ALS Environmental
ALS Group USA, Corp
2655 Park Center Drive, Suite A
Simi Valley, CA 93065
T: 805-526-7161
F: 805-526-7270
www.alsglobal.com

February 10, 2015

Analytical Report for Service Request No: P1500356

Deborah Gray
Stantec Consulting Services, Inc.
1500 Lake Shore Drive Suite 100
Columbus, OH 43204

Laboratory Results for: Bridgeton/182608020

Dear Deborah:

Enclosed are the results of the sample(s) submitted to our laboratory on January 30, 2015. For your reference, these analyses have been assigned our service request number **P1500356**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the 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 NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My direct number is 281-575-2284. You may also contact me via email at Nicole.Brown@alsglobal.com.

Respectfully submitted,

Nicole Brown
Project Manager

Nicole Brown
2015.02.10
12:26:18
-06'00'

ALS Group USA Corp. dba ALS Environmental

Certificate of Analysis

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

ALS Environmental

Client:	Stantec Consulting Services, Inc.	**Service Request No.:**	P1500356
Project:	Bridgeton / 182608020	**Date Received:**	02/02/15
Sample Matrix:	Air		

CASE NARRATIVE

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

Sample Receipt

Seven air samples were received for analysis at ALS Environmental in Houston on 02/02/15.

Please note the reporting forms are currently referencing the date ALS-Simi Valley, CA received the samples (01/30/15) and not the date ALS-Houston received the samples (02/02/15).

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

Data Validation Notes and Discussion

MS/MSD

EQ1500085: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch. The batch quality control criteria were met.

Y flags – Labeled Standards

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

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.

MRL

The Method Reporting Limit (MRL) established by analytical method TO-9 for 2378-TCDD and 2378-TCDF is 10 pg/L. The laboratory's estimated detection limit (EDL) at the time of analysis for the method blank EQ1500085-01 and sample P1500356-002 were very slightly above 10 pg/L (at 10.1 and 10.4 pg/L, respectively). Therefore, the MRL has been raised to be equal to the EDL for those reported results.

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: Stantec Consulting Group, Inc. **Service Request:**P1500356
Project: Bridgeton/182608020

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
P1500356-001	129sN-DF	1/29/2015	1153
P1500356-002	129sNQ-DF	1/29/2015	1131
P1500356-003	129sSQ-DF	1/29/2015	1217
P1500356-004	129BLANK-DF	1/29/2015	0000
P1500356-005	128U1-DF	1/28/2015	0921
P1500356-006	128D1-DF	1/28/2015	1047
P1500356-007	128F-DF	1/28/2015	0948

Service Request Summary

Folder #: **P1500356**
Client Name: Stantec Consulting Group, Inc.
Project Name: Bridgeton
Project Number: 182608020

Report To: Deborah Gray
Stantec Consulting Services, Inc.
1500 Lake Shore Drive Suite 100
Columbus, OH 43204
USA
Phone Number: 614-486-4383
Cell Number: 614-738-0791
Fax Number:
E-mail: deb.gray@stantec.com

Project Chemist: Samantha Henningsen
Originating Lab: SIMIVALLEY
Logged By: KKELPE
Date Received: 01/30/15
Internal Due Date: 2/10/2015
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: PO4848419
EDD: No EDD Specified

7 1 L-Glass Jar WM CLEAR None
Location: E-Disposed
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON Dioxins and Furans/TO-9A
P1500356-001	129sN-DF	Air	01/29/15 1153	III
P1500356-002	129sNQ-DF	Air	01/29/15 1131	III
P1500356-003	129sSQ-DF	Air	01/29/15 1217	III
P1500356-004	129BLANK-DF	Air	01/29/15 0000	III
P1500356-005	128U1-DF	Air	01/28/15 0921	III
P1500356-006	128D1-DF	Air	01/28/15 1047	III
P1500356-007	128F-DF	Air	01/28/15 0948	III

Service Request Summary

Folder #: **P1500356**
Client Name: Stantec Consulting Group, Inc.
Project Name: Bridgeton
Project Number: 182608020

Report To: Deborah Gray
Stantec Consulting Services, Inc.
1500 Lake Shore Drive Suite 100
Columbus, OH 43204
USA
Phone Number: 614-486-4383
Cell Number: 614-738-0791
Fax Number:
E-mail: deb.gray@stantec.com

Project Chemist: Samantha Henningsen
Originating Lab: SIMIVALLEY
Logged By: KKELPE
Date Received: 01/30/15
Internal Due Date: 2/10/2015
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: PO4848419
EDD: No EDD Specified

7 1 L-Glass Jar WM CLEAR None
Location: E-Disposed
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	Dioxins and Furans/TO-9A	7	Subbed to ALS Houston HRMS

Superset Summary

Service Request: P1500356 **SuperSet Reference:** 15-0000320482 rev 00

Analytical Method: **TO-9A**

Calibrations: 10/18/14

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P176195	P176193	P176195	EQ1500085-01
P176203	P176193	P176195	EQ1500085-02
P176204	P176193	P176195	EQ1500085-03
P176196	P176193	P176195	P1500356-001
P176197	P176193	P176195	P1500356-002
P176198	P176193	P176195	P1500356-003
P176199	P176193	P176195	P1500356-004
P176200	P176193	P176195	P1500356-005
P176201	P176193	P176195	P1500356-006
P176202	P176193	P176195	P1500356-007

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. Reported concentration is a conservative estimate, however EMPC correction was not applied.

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.

ALS Laboratory Group

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

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2015
Arizona Department of Health Services	AZ0793	5/27/2015
Arkansas Department of Environmental Quality	14-038-0	6/16/2015
California Department of Health Services	2452	2/28/2015
Florida Department of Health	E87611	6/30/2015
Hawaii Department of Health	TX02694	6/30/2015
Illinois Environmental Protection Agency	200057	10/6/2015
Louisiana Department of Health and Hospitals	TX2694	6/30/2015
Maine Center for Disease Control and Prevention	2014019	6/5/2016
Maryland Department of the Environment	343	6/30/2015
Michigan Depratment of Environmental Quality	9971	6/30/2015
Nebraska Department of Health and Human Services	NE-OS-25-13	6/30/2015
Nevada Department of Concervation and Natural Resources	TX014112013-2	7/31/2015
New Jersey Department of Environmental Protection	NLC140001	6/30/2015
New Mexico Environment Department	TX02694	6/30/2015
New York Department of Health	11707	4/1/2015
Oklahoma Department of Environmental Quality	2014-124	8/31/2015
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2015
Pennsylvania Department of Environmental Protection	68-03441	6/30/2015
Tennessee Department of Environment and Concervation	04016	6/30/2015
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2015
United States Department of Agriculture	P330-14-00067	2/21/2017
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2015
Washington Department of Health	c819	11/14/2015
West Virginia Department of Environmental Protection	347	6/30/2015

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

SR# Unique ID: P1500356 | DB-5 | (DB-5MSUI) | DB-225 | SPB-Octyl

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

Date:	Analyst:	Samples:
02/09/15	JC	001-007

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

Date:	Analyst:	Samples:
02/09/15	LM	001-007

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

Intra-Network Chain of Custody

2655 Park Center Drive, Suite A • Simi Valley, CA 93065 • 805-526-7161 • FAX 805-526-7270

ALS Contact: Samantha Henningsen

Project Name: Bridgeton
Project Number: 182608020
Project Manager: Deborah Gray
Company: Stantec Consulting Services, Inc.

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Dioxins and Furans TO-9A
P1500356-001	129sN-DF		Air	1/29/15	1153	1/30/15	HOUSTON	III
P1500356-002	129sNQ-DF		Air	1/29/15	1131	1/30/15	HOUSTON	III
P1500356-003	129sSQ-DF		Air	1/29/15	1217	1/30/15	HOUSTON	III
P1500356-004	129BLANK-DF		Air	1/29/15	0000	1/30/15	HOUSTON	III
P1500356-005	128U1-DF		Air	1/28/15	0921	1/30/15	HOUSTON	III
P1500356-006	128D1-DF		Air	1/28/15	1047	1/30/15	HOUSTON	III
P1500356-007	128F-DF		Air	1/28/15	0948	1/30/15	HOUSTON	III

P1500356 5
Stantec Consulting Services, Inc.
Bridgeton

Test Comments
Dioxins and Furans - TO-9A P1500356-001,2,3,4,5,6,7 Subbed to ALS Houston HRMS

Special Instructions/Comments
Please issue report directly to deliverables listed on attached client COC. Invoice ALS Simi Valley. Questions call Sam Henningsen

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
X **STANDARD**
Requested FAX Date: _____
Requested Report Date: 02/10/15

Report Requirements
____ I. Results Only
____ II. Results + QC Summaries
X III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
PQL/MDL/J N
EDD N

Invoice Information
PO# P1500356
Bill to

Relinquished By: P1500356 1/30/15 1630 Received By: 2/2/15 Airbill Number: _____
1020

Saturday

X **Ship To: HOUSTON**
ALS Environmental - Houston HRMS
10450 Stancliff Rd
Suite 210
Houston, TX 77099

PC SH Date 1/30/15

SMO _____ Date _____

Instructions:

Ice X

Dry Ice _____

No Ice _____

Shipping:

Overnight X

2nd Day _____

Ground _____

Bill to Client Account _____

Comments:

ALS Environmental

Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone: (805) 526-7161 Fax: (805) 526-7270

around Time in Business Days (Surcharges) Please Circle:
%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day (Standard)

ALS Project No. P1500356

Company Name & Address (Reporting Information)
Stantec
1500 Lake Shore Drive Suite 100
Columbus Ohio 43204

Project Name: Bridgeton
Project Number: 182608020

ALS Contact: Samantha Henningsen

Project Manager: Deb Gray
Phone: 614-643-4382
Fax:
Email Address for Result Reporting: Deb.gray@stantec.com, Nick.Iannaggi@stantec.com

P.O. # / Billing Information: Direct Bill - Bridgeton LF/Amy Hargrove

Sampler (Print & Sign): NI/CJL/RP/NB

Client Sample ID	Laboratory ID #	Tube ID	Date Collected	Sampling Pump	Sampling Start Time	Sampling End Time	Sample (Liters) Volume	EPA TO9a, Dioxin/Furan	EPA TO-13, PAHs	Comments e.g. Actual Preservative or specific instructions
129sN-DF	1	302-27-012	1/29/2015	1075	9:55	11:53	27,711	X		
129sNQ-DF	2	302-27-006	1/29/2015	1095	9:25	11:31	28,680	X		
129sSQ-DF	3	302-27-007	1/29/2015	1085	10:17	12:17	28,508	X		
129Blank-DF	4	302-27-003	1/29/2015	NA	NA	NA	0 L	X		Trip Blank
128U1-DF	5	302-27-005	1/28/2015	1085	9:17	9:21	349,709	X		24 hour from 1/27 to 1/28
128D1-DF	6	302-27-013	1/28/2015	1075	10:42	10:47	336,049	X		24 hour from 1/27 to 1/28
128F-DF	7	302-27-004	1/28/2015	1095	9:48	9:48	351,525	X		24 hour from 1/27 to 1/28

Report Tier Levels - please select
Tier I - (Results/Default if not specified) (Data Validation Package) 10% Surcharge X Tier III
Tier II (Results + QC) _____ Tier IV (client specified) _____

EDD required Yes / No
Type: _____

Project Requirements (MRLs, QAPP): Wet ice 8°

Reliquished by: (Signature)	Date:	Time:	Received by: (Signature)	Time:
[signature]	1/29/15	1700	FED EX	
FED EX			[signature] 1/30/15	0748

Cooler / Blank Temperature _____ °C

Cooler Receipt Form

ALS Environmental

Project Chemist _____

Client/Project Stantec Thermometer ID SMO

Date/Time Received: 2/2/15 1020 Initials: LLL Date/Time Logged in: _____ Initials _____

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? none

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?
5488 8293 9119		2/2/15	1030	LLL	4	☐
						☐
						☐
						☐

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:

The jars in which samples P1500356-003 and -006 were contained were broken upon arrival, but the glass cartriges appeared to be intact. LLL 2/2/15

Service request Label: P1500356 5
Stantec Consulting Services, Inc.
Bridgeton

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

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

Prep Run#: 228508 **Prep WorkFlow:** OrgExtDioxA(7) **Status:** Prepped
Team: Semivoa GCMS/LMCCRINK **Prep Method:** Method **Prep Date/Time:** 2/3/15 01:05 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	EQ1500085-01	MB		TO-9A/Dioxins and Furans		Air	0.5000Sample	
2	EQ1500085-02	LCS		TO-9A/Dioxins and Furans		Air	0.5000Sample	
3	EQ1500085-03	DLCS		TO-9A/Dioxins and Furans		Air	0.5000Sample	
4	P1500356-001	129sN-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000Sample	PUF 302-27-012
5	P1500356-002	129sNQ-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000Sample	PUF 302-27-006
6	P1500356-003	129sSQ-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000Sample	PUF 302-27-007
7	P1500356-004	129BLANK-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000Sample	PUF 302-27-003
8	P1500356-005	128U1-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000Sample	PUF 302-27-005
9	P1500356-006	128D1-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000Sample	PUF 302-27-013
10	P1500356-007	128F-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000Sample	PUF 302-27-004

Spiking Solutions

Name: 23/TO-9A Alternate Working Solution Inventory ID 69136 Logbook Ref: 69136 CID 04/07/14 Expires On: 04/07/2015

EQ1500085-01	20.00µL	EQ1500085-02	20.00µL	EQ1500085-03	20.00µL	P1500356-001	20.00µL	P1500356-002	20.00µL	P1500356-003	20.00µL
P1500356-004	20.00µL	P1500356-005	20.00µL	P1500356-006	20.00µL	P1500356-007	20.00µL				

Name: 23/TO-9A Surrogate Working Solution Inventory ID 76641 Logbook Ref: 100 ng/ml 76641 WM 11/13/14 Expires On: 11/13/2015

EQ1500085-01	40.00µL	EQ1500085-02	40.00µL	EQ1500085-03	40.00µL	P1500356-001	40.00µL	P1500356-002	40.00µL	P1500356-003	40.00µL
P1500356-004	40.00µL	P1500356-005	40.00µL	P1500356-006	40.00µL	P1500356-007	40.00µL				

Name: 23/TO-9A Internal Working Solution Inventory ID 77568 Logbook Ref: 100-200ng/ml 77568 WM 12/23/14 Expires On: 12/23/2015

EQ1500085-01	40.00µL	EQ1500085-02	40.00µL	EQ1500085-03	40.00µL	P1500356-001	40.00µL	P1500356-002	40.00µL	P1500356-003	40.00µL
P1500356-004	40.00µL	P1500356-005	40.00µL	P1500356-006	40.00µL	P1500356-007	40.00µL				

Name: 1613B Matrix Working Standard Inventory ID 78041 Logbook Ref: 2-20 ng/ml 78041 TL 1/13/15 Expires On: 01/13/2016

EQ1500085-02	200.00µL	EQ1500085-03	200.00µL

Preparation Information Benchsheet

Prep Run#: 228508 **Prep WorkFlow:** OrgExtDioxA(7) **Status:** Prepped
Team: Semivoa GCMS/LMCCRINK **Prep Method:** Method **Prep Date/Time:** 2/3/15 01:05 PM

Preparation Materials

Carbon, High Purity	AL 01/14/15 (78050)	Ethyl Acetate 99.9% Minimum EtOAc	LM 09/23/14 (75019)	Glass Wool	AL 10/22/14 (75977)
Sulfuric Acid Reagent Grade H2SO4	AL 10/20/14 (75883)	Hexanes 95%	AL 1/15/15 (78091)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	LM 11/21/14 (76813)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	LM 11/20/14 (76802)	Tridecane (n-Tridecane)	AL 11/24/14 (76855)	Silica Gel Reagent Grade	AL 12/3/14 (76978)
Toluene 99.9% Minimum	AL 01/30/15 (78396)	Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)	Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	2/3/15 13:05	Started:	2/5/15 09:20	Started:	2/5/15 12:00	Started:	2/5/15 16:40
Finished:	2/4/15 09:00	Finished:	2/5/15 09:35	Finished:	2/5/15 13:45	Finished:	2/5/15 17:50
By:	LMCCRINK	By:	CDIAZ	By:	CDIAZ	By:	LMCCRINK
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: ak Date: 2/6/15

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 11:53
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sN-DF	**Units:**	pg
Lab Code:	P1500356-001	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 13:01
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176196	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	5.72	10.0			1
1,2,3,7,8-PeCDD	ND	U	6.74	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	8.03	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	7.29	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	7.10	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	7.18	50.0			1
OCDD	ND	U	12.0	100			1
2,3,7,8-TCDF	ND	U	5.79	10.0			1
1,2,3,7,8-PeCDF	ND	U	6.36	50.0			1
2,3,4,7,8-PeCDF	ND	U	6.51	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	5.08	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	4.56	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	6.12	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	5.13	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	5.73	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	7.66	50.0			1
OCDF	ND	U	9.63	100			1
Total Tetra-Dioxins	ND	U	5.72	10.0			1
Total Penta-Dioxins	ND	U	6.74	50.0			1
Total Hexa-Dioxins	ND	U	7.45	50.0			1
Total Hepta-Dioxins	ND	U	7.18	50.0			1
Total Tetra-Furans	ND	U	5.79	10.0			1
Total Penta-Furans	ND	U	6.89	50.0			1
Total Hexa-Furans	ND	U	5.17	50.0			1
Total Hepta-Furans	ND	U	6.56	50.0			1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 11:53
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sN-DF	**Units:**	Percent
Lab Code:	P1500356-001	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 13:01
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176196	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1223.525	61		50-120	0.78	1.027
13C-1,2,3,7,8-PeCDD	2000	1746.761	87		50-120	1.57	1.223
13C-1,2,3,6,7,8-HxCDD	2000	1467.519	73		50-120	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1460.515	73		40-120	1.02	1.069
13C-OCDD	4000	2497.364	62		40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	1192.707	60		50-120	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	1550.336	78		50-120	1.61	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1472.140	74		50-120	0.52	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	1158.003	58		40-120	0.45	1.045
37Cl-2,3,7,8-TCDD	2000	2216.685	111		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1974.566	99		50-120	1.27	0.998
13C-2,3,4,7,8-PeCDF	2000	2025.668	101		50-120	1.59	1.033
13C-1,2,3,4,7,8-HxCDF	2000	1739.495	87		50-120	0.52	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2287.558	114		40-120	0.43	1.035
13C-1,2,3,7,8,9-HxCDF	2000	1650.525	83		50-120	0.53	1.008

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 11:53
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sN-DF	**Units:**	pg
Lab Code:	P1500356-001	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method: TO-9A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	5.72	10.0	1	1	
1,2,3,7,8-PeCDD	ND	6.74	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	8.03	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	7.29	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	7.10	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	7.18	50.0	1	0.01	
OCDD	ND	12.0	100	1	0.0003	
2,3,7,8-TCDF	ND	5.79	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	6.36	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	6.51	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	5.08	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	4.56	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	6.12	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	5.13	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	5.73	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	7.66	50.0	1	0.01	
OCDF	ND	9.63	100	1	0.0003	
		Total TEQ				0.00

2005 WHO TEFs, ND = 0

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 11:31
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sNQ-DF	**Units:**	pg
Lab Code:	P1500356-002	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 13:49
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176197	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	8.21	10.0			1
1,2,3,7,8-PeCDD	ND	U	11.7	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	9.05	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	8.23	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	8.01	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	11.2	50.0			1
OCDD	27.6**J**		12.1	100	0.81	1.000	1
2,3,7,8-TCDF	ND	U	10.4	10.4			1
1,2,3,7,8-PeCDF	ND	U	7.43	50.0			1
2,3,4,7,8-PeCDF	ND	U	7.60	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	6.90	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	6.20	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	8.32	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	6.96	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	7.76	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	10.4	50.0			1
OCDF	ND	U	13.4	100			1
Total Tetra-Dioxins	ND	U	8.21	10.0			1
Total Penta-Dioxins	ND	U	11.7	50.0			1
Total Hexa-Dioxins	ND	U	8.41	50.0			1
Total Hepta-Dioxins	ND	U	11.2	50.0			1
Total Tetra-Furans	ND	U	10.4	10.4			1
Total Penta-Furans	ND	U	8.51	50.0			1
Total Hexa-Furans	ND	U	7.01	50.0			1
Total Hepta-Furans	ND	U	8.88	50.0			1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 11:31
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sNQ-DF	**Units:**	Percent
Lab Code:	P1500356-002	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 13:49
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176197	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1154.452	58		50-120	0.79	1.026
13C-1,2,3,7,8-PeCDD	2000	1499.989	75		50-120	1.59	1.222
13C-1,2,3,6,7,8-HxCDD	2000	1218.246	61		50-120	1.17	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1288.961	64		40-120	1.07	1.070
13C-OCDD	4000	2318.625	58		40-120	0.92	1.140
13C-2,3,7,8-TCDF	2000	1093.286	55		50-120	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1291.337	65		50-120	1.61	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1303.953	65		50-120	0.51	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	991.904	50		40-120	0.45	1.045
37Cl-2,3,7,8-TCDD	2000	2204.294	110		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2014.066	101		50-120	1.19	0.998
13C-2,3,4,7,8-PeCDF	2000	2081.155	104		50-120	1.61	1.032
13C-1,2,3,4,7,8-HxCDF	2000	1646.309	82		50-120	0.56	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2179.481	109		40-120	0.45	1.036
13C-1,2,3,7,8,9-HxCDF	2000	1619.467	81		50-120	0.52	1.008

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 11:31
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sNQ-DF	**Units:**	pg
Lab Code:	P1500356-002	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method: TO-9A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	8.21	10.0	1	1	
1,2,3,7,8-PeCDD	ND	11.7	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	9.05	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	8.23	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	8.01	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	11.2	50.0	1	0.01	
OCDD	**27.6**	12.1	100	1	0.0003	0.00828
2,3,7,8-TCDF	ND	10.4	10.4	1	0.1	
1,2,3,7,8-PeCDF	ND	7.43	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	7.60	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	6.90	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	6.20	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	8.32	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	6.96	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	7.76	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	10.4	50.0	1	0.01	
OCDF	ND	13.4	100	1	0.0003	
		Total TEQ				0.00828

2005 WHO TEFs, ND = 0

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 12:17
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sSQ-DF	**Units:**	pg
Lab Code:	P1500356-003	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 14:37
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176198	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	8.05	10.0			1
1,2,3,7,8-PeCDD	ND	U	7.46	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	7.14	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	6.49	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	6.32	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	5.63	50.0			1
OCDD	15.4**J**		8.41	100	0.96	1.000	1
2,3,7,8-TCDF	ND	U	8.15	10.0			1
1,2,3,7,8-PeCDF	ND	U	4.57	50.0			1
2,3,4,7,8-PeCDF	ND	U	4.68	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	4.70	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	4.22	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	5.66	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	4.74	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	4.56	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	6.10	50.0			1
OCDF	ND	U	8.31	100			1
Total Tetra-Dioxins	ND	U	8.05	10.0			1
Total Penta-Dioxins	ND	U	7.46	50.0			1
Total Hexa-Dioxins	ND	U	6.63	50.0			1
Total Hepta-Dioxins	ND	U	5.63	50.0			1
Total Tetra-Furans	ND	U	8.15	10.0			1
Total Penta-Furans	ND	U	3.59	50.0			1
Total Hexa-Furans	ND	U	4.77	50.0			1
Total Hepta-Furans	ND	U	5.22	50.0			1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 12:17
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sSQ-DF	**Units:**	Percent
Lab Code:	P1500356-003	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 14:37
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176198	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1541.418	77		50-120	0.77	1.027
13C-1,2,3,7,8-PeCDD	2000	1864.348	93		50-120	1.60	1.223
13C-1,2,3,6,7,8-HxCDD	2000	1537.034	77		50-120	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1477.488	74		40-120	1.05	1.069
13C-OCDD	4000	2524.149	63		40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	1481.065	74		50-120	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1728.958	86		50-120	1.58	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1495.650	75		50-120	0.52	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	1161.876	58		40-120	0.46	1.045
37Cl-2,3,7,8-TCDD	2000	2207.993	110		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2081.566	104		50-120	1.29	0.998
13C-2,3,4,7,8-PeCDF	2000	2010.855	101		50-120	1.56	1.032
13C-1,2,3,4,7,8-HxCDF	2000	1967.310	98		50-120	0.52	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2446.767	122	**Y**	40-120	0.45	1.036
13C-1,2,3,7,8,9-HxCDF	2000	1715.385	86		50-120	0.52	1.009

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 12:17
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129sSQ-DF	**Units:**	pg
Lab Code:	P1500356-003	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method: TO-9A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	8.05	10.0	1	1	
1,2,3,7,8-PeCDD	ND	7.46	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	7.14	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	6.49	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	6.32	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	5.63	50.0	1	0.01	
OCDD	**15.4**	8.41	100	1	0.0003	0.00462
2,3,7,8-TCDF	ND	8.15	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	4.57	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	4.68	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	4.70	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	4.22	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	5.66	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	4.74	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	4.56	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	6.10	50.0	1	0.01	
OCDF	ND	8.31	100	1	0.0003	
		Total TEQ				0.00462

2005 WHO TEFs, ND = 0

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 00:00
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129BLANK-DF	**Units:**	pg
Lab Code:	P1500356-004	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 15:25
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176199	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	9.29	10.0			1
1,2,3,7,8-PeCDD	ND	U	9.81	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	8.46	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	7.68	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	7.48	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	7.94	50.0			1
OCDD	31.8**JK**		17.9	100	1.11	1.000	1
2,3,7,8-TCDF	ND	U	9.88	10.0			1
1,2,3,7,8-PeCDF	ND	U	8.23	50.0			1
2,3,4,7,8-PeCDF	ND	U	8.42	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	6.40	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	5.75	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	7.71	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	6.46	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	7.01	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	9.37	50.0			1
OCDF	ND	U	15.2	100			1
Total Tetra-Dioxins	ND	U	9.29	10.0			1
Total Penta-Dioxins	ND	U	9.81	50.0			1
Total Hexa-Dioxins	ND	U	7.85	50.0			1
Total Hepta-Dioxins	ND	U	7.94	50.0			1
Total Tetra-Furans	ND	U	9.88	10.0			1
Total Penta-Furans	ND	U	7.09	50.0			1
Total Hexa-Furans	ND	U	6.51	50.0			1
Total Hepta-Furans	ND	U	8.02	50.0			1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 00:00
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129BLANK-DF	**Units:**	Percent
Lab Code:	P1500356-004	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 15:25
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176199	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1214.813	61		50-120	0.76	1.026
13C-1,2,3,7,8-PeCDD	2000	1627.576	81		50-120	1.57	1.222
13C-1,2,3,6,7,8-HxCDD	2000	1369.744	68		50-120	1.23	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1377.282	69		40-120	1.07	1.069
13C-OCDD	4000	2406.698	60		40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	1151.963	58		50-120	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1409.451	70		50-120	1.56	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1408.195	70		50-120	0.53	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	1094.157	55		40-120	0.45	1.045
37Cl-2,3,7,8-TCDD	2000	2212.115	111		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2031.062	102		50-120	1.27	0.998
13C-2,3,4,7,8-PeCDF	2000	2076.186	104		50-120	1.57	1.033
13C-1,2,3,4,7,8-HxCDF	2000	1653.557	83		50-120	0.51	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2267.233	113		40-120	0.43	1.036
13C-1,2,3,7,8,9-HxCDF	2000	1455.814	73		50-120	0.53	1.008

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/29/15 00:00
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	129BLANK-DF	**Units:**	pg
Lab Code:	P1500356-004	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method: TO-9A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	9.29	10.0	1	1	
1,2,3,7,8-PeCDD	ND	9.81	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	8.46	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	7.68	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	7.48	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	7.94	50.0	1	0.01	
OCDD	**31.8**	17.9	100	1	0.0003	0.00954
2,3,7,8-TCDF	ND	9.88	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	8.23	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	8.42	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	6.40	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	5.75	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	7.71	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	6.46	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	7.01	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	9.37	50.0	1	0.01	
OCDF	ND	15.2	100	1	0.0003	
		Total TEQ				0.00954

2005 WHO TEFs, ND = 0

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 09:21
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128U1-DF	**Units:**	pg
Lab Code:	P1500356-005	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 16:14
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176200	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	6.22	10.0			1
1,2,3,7,8-PeCDD	ND	U	7.89	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	6.44	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	5.85	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	5.70	50.0			1
1,2,3,4,6,7,8-HpCDD	16.0**JK**		7.79	50.0	0.82	1.000	1
OCDD	55.9**JK**		11.8	100	1.26	1.000	1
2,3,7,8-TCDF	ND	U	8.92	10.0			1
1,2,3,7,8-PeCDF	ND	U	6.06	50.0			1
2,3,4,7,8-PeCDF	ND	U	6.21	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	5.16	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	4.64	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	6.22	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	5.21	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	5.85	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	7.82	50.0			1
OCDF	ND	U	10.9	100			1
Total Tetra-Dioxins	ND	U	6.22	10.0			1
Total Penta-Dioxins	ND	U	7.89	50.0			1
Total Hexa-Dioxins	ND	U	5.98	50.0			1
Total Hepta-Dioxins	ND	U	7.79	50.0			1
Total Tetra-Furans	ND	U	8.92	10.0			1
Total Penta-Furans	ND	U	5.87	50.0			1
Total Hexa-Furans	ND	U	5.25	50.0			1
Total Hepta-Furans	ND	U	6.69	50.0			1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 09:21
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128U1-DF	**Units:**	Percent
Lab Code:	P1500356-005	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 16:14
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176200	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1577.247	79		50-120	0.81	1.027
13C-1,2,3,7,8-PeCDD	2000	1981.399	99		50-120	1.57	1.223
13C-1,2,3,6,7,8-HxCDD	2000	1567.777	78		50-120	1.29	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1612.584	81		40-120	1.04	1.069
13C-OCDD	4000	2858.131	71		40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	1500.192	75		50-120	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1786.262	89		50-120	1.63	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1713.391	86		50-120	0.53	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	1275.906	64		40-120	0.47	1.045
37Cl-2,3,7,8-TCDD	2000	2211.375	111		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2143.759	107		50-120	1.25	0.998
13C-2,3,4,7,8-PeCDF	2000	2050.926	103		50-120	1.59	1.033
13C-1,2,3,4,7,8-HxCDF	2000	1706.461	85		50-120	0.53	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2201.288	110		40-120	0.45	1.035
13C-1,2,3,7,8,9-HxCDF	2000	1700.332	85		50-120	0.52	1.008

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 09:21
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128U1-DF	**Units:**	pg
Lab Code:	P1500356-005	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method: TO-9A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	6.22	10.0	1	1	
1,2,3,7,8-PeCDD	ND	7.89	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	6.44	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	5.85	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	5.70	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	**16.0**	7.79	50.0	1	0.01	0.160
OCDD	**55.9**	11.8	100	1	0.0003	0.0168
2,3,7,8-TCDF	ND	8.92	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	6.06	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	6.21	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	5.16	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	4.64	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	6.22	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	5.21	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	5.85	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	7.82	50.0	1	0.01	
OCDF	ND	10.9	100	1	0.0003	
		Total TEQ				0.177

2005 WHO TEFs, ND = 0

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 10:47
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128D1-DF	**Units:**	pg
Lab Code:	P1500356-006	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 17:02
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176201	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	7.21	10.0			1
1,2,3,7,8-PeCDD	ND	U	7.28	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	6.05	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	5.49	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	5.35	50.0			1
1,2,3,4,6,7,8-HpCDD	15.7**JK**		4.79	50.0	0.83	1.000	1
OCDD	52.8**J**		9.50	100	0.79	1.000	1
2,3,7,8-TCDF	ND	U	8.57	10.0			1
1,2,3,7,8-PeCDF	ND	U	7.26	50.0			1
2,3,4,7,8-PeCDF	ND	U	7.43	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	3.94	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	3.54	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	4.74	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	3.98	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	3.48	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	4.64	50.0			1
OCDF	ND	U	7.80	100			1
Total Tetra-Dioxins	ND	U	7.21	10.0			1
Total Penta-Dioxins	ND	U	7.28	50.0			1
Total Hexa-Dioxins	6.02**J**		5.61	50.0	1.05		1
Total Hepta-Dioxins	15.0**J**		4.79	50.0	1.05		1
Total Tetra-Furans	ND	U	8.57	10.0			1
Total Penta-Furans	ND	U	6.66	50.0			1
Total Hexa-Furans	ND	U	4.00	50.0			1
Total Hepta-Furans	ND	U	3.98	50.0			1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 10:47
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128D1-DF	**Units:**	Percent
Lab Code:	P1500356-006	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 17:02
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176201	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1375.373	69		50-120	0.78	1.026
13C-1,2,3,7,8-PeCDD	2000	1827.691	91		50-120	1.56	1.222
13C-1,2,3,6,7,8-HxCDD	2000	1492.817	75		50-120	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1518.735	76		40-120	1.06	1.069
13C-OCDD	4000	2611.910	65		40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	1331.429	67		50-120	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	1646.655	82		50-120	1.59	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1570.157	79		50-120	0.53	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	1183.224	59		40-120	0.44	1.045
37Cl-2,3,7,8-TCDD	2000	2224.141	111		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2034.131	102		50-120	1.25	0.998
13C-2,3,4,7,8-PeCDF	2000	1971.827	99		50-120	1.60	1.033
13C-1,2,3,4,7,8-HxCDF	2000	1659.148	83		50-120	0.51	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2102.950	105		40-120	0.45	1.036
13C-1,2,3,7,8,9-HxCDF	2000	1628.589	81		50-120	0.51	1.008

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 10:47
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128D1-DF	**Units:**	pg
Lab Code:	P1500356-006	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method: TO-9A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	7.21	10.0	1	1	
1,2,3,7,8-PeCDD	ND	7.28	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	6.05	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	5.49	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	5.35	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	**15.7**	4.79	50.0	1	0.01	0.157
OCDD	**52.8**	9.50	100	1	0.0003	0.0158
2,3,7,8-TCDF	ND	8.57	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	7.26	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	7.43	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	3.94	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	3.54	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	4.74	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	3.98	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	3.48	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	4.64	50.0	1	0.01	
OCDF	ND	7.80	100	1	0.0003	
		Total TEQ				0.173

2005 WHO TEFs, ND = 0

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 09:48
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128F-DF	**Units:**	pg
Lab Code:	P1500356-007	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 17:50
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176202	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	8.56	10.0			1
1,2,3,7,8-PeCDD	ND	U	5.34	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	4.18	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	3.79	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	3.70	50.0			1
1,2,3,4,6,7,8-HpCDD	18.1**J**		4.65	50.0	1.07	1.000	1
OCDD	85.2**JK**		5.60	100	1.05	1.000	1
2,3,7,8-TCDF	ND	U	9.41	10.0			1
1,2,3,7,8-PeCDF	ND	U	3.72	50.0			1
2,3,4,7,8-PeCDF	ND	U	3.80	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.75	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	2.47	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	3.32	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.78	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	3.78	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	5.05	50.0			1
OCDF	ND	U	9.54	100			1
Total Tetra-Dioxins	ND	U	8.56	10.0			1
Total Penta-Dioxins	ND	U	5.34	50.0			1
Total Hexa-Dioxins	ND	U	3.88	50.0			1
Total Hepta-Dioxins	42.9**J**		4.65	50.0	1.04		1
Total Tetra-Furans	ND	U	9.41	10.0			1
Total Penta-Furans	ND	U	4.71	50.0			1
Total Hexa-Furans	ND	U	2.80	50.0			1
Total Hepta-Furans	ND	U	4.32	50.0			1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 09:48
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128F-DF	**Units:**	Percent
Lab Code:	P1500356-007	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 17:50
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176202	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1469.399	73		50-120	0.78	1.026
13C-1,2,3,7,8-PeCDD	2000	1858.517	93		50-120	1.58	1.222
13C-1,2,3,6,7,8-HxCDD	2000	1480.405	74		50-120	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1570.610	79		40-120	1.07	1.070
13C-OCDD	4000	2647.572	66		40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	1416.711	71		50-120	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	1679.026	84		50-120	1.59	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1621.616	81		50-120	0.52	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	1234.816	62		40-120	0.44	1.045
37Cl-2,3,7,8-TCDD	2000	2199.982	110		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2152.102	108		50-120	1.25	0.998
13C-2,3,4,7,8-PeCDF	2000	1998.460	100		50-120	1.56	1.032
13C-1,2,3,4,7,8-HxCDF	2000	1689.774	84		50-120	0.52	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2099.630	105		40-120	0.43	1.036
13C-1,2,3,7,8,9-HxCDF	2000	1750.478	88		50-120	0.52	1.008

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	01/28/15 09:48
Sample Matrix:	Air	**Date Received:**	01/30/15 07:45
Sample Name:	128F-DF	**Units:**	pg
Lab Code:	P1500356-007	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method: TO-9A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	8.56	10.0	1	1	
1,2,3,7,8-PeCDD	ND	5.34	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	4.18	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	3.79	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	3.70	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	**18.1**	4.65	50.0	1	0.01	0.181
OCDD	**85.2**	5.60	100	1	0.0003	0.0256
2,3,7,8-TCDF	ND	9.41	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	3.72	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	3.80	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	2.75	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	2.47	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	3.32	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	2.78	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	3.78	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	5.05	50.0	1	0.01	
OCDF	ND	9.54	100	1	0.0003	
		Total TEQ				0.207

2005 WHO TEFs, ND = 0

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	NA
Sample Matrix:	Air	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg
Lab Code:	EQ1500085-01	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 12:13
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176195	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	9.36	10.0			1
1,2,3,7,8-PeCDD	ND	U	8.49	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	8.03	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	7.29	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	7.10	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	10.1	50.0			1
OCDD	ND	U	16.2	100			1
2,3,7,8-TCDF	ND	U	10.1	10.1			1
1,2,3,7,8-PeCDF	ND	U	7.36	50.0			1
2,3,4,7,8-PeCDF	ND	U	7.54	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	5.67	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	5.09	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	6.83	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	5.72	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	7.42	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	9.92	50.0			1
OCDF	ND	U	15.5	100			1
Total Tetra-Dioxins	ND	U	9.36	10.0			1
Total Penta-Dioxins	ND	U	8.49	50.0			1
Total Hexa-Dioxins	ND	U	7.45	50.0			1
Total Hepta-Dioxins	ND	U	10.1	50.0			1
Total Tetra-Furans	ND	U	10.1	10.1			1
Total Penta-Furans	ND	U	5.97	50.0			1
Total Hexa-Furans	ND	U	5.76	50.0			1
Total Hepta-Furans	ND	U	8.49	50.0			1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	NA
Sample Matrix:	Air	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1500085-01	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 12:13
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176195	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1245.051	62		50-120	0.78	1.027
13C-1,2,3,7,8-PeCDD	2000	1589.543	79		50-120	1.58	1.223
13C-1,2,3,6,7,8-HxCDD	2000	1327.914	66		50-120	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1299.188	65		40-120	1.09	1.070
13C-OCDD	4000	2018.794	50		40-120	0.91	1.140
13C-2,3,7,8-TCDF	2000	1132.292	57		50-120	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1435.941	72		50-120	1.59	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1398.046	70		50-120	0.52	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	1041.406	52		40-120	0.44	1.045
37Cl-2,3,7,8-TCDD	2000	2258.835	113		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2049.241	102		50-120	1.20	0.998
13C-2,3,4,7,8-PeCDF	2000	1976.100	99		50-120	1.60	1.033
13C-1,2,3,4,7,8-HxCDF	2000	1707.809	85		50-120	0.53	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2189.016	109		40-120	0.44	1.036
13C-1,2,3,7,8,9-HxCDF	2000	1345.321	67		50-120	0.52	1.008

Accuracy & Precision

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Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Analyzed:**	02/07/15
Sample Matrix:	Air	**Date Extracted:**	02/03/15

Duplicate Lab Control Sample Summary
Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Units:**	pg
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	432091

	Lab Control Sample EQ1500085-02			Duplicate Lab Control Sample EQ1500085-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	1930	2000	96	2040	2000	102	70-130	6	30
1,2,3,4,7,8-HxCDD	2080	2000	104	2030	2000	102	70-130	2	30
1,2,3,6,7,8-HxCDD	2130	2000	107	2120	2000	106	70-130	<1	30
1,2,3,7,8,9-HxCDD	2080	2000	104	2100	2000	105	70-130	<1	30
1,2,3,7,8-PeCDD	2130	2000	107	2100	2000	105	70-130	2	30
2,3,7,8-TCDD	444	400	111	439	400	110	70-130	1	30
OCDD	4260	4000	107	4070	4000	102	70-130	5	30
1,2,3,4,6,7,8-HpCDF	1960	2000	98	1940	2000	97	70-130	1	30
1,2,3,4,7,8,9-HpCDF	2230	2000	112	2280	2000	114	70-130	2	30
1,2,3,4,7,8-HxCDF	1680	2000	84	1630	2000	82	70-130	3	30
1,2,3,6,7,8-HxCDF	1820	2000	91	1820	2000	91	70-130	<1	30
1,2,3,7,8,9-HxCDF	1790	2000	89	1810	2000	91	70-130	1	30
1,2,3,7,8-PeCDF	2090	2000	105	2060	2000	103	70-130	2	30
2,3,4,6,7,8-HxCDF	1730	2000	87	1740	2000	87	70-130	<1	30
2,3,4,7,8-PeCDF	1990	2000	100	1940	2000	97	70-130	2	30
2,3,7,8-TCDF	414	400	103	416	400	104	70-130	<1	30
OCDF	3550	4000	89	3550	4000	89	70-130	<1	30

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	NA
Sample Matrix:	Air	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg
Lab Code:	EQ1500085-02	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 18:38
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176203	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	444		8.65	10.0	0.75	1.001	1
1,2,3,7,8-PeCDD	2130		4.80	50.0	1.62	1.000	1
1,2,3,4,7,8-HxCDD	2080		3.83	50.0	1.15	0.998	1
1,2,3,6,7,8-HxCDD	2130		3.48	50.0	1.37	1.000	1
1,2,3,7,8,9-HxCDD	2080		3.39	50.0	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	1930		5.57	50.0	1.06	1.000	1
OCDD	4260		13.1	100	0.93	1.000	1
2,3,7,8-TCDF	414		10.7	10.7	0.78	1.001	1
1,2,3,7,8-PeCDF	2090		4.12	50.0	1.50	1.001	1
2,3,4,7,8-PeCDF	1990		4.22	50.0	1.55	1.033	1
1,2,3,4,7,8-HxCDF	1680		2.90	50.0	1.22	0.997	1
1,2,3,6,7,8-HxCDF	1820		2.60	50.0	1.22	1.000	1
1,2,3,7,8,9-HxCDF	1790		3.49	50.0	1.27	1.037	1
2,3,4,6,7,8-HxCDF	1730		2.92	50.0	1.21	1.016	1
1,2,3,4,6,7,8-HpCDF	1960		5.25	50.0	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	2230		7.01	50.0	0.99	1.036	1
OCDF	3550		16.7	100	0.94	1.005	1
Total Tetra-Dioxins	449		8.65	10.0	0.75		1
Total Penta-Dioxins	2170		4.80	50.0	1.62		1
Total Hexa-Dioxins	6290		3.56	50.0	1.15		1
Total Hepta-Dioxins	1930		5.57	50.0	1.06		1
Total Tetra-Furans	415		10.7	10.7	0.78		1
Total Penta-Furans	4090		5.21	50.0			1
Total Hexa-Furans	7020		2.95	50.0	1.22		1
Total Hepta-Furans	4200		6.00	50.0	1.04		1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	NA
Sample Matrix:	Air	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500085-02	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 18:38
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176203	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1618.259	81		50-120	0.78	1.027
13C-1,2,3,7,8-PeCDD	2000	1971.237	99		50-120	1.59	1.223
13C-1,2,3,6,7,8-HxCDD	2000	1647.094	82		50-120	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1593.486	80		40-120	1.08	1.070
13C-OCDD	4000	2616.208	65		40-120	0.91	1.140
13C-2,3,7,8-TCDF	2000	1502.592	75		50-120	0.81	0.992
13C-1,2,3,7,8-PeCDF	2000	1778.401	89		50-120	1.57	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1685.535	84		50-120	0.53	0.973
13C-1,2,3,4,6,7,8-HpCDF	2000	1267.693	63		40-120	0.44	1.045
37Cl-2,3,7,8-TCDD	2000	2153.116	108		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1974.715	99		50-120	1.28	0.998
13C-2,3,4,7,8-PeCDF	2000	1984.249	99		50-120	1.59	1.033
13C-1,2,3,4,7,8-HxCDF	2000	1784.270	89		50-120	0.54	0.996
13C-1,2,3,4,7,8,9-HpCDF	2000	2250.927	113		40-120	0.43	1.036
13C-1,2,3,7,8,9-HxCDF	2000	1665.685	83		50-120	0.52	1.009

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	NA
Sample Matrix:	Air	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg
Lab Code:	EQ1500085-03	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 19:26
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176204	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	439		9.28	10.0	0.78	1.001	1
1,2,3,7,8-PeCDD	2100		7.71	50.0	1.53	1.001	1
1,2,3,4,7,8-HxCDD	2030		6.33	50.0	1.20	0.998	1
1,2,3,6,7,8-HxCDD	2120		5.75	50.0	1.29	1.000	1
1,2,3,7,8,9-HxCDD	2100		5.60	50.0	1.21	1.007	1
1,2,3,4,6,7,8-HpCDD	2040		5.52	50.0	1.05	1.000	1
OCDD	4070		13.2	100	0.91	1.000	1
2,3,7,8-TCDF	416		7.07	10.0	0.88	1.001	1
1,2,3,7,8-PeCDF	2060		4.89	50.0	1.60	1.001	1
2,3,4,7,8-PeCDF	1940		5.01	50.0	1.53	1.033	1
1,2,3,4,7,8-HxCDF	1630		5.50	50.0	1.30	0.997	1
1,2,3,6,7,8-HxCDF	1820		4.93	50.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	1810		6.62	50.0	1.21	1.038	1
2,3,4,6,7,8-HxCDF	1740		5.55	50.0	1.25	1.016	1
1,2,3,4,6,7,8-HpCDF	1940		8.27	50.0	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	2280		11.1	50.0	1.07	1.036	1
OCDF	3550		6.60	100	0.88	1.004	1
Total Tetra-Dioxins	439		9.28	10.0	0.78		1
Total Penta-Dioxins	2110		7.71	50.0	1.53		1
Total Hexa-Dioxins	6240		5.87	50.0	1.20		1
Total Hepta-Dioxins	2050		5.52	50.0	0.89		1
Total Tetra-Furans	433		7.07	10.0	0.88		1
Total Penta-Furans	4020		3.94	50.0			1
Total Hexa-Furans	7010		5.59	50.0	1.30		1
Total Hepta-Furans	4250		9.46	50.0	1.06		1

Client:	Stantec Consulting Group, Inc.	**Service Request:**	P1500356
Project:	Bridgeton/182608020	**Date Collected:**	NA
Sample Matrix:	Air	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500085-03	**Basis:**	NA

Polychlorinated, Polybrominated, Brominated/Chlorinated Dibenzo-p-Dioxins, Dibenzofurans in Amb. Air

Analysis Method:	TO-9A	**Date Analyzed:**	02/07/15 19:26
Prep Method:	Method	**Date Extracted:**	2/3/15
Sample Amount:	0.5000Sample	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P176204	**Blank File Name:**	P176195
ICAL Date:	10/18/14	**Cal Ver. File Name:**	P176193

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	1590.958	80		50-120	0.78	1.026
13C-1,2,3,7,8-PeCDD	2000	2054.713	103		50-120	1.52	1.222
13C-1,2,3,6,7,8-HxCDD	2000	1584.804	79		50-120	1.25	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1477.853	74		40-120	1.01	1.070
13C-OCDD	4000	2380.718	60		40-120	0.88	1.141
13C-2,3,7,8-TCDF	2000	1460.299	73		50-120	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1821.418	91		50-120	1.59	1.173
13C-1,2,3,6,7,8-HxCDF	2000	1616.157	81		50-120	0.52	0.972
13C-1,2,3,4,6,7,8-HpCDF	2000	1154.785	58		40-120	0.44	1.045
37Cl-2,3,7,8-TCDD	2000	2229.701	111		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2110.579	106		50-120	1.24	0.998
13C-2,3,4,7,8-PeCDF	2000	1994.542	100		50-120	1.58	1.033
13C-1,2,3,4,7,8-HxCDF	2000	1782.139	89		50-120	0.53	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2378.975	119		40-120	0.46	1.035
13C-1,2,3,7,8,9-HxCDF	2000	1669.610	83		50-120	0.51	1.008

Chromatograms and Selected Ion Monitoring

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
129SN-DF

Run #10 Filename P176196 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 13:01:22
Processed: 9-FEB-15 12:03:08 LAB. ID: P1500356-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.946
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.061
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.148
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.369
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.998
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.052
17	Unk	OCDD	NotFnd	*	*	*	no	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:09	6.088e+03	7.874e+03	0.77	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	1.076e+04	6.688e+03	1.61	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	1.072e+04	6.734e+03	1.59	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:46	4.791e+03	9.211e+03	0.52	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	6.494e+03	1.249e+04	0.52	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	5.560e+03	1.044e+04	0.53	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	3.715e+03	8.235e+03	0.45	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:48	3.236e+03	7.483e+03	0.43	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	4.489e+03	5.788e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	8.381e+03	5.354e+03	1.57	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:33	6.978e+03	5.481e+03	1.27	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:38	7.856e+03	6.242e+03	1.26	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:22	6.386e+03	6.236e+03	1.02	yes	no	0.874
32	IS	13C-OCDD	40:55	8.042e+03	8.907e+03	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:21	3.997e+04	5.096e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	5.537e+04	4.347e+04	1.27	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:05	1.182e+04				no	1.038

EDL

$$\text{OCDD} = \frac{(7.40e+02 + 7.68e+02) \times 4000 \text{ pg} \times 1 \times 2.5}{(8.042e+03 + 8.907e+02) \times 1.068 \times 0.5} = \frac{12.0 \text{ pg}}{(1.19e+06 + 1.23e+06)}$$

~~11.815 pg~~ pg

4402/09/15

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Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
129SN-DF

Run #10 Filename P176196 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 13:01:22
Processed: 9-FEB-15 12:03:08 LAB. ID: P1500356-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	2.87e+02	*	*	6.13e+02	*
2	1,2,3,7,8-PeCDF	*	7.80e+02	*	*	8.60e+02	*
3	2,3,4,7,8-PeCDF	*	7.80e+02	*	*	8.60e+02	*
4	1,2,3,4,7,8-HxCDF	*	9.12e+02	*	*	7.68e+02	*
5	1,2,3,6,7,8-HxCDF	*	9.12e+02	*	*	7.68e+02	*
6	2,3,4,6,7,8-HxCDF	*	9.12e+02	*	*	7.68e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.12e+02	*	*	7.68e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	1.06e+03	*	*	6.80e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	1.06e+03	*	*	6.80e+02	*
10	OCDF	*	8.56e+02	*	*	7.00e+02	*
11	2,3,7,8-TCDD	*	5.05e+02	*	*	2.90e+02	*
12	1,2,3,7,8-PeCDD	*	8.36e+02	*	*	4.44e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.72e+02	*	*	1.02e+03	*
14	1,2,3,6,7,8-HxCDD	*	7.72e+02	*	*	1.02e+03	*
15	1,2,3,7,8,9-HxCDD	*	7.72e+02	*	*	1.02e+03	*
16	1,2,3,4,6,7,8-HpCDD	*	8.68e+02	*	*	6.24e+02	*
17	OCDD	*	7.40e+02	*	*	7.68e+02	*
18	13C-2,3,7,8-TCDF	6.92e+05	6.36e+02	1.1e+03	9.55e+05	1.20e+03	8.0e+02
19	13C-1,2,3,7,8-PeCDF	1.48e+06	6.52e+02	2.3e+03	9.37e+05	6.04e+02	1.6e+03
20	13C-2,3,4,7,8-PeCDF	1.62e+06	6.52e+02	2.5e+03	1.05e+06	6.04e+02	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	8.77e+05	1.13e+03	7.7e+02	1.72e+06	1.60e+03	1.1e+03
22	13C-1,2,3,6,7,8-HxCDF	9.80e+05	1.13e+03	8.7e+02	1.88e+06	1.60e+03	1.2e+03
24	13C-1,2,3,7,8,9-HxCDF	8.57e+05	1.13e+03	7.6e+02	1.62e+06	1.60e+03	1.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.14e+05	8.80e+02	7.0e+02	1.36e+06	8.52e+02	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.84e+05	8.80e+02	5.5e+02	1.06e+06	8.52e+02	1.2e+03
27	13C-2,3,7,8-TCDD	6.11e+05	3.48e+03	1.8e+02	7.77e+05	1.56e+03	5.0e+02
28	13C-1,2,3,7,8-PeCDD	1.25e+06	6.28e+02	2.0e+03	8.11e+05	5.24e+02	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.39e+06	1.38e+03	1.0e+03	1.08e+06	9.68e+02	1.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.35e+06	1.38e+03	9.8e+02	1.11e+06	9.68e+02	1.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+06	8.12e+02	1.2e+03	9.63e+05	9.72e+02	9.9e+02
32	13C-OCDD	1.12e+06	2.22e+03	5.1e+02	1.23e+06	1.24e+03	9.9e+02
33	13C-1,2,3,4-TCDD	5.67e+06	3.48e+03	1.6e+03	7.21e+06	1.56e+03	4.6e+03
34	13C-1,2,3,7,8,9-HxCDD	9.77e+06	1.38e+03	7.1e+03	7.75e+06	9.68e+02	8.0e+03
35	37Cl-2,3,7,8-TCDD	1.54e+06	9.48e+02	1.6e+03			

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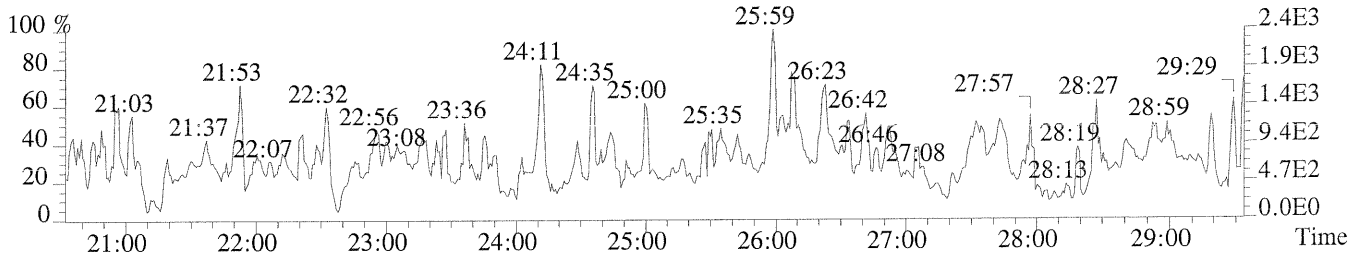
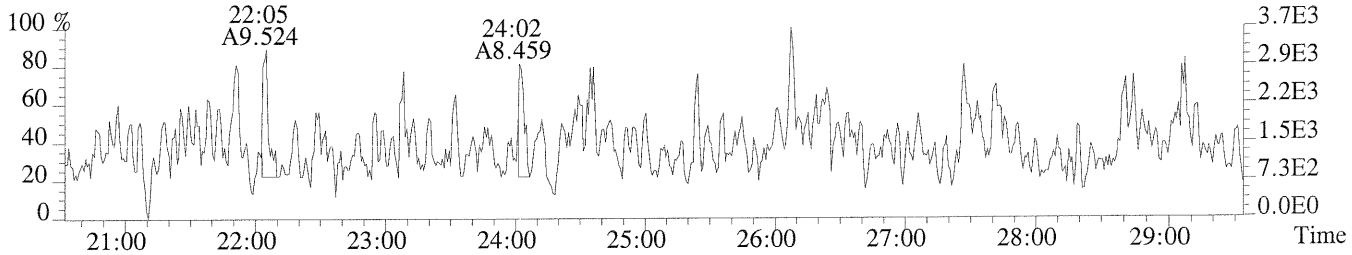
ALS Form TO-9SN/M23SN.FRM

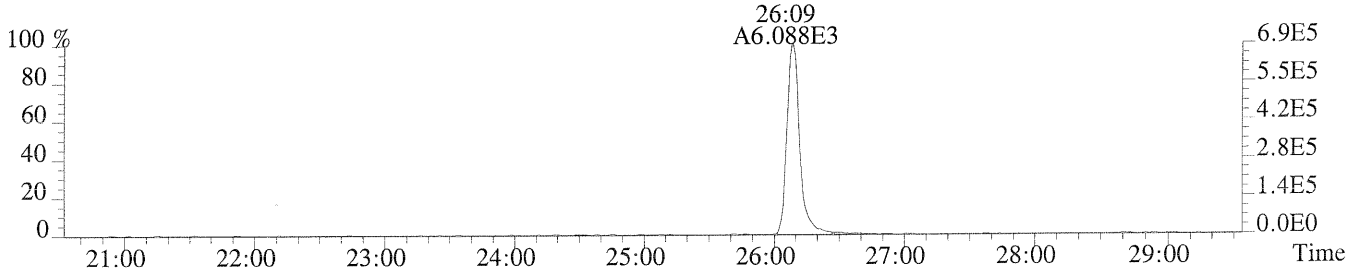
File:P176196 #1-696 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



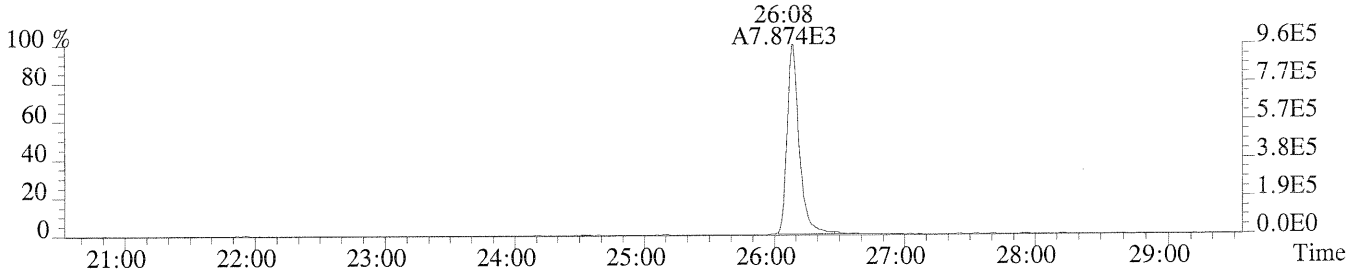
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



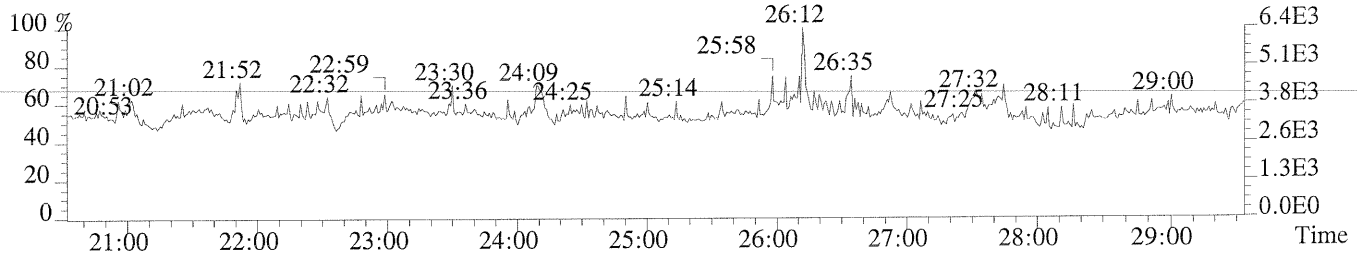
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



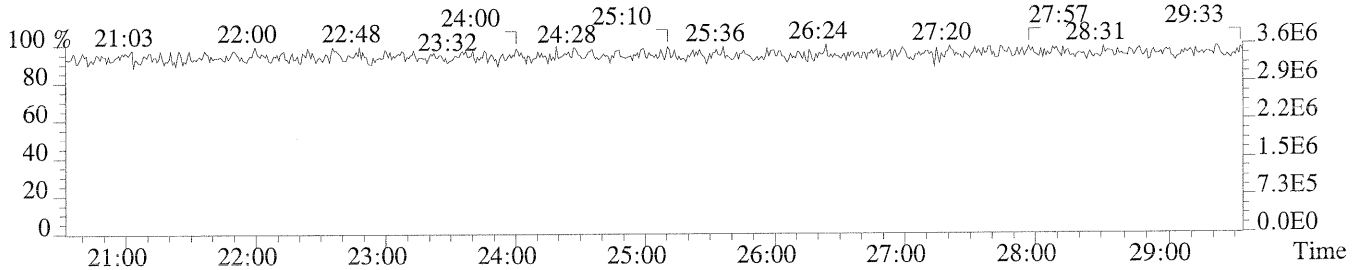
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



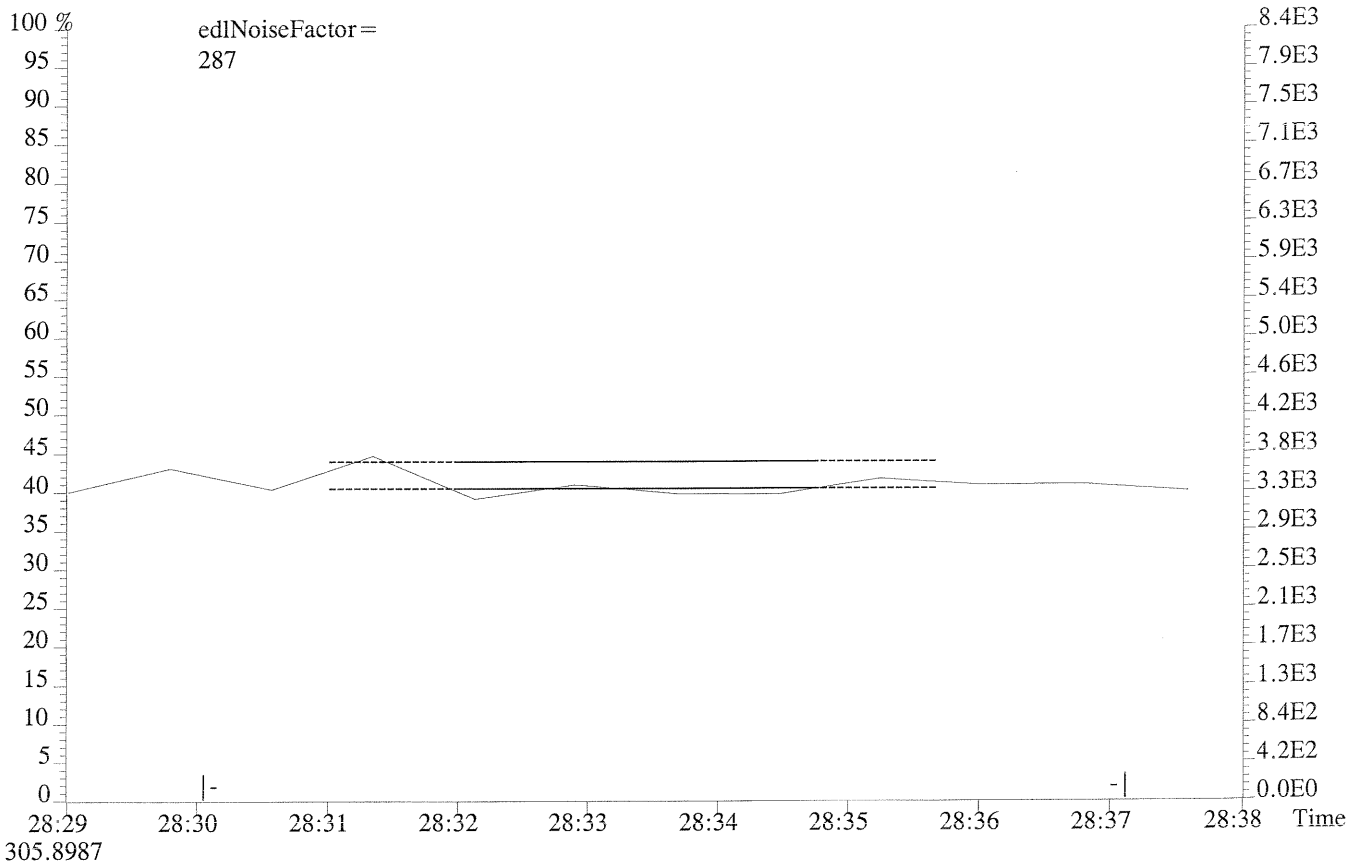
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



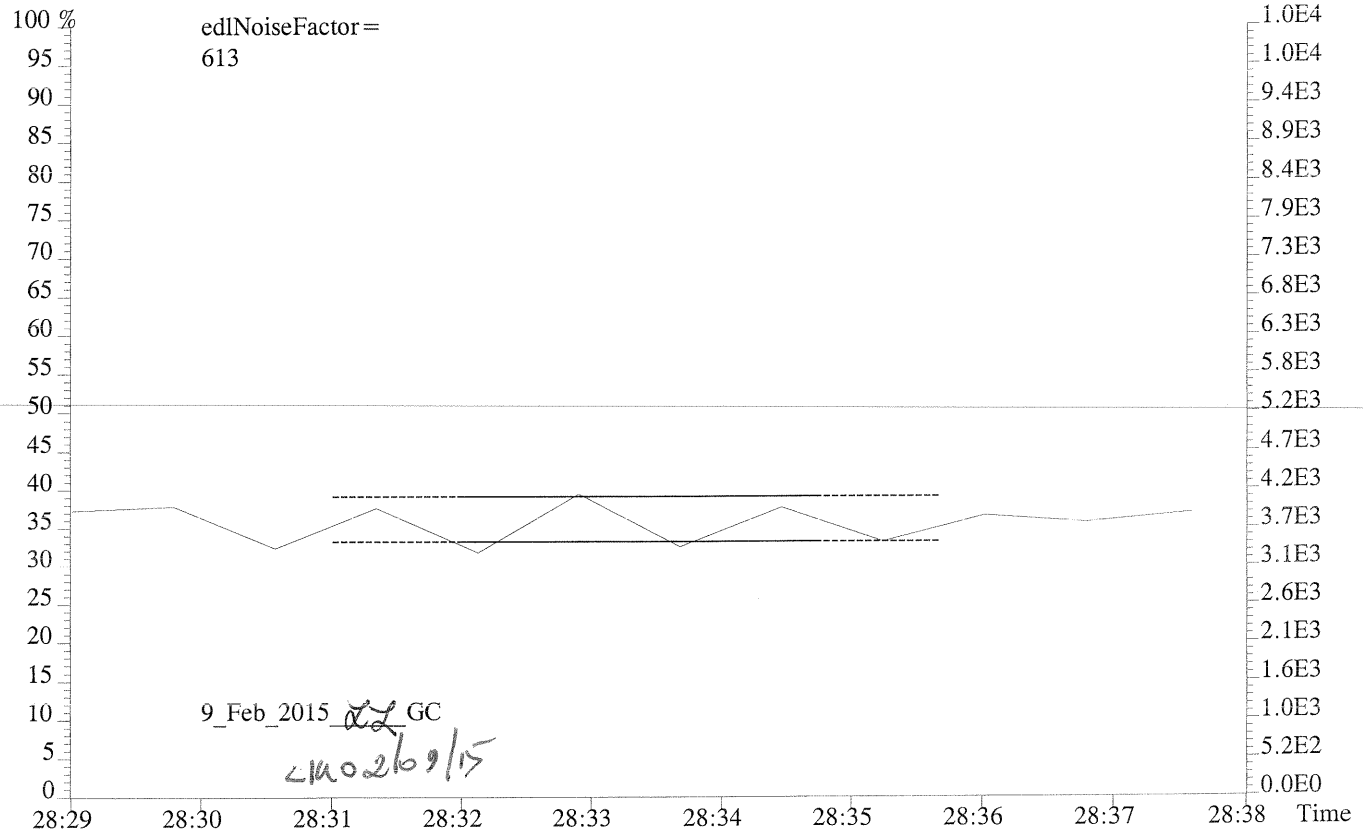
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



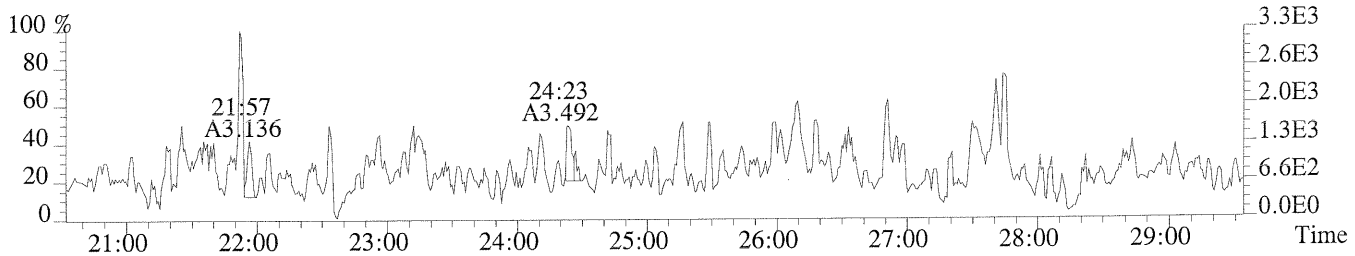
File:P176196 #1-696 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:P1500356-001
303.9016



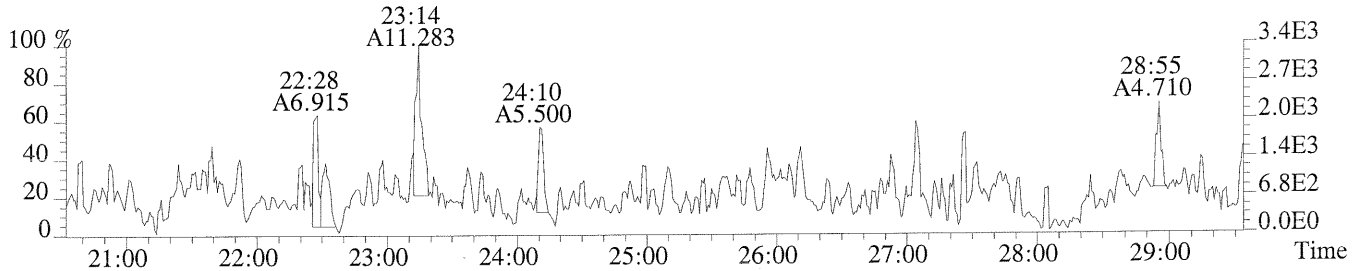
305.8987



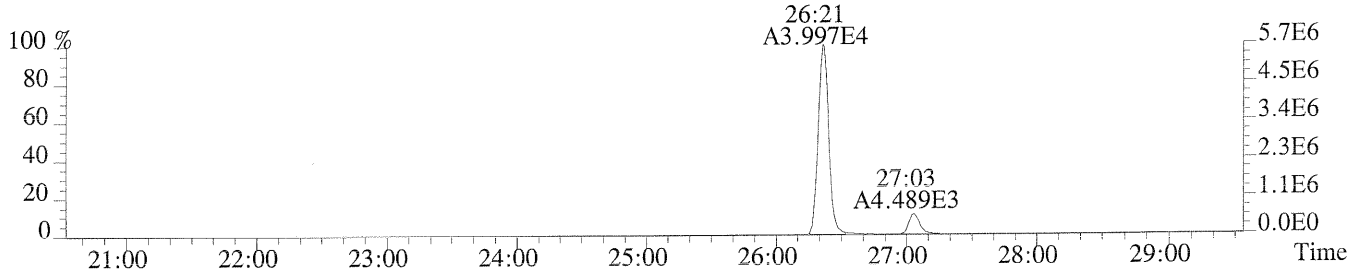
File:P176196 #1-696 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



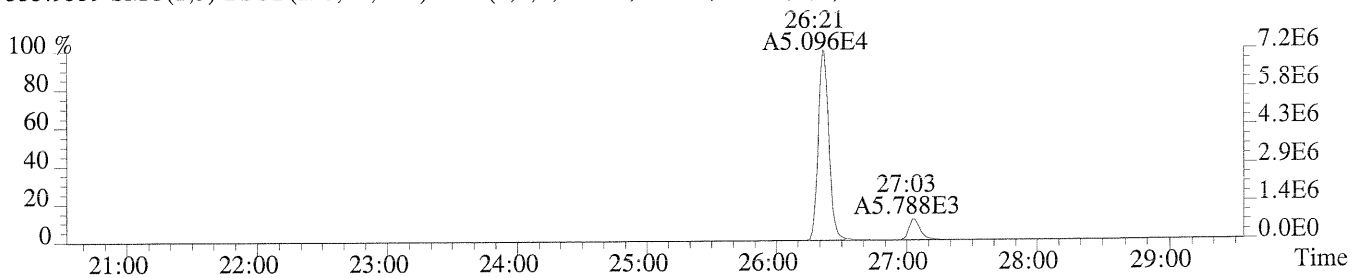
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



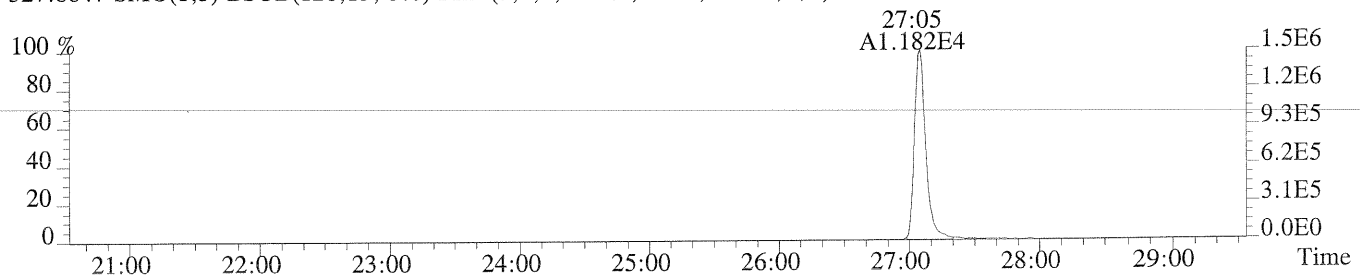
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3476.0,1.00%,F,T)



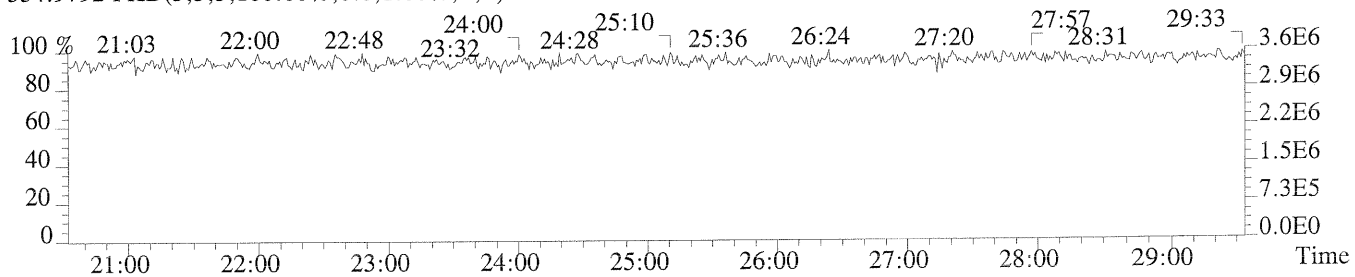
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



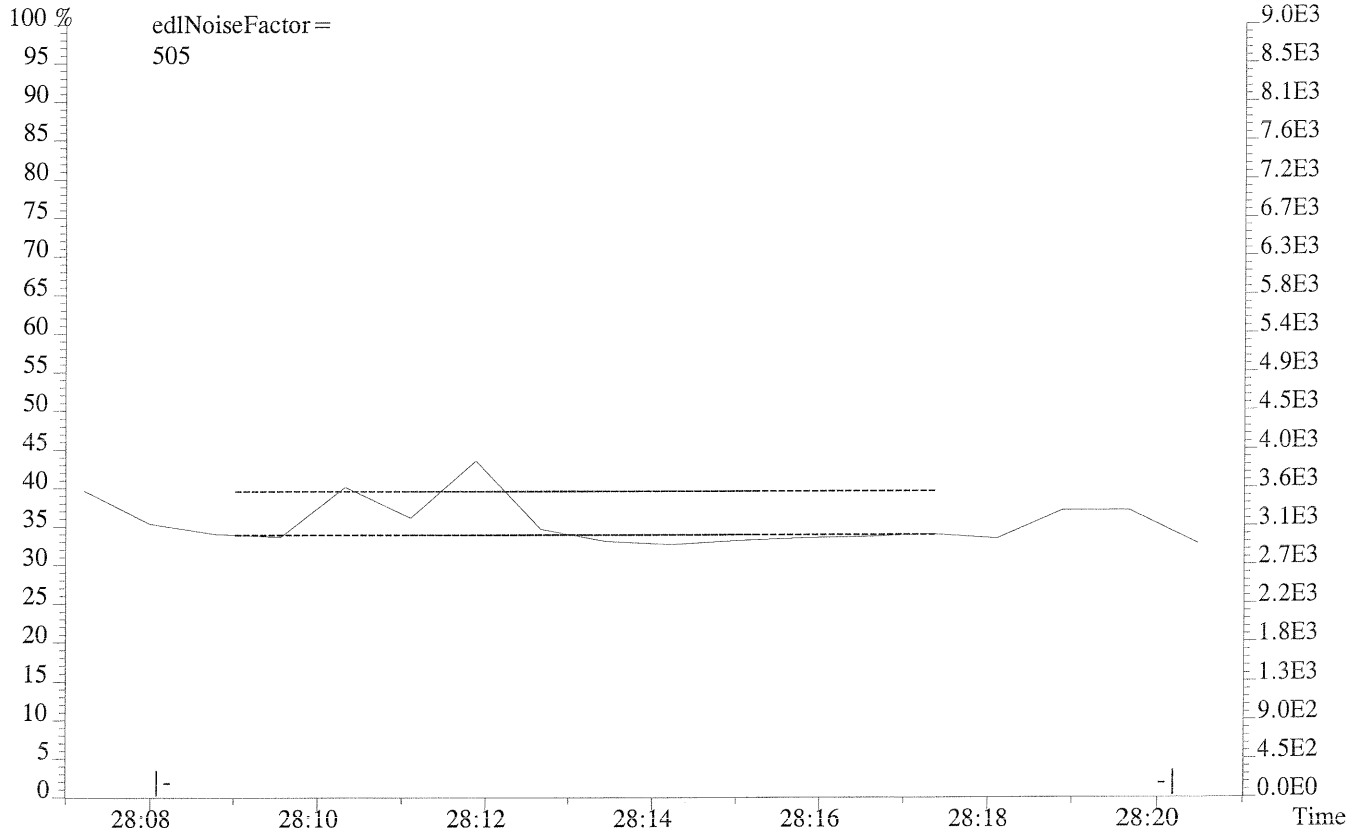
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



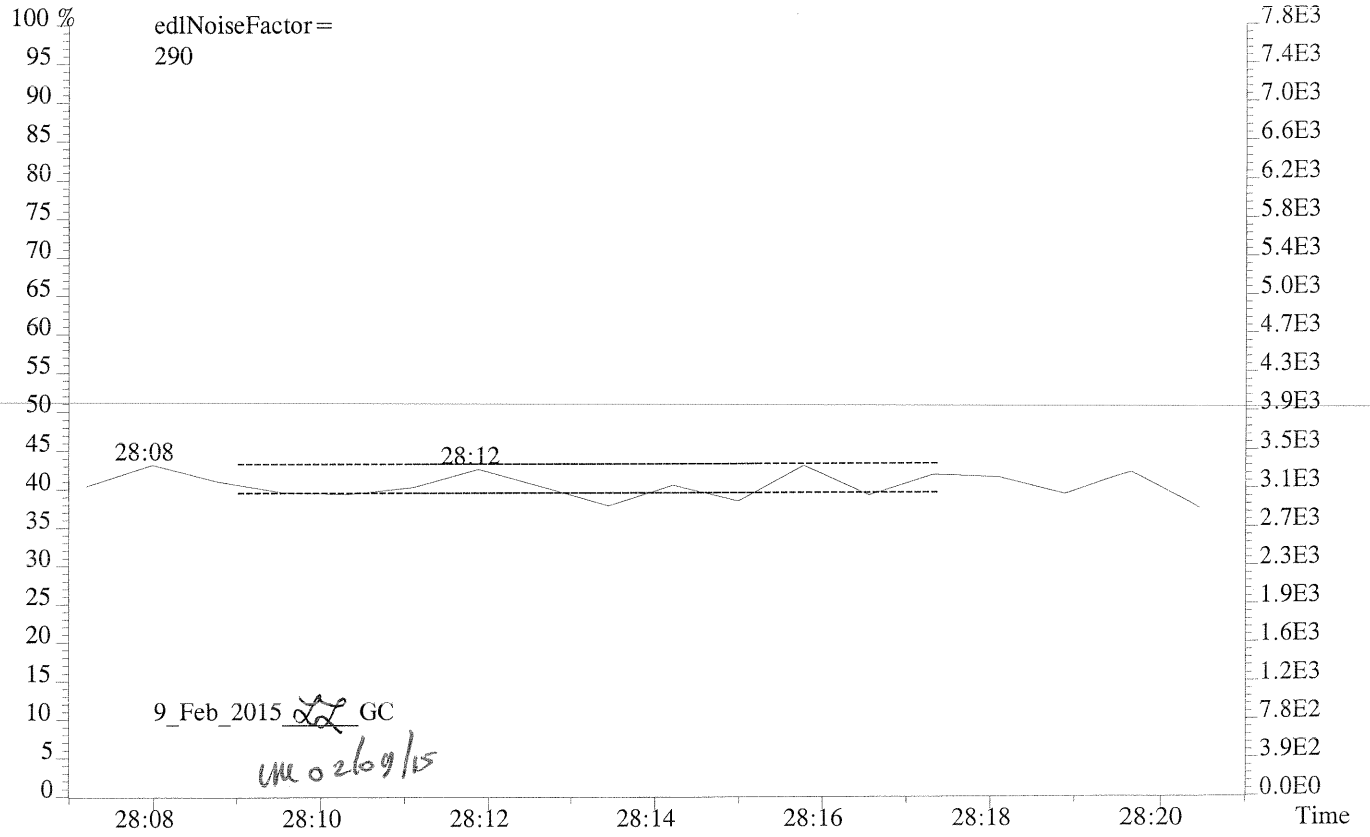
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



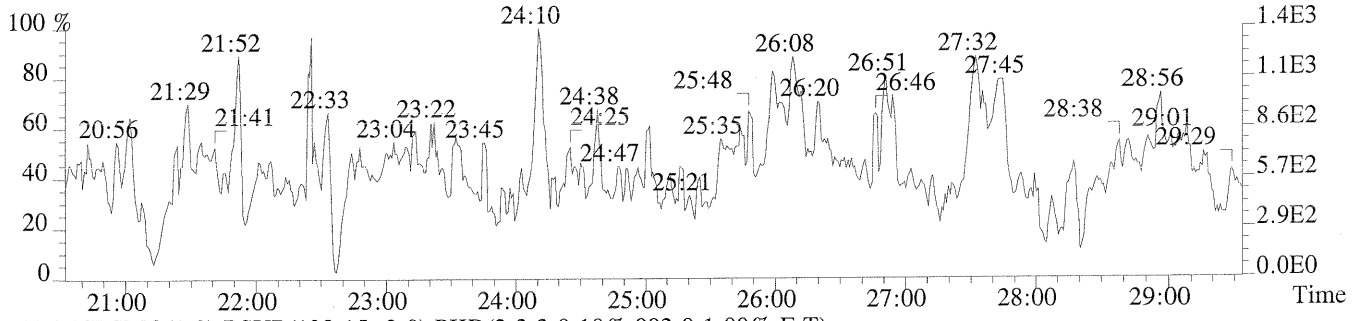
File:P176196 #1-696 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
319.8965



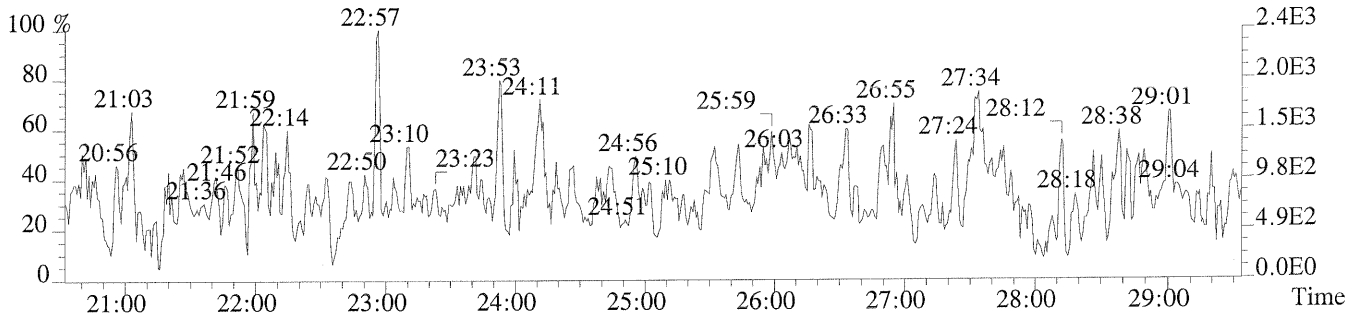
321.8936



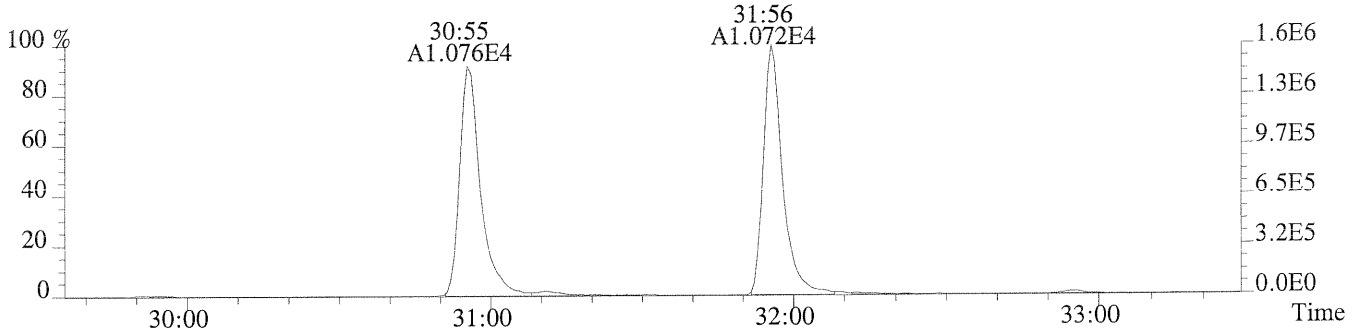
File:P176196 #1-696 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



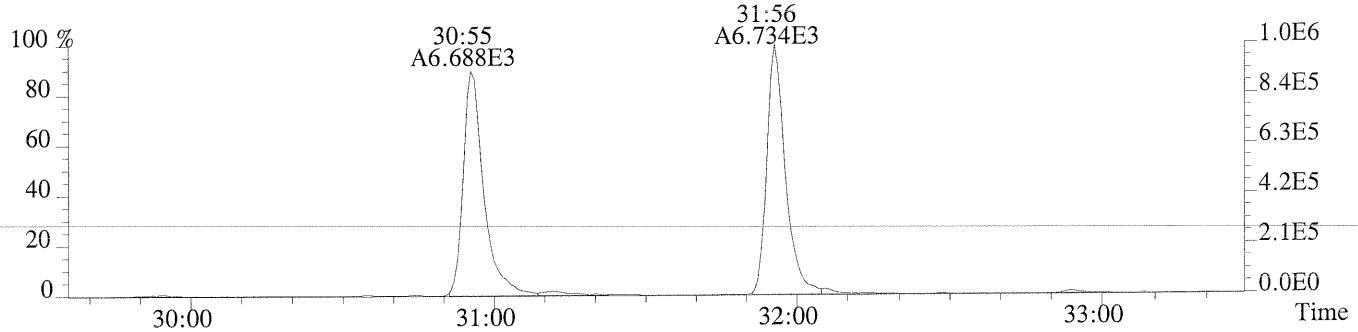
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



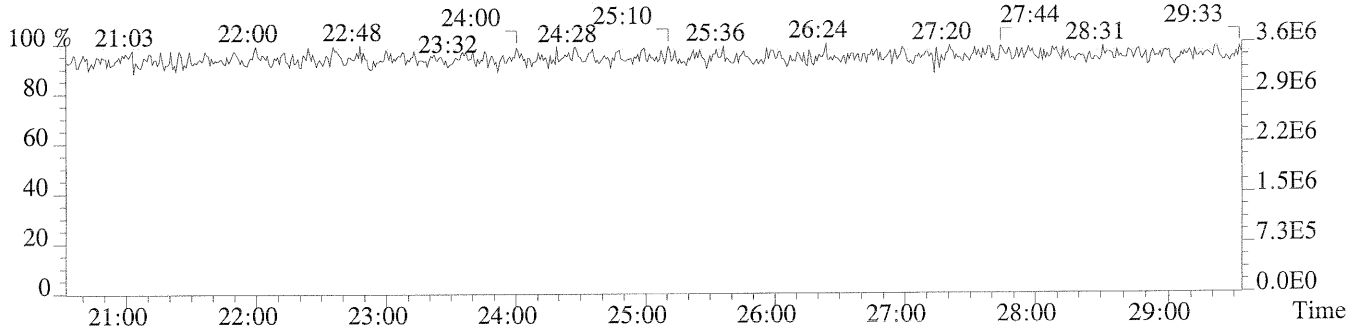
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



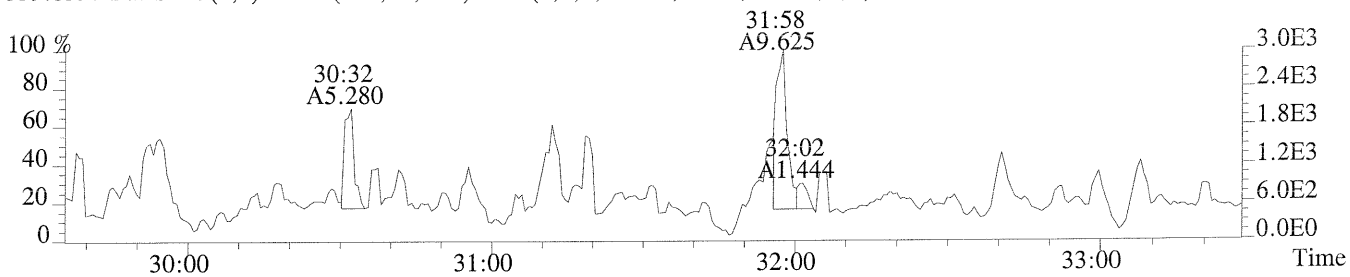
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



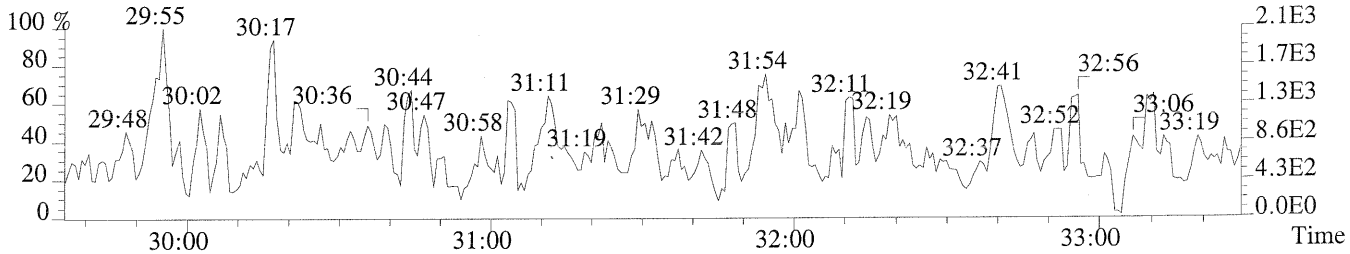
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



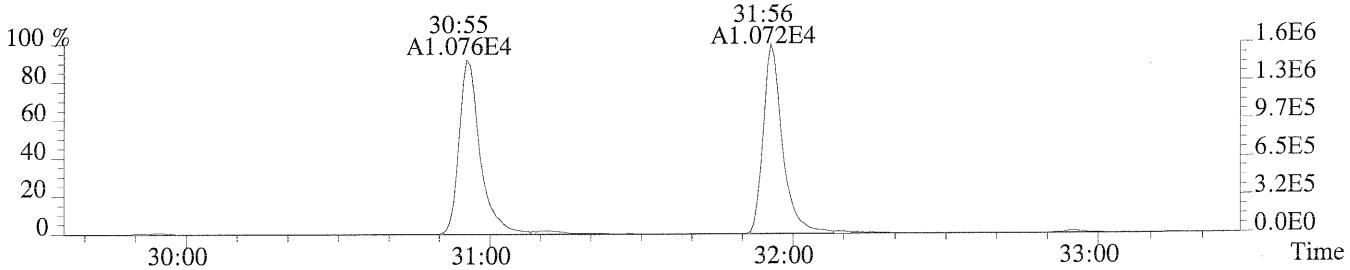
File:P176196 #1-351 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



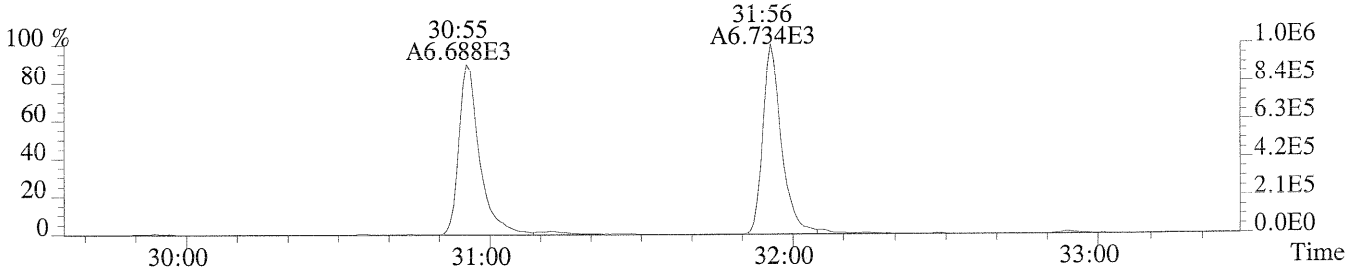
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



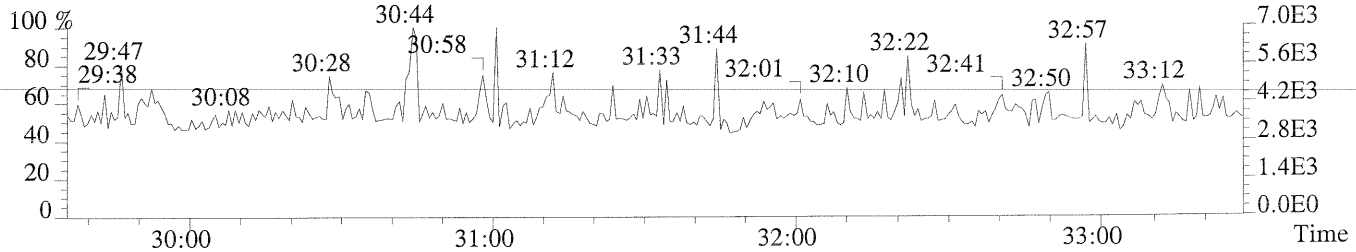
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



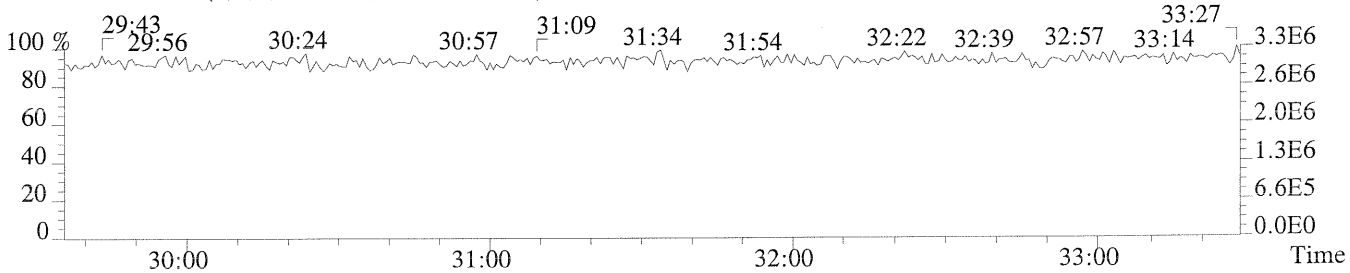
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



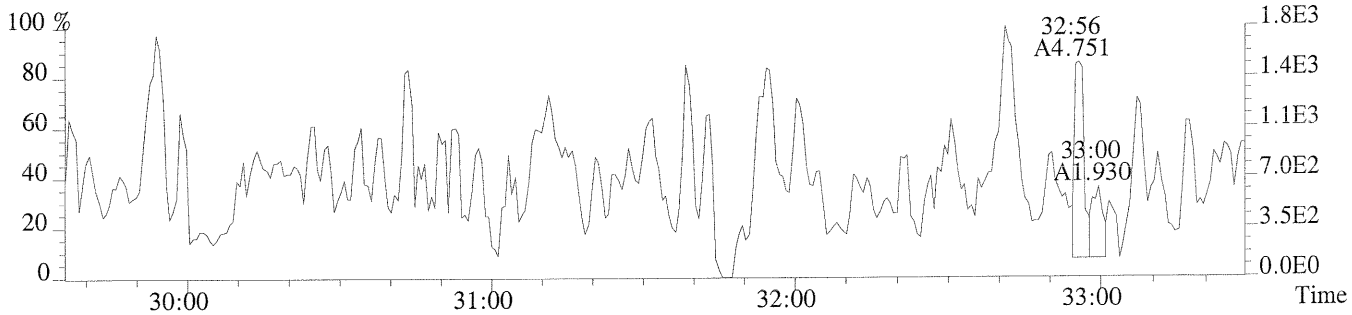
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



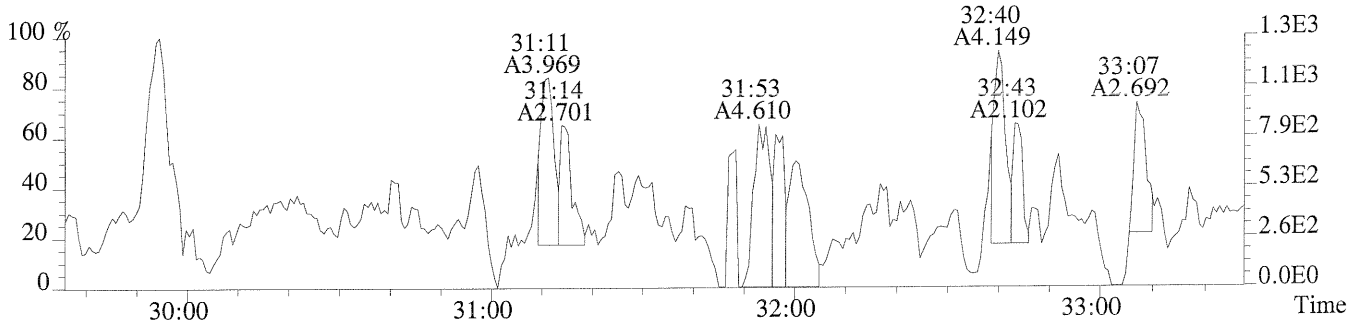
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



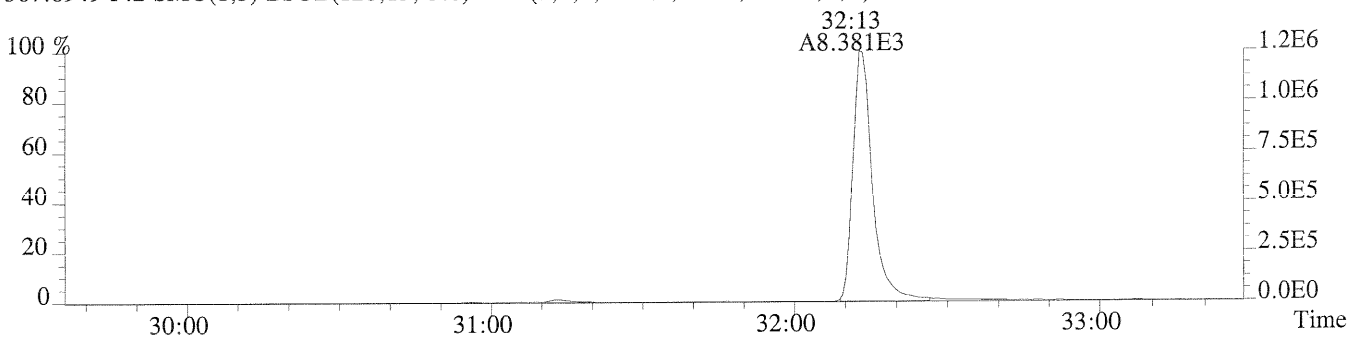
File:P176196 #1-351 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



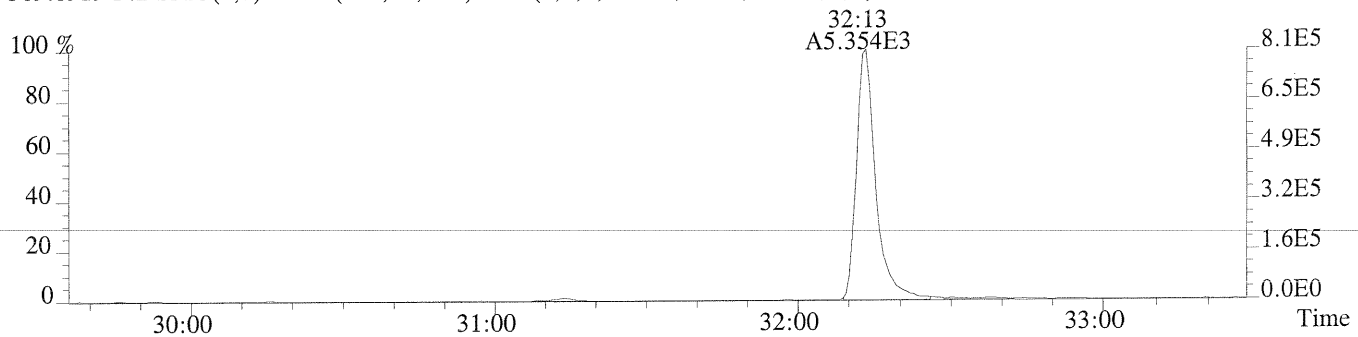
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



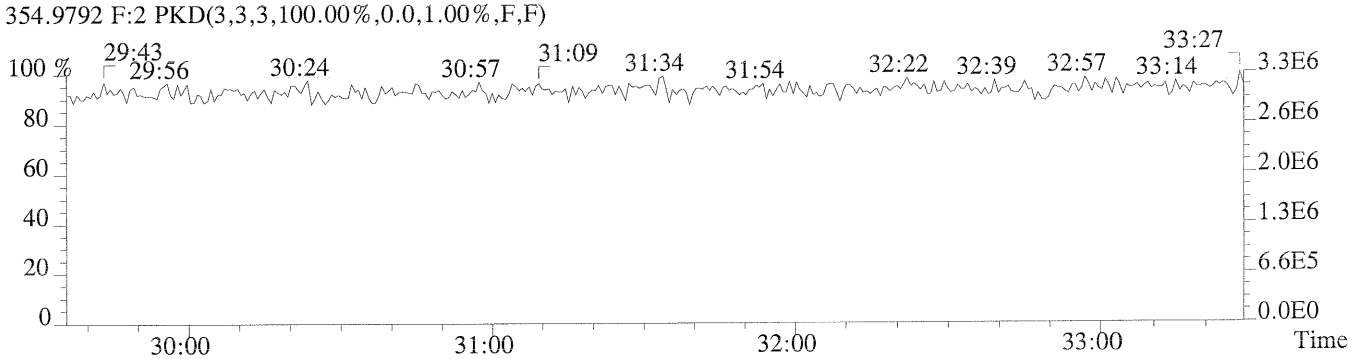
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



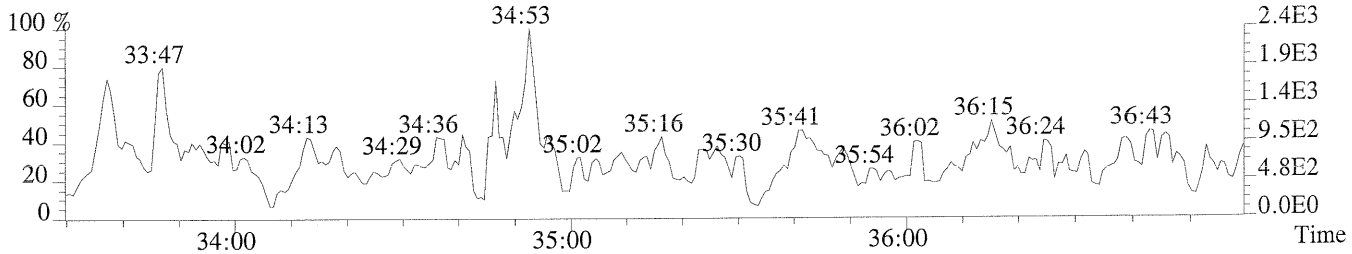
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



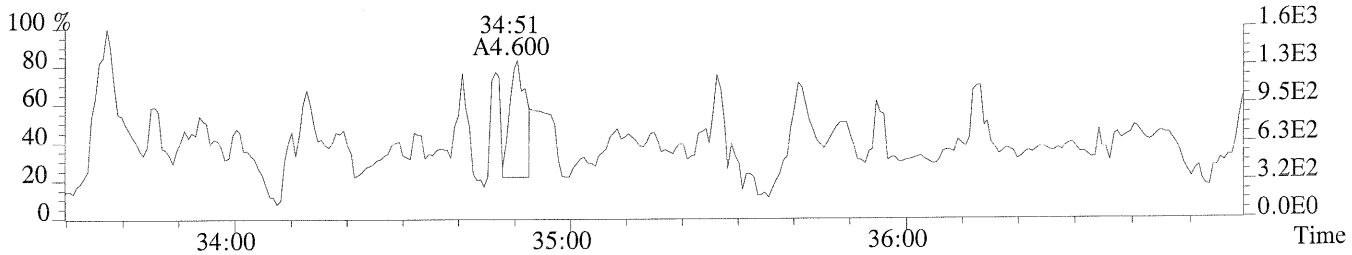
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



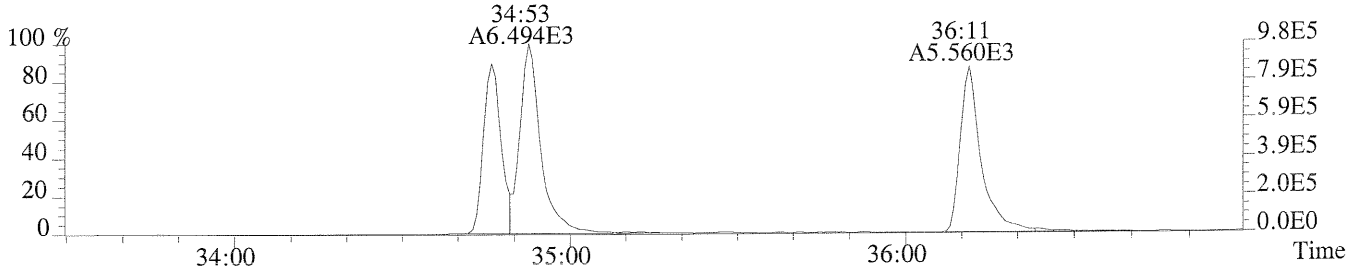
File:P176196 #1-318 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



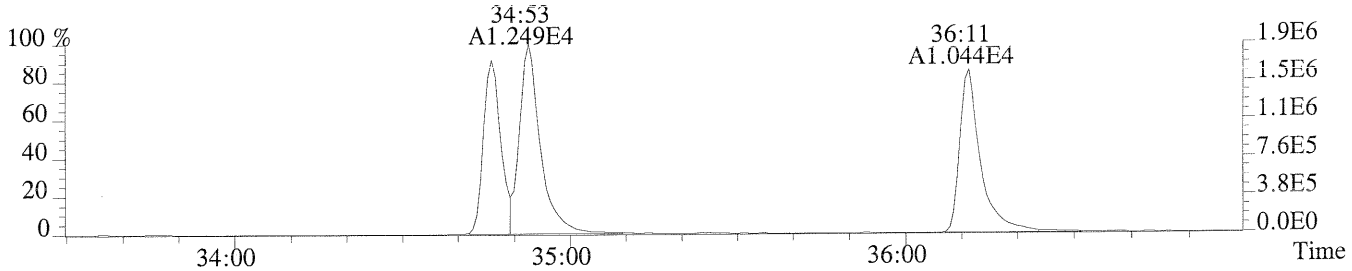
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



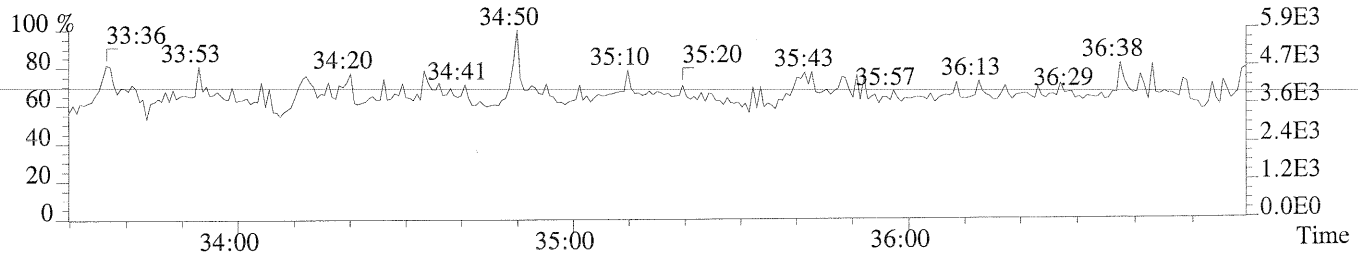
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



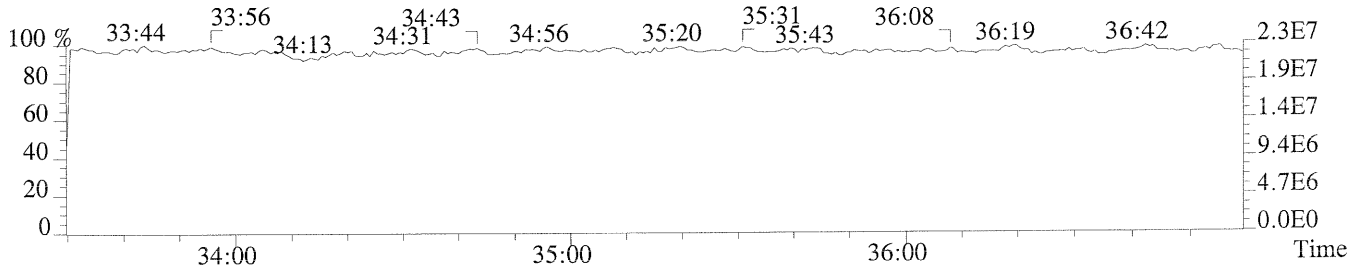
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



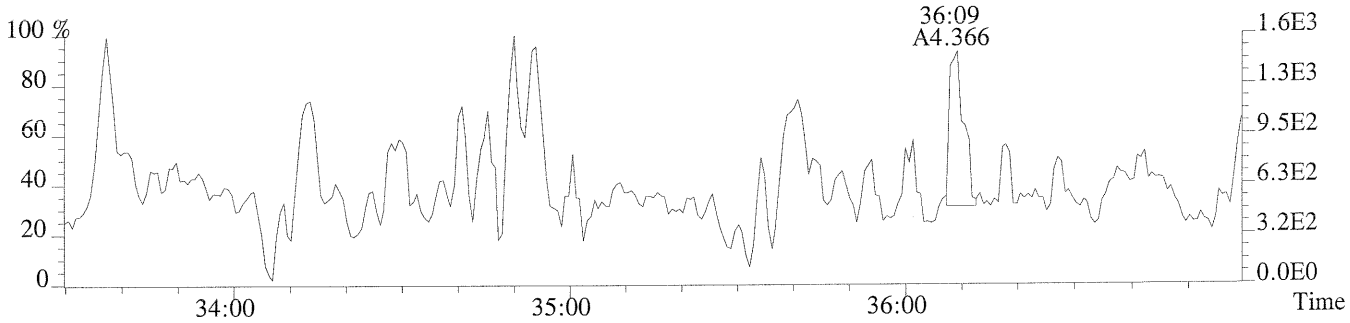
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



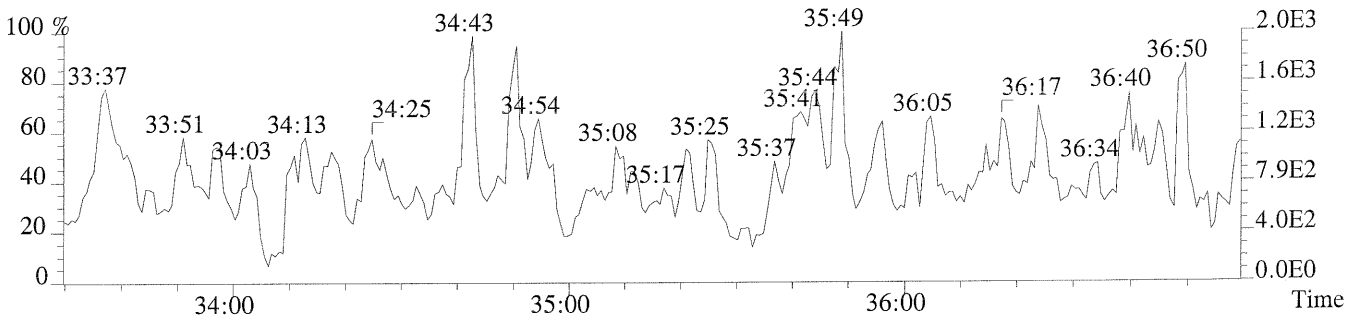
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



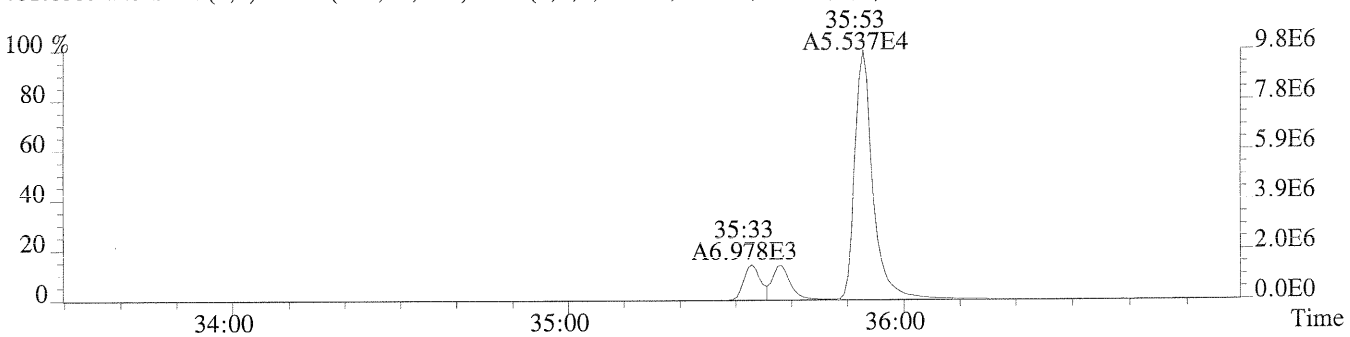
File:P176196 #1-318 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



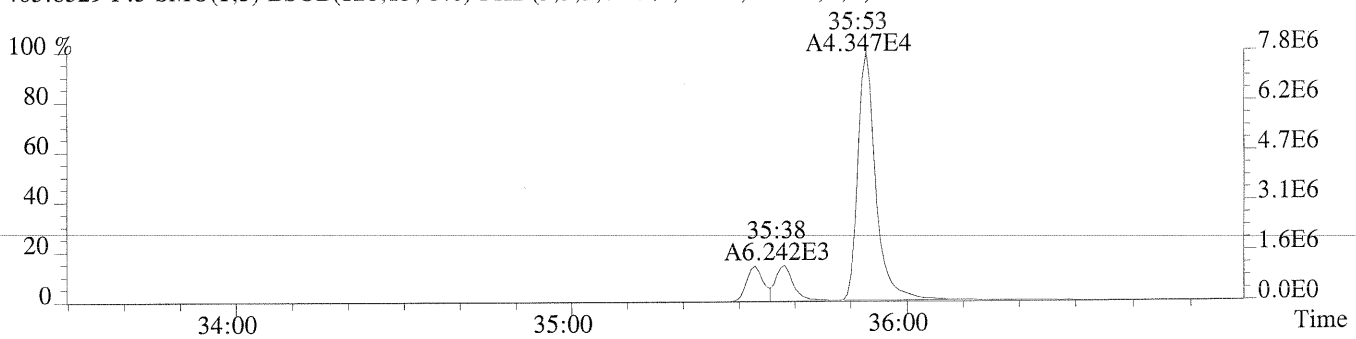
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



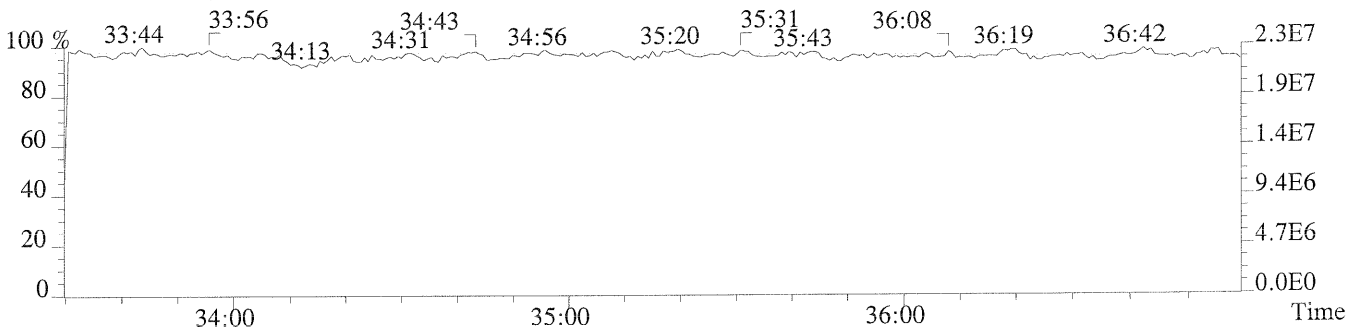
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)

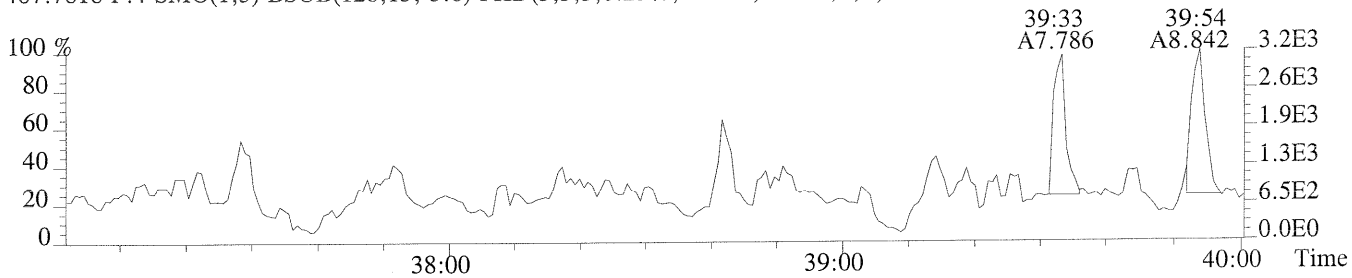


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

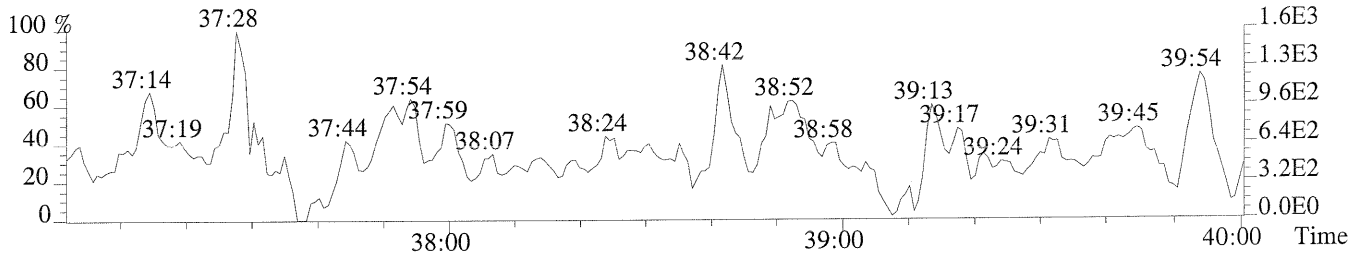


File:P176196 #1-271 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001

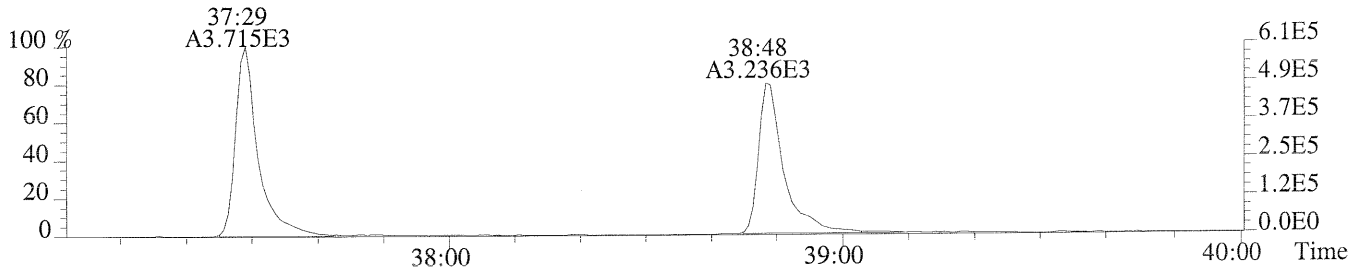
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)



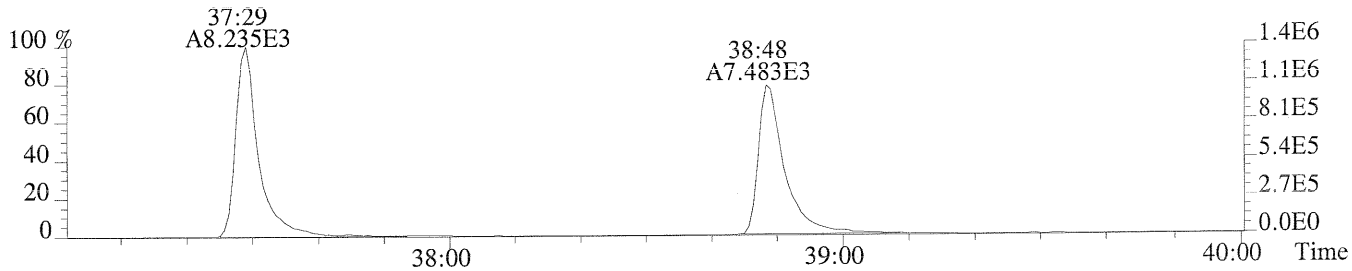
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.50%,F,T)



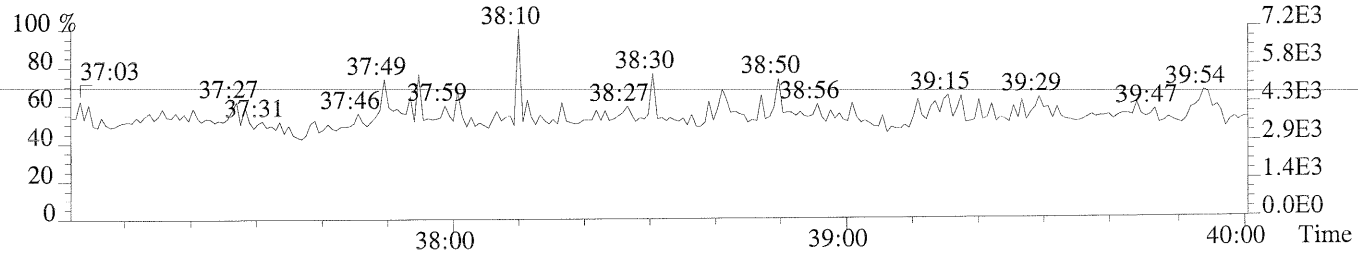
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.50%,F,T)



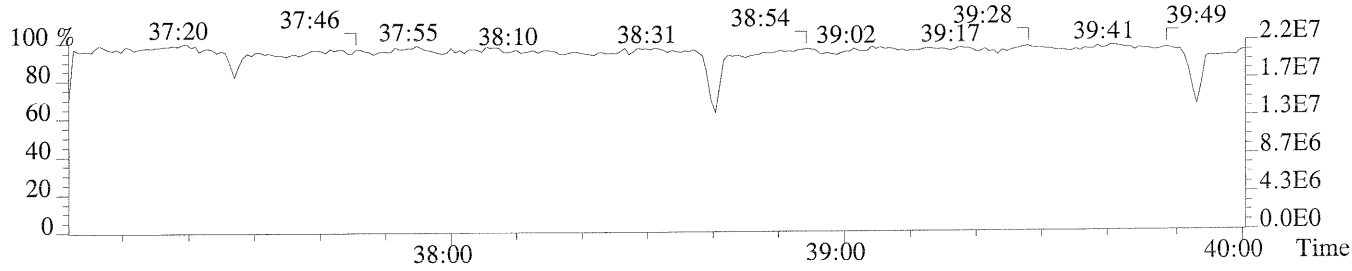
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.50%,F,T)



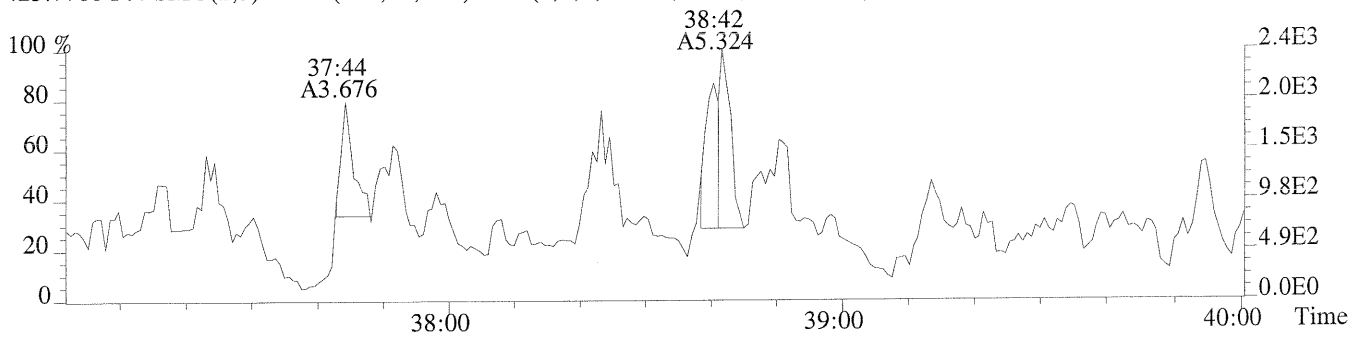
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



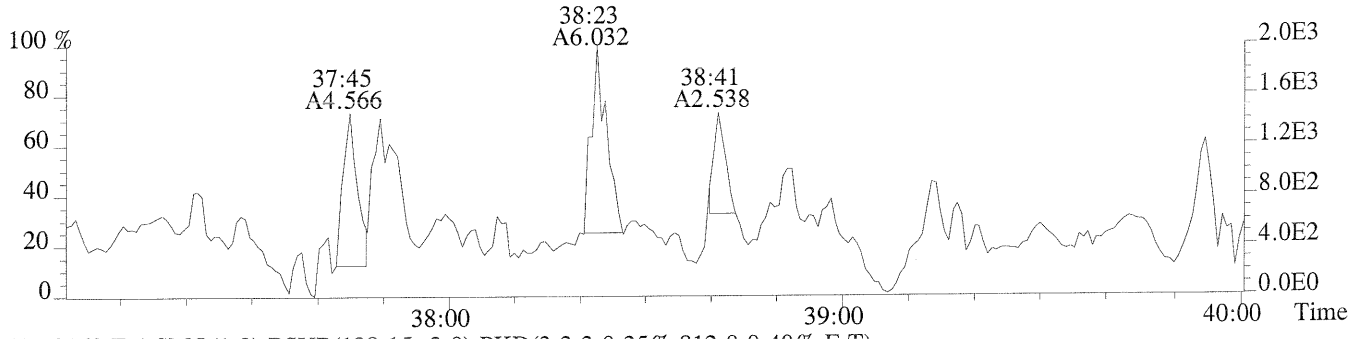
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



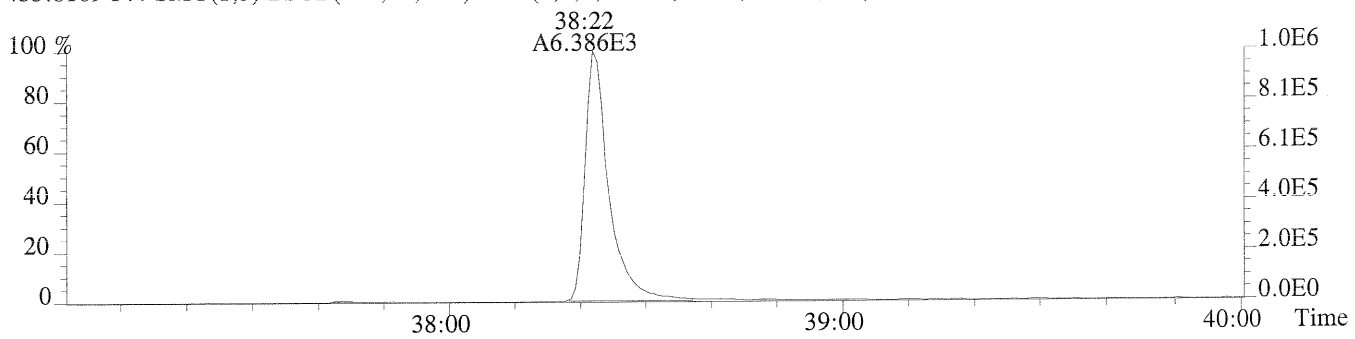
File:P176196 #1-271 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



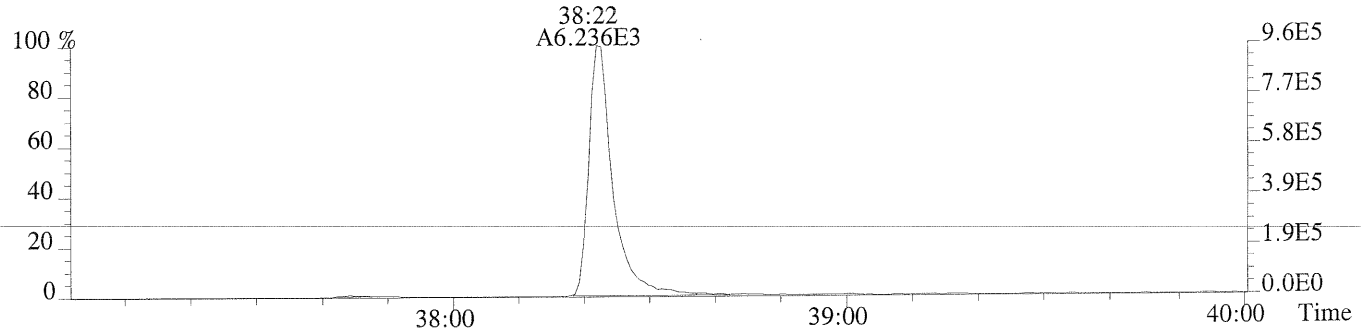
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



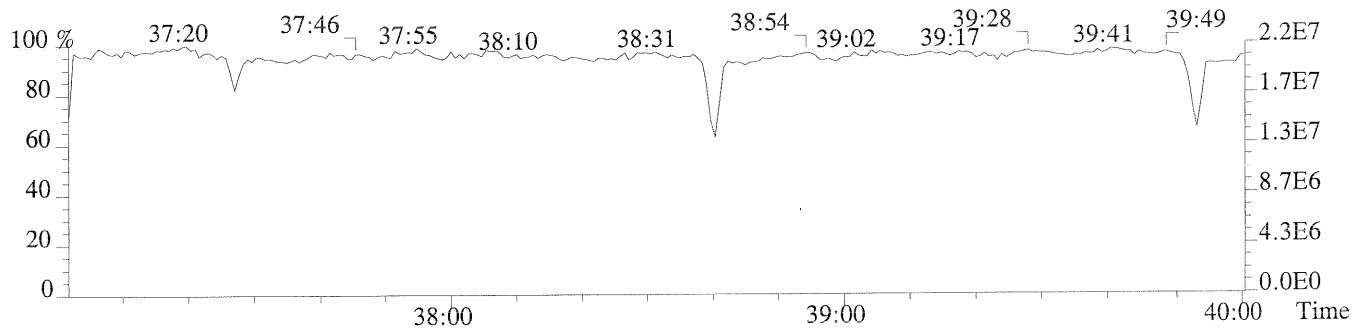
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



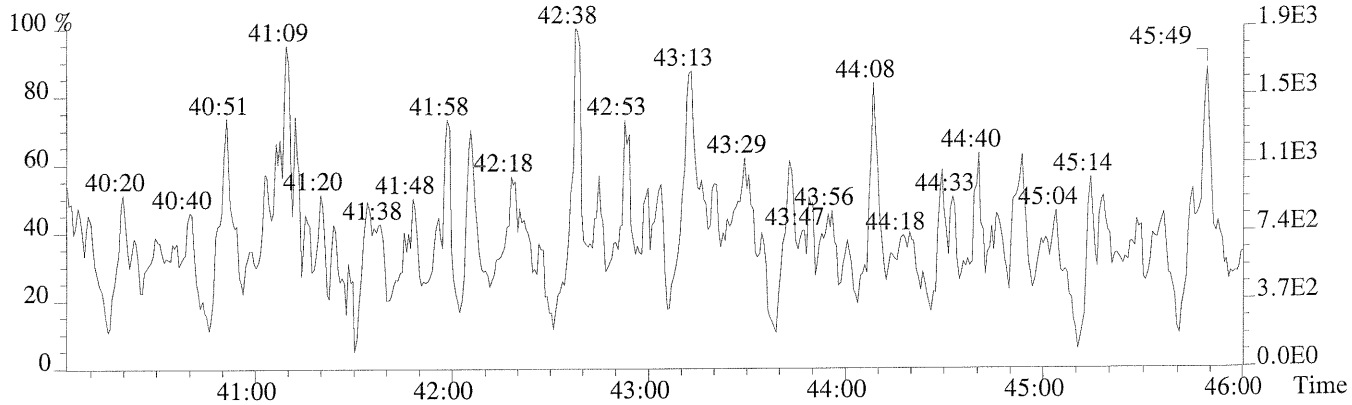
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



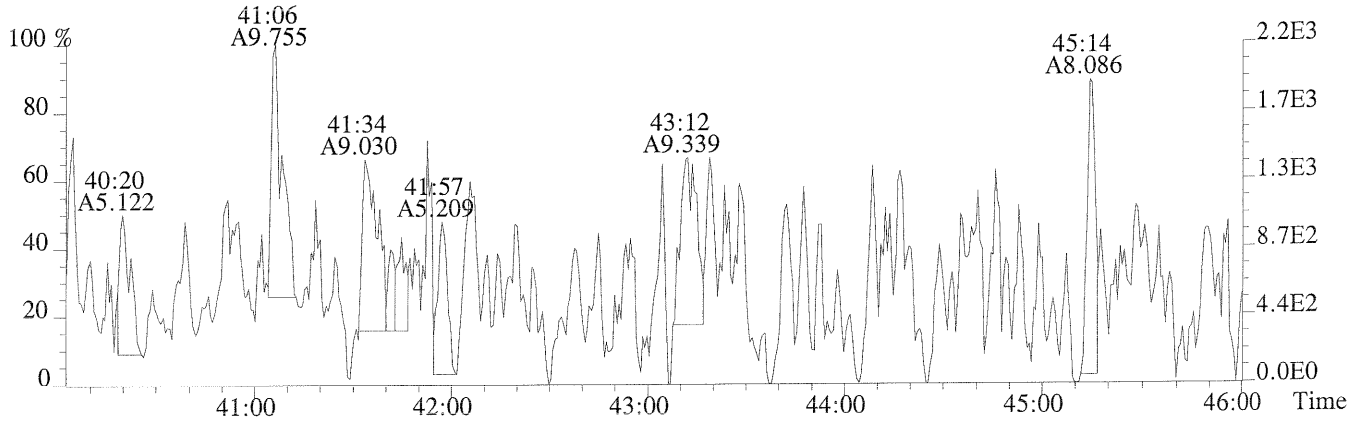
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



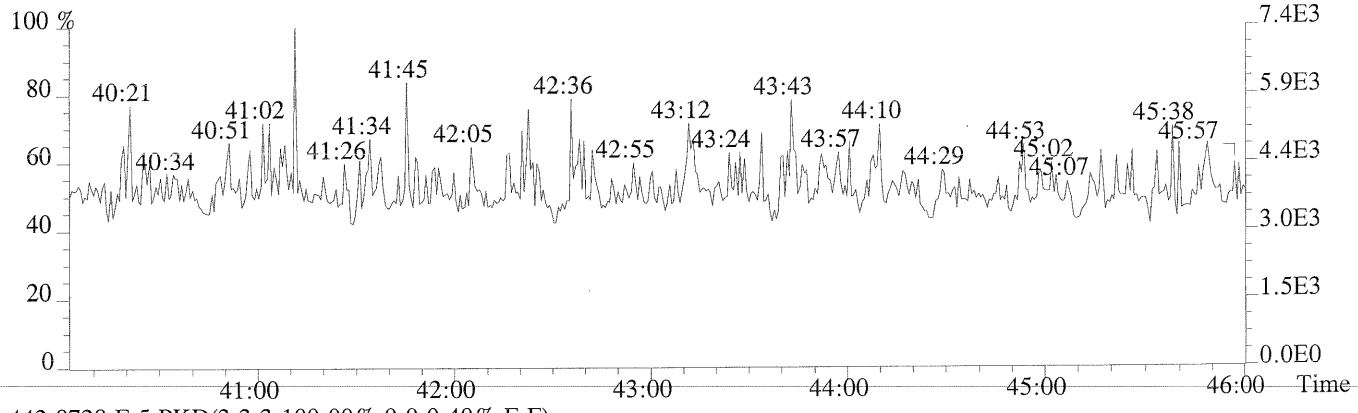
File:P176196 #1-548 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



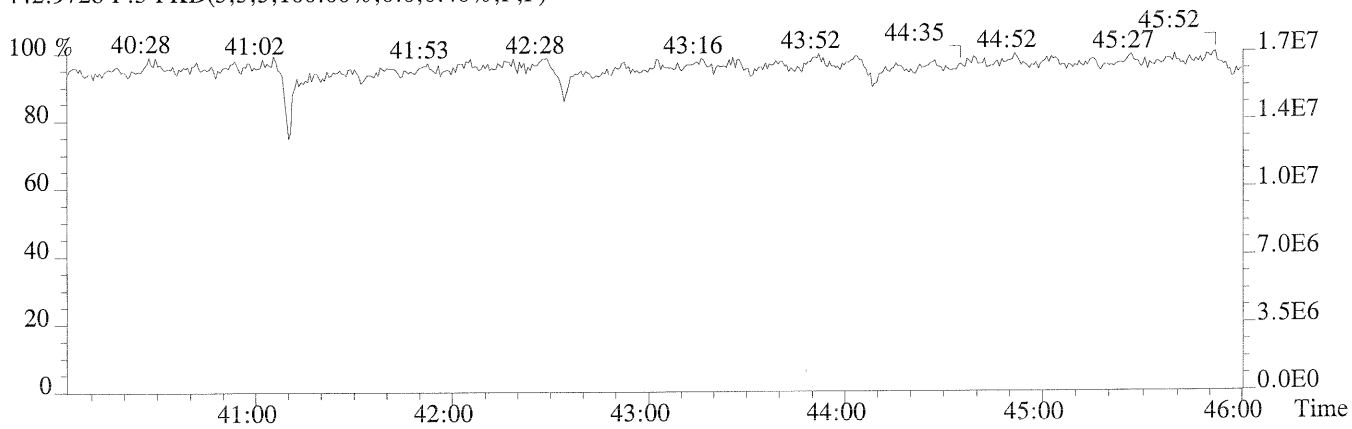
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



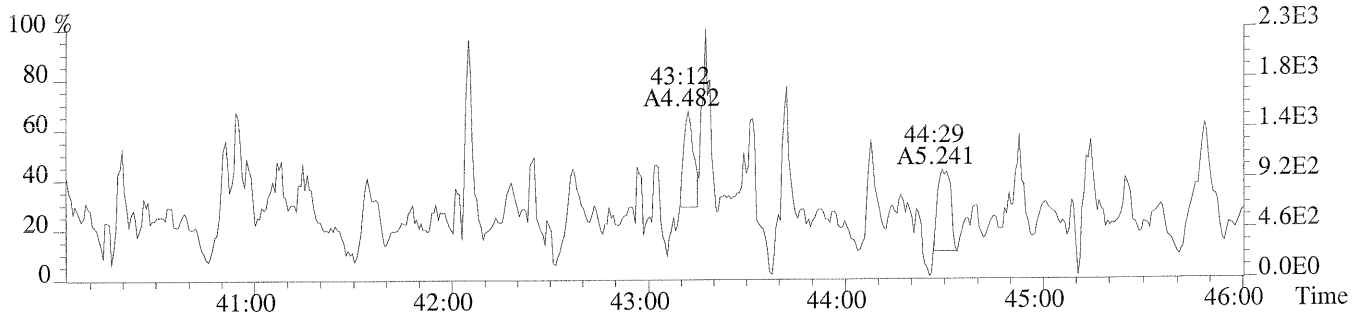
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



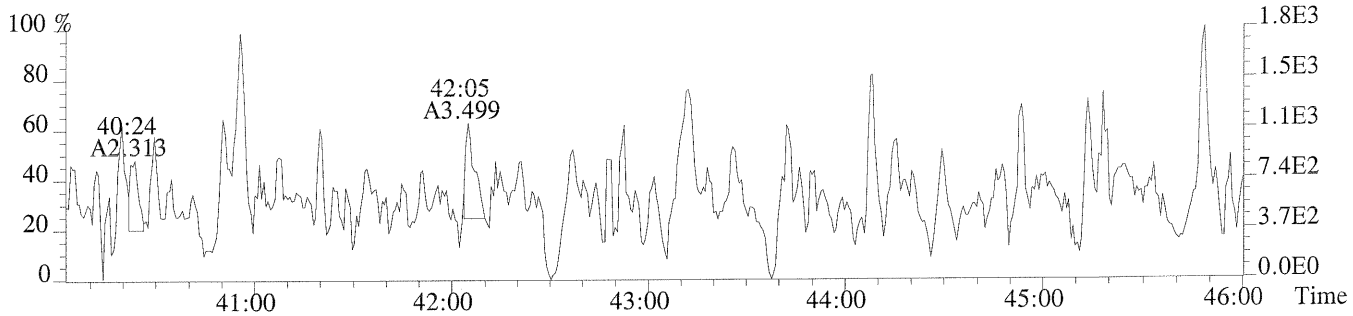
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



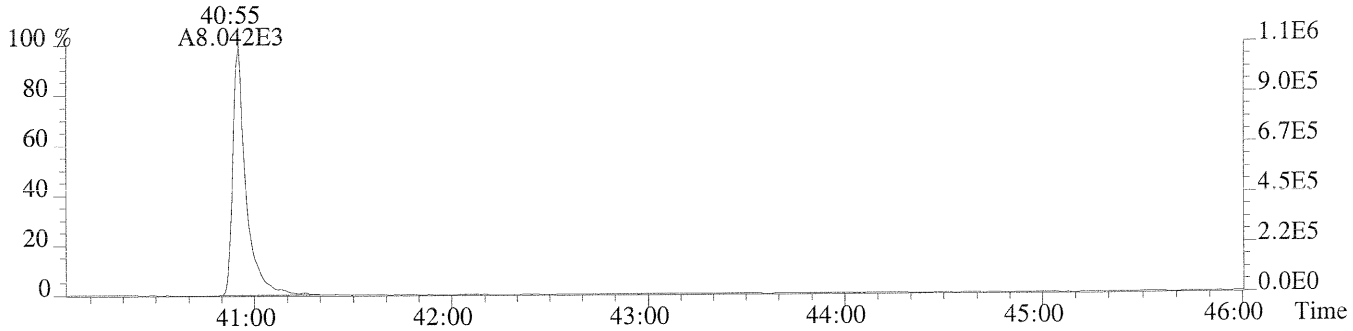
File:P176196 #1-548 Acq: 7-FEB-2015 13:01:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



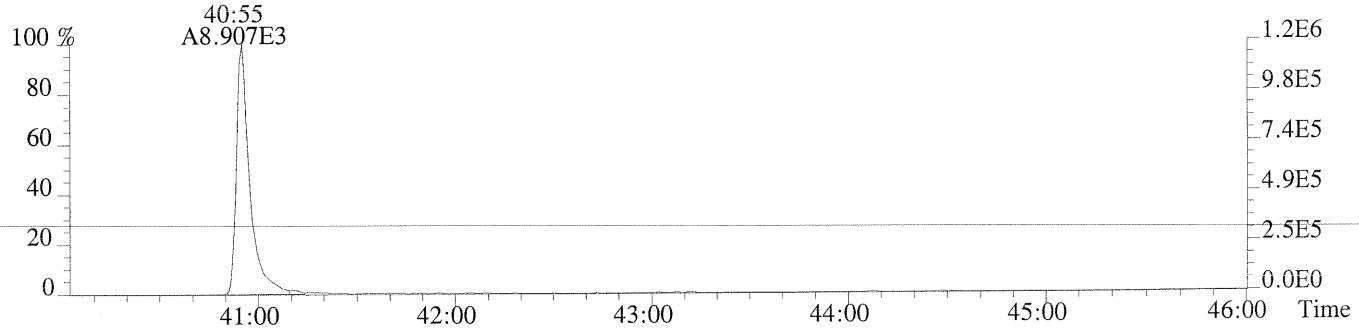
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



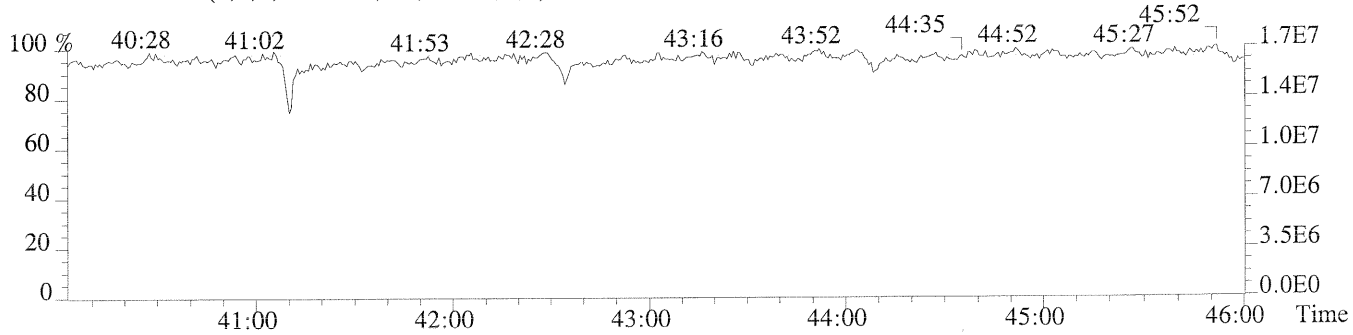
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2216.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,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.
129SNQ-DF

Run #11 Filename P176197 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 13:49:33
Processed: 9-FEB-15 12:03:19 LAB. ID: P1500356-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.946
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.061
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.148
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.369
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.998
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.052
17	Unk	OCDD	40:55	2.433e+01	2.993e+01	0.81	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:08	5.469e+03	6.946e+03	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:56	8.688e+03	5.410e+03	1.61	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	8.937e+03	5.549e+03	1.61	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:46	3.929e+03	7.078e+03	0.56	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	5.355e+03	1.041e+04	0.51	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	5.066e+03	9.653e+03	0.52	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	3.001e+03	6.597e+03	0.45	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:49	2.529e+03	5.673e+03	0.45	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	4.145e+03	5.261e+03	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	7.028e+03	4.413e+03	1.59	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:33	5.373e+03	4.520e+03	1.19	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:38	5.919e+03	5.055e+03	1.17	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:23	5.410e+03	5.035e+03	1.07	yes	no	0.874
32	IS	13C-OCDD	40:55	7.060e+03	7.695e+03	0.92	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:22	3.869e+04	4.953e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	5.136e+04	4.133e+04	1.24	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:05	1.076e+04				no	1.038

$$\text{OCDD} = \frac{(2.433e+01 + 2.993e+01) \times \cancel{8000}\ 4000\ \text{pg} \times 1}{(7.060e+03 + 7.695e+03) \times 1.068 \times 0.5} = 27.6\ \text{pg}$$

~~pg~~

LKL 02/09/15

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Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
129SNQ-DF

Run #11 Filename P176197 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 13:49:33
Processed: 9-FEB-15 12:03:19 LAB. ID: P1500356-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.37e+02	*	*	8.70e+02	*
2	1,2,3,7,8-PeCDF	*	5.44e+02	*	*	9.36e+02	*
3	2,3,4,7,8-PeCDF	*	5.44e+02	*	*	9.36e+02	*
4	1,2,3,4,7,8-HxCDF	*	1.08e+03	*	*	7.20e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.08e+03	*	*	7.20e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.08e+03	*	*	7.20e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.08e+03	*	*	7.20e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	1.01e+03	*	*	8.24e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	1.01e+03	*	*	8.24e+02	*
10	OCDF	*	7.80e+02	*	*	9.64e+02	*
11	2,3,7,8-TCDD	*	3.16e+02	*	*	7.02e+02	*
12	1,2,3,7,8-PeCDD	*	1.06e+03	*	*	7.12e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.08e+02	*	*	7.80e+02	*
14	1,2,3,6,7,8-HxCDD	*	8.08e+02	*	*	7.80e+02	*
15	1,2,3,7,8,9-HxCDD	*	8.08e+02	*	*	7.80e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	1.03e+03	*	*	8.40e+02	*
17	OCDD	3.86e+03	5.64e+02	6.9e+00	4.64e+03	6.68e+02	7.0e+00
18	13C-2,3,7,8-TCDF	6.25e+05	9.84e+02	6.4e+02	8.01e+05	9.80e+02	8.2e+02
19	13C-1,2,3,7,8-PeCDF	1.15e+06	4.84e+02	2.4e+03	7.22e+05	9.48e+02	7.6e+02
20	13C-2,3,4,7,8-PeCDF	1.23e+06	4.84e+02	2.5e+03	7.81e+05	9.48e+02	8.2e+02
21	13C-1,2,3,4,7,8-HxCDF	6.80e+05	7.96e+02	8.5e+02	1.31e+06	8.20e+02	1.6e+03
22	13C-1,2,3,6,7,8-HxCDF	7.71e+05	7.96e+02	9.7e+02	1.48e+06	8.20e+02	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	7.61e+05	7.96e+02	9.6e+02	1.41e+06	8.20e+02	1.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.83e+05	1.44e+03	3.3e+02	1.05e+06	1.07e+03	9.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.58e+05	1.44e+03	2.5e+02	7.81e+05	1.07e+03	7.3e+02
27	13C-2,3,7,8-TCDD	5.50e+05	2.49e+03	2.2e+02	6.88e+05	1.73e+03	4.0e+02
28	13C-1,2,3,7,8-PeCDD	1.03e+06	8.92e+02	1.2e+03	6.25e+05	6.12e+02	1.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.07e+06	8.64e+02	1.2e+03	8.87e+05	8.32e+02	1.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.05e+06	8.64e+02	1.2e+03	8.82e+05	8.32e+02	1.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.33e+05	1.03e+03	8.1e+02	7.57e+05	1.02e+03	7.4e+02
32	13C-OCDD	9.21e+05	1.87e+03	4.9e+02	9.83e+05	6.16e+02	1.6e+03
33	13C-1,2,3,4-TCDD	5.34e+06	2.49e+03	2.1e+03	6.81e+06	1.73e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	8.88e+06	8.64e+02	1.0e+04	7.10e+06	8.32e+02	8.5e+03
35	37Cl-2,3,7,8-TCDD	1.39e+06	6.96e+02	2.0e+03			

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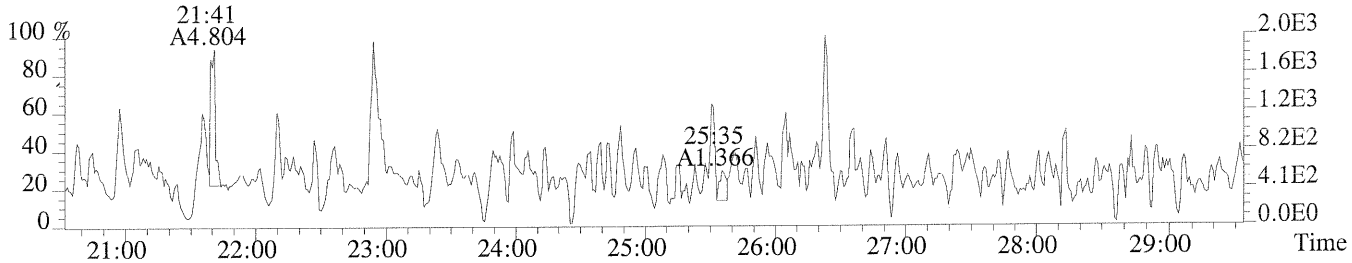
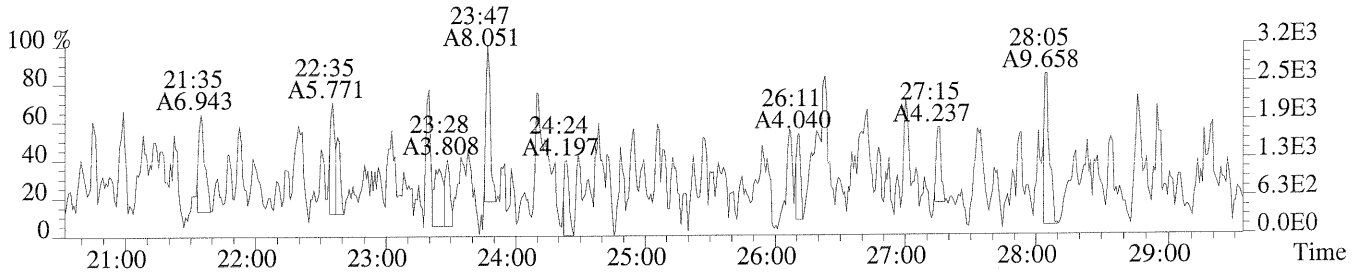
ALS Form TO-9SN/M23SN.FRM

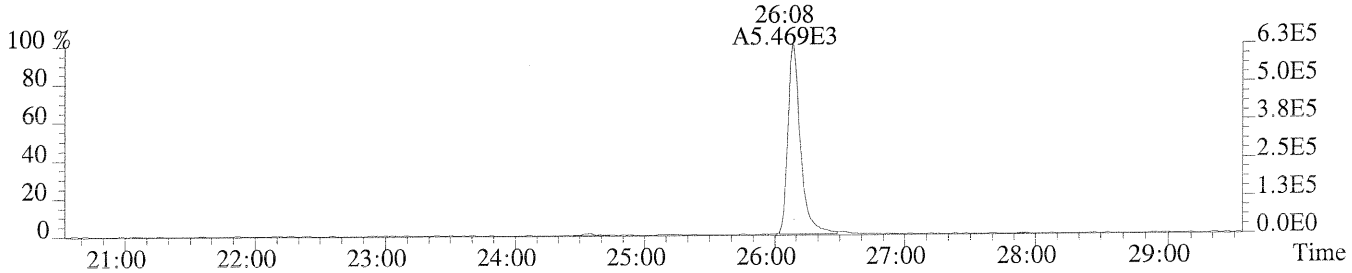
File:P176197 #1-696 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



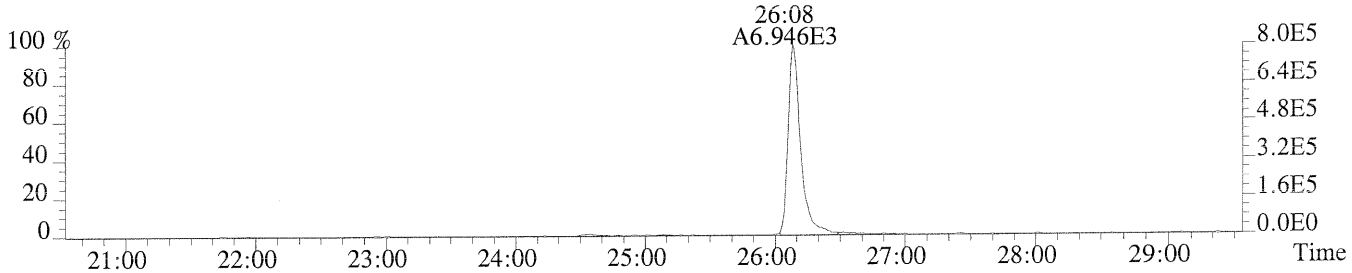
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



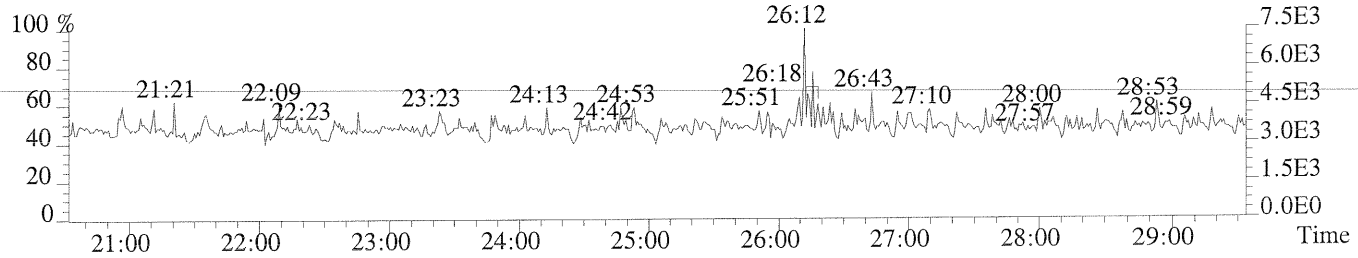
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



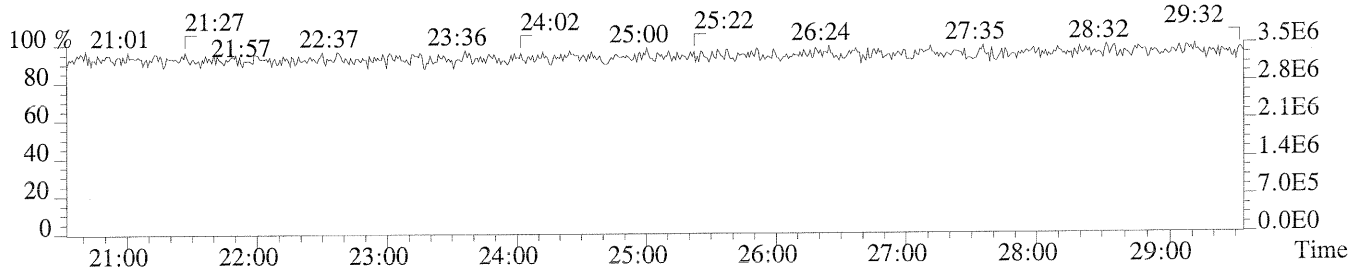
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



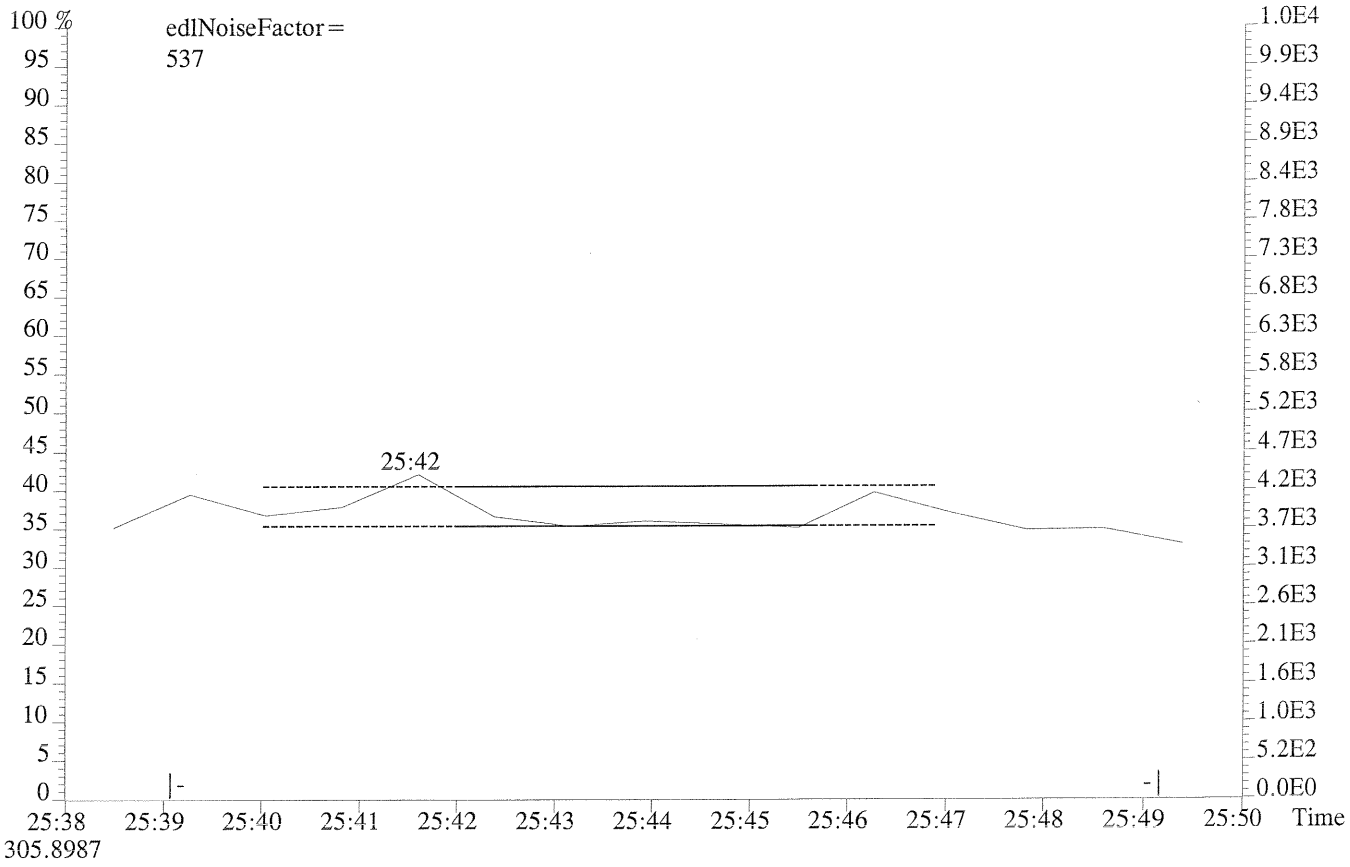
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



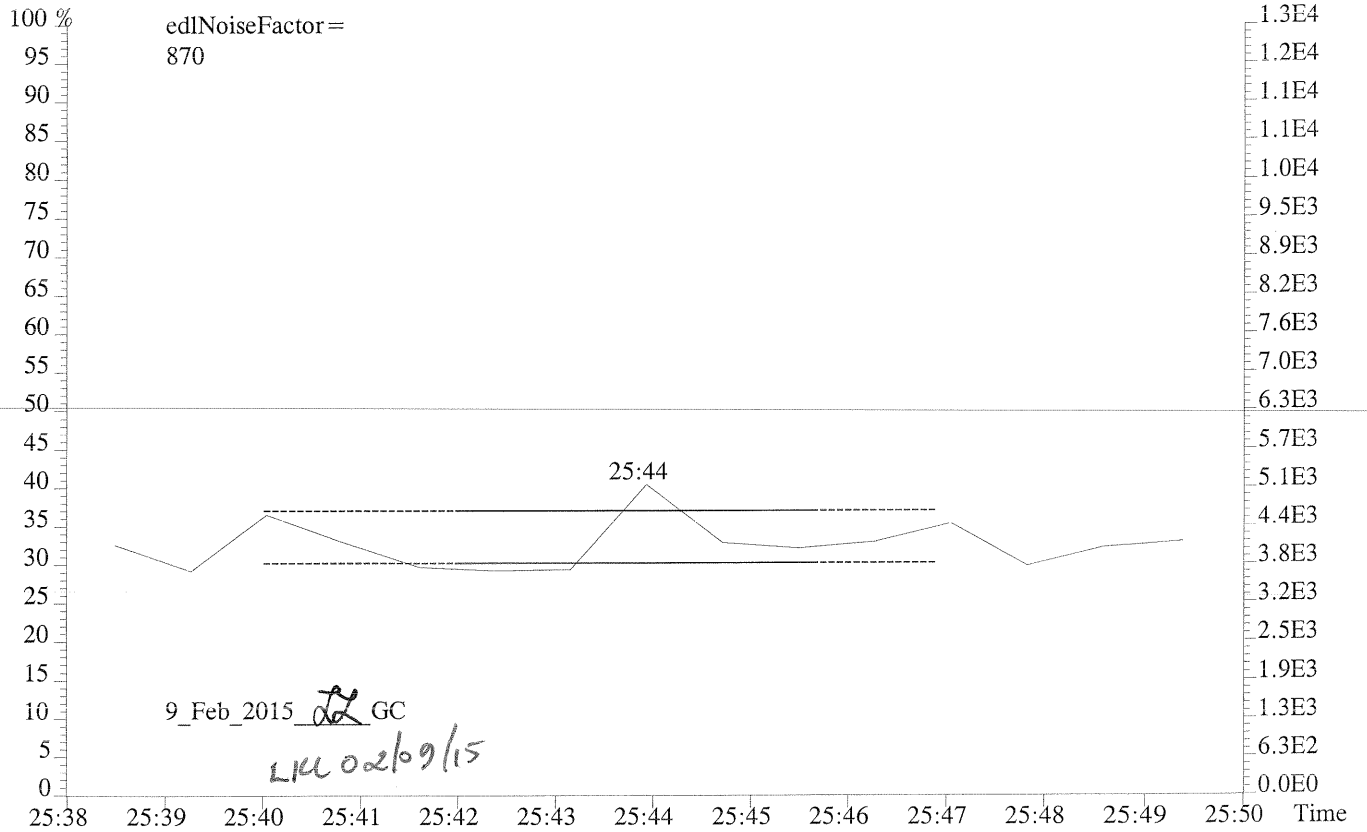
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



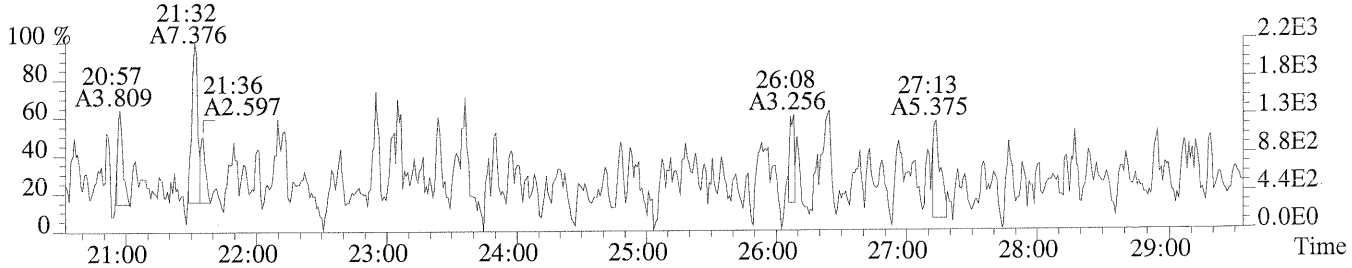
File:P176197 #1-696 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
303.9016



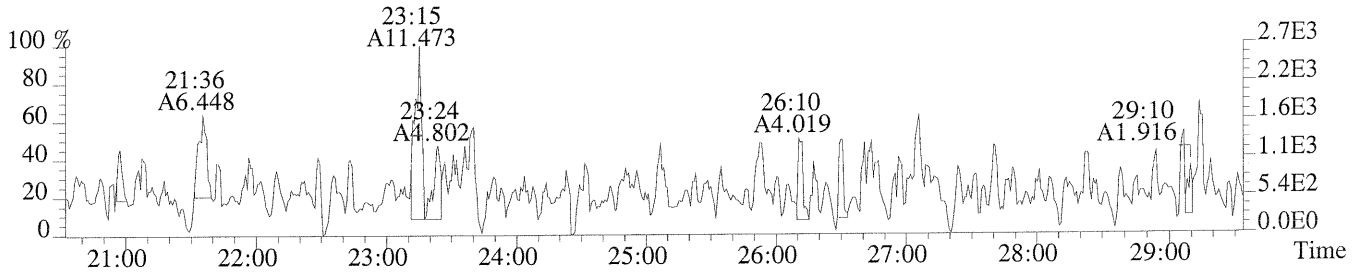
305.8987



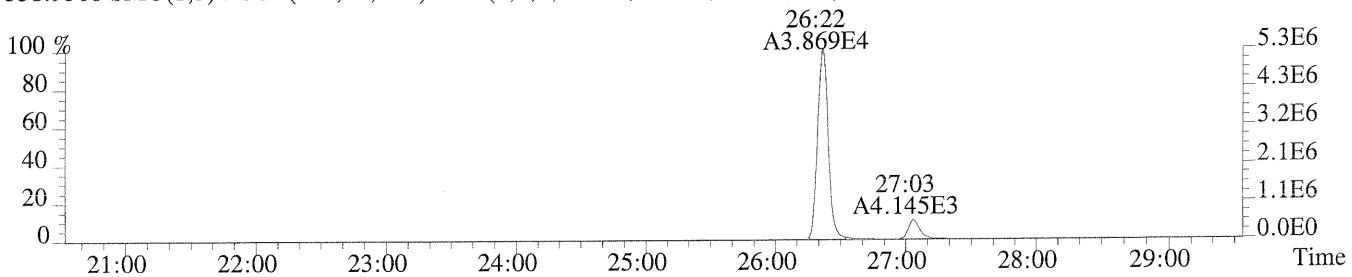
File:P176197 #1-696 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



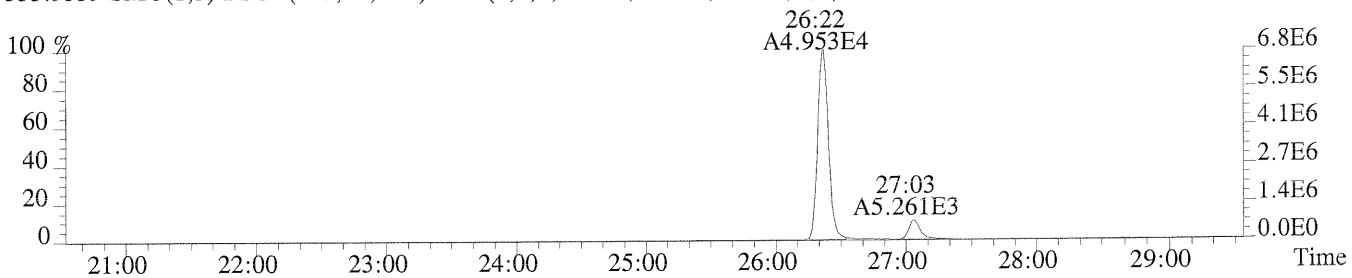
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



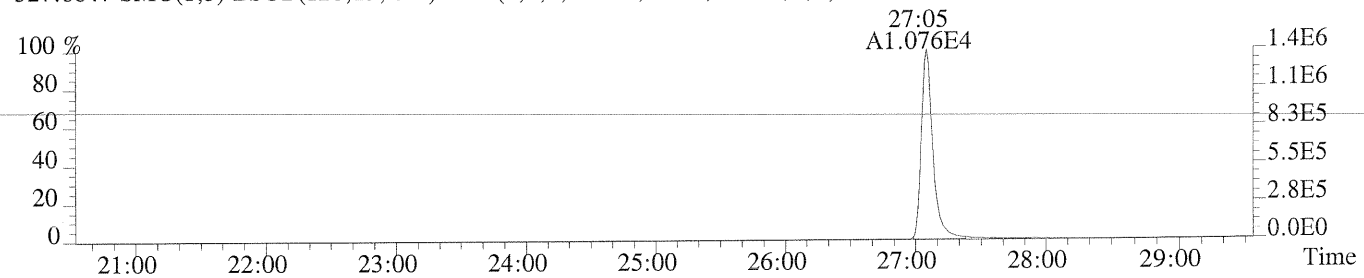
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



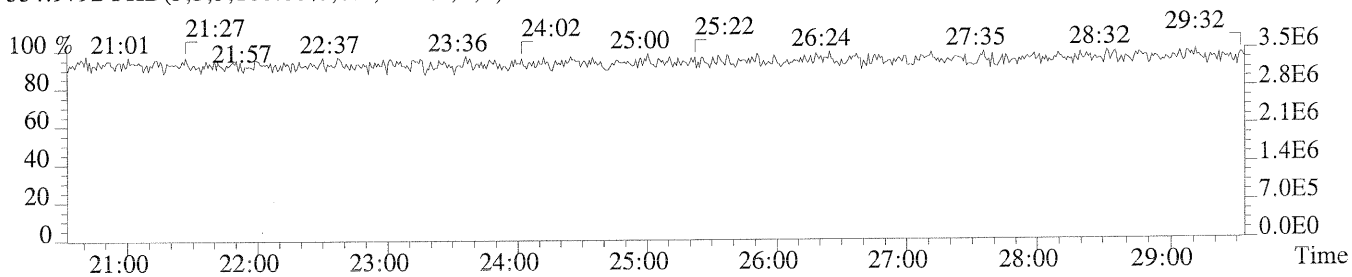
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



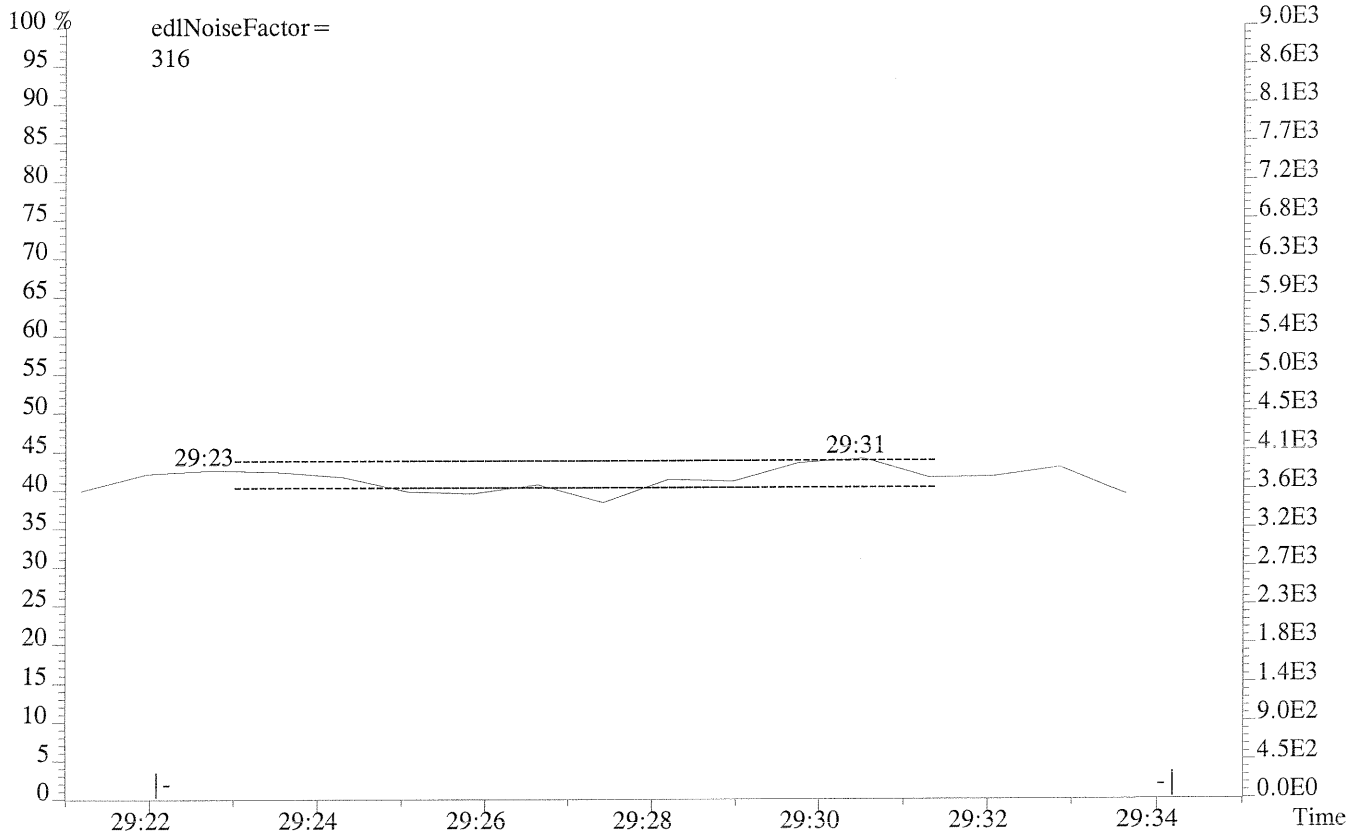
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



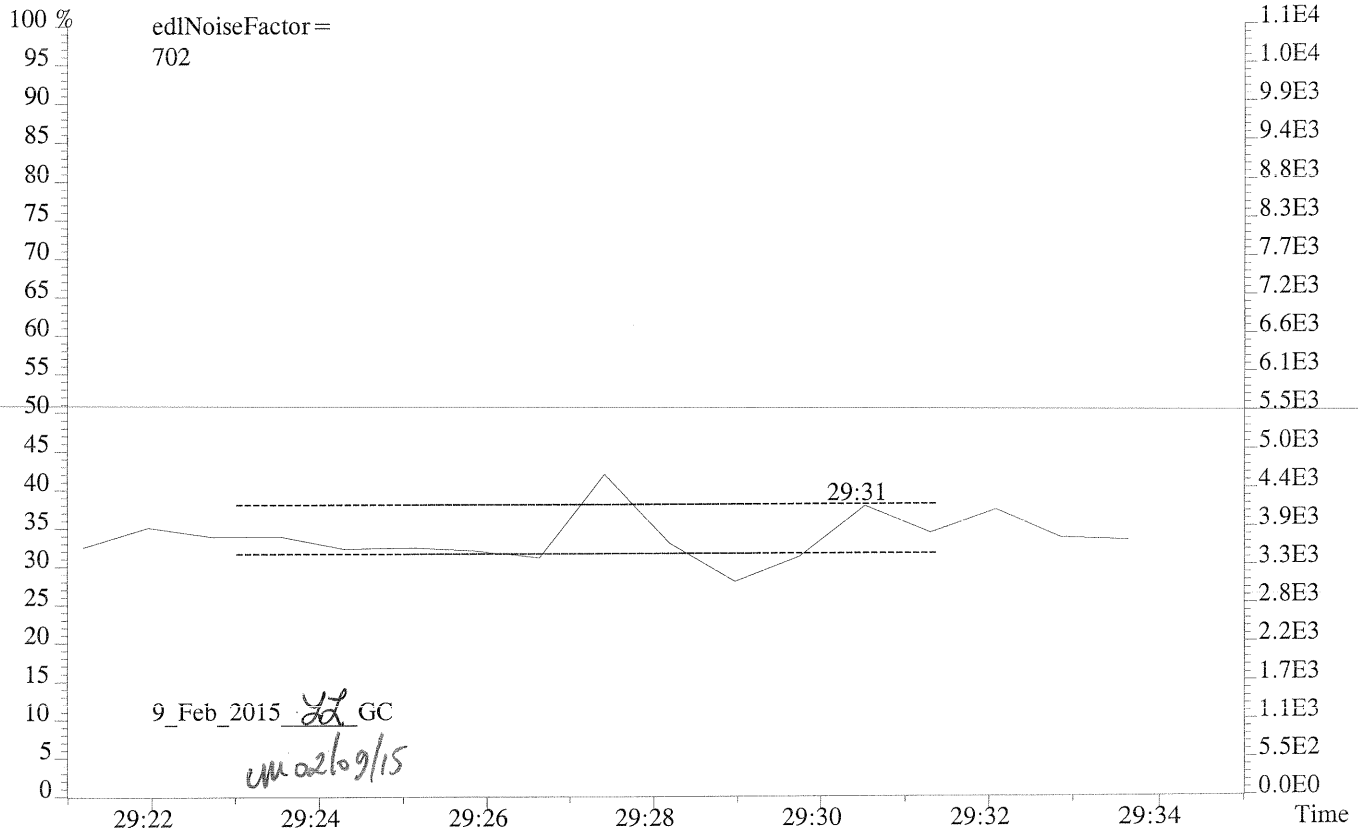
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



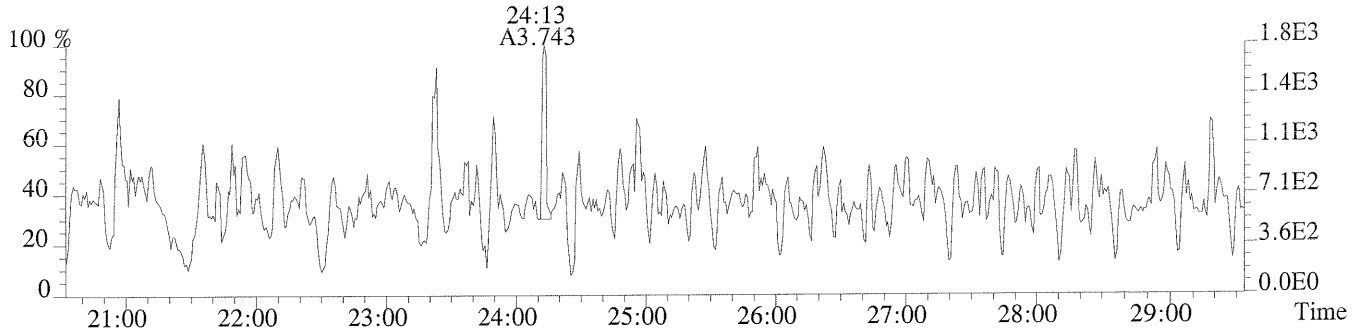
File:P176197 #1-696 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
319.8965



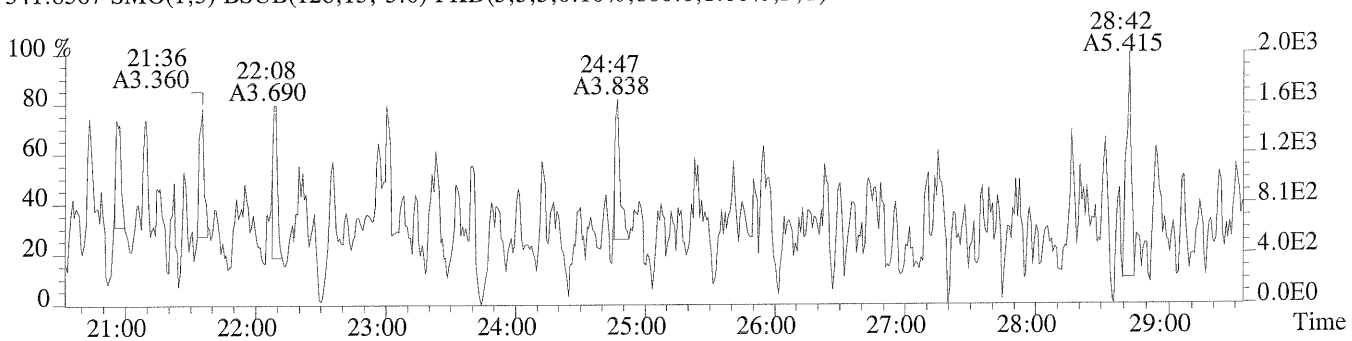
321.8936



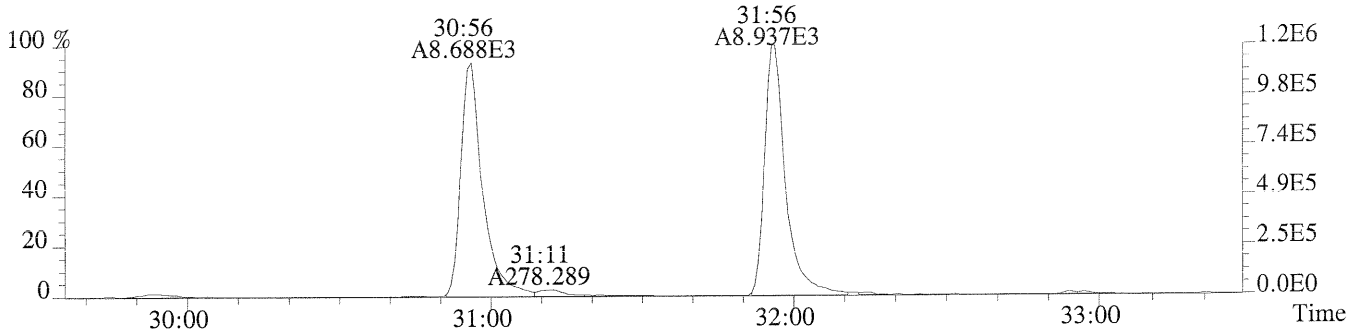
File:P176197 #1-696 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



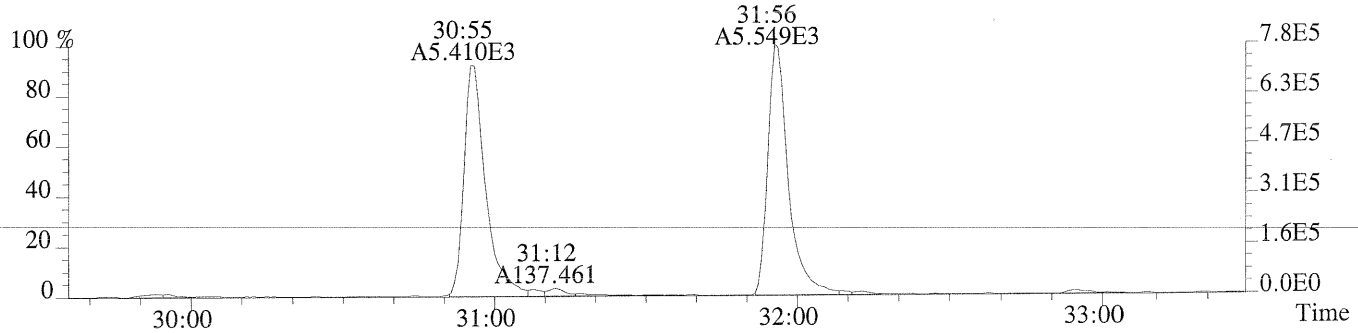
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



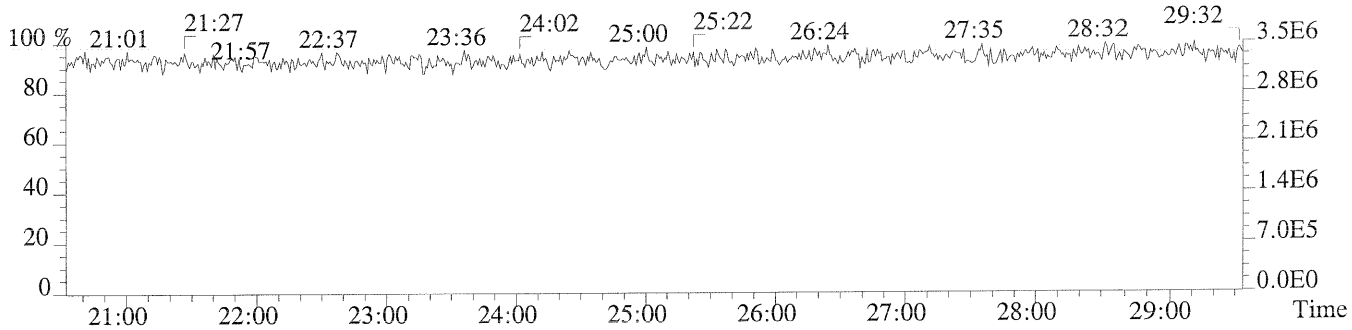
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



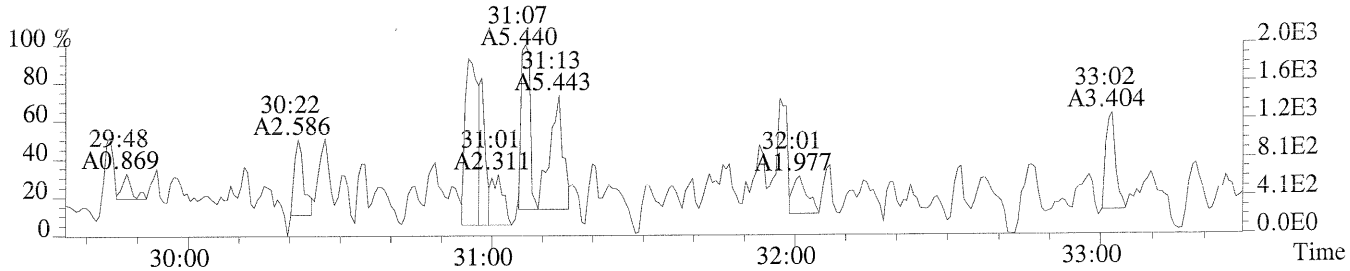
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



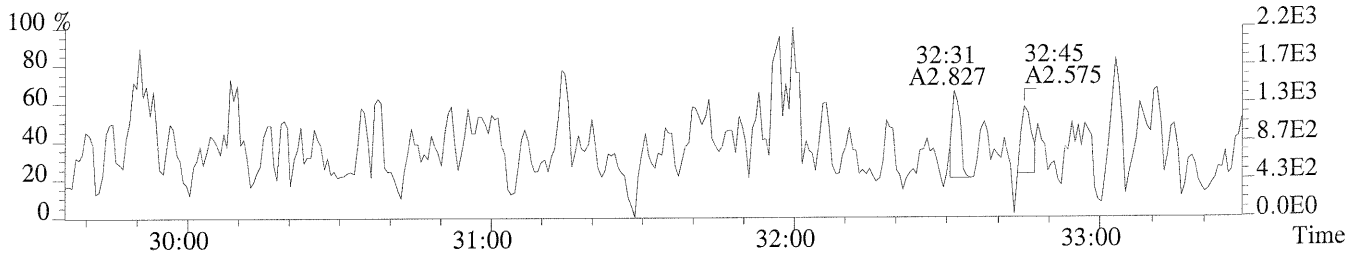
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



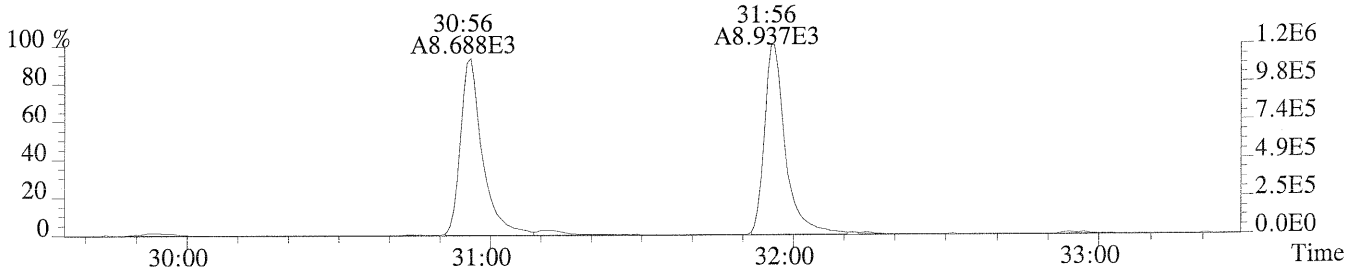
File:P176197 #1-351 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



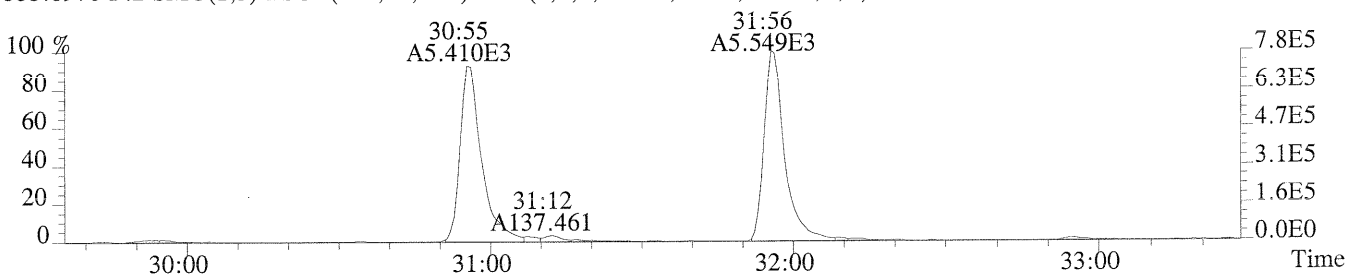
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



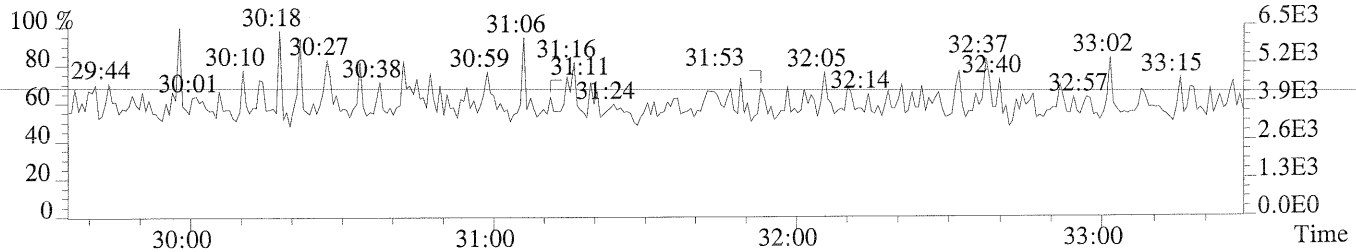
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



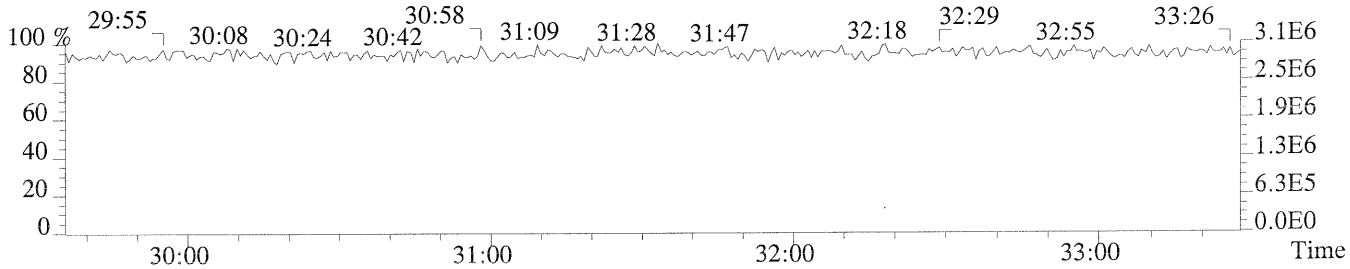
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



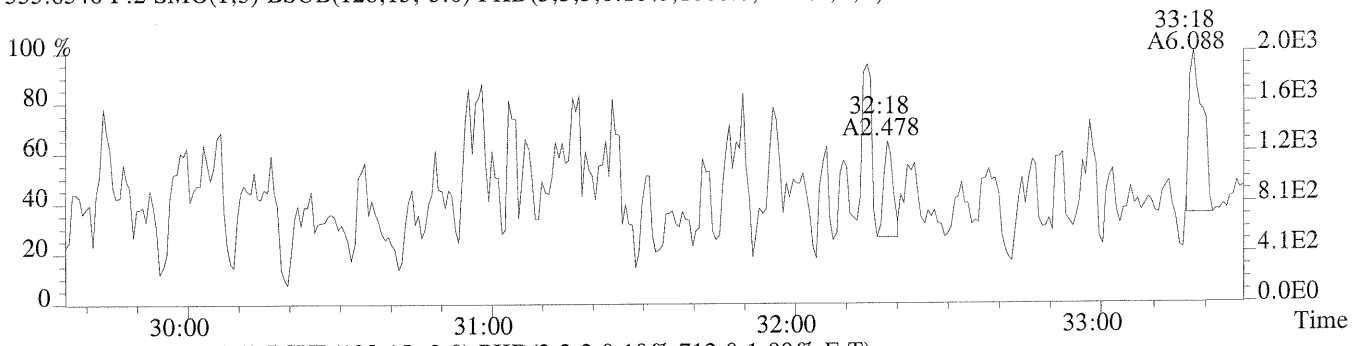
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



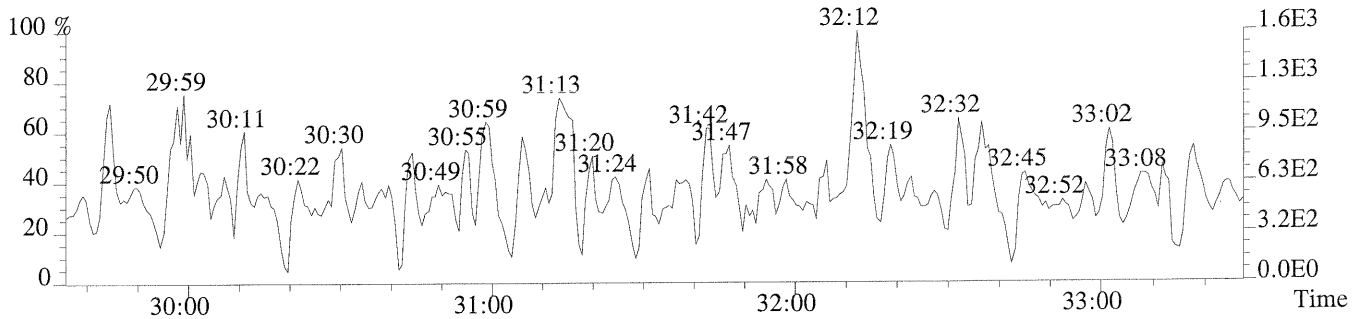
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



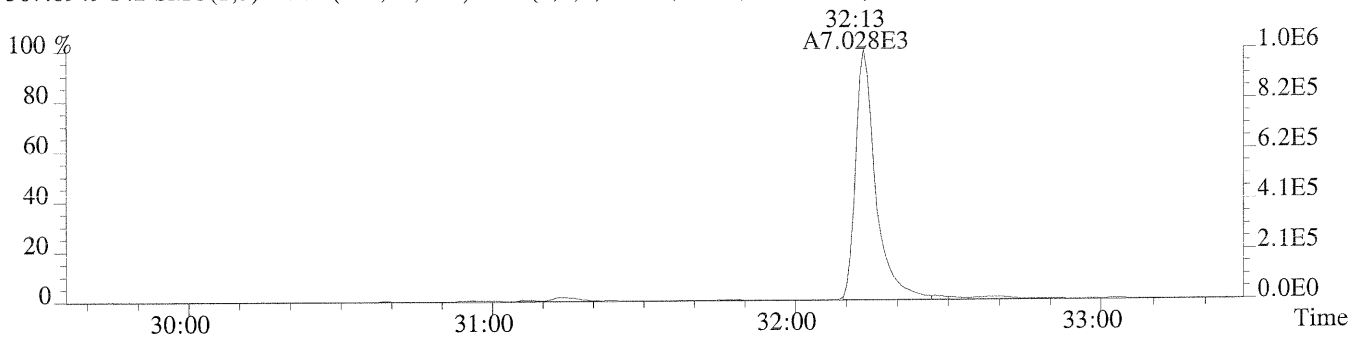
File:P176197 #1-351 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



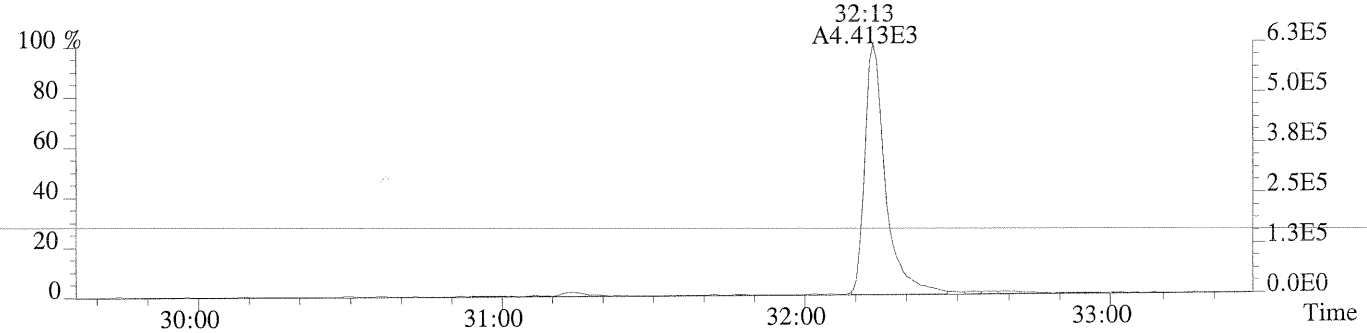
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



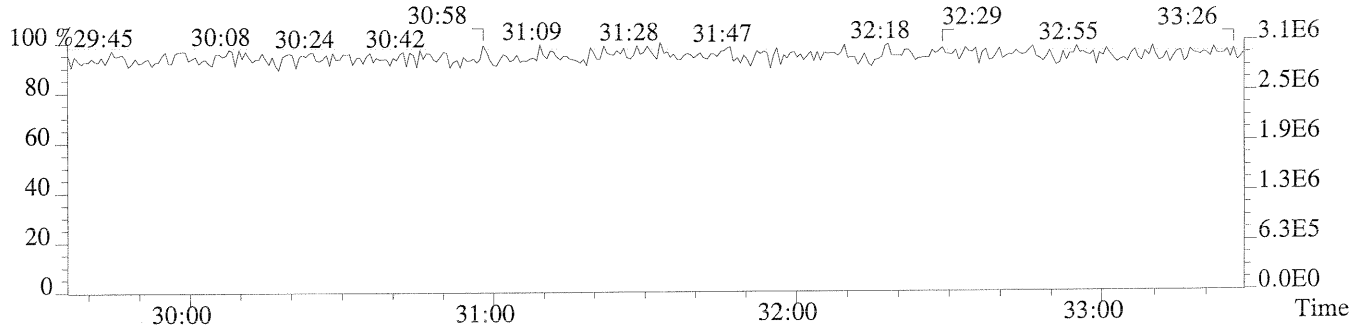
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



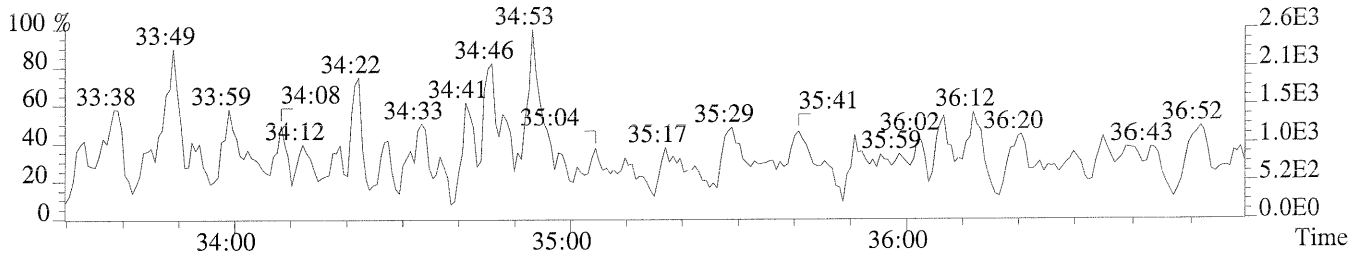
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



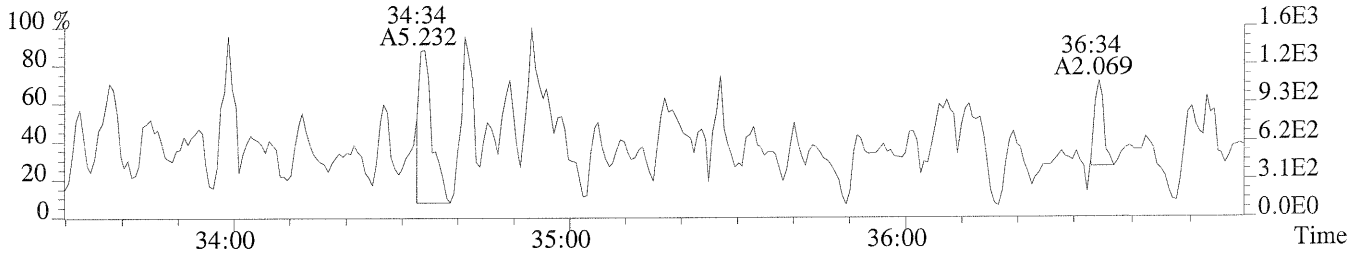
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



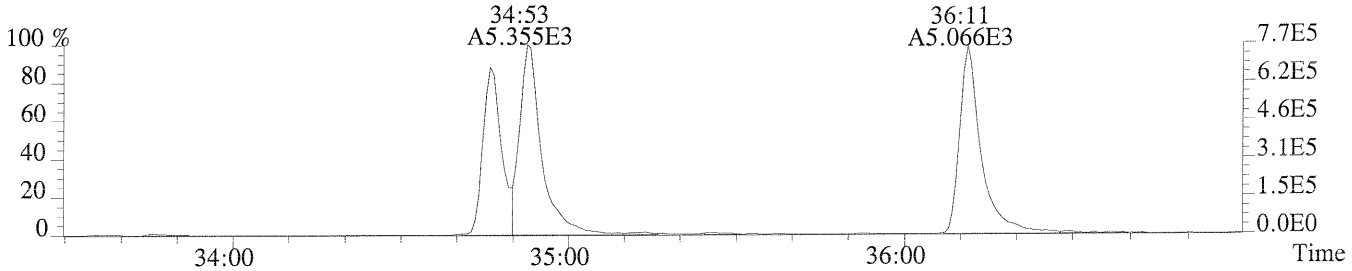
File:P176197 #1-318 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



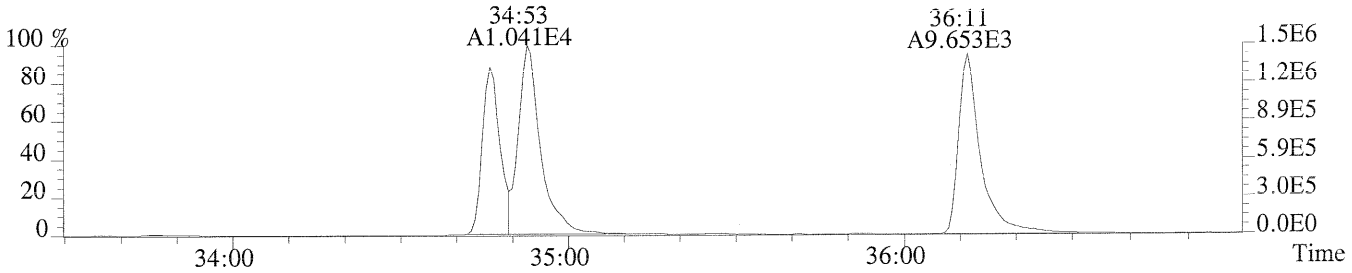
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



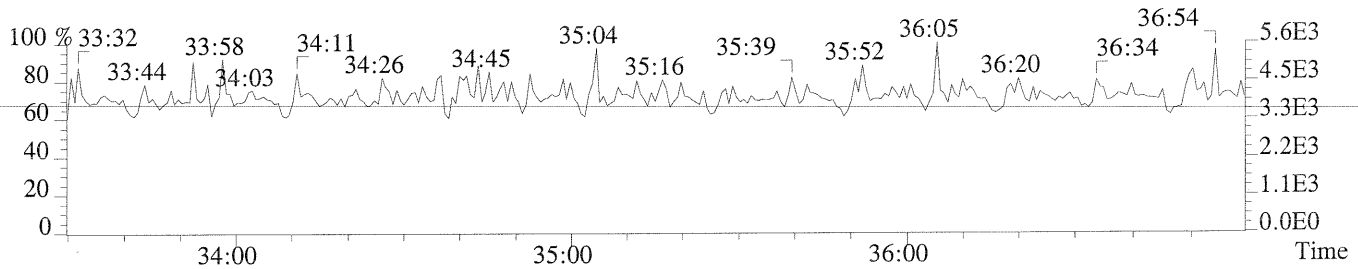
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



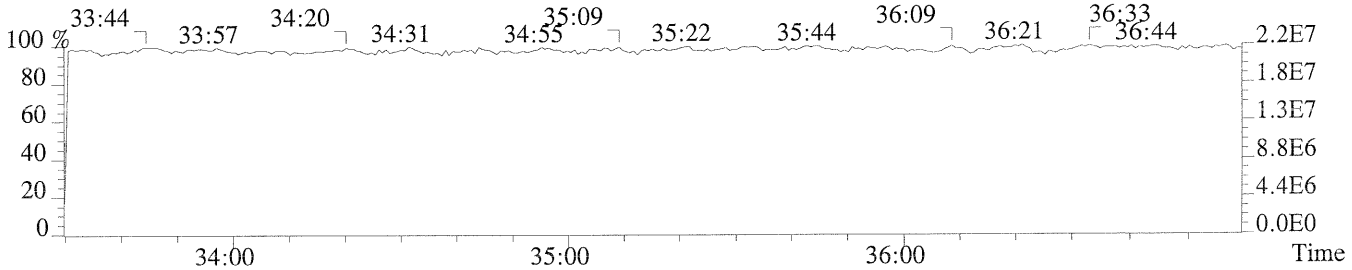
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



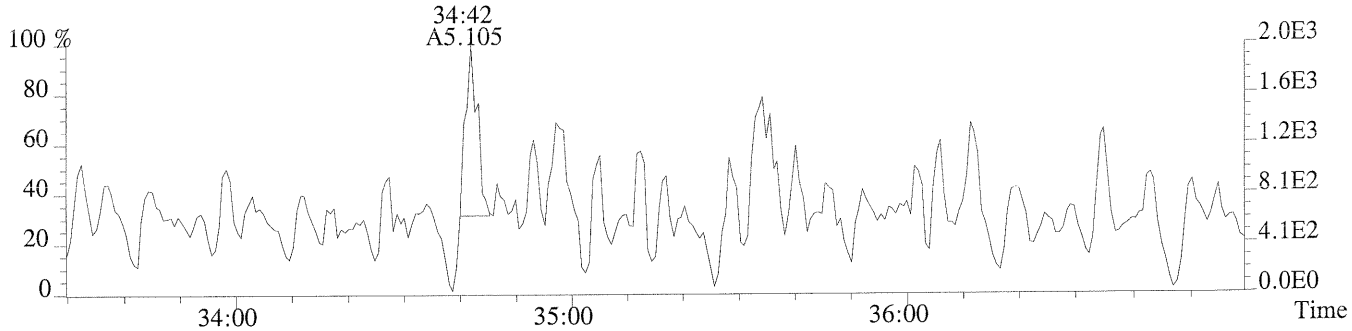
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



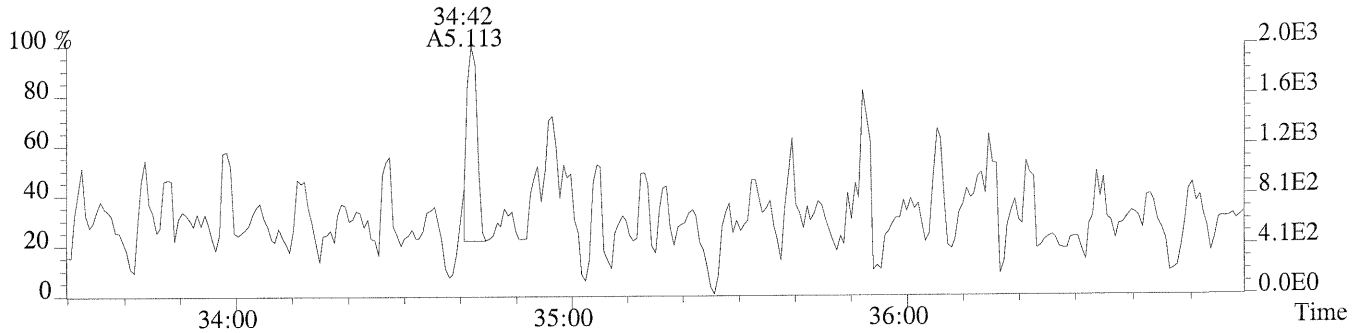
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



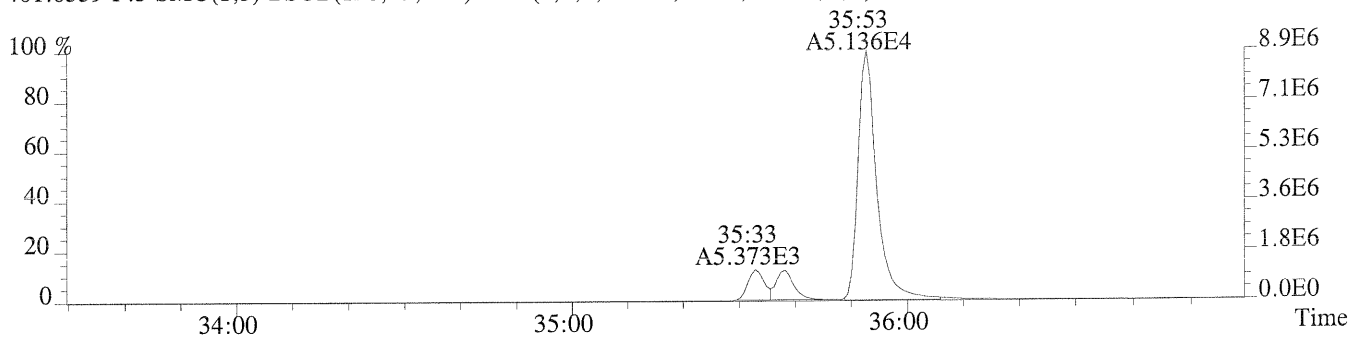
File:P176197 #1-318 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



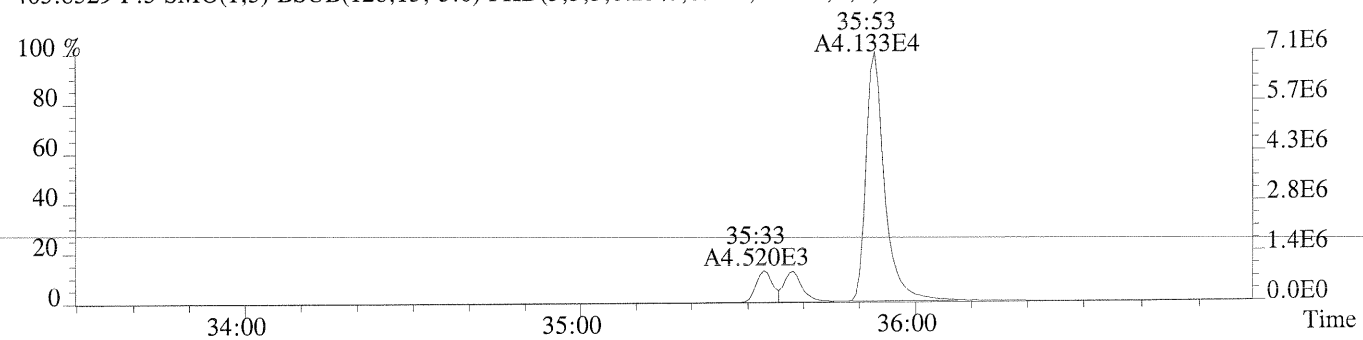
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



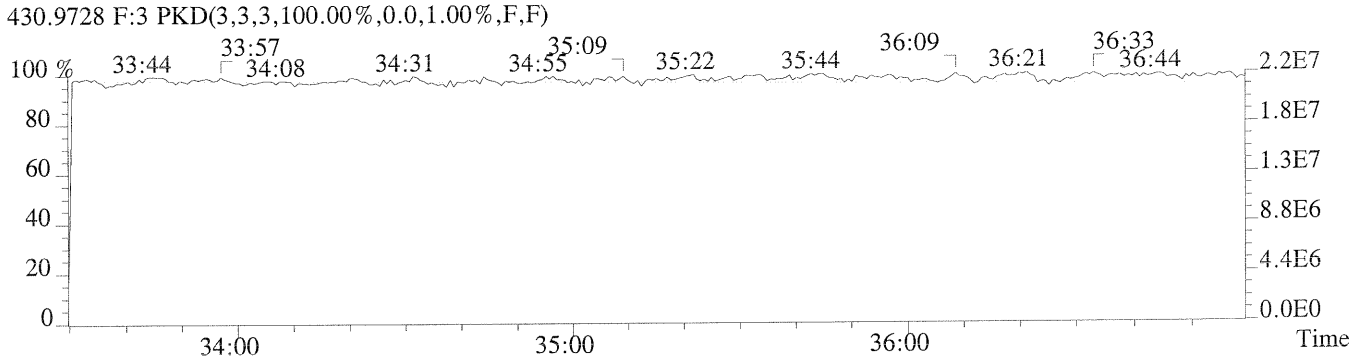
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



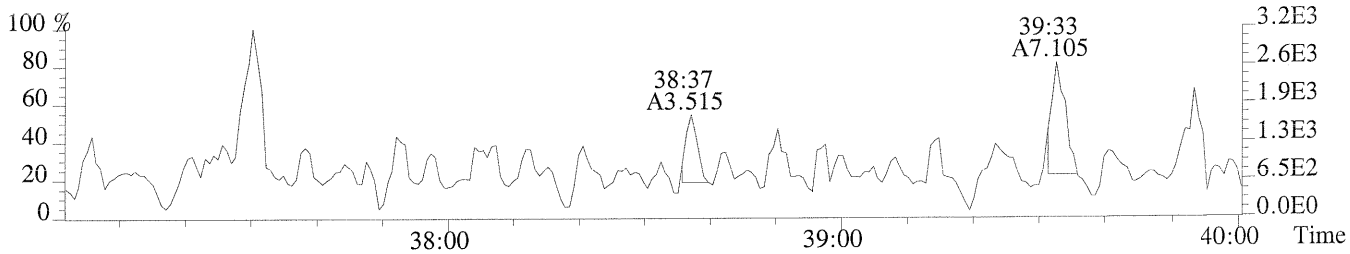
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



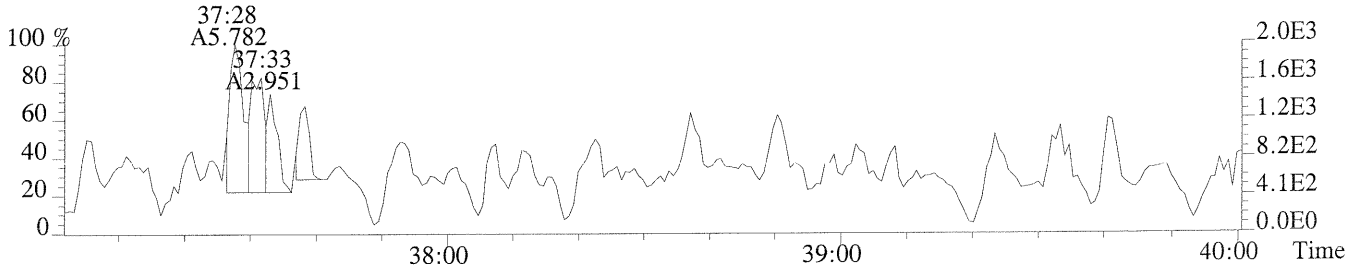
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



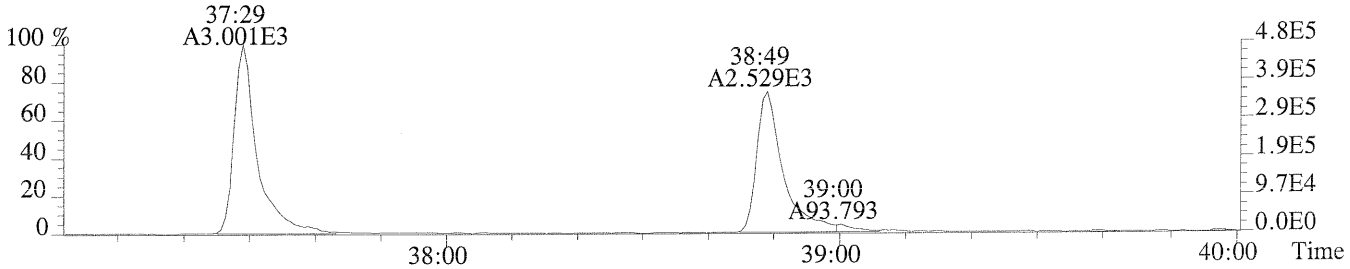
File:P176197 #1-271 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.50%,F,T)



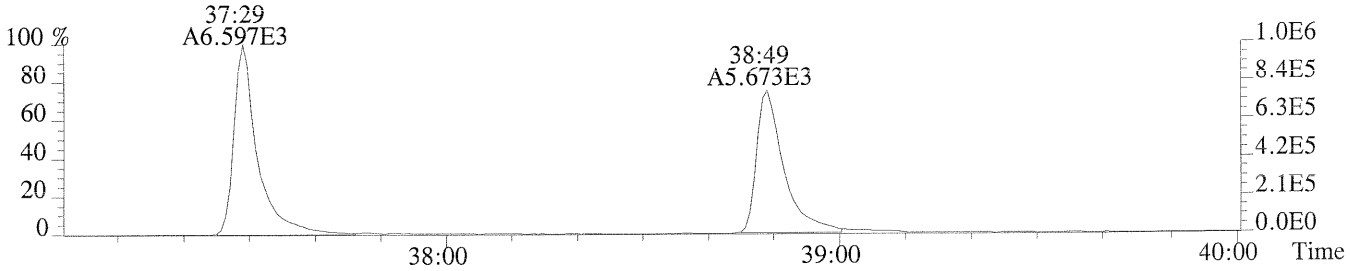
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.50%,F,T)



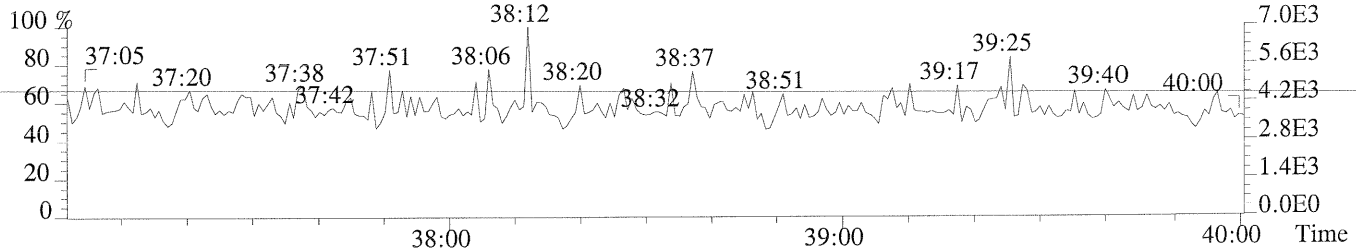
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1444.0,0.50%,F,T)



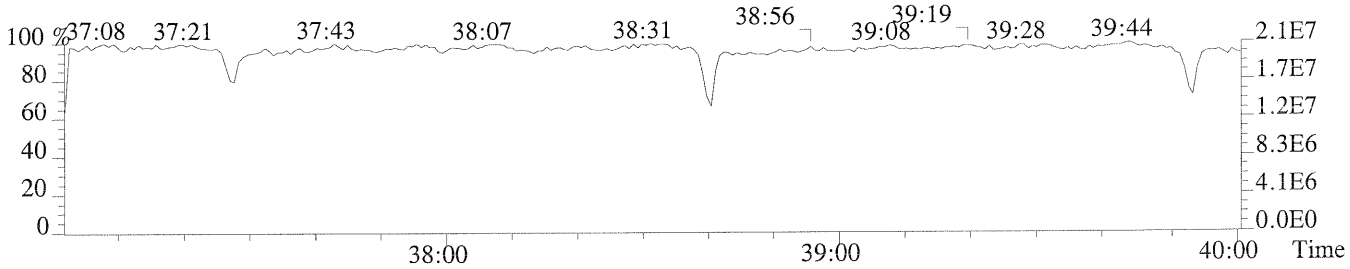
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.50%,F,T)



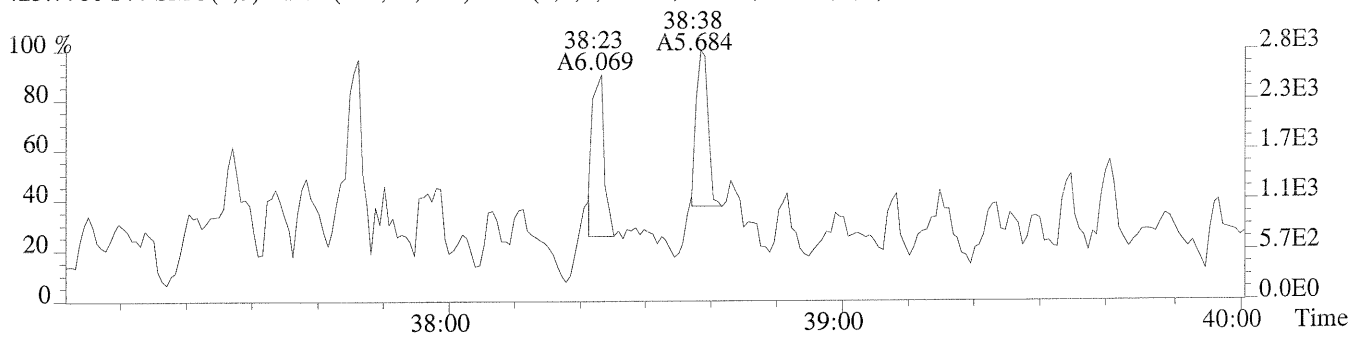
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



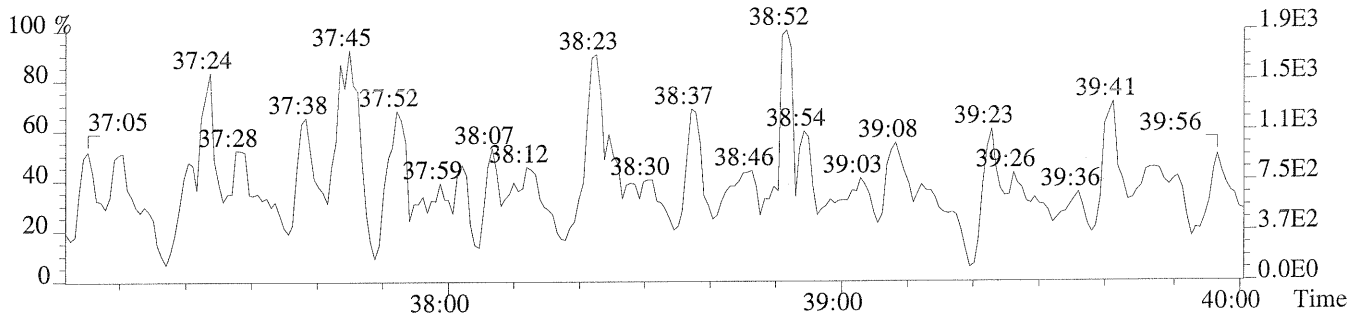
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



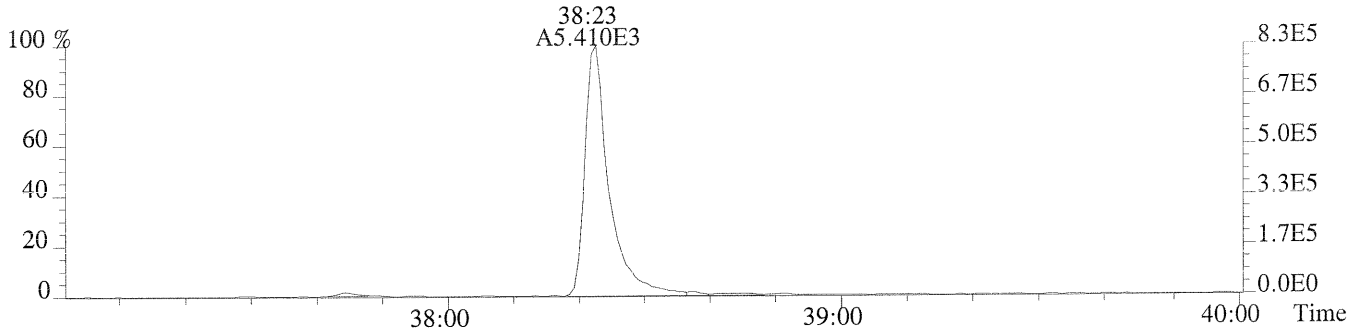
File:P176197 #1-271 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



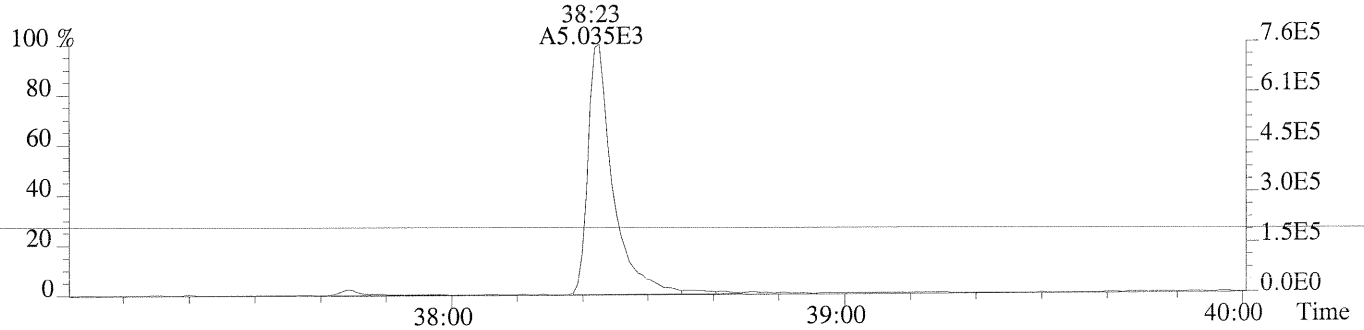
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



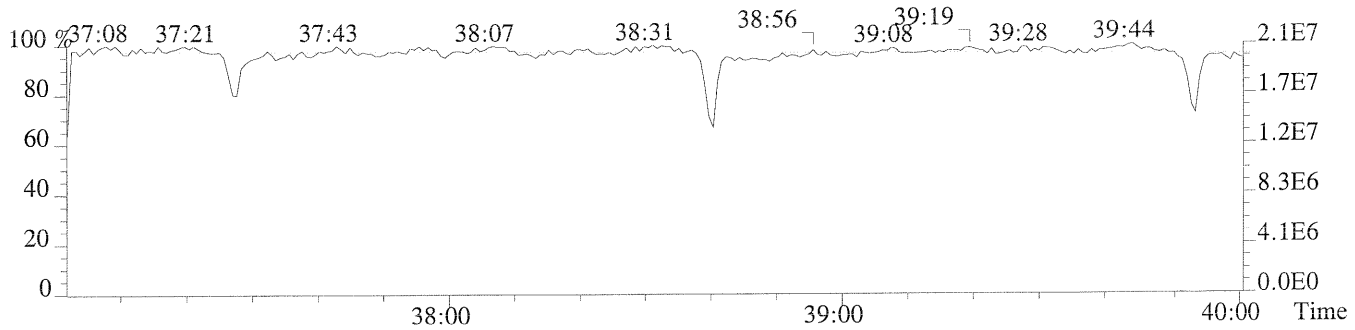
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



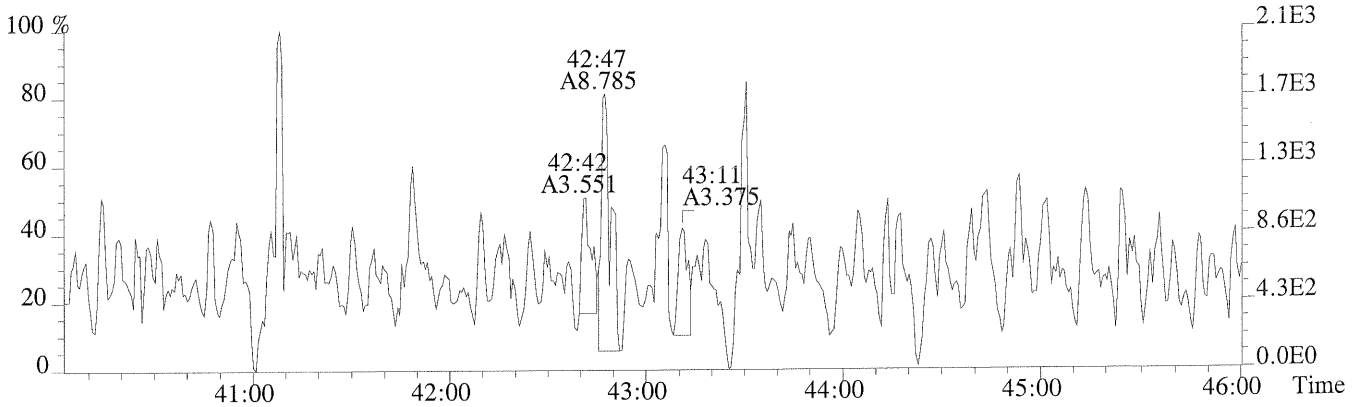
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



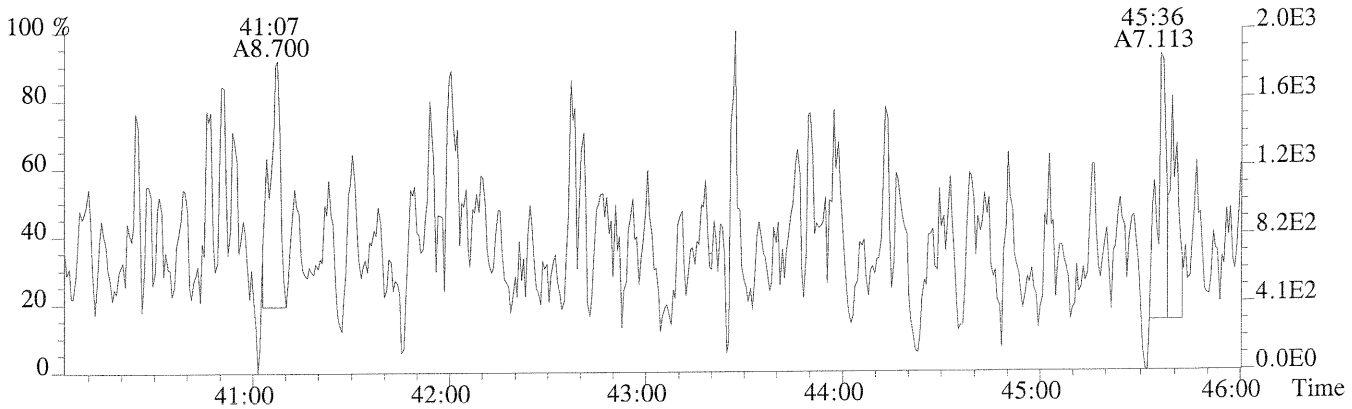
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



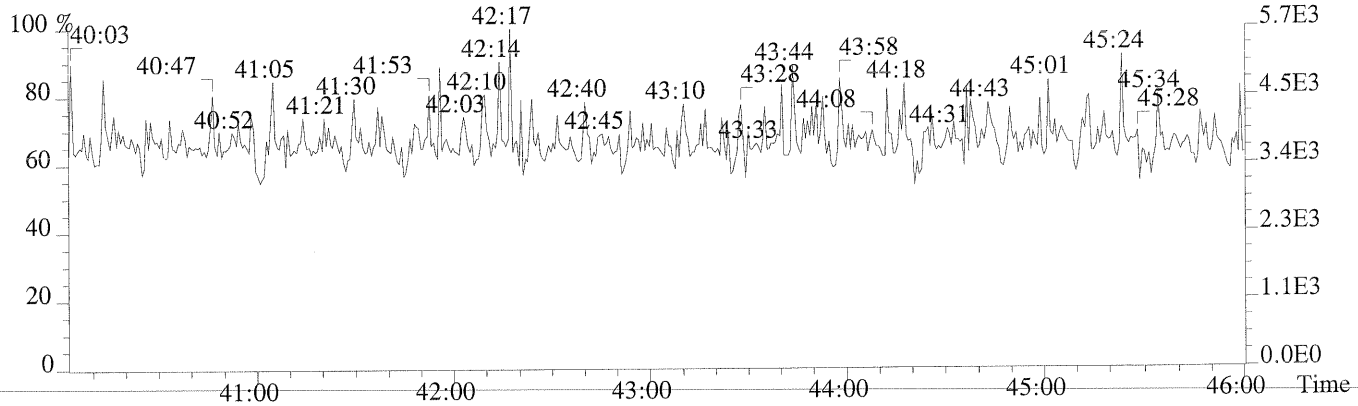
File:P176197 #1-548 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,780.0,0.40%,F,T)



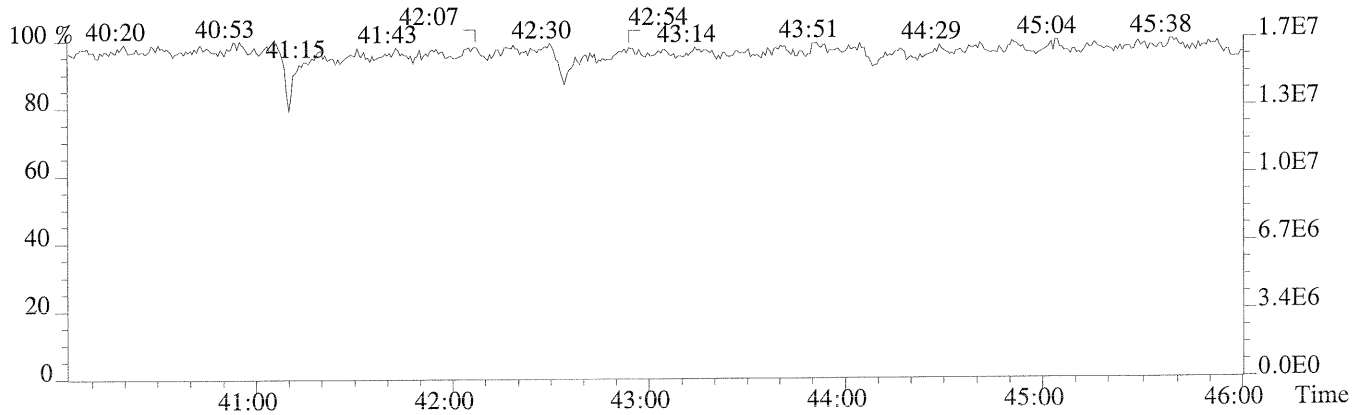
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,964.0,0.40%,F,T)



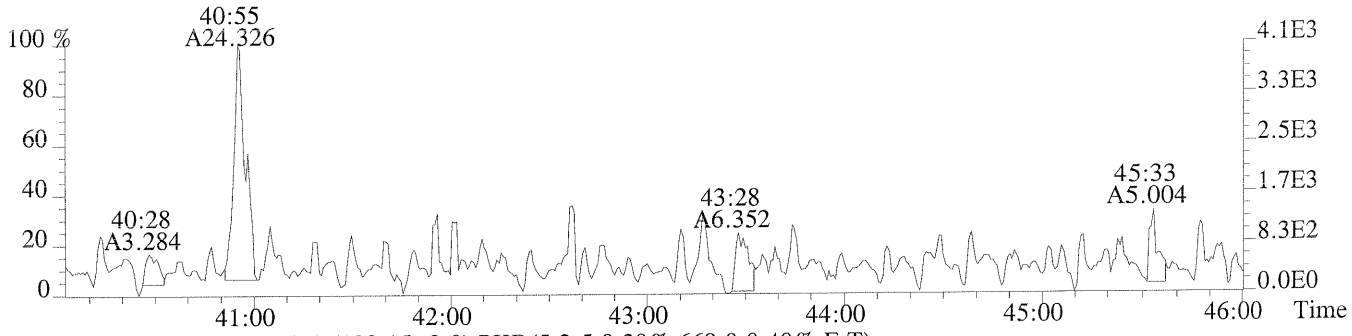
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



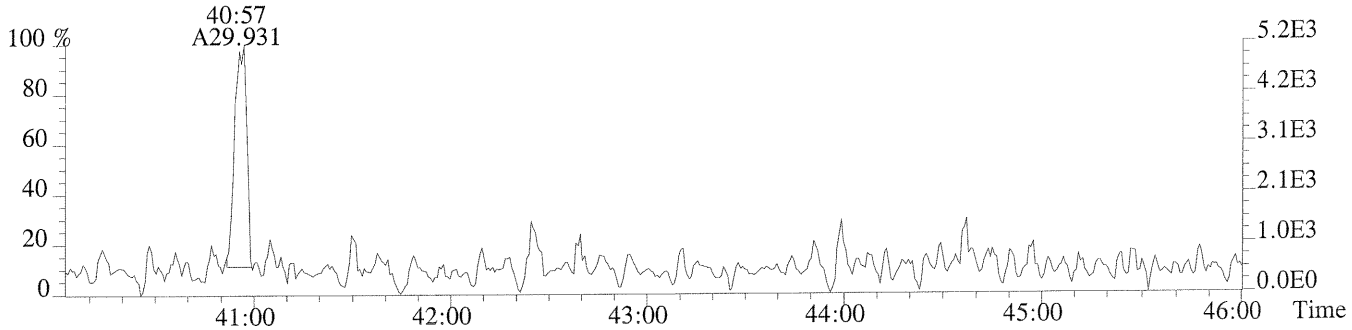
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



