



---

10450 Stancliff Rd., Suite 210  
Houston, TX 77099  
T: +1 713 266 1599  
F: +1 713 266 1599  
[www.alsglobal.com](http://www.alsglobal.com)

August 18, 2014

Service Request No: P1403085

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

**Laboratory Results for: Stantec Consulting Services, Inc**

Dear Deborah,

Enclosed are the results of the sample(s) submitted to our laboratory on August 01, 2014. For your reference, these analyses have been assigned our service request number P1403085.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided.

All results are intended to be considered in their entirety, and ALS Environmental (ALS) 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 2009 TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My direct line is 281-994-2970. You may also contact me via email at [Nicole.Brown@alsglobal.com](mailto:Nicole.Brown@alsglobal.com).

Respectfully submitted,

**ALS Group USA Corp. dba ALS Environmental**

Nicole Brown  
Project Manager

Nicole Brown  
Project Manager

*For a specific list of NELAP-accredited analytes, refer to the certifications section at [www.alsglobal.com](http://www.alsglobal.com).*



# 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](http://www.alsglobal.com)

**ALS Environmental**

**Client:** Stantec Consulting Services, Inc.  
**Project:** Bridgeton – 182608020  
**Sample Matrix:** Air

**Service Request No.:** P1403085  
**Date Received:** 08/01/14

**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**

Eight air samples were received for analysis at ALS Environmental on 08/01/14.

The samples were received at 2°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**

EQ1400433: 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.

**The TEO 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.*

## Service Request Summary

**Folder #:** P1403085  
**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  
  
**Phone Number:** 614-486-4383  
**Cell Number:** 614-738-0791  
**Fax Number:**  
**E-mail:** deb.gray@stantec.com

**Project Chemist:** Nicole Brown  
**Originating Lab:** SIMIVALLEY  
**Logged By:** SHENNINGSSEN  
**Date Received:** 8/ 1/14  
**Internal Due Date:** 8/18/14  
**QAP:** LAB QAP  
**Qualifier Set:** Lab Standard  
**Formset:** Lab Standard  
**Merged?:** N  
**Report to MDL?:** Y  
**P.O. Number:**  
**EDD:** No EDD Specified

8 - 1 each-Cartridge PUF/Filter (High Volume)

**Location:** E-Disposed

Lab Samp No.	Client Samp No.	Matrix	Collected	TO-9A/ Dioxins and Furans	SVM
P1403085-001	730U1-DF	Air	7/30/14 1031	II	
P1403085-002	730D1-DF	Air	7/30/14 0925	II	
P1403085-003	730F-DF	Air	7/30/14 0851	II	
P1403085-004	731sN-DF	Air	7/31/14 1207	II	
P1403085-005	731sSQ-DF	Air	7/31/14 1211	II	
P1403085-006	731sNQ-DF	Air	7/31/14 1148	II	
P1403085-007	731BlankDF	Air	7/31/14 1600	II	
P1403085-008	731BlankDF	Air	7/29/14 1600	II	

### Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	Dioxins and Furans/TO-9A	1, 3-8	Hold times expire on 8/5, 8/6 and 8/7 NB 08/01/14 17 Dioxin/Furans
Semivoa GCMS	Dioxins and Furans/TO-9A	2	Hold times expire on 8/5,8/6 and 8/7 NB 08/01/14 17 Dioxin/Furans

**Client:** Stantec Consulting Services, Inc.  
**Project:** Bridgeton/182608020

**Service Request:** P1403085

**SAMPLE CROSS-REFERENCE**

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
P1403085-001	730U1-DF	7/30/14	10:31
P1403085-002	730D1-DF	7/30/14	09:25
P1403085-003	730F-DF	7/30/14	08:51
P1403085-004	731sN-DF	7/31/14	12:07
P1403085-005	731sSQ-DF	7/31/14	12:11
P1403085-006	731sNQ-DF	7/31/14	11:48
P1403085-007	731BlankDF	7/31/14	16:00
P1403085-008	731BlankDF	7/29/14	16:00

# Superset Summary

Service Request: P1403085

SuperSet Reference: 14-0000300102 rev 00

## TO-9A/Dioxins and Furans

Calibrations: 07/31/14 08/11/14

### Data Files:

<i>Raw Data</i>	<i>Begin CCAL</i>	<i>Method Blank</i>	<i>Lab ID</i>
<b>P230534</b>	P230532	P230534	EQ1400433-01
<b>P230536</b>	P230532	P230534	P1403085-001
<b>P230537</b>	P230532	P230534	P1403085-002
<b>P230538</b>	P230532	P230534	P1403085-003
<b>P230539</b>	P230532	P230534	P1403085-004
<b>P230540</b>	P230532	P230534	P1403085-005
<b>P230541</b>	P230532	P230534	P1403085-006
<b>P230542</b>	P230532	P230534	P1403085-007
<b>P230543</b>	P230532	P230534	P1403085-008
<b>U150374</b>	U150368	P230534	EQ1400433-03
<b>U150392</b>	U150389	P230534	EQ1400433-02

# Laboratory Certifications

## 2014-0215

---

<b>STATE/PROGRAM</b>	<b>AGENCY</b>	<b>CERT#</b>	<b>EXP DATE</b>	<b>CERTIFIED?</b>
ARIZONA	AZ-DHS	AZ0725	05/27/15	Yes
ARKANSAS	ADEQ	12-035-0	06/16/15	Yes
CALIFORNIA	CA-ELAP	2452	02/28/15	Yes
<b>DoD ELAP</b>	A2LA	2897.01	11/30/14	Yes
FLORIDA/NELAP	FL-DOHS	E87611	06/30/15	Yes
HAWAII	HI-DOH	N/A	06/30/15	Yes
ILLINOIS/NELAP	IL-EPA	003004	10/06/14	Yes
ISO 17025	A2LA	2897.01	11/30/14	Yes
KANSAS	KS-DHE	E-10406	01/31/14	Yes
LOUISIANA/NELAP	LELAP	03048	06/30/14	Yes
LOUISIANA/NELAP	LDHH	LA120014	12/31/13	Yes
MAINE	ME-DOHS	2012017	06/05/14	Yes
MARYLAND	MDE	343	06/30/15	Yes
MICHIGAN	MIDEQ	9971	06/30/15	Yes
MINNESOTA	MDH	048-999-427	12/31/14	Yes
NEVADA	NDEP	TX014112013A	07/31/14	Yes
NEW JERSEY	NJDEP	TX008	06/30/15	Yes
NEW MEXICO	NMED-DWB	N/A	06/30/15	Yes
NEW YORK/NELAP	NY-DOH	11707	04/01/15	Yes
OKLAHOMA	OKDEQ	2012-133	08/31/14	Yes
OREGON/NELAP	ORELAP	TX200002-009	03/24/15	Yes
PENNSYLVANIA/NELAP	PLAP	68-03441	06/30/15	Yes
SOIL IMPORT PERMIT	USDA	P330-12-00002	01/13/15	Yes
TENNESSEE	TNDEC	TN04016	06/30/15	Yes
TEXAS/NELAP	TCEQ	T104704216-12-3	06/30/15	Yes
UTAH/NELAP	UTELCP	TX014112013-2	07/31/14	Yes
WASHINGTON/NELAP	WA-Ecology	C819-12	11/14/14	Yes
WEST VIRGINIA	WVDEP	347	07/31/14	Yes



# Abbreviations, Acronyms & Definitions

---

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

## Data Qualifier Flags – Dioxin/Furans

---

- B** Indicates the associated analyte is found in the method blank, as well as in the sample
- C** 2378-TCDF is detected on the DB-5 column above the MRL, confirmation analysis was performed on a second column (DB-225.) The results from both the DB-5 column and the DB-225 column are included in this data package. The results from the DB-225 analyses should be used to evaluate the 2378-TCDF in the samples. The confirmed result are used in determining the TEQ value for TCDF.
- E** The reported result is above the instrument calibration range and is an estimated value.
- J** Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL)
- K** Ion abundance ratios between the primary and secondary ions were outside of theoretical acceptance limits. The reported result is an estimated maximum possible concentration (EMPC)
- i** The associated MRL/MDL has been elevated due to matrix interference.
- U** Indicates the compound was analyzed for, but not detected (ND)
- Y** C13-Labeled standard percent recoveries are outside of method acceptance limits
- S** Peak is saturated; data not reportable
- P** Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
- X** See case narrative

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

SR# Unique ID P1403085 DB-5 DB-5MSUI DB-225 SPB-Octyl

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

Date: 8/18/14 Analyst: *cel* Samples: 1-8

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

Date: 08/18/14 Analyst: *DP* Samples: 001-008



# 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](http://www.alsglobal.com)

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730U1-DF  
**Lab Code:** P1403085-001

**Service Request:** P1403085  
**Date Collected:** 7/30/14 1031  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230536  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1511  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	6.02	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.35	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	2.57	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	2.06	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	2.05	50.0			1
1,2,3,4,6,7,8-HpCDD	7.79	J	3.10	50.0	0.91	1.002	1
OCDD	61.0	J	4.99	100	1.01	1.000	1
2,3,7,8-TCDF	ND	U	3.64	10.0			1
1,2,3,7,8-PeCDF	ND	U	3.39	50.0			1
2,3,4,7,8-PeCDF	ND	U	3.59	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.65	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.99	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	2.69	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.39	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	2.45	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	3.07	50.0			1
OCDF	ND	U	6.53	100			1
Total Tetra-Dioxins	ND	U	6.02	10.0			1
Total Penta-Dioxins	ND	U	2.35	50.0			1
Total Hexa-Dioxins	ND	U	2.20	50.0			1
Total Hepta-Dioxins	6.75	J	3.10	50.0	0.89		1
Total Tetra-Furans	ND	U	3.64	10.0			1
Total Penta-Furans	ND	U	2.10	50.0			1
Total Hexa-Furans	3.84	J	2.40	50.0	1.06		1
Total Hepta-Furans	ND	U	2.73	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730U1-DF  
**Lab Code:** P1403085-001

**Service Request:** P1403085  
**Date Collected:** 7/30/14 1031  
**Date Received:** 8/ 1/14  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230536  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1511  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

**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	446.165	22	Y	50-120	0.78	1.025
13C-1,2,3,7,8-PeCDD	2000	576.158	29	Y	50-120	1.59	1.200
13C-1,2,3,6,7,8-HxCDD	2000	616.427	31	Y	50-120	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	509.502	25	Y	40-120	1.07	1.067
13C-OCDD	4000	869.864	22	Y	40-120	0.92	1.140
13C-2,3,7,8-TCDF	2000	422.244	21	Y	50-120	0.80	0.995
13C-1,2,3,7,8-PeCDF	2000	505.662	25	Y	50-120	1.59	1.155
13C-1,2,3,6,7,8-HxCDF	2000	586.588	29	Y	50-120	0.53	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	402.438	20	Y	40-120	0.43	1.042
37Cl-2,3,7,8-TCDD	2000	2453.728	123	Y	50-120	NA	1.000
13C-1,2,3,4,7,8-HxCDD	2000	1724.546	86		50-120	1.27	0.998
13C-2,3,4,7,8-PeCDF	2000	1886.471	94		50-120	1.61	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1511.684	76		50-120	0.51	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	1812.531	91		40-120	0.44	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1049.767	26	Y	50-120	0.50	1.009

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730U1-DF  
**Lab Code:** P1403085-001

**Service Request:** P1403085  
**Date Collected:** 7/30/14 1031  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical 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	6.02	10.0	1	1	
1,2,3,7,8-PeCDD	ND	2.35	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	2.57	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	2.06	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	2.05	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	<b>7.79</b>	3.10	50.0	1	0.01	0.0779
OCDD	<b>61.0</b>	4.99	100	1	0.0003	0.0183
2,3,7,8-TCDF	ND	3.64	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	3.39	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	3.59	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	2.65	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	1.99	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	2.69	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	2.39	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	2.45	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	3.07	50.0	1	0.01	
OCDF	ND	6.53	100	1	0.0003	
Total TEQ						0.0962

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730D1-DF  
**Lab Code:** P1403085-002

**Service Request:** P1403085  
**Date Collected:** 7/30/14 0925  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230537  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1559  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	2.98	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.34	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.11	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	0.888	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.882	50.0			1
1,2,3,4,6,7,8-HpCDD	<b>7.13</b>	JK	1.76	50.0	1.49	1.000	1
OCDD	<b>49.4</b>	JK	3.67	100	1.07	1.000	1
2,3,7,8-TCDF	ND	U	3.30	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.34	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.48	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	1.28	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	0.956	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.29	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.15	50.0			1
1,2,3,4,6,7,8-HpCDF	<b>2.94</b>	JK	1.07	50.0	1.48	1.001	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.34	50.0			1
OCDF	ND	U	4.96	100			1
Total Tetra-Dioxins	ND	U	2.98	10.0			1
Total Penta-Dioxins	ND	U	2.34	50.0			1
Total Hexa-Dioxins	ND	U	0.948	50.0			1
Total Hepta-Dioxins	<b>8.16</b>	J	1.76	50.0	0.94		1
Total Tetra-Furans	ND	U	3.30	10.0			1
Total Penta-Furans	ND	U	1.38	50.0			1
Total Hexa-Furans	ND	U	1.16	50.0			1
Total Hepta-Furans	<b>3.11</b>	J	1.19	50.0	0.95		1



ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730D1-DF  
**Lab Code:** P1403085-002

**Service Request:** P1403085  
**Date Collected:** 7/30/14 0925  
**Date Received:** 8/ 1/14  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230537  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1559  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

**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	565.492	28	Y	50-120	0.76	1.025
13C-1,2,3,7,8-PeCDD	2000	705.200	35	Y	50-120	1.58	1.200
13C-1,2,3,6,7,8-HxCDD	2000	741.889	37	Y	50-120	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	628.998	31	Y	40-120	1.08	1.067
13C-OCDD	4000	1049.498	26	Y	40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	547.375	27	Y	50-120	0.79	0.995
13C-1,2,3,7,8-PeCDF	2000	623.183	31	Y	50-120	1.58	1.155
13C-1,2,3,6,7,8-HxCDF	2000	711.995	36	Y	50-120	0.53	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	495.791	25	Y	40-120	0.43	1.043
37Cl-2,3,7,8-TCDD	2000	2458.961	123	Y	50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1864.391	93		50-120	1.27	0.998
13C-2,3,4,7,8-PeCDF	2000	1970.619	99		50-120	1.57	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1658.882	83		50-120	0.50	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	1744.716	87		40-120	0.43	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1149.332	29	Y	50-120	0.52	1.009

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730D1-DF  
**Lab Code:** P1403085-002

**Service Request:** P1403085  
**Date Collected:** 7/30/14 0925  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical 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	2.98	10.0	1	1	
1,2,3,7,8-PeCDD	ND	2.34	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.11	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.888	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.882	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	<b>7.13</b>	1.76	50.0	1	0.01	0.0713
OCDD	<b>49.4</b>	3.67	100	1	0.0003	0.0148
2,3,7,8-TCDF	ND	3.30	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	2.34	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	2.48	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	1.28	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.956	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	1.29	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	1.15	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	<b>2.94</b>	1.07	50.0	1	0.01	0.0294
1,2,3,4,7,8,9-HpCDF	ND	1.34	50.0	1	0.01	
OCDF	ND	4.96	100	1	0.0003	
Total TEQ						0.116

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730F-DF  
**Lab Code:** P1403085-003

**Service Request:** P1403085  
**Date Collected:** 7/30/14 0851  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230538  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1648  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	3.80	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.48	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.97	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.58	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.57	50.0			1
1,2,3,4,6,7,8-HpCDD	5.81	J	0.915	50.0	0.88	1.000	1
OCDD	57.9	J	3.14	100	1.01	1.000	1
2,3,7,8-TCDF	ND	U	3.03	10.0			1
1,2,3,7,8-PeCDF	ND	U	3.26	50.0			1
2,3,4,7,8-PeCDF	ND	U	3.44	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	2.47	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.85	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	2.50	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	2.23	50.0			1
1,2,3,4,6,7,8-HpCDF	3.42	J	1.55	50.0	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.94	50.0			1
OCDF	ND	U	5.62	100			1
Total Tetra-Dioxins	ND	U	3.80	10.0			1
Total Penta-Dioxins	ND	U	2.48	50.0			1
Total Hexa-Dioxins	3.75	J	1.69	50.0	1.15		1
Total Hepta-Dioxins	14.8	J	0.915	50.0	1.15		1
Total Tetra-Furans	ND	U	3.03	10.0			1
Total Penta-Furans	13.0	J	1.38	50.0	1.64		1
Total Hexa-Furans	9.72	J	2.23	50.0	1.29		1
Total Hepta-Furans	3.42	J	1.72	50.0	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730F-DF  
**Lab Code:** P1403085-003

**Service Request:** P1403085  
**Date Collected:** 7/30/14 0851  
**Date Received:** 8/ 1/14  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230538  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1648  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

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	567.368	28	Y	50-120	0.79	1.025
13C-1,2,3,7,8-PeCDD	2000	704.910	35	Y	50-120	1.60	1.200
13C-1,2,3,6,7,8-HxCDD	2000	771.348	39	Y	50-120	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	622.735	31	Y	40-120	1.07	1.067
13C-OCDD	4000	970.881	24	Y	40-120	0.91	1.140
13C-2,3,7,8-TCDF	2000	535.124	27	Y	50-120	0.78	0.995
13C-1,2,3,7,8-PeCDF	2000	639.268	32	Y	50-120	1.59	1.155
13C-1,2,3,6,7,8-HxCDF	2000	701.587	35	Y	50-120	0.51	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	484.435	24	Y	40-120	0.44	1.042
37Cl-2,3,7,8-TCDD	2000	2473.192	124	Y	50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1730.772	87		50-120	1.27	0.998
13C-2,3,4,7,8-PeCDF	2000	1924.683	96		50-120	1.59	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1638.740	82		50-120	0.50	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	1835.305	92		40-120	0.43	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1213.108	30	Y	50-120	0.52	1.008

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 730F-DF  
**Lab Code:** P1403085-003

**Service Request:** P1403085  
**Date Collected:** 7/30/14 0851  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical 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	3.80	10.0	1	1	
1,2,3,7,8-PeCDD	ND	2.48	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.97	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	1.58	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	1.57	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	<b>5.81</b>	0.915	50.0	1	0.01	0.0581
OCDD	<b>57.9</b>	3.14	100	1	0.0003	0.0174
2,3,7,8-TCDF	ND	3.03	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	3.26	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	3.44	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	2.47	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	1.85	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	2.50	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	2.23	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	<b>3.42</b>	1.55	50.0	1	0.01	0.0342
1,2,3,4,7,8,9-HpCDF	ND	1.94	50.0	1	0.01	
OCDF	ND	5.62	100	1	0.0003	
Total TEQ						0.110

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sN-DF  
**Lab Code:** P1403085-004

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1207  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230539  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1736  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	3.94	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.11	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.14	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	0.909	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.903	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	1.55	50.0			1
OCDD	ND	U	3.25	100			1
2,3,7,8-TCDF	ND	U	2.83	10.0			1
1,2,3,7,8-PeCDF	ND	U	2.11	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.23	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	0.988	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	0.741	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.00	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.892	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.13	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	1.41	50.0			1
OCDF	ND	U	4.67	100			1
Total Tetra-Dioxins	ND	U	3.94	10.0			1
Total Penta-Dioxins	ND	U	2.11	50.0			1
Total Hexa-Dioxins	ND	U	0.971	50.0			1
Total Hepta-Dioxins	ND	U	1.55	50.0			1
Total Tetra-Furans	ND	U	2.83	10.0			1
Total Penta-Furans	ND	U	1.92	50.0			1
Total Hexa-Furans	ND	U	0.892	50.0			1
Total Hepta-Furans	ND	U	1.25	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sN-DF  
**Lab Code:** P1403085-004

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1207  
**Date Received:** 8/ 1/14  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230539  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1736  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

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	518.183	26	Y	50-120	0.79	1.024
13C-1,2,3,7,8-PeCDD	2000	683.135	34	Y	50-120	1.60	1.199
13C-1,2,3,6,7,8-HxCDD	2000	720.406	36	Y	50-120	1.18	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	615.081	31	Y	40-120	1.07	1.067
13C-OCDD	4000	1038.899	26	Y	40-120	0.91	1.140
13C-2,3,7,8-TCDF	2000	493.577	25	Y	50-120	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	599.878	30	Y	50-120	1.62	1.155
13C-1,2,3,6,7,8-HxCDF	2000	683.089	34	Y	50-120	0.52	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	501.167	25	Y	40-120	0.43	1.043
37Cl-2,3,7,8-TCDD	2000	2503.345	125	Y	50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1854.245	93		50-120	1.41	0.998
13C-2,3,4,7,8-PeCDF	2000	1956.932	98		50-120	1.60	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1609.050	80		50-120	0.52	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	1751.372	88		40-120	0.43	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1181.291	30	Y	50-120	0.52	1.009

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sN-DF  
**Lab Code:** P1403085-004

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1207  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical 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	3.94	10.0	1	1	
1,2,3,7,8-PeCDD	ND	2.11	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.14	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.909	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.903	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	1.55	50.0	1	0.01	
OCDD	ND	3.25	100	1	0.0003	
2,3,7,8-TCDF	ND	2.83	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	2.11	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	2.23	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.988	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.741	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	1.00	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.892	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	1.13	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	1.41	50.0	1	0.01	
OCDF	ND	4.67	100	1	0.0003	
Total TEQ						0.00

2005 WHO TEFs, ND = 0



ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sSQ-DF  
**Lab Code:** P1403085-005

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1211  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230540  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1836  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	3.69	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.44	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.60	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.29	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.28	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	1.77	50.0			1
OCDD	4.51	JK	1.82	100	1.12	1.000	1
2,3,7,8-TCDF	ND	U	4.02	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.92	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.02	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	1.39	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.04	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.41	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.25	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.08	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	1.35	50.0			1
OCDF	ND	U	4.30	100			1
Total Tetra-Dioxins	ND	U	3.69	10.0			1
Total Penta-Dioxins	ND	U	2.44	50.0			1
Total Hexa-Dioxins	ND	U	1.37	50.0			1
Total Hepta-Dioxins	ND	U	1.77	50.0			1
Total Tetra-Furans	ND	U	4.02	10.0			1
Total Penta-Furans	ND	U	1.58	50.0			1
Total Hexa-Furans	ND	U	1.26	50.0			1
Total Hepta-Furans	ND	U	1.20	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sSQ-DF  
**Lab Code:** P1403085-005

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1211  
**Date Received:** 8/ 1/14  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230540  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1836  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

**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	551.694	28	Y	50-120	0.78	1.025
13C-1,2,3,7,8-PeCDD	2000	614.682	31	Y	50-120	1.59	1.200
13C-1,2,3,6,7,8-HxCDD	2000	735.003	37	Y	50-120	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	611.883	31	Y	40-120	1.06	1.067
13C-OCDD	4000	1028.705	26	Y	40-120	0.91	1.140
13C-2,3,7,8-TCDF	2000	526.938	26	Y	50-120	0.79	0.995
13C-1,2,3,7,8-PeCDF	2000	579.561	29	Y	50-120	1.58	1.155
13C-1,2,3,6,7,8-HxCDF	2000	661.452	33	Y	50-120	0.53	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	498.273	25	Y	40-120	0.44	1.042
37Cl-2,3,7,8-TCDD	2000	2426.448	121	Y	50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1858.236	93		50-120	1.26	0.998
13C-2,3,4,7,8-PeCDF	2000	1945.154	97		50-120	1.61	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1912.962	96		50-120	0.51	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2125.343	106		40-120	0.41	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1315.884	33	Y	50-120	0.52	1.009

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sSQ-DF  
**Lab Code:** P1403085-005

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1211  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical 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	3.69	10.0	1	1	
1,2,3,7,8-PeCDD	ND	2.44	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.60	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	1.29	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	1.28	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	1.77	50.0	1	0.01	
OCDD	<b>4.51</b>	1.82	100	1	0.0003	0.00135
2,3,7,8-TCDF	ND	4.02	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	1.92	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	2.02	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	1.39	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	1.04	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	1.41	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	1.25	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	1.08	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	1.35	50.0	1	0.01	
OCDF	ND	4.30	100	1	0.0003	
Total TEQ						0.00135

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sNQ-DF  
**Lab Code:** P1403085-006

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1148  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230541  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1923  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

**Native Analyte Results**

Analyte Name	Result Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND U	4.83	10.0			1
1,2,3,7,8-PeCDD	ND U	3.45	50.0			1
1,2,3,4,7,8-HxCDD	ND U	1.69	50.0			1
1,2,3,6,7,8-HxCDD	ND U	1.36	50.0			1
1,2,3,7,8,9-HxCDD	ND U	1.35	50.0			1
1,2,3,4,6,7,8-HpCDD	ND U	2.25	50.0			1
OCDD	<b>6.56</b> J	2.75	100	1.01	1.001	1
2,3,7,8-TCDF	ND U	3.15	10.0			1
1,2,3,7,8-PeCDF	ND U	3.54	50.0			1
2,3,4,7,8-PeCDF	ND U	3.74	50.0			1
1,2,3,4,7,8-HxCDF	ND U	0.876	50.0			1
1,2,3,6,7,8-HxCDF	ND U	0.657	50.0			1
1,2,3,7,8,9-HxCDF	ND U	0.887	50.0			1
2,3,4,6,7,8-HxCDF	ND U	0.790	50.0			1
1,2,3,4,6,7,8-HpCDF	ND U	1.65	50.0			1
1,2,3,4,7,8,9-HpCDF	ND U	2.06	50.0			1
OCDF	ND U	4.85	100			1
Total Tetra-Dioxins	ND U	4.83	10.0			1
Total Penta-Dioxins	ND U	3.45	50.0			1
Total Hexa-Dioxins	ND U	1.45	50.0			1
Total Hepta-Dioxins	<b>3.91</b> J	2.25	50.0	1.08		1
Total Tetra-Furans	ND U	3.15	10.0			1
Total Penta-Furans	ND U	2.30	50.0			1
Total Hexa-Furans	ND U	0.791	50.0			1
Total Hepta-Furans	ND U	1.83	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sNQ-DF  
**Lab Code:** P1403085-006

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1148  
**Date Received:** 8/ 1/14  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230541  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1923  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

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	422.478	21	Y	50-120	0.81	1.025
13C-1,2,3,7,8-PeCDD	2000	495.450	25	Y	50-120	1.58	1.201
13C-1,2,3,6,7,8-HxCDD	2000	564.545	28	Y	50-120	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	487.630	24	Y	40-120	1.07	1.067
13C-OCDD	4000	852.706	21	Y	40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	433.514	22	Y	50-120	0.80	0.995
13C-1,2,3,7,8-PeCDF	2000	426.915	21	Y	50-120	1.60	1.156
13C-1,2,3,6,7,8-HxCDF	2000	566.779	28	Y	50-120	0.52	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	392.858	20	Y	40-120	0.44	1.042
37Cl-2,3,7,8-TCDD	2000	2488.797	124	Y	50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1925.728	96		50-120	1.26	0.998
13C-2,3,4,7,8-PeCDF	2000	1795.918	90		50-120	1.63	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1275.795	64		50-120	0.52	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	1038.560	52		40-120	0.43	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1029.162	26	Y	50-120	0.53	1.009

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731sNQ-DF  
**Lab Code:** P1403085-006

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1148  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical 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	4.83	10.0	1	1	
1,2,3,7,8-PeCDD	ND	3.45	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.69	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	1.36	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	1.35	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	2.25	50.0	1	0.01	
OCDD	<b>6.56</b>	2.75	100	1	0.0003	0.00197
2,3,7,8-TCDF	ND	3.15	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	3.54	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	3.74	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.876	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.657	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.887	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.790	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	1.65	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	2.06	50.0	1	0.01	
OCDF	ND	4.85	100	1	0.0003	
Total TEQ						0.00197

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731BlankDF  
**Lab Code:** P1403085-007

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1600  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230542  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 2011  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	3.85	10.0			1
1,2,3,7,8-PeCDD	ND	U	1.75	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.23	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	0.982	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.975	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	1.52	50.0			1
OCDD	<b>4.36</b>	J	2.57	100	0.92	1.000	1
2,3,7,8-TCDF	ND	U	2.42	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.68	50.0			1
2,3,4,7,8-PeCDF	ND	U	1.77	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	0.990	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	0.744	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.01	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.892	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.731	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.913	50.0			1
OCDF	ND	U	3.90	100			1
Total Tetra-Dioxins	ND	U	3.85	10.0			1
Total Penta-Dioxins	ND	U	1.75	50.0			1
Total Hexa-Dioxins	ND	U	1.05	50.0			1
Total Hepta-Dioxins	ND	U	1.52	50.0			1
Total Tetra-Furans	ND	U	2.42	10.0			1
Total Penta-Furans	ND	U	1.63	50.0			1
Total Hexa-Furans	ND	U	0.894	50.0			1
Total Hepta-Furans	ND	U	0.813	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731BlankDF  
**Lab Code:** P1403085-007

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1600  
**Date Received:** 8/ 1/14  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230542  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 2011  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

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	567.804	28	Y	50-120	0.80	1.025
13C-1,2,3,7,8-PeCDD	2000	642.292	32	Y	50-120	1.58	1.201
13C-1,2,3,6,7,8-HxCDD	2000	730.448	37	Y	50-120	1.19	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	595.938	30	Y	40-120	1.06	1.067
13C-OCDD	4000	1015.120	25	Y	40-120	0.91	1.140
13C-2,3,7,8-TCDF	2000	531.953	27	Y	50-120	0.80	0.995
13C-1,2,3,7,8-PeCDF	2000	584.087	29	Y	50-120	1.60	1.156
13C-1,2,3,6,7,8-HxCDF	2000	661.160	33	Y	50-120	0.53	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	483.963	24	Y	40-120	0.44	1.042
37Cl-2,3,7,8-TCDD	2000	2482.349	124	Y	50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1874.921	94		50-120	1.39	0.998
13C-2,3,4,7,8-PeCDF	2000	1983.394	99		50-120	1.62	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1700.815	85		50-120	0.52	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2283.982	114		40-120	0.43	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1252.952	31	Y	50-120	0.53	1.009



ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731BlankDF  
**Lab Code:** P1403085-007

**Service Request:** P1403085  
**Date Collected:** 7/31/14 1600  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical 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	3.85	10.0	1	1	
1,2,3,7,8-PeCDD	ND	1.75	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.23	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.982	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.975	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	1.52	50.0	1	0.01	
OCDD	<b>4.36</b>	2.57	100	1	0.0003	0.00131
2,3,7,8-TCDF	ND	2.42	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	1.68	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	1.77	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.990	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.744	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	1.01	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.892	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.731	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.913	50.0	1	0.01	
OCDF	ND	3.90	100	1	0.0003	
Total TEQ						0.00131

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731BlankDF  
**Lab Code:** P1403085-008

**Service Request:** P1403085  
**Date Collected:** 7/29/14 1600  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230543  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 2059  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.52	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.07	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.17	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	0.934	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.927	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	1.73	50.0			1
OCDD	ND	U	2.85	100			1
2,3,7,8-TCDF	ND	U	2.72	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.44	50.0			1
2,3,4,7,8-PeCDF	ND	U	1.53	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	0.821	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	0.616	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	0.830	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.740	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.38	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	1.72	50.0			1
OCDF	ND	U	3.73	100			1
Total Tetra-Dioxins	ND	U	4.52	10.0			1
Total Penta-Dioxins	ND	U	2.07	50.0			1
Total Hexa-Dioxins	ND	U	0.998	50.0			1
Total Hepta-Dioxins	ND	U	1.73	50.0			1
Total Tetra-Furans	ND	U	2.72	10.0			1
Total Penta-Furans	ND	U	1.72	50.0			1
Total Hexa-Furans	ND	U	0.741	50.0			1
Total Hepta-Furans	ND	U	1.53	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731BlankDF  
**Lab Code:** P1403085-008

**Service Request:** P1403085  
**Date Collected:** 7/29/14 1600  
**Date Received:** 8/ 1/14  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230543  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 2059  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

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	575.992	29	Y	50-120	0.78	1.025
13C-1,2,3,7,8-PeCDD	2000	653.493	33	Y	50-120	1.61	1.200
13C-1,2,3,6,7,8-HxCDD	2000	749.056	37	Y	50-120	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	618.820	31	Y	40-120	1.07	1.067
13C-OCDD	4000	1061.064	27	Y	40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	544.381	27	Y	50-120	0.80	0.995
13C-1,2,3,7,8-PeCDF	2000	588.672	29	Y	50-120	1.59	1.155
13C-1,2,3,6,7,8-HxCDF	2000	675.453	34	Y	50-120	0.52	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	508.208	25	Y	40-120	0.43	1.042
37Cl-2,3,7,8-TCDD	2000	2466.645	123	Y	50-120	NA	1.000
13C-1,2,3,4,7,8-HxCDD	2000	1779.226	89		50-120	1.28	0.998
13C-2,3,4,7,8-PeCDF	2000	1949.100	97		50-120	1.60	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1680.249	84		50-120	0.52	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2157.373	108		40-120	0.44	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1139.886	28	Y	50-120	0.52	1.009

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** 731BlankDF  
**Lab Code:** P1403085-008

**Service Request:** P1403085  
**Date Collected:** 7/29/14 1600  
**Date Received:** 8/ 1/14  
**Units:** pg  
**Basis:** NA

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

**Analytical 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	4.52	10.0	1	1	
1,2,3,7,8-PeCDD	ND	2.07	50.0	1	1	
1,2,3,4,7,8-HxCDD	ND	1.17	50.0	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.934	50.0	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.927	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	1.73	50.0	1	0.01	
OCDD	ND	2.85	100	1	0.0003	
2,3,7,8-TCDF	ND	2.72	10.0	1	0.1	
1,2,3,7,8-PeCDF	ND	1.44	50.0	1	0.03	
2,3,4,7,8-PeCDF	ND	1.53	50.0	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.821	50.0	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.616	50.0	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.830	50.0	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.740	50.0	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	1.38	50.0	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	1.72	50.0	1	0.01	
OCDF	ND	3.73	100	1	0.0003	
Total TEQ						0.00

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** Method Blank  
**Lab Code:** EQ1400433-01

**Service Request:** P1403085  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230534  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1335  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	4.88	10.0			1
1,2,3,7,8-PeCDD	ND	U	2.56	50.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.94	50.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.56	50.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.55	50.0			1
1,2,3,4,6,7,8-HpCDD	ND	U	2.95	50.0			1
OCDD	ND	U	5.14	100			1
2,3,7,8-TCDF	ND	U	2.67	10.0			1
1,2,3,7,8-PeCDF	ND	U	1.97	50.0			1
2,3,4,7,8-PeCDF	ND	U	2.08	50.0			1
1,2,3,4,7,8-HxCDF	ND	U	1.51	50.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.13	50.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.52	50.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.36	50.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	2.26	50.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	2.82	50.0			1
OCDF	ND	U	5.87	100			1
Total Tetra-Dioxins	ND	U	4.88	10.0			1
Total Penta-Dioxins	ND	U	2.56	50.0			1
Total Hexa-Dioxins	ND	U	1.67	50.0			1
Total Hepta-Dioxins	ND	U	2.95	50.0			1
Total Tetra-Furans	5.79	J	2.67	10.0	0.84		1
Total Penta-Furans	ND	U	1.37	50.0			1
Total Hexa-Furans	ND	U	1.36	50.0			1
Total Hepta-Furans	ND	U	2.51	50.0			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** Method Blank  
**Lab Code:** EQ1400433-01

**Service Request:** P1403085  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** P230534  
**ICAL Date:** 08/11/14

**Date Analyzed:** 8/15/14 1335  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-04  
**GC Column:** DB-5 MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** P230532

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	487.308	24	Y	50-120	0.76	1.024
13C-1,2,3,7,8-PeCDD	2000	595.867	30	Y	50-120	1.62	1.200
13C-1,2,3,6,7,8-HxCDD	2000	663.185	33	Y	50-120	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	535.295	27	Y	40-120	1.08	1.067
13C-OCDD	4000	850.609	21	Y	40-120	0.90	1.140
13C-2,3,7,8-TCDF	2000	457.225	23	Y	50-120	0.79	0.995
13C-1,2,3,7,8-PeCDF	2000	520.693	26	Y	50-120	1.61	1.155
13C-1,2,3,6,7,8-HxCDF	2000	591.466	30	Y	50-120	0.53	0.974
13C-1,2,3,4,6,7,8-HpCDF	2000	432.356	22	Y	40-120	0.44	1.042
37Cl-2,3,7,8-TCDD	2000	2521.421	126	Y	50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	1970.222	99		50-120	1.27	0.998
13C-2,3,4,7,8-PeCDF	2000	2026.686	101		50-120	1.61	1.030
13C-1,2,3,4,7,8-HxCDF	2000	1782.107	89		50-120	0.53	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2244.787	112		40-120	0.42	1.036
13C-1,2,3,7,8,9-HxCDF	4000	1085.520	27	Y	50-120	0.53	1.009



# Accuracy & Precision

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air

**Service Request:** P1403085  
**Date Analyzed:** 8/15/14 - 8/15/14

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

**Analytical Method:** TO-9A  
**Prep Method:** Method

**Units:** pg  
**Basis:** NA

**Extraction Lot:** 214695

Analyte Name	Lab Control Sample EQ1400433-02			Duplicate Lab Control Sample EQ1400433-03			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
2,3,7,8-TCDD	204	200	102	237	200	118	70 - 130	15	30
1,2,3,7,8-PeCDD	949	1000	95	943	1000	94	70 - 130	<1	30
1,2,3,4,7,8-HxCDD	1040	1000	104	997	1000	100	70 - 130	5	30
1,2,3,6,7,8-HxCDD	993	1000	99	1010	1000	101	70 - 130	2	30
1,2,3,7,8,9-HxCDD	1030	1000	103	988	1000	99	70 - 130	4	30
1,2,3,4,6,7,8-HpCDD	925	1000	93	1010	1000	101	70 - 130	9	30
OCDD	1770	2000	88	1870	2000	93	70 - 130	6	30
2,3,7,8-TCDF	197	200	98	211	200	106	70 - 130	7	30
1,2,3,7,8-PeCDF	1000	1000	100	1090	1000	109	70 - 130	9	30
2,3,4,7,8-PeCDF	985	1000	98	1080	1000	108	70 - 130	9	30
1,2,3,4,7,8-HxCDF	1000	1000	100	1040	1000	104	70 - 130	4	30
1,2,3,6,7,8-HxCDF	972	1000	97	1040	1000	104	70 - 130	6	30
1,2,3,7,8,9-HxCDF	961	1000	96	969	1000	97	70 - 130	<1	30
2,3,4,6,7,8-HxCDF	943	1000	94	1000	1000	100	70 - 130	6	30
1,2,3,4,6,7,8-HpCDF	1060	1000	106	1130	1000	113	70 - 130	6	30
1,2,3,4,7,8,9-HpCDF	1080	1000	108	1110	1000	111	70 - 130	3	30
OCDF	1810	2000	91	1950	2000	97	70 - 130	7	30

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

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



ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** Lab Control Sample  
**Lab Code:** EQ1400433-02

**Service Request:** P1403085  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** U150392  
**ICAL Date:** 07/31/14

**Date Analyzed:** 8/15/14 1222  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-01  
**GC Column:** DB5-MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** U150389

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	204		5.42	10.0	0.80	1.001	1
1,2,3,7,8-PeCDD	949		3.46	50.0	1.59	1.000	1
1,2,3,4,7,8-HxCDD	1040		4.54	50.0	1.25	0.998	1
1,2,3,6,7,8-HxCDD	993		3.83	50.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	1030		3.83	50.0	1.28	1.006	1
1,2,3,4,6,7,8-HpCDD	925		6.45	50.0	1.11	1.000	1
OCDD	1770		12.7	100	0.88	1.000	1
2,3,7,8-TCDF	197		4.85	10.0	0.75	1.001	1
1,2,3,7,8-PeCDF	1000		3.72	50.0	1.60	1.001	1
2,3,4,7,8-PeCDF	985		3.84	50.0	1.52	1.028	1
1,2,3,4,7,8-HxCDF	1000		3.41	50.0	1.22	0.998	1
1,2,3,6,7,8-HxCDF	972		2.86	50.0	1.21	1.000	1
1,2,3,7,8,9-HxCDF	961		4.05	50.0	1.23	1.035	1
2,3,4,6,7,8-HxCDF	943		3.20	50.0	1.20	1.014	1
1,2,3,4,6,7,8-HpCDF	1060		5.10	50.0	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	1080		7.26	50.0	1.01	1.039	1
OCDF	1810		11.4	100	0.90	1.005	1
Total Tetra-Dioxins	204		5.42	10.0	0.80		1
Total Penta-Dioxins	949		3.46	50.0	1.59		1
Total Hexa-Dioxins	3070		4.15	50.0	1.25		1
Total Hepta-Dioxins	925		6.45	50.0	1.11		1
Total Tetra-Furans	197		4.85	10.0	0.75		1
Total Penta-Furans	2020		2.45	50.0			1
Total Hexa-Furans	3880		3.14	50.0	1.22		1
Total Hepta-Furans	2140		5.10	50.0	1.05		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** Lab Control Sample  
**Lab Code:** EQ1400433-02

**Service Request:** P1403085  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** U150392  
**ICAL Date:** 07/31/14

**Date Analyzed:** 8/15/14 1222  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-01  
**GC Column:** DB5-MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** U150389

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	1314.425	66		50-120	0.81	1.020
13C-1,2,3,7,8-PeCDD	2000	1618.824	81		50-120	1.59	1.172
13C-1,2,3,6,7,8-HxCDD	2000	1516.238	76		50-120	1.20	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1559.544	78		40-120	1.07	1.068
13C-OCDD	4000	2674.322	67		40-120	0.91	1.147
13C-2,3,7,8-TCDF	2000	1214.584	61		50-120	0.83	0.995
13C-1,2,3,7,8-PeCDF	2000	1385.317	69		50-120	1.57	1.132
13C-1,2,3,6,7,8-HxCDF	2000	1520.669	76		50-120	0.52	0.975
13C-1,2,3,4,6,7,8-HpCDF	2000	1338.727	67		40-120	0.44	1.042
37Cl-2,3,7,8-TCDD	2000	2241.755	112		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2432.558	122	Y	50-120	1.23	0.998
13C-2,3,4,7,8-PeCDF	2000	2000.207	100		50-120	1.60	1.028
13C-1,2,3,4,7,8-HxCDF	2000	1962.543	98		50-120	0.51	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2178.532	109		40-120	0.46	1.038
13C-1,2,3,7,8,9-HxCDF	4000	2759.576	69		50-120	0.53	1.008

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** Duplicate Lab Control Sample  
**Lab Code:** EQ1400433-03

**Service Request:** P1403085  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** pg  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** U150374  
**ICAL Date:** 07/31/14

**Date Analyzed:** 8/14/14 1408  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-01  
**GC Column:** DB5-MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** U150368

**Native Analyte Results**

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	237		13.6	13.6	0.82	1.001	1
1,2,3,7,8-PeCDD	943		9.04	50.0	1.66	1.000	1
1,2,3,4,7,8-HxCDD	997		8.91	50.0	1.28	0.998	1
1,2,3,6,7,8-HxCDD	1010		7.52	50.0	1.33	1.000	1
1,2,3,7,8,9-HxCDD	988		7.51	50.0	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	1010		9.95	50.0	1.06	1.000	1
OCDD	1870		20.6	100	0.95	1.000	1
2,3,7,8-TCDF	211		11.3	11.3	0.69	1.001	1
1,2,3,7,8-PeCDF	1090		6.47	50.0	1.56	1.000	1
2,3,4,7,8-PeCDF	1080		6.68	50.0	1.64	1.027	1
1,2,3,4,7,8-HxCDF	1040		6.67	50.0	1.24	0.997	1
1,2,3,6,7,8-HxCDF	1040		5.60	50.0	1.26	1.000	1
1,2,3,7,8,9-HxCDF	969		7.92	50.0	1.20	1.035	1
2,3,4,6,7,8-HxCDF	1000		6.26	50.0	1.24	1.014	1
1,2,3,4,6,7,8-HpCDF	1130		8.04	50.0	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	1110		11.5	50.0	1.06	1.039	1
OCDF	1950		18.1	100	0.90	1.006	1
Total Tetra-Dioxins	237		13.6	13.6	0.82		1
Total Penta-Dioxins	968		9.04	50.0	1.66		1
Total Hexa-Dioxins	3000		8.15	50.0	1.28		1
Total Hepta-Dioxins	1010		9.95	50.0	1.06		1
Total Tetra-Furans	211		11.3	11.3	0.69		1
Total Penta-Furans	2190		5.46	50.0			1
Total Hexa-Furans	4050		6.14	50.0	1.24		1
Total Hepta-Furans	2240		8.04	50.0	1.07		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

**Client:** Stantec Consulting Group, Inc.  
**Project:** Bridgeton/182608020  
**Sample Matrix:** Air  
**Sample Name:** Duplicate Lab Control Sample  
**Lab Code:** EQ1400433-03

**Service Request:** P1403085  
**Date Collected:** NA  
**Date Received:** NA  
**Units:** Percent  
**Basis:** NA

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

**Analytical Method:** TO-9A  
**Prep Method:** Method  
**Sample Amount:** 0.5000each  
**Data File Name:** U150374  
**ICAL Date:** 07/31/14

**Date Analyzed:** 8/14/14 1408  
**Date Extracted:** 8/5/14  
**Instrument Name:** E-HRMS-01  
**GC Column:** DB5-MSUI  
**Blank File Name:** P230534  
**Cal Ver. File Name:** U150368

**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	897.066	45	Y	50-120	0.75	1.019
13C-1,2,3,7,8-PeCDD	2000	1235.333	62		50-120	1.56	1.172
13C-1,2,3,6,7,8-HxCDD	2000	1137.755	57		50-120	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1061.640	53		40-120	1.10	1.067
13C-OCDD	4000	1880.629	47		40-120	0.90	1.146
13C-2,3,7,8-TCDF	2000	876.185	44	Y	50-120	0.83	0.995
13C-1,2,3,7,8-PeCDF	2000	1043.805	52		50-120	1.62	1.132
13C-1,2,3,6,7,8-HxCDF	2000	1104.624	55		50-120	0.51	0.975
13C-1,2,3,4,6,7,8-HpCDF	2000	975.883	49		40-120	0.45	1.042
37Cl-2,3,7,8-TCDD	2000	2341.764	117		50-120	NA	1.001
13C-1,2,3,4,7,8-HxCDD	2000	2226.586	111		50-120	1.24	0.998
13C-2,3,4,7,8-PeCDF	2000	1992.099	100		50-120	1.58	1.027
13C-1,2,3,4,7,8-HxCDF	2000	1986.558	99		50-120	0.51	0.997
13C-1,2,3,4,7,8,9-HpCDF	2000	2185.083	109		40-120	0.41	1.038
13C-1,2,3,7,8,9-HxCDF	4000	2506.474	63		50-120	0.52	1.008



