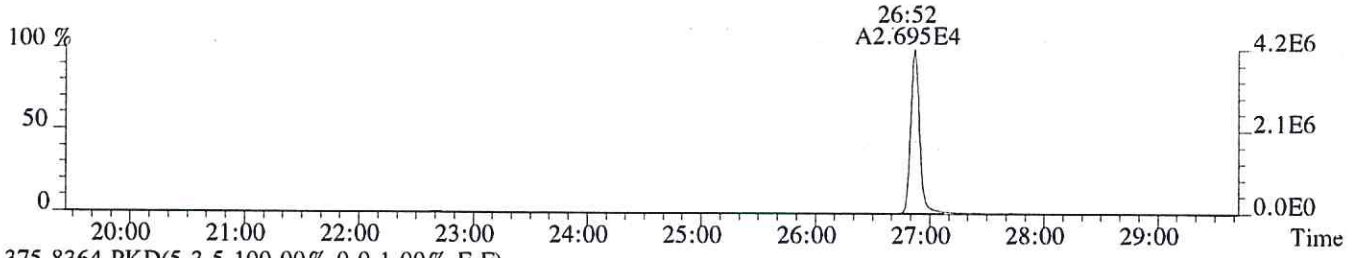
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



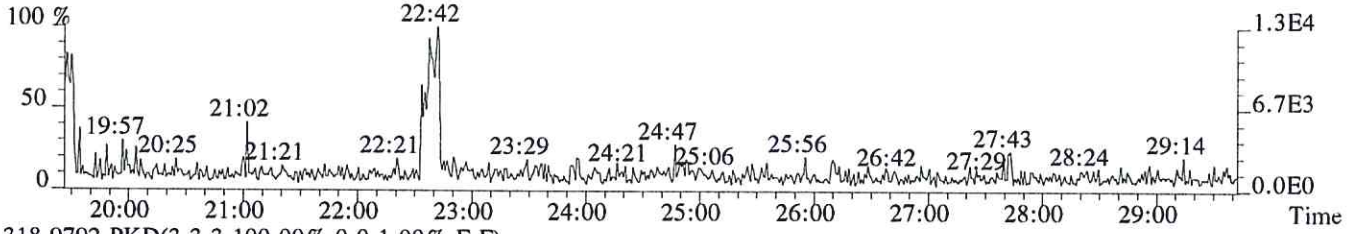
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7076.0,1.00%,F,T)



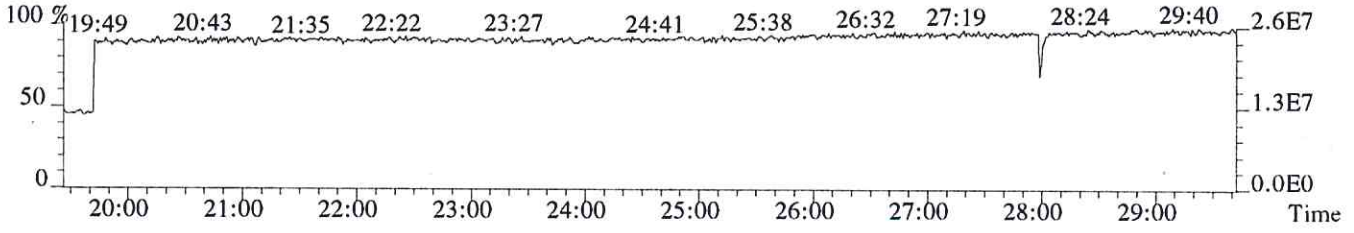
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3712.0,1.00%,F,T)



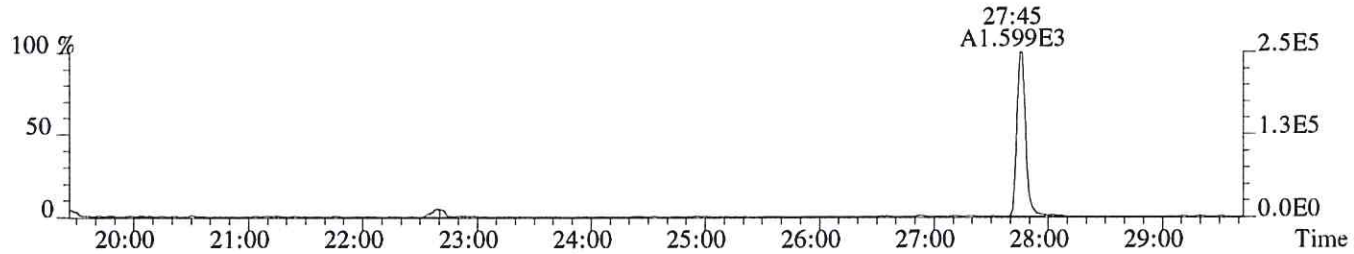
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



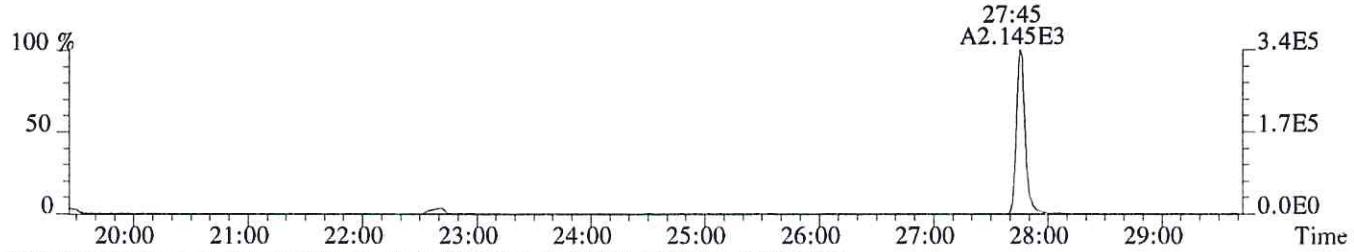
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



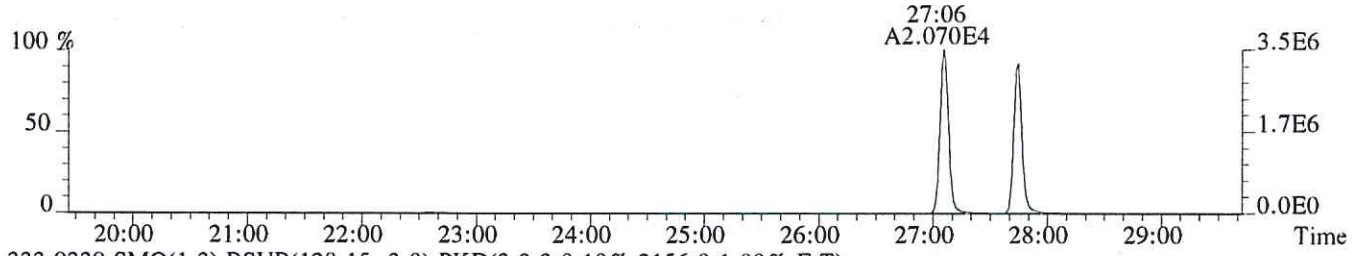
File:P405429 #1-729 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



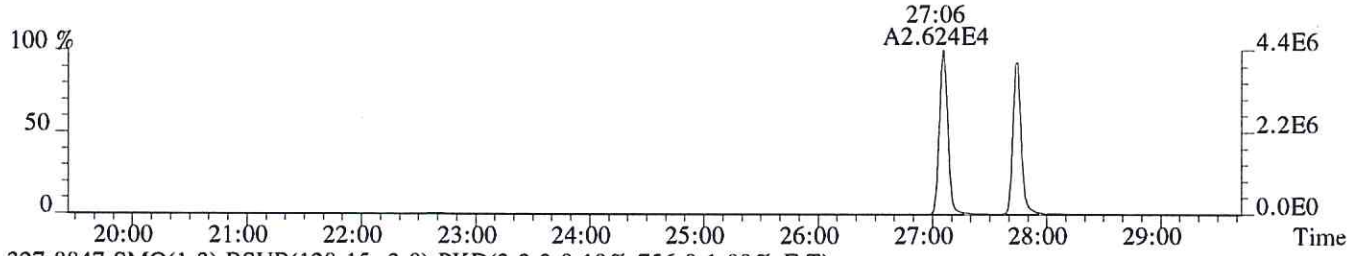
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



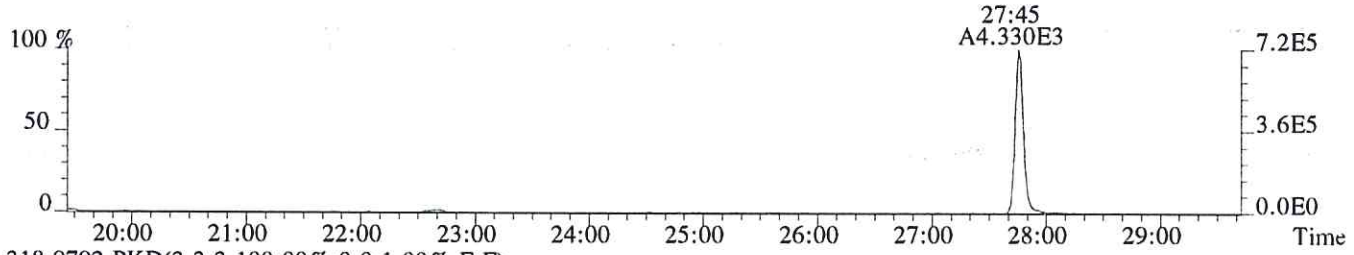
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3084.0,1.00%,F,T)



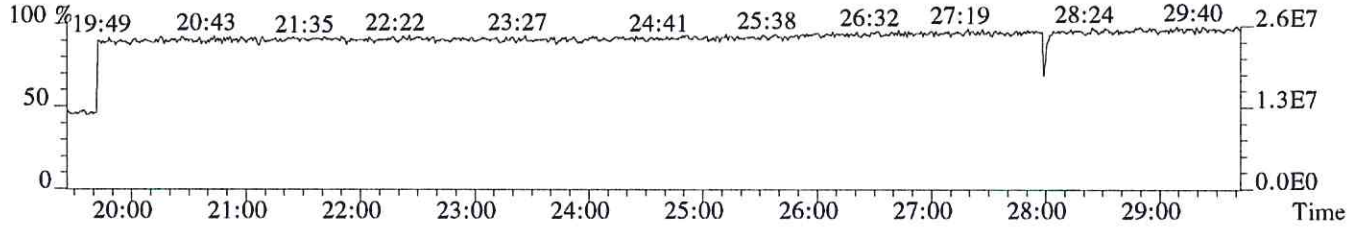
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



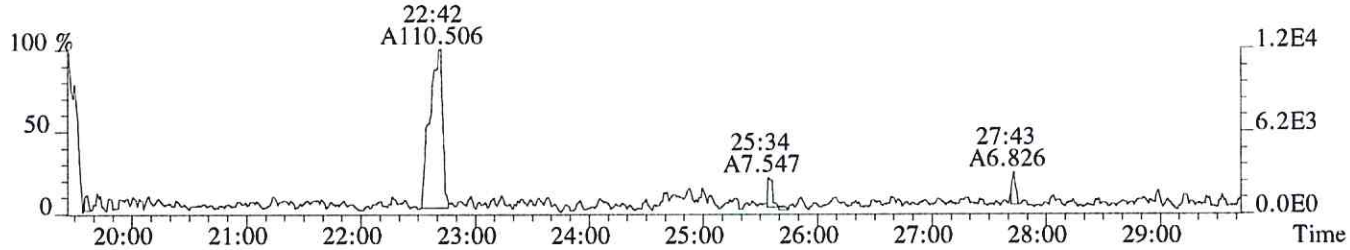
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



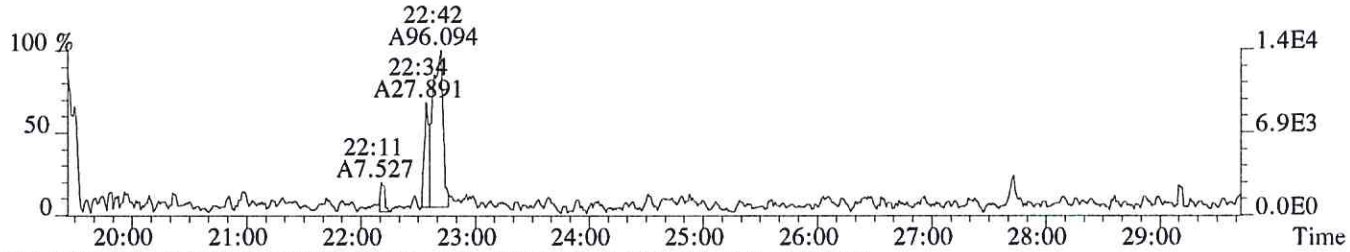
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



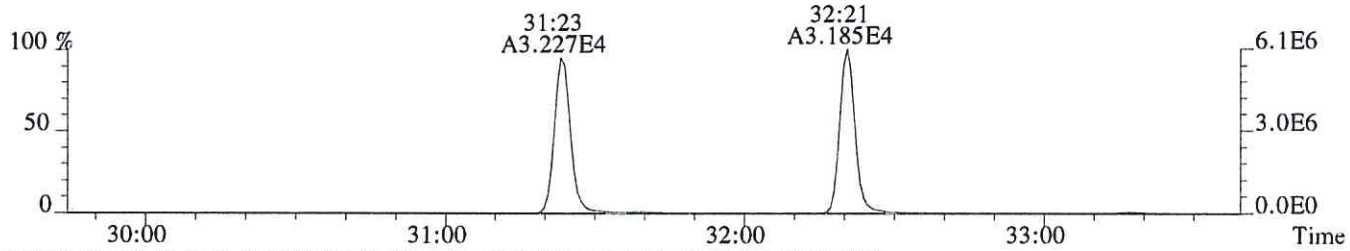
File:P405429 #1-729 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



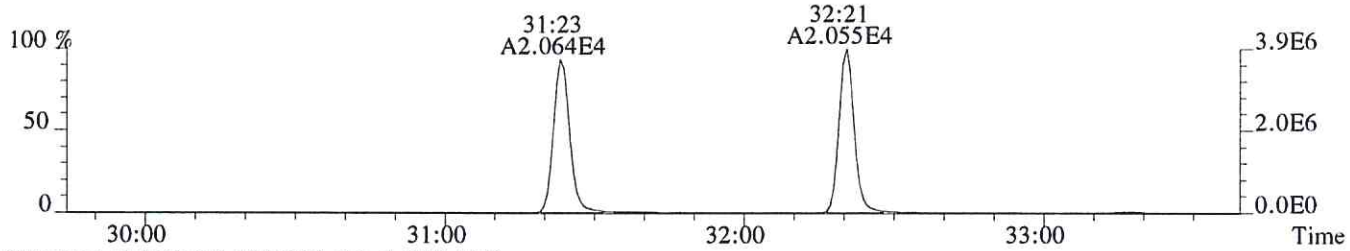
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



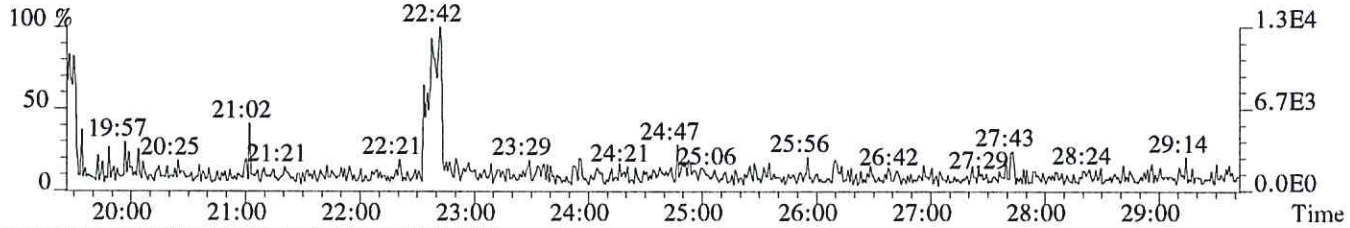
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



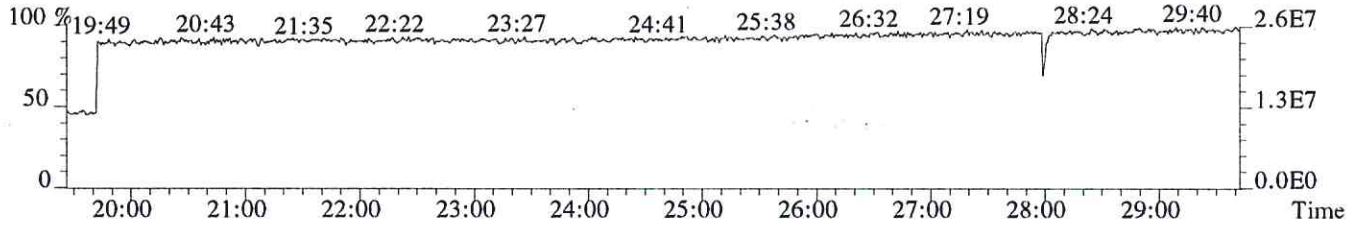
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



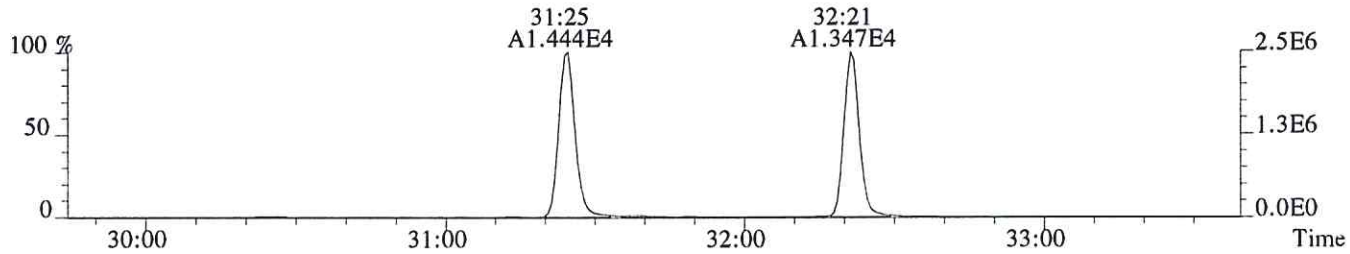
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



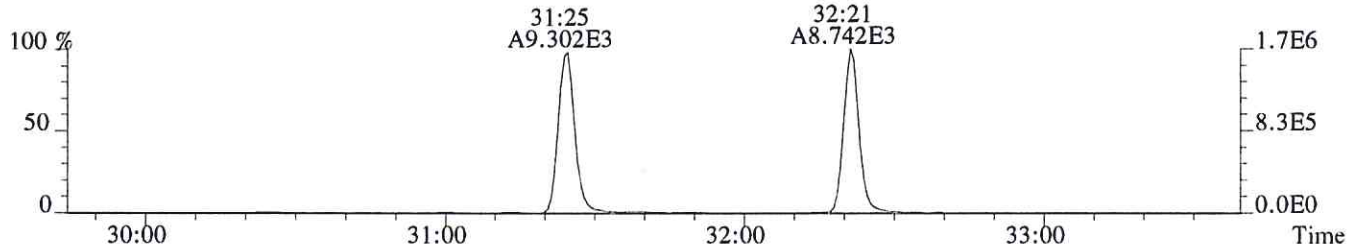
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



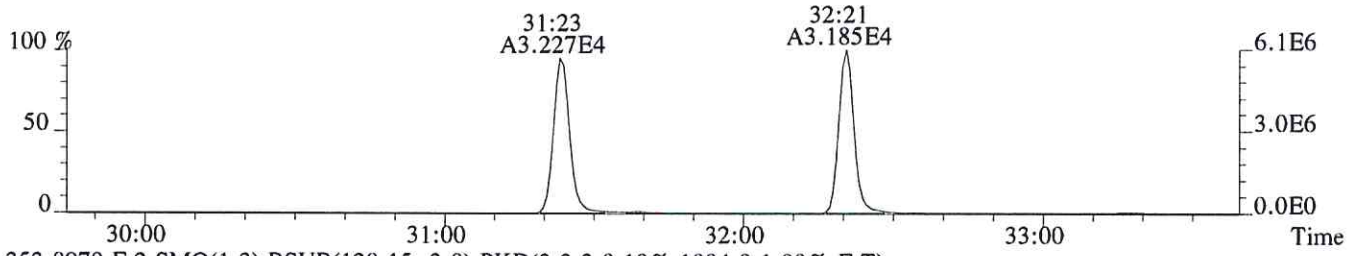
File:P405429 #1-353 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



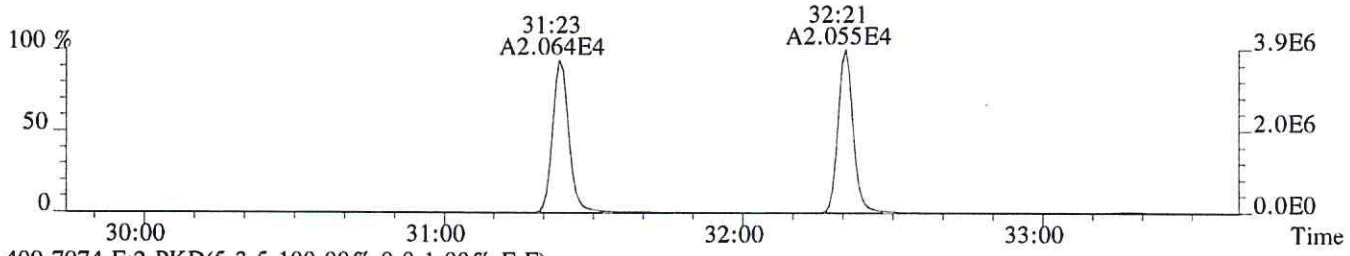
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



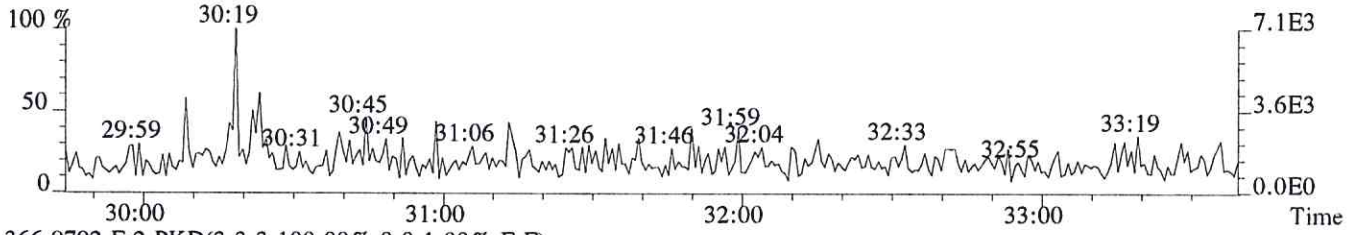
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



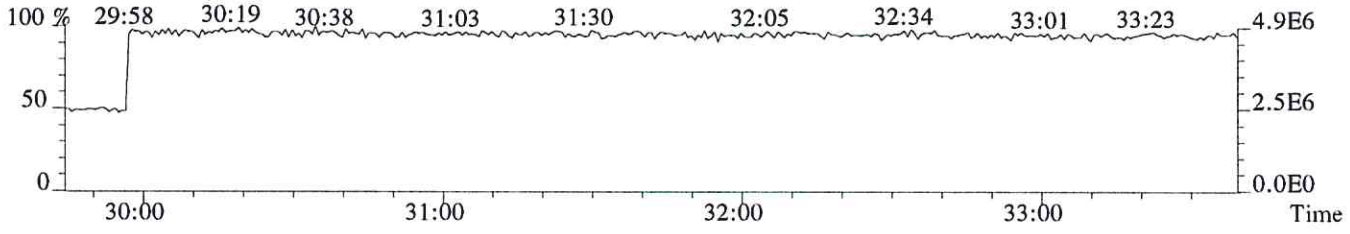
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



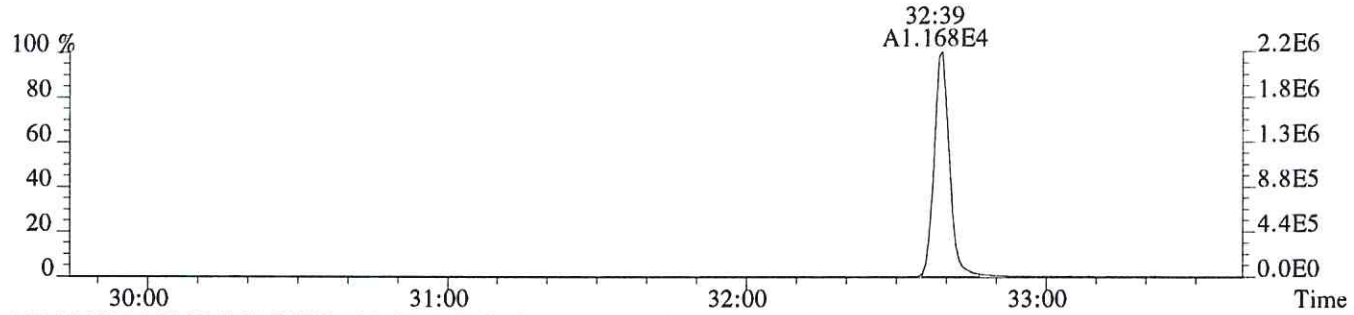
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



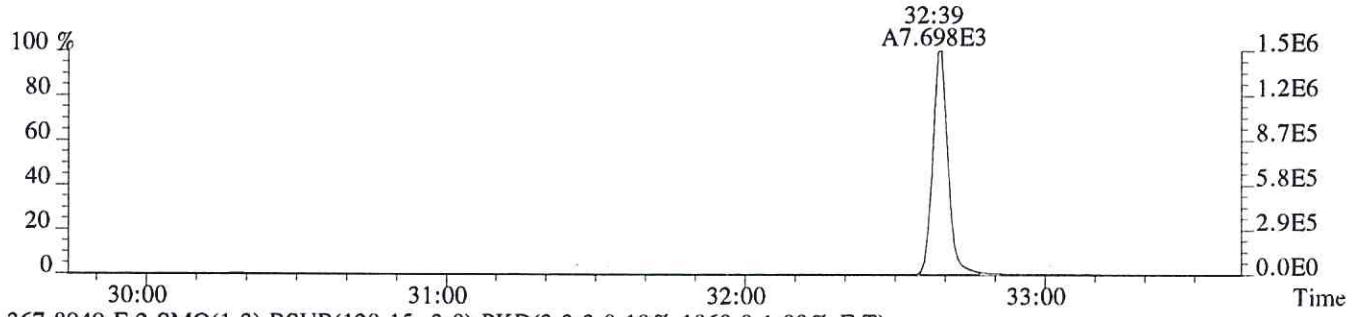
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



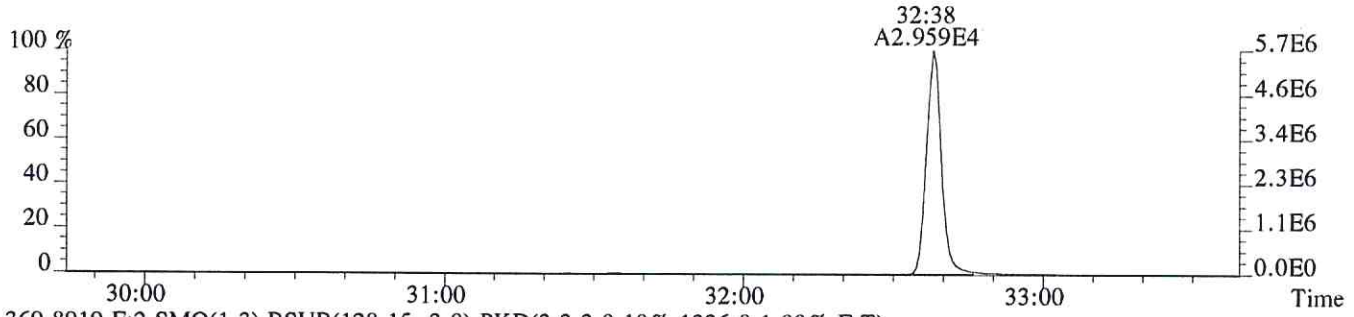
File:P405429 #1-353 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



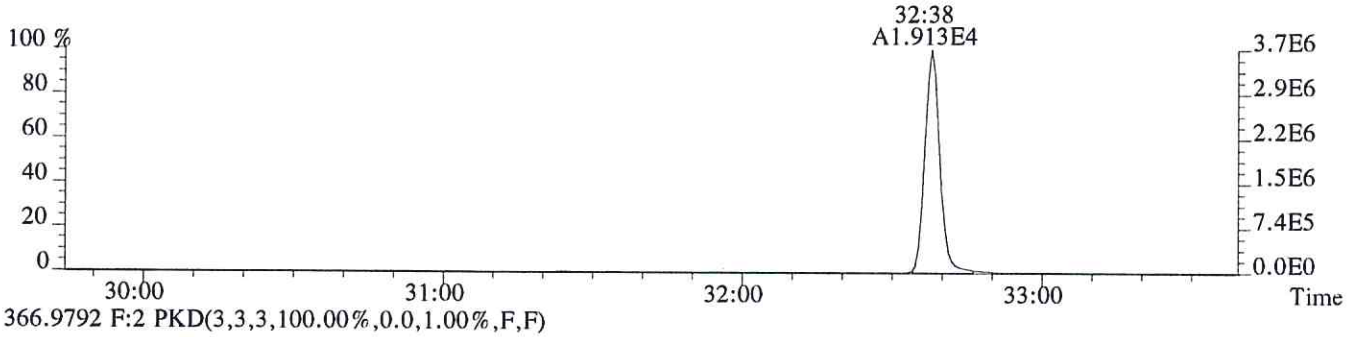
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



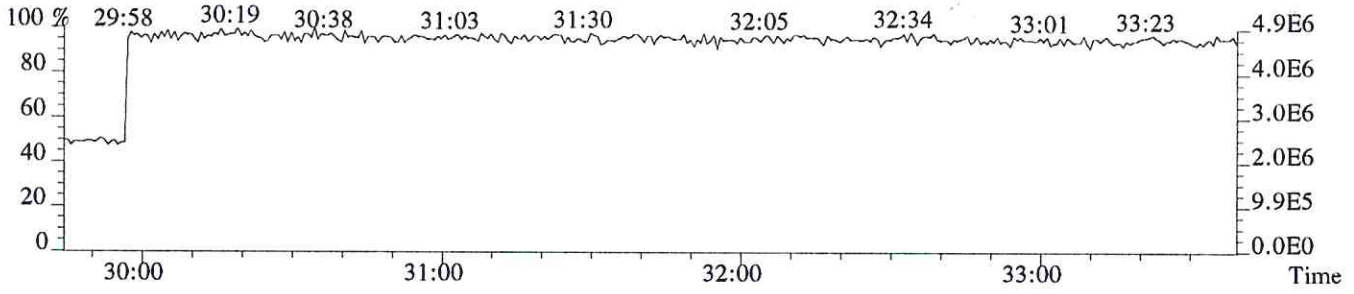
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



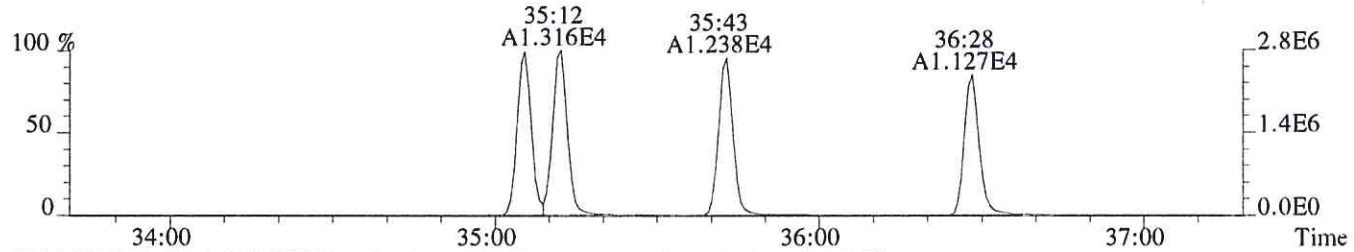
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



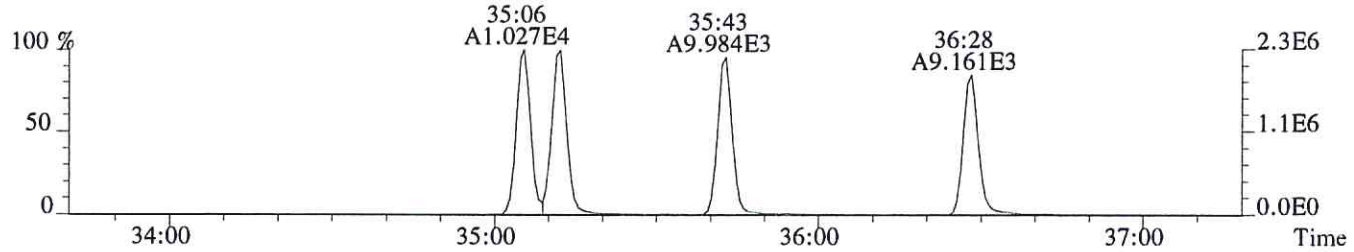
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



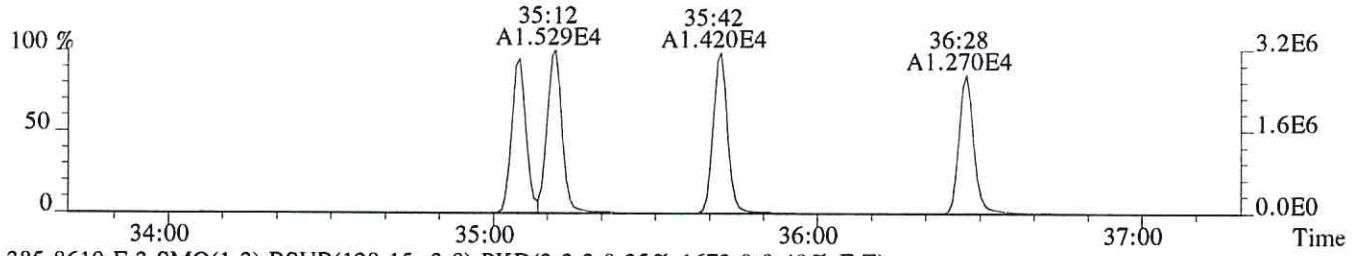
File:P405429 #1-326 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2036.0,0.40%,F,T)



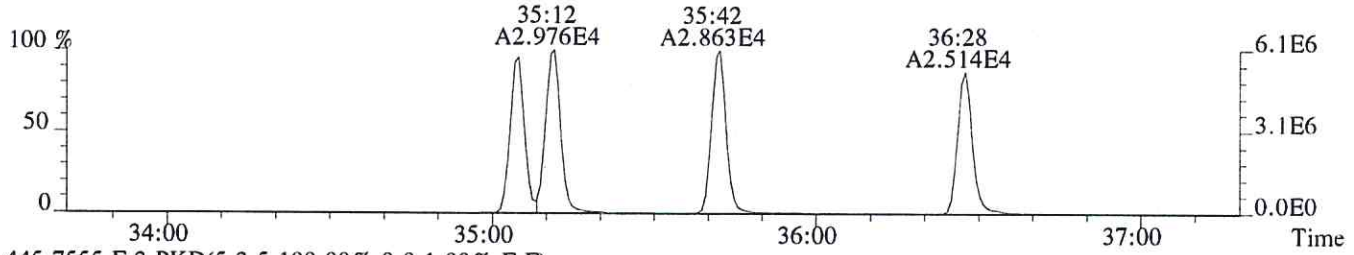
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.40%,F,T)



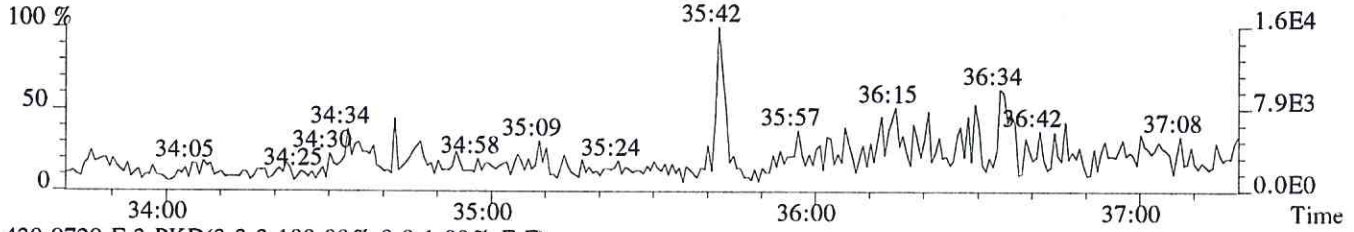
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.40%,F,T)



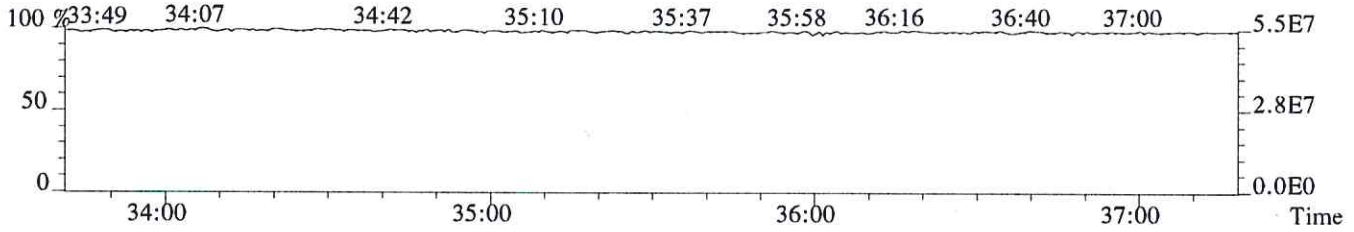
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.40%,F,T)



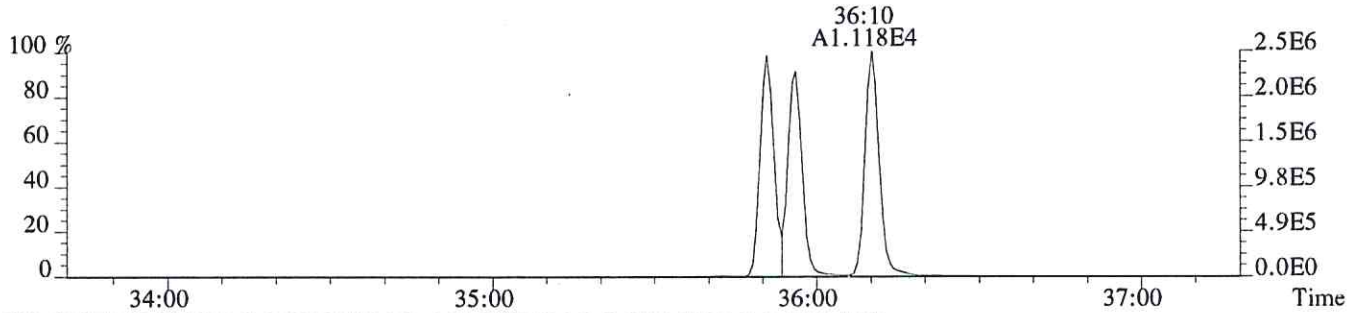
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



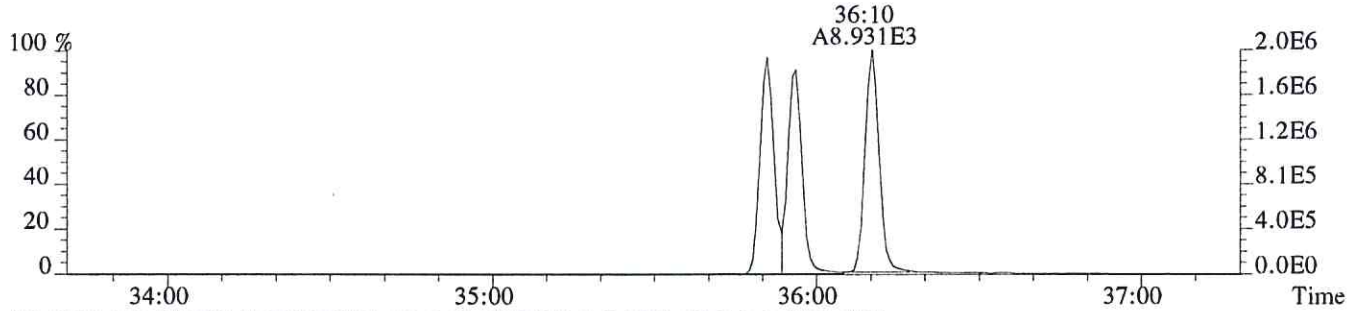
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



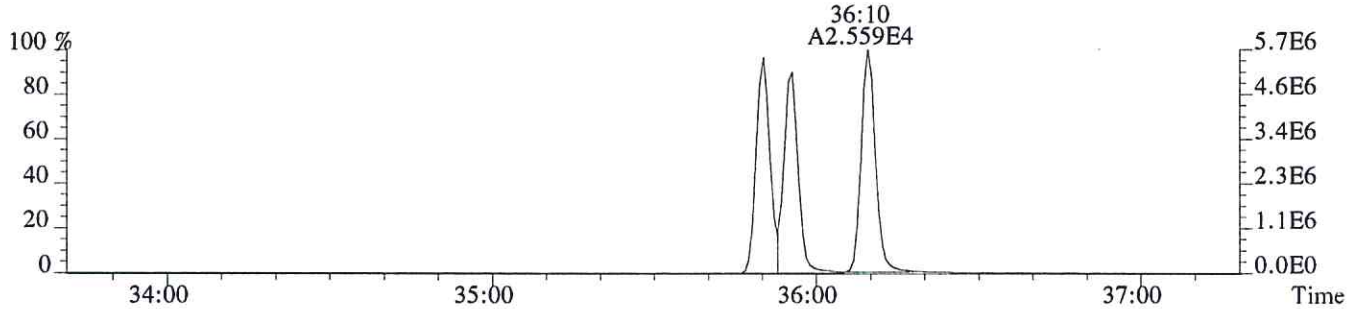
File:P405429 #1-326 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



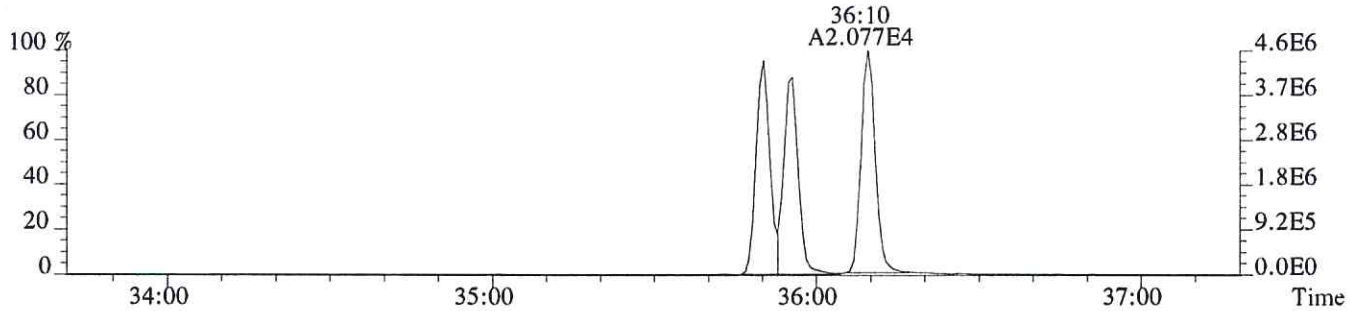
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



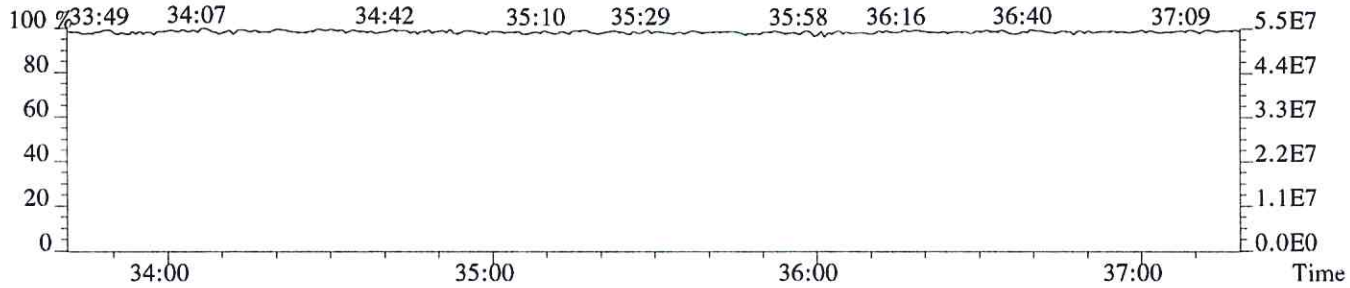
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.40%,F,T)



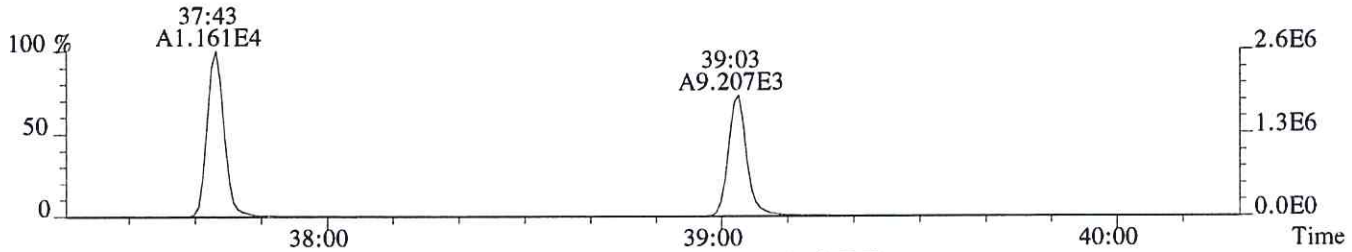
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



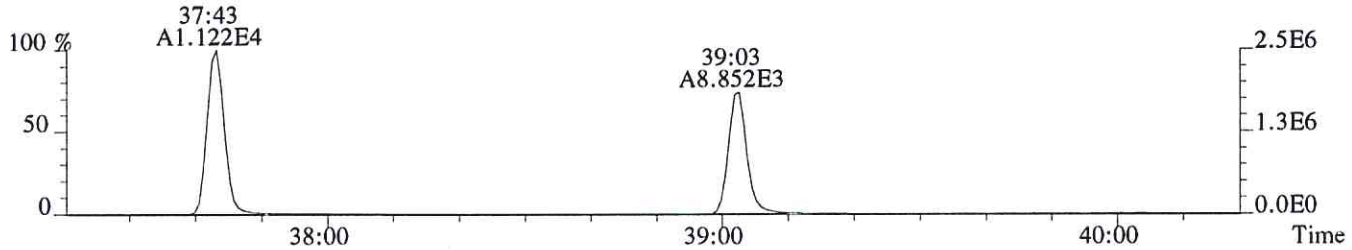
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



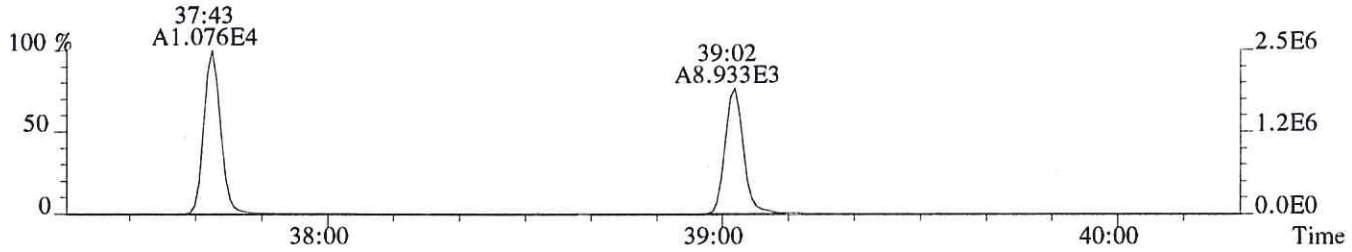
File:P405429 #1-268 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1816.0,0.50%,F,T)



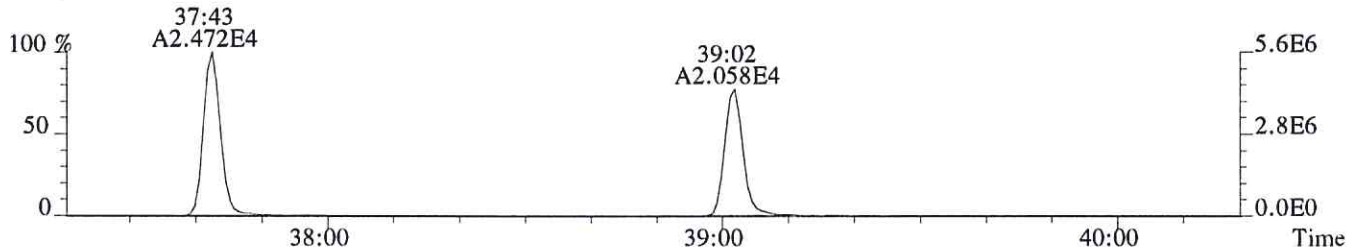
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3204.0,0.50%,F,T)



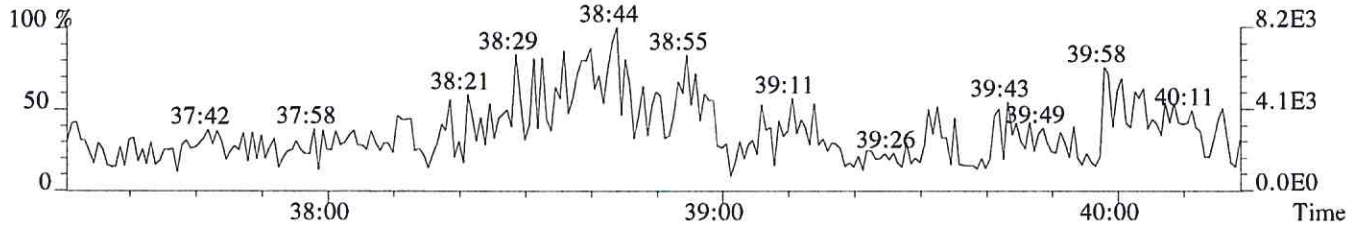
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2808.0,0.50%,F,T)



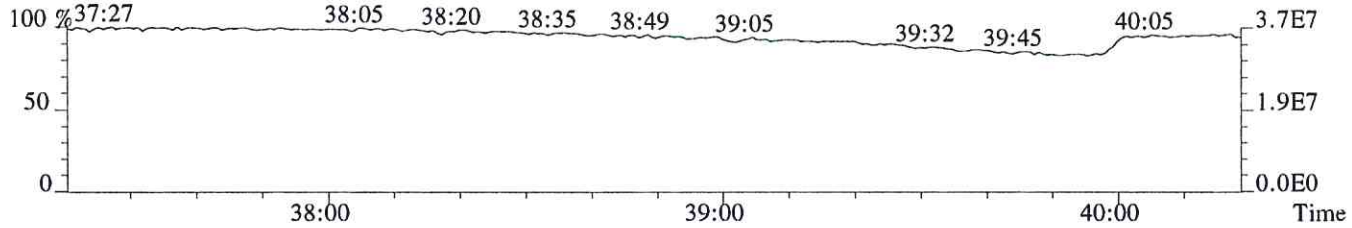
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2952.0,0.50%,F,T)



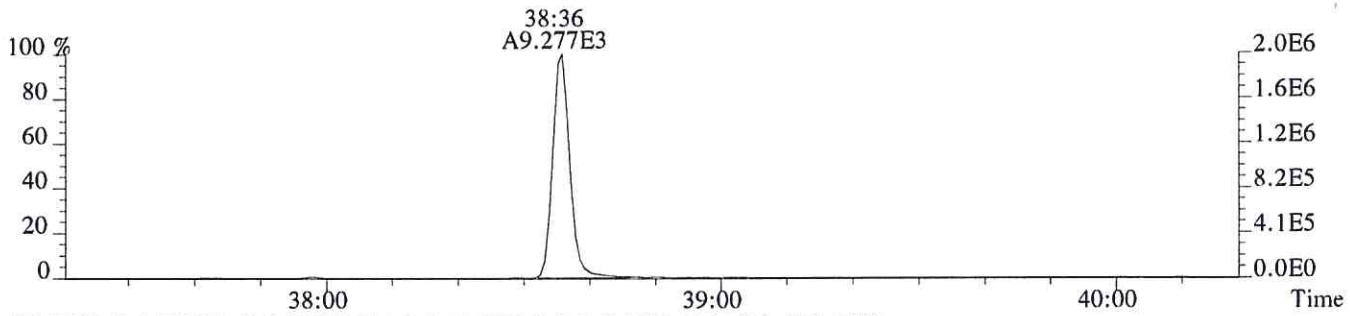
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



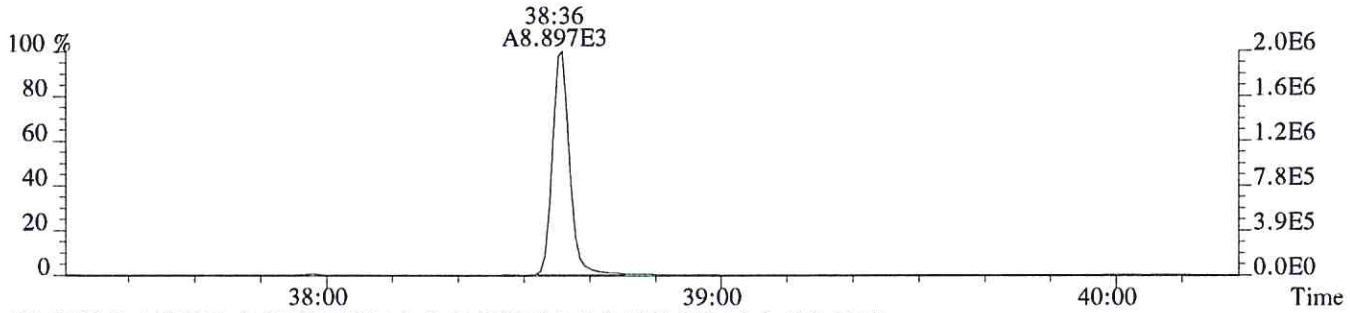
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



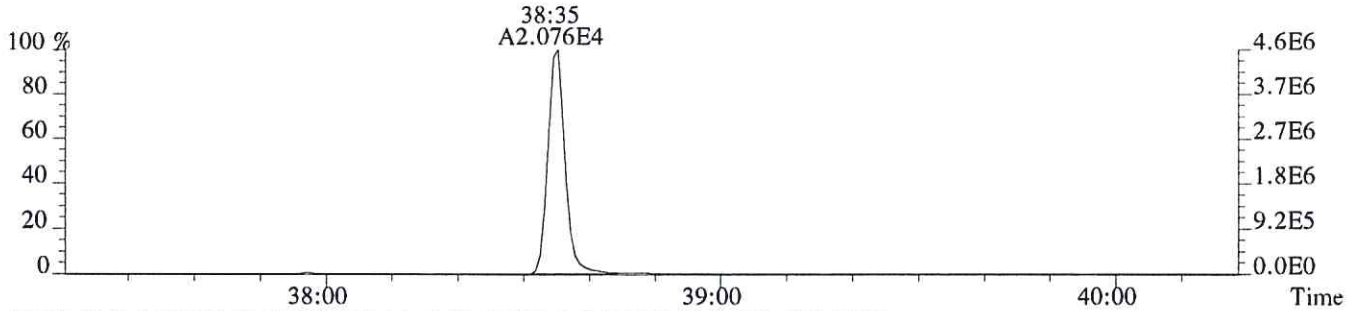
File:P405429 #1-268 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



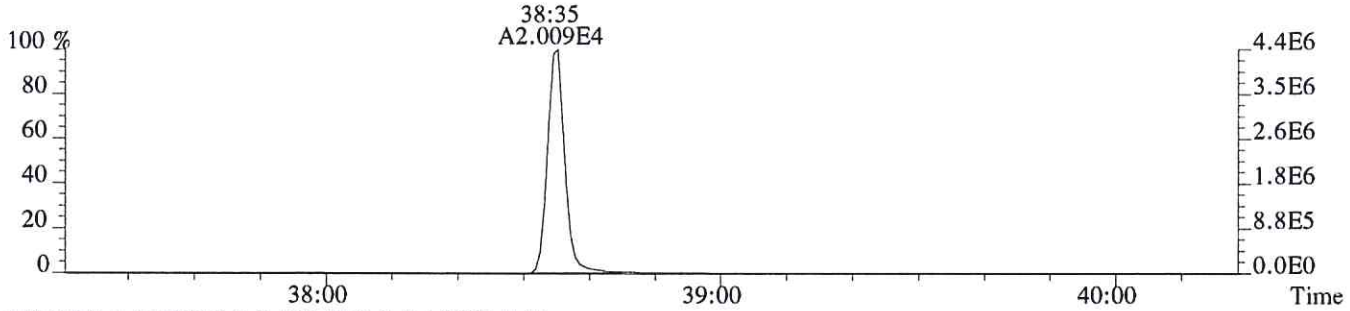
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



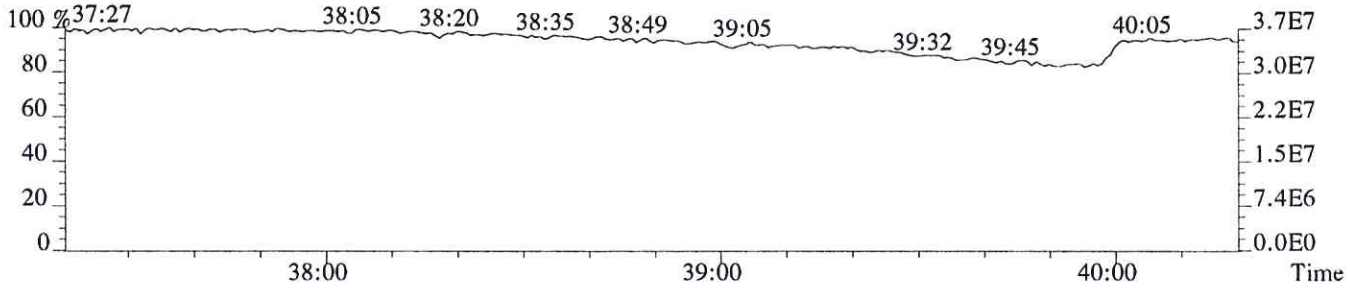
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2484.0,0.40%,F,T)



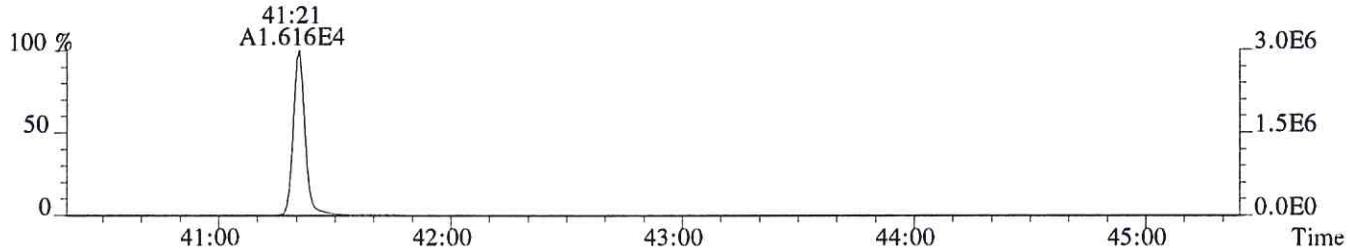
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1948.0,0.40%,F,T)



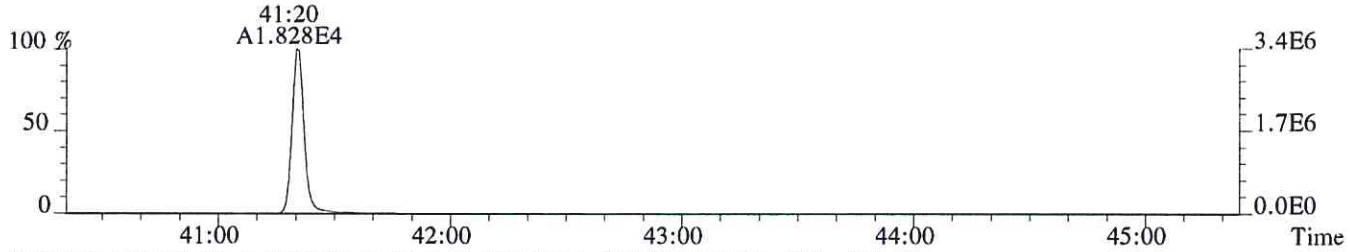
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



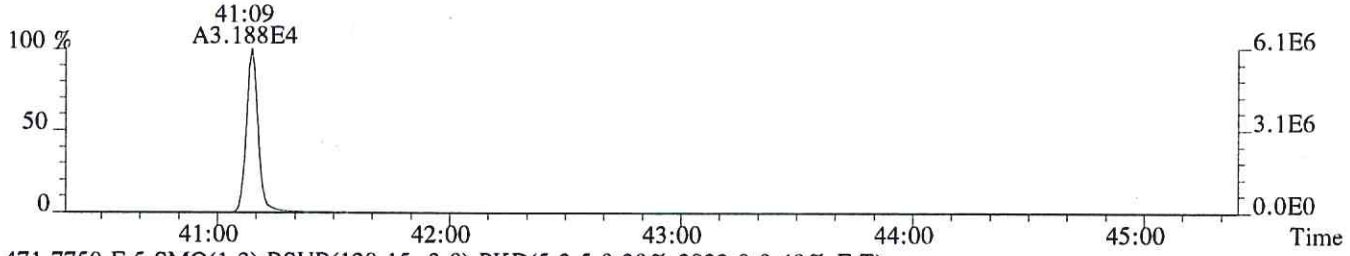
File:P405429 #1-456 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



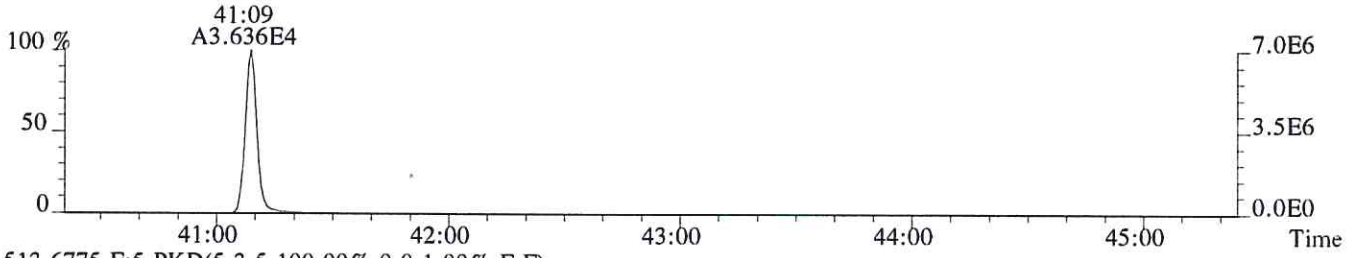
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2360.0,0.40%,F,T)



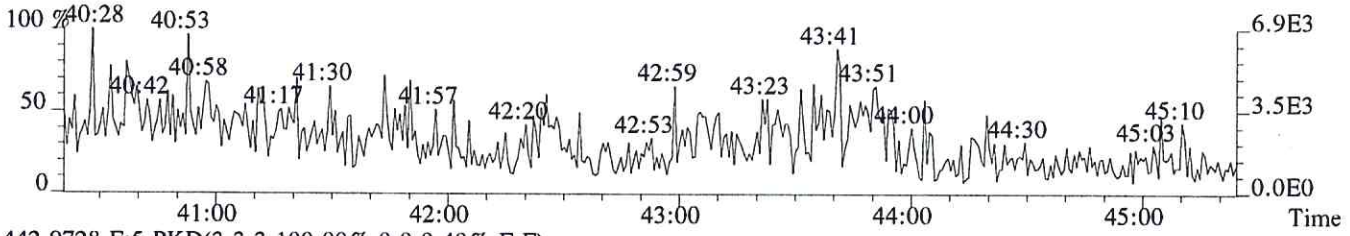
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2868.0,0.40%,F,T)



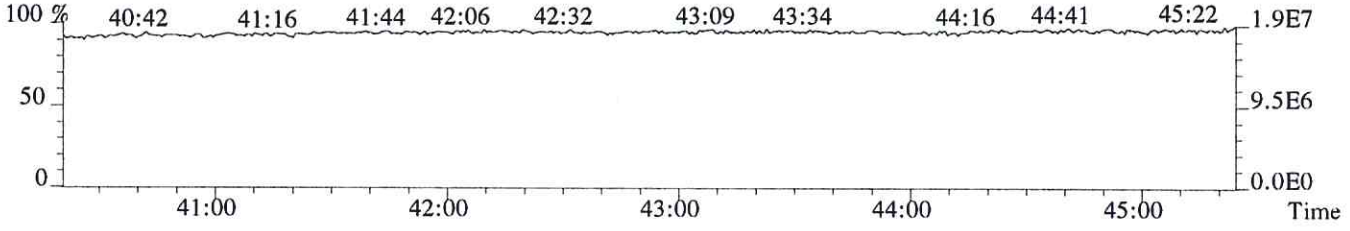
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3932.0,0.40%,F,T)



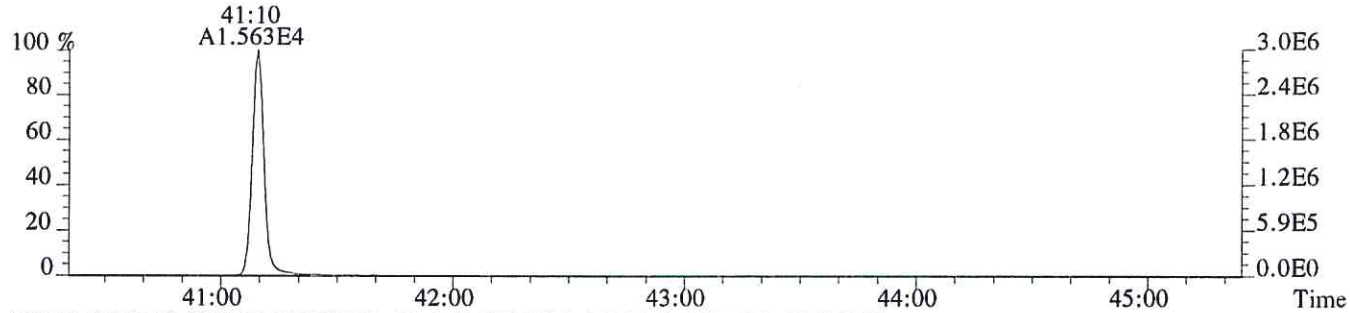
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



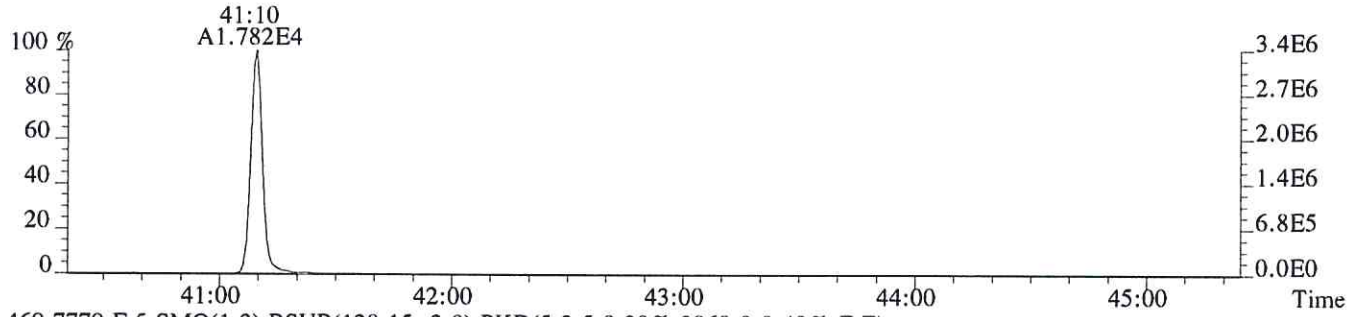
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



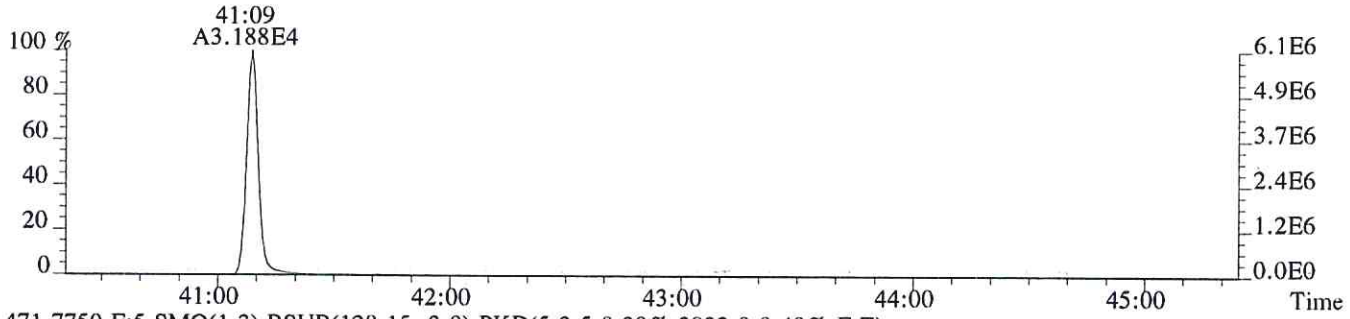
File:P405429 #1-456 Acq:16-FEB-2017 22:13:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2528.0,0.40%,F,T)



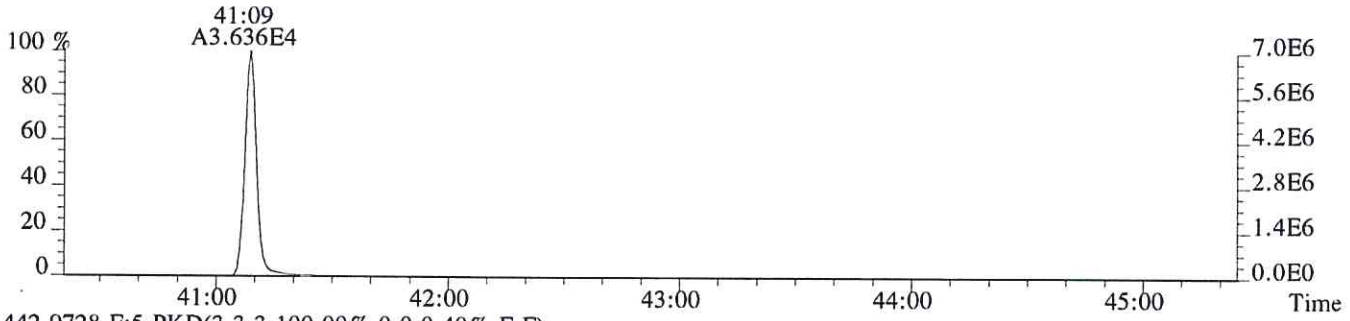
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4024.0,0.40%,F,T)



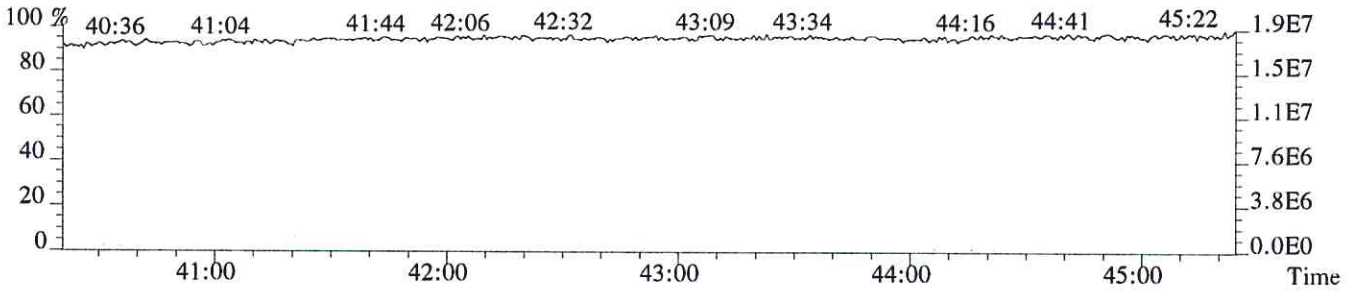
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2868.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3932.0,0.40%,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: 04/28/16

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

VER Data Filename: P405440 Analysis Date: 17-FEB-17 Time: 07:35:10

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	9.9	7.8 - 12.9	-0.9
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	50	39 - 65	0.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	51	39 - 64	2.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	51	41 - 61	1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	52	43 - 58	4.2
OCDD	M+2/M+4	0.88	0.76-1.02	101	79 - 126	1.2
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.1	8.4 - 12.0	1.2
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 60	2.8
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	51	41 - 61	1.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	3.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	4.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	44 - 57	3.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	53	45 - 55	5.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	51	43 - 58	2.0
OCDF	M+2/M+4	0.89	0.76-1.02	98	63 - 159	-1.9

(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) 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: 04/28/16

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

VER Data Filename: P405440 Analysis Date: 17-FEB-17 Time: 07:35:10

	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	95	82 - 121	-4.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	109	62 - 160	9.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	105	85 - 117	4.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	100	85 - 118	0.3
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	111	72 - 138	10.6
13C-OCDD	M+2/M+4	0.88	0.76-1.02	253	96 - 415	26.7
13C-2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	88	71 - 140	-11.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	101	76 - 130	1.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	101	77 - 130	1.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	96	76 - 131	-3.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	94	70 - 143	-6.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	97	74 - 135	-3.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	96	73 - 137	-4.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	105	78 - 129	4.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	107	77 - 129	7.4
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 P405440 Samp: 1 Inj: 1 Acquired: 17-FEB-17 07:35:10
Processed: 17-FEB-17 10:42:59 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:52	1.660e+03	2.174e+03	0.76	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	31:24	1.491e+04	9.598e+03	1.55	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	32:21	1.373e+04	8.992e+03	1.53	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	35:05	1.256e+04	1.020e+04	1.23	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	35:12	1.368e+04	1.111e+04	1.23	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	35:42	1.266e+04	1.019e+04	1.24	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	36:28	1.146e+04	9.261e+03	1.24	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	37:43	1.211e+04	1.187e+04	1.02	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:02	1.013e+04	9.998e+03	1.01	yes	no	1.187
10	Unk	OCDF	41:20	1.814e+04	2.030e+04	0.89	yes	no	1.035
11	Unk	2,3,7,8-TCDD	27:45	1.679e+03	2.251e+03	0.75	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	32:39	1.209e+04	7.852e+03	1.54	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	35:50	1.070e+04	8.731e+03	1.23	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	35:56	1.103e+04	8.758e+03	1.26	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	36:10	1.159e+04	9.440e+03	1.23	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	38:35	9.993e+03	9.556e+03	1.05	yes	no	0.882
17	Unk	OCDD	41:09	1.759e+04	1.995e+04	0.88	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	26:51	2.135e+04	2.792e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	31:23	3.323e+04	2.143e+04	1.55	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	32:20	3.298e+04	2.101e+04	1.57	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:04	1.362e+04	2.685e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	35:11	1.571e+04	3.086e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	35:42	1.457e+04	2.878e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	36:27	1.297e+04	2.558e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:42	1.105e+04	2.562e+04	0.43	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:01	9.973e+03	2.330e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	27:44	1.987e+04	2.557e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	32:37	3.006e+04	1.932e+04	1.56	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	35:50	2.386e+04	1.933e+04	1.23	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	35:55	2.452e+04	1.956e+04	1.25	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:35	2.178e+04	2.080e+04	1.05	yes	no	0.817
32	IS	13C-OCDD	41:08	3.541e+04	4.032e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	27:05	2.163e+04	2.751e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:09	2.607e+04	2.104e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	27:45	4.515e+03				no	0.958

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
178519

Run #18 Filename P405440 Samp: 1 Inj: 1 Acquired: 17-FEB-17 07:35:10
Processed: 17-FEB-17 10:42:59 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	2.50e+05	1.14e+03	2.2e+02	3.37e+05	1.18e+03	2.9e+02
2	1,2,3,7,8-PeCDF	2.62e+06	4.00e+03	6.6e+02	1.66e+06	2.25e+03	7.4e+02
3	2,3,4,7,8-PeCDF	2.58e+06	4.00e+03	6.5e+02	1.72e+06	2.25e+03	7.6e+02
4	1,2,3,4,7,8-HxCDF	2.72e+06	1.39e+03	2.0e+03	2.21e+06	1.42e+03	1.5e+03
5	1,2,3,6,7,8-HxCDF	2.83e+06	1.39e+03	2.0e+03	2.29e+06	1.42e+03	1.6e+03
6	2,3,4,6,7,8-HxCDF	2.76e+06	1.39e+03	2.0e+03	2.22e+06	1.42e+03	1.6e+03
7	1,2,3,7,8,9-HxCDF	2.35e+06	1.39e+03	1.7e+03	1.89e+06	1.42e+03	1.3e+03
8	1,2,3,4,6,7,8-HpCDF	2.67e+06	2.89e+03	9.2e+02	2.62e+06	2.51e+03	1.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.07e+06	2.89e+03	7.1e+02	1.99e+06	2.51e+03	7.9e+02
10	OCDF	3.24e+06	3.77e+03	8.6e+02	3.67e+06	5.69e+03	6.5e+02
11	2,3,7,8-TCDD	2.77e+05	2.32e+03	1.2e+02	3.60e+05	1.33e+03	2.7e+02
12	1,2,3,7,8-PeCDD	2.21e+06	1.44e+03	1.5e+03	1.42e+06	1.25e+03	1.1e+03
13	1,2,3,4,7,8-HxCDD	2.43e+06	1.36e+03	1.8e+03	1.99e+06	1.09e+03	1.8e+03
14	1,2,3,6,7,8-HxCDD	2.34e+06	1.36e+03	1.7e+03	1.85e+06	1.09e+03	1.7e+03
15	1,2,3,7,8,9-HxCDD	2.43e+06	1.36e+03	1.8e+03	1.96e+06	1.09e+03	1.8e+03
16	1,2,3,4,6,7,8-HpCDD	2.16e+06	1.53e+03	1.4e+03	2.05e+06	1.64e+03	1.2e+03
17	OCDD	3.23e+06	2.85e+03	1.1e+03	3.65e+06	3.07e+03	1.2e+03
18	13C-2,3,7,8-TCDF	3.33e+06	6.66e+03	5.0e+02	4.31e+06	3.41e+03	1.3e+03
19	13C-1,2,3,7,8-PeCDF	5.72e+06	3.34e+03	1.7e+03	3.72e+06	2.55e+03	1.5e+03
20	13C-2,3,4,7,8-PeCDF	6.25e+06	3.34e+03	1.9e+03	3.96e+06	2.55e+03	1.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.94e+06	1.29e+03	2.3e+03	5.74e+06	1.19e+03	4.8e+03
22	13C-1,2,3,6,7,8-HxCDF	3.28e+06	1.29e+03	2.5e+03	6.39e+06	1.19e+03	5.4e+03
23	13C-2,3,4,6,7,8-HxCDF	3.18e+06	1.29e+03	2.5e+03	6.20e+06	1.19e+03	5.2e+03
24	13C-1,2,3,7,8,9-HxCDF	2.68e+06	1.29e+03	2.1e+03	5.22e+06	1.19e+03	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.43e+06	3.03e+03	8.0e+02	5.54e+06	3.57e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.04e+06	3.03e+03	6.7e+02	4.68e+06	3.57e+03	1.3e+03
27	13C-2,3,7,8-TCDD	3.27e+06	3.16e+03	1.0e+03	4.23e+06	2.48e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	5.61e+06	1.36e+03	4.1e+03	3.60e+06	1.62e+03	2.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.35e+06	1.58e+03	3.4e+03	4.33e+06	1.13e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	5.20e+06	1.58e+03	3.3e+03	4.15e+06	1.13e+03	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.72e+06	1.84e+03	2.6e+03	4.43e+06	1.26e+03	3.5e+03
32	13C-OCDD	6.55e+06	7.12e+03	9.2e+02	7.39e+06	3.40e+03	2.2e+03
33	13C-1,2,3,4-TCDD	3.57e+06	3.16e+03	1.1e+03	4.55e+06	2.48e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.48e+06	1.58e+03	3.5e+03	4.49e+06	1.13e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	7.36e+05	1.87e+03	3.9e+02			

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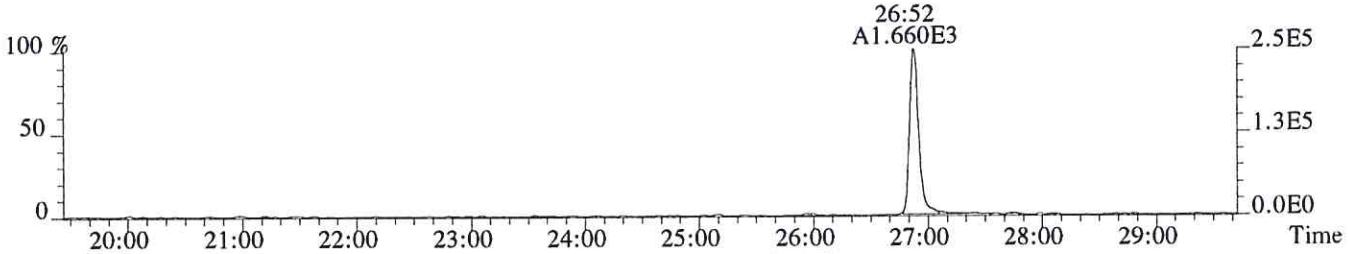
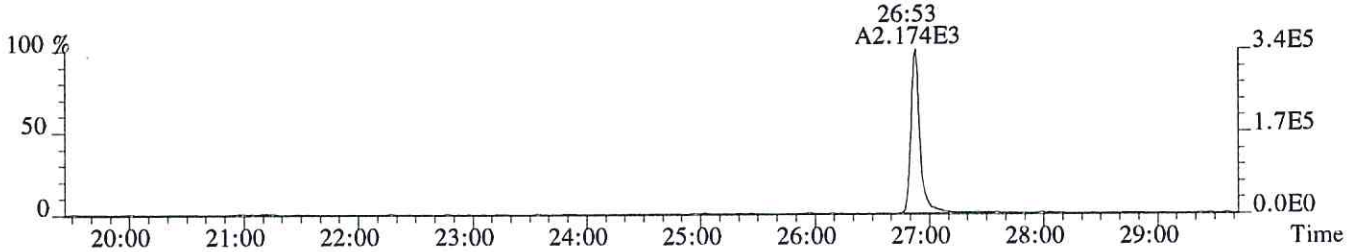
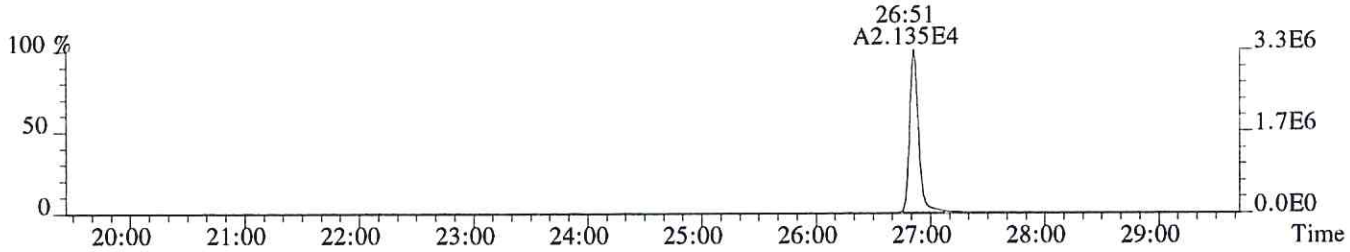
File:P405440 #1-729 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



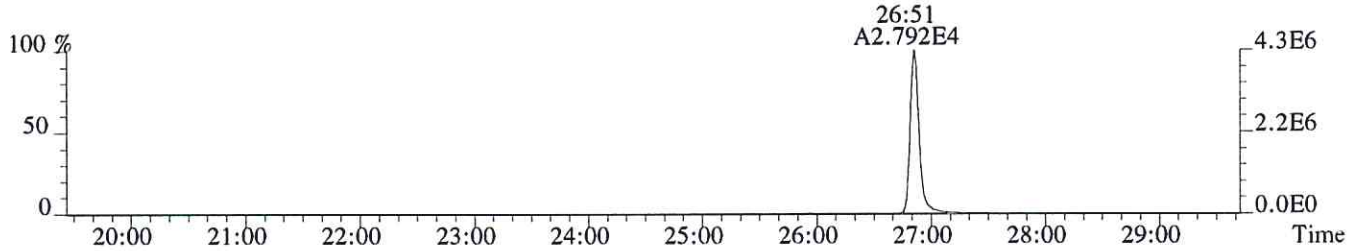
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



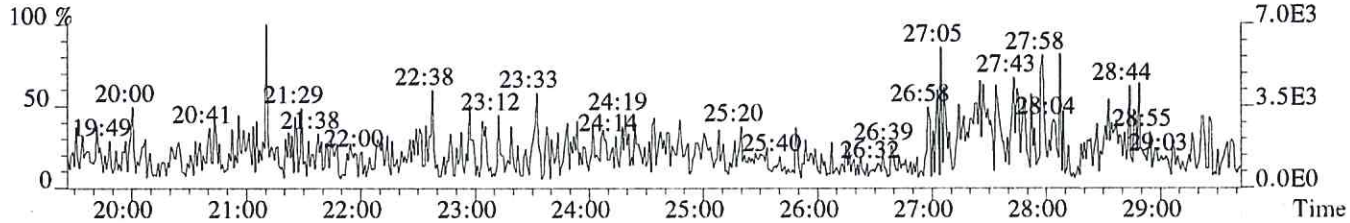
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6664.0,1.00%,F,T)



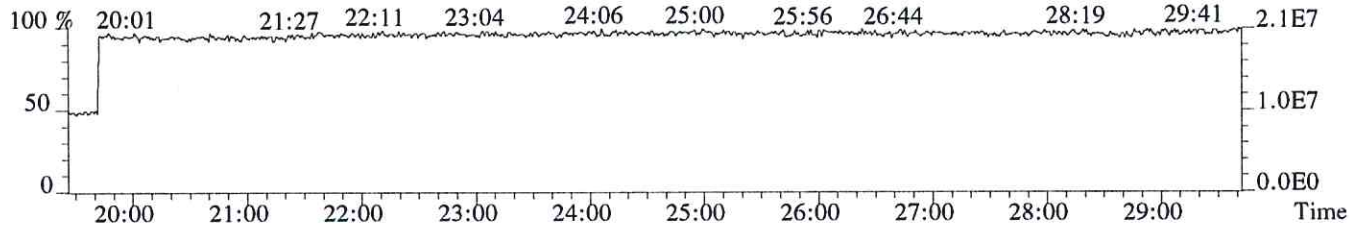
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3412.0,1.00%,F,T)



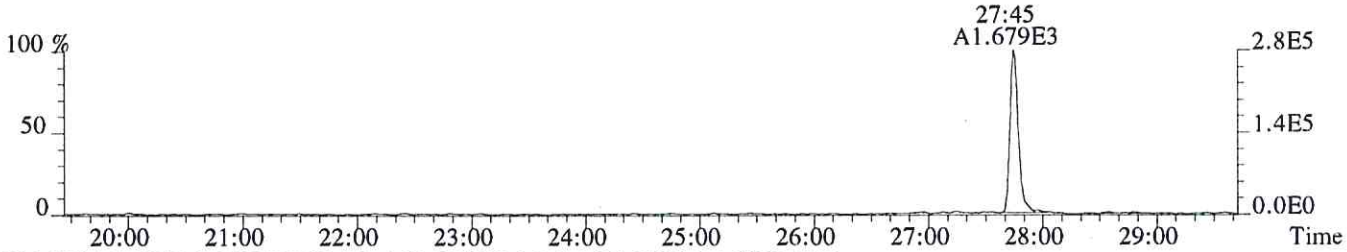
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



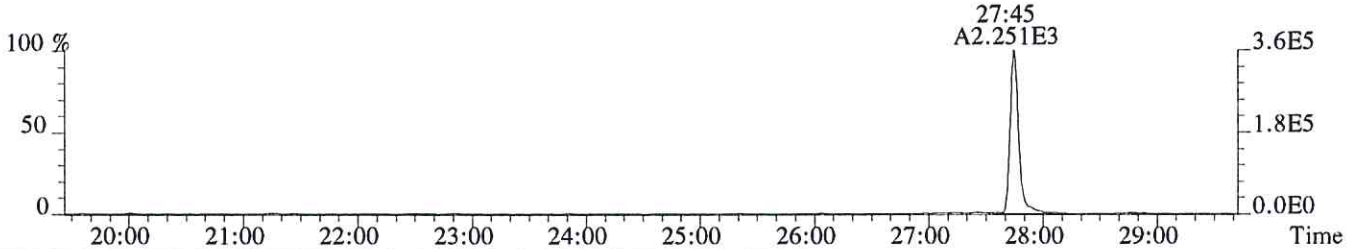
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



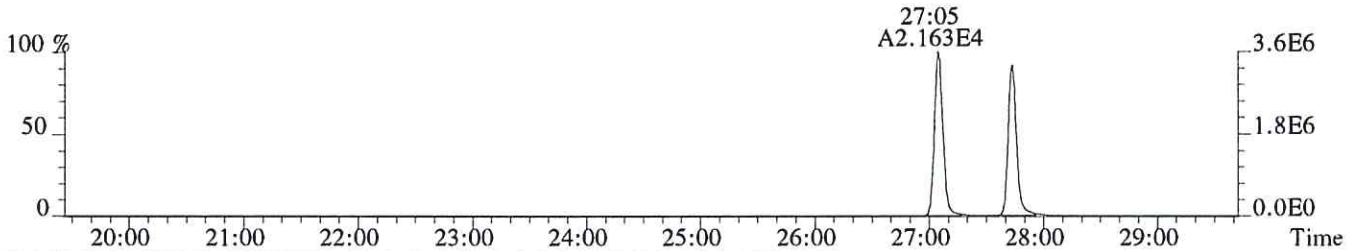
File:P405440 #1-729 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



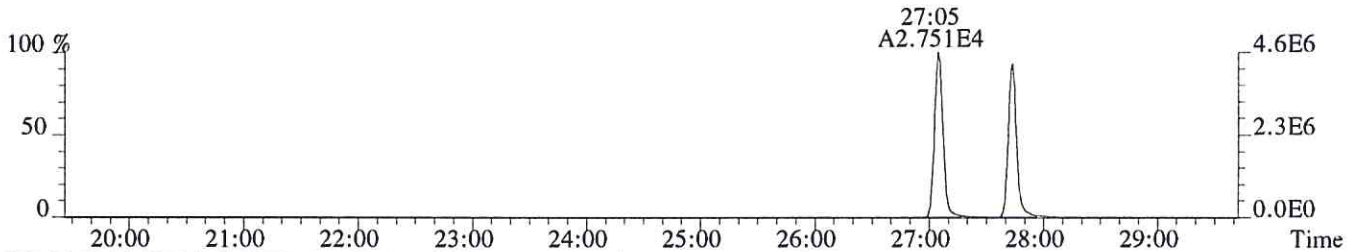
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



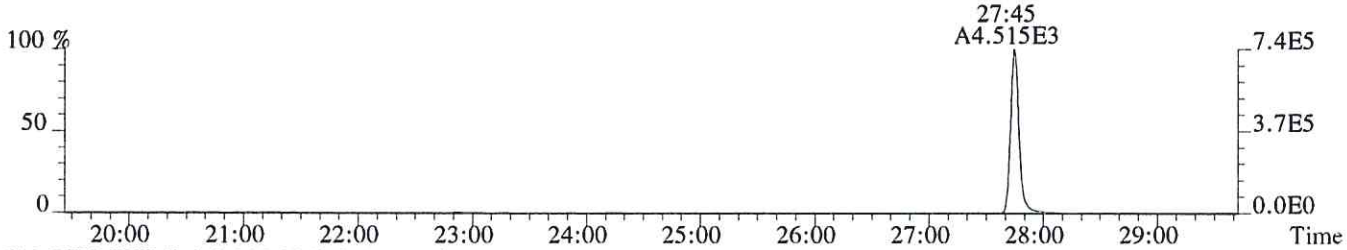
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3160.0,1.00%,F,T)



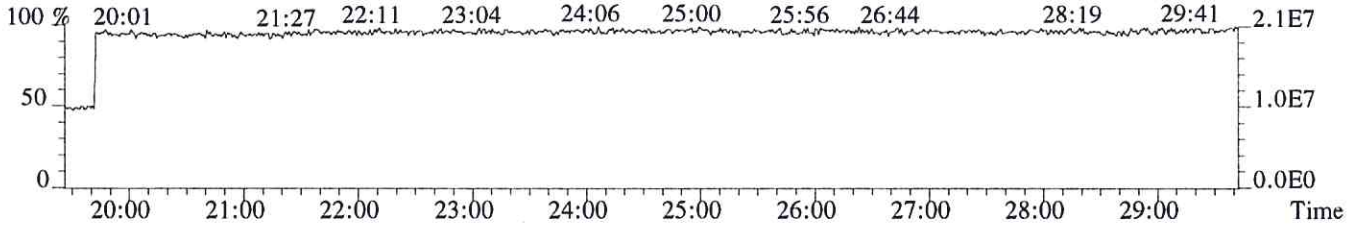
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



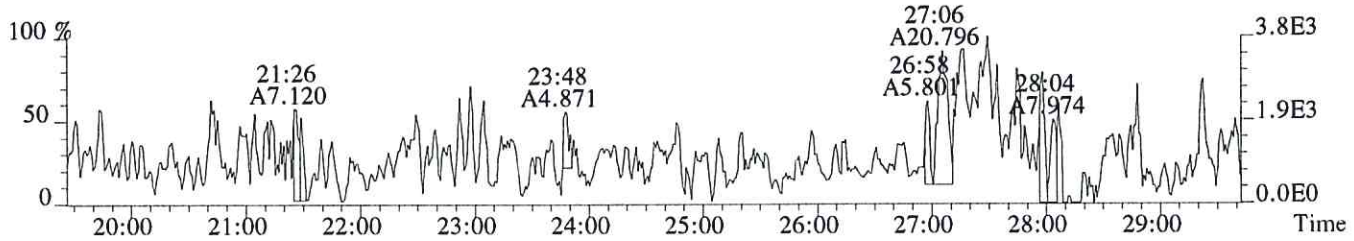
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



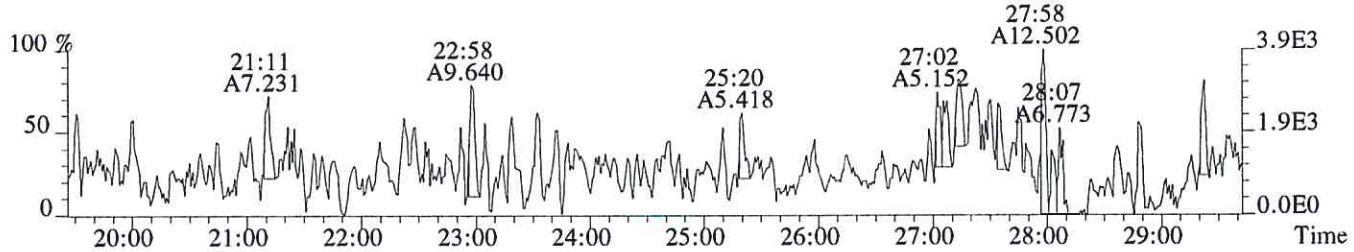
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



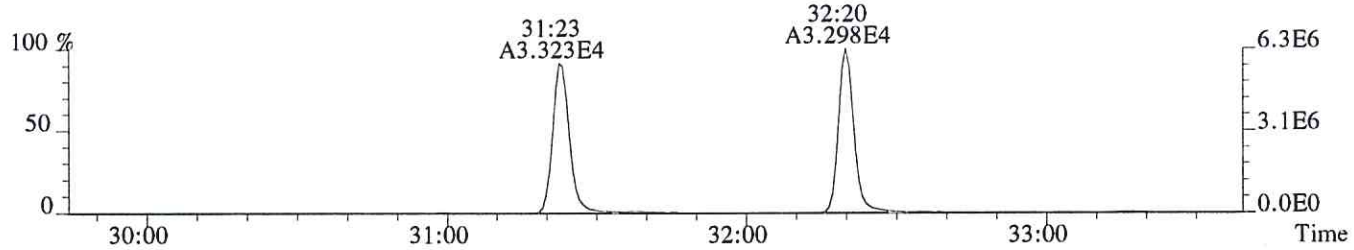
File:P405440 #1-729 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



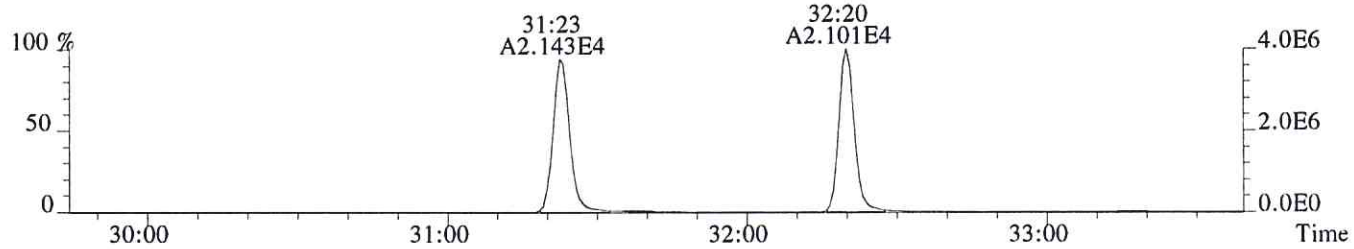
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



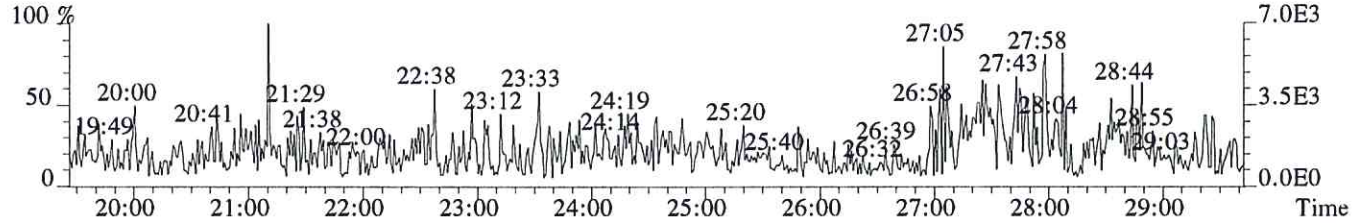
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3340.0,1.00%,F,T)



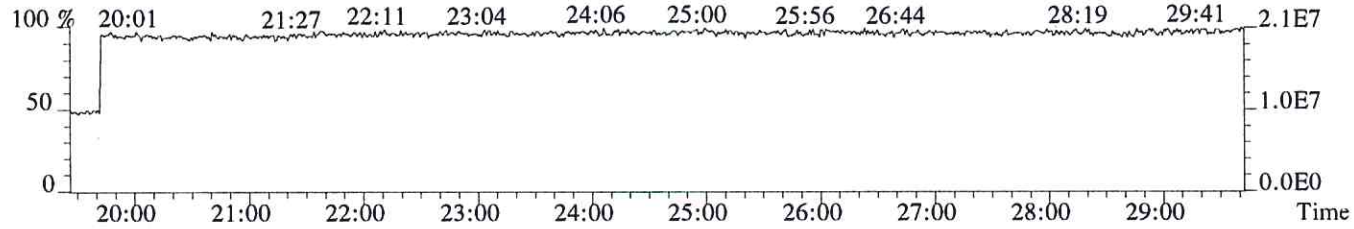
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2548.0,1.00%,F,T)



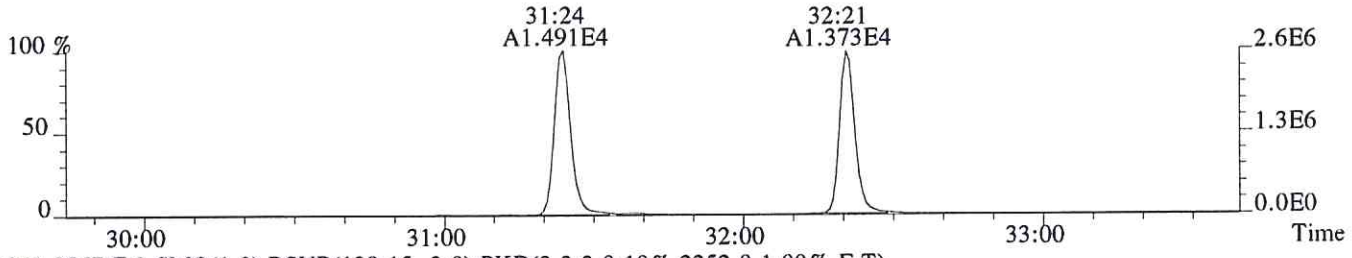
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



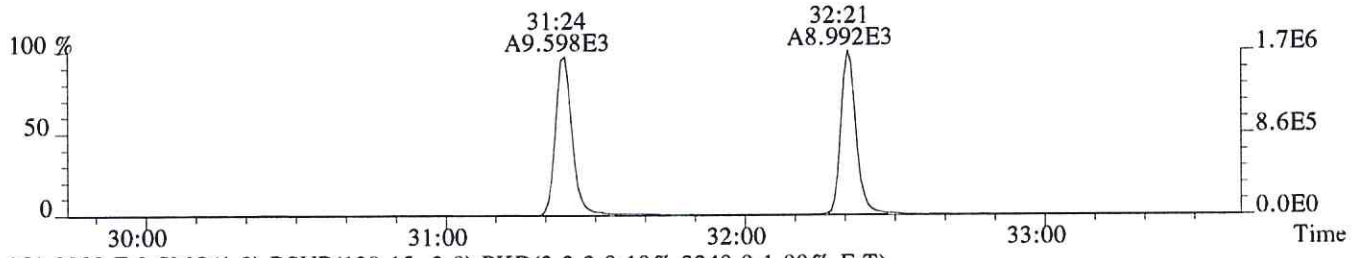
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



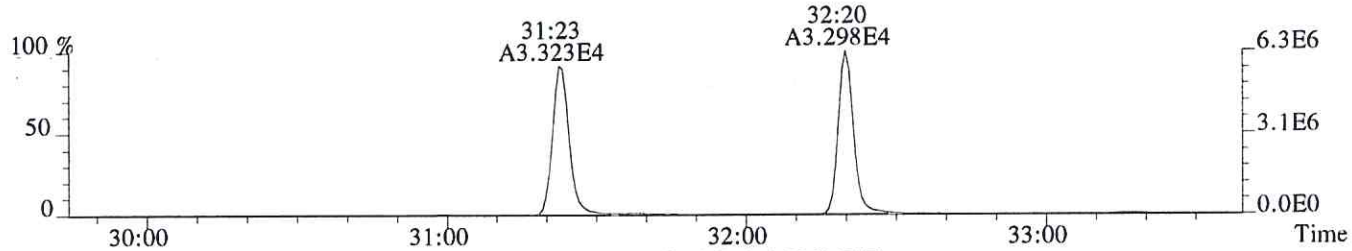
File:P405440 #1-353 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4000.0,1.00%,F,T)



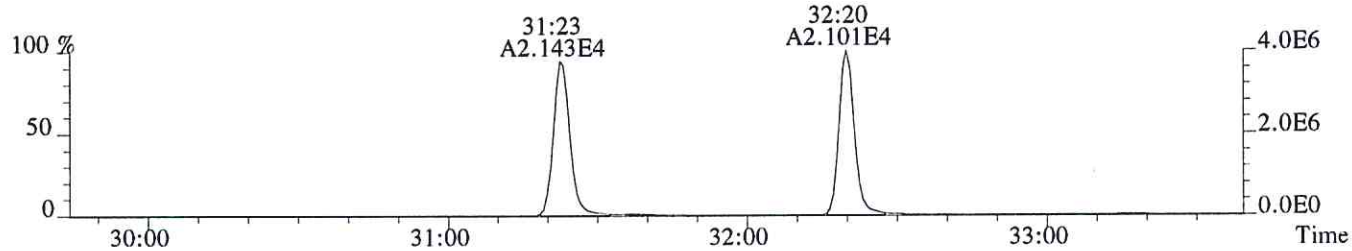
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



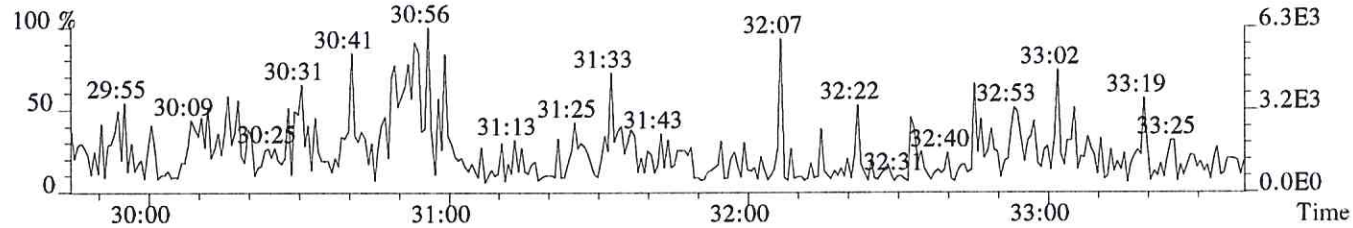
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3340.0,1.00%,F,T)



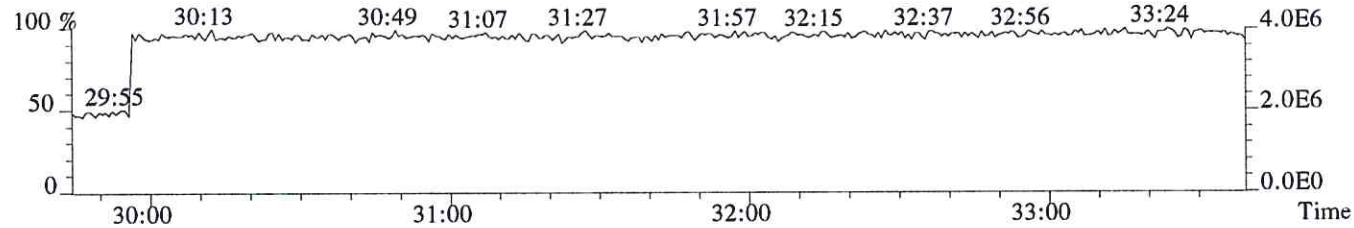
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2548.0,1.00%,F,T)



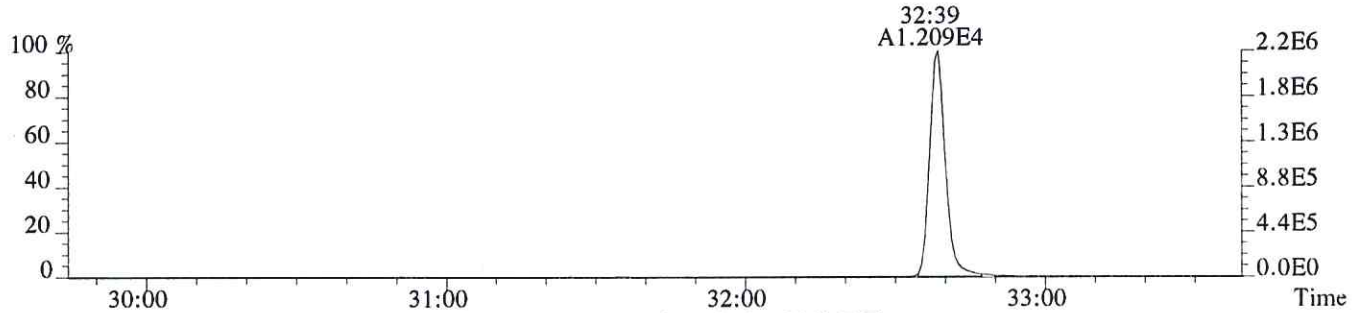
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