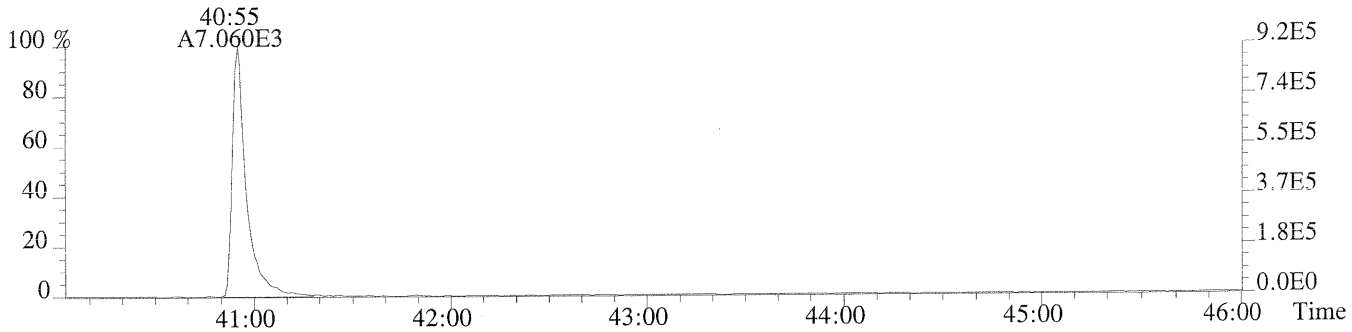
File:P176197 #1-548 Acq: 7-FEB-2015 13:49:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



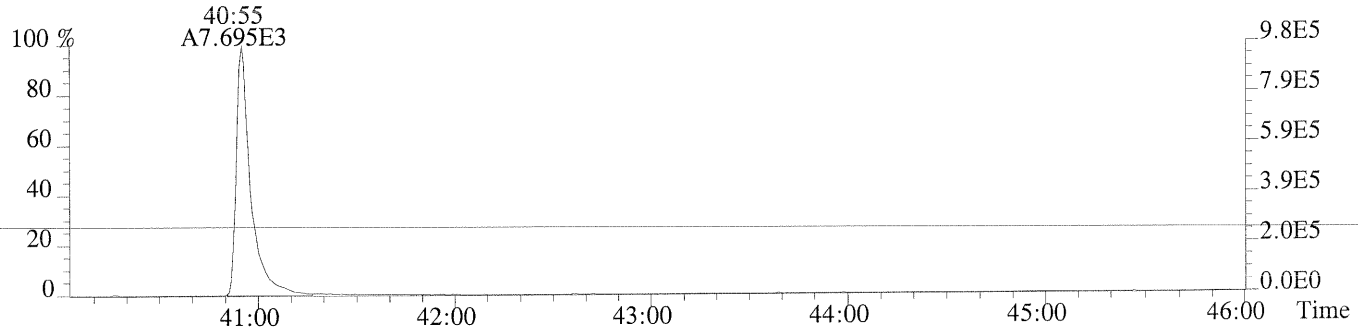
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



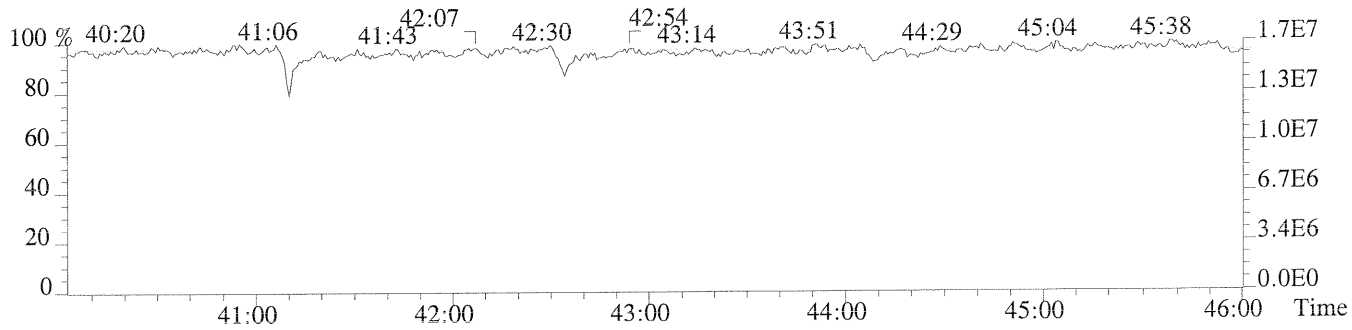
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1872.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,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.
129SSQ-DF

Run #12 Filename P176198 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 14:37:42
Processed: 9-FEB-15 12:03:30 LAB. ID: P1500356-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.946
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.061
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.148
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.369
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.998
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.052
17	Unk	OCDD	40:54	1.718e+01	1.792e+01	0.96	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:07	8.088e+03	1.024e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	1.261e+04	7.957e+03	1.58	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:55	1.245e+04	7.972e+03	1.56	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:45	5.501e+03	1.054e+04	0.52	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:52	6.615e+03	1.261e+04	0.52	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	5.647e+03	1.093e+04	0.52	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:28	3.755e+03	8.198e+03	0.46	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:48	3.543e+03	7.924e+03	0.45	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	5.949e+03	7.736e+03	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	9.541e+03	5.955e+03	1.60	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:32	7.713e+03	6.001e+03	1.29	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:37	8.317e+03	6.402e+03	1.30	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:21	6.513e+03	6.216e+03	1.05	yes	no	0.874
32	IS	13C-OCDD	40:54	8.079e+03	8.999e+03	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:21	4.217e+04	5.395e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:52	5.513e+04	4.341e+04	1.27	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:04	1.568e+04				no	1.038

$$OCDD = \frac{(1.718e+01 + 1.792e+01) \times \cancel{8000}\ 4000\ pg \times 1}{(8.079e+03 + 8.999e+03) \times 1.068 \times 0.5} = 15.4\ pg$$

~~pg~~

LM 02/09/15

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Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
129SSQ-DF

Run #12 Filename P176198 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 14:37:42
Processed: 9-FEB-15 12:03:30 LAB. ID: P1500356-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.60e+02	*	*	1.22e+03	*
2	1,2,3,7,8-PeCDF	*	6.88e+02	*	*	8.72e+02	*
3	2,3,4,7,8-PeCDF	*	6.88e+02	*	*	8.72e+02	*
4	1,2,3,4,7,8-HxCDF	*	8.96e+02	*	*	8.00e+02	*
5	1,2,3,6,7,8-HxCDF	*	8.96e+02	*	*	8.00e+02	*
6	2,3,4,6,7,8-HxCDF	*	8.96e+02	*	*	8.00e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.96e+02	*	*	8.00e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	8.36e+02	*	*	6.52e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.36e+02	*	*	6.52e+02	*
10	OCDF	*	5.56e+02	*	*	8.88e+02	*
11	2,3,7,8-TCDD	*	9.08e+02	*	*	7.24e+02	*
12	1,2,3,7,8-PeCDD	*	9.52e+02	*	*	8.28e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.72e+02	*	*	8.84e+02	*
14	1,2,3,6,7,8-HxCDD	*	8.72e+02	*	*	8.84e+02	*
15	1,2,3,7,8,9-HxCDD	*	8.72e+02	*	*	8.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	6.72e+02	*	*	6.84e+02	*
17	OCDD	3.58e+03	5.60e+02	6.4e+00	1.72e+03	5.80e+02	3.0e+00
18	13C-2,3,7,8-TCDF	1.02e+06	1.02e+03	1.0e+03	1.28e+06	1.03e+03	1.2e+03
19	13C-1,2,3,7,8-PeCDF	1.98e+06	1.02e+03	1.9e+03	1.23e+06	7.12e+02	1.7e+03
20	13C-2,3,4,7,8-PeCDF	2.03e+06	1.02e+03	2.0e+03	1.33e+06	7.12e+02	1.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.01e+06	7.56e+02	1.3e+03	1.94e+06	1.24e+03	1.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.06e+06	7.56e+02	1.4e+03	2.07e+06	1.24e+03	1.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.02e+06	7.56e+02	1.4e+03	1.93e+06	1.24e+03	1.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.57e+05	1.38e+03	4.8e+02	1.47e+06	8.92e+02	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.41e+05	1.38e+03	4.7e+02	1.43e+06	8.92e+02	1.6e+03
27	13C-2,3,7,8-TCDD	8.85e+05	2.60e+03	3.4e+02	1.14e+06	1.11e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	1.58e+06	7.80e+02	2.0e+03	1.00e+06	9.92e+02	1.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.61e+06	9.56e+02	1.7e+03	1.26e+06	8.32e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.52e+06	9.56e+02	1.6e+03	1.19e+06	8.32e+02	1.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.17e+06	1.11e+03	1.1e+03	1.12e+06	6.96e+02	1.6e+03
32	13C-OCDD	1.19e+06	4.36e+02	2.7e+03	1.34e+06	1.20e+03	1.1e+03
33	13C-1,2,3,4-TCDD	5.98e+06	2.60e+03	2.3e+03	7.58e+06	1.11e+03	6.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.02e+07	9.56e+02	1.1e+04	8.13e+06	8.32e+02	9.8e+03
35	37Cl-2,3,7,8-TCDD	2.27e+06	6.88e+02	3.3e+03			

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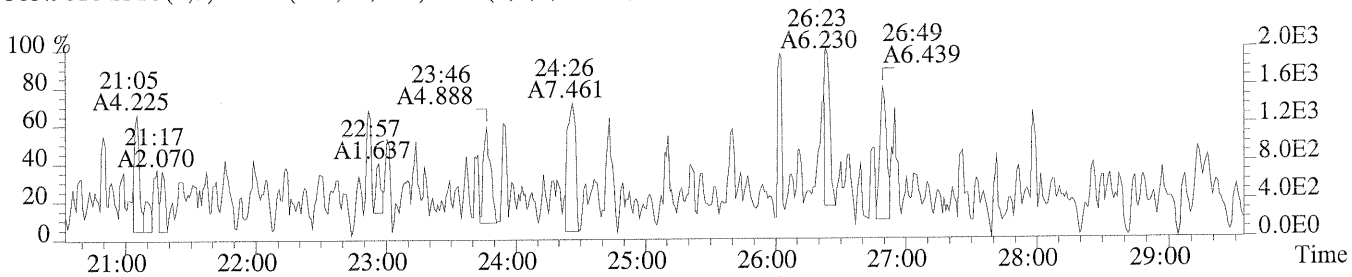
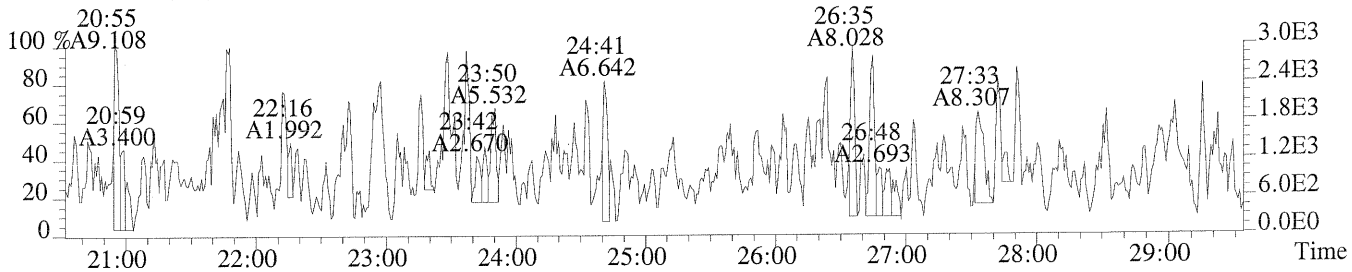
ALS Form TO-9SN/M23SN.FRM

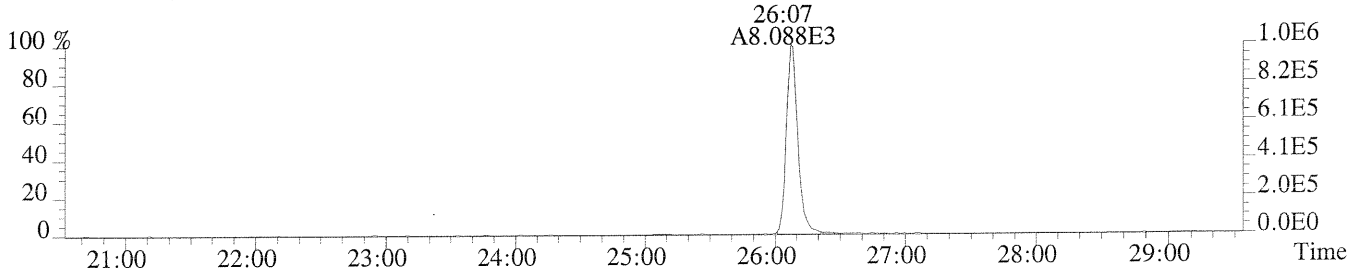
File:P176198 #1-696 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



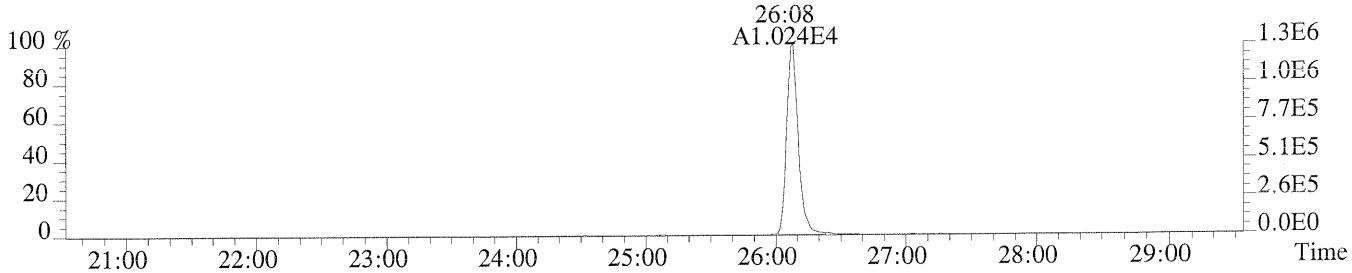
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



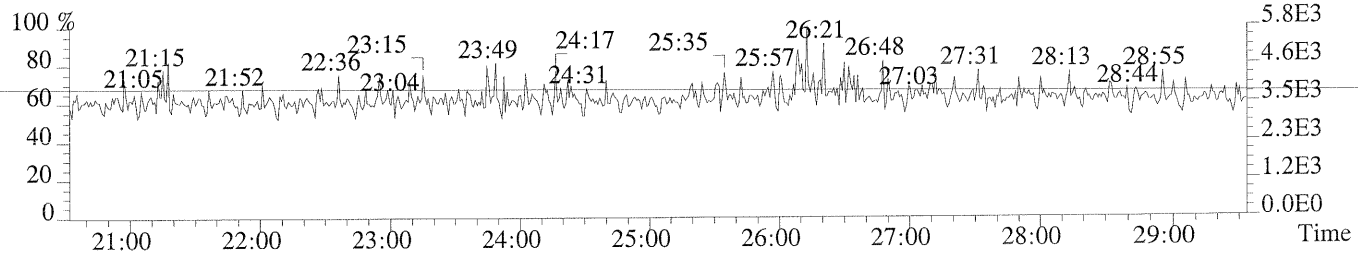
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



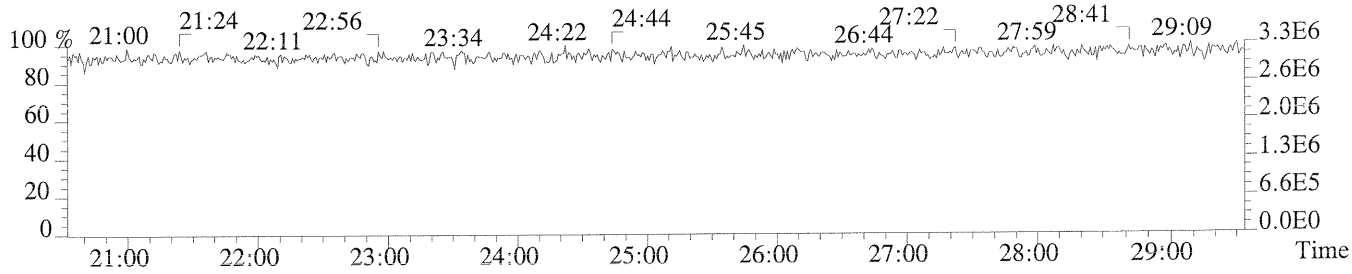
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



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

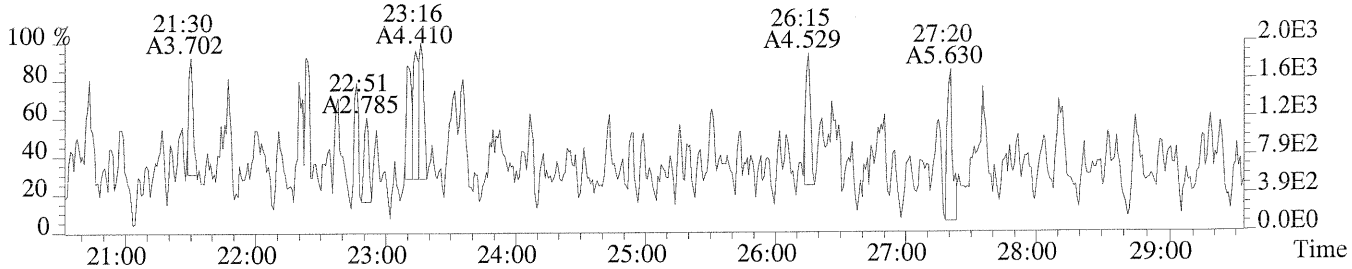


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

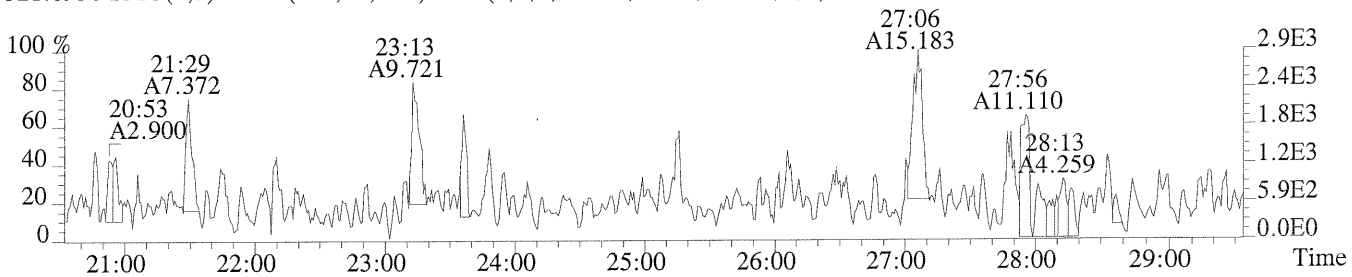


File:P176198 #1-696 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003

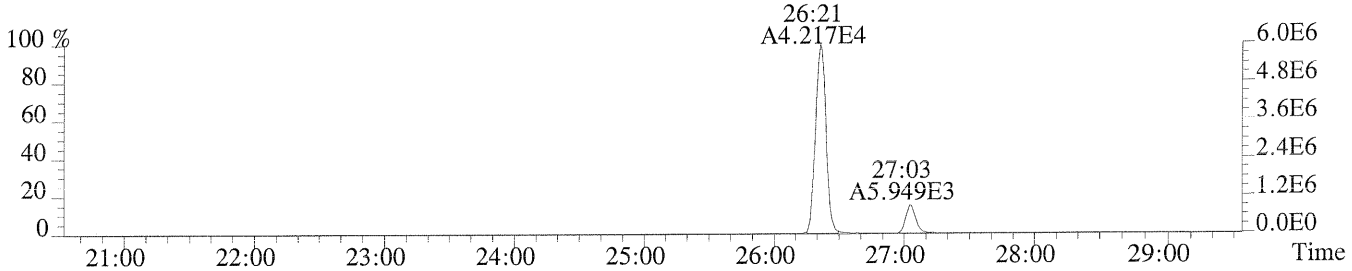
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



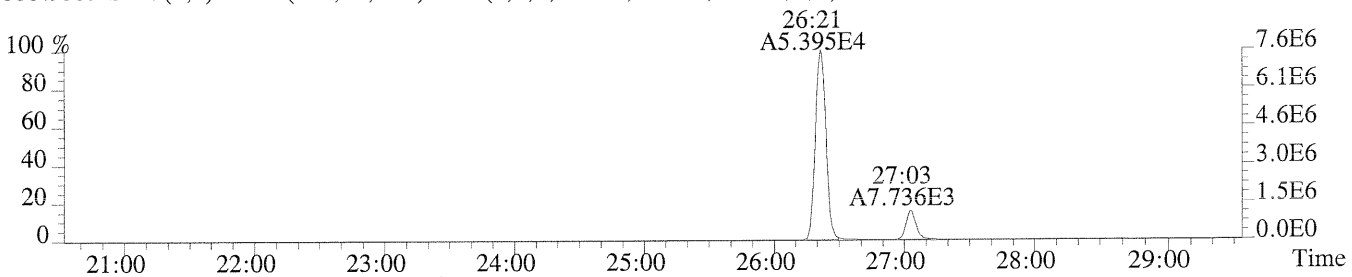
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



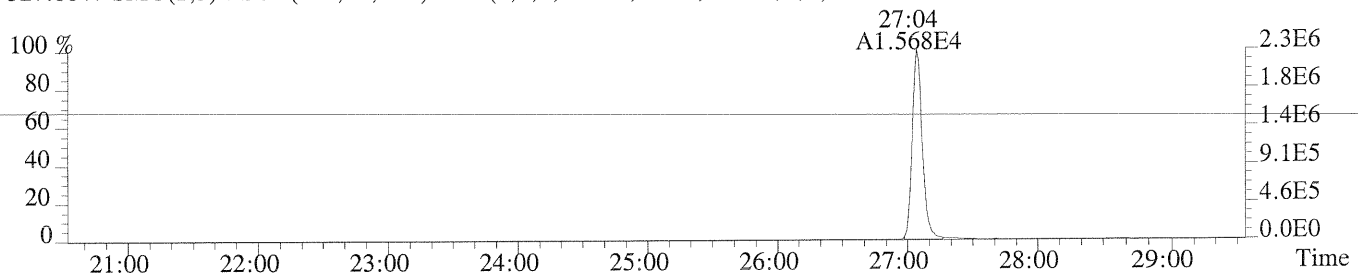
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2604.0,1.00%,F,T)



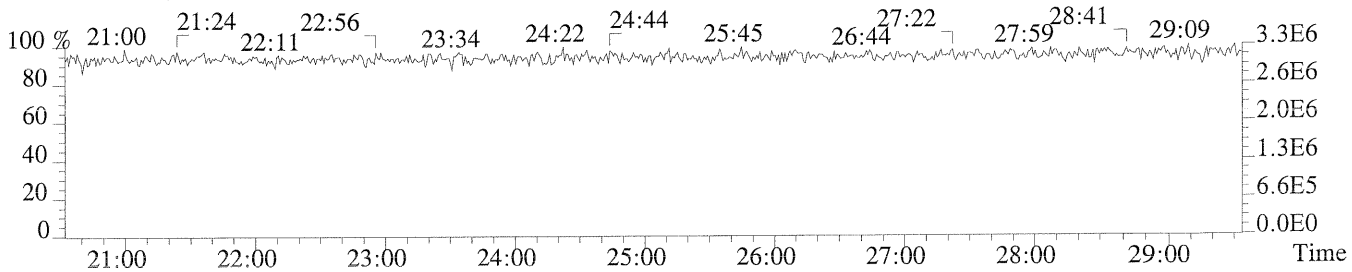
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



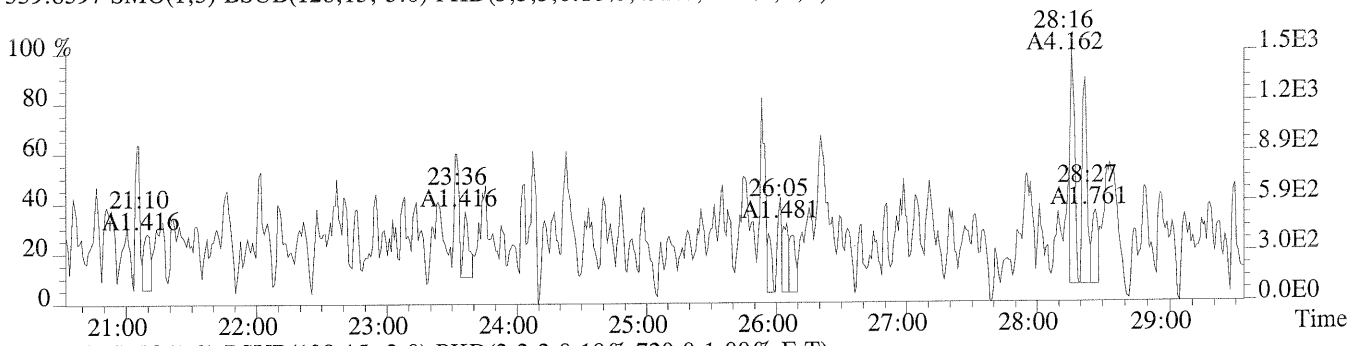
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



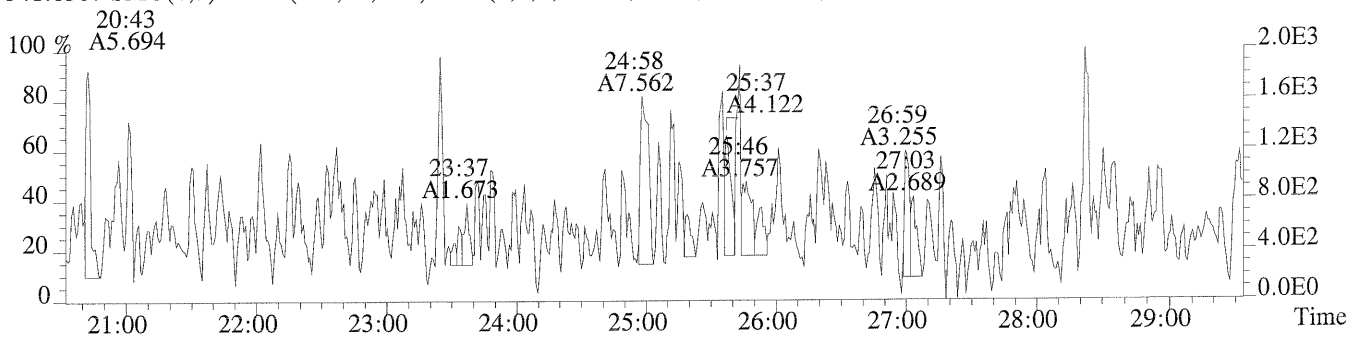
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



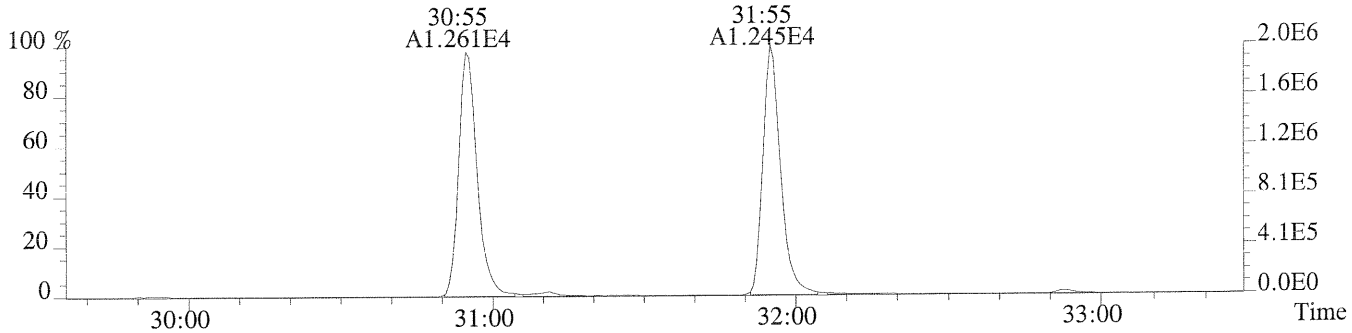
File:P176198 #1-696 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



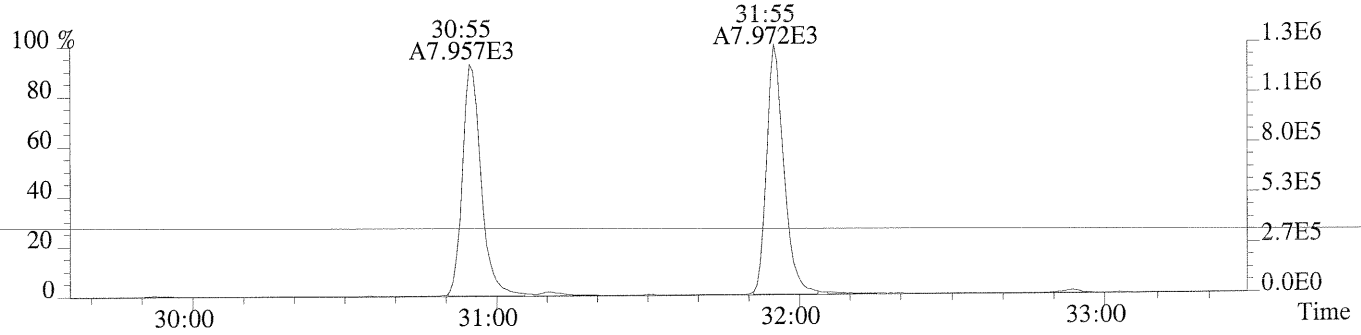
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



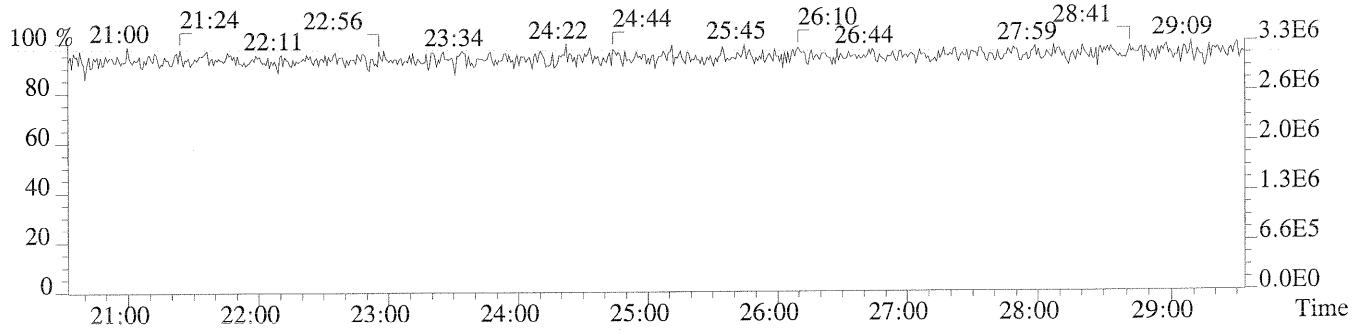
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



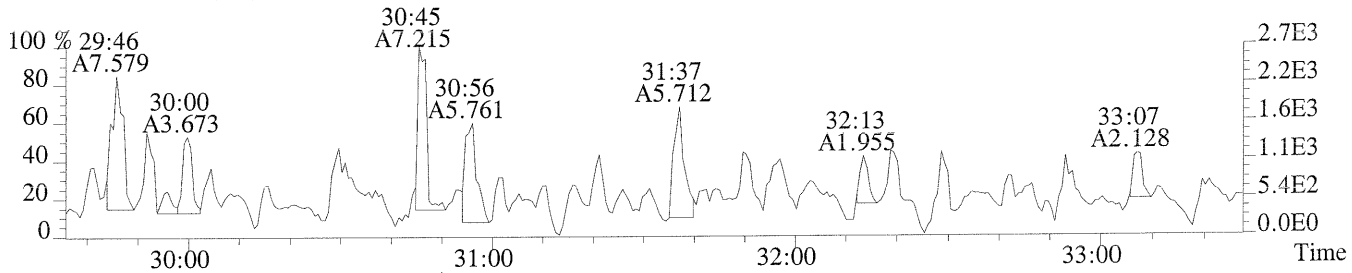
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



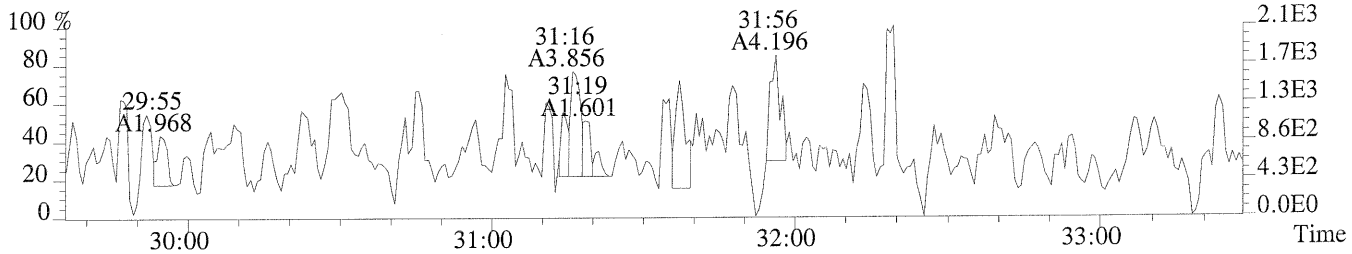
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



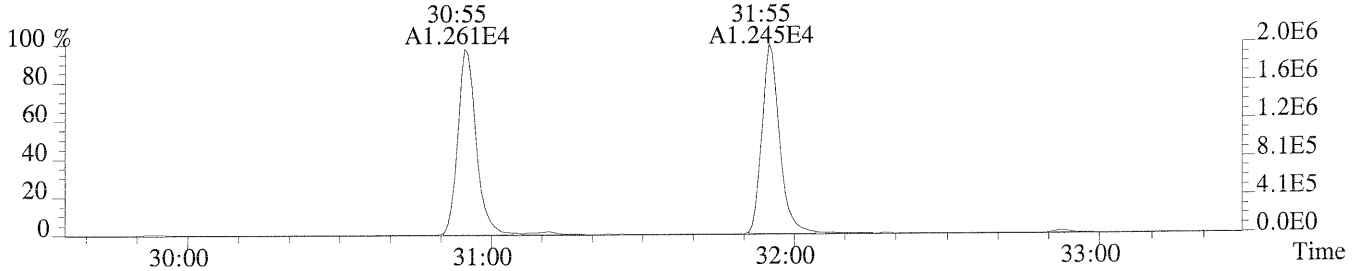
File:P176198 #1-351 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



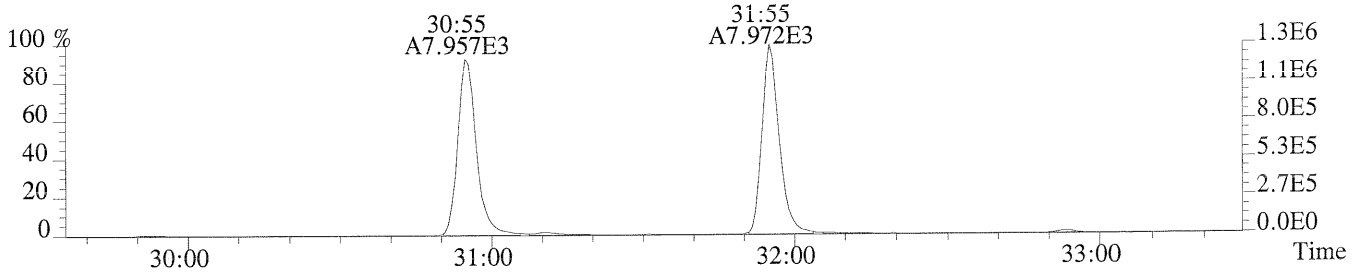
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



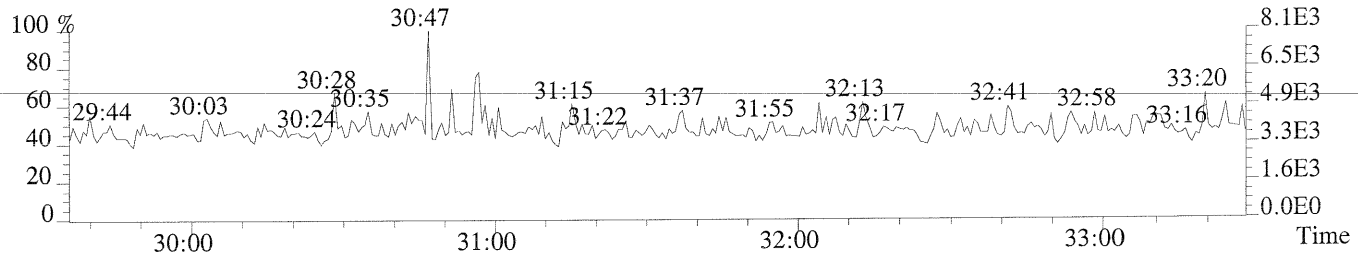
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



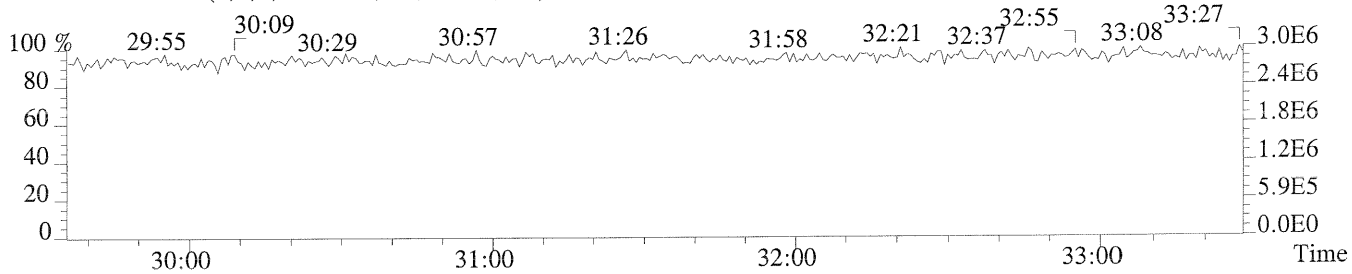
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



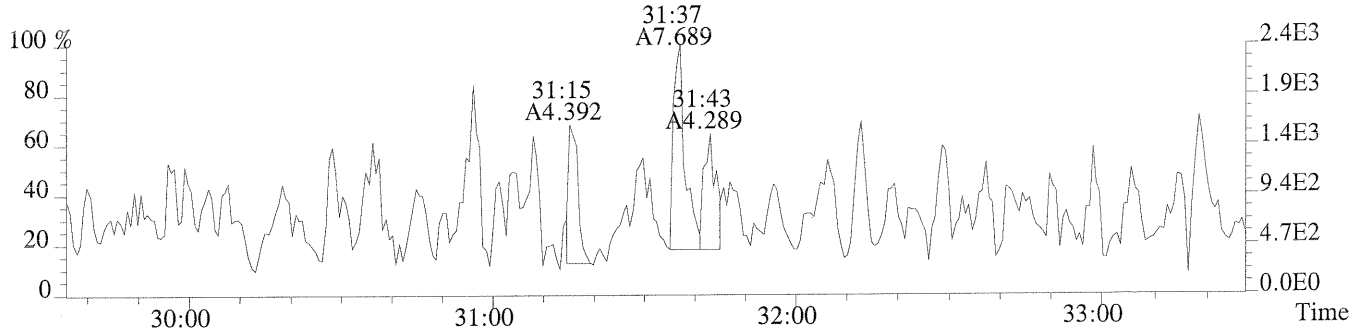
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



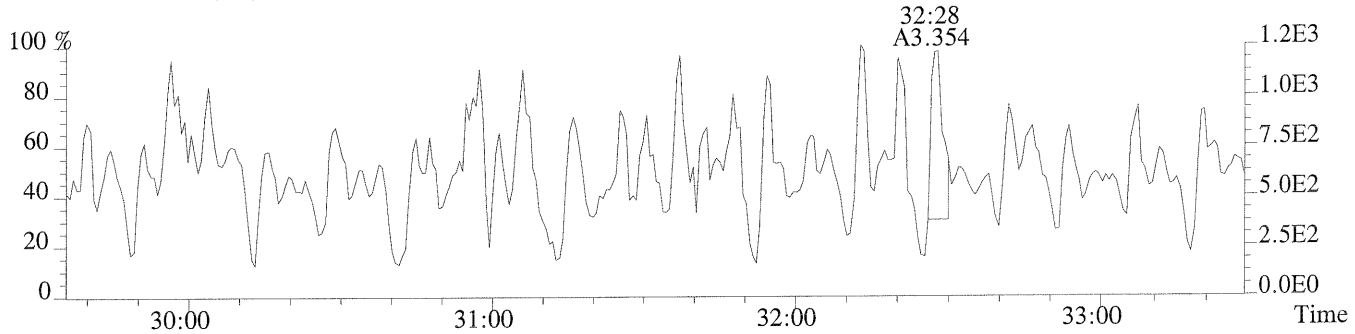
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



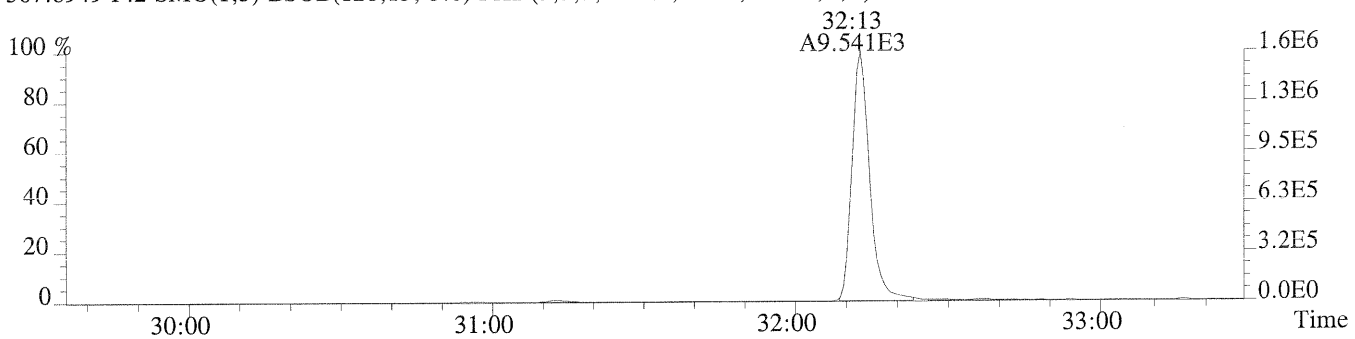
File:P176198 #1-351 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



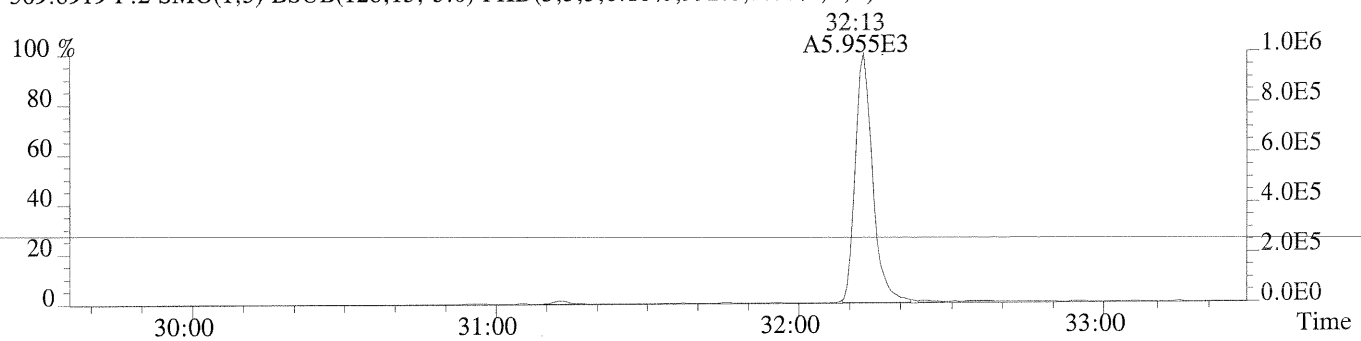
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



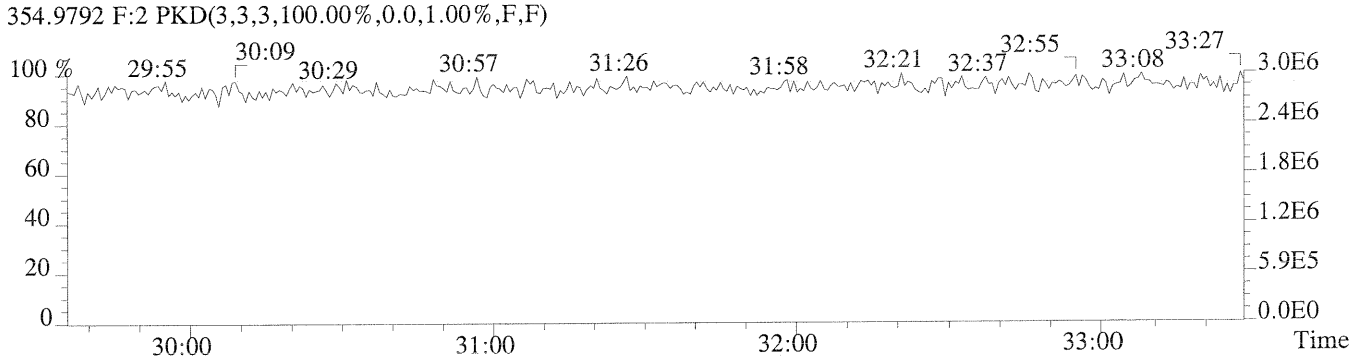
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



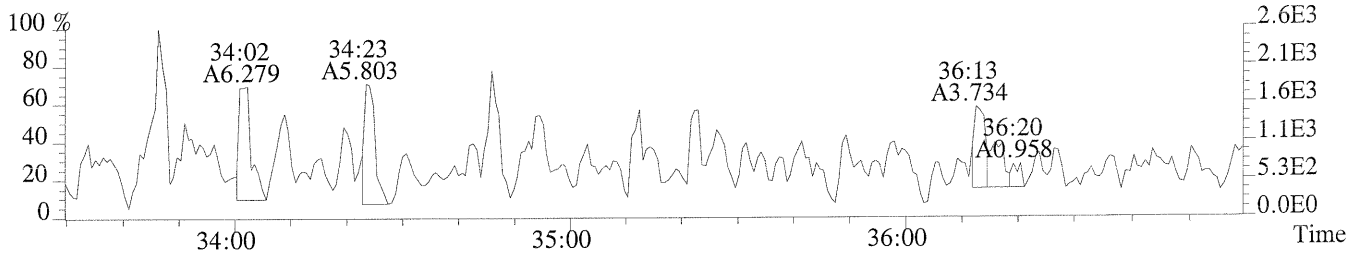
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



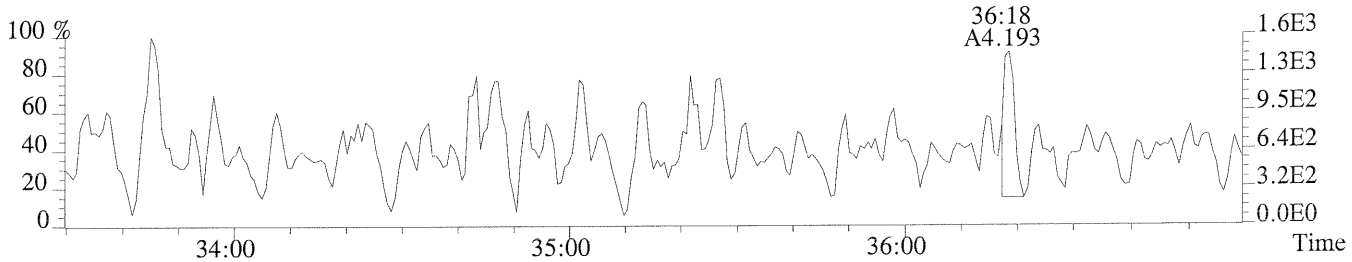
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



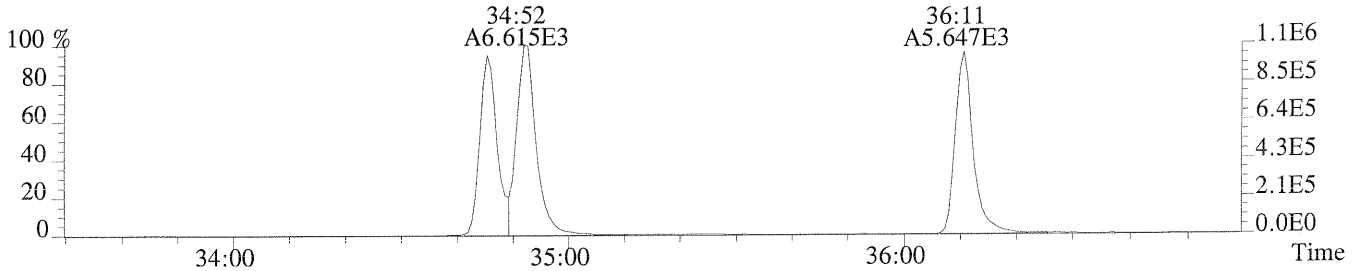
File:P176198 #1-318 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



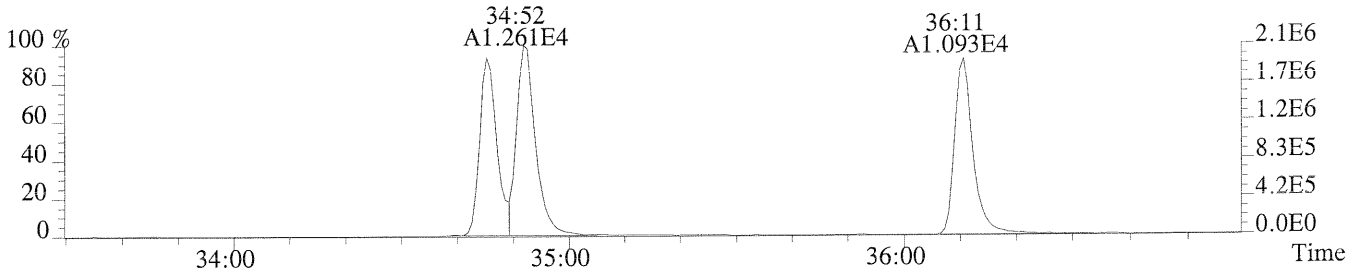
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



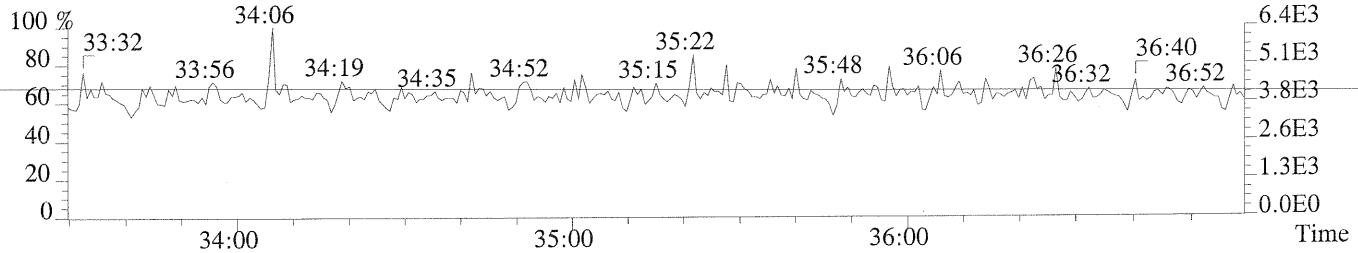
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



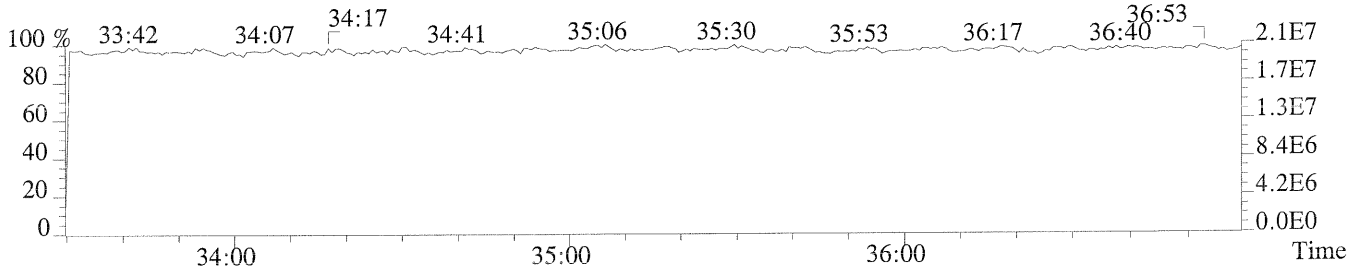
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



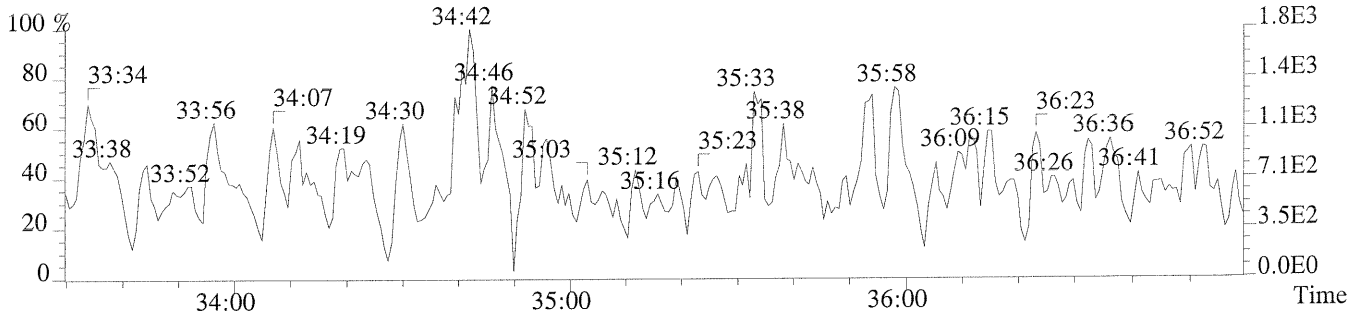
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



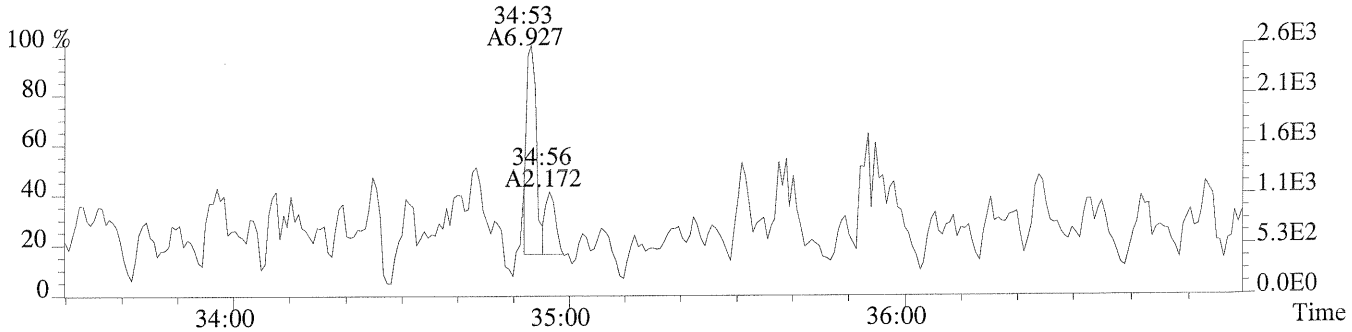
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



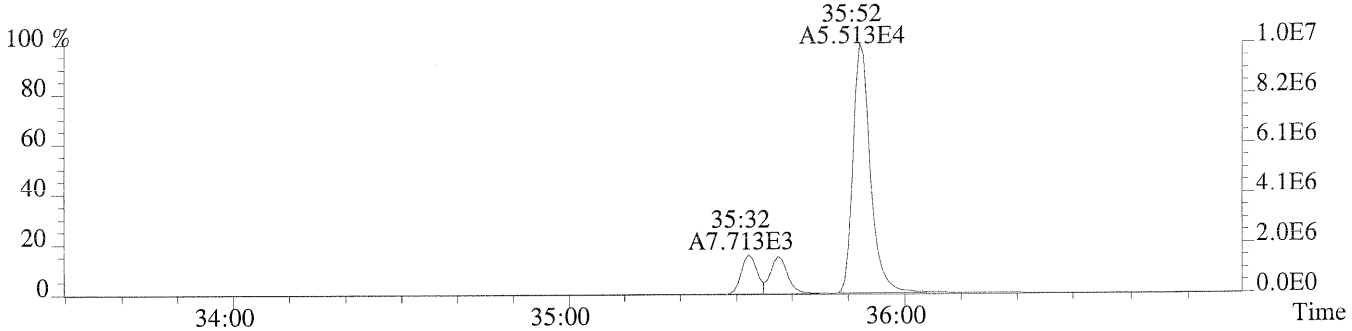
File:P176198 #1-318 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



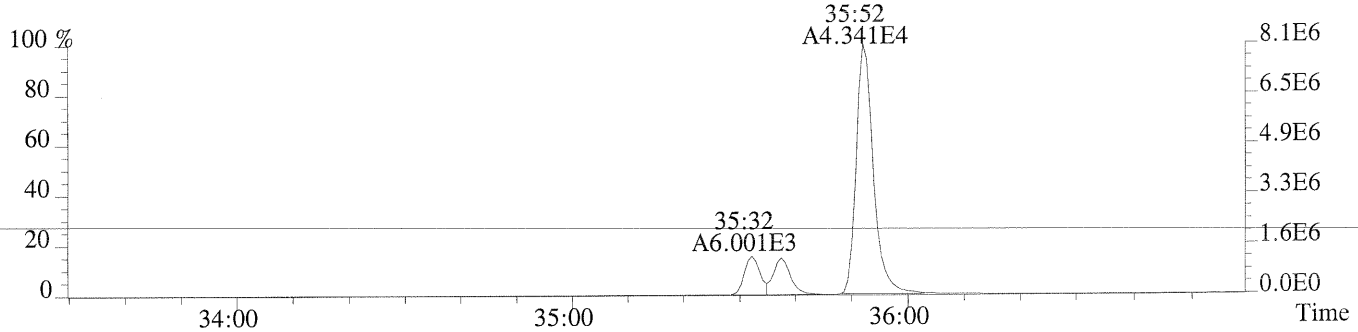
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



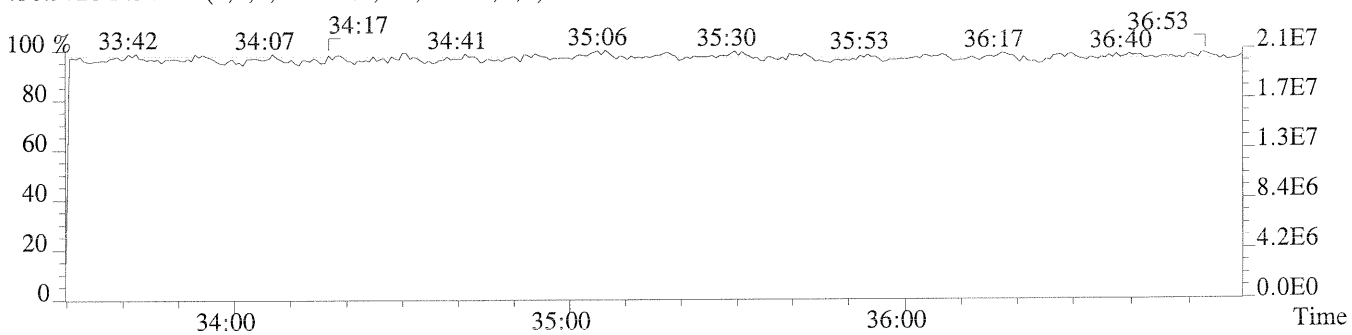
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)

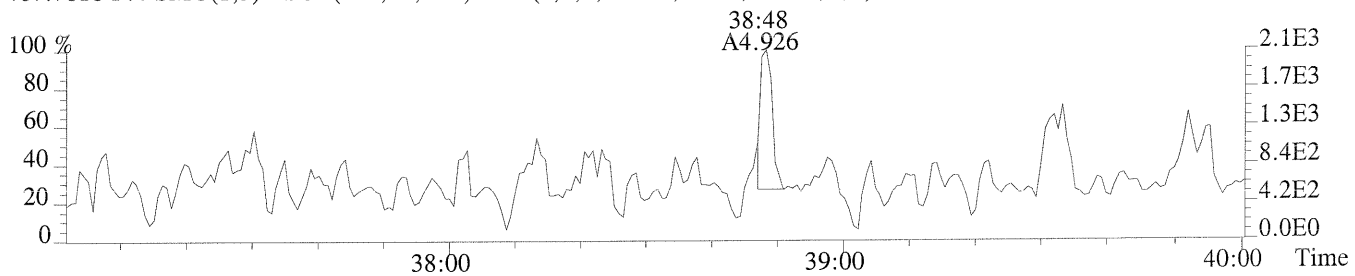


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

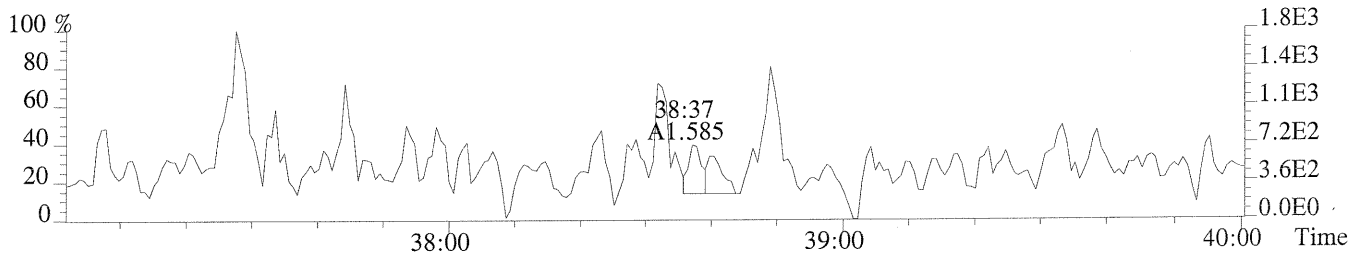


File:P176198 #1-271 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003

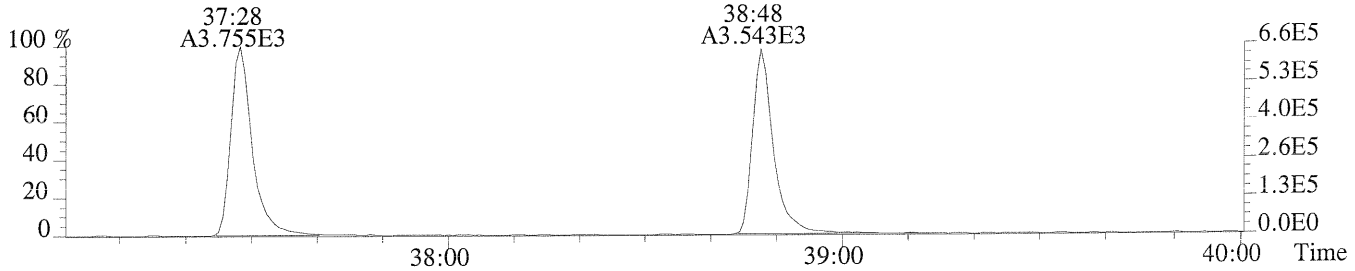
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.50%,F,T)



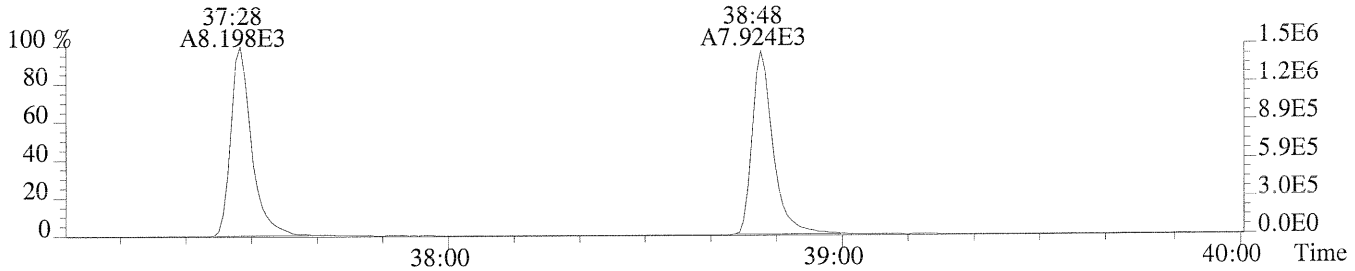
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.50%,F,T)



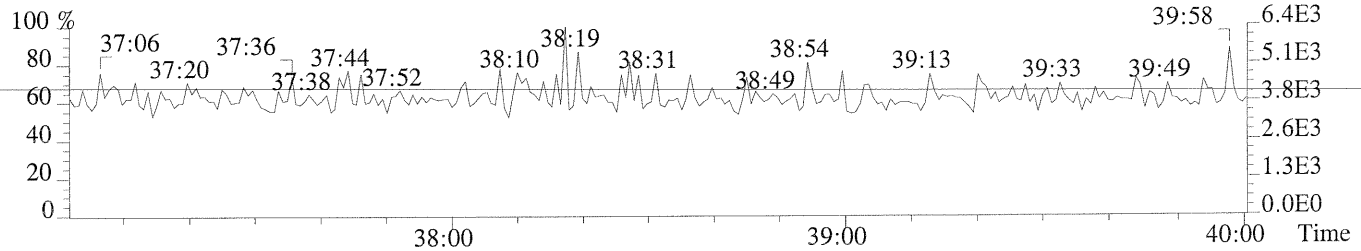
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.50%,F,T)



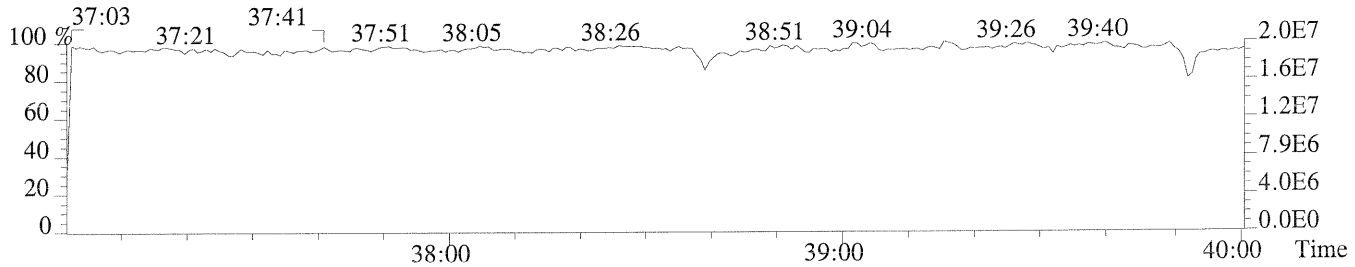
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.50%,F,T)



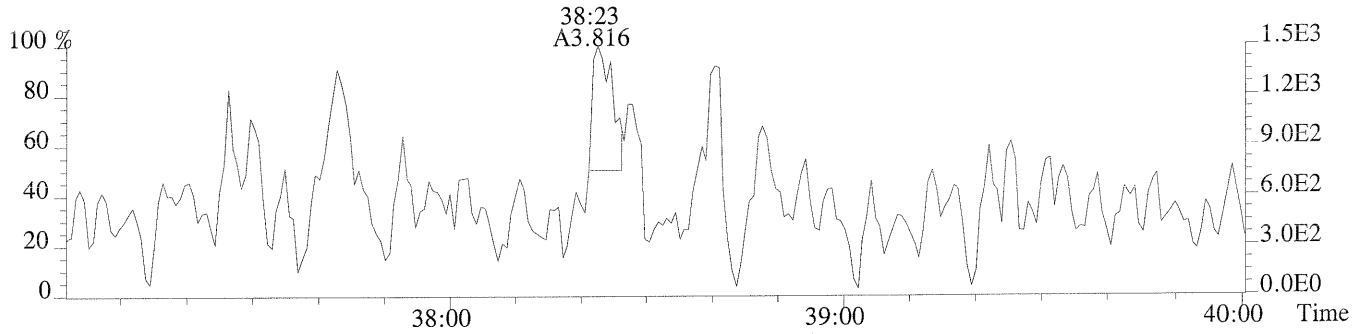
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



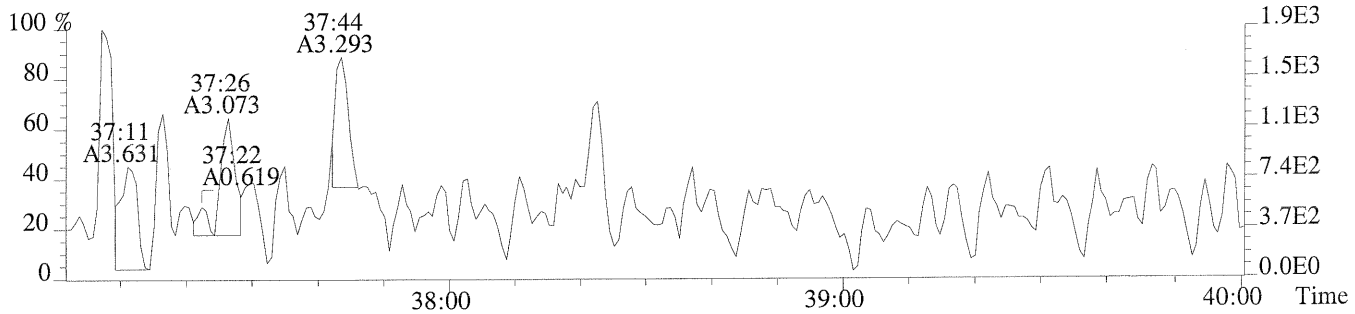
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



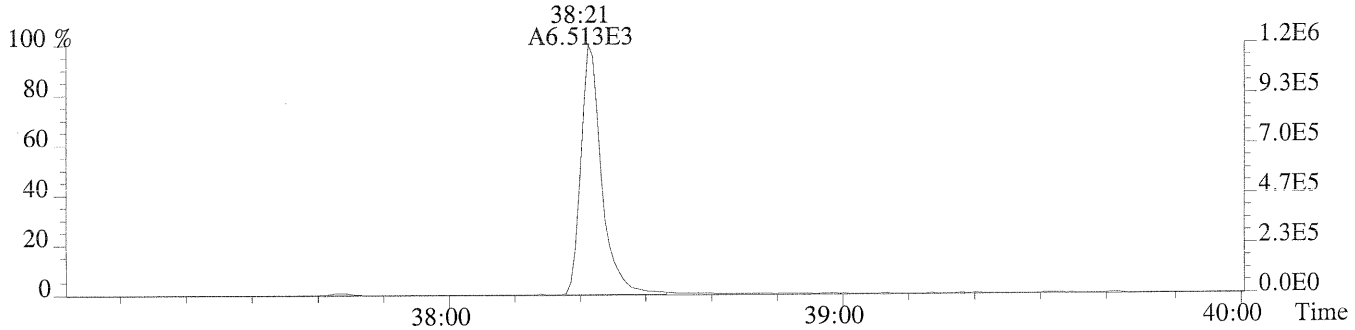
File:P176198 #1-271 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



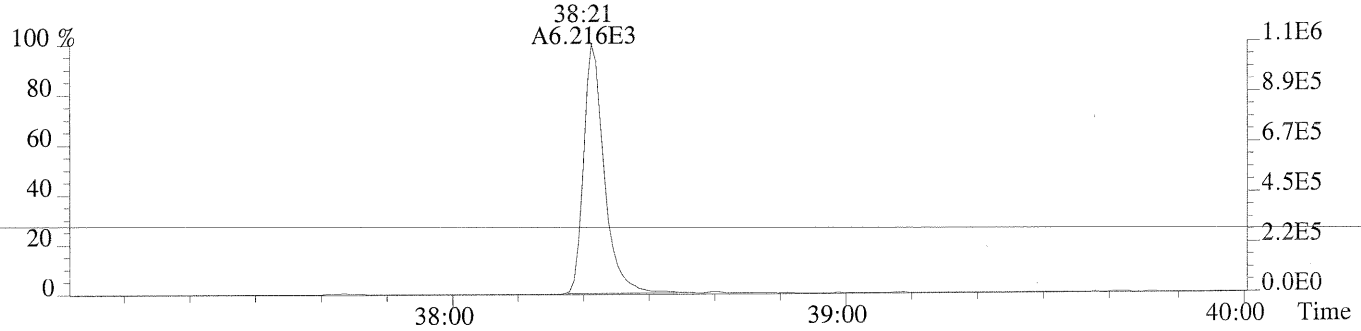
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



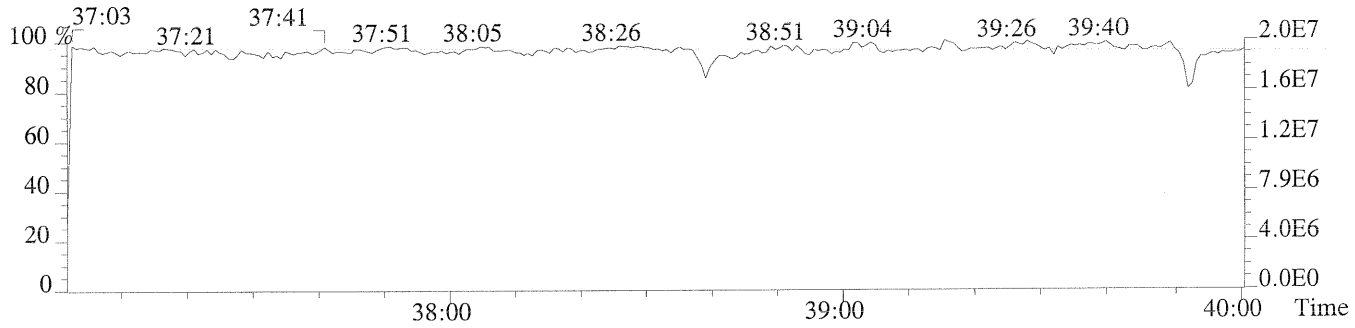
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



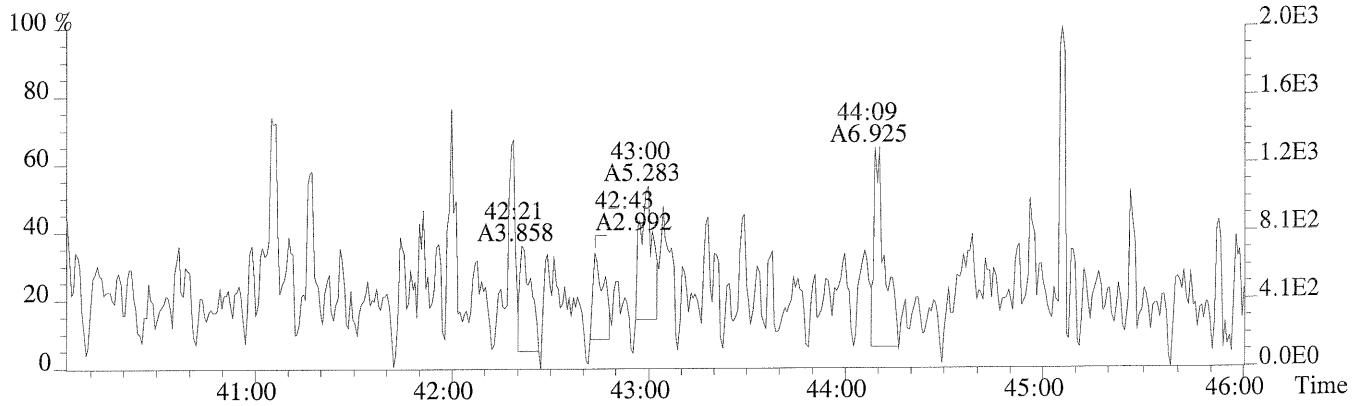
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



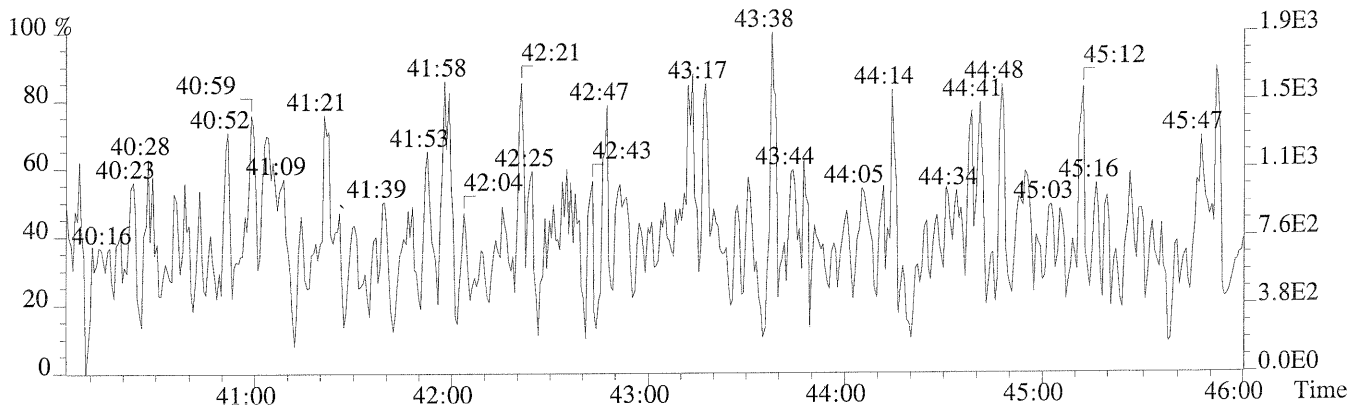
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



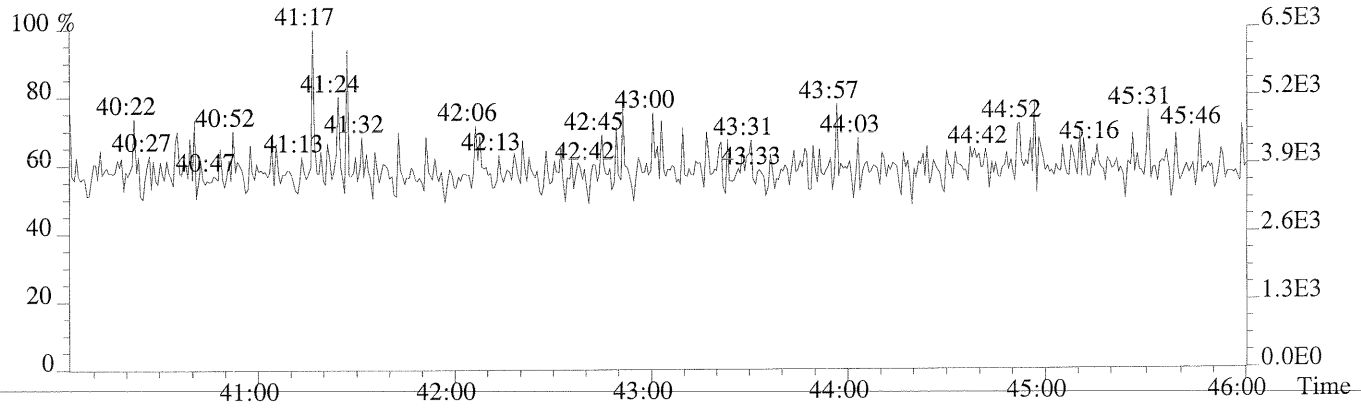
File:P176198 #1-548 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



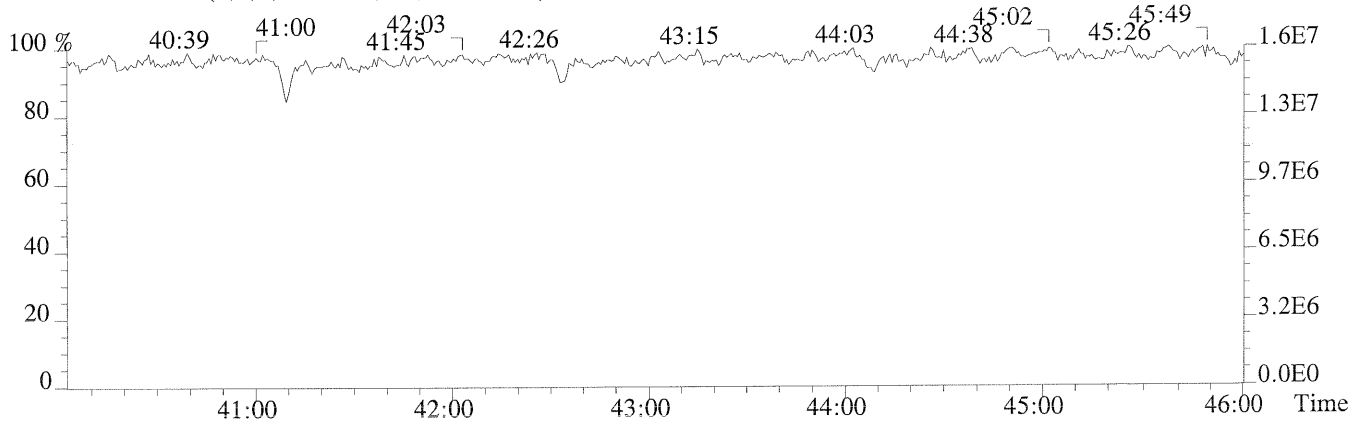
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,888.0,0.40%,F,T)



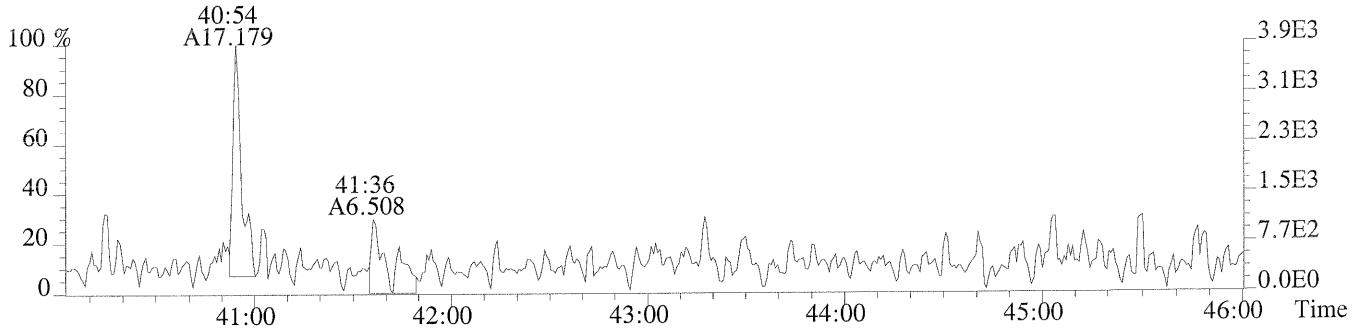
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



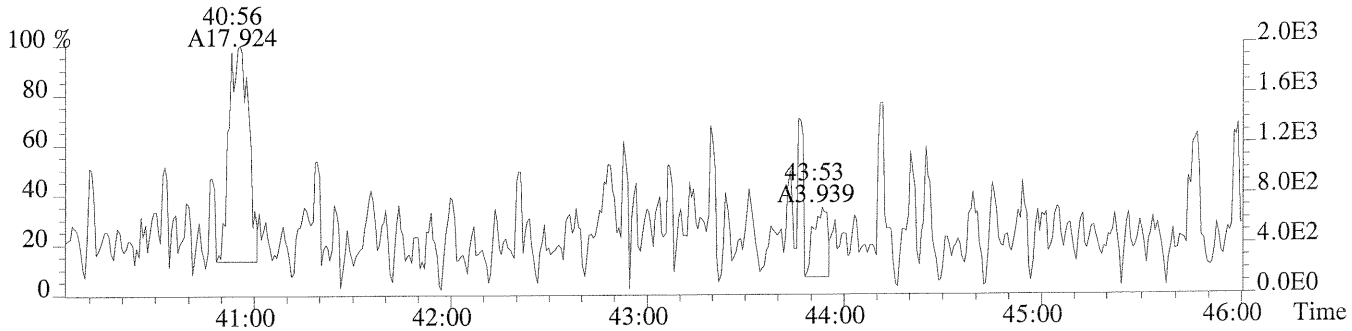
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



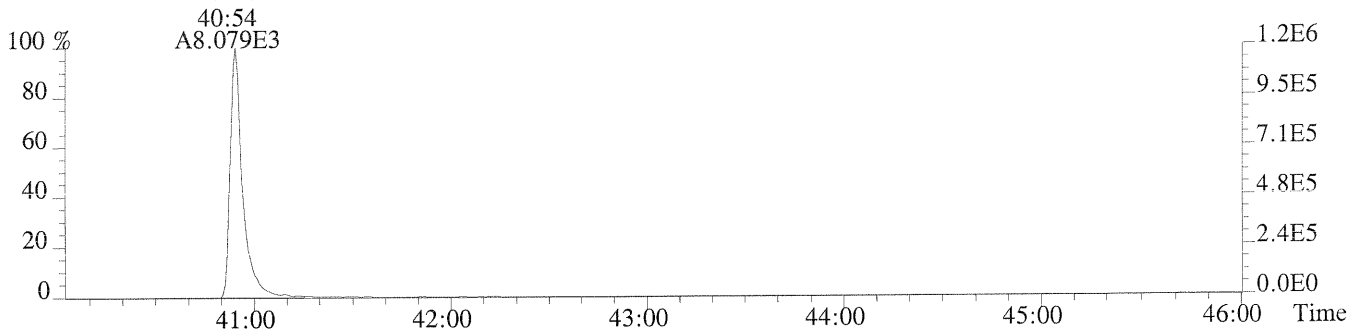
File:P176198 #1-548 Acq: 7-FEB-2015 14:37:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



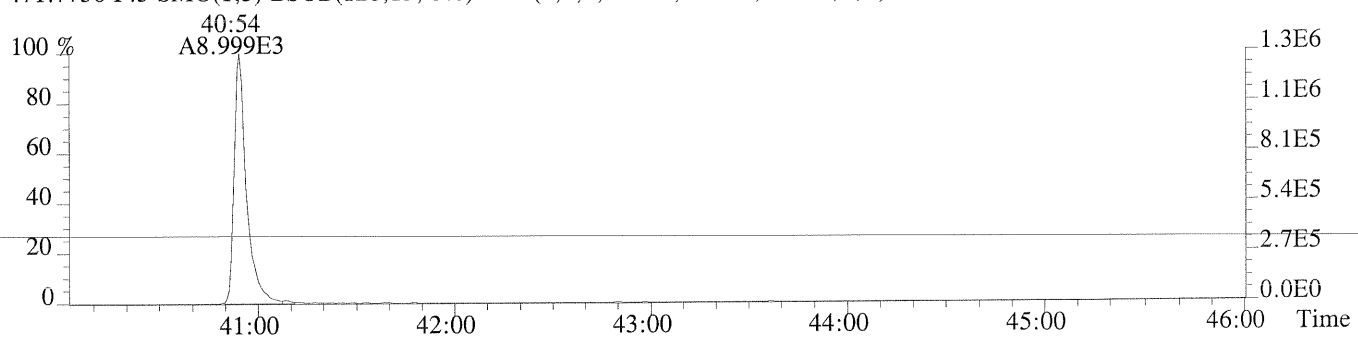
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



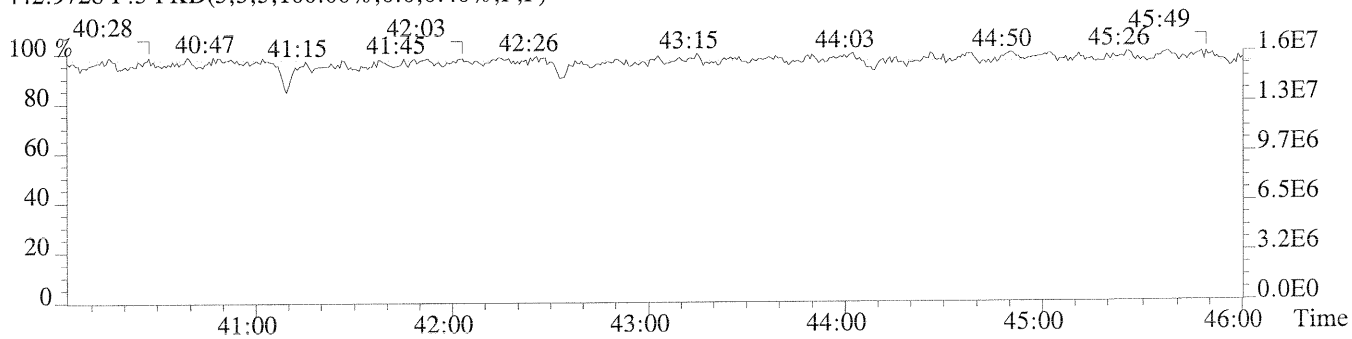
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1204.0,0.40%,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.
129BLANK-DF

Run #13 Filename P176199 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 15:25:53
Processed: 9-FEB-15 12:03:41 LAB. ID: P1500356-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.946
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.061
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.148
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.369
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.998
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.052
17	Unk	OCDD	40:56	3.119e+01	2.808e+01	1.11	no	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:09	5.263e+03	6.689e+03	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	8.569e+03	5.491e+03	1.56	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	8.797e+03	5.616e+03	1.57	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:46	3.679e+03	7.212e+03	0.51	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	5.387e+03	1.015e+04	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	4.182e+03	7.888e+03	0.53	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	3.001e+03	6.658e+03	0.45	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:49	2.578e+03	6.008e+03	0.43	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	3.920e+03	5.124e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	6.926e+03	4.418e+03	1.57	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:33	5.727e+03	4.506e+03	1.27	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:38	6.219e+03	5.037e+03	1.23	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:22	5.252e+03	4.929e+03	1.07	yes	no	0.874
32	IS	13C-OCDD	40:55	6.636e+03	7.336e+03	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:22	3.541e+04	4.519e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	4.712e+04	3.744e+04	1.26	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:05	1.038e+04				no	1.038

$$OCDD = \frac{(3.119e+01 + 2.808e+01) \times \cancel{8000}\ 4000\ pg \times 1}{(6.636e+03 + 7.336e+03) \times 1.068 \times 0.5} = 31.8\ pg$$

~~pg~~

LLL 02/09/15

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Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
129BLANK-DF

Run #13 Filename P176199 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 15:25:53
Processed: 9-FEB-15 12:03:41 LAB. ID: P1500356-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.30e+02	*	*	7.69e+02	*
2	1,2,3,7,8-PeCDF	*	7.08e+02	*	*	9.44e+02	*
3	2,3,4,7,8-PeCDF	*	7.08e+02	*	*	9.44e+02	*
4	1,2,3,4,7,8-HxCDF	*	8.56e+02	*	*	8.24e+02	*
5	1,2,3,6,7,8-HxCDF	*	8.56e+02	*	*	8.24e+02	*
6	2,3,4,6,7,8-HxCDF	*	8.56e+02	*	*	8.24e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.56e+02	*	*	8.24e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	8.76e+02	*	*	7.76e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.76e+02	*	*	7.76e+02	*
10	OCDF	*	9.08e+02	*	*	1.00e+03	*
11	2,3,7,8-TCDD	*	6.36e+02	*	*	4.77e+02	*
12	1,2,3,7,8-PeCDD	*	9.08e+02	*	*	6.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.48e+02	*	*	6.48e+02	*
14	1,2,3,6,7,8-HxCDD	*	8.48e+02	*	*	6.48e+02	*
15	1,2,3,7,8,9-HxCDD	*	8.48e+02	*	*	6.48e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	6.36e+02	*	*	6.96e+02	*
17	OCDD	3.83e+03	9.24e+02	4.1e+00	4.32e+03	8.32e+02	5.2e+00
18	13C-2,3,7,8-TCDF	6.02e+05	6.88e+02	8.8e+02	7.86e+05	7.16e+02	1.1e+03
19	13C-1,2,3,7,8-PeCDF	1.13e+06	7.44e+02	1.5e+03	7.48e+05	1.00e+03	7.5e+02
20	13C-2,3,4,7,8-PeCDF	1.26e+06	7.44e+02	1.7e+03	8.04e+05	1.00e+03	8.0e+02
21	13C-1,2,3,4,7,8-HxCDF	6.80e+05	1.09e+03	6.2e+02	1.33e+06	1.20e+03	1.1e+03
22	13C-1,2,3,6,7,8-HxCDF	7.85e+05	1.09e+03	7.2e+02	1.49e+06	1.20e+03	1.2e+03
24	13C-1,2,3,7,8,9-HxCDF	6.28e+05	1.09e+03	5.8e+02	1.17e+06	1.20e+03	9.8e+02
25	13C-1,2,3,4,6,7,8-HpCDF	4.67e+05	7.32e+02	6.4e+02	1.08e+06	1.64e+03	6.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.51e+05	7.32e+02	4.8e+02	8.57e+05	1.64e+03	5.2e+02
27	13C-2,3,7,8-TCDD	5.22e+05	2.28e+03	2.3e+02	6.73e+05	1.08e+03	6.2e+02
28	13C-1,2,3,7,8-PeCDD	1.02e+06	5.76e+02	1.8e+03	6.49e+05	5.96e+02	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.13e+06	1.25e+03	9.0e+02	8.71e+05	9.36e+02	9.3e+02
30	13C-1,2,3,6,7,8-HxCDD	1.06e+06	1.25e+03	8.4e+02	8.90e+05	9.36e+02	9.5e+02
31	13C-1,2,3,4,6,7,8-HpCDD	8.23e+05	1.00e+03	8.2e+02	7.67e+05	8.92e+02	8.6e+02
32	13C-OCDD	8.69e+05	2.38e+03	3.7e+02	9.68e+05	2.37e+03	4.1e+02
33	13C-1,2,3,4-TCDD	4.87e+06	2.28e+03	2.1e+03	6.24e+06	1.08e+03	5.8e+03
34	13C-1,2,3,7,8,9-HxCDD	8.30e+06	1.25e+03	6.6e+03	6.62e+06	9.36e+02	7.1e+03
35	37Cl-2,3,7,8-TCDD	1.35e+06	8.24e+02	1.6e+03			

ALS ENVIRONMENTAL
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Houston, TX 77099
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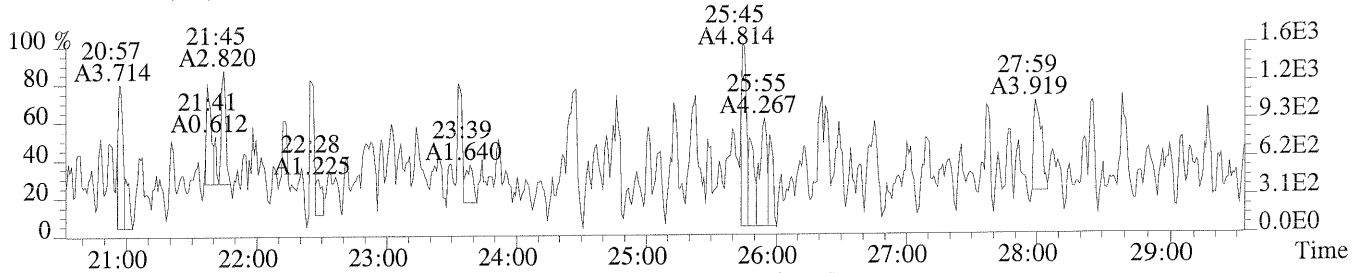
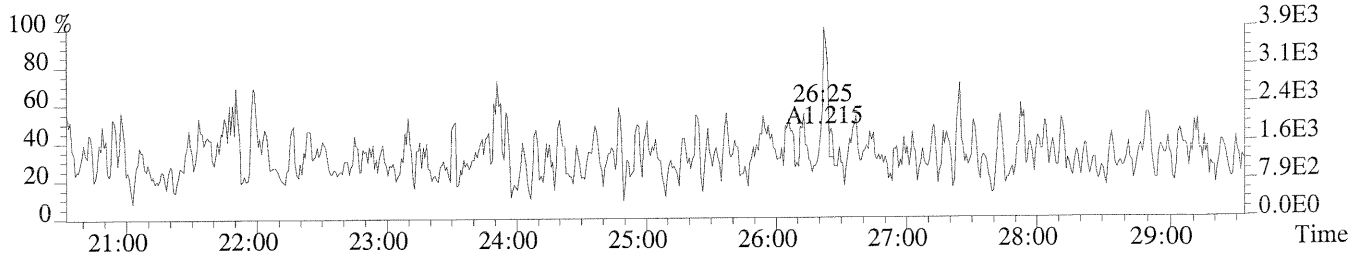
ALS Form TO-9SN/M23SN.FRM

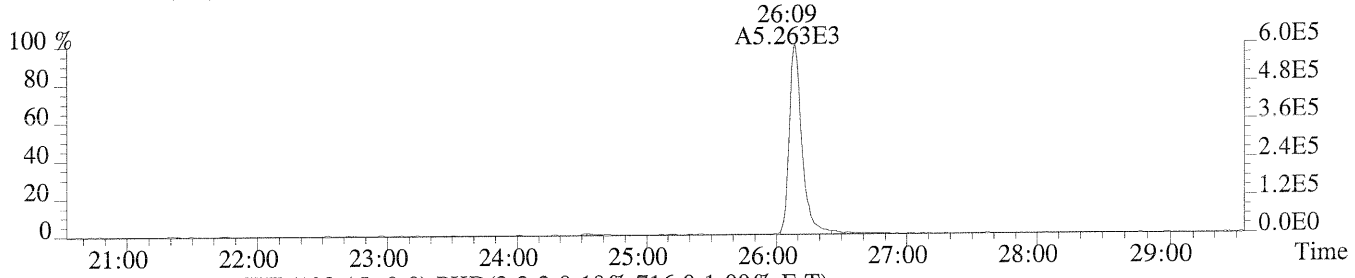
File:P176199 #1-696 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



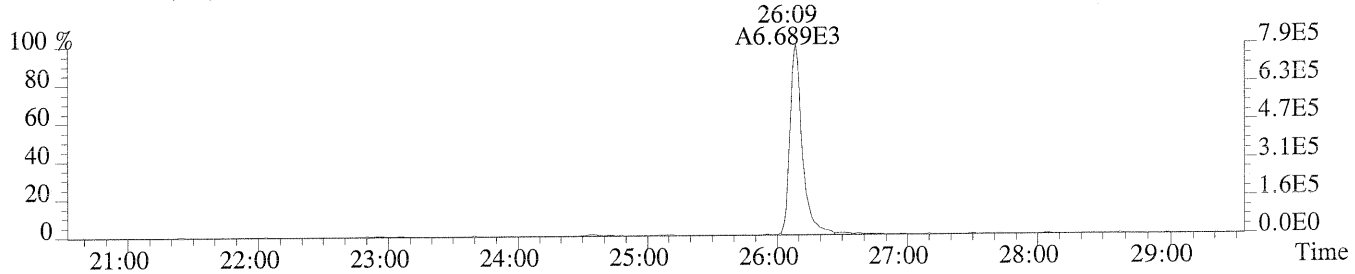
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



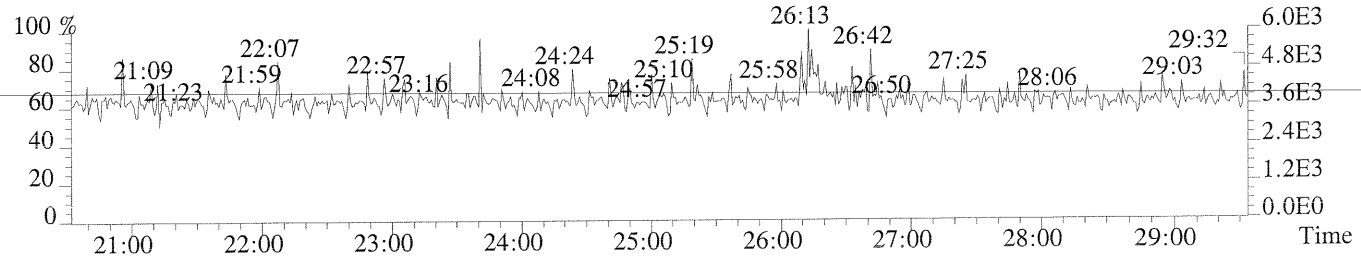
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



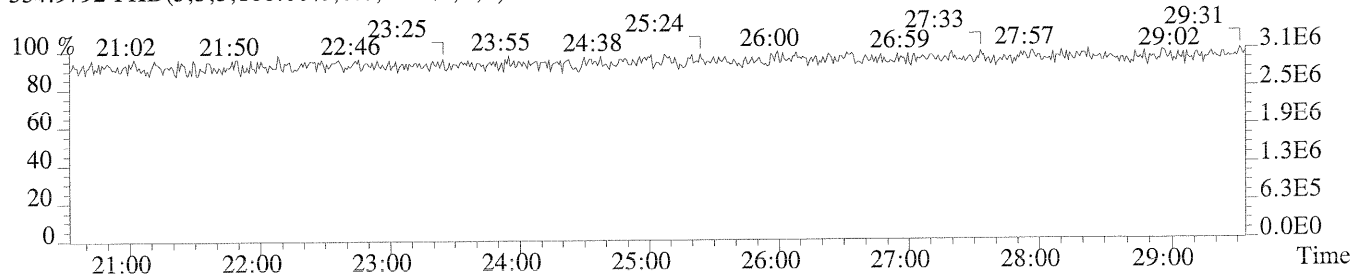
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



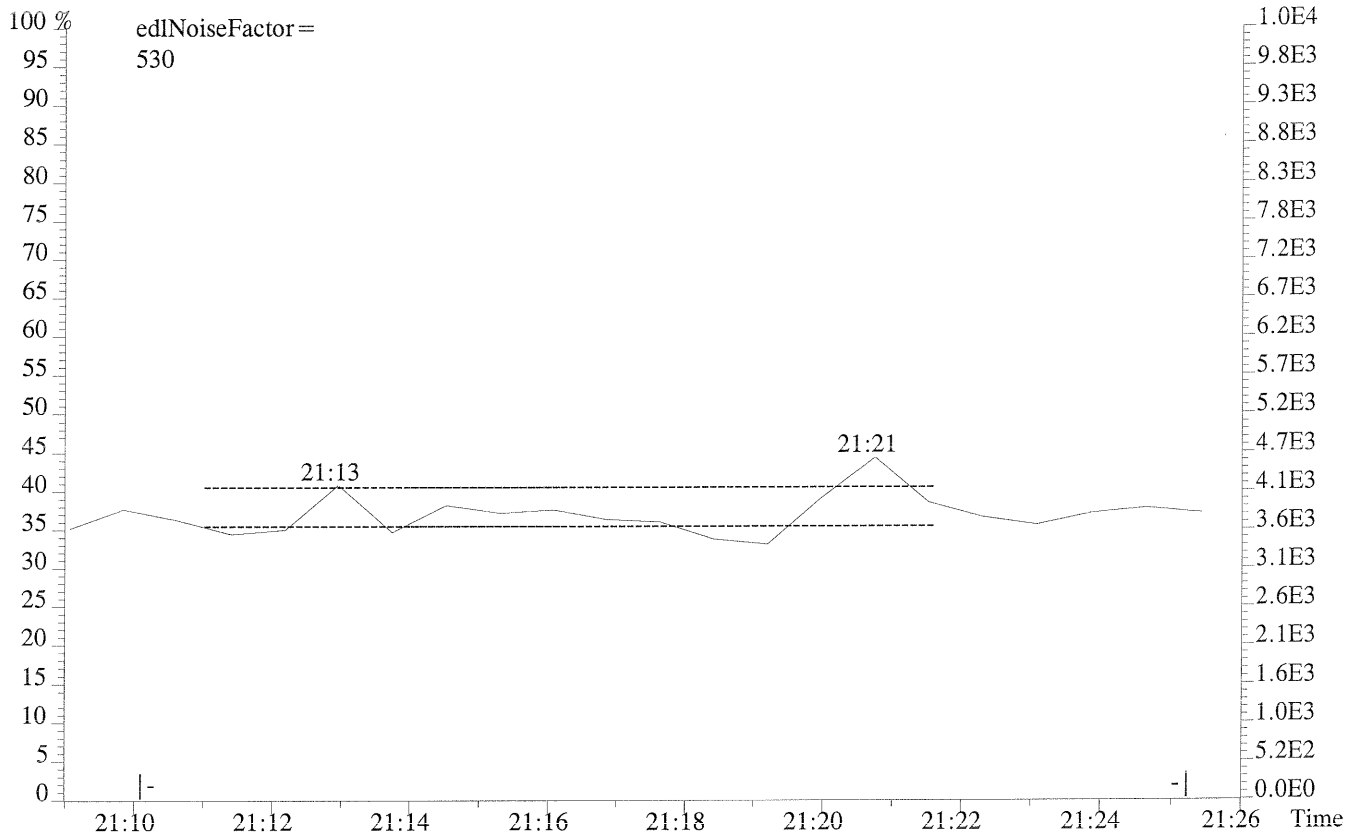
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



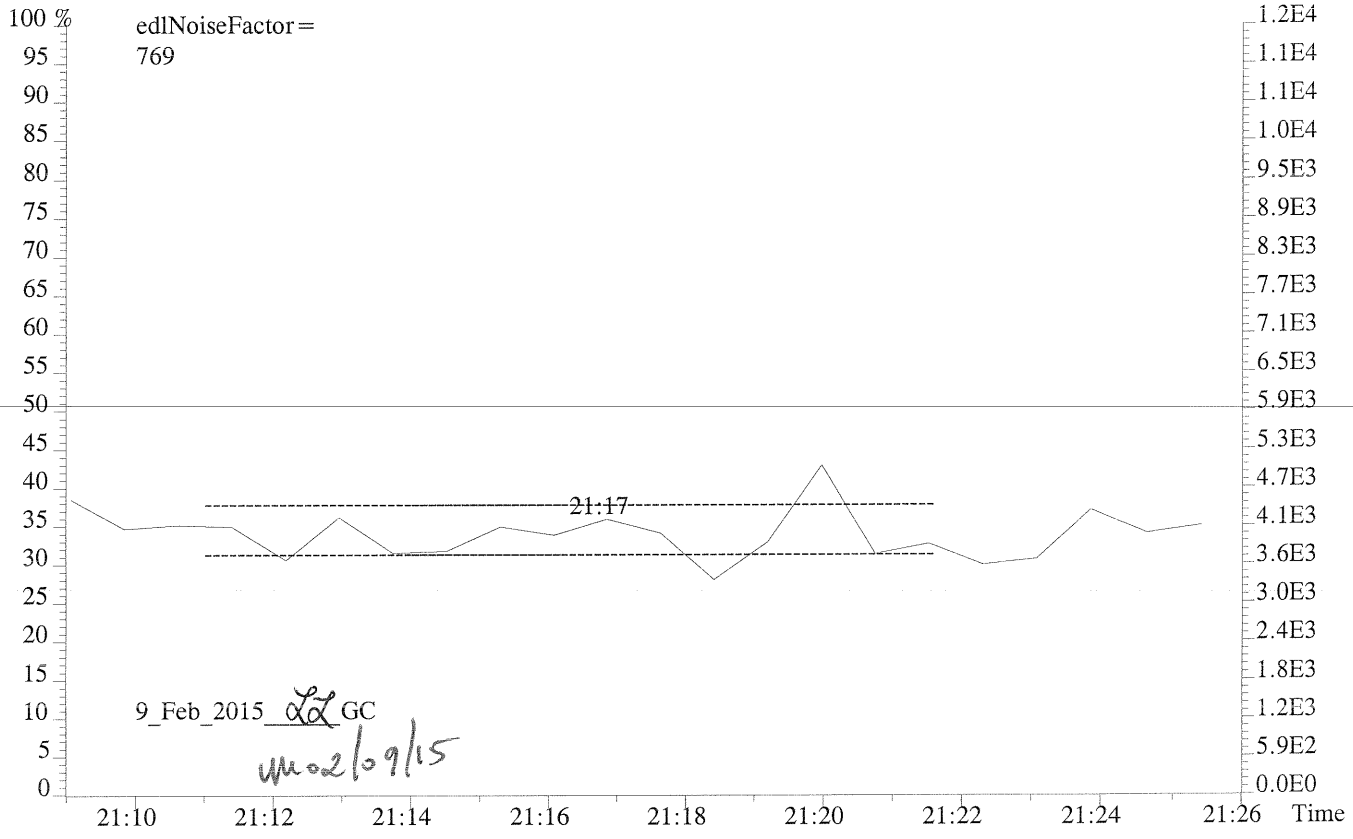
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176199 #1-696 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
303.9016

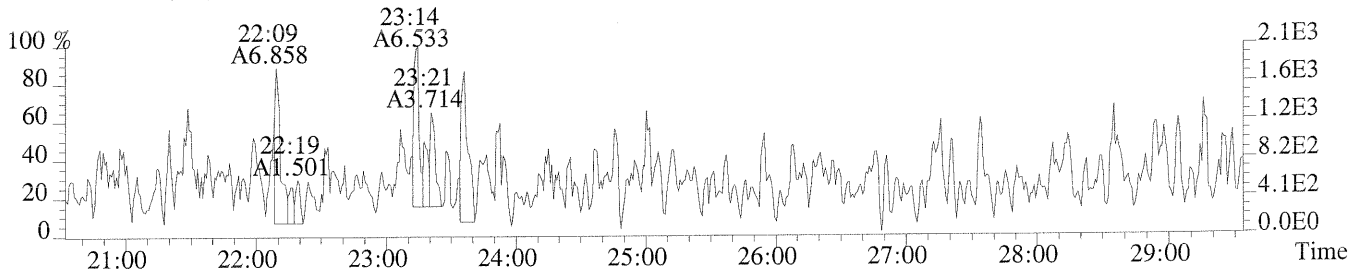


305.8987

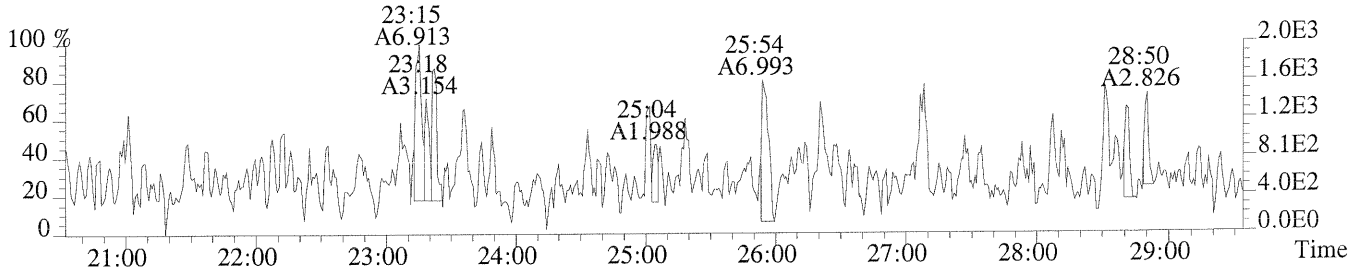


File:P176199 #1-696 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004

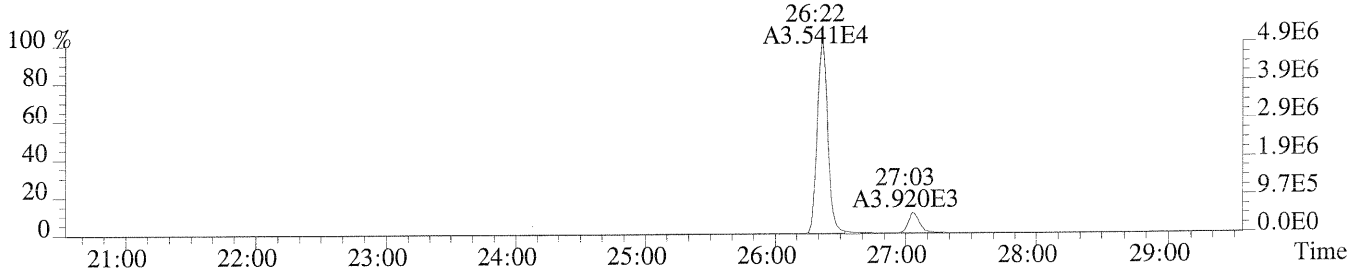
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



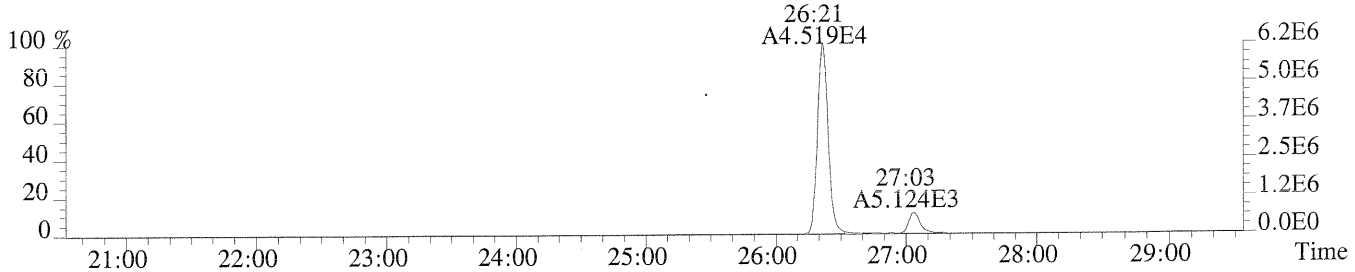
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



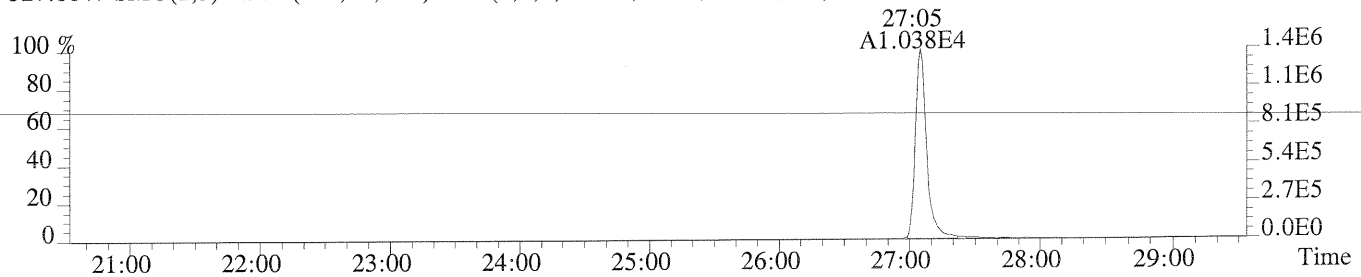
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



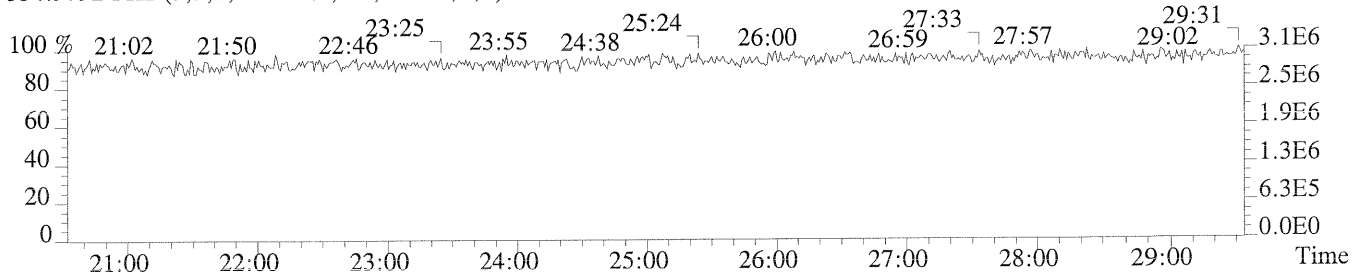
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



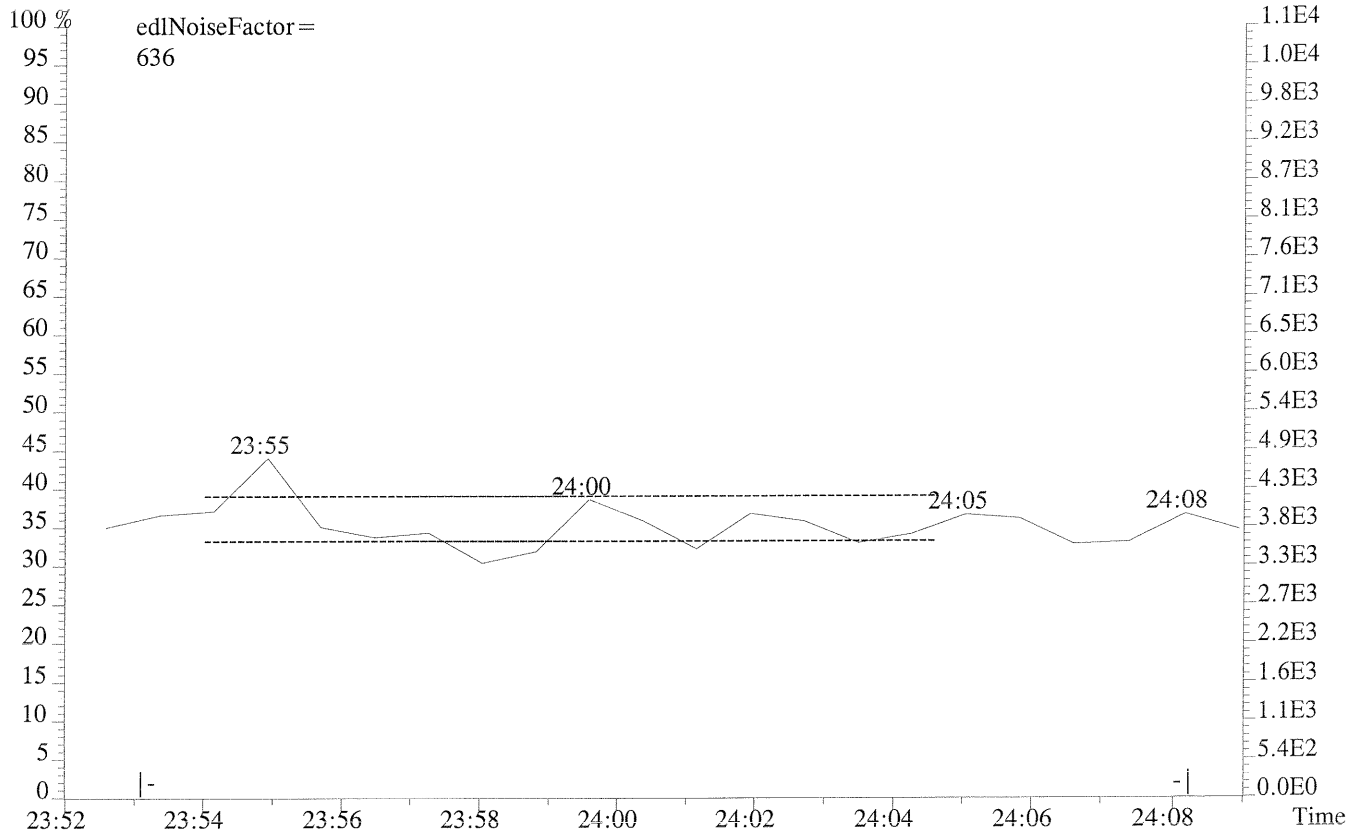
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



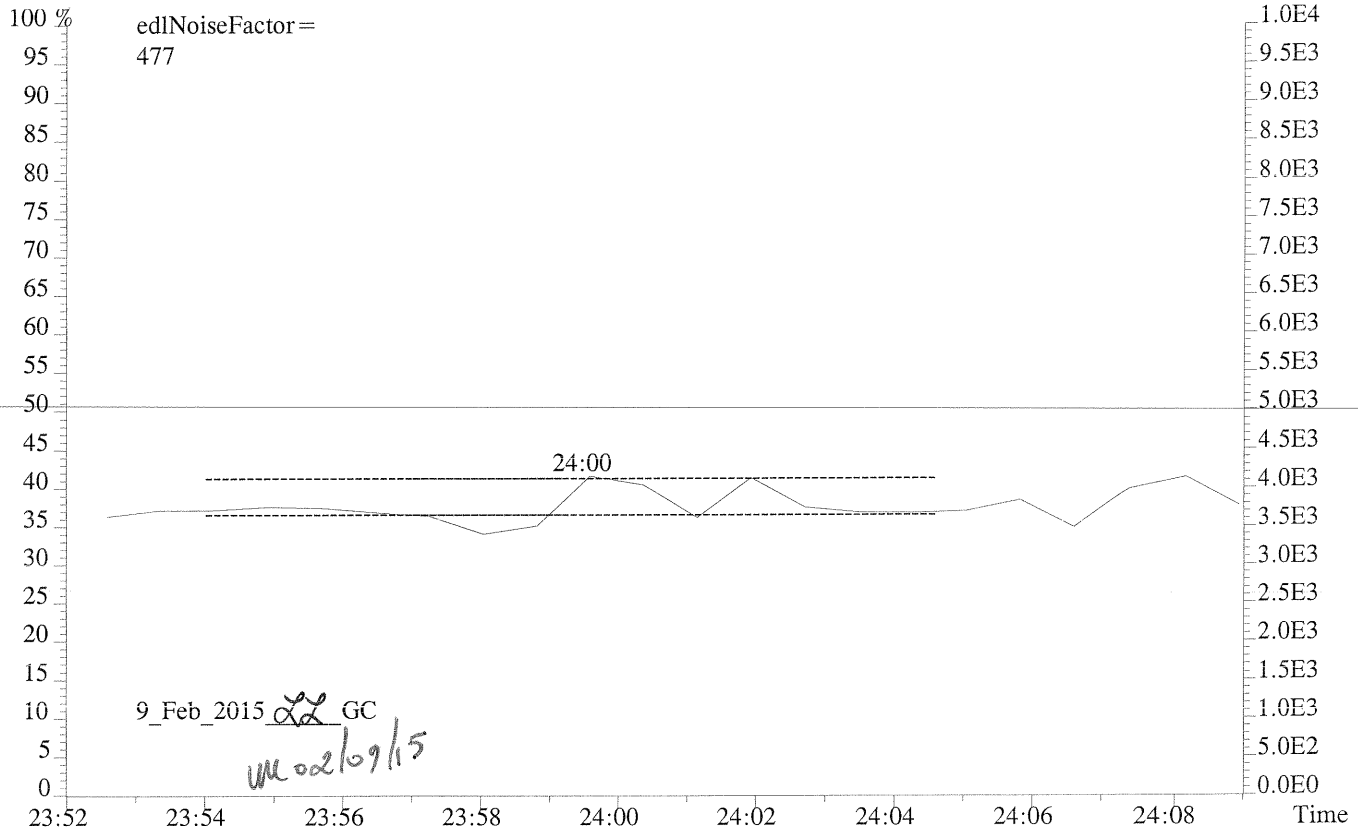
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



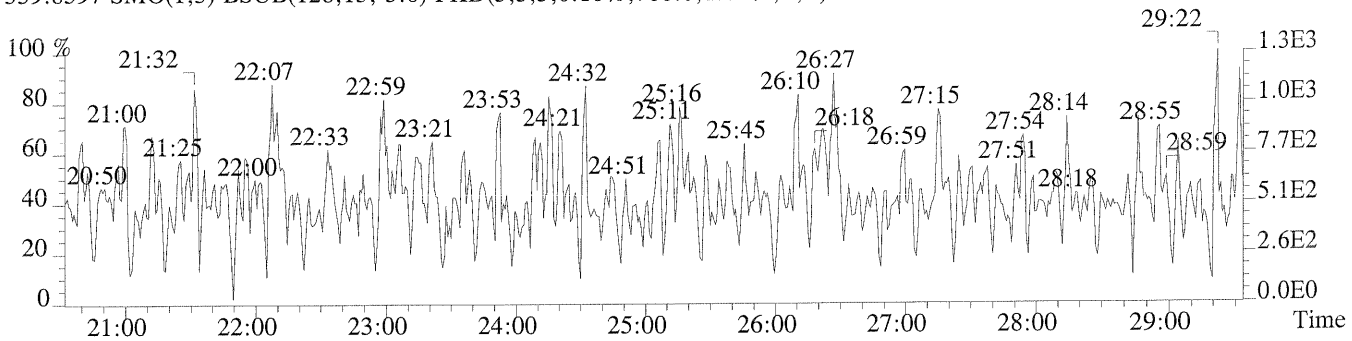
File:P176199 #1-696 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
319.8965



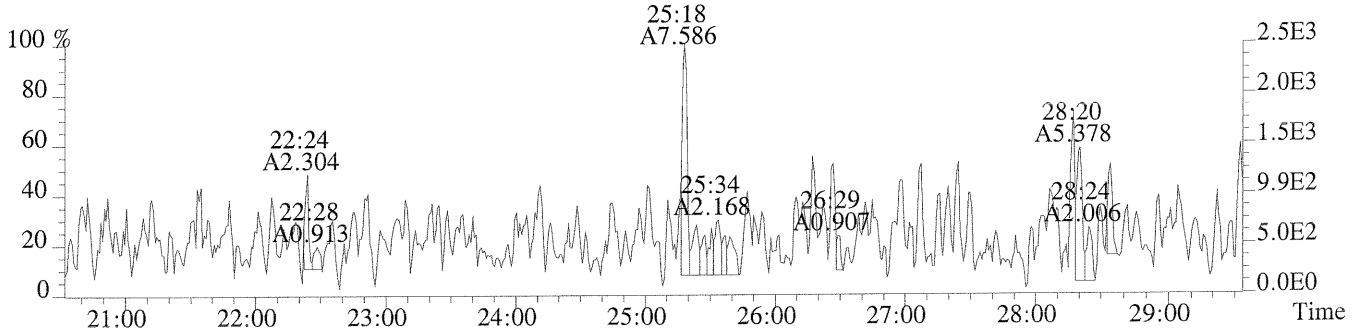
321.8936



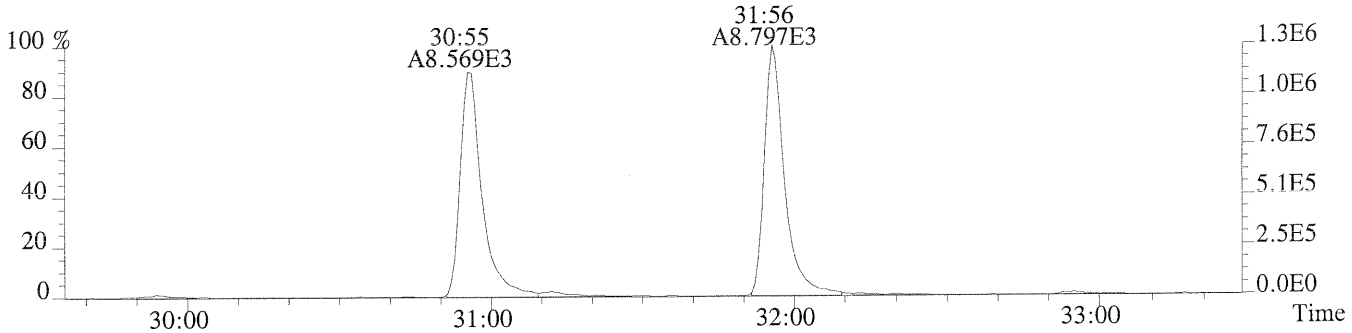
File:P176199 #1-696 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



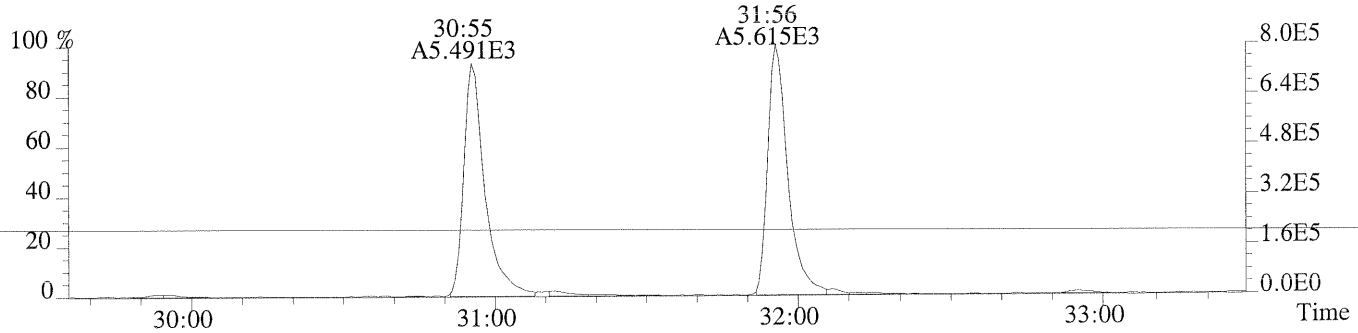
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



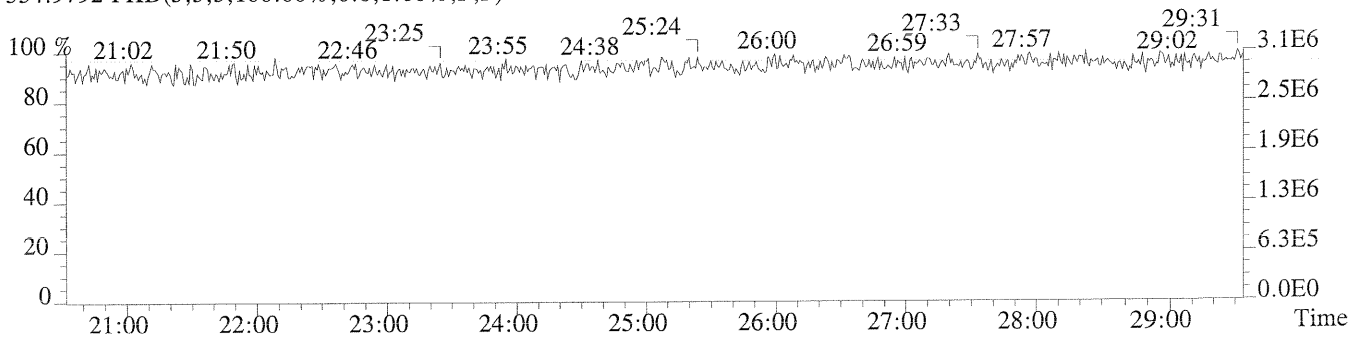
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)

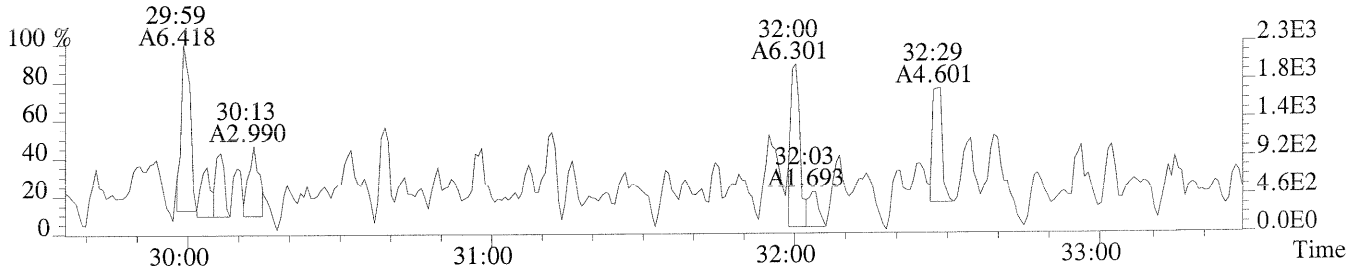


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

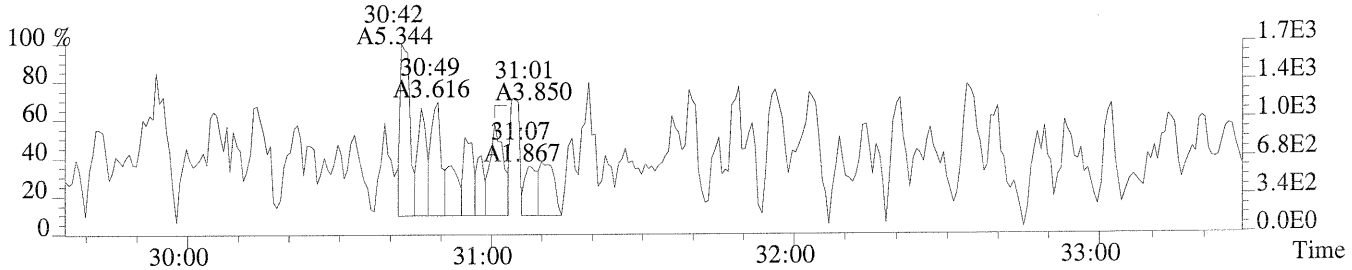


File:P176199 #1-351 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004

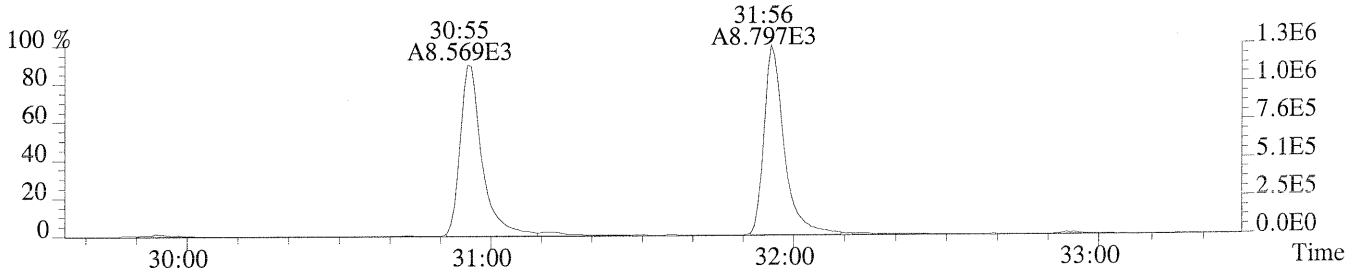
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



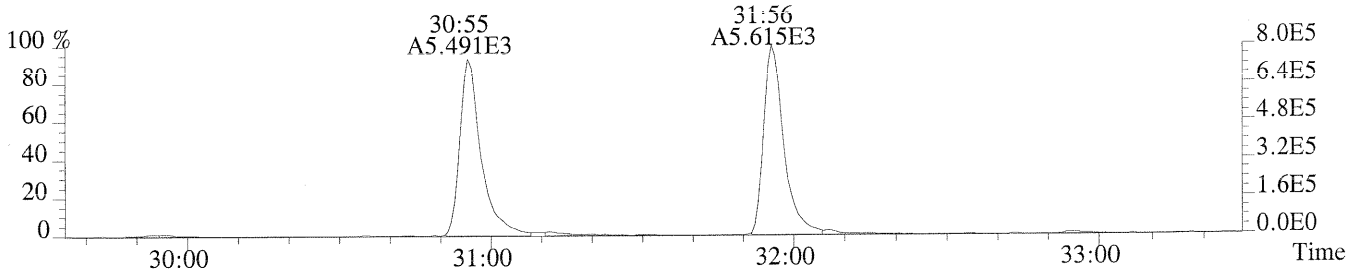
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



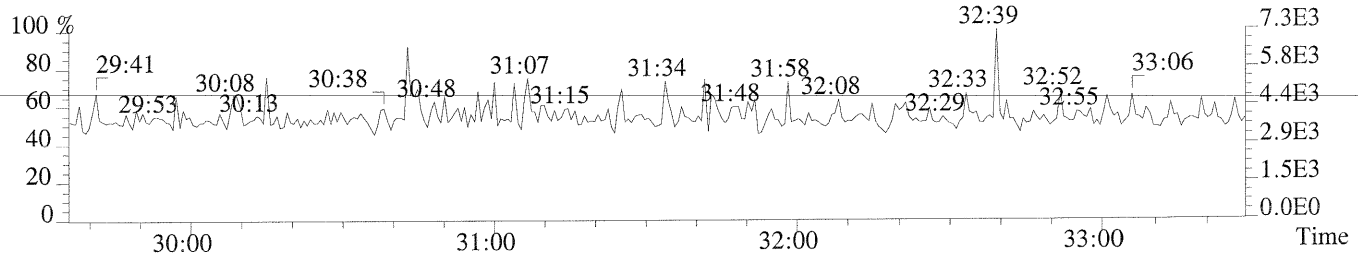
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



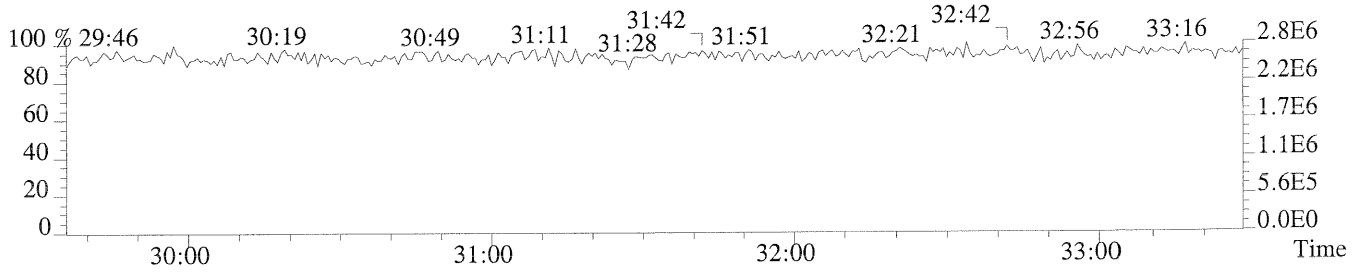
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



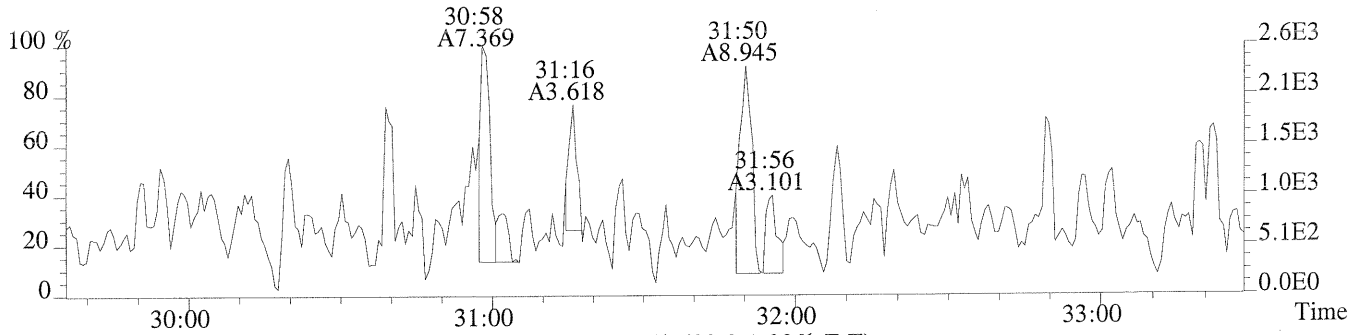
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



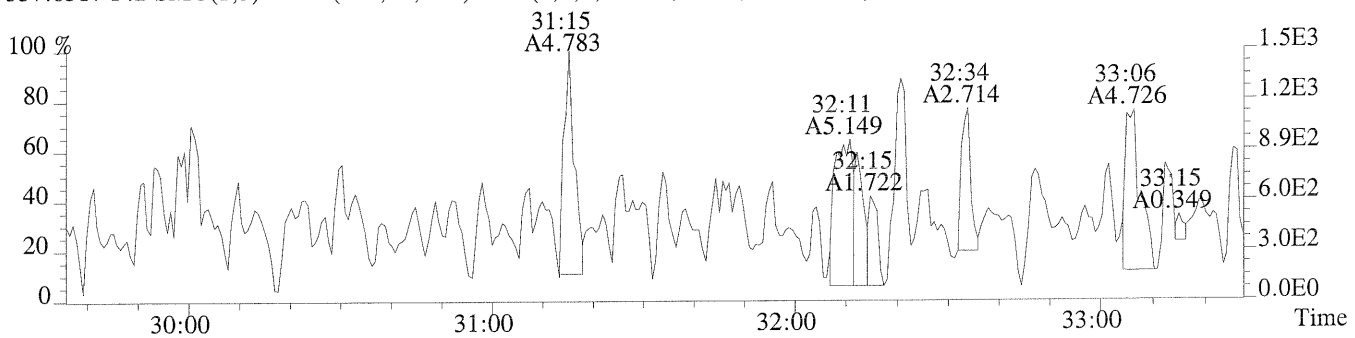
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



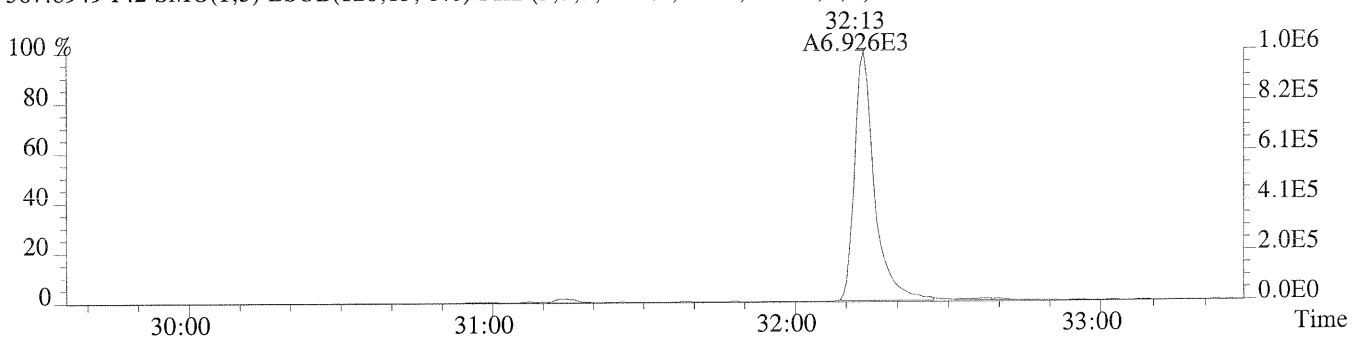
File:P176199 #1-351 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



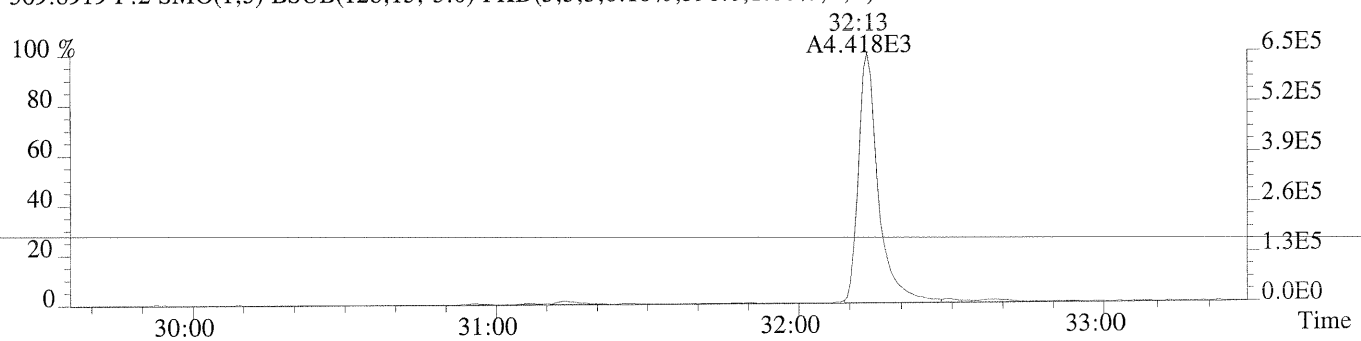
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



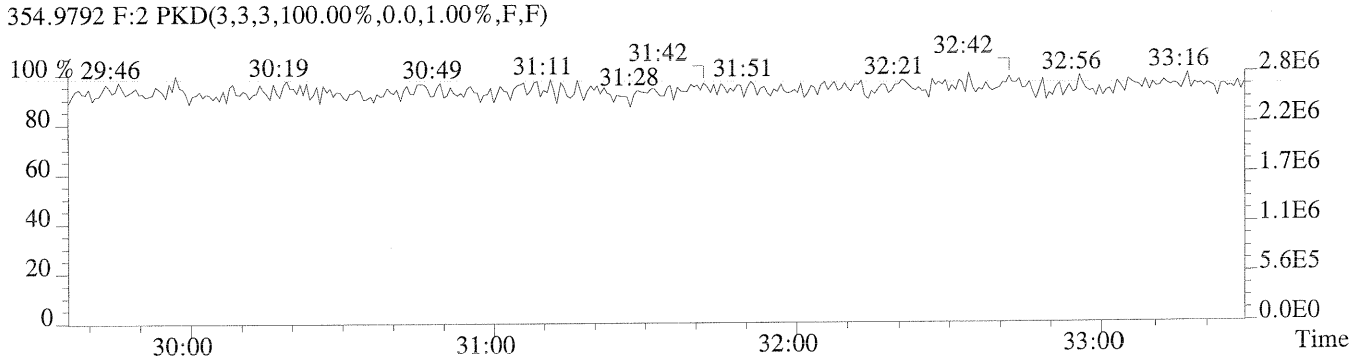
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



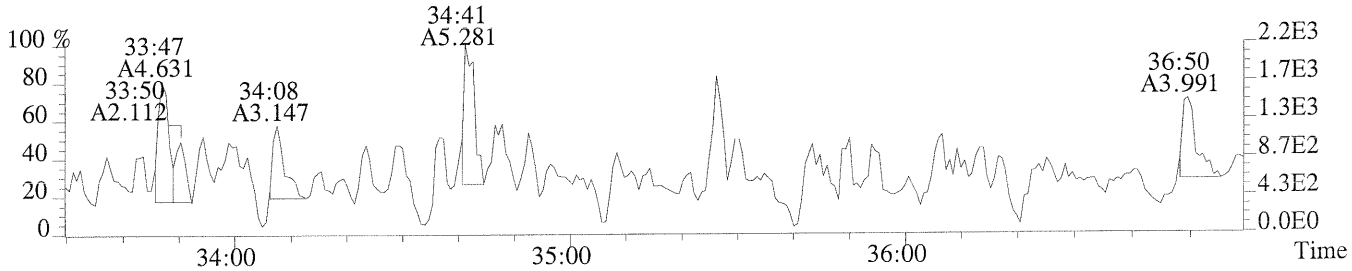
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



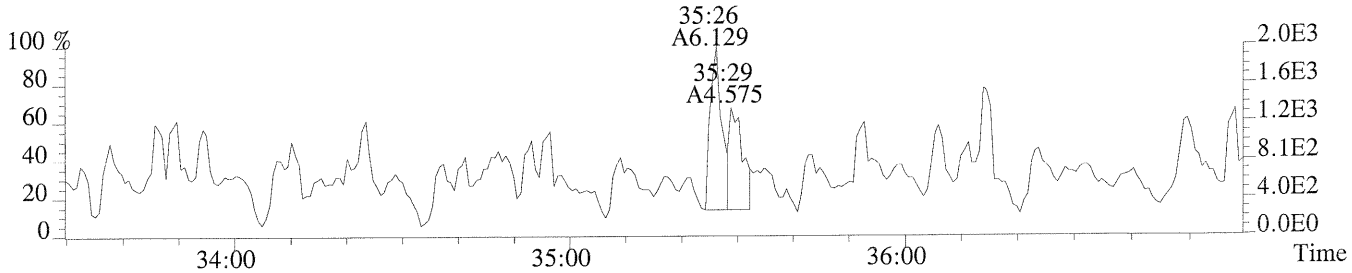
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



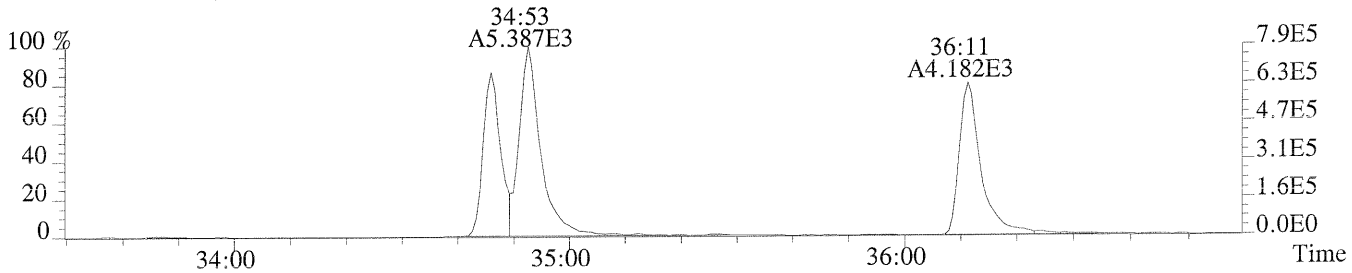
File:P176199 #1-318 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



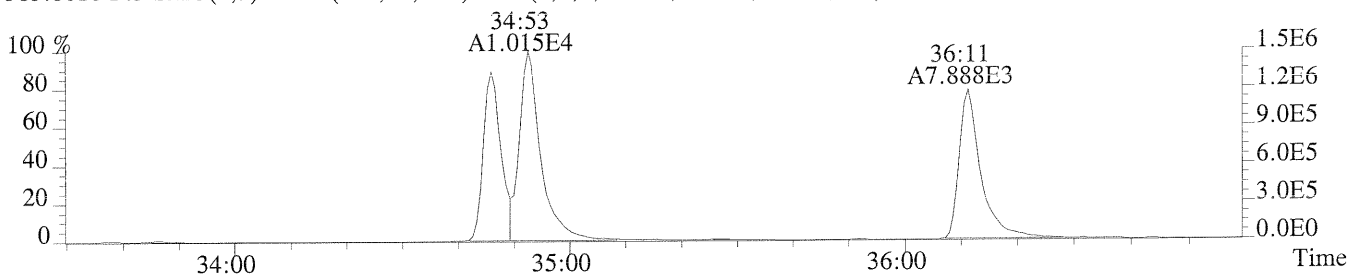
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



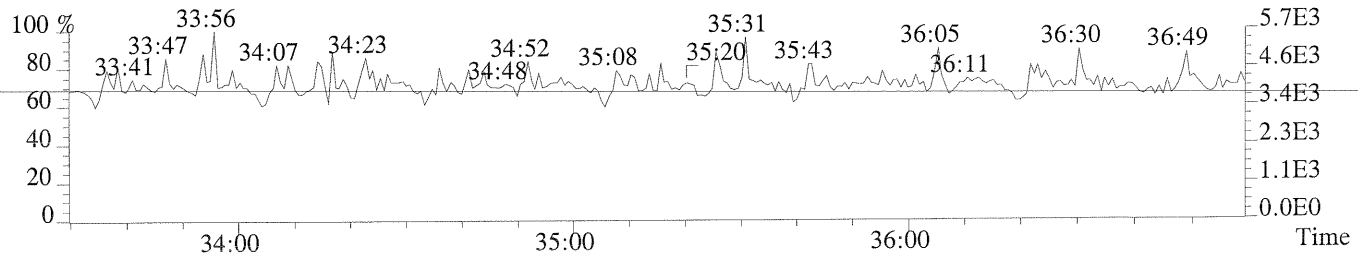
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.40%,F,T)



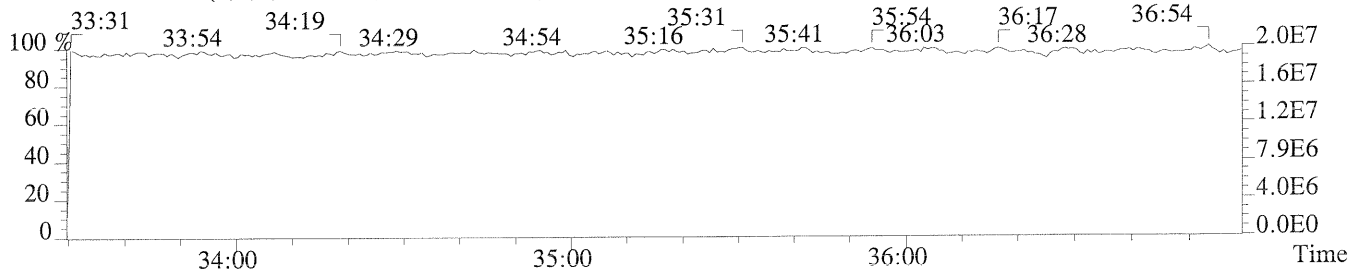
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



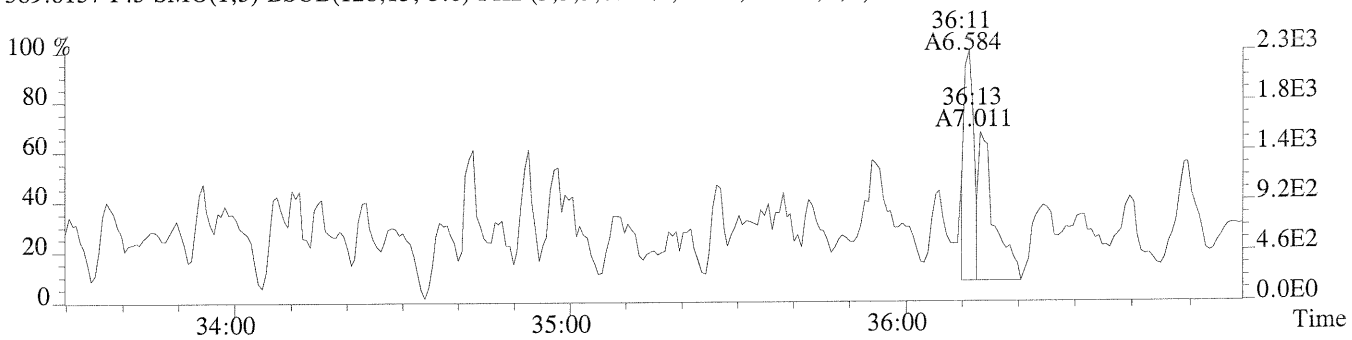
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



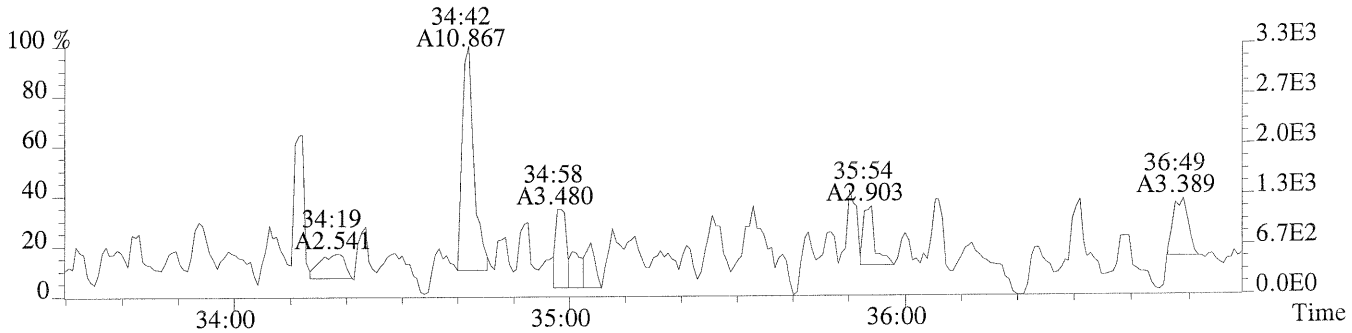
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



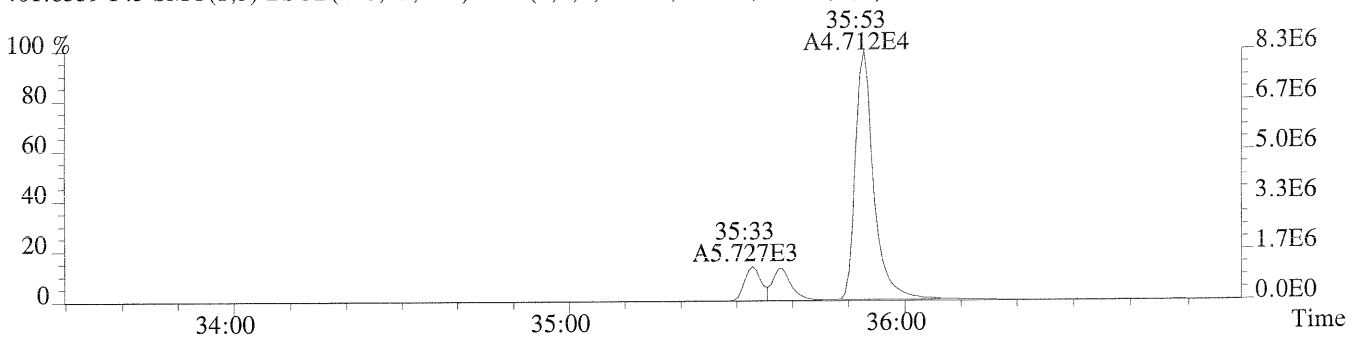
File:P176199 #1-318 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



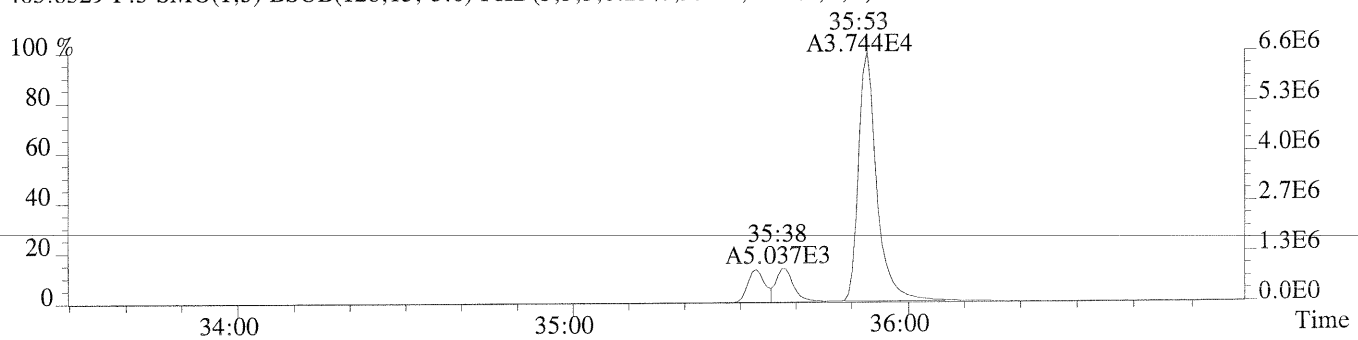
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



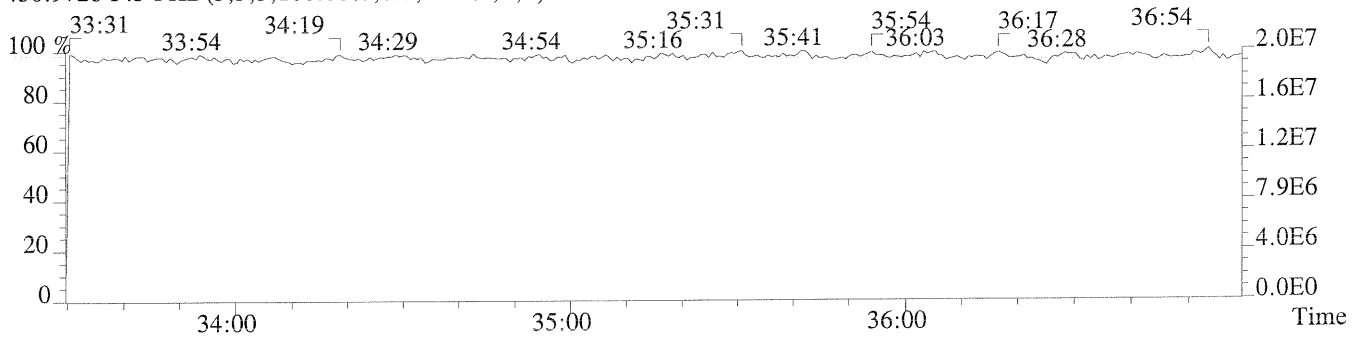
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)

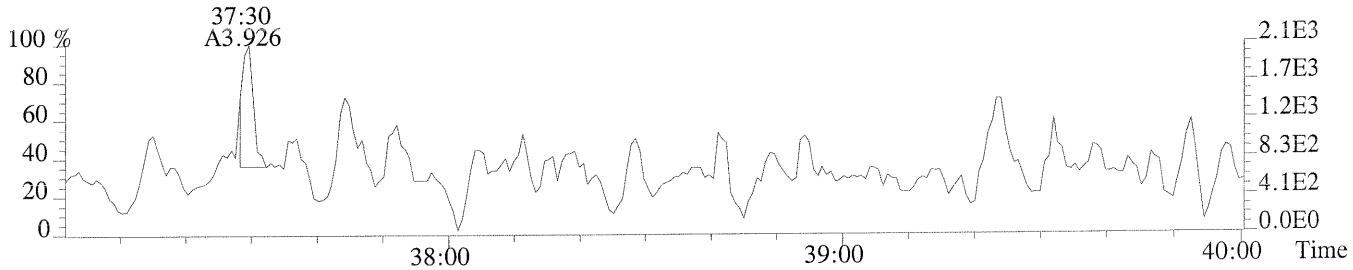


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

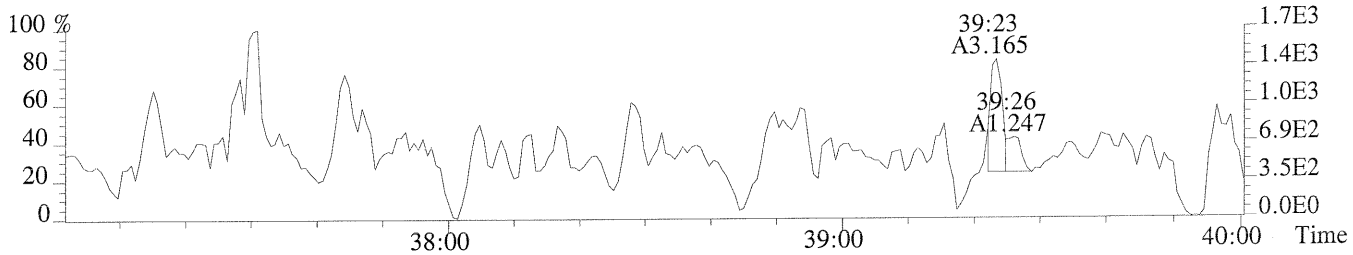


File:P176199 #1-271 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004

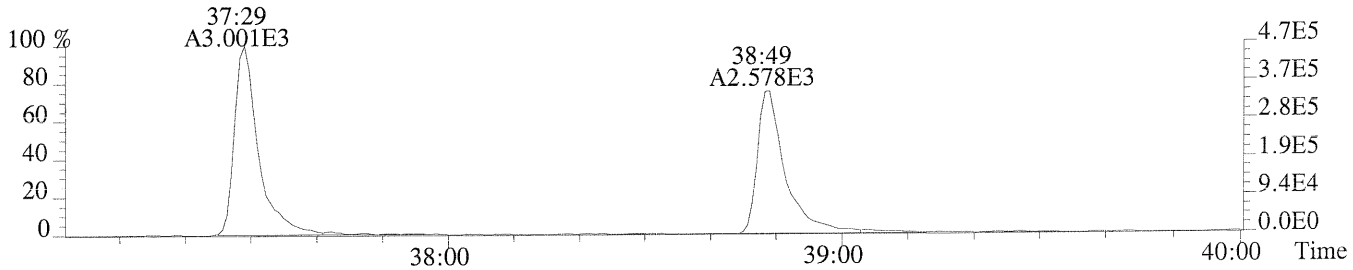
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.50%,F,T)



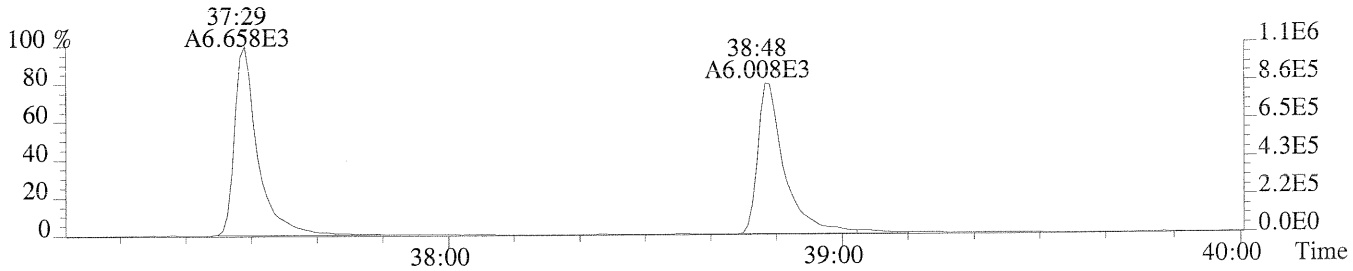
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.50%,F,T)



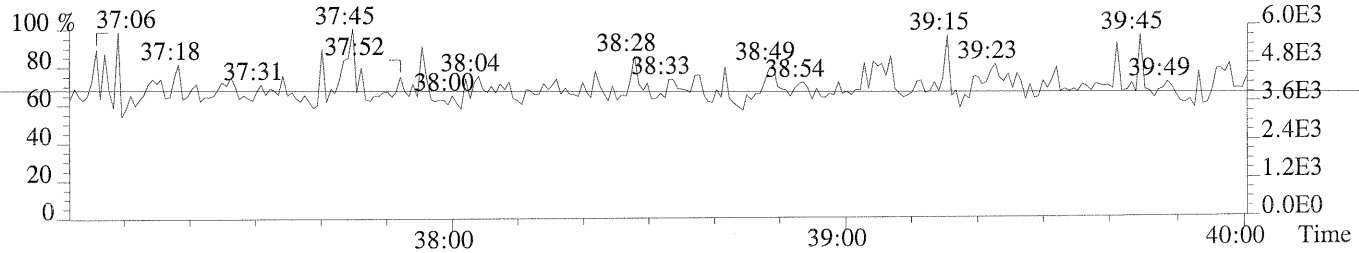
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.50%,F,T)



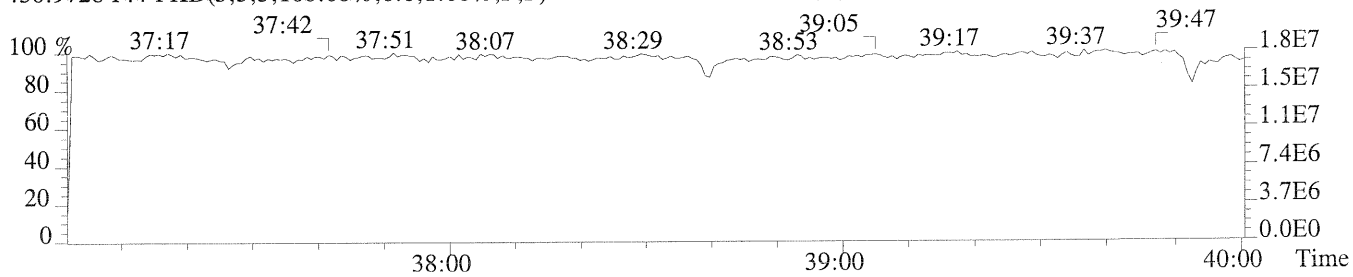
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.50%,F,T)



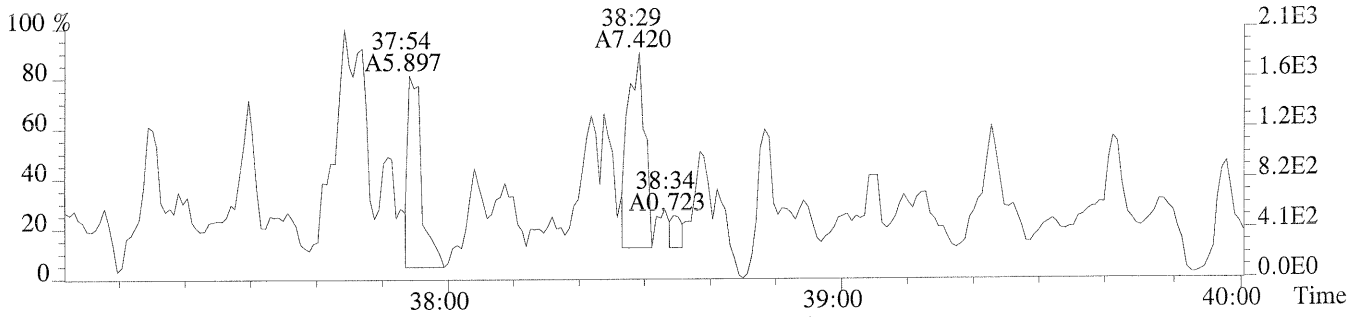
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



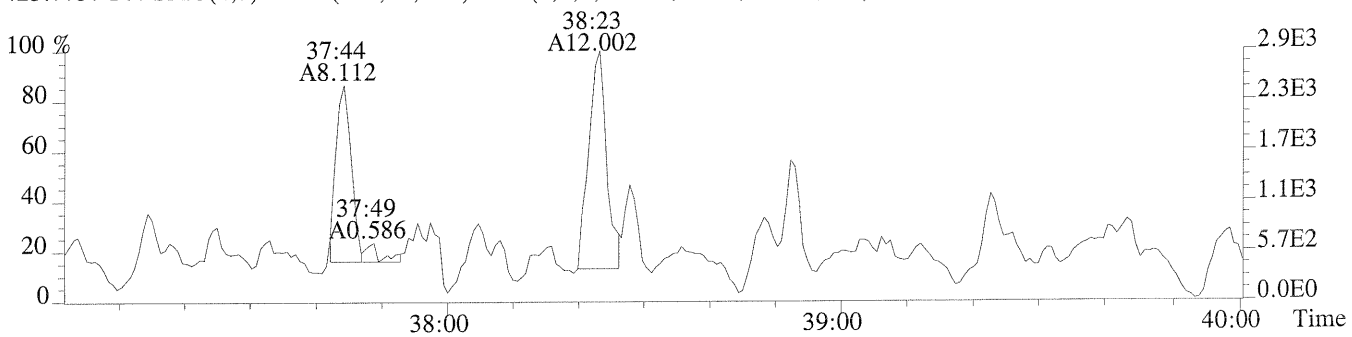
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



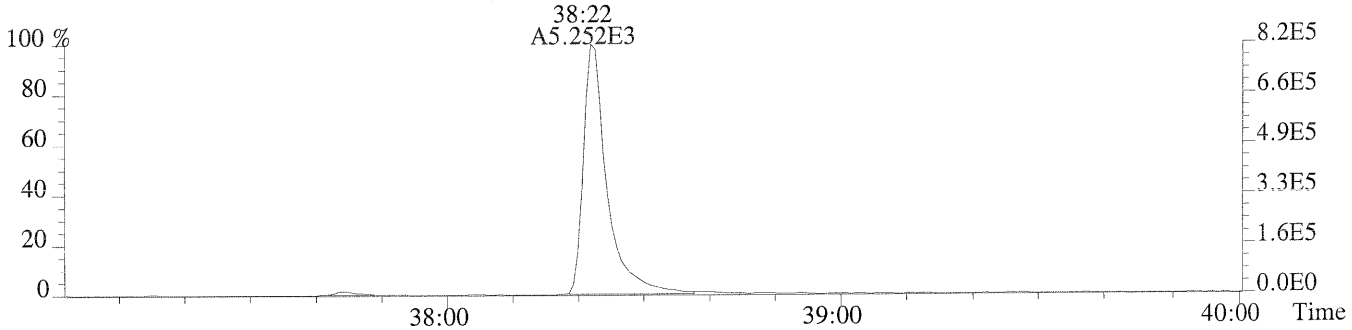
File:P176199 #1-271 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



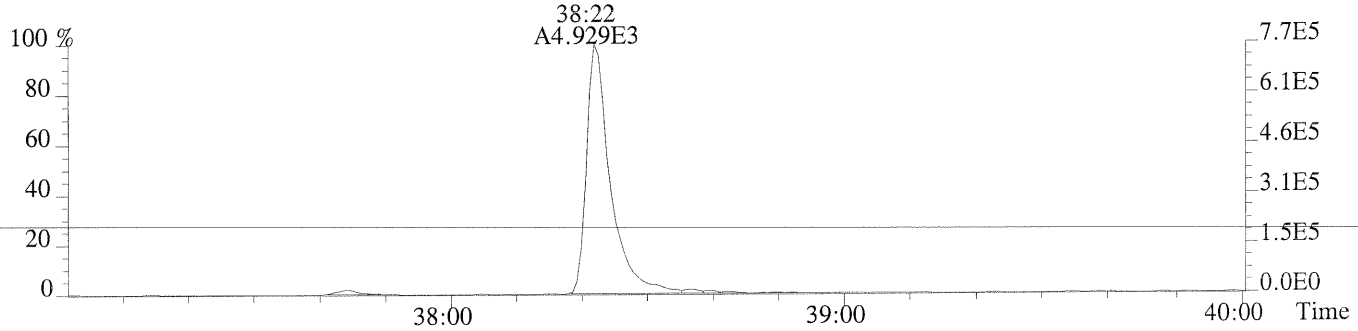
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



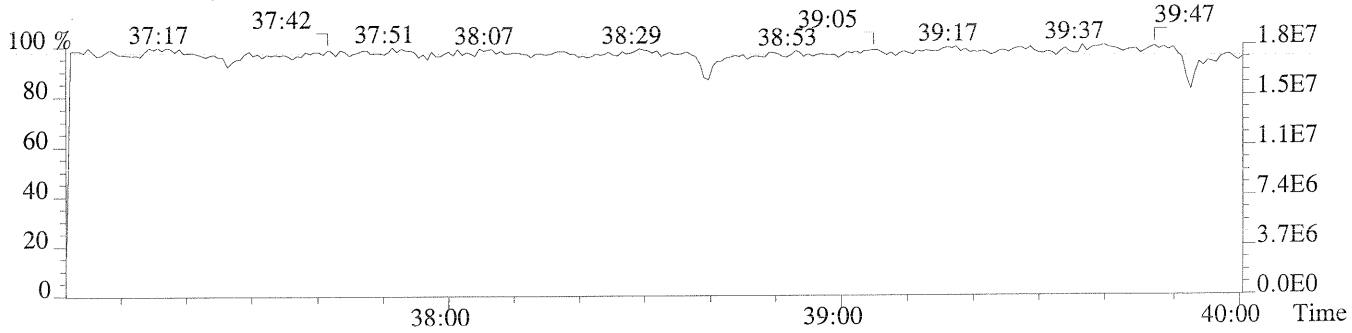
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



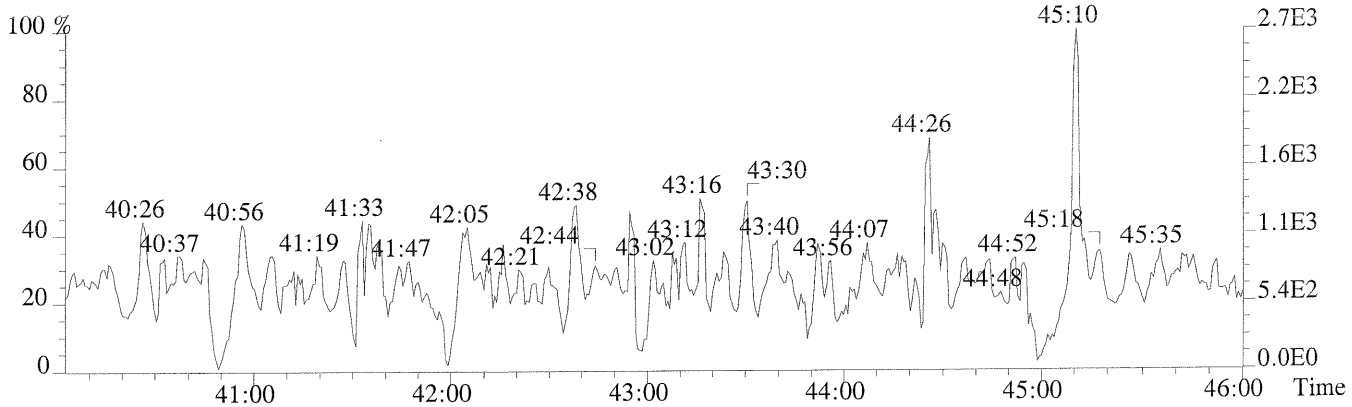
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



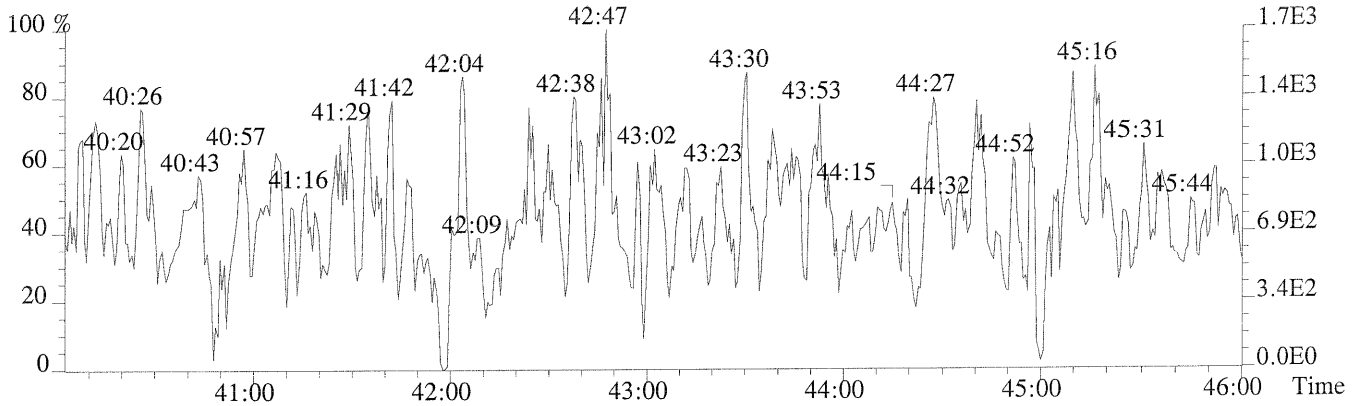
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



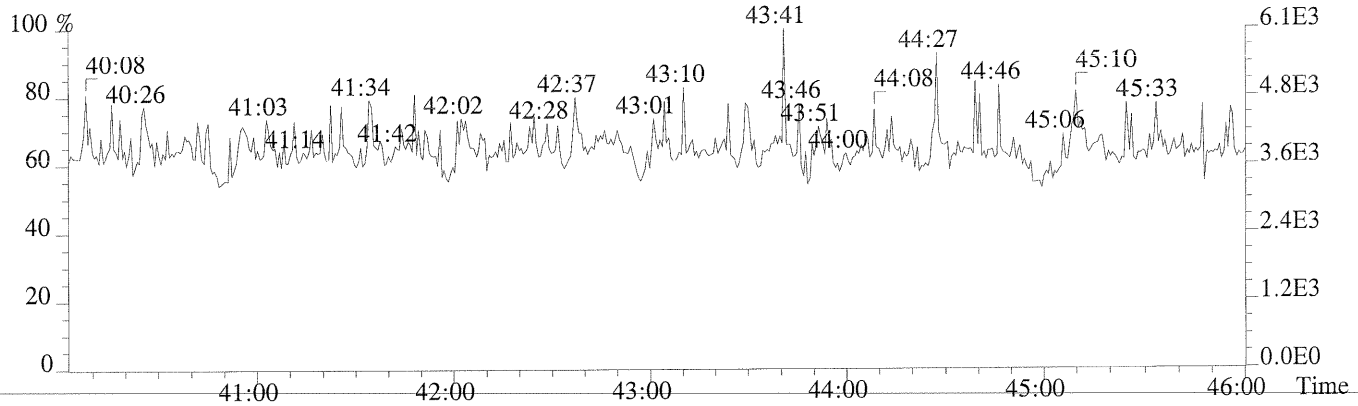
File:P176199 #1-548 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



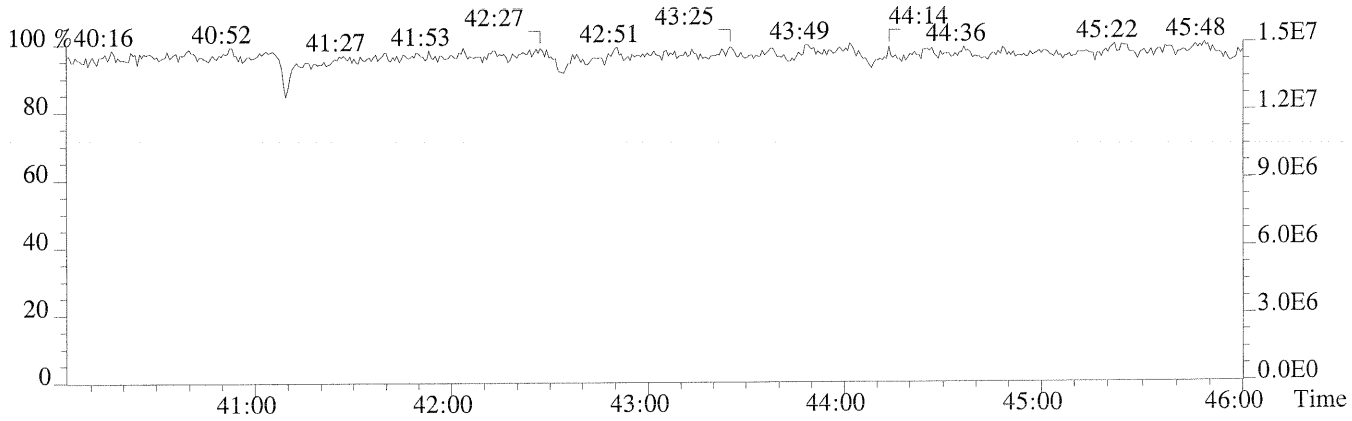
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



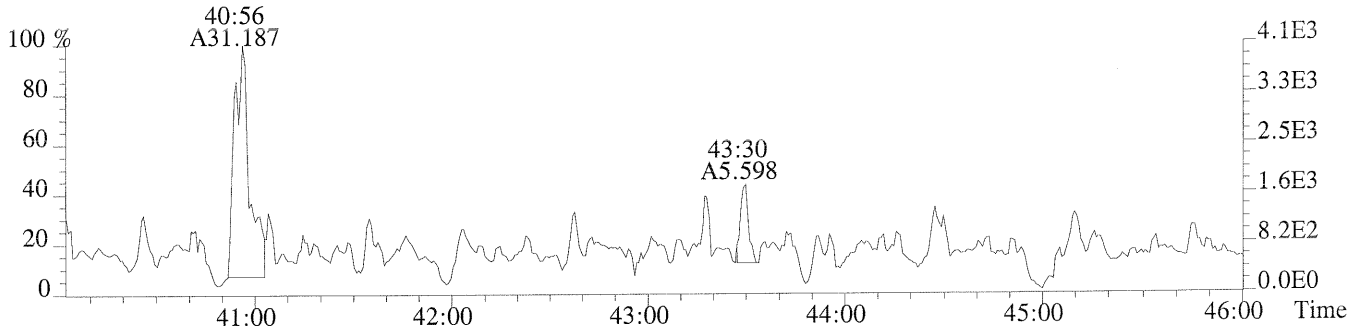
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



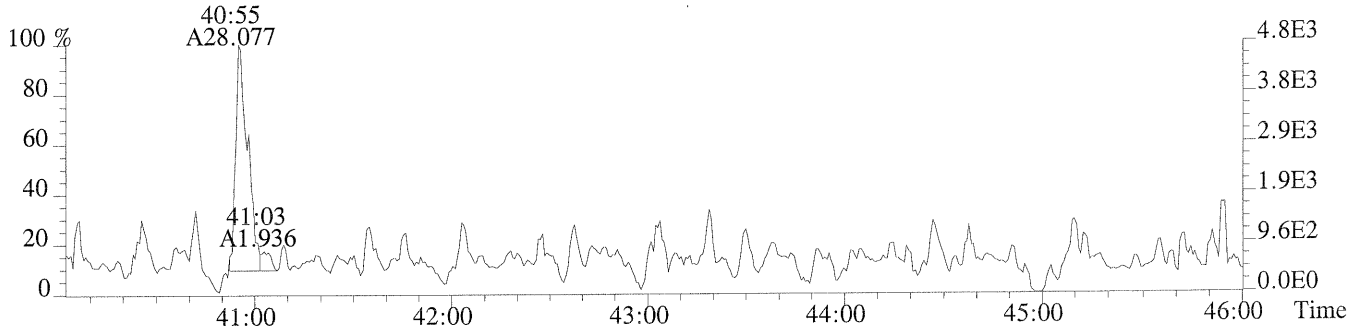
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



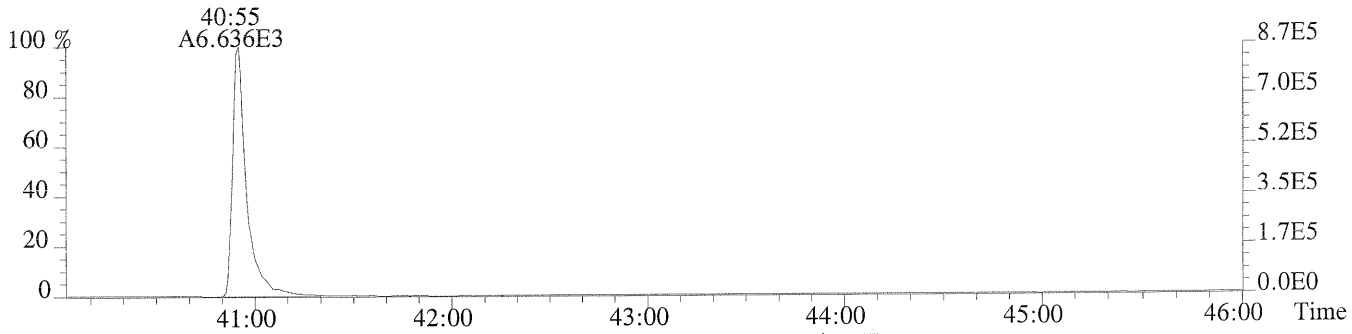
File:P176199 #1-548 Acq: 7-FEB-2015 15:25:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



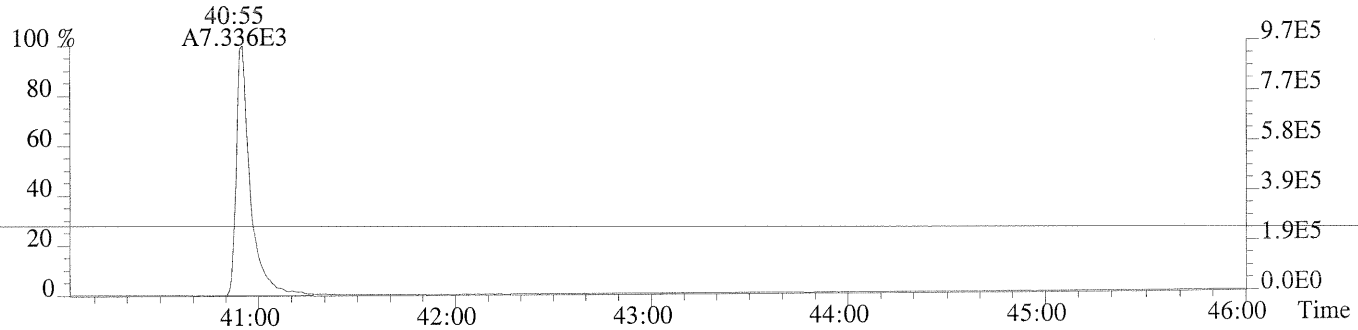
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,832.0,0.40%,F,T)



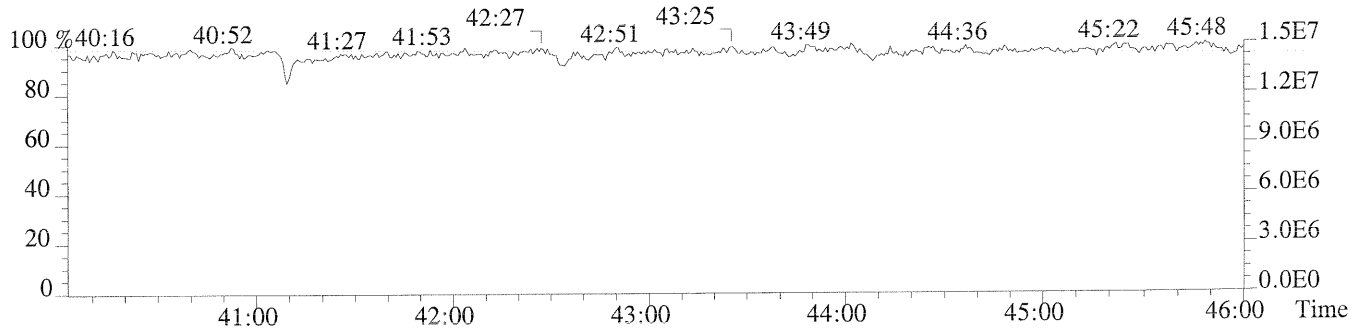
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2376.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2368.0,0.40%,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.
128U1-DF

Run #14 Filename P176200 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 16:14:03
Processed: 9-FEB-15 12:03:53 LAB. ID: P1500356-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.946
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.061
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.148
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.369
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.998
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	38:22	2.473e+01	3.029e+01	0.82	no	yes	1.052
17	Unk	OCDD	40:55	7.587e+01	6.034e+01	1.26	no	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:08	7.686e+03	9.645e+03	0.80	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	1.228e+04	7.556e+03	1.63	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	1.234e+04	7.750e+03	1.59	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:46	5.189e+03	9.854e+03	0.53	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	7.215e+03	1.358e+04	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	5.330e+03	1.018e+04	0.52	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	3.957e+03	8.432e+03	0.47	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:48	3.300e+03	7.393e+03	0.45	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	5.842e+03	7.231e+03	0.81	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	9.383e+03	5.993e+03	1.57	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:33	7.566e+03	6.031e+03	1.25	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:38	7.976e+03	6.194e+03	1.29	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:22	6.673e+03	6.439e+03	1.04	yes	no	0.874
32	IS	13C-OCDD	40:55	8.646e+03	9.605e+03	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:21	3.963e+04	5.011e+04	0.79	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	5.155e+04	4.145e+04	1.24	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:05	1.500e+04				no	1.038

$$\text{OCDD} = \frac{(7.587e+01 + 6.034e+01) \times \cancel{8000}\ 4000\ \text{pg} \times 1}{(8.646e+03 + 9.605e+03) \times 1.068 \times 0.5} = 55.9\ \text{pg}$$

~~pg~~

LMC 2/09/15

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Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
128U1-DF

Run #14 Filename P176200 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 16:14:03
Processed: 9-FEB-15 12:03:53 LAB. ID: P1500356-005

	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	*	*	1.17e+03	*
2	1,2,3,7,8-PeCDF	*	8.32e+02	*	*	9.32e+02	*
3	2,3,4,7,8-PeCDF	*	8.32e+02	*	*	9.32e+02	*
4	1,2,3,4,7,8-HxCDF	*	1.06e+03	*	*	8.52e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.06e+03	*	*	8.52e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.06e+03	*	*	8.52e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.06e+03	*	*	8.52e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	7.12e+02	*	*	1.06e+03	*
9	1,2,3,4,7,8,9-HpCDF	*	7.12e+02	*	*	1.06e+03	*
10	OCDF	*	6.96e+02	*	*	1.16e+03	*
11	2,3,7,8-TCDD	*	4.05e+02	*	*	7.26e+02	*
12	1,2,3,7,8-PeCDD	*	1.02e+03	*	*	6.76e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.68e+02	*	*	8.56e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.68e+02	*	*	8.56e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.68e+02	*	*	8.56e+02	*
16	1,2,3,4,6,7,8-HpCDD	3.29e+03	8.56e+02	3.8e+00	4.68e+03	8.56e+02	5.5e+00
17	OCDD	1.21e+04	8.80e+02	1.4e+01	1.01e+04	6.92e+02	1.5e+01
18	13C-2,3,7,8-TCDF	9.35e+05	8.20e+02	1.1e+03	1.17e+06	7.60e+02	1.5e+03
19	13C-1,2,3,7,8-PeCDF	1.69e+06	8.68e+02	2.0e+03	1.04e+06	7.92e+02	1.3e+03
20	13C-2,3,4,7,8-PeCDF	1.84e+06	8.68e+02	2.1e+03	1.15e+06	7.92e+02	1.5e+03
21	13C-1,2,3,4,7,8-HxCDF	9.45e+05	9.56e+02	9.9e+02	1.84e+06	1.00e+03	1.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.10e+06	9.56e+02	1.2e+03	2.10e+06	1.00e+03	2.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.99e+05	9.56e+02	8.4e+02	1.53e+06	1.00e+03	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.19e+05	9.08e+02	6.8e+02	1.36e+06	1.66e+03	8.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.92e+05	9.08e+02	5.4e+02	1.08e+06	1.66e+03	6.5e+02
27	13C-2,3,7,8-TCDD	7.96e+05	2.29e+03	3.5e+02	1.02e+06	1.03e+03	1.0e+03
28	13C-1,2,3,7,8-PeCDD	1.42e+06	7.12e+02	2.0e+03	9.12e+05	6.20e+02	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.47e+06	8.44e+02	1.7e+03	1.15e+06	8.68e+02	1.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.36e+06	8.44e+02	1.6e+03	1.08e+06	8.68e+02	1.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.07e+06	1.02e+03	1.0e+03	1.01e+06	8.60e+02	1.2e+03
32	13C-OCDD	1.16e+06	1.01e+03	1.2e+03	1.33e+06	6.48e+02	2.0e+03
33	13C-1,2,3,4-TCDD	5.51e+06	2.29e+03	2.4e+03	6.91e+06	1.03e+03	6.7e+03
34	13C-1,2,3,7,8,9-HxCDD	9.26e+06	8.44e+02	1.1e+04	7.40e+06	8.68e+02	8.5e+03
35	37Cl-2,3,7,8-TCDD	2.06e+06	8.68e+02	2.4e+03			

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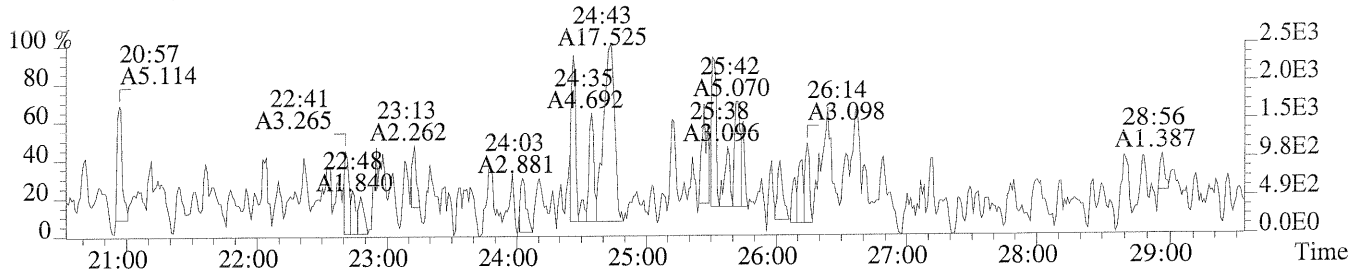
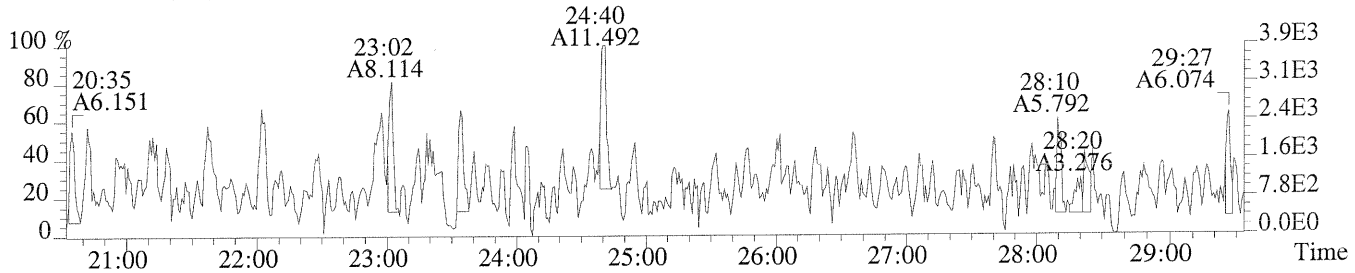
ALS Form TO-9SN/M23SN.FRM

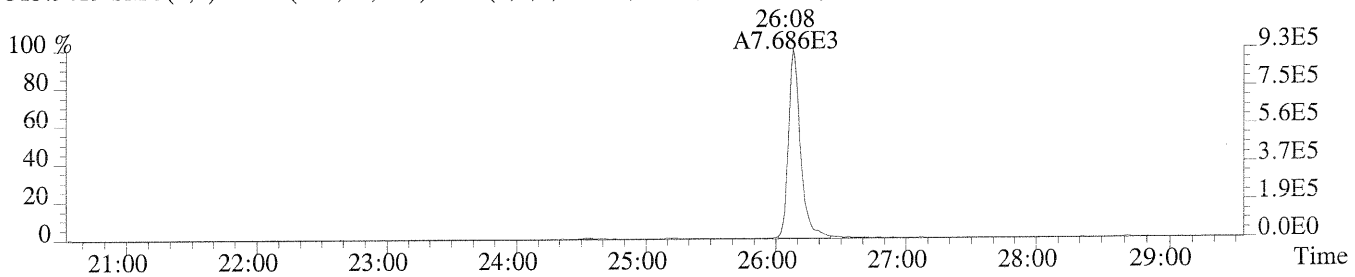
File:P176200 #1-696 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



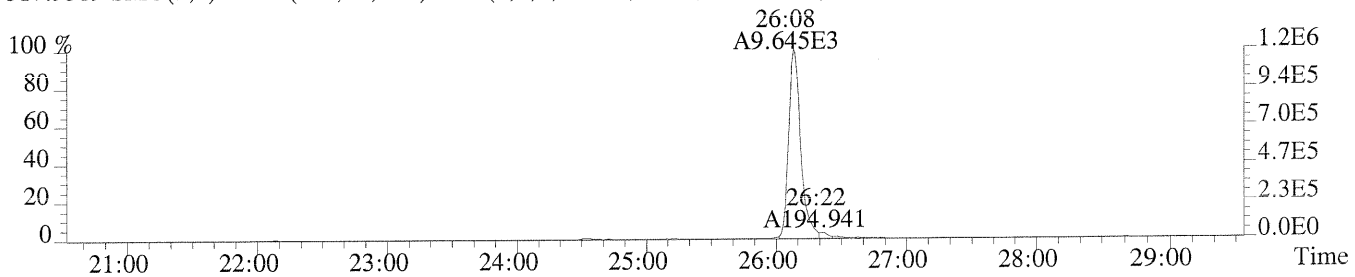
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



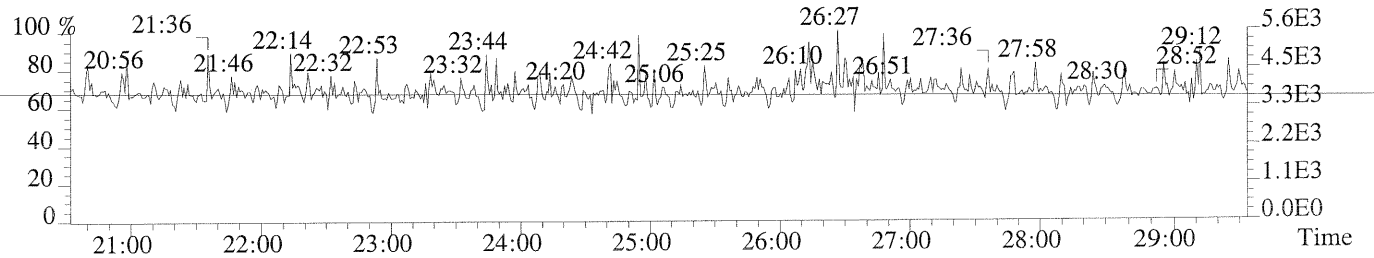
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



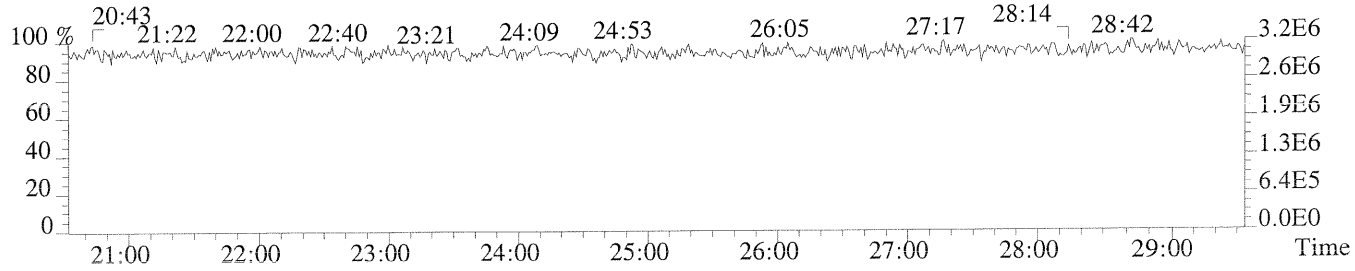
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



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

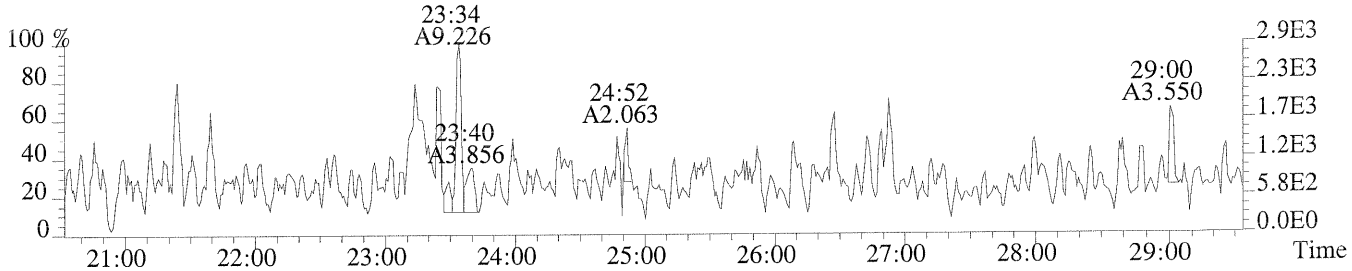


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

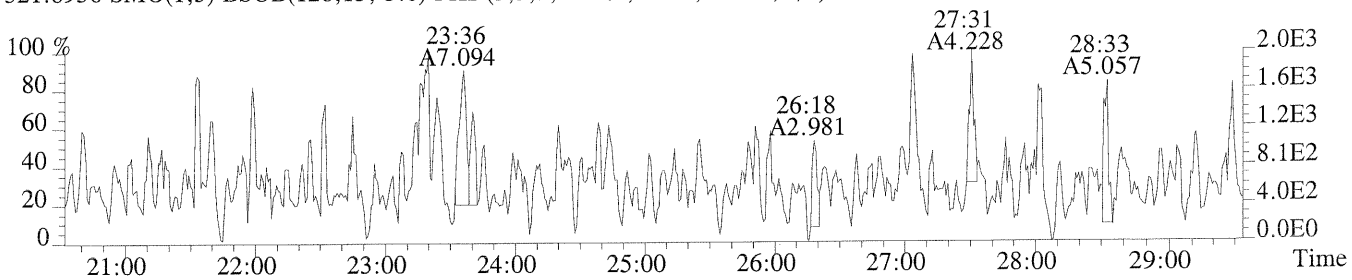


File:P176200 #1-696 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005

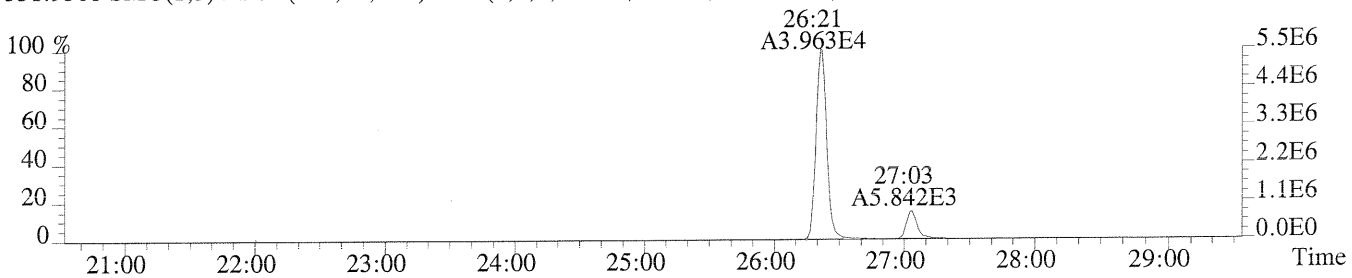
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



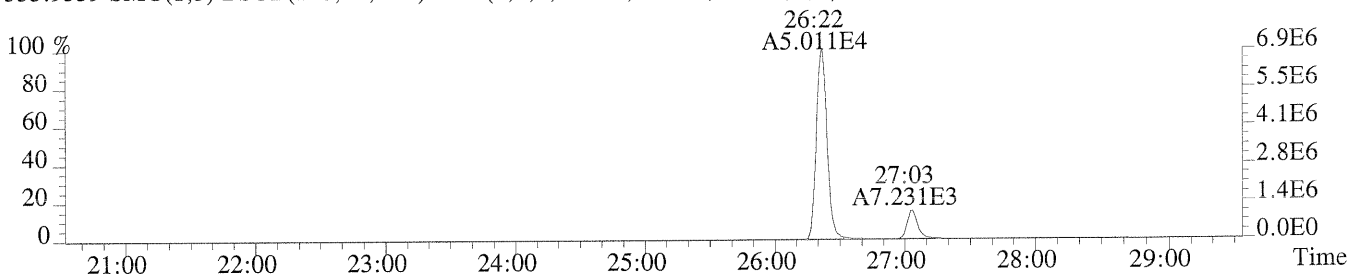
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



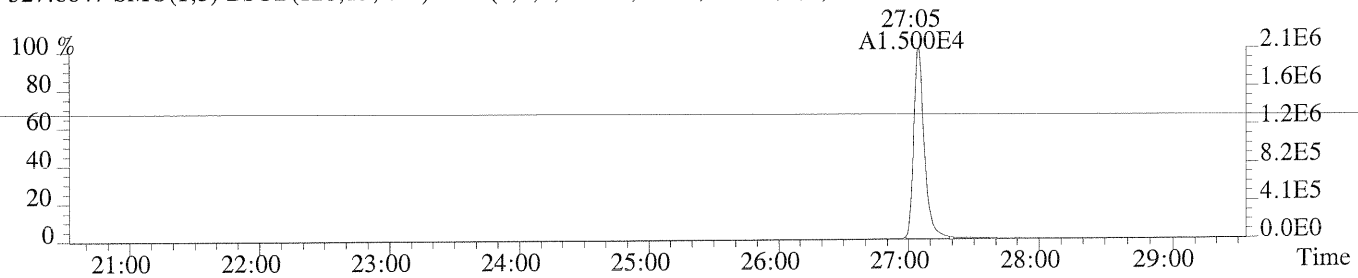
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



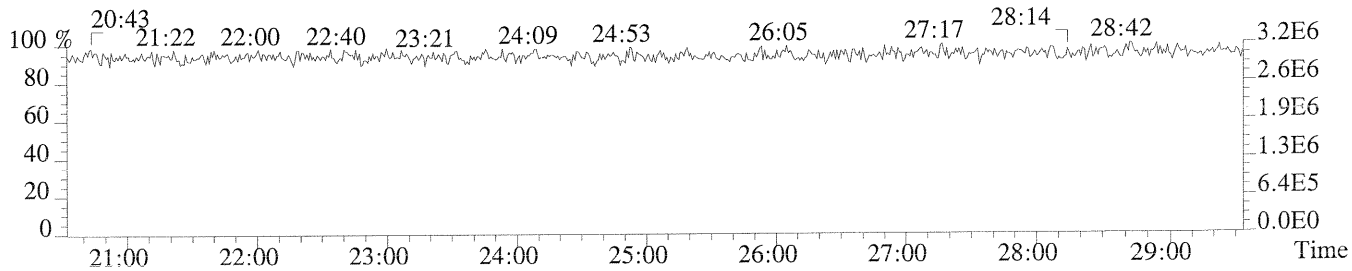
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



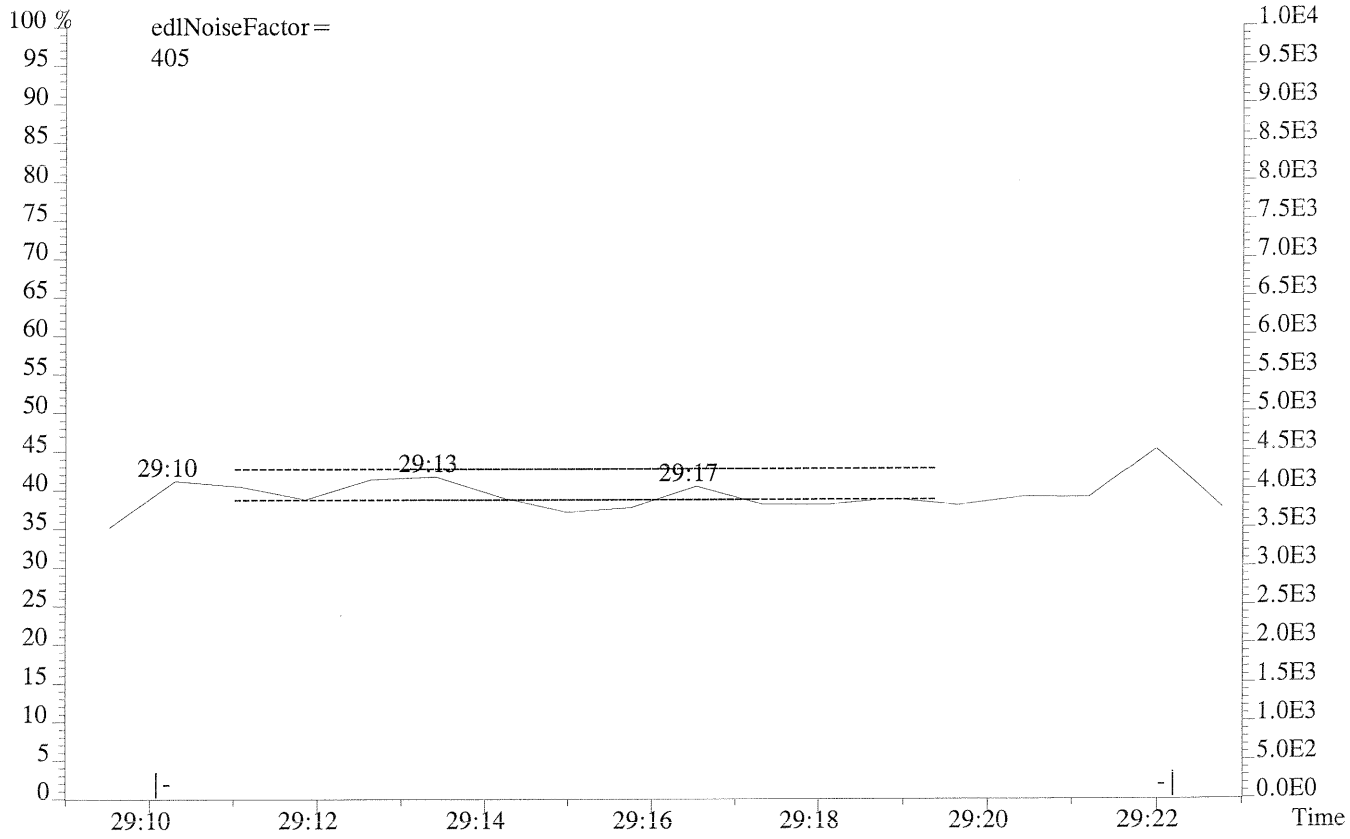
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



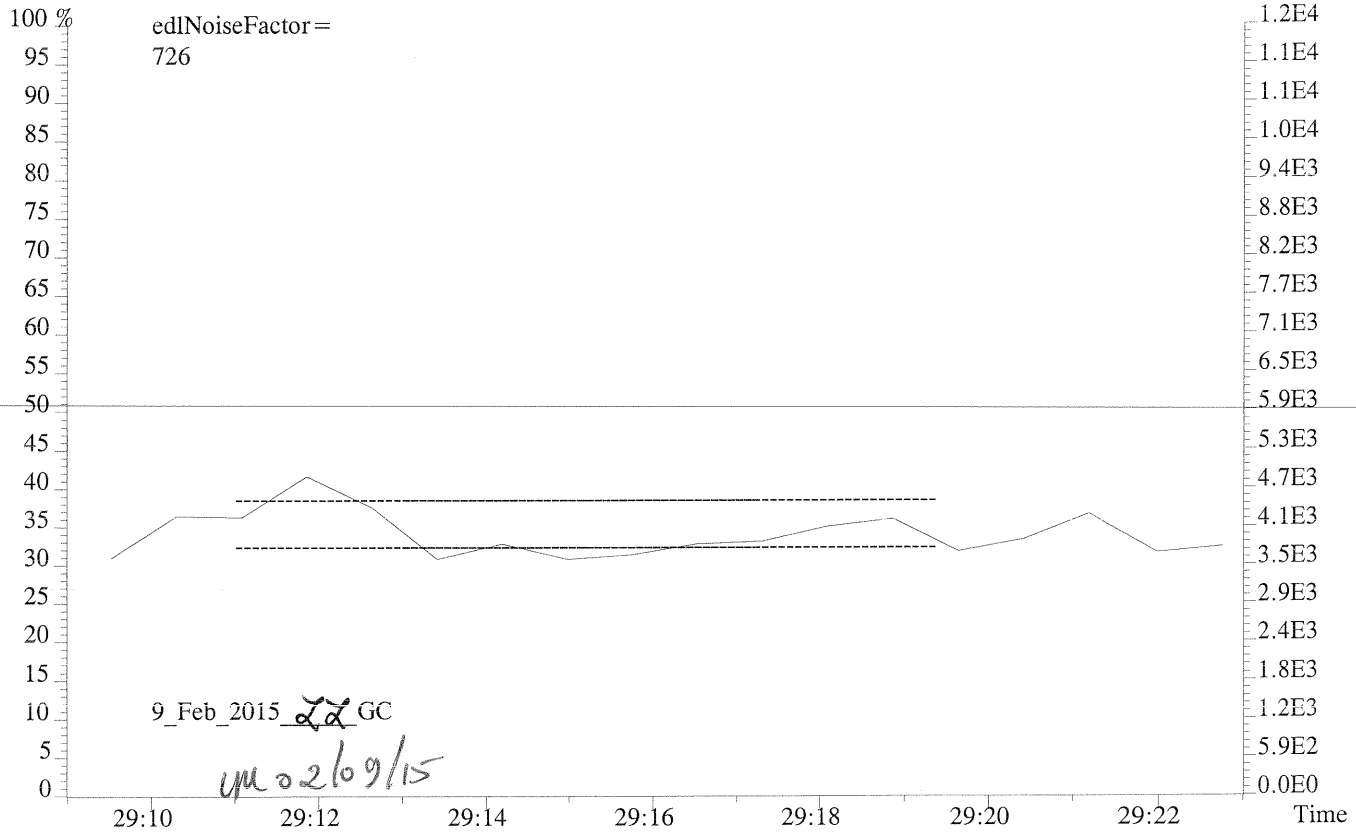
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



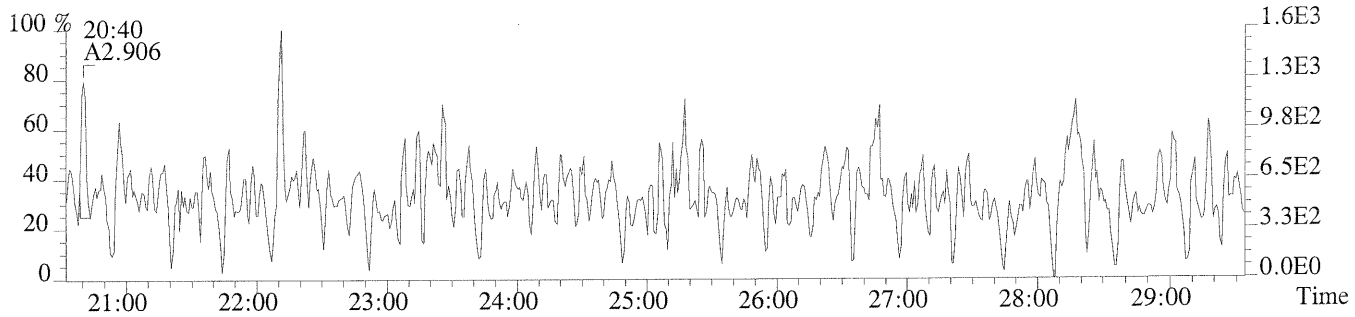
File:P176200 #1-696 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
319.8965



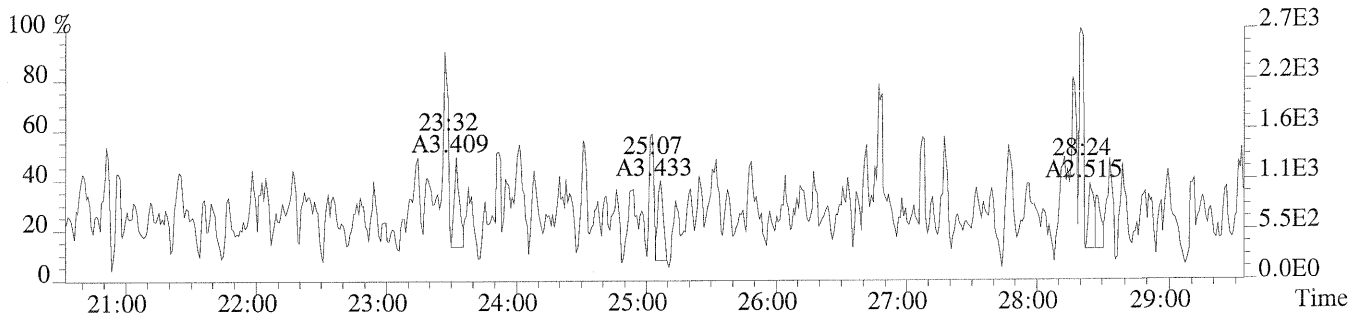
321.8936



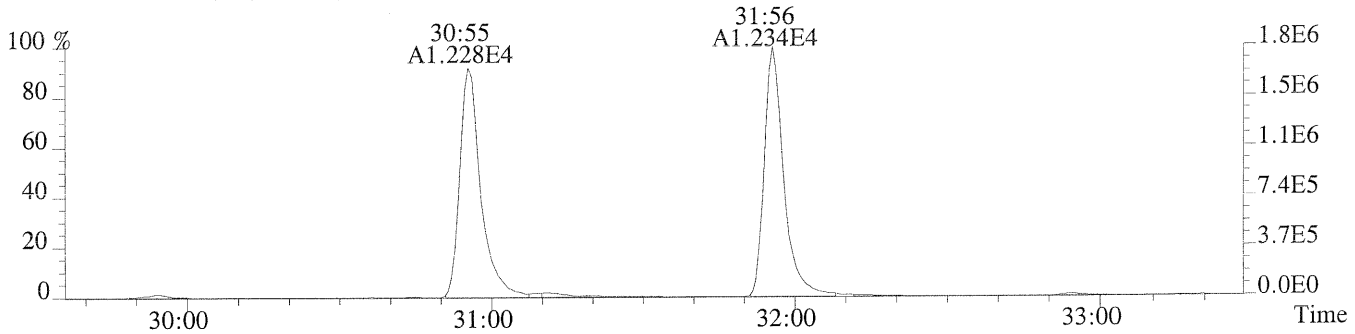
File:P176200 #1-696 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



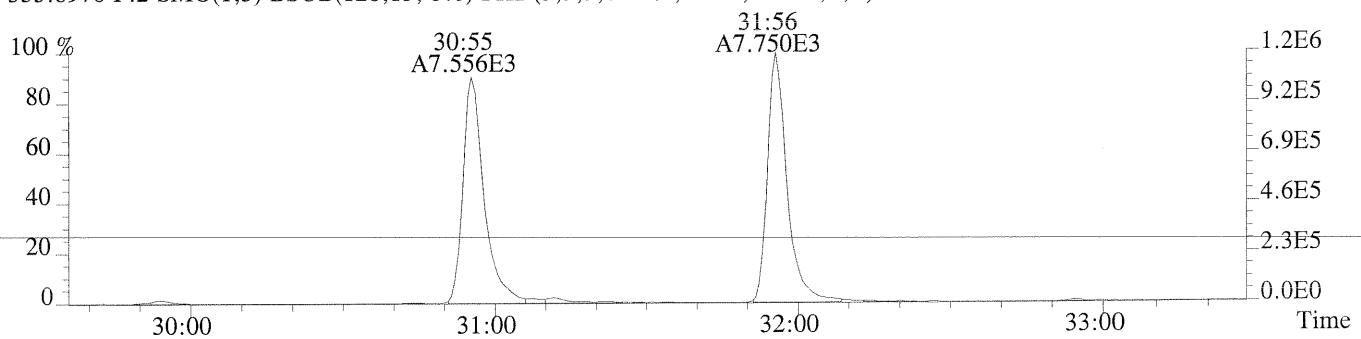
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



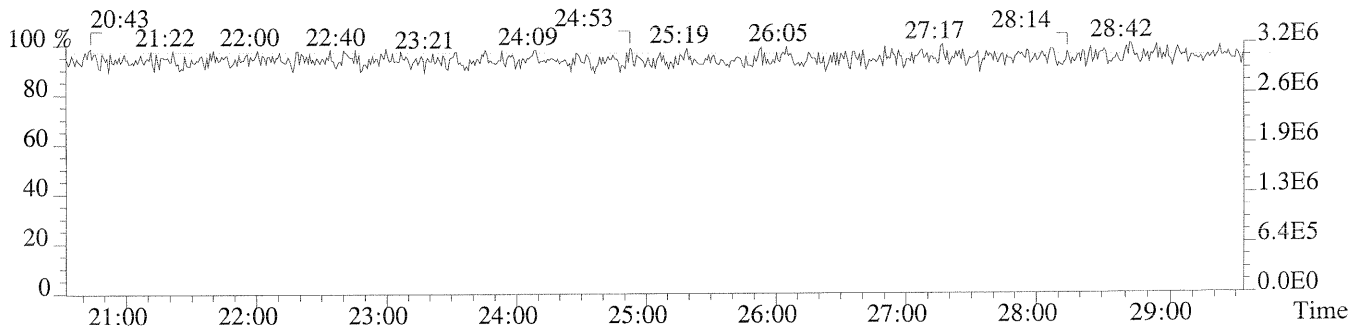
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



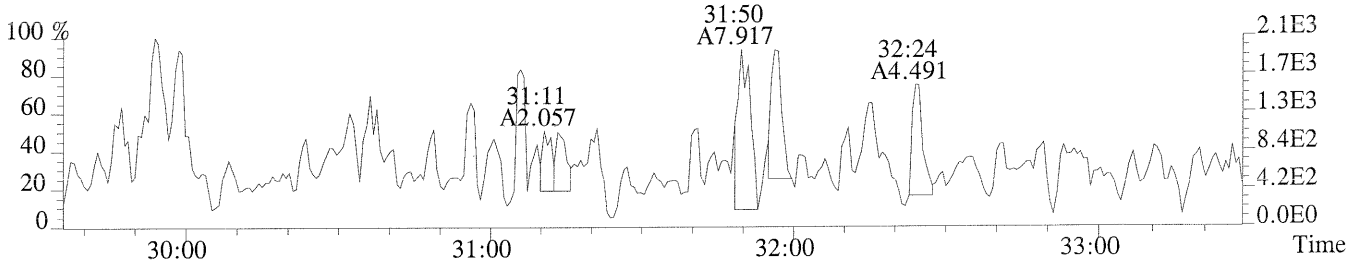
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



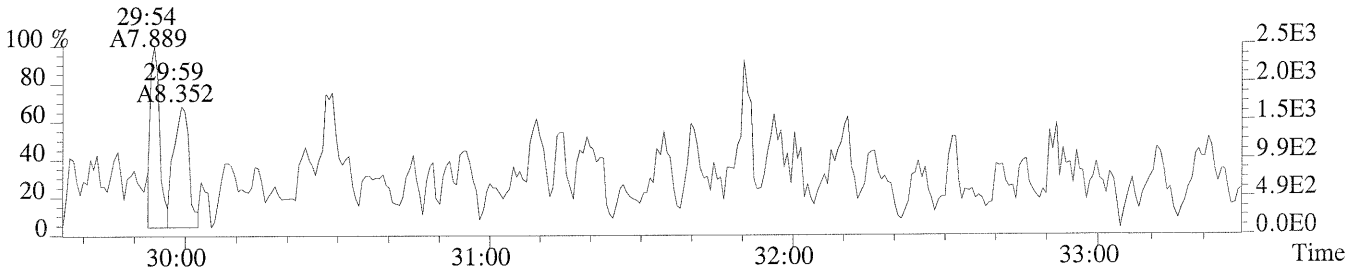
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



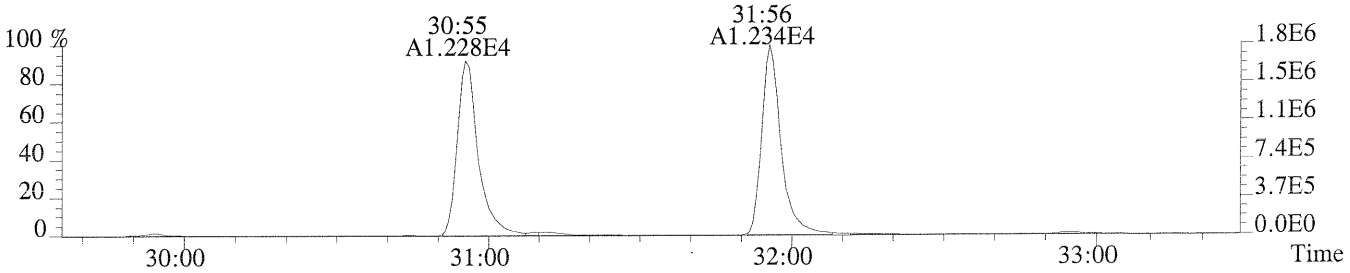
File:P176200 #1-351 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



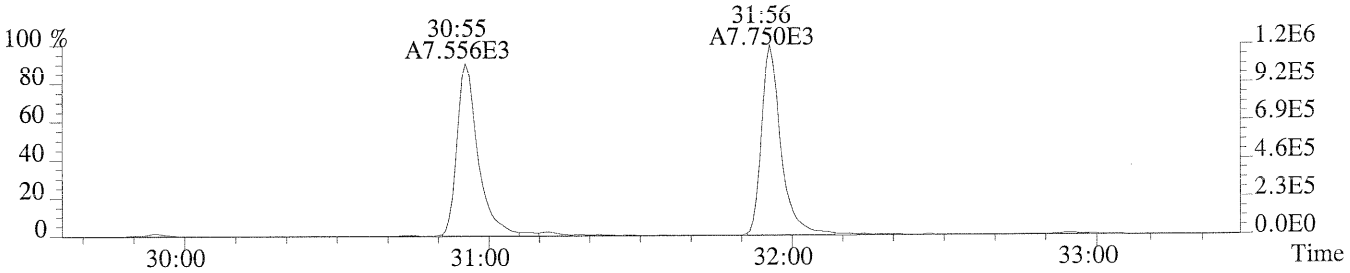
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



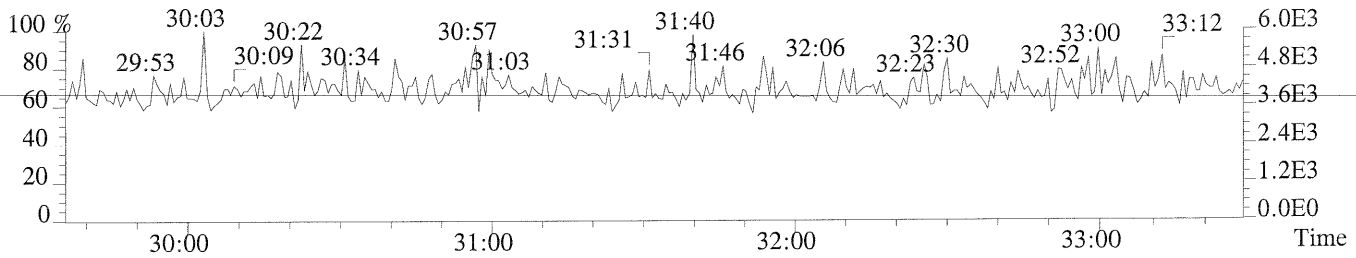
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



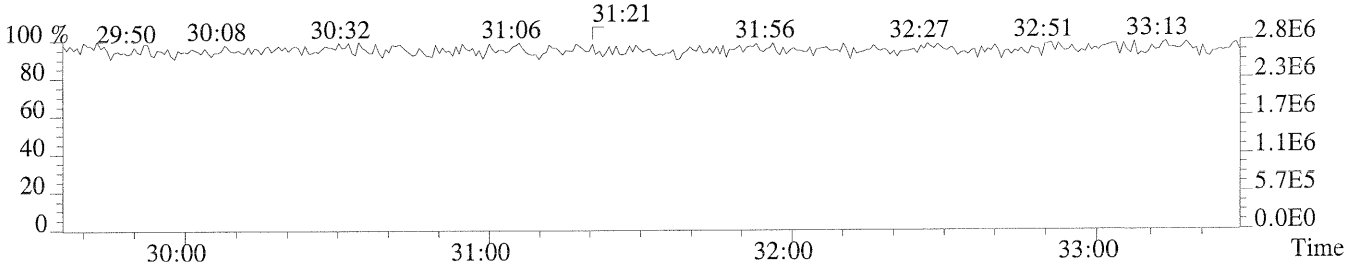
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



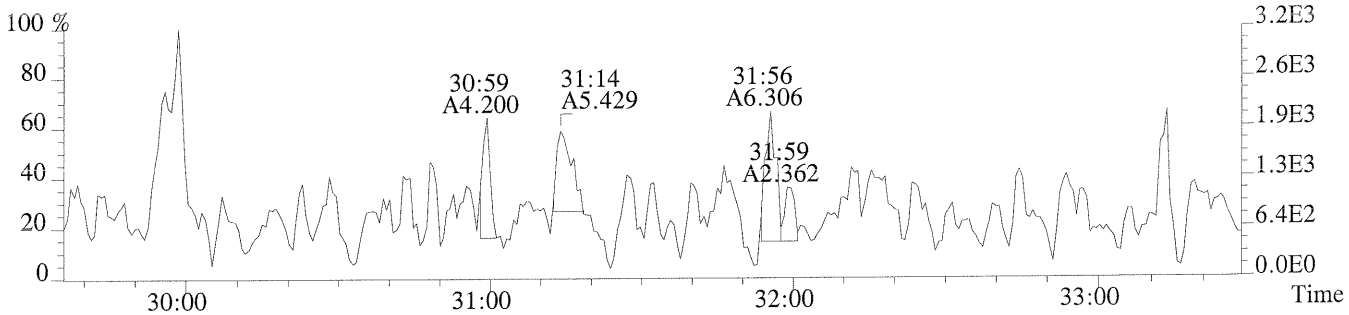
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



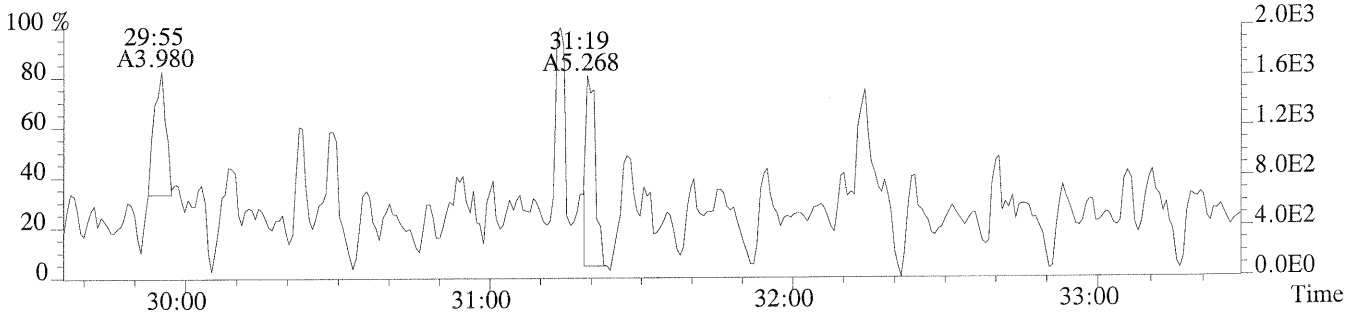
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



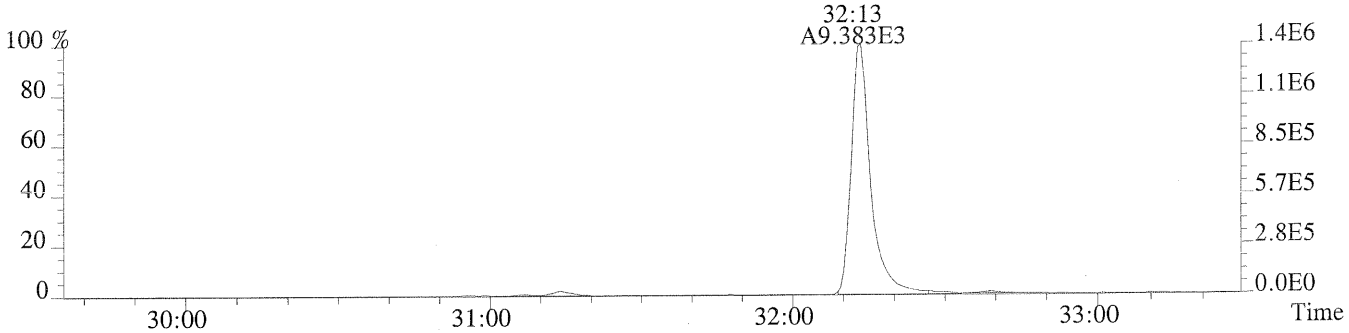
File:P176200 #1-351 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



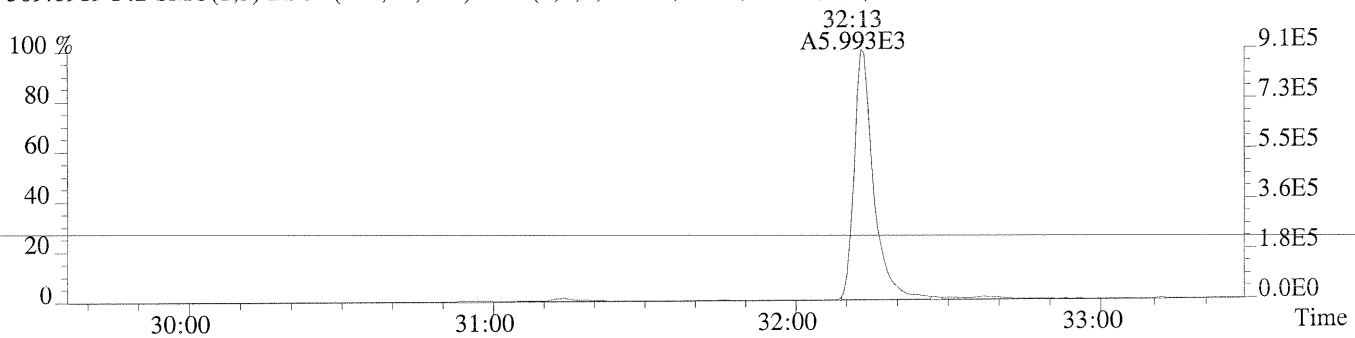
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



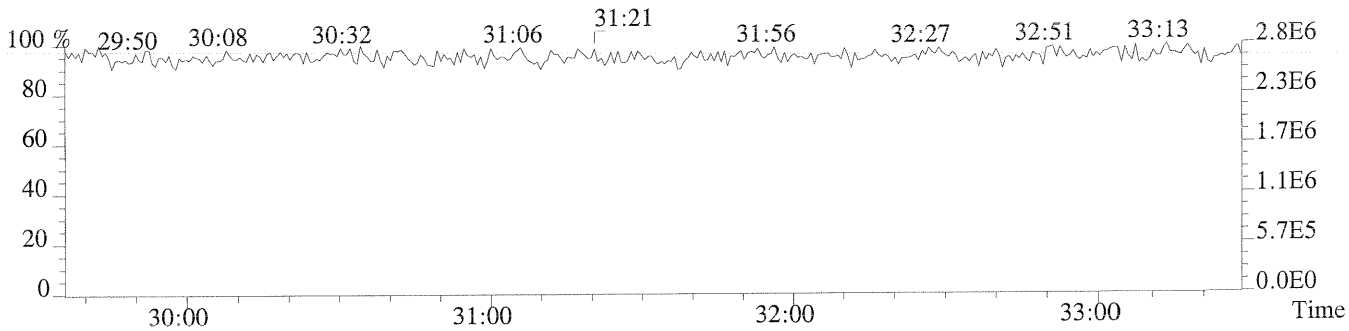
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



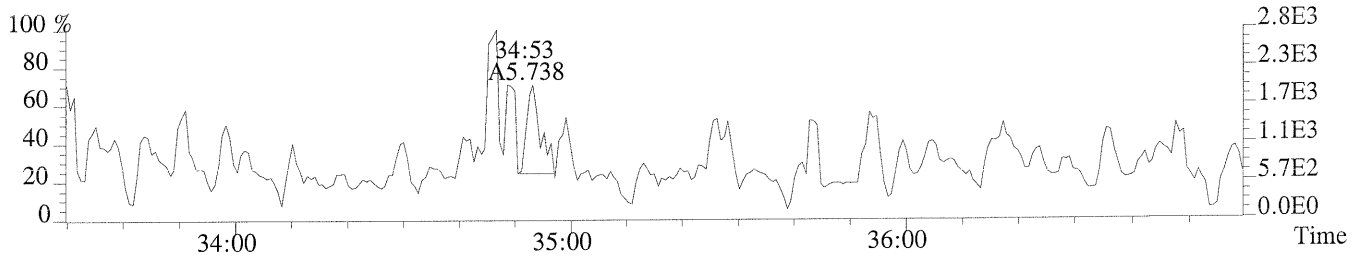
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



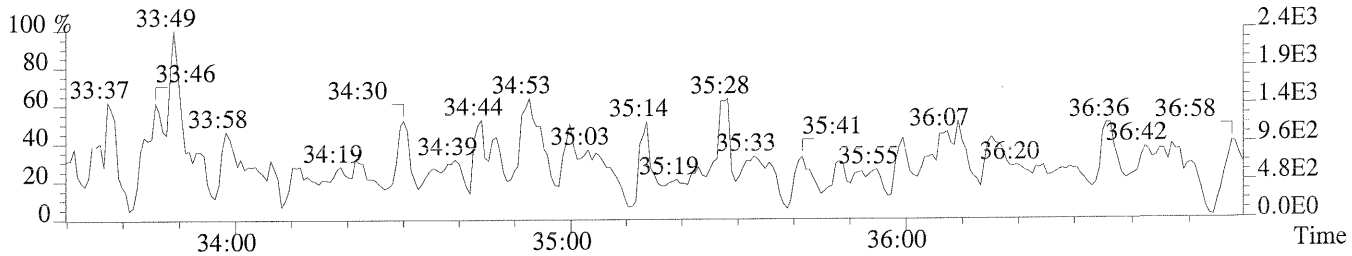
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



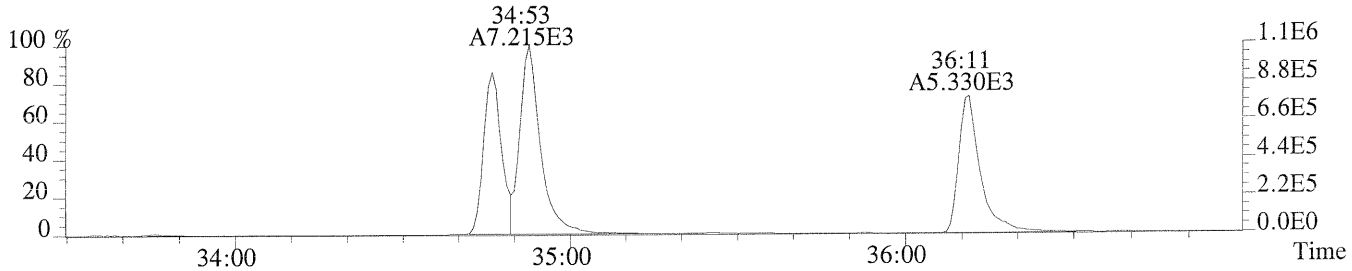
File:P176200 #1-318 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



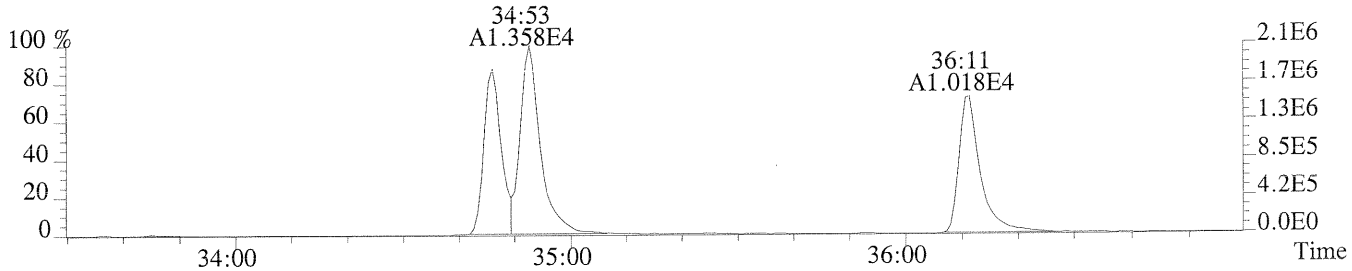
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