# 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](http://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.

Dioxins and Furans  
TO-9A

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample		Date Received	Send To	
				Date	Time			
P1403085-001	730U1-DF	1	Air	7/30/14	1031	8/1/14	HOUSTON	II
P1403085-002	730D1-DF		Air	7/30/14	0925	8/1/14	HOUSTON	II
P1403085-003	730F-DF		Air	7/30/14	0851	8/1/14	HOUSTON	II
P1403085-004	731sN-DF		Air	7/31/14	1207	8/1/14	HOUSTON	II
P1403085-005	731sSQ-DF		Air	7/31/14	1211	8/1/14	HOUSTON	II
P1403085-006	731sNQ-DF		Air	7/31/14	1148	8/1/14	HOUSTON	II
P1403085-007	731BlankDF		Air	7/31/14	1600	8/1/14	HOUSTON	II
P1403085-008	731BlankDF		Air	7/29/14	1600	8/1/14	HOUSTON	II

**Test Comments**

Dioxins and Furans - TO-9A                      P1403085-001,2,3,4,5,6,7,8                      17 Dioxin/Furans

<p><b>Special Instructions/Comments</b></p> <p>-Report directly to client email addresses listed below  deb.gray@stantec.com  chris.lalonde@stantec.com  nick.iannaggi@stantec.com</p> <p>-Address report to Deborah Gray (per client COC)  -Invoice Samantha Henningsen in Simi Valley</p> <p>pH Checked _____</p>	<p><b>Turnaround Requirements</b></p> <p>____ RUSH (Surcharges Apply)</p> <p><b>PLEASE CIRCLE WORK DAYS</b></p> <p style="text-align: center;">1   2   3   4   5</p> <p><input checked="" type="checkbox"/> STANDARD</p> <p>Requested FAX Date: _____</p> <p>Requested Report Date: ____ 08/18/14</p>	<p><b>Report Requirements</b></p> <p>____ I. Results Only</p> <p>____ II. Results + QC Summaries</p> <p><input checked="" type="checkbox"/> III. Results + QC and Calibration Summaries</p> <p>____ IV. Data Validation Report with Raw Data</p> <p>PQL/MDL/J    <u>  N  </u></p> <p>EDD            <u>  N  </u></p>	<p><b>Invoice Information</b></p> <hr/> <p>PO# P1403085</p> <hr/> <p>Bill to</p>
---	---	--	--

Relinquished By: EMAILED by S. Henningsen 8/1/14 1223  
P1403085

Received By: *Al Brown* ALS Houston 8/1/14 0925  
*for Andrea Lopez*                      Airbill Number: \_\_\_\_\_



Environmental

# Record & Analytical Service Request

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. \_\_\_\_\_

Company Name & Address (Reporting Information) Stantec 1500 Lake Shore Drive Suite 100 Columbus Ohio 43204				Project Name Bridgeton				ALS Contact: Samantha Henningsen			
Project Manager Deb Gray				Project Number 182608020				<b>Analysis Method/Analytes</b>			
Phone 614-643-4382				P.O. # / Billing Information Direct Bill - Republic				EPA TO9a, Dioxin/Furan	EPA TO-13, PAHs	Comments e.g. Actual Preservative or specific instructions	
Fax				Sampler (Print & Sign) <i>Wes Cline</i>							
Email Address for Result Reporting Deb.gray@stantec.com, Nick.lannaggi@stantec.com				Sampling Pump							
Client Sample ID	Laboratory ID #	Tube ID	Date Collected	Sampling Pump	Sampling Start Time	Sampling End Time	Sample (Liters) Volume				
730U1-DF		110-89-001	7/30/2014	1075	7/29/14,10:31	7/30/14,10:31	351,354 L	X			
730D1-DF		110-89-002	7/30/2014	1085	7/29/14,9:25	7/30/14,9:25	351,506 L	X			
730F-DF		110-89-010	7/30/2014	1056	7/29/14,8:51	7/30/14,8:51	352,010 L	X			
731sN-DF		110-91-003	7/31/2014	1094	7/31/14,8:02	7/31/14,12:07	45,242 L	X			
731sSQ-DF		110-91-007	7/31/2014	1085	7/31/14,8:18	7/31/14,12:11	40,307 L	X			
731sNQ-DF		110-91-004	7/31/2014	1060	7/31/14,7:51	7/31/14,11:48	38,330 L	X			
731BlankDF		110-91-001	7/31/2014	NA	7/31/14,16:00	NA	0 L	X		Trip Blank	
729BlankDF		110-89-009	7/29/2014	NA	7/29/14,16:00	NA	0 L	X		Trip Blank	

**Report Tier Levels - please select**  
Tier I - (Results/Default if not specified) (Data Validation Package) 10% Surcharge X *please provide J Pkg* EDD required Yes / No  
Tier II (Results + QC) \_\_\_\_\_ Tier IV (client specified) \_\_\_\_\_  
Type: X13

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature) <i>[Signature]</i>	Date: <u>7/31/14</u>	Time: <u>1645</u>	Received by: (Signature)	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Time:
Relinquished by: (Signature) P1405085	Date:	Time: 470	Received by: (Signature) <i>[Signature]</i>	Time: <u>9:15</u>

Cooler / Blank temperature \_\_\_\_\_ °C



# Cooler Receipt Form

Project Chemist UB

Client/Project <sup>to 8/1/14</sup> ALS Simi Valley Stantec

Thermometer ID SMD

Date/Time Received: 8/1/14 925 Initials: AL Date/Time Logged in: 8/1/14 Initials AL

1. Method of delivery:  US Mail  FedEx  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? 1 seal

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?
80436469 3239		8/1/14	1000	AL	2/2	<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>

- 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:

# of containers on COC: 8 # of containers received: 8

Service request Label:





## 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 sample. The 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 6°C.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10°C.
- ✓ Air samples are shipped and stored cold, at 0 to 6°C
- ✓ 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 Benchsheet

**Prep Run#:** 214695  
**Team:** Semivoa GCMS/DEDWARDS

**Prep Workflow:** OrgExtDioxA(7)  
**Prep Method:** Method

**Status:** Prepped  
**Prep Date/Time:** 8/5/14 11:30 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	EQ1400433-01	MB		TO-9A/Dioxins and Furans		Air	0.5000each	
2	EQ1400433-02	LCS		TO-9A/Dioxins and Furans		Air	0.5000each	
3	EQ1400433-03	DLCS		TO-9A/Dioxins and Furans		Air	0.5000each	
4	P1403085-001	730U1-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000each	PUF [110-89-001]
5	P1403085-002	730D1-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000each	PUF [110-89-002]
6	P1403085-003	730F-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000each	PUF [110-89-010]
7	P1403085-004	731sN-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000each	PUF [110-91-003]
8	P1403085-005	731sSQ-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000each	PUF [110-91-007]
9	P1403085-006	731sNQ-DF	.01	TO-9A/Dioxins and Furans		Air	0.5000each	PUF [110-91-004]
10	P1403085-007	731BlankDF	.01	TO-9A/Dioxins and Furans		Air	0.5000each	PUF [110-91-001]
11	P1403085-008	731BlankDF	.01	TO-9A/Dioxins and Furans		Air	0.5000each	PUF [110-89-009]

## Spiking Solutions

<b>Name:</b> 23/TO-9A Surrogate Working Solution	<b>Inventory ID</b> 68212	<b>Logbook Ref:</b> 68212 TL 3/11/14	<b>Expires On:</b> 03/11/2015
--	---------------------------	--------------------------------------	-------------------------------

EQ1400433-01 20.00µL	EQ1400433-02 20.00µL	EQ1400433-03 20.00µL	P1403085-001 20.00µL	P1403085-002 20.00µL	P1403085-003 20.00µL
P1403085-004 20.00µL	P1403085-005 20.00µL	P1403085-006 20.00µL	P1403085-007 20.00µL	P1403085-008 20.00µL	

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

EQ1400433-01 40.00µL	EQ1400433-02 40.00µL	EQ1400433-03 40.00µL	P1403085-001 40.00µL	P1403085-002 40.00µL	P1403085-003 40.00µL
P1403085-004 40.00µL	P1403085-005 40.00µL	P1403085-006 40.00µL	P1403085-007 40.00µL	P1403085-008 40.00µL	

<b>Name:</b> 23/TO-9A Internal Working Solution	<b>Inventory ID</b> 69715	<b>Logbook Ref:</b> 69715 WM 4/21/14	<b>Expires On:</b> 04/21/2015
---	---------------------------	--------------------------------------	-------------------------------

EQ1400433-01 20.00µL	EQ1400433-02 20.00µL	EQ1400433-03 20.00µL	P1403085-001 20.00µL	P1403085-002 20.00µL	P1403085-003 20.00µL
P1403085-004 20.00µL	P1403085-005 20.00µL	P1403085-006 20.00µL	P1403085-007 20.00µL	P1403085-008 20.00µL	

<b>Name:</b> 1613B Matrix Working Standard	<b>Inventory ID</b> 72907	<b>Logbook Ref:</b> 2-20ng/mL 72907 TL 7/29/14	<b>Expires On:</b> 07/29/2015
--	---------------------------	--	-------------------------------

EQ1400433-02 100.00µL	EQ1400433-03 100.00µL
-----------------------	-----------------------

# Preparation Information Benchsheet

**Prep Run#:** 214695  
**Team:** Semivoa GCMS/DEDWARDS

**Prep Workflow:** OrgExtDioxA(7)  
**Prep Method:** Method

**Status:** Prepped  
**Prep Date/Time:** 8/5/14 11:30 AM

## Preparation Materials

Carbon, High Purity	LM 7/9/14 (72331)	Ethyl Acetate 99.9% Minimum EtOAc	AL 04/01/14 (71228)	Glass Wool	AL 08/06/14 (73215)
Sulfuric Acid Reagent Grade H2SO4	AL 04/02/14 (69067)	Hexanes 95%	AL 08/06/14 (73214)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 07/30/14 (72969)
Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 07/29/14 (72944)	Tridecane (n-Tridecane)	LM 7/9/14 (72332)
Toluene 99.9% Minimum	AL 07/25/14 (72861)	Silica Gel Reagent Grade	AL 05/27/14 (70967)	Sodium Hydroxide Reagent Grade NaOH	C2-73-7 (53023)

## Preparation Steps

<b>Step:</b> Extraction	<b>Step:</b> Acid Clean	<b>Step:</b> Silica Gel Clean	<b>Step:</b> Final Volume
<b>Started:</b> 8/5/14 11:30	<b>Started:</b> 8/6/14 12:00	<b>Started:</b> 8/6/14 15:30	<b>Started:</b> 8/7/14 18:30
<b>Finished:</b> 8/6/14 05:00	<b>Finished:</b> 8/6/14 13:00	<b>Finished:</b> 8/6/14 19:00	<b>Finished:</b> 8/7/14 18:45
<b>By:</b> WMCDONOUGH	<b>By:</b> LMCCRINK	<b>By:</b> HLEUNG	<b>By:</b> DEDWARDS
<b>Comments</b>	<b>Comments</b>	<b>Comments</b>	<b>Comments</b>

Comments: \_\_\_\_\_

Reviewed By: JWP 080814 Date: \_\_\_\_\_

Chain of Custody

Relinquished By: _____	Date: _____	<u>Extracts Examined</u>
Received By: _____	Date: _____	Yes No

P1403085

51 of 582



# Chromatograms and Selected Ion Monitoring

**ALS Environmental - Houston HRMS**  
10450 Stancliff Rd., Suite 320, Houston TX 77099  
Phone (713)266-1599 Fax (713)266-0130  
[www.alsglobal.com](http://www.alsglobal.com)

Sample Response Summary

Run #10 Filename P230536 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 15:11:21
Processed: 18-AUG-14 14:08:16 LAB. ID: P1403085-001

Table with columns: Typ, Name, RT-1, Resp 1, Resp 2, Ratio, Meet, Mod?, RRF. Rows include various chemical compounds like TCDF, PeCDF, HxCDF, HpCDF, OCDF, TCDD, PeCDD, HxCDD, HpCDD, OCDD with their respective response values and ratios.

OCDD = (2.793e+02 + 2.776e+02 x ( 4000.0 ) x 1 ) x 1.181 x 0.500 = 61.0 pg

Handwritten signature and date: 08/18/14

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
730U1-DF

Method M23

Run #10 Filename P230536 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 15:11:21  
Processed: 18-AUG-14 14:08:16 LAB. ID: P1403085-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	3.52e+02	*	*	1.89e+03	*
2	1,2,3,7,8-PeCDF	*	6.56e+02	*	*	2.41e+03	*
3	2,3,4,7,8-PeCDF	*	6.56e+02	*	*	2.41e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.81e+03	*	*	6.64e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.81e+03	*	*	6.64e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.81e+03	*	*	6.64e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.81e+03	*	*	6.64e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	1.58e+03	*	*	4.64e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	1.58e+03	*	*	4.64e+02	*
10	OCDF	*	8.08e+02	*	*	2.09e+03	*
11	2,3,7,8-TCDD	*	1.50e+03	*	*	1.75e+03	*
12	1,2,3,7,8-PeCDD	*	1.12e+03	*	*	5.56e+02	*
13	1,2,3,4,7,8-HxCDD	*	1.03e+03	*	*	1.08e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.03e+03	*	*	1.08e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.03e+03	*	*	1.08e+03	*
16	1,2,3,4,6,7,8-HpCDD	5.82e+03	1.25e+03	4.6e+00	7.20e+03	7.60e+02	9.5e+00
17	OCDD	2.71e+04	8.56e+02	3.2e+01	3.10e+04	1.02e+03	3.0e+01
18	13C-2,3,7,8-TCDF	2.88e+06	2.36e+03	1.2e+03	3.52e+06	1.74e+03	2.0e+03
19	13C-1,2,3,7,8-PeCDF	5.80e+06	3.15e+03	1.8e+03	3.65e+06	7.04e+02	5.2e+03
20	13C-2,3,4,7,8-PeCDF	5.78e+06	3.15e+03	1.8e+03	3.62e+06	7.04e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.75e+06	1.54e+03	1.8e+03	5.30e+06	2.03e+03	2.6e+03
22	13C-1,2,3,6,7,8-HxCDF	3.70e+06	1.54e+03	2.4e+03	7.01e+06	2.03e+03	3.4e+03
24	13C-1,2,3,7,8,9-HxCDF	4.82e+06	1.54e+03	3.1e+03	9.47e+06	2.03e+03	4.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.82e+06	8.87e+03	2.1e+02	4.13e+06	9.05e+03	4.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+06	8.87e+03	1.2e+02	2.38e+06	9.05e+03	2.6e+02
27	13C-2,3,7,8-TCDD	2.40e+06	6.06e+03	4.0e+02	3.09e+06	2.80e+03	1.1e+03
28	13C-1,2,3,7,8-PeCDD	4.37e+06	1.30e+03	3.4e+03	2.85e+06	6.96e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	4.31e+06	1.82e+03	2.4e+03	3.43e+06	1.22e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	4.99e+06	1.82e+03	2.7e+03	3.94e+06	1.22e+03	3.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.03e+06	1.10e+03	2.8e+03	2.83e+06	4.96e+02	5.7e+03
32	13C-OCDD	3.03e+06	6.08e+02	5.0e+03	3.33e+06	7.00e+02	4.8e+03
33	13C-1,2,3,4-TCDD	3.17e+07	6.06e+03	5.2e+03	3.91e+07	2.80e+03	1.4e+04
34	13C-1,2,3,7,8,9-HxCDD	4.46e+07	1.82e+03	2.4e+04	3.52e+07	1.22e+03	2.9e+04
35	37Cl-2,3,7,8-TCDD	5.93e+06	6.32e+02	9.4e+03			

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

ALS Form TO-9SN/M23SN.FRM

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730U1-DF

---

Entry: 41      Totals Name: Total Hexa-Furans

Run: 10      File: P230536      Sample: 1    Injection: 1    Function: 3

Llim: 34:13      Ulim: 37:02

Acquired: 15-AUG-14    15:11:21      Processed: 18-AUG-14 14:08:16

Mass: 373.8210    375.8180      Tot Response: 8.07e+01    RRF: 0.9615

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:27	4.15e+01	3.92e+01	1.06	yes	8.07e+01	n	n

---

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

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730U1-DF

---

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P230536 Sample: 1 Injection: 1 Function: 4

Llim: 38:14 Ulim: 39:08

Acquired: 15-AUG-14 15:11:21 Processed: 18-AUG-14 14:08:16

Mass: 423.7770 425.7740 Tot Response: 8.83e+01 RRF: 1.104

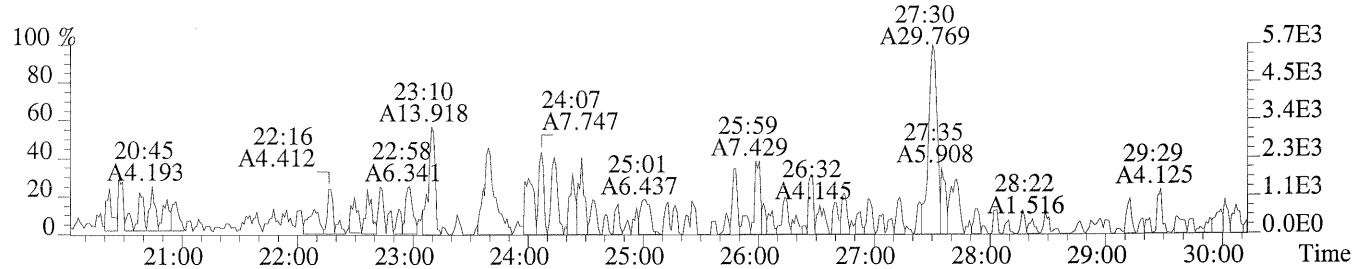
#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:20	4.16e+01	4.67e+01	0.89	yes	8.83e+01	n	n

---

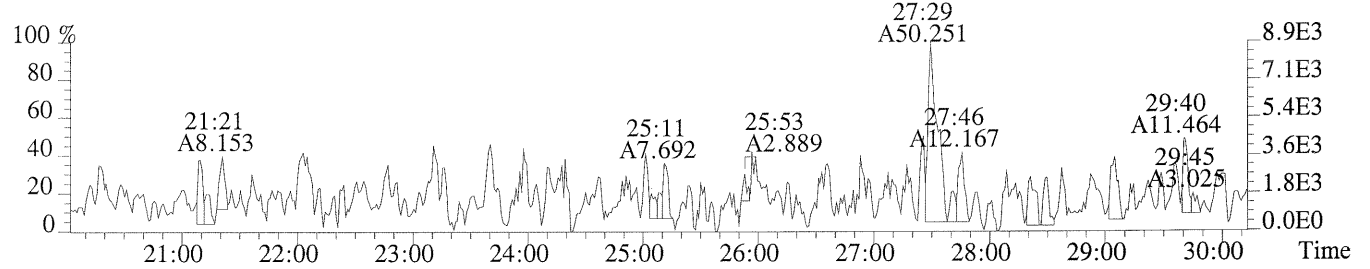
ALS ENVIRONMENTAL  
10450 Stancliff Rd., Suite 115  
Houston, TX 77099  
Office(713)266-1599. Fax(713)266-0130



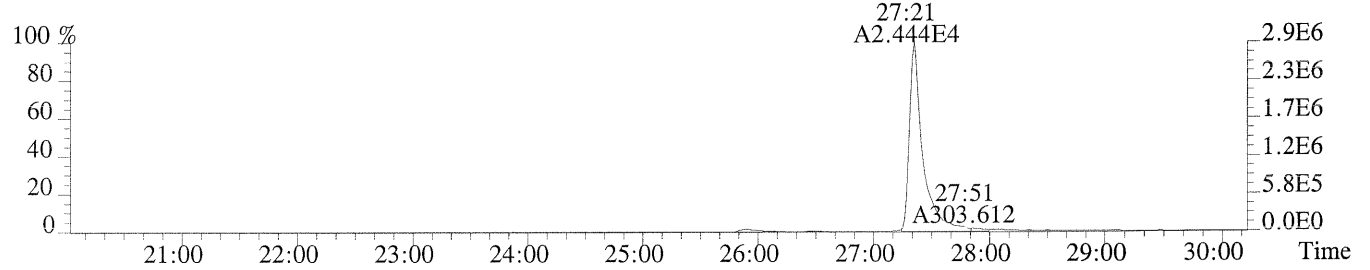
File:P230536 #1-640 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



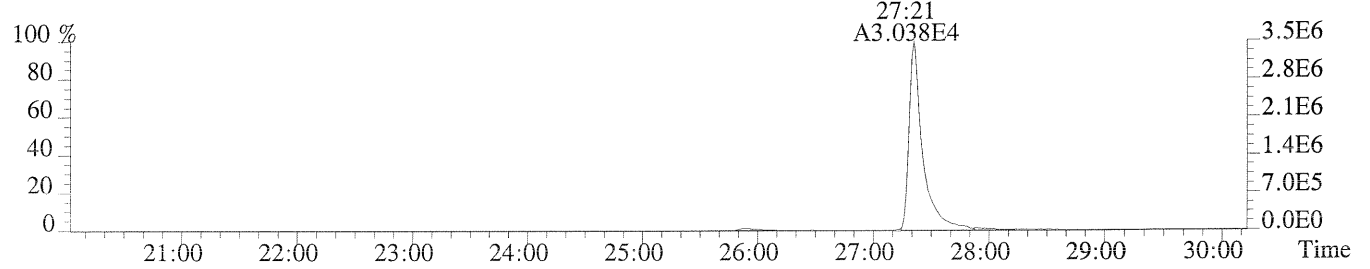
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



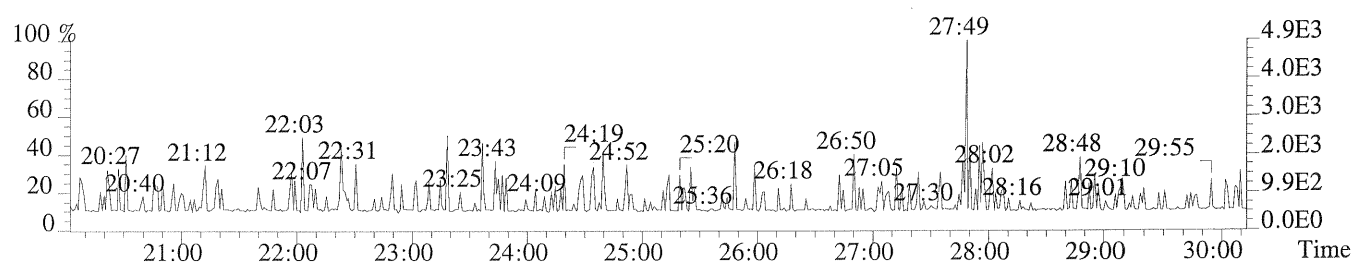
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2360.0,1.00%,F,T)



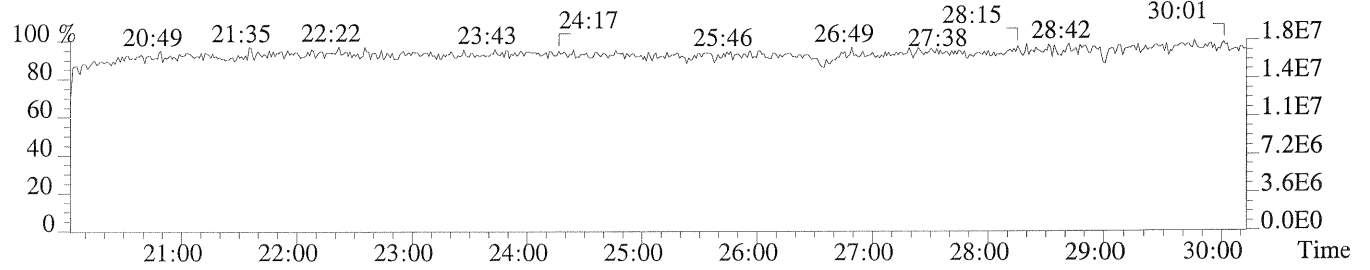
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



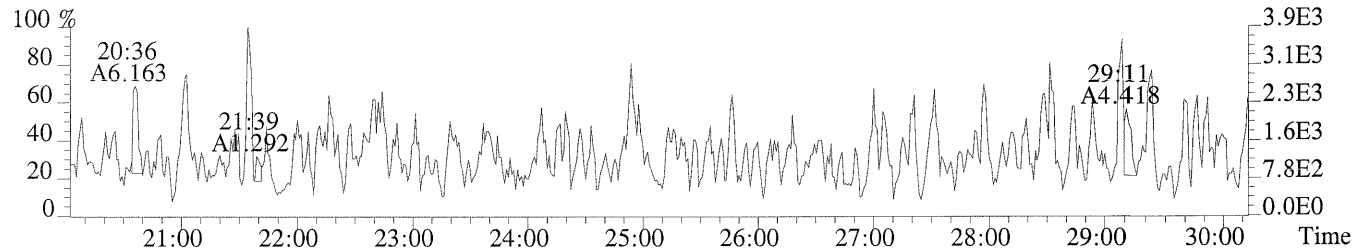
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



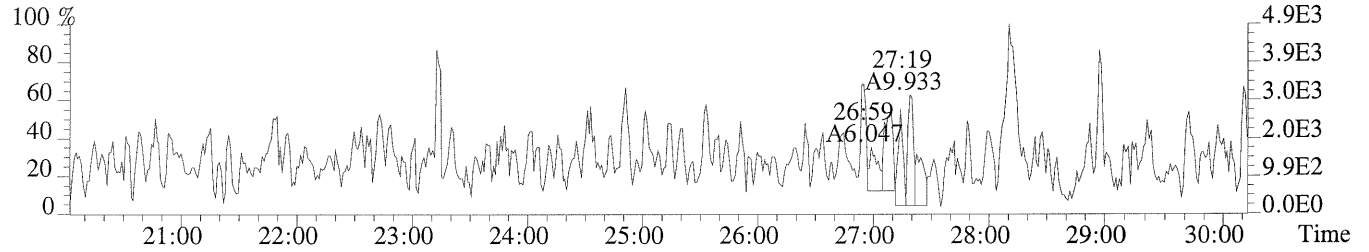
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



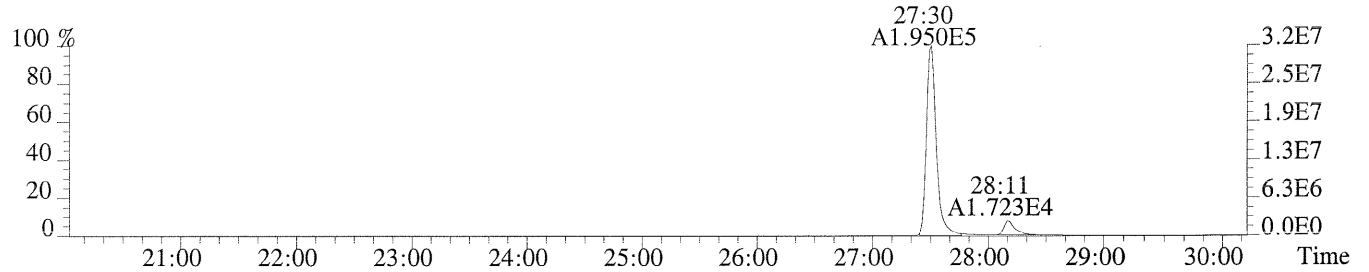
File:P230536 #1-640 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



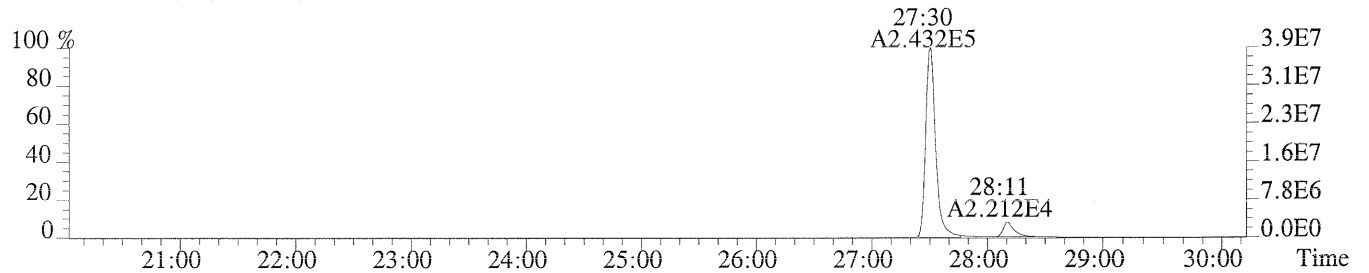
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



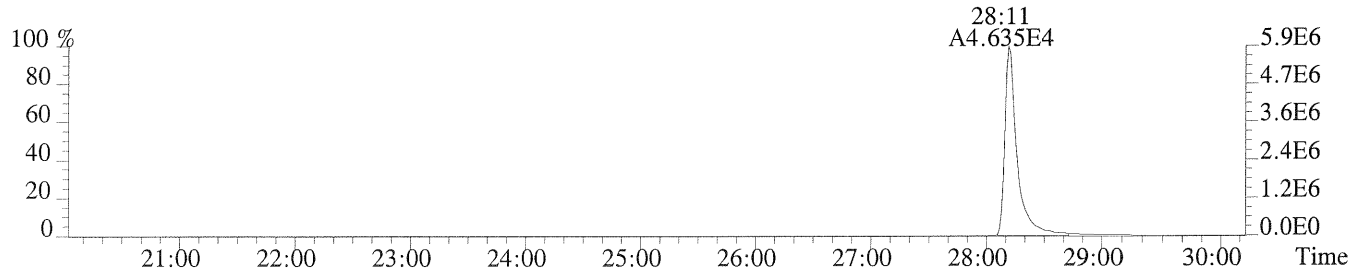
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6064.0,1.00%,F,T)



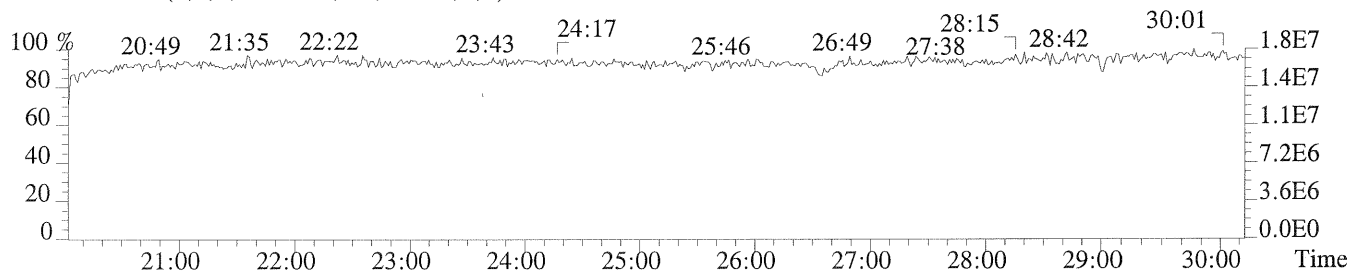
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



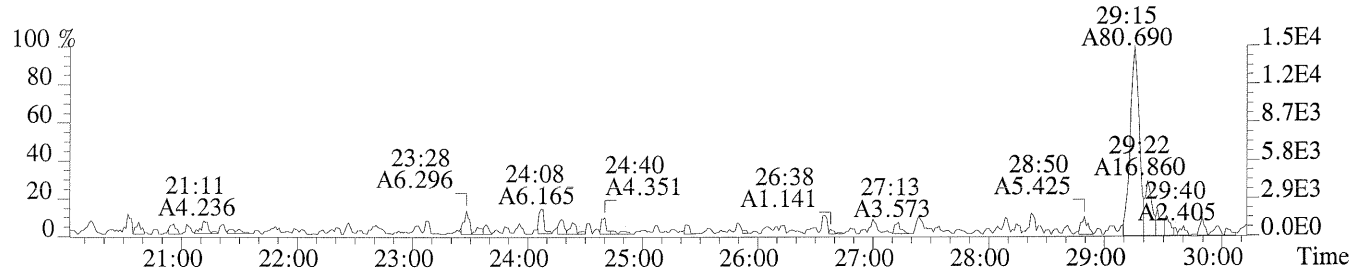
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



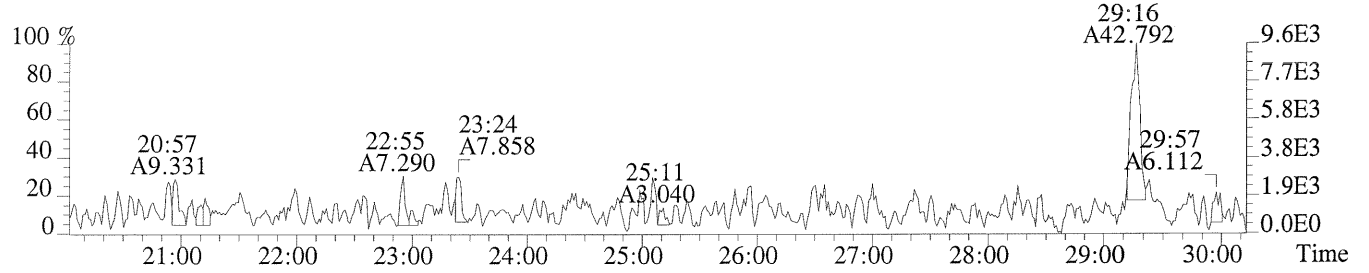
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



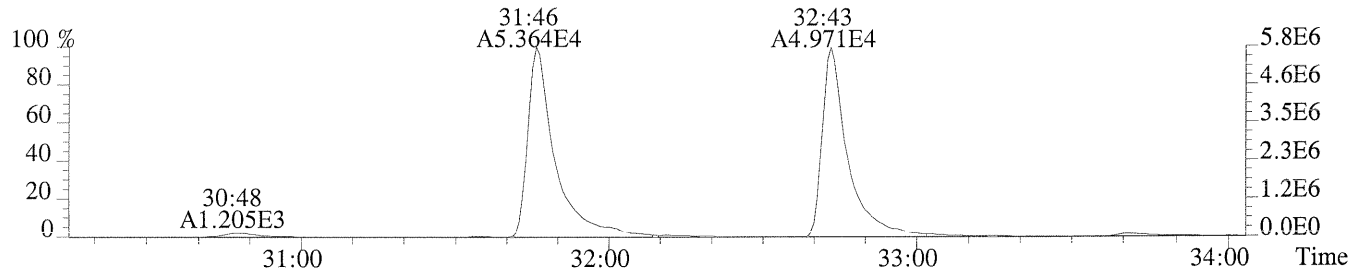
File:P230536 #1-640 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



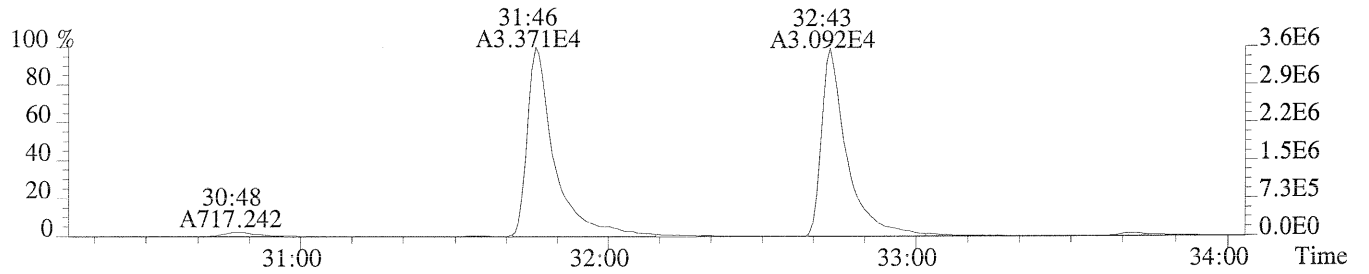
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1344.0,1.00%,F,T)



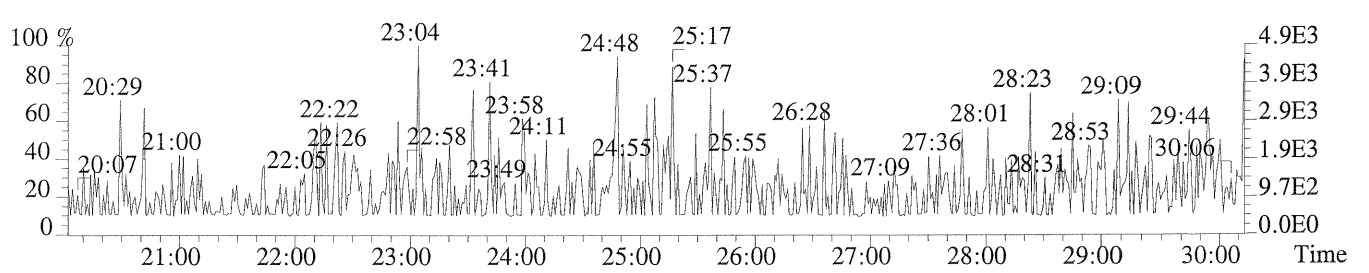
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3152.0,1.00%,F,T)



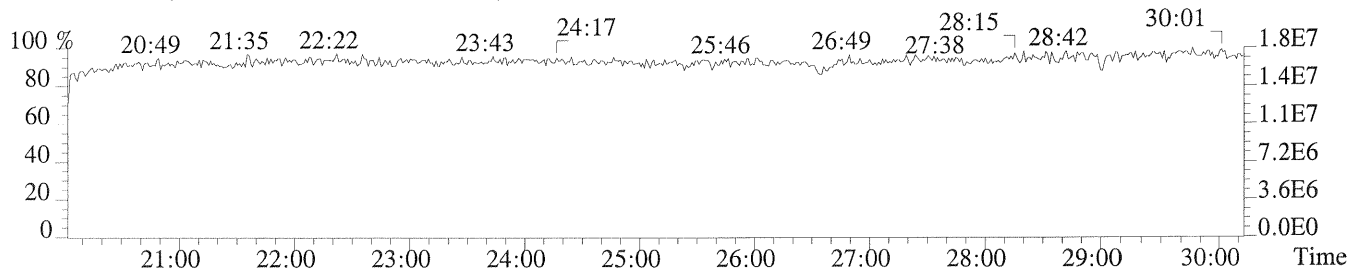
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



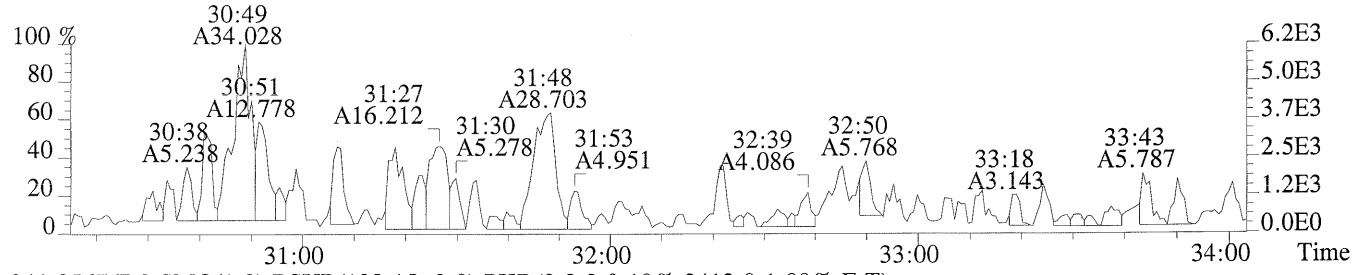
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



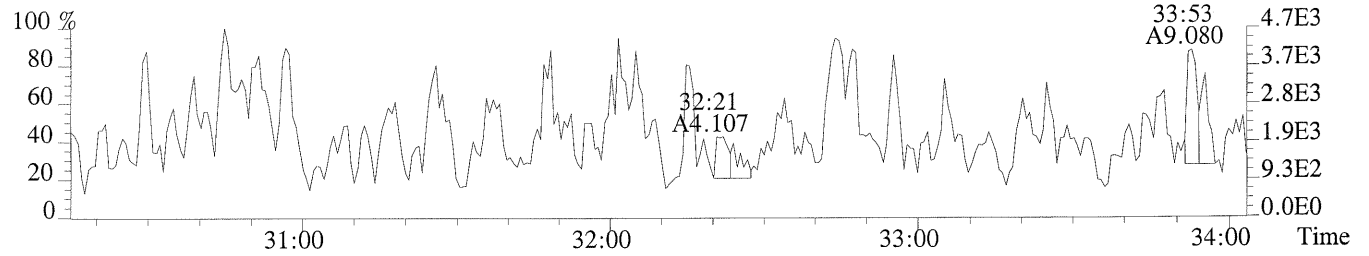
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



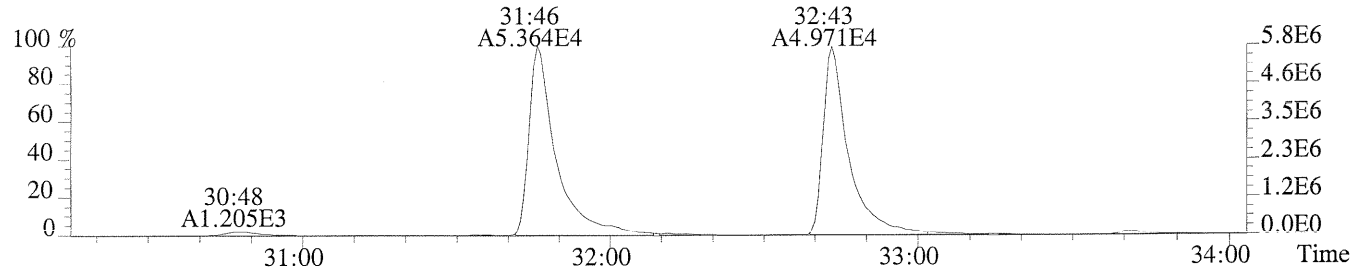
File:P230536 #1-346 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
 Sample#1 Exp:P1403085-001  
 339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



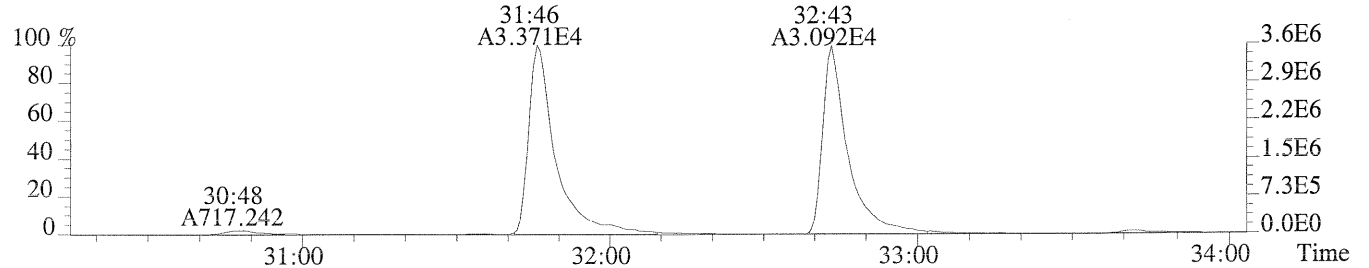
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2412.0,1.00%,F,T)



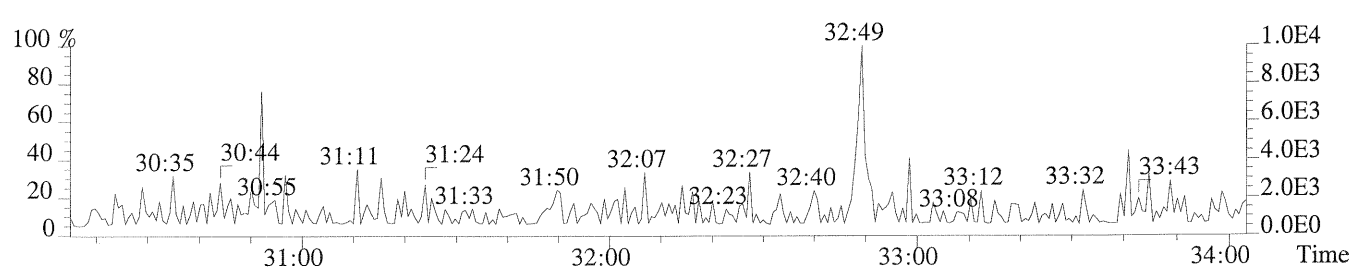
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3152.0,1.00%,F,T)



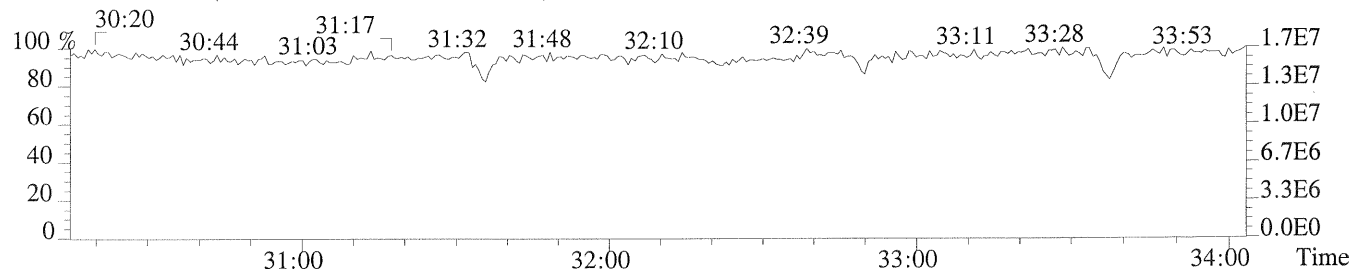
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



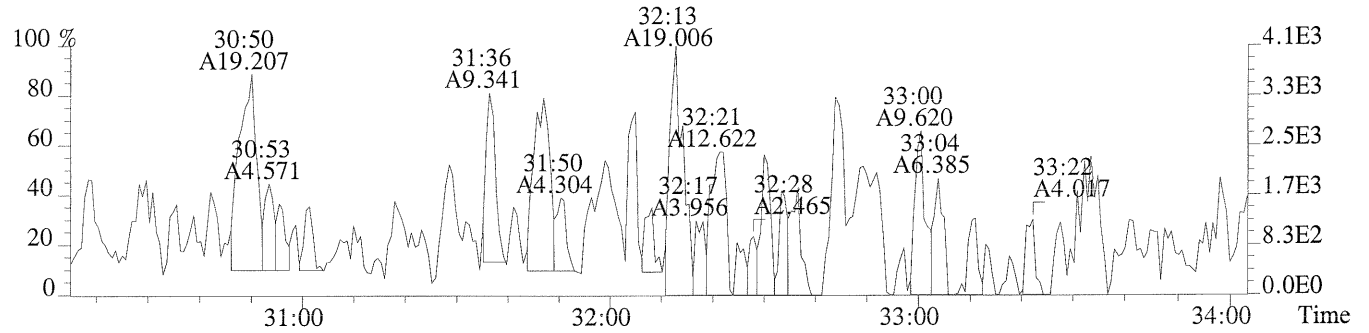
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