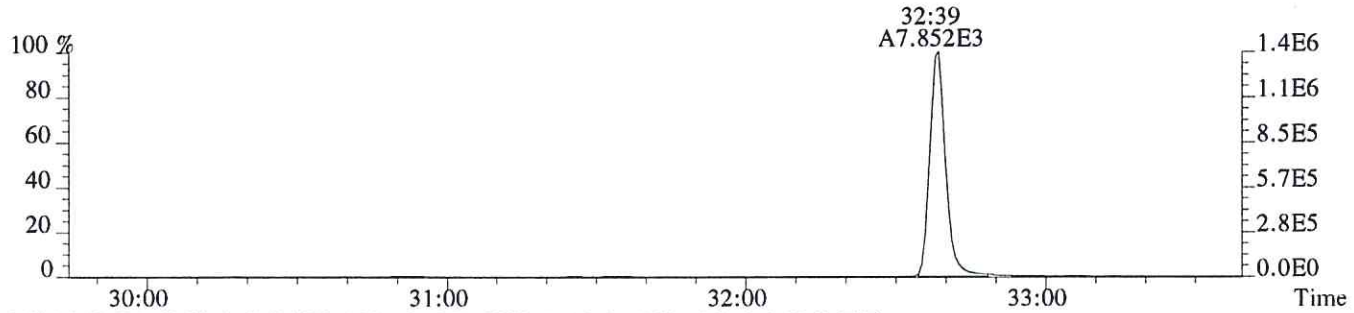
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



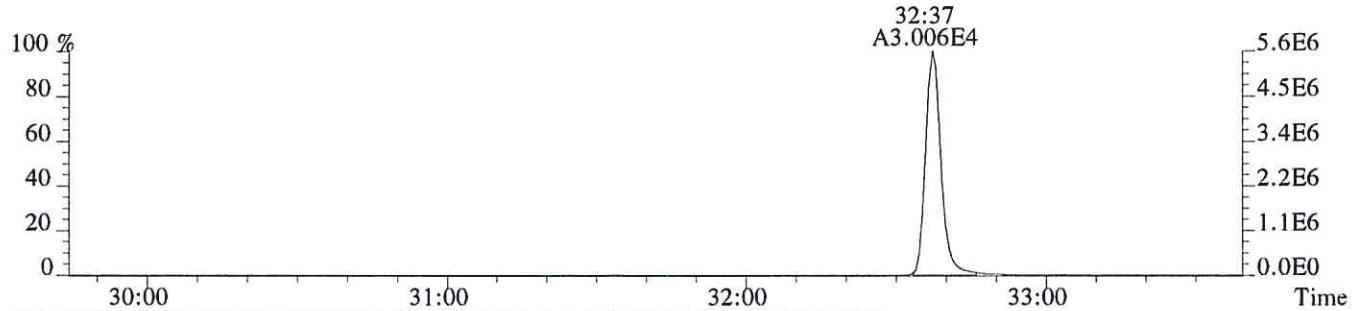
File:P405440 #1-353 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



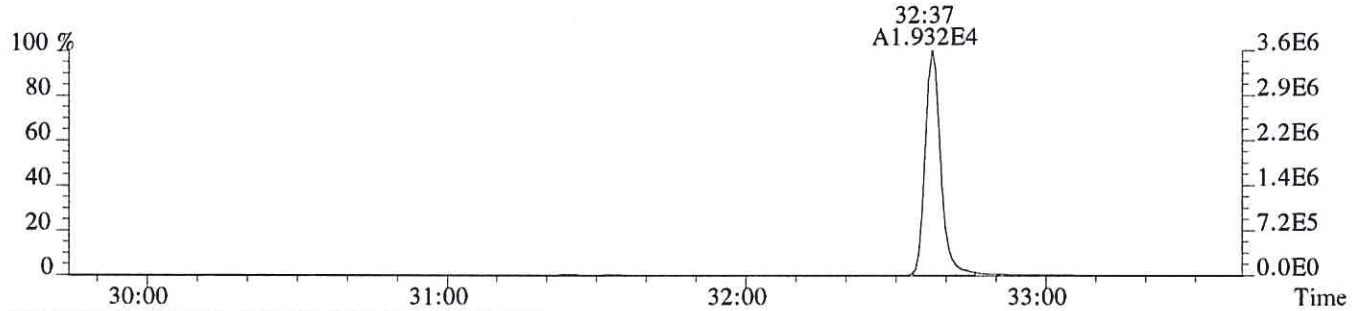
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



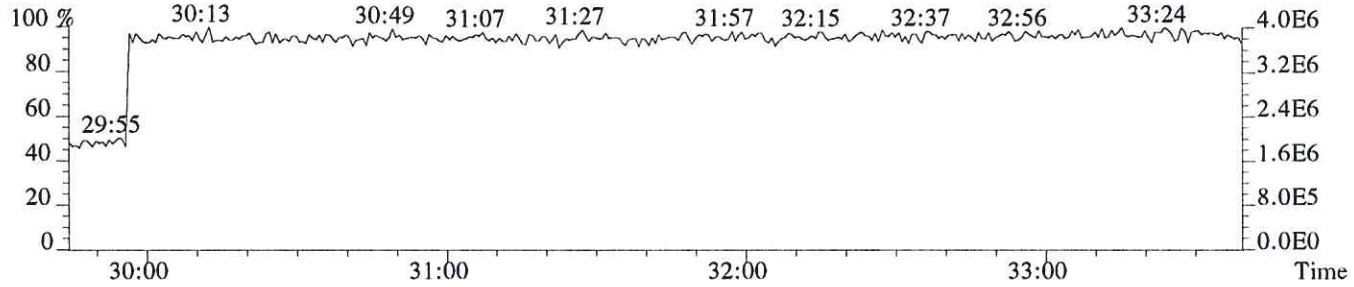
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



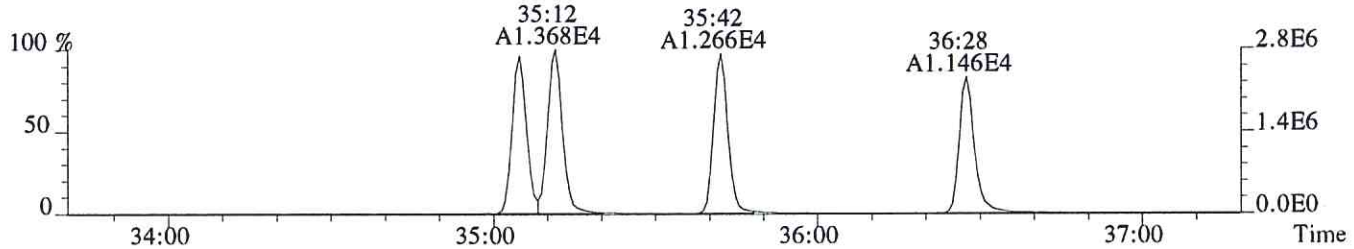
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



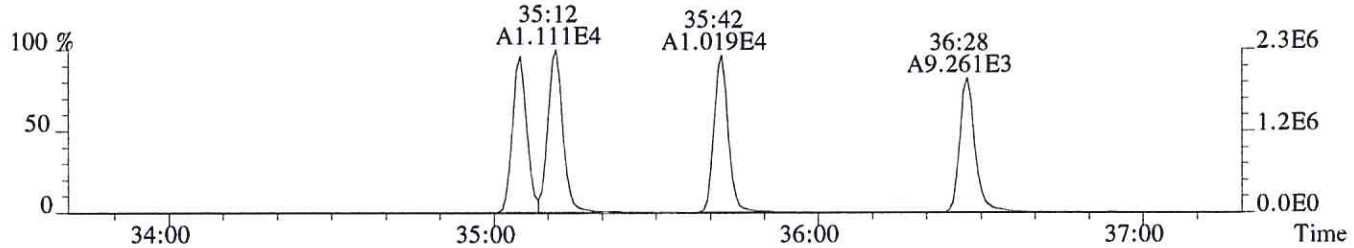
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



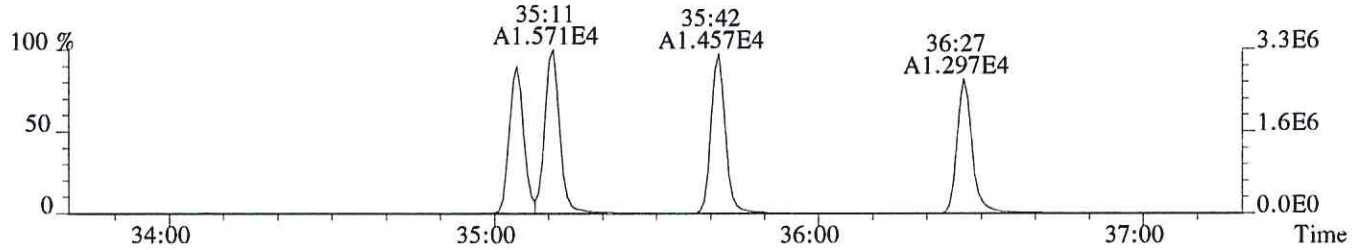
File:P405440 #1-326 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



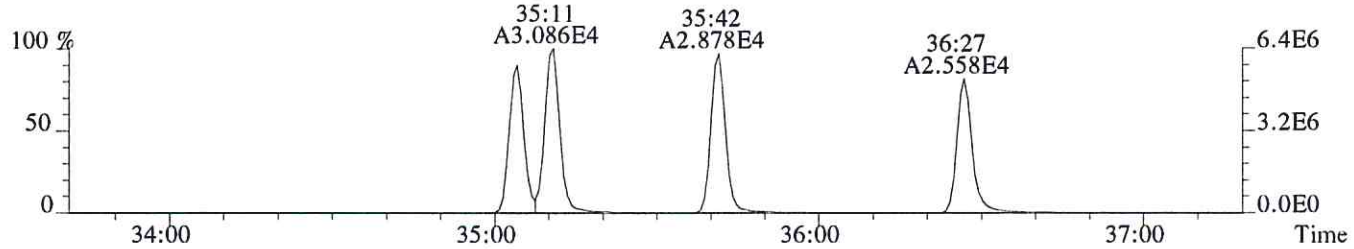
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



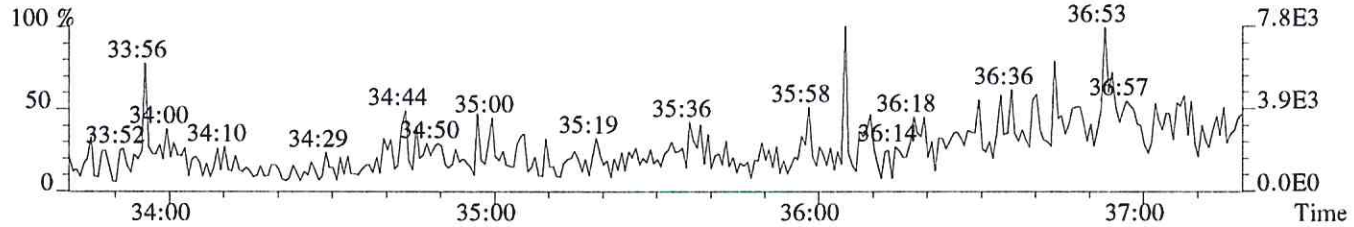
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)



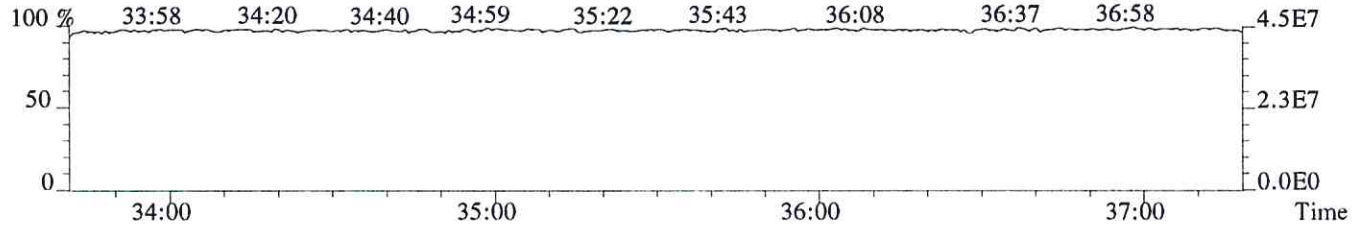
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



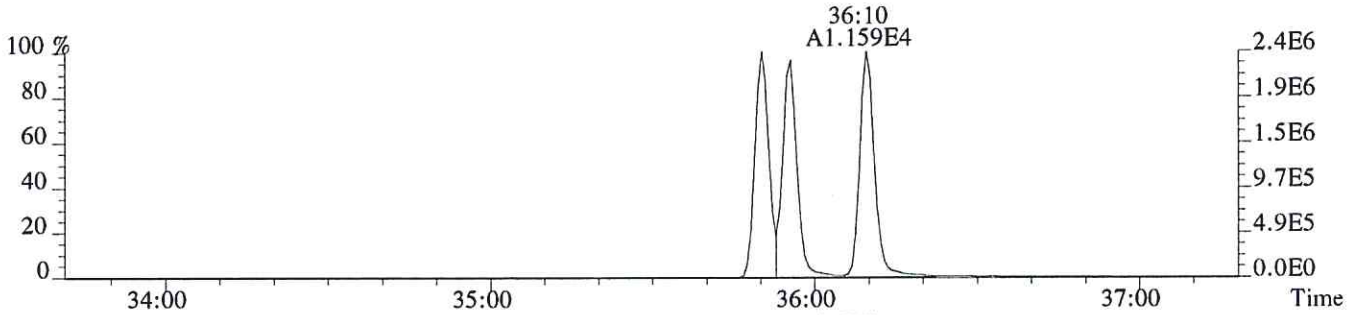
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



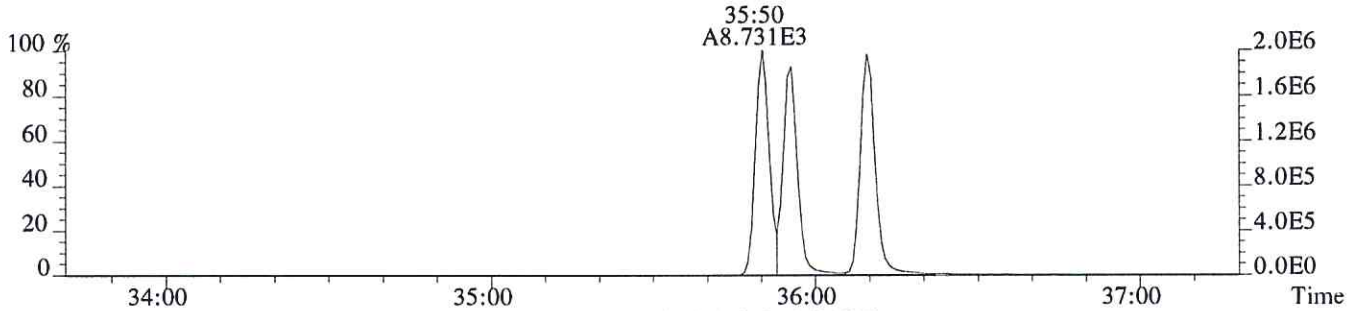
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



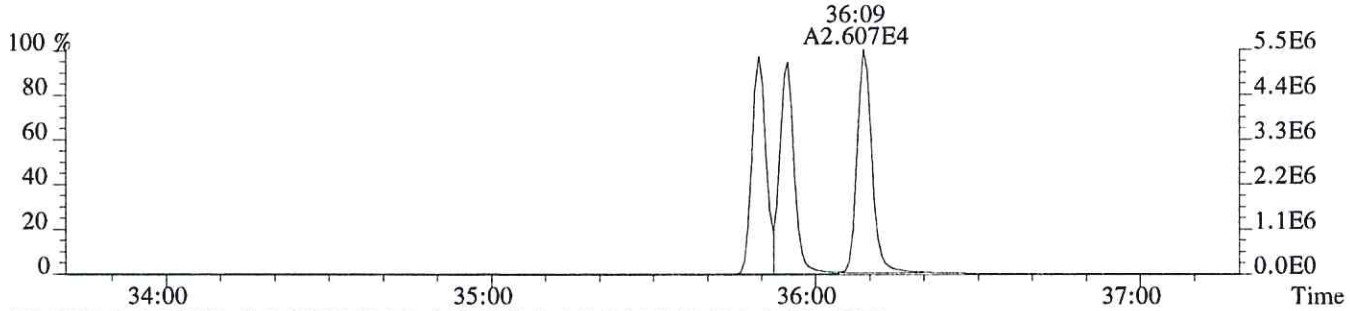
File:P405440 #1-326 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



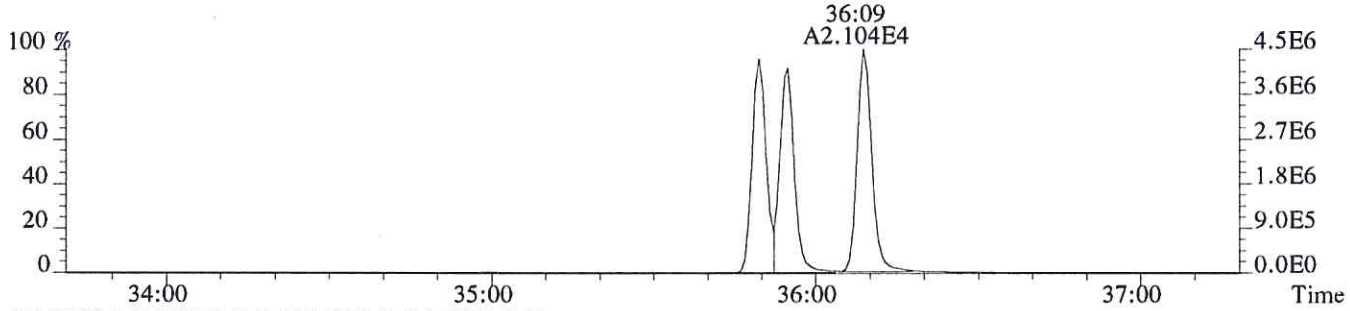
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.40%,F,T)



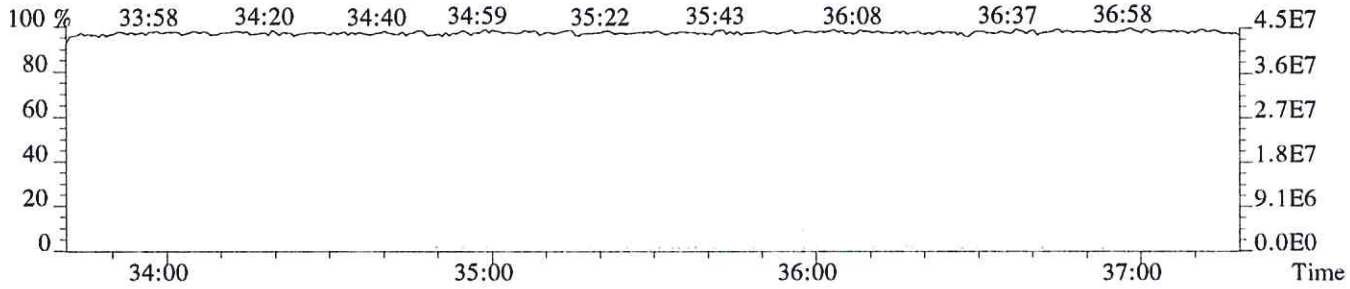
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1580.0,0.40%,F,T)



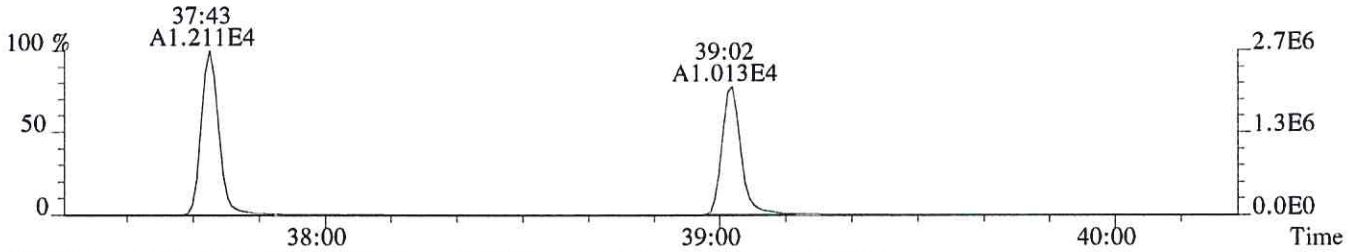
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



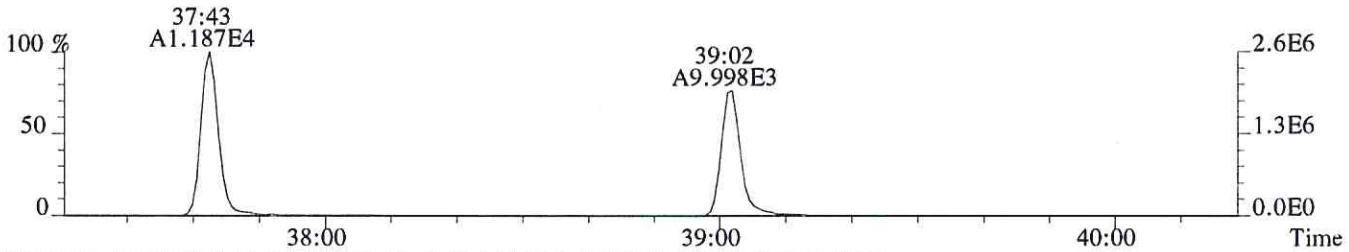
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



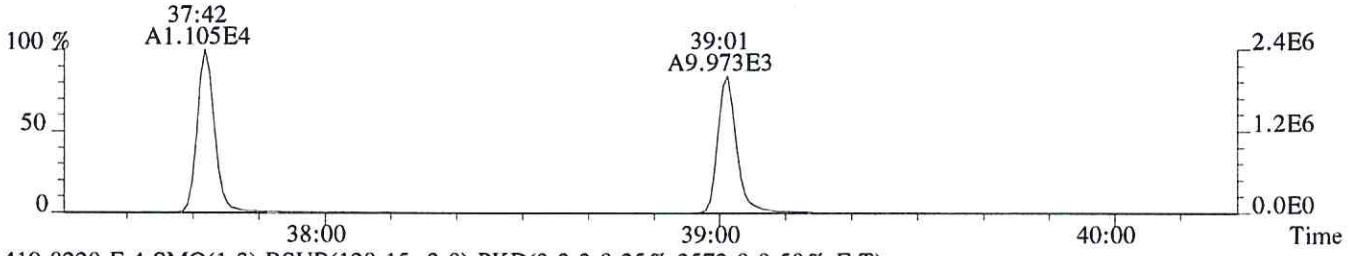
File:P405440 #1-268 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2892.0,0.50%,F,T)



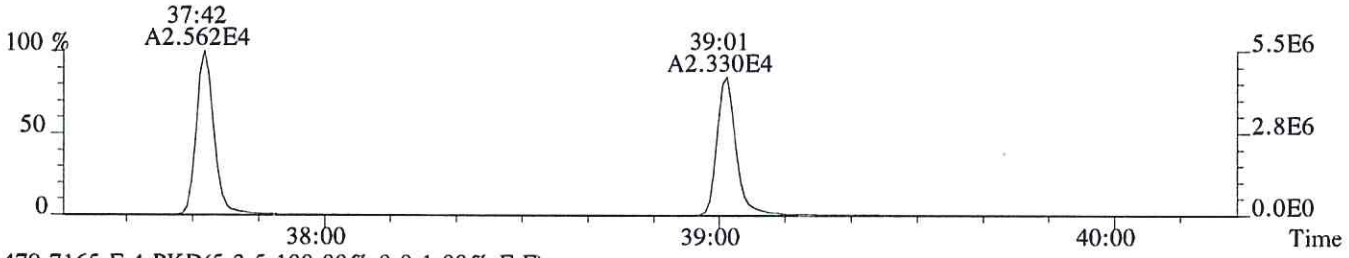
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.50%,F,T)



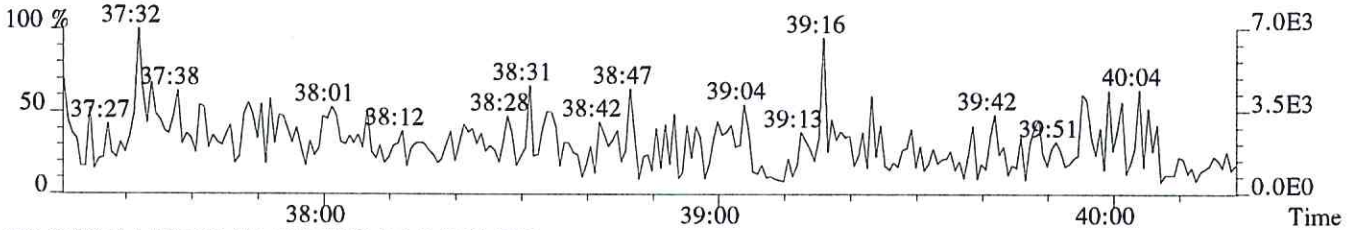
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3028.0,0.50%,F,T)



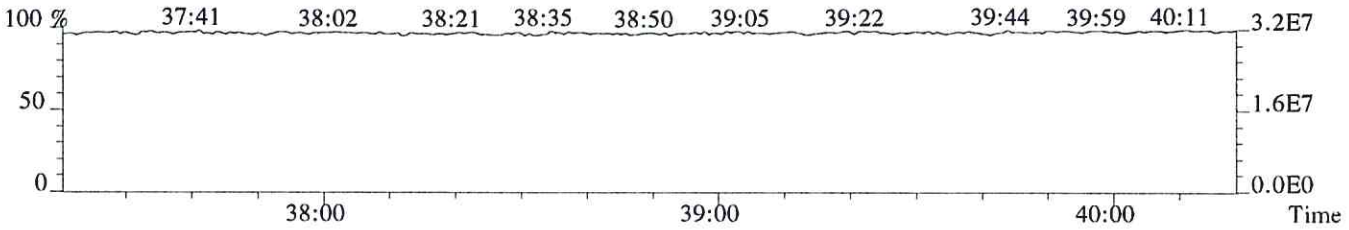
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3572.0,0.50%,F,T)



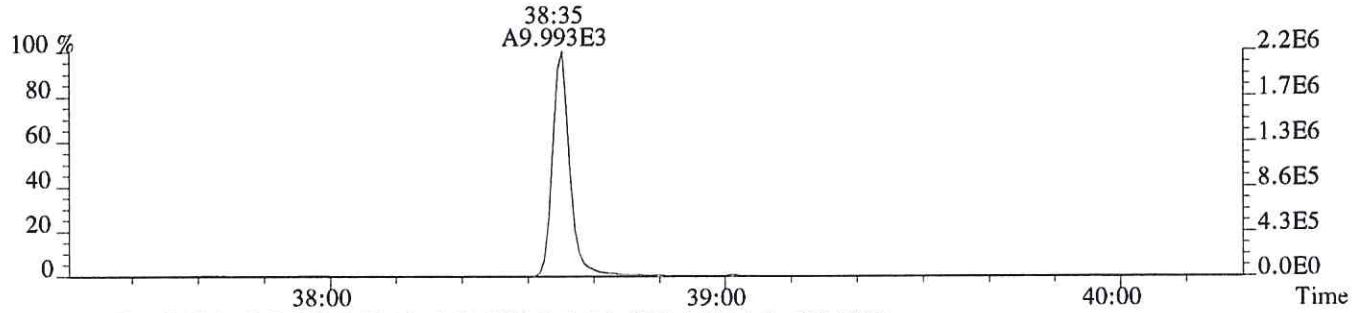
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



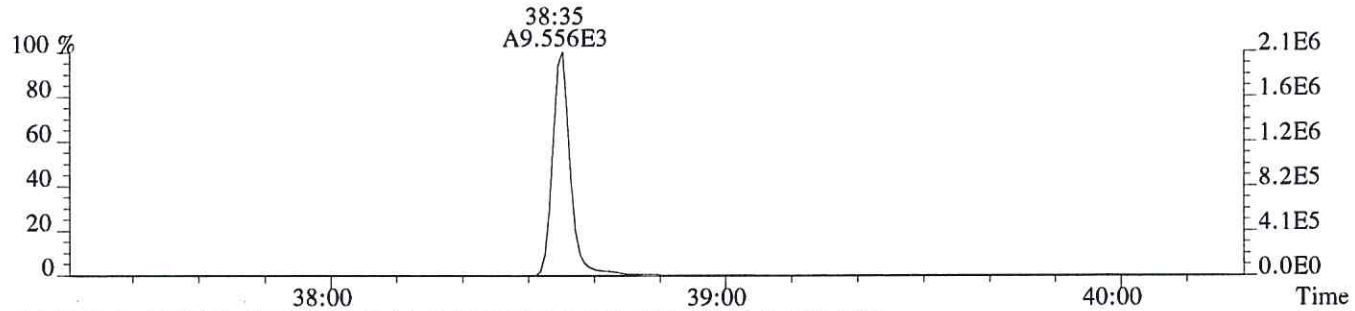
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



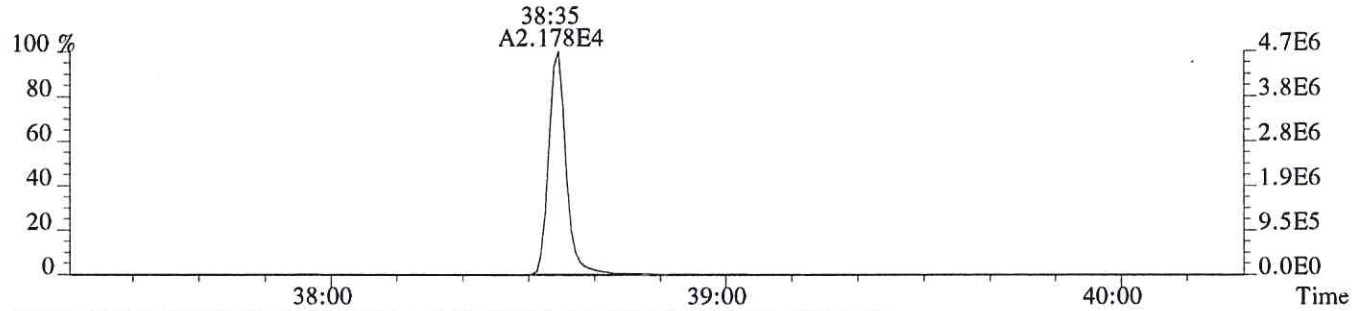
File:P405440 #1-268 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



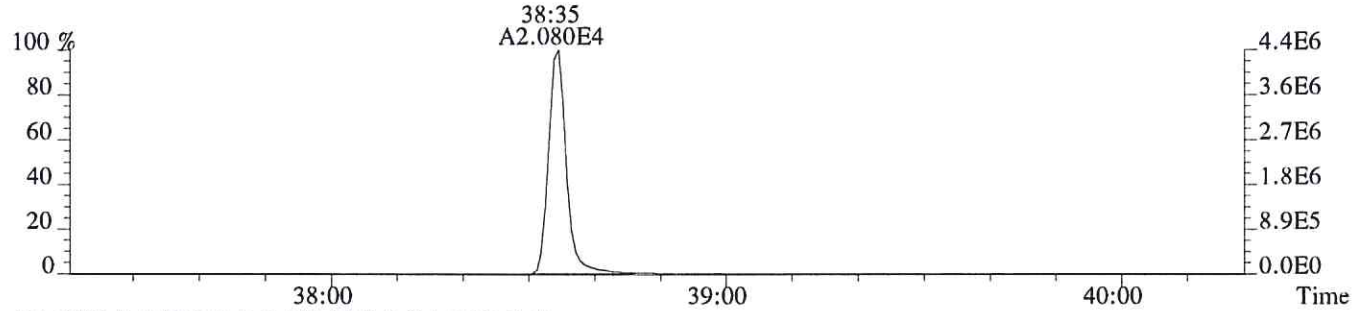
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



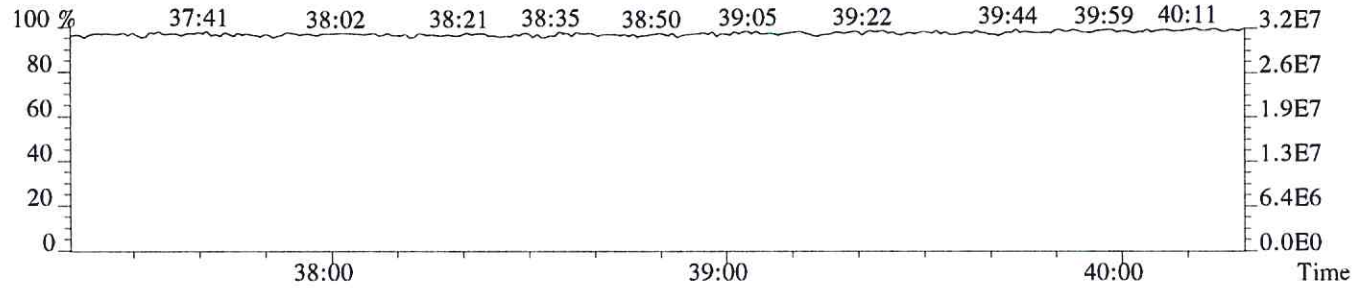
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.40%,F,T)



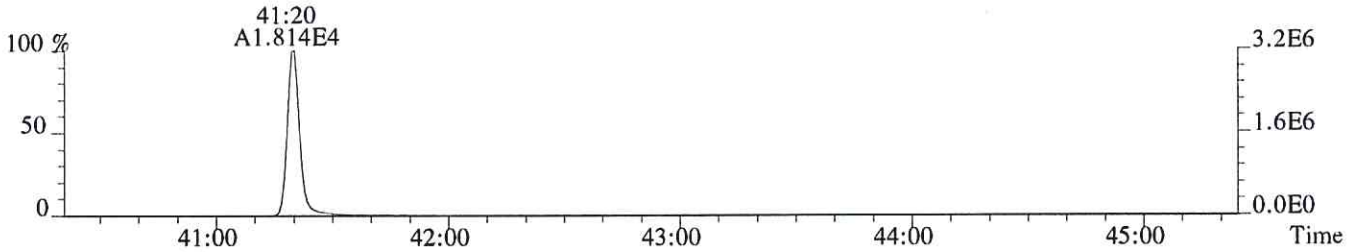
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



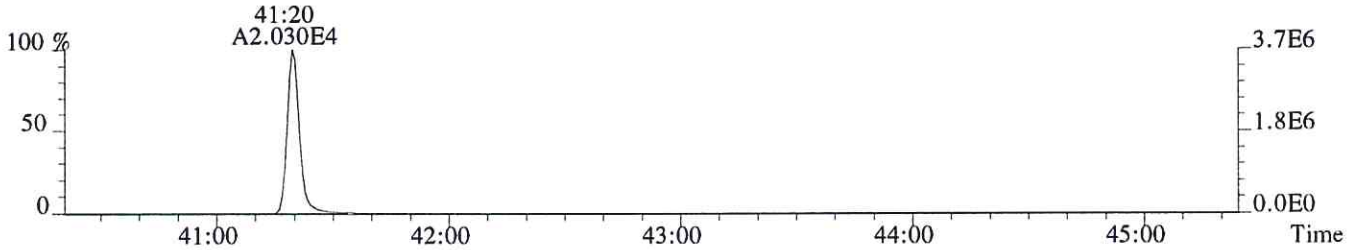
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



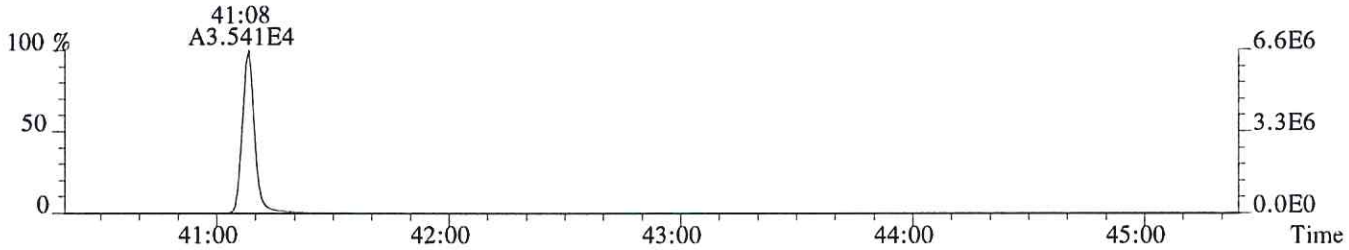
File:P405440 #1-456 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3768.0,0.40%,F,T)



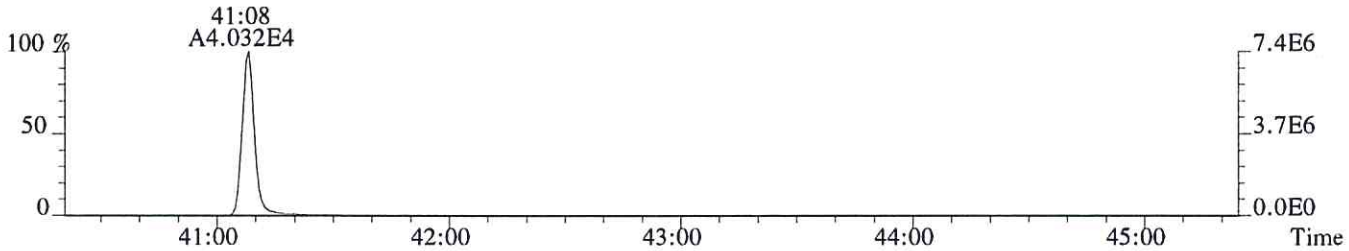
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5688.0,0.40%,F,T)



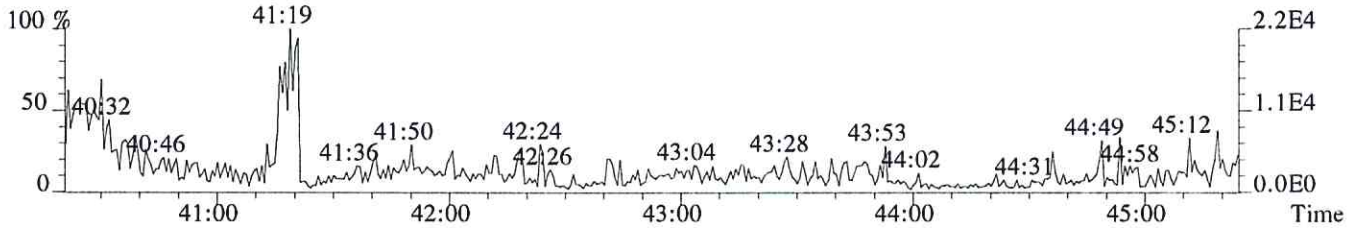
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,7116.0,0.40%,F,T)



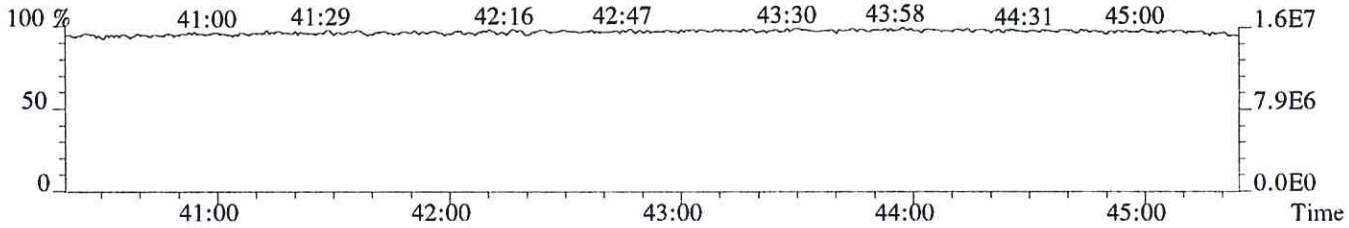
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3400.0,0.40%,F,T)



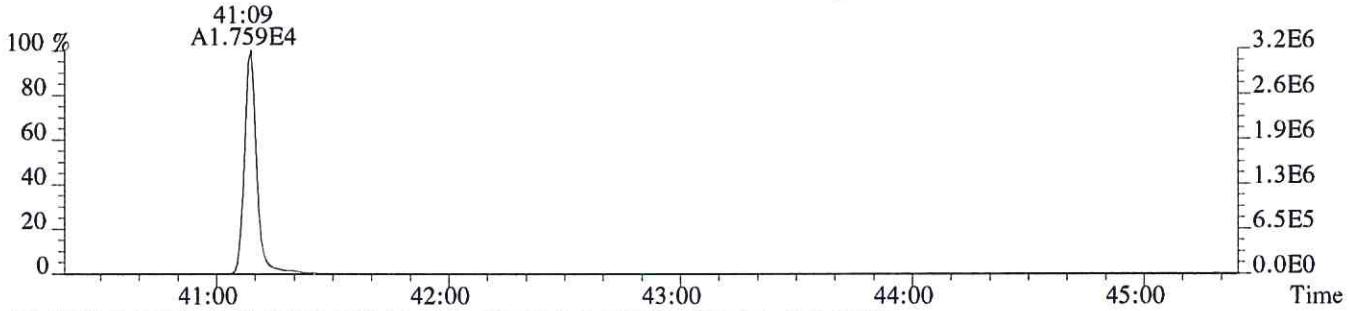
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



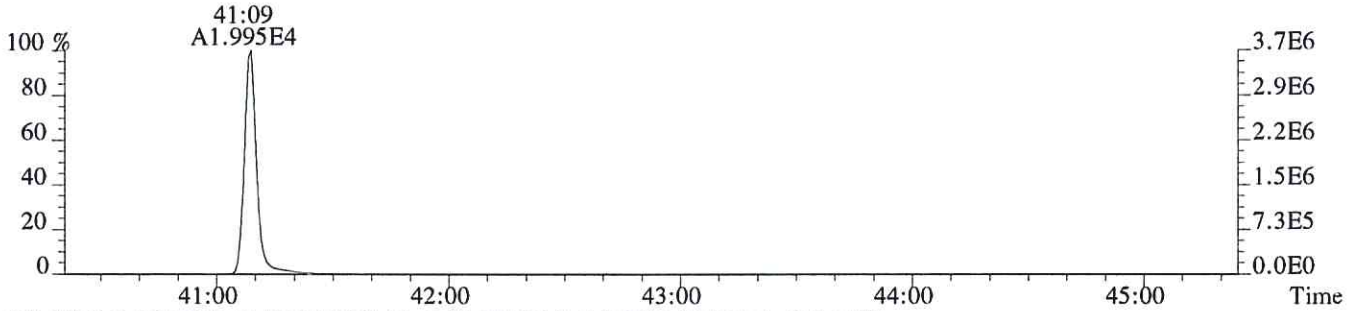
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



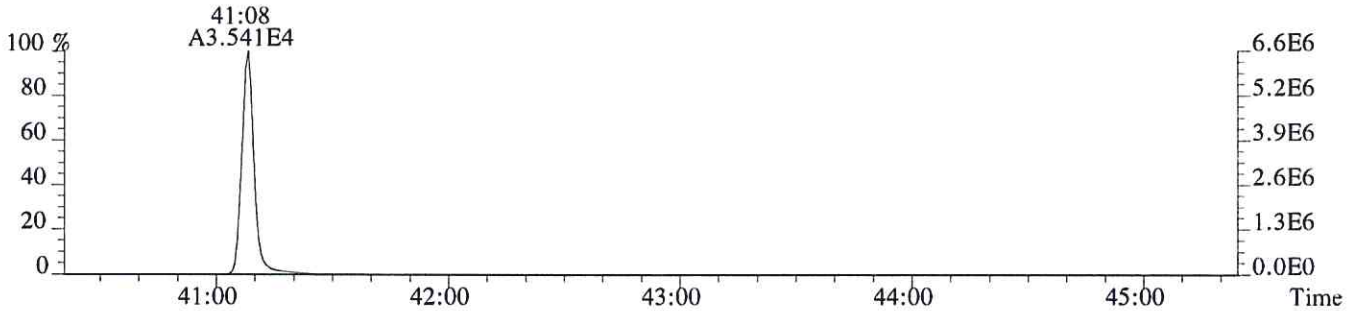
File:P405440 #1-456 Acq:17-FEB-2017 07:35:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:178519
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2852.0,0.40%,F,T)



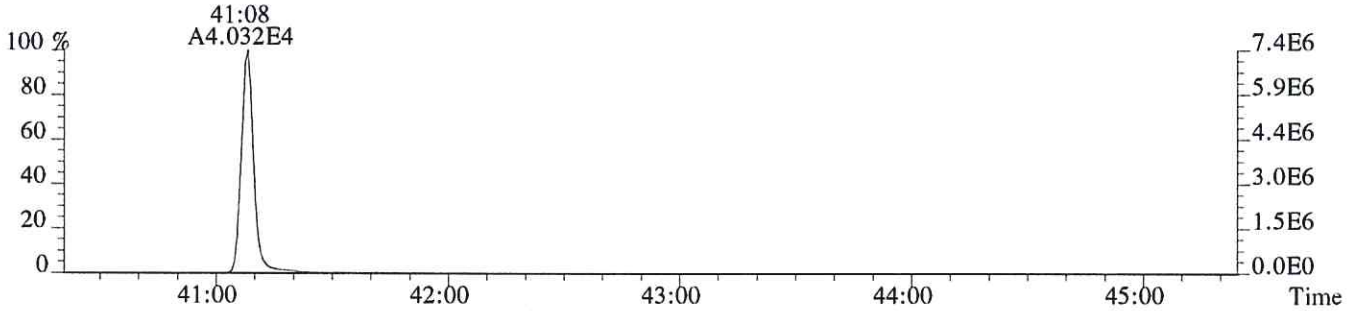
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3068.0,0.40%,F,T)



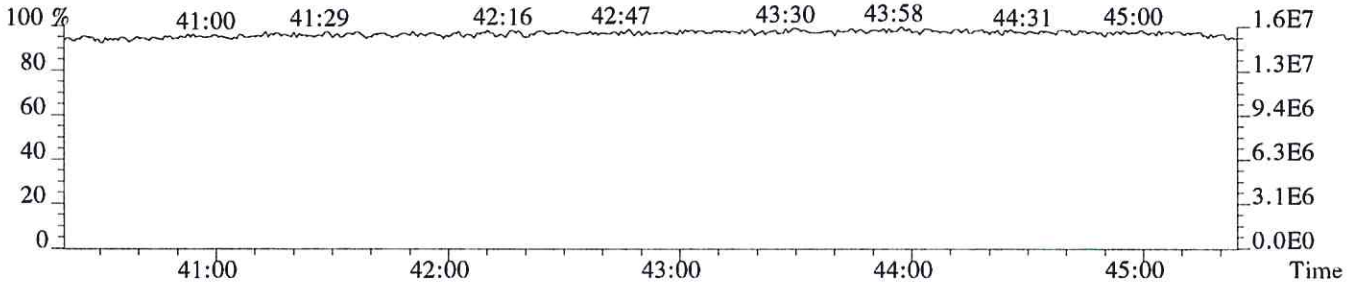
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,7116.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3400.0,0.40%,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: 04/29/2016
Instrument Name: E-HRMS-06	Calibration File Name: P4-1604281613I
Processor Name: Jimmy Chau	Reviewer Name: Loan Luong
Supervisor Signature: Andy Neir	

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?		√			1
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?			√		
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?	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 04/29/2016				
Instrument Name: E-HRMS-06	Calibration File Name: P4-1604281613I				
Processor Name: Jimmy Chau	Reviewer Name: Loan Luong				
Supervisor Signature: Andy Neir	**Yes**	**No**	**NA**	**NR**	**ER#**
Description					
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: 04/29/2016
Instrument Name: E-HRMS-06	Calibration File Name: P4-1604281613I
Processor Name: Jimmy Chau	Reviewer Name: Loan Luong
ER#[5]	**Description**
1	Although the Mass Resolution check was complete within the 12-hour window, a technical problem prevented us from printing out the report at the same time.

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: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-06

Init. Calib. Date: 04/28/16

Init. Calib.Times: 09:34:40

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
87077	WINDOW DEFINE	P402423	28-APR-16	09:34:40
76554	CS0.5	P402425	28-APR-16	11:12:25
76555	CS1	P402426	28-APR-16	12:33:36
76556	CS2	P402427	28-APR-16	13:21:59
76557	CS3	P402428	28-APR-16	14:11:09
76558	CS4	P402429	28-APR-16	15:00:19
76956	CS5	P402430	28-APR-16	15:49:31
54819	2ND SOURCE	P402432	28-APR-16	18:00:48

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\ehrms06.PRO\SampleDB\20160428.SPL
Last Modified: Thursday, April 28, 2016 09:23:17 Central Daylight Time
Printed: Tuesday, May 03, 2016 13:38:11 Central Daylight Time

Page Position (1, 1)

OPUS-5: P4-160428 1613 I/RES OPUS-5: P4-160428 M23I/RES

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	4/28/16	09:34	P402423	87077	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	ACN	HRMS Check 09:29
2		10:23	P402424	NONANE	NONANE	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		11:12	P402425	CS0.5	76554	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		12:33	P402426	CS1	76555	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		13:21	P402427	CS2	76556	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		14:11	P402428	CS3	76557	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		15:00	P402429	CS4	76558	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		15:49	P402430	CS5	76956	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		17:12	P402431	NONANE	NONANE	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		18:00	P402432	2ND SOURCE	54819	Tray1:10	EPA1613_ALS	Dioxin_ALS		HRMS Check 09:01
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	---	---

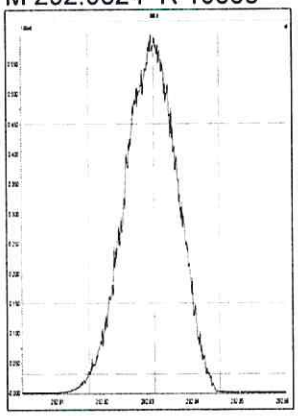
JC 04/28/16

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

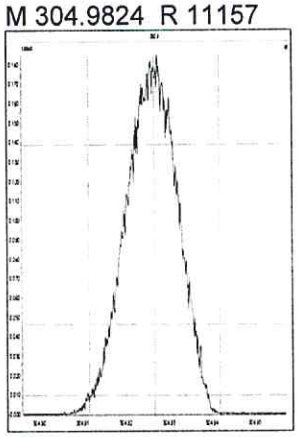
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, April 28, 2016 09:29:52 Central Daylight Time

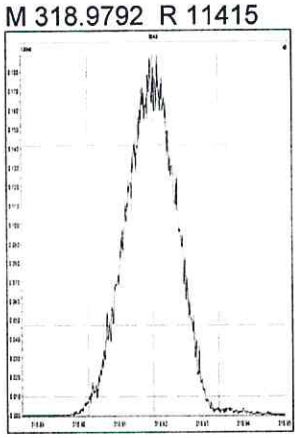
M 292.9824 R 10868



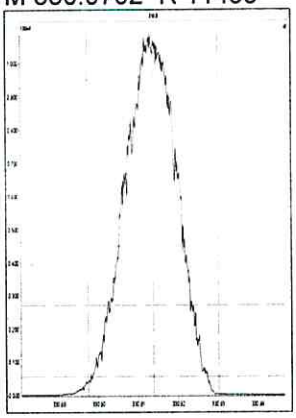
M 304.9824 R 11157



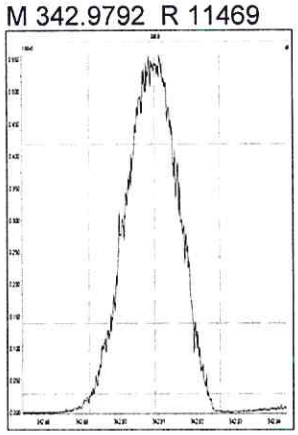
M 318.9792 R 11415



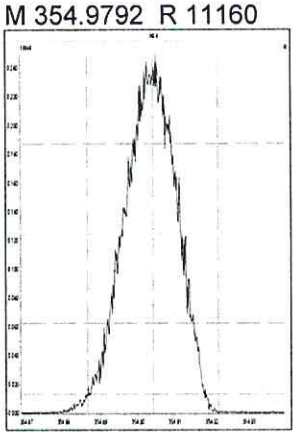
M 330.9792 R 11466



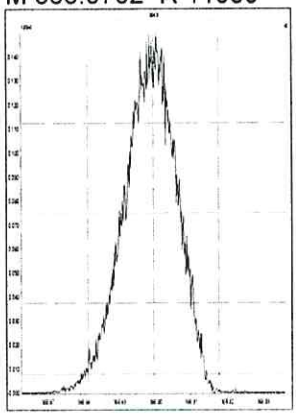
M 342.9792 R 11469



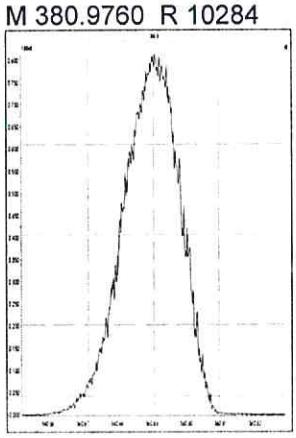
M 354.9792 R 11160



M 366.9792 R 11059



M 380.9760 R 10284

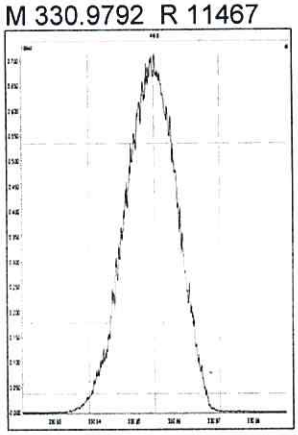


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

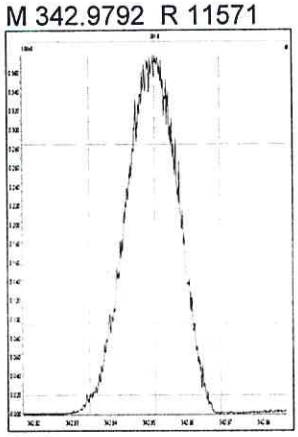
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, April 28, 2016 09:30:48 Central Daylight Time

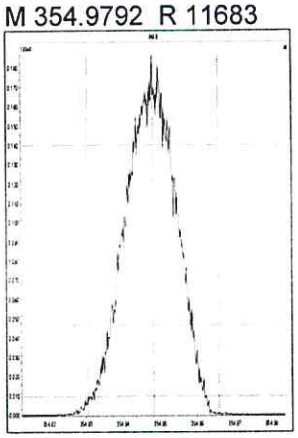
M 330.9792 R 11467



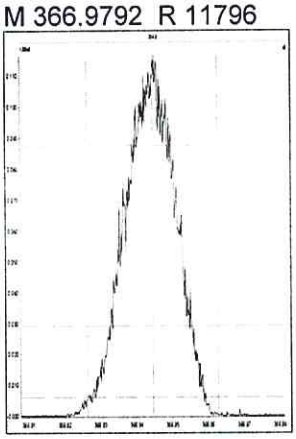
M 342.9792 R 11571



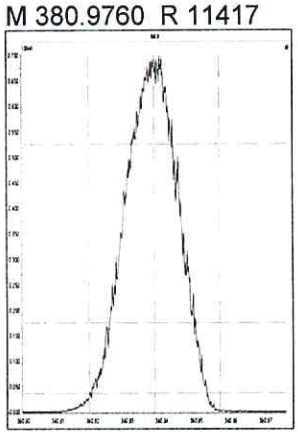
M 354.9792 R 11683



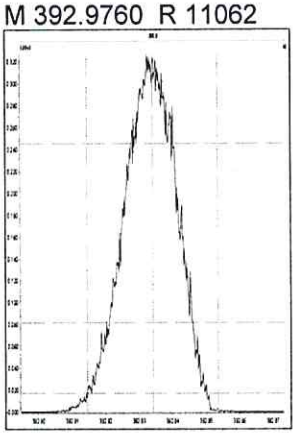
M 366.9792 R 11796



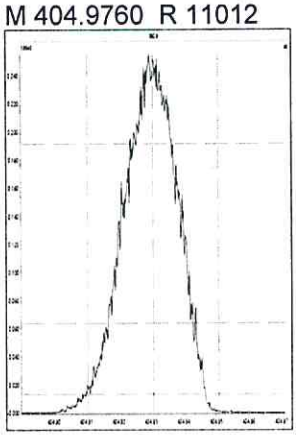
M 380.9760 R 11417



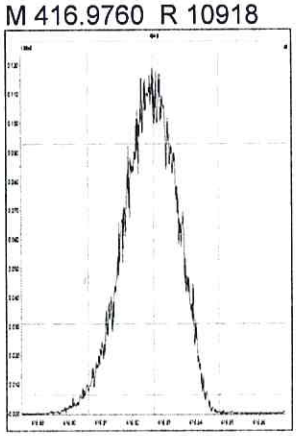
M 392.9760 R 11062



M 404.9760 R 11012



M 416.9760 R 10918

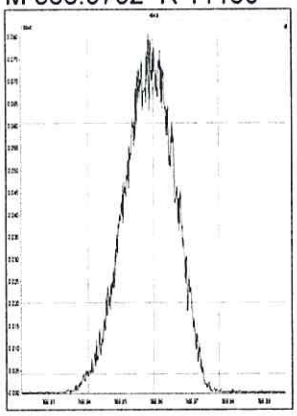


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

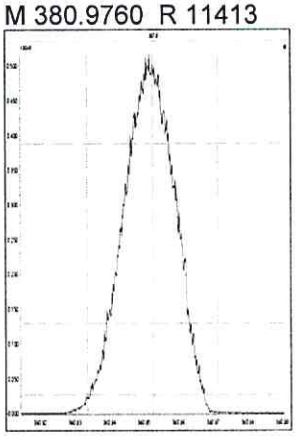
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, April 28, 2016 09:31:32 Central Daylight Time

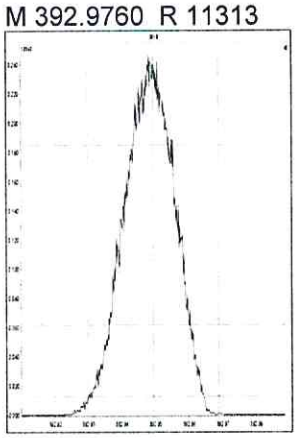
M 366.9792 R 11160



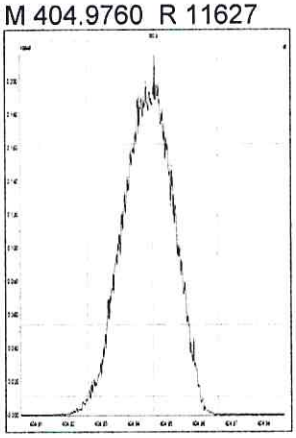
M 380.9760 R 11413



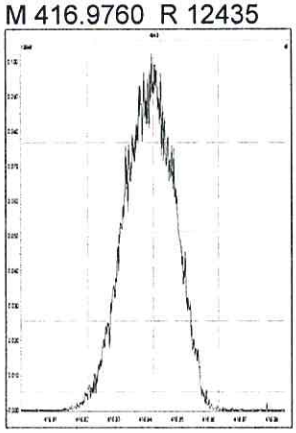
M 392.9760 R 11313



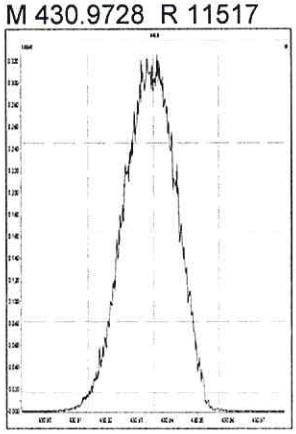
M 404.9760 R 11627



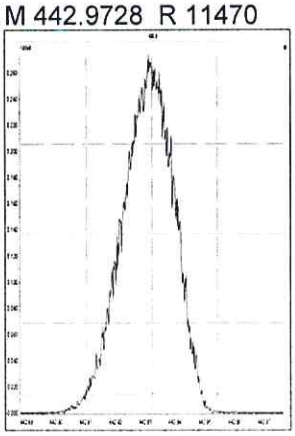
M 416.9760 R 12435



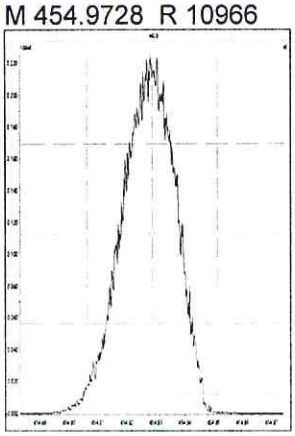
M 430.9728 R 11517



M 442.9728 R 11470



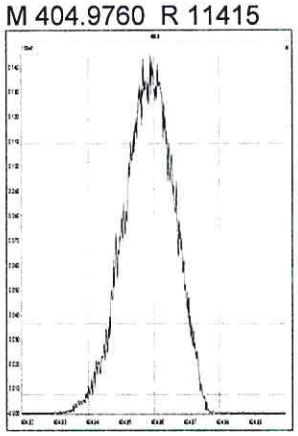
M 454.9728 R 10966



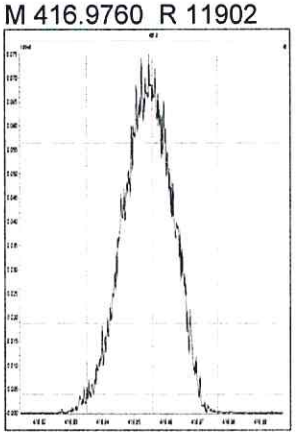
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, April 28, 2016 09:32:09 Central Daylight Time

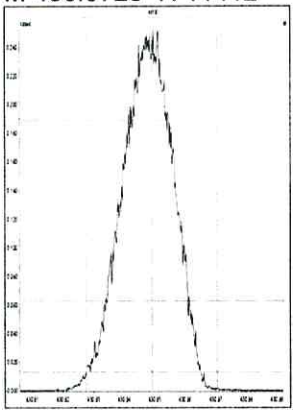
M 404.9760 R 11415



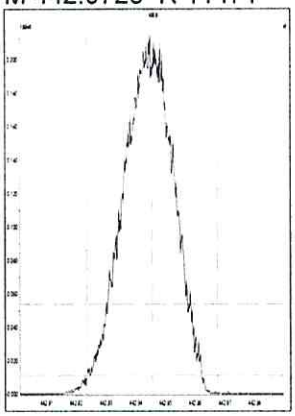
M 416.9760 R 11902



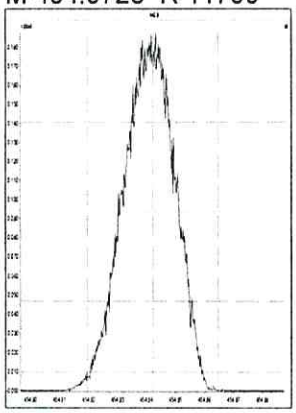
M 430.9728 R 11412



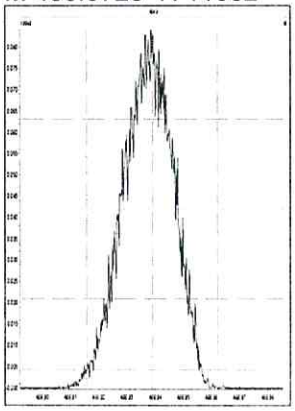
M 442.9728 R 11471



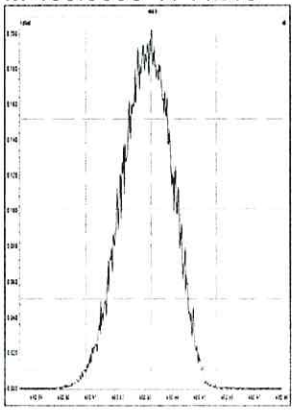
M 454.9728 R 11790



M 466.9728 R 11682



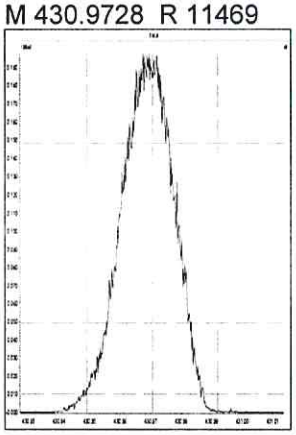
M 480.9696 R 11210



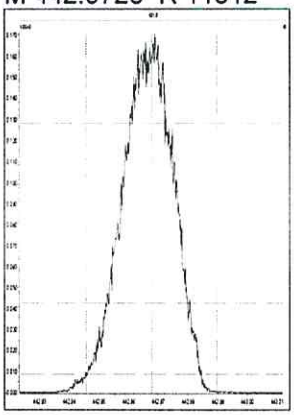
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, April 28, 2016 09:32:46 Central Daylight Time

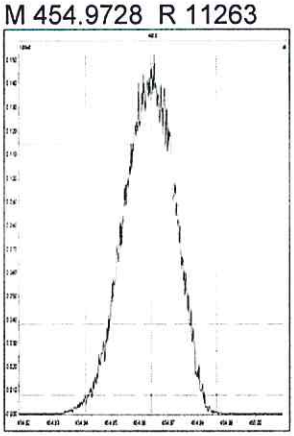
M 430.9728 R 11469



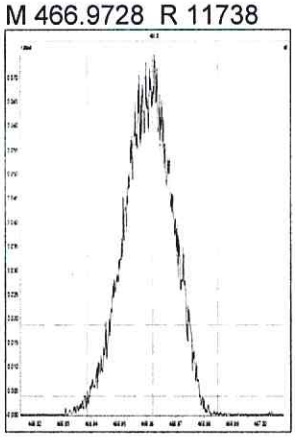
M 442.9728 R 11312



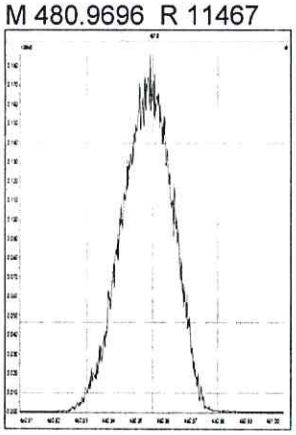
M 454.9728 R 11263



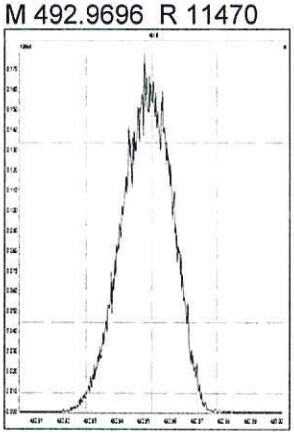
M 466.9728 R 11738



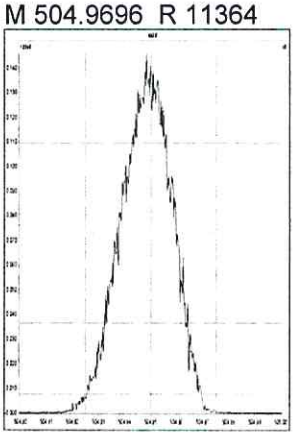
M 480.9696 R 11467



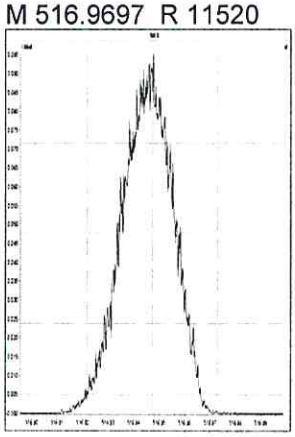
M 492.9696 R 11470



M 504.9696 R 11364



M 516.9697 R 11520

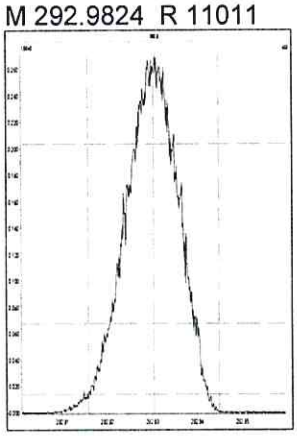


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

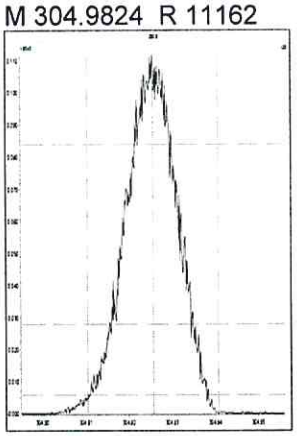
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, April 29, 2016 09:01:11 Central Daylight Time

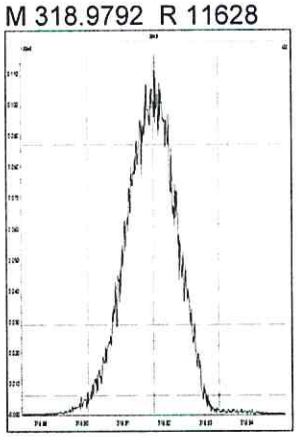
M 292.9824 R 11011



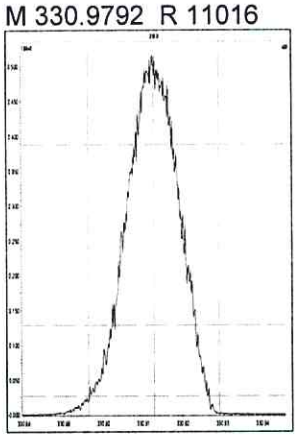
M 304.9824 R 11162



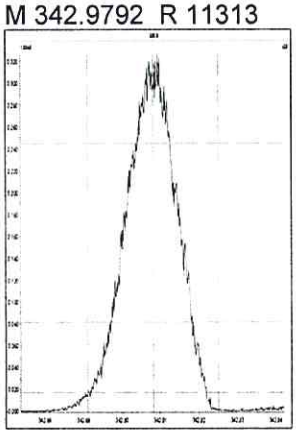
M 318.9792 R 11628



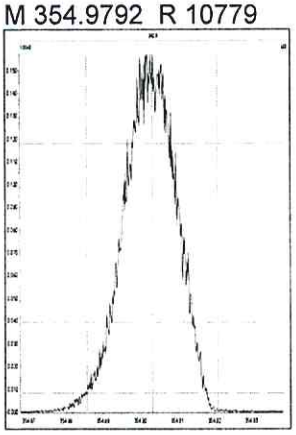
M 330.9792 R 11016



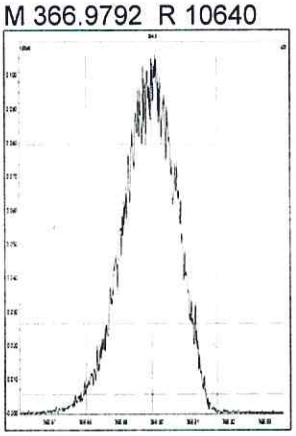
M 342.9792 R 11313



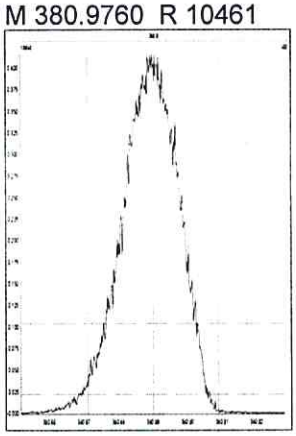
M 354.9792 R 10779



M 366.9792 R 10640



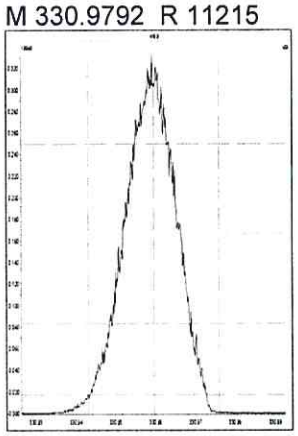
M 380.9760 R 10461



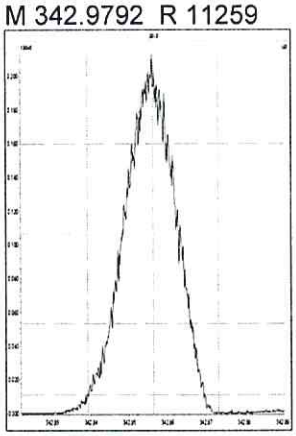
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, April 29, 2016 09:02:03 Central Daylight Time

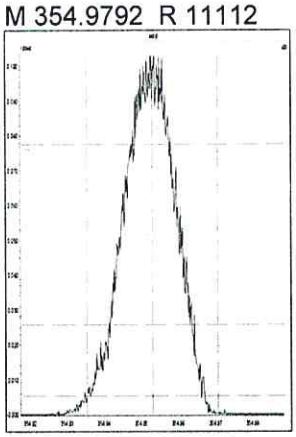
M 330.9792 R 11215



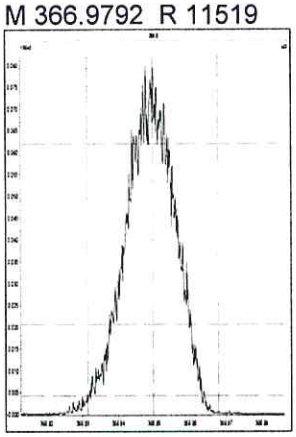
M 342.9792 R 11259



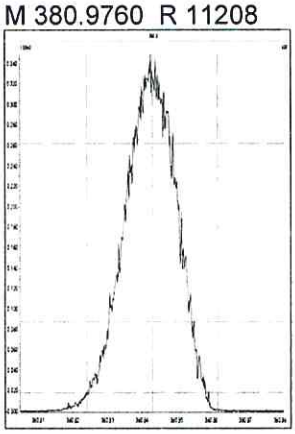
M 354.9792 R 11112



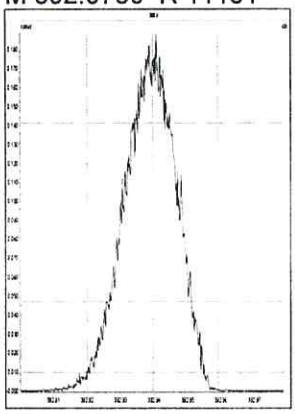
M 366.9792 R 11519



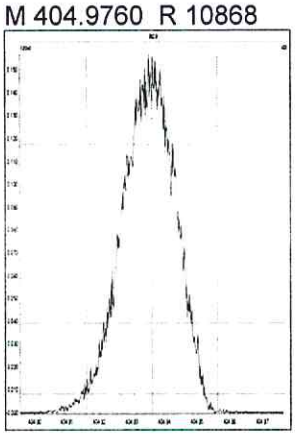
M 380.9760 R 11208



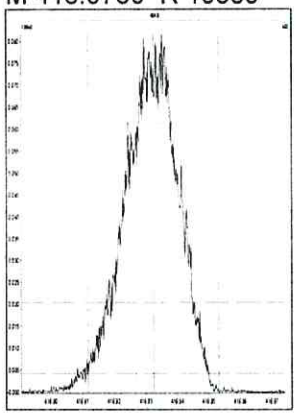
M 392.9760 R 11161



M 404.9760 R 10868



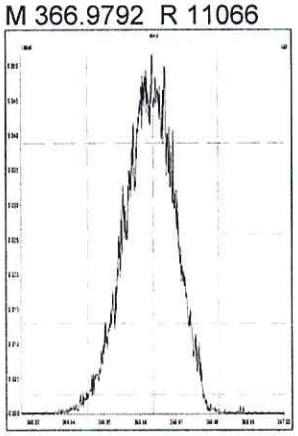
M 416.9760 R 10639



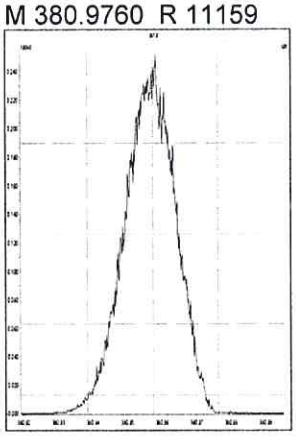
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, April 29, 2016 09:02:51 Central Daylight Time

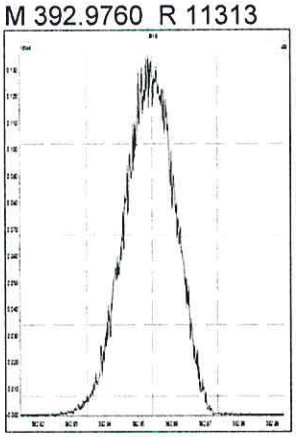
M 366.9792 R 11066



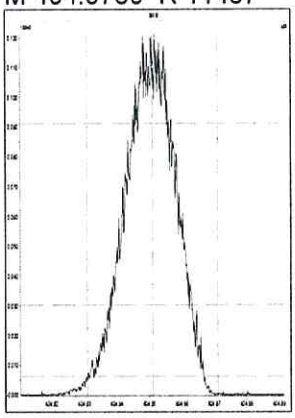
M 380.9760 R 11159



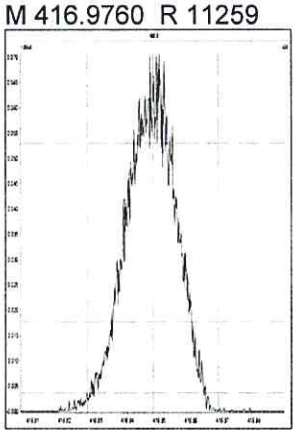
M 392.9760 R 11313



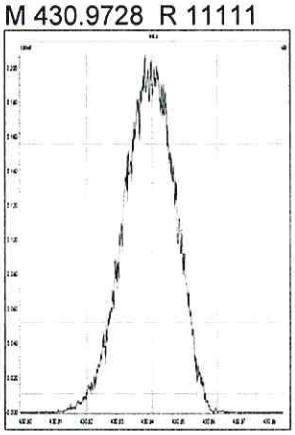
M 404.9760 R 11467



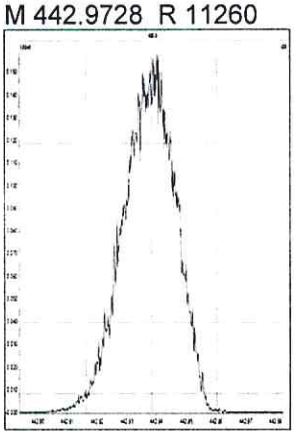
M 416.9760 R 11259



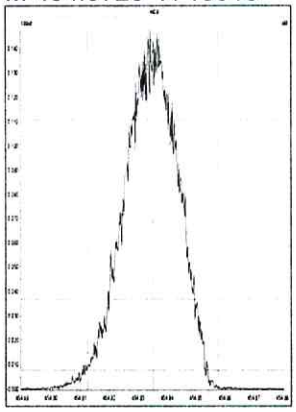
M 430.9728 R 11111



M 442.9728 R 11260



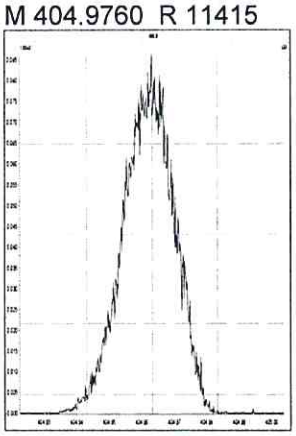
M 454.9728 R 10918



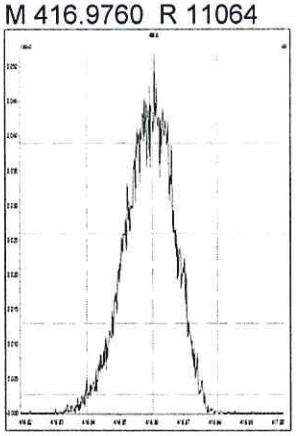
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, April 29, 2016 09:03:28 Central Daylight Time

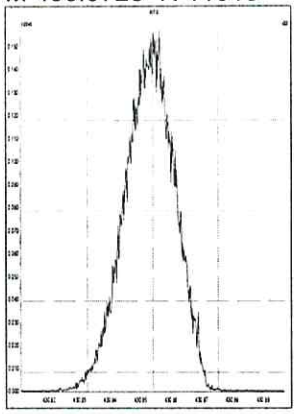
M 404.9760 R 11415



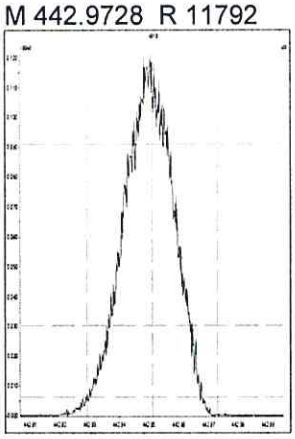
M 416.9760 R 11064



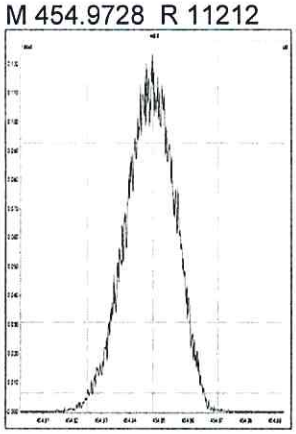
M 430.9728 R 11313



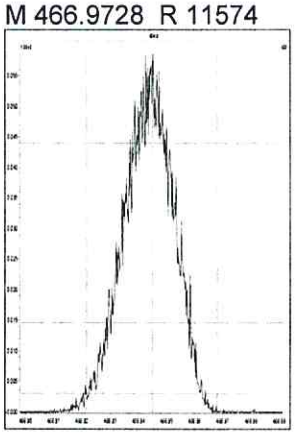
M 442.9728 R 11792



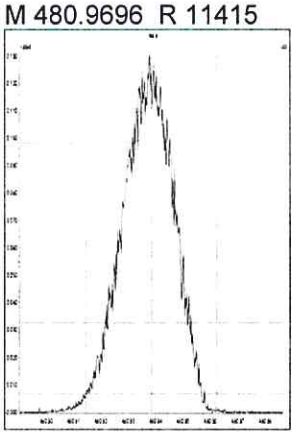
M 454.9728 R 11212



M 466.9728 R 11574



M 480.9696 R 11415

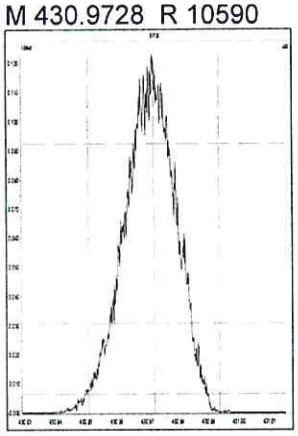


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

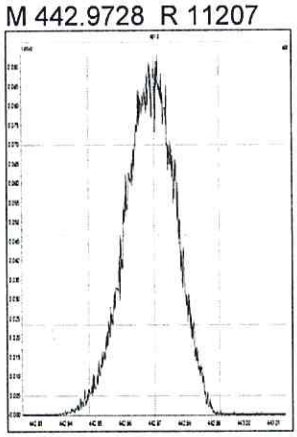
File: Experiment: epa1613_als.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, April 29, 2016 09:04:06 Central Daylight Time

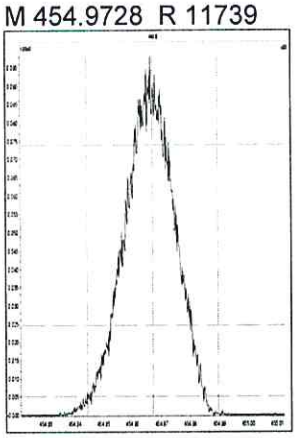
M 430.9728 R 10590



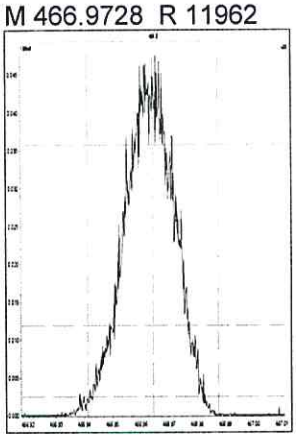
M 442.9728 R 11207



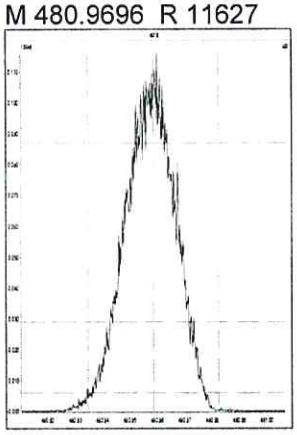
M 454.9728 R 11739



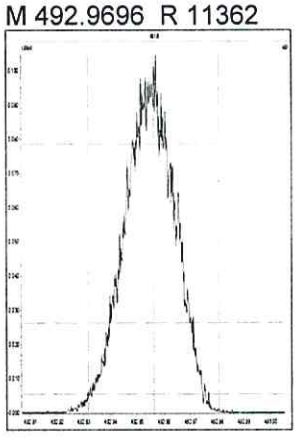
M 466.9728 R 11962



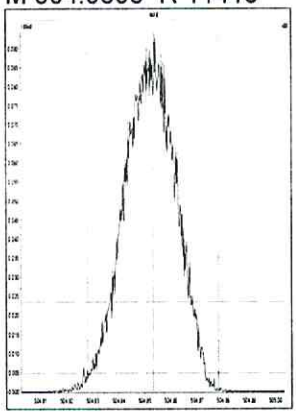
M 480.9696 R 11627



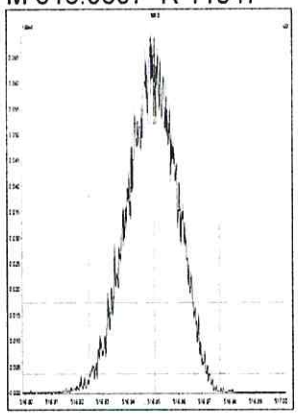
M 492.9696 R 11362



M 504.9696 R 11416



M 516.9697 R 11847



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

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

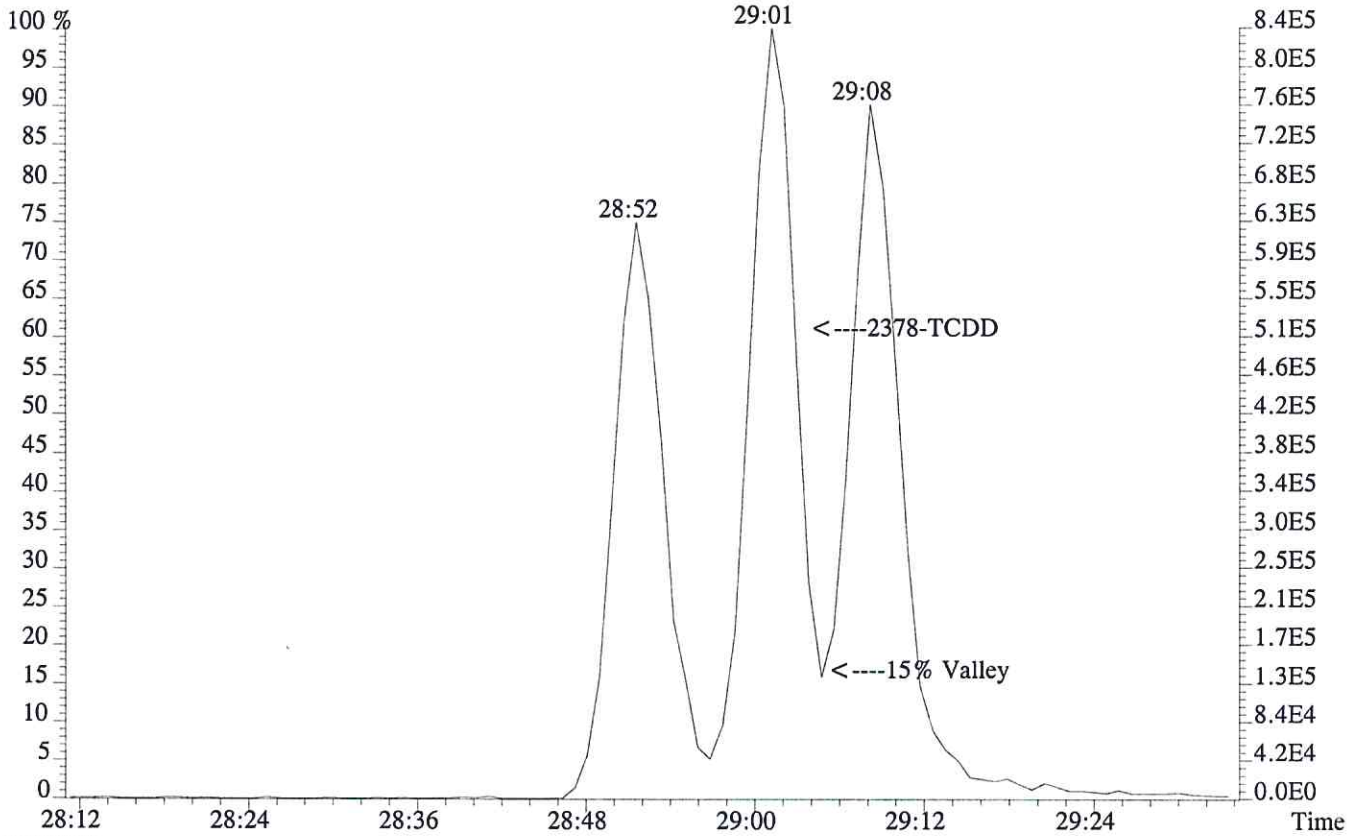
Case No.: _____
ID: 0.25 (mm)

SDG No.:
Lab File ID: P402423
Date Analyzed: 28-APR-2016
Time Analyzed 09:34:40

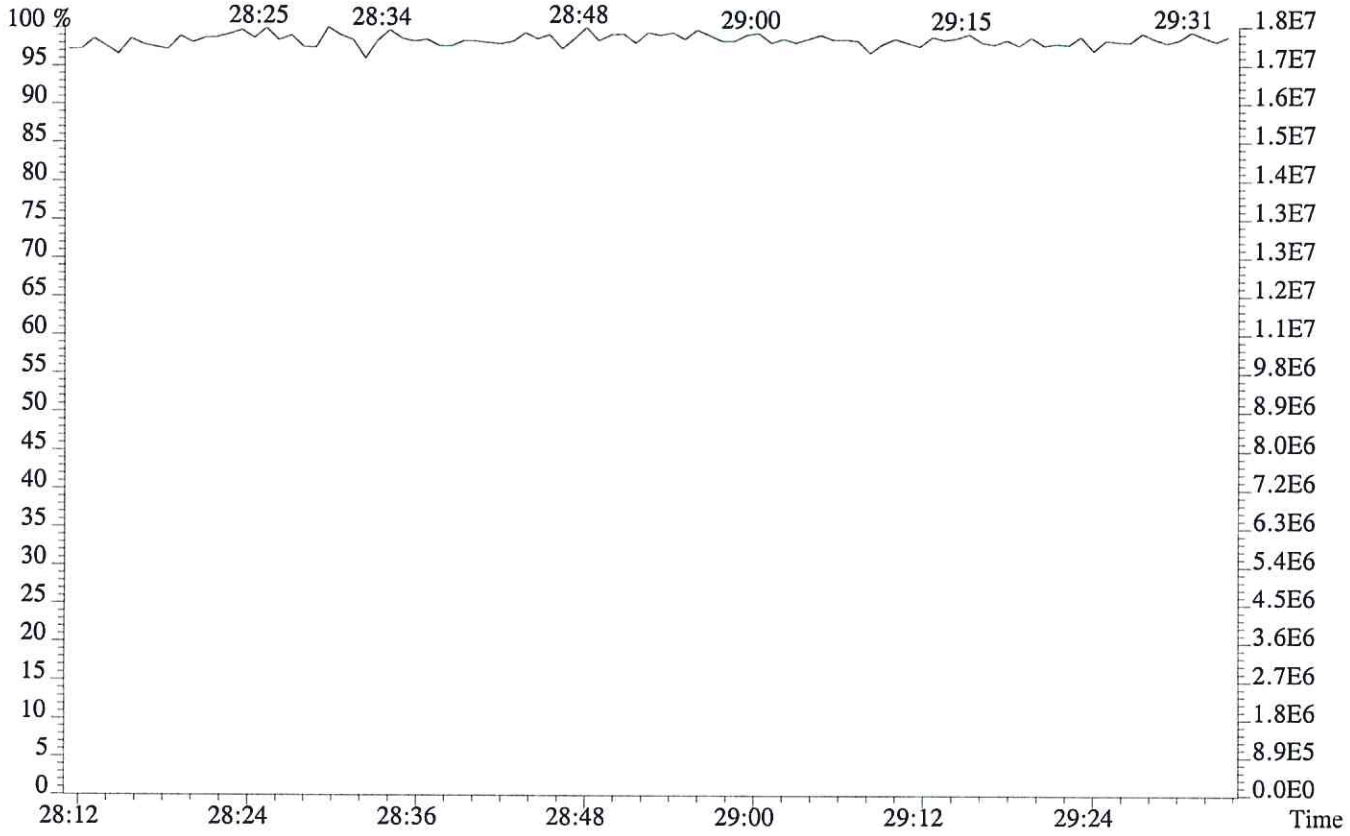
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:55	30:09
TCDD	25:47	30:00
PeCDF	30:05	34:16
PeCDD	31:36	34:01
HxCDF	34:54	37:22
HxCDD	35:25	36:58
HpCDF	38:35	39:57
HpCDD	38:49	39:29

% Valley 2378-TCDD: 15 %

File:P402423 #1-684 Acq:28-APR-2016 09:34:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792



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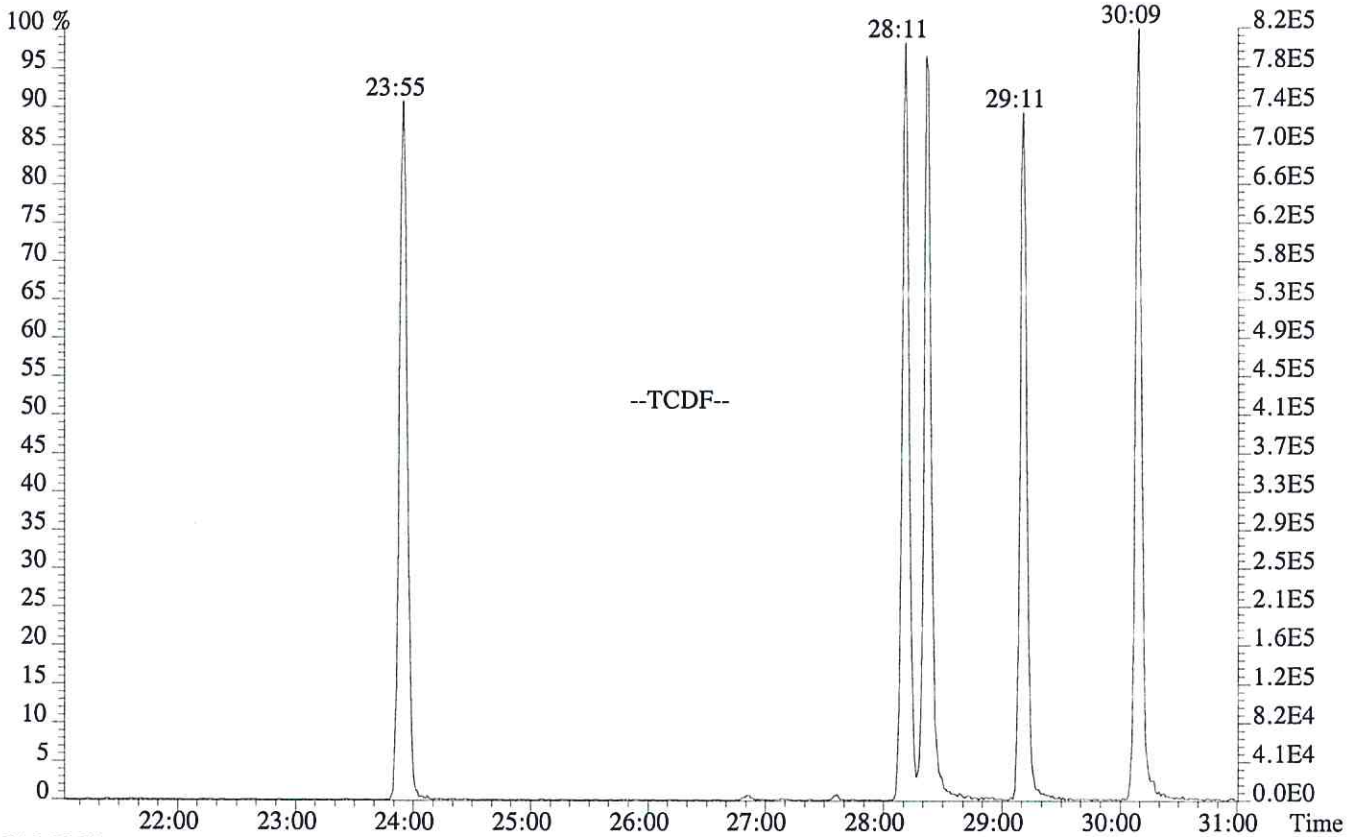
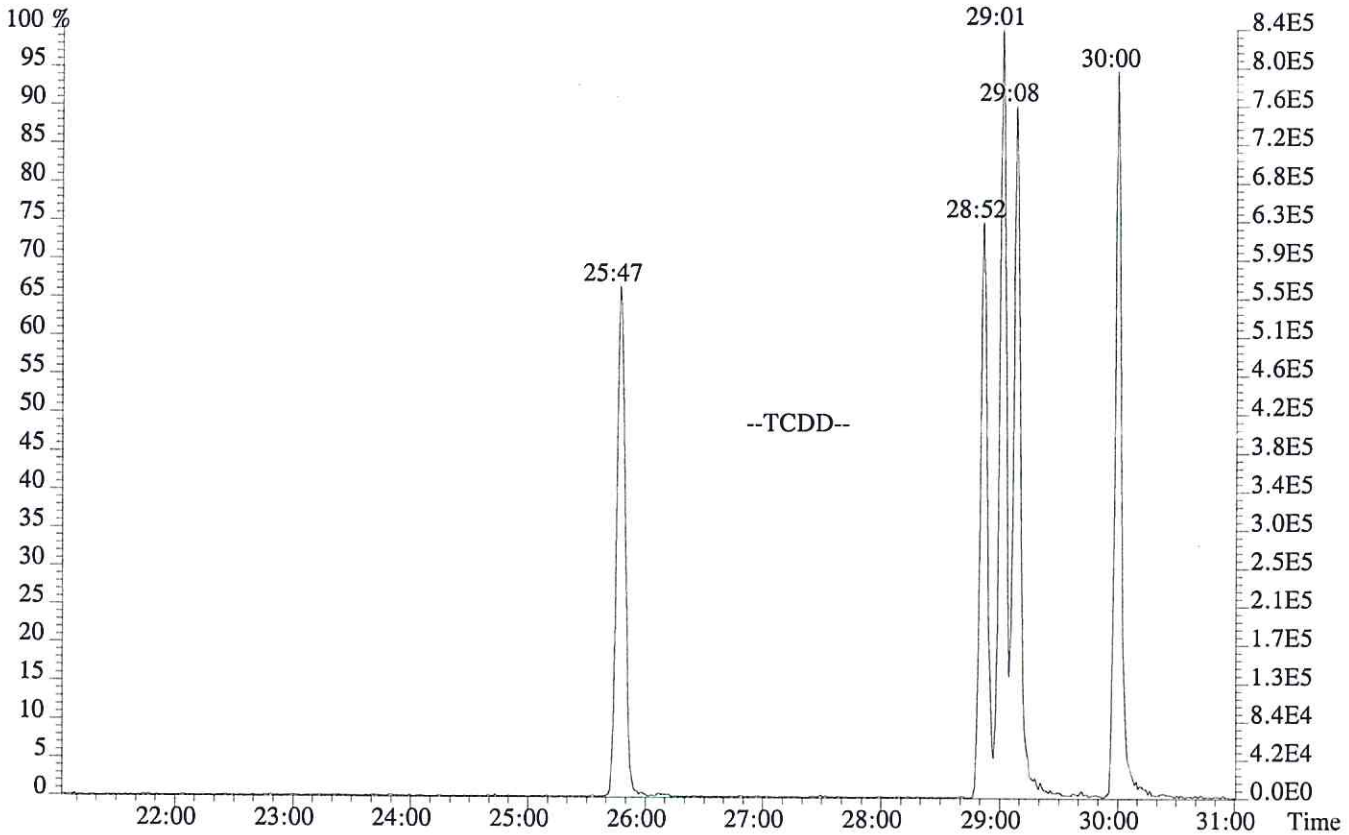
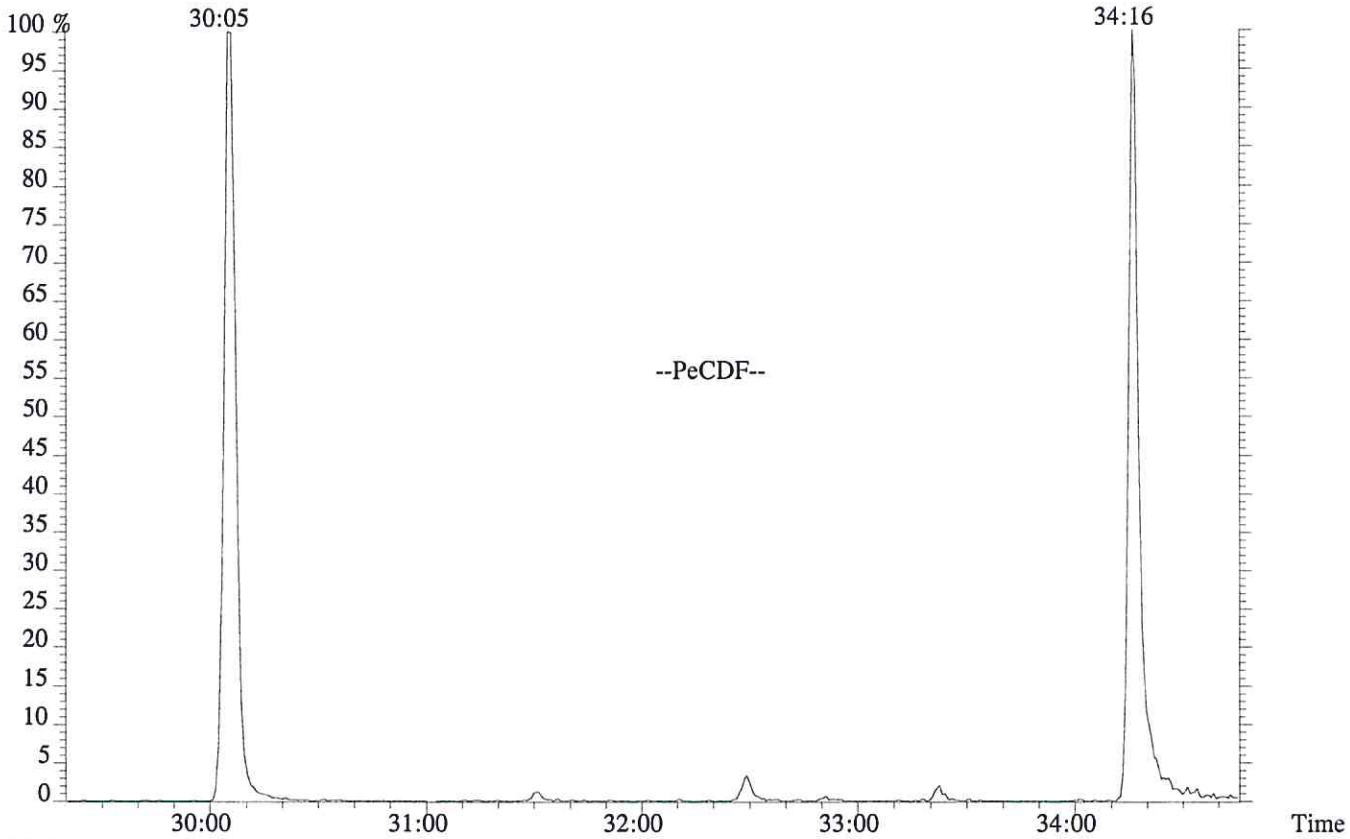
Sample#1 Exp:WINDOW DEFINE
303.9016



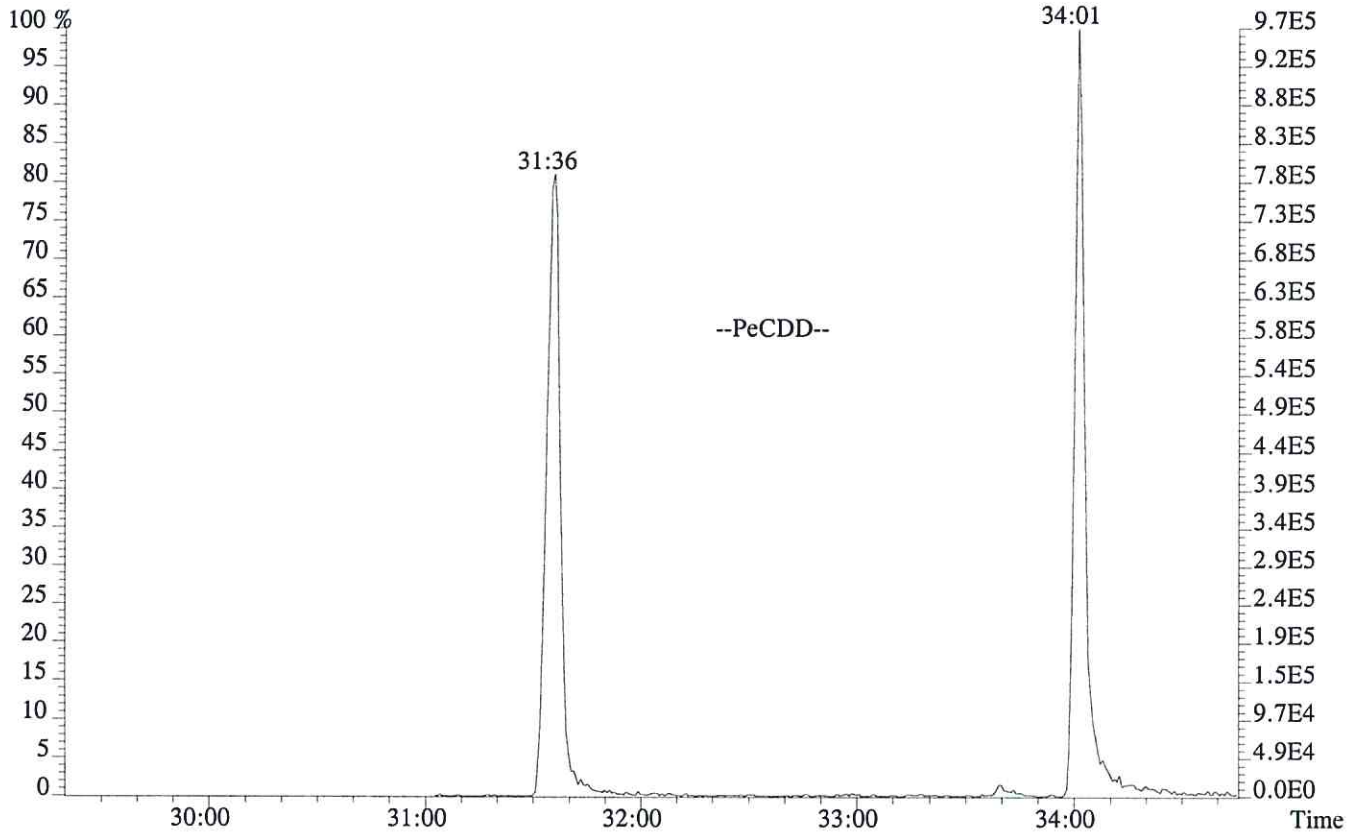
319.8965



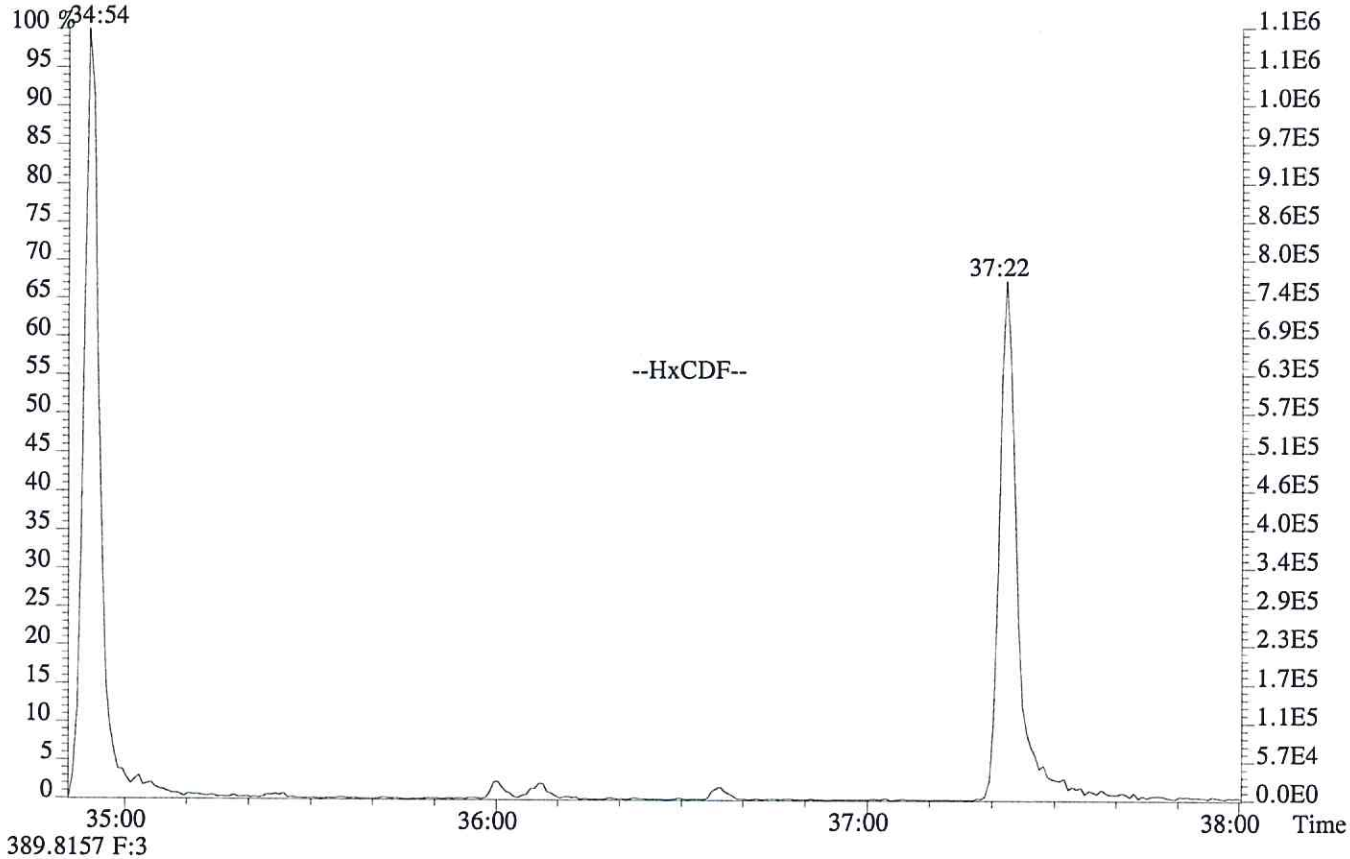
File:P402423 #1-684 Acq:28-APR-2016 09:34:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