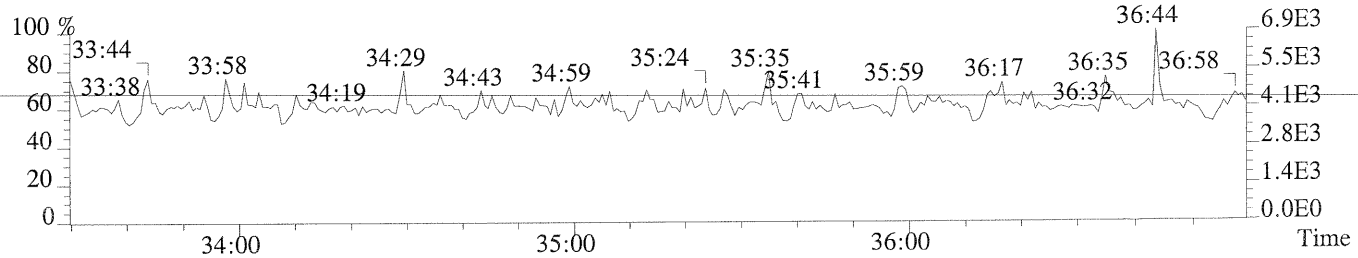
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



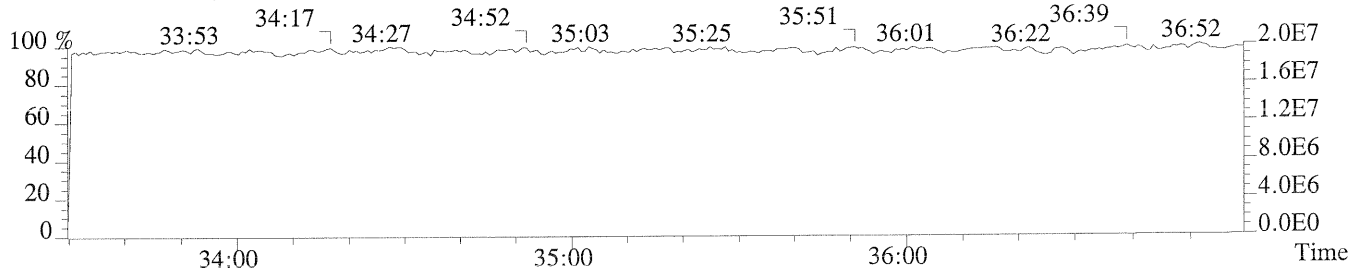
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



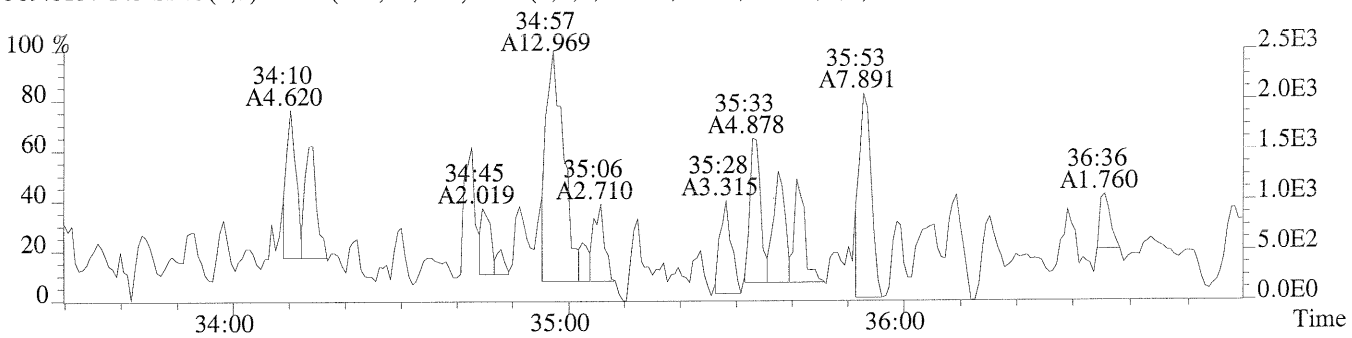
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



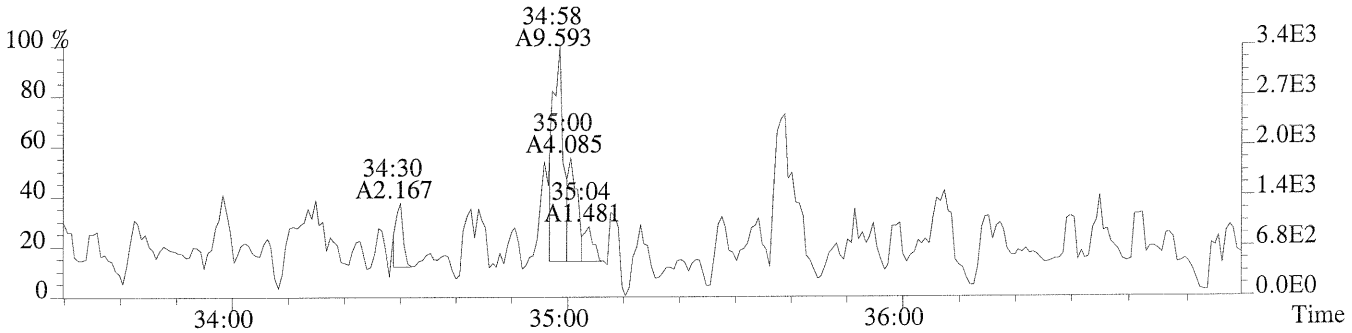
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



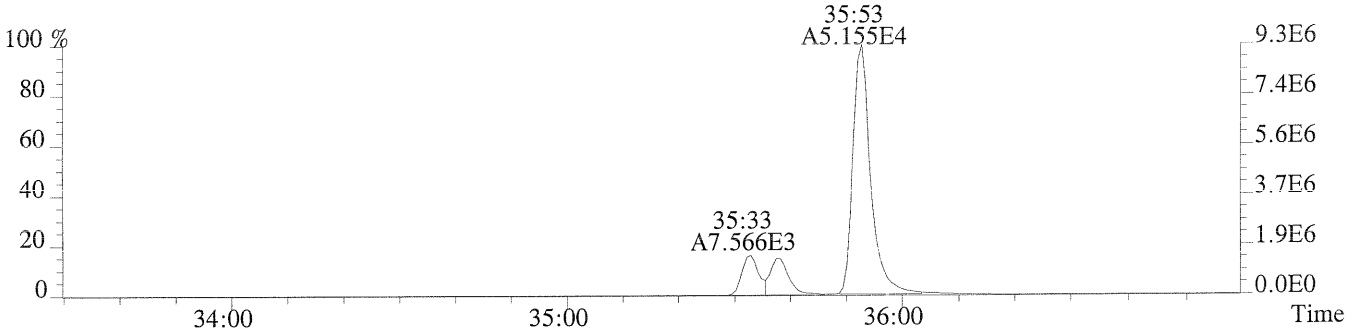
File:P176200 #1-318 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



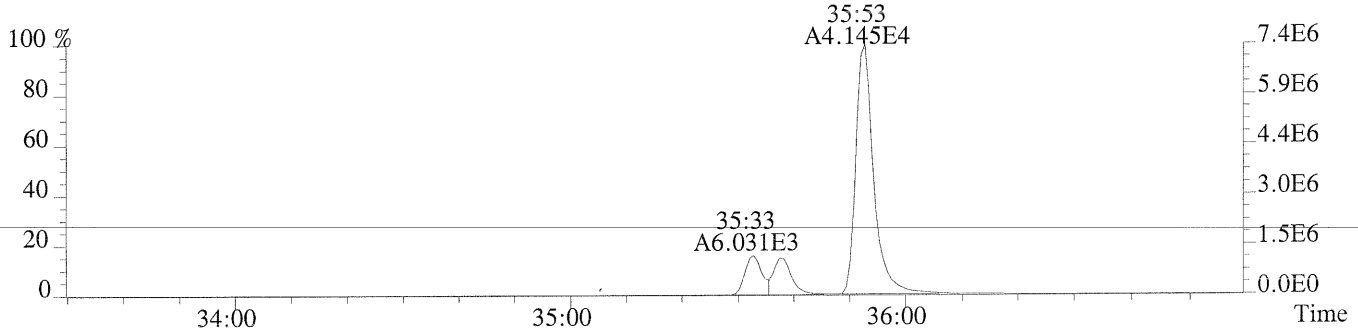
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



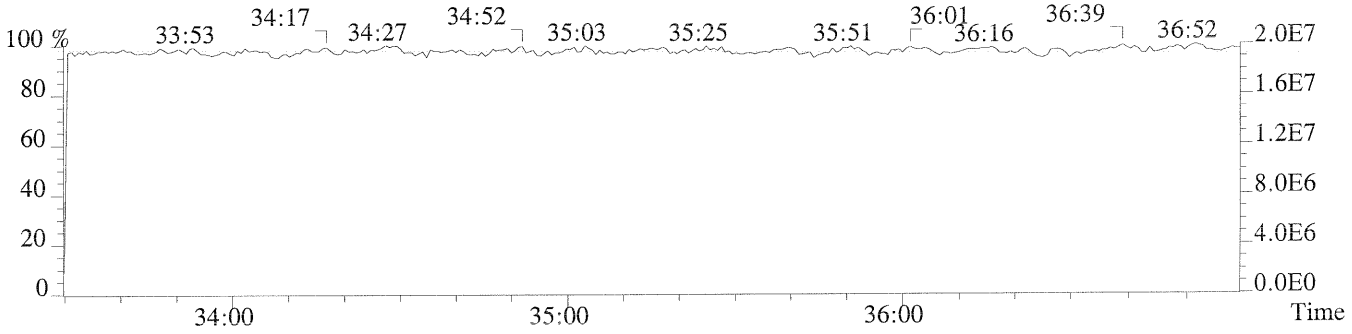
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



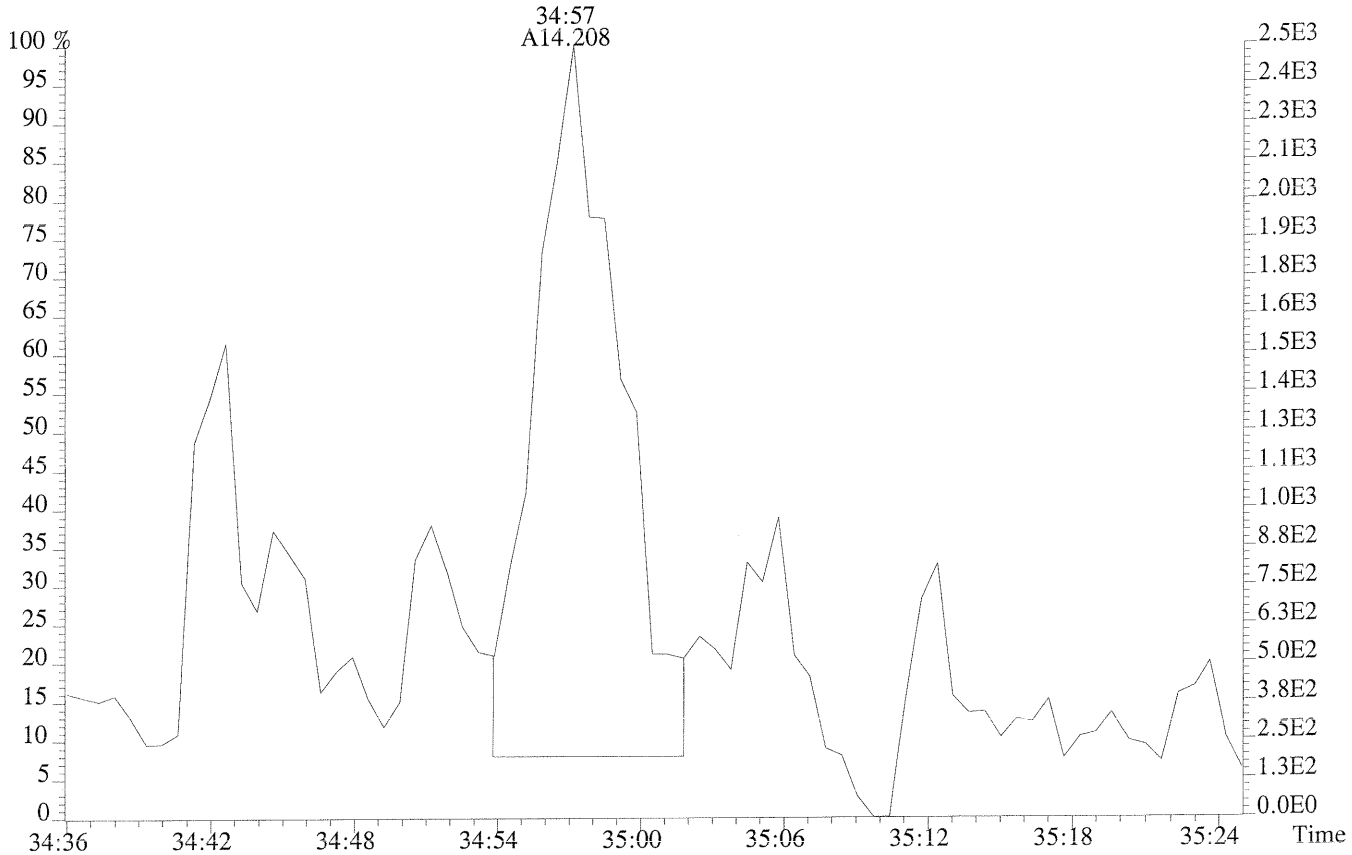
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



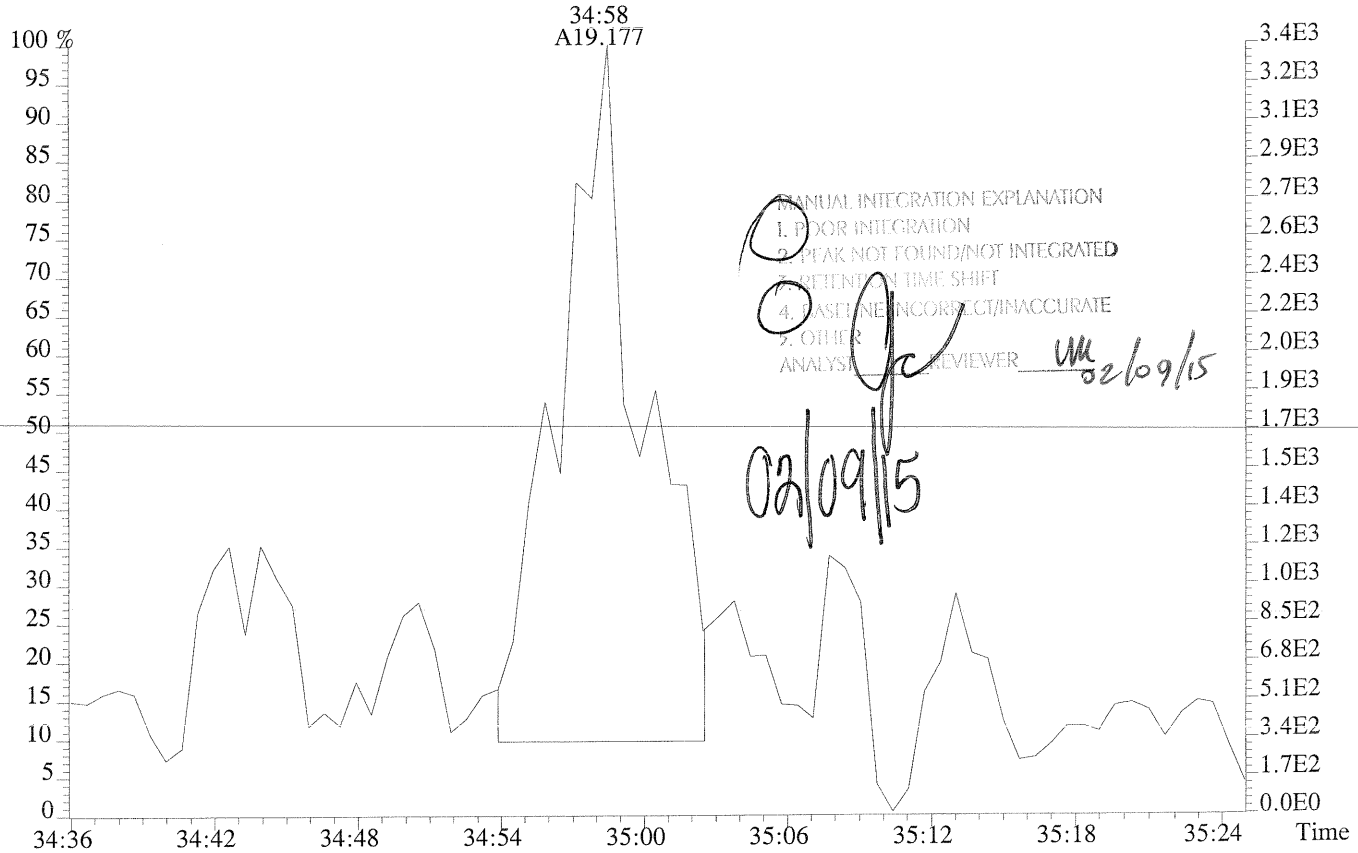
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176200 #1-318 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



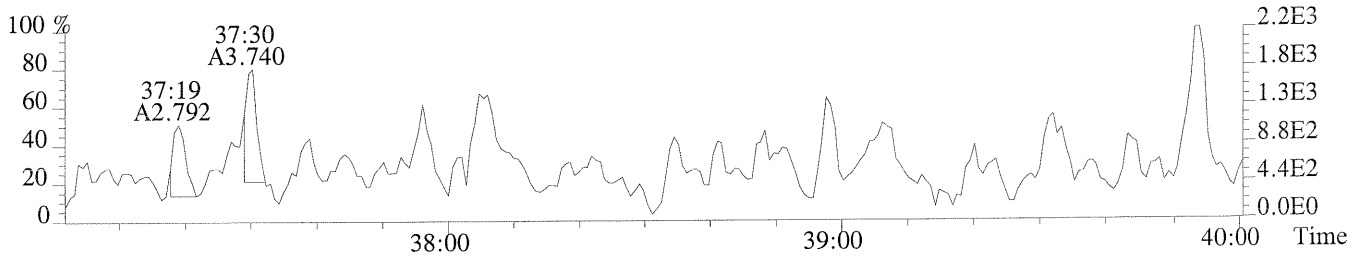
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



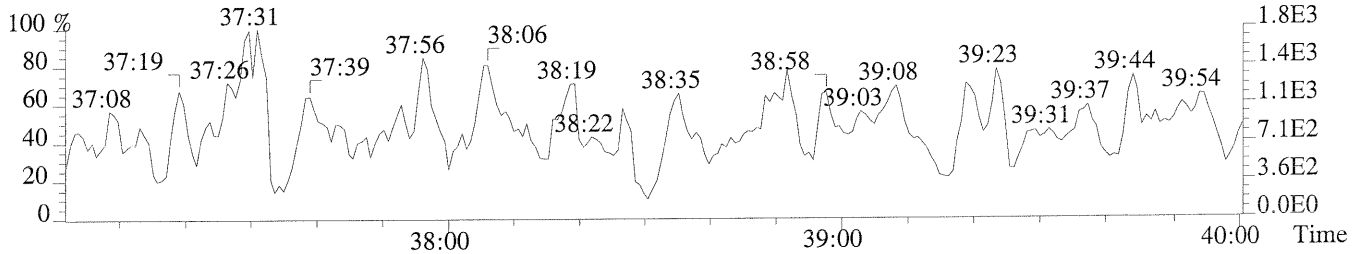
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST/REVIEWER UM 02/09/15

02/09/15

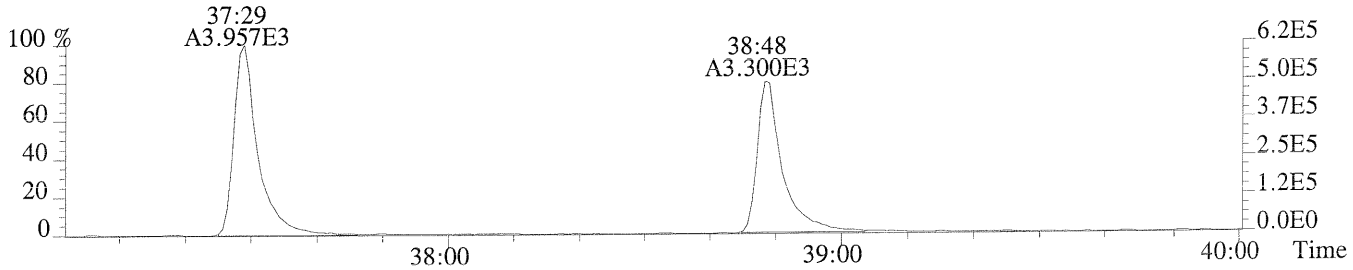
File:P176200 #1-271 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.50%,F,T)



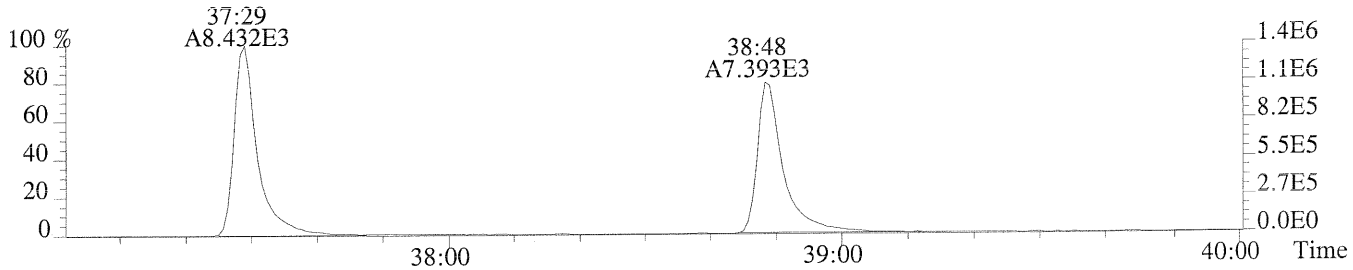
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)



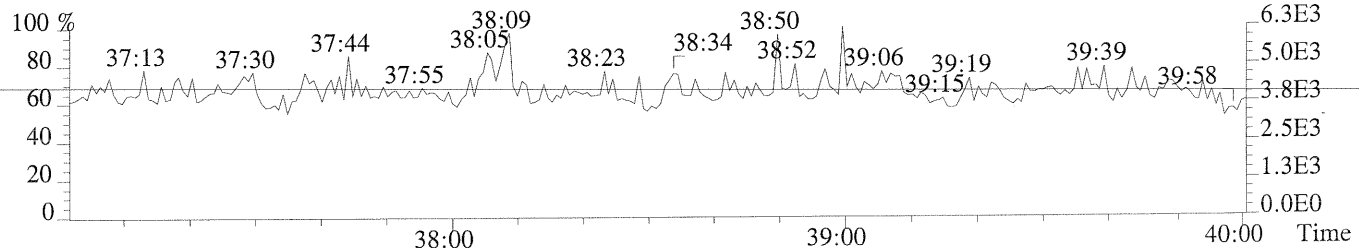
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.50%,F,T)



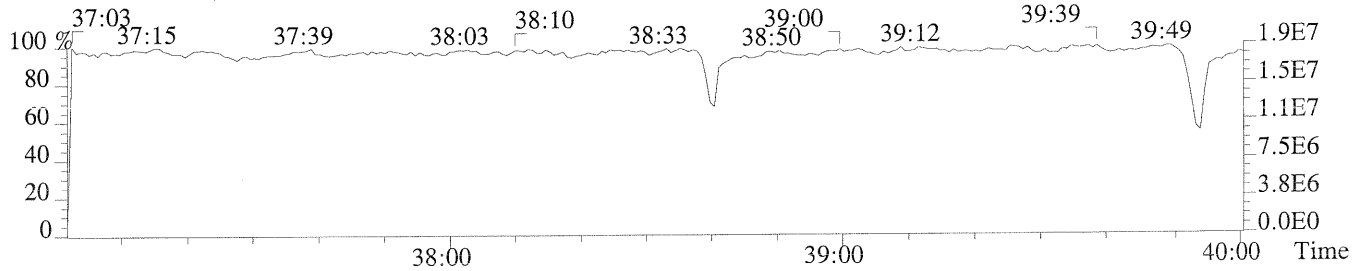
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.50%,F,T)



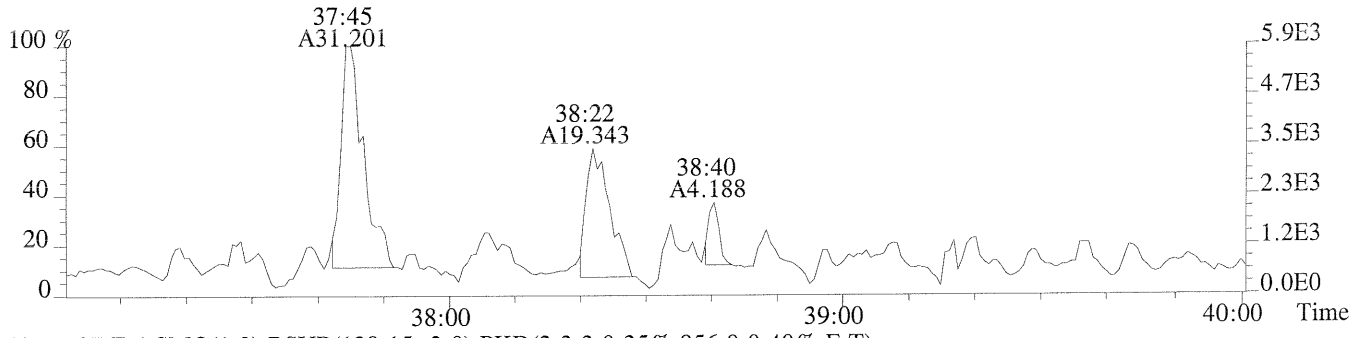
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



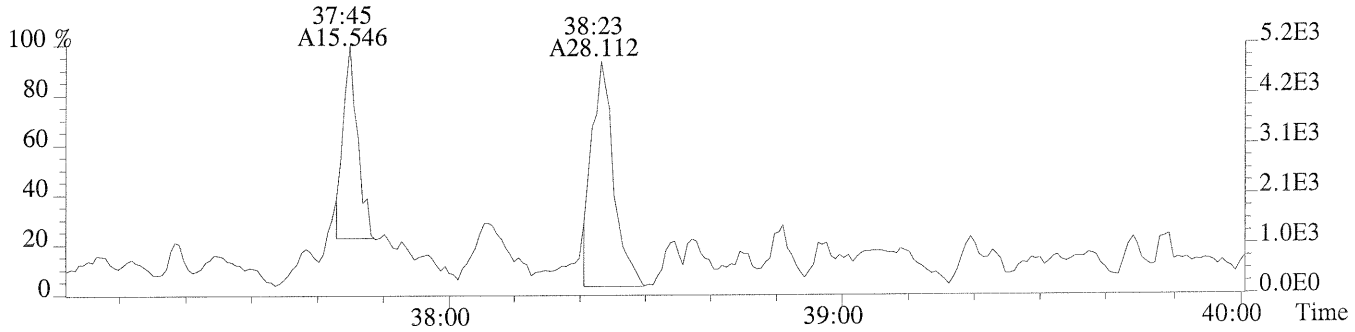
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



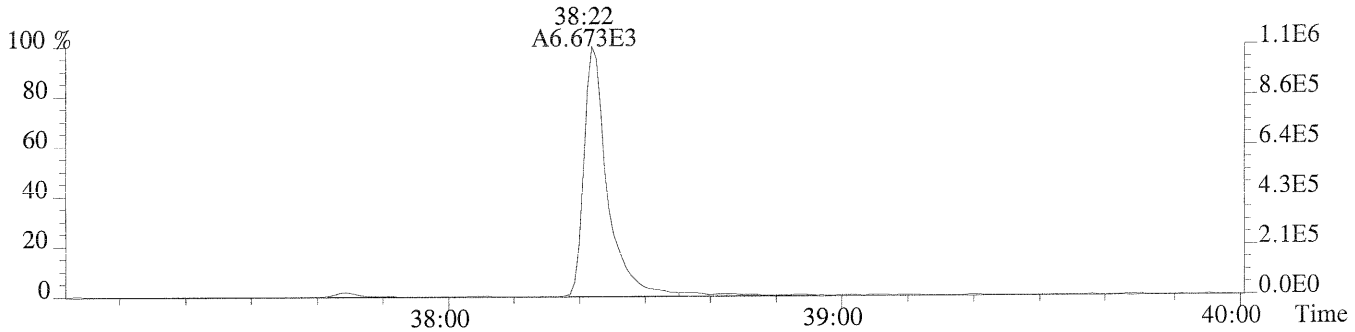
File:P176200 #1-271 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



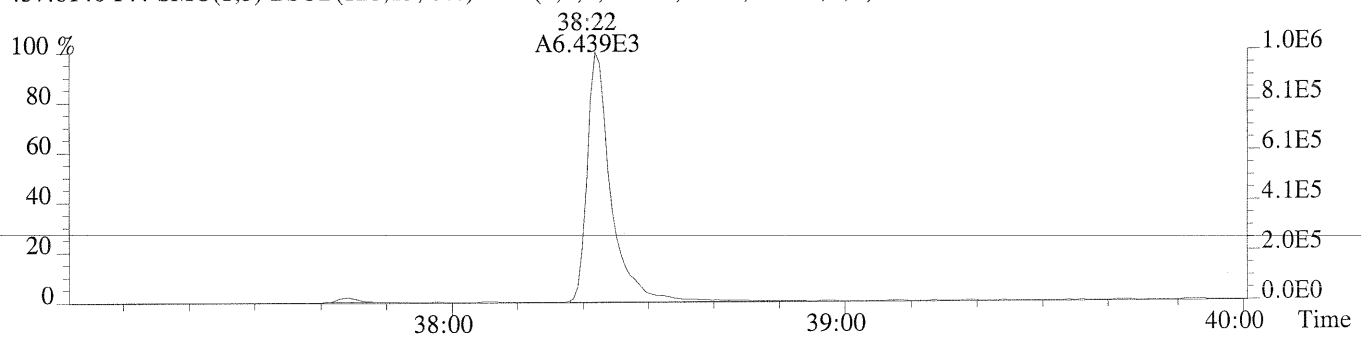
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



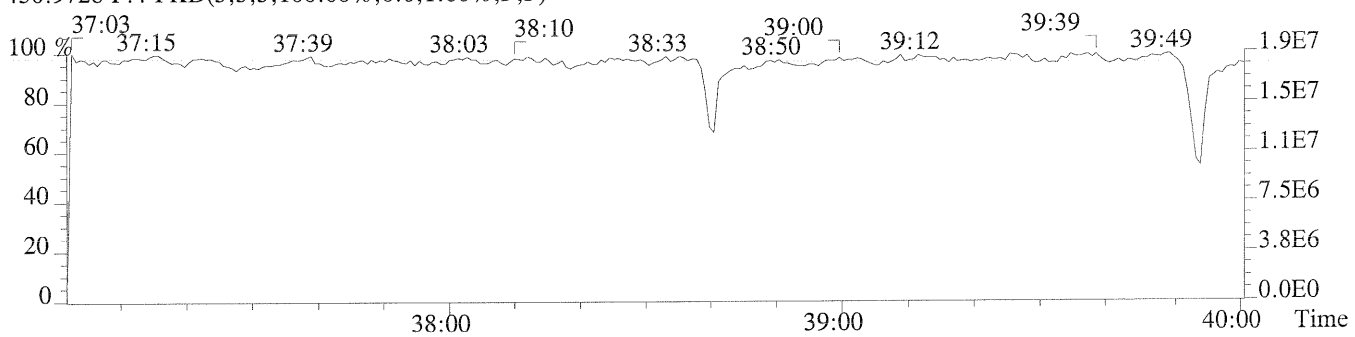
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



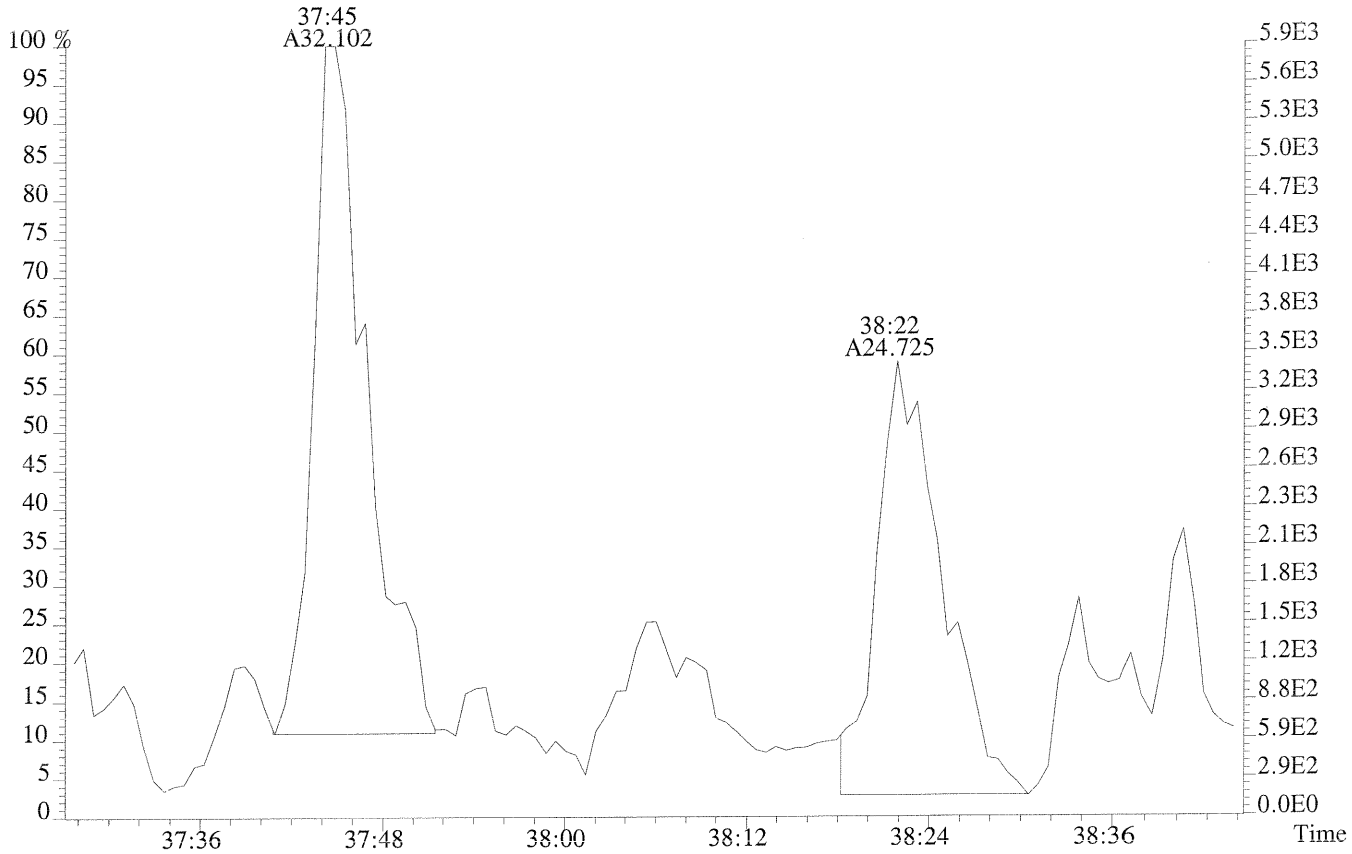
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



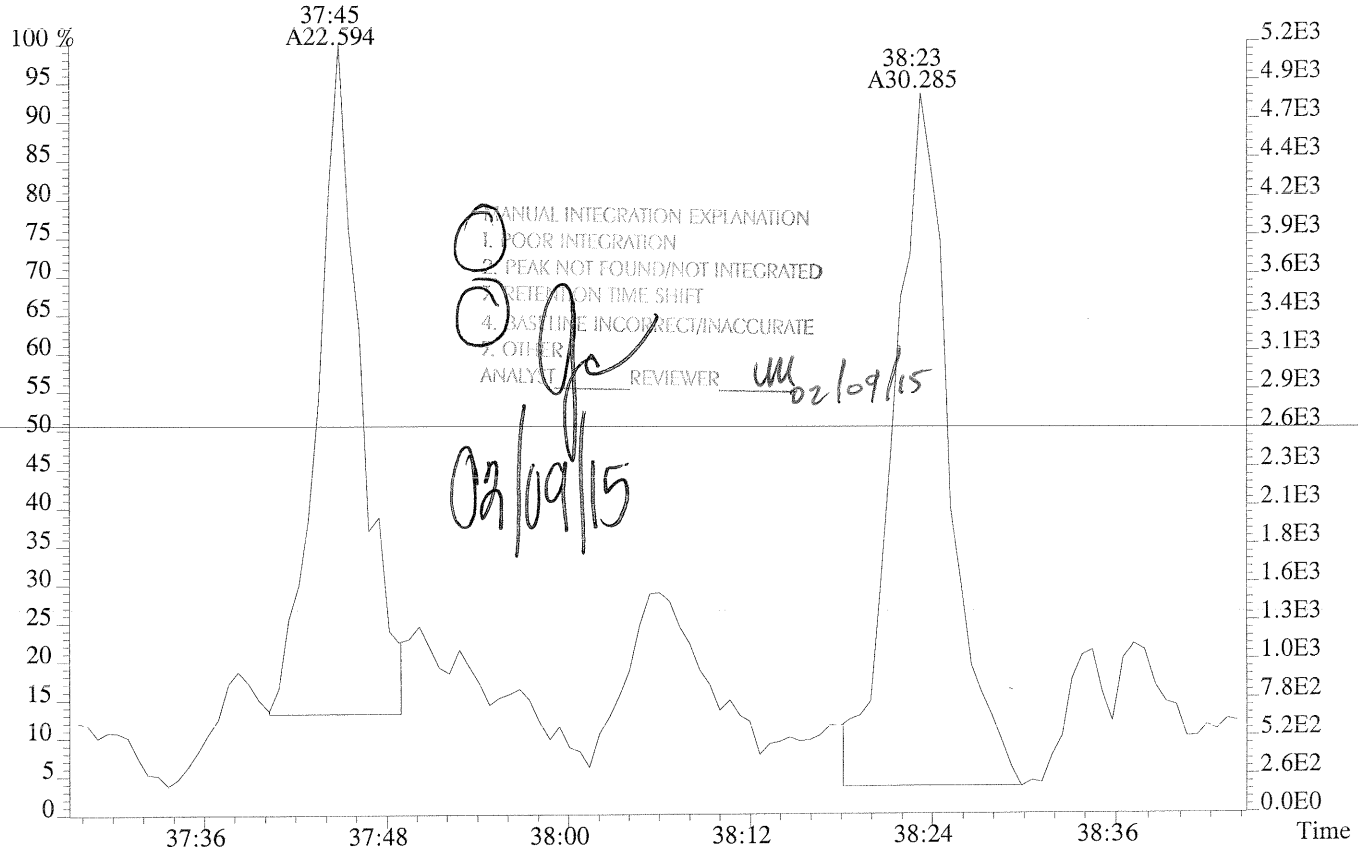
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176200 #1-271 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



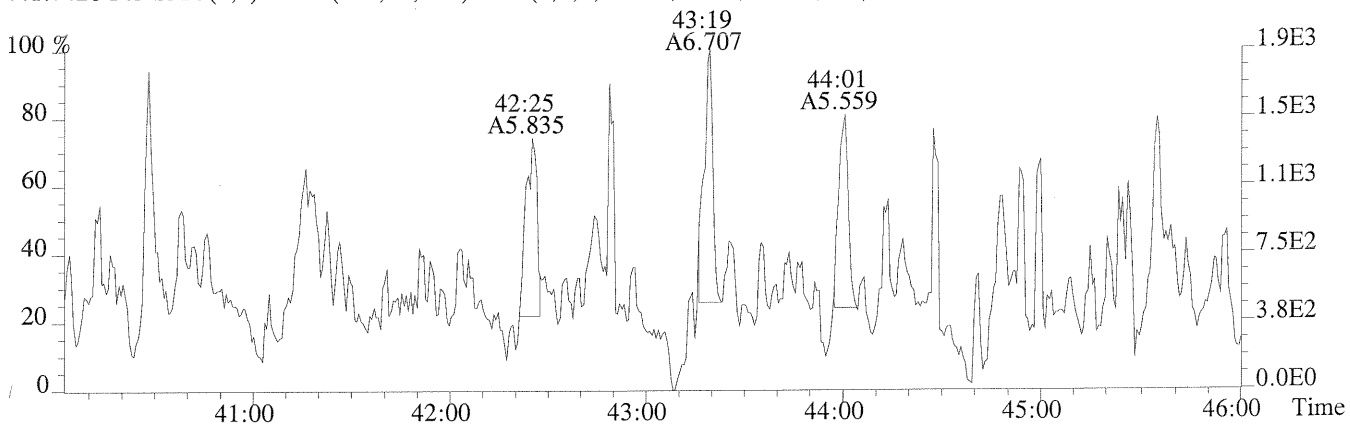
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



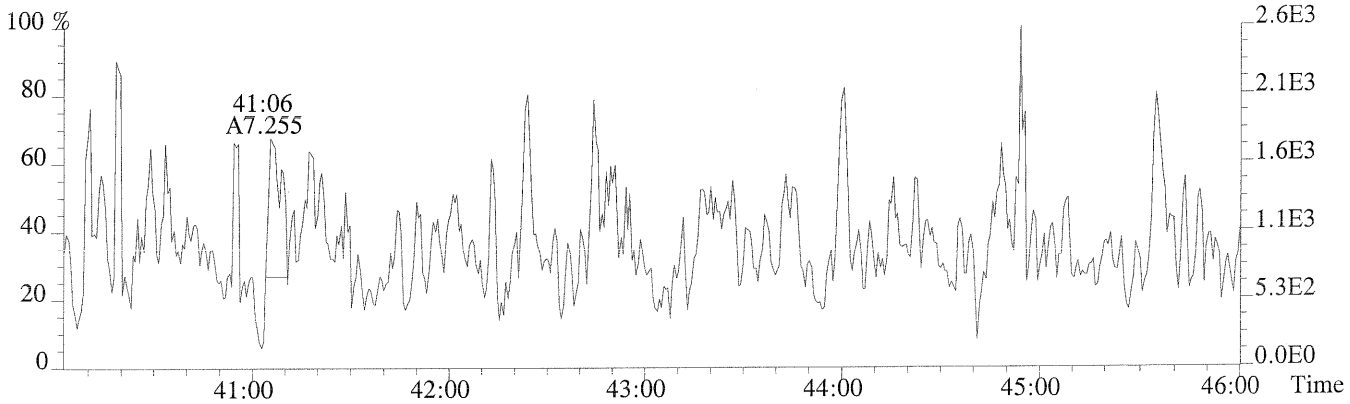
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER 02/09/15

02/09/15

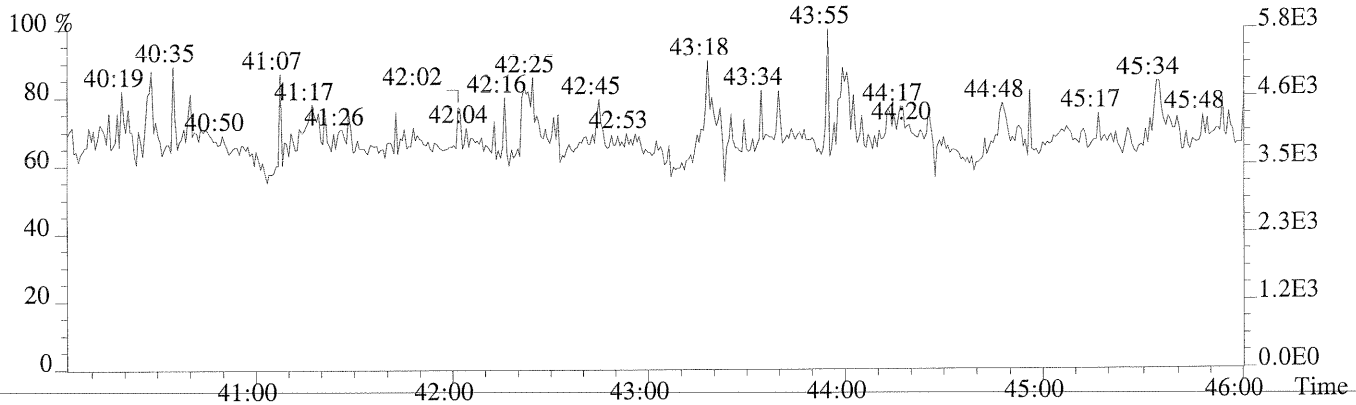
File:P176200 #1-548 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



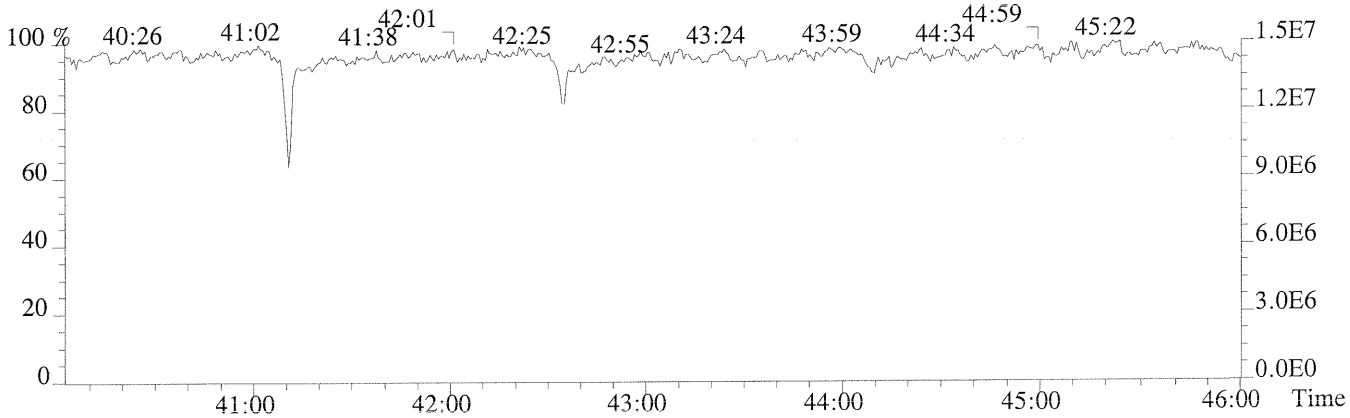
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1160.0,0.40%,F,T)



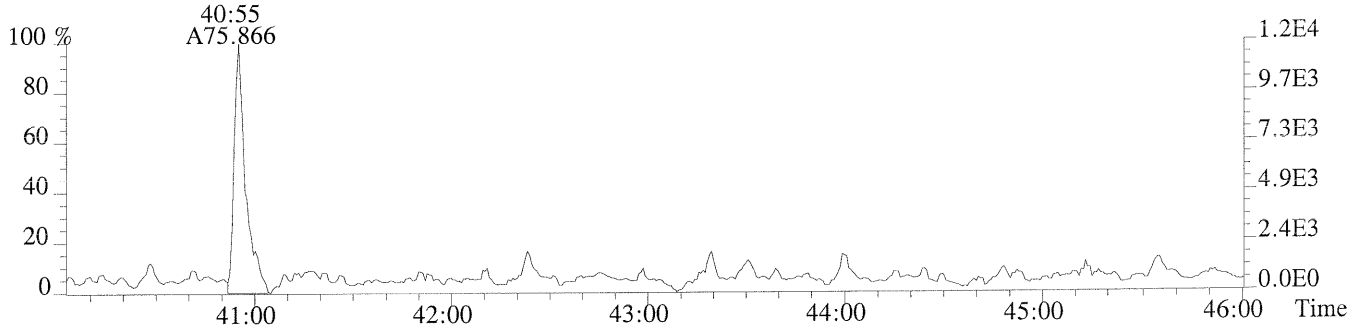
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



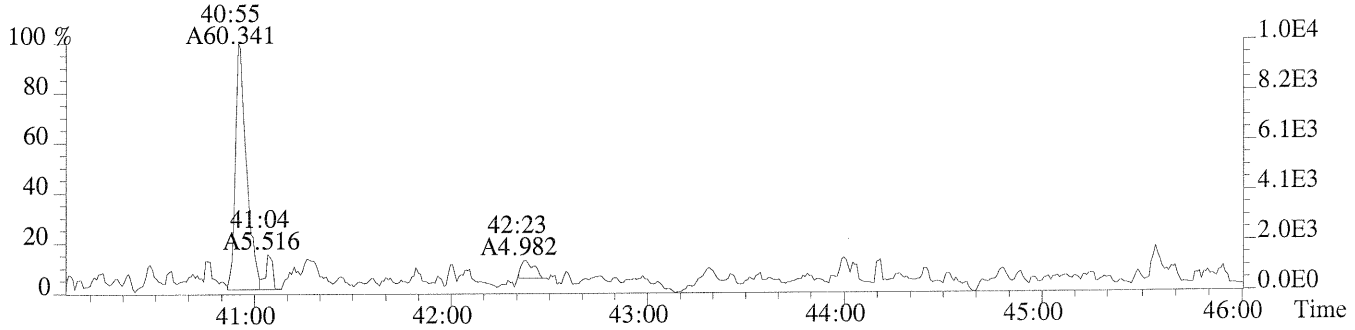
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



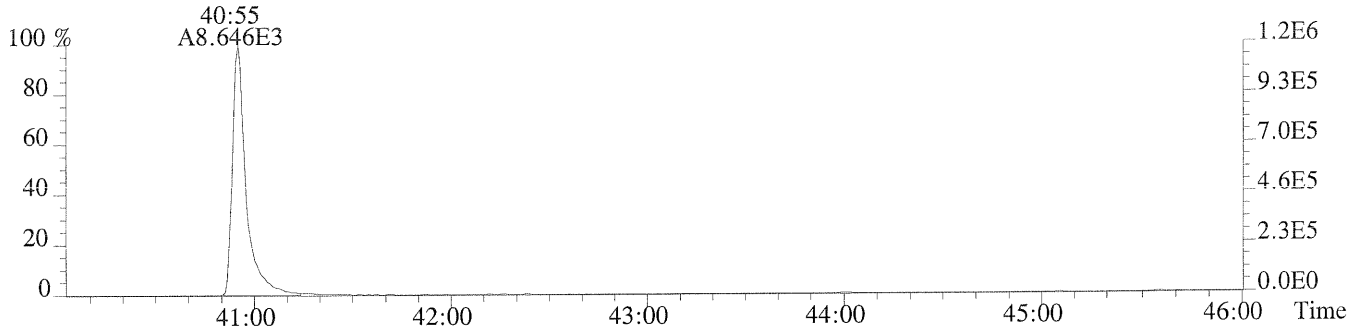
File:P176200 #1-548 Acq: 7-FEB-2015 16:14:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



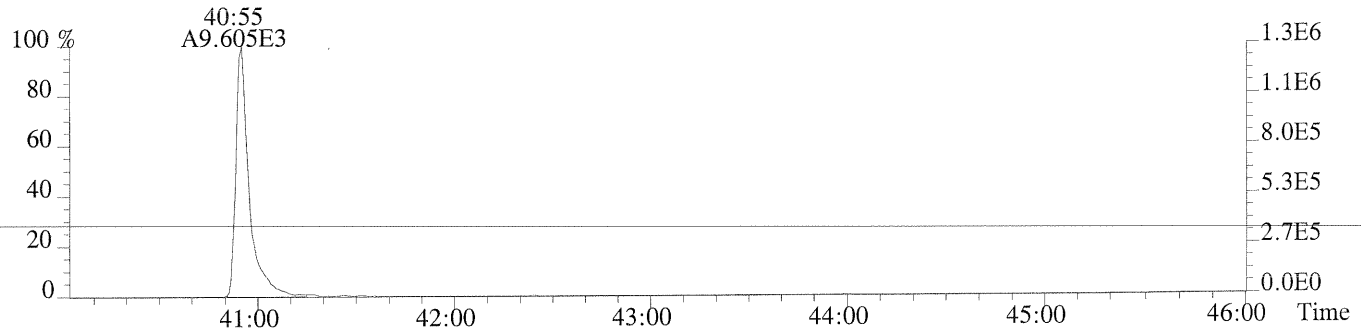
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



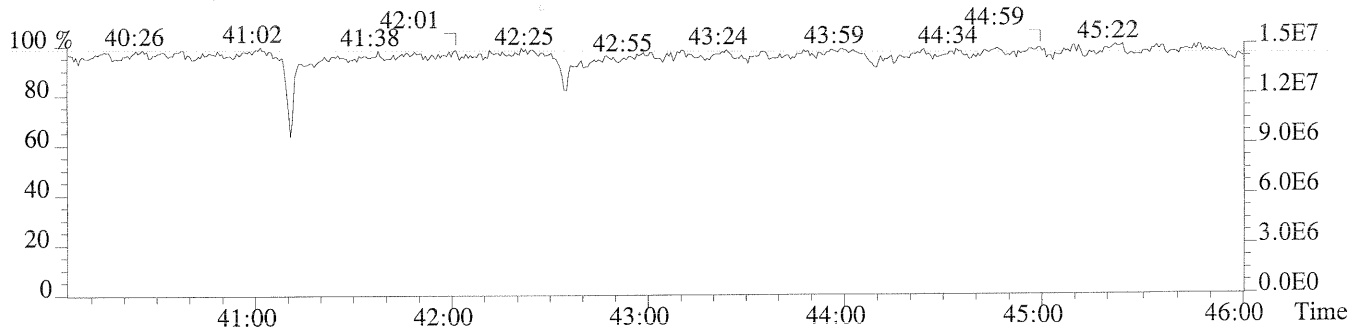
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1008.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,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.
128DI-DF

Run #15 Filename P176201 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 17:02:14
Processed: 9-FEB-15 12:04:04 LAB. ID: P1500356-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.946
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.061
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.148
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.369
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.998
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.904
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	38:23	2.190e+01	2.631e+01	0.83	no	yes	1.052
17	Unk	OCDD	40:55	4.903e+01	6.196e+01	0.79	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:08	6.358e+03	8.038e+03	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	1.051e+04	6.612e+03	1.59	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	1.026e+04	6.402e+03	1.60	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:46	4.272e+03	8.391e+03	0.51	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	6.212e+03	1.179e+04	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	4.742e+03	9.289e+03	0.51	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	3.329e+03	7.525e+03	0.44	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:49	2.793e+03	6.157e+03	0.45	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	4.669e+03	6.001e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	8.098e+03	5.177e+03	1.56	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:33	6.454e+03	5.152e+03	1.25	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:38	7.144e+03	5.604e+03	1.27	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:22	6.014e+03	5.653e+03	1.06	yes	no	0.874
32	IS	13C-OCDD	40:55	7.469e+03	8.289e+03	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:22	3.700e+04	4.700e+04	0.79	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	4.936e+04	3.850e+04	1.28	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:05	1.232e+04				no	1.038

$$OCDD = \frac{(4.903e+01 + 6.196e+01) \times \cancel{8000}\ 4000\ pg \times 1}{(7.469e+03 + 8.289e+03) \times 1.068 \times 0.5} = 52.8\ pg$$

~~pg~~

MM 02/09/15

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Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
128DI-DF

Run #15 Filename P176201 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 17:02:14
Processed: 9-FEB-15 12:04:04 LAB. ID: P1500356-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.60e+02	*	*	8.48e+02	*
2	1,2,3,7,8-PeCDF	*	8.08e+02	*	*	9.92e+02	*
3	2,3,4,7,8-PeCDF	*	8.08e+02	*	*	9.92e+02	*
4	1,2,3,4,7,8-HxCDF	*	6.40e+02	*	*	6.08e+02	*
5	1,2,3,6,7,8-HxCDF	*	6.40e+02	*	*	6.08e+02	*
6	2,3,4,6,7,8-HxCDF	*	6.40e+02	*	*	6.08e+02	*
7	1,2,3,7,8,9-HxCDF	*	6.40e+02	*	*	6.08e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	3.96e+02	*	*	5.52e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.96e+02	*	*	5.52e+02	*
10	OCDF	*	5.88e+02	*	*	5.44e+02	*
11	2,3,7,8-TCDD	*	6.39e+02	*	*	4.38e+02	*
12	1,2,3,7,8-PeCDD	*	7.76e+02	*	*	5.28e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.64e+02	*	*	6.52e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.64e+02	*	*	6.52e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.64e+02	*	*	6.52e+02	*
16	1,2,3,4,6,7,8-HpCDD	3.40e+03	4.84e+02	7.0e+00	3.96e+03	4.32e+02	9.2e+00
17	OCDD	8.01e+03	4.24e+02	1.9e+01	9.40e+03	6.52e+02	1.4e+01
18	13C-2,3,7,8-TCDF	7.66e+05	8.52e+02	9.0e+02	9.65e+05	7.00e+02	1.4e+03
19	13C-1,2,3,7,8-PeCDF	1.44e+06	7.12e+02	2.0e+03	8.92e+05	9.64e+02	9.3e+02
20	13C-2,3,4,7,8-PeCDF	1.53e+06	7.12e+02	2.2e+03	9.30e+05	9.64e+02	9.6e+02
21	13C-1,2,3,4,7,8-HxCDF	7.99e+05	6.20e+02	1.3e+03	1.58e+06	1.00e+03	1.6e+03
22	13C-1,2,3,6,7,8-HxCDF	9.33e+05	6.20e+02	1.5e+03	1.83e+06	1.00e+03	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	7.28e+05	6.20e+02	1.2e+03	1.44e+06	1.00e+03	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.50e+05	1.10e+03	5.0e+02	1.21e+06	1.69e+03	7.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.95e+05	1.10e+03	3.6e+02	8.64e+05	1.69e+03	5.1e+02
27	13C-2,3,7,8-TCDD	6.38e+05	1.90e+03	3.4e+02	8.57e+05	1.02e+03	8.4e+02
28	13C-1,2,3,7,8-PeCDD	1.20e+06	7.52e+02	1.6e+03	7.51e+05	5.36e+02	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	1.26e+06	6.48e+02	2.0e+03	1.01e+06	6.32e+02	1.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.25e+06	6.48e+02	1.9e+03	9.70e+05	6.32e+02	1.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.44e+05	7.08e+02	1.3e+03	8.68e+05	5.84e+02	1.5e+03
32	13C-OCDD	1.00e+06	1.61e+03	6.2e+02	1.11e+06	2.25e+03	4.9e+02
33	13C-1,2,3,4-TCDD	5.15e+06	1.90e+03	2.7e+03	6.54e+06	1.02e+03	6.4e+03
34	13C-1,2,3,7,8,9-HxCDD	9.00e+06	6.48e+02	1.4e+04	7.08e+06	6.32e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	1.62e+06	6.44e+02	2.5e+03			

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ALS Form TO-9SN/M23SN.FRM

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
128DI-DF

LabID: P1500356-006
Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P176201 Sample: 1 Injection: 1 Function: 3
Llim: 34:04 Ulim: 35:59
Acquired: 7-FEB-15 17:02:14 Processed: 9-FEB-15 12:04:04
Mass: 389.8160 391.8130 Tot Response: 1.87e+01 RRF: 0.9734

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:57	9.59e+00	9.10e+00 1.05	yes	1.87e+01		Y	Y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
128DI-DF

LabID: P1500356-006
Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P176201 Sample: 1 Injection: 1 Function: 4
Llim: 37:39 Ulim: 38:32
Acquired: 7-FEB-15 17:02:14 Processed: 9-FEB-15 12:04:04
Mass: 423.7770 425.7740 Tot Response: 4.61e+01 RRF: 1.052

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:44	2.36e+01	2.25e+01 1.05	yes	4.61e+01		Y	Y

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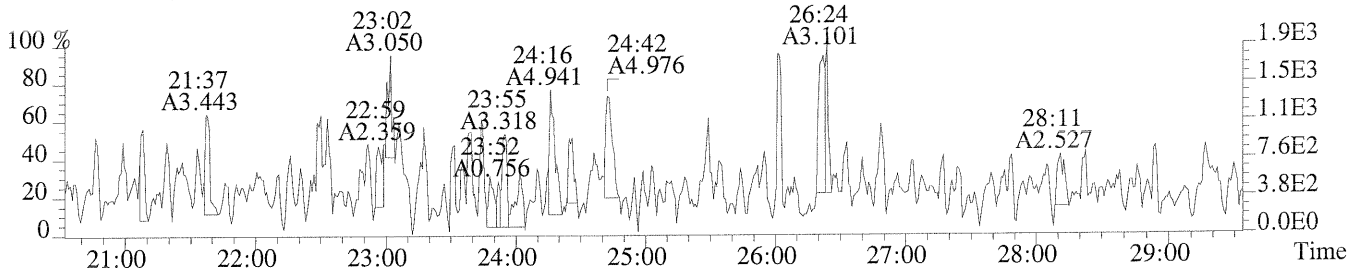
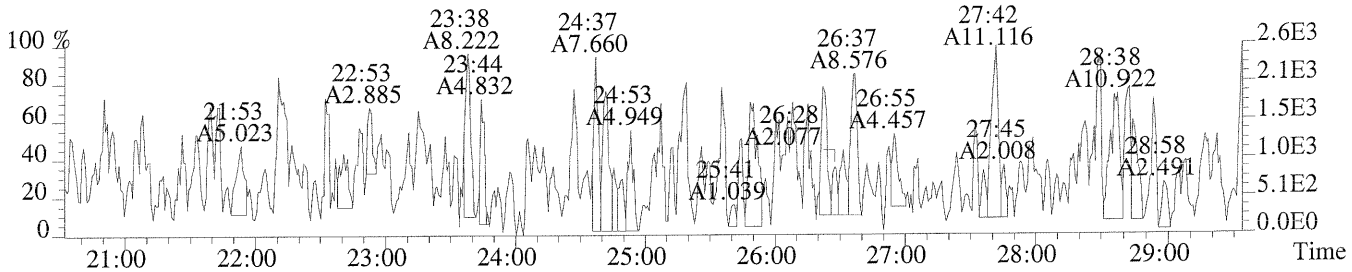
File:P176201 #1-696 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006

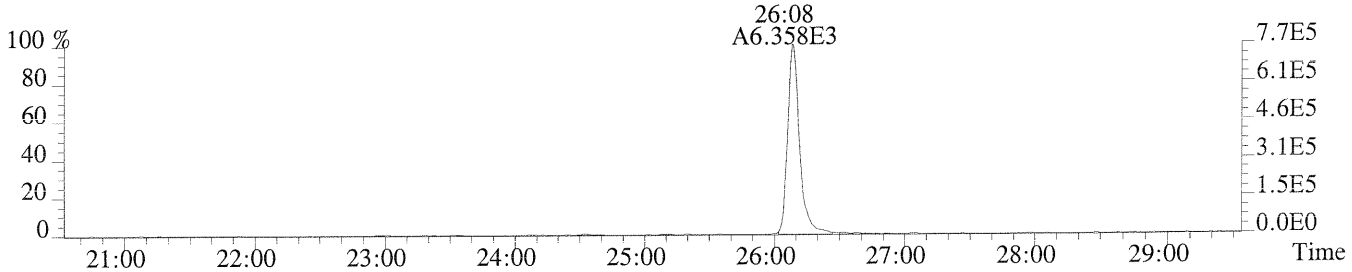
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



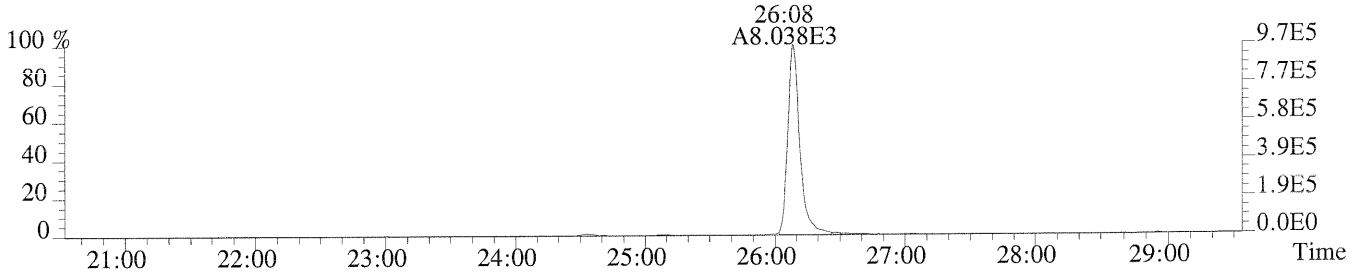
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



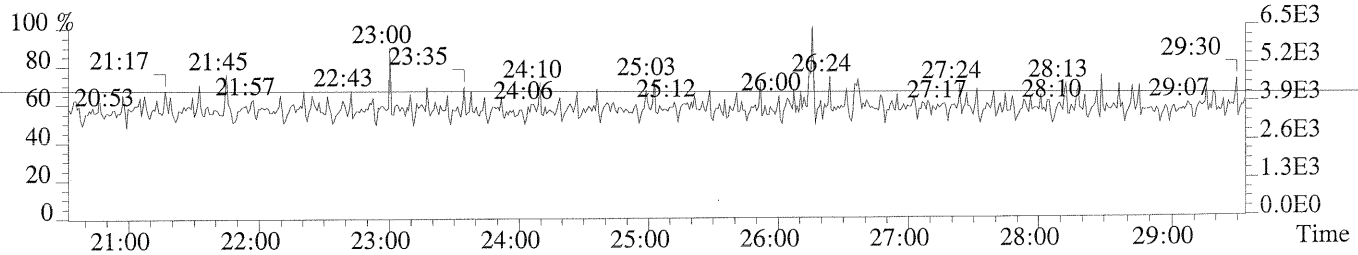
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



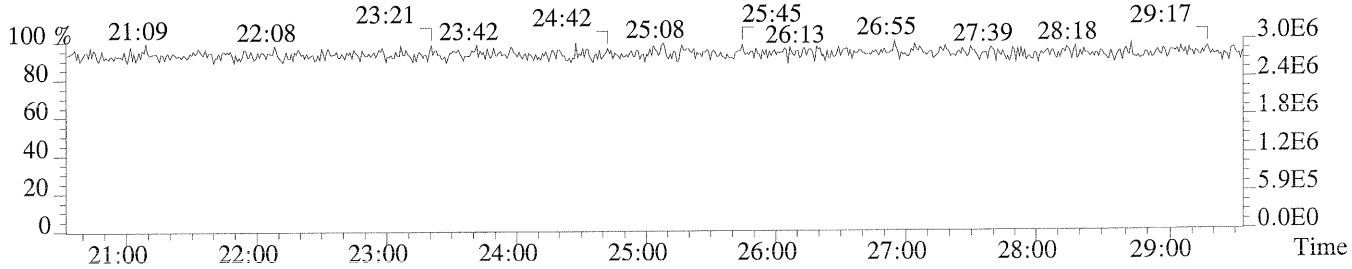
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



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

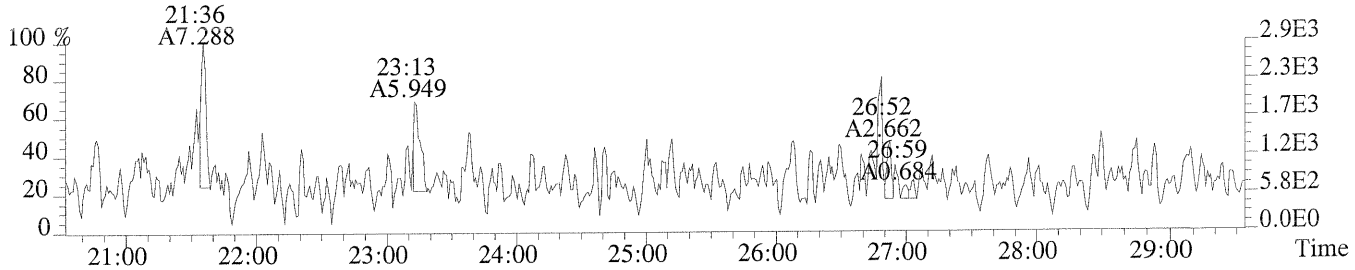


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

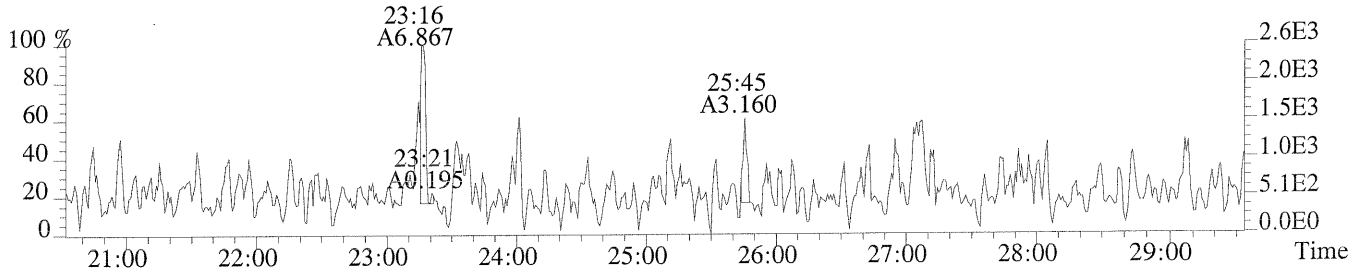


File:P176201 #1-696 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006

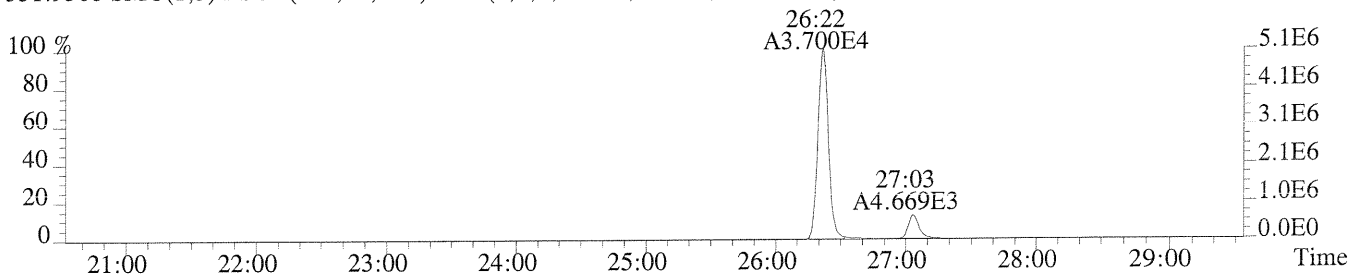
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



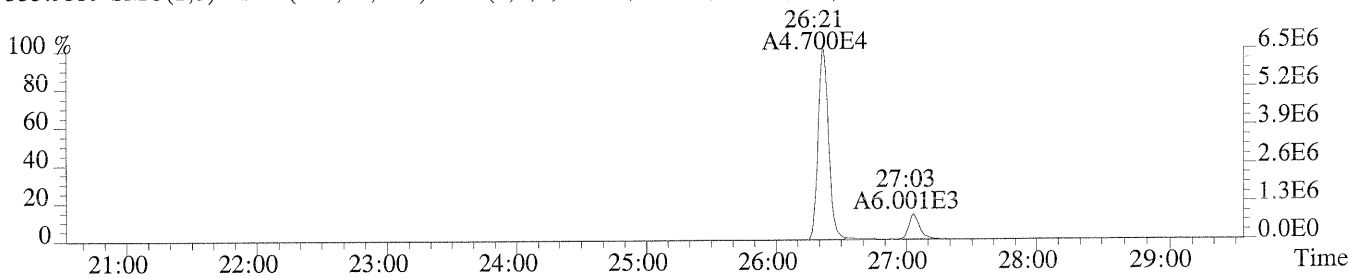
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



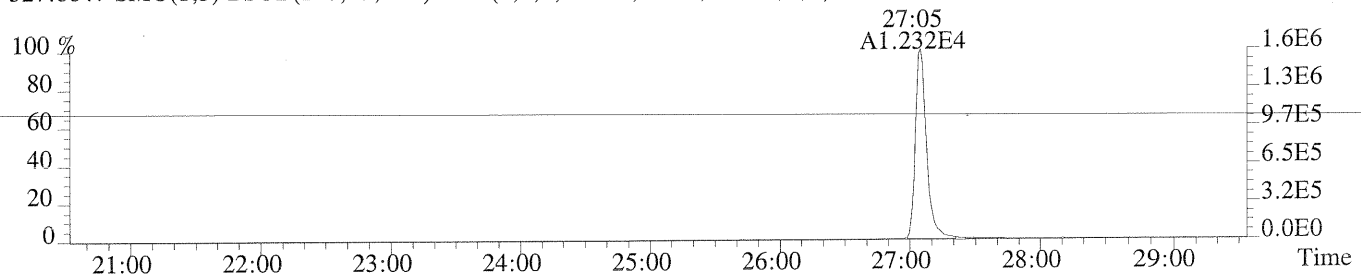
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



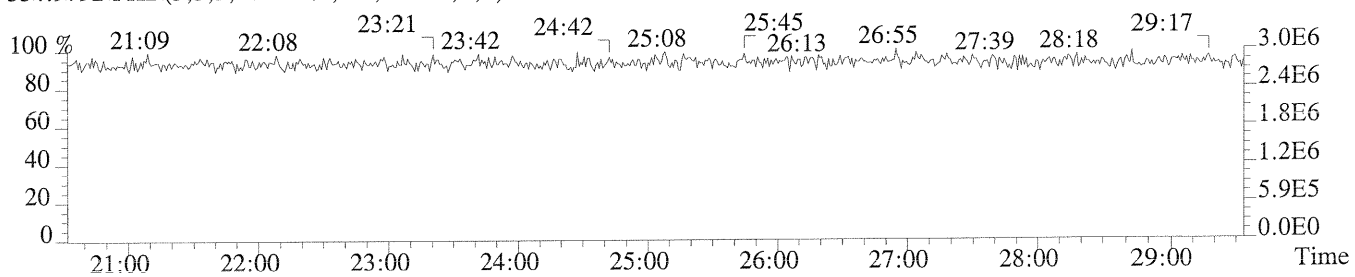
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



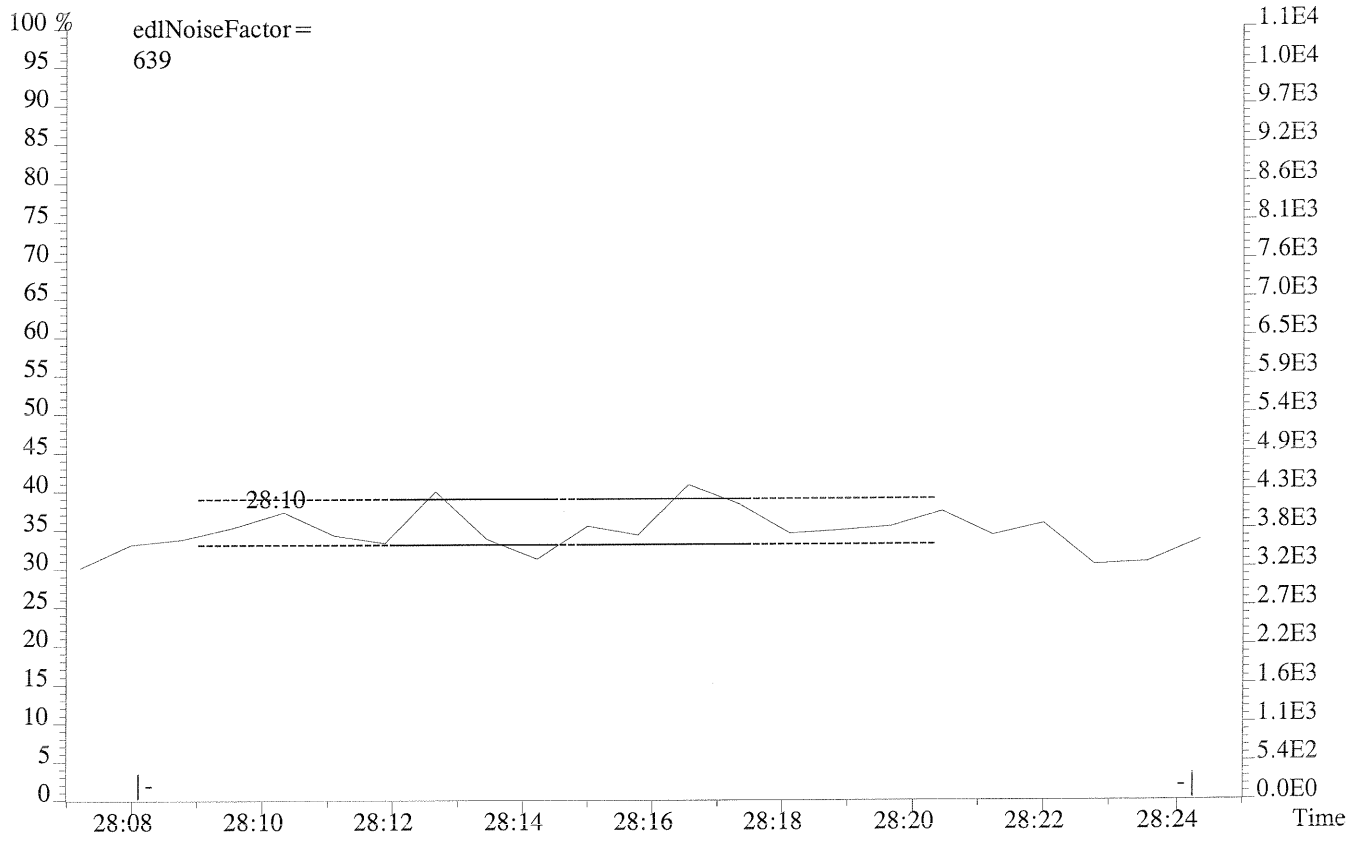
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



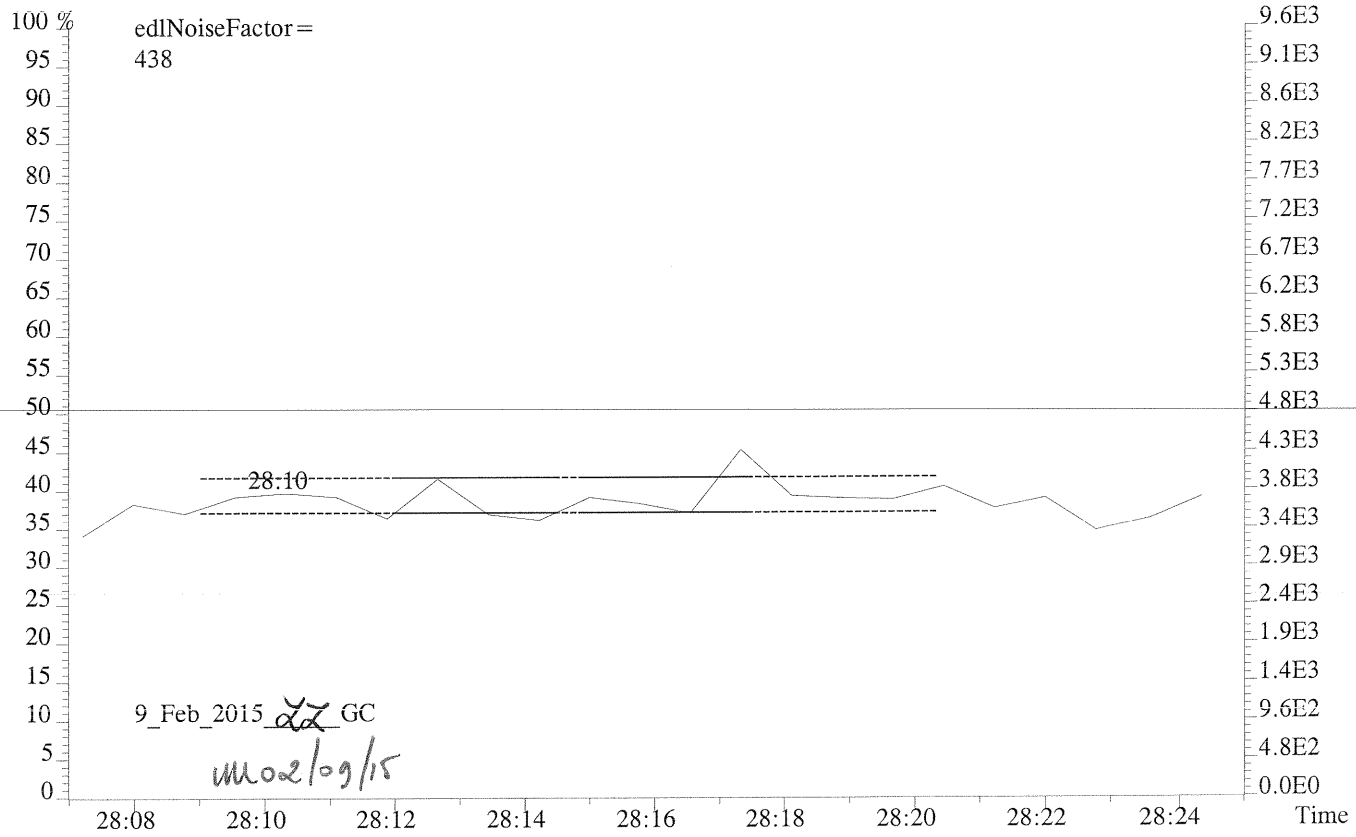
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



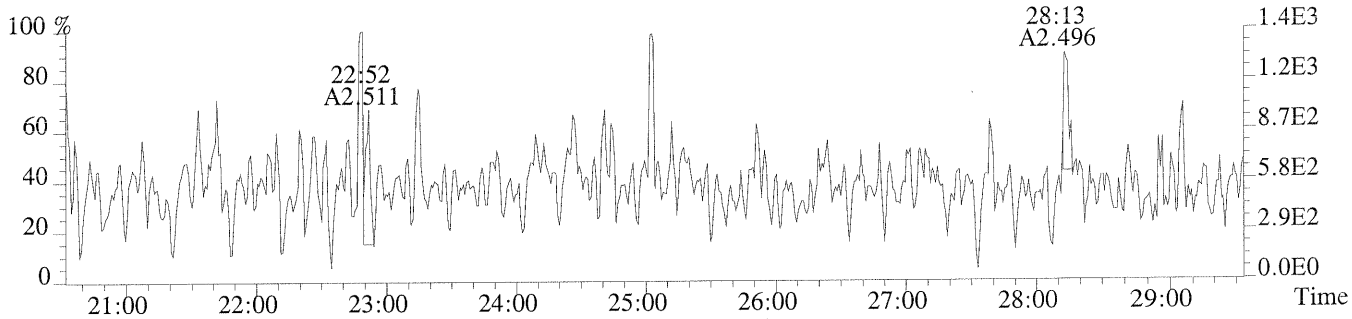
File:P176201 #1-696 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
319.8965



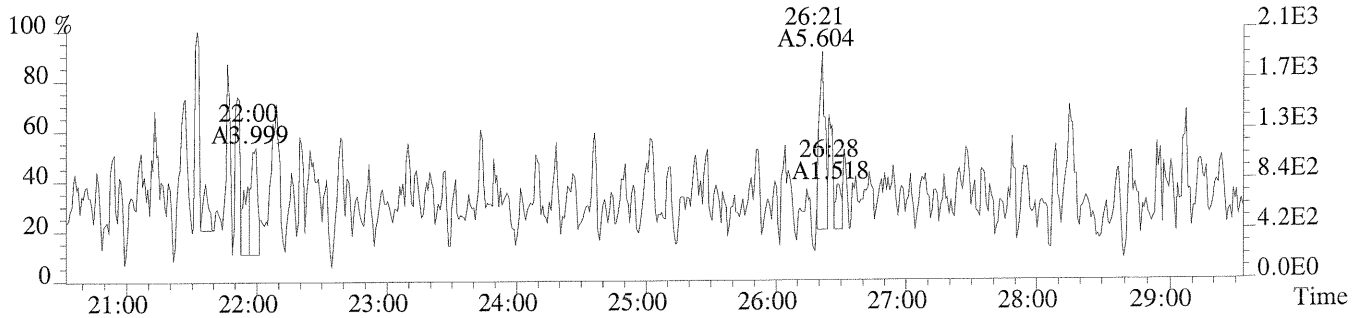
321.8936



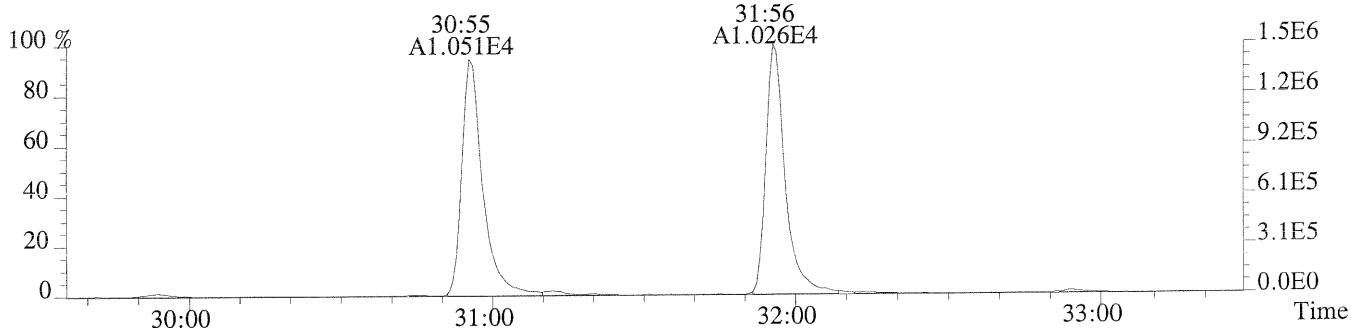
File:P176201 #1-696 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



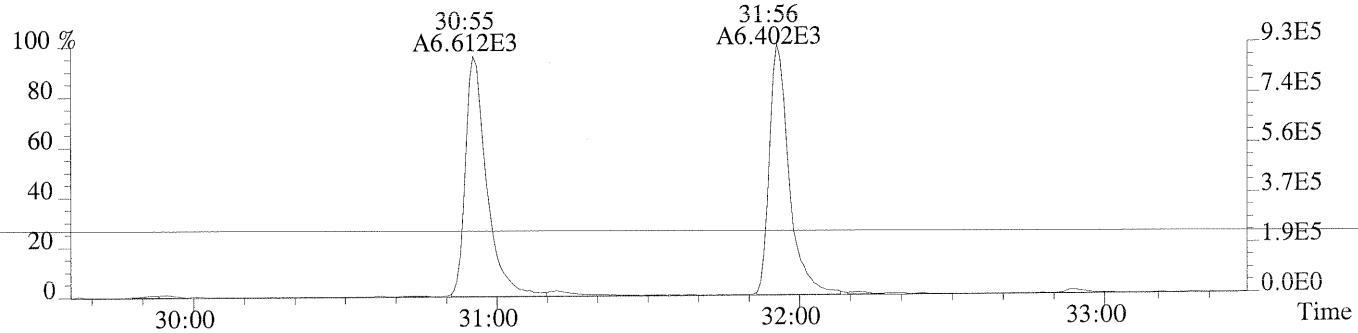
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



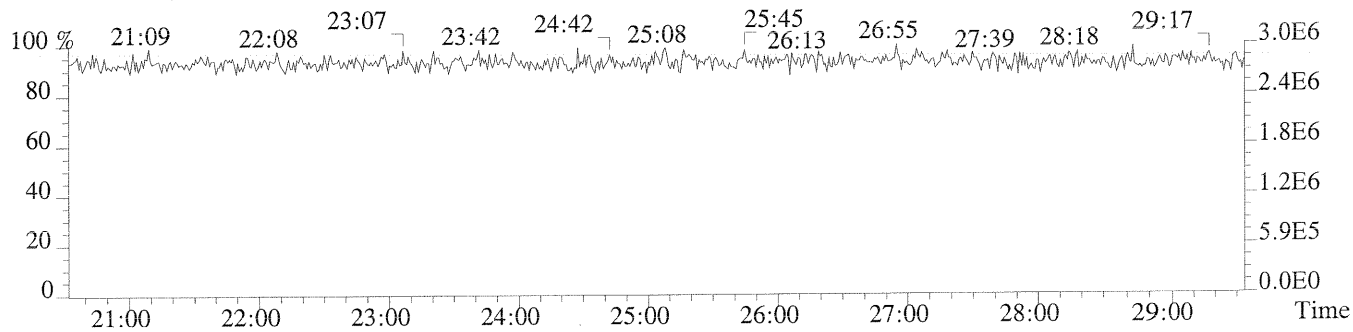
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



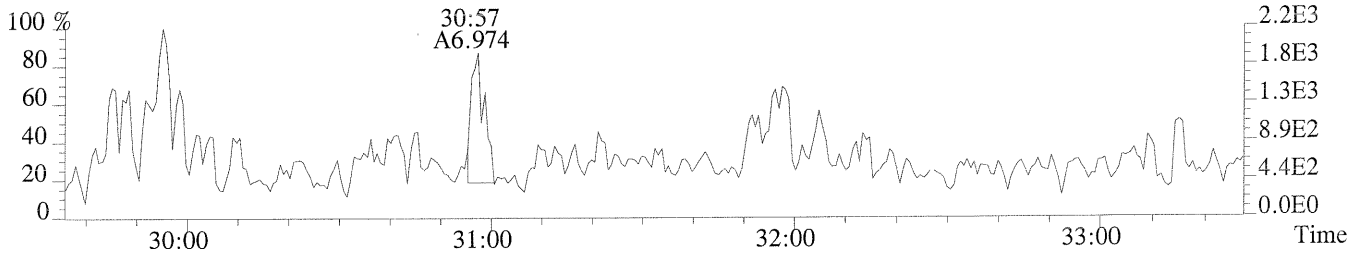
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



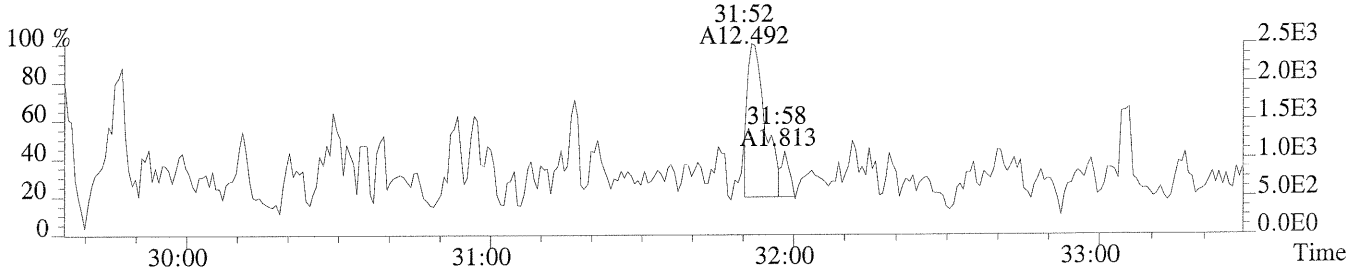
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



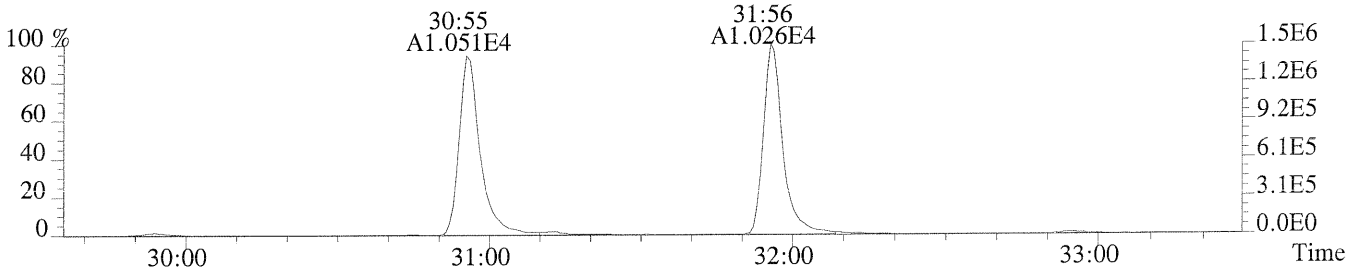
File:P176201 #1-351 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



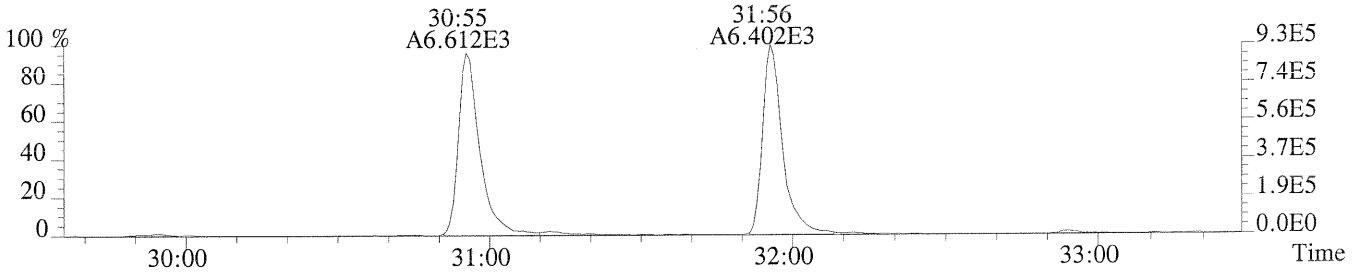
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



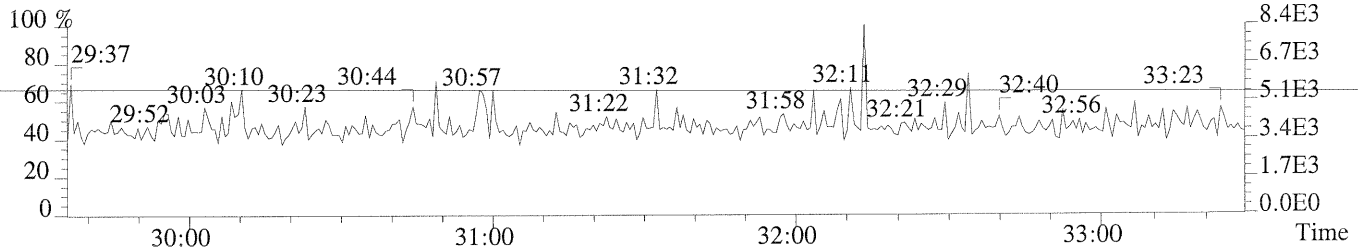
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



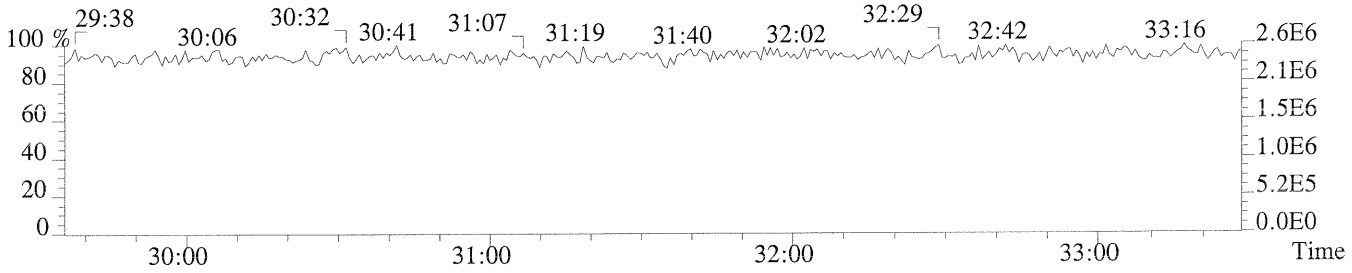
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



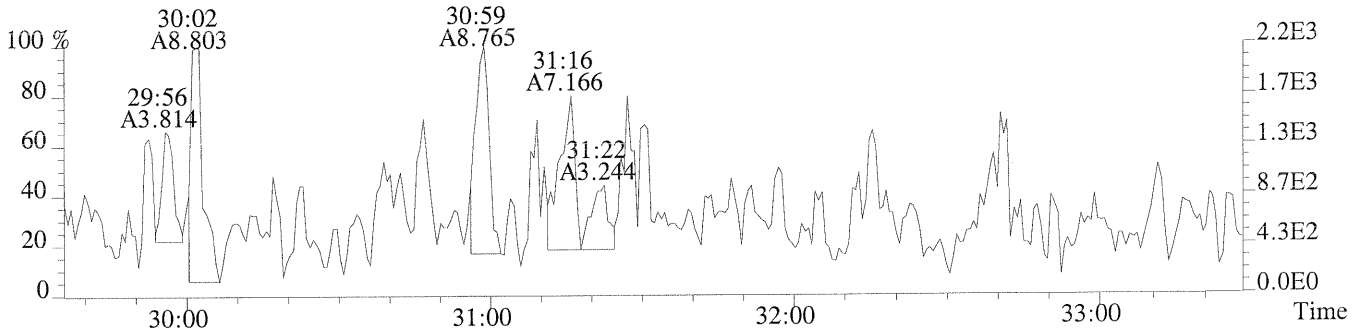
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



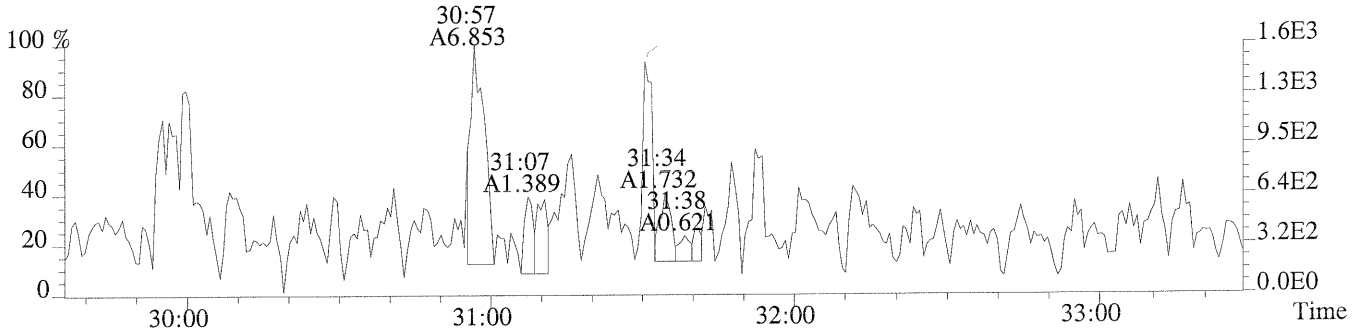
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



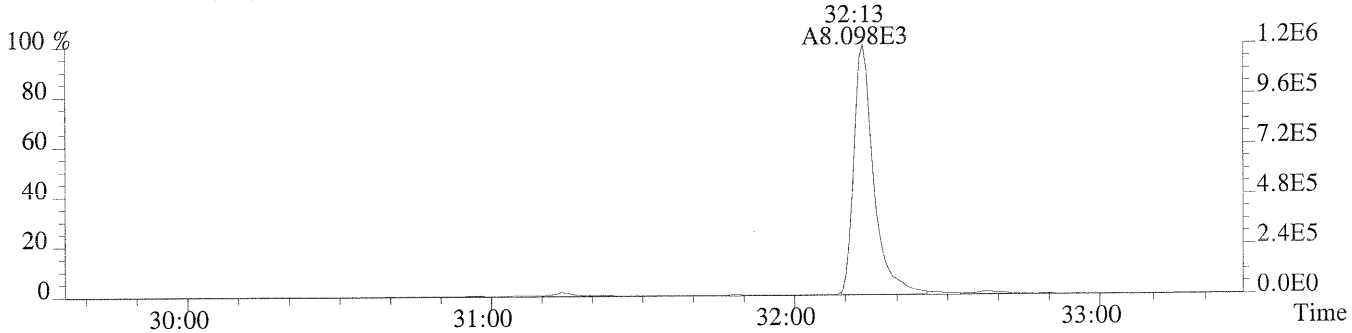
File:P176201 #1-351 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



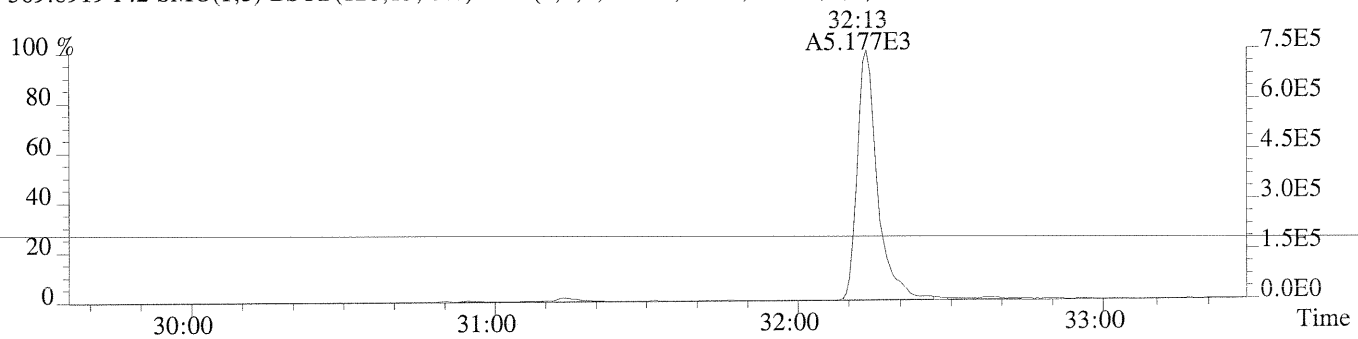
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



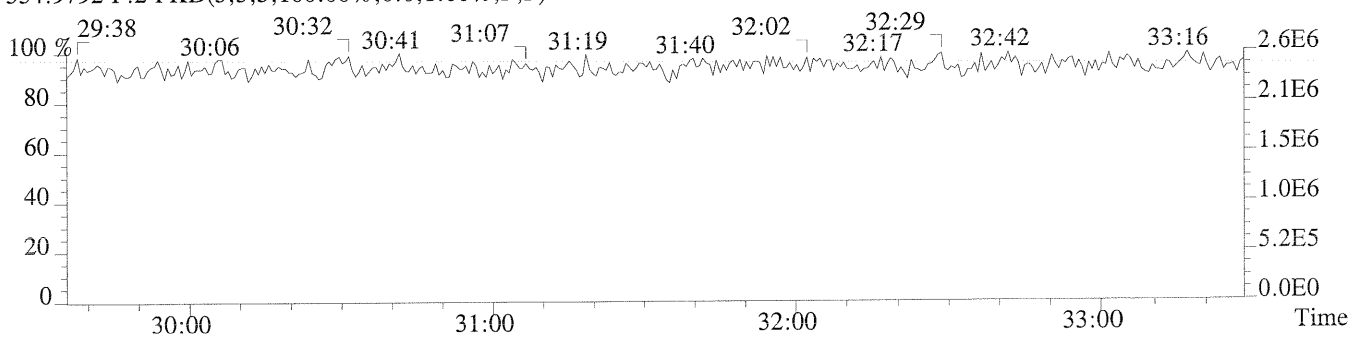
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



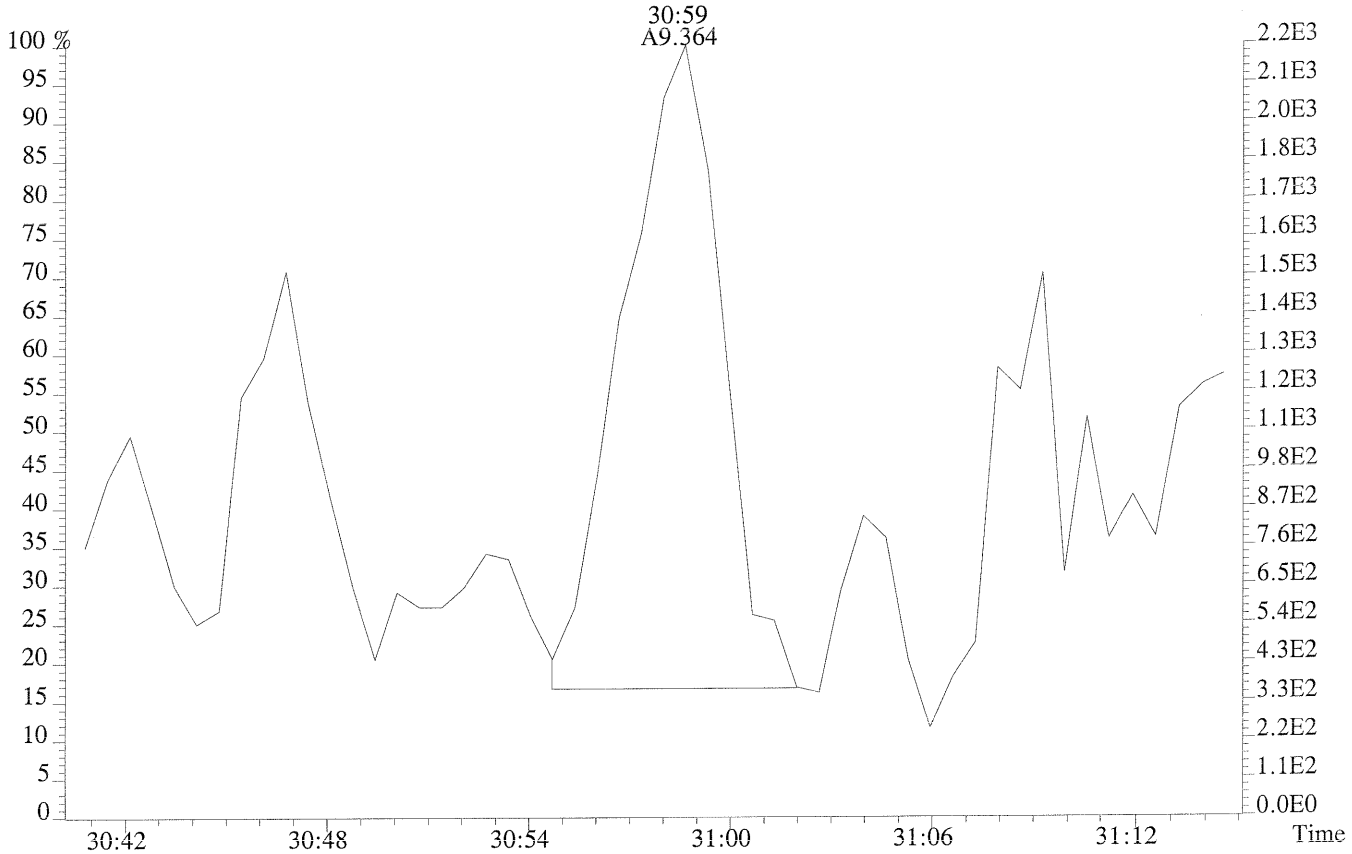
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



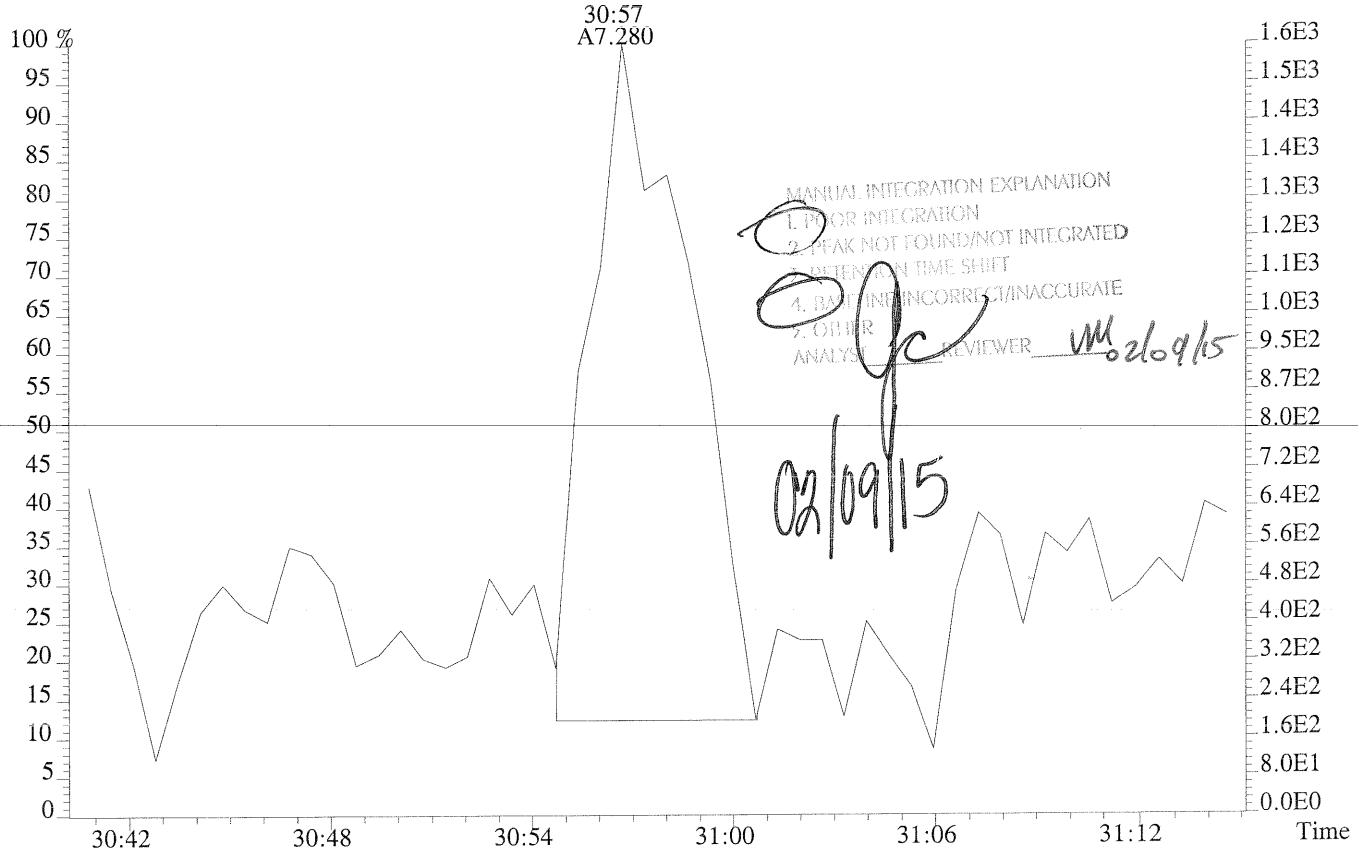
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176201 #1-351 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



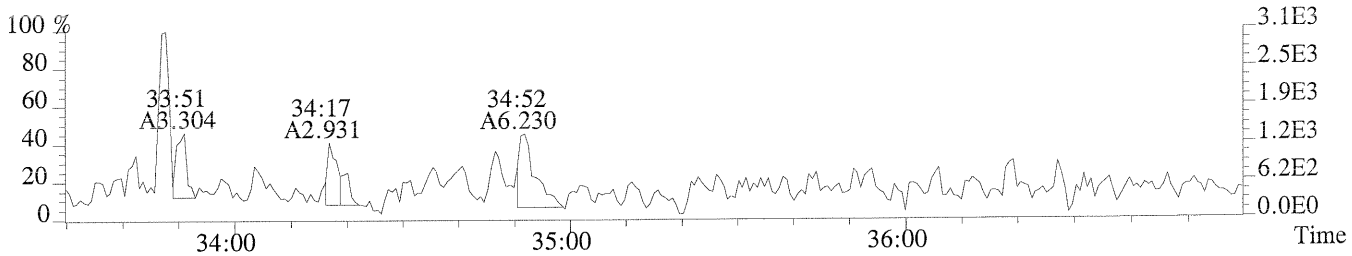
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



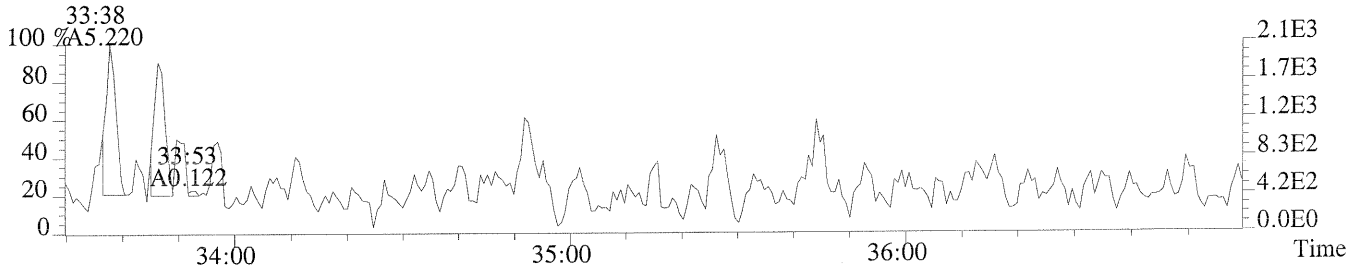
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. RATIO INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER VM 02/09/15

02/09/15

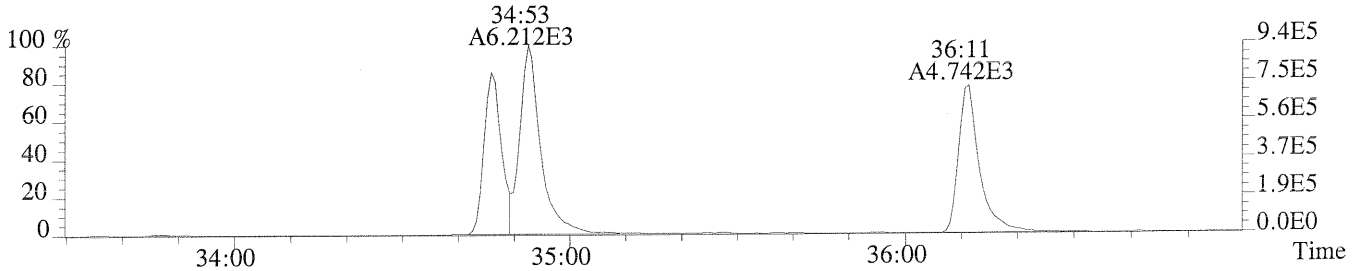
File:P176201 #1-318 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



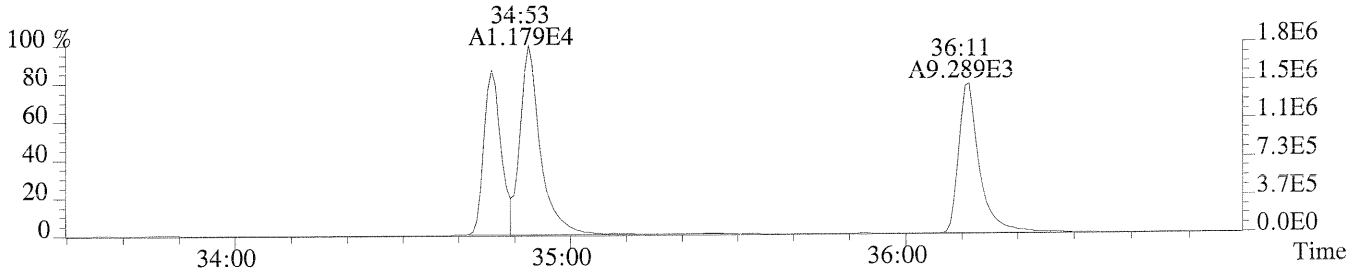
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



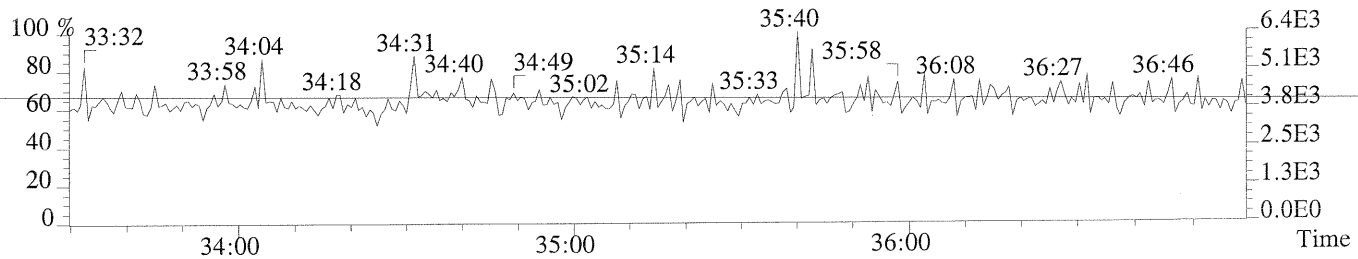
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



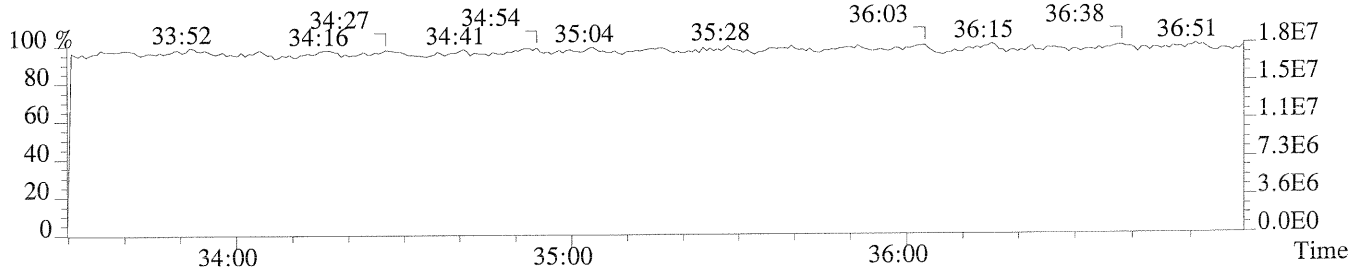
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



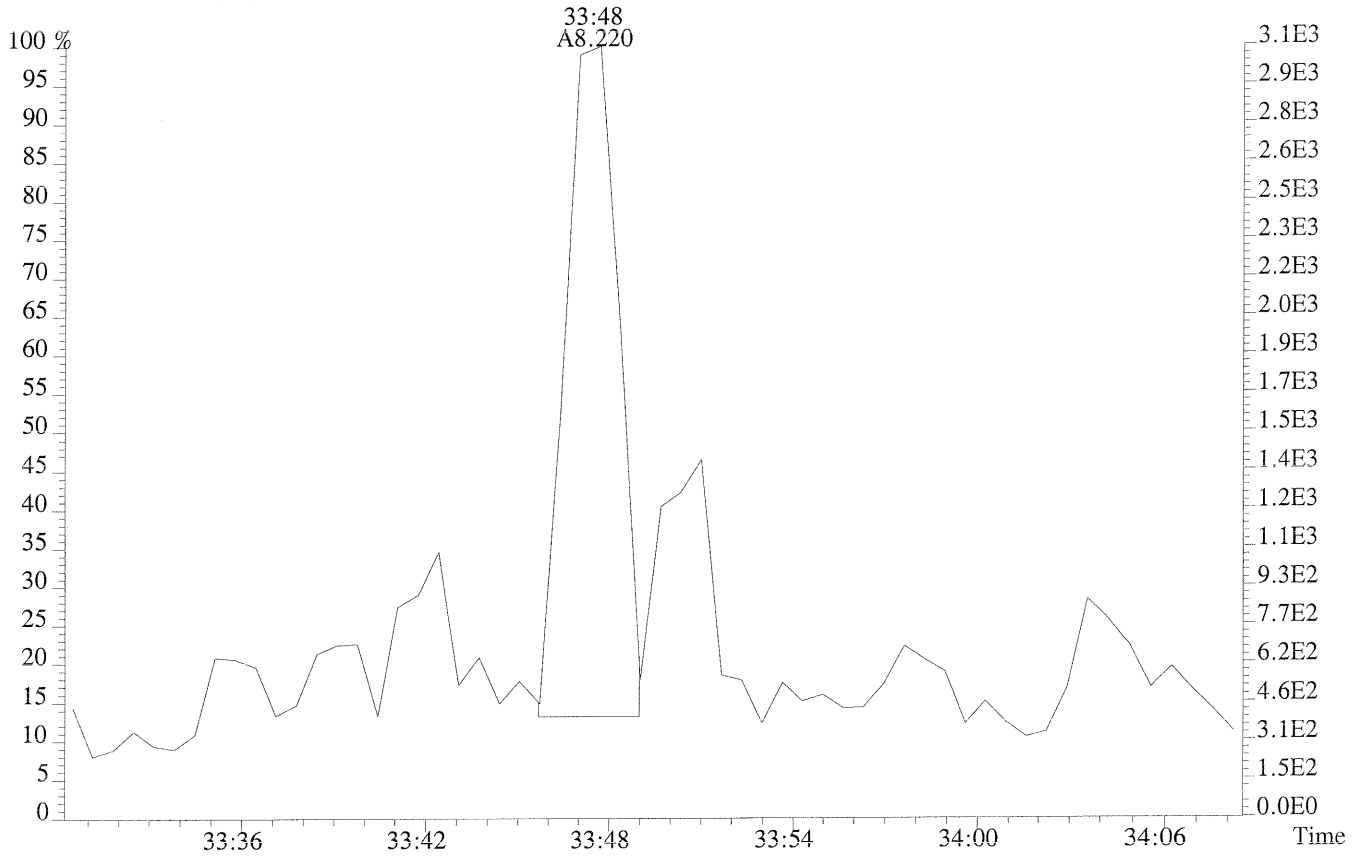
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



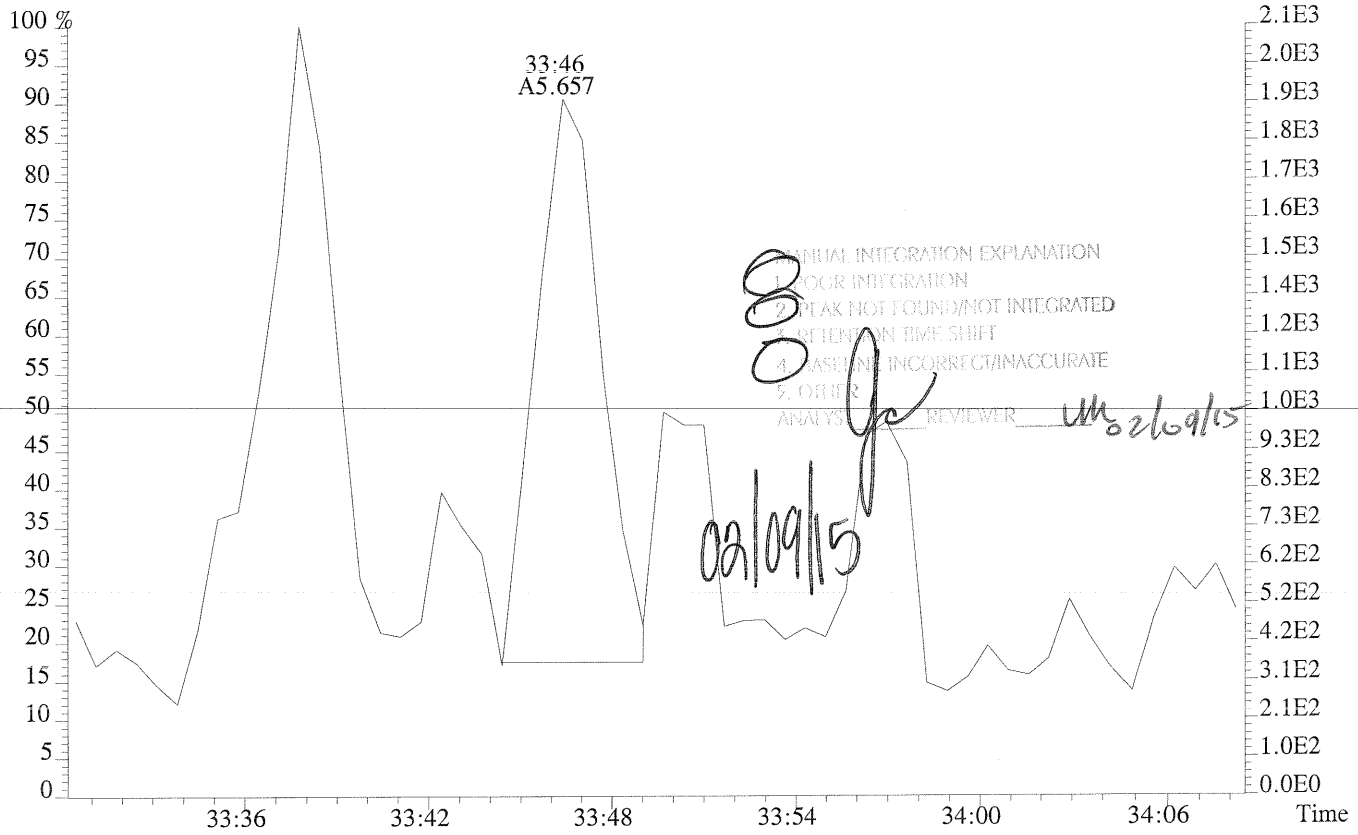
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176201 #1-318 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



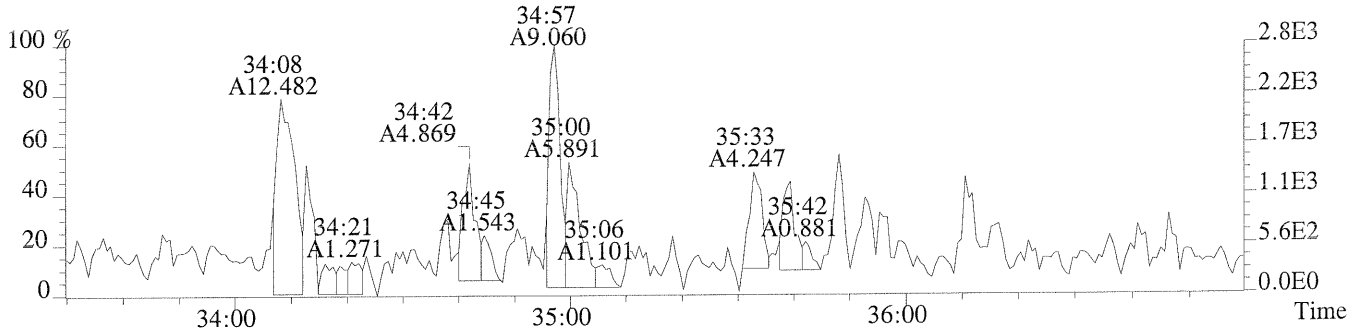
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



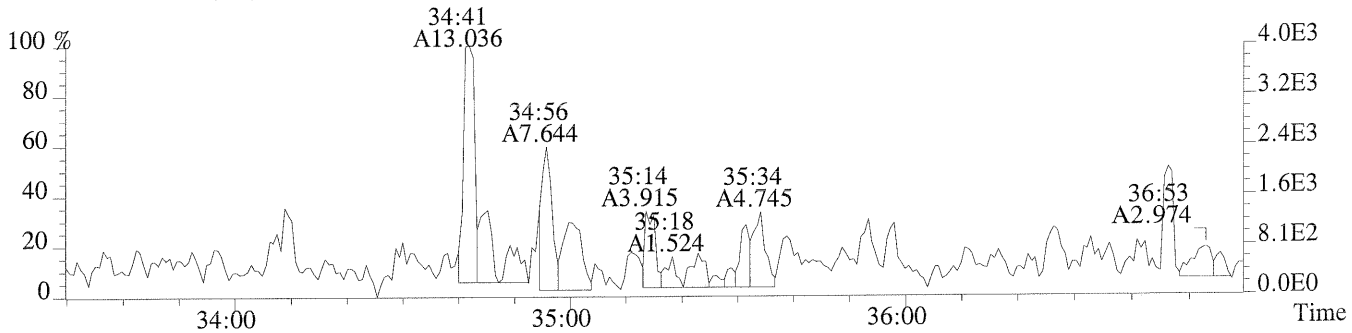
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER UM 02/09/15

02/09/15

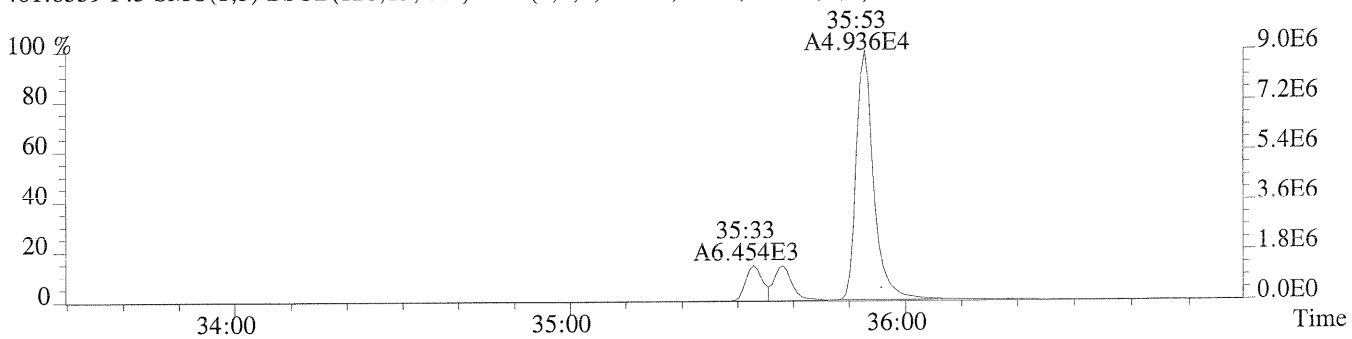
File:P176201 #1-318 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



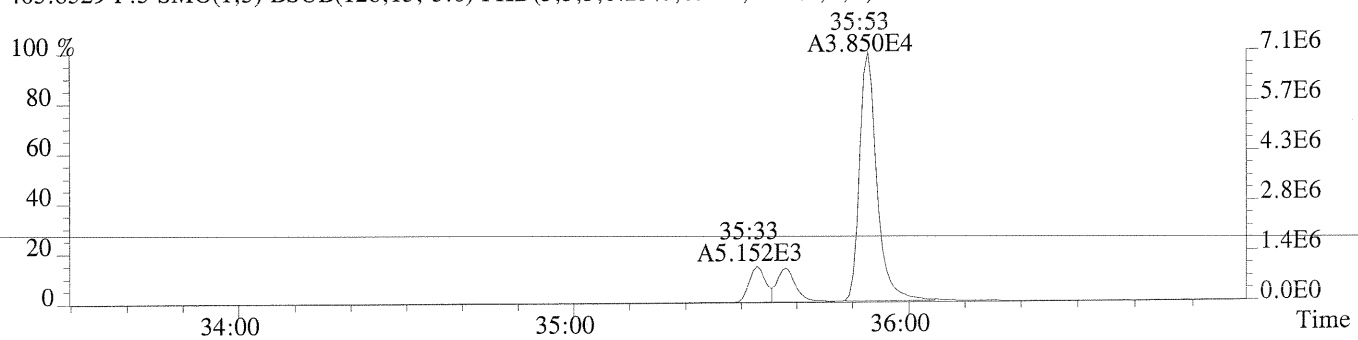
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



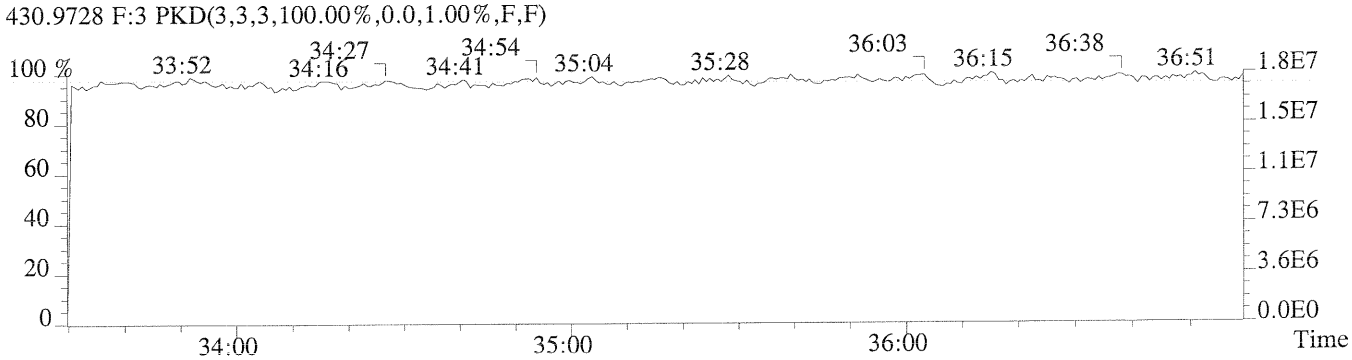
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



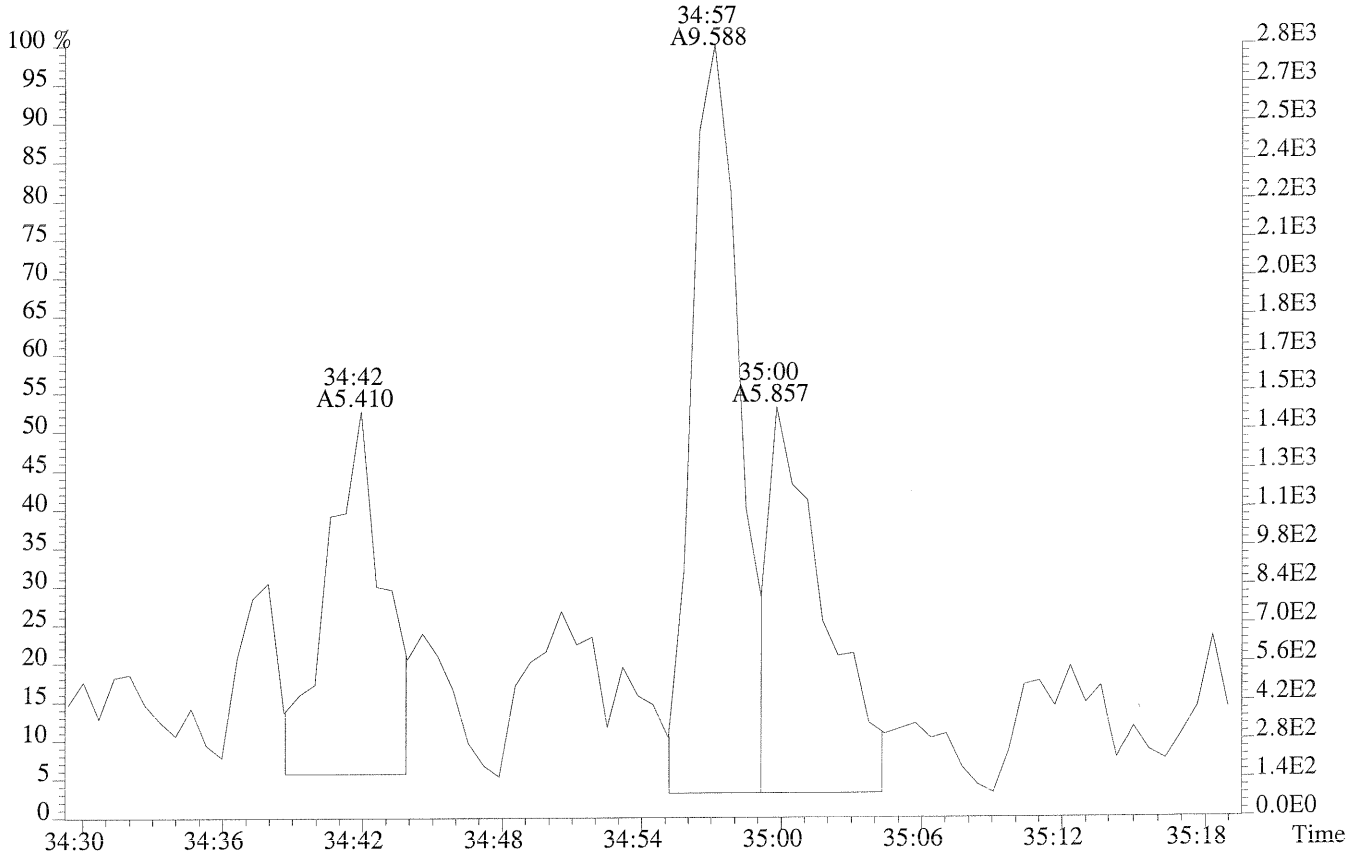
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



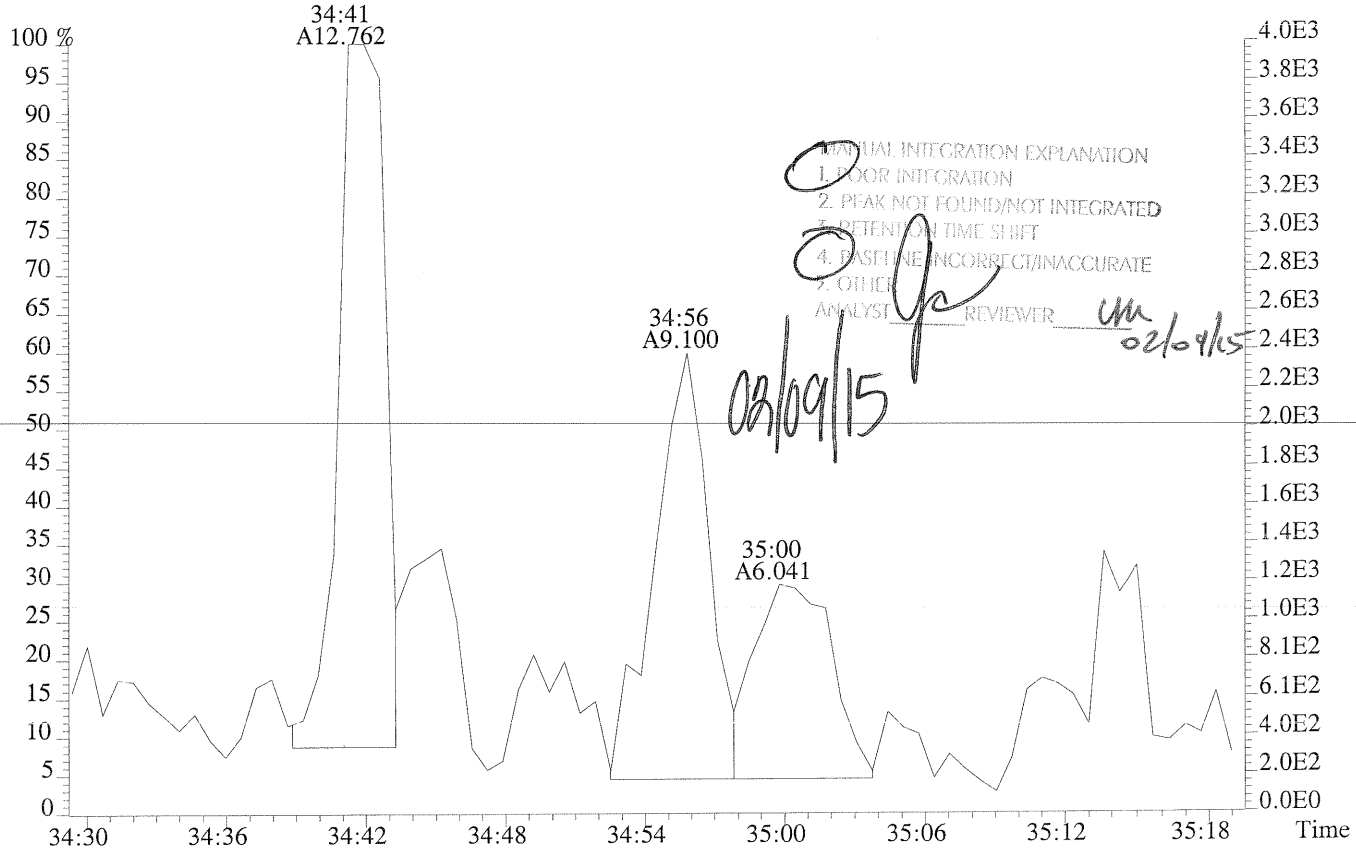
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176201 #1-318 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



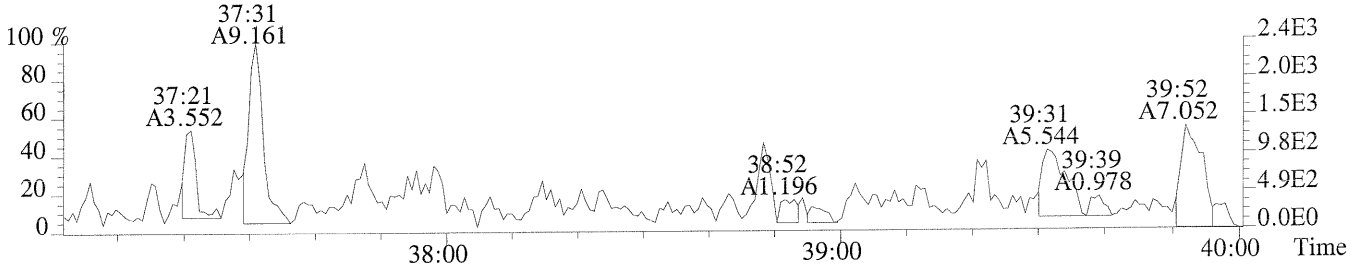
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



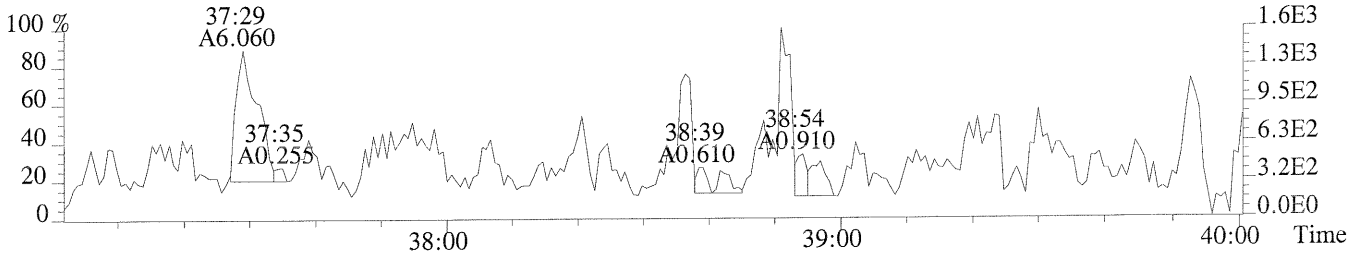
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 02/09/15 REVIEWER 02/09/15

File:P176201 #1-271 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006

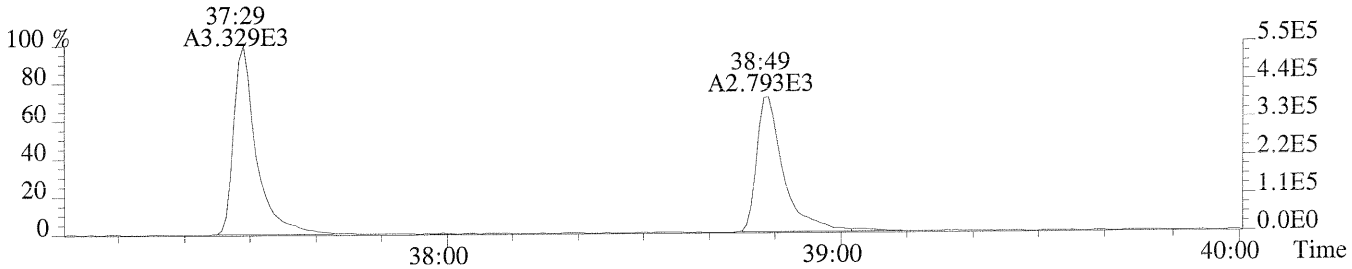
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.50%,F,T)



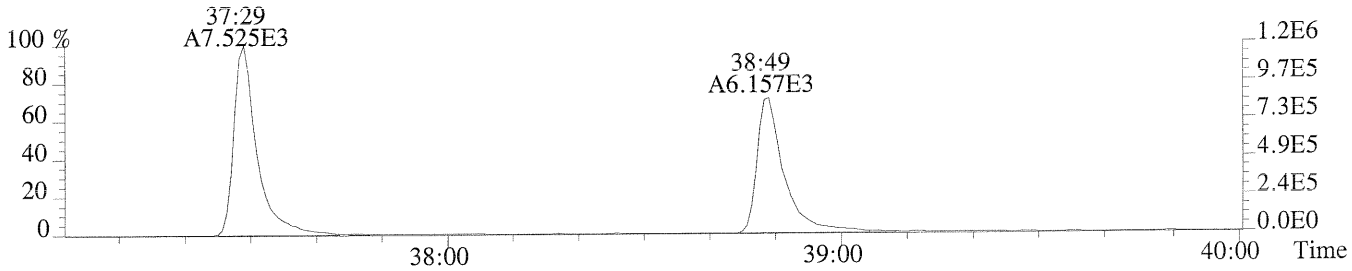
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.50%,F,T)



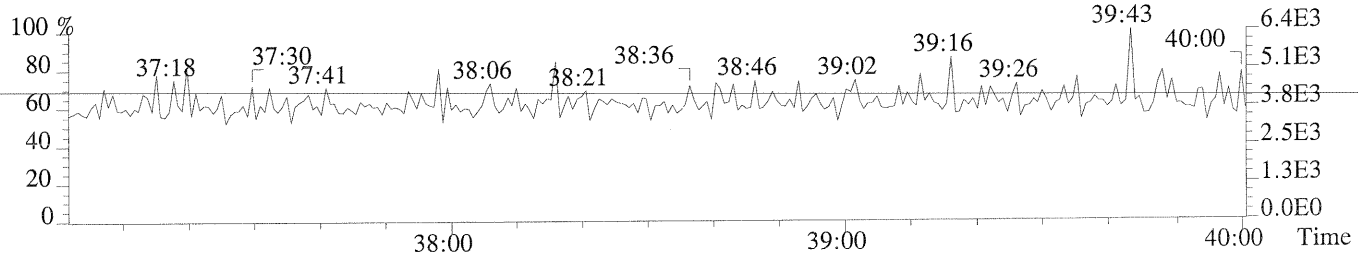
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.50%,F,T)



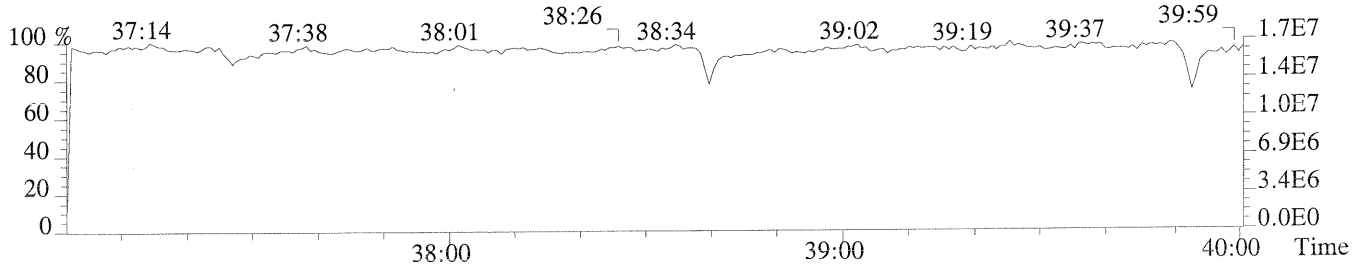
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.50%,F,T)



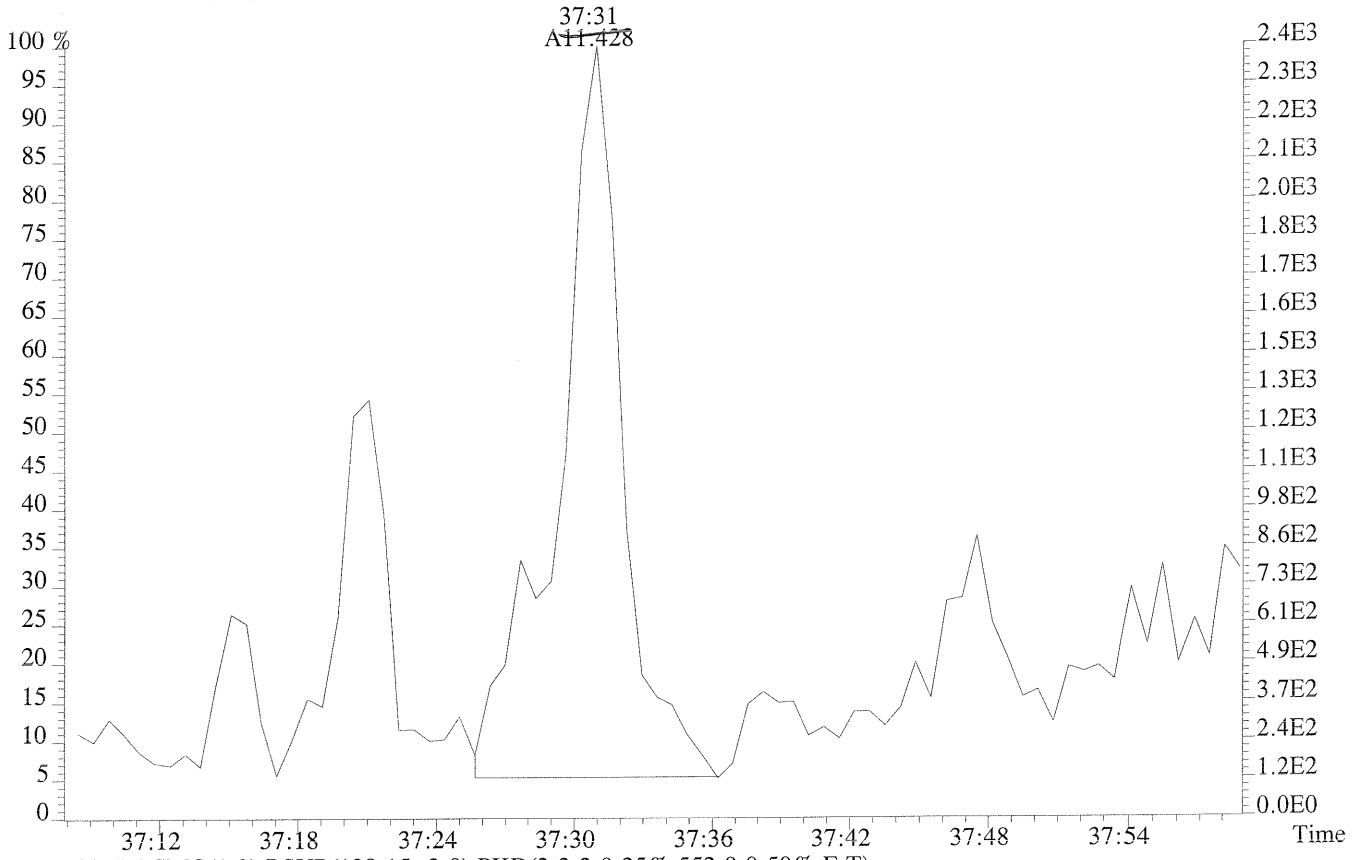
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



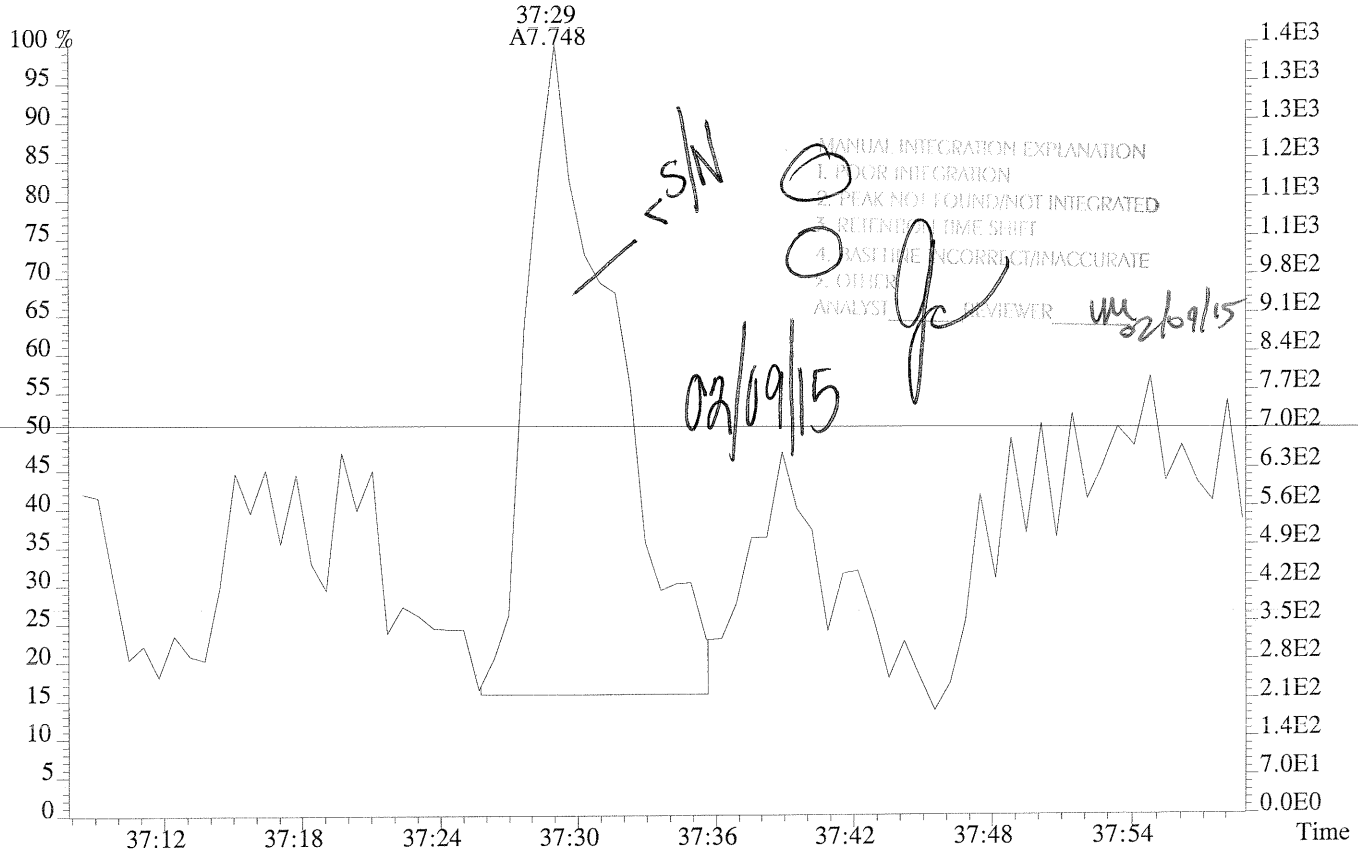
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176201 #1-271 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.50%,F,T)



409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.50%,F,T)

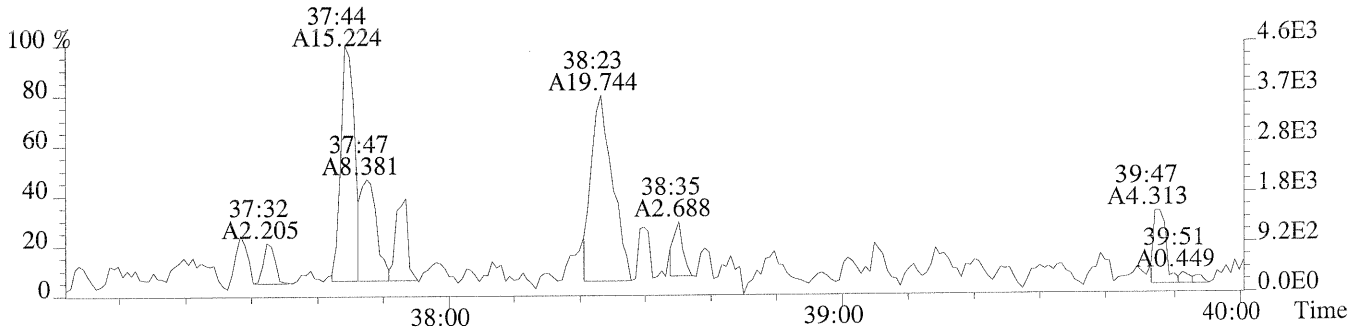


<S/N

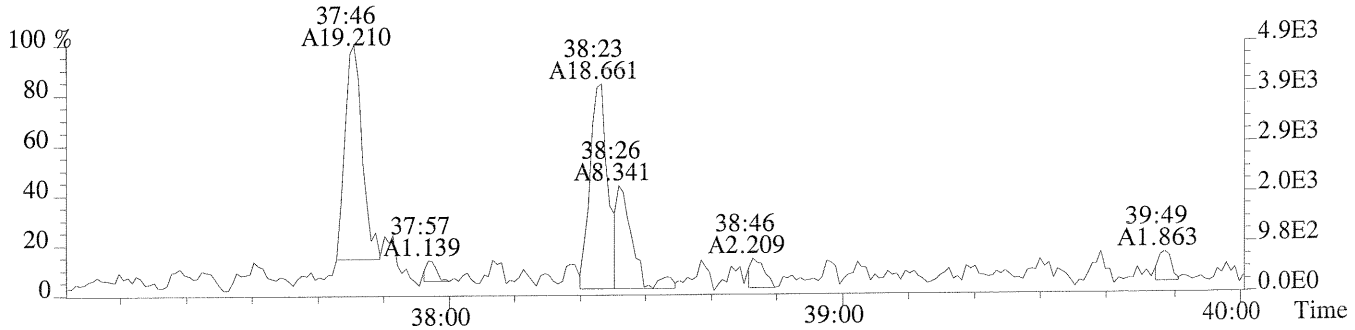
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JC REVIEWER UM 02/09/15

02/09/15

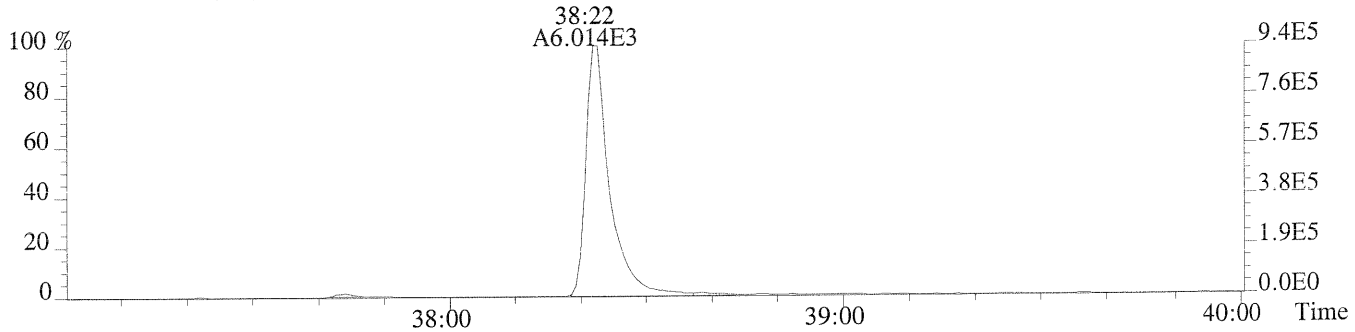
File:P176201 #1-271 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



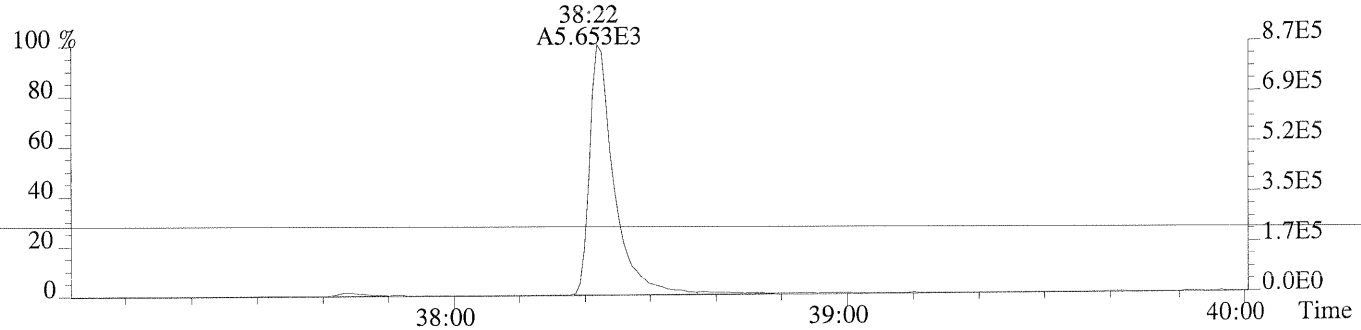
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



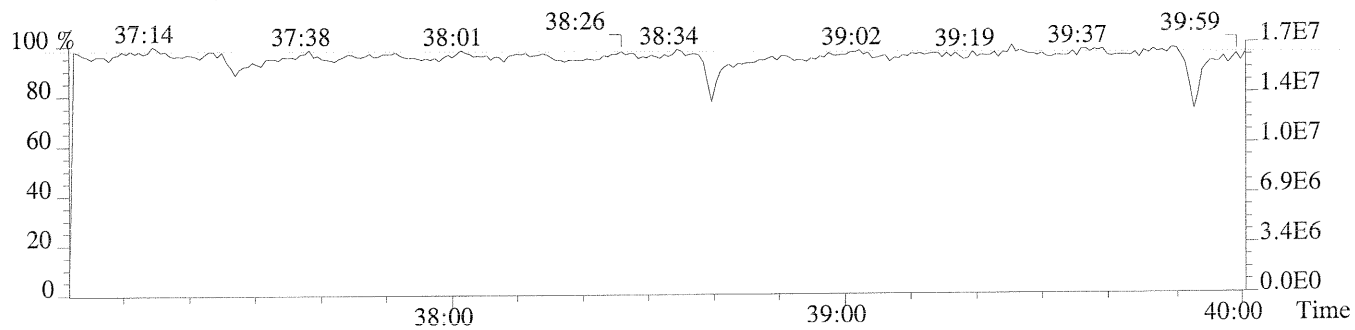
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



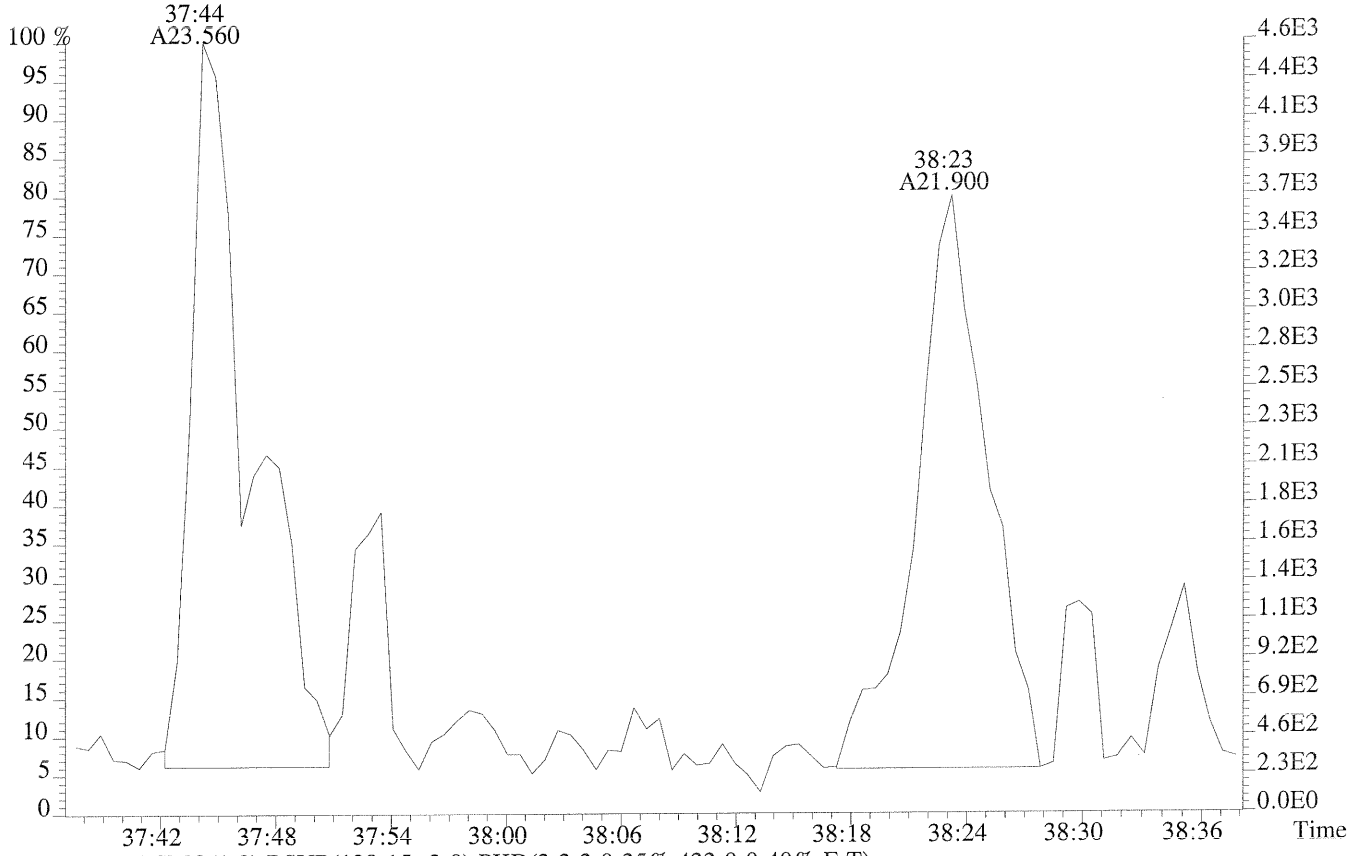
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



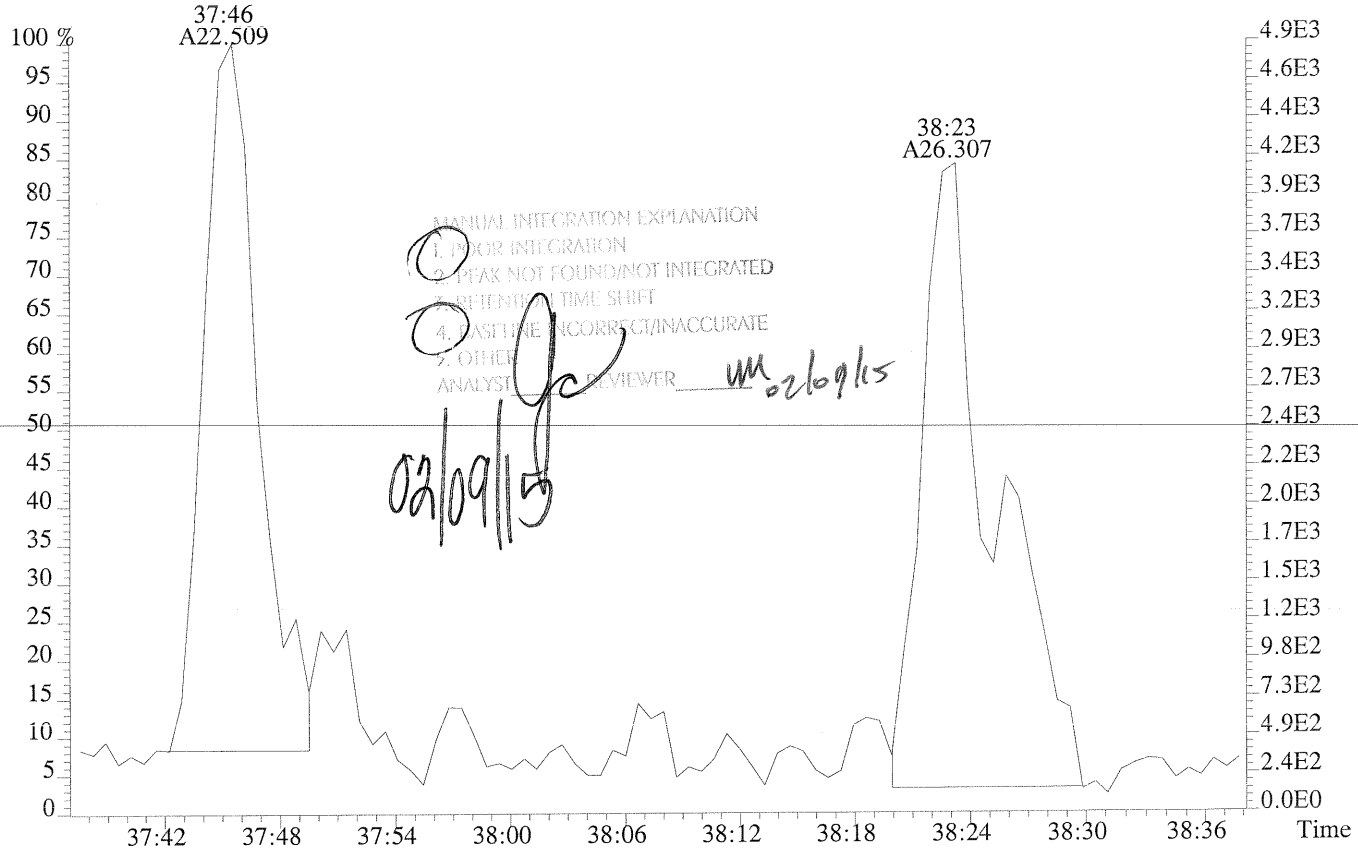
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176201 #1-271 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



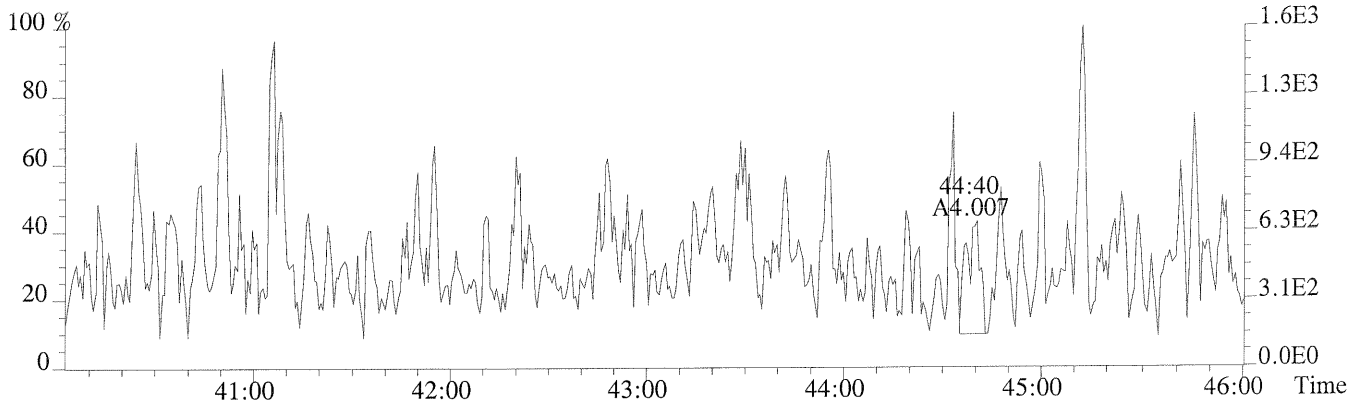
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



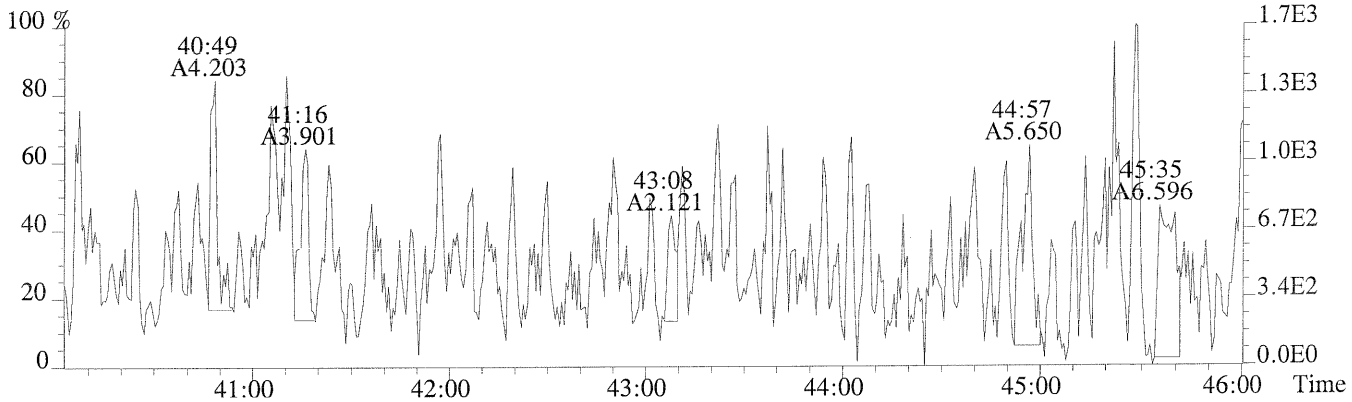
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. IDENTIFIED TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST [illegible] REVIEWER MM 02/09/15

02/09/15

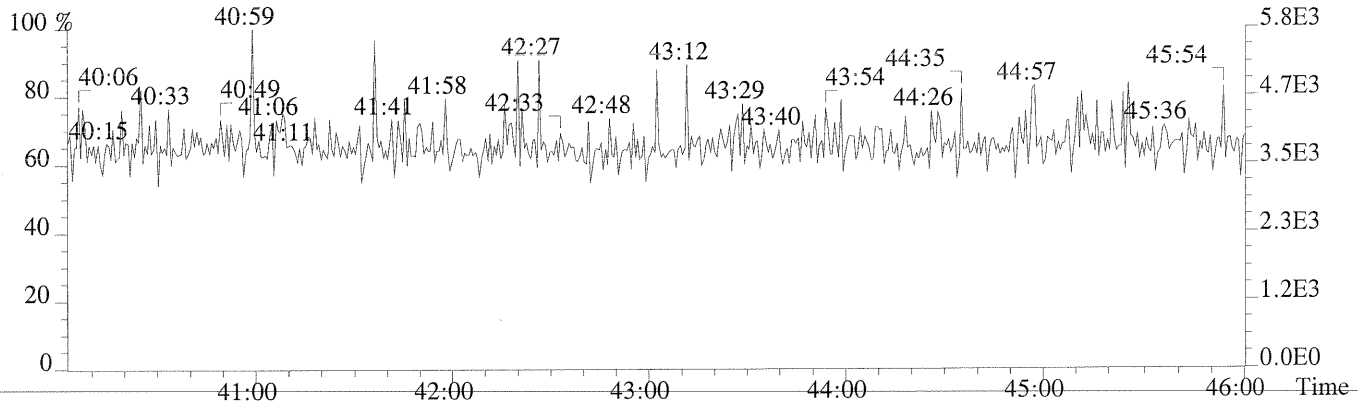
File:P176201 #1-548 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



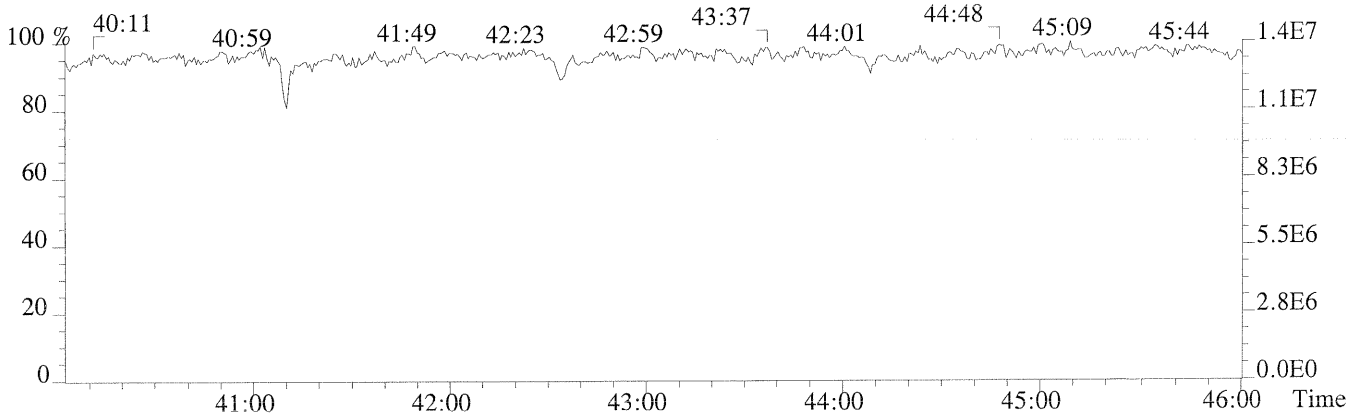
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,544.0,0.40%,F,T)



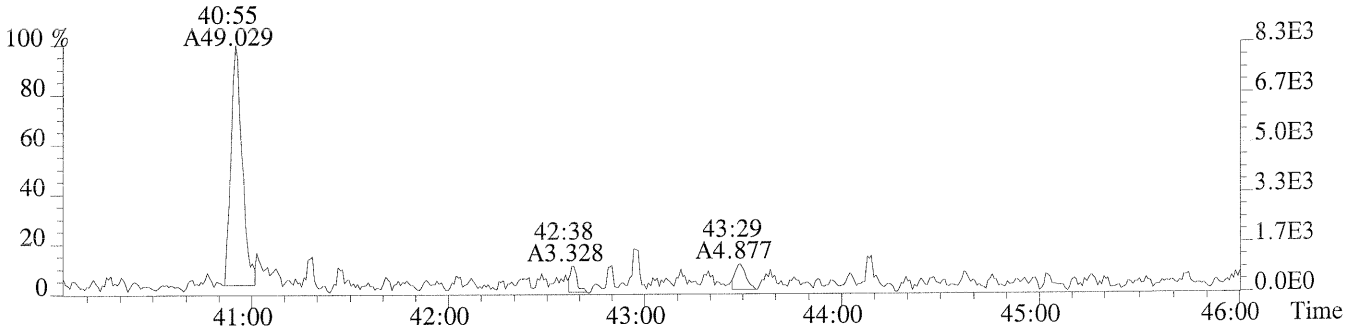
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



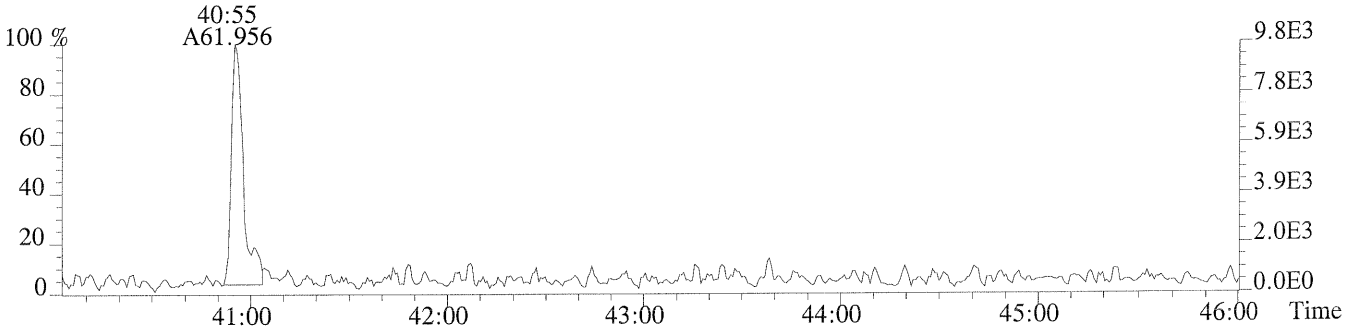
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



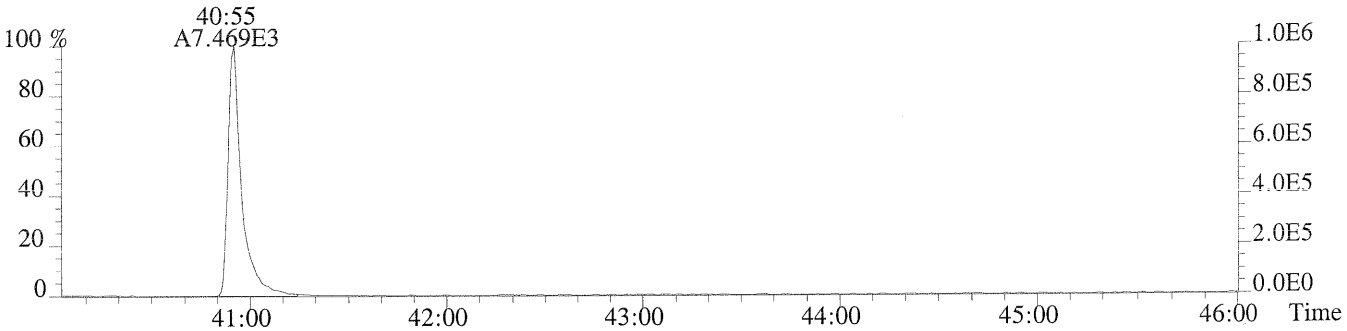
File:P176201 #1-548 Acq: 7-FEB-2015 17:02:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



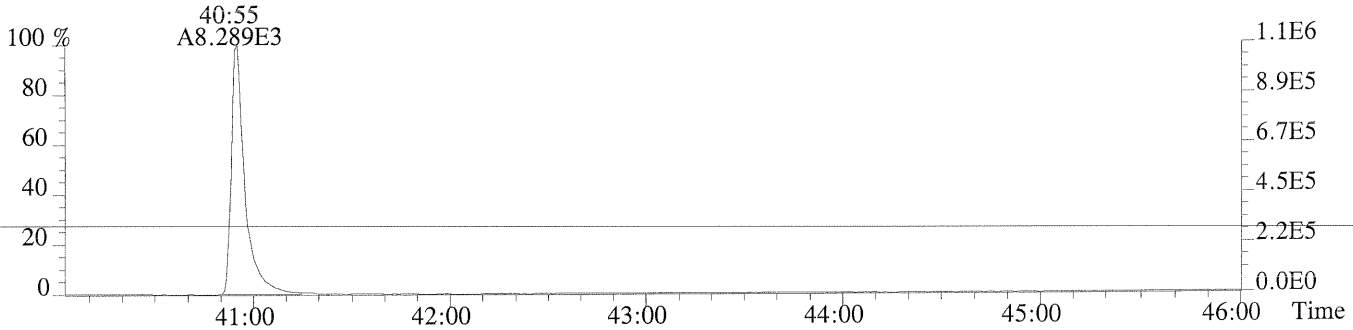
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



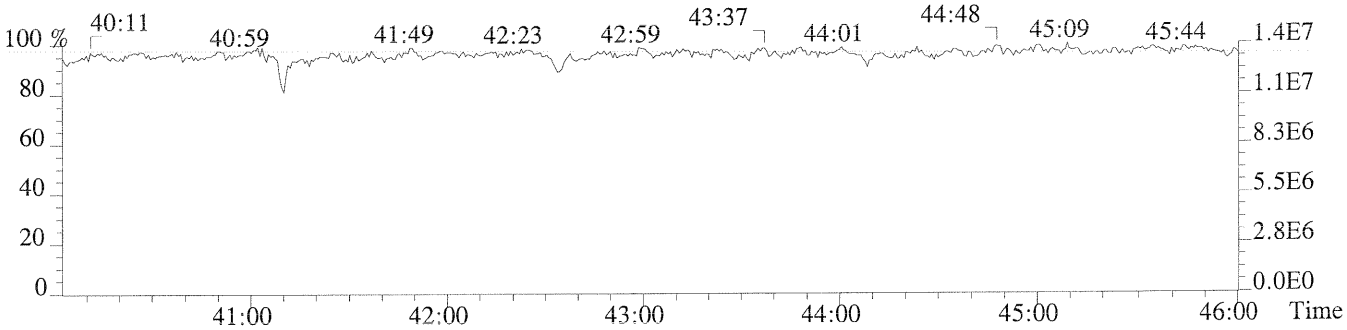
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1608.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2248.0,0.40%,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.
128F-DF

Run #16 Filename P176202 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 17:50:24
Processed: 9-FEB-15 12:04:15 LAB. ID: P1500356-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.946
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.061
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.036
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.151
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.282
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.141
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.148
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.369
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.998
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.995
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	38:23	2.894e+01	2.706e+01	1.07	yes	yes	1.052
17	Unk	OCDD	40:56	9.055e+01	8.607e+01	1.05	no	yes	1.068
18	IS	13C-2,3,7,8-TCDF	26:09	6.247e+03	8.116e+03	0.77	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:56	1.005e+04	6.320e+03	1.59	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	9.828e+03	6.320e+03	1.56	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:47	4.410e+03	8.546e+03	0.52	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	6.212e+03	1.187e+04	0.52	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	5.024e+03	9.646e+03	0.52	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	3.370e+03	7.649e+03	0.44	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:49	2.749e+03	6.322e+03	0.43	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	4.685e+03	6.004e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	7.747e+03	4.910e+03	1.58	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:34	6.583e+03	5.262e+03	1.25	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:38	6.896e+03	5.401e+03	1.28	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:23	6.059e+03	5.677e+03	1.07	yes	no	0.874
32	IS	13C-OCDD	40:55	7.359e+03	8.178e+03	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:22	3.467e+04	4.409e+04	0.79	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	4.801e+04	3.746e+04	1.28	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:05	1.220e+04				no	1.038

$$OCDD = \frac{(9.055e+01 + 8.607e+01) \times \cancel{8000}\ 4000\ pg \times 1}{(7.359e+03 + 8.178e+03) \times 1.068 \times 0.5} = 85.2\ pg$$

~~pg~~

uu 02/09/15

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

Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
128F-DF

Run #16 Filename P176202 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 17:50:24
Processed: 9-FEB-15 12:04:15 LAB. ID: P1500356-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.64e+02	*	*	8.99e+02	*
2	1,2,3,7,8-PeCDF	*	5.32e+02	*	*	3.68e+02	*
3	2,3,4,7,8-PeCDF	*	5.32e+02	*	*	3.68e+02	*
4	1,2,3,4,7,8-HxCDF	*	5.60e+02	*	*	3.08e+02	*
5	1,2,3,6,7,8-HxCDF	*	5.60e+02	*	*	3.08e+02	*
6	2,3,4,6,7,8-HxCDF	*	5.60e+02	*	*	3.08e+02	*
7	1,2,3,7,8,9-HxCDF	*	5.60e+02	*	*	3.08e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	5.72e+02	*	*	4.76e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	5.72e+02	*	*	4.76e+02	*
10	OCDF	*	5.48e+02	*	*	8.16e+02	*
11	2,3,7,8-TCDD	*	6.52e+02	*	*	6.32e+02	*
12	1,2,3,7,8-PeCDD	*	5.68e+02	*	*	3.56e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.00e+02	*	*	5.24e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.00e+02	*	*	5.24e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.00e+02	*	*	5.24e+02	*
16	1,2,3,4,6,7,8-HpCDD	5.05e+03	5.24e+02	9.6e+00	4.06e+03	4.04e+02	1.0e+01
17	OCDD	1.33e+04	2.68e+02	5.0e+01	1.24e+04	3.56e+02	3.5e+01
18	13C-2,3,7,8-TCDF	7.55e+05	8.68e+02	8.7e+02	9.97e+05	6.20e+02	1.6e+03
19	13C-1,2,3,7,8-PeCDF	1.39e+06	3.80e+02	3.7e+03	8.82e+05	6.72e+02	1.3e+03
20	13C-2,3,4,7,8-PeCDF	1.49e+06	3.80e+02	3.9e+03	9.44e+05	6.72e+02	1.4e+03
21	13C-1,2,3,4,7,8-HxCDF	7.96e+05	6.44e+02	1.2e+03	1.54e+06	8.64e+02	1.8e+03
22	13C-1,2,3,6,7,8-HxCDF	9.38e+05	6.44e+02	1.5e+03	1.79e+06	8.64e+02	2.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.89e+05	6.44e+02	1.2e+03	1.47e+06	8.64e+02	1.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.59e+05	1.02e+03	5.5e+02	1.23e+06	1.70e+03	7.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.88e+05	1.02e+03	3.8e+02	9.21e+05	1.70e+03	5.4e+02
27	13C-2,3,7,8-TCDD	6.52e+05	2.06e+03	3.2e+02	8.47e+05	8.44e+02	1.0e+03
28	13C-1,2,3,7,8-PeCDD	1.16e+06	4.28e+02	2.7e+03	7.21e+05	3.52e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.27e+06	7.20e+02	1.8e+03	9.96e+05	3.80e+02	2.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.21e+06	7.20e+02	1.7e+03	9.61e+05	3.80e+02	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.67e+05	7.24e+02	1.3e+03	9.23e+05	4.44e+02	2.1e+03
32	13C-OCDD	9.92e+05	3.68e+02	2.7e+03	1.09e+06	5.32e+02	2.0e+03
33	13C-1,2,3,4-TCDD	4.86e+06	2.06e+03	2.4e+03	6.21e+06	8.44e+02	7.4e+03
34	13C-1,2,3,7,8,9-HxCDD	8.45e+06	7.20e+02	1.2e+04	6.50e+06	3.80e+02	1.7e+04
35	37Cl-2,3,7,8-TCDD	1.66e+06	6.32e+02	2.6e+03			

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ALS Form TO-9SN/M23SN.FRM

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.
128F-DF

LabID: P1500356-007
Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P176202 Sample: 1 Injection: 1 Function: 4
Llim: 37:39 Ulim: 38:32
Acquired: 7-FEB-15 17:50:24 Processed: 9-FEB-15 12:04:15
Mass: 423.7770 425.7740 Tot Response: 1.33e+02 RRF: 1.052

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:46	3.90e+01	3.75e+01 1.04	yes	7.65e+01		y	n
2	38:23	2.89e+01	2.71e+01 1.07	yes	5.60e+01	1,2,3,4,6,7,8-HpCDD	y	n

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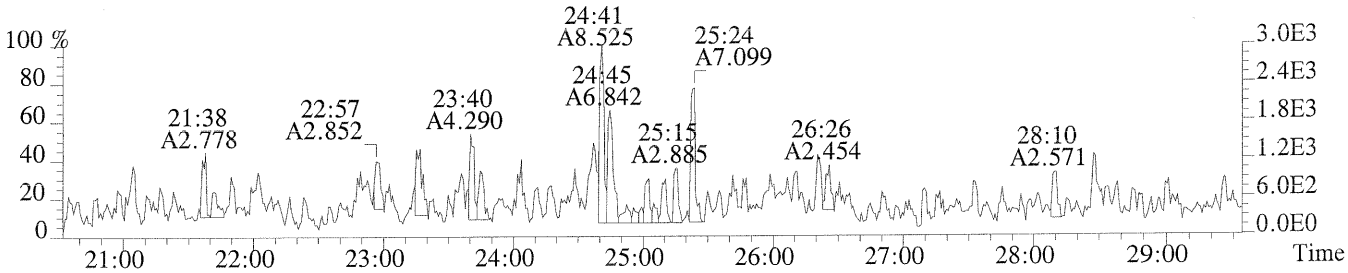
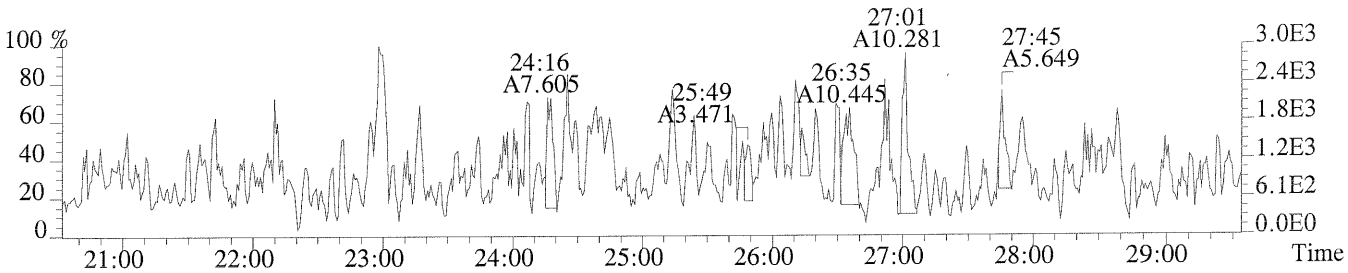
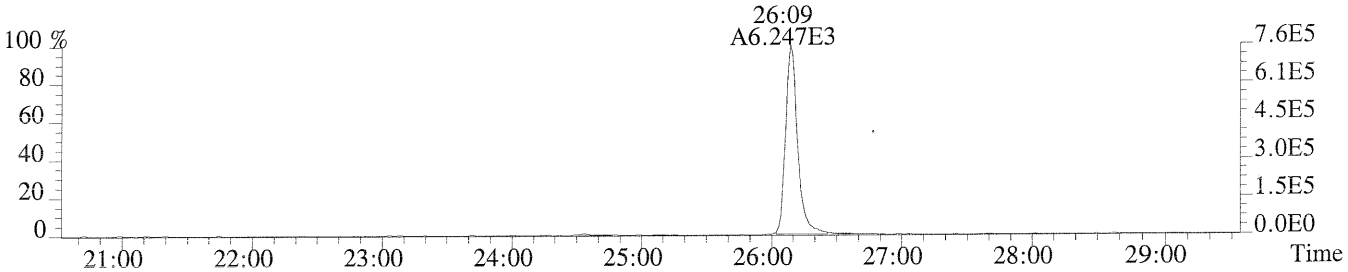
File:P176202 #1-696 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



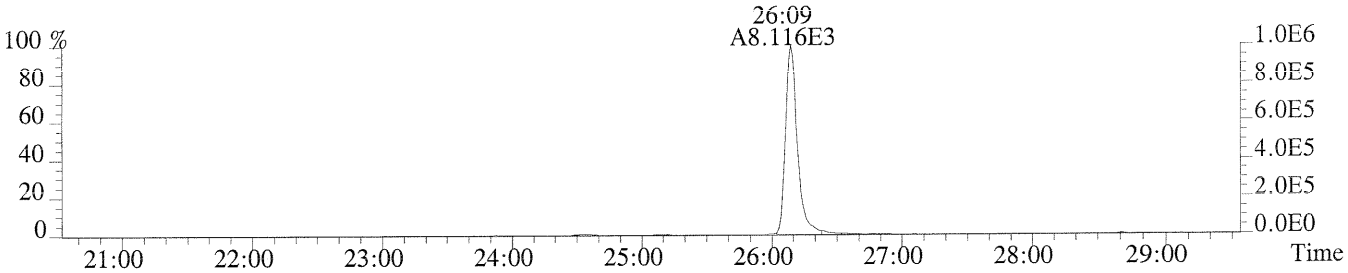
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



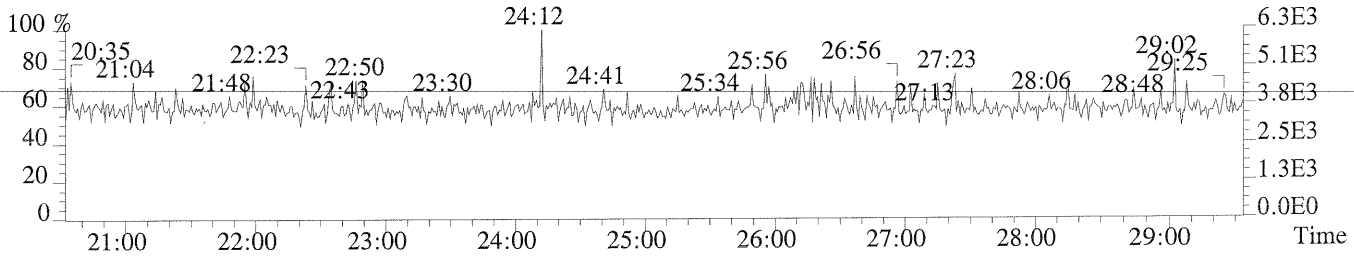
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



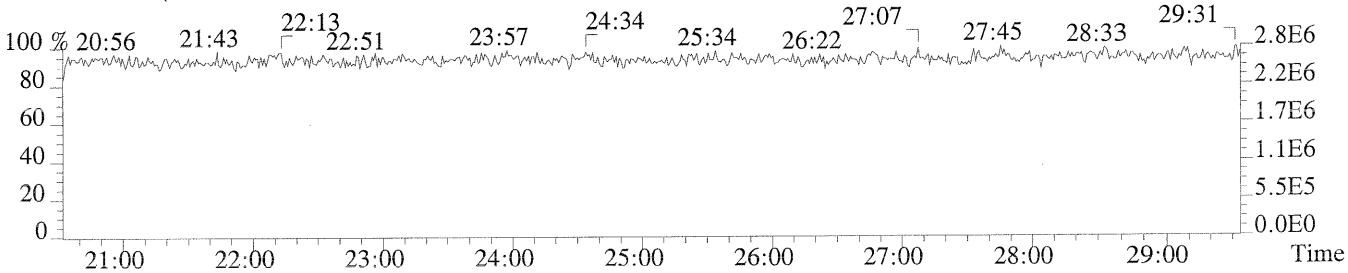
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



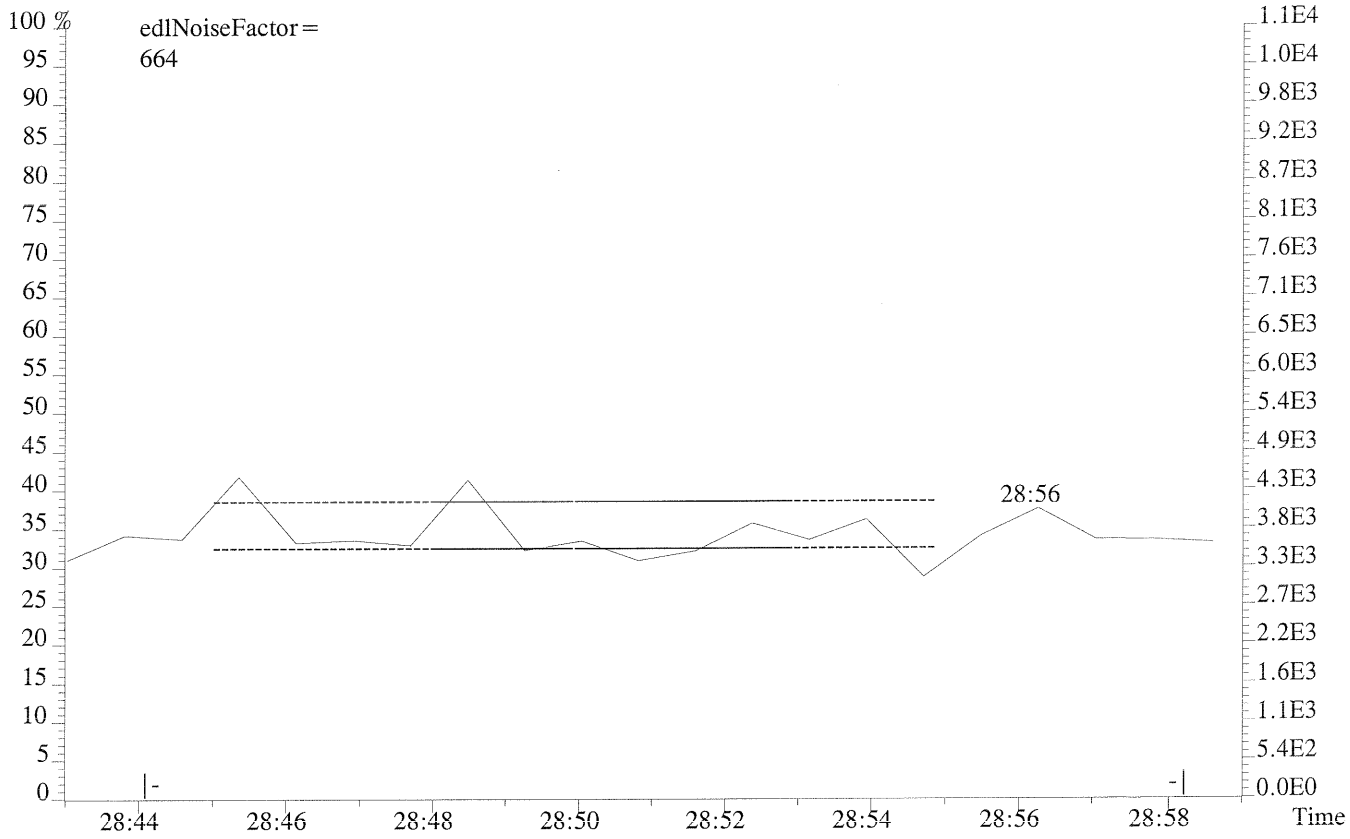
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



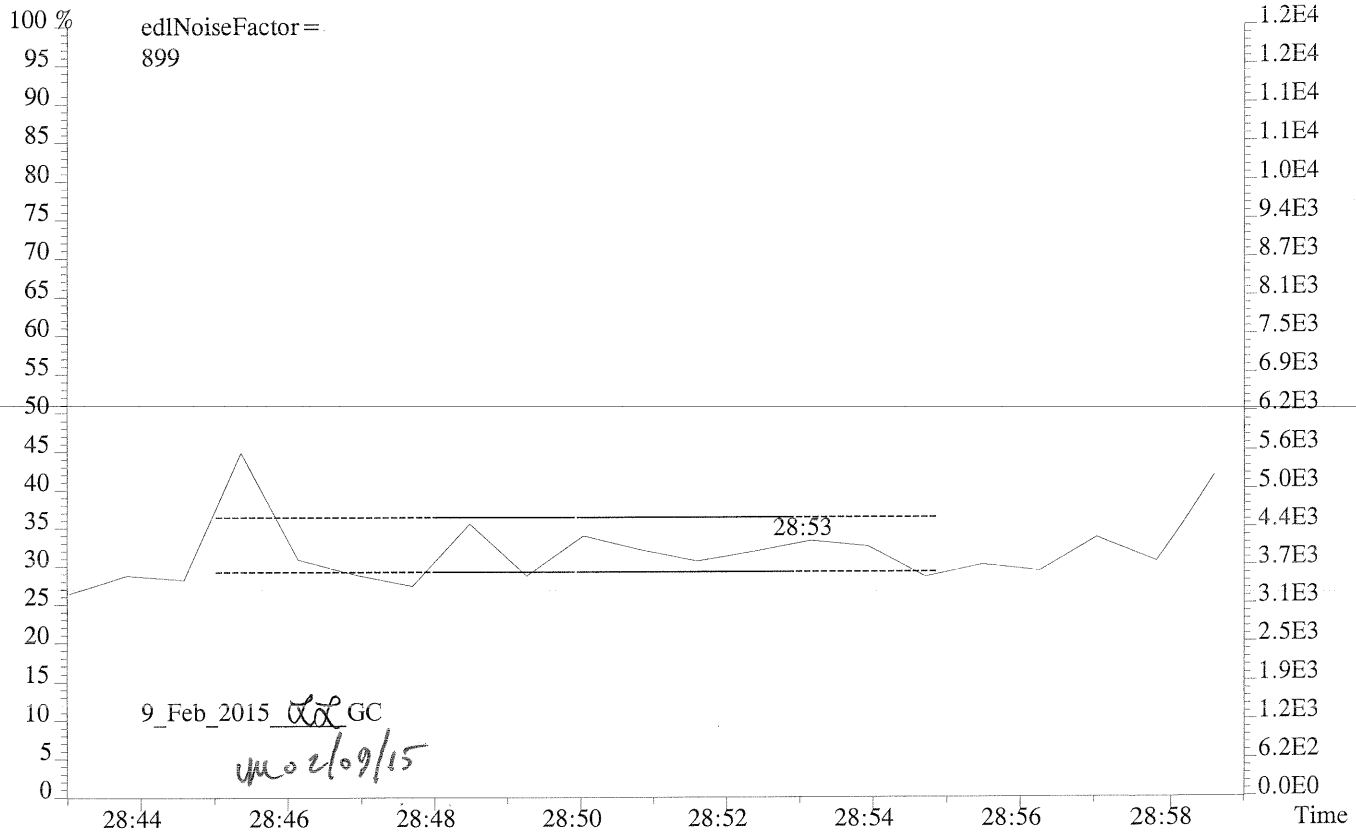
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



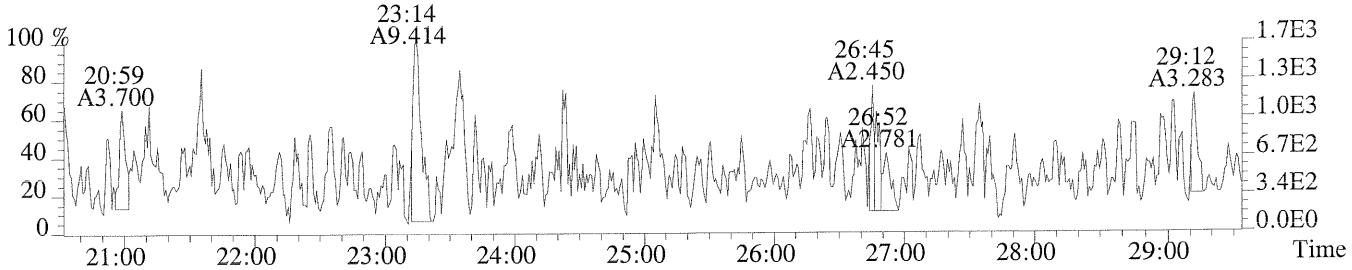
File:P176202 #1-696 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
303.9016



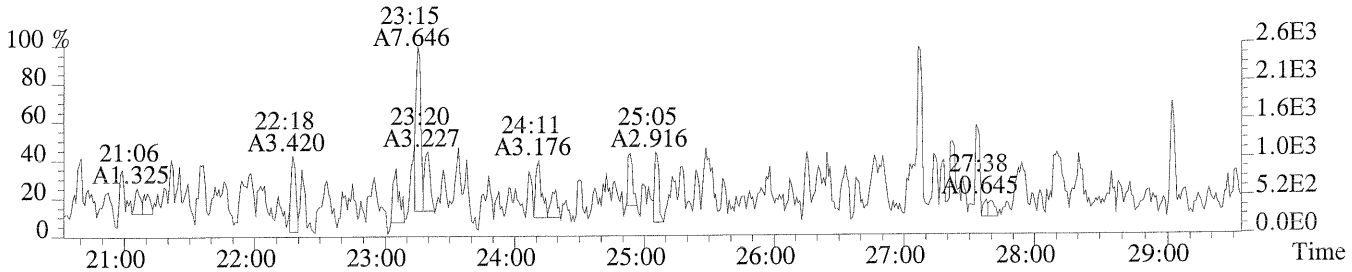
305.8987



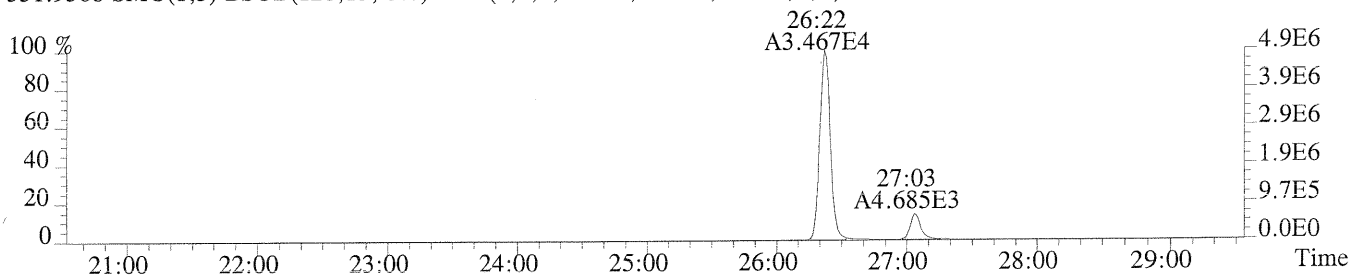
File:P176202 #1-696 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



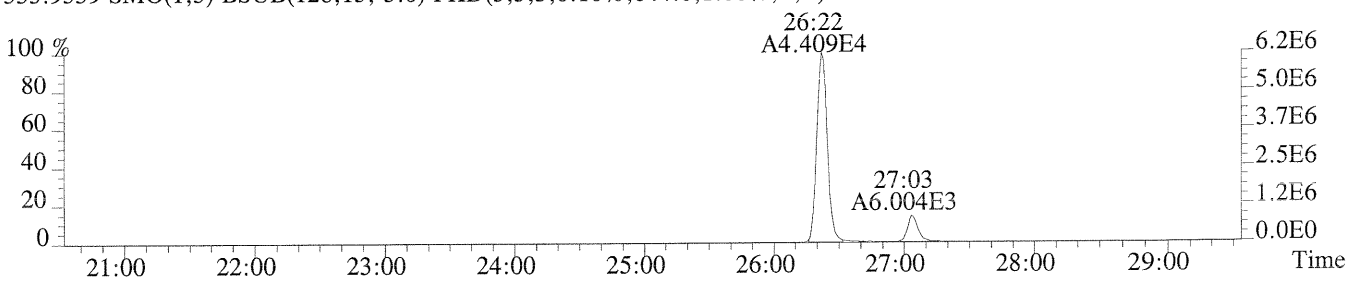
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



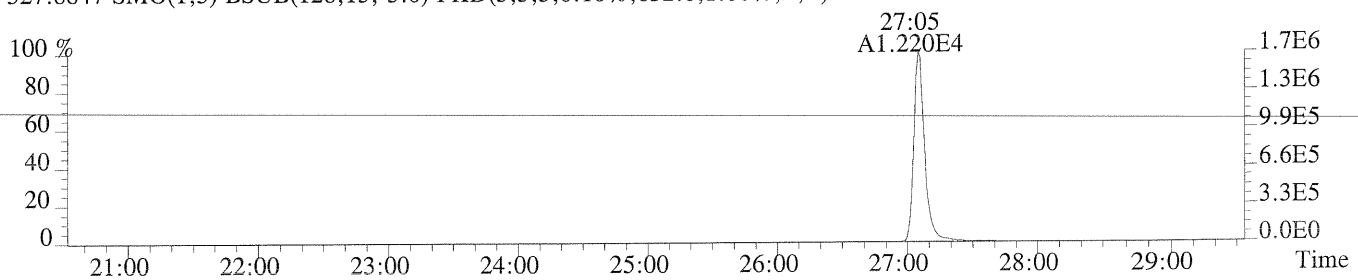
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



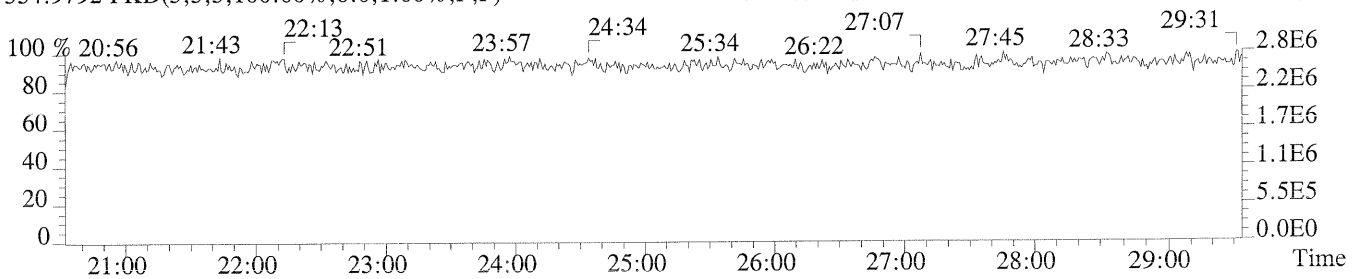
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



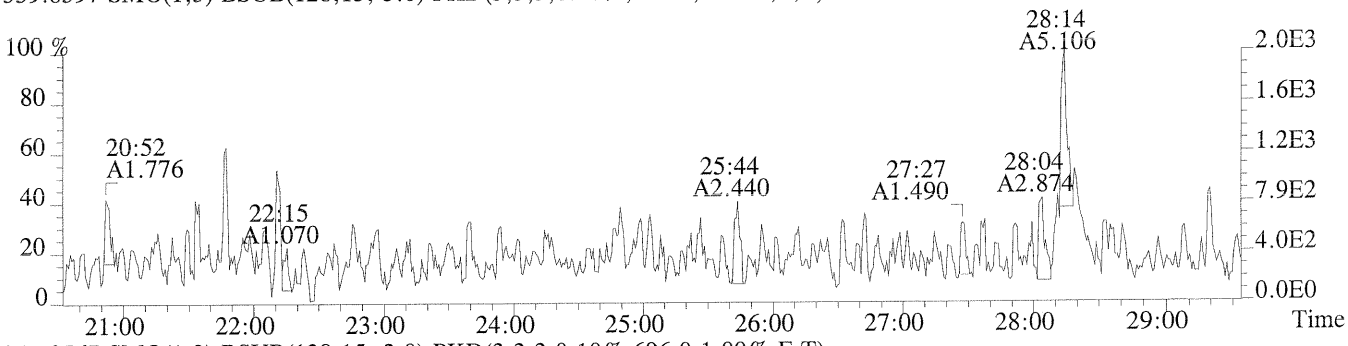
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



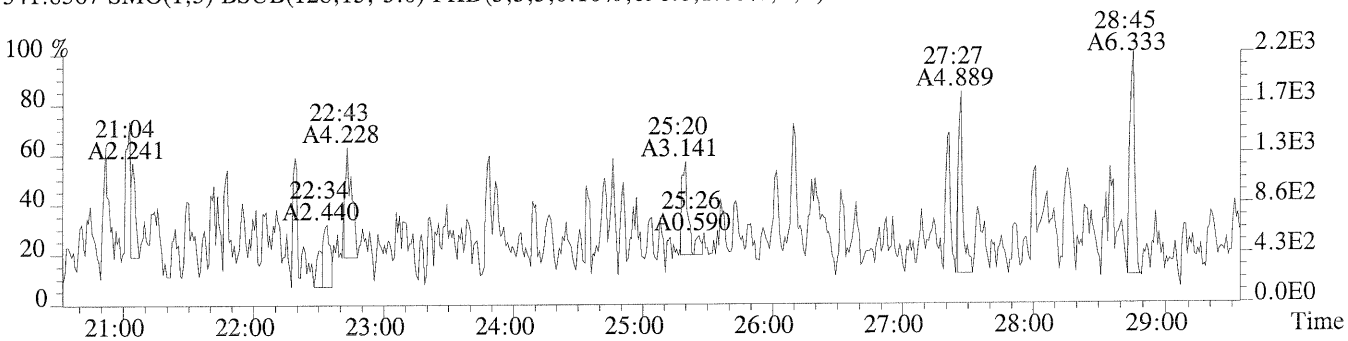
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



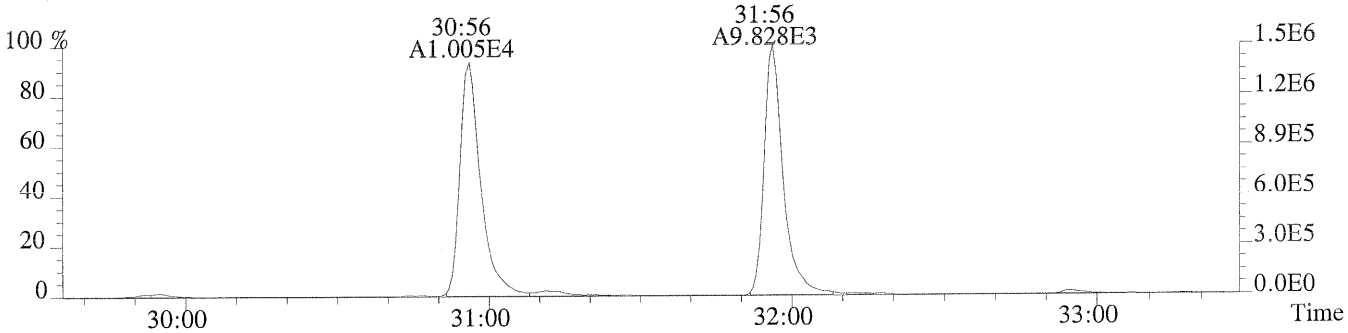
File:P176202 #1-696 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



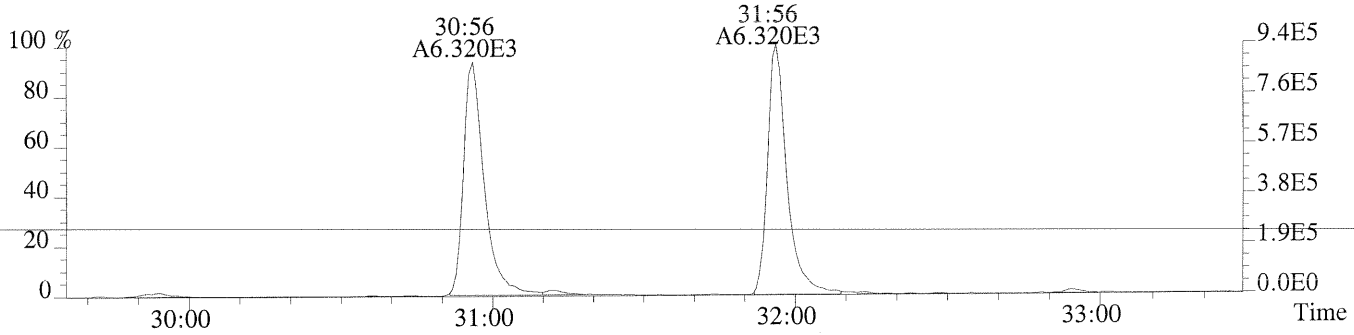
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



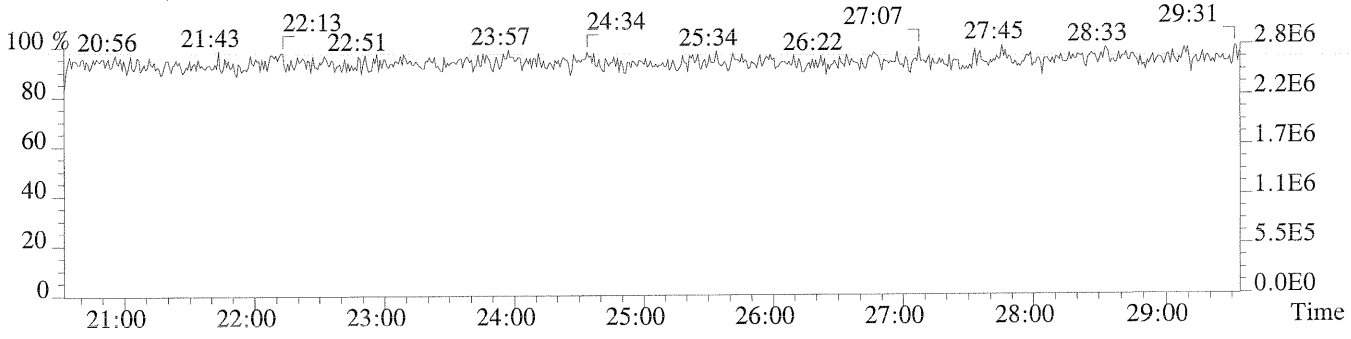
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

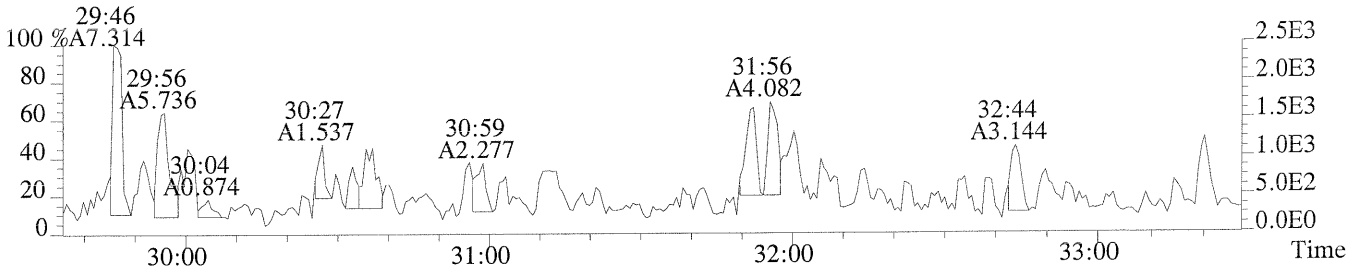


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

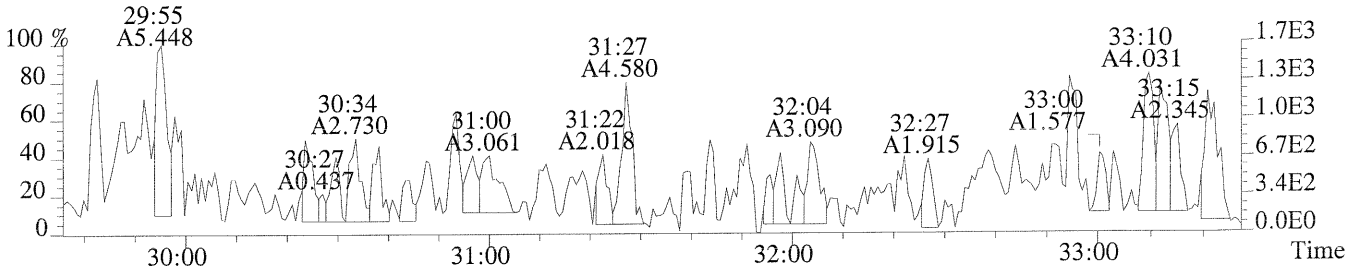


File:P176202 #1-351 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007

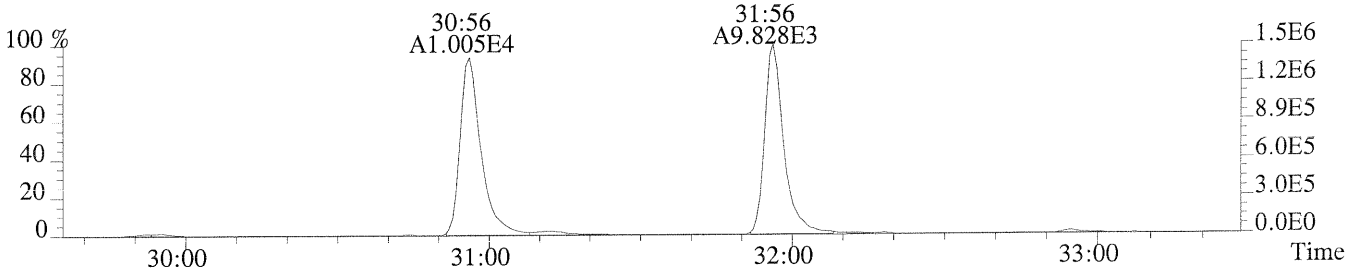
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



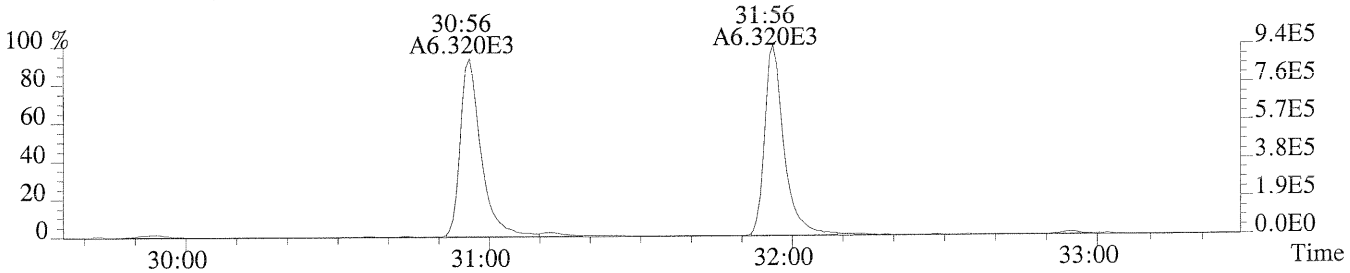
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



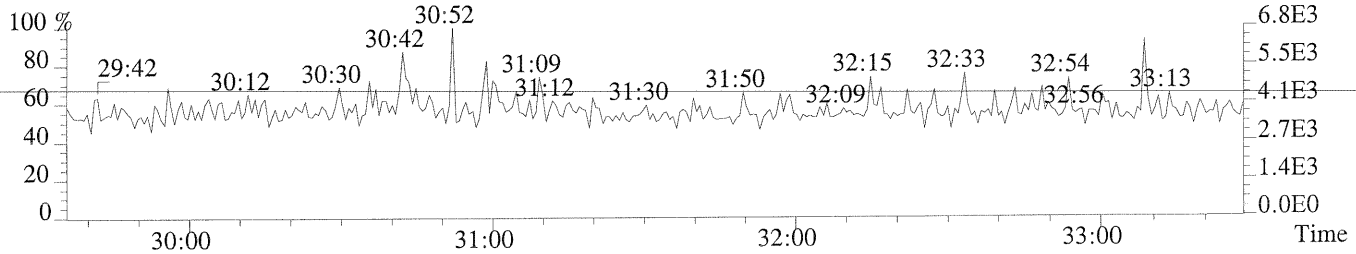
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



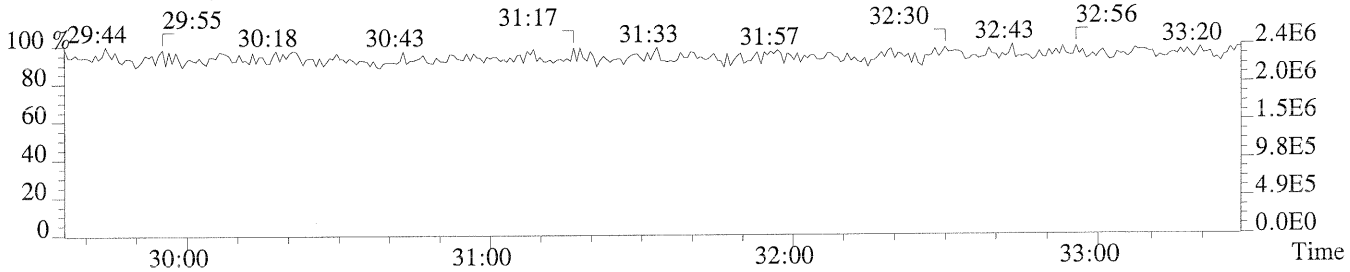
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



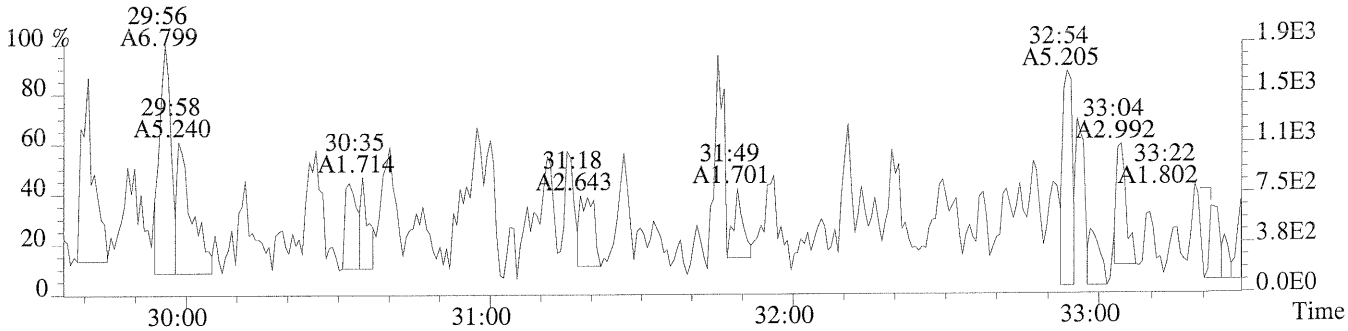
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



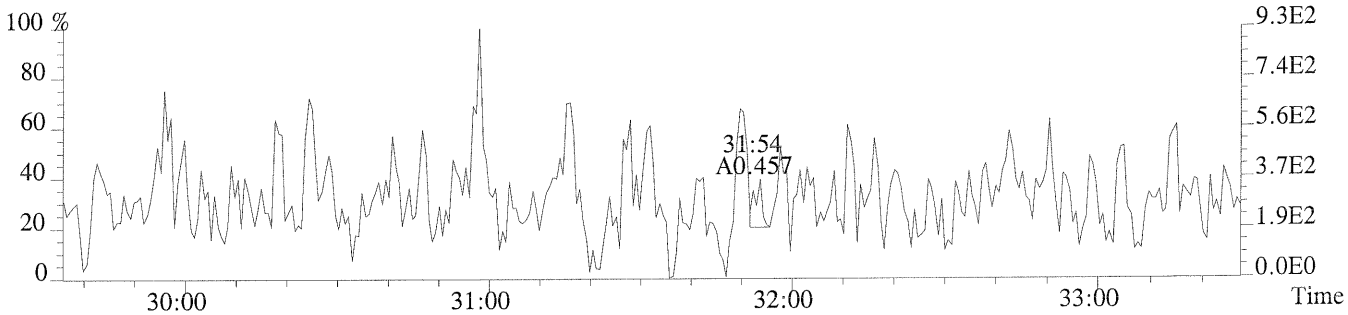
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



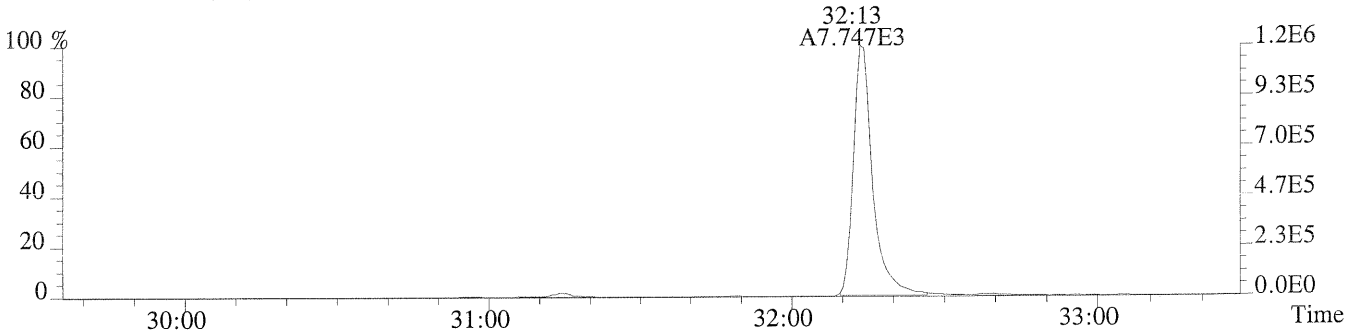
File:P176202 #1-351 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



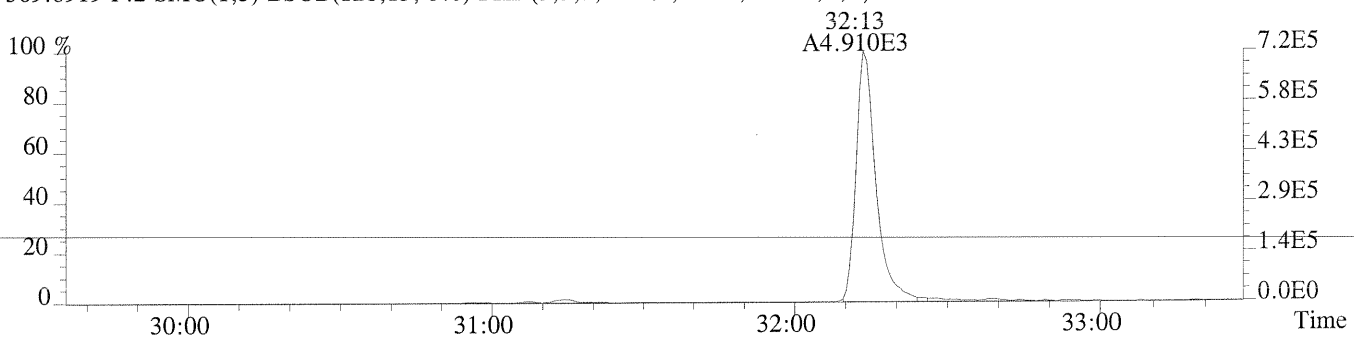
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



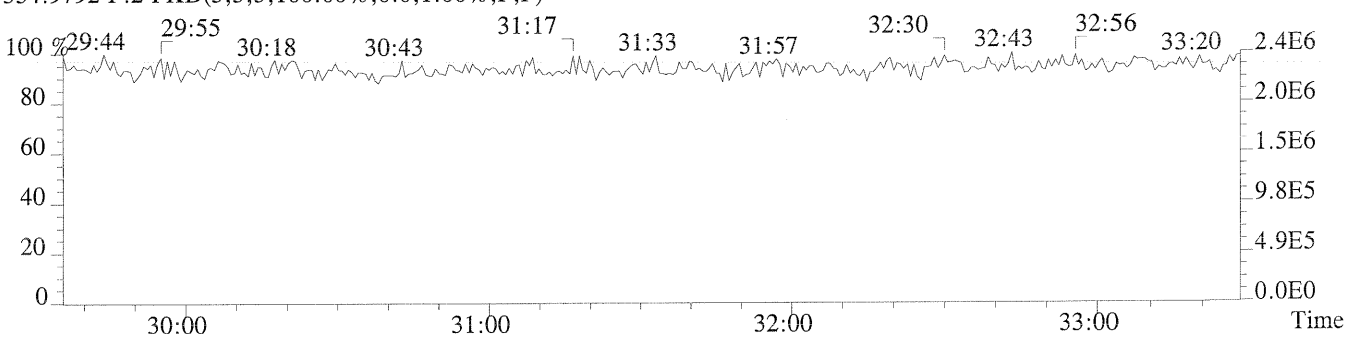
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)

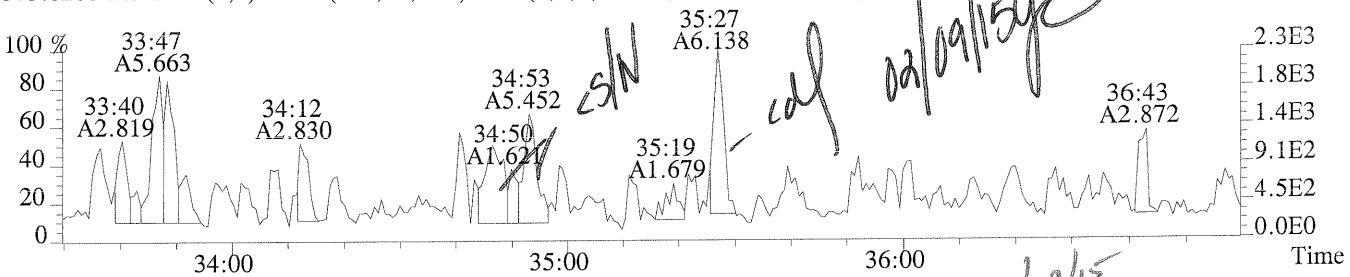


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

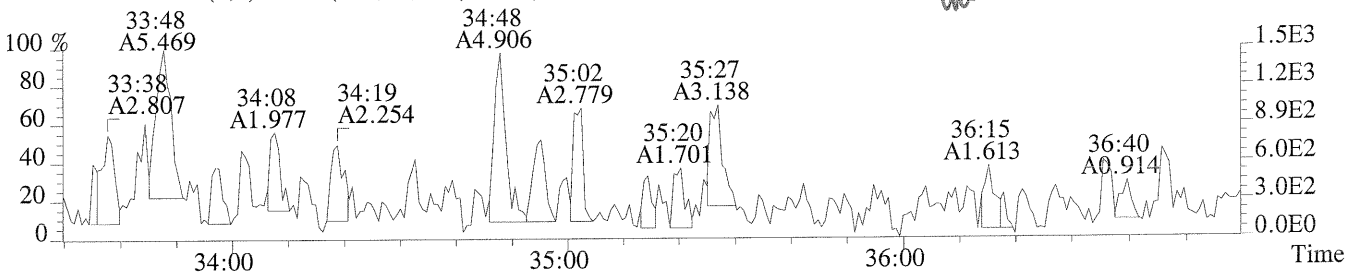


File:P176202 #1-318 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007

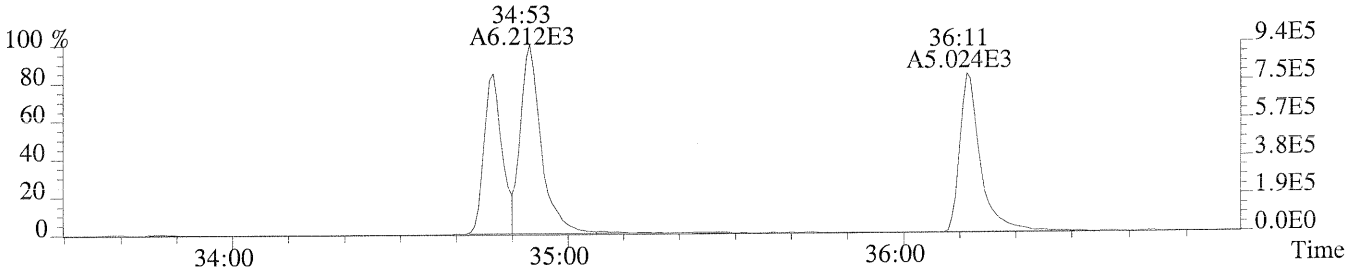
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



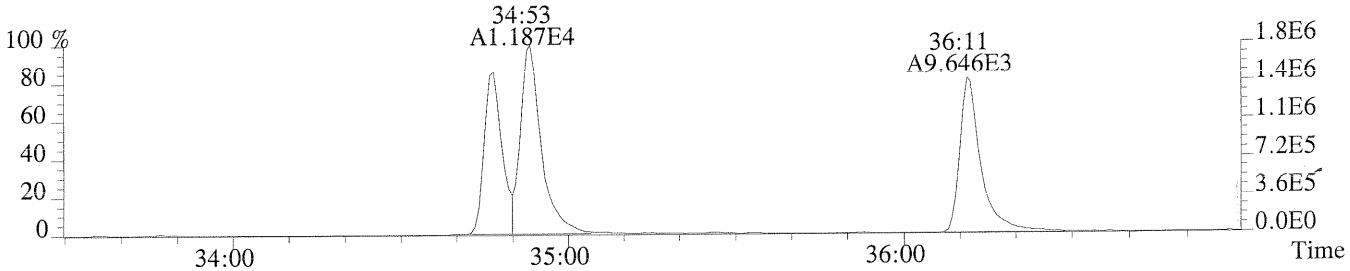
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



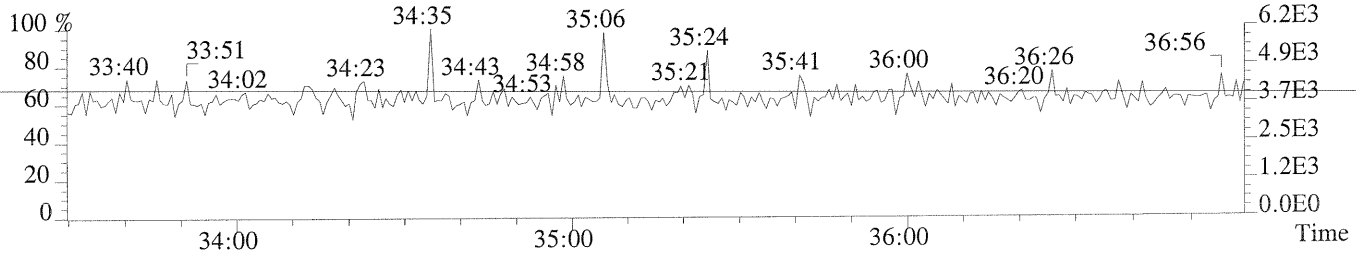
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



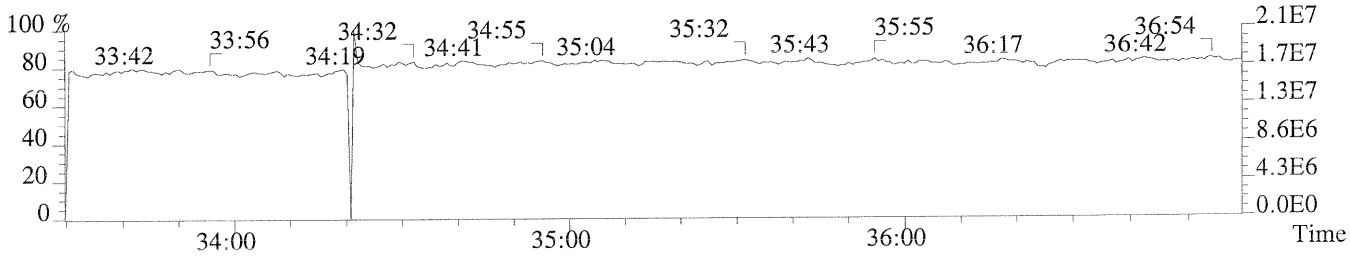
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



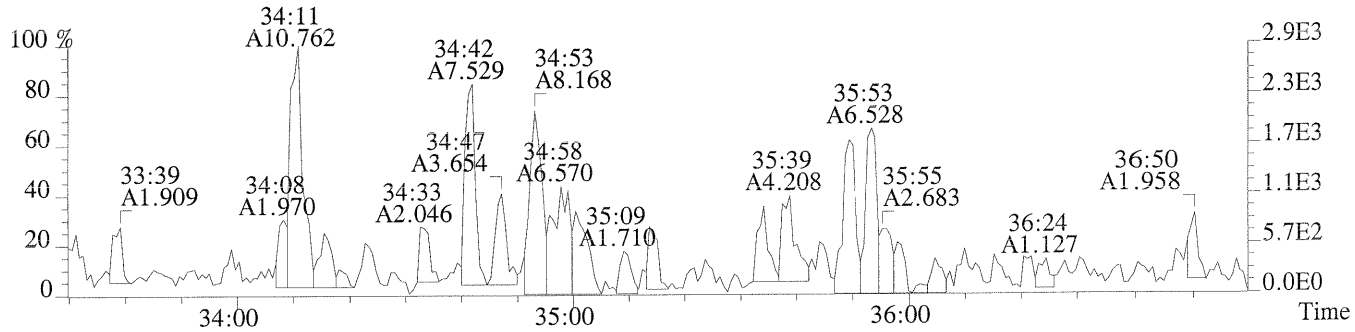
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



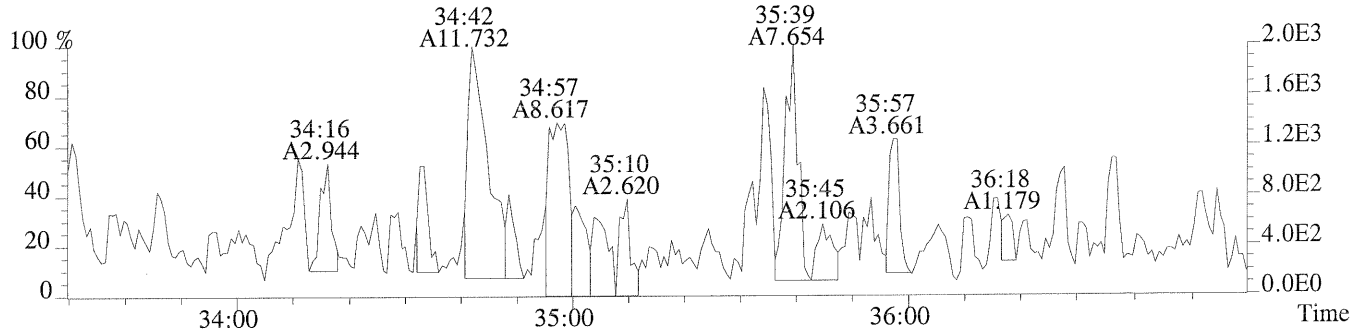
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