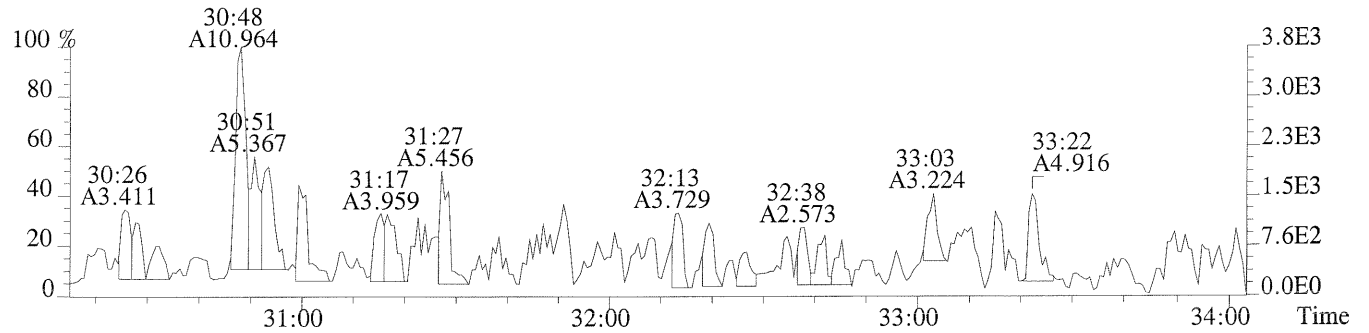
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



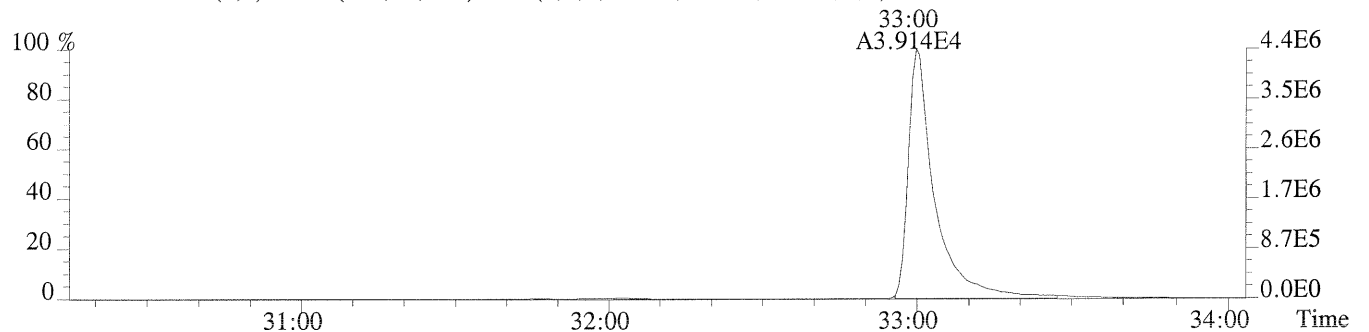
File:P230536 #1-346 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



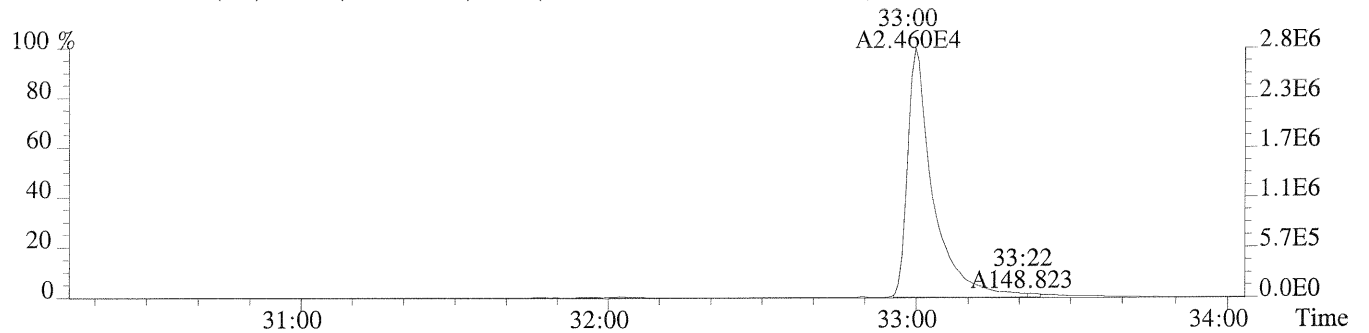
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



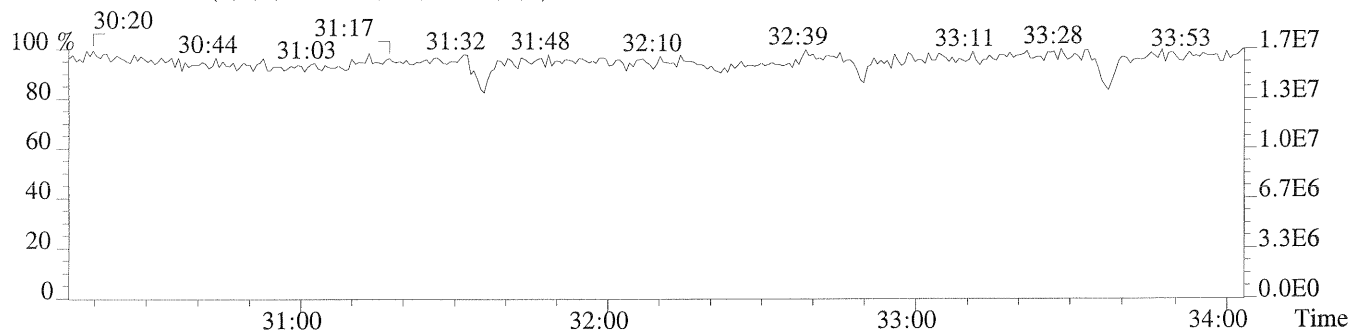
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



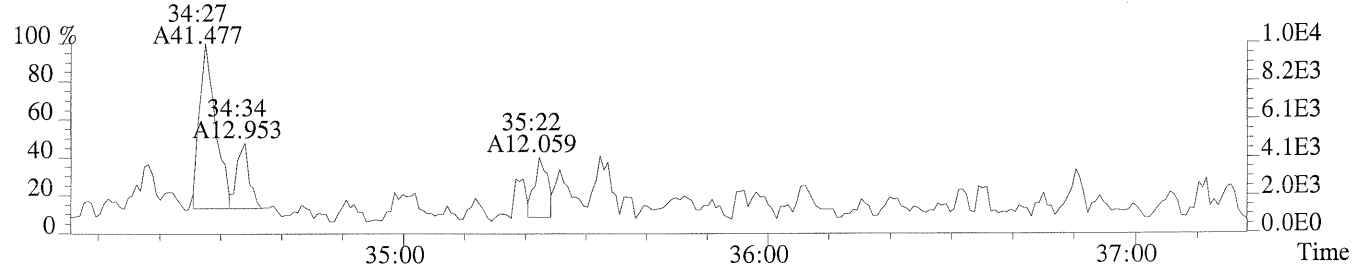
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



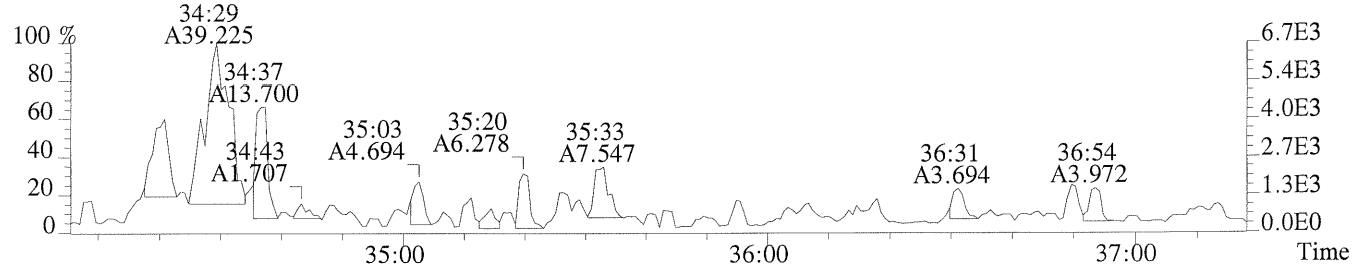
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



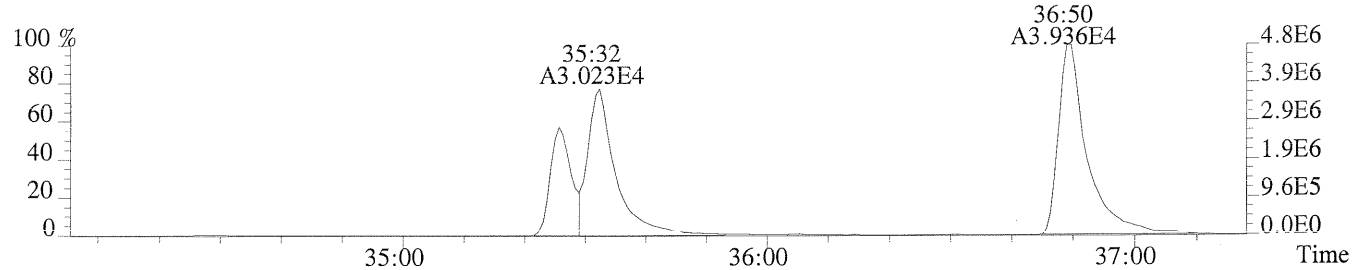
File:P230536 #1-292 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-001  
373.8208 F:3 BSMO(1,3) BSMO(128,15,-3.0) PKD(3,3,3,0.25%,1808.0,0.40%,F,T)



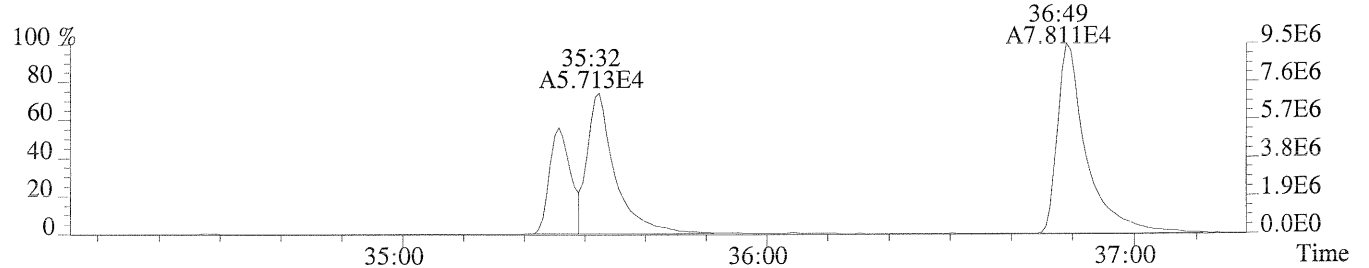
375.8178 F:3 SMO(1,3) BSMO(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



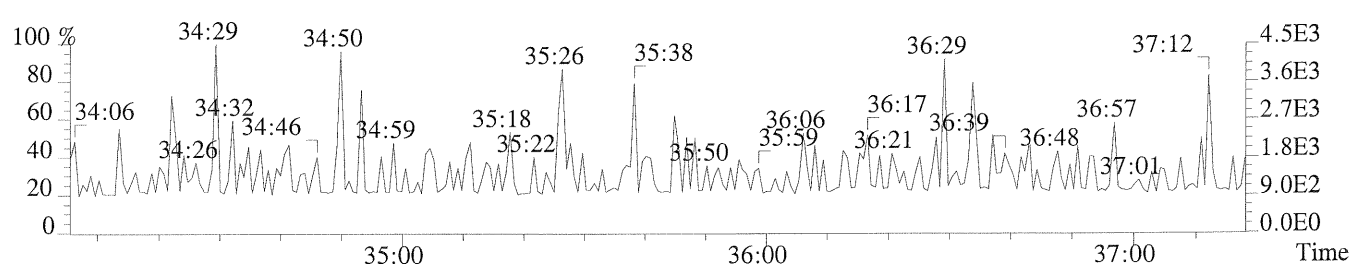
383.8639 F:3 SMO(1,3) BSMO(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



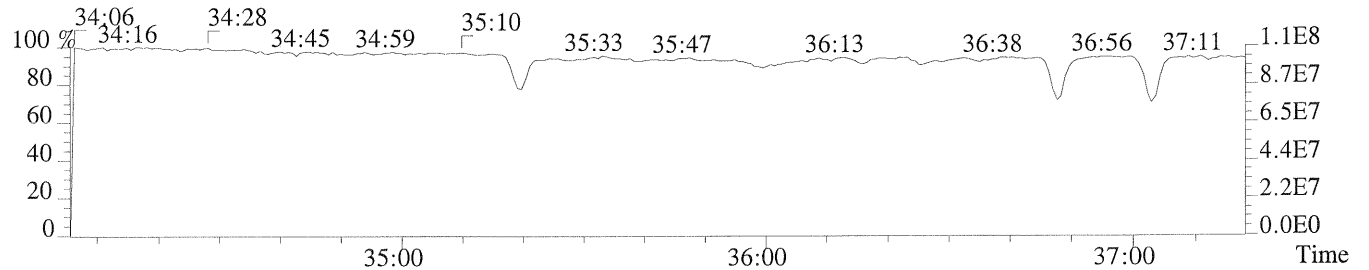
385.8610 F:3 SMO(1,3) BSMO(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



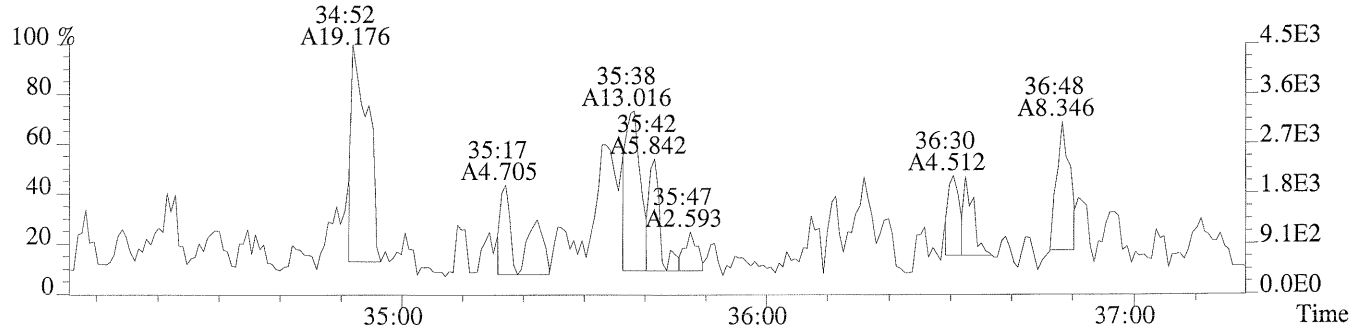
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



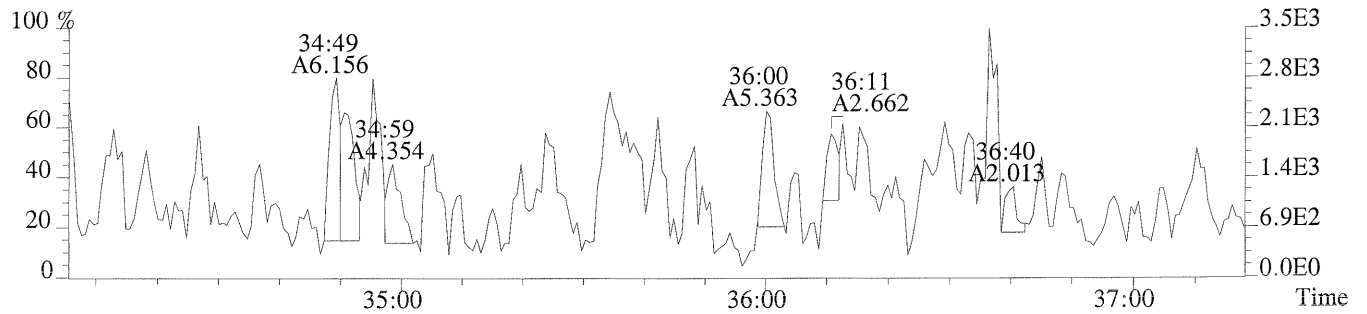
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



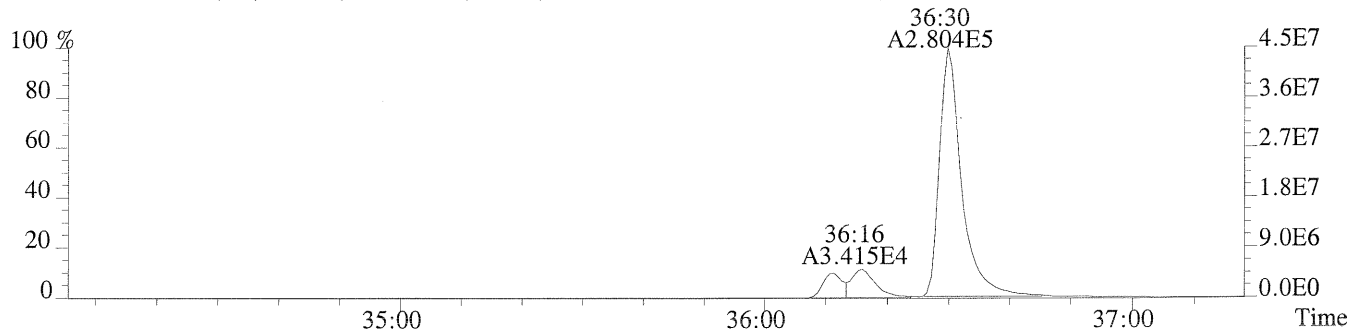
File:P230536 #1-292 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.40%,F,T)



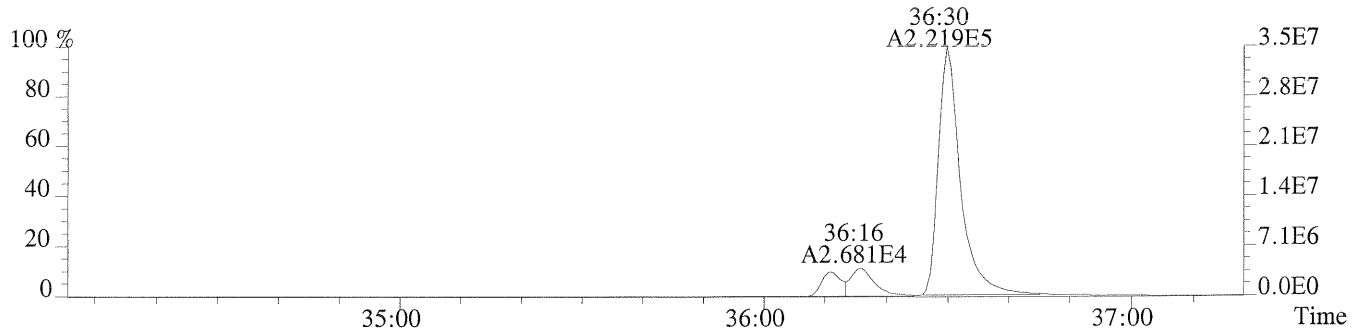
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



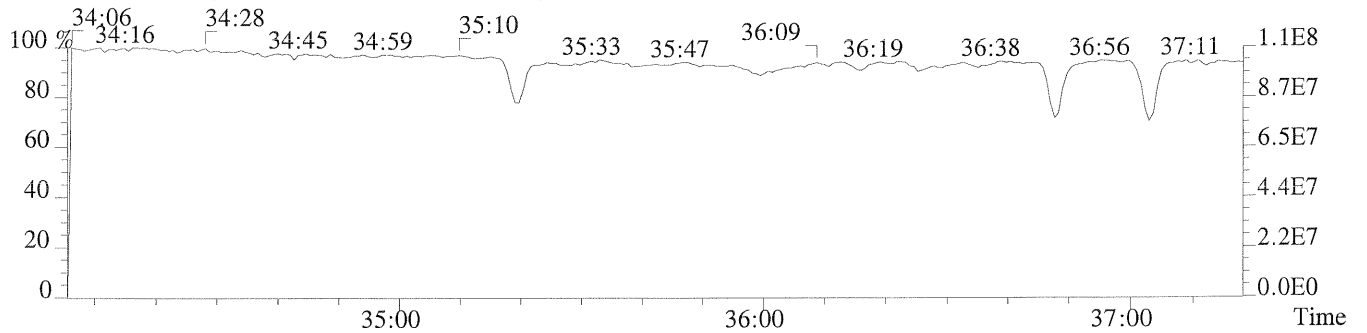
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1820.0,0.40%,F,T)



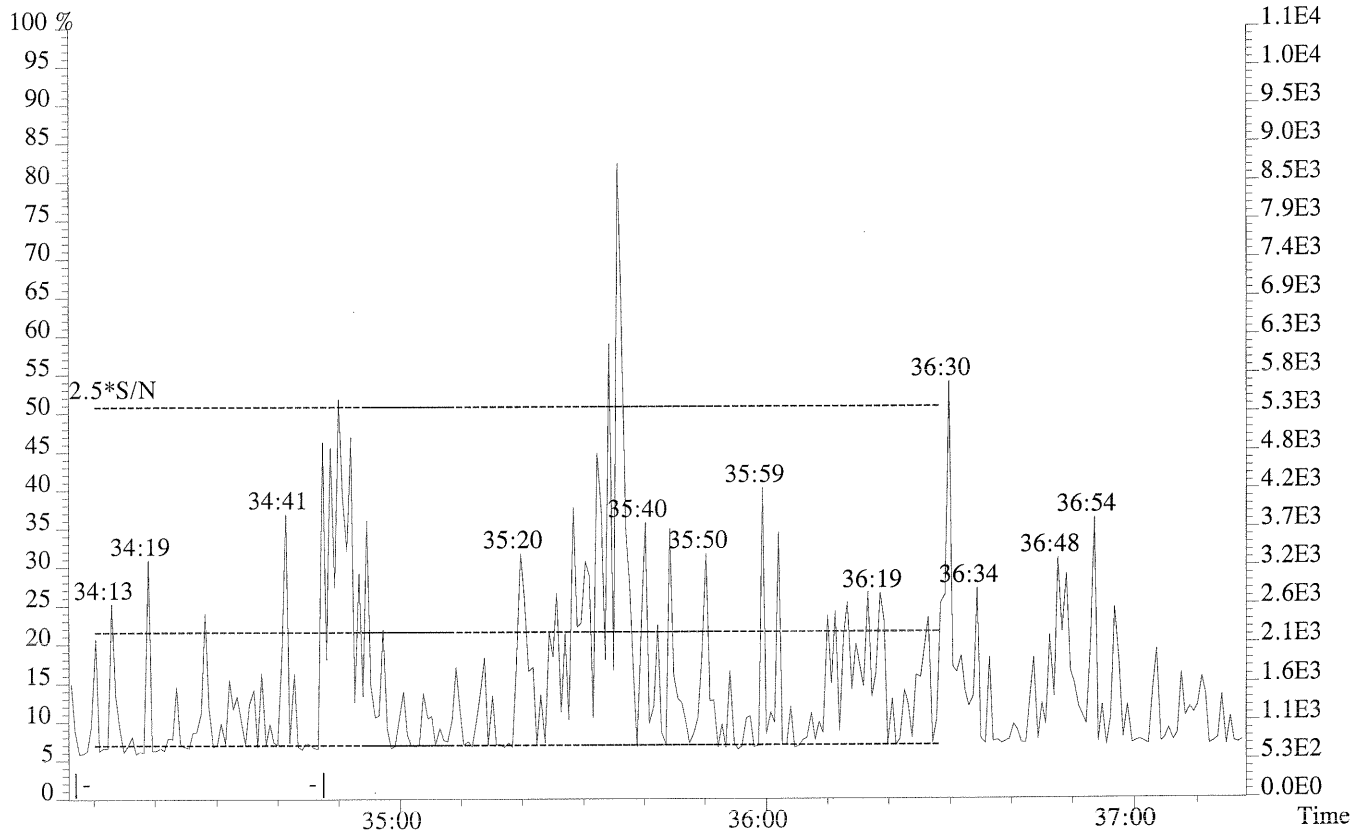
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1220.0,0.40%,F,T)



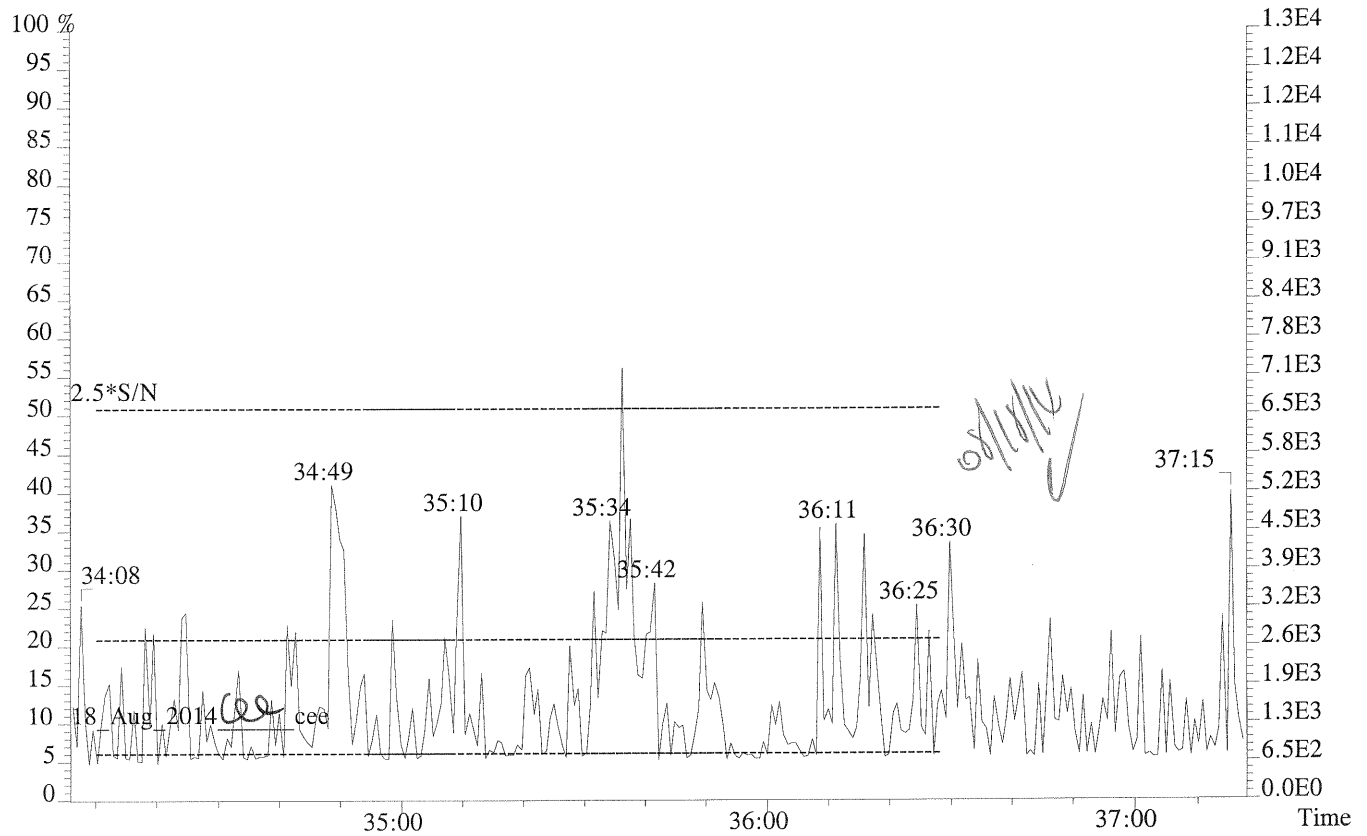
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P230537 #1-292 Acq:15-AUG-2014 15:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-002  
389.8157 F:3

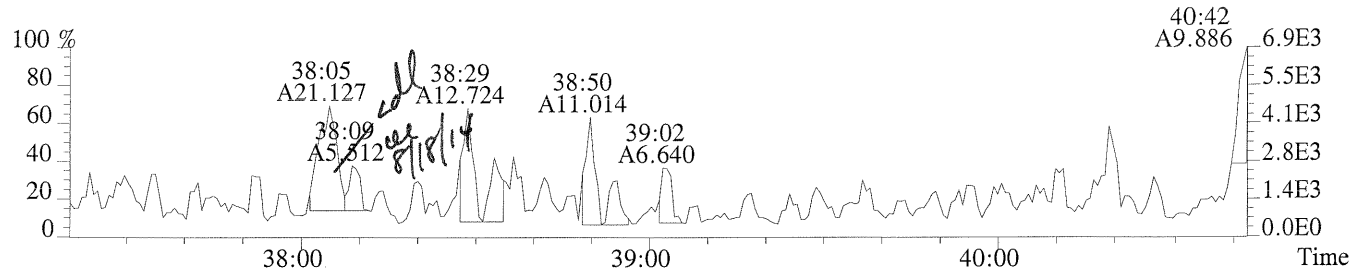


391.8127 F:3

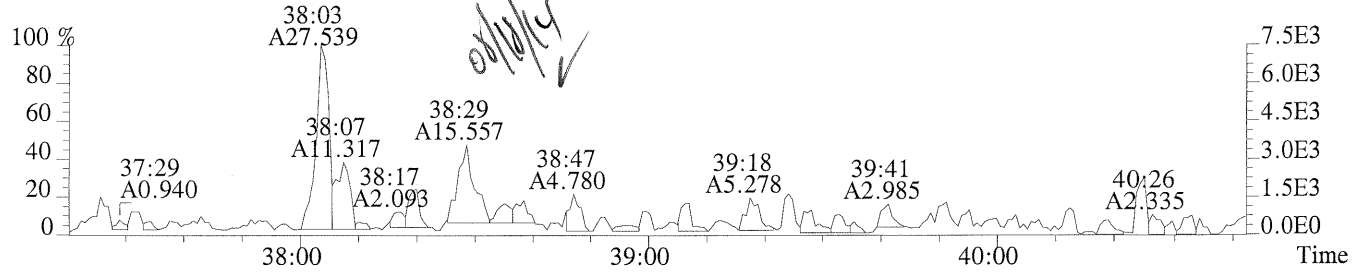




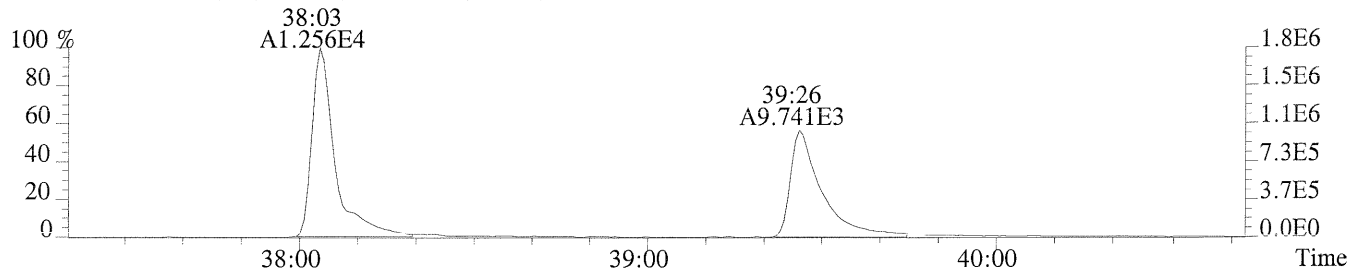
File:P230536 #1-306 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1580.0,0.50%,F,T)



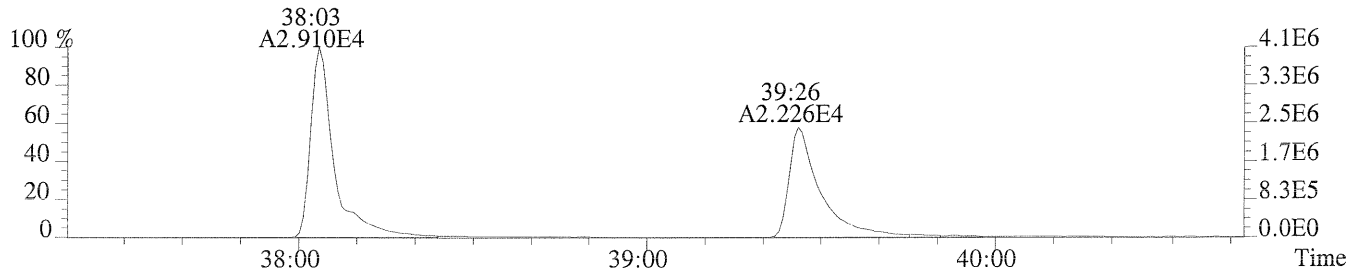
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.50%,F,T)



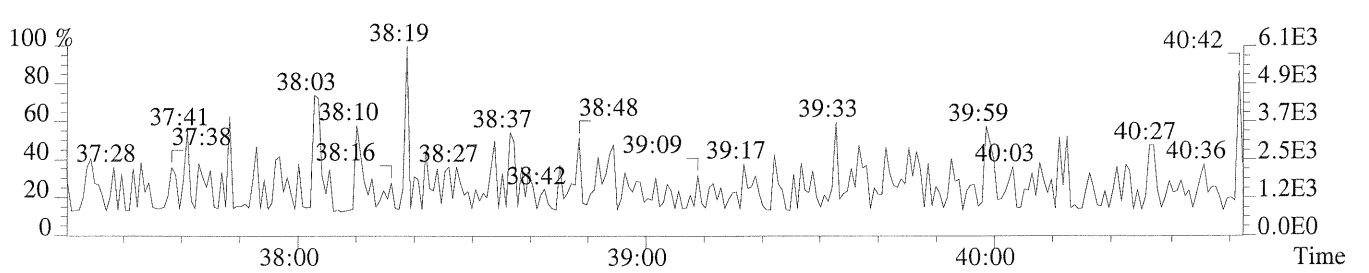
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8868.0,0.50%,F,T)



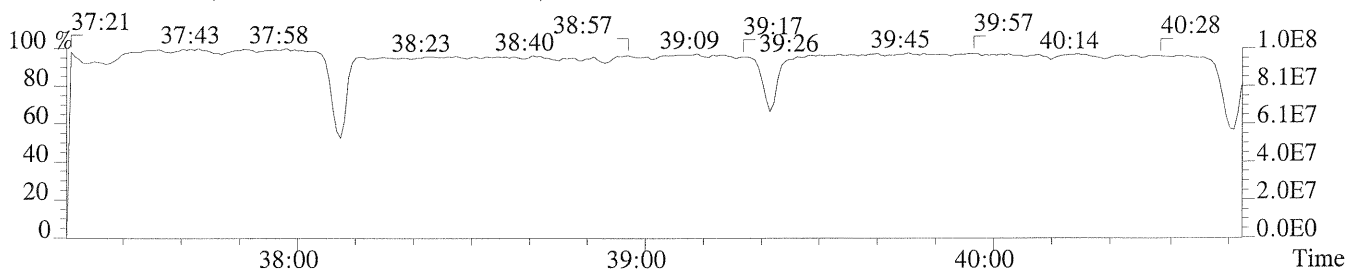
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9048.0,0.50%,F,T)



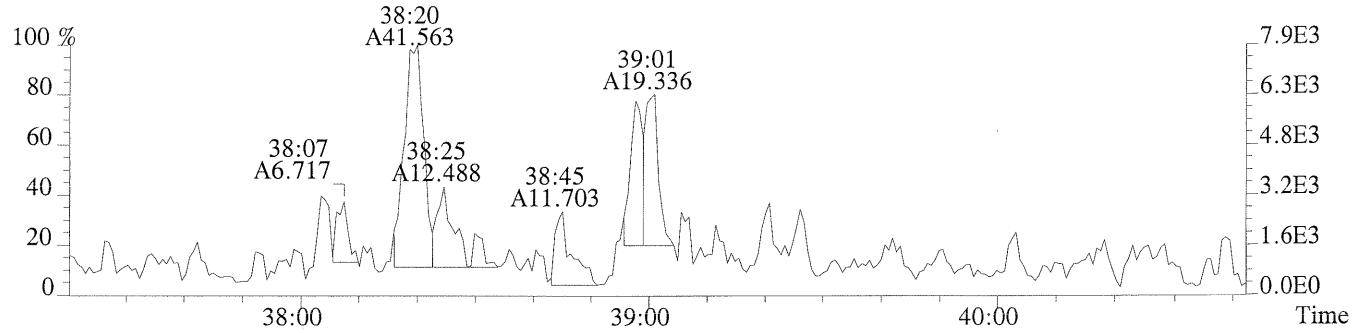
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



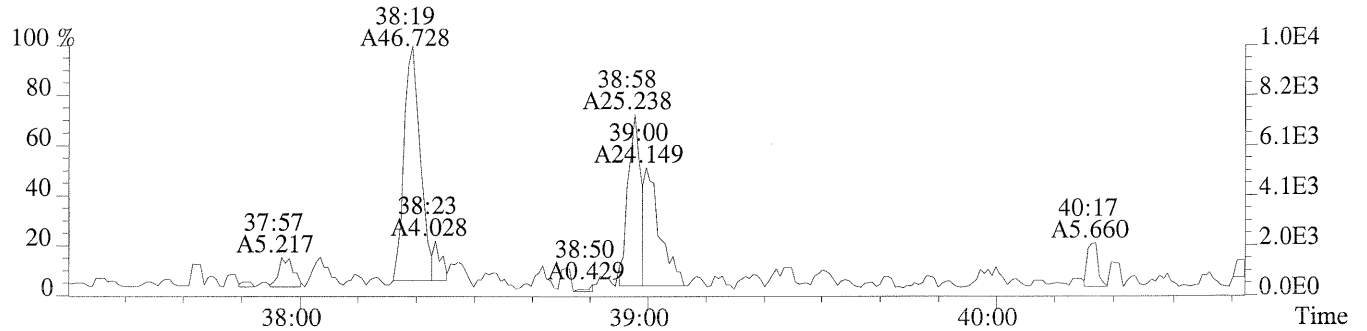
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



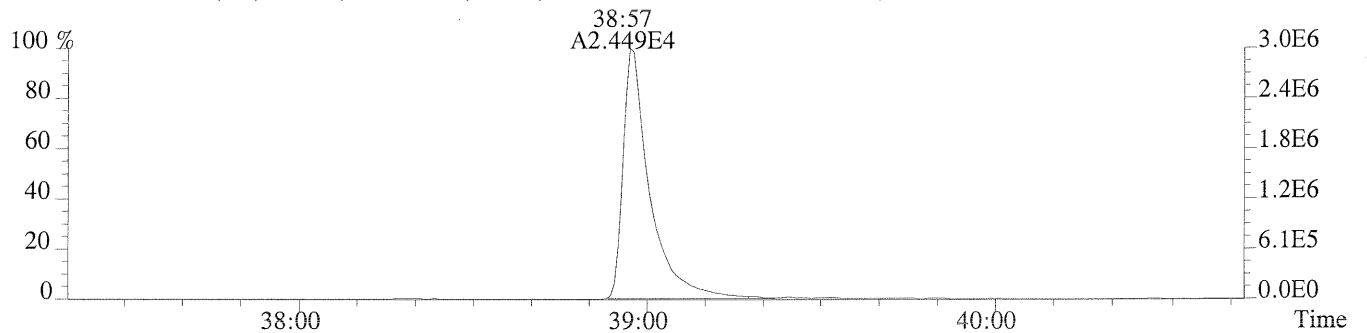
File:P230536 #1-306 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



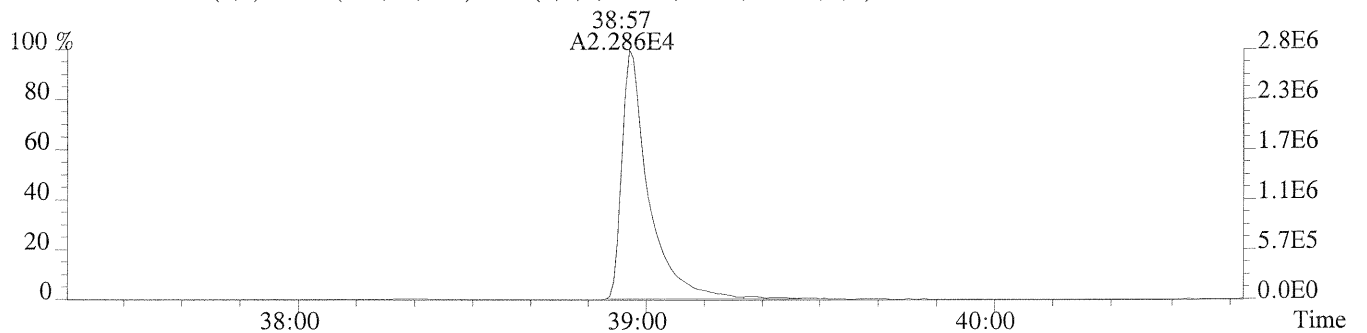
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



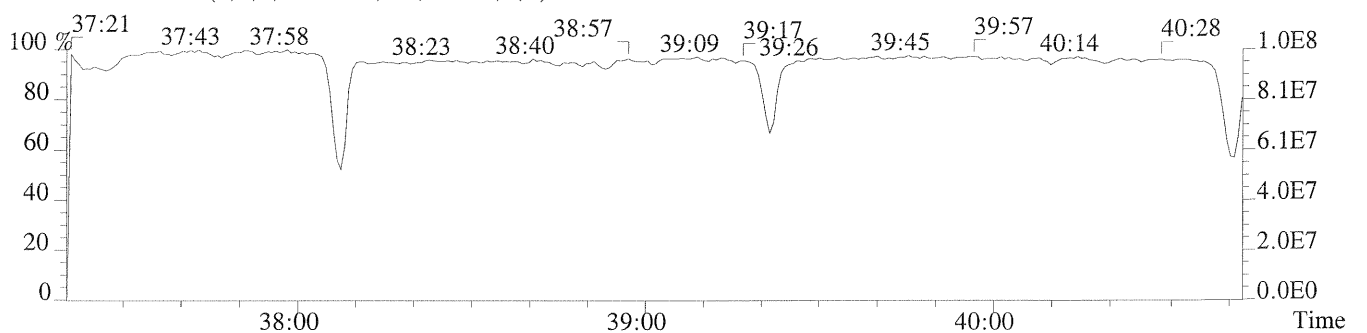
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)

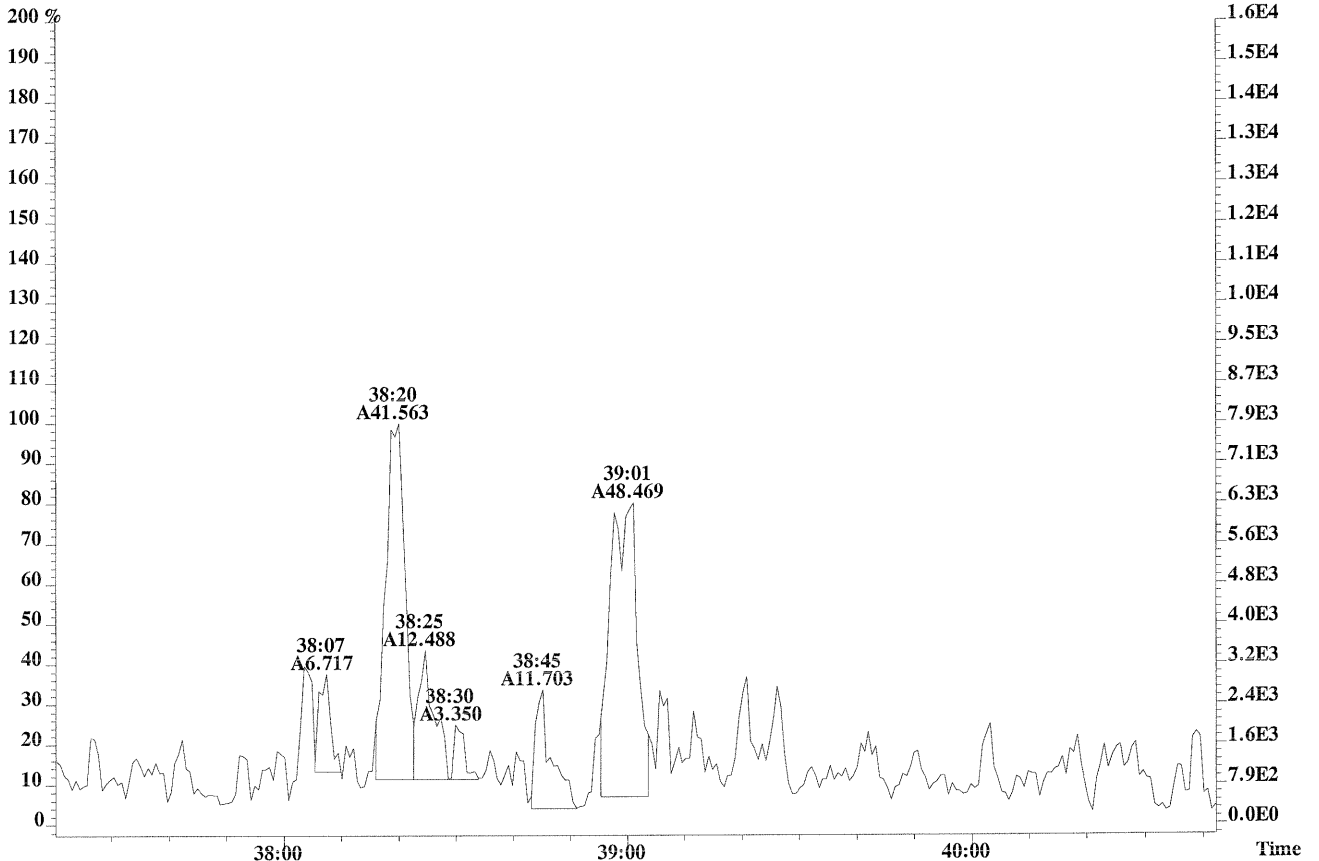


437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)