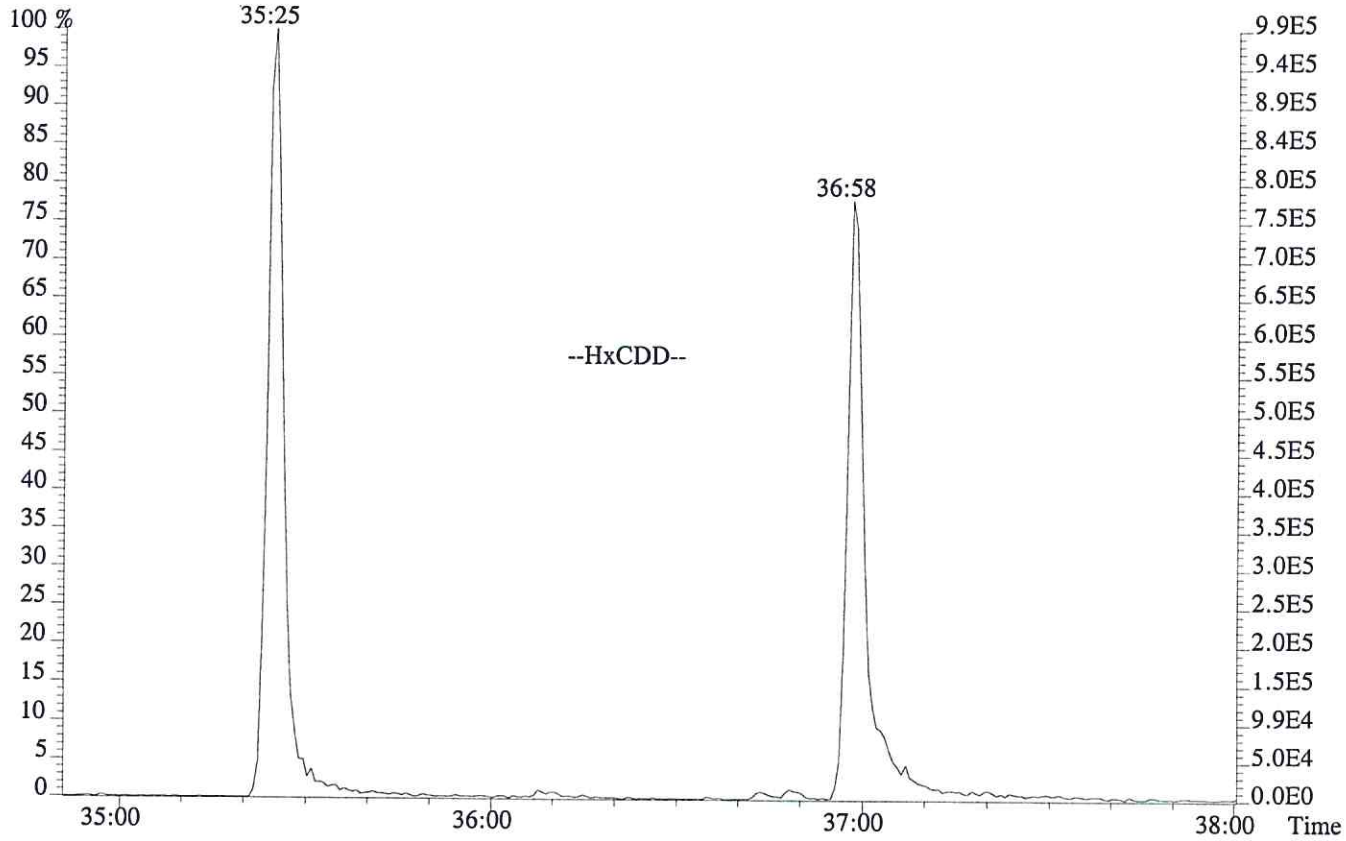
355.8546 F:2



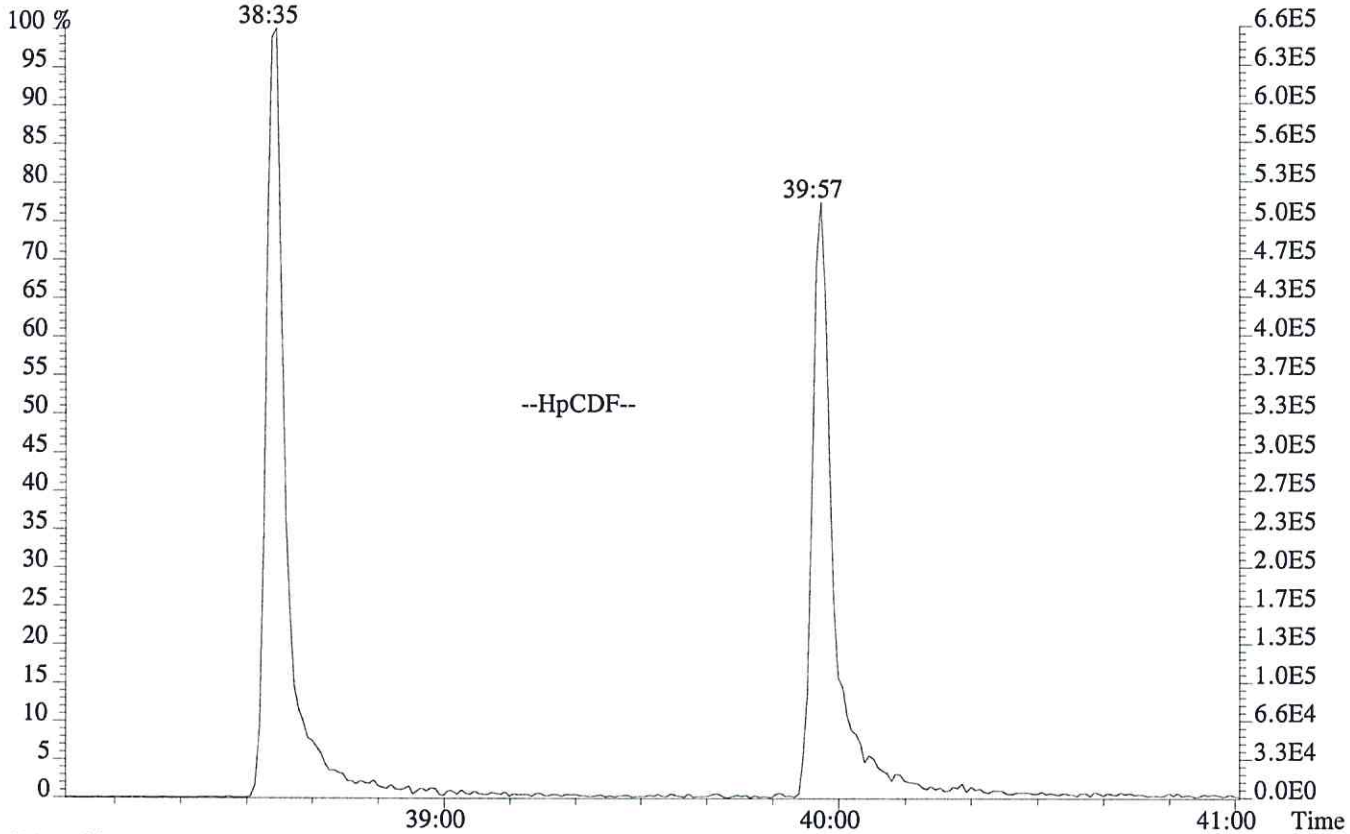
File:P402423 #1-285 Acq:28-APR-2016 09:34:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



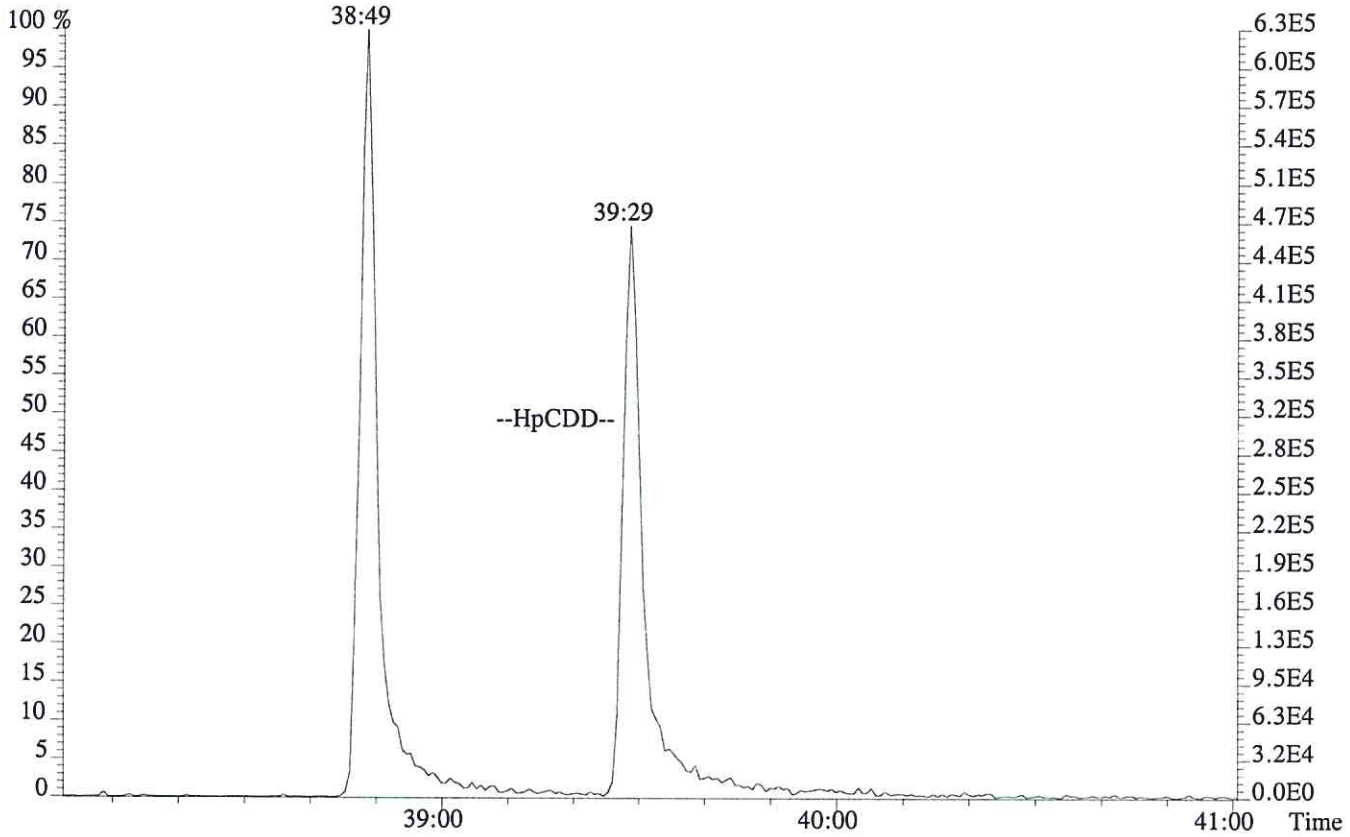
389.8157 F:3



File:P402423 #1-268 Acq:28-APR-2016 09:34:40 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).: 04/28/16 Method 1613/8290
Init. Calib. Time.: 09:34:40

	RR/RRF								
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	0.91	0.90	0.81	0.83	0.87	0.92	0.87	5.11	+/-20%
2,3,7,8-TCDF	0.77	0.78	0.70	0.73	0.80	0.83	0.77	6.30	+/-20%
1,2,3,7,8-PeCDF	0.83	0.83	0.81	0.89	0.92	0.95	0.87	6.45	+/-20%
1,2,3,7,8-PeCDD	0.77	0.80	0.78	0.80	0.83	0.85	0.81	3.88	+/-20%
2,3,4,7,8-PeCDF	0.78	0.80	0.78	0.84	0.87	0.88	0.83	5.42	+/-20%
1,2,3,4,7,8-HxCDF	1.05	1.05	1.05	1.11	1.14	1.18	1.10	5.09	+/-20%
1,2,3,6,7,8-HxCDF	1.03	0.96	0.99	1.04	1.07	1.10	1.03	5.15	+/-20%
1,2,3,4,7,8-HxCDD	0.85	0.85	0.81	0.89	0.93	0.95	0.88	5.86	+/-20%
1,2,3,6,7,8-HxCDD	0.86	0.90	0.84	0.89	0.93	0.94	0.89	4.47	+/-20%
1,2,3,7,8,9-HxCDD	0.94	0.93	0.86	0.94	0.98	1.02	0.95	5.65	+/-20%
2,3,4,6,7,8-HxCDF	0.96	1.00	0.96	1.03	1.06	1.08	1.02	4.92	+/-20%
1,2,3,7,8,9-HxCDF	0.97	1.01	0.97	1.05	1.08	1.11	1.03	5.63	+/-20%
1,2,3,4,6,7,8-HpCDF	1.18	1.16	1.19	1.25	1.31	1.34	1.24	6.10	+/-20%
1,2,3,4,6,7,8-HpCDD	0.83	0.83	0.85	0.90	0.92	0.96	0.88	6.05	+/-20%
1,2,3,4,7,8,9-HpCDF	1.18	1.18	1.09	1.18	1.22	1.26	1.19	4.97	+/-20%
OCDD	1.01	0.94	0.92	0.97	1.01	1.02	0.98	4.32	+/-20%
OCDF	1.00	1.01	0.97	1.04	1.08	1.11	1.03	5.13	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.96	0.97	0.96	0.96	0.97	0.99	0.97	1.04	+/-35%
13C-1,2,3,7,8-PeCDD	0.92	0.90	0.89	0.89	0.91	1.01	0.92	5.11	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.85	0.86	0.87	0.91	0.89	0.87	0.88	2.48	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.96	0.94	0.95	0.95	0.93	0.88	0.93	2.93	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.78	0.84	0.82	0.83	0.83	0.80	0.82	2.83	+/-35%
13C-OCDD	0.58	0.64	0.65	0.64	0.65	0.65	0.63	4.10	+/-35%
13C-2,3,7,8-TCDF	1.12	1.15	1.12	1.12	1.14	1.17	1.14	1.79	+/-35%
13C-1,2,3,7,8-PeCDF	1.08	1.07	1.07	1.07	1.10	1.19	1.10	4.40	+/-35%
13C-2,3,4,7,8-PeCDF	1.07	1.08	1.05	1.05	1.08	1.19	1.09	4.69	+/-35%
13C-1,2,3,4,7,8-HxCDF	0.88	0.89	0.89	0.93	0.89	0.88	0.89	2.10	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.07	1.07	1.06	1.08	1.05	1.01	1.06	2.49	+/-35%
13C-2,3,4,6,7,8-HxCDF	0.95	0.96	0.96	0.99	0.96	0.94	0.96	1.74	+/-35%
13C-1,2,3,7,8,9-HxCDF	0.82	0.84	0.85	0.86	0.85	0.84	0.84	1.67	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.73	0.75	0.76	0.76	0.74	0.72	0.74	2.03	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.61	0.66	0.67	0.67	0.67	0.66	0.66	3.41	+/-35%
37Cl-2,3,7,8-TCDD	0.93	0.94	0.93	0.93	0.98	1.03	0.96	4.21	+/-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).: 04/28/16 Method 1613/8290
Init. Calib. Time.: 09:34:40

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	0.84	0.73	0.71	0.75	0.75	0.76		0.65-0.89
2,3,7,8-TCDD	320/322	0.85	0.75	0.81	0.73	0.75	0.75		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.55	1.67	1.55	1.56	1.54	1.54		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.55	1.63	1.54	1.56	1.55	1.52		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.37	1.50	1.59	1.56	1.53	1.53		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.23	1.27	1.26	1.22	1.21	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.22	1.15	1.20	1.23	1.23	1.23		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.18	1.29	1.26	1.24	1.24	1.22		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.24	1.28	1.22	1.21	1.23	1.23		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.39	1.19	1.20	1.24	1.22	1.22		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.18	1.20	1.23	1.24	1.23	1.22		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.25	1.15	1.25	1.22	1.21	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.91	1.02	1.03	1.01	1.02	1.01		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.18	0.97	1.04	1.02	1.03	1.03		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	1.05	1.01	1.04	1.01	1.03		0.88-1.20
OCDF	442/444	0.89	0.94	0.87	0.89	0.90	0.89		0.76-1.02
OCDD	458/460	0.89	0.85	0.88	0.87	0.87	0.87		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.77	0.77	0.78	0.78	0.78	0.77		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.56	1.59	1.57	1.57	1.57	1.56		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.24	1.24	1.24	1.25	1.24	1.25		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.24	1.24	1.26	1.23	1.25	1.25		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.04	1.03	1.04	1.04	1.04	1.03		0.88-1.20
13C-OCDD	470/472	0.89	0.88	0.89	0.89	0.89	0.88		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.76	0.77	0.77	0.77	0.76	0.77		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.57	1.58	1.56	1.54	1.55	1.57		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.54	1.56	1.56	1.55	1.56	1.55		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.51	0.51	0.51	0.50	0.51	0.50		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.51	0.51	0.50	0.51	0.51	0.51		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.51	0.51	0.51	0.50	0.51	0.50		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.51	0.48	0.51	0.50	0.51	0.50		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.43	0.44	0.43	0.44	0.44	0.44		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.44	0.43	0.44	0.44	0.43	0.42		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.77	0.79	0.77	0.79	0.78	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.23	1.23	1.23	1.17	1.24	1.23		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 P402425 Samp: 1 Inj: 1 Acquired: 28-APR-16 11:12:25
Processed: 28-APR-16 16:59:48 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:21	6.640e+01	7.867e+01	0.84	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	32:29	4.604e+02	2.973e+02	1.55	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	33:22	4.292e+02	2.776e+02	1.55	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	36:00	3.549e+02	2.880e+02	1.23	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	36:06	4.193e+02	3.435e+02	1.22	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	36:36	3.423e+02	2.899e+02	1.18	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	37:20	3.044e+02	2.456e+02	1.24	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	2.848e+02	3.113e+02	0.91	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	2.712e+02	2.306e+02	1.18	yes	no	1.187
10	Unk	OCDF	42:26	3.768e+02	4.247e+02	0.89	yes	no	1.035
11	Unk	2,3,7,8-TCDD	29:07	6.750e+01	7.952e+01	0.85	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	33:39	3.452e+02	2.522e+02	1.37	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	36:44	2.904e+02	2.095e+02	1.39	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	36:49	3.065e+02	2.593e+02	1.18	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	37:03	3.254e+02	2.593e+02	1.25	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	2.210e+02	2.240e+02	0.99	yes	no	0.882
17	Unk	OCDD	42:14	3.841e+02	4.321e+02	0.89	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	28:20	3.270e+04	4.293e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	32:28	4.452e+04	2.838e+04	1.57	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	33:21	4.398e+04	2.851e+04	1.54	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:59	1.644e+04	3.243e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	36:06	1.994e+04	3.946e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	36:35	1.781e+04	3.469e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.522e+04	3.012e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	1.220e+04	2.822e+04	0.43	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	1.029e+04	2.364e+04	0.44	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	29:06	2.826e+04	3.671e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.781e+04	2.420e+04	1.56	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	36:43	2.590e+04	2.093e+04	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	36:48	2.925e+04	2.355e+04	1.24	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	2.189e+04	2.106e+04	1.04	yes	no	0.817
32	IS	13C-OCDD	42:13	3.035e+04	3.402e+04	0.89	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	28:33	2.947e+04	3.809e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:02	3.046e+04	2.481e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:08	1.579e+02				no	0.958

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Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P402425 Samp: 1 Inj: 1 Acquired: 28-APR-16 11:12:25
Processed: 28-APR-16 16:59:481 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	1.48e+04	3.32e+02	4.5e+01	1.60e+04	7.92e+02	2.0e+01
2	1,2,3,7,8-PeCDF	8.54e+04	4.00e+02	2.1e+02	5.41e+04	1.17e+03	4.6e+01
3	2,3,4,7,8-PeCDF	8.53e+04	4.00e+02	2.1e+02	5.74e+04	1.17e+03	4.9e+01
4	1,2,3,4,7,8-HxCDF	7.37e+04	5.48e+02	1.3e+02	6.16e+04	2.00e+01	3.1e+03
5	1,2,3,6,7,8-HxCDF	8.11e+04	5.48e+02	1.5e+02	6.59e+04	2.00e+01	3.3e+03
6	2,3,4,6,7,8-HxCDF	7.35e+04	5.48e+02	1.3e+02	6.33e+04	2.00e+01	3.2e+03
7	1,2,3,7,8,9-HxCDF	6.20e+04	5.48e+02	1.1e+02	5.02e+04	2.00e+01	2.5e+03
8	1,2,3,4,6,7,8-HpCDF	6.07e+04	2.88e+02	2.1e+02	6.21e+04	4.80e+02	1.3e+02
9	1,2,3,4,7,8,9-HpCDF	4.89e+04	2.88e+02	1.7e+02	4.69e+04	4.80e+02	9.8e+01
10	OCDF	6.46e+04	2.88e+02	2.2e+02	7.14e+04	6.96e+02	1.0e+02
11	2,3,7,8-TCDD	1.37e+04	8.08e+02	1.7e+01	1.78e+04	7.24e+02	2.5e+01
12	1,2,3,7,8-PeCDD	7.04e+04	8.08e+02	8.7e+01	5.01e+04	1.28e+02	3.9e+02
13	1,2,3,4,7,8-HxCDD	6.39e+04	7.12e+02	9.0e+01	4.82e+04	4.52e+02	1.1e+02
14	1,2,3,6,7,8-HxCDD	6.39e+04	7.12e+02	9.0e+01	5.16e+04	4.52e+02	1.1e+02
15	1,2,3,7,8,9-HxCDD	6.26e+04	7.12e+02	8.8e+01	5.03e+04	4.52e+02	1.1e+02
16	1,2,3,4,6,7,8-HpCDD	3.82e+04	4.84e+02	7.9e+01	4.48e+04	2.68e+02	1.7e+02
17	OCDD	6.15e+04	4.04e+02	1.5e+02	7.23e+04	7.80e+02	9.3e+01
18	13C-2,3,7,8-TCDF	6.57e+06	2.36e+03	2.8e+03	8.50e+06	9.20e+02	9.2e+03
19	13C-1,2,3,7,8-PeCDF	8.31e+06	1.92e+02	4.3e+04	5.29e+06	6.16e+02	8.6e+03
20	13C-2,3,4,7,8-PeCDF	8.75e+06	1.92e+02	4.6e+04	5.63e+06	6.16e+02	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	3.52e+06	9.64e+02	3.7e+03	6.96e+06	8.04e+02	8.7e+03
22	13C-1,2,3,6,7,8-HxCDF	3.99e+06	9.64e+02	4.1e+03	7.81e+06	8.04e+02	9.7e+03
23	13C-2,3,4,6,7,8-HxCDF	3.75e+06	9.64e+02	3.9e+03	7.30e+06	8.04e+02	9.1e+03
24	13C-1,2,3,7,8,9-HxCDF	3.02e+06	9.64e+02	3.1e+03	5.89e+06	8.04e+02	7.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.53e+06	2.33e+03	1.1e+03	5.83e+06	3.56e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.90e+06	2.33e+03	8.1e+02	4.36e+06	3.56e+03	1.2e+03
27	13C-2,3,7,8-TCDD	5.90e+06	5.78e+03	1.0e+03	7.55e+06	2.68e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	7.46e+06	5.28e+02	1.4e+04	4.80e+06	4.60e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	5.77e+06	2.69e+03	2.1e+03	4.67e+06	1.04e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	5.82e+06	2.69e+03	2.2e+03	4.67e+06	1.04e+03	4.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.09e+06	7.52e+02	5.4e+03	3.85e+06	1.12e+02	3.4e+04
32	13C-OCDD	4.76e+06	6.04e+02	7.9e+03	5.40e+06	8.08e+02	6.7e+03
33	13C-1,2,3,4-TCDD	5.96e+06	5.78e+03	1.0e+03	7.70e+06	2.68e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.73e+06	2.69e+03	2.1e+03	4.67e+06	1.04e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	3.17e+04	1.36e+03	2.3e+01			

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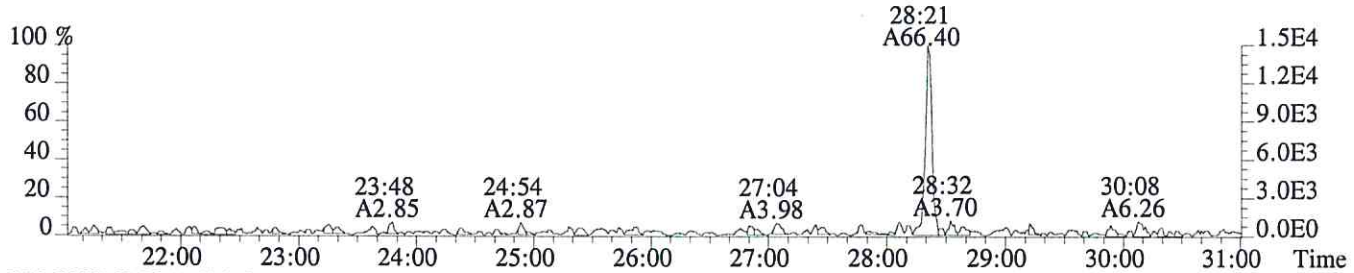
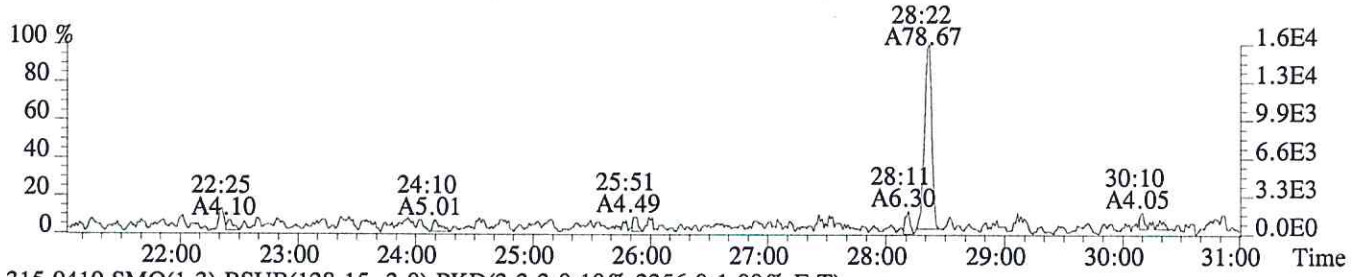
File:P402425 #1-684 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

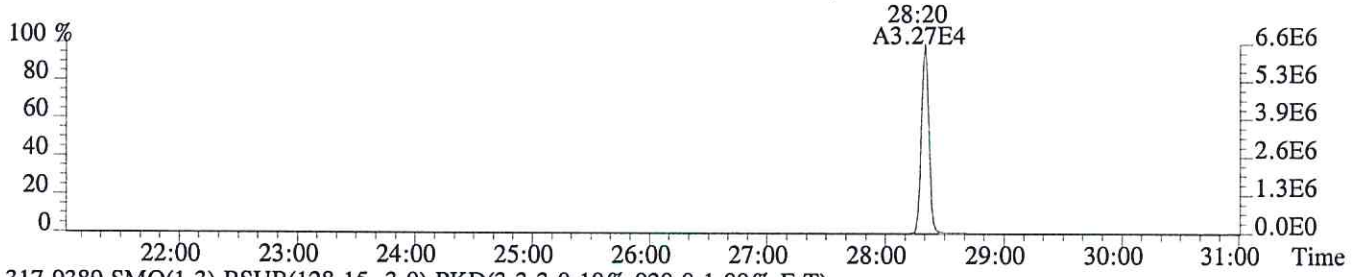
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



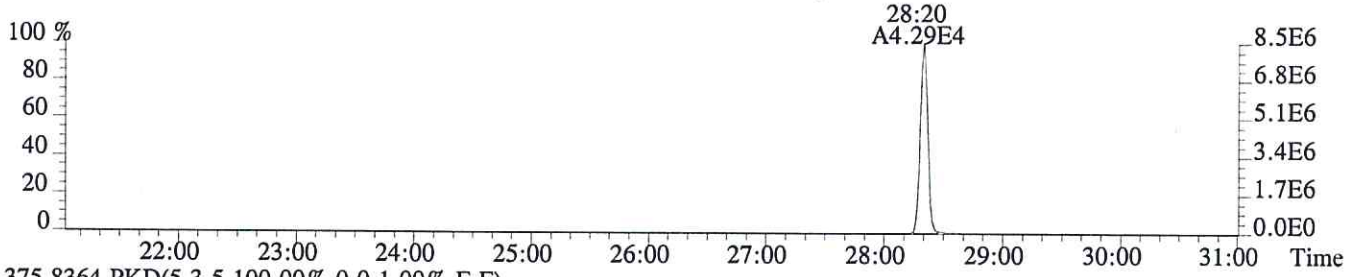
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



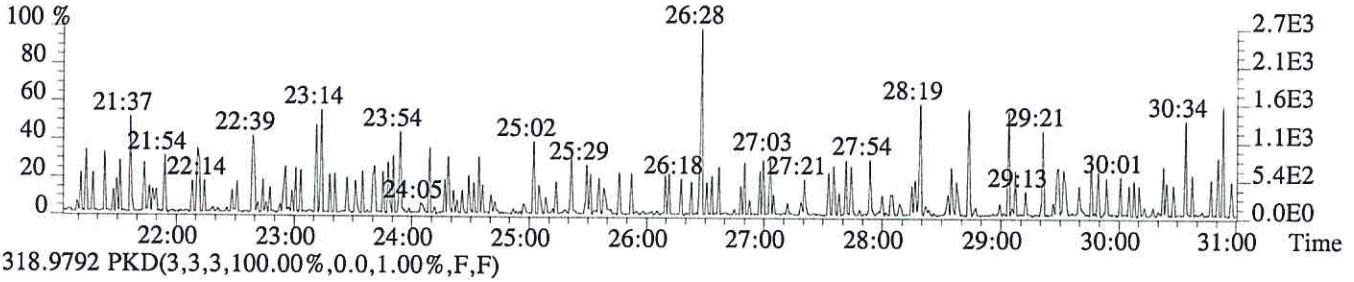
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



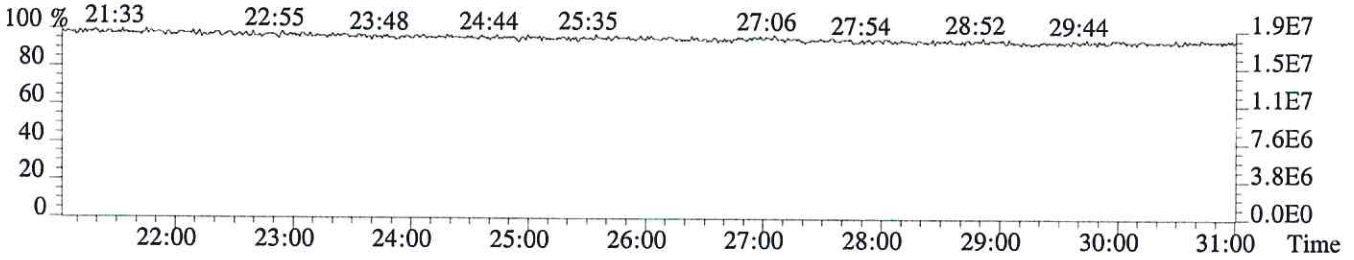
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



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

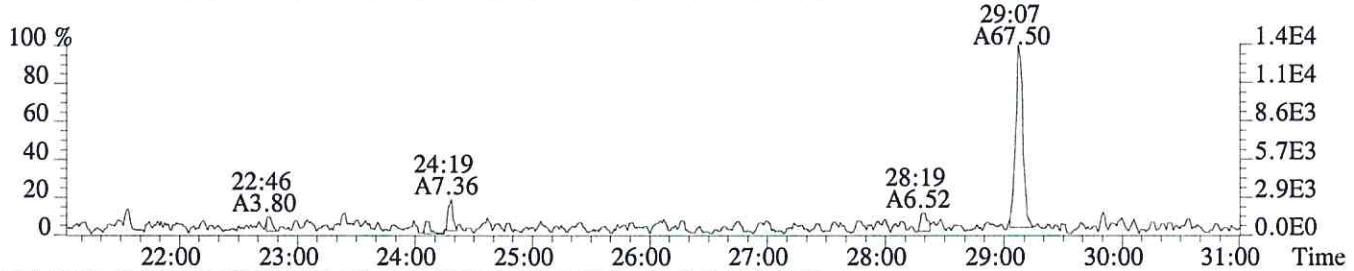


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

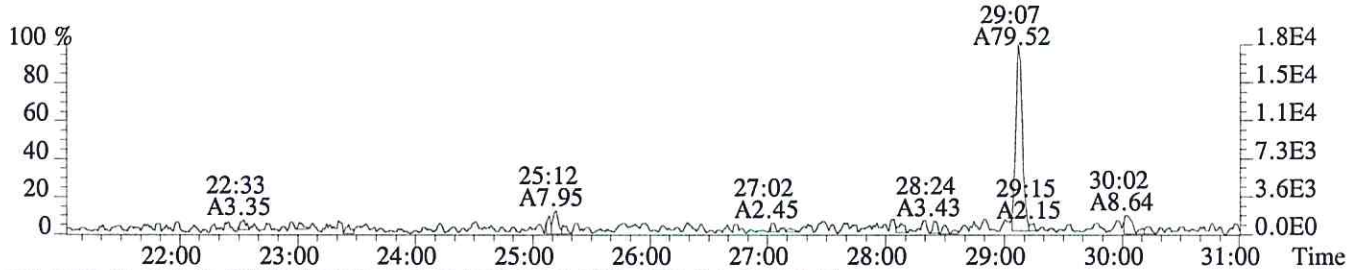


File:P402425 #1-684 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

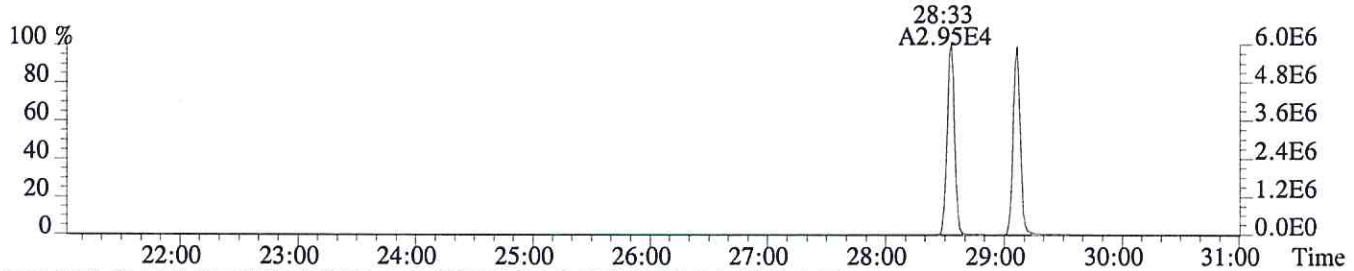
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



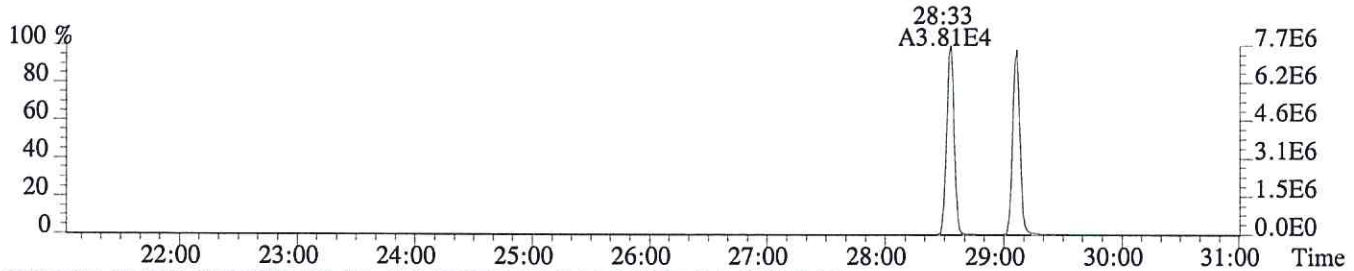
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



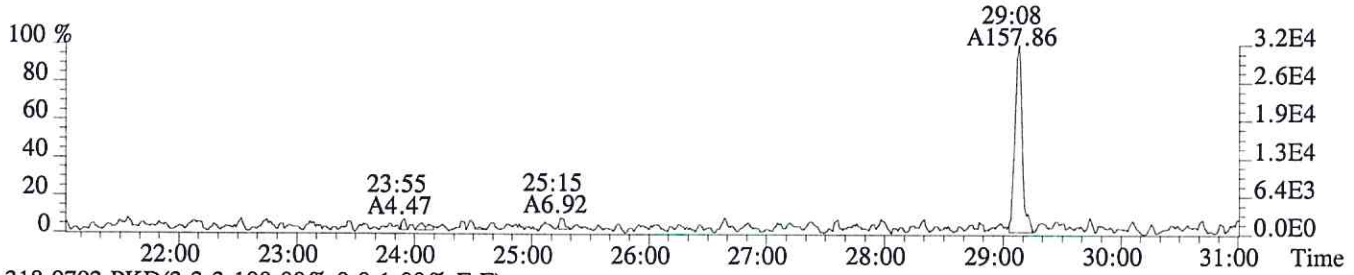
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5784.0,1.00%,F,T)



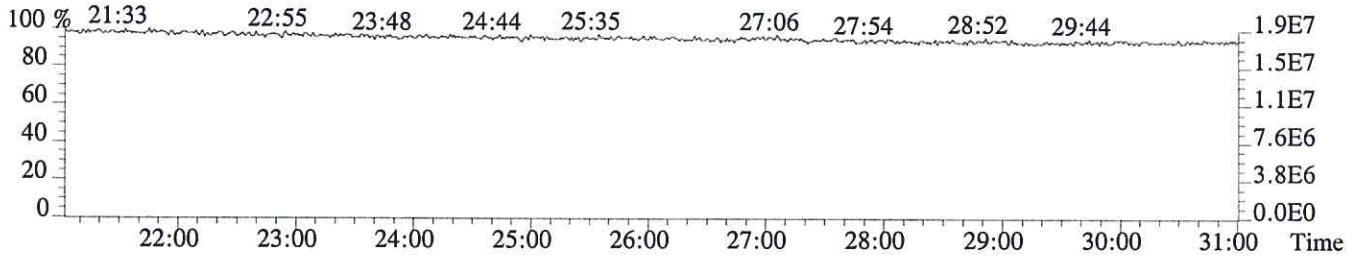
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2684.0,1.00%,F,T)



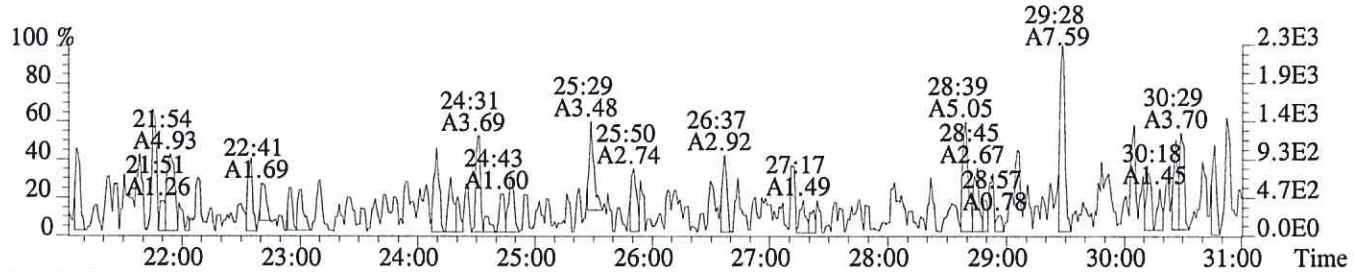
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



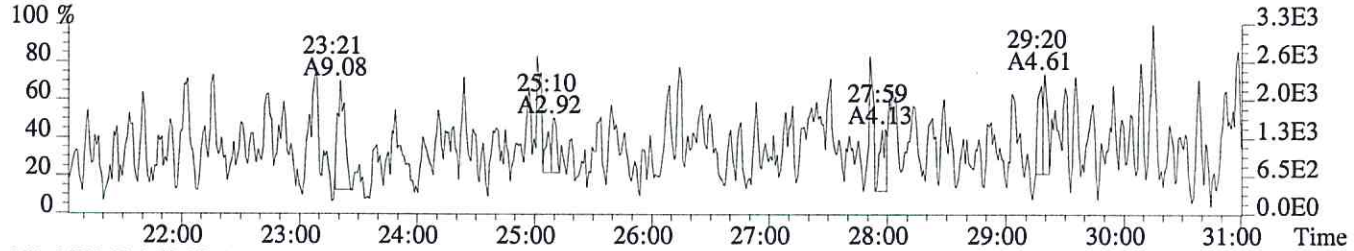
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



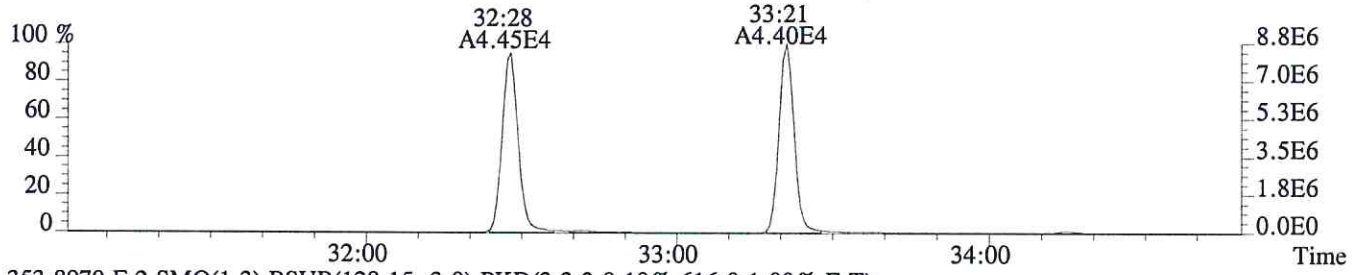
File:P402425 #1-684 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



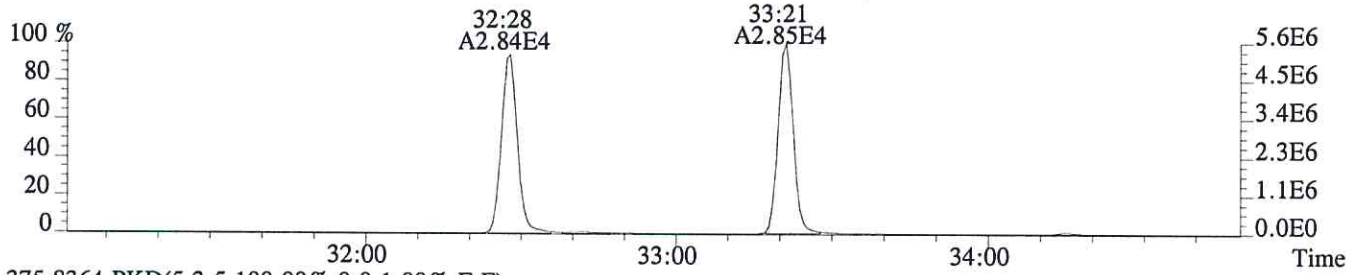
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



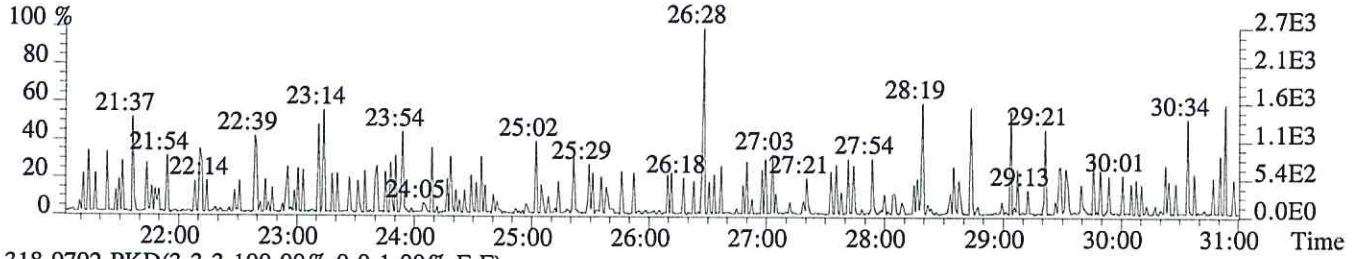
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



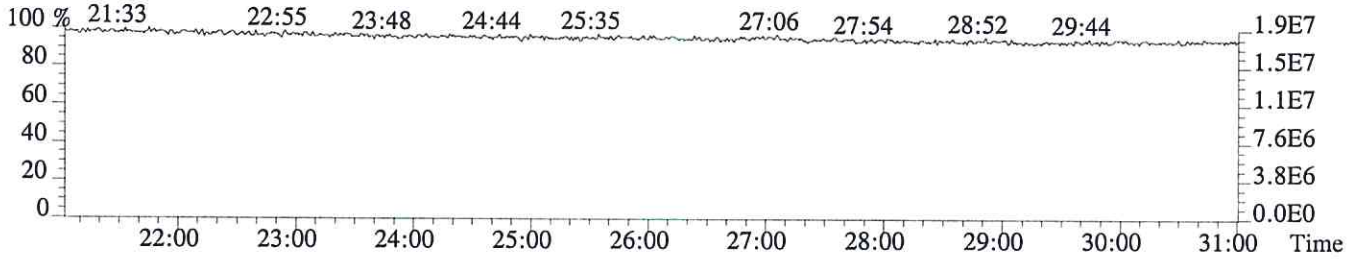
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



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

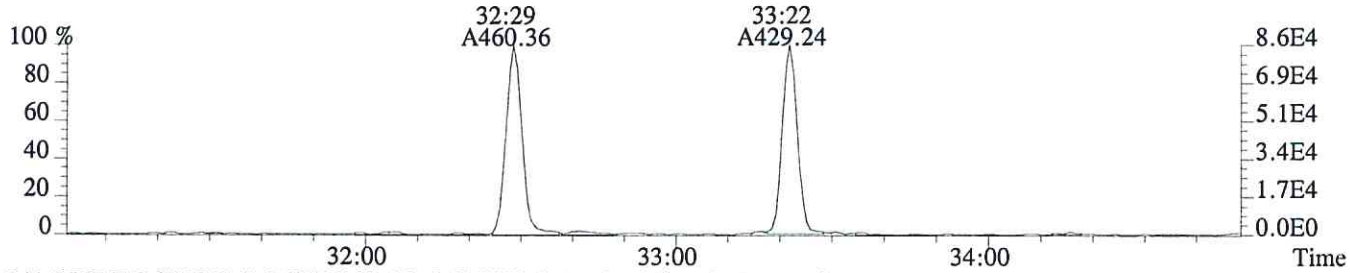


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

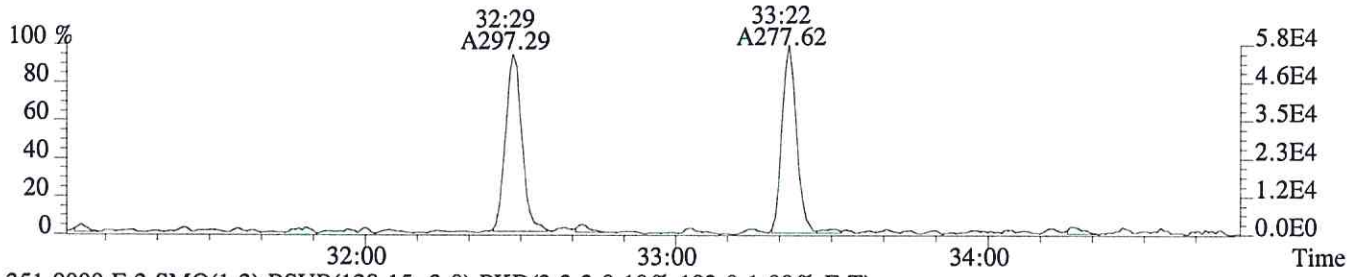


File:P402425 #1-340 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

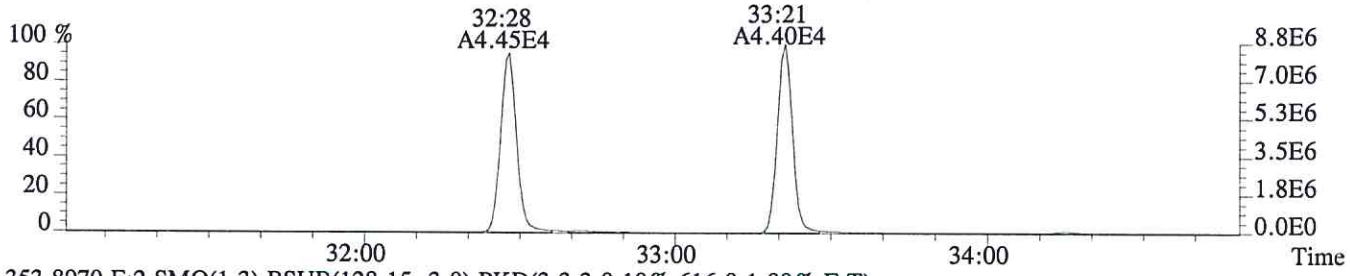
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



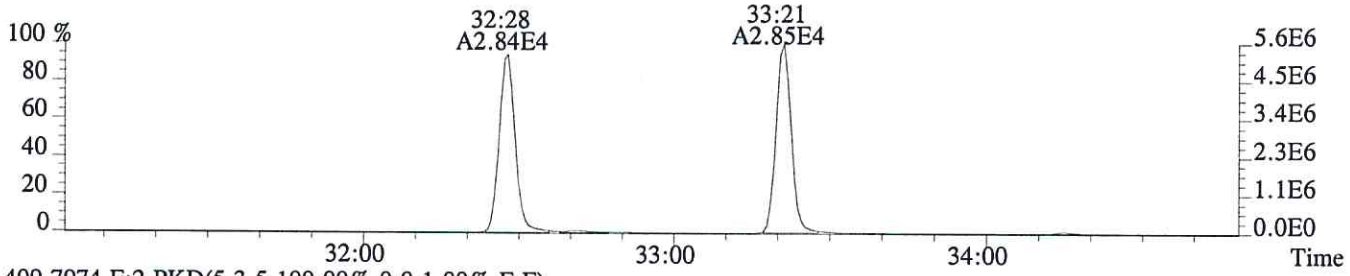
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



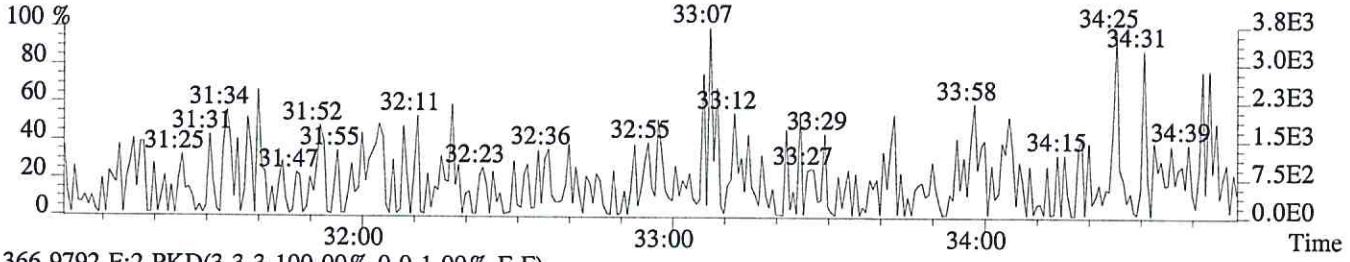
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



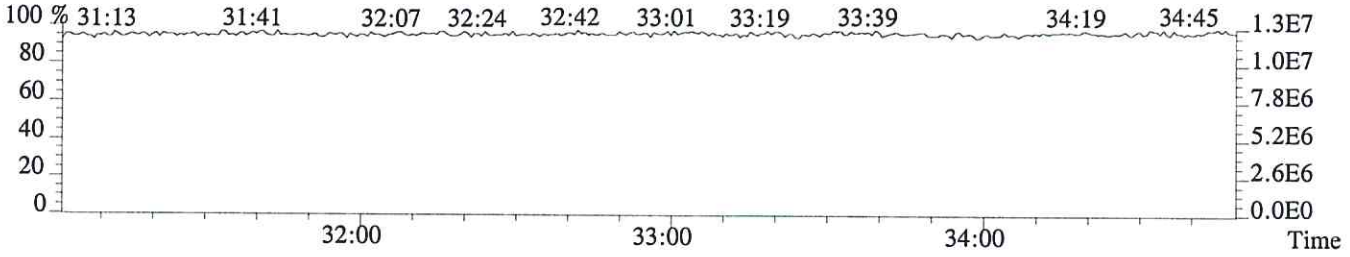
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



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

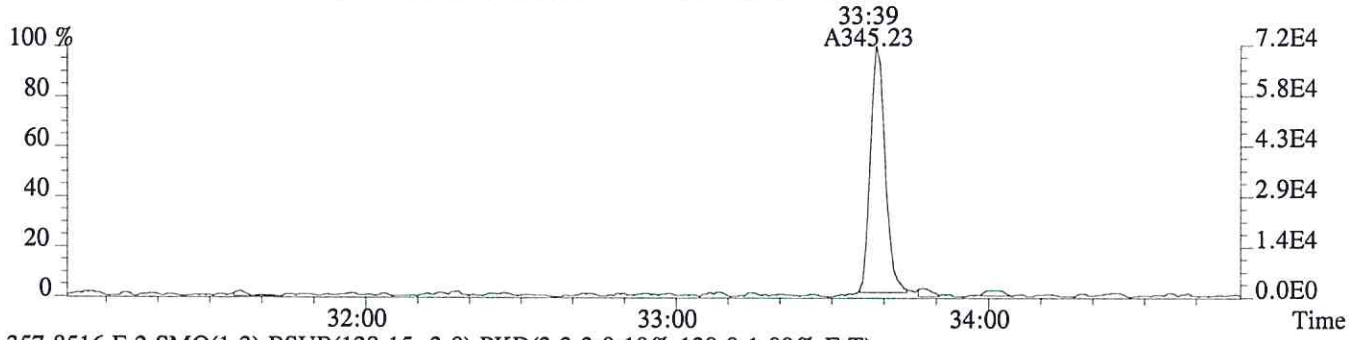


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

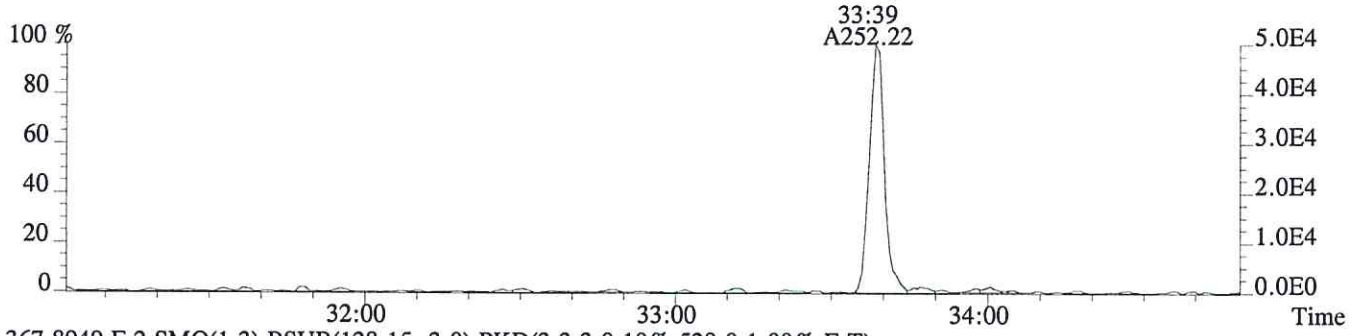


File:P402425 #1-340 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

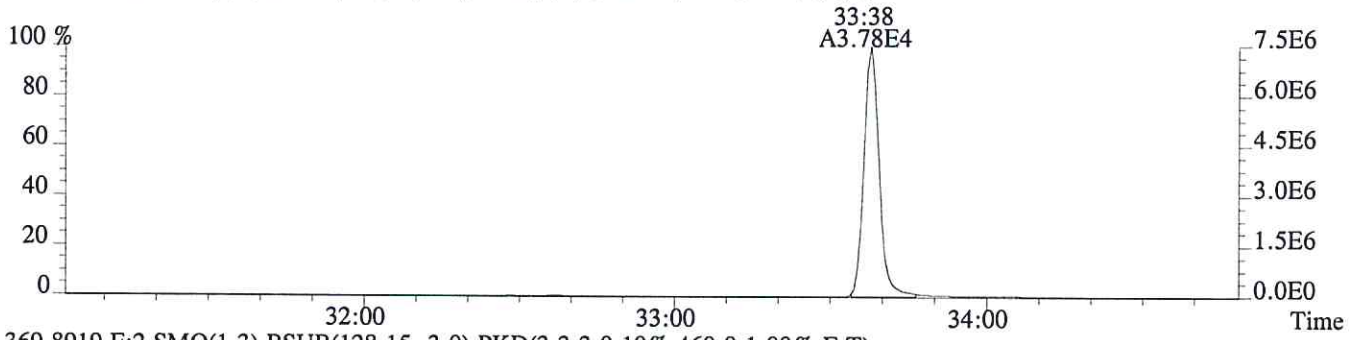
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



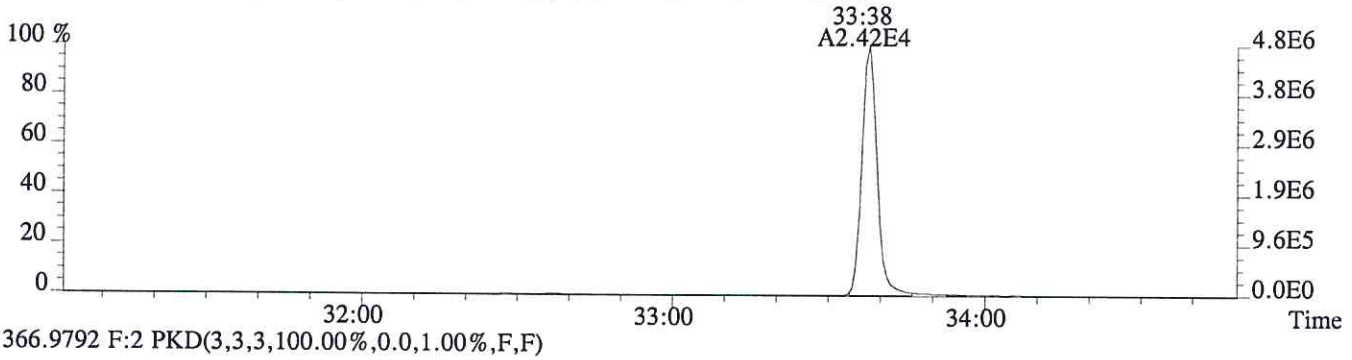
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



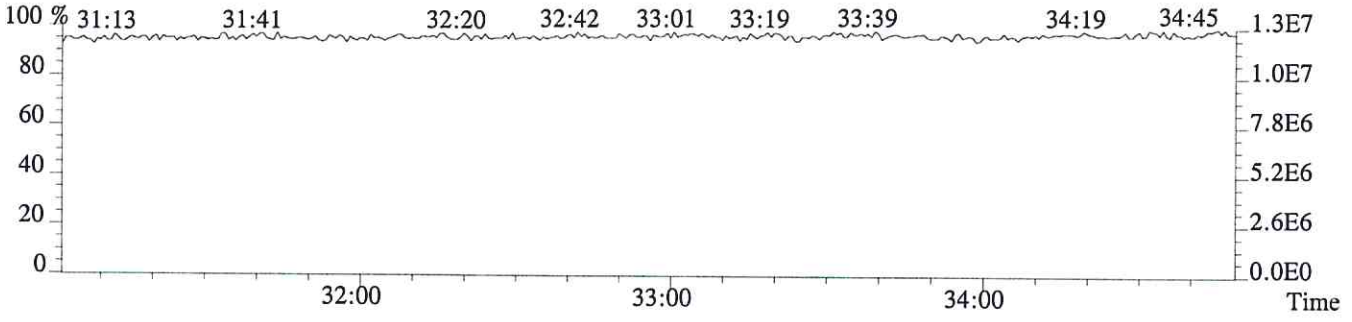
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)

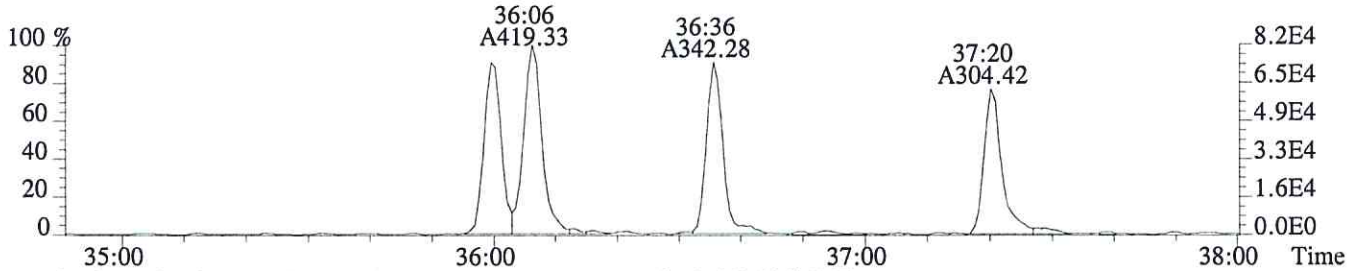


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

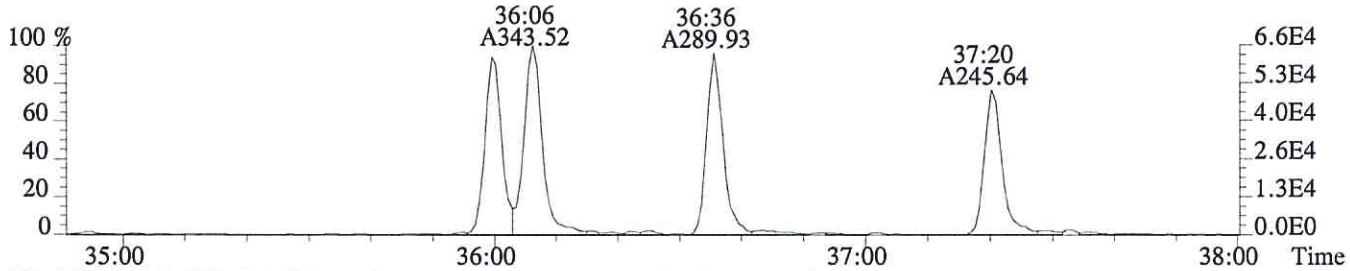


File:P402425 #1-285 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

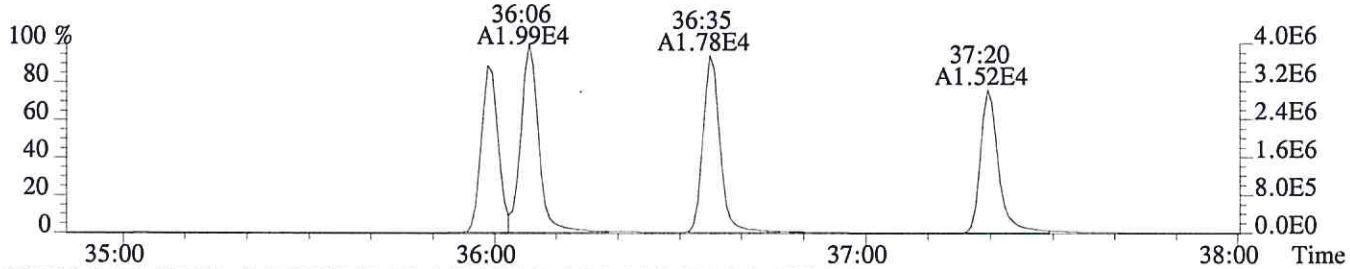
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



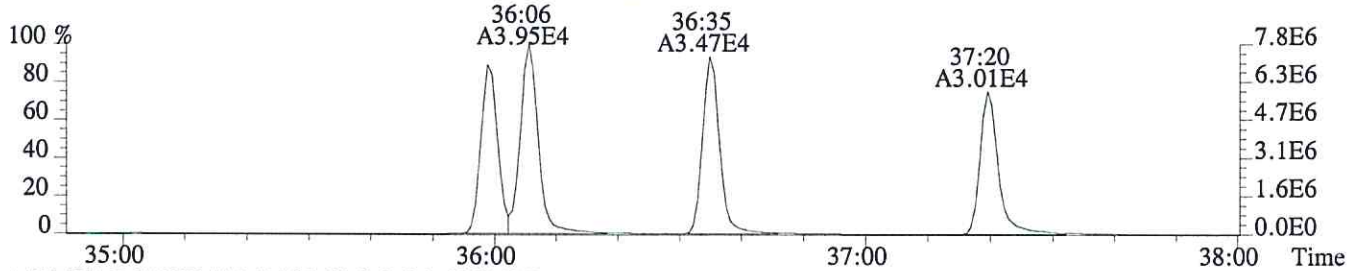
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20.0,0.40%,F,T)



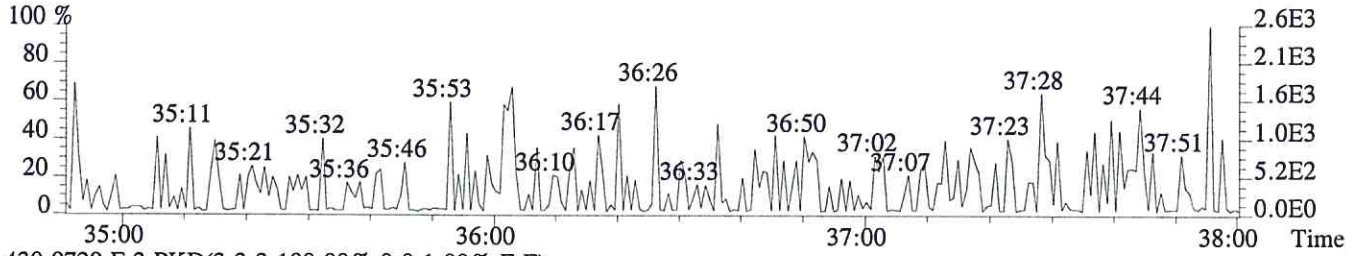
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



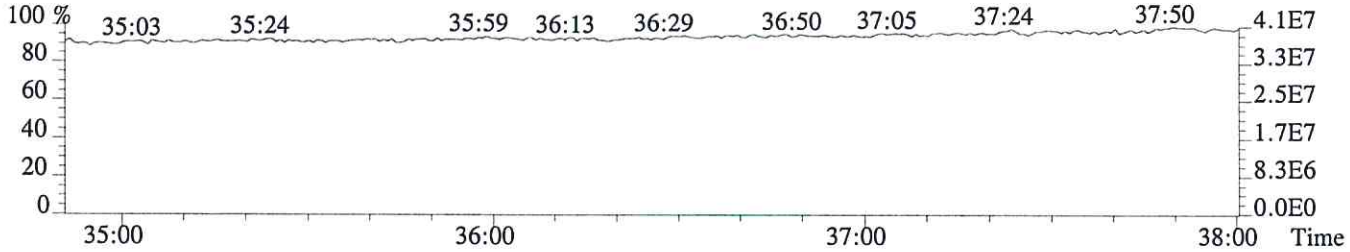
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



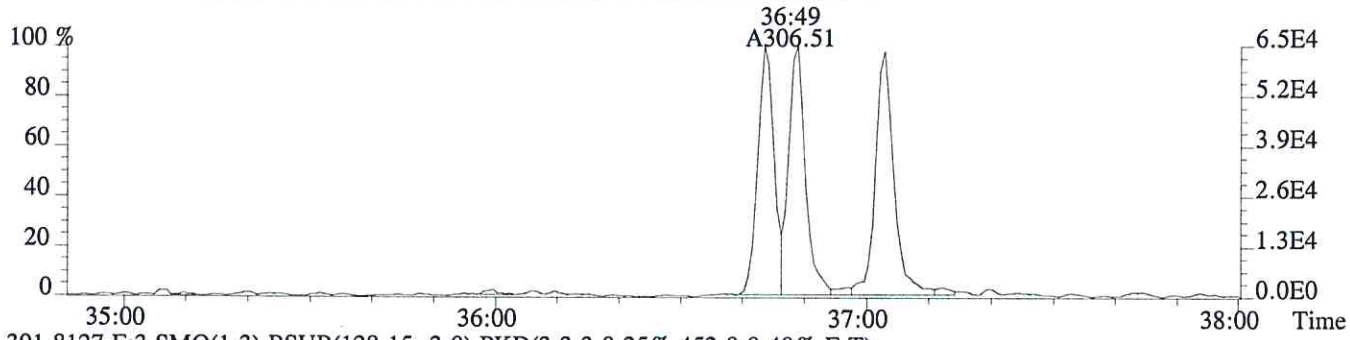
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



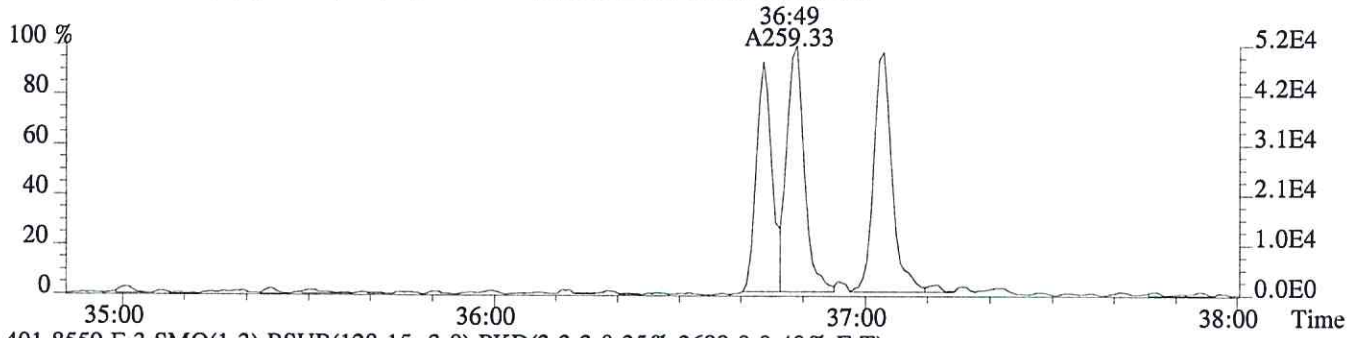
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



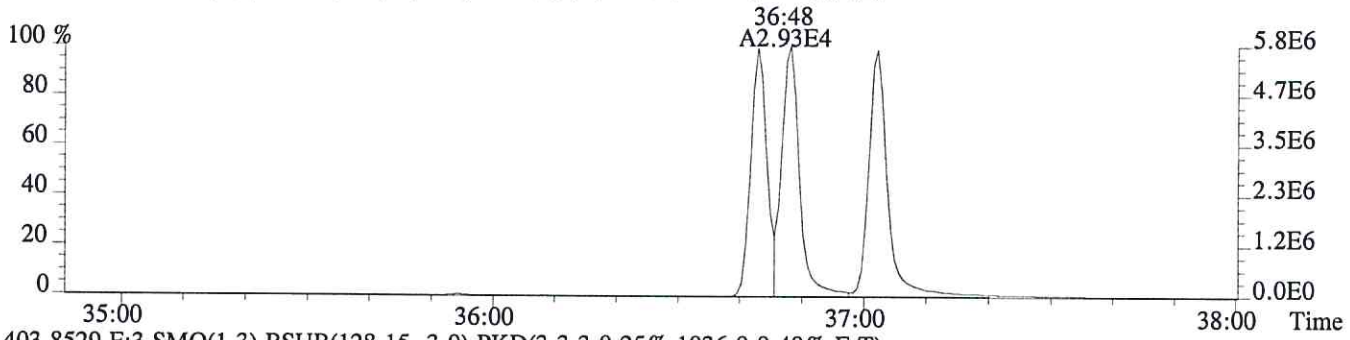
File:P402425 #1-285 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



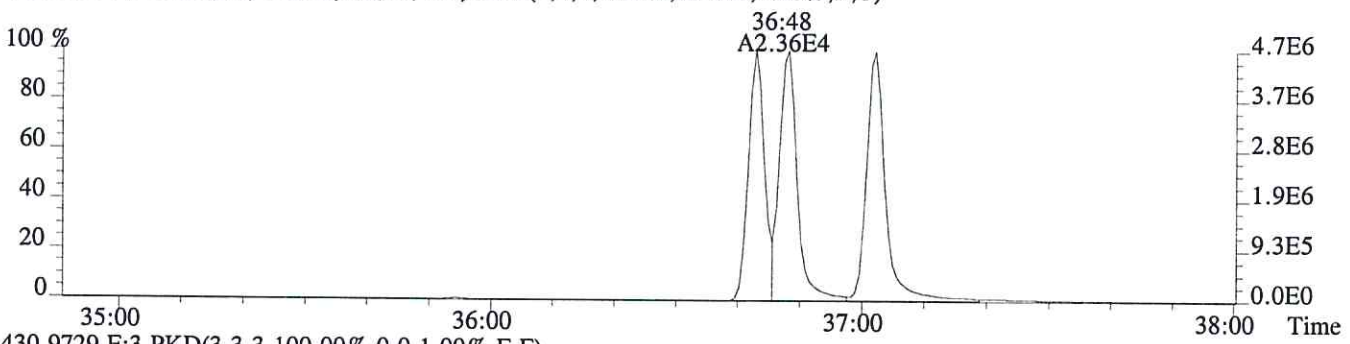
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



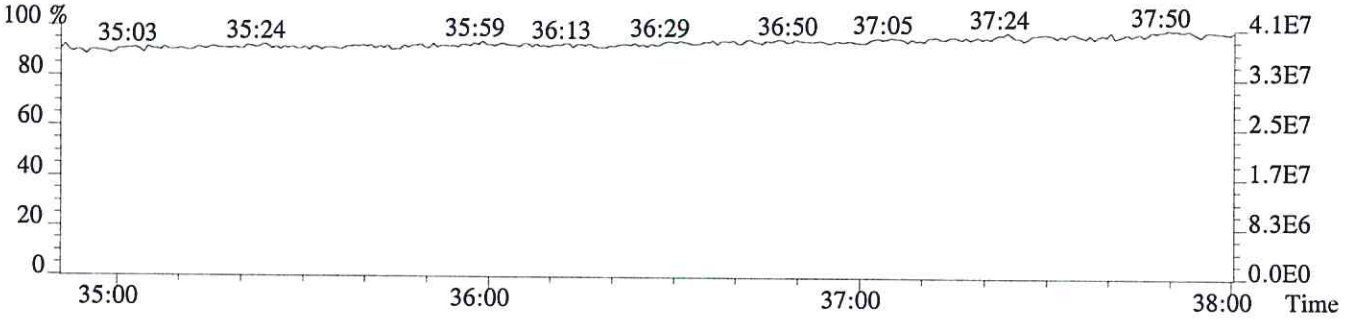
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2688.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)

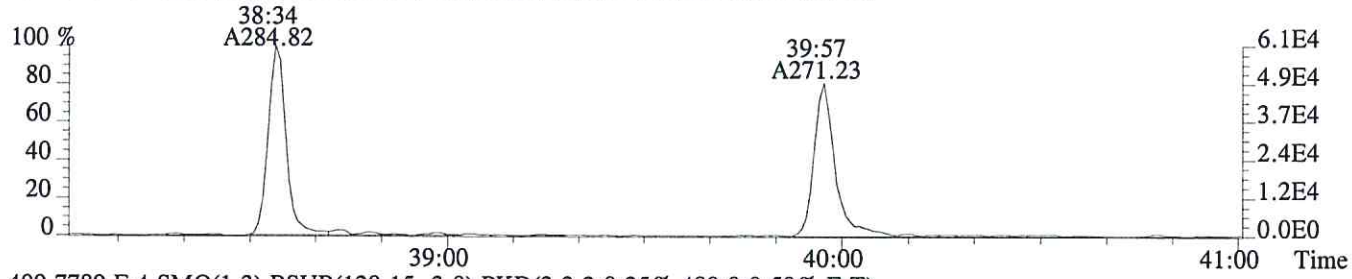


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

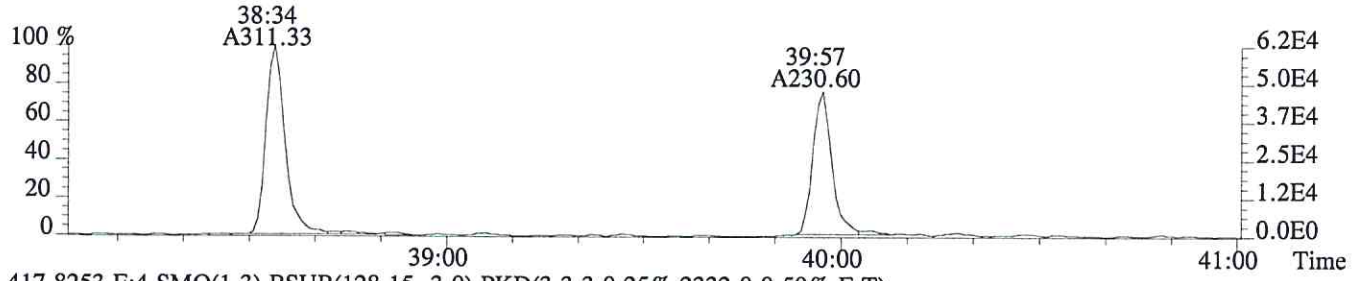


File:P402425 #1-268 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

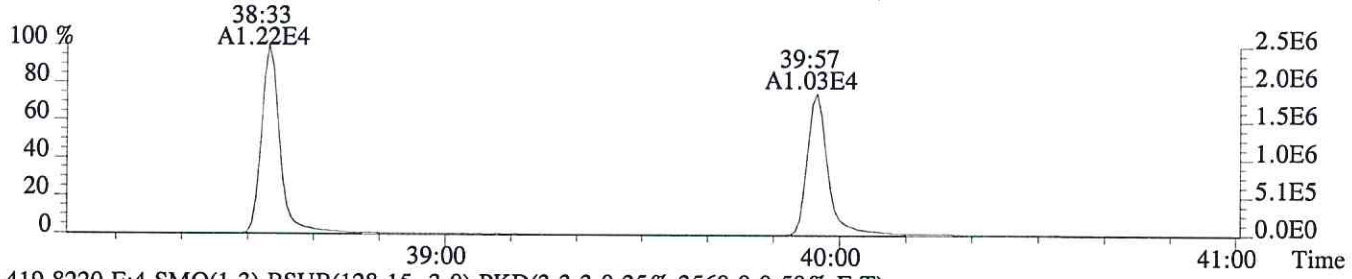
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.50%,F,T)



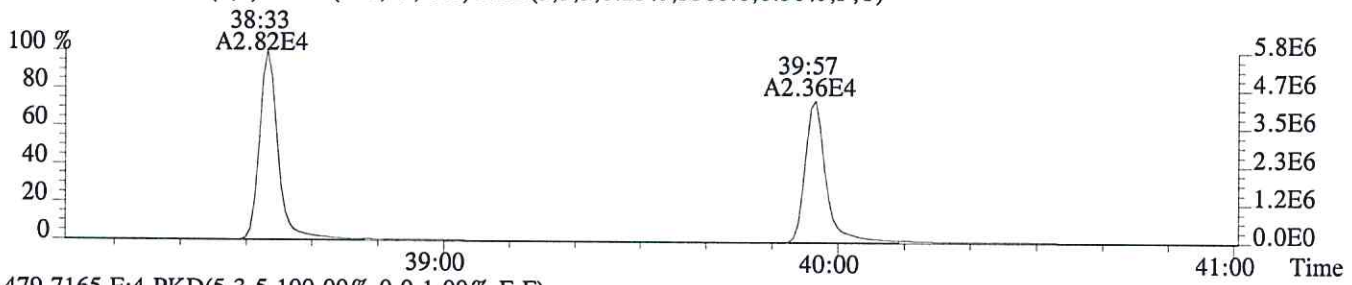
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.50%,F,T)



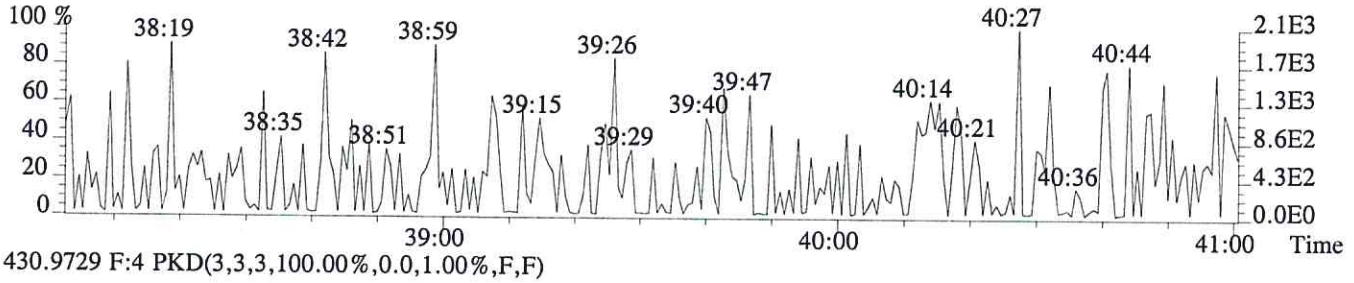
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.50%,F,T)



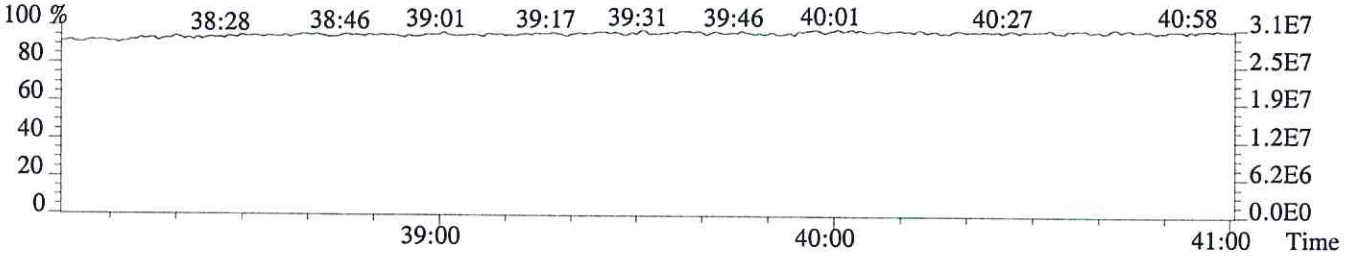
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3560.0,0.50%,F,T)



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

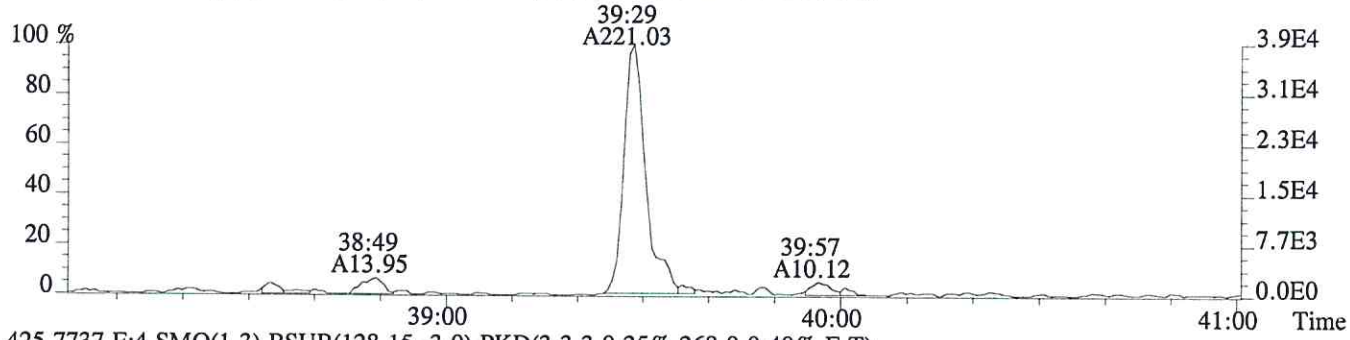


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

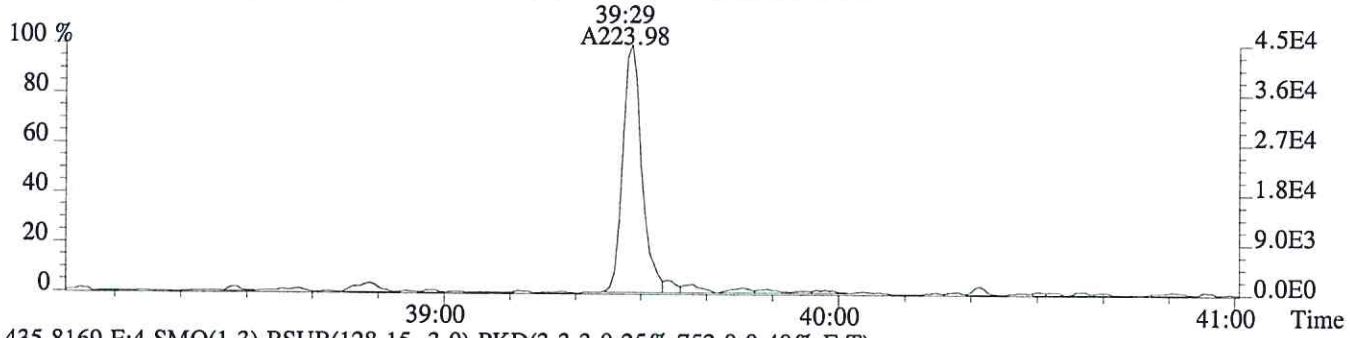


File:P402425 #1-268 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

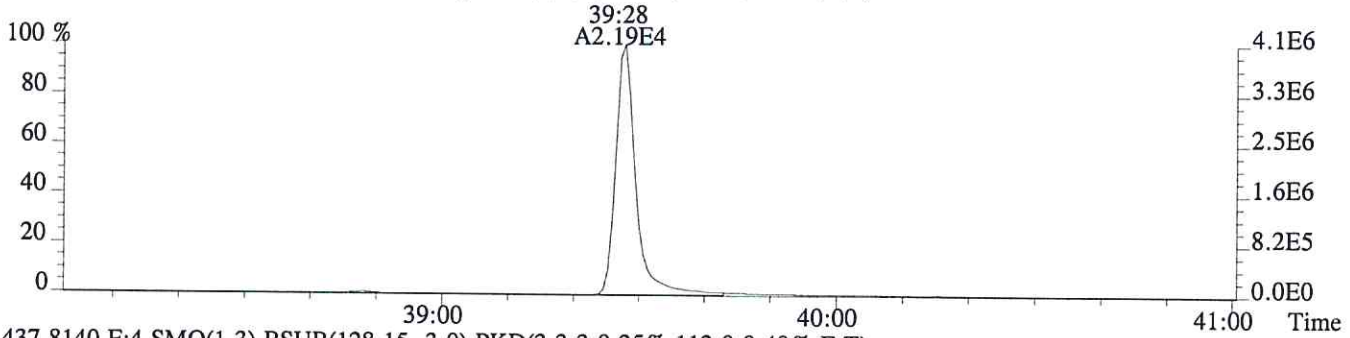
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



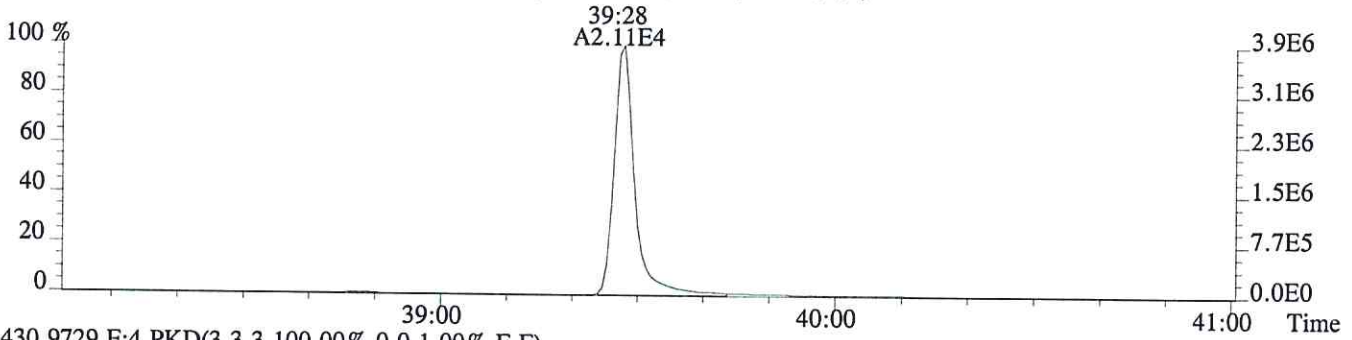
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,268.0,0.40%,F,T)



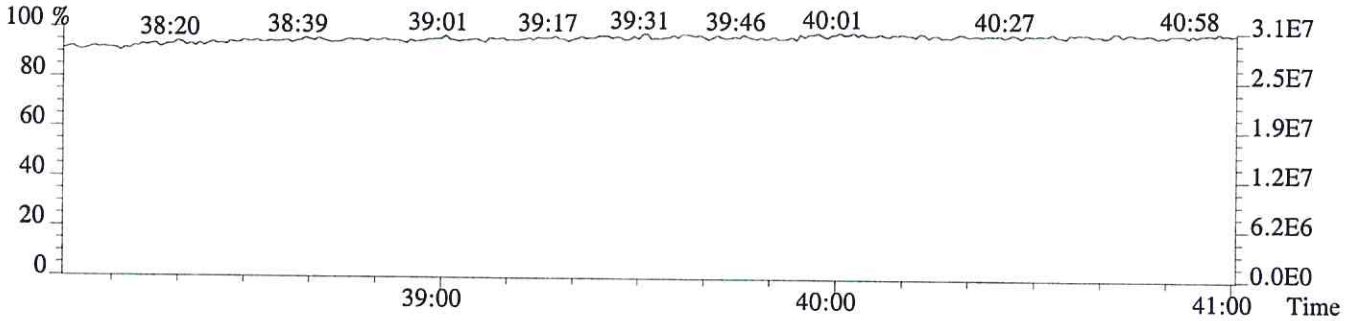
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,112.0,0.40%,F,T)

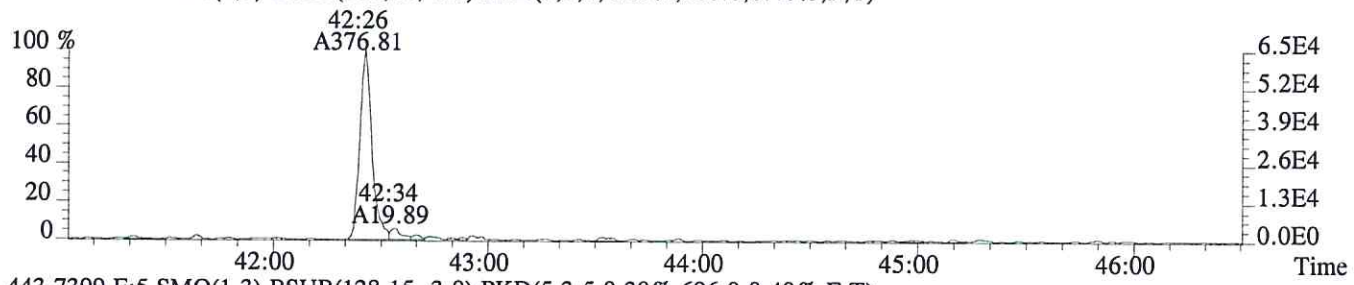


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

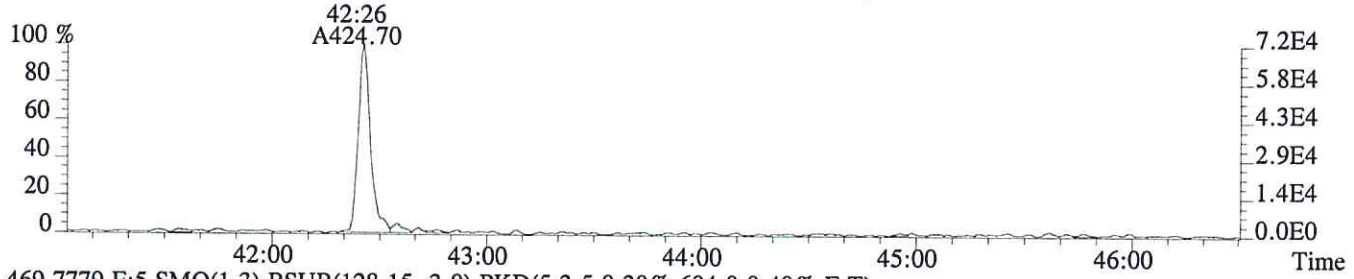


File:P402425 #1-492 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

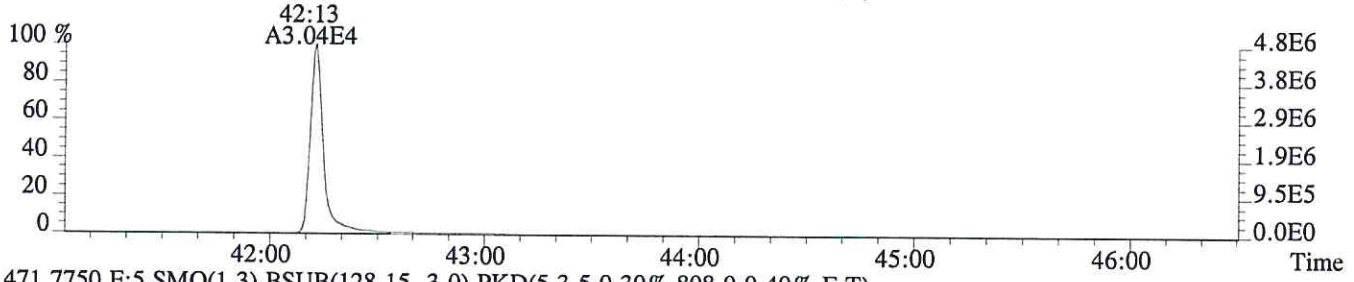
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,288.0,0.40%,F,T)



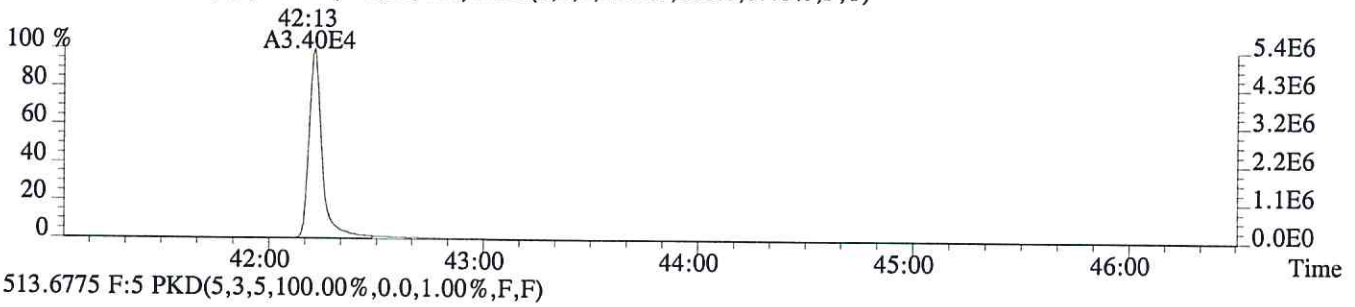
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



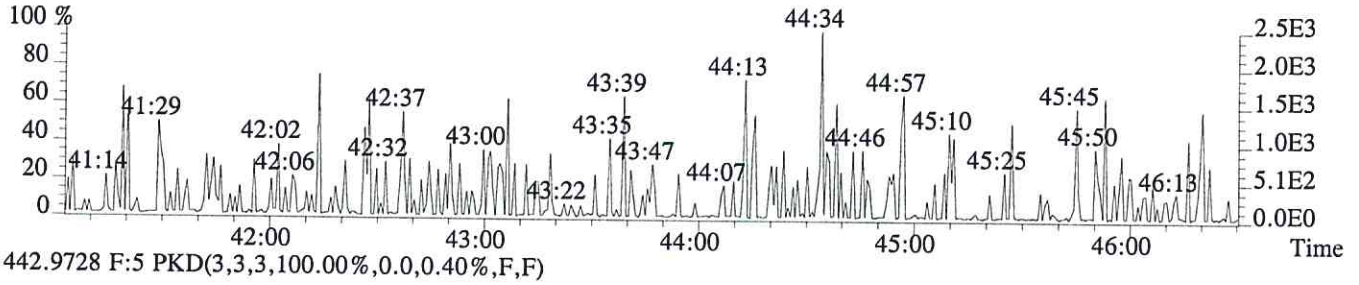
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



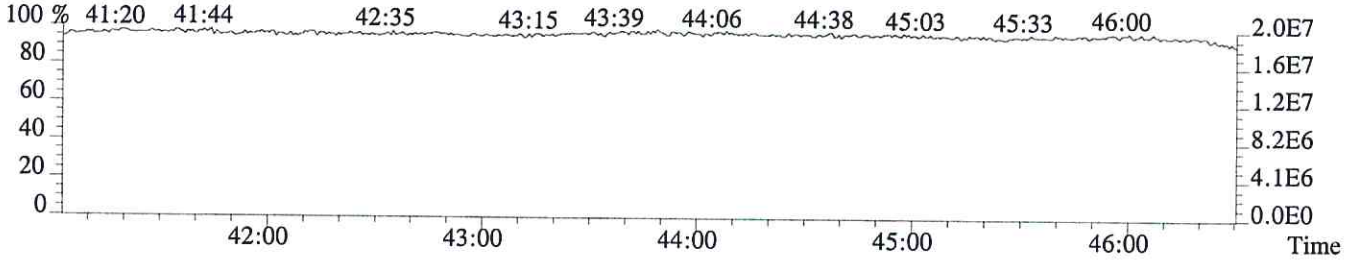
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,808.0,0.40%,F,T)



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

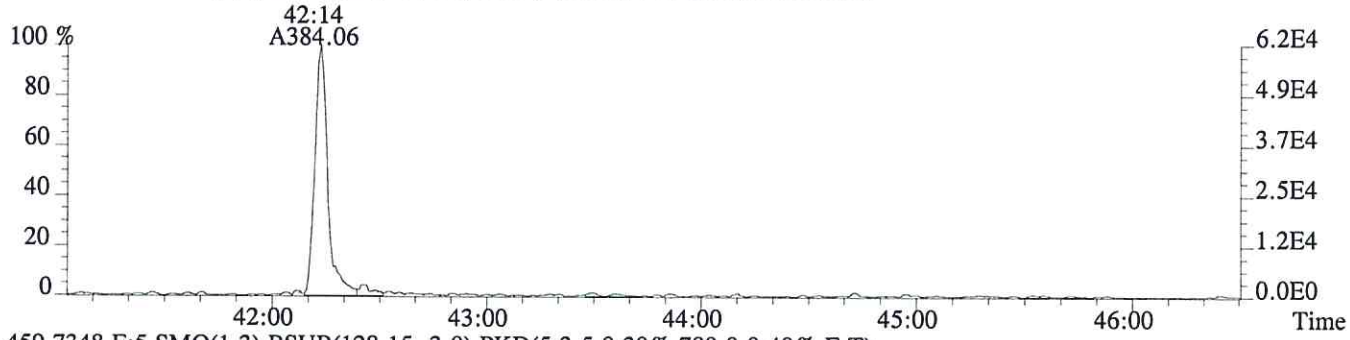


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

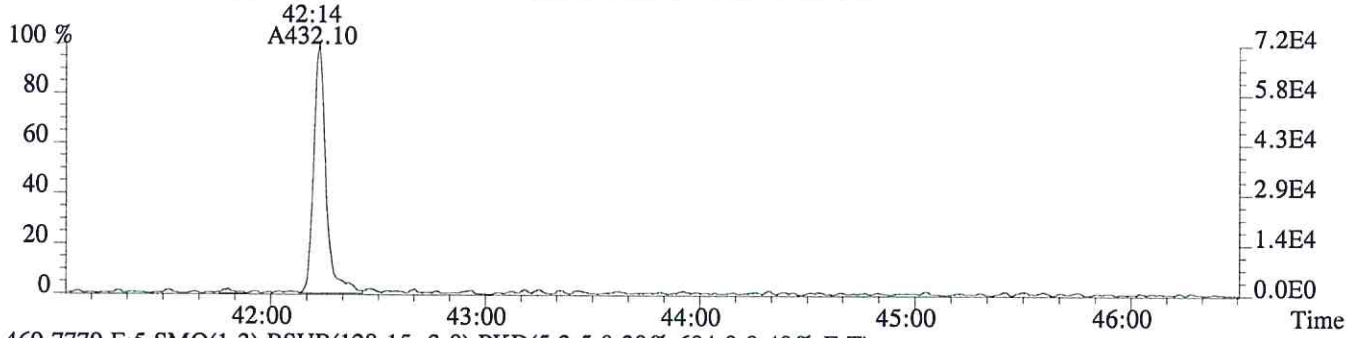


File:P402425 #1-492 Acq:28-APR-2016 11:12:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76554

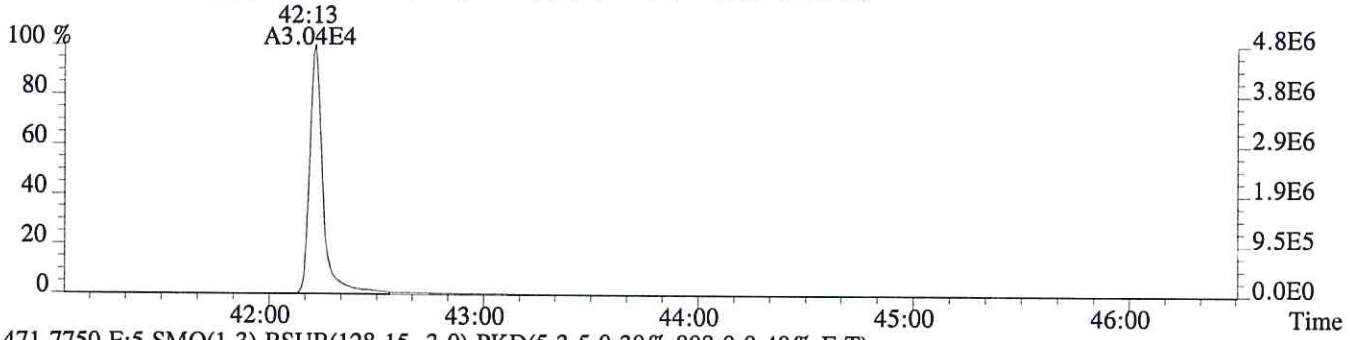
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



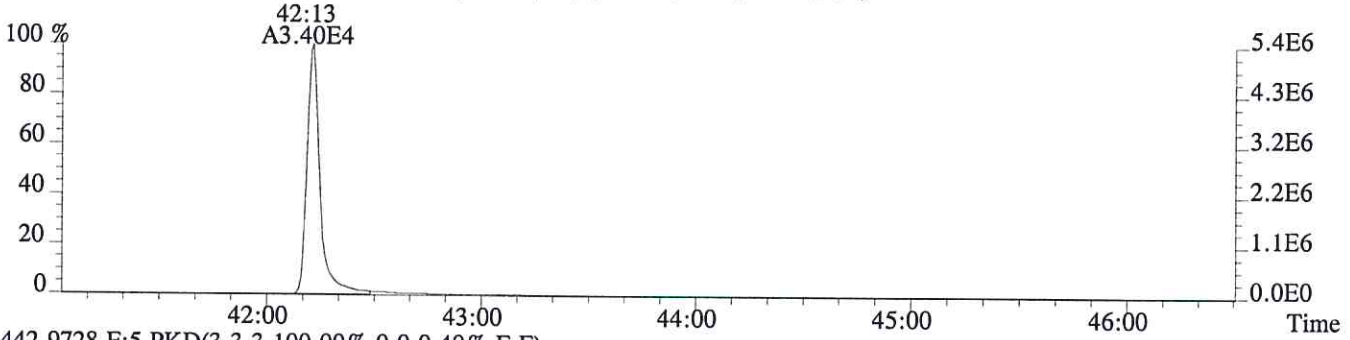
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,780.0,0.40%,F,T)