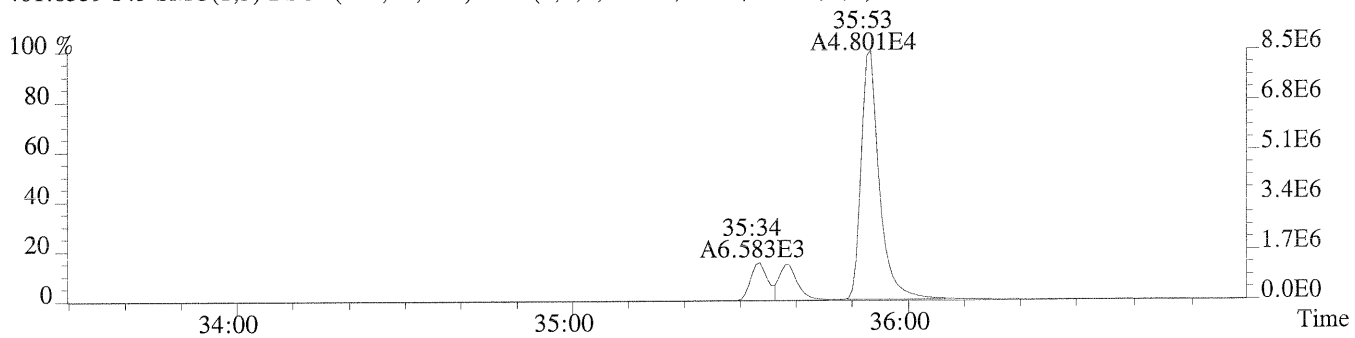
File:P176202 #1-318 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



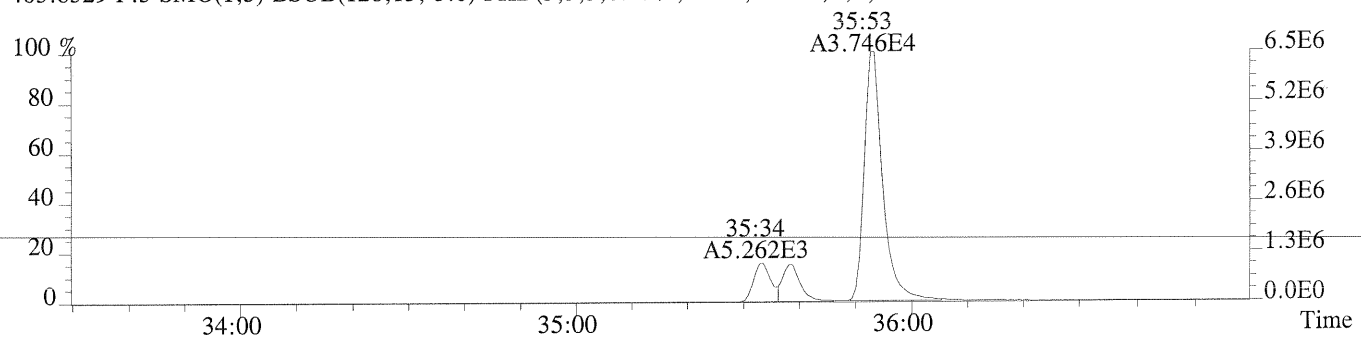
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



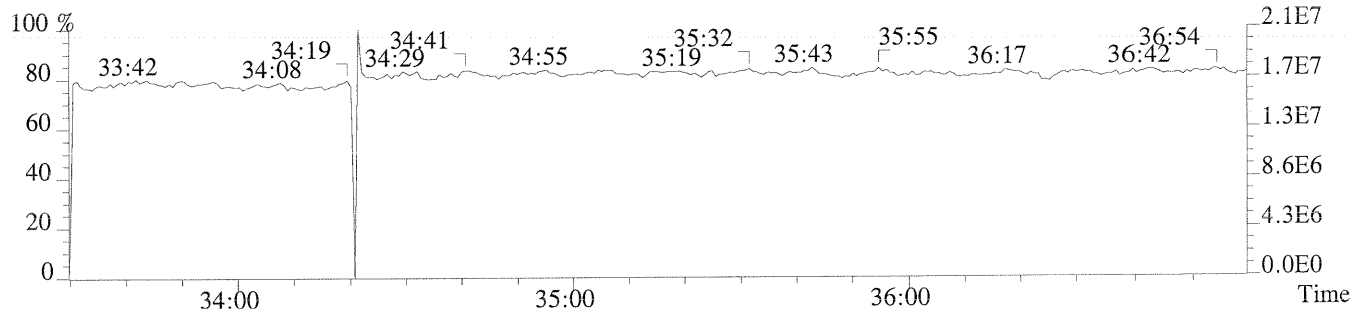
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)

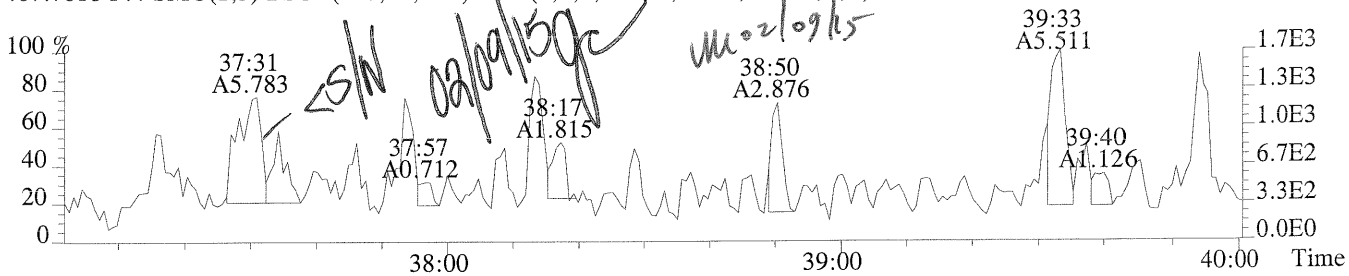


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

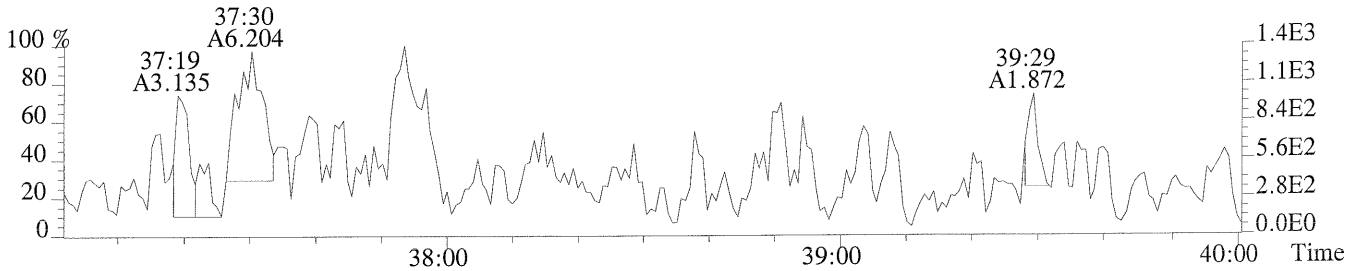


File:P176202 #1-271 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007

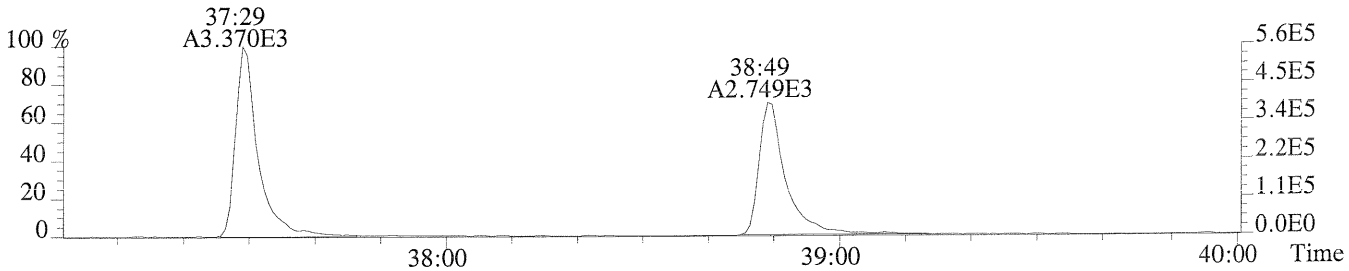
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.50%,F,T)



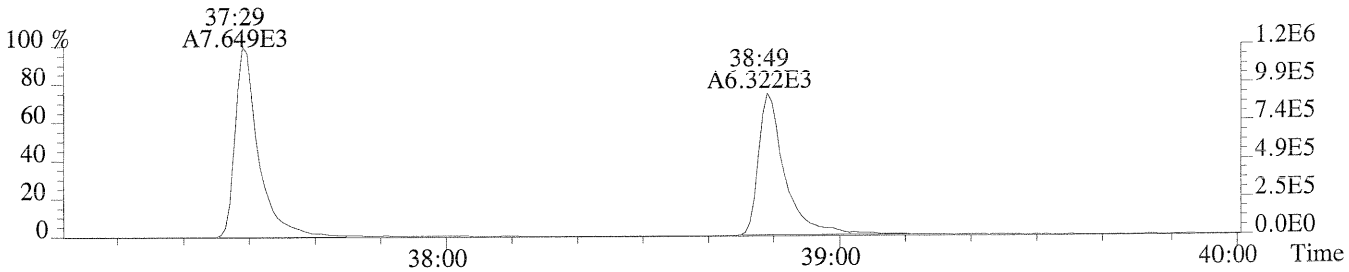
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,476.0,0.50%,F,T)



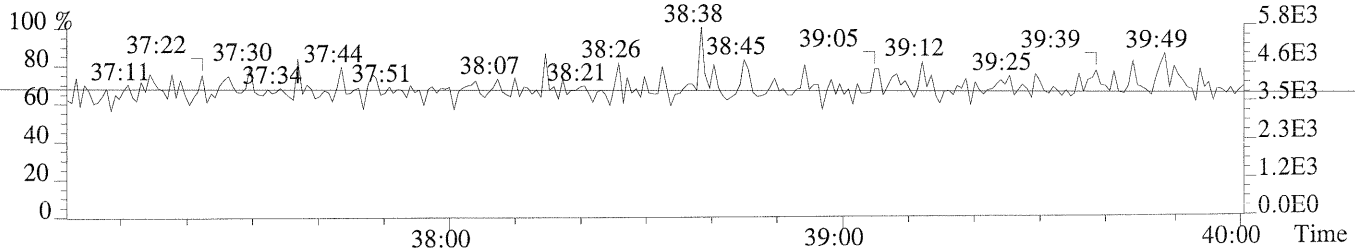
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.50%,F,T)



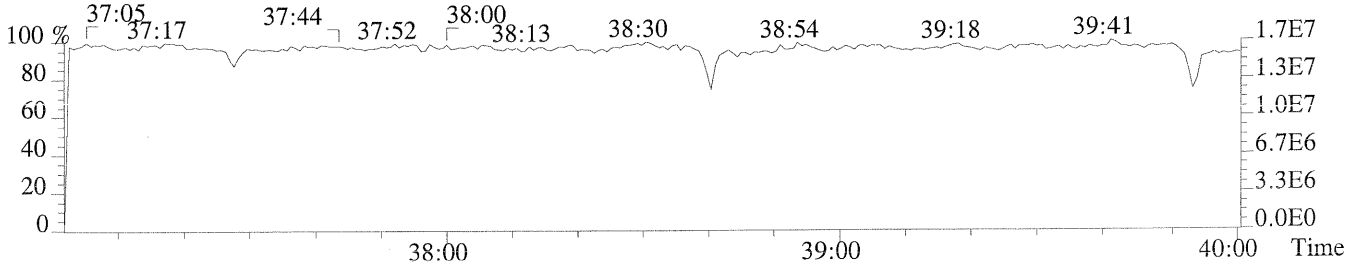
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1700.0,0.50%,F,T)



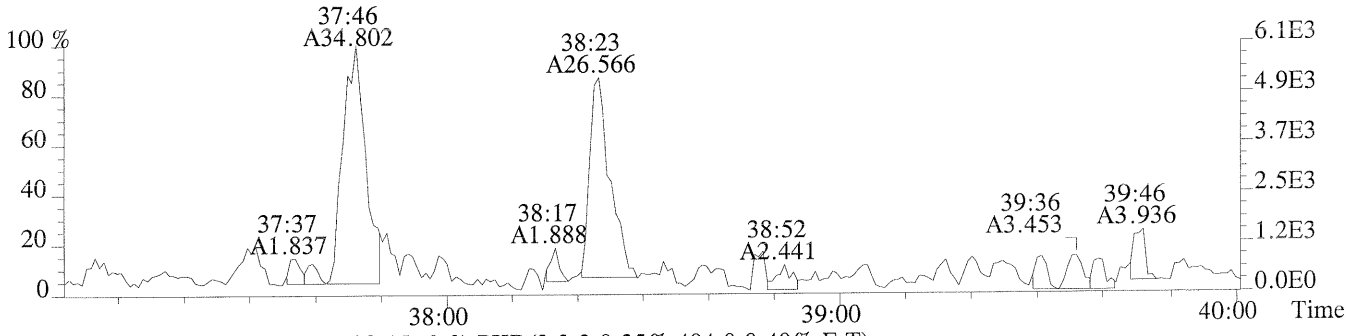
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



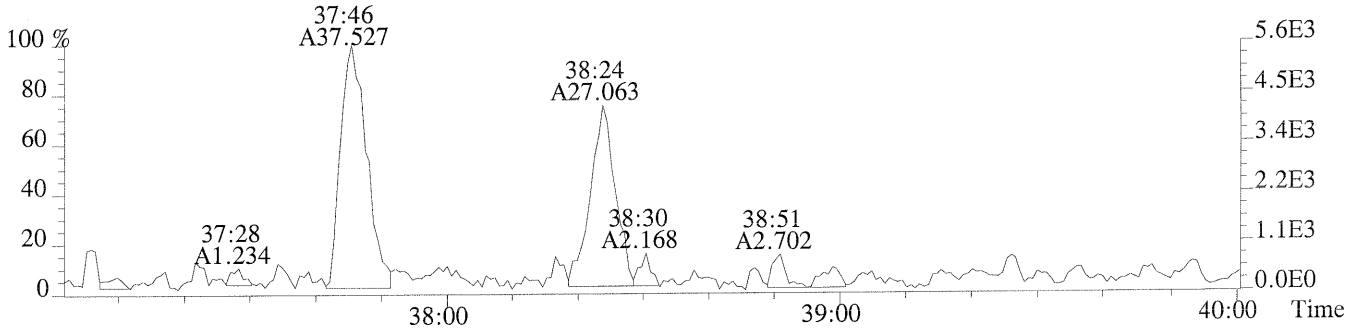
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



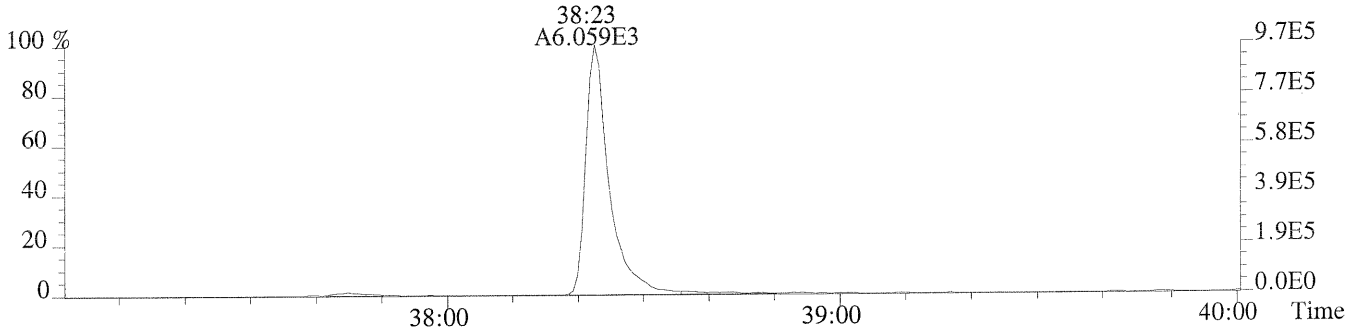
File:P176202 #1-271 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



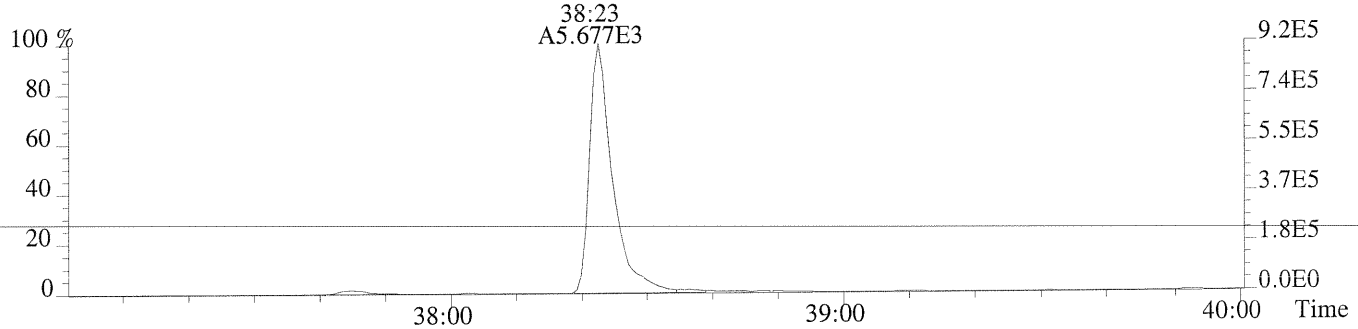
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



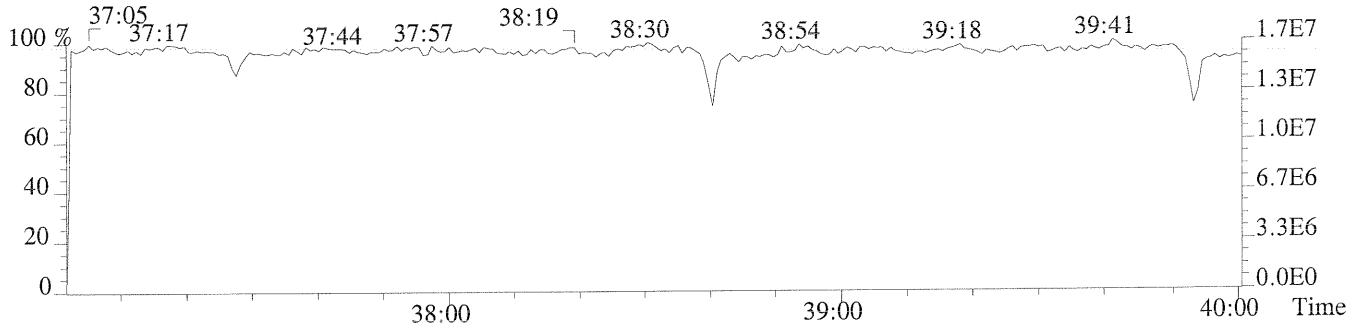
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



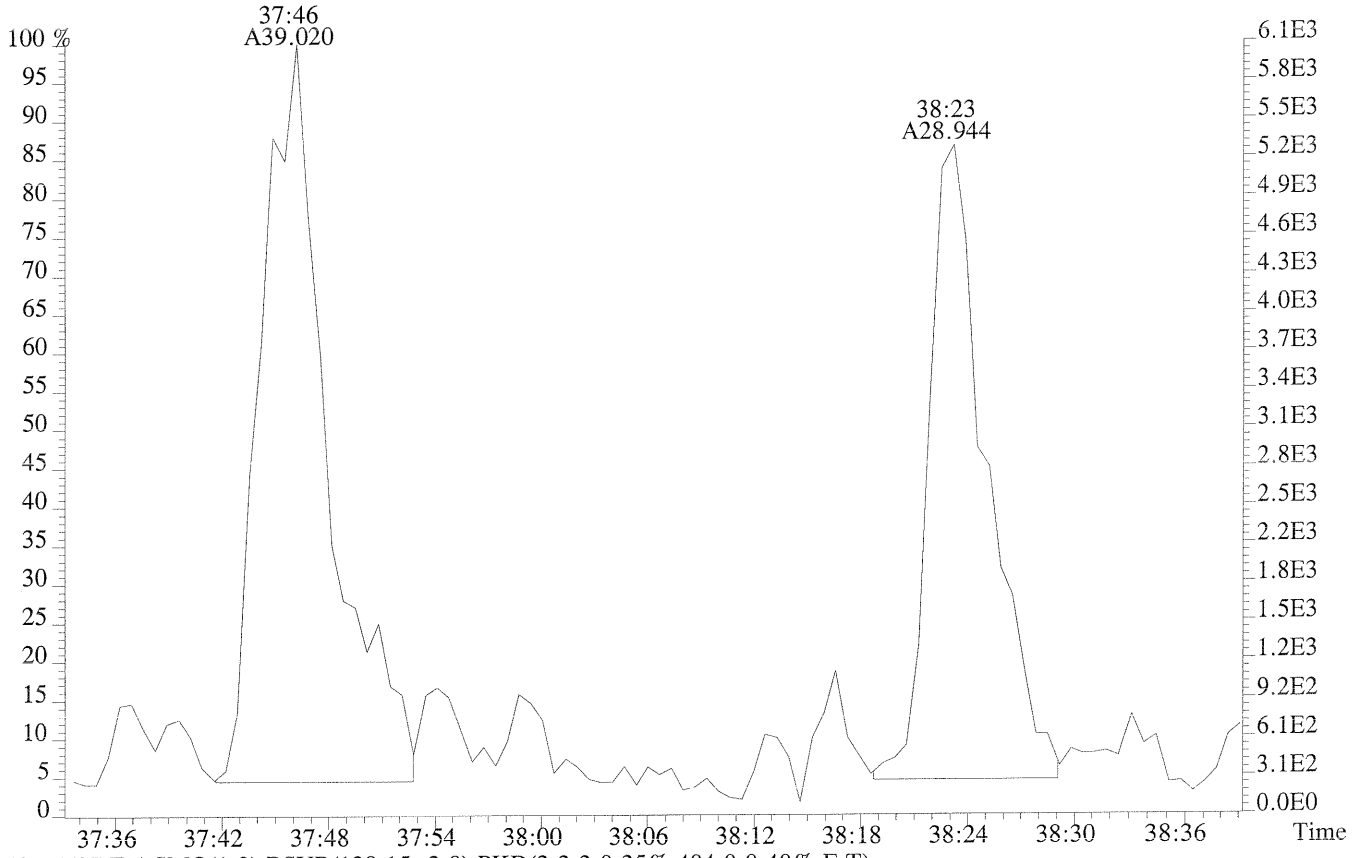
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.40%,F,T)



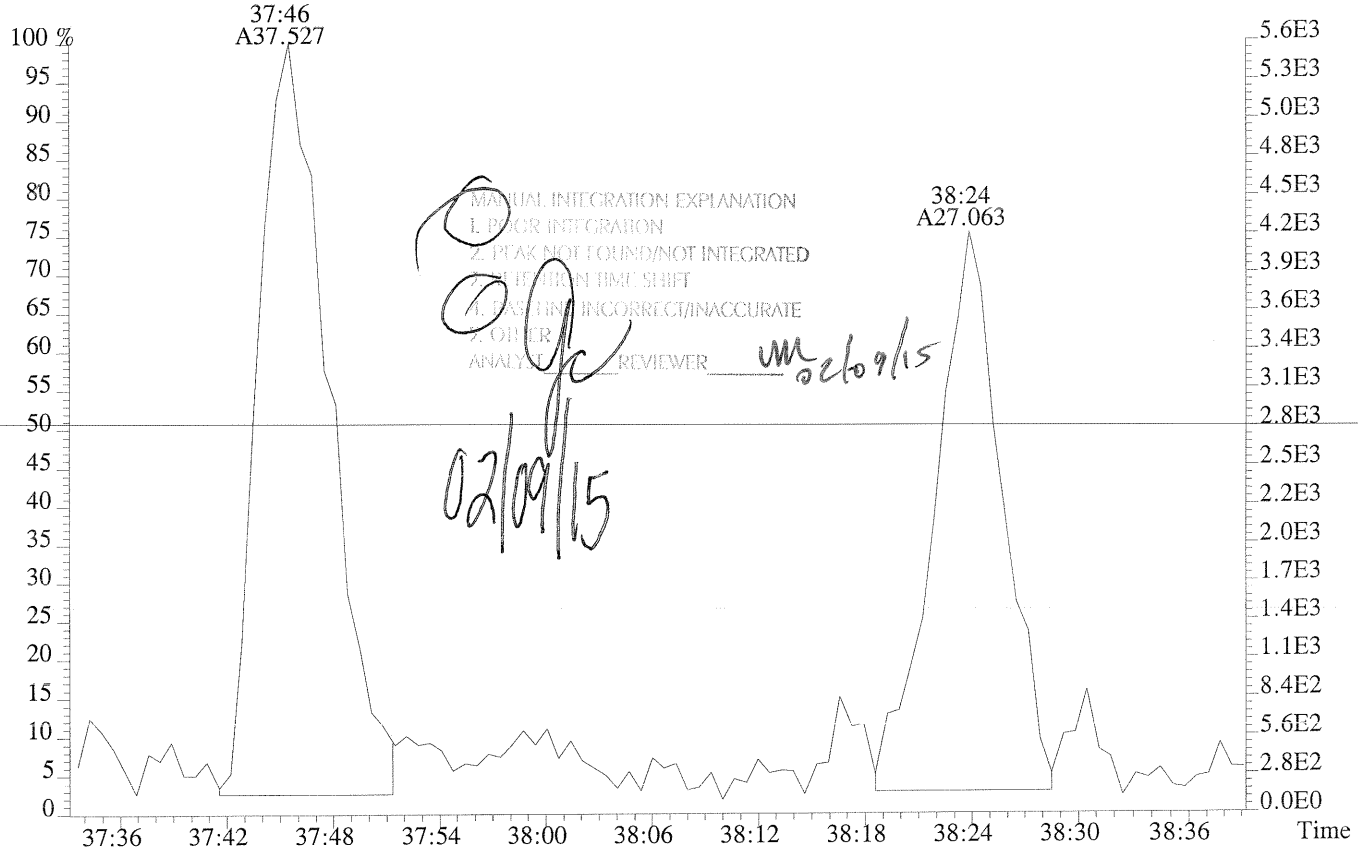
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P176202 #1-271 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



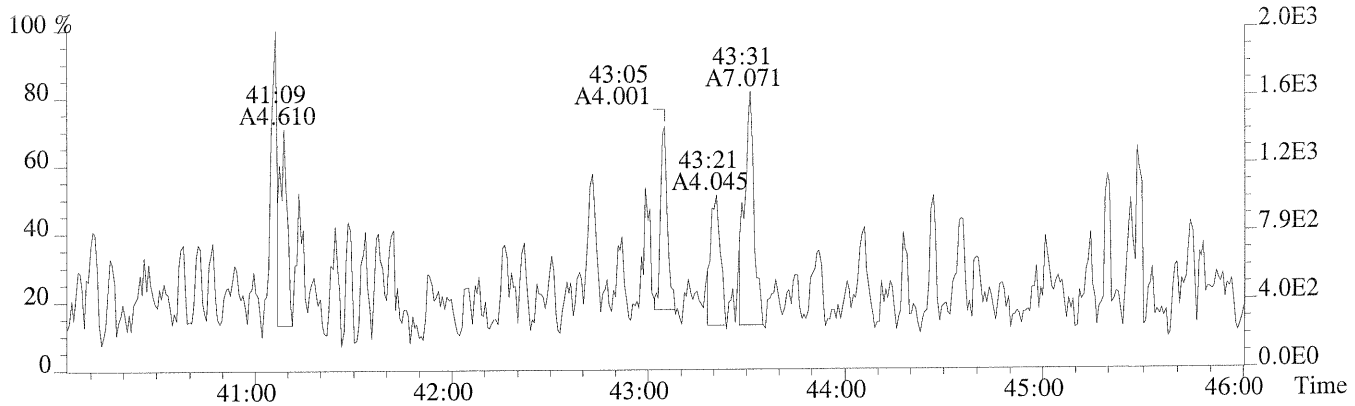
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,404.0,0.40%,F,T)



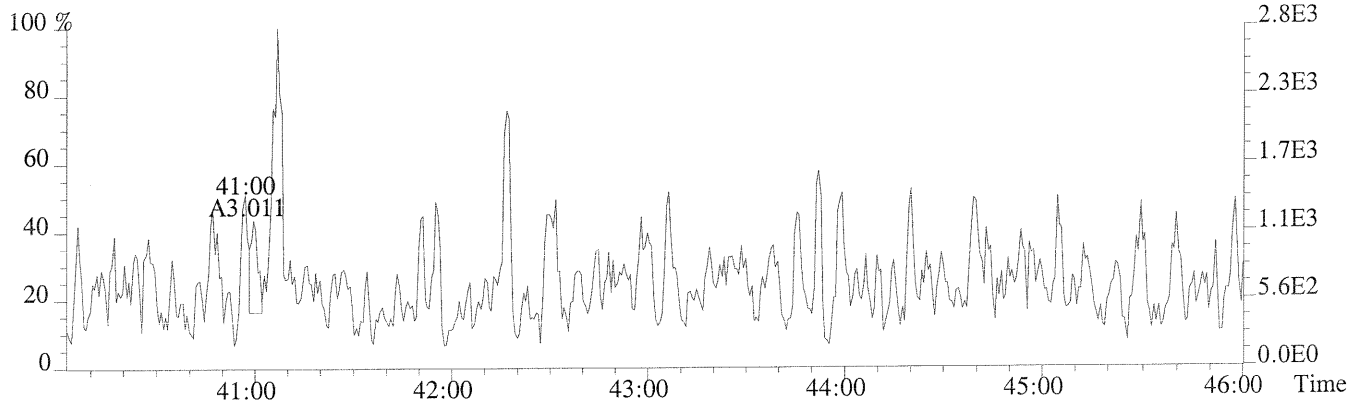
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. PEAK ID INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER _____ 02/09/15

02/09/15

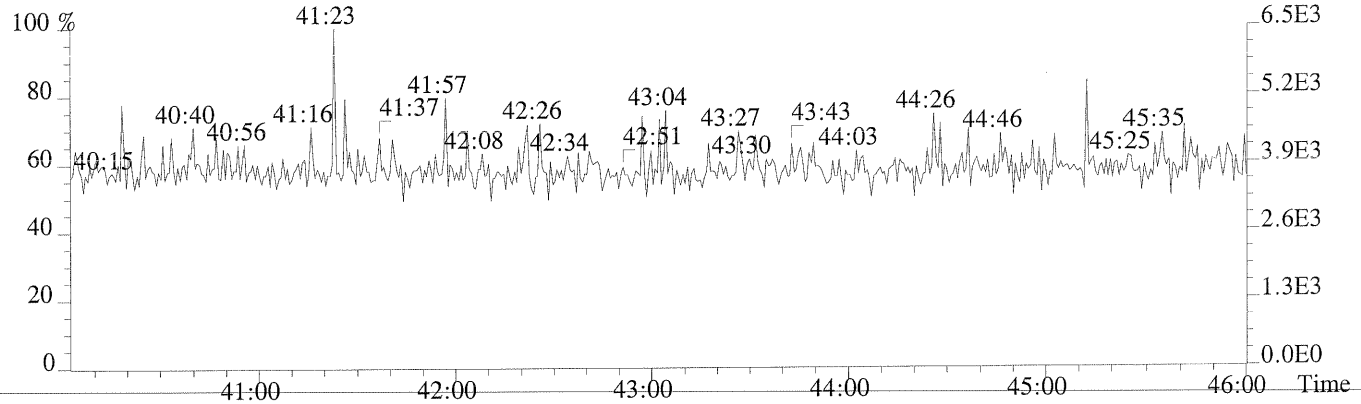
File:P176202 #1-548 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



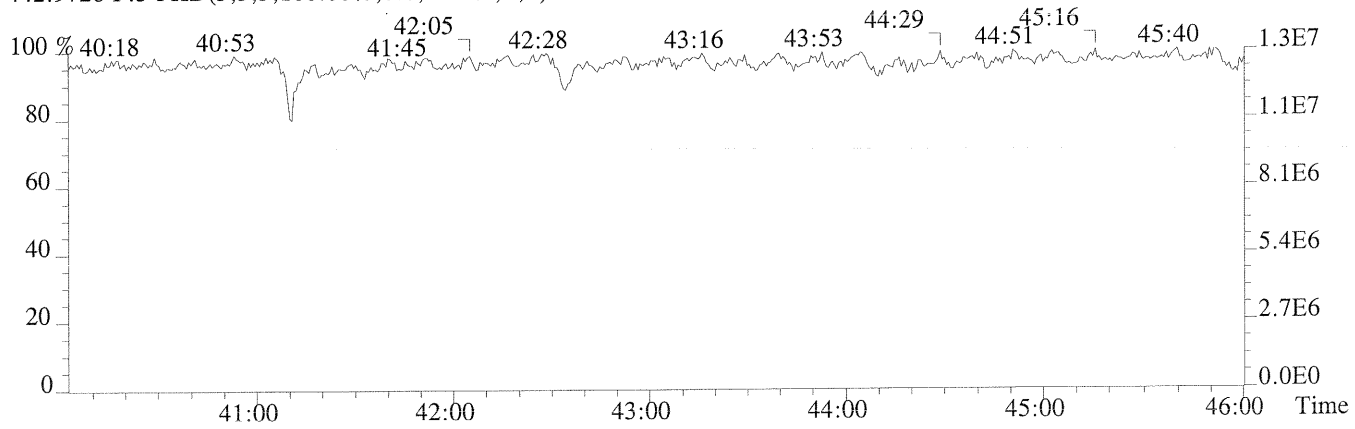
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,816.0,0.40%,F,T)



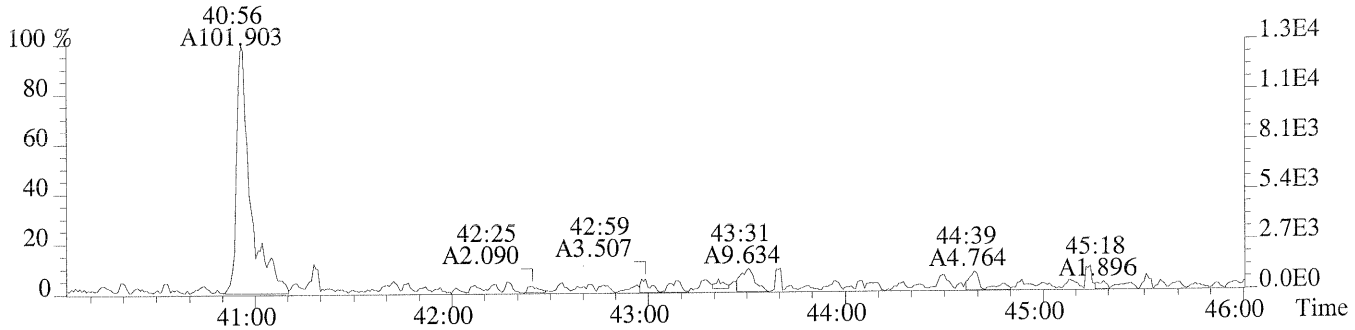
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



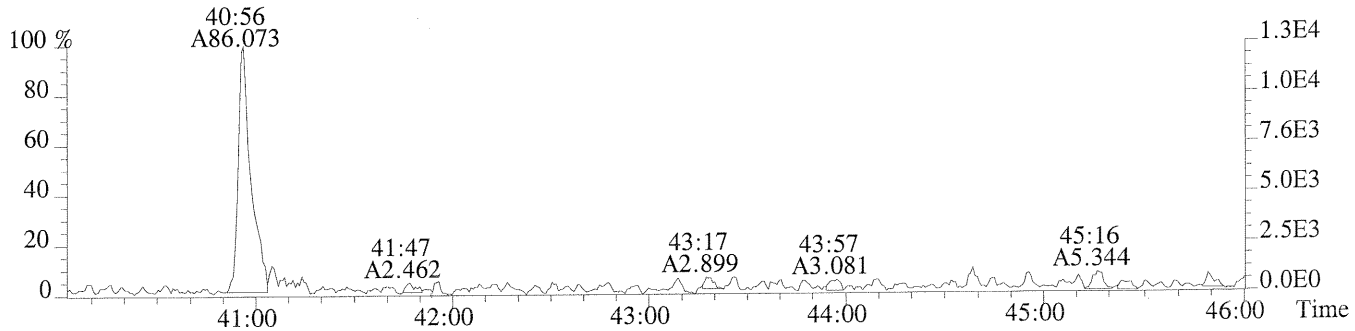
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



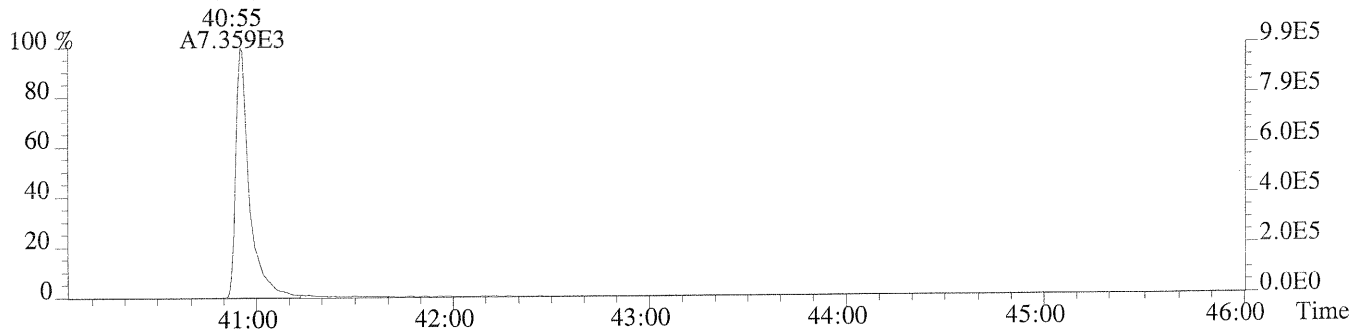
File:P176202 #1-548 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



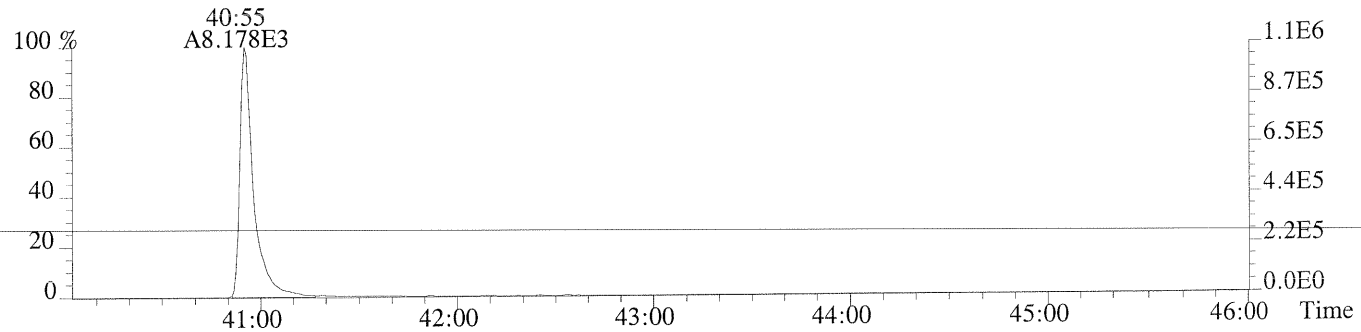
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,F,T)



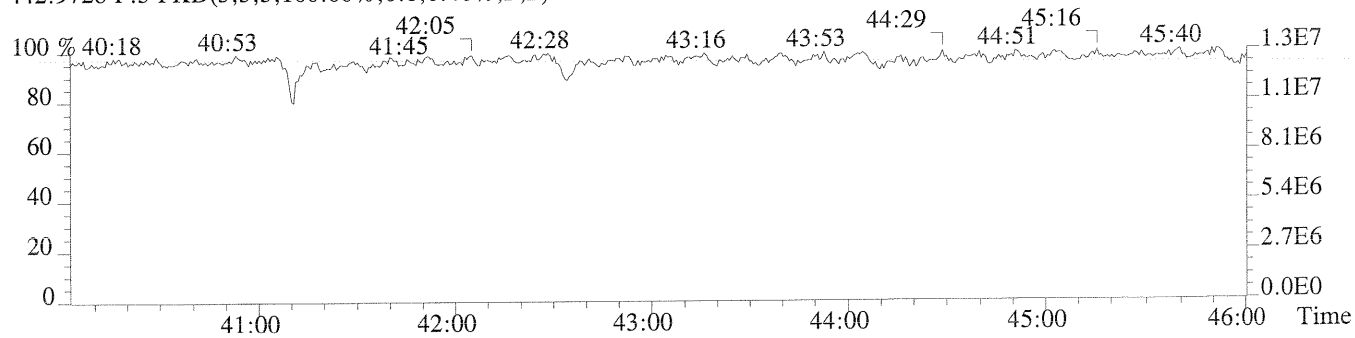
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



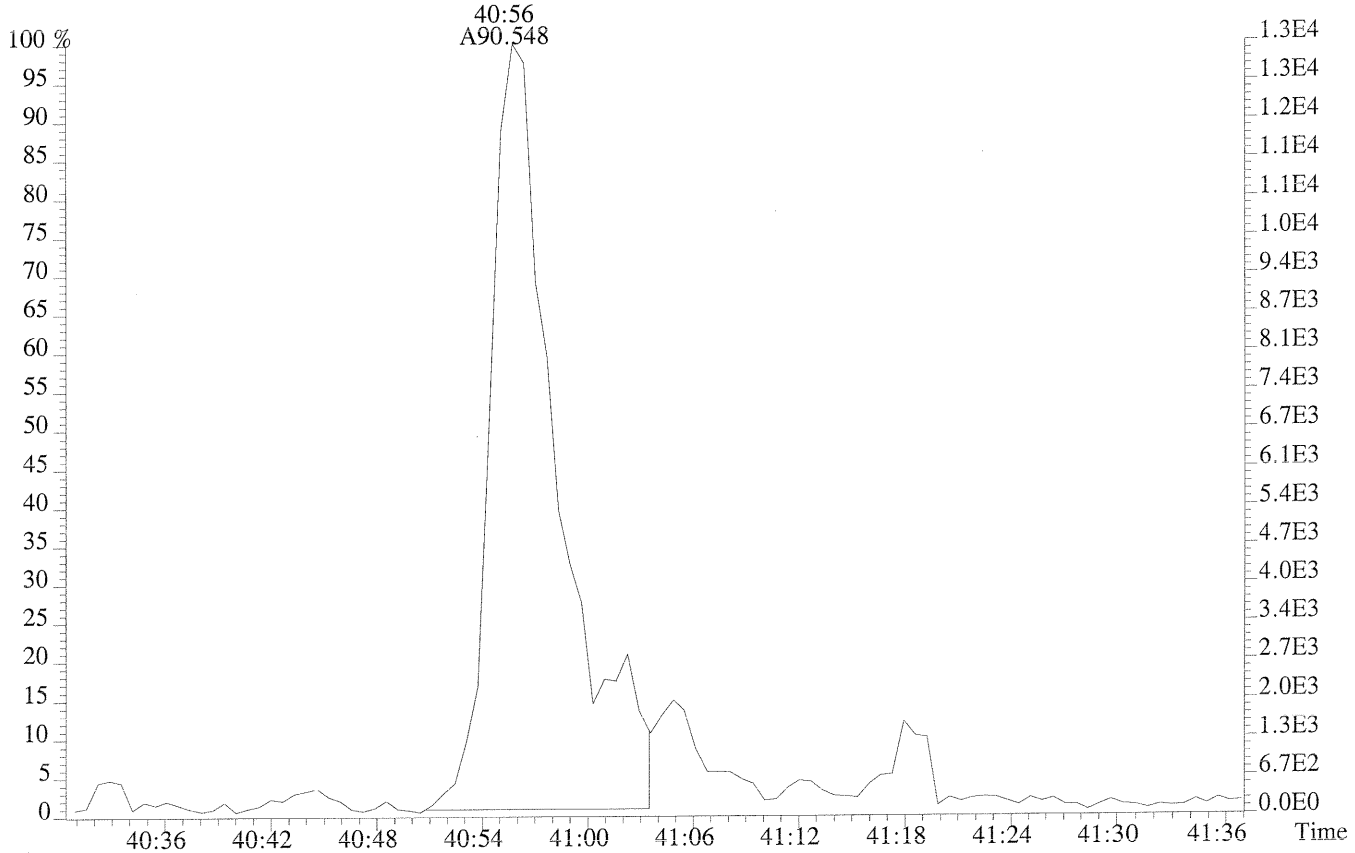
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



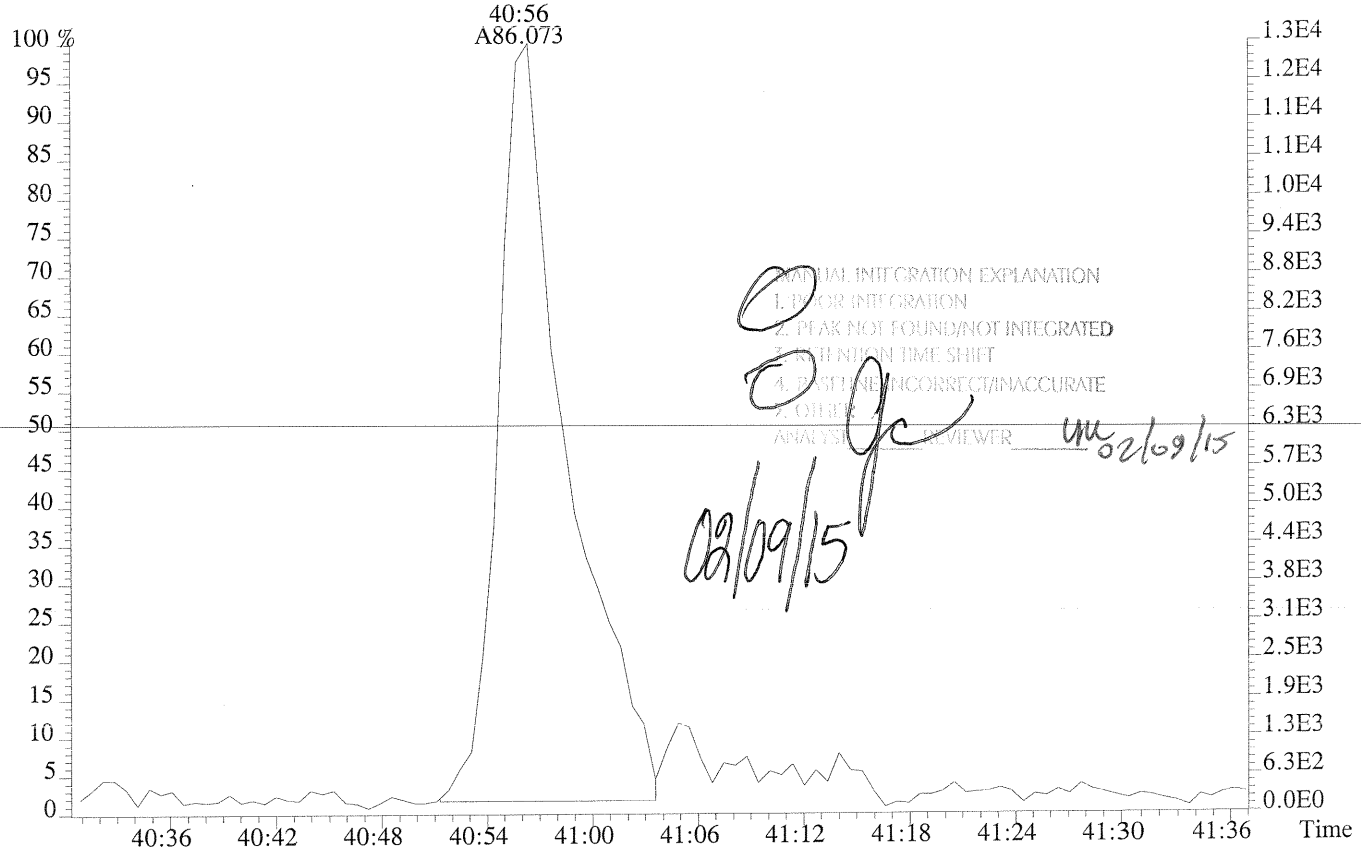
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P176202 #1-548 Acq: 7-FEB-2015 17:50:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:P1500356-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,356.0,0.40%,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 02/09/15
02/09/15

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P176195 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 12:13:12
Processed: 9-FEB-15 12:02:57 LAB. ID: EQ1500085-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.946
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.061
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.148
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.369
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.998
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.052
17	Unk	OCDD	NotFnd	*	*	*	no	yes	1.068
18	IS	13C-2,3,7,8-TCDF	26:08	5.938e+03	7.477e+03	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	1.004e+04	6.312e+03	1.59	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	9.823e+03	6.135e+03	1.60	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:46	4.235e+03	7.926e+03	0.53	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	5.770e+03	1.103e+04	0.52	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	4.138e+03	8.008e+03	0.52	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	3.071e+03	6.940e+03	0.44	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:49	2.639e+03	5.954e+03	0.44	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	4.634e+03	5.949e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	7.739e+03	4.911e+03	1.58	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:33	5.935e+03	4.964e+03	1.20	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:38	6.595e+03	5.287e+03	1.25	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:23	5.451e+03	5.008e+03	1.09	yes	no	0.874
32	IS	13C-OCDD	40:55	6.097e+03	6.666e+03	0.91	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:21	4.033e+04	5.171e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	5.138e+04	4.069e+04	1.26	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:05	1.241e+04				no	1.038

$$OCDD = \frac{(* \quad + * \quad) \times 8000\ pg \times 1}{(6.097e+03 \quad + 6.666e+03 \quad) \times 1.068} = \quad pg$$

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

Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P176195 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 12:13:12
Processed: 9-FEB-15 12:02:57 LAB. ID: EQ1500085-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.15e+02	*	*	9.88e+02	*
2	1,2,3,7,8-PeCDF	*	6.88e+02	*	*	1.03e+03	*
3	2,3,4,7,8-PeCDF	*	6.88e+02	*	*	1.03e+03	*
4	1,2,3,4,7,8-HxCDF	*	8.00e+02	*	*	7.72e+02	*
5	1,2,3,6,7,8-HxCDF	*	8.00e+02	*	*	7.72e+02	*
6	2,3,4,6,7,8-HxCDF	*	8.00e+02	*	*	7.72e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.00e+02	*	*	7.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	1.02e+03	*	*	8.00e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	1.02e+03	*	*	8.00e+02	*
10	OCDF	*	9.36e+02	*	*	7.96e+02	*
11	2,3,7,8-TCDD	*	6.82e+02	*	*	6.80e+02	*
12	1,2,3,7,8-PeCDD	*	7.24e+02	*	*	6.68e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.80e+02	*	*	8.16e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.80e+02	*	*	8.16e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.80e+02	*	*	8.16e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	7.52e+02	*	*	9.80e+02	*
17	OCDD	*	6.16e+02	*	*	8.00e+02	*
18	13C-2,3,7,8-TCDF	6.84e+05	7.84e+02	8.7e+02	9.00e+05	9.08e+02	9.9e+02
19	13C-1,2,3,7,8-PeCDF	1.33e+06	8.12e+02	1.6e+03	8.56e+05	5.32e+02	1.6e+03
20	13C-2,3,4,7,8-PeCDF	1.44e+06	8.12e+02	1.8e+03	8.95e+05	5.32e+02	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	7.36e+05	9.88e+02	7.4e+02	1.48e+06	7.32e+02	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	8.41e+05	9.88e+02	8.5e+02	1.55e+06	7.32e+02	2.1e+03
24	13C-1,2,3,7,8,9-HxCDF	6.12e+05	9.88e+02	6.2e+02	1.13e+06	7.32e+02	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.90e+05	1.49e+03	3.3e+02	1.10e+06	1.38e+03	8.0e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.58e+05	1.49e+03	2.4e+02	8.29e+05	1.38e+03	6.0e+02
27	13C-2,3,7,8-TCDD	6.44e+05	3.10e+03	2.1e+02	8.08e+05	1.22e+03	6.6e+02
28	13C-1,2,3,7,8-PeCDD	1.09e+06	8.56e+02	1.3e+03	6.90e+05	7.32e+02	9.4e+02
29	13C-1,2,3,4,7,8-HxCDD	1.18e+06	8.24e+02	1.4e+03	9.58e+05	7.88e+02	1.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.16e+06	8.24e+02	1.4e+03	8.96e+05	7.88e+02	1.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.53e+05	8.72e+02	9.8e+02	7.79e+05	6.64e+02	1.2e+03
32	13C-OCDD	7.68e+05	1.71e+03	4.5e+02	8.65e+05	3.84e+02	2.3e+03
33	13C-1,2,3,4-TCDD	5.60e+06	3.10e+03	1.8e+03	7.20e+06	1.22e+03	5.9e+03
34	13C-1,2,3,7,8,9-HxCDD	9.07e+06	8.24e+02	1.1e+04	7.17e+06	7.88e+02	9.1e+03
35	37Cl-2,3,7,8-TCDD	1.60e+06	7.76e+02	2.1e+03			

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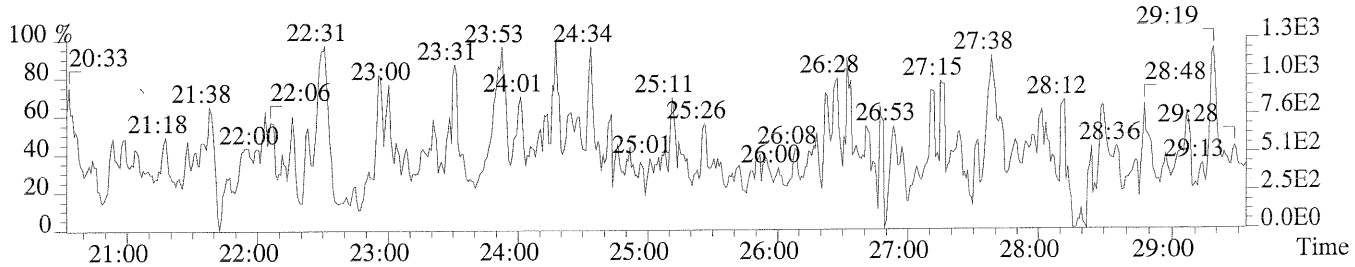
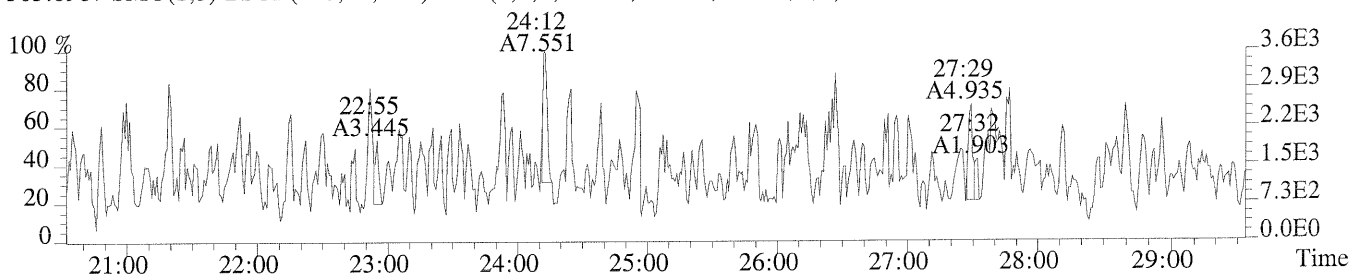
ALS Form TO-9SN/M23SN.FRM

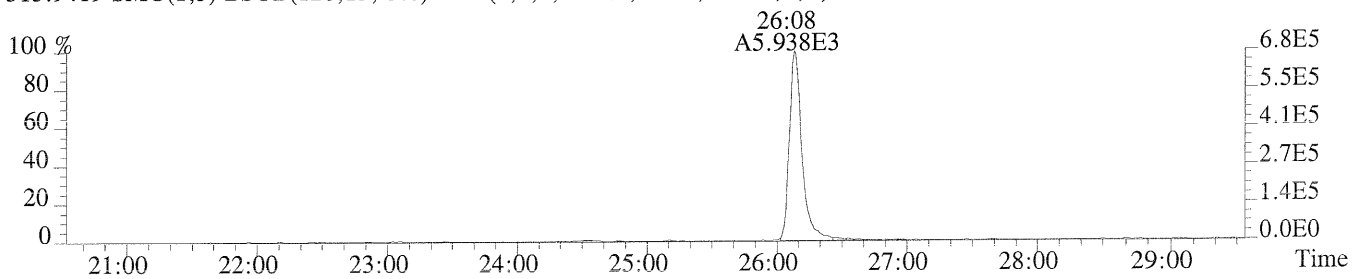
File:P176195 #1-696 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



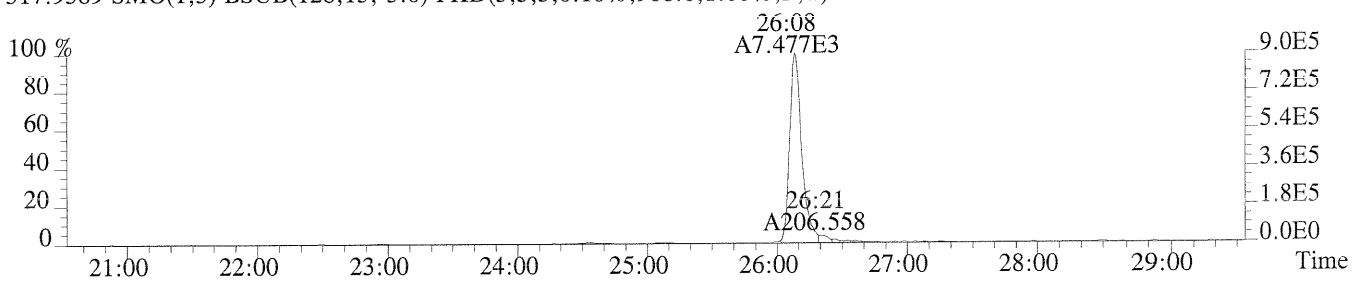
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1620.0,1.00%,F,T)



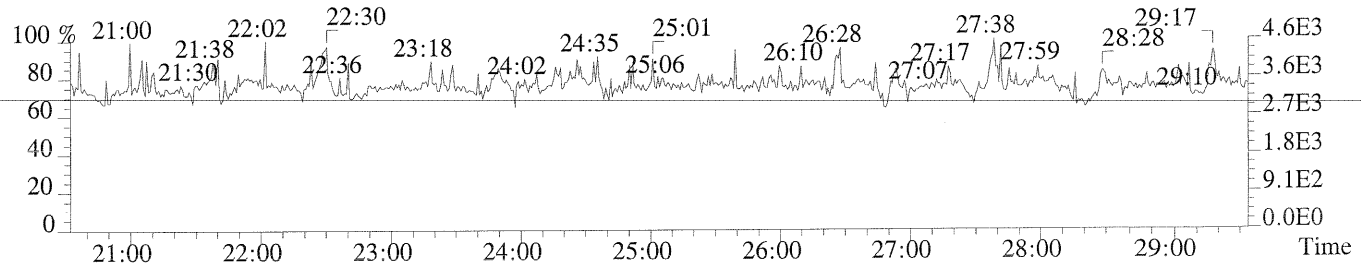
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



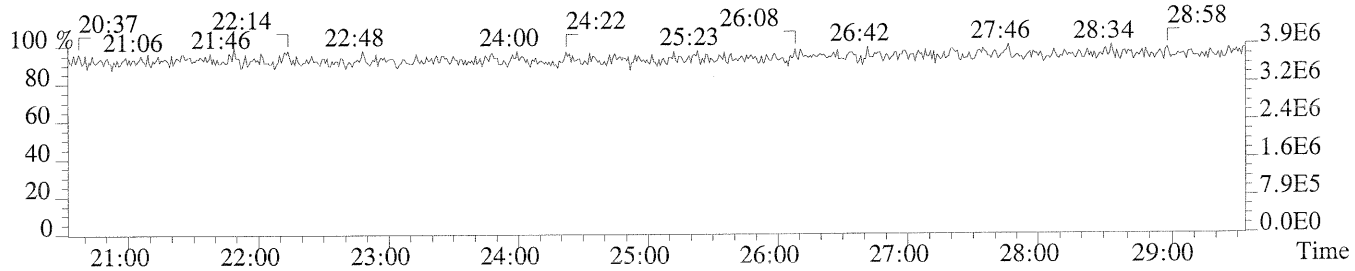
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



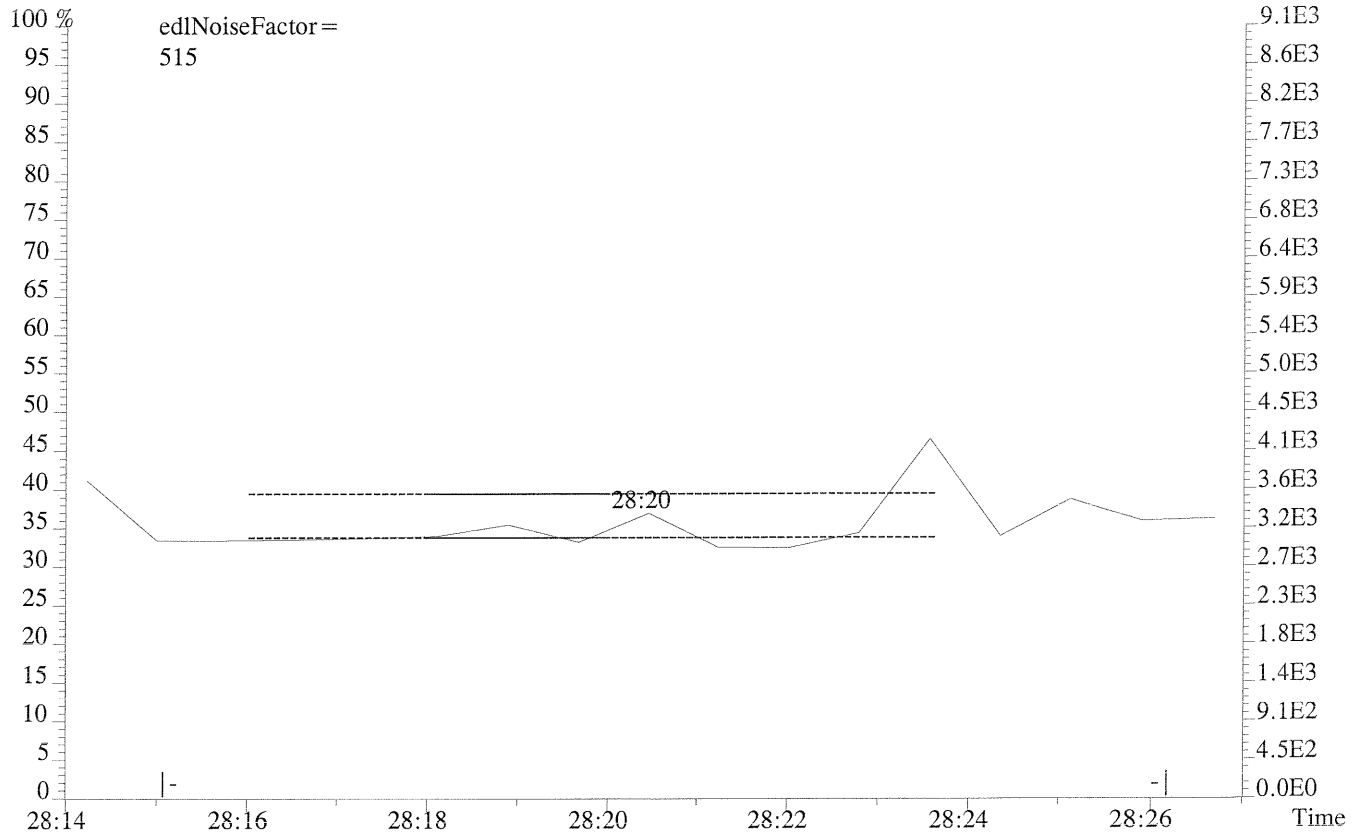
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



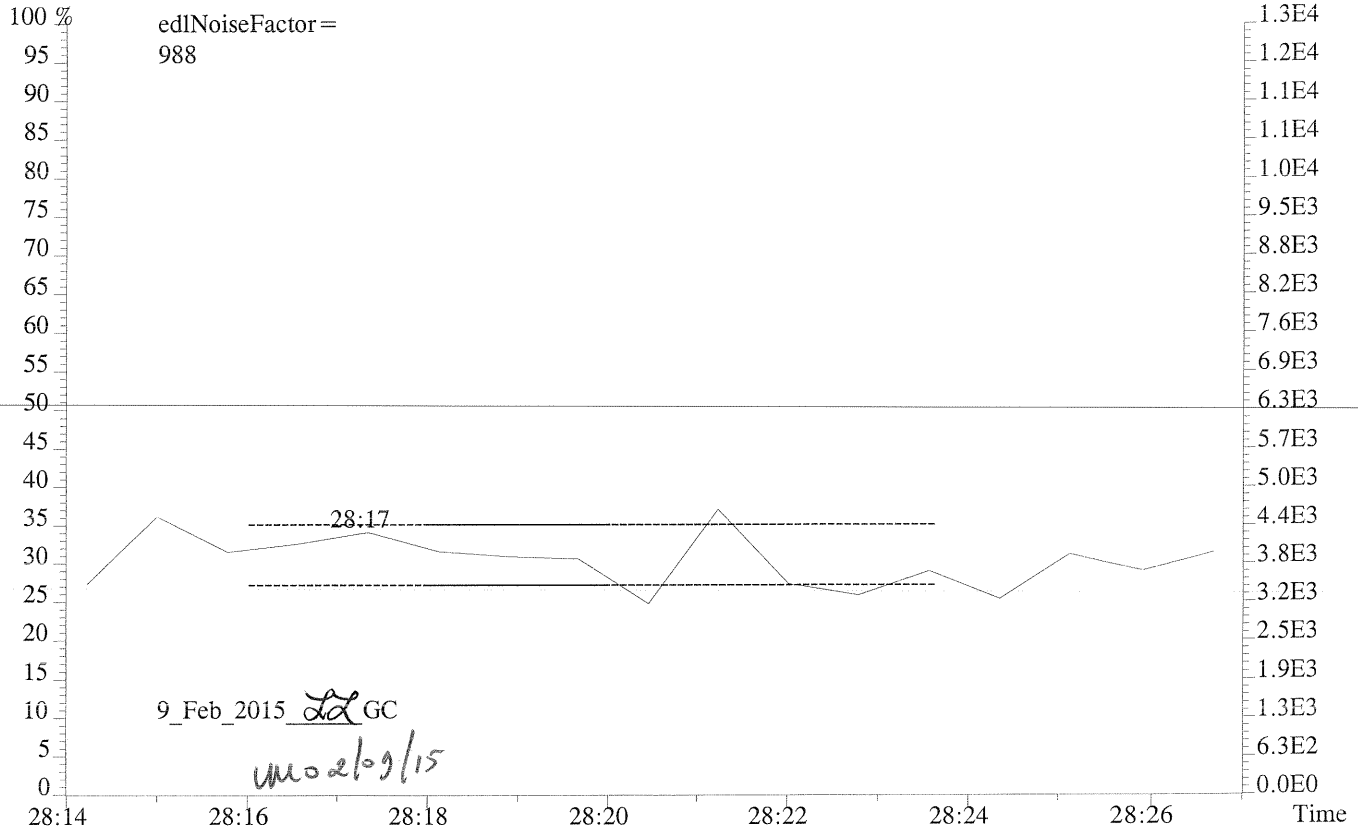
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



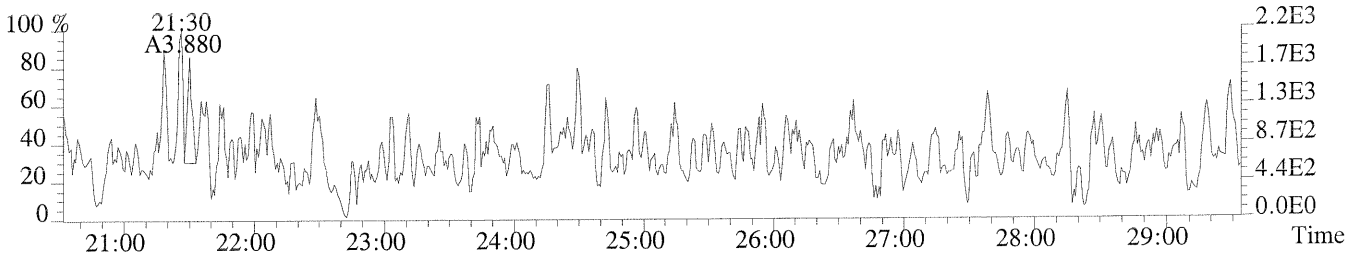
File:P176195 #1-696 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
303.9016



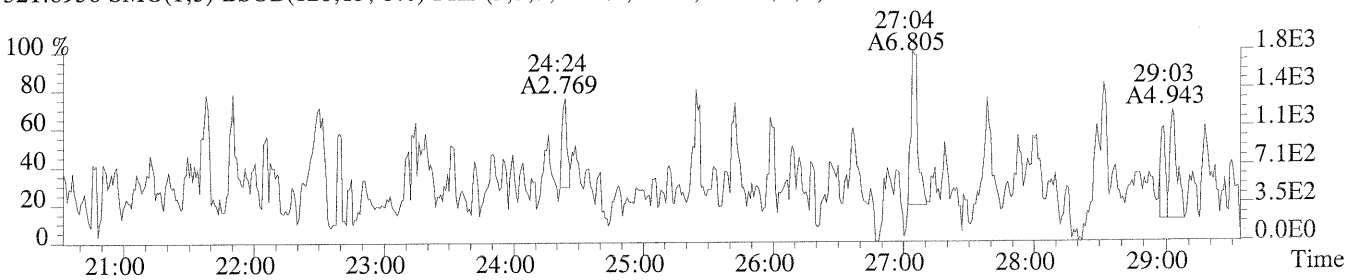
305.8987



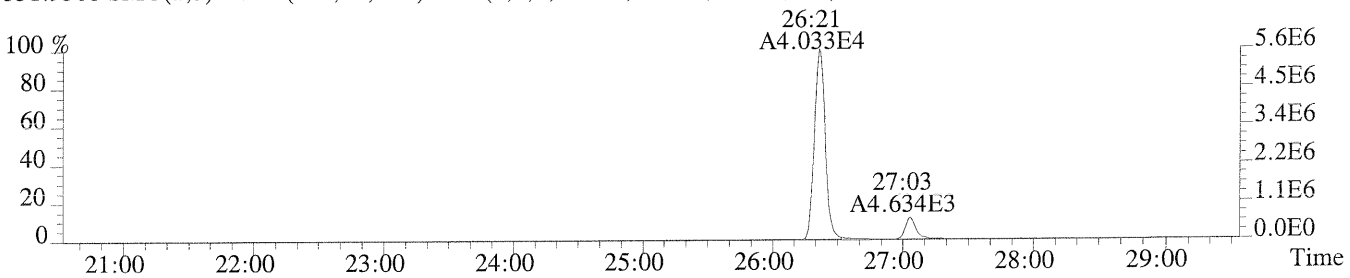
File:P176195 #1-696 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



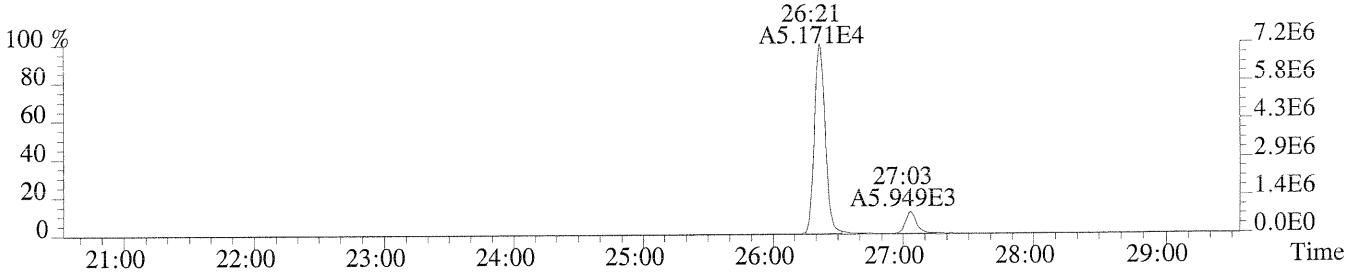
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



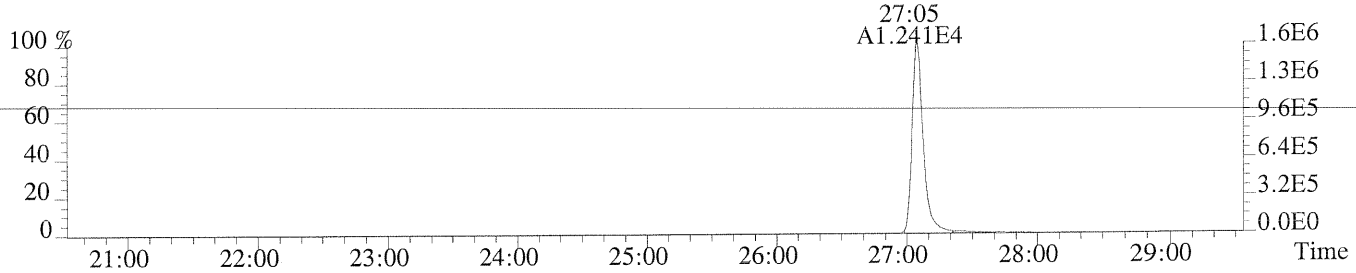
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



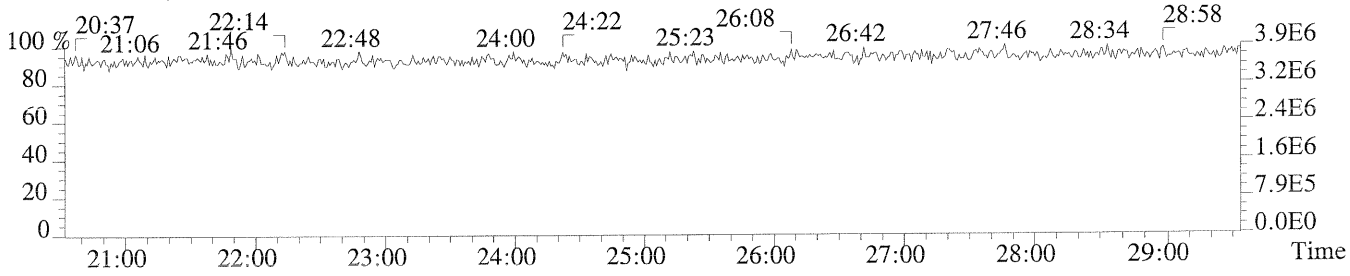
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



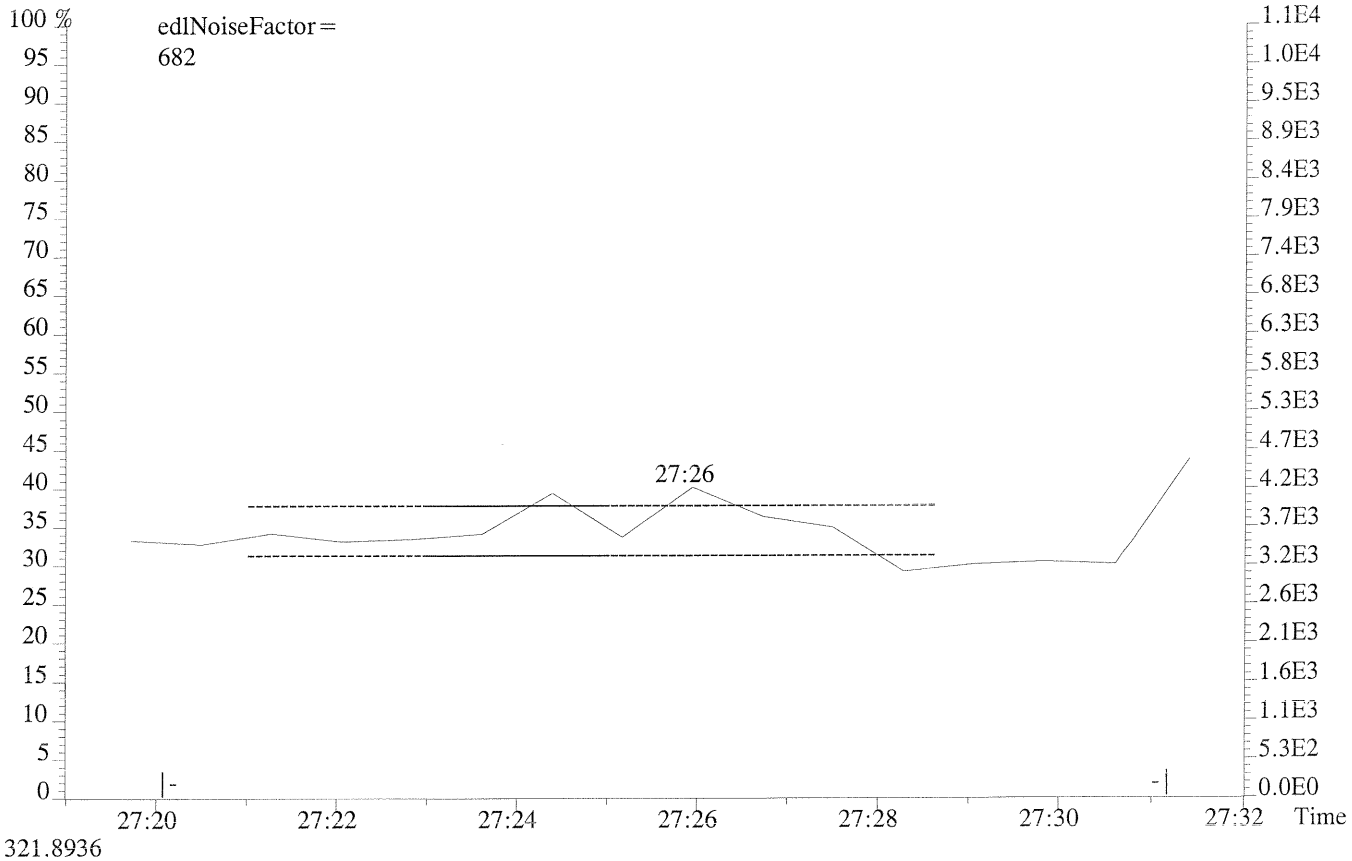
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



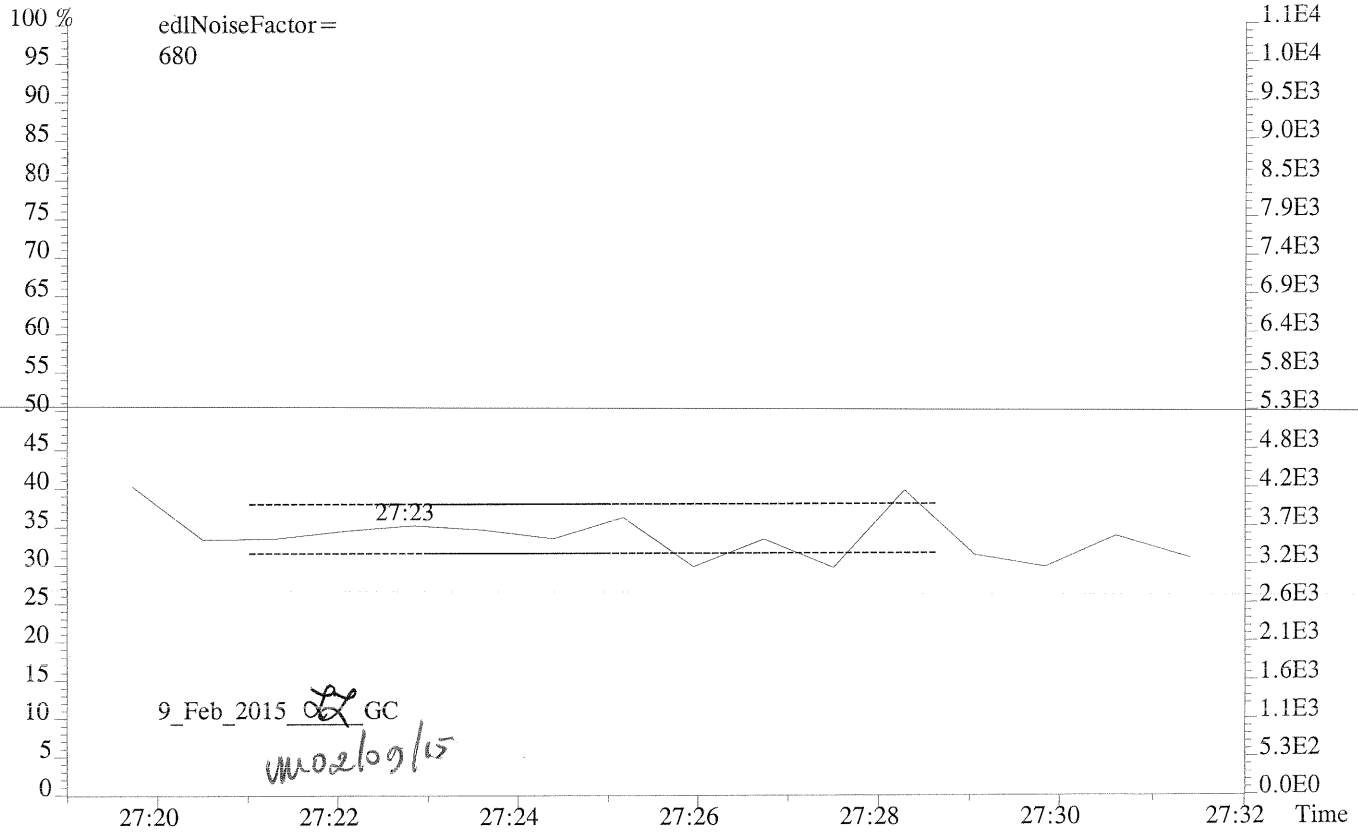
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



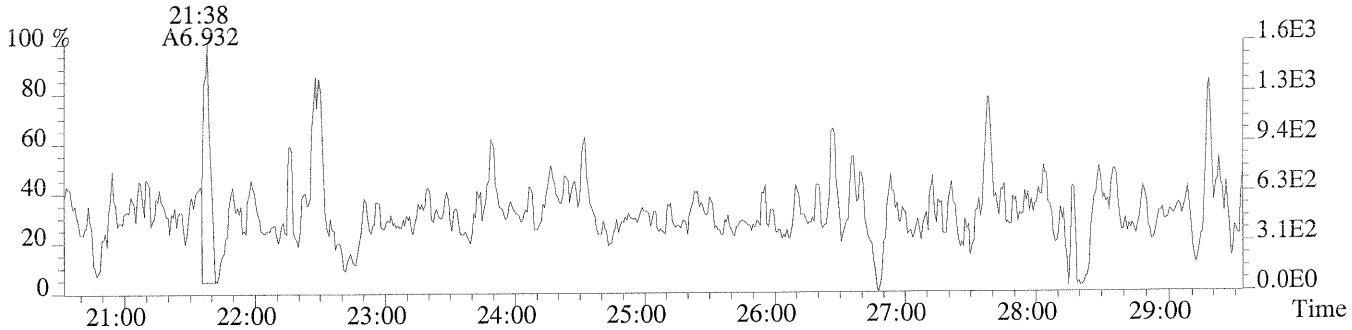
File:P176195 #1-696 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
319.8965



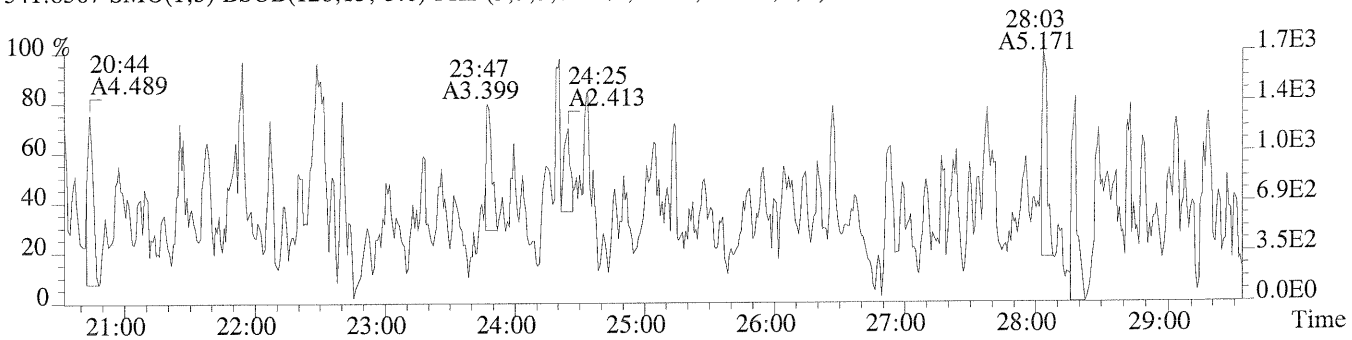
321.8936



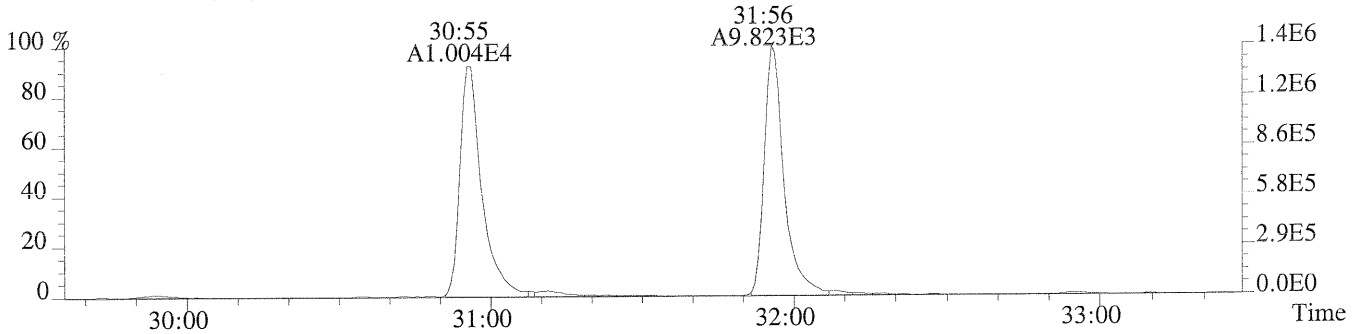
File:P176195 #1-696 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



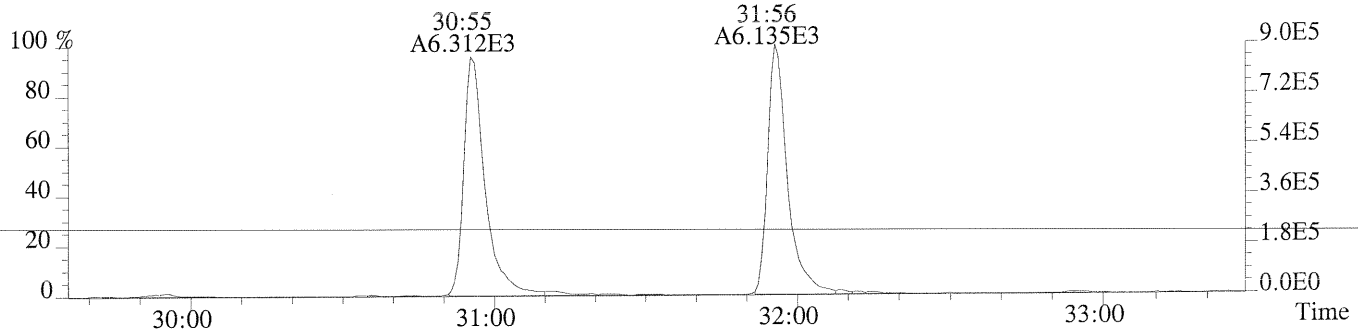
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



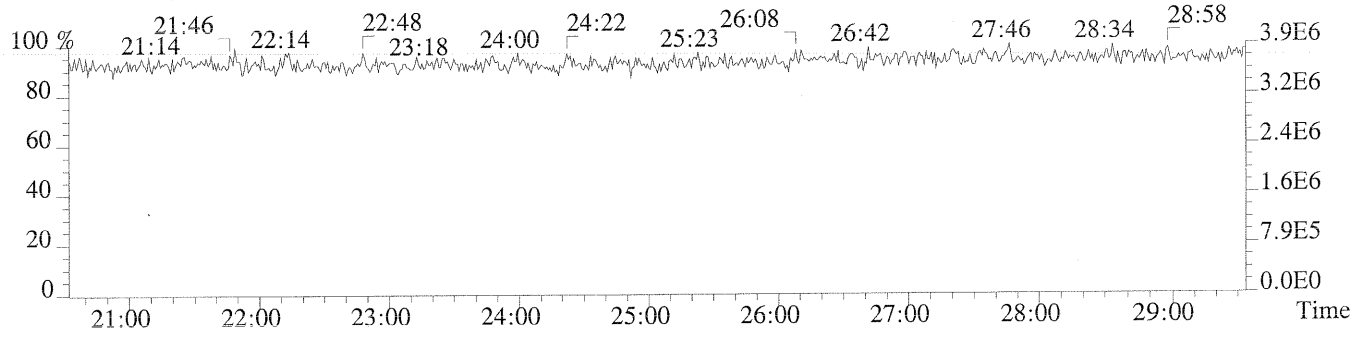
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



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

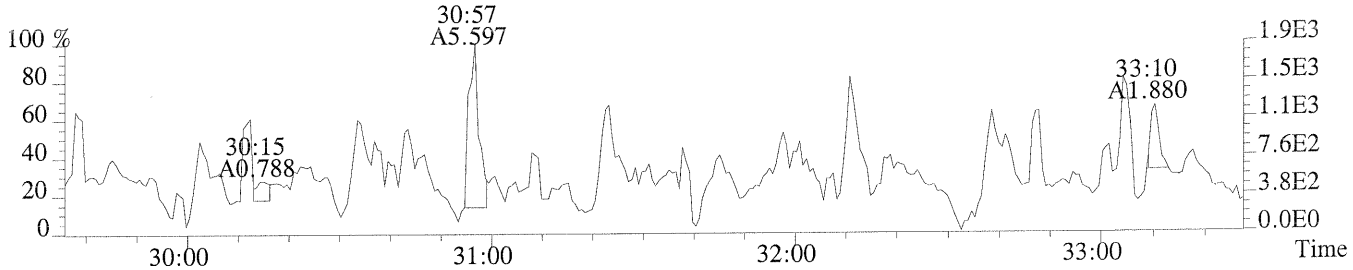


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

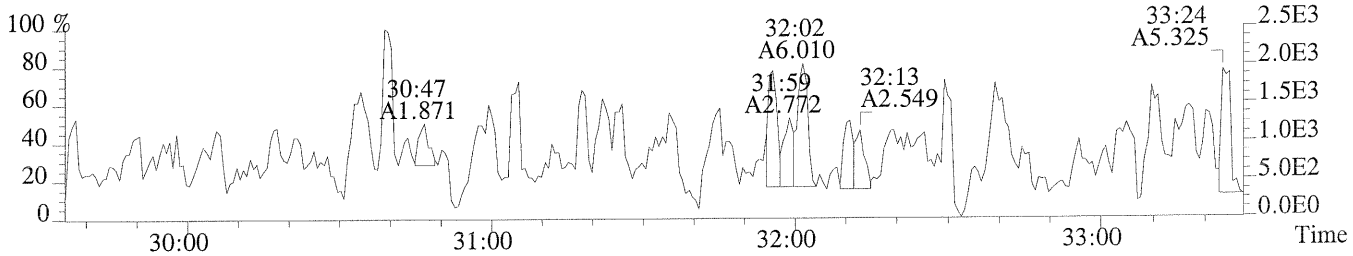


File:P176195 #1-351 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01

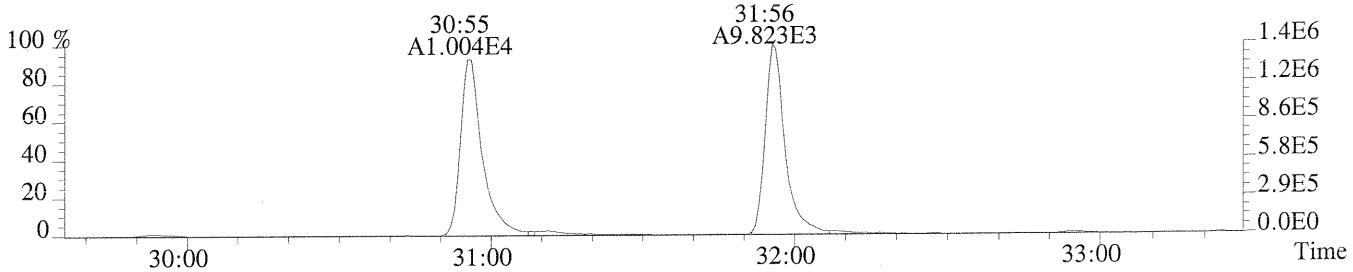
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



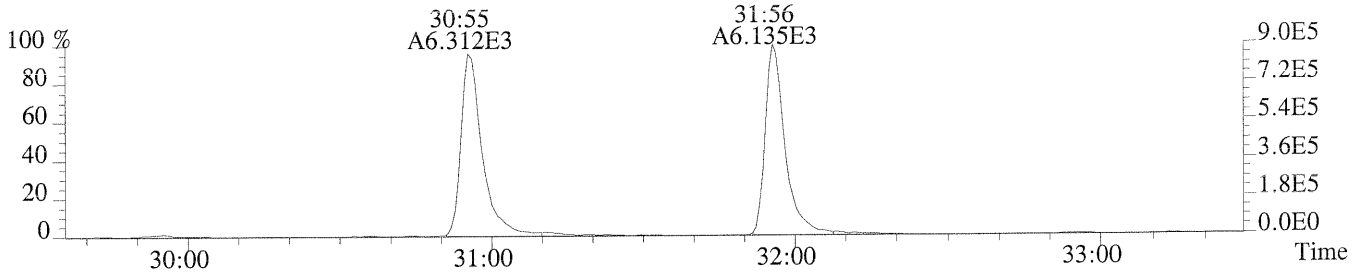
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



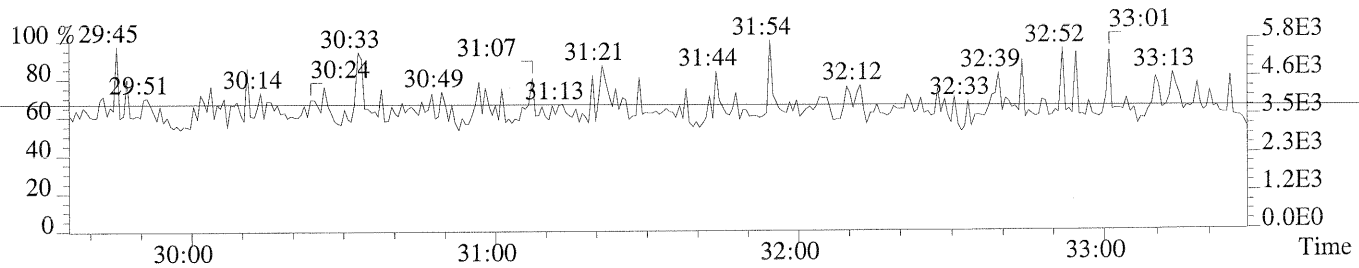
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



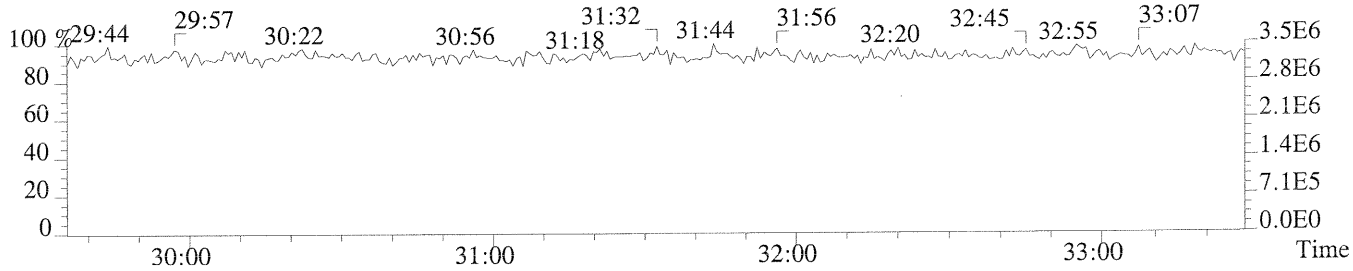
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



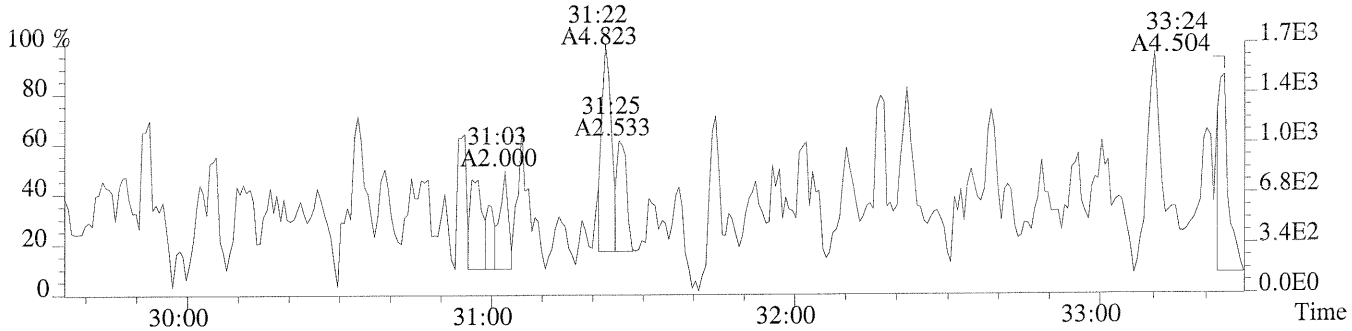
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



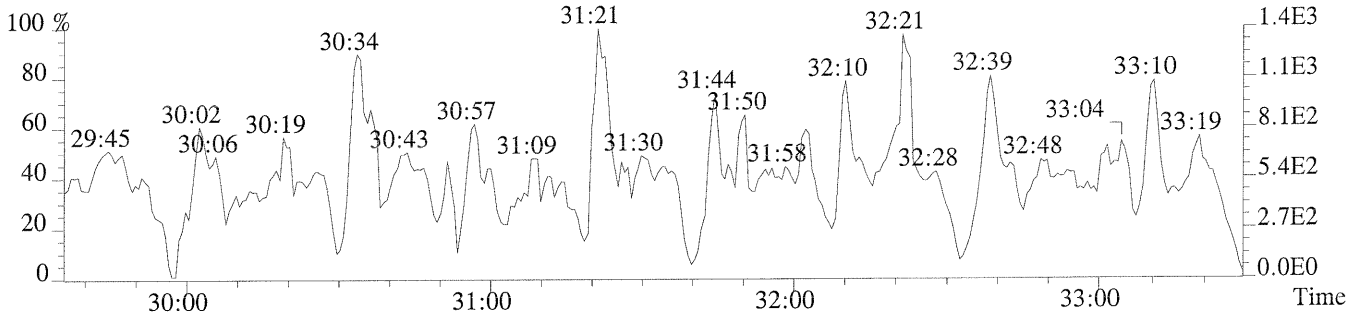
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



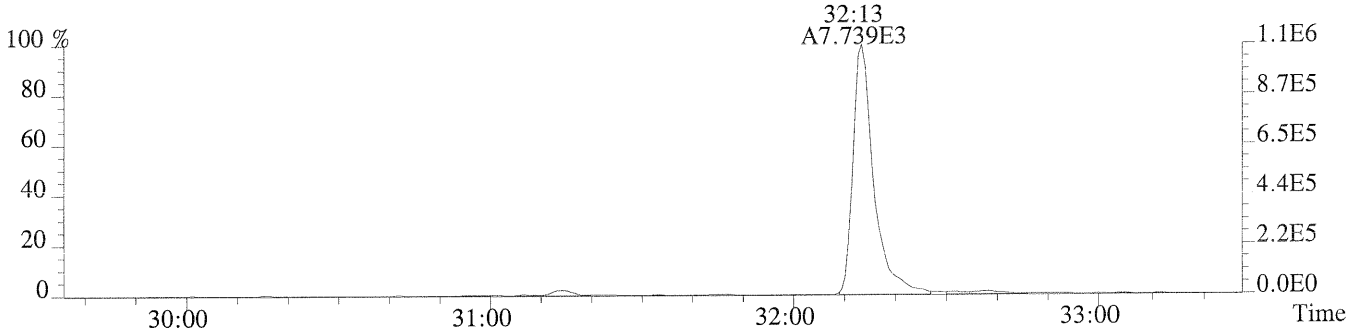
File:P176195 #1-351 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



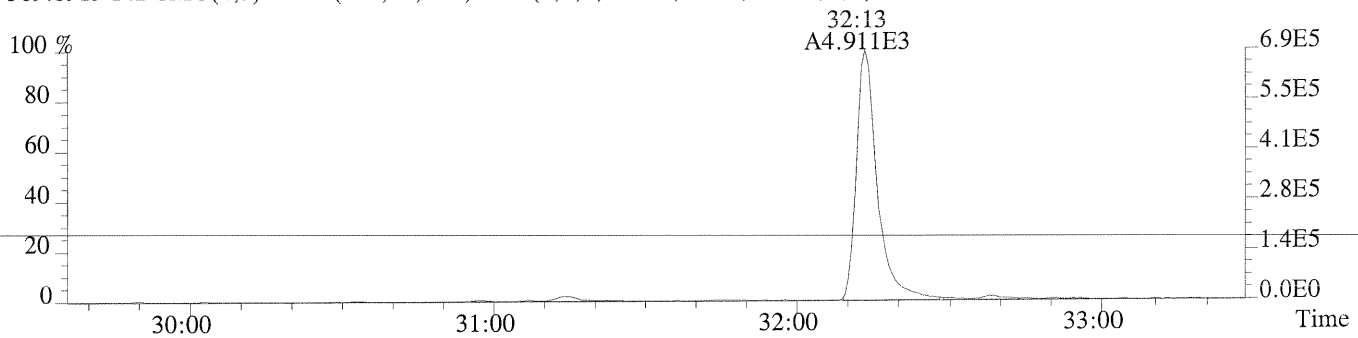
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



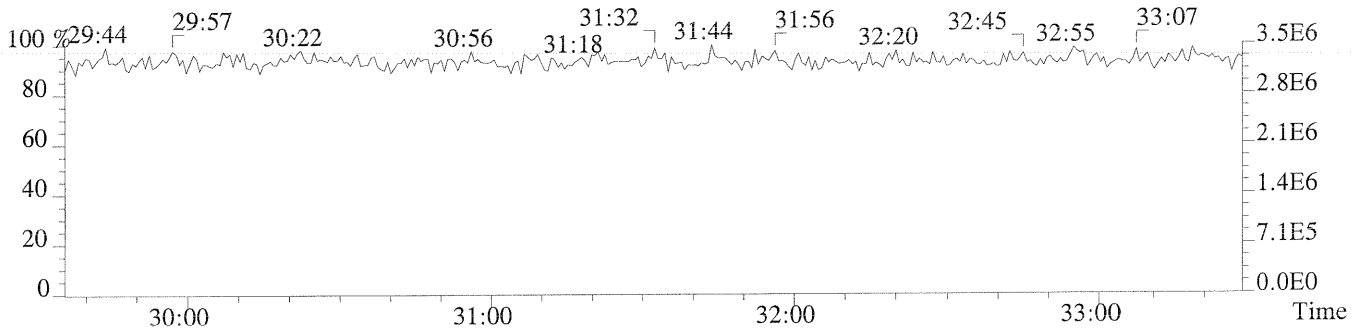
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



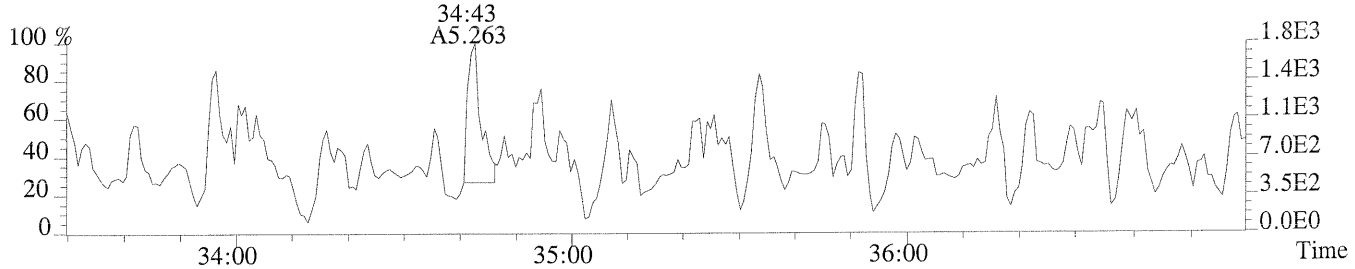
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



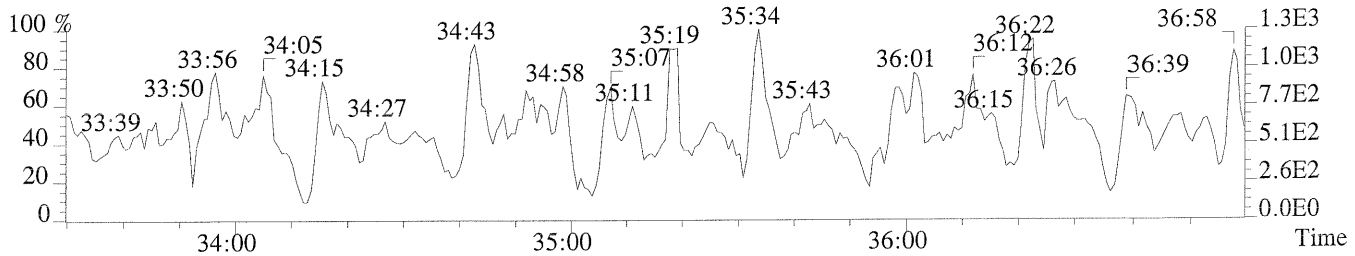
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



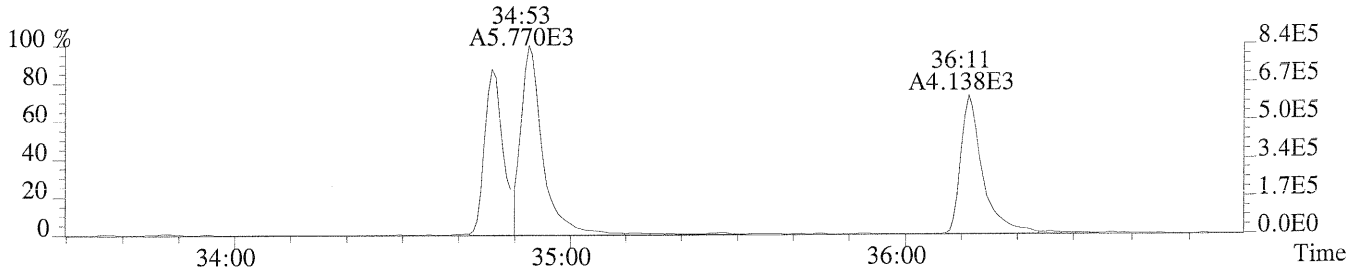
File:P176195 #1-318 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



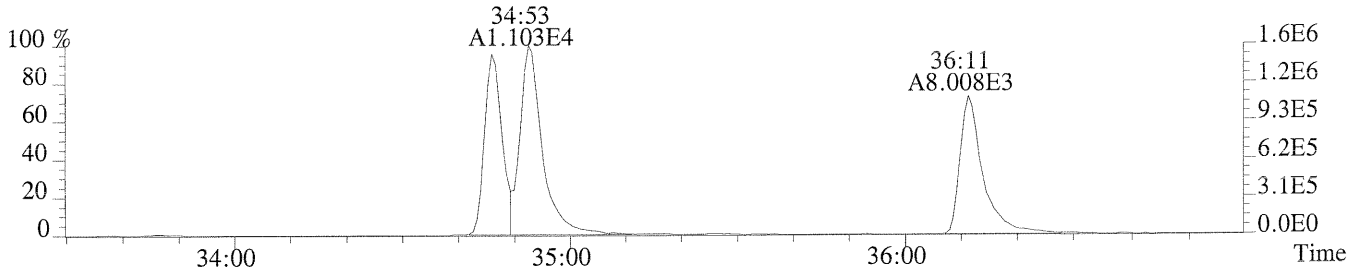
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



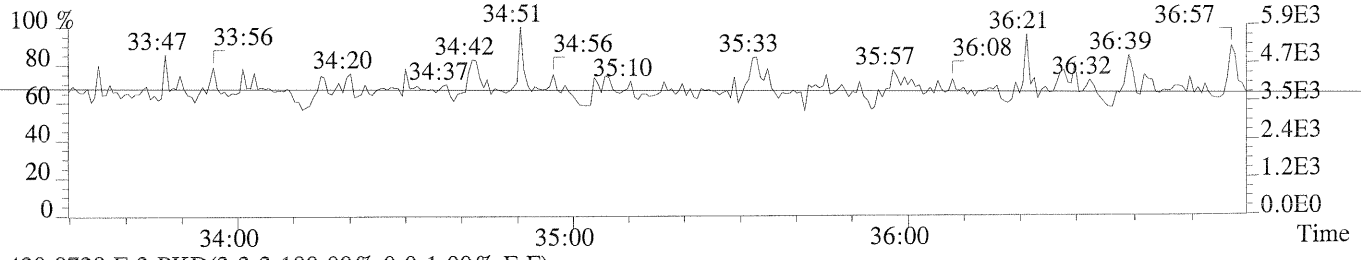
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



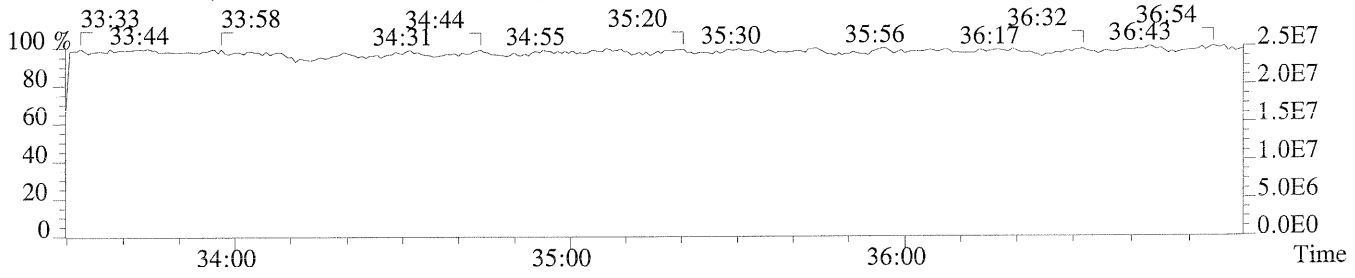
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



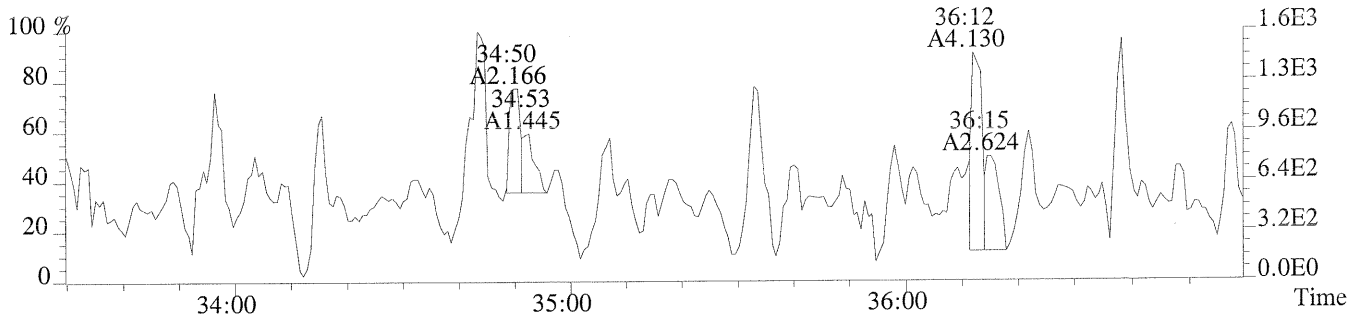
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



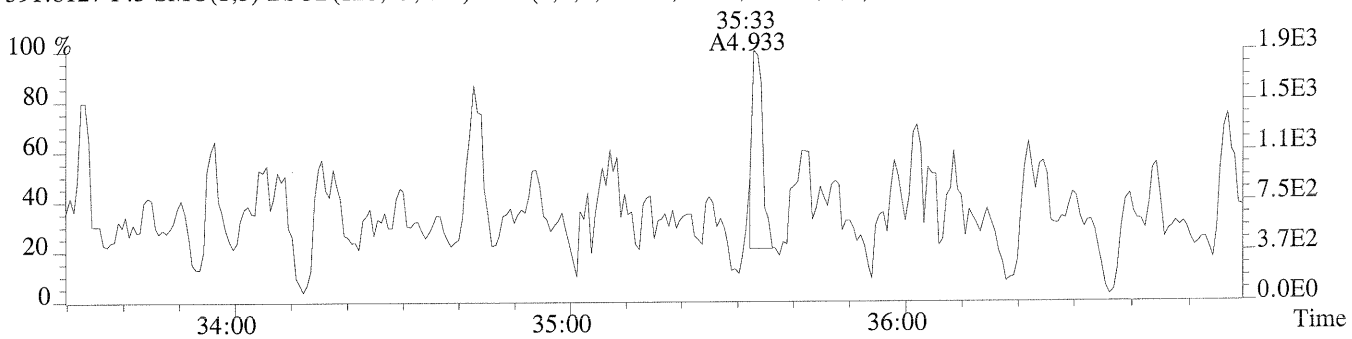
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



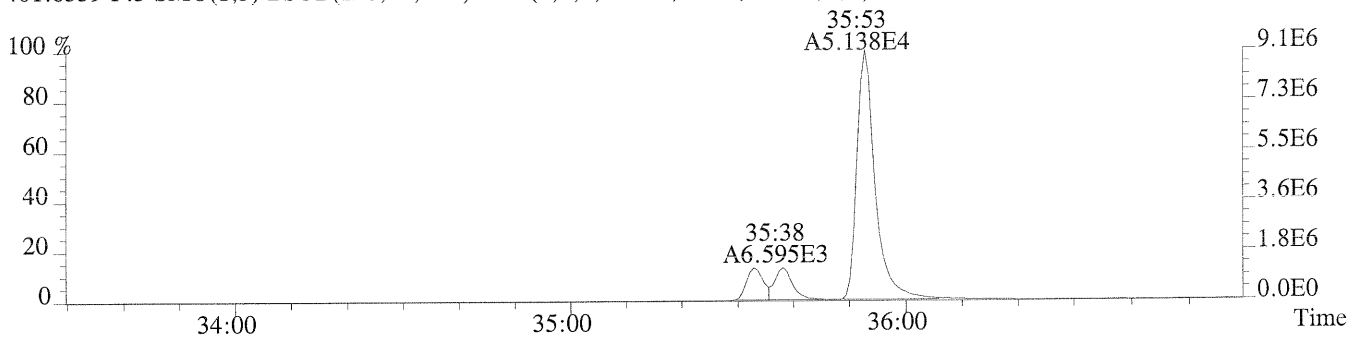
File:P176195 #1-318 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



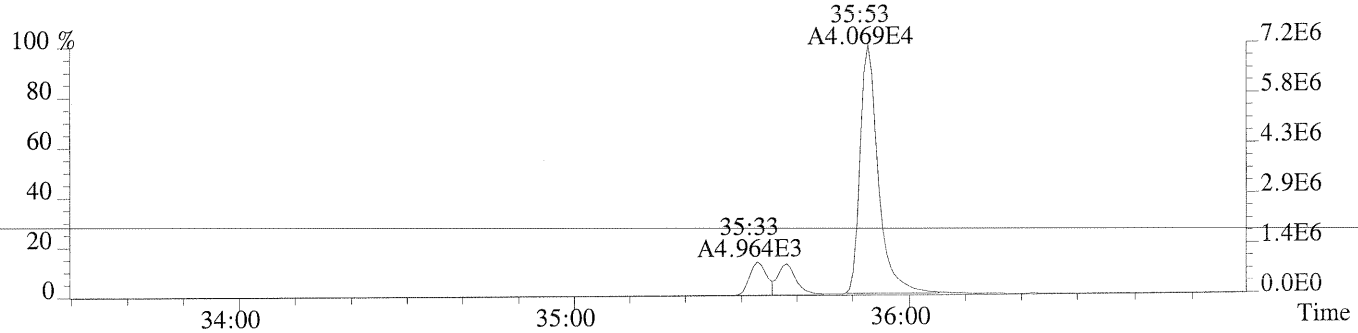
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



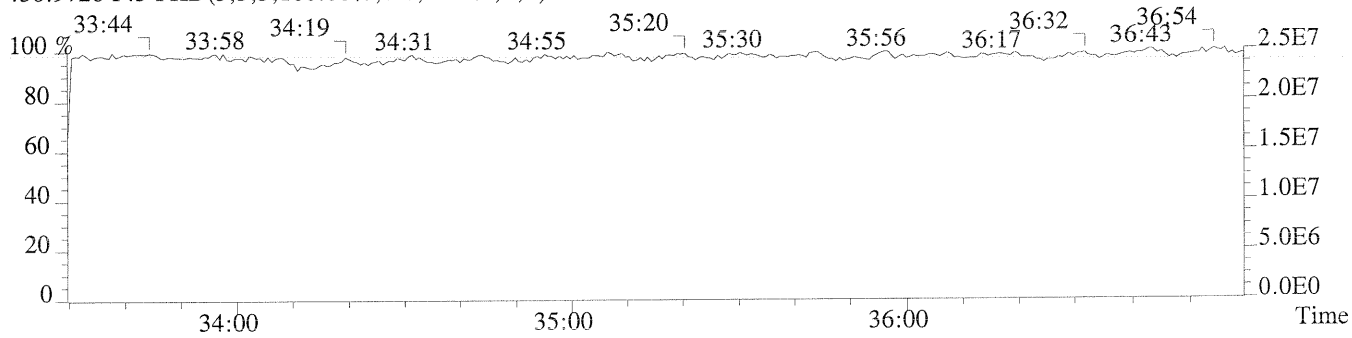
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



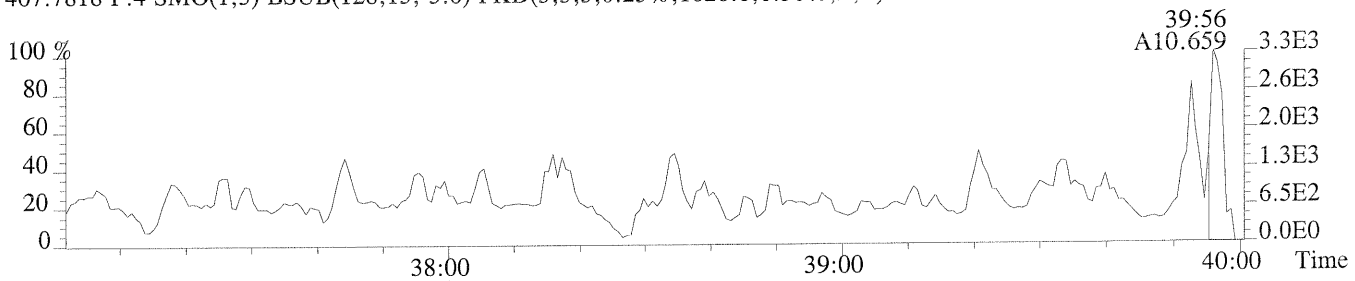
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



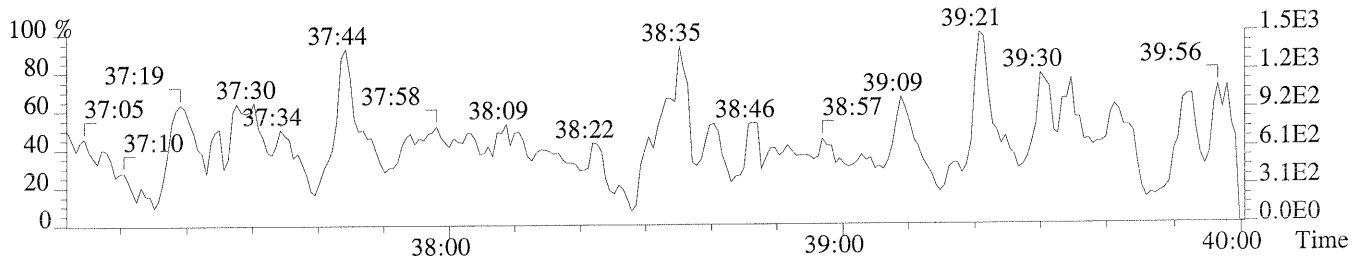
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



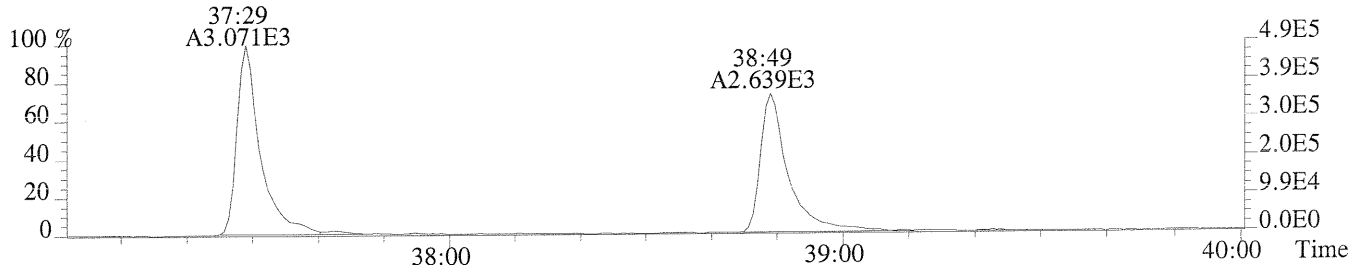
File:P176195 #1-271 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.50%,F,T)



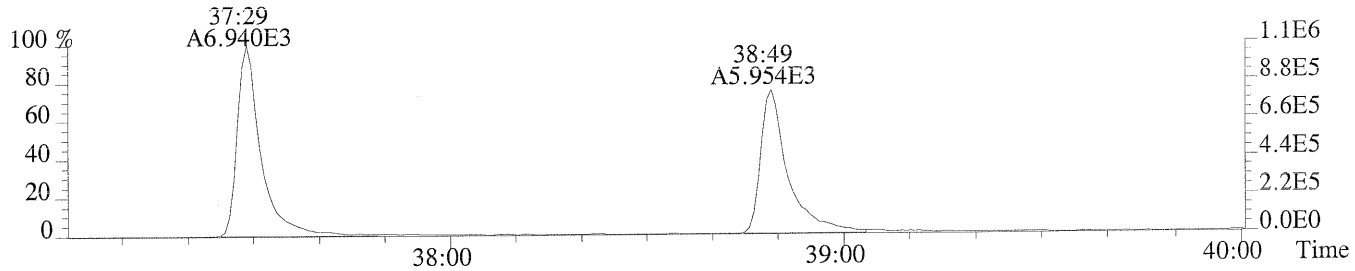
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.50%,F,T)



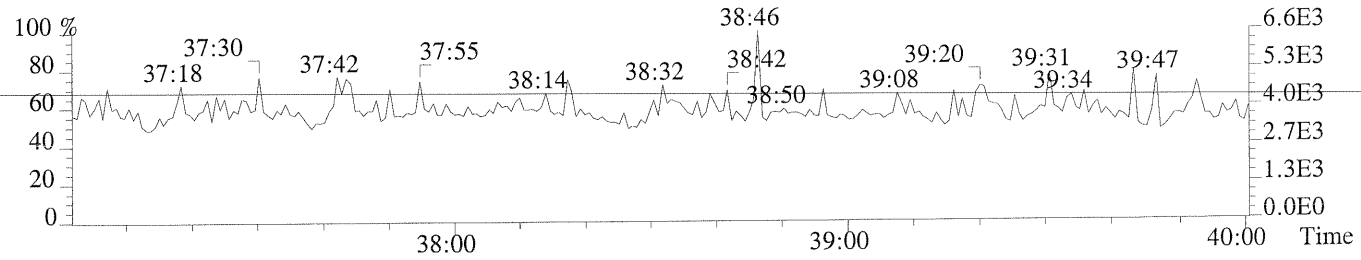
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.50%,F,T)



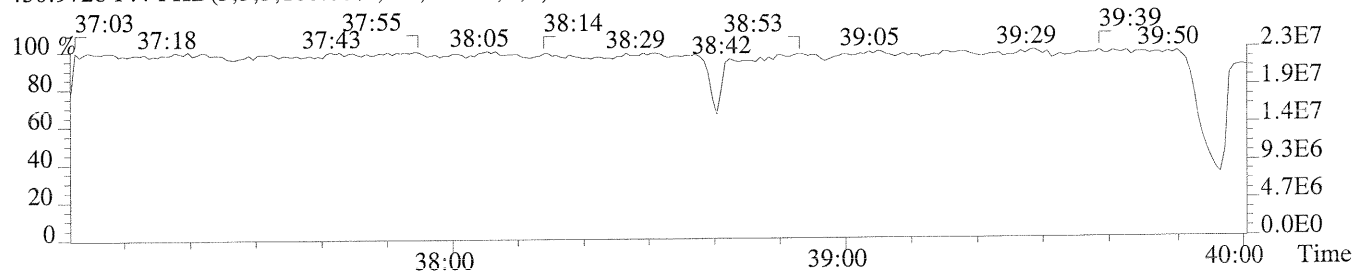
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.50%,F,T)



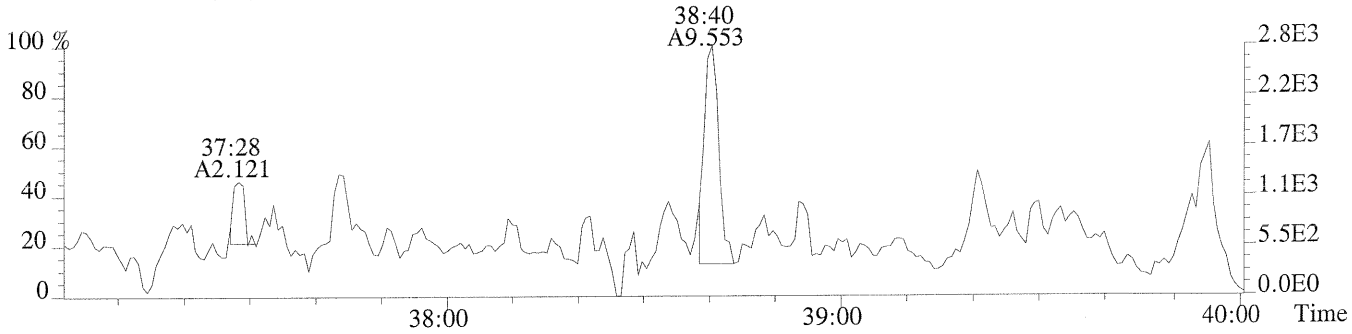
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



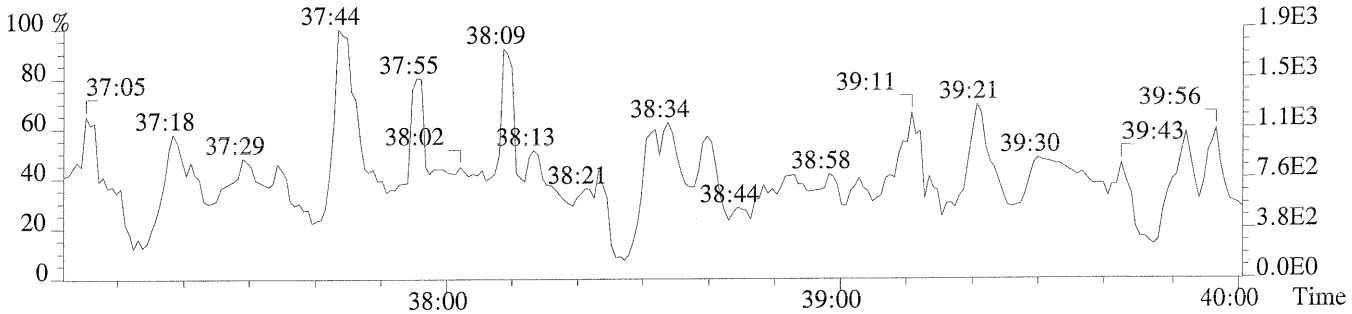
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



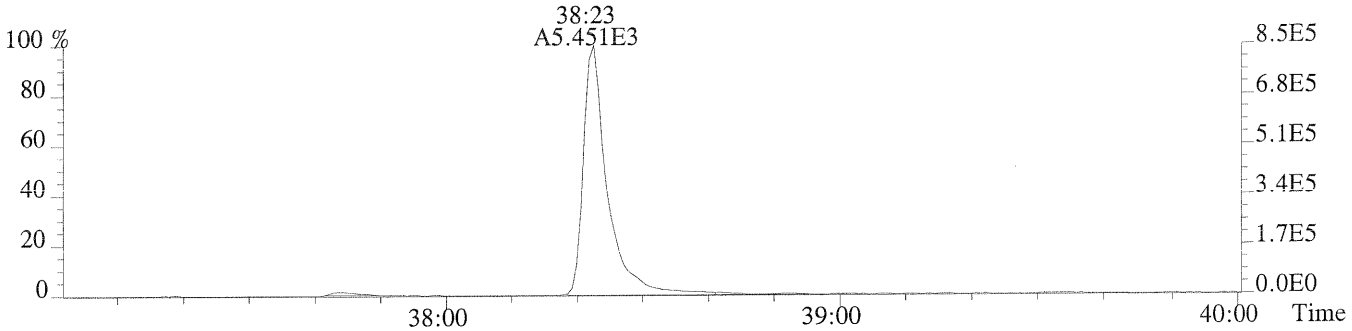
File:P176195 #1-271 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



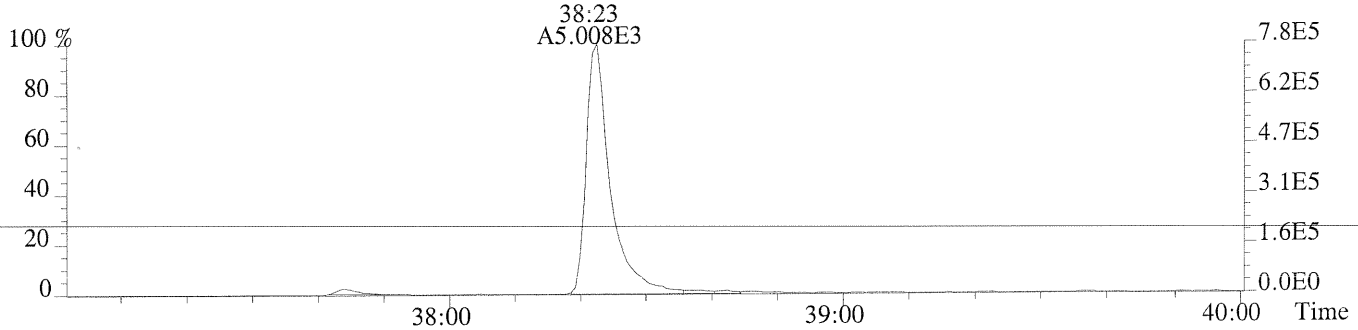
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



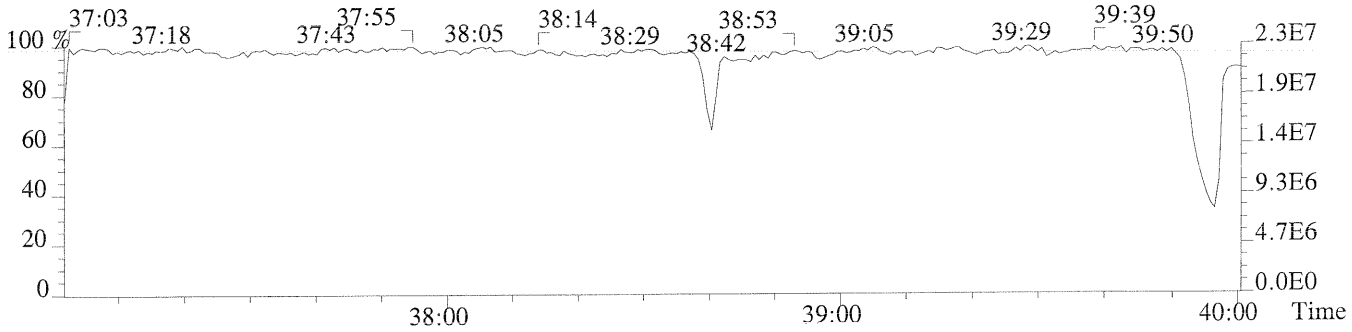
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



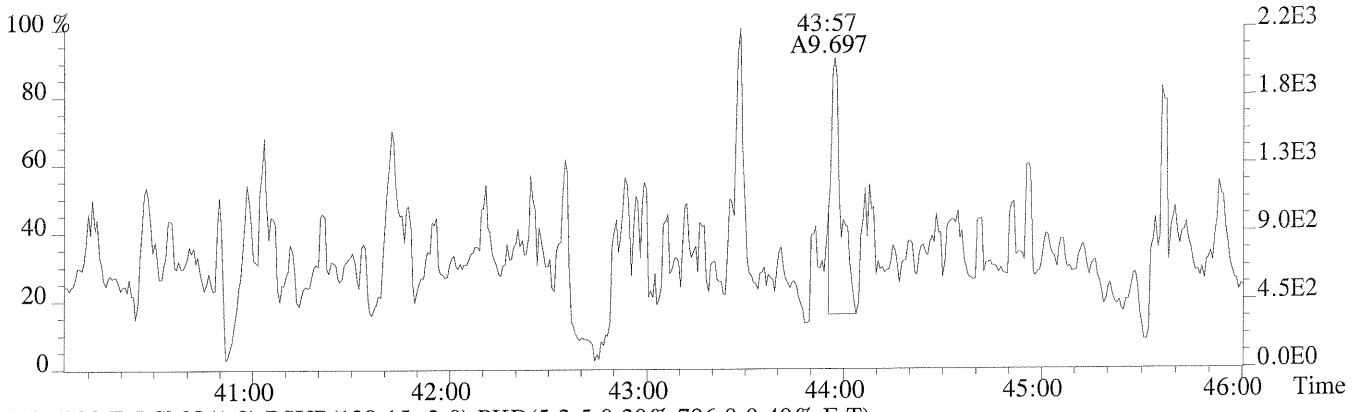
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



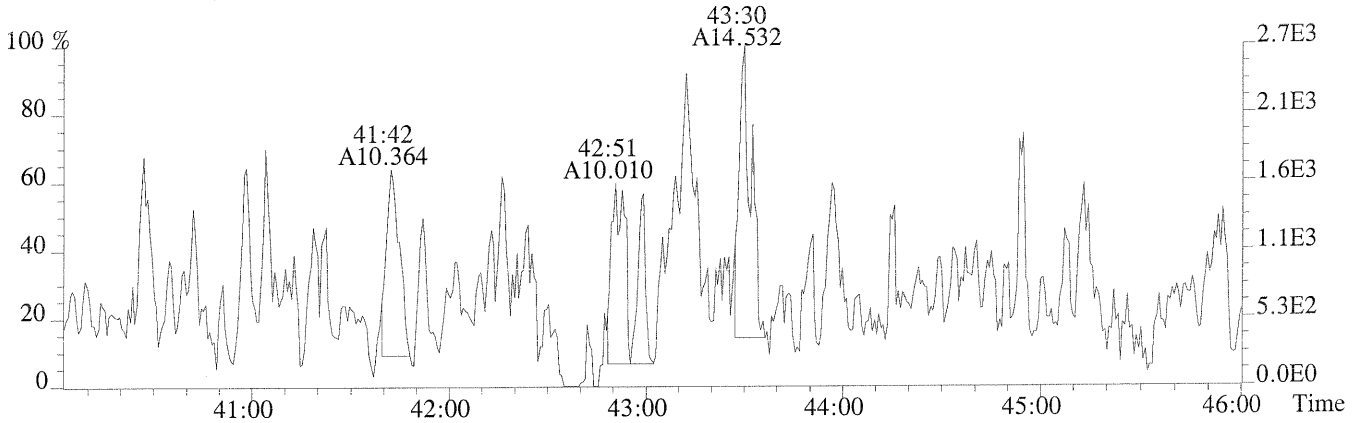
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



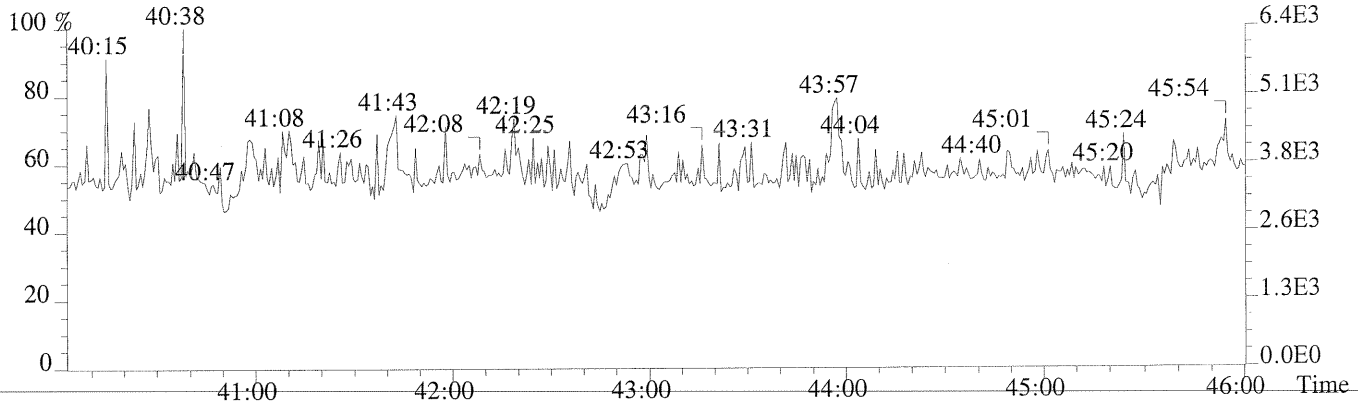
File:P176195 #1-548 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



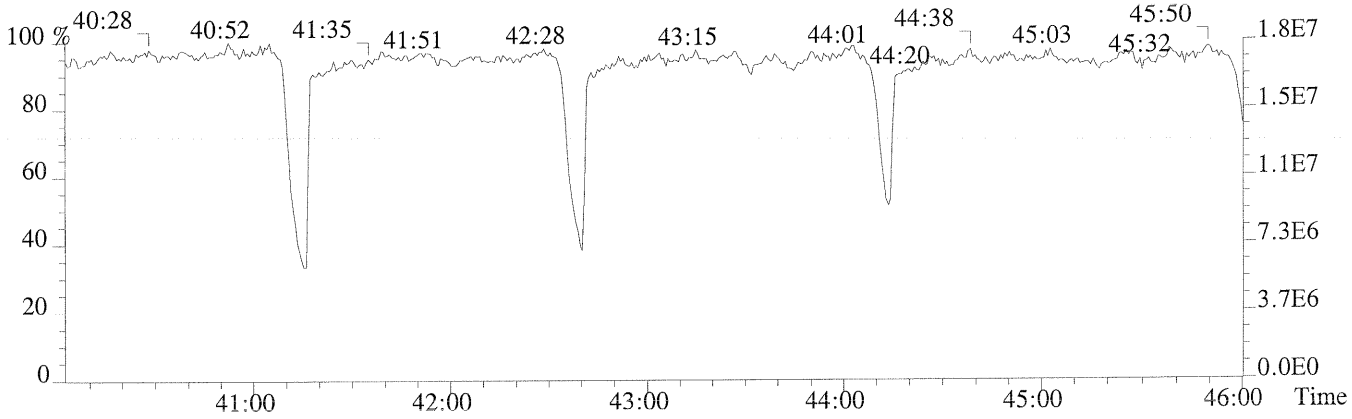
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,796.0,0.40%,F,T)



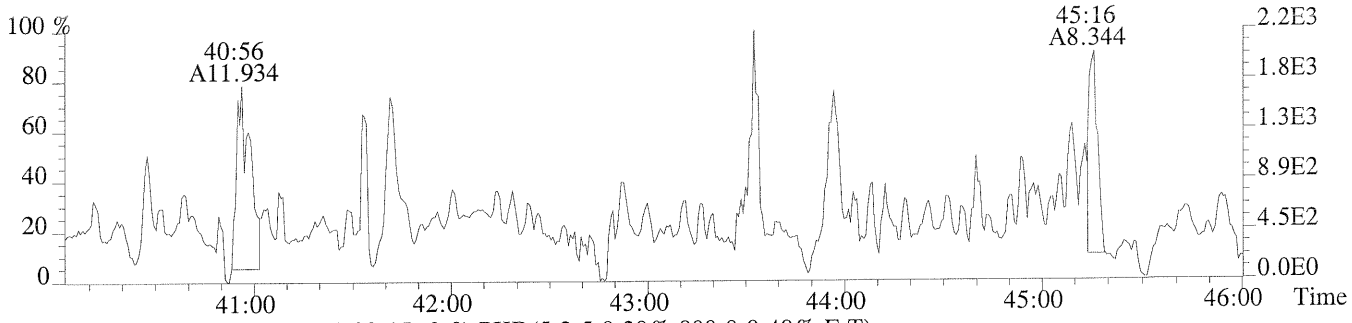
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



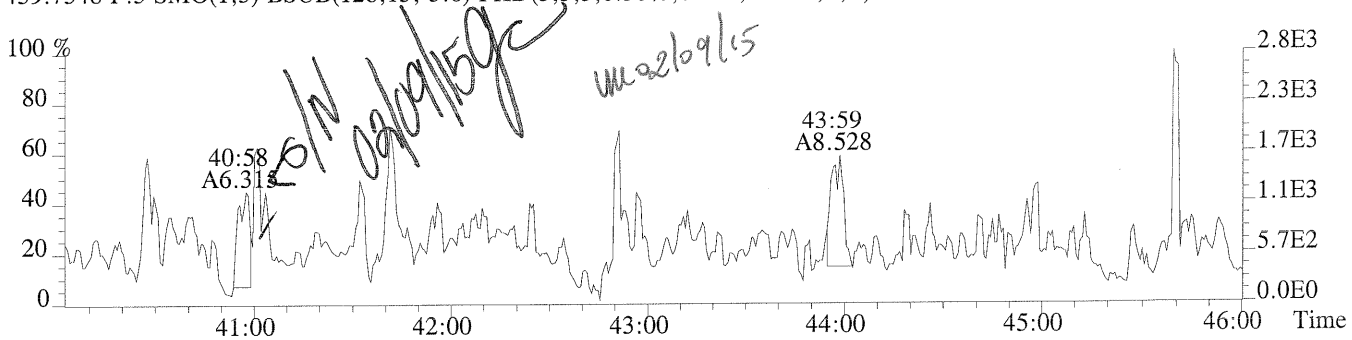
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



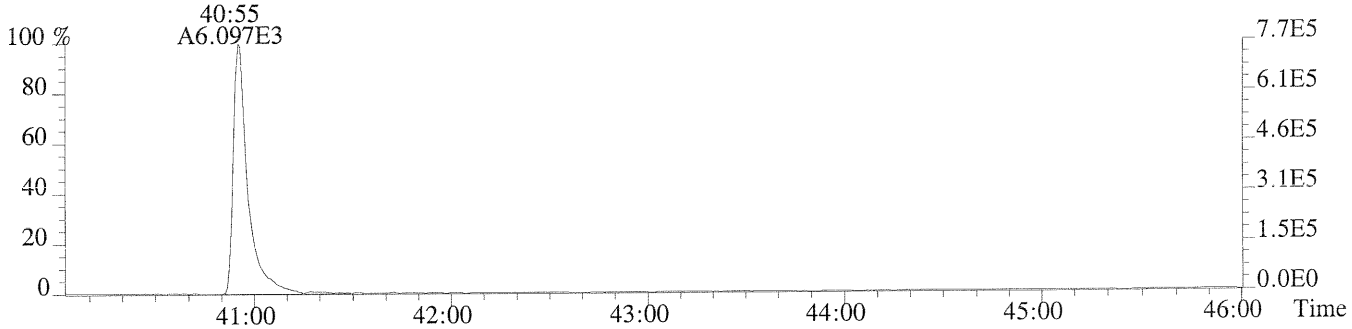
File:P176195 #1-548 Acq: 7-FEB-2015 12:13:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



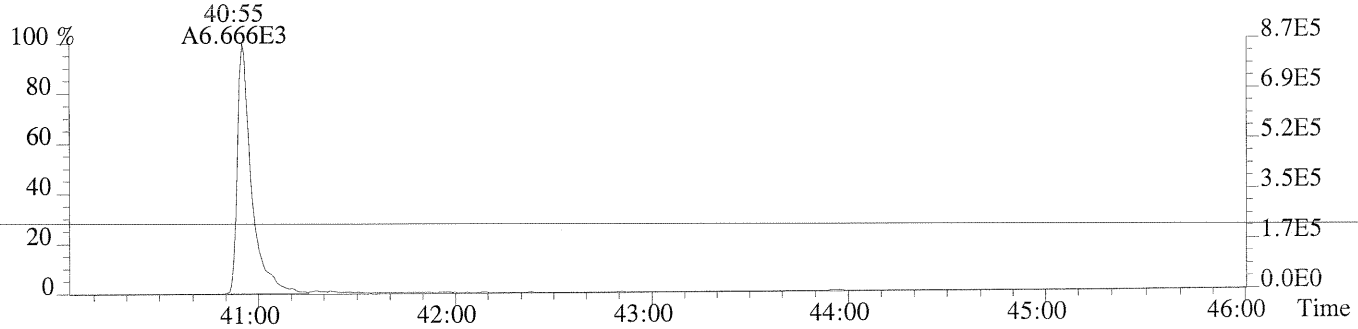
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



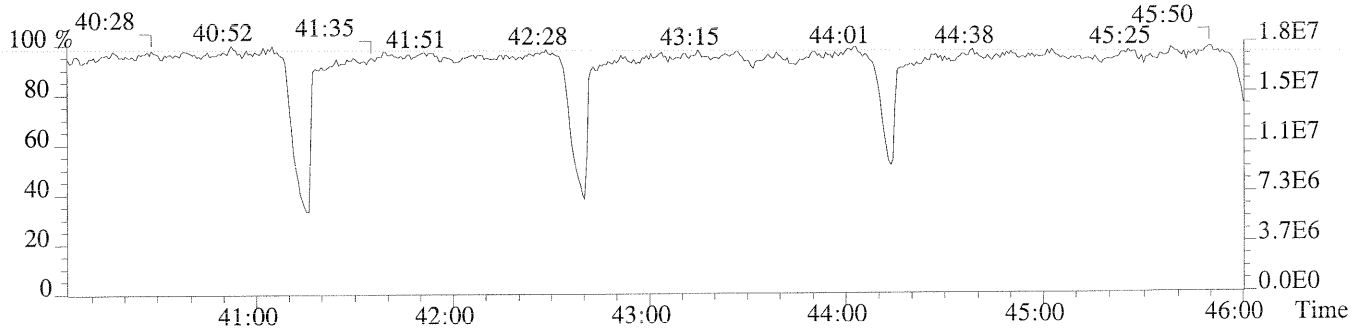
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,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 #17 Filename P176203 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 18:38:34
Processed: 9-FEB-15 12:04:26 LAB. ID: EQ1500085-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:09	5.969e+02	7.696e+02	0.78	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	30:56	5.306e+03	3.527e+03	1.50	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	31:56	4.989e+03	3.219e+03	1.55	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	34:47	4.277e+03	3.510e+03	1.22	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	34:53	5.158e+03	4.223e+03	1.22	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	35:26	4.348e+03	3.603e+03	1.21	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	36:11	3.841e+03	3.027e+03	1.27	yes	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	37:29	3.721e+03	3.580e+03	1.04	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	38:49	3.086e+03	3.125e+03	0.99	yes	no	1.148
10	Unk	OCDF	41:06	3.868e+03	4.134e+03	0.94	yes	no	1.369
11	Unk	2,3,7,8-TCDD	27:04	5.131e+02	6.832e+02	0.75	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	32:13	3.727e+03	2.301e+03	1.62	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	35:33	2.939e+03	2.558e+03	1.15	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	35:38	3.594e+03	2.622e+03	1.37	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	35:53	3.502e+03	2.736e+03	1.28	yes	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	38:23	2.656e+03	2.513e+03	1.06	yes	no	1.052
17	Unk	OCDD	40:55	3.602e+03	3.879e+03	0.93	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:08	6.246e+03	7.728e+03	0.81	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	9.706e+03	6.195e+03	1.57	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	9.557e+03	6.021e+03	1.59	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:45	4.271e+03	7.908e+03	0.54	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	5.567e+03	1.053e+04	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	4.068e+03	7.888e+03	0.52	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:28	2.948e+03	6.741e+03	0.44	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:48	2.560e+03	5.991e+03	0.43	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	4.718e+03	6.080e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	7.566e+03	4.748e+03	1.59	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:32	5.816e+03	4.541e+03	1.28	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:37	6.571e+03	5.147e+03	1.28	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:22	5.286e+03	4.912e+03	1.08	yes	no	0.874
32	IS	13C-OCDD	40:54	6.264e+03	6.885e+03	0.91	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:21	3.175e+04	4.050e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:52	4.061e+04	3.259e+04	1.25	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:04	1.207e+04				no	1.038

$$OCDD = \frac{(3.602e+03 + 3.879e+03) \times 8000\ pg \times 1}{(6.264e+03 + 6.885e+03) \times 1.068} = \quad pg$$

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Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #17 Filename P176203 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 18:38:34
Processed: 9-FEB-15 12:04:26 LAB. ID: EQ1500085-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.18e+04	5.64e+02	1.3e+02	9.49e+04	1.13e+03	8.4e+01
2	1,2,3,7,8-PeCDF	7.33e+05	3.16e+02	2.3e+03	5.00e+05	6.76e+02	7.4e+02
3	2,3,4,7,8-PeCDF	7.67e+05	3.16e+02	2.4e+03	4.88e+05	6.76e+02	7.2e+02
4	1,2,3,4,7,8-HxCDF	7.76e+05	4.56e+02	1.7e+03	6.41e+05	3.76e+02	1.7e+03
5	1,2,3,6,7,8-HxCDF	7.90e+05	4.56e+02	1.7e+03	6.36e+05	3.76e+02	1.7e+03
6	2,3,4,6,7,8-HxCDF	7.27e+05	4.56e+02	1.6e+03	5.96e+05	3.76e+02	1.6e+03
7	1,2,3,7,8,9-HxCDF	5.61e+05	4.56e+02	1.2e+03	4.57e+05	3.76e+02	1.2e+03
8	1,2,3,4,6,7,8-HpCDF	6.03e+05	5.36e+02	1.1e+03	5.92e+05	7.64e+02	7.8e+02
9	1,2,3,4,7,8,9-HpCDF	4.41e+05	5.36e+02	8.2e+02	4.68e+05	7.64e+02	6.1e+02
10	OCDF	5.60e+05	1.42e+03	3.9e+02	6.05e+05	7.00e+02	8.6e+02
11	2,3,7,8-TCDD	6.91e+04	6.44e+02	1.1e+02	8.97e+04	6.12e+02	1.5e+02
12	1,2,3,7,8-PeCDD	5.57e+05	5.88e+02	9.5e+02	3.50e+05	2.60e+02	1.3e+03
13	1,2,3,4,7,8-HxCDD	5.93e+05	2.96e+02	2.0e+03	4.71e+05	3.96e+02	1.2e+03
14	1,2,3,6,7,8-HxCDD	6.08e+05	2.96e+02	2.1e+03	4.81e+05	3.96e+02	1.2e+03
15	1,2,3,7,8,9-HxCDD	5.87e+05	2.96e+02	2.0e+03	4.84e+05	3.96e+02	1.2e+03
16	1,2,3,4,6,7,8-HpCDD	4.43e+05	4.48e+02	9.9e+02	4.06e+05	5.32e+02	7.6e+02
17	OCDD	5.21e+05	5.16e+02	1.0e+03	5.40e+05	7.80e+02	6.9e+02
18	13C-2,3,7,8-TCDF	7.29e+05	6.12e+02	1.2e+03	9.62e+05	6.76e+02	1.4e+03
19	13C-1,2,3,7,8-PeCDF	1.35e+06	5.64e+02	2.4e+03	9.00e+05	7.00e+02	1.3e+03
20	13C-2,3,4,7,8-PeCDF	1.44e+06	5.64e+02	2.6e+03	8.92e+05	7.00e+02	1.3e+03
21	13C-1,2,3,4,7,8-HxCDF	7.76e+05	4.64e+02	1.7e+03	1.45e+06	1.12e+03	1.3e+03
22	13C-1,2,3,6,7,8-HxCDF	8.45e+05	4.64e+02	1.8e+03	1.66e+06	1.12e+03	1.5e+03
24	13C-1,2,3,7,8,9-HxCDF	6.19e+05	4.64e+02	1.3e+03	1.20e+06	1.12e+03	1.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.95e+05	8.20e+02	6.0e+02	1.11e+06	9.32e+02	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.87e+05	8.20e+02	4.7e+02	9.10e+05	9.32e+02	9.8e+02
27	13C-2,3,7,8-TCDD	6.33e+05	1.78e+03	3.6e+02	8.17e+05	1.12e+03	7.3e+02
28	13C-1,2,3,7,8-PeCDD	1.19e+06	3.40e+02	3.5e+03	7.33e+05	4.16e+02	1.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.18e+06	7.88e+02	1.5e+03	9.29e+05	7.32e+02	1.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.13e+06	7.88e+02	1.4e+03	8.67e+05	7.32e+02	1.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.80e+05	9.52e+02	9.2e+02	7.89e+05	5.72e+02	1.4e+03
32	13C-OCDD	8.76e+05	1.13e+03	7.8e+02	9.72e+05	8.08e+02	1.2e+03
33	13C-1,2,3,4-TCDD	4.42e+06	1.78e+03	2.5e+03	5.60e+06	1.12e+03	5.0e+03
34	13C-1,2,3,7,8,9-HxCDD	7.08e+06	7.88e+02	9.0e+03	5.74e+06	7.32e+02	7.8e+03
35	37Cl-2,3,7,8-TCDD	1.62e+06	5.64e+02	2.9e+03			

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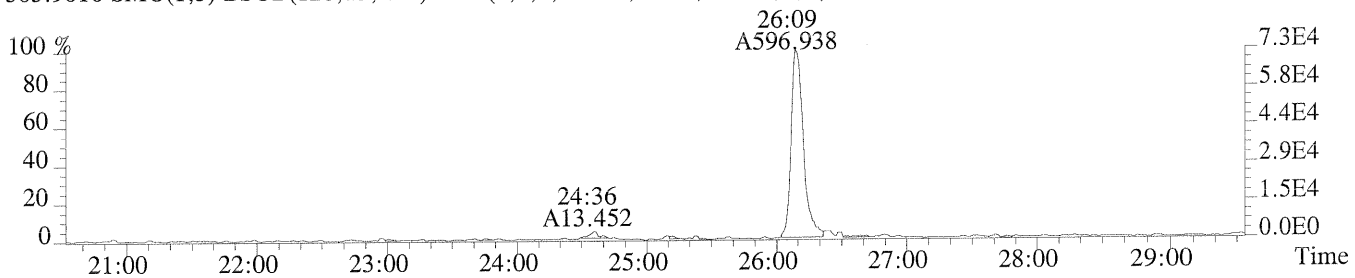
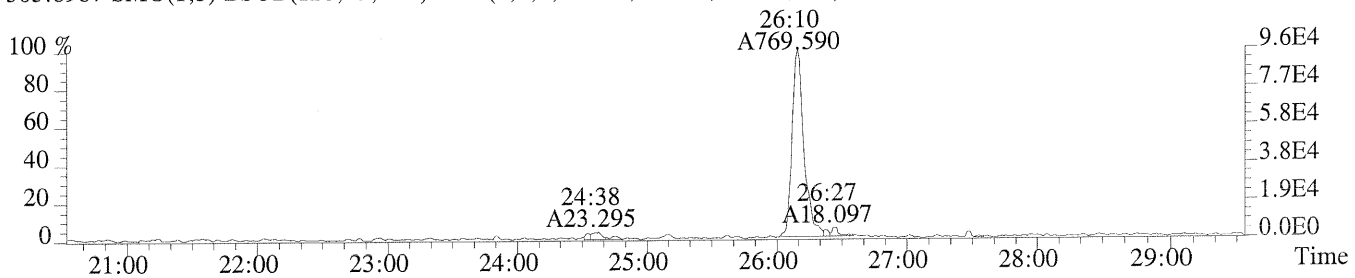
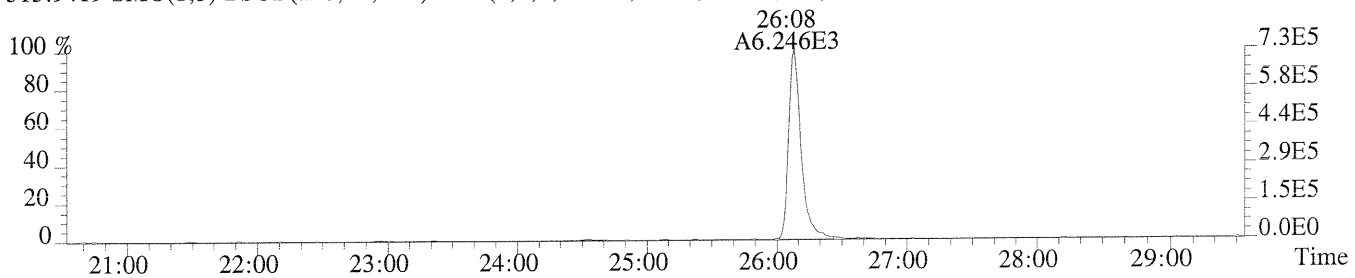
File:P176203 #1-696 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



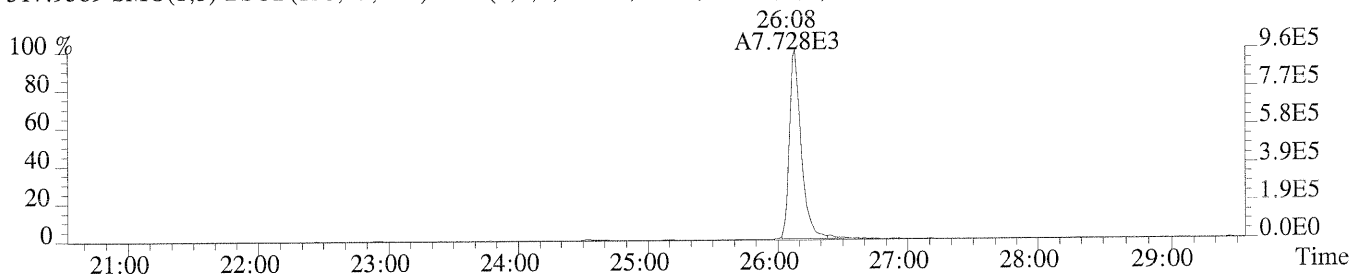
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



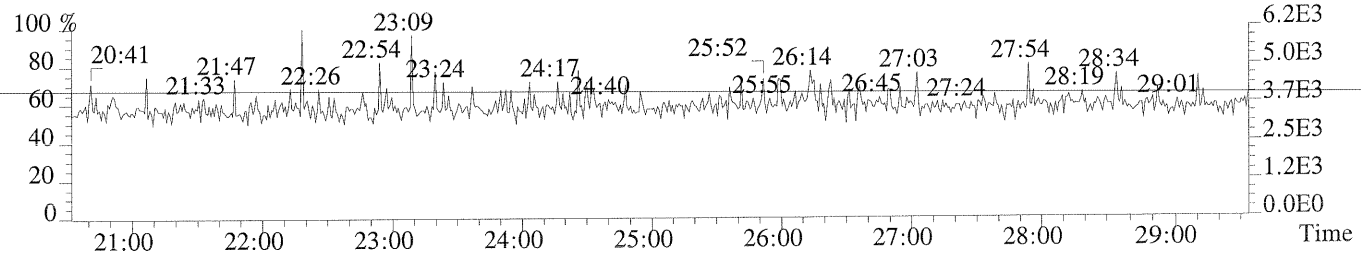
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



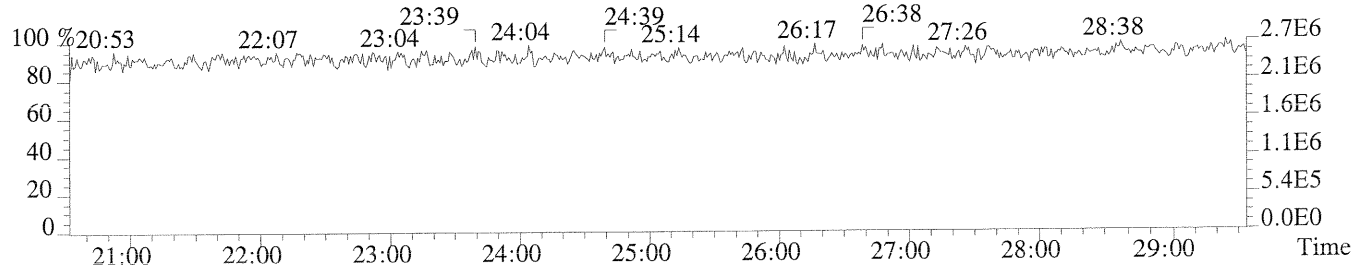
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



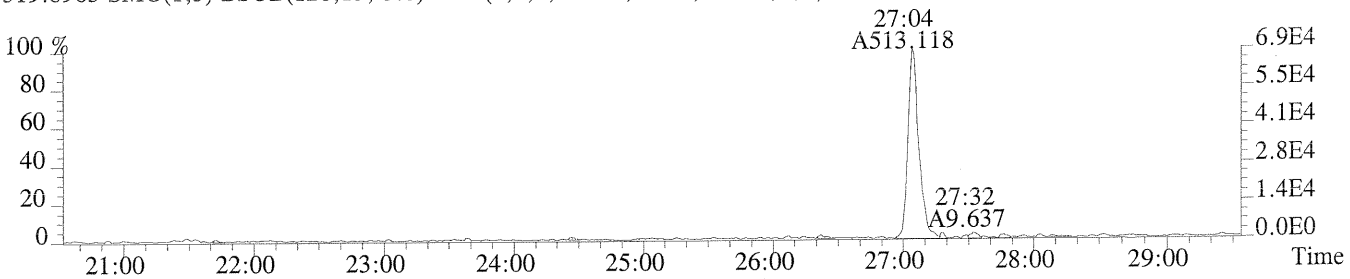
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



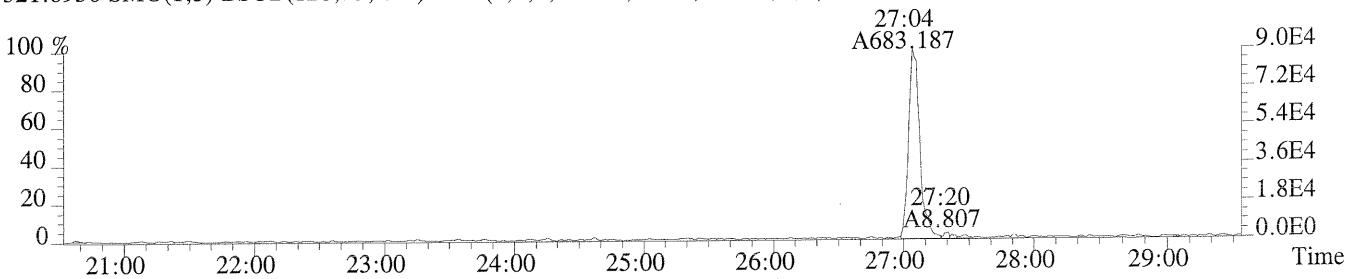
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



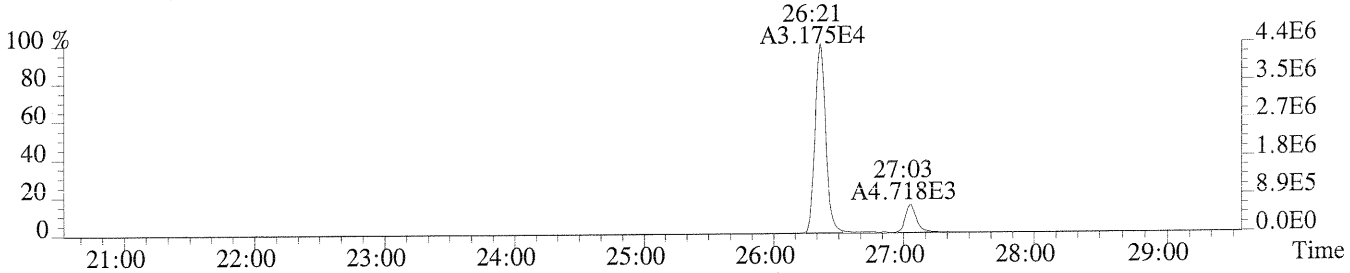
File:P176203 #1-696 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



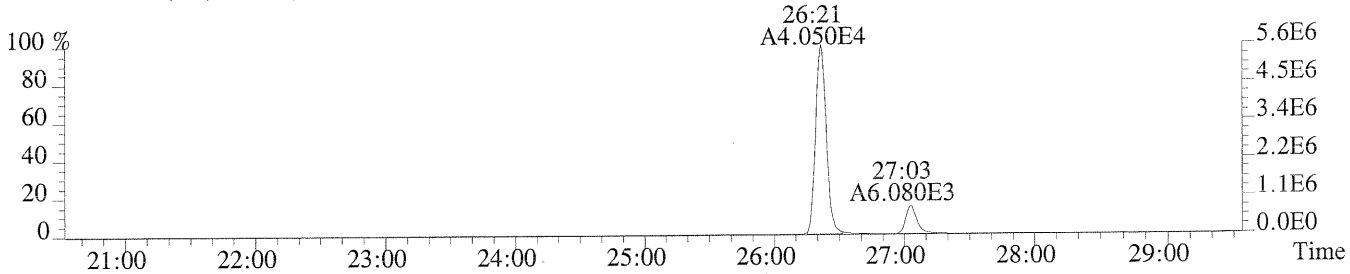
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



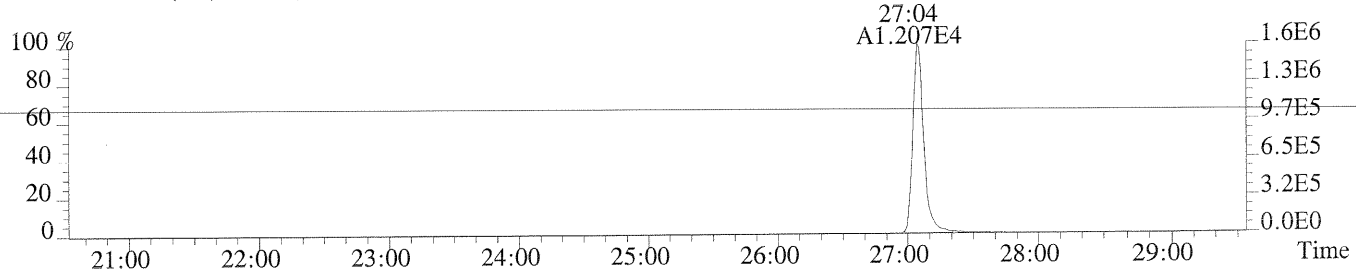
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



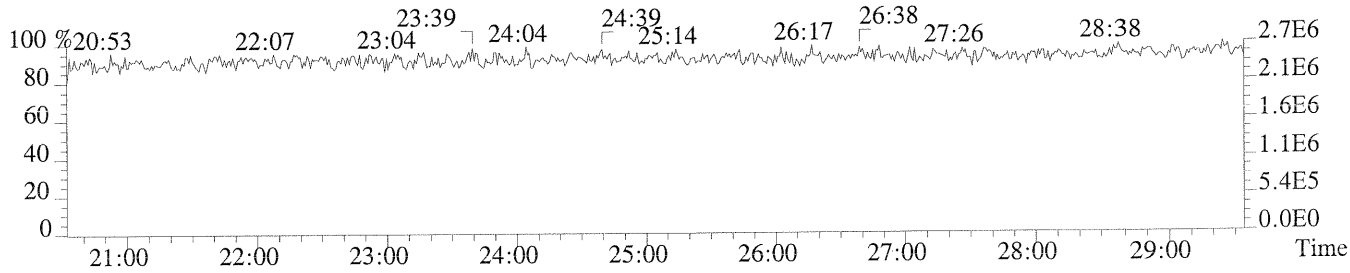
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



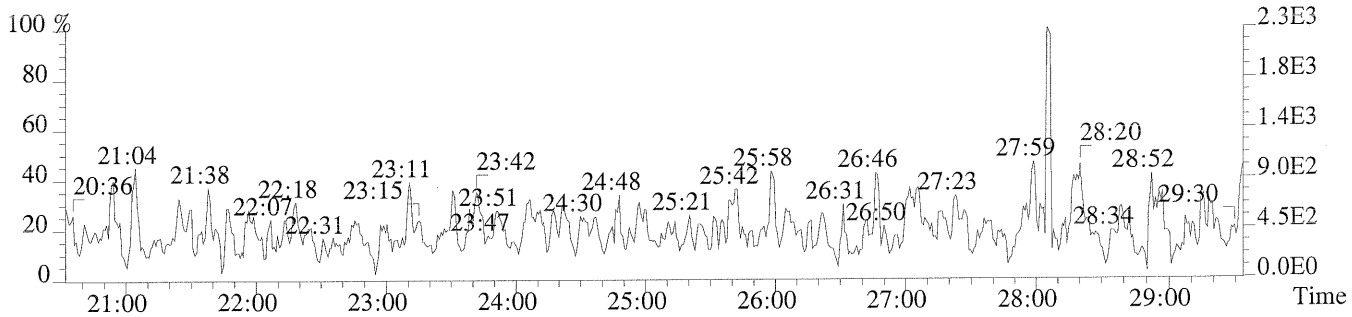
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



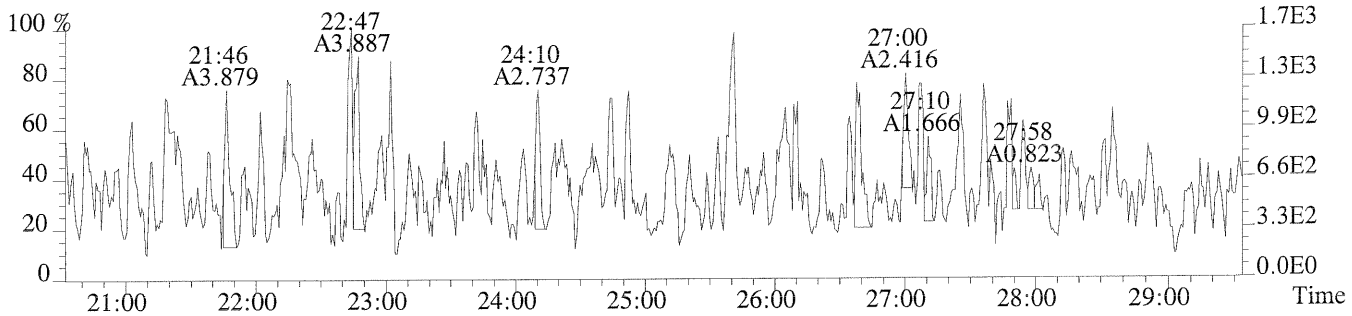
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



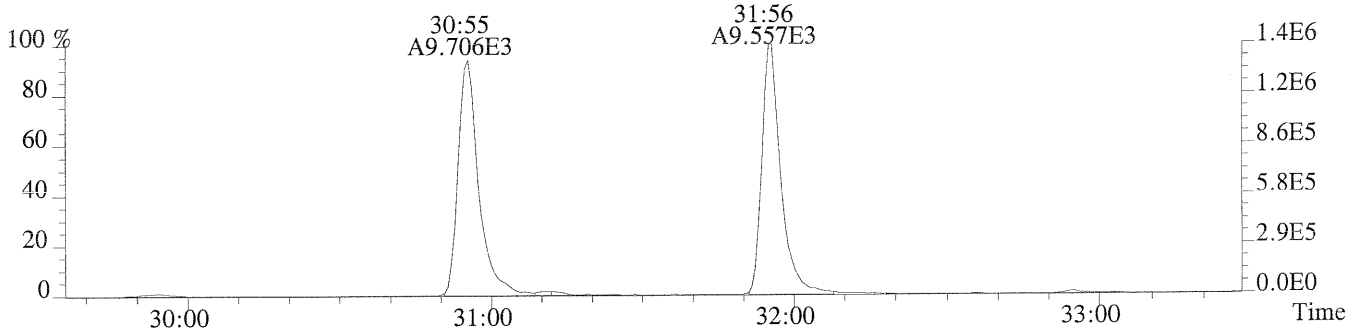
File:P176203 #1-696 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



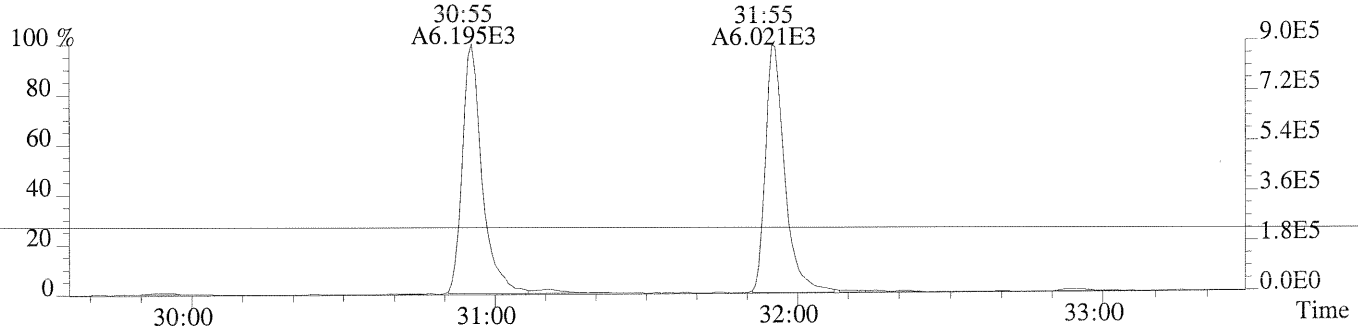
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



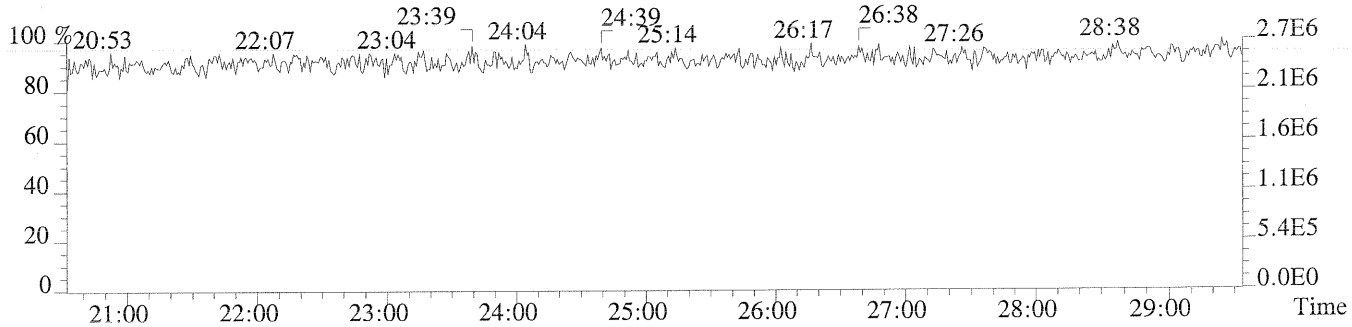
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)

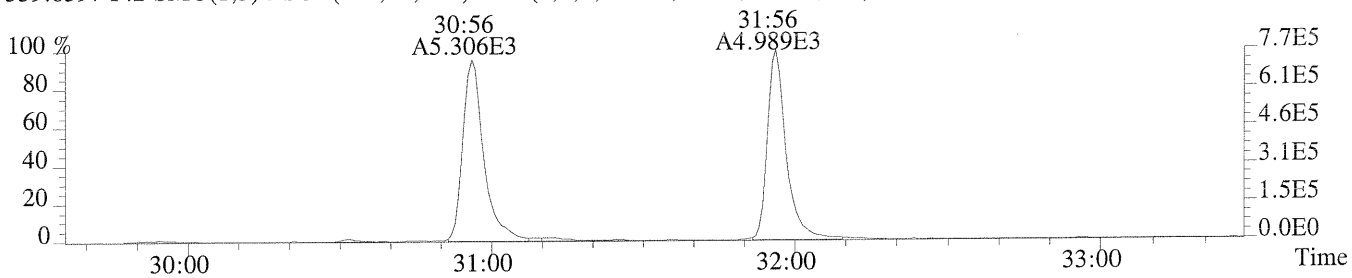


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

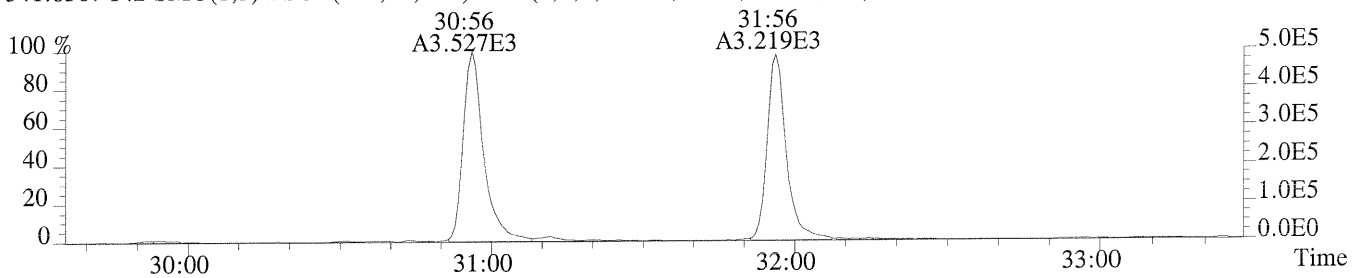


File:P176203 #1-351 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02

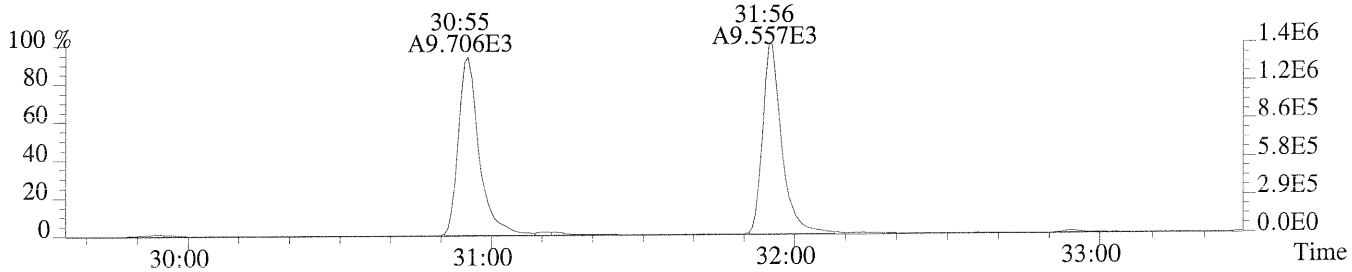
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,316.0,1.00%,F,T)



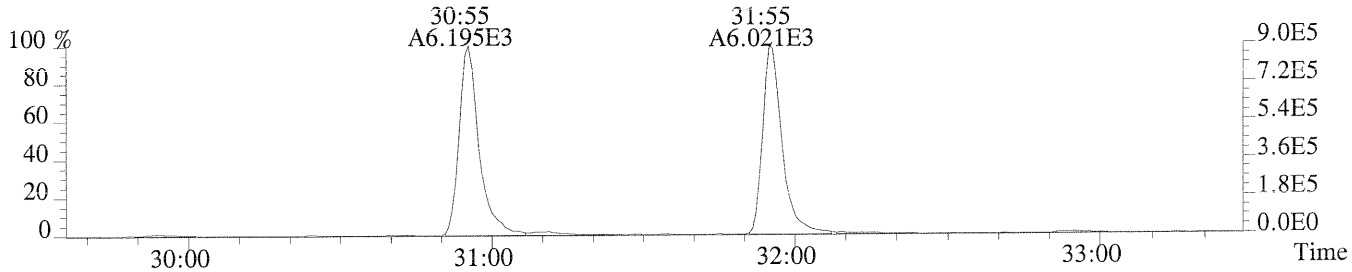
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



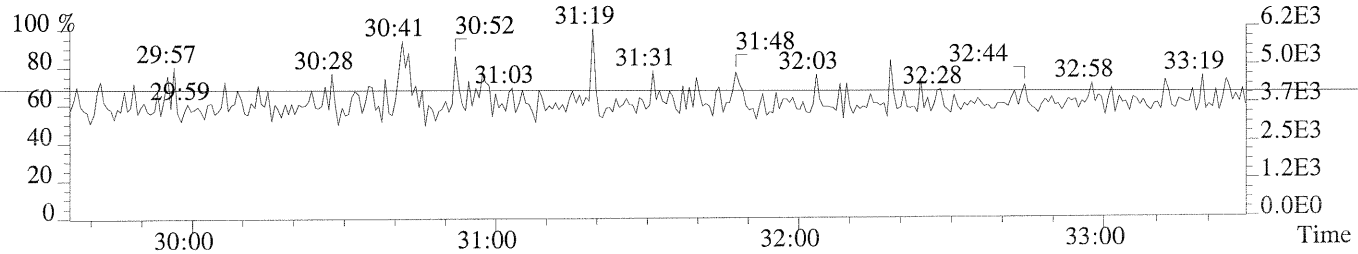
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



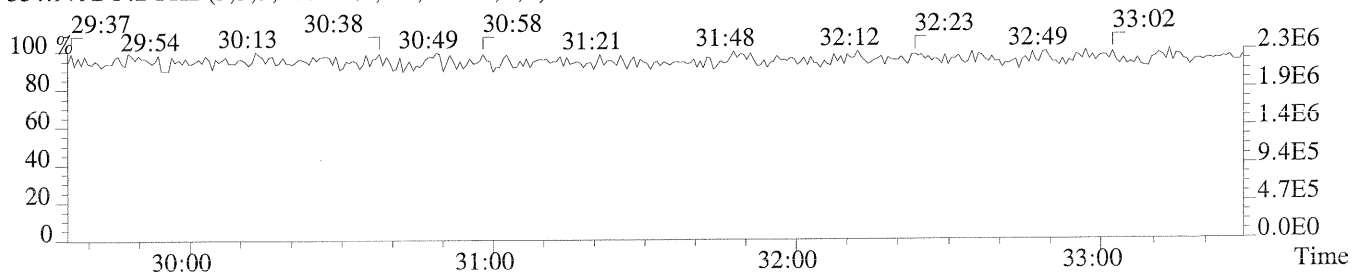
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



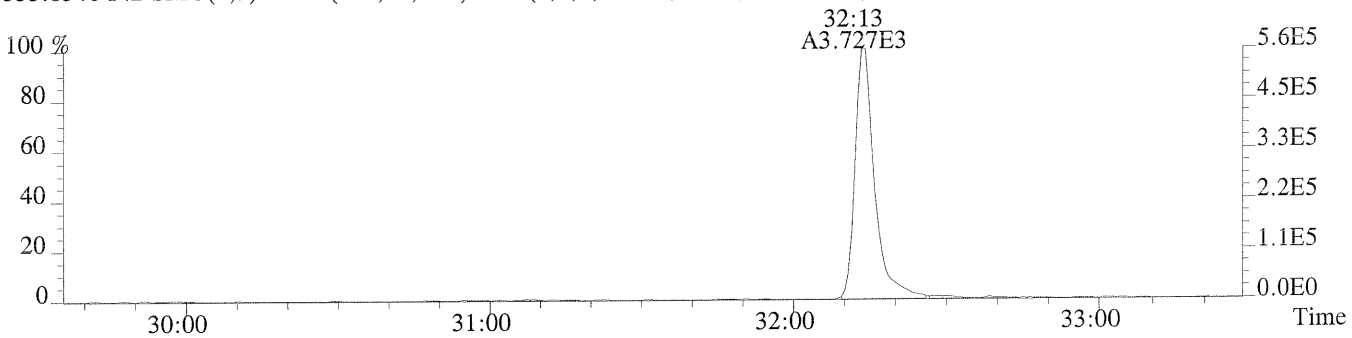
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



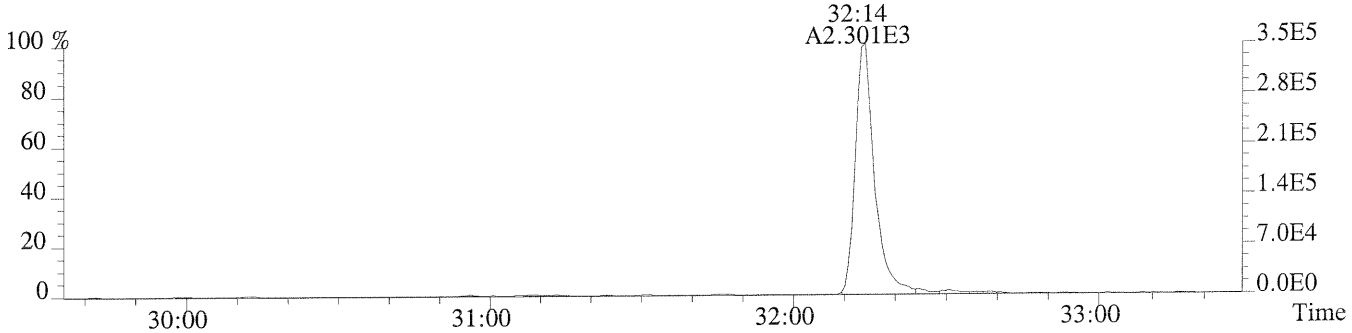
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



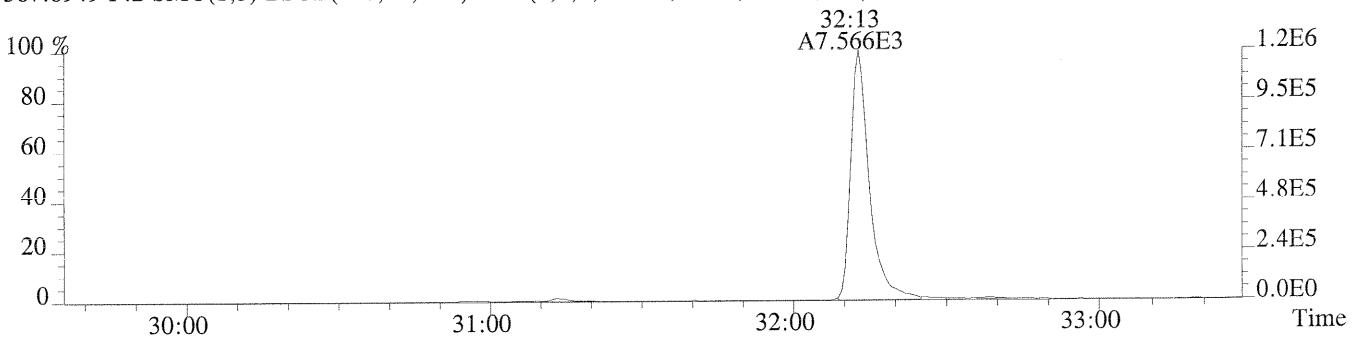
File:P176203 #1-351 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



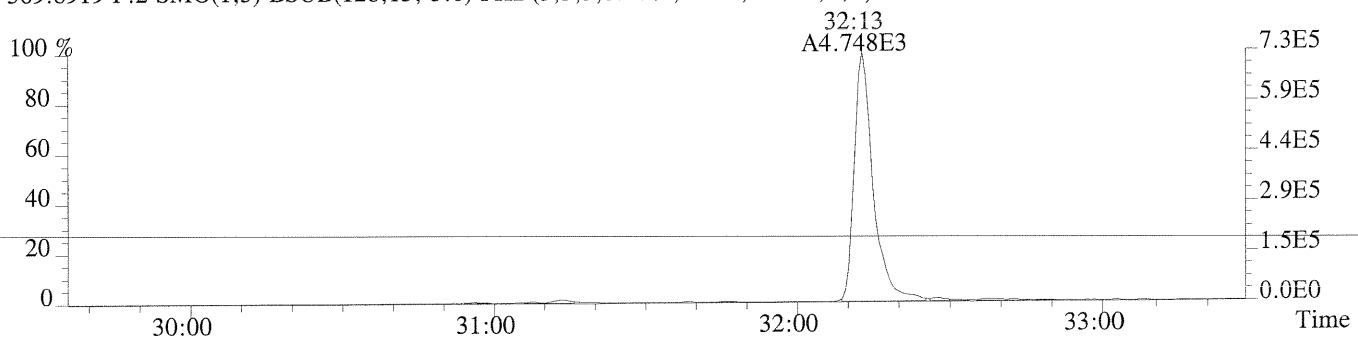
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



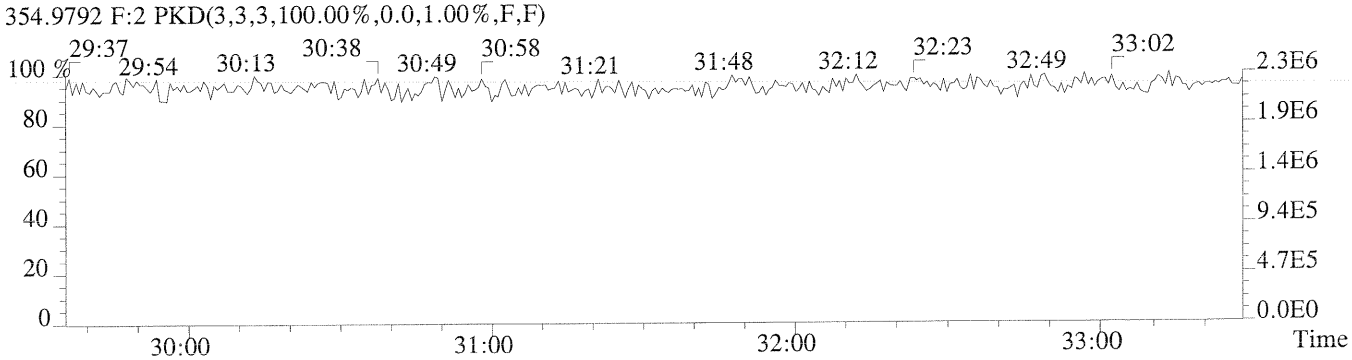
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



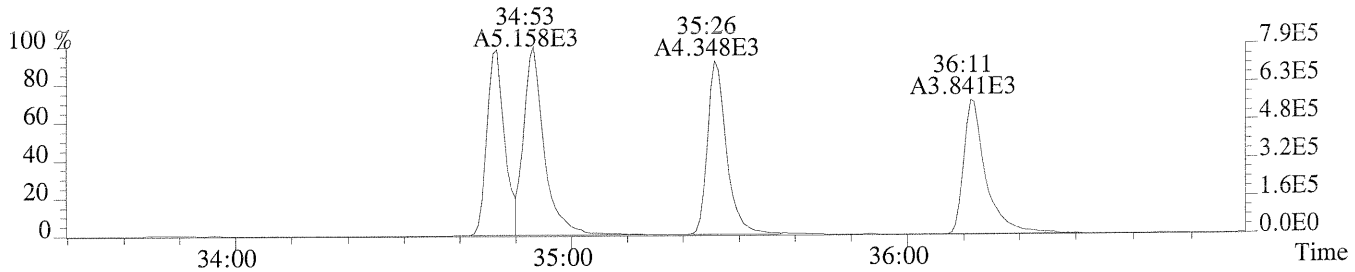
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



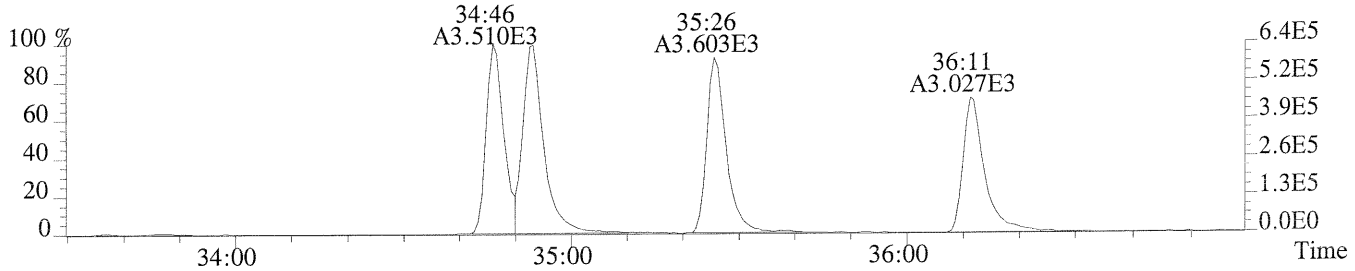
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



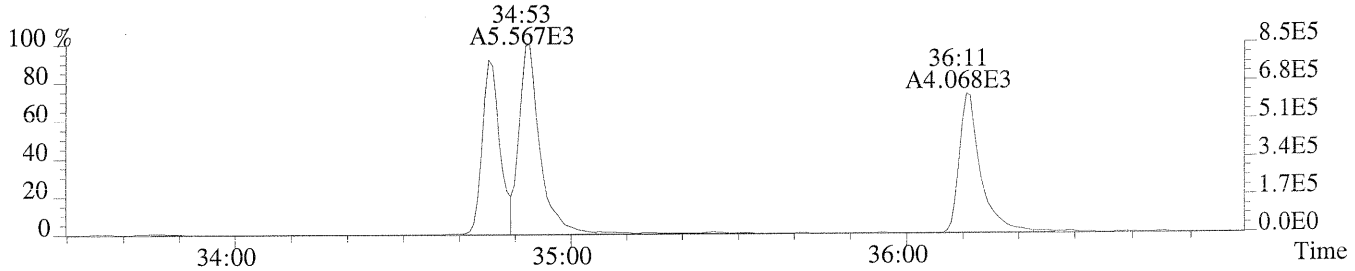
File:P176203 #1-318 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



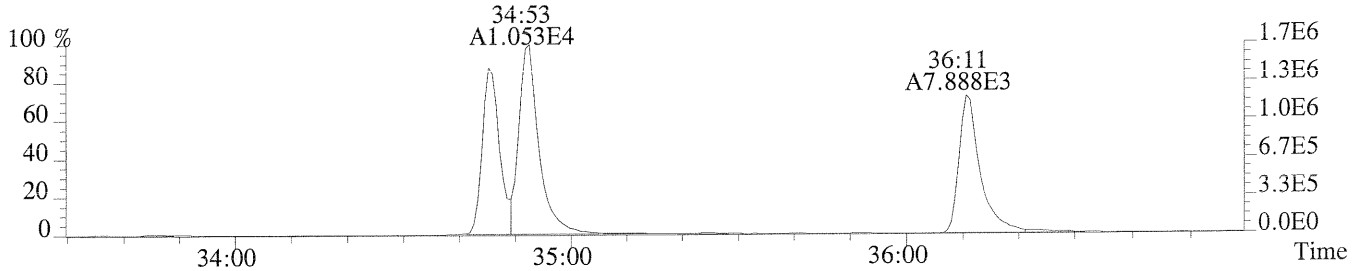
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



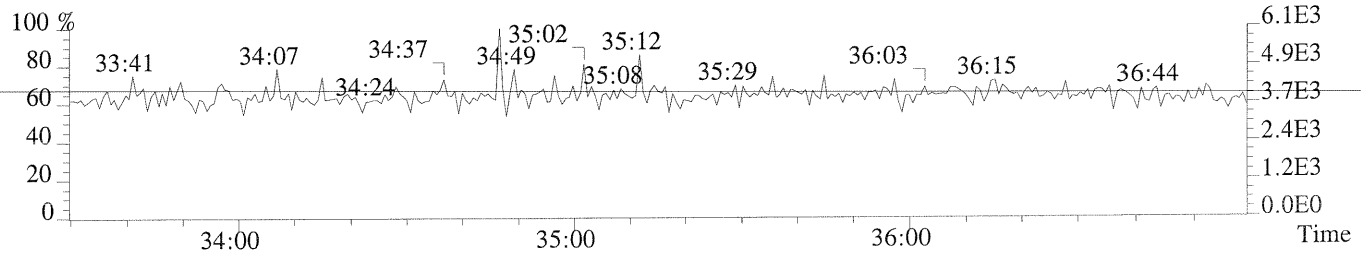
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



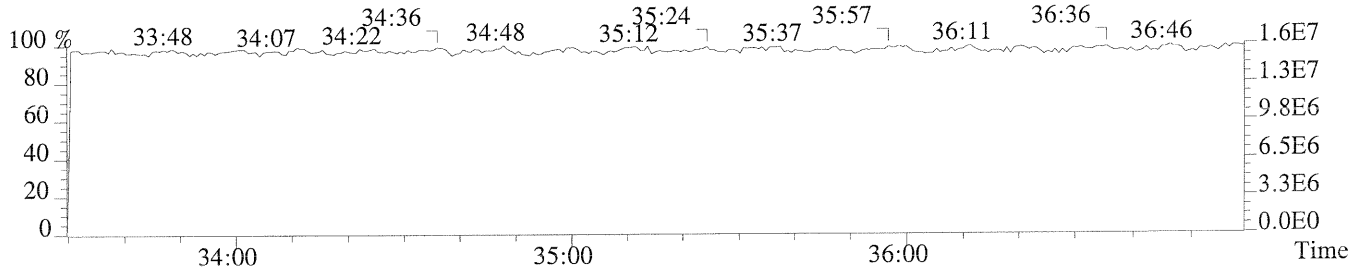
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



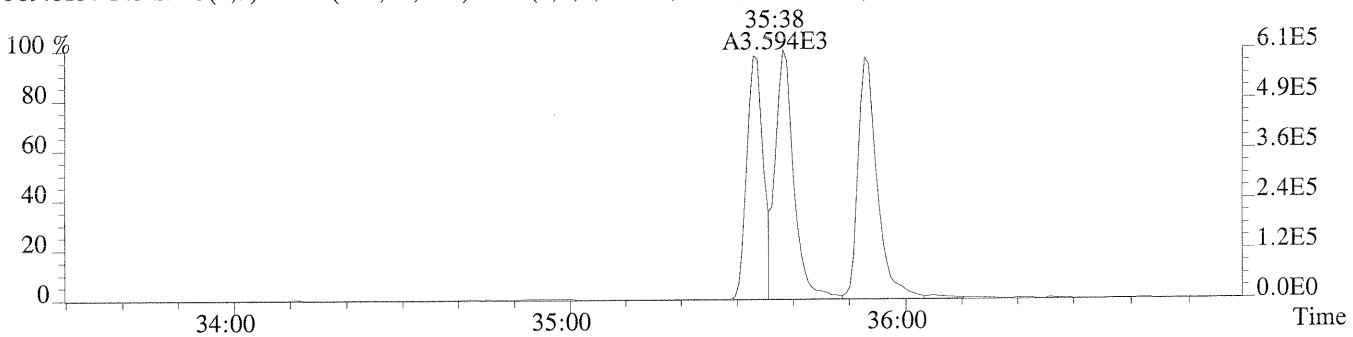
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



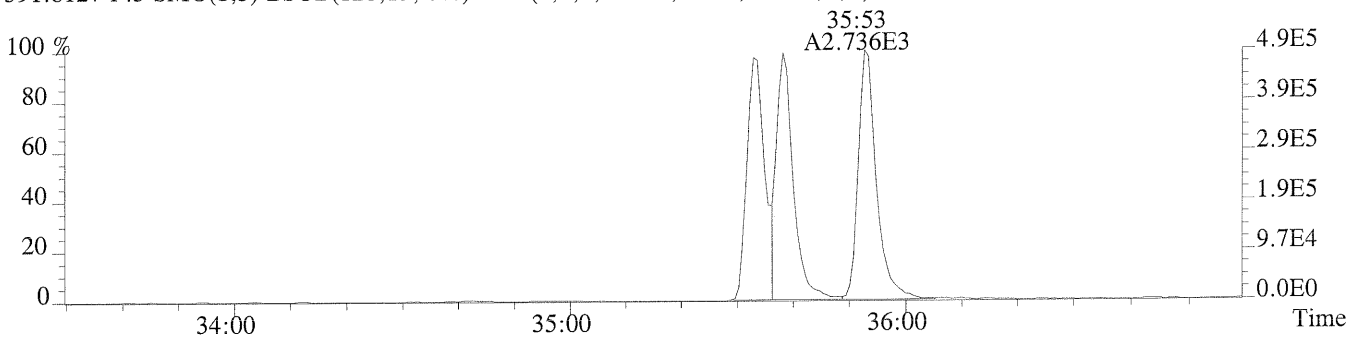
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



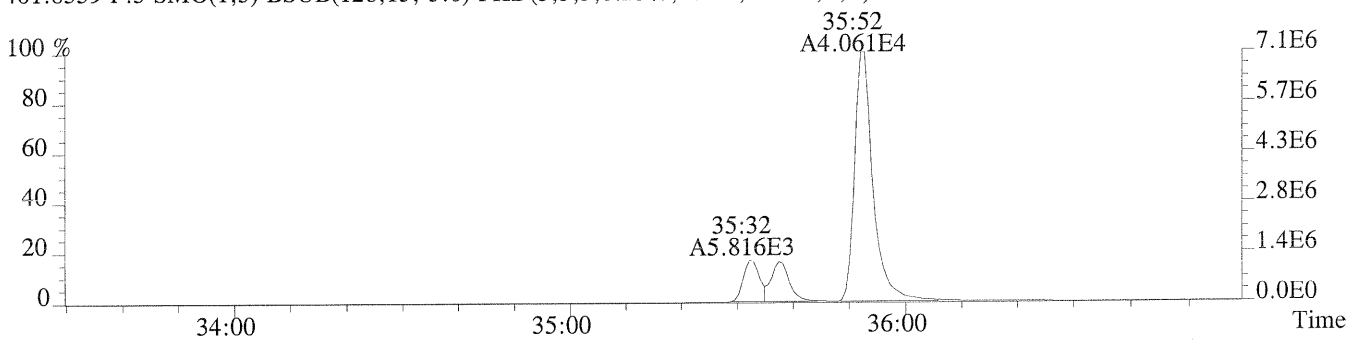
File:P176203 #1-318 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,296.0,0.40%,F,T)



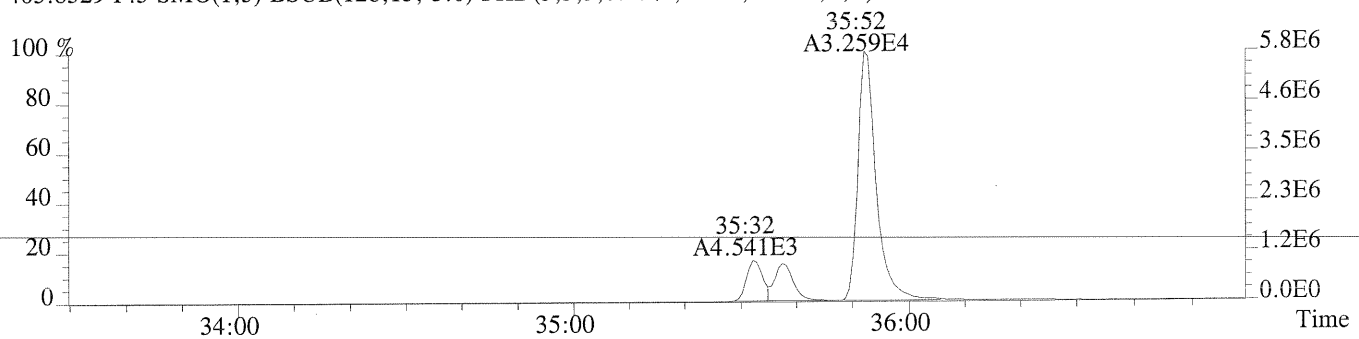
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



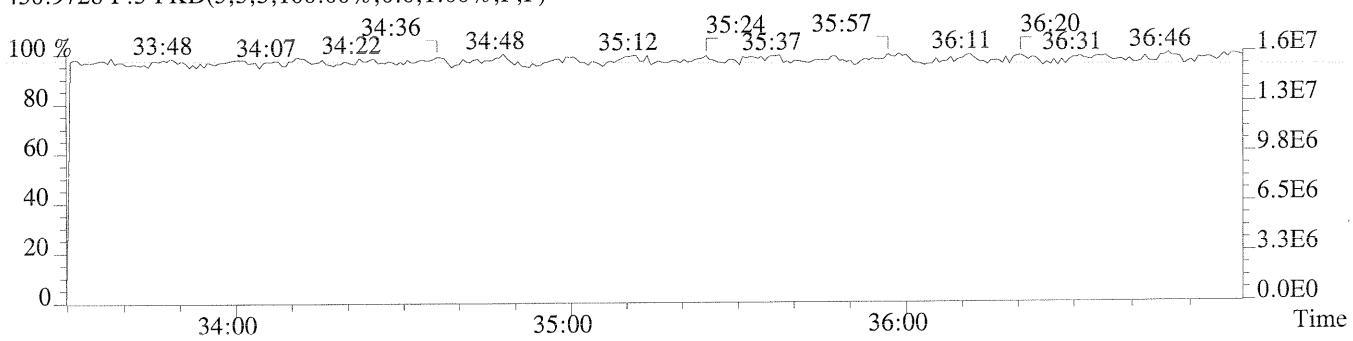
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)

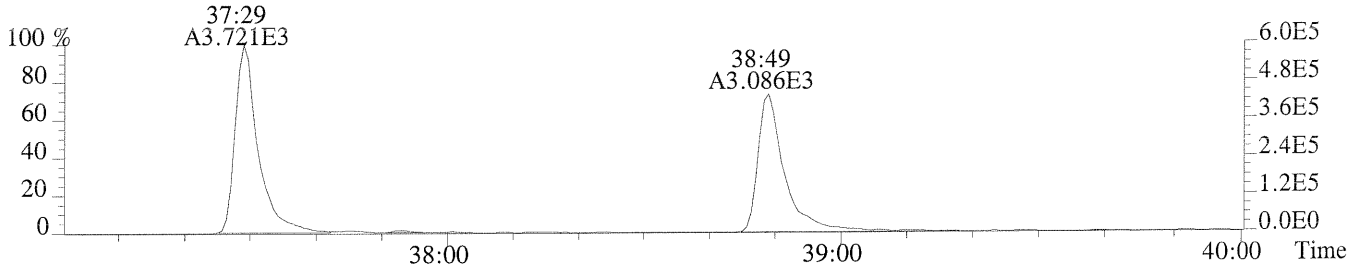


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

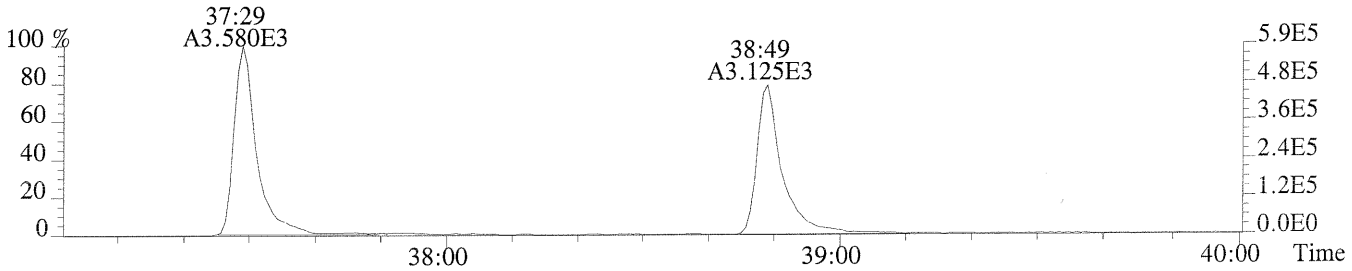


File:P176203 #1-271 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02

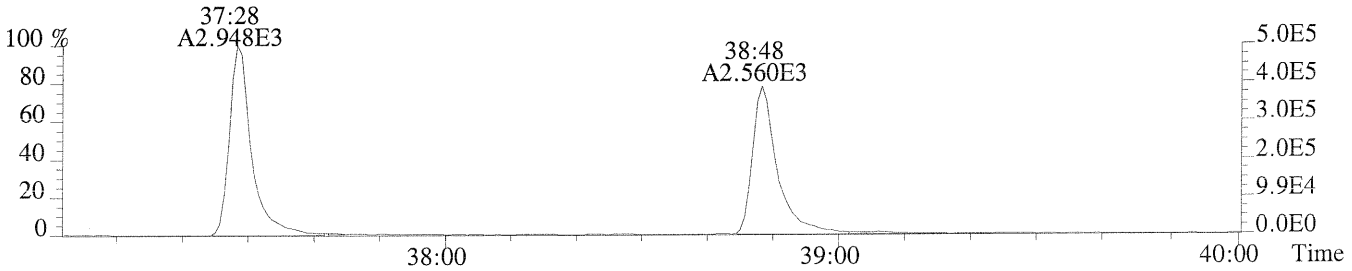
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



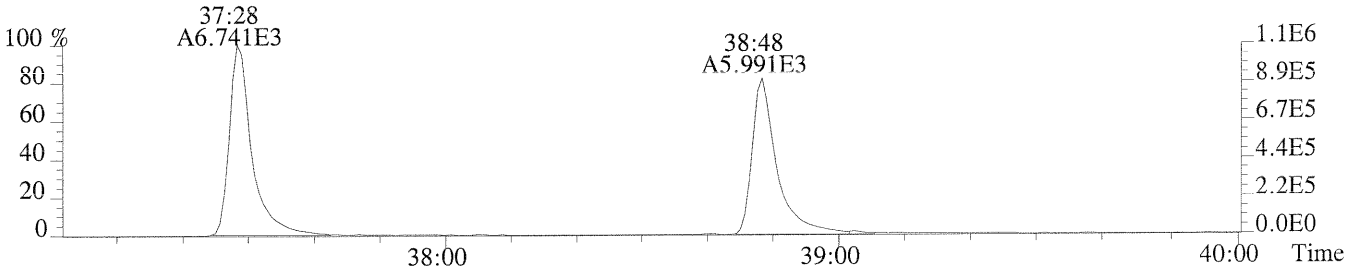
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.50%,F,T)



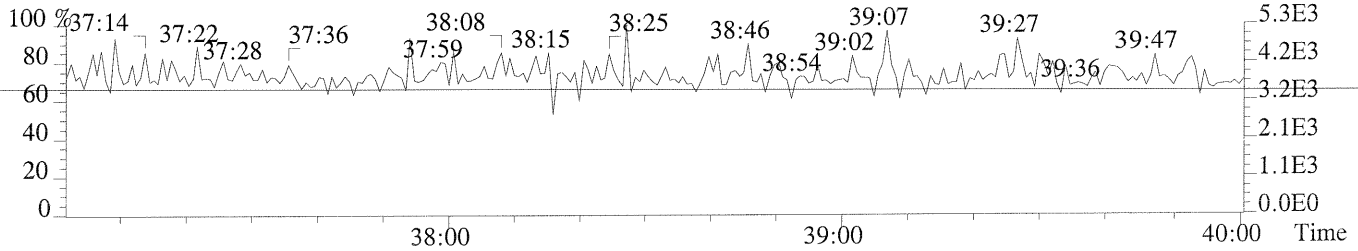
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.50%,F,T)



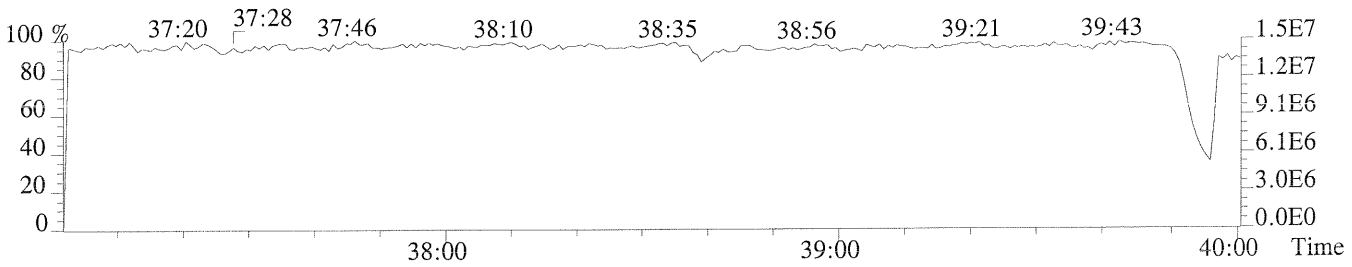
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.50%,F,T)



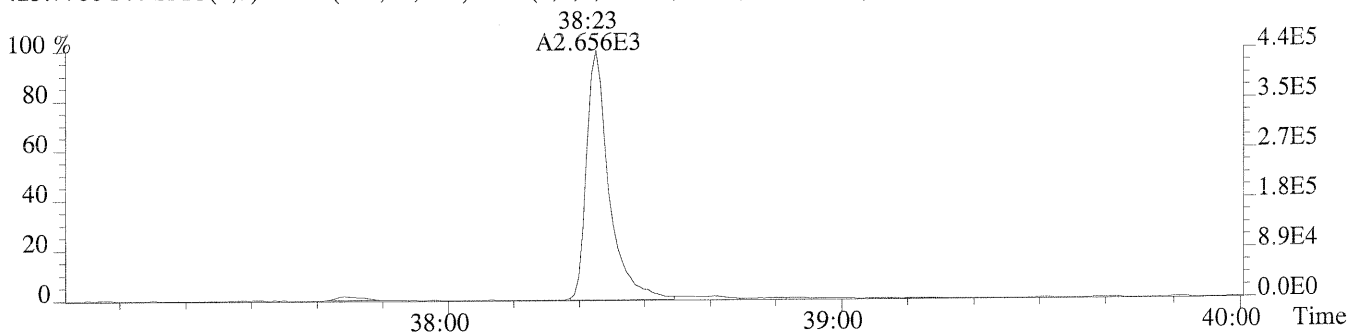
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



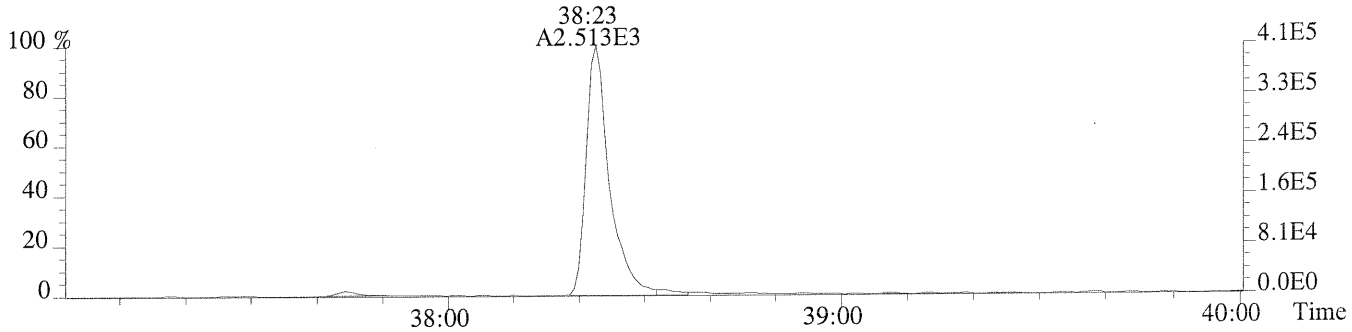
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



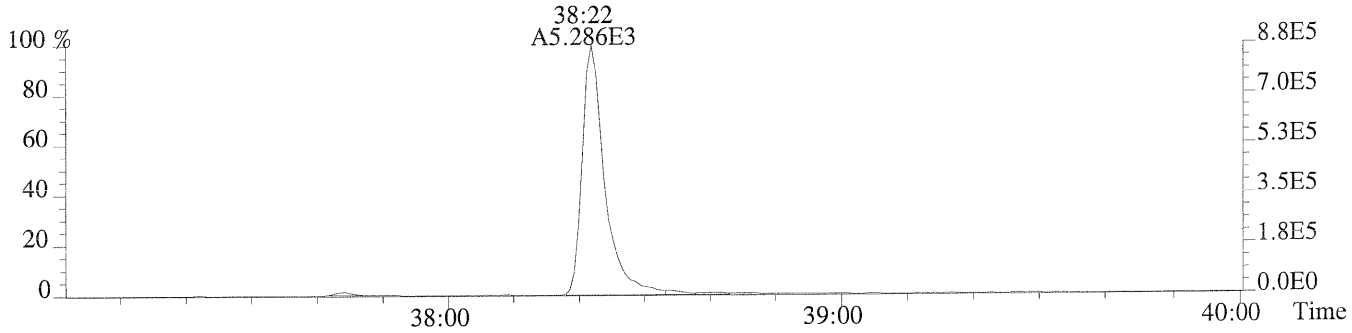
File:P176203 #1-271 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



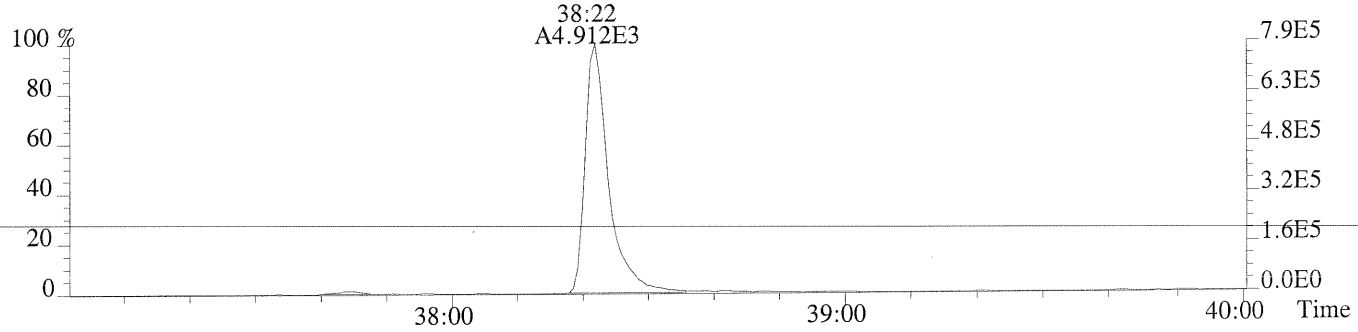
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



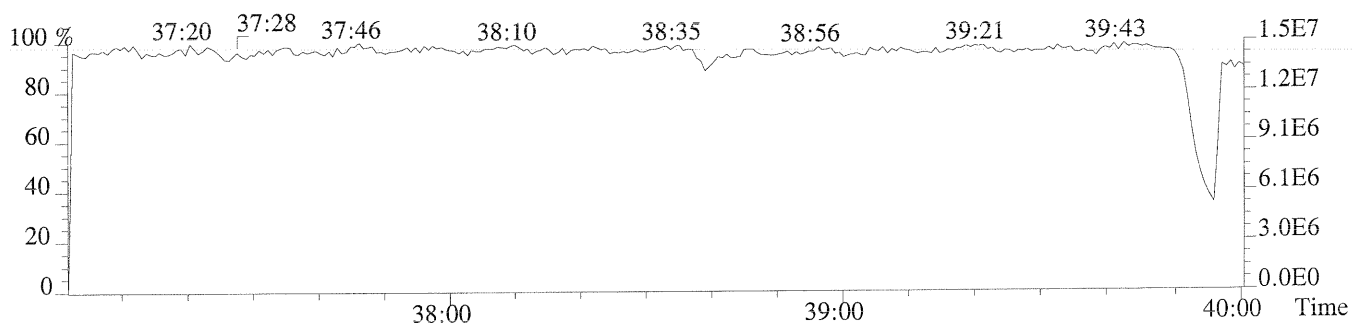
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



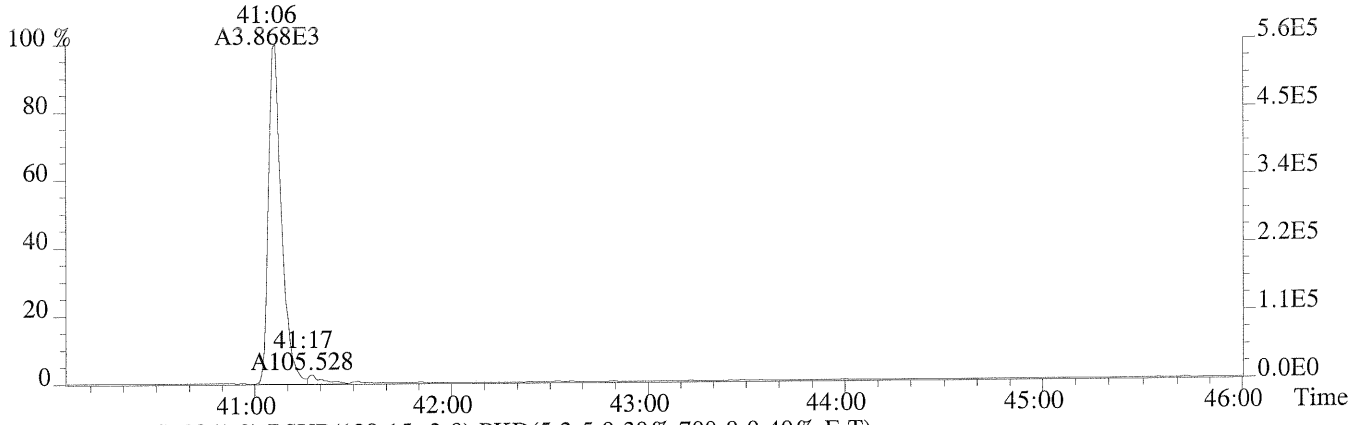
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



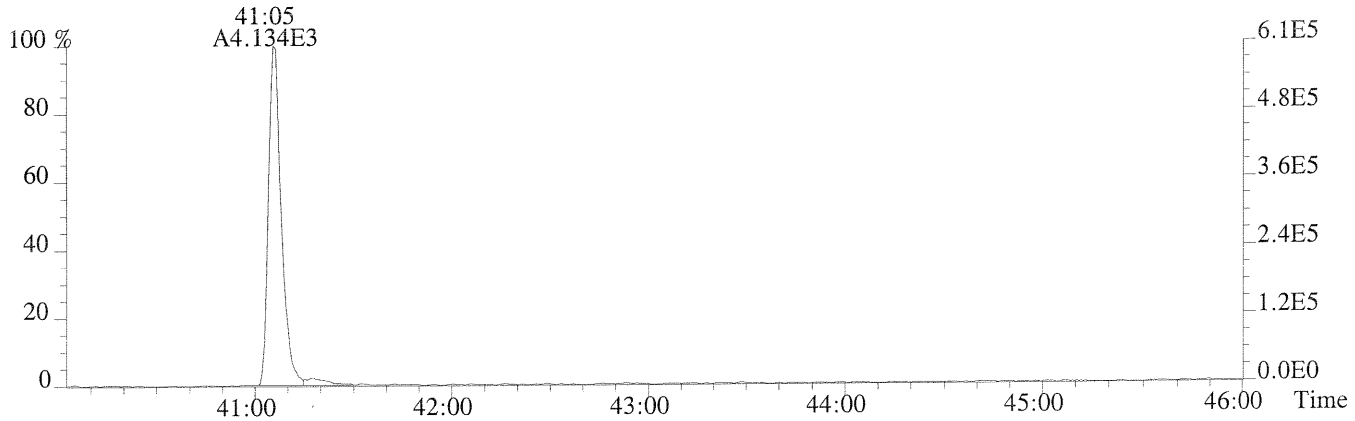
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



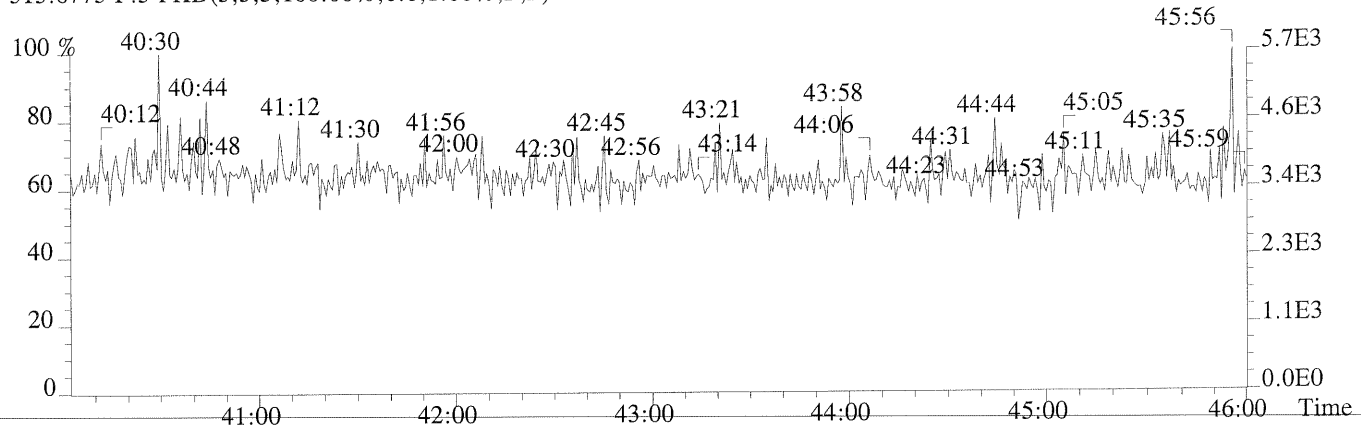
File:P176203 #1-548 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1420.0,0.40%,F,T)



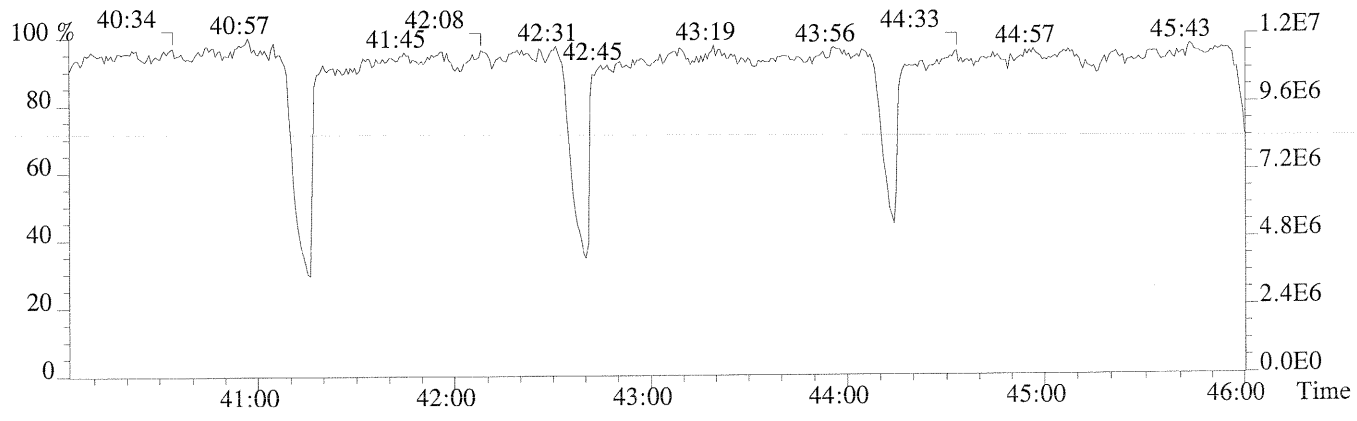
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



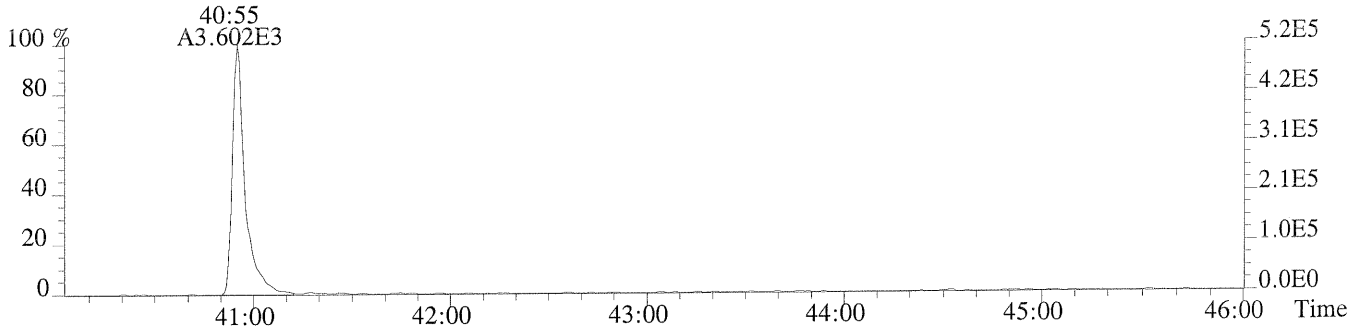
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



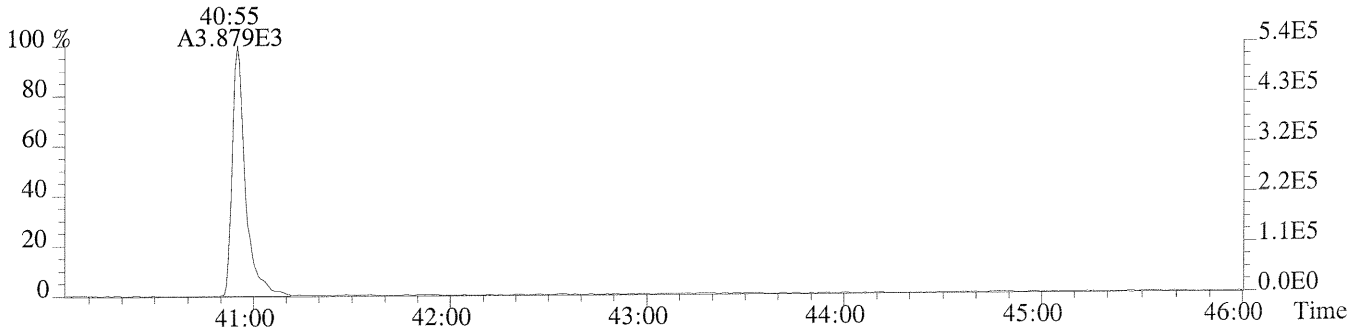
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



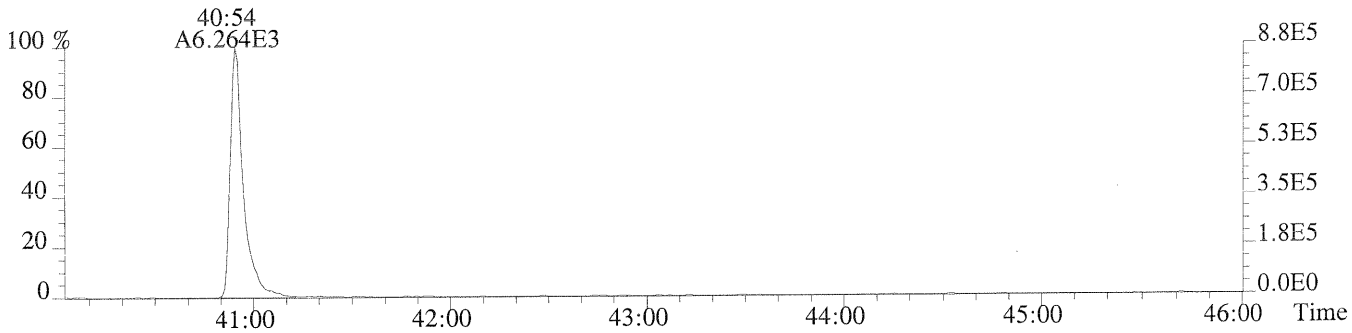
File:P176203 #1-548 Acq: 7-FEB-2015 18:38:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



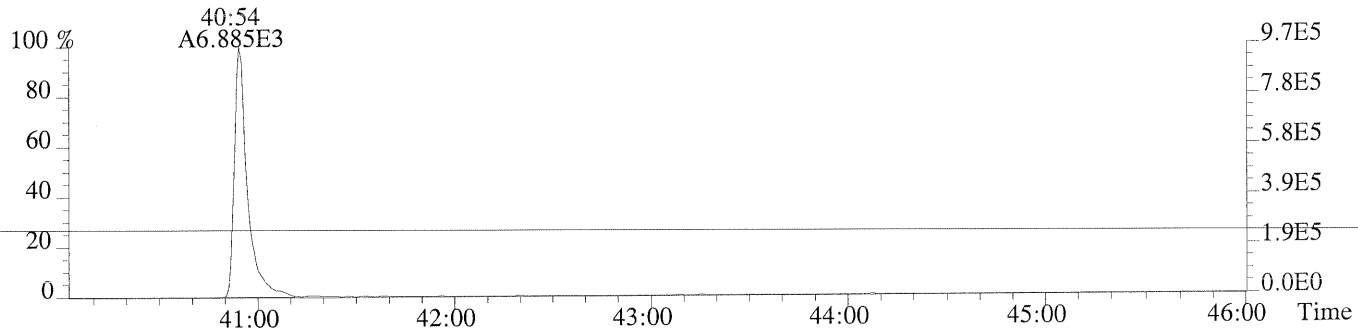
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,780.0,0.40%,F,T)



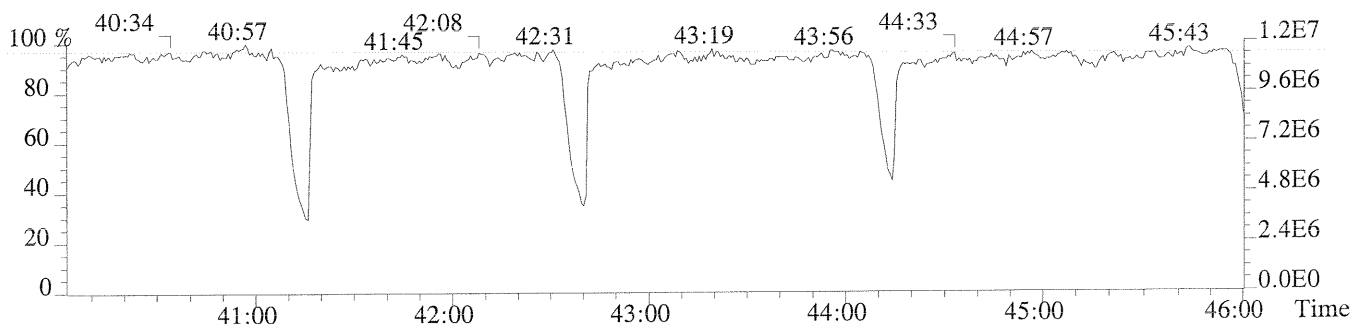
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1128.0,0.40%,F,T)



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.
DLCS

Run #18 Filename P176204 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 19:26:44
Processed: 9-FEB-15 12:04:37 LAB. ID: EQ1500085-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:10	6.224e+02	7.094e+02	0.88	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	30:57	5.456e+03	3.411e+03	1.60	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	31:57	4.936e+03	3.236e+03	1.53	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	34:47	4.309e+03	3.313e+03	1.30	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	34:53	5.231e+03	4.263e+03	1.23	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	35:26	4.460e+03	3.582e+03	1.25	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	36:12	3.846e+03	3.178e+03	1.21	yes	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	37:30	3.562e+03	3.349e+03	1.06	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	38:49	3.139e+03	2.937e+03	1.07	yes	no	1.148
10	Unk	OCDF	41:07	3.576e+03	4.075e+03	0.88	yes	no	1.369
11	Unk	2,3,7,8-TCDD	27:04	5.083e+02	6.504e+02	0.78	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	32:14	3.732e+03	2.432e+03	1.53	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	35:34	2.971e+03	2.471e+03	1.20	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	35:39	3.521e+03	2.720e+03	1.29	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	35:53	3.471e+03	2.875e+03	1.21	yes	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	38:23	2.742e+03	2.600e+03	1.05	yes	no	1.052
17	Unk	OCDD	40:56	3.257e+03	3.577e+03	0.91	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:09	5.991e+03	7.540e+03	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	9.951e+03	6.274e+03	1.59	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:56	9.786e+03	6.192e+03	1.58	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:46	4.251e+03	8.013e+03	0.53	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:53	5.545e+03	1.069e+04	0.52	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	4.275e+03	8.326e+03	0.51	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:29	2.837e+03	6.443e+03	0.44	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:48	2.727e+03	5.928e+03	0.46	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	4.647e+03	5.930e+03	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	7.721e+03	5.068e+03	1.52	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:33	6.196e+03	5.003e+03	1.24	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:38	6.592e+03	5.263e+03	1.25	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:23	5.009e+03	4.936e+03	1.01	yes	no	0.874
32	IS	13C-OCDD	40:56	5.895e+03	6.687e+03	0.88	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:22	3.160e+04	4.038e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	4.257e+04	3.439e+04	1.24	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:05	1.224e+04				no	1.038

$$\text{OCDD} = \frac{(3.257e+03 + 3.577e+03) \times 8000 \text{ pg} \times 1}{(5.895e+03 + 6.687e+03) \times 1.068} = \text{pg}$$

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Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #18 Filename P176204 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 19:26:44
Processed: 9-FEB-15 12:04:37 LAB. ID: EQ1500085-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.50e+04	5.16e+02	1.5e+02	9.12e+04	5.88e+02	1.6e+02
2	1,2,3,7,8-PeCDF	7.83e+05	7.48e+02	1.0e+03	4.82e+05	4.52e+02	1.1e+03
3	2,3,4,7,8-PeCDF	7.45e+05	7.48e+02	1.0e+03	4.78e+05	4.52e+02	1.1e+03
4	1,2,3,4,7,8-HxCDF	7.91e+05	9.24e+02	8.6e+02	6.17e+05	6.60e+02	9.4e+02
5	1,2,3,6,7,8-HxCDF	8.07e+05	9.24e+02	8.7e+02	6.30e+05	6.60e+02	9.5e+02
6	2,3,4,6,7,8-HxCDF	7.53e+05	9.24e+02	8.1e+02	6.00e+05	6.60e+02	9.1e+02
7	1,2,3,7,8,9-HxCDF	6.18e+05	9.24e+02	6.7e+02	4.88e+05	6.60e+02	7.4e+02
8	1,2,3,4,6,7,8-HpCDF	5.90e+05	9.88e+02	6.0e+02	5.66e+05	9.68e+02	5.8e+02
9	1,2,3,4,7,8,9-HpCDF	4.66e+05	9.88e+02	4.7e+02	4.29e+05	9.68e+02	4.4e+02
10	OCDF	5.64e+05	4.64e+02	1.2e+03	6.22e+05	3.52e+02	1.8e+03
11	2,3,7,8-TCDD	7.28e+04	7.08e+02	1.0e+02	8.54e+04	6.72e+02	1.3e+02
12	1,2,3,7,8-PeCDD	5.70e+05	9.24e+02	6.2e+02	3.87e+05	4.88e+02	7.9e+02
13	1,2,3,4,7,8-HxCDD	6.01e+05	4.56e+02	1.3e+03	5.11e+05	7.48e+02	6.8e+02
14	1,2,3,6,7,8-HxCDD	6.26e+05	4.56e+02	1.4e+03	4.76e+05	7.48e+02	6.4e+02
15	1,2,3,7,8,9-HxCDD	6.11e+05	4.56e+02	1.3e+03	5.10e+05	7.48e+02	6.8e+02
16	1,2,3,4,6,7,8-HpCDD	4.54e+05	4.68e+02	9.7e+02	4.17e+05	4.88e+02	8.6e+02
17	OCDD	4.63e+05	5.40e+02	8.6e+02	5.02e+05	7.32e+02	6.9e+02
18	13C-2,3,7,8-TCDF	7.20e+05	6.44e+02	1.1e+03	9.28e+05	6.72e+02	1.4e+03
19	13C-1,2,3,7,8-PeCDF	1.42e+06	4.88e+02	2.9e+03	8.86e+05	6.44e+02	1.4e+03
20	13C-2,3,4,7,8-PeCDF	1.51e+06	4.88e+02	3.1e+03	9.78e+05	6.44e+02	1.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.94e+05	3.84e+02	2.1e+03	1.49e+06	9.32e+02	1.6e+03
22	13C-1,2,3,6,7,8-HxCDF	8.54e+05	3.84e+02	2.2e+03	1.64e+06	9.32e+02	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.77e+05	3.84e+02	1.8e+03	1.32e+06	9.32e+02	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.63e+05	9.36e+02	4.9e+02	1.08e+06	9.68e+02	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.98e+05	9.36e+02	4.3e+02	8.79e+05	9.68e+02	9.1e+02
27	13C-2,3,7,8-TCDD	6.62e+05	1.77e+03	3.7e+02	8.21e+05	9.32e+02	8.8e+02
28	13C-1,2,3,7,8-PeCDD	1.21e+06	6.68e+02	1.8e+03	7.83e+05	3.48e+02	2.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.25e+06	8.24e+02	1.5e+03	1.00e+06	6.88e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.17e+06	8.24e+02	1.4e+03	9.28e+05	6.88e+02	1.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.35e+05	6.84e+02	1.2e+03	8.06e+05	5.92e+02	1.4e+03
32	13C-OCDD	8.36e+05	8.84e+02	9.5e+02	9.66e+05	7.36e+02	1.3e+03
33	13C-1,2,3,4-TCDD	4.43e+06	1.77e+03	2.5e+03	5.70e+06	9.32e+02	6.1e+03
34	13C-1,2,3,7,8,9-HxCDD	7.54e+06	8.24e+02	9.1e+03	6.07e+06	6.88e+02	8.8e+03
35	37Cl-2,3,7,8-TCDD	1.65e+06	4.60e+02	3.6e+03			