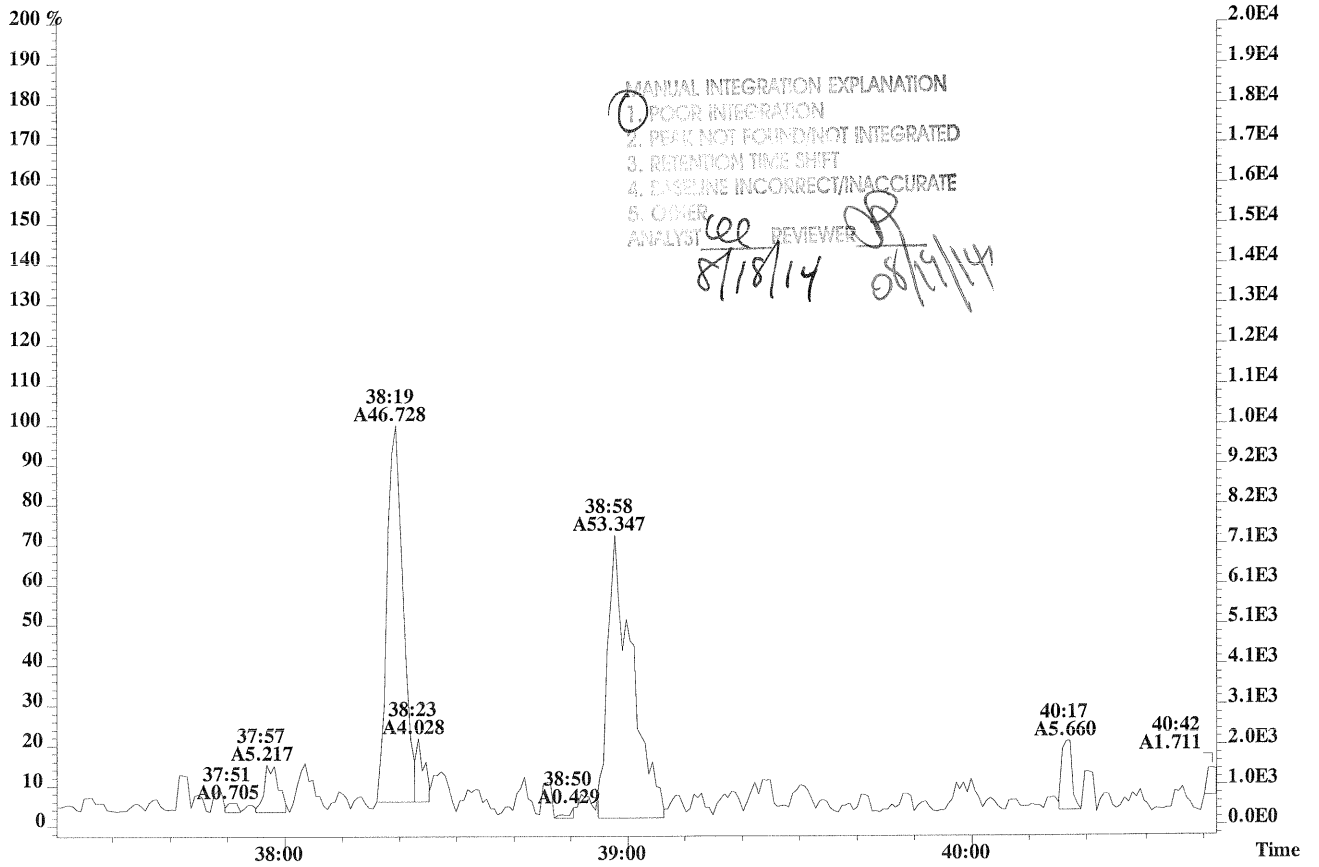


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

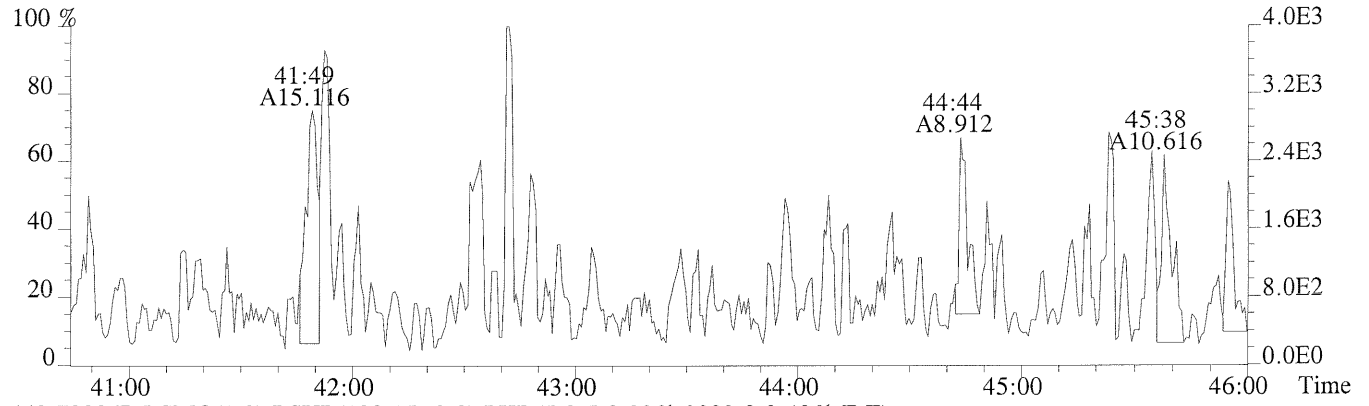




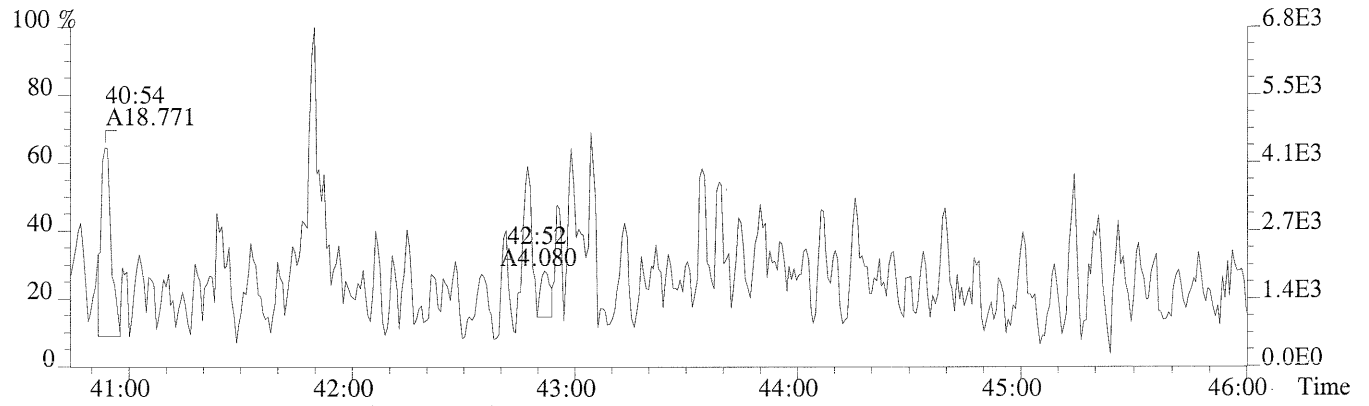
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



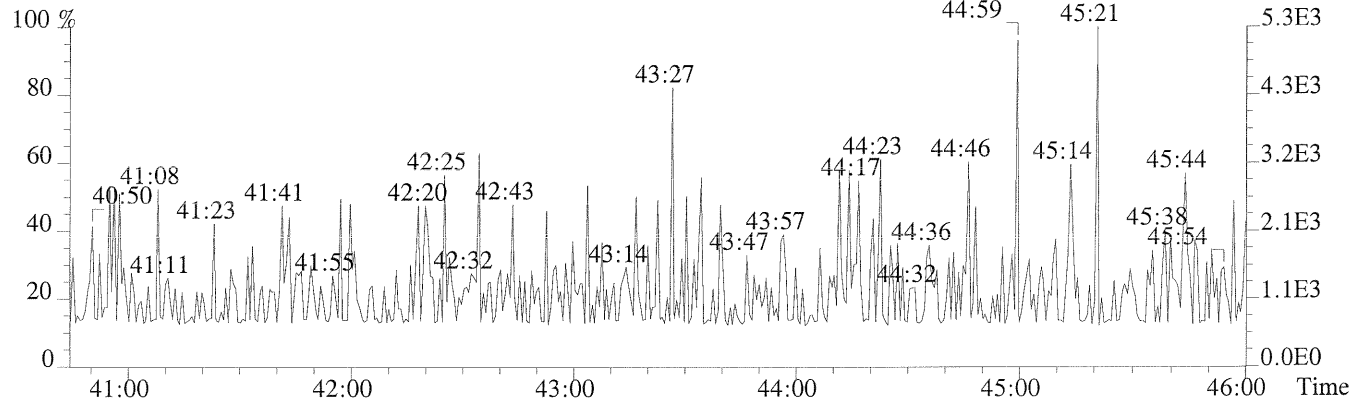
File:P230536 #1-484 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,808.0,0.40%,F,T)



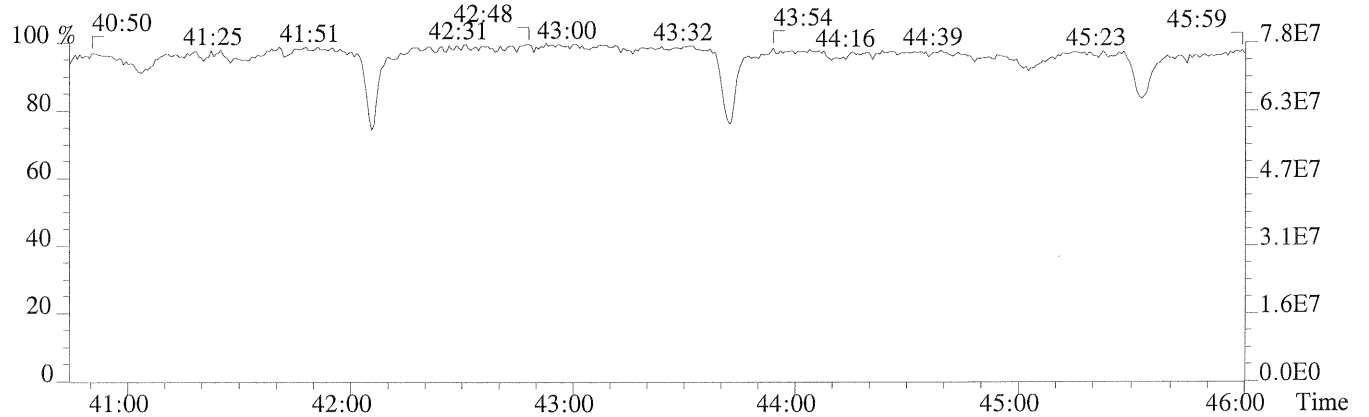
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2092.0,0.40%,F,T)



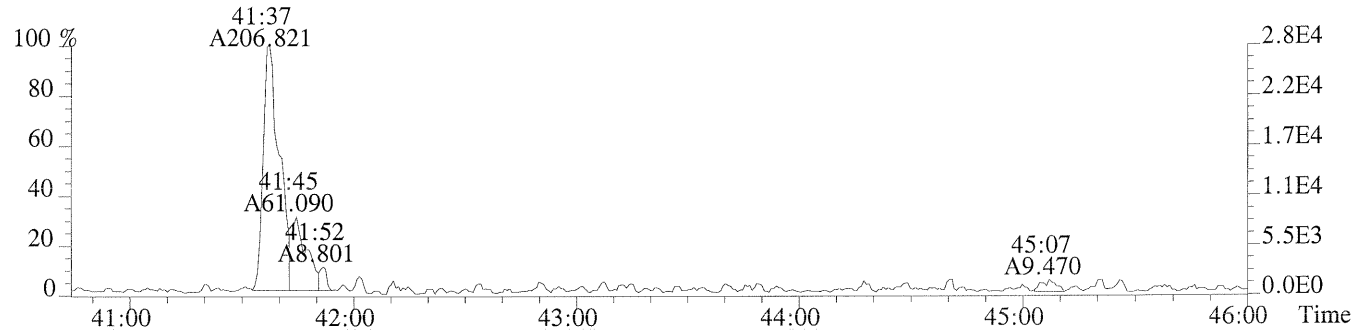
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



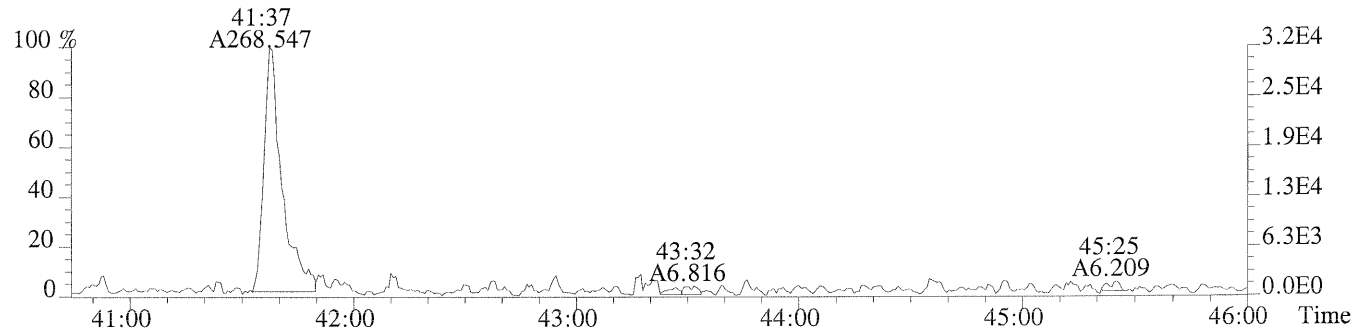
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



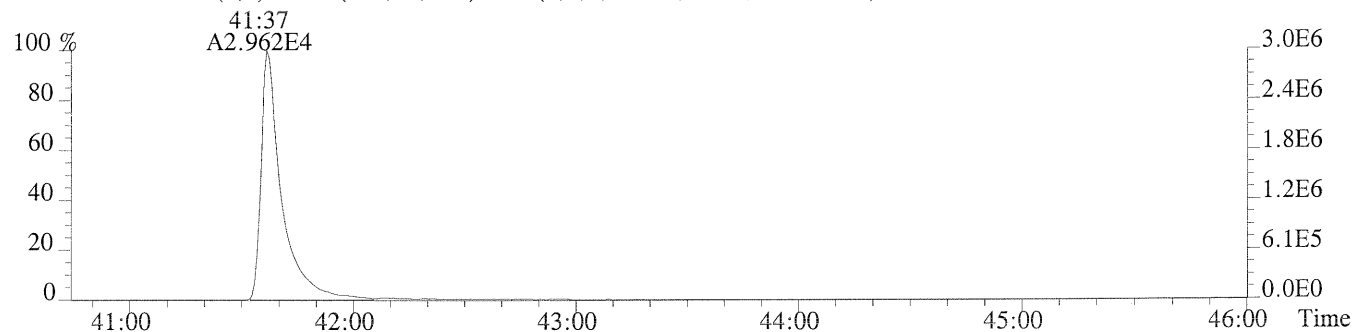
File:P230536 #1-484 Acq:15-AUG-2014 15:11:21 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-001  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



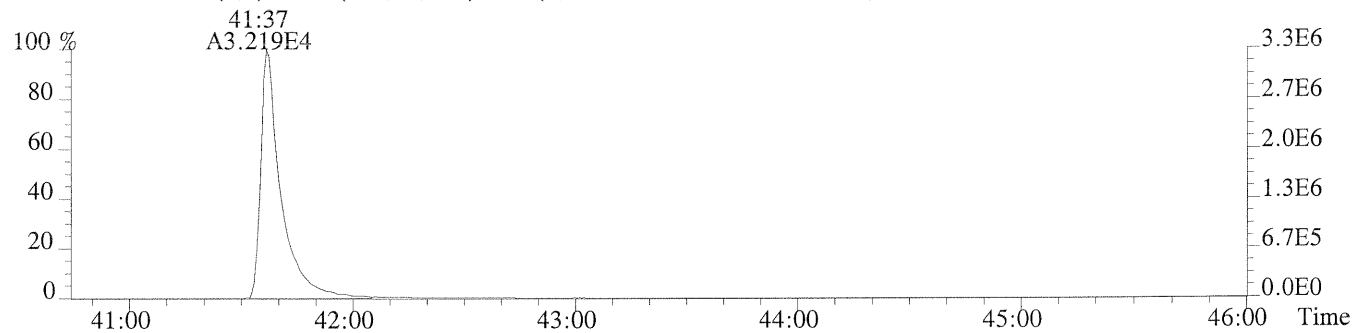
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



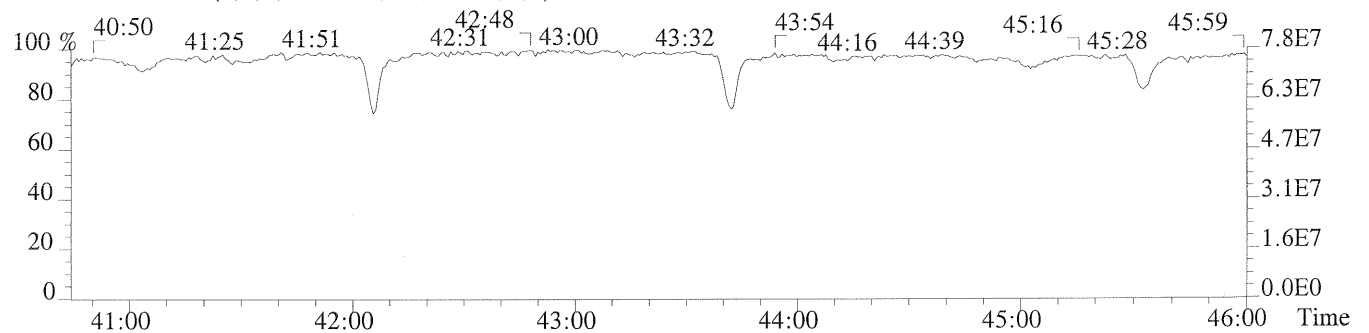
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)

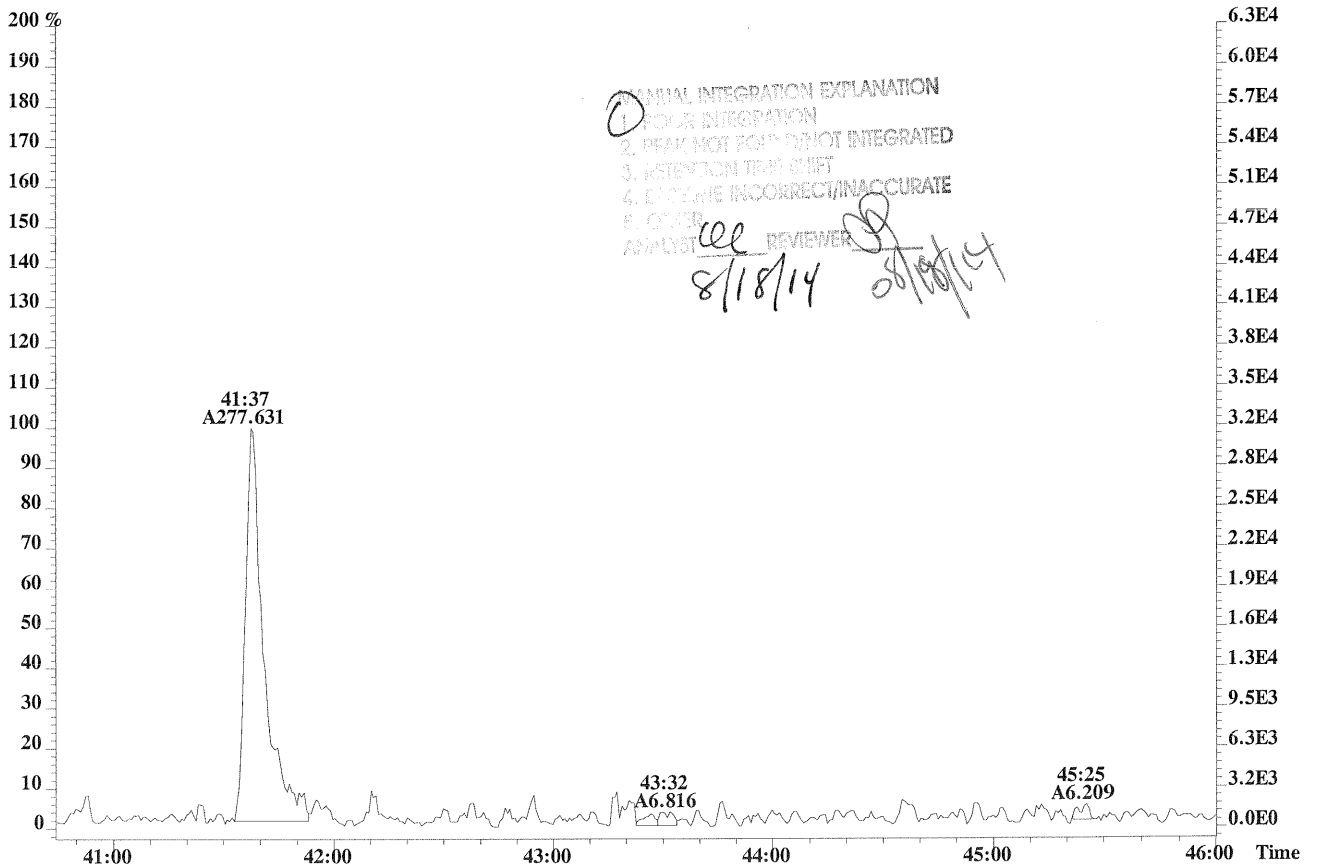
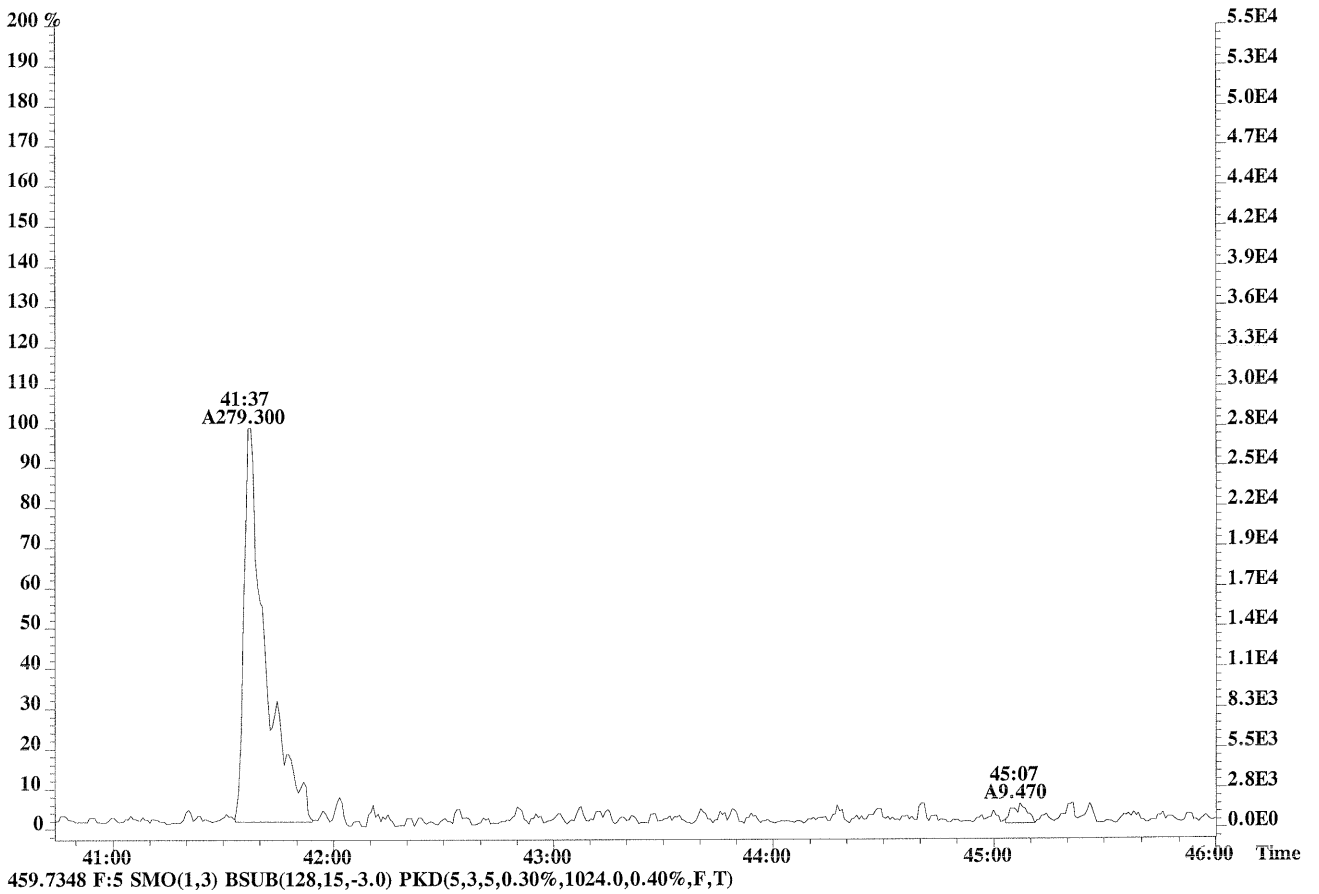


471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



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





Sample Response Summary

Run #11 Filename P230537 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 15:59:07  
 Processed: 18-AUG-14 14:24:01 LAB. ID: P1403085-002

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.959
2 Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.955
3 Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	0.868
5 Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.157
6 Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	0.963
7 Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	38:05	3.130e+01	2.114e+01	1.48	no	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.113
10 Unk	OCDF	NotFnd	*	*	*	no	no	1.392
11 Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.981
12 Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.982
13 Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.916
14 Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.142
15 Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	38:57	6.904e+01	4.625e+01	1.49	no	yes	1.104
17 Unk	OCDD	41:37	2.813e+02	2.629e+02	1.07	no	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:20	3.242e+04	4.107e+04	0.79	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:45	6.819e+04	4.313e+04	1.58	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	6.561e+04	4.172e+04	1.57	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:25	2.131e+04	4.225e+04	0.50	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	3.673e+04	6.945e+04	0.53	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:48	4.395e+04	8.483e+04	0.52	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	1.535e+04	3.604e+04	0.43	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:25	1.148e+04	2.652e+04	0.43	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:10	2.222e+04	2.934e+04	0.76	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	32:59	4.939e+04	3.128e+04	1.58	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:10	3.013e+04	2.380e+04	1.27	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:15	4.149e+04	3.197e+04	1.30	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:56	3.036e+04	2.817e+04	1.08	yes	no	0.925
32 IS	13C-OCDD	41:36	3.547e+04	3.920e+04	0.90	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:29	1.993e+05	2.539e+05	0.78	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:29	2.793e+05	2.237e+05	1.25	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:11	6.087e+04			no		0.960

OCDD =  $\frac{(2.813e+02 + 2.629e+02) \times (8000.0)}{(3.547e+04 + 3.920e+04)} \times 1.181 \times 1.000$  = 49.4 pg

4000

08/18/14

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
730D1-DF

Method M23

Run #11 Filename P230537 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 15:59:07  
Processed: 18-AUG-14 14:24:01 LAB. ID: P1403085-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.00e+02	*	*	2.46e+03	*
2	1,2,3,7,8-PeCDF	*	8.00e+02	*	*	2.10e+03	*
3	2,3,4,7,8-PeCDF	*	8.00e+02	*	*	2.10e+03	*
4	1,2,3,4,7,8-HxCDF	*	8.72e+02	*	*	6.76e+02	*
5	1,2,3,6,7,8-HxCDF	*	8.72e+02	*	*	6.76e+02	*
6	2,3,4,6,7,8-HxCDF	*	8.72e+02	*	*	6.76e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.72e+02	*	*	6.76e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.12e+03	5.36e+02	1.1e+01	5.09e+03	5.72e+02	8.9e+00
9	1,2,3,4,7,8,9-HpCDF	*	5.36e+02	*	*	5.72e+02	*
10	OCDF	*	5.44e+02	*	*	2.18e+03	*
11	2,3,7,8-TCDD	*	1.18e+03	*	*	1.12e+03	*
12	1,2,3,7,8-PeCDD	*	1.83e+03	*	*	4.24e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.16e+02	*	*	8.20e+02	*
14	1,2,3,6,7,8-HxCDD	*	3.16e+02	*	*	8.20e+02	*
15	1,2,3,7,8,9-HxCDD	*	3.16e+02	*	*	8.20e+02	*
16	1,2,3,4,6,7,8-HpCDD	8.46e+03	8.36e+02	1.0e+01	7.00e+03	6.44e+02	1.1e+01
17	OCDD	2.64e+04	6.32e+02	4.2e+01	2.87e+04	1.08e+03	2.7e+01
18	13C-2,3,7,8-TCDF	4.27e+06	3.23e+03	1.3e+03	5.38e+06	1.68e+03	3.2e+03
19	13C-1,2,3,7,8-PeCDF	7.90e+06	3.81e+03	2.1e+03	5.05e+06	2.05e+03	2.5e+03
20	13C-2,3,4,7,8-PeCDF	8.45e+06	3.81e+03	2.2e+03	5.29e+06	2.05e+03	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	3.67e+06	7.96e+02	4.6e+03	7.24e+06	2.77e+03	2.6e+03
22	13C-1,2,3,6,7,8-HxCDF	4.85e+06	7.96e+02	6.1e+03	9.06e+06	2.77e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.19e+06	7.96e+02	7.8e+03	1.17e+07	2.77e+03	4.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.25e+06	1.61e+03	1.4e+03	5.16e+06	7.96e+03	6.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.27e+06	1.61e+03	7.9e+02	2.95e+06	7.96e+03	3.7e+02
27	13C-2,3,7,8-TCDD	3.39e+06	6.29e+03	5.4e+02	4.45e+06	2.56e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	5.95e+06	1.40e+03	4.2e+03	3.81e+06	6.00e+02	6.3e+03
29	13C-1,2,3,4,7,8-HxCDD	5.86e+06	1.58e+03	3.7e+03	4.64e+06	1.46e+03	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	6.23e+06	1.58e+03	3.9e+03	4.92e+06	1.46e+03	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.90e+06	1.34e+03	2.9e+03	3.69e+06	4.12e+02	9.0e+03
32	13C-OCDD	3.72e+06	6.51e+03	5.7e+02	4.16e+06	8.11e+03	5.1e+02
33	13C-1,2,3,4-TCDD	3.36e+07	6.29e+03	5.3e+03	4.28e+07	2.56e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	4.57e+07	1.58e+03	2.9e+04	3.70e+07	1.46e+03	2.5e+04
35	37Cl-2,3,7,8-TCDD	8.63e+06	8.72e+02	9.9e+03			

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

ALS Form TO-9SN/M23SN.FRM



ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730D1-DF

---

Entry: 43          Totals Name: Total Hepta-Furans

Run: 11          File: P230537          Sample: 1 Injection: 1 Function: 4

Llim: 37:59          Ulim: 39:37

Acquired: 15-AUG-14    15:59:07          Processed: 18-AUG-14 14:24:01

Mass: 407.7820    409.7790          Tot Response: 4.99e+01    RRF: 1.252

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:28	2.43e+01	2.57e+01	0.95	yes	4.99e+01	n	n

---

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

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730D1-DF

---

Entry: 44      Totals Name: Total Hepta-Dioxins

Run: 11      File: P230537      Sample: 1    Injection: 1    Function: 4

Llim: 38:14      Ulim: 39:08

Acquired: 15-AUG-14    15:59:07      Processed: 18-AUG-14 14:24:01

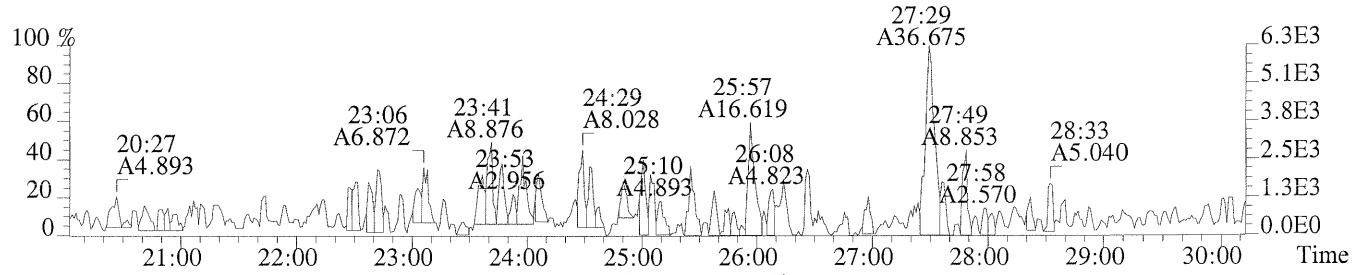
Mass: 423.7770    425.7740      Tot Response: 1.32e+02    RRF: 1.104

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:18	6.40e+01	6.79e+01	0.94	yes	1.32e+02	n	y

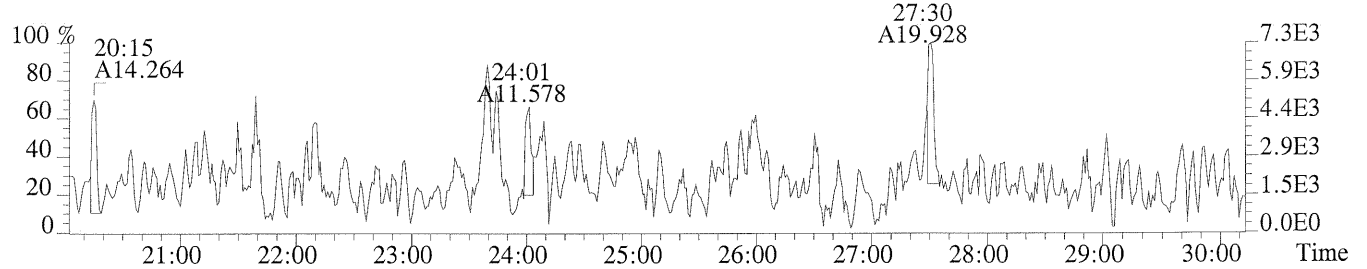
---

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

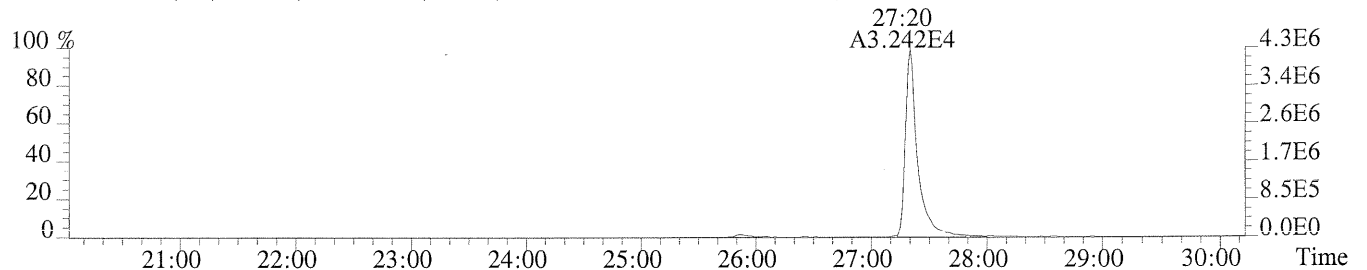
File:P230537 #1-640 Acq:15-AUG-2014 15:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-002  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



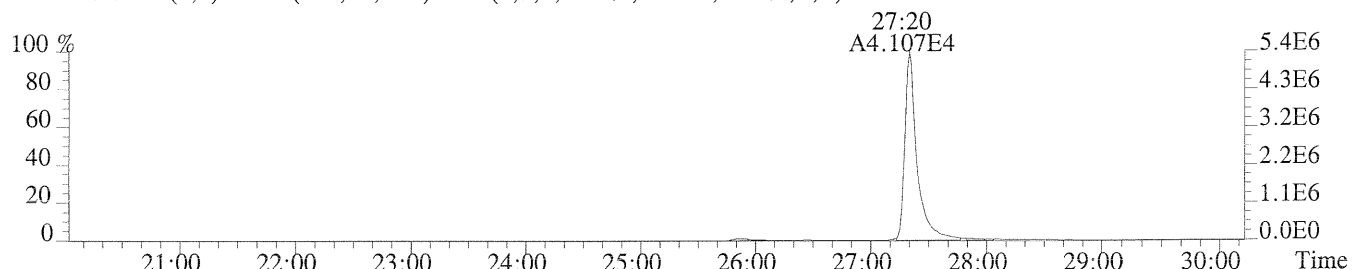
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2464.0,1.00%,F,T)



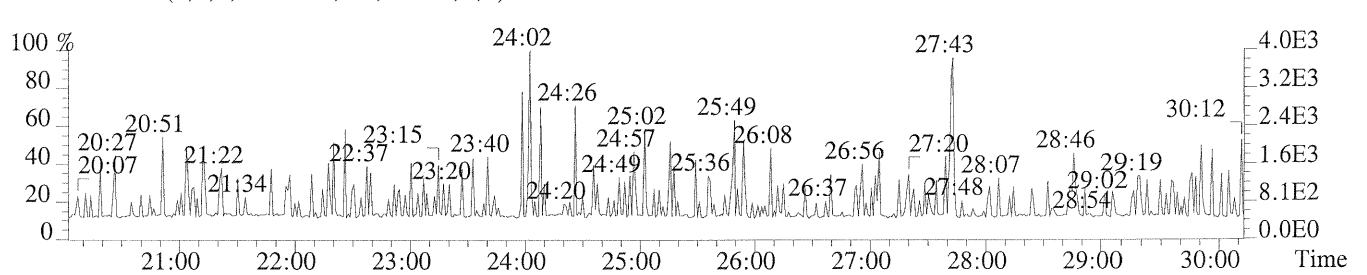
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3232.0,1.00%,F,T)



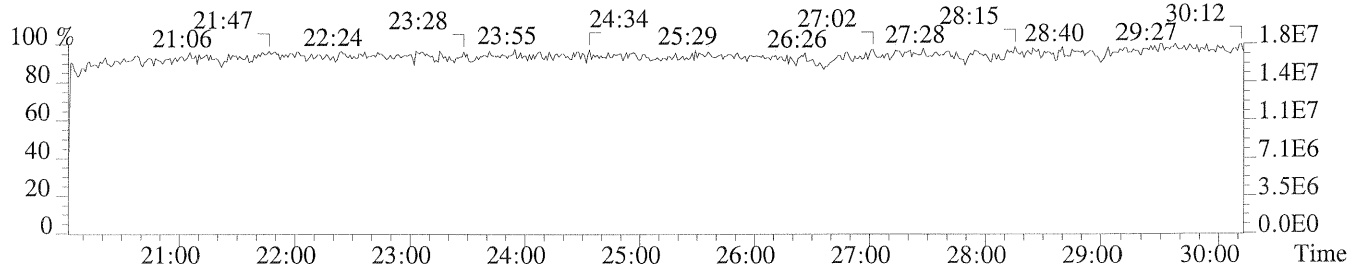
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)

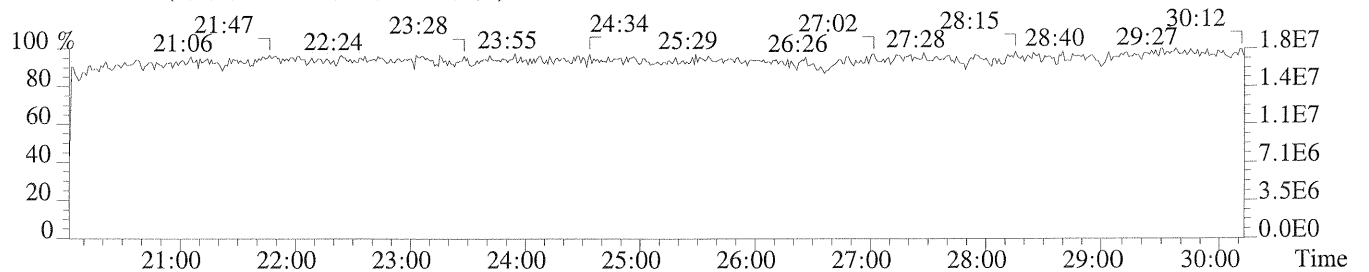
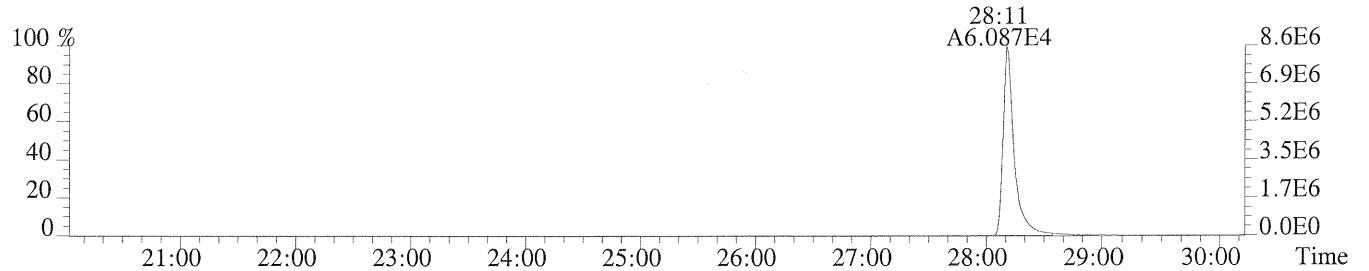
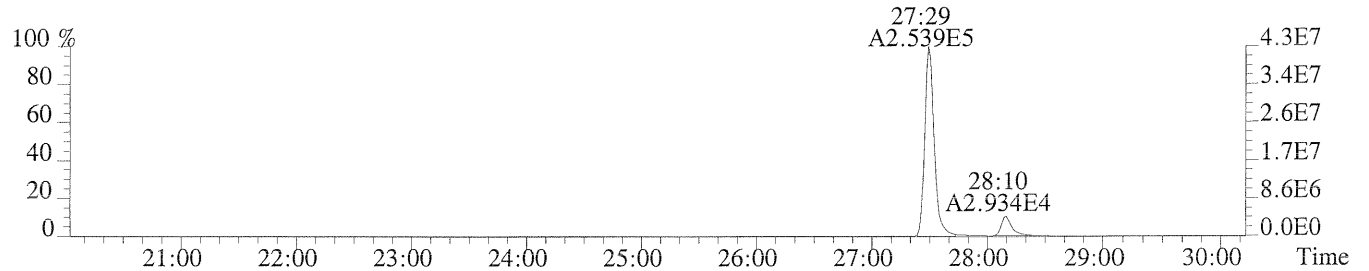
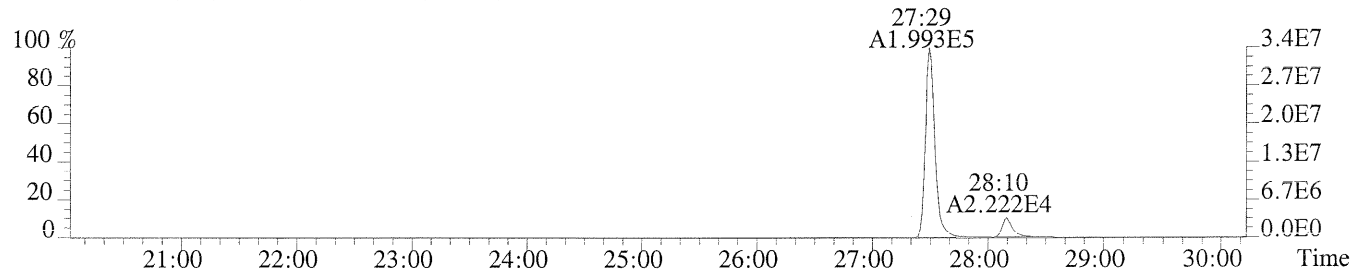
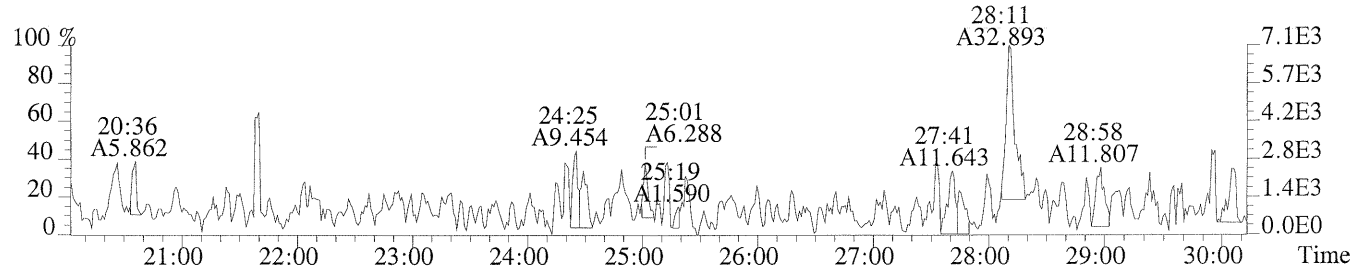
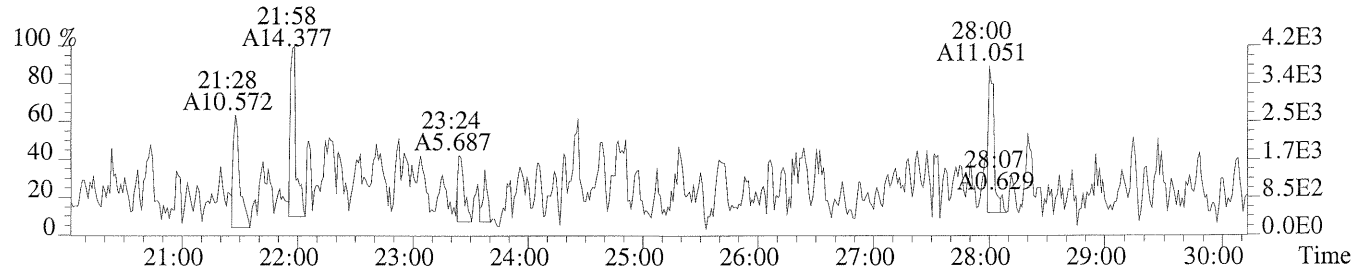


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

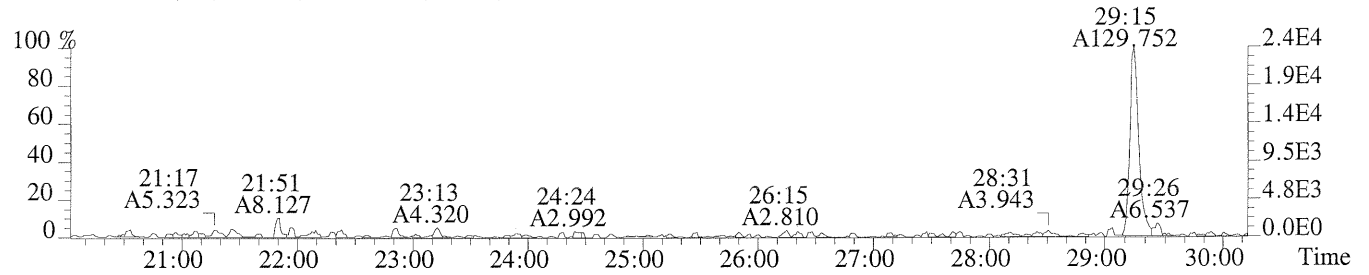


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

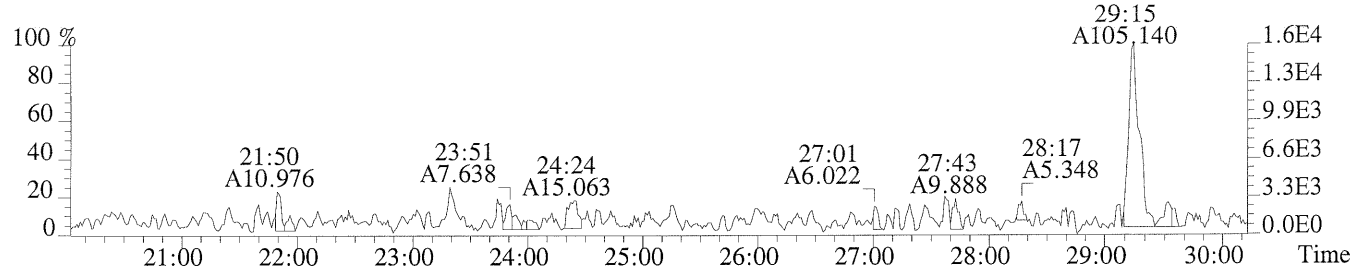




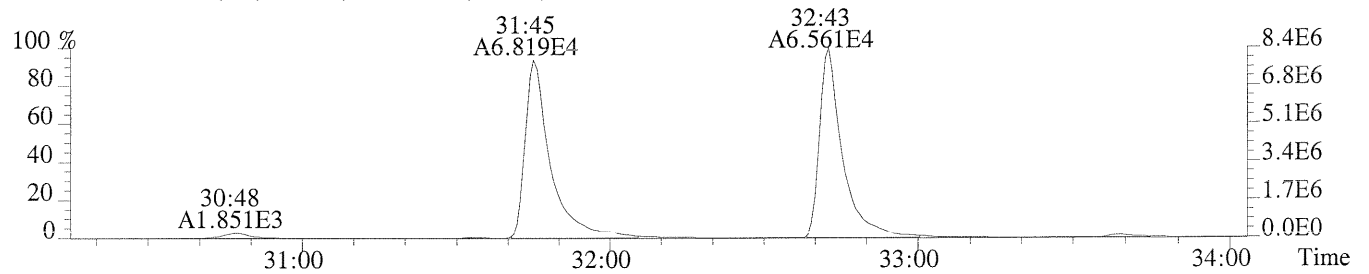
File:P230537 #1-640 Acq:15-AUG-2014 15:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-002  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