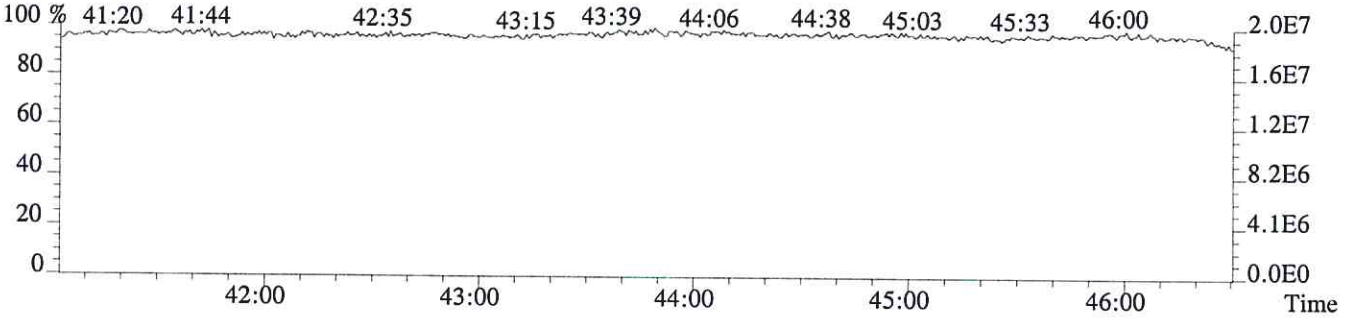
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,808.0,0.40%,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 P402426 Samp: 1 Inj: 1 Acquired: 28-APR-16 12:33:36
Processed: 28-APR-16 16:59:48 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:22	1.114e+02	1.532e+02	0.73	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	32:29	8.206e+02	4.918e+02	1.67	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	33:22	7.828e+02	4.800e+02	1.63	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	36:00	6.139e+02	4.820e+02	1.27	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	36:06	6.482e+02	5.615e+02	1.15	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	36:36	6.407e+02	4.979e+02	1.29	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	37:20	5.669e+02	4.422e+02	1.28	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	5.208e+02	5.100e+02	1.02	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	4.553e+02	4.689e+02	0.97	yes	no	1.187
10	Unk	OCDF	42:26	7.427e+02	7.878e+02	0.94	yes	no	1.035
11	Unk	2,3,7,8-TCDD	29:08	1.097e+02	1.465e+02	0.75	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	33:39	6.361e+02	4.231e+02	1.50	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	36:44	4.733e+02	3.989e+02	1.19	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	36:49	5.466e+02	4.541e+02	1.20	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	37:03	5.324e+02	4.638e+02	1.15	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	4.228e+02	4.040e+02	1.05	yes	no	0.882
17	Unk	OCDD	42:14	6.520e+02	7.713e+02	0.85	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	28:21	2.927e+04	3.826e+04	0.77	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	32:28	3.853e+04	2.440e+04	1.58	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	33:21	3.847e+04	2.470e+04	1.56	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:59	1.410e+04	2.782e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	36:06	1.712e+04	3.354e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	36:35	1.524e+04	3.018e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.287e+04	2.694e+04	0.48	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	1.084e+04	2.480e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	9.473e+03	2.192e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	29:06	2.477e+04	3.220e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.240e+04	2.042e+04	1.59	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	36:43	2.263e+04	1.831e+04	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	36:48	2.466e+04	1.981e+04	1.24	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	2.011e+04	1.958e+04	1.03	yes	no	0.817
32	IS	13C-OCDD	42:13	2.824e+04	3.217e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	28:33	2.591e+04	3.282e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:02	2.613e+04	2.123e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:08	2.773e+02				no	0.958

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P402426 Samp: 1 Inj: 1 Acquired: 28-APR-16 12:33:36
Processed: 28-APR-16 16:59:481 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	2.39e+04	4.44e+02	5.4e+01	3.12e+04	9.88e+02	3.2e+01
2	1,2,3,7,8-PeCDF	1.57e+05	4.20e+02	3.7e+02	9.53e+04	1.40e+03	6.8e+01
3	2,3,4,7,8-PeCDF	1.55e+05	4.20e+02	3.7e+02	9.69e+04	1.40e+03	6.9e+01
4	1,2,3,4,7,8-HxCDF	1.29e+05	1.88e+02	6.9e+02	1.02e+05	7.60e+01	1.3e+03
5	1,2,3,6,7,8-HxCDF	1.28e+05	1.88e+02	6.8e+02	1.10e+05	7.60e+01	1.4e+03
6	2,3,4,6,7,8-HxCDF	1.33e+05	1.88e+02	7.1e+02	1.08e+05	7.60e+01	1.4e+03
7	1,2,3,7,8,9-HxCDF	1.09e+05	1.88e+02	5.8e+02	9.05e+04	7.60e+01	1.2e+03
8	1,2,3,4,6,7,8-HpCDF	1.04e+05	5.84e+02	1.8e+02	1.07e+05	3.48e+02	3.1e+02
9	1,2,3,4,7,8,9-HpCDF	8.20e+04	5.84e+02	1.4e+02	8.36e+04	3.48e+02	2.4e+02
10	OCDF	1.15e+05	4.48e+02	2.6e+02	1.26e+05	6.32e+02	2.0e+02
11	2,3,7,8-TCDD	2.16e+04	5.44e+02	4.0e+01	3.01e+04	7.84e+02	3.8e+01
12	1,2,3,7,8-PeCDD	1.22e+05	9.24e+02	1.3e+02	8.53e+04	3.52e+02	2.4e+02
13	1,2,3,4,7,8-HxCDD	1.04e+05	7.32e+02	1.4e+02	8.96e+04	6.44e+02	1.4e+02
14	1,2,3,6,7,8-HxCDD	1.07e+05	7.32e+02	1.5e+02	9.13e+04	6.44e+02	1.4e+02
15	1,2,3,7,8,9-HxCDD	1.02e+05	7.32e+02	1.4e+02	8.71e+04	6.44e+02	1.4e+02
16	1,2,3,4,6,7,8-HpCDD	8.08e+04	3.84e+02	2.1e+02	7.85e+04	3.56e+02	2.2e+02
17	OCDD	1.11e+05	2.96e+02	3.7e+02	1.25e+05	7.68e+02	1.6e+02
18	13C-2,3,7,8-TCDF	5.68e+06	2.03e+03	2.8e+03	7.44e+06	1.29e+03	5.8e+03
19	13C-1,2,3,7,8-PeCDF	7.33e+06	2.88e+02	2.5e+04	4.66e+06	2.84e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	7.74e+06	2.88e+02	2.7e+04	5.01e+06	2.84e+02	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	3.10e+06	5.20e+02	6.0e+03	6.10e+06	8.32e+02	7.3e+03
22	13C-1,2,3,6,7,8-HxCDF	3.44e+06	5.20e+02	6.6e+03	6.74e+06	8.32e+02	8.1e+03
23	13C-2,3,4,6,7,8-HxCDF	3.23e+06	5.20e+02	6.2e+03	6.41e+06	8.32e+02	7.7e+03
24	13C-1,2,3,7,8,9-HxCDF	2.63e+06	5.20e+02	5.0e+03	5.28e+06	8.32e+02	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.28e+06	2.71e+03	8.4e+02	5.19e+06	9.00e+02	5.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.75e+06	2.71e+03	6.5e+02	3.99e+06	9.00e+02	4.4e+03
27	13C-2,3,7,8-TCDD	5.12e+06	3.87e+03	1.3e+03	6.62e+06	1.96e+03	3.4e+03
28	13C-1,2,3,7,8-PeCDD	6.40e+06	5.36e+02	1.2e+04	4.04e+06	4.08e+02	9.9e+03
29	13C-1,2,3,4,7,8-HxCDD	5.12e+06	2.20e+03	2.3e+03	4.13e+06	1.25e+03	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	4.93e+06	2.20e+03	2.2e+03	3.89e+06	1.25e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.78e+06	5.24e+02	7.2e+03	3.61e+06	6.00e+02	6.0e+03
32	13C-OCDD	4.48e+06	5.80e+02	7.7e+03	5.04e+06	5.92e+02	8.5e+03
33	13C-1,2,3,4-TCDD	5.30e+06	3.87e+03	1.4e+03	6.72e+06	1.96e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	5.07e+06	2.20e+03	2.3e+03	4.09e+06	1.25e+03	3.3e+03
35	37Cl-2,3,7,8-TCDD	5.75e+04	1.83e+03	3.1e+01			

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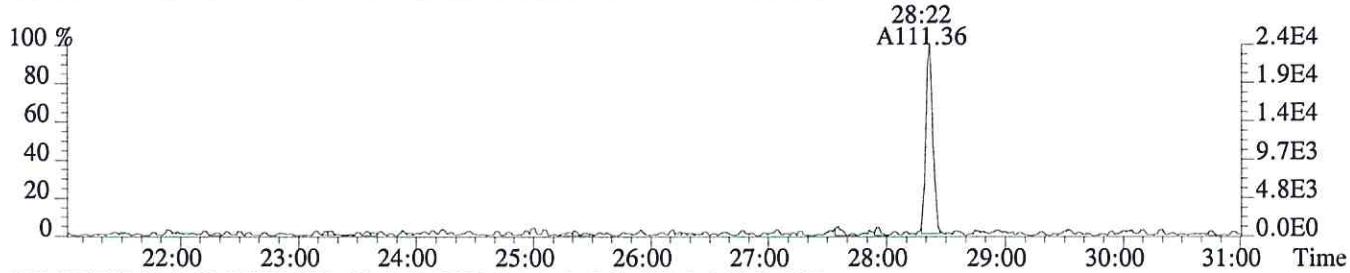
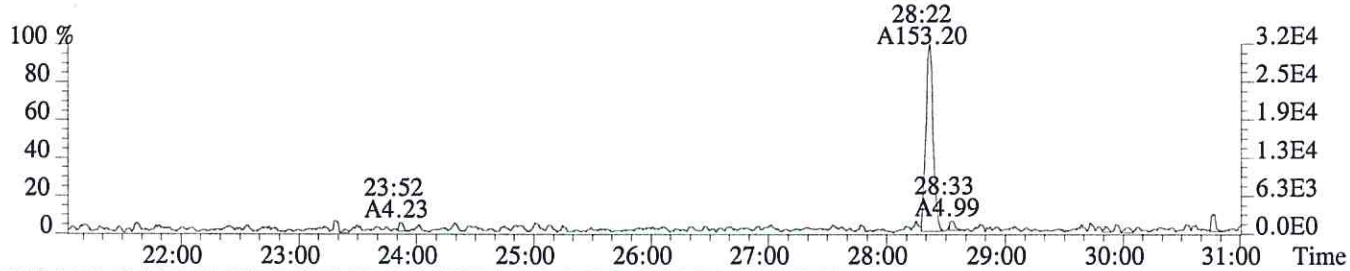
File:P402426 #1-684 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

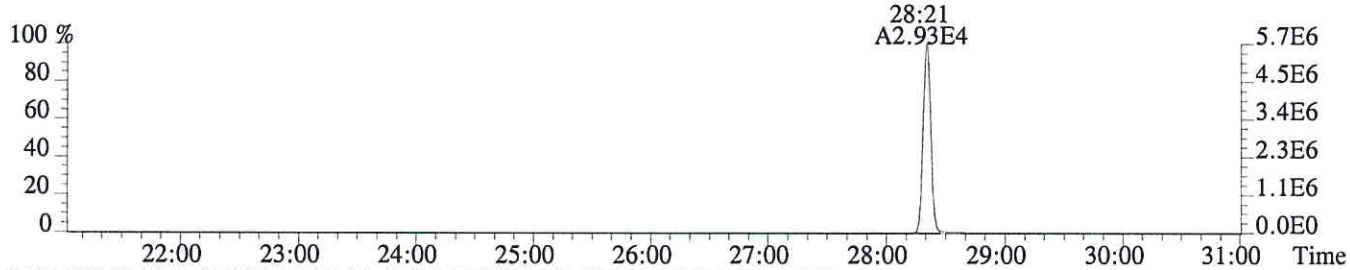
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



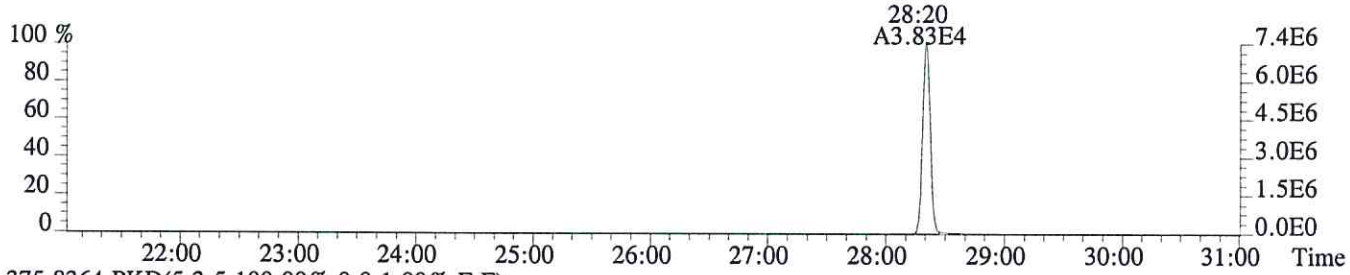
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



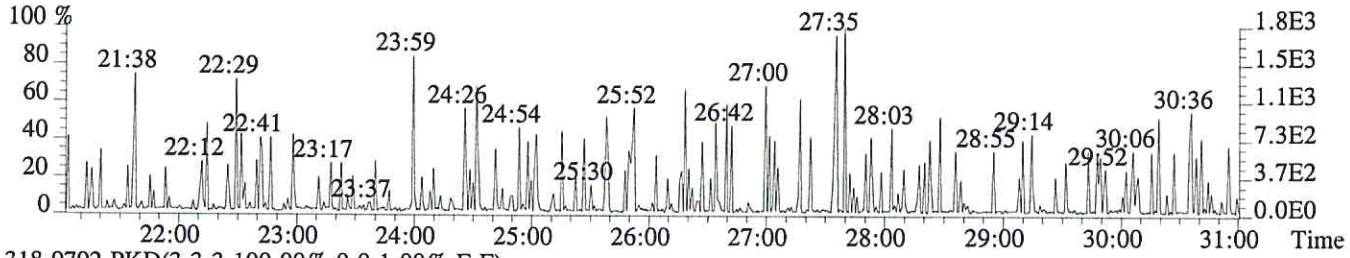
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



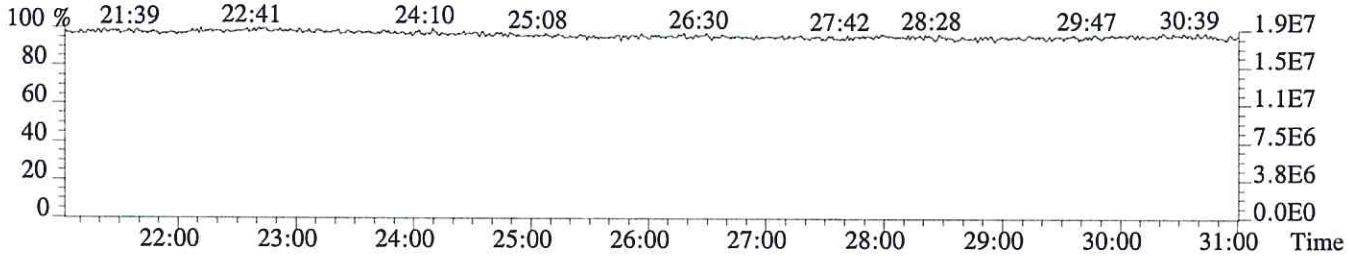
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



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

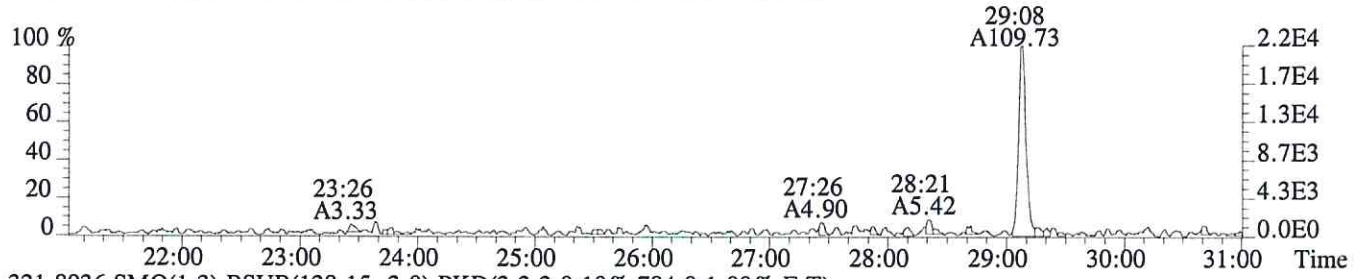


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

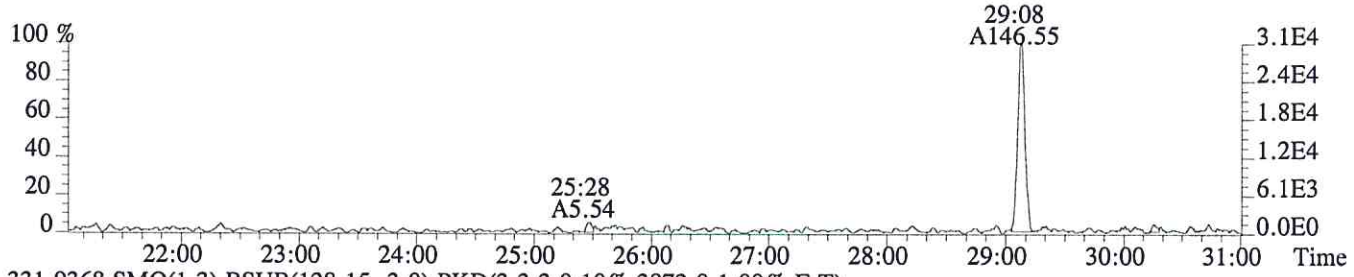


File:P402426 #1-684 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

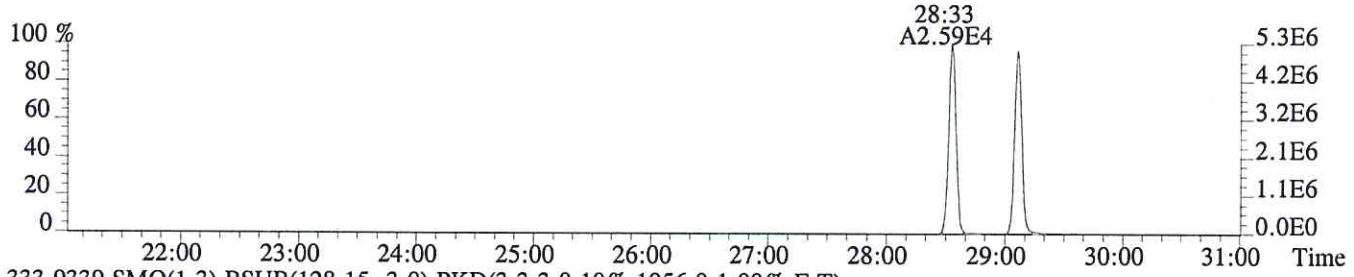
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



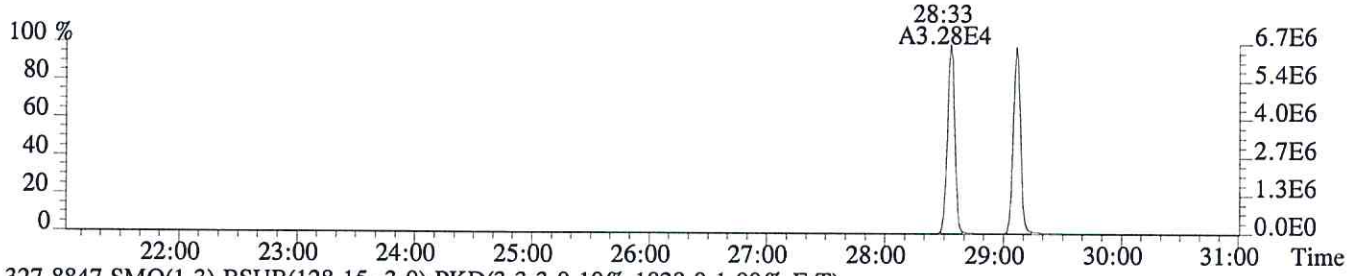
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



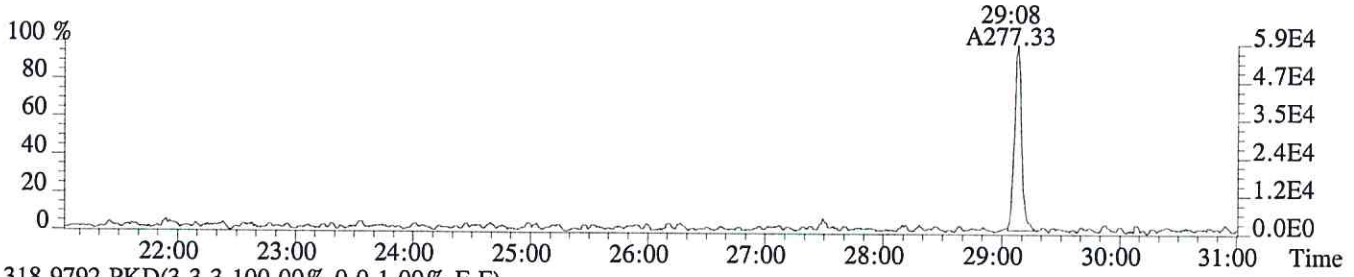
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3872.0,1.00%,F,T)



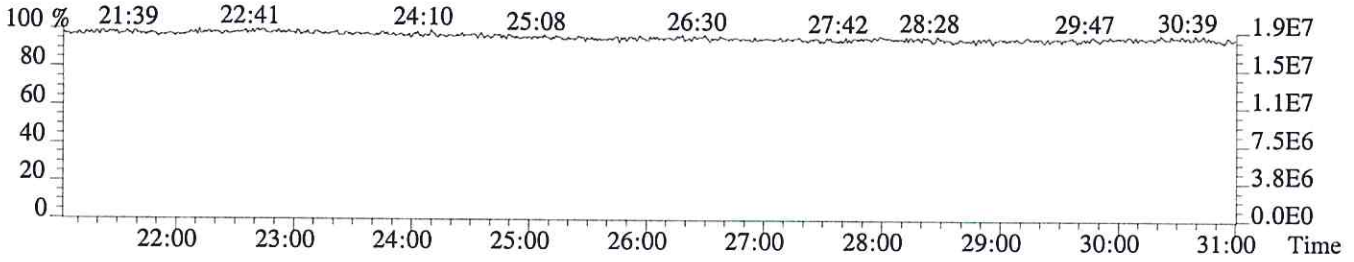
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1956.0,1.00%,F,T)



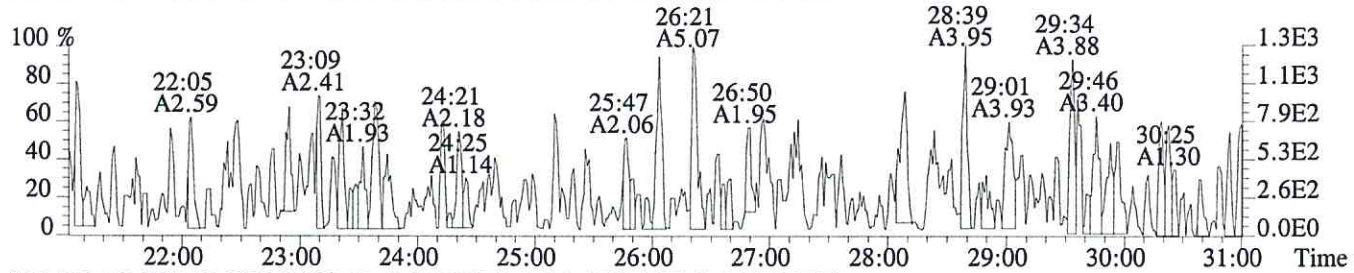
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



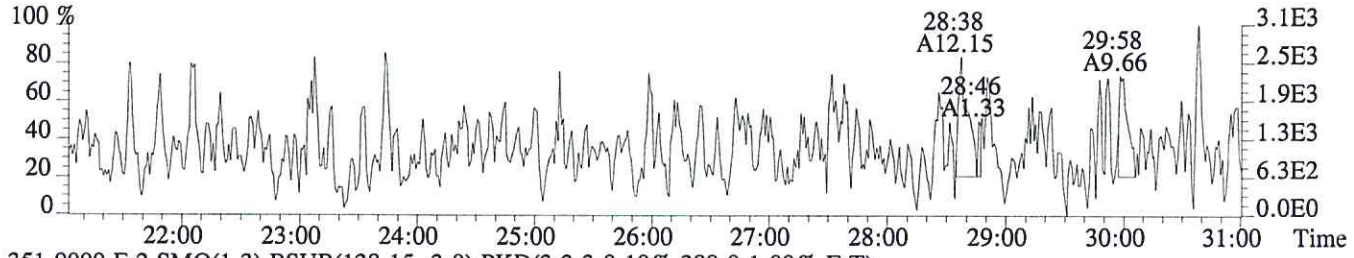
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



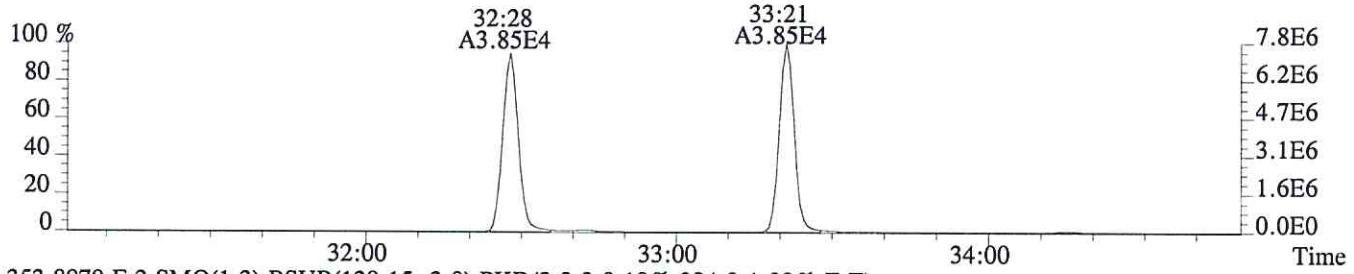
File:P402426 #1-684 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



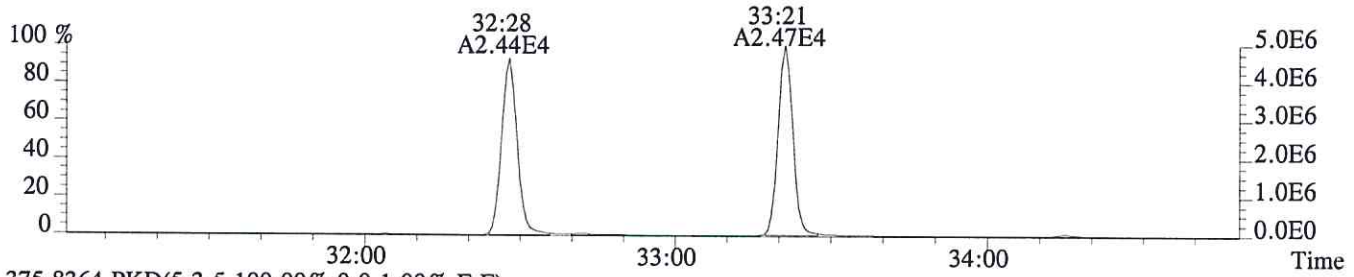
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



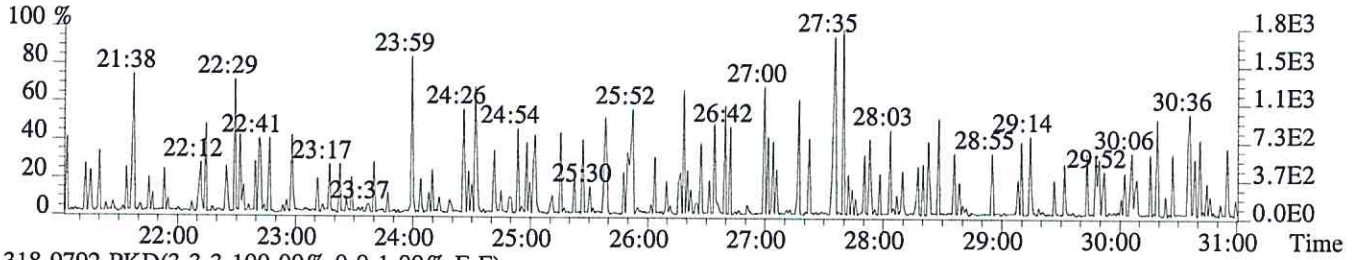
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



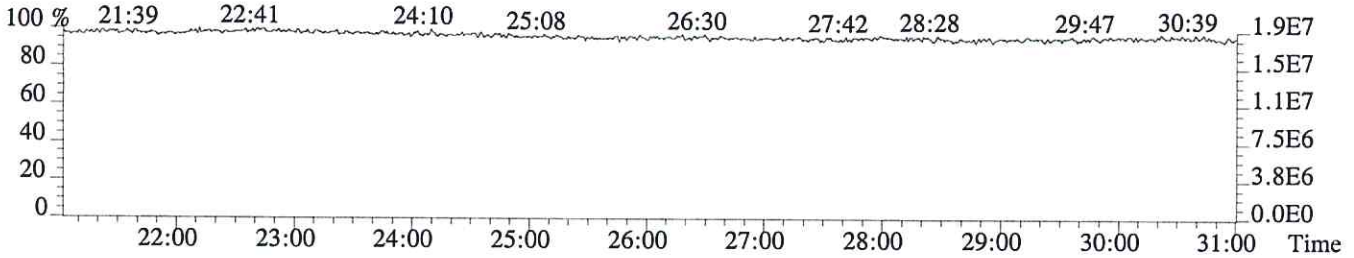
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



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

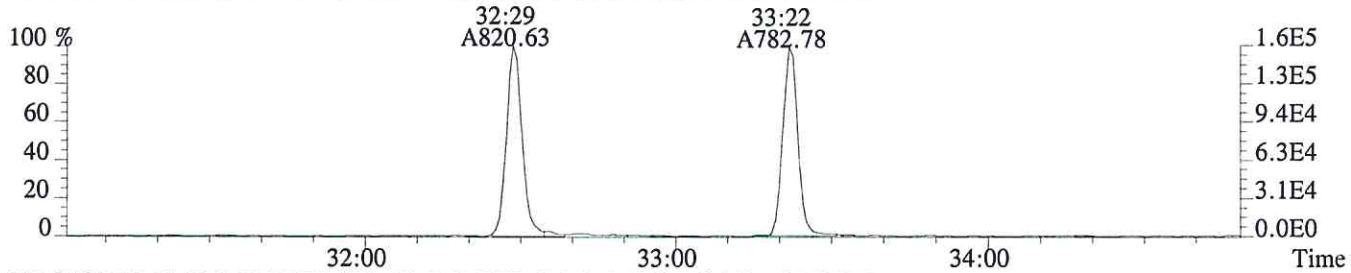


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

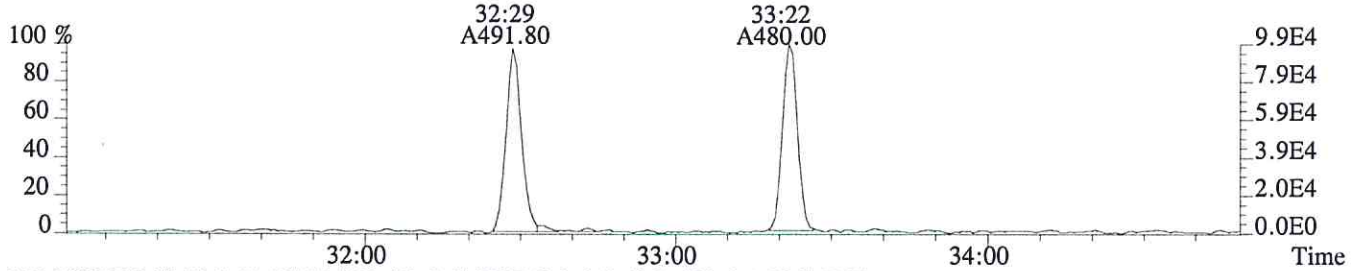


File:P402426 #1-340 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

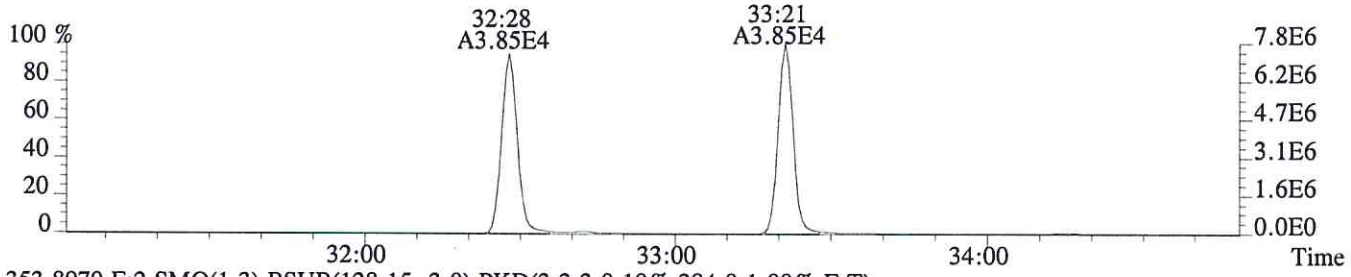
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



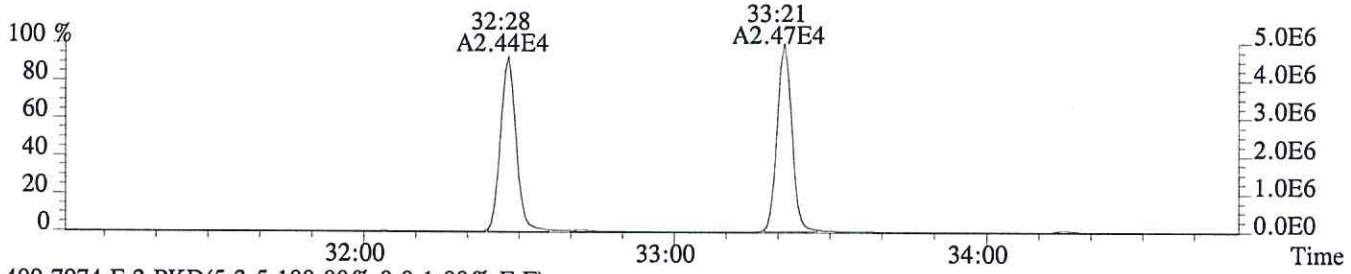
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



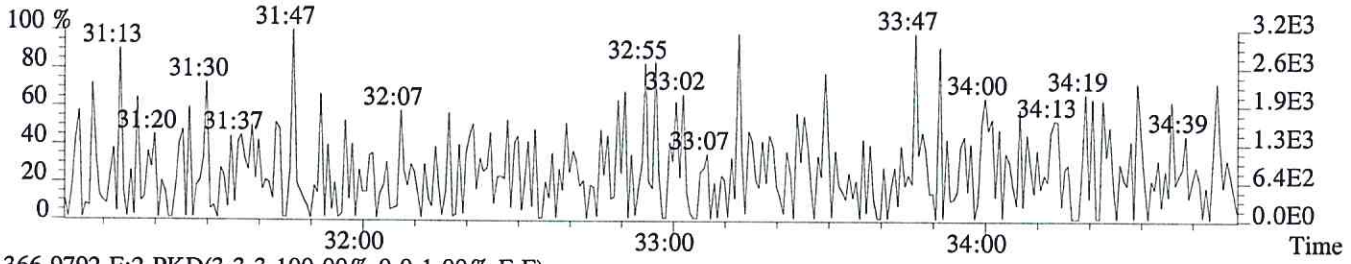
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



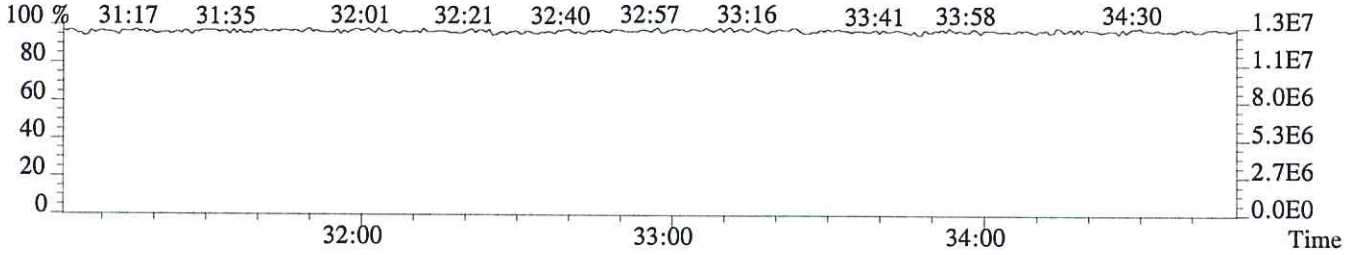
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



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

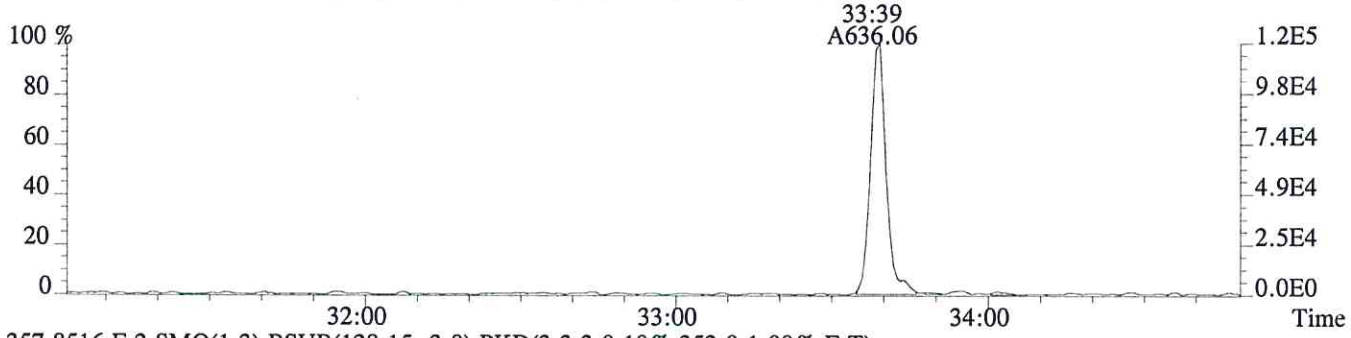


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

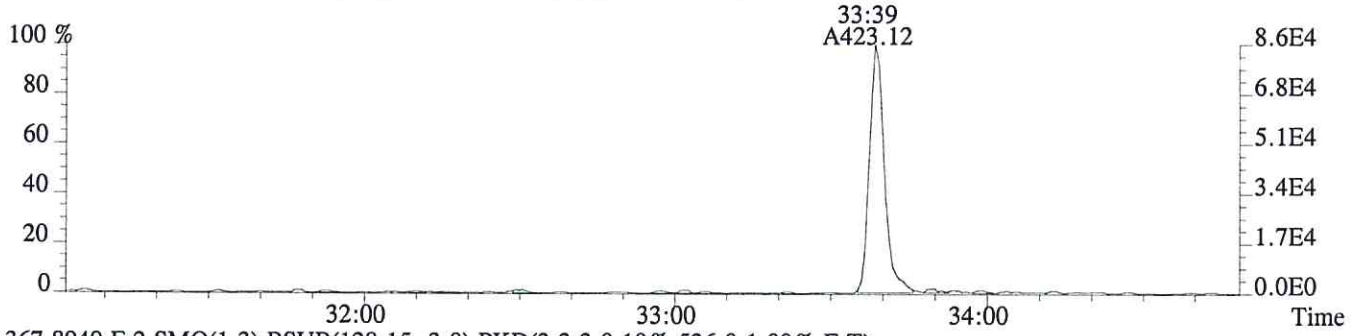


File:P402426 #1-340 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

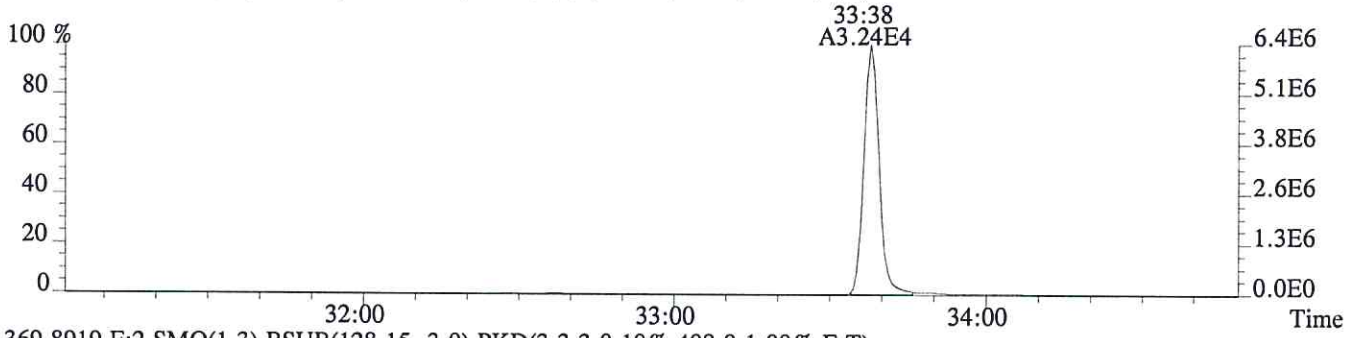
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



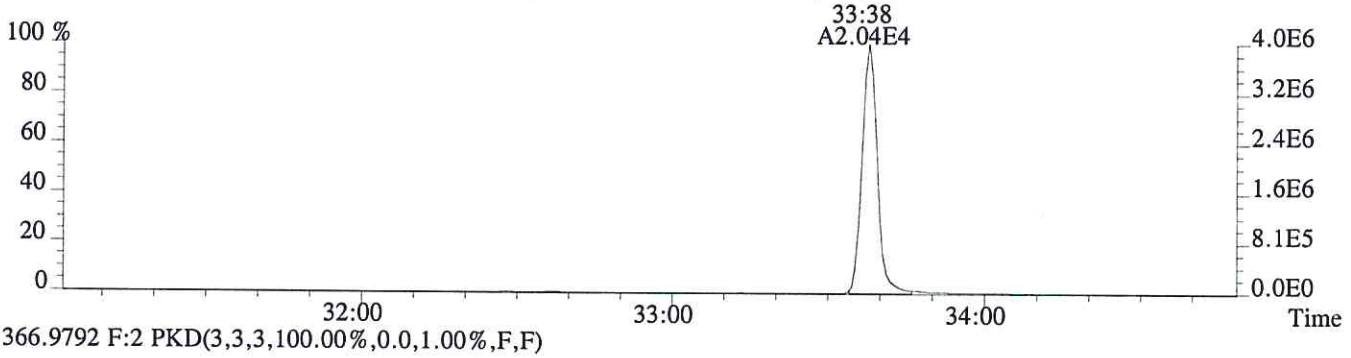
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



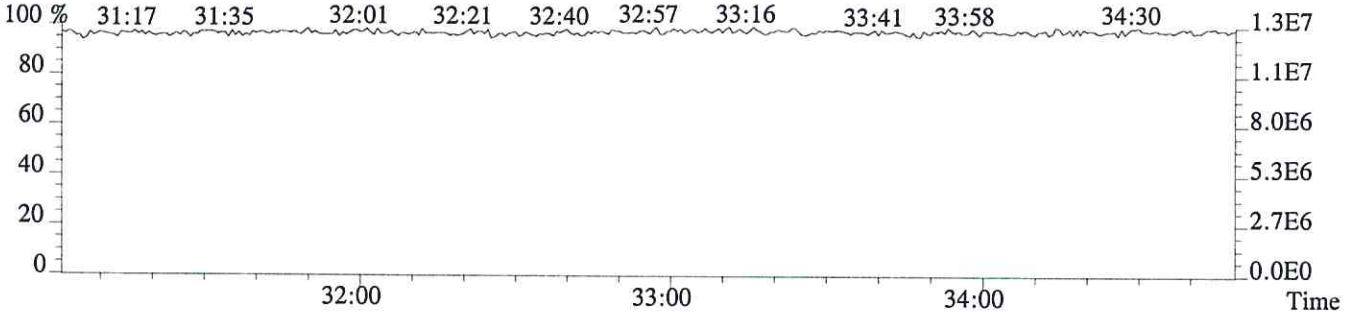
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)

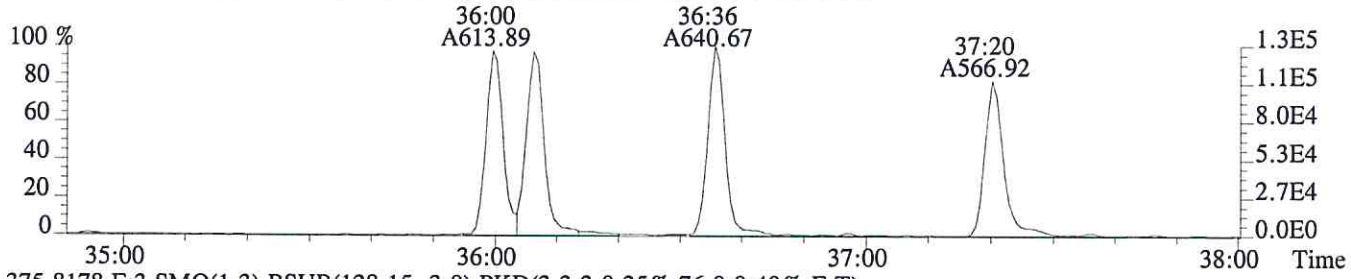


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

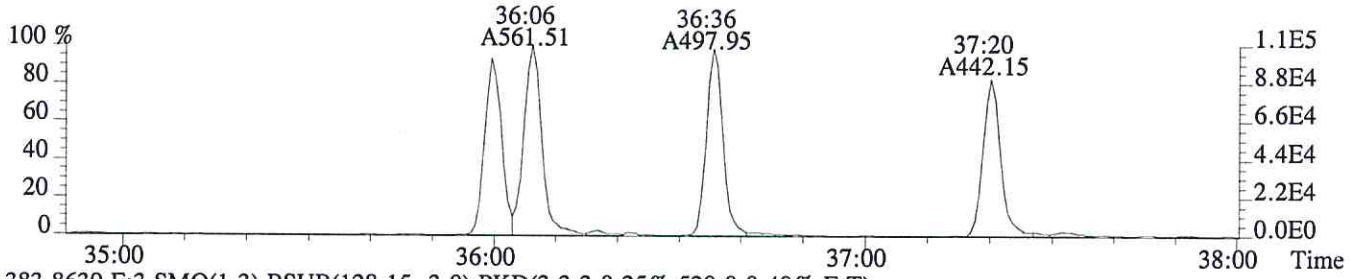


File:P402426 #1-285 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

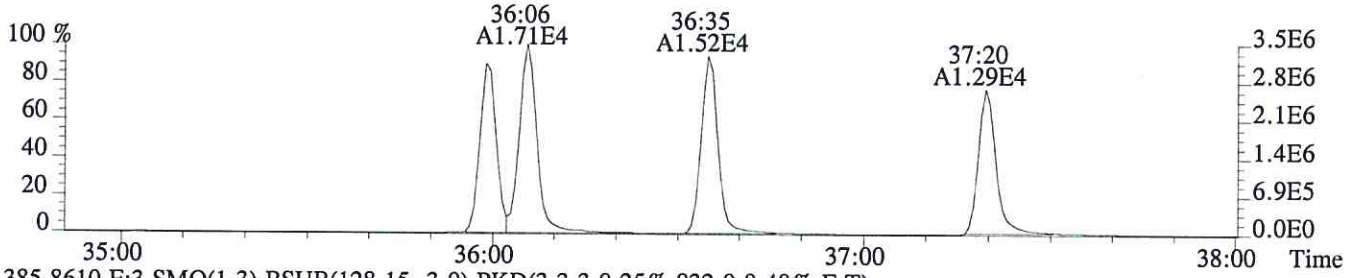
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



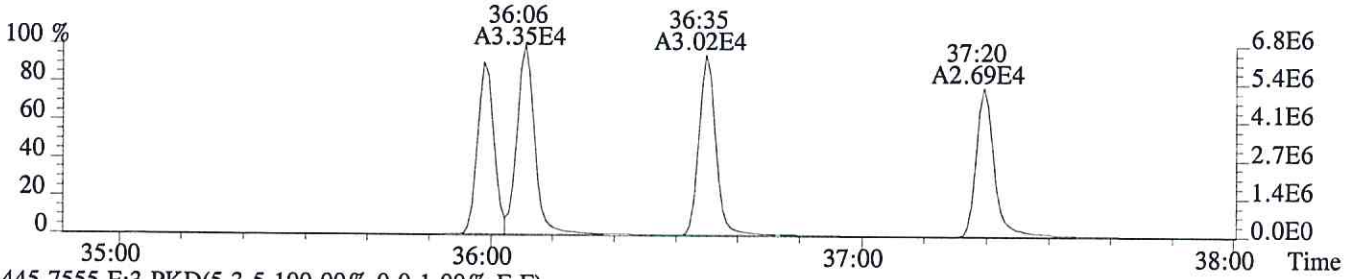
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,76.0,0.40%,F,T)



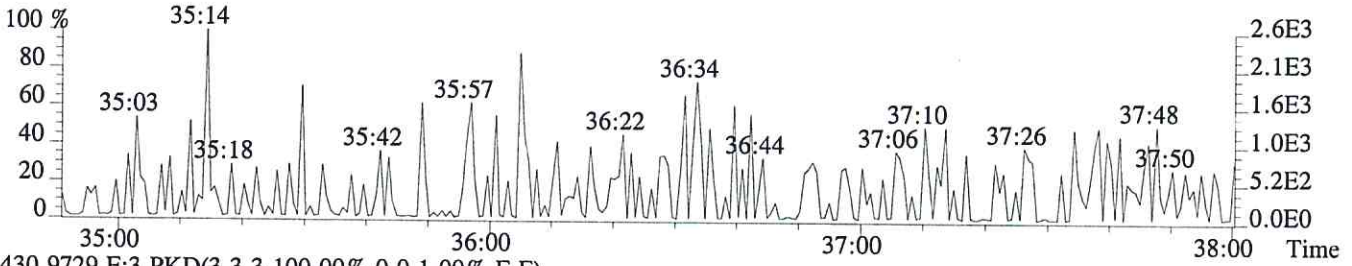
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



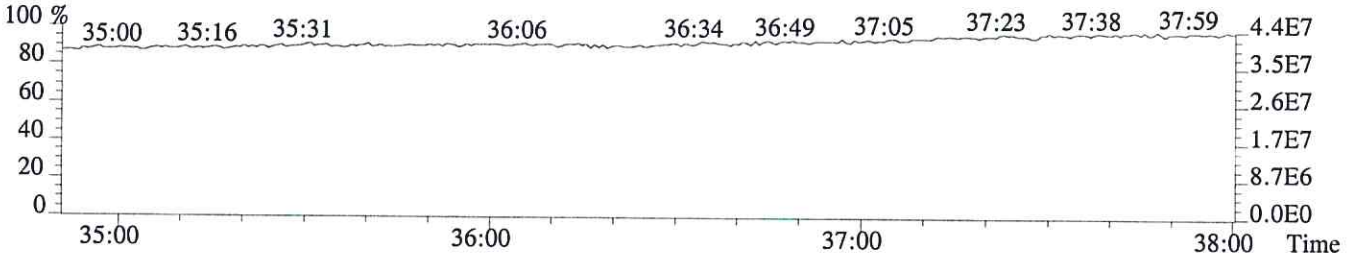
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



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

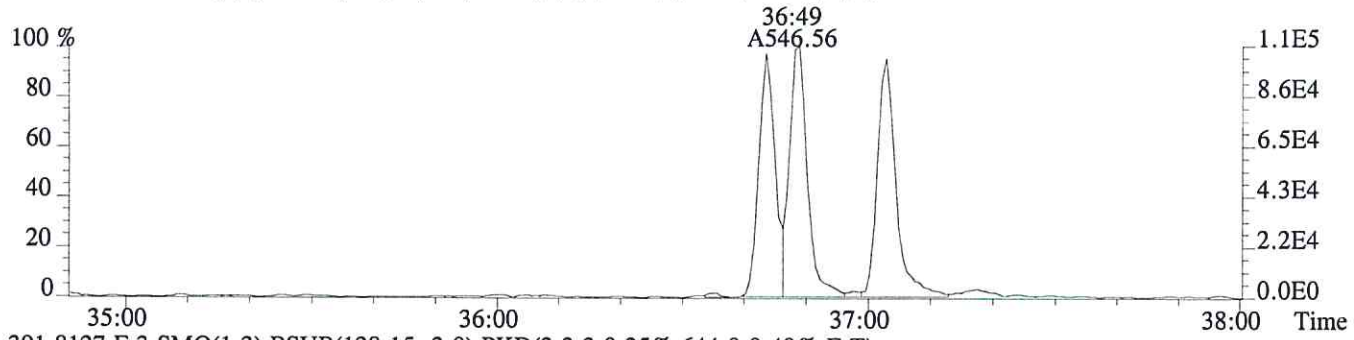


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

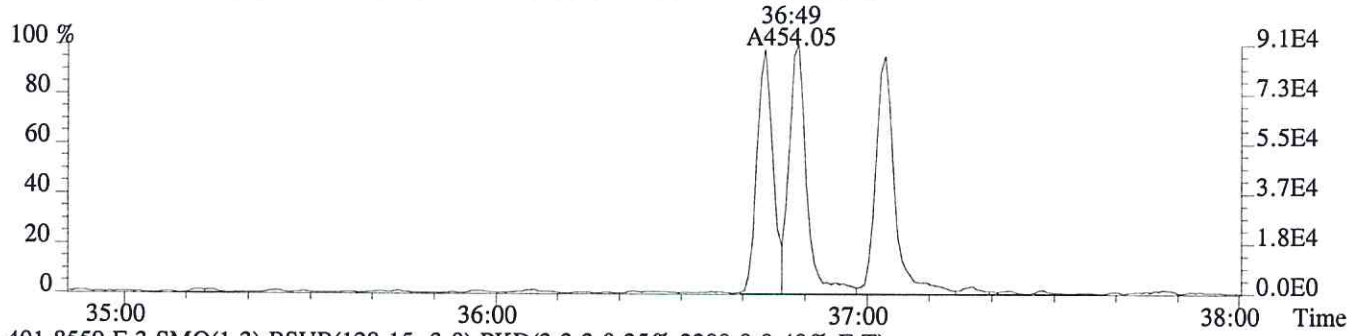


File:P402426 #1-285 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

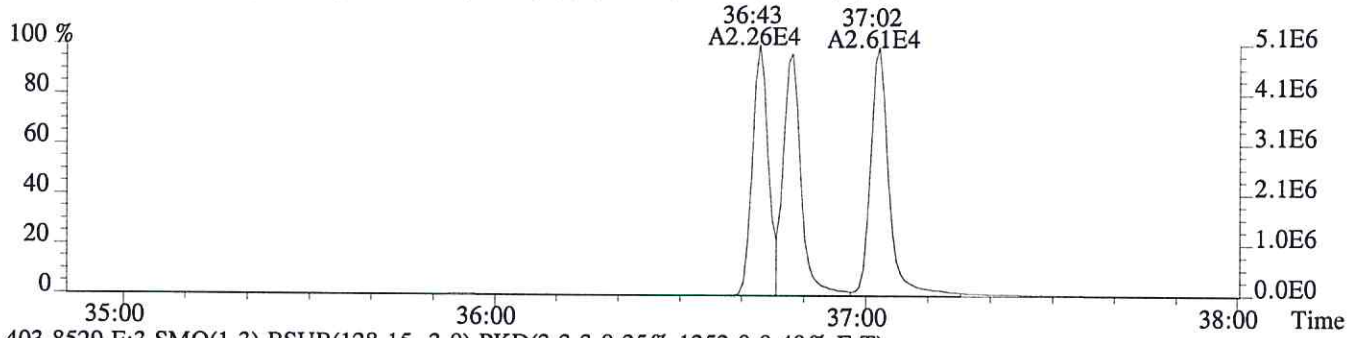
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



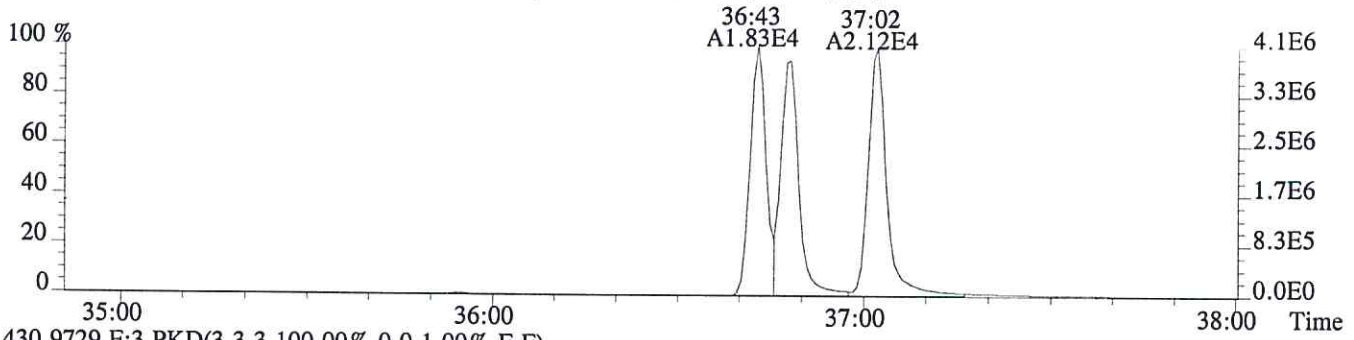
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



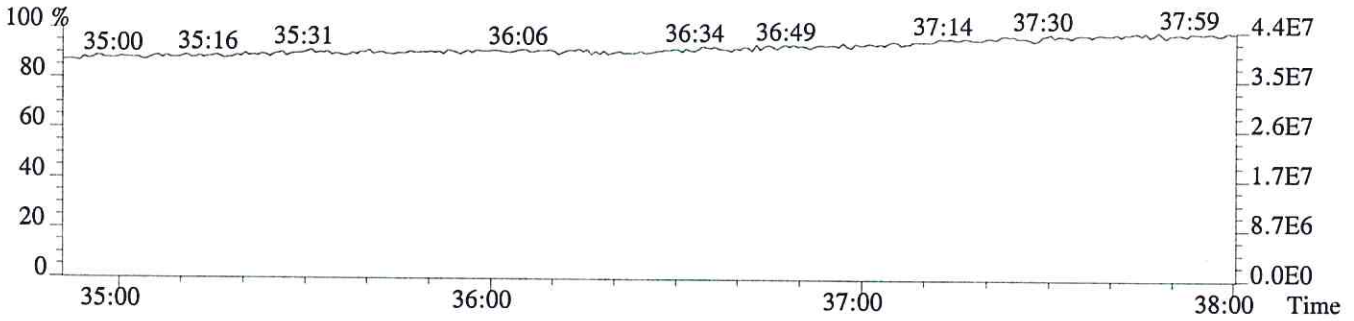
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)

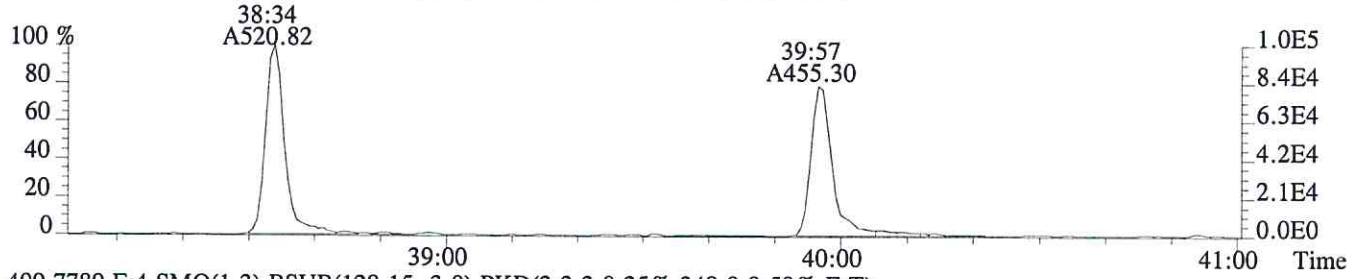


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

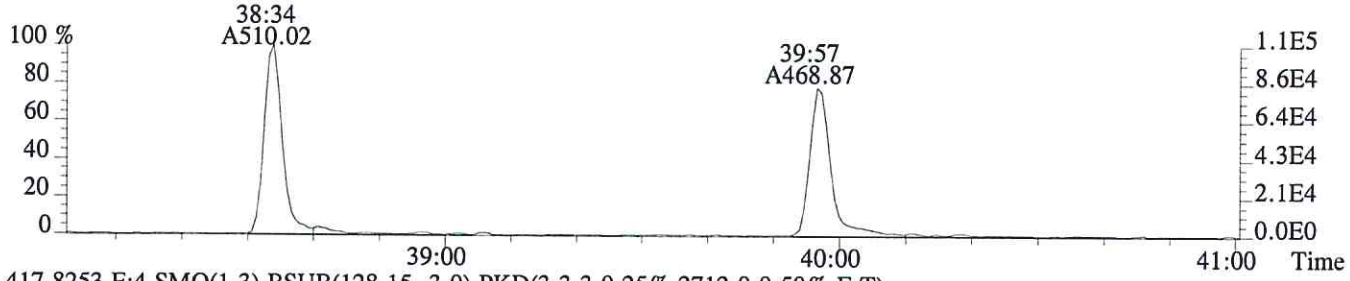


File:P402426 #1-268 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

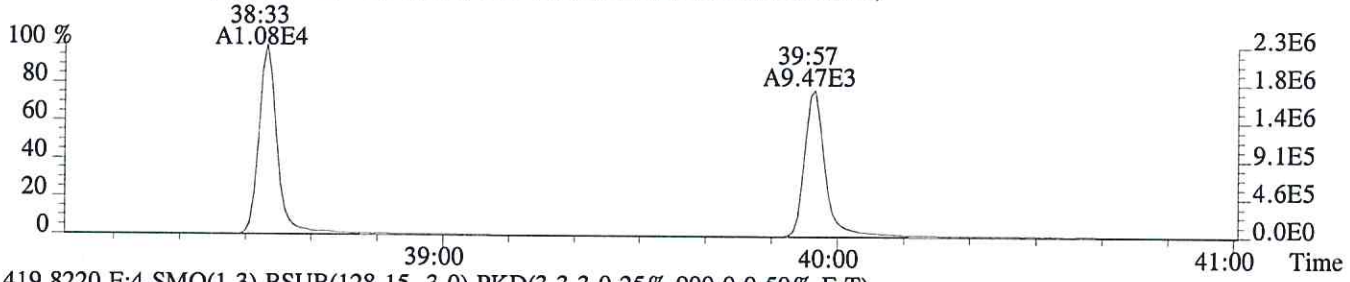
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.50%,F,T)



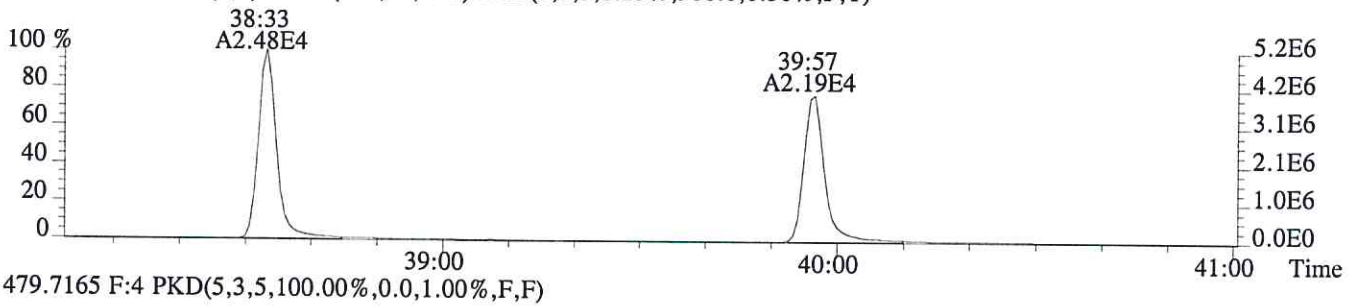
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.50%,F,T)



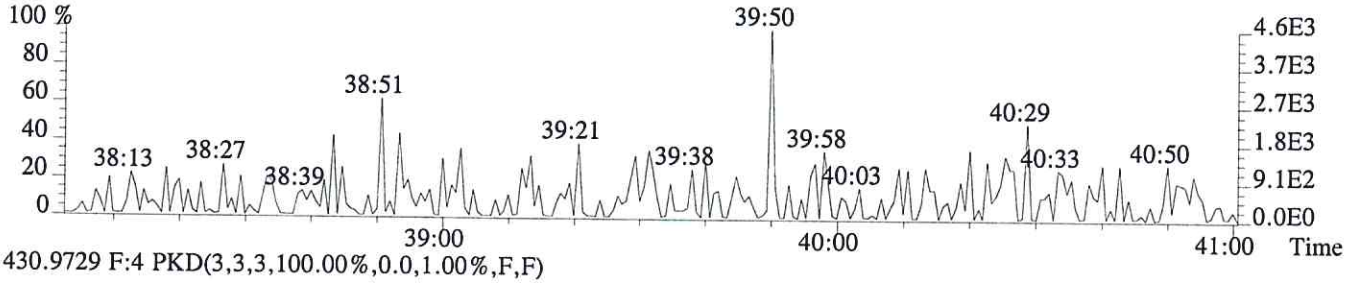
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2712.0,0.50%,F,T)



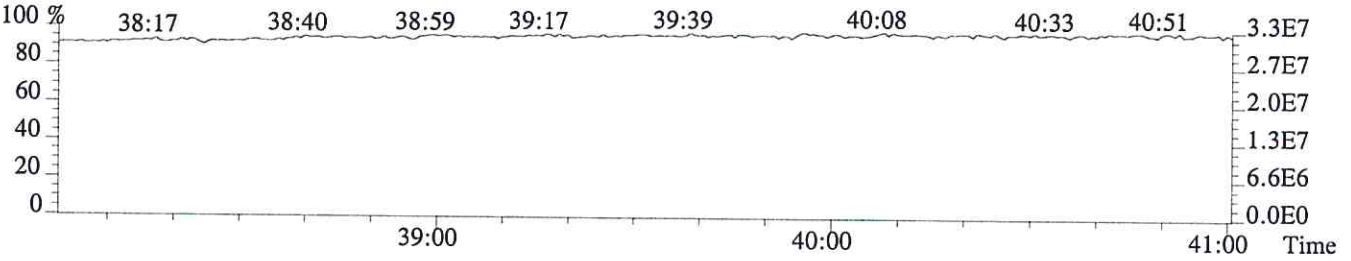
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.50%,F,T)



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

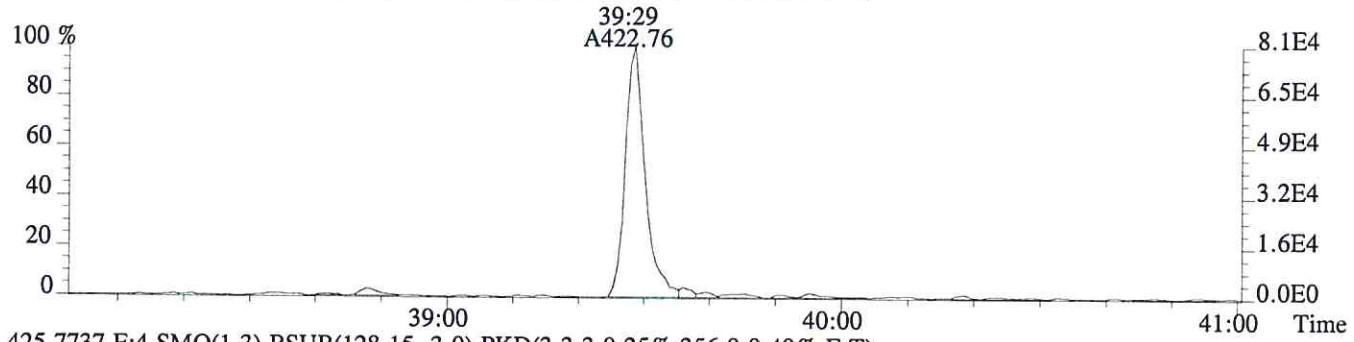


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

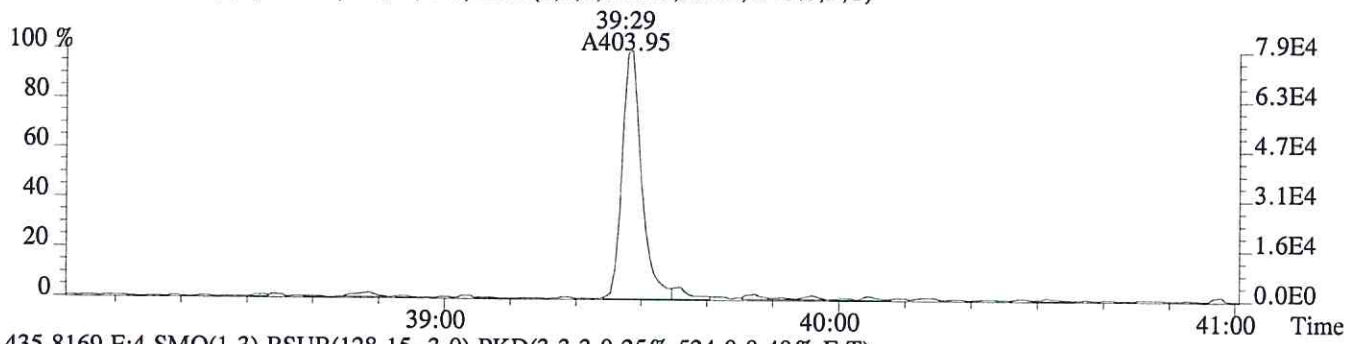


File:P402426 #1-268 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

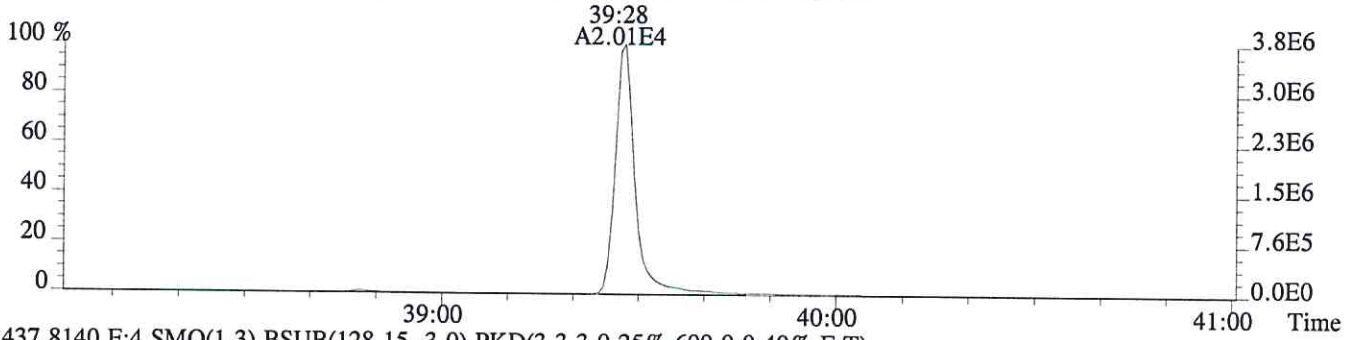
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



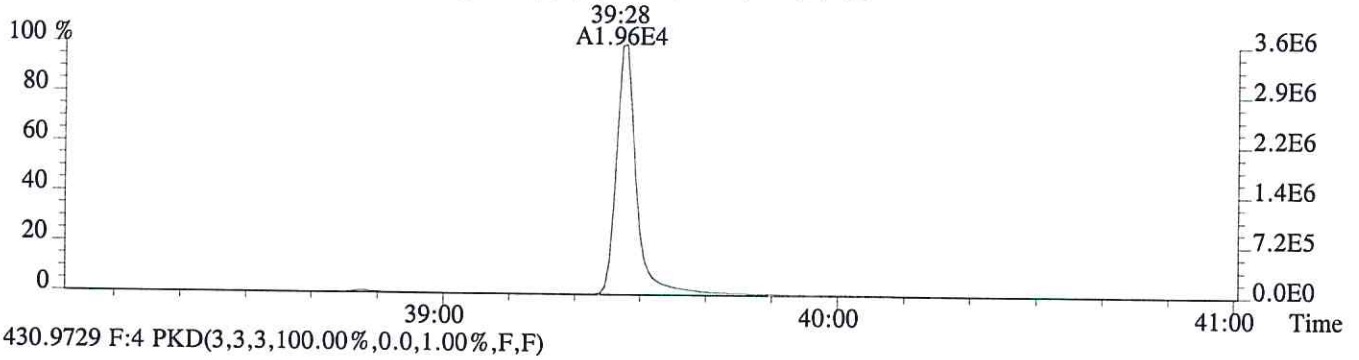
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



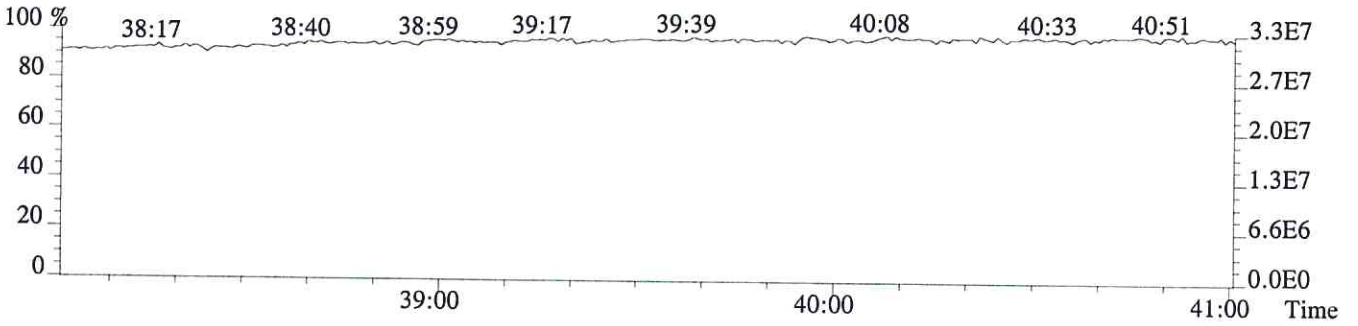
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



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

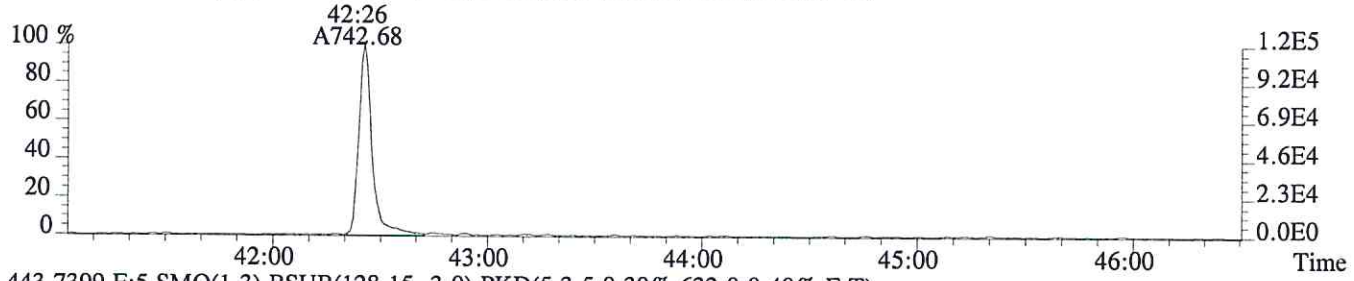


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

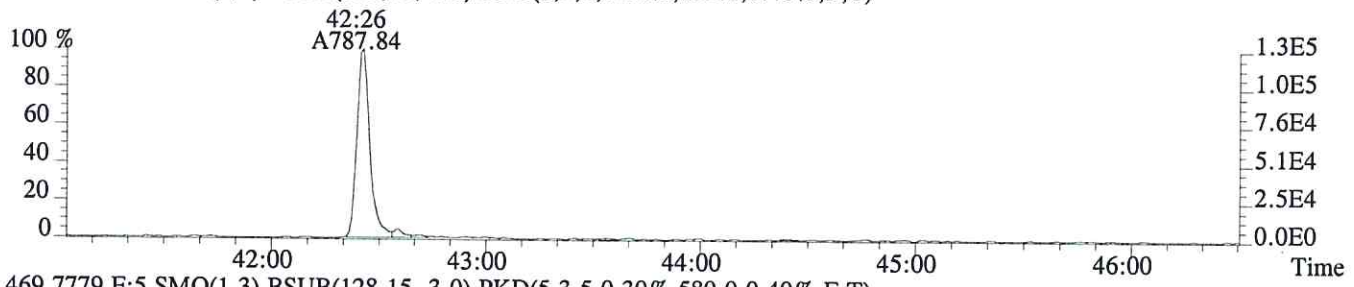


File:P402426 #1-492 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

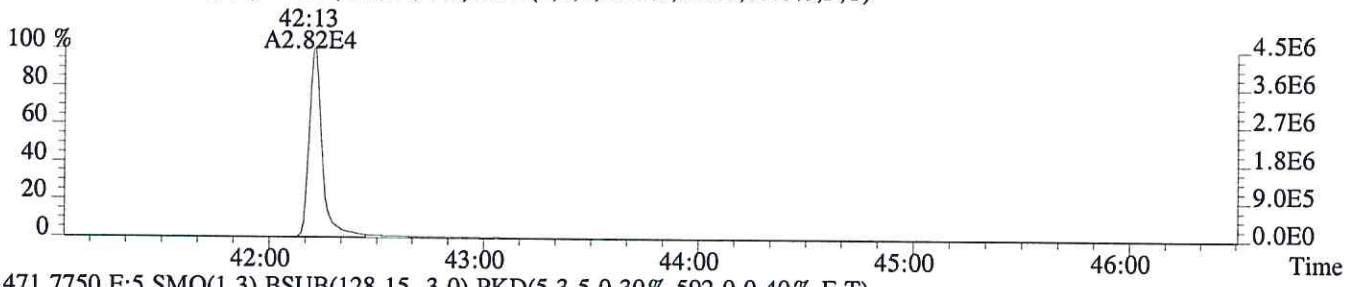
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



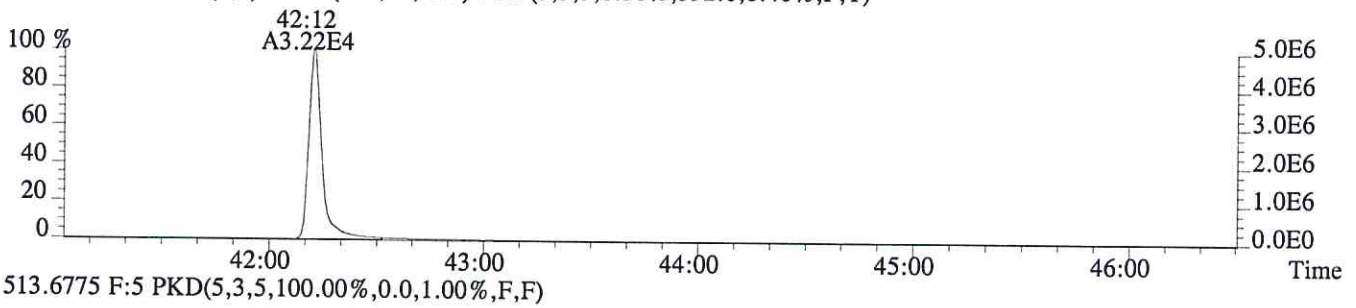
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



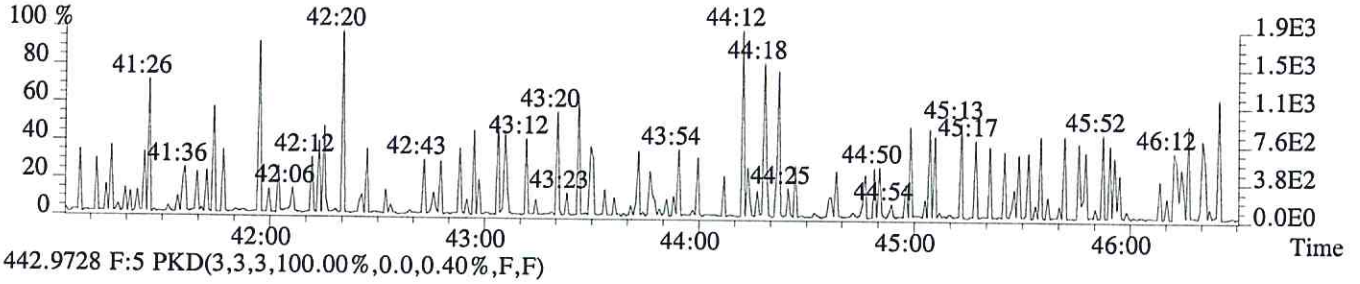
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



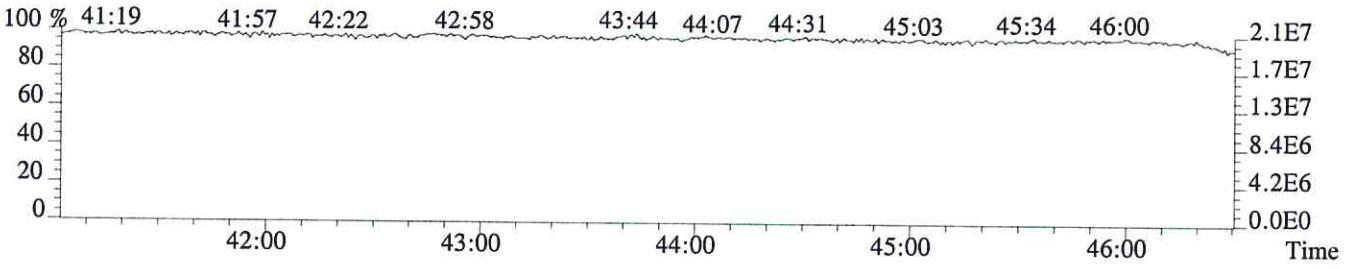
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



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

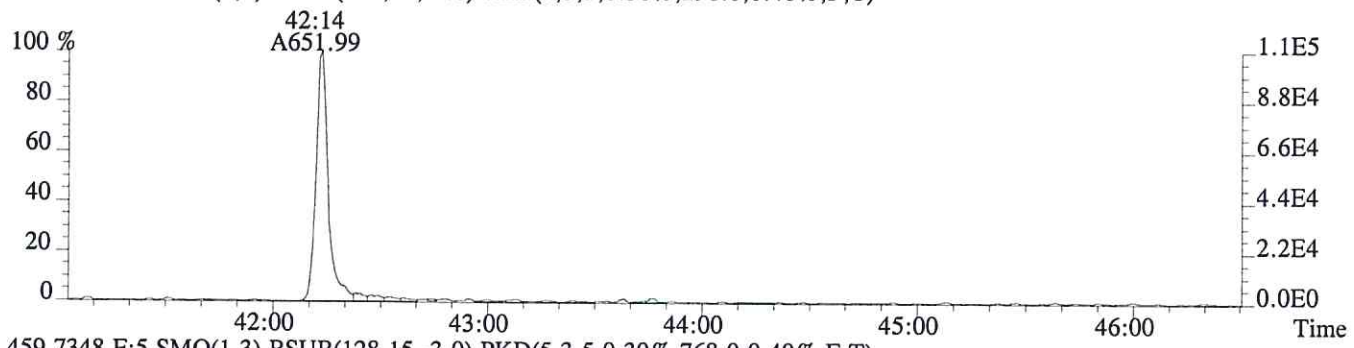


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

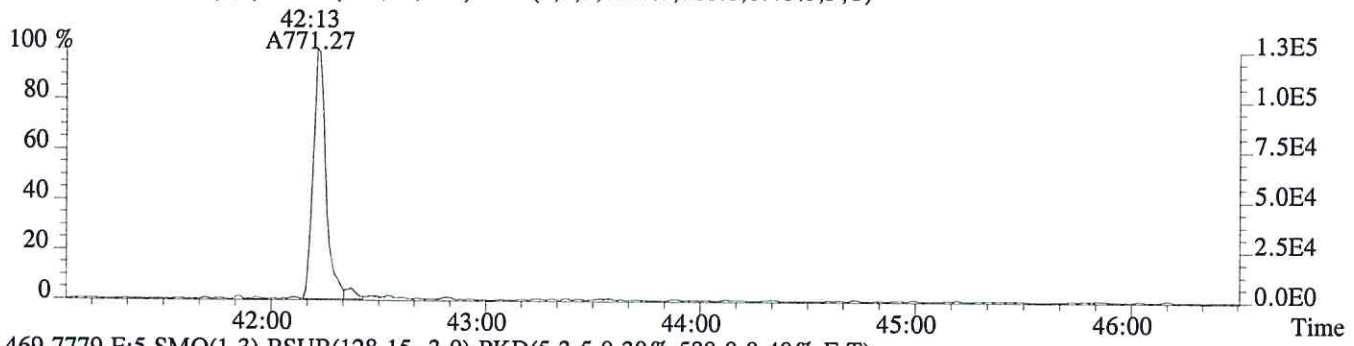


File:P402426 #1-492 Acq:28-APR-2016 12:33:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76555

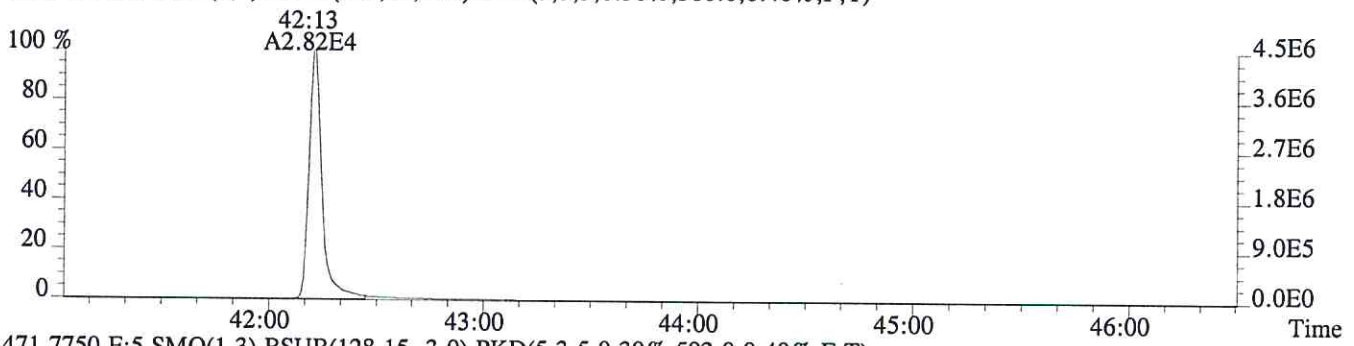
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



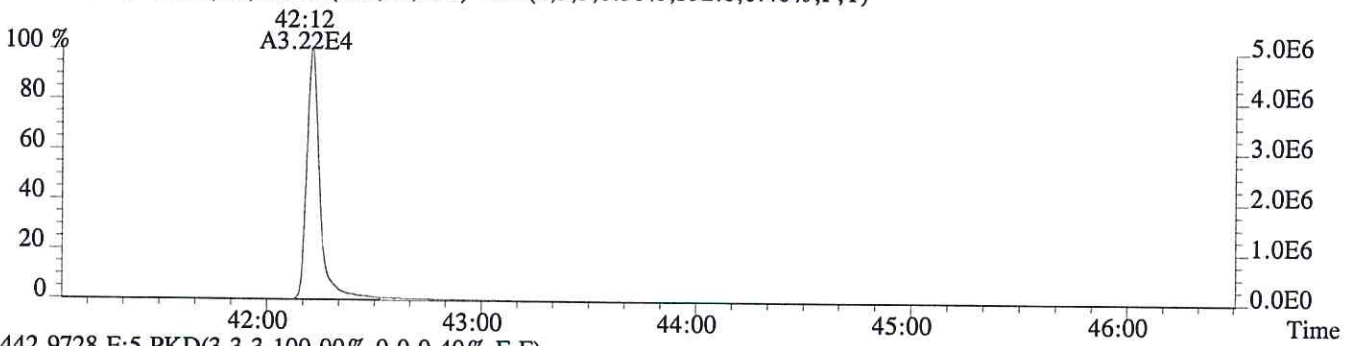
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



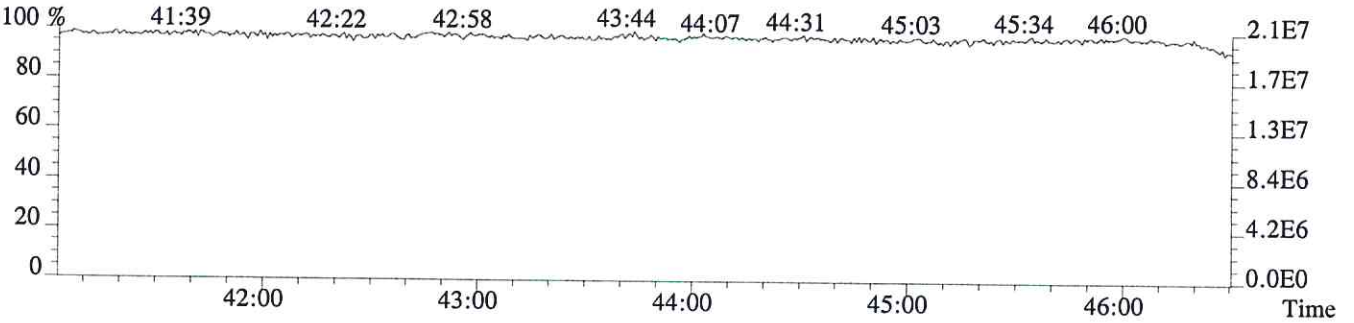
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,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 P402427 Samp: 1 Inj: 1 Acquired: 28-APR-16 13:21:59
Processed: 28-APR-16 16:59:48 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:22	3.911e+02	5.506e+02	0.71	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	32:29	3.165e+03	2.040e+03	1.55	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	33:22	3.006e+03	1.950e+03	1.54	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	36:00	2.492e+03	1.974e+03	1.26	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	36:06	2.720e+03	2.257e+03	1.20	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	36:36	2.439e+03	1.940e+03	1.26	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	37:20	2.157e+03	1.761e+03	1.22	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	2.166e+03	2.096e+03	1.03	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	1.768e+03	1.701e+03	1.04	yes	no	1.187
10	Unk	OCDF	42:26	2.784e+03	3.203e+03	0.87	yes	no	1.035
11	Unk	2,3,7,8-TCDD	29:08	4.219e+02	5.216e+02	0.81	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	33:39	2.570e+03	1.613e+03	1.59	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	36:44	1.841e+03	1.539e+03	1.20	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	36:49	2.095e+03	1.709e+03	1.23	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	37:03	2.072e+03	1.655e+03	1.25	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	1.665e+03	1.645e+03	1.01	yes	no	0.882
17	Unk	OCDD	42:14	2.660e+03	3.014e+03	0.88	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	28:20	2.931e+04	3.813e+04	0.77	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	32:28	3.917e+04	2.512e+04	1.56	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	33:21	3.850e+04	2.471e+04	1.56	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	36:00	1.440e+04	2.806e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	36:06	1.674e+04	3.369e+04	0.50	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	36:35	1.535e+04	3.028e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.355e+04	2.677e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	1.083e+04	2.513e+04	0.43	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	9.699e+03	2.220e+04	0.44	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	29:06	2.544e+04	3.251e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.281e+04	2.089e+04	1.57	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	36:43	2.309e+04	1.856e+04	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	36:48	2.525e+04	1.997e+04	1.26	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	1.994e+04	1.920e+04	1.04	yes	no	0.817
32	IS	13C-OCDD	42:13	2.908e+04	3.271e+04	0.89	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	28:33	2.622e+04	3.387e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:02	2.629e+04	2.132e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	1.118e+03				no	0.958

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
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Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P402427 Samp: 1 Inj: 1 Acquired: 28-APR-16 13:21:59
Processed: 28-APR-16 16:59:481 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	7.56e+04	5.84e+02	1.3e+02	1.09e+05	8.64e+02	1.3e+02
2	1,2,3,7,8-PeCDF	6.11e+05	5.56e+02	1.1e+03	3.82e+05	1.34e+03	2.8e+02
3	2,3,4,7,8-PeCDF	6.04e+05	5.56e+02	1.1e+03	3.87e+05	1.34e+03	2.9e+02
4	1,2,3,4,7,8-HxCDF	5.27e+05	3.84e+02	1.4e+03	4.25e+05	4.92e+02	8.6e+02
5	1,2,3,6,7,8-HxCDF	5.56e+05	3.84e+02	1.4e+03	4.54e+05	4.92e+02	9.2e+02
6	2,3,4,6,7,8-HxCDF	5.10e+05	3.84e+02	1.3e+03	4.03e+05	4.92e+02	8.2e+02
7	1,2,3,7,8,9-HxCDF	4.26e+05	3.84e+02	1.1e+03	3.56e+05	4.92e+02	7.2e+02
8	1,2,3,4,6,7,8-HpCDF	4.69e+05	7.00e+02	6.7e+02	4.58e+05	4.36e+02	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	3.35e+05	7.00e+02	4.8e+02	3.25e+05	4.36e+02	7.4e+02
10	OCDF	4.56e+05	4.12e+02	1.1e+03	5.23e+05	9.64e+02	5.4e+02
11	2,3,7,8-TCDD	8.71e+04	8.44e+02	1.0e+02	1.05e+05	6.52e+02	1.6e+02
12	1,2,3,7,8-PeCDD	5.01e+05	5.56e+02	9.0e+02	3.20e+05	5.04e+02	6.4e+02
13	1,2,3,4,7,8-HxCDD	4.17e+05	1.09e+03	3.8e+02	3.54e+05	5.00e+02	7.1e+02
14	1,2,3,6,7,8-HxCDD	4.29e+05	1.09e+03	3.9e+02	3.56e+05	5.00e+02	7.1e+02
15	1,2,3,7,8,9-HxCDD	4.12e+05	1.09e+03	3.8e+02	3.42e+05	5.00e+02	6.8e+02
16	1,2,3,4,6,7,8-HpCDD	3.29e+05	4.12e+02	8.0e+02	3.22e+05	3.36e+02	9.6e+02
17	OCDD	4.46e+05	5.60e+01	8.0e+03	5.09e+05	6.56e+02	7.8e+02
18	13C-2,3,7,8-TCDF	5.75e+06	2.51e+03	2.3e+03	7.59e+06	1.28e+03	5.9e+03
19	13C-1,2,3,7,8-PeCDF	7.52e+06	2.12e+02	3.5e+04	4.83e+06	6.84e+02	7.1e+03
20	13C-2,3,4,7,8-PeCDF	7.89e+06	2.12e+02	3.7e+04	5.05e+06	6.84e+02	7.4e+03
21	13C-1,2,3,4,7,8-HxCDF	3.07e+06	8.04e+02	3.8e+03	6.05e+06	1.15e+03	5.3e+03
22	13C-1,2,3,6,7,8-HxCDF	3.52e+06	8.04e+02	4.4e+03	6.88e+06	1.15e+03	6.0e+03
23	13C-2,3,4,6,7,8-HxCDF	3.26e+06	8.04e+02	4.1e+03	6.44e+06	1.15e+03	5.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.67e+06	8.04e+02	3.3e+03	5.35e+06	1.15e+03	4.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.32e+06	2.21e+03	1.0e+03	5.32e+06	1.80e+03	3.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.84e+06	2.21e+03	8.3e+02	4.23e+06	1.80e+03	2.3e+03
27	13C-2,3,7,8-TCDD	5.39e+06	5.16e+03	1.0e+03	6.81e+06	2.49e+03	2.7e+03
28	13C-1,2,3,7,8-PeCDD	6.68e+06	5.24e+02	1.3e+04	4.28e+06	5.04e+02	8.5e+03
29	13C-1,2,3,4,7,8-HxCDD	5.29e+06	2.50e+03	2.1e+03	4.24e+06	1.40e+03	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	5.18e+06	2.50e+03	2.1e+03	4.12e+06	1.40e+03	2.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.98e+06	9.08e+02	4.4e+03	3.83e+06	9.84e+02	3.9e+03
32	13C-OCDD	4.80e+06	8.72e+02	5.5e+03	5.39e+06	8.36e+02	6.4e+03
33	13C-1,2,3,4-TCDD	5.45e+06	5.16e+03	1.1e+03	7.02e+06	2.49e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.28e+06	2.50e+03	2.1e+03	4.27e+06	1.40e+03	3.0e+03
35	37Cl-2,3,7,8-TCDD	2.28e+05	1.64e+03	1.4e+02			

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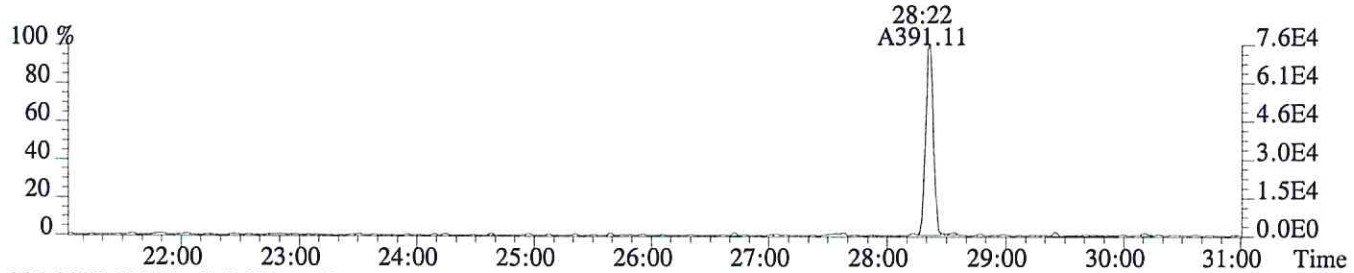
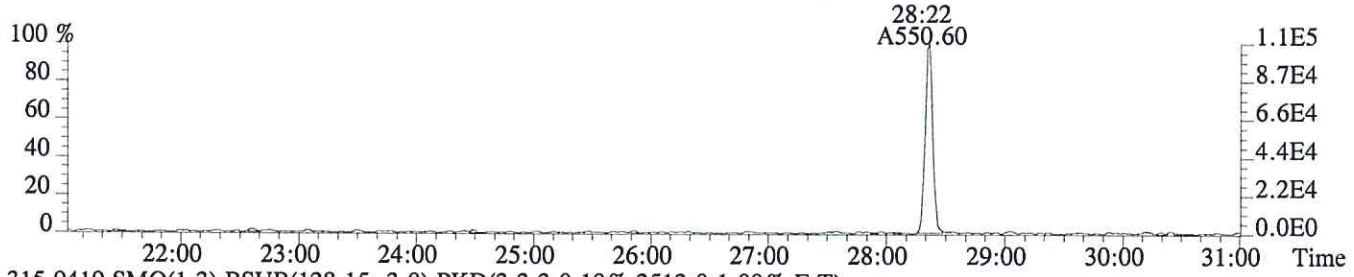
File:P402427 #1-684 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

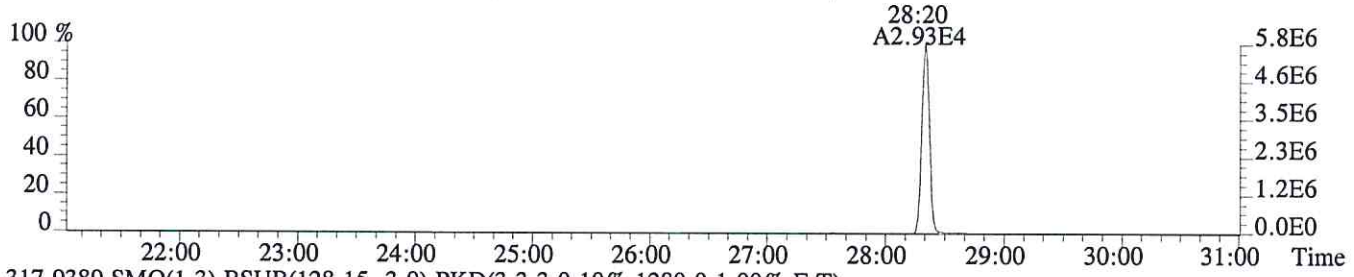
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



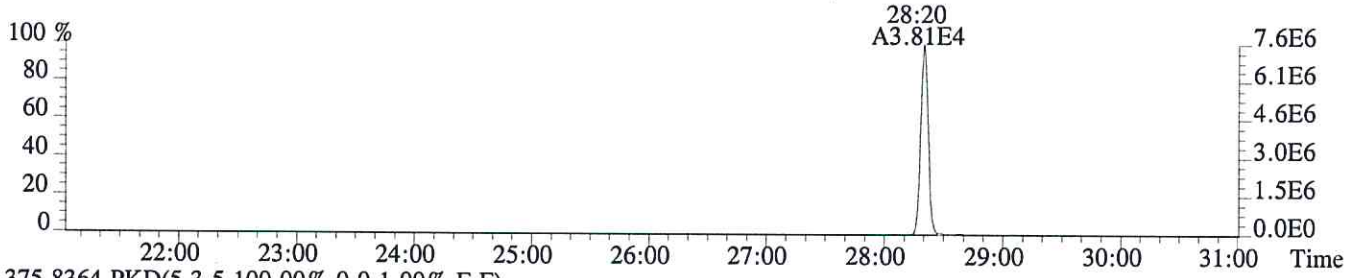
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



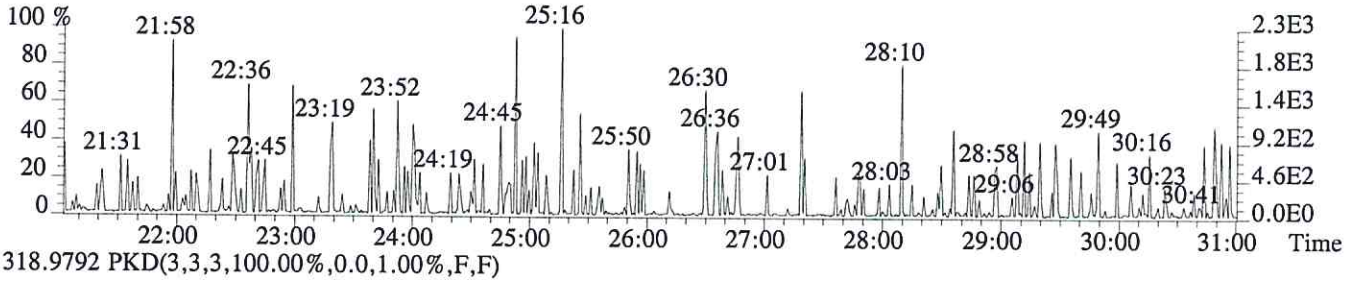
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2512.0,1.00%,F,T)



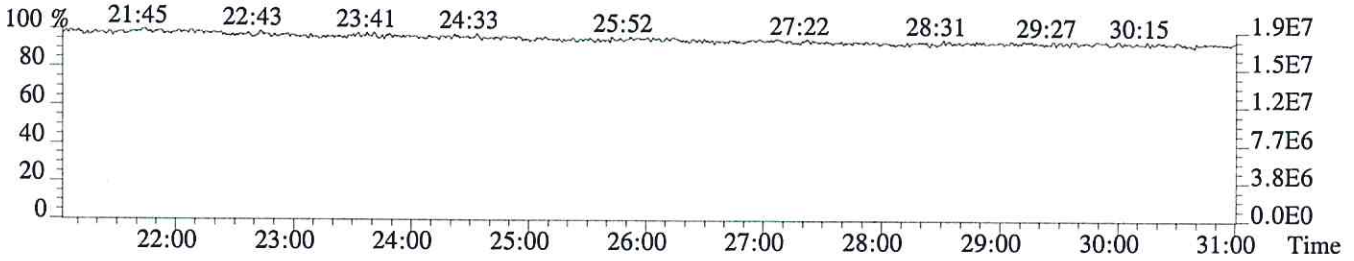
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



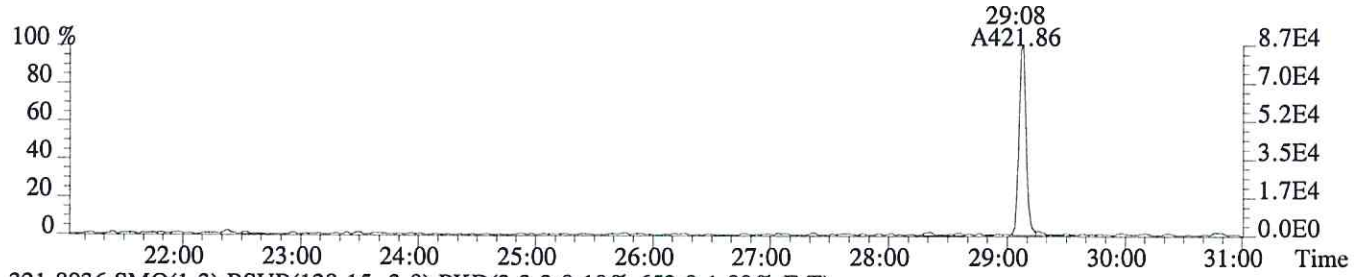
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



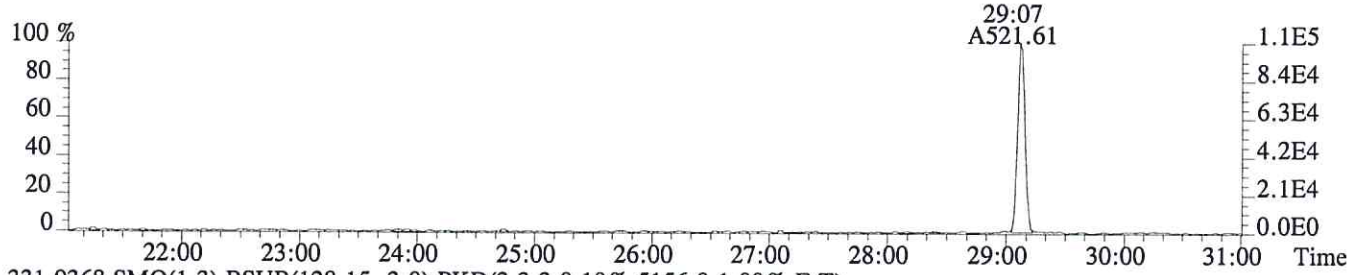
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



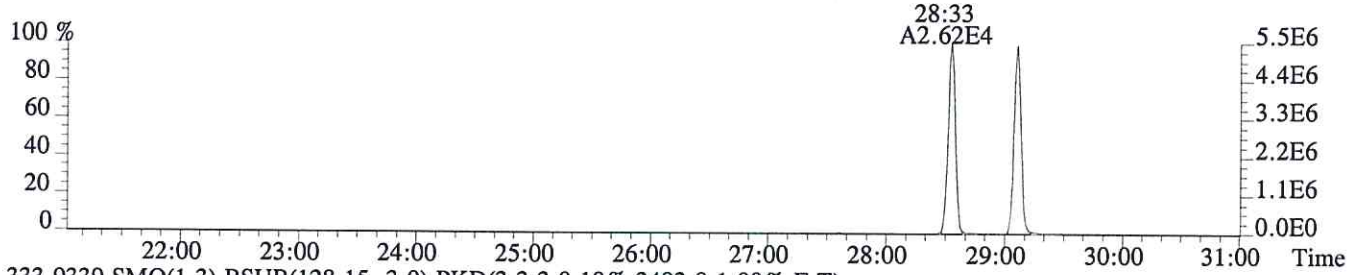
File:P402427 #1-684 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