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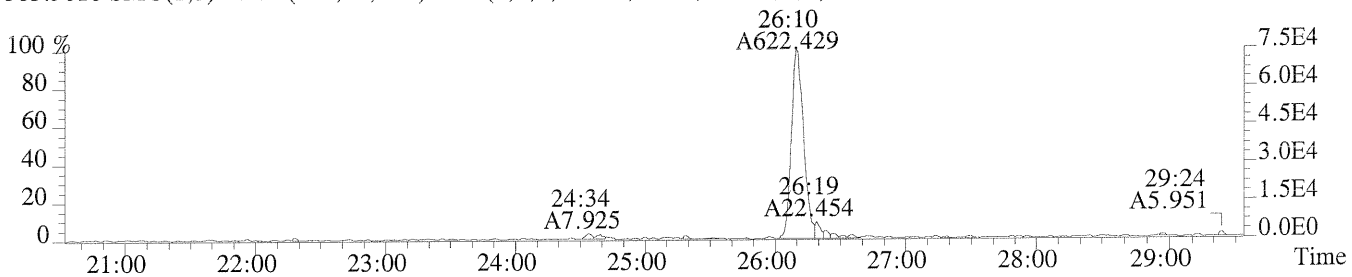
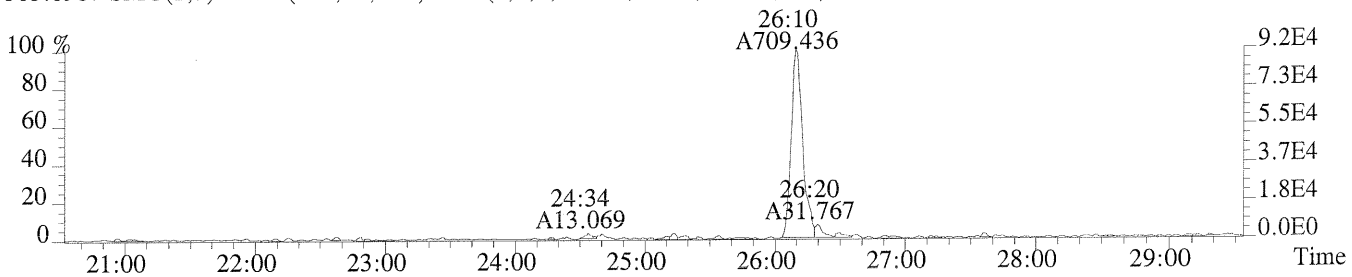
ALS Form TO-9SN/M23SN.FRM

File:P176204 #1-696 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03

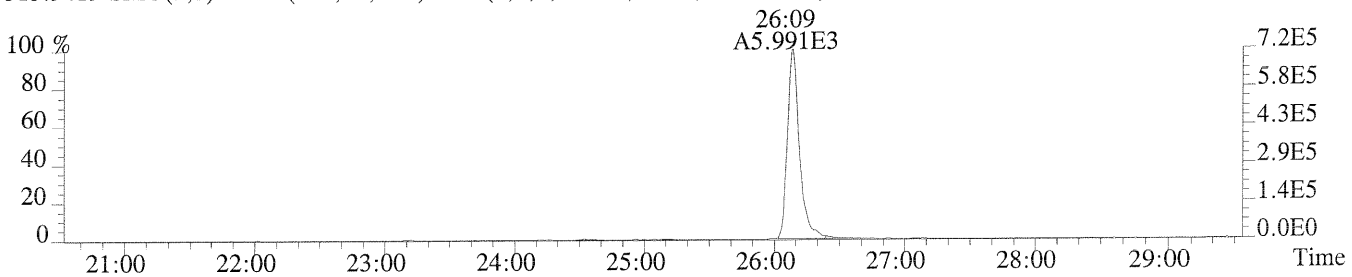
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



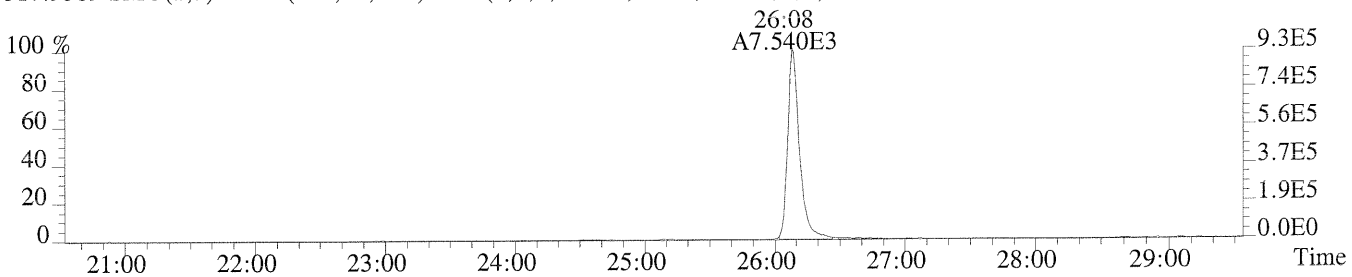
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



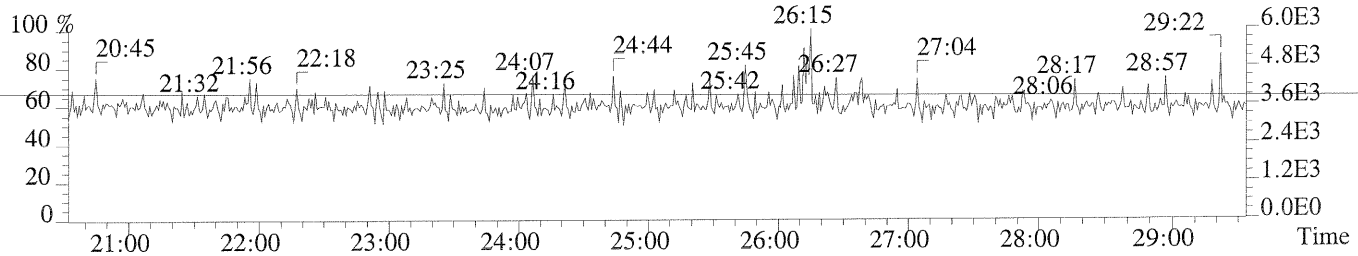
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



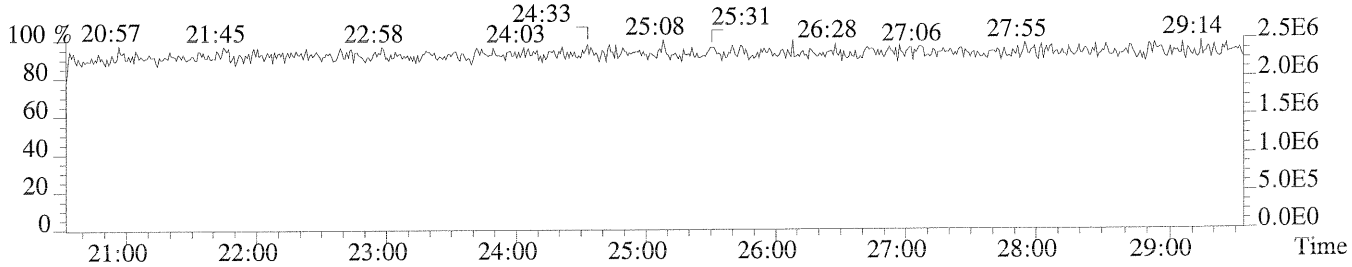
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



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

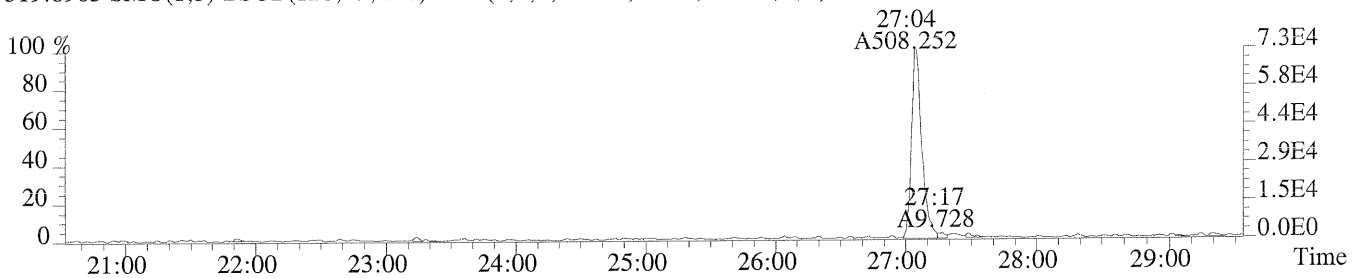


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

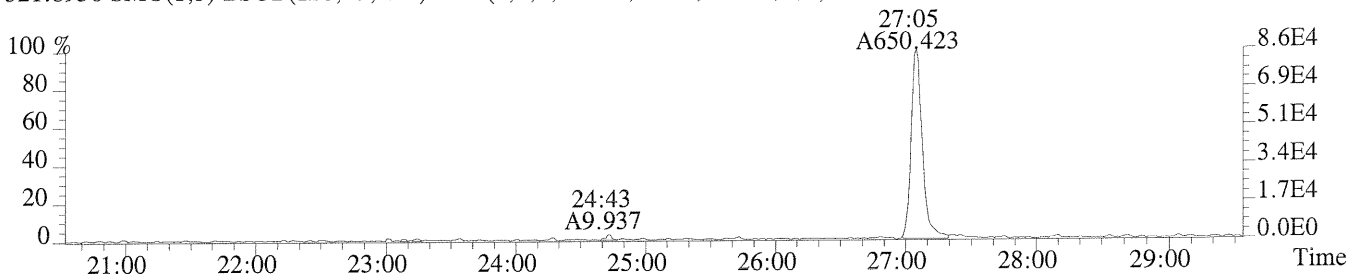


File:P176204 #1-696 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03

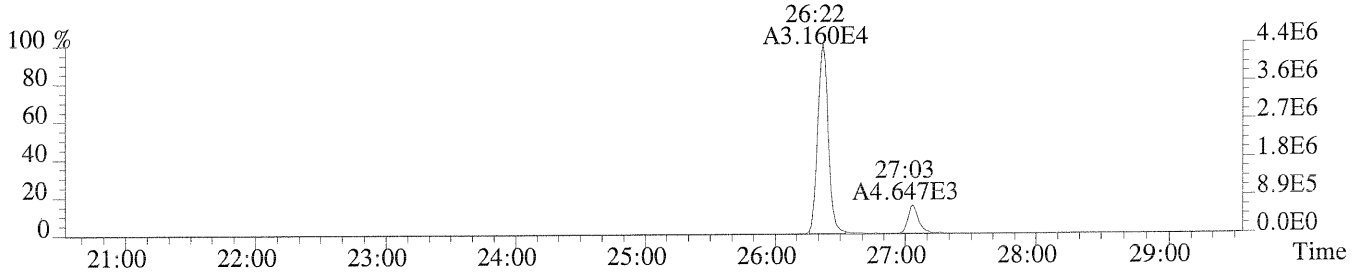
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



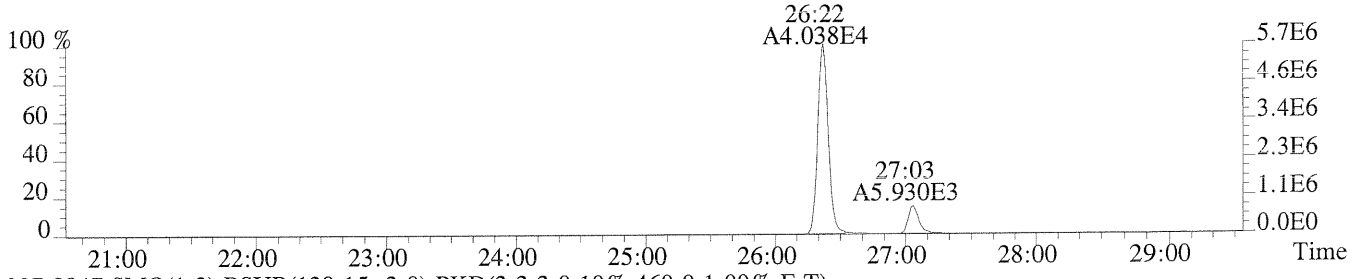
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



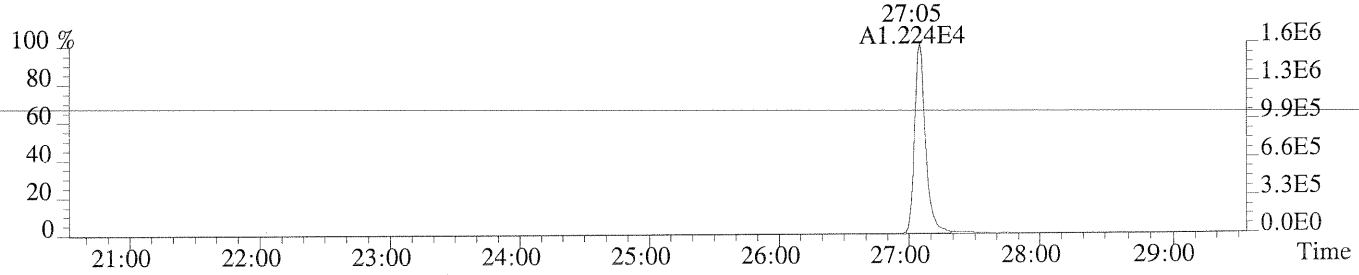
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



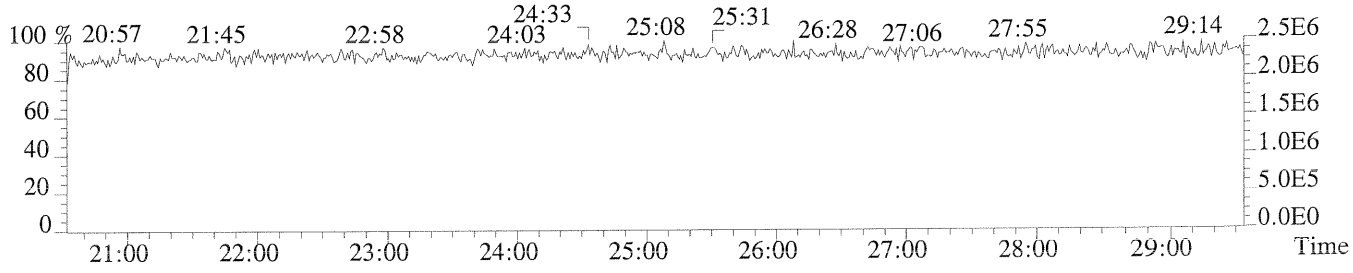
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



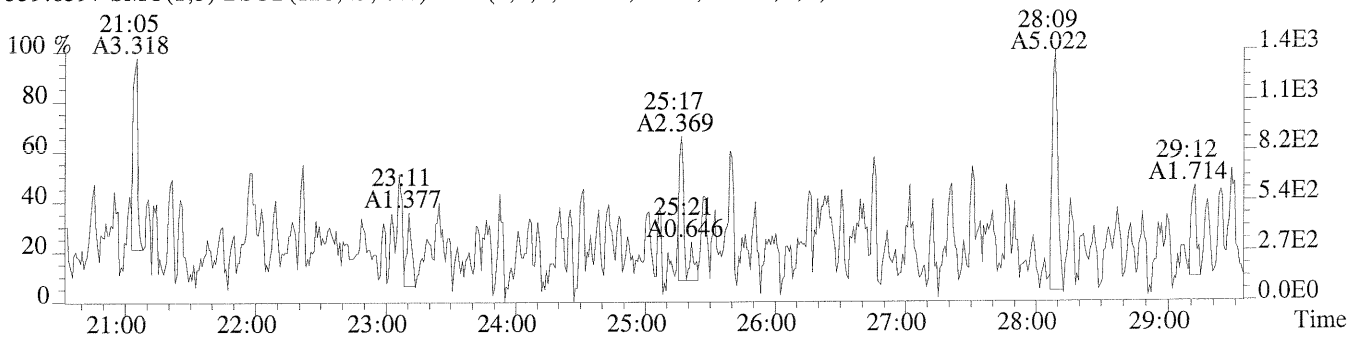
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



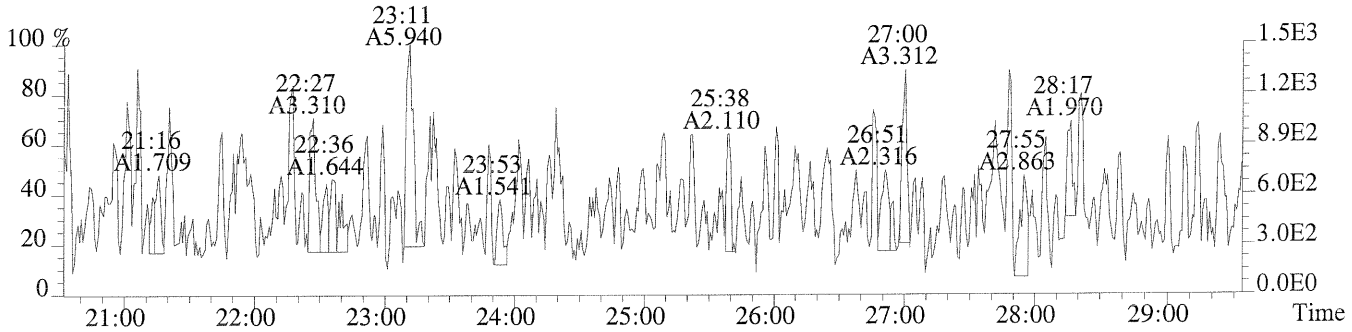
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



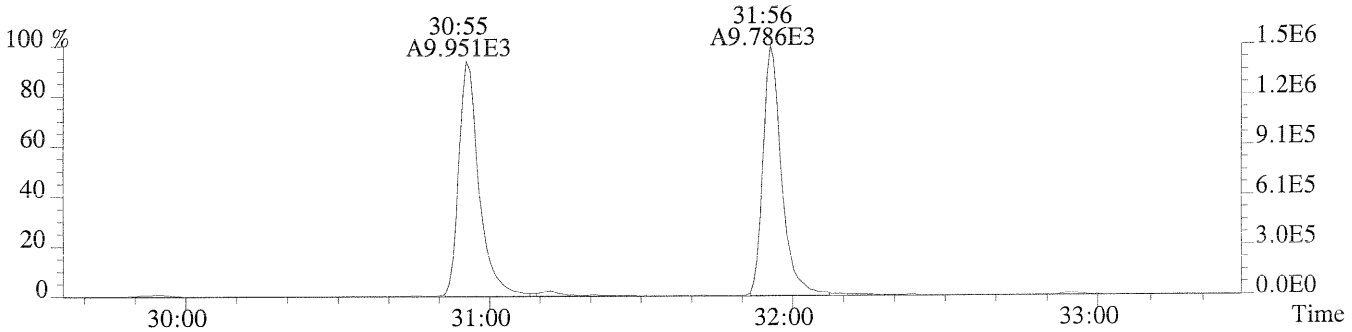
File:P176204 #1-696 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



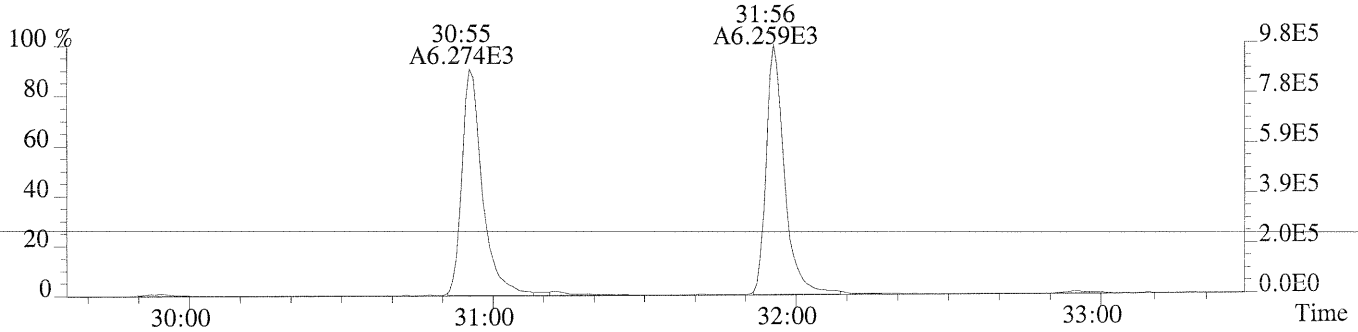
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



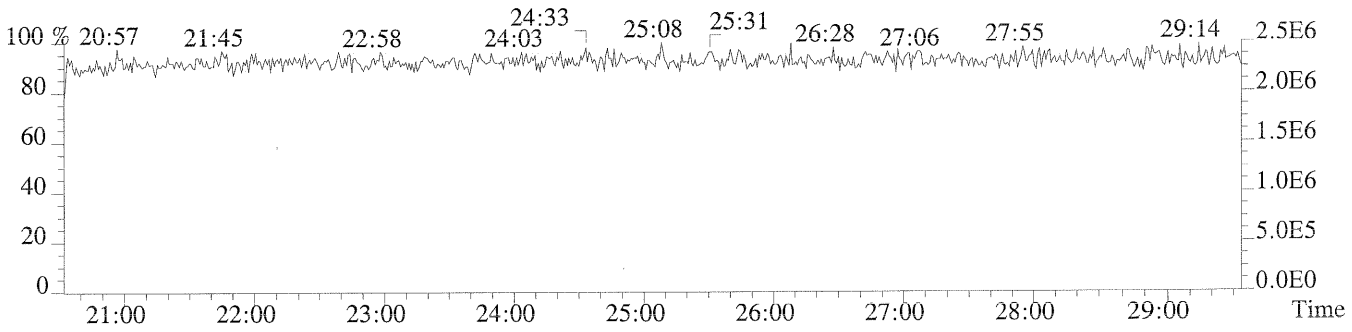
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



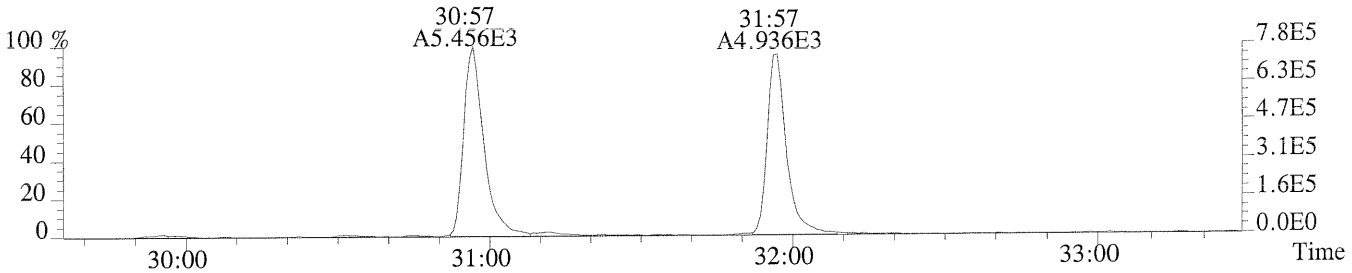
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



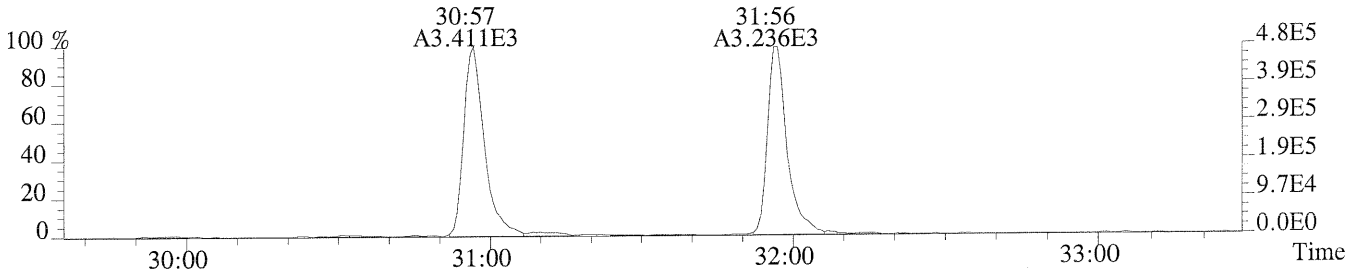
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



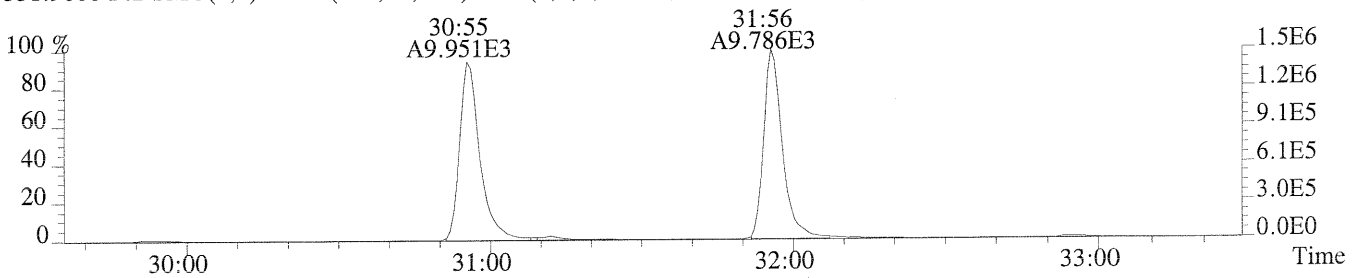
File:P176204 #1-351 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



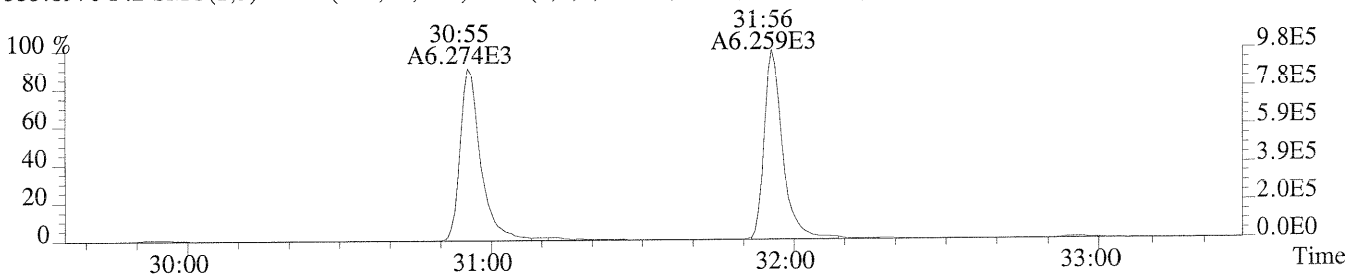
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



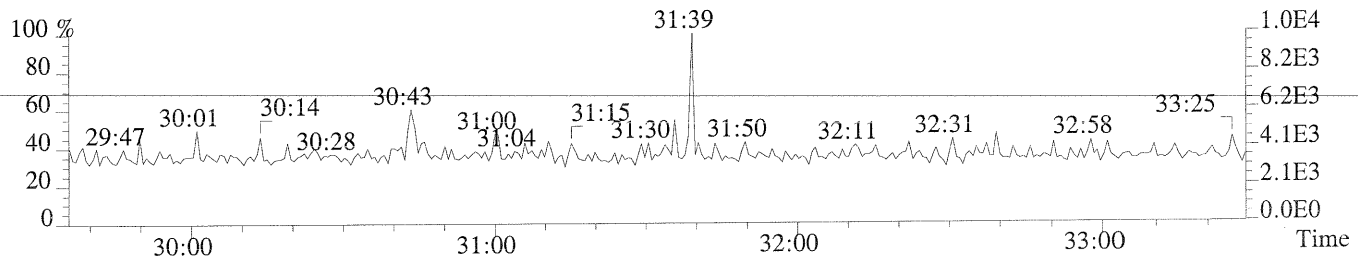
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



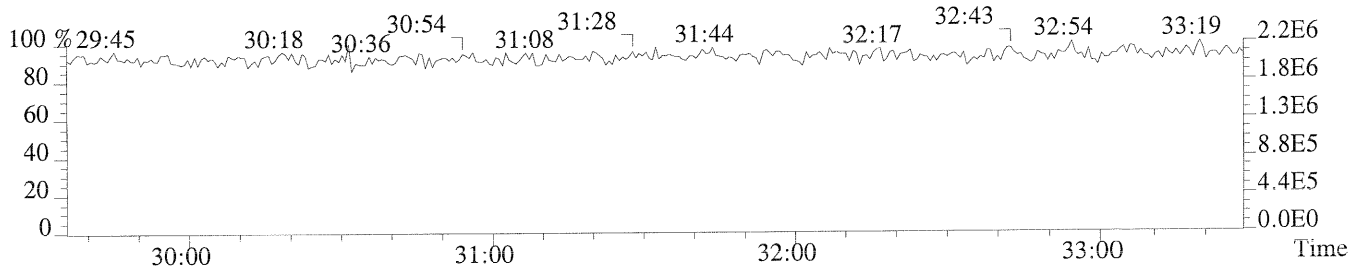
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



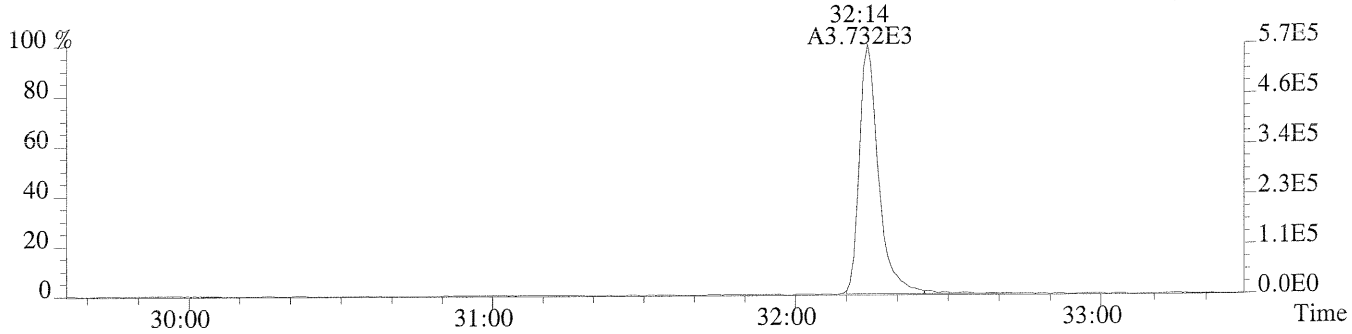
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



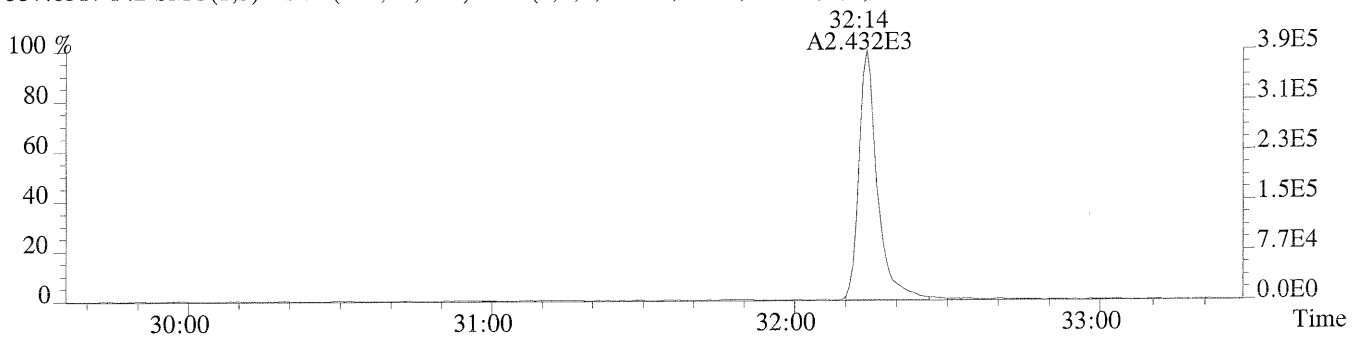
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



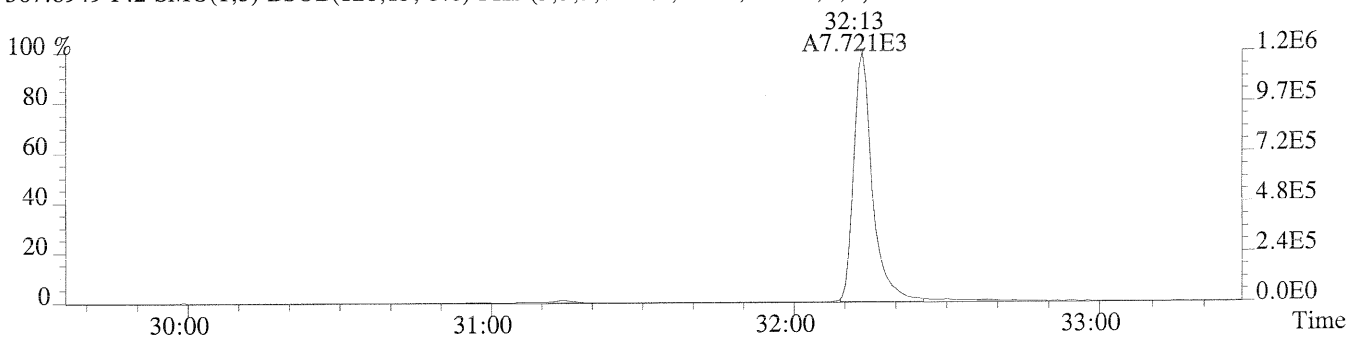
File:P176204 #1-351 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



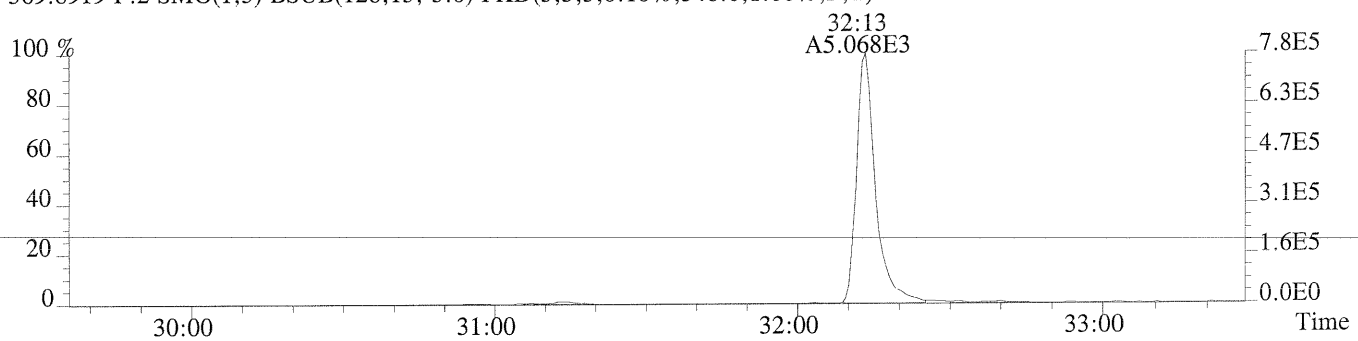
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



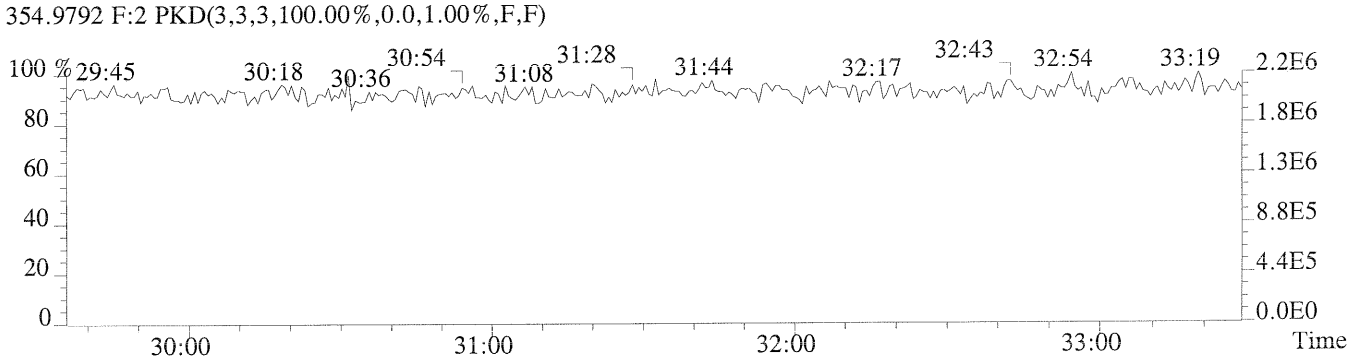
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)

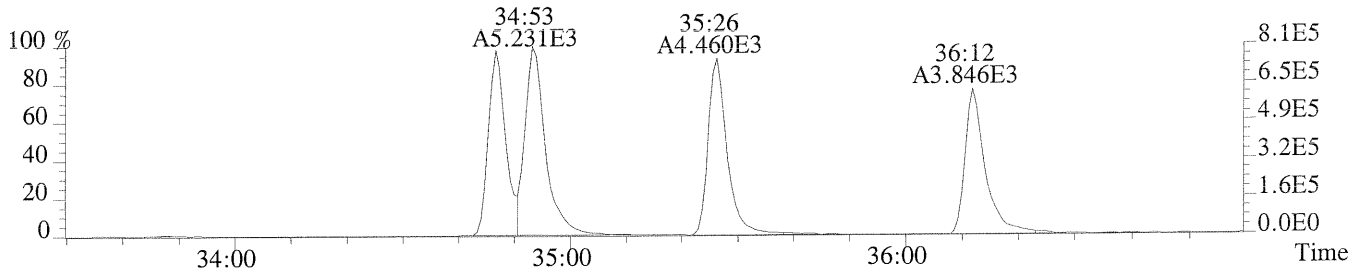


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

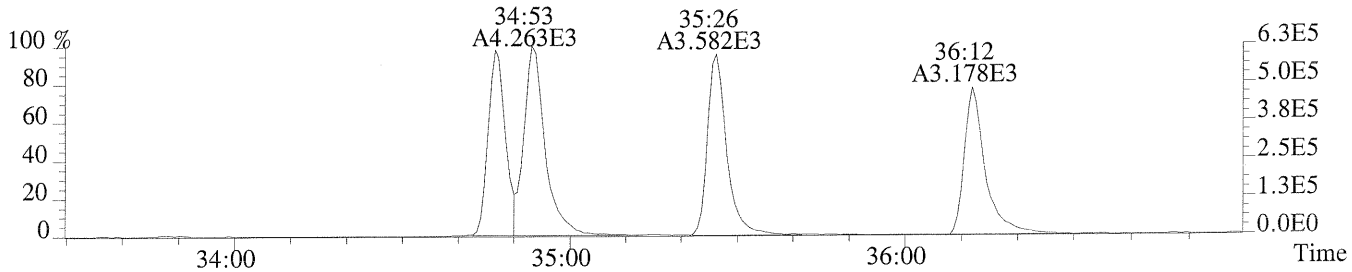


File:P176204 #1-318 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03

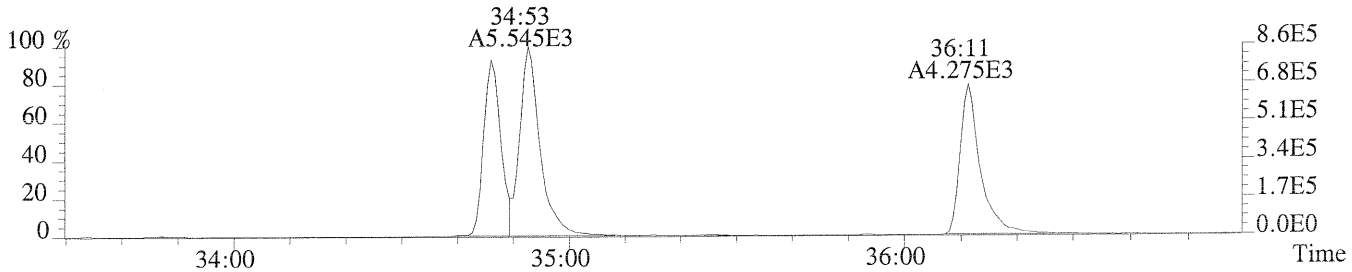
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



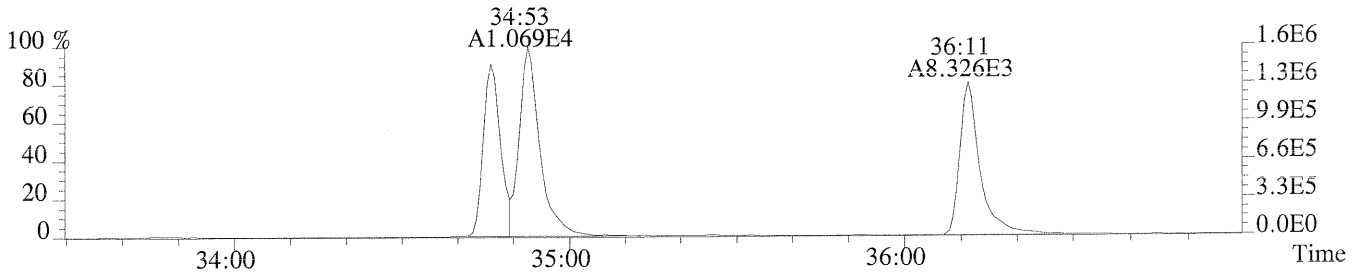
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



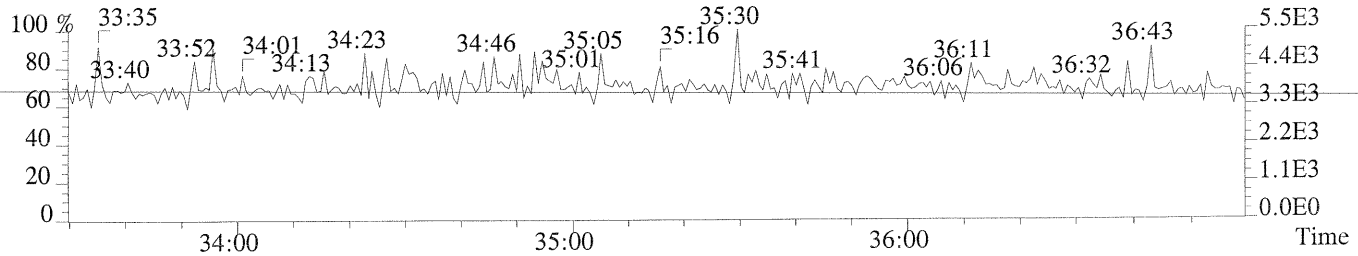
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



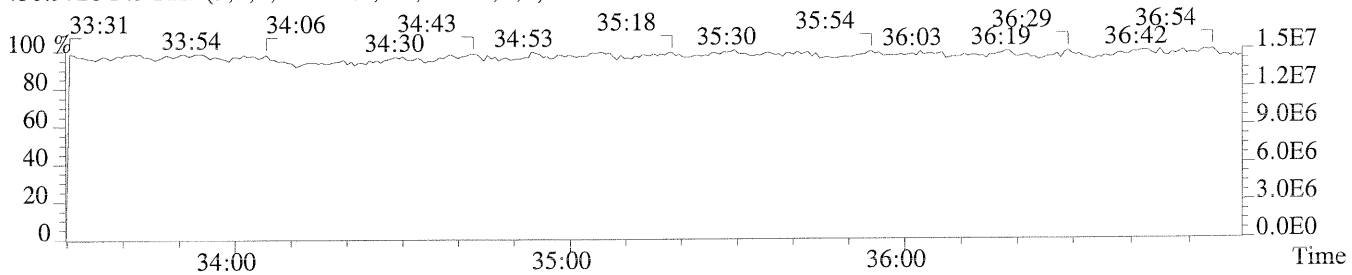
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



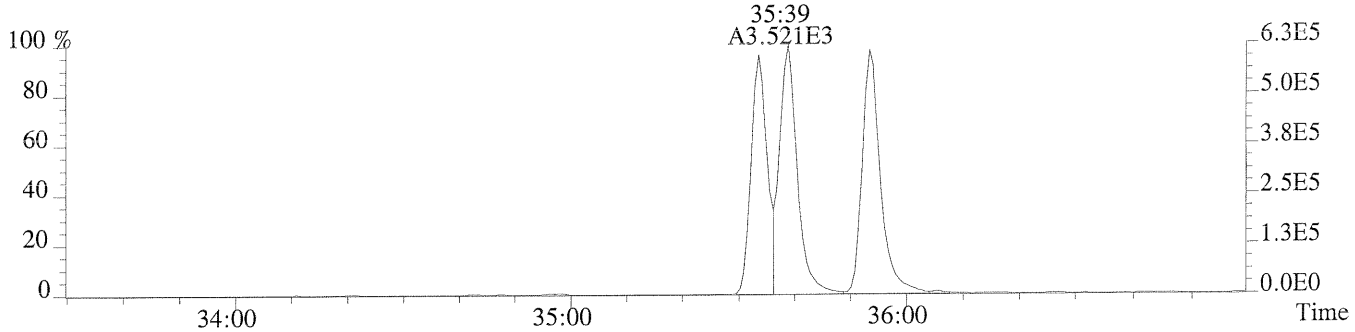
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



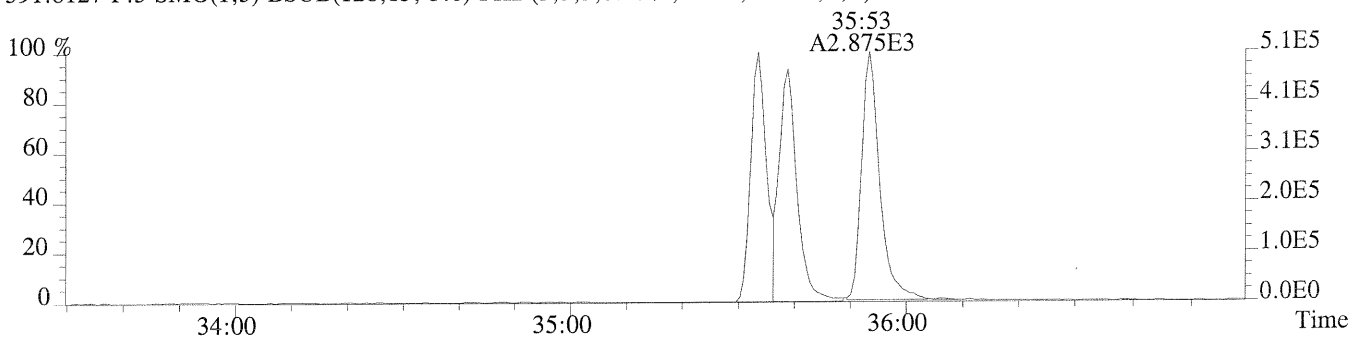
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



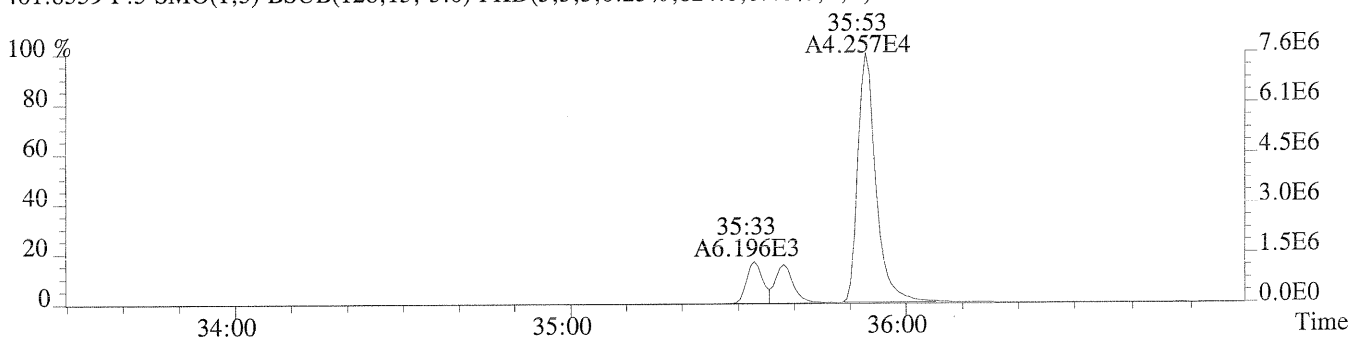
File:P176204 #1-318 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



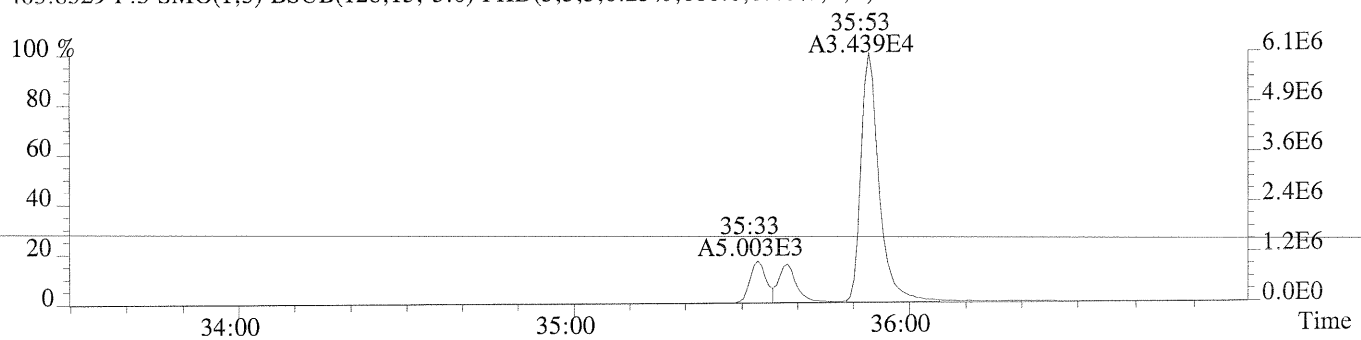
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



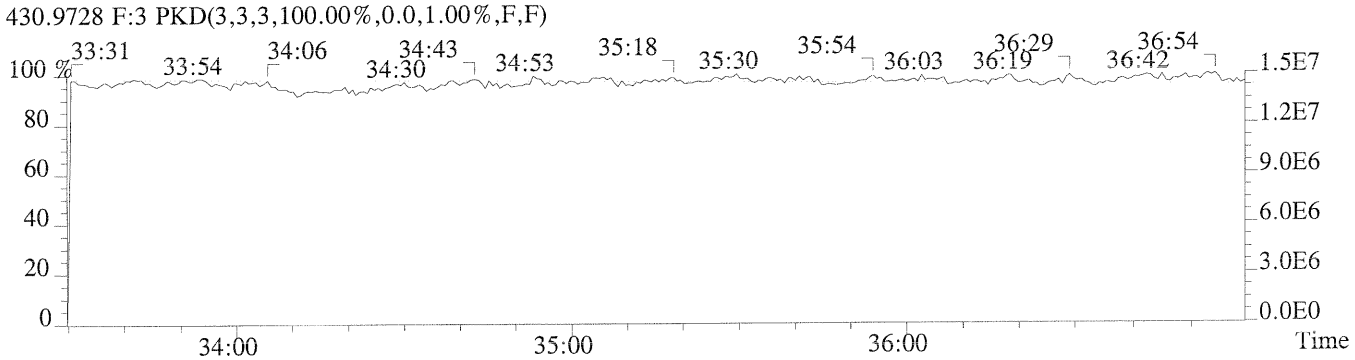
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)

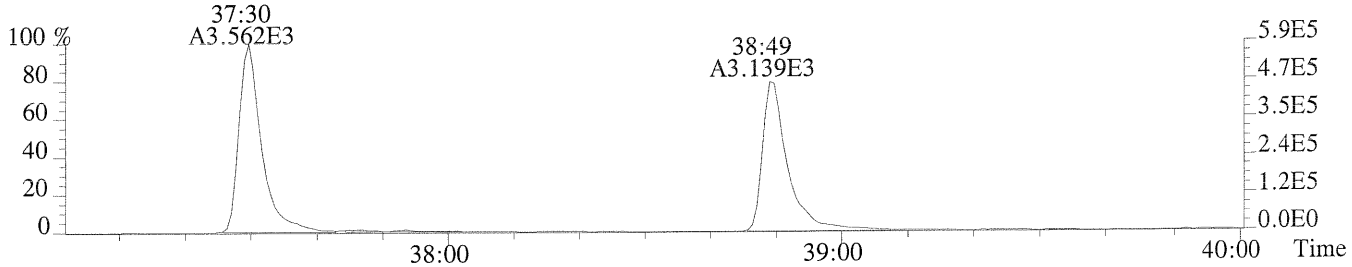


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

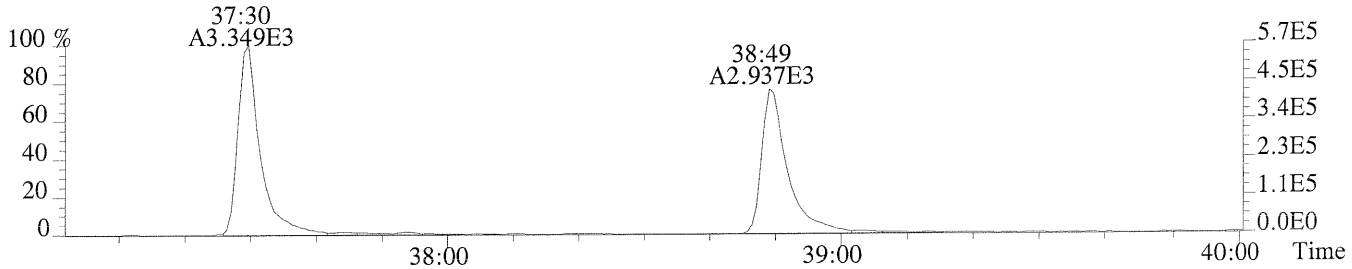


File:P176204 #1-271 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03

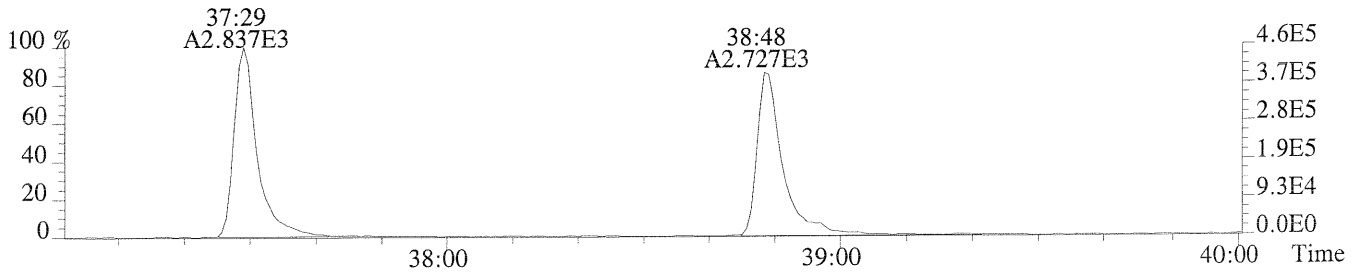
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.50%,F,T)



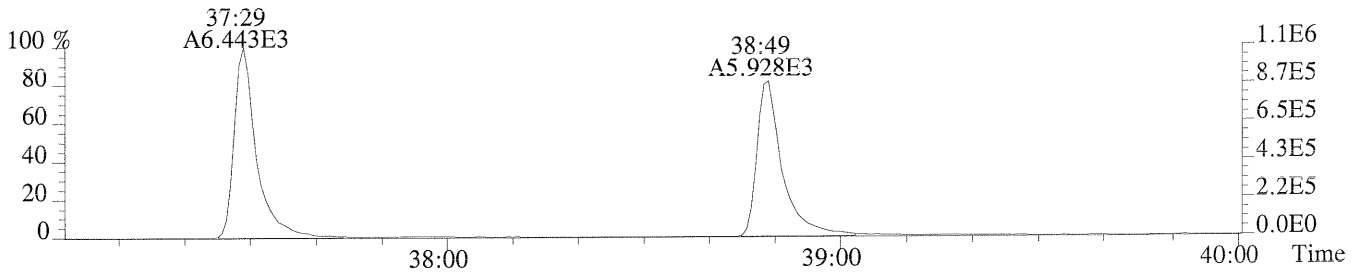
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.50%,F,T)



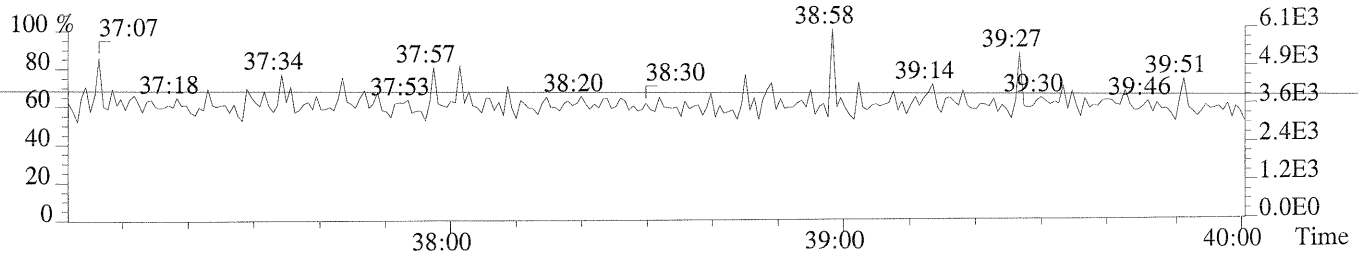
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.50%,F,T)



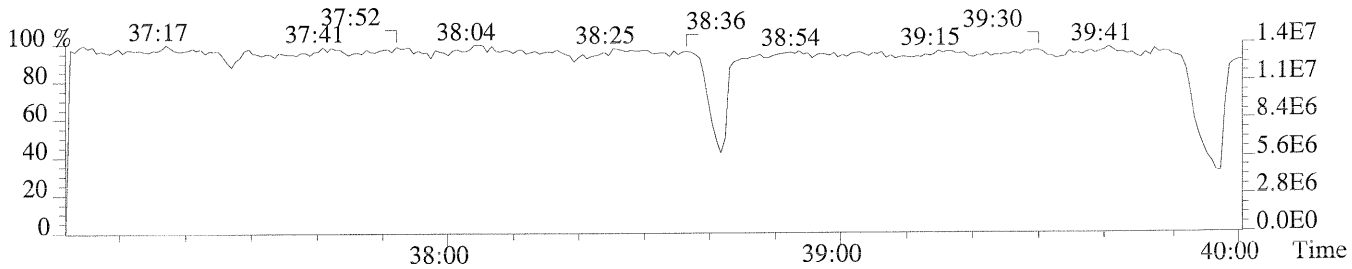
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.50%,F,T)



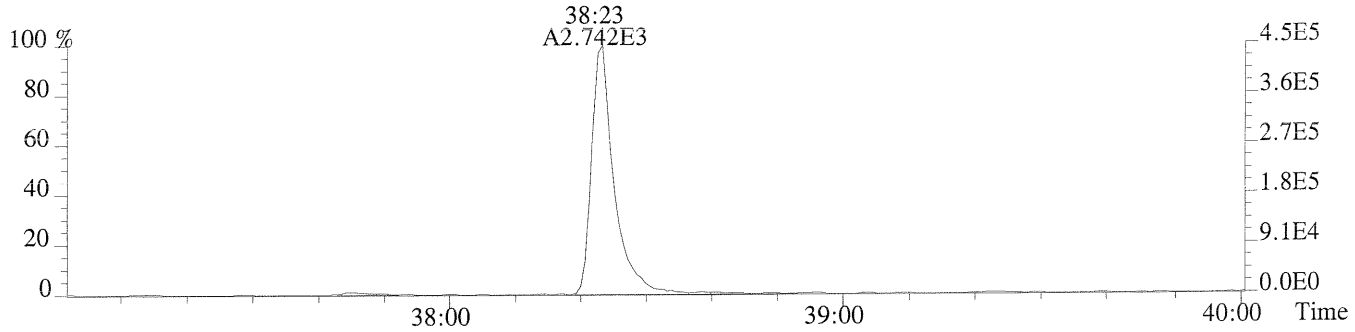
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



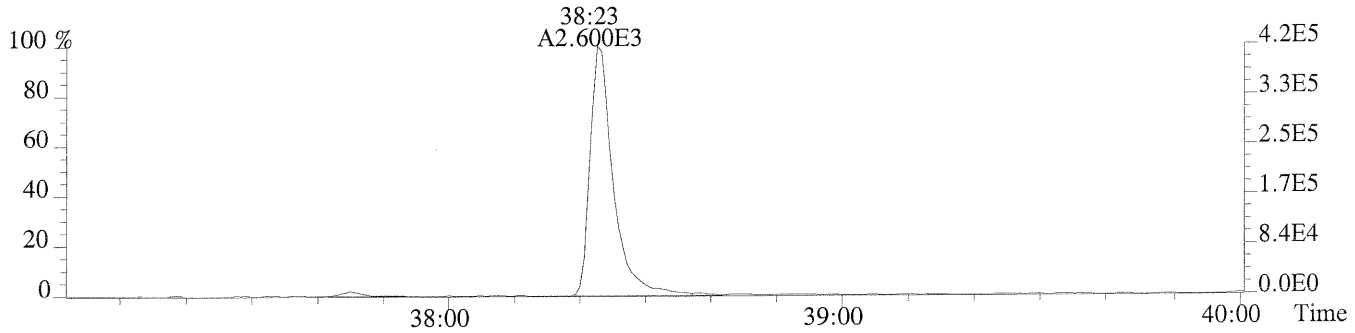
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



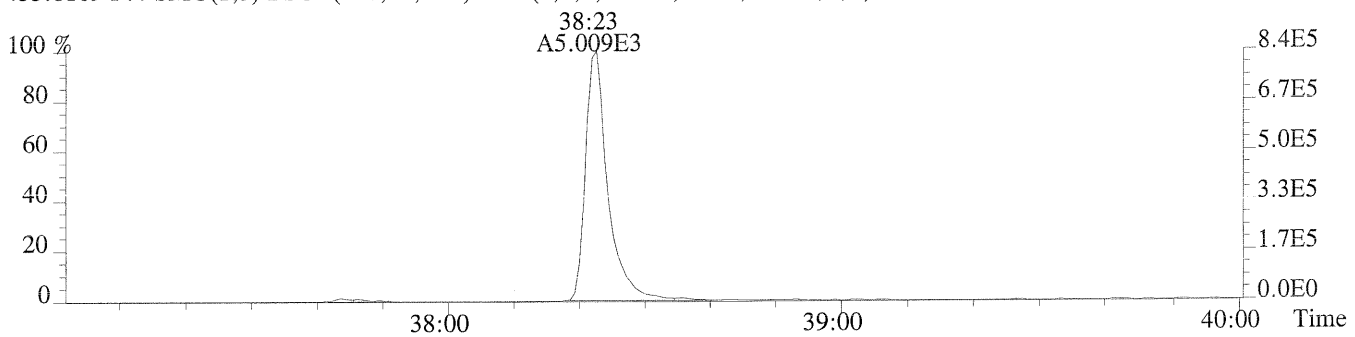
File:P176204 #1-271 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



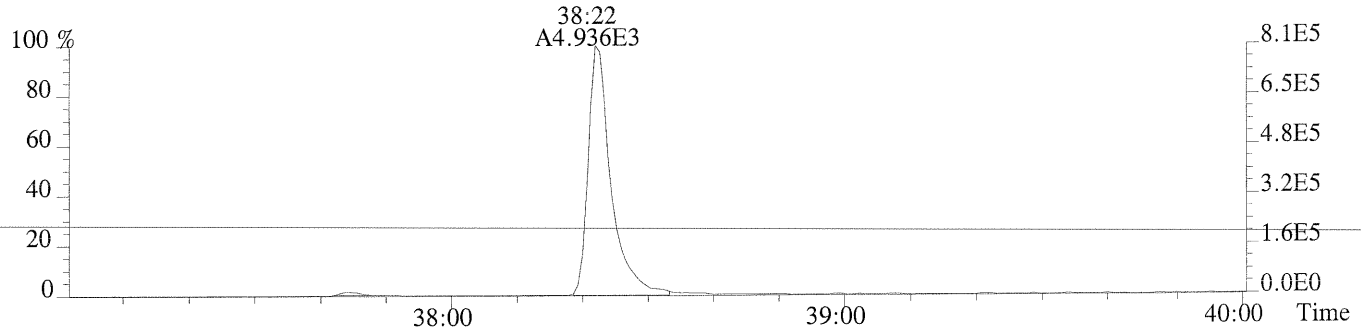
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



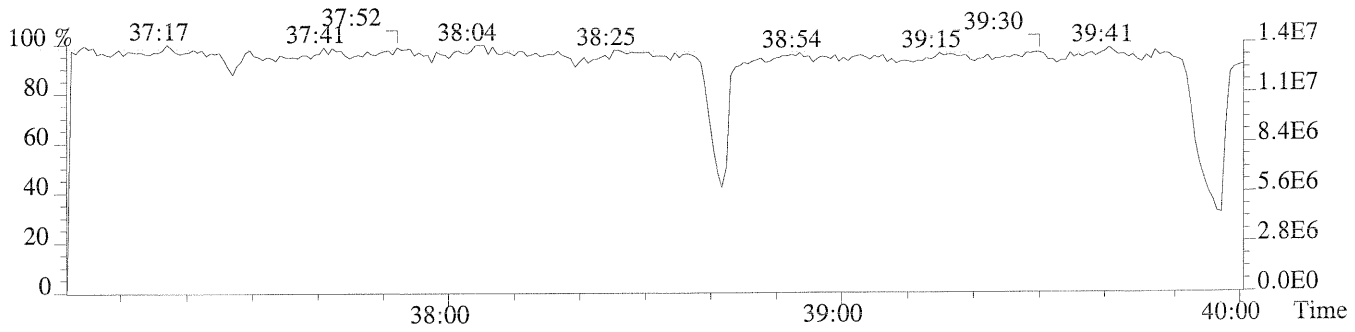
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



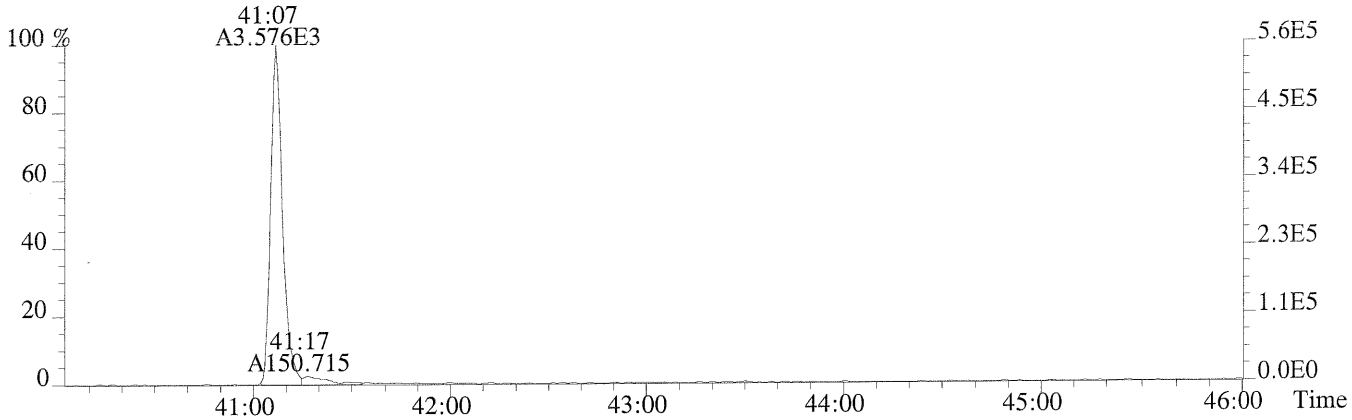
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



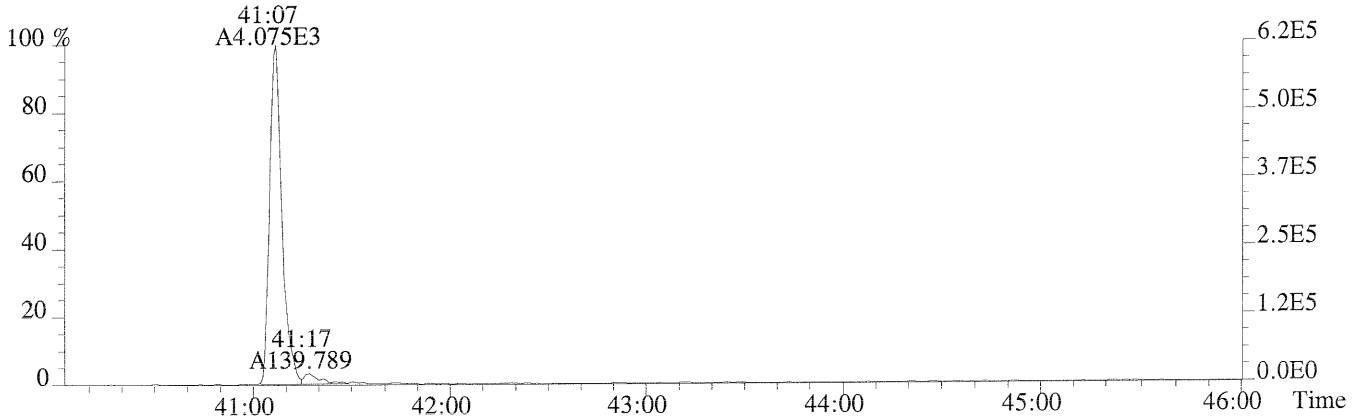
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



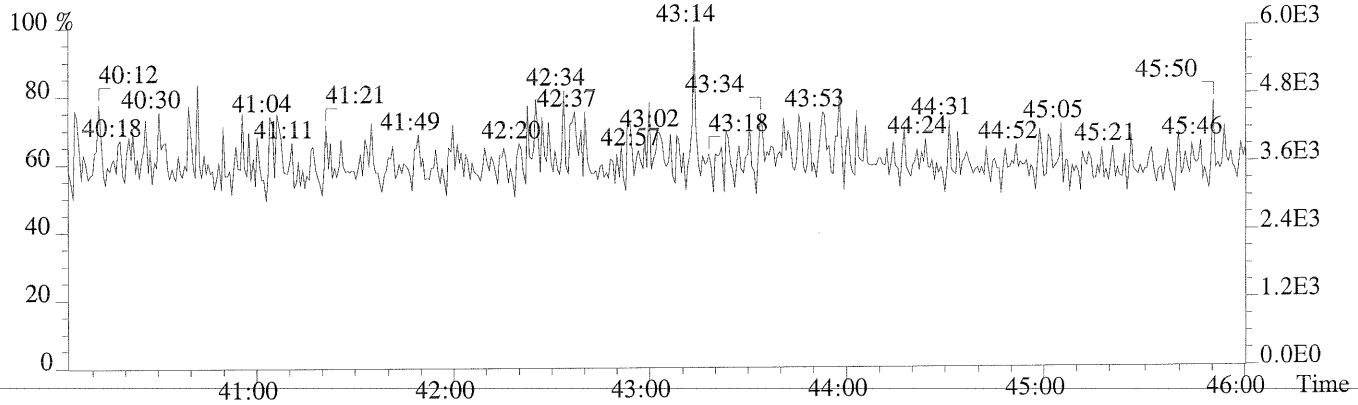
File:P176204 #1-548 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,464.0,0.40%,F,T)



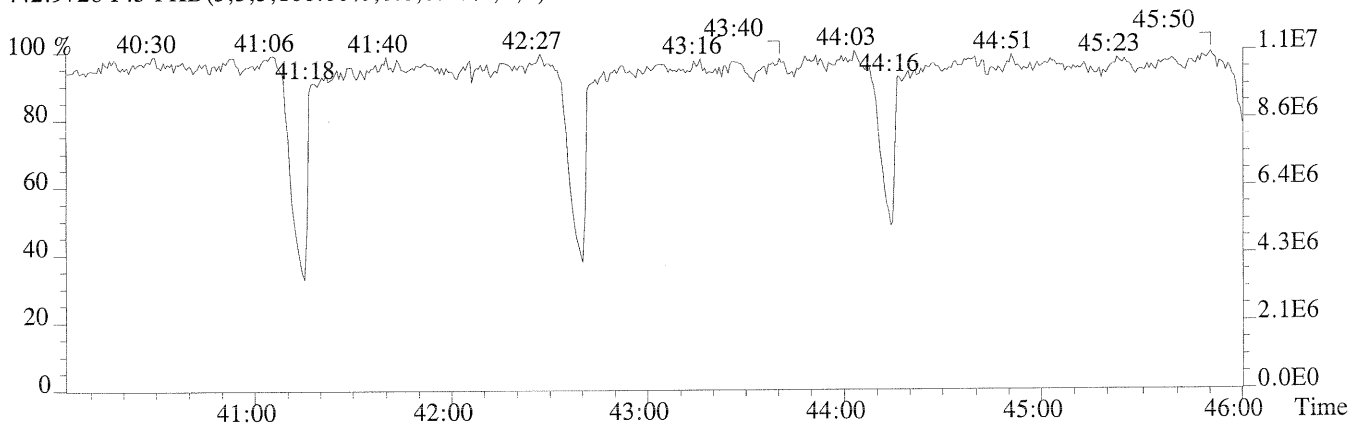
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,352.0,0.40%,F,T)



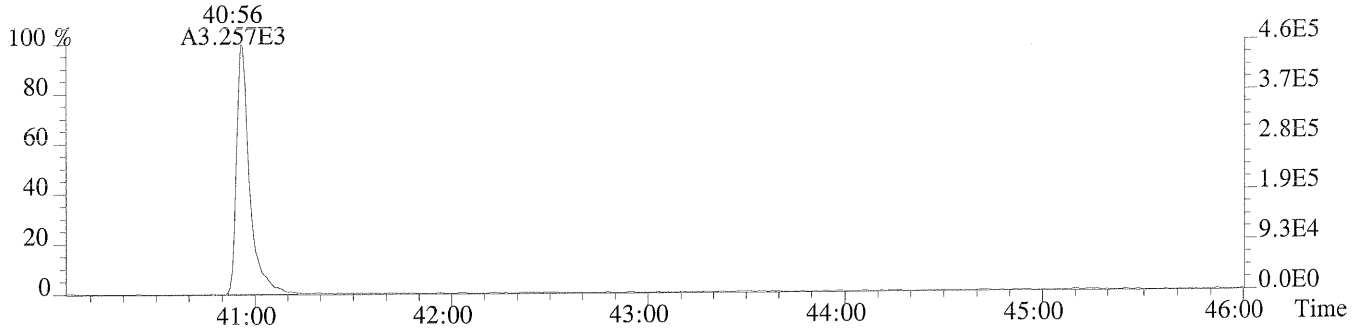
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



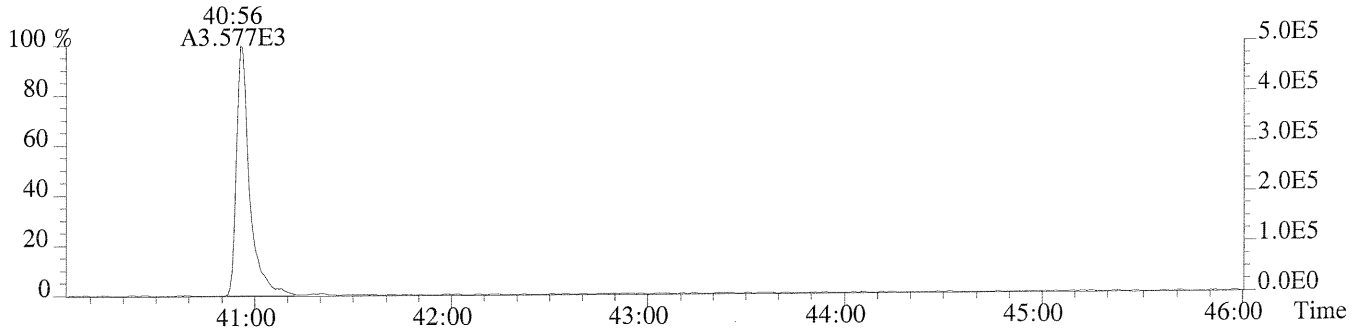
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



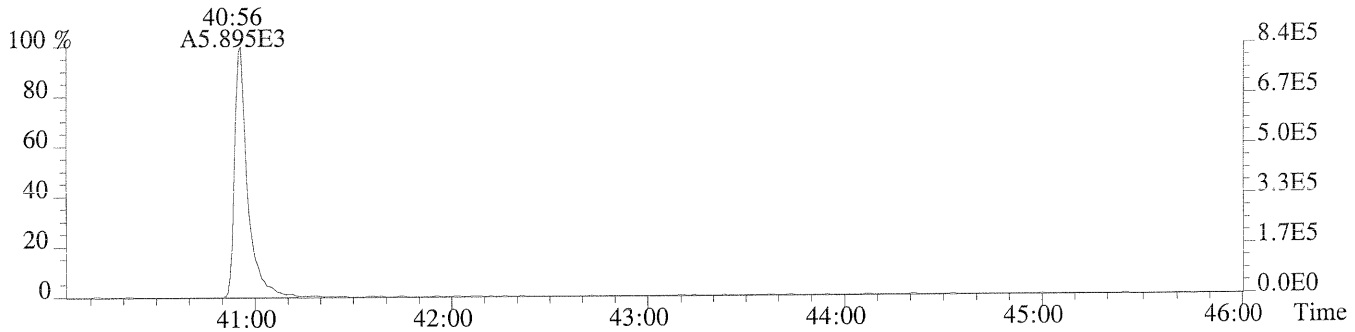
File:P176204 #1-548 Acq: 7-FEB-2015 19:26:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500085-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



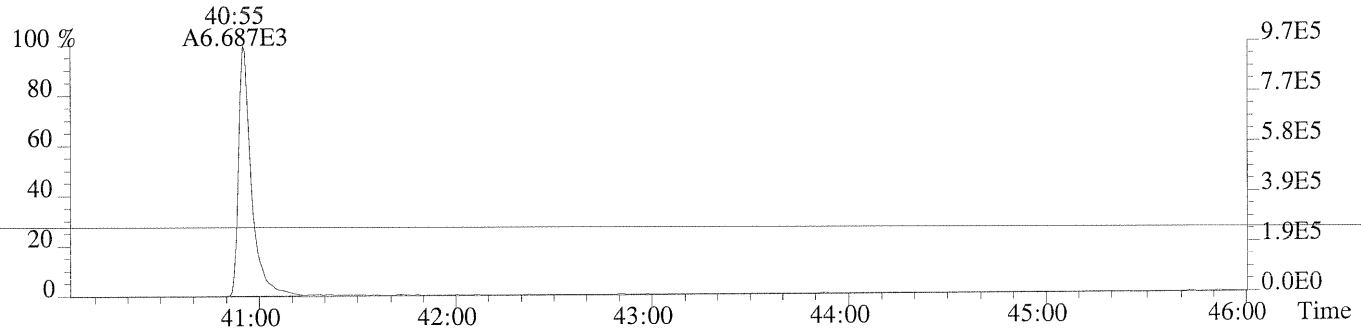
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



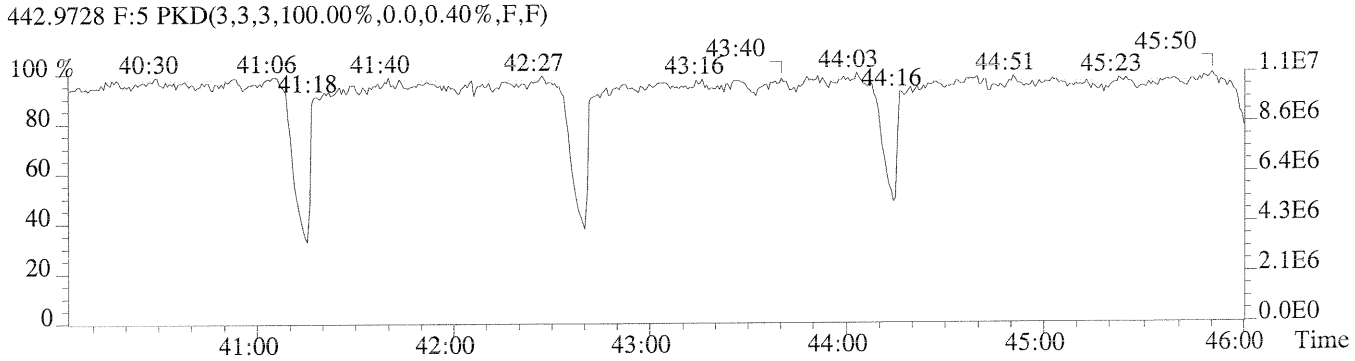
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,884.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,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: P176193

Date: 02/07/15

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	N/A	N/A

Analyst: qc

Second QC: LKL

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: 10/18/14

Init. Calib.Times: 09:02

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
74489	WINDOW DEFINE	P176192	7-FEB-15	08:46:29
75080	CS3	P176193	7-FEB-15	09:37:41
NEEDS REINJECTION	EQ1500085-01 *	P176194	7-FEB-15	11:26:12
METHOD BLANK	EQ1500085-01	P176195	7-FEB-15	12:13:12
129SN-DF	P1500356-001	P176196	7-FEB-15	13:01:22
129SNQ-DF	P1500356-002	P176197	7-FEB-15	13:49:33
129SSQ-DF	P1500356-003	P176198	7-FEB-15	14:37:42
129BLANK-DF	P1500356-004	P176199	7-FEB-15	15:25:53
128U1-DF	P1500356-005	P176200	7-FEB-15	16:14:03
128DI-DF	P1500356-006	P176201	7-FEB-15	17:02:14
128F-DF	P1500356-007	P176202	7-FEB-15	17:50:24
LCS	EQ1500085-02	P176203	7-FEB-15	18:38:34
DLCS	EQ1500085-03	P176204	7-FEB-15	19:26:44

P1500356

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Sample List Report — MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1150207.SPL — Page 1 of 1
Last Modified: Monday, February 09, 2015 07:26:17 Central Standard Time
Printed: Monday, February 09, 2015 07:26:31 Central Standard Time — Page Position (1, 1)

e: P176193res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	02/07/15	08:46	P176192	WINDOW DEFINE	74489	LL	HRMS check 08:39	8290cas	8290DB5MSUIF1
2		09:37	P176193	CS3	75080			8290cas	8290DB5MSUIF1
3		11:26	P176194	EQ1500085-01	MB		Bad injection	8290cas	8290DB5MSUIF1
4		12:13	P176195	EQ1500085-01	MB		HRMS check 11:20	8290cas	8290DB5MSUIF1
5		13:01	P176196	P1500356-001	P1500356-001			8290cas	8290DB5MSUIF1
6		13:49	P176197	P1500356-002	P1500356-002			8290cas	8290DB5MSUIF1
7		14:37	P176198	P1500356-003	P1500356-003			8290cas	8290DB5MSUIF1
8		15:25	P176199	P1500356-004	P1500356-004			8290cas	8290DB5MSUIF1
9		16:14	P176200	P1500356-005	P1500356-005			8290cas	8290DB5MSUIF1
10		17:02	P176201	P1500356-006	P1500356-006			8290cas	8290DB5MSUIF1
11		17:50	P176202	P1500356-007	P1500356-007			8290cas	8290DB5MSUIF1
12		18:38	P176203	EQ1500085-02	LCS			8290cas	8290DB5MSUIF1
13		19:26	P176204	EQ1500085-03	DLCS			8290cas	8290DB5MSUIF1
14		20:14	P176205	CS3	75080		HRMS Check 12:32	8290cas	8290DB5MSUIF1
15			---	---	---			8290cas	8290DB5MSUIF1
16			---	---	---			8290cas	8290DB5MSUIF1
17			---	---	---			8290cas	8290DB5MSUIF1
18			---	---	---			8290cas	8290DB5MSUIF1
19			---	---	---			8290cas	8290DB5MSUIF1
20			---	---	---			8290cas	8290DB5MSUIF1
21			---	---	---			8290cas	8290DB5MSUIF1
22			---	---	---			8290cas	8290DB5MSUIF1
23			---	---	---			8290cas	8290DB5MSUIF1
24			---	---	---			8290cas	8290DB5MSUIF1
25			---	---	---			8290cas	8290DB5MSUIF1
26			---	---	---			8290cas	8290DB5MSUIF1
27			---	---	---			8290cas	8290DB5MSUIF1
28			---	---	---			8290cas	8290DB5MSUIF1
29			---	---	---			8290cas	8290DB5MSUIF1
30			---	---	---			8290cas	8290DB5MSUIF1
31			---	---	---			8290cas	8290DB5MSUIF1
32			---	---	---			8290cas	8290DB5MSUIF1
33			---	---	---			8290cas	8290DB5MSUIF1
34	---	---	---	---	---	---	---	8290cas	8290DB5MSUIF1
35	---	---	---	---	---	---	---	8290cas	8290CAS

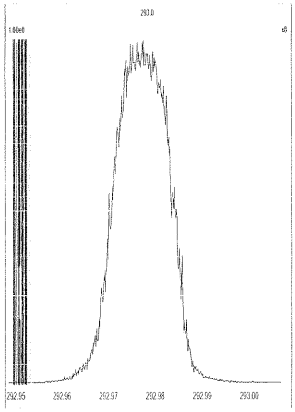
gc
02/09/15

059

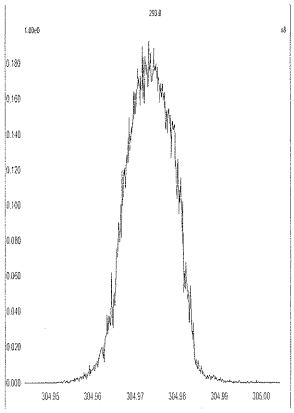
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, February 07, 2015 08:39:47 Central Standard Time

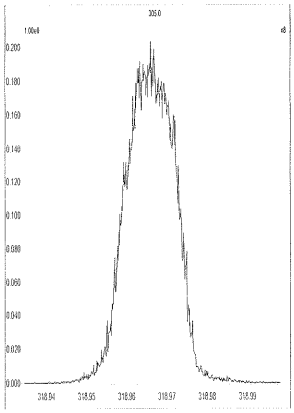
M 292.9824 R 13158



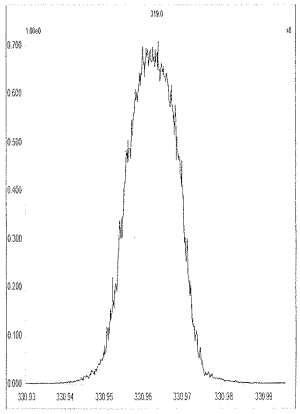
M 304.9824 R 13025



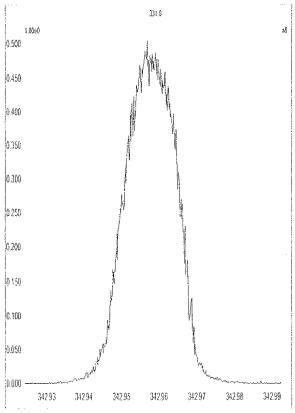
M 318.9792 R 13436



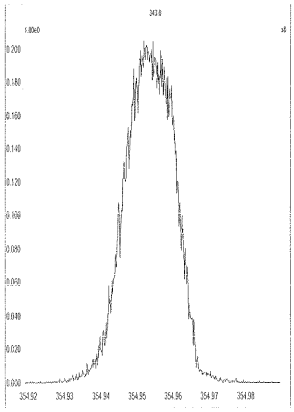
M 330.9792 R 12376



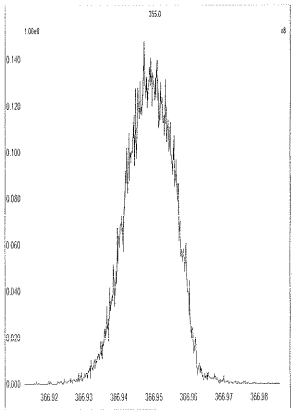
M 342.9792 R 12139



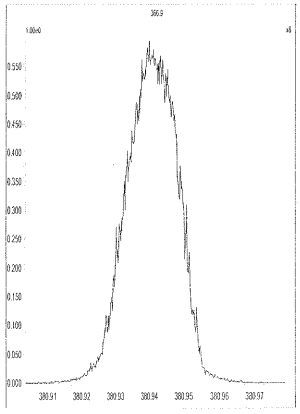
M 354.9792 R 12887



M 366.9792 R 12625



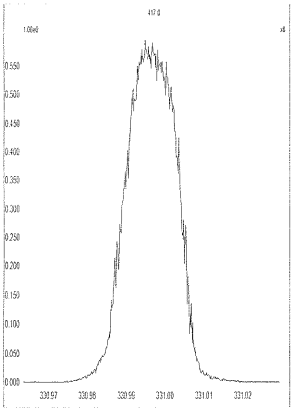
M 380.9760 R 12252



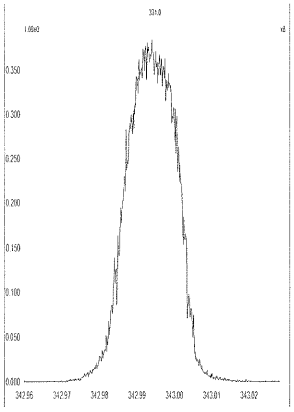
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, February 07, 2015 08:40:56 Central Standard Time

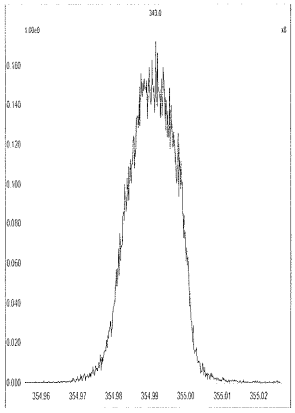
M 330.9792 R 12627



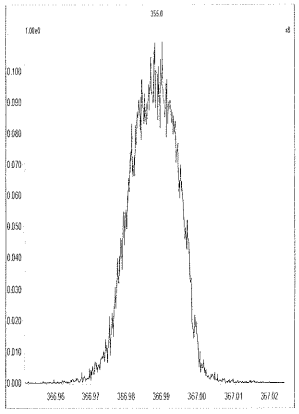
M 342.9792 R 12754



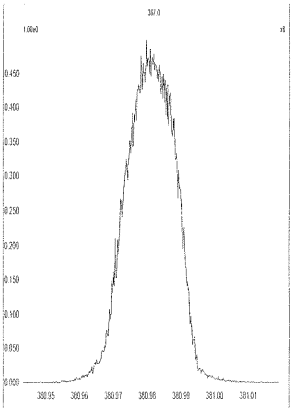
M 354.9792 R 12950



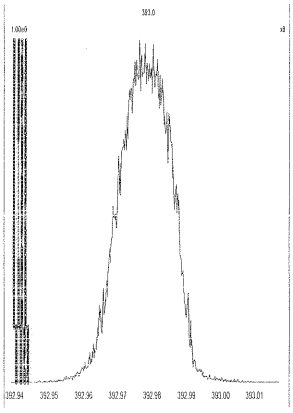
M 366.9792 R 12690



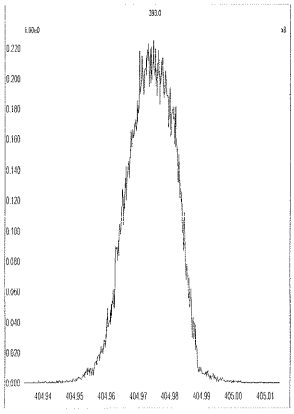
M 380.9760 R 12436



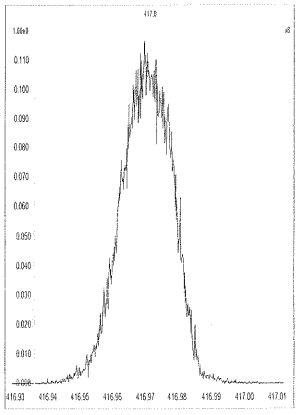
M 392.9760 R 12822



M 404.9760 R 12500



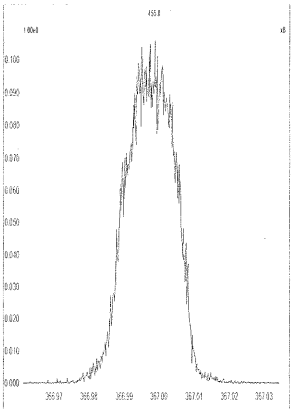
M 416.9760 R 12257



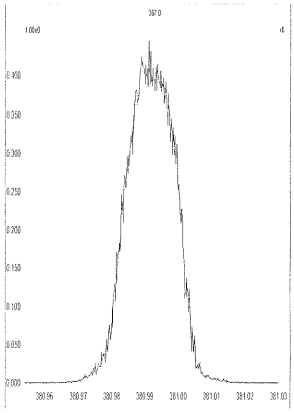
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, February 07, 2015 08:42:01 Central Standard Time

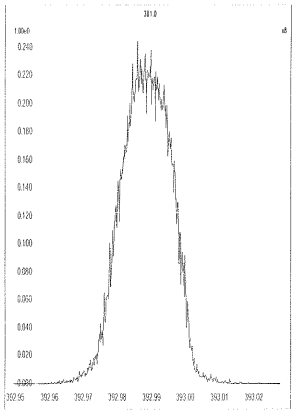
M 366.9792 R 13441



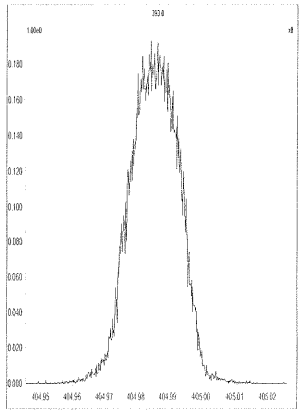
M 380.9760 R 13020



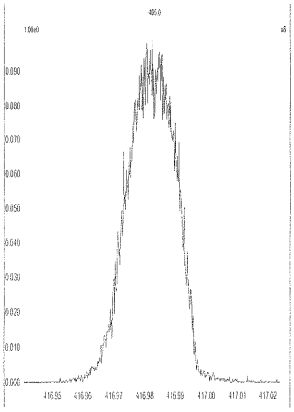
M 392.9760 R 13160



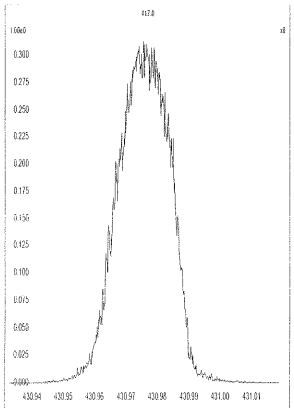
M 404.9760 R 12626



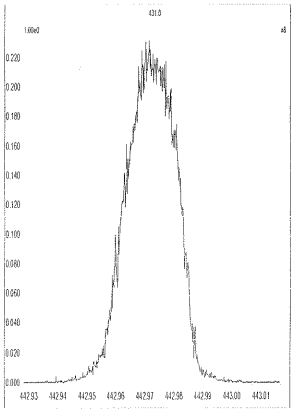
M 416.9760 R 12952



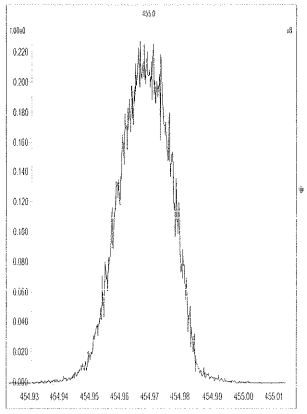
M 430.9728 R 12501



M 442.9728 R 12563



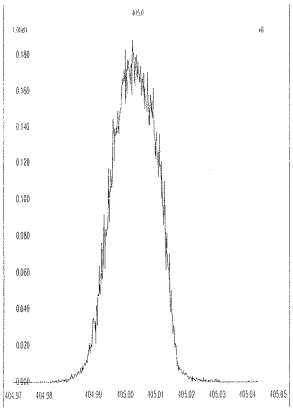
M 454.9728 R 12885



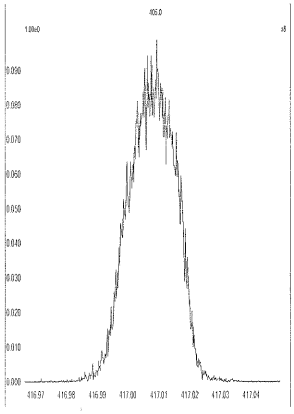
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, February 07, 2015 08:43:43 Central Standard Time

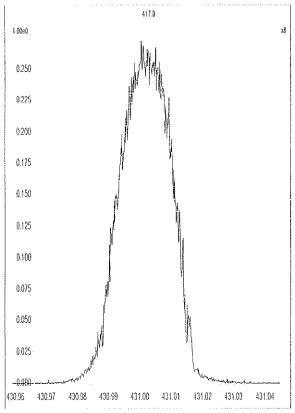
M 404.9760 R 13299



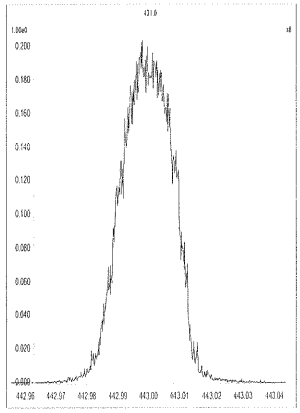
M 416.9760 R 12754



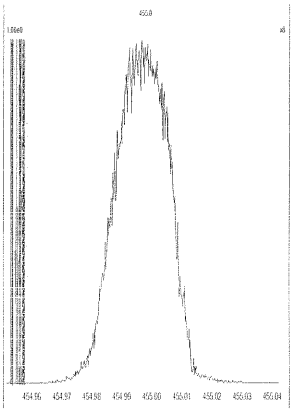
M 430.9728 R 12889



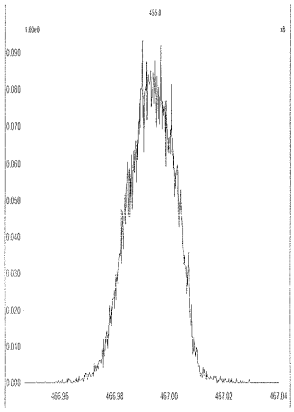
M 442.9728 R 12883



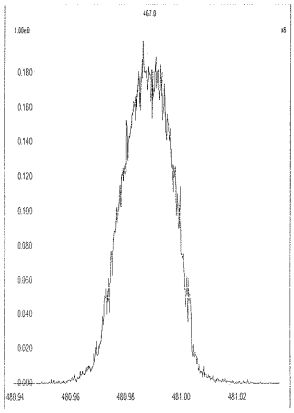
M 454.9728 R 13020



M 466.9728 R 12624



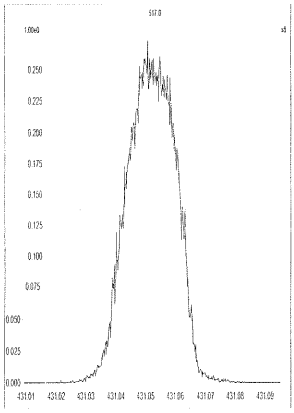
M 480.9696 R 12563



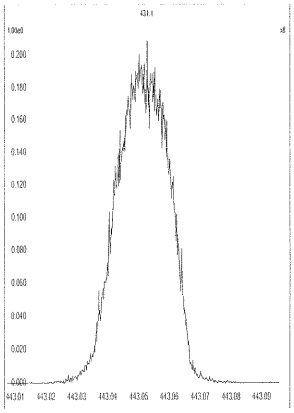
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, February 07, 2015 08:45:26 Central Standard Time

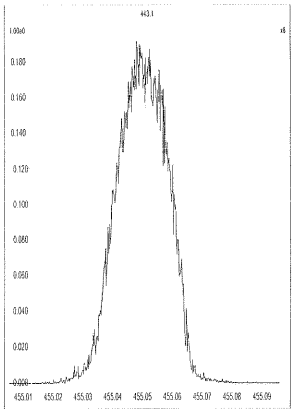
M 430.9728 R 13088



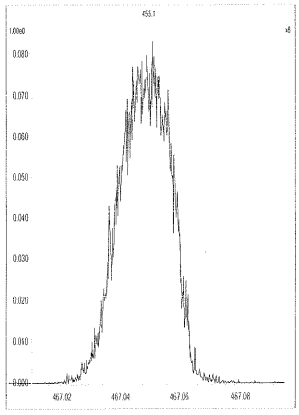
M 442.9728 R 13018



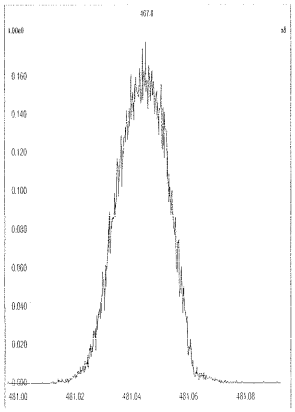
M 454.9728 R 12954



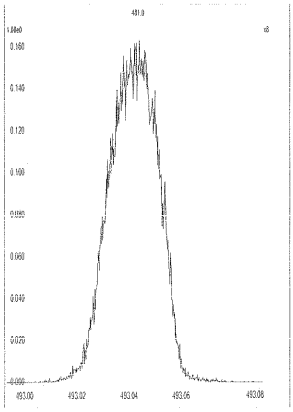
M 466.9728 R 12952



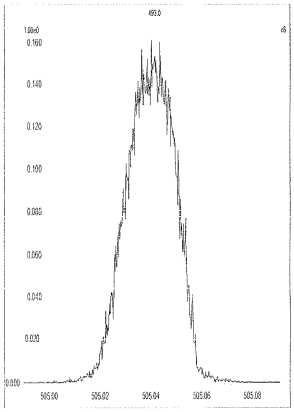
M 480.9696 R 12692



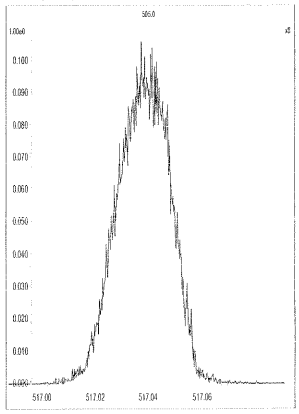
M 492.9696 R 13089



M 504.9696 R 13226



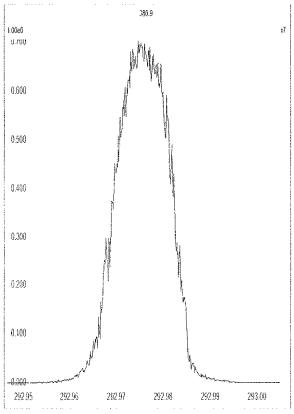
M 516.9697 R 12501



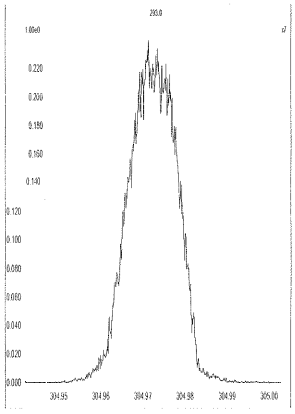
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, February 07, 2015 11:20:04 Central Standard Time

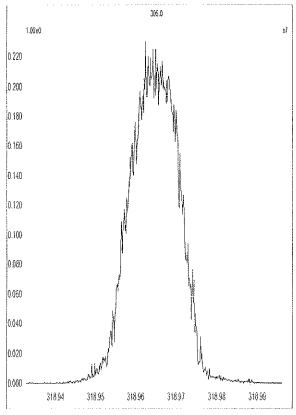
M 292.9824 R 13089



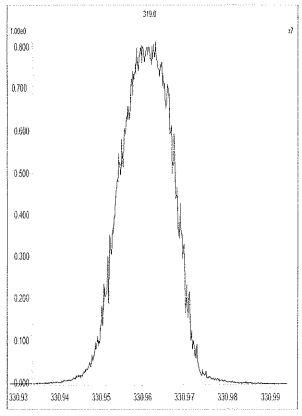
M 304.9824 R 13366



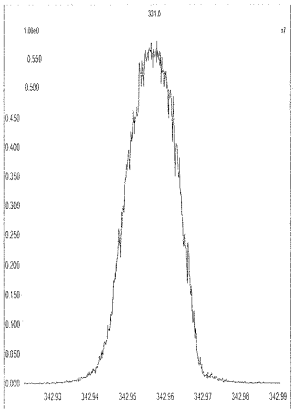
M 318.9792 R 12628



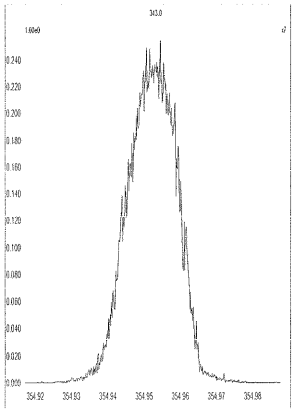
M 330.9792 R 12562



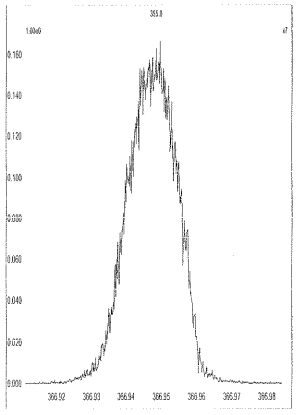
M 342.9792 R 12497



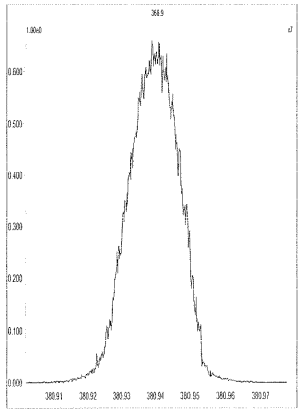
M 354.9792 R 12821



M 366.9792 R 12689



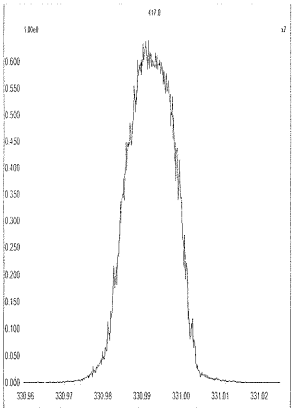
M 380.9760 R 12257



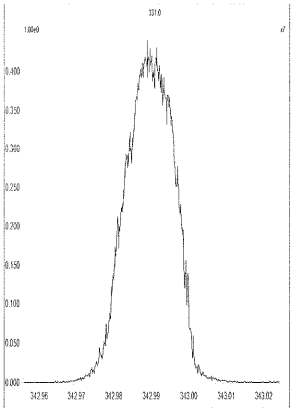
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, February 07, 2015 11:22:12 Central Standard Time

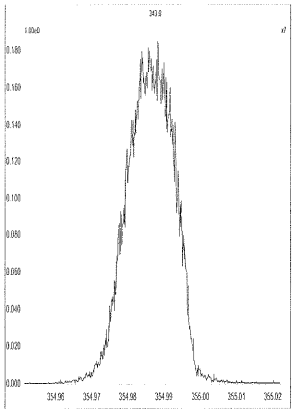
M 330.9792 R 13370



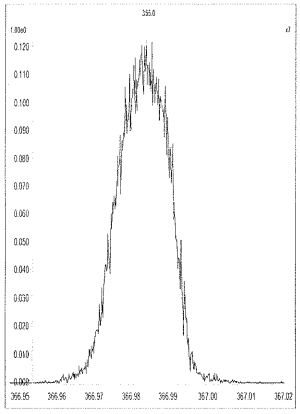
M 342.9792 R 12885



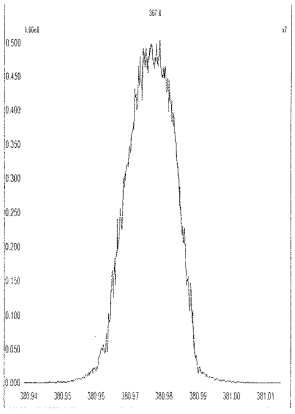
M 354.9792 R 13154



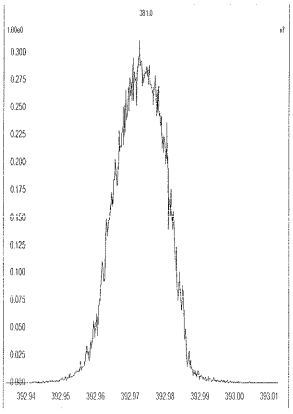
M 366.9792 R 13441



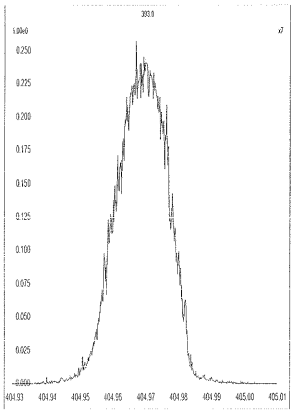
M 380.9760 R 13019



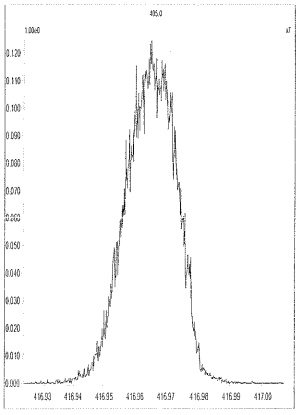
M 392.9760 R 12687



M 404.9760 R 12376



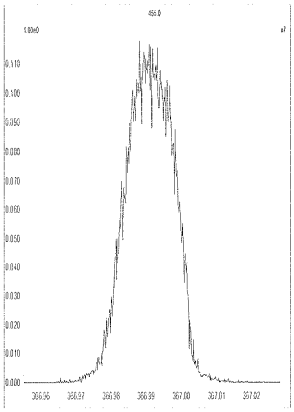
M 416.9760 R 12313



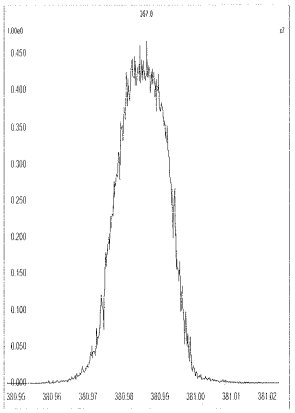
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, February 07, 2015 11:23:13 Central Standard Time

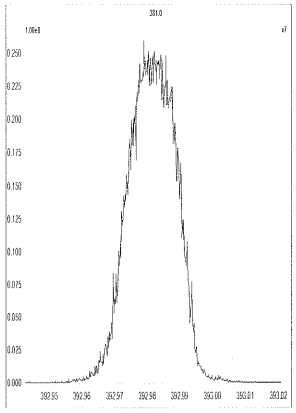
M 366.9792 R 13089



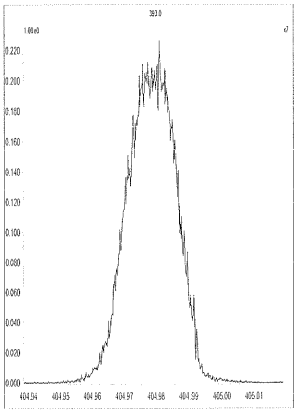
M 380.9760 R 13162



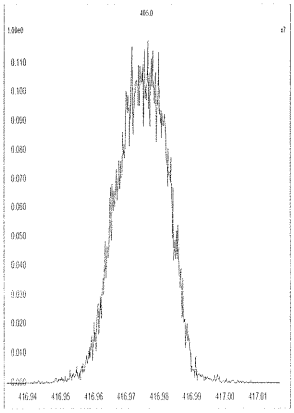
M 392.9760 R 12439



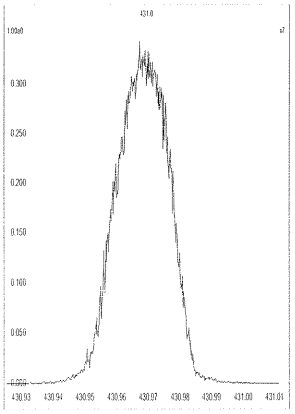
M 404.9760 R 12755



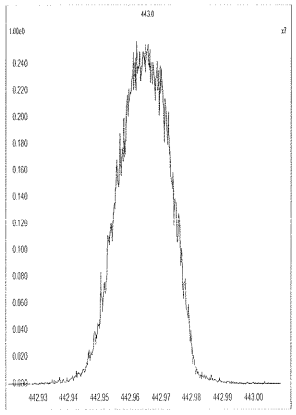
M 416.9760 R 12885



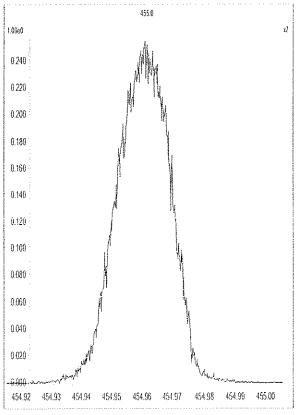
M 430.9728 R 13090



M 442.9728 R 12315



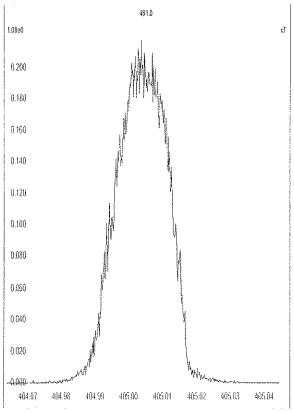
M 454.9728 R 11846



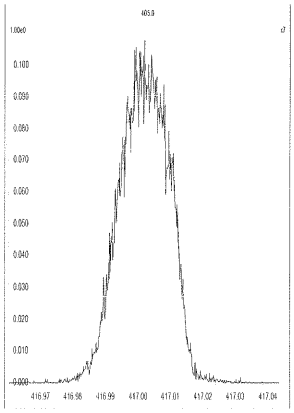
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, February 07, 2015 11:24:05 Central Standard Time

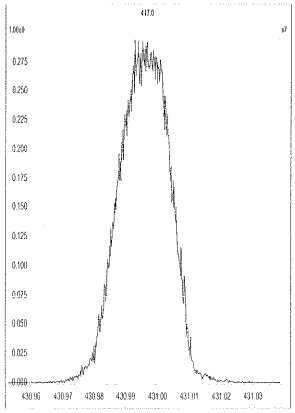
M 404.9760 R 13514



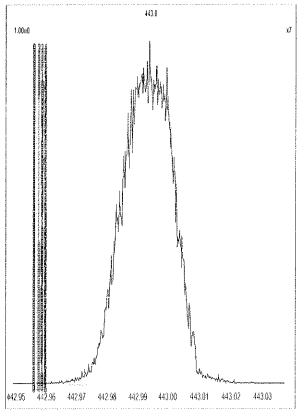
M 416.9760 R 13226



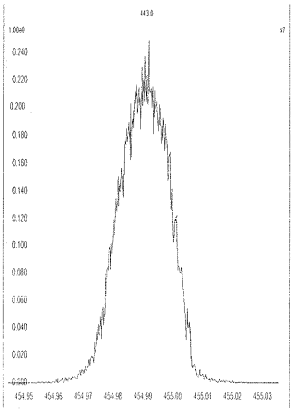
M 430.9728 R 12884



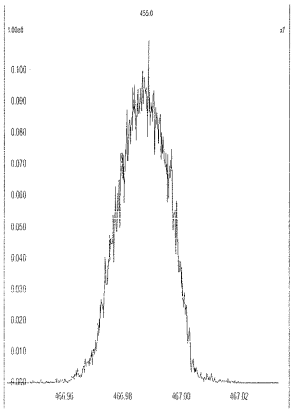
M 442.9728 R 13017



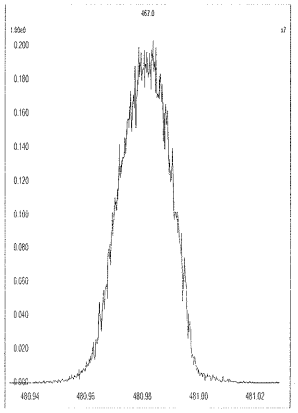
M 454.9728 R 12562



M 466.9728 R 12822



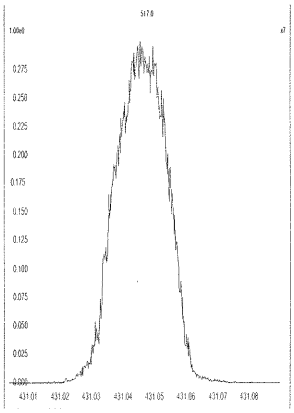
M 480.9696 R 12438



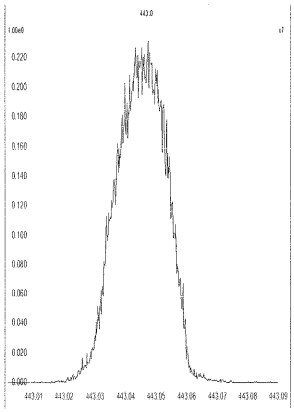
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, February 07, 2015 11:24:54 Central Standard Time

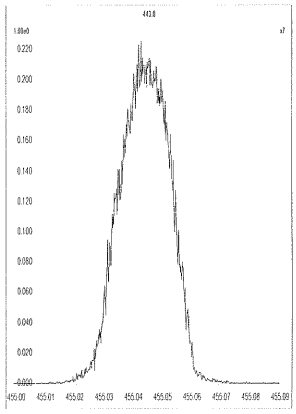
M 430.9728 R 13297



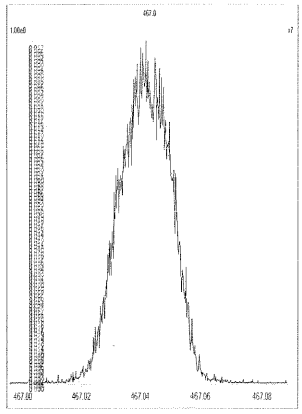
M 442.9728 R 13295



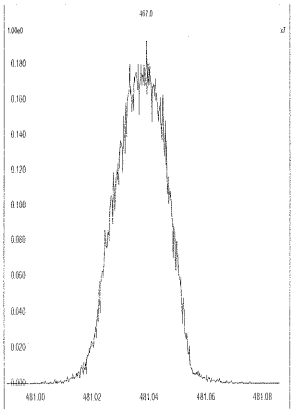
M 454.9728 R 13514



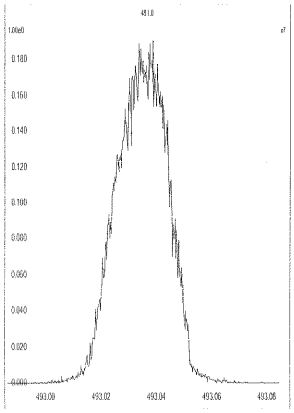
M 466.9728 R 13157



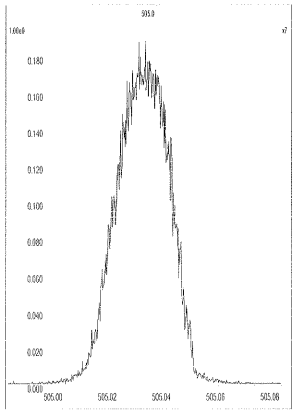
M 480.9696 R 13160



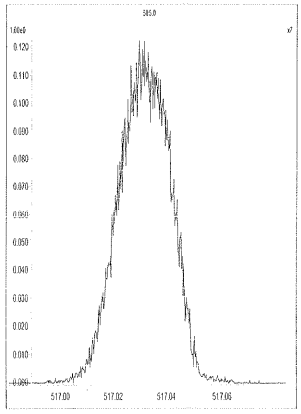
M 492.9696 R 12821



M 504.9696 R 12440



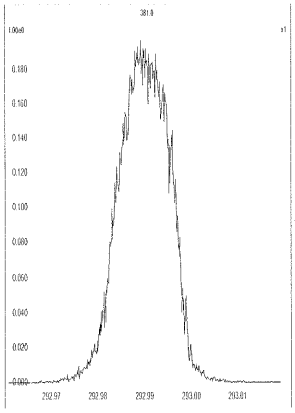
M 516.9697 R 12316



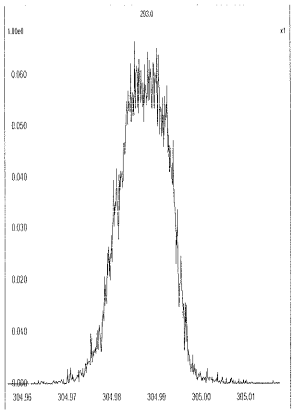
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, February 08, 2015 12:32:27 Central Standard Time

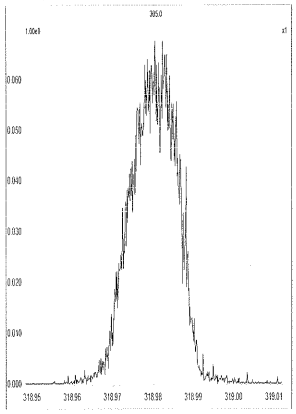
M 292.9824 R 13021



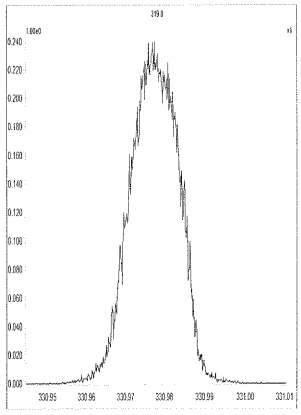
M 304.9824 R 13087



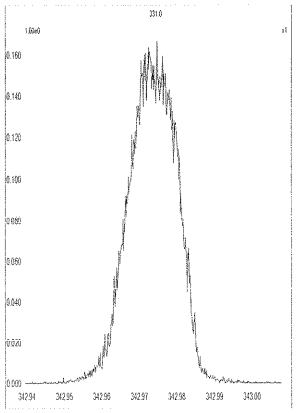
M 318.9792 R 13589



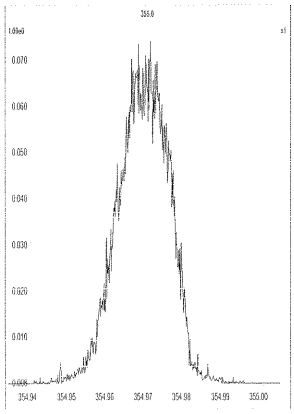
M 330.9792 R 13089



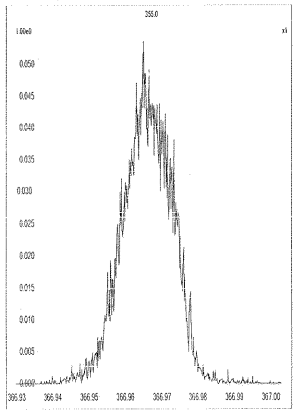
M 342.9792 R 12313



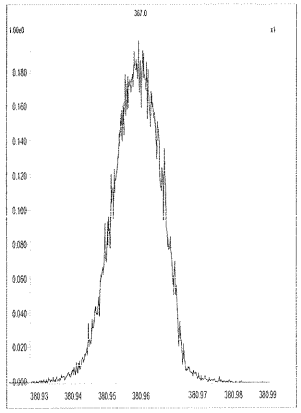
M 354.9792 R 12256



M 366.9792 R 12820



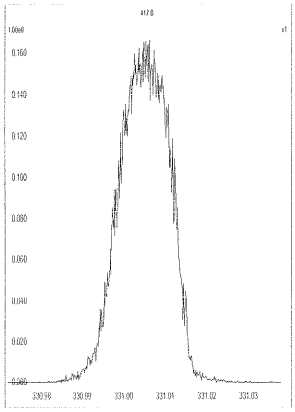
M 380.9760 R 12374



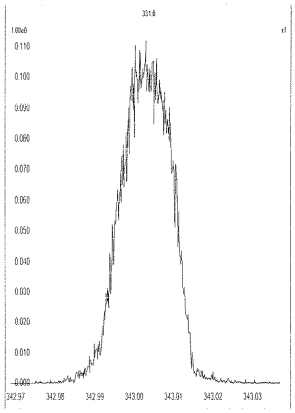
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, February 08, 2015 12:36:16 Central Standard Time

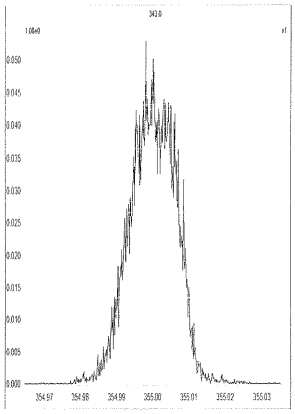
M 330.9792 R 12954



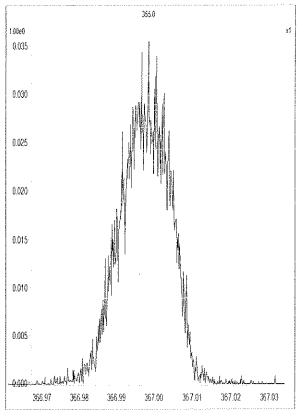
M 342.9792 R 13088



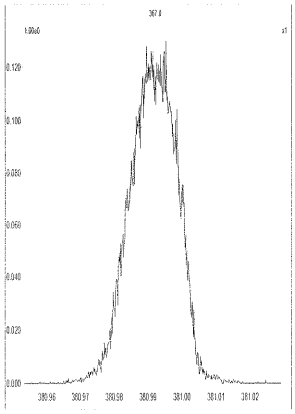
M 354.9792 R 13516



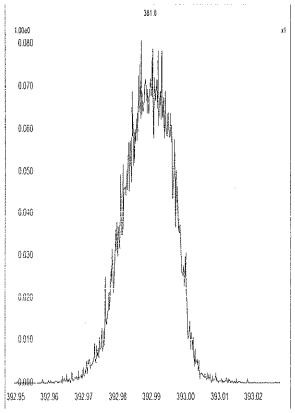
M 366.9792 R 13228



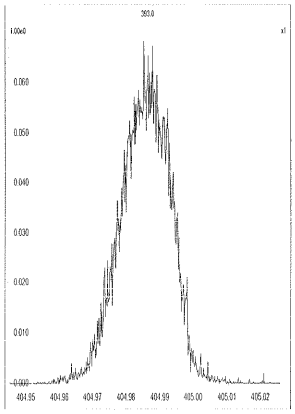
M 380.9760 R 13157



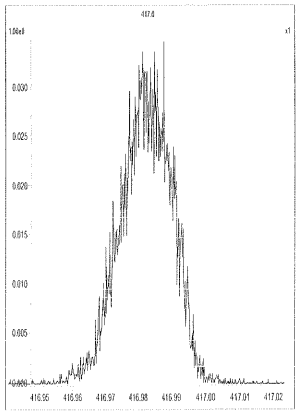
M 392.9760 R 12133



M 404.9760 R 13089



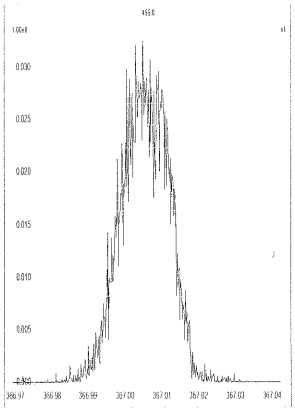
M 416.9760 R 12689



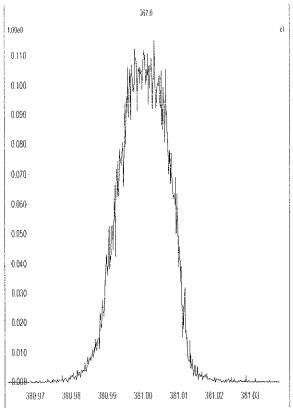
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, February 08, 2015 12:38:28 Central Standard Time

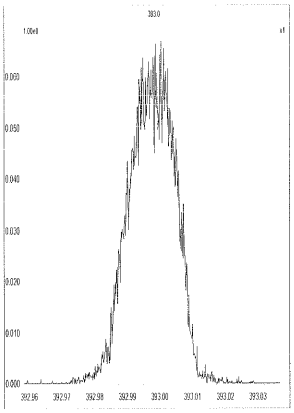
M 366.9792 R 14040



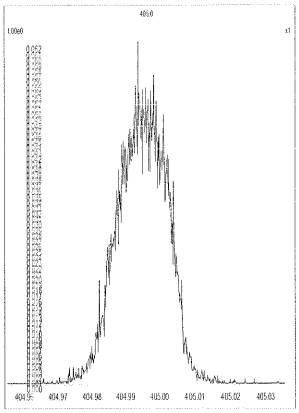
M 380.9760 R 13227



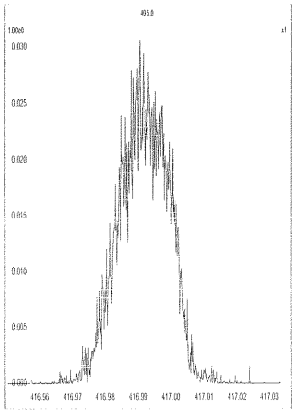
M 392.9760 R 13366



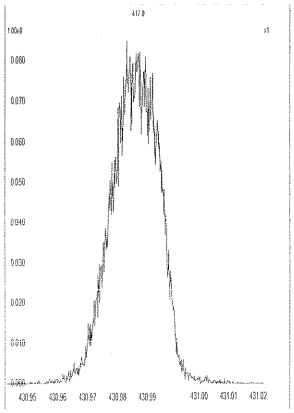
M 404.9760 R 13298



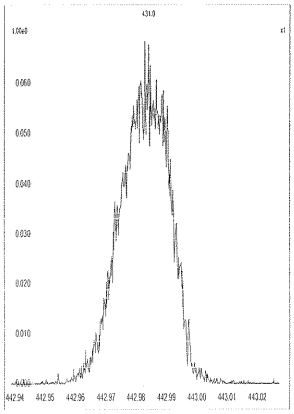
M 416.9760 R 13660



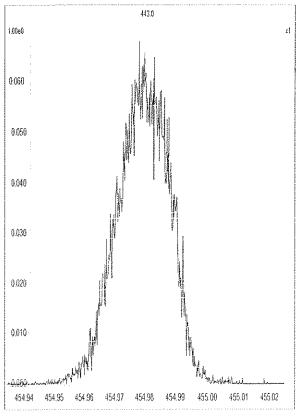
M 430.9728 R 12752



M 442.9728 R 12949



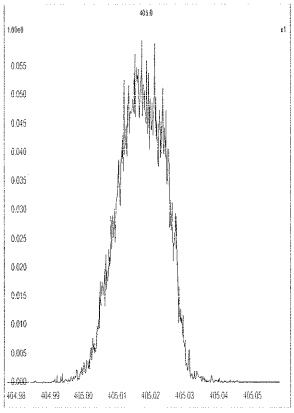
M 454.9728 R 13301



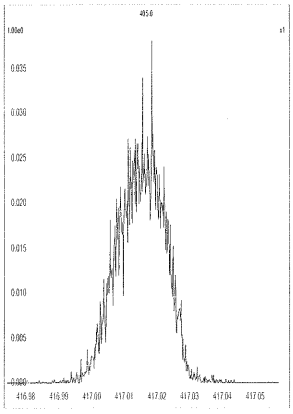
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, February 08, 2015 12:39:38 Central Standard Time

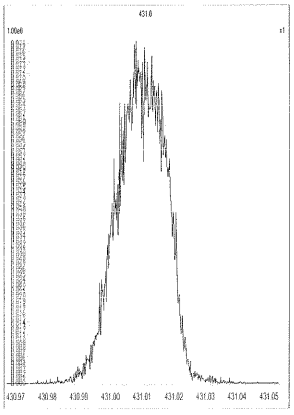
M 404.9760 R 13515



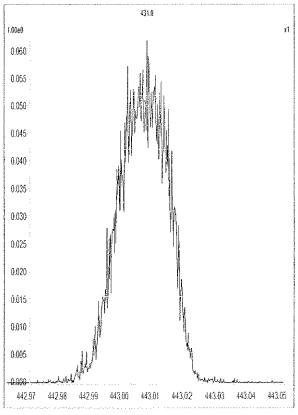
M 416.9760 R 13586



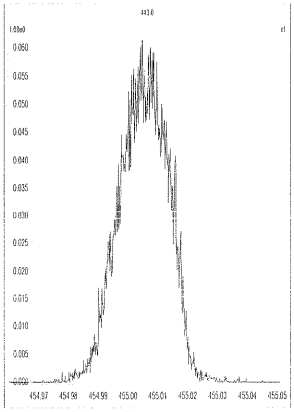
M 430.9728 R 13810



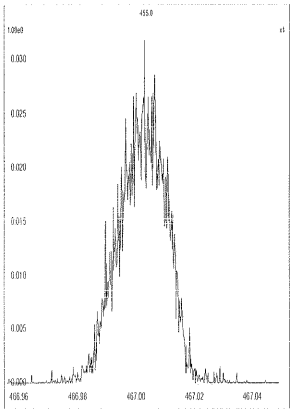
M 442.9728 R 13299



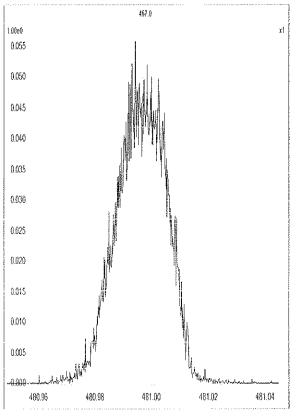
M 454.9728 R 13440



M 466.9728 R 14795



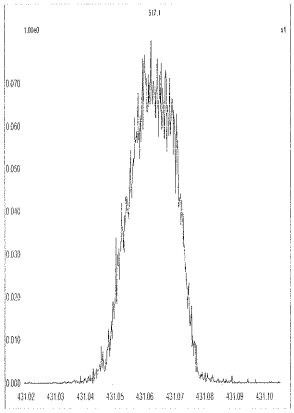
M 480.9696 R 12752



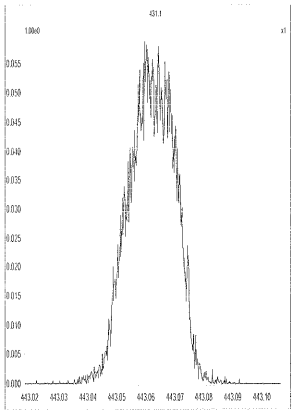
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, February 08, 2015 12:40:23 Central Standard Time

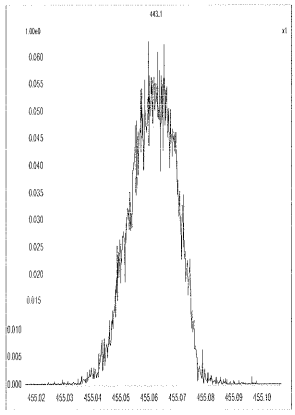
M 430.9728 R 14285



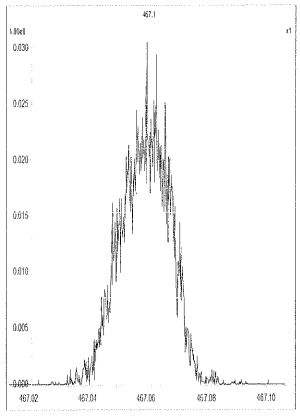
M 442.9728 R 14127



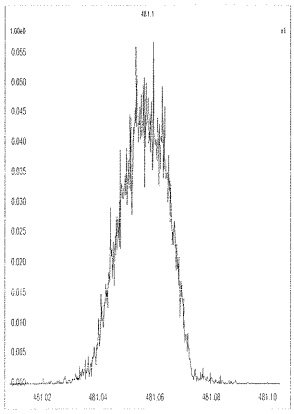
M 454.9728 R 13514



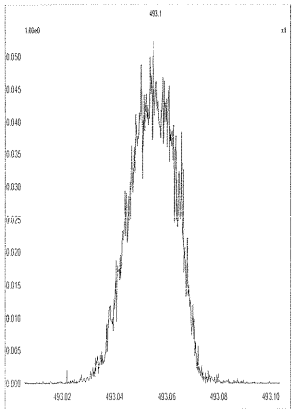
M 466.9728 R 13811



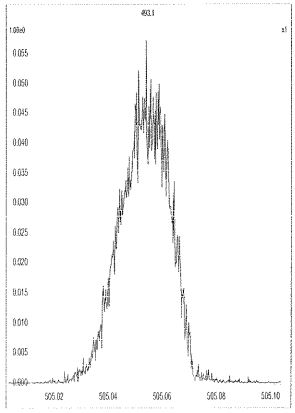
M 480.9696 R 13663



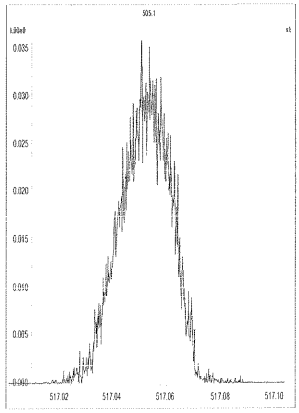
M 492.9696 R 13298



M 504.9696 R 13088



M 516.9697 R 13581



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

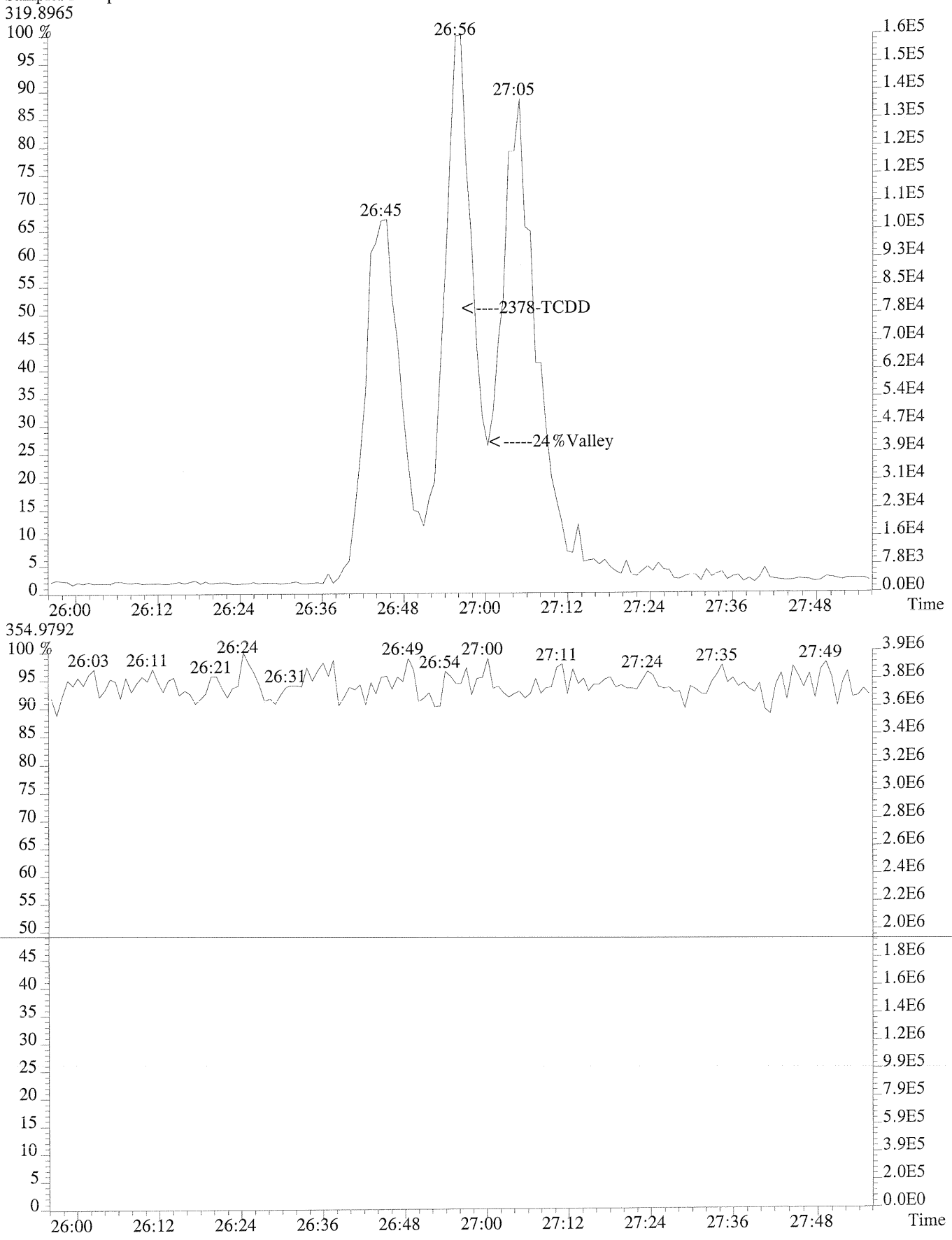
WDM

Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: _____ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P176192
Date Analyzed: 7-FEB-2015
Time Analyzed: 08:46:29

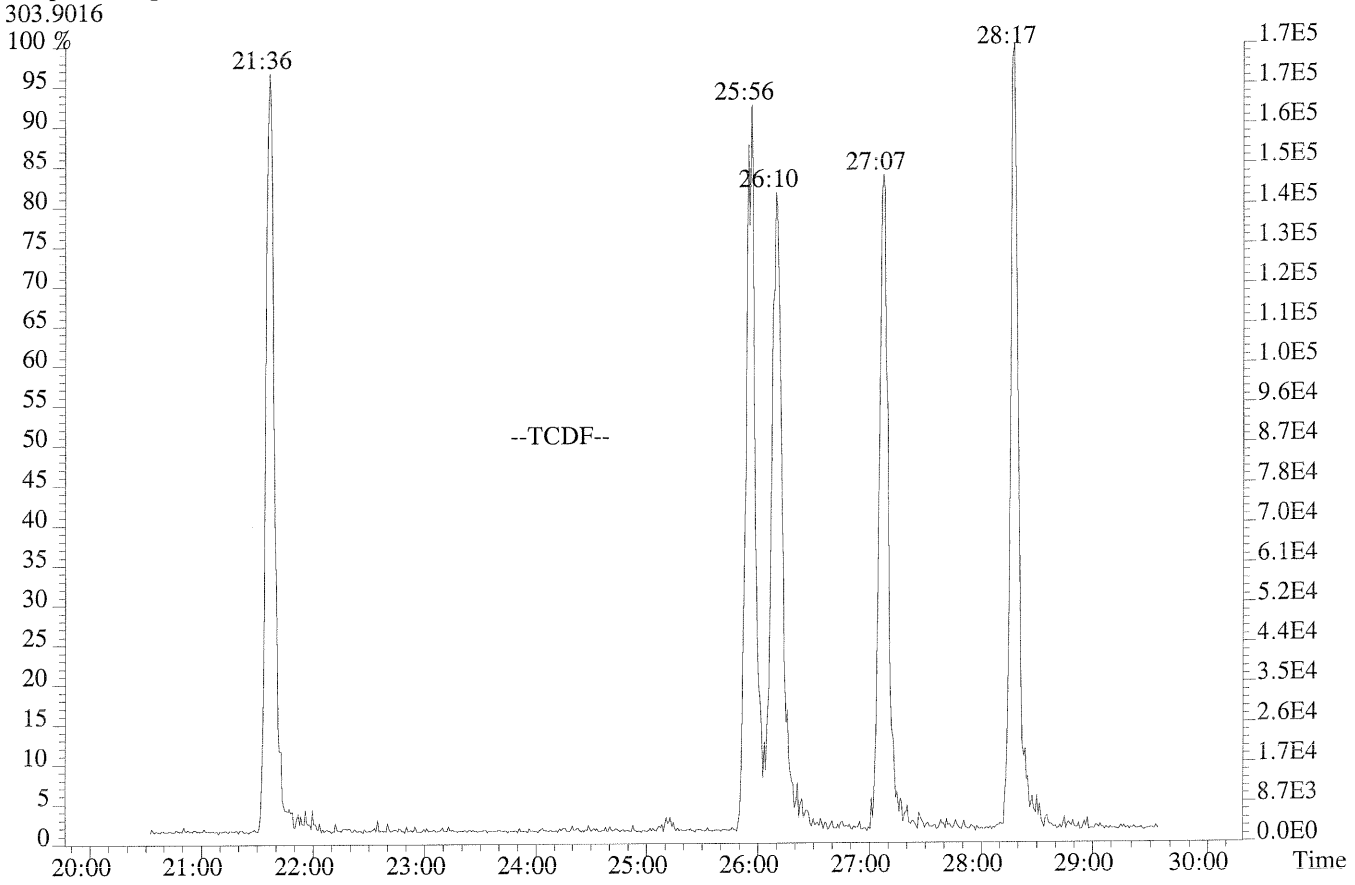
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	21:36	28:17
TCDD	23:13	28:06
PeCDF	28:13	32:54
PeCDD	29:57	32:39
HxCDF	33:36	36:13
HxCDD	34:09	35:49
HpCDF	37:29	38:48
HpCDD	37:44	38:22

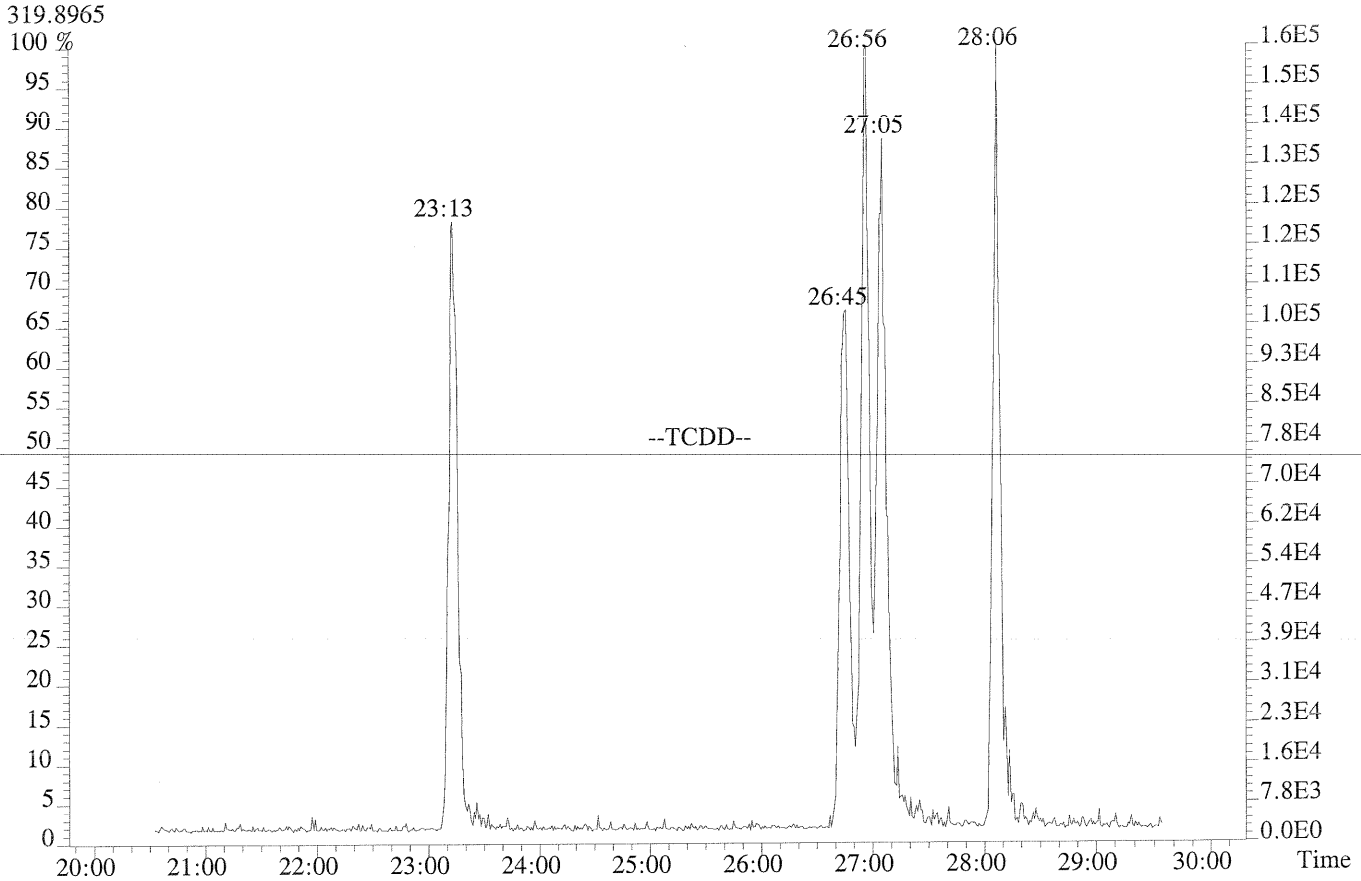
% Valley 2378-TCDD: 24 %

File:P176192 #1-696 Acq: 7-FEB-2015 08:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

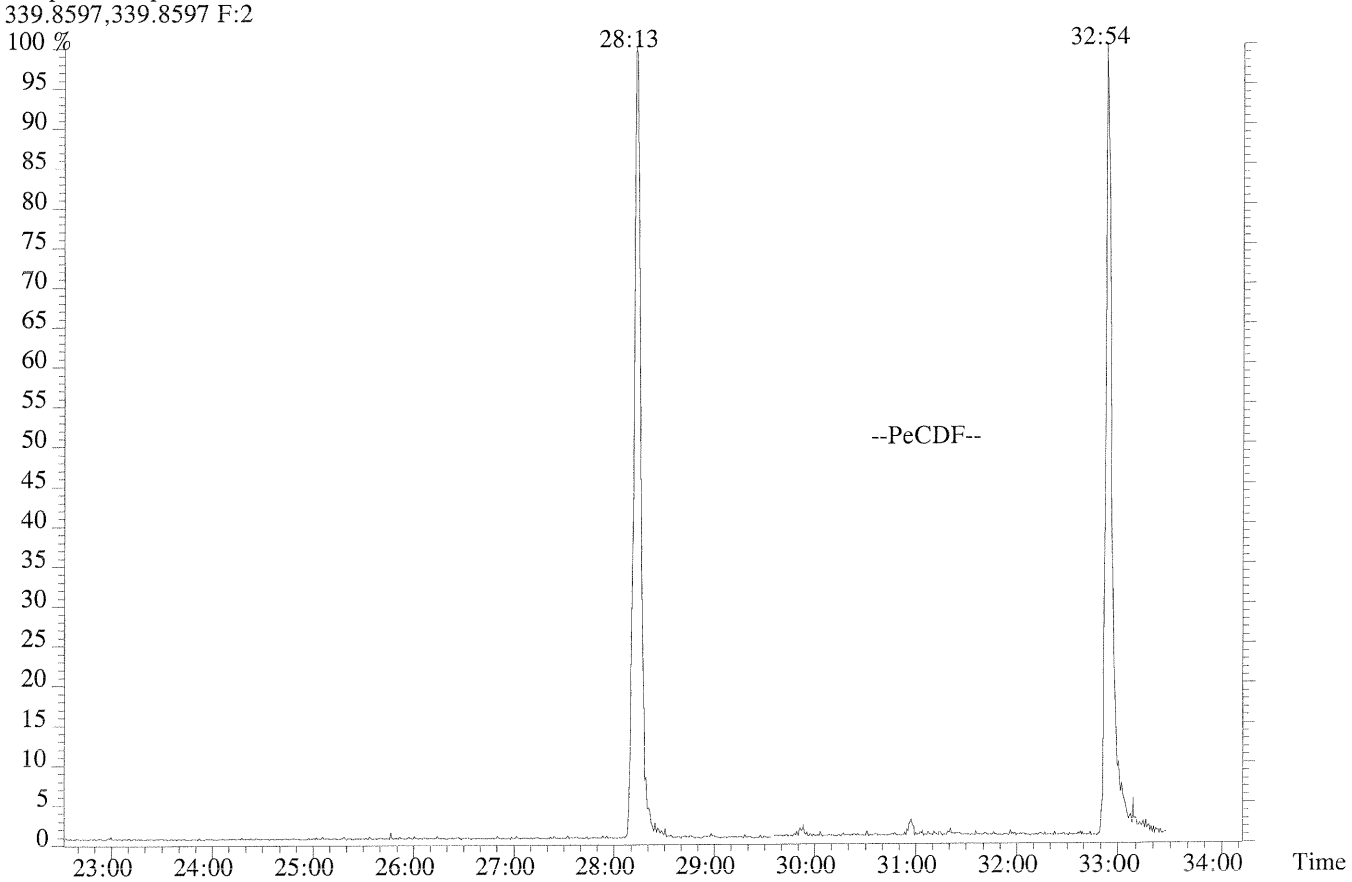


File:P176192 #1-696 Acq: 7-FEB-2015 08:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

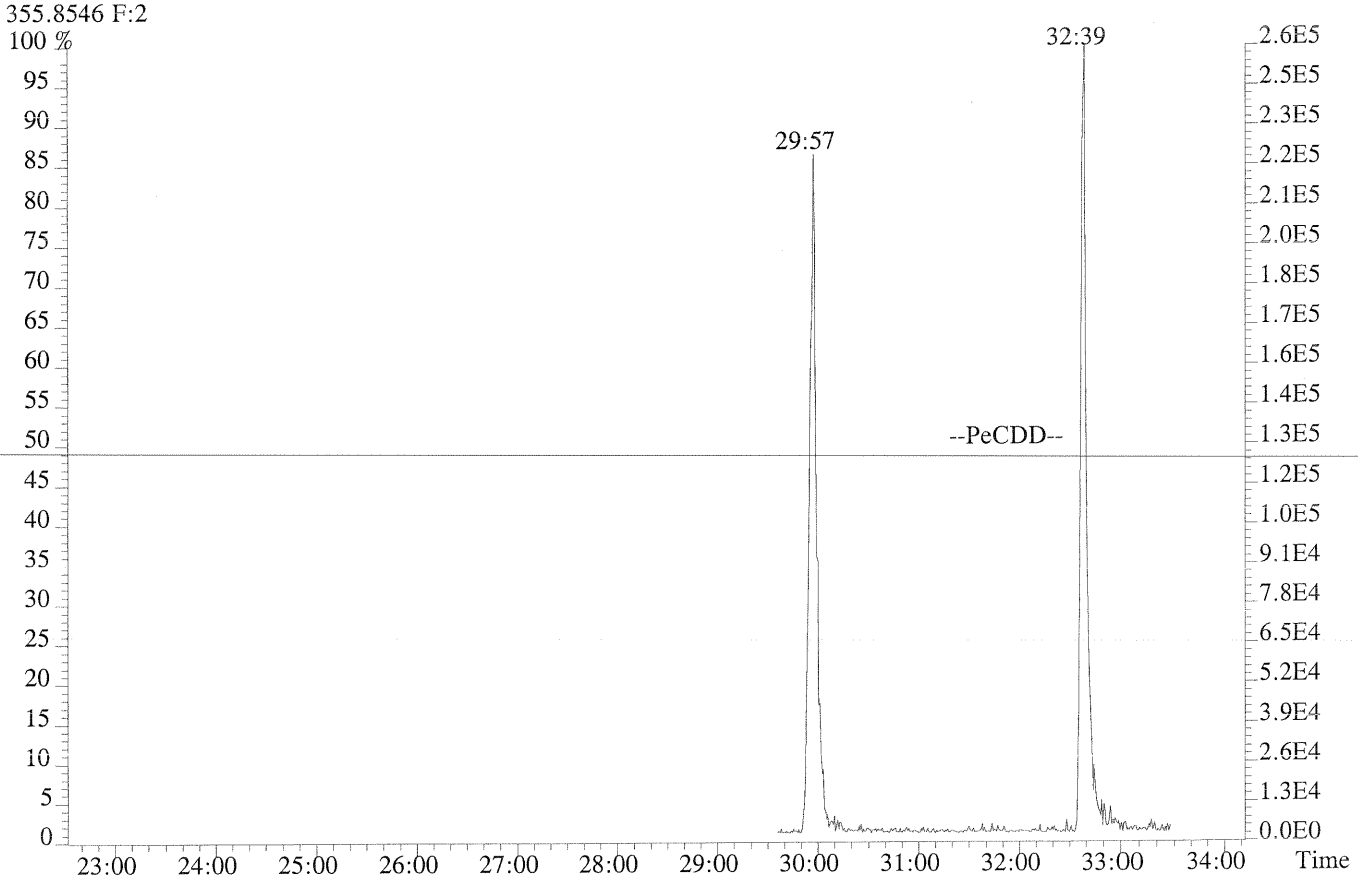




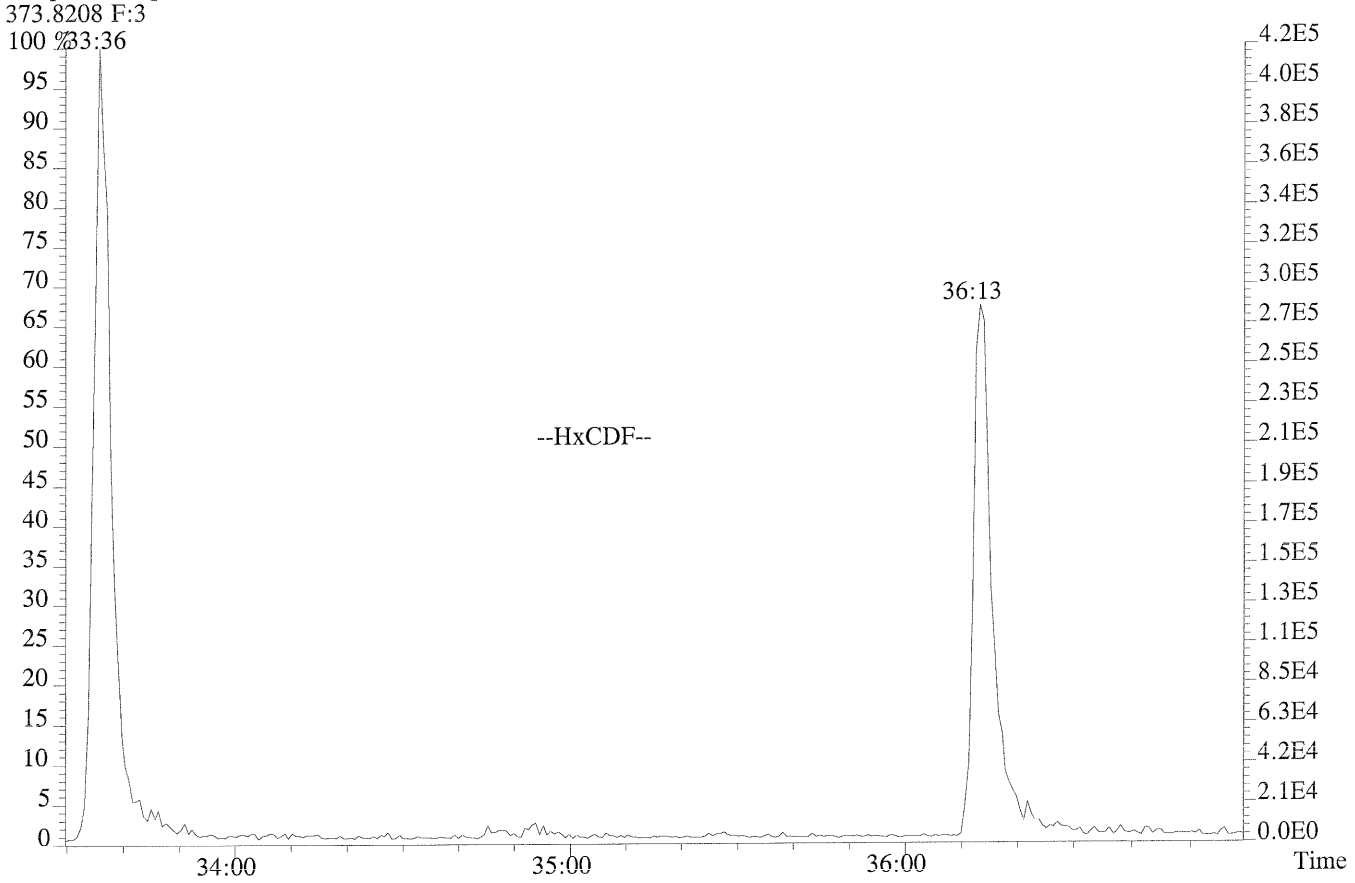
File:P176192 #1-696 Acq: 7-FEB-2015 08:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

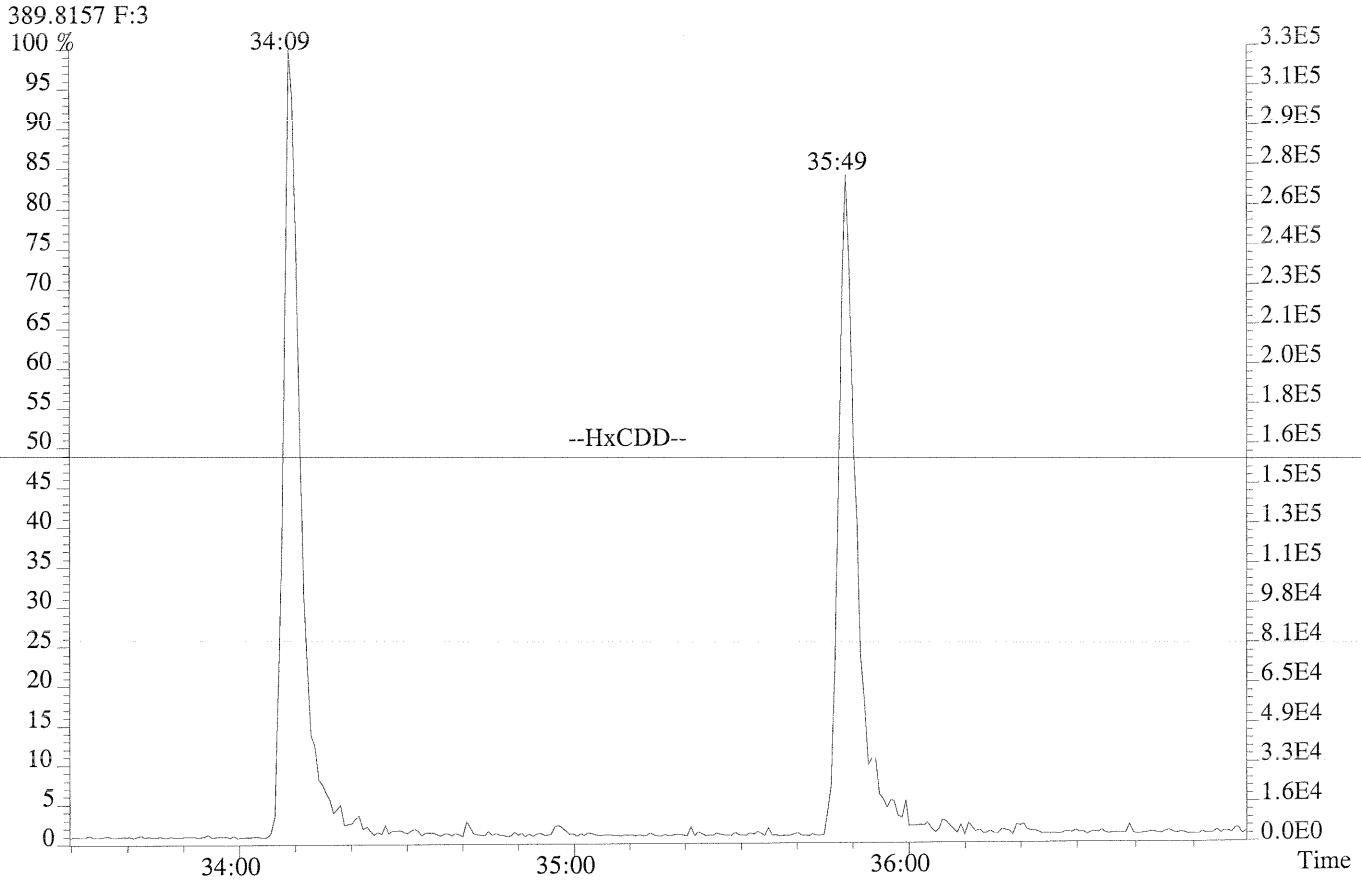


355.8546 F:2

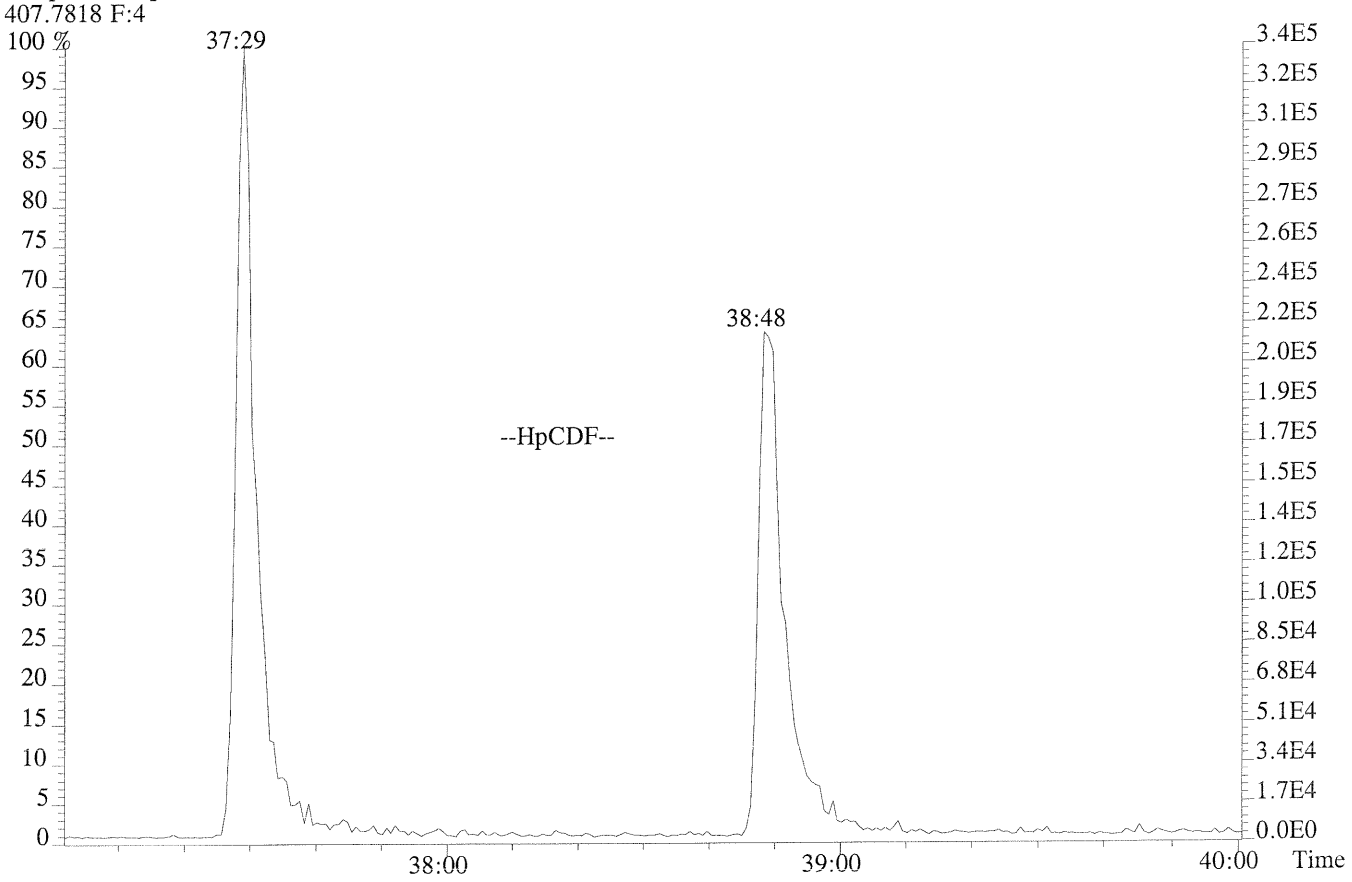


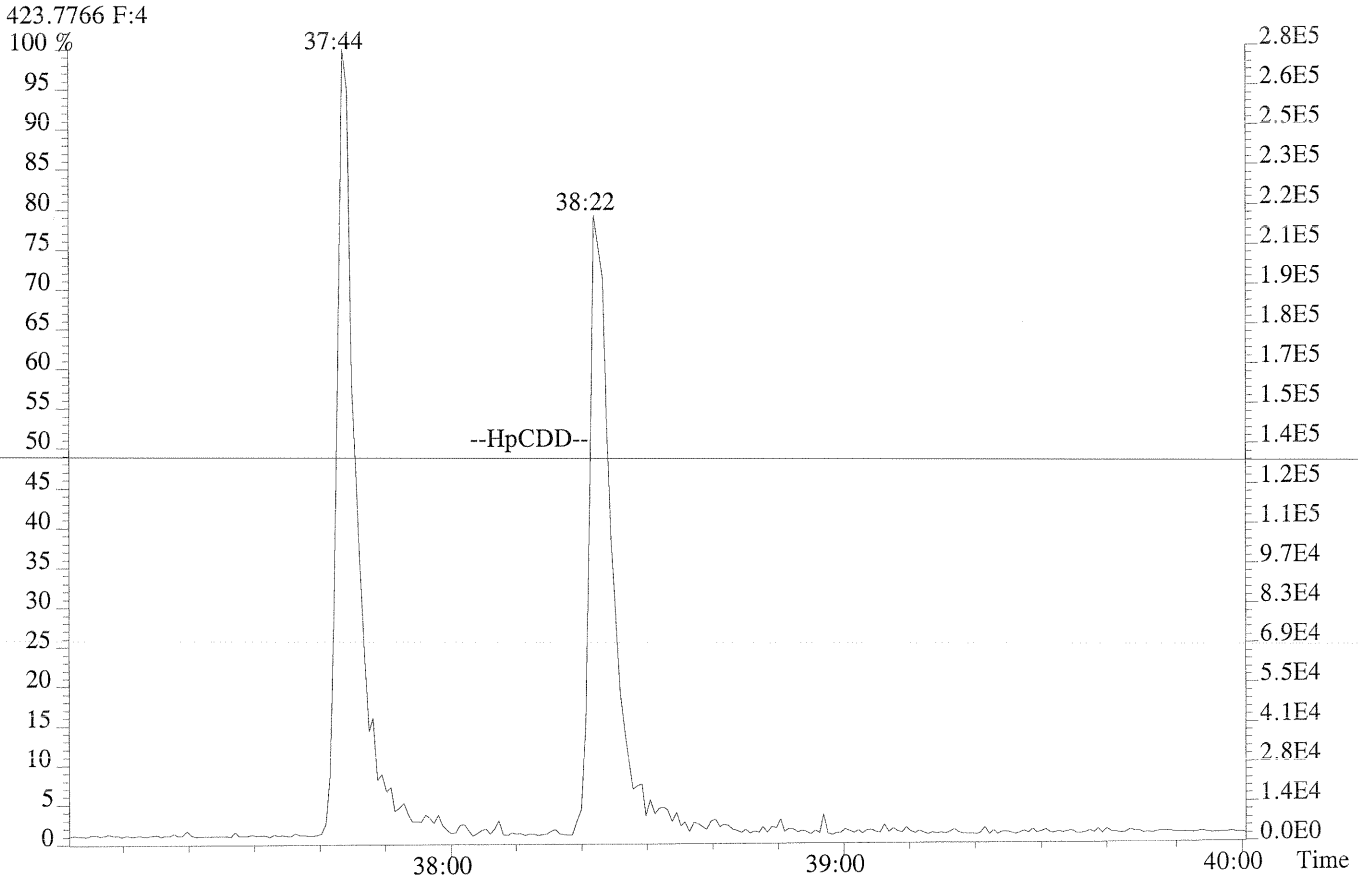
File:P176192 #1-318 Acq: 7-FEB-2015 08:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:P176192 #1-271 Acq: 7-FEB-2015 08:46:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/18/14

GC Column ID: DB-5MSUI

VER Data Filename: P176193 Analysis Date: 7-FEB-15 Time: 09:37:41

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	0.97	1.00	-2.41
1,2,3,7,8-PeCDD	M+2/M+4	1.51	1.32-1.78	0.93	0.92	1.43
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.78	0.90	-14.20
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	1.03	1.00	3.42
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	0.97	1.02	-5.31
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	1.03	1.05	-1.99
OCDD	M+2/M+4	0.88	0.76-1.02	1.13	1.07	5.65
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	0.92	0.95	-2.44
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	1.04	1.06	-1.52
2,3,4,7,8-PeCDF	M+2/M+4	1.63	1.32-1.78	1.00	1.04	-3.21
1,2,3,4,7,8-HxCDF	M+2/M+4	1.14	1.05-1.43	0.88	1.15	-23.50
1,2,3,6,7,8-HxCDF	M+2/M+4	1.33	1.05-1.43	1.19	1.28	-7.20
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	0.81	0.96	-14.82
2,3,4,6,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	0.98	1.14	-14.28
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	1.43	1.53	-7.12
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	1.15	1.15	0.18
OCDF	M+2/M+4	0.89	0.76-1.02	1.41	1.37	3.03

(1) See Table 12, Method TO-9A, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 19, Method TO-9A.

(3) The beginning CCAL %RSD for the 17 unlabeled standards must not exceed +/- 25%(OCDF 30%), Table 21, Method TO-9A

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/18/14

GC Column ID: DB-5MSUI

VER Data Filename: P176193 Analysis Date: 7-FEB-15 Time: 09:37:41

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
Internal Standards						
13C-2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	0.91	0.92	-1.65
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.64	1.32-1.78	0.92	0.86	6.53
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	1.05	0.97	8.11
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	0.89	0.87	2.13
13C-OCDD	M+2/M+4	0.87	0.76-1.02	0.77	0.69	12.82
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	1.24	1.29	-3.50
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	1.27	1.24	2.97
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	1.42	1.30	8.86
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	1.02	1.04	-2.66
Surrogate Standards						
37Cl-2,3,7,8-TCDD				1.03	1.04	-0.95
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	1.01	0.99	2.40
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	0.78	0.90	-12.46
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	0.68	0.85	-20.15
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	0.84	0.78	7.21
Alternate Standard						
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	0.98	0.98	-0.15

(1) See Table 12, Method TO-9A, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 19, Method TO-9A.

(3) %RSD for the Internal Standards must not exceed +/- 30%(25% for TCDD & HxCDD). Surrogate & Alternate Standards must not exceed +/- 25%, Table 21, Method TO-9A.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
75080

Run #7 Filename P176193 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 09:37:41
Processed: 9-FEB-15 12:02:34 LAB. ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	26:09	8.991e+02	1.145e+03	0.79	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	30:56	7.173e+03	4.695e+03	1.53	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	31:56	7.065e+03	4.328e+03	1.63	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	34:46	5.490e+03	4.807e+03	1.14	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	34:53	7.946e+03	5.967e+03	1.33	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	35:25	6.222e+03	5.213e+03	1.19	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	36:11	5.296e+03	4.220e+03	1.26	yes	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	37:29	6.144e+03	5.779e+03	1.06	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	38:48	4.865e+03	4.754e+03	1.02	yes	no	1.148
10	Unk	OCDF	41:05	8.491e+03	9.502e+03	0.89	yes	no	1.369
11	Unk	2,3,7,8-TCDD	27:04	6.837e+02	8.940e+02	0.76	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	32:13	4.608e+03	3.042e+03	1.51	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	35:33	3.720e+03	2.986e+03	1.25	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	35:38	4.938e+03	3.962e+03	1.25	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	35:53	4.624e+03	3.739e+03	1.24	yes	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	38:23	3.922e+03	3.656e+03	1.07	yes	no	1.052
17	Unk	OCDD	40:54	6.730e+03	7.655e+03	0.88	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	26:08	9.642e+03	1.251e+04	0.77	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	30:55	1.382e+04	8.908e+03	1.55	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	31:55	1.412e+04	8.857e+03	1.59	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	34:45	5.443e+03	1.039e+04	0.52	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	34:52	7.907e+03	1.548e+04	0.51	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	36:11	5.499e+03	1.062e+04	0.52	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	37:28	5.173e+03	1.156e+04	0.45	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	38:48	4.282e+03	9.785e+03	0.44	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	27:03	6.980e+03	9.218e+03	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	32:13	1.021e+04	6.221e+03	1.64	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	35:32	7.662e+03	5.894e+03	1.30	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	35:37	9.703e+03	7.594e+03	1.28	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	38:21	7.635e+03	7.066e+03	1.08	yes	no	0.874
32	IS	13C-OCDD	40:54	1.185e+04	1.366e+04	0.87	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	26:21	7.869e+03	9.963e+03	0.79	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	35:53	9.126e+03	7.337e+03	1.24	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	27:04	1.665e+03				no	1.038

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

Form TO9/M23 resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
75080

Run #7 Filename P176193 #1 Samp: 1 Inj: 1 Acquired: 7-FEB-15 09:37:41
Processed: 9-FEB-15 12:02:34 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.05e+05	4.32e+02	2.4e+02	1.19e+05	1.38e+03	8.6e+01
2	1,2,3,7,8-PeCDF	8.95e+05	6.24e+02	1.4e+03	5.99e+05	1.02e+03	5.9e+02
3	2,3,4,7,8-PeCDF	9.82e+05	6.24e+02	1.6e+03	5.93e+05	1.02e+03	5.8e+02
4	1,2,3,4,7,8-HxCDF	1.02e+06	7.04e+02	1.4e+03	8.46e+05	6.92e+02	1.2e+03
5	1,2,3,6,7,8-HxCDF	1.10e+06	7.04e+02	1.6e+03	8.60e+05	6.92e+02	1.2e+03
6	2,3,4,6,7,8-HxCDF	9.75e+05	7.04e+02	1.4e+03	8.30e+05	6.92e+02	1.2e+03
7	1,2,3,7,8,9-HxCDF	7.28e+05	7.04e+02	1.0e+03	5.67e+05	6.92e+02	8.2e+02
8	1,2,3,4,6,7,8-HpCDF	9.22e+05	6.20e+02	1.5e+03	8.74e+05	1.69e+03	5.2e+02
9	1,2,3,4,7,8,9-HpCDF	6.87e+05	6.20e+02	1.1e+03	6.40e+05	1.69e+03	3.8e+02
10	OCDF	1.11e+06	3.24e+02	3.4e+03	1.22e+06	4.56e+02	2.7e+03
11	2,3,7,8-TCDD	7.69e+04	7.16e+02	1.1e+02	1.02e+05	5.56e+02	1.8e+02
12	1,2,3,7,8-PeCDD	6.12e+05	4.48e+02	1.4e+03	4.25e+05	3.44e+02	1.2e+03
13	1,2,3,4,7,8-HxCDD	7.18e+05	3.72e+02	1.9e+03	5.79e+05	7.00e+02	8.3e+02
14	1,2,3,6,7,8-HxCDD	7.95e+05	3.72e+02	2.1e+03	6.31e+05	7.00e+02	9.0e+02
15	1,2,3,7,8,9-HxCDD	7.19e+05	3.72e+02	1.9e+03	5.56e+05	7.00e+02	7.9e+02
16	1,2,3,4,6,7,8-HpCDD	6.06e+05	3.12e+02	1.9e+03	5.67e+05	5.76e+02	9.8e+02
17	OCDD	9.29e+05	4.24e+02	2.2e+03	1.04e+06	4.48e+02	2.3e+03
18	13C-2,3,7,8-TCDF	1.05e+06	4.48e+02	2.3e+03	1.34e+06	5.24e+02	2.6e+03
19	13C-1,2,3,7,8-PeCDF	1.78e+06	1.76e+03	1.0e+03	1.13e+06	8.48e+02	1.3e+03
20	13C-2,3,4,7,8-PeCDF	2.03e+06	1.76e+03	1.1e+03	1.28e+06	8.48e+02	1.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.03e+06	8.80e+02	1.2e+03	1.92e+06	1.07e+03	1.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.12e+06	8.80e+02	1.3e+03	2.23e+06	1.07e+03	2.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.68e+05	8.80e+02	8.7e+02	1.48e+06	1.07e+03	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.89e+05	1.74e+03	4.5e+02	1.79e+06	1.46e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.09e+05	1.74e+03	3.5e+02	1.39e+06	1.46e+03	9.5e+02
27	13C-2,3,7,8-TCDD	7.95e+05	1.90e+03	4.2e+02	1.08e+06	1.41e+03	7.7e+02
28	13C-1,2,3,7,8-PeCDD	1.38e+06	4.88e+02	2.8e+03	8.96e+05	4.56e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.49e+06	8.64e+02	1.7e+03	1.14e+06	6.08e+02	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.54e+06	8.64e+02	1.8e+03	1.22e+06	6.08e+02	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.17e+06	5.68e+02	2.1e+03	1.11e+06	3.96e+02	2.8e+03
32	13C-OCDD	1.69e+06	4.52e+02	3.7e+03	1.87e+06	3.88e+03	4.8e+02
33	13C-1,2,3,4-TCDD	9.95e+05	1.90e+03	5.2e+02	1.27e+06	1.41e+03	9.0e+02
34	13C-1,2,3,7,8,9-HxCDD	1.38e+06	8.64e+02	1.6e+03	1.09e+06	6.08e+02	1.8e+03
35	37Cl-2,3,7,8-TCDD	2.08e+05	5.56e+02	3.7e+02			

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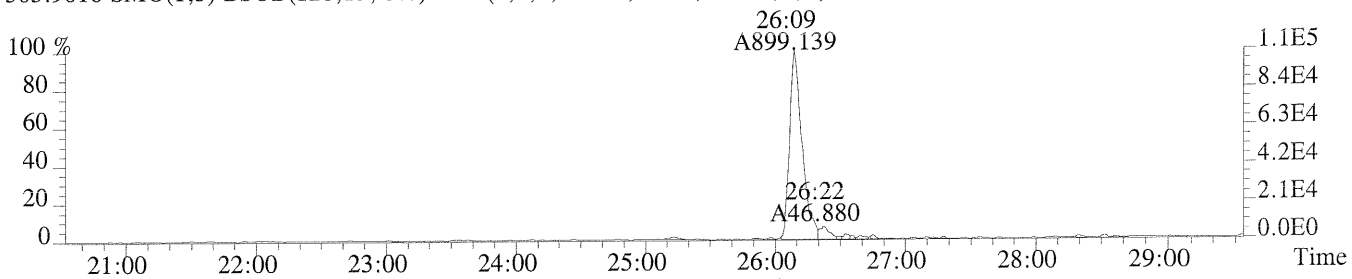
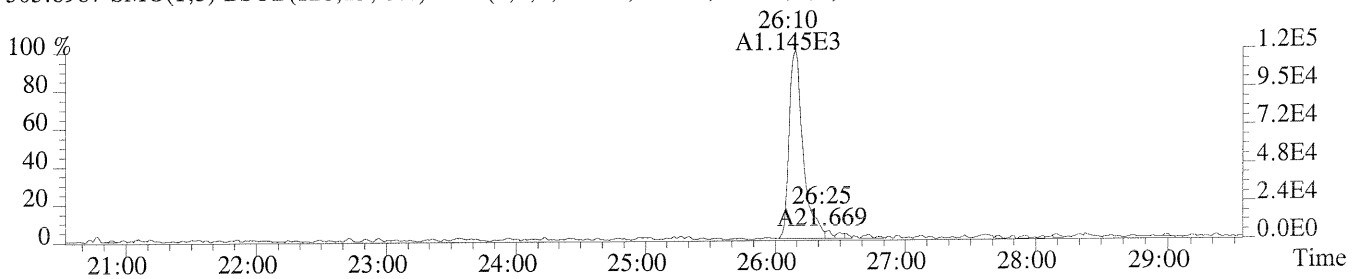
File:P176193 #1-696 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

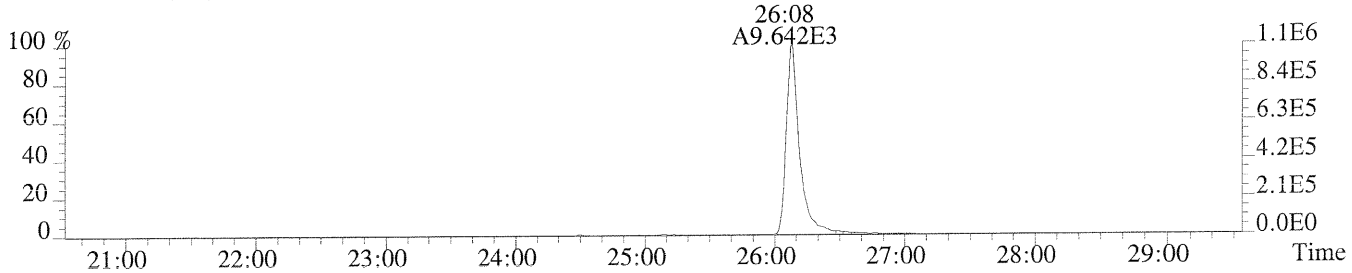
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



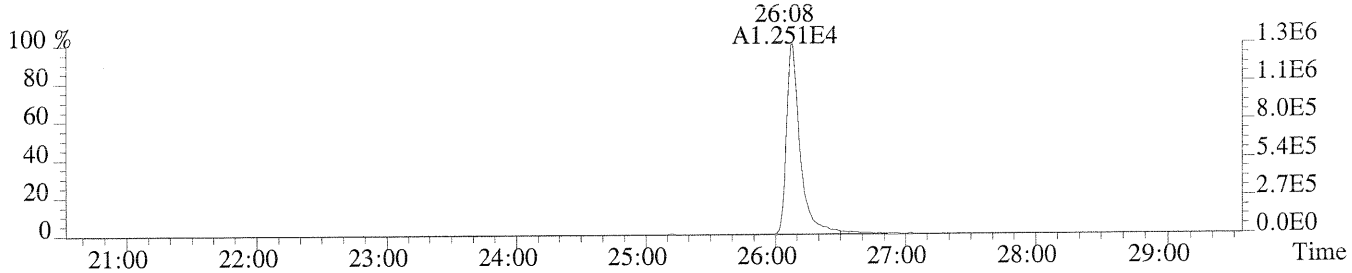
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



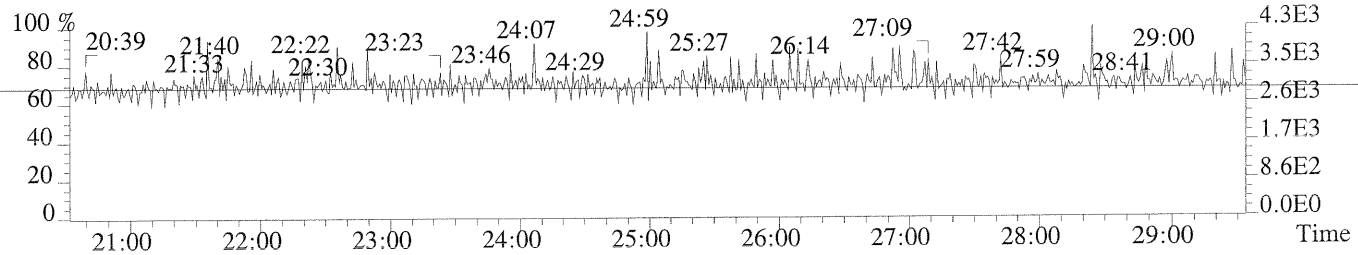
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



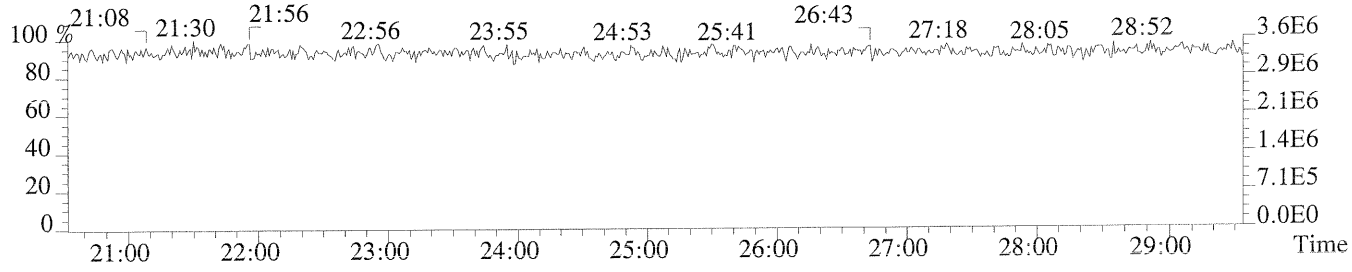
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



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

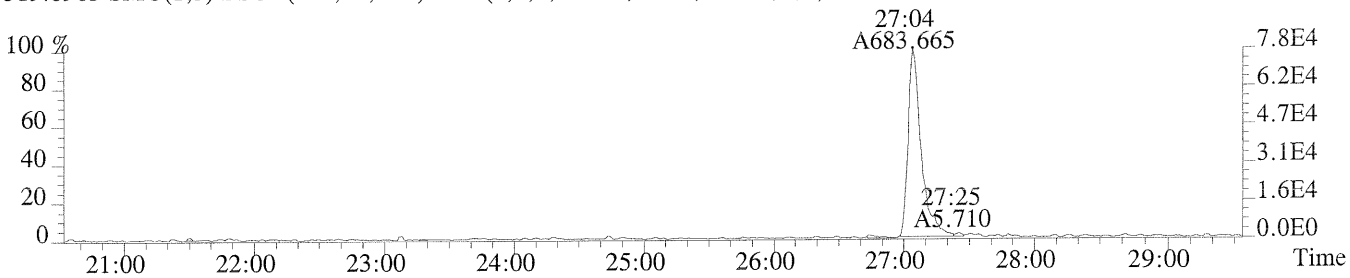


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

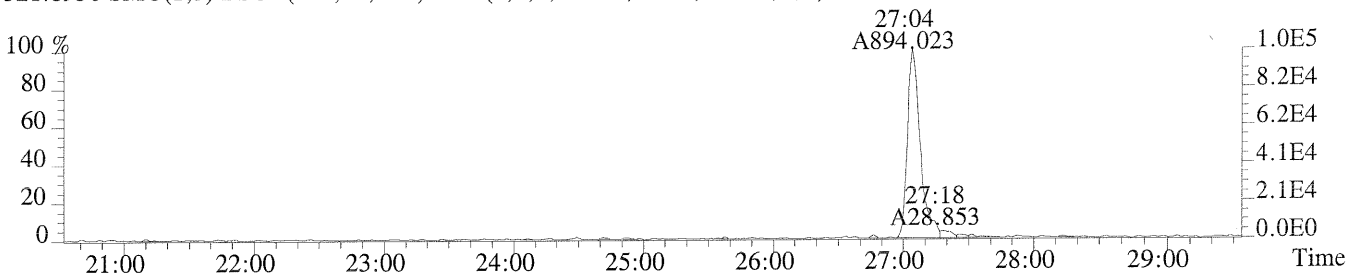


File:P176193 #1-696 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

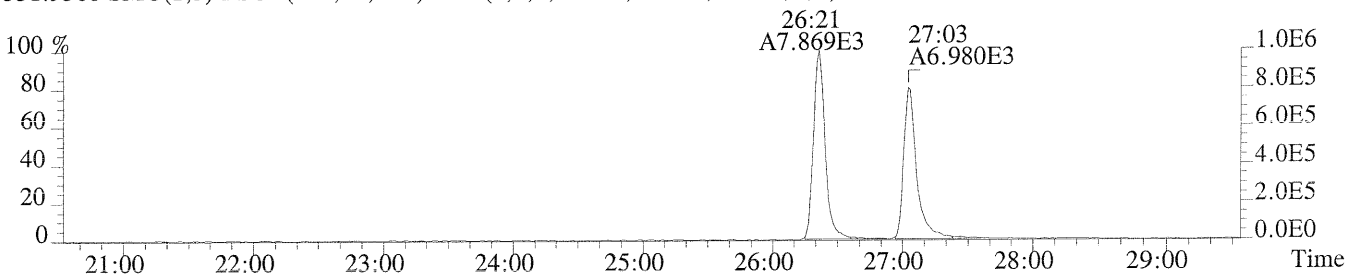
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



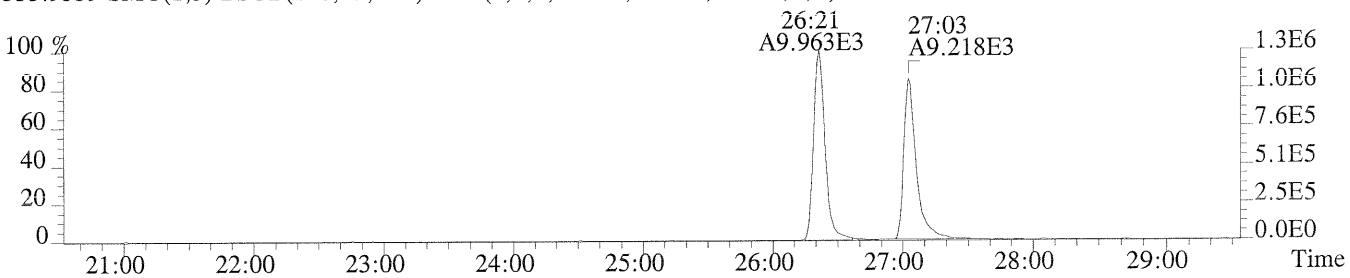
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



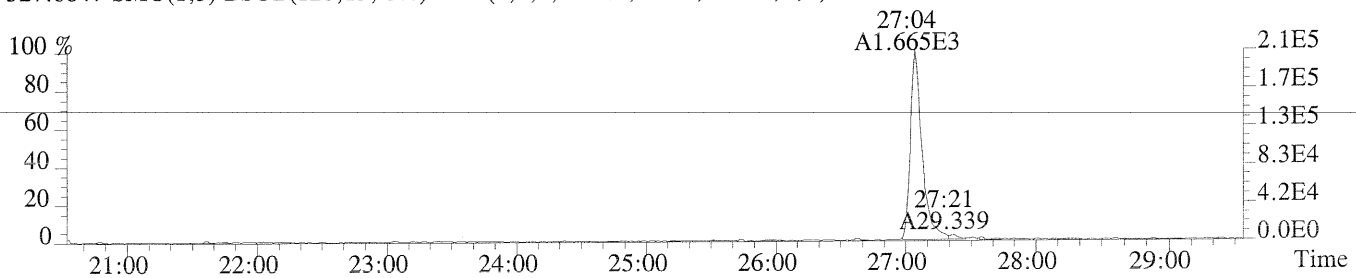
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



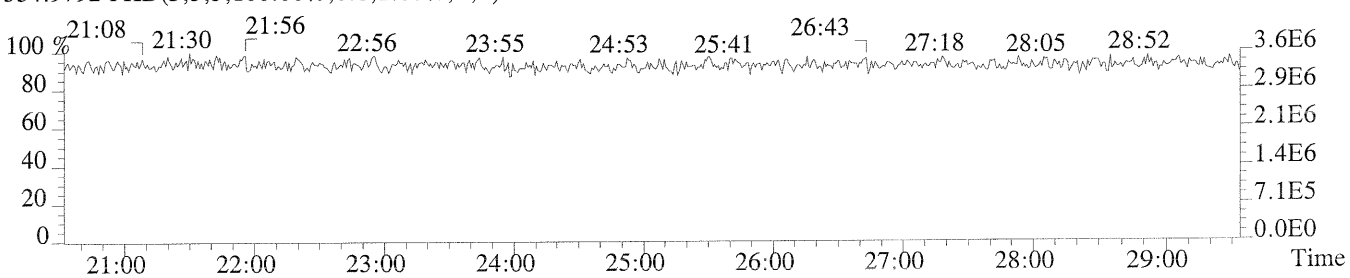
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



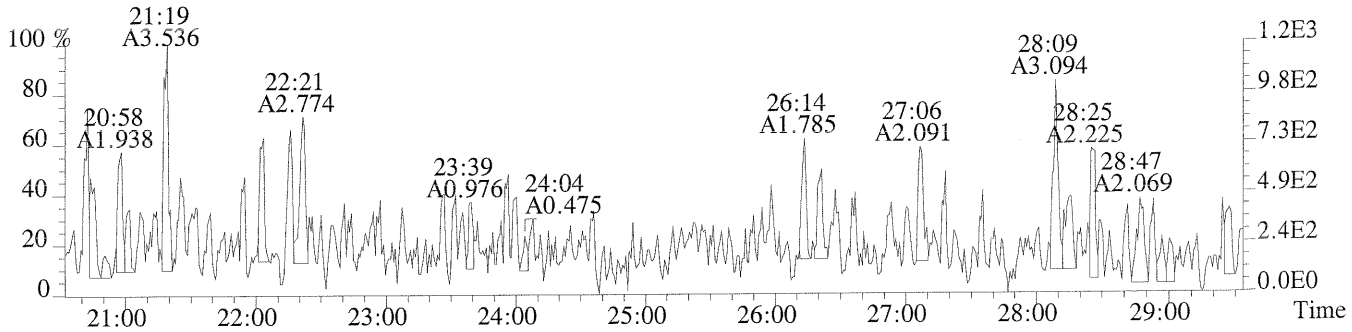
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



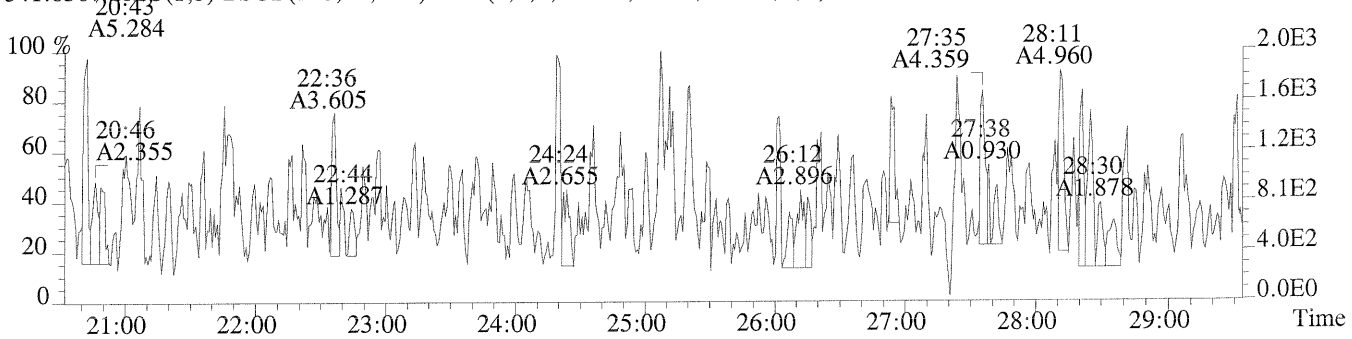
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



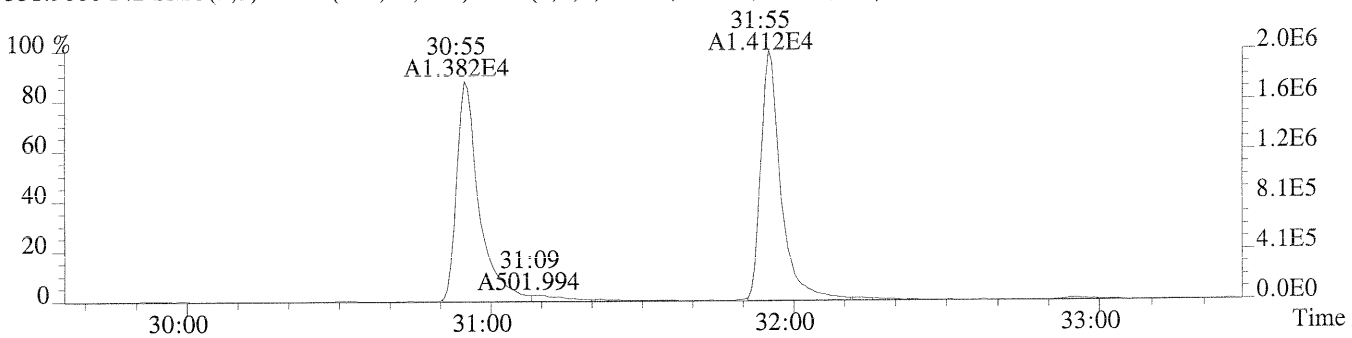
File:P176193 #1-696 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,256.0,1.00%,F,T)



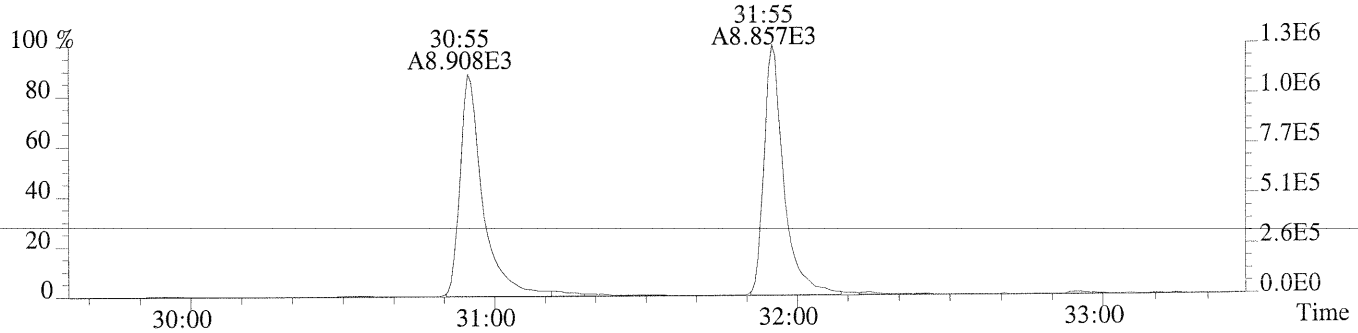
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



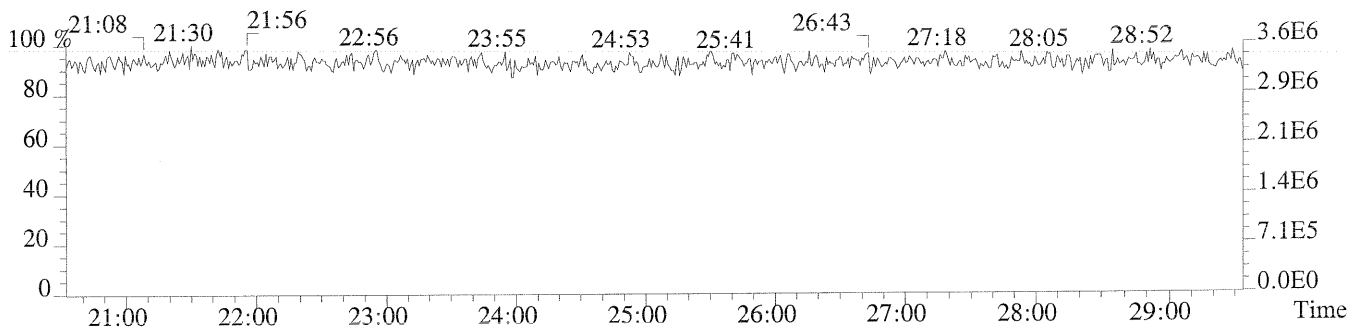
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)

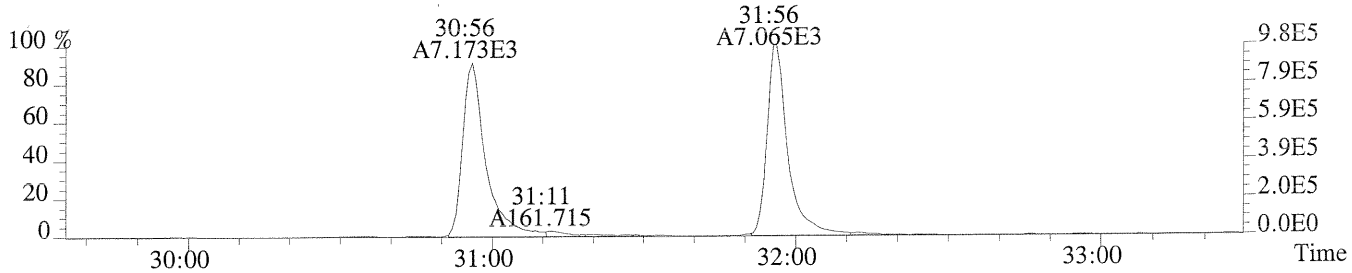


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

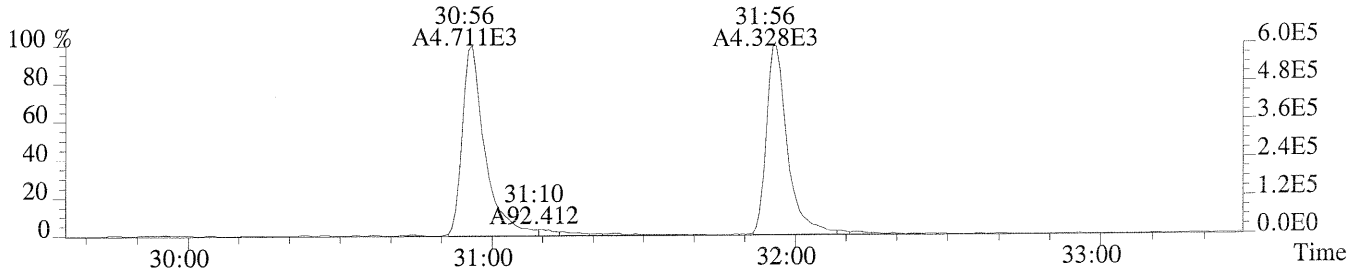


File:P176193 #1-351 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

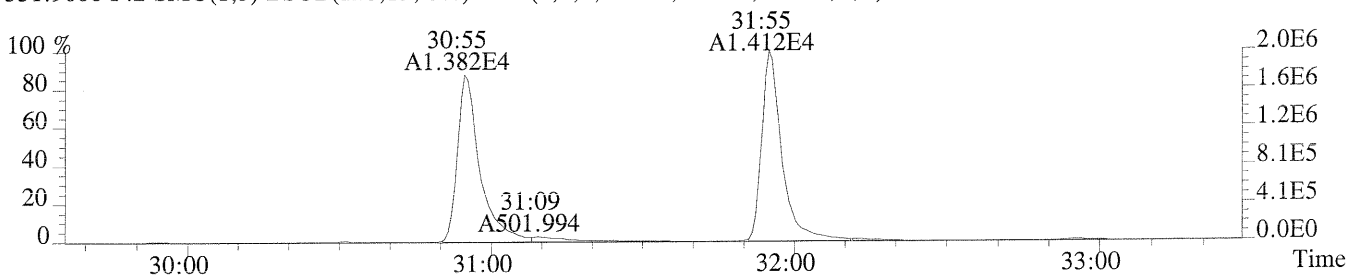
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



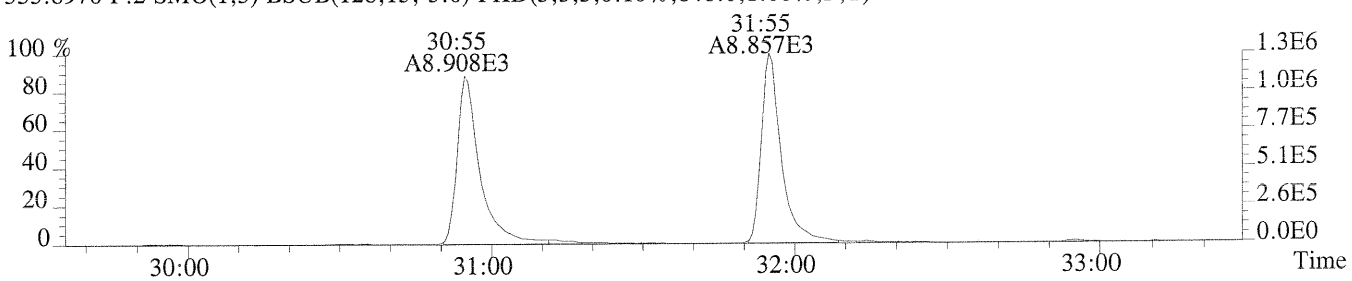
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



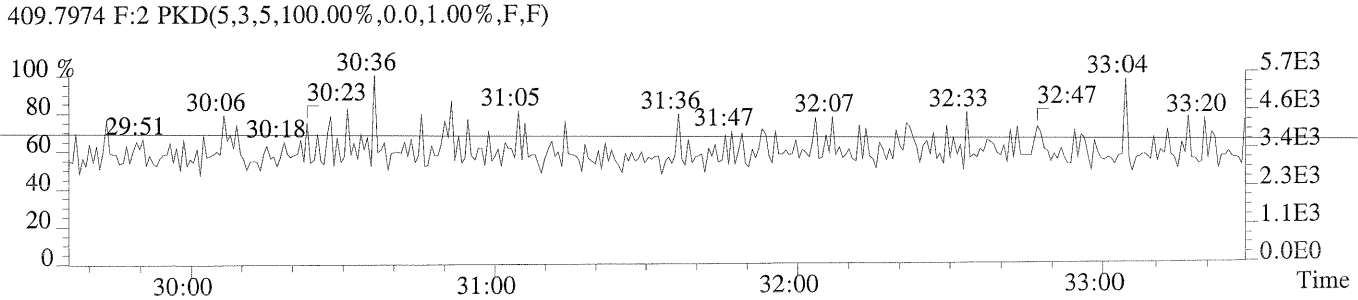
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



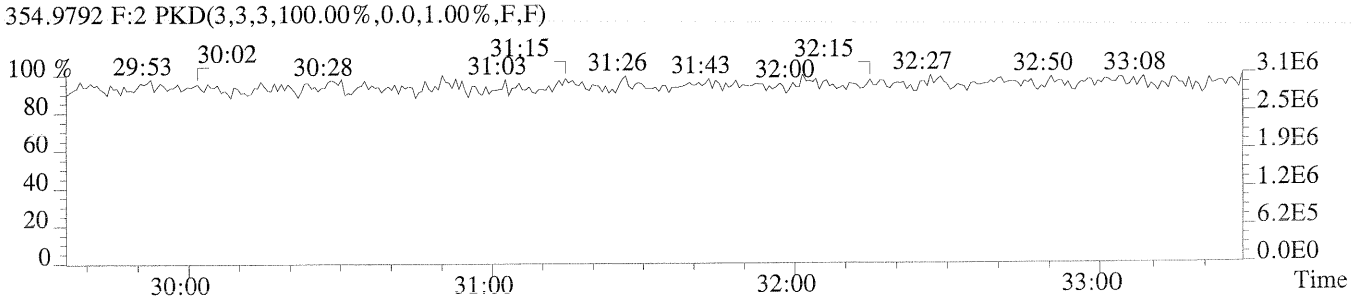
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



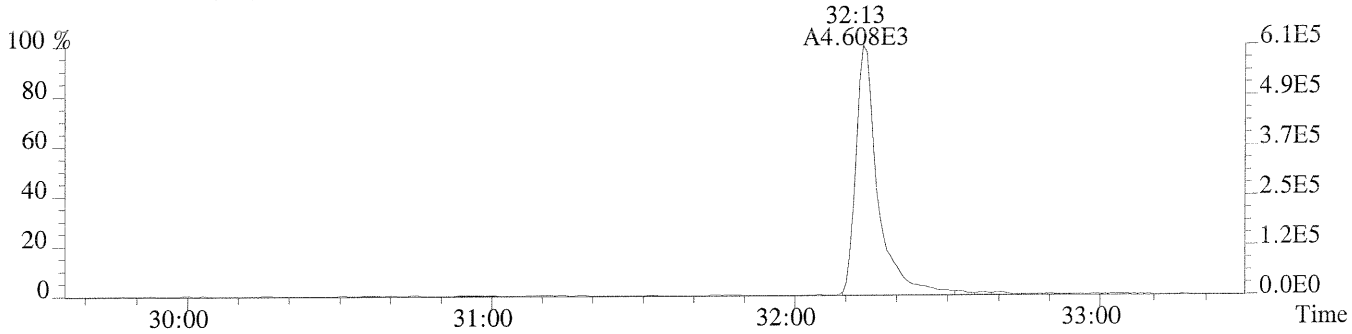
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



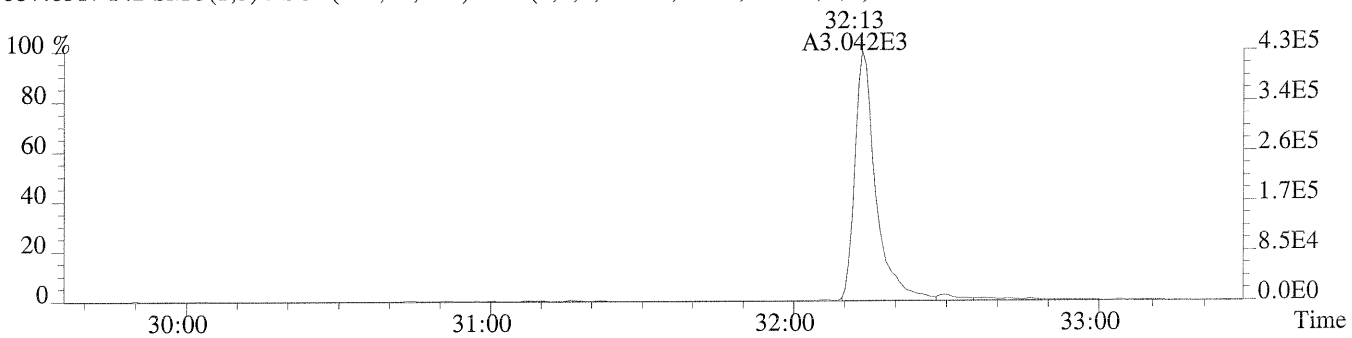
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



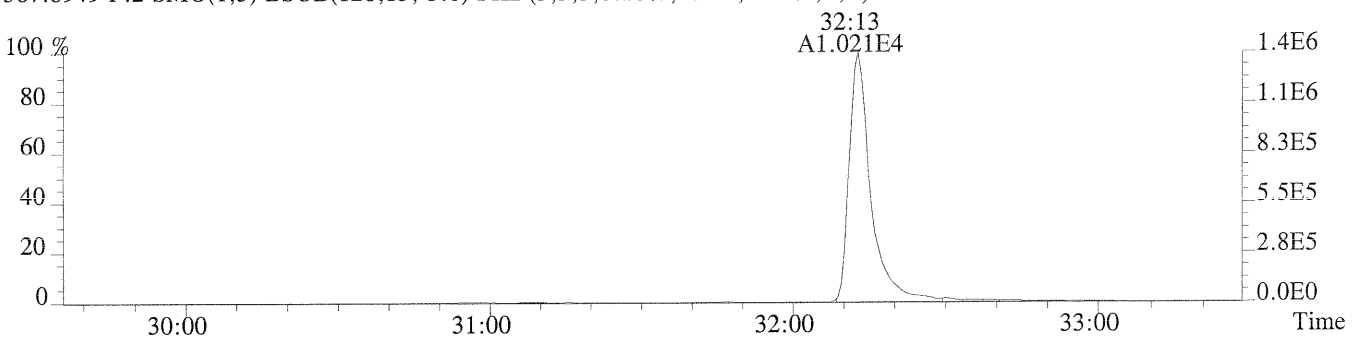
File:P176193 #1-351 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



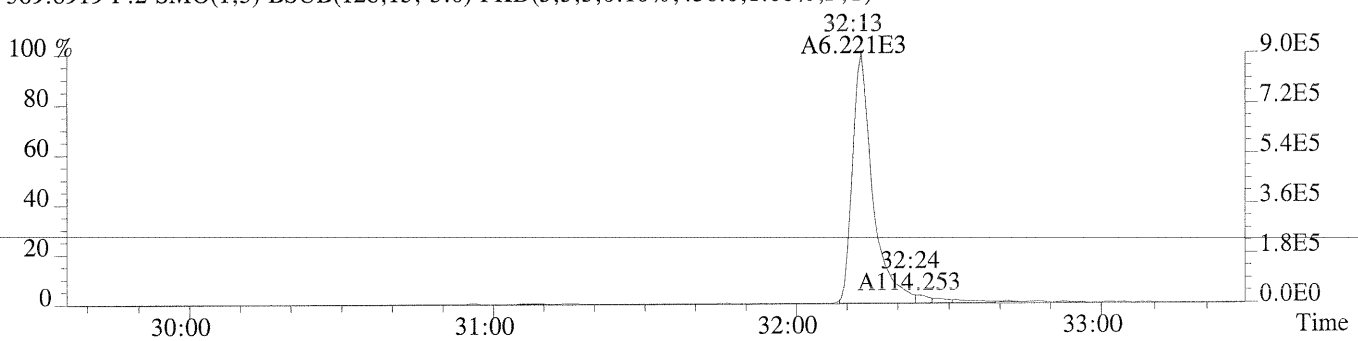
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



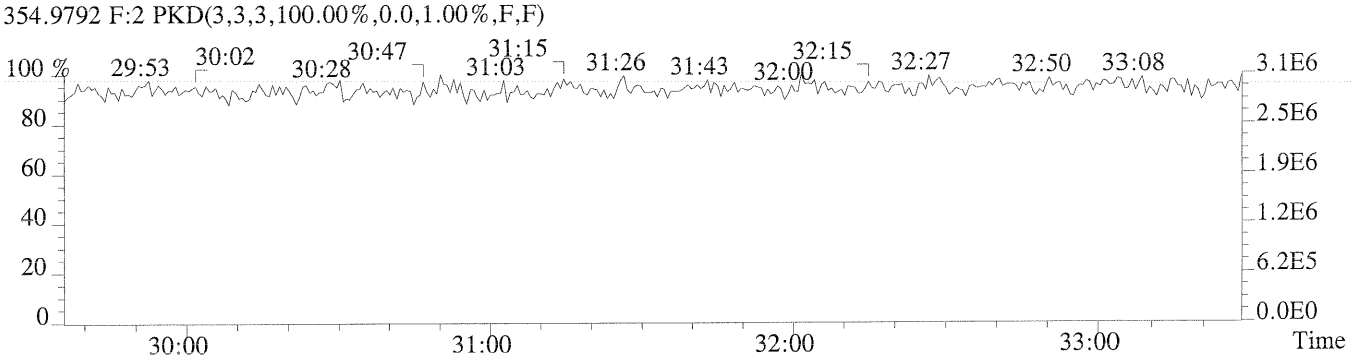
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



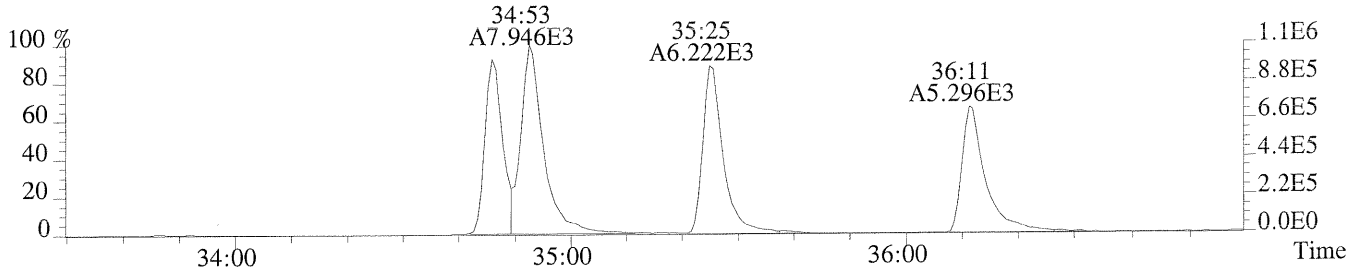
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



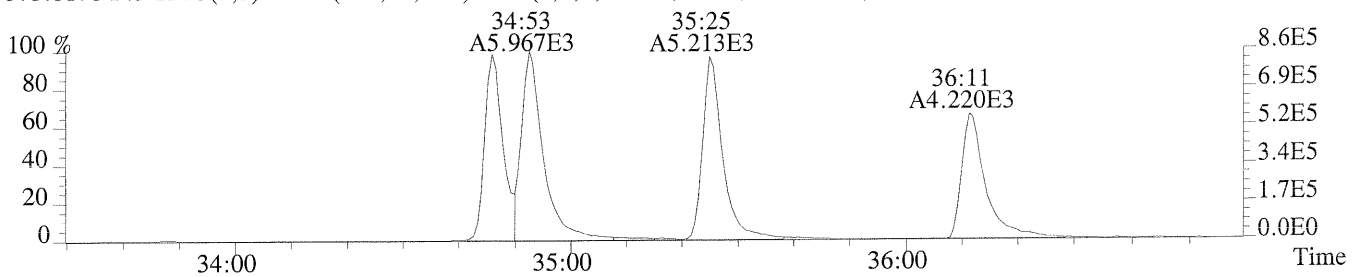
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



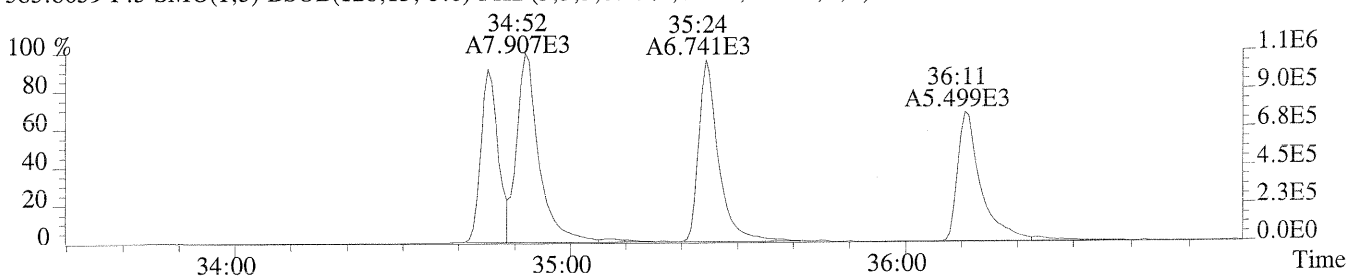
File:P176193 #1-318 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



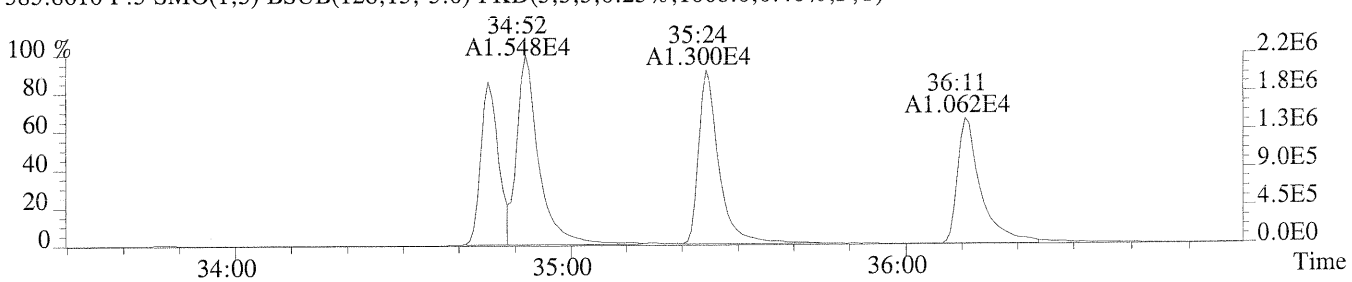
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



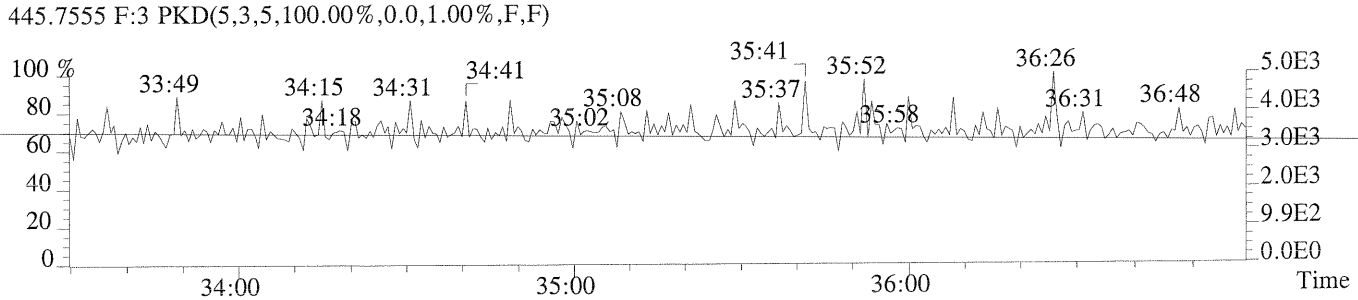
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



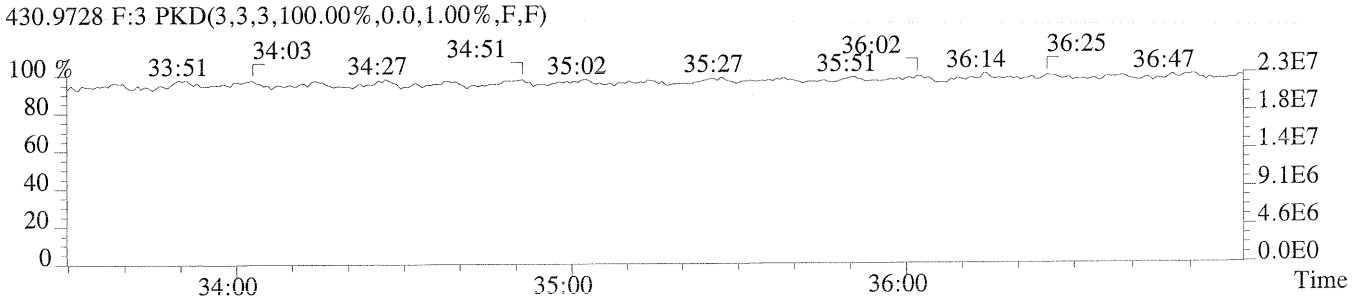
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



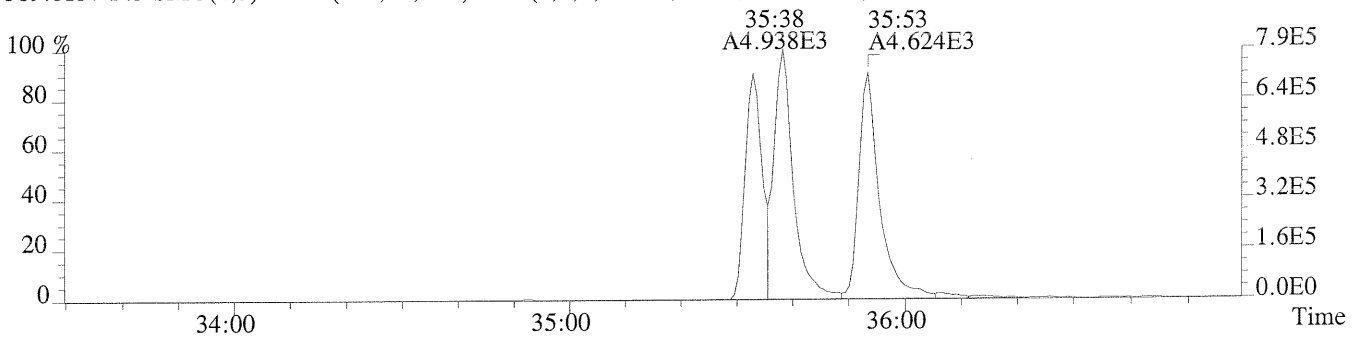
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



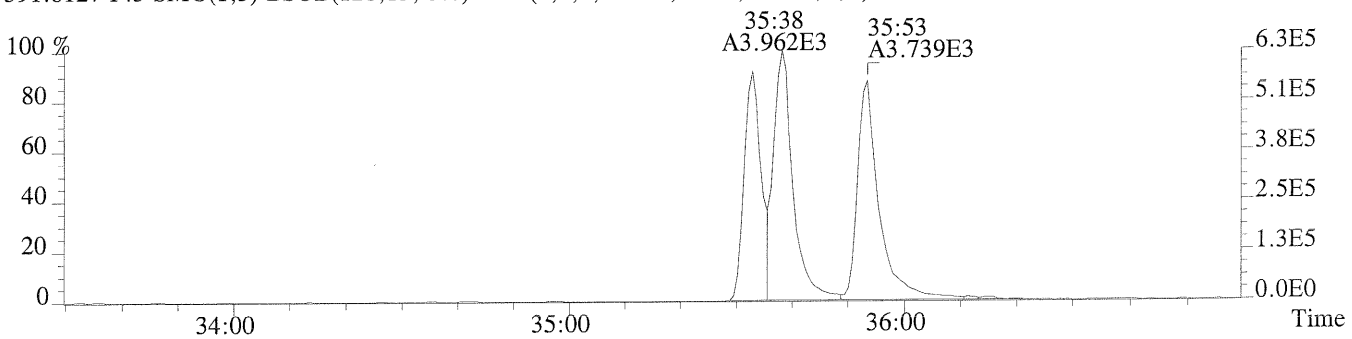
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



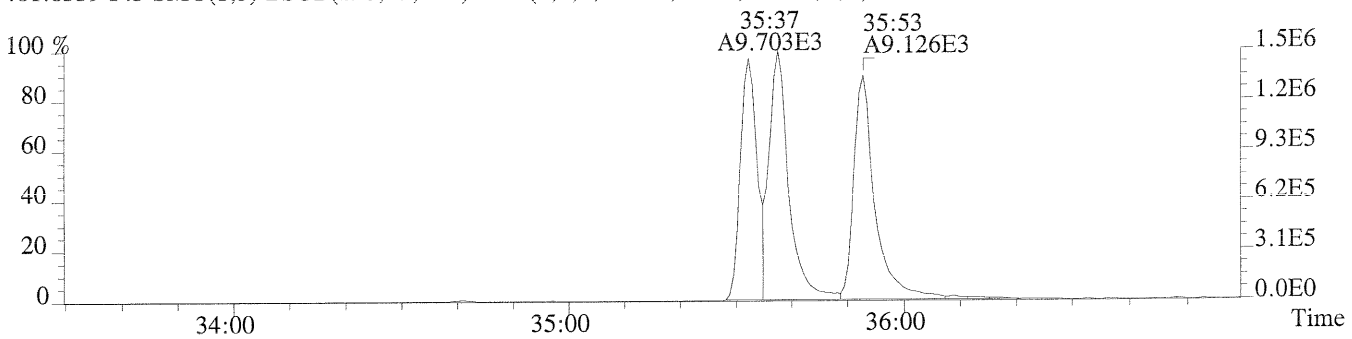
File:P176193 #1-318 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



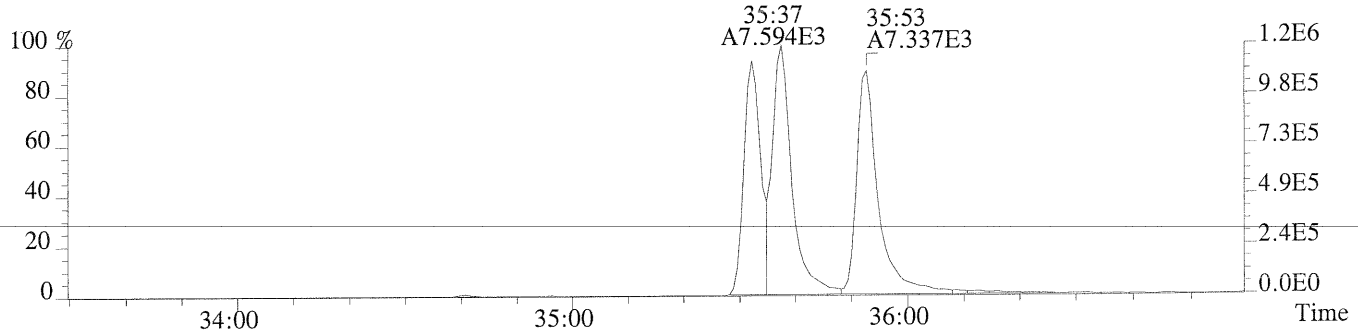
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



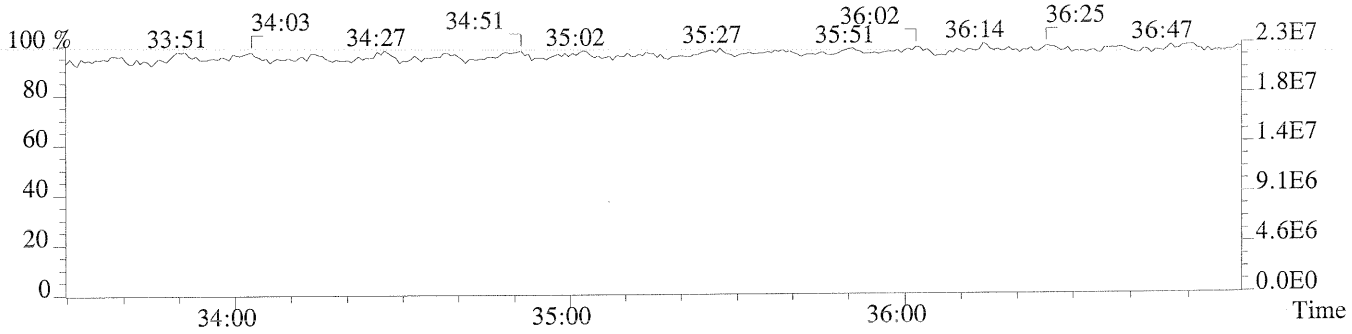
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,864.0,0.40%,F,T)



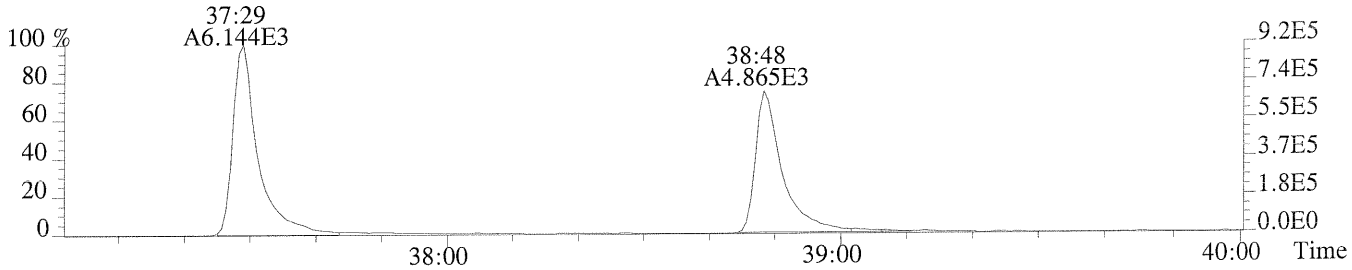
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



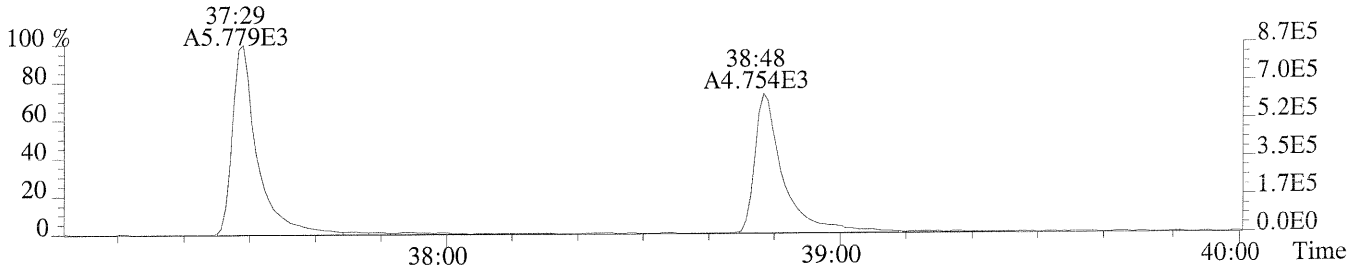
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



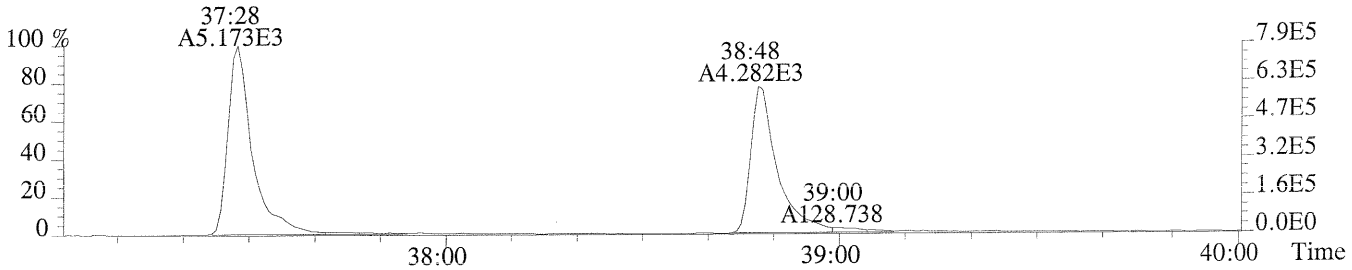
File:P176193 #1-271 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.50%,F,T)



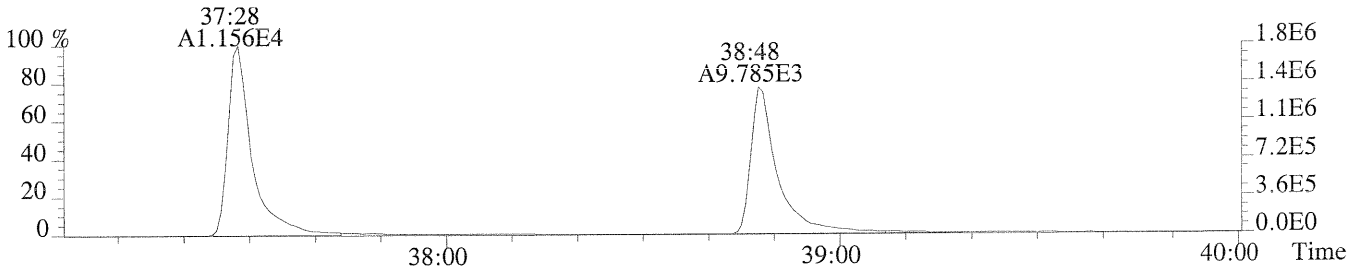
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.50%,F,T)



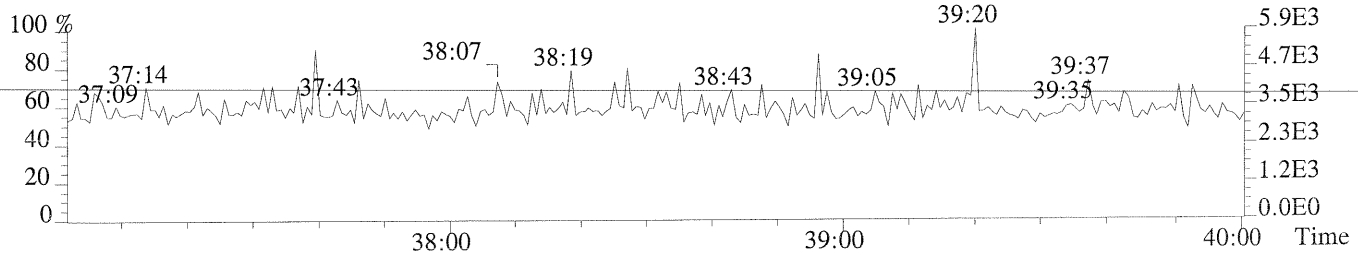
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.50%,F,T)



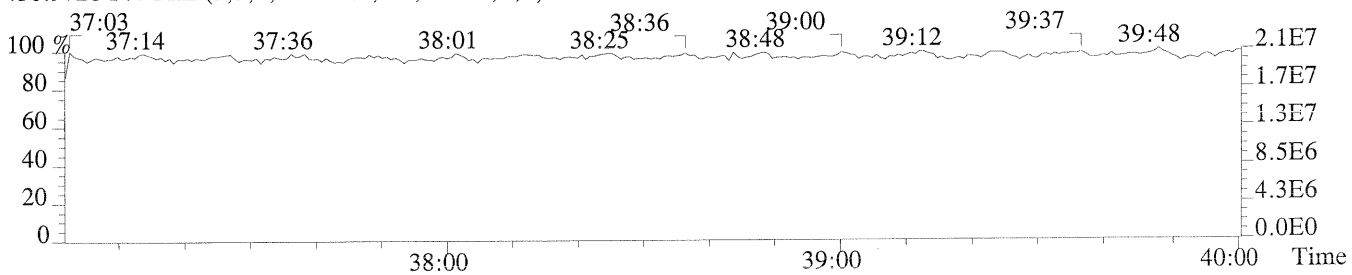
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.50%,F,T)



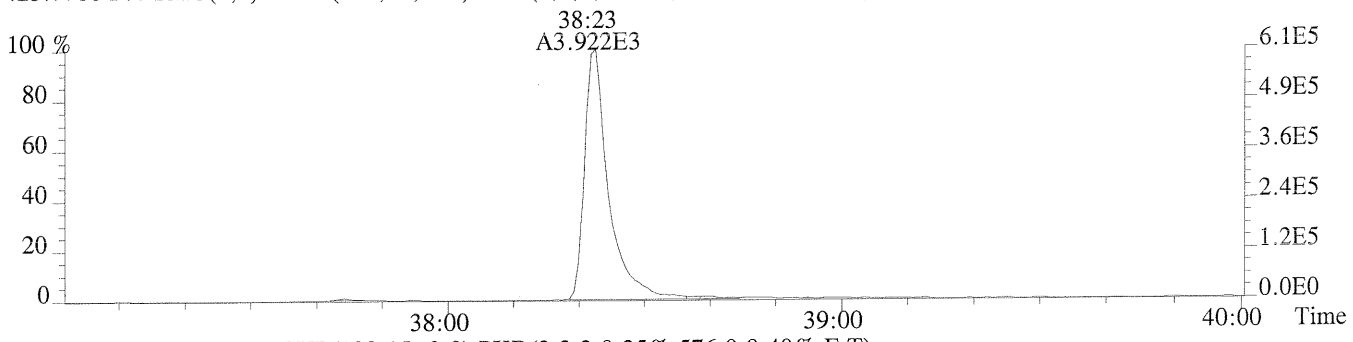
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



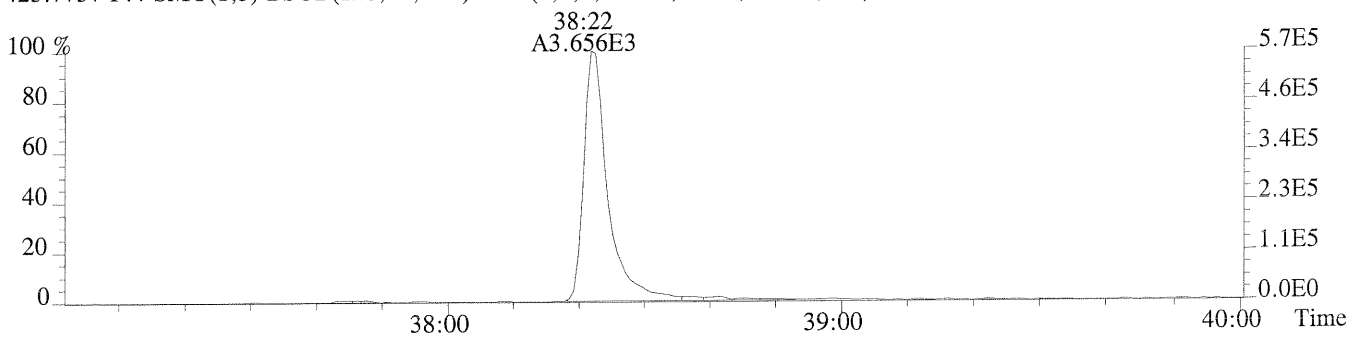
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



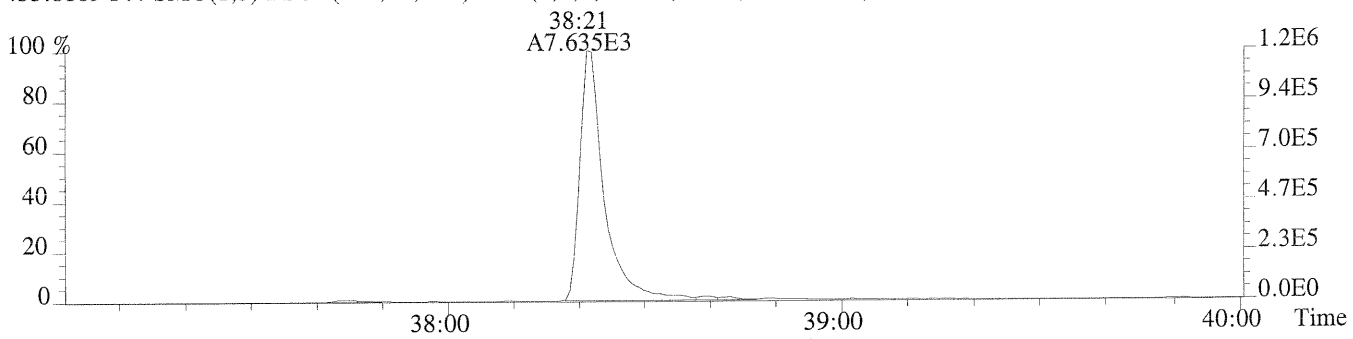
File:P176193 #1-271 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



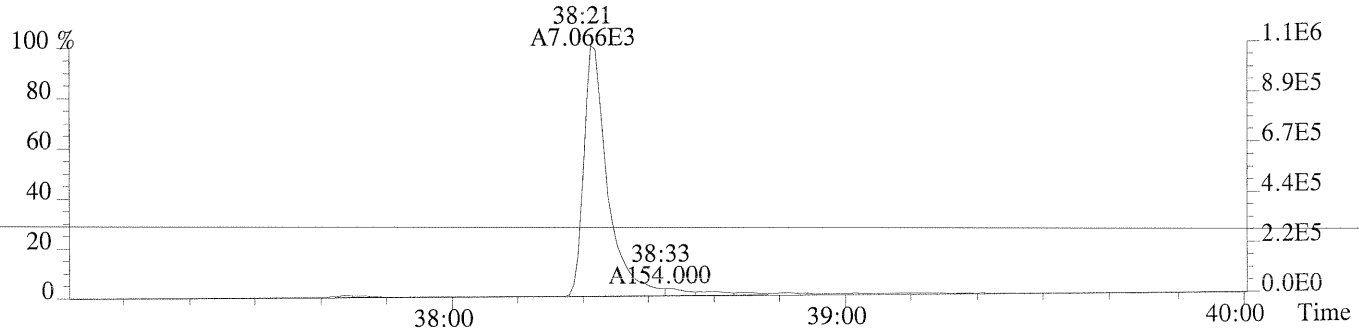
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



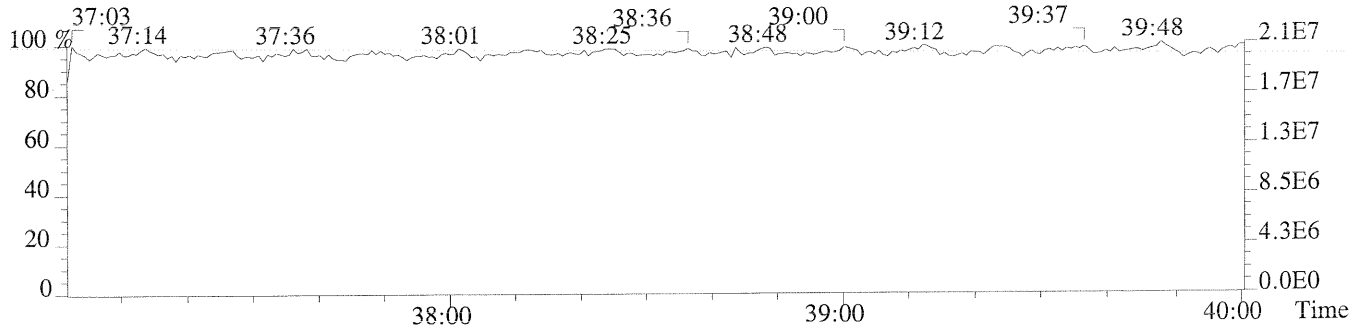
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



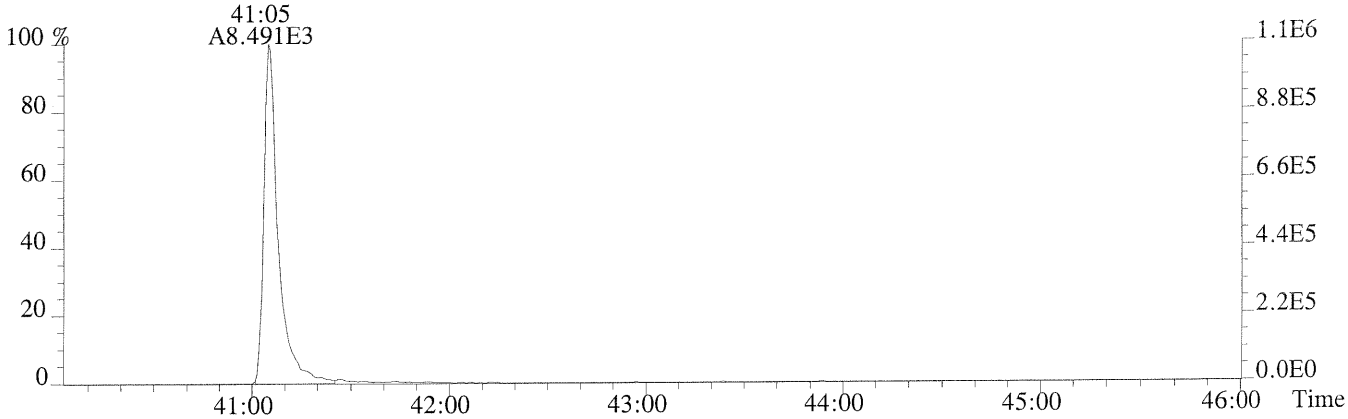
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



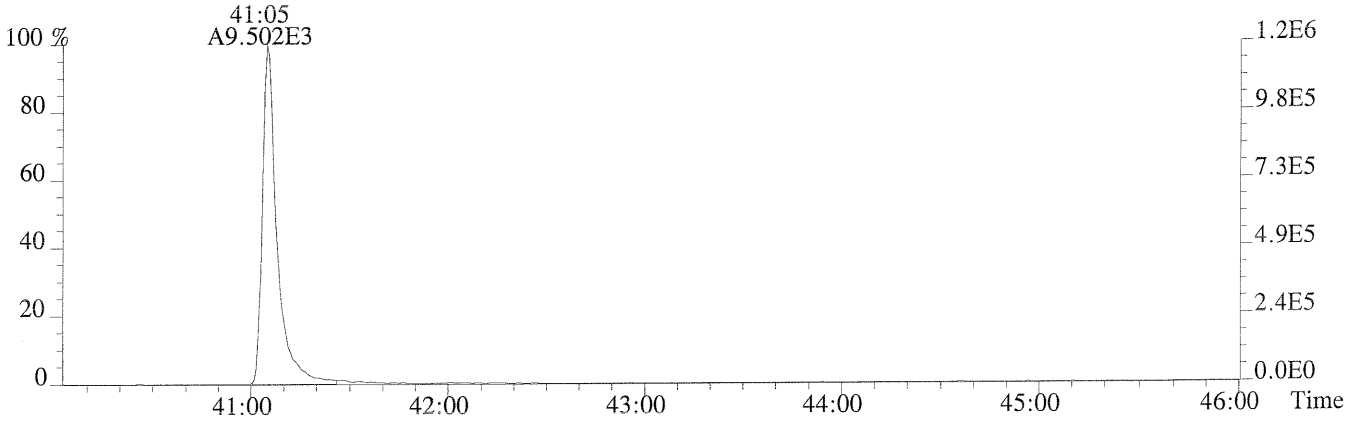
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



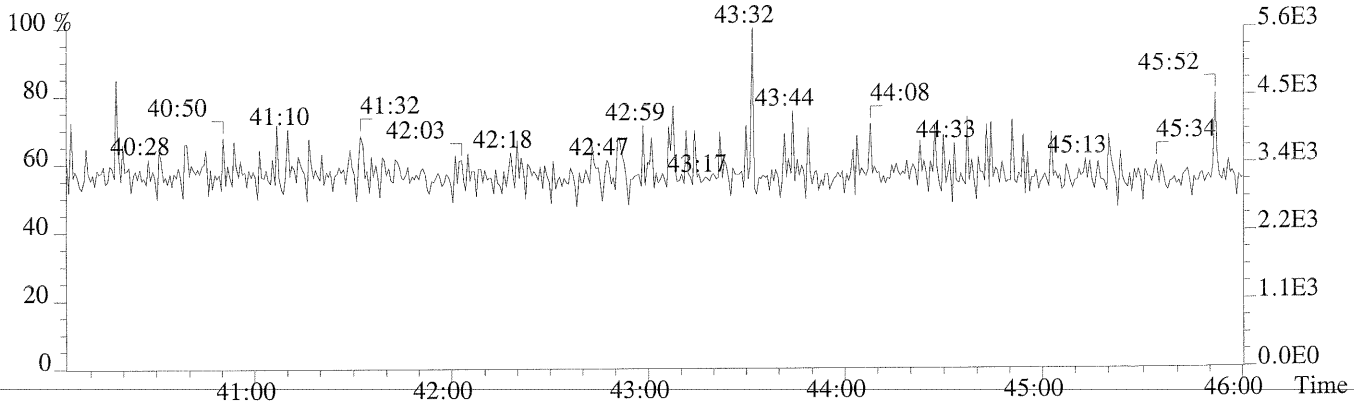
File:P176193 #1-548 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,324.0,0.40%,F,T)



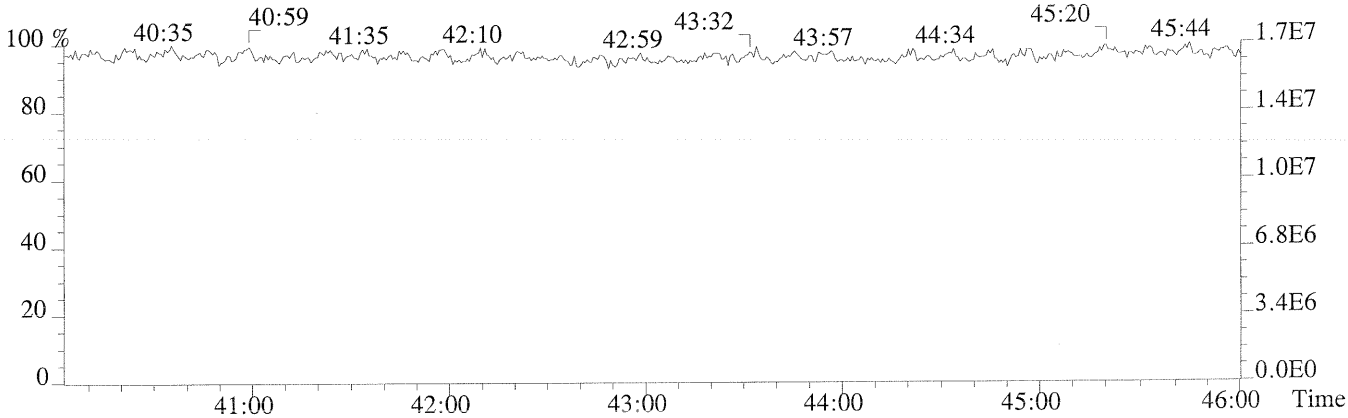
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



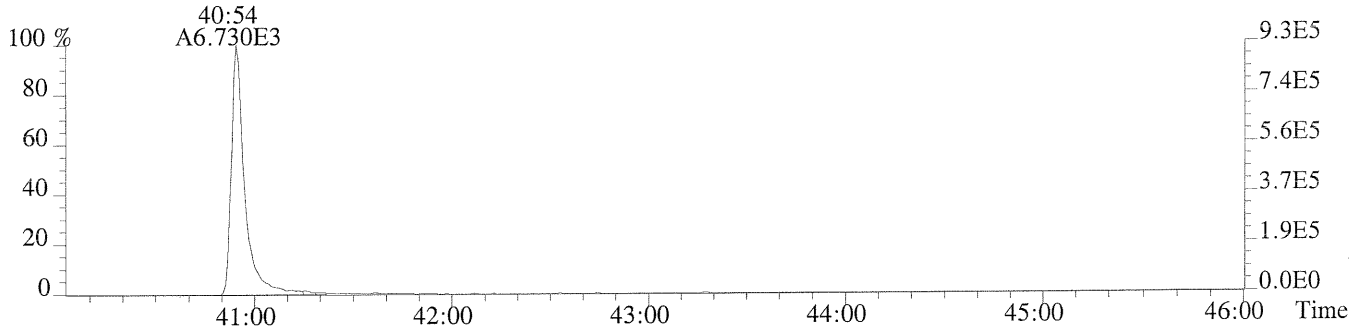
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



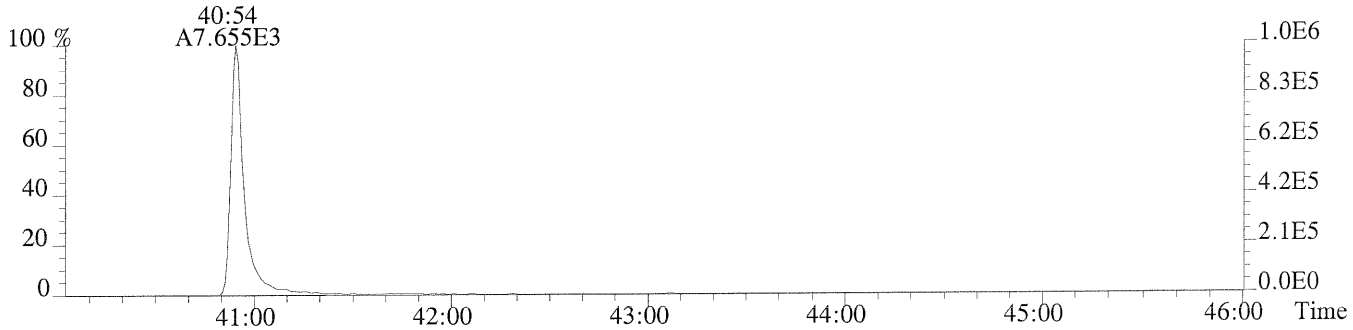
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



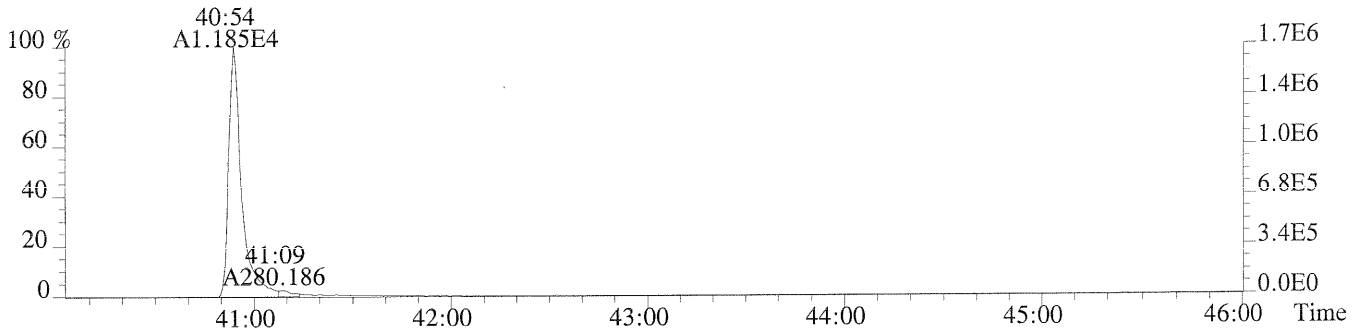
File:P176193 #1-548 Acq: 7-FEB-2015 09:37:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,424.0,0.40%,F,T)



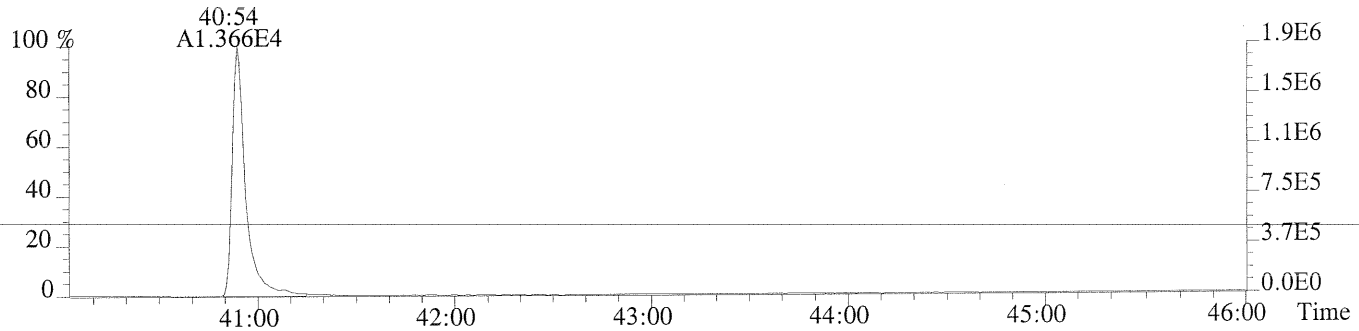
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



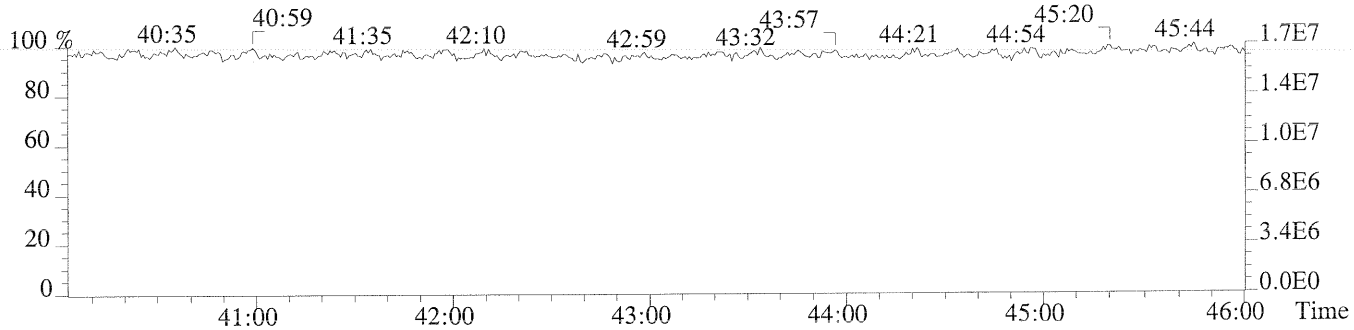
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,452.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3884.0,0.40%,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: M23	Process Date: 10/20/14
Instrument Name: E-HRMS-03	Calibration File Name: P141018M23I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong
Supervisor Signature:	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
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: M23	Process Date: 10/20/14
Instrument Name: E-HRMS-03	Calibration File Name: P141018M23I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong
Supervisor Signature:	

Description	Yes	No	NA	NR	ER#
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?	√				1
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: M23	Process Date: 10/20/14
Instrument Name: E-HRMS-03	Calibration File Name: P141018M23I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

ER# [5]	Description
1	Manual Integration on CS0.5 in order to correct inconsistent baseline determinations between primary and secondary ions. Before and After chromatograms provided. Where no "After" is present, modification flag reflects an update to reconcile Response values between Sample Response Summary and chromatograph.