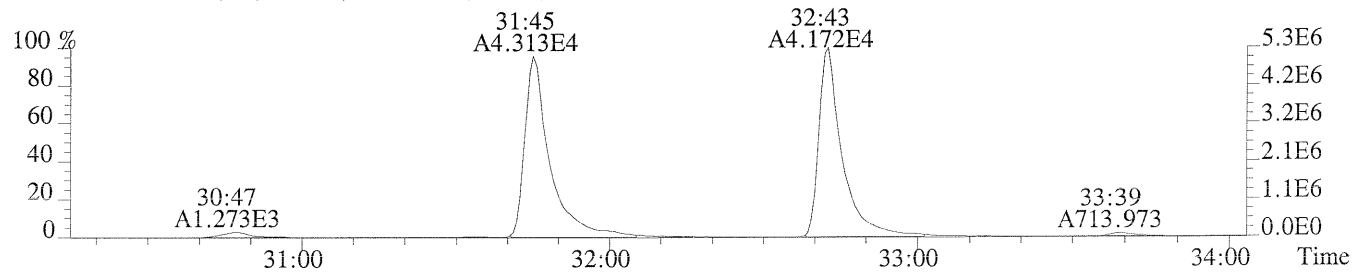
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



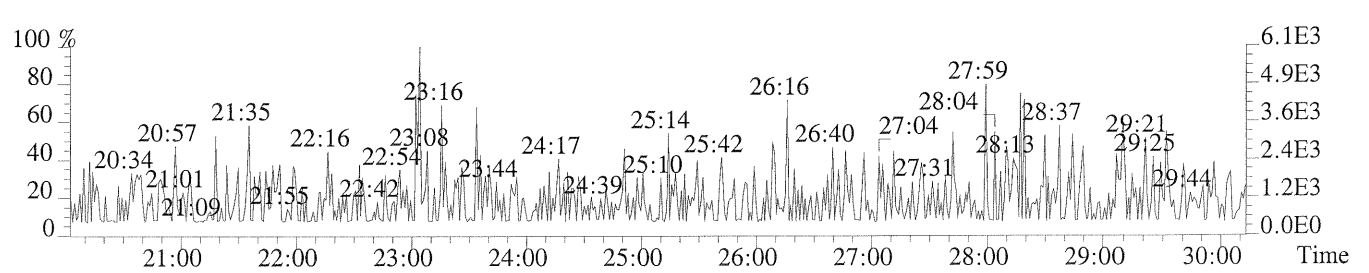
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3812.0,1.00%,F,T)



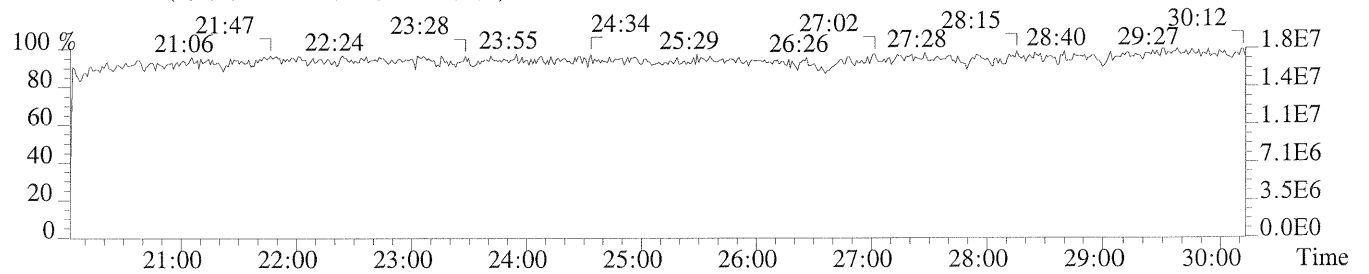
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2052.0,1.00%,F,T)

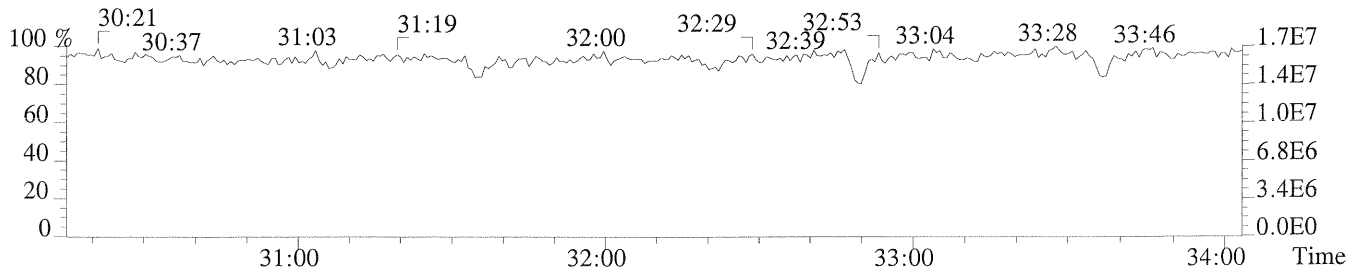
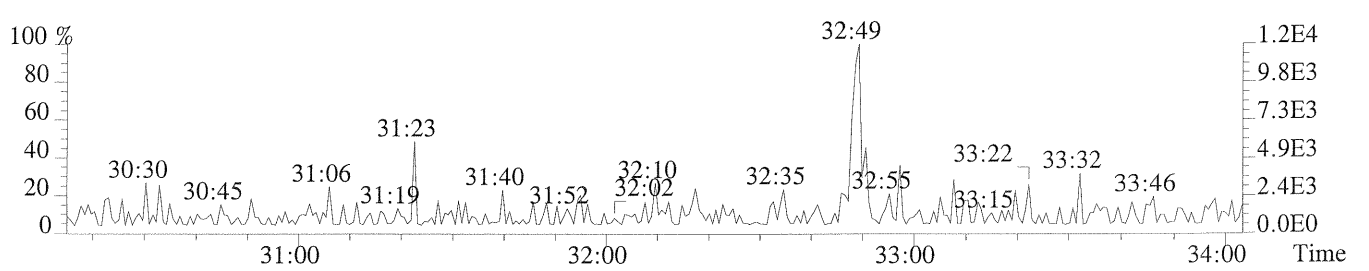
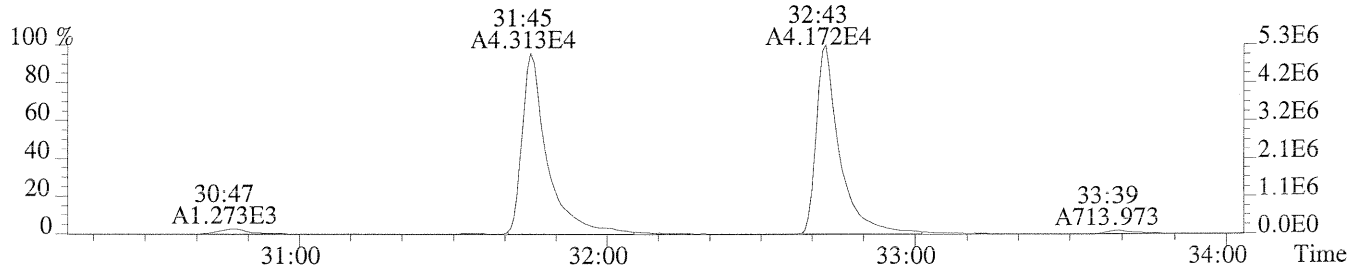
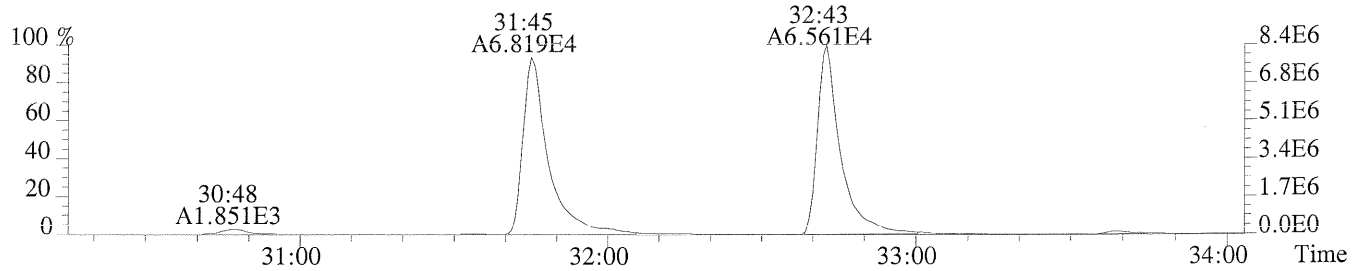
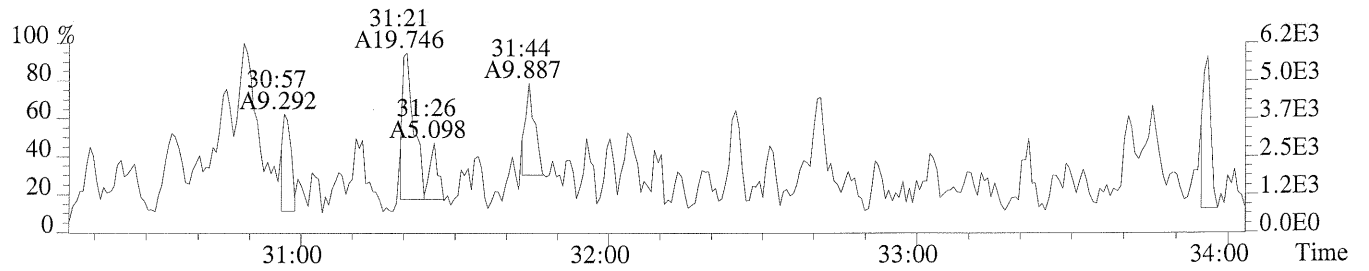
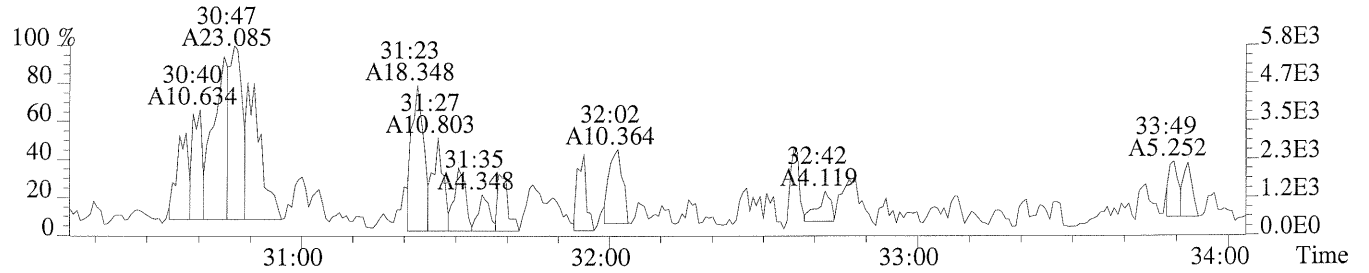


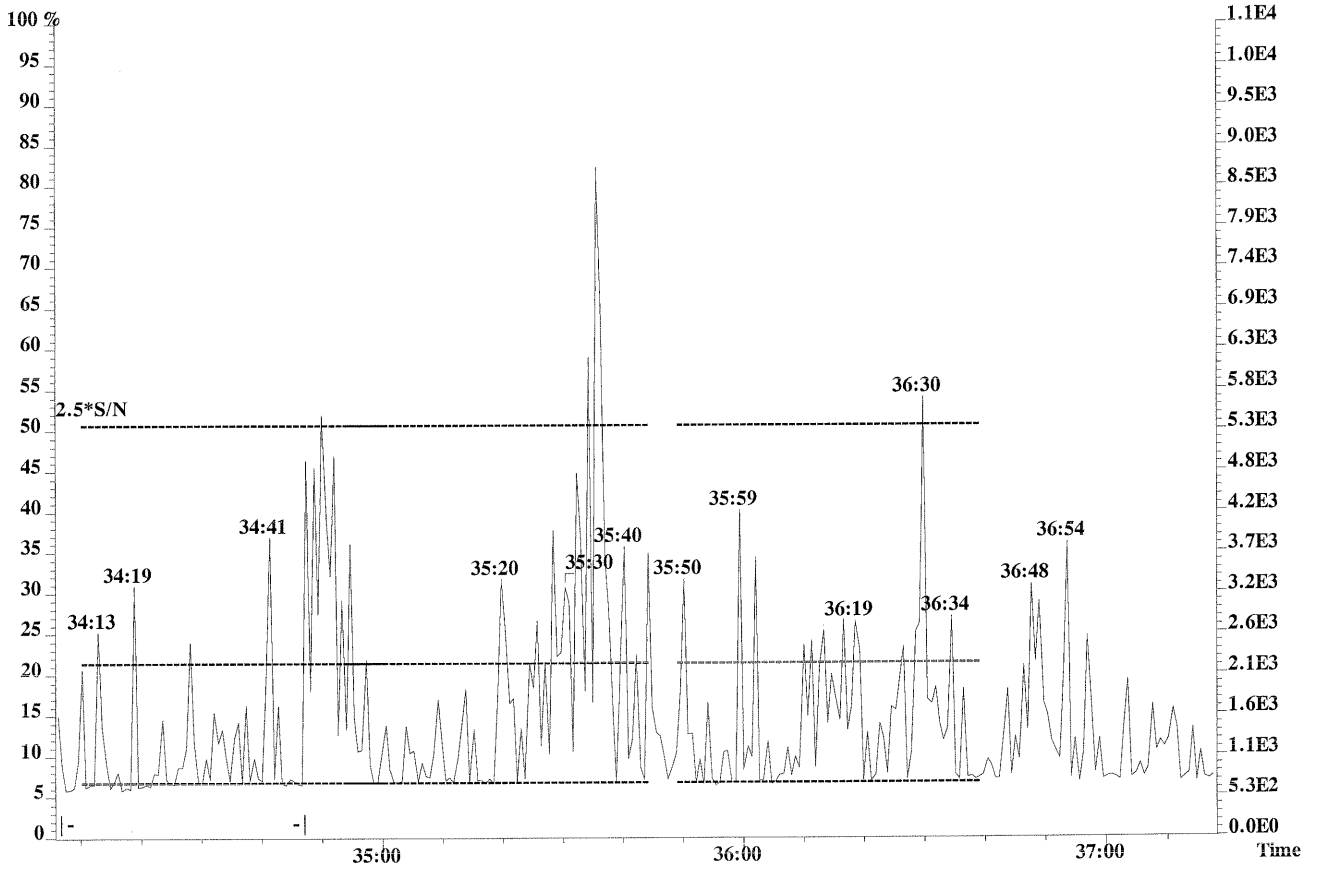
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



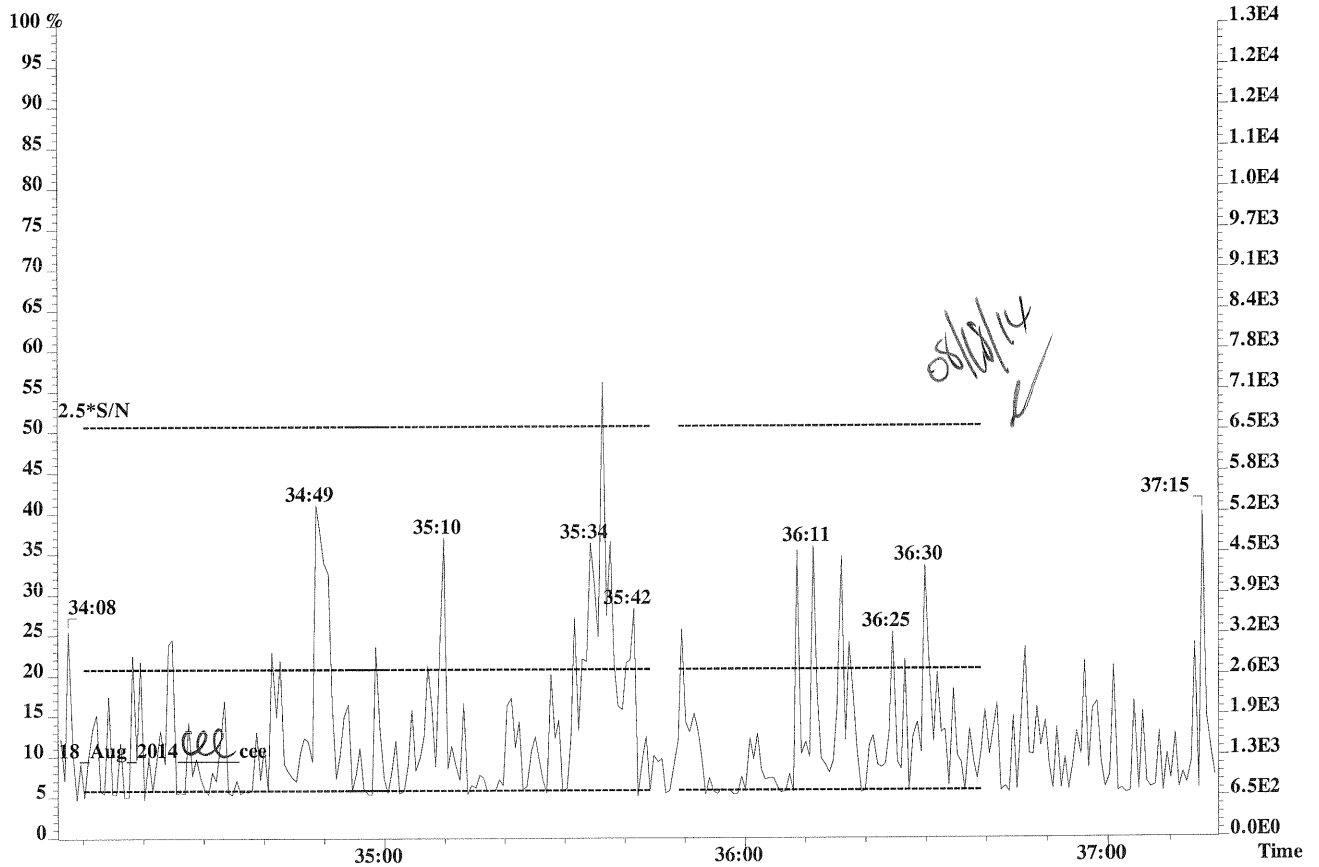
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



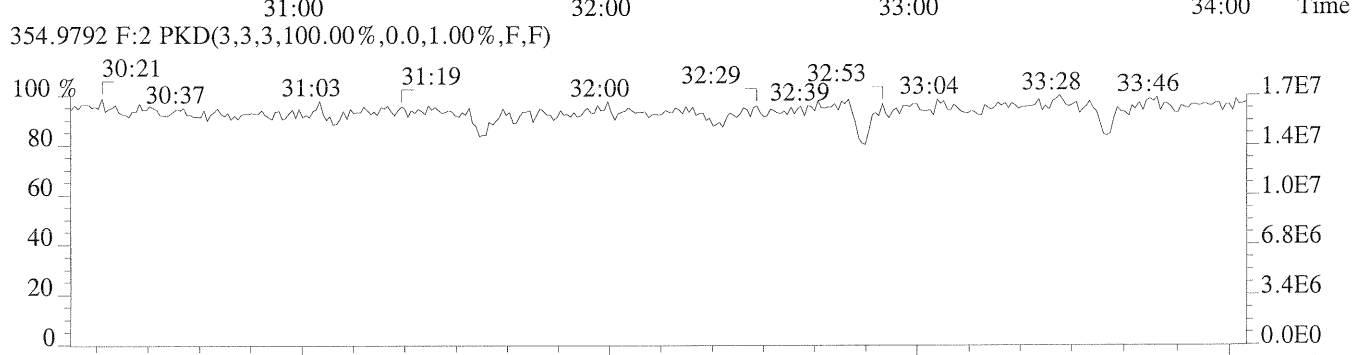
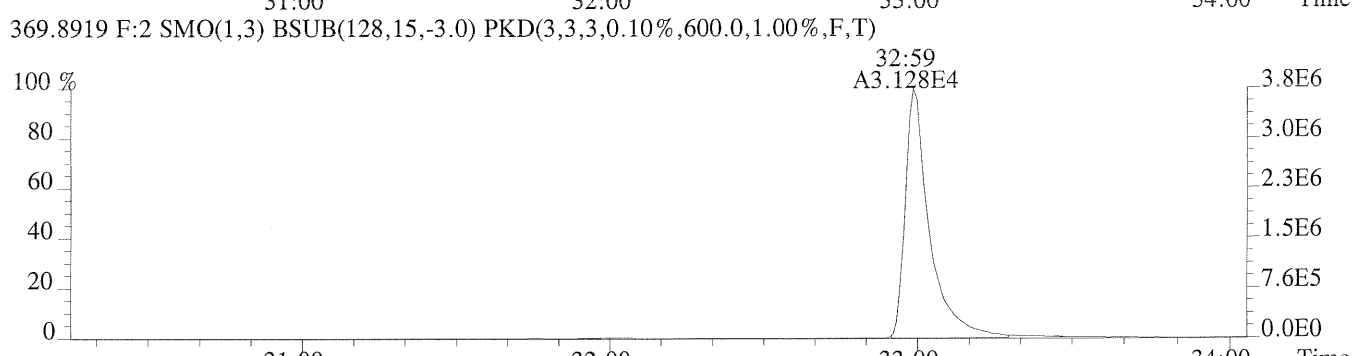
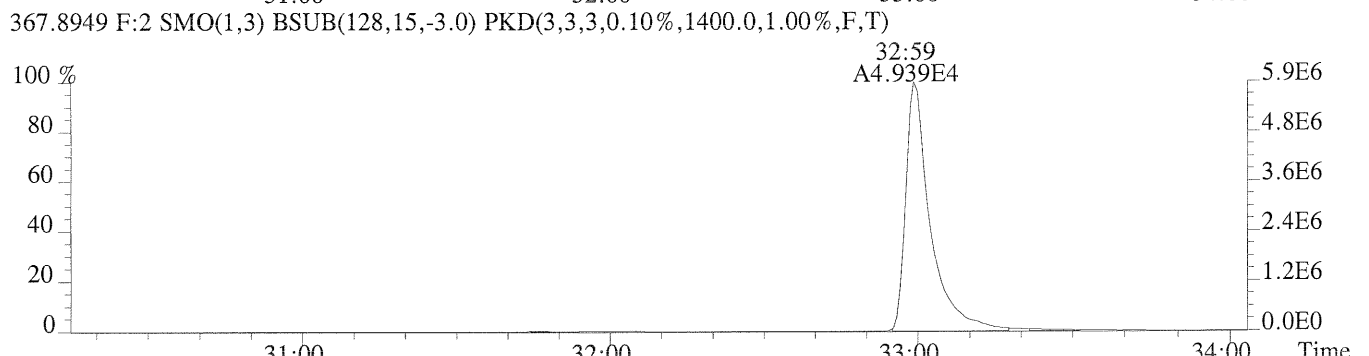
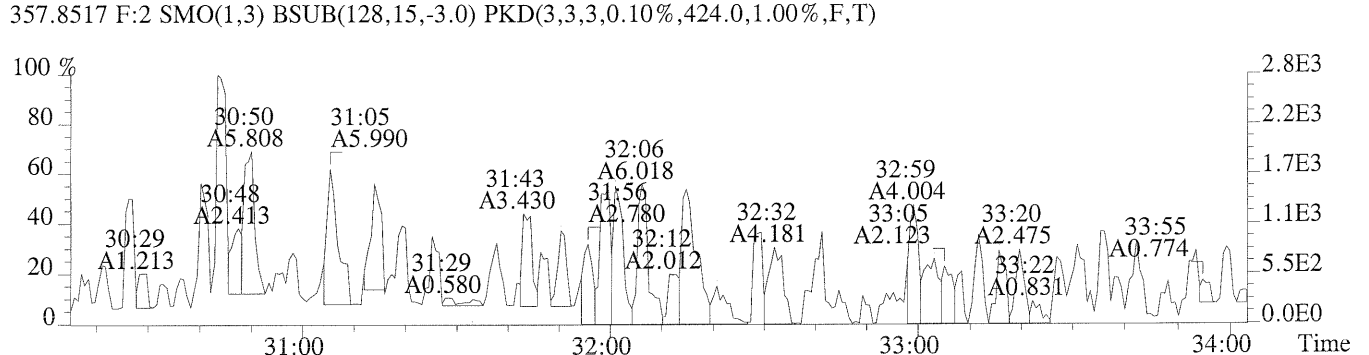
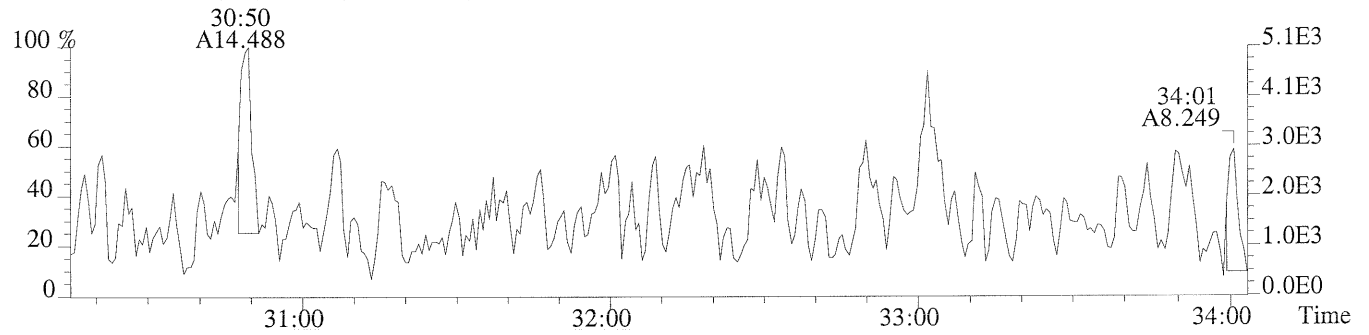




391.8127 F:3

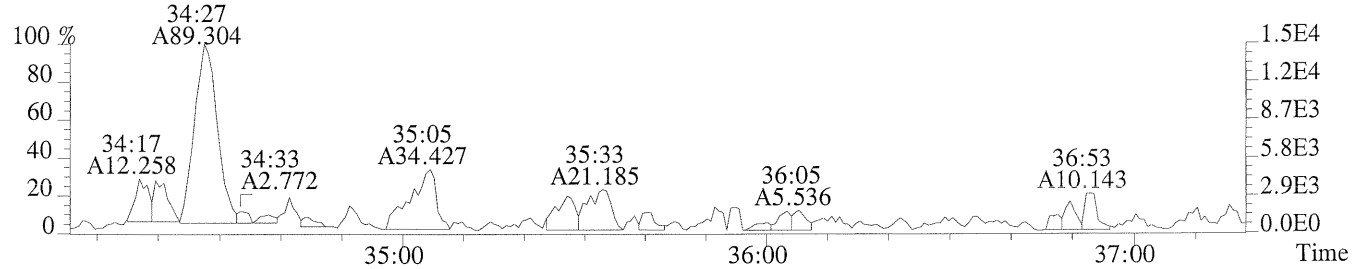


File:P230537 #1-346 Acq:15-AUG-2014 15:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-002  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)

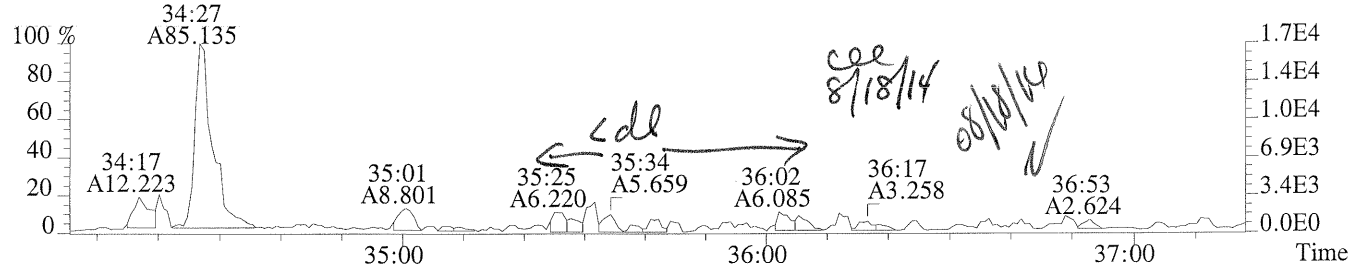




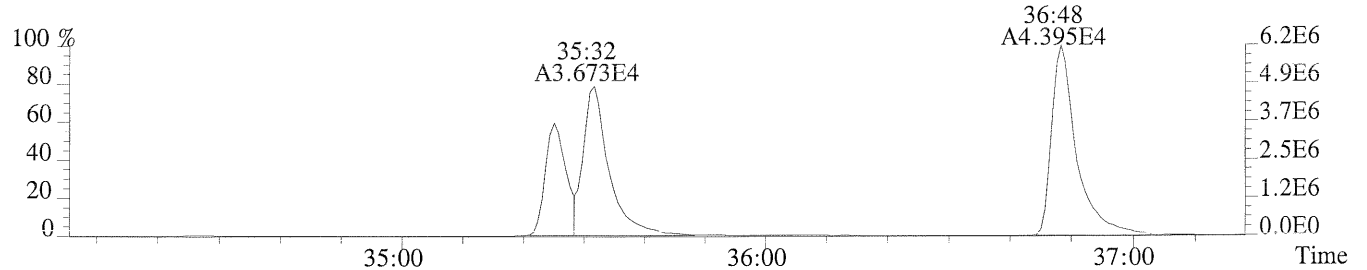
File:P230537 #1-292 Acq:15-AUG-2014 15:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-002  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



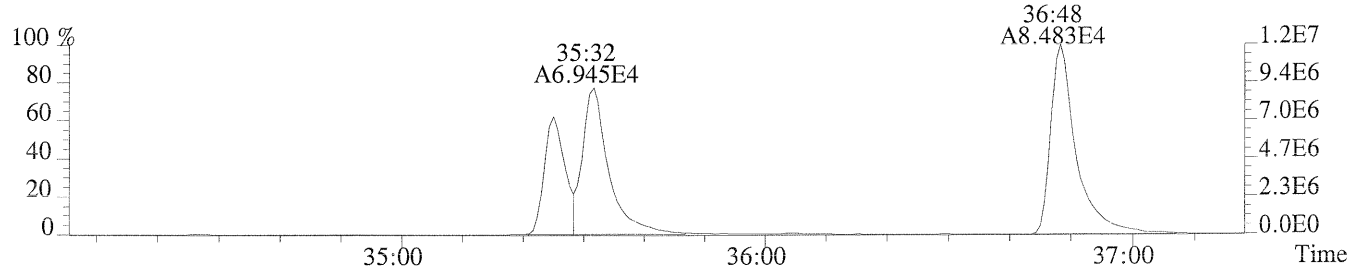
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



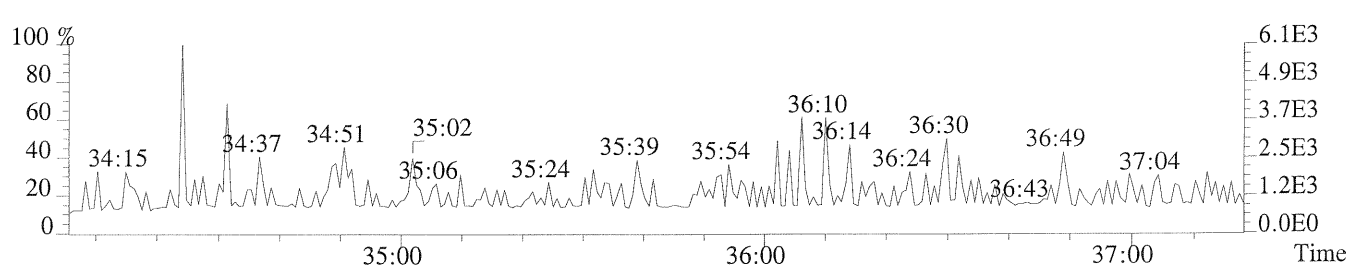
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



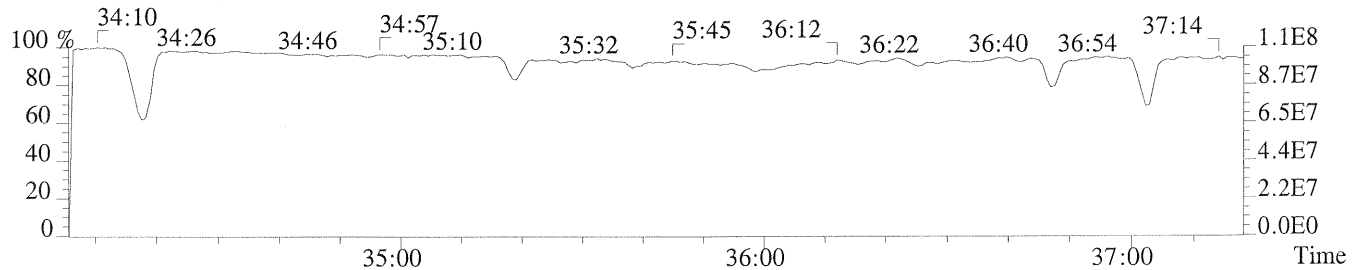
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2772.0,0.40%,F,T)



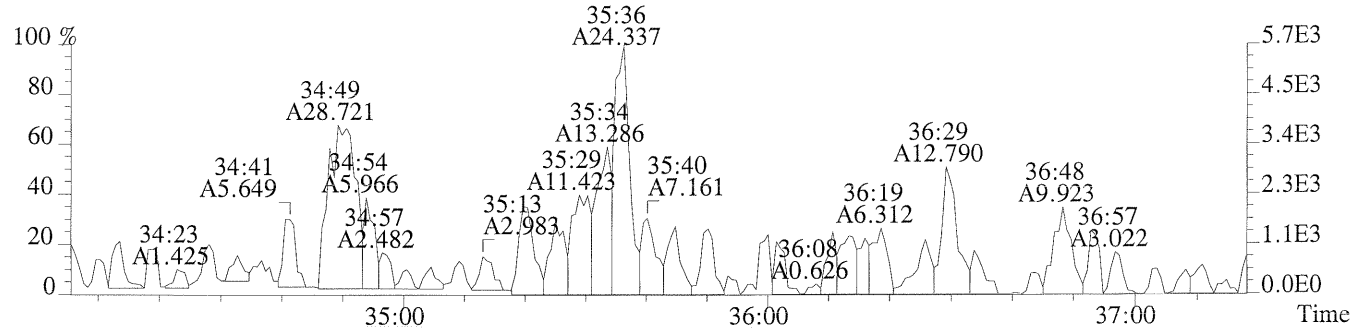
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



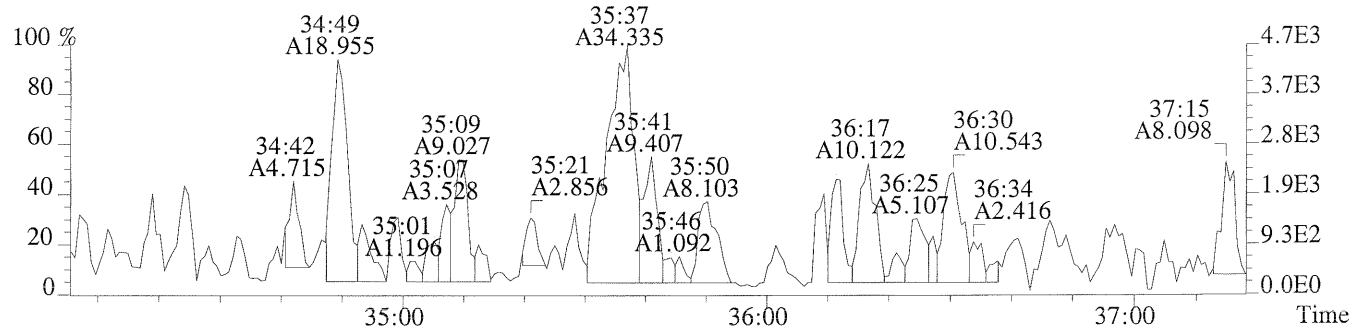
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



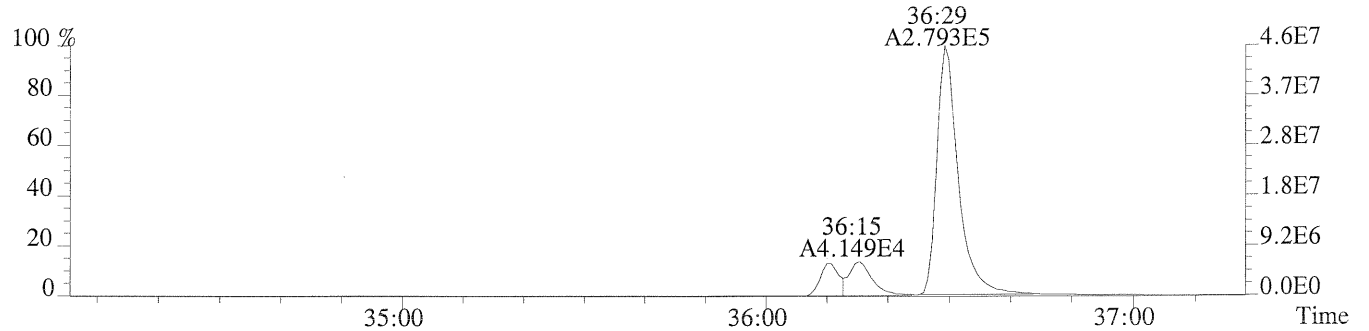
File:P230537 #1-292 Acq:15-AUG-2014 15:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
 Sample#1 Exp:P1403085-002  
 389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



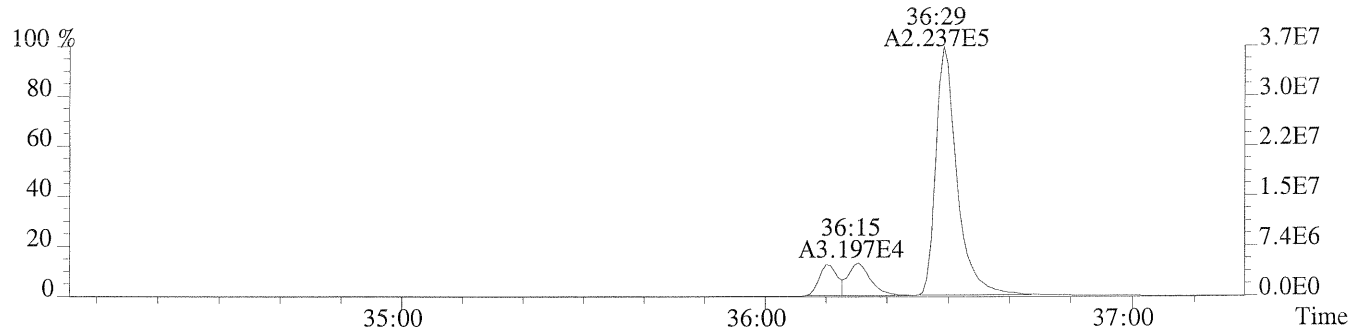
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



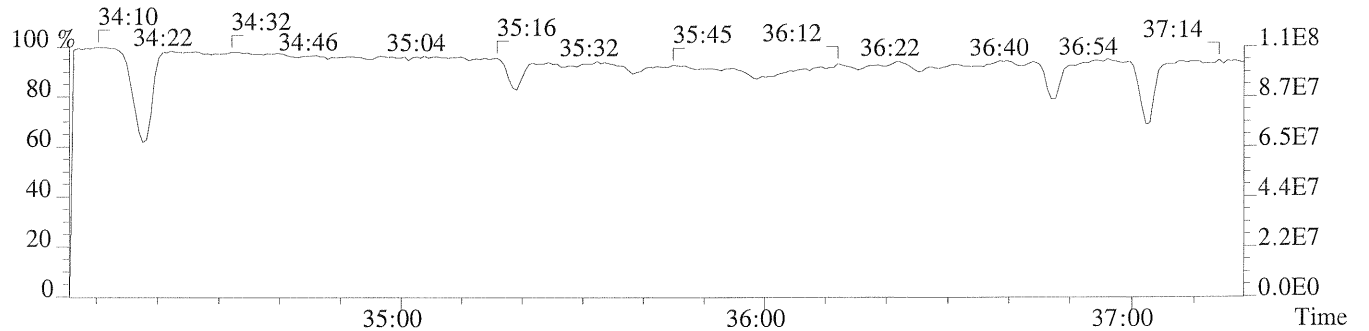
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



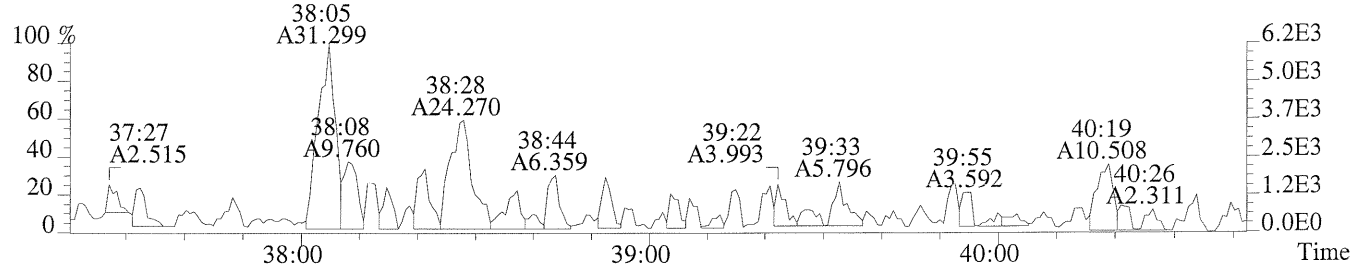
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



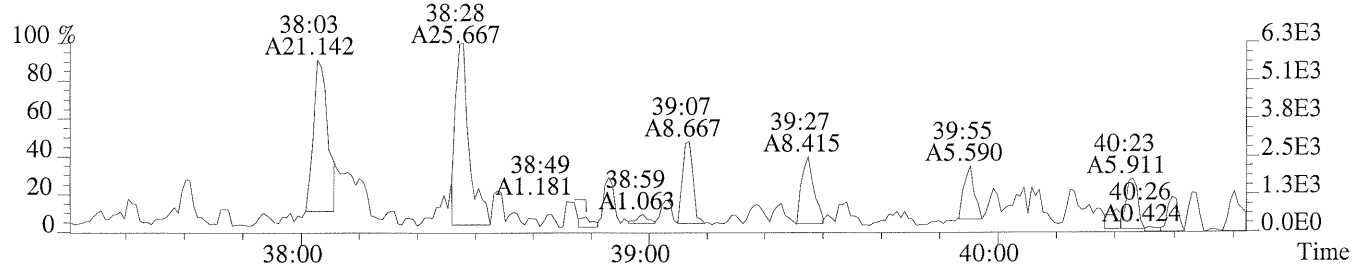
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



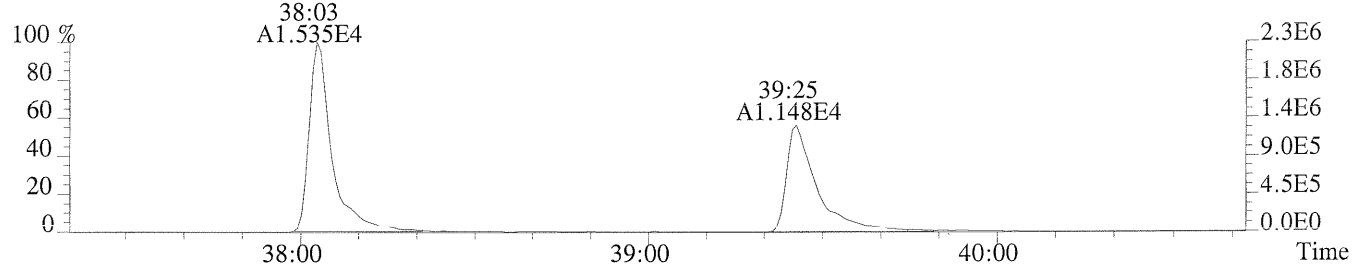
File:P230537 #1-306 Acq:15-AUG-2014 15:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-002  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.50%,F,T)



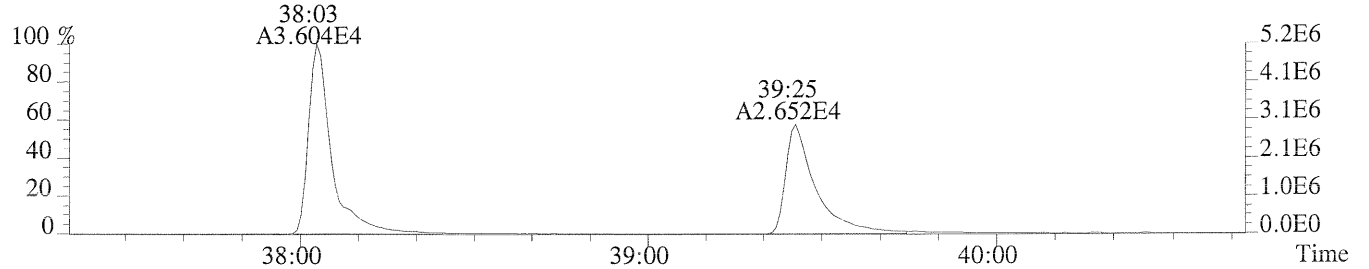
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.50%,F,T)



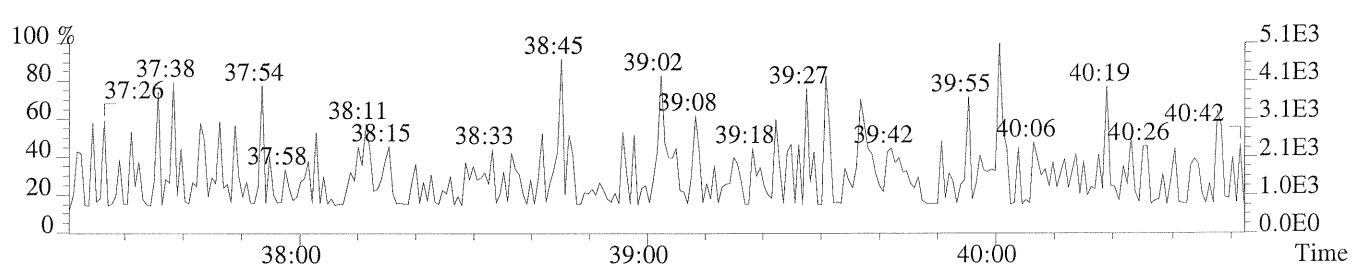
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1608.0,0.50%,F,T)