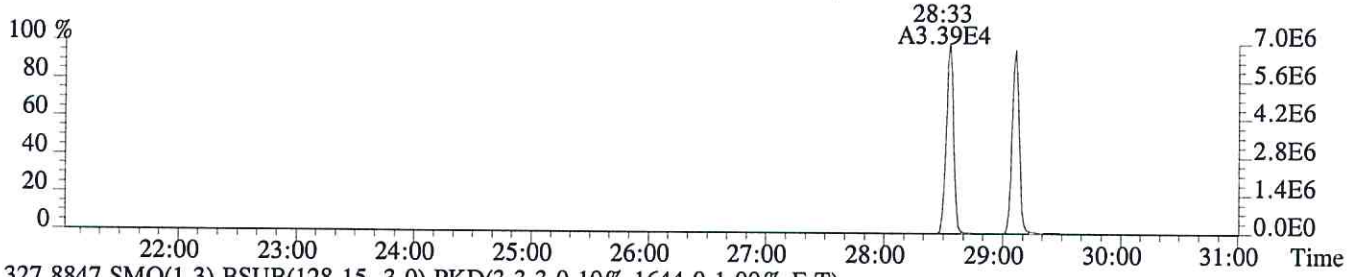
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



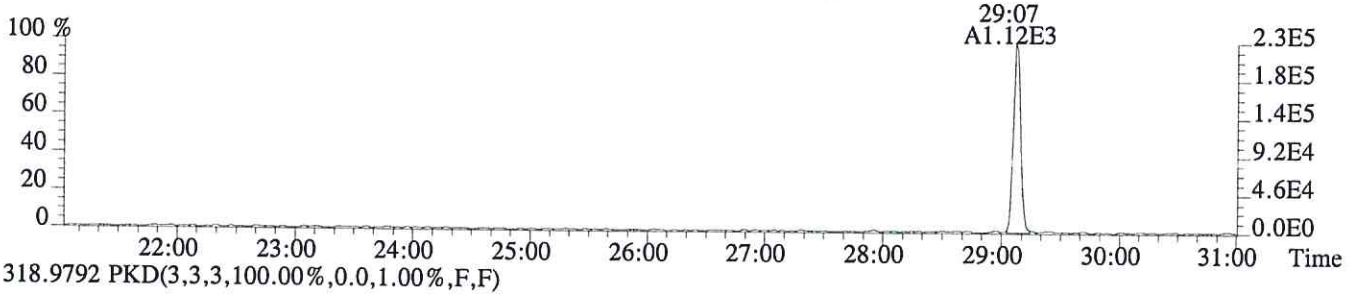
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5156.0,1.00%,F,T)



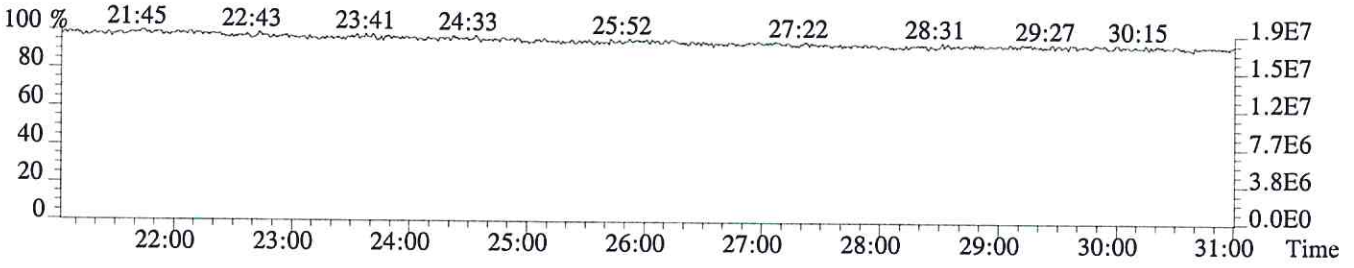
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)

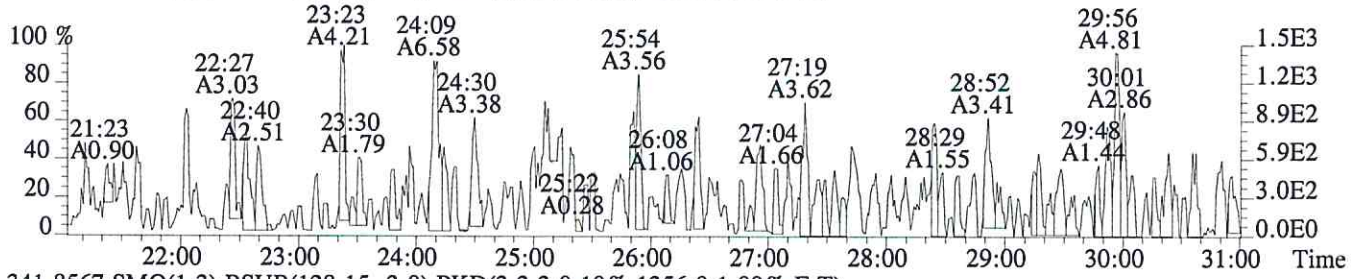


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

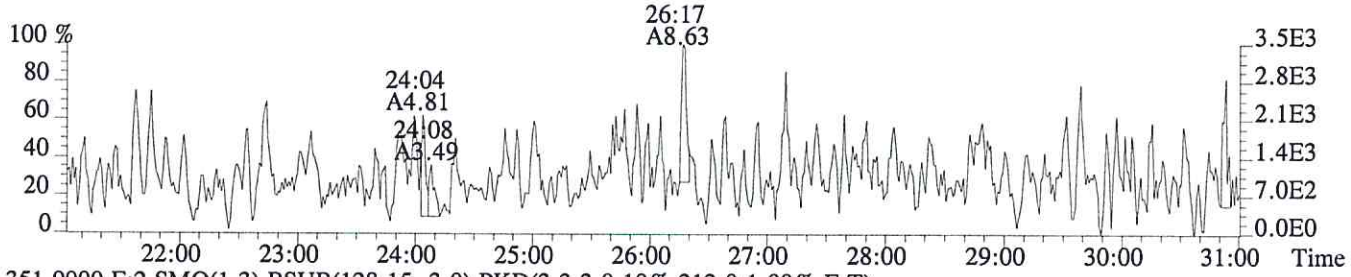


File:P402427 #1-684 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

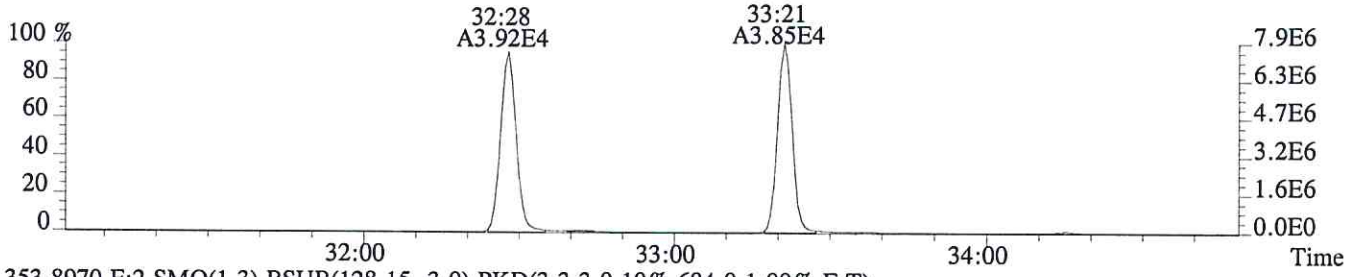
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



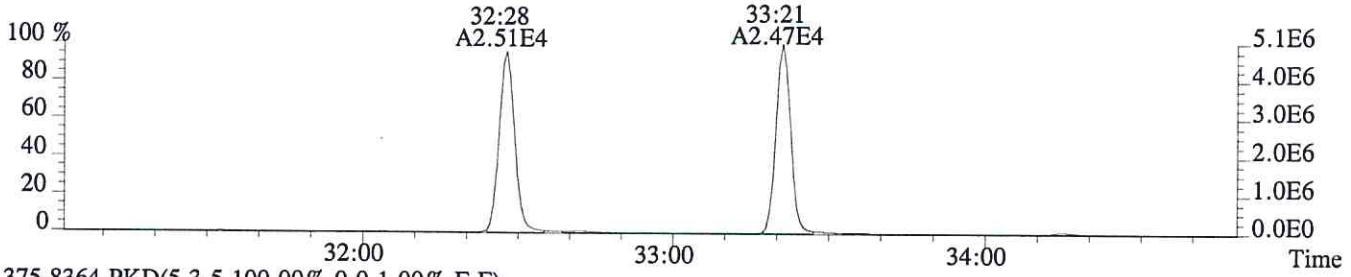
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



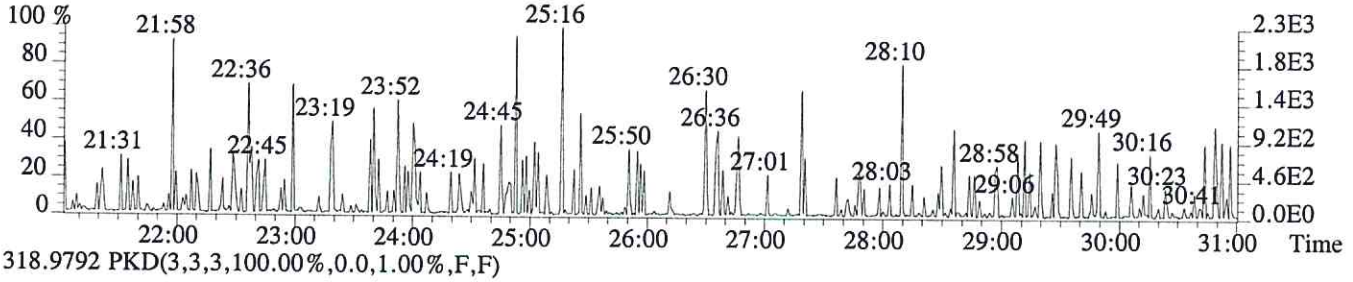
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



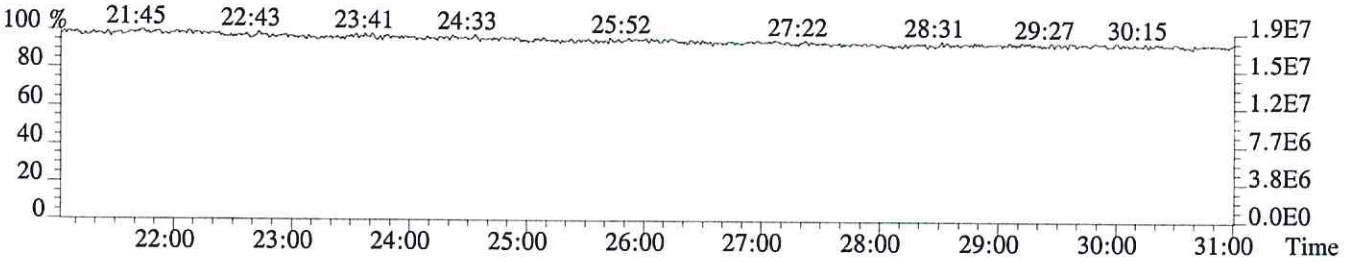
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



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

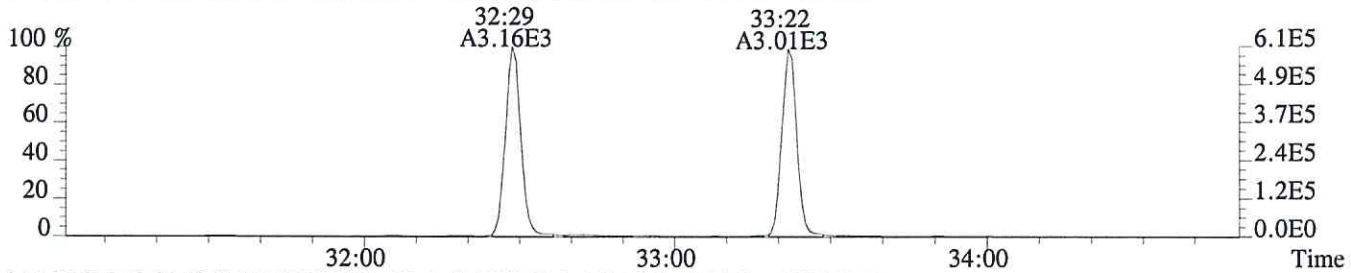


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

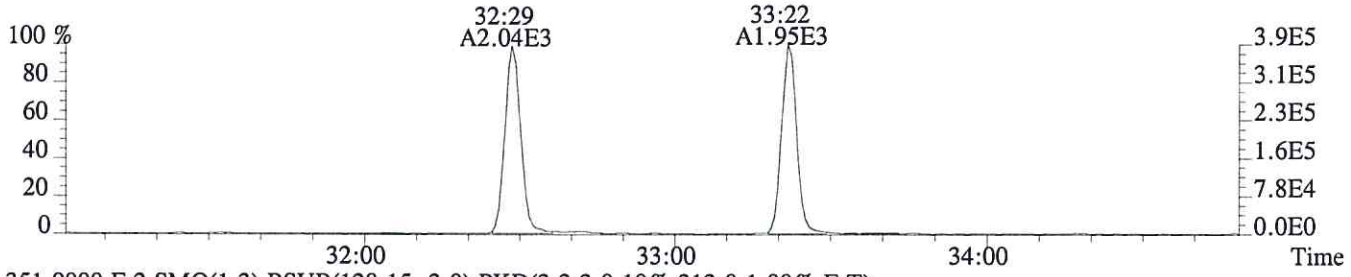


File:P402427 #1-340 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

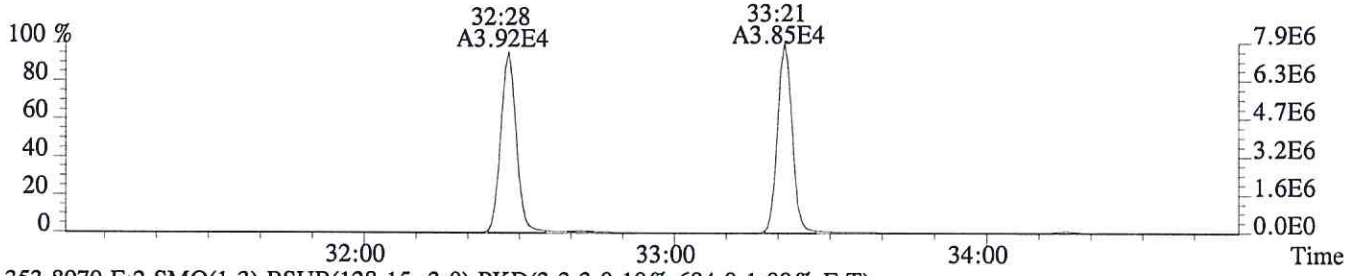
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



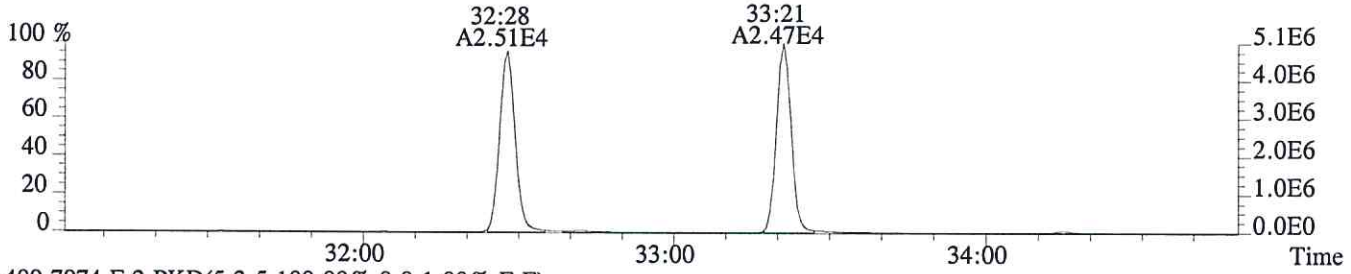
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1344.0,1.00%,F,T)



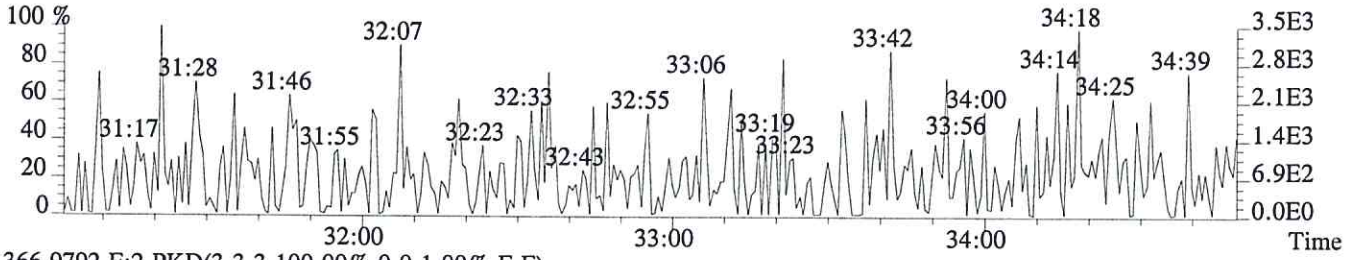
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



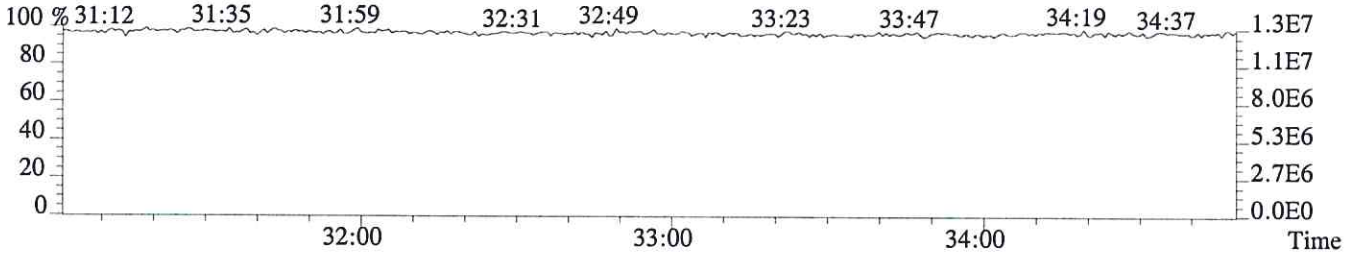
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



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

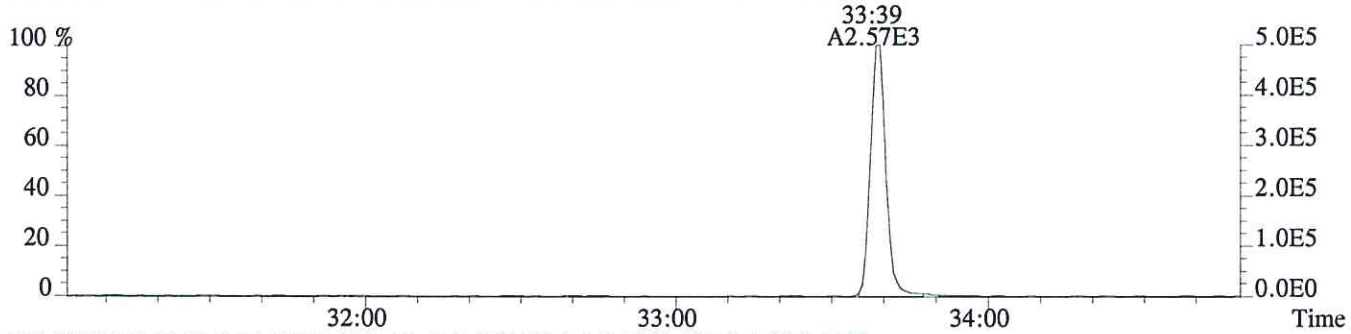


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

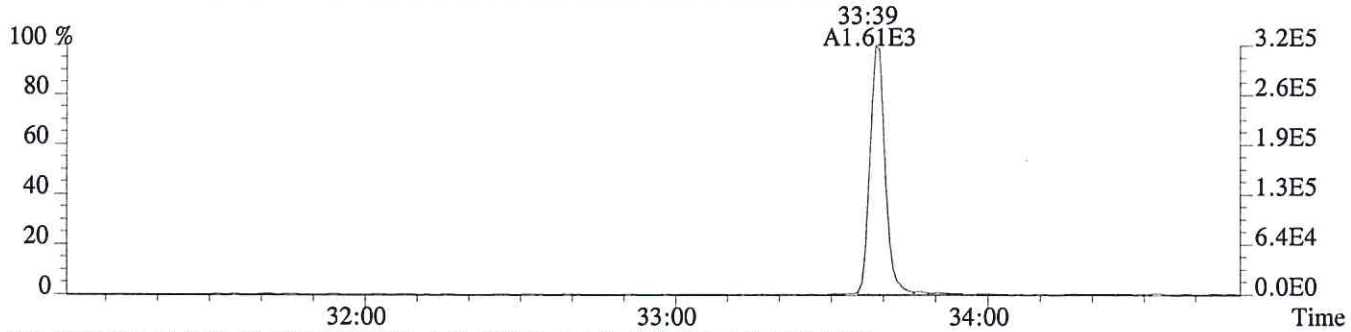


File:P402427 #1-340 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

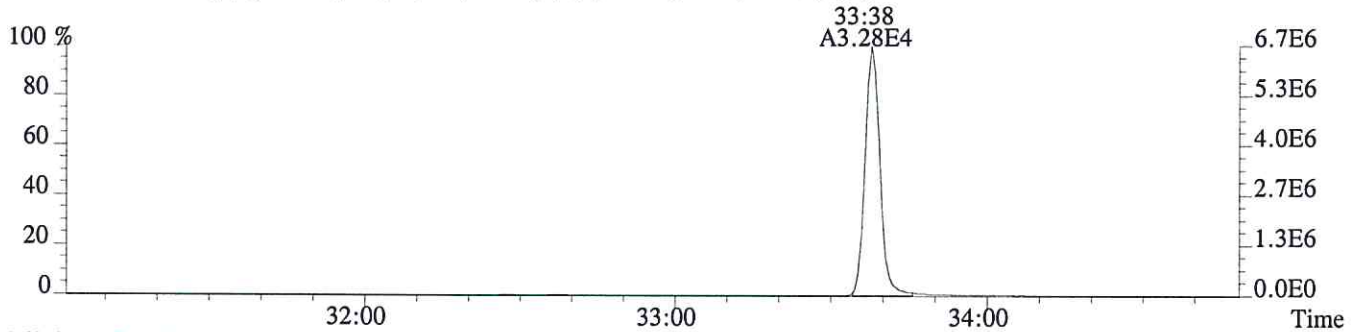
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



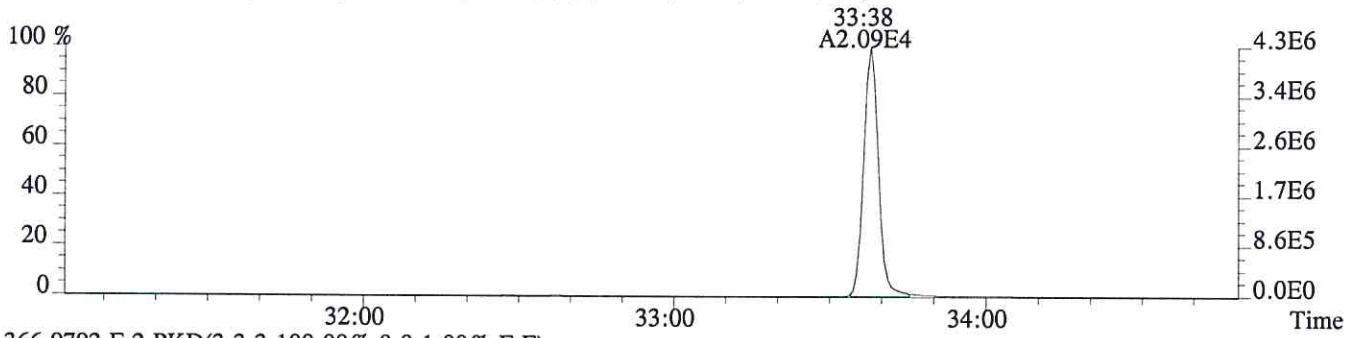
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



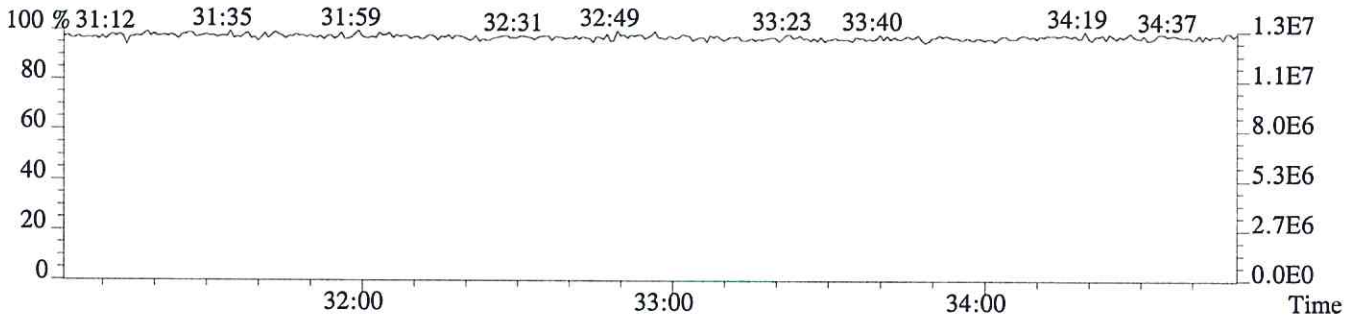
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



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

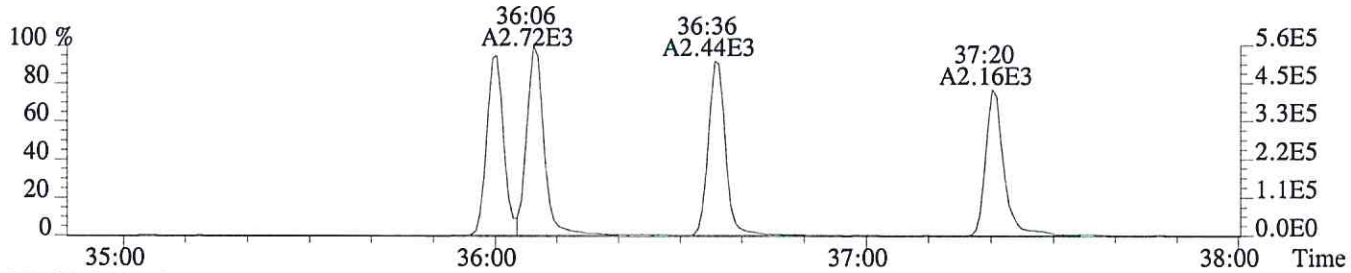


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

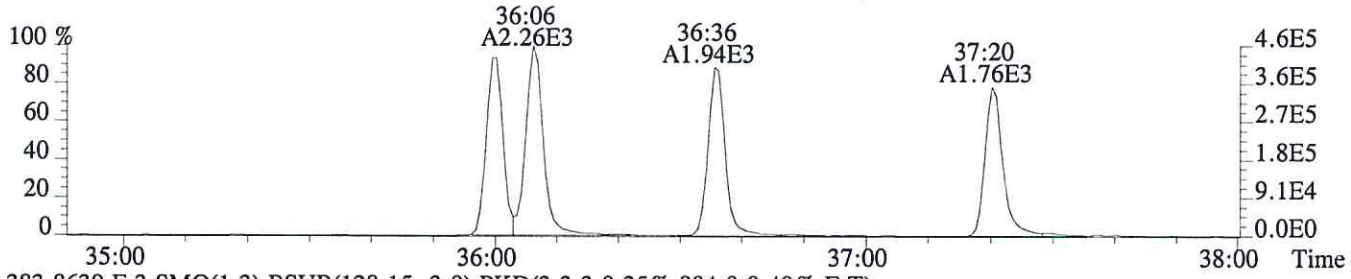


File:P402427 #1-285 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

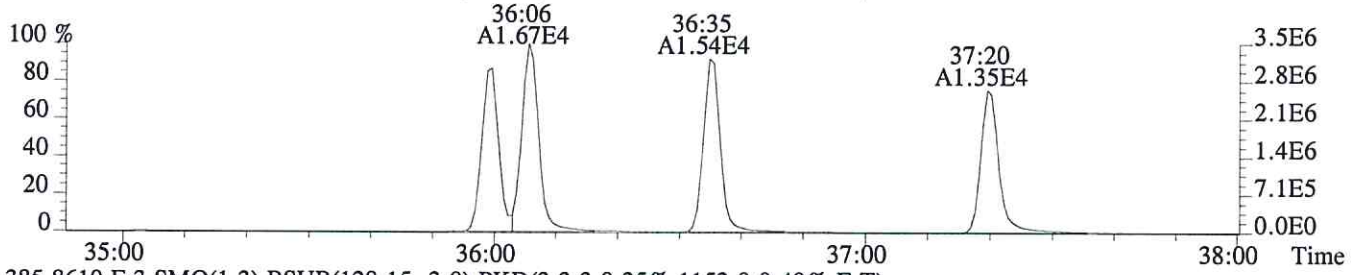
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



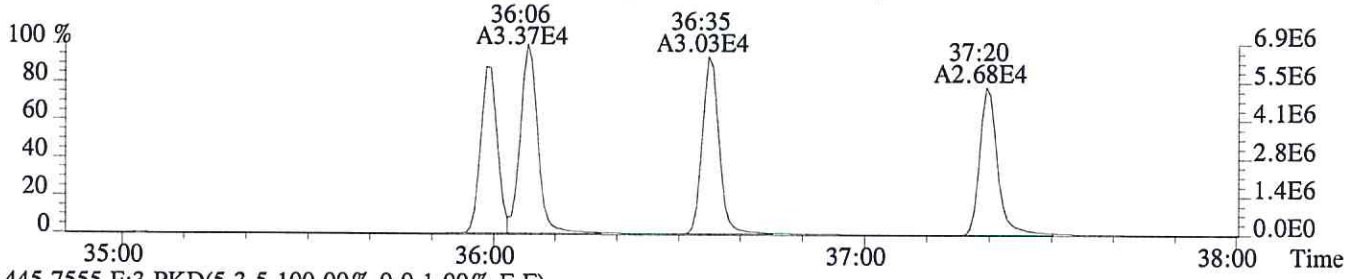
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)



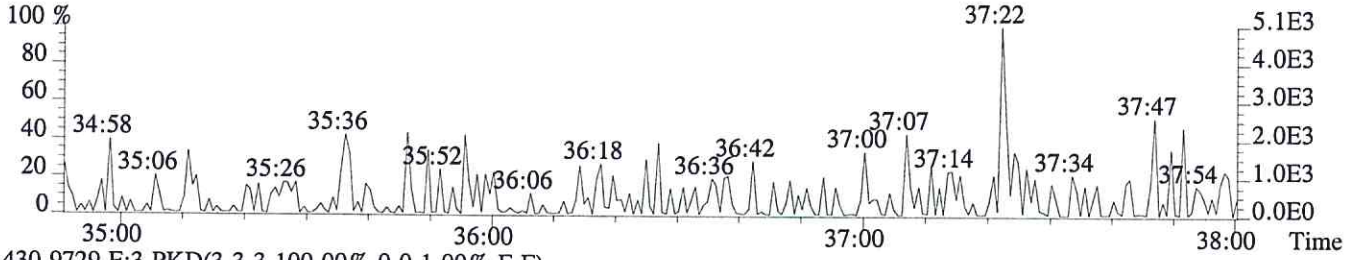
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



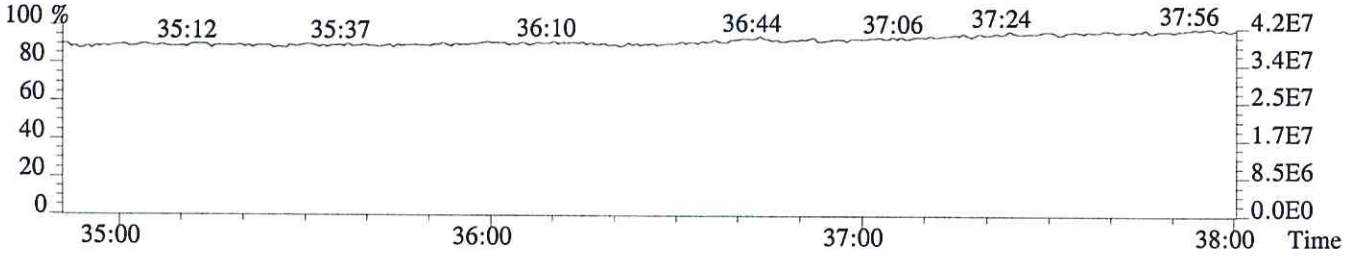
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



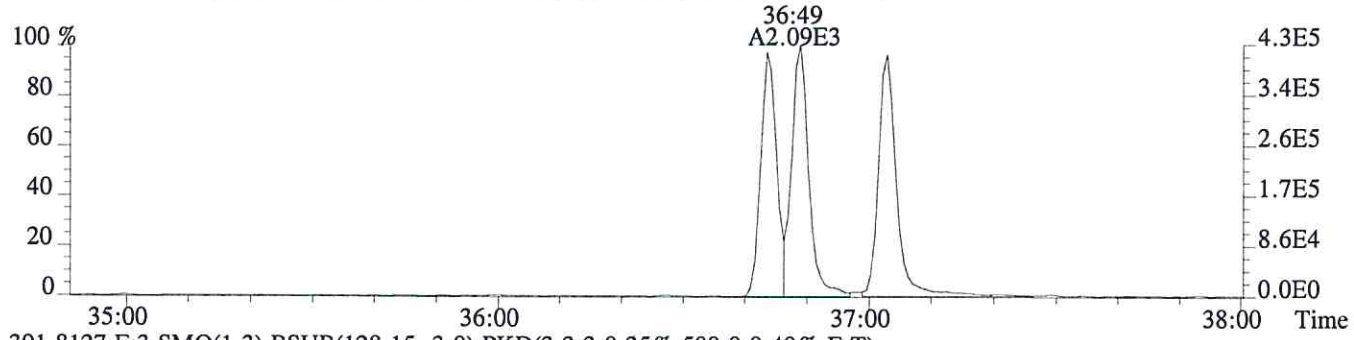
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



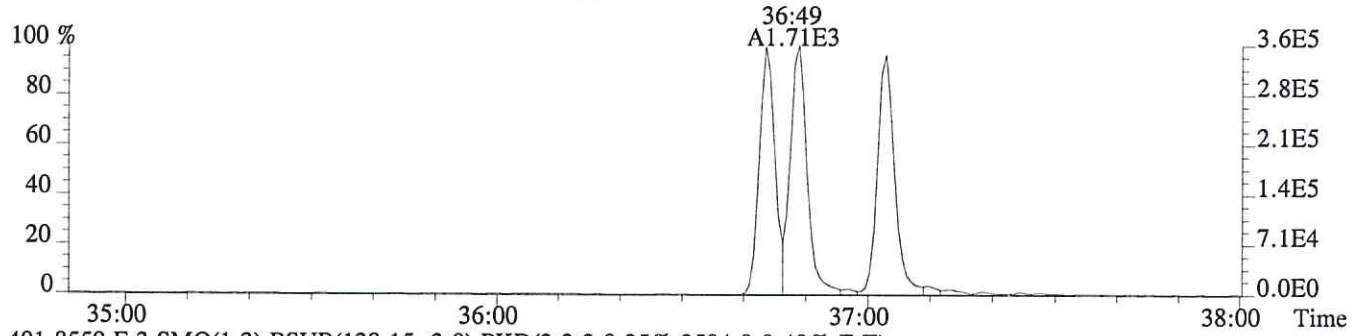
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



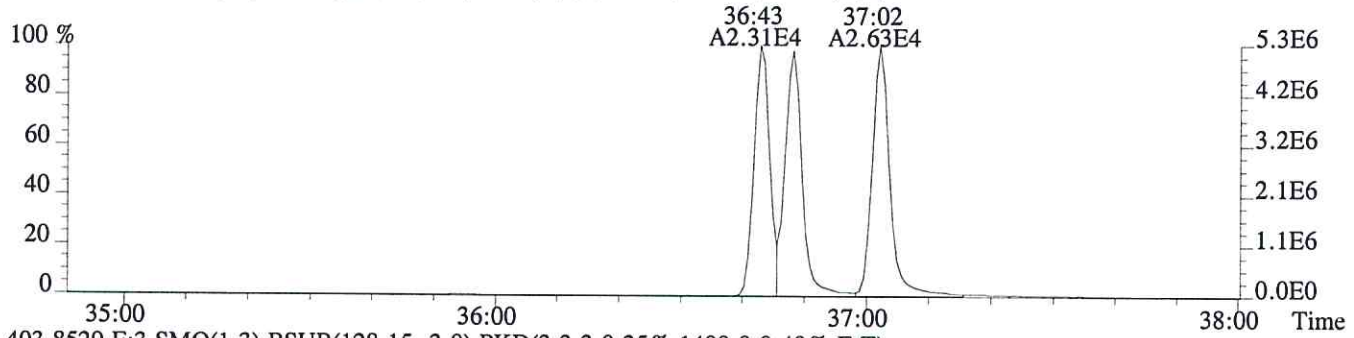
File:P402427 #1-285 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



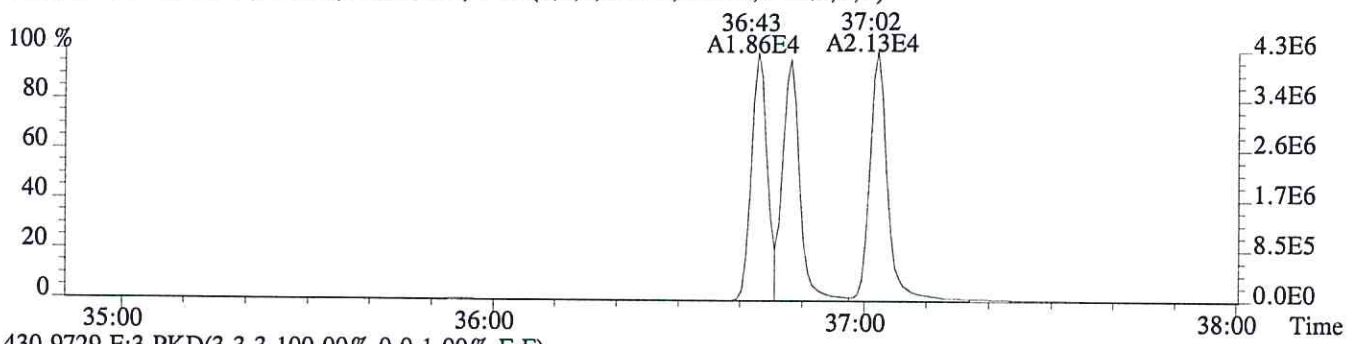
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



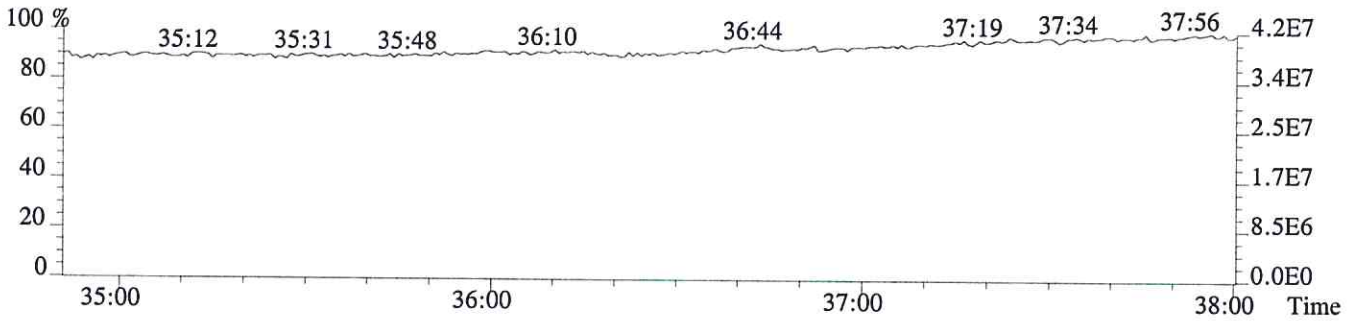
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2504.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)

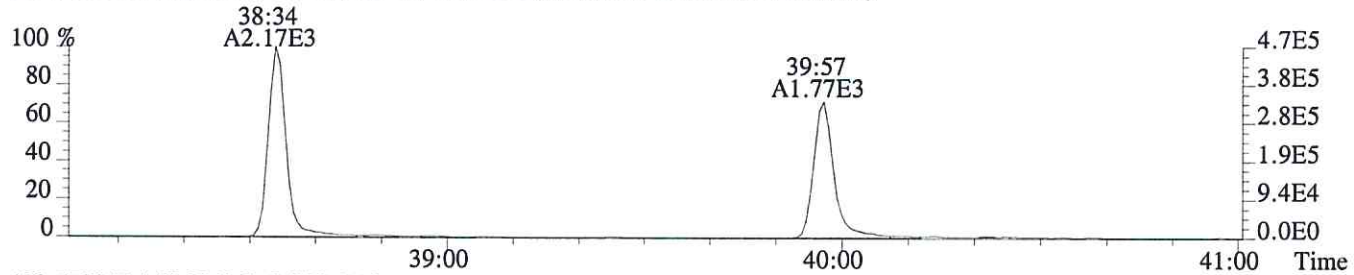


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

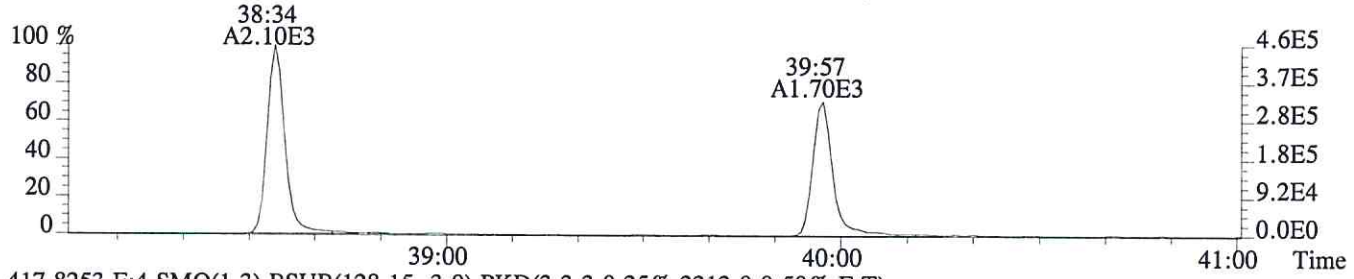


File:P402427 #1-268 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

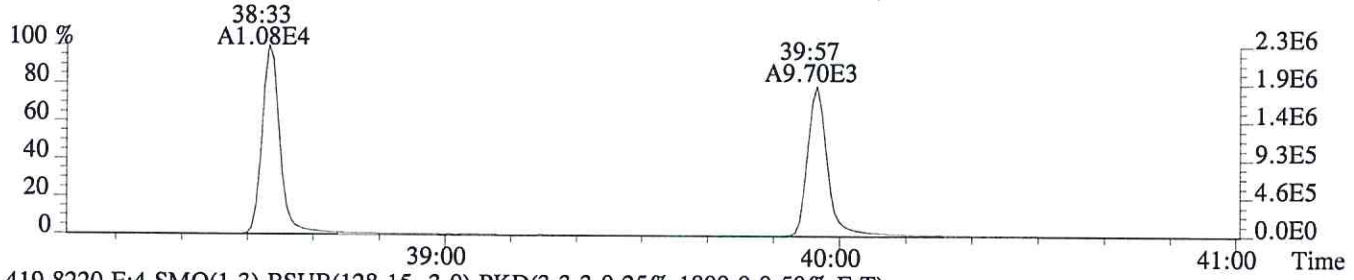
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.50%,F,T)



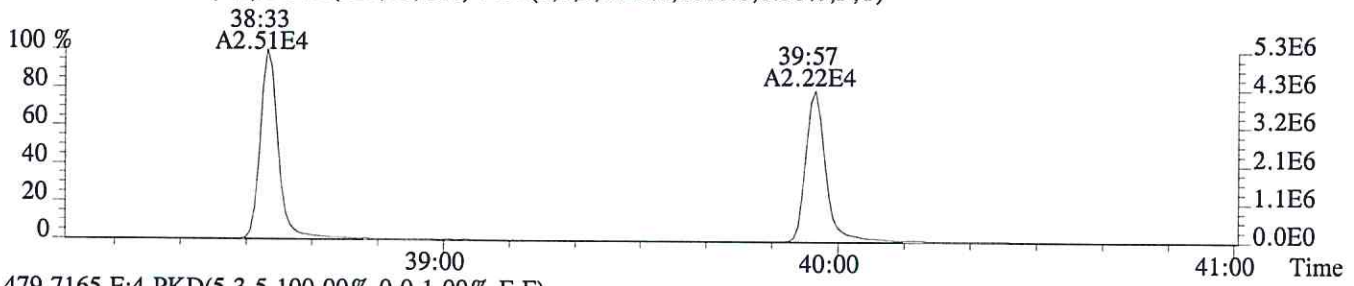
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.50%,F,T)



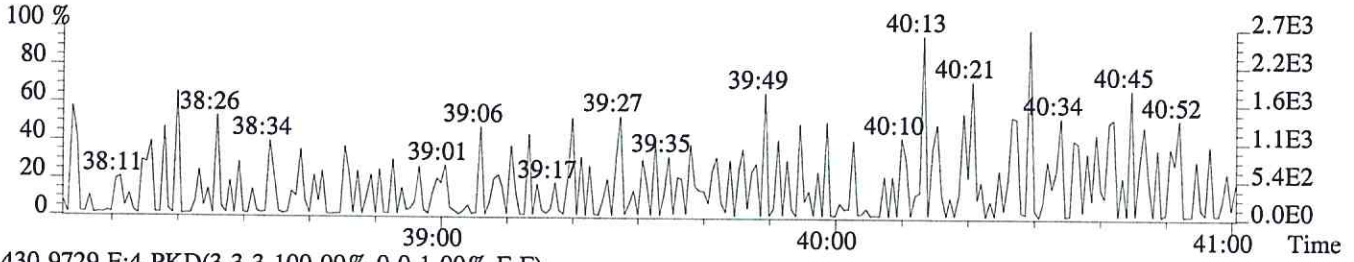
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2212.0,0.50%,F,T)



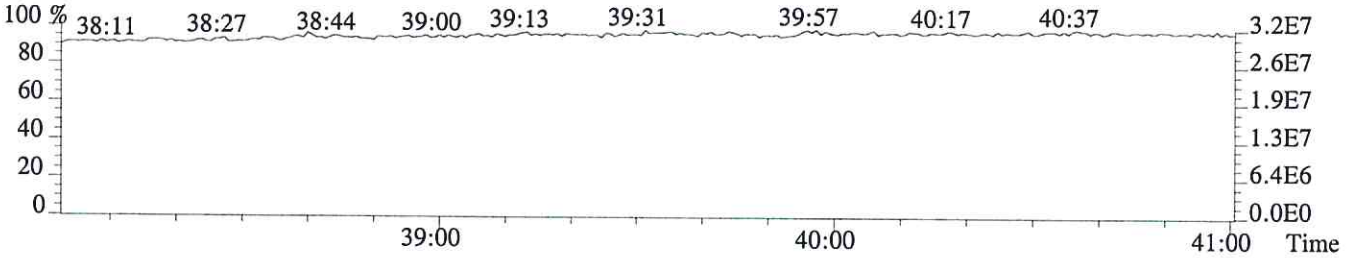
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.50%,F,T)



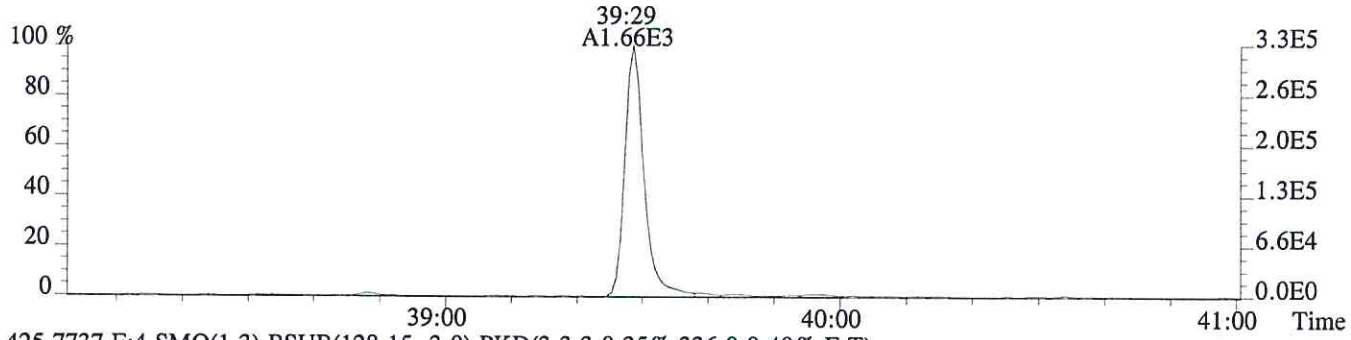
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



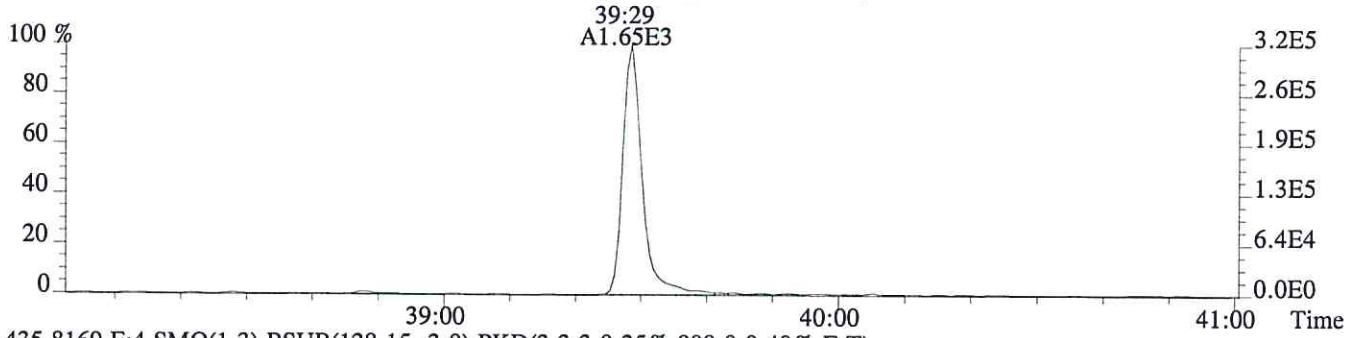
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



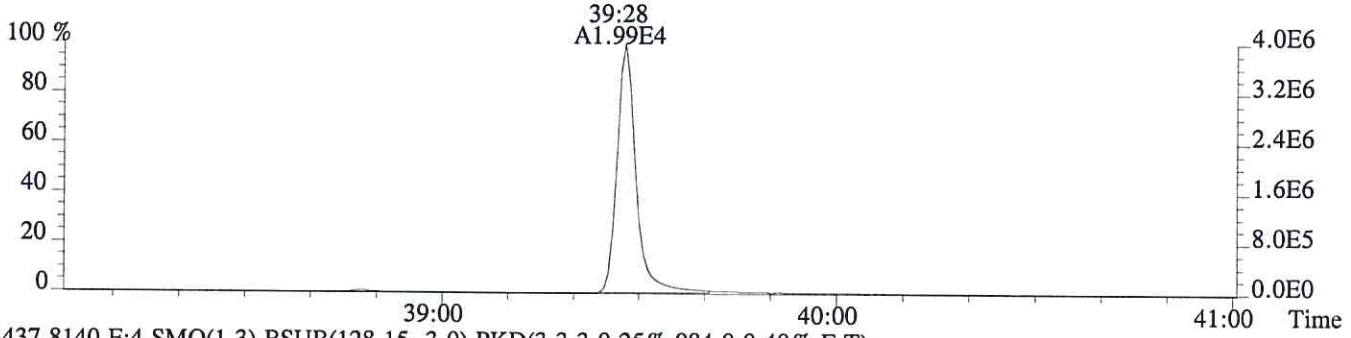
File:P402427 #1-268 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



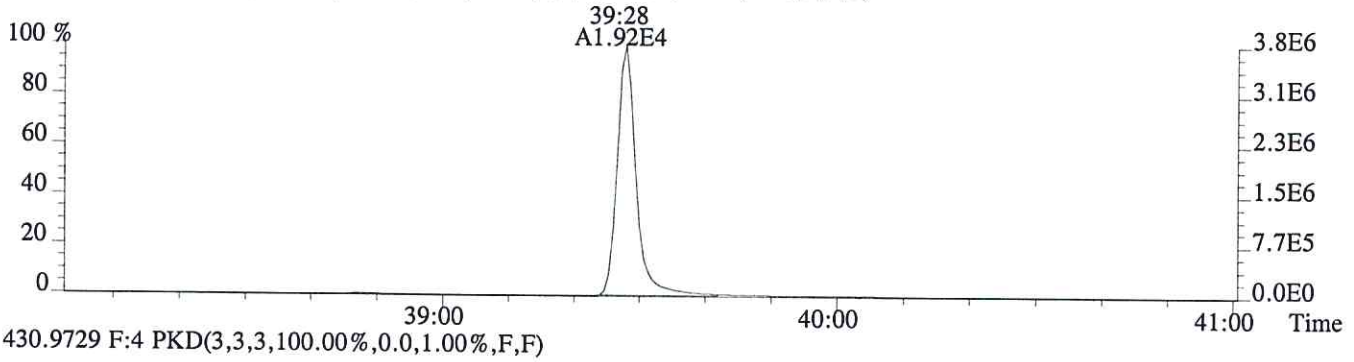
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



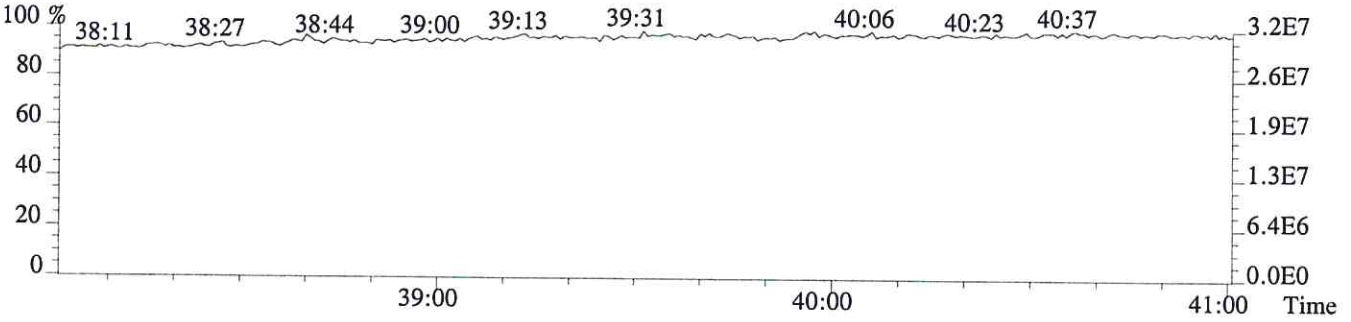
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)

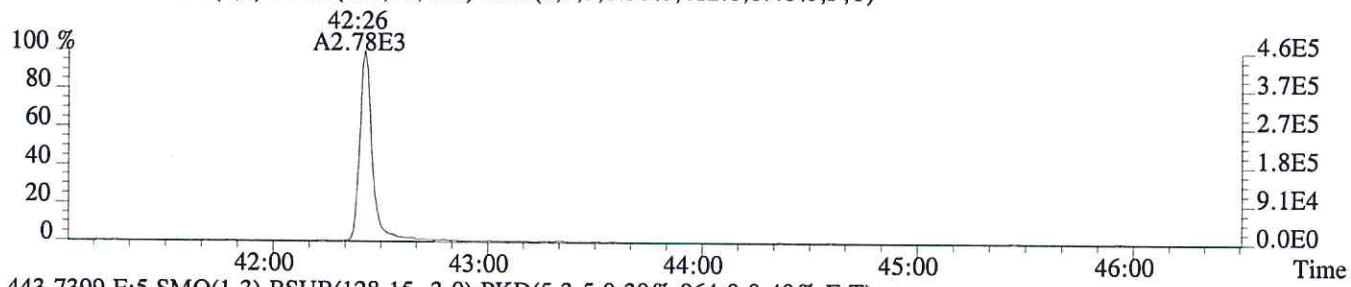


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

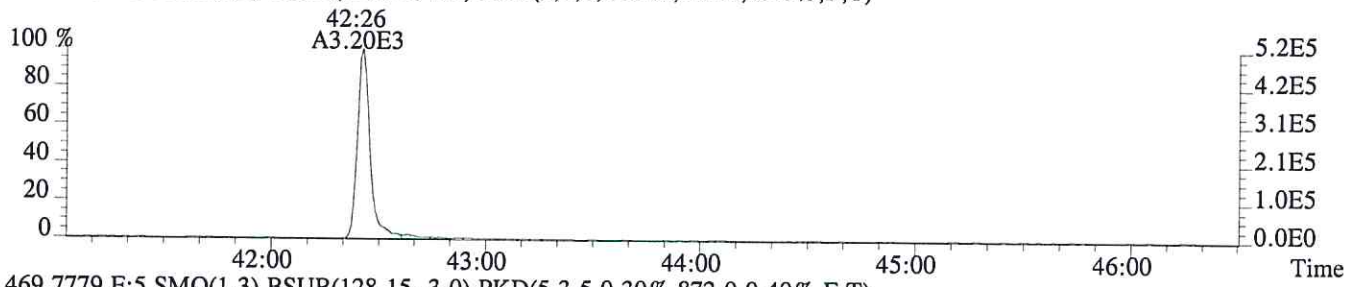


File:P402427 #1-492 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

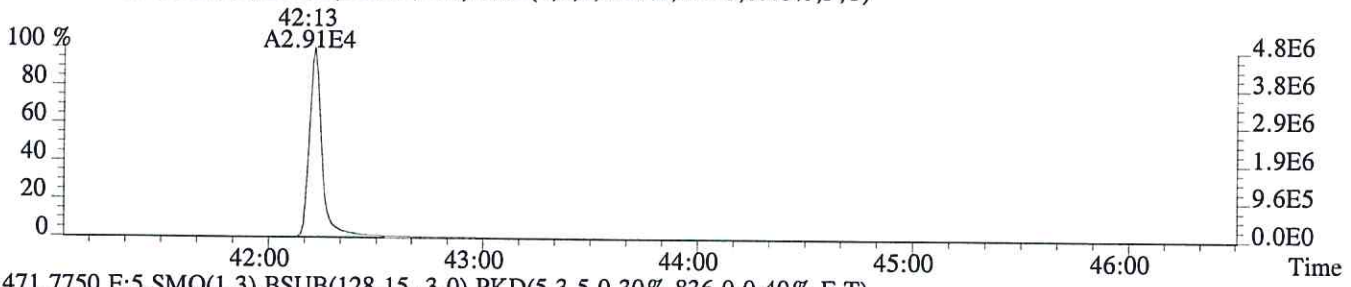
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



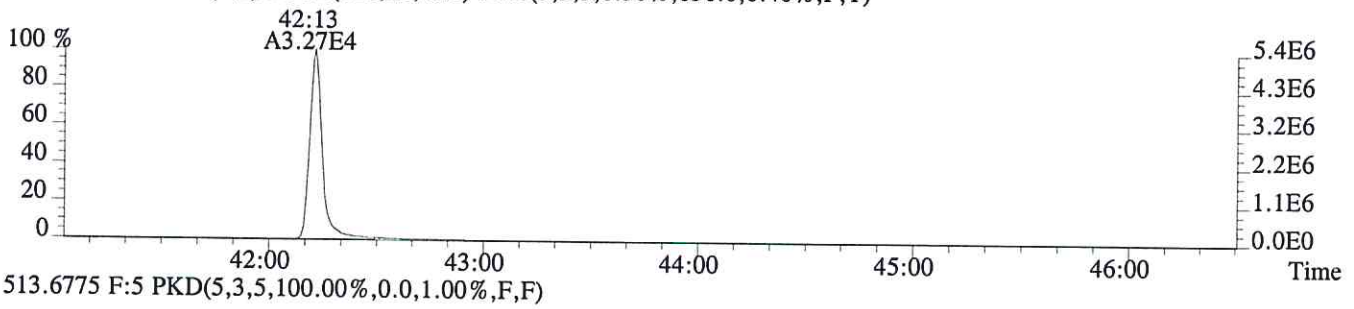
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,964.0,0.40%,F,T)



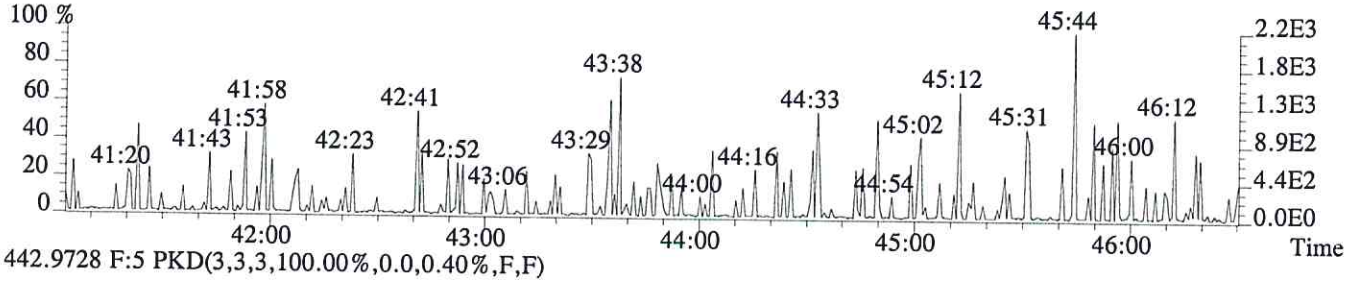
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



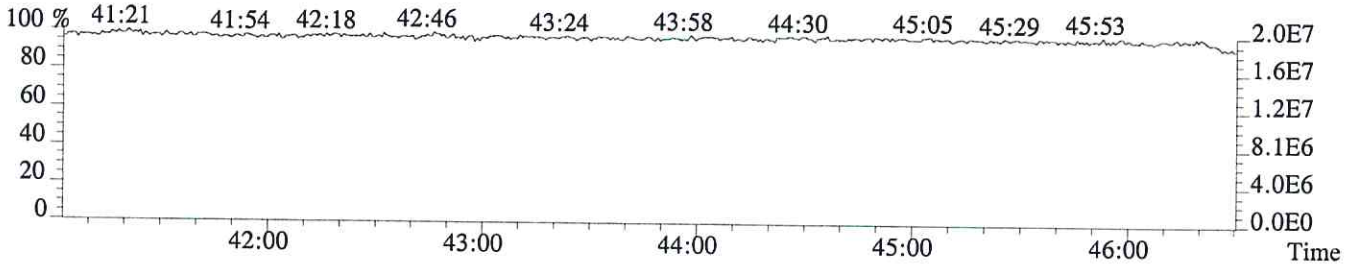
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



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

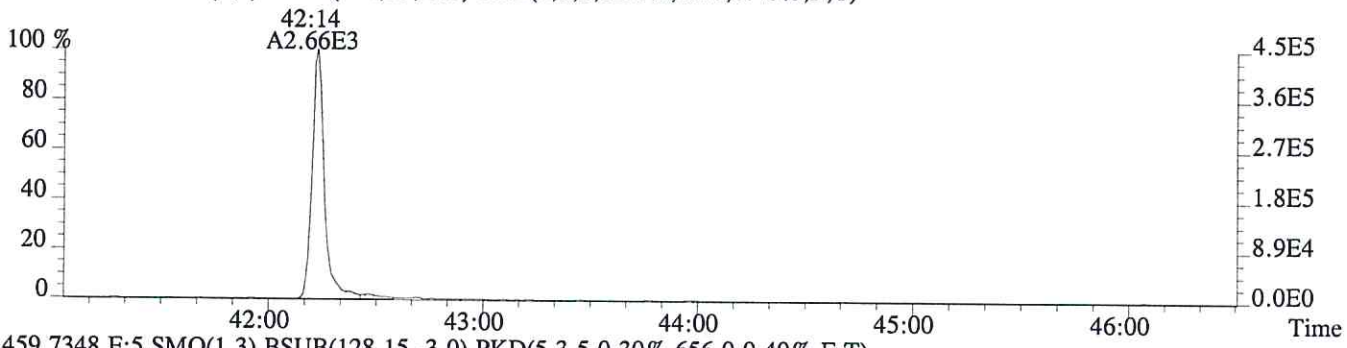


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

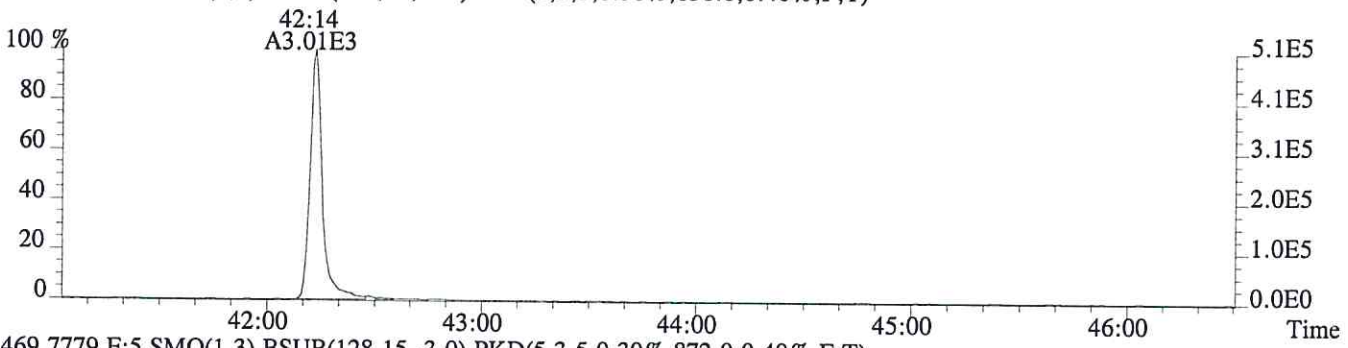


File:P402427 #1-492 Acq:28-APR-2016 13:21:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76556

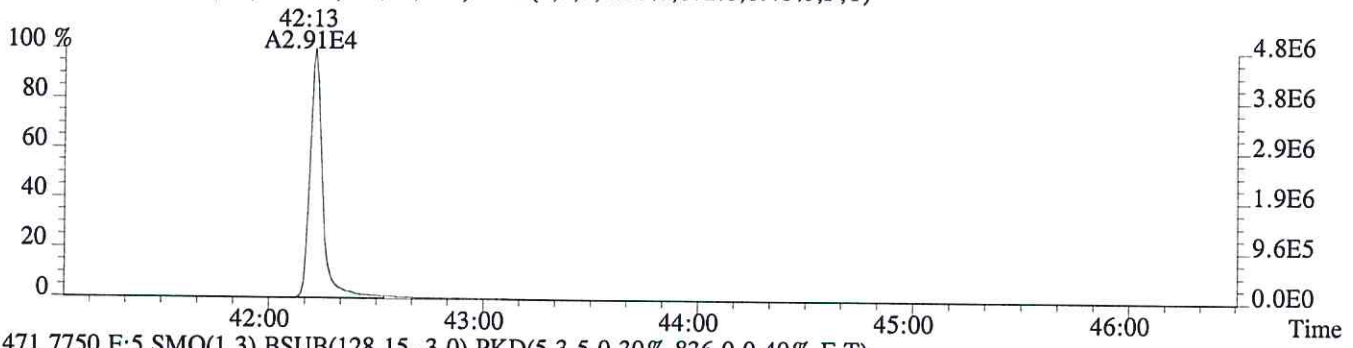
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,56.0,0.40%,F,T)



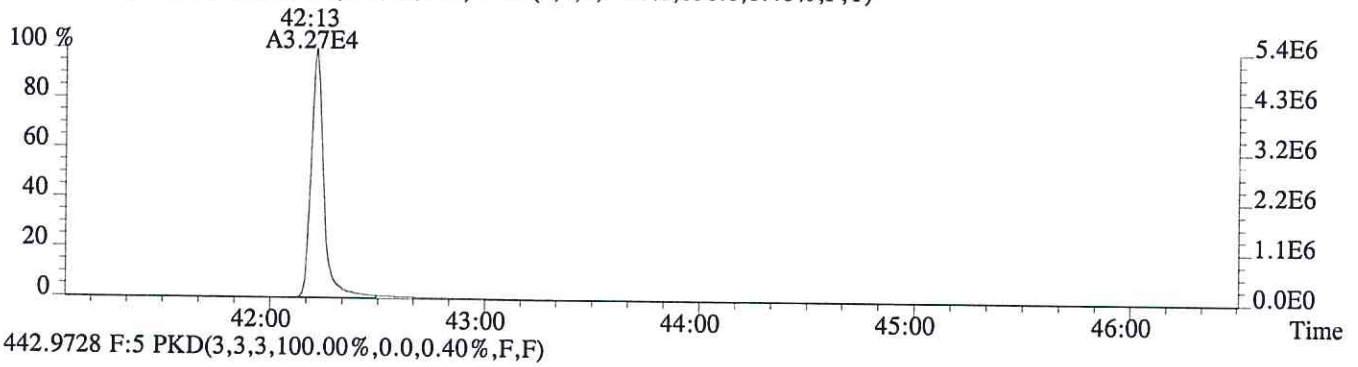
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



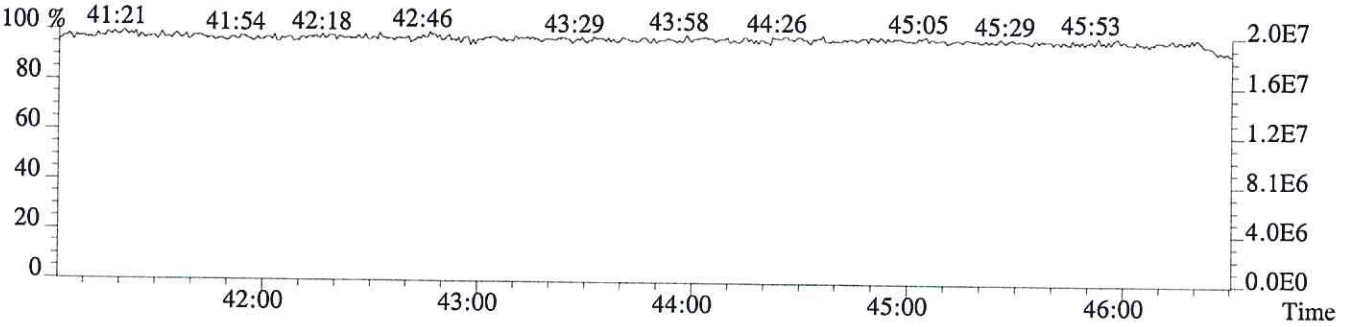
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,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 P402428 Samp: 1 Inj: 1 Acquired: 28-APR-16 14:11:09
Processed: 28-APR-16 16:59:49 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:21	2.634e+03	3.534e+03	0.75	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	32:29	2.176e+04	1.392e+04	1.56	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	33:22	2.014e+04	1.293e+04	1.56	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	36:00	1.679e+04	1.378e+04	1.22	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	36:06	1.825e+04	1.478e+04	1.23	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	36:36	1.662e+04	1.337e+04	1.24	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	37:20	1.468e+04	1.210e+04	1.21	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	1.407e+04	1.400e+04	1.01	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	1.189e+04	1.161e+04	1.02	yes	no	1.187
10	Unk	OCDF	42:26	1.853e+04	2.073e+04	0.89	yes	no	1.035
11	Unk	2,3,7,8-TCDD	29:07	2.516e+03	3.445e+03	0.73	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	33:39	1.628e+04	1.040e+04	1.56	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	36:44	1.329e+04	1.074e+04	1.24	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	36:48	1.372e+04	1.105e+04	1.24	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	37:03	1.422e+04	1.170e+04	1.22	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	1.130e+04	1.087e+04	1.04	yes	no	0.882
17	Unk	OCDD	42:13	1.706e+04	1.968e+04	0.87	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	28:20	3.661e+04	4.769e+04	0.77	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	32:28	4.893e+04	3.170e+04	1.54	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	33:21	4.793e+04	3.086e+04	1.55	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:59	1.838e+04	3.660e+04	0.50	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	36:06	2.145e+04	4.233e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	36:35	1.957e+04	3.896e+04	0.50	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.707e+04	3.402e+04	0.50	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	1.368e+04	3.135e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	1.207e+04	2.767e+04	0.44	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	29:06	3.165e+04	4.058e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	33:38	4.073e+04	2.598e+04	1.57	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	36:43	2.995e+04	2.400e+04	1.25	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	36:48	3.088e+04	2.502e+04	1.23	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	2.516e+04	2.408e+04	1.04	yes	no	0.817
32	IS	13C-OCDD	42:12	3.560e+04	3.981e+04	0.89	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	28:33	3.300e+04	4.202e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:02	3.195e+04	2.720e+04	1.17	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	6.959e+03				no	0.958

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P402428 Samp: 1 Inj: 1 Acquired: 28-APR-16 14:11:09
Processed: 28-APR-16 16:59:491 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	5.38e+05	3.80e+02	1.4e+03	7.04e+05	9.20e+02	7.7e+02
2	1,2,3,7,8-PeCDF	4.26e+06	5.16e+02	8.3e+03	2.71e+06	1.71e+03	1.6e+03
3	2,3,4,7,8-PeCDF	4.15e+06	5.16e+02	8.0e+03	2.66e+06	1.71e+03	1.6e+03
4	1,2,3,4,7,8-HxCDF	3.76e+06	4.80e+02	7.8e+03	3.09e+06	3.56e+02	8.7e+03
5	1,2,3,6,7,8-HxCDF	3.84e+06	4.80e+02	8.0e+03	3.11e+06	3.56e+02	8.7e+03
6	2,3,4,6,7,8-HxCDF	3.67e+06	4.80e+02	7.7e+03	2.94e+06	3.56e+02	8.3e+03
7	1,2,3,7,8,9-HxCDF	3.05e+06	4.80e+02	6.4e+03	2.46e+06	3.56e+02	6.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.05e+06	1.40e+03	2.2e+03	3.01e+06	7.16e+02	4.2e+03
9	1,2,3,4,7,8,9-HpCDF	2.27e+06	1.40e+03	1.6e+03	2.25e+06	7.16e+02	3.1e+03
10	OCDF	3.15e+06	3.08e+02	1.0e+04	3.40e+06	8.28e+02	4.1e+03
11	2,3,7,8-TCDD	5.26e+05	6.00e+02	8.8e+02	7.23e+05	7.68e+02	9.4e+02
12	1,2,3,7,8-PeCDD	3.38e+06	8.64e+02	3.9e+03	2.16e+06	4.28e+02	5.0e+03
13	1,2,3,4,7,8-HxCDD	3.05e+06	7.20e+02	4.2e+03	2.43e+06	7.80e+02	3.1e+03
14	1,2,3,6,7,8-HxCDD	2.86e+06	7.20e+02	4.0e+03	2.32e+06	7.80e+02	3.0e+03
15	1,2,3,7,8,9-HxCDD	2.84e+06	7.20e+02	3.9e+03	2.29e+06	7.80e+02	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	2.20e+06	6.00e+02	3.7e+03	2.09e+06	9.40e+02	2.2e+03
17	OCDD	2.90e+06	2.36e+02	1.2e+04	3.32e+06	4.80e+02	6.9e+03
18	13C-2,3,7,8-TCDF	7.40e+06	2.07e+03	3.6e+03	9.55e+06	1.53e+03	6.2e+03
19	13C-1,2,3,7,8-PeCDF	9.24e+06	2.92e+02	3.2e+04	6.04e+06	7.28e+02	8.3e+03
20	13C-2,3,4,7,8-PeCDF	9.70e+06	2.92e+02	3.3e+04	6.25e+06	7.28e+02	8.6e+03
21	13C-1,2,3,4,7,8-HxCDF	4.10e+06	7.28e+02	5.6e+03	8.16e+06	8.04e+02	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	4.51e+06	7.28e+02	6.2e+03	8.85e+06	8.04e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	4.28e+06	7.28e+02	5.9e+03	8.47e+06	8.04e+02	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	3.56e+06	7.28e+02	4.9e+03	6.94e+06	8.04e+02	8.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.96e+06	2.95e+03	1.0e+03	6.74e+06	1.98e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.31e+06	2.95e+03	7.8e+02	5.26e+06	1.98e+03	2.6e+03
27	13C-2,3,7,8-TCDD	6.62e+06	4.98e+03	1.3e+03	8.42e+06	2.69e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	8.24e+06	6.92e+02	1.2e+04	5.19e+06	5.44e+02	9.5e+03
29	13C-1,2,3,4,7,8-HxCDD	6.78e+06	1.81e+03	3.7e+03	5.42e+06	1.12e+03	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	6.33e+06	1.81e+03	3.5e+03	5.24e+06	1.12e+03	4.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.79e+06	6.92e+02	6.9e+03	4.64e+06	1.37e+03	3.4e+03
32	13C-OCDD	5.95e+06	6.32e+02	9.4e+03	6.73e+06	9.96e+02	6.8e+03
33	13C-1,2,3,4-TCDD	6.79e+06	4.98e+03	1.4e+03	8.56e+06	2.69e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	6.48e+06	1.81e+03	3.6e+03	5.32e+06	1.12e+03	4.7e+03
35	37Cl-2,3,7,8-TCDD	1.49e+06	1.34e+03	1.1e+03			

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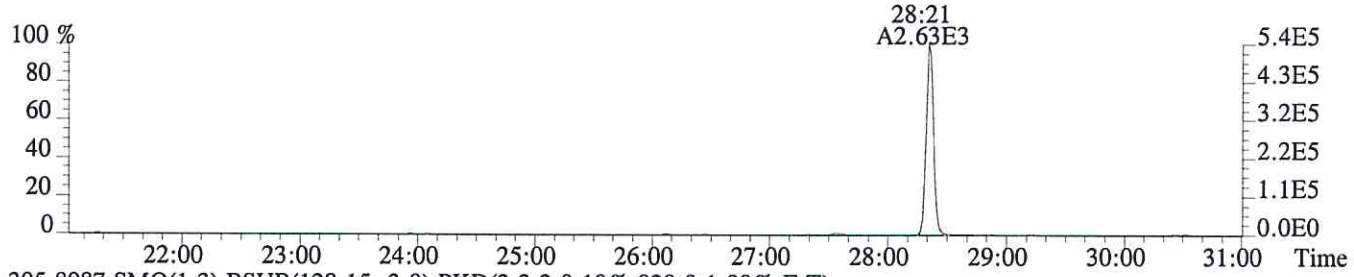
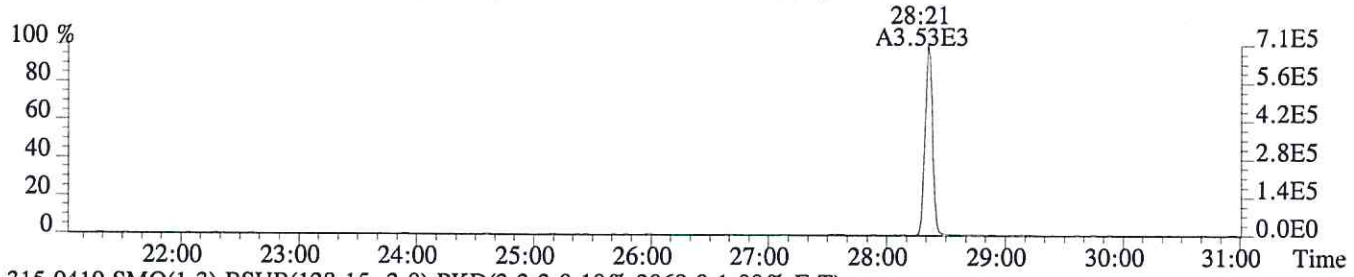
File:P402428 #1-684 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

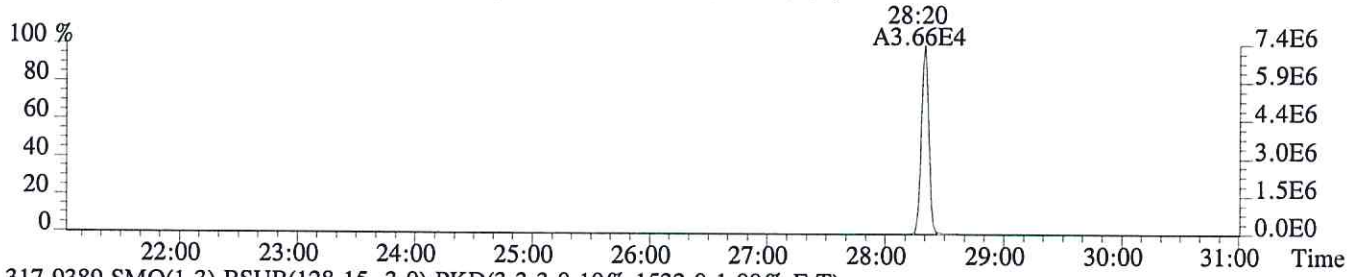
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



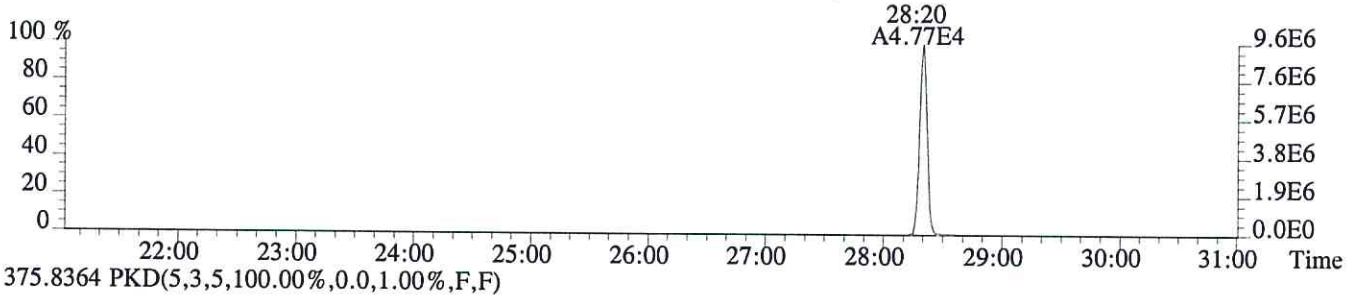
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



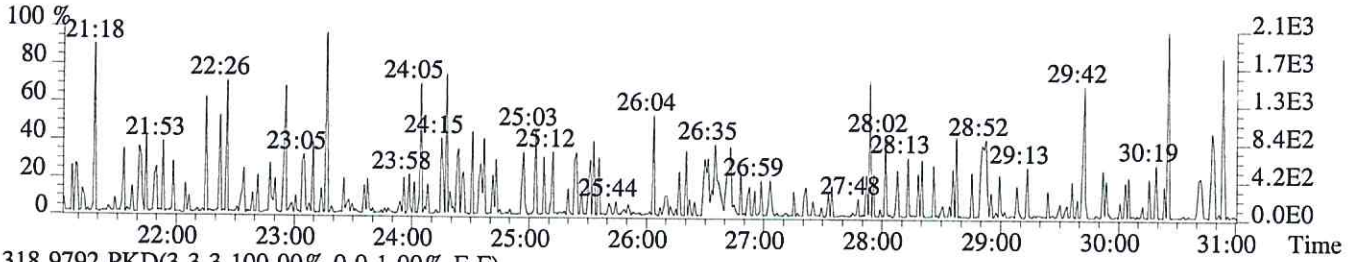
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



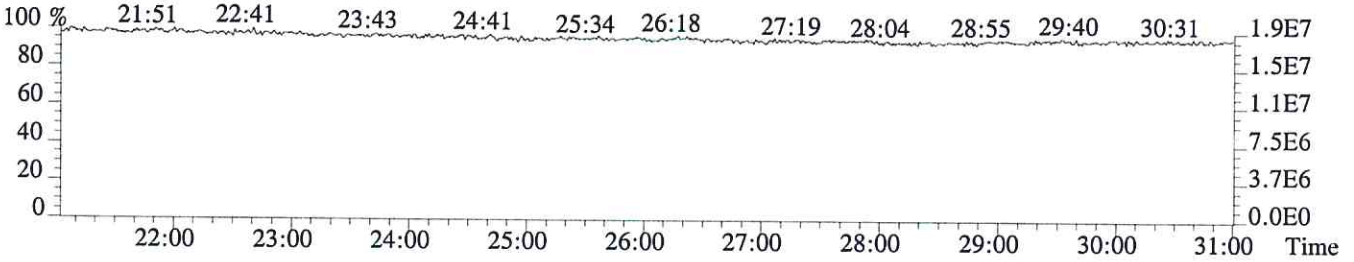
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



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

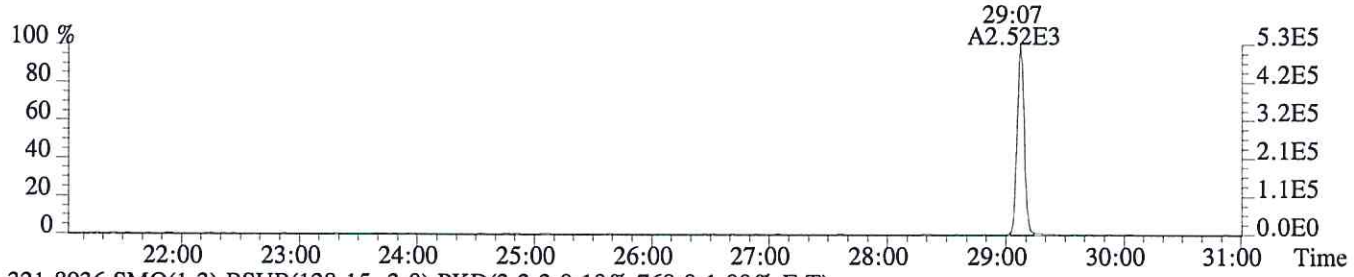


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

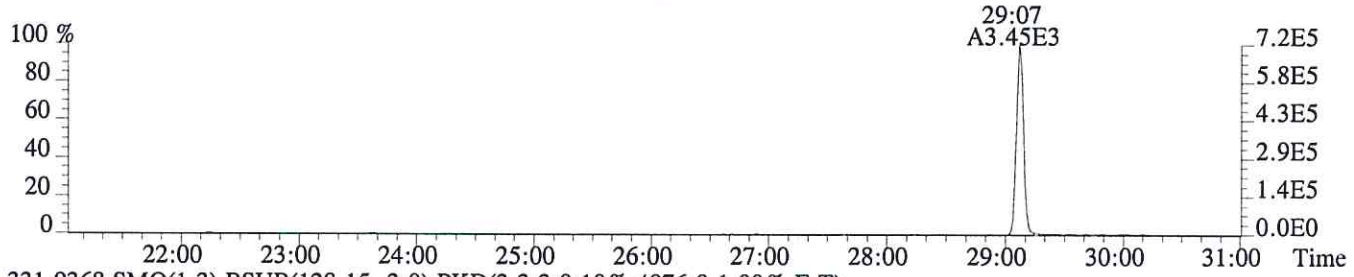


File:P402428 #1-684 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

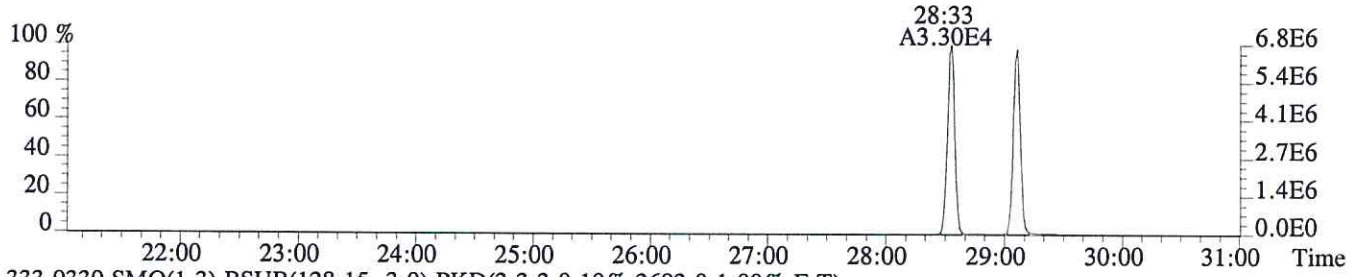
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



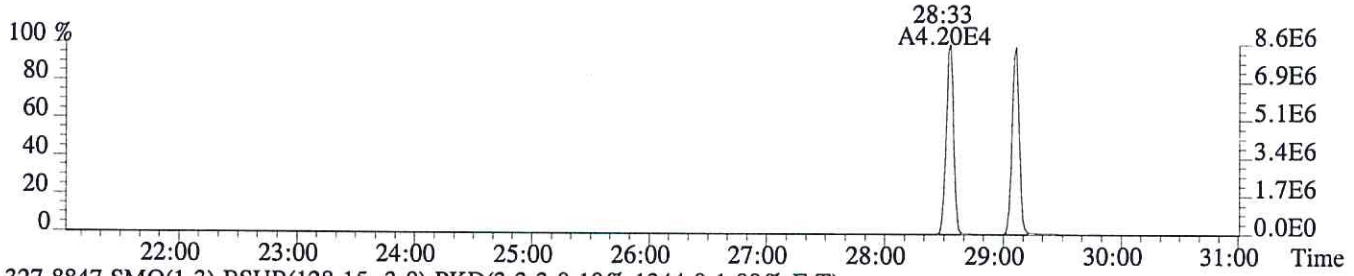
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



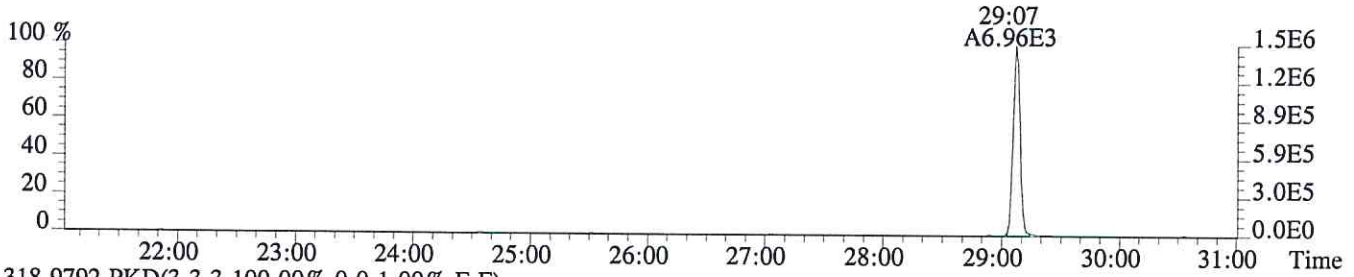
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4976.0,1.00%,F,T)



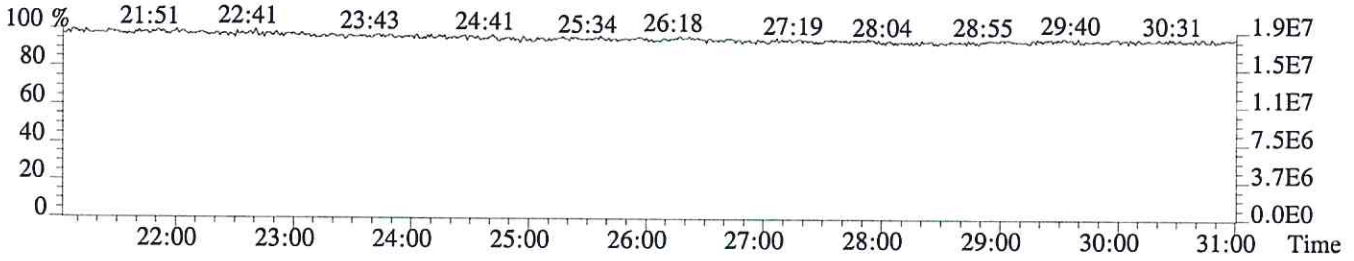
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2692.0,1.00%,F,T)



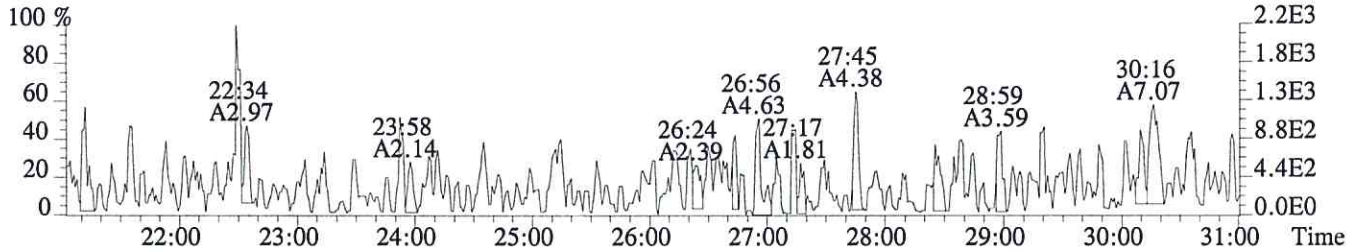
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1344.0,1.00%,F,T)



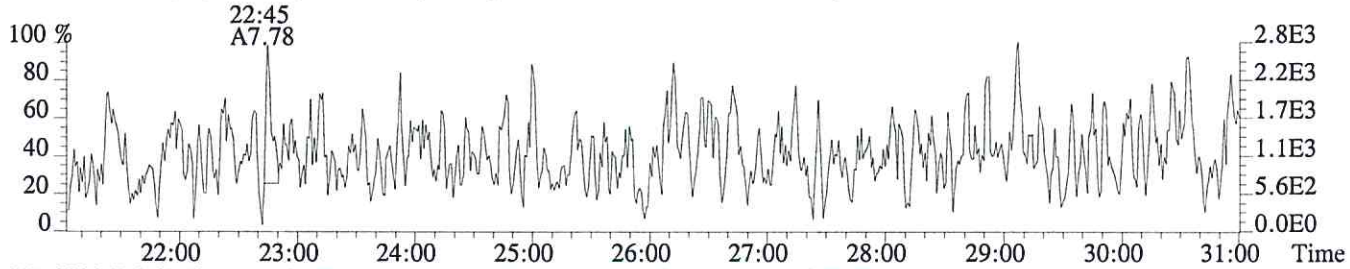
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



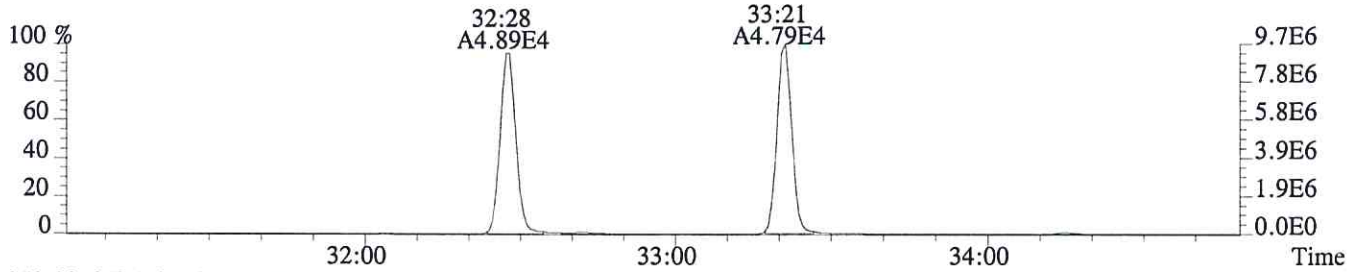
File:P402428 #1-684 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



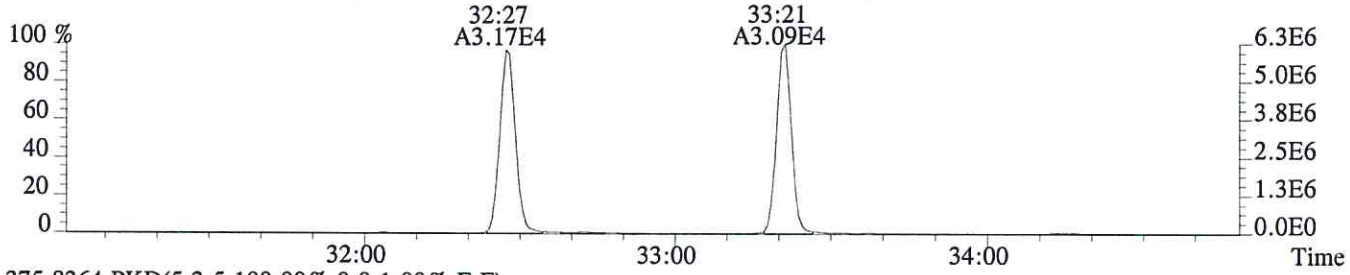
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



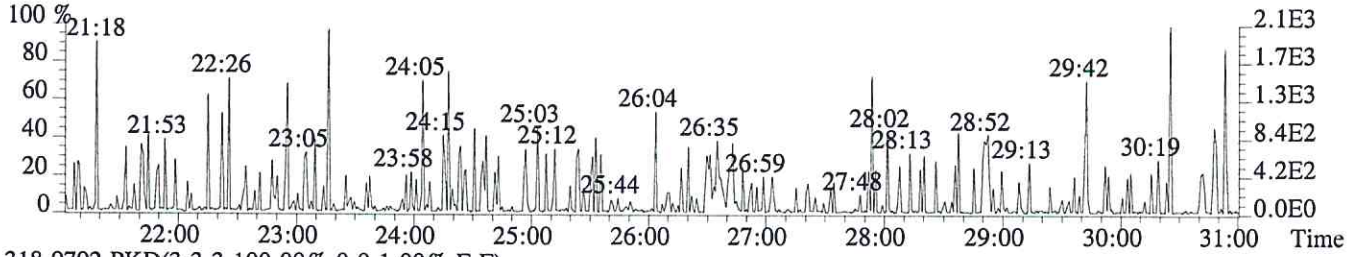
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



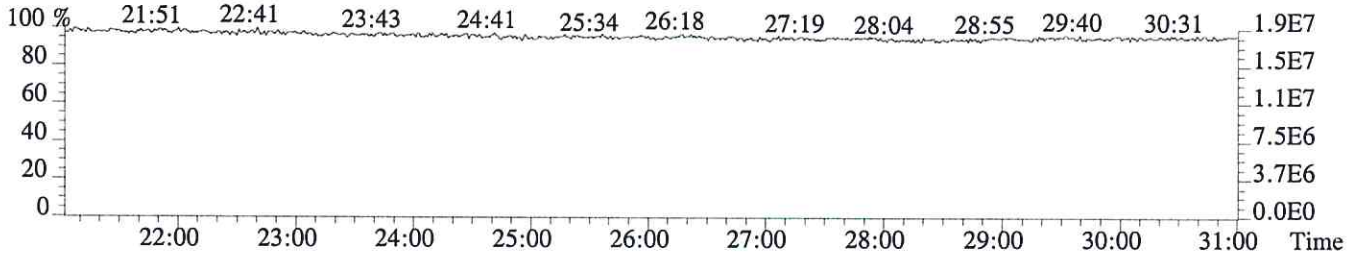
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



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

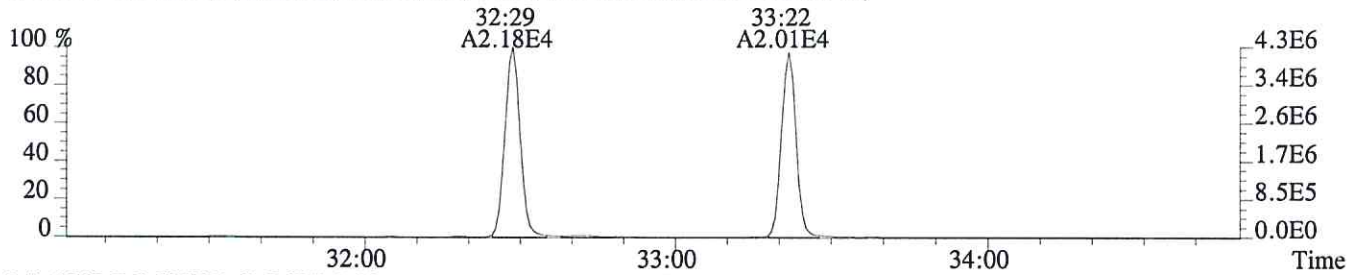


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

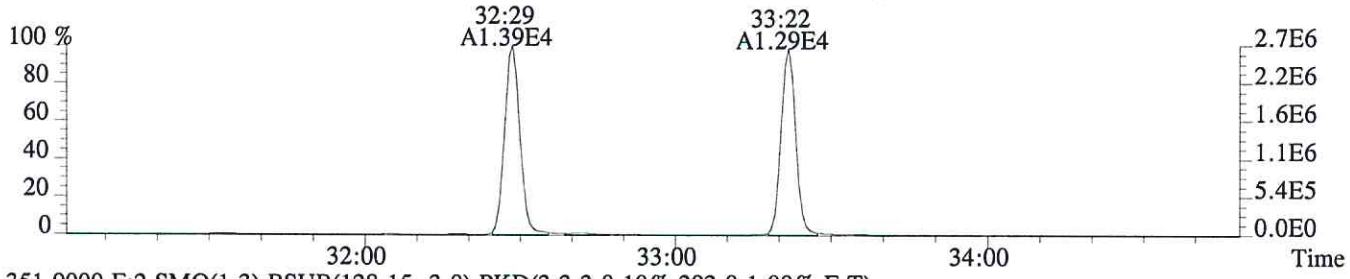


File:P402428 #1-340 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

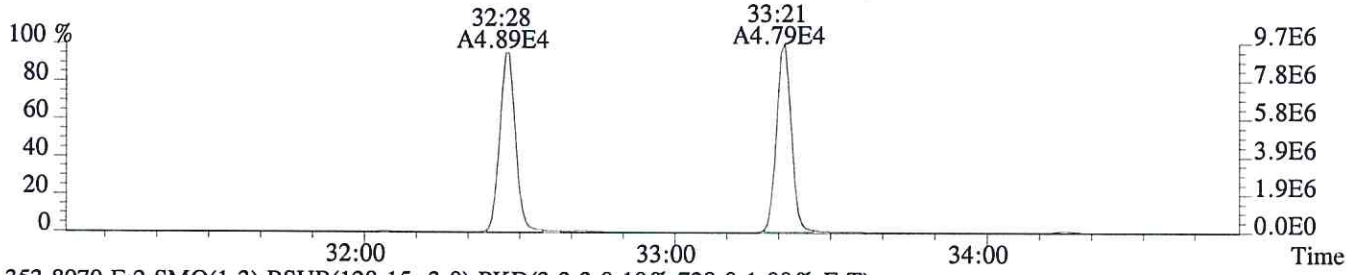
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



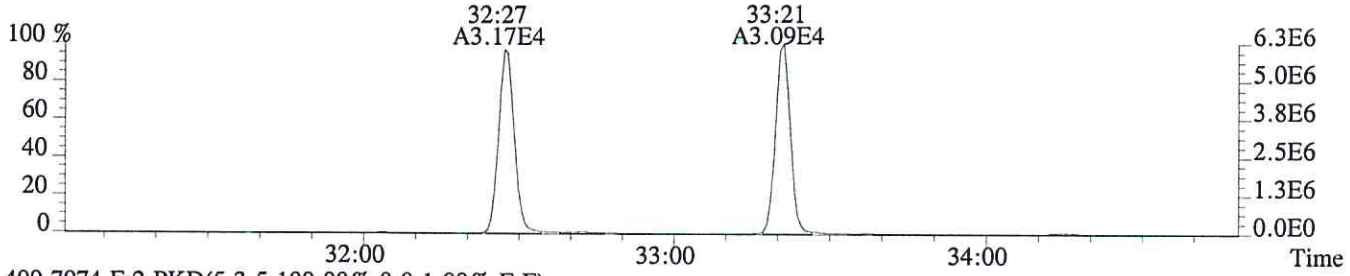
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



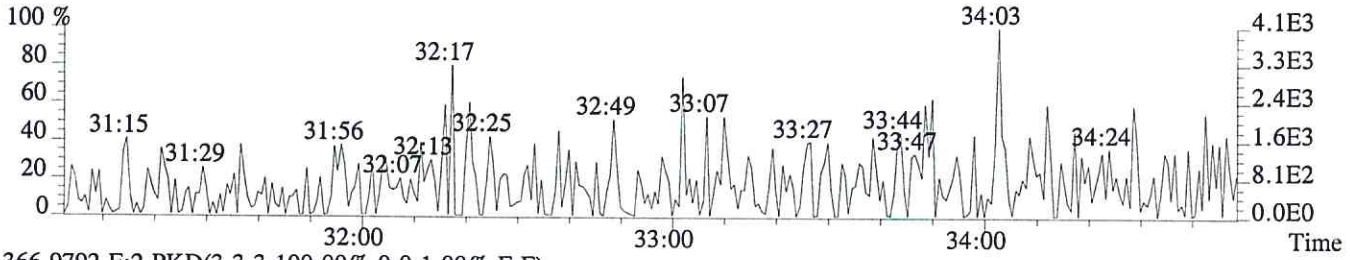
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



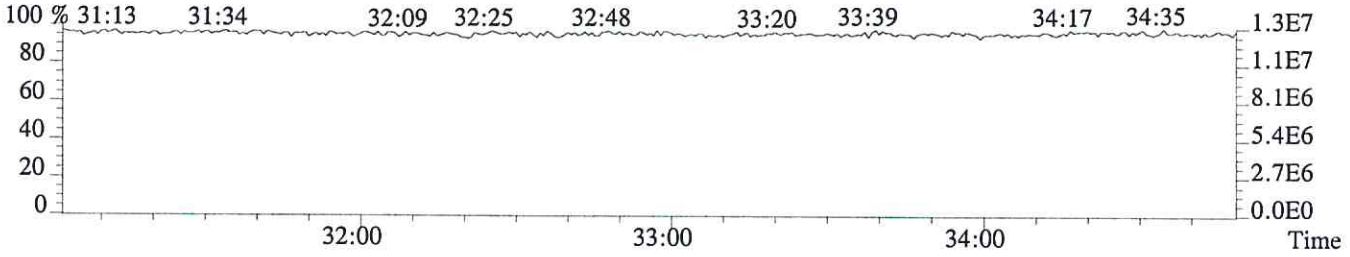
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