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).

Initial Calibration QC Checklist

ICAL Name: P141018M23I

Date: 10/18/14

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / (M23)

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 it's closest eluters	—	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	—	✓
All relative abundance ratios meet method criteria	—	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	—	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column DB_5MSUI	✓	✓
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%	NA	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	—	✓

Analyst: cel Second QC: LKL

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-03

Init. Calib. Date: 10/18/14

Init. Calib.Times: 09:02:38

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
WINDOW DEFINE	74489	P174191	18-OCT-14	09:02:38
CS0.5	66807	P174192	18-OCT-14	09:56:42
CS1	66798	P174193	18-OCT-14	12:07:26
CS2	D12-90-3B	P174194	18-OCT-14	13:03:40
CS3	63383	P174195	18-OCT-14	14:01:26
CS4	D12-90-3D	P174196	18-OCT-14	14:54:18
CS5	66799	P174197	18-OCT-14	15:48:36
2nd Src	54819	P174198	18-OCT-14	17:24:05

Sample List Report — MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1141018.SPL — Page 1 of 4
Last Modified: Monday, October 20, 2014 07:20:32 Central Daylight Time
Printed: Monday, October 20, 2014 07:20:42 Central Daylight Time — Page Position (1, 1)

P141018I613I/P141018M23I

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	10/18/14	09:02	P174191	WINDOW DEFINE	74489	ZZ	HRMS Check 08:55	8290cas
2		09:56	P174192	CS0.5	66807			8290cas
3		12:07	P174193	CS1	66798			8290cas
4		13:03	P174194	CS2	D12-90-3B			8290cas
5		14:01	P174195	CS3	63383			8290cas
6		14:54	P174196	CS4	D12-90-3D			8290cas
7		15:48	P174197	CS5	66799			8290cas
8		17:24	P174198	2ND SOURCE	54819			8290cas
9		18:11	P174199	TEST	TEST		HRMS Check 04:44	8290cas
10			---	---	---			8290cas
11			---	---	---			8290cas
12			---	---	---			8290cas
13			---	---	---			8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
16			---	---	---			8290cas
17			---	---	---			8290cas
18			---	---	---			8290cas
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27			---	---	---			8290cas
28			---	---	---			8290cas
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30			---	---	---			8290cas
31	---	---	---	---	---	---	---	8290cas
32	---	---	---	---	---	---	---	8290cas
33	---	---	---	---	---	---	---	8290cas
34	---	---	---	---	---	---	---	8290cas
35	---	---	---	---	---	---	---	8290cas
36	---	---	---	---	---	---	---	---
37	---	---	---	---	---	---	---	---
38	---	---	---	---	---	---	---	---
39	---	---	---	---	---	---	---	---

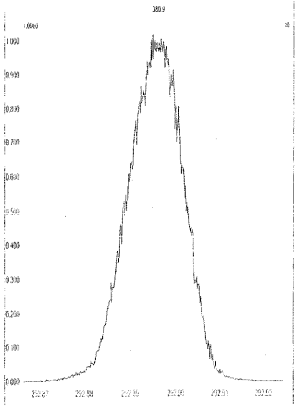
cc 10/20/14

099

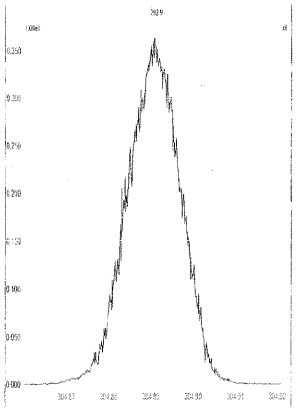
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, October 18, 2014 08:55:57 Central Daylight Time

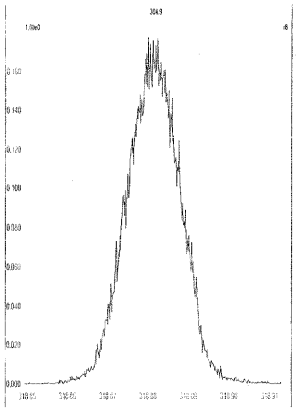
M 292.9824 R 11016



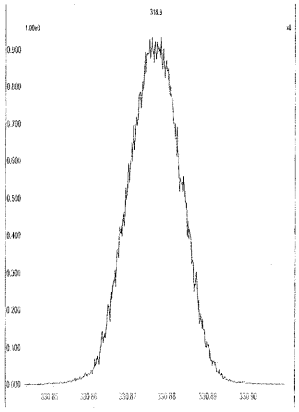
M 304.9824 R 10638



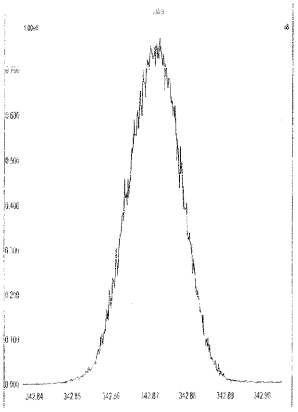
M 318.9792 R 10637



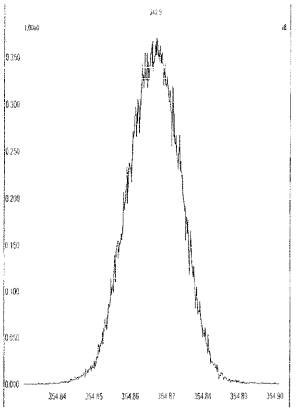
M 330.9792 R 10685



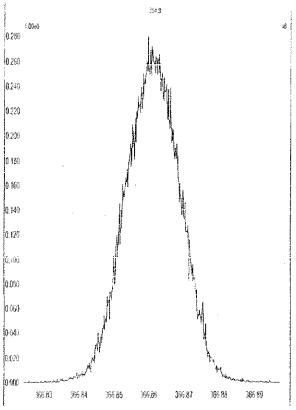
M 342.9792 R 10548



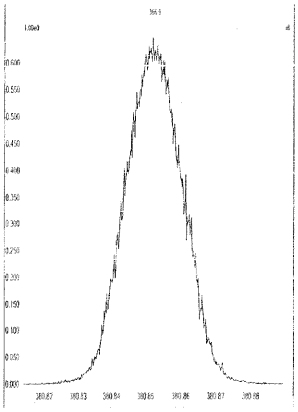
M 354.9792 R 10329



M 366.9792 R 10327



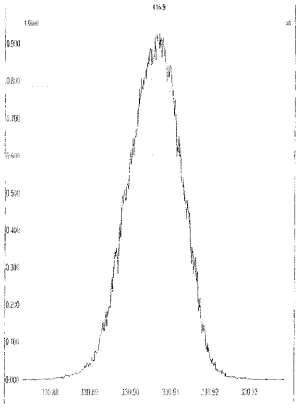
M 380.9760 R 10287



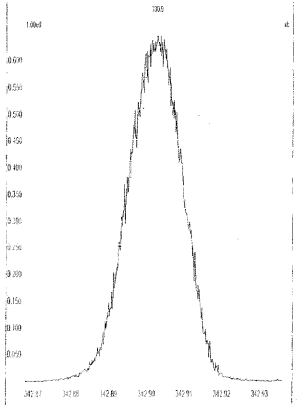
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, October 18, 2014 08:57:40 Central Daylight Time

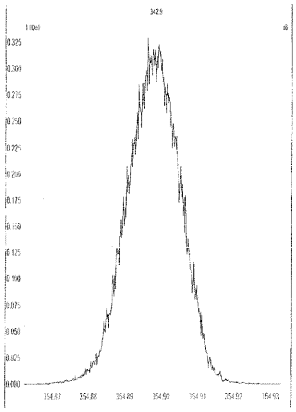
M 330.9792 R 11060



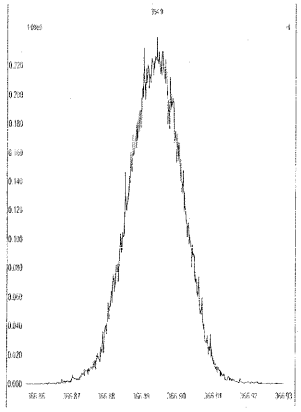
M 342.9792 R 10639



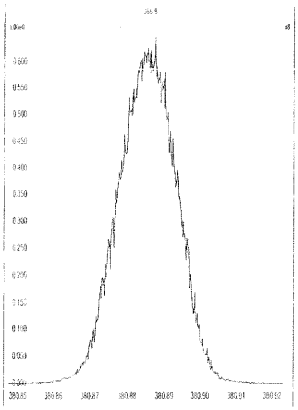
M 354.9792 R 10916



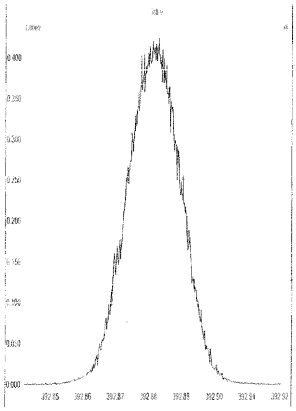
M 366.9792 R 11015



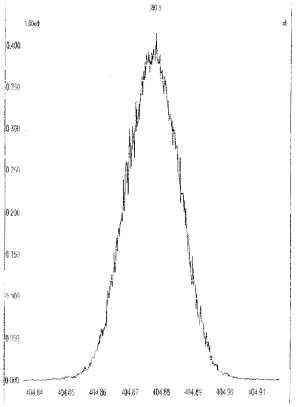
M 380.9760 R 10870



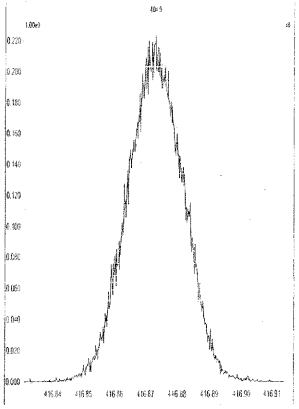
M 392.9760 R 10821



M 404.9760 R 10418



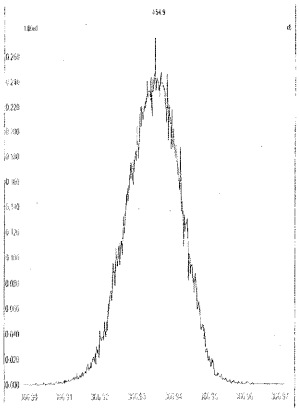
M 416.9760 R 10245



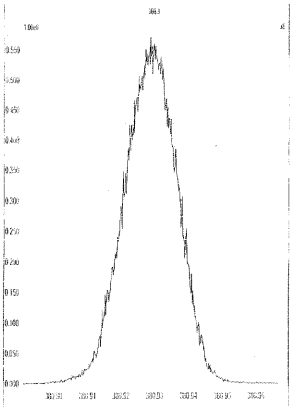
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, October 18, 2014 08:59:18 Central Daylight Time

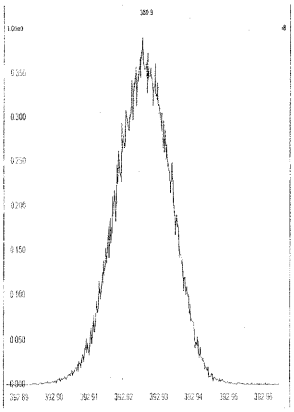
M 366.9792 R 10868



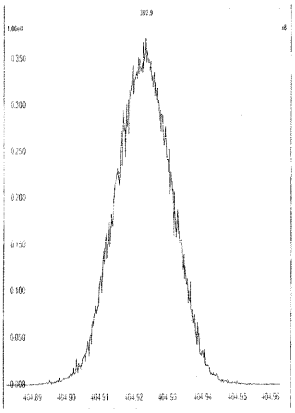
M 380.9760 R 10966



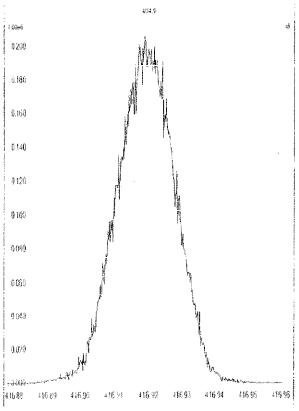
M 392.9760 R 10869



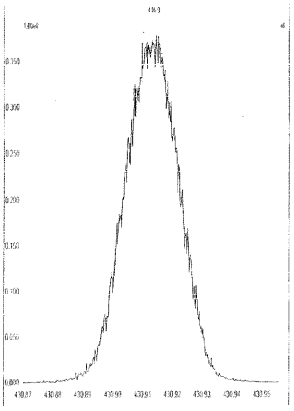
M 404.9760 R 10506



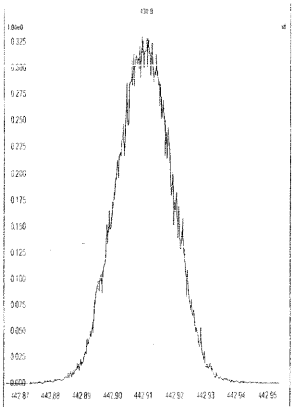
M 416.9760 R 11313



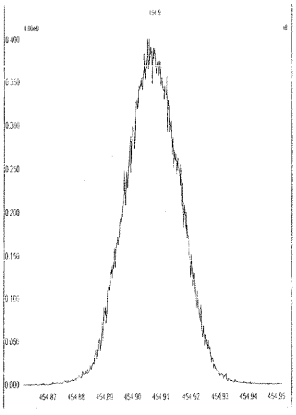
M 430.9728 R 10638



M 442.9728 R 10778



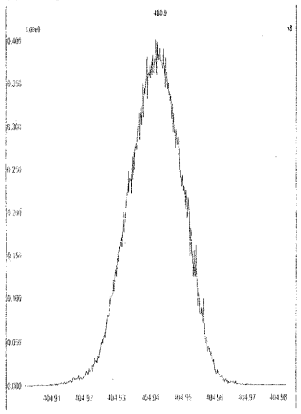
M 454.9728 R 10776



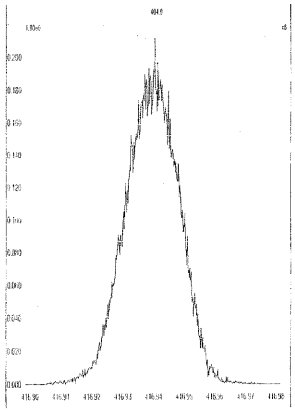
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, October 18, 2014 09:00:33 Central Daylight Time

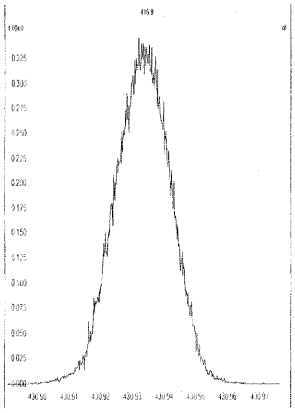
M 404.9760 R 10872



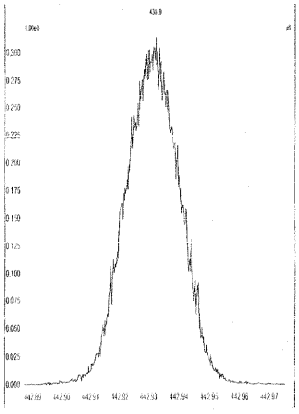
M 416.9760 R 10685



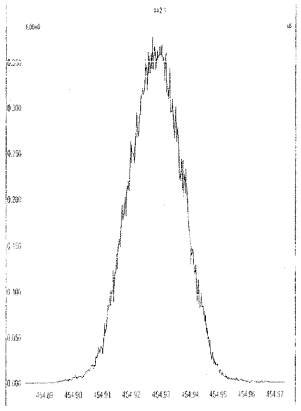
M 430.9728 R 11261



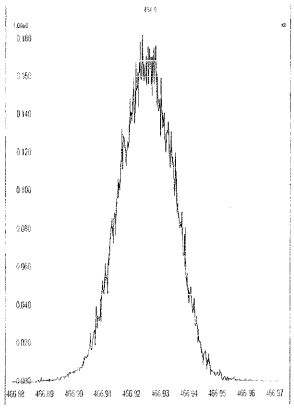
M 442.9728 R 10775



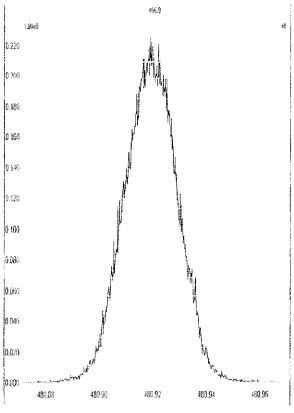
M 454.9728 R 10681



M 466.9728 R 10729



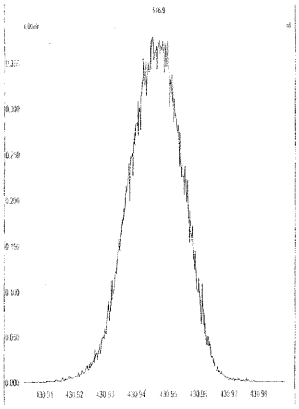
M 480.9696 R 10640



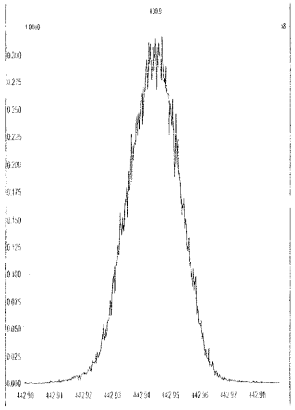
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, October 18, 2014 09:01:21 Central Daylight Time

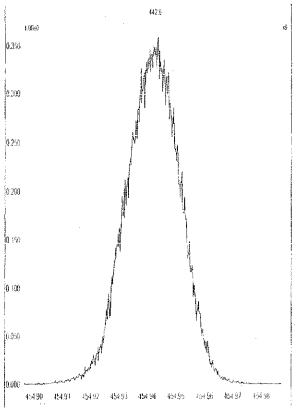
M 430.9728 R 10730



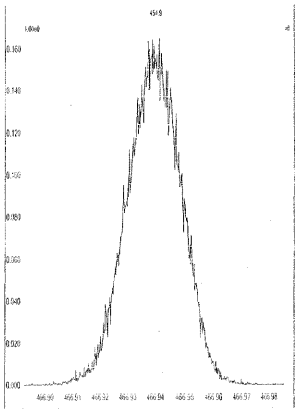
M 442.9728 R 10507



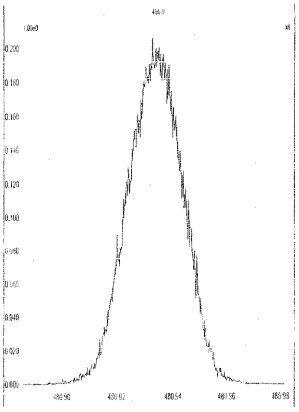
M 454.9728 R 10727



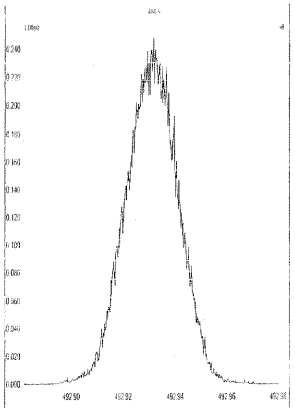
M 466.9728 R 10917



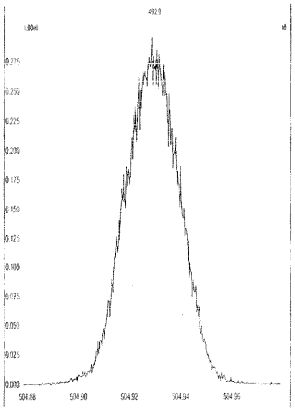
M 480.9696 R 11012



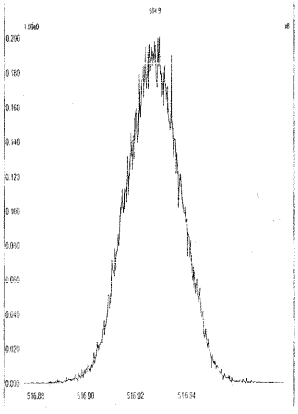
M 492.9696 R 10820



M 504.9696 R 10869

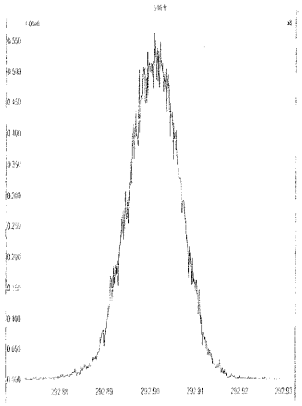


M 516.9697 R 10598

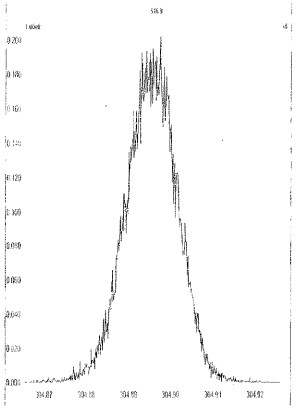


Printed: Sunday, October 19, 2014 04:44:53 Central Daylight Time

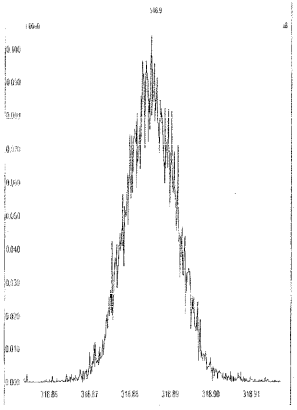
M 292.9824 R 11062



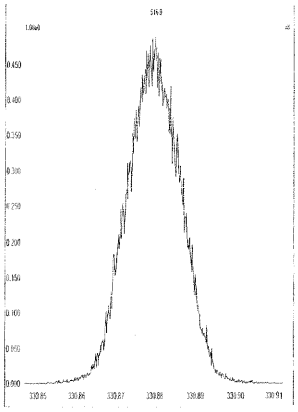
M 304.9824 R 11364



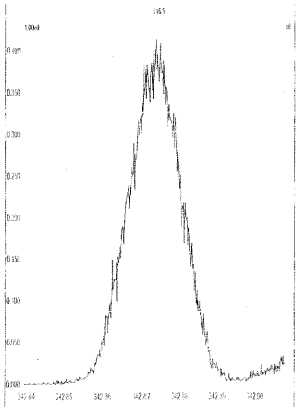
M 318.9792 R 11573



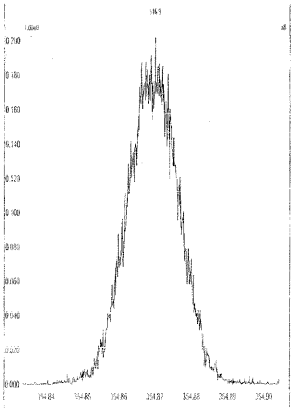
M 330.9792 R 10988



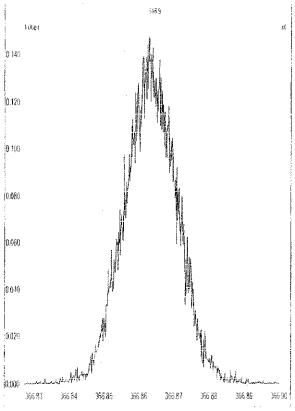
M 342.9792 R 10882



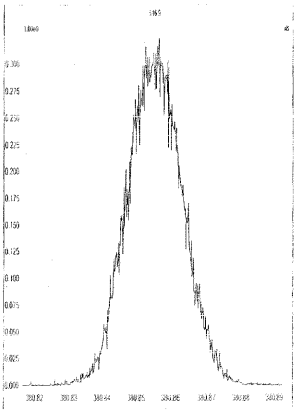
M 354.9792 R 11138



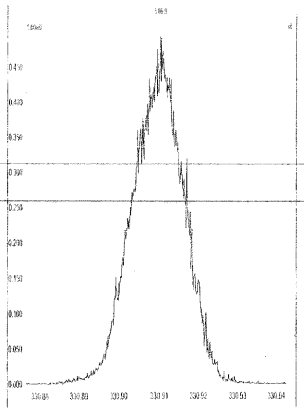
M 366.9792 R 10686



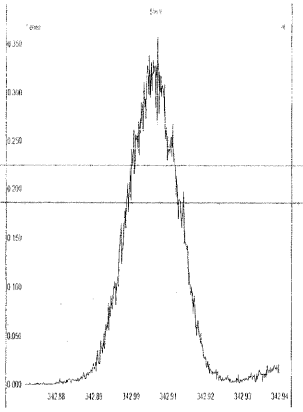
M 380.9760 R 10549



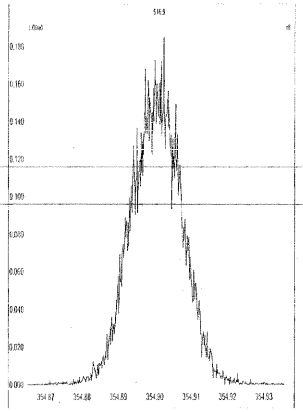
M 330.9792 R 11166



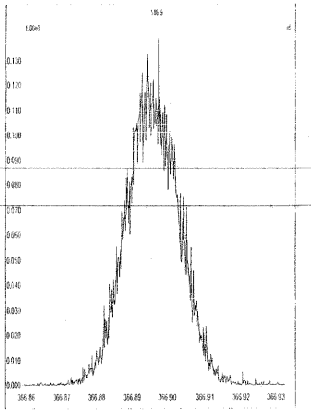
M 342.9792 R 11212



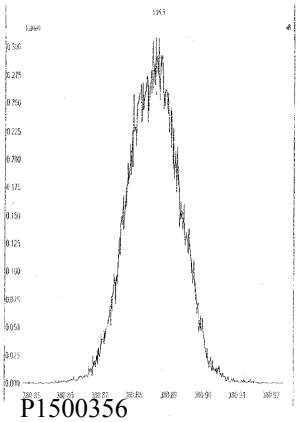
M 354.9792 R 11550



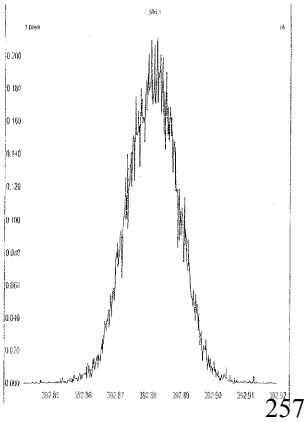
M 366.9792 R 11315



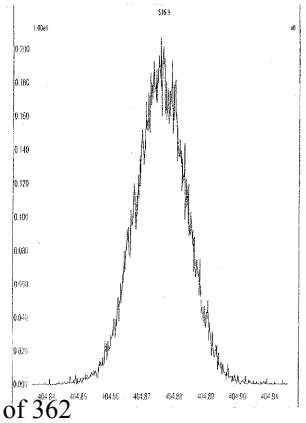
M 380.9760 R 10894



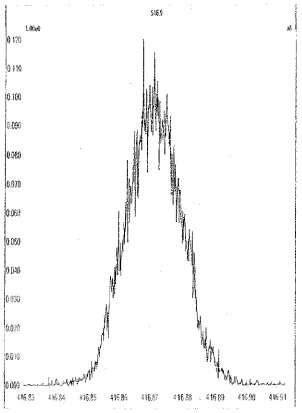
M 392.9760 R 11261



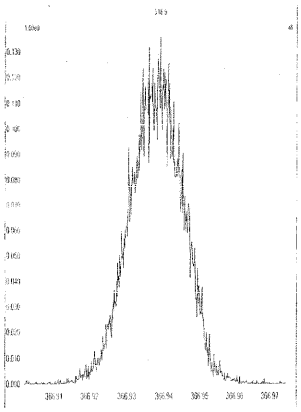
M 404.9760 R 10549



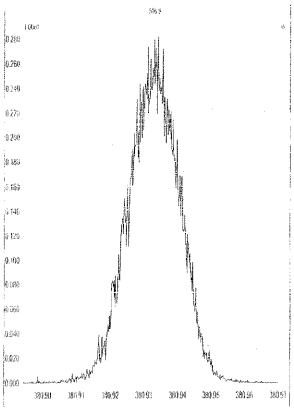
M 416.9760 R 10752



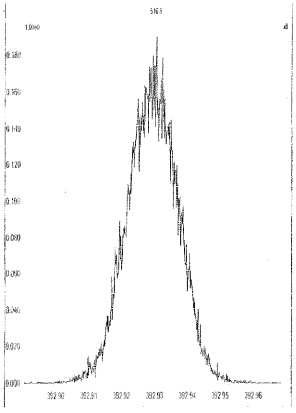
M 366.9792 R 11471



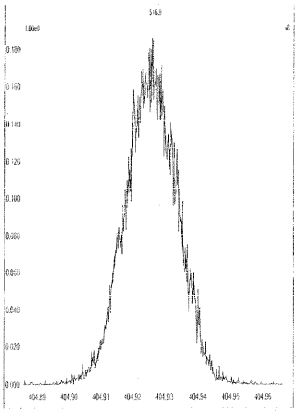
M 380.9760 R 11186



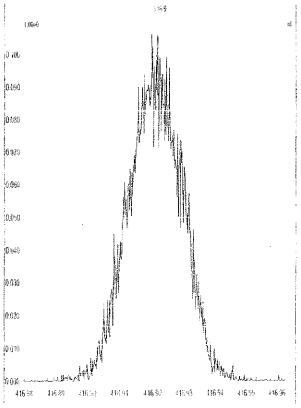
M 392.9760 R 11702



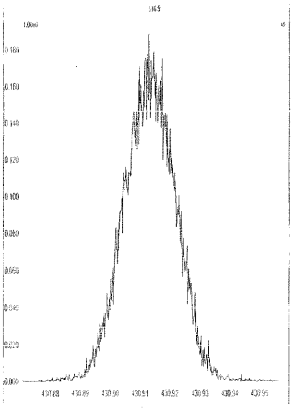
M 404.9760 R 11188



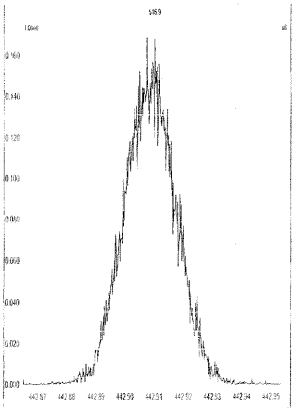
M 416.9760 R 11390



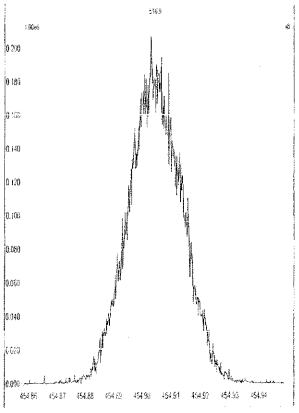
M 430.9728 R 10988



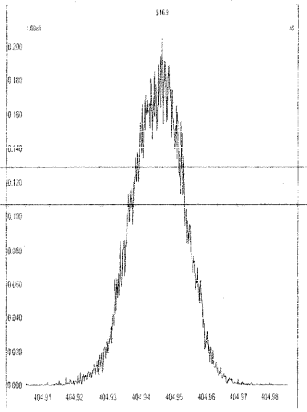
M 442.9728 R 11312



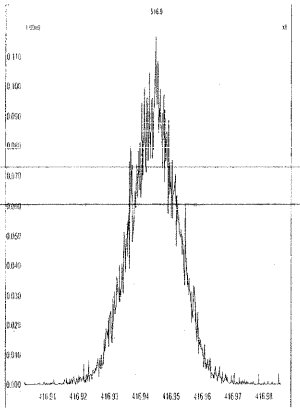
M 454.9728 R 11138



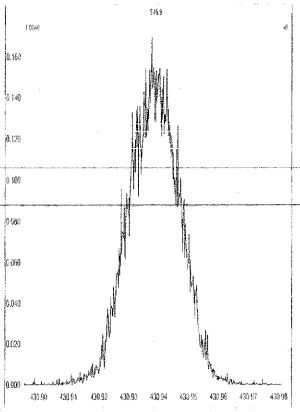
M 404.9760 R 11765



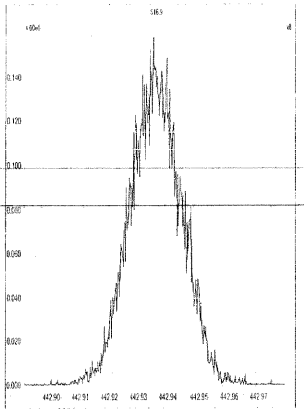
M 416.9760 R 11656



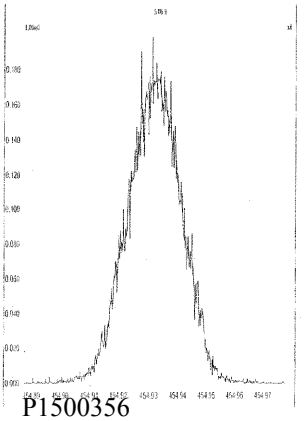
M 430.9728 R 11577



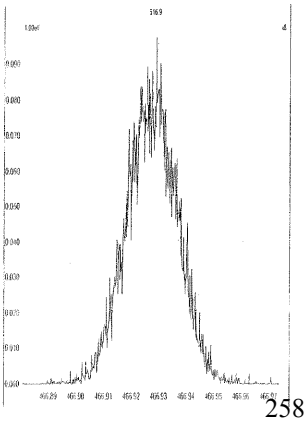
M 442.9728 R 11654



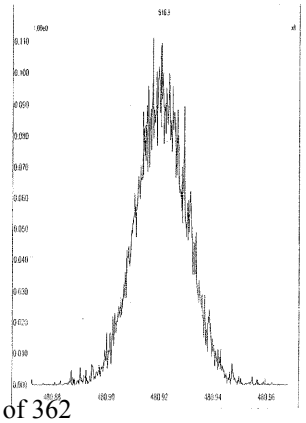
M 454.9728 R 11467



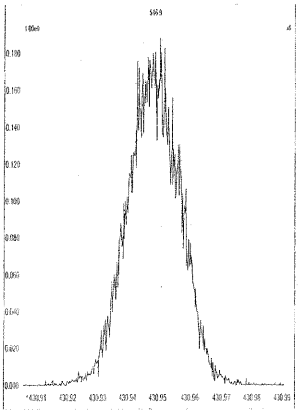
M 466.9728 R 11878



M 480.9696 R 11327

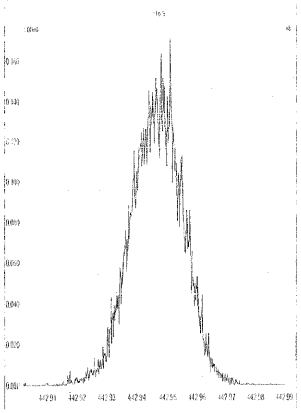


M 430.9728 R 11631

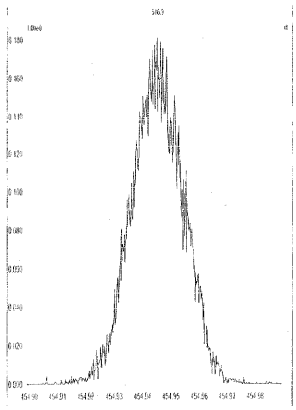


Printed: Sunday, October 19, 2014 04:44:53 Central Daylight Time

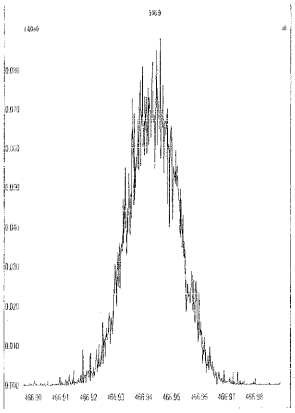
M 442.9728 R 11364



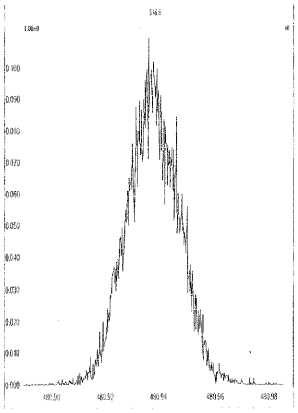
M 454.9728 R 11286



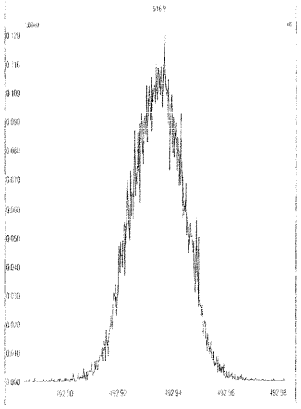
M 466.9728 R 11737



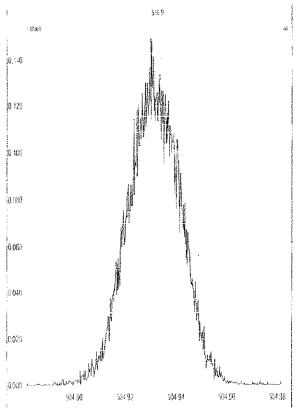
M 480.9696 R 11574



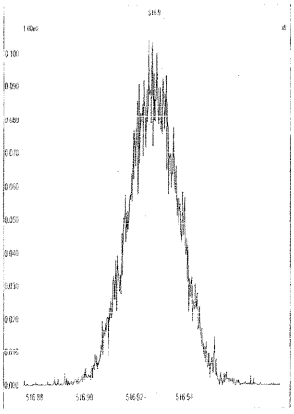
M 492.9696 R 11441



M 504.9696 R 10869



M 516.9697 R 11135



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

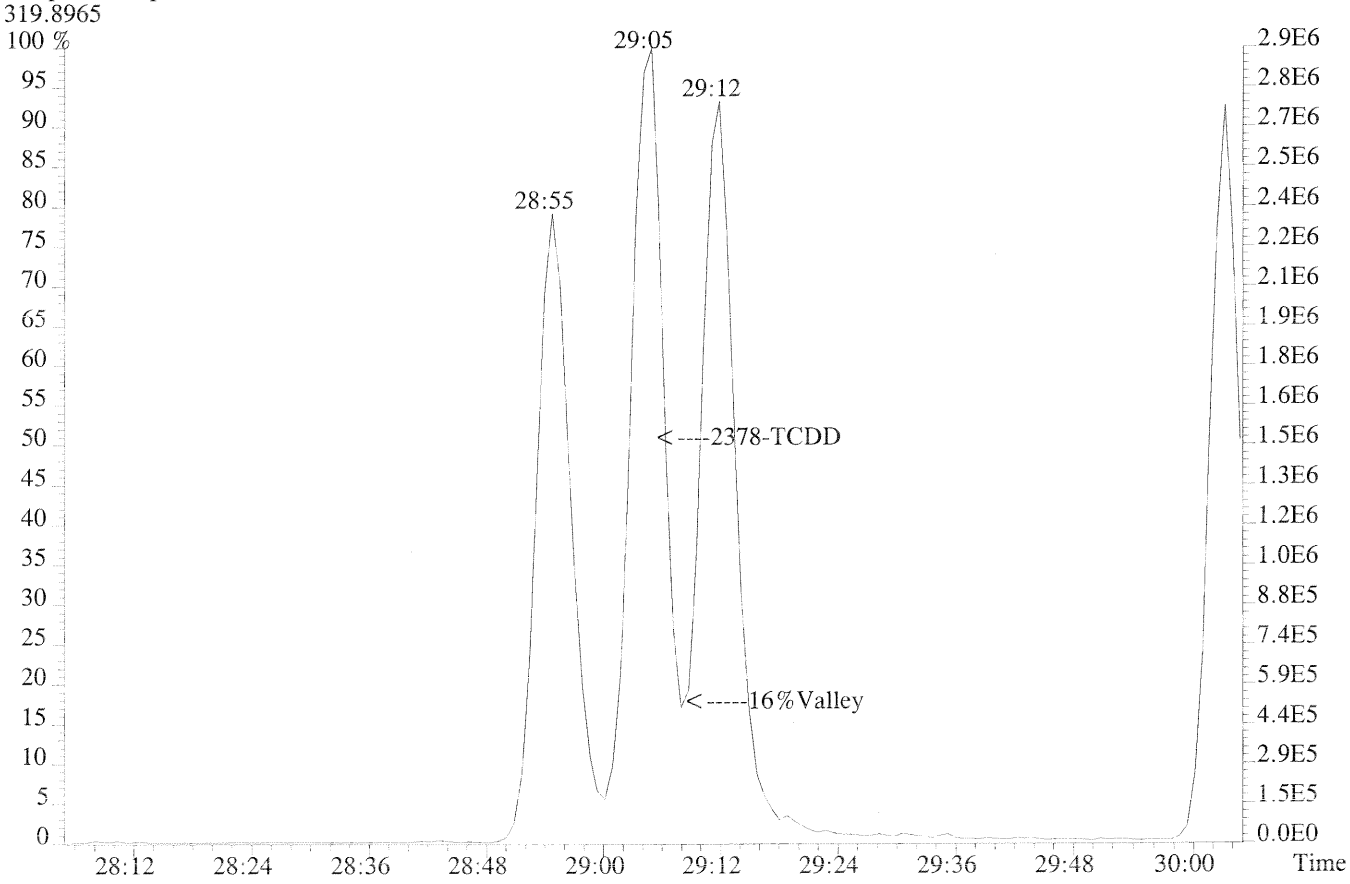
WDM

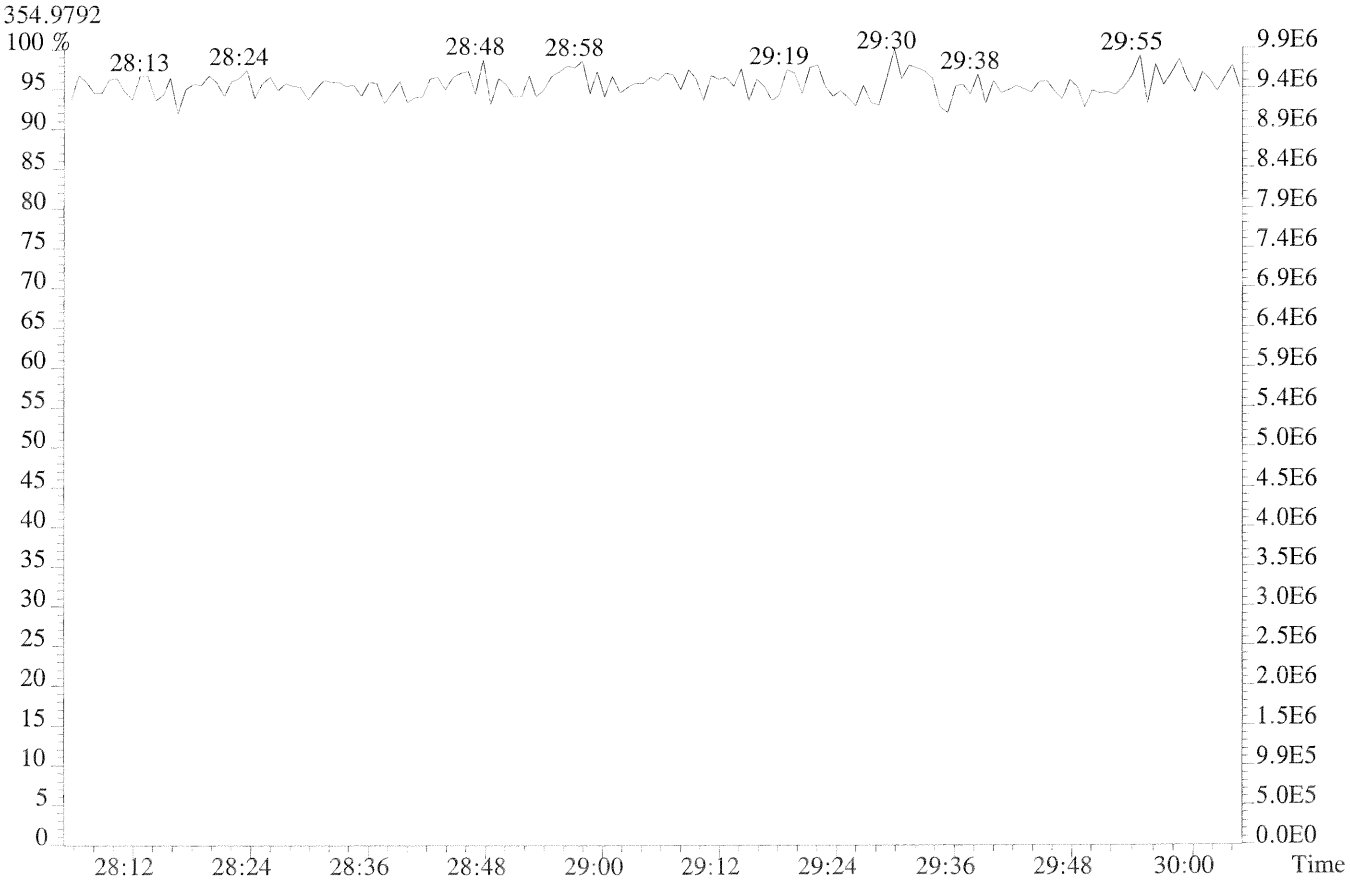
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: _____ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P174191
Date Analyzed: 18-OCT-2014
Time Analyzed: 09:02:38

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:58	30:13
TCDD	25:50	30:03
PeCDF	30:09	34:21
PeCDD	31:40	34:05
HxCDF	34:59	37:28
HxCDD	35:30	37:04
HpCDF	38:39	40:03
HpCDD	38:54	39:34

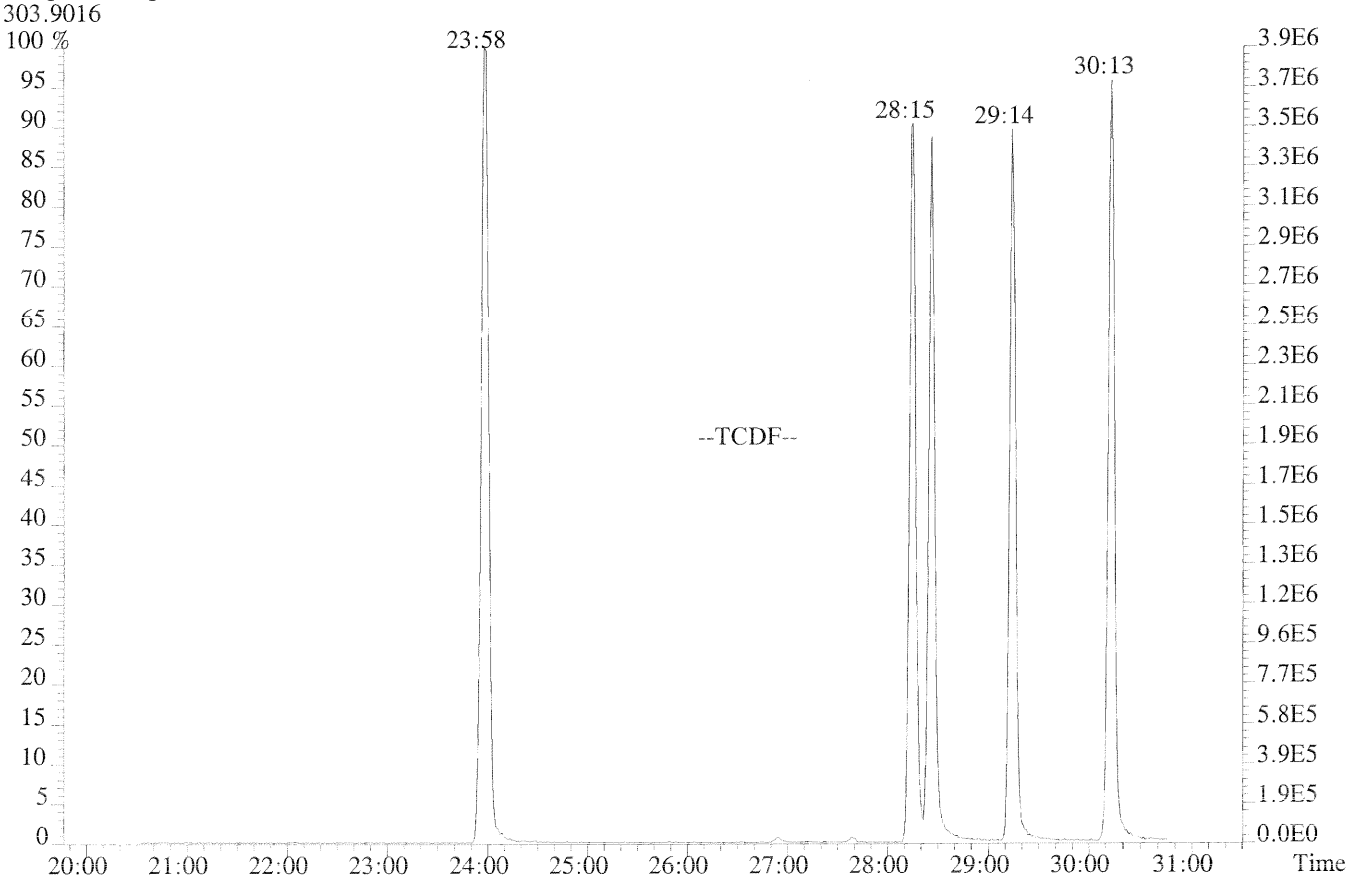
% Valley 2378-TCDD: 16 %

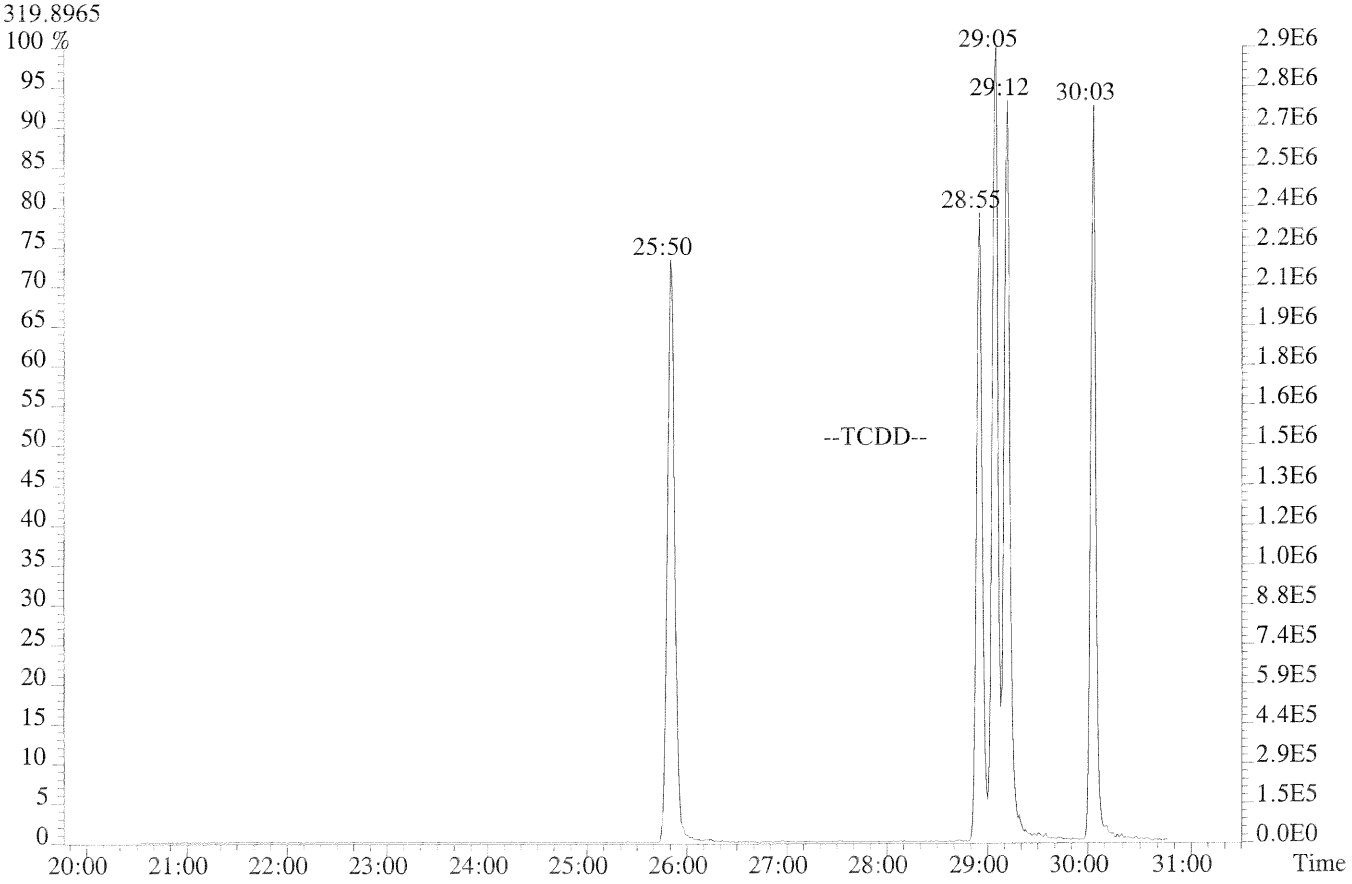
File:P174191 #1-788 Acq:18-OCT-2014 09:02:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



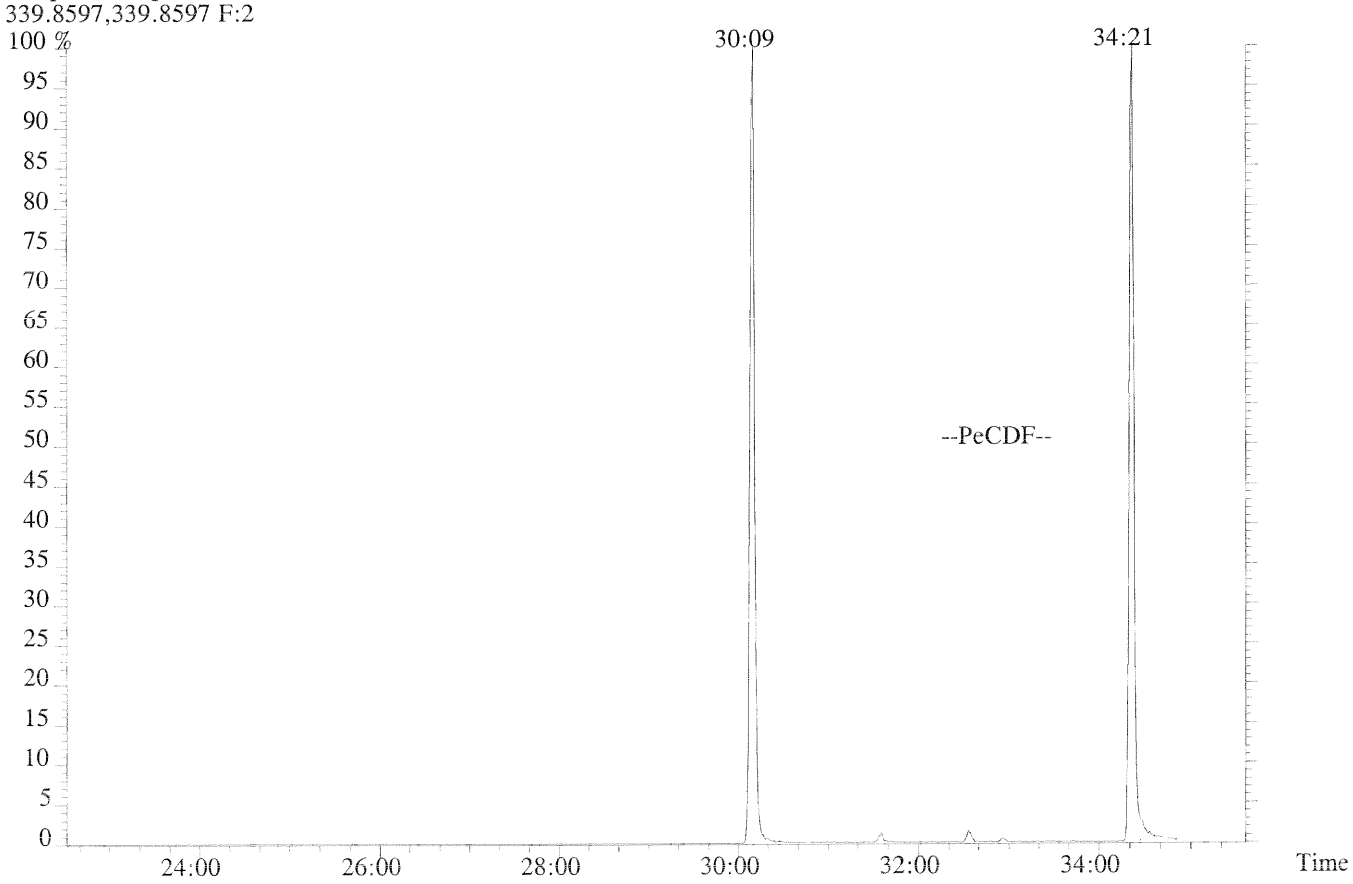


File:P174191 #1-788 Acq:18-OCT-2014 09:02:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

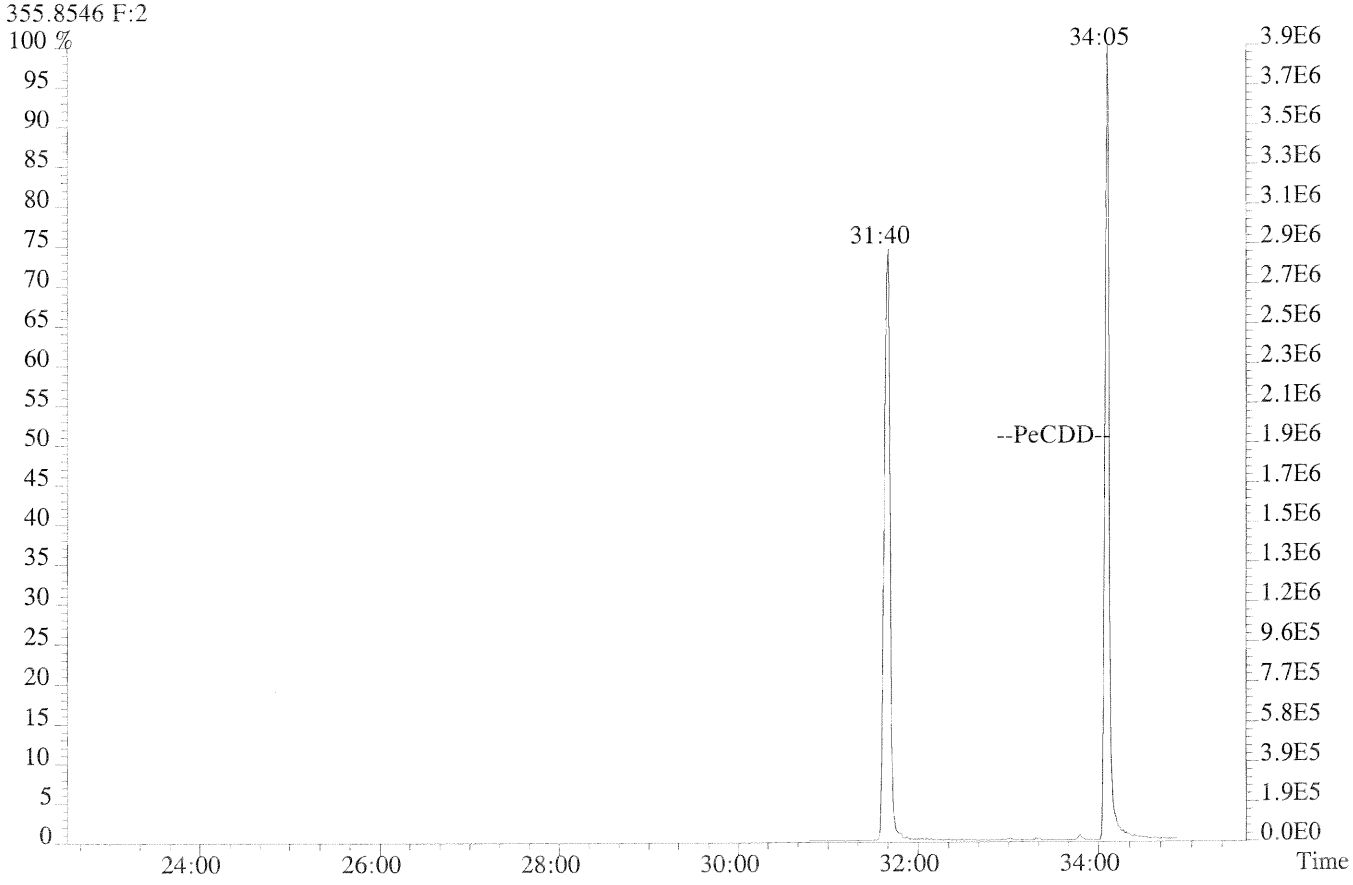




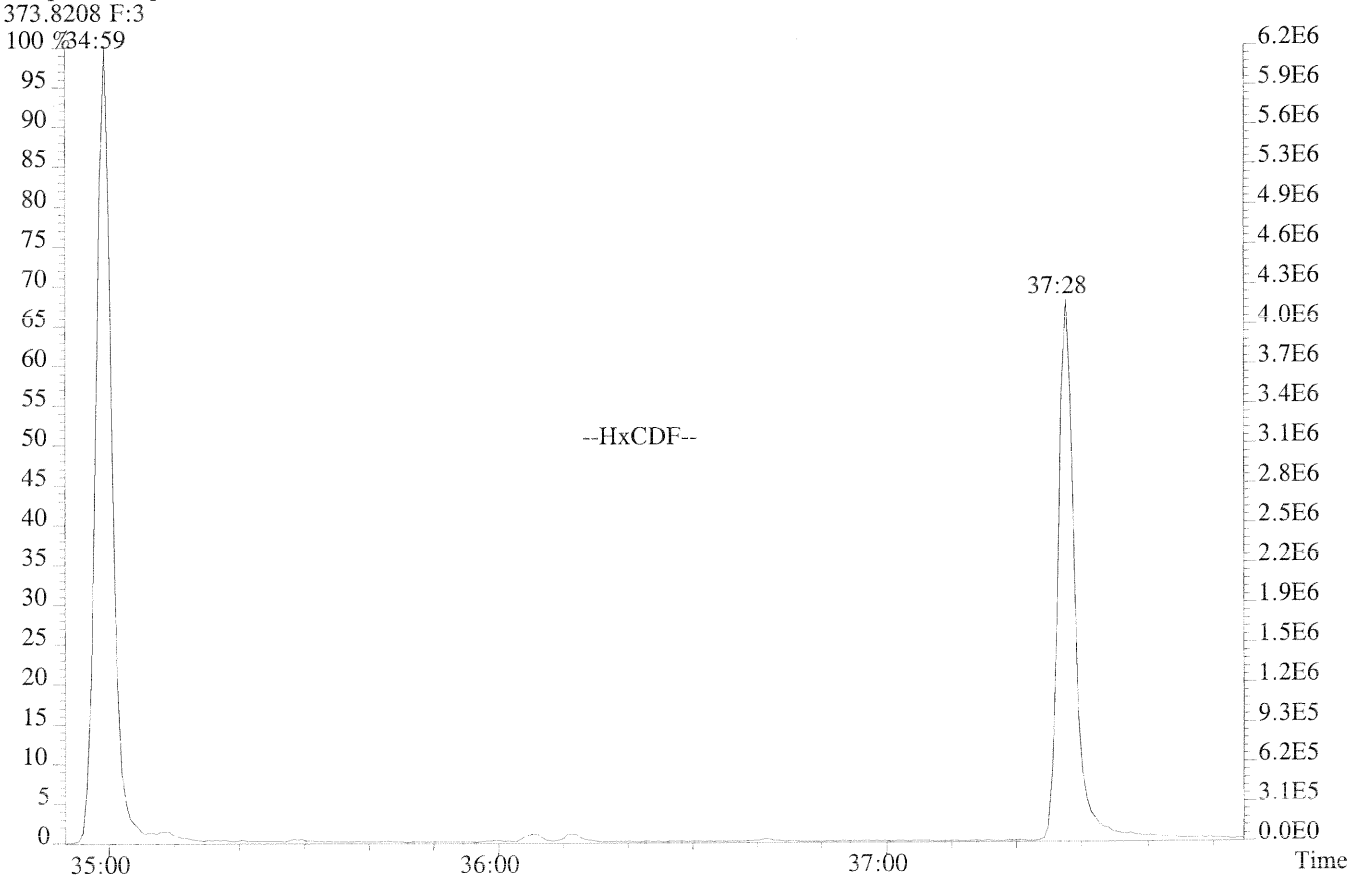
File:P174191 #1-788 Acq:18-OCT-2014 09:02:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

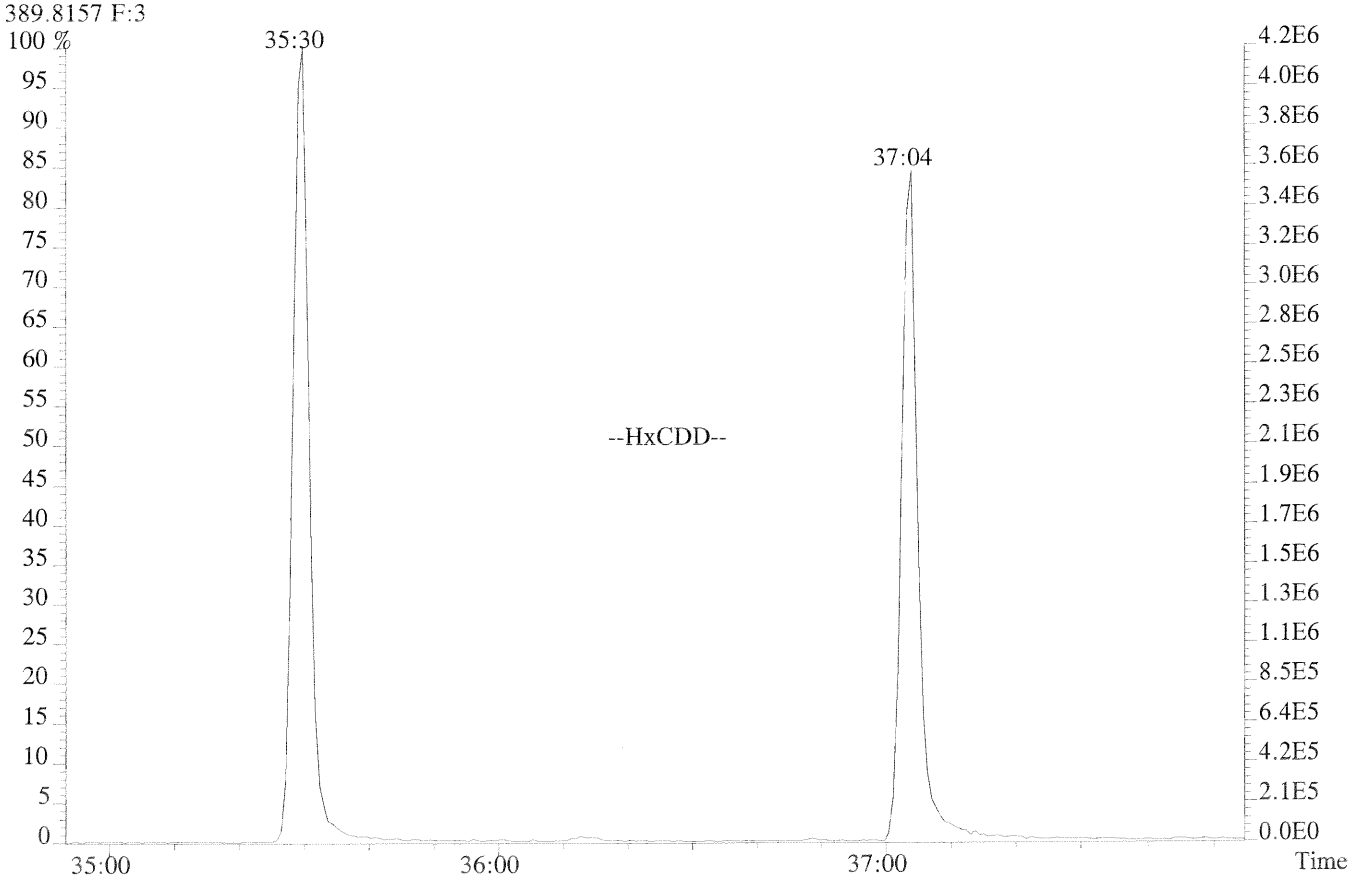


355.8546 F:2

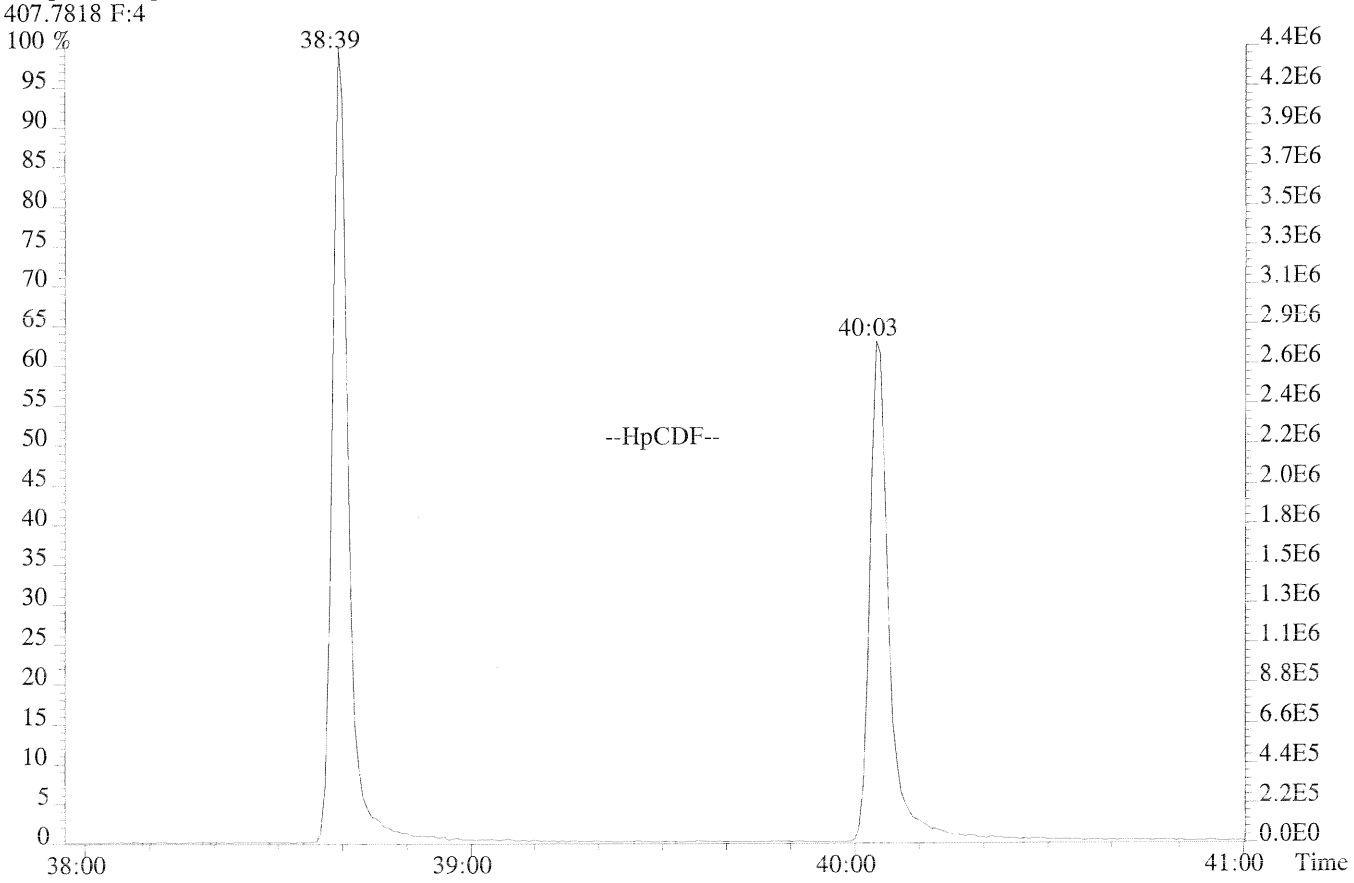


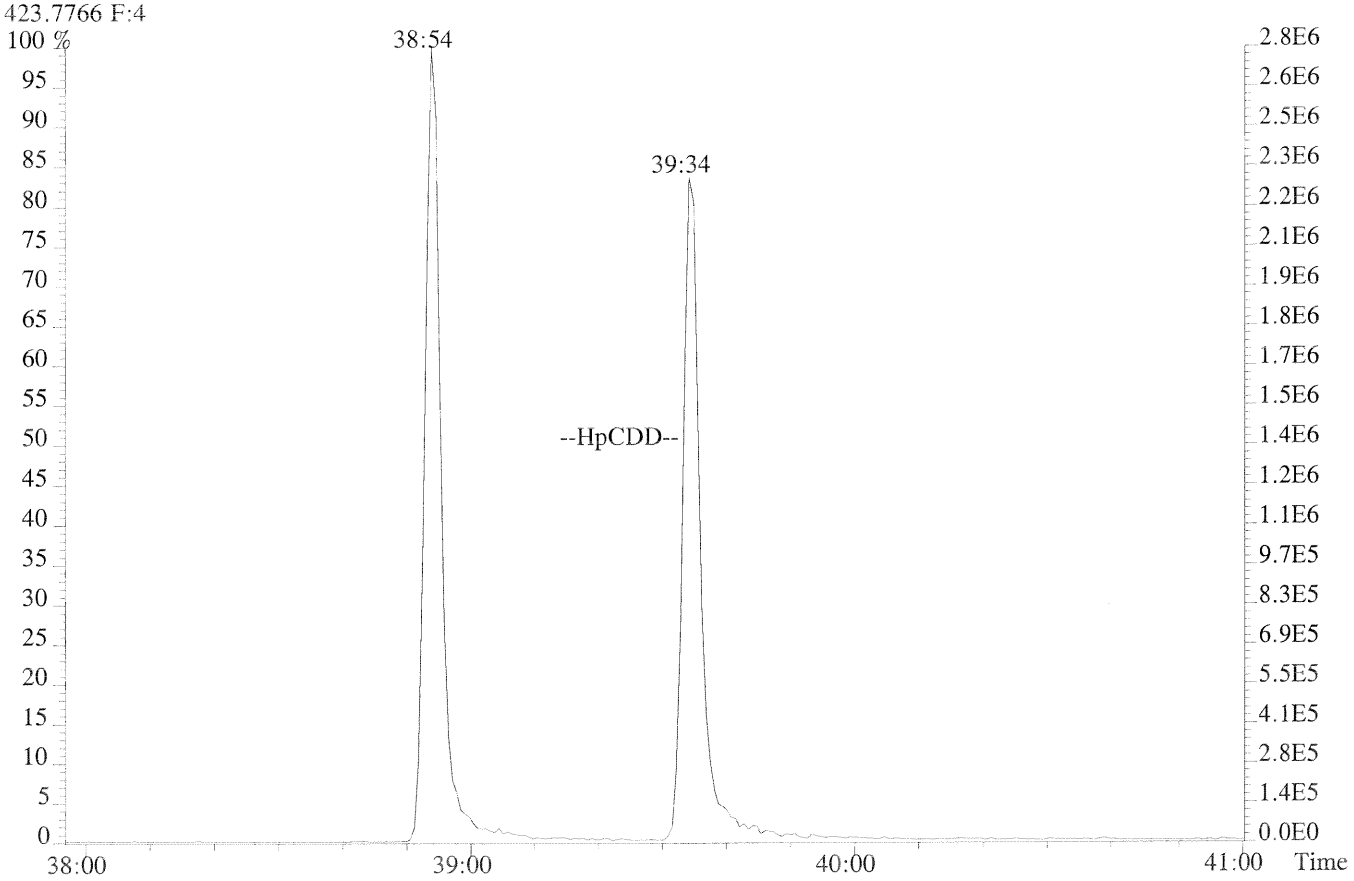
File:P174191 #1-275 Acq:18-OCT-2014 09:02:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:P174191 #1-278 Acq:18-OCT-2014 09:02:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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-03
Init. Calib. Date(s).: 10/18/14 Analyte Table: M23P
Init. Calib. Time.: 09:02:38

	RR/RRF						MEAN		
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDF	1.01	0.97	0.87	0.92	0.95	0.96	0.95	5.10	+/-20%
1,2,3,7,8-PeCDF	0.98	1.07	1.10	1.09	1.11	1.03	1.06	4.53	+/-20%
2,3,4,7,8-PeCDF	1.01	1.12	1.04	1.01	1.02	1.02	1.04	4.04	+/-20%
1,2,3,4,7,8-HxCDF	1.14	1.14	1.16	1.15	1.14	1.19	1.15	1.72	+/-20%
1,2,3,6,7,8-HxCDF	1.25	1.32	1.27	1.27	1.29	1.29	1.28	1.94	+/-20%
2,3,4,6,7,8-HxCDF	1.13	1.17	1.19	1.12	1.12	1.12	1.14	2.66	+/-20%
1,2,3,7,8,9-HxCDF	1.00	0.96	0.96	0.95	0.94	0.93	0.96	2.62	+/-20%
1,2,3,4,6,7,8-HpCDF	1.58	1.52	1.54	1.55	1.54	1.48	1.53	2.05	+/-20%
1,2,3,4,7,8,9-HpCDF	1.21	1.17	1.14	1.13	1.12	1.12	1.15	3.19	+/-20%
OCDF	1.31	1.46	1.40	1.39	1.39	1.26	1.37	5.24	+/-20%
2,3,7,8-TCDD	1.12	0.95	0.95	0.97	1.00	0.99	1.00	6.31	+/-20%
1,2,3,7,8-PeCDD	0.83	0.97	0.92	0.91	0.94	0.94	0.92	5.26	+/-20%
1,2,3,4,7,8-HxCDD	0.88	0.87	0.91	0.88	0.95	0.93	0.90	3.48	+/-20%
1,2,3,6,7,8-HxCDD	0.99	1.04	1.01	1.01	1.03	0.90	1.00	5.13	+/-20%
1,2,3,7,8,9-HxCDD	1.09	1.02	1.02	1.02	1.05	0.93	1.02	5.13	+/-20%
1,2,3,4,6,7,8-HpCDD	1.18	1.05	1.02	1.02	1.05	1.00	1.05	6.07	+/-20%
OCDD	1.06	1.13	1.07	1.08	1.09	0.98	1.07	4.71	+/-20%
13C-2,3,7,8-TCDF	1.31	1.33	1.30	1.29	1.25	1.24	1.29	2.65	+/-35%
13C-1,2,3,7,8-PeCDF	1.23	1.32	1.30	1.19	1.12	1.25	1.24	5.93	+/-35%
13C-2,3,4,7,8-PeCDF	1.01	1.02	1.02	0.98	0.96	0.94	0.99	3.50	+/-35%
13C-1,2,3,4,7,8-HxCDF	0.80	0.83	0.86	0.85	0.83	0.91	0.85	4.41	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.31	1.31	1.27	1.29	1.33	1.32	1.30	1.64	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.19	1.22	1.19	1.18	1.16	1.22	1.19	1.85	+/-35%
13C-1,2,3,7,8,9-HxCDF	0.99	0.99	0.99	0.97	0.96	0.99	0.98	1.19	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.09	1.06	1.06	1.04	1.02	0.99	1.04	3.37	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.80	0.82	0.80	0.78	0.77	0.73	0.78	3.85	+/-35%
13C-2,3,7,8-TCDD	0.91	0.93	0.92	0.92	0.90	0.96	0.92	2.49	+/-35%
13C-1,2,3,7,8-PeCDD	0.87	0.93	0.92	0.83	0.77	0.87	0.86	7.19	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.89	0.90	0.93	0.88	0.92	0.85	0.90	2.90	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.95	0.96	0.93	0.96	0.96	1.07	0.97	4.90	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.90	0.91	0.88	0.86	0.85	0.85	0.87	3.05	+/-35%
13C-OCDD	0.71	0.70	0.69	0.68	0.64	0.69	0.69	3.45	+/-35%
13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	
13C-1,2,3,7,8,9-HxCDD	-	-	-	-	-	-	-	-	
37Cl-2,3,7,8-TCDD	1.02	1.03	1.04	1.03	1.07	1.05	1.04	1.53	+/-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

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-03
Init. Calib. Date(s).: 10/18/14 Analyte Table: M23P
Init. Calib. Time.: 09:02:38

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	0.74	0.74	0.78	0.76	0.81	0.79		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.77	1.57	1.60	1.63	1.60	1.60		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.68	1.68	1.59	1.59	1.59	1.61		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.27	1.31	1.25	1.27	1.27	1.27		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.16	1.31	1.22	1.26	1.28	1.27		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.18	1.18	1.25	1.26	1.27	1.27		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.20	1.17	1.29	1.32	1.27	1.29		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.08	1.13	1.08	1.05	1.05	1.05		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.03	1.06	1.09	1.06	1.03	1.06		0.88-1.20
OCDF	442/444	0.92	0.97	0.92	0.92	0.92	0.92		0.76-1.02
2,3,7,8-TCDD	320/322	0.83	0.72	0.78	0.81	0.77	0.77		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.38	1.56	1.60	1.56	1.53	1.55		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.24	1.37	1.34	1.25	1.25	1.24		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.14	1.37	1.10	1.28	1.24	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.41	1.27	1.21	1.25	1.24	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	0.98	1.08	1.13	1.03	1.05	1.06		0.88-1.20
OCDD	458/460	0.79	0.87	0.90	0.88	0.88	0.90		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.79	0.78	0.77	0.78	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.57	1.59	1.57	1.57	1.58	1.57		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.59	1.59	1.57	1.59	1.56		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.53	0.53	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.54	0.52	0.53		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.52	0.53	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.51	0.53	0.53	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.46	0.45	0.46	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.46	0.45	0.45	0.46	0.44	0.44		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.78	0.77	0.78	0.76	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.55	1.59	1.56	1.58	1.55	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.27	1.34	1.33	1.28	1.29	1.25		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.25	1.20	1.20	1.27	1.26	1.25		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.05	1.04	1.03	1.06	1.04	1.03		0.88-1.20
13C-OCDD	470/472	0.87	0.89	0.90	0.90	0.90	0.88		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.78	0.78	0.78	0.78	0.78	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.27	1.25	1.28	1.27	1.31	1.21		1.05-1.43
37Cl-2,3,7,8-TCDD	328								

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Method M23
Sample Response Summary

CLIENT ID.
CS0.5

Run #1 Filename P174192 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 09:02:38
Processed: 20-OCT-14 09:25:36 LAB. ID: 66807

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:25	7.444e+01	1.010e+02	0.74	yes	yes	0.946
2	Unk	1,2,3,7,8-PeCDF	32:33	5.130e+02	2.905e+02	1.77	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	33:27	5.173e+02	3.078e+02	1.68	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	36:04	5.107e+02	4.029e+02	1.27	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	36:11	5.396e+02	4.636e+02	1.16	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	36:41	4.922e+02	4.182e+02	1.18	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	37:26	4.373e+02	3.655e+02	1.20	yes	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	5.519e+02	5.102e+02	1.08	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	4.118e+02	4.011e+02	1.03	yes	no	1.148
10	Unk	OCDF	42:33	5.506e+02	5.964e+02	0.92	yes	no	1.369
11	Unk	2,3,7,8-TCDD	29:11	6.165e+01	7.420e+01	0.83	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	33:43	2.778e+02	2.011e+02	1.38	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	36:48	2.868e+02	2.318e+02	1.24	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	36:53	3.090e+02	2.713e+02	1.14	yes	yes	0.995
15	Unk	1,2,3,7,8,9-HxCDD	37:08	3.752e+02	2.659e+02	1.41	yes	yes	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	3.239e+02	3.299e+02	0.98	yes	no	1.052
17	Unk	OCDD	42:20	4.083e+02	5.188e+02	0.79	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	28:24	3.059e+04	3.905e+04	0.78	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:32	4.006e+04	2.551e+04	1.57	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	33:26	4.053e+04	2.573e+04	1.57	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	36:03	1.766e+04	3.409e+04	0.52	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	36:10	2.216e+04	4.218e+04	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	37:25	1.635e+04	3.231e+04	0.51	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.669e+04	3.717e+04	0.45	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.344e+04	2.938e+04	0.46	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	29:10	2.123e+04	2.724e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:42	2.804e+04	1.814e+04	1.55	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	36:47	2.347e+04	1.842e+04	1.27	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	2.612e+04	2.085e+04	1.25	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	2.282e+04	2.164e+04	1.05	yes	no	0.874
32	IS	13C-OCDD	42:20	3.270e+04	3.738e+04	0.87	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	28:36	2.329e+04	2.982e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	37:07	2.756e+04	2.173e+04	1.27	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	29:11	1.240e+02				no	1.038

$$\text{OCDD} = \frac{(4.083e+02 + 5.188e+02) \times (200.0) \times 1}{(3.270e+04 + 3.738e+04) \times 1.068 \times 1.000} = \text{pg}$$

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ALS Form TO9resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS0.5

Method M23

Run #1 Filename P174192 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 09:02:38
Processed: 20-OCT-14 09:25:36 LAB. ID: 66807

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.17e+04	1.09e+03	1.1e+01	1.88e+04	1.12e+03	1.7e+01
2	1,2,3,7,8-PeCDF	9.92e+04	7.24e+02	1.4e+02	5.45e+04	1.40e+03	3.9e+01
3	2,3,4,7,8-PeCDF	9.39e+04	7.24e+02	1.3e+02	5.84e+04	1.40e+03	4.2e+01
4	1,2,3,4,7,8-HxCDF	1.01e+05	8.60e+02	1.2e+02	8.08e+04	4.88e+02	1.7e+02
5	1,2,3,6,7,8-HxCDF	1.18e+05	8.60e+02	1.4e+02	8.33e+04	4.88e+02	1.7e+02
6	2,3,4,6,7,8-HxCDF	9.56e+04	8.60e+02	1.1e+02	7.91e+04	4.88e+02	1.6e+02
7	1,2,3,7,8,9-HxCDF	7.51e+04	8.60e+02	8.7e+01	6.41e+04	4.88e+02	1.3e+02
8	1,2,3,4,6,7,8-HpCDF	1.16e+05	7.24e+02	1.6e+02	1.02e+05	7.84e+02	1.3e+02
9	1,2,3,4,7,8,9-HpCDF	7.72e+04	7.24e+02	1.1e+02	7.03e+04	7.84e+02	9.0e+01
10	OCDF	8.64e+04	6.28e+02	1.4e+02	9.43e+04	1.05e+03	9.0e+01
11	2,3,7,8-TCDD	1.12e+04	8.08e+02	1.4e+01	1.20e+04	1.04e+03	1.2e+01
12	1,2,3,7,8-PeCDD	5.84e+04	1.08e+03	5.4e+01	3.88e+04	7.64e+02	5.1e+01
13	1,2,3,4,7,8-HxCDD	6.38e+04	6.12e+02	1.0e+02	4.66e+04	8.76e+02	5.3e+01
14	1,2,3,6,7,8-HxCDD	5.80e+04	6.12e+02	9.5e+01	4.94e+04	8.76e+02	5.6e+01
15	1,2,3,7,8,9-HxCDD	7.23e+04	6.12e+02	1.2e+02	4.98e+04	8.76e+02	5.7e+01
16	1,2,3,4,6,7,8-HpCDD	6.18e+04	6.64e+02	9.3e+01	6.39e+04	4.68e+02	1.4e+02
17	OCDD	6.79e+04	5.80e+02	1.2e+02	8.72e+04	8.64e+02	1.0e+02
18	13C-2,3,7,8-TCDF	4.76e+06	2.94e+03	1.6e+03	6.07e+06	1.60e+03	3.8e+03
19	13C-1,2,3,7,8-PeCDF	6.86e+06	6.08e+02	1.1e+04	4.42e+06	1.24e+03	3.6e+03
20	13C-2,3,4,7,8-PeCDF	7.47e+06	6.08e+02	1.2e+04	4.74e+06	1.24e+03	3.8e+03
21	13C-1,2,3,4,7,8-HxCDF	3.69e+06	8.80e+02	4.2e+03	7.16e+06	1.44e+03	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.33e+06	8.80e+02	4.9e+03	8.14e+06	1.44e+03	5.7e+03
24	13C-1,2,3,7,8,9-HxCDF	3.00e+06	8.80e+02	3.4e+03	5.86e+06	1.44e+03	4.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.34e+06	3.80e+03	8.8e+02	7.42e+06	2.12e+03	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.32e+06	3.80e+03	6.1e+02	5.11e+06	2.12e+03	2.4e+03
27	13C-2,3,7,8-TCDD	3.42e+06	3.58e+03	9.6e+02	4.39e+06	1.99e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	4.99e+06	7.92e+02	6.3e+03	3.23e+06	7.36e+02	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	5.10e+06	3.58e+03	1.4e+03	4.05e+06	1.50e+03	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	5.12e+06	3.58e+03	1.4e+03	4.08e+06	1.50e+03	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.32e+06	5.80e+02	7.4e+03	4.12e+06	7.72e+02	5.3e+03
32	13C-OCDD	5.20e+06	1.00e+03	5.2e+03	5.86e+06	7.60e+02	7.7e+03
33	13C-1,2,3,4-TCDD	4.03e+06	3.58e+03	1.1e+03	5.09e+06	1.99e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	5.10e+06	3.58e+03	1.4e+03	4.04e+06	1.50e+03	2.7e+03
35	37Cl-2,3,7,8-TCDD	2.07e+04	1.52e+03	1.4e+01			

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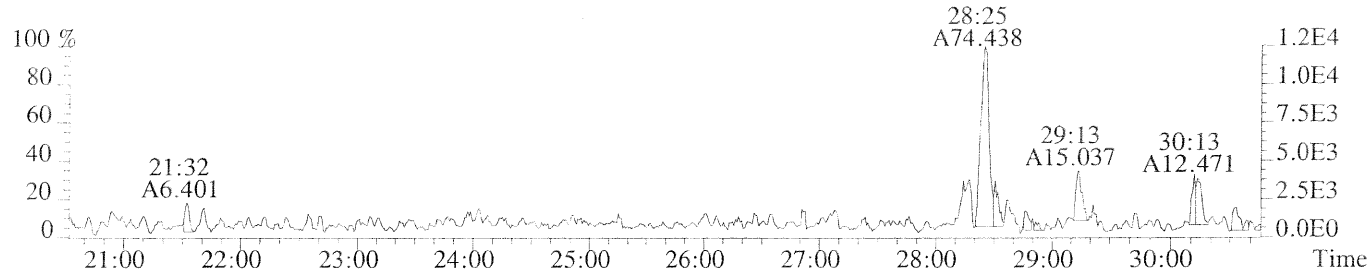
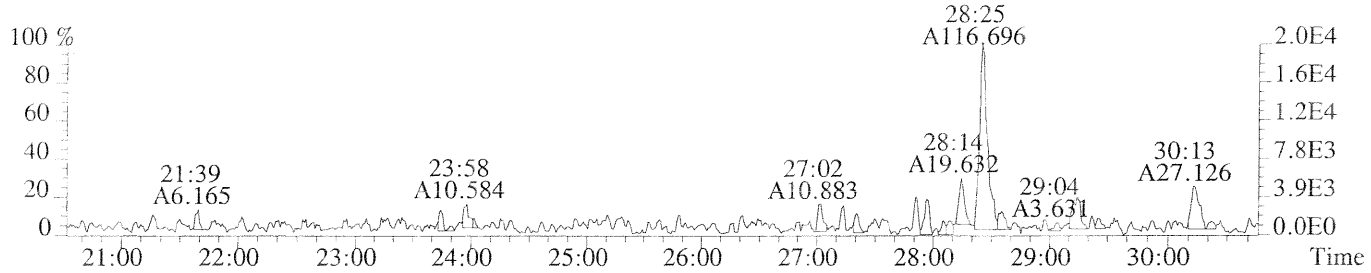
ALS Form TO-9SN/M23SN.FRM

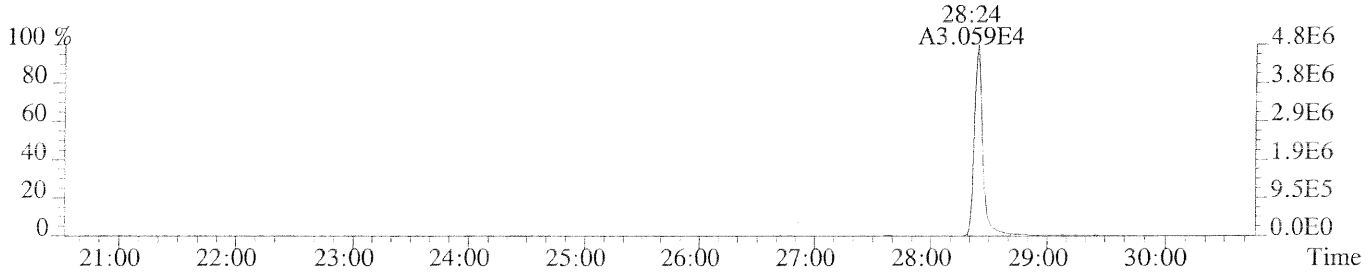
File:P174192 #1-788 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



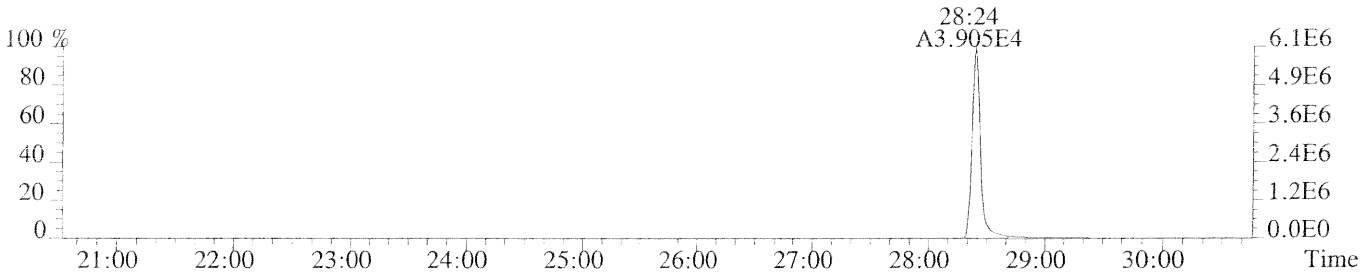
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



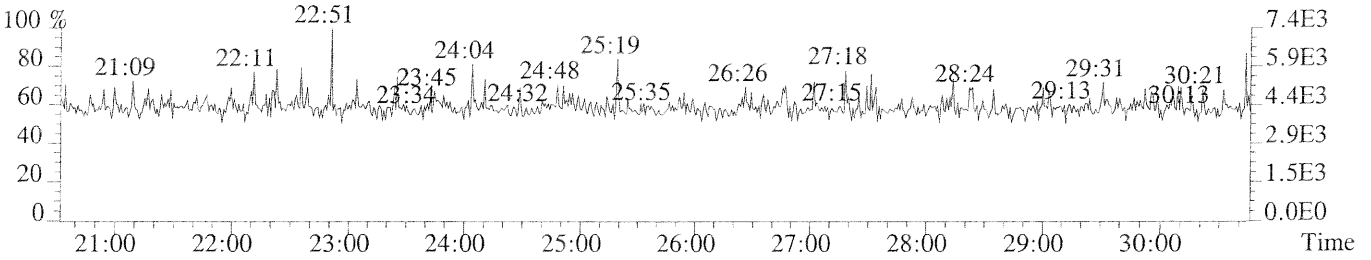
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2940.0,1.00%,F,T)



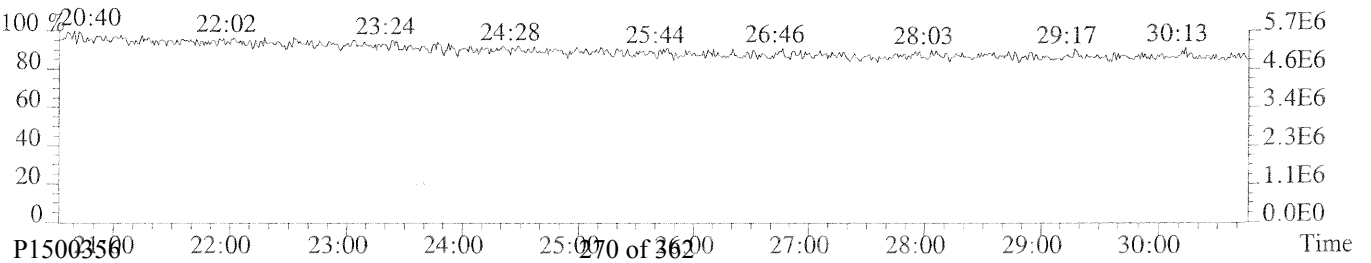
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



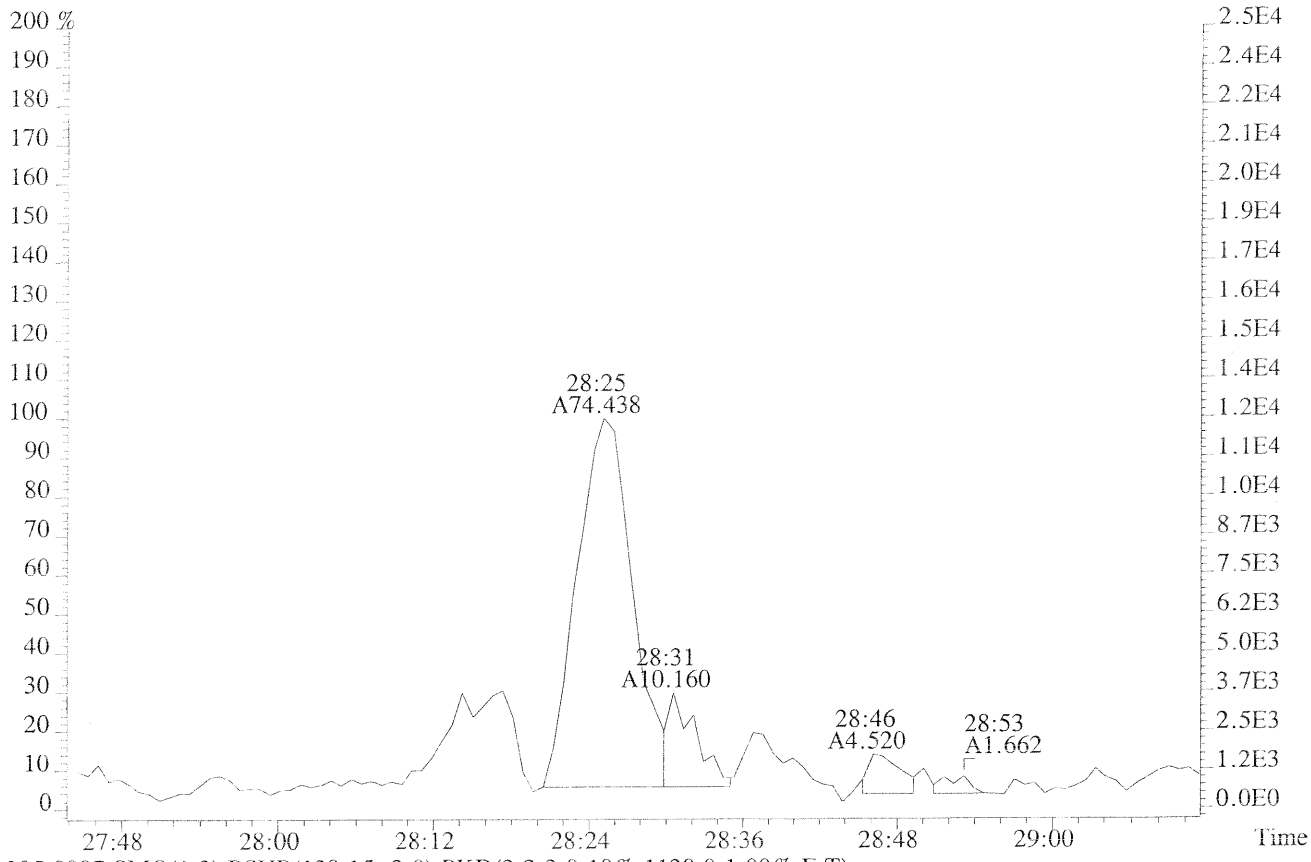
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



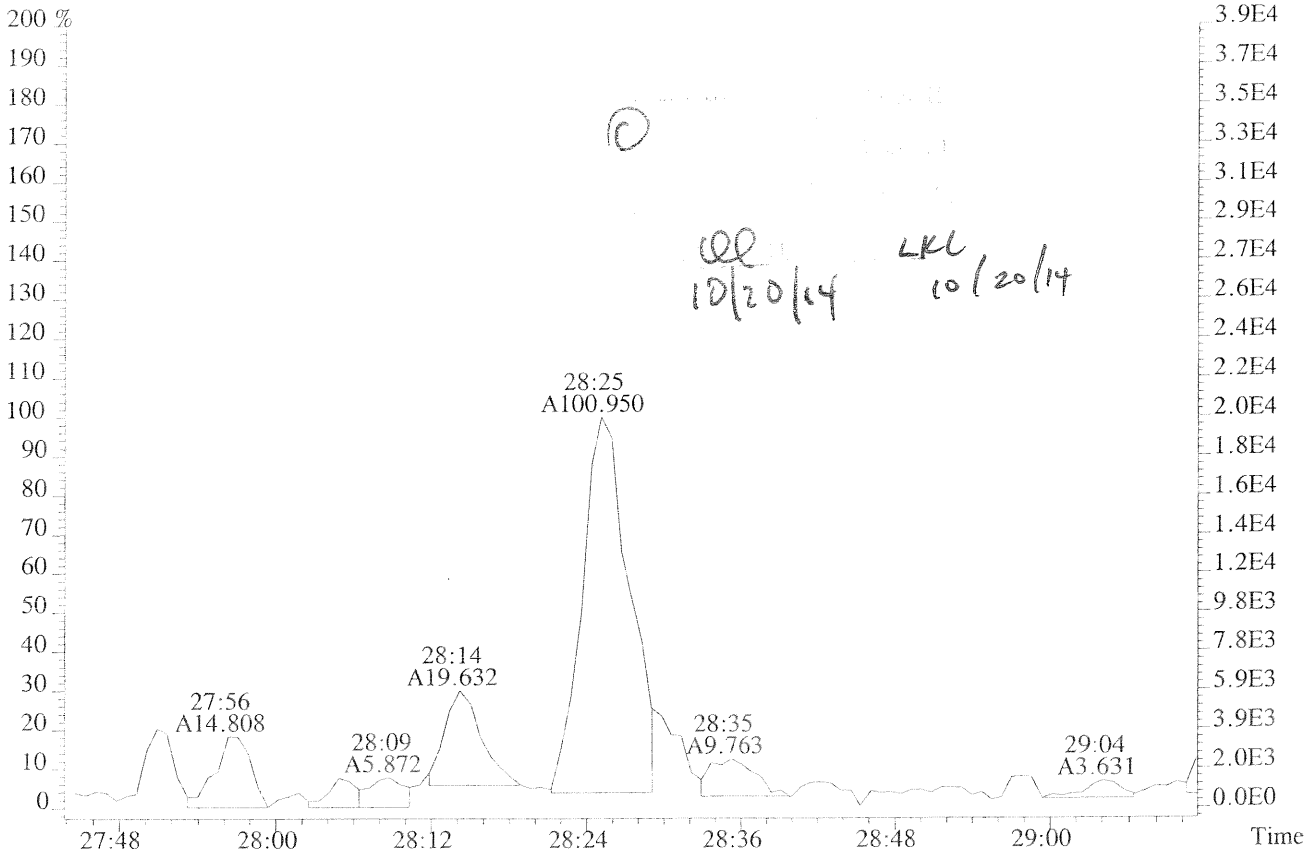
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P174192 #1-788 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass s£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)

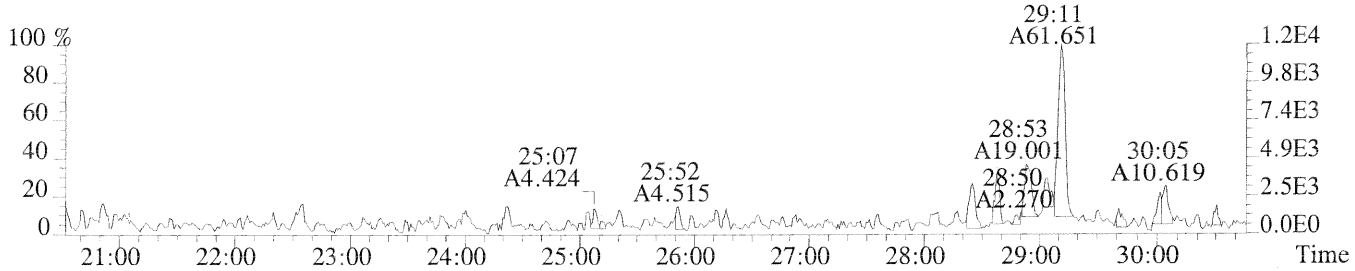


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)

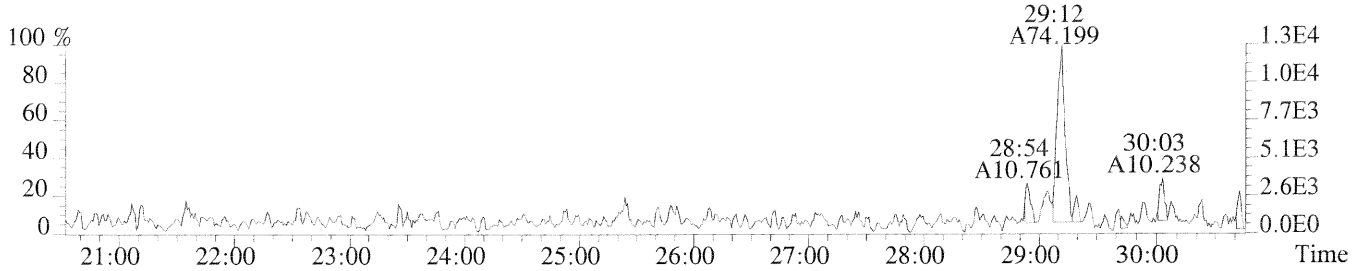


10/20/14 LKL 10/20/14

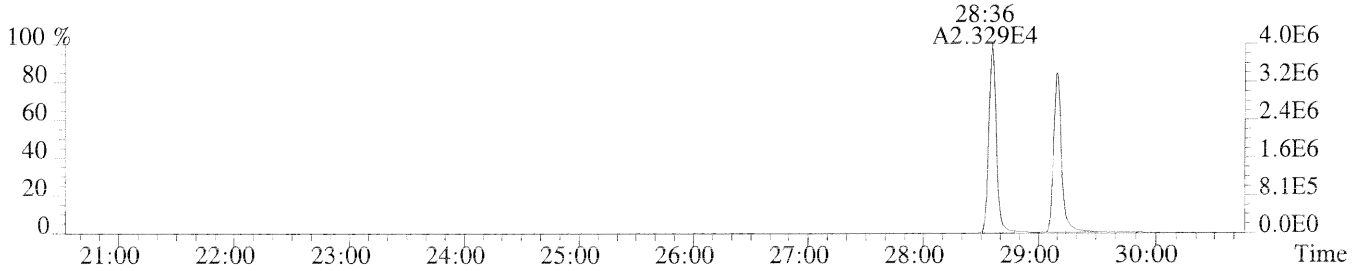
File:P174192 #1-788 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



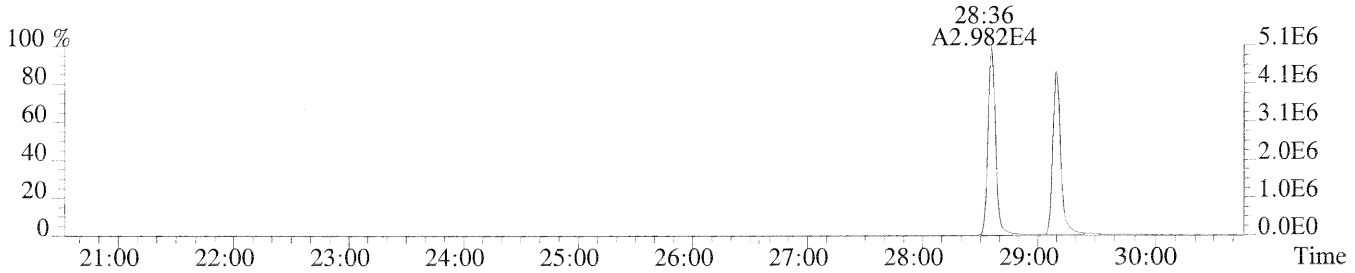
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



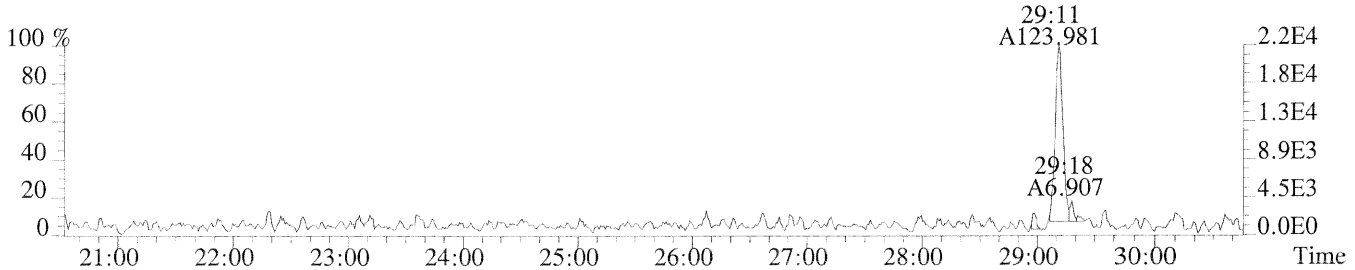
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3576.0,1.00%,F,T)



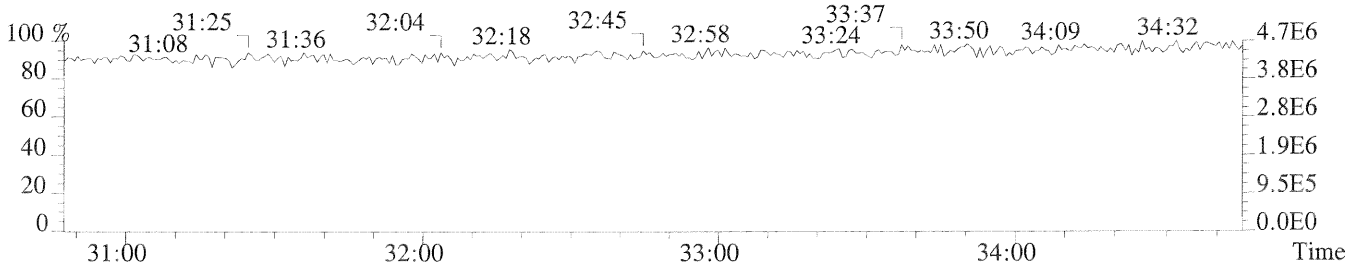
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)



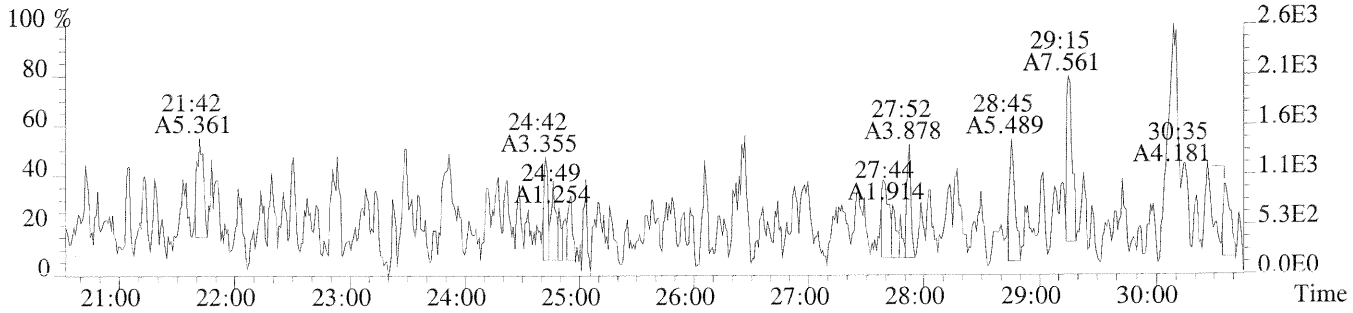
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1516.0,1.00%,F,T)



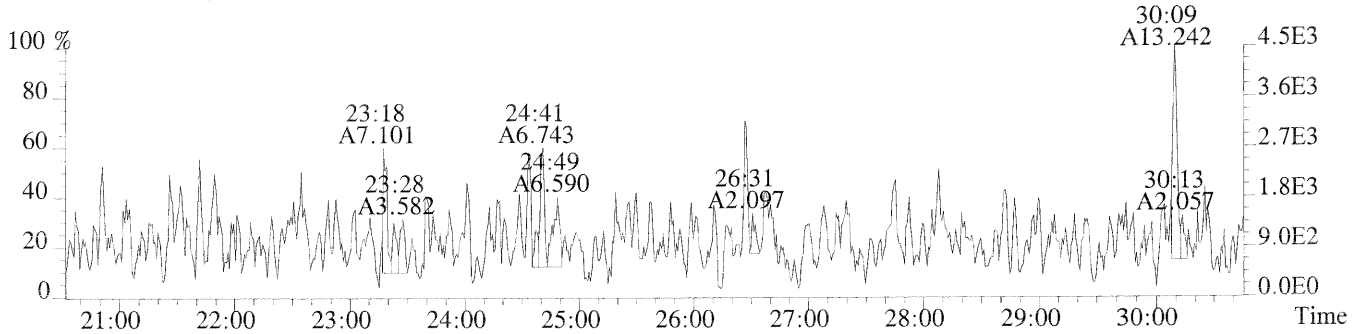
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



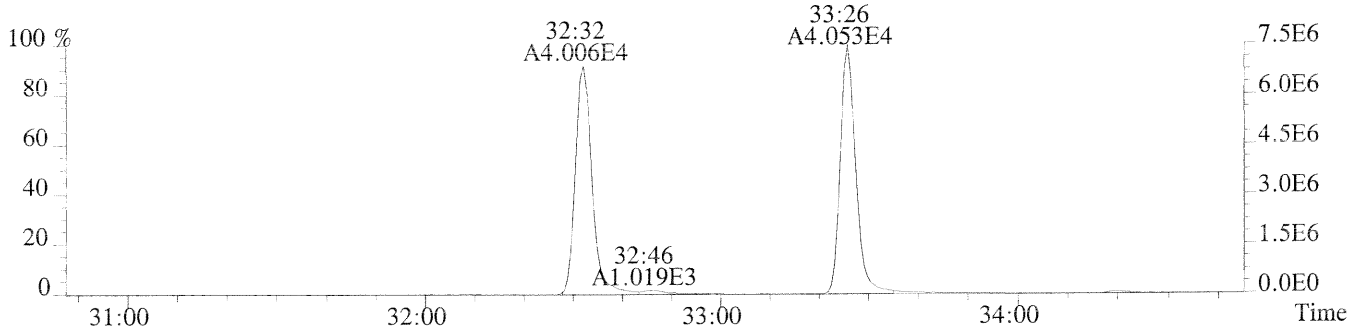
File:P174192 #1-788 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



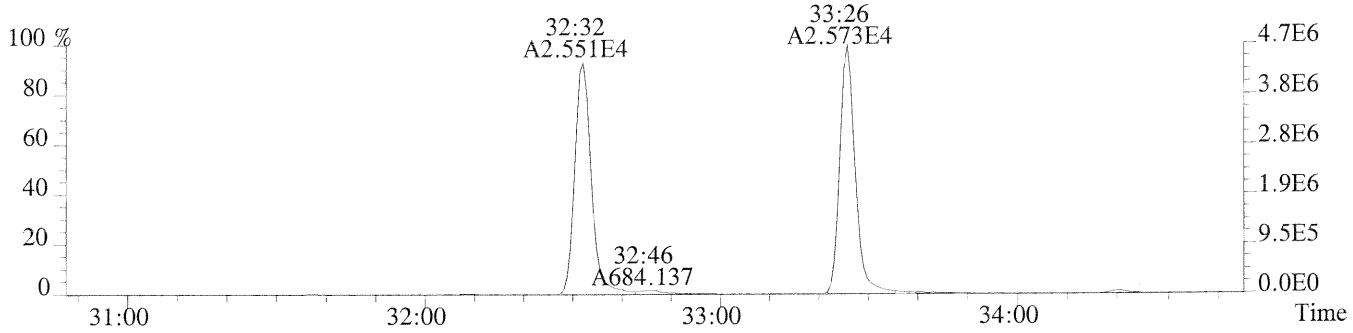
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



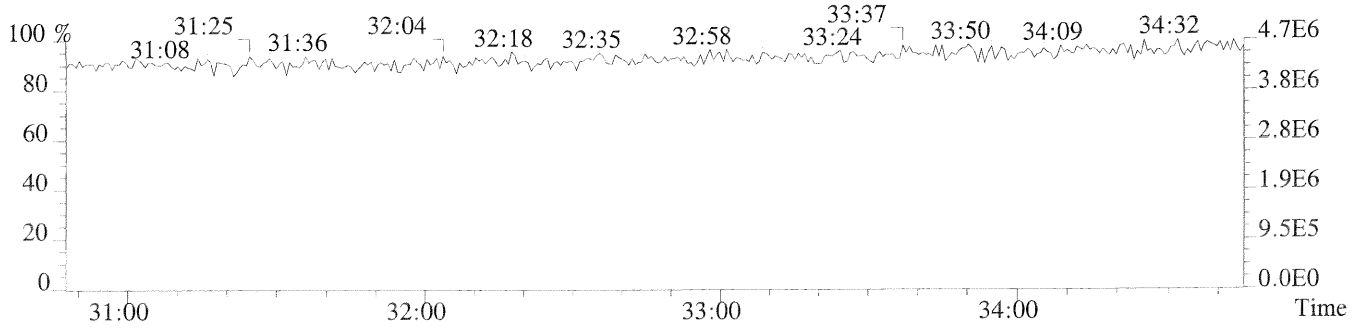
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)

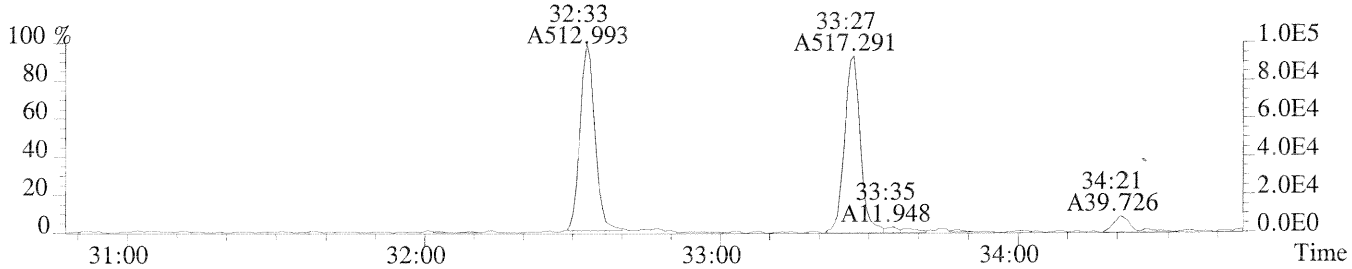


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

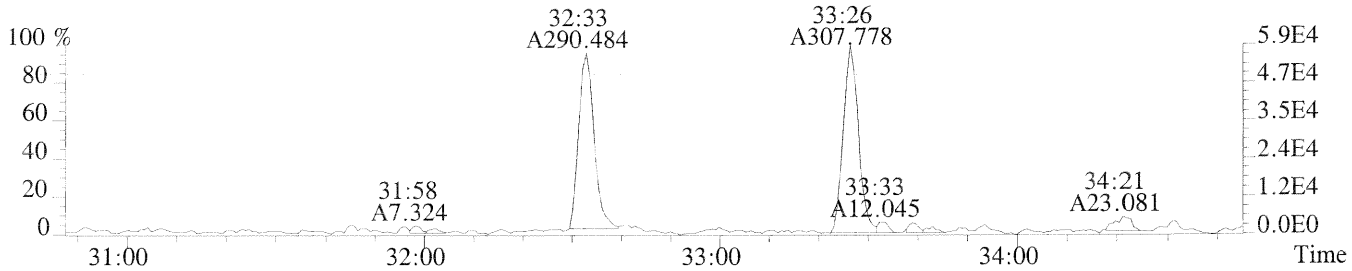


File:P174192 #1-360 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

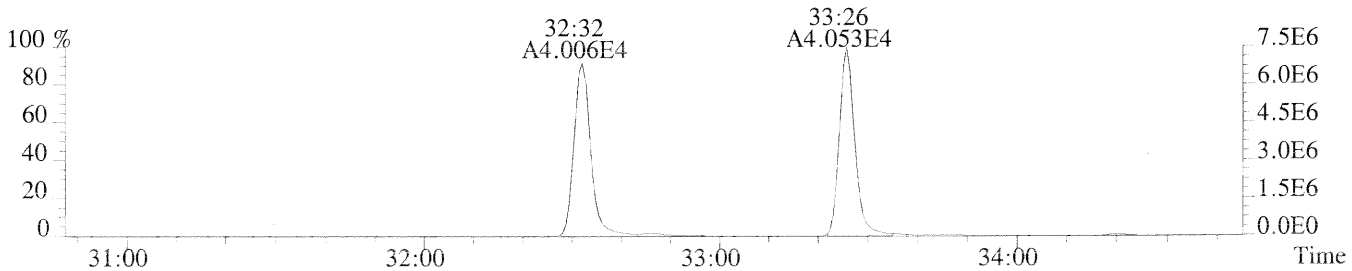
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



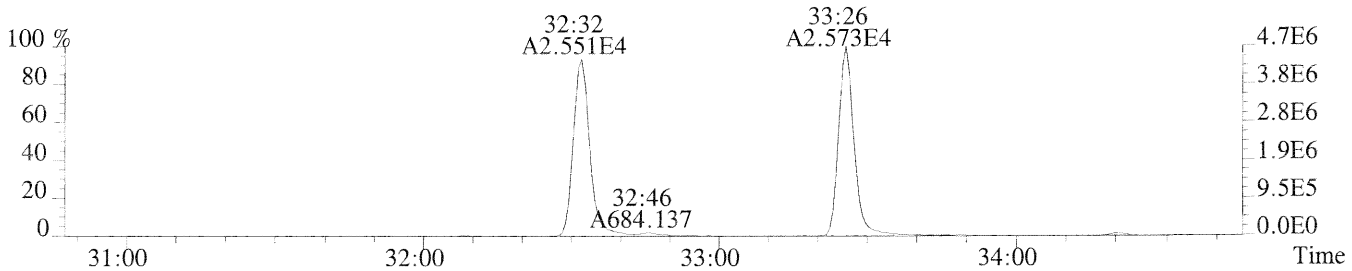
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



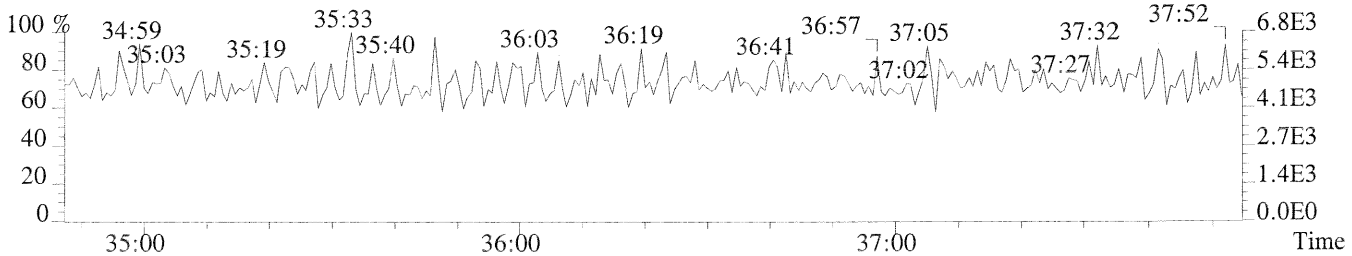
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



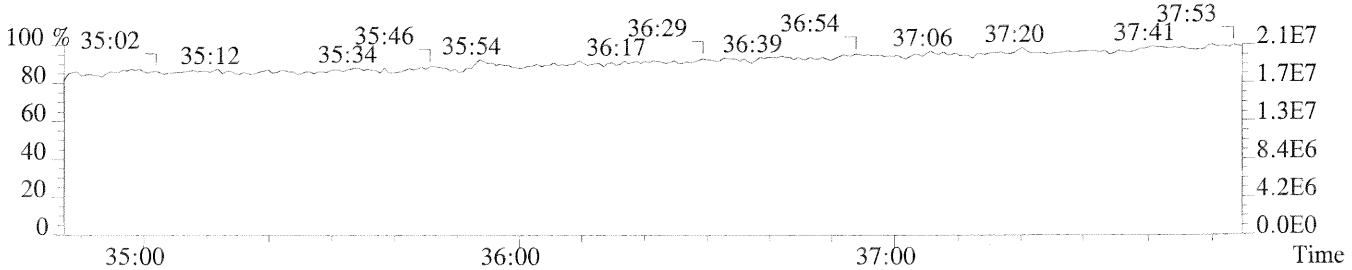
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



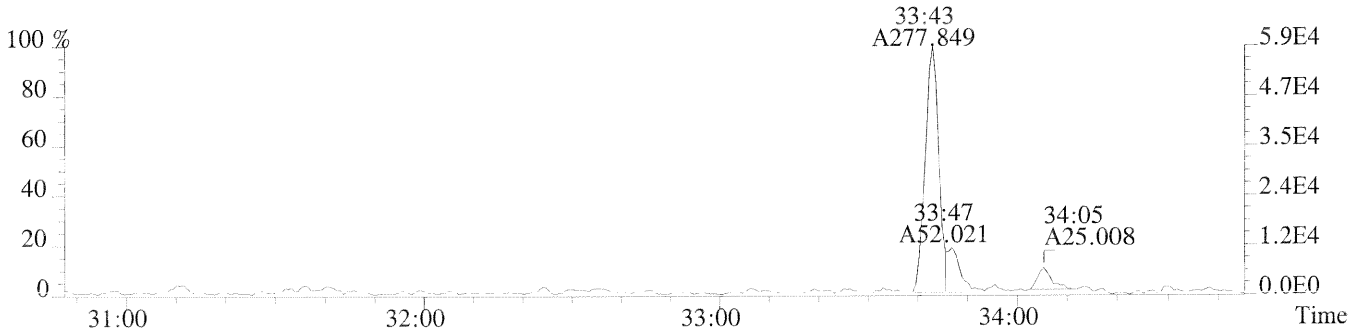
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



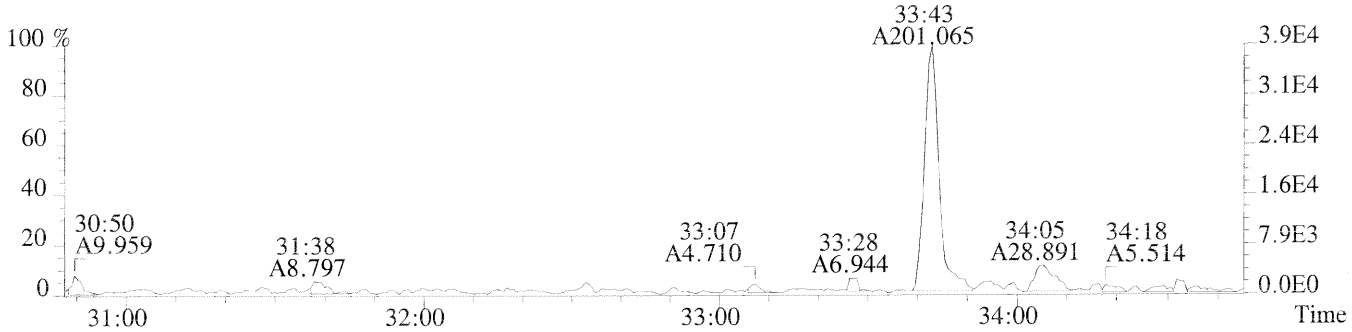
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



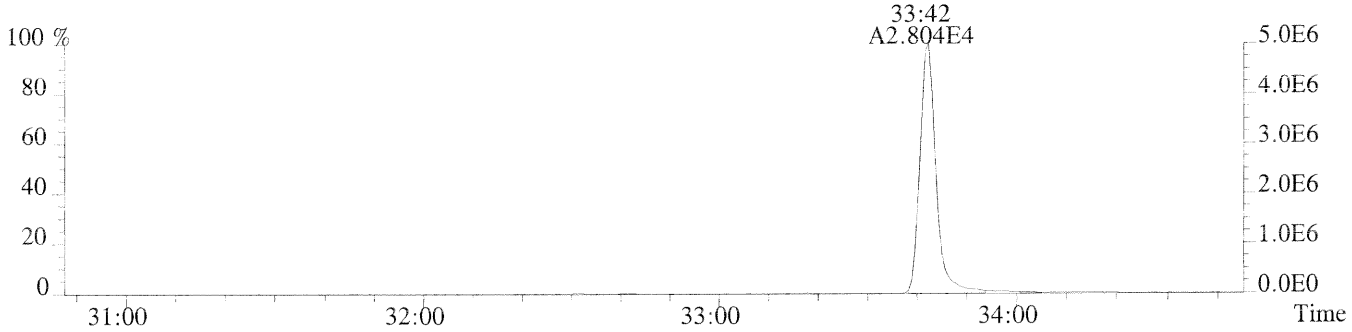
File:P174192 #1-360 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



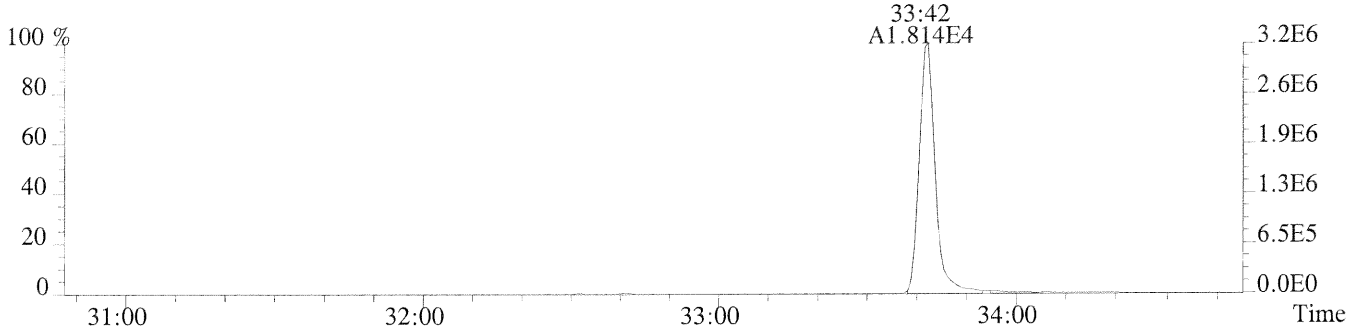
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



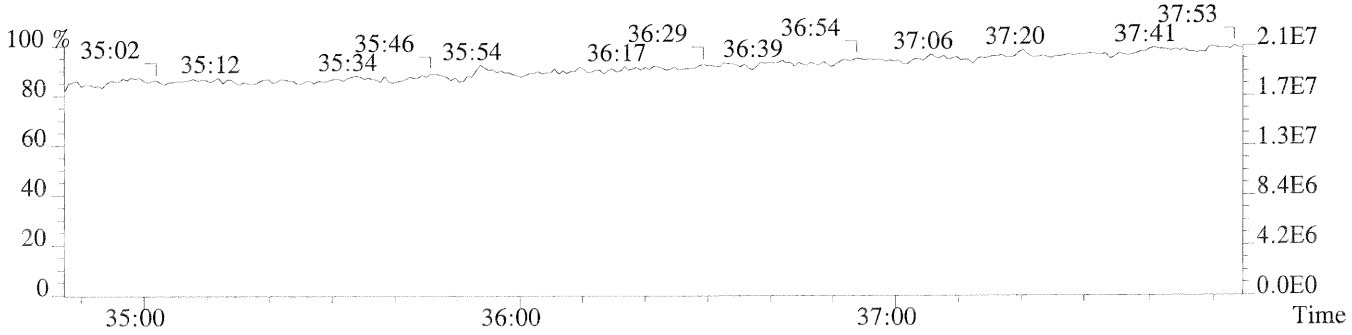
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)

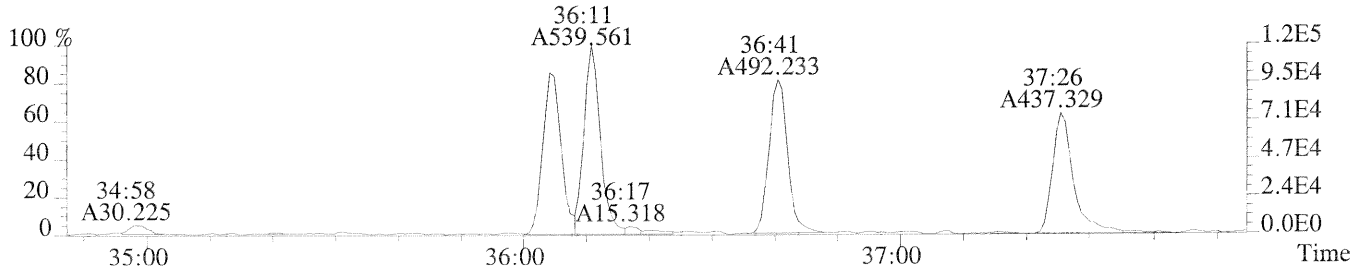


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

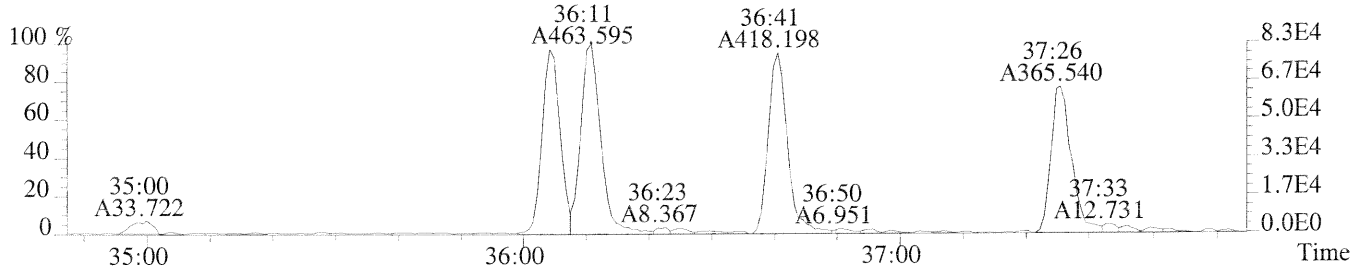


File:P174192 #1-284 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

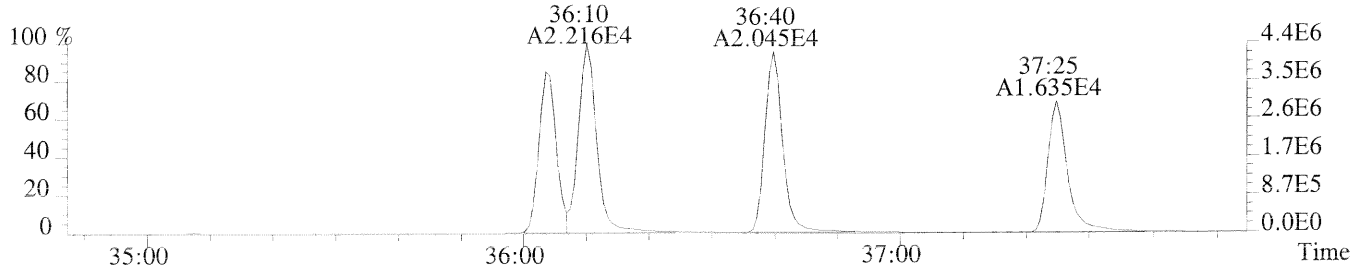
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



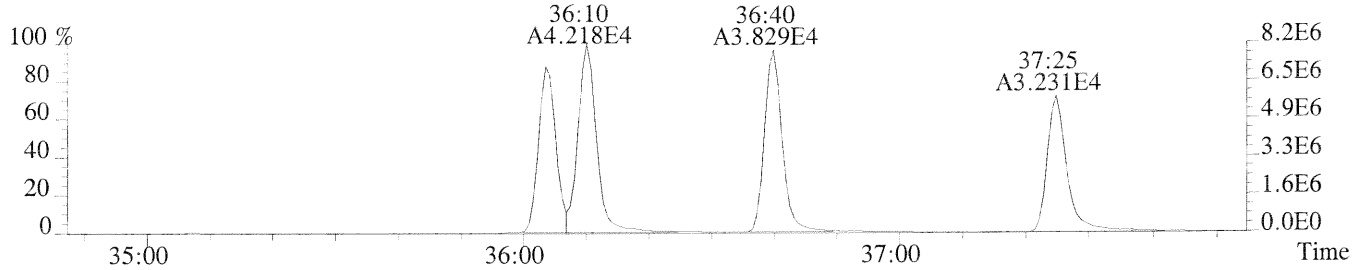
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



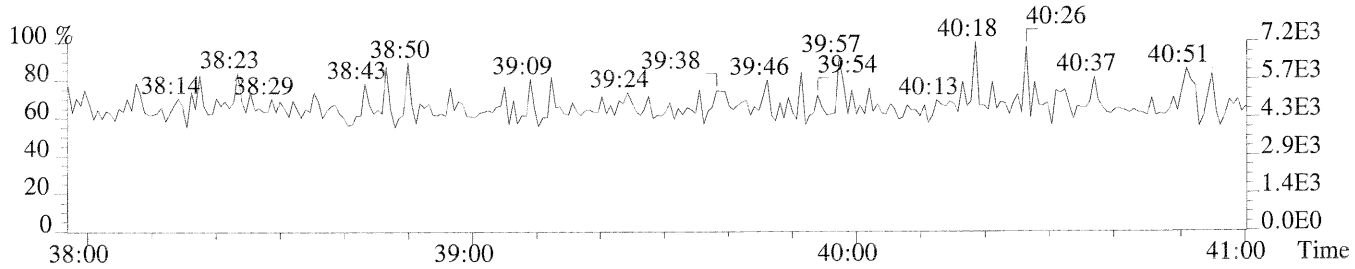
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



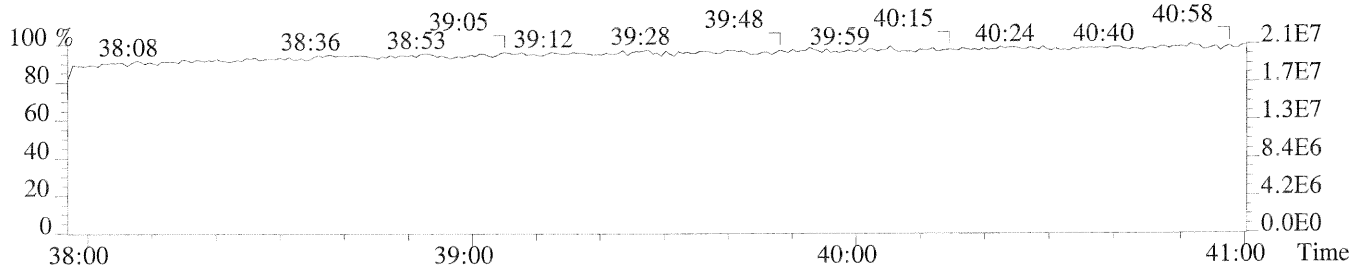
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



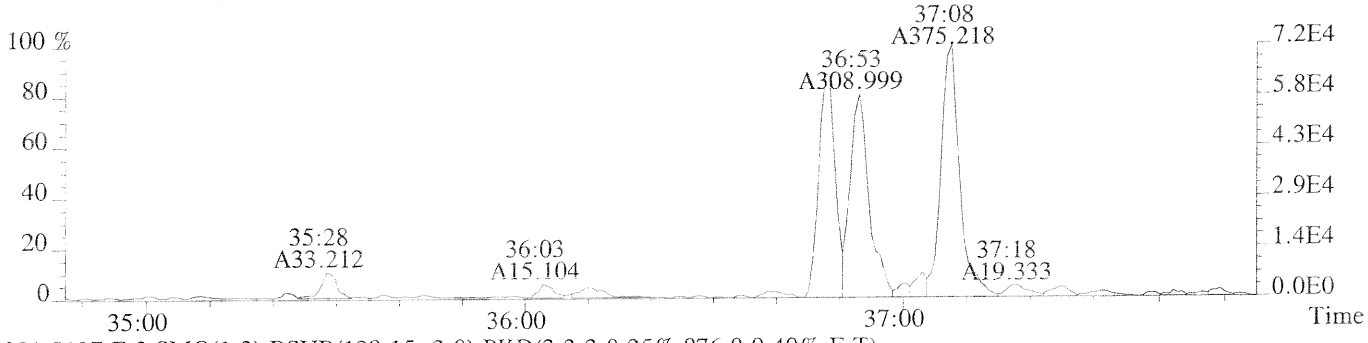
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



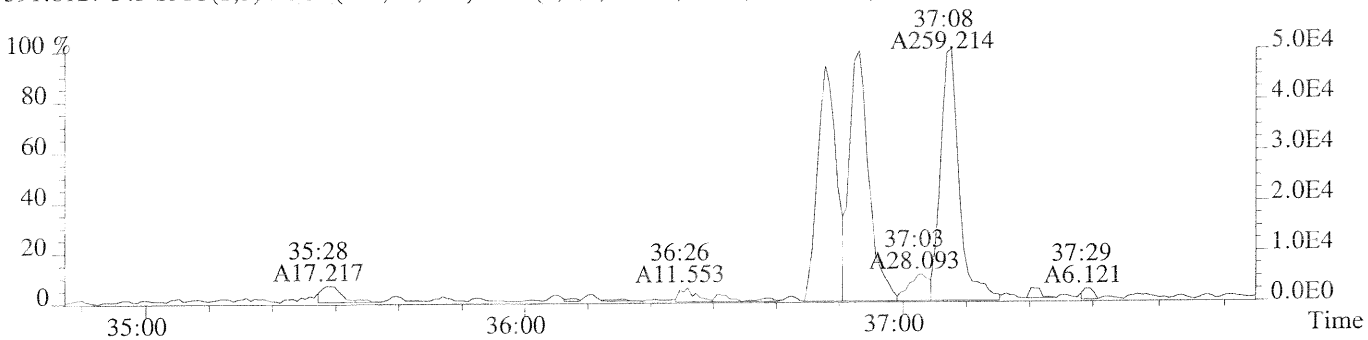
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



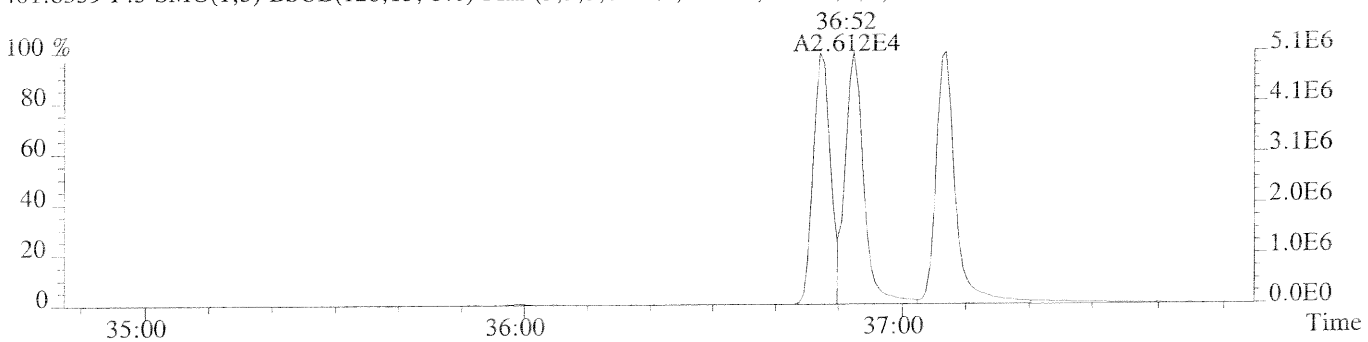
File:P174192 #1-284 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



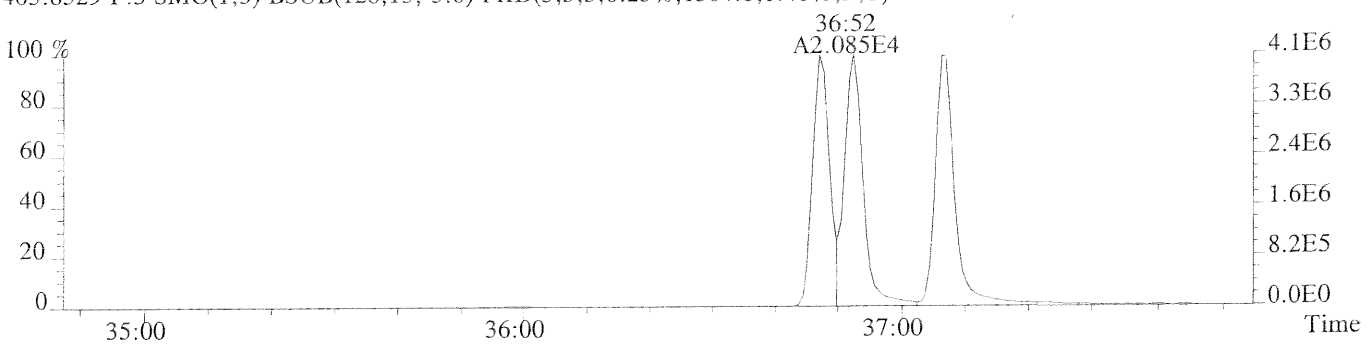
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



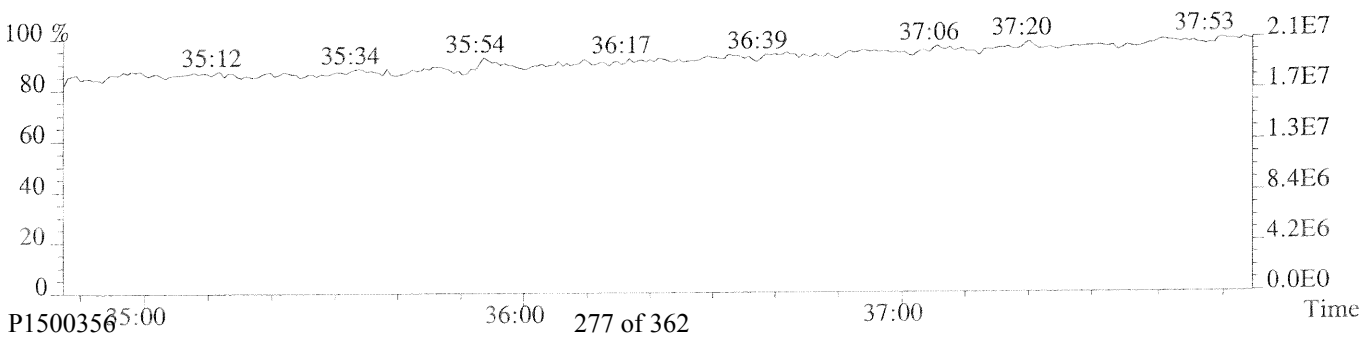
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3576.0,0.40%,F,T)



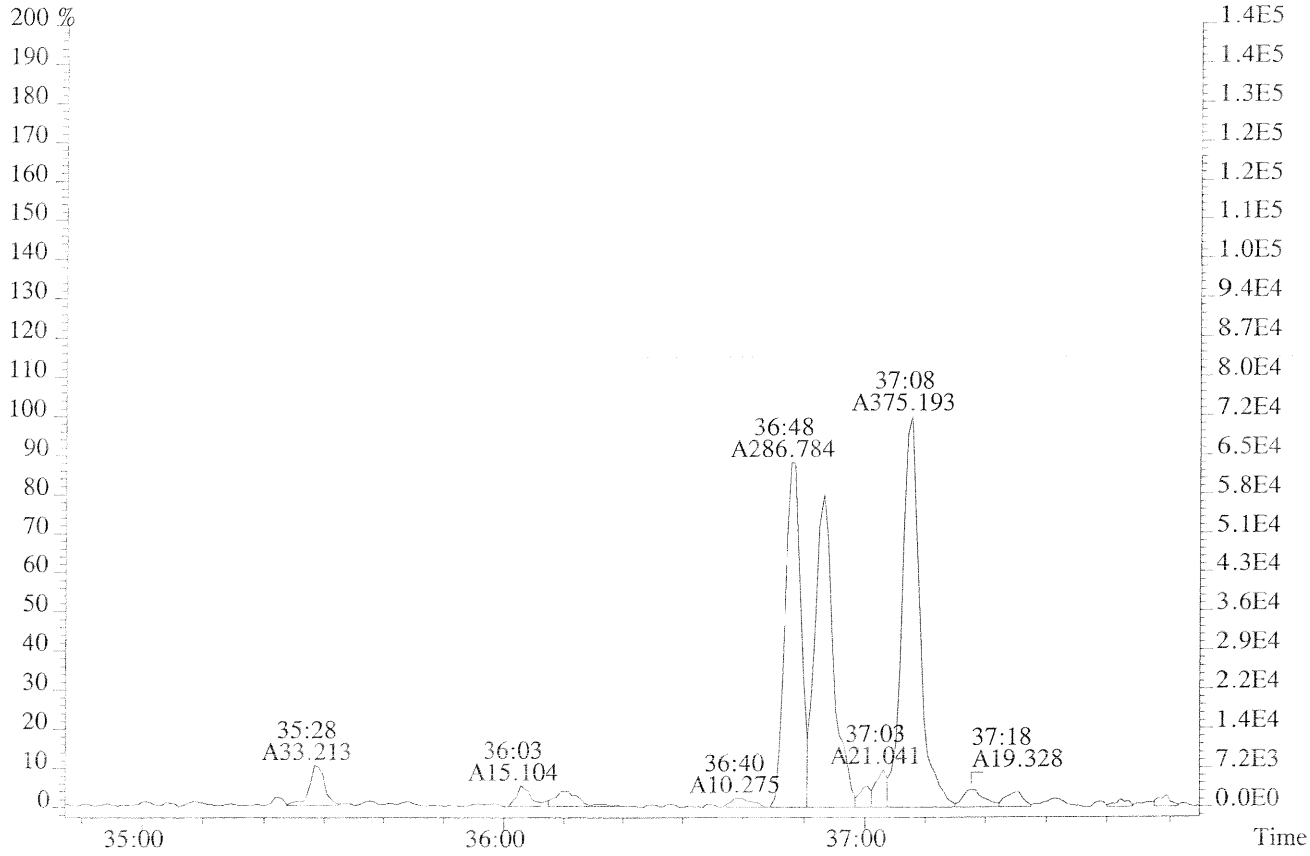
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1504.0,0.40%,F,T)



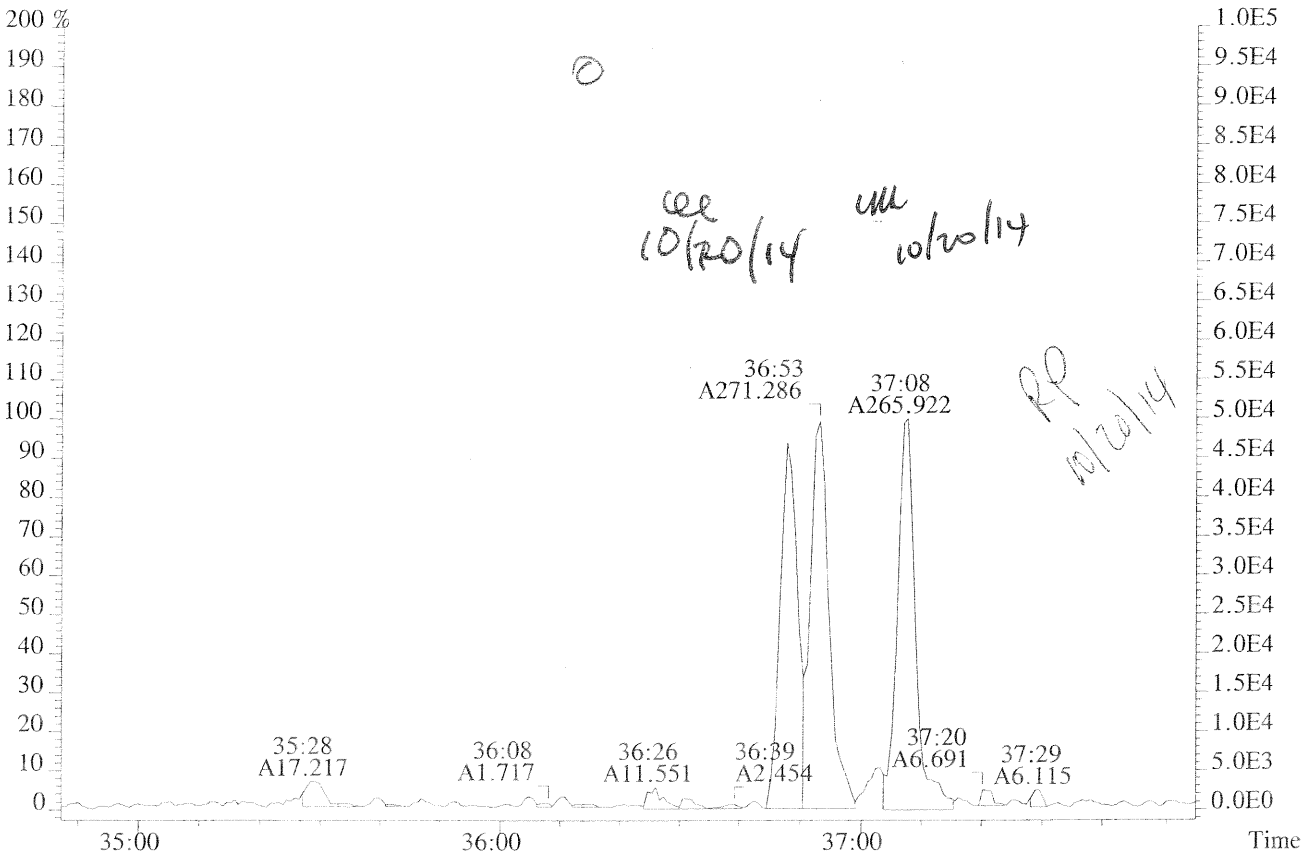
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P174192 #1-284 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass s£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0)

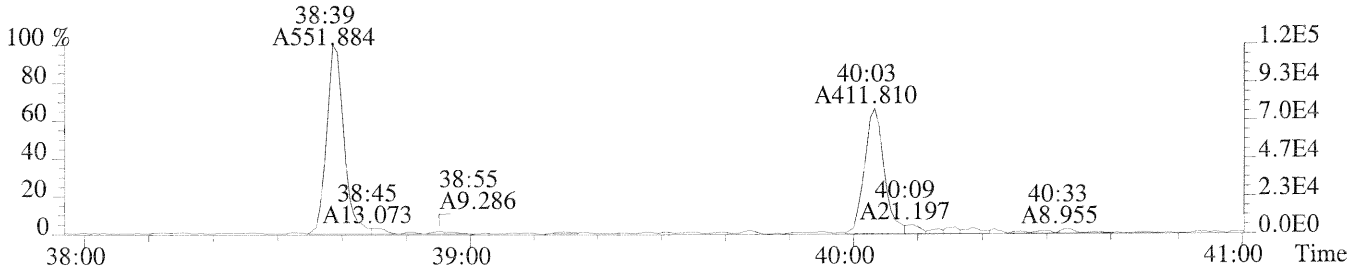


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0)

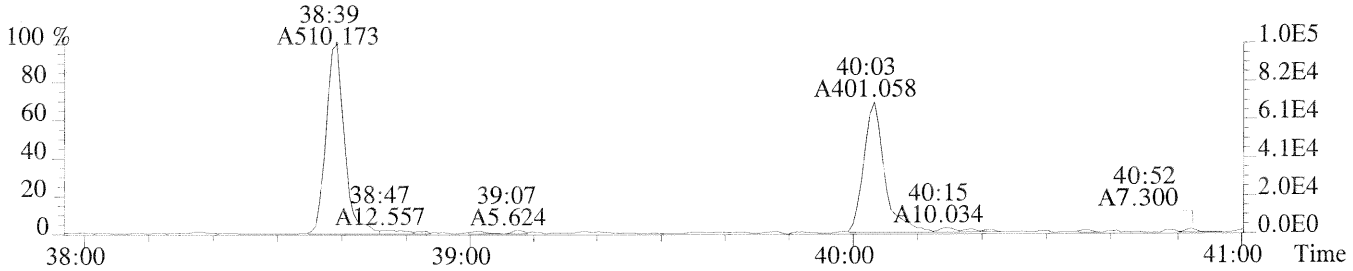


File:P174192 #1-278 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5

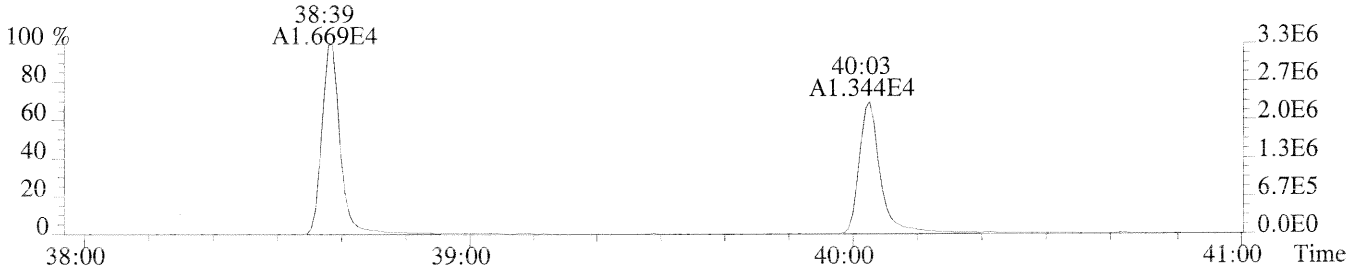
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.50%,F,T)



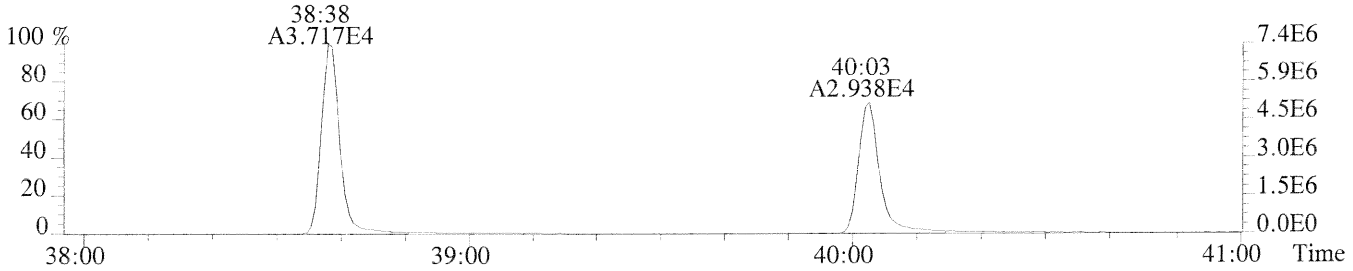
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.50%,F,T)



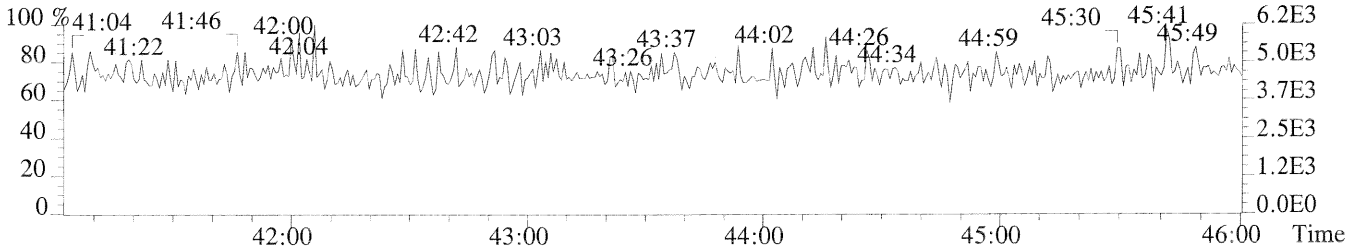
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3796.0,0.50%,F,T)



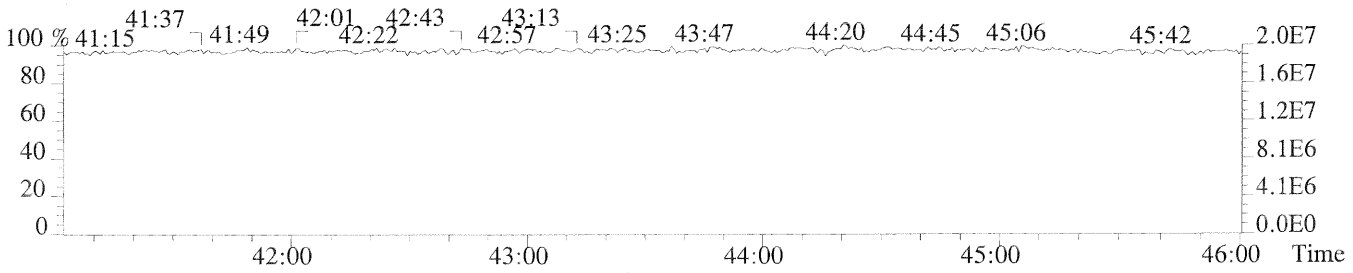
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2116.0,0.50%,F,T)



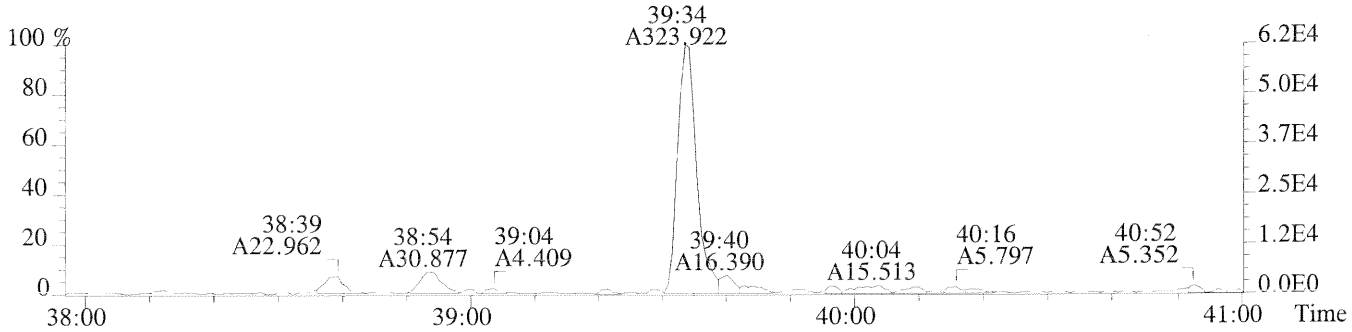
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



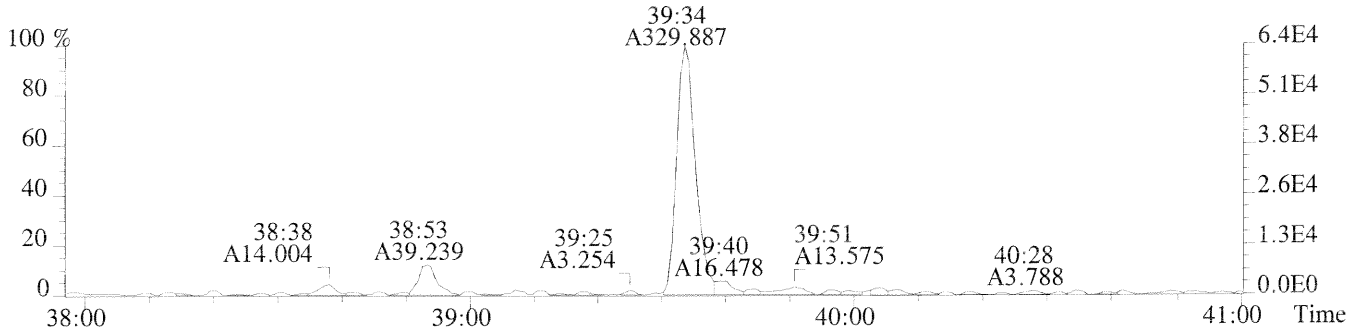
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



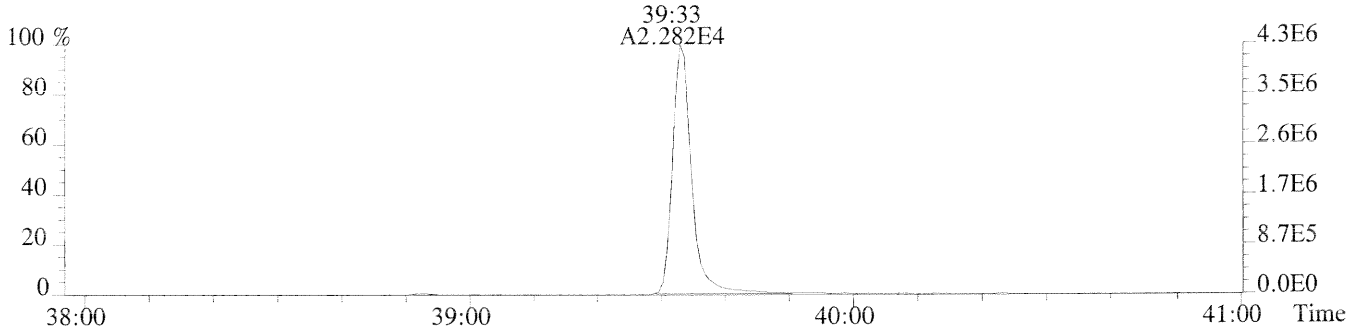
File:P174192 #1-278 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



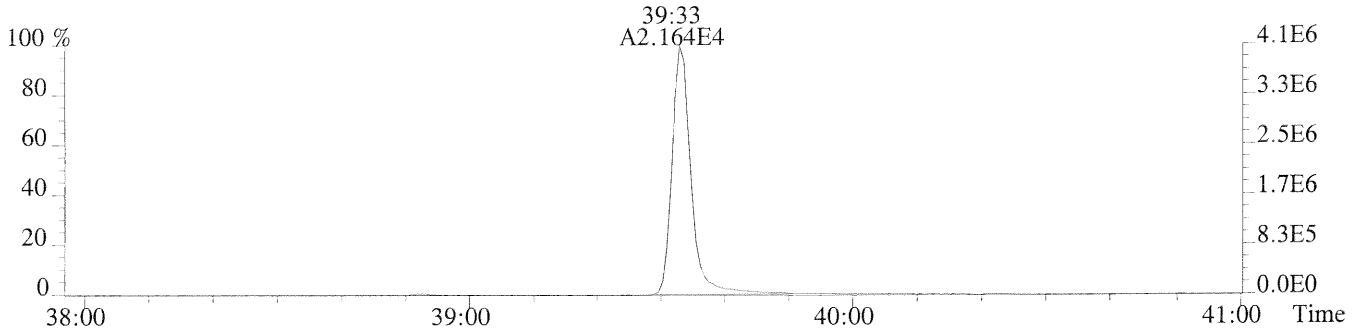
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



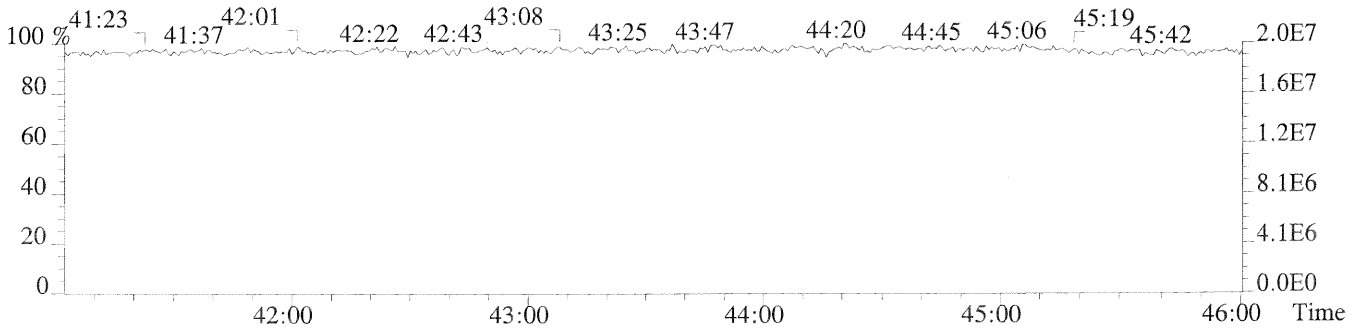
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



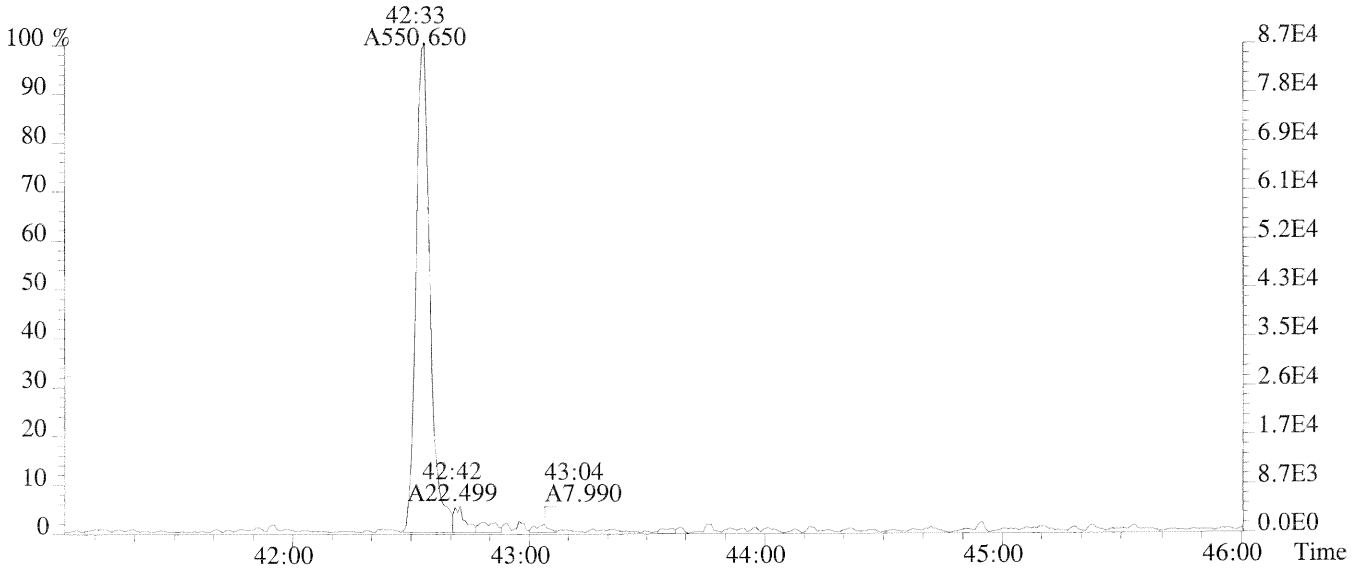
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



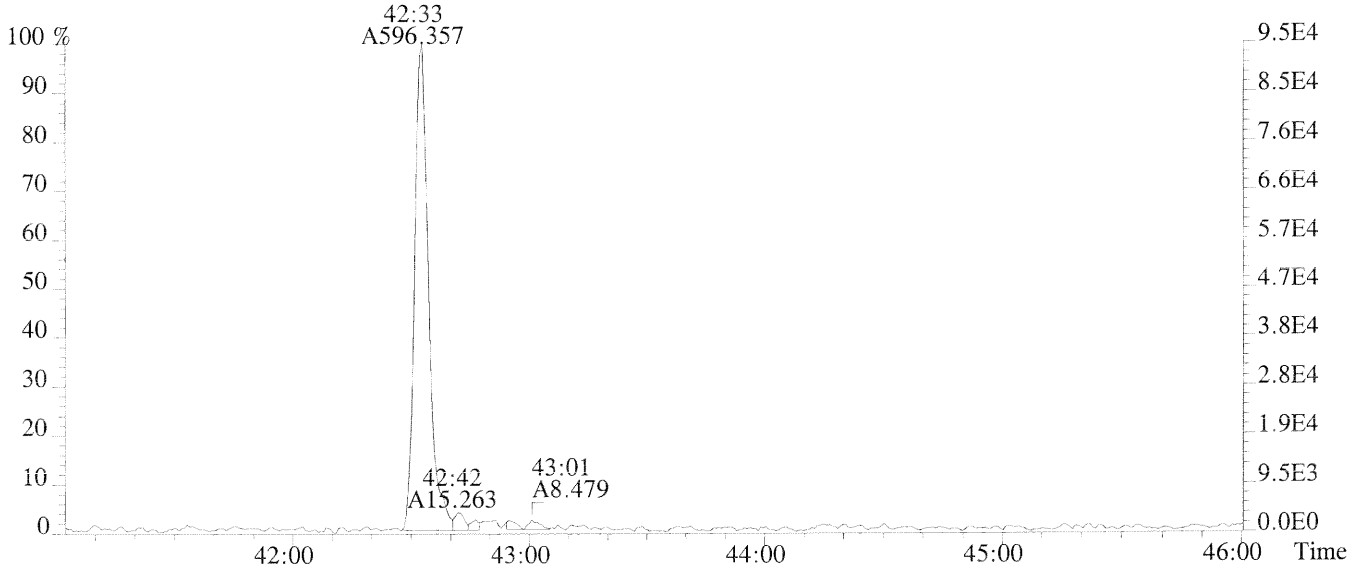
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



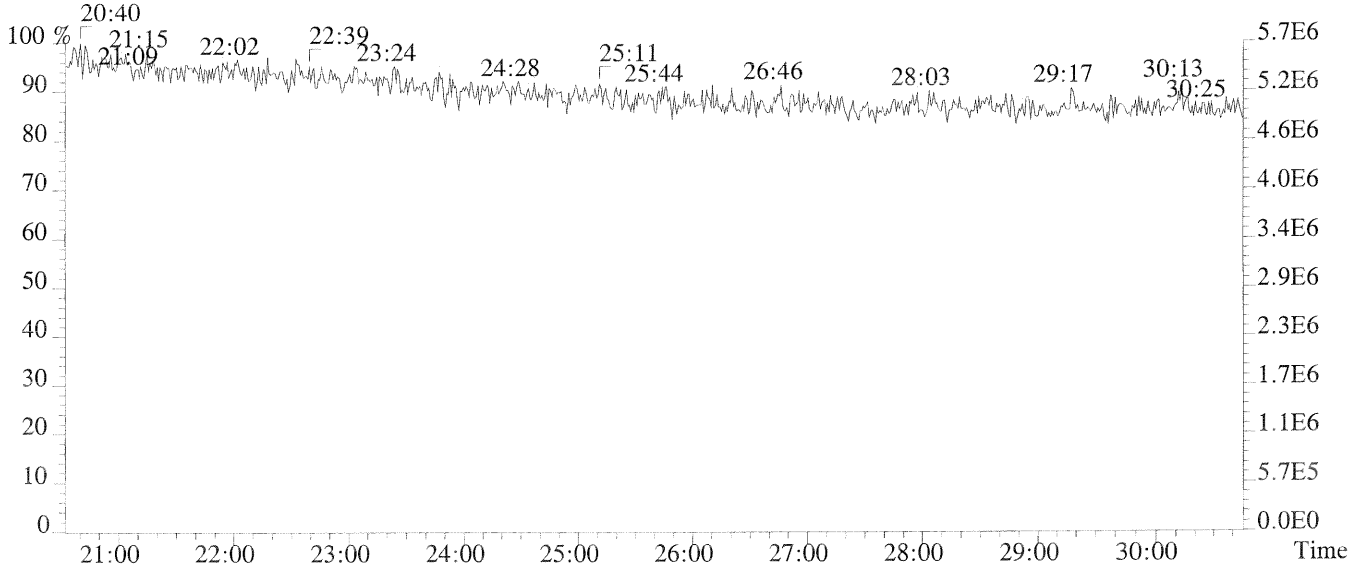
File:P174192 #1-457 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



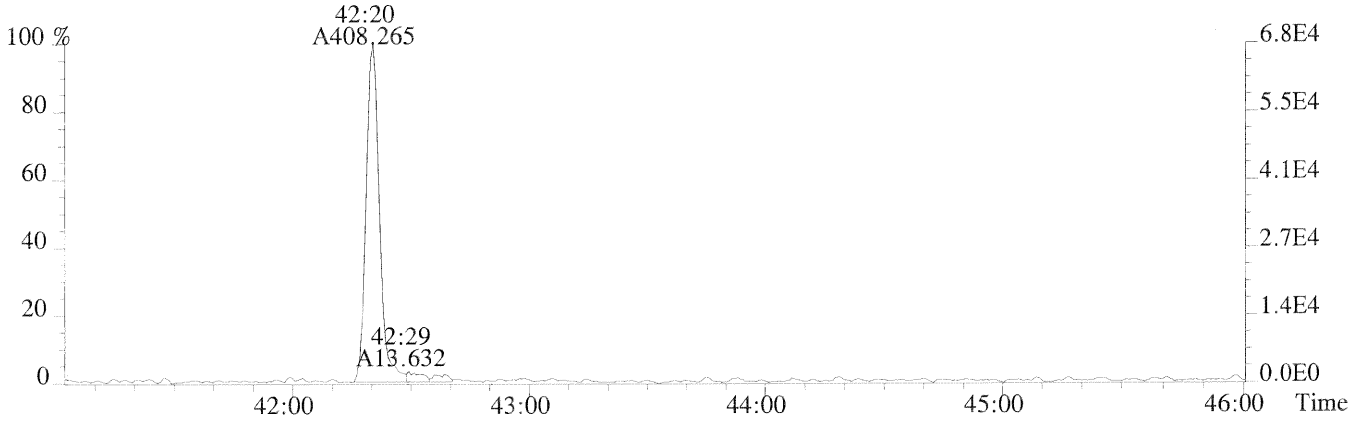
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1052.0,0.40%,F,T)



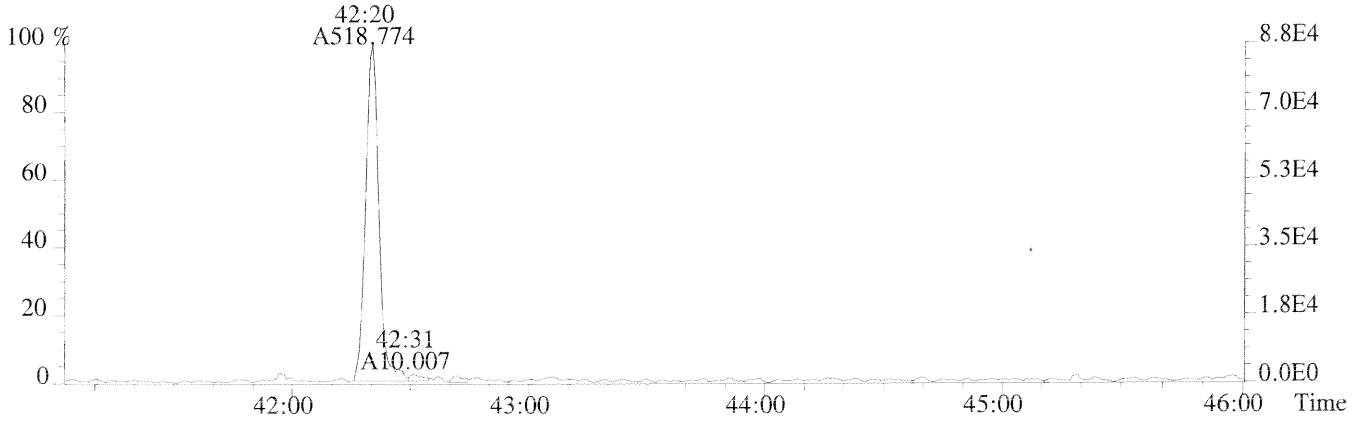
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



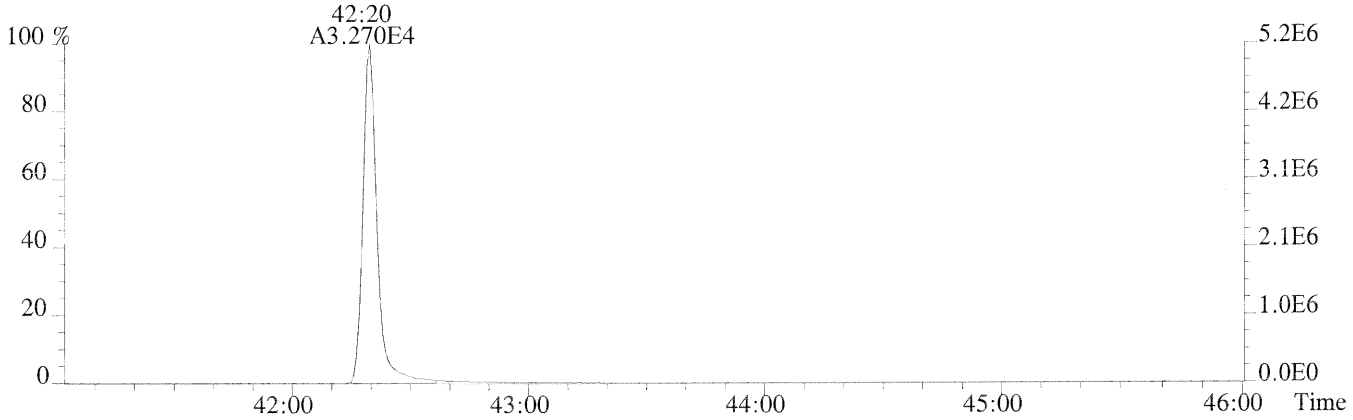
File:P174192 #1-457 Acq:18-OCT-2014 09:56:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



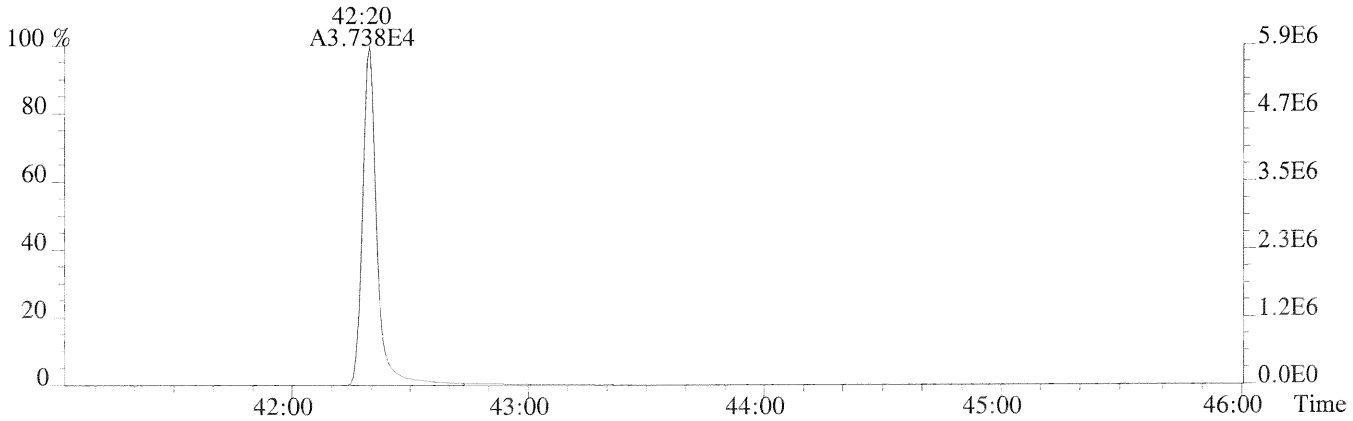
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



ALS ENVIRONMENTAL
Method M23
Sample Response Summary

CLIENT ID.
CS1

Run #2 Filename P174193 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 12:07:26
Processed: 20-OCT-14 09:25:44 LAB. ID: 66798

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:26	1.265e+02	1.710e+02	0.74	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	32:34	9.975e+02	6.346e+02	1.57	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	33:27	1.075e+03	6.379e+02	1.68	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	36:05	9.665e+02	7.364e+02	1.31	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	36:12	1.124e+03	8.576e+02	1.31	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	36:41	9.527e+02	8.059e+02	1.18	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	37:26	7.743e+02	6.590e+02	1.17	yes	no	0.957
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	9.798e+02	8.692e+02	1.13	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	7.346e+02	6.930e+02	1.06	yes	no	1.148
10	Unk	OCDF	42:33	1.154e+03	1.195e+03	0.97	yes	no	1.369
11	Unk	2,3,7,8-TCDD	29:11	8.610e+01	1.200e+02	0.72	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	33:43	6.403e+02	4.099e+02	1.56	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	36:49	5.523e+02	4.037e+02	1.37	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	36:53	6.612e+02	4.831e+02	1.37	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	37:08	6.269e+02	4.936e+02	1.27	yes	no	1.019
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	5.691e+02	5.249e+02	1.08	yes	no	1.052
17	Unk	OCDD	42:20	8.491e+02	9.708e+02	0.87	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	28:24	2.719e+04	3.434e+04	0.79	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:32	3.766e+04	2.362e+04	1.59	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	33:26	3.848e+04	2.426e+04	1.59	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	36:04	1.710e+04	3.249e+04	0.53	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	36:11	2.088e+04	3.909e+04	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	37:25	1.571e+04	2.968e+04	0.53	yes	no	0.976
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.512e+04	3.349e+04	0.45	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.231e+04	2.747e+04	0.45	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	29:10	1.876e+04	2.444e+04	0.77	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:42	2.654e+04	1.673e+04	1.59	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	36:48	2.264e+04	1.689e+04	1.34	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	36:53	2.401e+04	2.008e+04	1.20	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	2.120e+04	2.038e+04	1.04	yes	no	0.874
32	IS	13C-OCDD	42:20	3.023e+04	3.402e+04	0.89	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	28:36	2.032e+04	2.598e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	37:07	2.549e+04	2.036e+04	1.25	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	29:11	2.218e+02				no	1.038

$$\text{OCDD} = \frac{(8.491e+02 + 9.708e+02 \times (\ 200.0\ )) \times 1}{(3.023e+04 + 3.402e+04\ ) \times 1.068 \times 1.000} = \text{pg}$$

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ALS Form TO9resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS1

Method M23

Run #2 Filename P174193 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 12:07:26
Processed: 20-OCT-14 09:25:44 LAB. ID: 66798

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.29e+04	1.10e+03	2.1e+01	2.93e+04	1.03e+03	2.8e+01
2	1,2,3,7,8-PeCDF	1.72e+05	6.76e+02	2.5e+02	1.10e+05	1.42e+03	7.8e+01
3	2,3,4,7,8-PeCDF	1.86e+05	6.76e+02	2.7e+02	1.18e+05	1.42e+03	8.3e+01
4	1,2,3,4,7,8-HxCDF	2.06e+05	9.52e+02	2.2e+02	1.50e+05	6.44e+02	2.3e+02
5	1,2,3,6,7,8-HxCDF	2.14e+05	9.52e+02	2.2e+02	1.63e+05	6.44e+02	2.5e+02
6	2,3,4,6,7,8-HxCDF	1.89e+05	9.52e+02	2.0e+02	1.57e+05	6.44e+02	2.4e+02
7	1,2,3,7,8,9-HxCDF	1.32e+05	9.52e+02	1.4e+02	1.20e+05	6.44e+02	1.9e+02
8	1,2,3,4,6,7,8-HpCDF	2.05e+05	1.32e+03	1.5e+02	1.85e+05	1.06e+03	1.7e+02
9	1,2,3,4,7,8,9-HpCDF	1.36e+05	1.32e+03	1.0e+02	1.35e+05	1.06e+03	1.3e+02
10	OCDF	1.73e+05	3.88e+02	4.5e+02	1.88e+05	1.00e+03	1.9e+02
11	2,3,7,8-TCDD	1.49e+04	1.03e+03	1.4e+01	1.88e+04	1.02e+03	1.9e+01
12	1,2,3,7,8-PeCDD	1.12e+05	7.68e+02	1.5e+02	7.59e+04	6.24e+02	1.2e+02
13	1,2,3,4,7,8-HxCDD	1.25e+05	9.20e+02	1.4e+02	9.23e+04	6.96e+02	1.3e+02
14	1,2,3,6,7,8-HxCDD	1.30e+05	9.20e+02	1.4e+02	9.84e+04	6.96e+02	1.4e+02
15	1,2,3,7,8,9-HxCDD	1.23e+05	9.20e+02	1.3e+02	1.00e+05	6.96e+02	1.4e+02
16	1,2,3,4,6,7,8-HpCDD	1.12e+05	7.56e+02	1.5e+02	9.80e+04	5.72e+02	1.7e+02
17	OCDD	1.42e+05	6.68e+02	2.1e+02	1.63e+05	8.96e+02	1.8e+02
18	13C-2,3,7,8-TCDF	4.11e+06	2.13e+03	1.9e+03	5.23e+06	1.14e+03	4.6e+03
19	13C-1,2,3,7,8-PeCDF	6.45e+06	3.60e+02	1.8e+04	4.10e+06	1.24e+03	3.3e+03
20	13C-2,3,4,7,8-PeCDF	6.87e+06	3.60e+02	1.9e+04	4.40e+06	1.24e+03	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.60e+06	9.68e+02	3.7e+03	6.82e+06	1.04e+03	6.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.96e+06	9.68e+02	4.1e+03	7.47e+06	1.04e+03	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	2.82e+06	9.68e+02	2.9e+03	5.35e+06	1.04e+03	5.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.24e+06	1.76e+03	1.8e+03	7.04e+06	5.79e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.20e+06	1.76e+03	1.2e+03	4.85e+06	5.79e+03	8.4e+02
27	13C-2,3,7,8-TCDD	3.00e+06	3.44e+03	8.7e+02	3.89e+06	2.10e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	4.76e+06	1.14e+03	4.2e+03	3.03e+06	5.92e+02	5.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.79e+06	2.67e+03	1.8e+03	3.74e+06	1.60e+03	2.3e+03
30	13C-1,2,3,6,7,8-HxCDD	4.82e+06	2.67e+03	1.8e+03	3.80e+06	1.60e+03	2.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.05e+06	1.00e+03	4.0e+03	3.85e+06	5.60e+02	6.9e+03
32	13C-OCDD	4.94e+06	7.88e+02	6.3e+03	5.48e+06	5.84e+02	9.4e+03
33	13C-1,2,3,4-TCDD	3.39e+06	3.44e+03	9.9e+02	4.33e+06	2.10e+03	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.97e+06	2.67e+03	1.9e+03	3.86e+06	1.60e+03	2.4e+03
35	37Cl-2,3,7,8-TCDD	3.55e+04	1.32e+03	2.7e+01			

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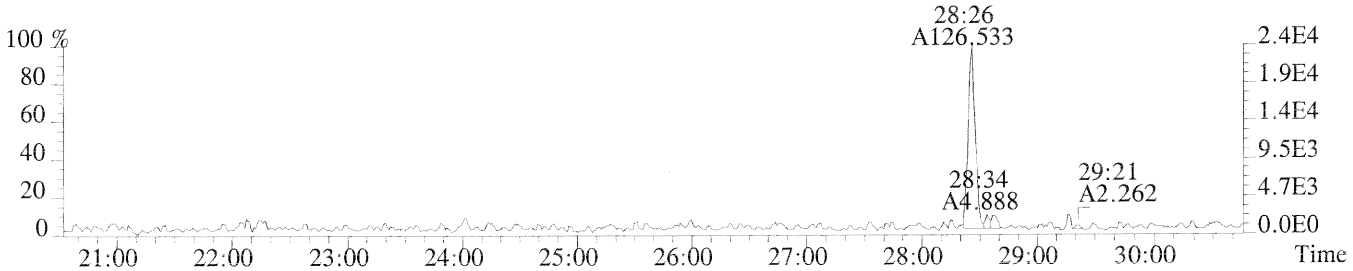
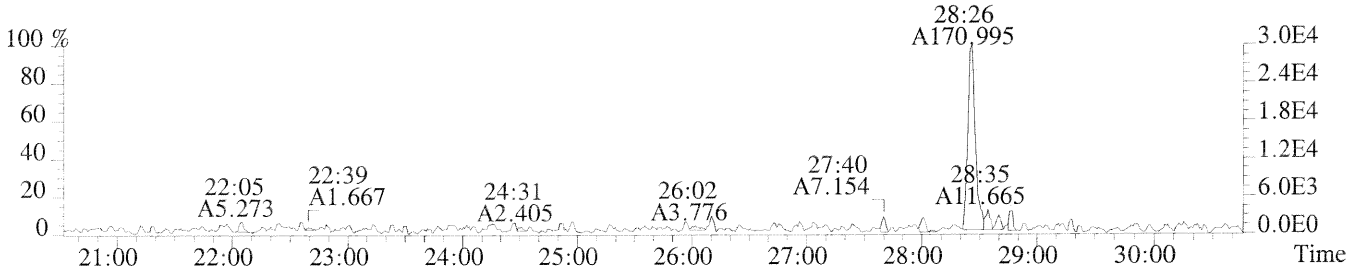
ALS Form TO-9SN/M23SN.FRM

File:P174193 #1-788 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

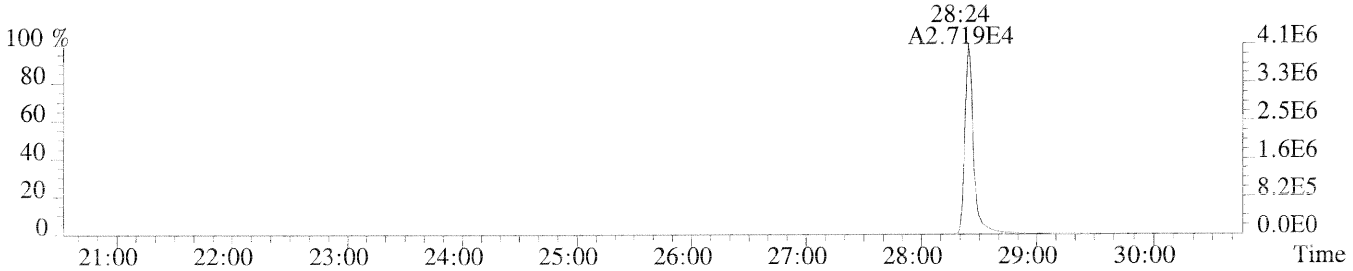
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



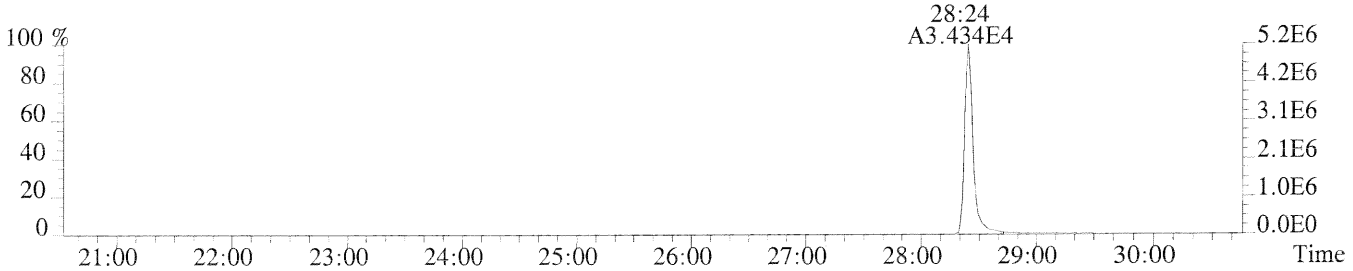
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



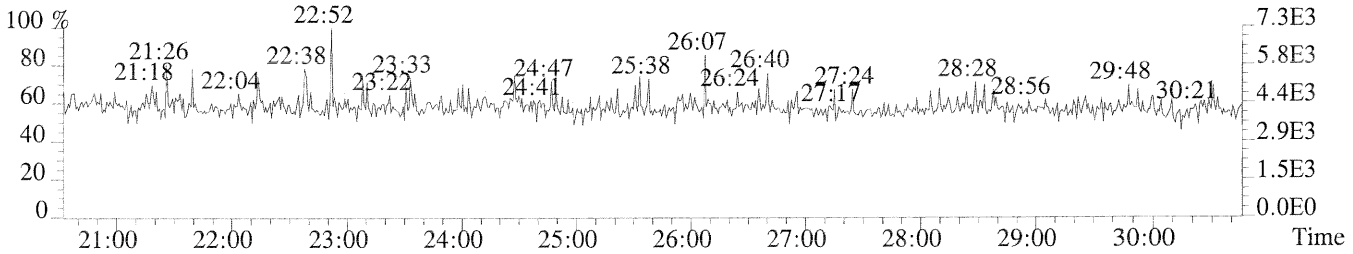
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2128.0,1.00%,F,T)



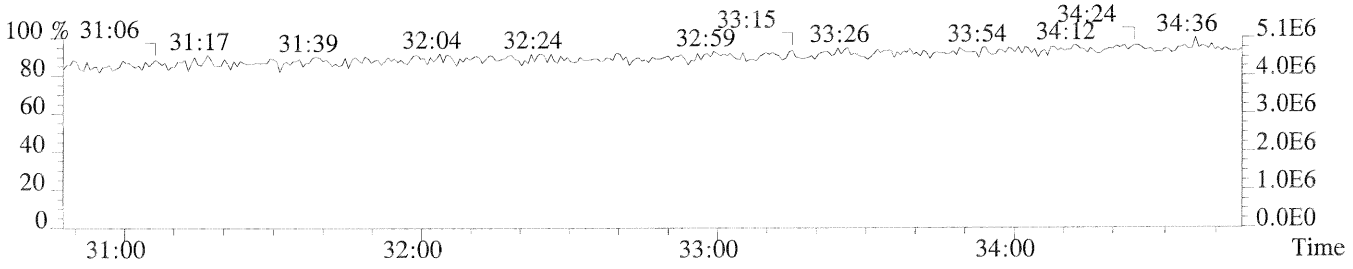
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



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

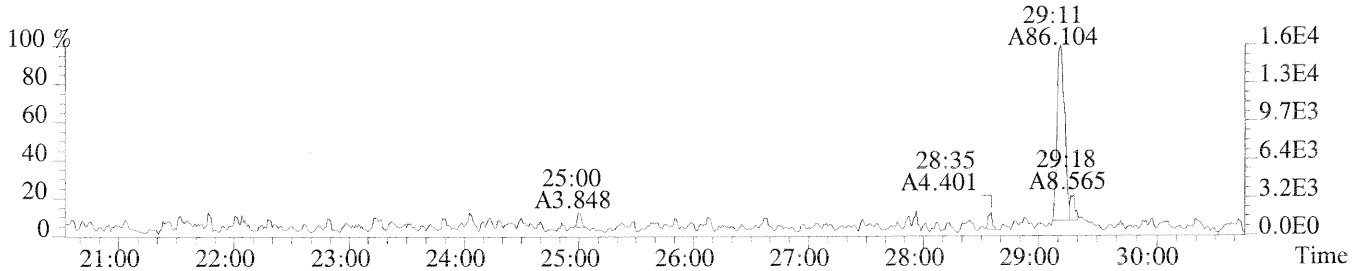


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

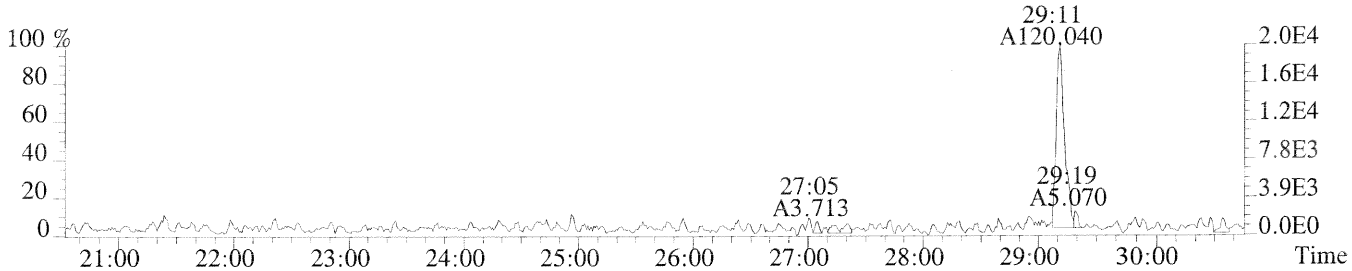


File:P174193 #1-788 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

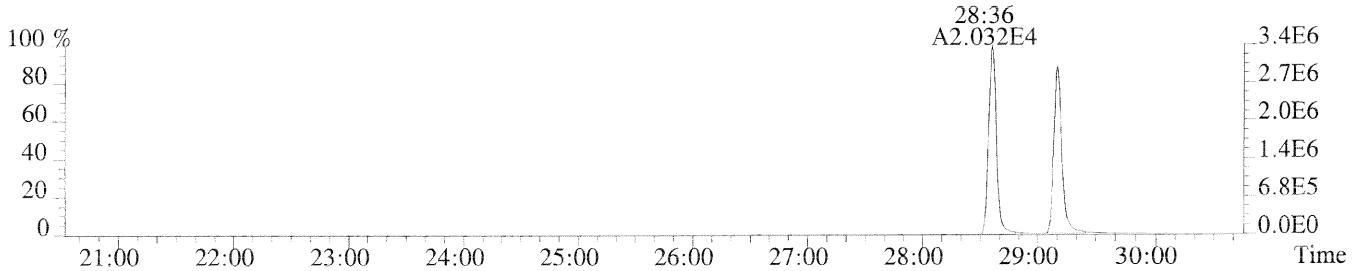
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



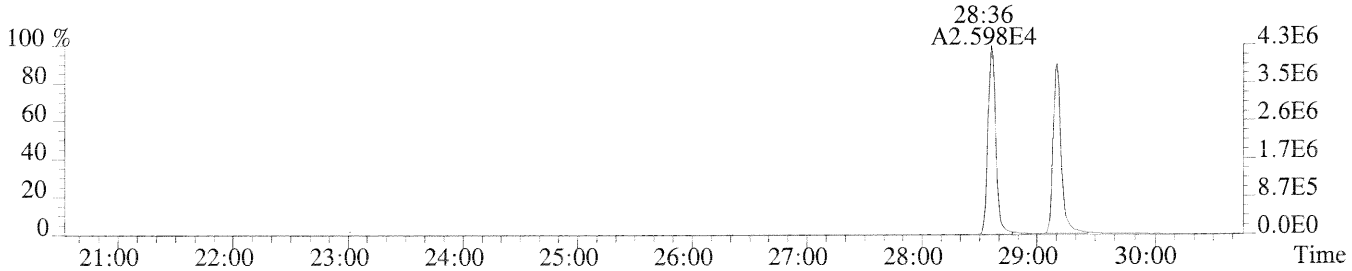
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



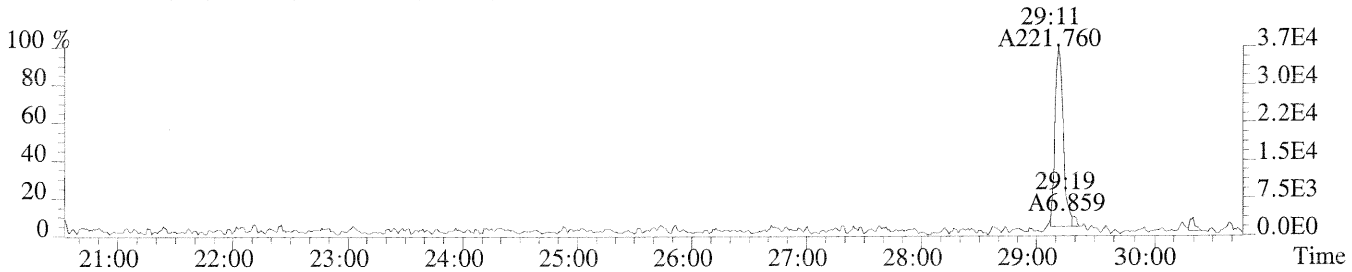
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



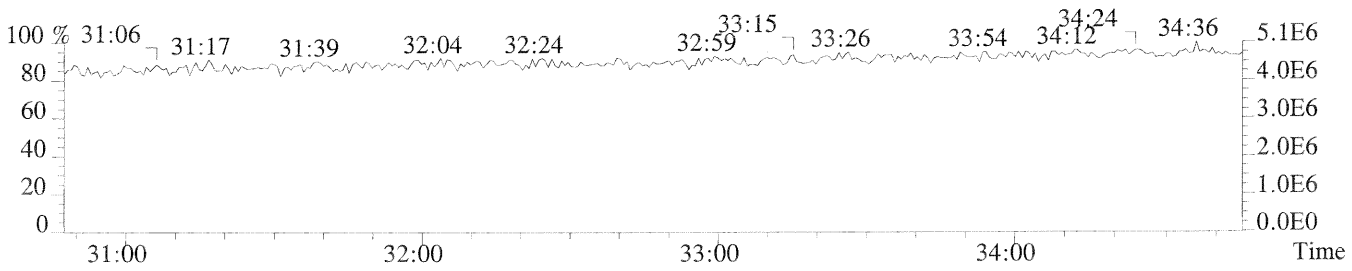
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2100.0,1.00%,F,T)



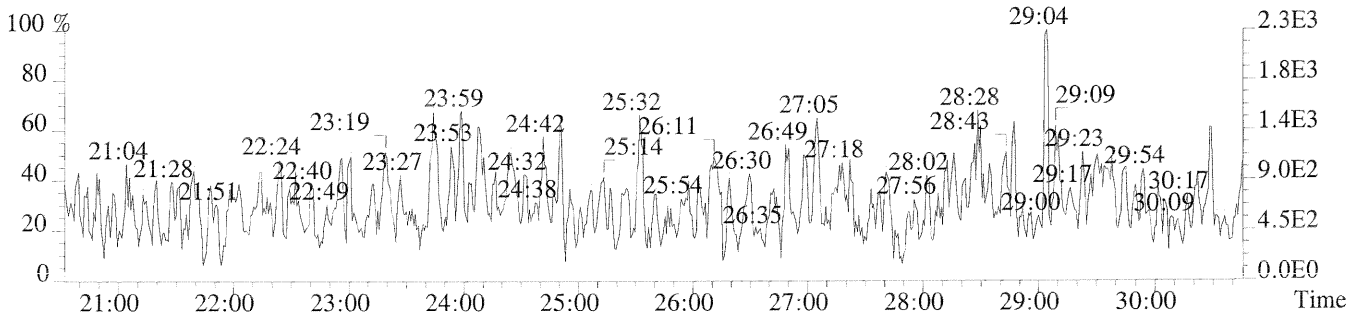
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



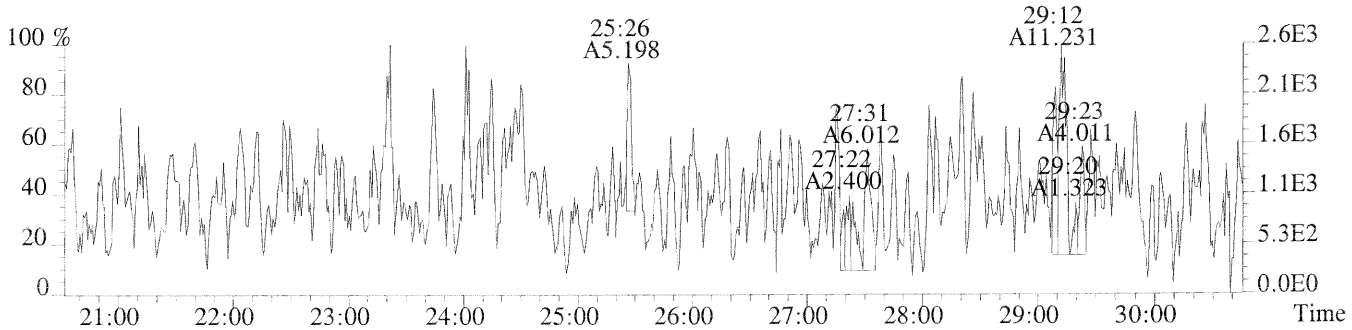
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



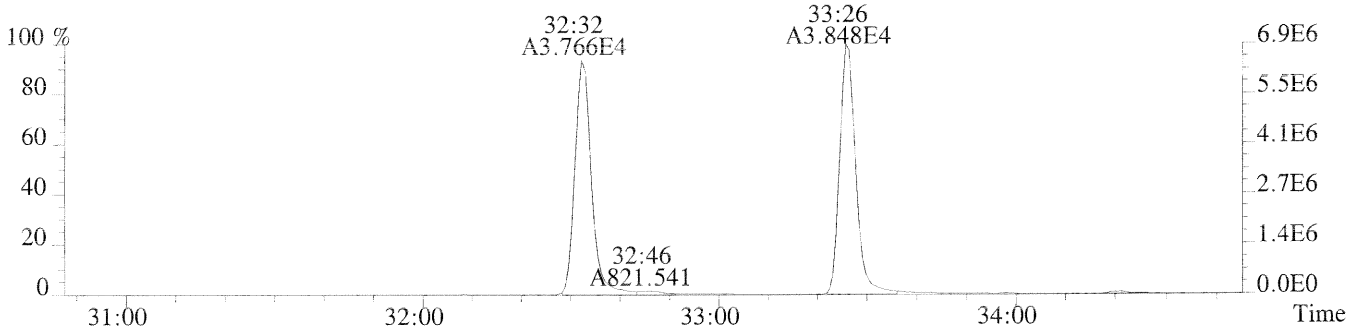
File:P174193 #1-788 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



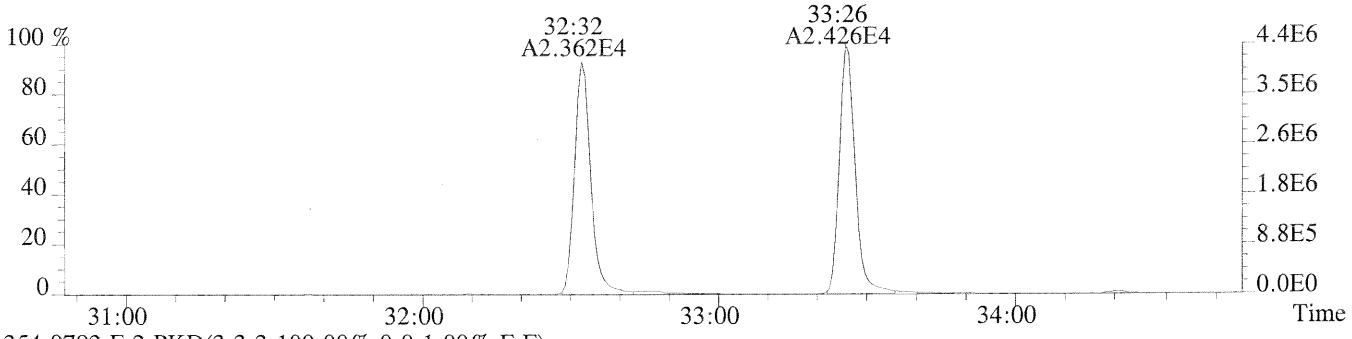
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



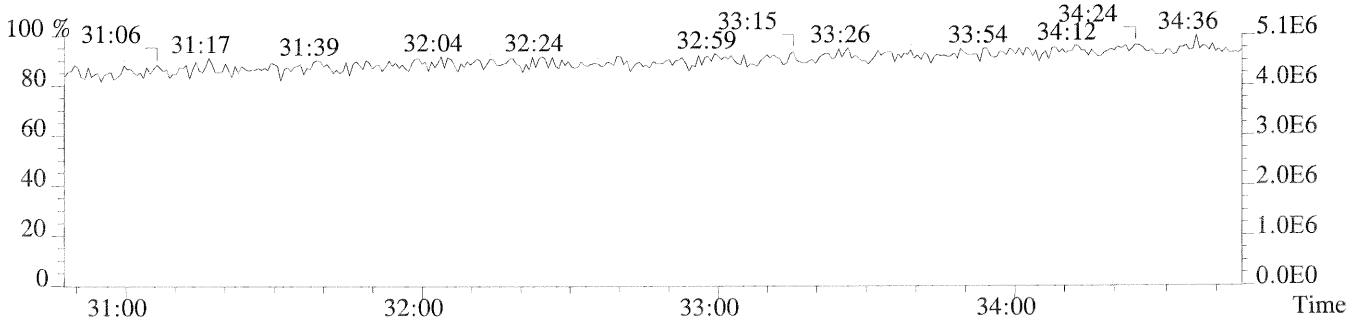
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)

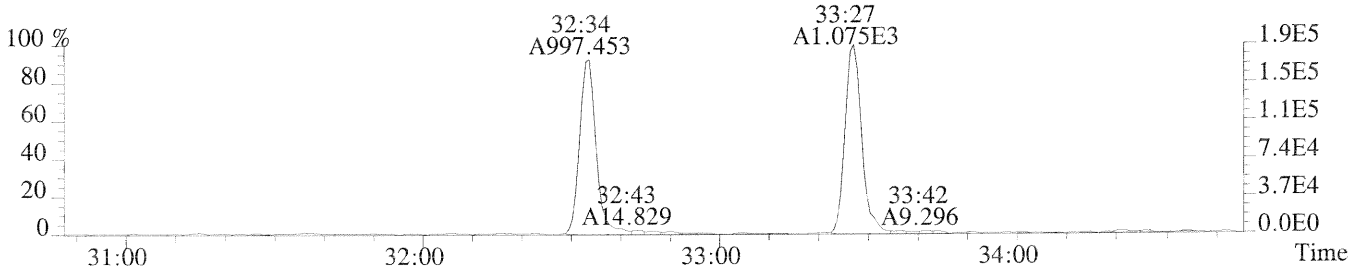


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

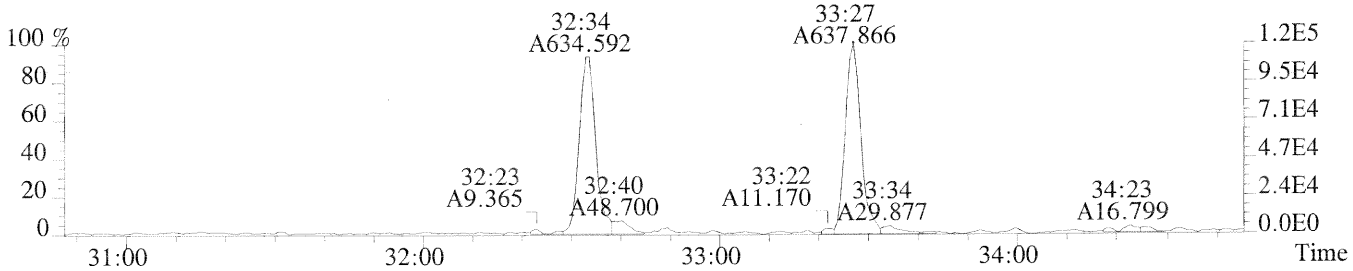


File:P174193 #1-360 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

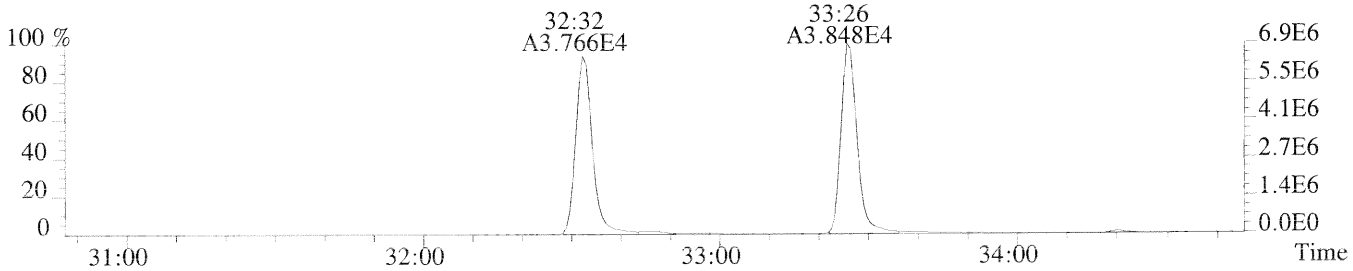
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



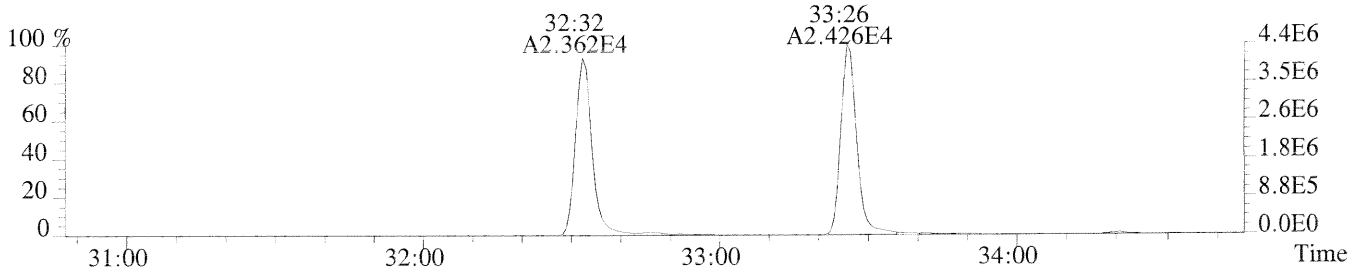
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



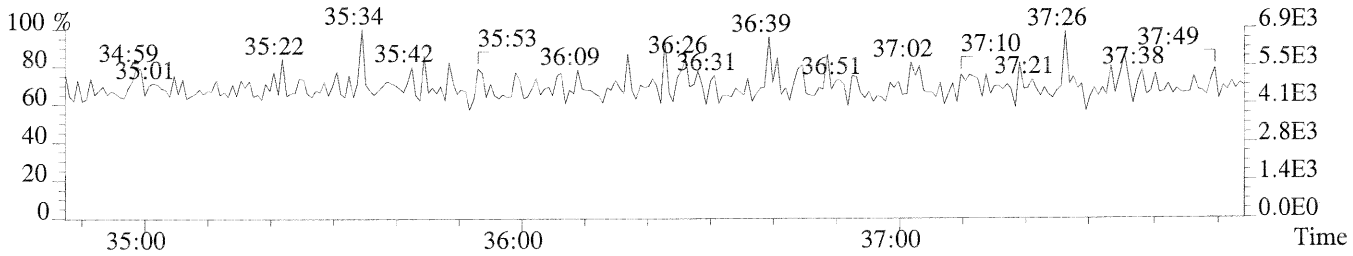
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



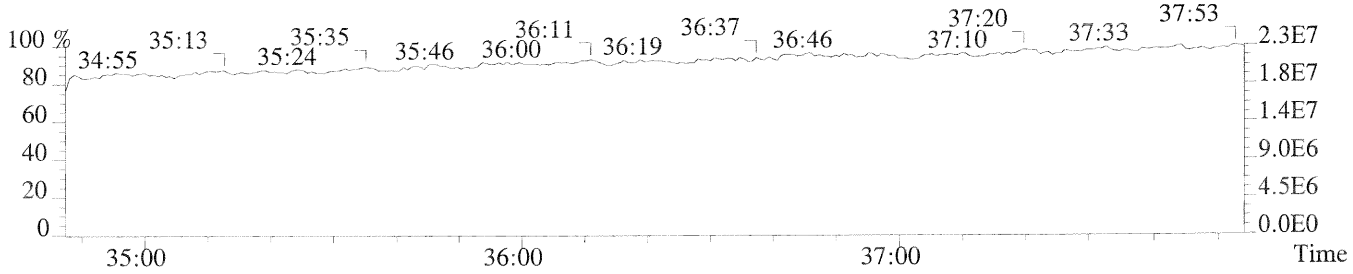
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



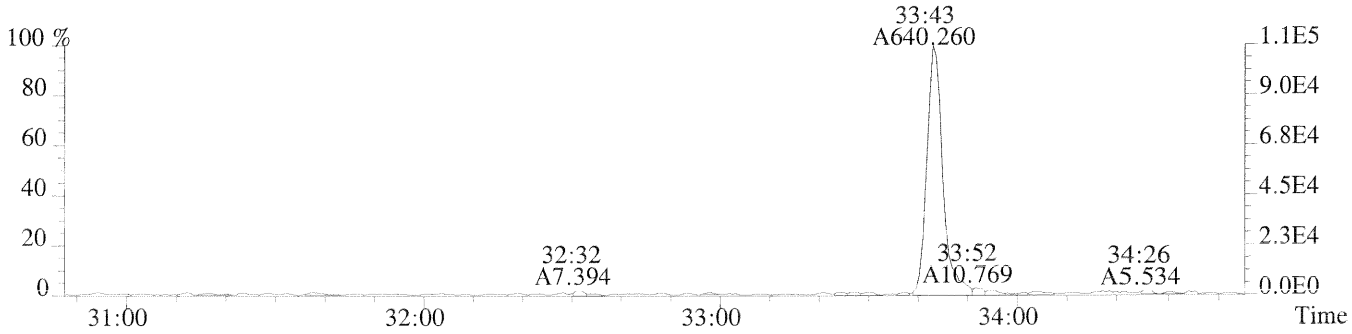
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



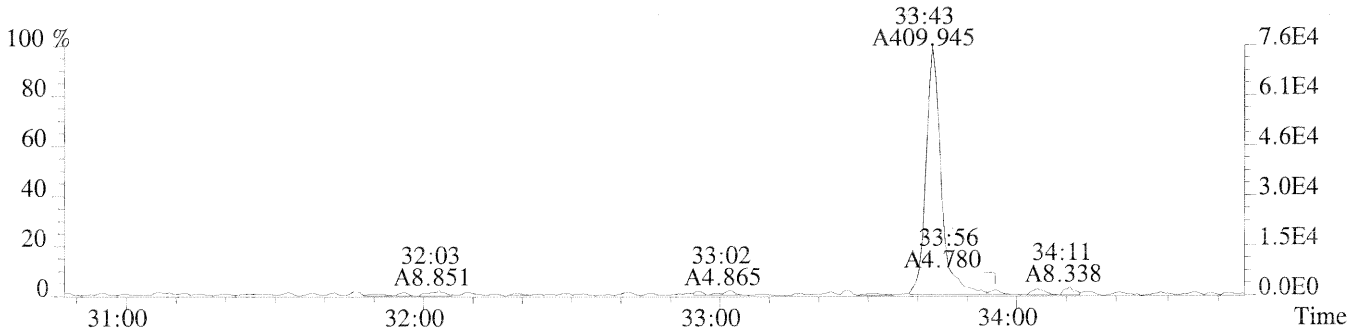
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



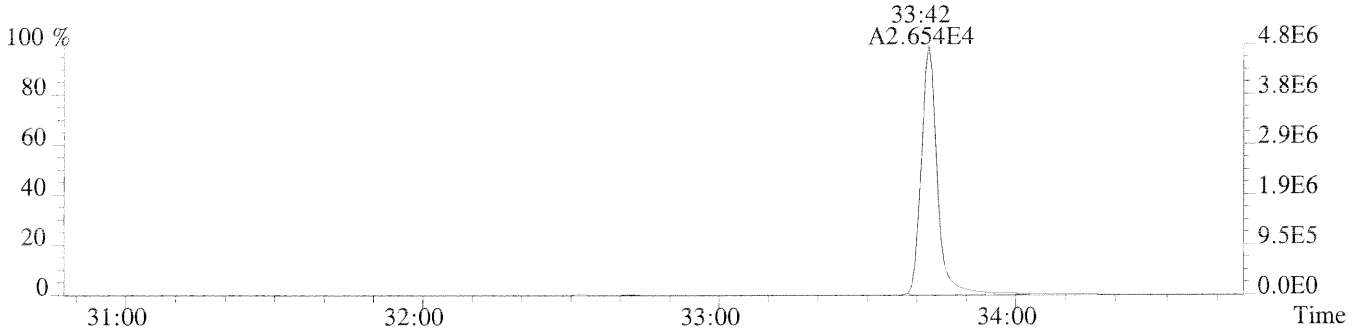
File:P174193 #1-360 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