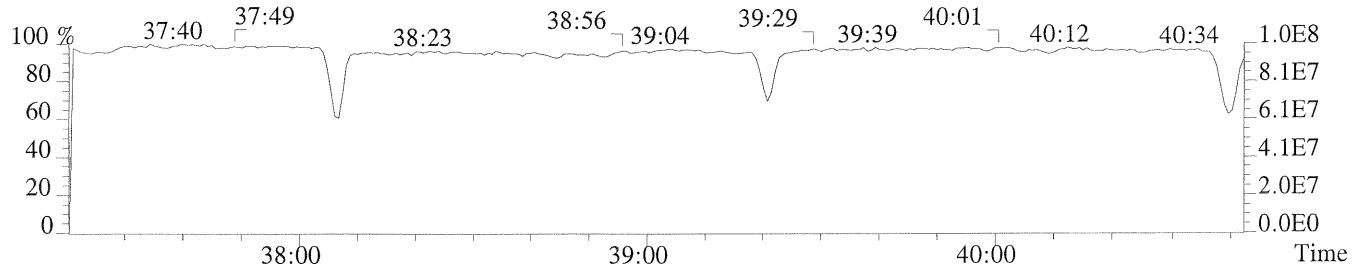
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7956.0,0.50%,F,T)



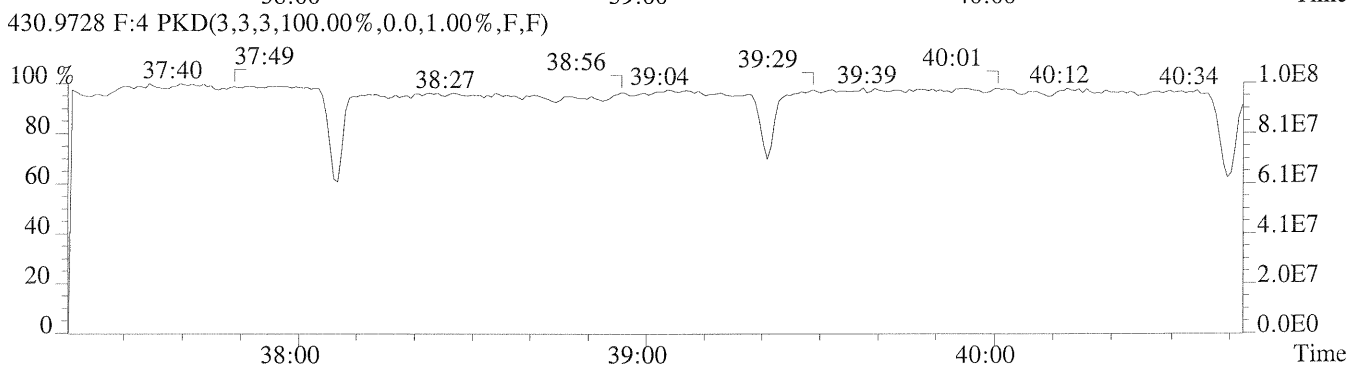
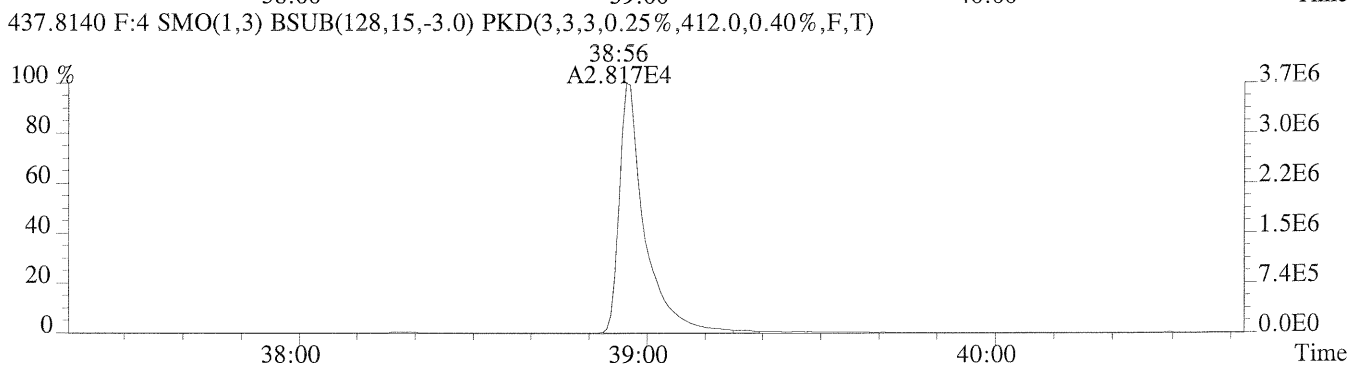
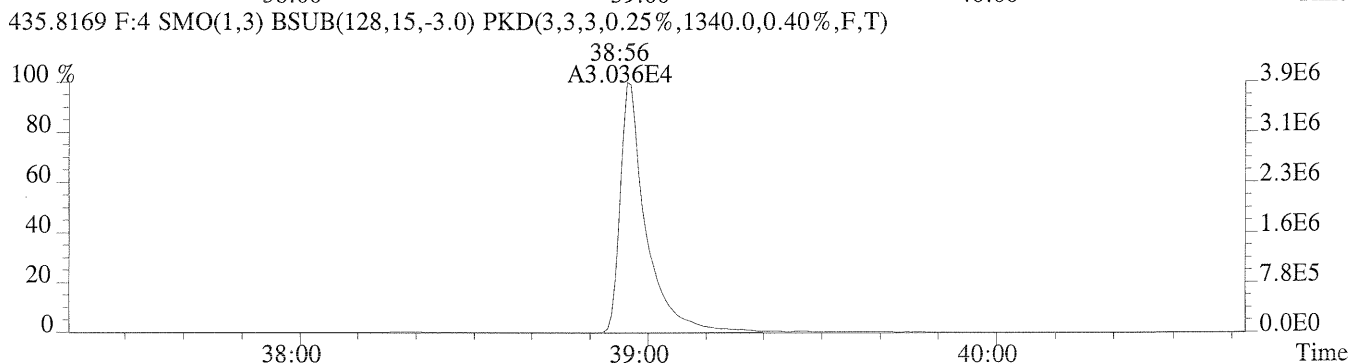
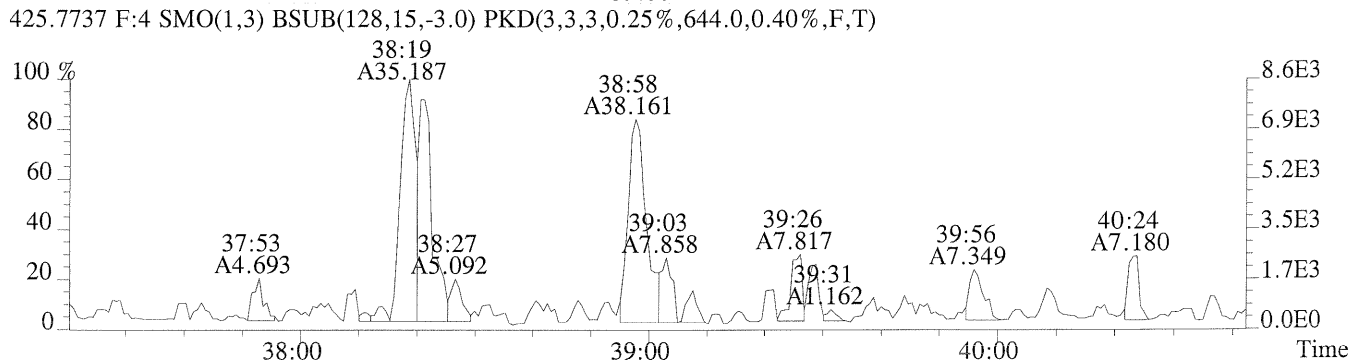
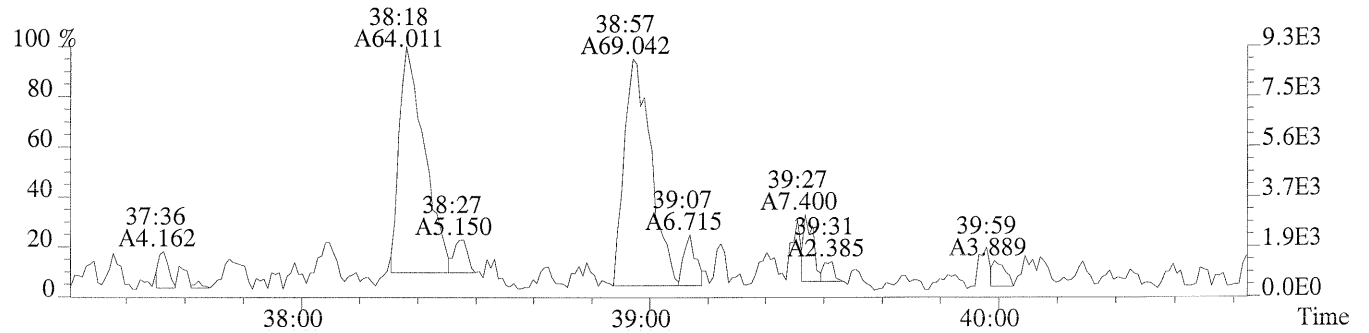
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

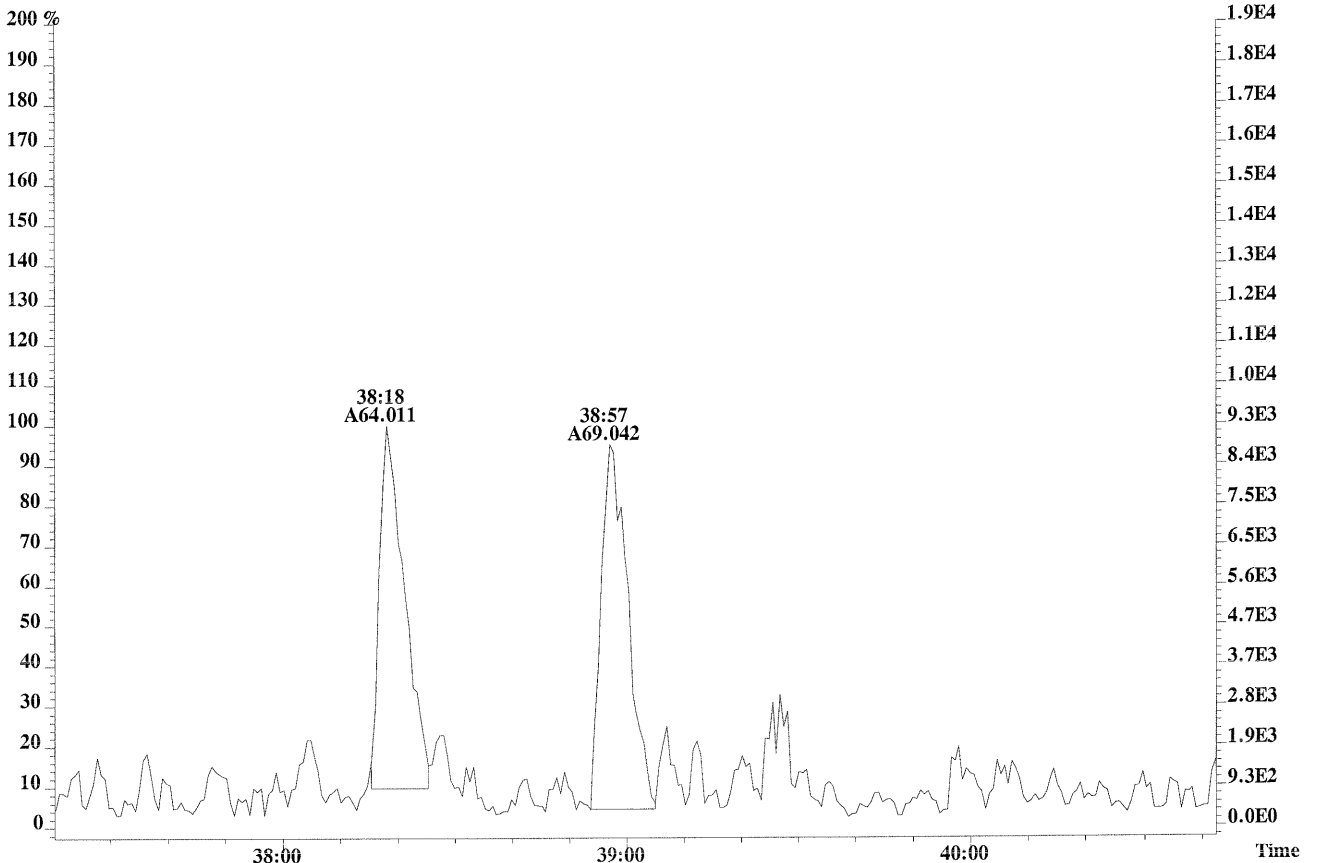


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

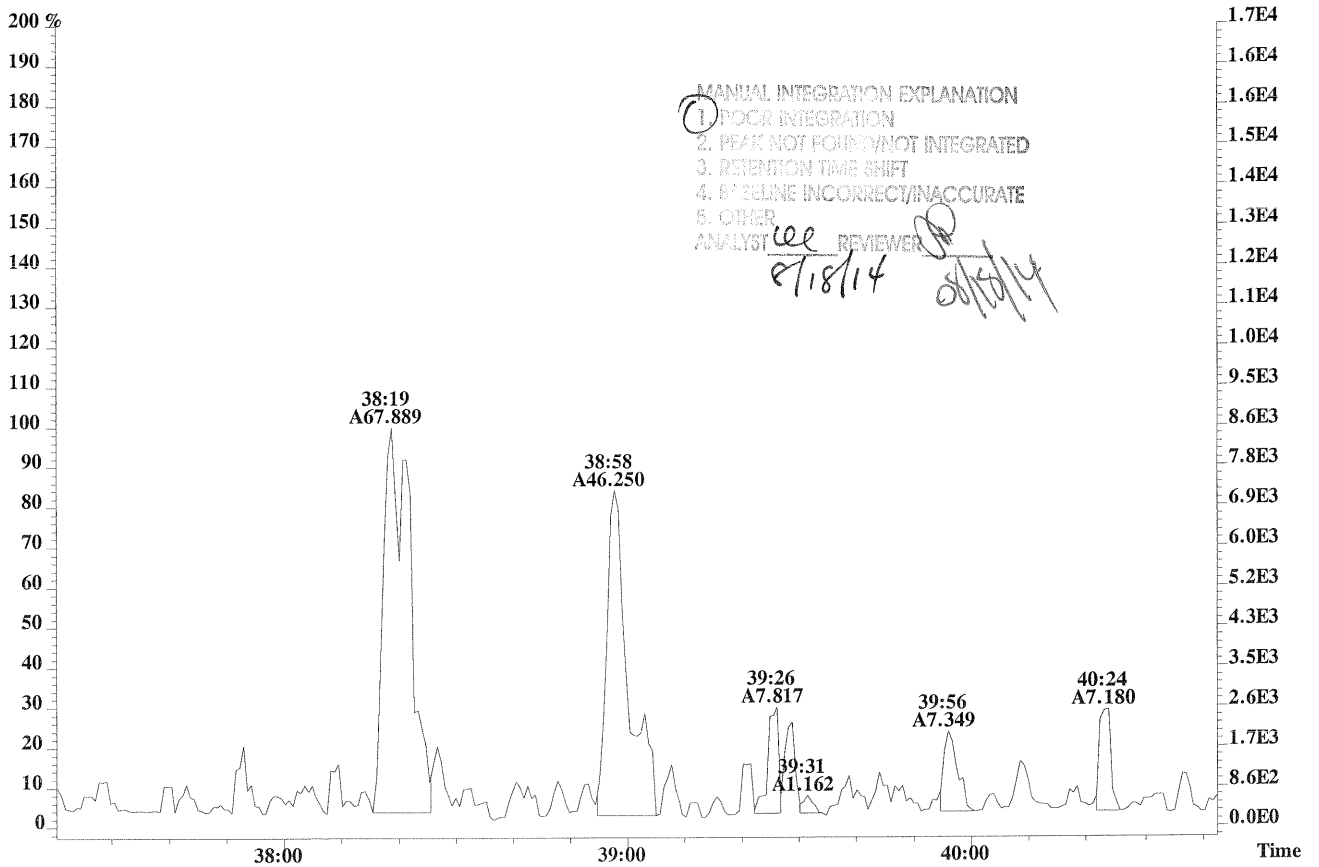


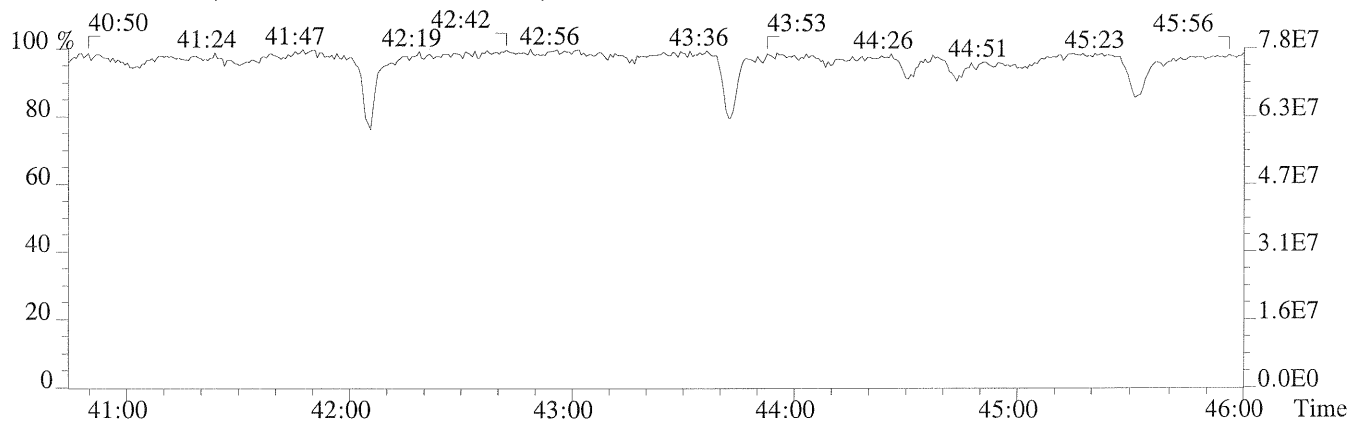
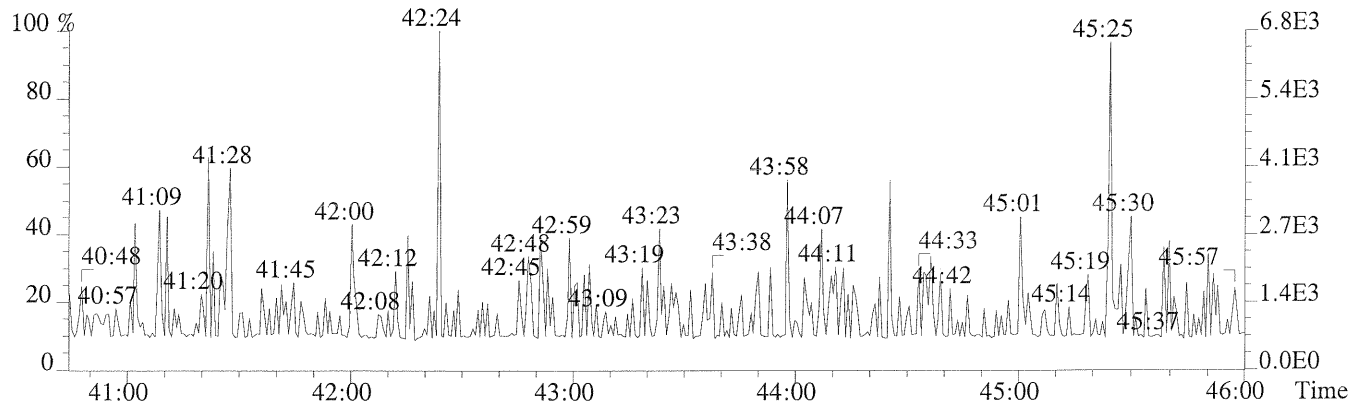
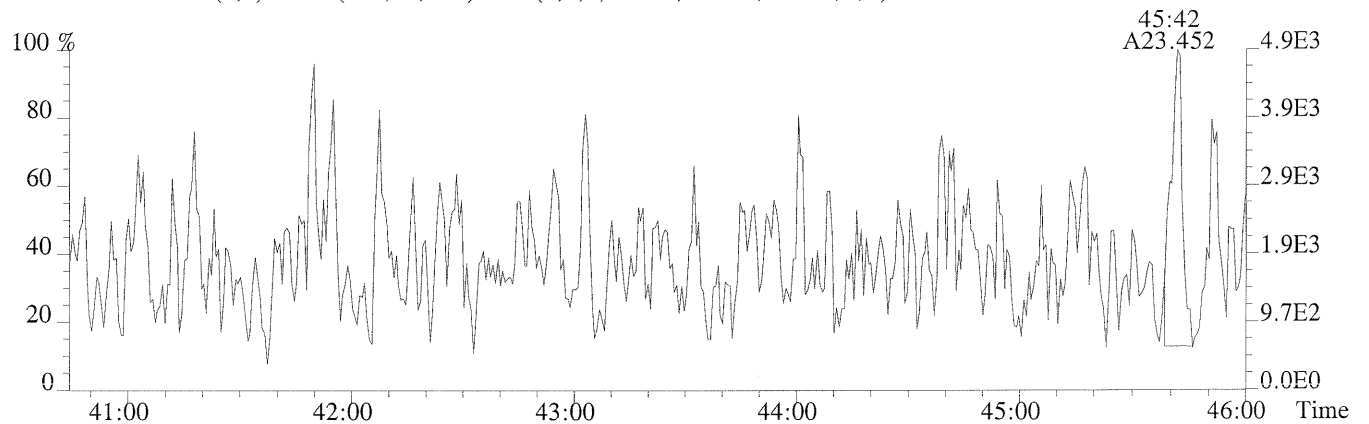
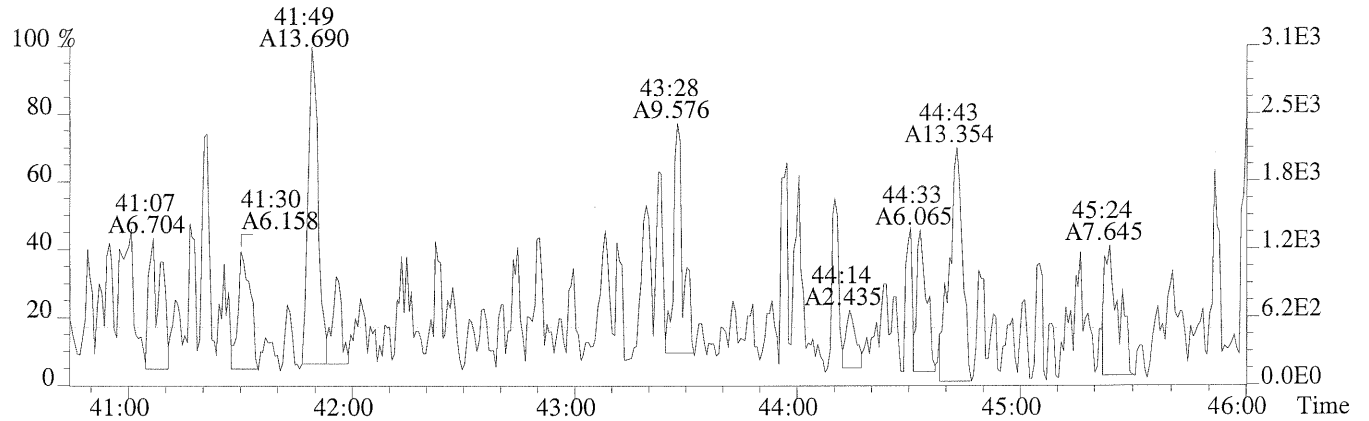
File:P230537 #1-306 Acq:15-AUG-2014 15:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-002  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)

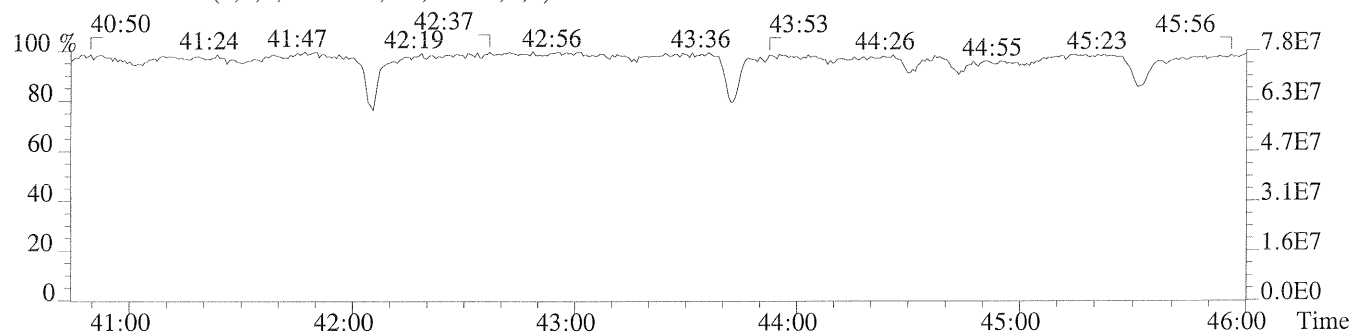
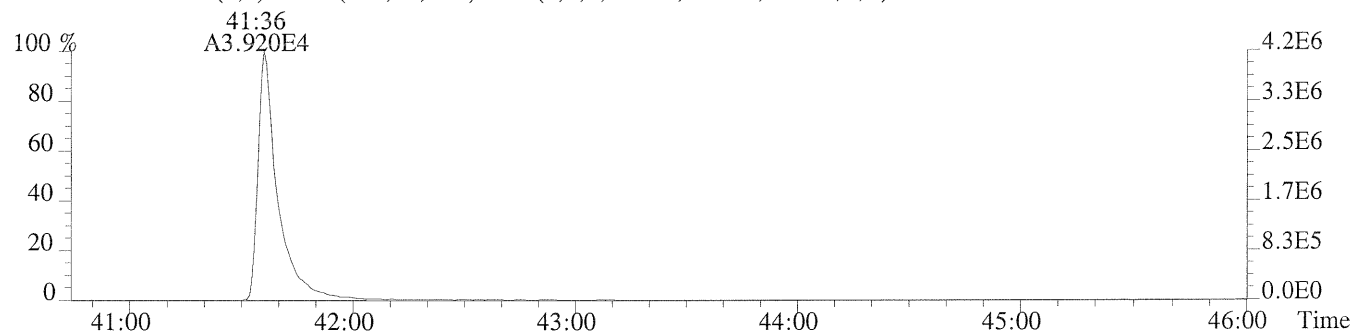
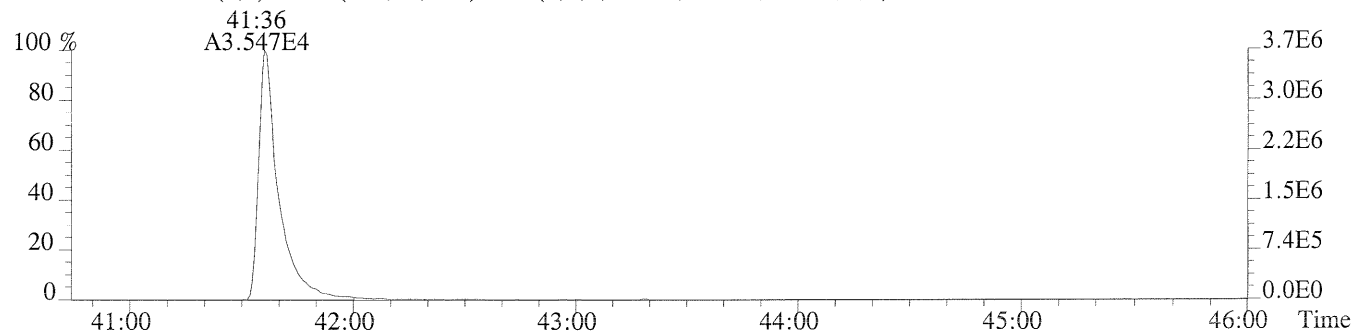
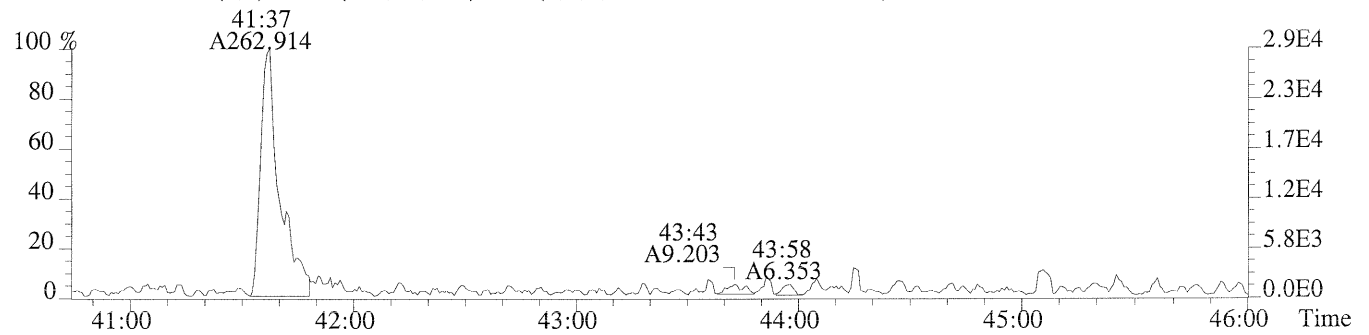
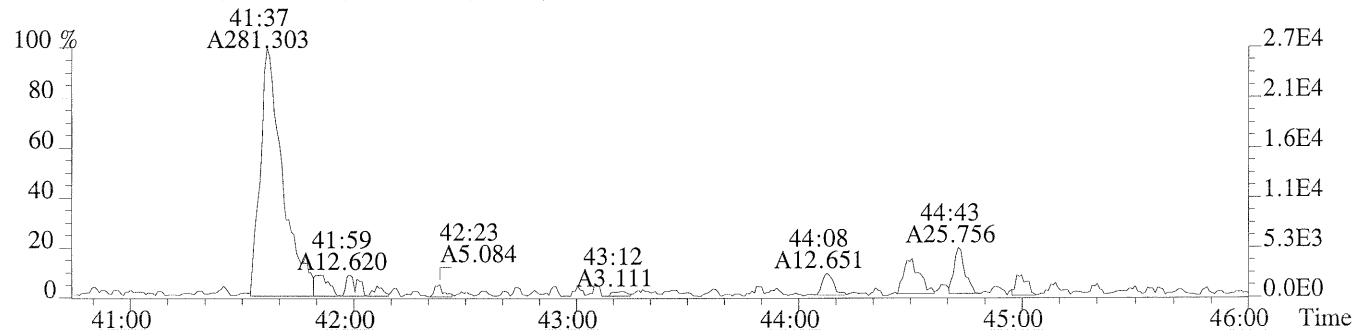




425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)







Sample Response Summary

Run #12 Filename P230538 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 16:48:38  
 Processed: 18-AUG-14 14:29:19 LAB. ID: P1403085-003

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.959
2 Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.955
3 Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	0.868
5 Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.157
6 Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	0.963
7 Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	38:04	2.994e+01	3.012e+01	0.99	yes	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.113
10 Unk	OCDF	NotFnd	*	*	*	no	no	1.392
11 Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.981
12 Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.982
13 Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.916
14 Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.142
15 Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	38:57	4.381e+01	4.970e+01	0.88	yes	yes	1.104
17 Unk	OCDD	41:37	2.988e+02	2.951e+02	1.01	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:20	3.076e+04	3.950e+04	0.78	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:45	6.855e+04	4.313e+04	1.59	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	6.457e+04	4.060e+04	1.59	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:25	2.078e+04	4.151e+04	0.50	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	3.547e+04	6.987e+04	0.51	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:48	4.667e+04	9.018e+04	0.52	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	1.551e+04	3.505e+04	0.44	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:26	1.183e+04	2.749e+04	0.43	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:10	2.228e+04	2.831e+04	0.79	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	32:59	4.856e+04	3.030e+04	1.60	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:11	2.931e+04	2.310e+04	1.27	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:15	4.283e+04	3.407e+04	1.26	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	3.012e+04	2.822e+04	1.07	yes	no	0.925
32 IS	13C-OCDD	41:36	3.320e+04	3.635e+04	0.91	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:29	1.944e+05	2.487e+05	0.78	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:30	2.837e+05	2.227e+05	1.27	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:11	6.007e+04			no	no	0.960

OCDD =  $\frac{(2.988e+02 + 2.951e+02 \times (4000.0)) \times 1}{(3.320e+04 + 3.635e+04) \times 1.181 \times 1000.5}$  = 57.9 pg

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

ALS Form TO9resp.frm



ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
730F-DF

Method M23

Run #12 Filename P230538 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 16:48:38  
Processed: 18-AUG-14 14:29:19 LAB. ID: P1403085-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.20e+02	*	*	1.96e+03	*
2	1,2,3,7,8-PeCDF	*	1.18e+03	*	*	2.83e+03	*
3	2,3,4,7,8-PeCDF	*	1.18e+03	*	*	2.83e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.70e+03	*	*	1.27e+03	*
5	1,2,3,6,7,8-HxCDF	*	1.70e+03	*	*	1.27e+03	*
6	2,3,4,6,7,8-HxCDF	*	1.70e+03	*	*	1.27e+03	*
7	1,2,3,7,8,9-HxCDF	*	1.70e+03	*	*	1.27e+03	*
8	1,2,3,4,6,7,8-HpCDF	4.82e+03	9.36e+02	5.2e+00	4.83e+03	6.32e+02	7.6e+00
9	1,2,3,4,7,8,9-HpCDF	*	9.36e+02	*	*	6.32e+02	*
10	OCDF	*	1.08e+03	*	*	1.84e+03	*
11	2,3,7,8-TCDD	*	1.36e+03	*	*	1.51e+03	*
12	1,2,3,7,8-PeCDD	*	1.95e+03	*	*	4.16e+02	*
13	1,2,3,4,7,8-HxCDD	*	9.08e+02	*	*	1.12e+03	*
14	1,2,3,6,7,8-HxCDD	*	9.08e+02	*	*	1.12e+03	*
15	1,2,3,7,8,9-HxCDD	*	9.08e+02	*	*	1.12e+03	*
16	1,2,3,4,6,7,8-HpCDD	7.65e+03	5.84e+02	1.3e+01	1.07e+04	1.88e+02	5.7e+01
17	OCDD	3.57e+04	3.12e+02	1.1e+02	3.12e+04	1.07e+03	2.9e+01
18	13C-2,3,7,8-TCDF	3.94e+06	2.68e+03	1.5e+03	4.92e+06	2.35e+03	2.1e+03
19	13C-1,2,3,7,8-PeCDF	7.89e+06	1.11e+03	7.1e+03	4.96e+06	2.59e+03	1.9e+03
20	13C-2,3,4,7,8-PeCDF	8.08e+06	1.11e+03	7.3e+03	5.12e+06	2.59e+03	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	3.71e+06	1.46e+03	2.5e+03	7.35e+06	2.44e+03	3.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.67e+06	1.46e+03	3.2e+03	9.17e+06	2.44e+03	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.34e+06	1.46e+03	4.3e+03	1.23e+07	2.44e+03	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.22e+06	2.68e+03	8.3e+02	5.05e+06	4.72e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.38e+06	2.68e+03	5.2e+02	3.08e+06	4.72e+03	6.5e+02
27	13C-2,3,7,8-TCDD	3.37e+06	8.13e+03	4.1e+02	4.31e+06	2.68e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	5.97e+06	1.54e+03	3.9e+03	3.74e+06	8.56e+02	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	5.88e+06	1.55e+03	3.8e+03	4.54e+06	1.25e+03	3.6e+03
30	13C-1,2,3,6,7,8-HxCDD	6.17e+06	1.55e+03	4.0e+03	5.00e+06	1.25e+03	4.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.96e+06	1.75e+03	2.3e+03	3.66e+06	3.84e+02	9.5e+03
32	13C-OCDD	3.53e+06	5.24e+02	6.7e+03	3.91e+06	5.70e+03	6.9e+02
33	13C-1,2,3,4-TCDD	3.24e+07	8.13e+03	4.0e+03	4.15e+07	2.68e+03	1.6e+04
34	13C-1,2,3,7,8,9-HxCDD	4.49e+07	1.55e+03	2.9e+04	3.54e+07	1.25e+03	2.8e+04
35	37Cl-2,3,7,8-TCDD	8.27e+06	8.84e+02	9.4e+03			

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

ALS Form TO-9SN/M23SN.FRM

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730F-DF

---

Entry: 38 Totals Name: Total Penta-Furan1

Run: 12 File: P230538 Sample: 1 Injection: 1 Function: 1

Llim: 29:09 Ulim: 33:51

Acquired: 15-AUG-14 16:48:38 Processed: 18-AUG-14 14:29:19

Mass: 339.8600 341.8570 Tot Response: 3.37e+02 RRF: 0.9289

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:15	2.10e+02	1.28e+02	1.64	yes	3.37e+02	n	n

---

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

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730F-DF

---

Entry: 41      Totals Name: Total Hexa-Furans

Run: 12      File: P230538      Sample: 1    Injection: 1    Function: 3

Llim: 34:13      Ulim: 37:02

Acquired: 15-AUG-14    16:48:38      Processed: 18-AUG-14 14:29:19

Mass: 373.8210    375.8180      Tot Response: 2.46e+02    RRF: 0.9615

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:27	1.38e+02	1.08e+02	1.29	yes	2.46e+02	n	n

---

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

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730F-DF

---

Entry: 42      Totals Name: Total Hexa-Dioxins

Run: 12      File: P230538      Sample: 1    Injection: 1    Function: 3

Llim: 34:45      Ulim: 36:37

Acquired: 15-AUG-14    16:48:38      Processed: 18-AUG-14 14:29:19

Mass: 389.8160    391.8130      Tot Response: 7.72e+01    RRF: 1.069

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:36	4.13e+01	3.59e+01	1.15	yes	7.72e+01	n	n

---

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

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730F-DF

---

Entry: 43      Totals Name: Total Hepta-Furans

Run: 12      File: P230538      Sample: 1    Injection: 1    Function: 4

Llim: 37:59      Ulim: 39:37

Acquired: 15-AUG-14    16:48:38      Processed: 18-AUG-14 14:29:19

Mass: 407.7820    409.7790      Tot Response: 6.01e+01    RRF: 1.252

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2	
1	38:04	2.99e+01	3.01e+01	0.99	yes	6.01e+01	1,2,3,4,6,7,8-HpCDF	n	n

---

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

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

730F-DF

---

Entry: 44      Totals Name: Total Hepta-Dioxins

Run: 12      File: P230538      Sample: 1 Injection: 1 Function: 4

Llim: 38:14      Ulim: 39:08

Acquired: 15-AUG-14      16:48:38      Processed: 18-AUG-14 14:29:19

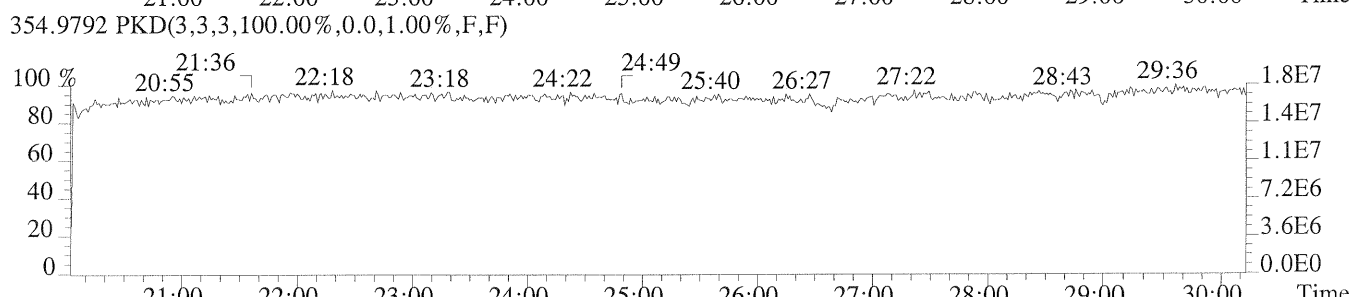
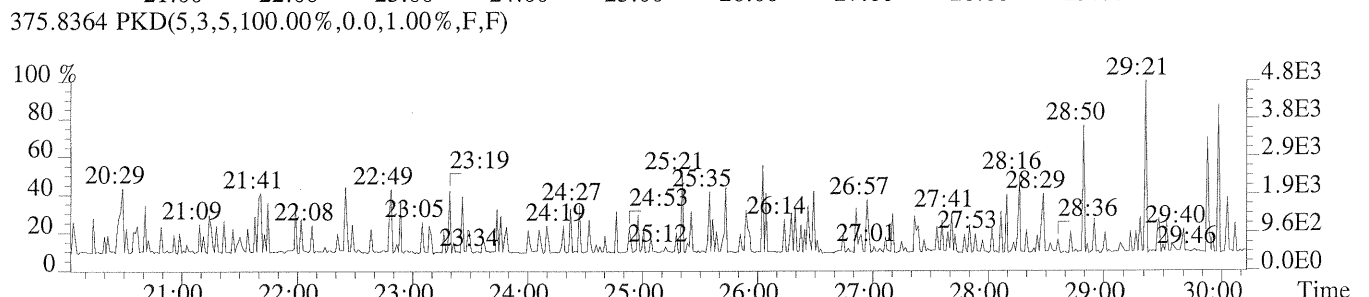
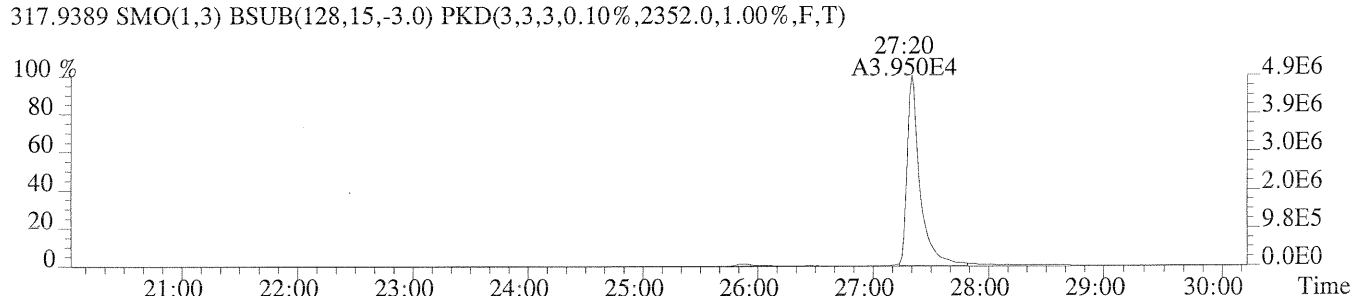
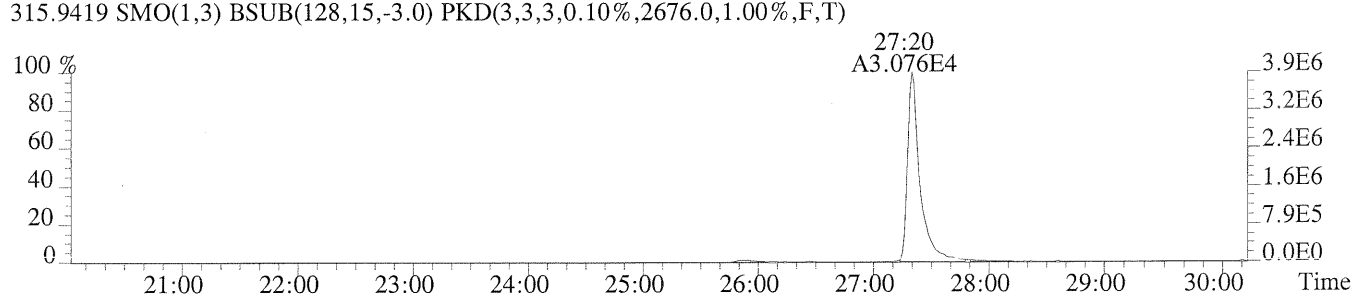
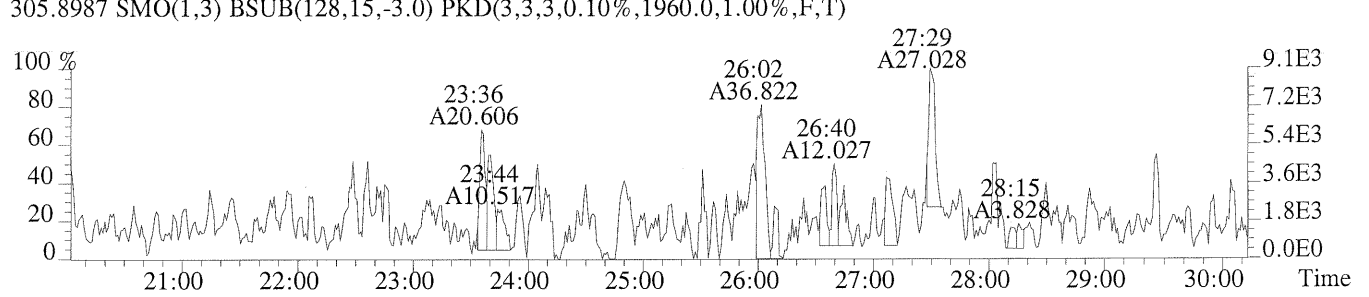
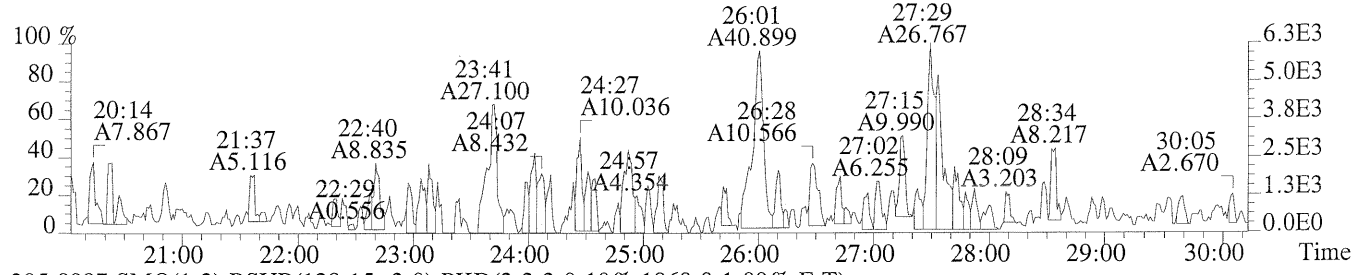
Mass: 423.7770      425.7740      Tot Response: 2.39e+02      RRF: 1.104