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

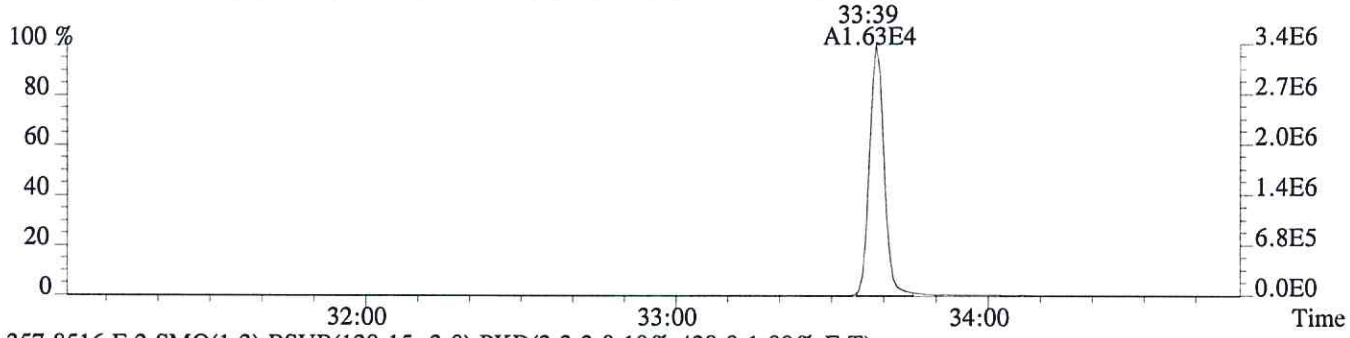


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

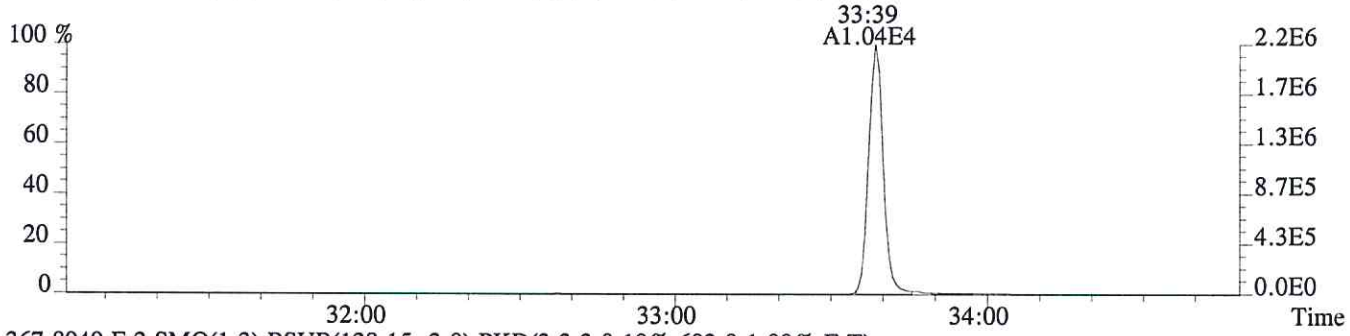


File:P402428 #1-340 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

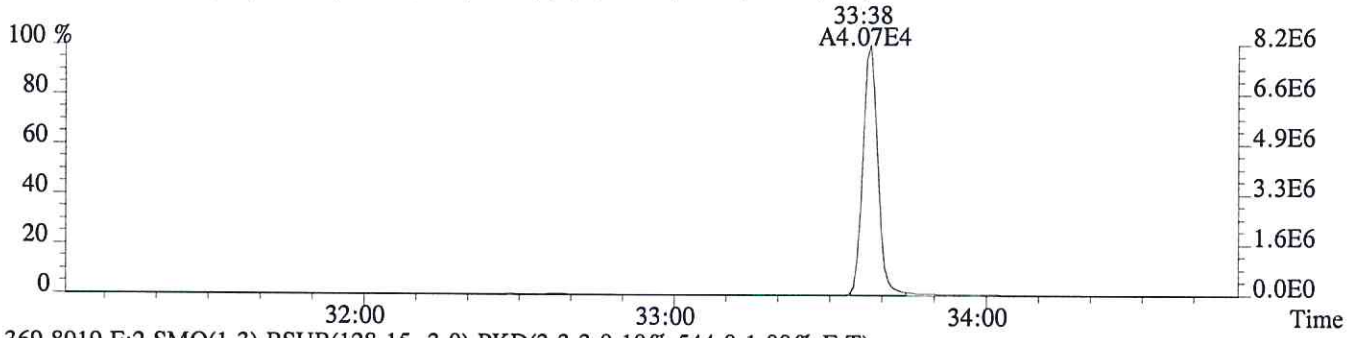
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



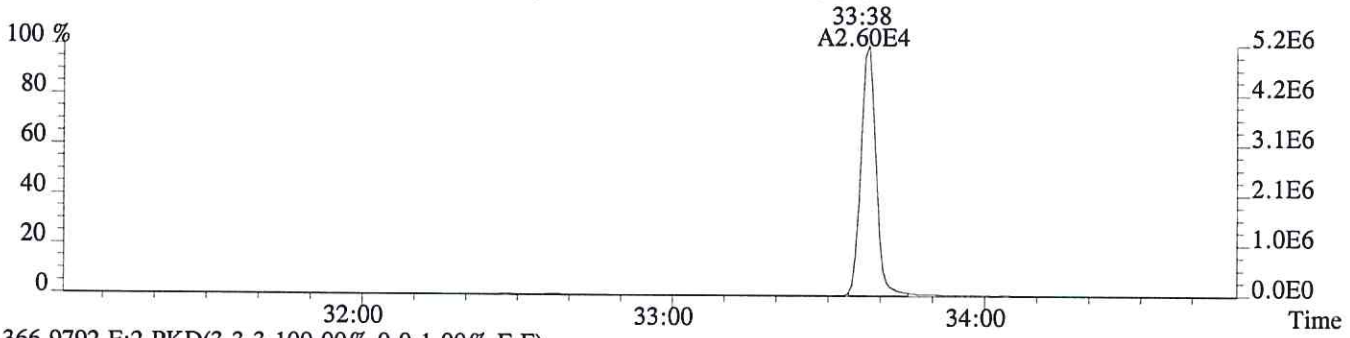
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



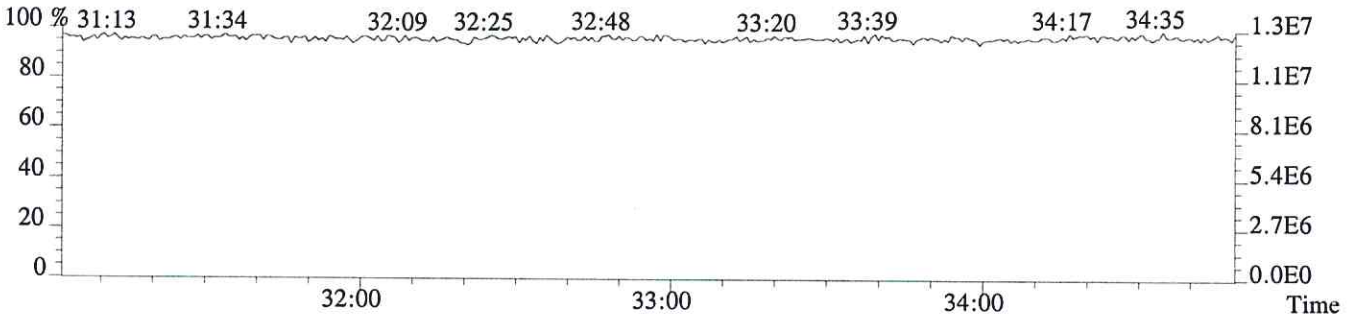
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)

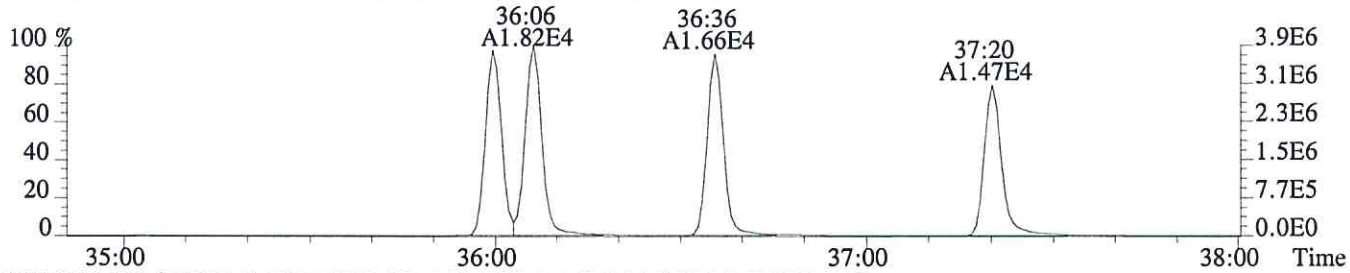


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

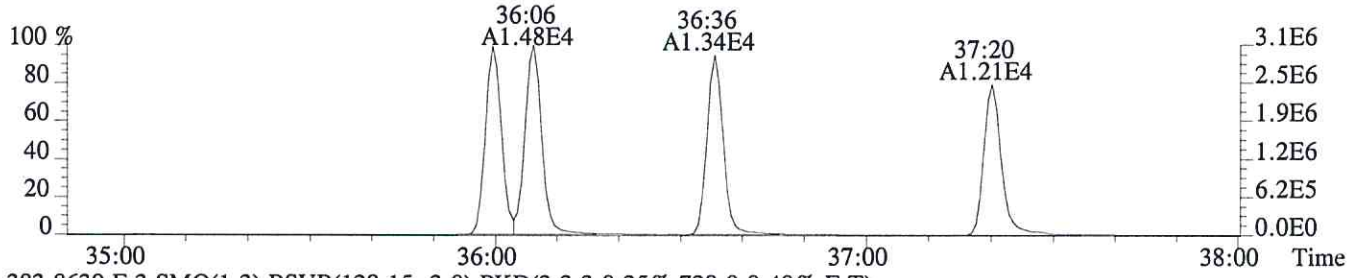


File:P402428 #1-285 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

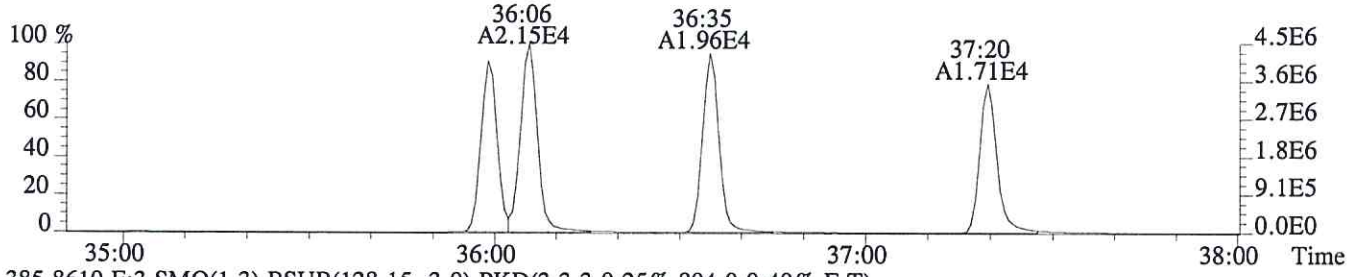
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



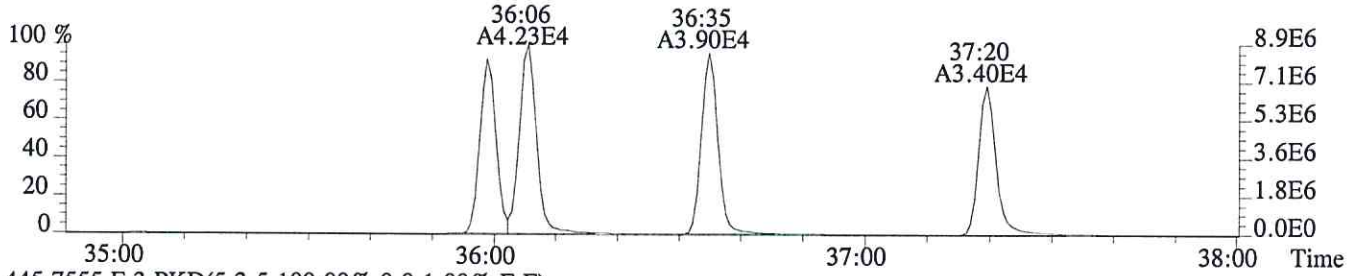
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.40%,F,T)



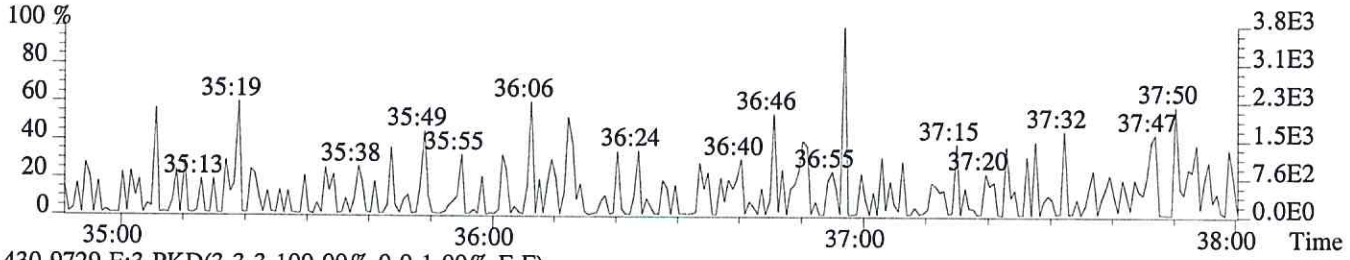
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



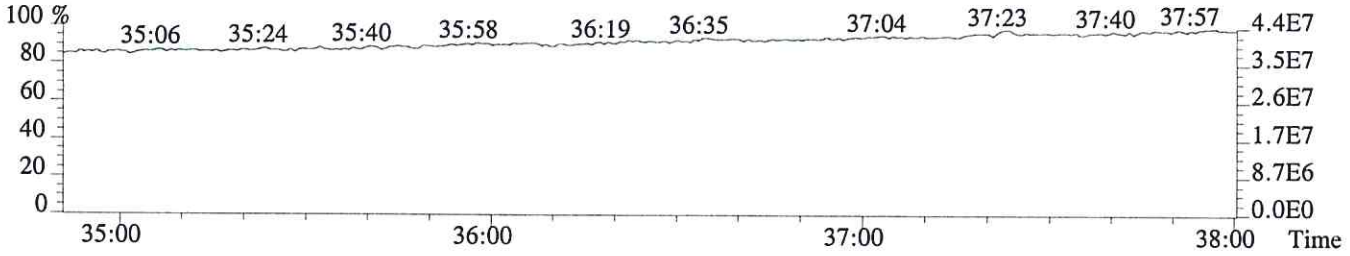
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



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

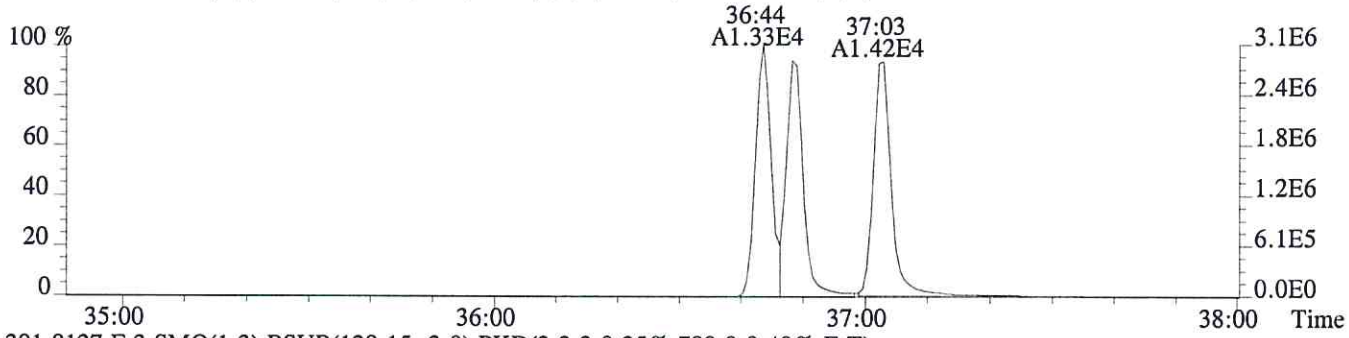


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

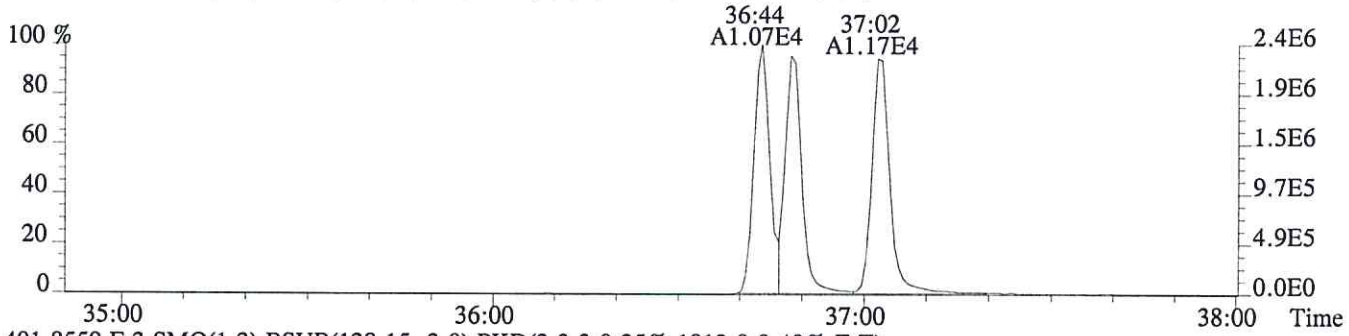


File:P402428 #1-285 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

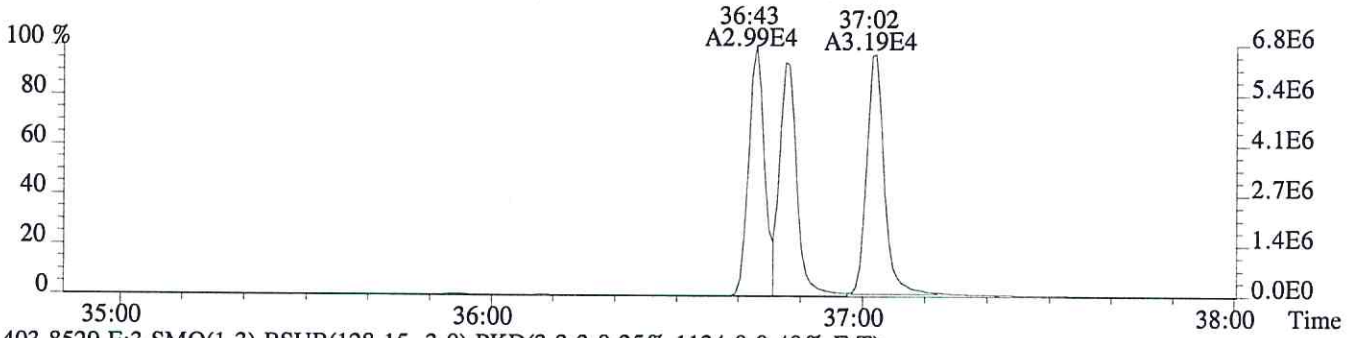
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



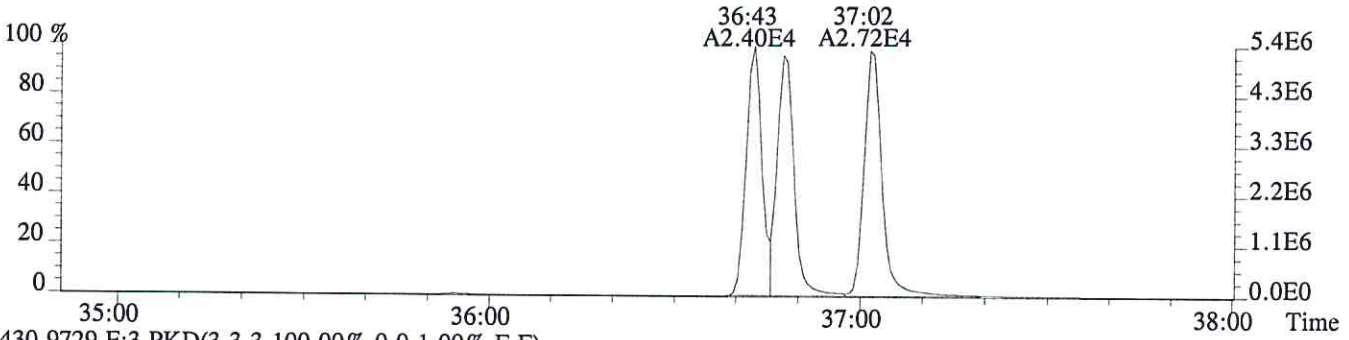
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



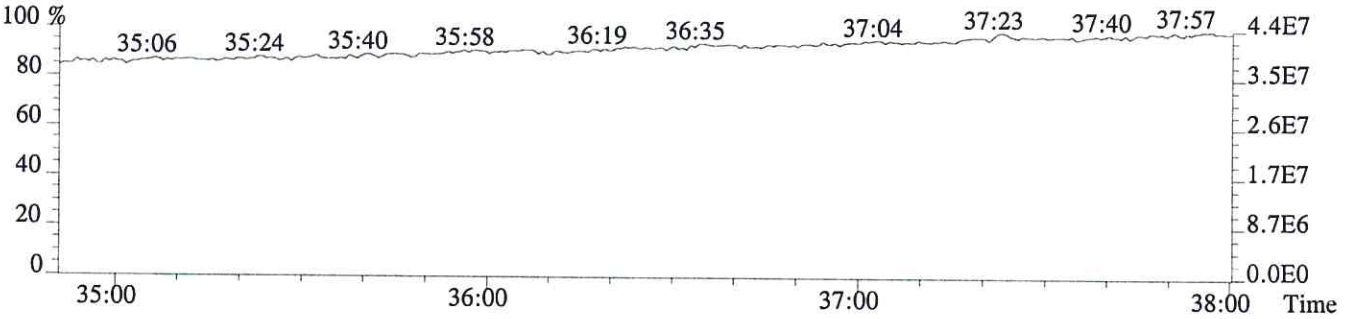
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)

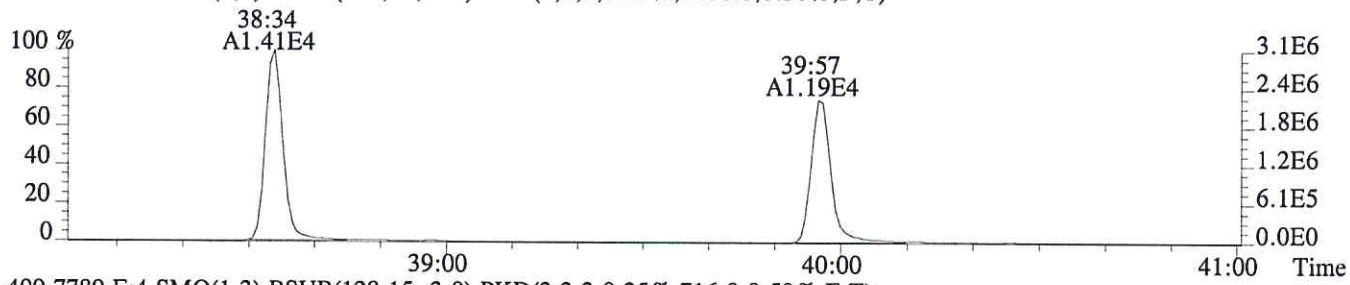


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

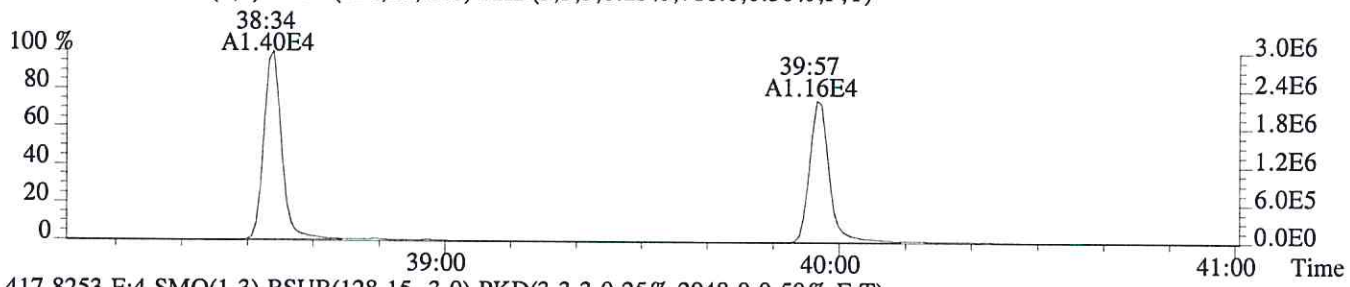


File:P402428 #1-268 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

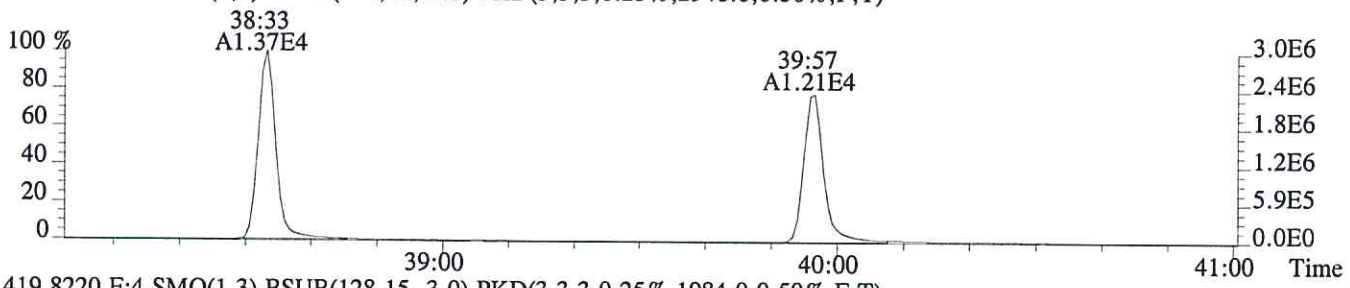
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.50%,F,T)



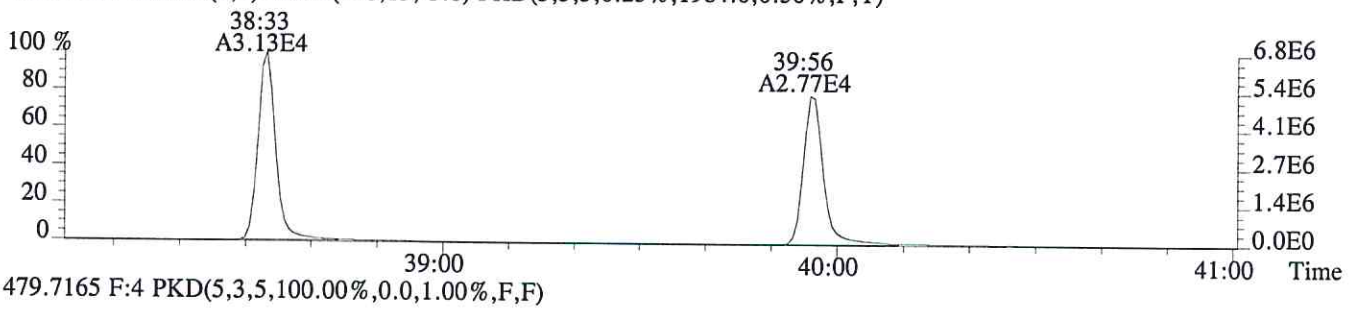
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.50%,F,T)



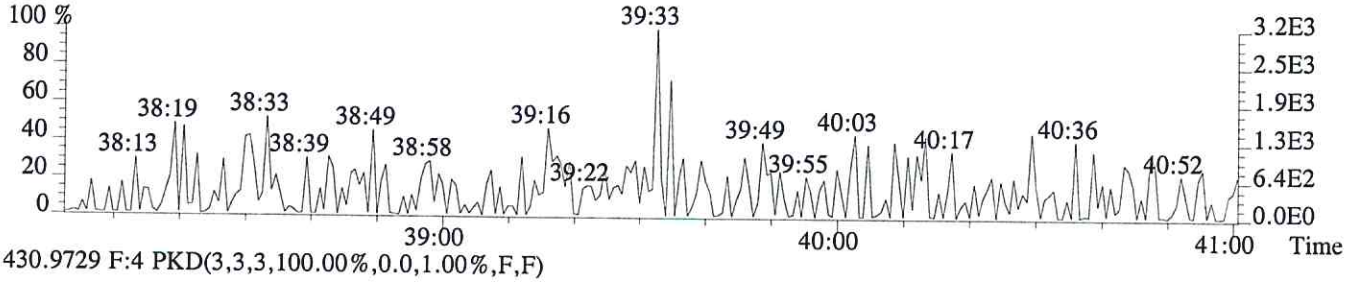
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2948.0,0.50%,F,T)



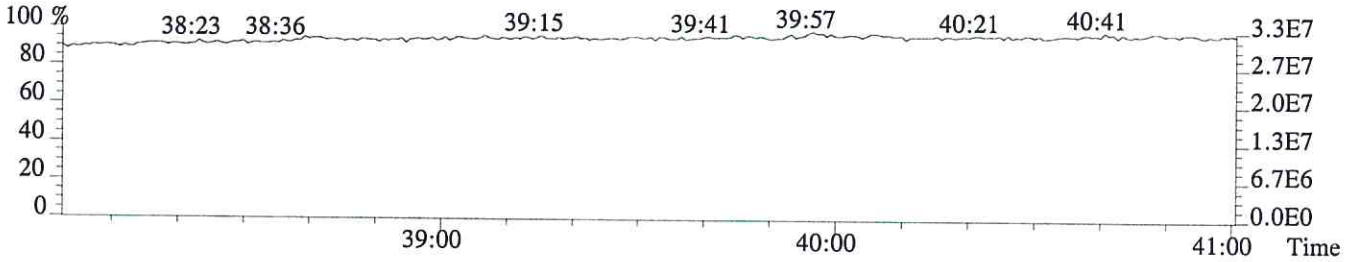
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1984.0,0.50%,F,T)



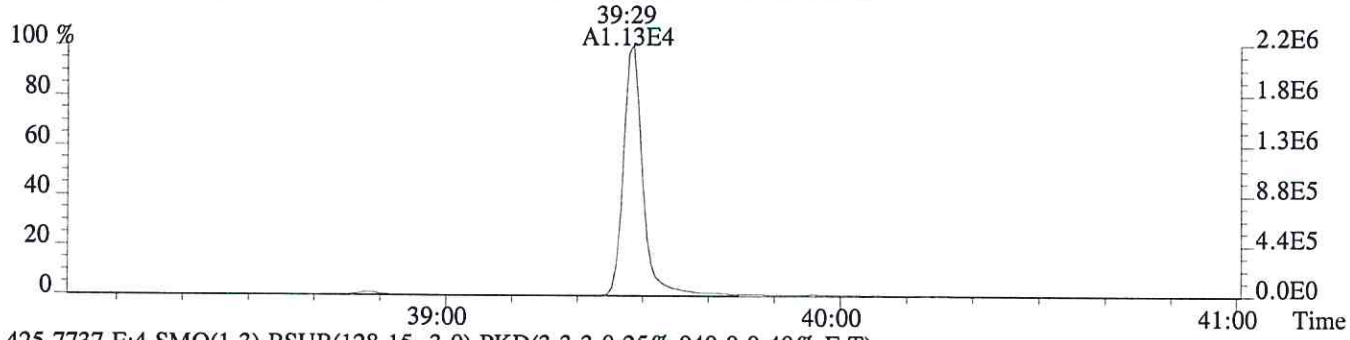
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



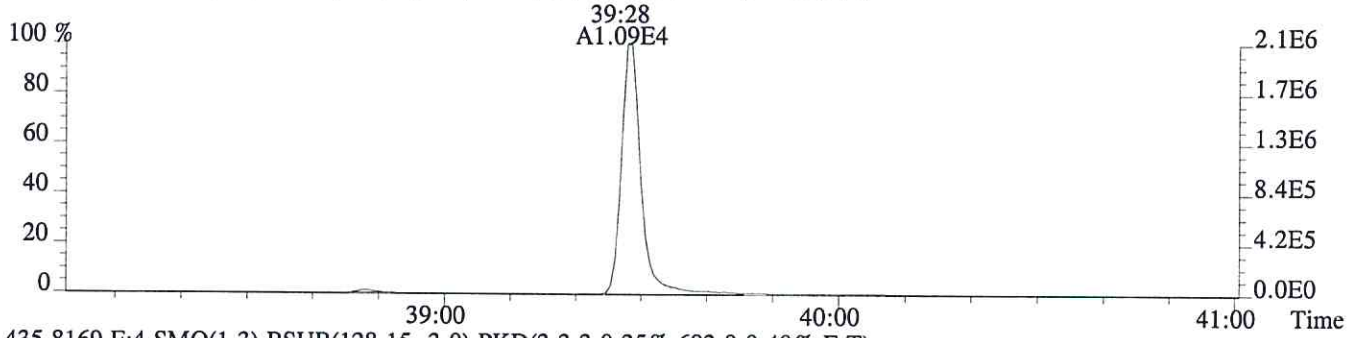
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



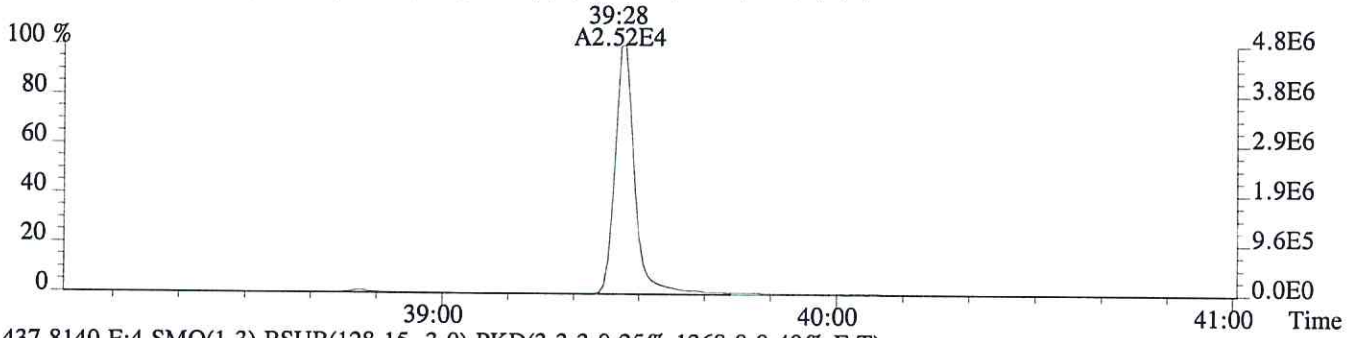
File:P402428 #1-268 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



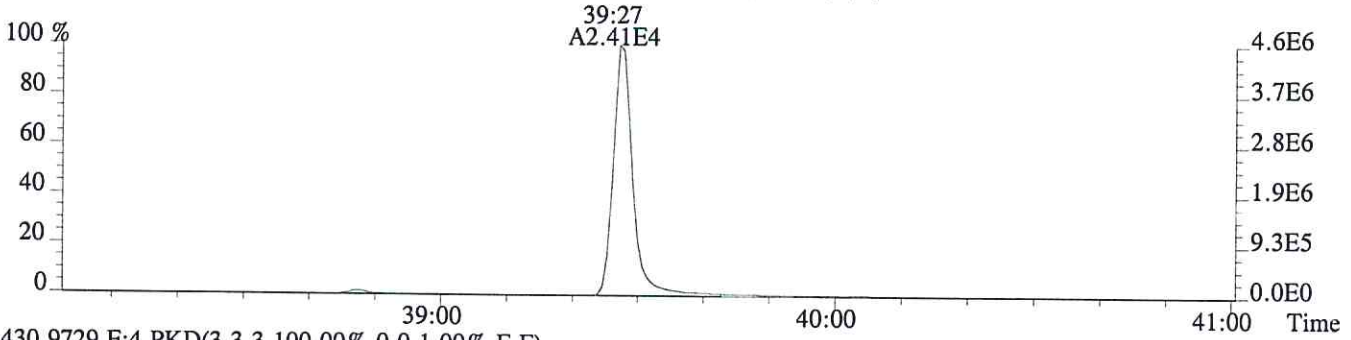
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



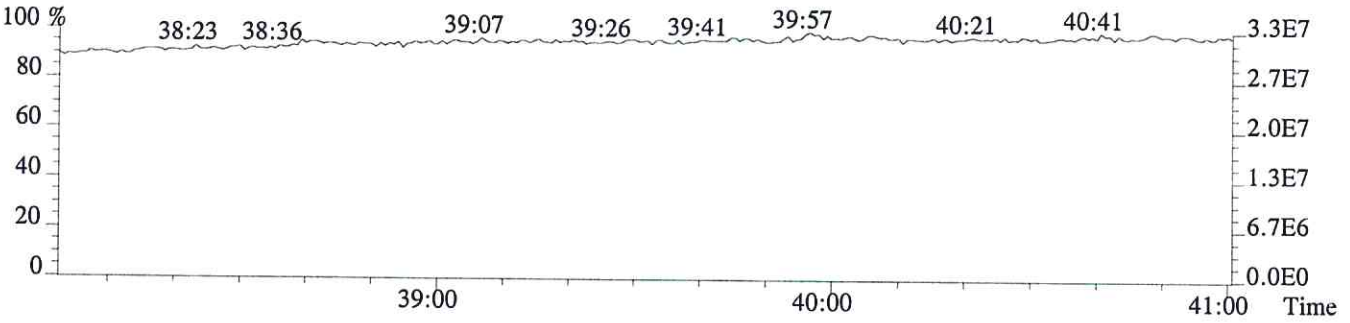
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)

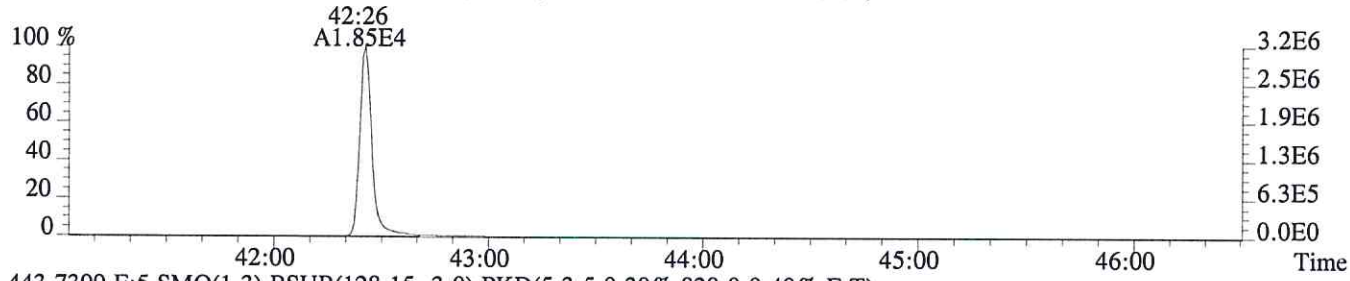


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

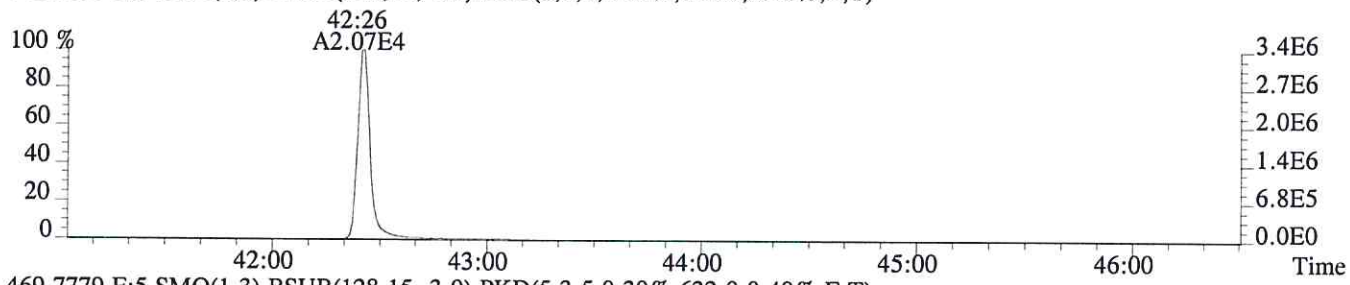


File:P402428 #1-492 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

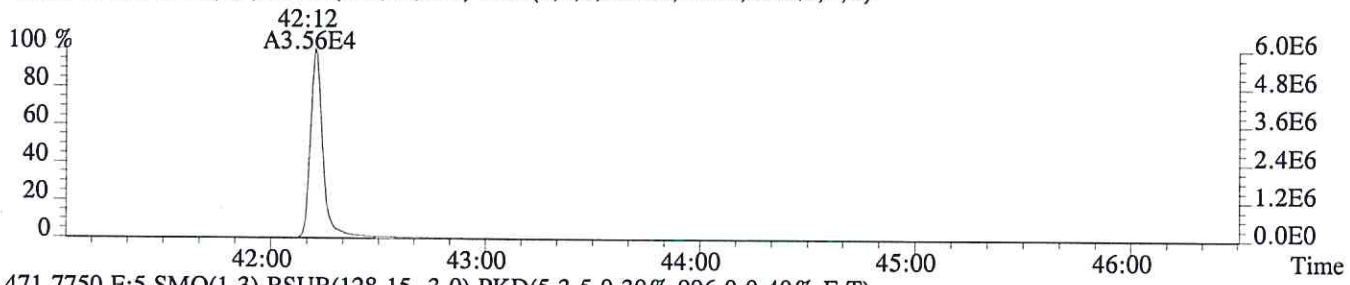
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



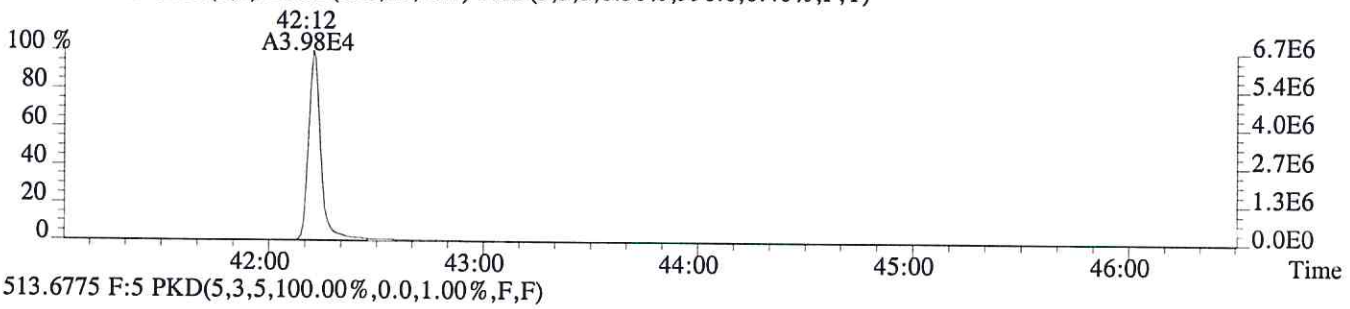
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



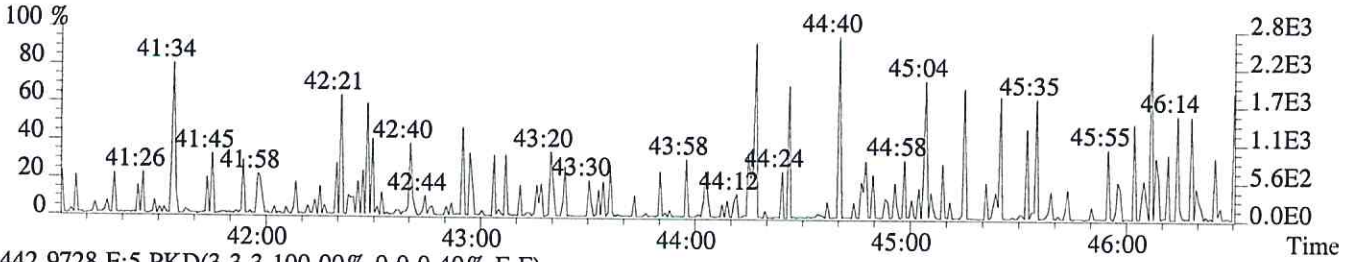
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



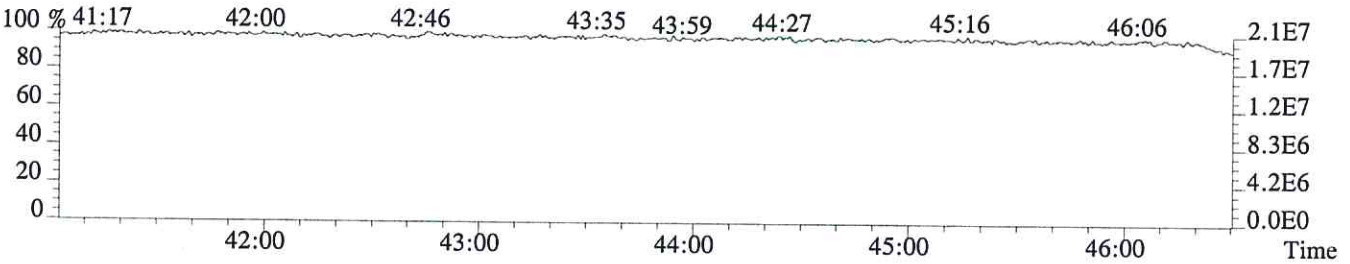
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,996.0,0.40%,F,T)



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

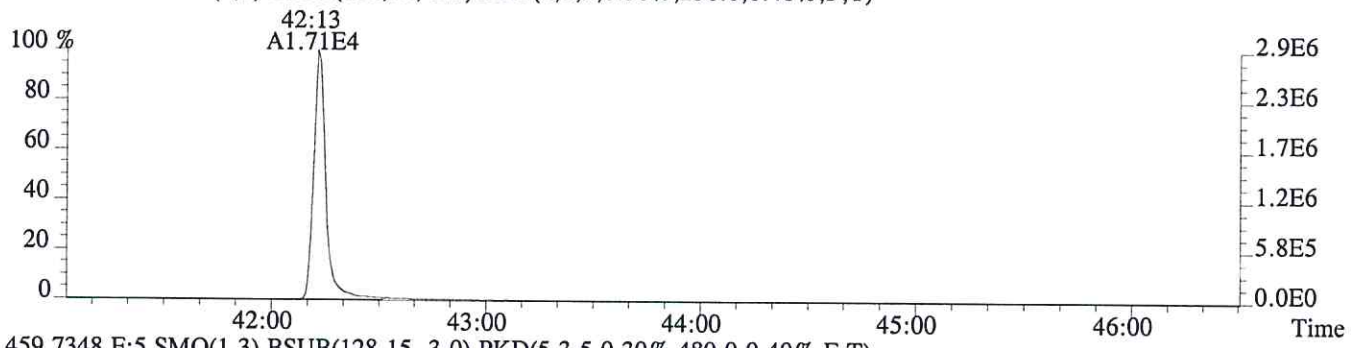


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

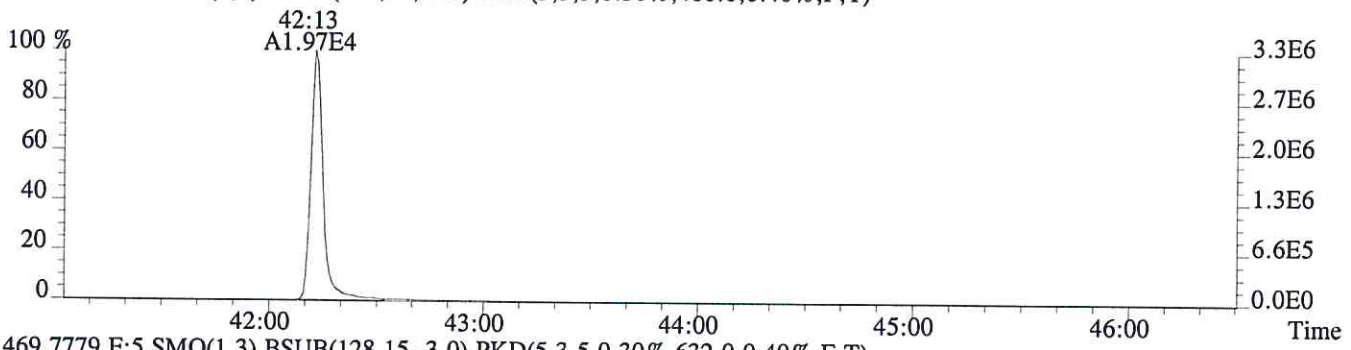


File:P402428 #1-492 Acq:28-APR-2016 14:11:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76557

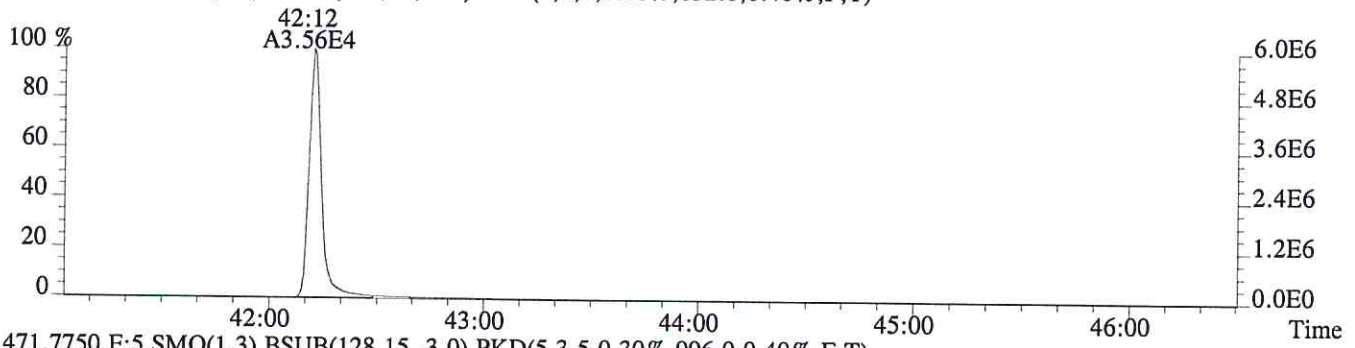
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



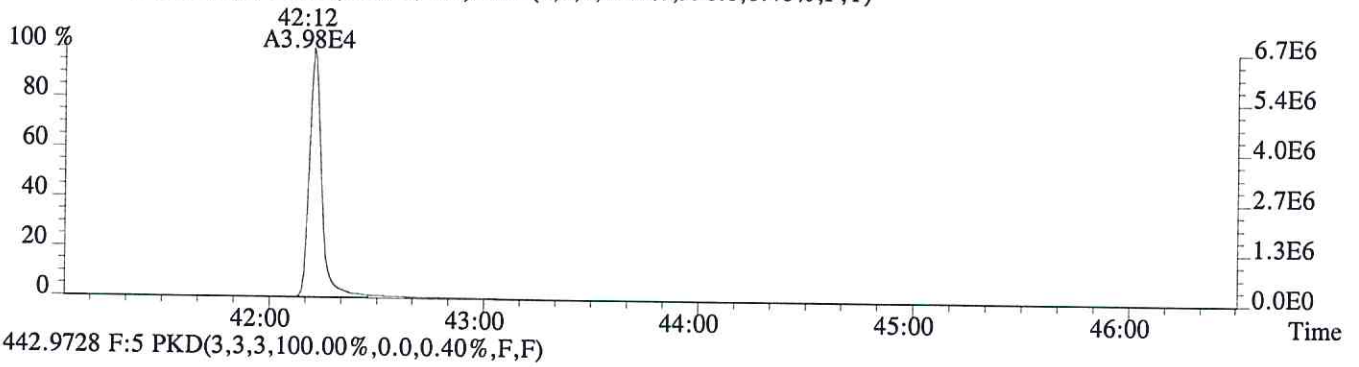
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



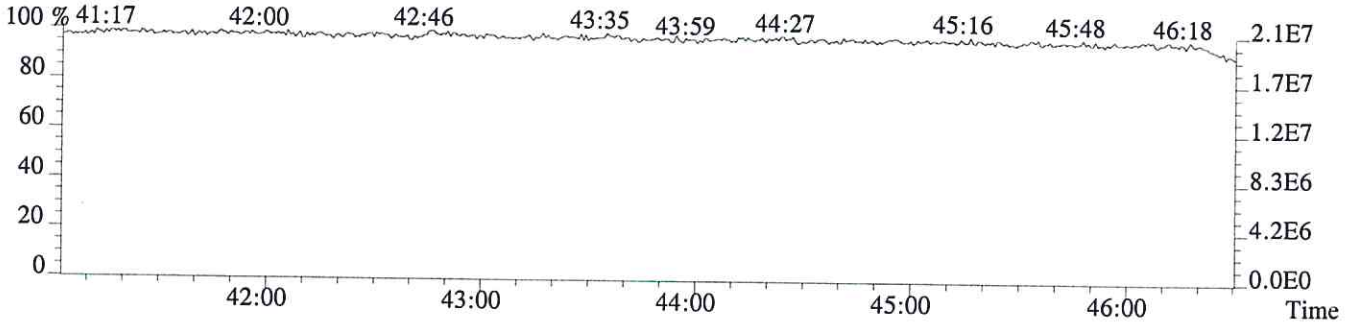
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,996.0,0.40%,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 P402429 Samp: 1 Inj: 1 Acquired: 28-APR-16 15:00:19
Processed: 28-APR-16 16:59:49 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:21	9.716e+03	1.293e+04	0.75	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	32:29	7.677e+04	4.995e+04	1.54	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	33:22	7.119e+04	4.606e+04	1.55	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	36:00	5.848e+04	4.824e+04	1.21	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	36:06	6.453e+04	5.245e+04	1.23	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	36:36	5.851e+04	4.726e+04	1.24	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	37:20	5.286e+04	4.311e+04	1.23	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	5.142e+04	5.052e+04	1.02	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	4.363e+04	4.227e+04	1.03	yes	no	1.187
10	Unk	OCDF	42:26	6.887e+04	7.671e+04	0.90	yes	no	1.035
11	Unk	2,3,7,8-TCDD	29:07	9.054e+03	1.211e+04	0.75	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	33:39	5.736e+04	3.738e+04	1.53	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	36:44	4.716e+04	3.858e+04	1.22	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	36:49	4.983e+04	4.039e+04	1.23	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	37:03	5.106e+04	4.216e+04	1.21	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	4.028e+04	3.985e+04	1.01	yes	no	0.882
17	Unk	OCDD	42:14	6.340e+04	7.272e+04	0.87	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	28:20	3.078e+04	4.027e+04	0.76	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	32:28	4.162e+04	2.690e+04	1.55	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	33:21	4.112e+04	2.637e+04	1.56	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:59	1.574e+04	3.095e+04	0.51	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	36:06	1.843e+04	3.617e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	36:35	1.687e+04	3.321e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.495e+04	2.933e+04	0.51	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	1.179e+04	2.705e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	1.053e+04	2.457e+04	0.43	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	29:06	2.666e+04	3.407e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.488e+04	2.227e+04	1.57	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	36:43	2.558e+04	2.067e+04	1.24	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	36:48	2.695e+04	2.150e+04	1.25	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	2.207e+04	2.129e+04	1.04	yes	no	0.817
32	IS	13C-OCDD	42:13	3.189e+04	3.572e+04	0.89	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	28:33	2.740e+04	3.511e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:02	2.890e+04	2.329e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	2.453e+04				no	0.958

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P402429 Samp: 1 Inj: 1 Acquired: 28-APR-16 15:00:19
Processed: 28-APR-16 16:59:491 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	1.93e+06	5.20e+02	3.7e+03	2.59e+06	9.84e+02	2.6e+03
2	1,2,3,7,8-PeCDF	1.51e+07	7.20e+02	2.1e+04	9.86e+06	1.50e+03	6.6e+03
3	2,3,4,7,8-PeCDF	1.48e+07	7.20e+02	2.1e+04	9.65e+06	1.50e+03	6.4e+03
4	1,2,3,4,7,8-HxCDF	1.26e+07	8.68e+02	1.5e+04	1.05e+07	3.08e+02	3.4e+04
5	1,2,3,6,7,8-HxCDF	1.35e+07	8.68e+02	1.6e+04	1.11e+07	3.08e+02	3.6e+04
6	2,3,4,6,7,8-HxCDF	1.28e+07	8.68e+02	1.5e+04	1.04e+07	3.08e+02	3.4e+04
7	1,2,3,7,8,9-HxCDF	1.10e+07	8.68e+02	1.3e+04	9.01e+06	3.08e+02	2.9e+04
8	1,2,3,4,6,7,8-HpCDF	1.13e+07	1.49e+03	7.6e+03	1.11e+07	7.03e+03	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.42e+06	1.49e+03	5.6e+03	8.15e+06	7.03e+03	1.2e+03
10	OCDF	1.19e+07	5.52e+02	2.2e+04	1.32e+07	1.05e+03	1.3e+04
11	2,3,7,8-TCDD	1.91e+06	5.92e+02	3.2e+03	2.56e+06	8.72e+02	2.9e+03
12	1,2,3,7,8-PeCDD	1.16e+07	1.11e+03	1.0e+04	7.60e+06	2.96e+02	2.6e+04
13	1,2,3,4,7,8-HxCDD	1.07e+07	1.47e+03	7.3e+03	8.78e+06	4.00e+02	2.2e+04
14	1,2,3,6,7,8-HxCDD	1.04e+07	1.47e+03	7.0e+03	8.40e+06	4.00e+02	2.1e+04
15	1,2,3,7,8,9-HxCDD	1.05e+07	1.47e+03	7.2e+03	8.61e+06	4.00e+02	2.2e+04
16	1,2,3,4,6,7,8-HpCDD	8.20e+06	7.96e+02	1.0e+04	8.01e+06	8.84e+02	9.1e+03
17	OCDD	1.06e+07	4.20e+02	2.5e+04	1.21e+07	5.20e+02	2.3e+04
18	13C-2,3,7,8-TCDF	6.15e+06	2.25e+03	2.7e+03	8.04e+06	1.24e+03	6.5e+03
19	13C-1,2,3,7,8-PeCDF	8.09e+06	4.44e+02	1.8e+04	5.27e+06	4.36e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	8.52e+06	4.44e+02	1.9e+04	5.44e+06	4.36e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	3.45e+06	5.20e+02	6.6e+03	6.83e+06	1.19e+03	5.7e+03
22	13C-1,2,3,6,7,8-HxCDF	3.91e+06	5.20e+02	7.5e+03	7.70e+06	1.19e+03	6.5e+03
23	13C-2,3,4,6,7,8-HxCDF	3.66e+06	5.20e+02	7.0e+03	7.25e+06	1.19e+03	6.1e+03
24	13C-1,2,3,7,8,9-HxCDF	3.06e+06	5.20e+02	5.9e+03	6.09e+06	1.19e+03	5.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.58e+06	3.03e+03	8.5e+02	5.92e+06	3.40e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.04e+06	3.03e+03	6.7e+02	4.73e+06	3.40e+03	1.4e+03
27	13C-2,3,7,8-TCDD	5.61e+06	4.80e+03	1.2e+03	7.16e+06	1.90e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	7.18e+06	5.44e+02	1.3e+04	4.60e+06	4.28e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	5.76e+06	2.27e+03	2.5e+03	4.66e+06	1.61e+03	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	5.63e+06	2.27e+03	2.5e+03	4.45e+06	1.61e+03	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.43e+06	8.28e+02	5.4e+03	4.23e+06	9.48e+02	4.5e+03
32	13C-OCDD	5.37e+06	9.88e+02	5.4e+03	5.95e+06	1.14e+03	5.2e+03
33	13C-1,2,3,4-TCDD	5.68e+06	4.80e+03	1.2e+03	7.18e+06	1.90e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.97e+06	2.27e+03	2.6e+03	4.80e+06	1.61e+03	3.0e+03
35	37Cl-2,3,7,8-TCDD	5.17e+06	1.64e+03	3.1e+03			

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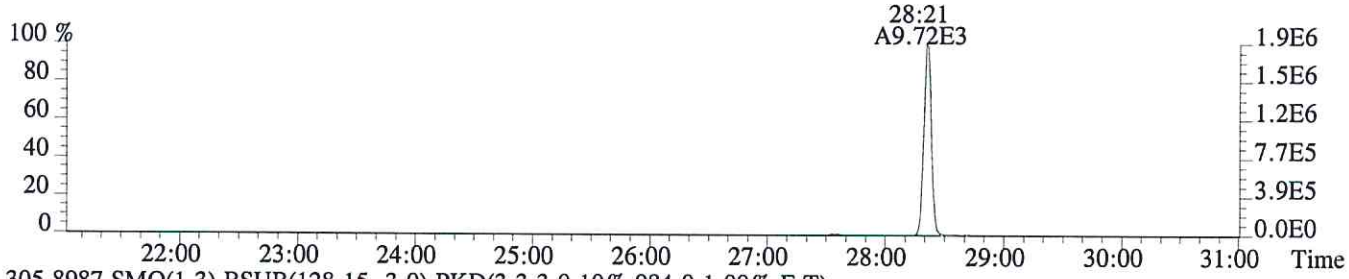
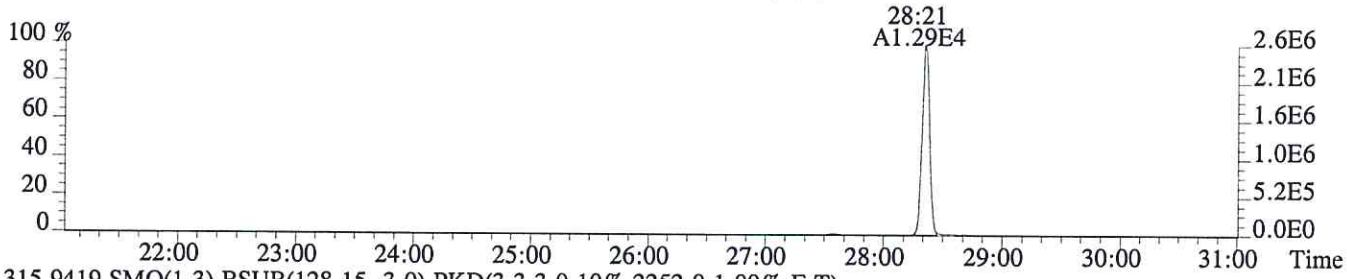
File:P402429 #1-684 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

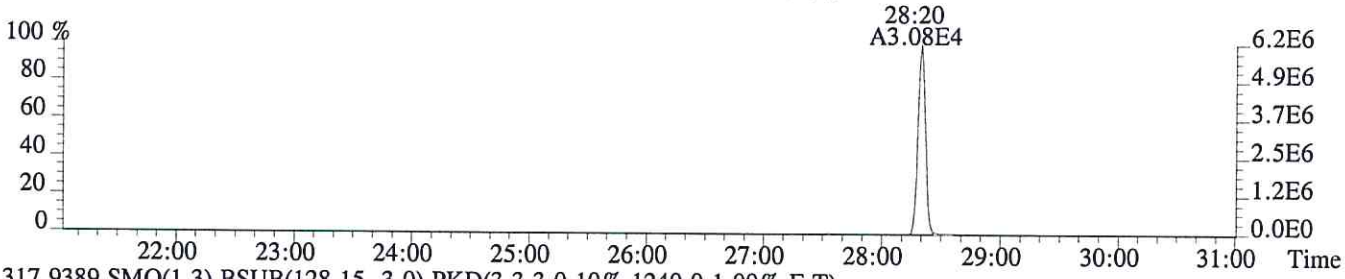
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



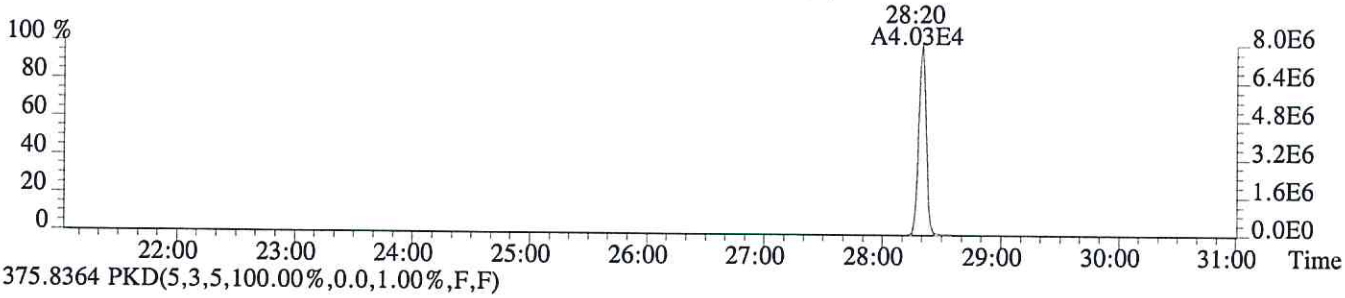
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



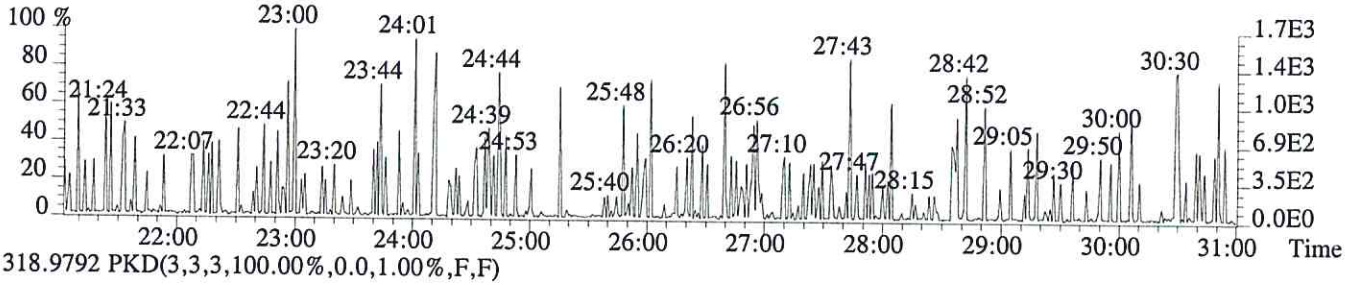
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



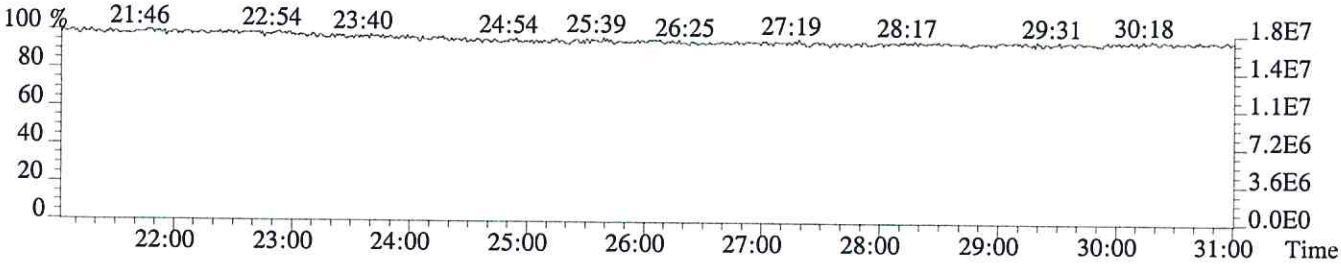
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



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

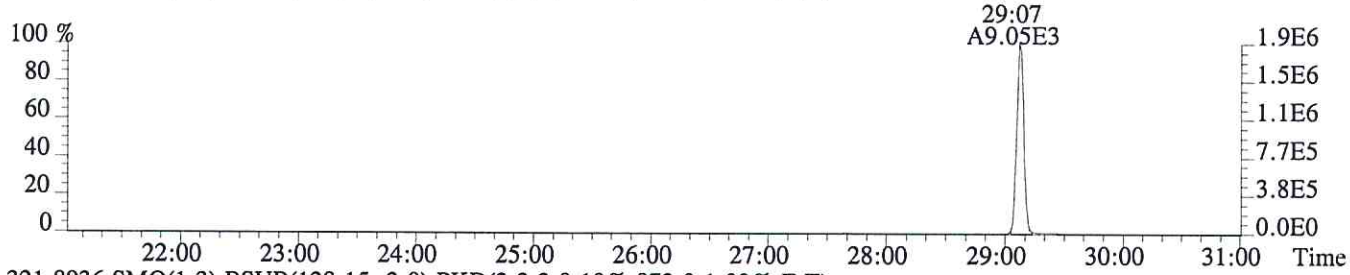


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

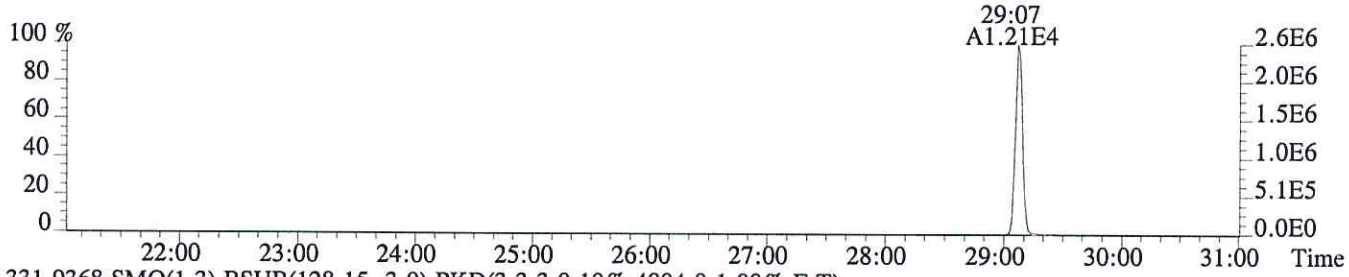


File:P402429 #1-684 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

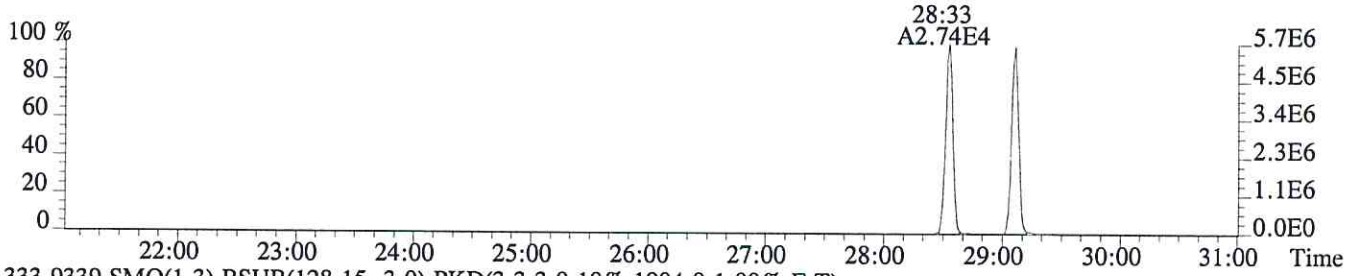
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



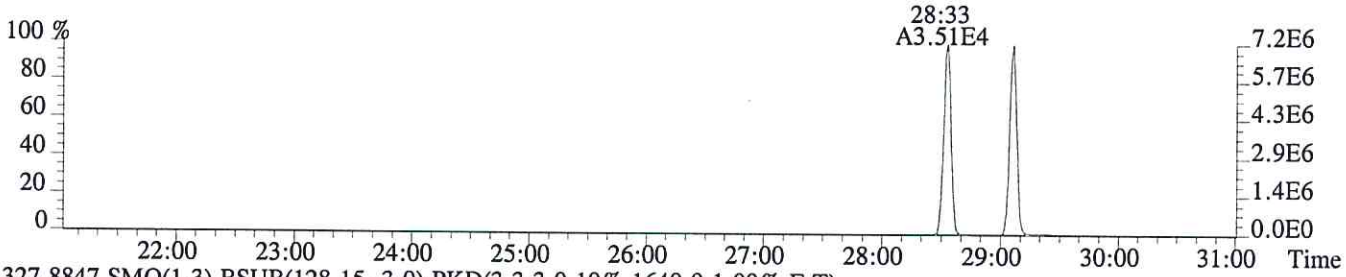
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



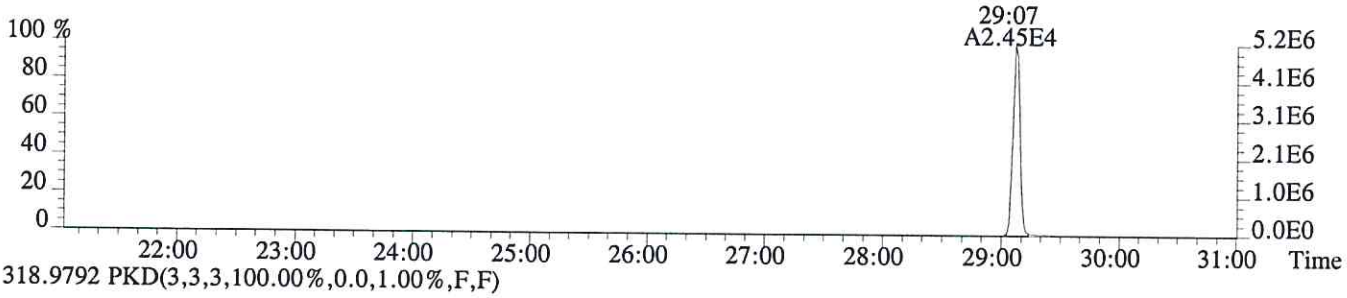
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4804.0,1.00%,F,T)



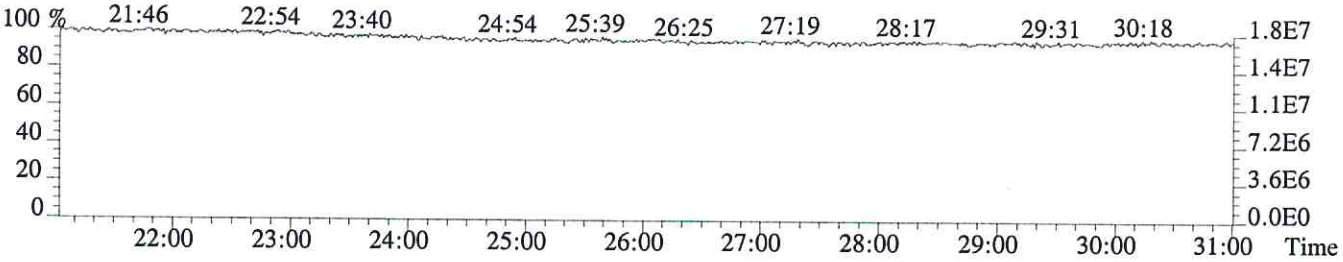
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



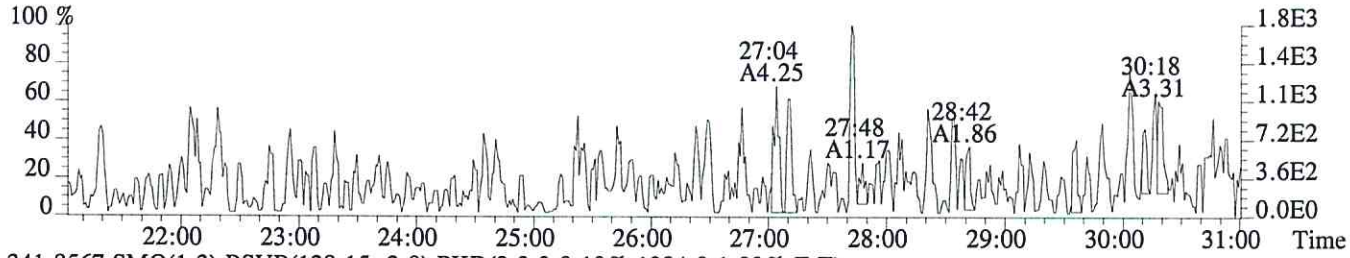
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1640.0,1.00%,F,T)



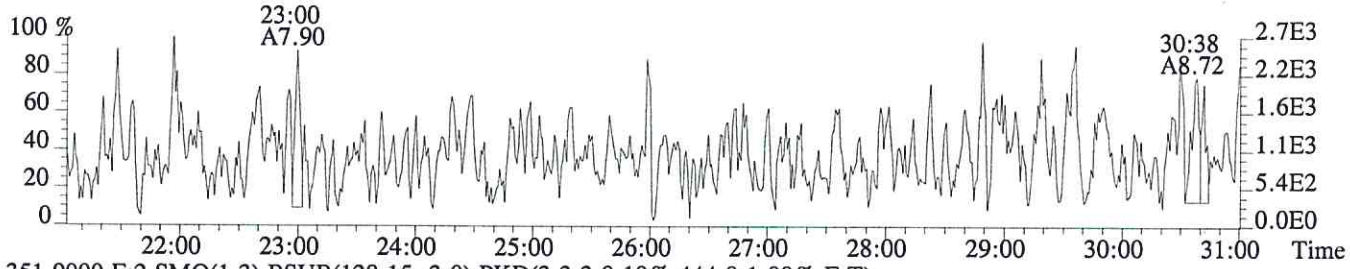
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



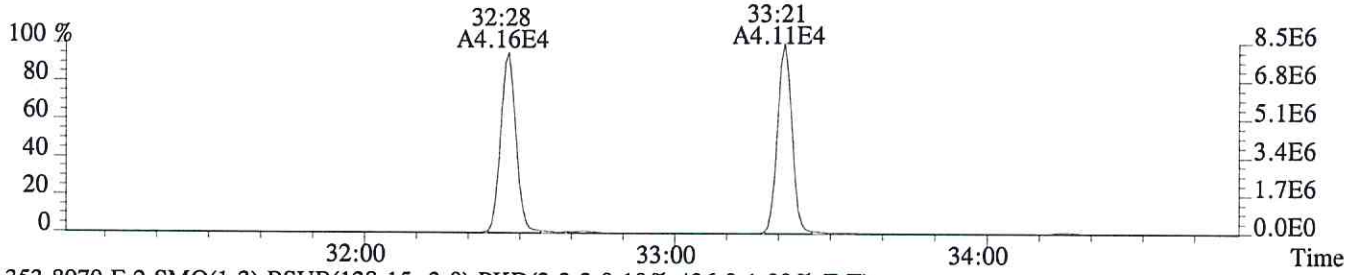
File:P402429 #1-684 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



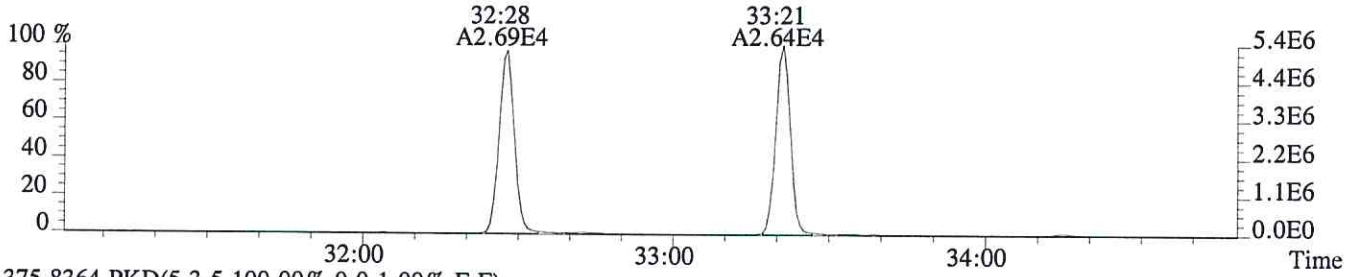
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



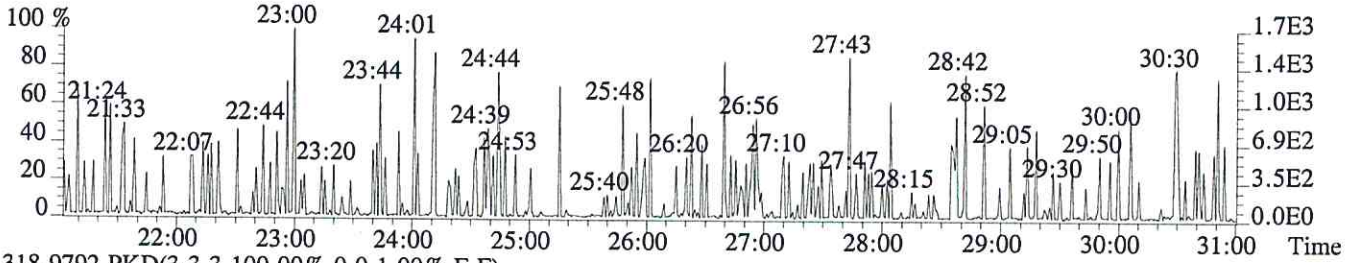
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



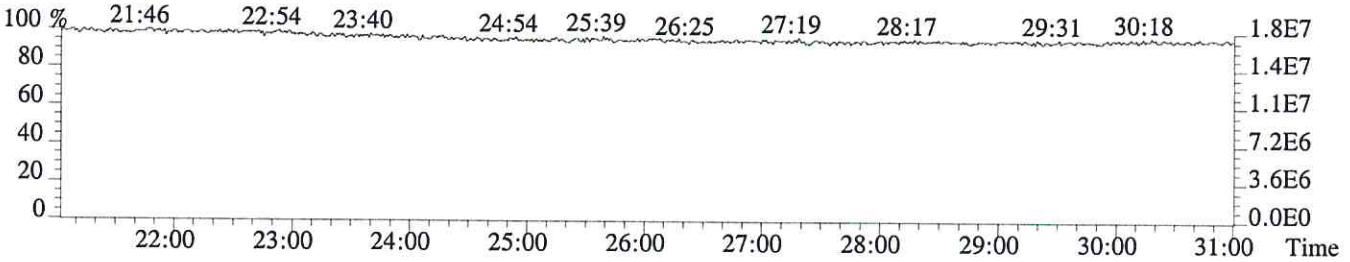
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



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

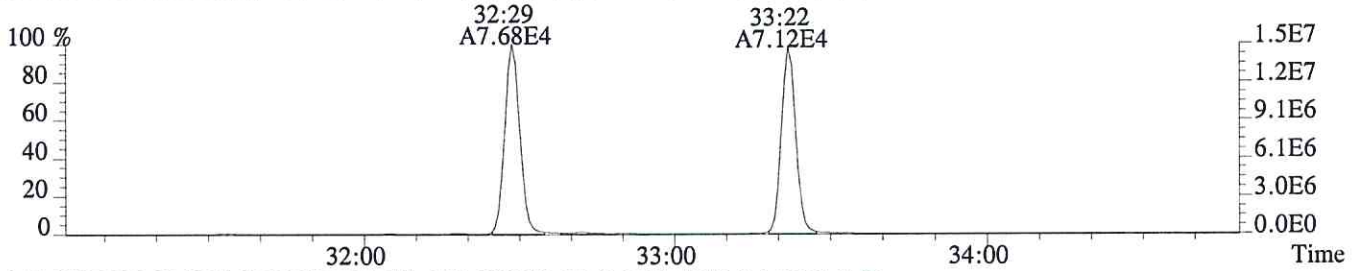


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

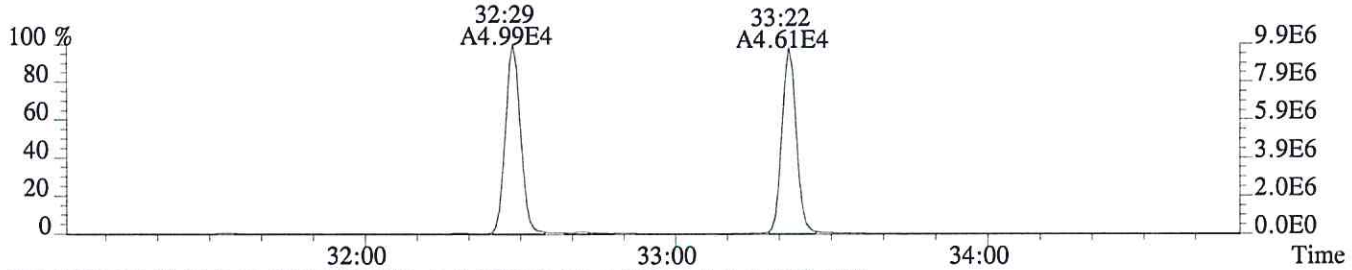


File:P402429 #1-340 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

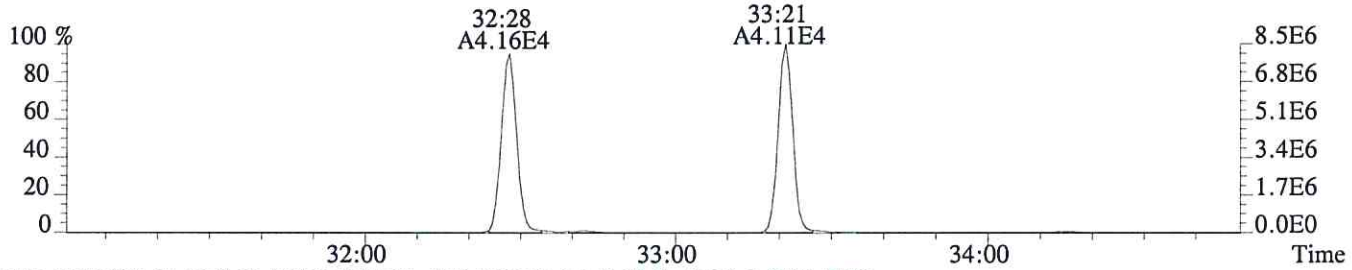
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



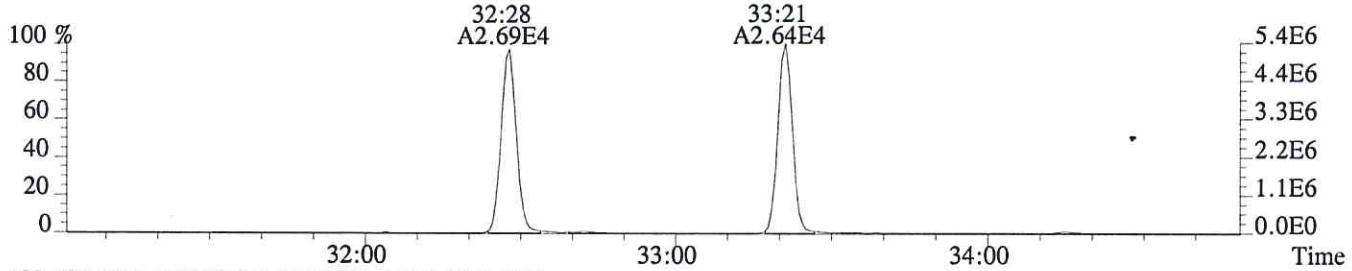
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



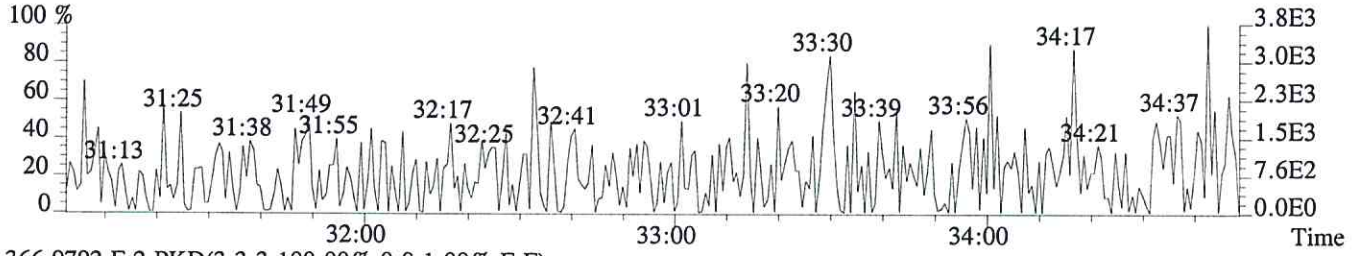
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



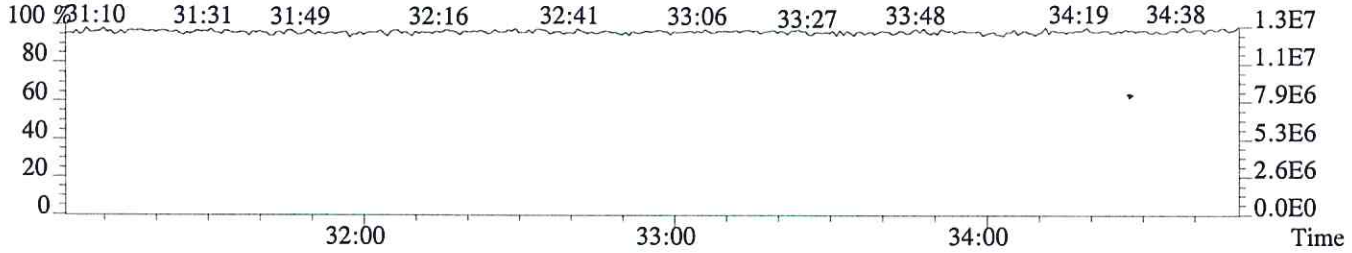
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



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

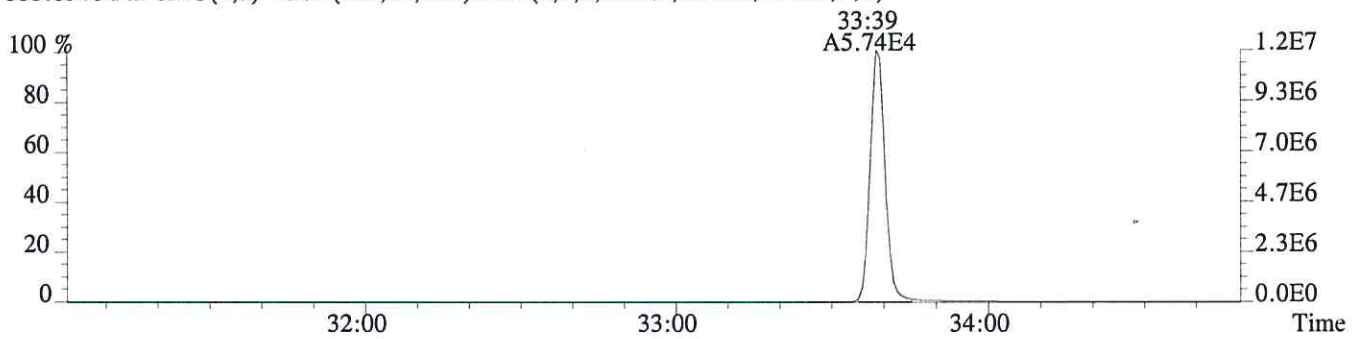


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

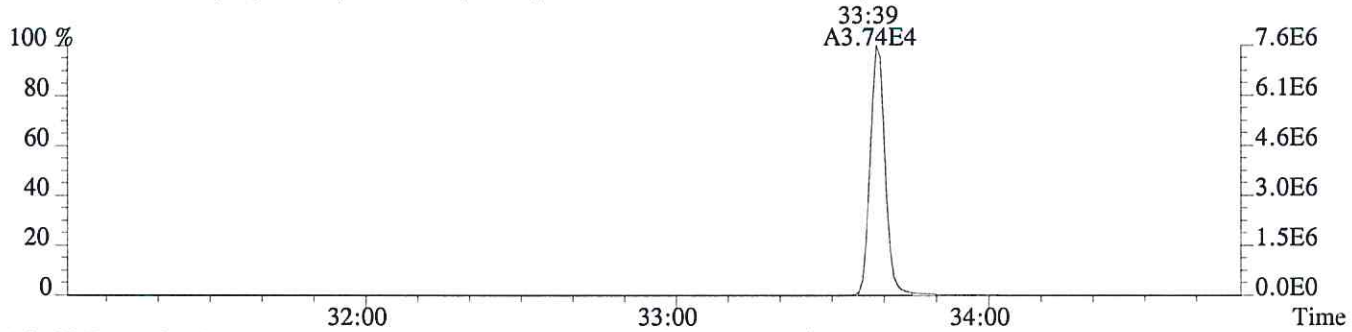


File:P402429 #1-340 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

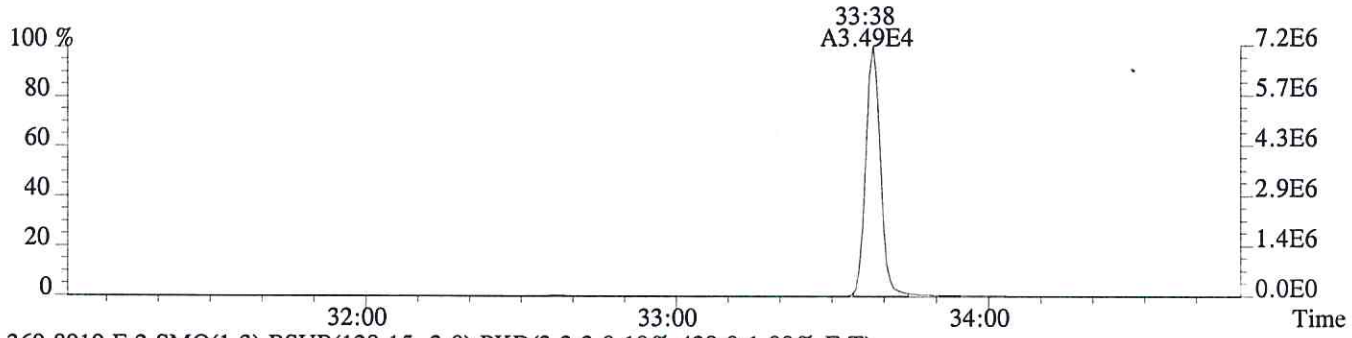
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



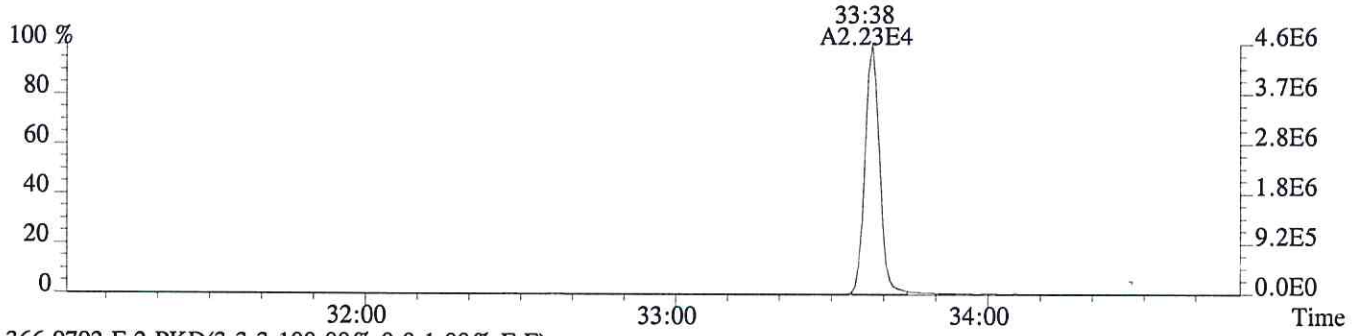
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)



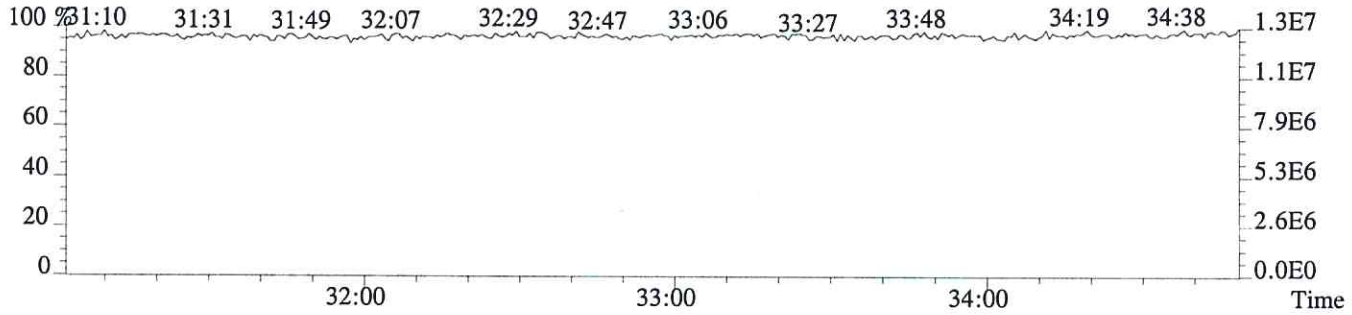
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)

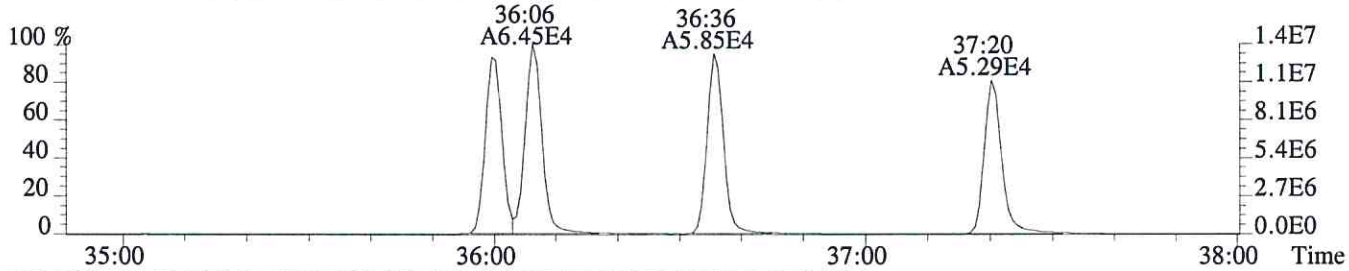


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

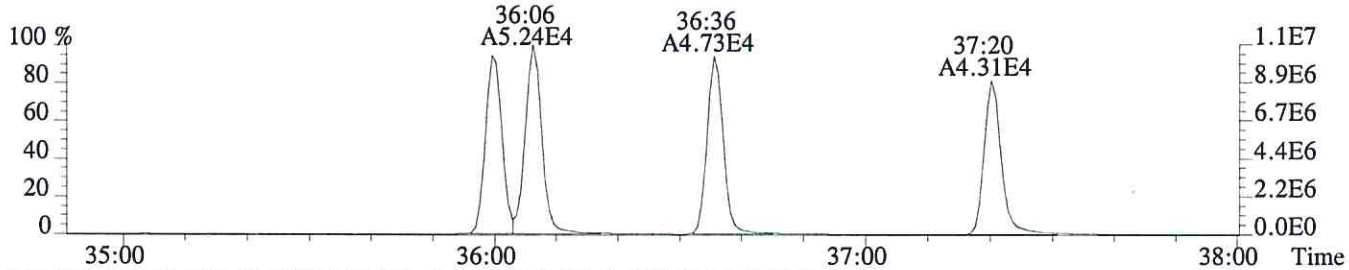


File:P402429 #1-285 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

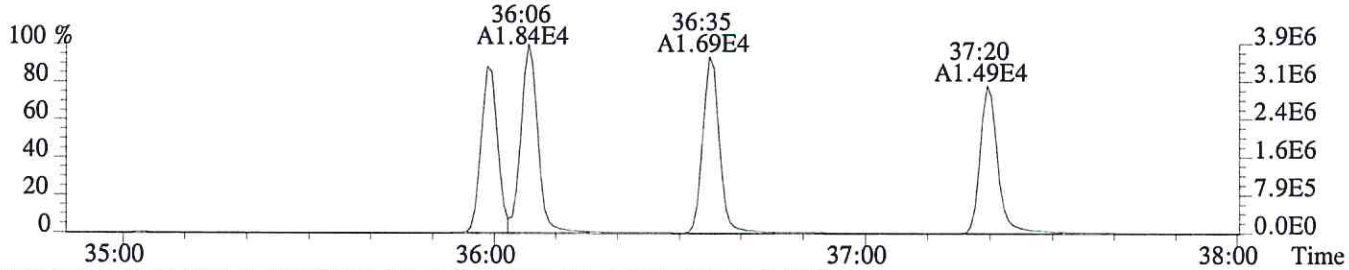
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



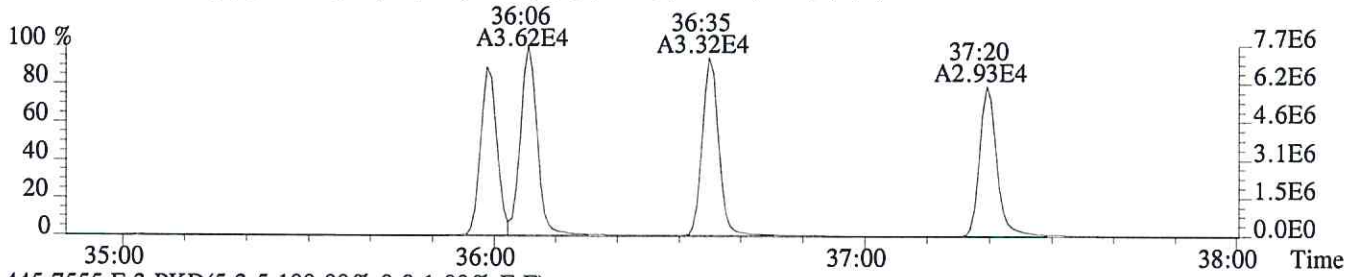
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



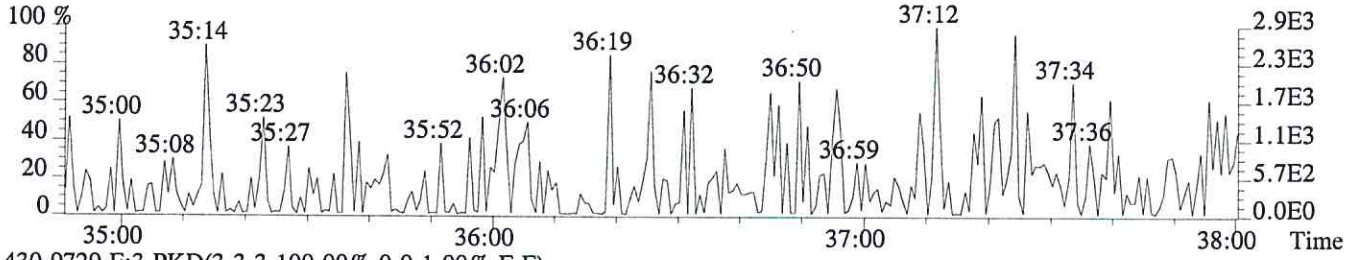
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



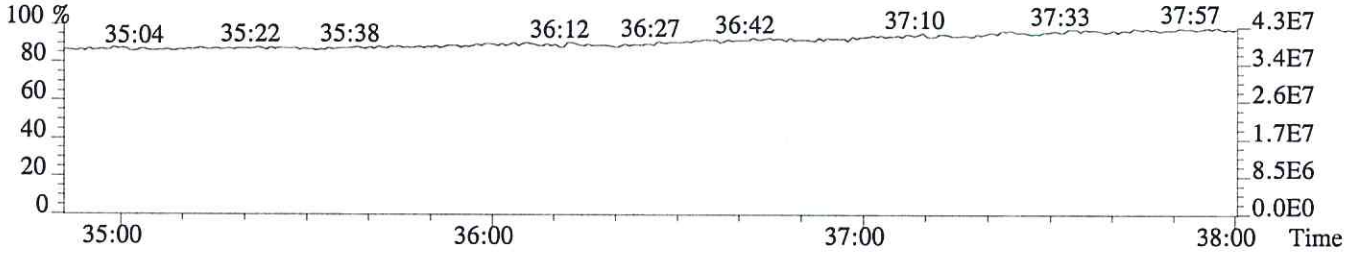
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



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

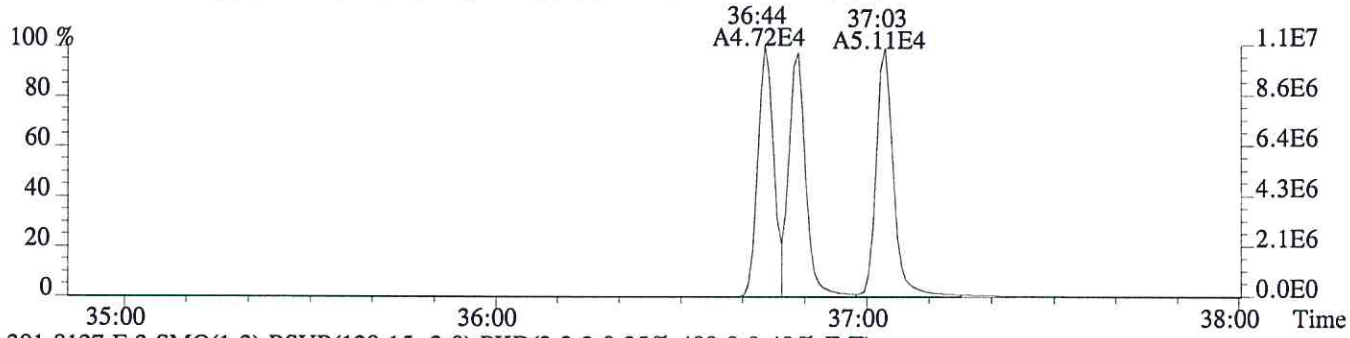


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

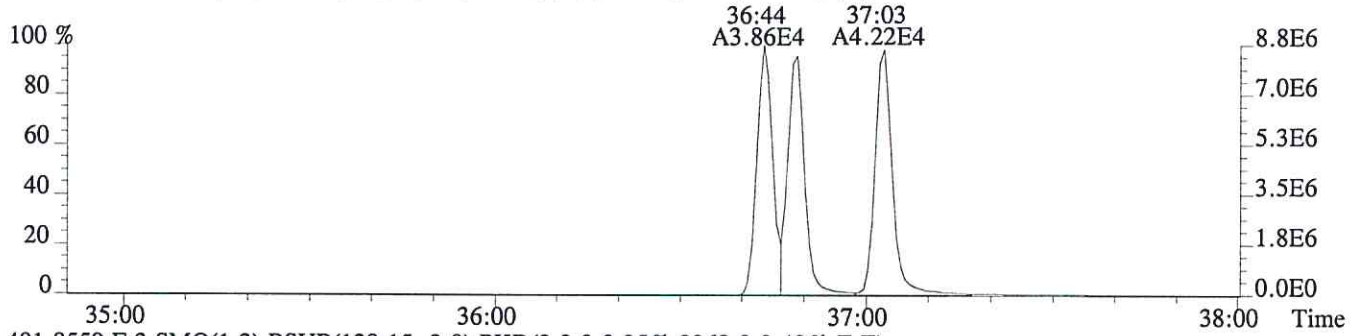


File:P402429 #1-285 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

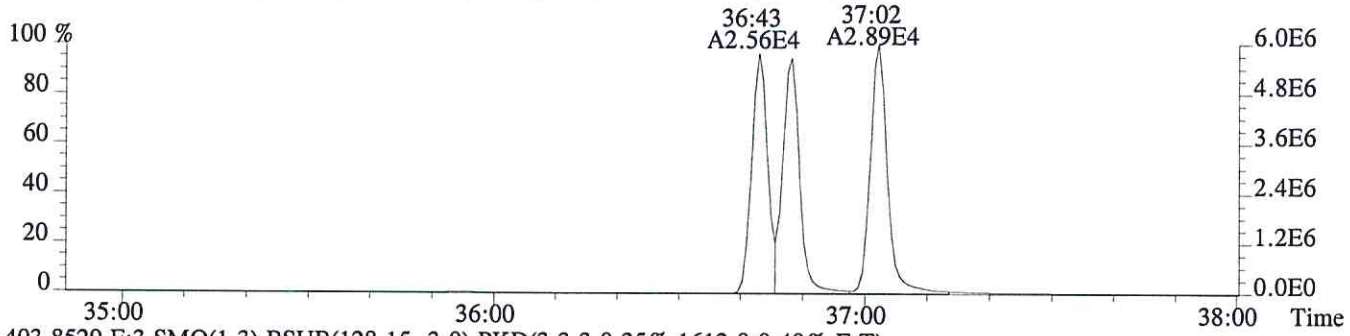
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



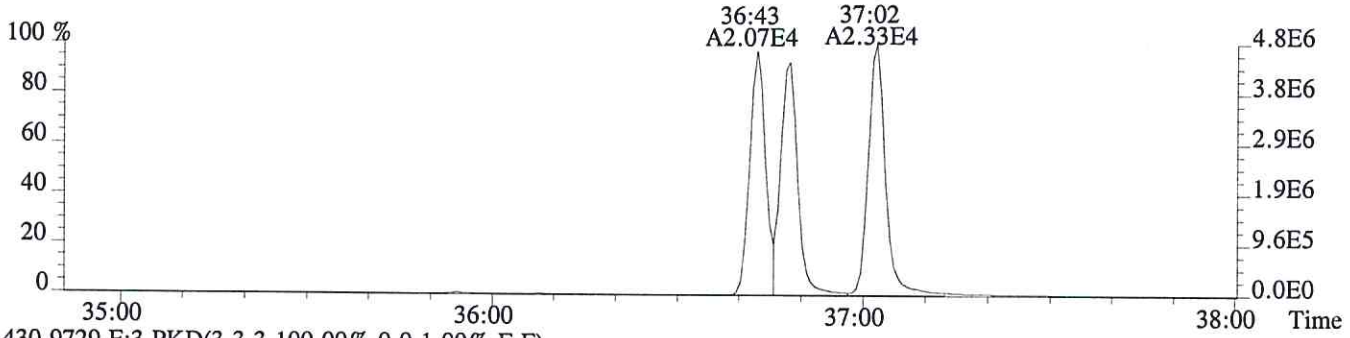
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