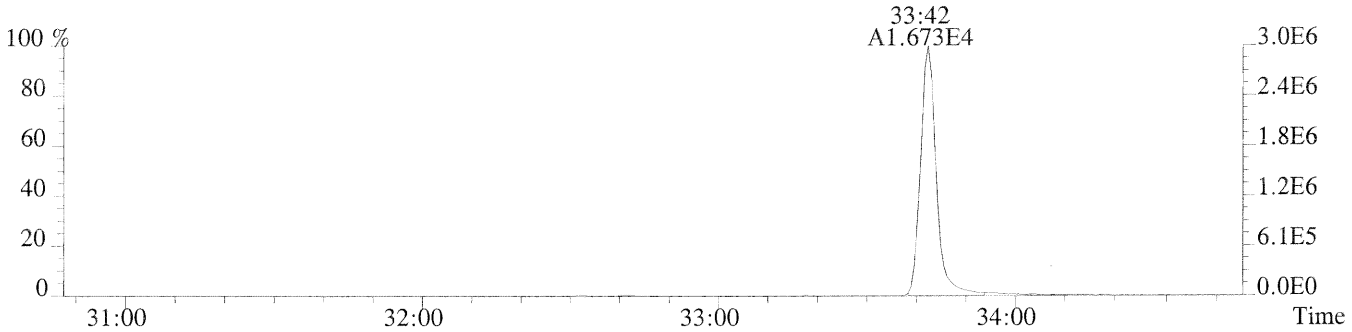
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



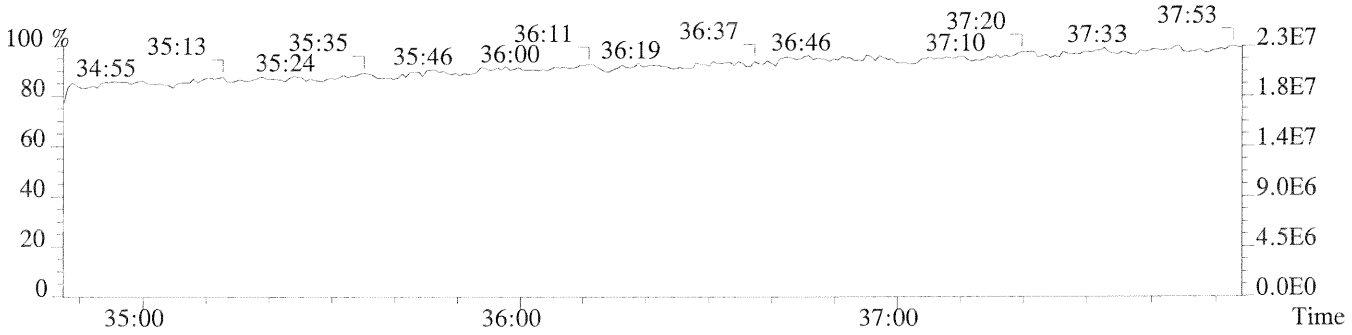
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



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

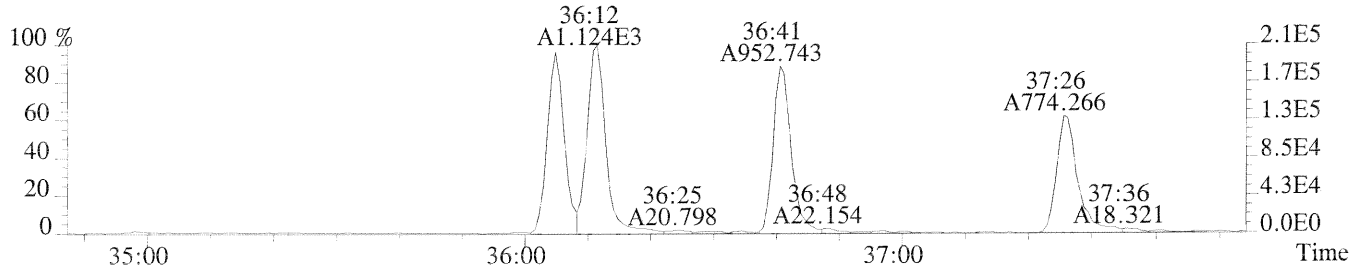


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

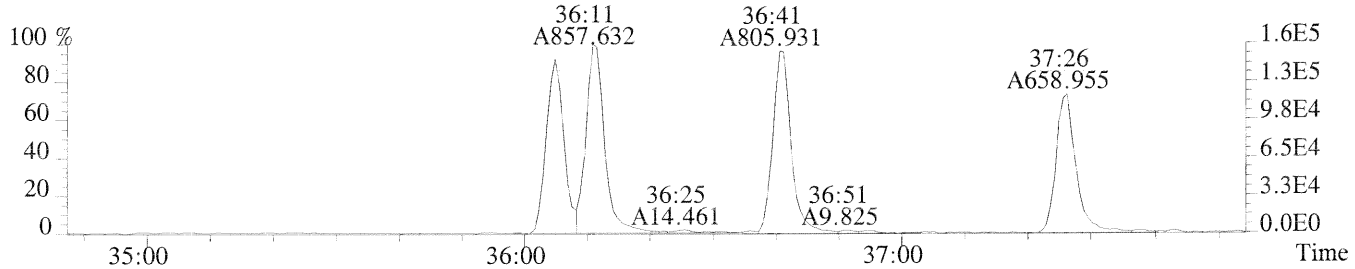


File:P174193 #1-283 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

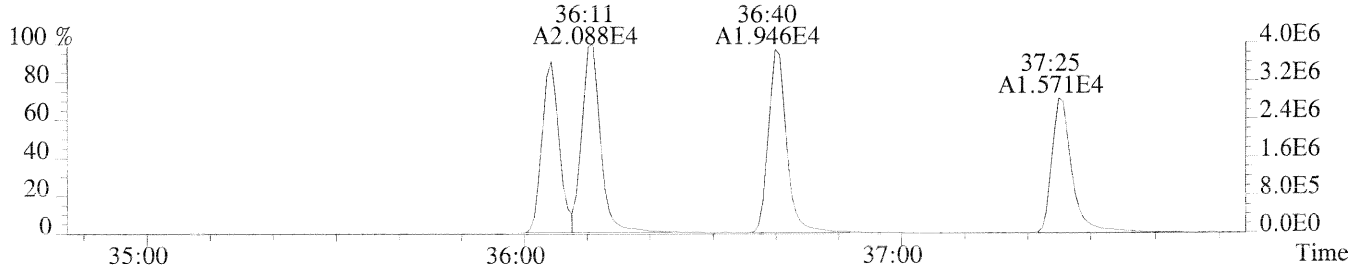
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



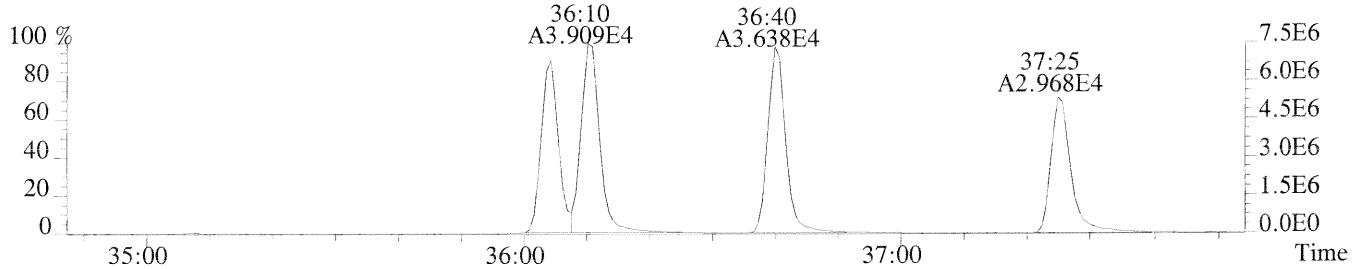
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



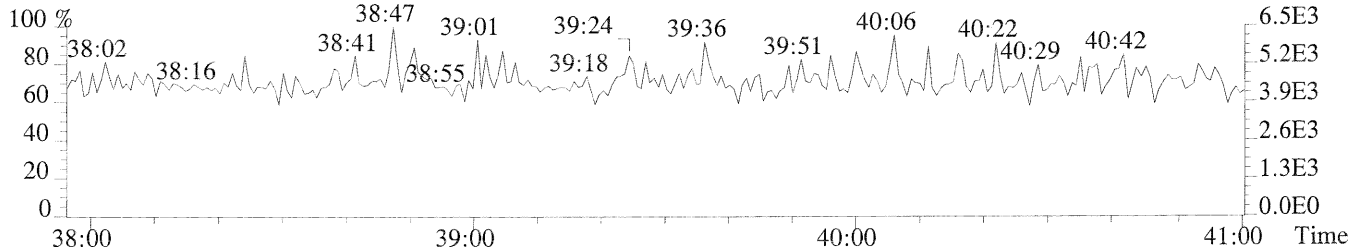
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



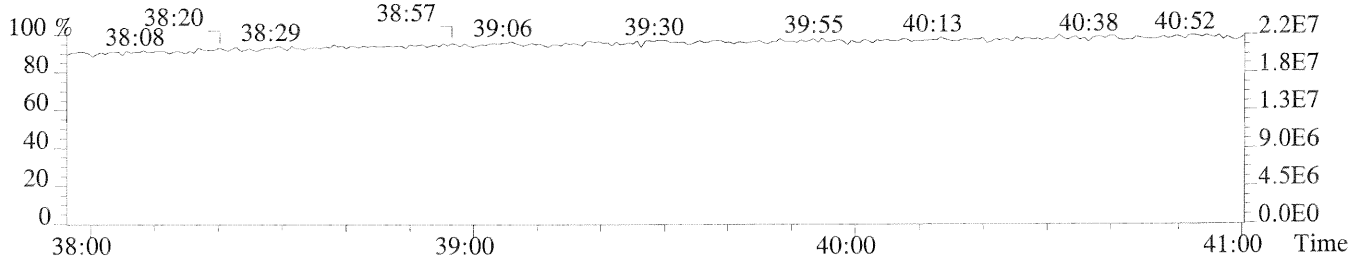
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



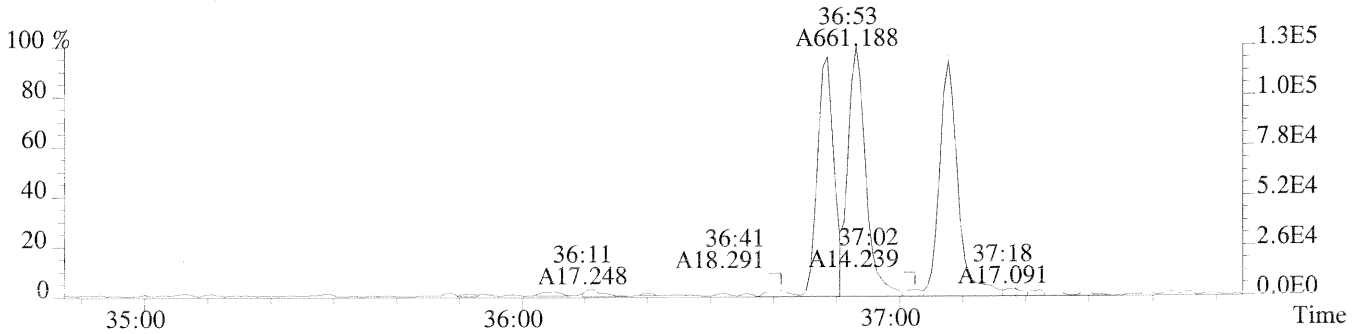
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



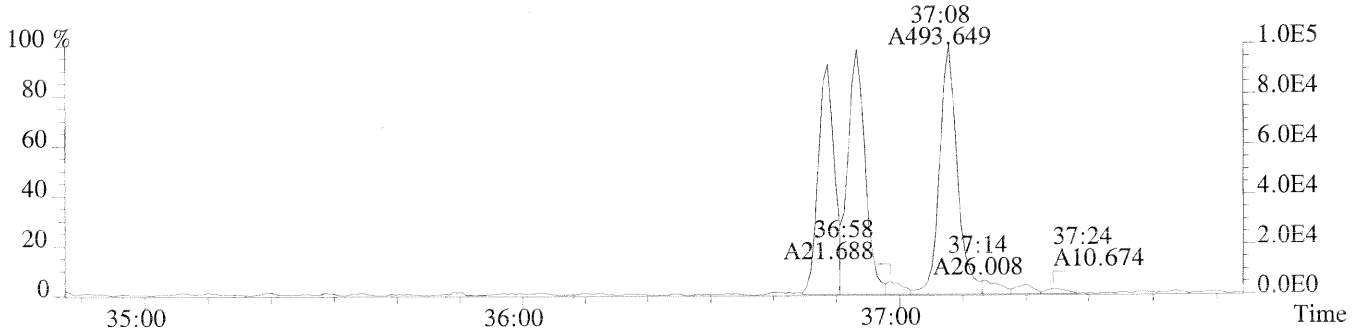
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



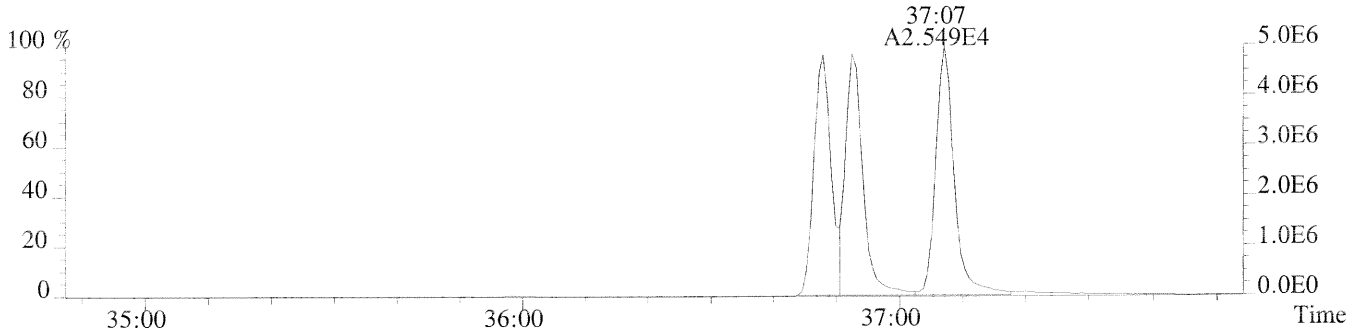
File:P174193 #1-283 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



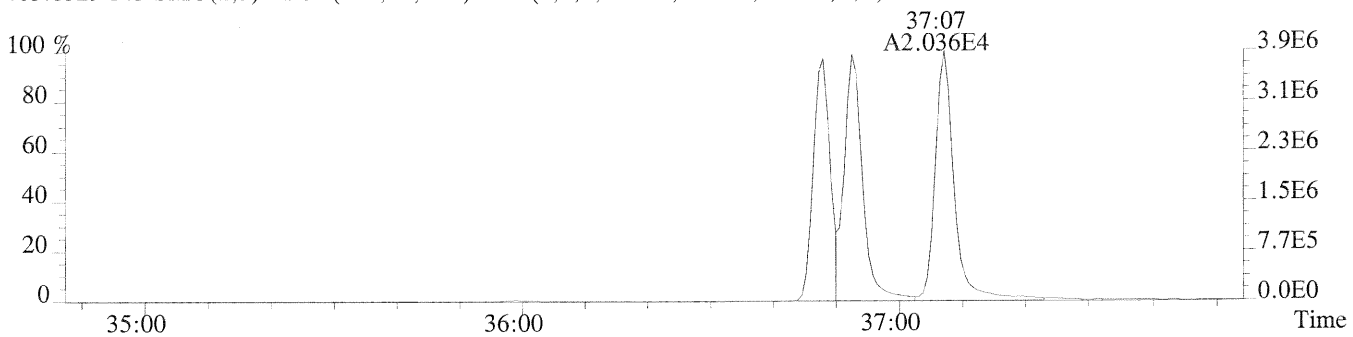
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



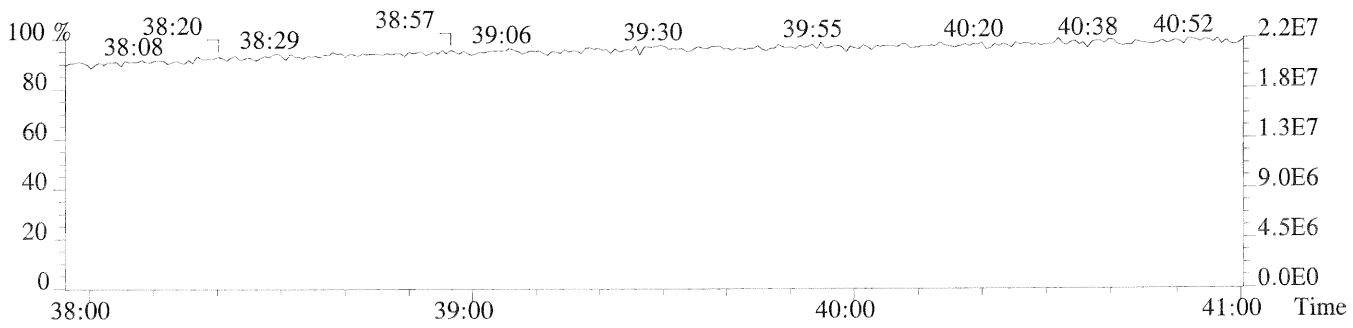
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2668.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)

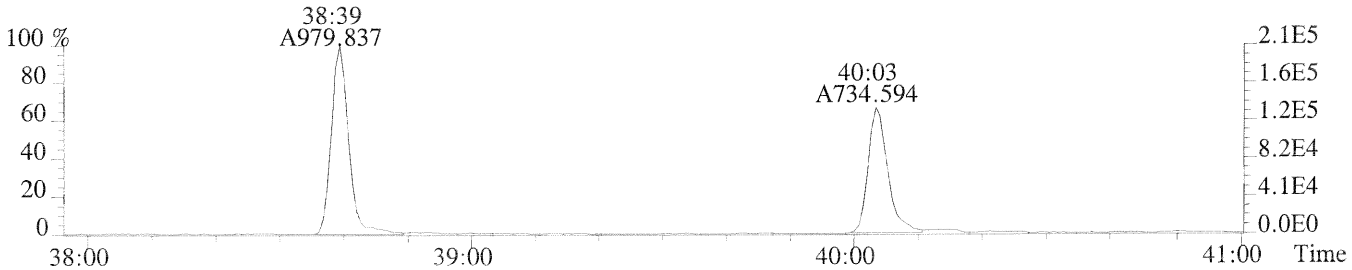


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

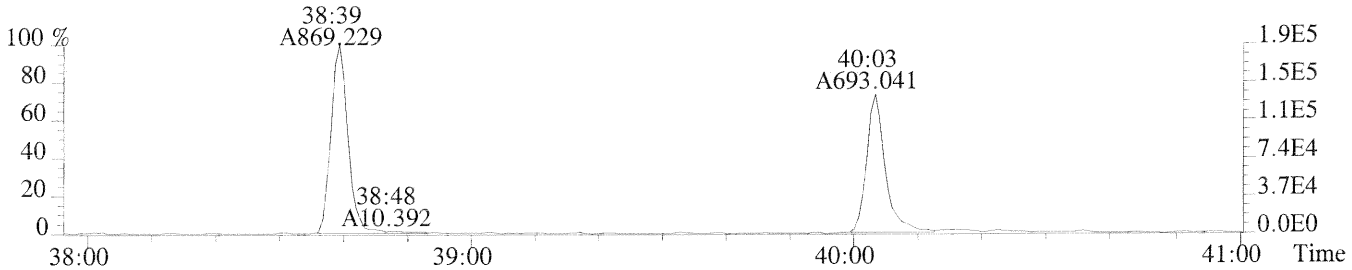


File:P174193 #1-279 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1

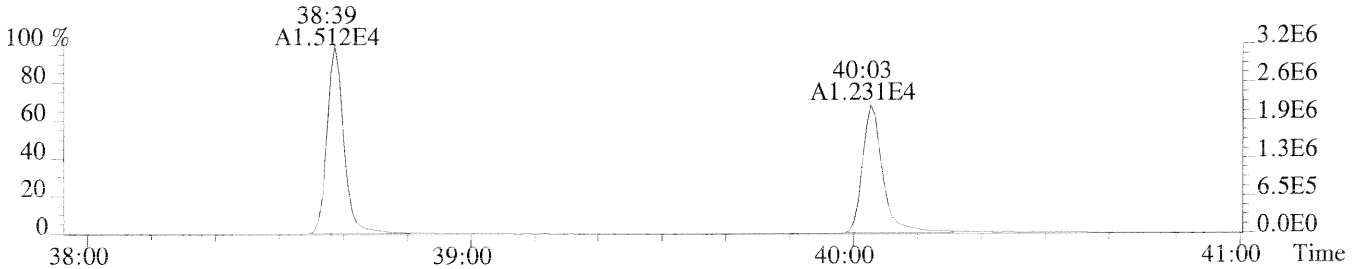
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.50%,F,T)



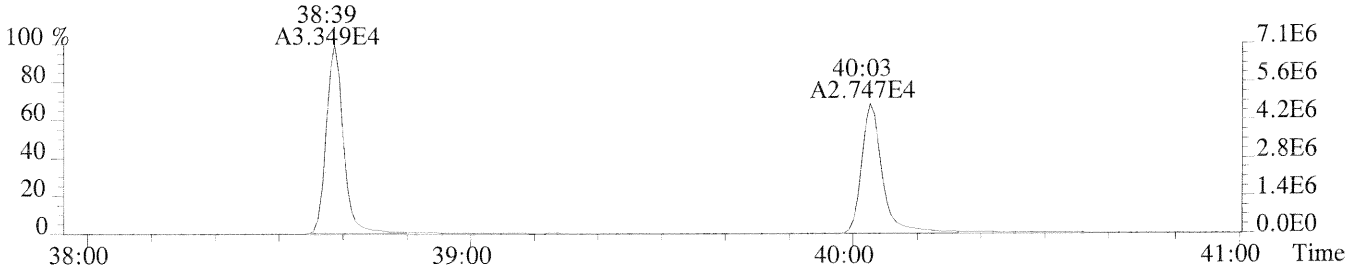
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.50%,F,T)



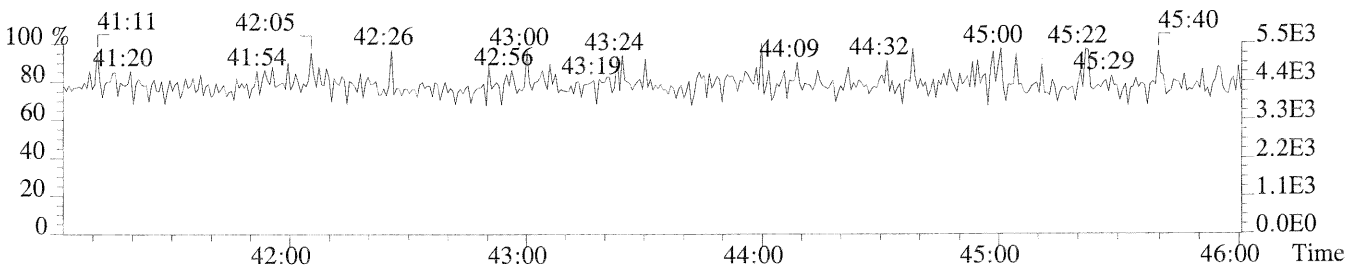
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.50%,F,T)



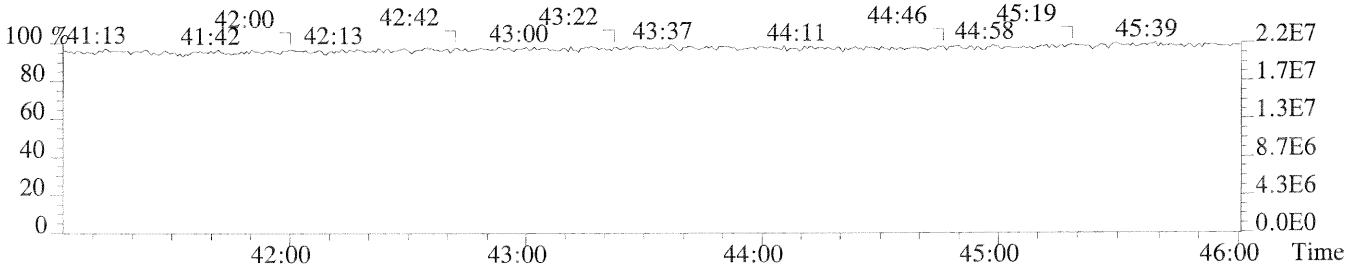
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5792.0,0.50%,F,T)



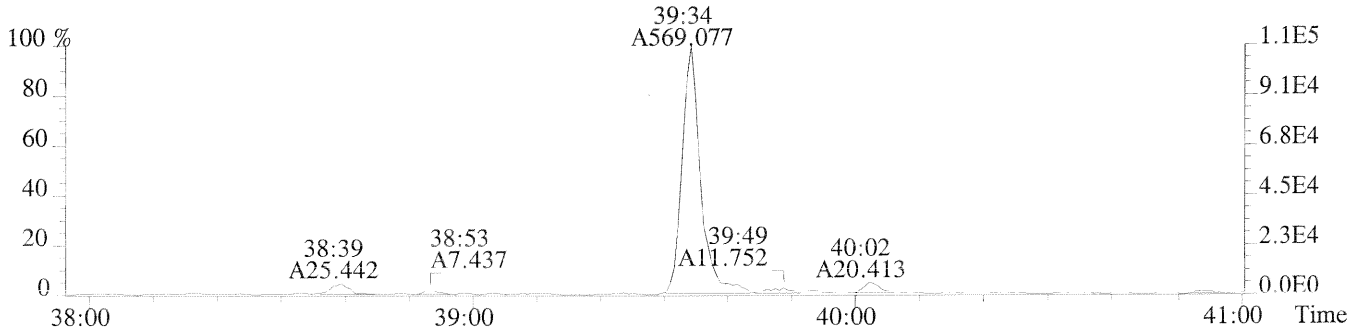
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



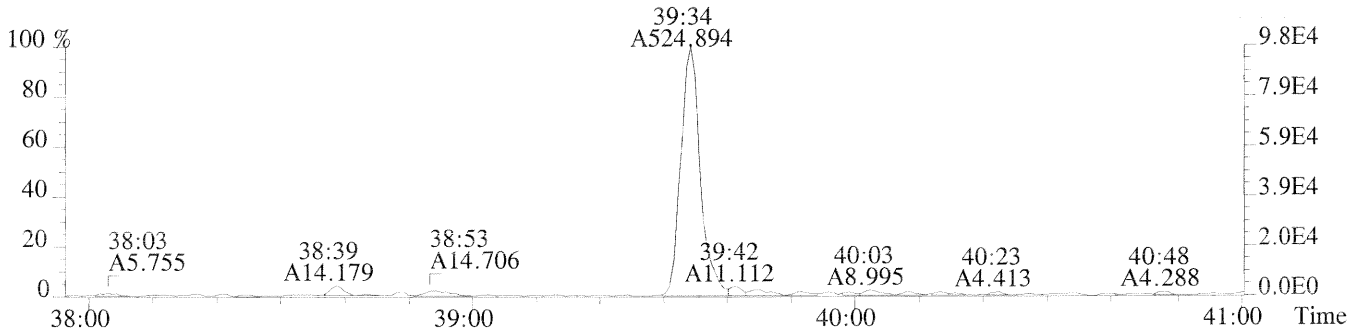
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



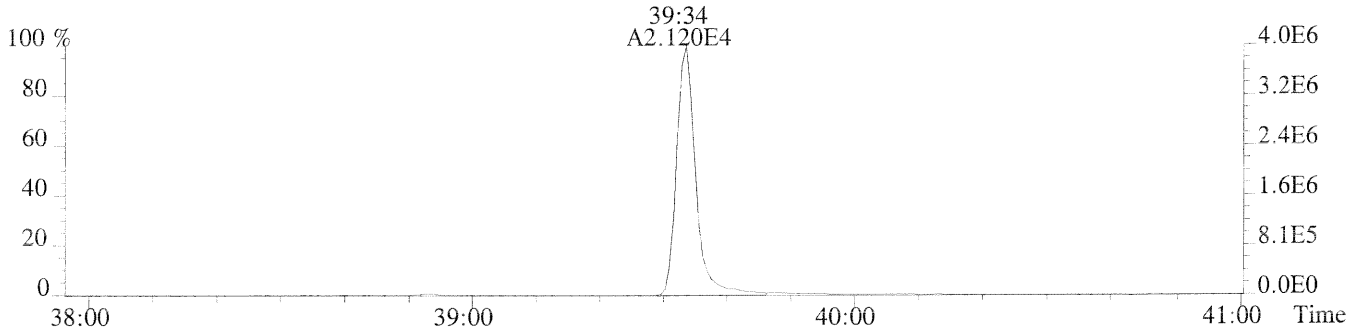
File:P174193 #1-279 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



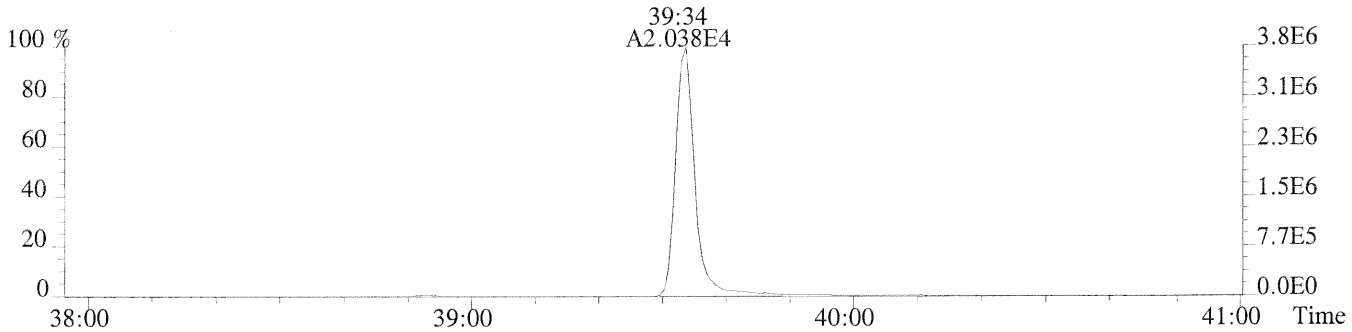
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



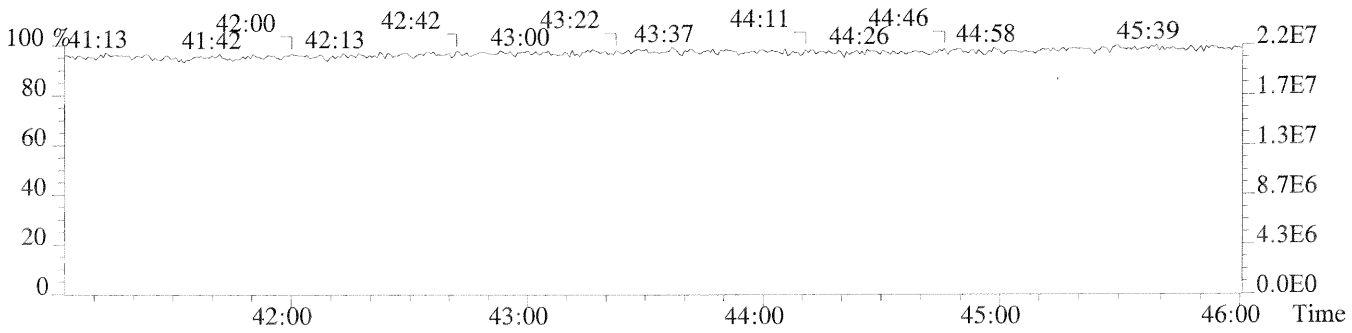
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



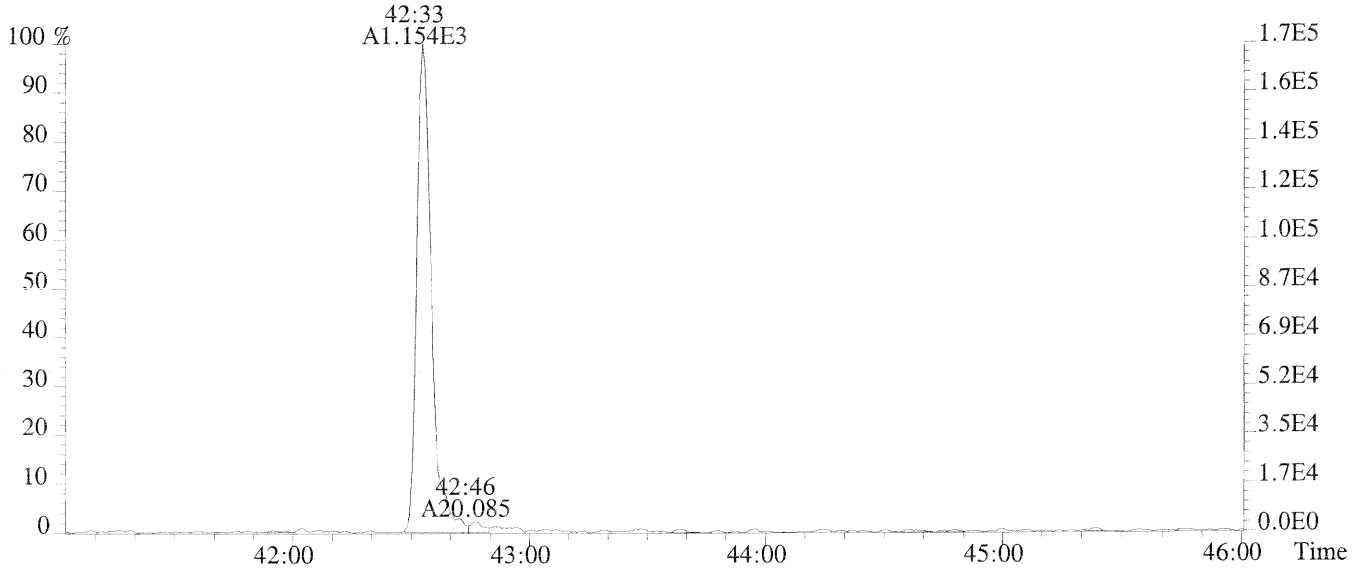
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



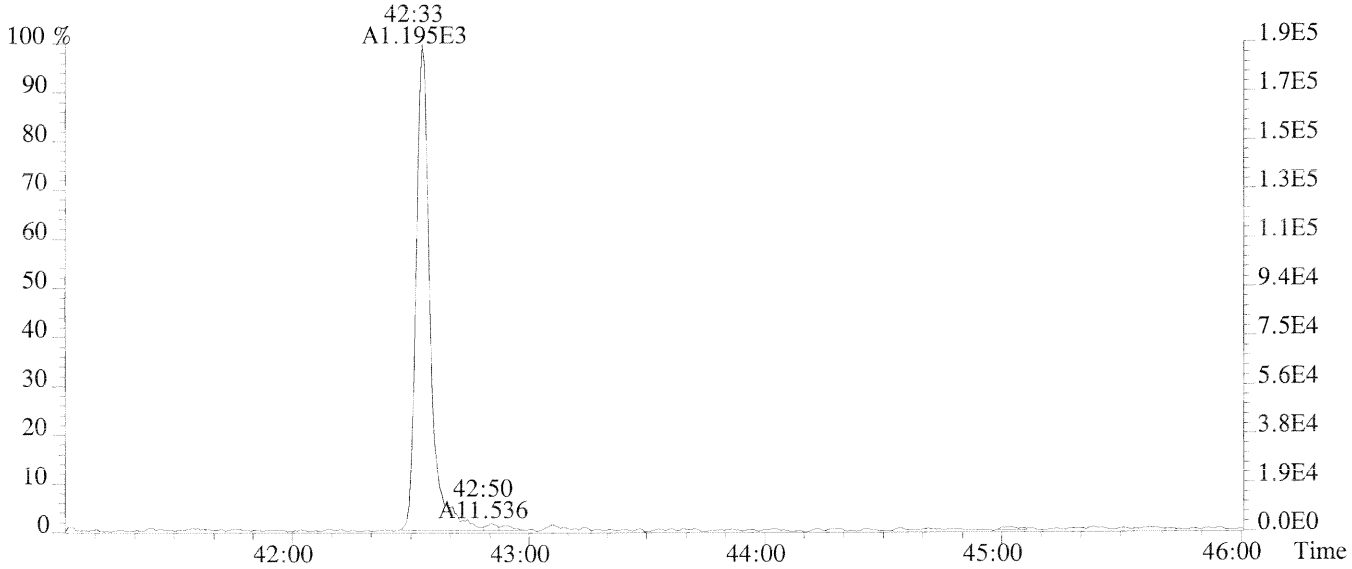
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



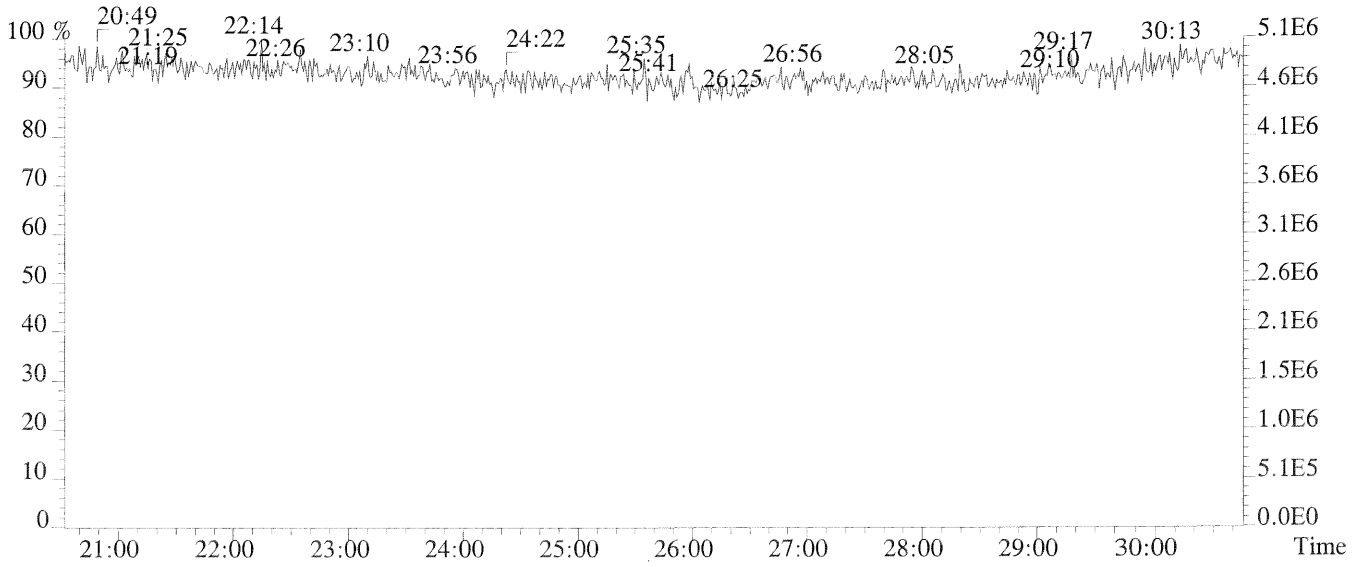
File:P174193 #1-457 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



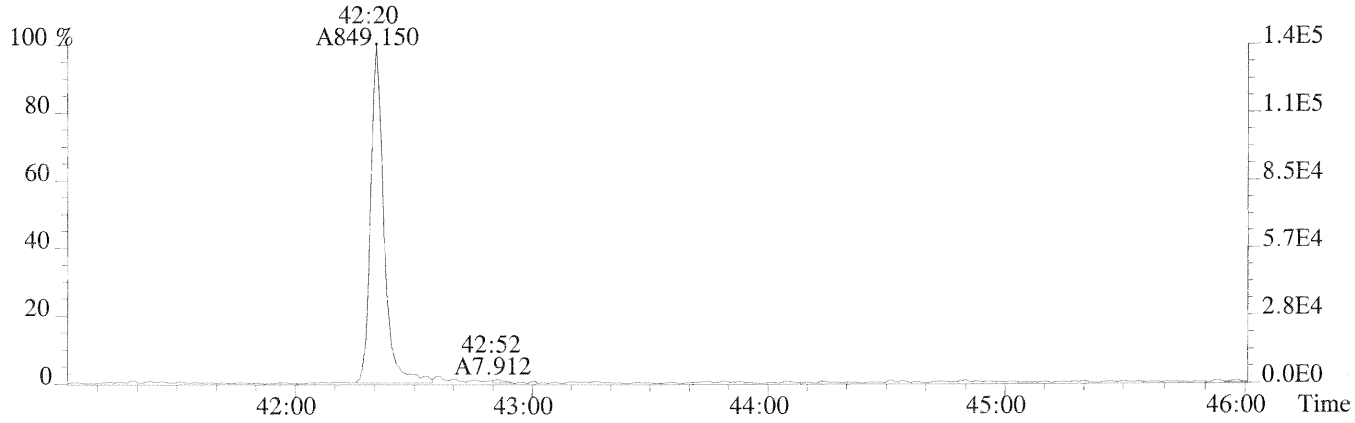
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



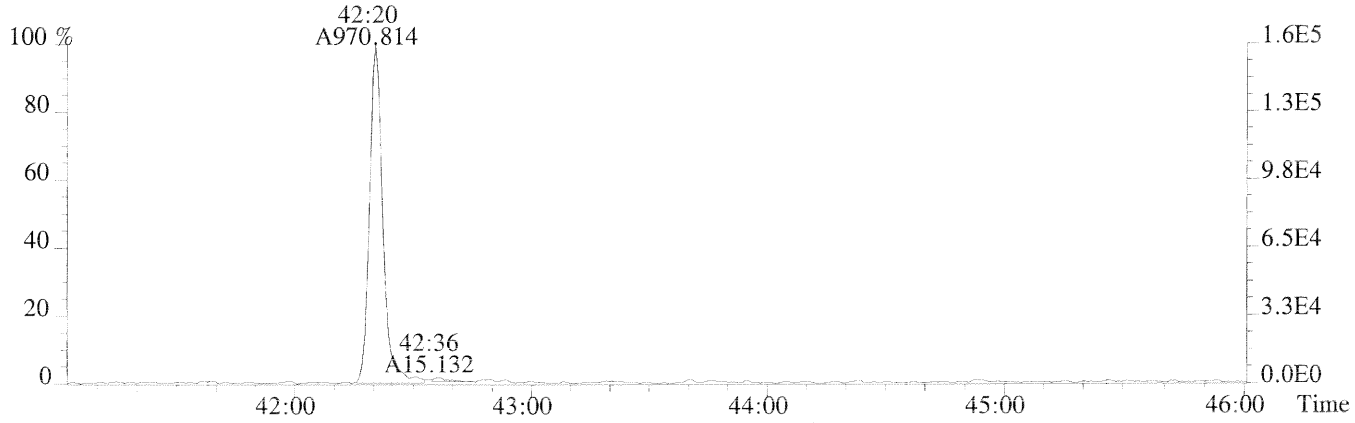
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



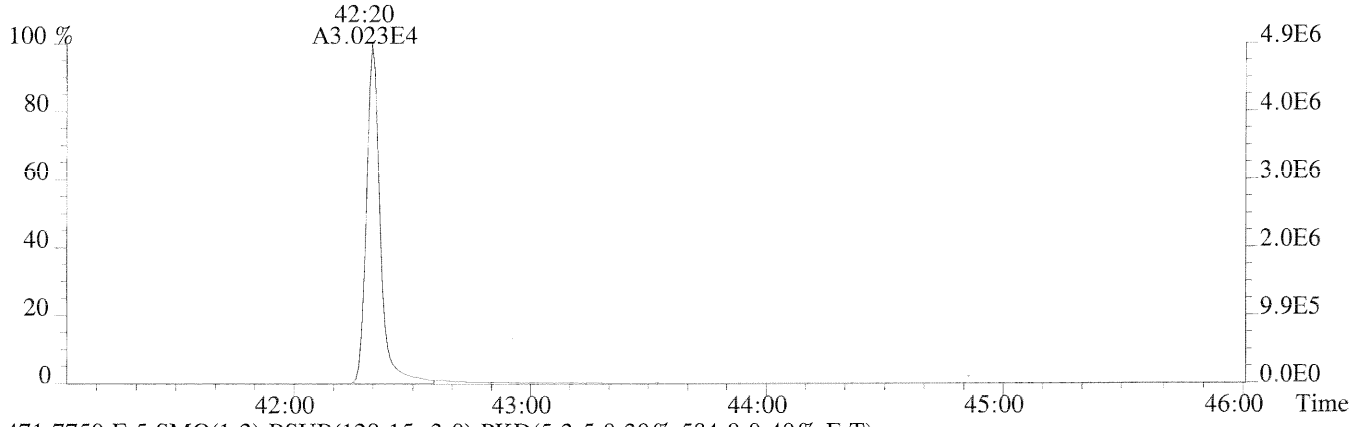
File:P174193 #1-457 Acq:18-OCT-2014 12:07:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



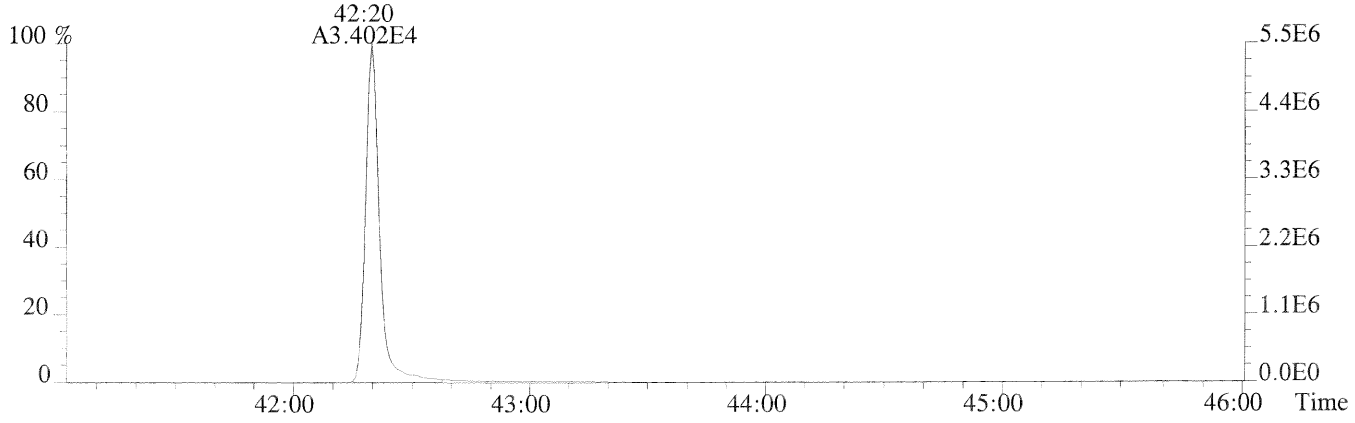
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,896.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



ALS ENVIRONMENTAL — CLIENT ID.
Method M23 — CS2

Sample Response Summary

Run #3 Filename P174194 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 13:03:40
Processed: 20-OCT-14 09:25:51 LAB. ID: D12-90-3B

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:25	4.864e+02	6.251e+02	0.78	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	32:33	4.348e+03	2.713e+03	1.60	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	33:26	4.117e+03	2.593e+03	1.59	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	36:04	3.839e+03	3.082e+03	1.25	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	36:11	4.180e+03	3.433e+03	1.22	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	36:40	3.937e+03	3.142e+03	1.25	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	37:25	3.241e+03	2.505e+03	1.29	yes	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	3.970e+03	3.686e+03	1.08	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.969e+03	2.712e+03	1.09	yes	no	1.148
10	Unk	OCDF	42:32	4.363e+03	4.761e+03	0.92	yes	no	1.369
11	Unk	2,3,7,8-TCDD	29:10	3.805e+02	4.848e+02	0.78	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	33:42	2.582e+03	1.613e+03	1.60	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	36:48	2.268e+03	1.698e+03	1.34	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	36:52	2.301e+03	2.089e+03	1.10	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	37:07	2.443e+03	2.026e+03	1.21	yes	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	2.235e+03	1.970e+03	1.13	yes	no	1.052
17	Unk	OCDD	42:20	3.284e+03	3.654e+03	0.90	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	28:24	2.817e+04	3.602e+04	0.78	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:32	3.936e+04	2.507e+04	1.57	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	33:25	4.014e+04	2.525e+04	1.59	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	36:04	1.786e+04	3.379e+04	0.53	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	36:10	2.060e+04	3.912e+04	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	37:24	1.601e+04	3.034e+04	0.53	yes	yes	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.570e+04	3.402e+04	0.46	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	40:02	1.245e+04	2.754e+04	0.45	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	29:10	1.983e+04	2.558e+04	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:42	2.782e+04	1.784e+04	1.56	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	36:47	2.305e+04	1.739e+04	1.33	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	2.381e+04	1.986e+04	1.20	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	2.104e+04	2.037e+04	1.03	yes	no	0.874
32	IS	13C-OCDD	42:19	3.082e+04	3.419e+04	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	28:35	2.175e+04	2.774e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	37:06	2.635e+04	2.057e+04	1.28	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	29:10	9.443e+02				no	1.038

$$\text{OCDD} = \frac{(3.284e+03 + 3.654e+03 \times (\ 200.0\ )) \times 1}{(3.082e+04 + 3.419e+04\ ) \times 1.068 \times 1.000} = \text{pg}$$

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ALS Form TO9resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS2

Method M23

Run #3 Filename P174194 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 13:03:40
Processed: 20-OCT-14 09:25:51 LAB. ID: D12-90-3B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.50e+04	1.17e+03	6.4e+01	1.02e+05	1.10e+03	9.2e+01
2	1,2,3,7,8-PeCDF	7.32e+05	1.16e+03	6.3e+02	4.59e+05	2.24e+03	2.0e+02
3	2,3,4,7,8-PeCDF	7.42e+05	1.16e+03	6.4e+02	4.60e+05	2.24e+03	2.1e+02
4	1,2,3,4,7,8-HxCDF	8.38e+05	1.08e+03	7.8e+02	6.58e+05	7.80e+02	8.4e+02
5	1,2,3,6,7,8-HxCDF	8.33e+05	1.08e+03	7.7e+02	6.60e+05	7.80e+02	8.5e+02
6	2,3,4,6,7,8-HxCDF	7.90e+05	1.08e+03	7.3e+02	6.41e+05	7.80e+02	8.2e+02
7	1,2,3,7,8,9-HxCDF	6.03e+05	1.08e+03	5.6e+02	4.63e+05	7.80e+02	5.9e+02
8	1,2,3,4,6,7,8-HpCDF	8.19e+05	1.05e+03	7.8e+02	7.82e+05	1.14e+03	6.9e+02
9	1,2,3,4,7,8,9-HpCDF	5.19e+05	1.05e+03	4.9e+02	5.12e+05	1.14e+03	4.5e+02
10	OCDF	6.93e+05	6.04e+02	1.1e+03	7.41e+05	8.80e+02	8.4e+02
11	2,3,7,8-TCDD	5.83e+04	6.92e+02	8.4e+01	8.57e+04	1.09e+03	7.8e+01
12	1,2,3,7,8-PeCDD	4.77e+05	1.09e+03	4.4e+02	2.93e+05	8.32e+02	3.5e+02
13	1,2,3,4,7,8-HxCDD	4.88e+05	8.28e+02	5.9e+02	3.76e+05	8.76e+02	4.3e+02
14	1,2,3,6,7,8-HxCDD	4.46e+05	8.28e+02	5.4e+02	3.87e+05	8.76e+02	4.4e+02
15	1,2,3,7,8,9-HxCDD	4.75e+05	8.28e+02	5.7e+02	4.00e+05	8.76e+02	4.6e+02
16	1,2,3,4,6,7,8-HpCDD	4.26e+05	5.52e+02	7.7e+02	3.93e+05	6.92e+02	5.7e+02
17	OCDD	5.35e+05	5.24e+02	1.0e+03	5.94e+05	6.08e+02	9.8e+02
18	13C-2,3,7,8-TCDF	4.36e+06	1.91e+03	2.3e+03	5.64e+06	1.14e+03	4.9e+03
19	13C-1,2,3,7,8-PeCDF	6.78e+06	9.76e+02	6.9e+03	4.29e+06	1.32e+03	3.3e+03
20	13C-2,3,4,7,8-PeCDF	7.22e+06	9.76e+02	7.4e+03	4.54e+06	1.32e+03	3.4e+03
21	13C-1,2,3,4,7,8-HxCDF	3.85e+06	1.40e+03	2.7e+03	7.16e+06	1.83e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.96e+06	1.40e+03	2.8e+03	7.60e+06	1.83e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.95e+06	1.40e+03	2.1e+03	5.57e+06	1.83e+03	3.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.34e+06	2.89e+03	1.2e+03	7.17e+06	1.02e+03	7.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.27e+06	2.89e+03	7.9e+02	5.04e+06	1.02e+03	5.0e+03
27	13C-2,3,7,8-TCDD	3.27e+06	3.68e+03	8.9e+02	4.25e+06	2.10e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	5.11e+06	8.56e+02	6.0e+03	3.26e+06	6.52e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	4.93e+06	2.55e+03	1.9e+03	3.93e+06	1.90e+03	2.1e+03
30	13C-1,2,3,6,7,8-HxCDD	4.80e+06	2.55e+03	1.9e+03	3.80e+06	1.90e+03	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.10e+06	1.08e+03	3.8e+03	3.91e+06	7.44e+02	5.3e+03
32	13C-OCDD	4.98e+06	7.20e+02	6.9e+03	5.54e+06	5.56e+02	1.0e+04
33	13C-1,2,3,4-TCDD	3.72e+06	3.68e+03	1.0e+03	4.74e+06	2.10e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.99e+06	2.55e+03	2.0e+03	3.98e+06	1.90e+03	2.1e+03
35	37Cl-2,3,7,8-TCDD	1.51e+05	9.80e+02	1.5e+02			

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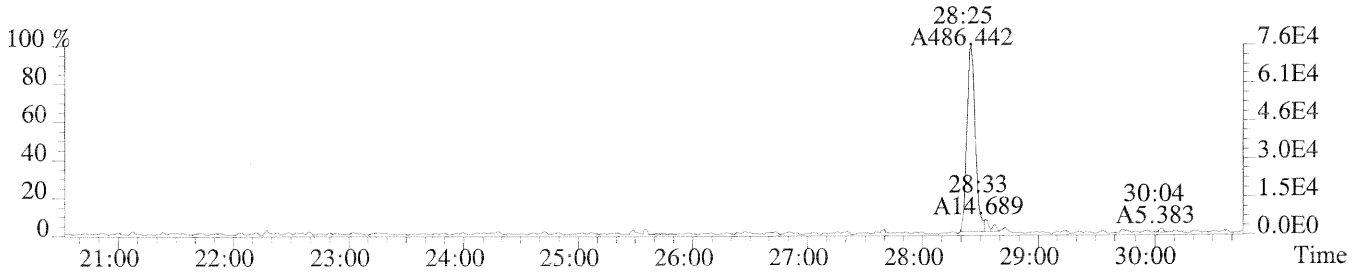
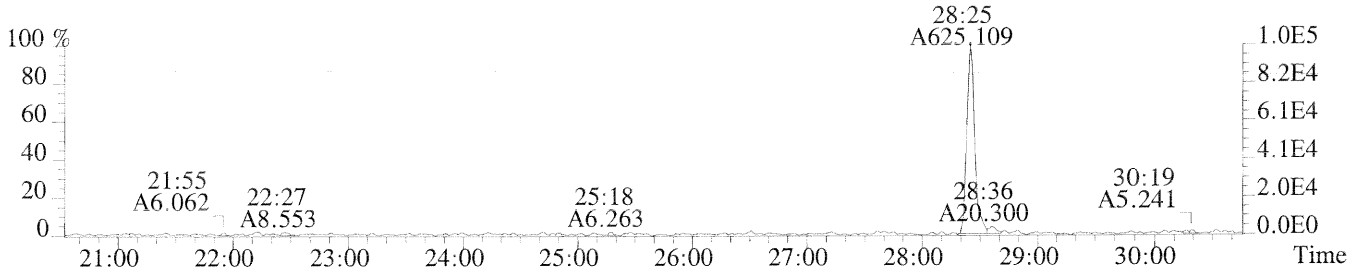
ALS Form TO-9SN/M23SN.FRM

File:P174194 #1-788 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

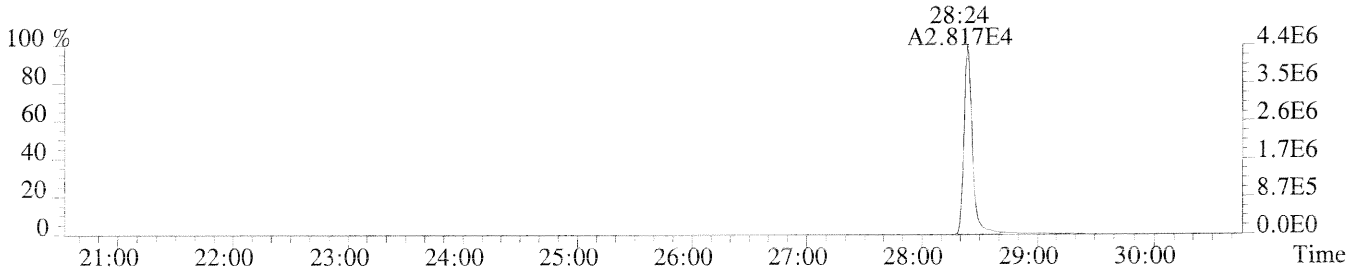
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



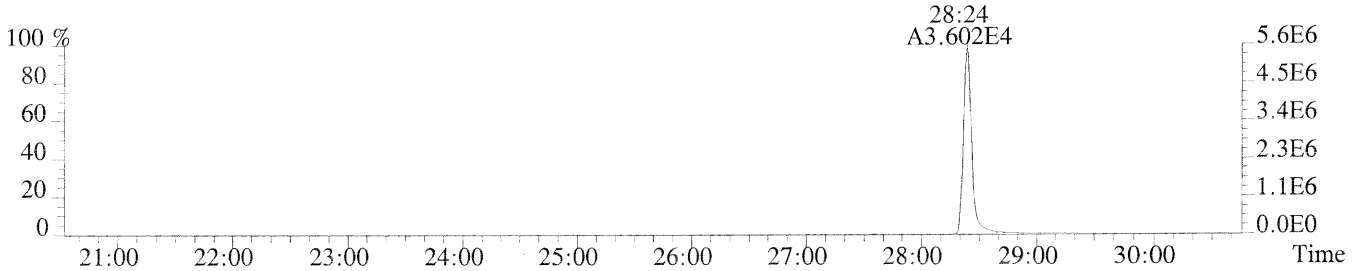
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



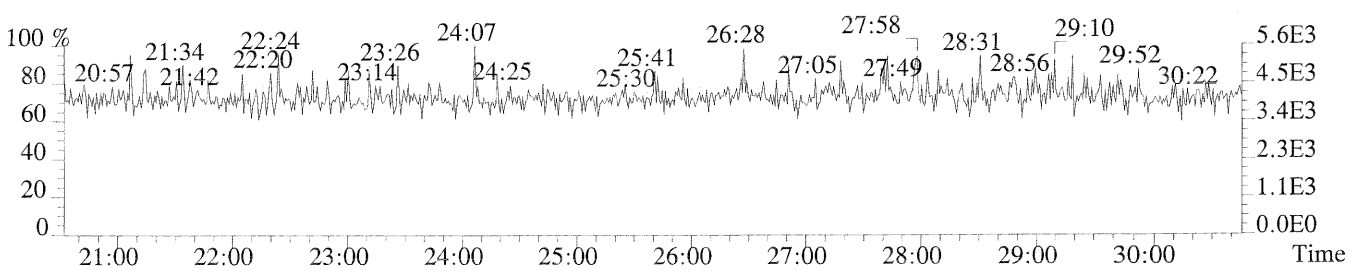
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



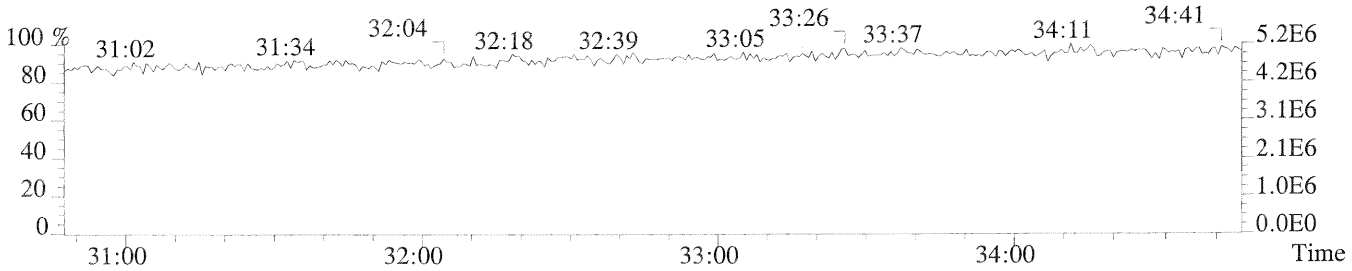
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



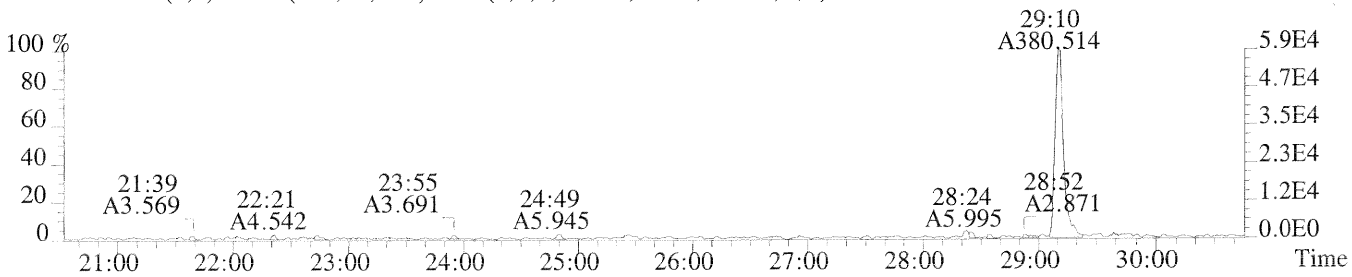
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



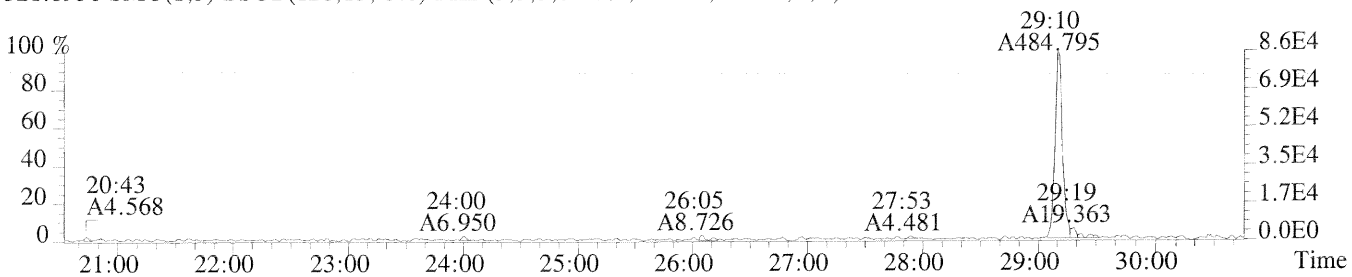
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



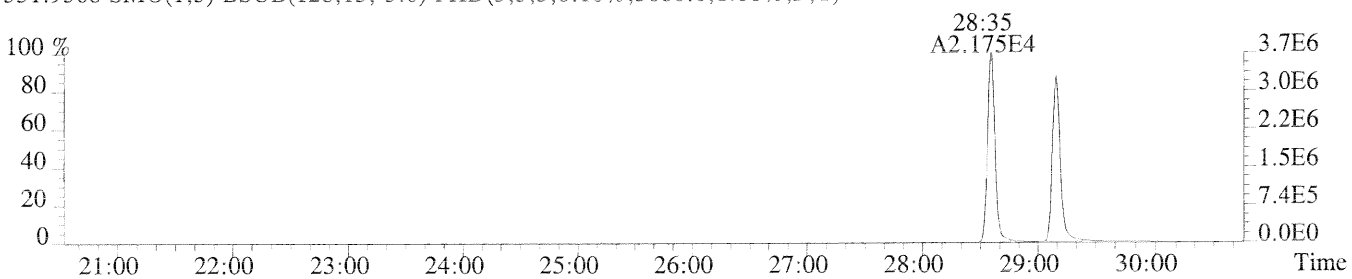
File:P174194 #1-788 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



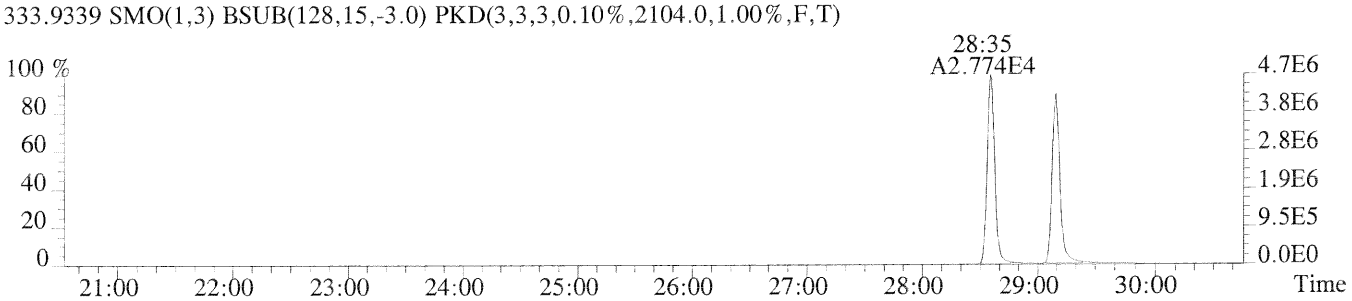
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



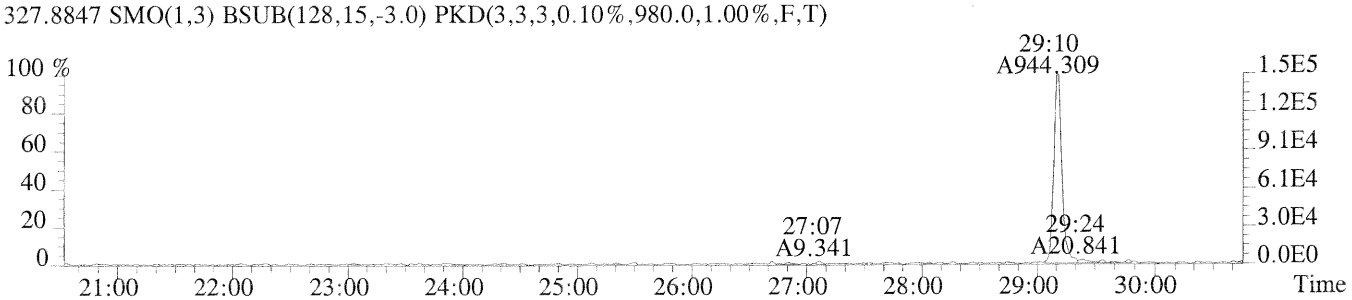
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3680.0,1.00%,F,T)



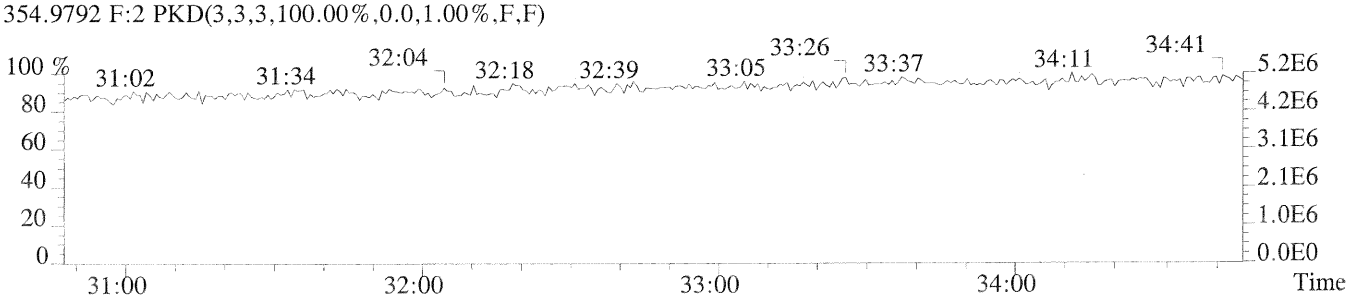
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



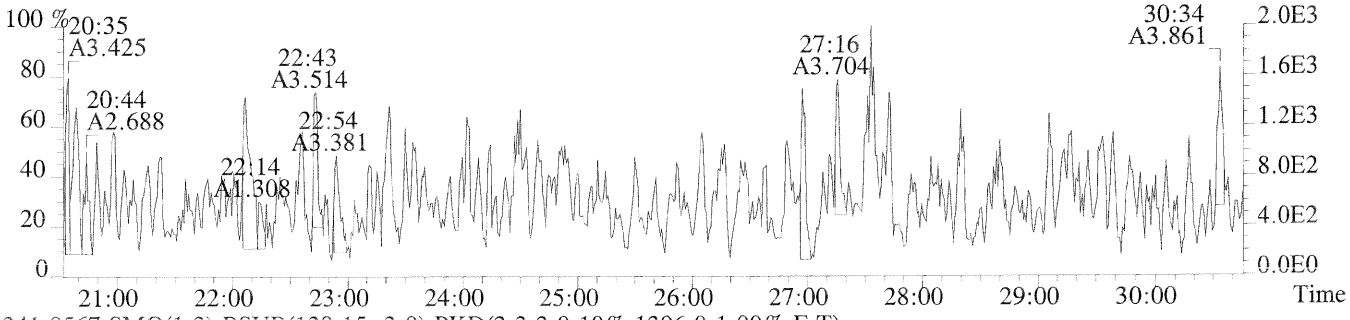
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



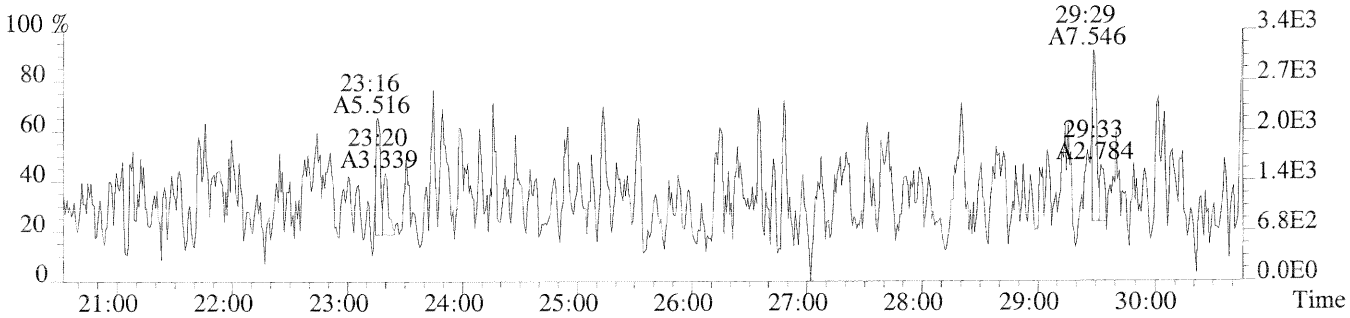
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



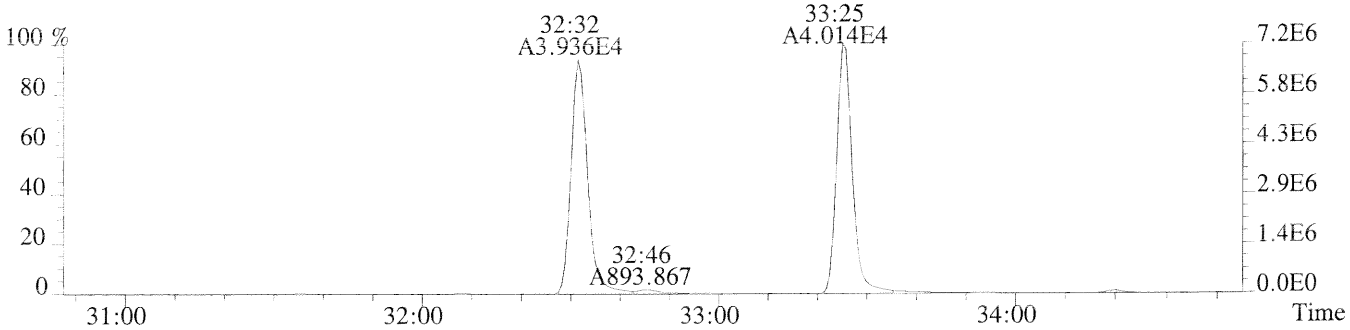
File:P174194 #1-788 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



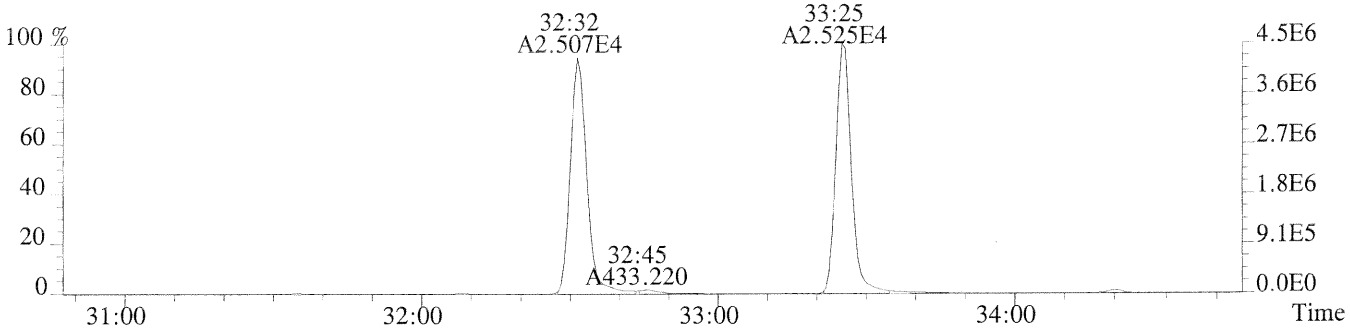
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



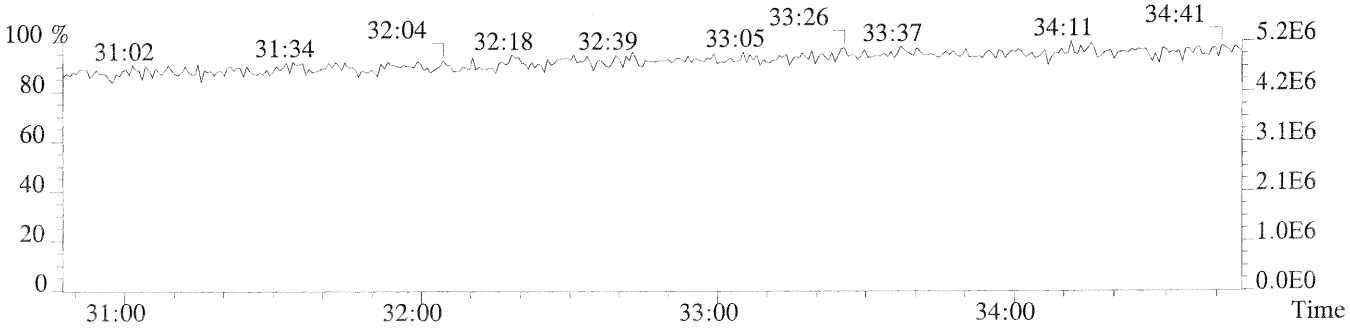
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)

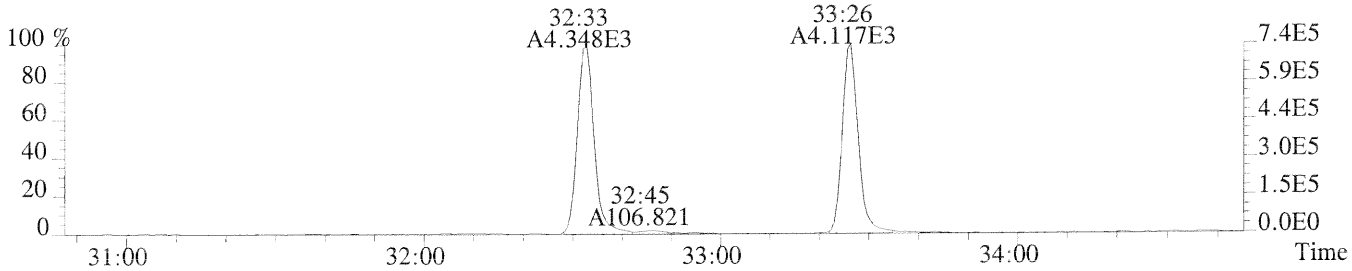


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

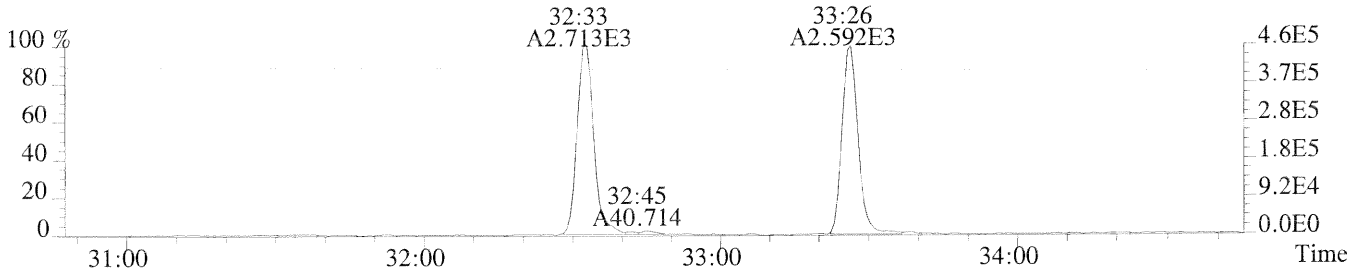


File:P174194 #1-360 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

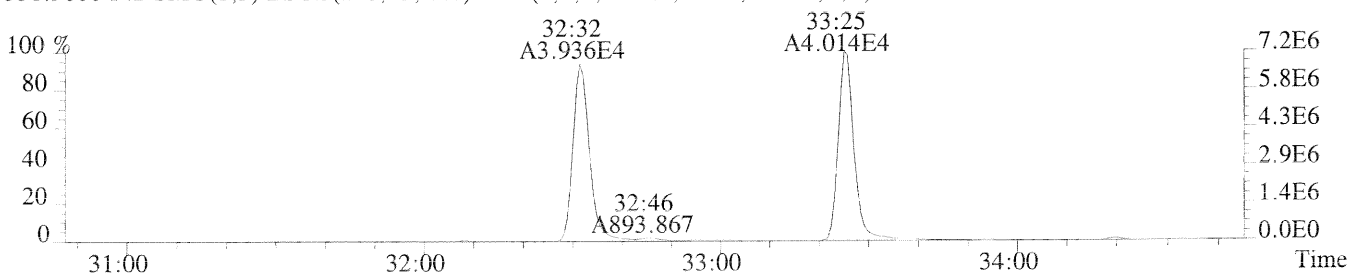
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



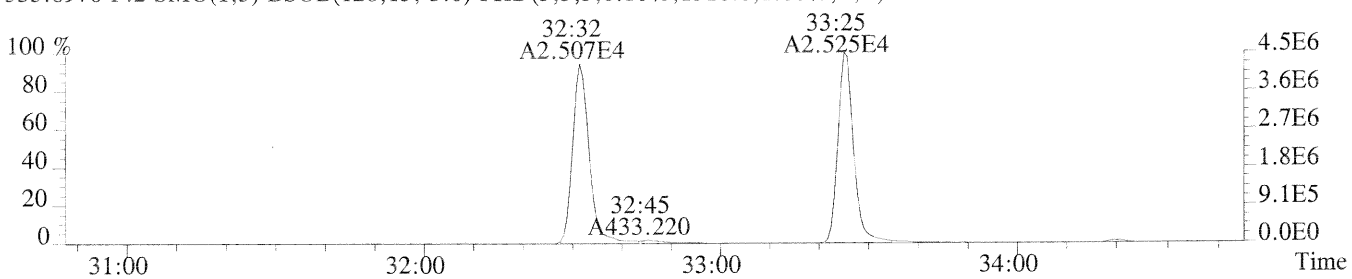
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2244.0,1.00%,F,T)



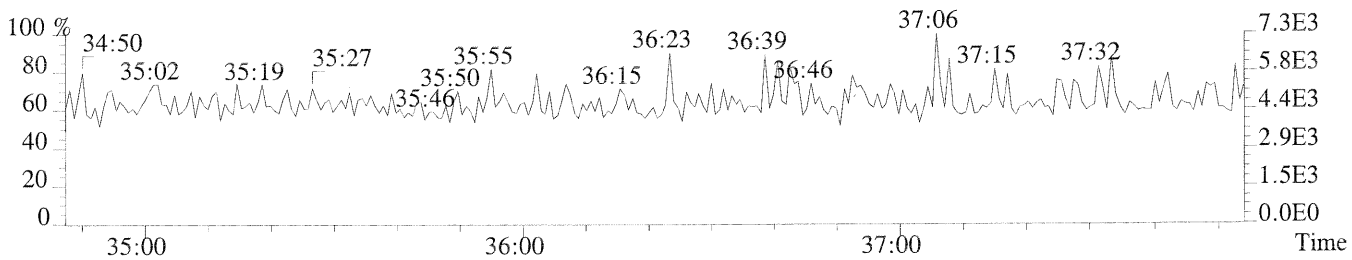
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



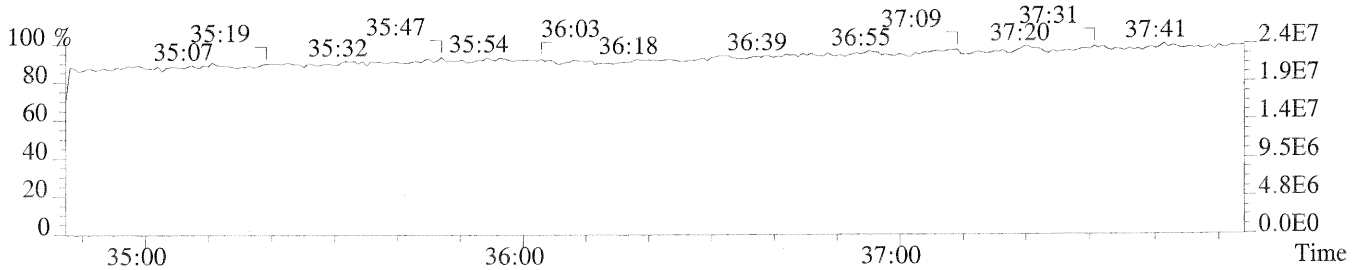
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



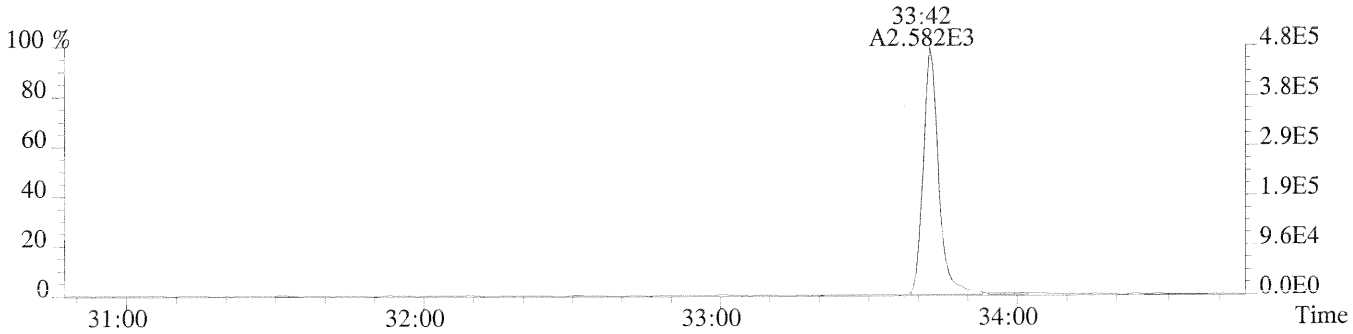
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



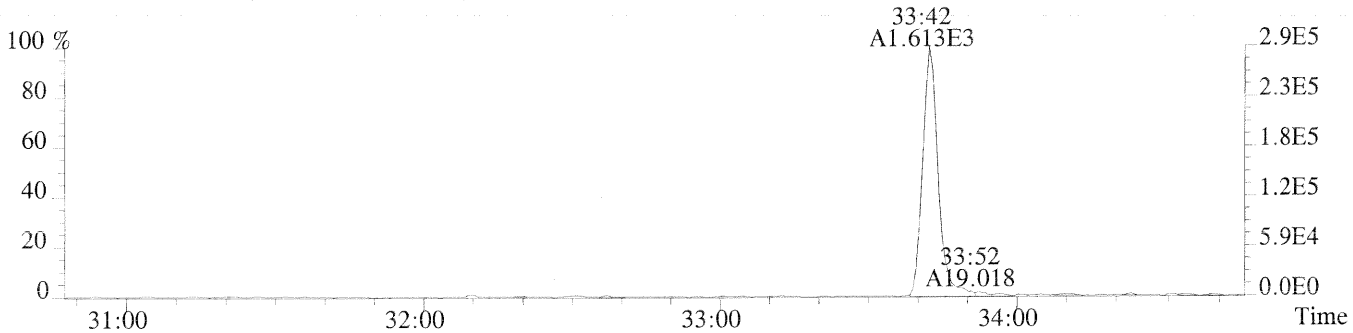
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



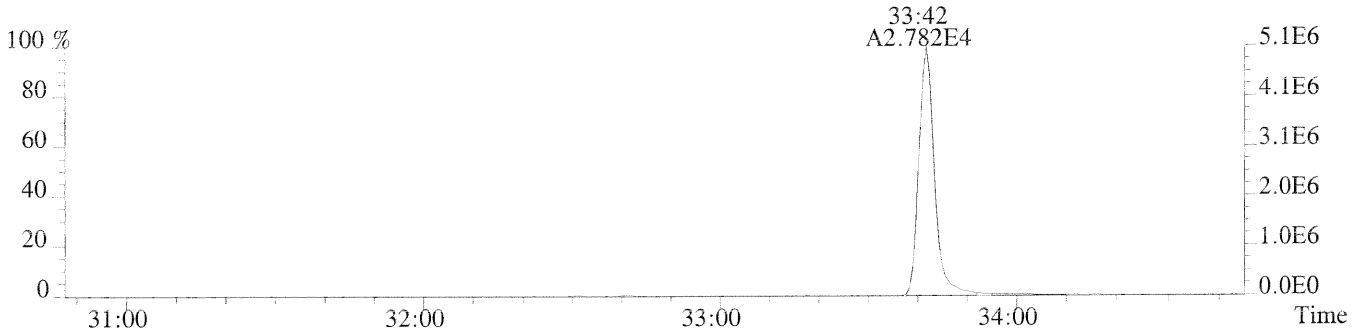
File:P174194 #1-360 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



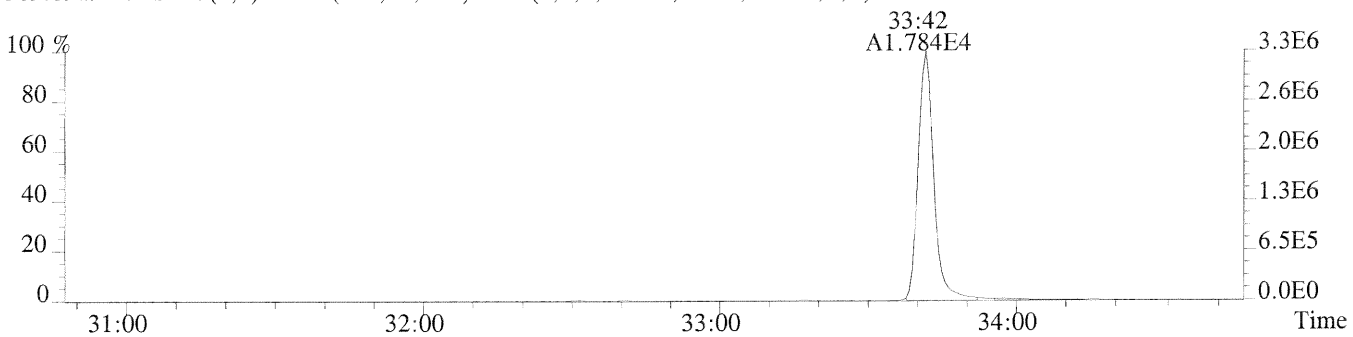
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



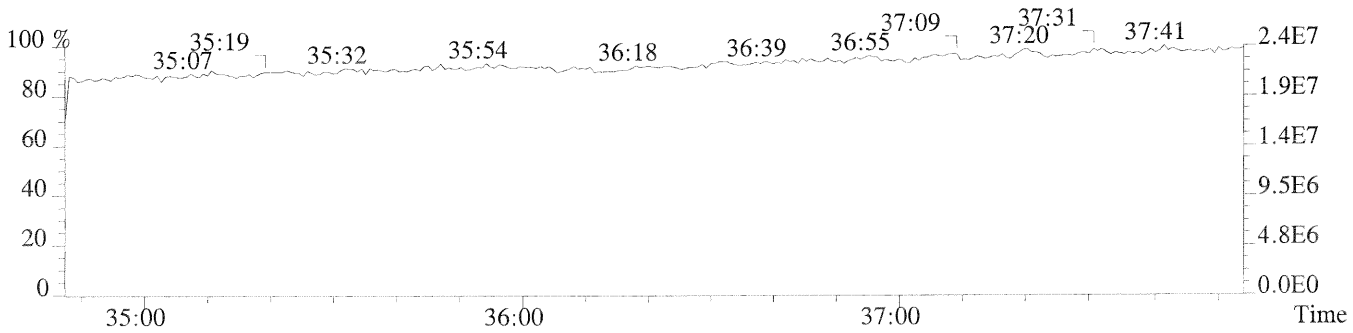
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)

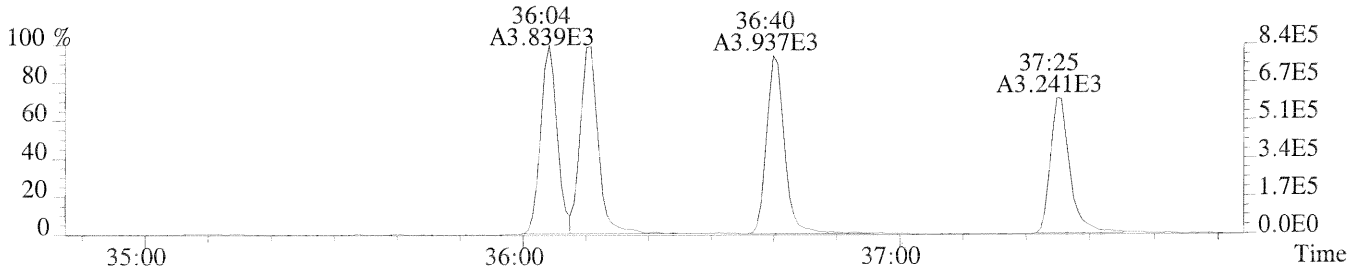


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

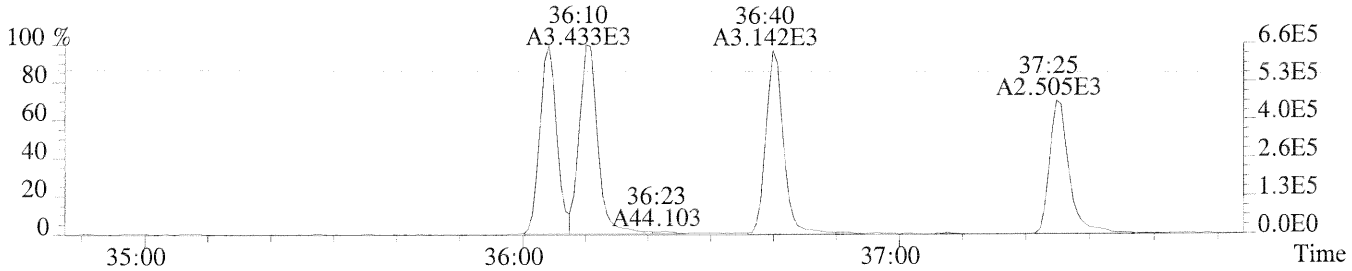


File:P174194 #1-283 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

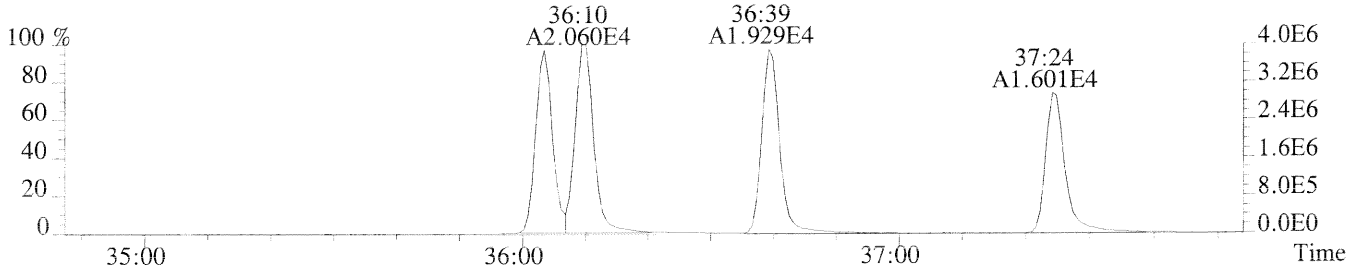
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



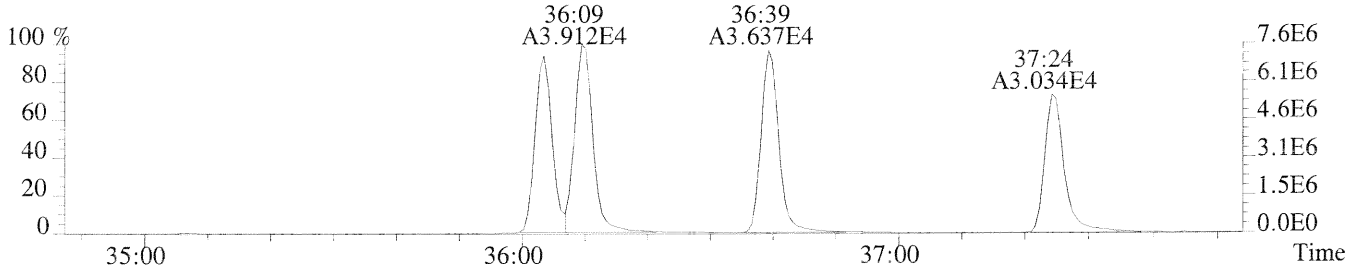
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



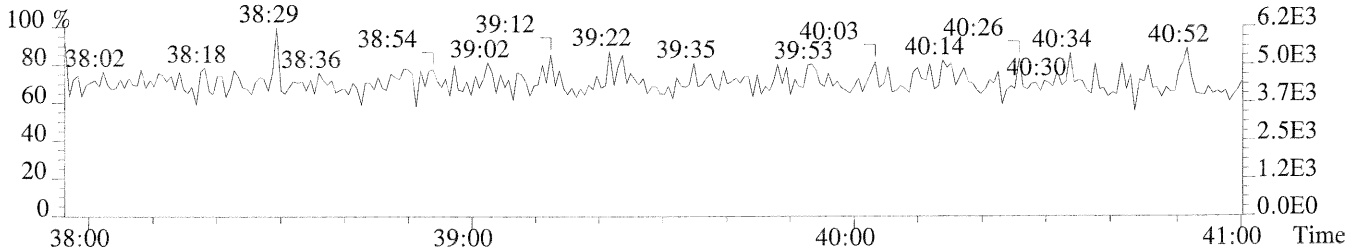
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



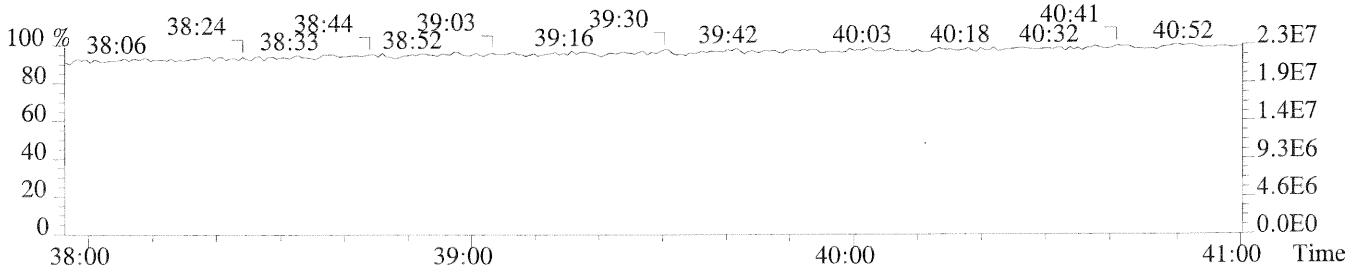
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1832.0,0.40%,F,T)



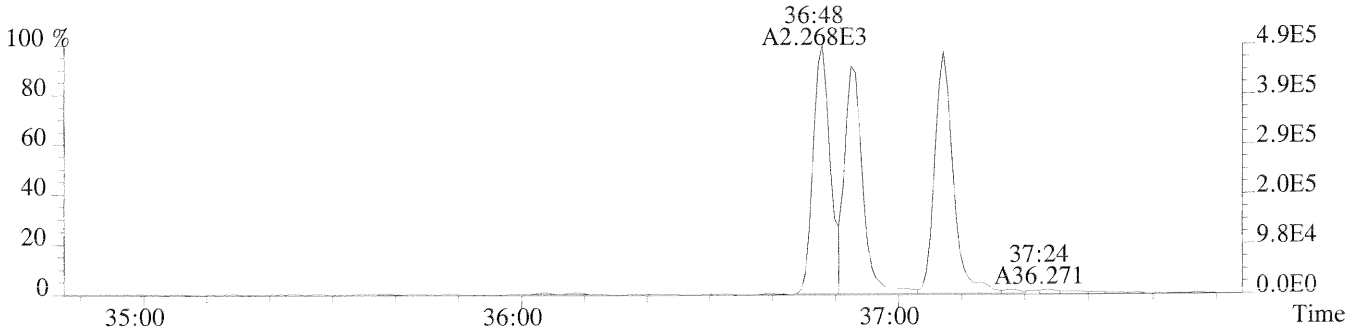
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



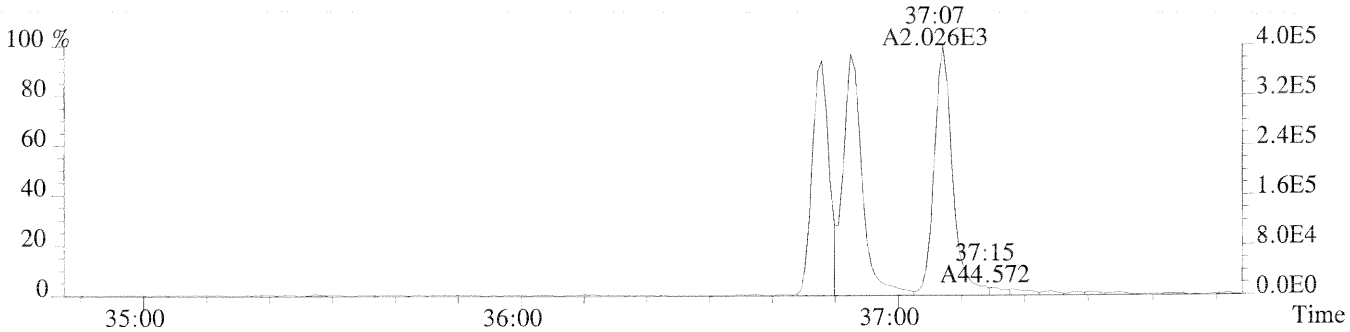
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



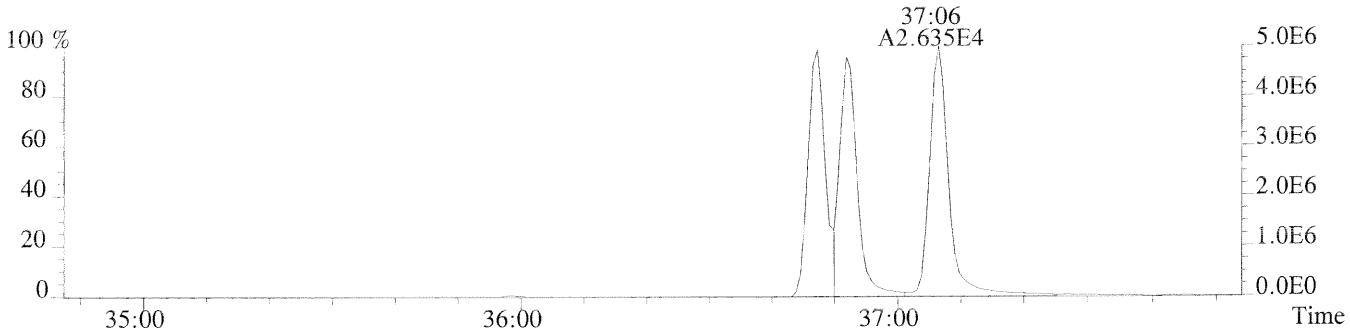
File:P174194 #1-283 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



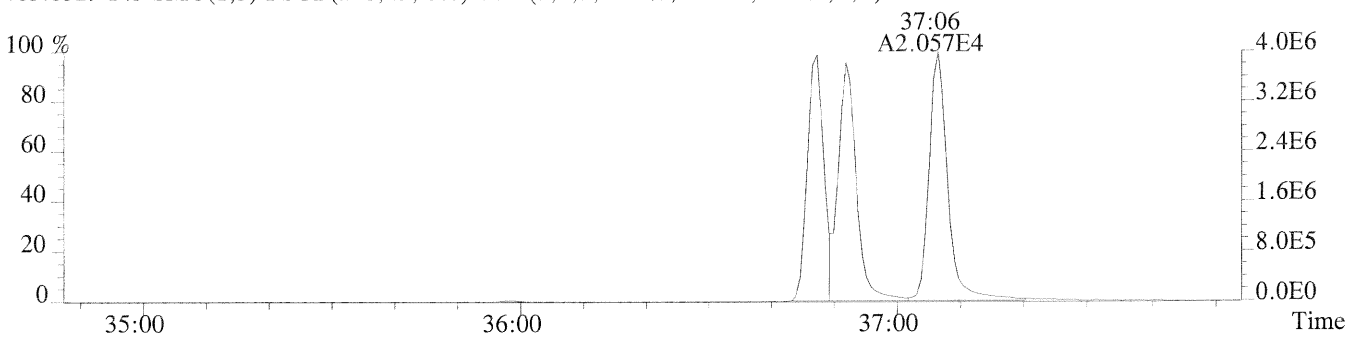
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



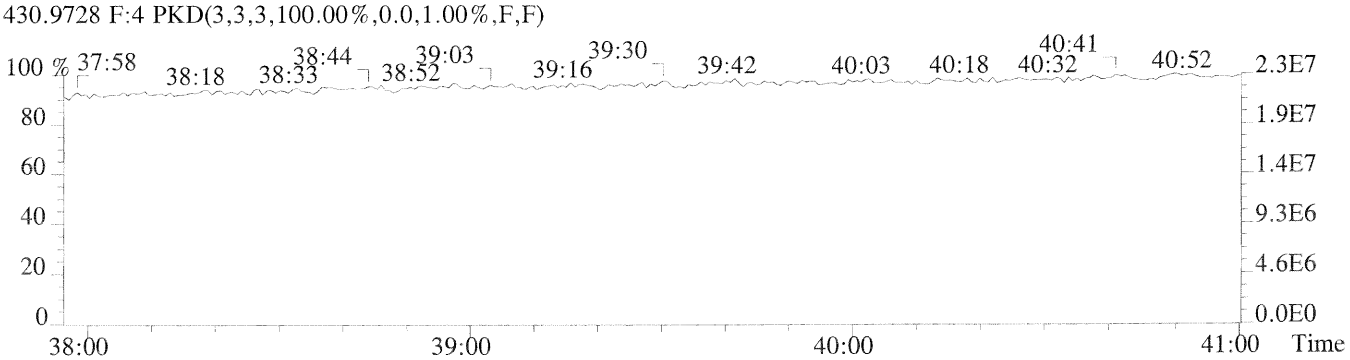
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2552.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)

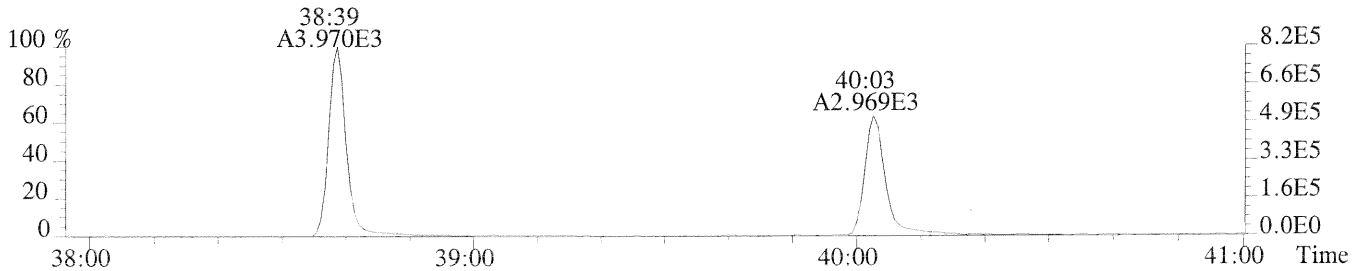


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

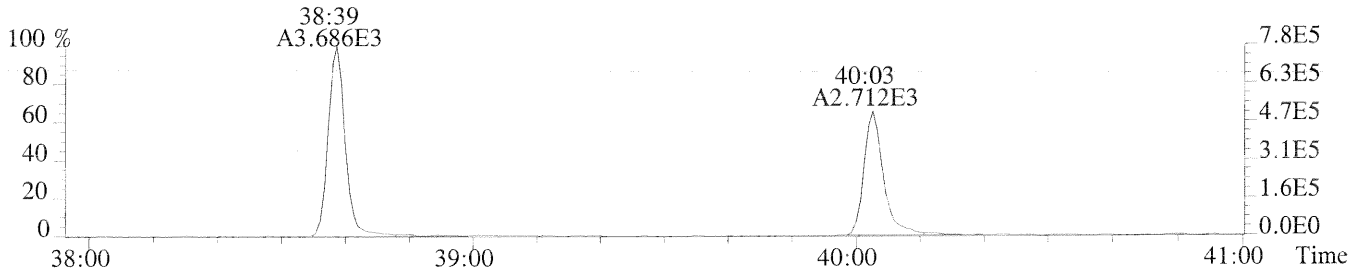


File:P174194 #1-279 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2

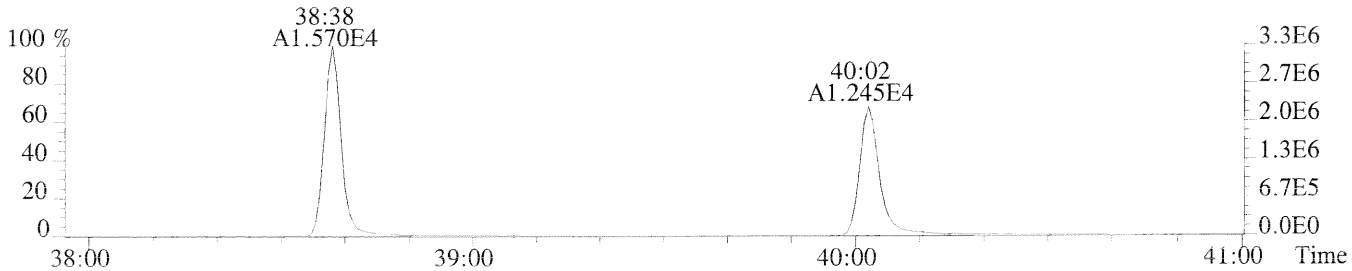
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.50%,F,T)



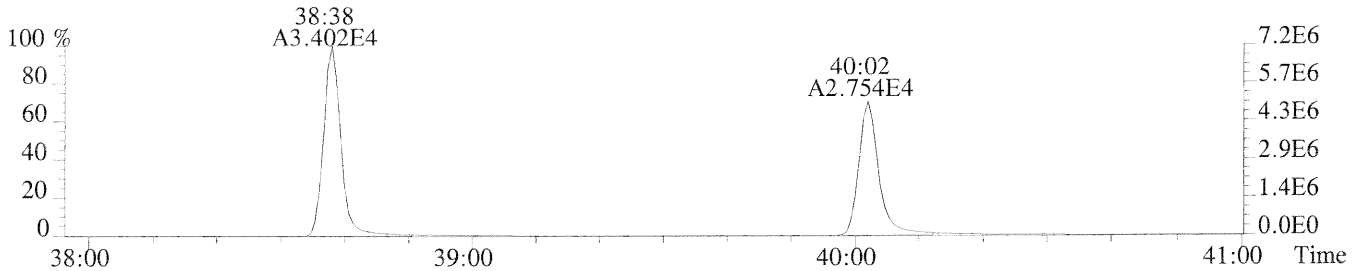
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.50%,F,T)



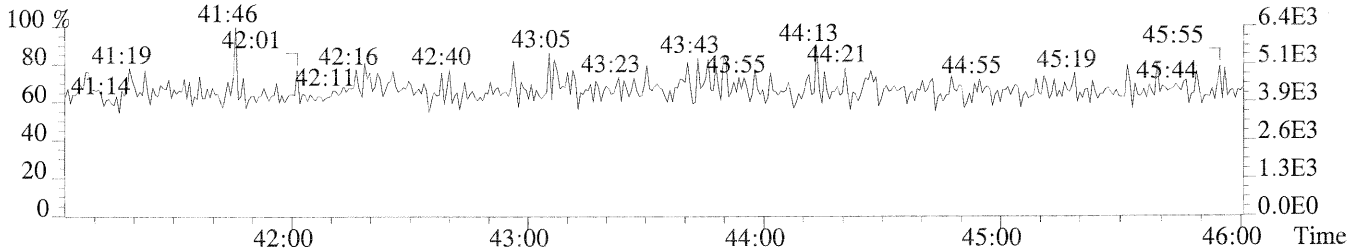
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.50%,F,T)



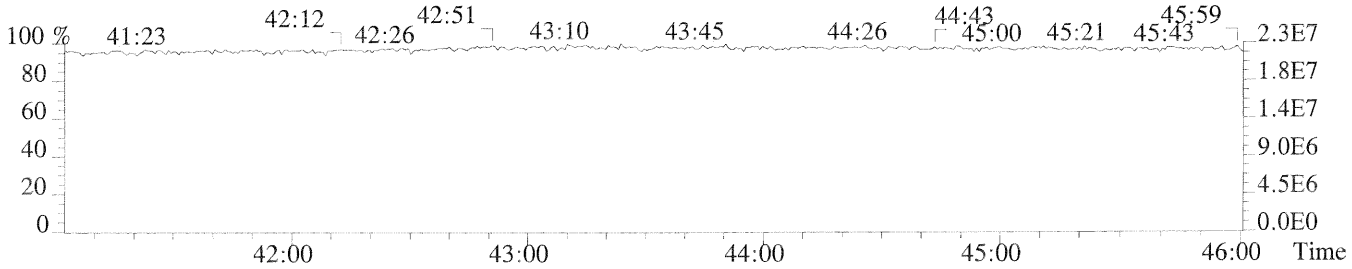
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.50%,F,T)



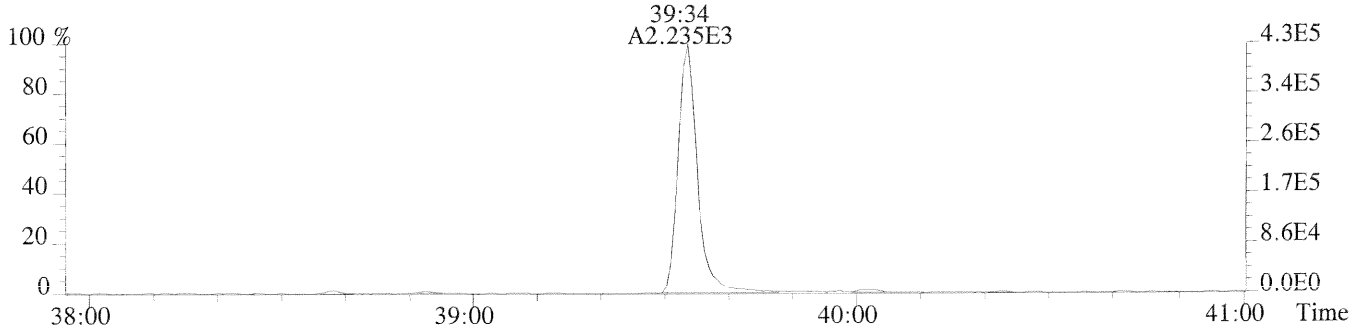
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



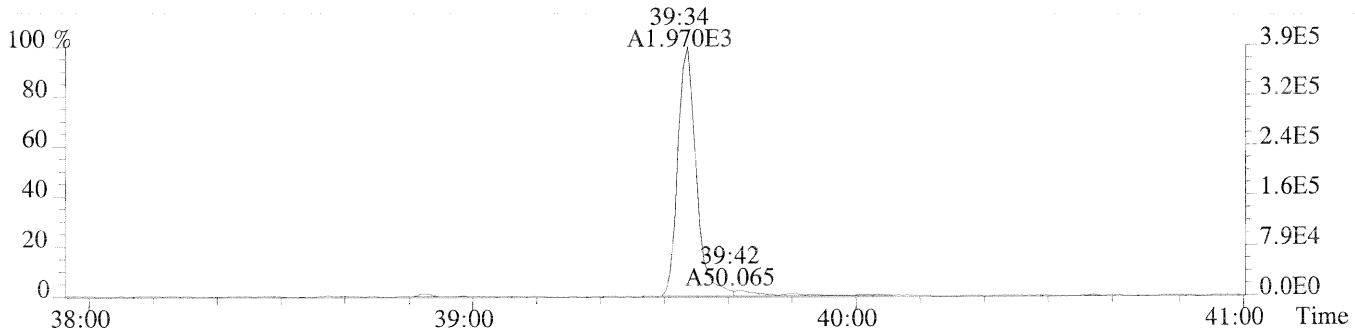
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



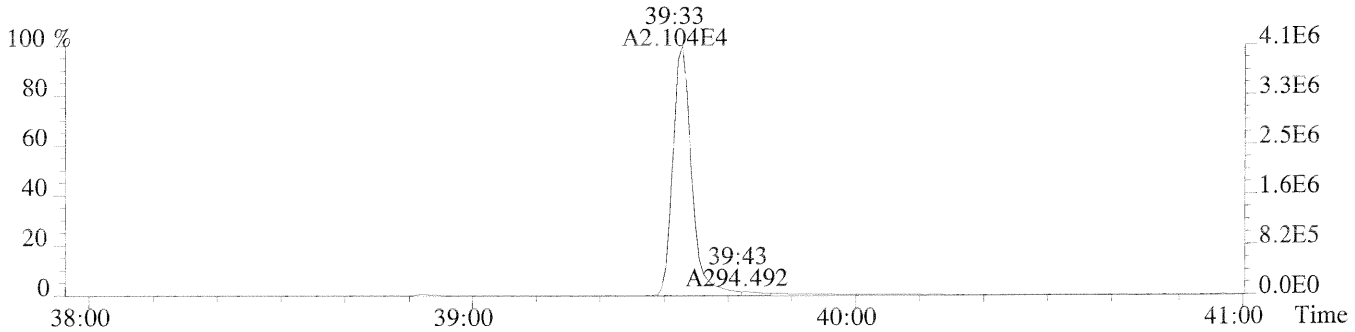
File:P174194 #1-279 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



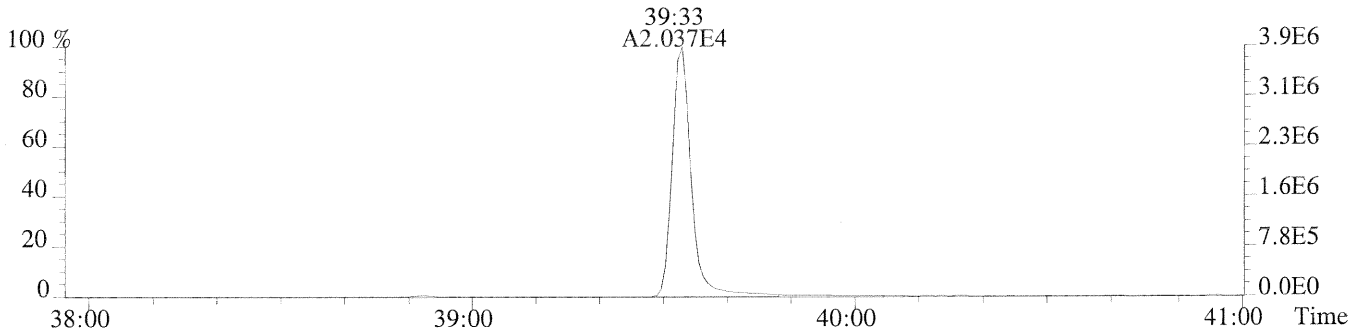
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



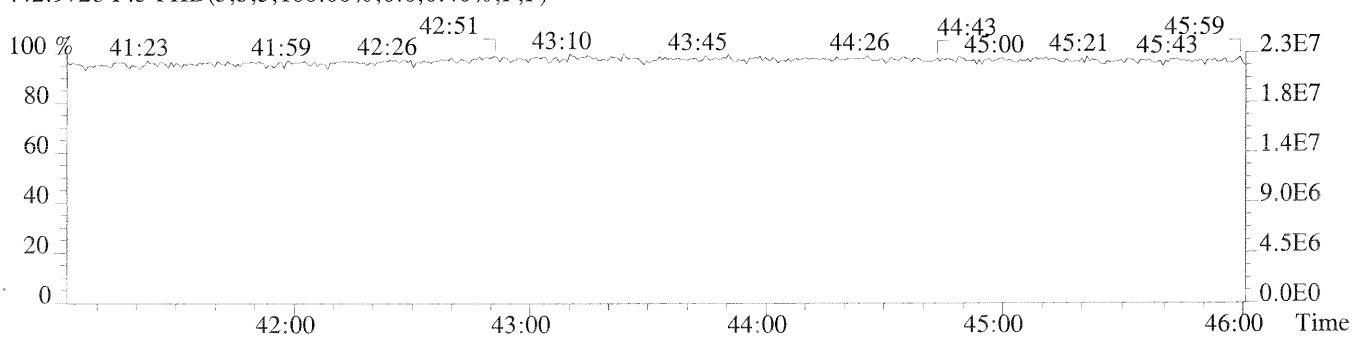
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



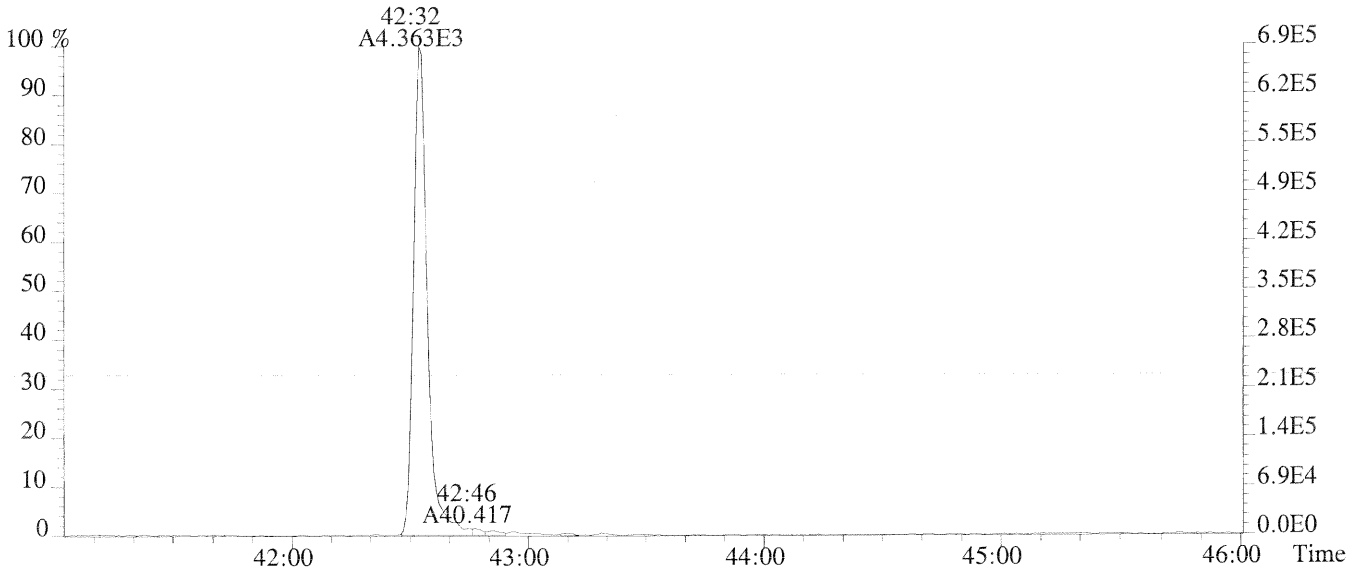
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



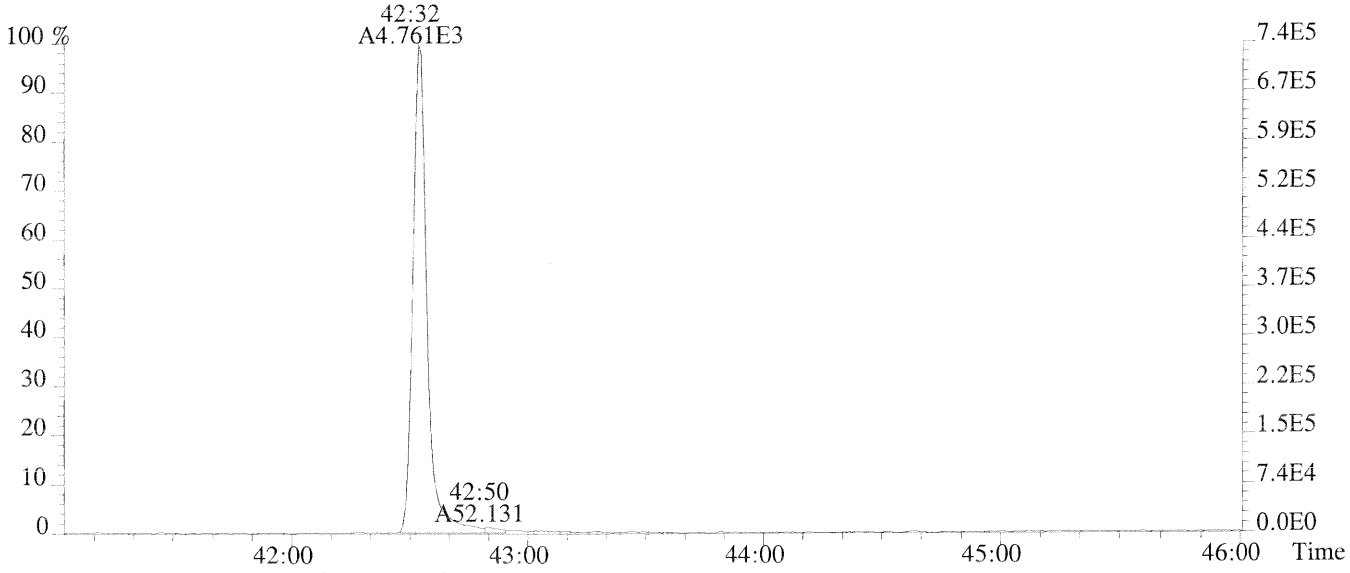
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



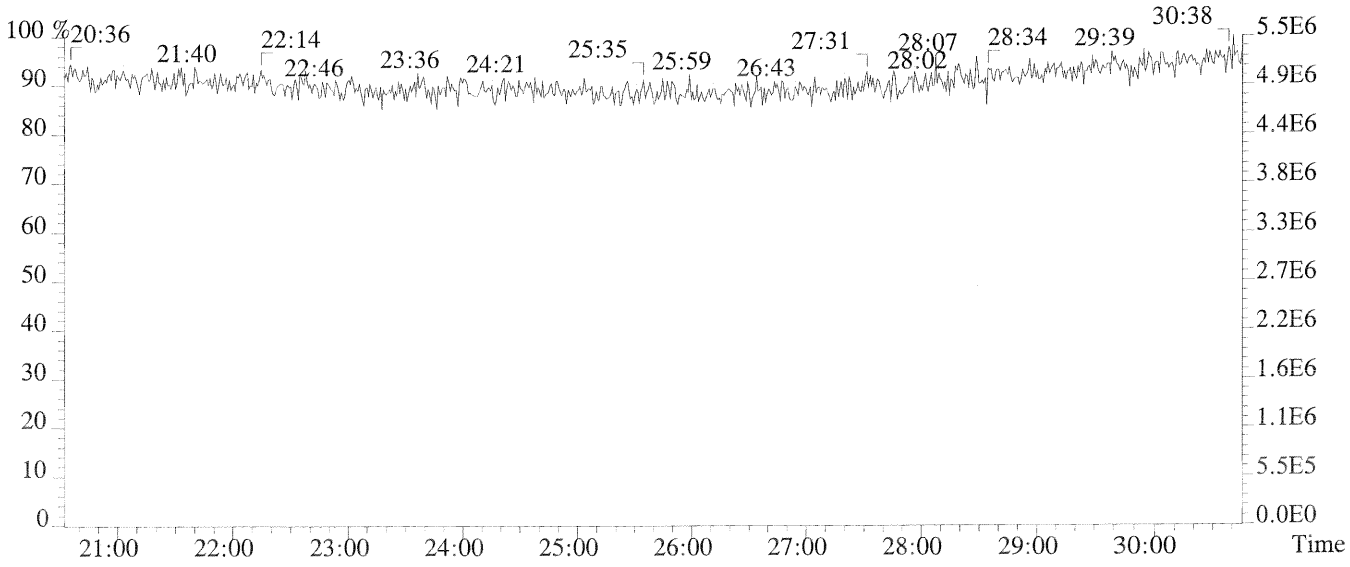
File:P174194 #1-457 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



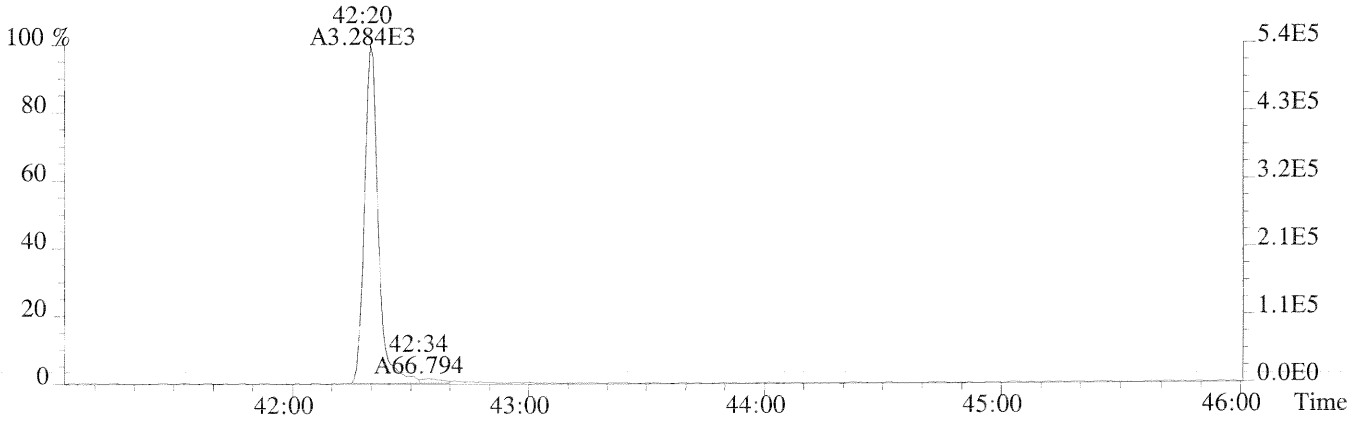
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



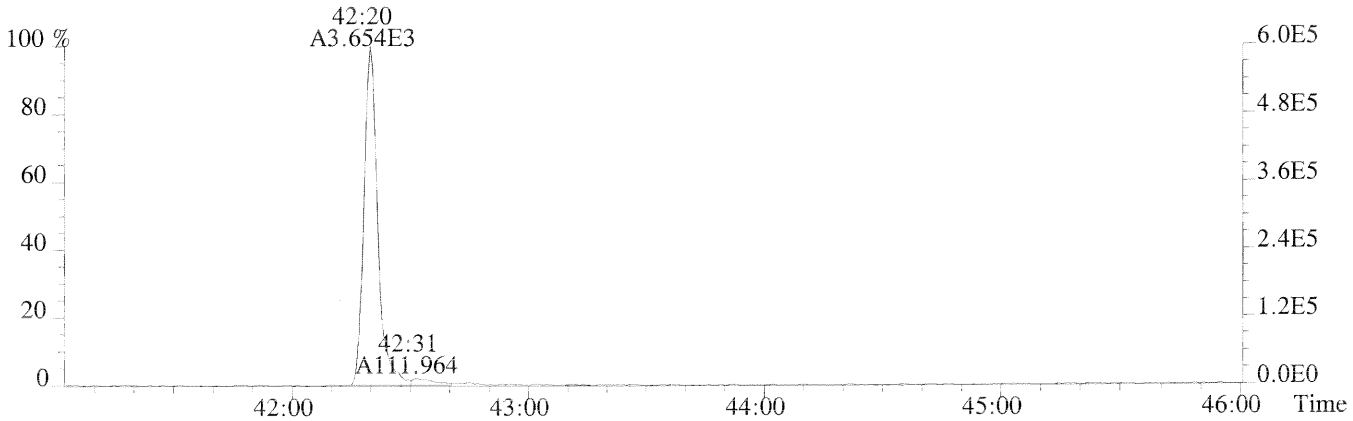
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



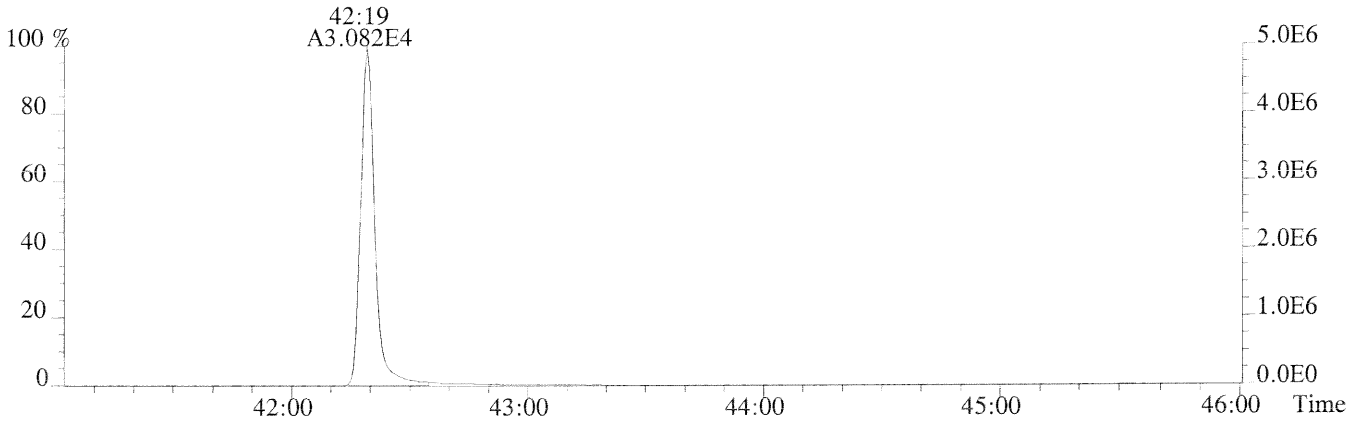
File:P174194 #1-457 Acq:18-OCT-2014 13:03:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



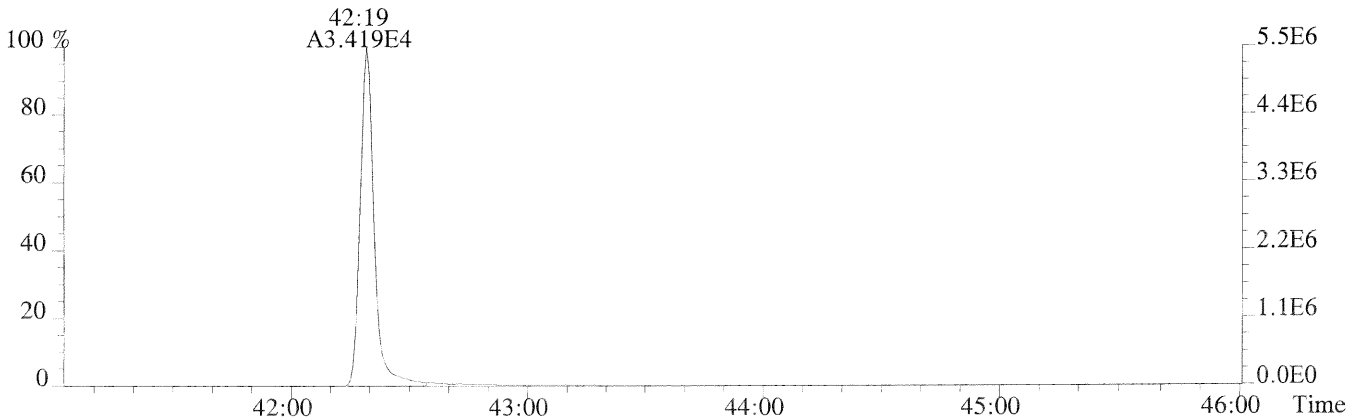
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



ALS ENVIRONMENTAL — CLIENT ID.
Method M23 — CS3

Sample Response Summary

Run #4 Filename P174195 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 14:01:26
Processed: 20-OCT-14 09:25:59 LAB. ID: 63383

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:26	2.630e+03	3.460e+03	0.76	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	32:33	2.059e+04	1.266e+04	1.63	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	33:27	1.903e+04	1.194e+04	1.59	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	36:05	1.806e+04	1.423e+04	1.27	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	36:11	1.993e+04	1.583e+04	1.26	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	36:41	1.760e+04	1.394e+04	1.26	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	37:26	1.527e+04	1.158e+04	1.32	yes	yes	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.804e+04	1.717e+04	1.05	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.324e+04	1.244e+04	1.06	yes	no	1.148
10	Unk	OCDF	42:33	1.984e+04	2.157e+04	0.92	yes	no	1.369
11	Unk	2,3,7,8-TCDD	29:11	2.046e+03	2.538e+03	0.81	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	33:43	1.176e+04	7.539e+03	1.56	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	36:48	1.027e+04	8.247e+03	1.25	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	36:53	1.192e+04	9.336e+03	1.28	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	37:08	1.184e+04	9.490e+03	1.25	yes	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	9.699e+03	9.380e+03	1.03	yes	no	1.052
17	Unk	OCDD	42:20	1.501e+04	1.712e+04	0.88	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	28:24	2.889e+04	3.735e+04	0.77	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:32	3.733e+04	2.384e+04	1.57	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	33:26	3.652e+04	2.319e+04	1.57	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	36:04	1.641e+04	3.160e+04	0.52	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	36:10	1.963e+04	3.661e+04	0.54	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	37:25	1.462e+04	2.770e+04	0.53	yes	yes	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.420e+04	3.126e+04	0.45	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.119e+04	2.436e+04	0.46	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	29:10	2.034e+04	2.667e+04	0.76	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:42	2.601e+04	1.641e+04	1.58	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	36:48	2.081e+04	1.628e+04	1.28	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	2.346e+04	1.845e+04	1.27	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	1.930e+04	1.820e+04	1.06	yes	no	0.874
32	IS	13C-OCDD	42:20	2.825e+04	3.151e+04	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	28:36	2.247e+04	2.874e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	37:07	2.441e+04	1.922e+04	1.27	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	29:11	4.830e+03				no	1.038

$$\text{OCDD} = \frac{(1.501e+04 + 1.712e+04) \times (200.0) \times 1}{(2.825e+04 + 3.151e+04) \times 1.068 \times 1.000} = \text{pg}$$

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ALS Form TO9resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS3

Method M23

Run #4 Filename P174195 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 14:01:26
Processed: 20-OCT-14 09:25:59 LAB. ID: 63383

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.10e+05	7.28e+02	5.6e+02	5.14e+05	1.09e+03	4.7e+02
2	1,2,3,7,8-PeCDF	3.47e+06	7.96e+02	4.4e+03	2.21e+06	2.32e+03	9.5e+02
3	2,3,4,7,8-PeCDF	3.39e+06	7.96e+02	4.3e+03	2.14e+06	2.32e+03	9.2e+02
4	1,2,3,4,7,8-HxCDF	3.78e+06	9.64e+02	3.9e+03	2.93e+06	5.88e+02	5.0e+03
5	1,2,3,6,7,8-HxCDF	3.89e+06	9.64e+02	4.0e+03	3.10e+06	5.88e+02	5.3e+03
6	2,3,4,6,7,8-HxCDF	3.66e+06	9.64e+02	3.8e+03	2.91e+06	5.88e+02	4.9e+03
7	1,2,3,7,8,9-HxCDF	2.87e+06	9.64e+02	3.0e+03	2.22e+06	5.88e+02	3.8e+03
8	1,2,3,4,6,7,8-HpCDF	3.73e+06	2.34e+03	1.6e+03	3.56e+06	2.77e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.40e+06	2.34e+03	1.0e+03	2.27e+06	2.77e+03	8.2e+02
10	OCDF	3.17e+06	7.36e+02	4.3e+03	3.47e+06	7.80e+02	4.5e+03
11	2,3,7,8-TCDD	3.31e+05	6.92e+02	4.8e+02	4.10e+05	9.96e+02	4.1e+02
12	1,2,3,7,8-PeCDD	2.16e+06	8.80e+02	2.5e+03	1.40e+06	7.16e+02	2.0e+03
13	1,2,3,4,7,8-HxCDD	2.30e+06	6.64e+02	3.5e+03	1.80e+06	7.68e+02	2.3e+03
14	1,2,3,6,7,8-HxCDD	2.34e+06	6.64e+02	3.5e+03	1.80e+06	7.68e+02	2.3e+03
15	1,2,3,7,8,9-HxCDD	2.21e+06	6.64e+02	3.3e+03	1.76e+06	7.68e+02	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	1.88e+06	5.96e+02	3.2e+03	1.78e+06	7.24e+02	2.5e+03
17	OCDD	2.52e+06	5.36e+02	4.7e+03	2.88e+06	4.36e+02	6.6e+03
18	13C-2,3,7,8-TCDF	4.48e+06	1.88e+03	2.4e+03	5.81e+06	1.16e+03	5.0e+03
19	13C-1,2,3,7,8-PeCDF	6.54e+06	4.92e+02	1.3e+04	4.12e+06	1.10e+03	3.8e+03
20	13C-2,3,4,7,8-PeCDF	6.71e+06	4.92e+02	1.4e+04	4.27e+06	1.10e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	3.42e+06	5.72e+02	6.0e+03	6.56e+06	1.69e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.86e+06	5.72e+02	6.8e+03	7.23e+06	1.69e+03	4.3e+03
24	13C-1,2,3,7,8,9-HxCDF	2.72e+06	5.72e+02	4.8e+03	5.20e+06	1.69e+03	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.01e+06	2.36e+03	1.3e+03	6.53e+06	2.69e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.03e+06	2.36e+03	8.6e+02	4.38e+06	2.69e+03	1.6e+03
27	13C-2,3,7,8-TCDD	3.31e+06	4.17e+03	7.9e+02	4.21e+06	1.37e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	4.90e+06	7.24e+02	6.8e+03	3.09e+06	5.56e+02	5.5e+03
29	13C-1,2,3,4,7,8-HxCDD	4.62e+06	2.76e+03	1.7e+03	3.57e+06	1.47e+03	2.4e+03
30	13C-1,2,3,6,7,8-HxCDD	4.56e+06	2.76e+03	1.7e+03	3.67e+06	1.47e+03	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.66e+06	8.04e+02	4.5e+03	3.41e+06	8.44e+02	4.0e+03
32	13C-OCDD	4.68e+06	8.04e+02	5.8e+03	5.22e+06	8.40e+02	6.2e+03
33	13C-1,2,3,4-TCDD	3.80e+06	4.17e+03	9.1e+02	4.87e+06	1.37e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	4.55e+06	2.76e+03	1.6e+03	3.65e+06	1.47e+03	2.5e+03
35	37Cl-2,3,7,8-TCDD	7.88e+05	1.13e+03	7.0e+02			

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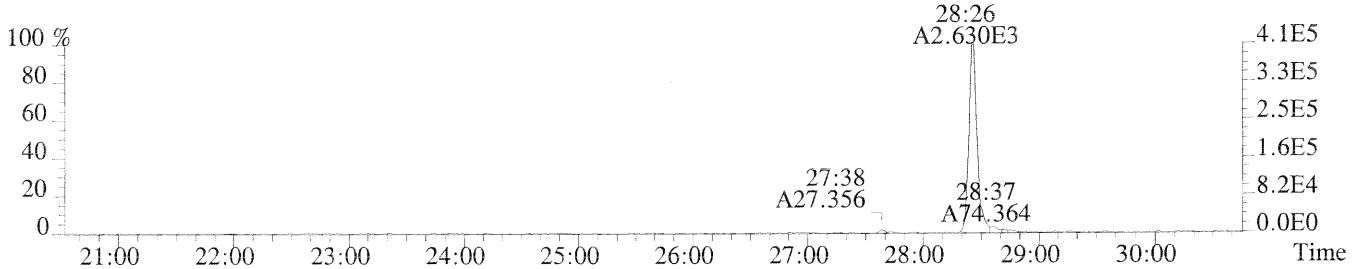
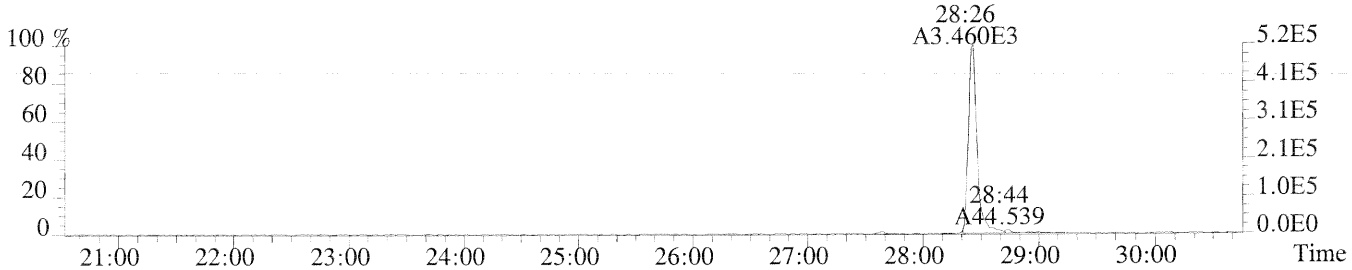
ALS Form TO-9SN/M23SN.FRM

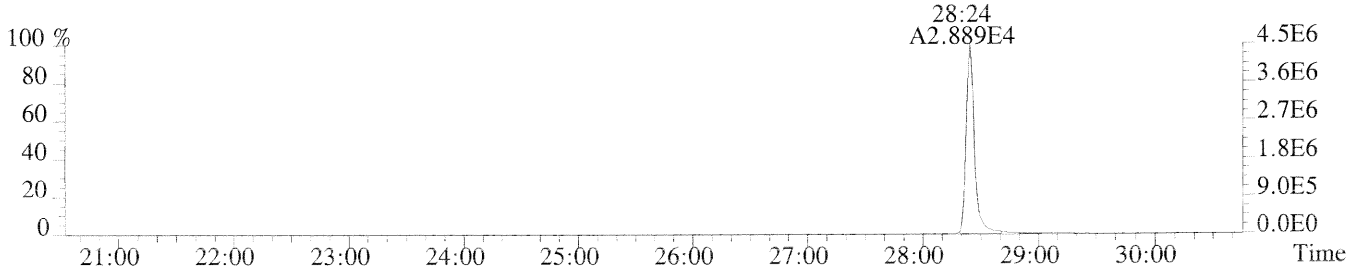
File:P174195 #1-788 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



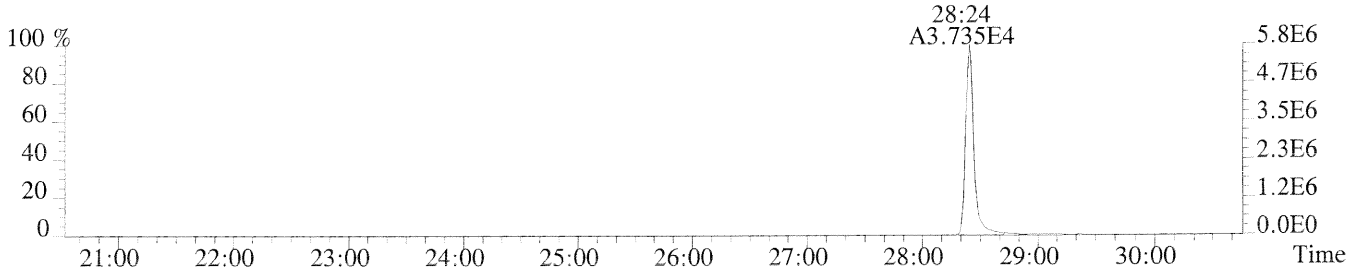
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



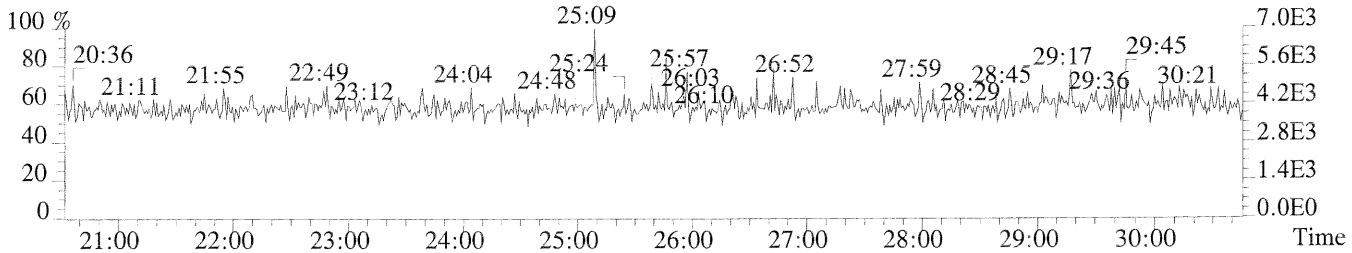
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



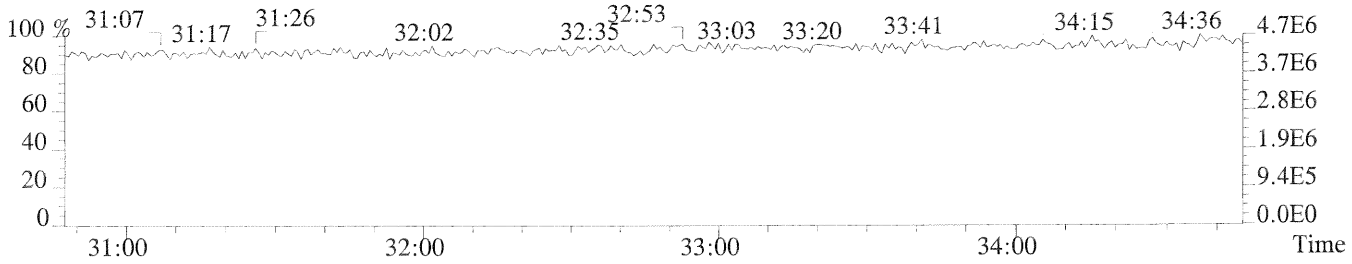
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



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

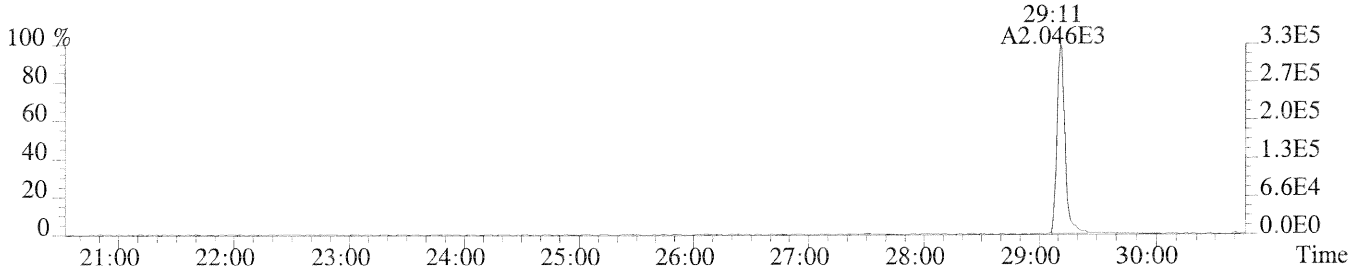


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

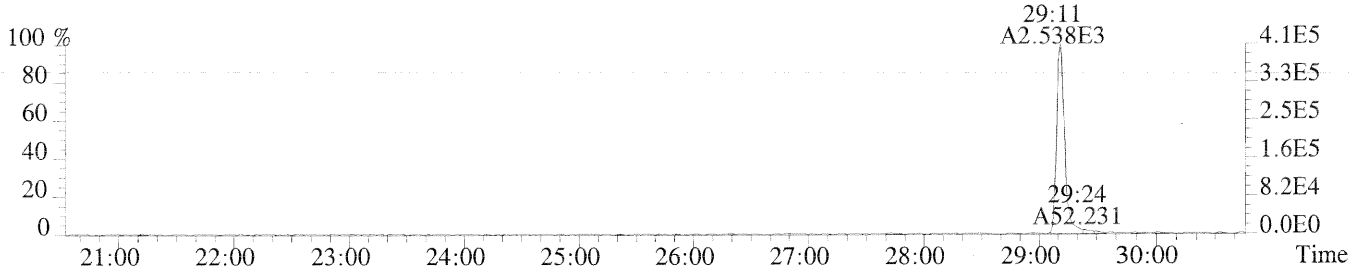


File:P174195 #1-788 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

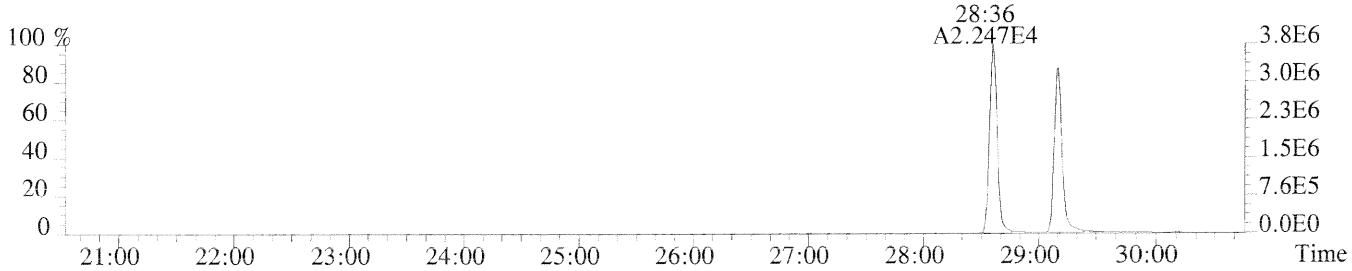
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



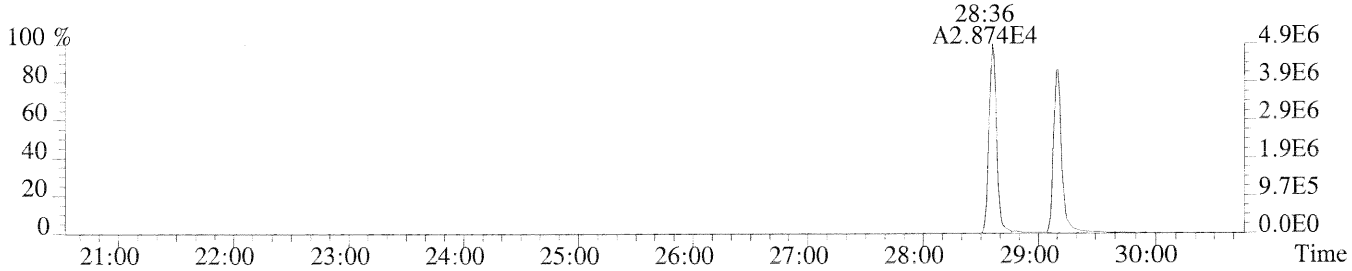
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



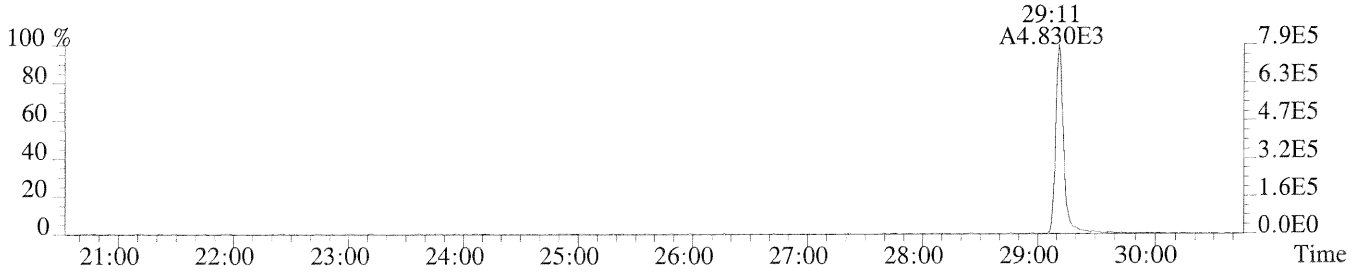
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4168.0,1.00%,F,T)



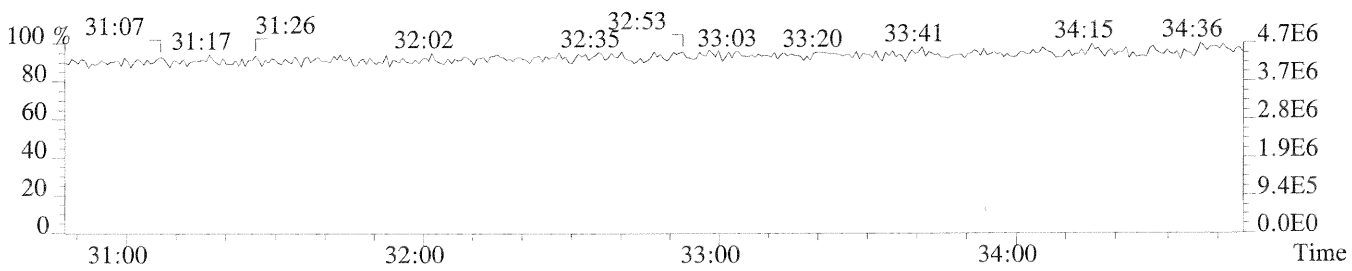
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



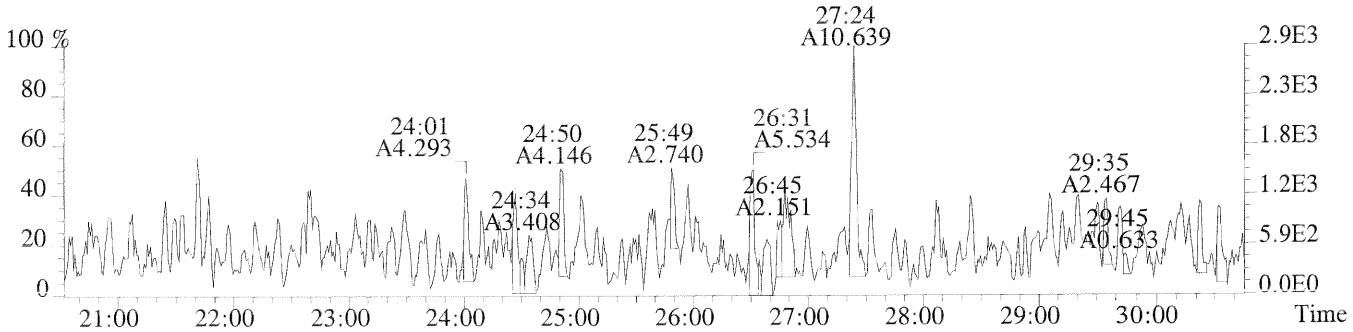
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



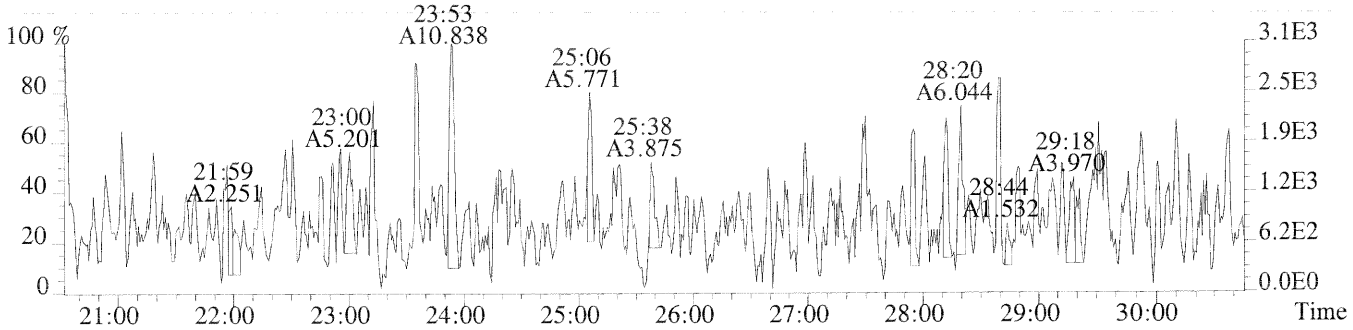
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



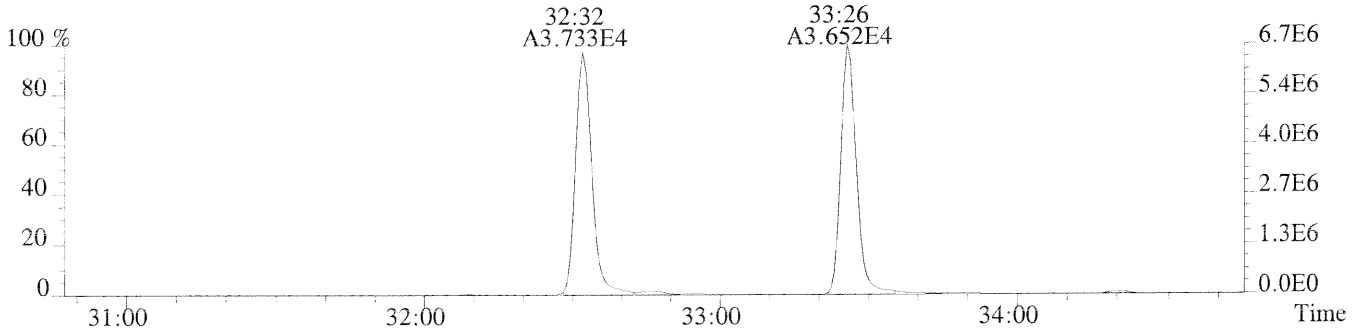
File:P174195 #1-788 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



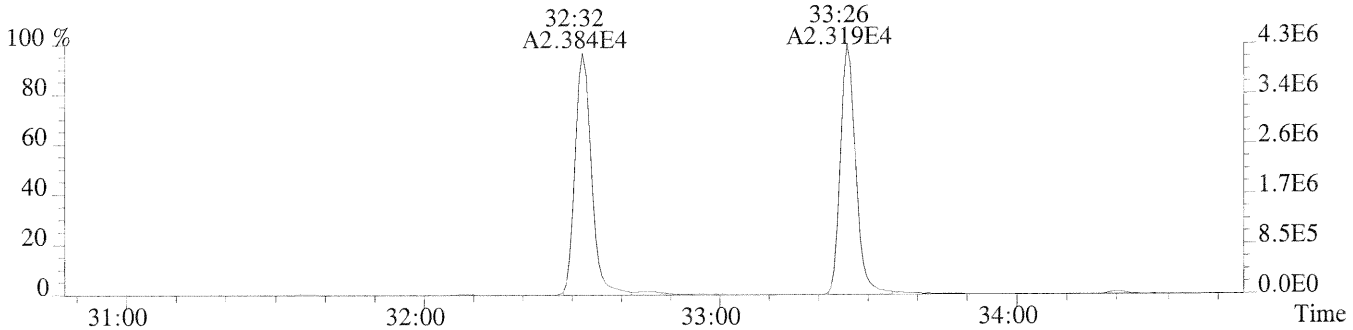
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



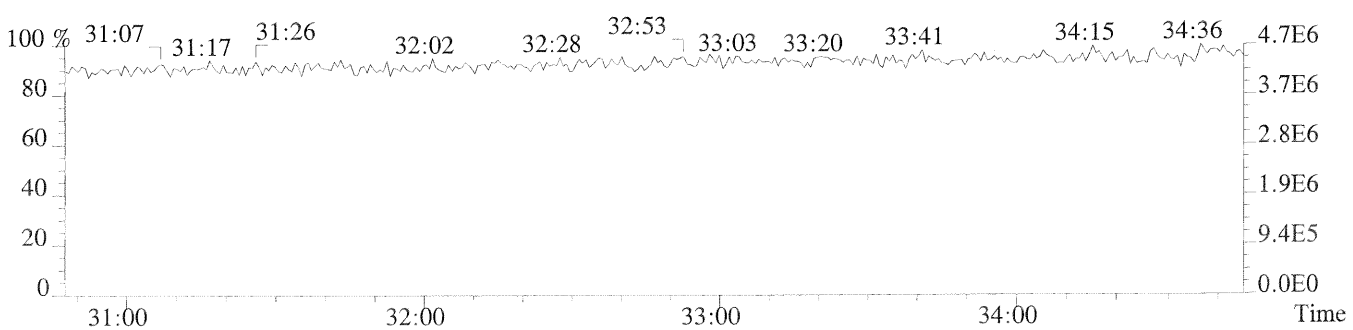
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)

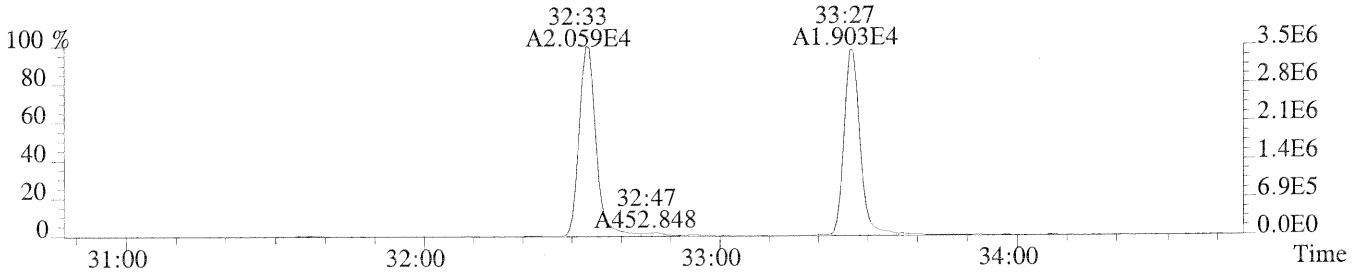


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

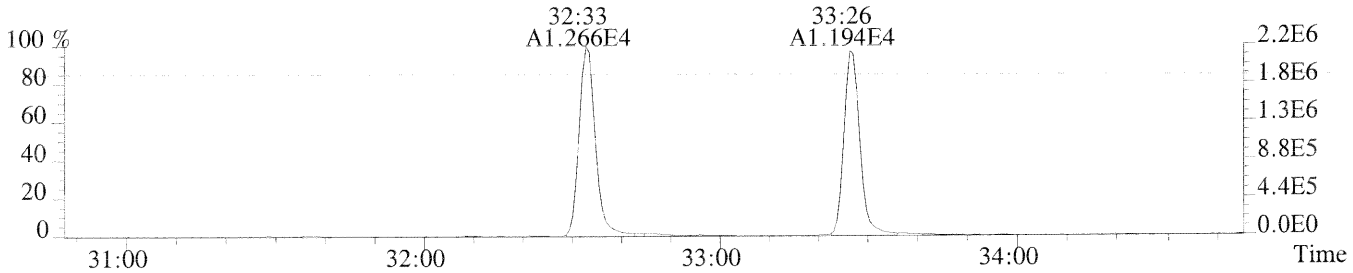


File:P174195 #1-360 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

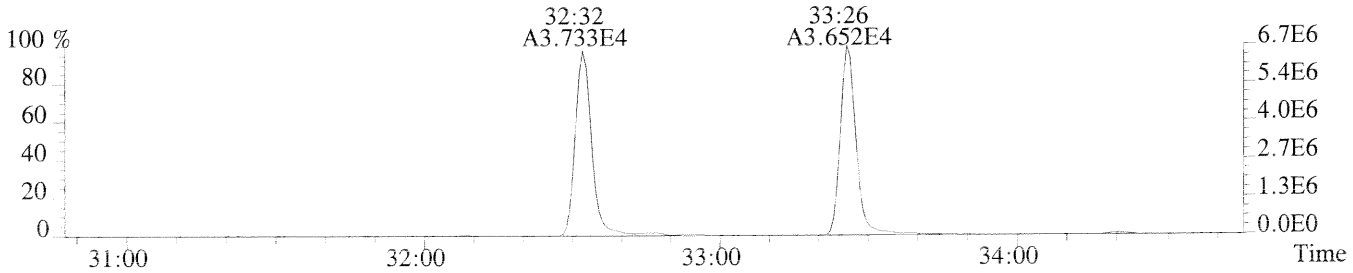
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



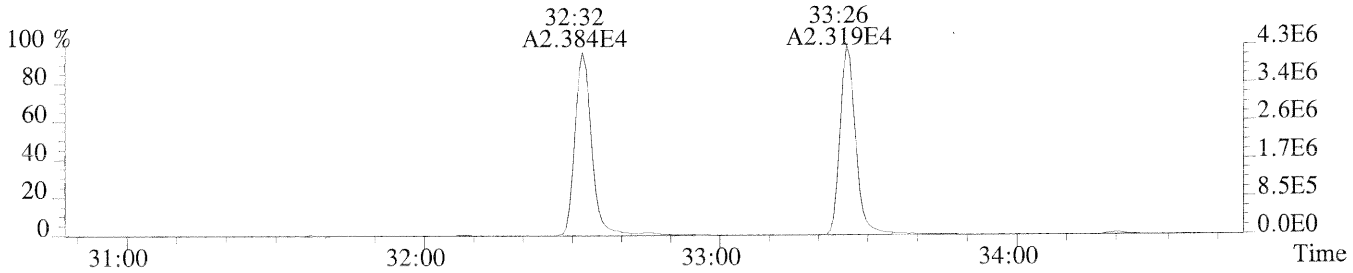
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2316.0,1.00%,F,T)



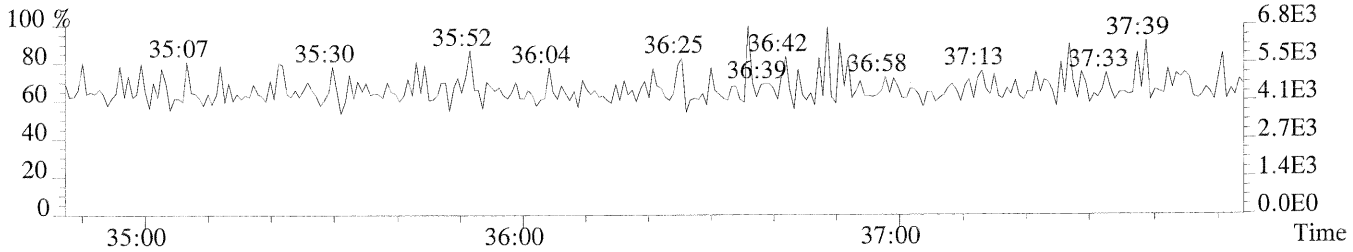
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



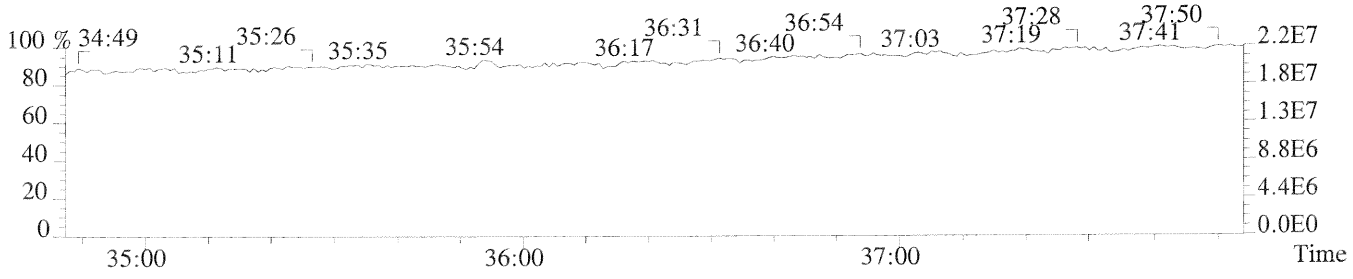
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



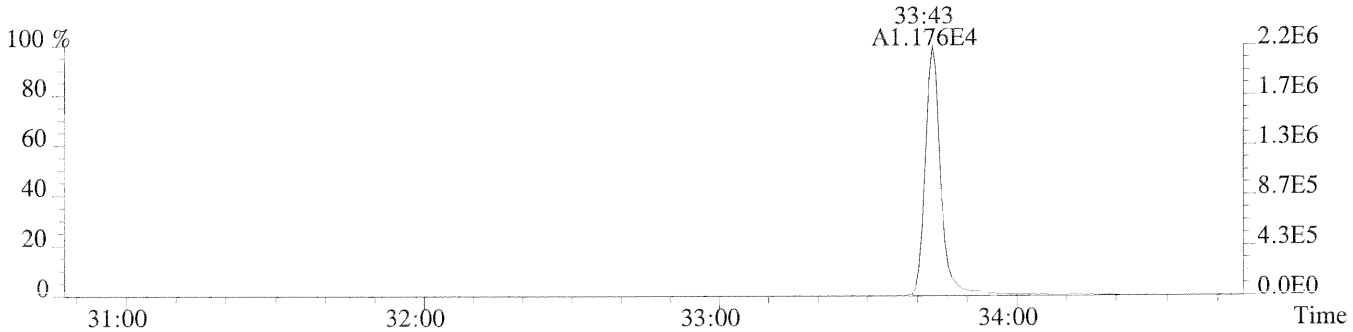
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



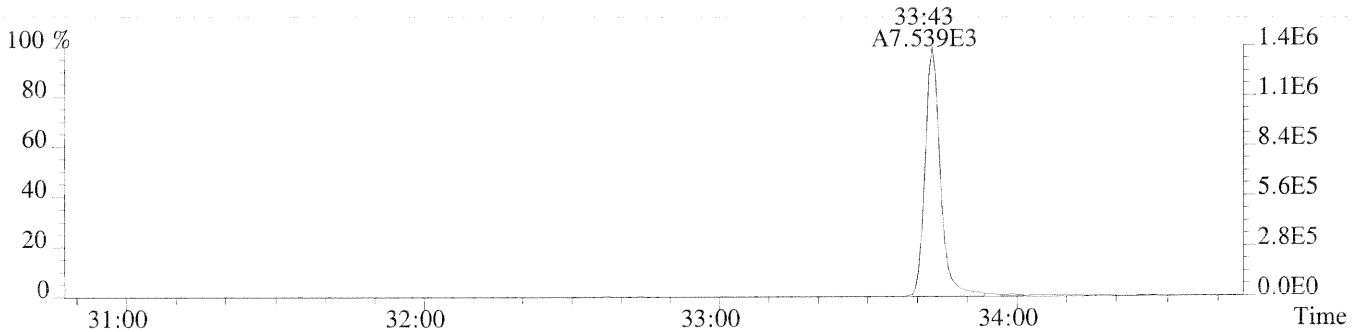
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



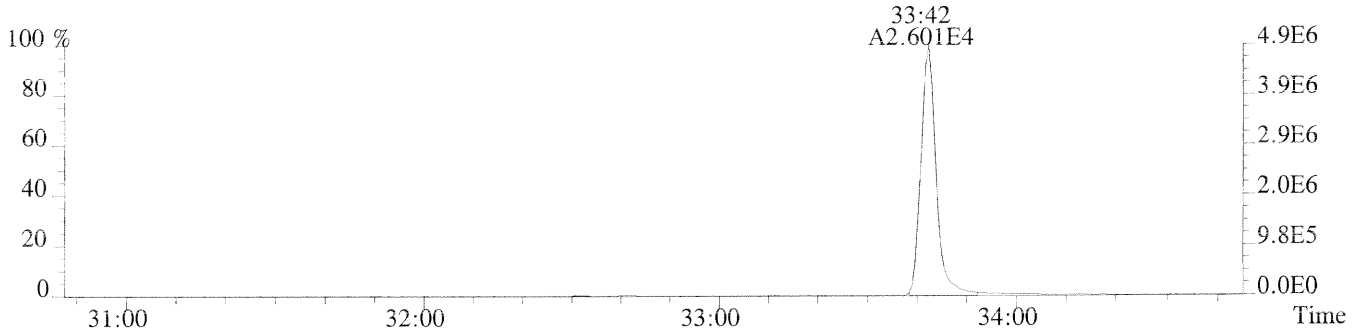
File:P174195 #1-360 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



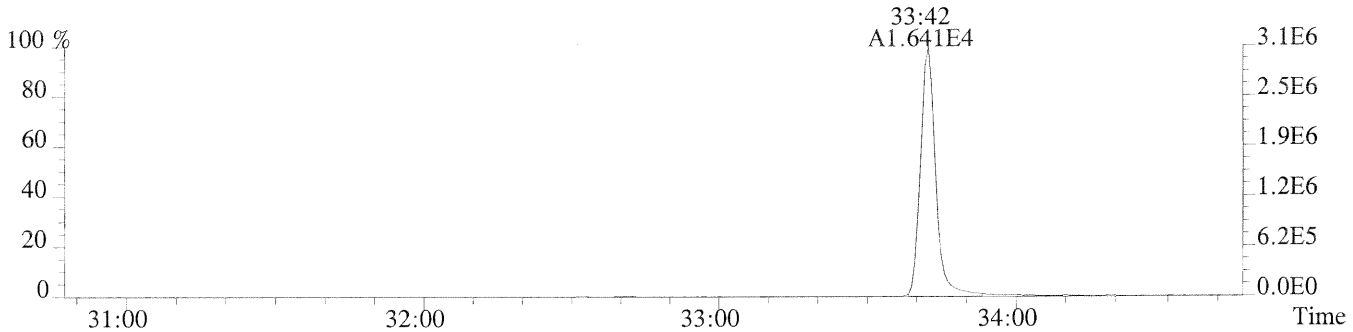
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



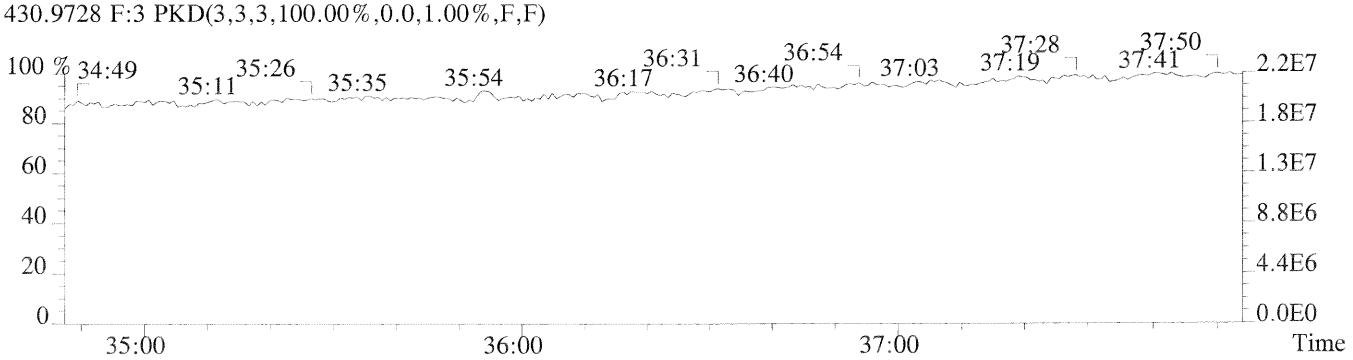
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)

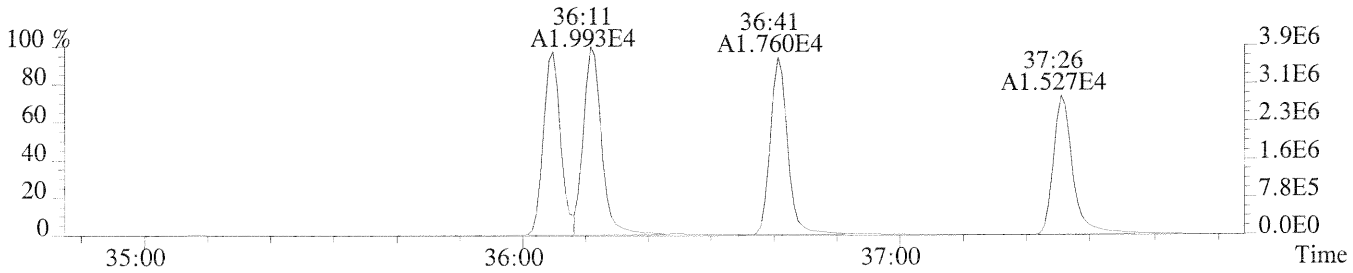


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

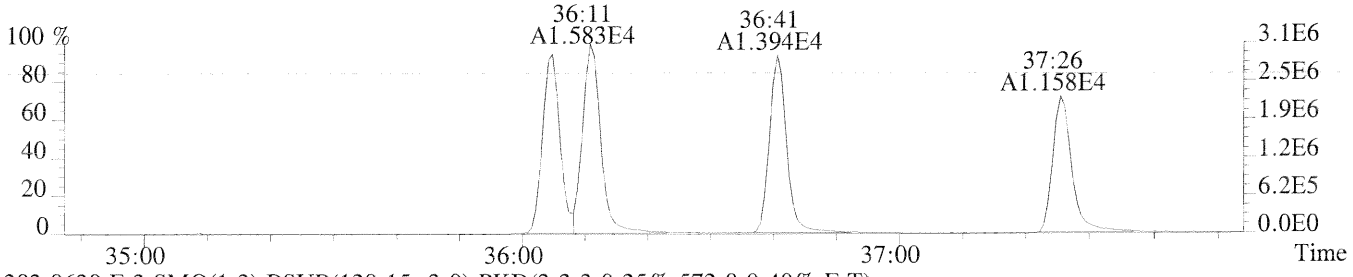


File:P174195 #1-283 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

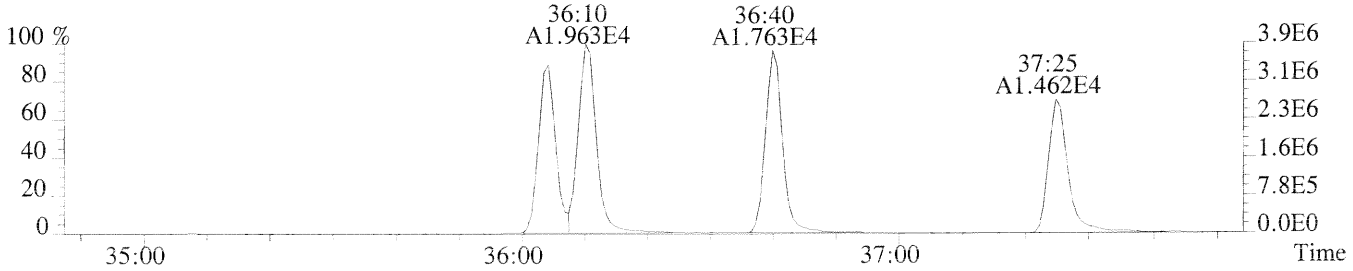
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



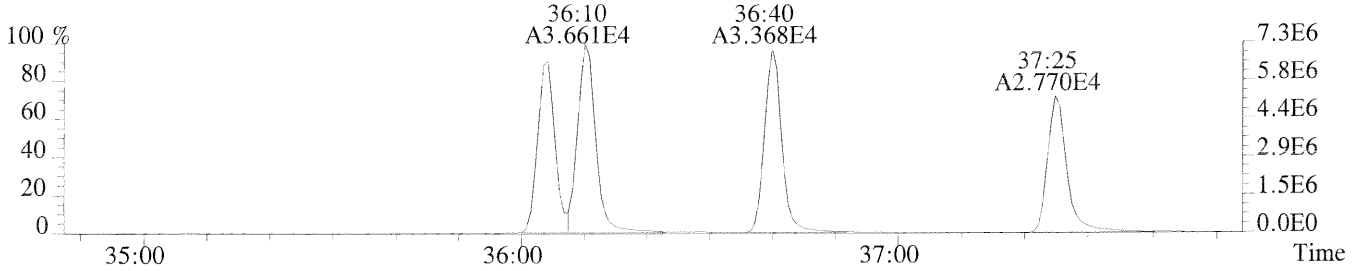
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



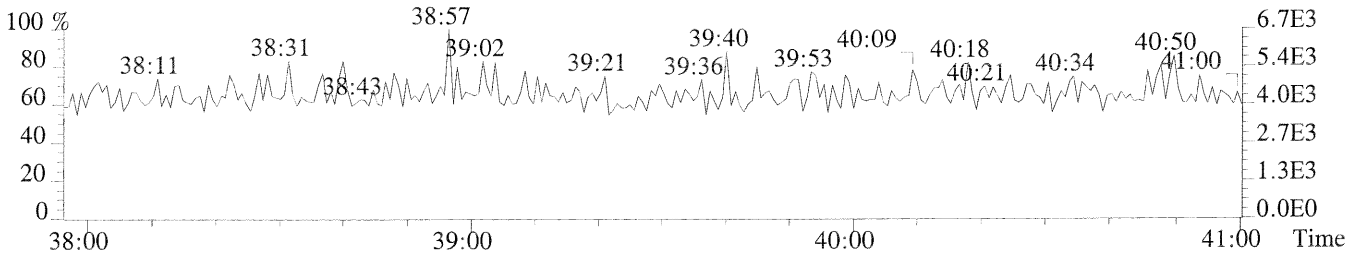
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



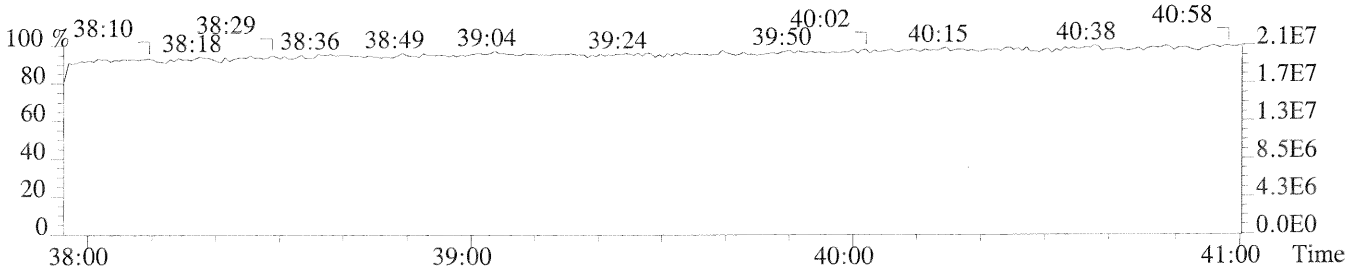
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



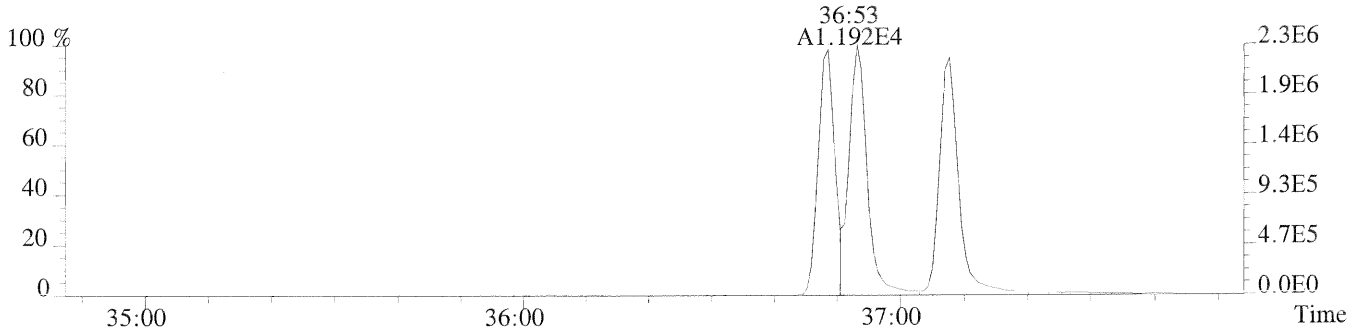
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



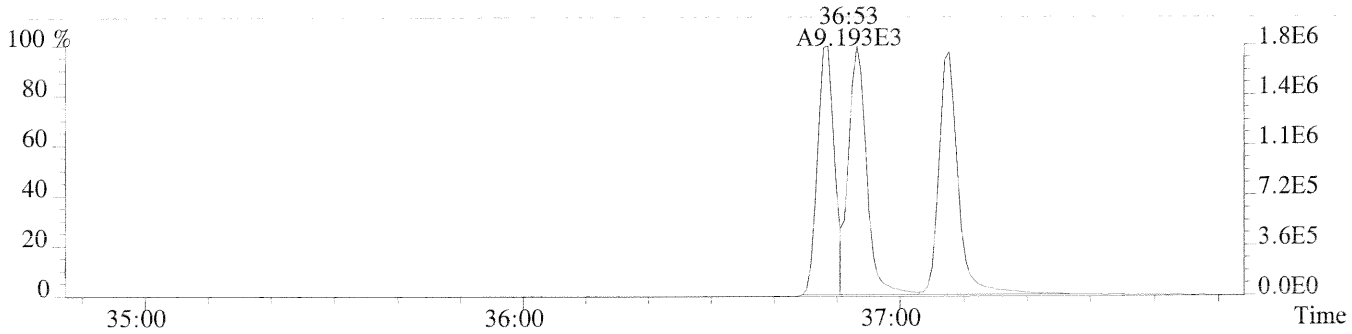
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



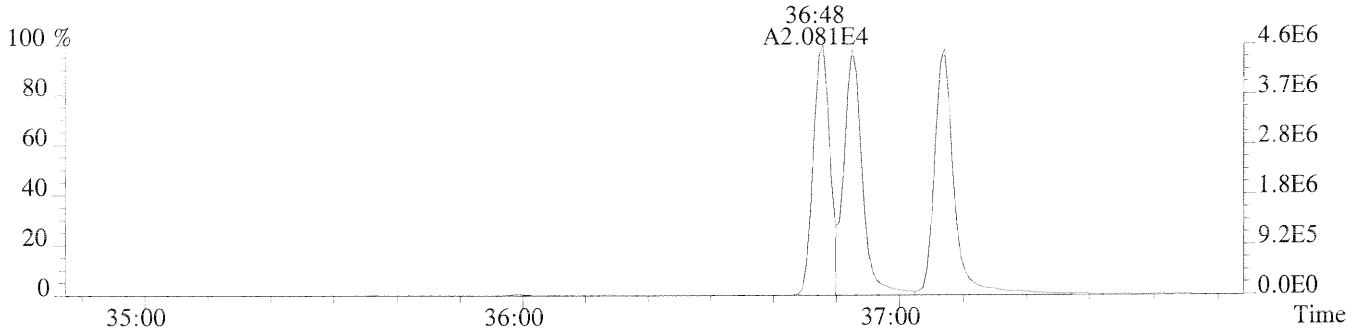
File:P174195 #1-283 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



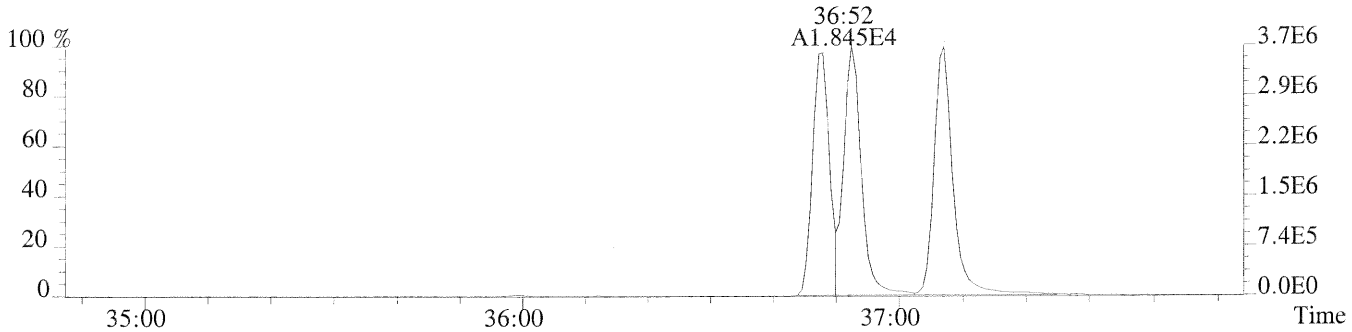
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



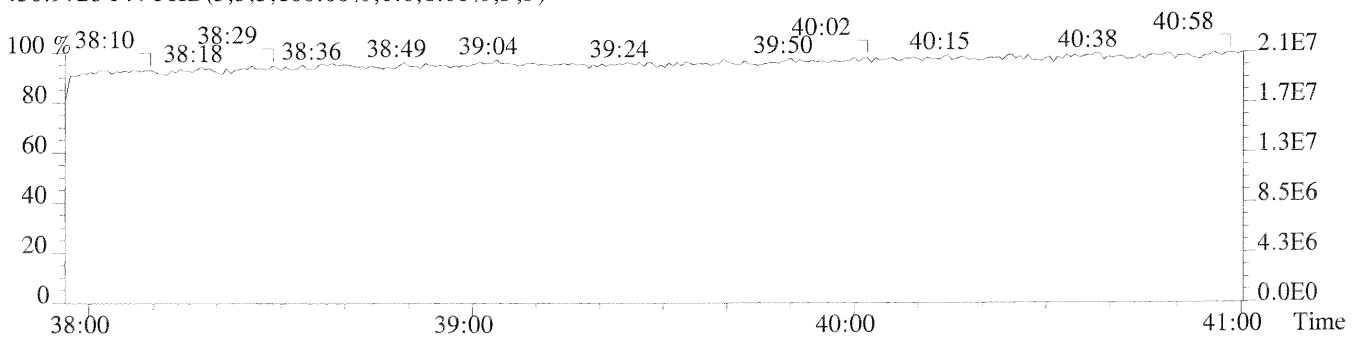
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2760.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)

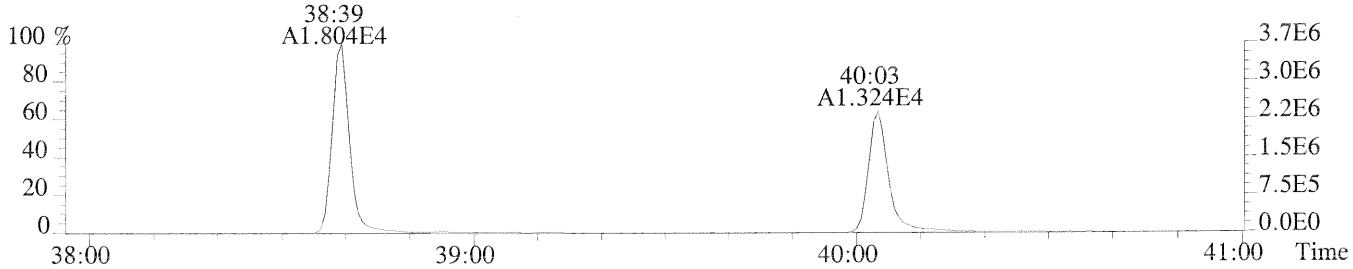


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

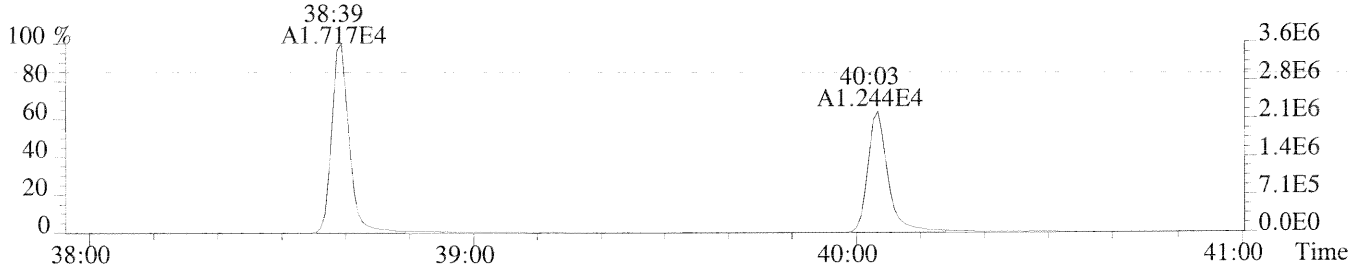


File:P174195 #1-279 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

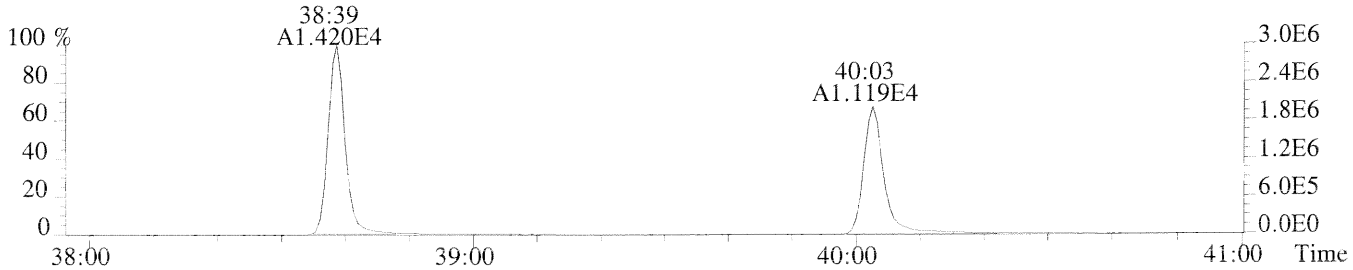
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2340.0,0.50%,F,T)



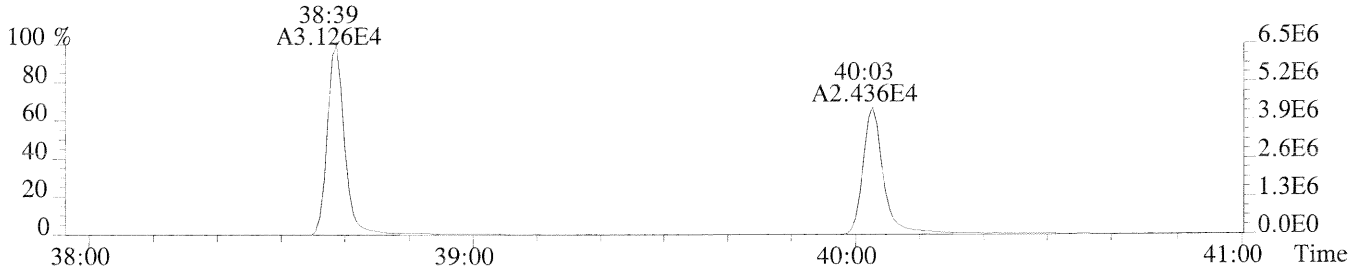
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2772.0,0.50%,F,T)



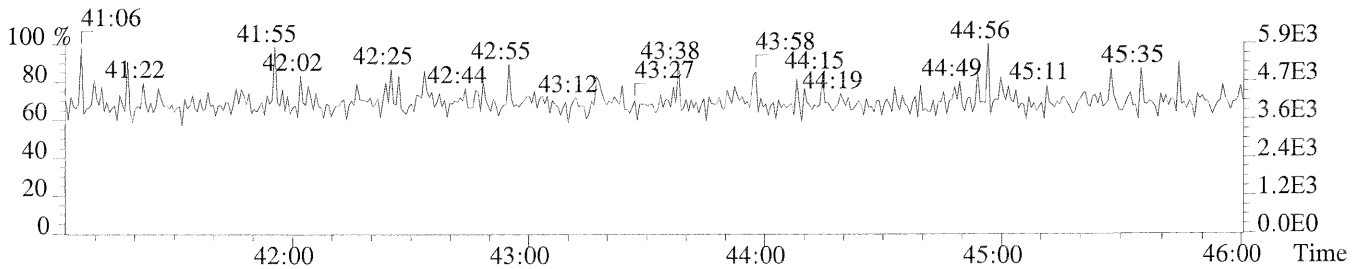
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2356.0,0.50%,F,T)



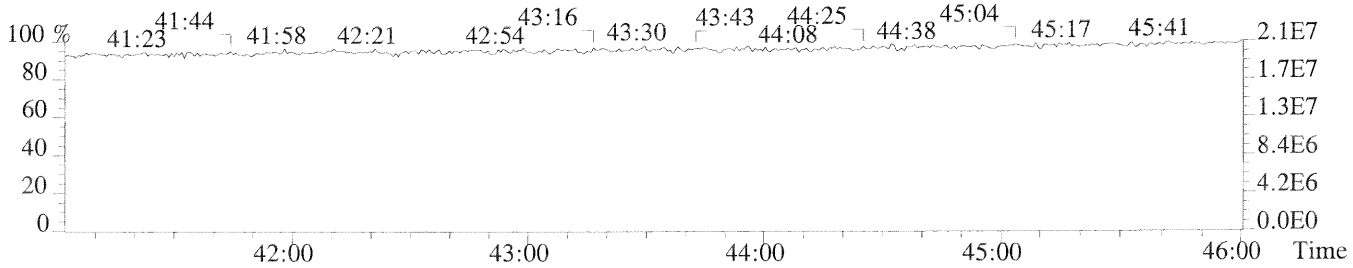
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2688.0,0.50%,F,T)



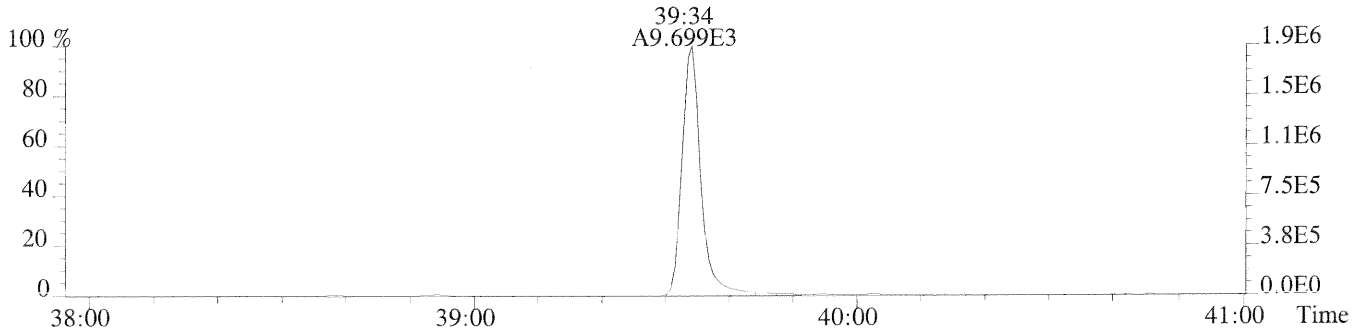
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



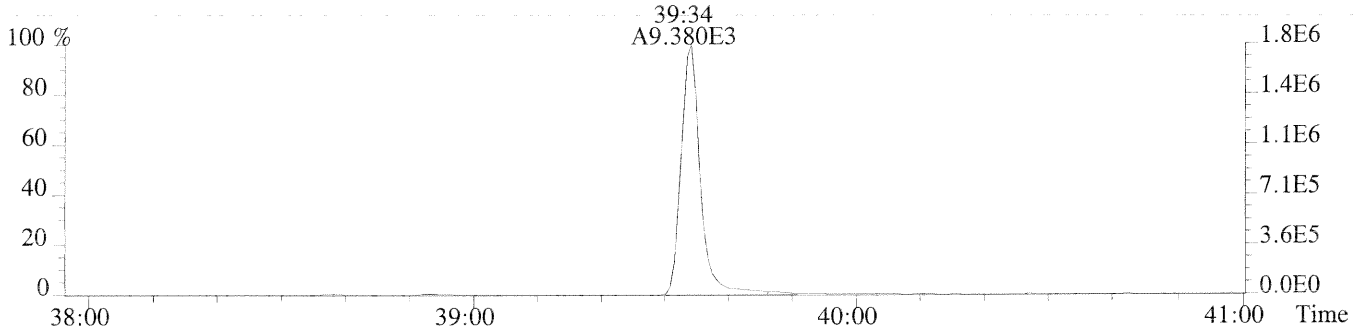
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



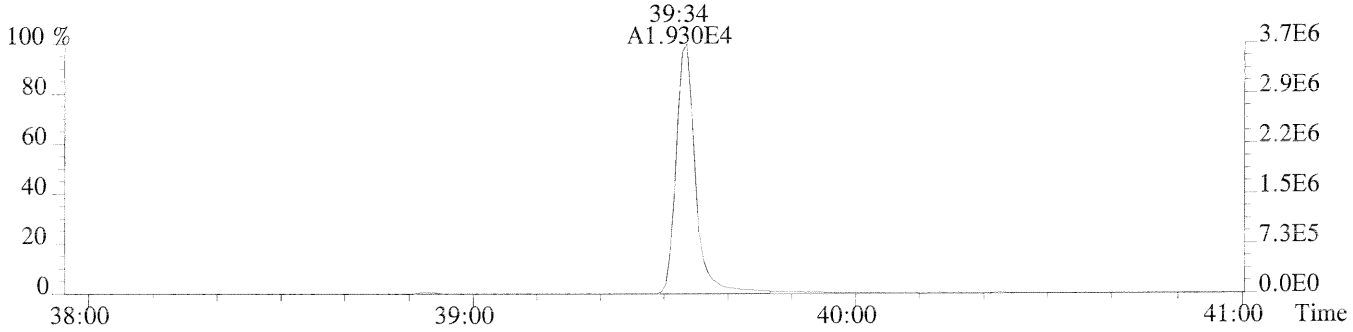
File:P174195 #1-279 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



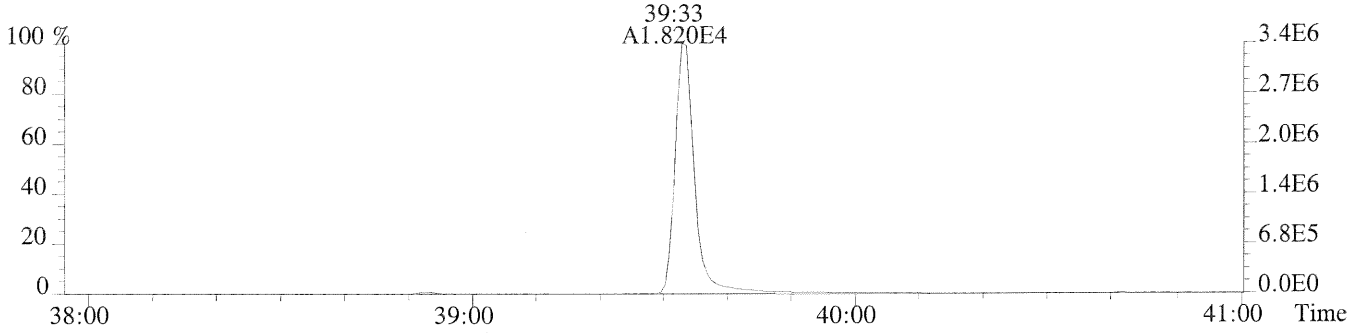
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



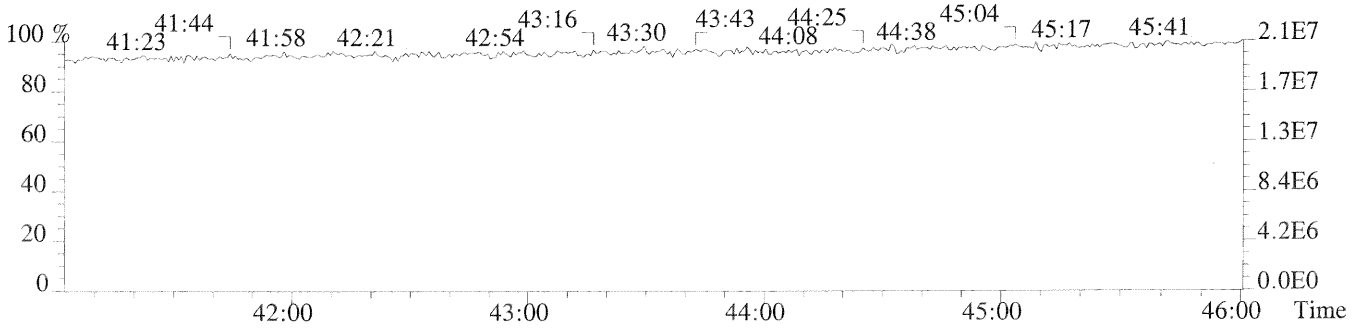
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



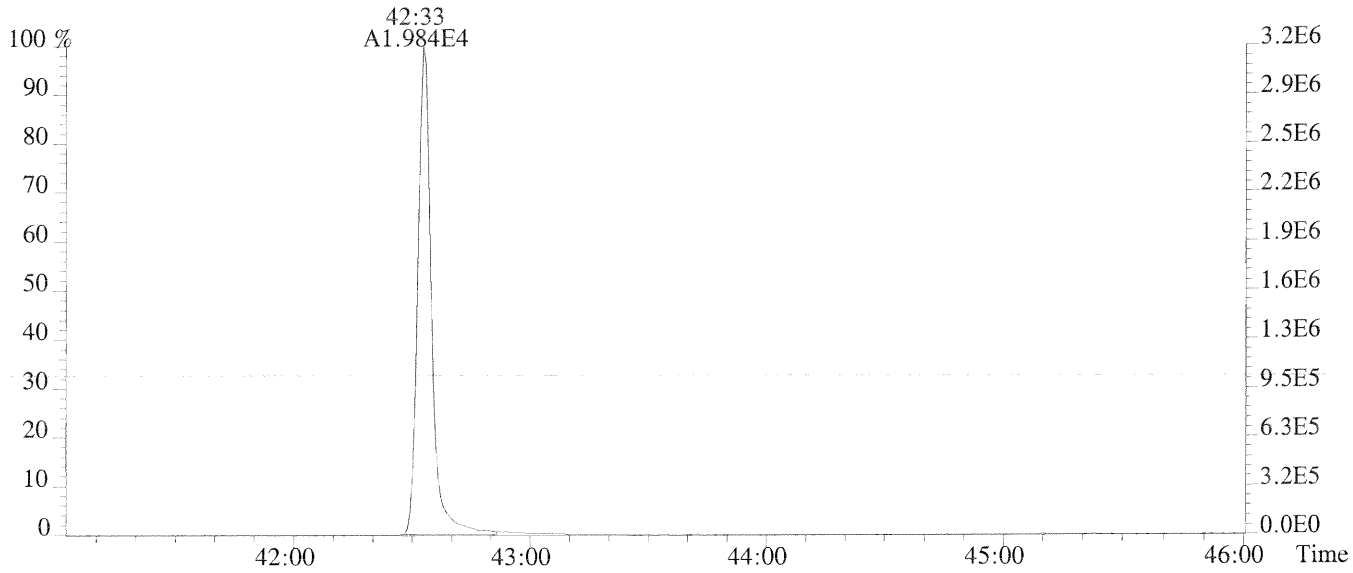
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



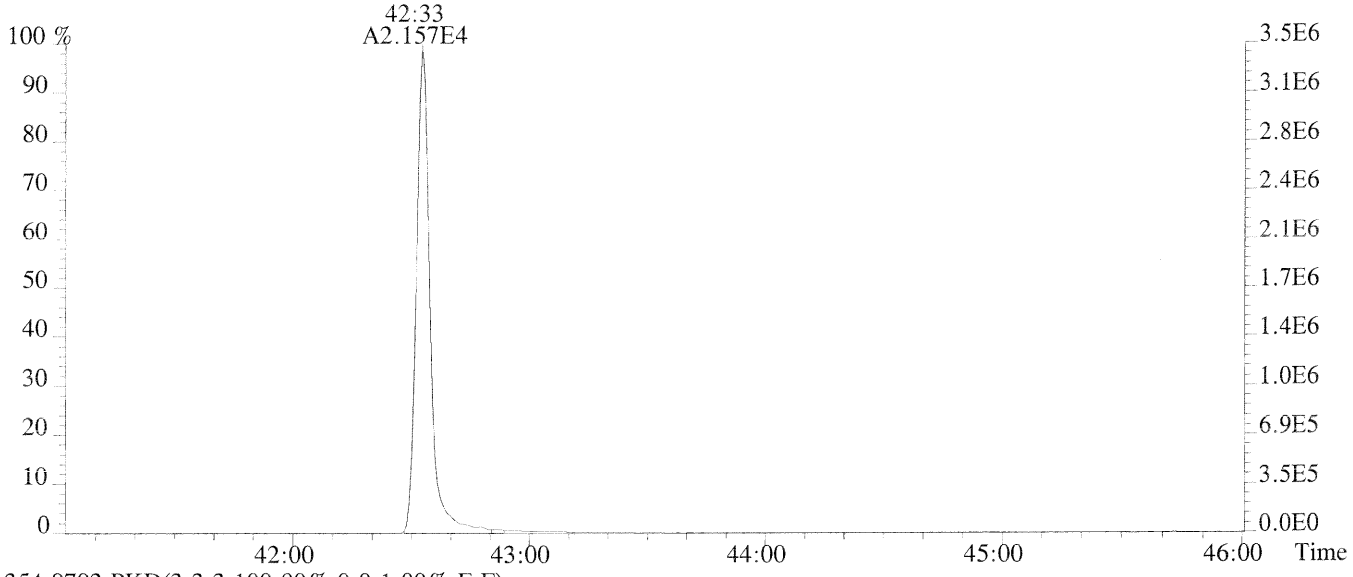
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



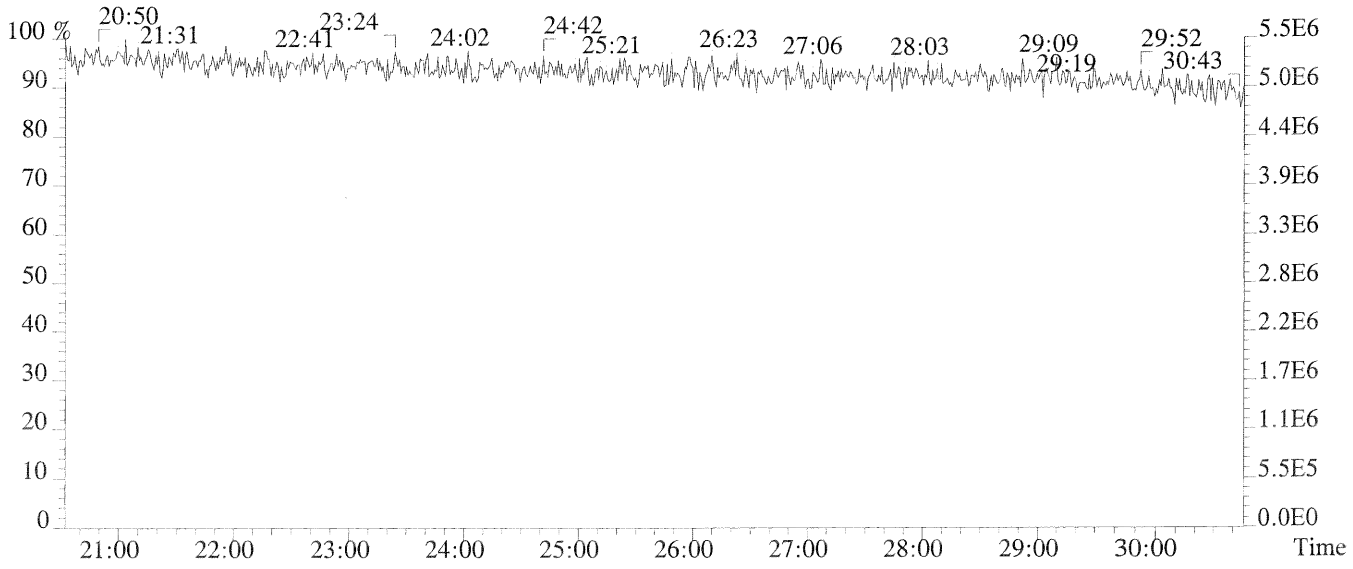
File:P174195 #1-457 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



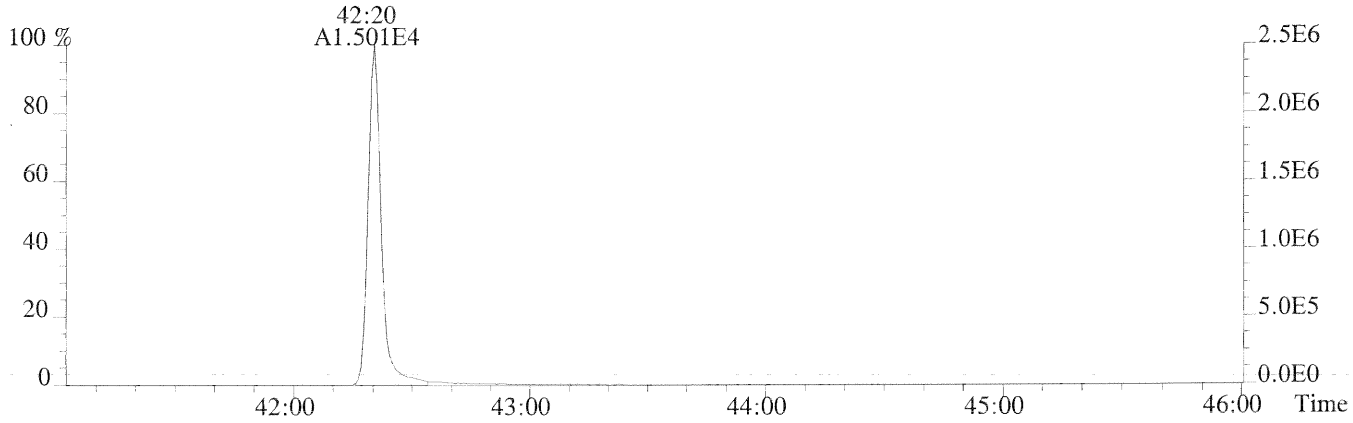
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,780.0,0.40%,F,T)



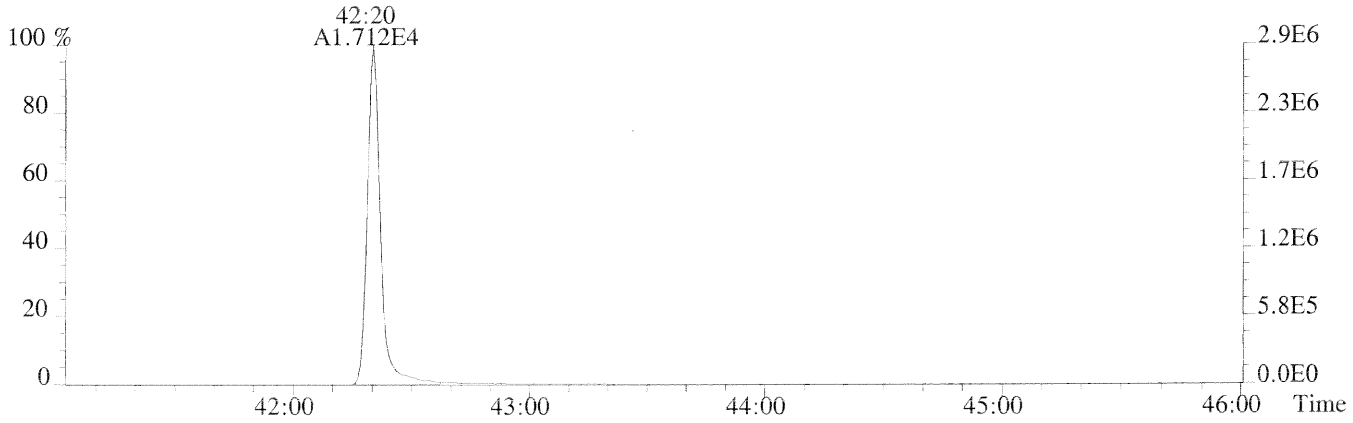
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



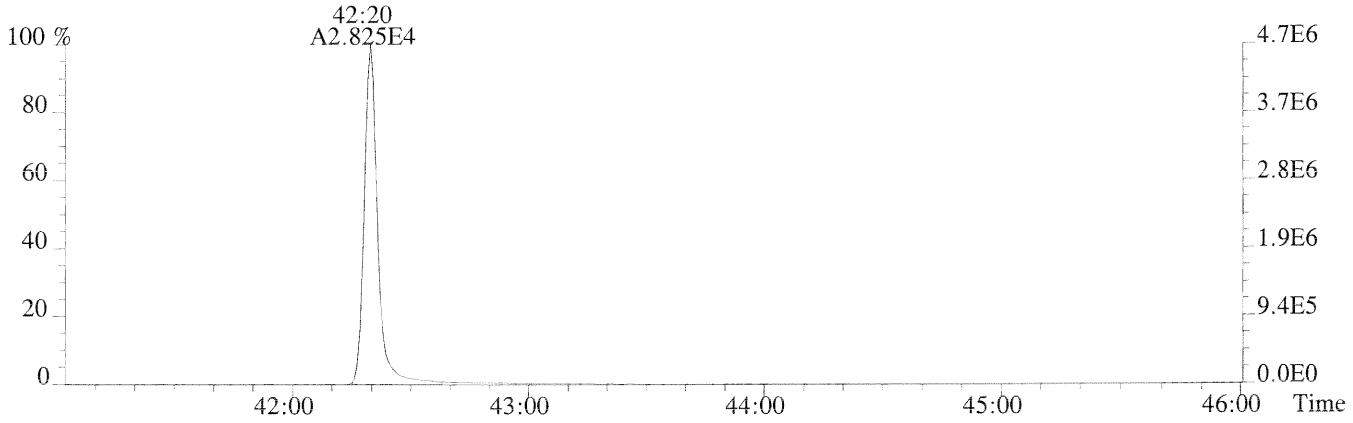
File:P174195 #1-457 Acq:18-OCT-2014 14:01:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



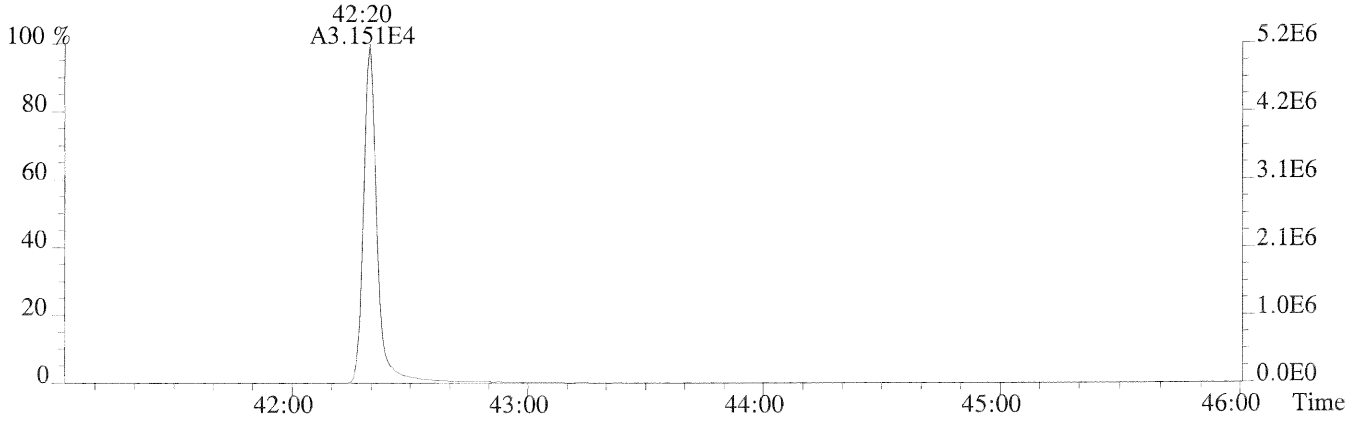
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,436.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,804.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



ALS ENVIRONMENTAL CLIENT ID.
Method M23 CS4
Sample Response Summary

Run #5 Filename P174196 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 14:54:18
Processed: 20-OCT-14 09:26:06 LAB. ID: D12-90-3D

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:25	1.314e+04	1.617e+04	0.81	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	32:33	9.374e+04	5.856e+04	1.60	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	33:26	8.613e+04	5.404e+04	1.59	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	36:04	7.997e+04	6.316e+04	1.27	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	36:11	9.058e+04	7.083e+04	1.28	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	36:41	7.843e+04	6.178e+04	1.27	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	37:26	6.565e+04	5.172e+04	1.27	yes	no	0.955
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	7.547e+04	7.182e+04	1.05	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	5.434e+04	5.272e+04	1.03	yes	no	1.148
10	Unk	OCDF	42:33	8.093e+04	8.786e+04	0.92	yes	no	1.369
11	Unk	2,3,7,8-TCDD	29:11	9.546e+03	1.242e+04	0.77	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	33:43	5.344e+04	3.487e+04	1.53	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	36:48	4.765e+04	3.818e+04	1.25	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	36:53	5.151e+04	4.139e+04	1.24	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	37:08	5.240e+04	4.226e+04	1.24	yes	no	1.021
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	4.270e+04	4.070e+04	1.05	yes	no	1.052
17	Unk	OCDD	42:20	6.184e+04	7.043e+04	0.88	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	28:24	3.379e+04	4.307e+04	0.78	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:32	4.209e+04	2.672e+04	1.58	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	33:26	4.068e+04	2.560e+04	1.59	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	36:04	1.787e+04	3.403e+04	0.53	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	36:10	2.155e+04	4.116e+04	0.52	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	37:25	1.551e+04	2.983e+04	0.52	yes	no	0.981
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	1.517e+04	3.279e+04	0.46	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	40:03	1.139e+04	2.568e+04	0.44	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	29:09	2.419e+04	3.081e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:42	2.858e+04	1.842e+04	1.55	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	36:47	2.338e+04	1.815e+04	1.29	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	2.525e+04	1.998e+04	1.26	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	2.034e+04	1.952e+04	1.04	yes	no	0.874
32	IS	13C-OCDD	42:20	2.870e+04	3.186e+04	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	28:36	2.683e+04	3.453e+04	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	37:07	2.676e+04	2.039e+04	1.31	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	29:11	2.343e+04				no	1.038

$$\text{OCDD} = \frac{(6.184e+04 + 7.043e+04 \times (\ 200.0\ )) \times 1}{(2.870e+04 + 3.186e+04\ ) \times 1.068 \times 1.000} = \text{pg}$$

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ALS Form TO9resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS4

Method M23

Run #5 Filename P174196 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 14:54:18
Processed: 20-OCT-14 09:26:06 LAB. ID: D12-90-3D

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.05e+06	8.44e+02	2.4e+03	2.56e+06	1.15e+03	2.2e+03
2	1,2,3,7,8-PeCDF	1.68e+07	7.28e+02	2.3e+04	1.06e+07	1.14e+03	9.3e+03
3	2,3,4,7,8-PeCDF	1.63e+07	7.28e+02	2.2e+04	1.02e+07	1.14e+03	8.9e+03
4	1,2,3,4,7,8-HxCDF	1.70e+07	1.16e+03	1.5e+04	1.35e+07	1.22e+03	1.1e+04
5	1,2,3,6,7,8-HxCDF	1.81e+07	1.16e+03	1.6e+04	1.42e+07	1.22e+03	1.2e+04
6	2,3,4,6,7,8-HxCDF	1.70e+07	1.16e+03	1.5e+04	1.34e+07	1.22e+03	1.1e+04
7	1,2,3,7,8,9-HxCDF	1.28e+07	1.16e+03	1.1e+04	1.00e+07	1.22e+03	8.3e+03
8	1,2,3,4,6,7,8-HpCDF	1.56e+07	8.34e+03	1.9e+03	1.50e+07	6.70e+03	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.01e+07	8.34e+03	1.2e+03	9.60e+06	6.70e+03	1.4e+03
10	OCDF	1.34e+07	6.88e+02	2.0e+04	1.44e+07	9.76e+02	1.5e+04
11	2,3,7,8-TCDD	1.66e+06	9.00e+02	1.8e+03	2.13e+06	9.56e+02	2.2e+03
12	1,2,3,7,8-PeCDD	1.03e+07	8.48e+02	1.2e+04	6.75e+06	6.60e+02	1.0e+04
13	1,2,3,4,7,8-HxCDD	1.06e+07	7.56e+02	1.4e+04	8.56e+06	9.56e+02	9.0e+03
14	1,2,3,6,7,8-HxCDD	1.05e+07	7.56e+02	1.4e+04	8.44e+06	9.56e+02	8.8e+03
15	1,2,3,7,8,9-HxCDD	1.03e+07	7.56e+02	1.4e+04	8.14e+06	9.56e+02	8.5e+03
16	1,2,3,4,6,7,8-HpCDD	8.37e+06	5.68e+02	1.5e+04	8.08e+06	4.88e+02	1.7e+04
17	OCDD	1.04e+07	5.28e+02	2.0e+04	1.17e+07	5.28e+02	2.2e+04
18	13C-2,3,7,8-TCDF	5.36e+06	2.24e+03	2.4e+03	6.85e+06	1.26e+03	5.5e+03
19	13C-1,2,3,7,8-PeCDF	7.58e+06	6.60e+02	1.1e+04	4.84e+06	7.16e+02	6.8e+03
20	13C-2,3,4,7,8-PeCDF	7.82e+06	6.60e+02	1.2e+04	4.94e+06	7.16e+02	6.9e+03
21	13C-1,2,3,4,7,8-HxCDF	3.83e+06	1.04e+03	3.7e+03	7.34e+06	1.32e+03	5.5e+03
22	13C-1,2,3,6,7,8-HxCDF	4.40e+06	1.04e+03	4.2e+03	8.40e+06	1.32e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.07e+06	1.04e+03	2.9e+03	5.82e+06	1.32e+03	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.16e+06	1.67e+03	1.9e+03	6.80e+06	2.53e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.13e+06	1.67e+03	1.3e+03	4.72e+06	2.53e+03	1.9e+03
27	13C-2,3,7,8-TCDD	4.06e+06	4.58e+03	8.9e+02	5.12e+06	2.06e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	5.43e+06	9.44e+02	5.8e+03	3.50e+06	8.08e+02	4.3e+03
29	13C-1,2,3,4,7,8-HxCDD	5.18e+06	2.16e+03	2.4e+03	4.03e+06	1.64e+03	2.5e+03
30	13C-1,2,3,6,7,8-HxCDD	5.15e+06	2.16e+03	2.4e+03	4.10e+06	1.64e+03	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.01e+06	8.56e+02	4.7e+03	3.85e+06	8.24e+02	4.7e+03
32	13C-OCDD	4.80e+06	8.56e+02	5.6e+03	5.35e+06	7.32e+02	7.3e+03
33	13C-1,2,3,4-TCDD	4.68e+06	4.58e+03	1.0e+03	5.98e+06	2.06e+03	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	5.25e+06	2.16e+03	2.4e+03	4.10e+06	1.64e+03	2.5e+03
35	37Cl-2,3,7,8-TCDD	3.97e+06	1.24e+03	3.2e+03			

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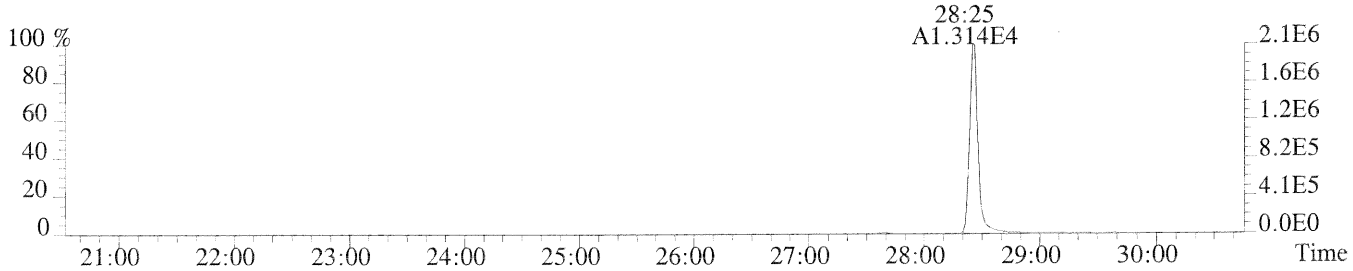
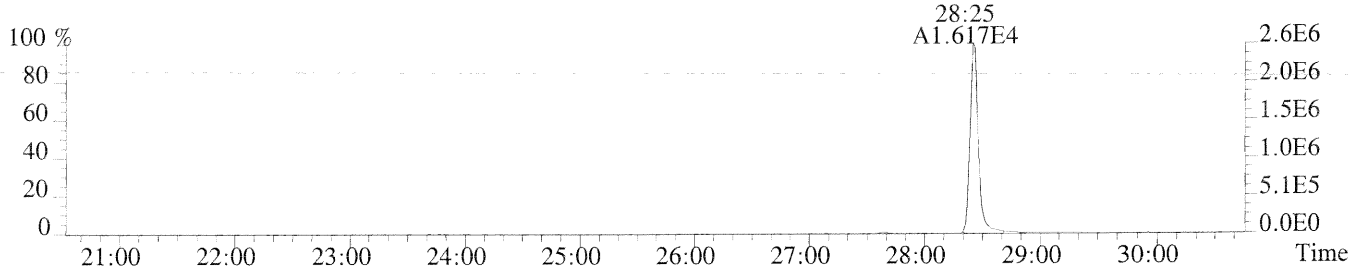
ALS Form TO-9SN/M23SN.FRM

File:P174196 #1-788 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

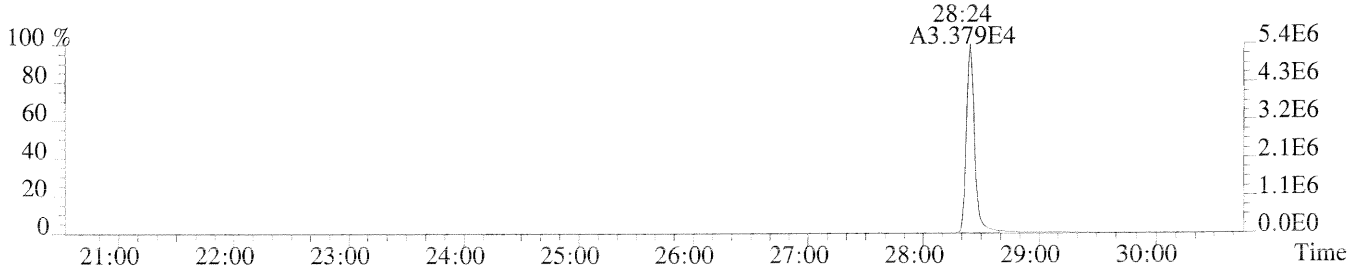
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



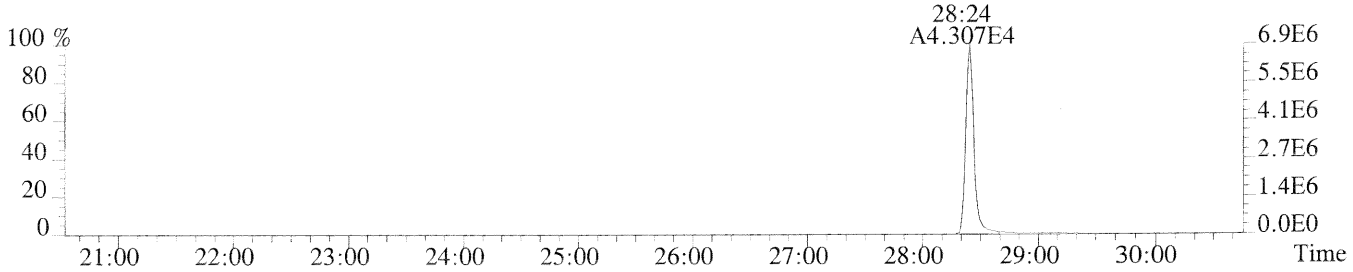
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



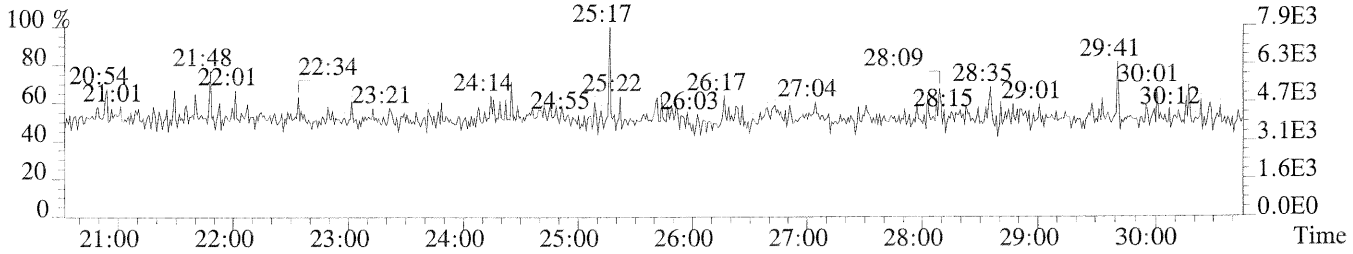
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)



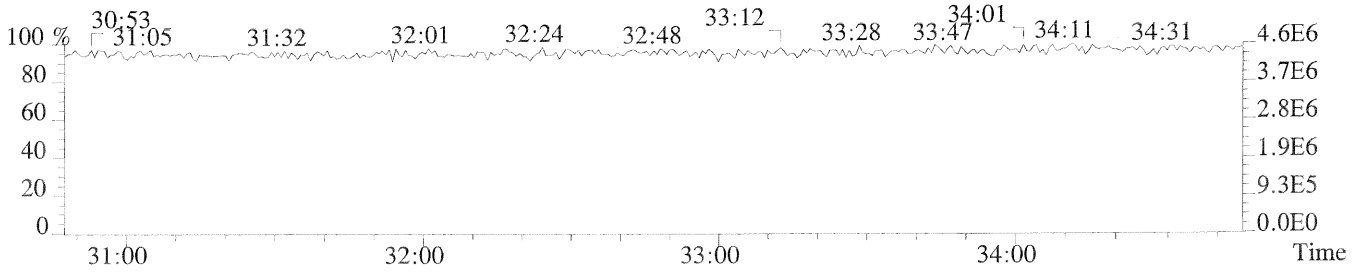
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



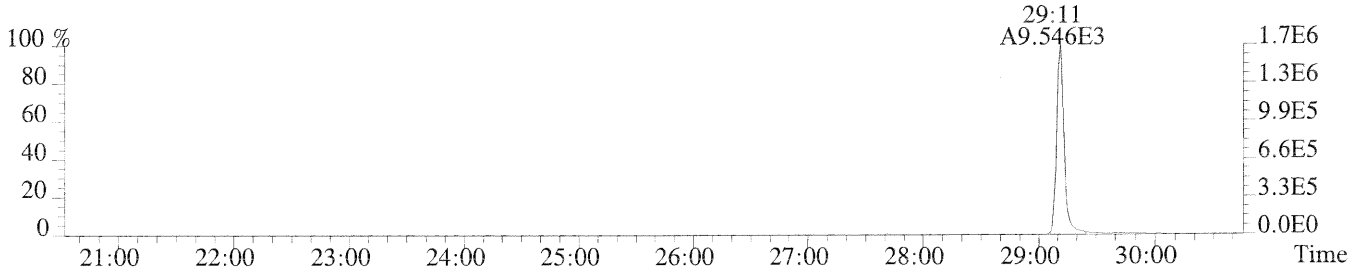
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



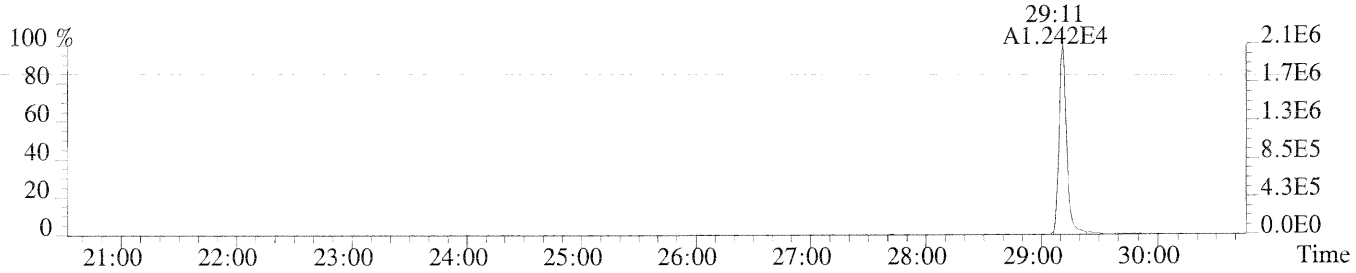
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



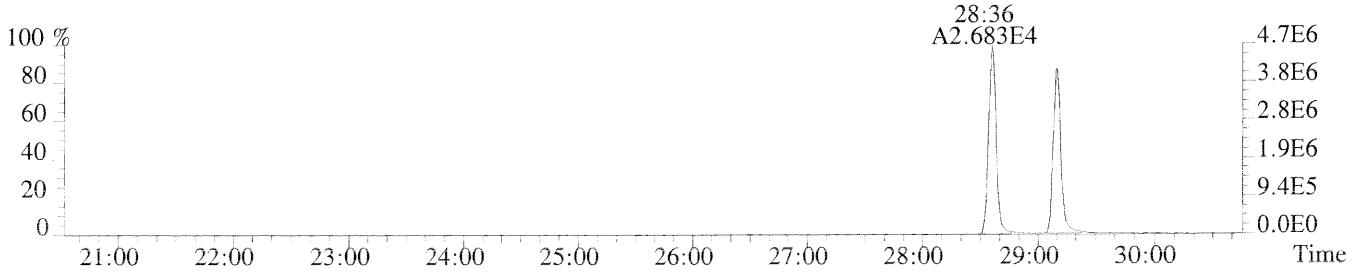
File:P174196 #1-788 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



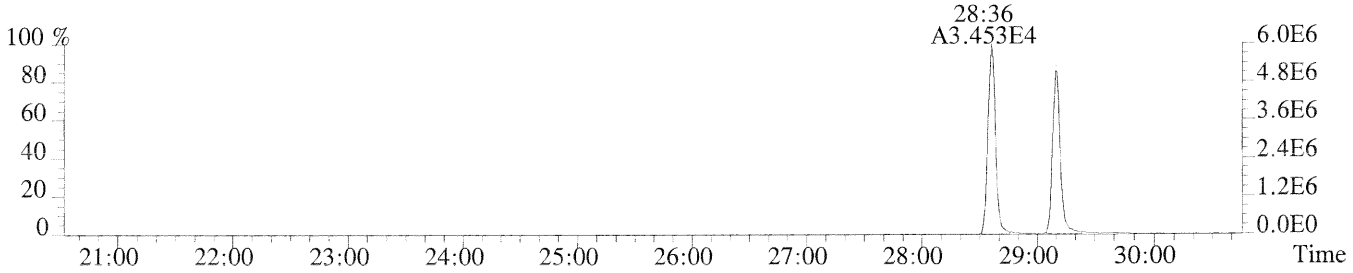
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



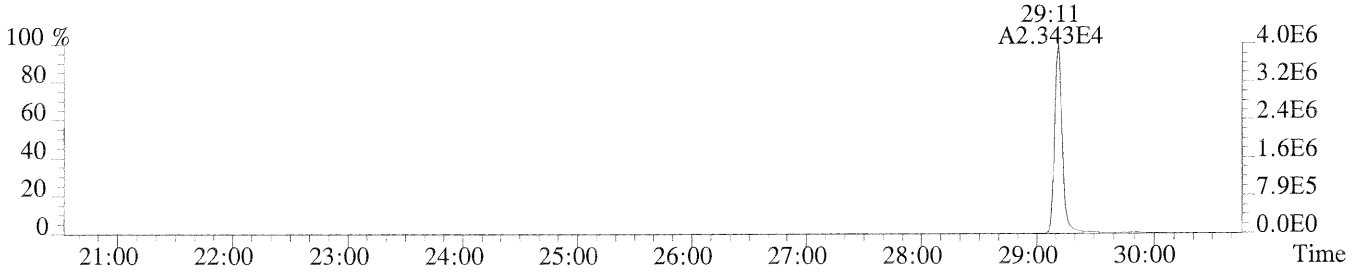
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4576.0,1.00%,F,T)



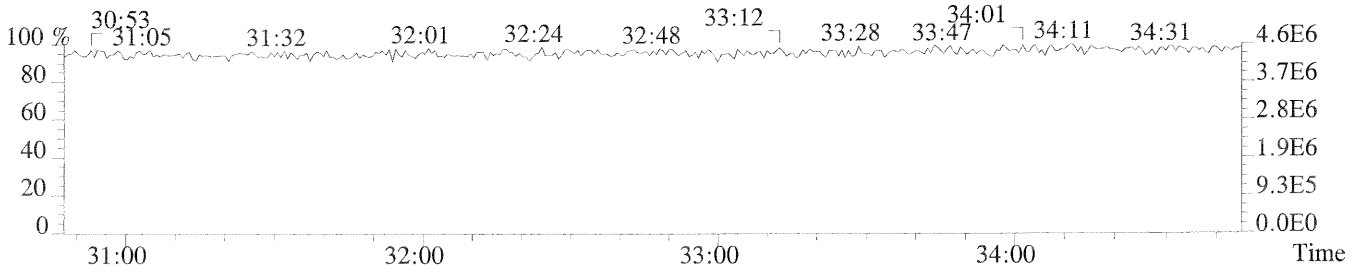
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