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:19	7.77e+01	6.78e+01	1.15	yes	1.46e+02	Y	n
2	38:57	4.38e+01	4.97e+01	0.88	yes	9.35e+01	Y	Y

---

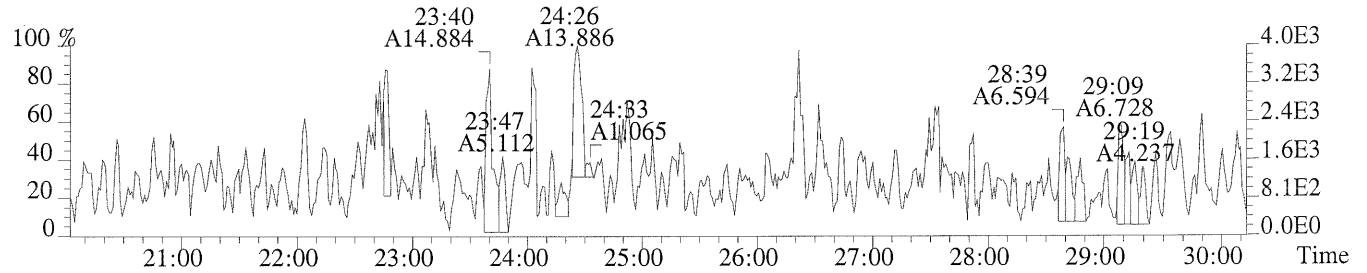
 ALS ENVIRONMENTAL  
 10450 Stancliff Rd., Suite 115  
 Houston, TX 77099  
 Office (713) 266-1599. Fax (713) 266-0130

File:P230538 #1-640 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-003  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)

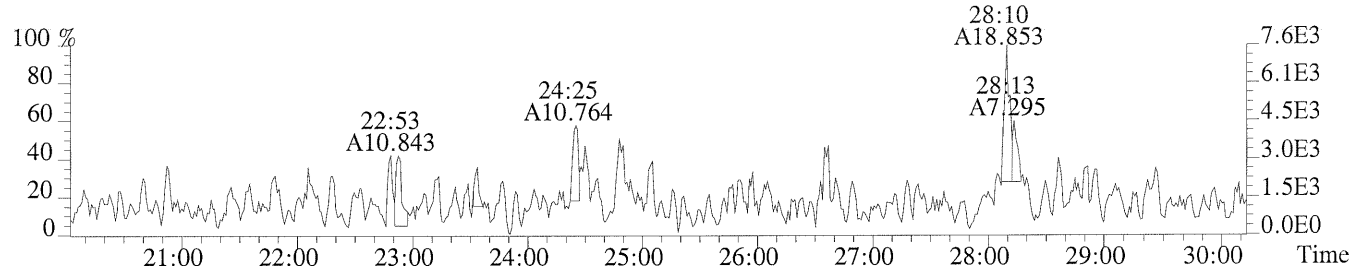


File:P230538 #1-640 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-003

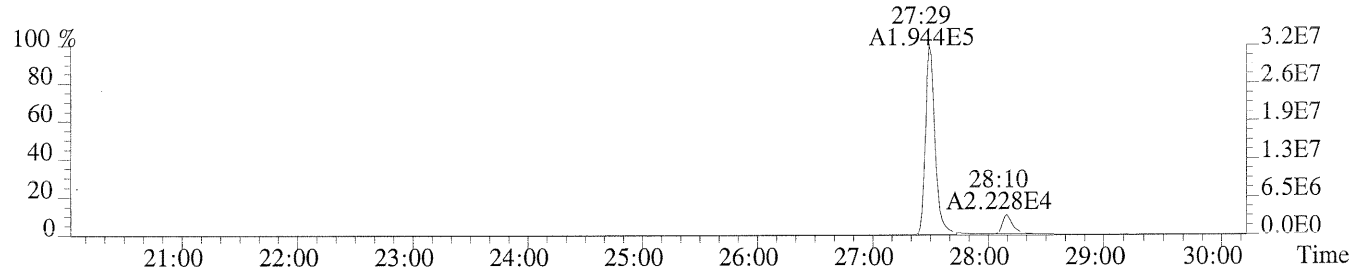
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



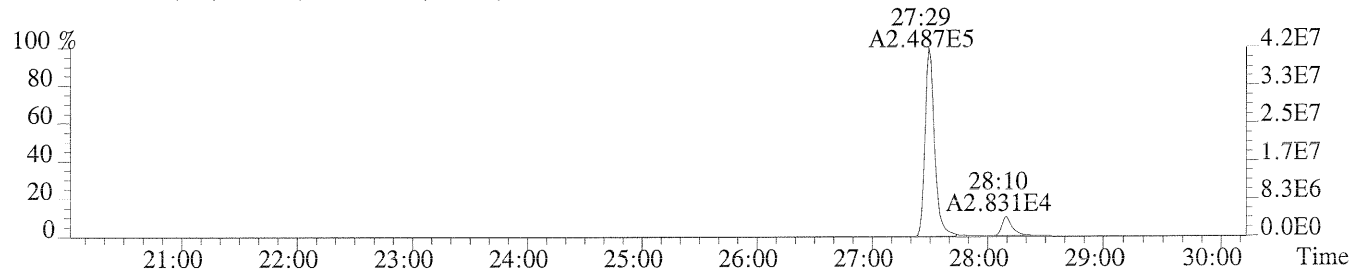
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



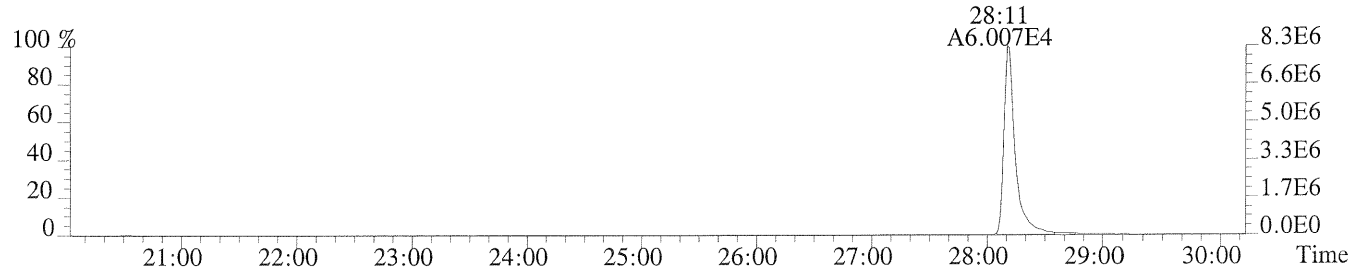
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8132.0,1.00%,F,T)



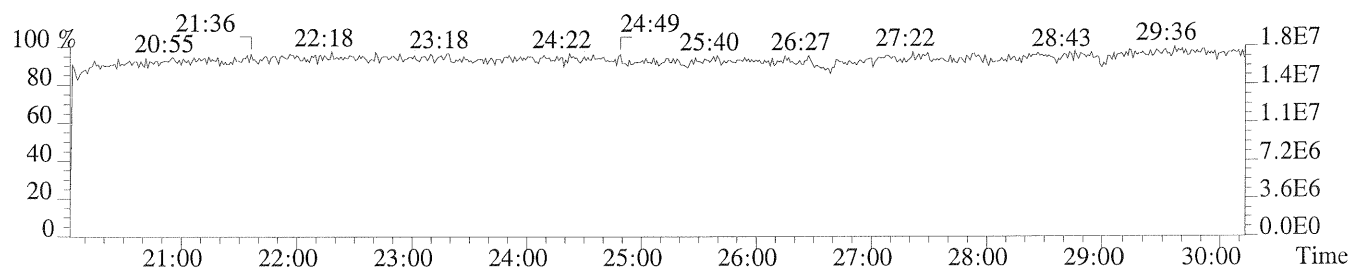
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2676.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)

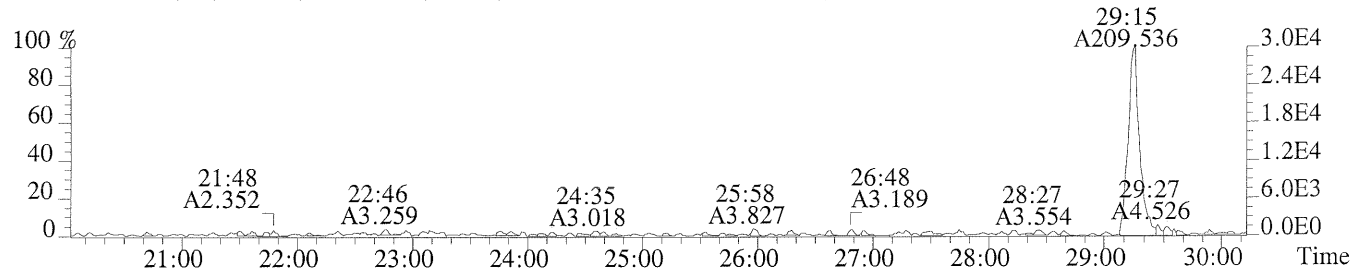


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

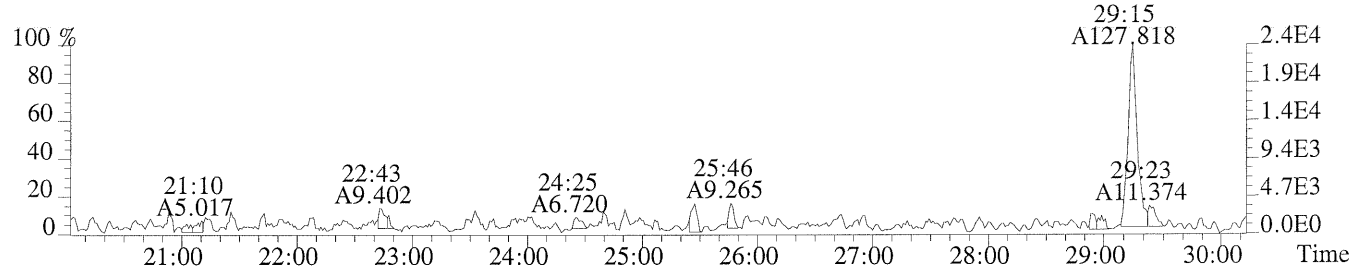




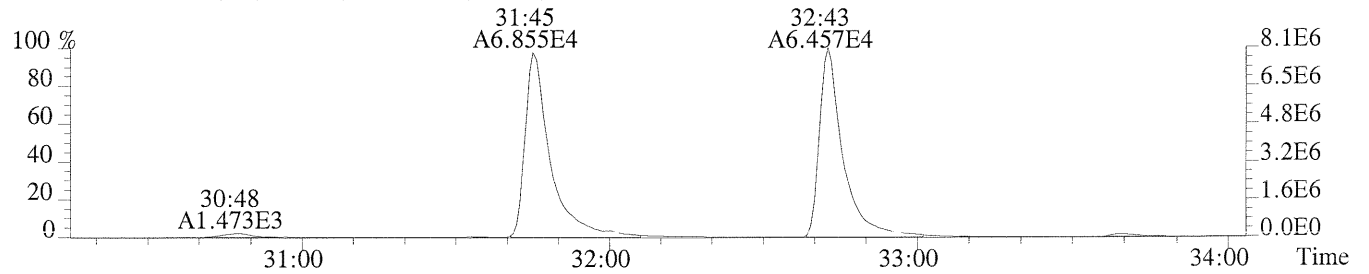
File:P230538 #1-640 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-003  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



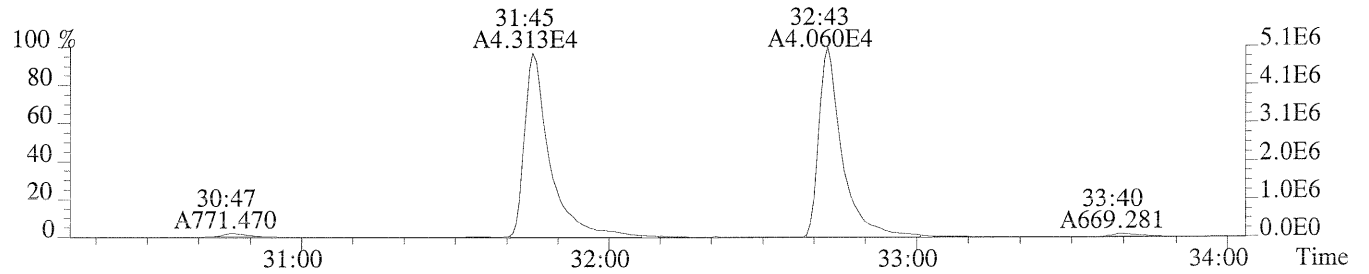
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



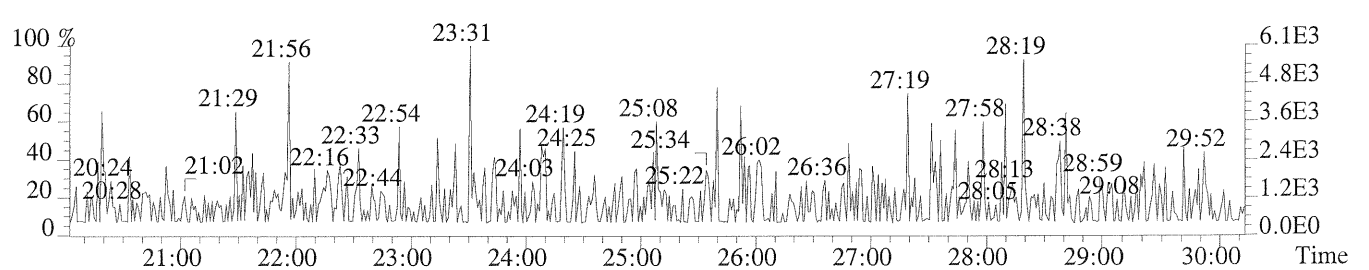
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



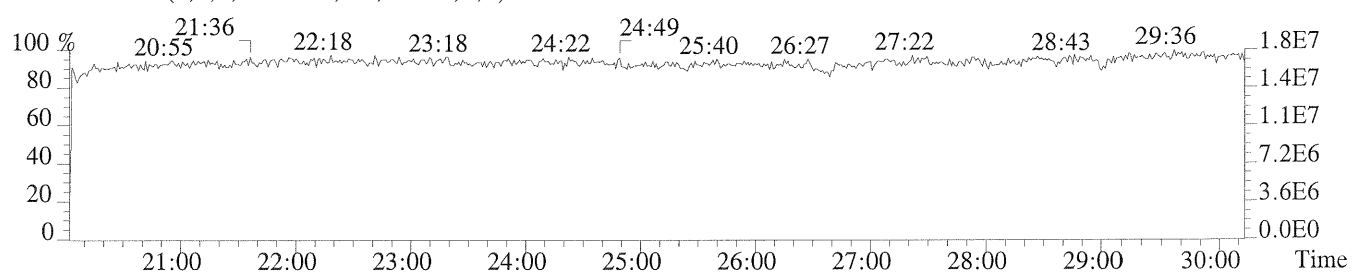
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



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



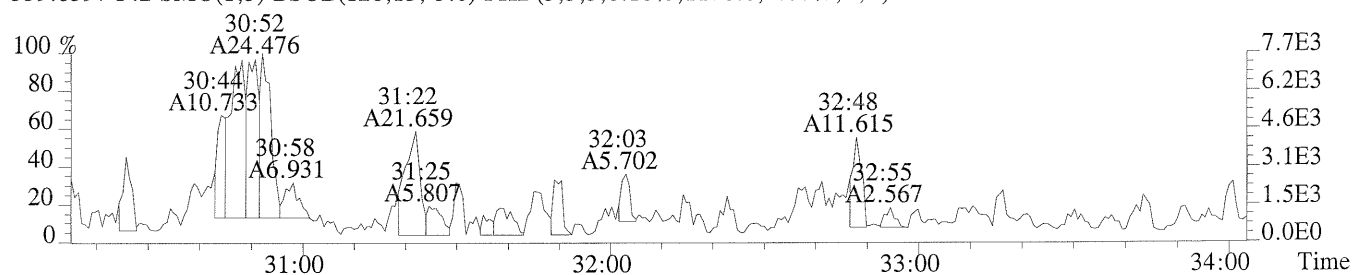
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



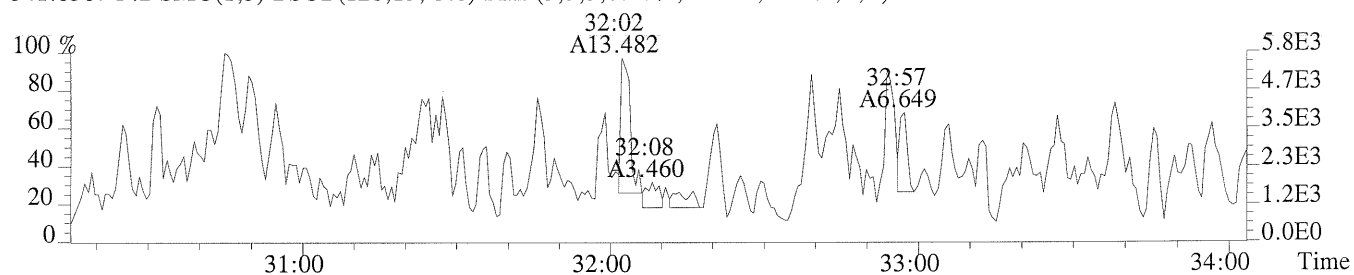
File:P230538 #1-346 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:P1403085-003

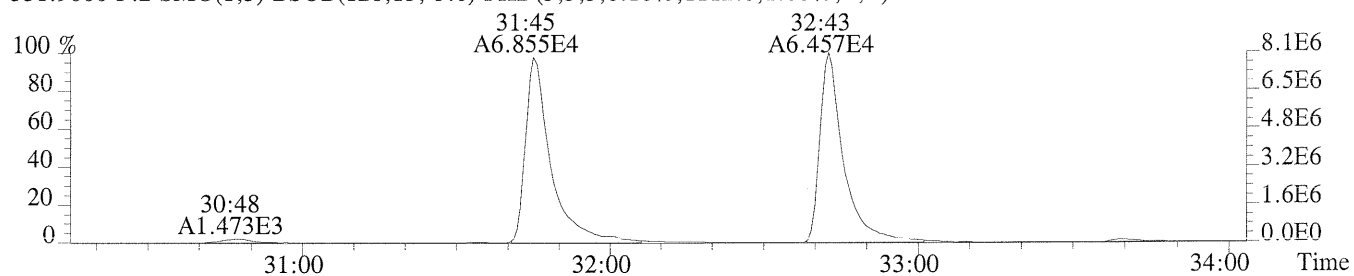
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



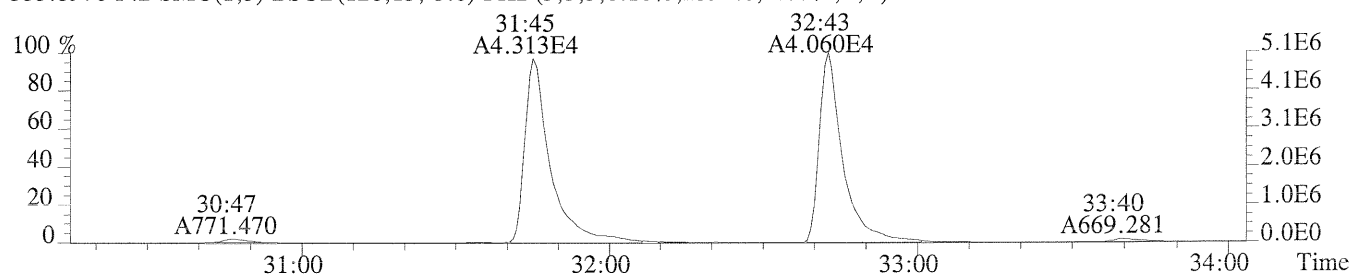
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2828.0,1.00%,F,T)



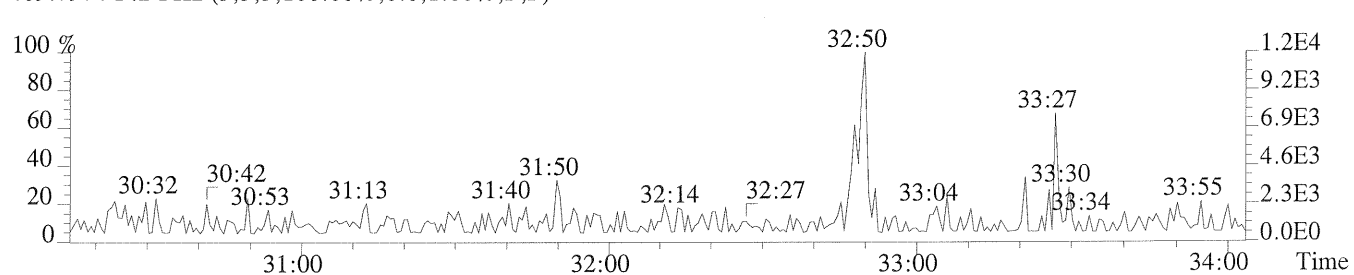
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



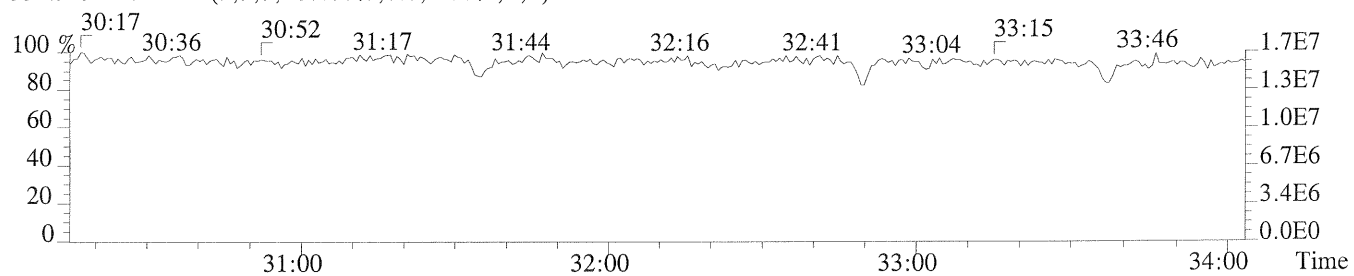
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



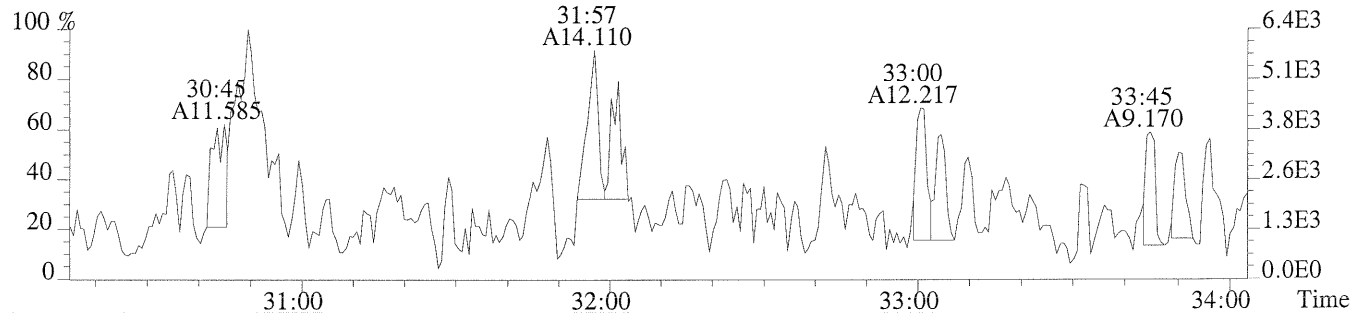
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



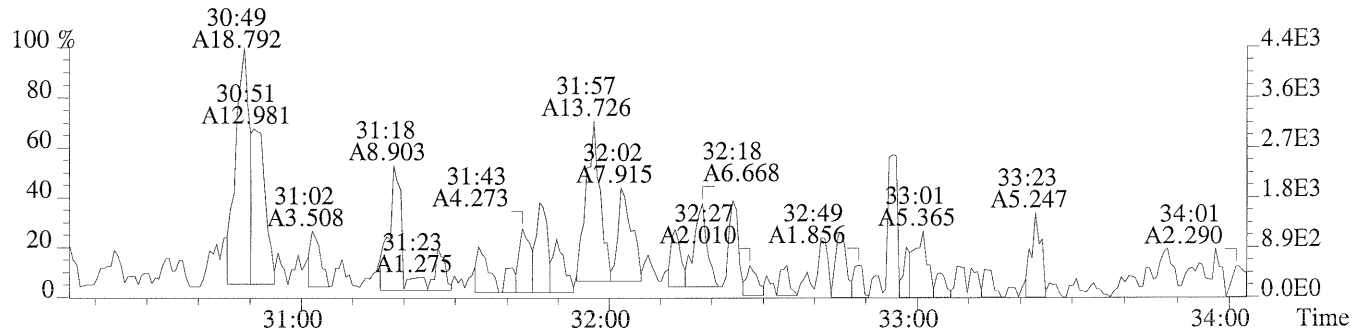
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



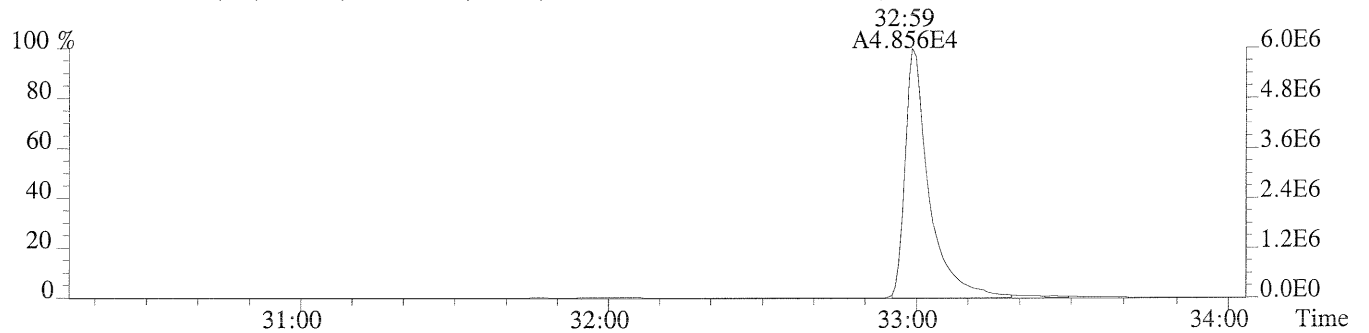
File:P230538 #1-346 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-003  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



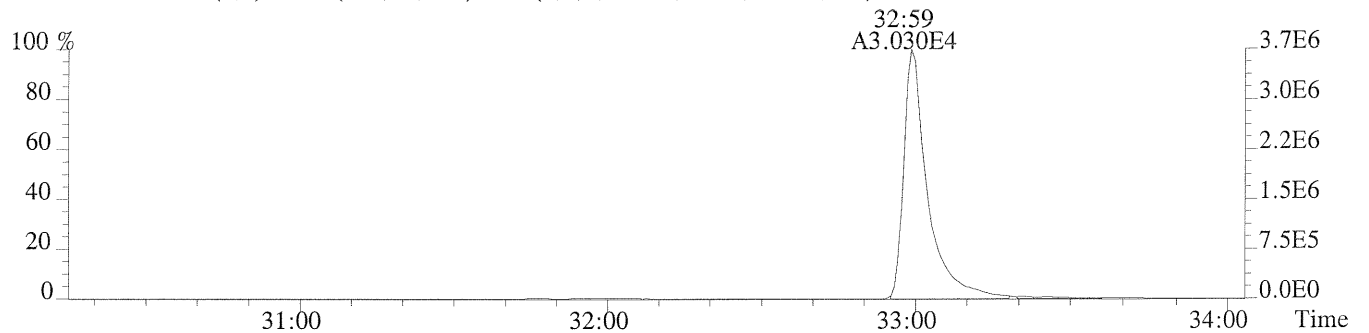
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



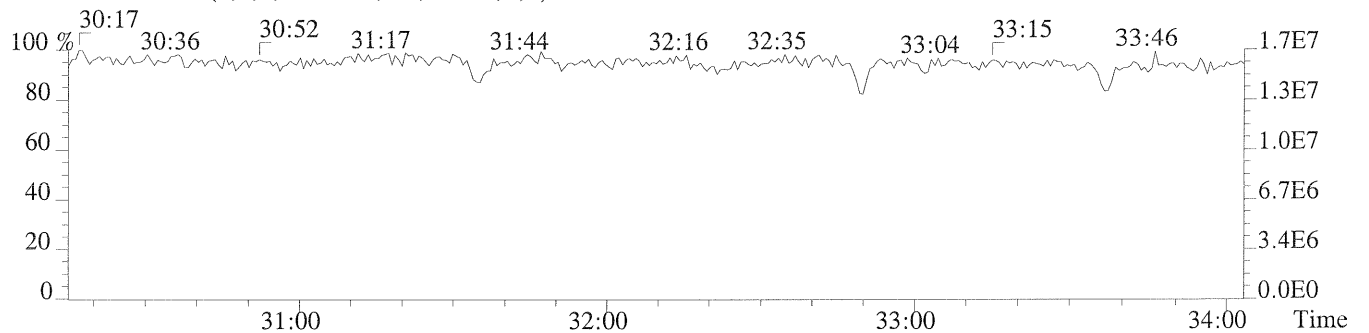
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)

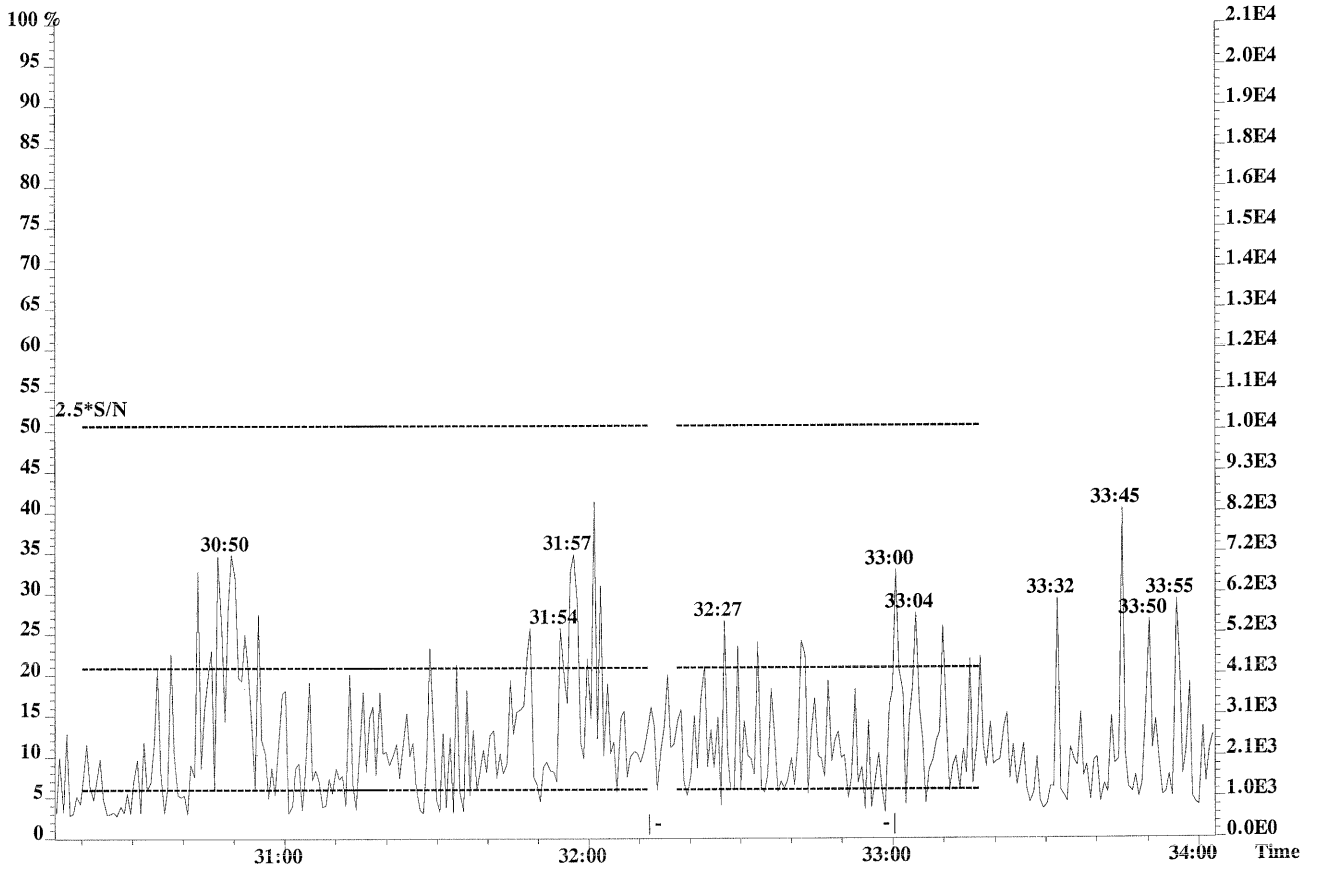


369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)

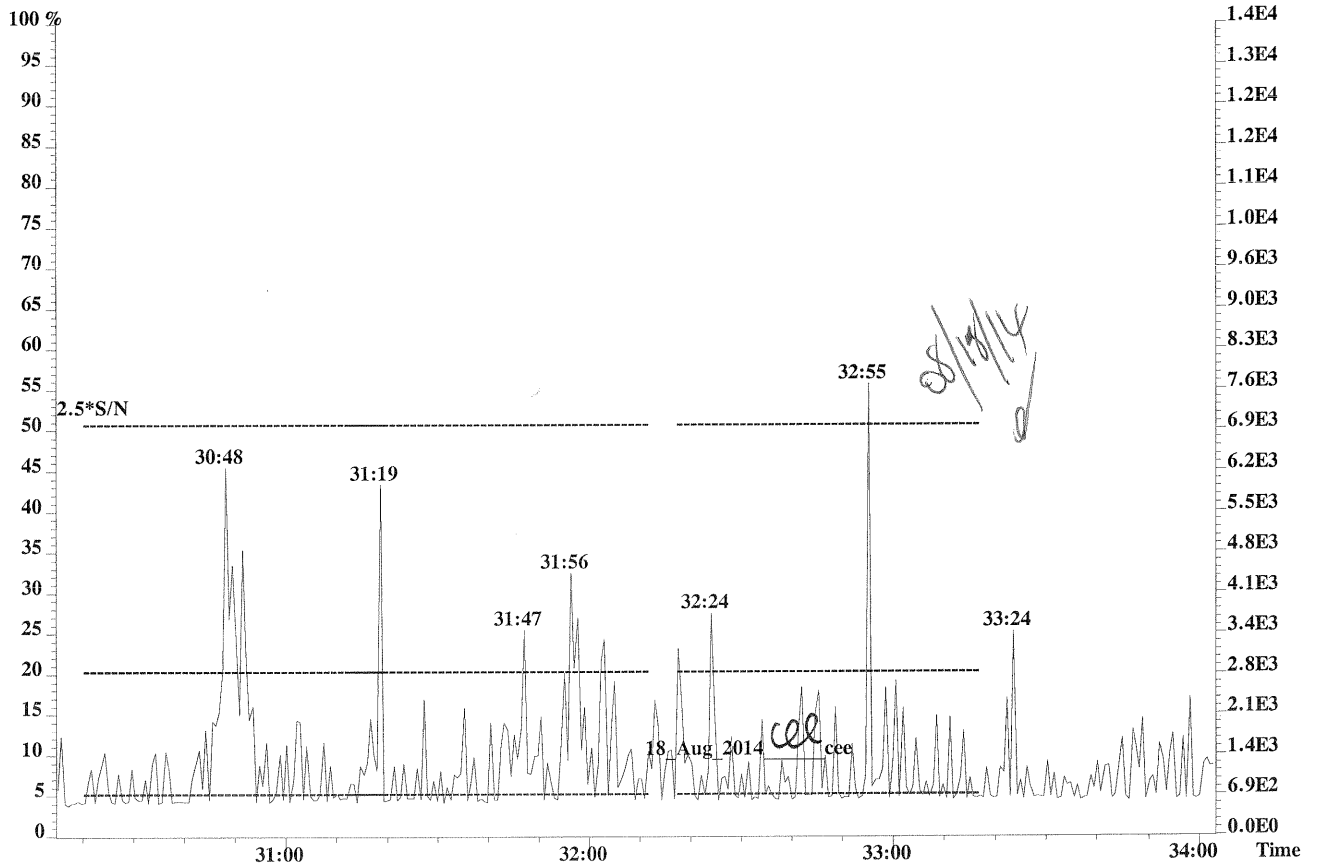


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

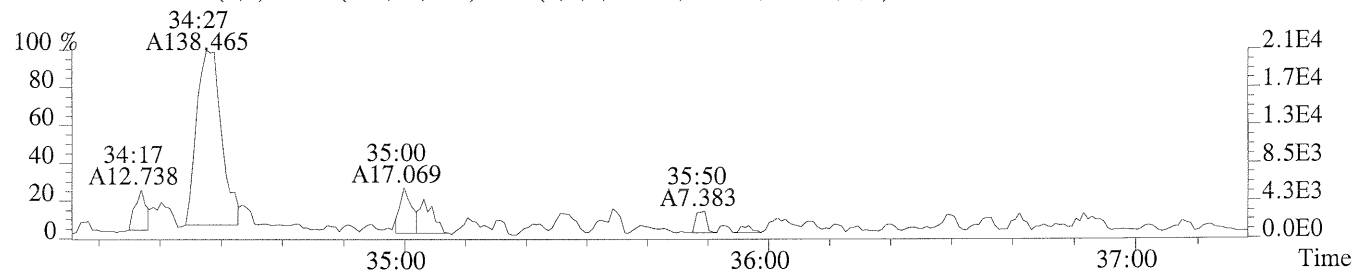




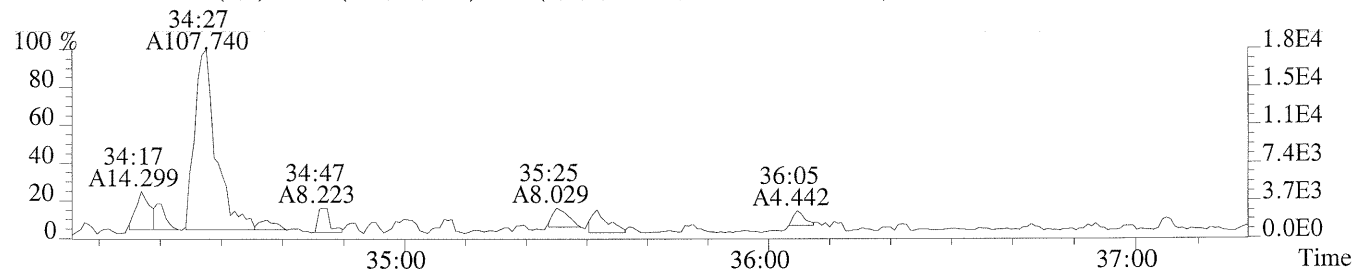
357.8517 F:2



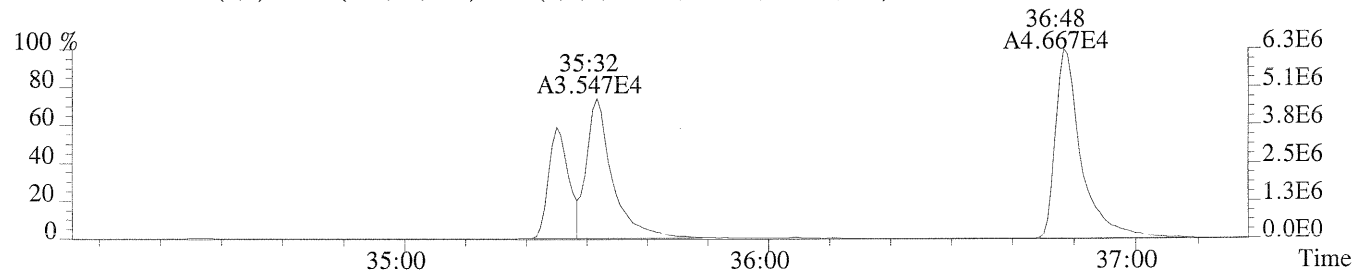
File:P230538 #1-292 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-003  
373.8208 F:3 BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



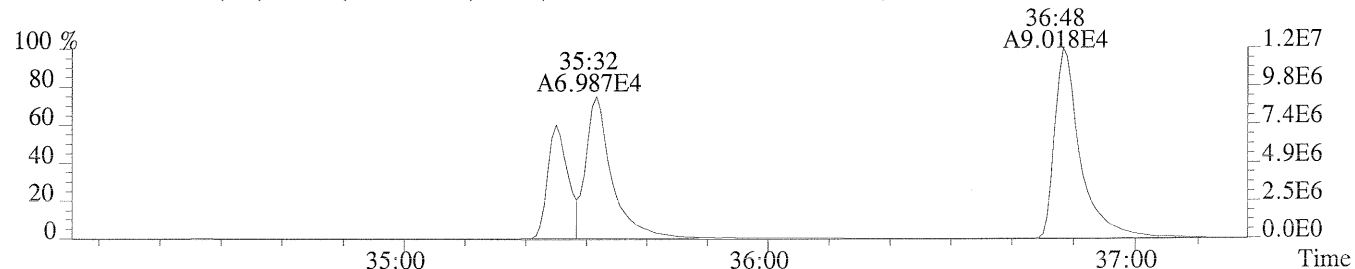
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.40%,F,T)



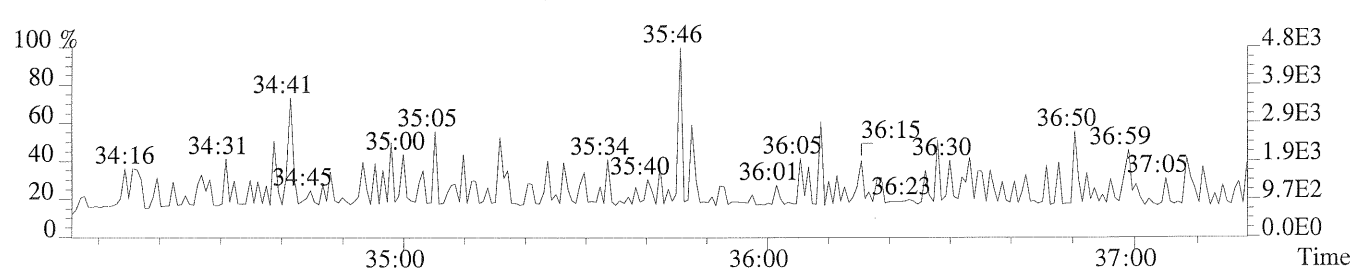
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



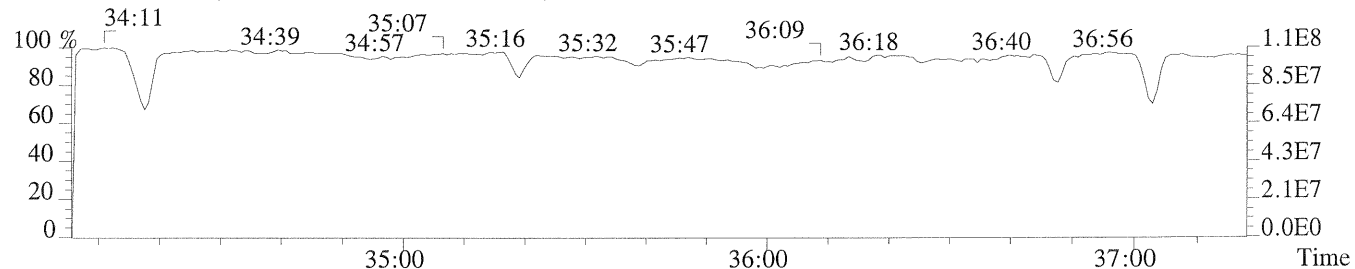
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2440.0,0.40%,F,T)



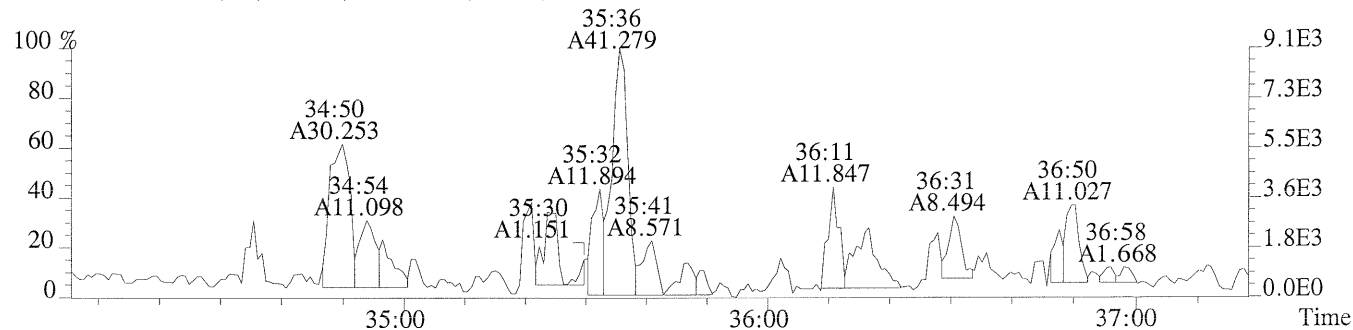
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



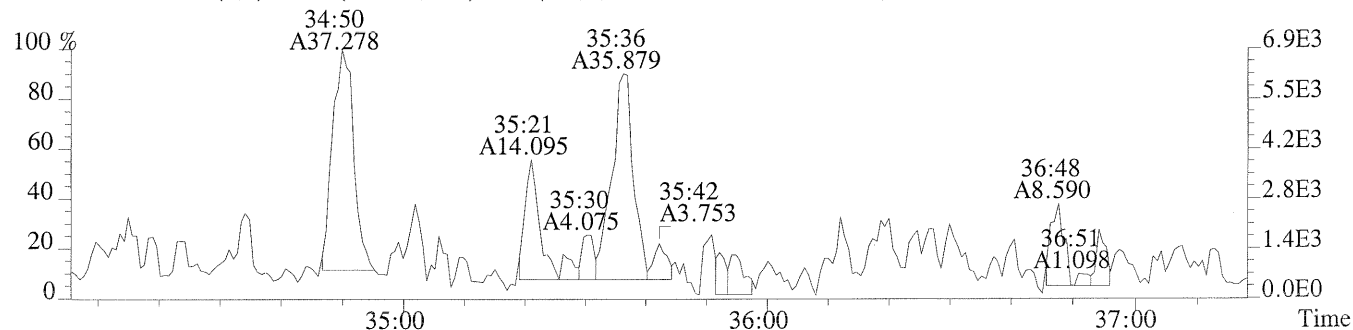
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