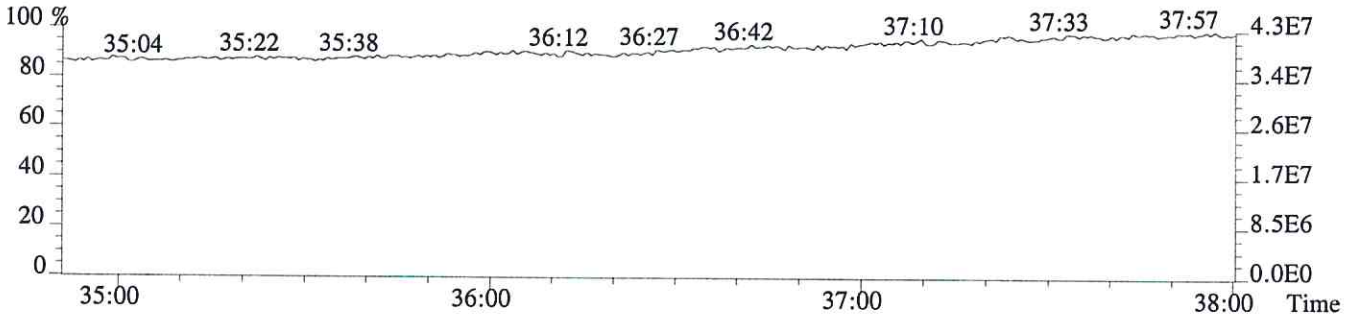
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2268.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1612.0,0.40%,F,T)

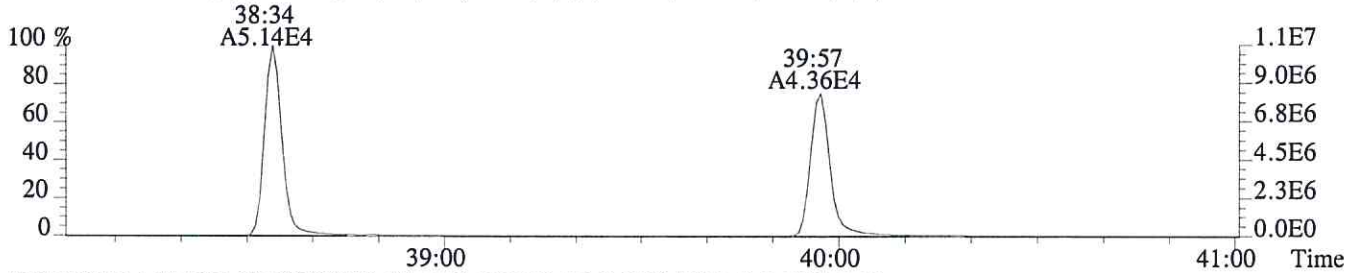


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

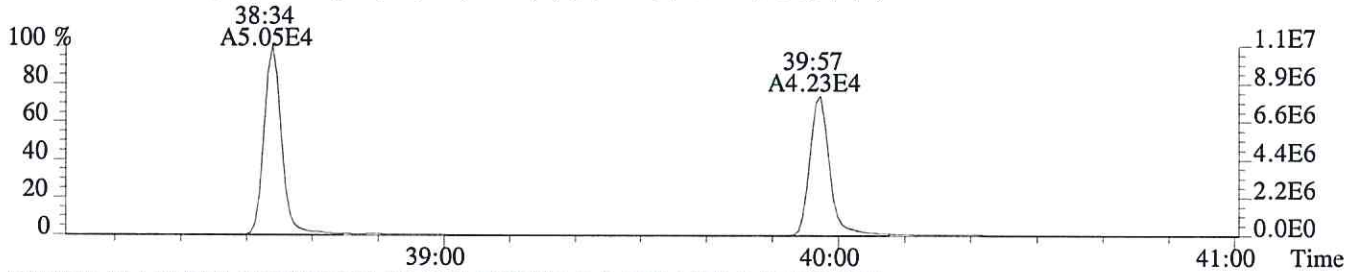


File:P402429 #1-268 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

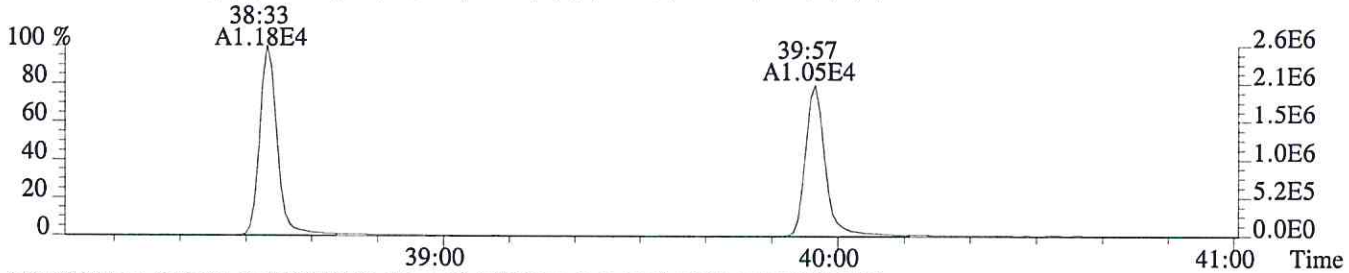
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1492.0,0.50%,F,T)



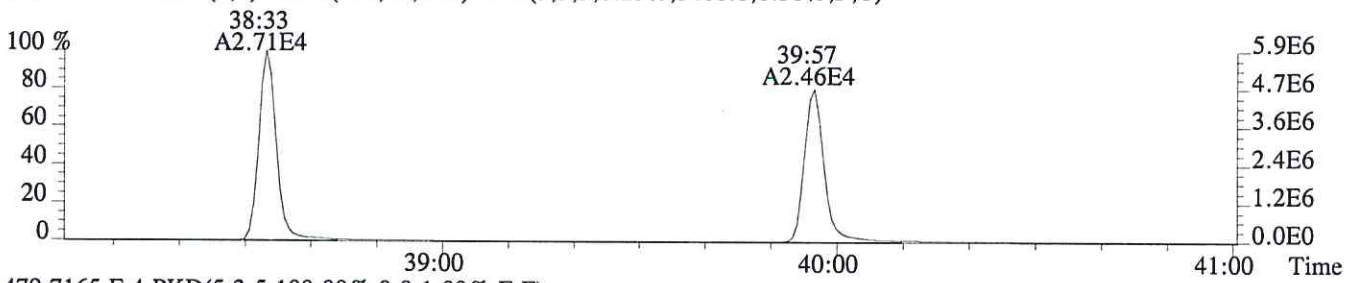
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7032.0,0.50%,F,T)



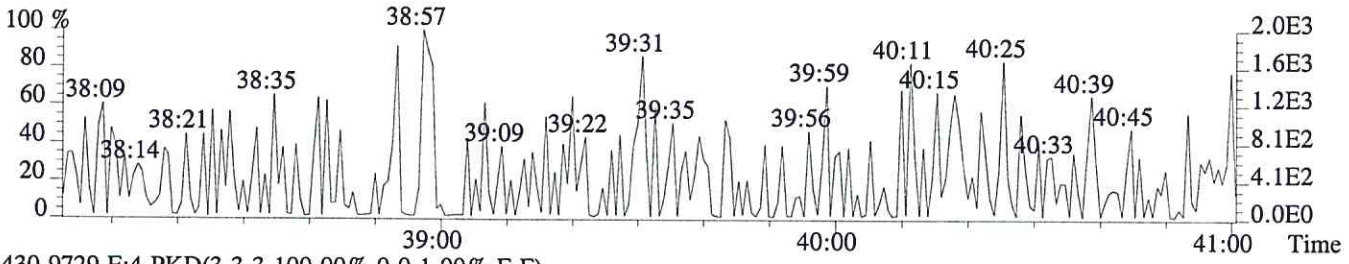
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3028.0,0.50%,F,T)



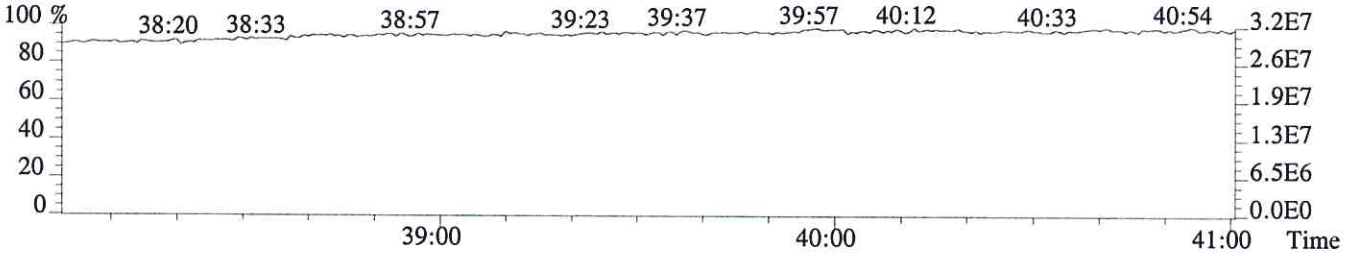
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3400.0,0.50%,F,T)



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

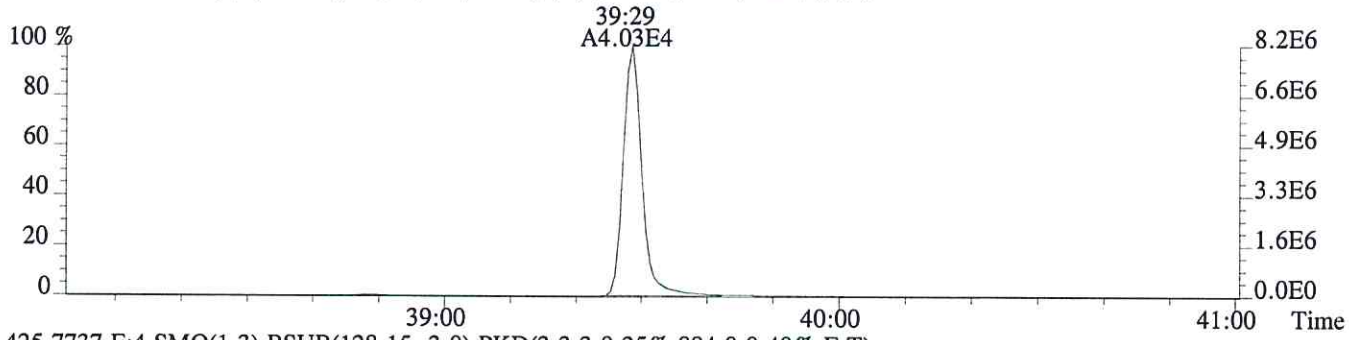


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

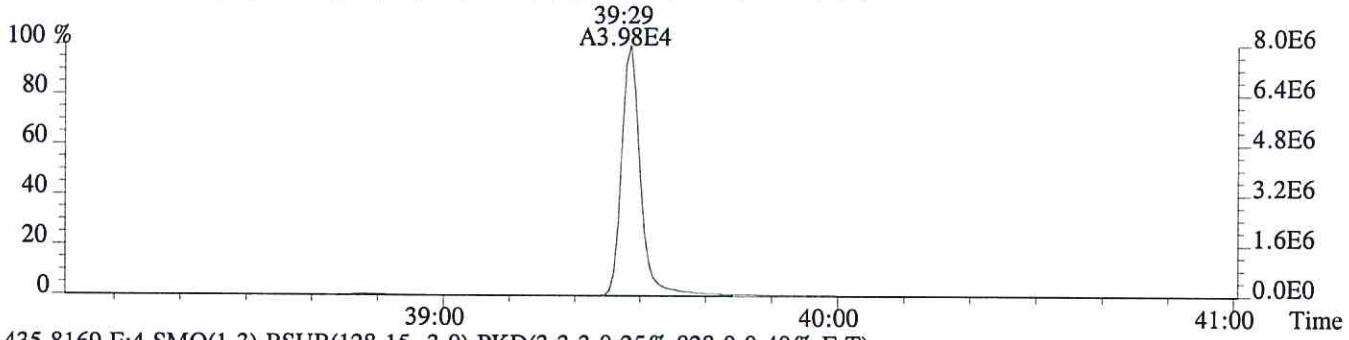


File:P402429 #1-268 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

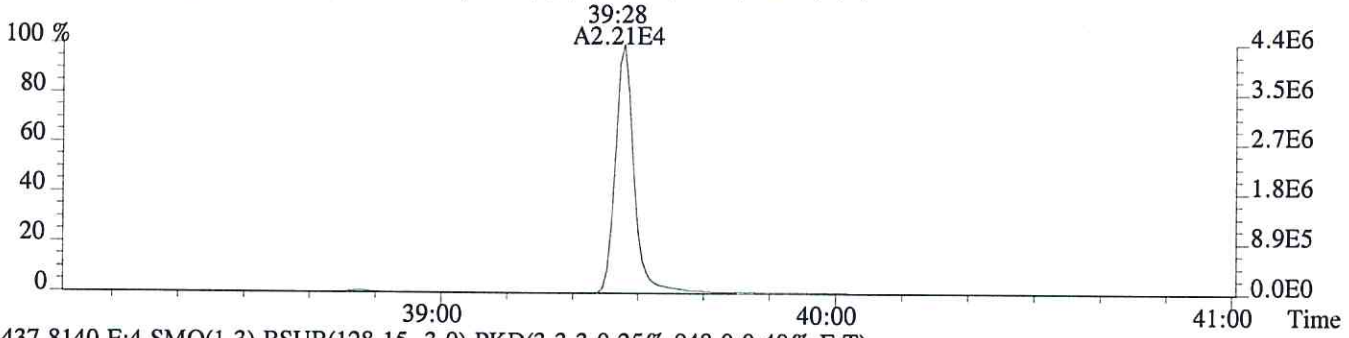
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



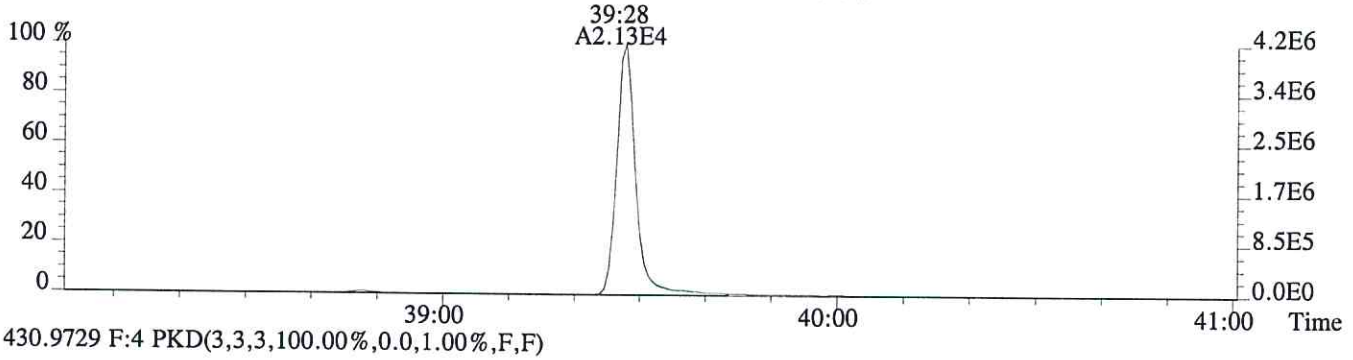
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



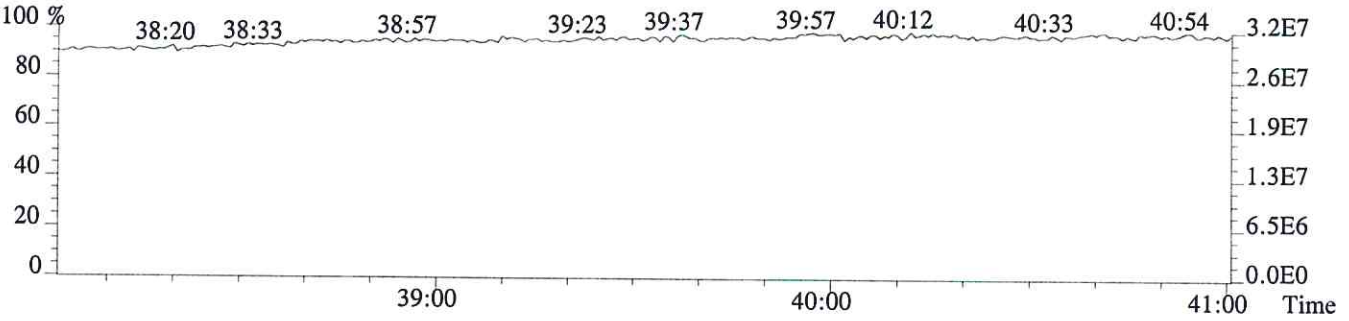
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)

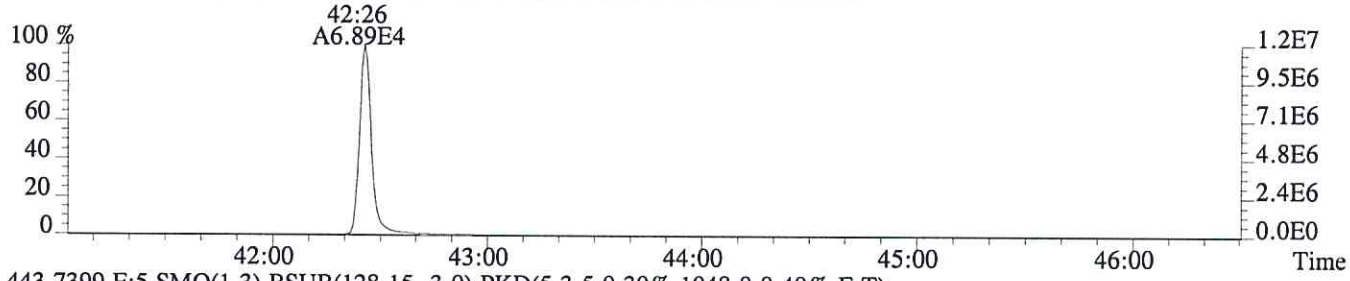


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

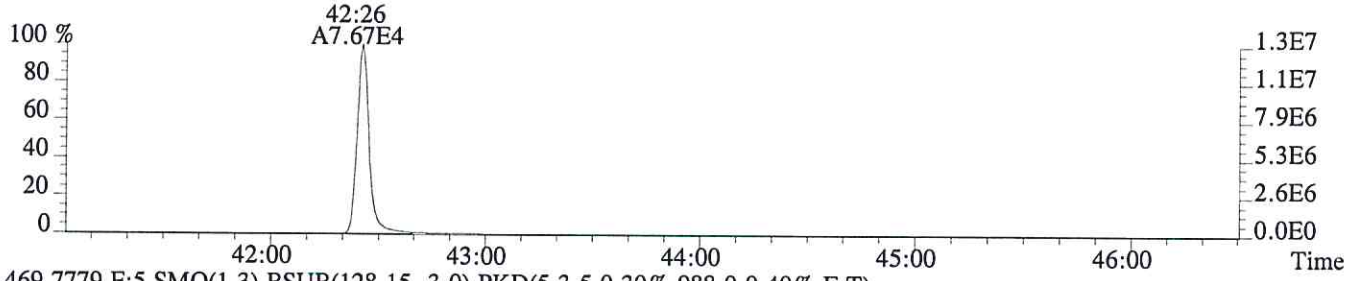


File:P402429 #1-492 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

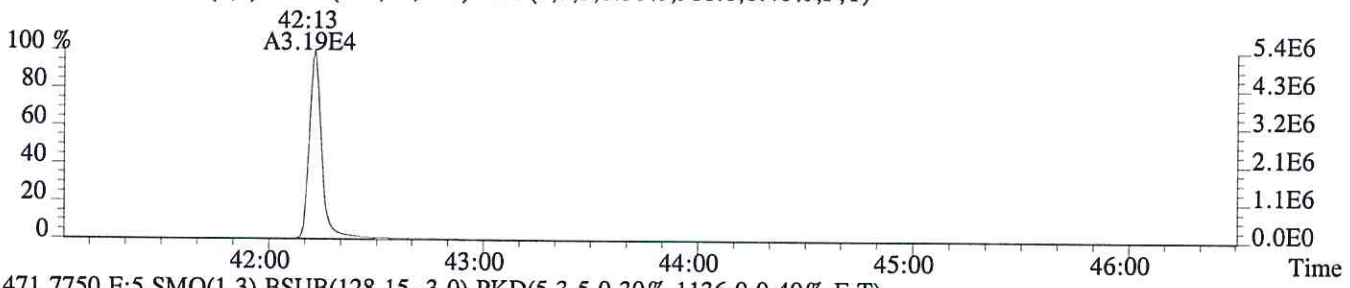
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



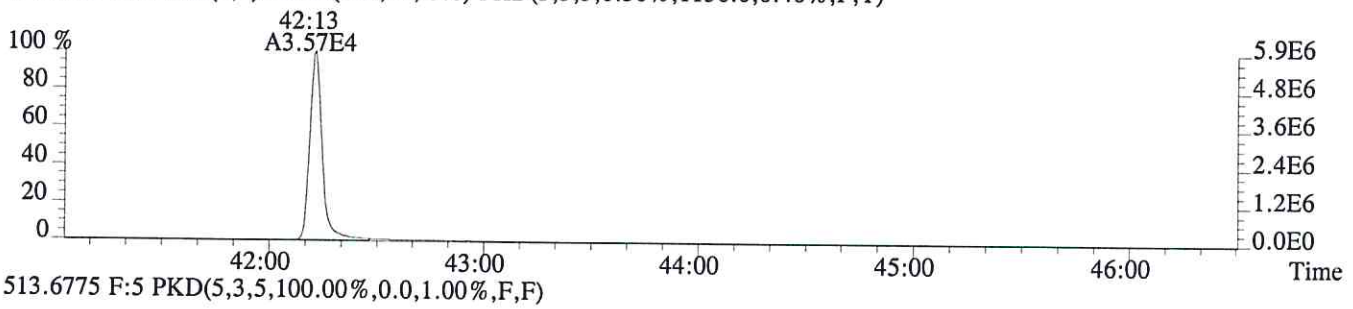
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1048.0,0.40%,F,T)



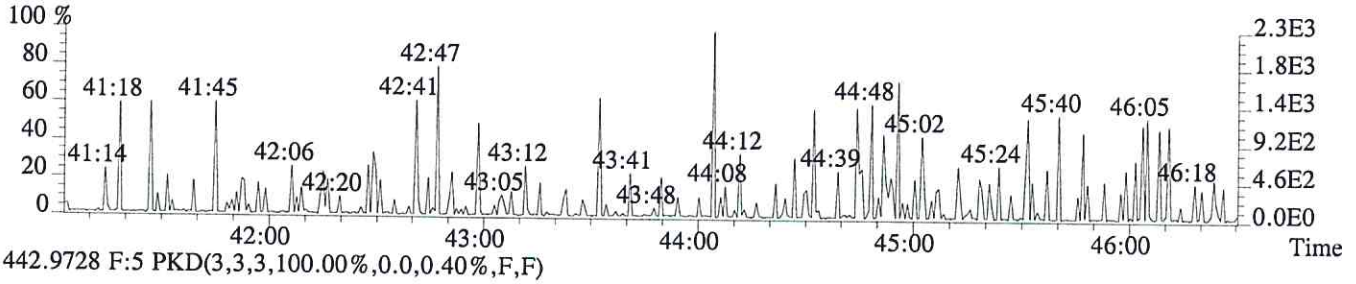
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,988.0,0.40%,F,T)



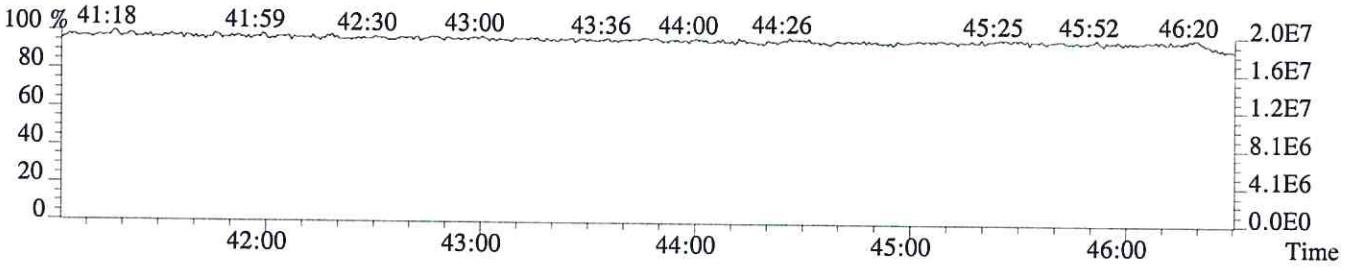
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1136.0,0.40%,F,T)



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

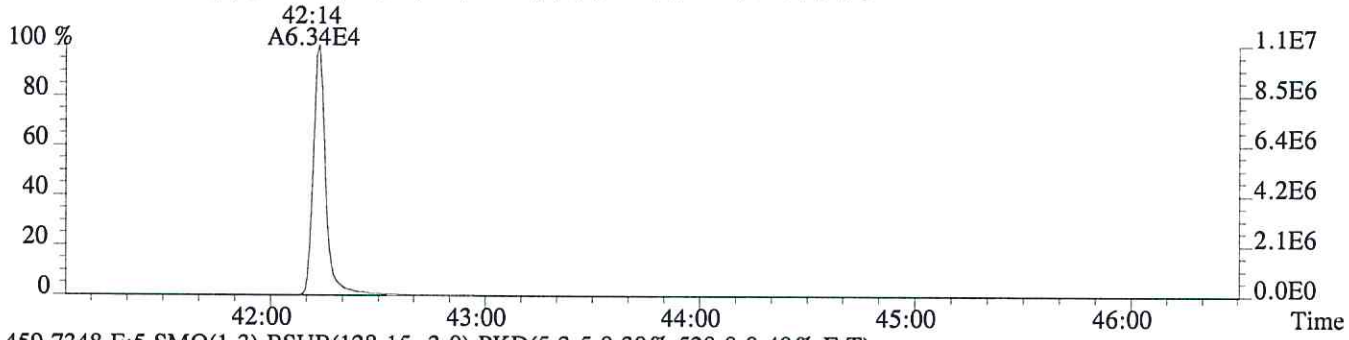


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

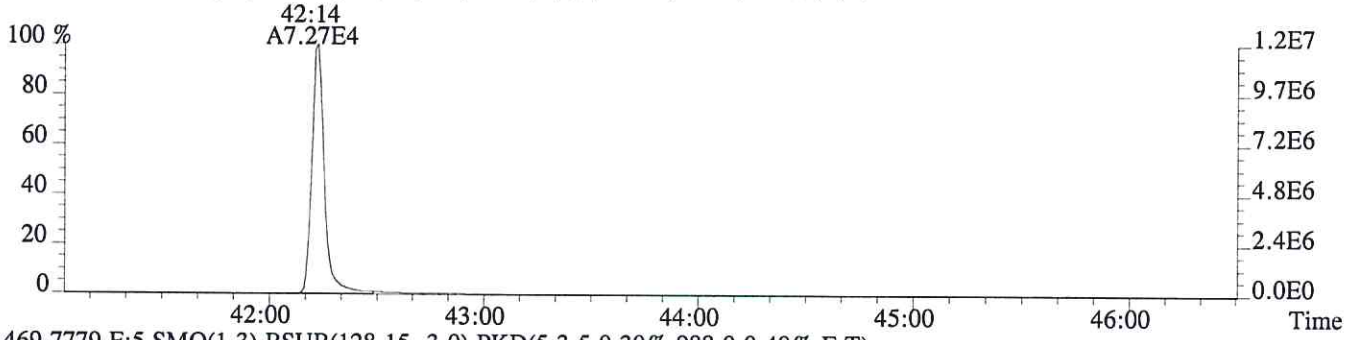


File:P402429 #1-492 Acq:28-APR-2016 15:00:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76558

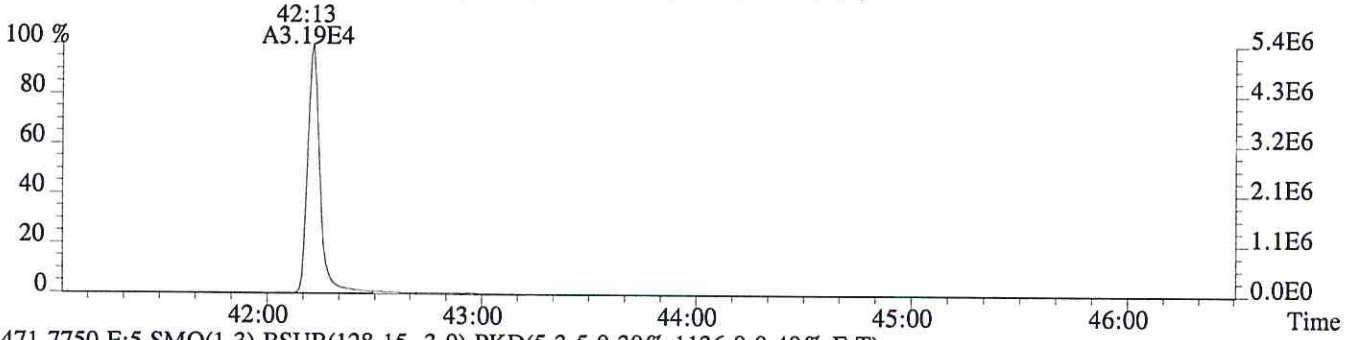
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



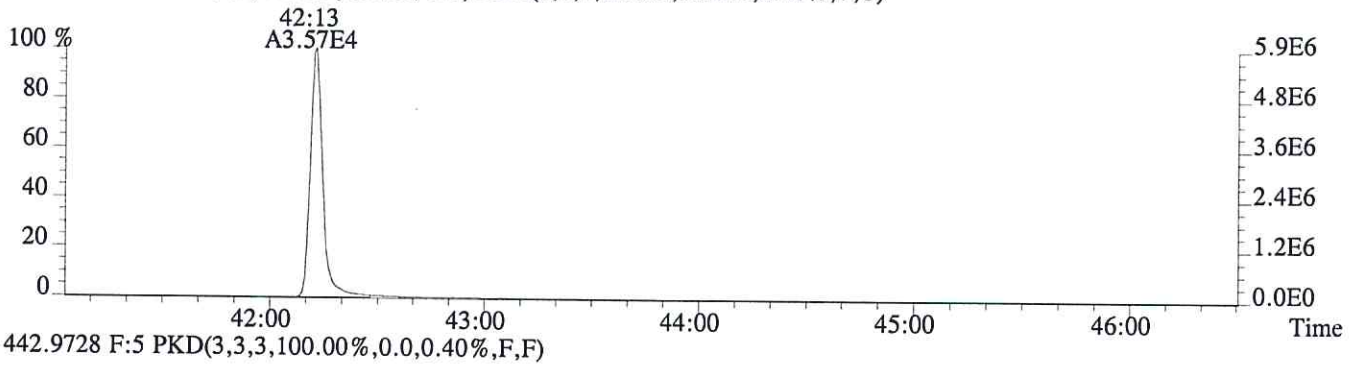
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



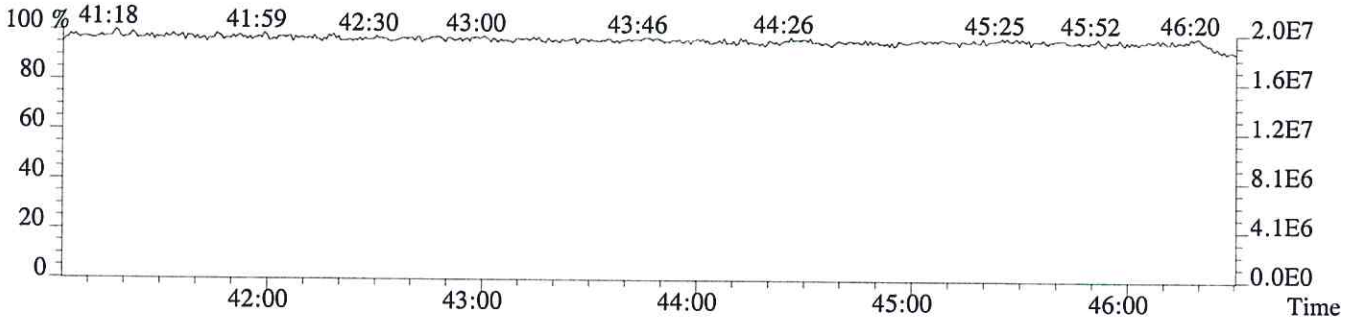
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,988.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1136.0,0.40%,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.
76956

Run #6 Filename P402430 Samp: 1 Inj: 1 Acquired: 28-APR-16 15:49:31
Processed: 28-APR-16 16:59:49 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:22	4.070e+04	5.366e+04	0.76	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	32:29	3.313e+05	2.154e+05	1.54	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	33:23	3.060e+05	2.007e+05	1.52	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	36:00	2.628e+05	2.144e+05	1.23	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	36:07	2.826e+05	2.297e+05	1.23	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	36:36	2.592e+05	2.118e+05	1.22	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	37:21	2.381e+05	1.934e+05	1.23	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	38:35	2.239e+05	2.227e+05	1.01	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	1.940e+05	1.890e+05	1.03	yes	no	1.187
10	Unk	OCDF	42:26	3.159e+05	3.533e+05	0.89	yes	no	1.035
11	Unk	2,3,7,8-TCDD	29:08	3.778e+04	5.026e+04	0.75	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	33:39	2.531e+05	1.651e+05	1.53	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	36:44	2.112e+05	1.727e+05	1.22	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	36:49	2.112e+05	1.725e+05	1.22	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	37:03	2.291e+05	1.829e+05	1.25	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	1.800e+05	1.753e+05	1.03	yes	no	0.882
17	Unk	OCDD	42:14	2.863e+05	3.289e+05	0.87	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	28:21	2.453e+04	3.198e+04	0.77	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	32:28	3.515e+04	2.246e+04	1.57	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	33:22	3.482e+04	2.245e+04	1.55	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	36:00	1.347e+04	2.704e+04	0.50	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	36:06	1.575e+04	3.084e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	36:36	1.454e+04	2.889e+04	0.50	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.299e+04	2.584e+04	0.50	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:34	1.022e+04	2.315e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	8.980e+03	2.131e+04	0.42	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	29:06	2.077e+04	2.693e+04	0.77	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	33:39	2.982e+04	1.913e+04	1.56	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	36:44	2.249e+04	1.793e+04	1.25	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	36:48	2.265e+04	1.805e+04	1.25	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	1.883e+04	1.830e+04	1.03	yes	no	0.817
32	IS	13C-OCDD	42:13	2.816e+04	3.200e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	28:33	2.134e+04	2.690e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:02	2.549e+04	2.073e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:08	9.937e+04				no	0.958

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.
76956

Run #6 Filename P402430 Samp: 1 Inj: 1 Acquired: 28-APR-16 15:49:31
Processed: 28-APR-16 16:59:491 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	8.30e+06	4.12e+02	2.0e+04	1.09e+07	8.88e+02	1.2e+04
2	1,2,3,7,8-PeCDF	6.55e+07	9.56e+02	6.9e+04	4.25e+07	2.58e+03	1.6e+04
3	2,3,4,7,8-PeCDF	6.39e+07	9.56e+02	6.7e+04	4.17e+07	2.58e+03	1.6e+04
4	1,2,3,4,7,8-HxCDF	5.78e+07	1.60e+03	3.6e+04	4.73e+07	1.55e+03	3.0e+04
5	1,2,3,6,7,8-HxCDF	6.03e+07	1.60e+03	3.8e+04	4.89e+07	1.55e+03	3.1e+04
6	2,3,4,6,7,8-HxCDF	5.78e+07	1.60e+03	3.6e+04	4.70e+07	1.55e+03	3.0e+04
7	1,2,3,7,8,9-HxCDF	5.04e+07	1.60e+03	3.2e+04	4.08e+07	1.55e+03	2.6e+04
8	1,2,3,4,6,7,8-HpCDF	4.88e+07	1.38e+04	3.5e+03	4.76e+07	1.46e+04	3.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.81e+07	1.38e+04	2.8e+03	3.74e+07	1.46e+04	2.6e+03
10	OCDF	5.49e+07	3.28e+02	1.7e+05	6.02e+07	6.68e+02	9.0e+04
11	2,3,7,8-TCDD	8.04e+06	8.00e+02	1.0e+04	1.07e+07	6.72e+02	1.6e+04
12	1,2,3,7,8-PeCDD	5.29e+07	9.52e+02	5.6e+04	3.45e+07	4.04e+02	8.6e+04
13	1,2,3,4,7,8-HxCDD	4.70e+07	4.28e+02	1.1e+05	3.81e+07	8.44e+02	4.5e+04
14	1,2,3,6,7,8-HxCDD	4.61e+07	4.28e+02	1.1e+05	3.83e+07	8.44e+02	4.5e+04
15	1,2,3,7,8,9-HxCDD	4.74e+07	4.28e+02	1.1e+05	3.90e+07	8.44e+02	4.6e+04
16	1,2,3,4,6,7,8-HpCDD	3.61e+07	1.14e+03	3.2e+04	3.55e+07	1.57e+03	2.3e+04
17	OCDD	4.98e+07	5.32e+02	9.4e+04	5.77e+07	5.00e+02	1.2e+05
18	13C-2,3,7,8-TCDF	4.95e+06	2.36e+03	2.1e+03	6.43e+06	1.42e+03	4.5e+03
19	13C-1,2,3,7,8-PeCDF	6.76e+06	4.44e+02	1.5e+04	4.45e+06	9.00e+02	4.9e+03
20	13C-2,3,4,7,8-PeCDF	7.12e+06	4.44e+02	1.6e+04	4.61e+06	9.00e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	3.00e+06	5.20e+02	5.8e+03	6.05e+06	5.92e+02	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	3.39e+06	5.20e+02	6.5e+03	6.63e+06	5.92e+02	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	3.31e+06	5.20e+02	6.4e+03	6.45e+06	5.92e+02	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	2.80e+06	5.20e+02	5.4e+03	5.49e+06	5.92e+02	9.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.27e+06	2.60e+03	8.7e+02	5.12e+06	7.00e+02	7.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.79e+06	2.60e+03	6.9e+02	4.22e+06	7.00e+02	6.0e+03
27	13C-2,3,7,8-TCDD	4.29e+06	3.18e+03	1.4e+03	5.54e+06	1.94e+03	2.9e+03
28	13C-1,2,3,7,8-PeCDD	6.07e+06	5.48e+02	1.1e+04	3.85e+06	4.40e+02	8.8e+03
29	13C-1,2,3,4,7,8-HxCDD	5.05e+06	1.90e+03	2.7e+03	4.00e+06	1.10e+03	3.6e+03
30	13C-1,2,3,6,7,8-HxCDD	4.92e+06	1.90e+03	2.6e+03	3.95e+06	1.10e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.87e+06	4.48e+02	8.6e+03	3.76e+06	7.64e+02	4.9e+03
32	13C-OCDD	4.89e+06	9.04e+02	5.4e+03	5.62e+06	9.40e+02	6.0e+03
33	13C-1,2,3,4-TCDD	4.39e+06	3.18e+03	1.4e+03	5.59e+06	1.94e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.24e+06	1.90e+03	2.8e+03	4.32e+06	1.10e+03	3.9e+03
35	37Cl-2,3,7,8-TCDD	2.11e+07	1.52e+03	1.4e+04			

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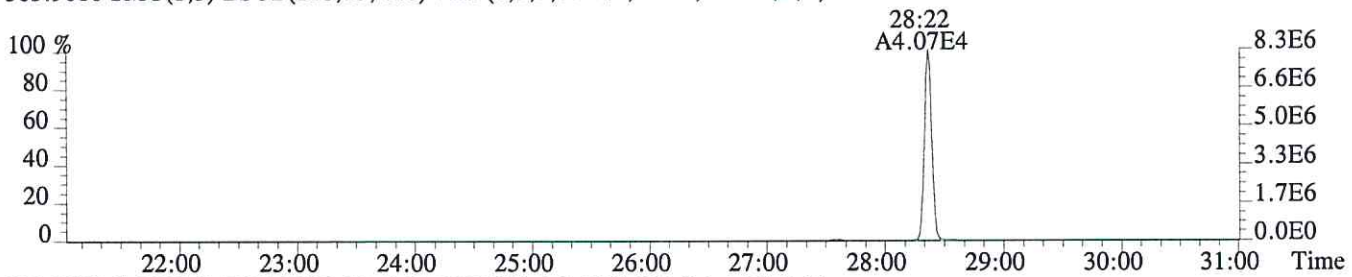
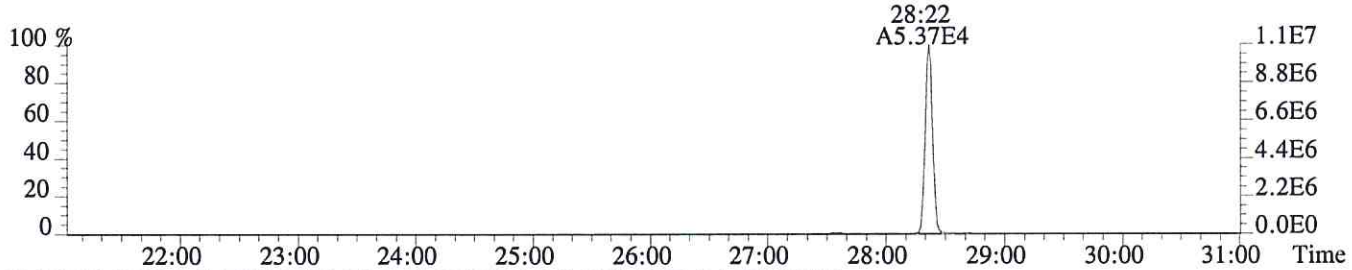
File:P402430 #1-684 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

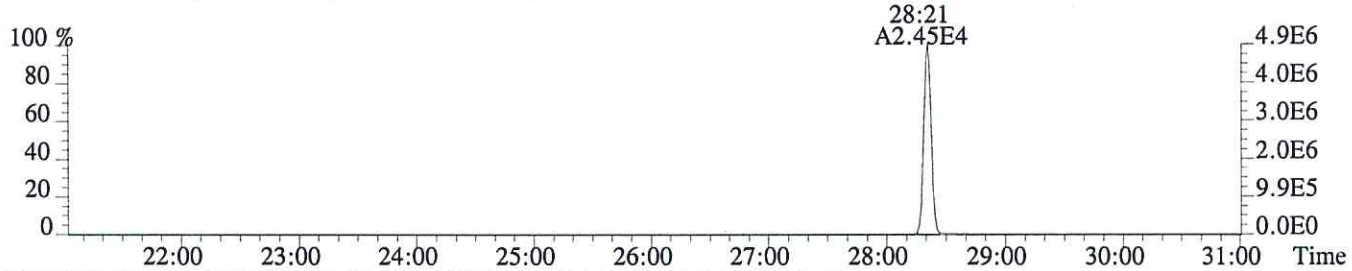
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



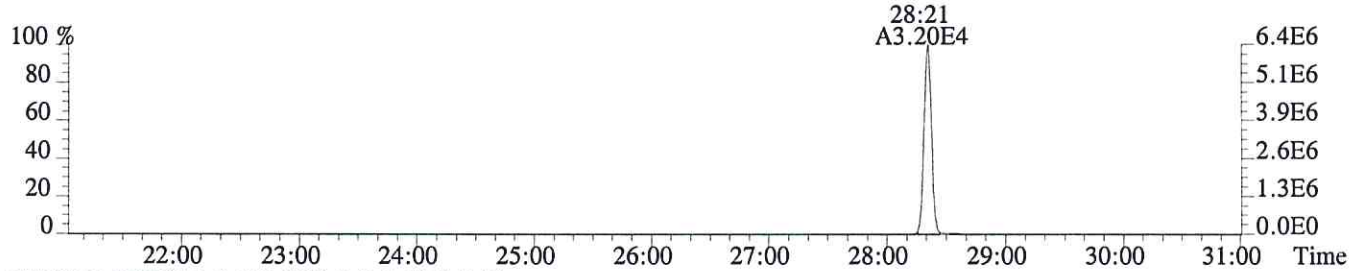
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



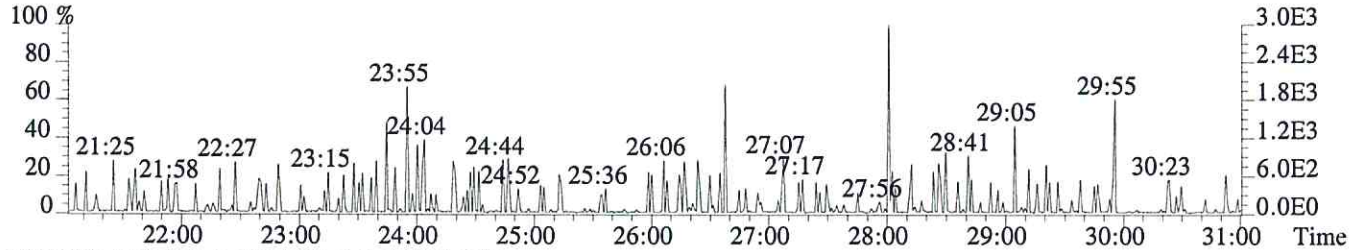
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



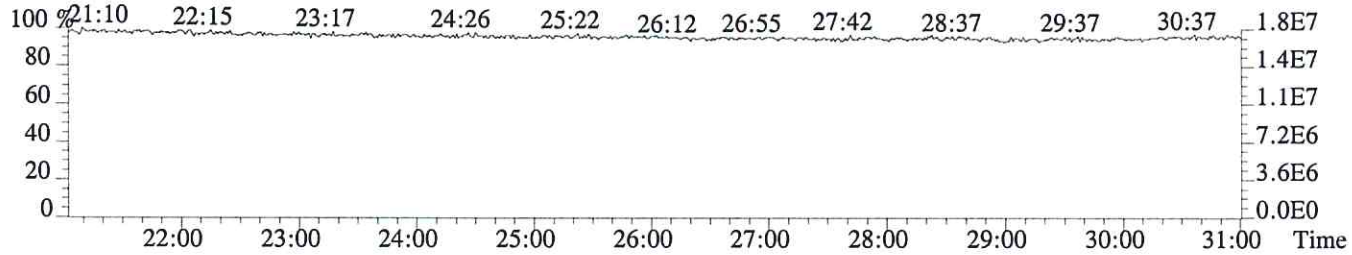
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



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

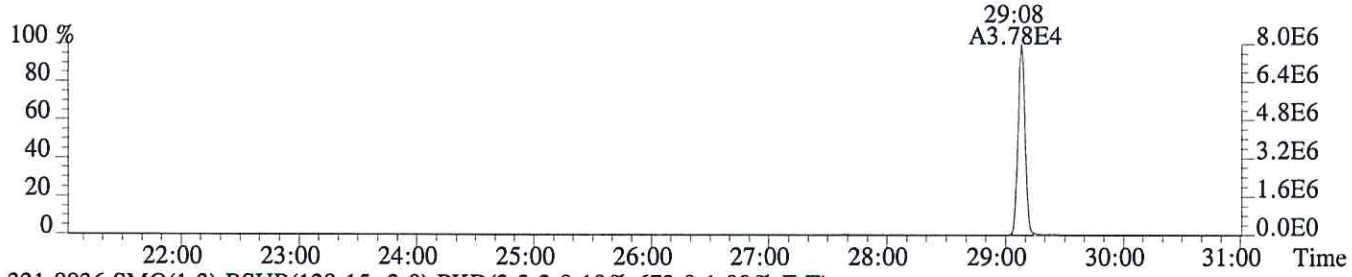


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

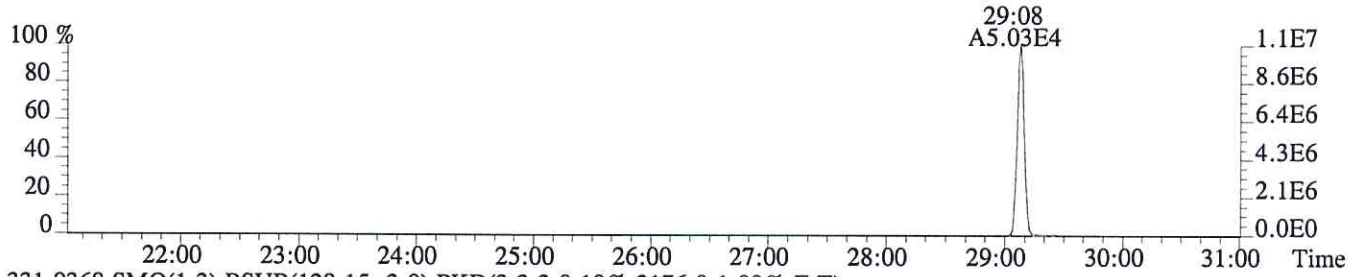


File:P402430 #1-684 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

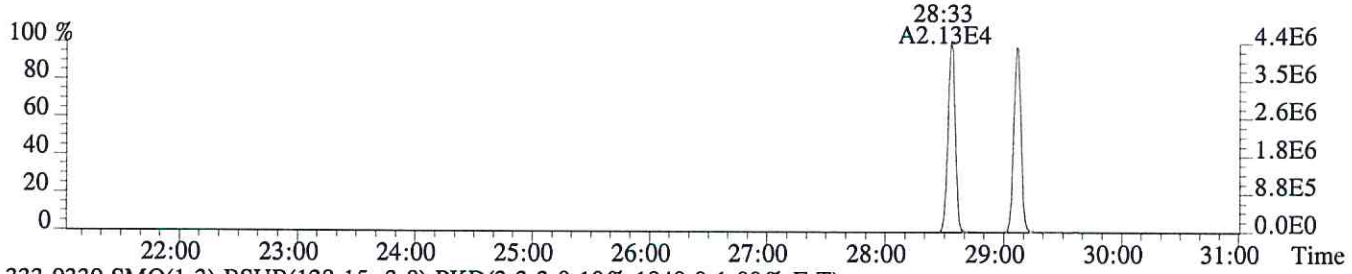
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



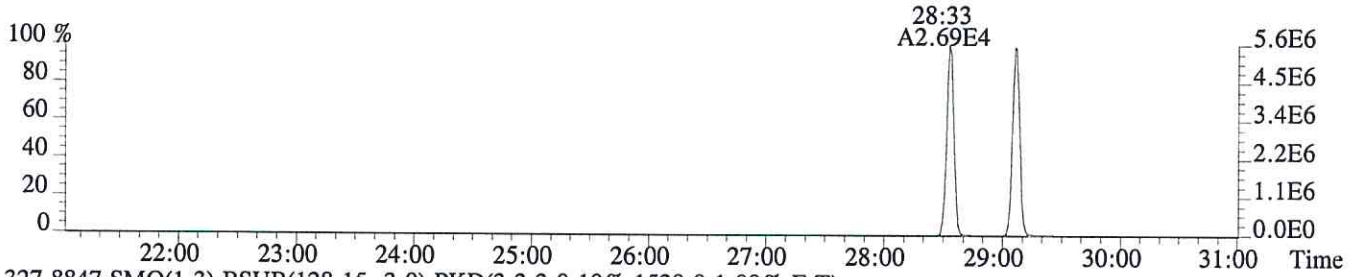
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



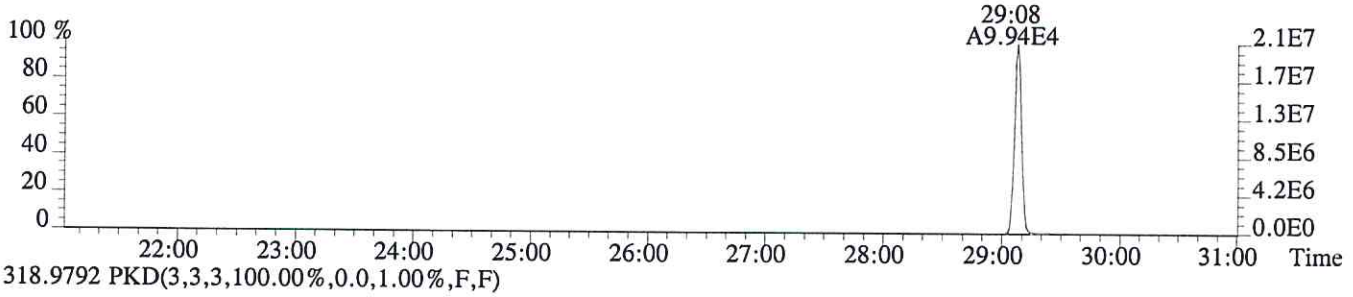
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3176.0,1.00%,F,T)



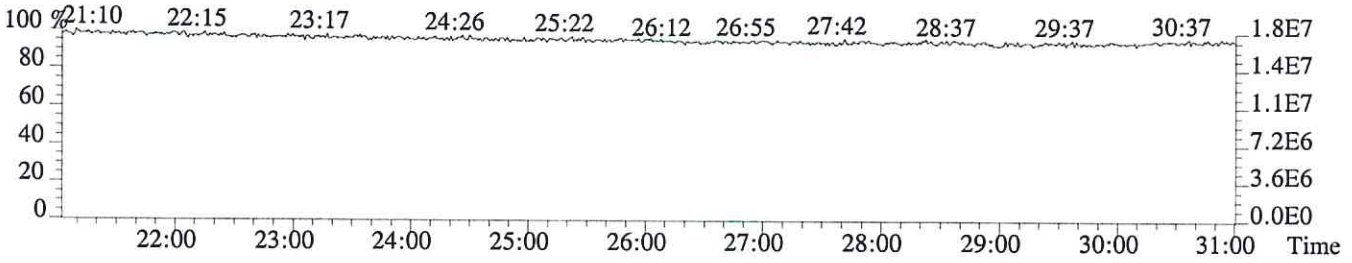
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)

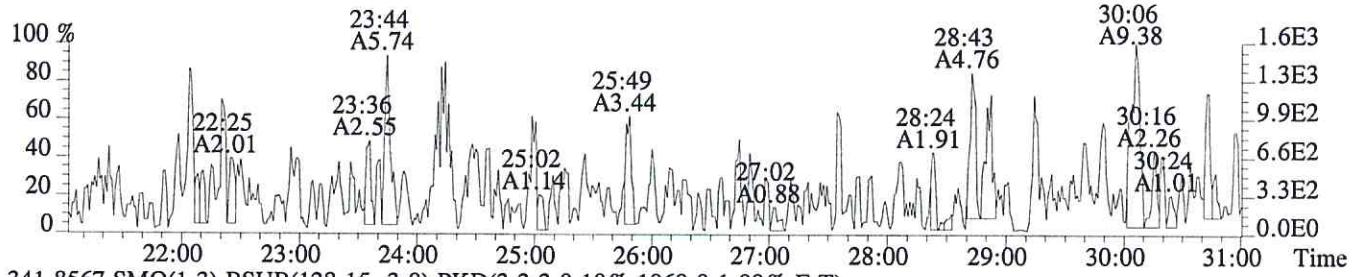


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

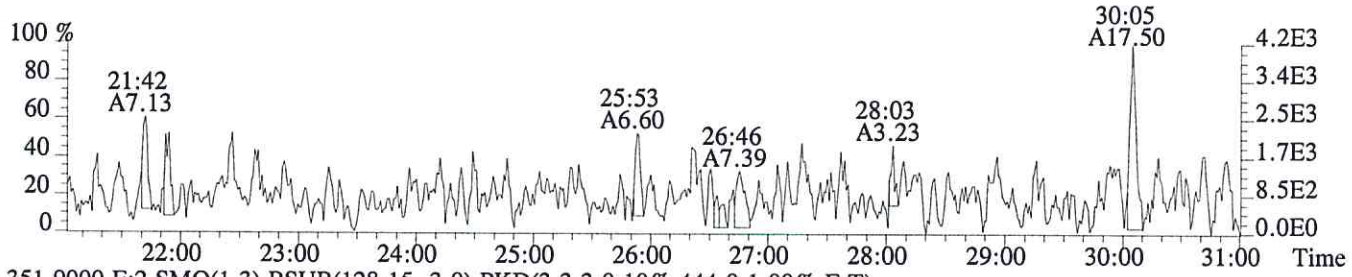


File:P402430 #1-684 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

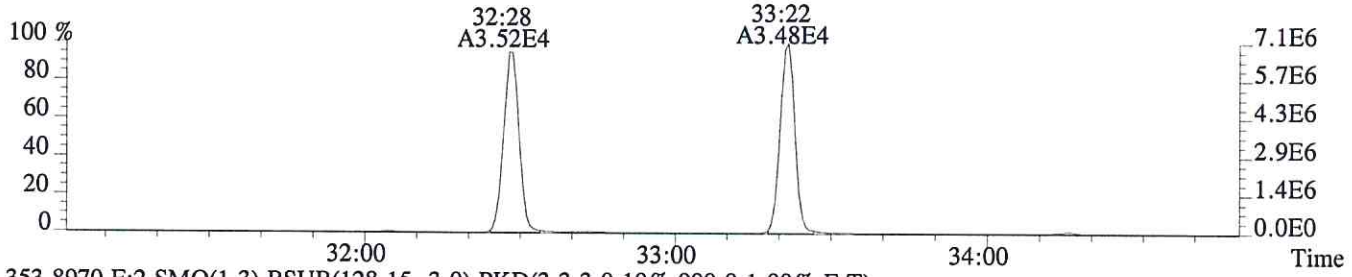
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



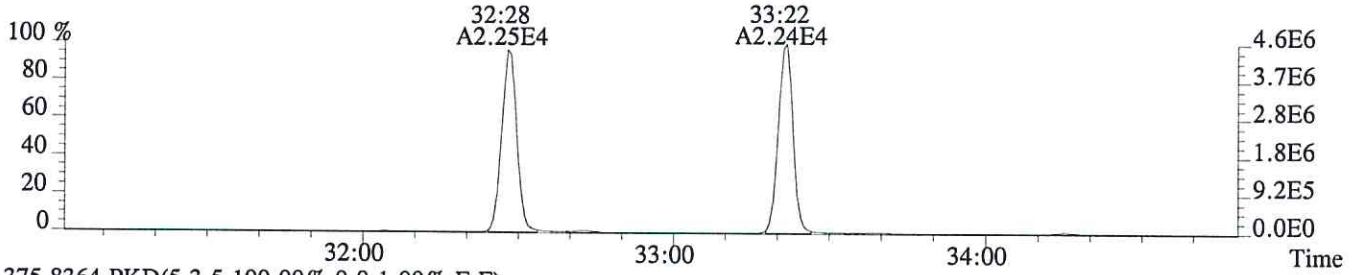
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



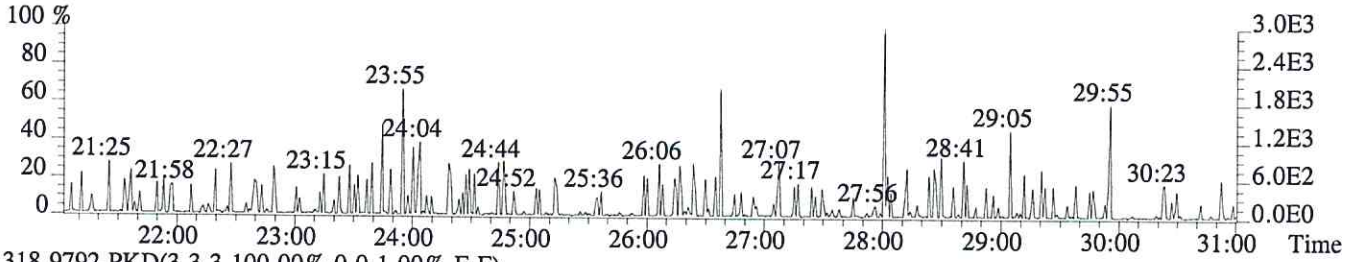
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



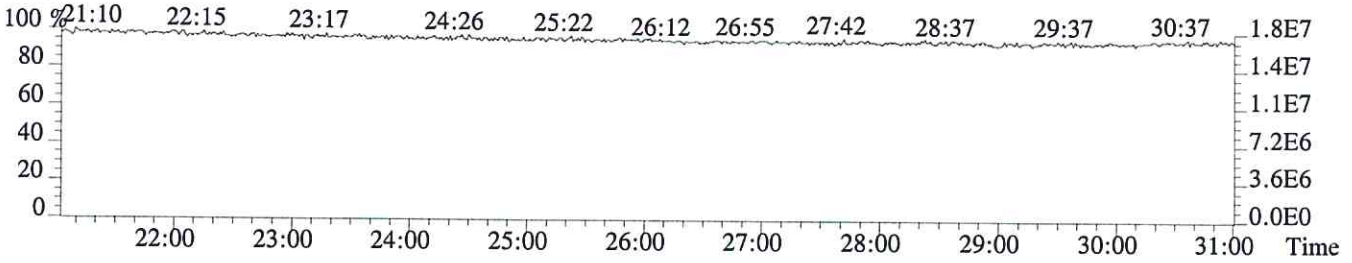
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



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

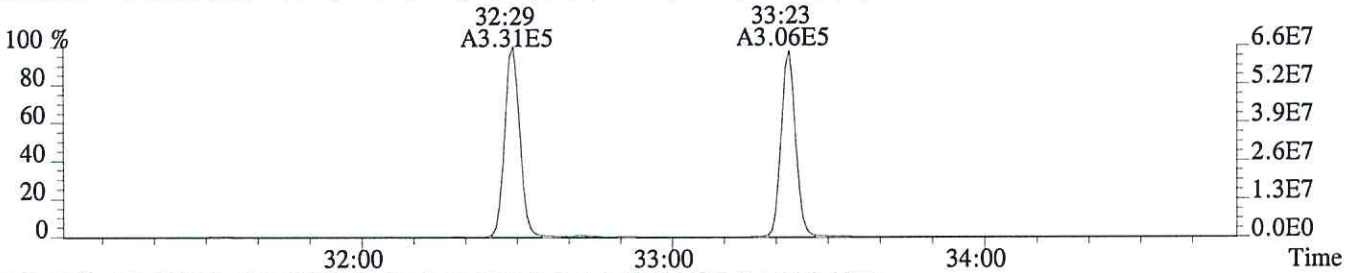


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

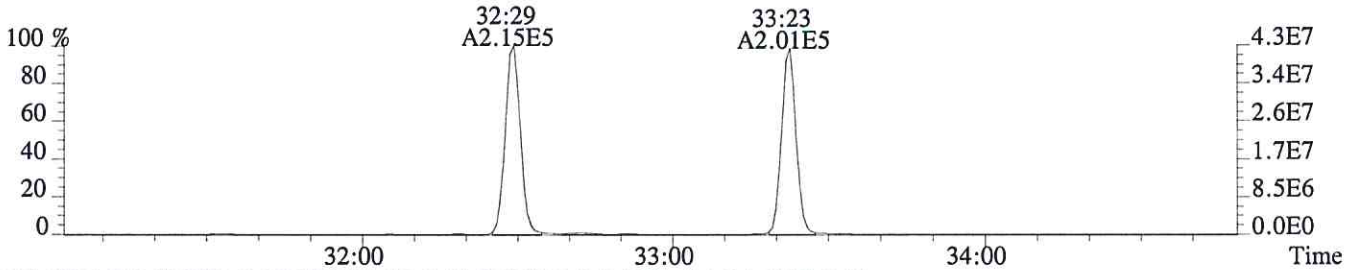


File:P402430 #1-340 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

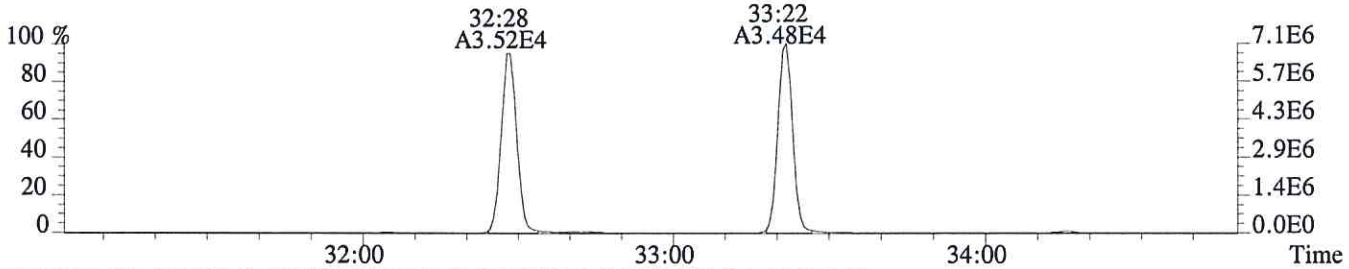
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



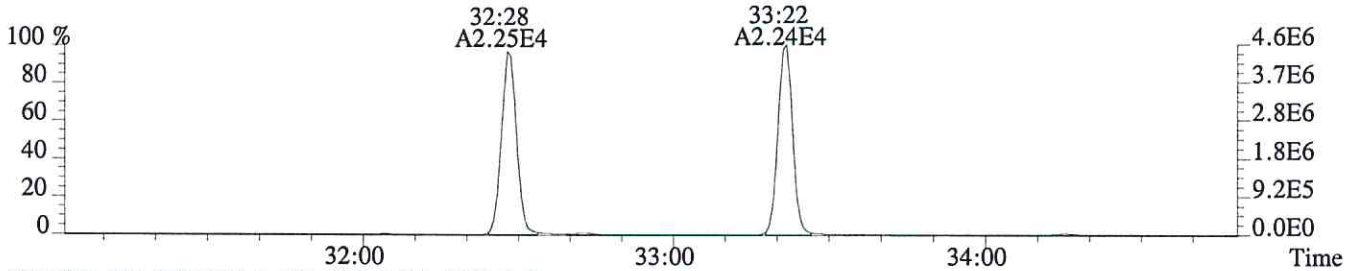
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2576.0,1.00%,F,T)



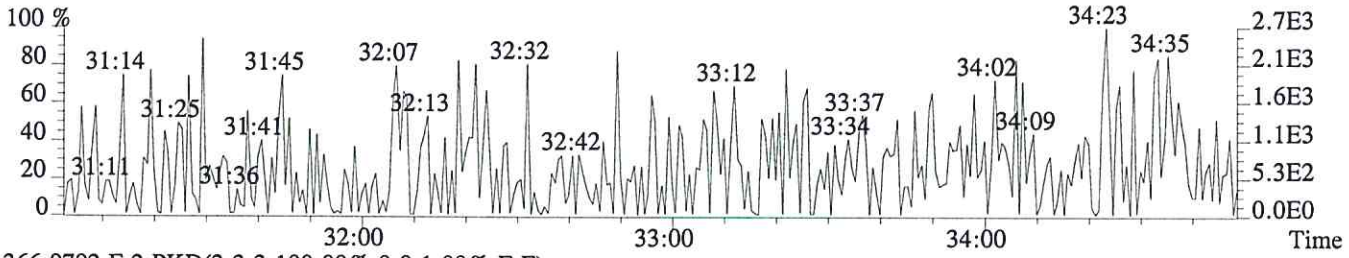
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



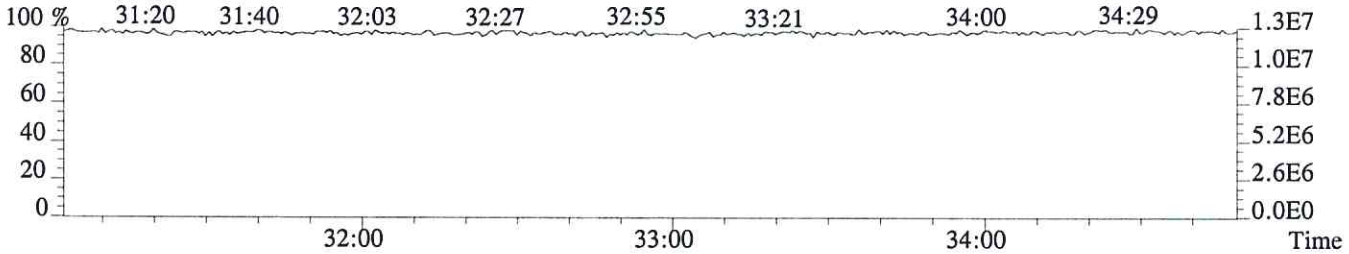
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



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

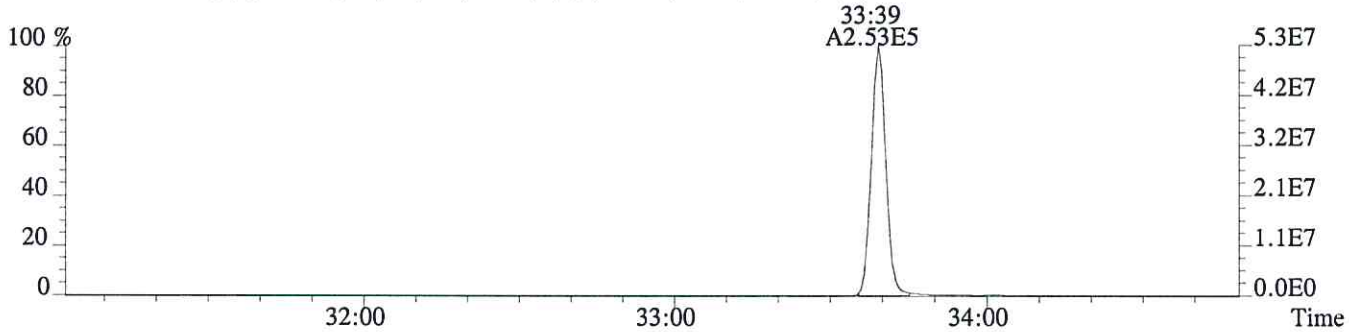


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

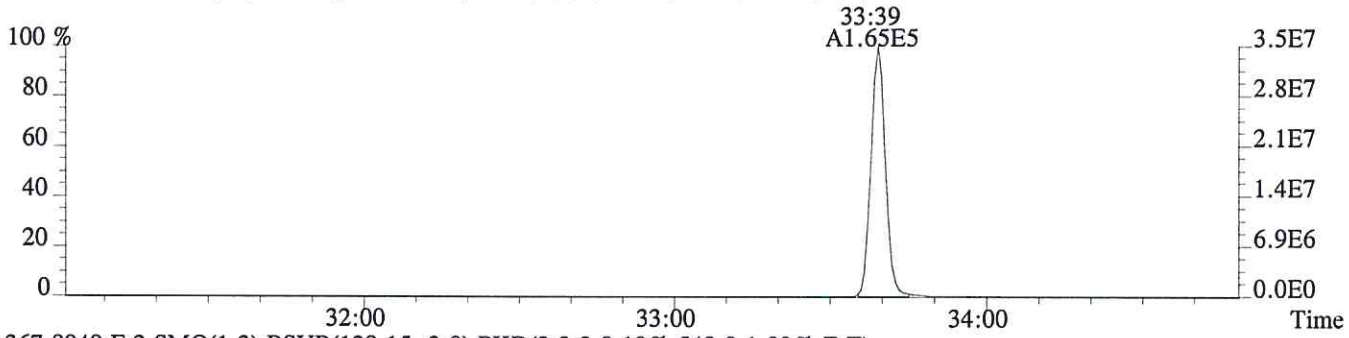


File:P402430 #1-340 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

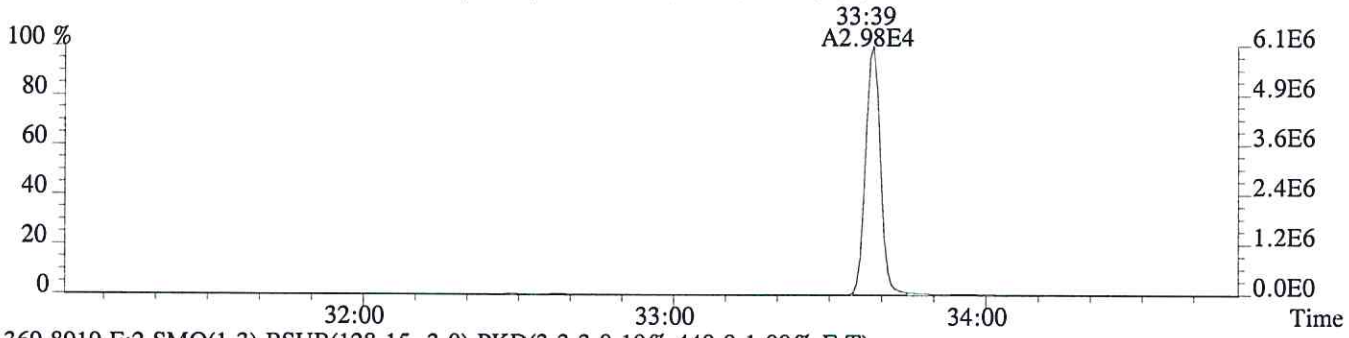
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



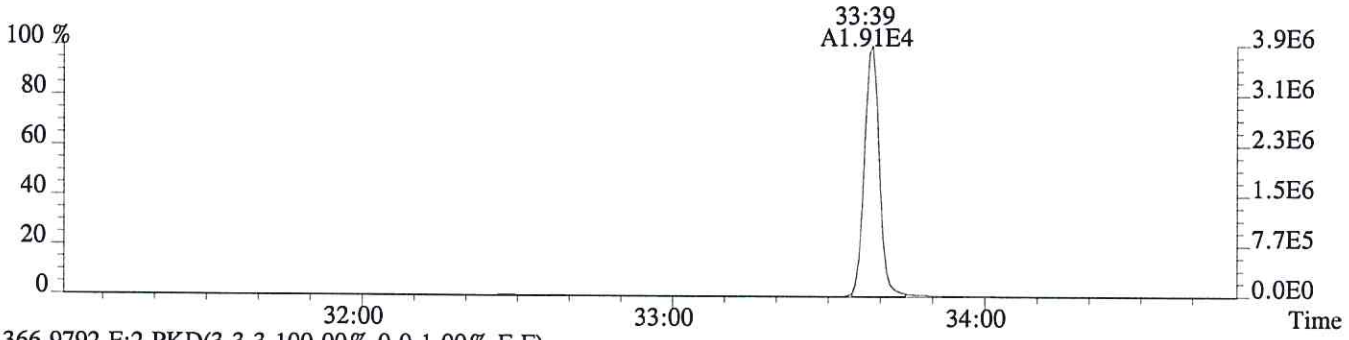
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



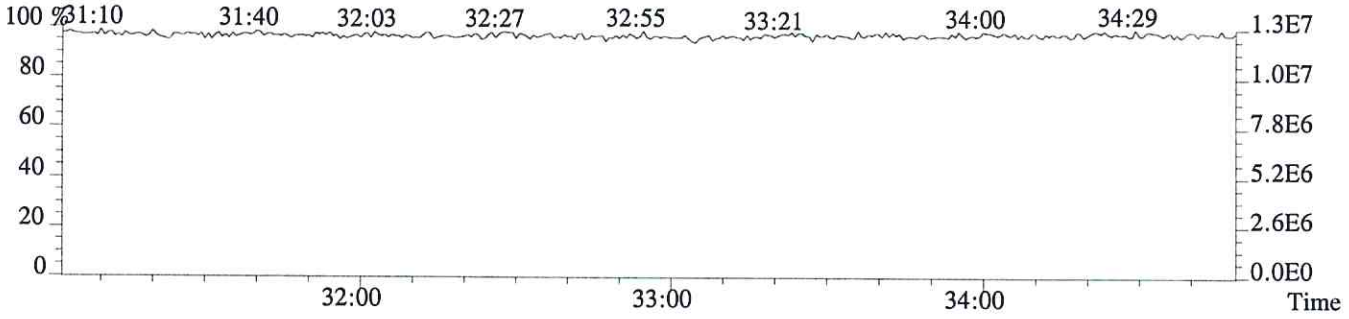
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)

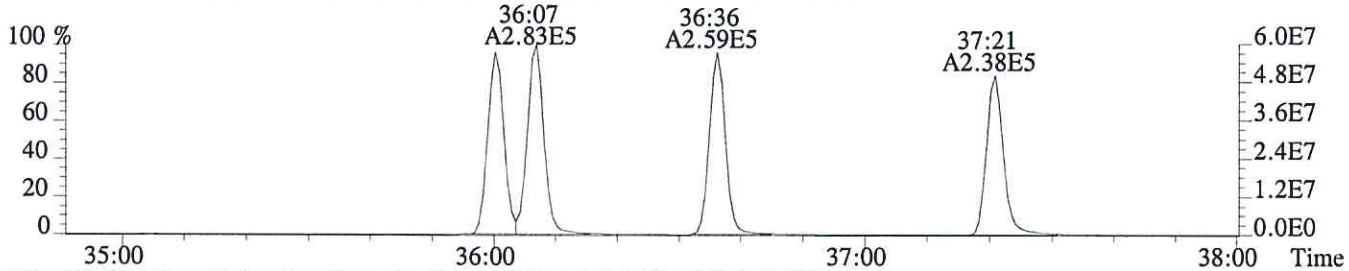


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

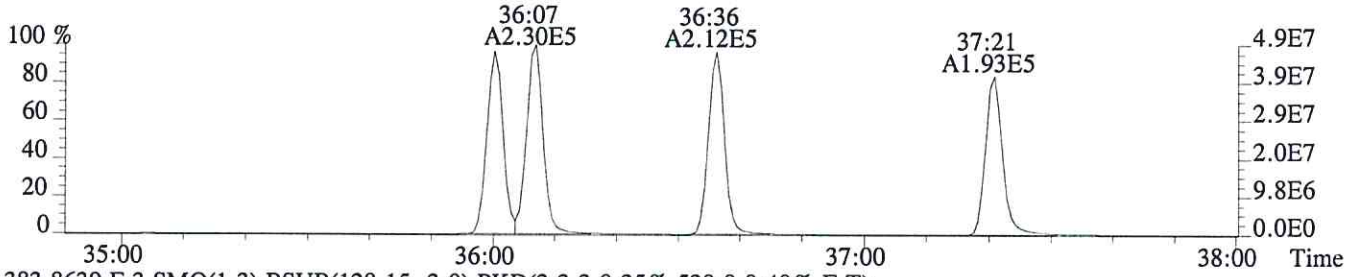


File:P402430 #1-285 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

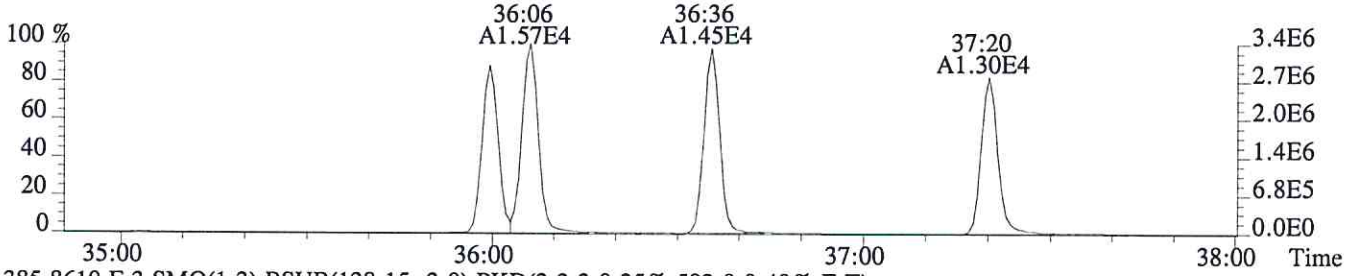
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



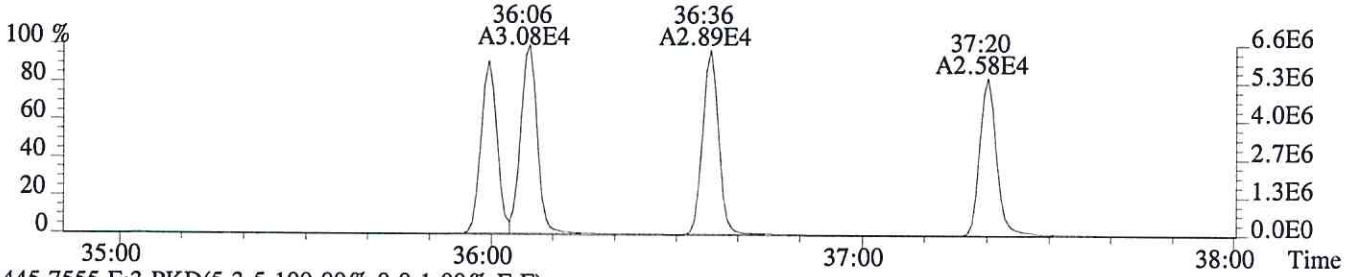
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1552.0,0.40%,F,T)



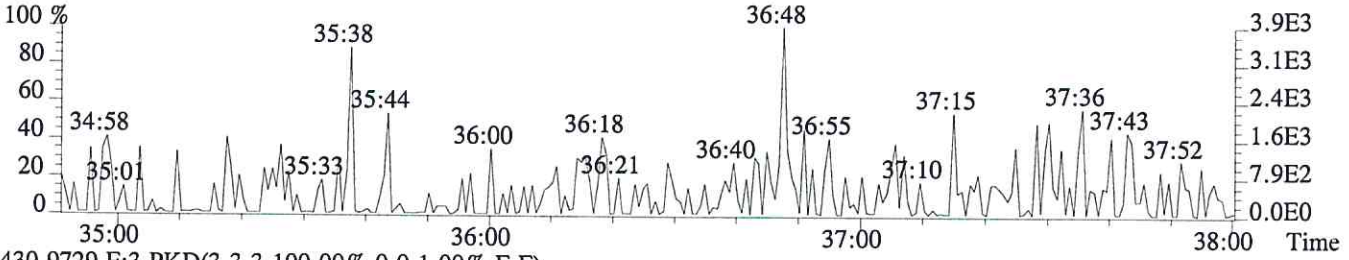
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



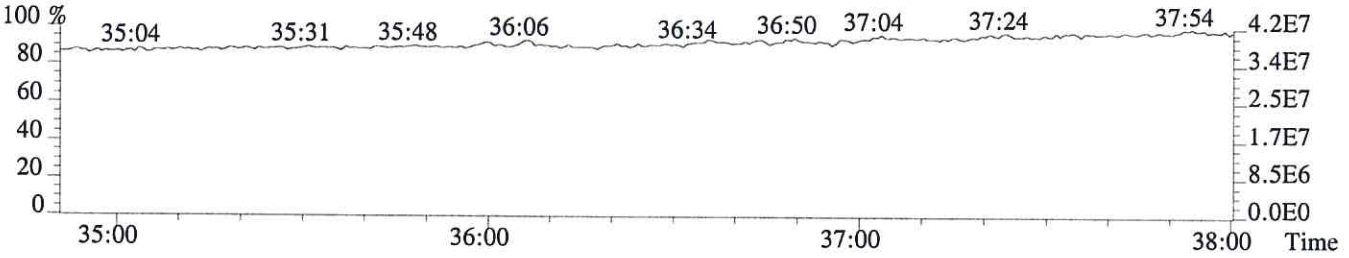
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



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

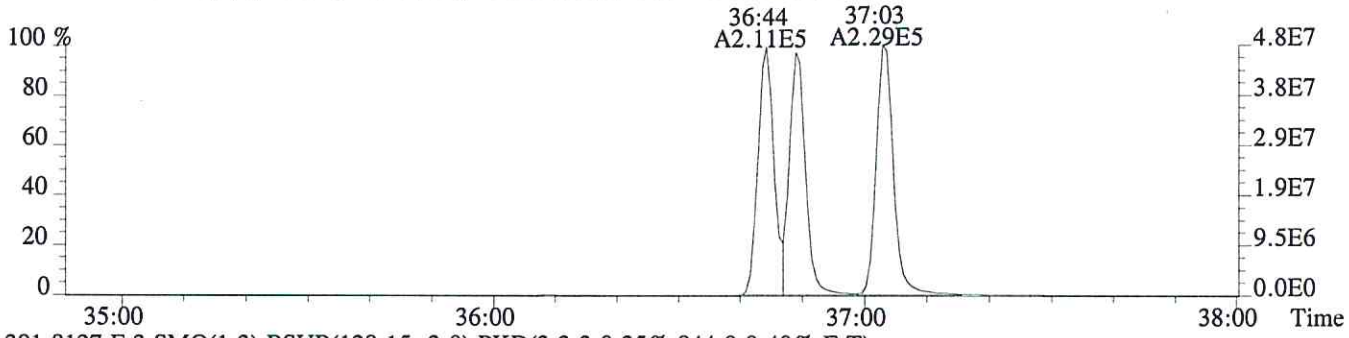


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

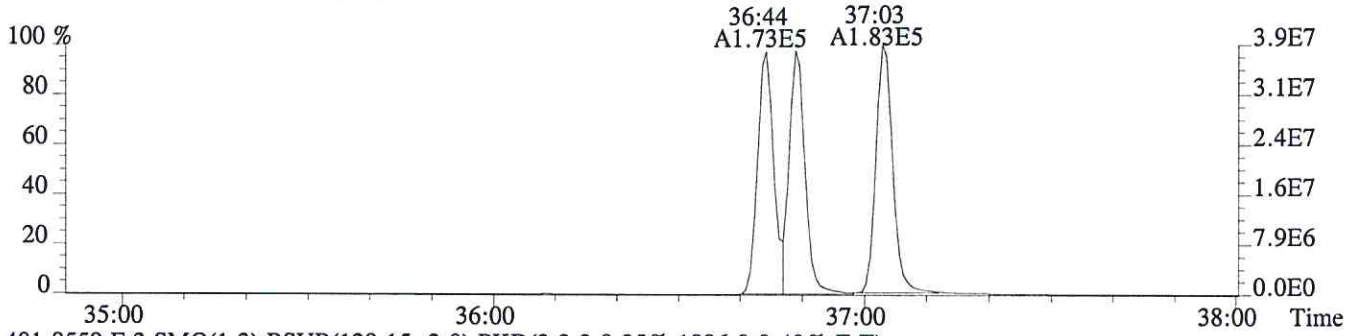


File:P402430 #1-285 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

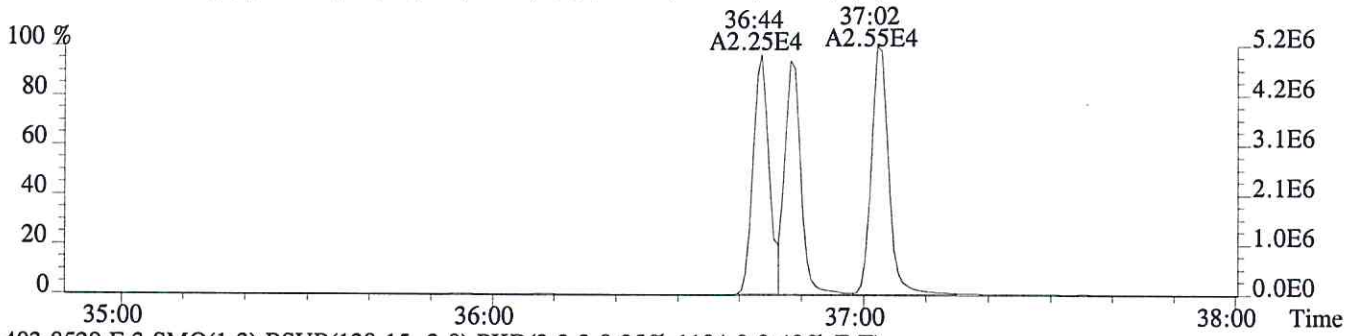
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



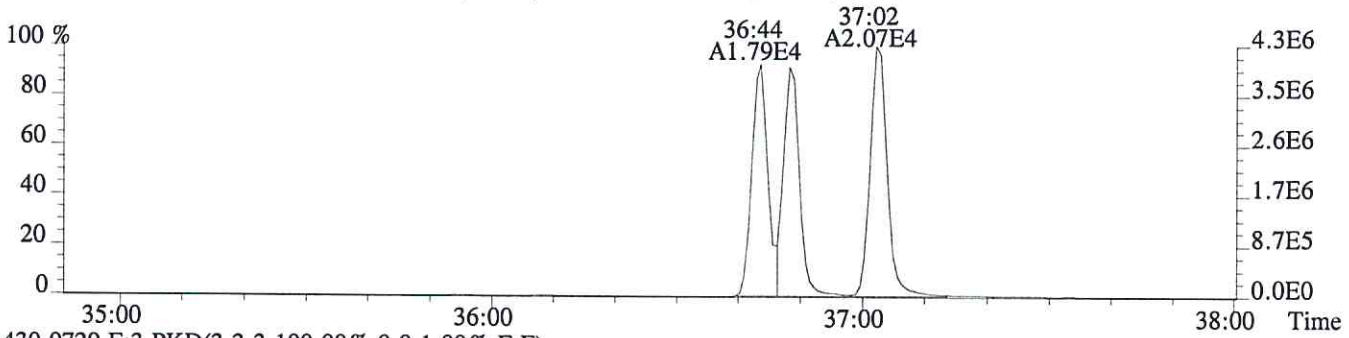
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



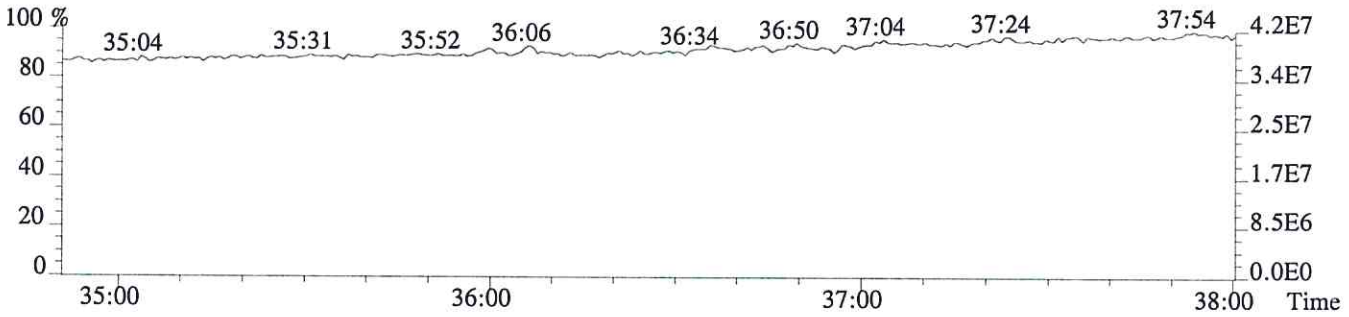
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)

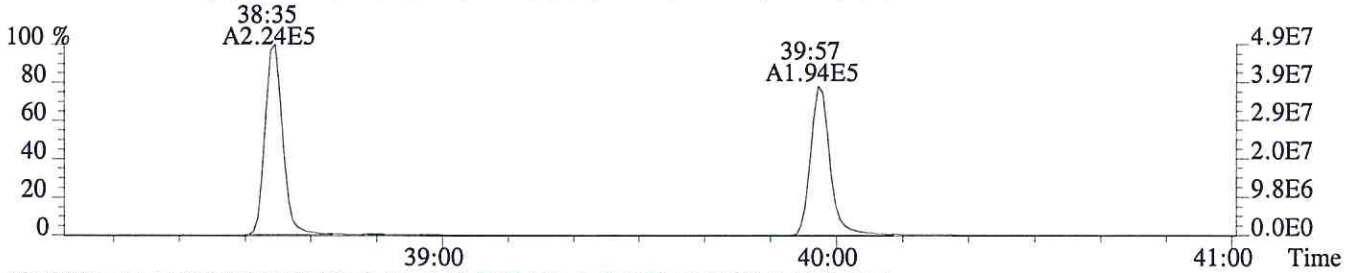


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

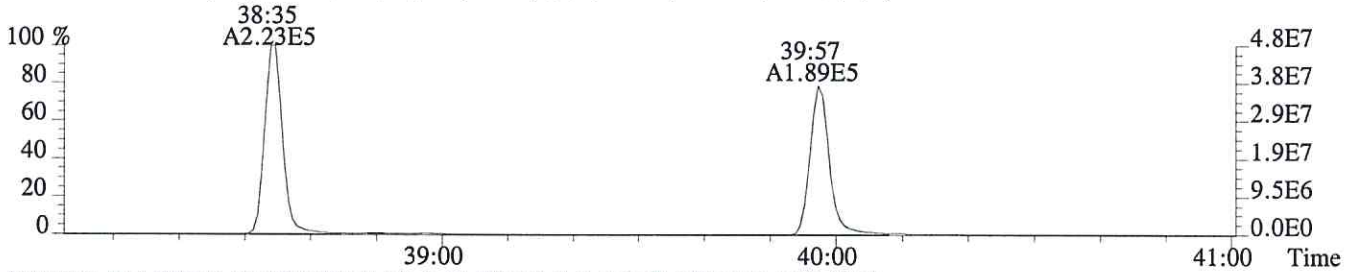


File:P402430 #1-268 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

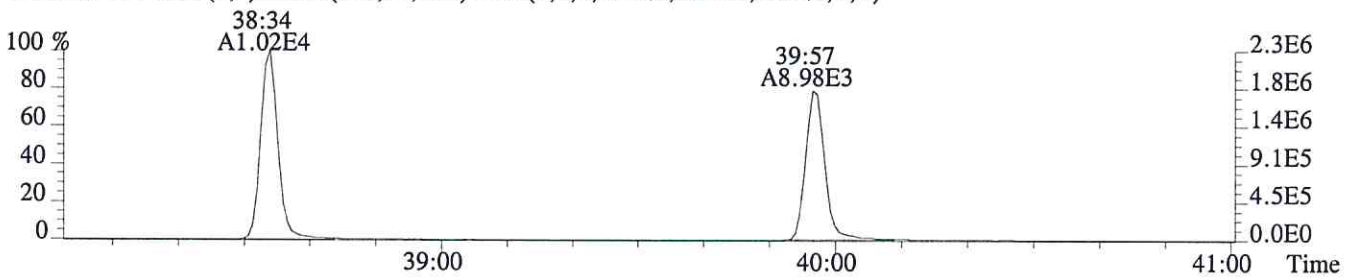
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13792.0,0.50%,F,T)



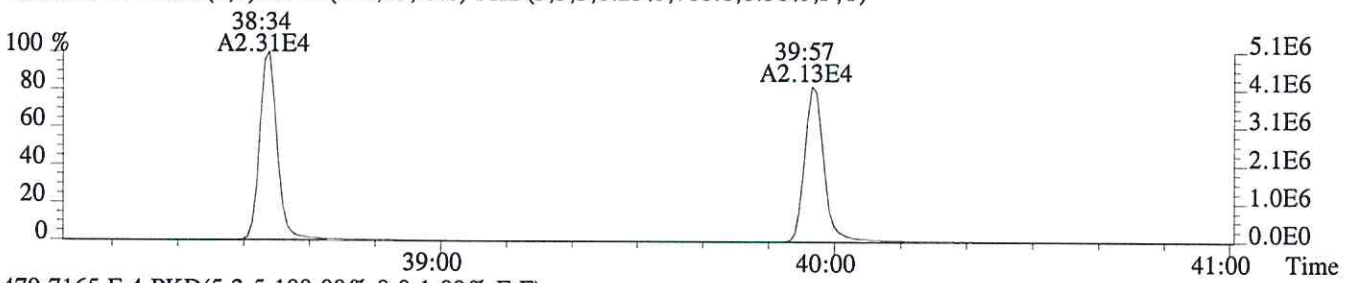
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14556.0,0.50%,F,T)



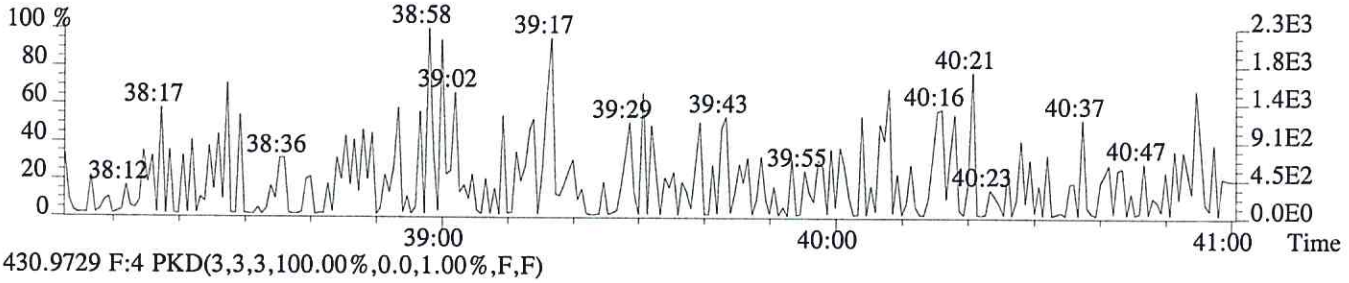
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.50%,F,T)



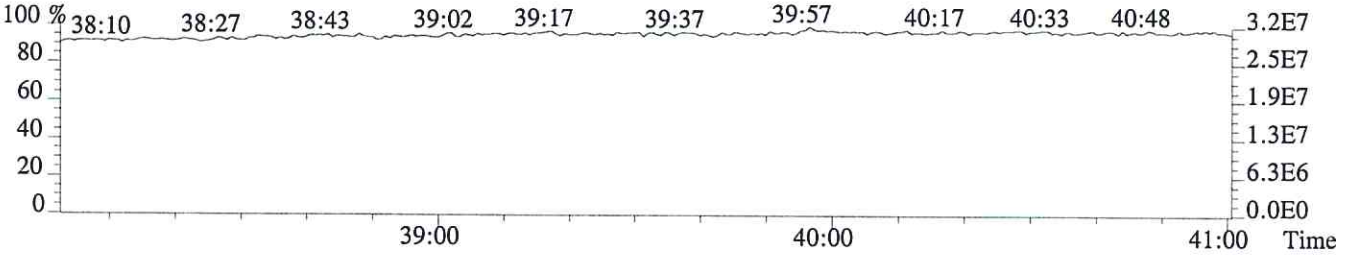
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.50%,F,T)



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

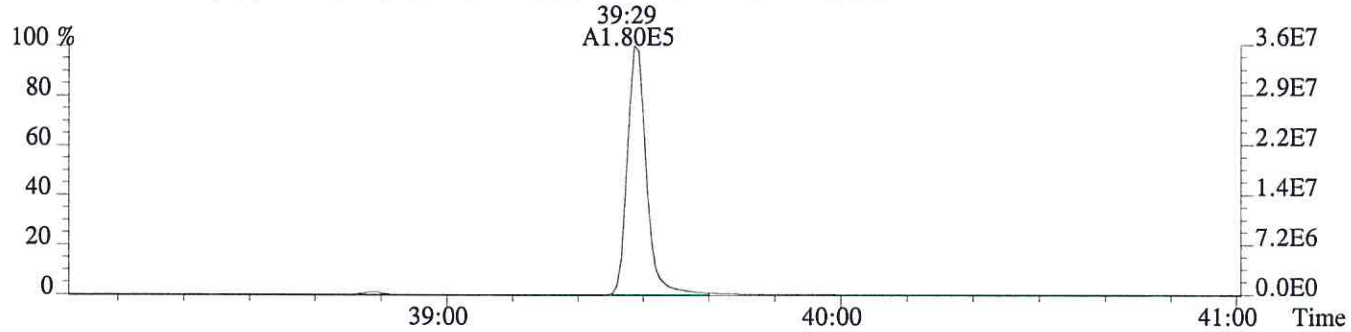


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

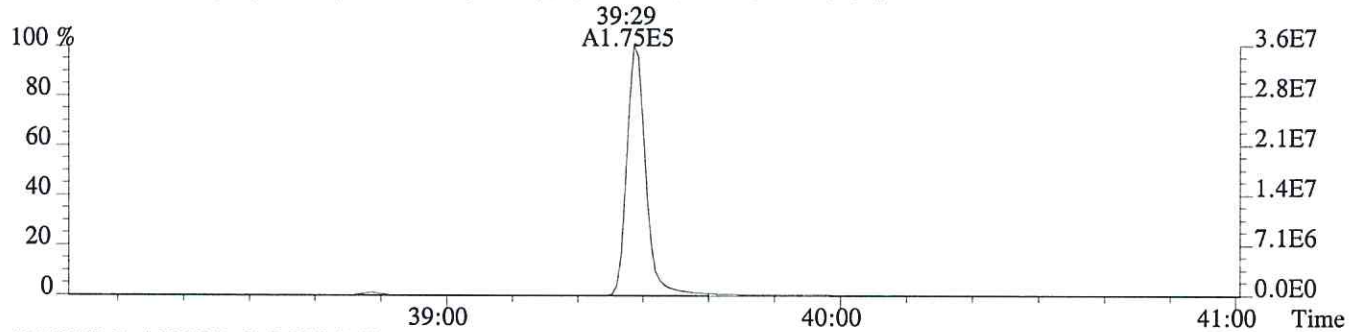


File:P402430 #1-268 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

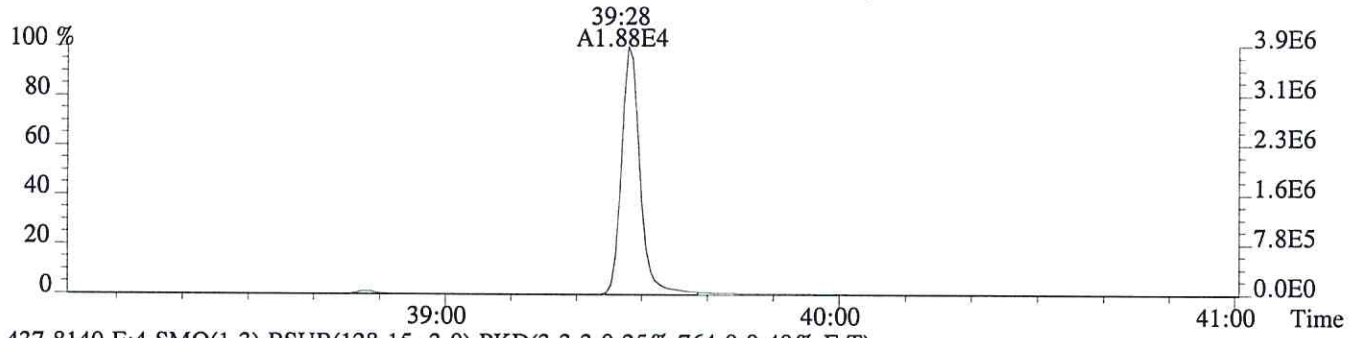
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



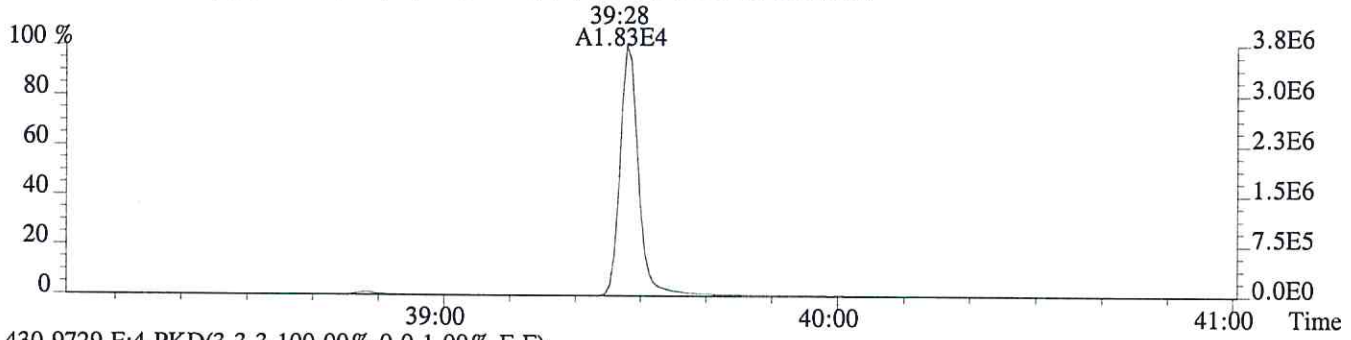
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



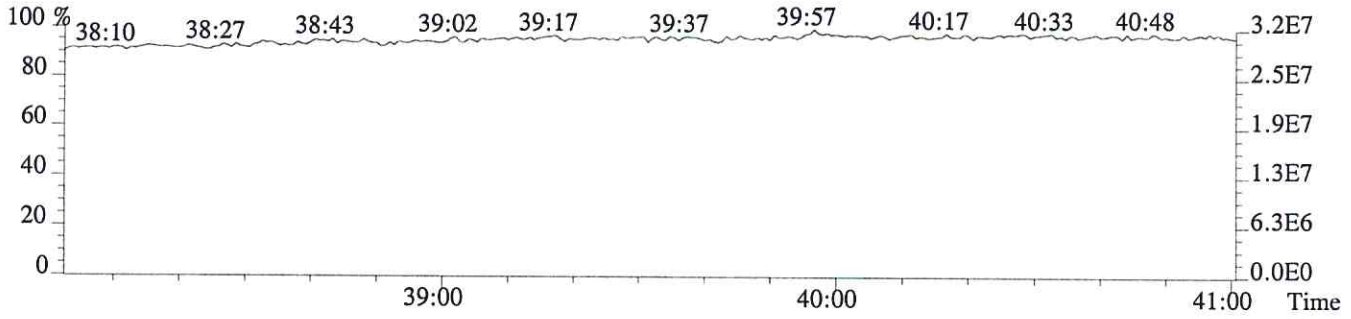
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)

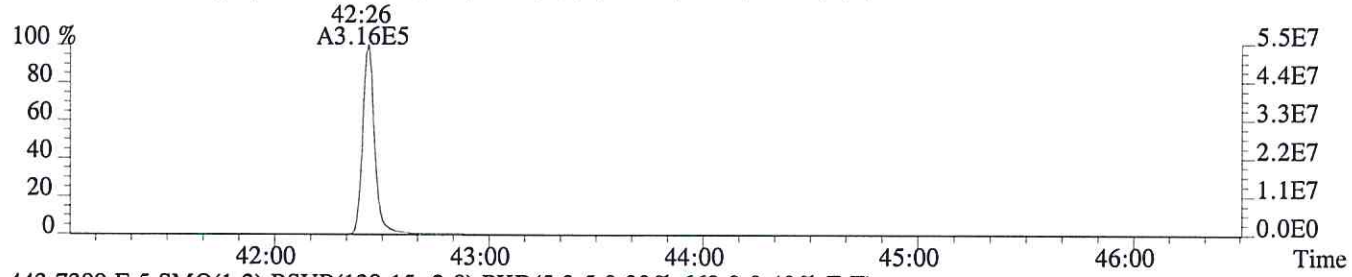


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

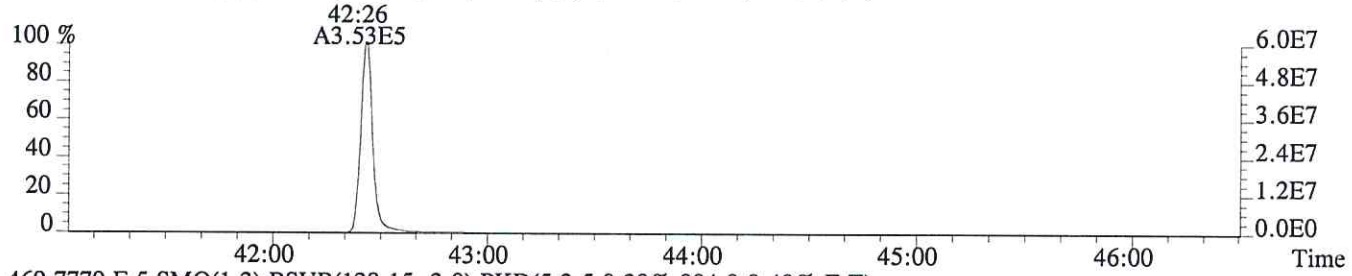


File:P402430 #1-492 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

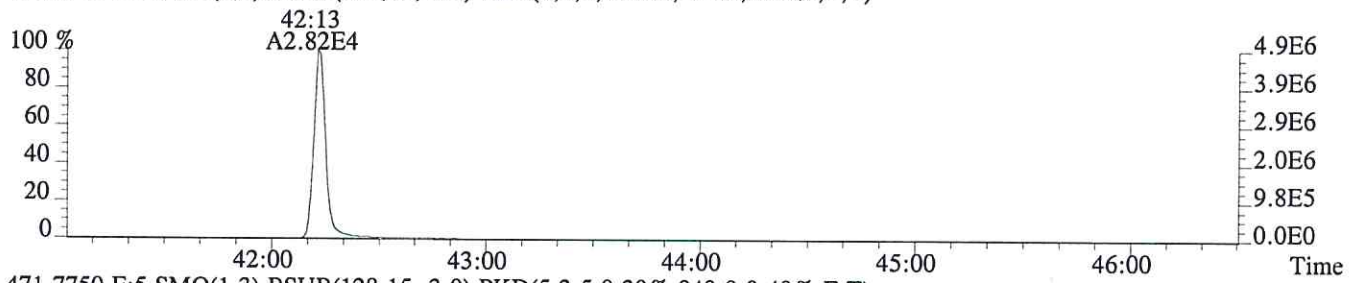
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