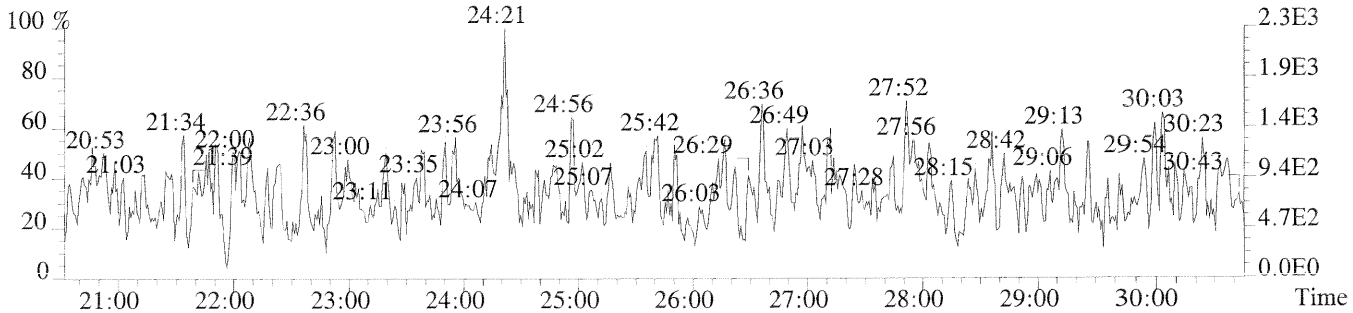
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



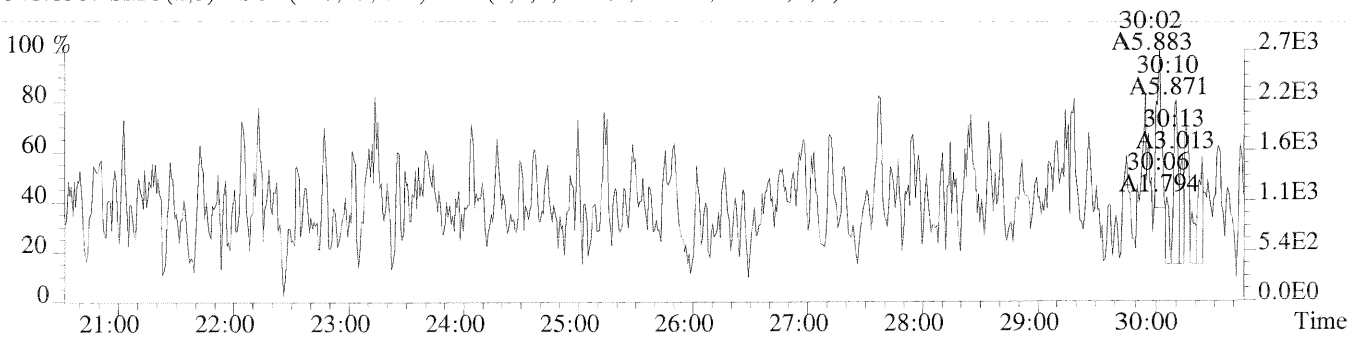
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



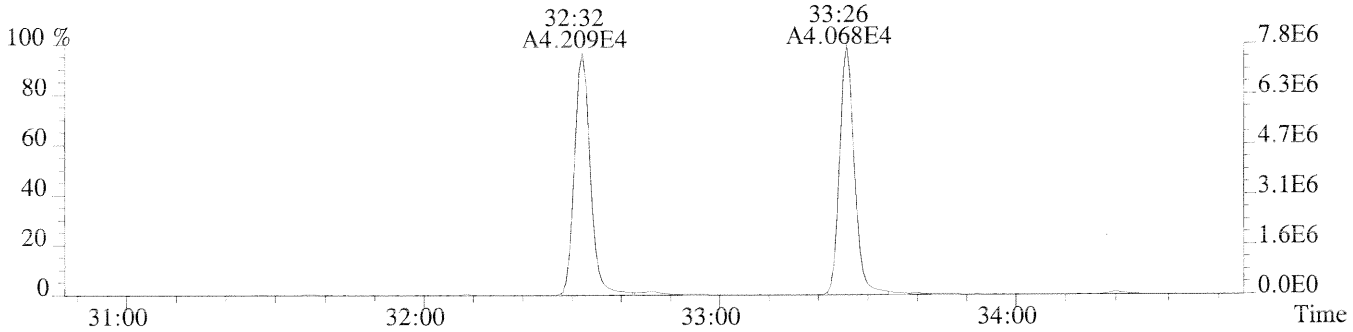
File:P174196 #1-788 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



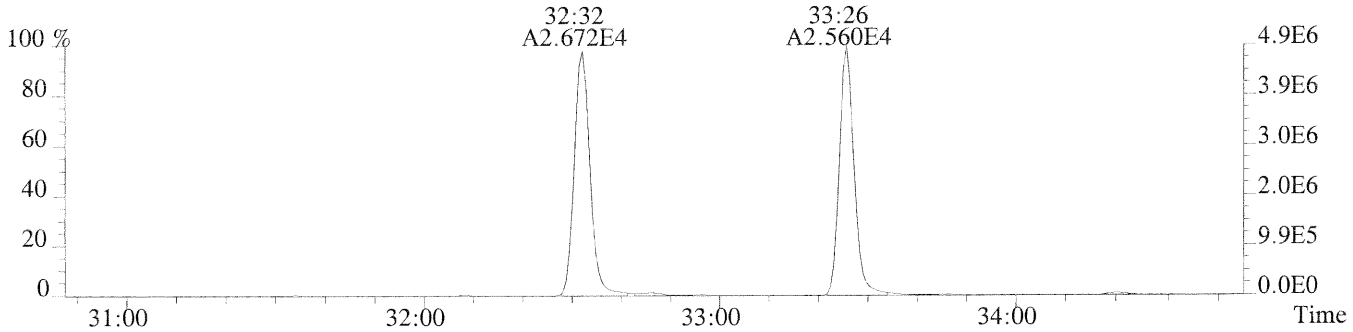
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



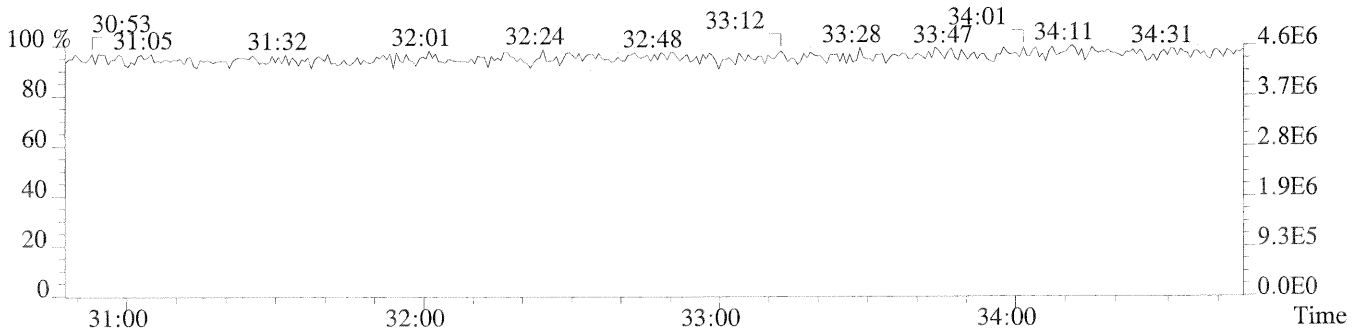
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



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

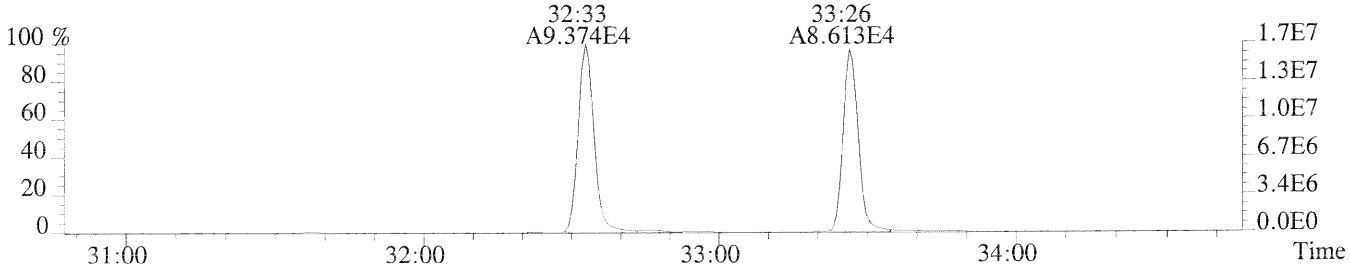


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

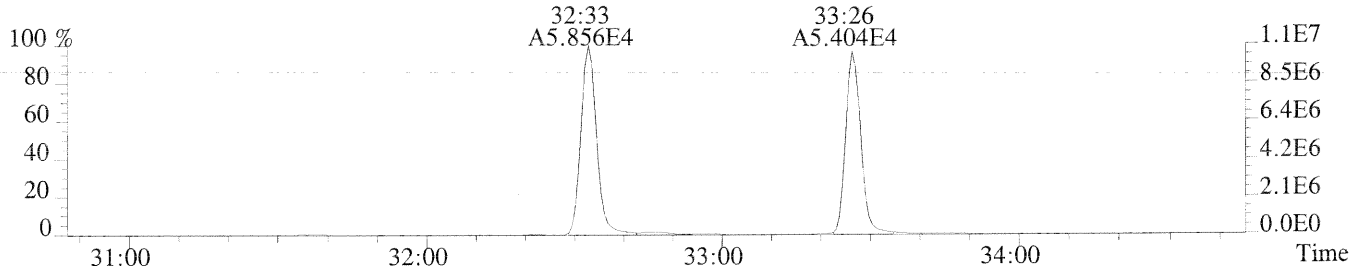


File:P174196 #1-360 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

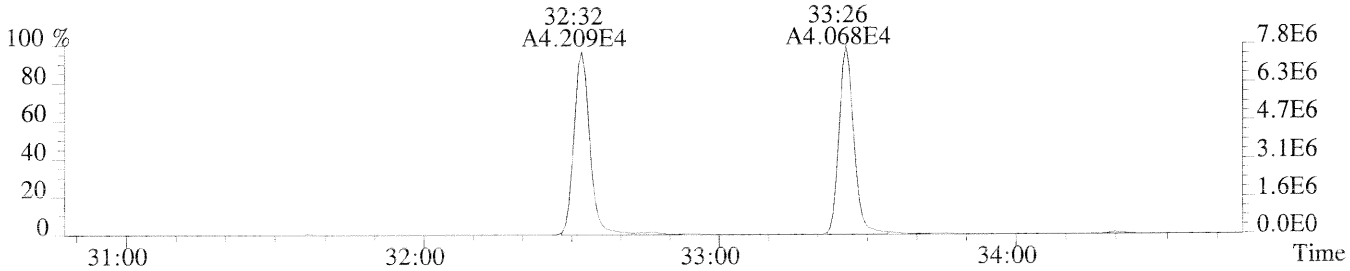
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



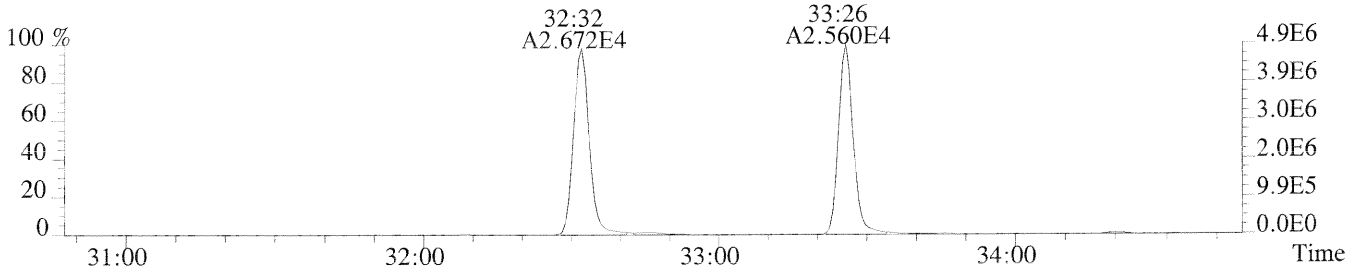
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



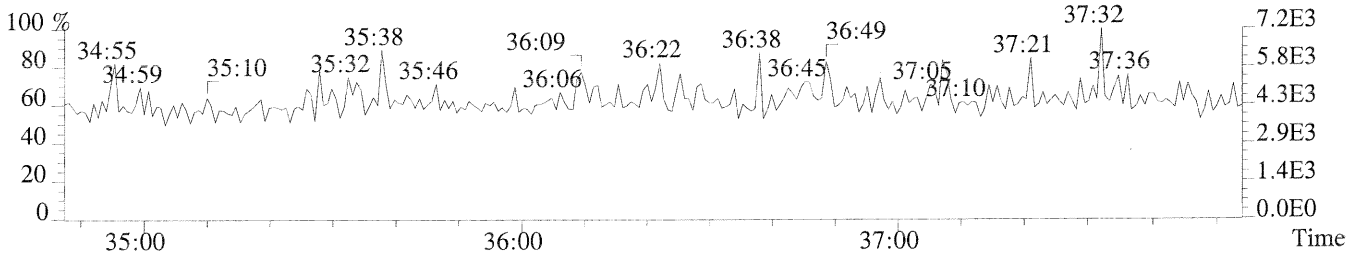
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



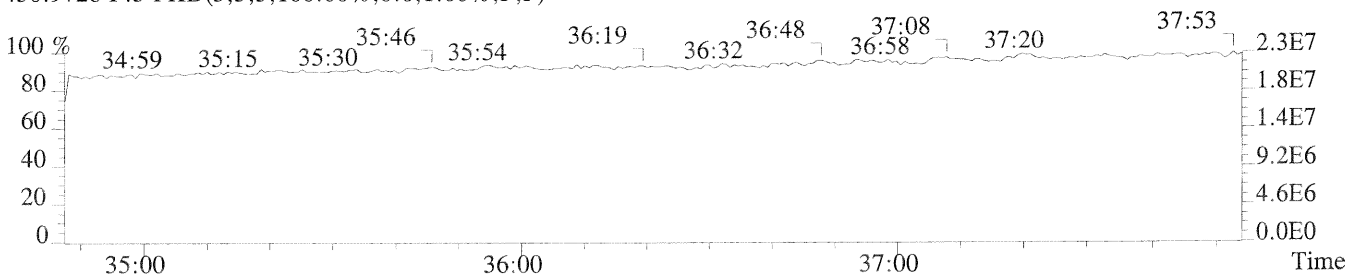
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



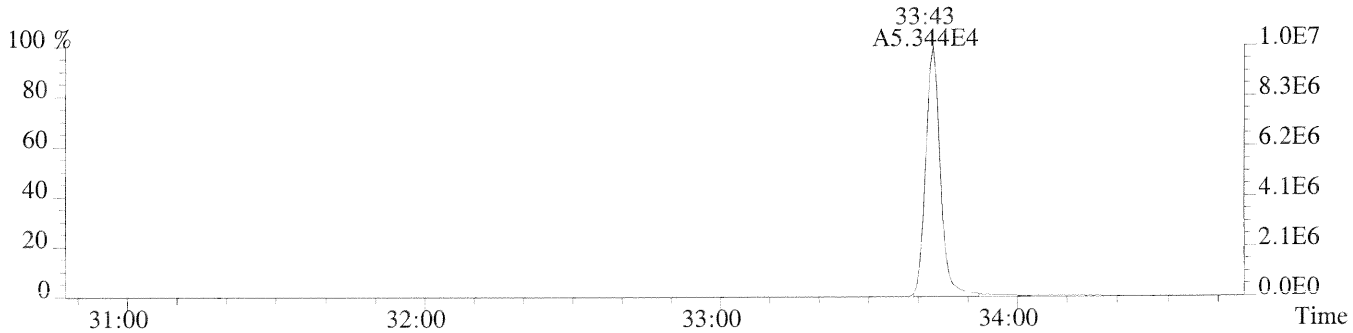
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



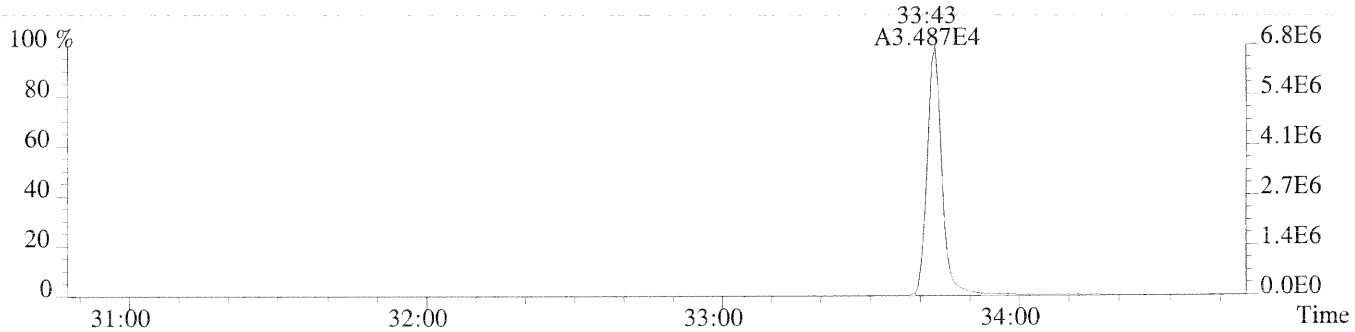
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



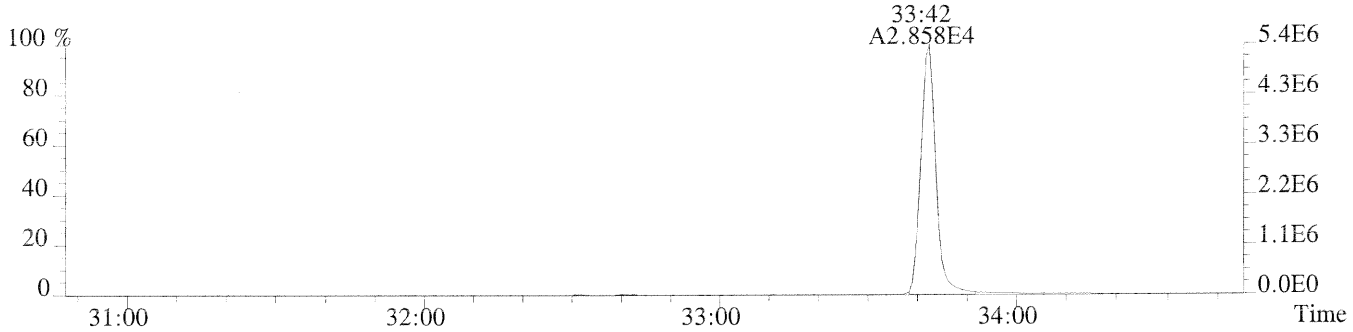
File:P174196 #1-360 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



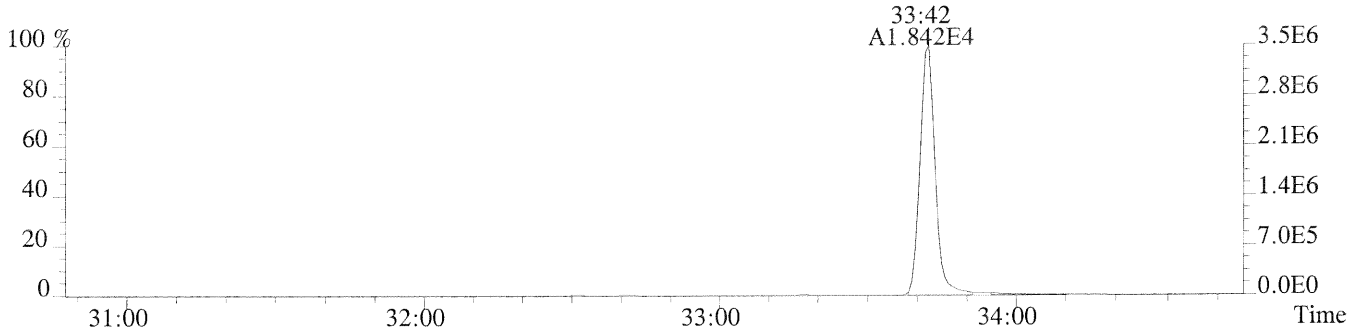
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



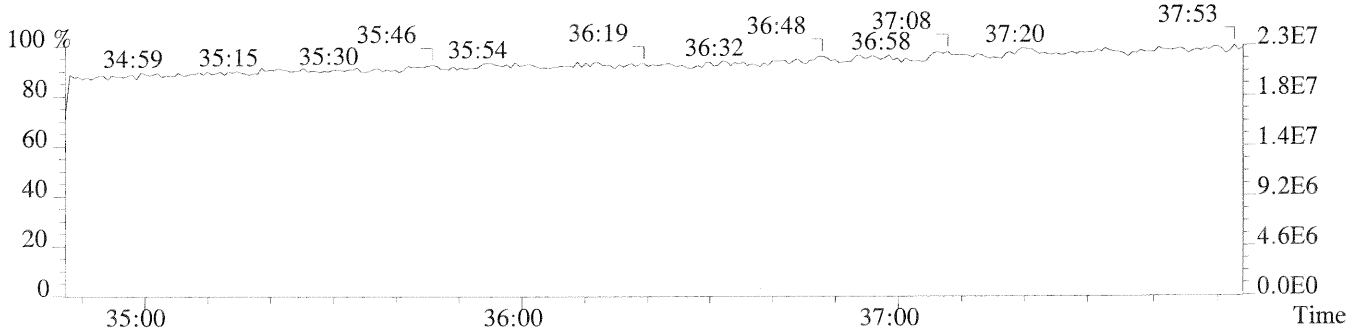
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)

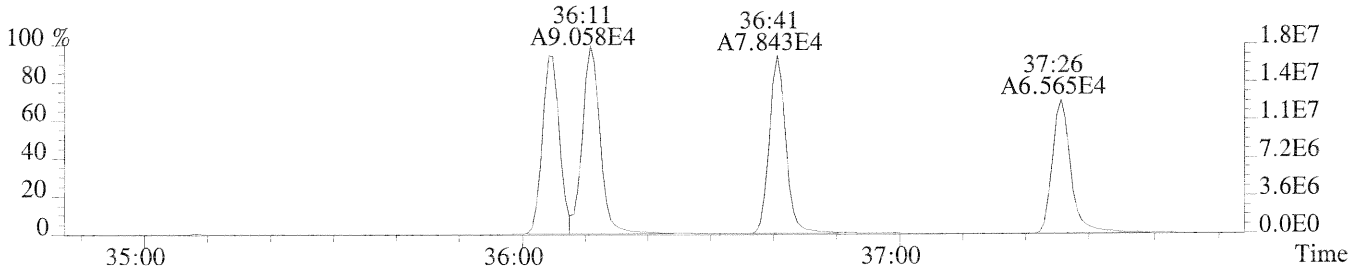


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

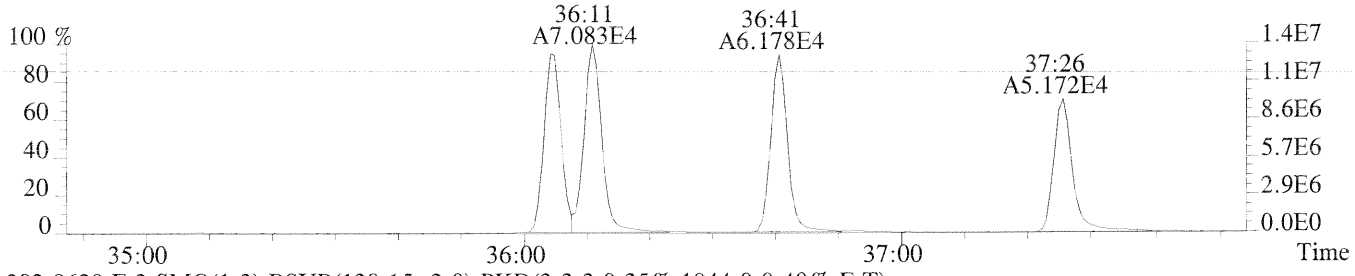


File:P174196 #1-283 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

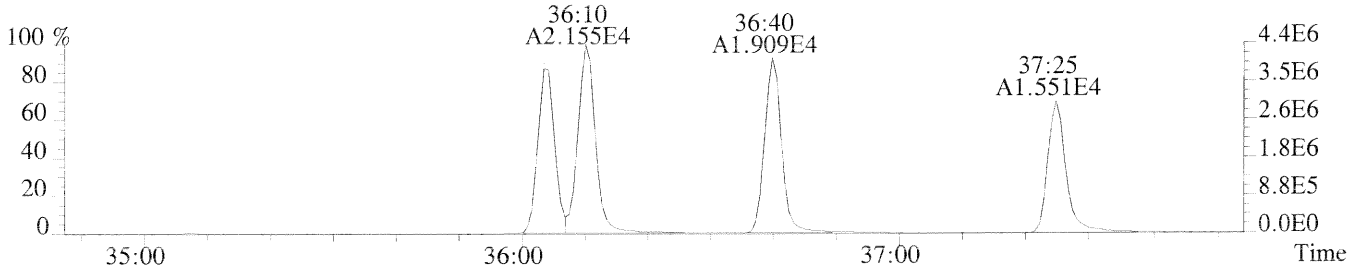
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



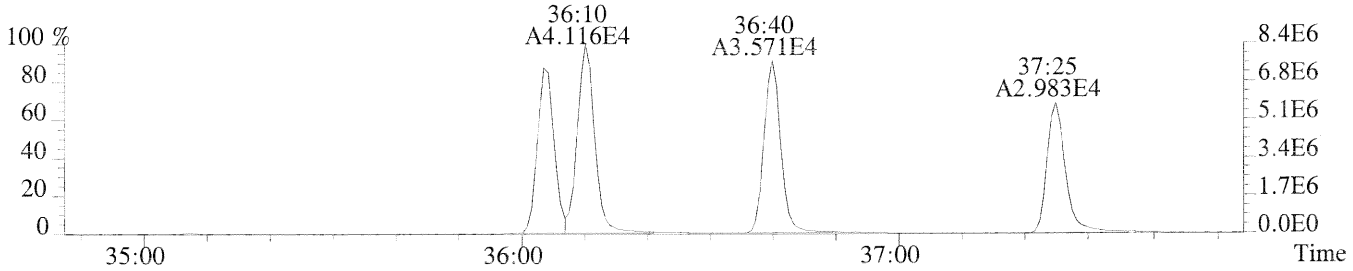
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



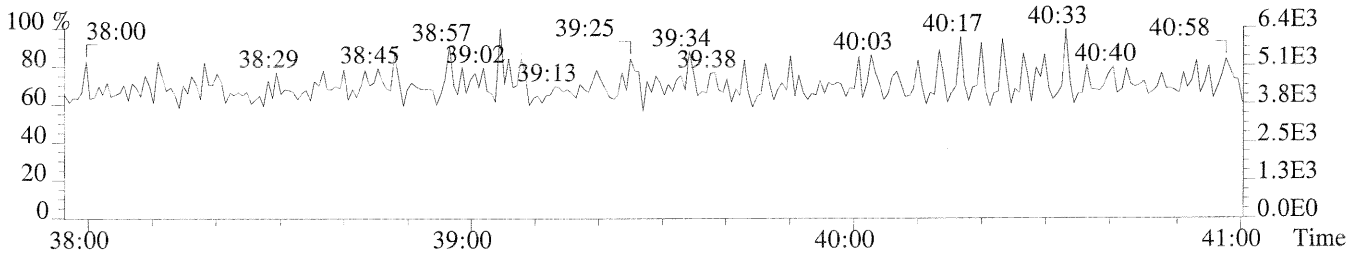
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



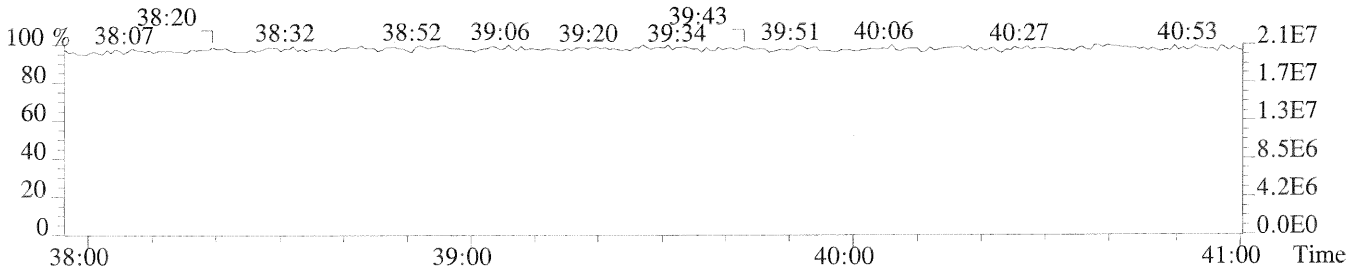
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



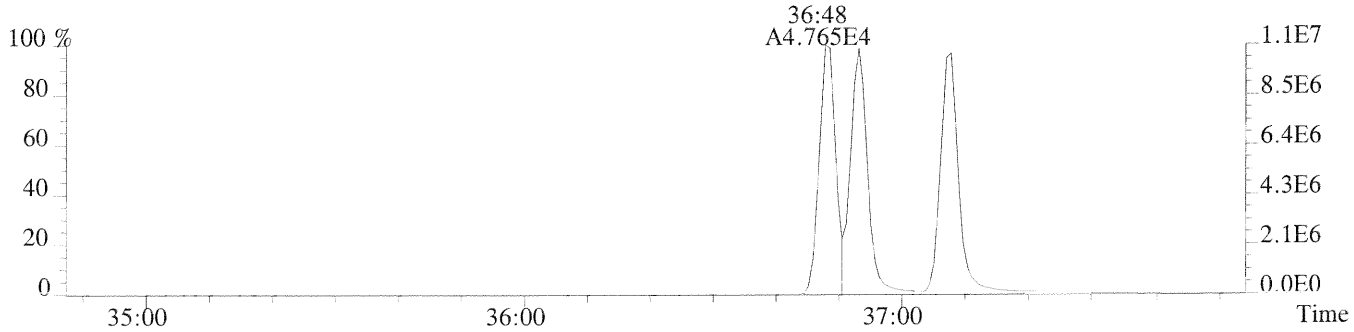
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



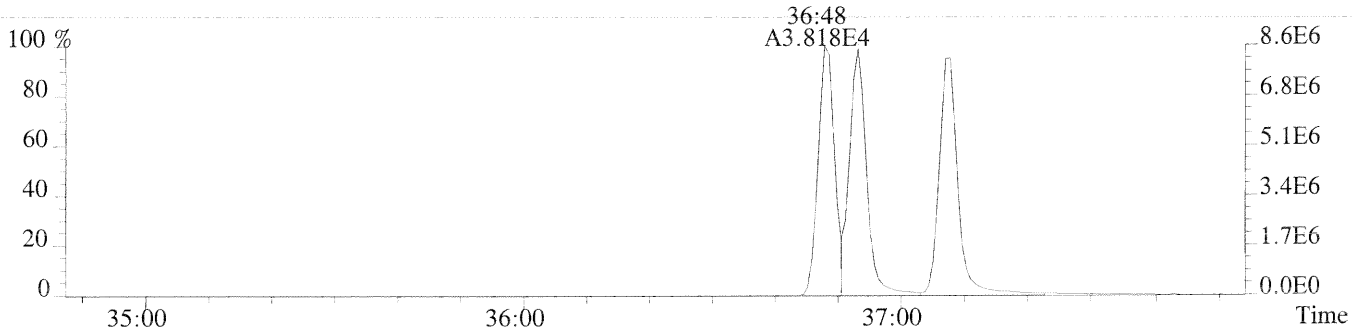
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



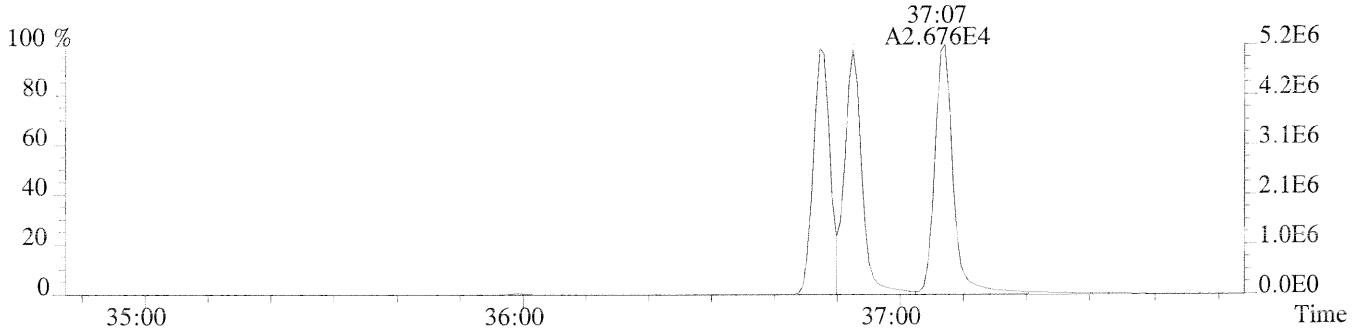
File:P174196 #1-283 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



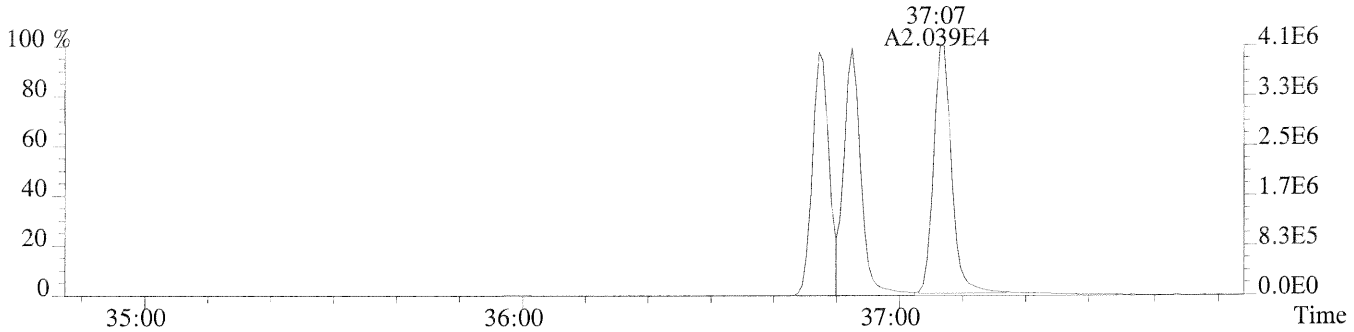
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



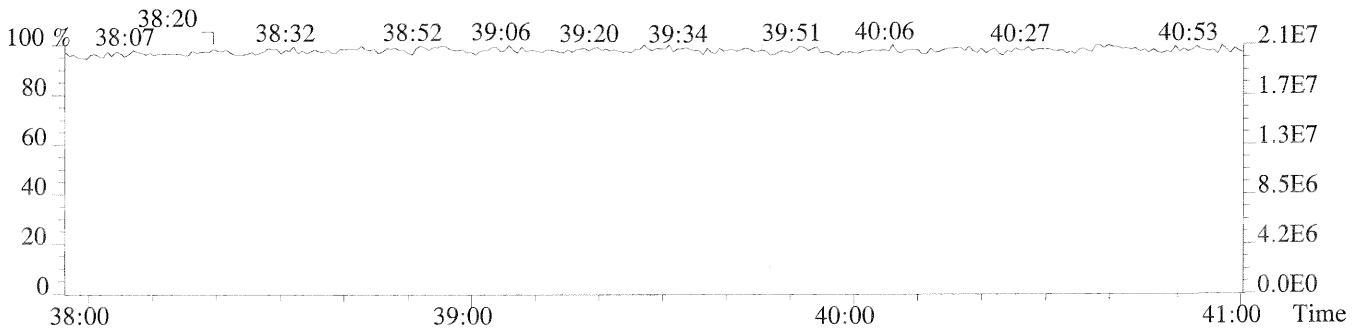
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)

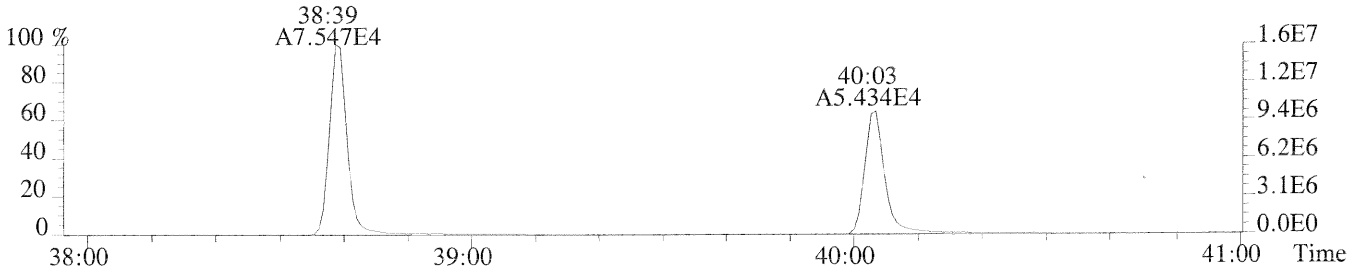


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

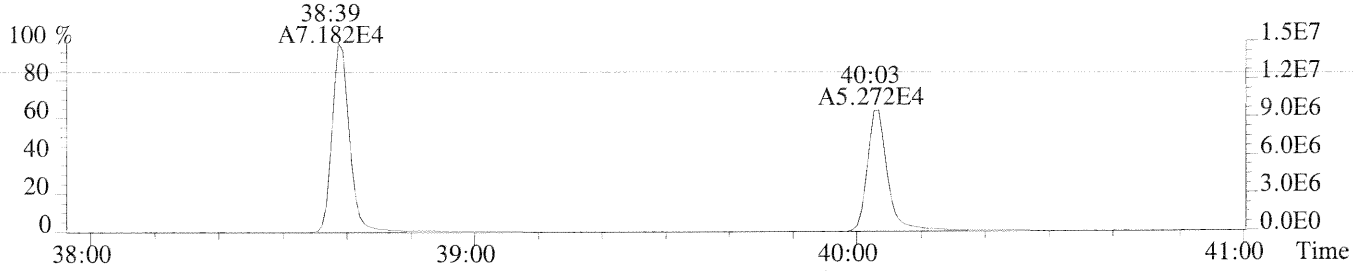


File:P174196 #1-279 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4

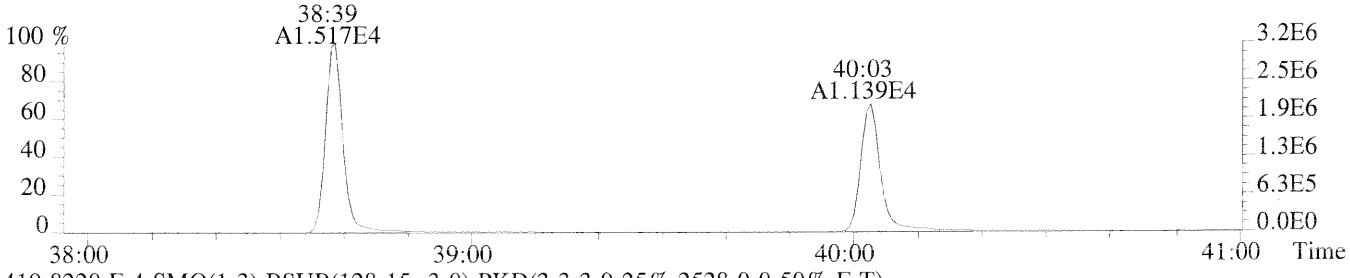
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8340.0,0.50%,F,T)



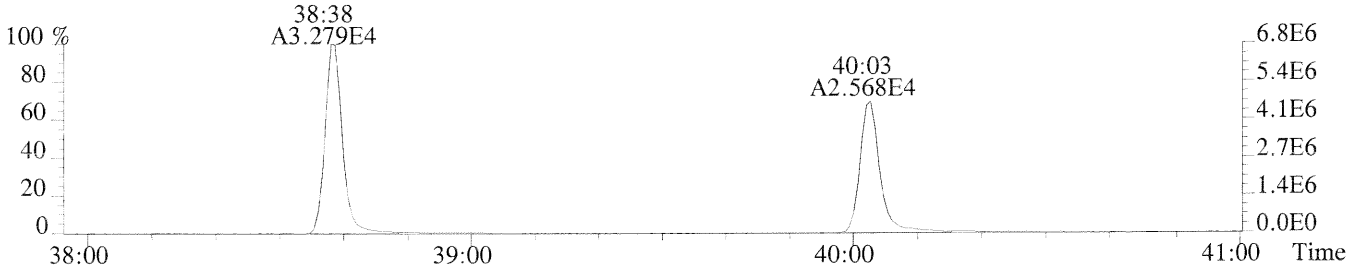
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6704.0,0.50%,F,T)



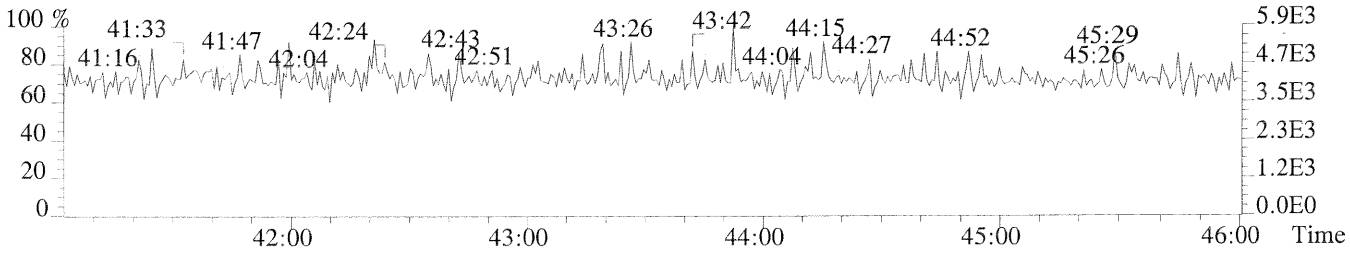
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.50%,F,T)



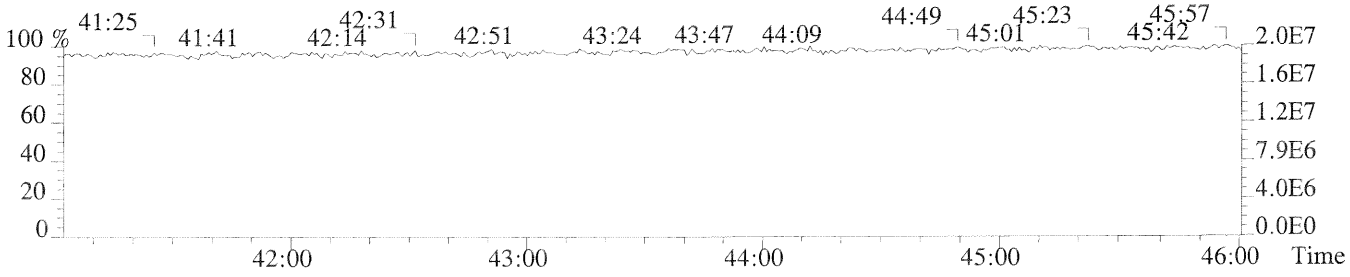
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.50%,F,T)



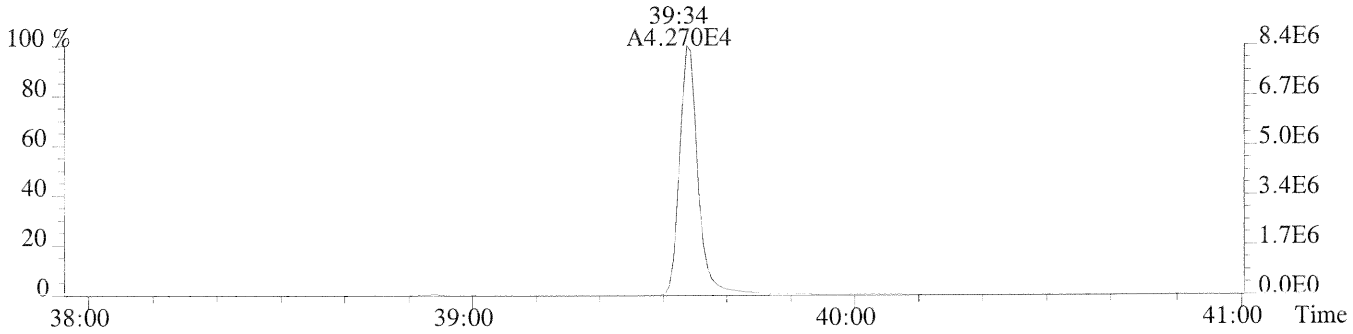
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



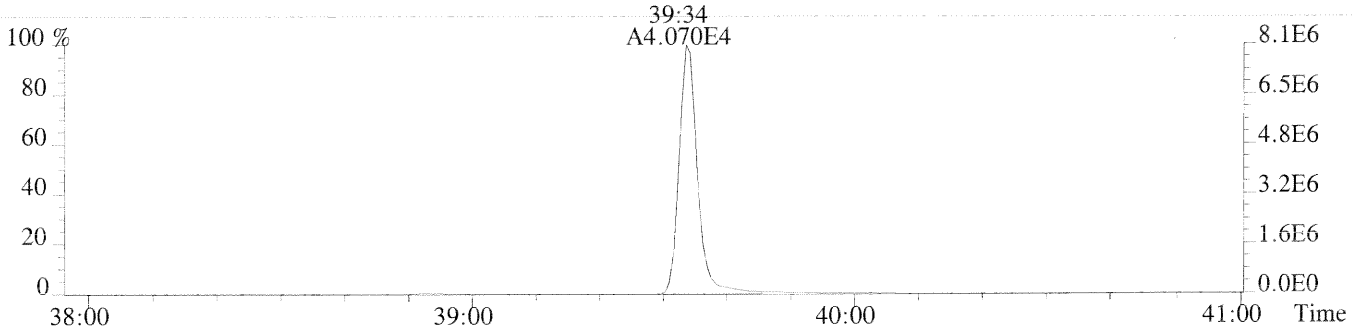
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



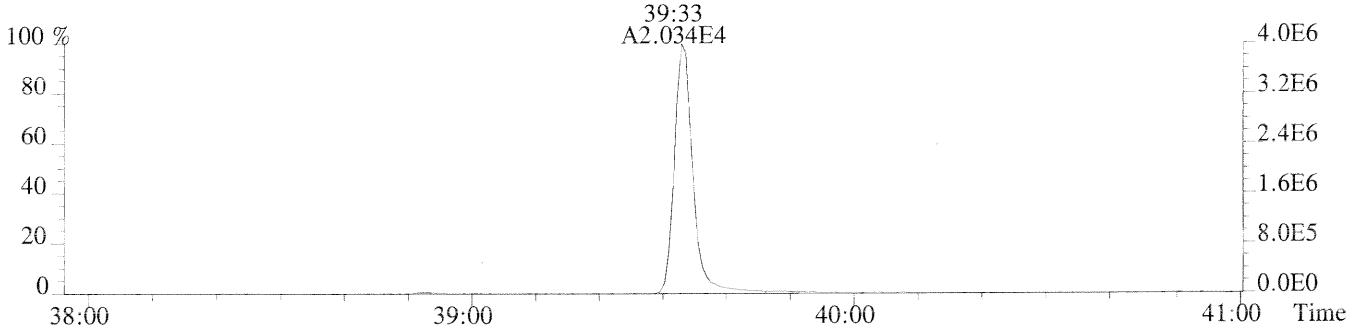
File:P174196 #1-279 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



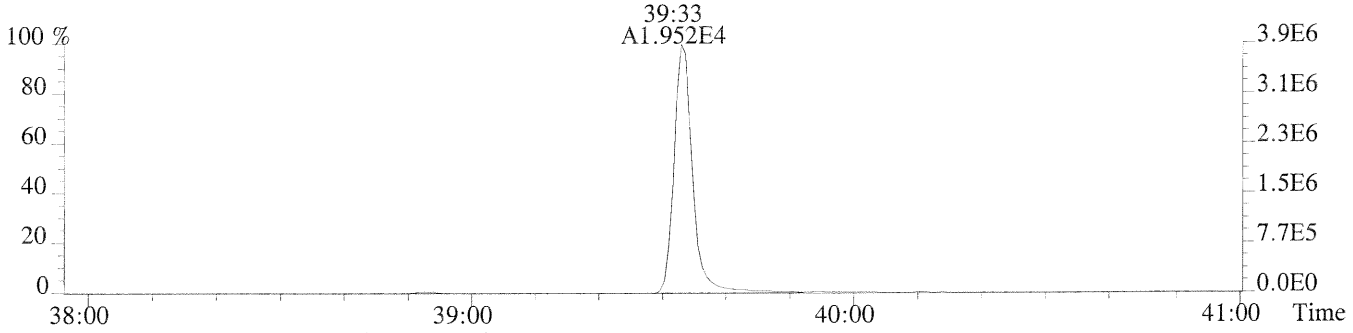
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



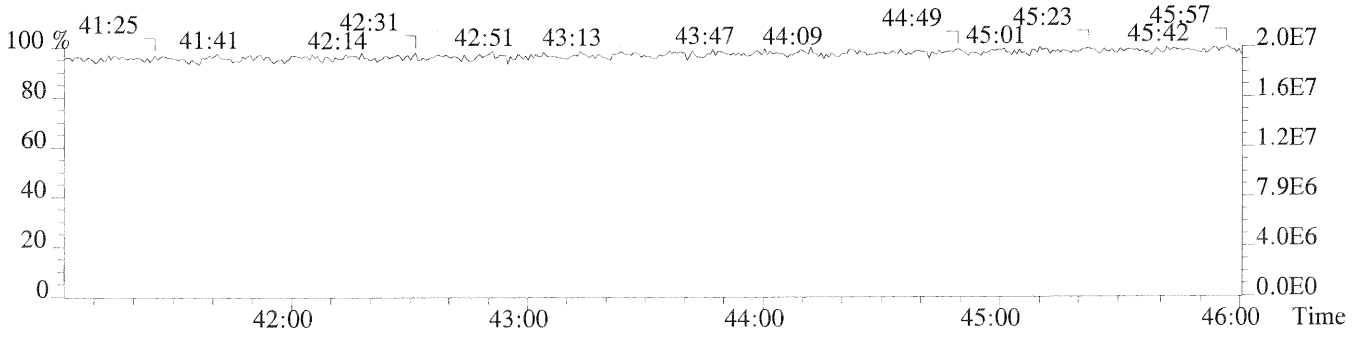
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



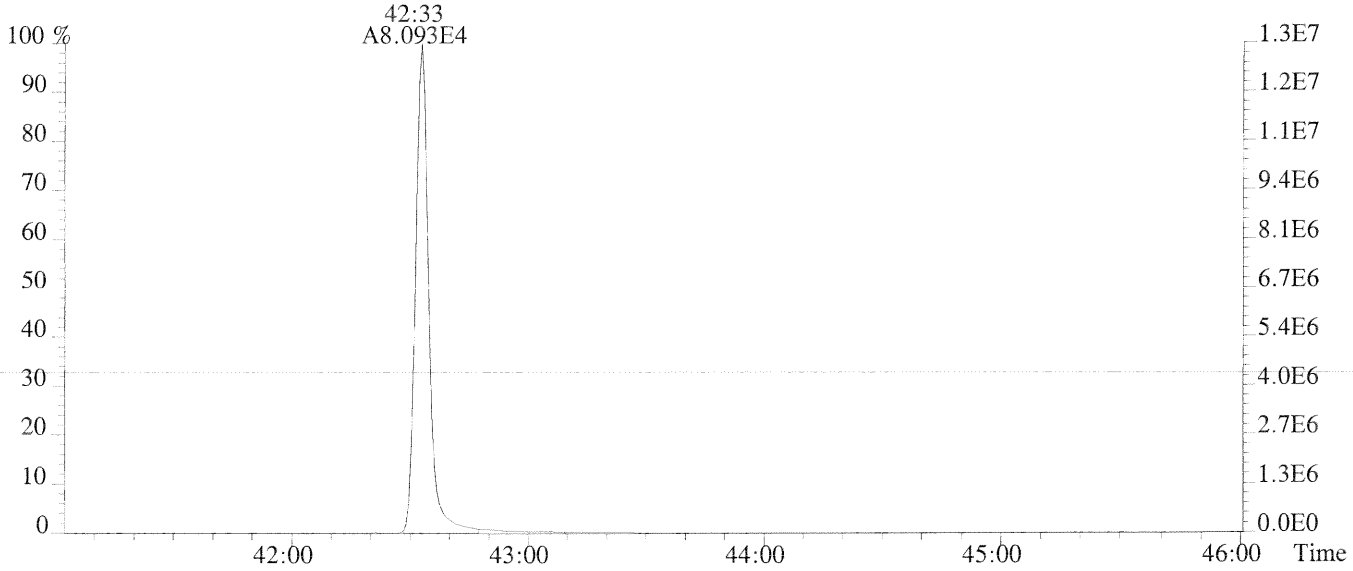
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



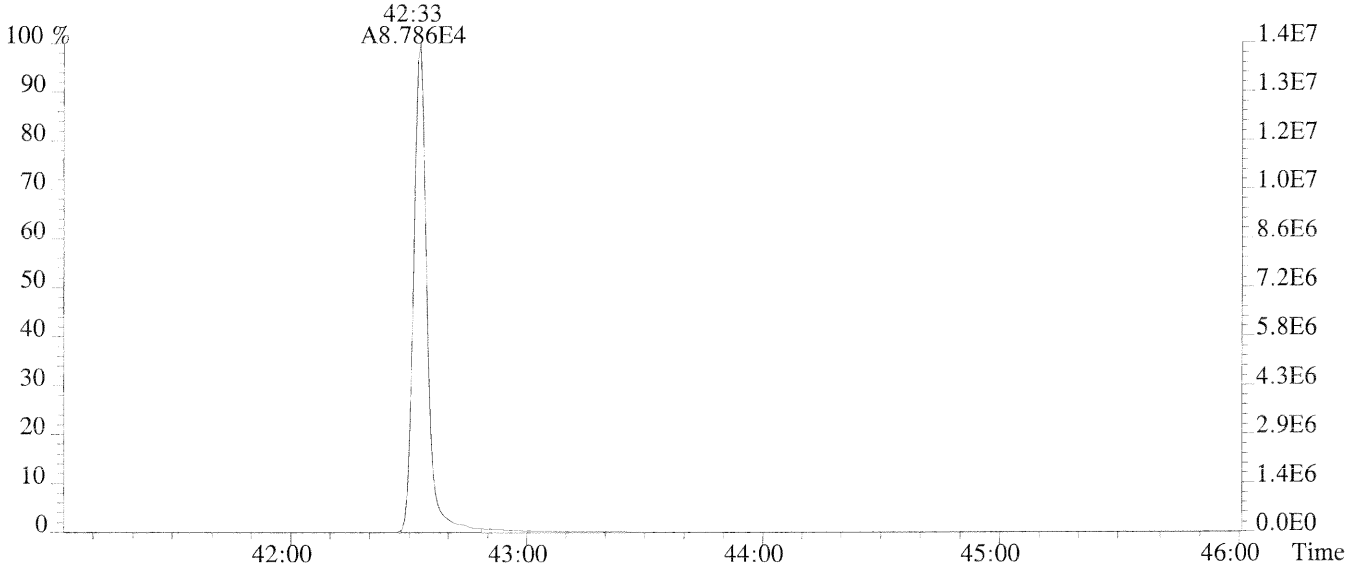
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



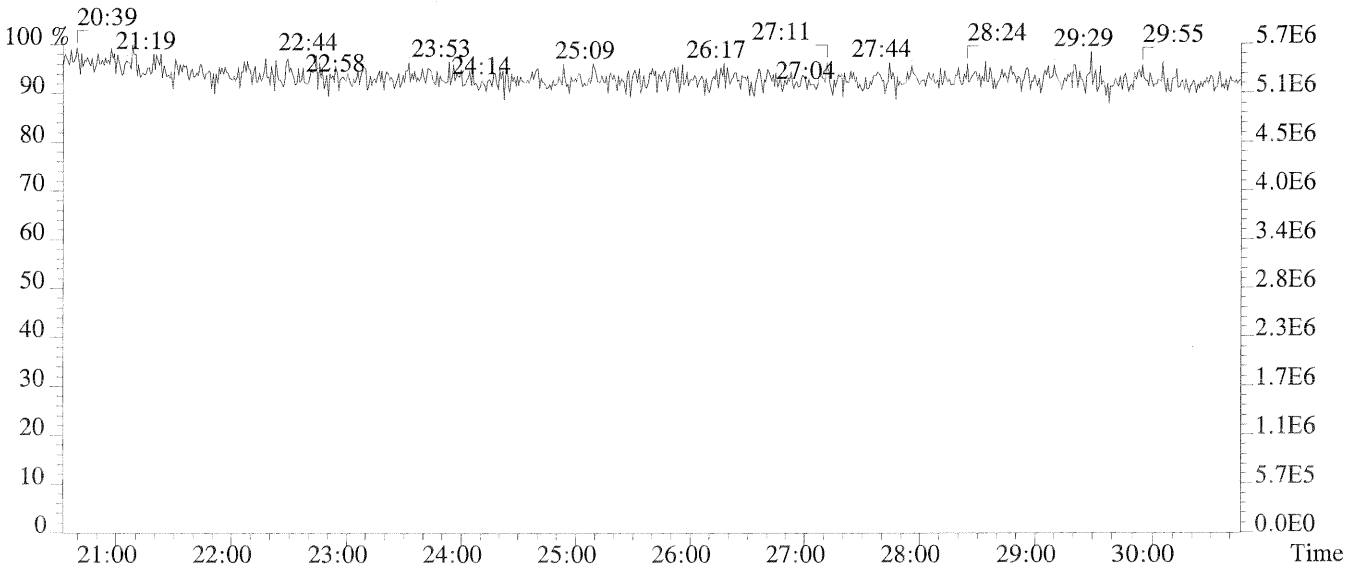
File:P174196 #1-457 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



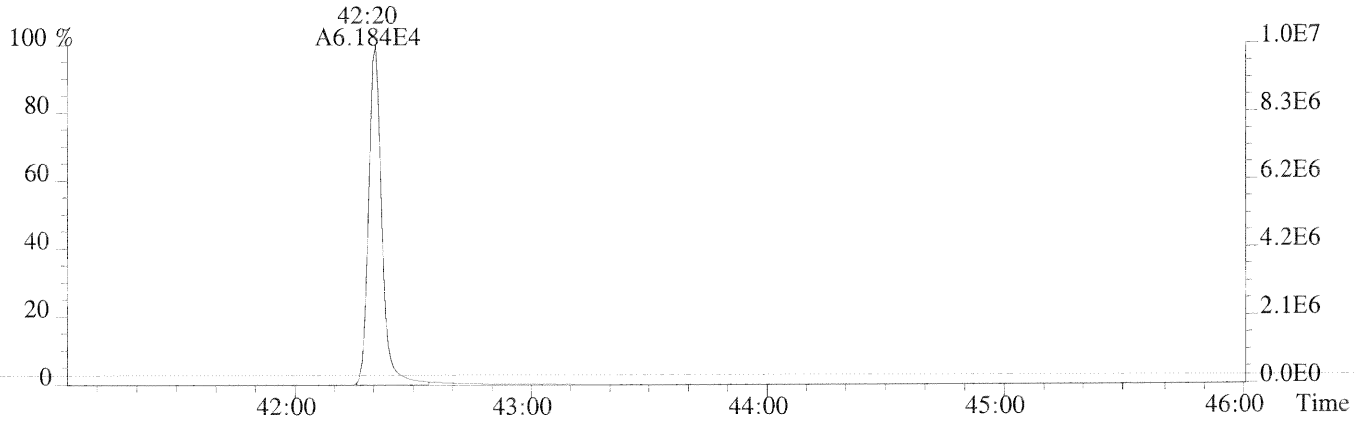
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)



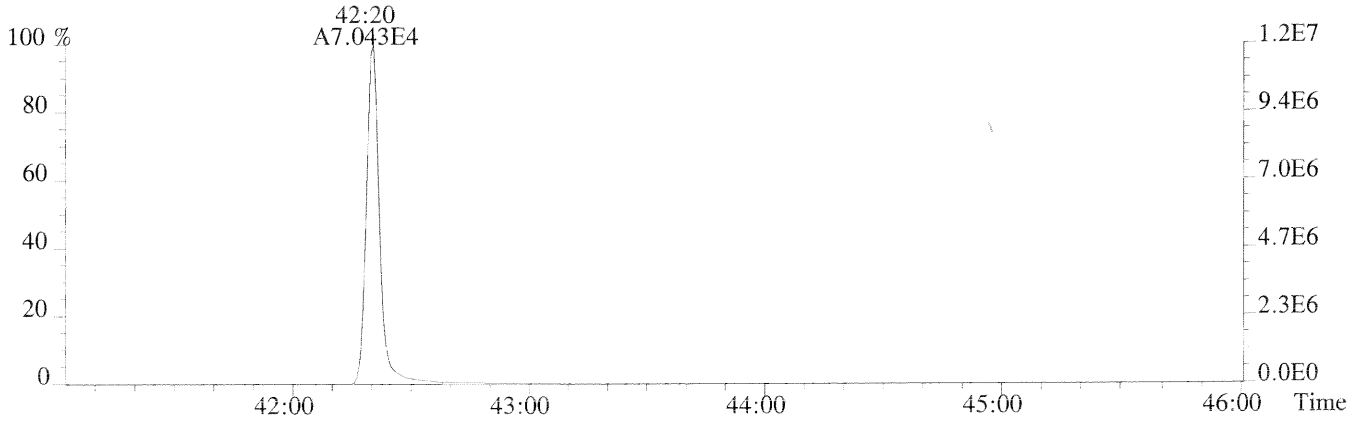
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



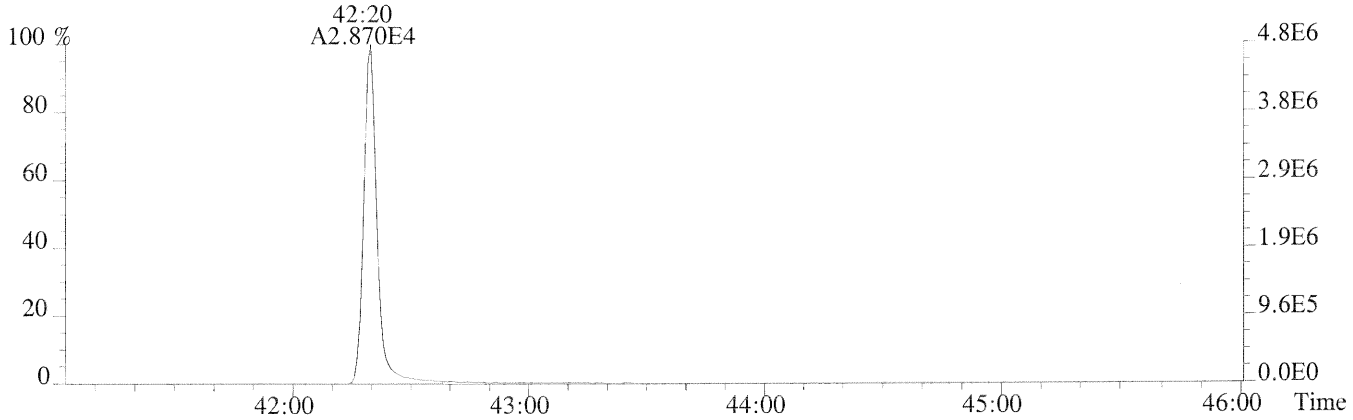
File:P174196 #1-457 Acq:18-OCT-2014 14:54:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



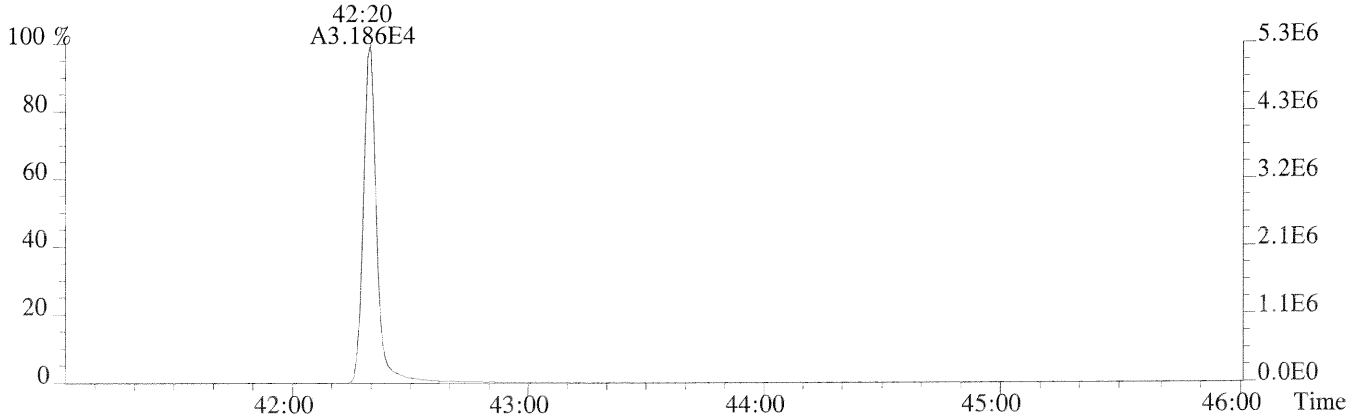
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



ALS ENVIRONMENTAL
Method M23
Sample Response Summary

CLIENT ID.
CS5

Run #6 Filename P174197 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 15:48:36
Processed: 20-OCT-14 09:26:14 LAB. ID: 66799

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:25	6.784e+04	8.621e+04	0.79	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	32:33	5.104e+05	3.200e+05	1.60	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	33:26	5.074e+05	3.150e+05	1.61	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	36:04	4.277e+05	3.374e+05	1.27	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	36:11	4.659e+05	3.661e+05	1.27	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	36:41	4.021e+05	3.168e+05	1.27	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	37:26	3.355e+05	2.610e+05	1.29	yes	no	0.957
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	3.669e+05	3.500e+05	1.05	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	2.768e+05	2.622e+05	1.06	yes	no	1.148
10	Unk	OCDF	42:33	4.063e+05	4.396e+05	0.92	yes	no	1.369
11	Unk	2,3,7,8-TCDD	29:11	5.354e+04	6.928e+04	0.77	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	33:43	3.204e+05	2.065e+05	1.55	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	36:48	2.680e+05	2.152e+05	1.24	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	36:53	2.591e+05	2.065e+05	1.25	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	37:07	2.685e+05	2.150e+05	1.25	yes	no	1.019
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	2.133e+05	2.017e+05	1.06	yes	no	1.052
17	Unk	OCDD	42:20	3.119e+05	3.451e+05	0.90	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	28:24	3.514e+04	4.496e+04	0.78	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:32	4.933e+04	3.134e+04	1.57	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	33:26	4.598e+04	2.953e+04	1.56	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	36:04	2.018e+04	3.849e+04	0.52	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	36:10	2.226e+04	4.217e+04	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	37:25	1.641e+04	3.162e+04	0.52	yes	no	0.976
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	1.510e+04	3.323e+04	0.45	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	40:02	1.085e+04	2.452e+04	0.44	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	29:10	2.747e+04	3.476e+04	0.79	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:42	3.417e+04	2.182e+04	1.57	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	36:47	2.464e+04	1.966e+04	1.25	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	2.885e+04	2.305e+04	1.25	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	2.102e+04	2.034e+04	1.03	yes	no	0.874
32	IS	13C-OCDD	42:20	3.142e+04	3.561e+04	0.88	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	28:36	2.840e+04	3.617e+04	0.79	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	37:06	2.664e+04	2.203e+04	1.21	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	29:11	1.302e+05				no	1.038

$$\text{OCDD} = \frac{(3.119e{+}05 + 3.451e{+}05 \times (\ 200.0\ )) \times 1}{(3.142e{+}04 + 3.561e{+}04\ ) \times 1.068 \times 1.000} = \text{pg}$$

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ALS Form TO9resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS5

Method M23

Run #6 Filename P174197 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 15:48:36
Processed: 20-OCT-14 09:26:14 LAB. ID: 66799

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.16e+07	7.44e+02	1.6e+04	1.46e+07	8.92e+02	1.6e+04
2	1,2,3,7,8-PeCDF	9.67e+07	1.14e+03	8.5e+04	6.06e+07	1.78e+03	3.4e+04
3	2,3,4,7,8-PeCDF	1.01e+08	1.14e+03	8.8e+04	6.27e+07	1.78e+03	3.5e+04
4	1,2,3,4,7,8-HxCDF	9.38e+07	2.61e+03	3.6e+04	7.42e+07	1.52e+03	4.9e+04
5	1,2,3,6,7,8-HxCDF	9.69e+07	2.61e+03	3.7e+04	7.64e+07	1.52e+03	5.0e+04
6	2,3,4,6,7,8-HxCDF	8.87e+07	2.61e+03	3.4e+04	6.97e+07	1.52e+03	4.6e+04
7	1,2,3,7,8,9-HxCDF	6.94e+07	2.61e+03	2.7e+04	5.36e+07	1.52e+03	3.5e+04
8	1,2,3,4,6,7,8-HpCDF	7.94e+07	2.44e+04	3.2e+03	7.64e+07	1.86e+04	4.1e+03
9	1,2,3,4,7,8,9-HpCDF	5.45e+07	2.44e+04	2.2e+03	5.21e+07	1.86e+04	2.8e+03
10	OCDF	7.07e+07	8.68e+02	8.2e+04	7.50e+07	8.32e+02	9.0e+04
11	2,3,7,8-TCDD	9.59e+06	9.52e+02	1.0e+04	1.24e+07	1.02e+03	1.2e+04
12	1,2,3,7,8-PeCDD	6.29e+07	9.60e+02	6.5e+04	4.02e+07	5.52e+02	7.3e+04
13	1,2,3,4,7,8-HxCDD	6.11e+07	9.92e+02	6.2e+04	4.96e+07	9.04e+02	5.5e+04
14	1,2,3,6,7,8-HxCDD	5.54e+07	9.92e+02	5.6e+04	4.41e+07	9.04e+02	4.9e+04
15	1,2,3,7,8,9-HxCDD	5.67e+07	9.92e+02	5.7e+04	4.60e+07	9.04e+02	5.1e+04
16	1,2,3,4,6,7,8-HpCDD	4.46e+07	2.26e+03	2.0e+04	4.24e+07	2.07e+03	2.1e+04
17	OCDD	5.43e+07	6.36e+02	8.5e+04	6.05e+07	5.88e+02	1.0e+05
18	13C-2,3,7,8-TCDF	5.85e+06	1.61e+03	3.6e+03	7.47e+06	1.04e+03	7.2e+03
19	13C-1,2,3,7,8-PeCDF	9.10e+06	1.14e+03	8.0e+03	5.77e+06	8.24e+02	7.0e+03
20	13C-2,3,4,7,8-PeCDF	9.01e+06	1.14e+03	7.9e+03	5.81e+06	8.24e+02	7.0e+03
21	13C-1,2,3,4,7,8-HxCDF	4.39e+06	7.16e+02	6.1e+03	8.35e+06	1.76e+03	4.7e+03
22	13C-1,2,3,6,7,8-HxCDF	4.67e+06	7.16e+02	6.5e+03	8.78e+06	1.76e+03	5.0e+03
24	13C-1,2,3,7,8,9-HxCDF	3.43e+06	7.16e+02	4.8e+03	6.53e+06	1.76e+03	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.27e+06	2.92e+03	1.1e+03	7.15e+06	1.57e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.11e+06	2.92e+03	7.2e+02	4.81e+06	1.57e+03	3.1e+03
27	13C-2,3,7,8-TCDD	4.97e+06	2.52e+03	2.0e+03	6.23e+06	1.65e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	6.58e+06	7.64e+02	8.6e+03	4.26e+06	6.24e+02	6.8e+03
29	13C-1,2,3,4,7,8-HxCDD	5.57e+06	1.65e+03	3.4e+03	4.46e+06	1.67e+03	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.20e+06	1.65e+03	3.8e+03	5.02e+06	1.67e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.39e+06	1.10e+03	4.0e+03	4.18e+06	7.48e+02	5.6e+03
32	13C-OCDD	5.51e+06	7.24e+02	7.6e+03	6.12e+06	8.12e+02	7.5e+03
33	13C-1,2,3,4-TCDD	5.00e+06	2.52e+03	2.0e+03	6.31e+06	1.65e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	5.72e+06	1.65e+03	3.5e+03	4.56e+06	1.67e+03	2.7e+03
35	37Cl-2,3,7,8-TCDD	2.31e+07	1.04e+03	2.2e+04			

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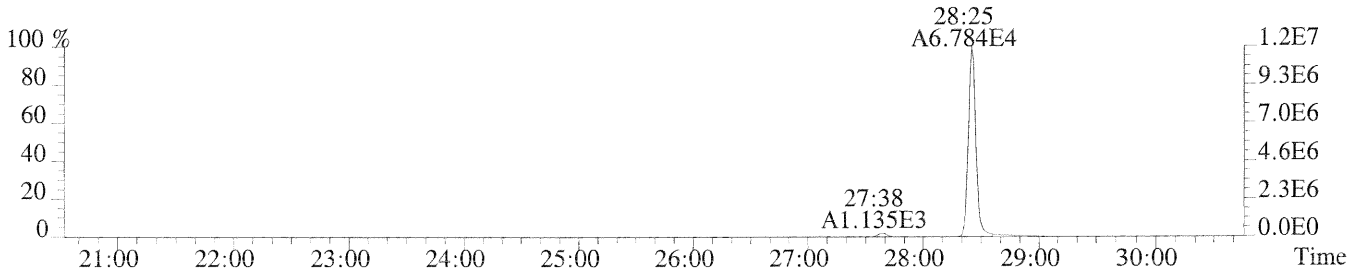
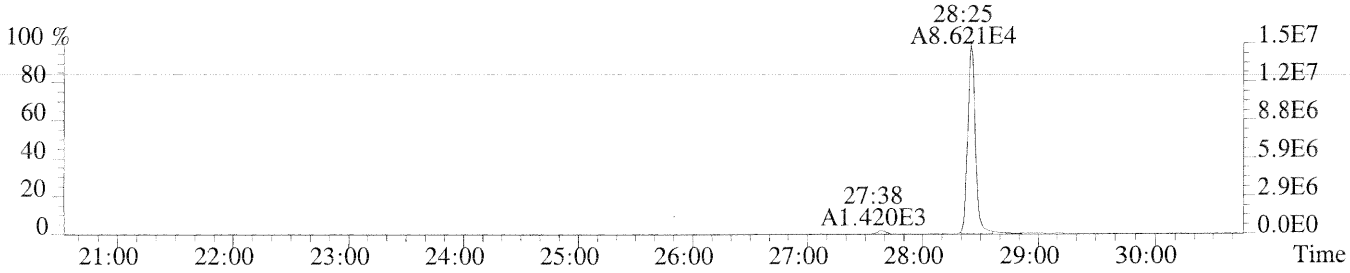
ALS Form TO-9SN/M23SN.FRM

File:P174197 #1-788 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

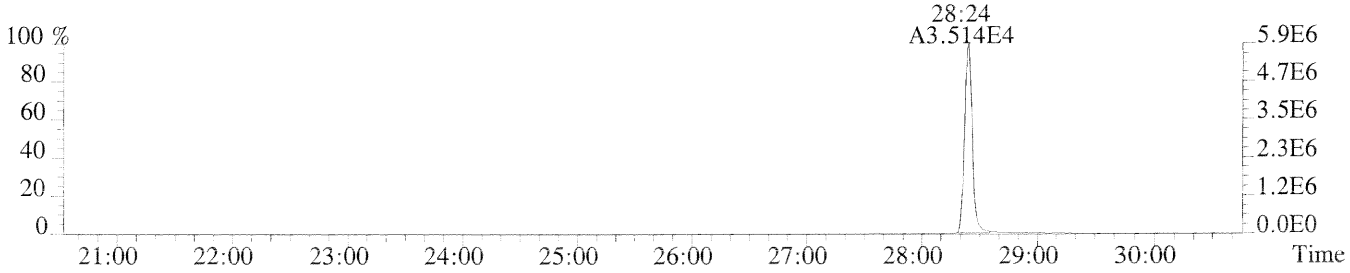
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



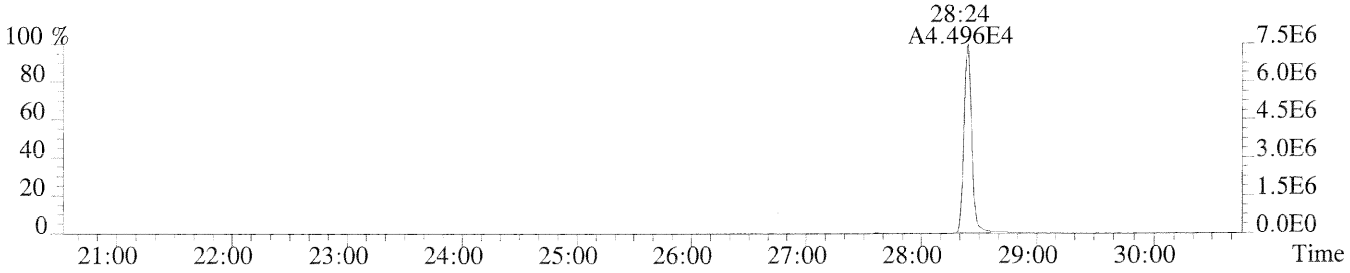
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



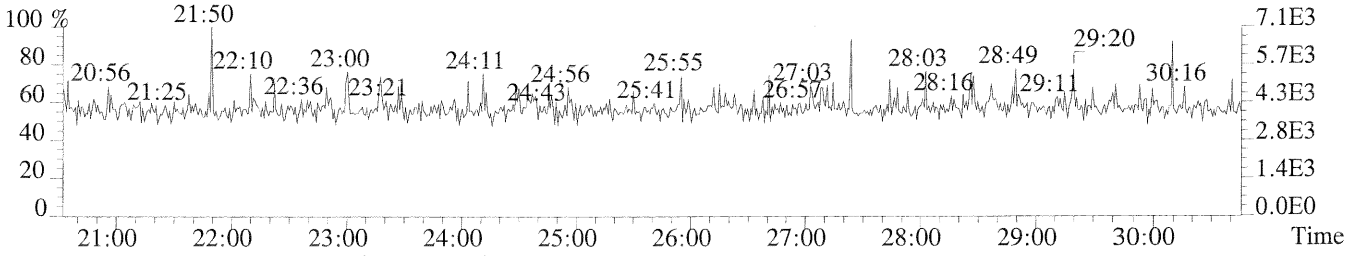
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



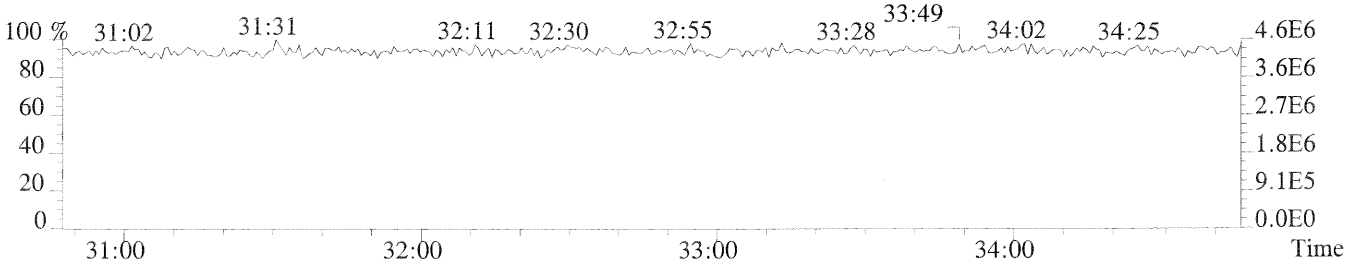
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



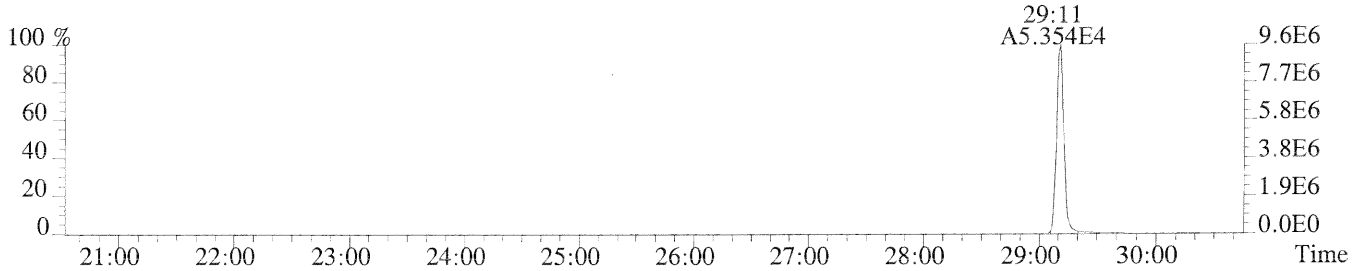
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



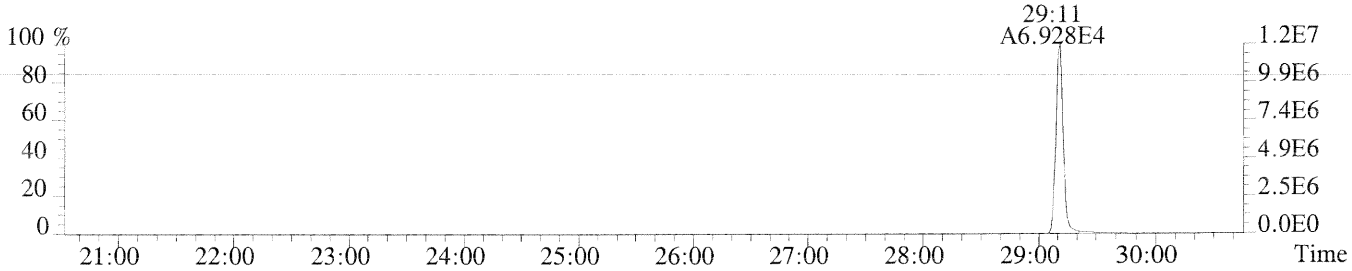
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



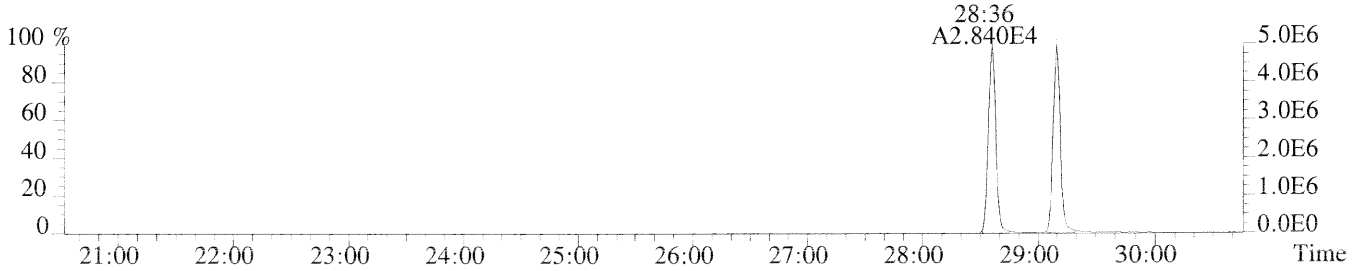
File:P174197 #1-788 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



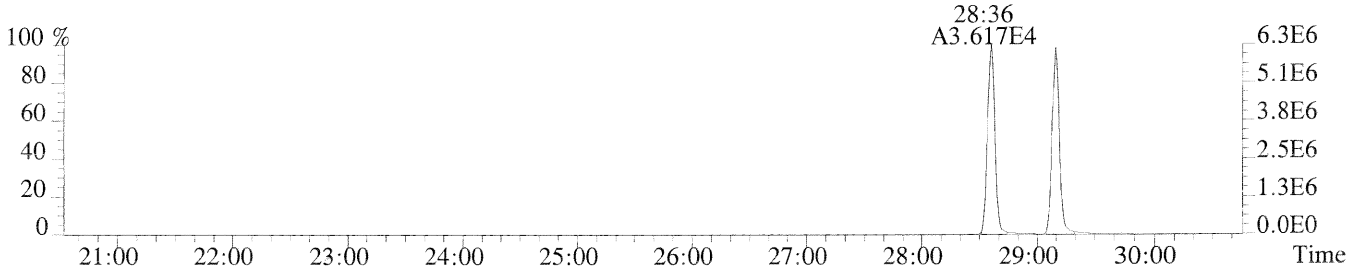
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



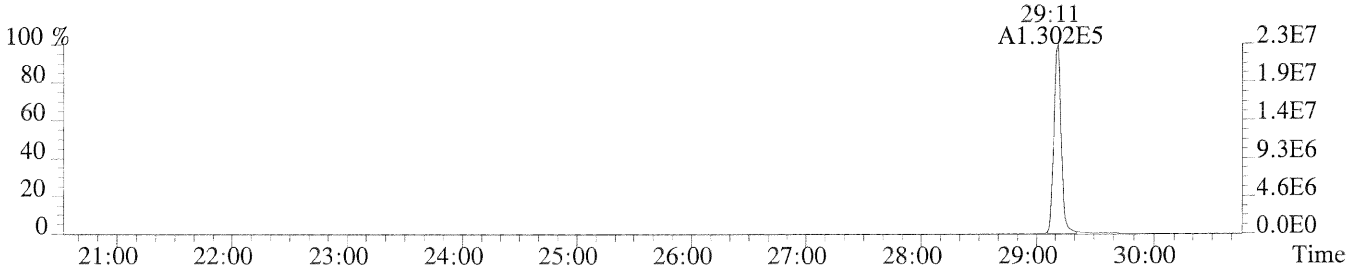
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2520.0,1.00%,F,T)



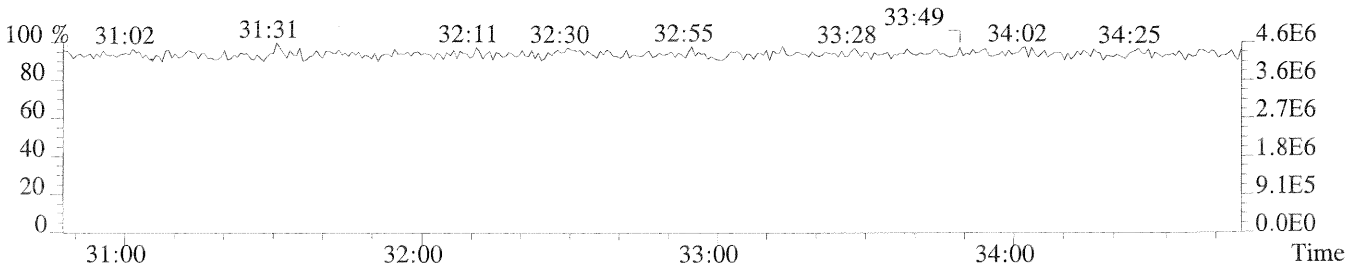
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



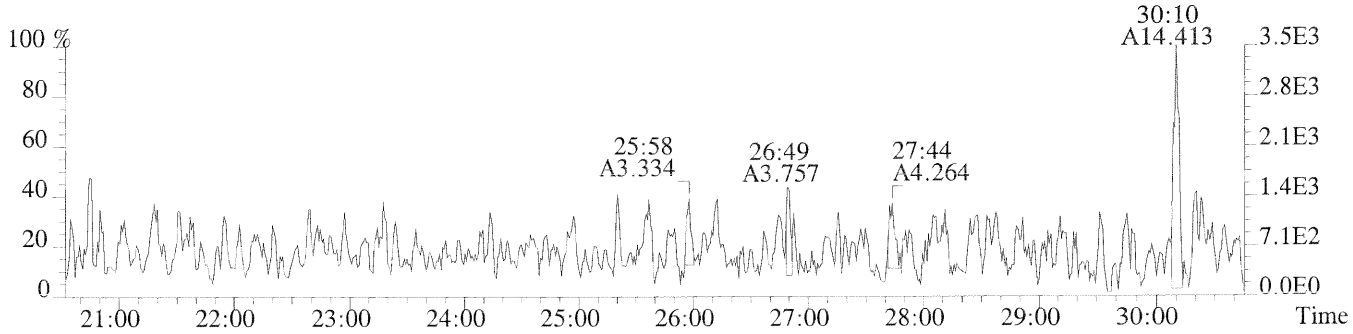
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



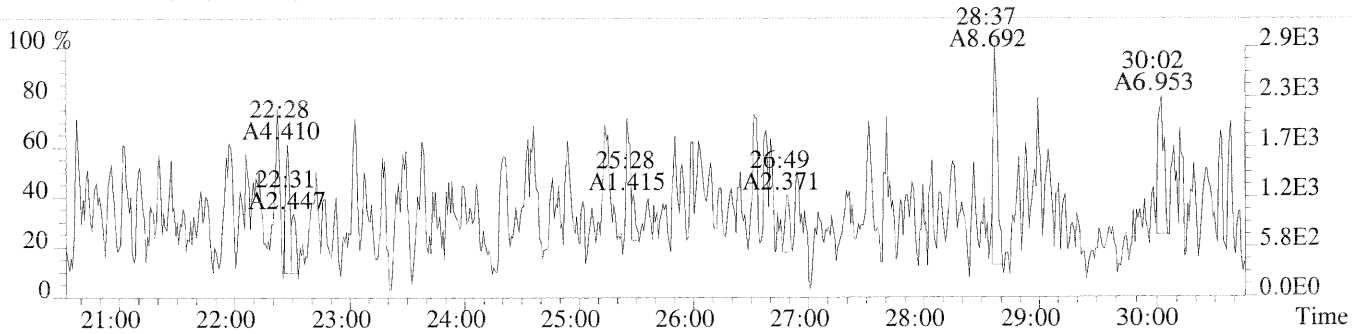
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



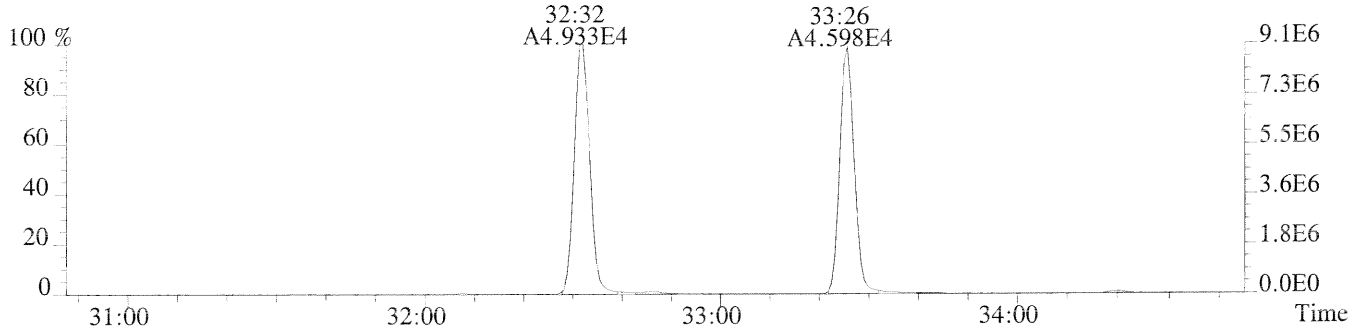
File:P174197 #1-788 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



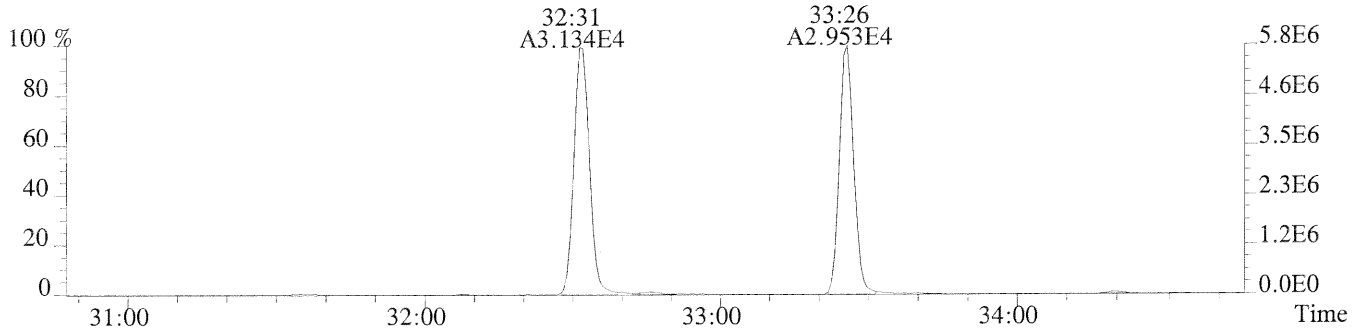
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



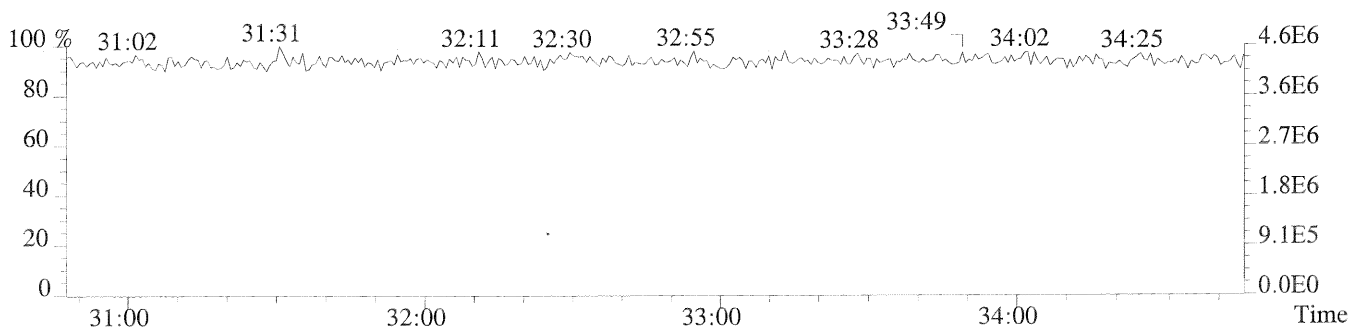
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)

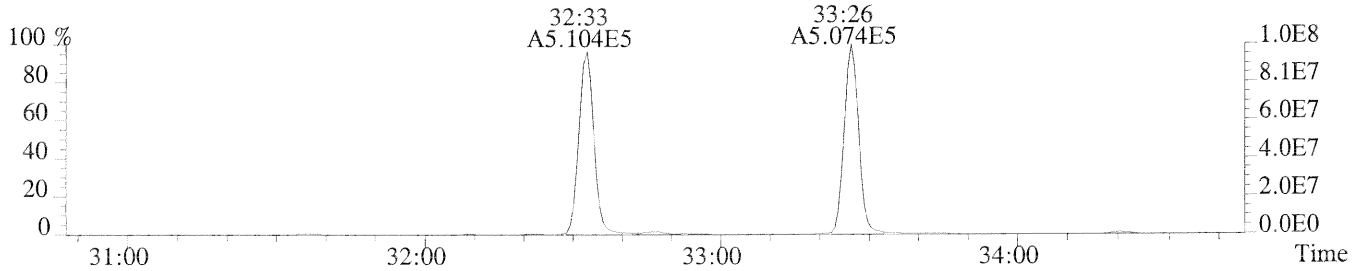


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

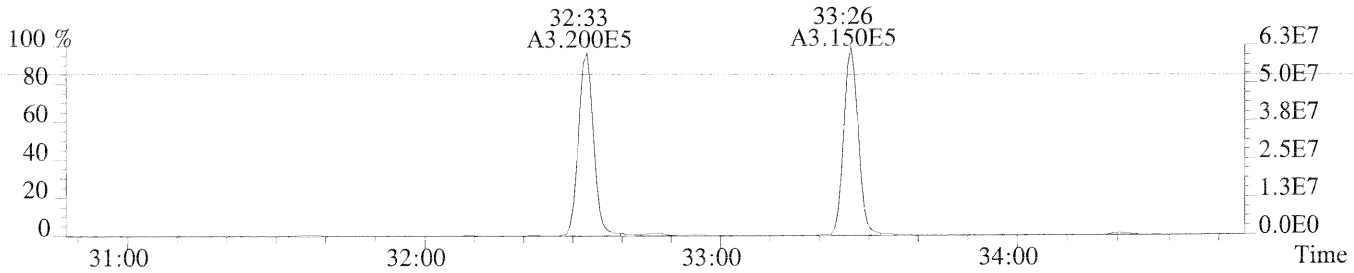


File:P174197 #1-360 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

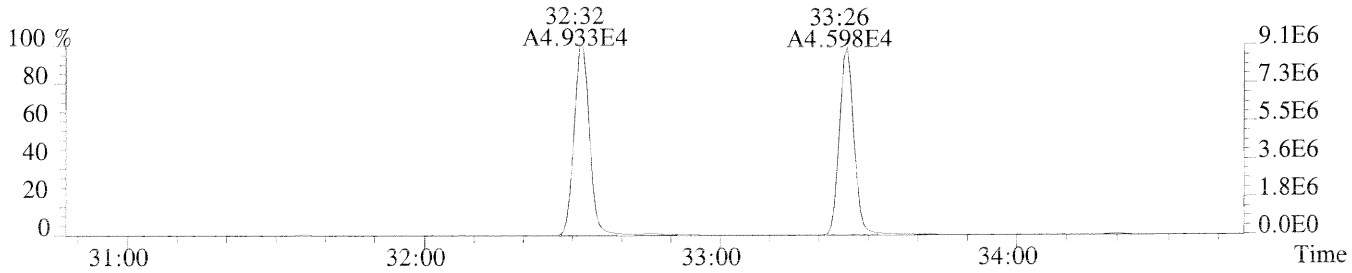
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



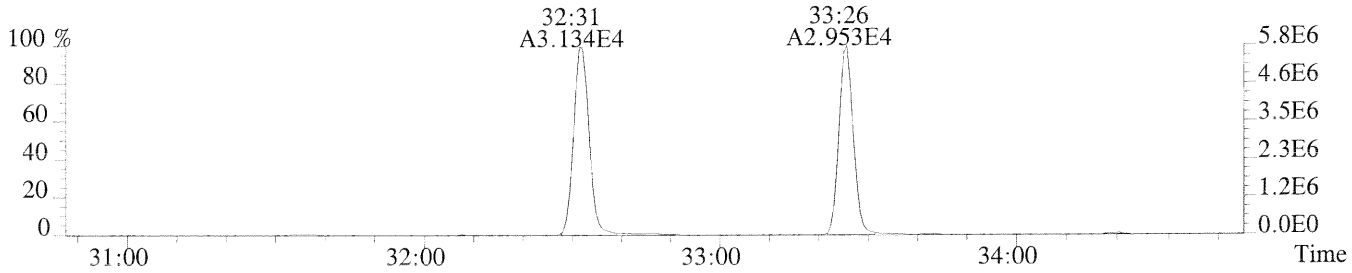
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1780.0,1.00%,F,T)



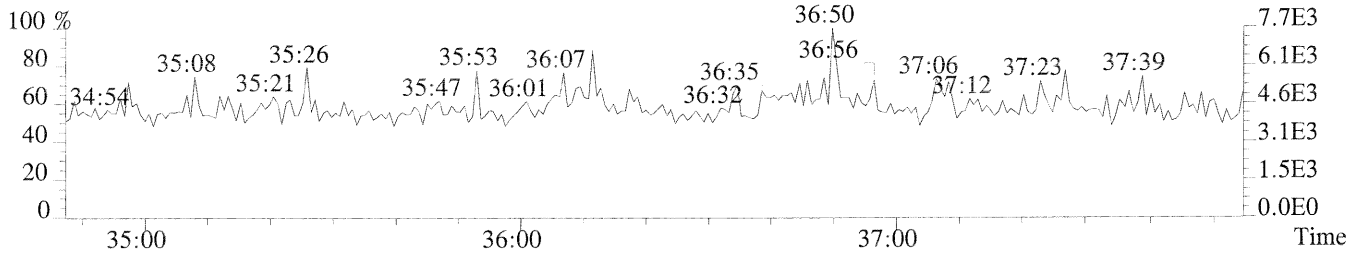
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



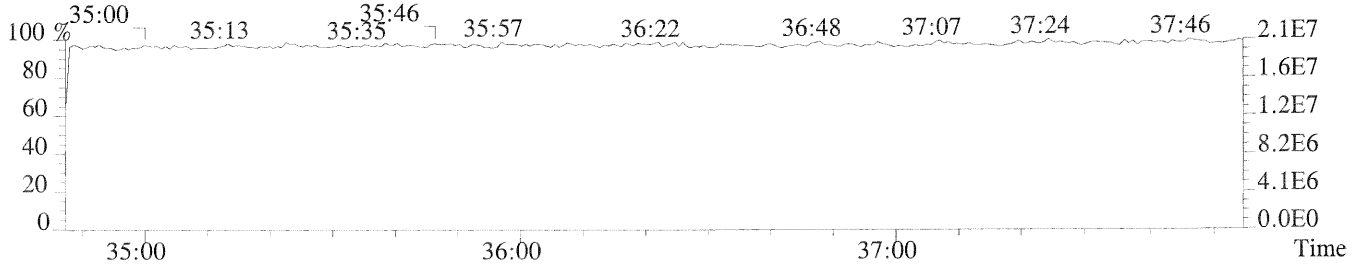
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



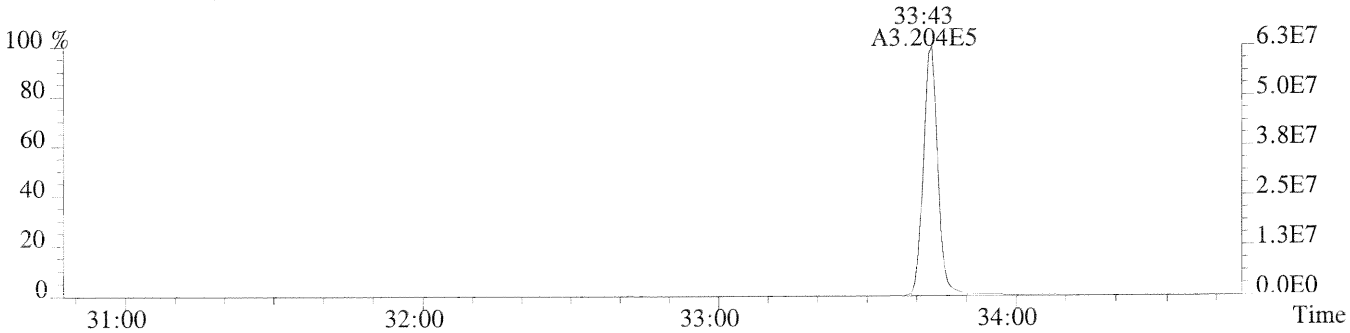
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



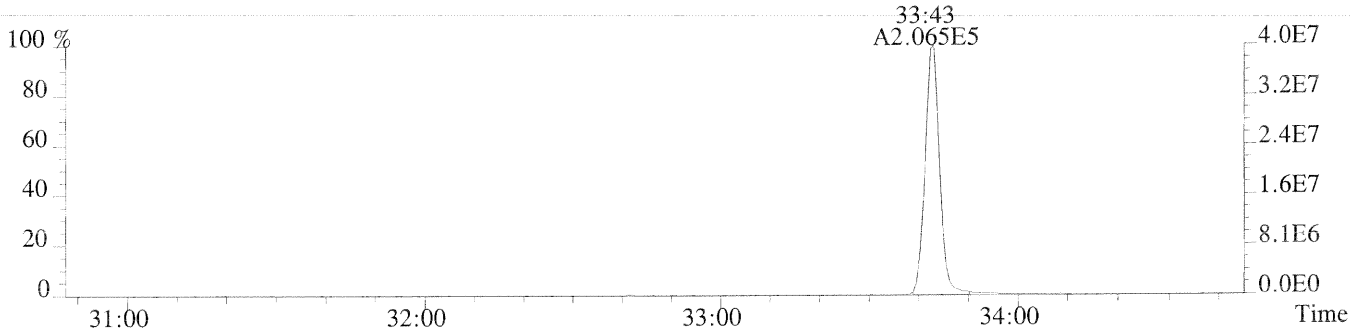
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



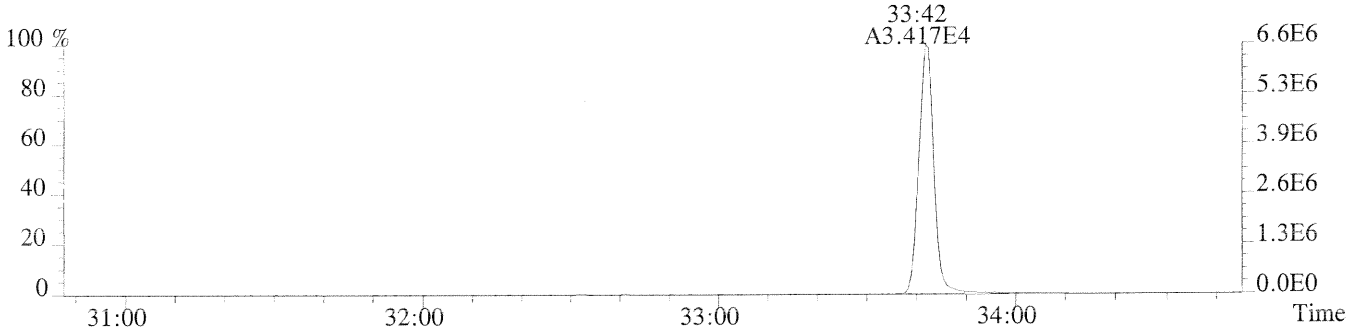
File:P174197 #1-360 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



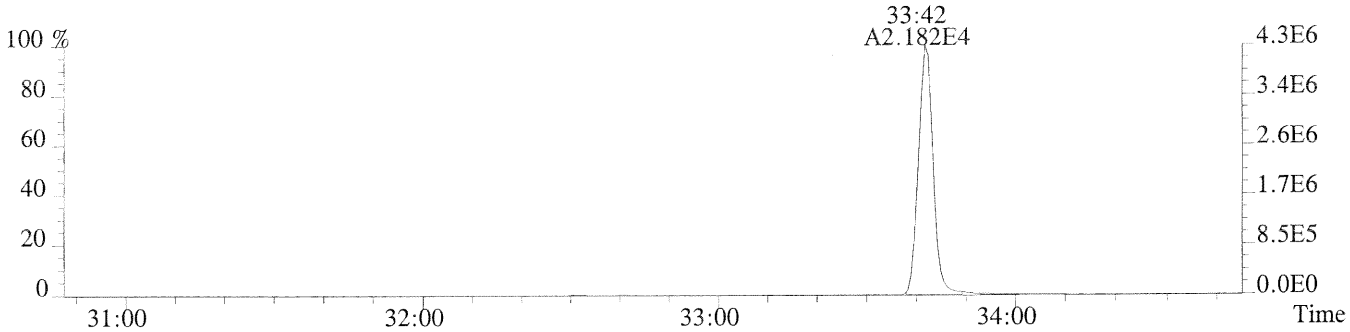
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



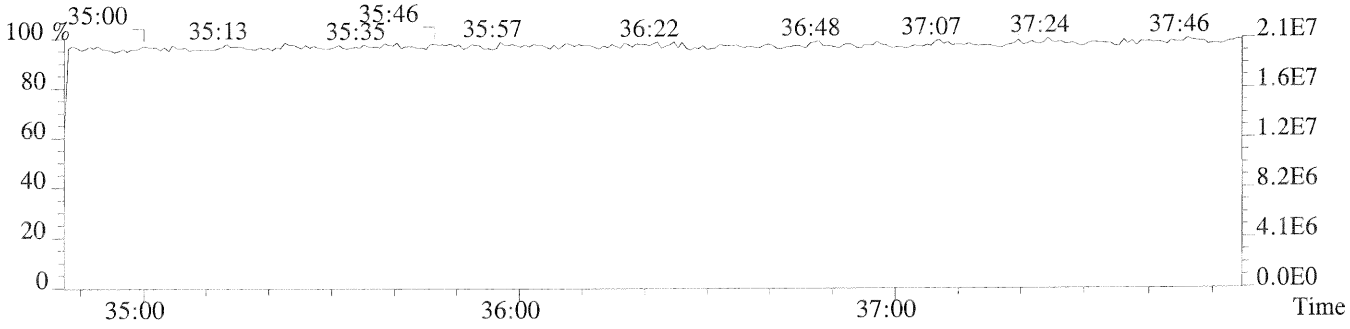
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)

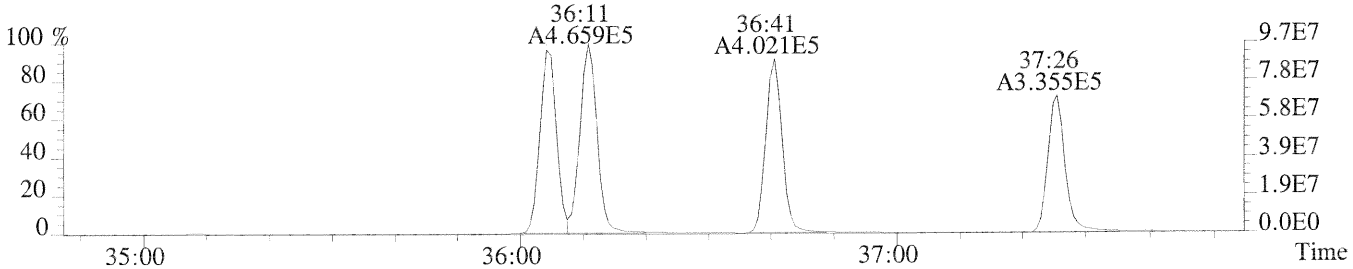


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

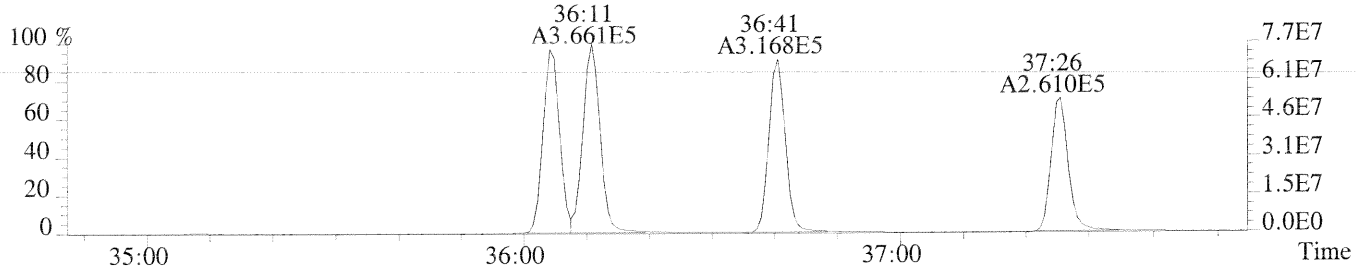


File:P174197 #1-284 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

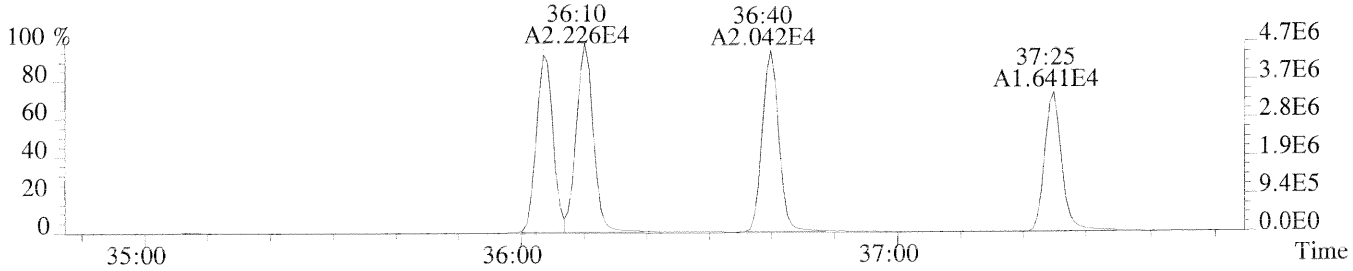
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2612.0,0.40%,F,T)



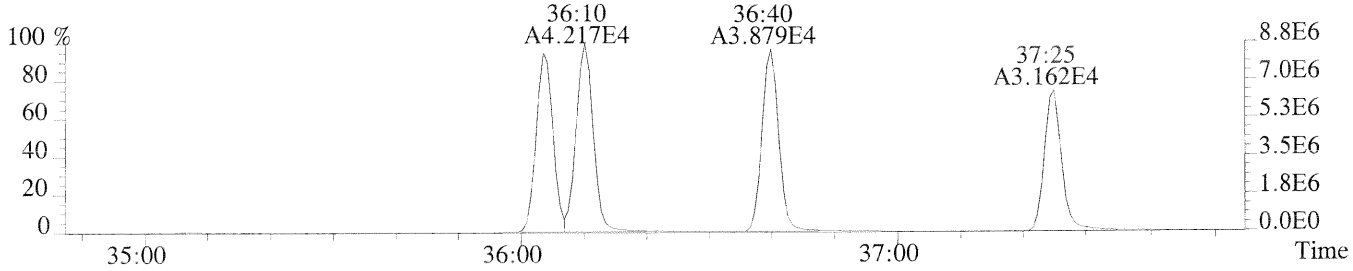
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1524.0,0.40%,F,T)



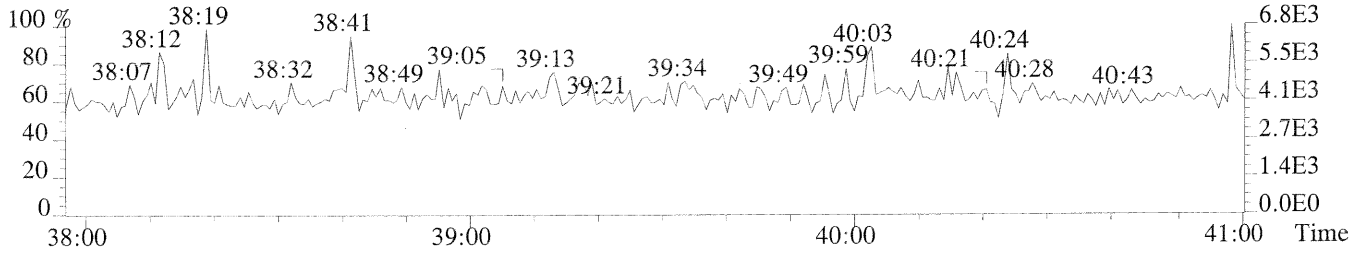
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



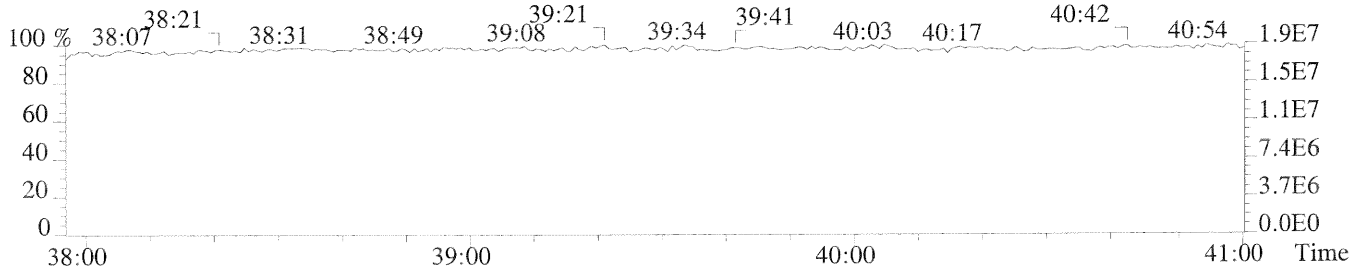
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



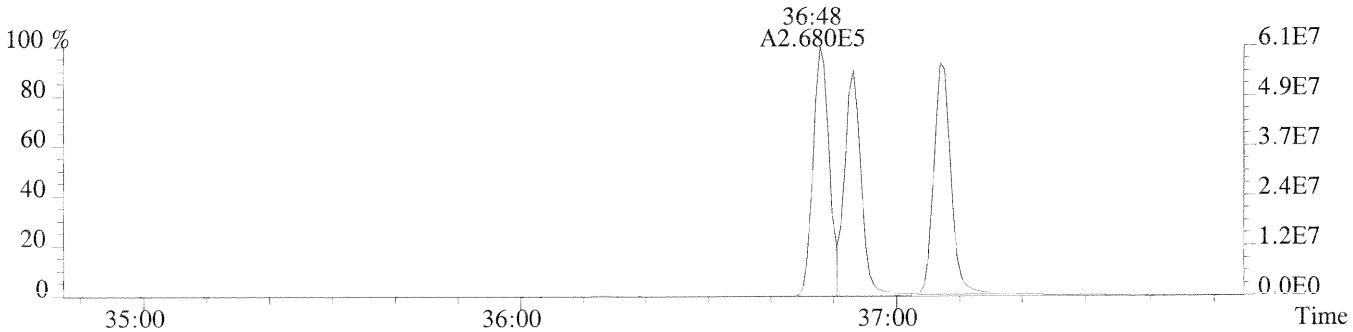
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



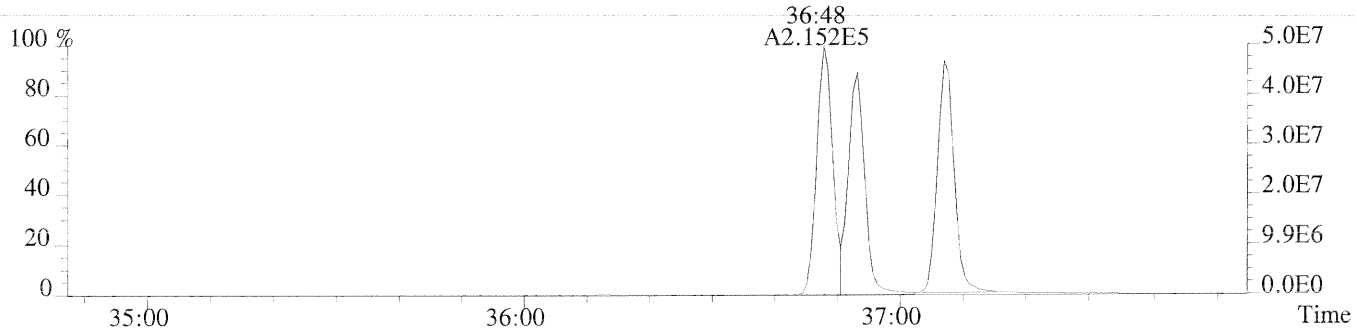
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



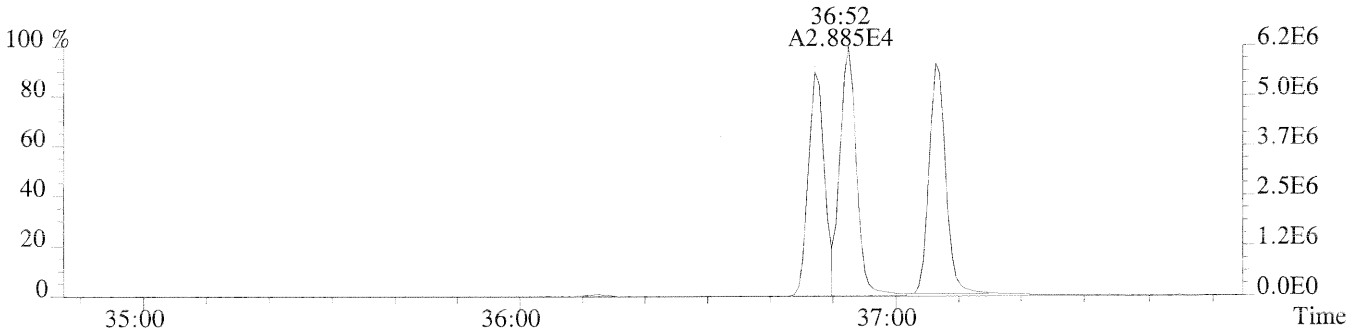
File:P174197 #1-284 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



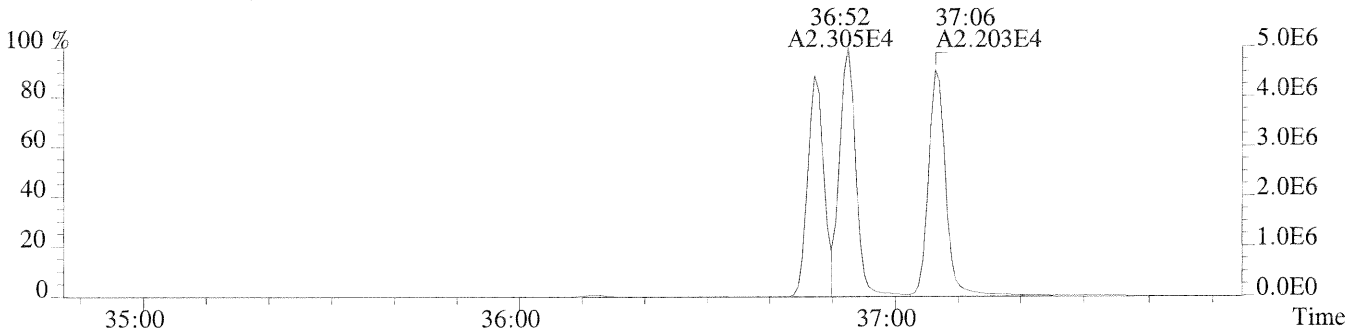
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



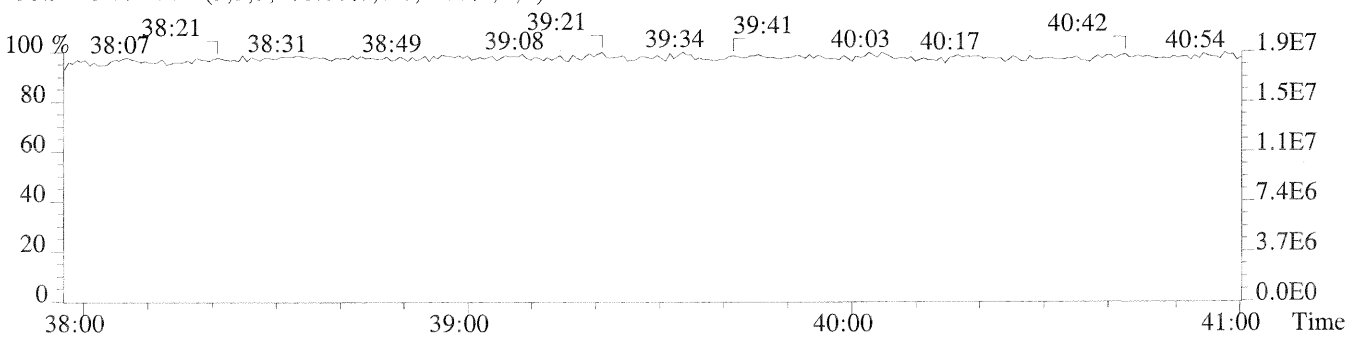
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1648.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.40%,F,T)

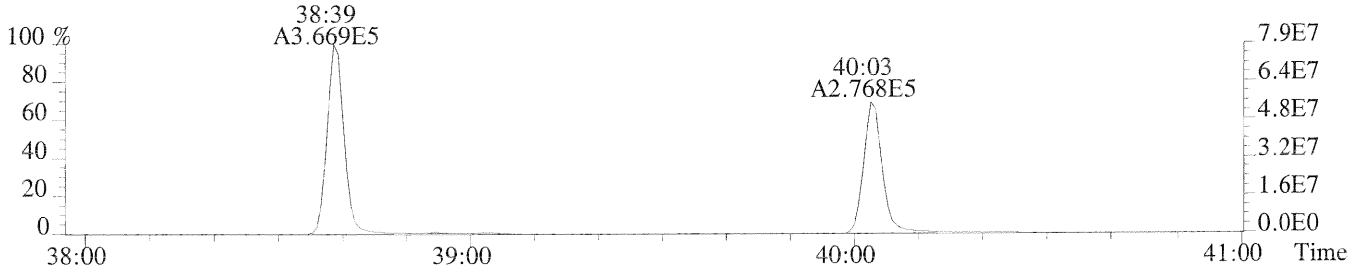


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

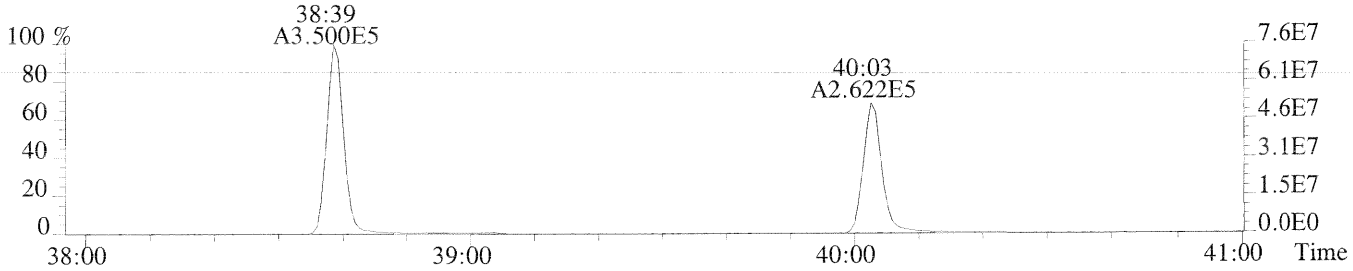


File:P174197 #1-278 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5

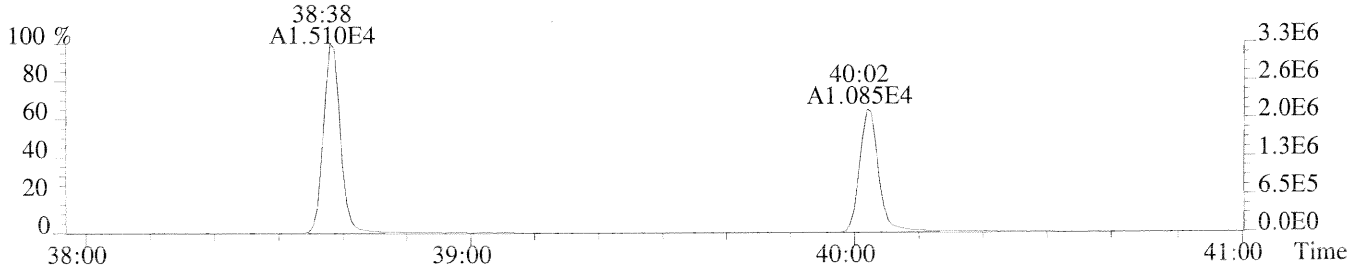
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,24440.0,0.50%,F,T)



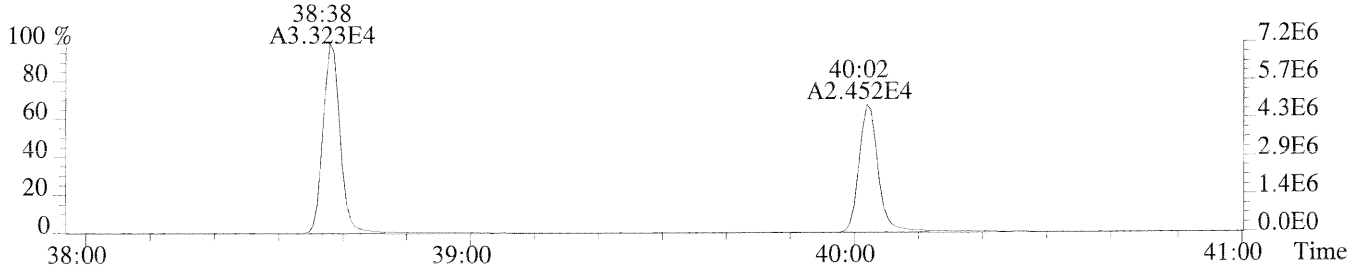
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,18588.0,0.50%,F,T)



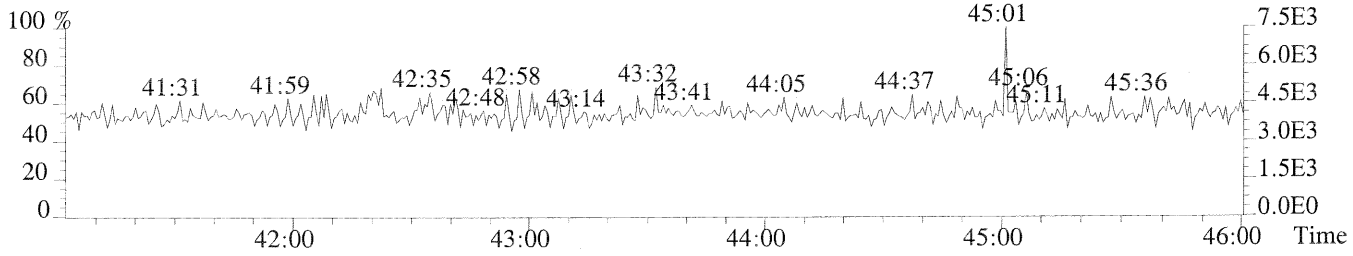
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.50%,F,T)



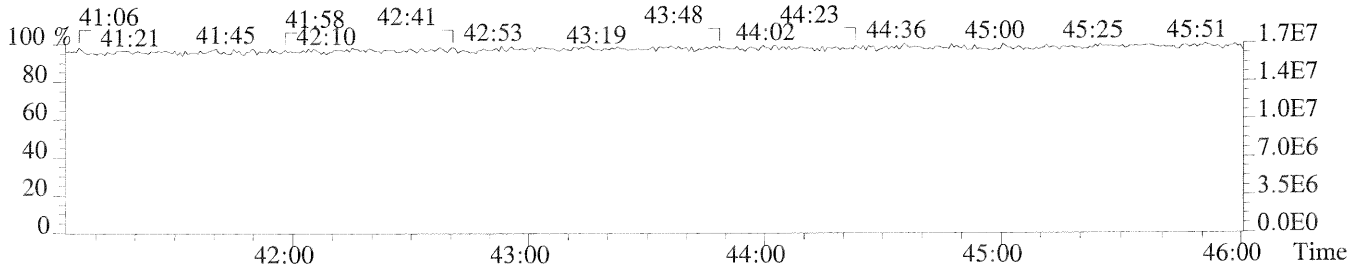
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.50%,F,T)



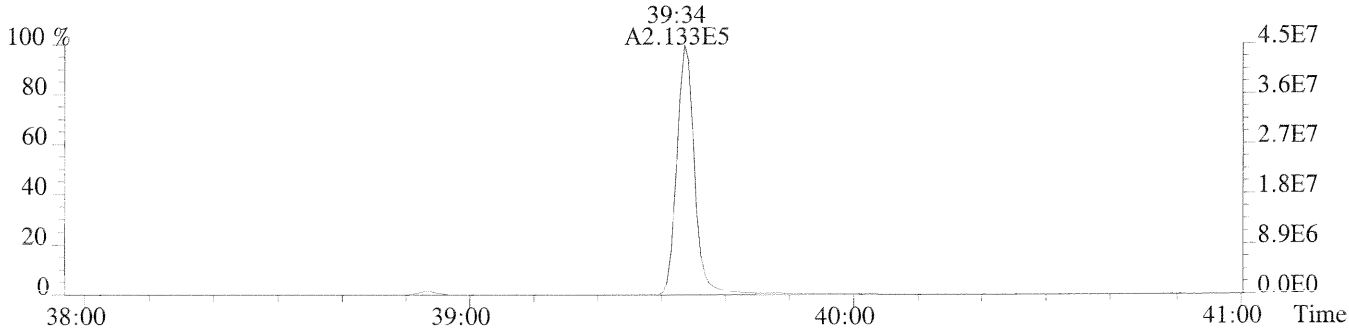
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



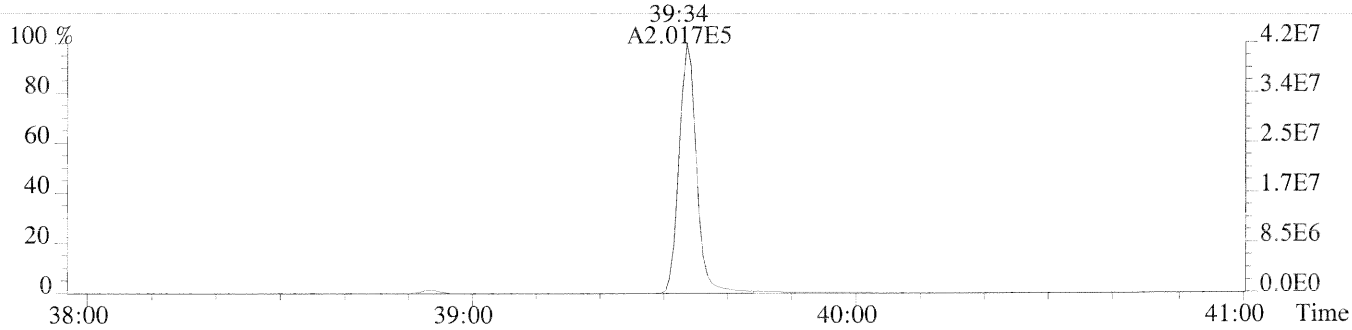
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



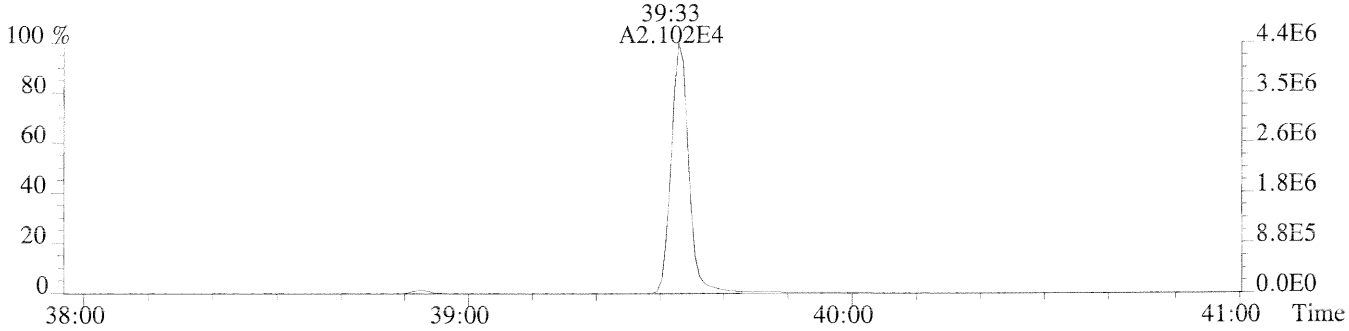
File:P174197 #1-278 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2260.0,0.40%,F,T)



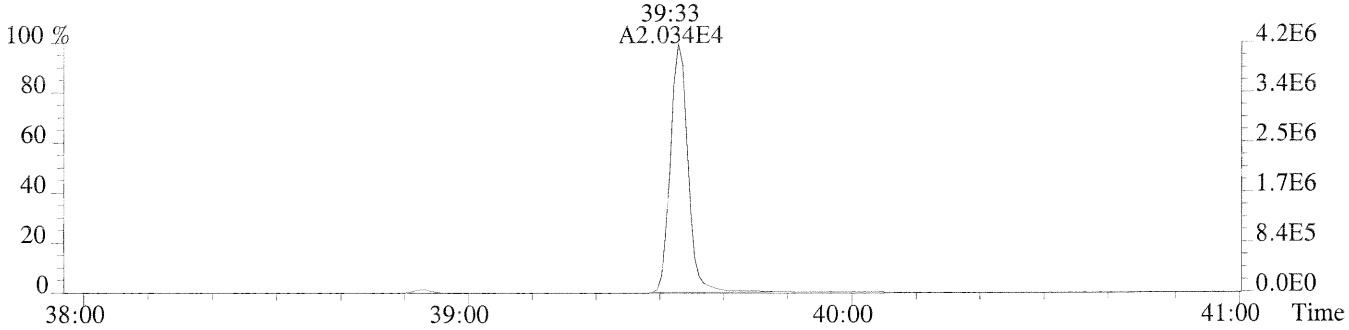
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2068.0,0.40%,F,T)



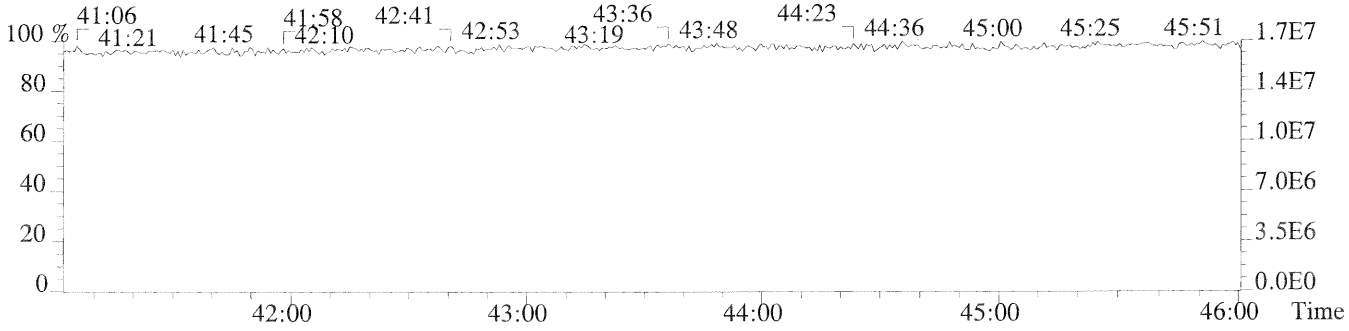
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



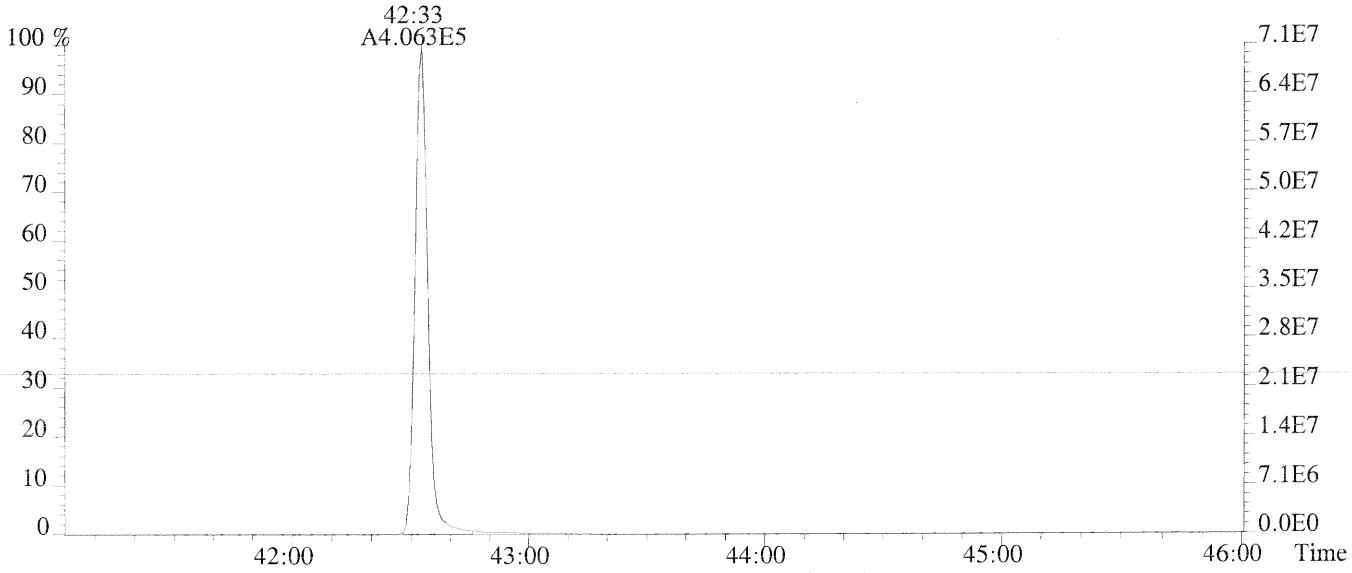
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



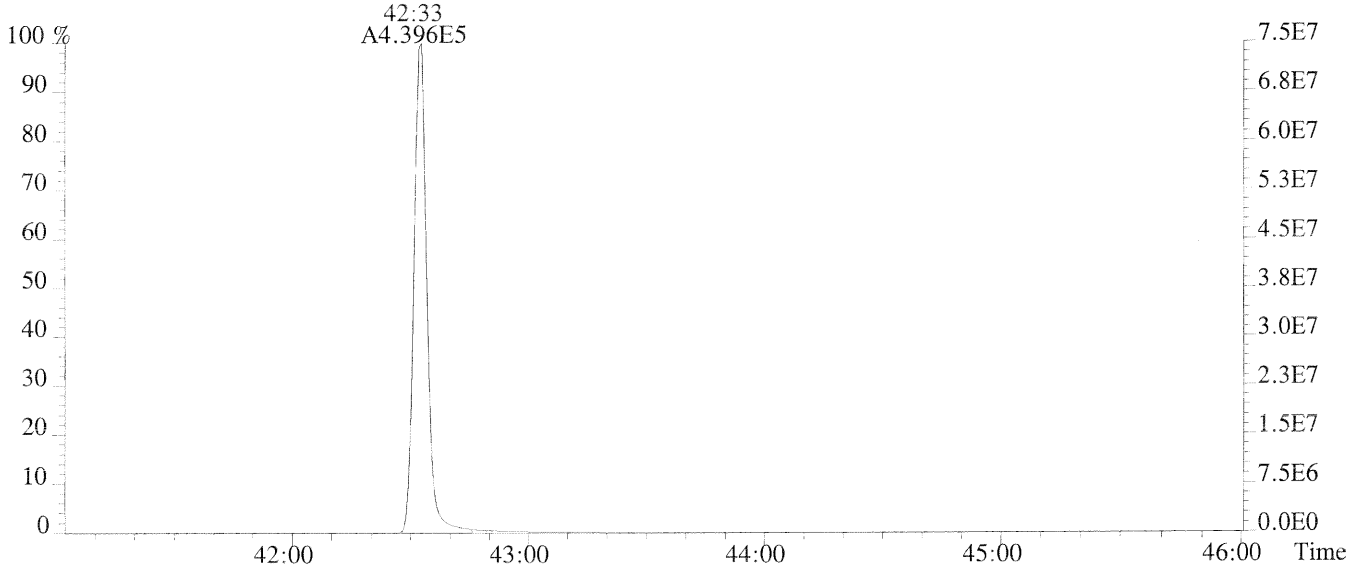
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



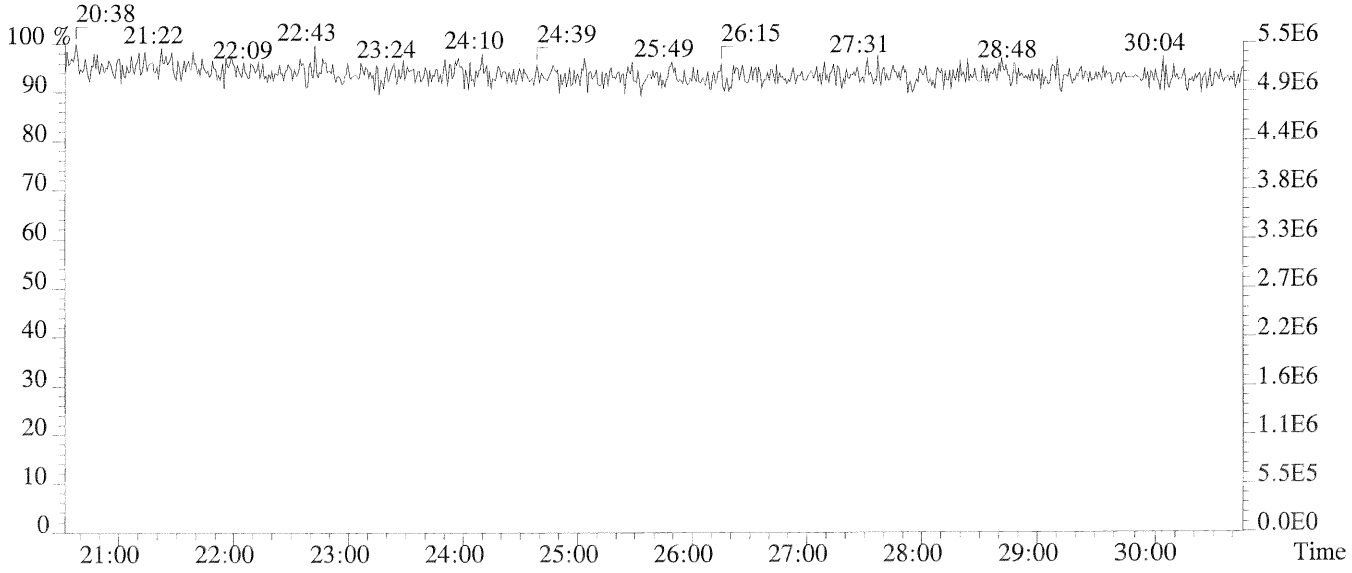
File:P174197 #1-457 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,868.0,0.40%,F,T)



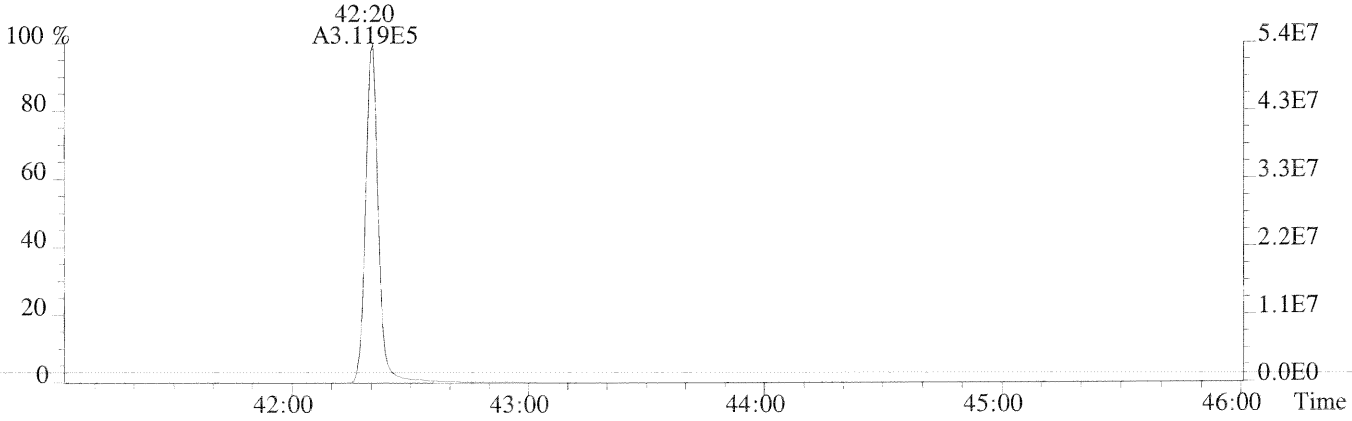
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,832.0,0.40%,F,T)



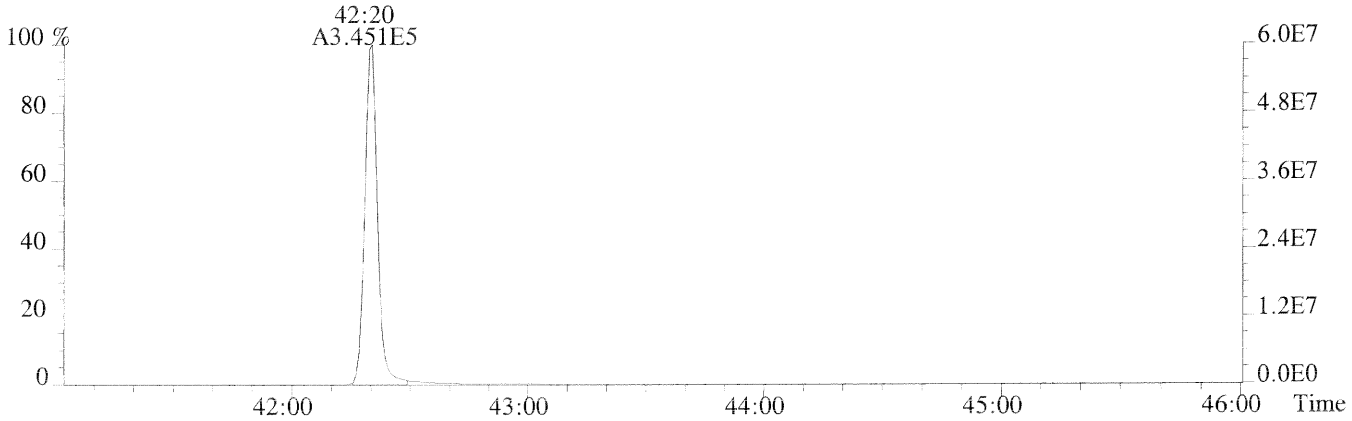
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



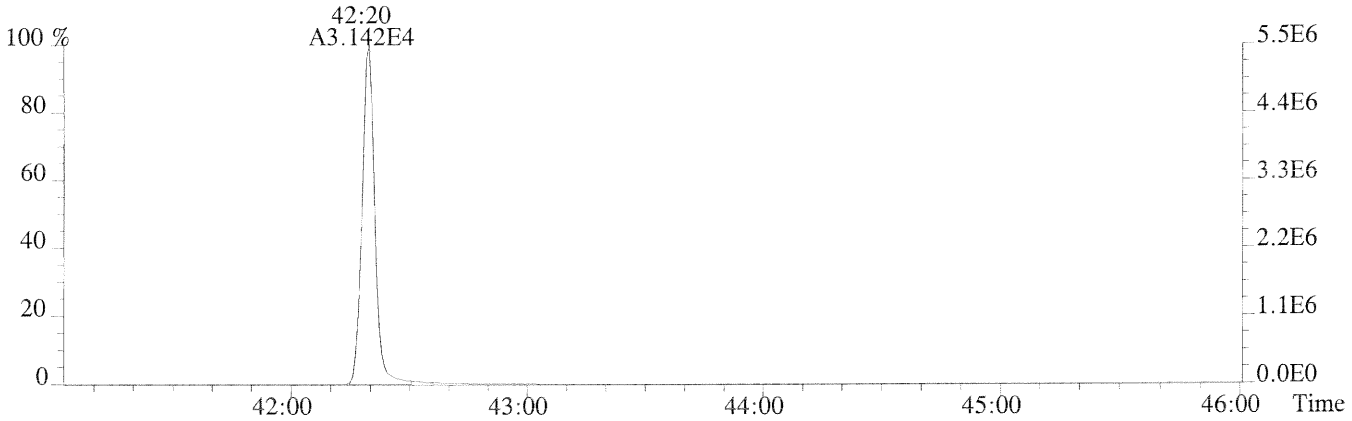
File:P174197 #1-457 Acq:18-OCT-2014 15:48:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



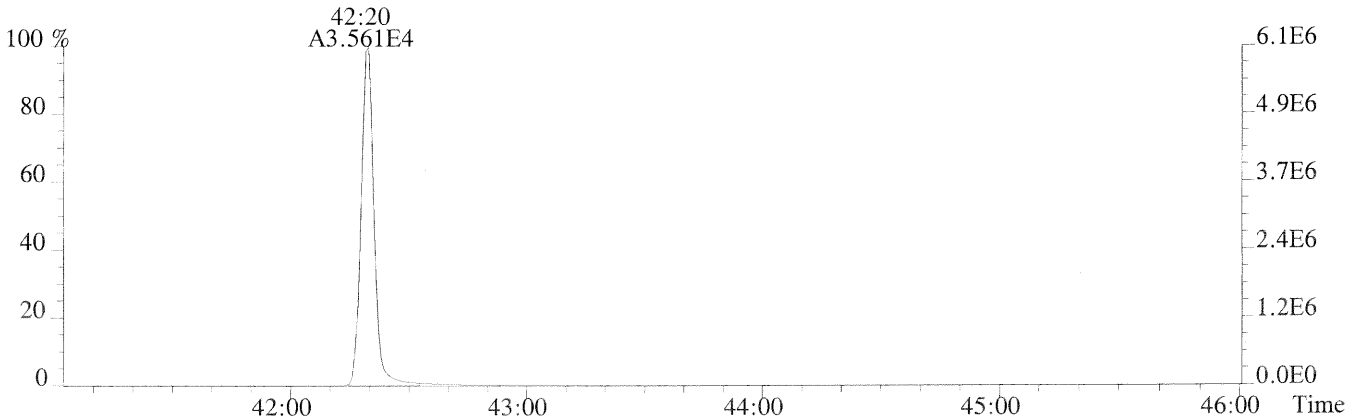
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,812.0,0.40%,F,T)



FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/18/14 METHOD M23

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P174198 Analysis Date: 18-OCT-14 Time: 17:24:05

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	0.99	1.00	-0.64
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	0.92	0.92	-0.25
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.96	0.90	6.77
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	1.01	1.00	1.55
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	1.02	1.02	-0.36
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	1.06	1.05	0.55
OCDD	M+2/M+4	0.89	0.76-1.02	1.11	1.07	4.16
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	0.95	0.95	0.42
1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	1.10	1.06	4.09
2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	1.01	1.04	-2.81
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	1.16	1.15	0.35
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	1.26	1.28	-1.54
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	0.94	0.96	-1.99
2,3,4,6,7,8-HxCDF	M+2/M+4	1.27	1.05-1.43	1.12	1.14	-1.81
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.06	0.88-1.20	1.57	1.53	2.52
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	1.19	1.15	4.11
OCDF	M+2/M+4	0.92	0.76-1.02	1.41	1.37	2.88

(1) See Table 3.4-2, Method 23, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 3.4-3, Method 23.

(3) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 25%(OCDF 30%), Table 3.4-5.

M23F4A

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 10/18/14 METHOD M23

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P174198 Analysis Date: 18-OCT-14 Time: 17:24:05

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
Internal Standards						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	0.91	0.92	-1.28
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	0.85	0.86	-2.16
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.99	0.97	1.78
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	0.84	0.87	-3.71
13C-OCDD	M+2/M+4	0.90	0.76-1.02	0.67	0.69	-3.01
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	1.26	1.29	-2.30
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	1.20	1.24	-2.81
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	1.37	1.30	4.86
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	0.98	1.04	-6.22
Surrogate Standards						
37Cl-2,3,7,8-TCDD				1.03	1.04	-0.97
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	0.97	0.99	-1.85
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.95	0.90	5.76
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	0.85	0.85	-0.13
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	0.81	0.78	3.53
Alternate Standard						
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	1.00	0.98	2.25

(1) See Table 12, Method M23A, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 19, Method M23A.

(3) %RSD for the Internal Standards must not exceed +/- 30%(25% for TCDD & HxCDD).
Surrogate & Alternate Standards must not exceed +/- 25%, Table 21, Method M23A.

M23F4BP

ALS ENVIRONMENTAL — CLIENT ID.
Method M23 — 2nd Src

Sample Response Summary

Run #13 Filename P174198 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 17:24:05
Processed: 20-OCT-14 09:41:35 LAB. ID: 54819

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:25	1.548e+04	1.950e+04	0.79	yes	no	0.946
2	Unk	1,2,3,7,8-PeCDF	32:33	1.201e+05	7.434e+04	1.62	yes	no	1.061
3	Unk	2,3,4,7,8-PeCDF	33:26	1.093e+05	6.804e+04	1.61	yes	no	1.036
4	Unk	1,2,3,4,7,8-HxCDF	36:04	9.374e+04	7.445e+04	1.26	yes	no	1.151
5	Unk	1,2,3,6,7,8-HxCDF	36:11	1.026e+05	8.116e+04	1.26	yes	no	1.282
6	Unk	2,3,4,6,7,8-HxCDF	36:41	9.125e+04	7.183e+04	1.27	yes	no	1.141
7	Unk	1,2,3,7,8,9-HxCDF	37:26	7.645e+04	6.012e+04	1.27	yes	no	0.957
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	8.417e+04	7.971e+04	1.06	yes	no	1.535
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	6.375e+04	6.074e+04	1.05	yes	no	1.148
10	Unk	OCDF	42:33	9.584e+04	1.038e+05	0.92	yes	no	1.369
11	Unk	2,3,7,8-TCDD	29:11	1.149e+04	1.498e+04	0.77	yes	no	0.998
12	Unk	1,2,3,7,8-PeCDD	33:43	6.910e+04	4.436e+04	1.56	yes	no	0.918
13	Unk	1,2,3,4,7,8-HxCDD	36:48	5.615e+04	4.541e+04	1.24	yes	no	0.904
14	Unk	1,2,3,6,7,8-HxCDD	36:53	5.914e+04	4.721e+04	1.25	yes	no	0.995
15	Unk	1,2,3,7,8,9-HxCDD	37:07	5.873e+04	4.817e+04	1.22	yes	no	1.019
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	4.855e+04	4.620e+04	1.05	yes	no	1.052
17	Unk	OCDD	42:20	7.426e+04	8.333e+04	0.89	yes	no	1.068
18	IS	13C-2,3,7,8-TCDF	28:24	1.609e+05	2.074e+05	0.78	yes	no	1.287
19	IS	13C-1,2,3,7,8-PeCDF	32:32	2.146e+05	1.376e+05	1.56	yes	no	1.238
20	SS	13C-2,3,4,7,8-PeCDF	33:26	2.084e+05	1.330e+05	1.57	yes	no	0.987
21	SS	13C-1,2,3,4,7,8-HxCDF	36:04	8.495e+04	1.616e+05	0.53	yes	no	0.848
22	IS	13C-1,2,3,6,7,8-HxCDF	36:10	1.004e+05	1.907e+05	0.53	yes	no	1.305
24	ALT	13C-1,2,3,7,8,9-HxCDF	37:25	7.323e+04	1.391e+05	0.53	yes	no	0.976
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	6.525e+04	1.431e+05	0.46	yes	no	1.044
26	SS	13C-1,2,3,4,7,8,9-HpCDF	40:02	5.267e+04	1.165e+05	0.45	yes	no	0.784
27	IS	13C-2,3,7,8-TCDD	29:10	1.171e+05	1.500e+05	0.78	yes	no	0.924
28	IS	13C-1,2,3,7,8-PeCDD	33:42	1.511e+05	9.667e+04	1.56	yes	no	0.865
29	SS	13C-1,2,3,4,7,8-HxCDD	36:47	1.109e+05	8.838e+04	1.26	yes	no	0.895
30	IS	13C-1,2,3,6,7,8-HxCDD	36:53	1.175e+05	9.297e+04	1.26	yes	no	0.972
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	9.202e+04	8.713e+04	1.06	yes	no	0.874
32	IS	13C-OCDD	42:20	1.342e+05	1.493e+05	0.90	yes	no	0.687
33	S/RT	13C-1,2,3,4-TCDD	28:36	1.286e+05	1.642e+05	0.78	yes	no	-
34	S/RT	13C-1,2,3,7,8,9-HxCDD	37:06	1.183e+05	9.454e+04	1.25	yes	no	-
35	SS	37Cl-2,3,7,8-TCDD	29:11	2.745e+04				no	1.038

$$\text{OCDD} = \frac{(7.426e+04 + 8.333e+04 \times (200.0)) \times 1}{(1.342e+05 + 1.493e+05) \times 1.068 \times 1.000} = \text{pg}$$

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ALS Form TO9resp.frm

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
2nd Src

Method M23

Run #13 Filename P174198 #1 Samp: 1 Inj: 1 Acquired: 18-OCT-14 17:24:05
Processed: 20-OCT-14 09:41:35 LAB. ID: 54819

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.56e+06	7.60e+02	3.4e+03	3.27e+06	9.40e+02	3.5e+03
2	1,2,3,7,8-PeCDF	2.25e+07	3.68e+03	6.1e+03	1.40e+07	2.48e+03	5.6e+03
3	2,3,4,7,8-PeCDF	2.16e+07	3.68e+03	5.9e+03	1.35e+07	2.48e+03	5.4e+03
4	1,2,3,4,7,8-HxCDF	2.00e+07	3.05e+03	6.6e+03	1.59e+07	2.30e+03	6.9e+03
5	1,2,3,6,7,8-HxCDF	2.16e+07	3.05e+03	7.1e+03	1.70e+07	2.30e+03	7.4e+03
6	2,3,4,6,7,8-HxCDF	2.00e+07	3.05e+03	6.6e+03	1.57e+07	2.30e+03	6.8e+03
7	1,2,3,7,8,9-HxCDF	1.54e+07	3.05e+03	5.1e+03	1.21e+07	2.30e+03	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	1.77e+07	6.90e+03	2.6e+03	1.70e+07	6.37e+03	2.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.22e+07	6.90e+03	1.8e+03	1.15e+07	6.37e+03	1.8e+03
10	OCDF	1.62e+07	1.32e+03	1.2e+04	1.72e+07	1.51e+03	1.1e+04
11	2,3,7,8-TCDD	2.09e+06	7.24e+02	2.9e+03	2.70e+06	9.72e+02	2.8e+03
12	1,2,3,7,8-PeCDD	1.35e+07	1.53e+03	8.8e+03	8.59e+06	8.72e+02	9.8e+03
13	1,2,3,4,7,8-HxCDD	1.27e+07	2.28e+03	5.6e+03	1.03e+07	1.68e+03	6.2e+03
14	1,2,3,6,7,8-HxCDD	1.25e+07	2.28e+03	5.5e+03	1.01e+07	1.68e+03	6.0e+03
15	1,2,3,7,8,9-HxCDD	1.21e+07	2.28e+03	5.3e+03	9.80e+06	1.68e+03	5.8e+03
16	1,2,3,4,6,7,8-HpCDD	9.78e+06	1.30e+03	7.5e+03	9.36e+06	1.13e+03	8.3e+03
17	OCDD	1.27e+07	1.18e+03	1.1e+04	1.43e+07	1.24e+03	1.2e+04
18	13C-2,3,7,8-TCDF	2.73e+07	2.46e+03	1.1e+04	3.52e+07	1.05e+03	3.3e+04
19	13C-1,2,3,7,8-PeCDF	3.96e+07	1.41e+03	2.8e+04	2.53e+07	1.37e+03	1.8e+04
20	13C-2,3,4,7,8-PeCDF	4.09e+07	1.41e+03	2.9e+04	2.61e+07	1.37e+03	1.9e+04
21	13C-1,2,3,4,7,8-HxCDF	1.82e+07	7.32e+02	2.5e+04	3.47e+07	2.14e+03	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	2.11e+07	7.32e+02	2.9e+04	4.00e+07	2.14e+03	1.9e+04
24	13C-1,2,3,7,8,9-HxCDF	1.47e+07	7.32e+02	2.0e+04	2.80e+07	2.14e+03	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.36e+07	4.46e+03	3.0e+03	3.00e+07	8.11e+03	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	9.98e+06	4.46e+03	2.2e+03	2.23e+07	8.11e+03	2.7e+03
27	13C-2,3,7,8-TCDD	2.07e+07	3.18e+03	6.5e+03	2.66e+07	1.97e+03	1.3e+04
28	13C-1,2,3,7,8-PeCDD	2.88e+07	1.19e+03	2.4e+04	1.86e+07	7.88e+02	2.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.49e+07	1.82e+03	1.4e+04	2.01e+07	1.24e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	2.46e+07	1.82e+03	1.4e+04	1.96e+07	1.24e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.86e+07	1.32e+03	1.4e+04	1.78e+07	1.02e+03	1.7e+04
32	13C-OCDD	2.30e+07	5.96e+02	3.9e+04	2.55e+07	8.36e+02	3.1e+04
33	13C-1,2,3,4-TCDD	2.34e+07	3.18e+03	7.4e+03	2.97e+07	1.97e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	2.42e+07	1.82e+03	1.3e+04	1.95e+07	1.24e+03	1.6e+04
35	37Cl-2,3,7,8-TCDD	4.91e+06	1.18e+03	4.2e+03			

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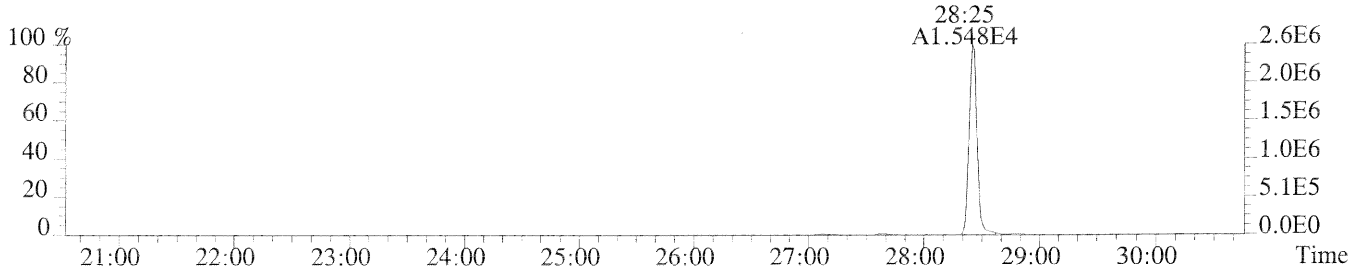
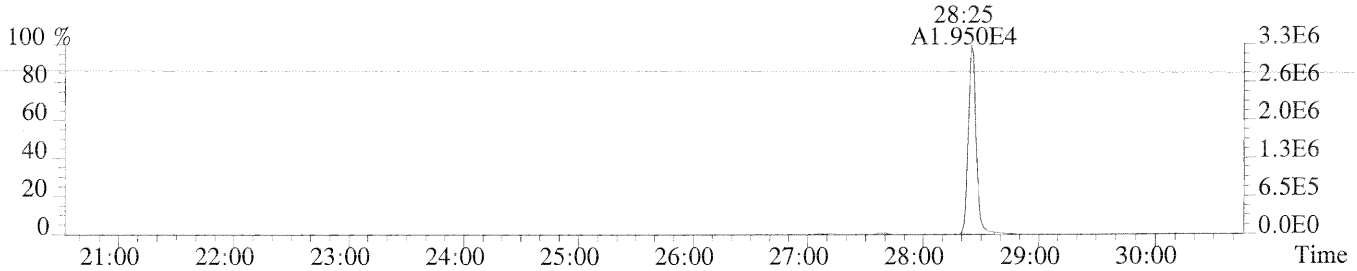
ALS Form TO-9SN/M23SN.FRM

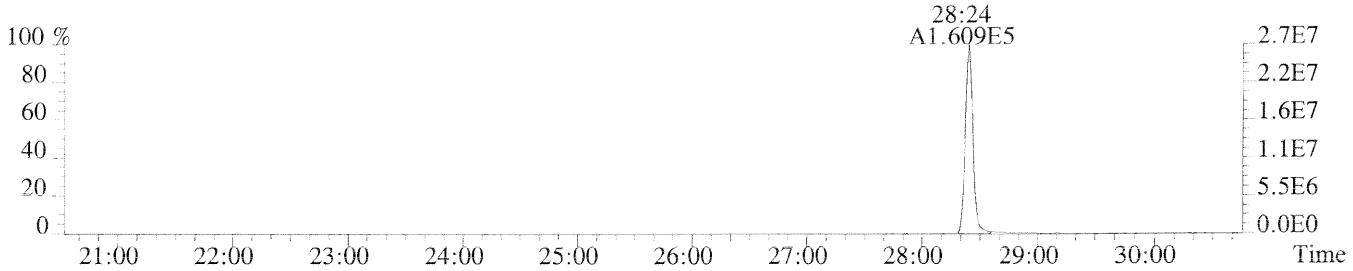
File:P174198 #1-788 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



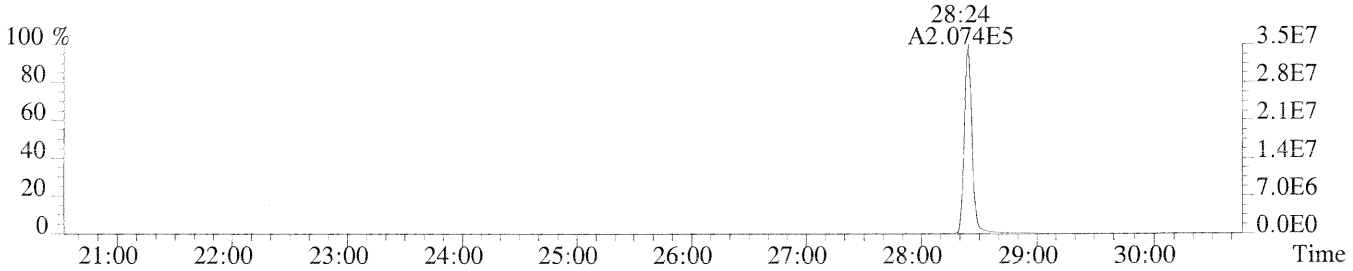
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



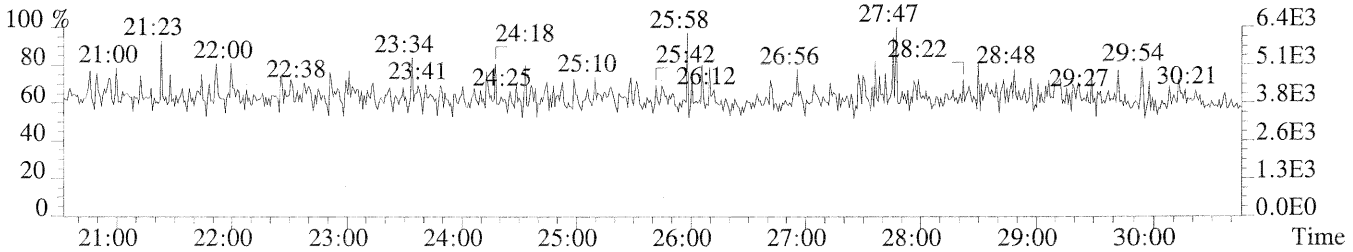
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



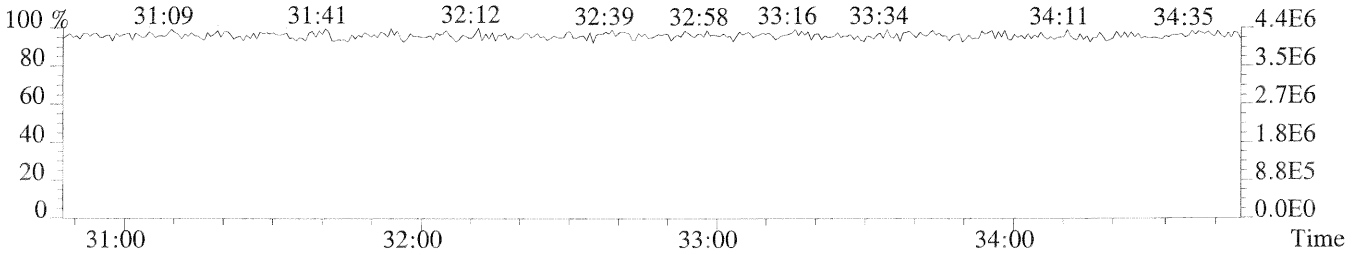
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



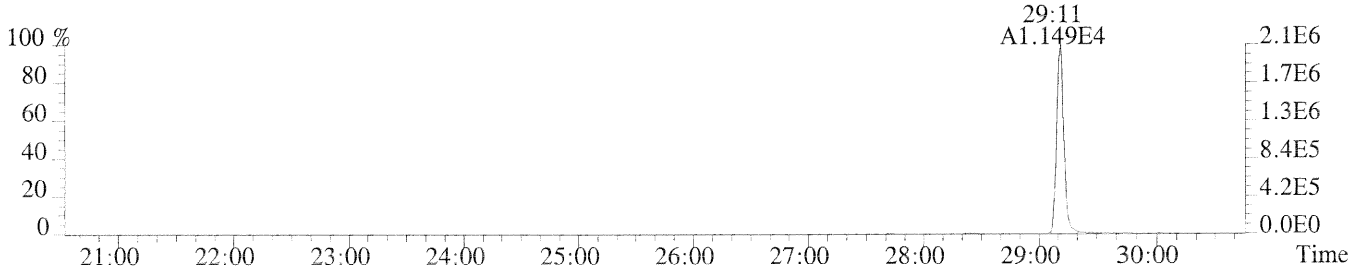
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



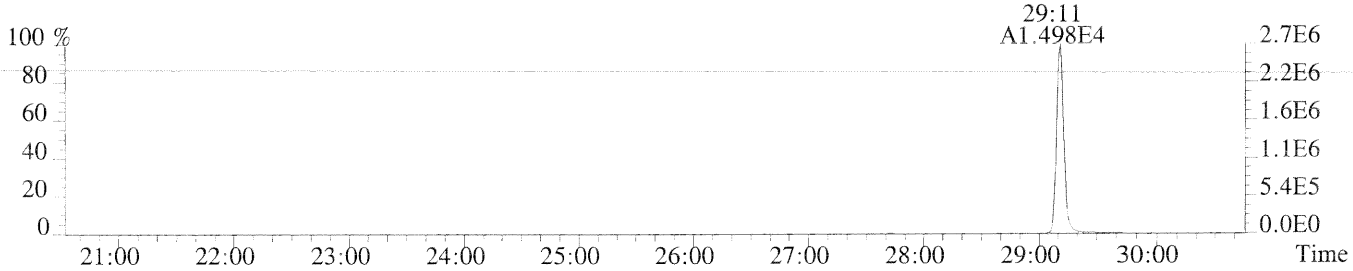
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



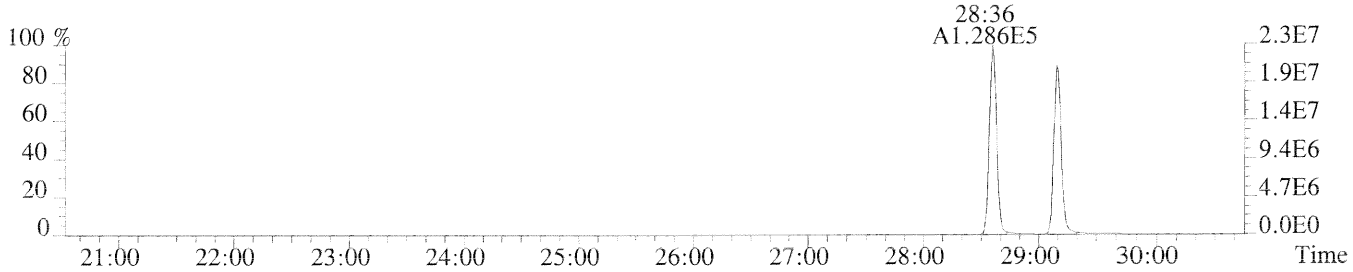
File:P174198 #1-788 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



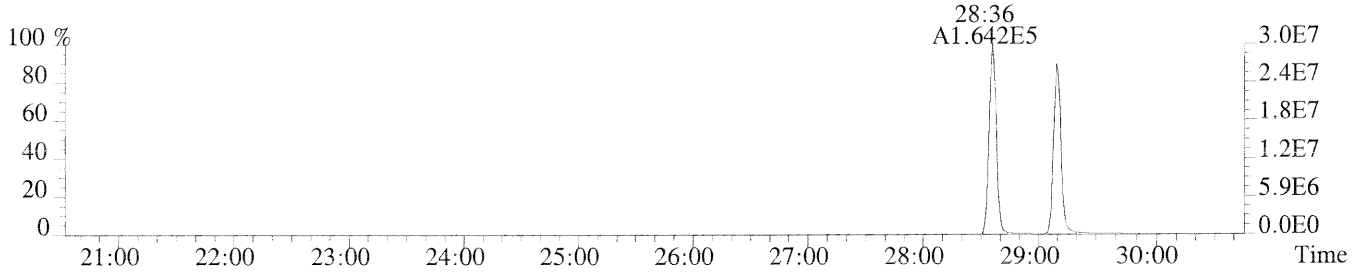
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



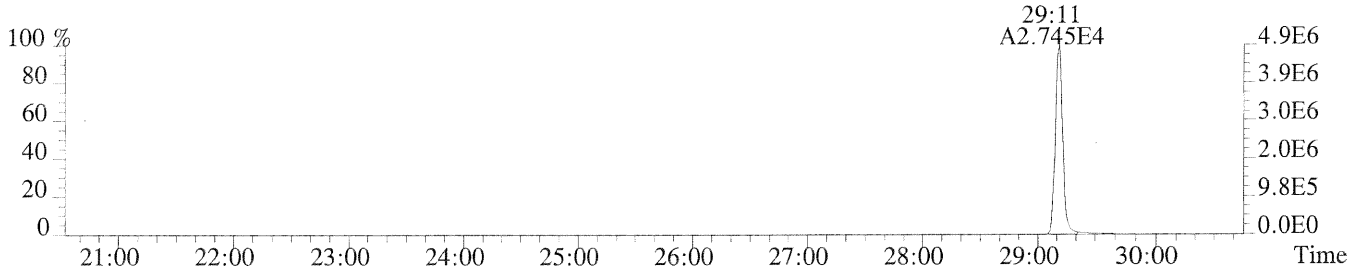
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3180.0,1.00%,F,T)



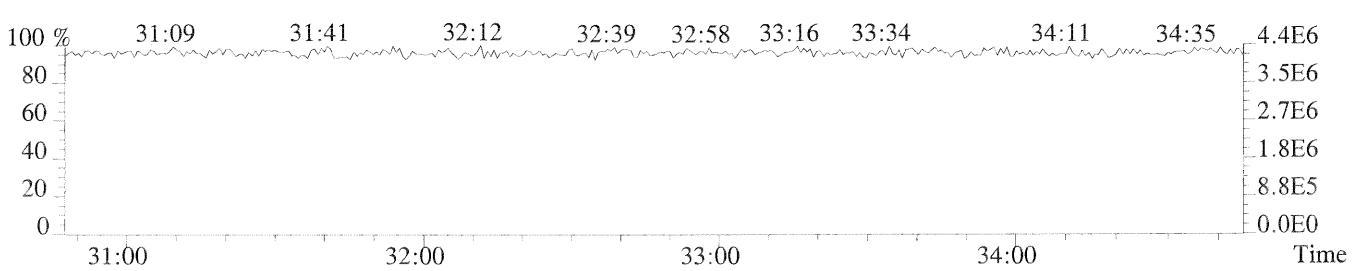
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



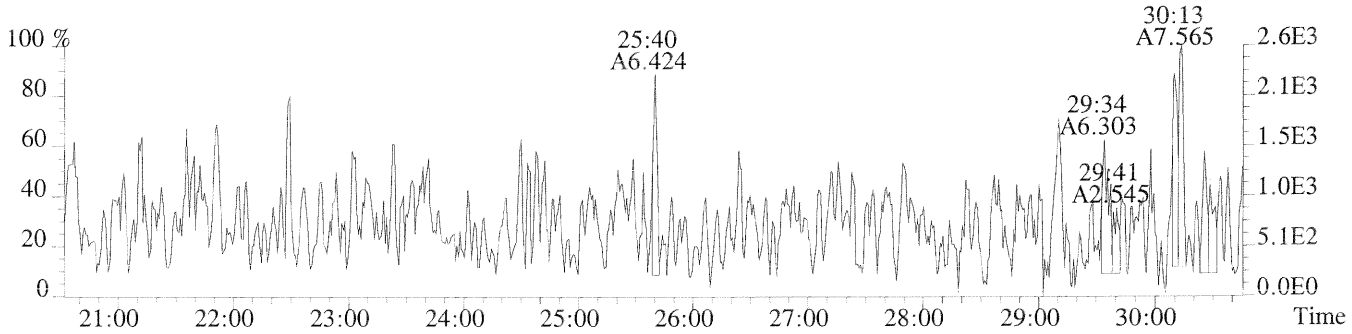
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



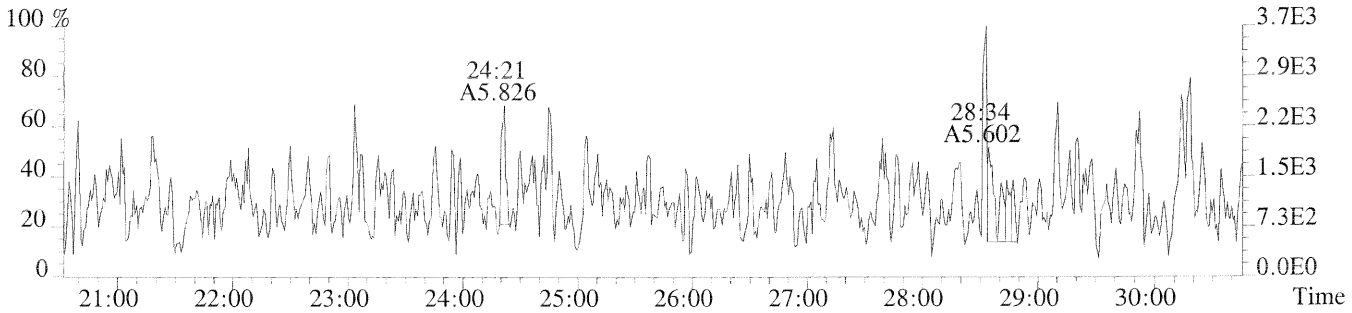
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



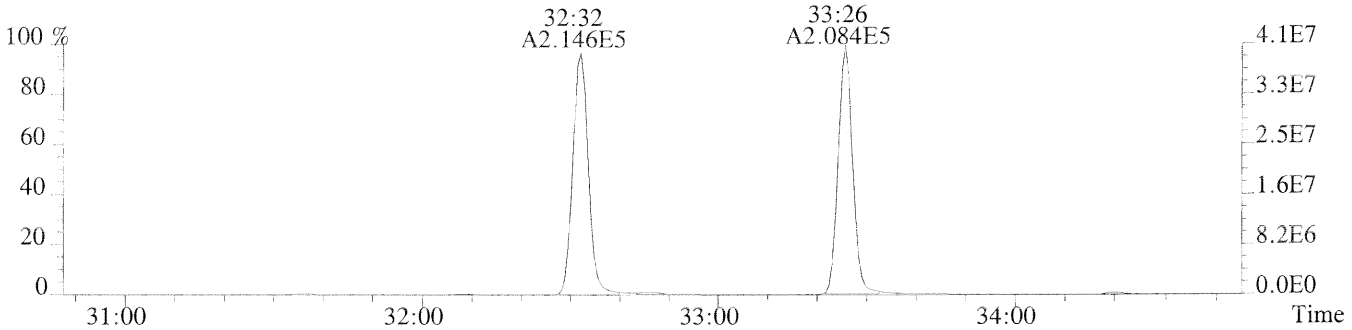
File:P174198 #1-788 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



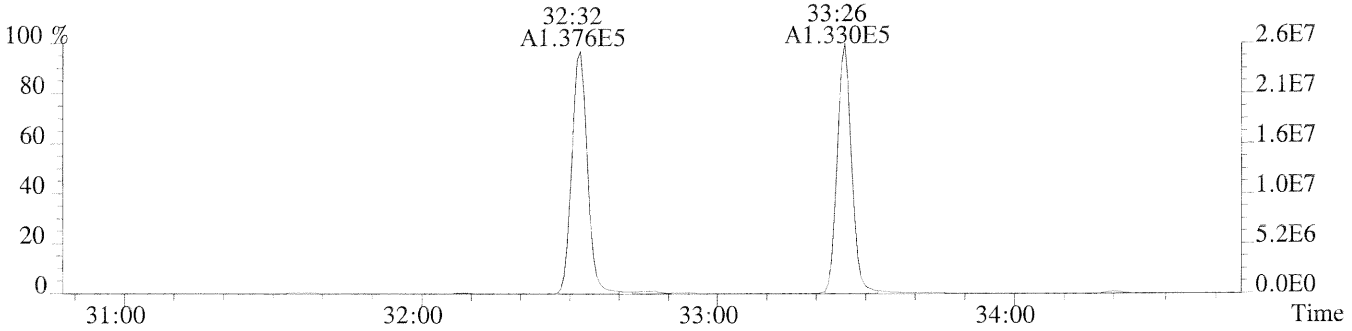
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



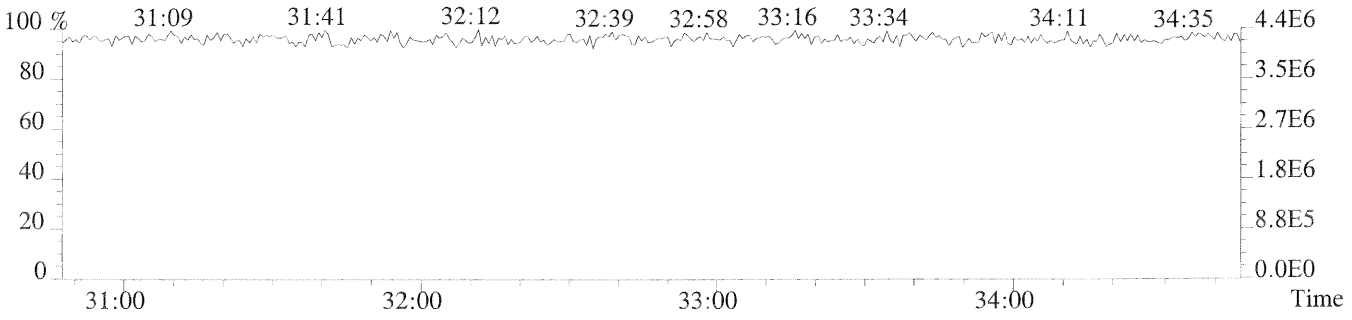
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)

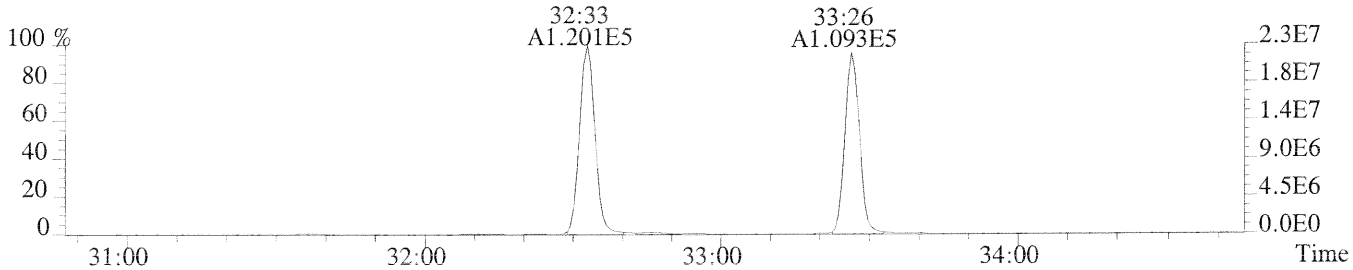


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

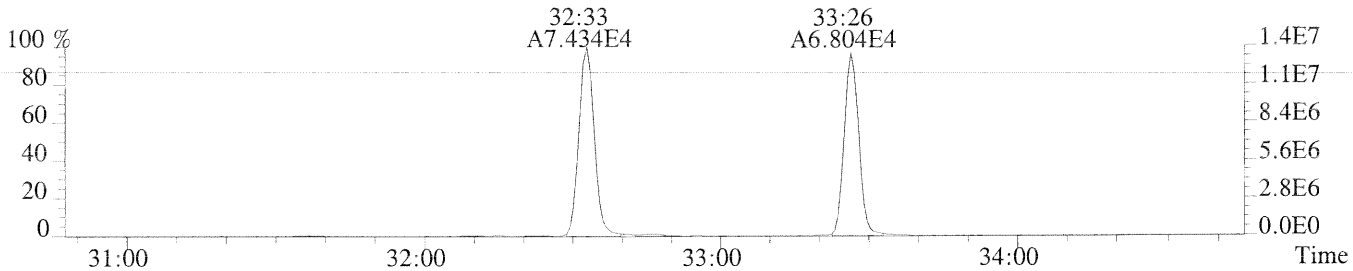


File:P174198 #1-360 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

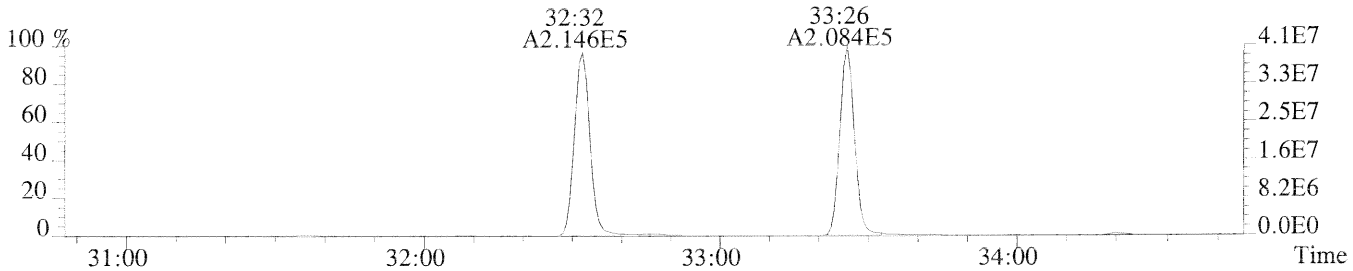
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3676.0,1.00%,F,T)



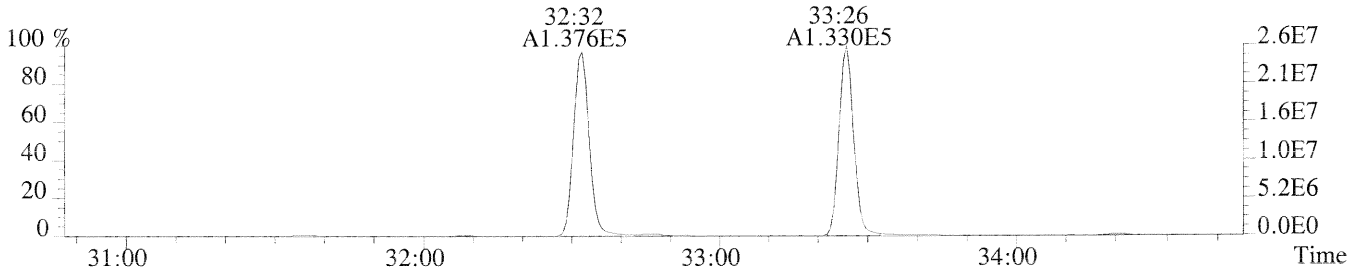
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



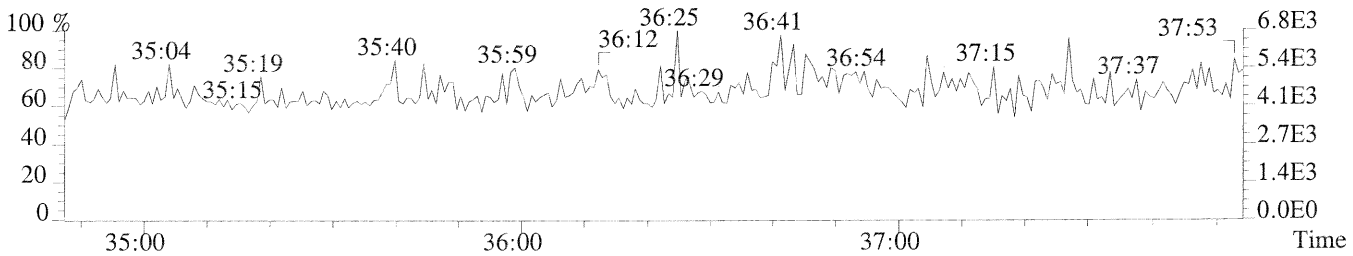
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



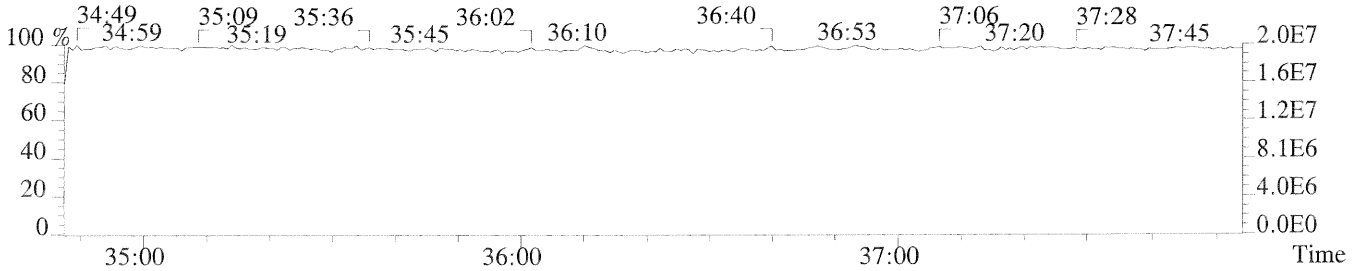
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



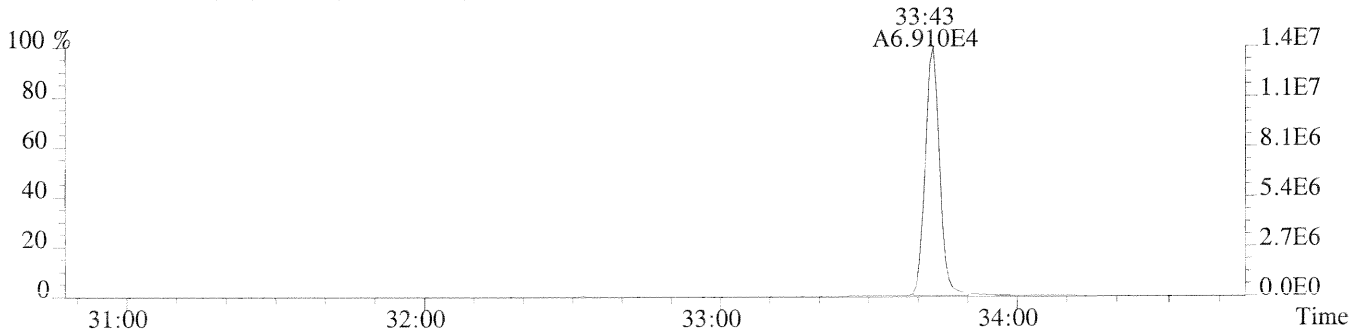
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



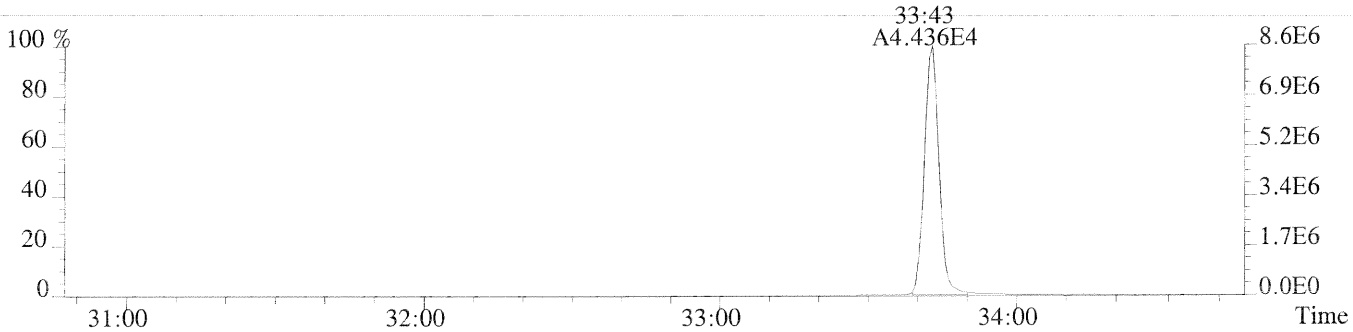
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



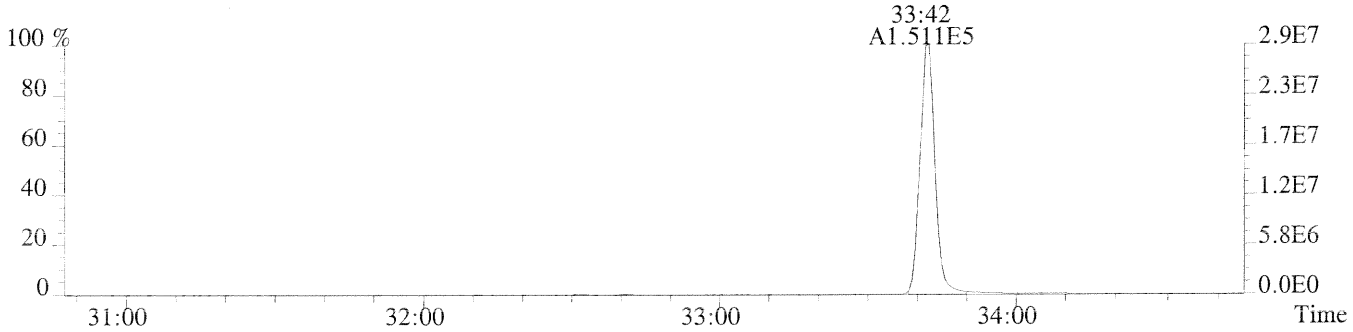
File:P174198 #1-360 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



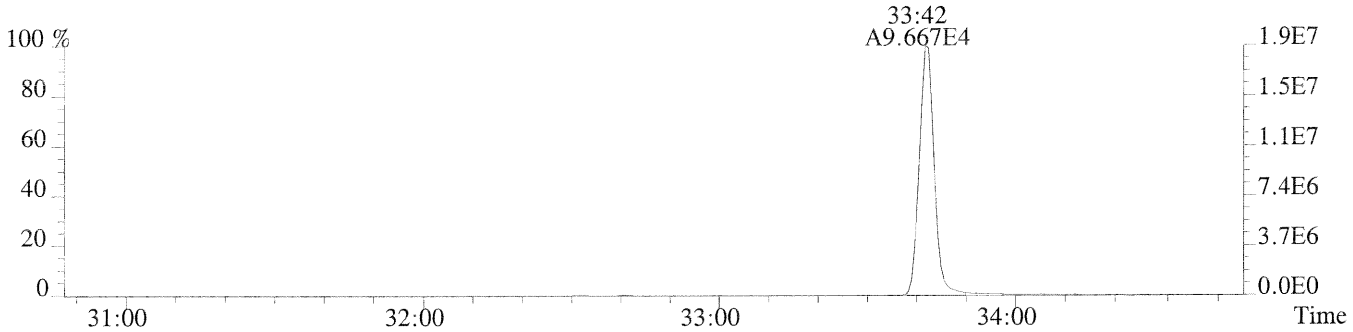
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



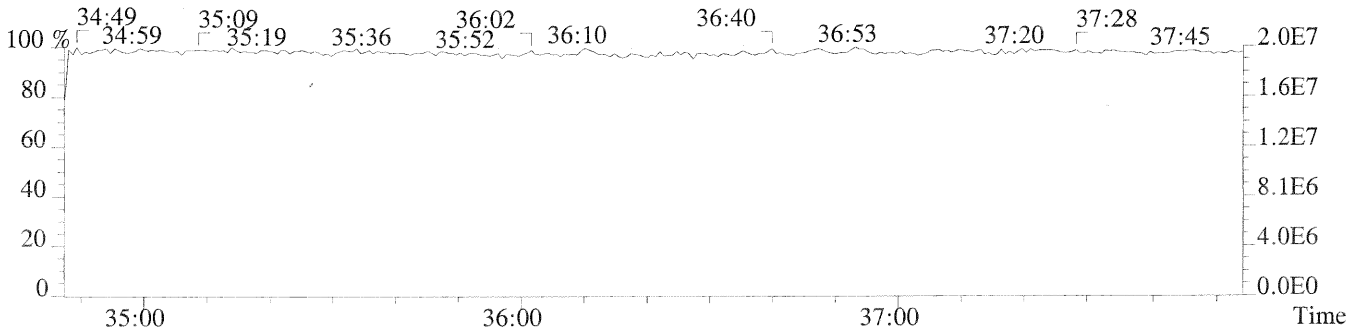
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



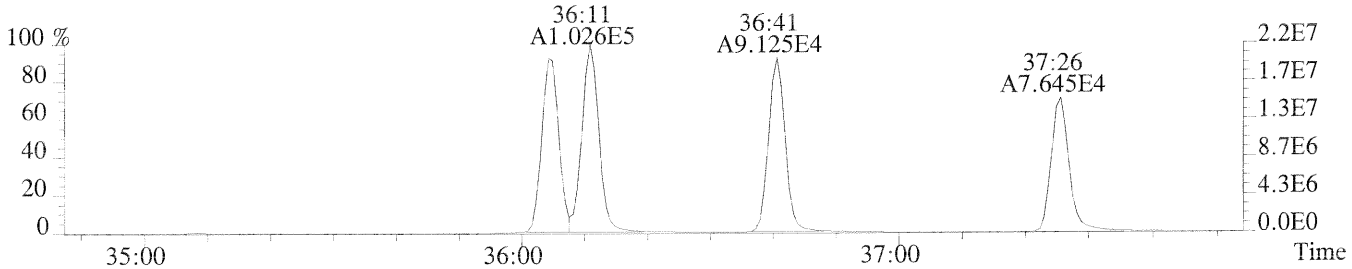
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



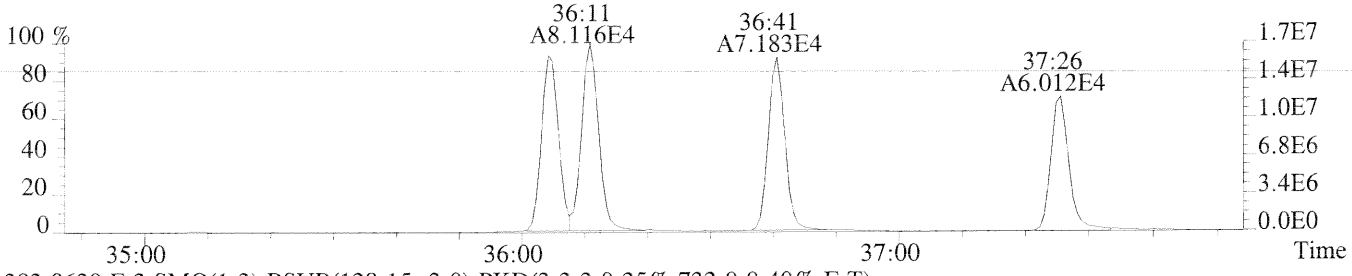
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



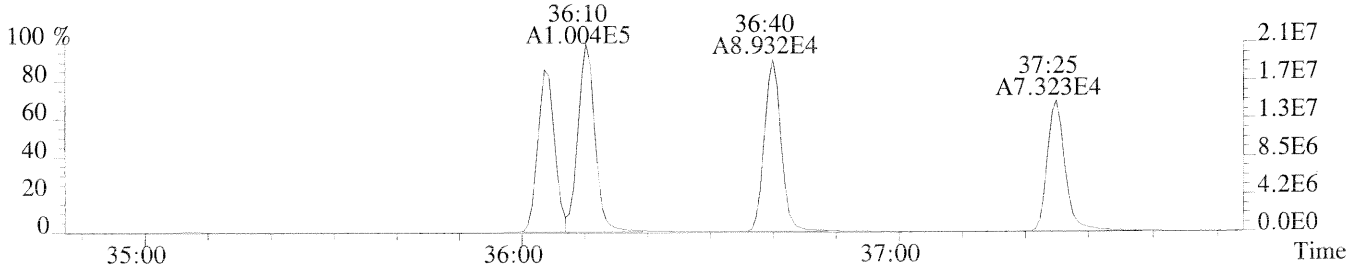
File:P174198 #1-283 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3048.0,0.40%,F,T)



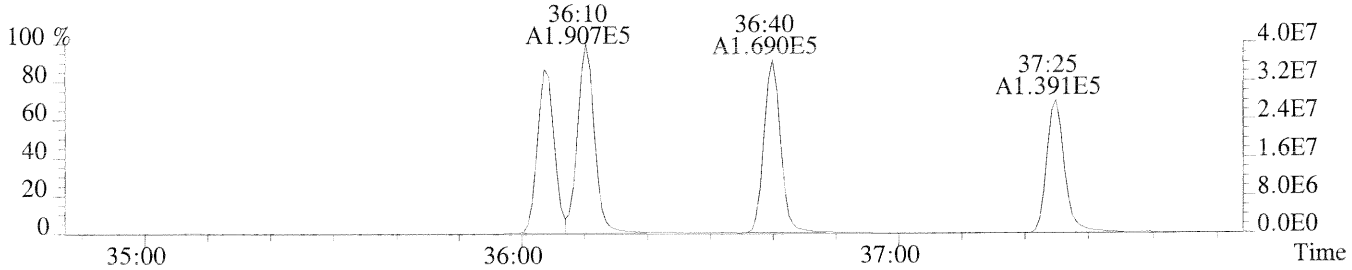
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2296.0,0.40%,F,T)



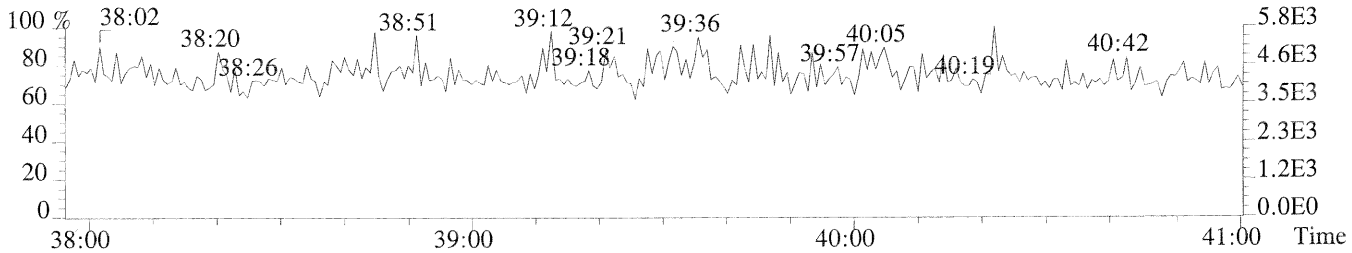
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



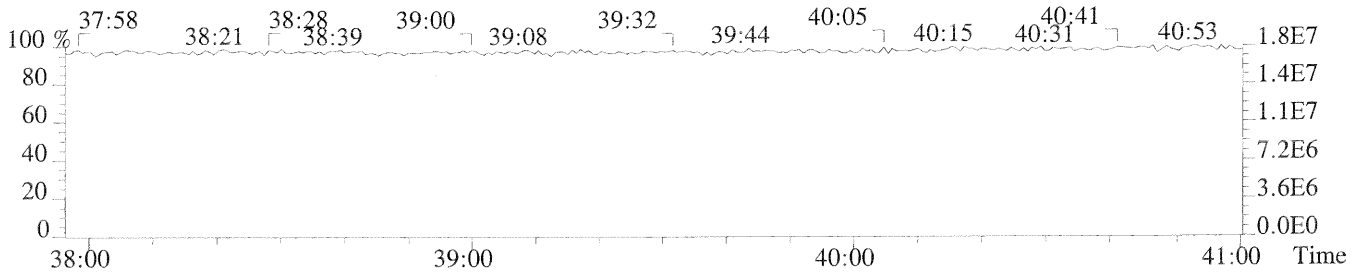
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2136.0,0.40%,F,T)



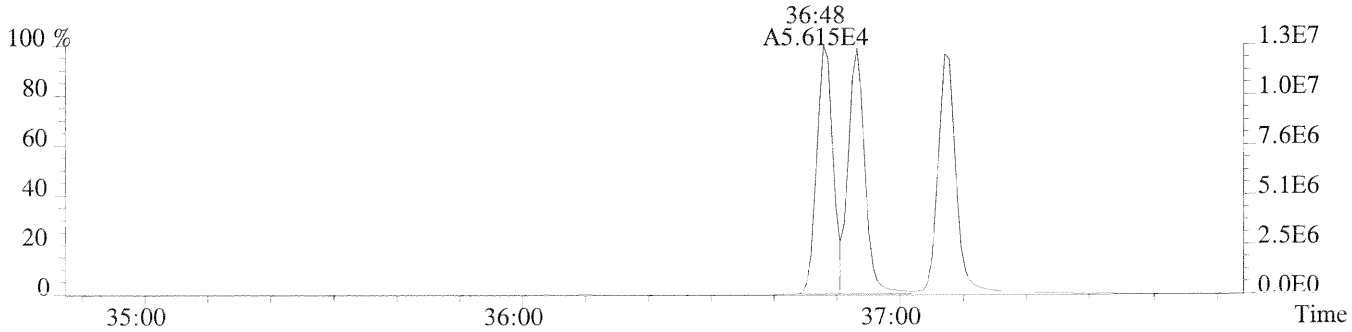
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



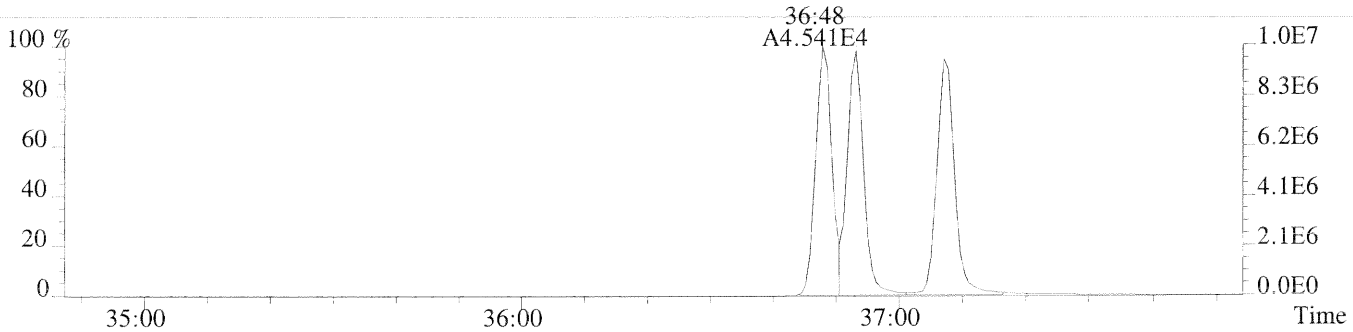
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



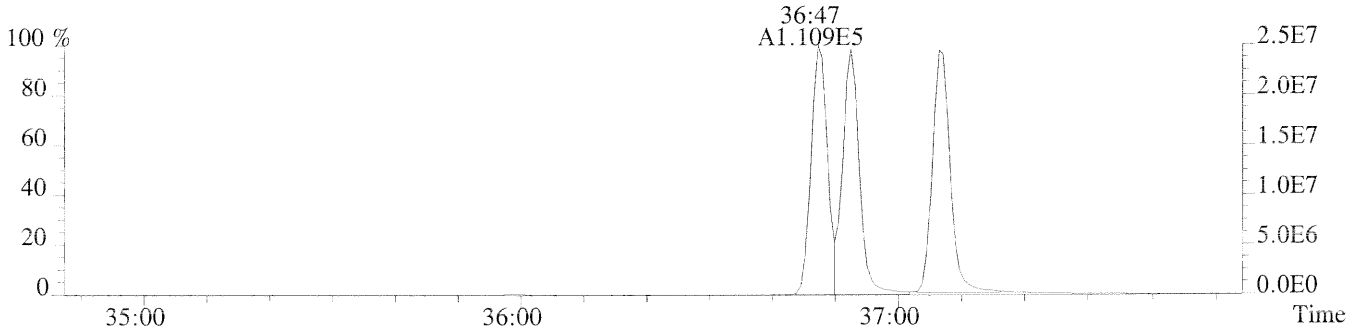
File:P174198 #1-283 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.40%,F,T)



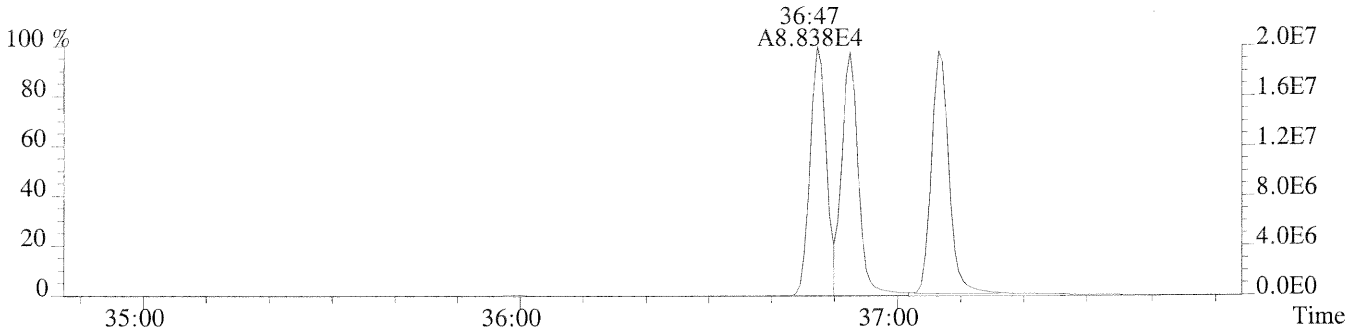
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



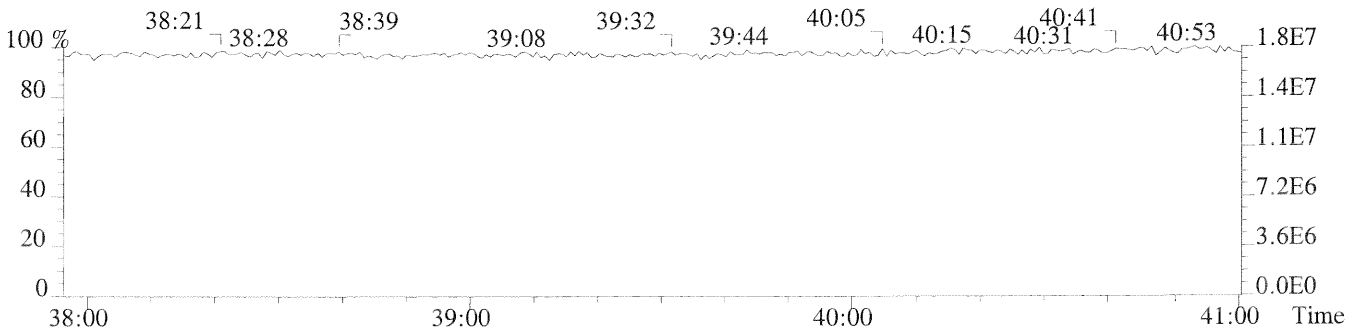
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)

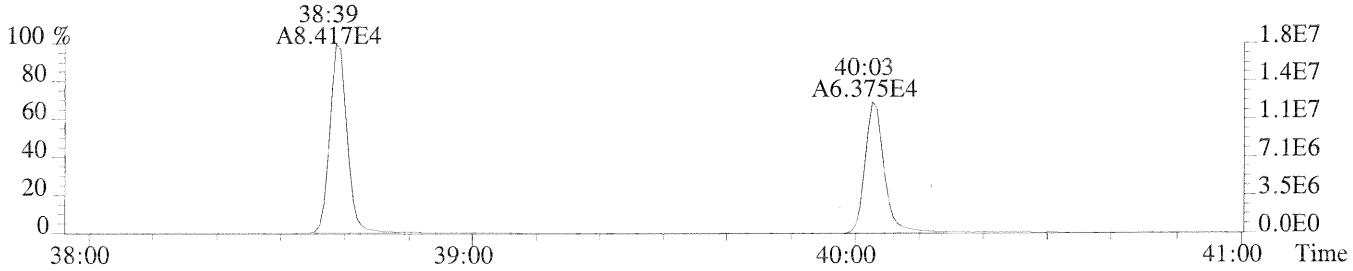


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

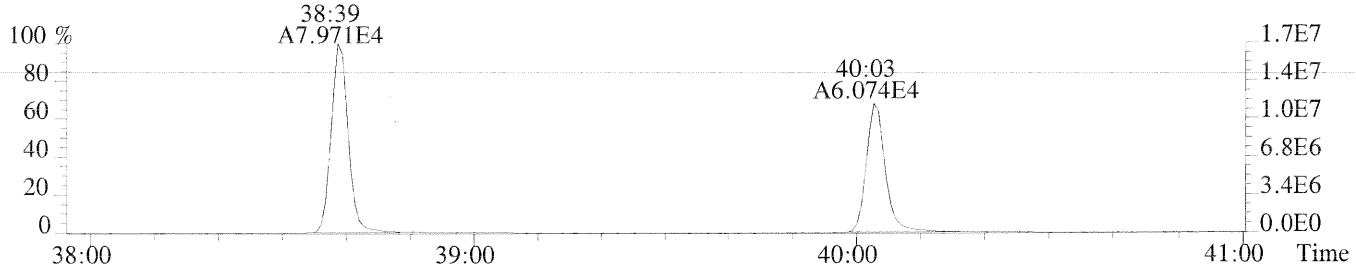


File:P174198 #1-279 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE

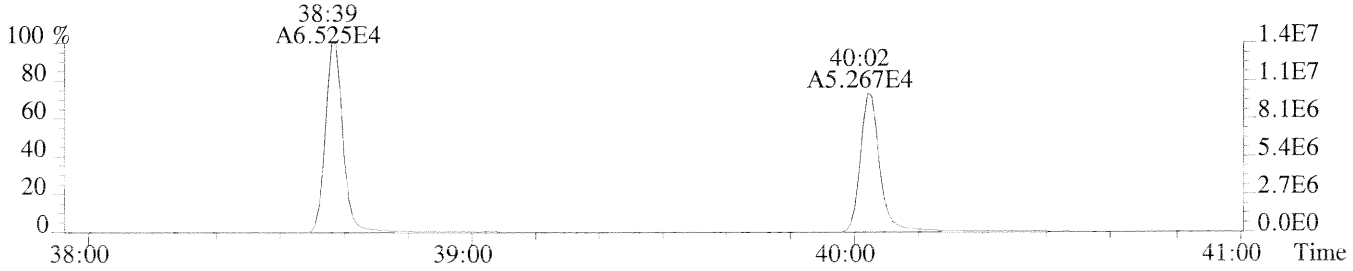
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6904.0,0.50%,F,T)



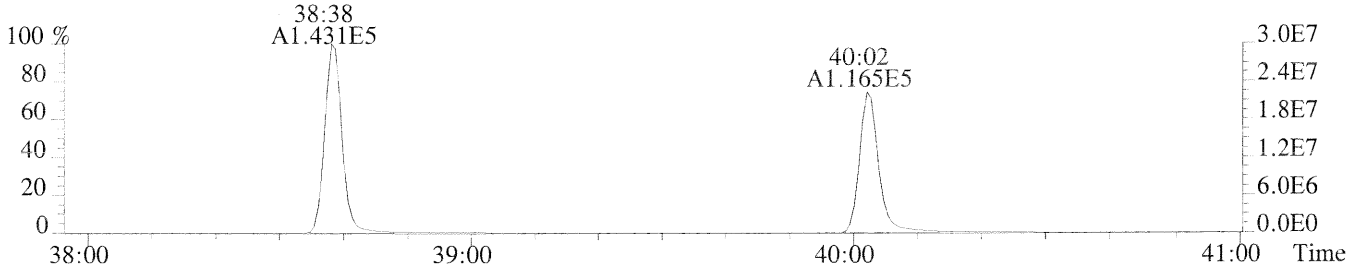
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6372.0,0.50%,F,T)



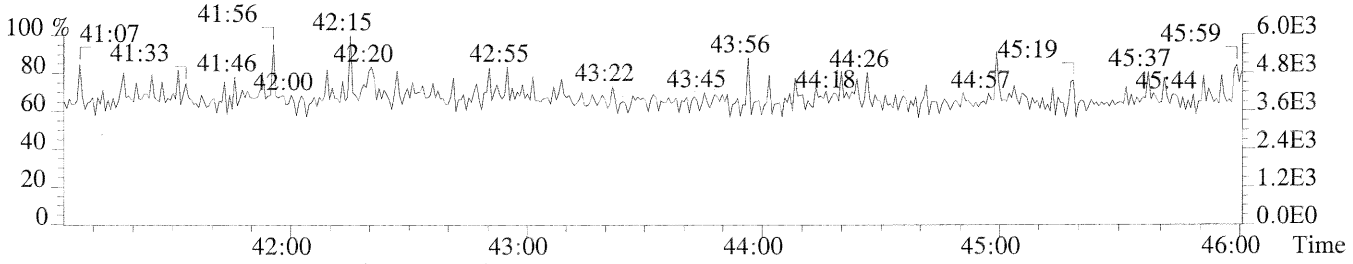
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4460.0,0.50%,F,T)



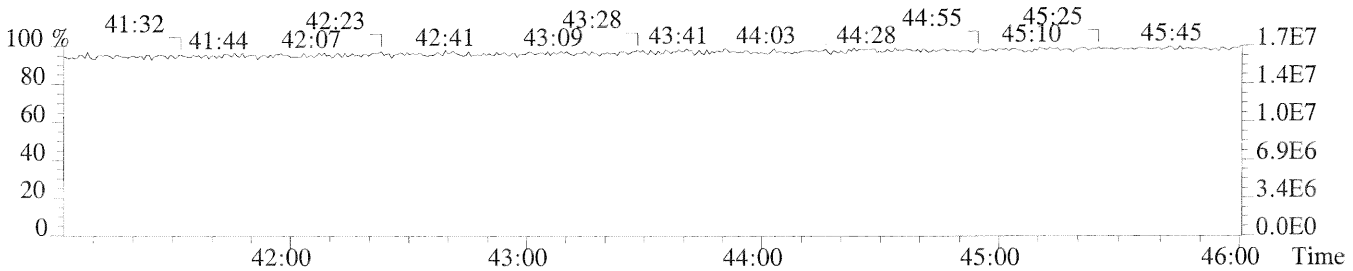
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8108.0,0.50%,F,T)



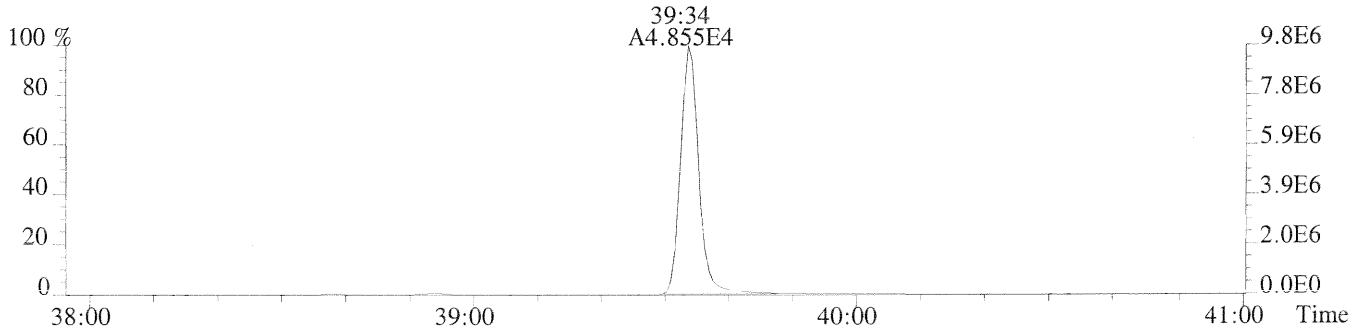
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



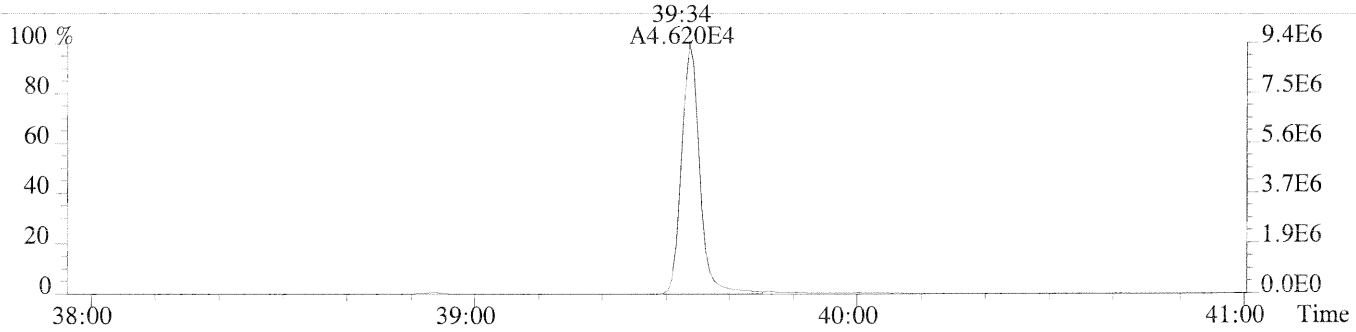
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



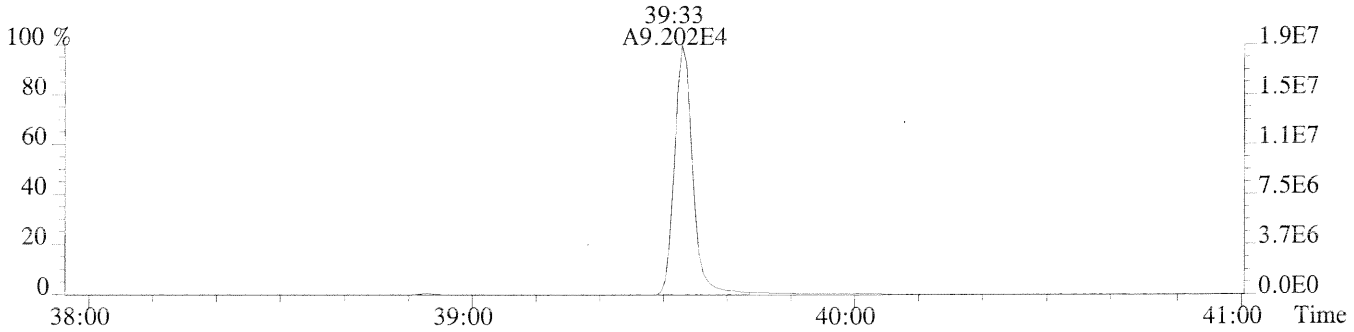
File:P174198 #1-279 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



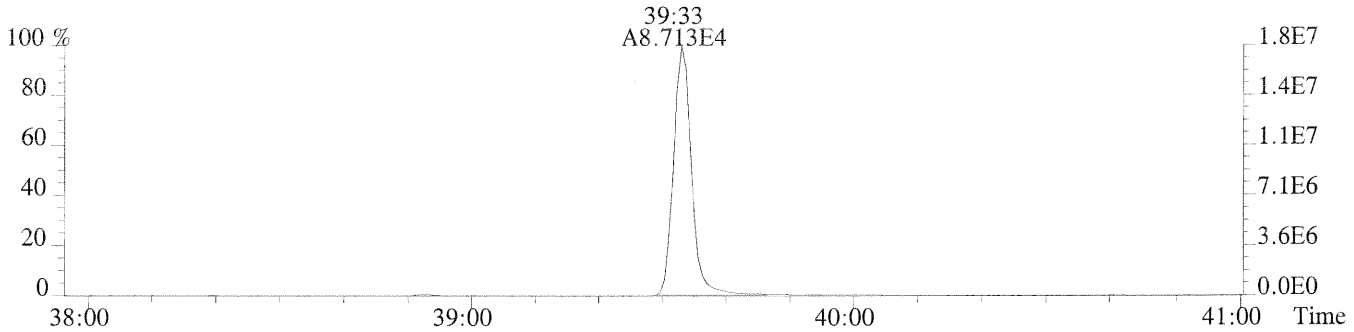
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



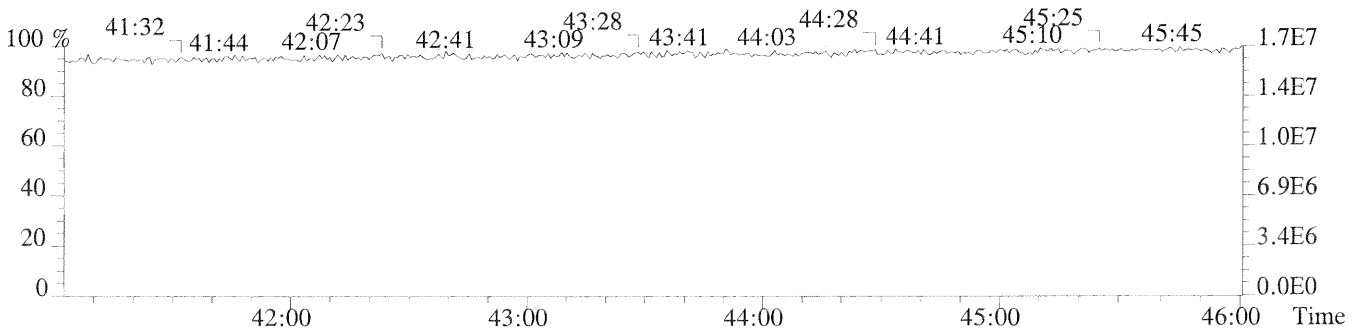
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



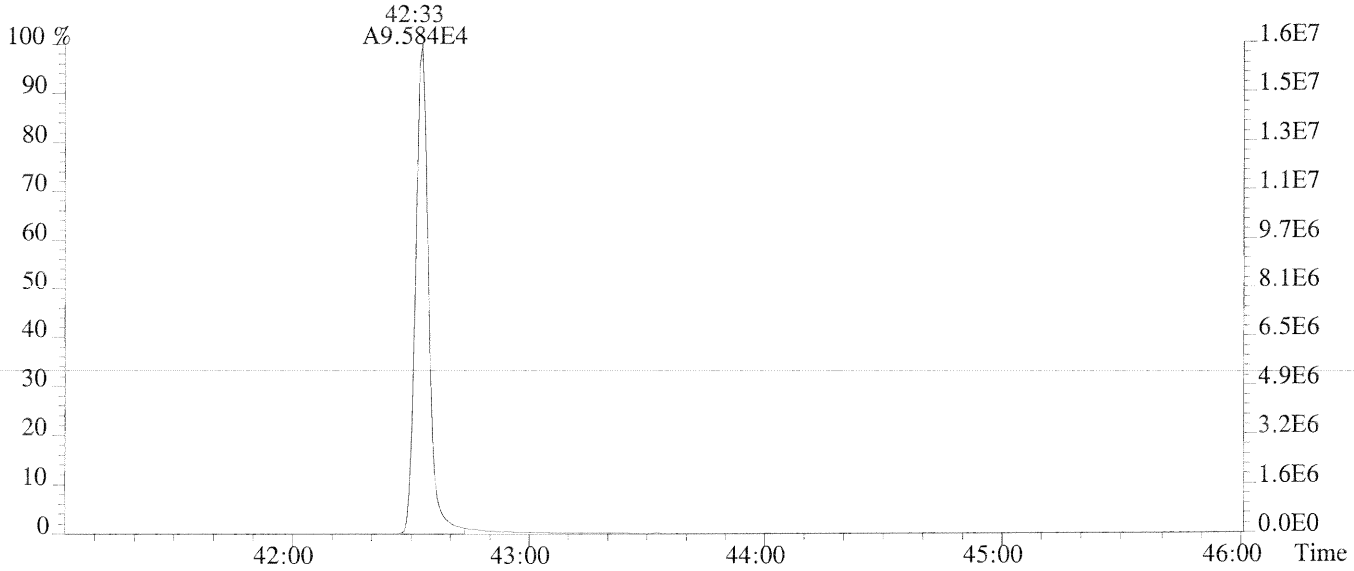
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



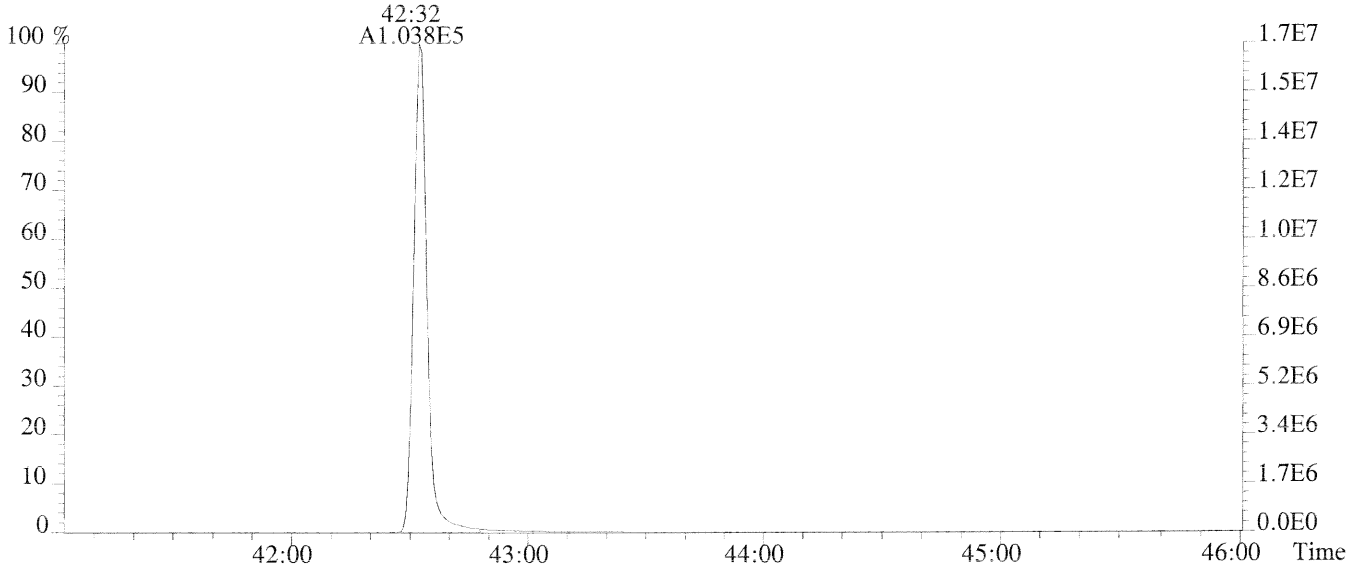
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



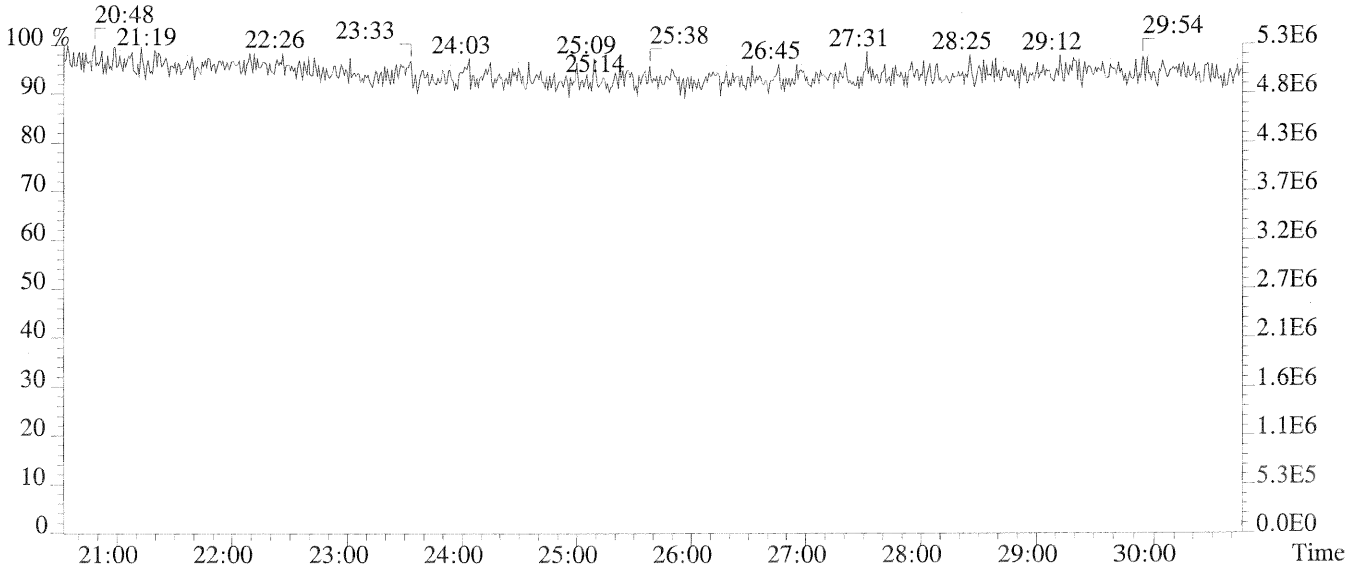
File:P174198 #1-457 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1316.0,0.40%,F,T)



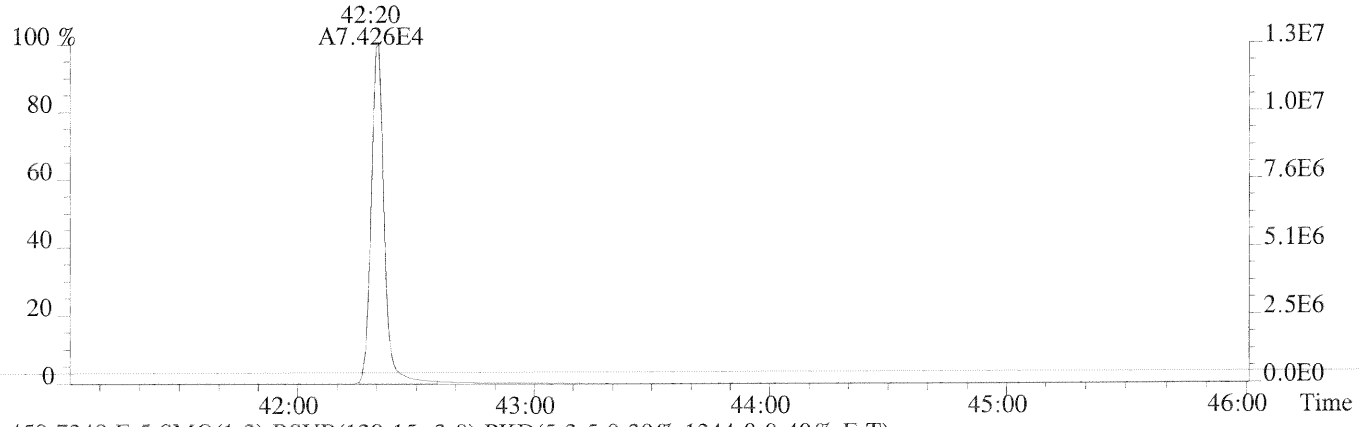
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1512.0,0.40%,F,T)



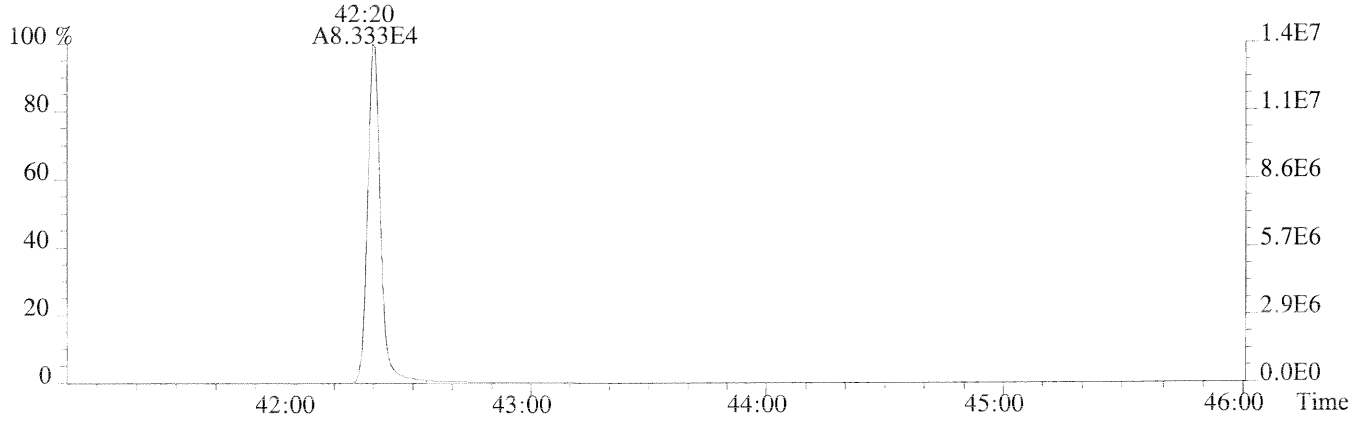
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



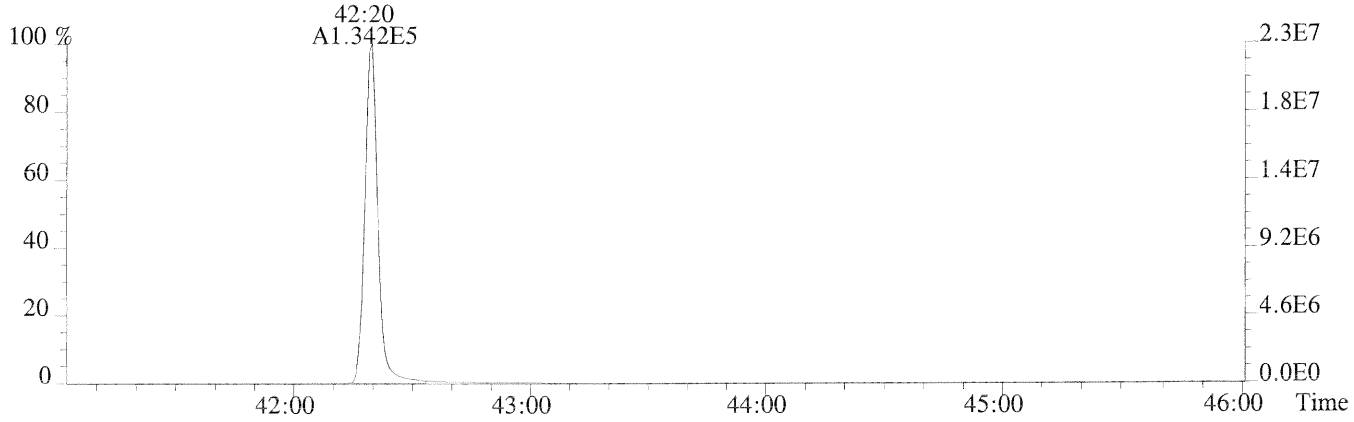
File:P174198 #1-457 Acq:18-OCT-2014 17:24:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1180.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,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)