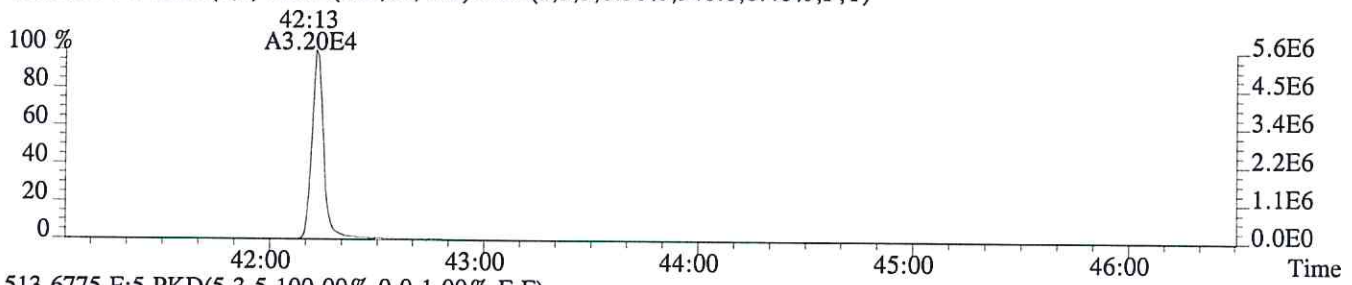
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



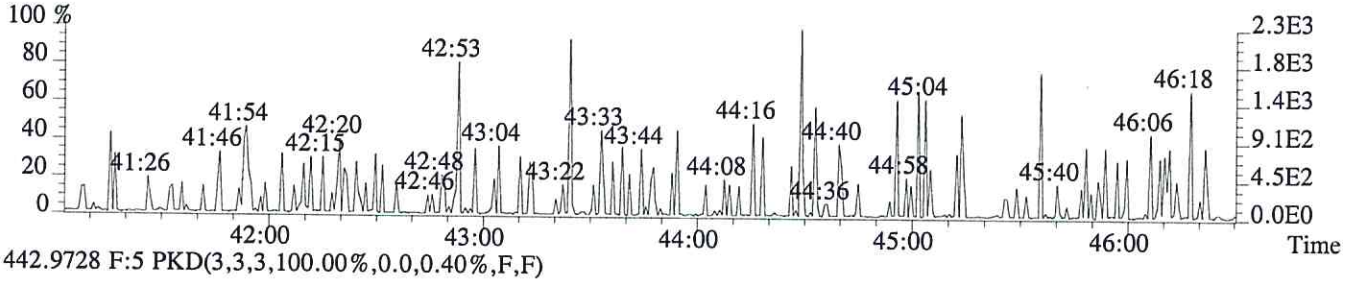
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,904.0,0.40%,F,T)



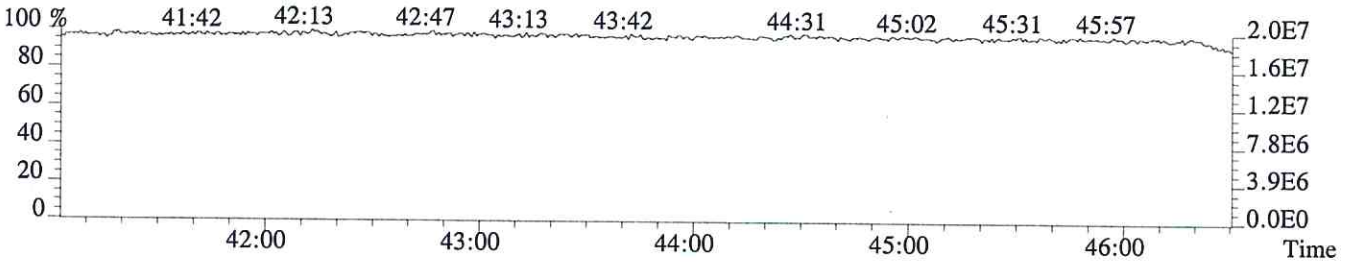
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,940.0,0.40%,F,T)



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

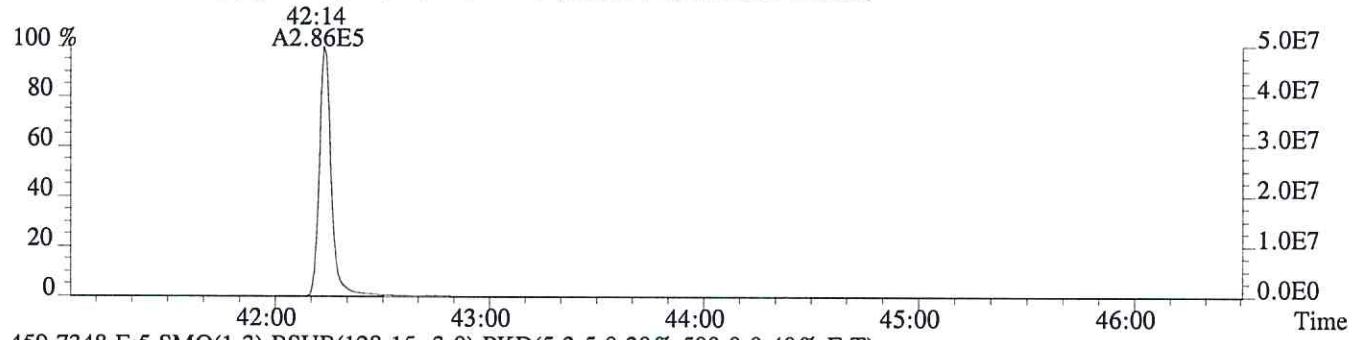


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

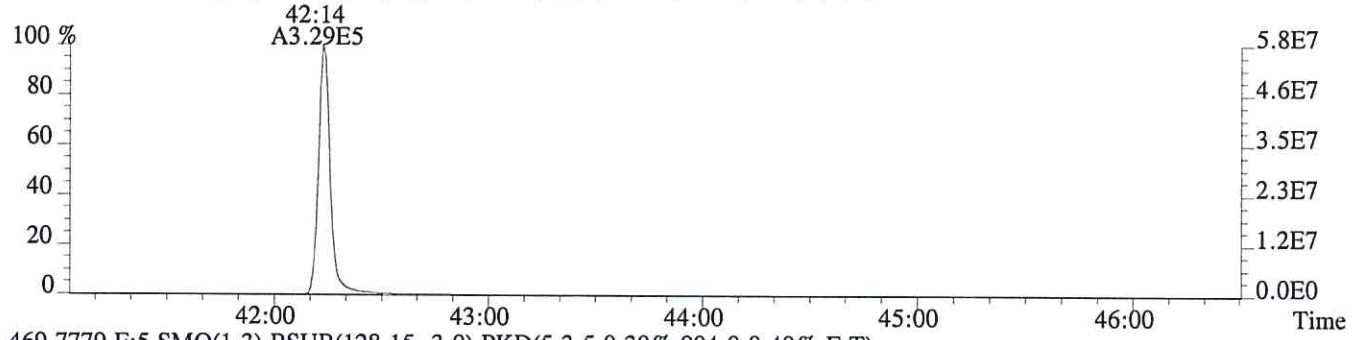


File:P402430 #1-492 Acq:28-APR-2016 15:49:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:76956

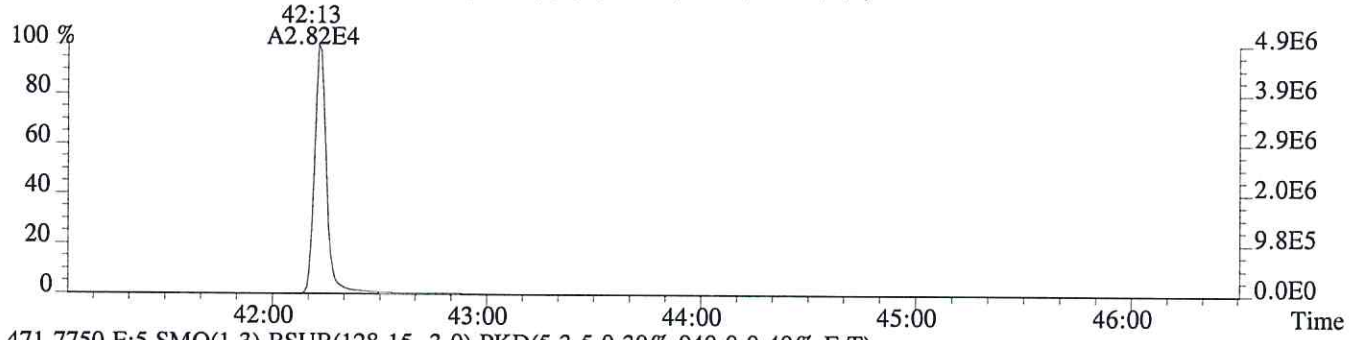
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



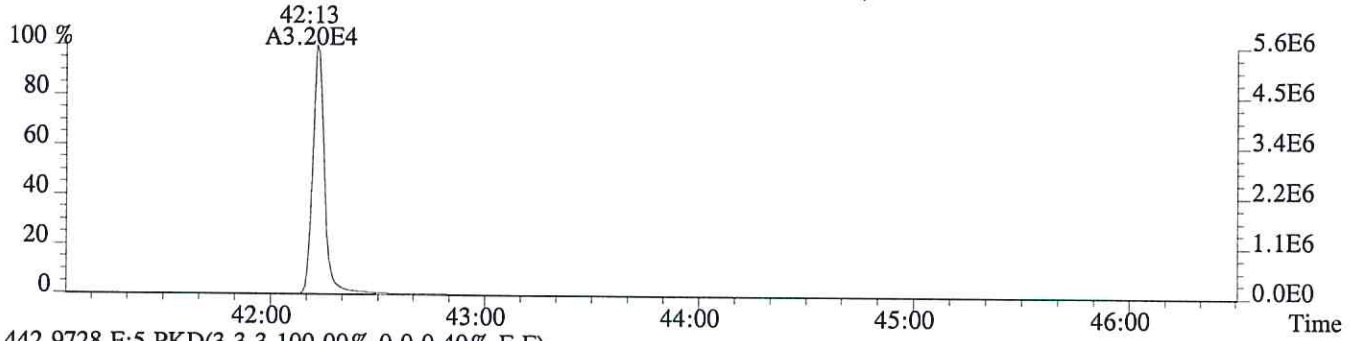
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



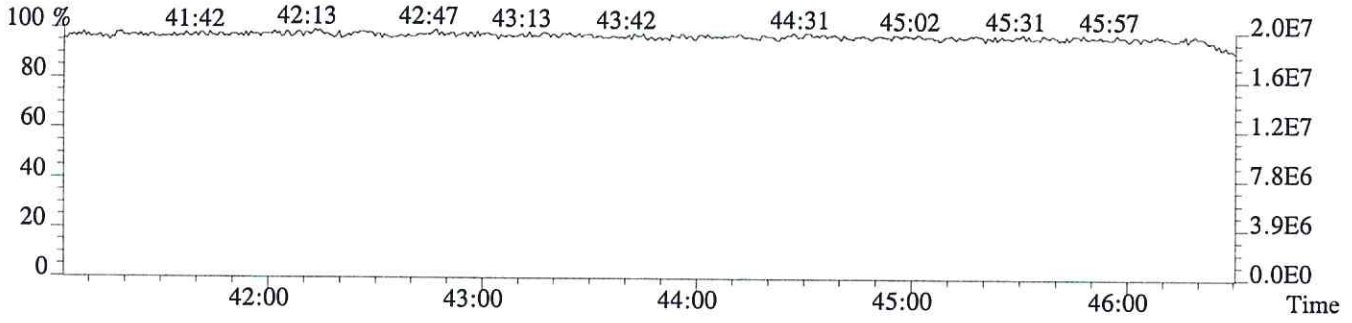
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,904.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,940.0,0.40%,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: 04/28/16

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

VER Data Filename: P402432 Analysis Date: 28-APR-16 Time: 18:00:48

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	0.75	0.65-0.89	9.4	7.8 - 12.9	-6.0
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	49	39 - 65	-1.1
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	55	39 - 64	10.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	44	39 - 64	-12.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	49	41 - 61	-2.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.00	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.89	0.76-1.02	91	79 - 126	-9.0
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.4	8.4 - 12.0	-5.9
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	47	41 - 60	-5.7
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	54	41 - 61	7.4
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	1.23	1.05-1.43	51	44 - 57	2.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	-0.7
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	1.03	0.88-1.20	49	45 - 55	-2.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	53	43 - 58	5.6
OCDF	M+2/M+4	0.88	0.76-1.02	91	63 - 159	-8.5

(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: 04/28/16

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

VER Data Filename: P402432 Analysis Date: 28-APR-16 Time: 18:00:48

	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	103	82 - 121	3.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	106	62 - 160	6.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	101	85 - 117	0.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	113	85 - 118	12.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	0.88-1.20	106	72 - 138	6.4
13C-OCDD	M+2/M+4	0.88	0.76-1.02	220	96 - 415	9.9
13C-2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	102	71 - 140	1.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	106	76 - 130	5.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	102	77 - 130	1.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.50	0.43-0.59	109	76 - 131	8.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	101	70 - 143	0.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	107	74 - 135	7.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	105	73 - 137	5.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	107	78 - 129	7.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	105	77 - 129	5.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	M+2/M+4			10.1	7.8 - 12.7	0.7

(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.
54819

Run #7 Filename P402432 Samp: 1 Inj: 1 Acquired: 28-APR-16 18:00:48
Processed: 4-MAY-16 10:21:23 Sample ID: 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:21	2.228e+03	2.988e+03	0.75	yes	no	0.769
2	Unk	1,2,3,7,8-PeCDF	32:29	1.823e+04	1.158e+04	1.57	yes	no	0.872
3	Unk	2,3,4,7,8-PeCDF	33:22	1.858e+04	1.207e+04	1.54	yes	no	0.826
4	Unk	1,2,3,4,7,8-HxCDF	36:00	1.558e+04	1.262e+04	1.23	yes	no	1.097
5	Unk	1,2,3,6,7,8-HxCDF	36:06	1.682e+04	1.364e+04	1.23	yes	no	1.029
6	Unk	2,3,4,6,7,8-HxCDF	36:36	1.516e+04	1.230e+04	1.23	yes	no	1.015
7	Unk	1,2,3,7,8,9-HxCDF	37:20	1.394e+04	1.133e+04	1.23	yes	no	1.033
8	Unk	1,2,3,4,6,7,8-HpCDF	38:34	1.337e+04	1.297e+04	1.03	yes	no	1.237
9	Unk	1,2,3,4,7,8,9-HpCDF	39:57	1.184e+04	1.186e+04	1.00	yes	no	1.187
10	Unk	OCDF	42:26	1.687e+04	1.909e+04	0.88	yes	no	1.035
11	Unk	2,3,7,8-TCDD	29:07	2.202e+03	2.924e+03	0.75	yes	no	0.873
12	Unk	1,2,3,7,8-PeCDD	33:39	1.480e+04	9.477e+03	1.56	yes	no	0.806
13	Unk	1,2,3,4,7,8-HxCDD	36:44	1.290e+04	1.044e+04	1.24	yes	no	0.881
14	Unk	1,2,3,6,7,8-HxCDD	36:49	1.240e+04	1.004e+04	1.23	yes	no	0.893
15	Unk	1,2,3,7,8,9-HxCDD	37:03	1.347e+04	1.090e+04	1.24	yes	no	0.946
16	Unk	1,2,3,4,6,7,8-HpCDD	39:29	1.036e+04	1.036e+04	1.00	yes	no	0.882
17	Unk	OCDD	42:14	1.593e+04	1.796e+04	0.89	yes	no	0.980
18	IS	13C-2,3,7,8-TCDF	28:20	3.098e+04	4.114e+04	0.75	yes	no	1.137
19	IS	13C-1,2,3,7,8-PeCDF	32:28	4.434e+04	2.815e+04	1.57	yes	no	1.098
20	IS	13C-2,3,4,7,8-PeCDF	33:21	4.203e+04	2.703e+04	1.55	yes	no	1.086
21	IS	13C-1,2,3,4,7,8-HxCDF	35:59	1.768e+04	3.540e+04	0.50	yes	no	0.894
22	IS	13C-1,2,3,6,7,8-HxCDF	36:06	1.949e+04	3.843e+04	0.51	yes	no	1.056
23	IS	13C-2,3,4,6,7,8-HxCDF	36:35	1.856e+04	3.641e+04	0.51	yes	no	0.959
24	IS	13C-1,2,3,7,8,9-HxCDF	37:20	1.651e+04	3.275e+04	0.50	yes	no	0.843
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:33	1.324e+04	3.024e+04	0.44	yes	no	0.744
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:57	1.128e+04	2.656e+04	0.42	yes	no	0.658
27	IS	13C-2,3,7,8-TCDD	29:06	2.734e+04	3.513e+04	0.78	yes	no	0.970
28	IS	13C-1,2,3,7,8-PeCDD	33:38	3.719e+04	2.372e+04	1.57	yes	no	0.922
29	IS	13C-1,2,3,4,7,8-HxCDD	36:43	2.669e+04	2.141e+04	1.25	yes	no	0.877
30	IS	13C-1,2,3,6,7,8-HxCDD	36:48	3.179e+04	2.557e+04	1.24	yes	no	0.933
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:28	2.387e+04	2.356e+04	1.01	yes	no	0.817
32	IS	13C-OCDD	42:13	3.556e+04	4.044e+04	0.88	yes	no	0.634
33	RS/RT	13C-1,2,3,4-TCDD	28:33	2.745e+04	3.491e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:02	3.017e+04	2.437e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	6.016e+03				no	0.958

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
54819

Run #7 Filename P402432 Samp: 1 Inj: 1 Acquired: 28-APR-16 18:00:48
Processed: 4-MAY-16 10:21:23 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	4.45e+05	3.24e+02	1.4e+03	5.93e+05	8.68e+02	6.8e+02
2	1,2,3,7,8-PeCDF	3.60e+06	4.72e+02	7.6e+03	2.29e+06	1.93e+03	1.2e+03
3	2,3,4,7,8-PeCDF	3.92e+06	4.72e+02	8.3e+03	2.55e+06	1.93e+03	1.3e+03
4	1,2,3,4,7,8-HxCDF	3.39e+06	6.00e+02	5.6e+03	2.77e+06	2.96e+02	9.4e+03
5	1,2,3,6,7,8-HxCDF	3.63e+06	6.00e+02	6.1e+03	2.95e+06	2.96e+02	1.0e+04
6	2,3,4,6,7,8-HxCDF	3.36e+06	6.00e+02	5.6e+03	2.75e+06	2.96e+02	9.3e+03
7	1,2,3,7,8,9-HxCDF	2.93e+06	6.00e+02	4.9e+03	2.37e+06	2.96e+02	8.0e+03
8	1,2,3,4,6,7,8-HpCDF	2.97e+06	1.30e+03	2.3e+03	2.90e+06	1.95e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	2.41e+06	1.30e+03	1.8e+03	2.38e+06	1.95e+03	1.2e+03
10	OCDF	2.94e+06	2.56e+02	1.1e+04	3.30e+06	1.26e+03	2.6e+03
11	2,3,7,8-TCDD	4.60e+05	8.48e+02	5.4e+02	6.09e+05	5.44e+02	1.1e+03
12	1,2,3,7,8-PeCDD	3.03e+06	8.04e+02	3.8e+03	1.94e+06	4.32e+02	4.5e+03
13	1,2,3,4,7,8-HxCDD	3.00e+06	5.96e+02	5.0e+03	2.44e+06	4.40e+02	5.5e+03
14	1,2,3,6,7,8-HxCDD	2.68e+06	5.96e+02	4.5e+03	2.14e+06	4.40e+02	4.9e+03
15	1,2,3,7,8,9-HxCDD	2.93e+06	5.96e+02	4.9e+03	2.39e+06	4.40e+02	5.4e+03
16	1,2,3,4,6,7,8-HpCDD	2.21e+06	7.40e+02	3.0e+03	2.14e+06	2.04e+02	1.1e+04
17	OCDD	2.81e+06	3.68e+02	7.6e+03	3.18e+06	5.48e+02	5.8e+03
18	13C-2,3,7,8-TCDF	6.22e+06	2.39e+03	2.6e+03	8.28e+06	1.22e+03	6.8e+03
19	13C-1,2,3,7,8-PeCDF	8.65e+06	1.80e+02	4.8e+04	5.47e+06	9.36e+02	5.8e+03
20	13C-2,3,4,7,8-PeCDF	8.77e+06	1.80e+02	4.9e+04	5.67e+06	9.36e+02	6.1e+03
21	13C-1,2,3,4,7,8-HxCDF	3.84e+06	8.80e+02	4.4e+03	7.75e+06	1.22e+03	6.4e+03
22	13C-1,2,3,6,7,8-HxCDF	4.13e+06	8.80e+02	4.7e+03	8.17e+06	1.22e+03	6.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.07e+06	8.80e+02	4.6e+03	8.06e+06	1.22e+03	6.6e+03
24	13C-1,2,3,7,8,9-HxCDF	3.43e+06	8.80e+02	3.9e+03	6.80e+06	1.22e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.96e+06	1.88e+03	1.6e+03	6.66e+06	3.59e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.26e+06	1.88e+03	1.2e+03	5.28e+06	3.59e+03	1.5e+03
27	13C-2,3,7,8-TCDD	5.74e+06	4.56e+03	1.3e+03	7.39e+06	2.22e+03	3.3e+03
28	13C-1,2,3,7,8-PeCDD	7.73e+06	5.04e+02	1.5e+04	4.94e+06	4.20e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	6.12e+06	2.33e+03	2.6e+03	4.90e+06	1.48e+03	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	6.82e+06	2.33e+03	2.9e+03	5.50e+06	1.48e+03	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.97e+06	6.88e+02	7.2e+03	4.81e+06	5.08e+02	9.5e+03
32	13C-OCDD	6.24e+06	7.60e+02	8.2e+03	7.07e+06	5.80e+02	1.2e+04
33	13C-1,2,3,4-TCDD	5.71e+06	4.56e+03	1.3e+03	7.19e+06	2.22e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	6.57e+06	2.33e+03	2.8e+03	5.27e+06	1.48e+03	3.6e+03
35	37Cl-2,3,7,8-TCDD	1.26e+06	1.59e+03	7.9e+02			

---Sample Calculation---

$$\text{D/L TCDD} = \frac{2.5 \times (8.480e{+}02 + 5.440e{+}02) \times 100}{(5.737e{+}06 + 7.394e{+}06) \times (\qquad) \times 0.873} =$$

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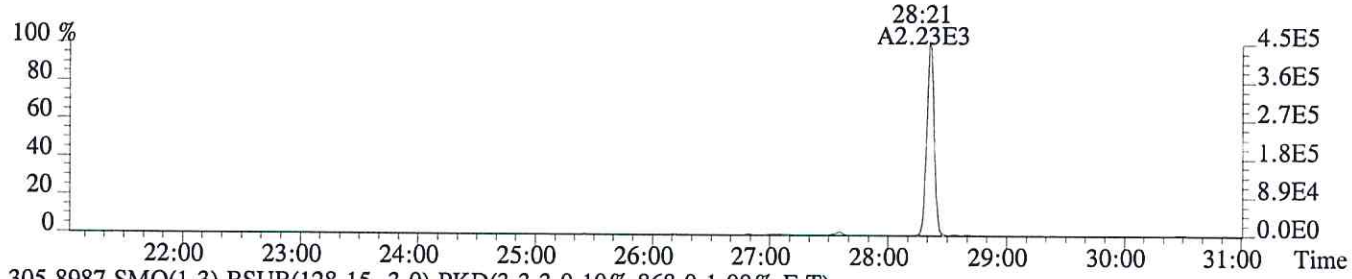
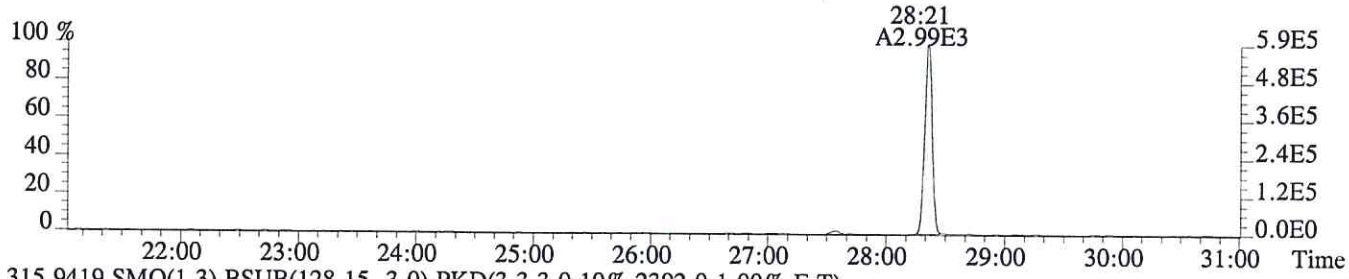
File:P402432 #1-684 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

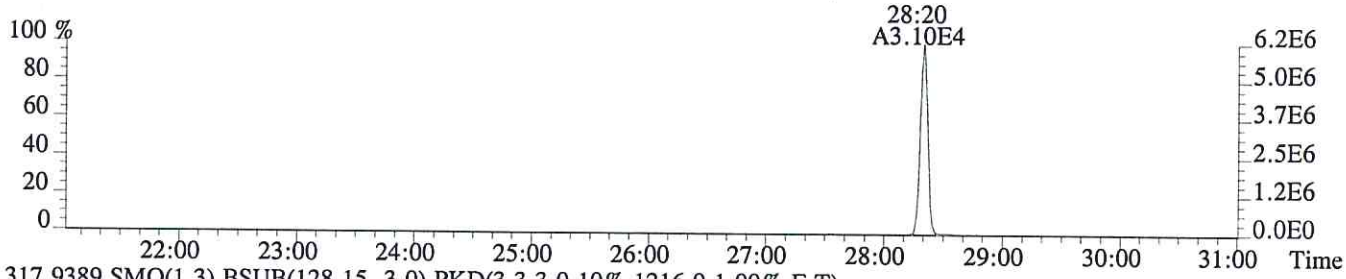
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



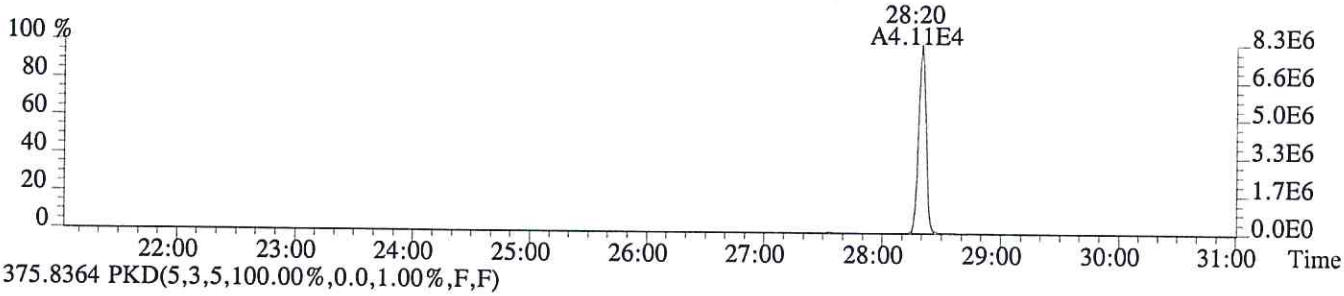
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



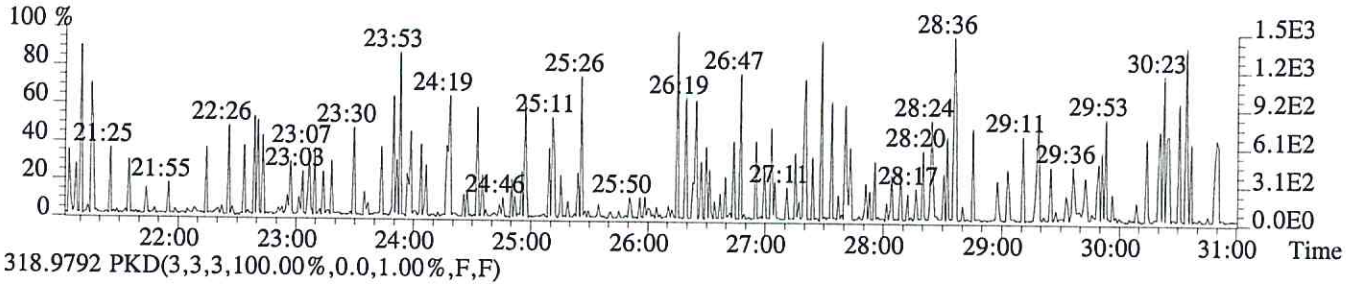
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



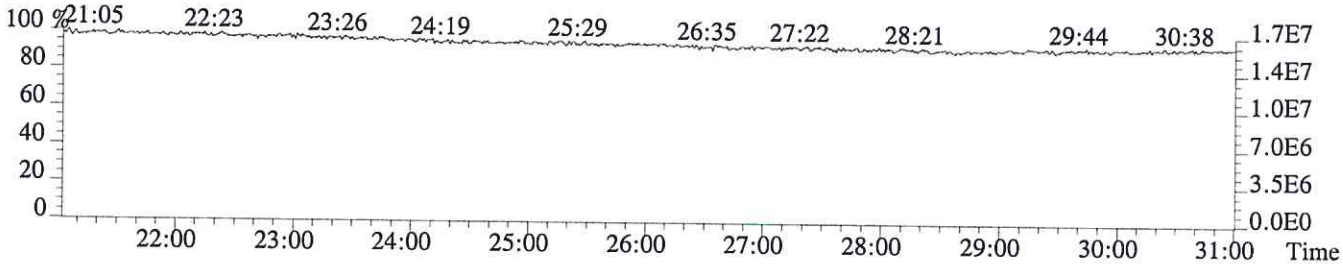
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



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

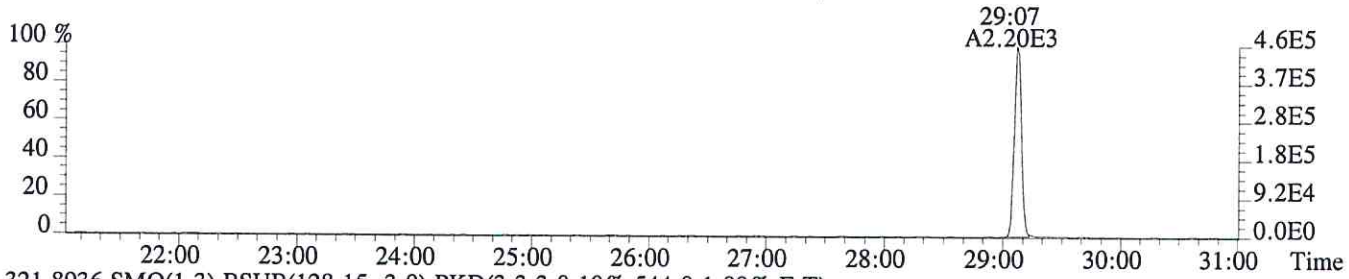


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

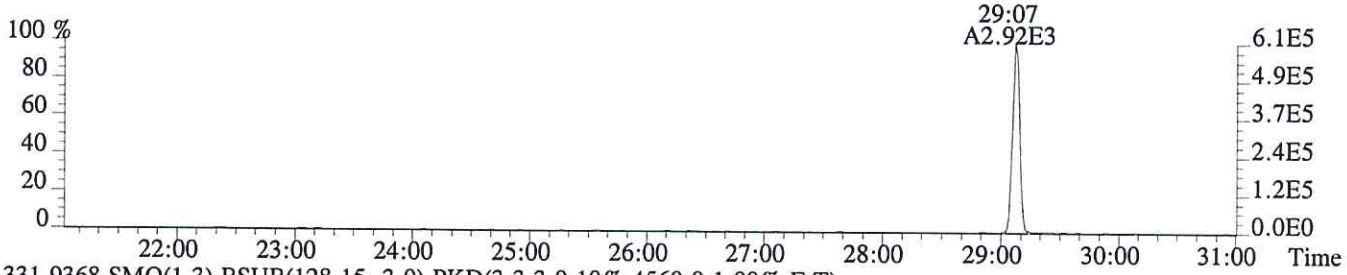


File:P402432 #1-684 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

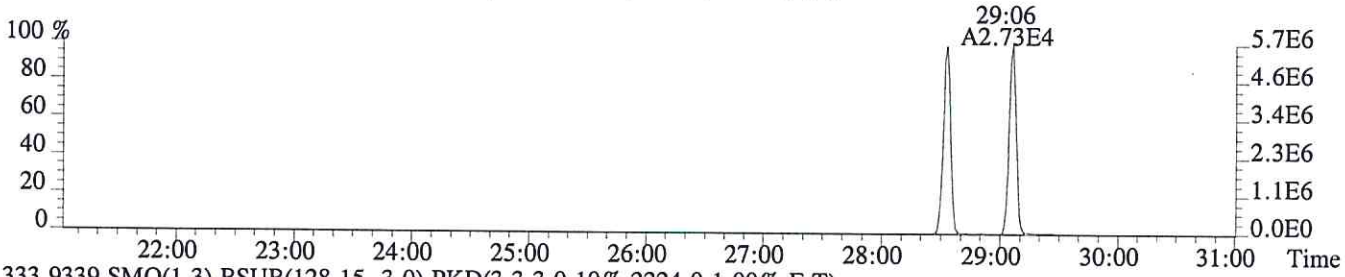
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



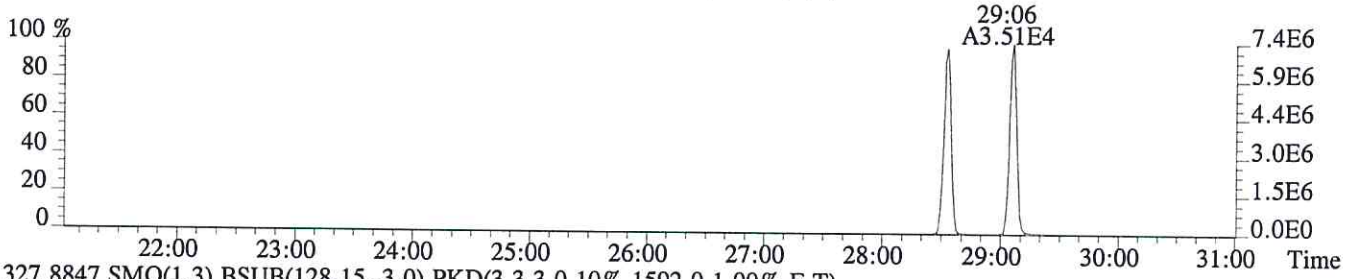
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



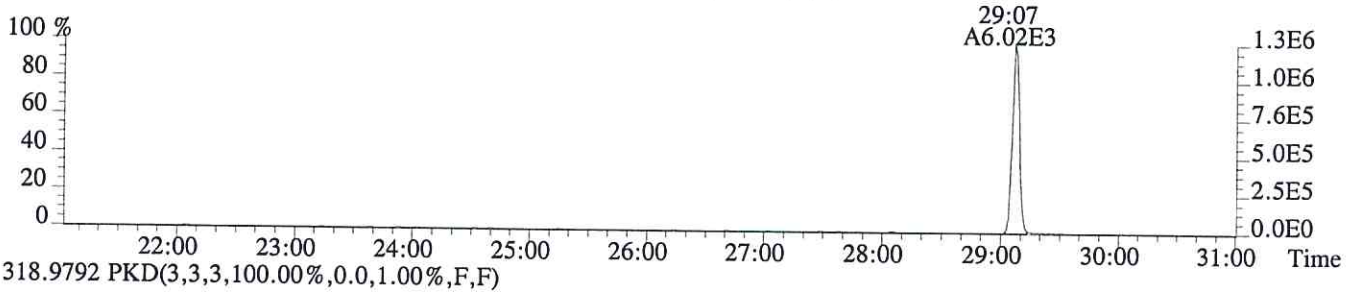
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4560.0,1.00%,F,T)



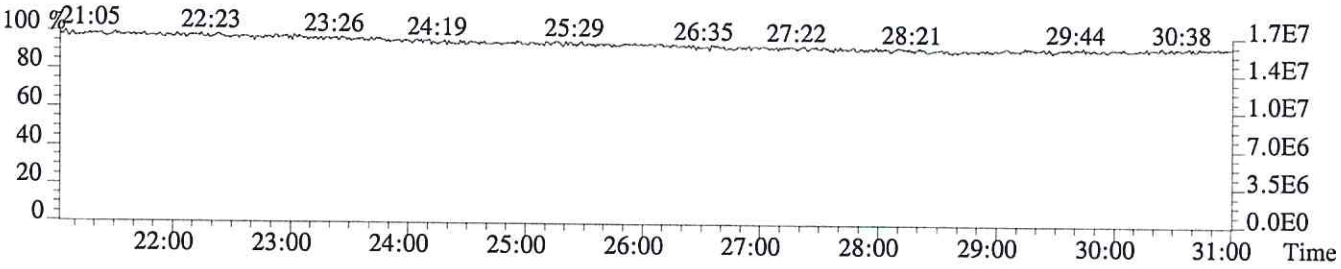
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2224.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)

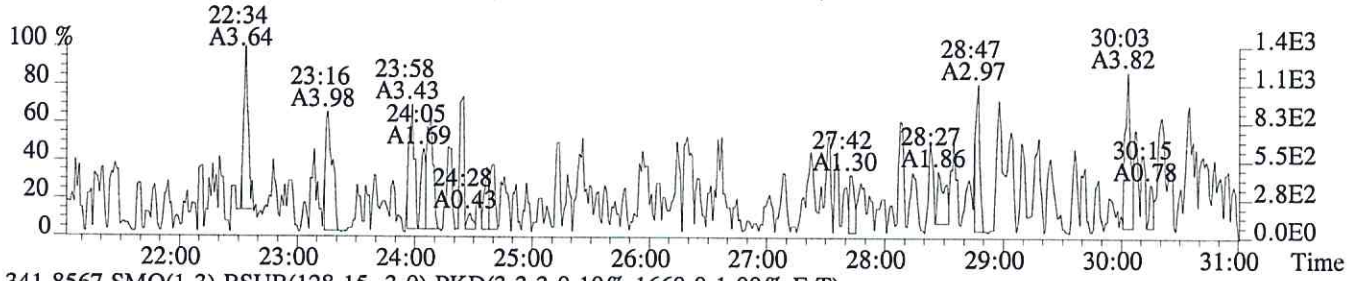


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

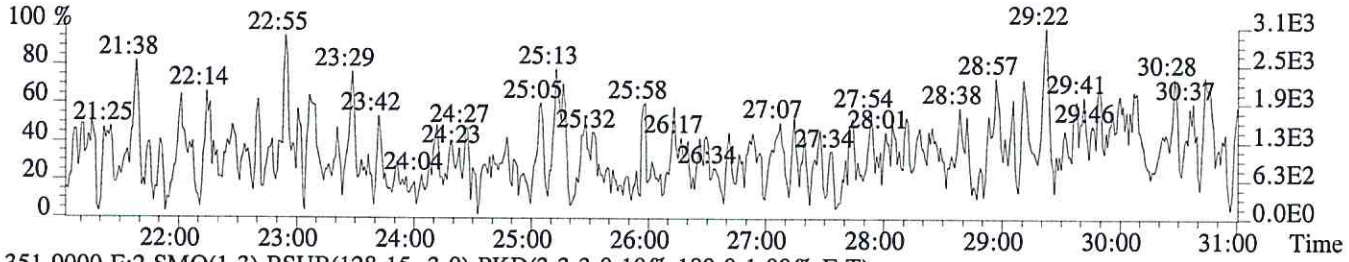


File:P402432 #1-684 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

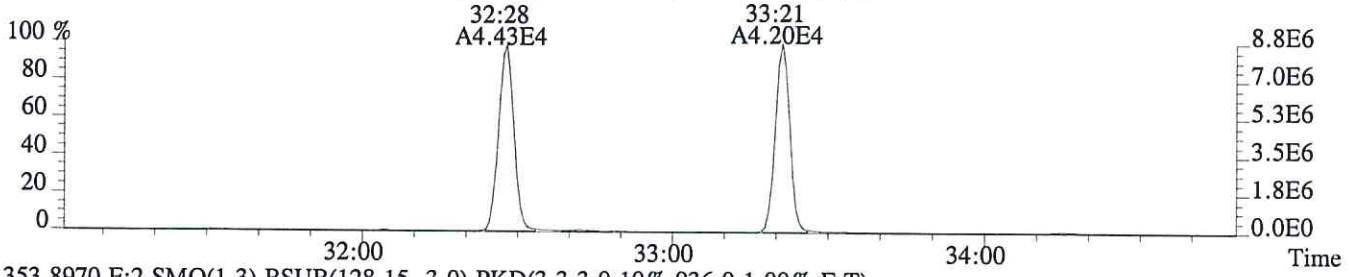
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



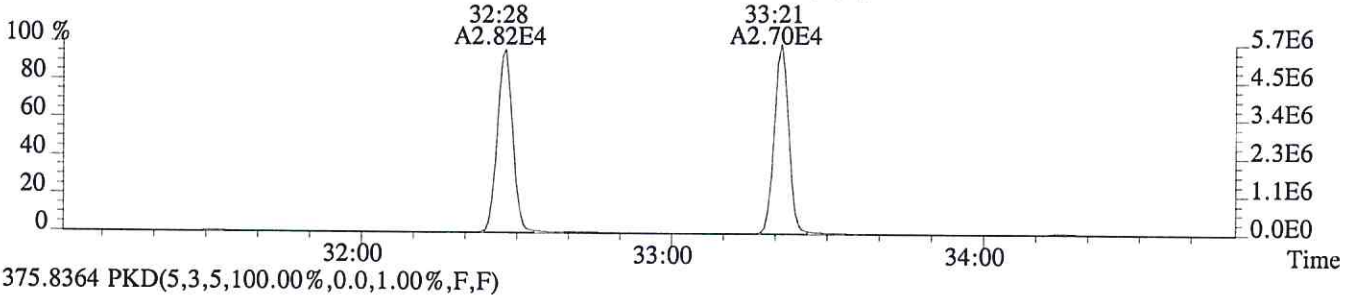
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1660.0,1.00%,F,T)



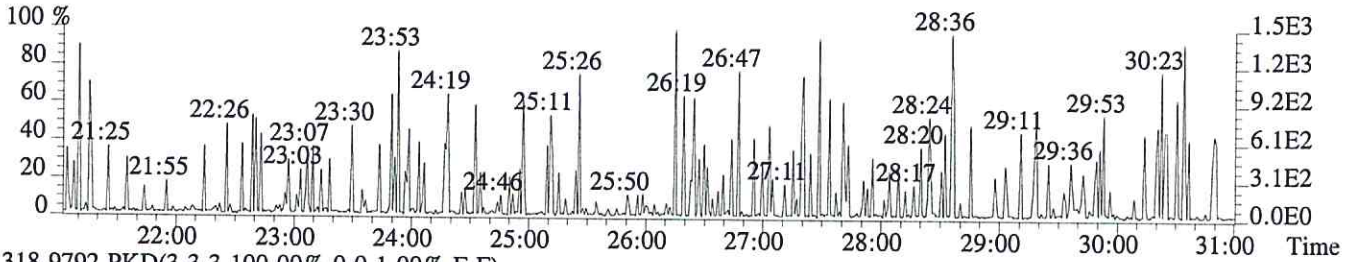
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



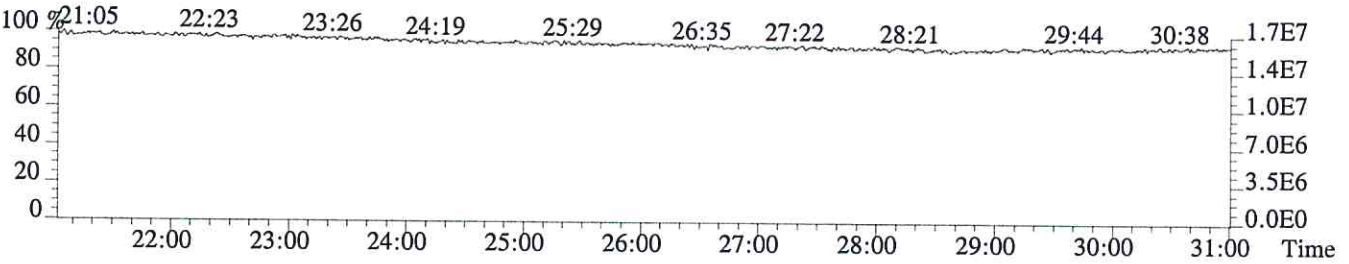
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



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

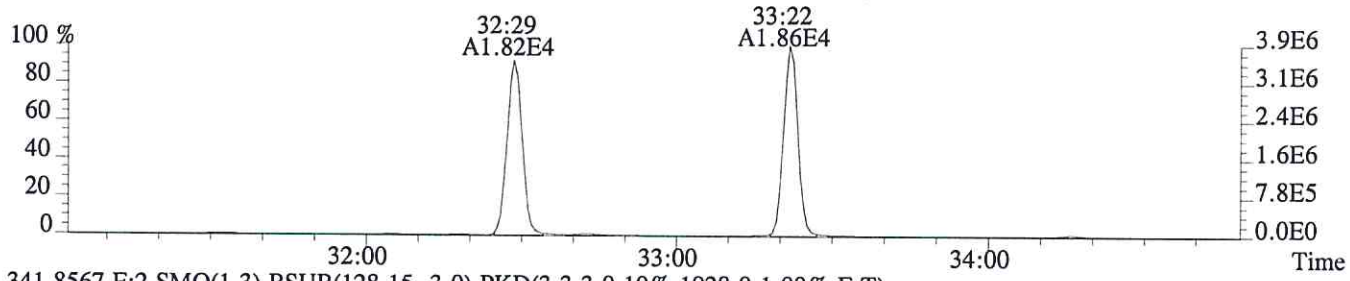


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

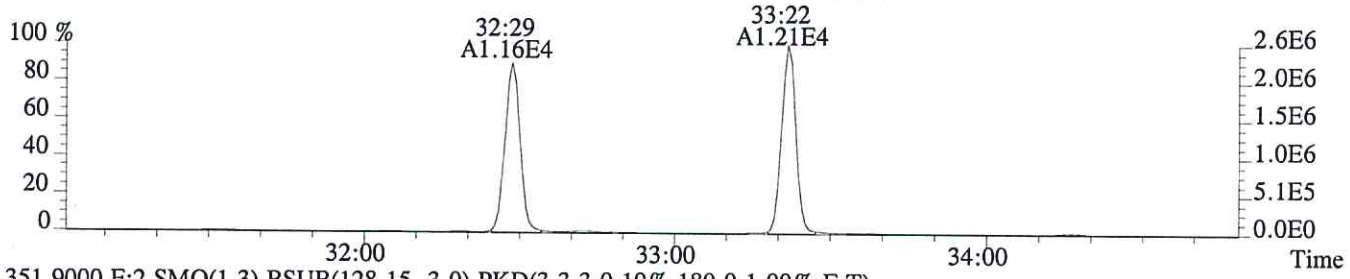


File:P402432 #1-340 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

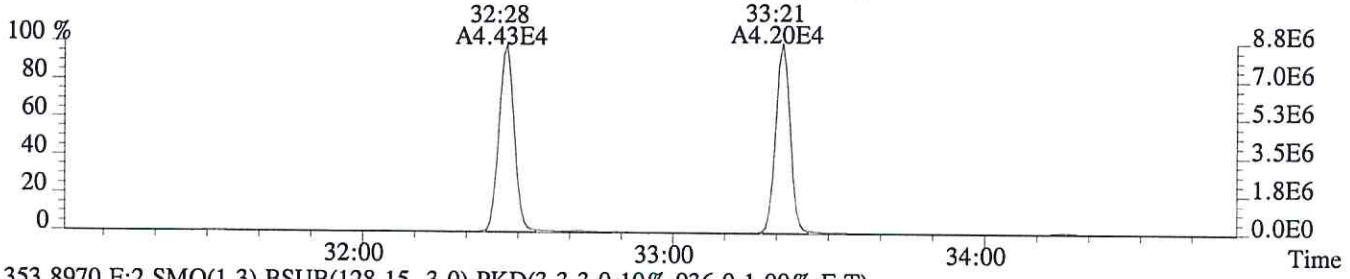
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



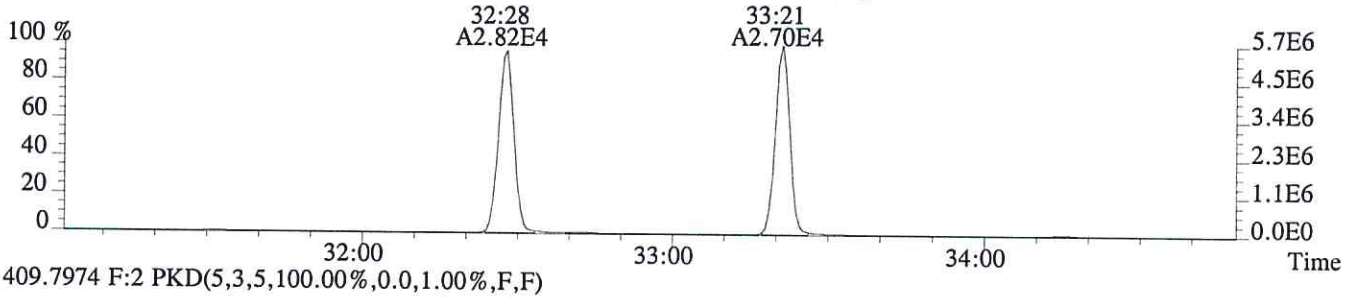
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



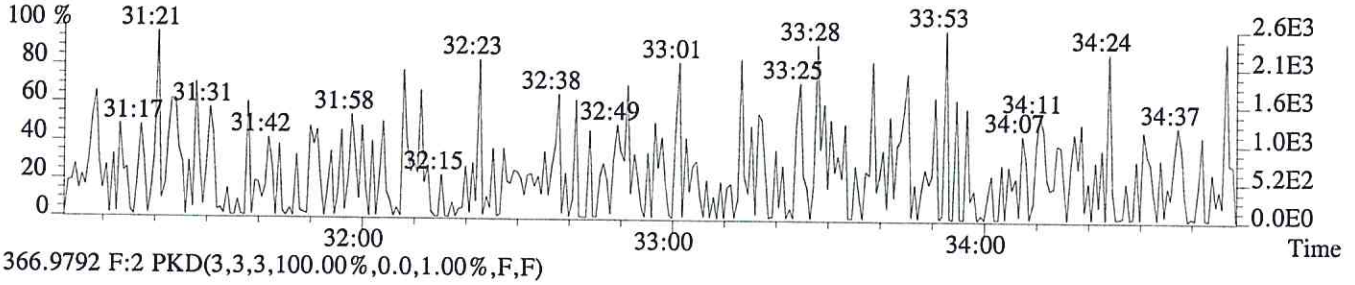
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



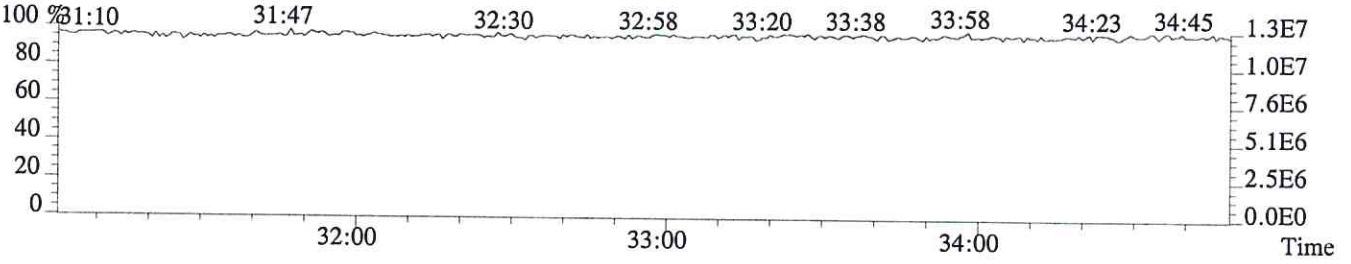
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



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

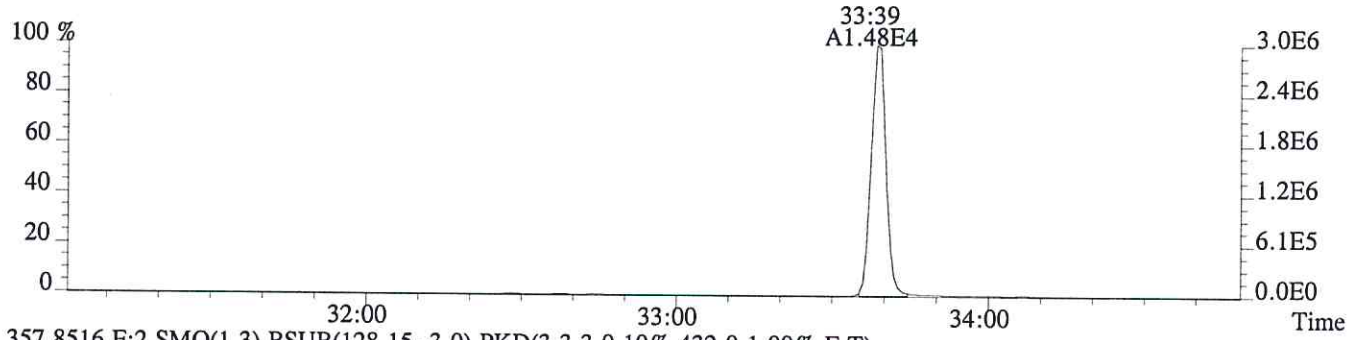


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

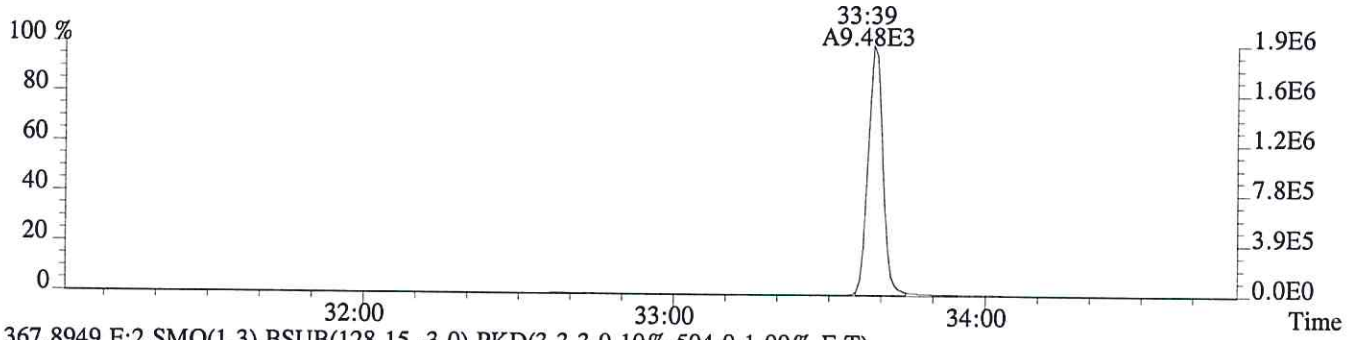


File:P402432 #1-340 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

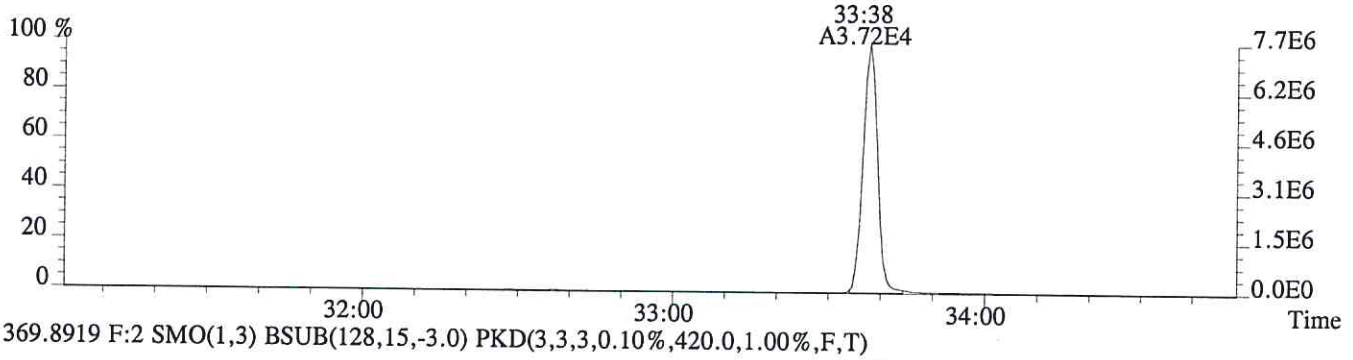
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



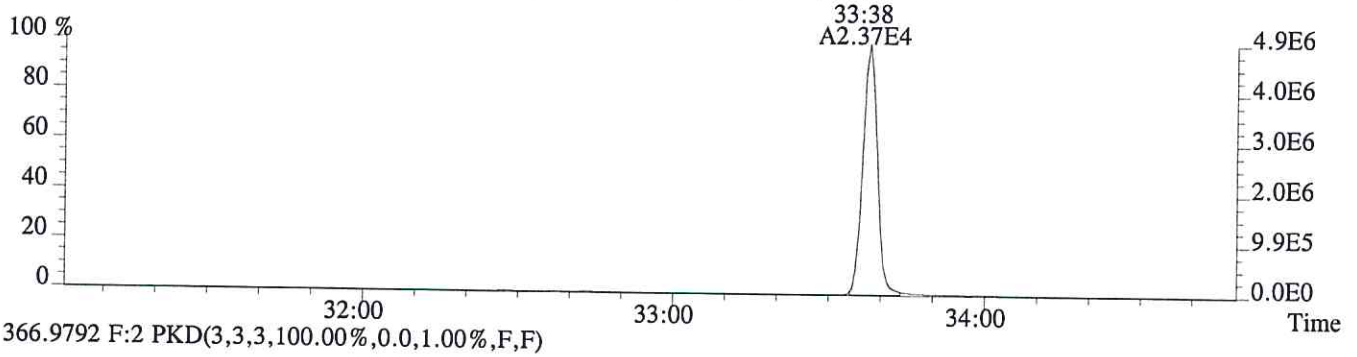
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



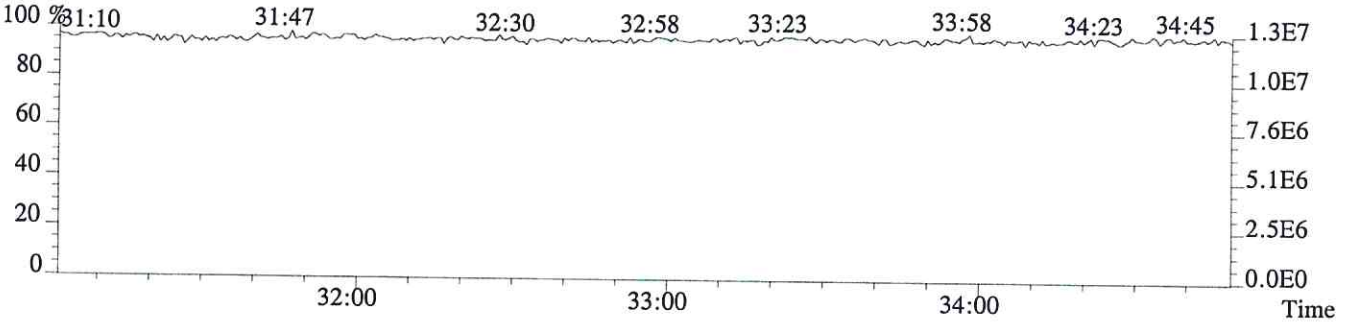
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)

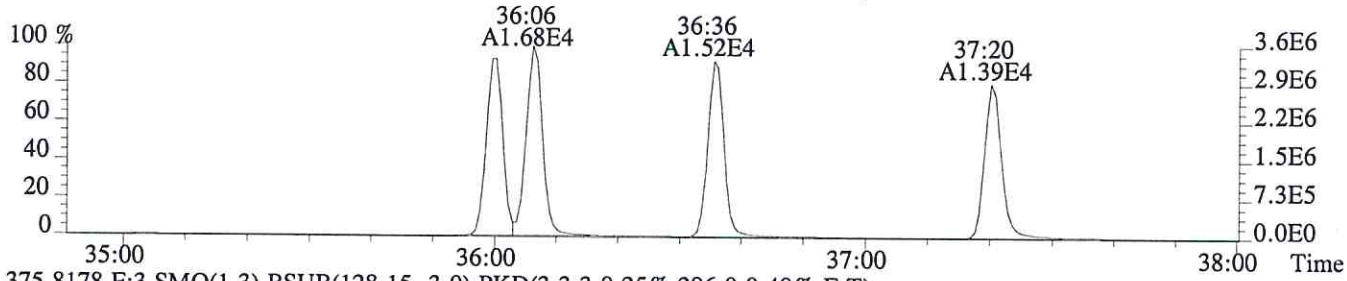


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

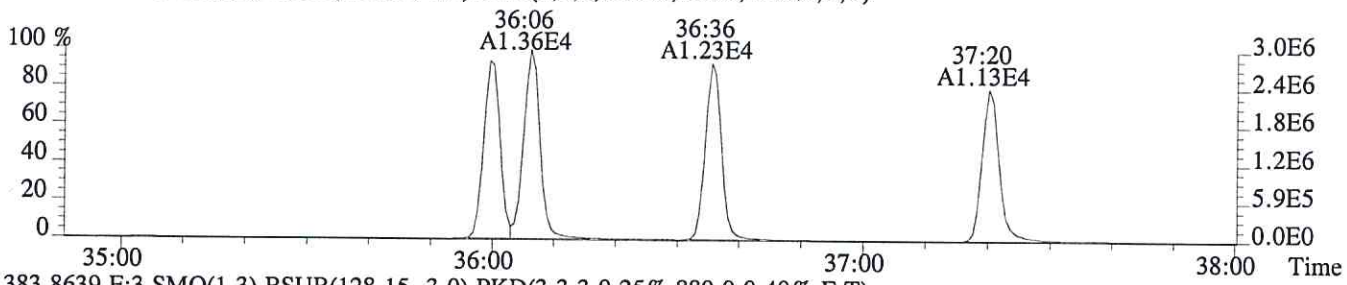


File:P402432 #1-285 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

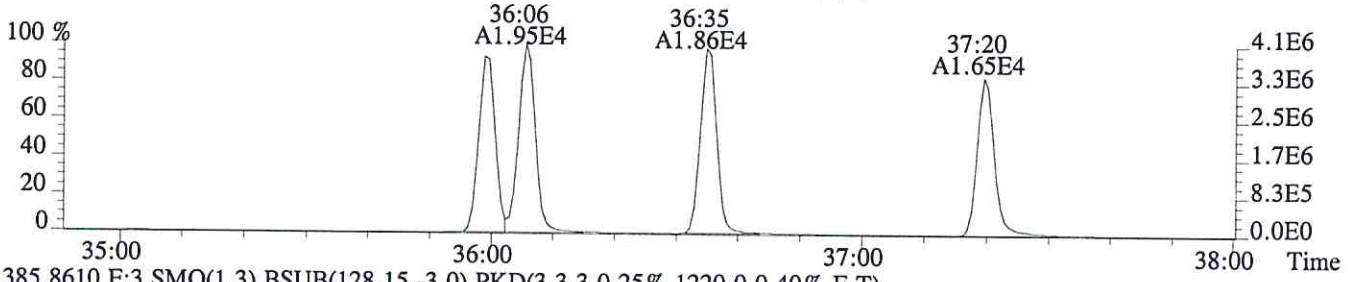
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



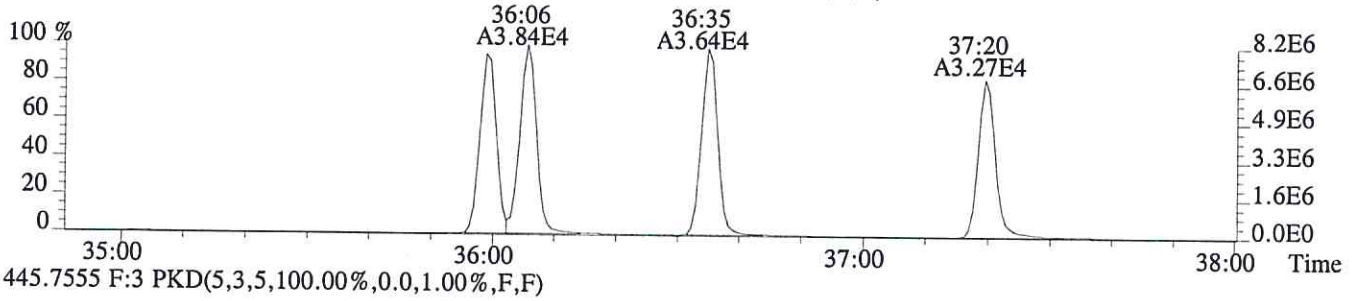
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



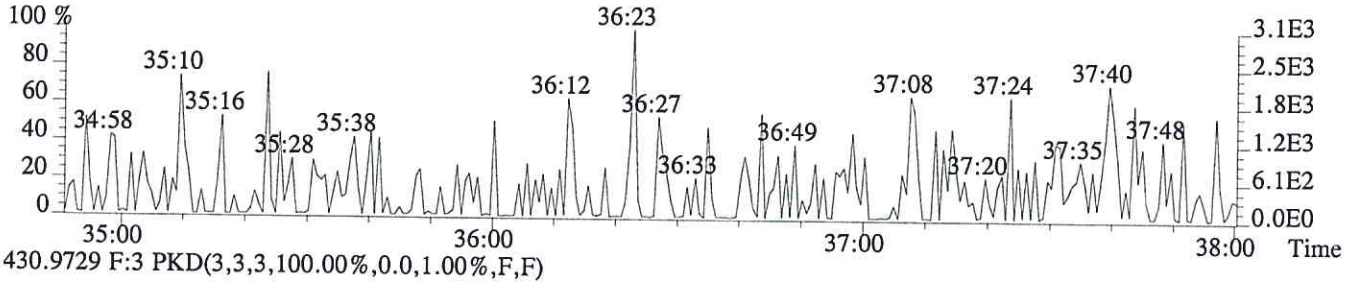
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



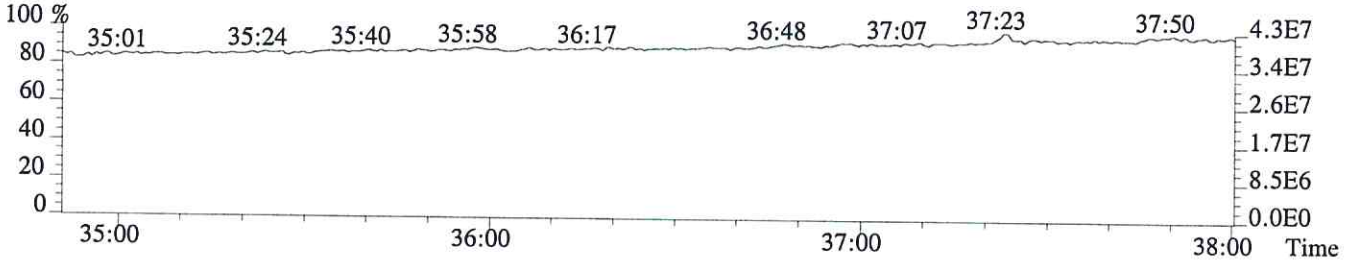
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1220.0,0.40%,F,T)



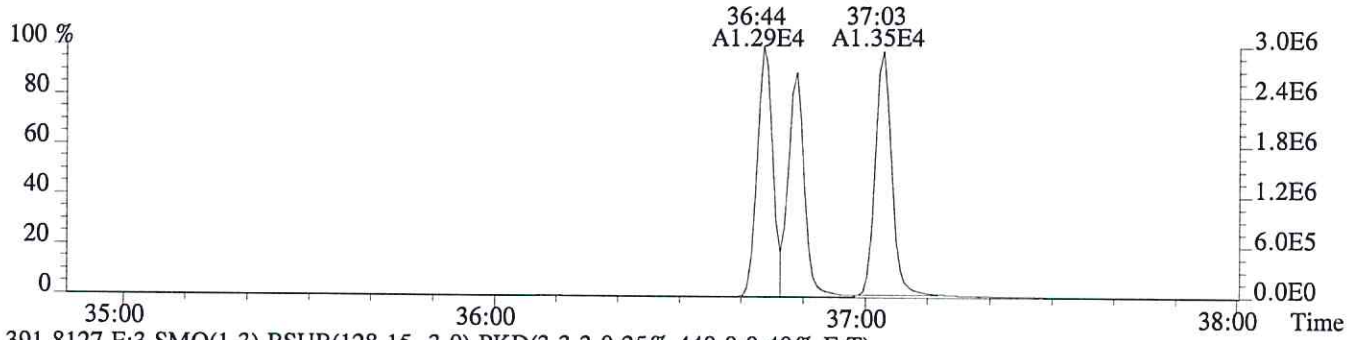
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



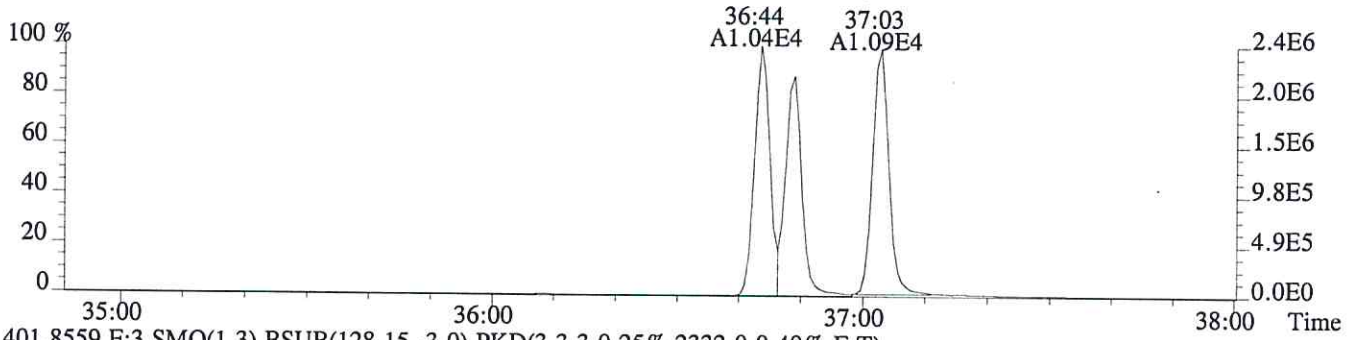
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



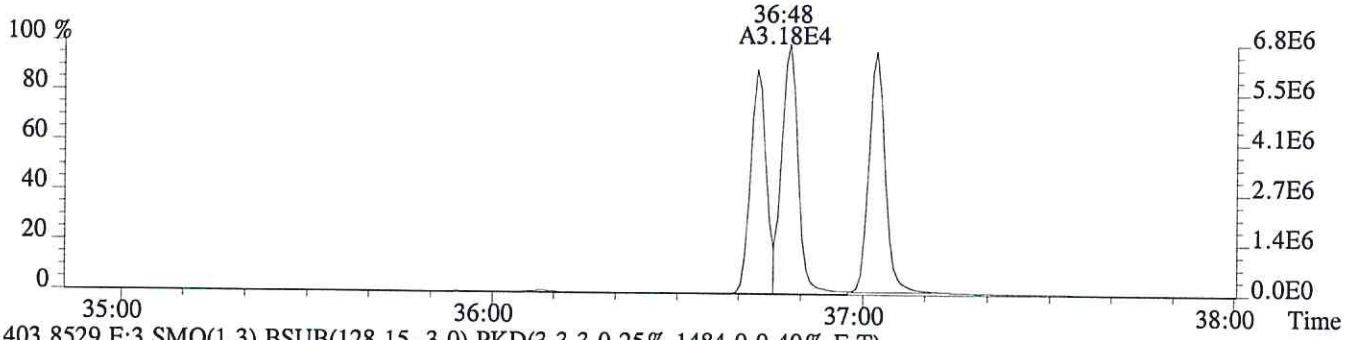
File:P402432 #1-285 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



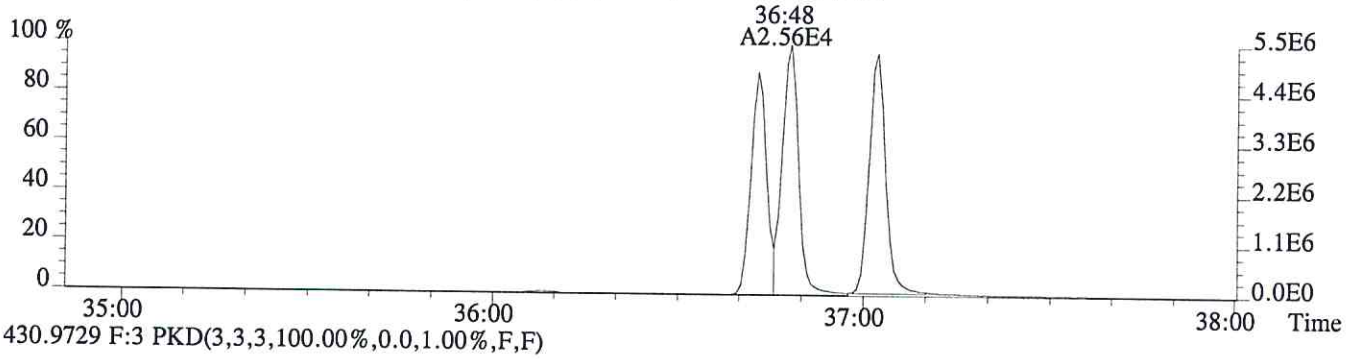
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



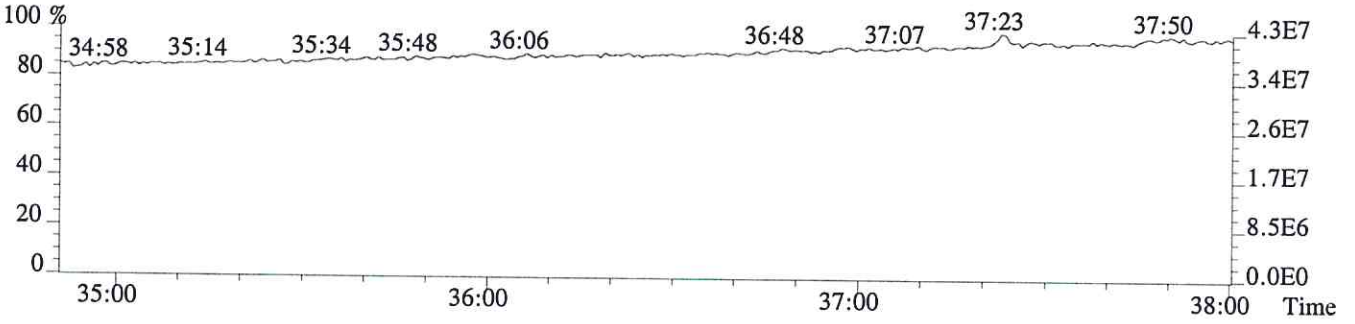
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1484.0,0.40%,F,T)

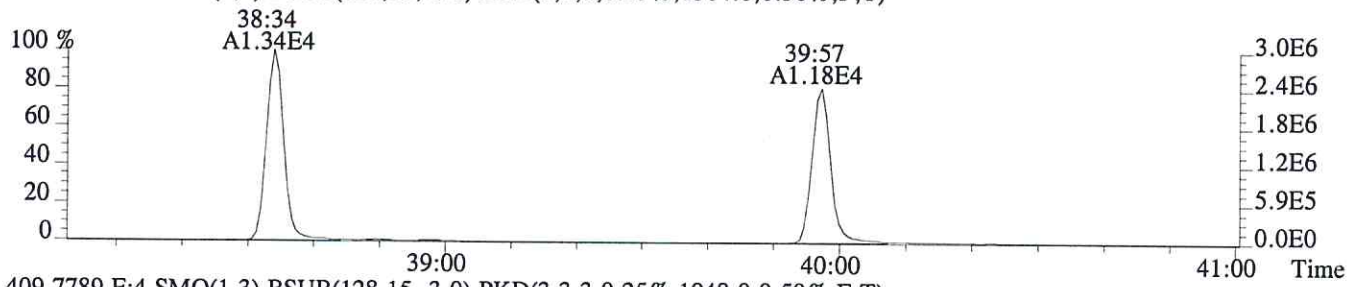


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

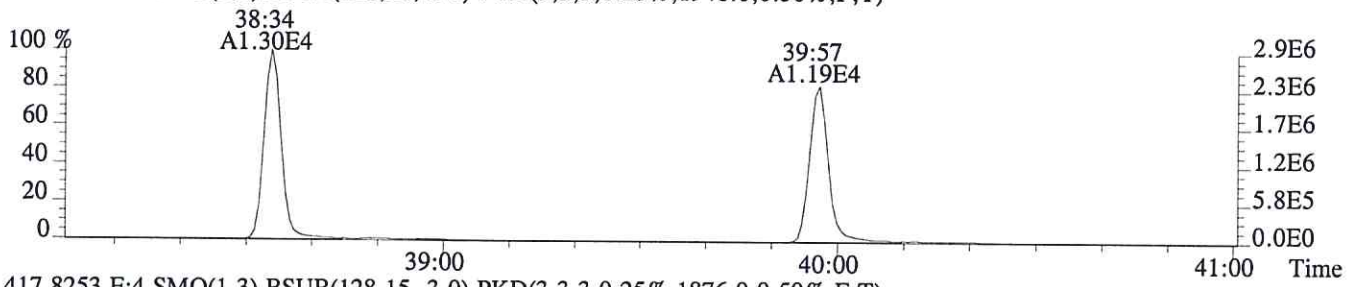


File:P402432 #1-268 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

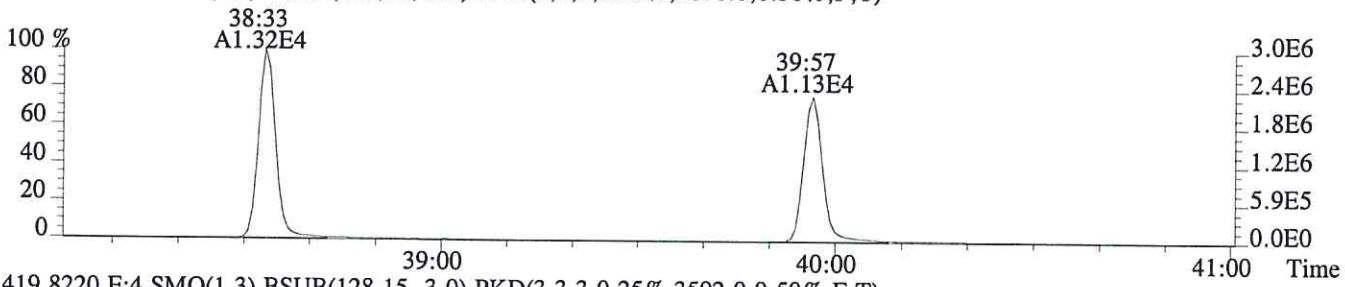
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1304.0,0.50%,F,T)



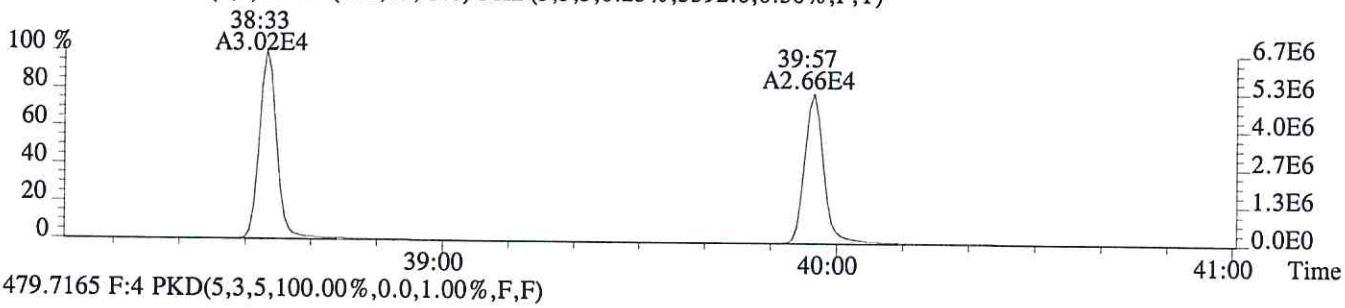
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1948.0,0.50%,F,T)



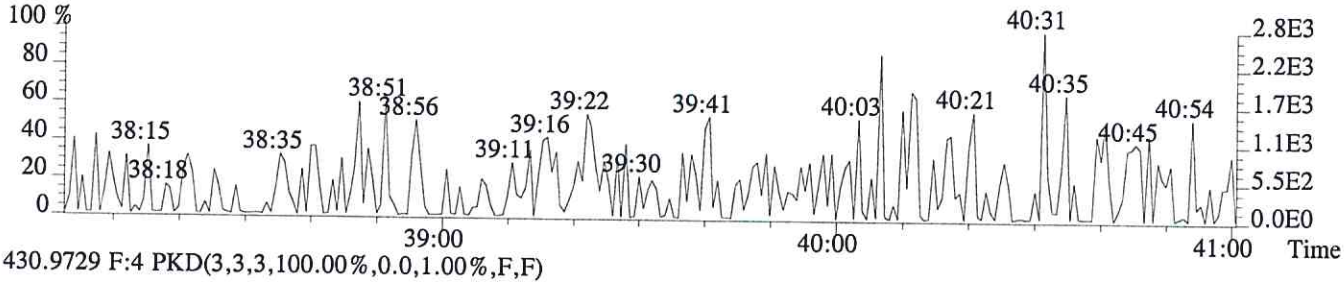
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.50%,F,T)



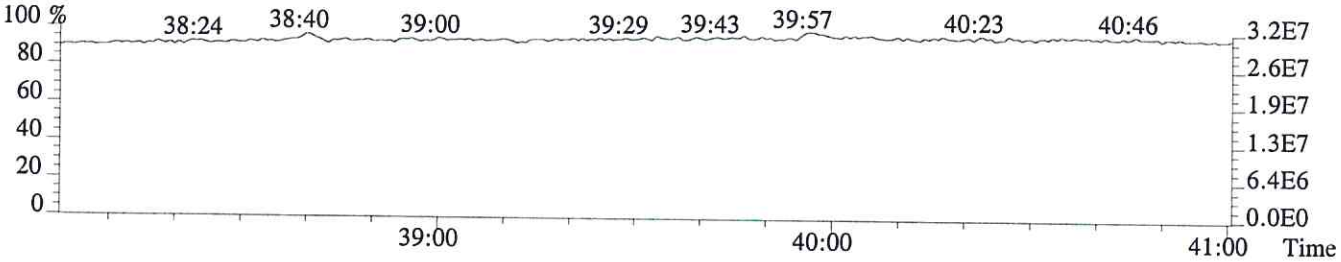
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3592.0,0.50%,F,T)



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

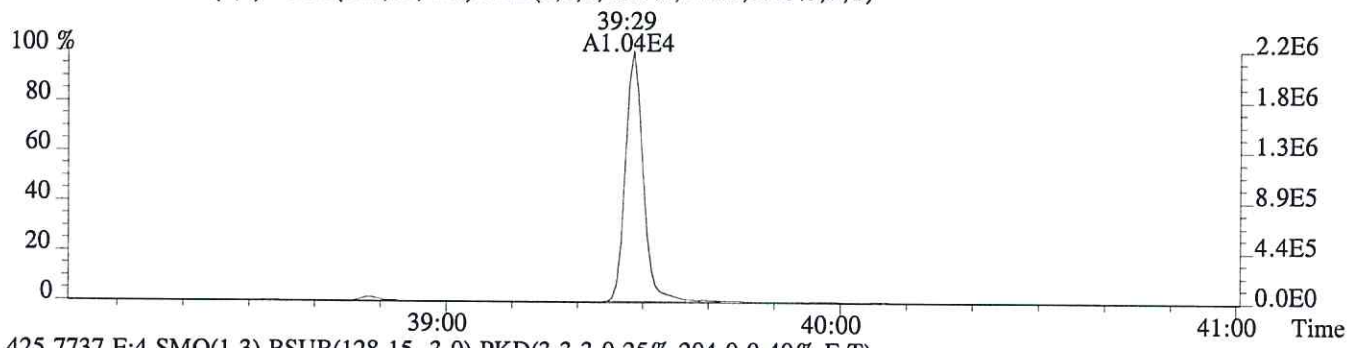


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

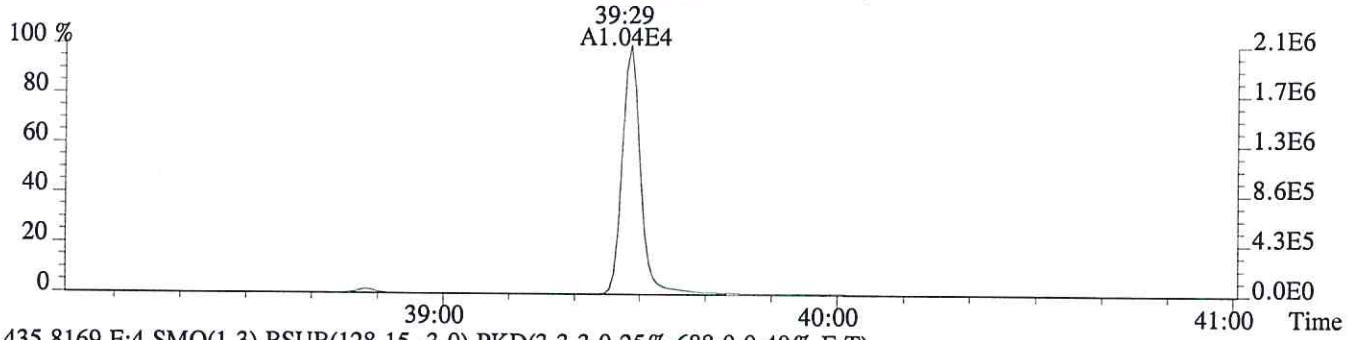


File:P402432 #1-268 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

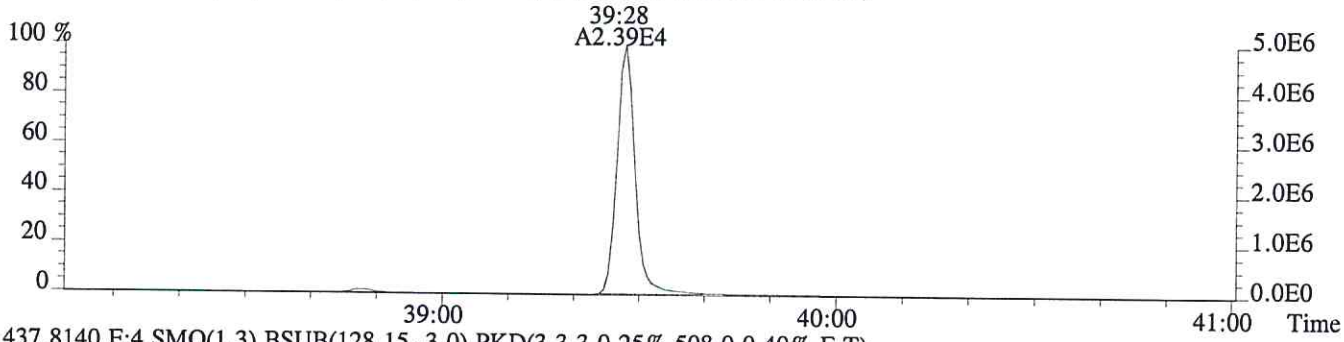
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



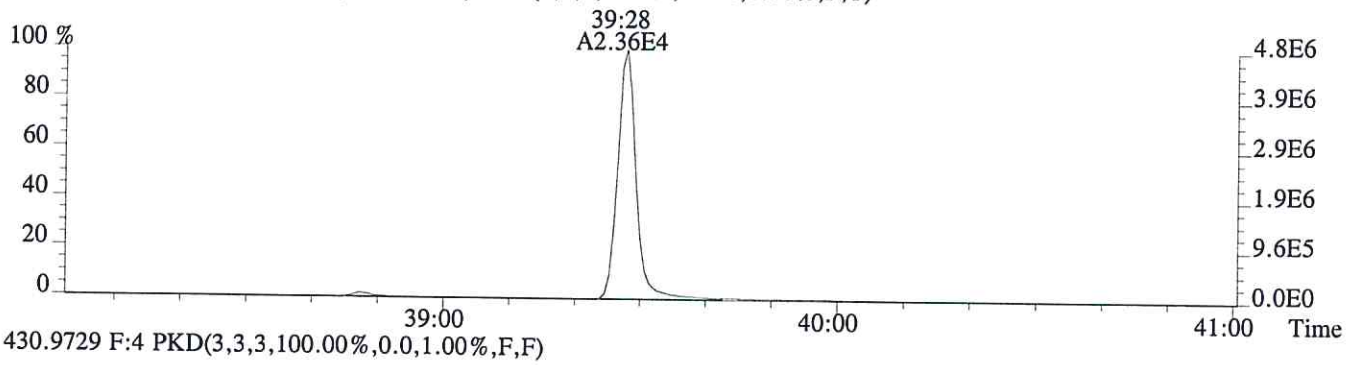
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



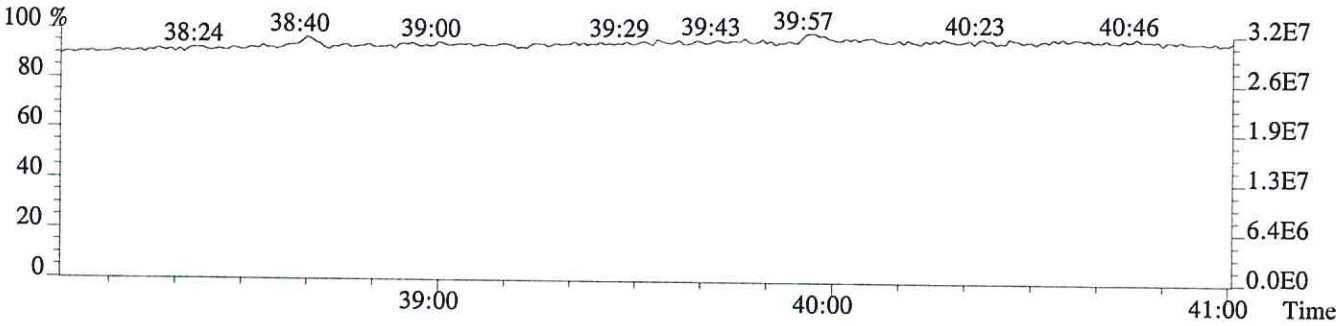
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)

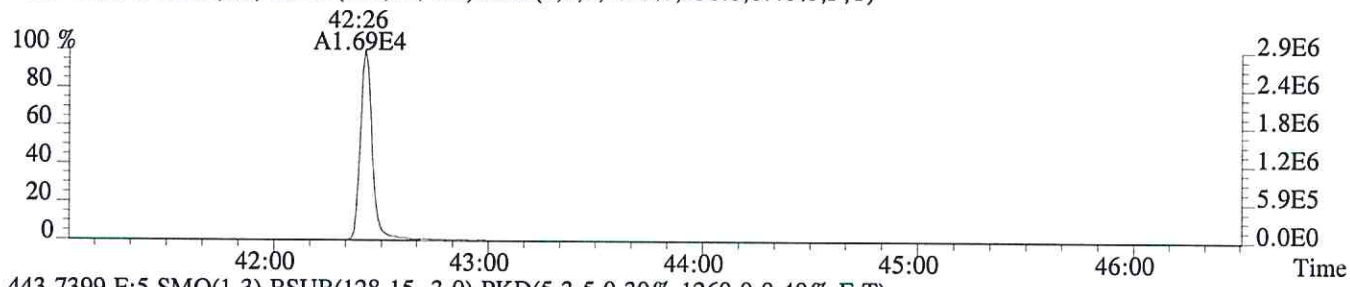


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

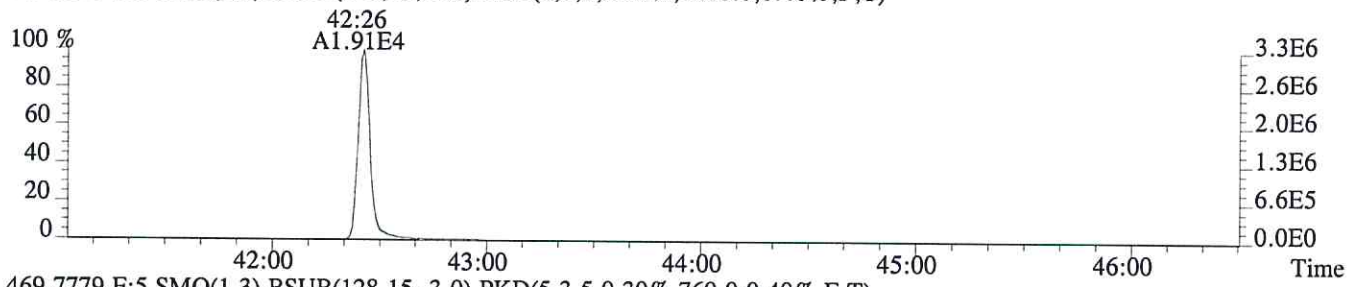


File:P402432 #1-492 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

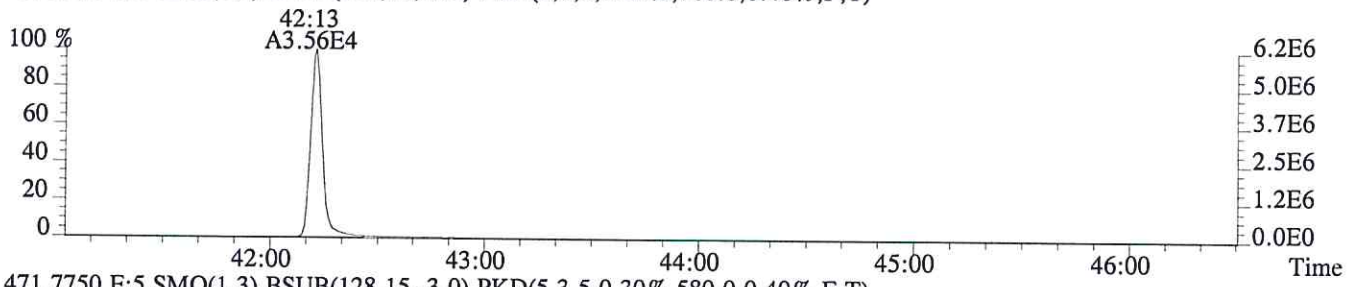
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



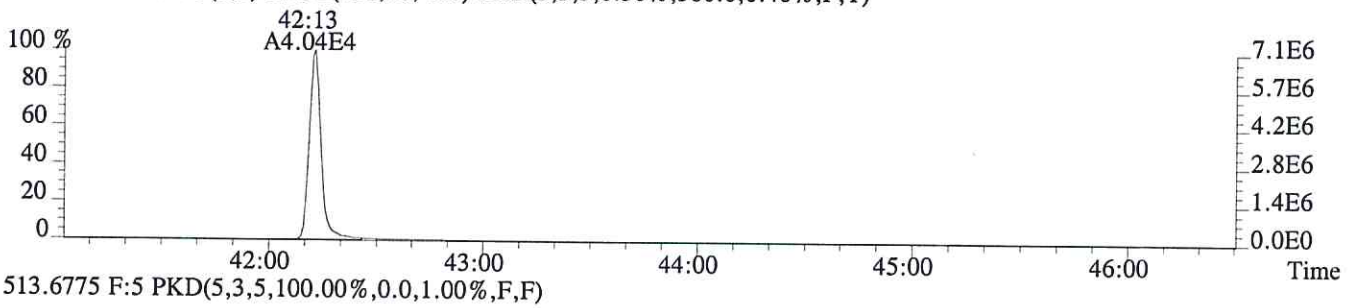
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



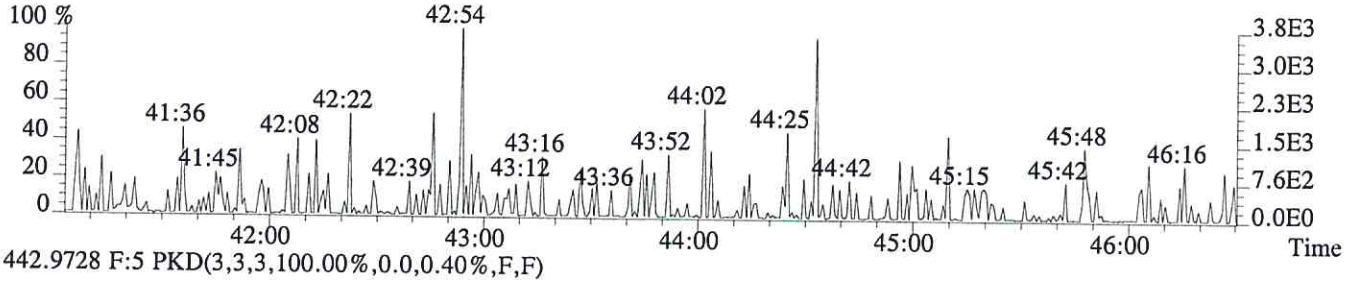
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



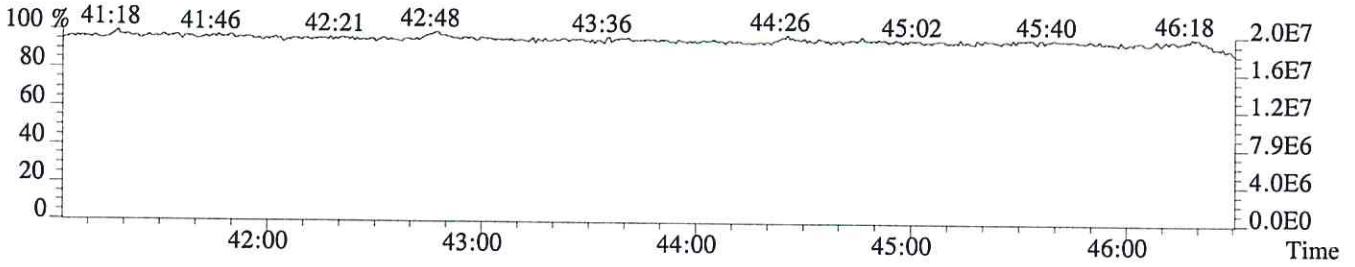
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



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

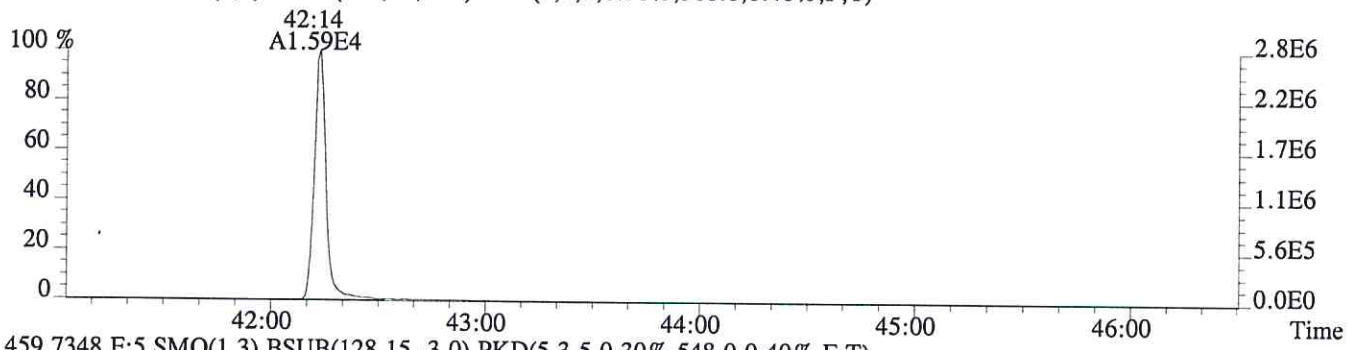


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

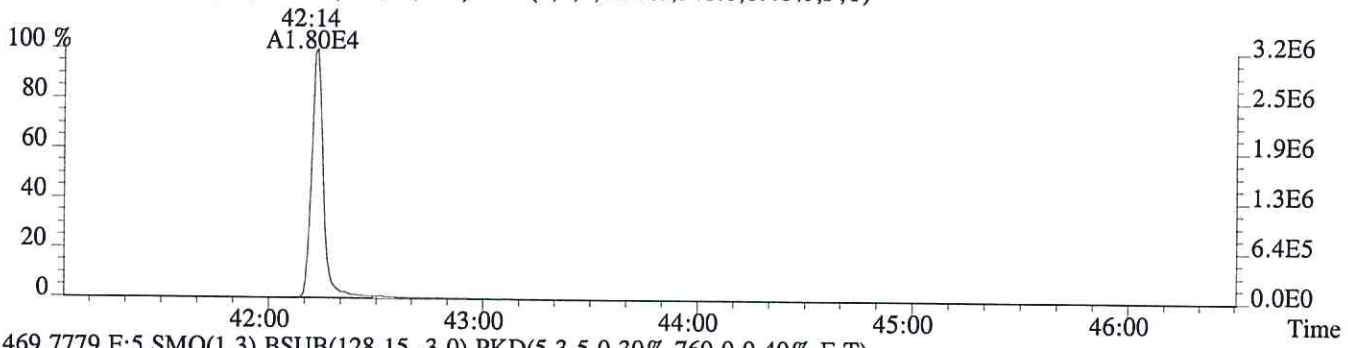


File:P402432 #1-492 Acq:28-APR-2016 18:00:48 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:54819

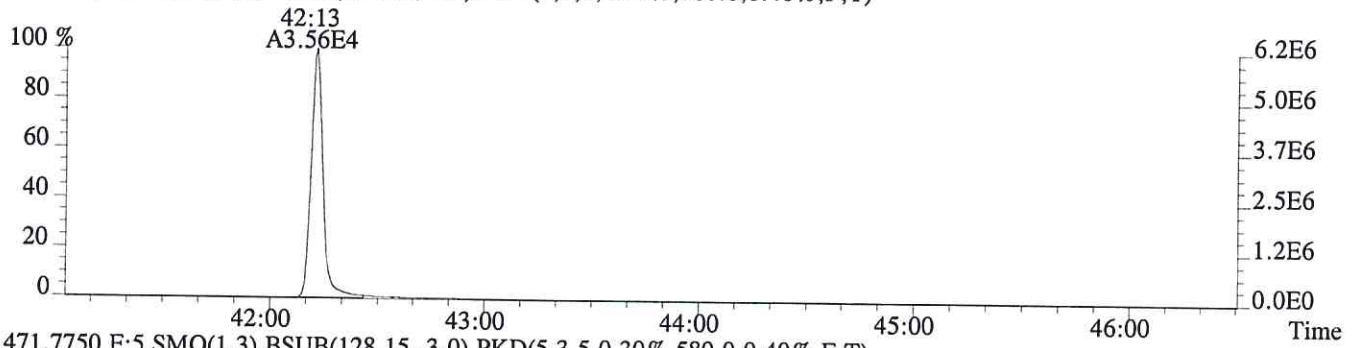
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



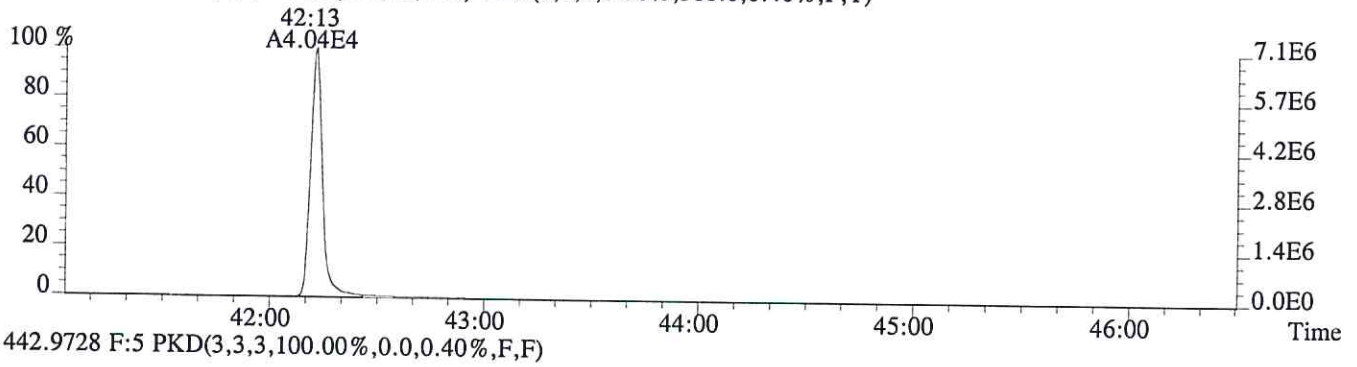
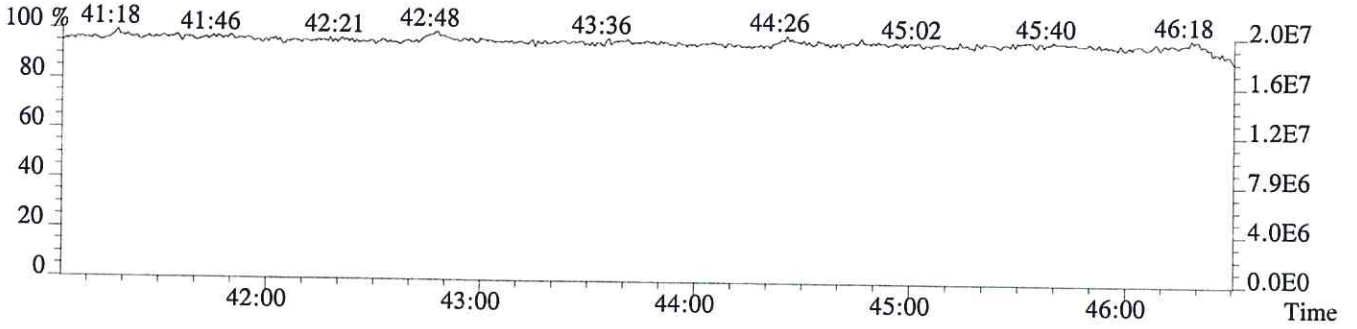
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



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