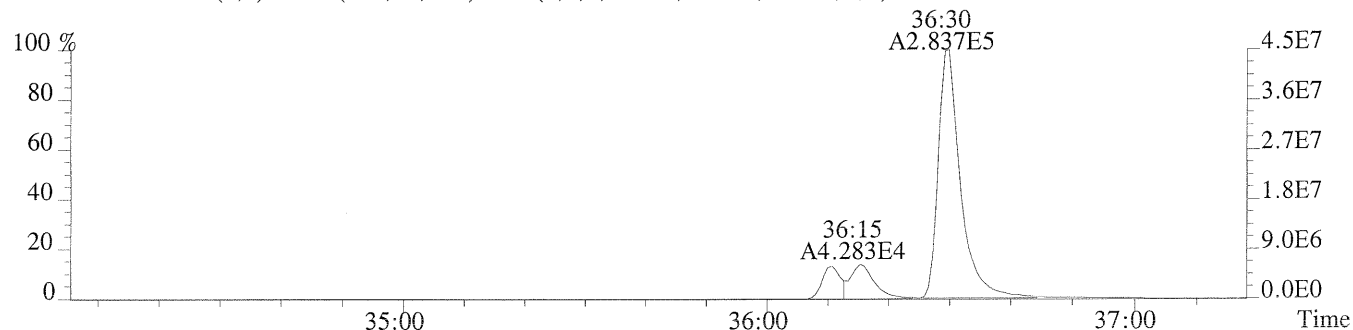
File:P230538 #1-292 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-003  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



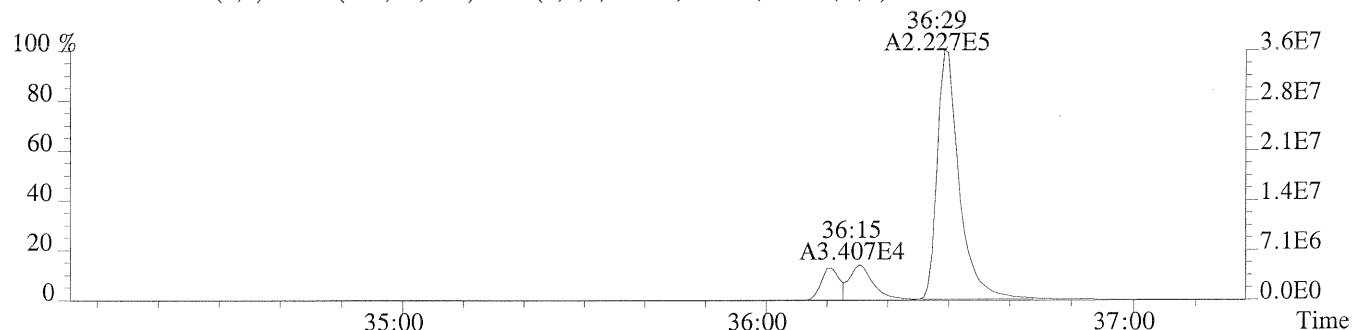
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



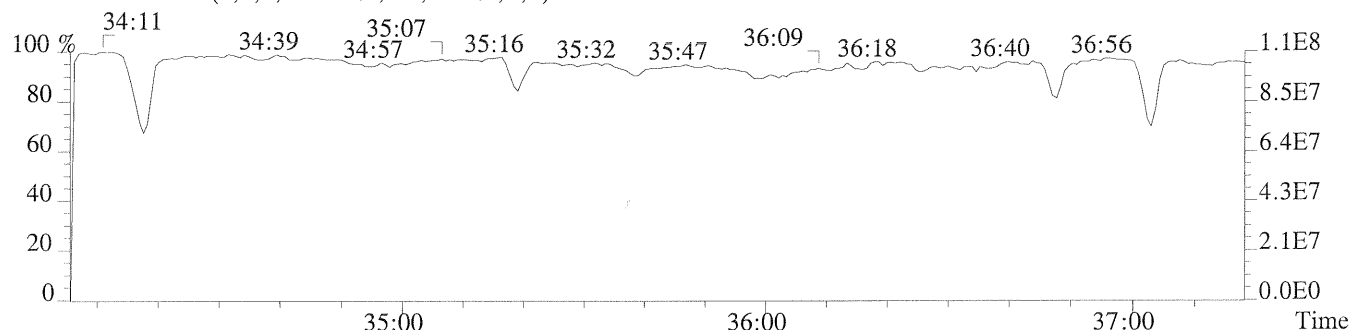
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



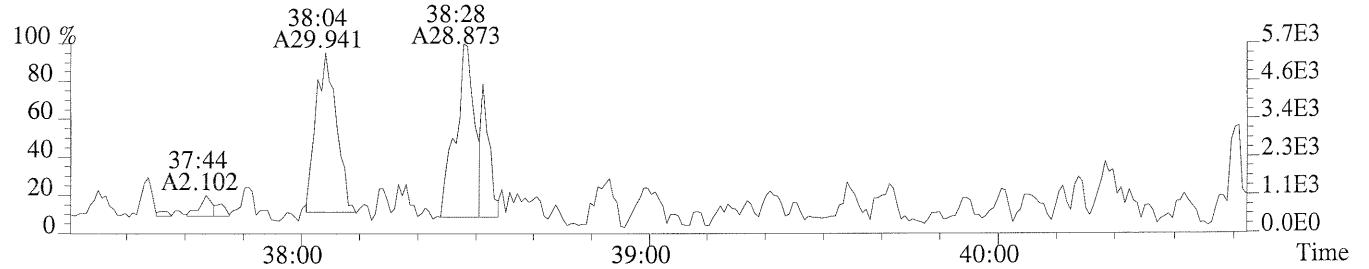
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)



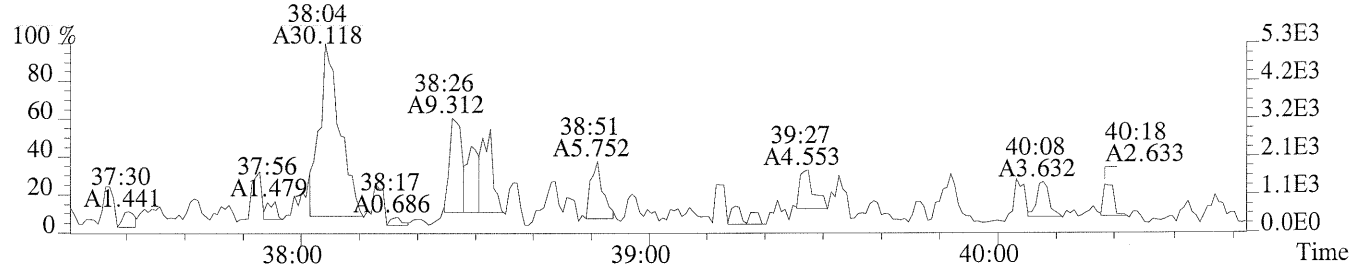
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



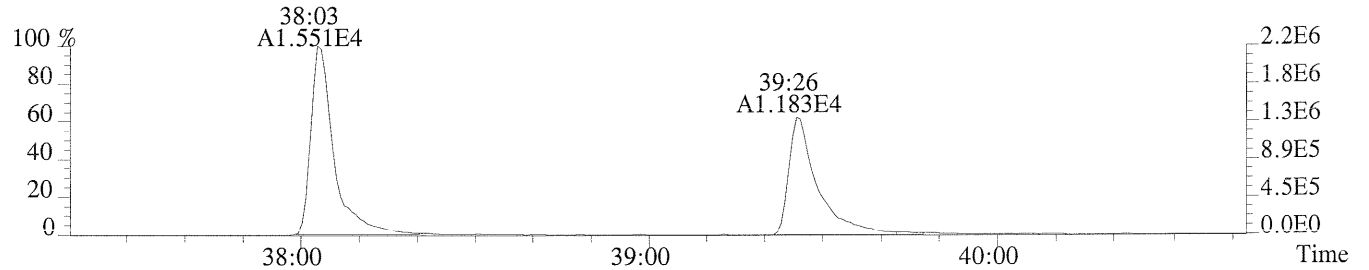
File:P230538 #1-306 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-003  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.50%,F,T)



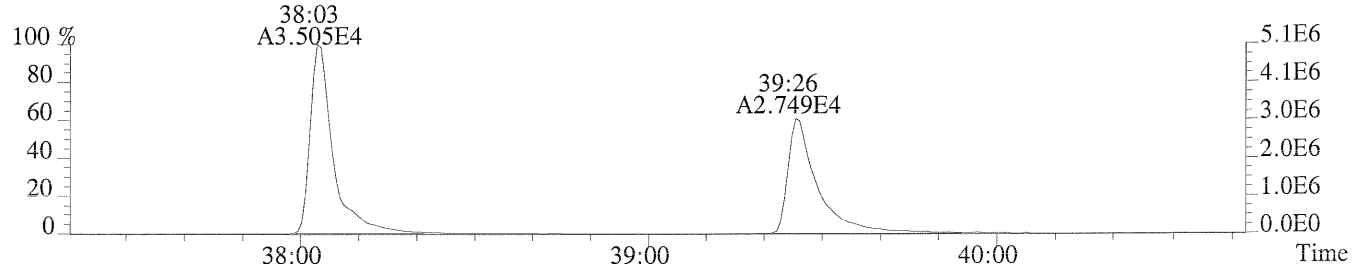
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.50%,F,T)



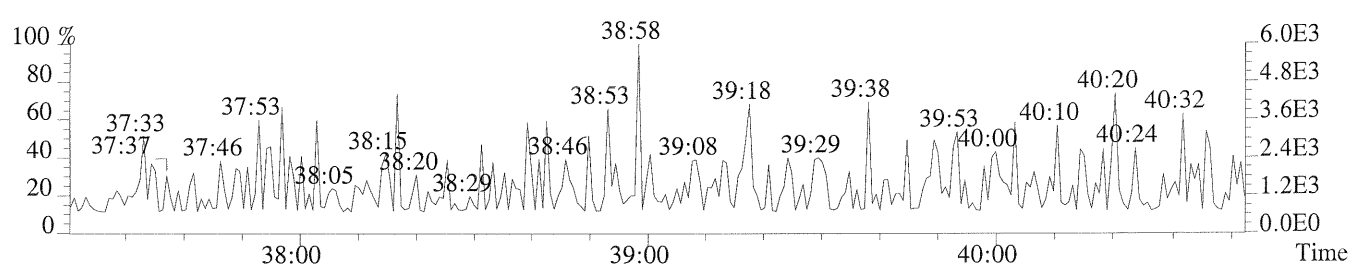
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2680.0,0.50%,F,T)



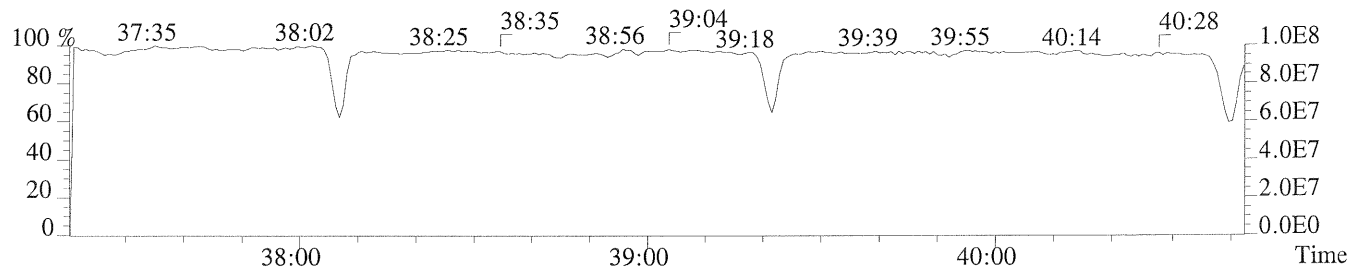
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4716.0,0.50%,F,T)



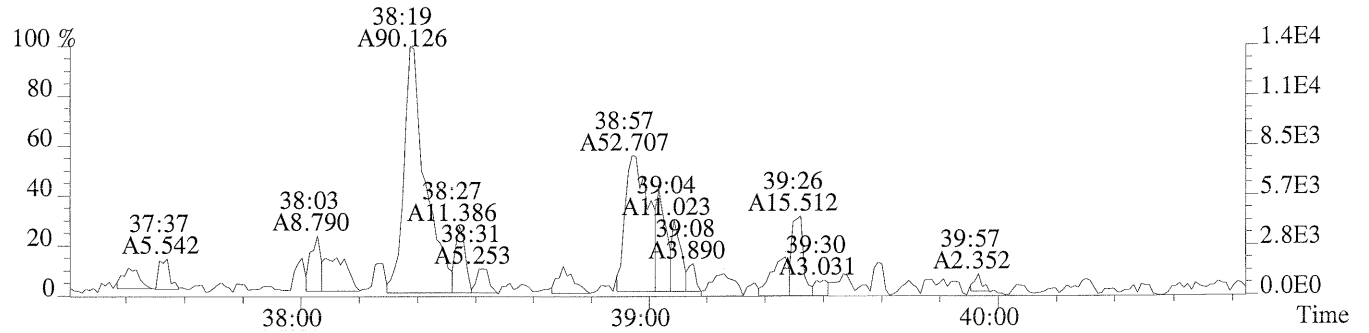
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



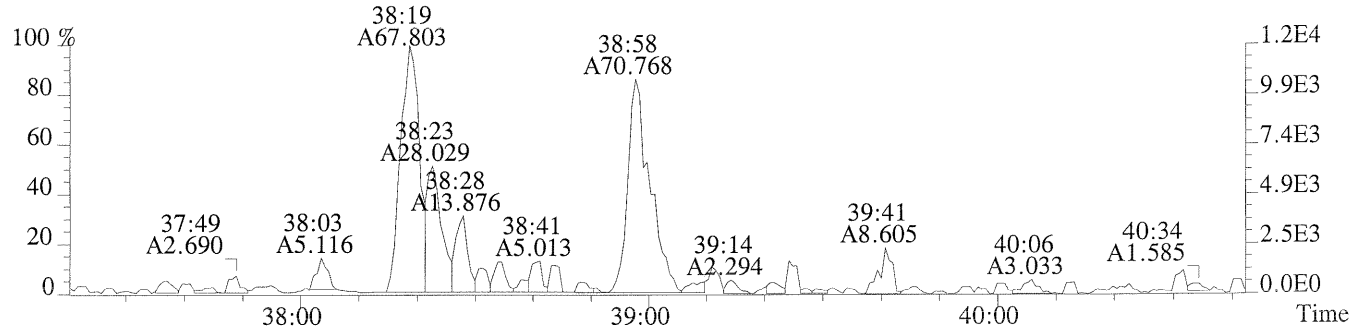
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



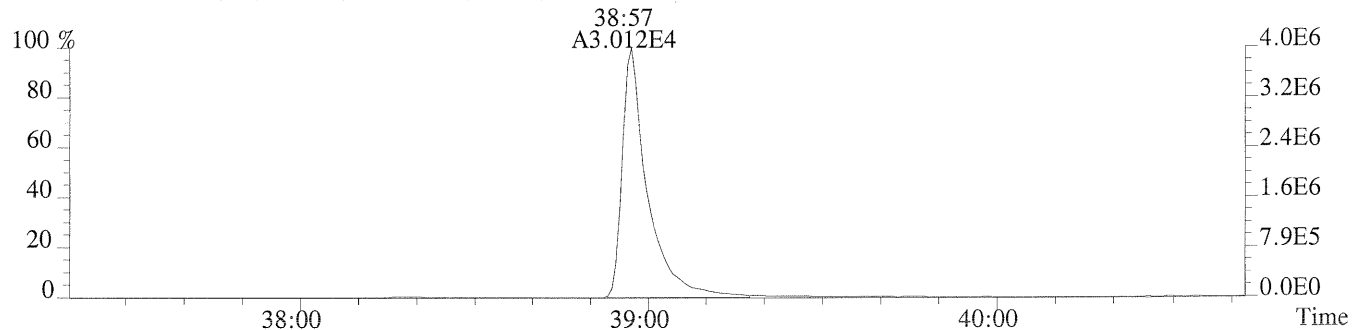
File:P230538 #1-306 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-003  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



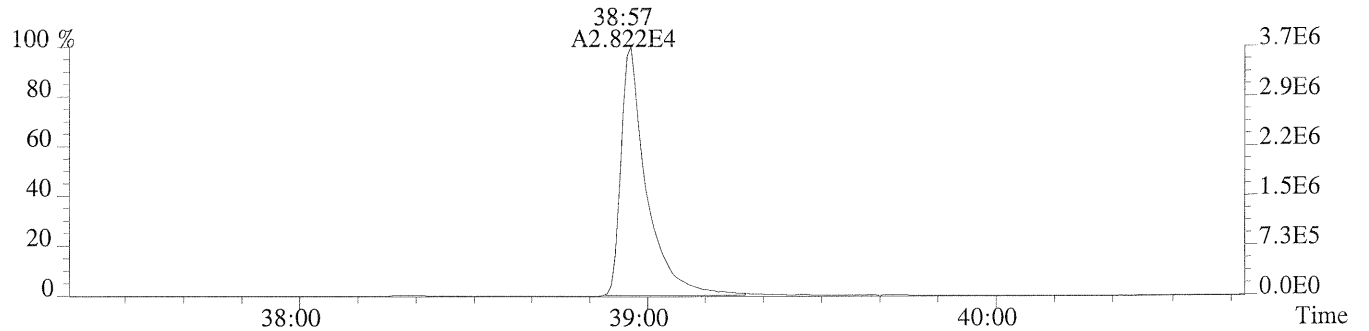
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



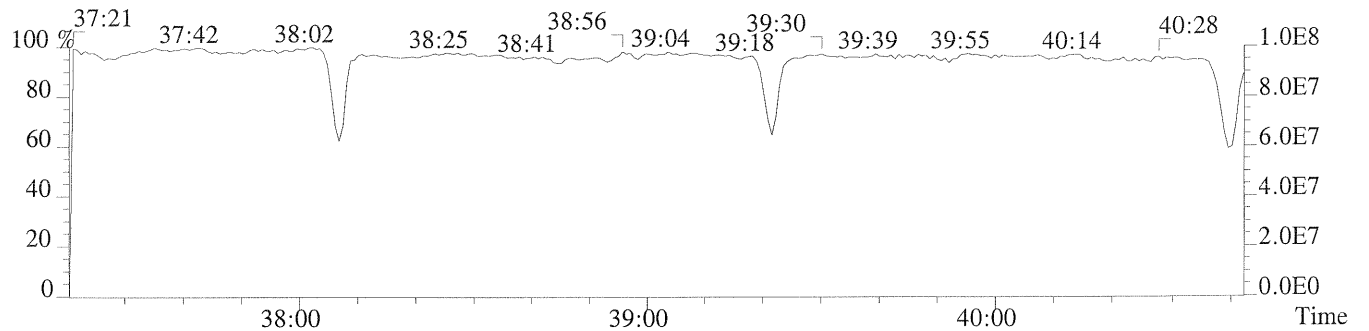
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1748.0,0.40%,F,T)



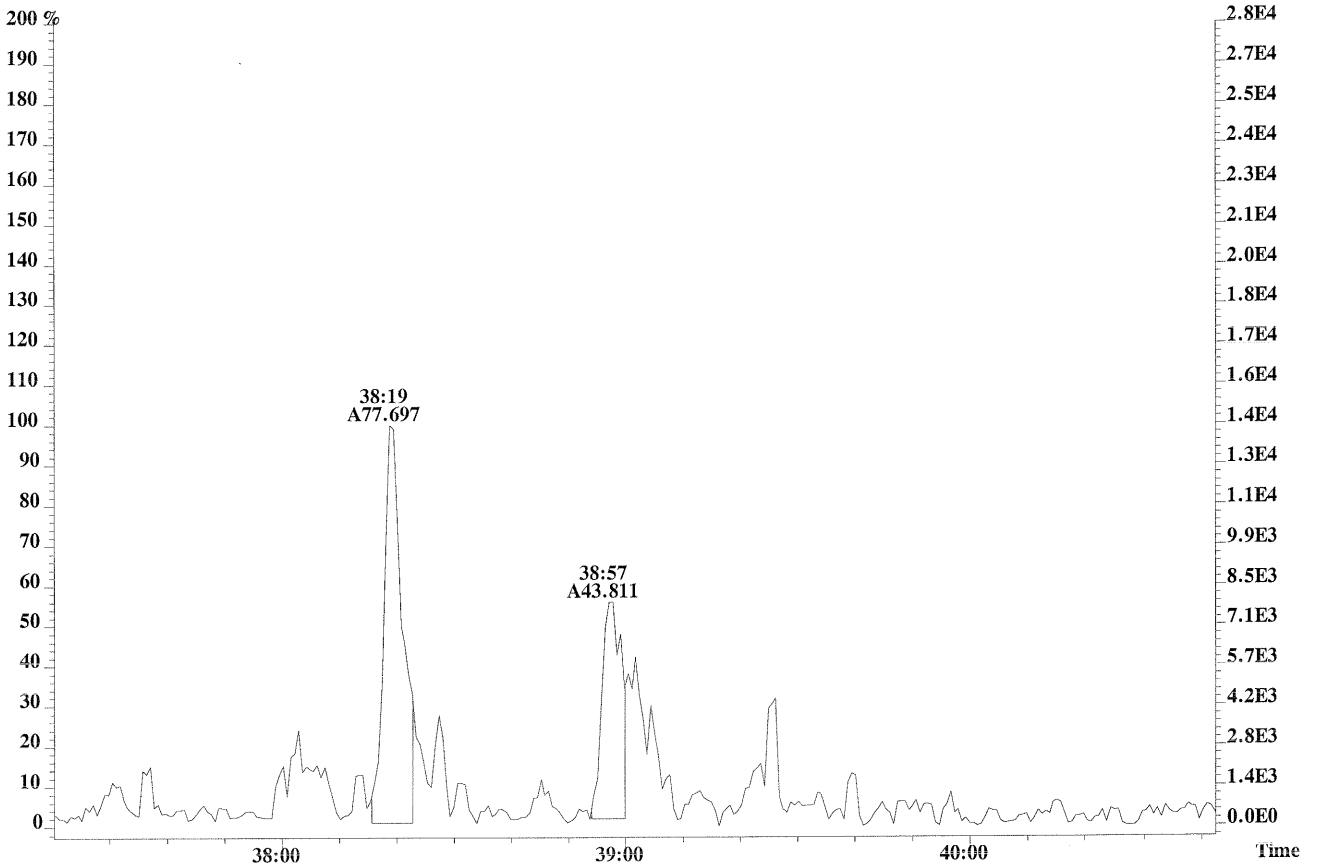
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



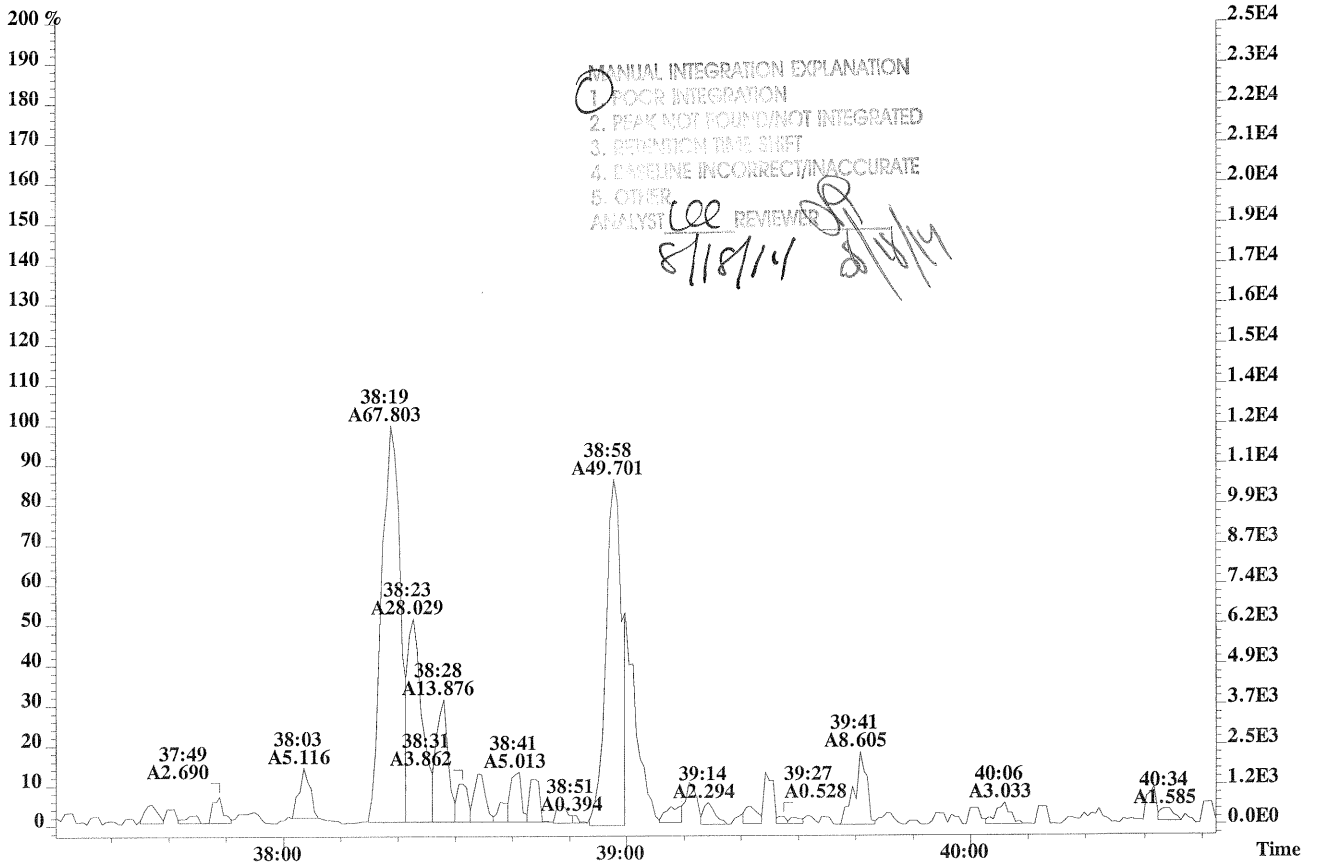
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



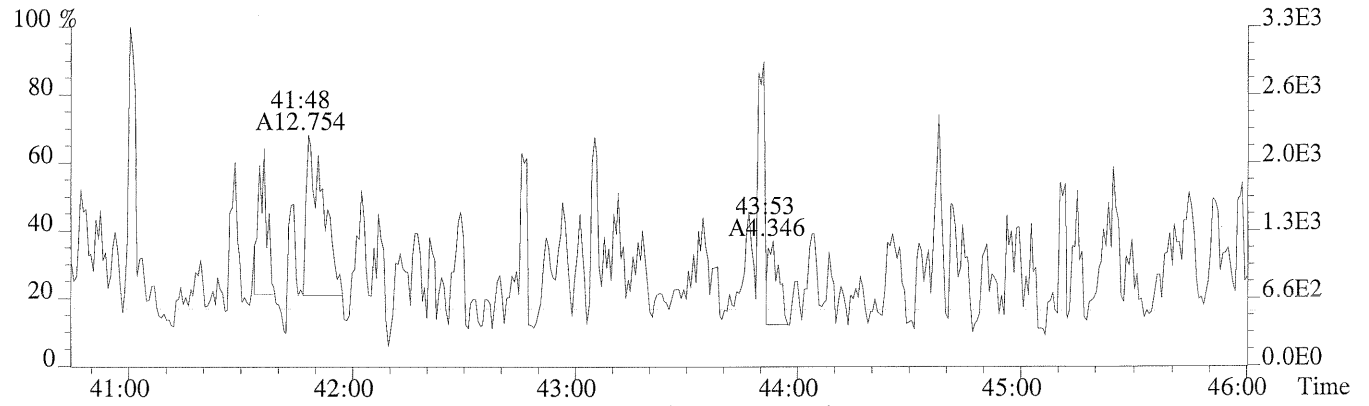




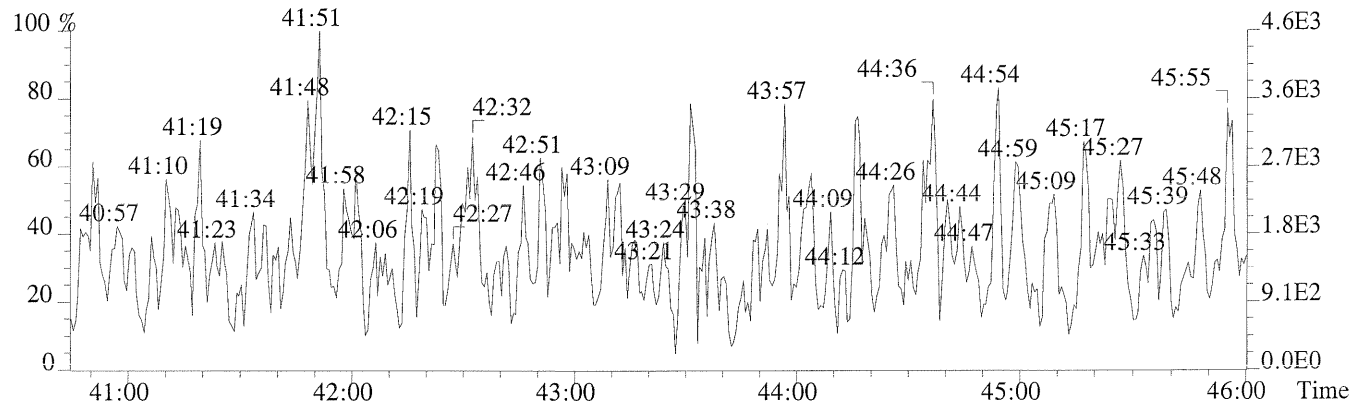
425.7737 F: 4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



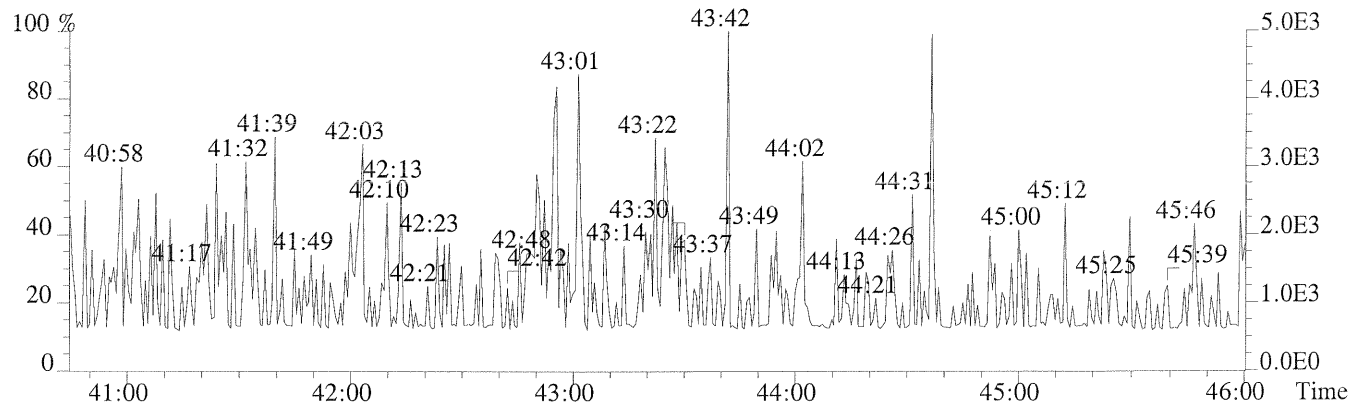
File:P230538 #1-484 Acq:15-AUG-2014 16:48:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-003  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1084.0,0.40%,F,T)



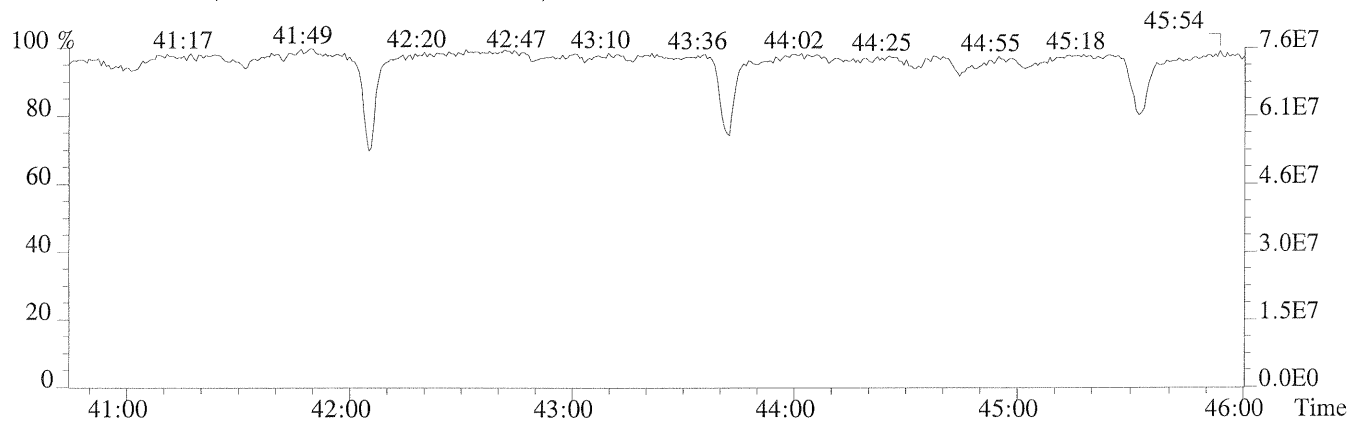
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1836.0,0.40%,F,T)

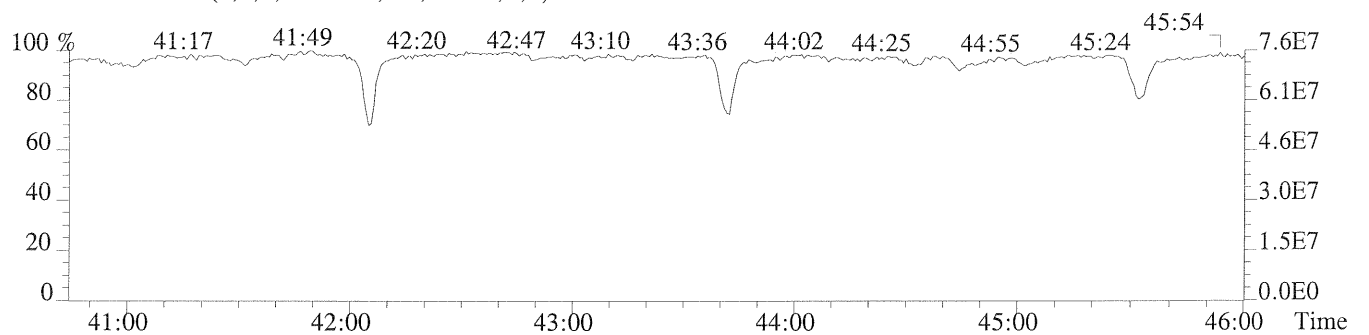
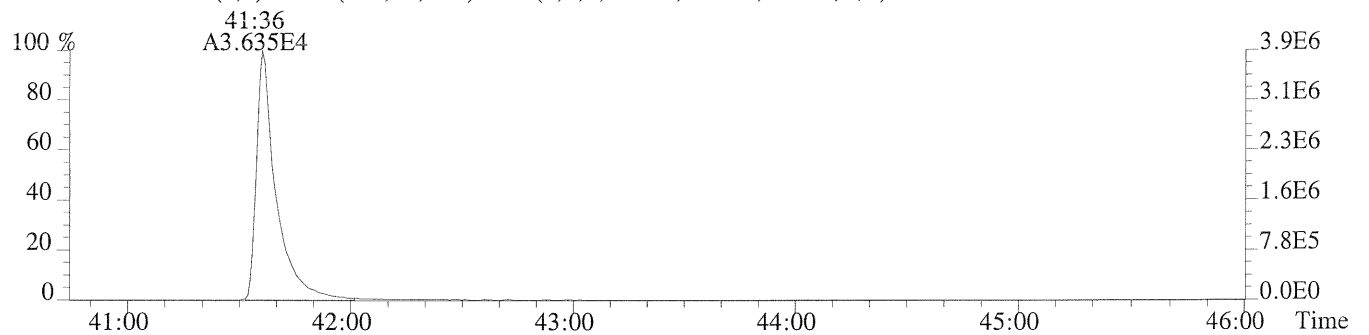
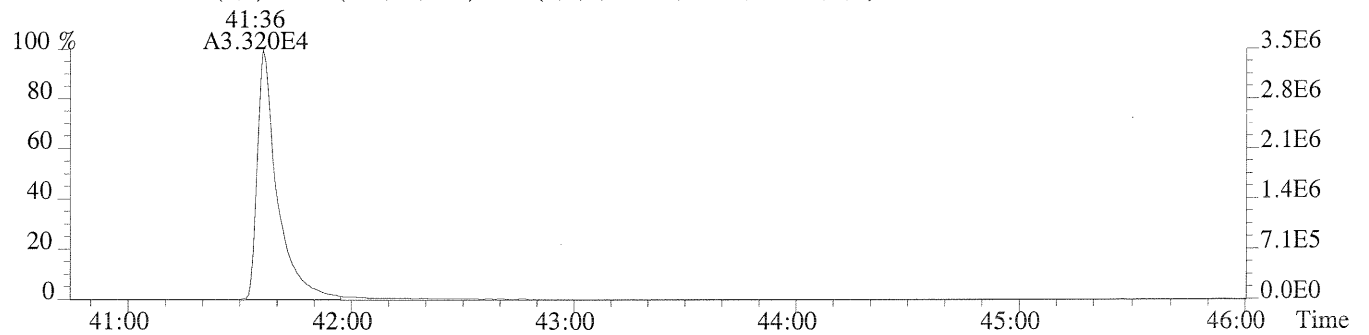
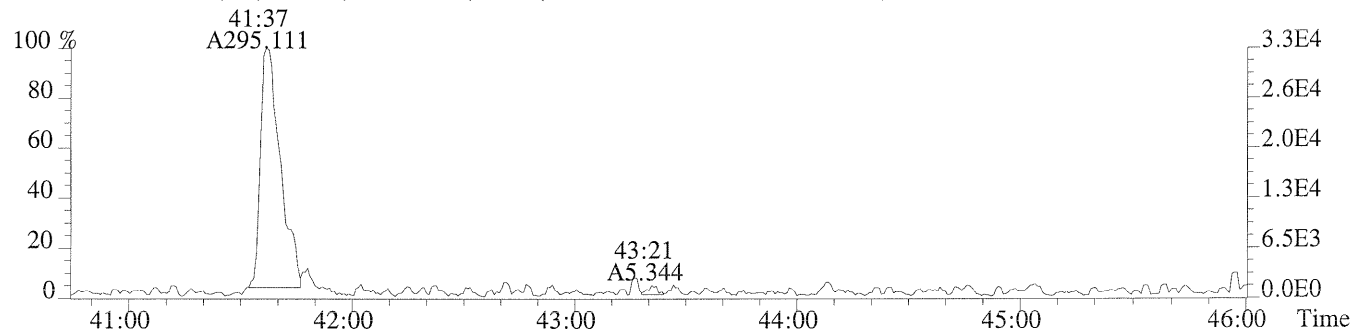
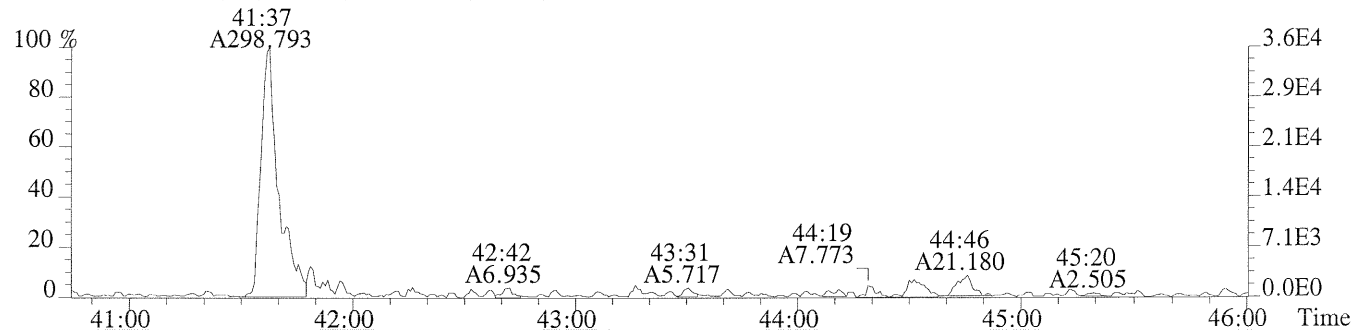


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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





Sample Response Summary

Run #13 Filename P230539 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 17:36:08  
Processed: 18-AUG-14 14:46:35 LAB. ID: P1403085-004

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.959
2 Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.955
3 Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	0.868
5 Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.157
6 Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	0.963
7 Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.113
10 Unk	OCDF	NotFnd	*	*	*	no	no	1.392
11 Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.981
12 Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.982
13 Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.916
14 Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.142
15 Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.104
17 Unk	OCDD	NotFnd	*	*	*	no	yes	1.181
18 IS	13C-2,3,7,8-TCDF	27:20	2.987e+04	3.732e+04	0.80	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:45	6.714e+04	4.151e+04	1.62	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	6.404e+04	4.000e+04	1.60	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:25	2.117e+04	4.090e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	3.635e+04	7.055e+04	0.52	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:49	4.738e+04	9.151e+04	0.52	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:04	1.652e+04	3.799e+04	0.43	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:26	1.213e+04	2.833e+04	0.43	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:10	2.108e+04	2.682e+04	0.79	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	32:59	4.877e+04	3.047e+04	1.60	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:11	3.195e+04	2.271e+04	1.41	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:15	4.044e+04	3.442e+04	1.18	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	3.100e+04	2.907e+04	1.07	yes	no	0.925
32 IS	13C-OCDD	41:37	3.698e+04	4.059e+04	0.91	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:30	2.027e+05	2.567e+05	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:30	2.947e+05	2.331e+05	1.26	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:12	5.758e+04				no	0.960

EDL  
OCDD =  $(8.16e+02 + 7.84e+02) \times (4000.0) \times 1^{1.25} = 3.25$  pg  
 $(3.698e+04 + 4.059e+04) \times 1.181 \times 0.500$   
 $3.97e+06 + 4.35e+06$

08/18/14  
JP

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
731sN-DF

Method M23

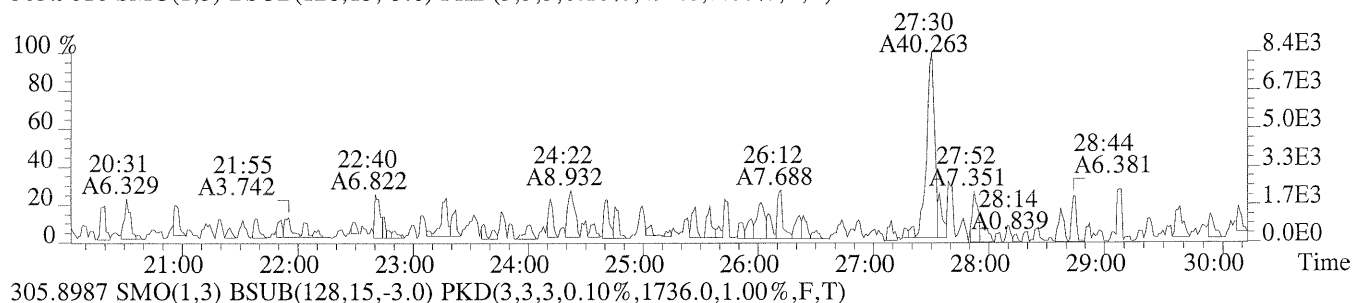
Run #13 Filename P230539 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 17:36:08  
Processed: 18-AUG-14 14:46:35 LAB. ID: P1403085-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.92e+02	*	*	1.74e+03	*
2	1,2,3,7,8-PeCDF	*	2.52e+02	*	*	2.18e+03	*
3	2,3,4,7,8-PeCDF	*	2.52e+02	*	*	2.18e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.04e+03	*	*	1.28e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.04e+03	*	*	1.28e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.04e+03	*	*	1.28e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.04e+03	*	*	1.28e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	7.64e+02	*	*	4.20e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	7.64e+02	*	*	4.20e+02	*
10	OCDF	*	6.96e+02	*	*	2.02e+03	*
11	2,3,7,8-TCDD	*	1.31e+03	*	*	1.40e+03	*
12	1,2,3,7,8-PeCDD	*	1.43e+03	*	*	5.04e+02	*
13	1,2,3,4,7,8-HxCDD	*	4.48e+02	*	*	7.16e+02	*
14	1,2,3,6,7,8-HxCDD	*	4.48e+02	*	*	7.16e+02	*
15	1,2,3,7,8,9-HxCDD	*	4.48e+02	*	*	7.16e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	9.56e+02	*	*	3.72e+02	*
17	OCDD	*	8.16e+02	*	*	7.84e+02	*
18	13C-2,3,7,8-TCDF	3.67e+06	3.24e+03	1.1e+03	4.50e+06	2.42e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	7.42e+06	3.49e+03	2.1e+03	4.61e+06	7.80e+02	5.9e+03
20	13C-2,3,4,7,8-PeCDF	7.93e+06	3.49e+03	2.3e+03	5.01e+06	7.80e+02	6.4e+03
21	13C-1,2,3,4,7,8-HxCDF	3.70e+06	1.08e+03	3.4e+03	7.20e+06	2.80e+03	2.6e+03
22	13C-1,2,3,6,7,8-HxCDF	4.61e+06	1.08e+03	4.3e+03	9.02e+06	2.80e+03	3.2e+03
24	13C-1,2,3,7,8,9-HxCDF	6.05e+06	1.08e+03	5.6e+03	1.17e+07	2.80e+03	4.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.29e+06	1.96e+03	1.2e+03	5.25e+06	1.00e+03	5.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.33e+06	1.96e+03	6.8e+02	3.11e+06	1.00e+03	3.1e+03
27	13C-2,3,7,8-TCDD	3.06e+06	8.11e+03	3.8e+02	3.95e+06	3.23e+03	1.2e+03
28	13C-1,2,3,7,8-PeCDD	5.71e+06	1.25e+03	4.6e+03	3.61e+06	6.60e+02	5.5e+03
29	13C-1,2,3,4,7,8-HxCDD	5.83e+06	1.47e+03	4.0e+03	4.53e+06	1.31e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	6.26e+06	1.47e+03	4.3e+03	4.96e+06	1.31e+03	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.06e+06	1.57e+03	2.6e+03	3.71e+06	4.92e+02	7.5e+03
32	13C-OCDD	3.97e+06	6.93e+03	5.7e+02	4.35e+06	5.72e+02	7.6e+03
33	13C-1,2,3,4-TCDD	3.35e+07	8.11e+03	4.1e+03	4.24e+07	3.23e+03	1.3e+04
34	13C-1,2,3,7,8,9-HxCDD	4.64e+07	1.47e+03	3.2e+04	3.64e+07	1.31e+03	2.8e+04
35	37Cl-2,3,7,8-TCDD	7.64e+06	6.88e+02	1.1e+04			

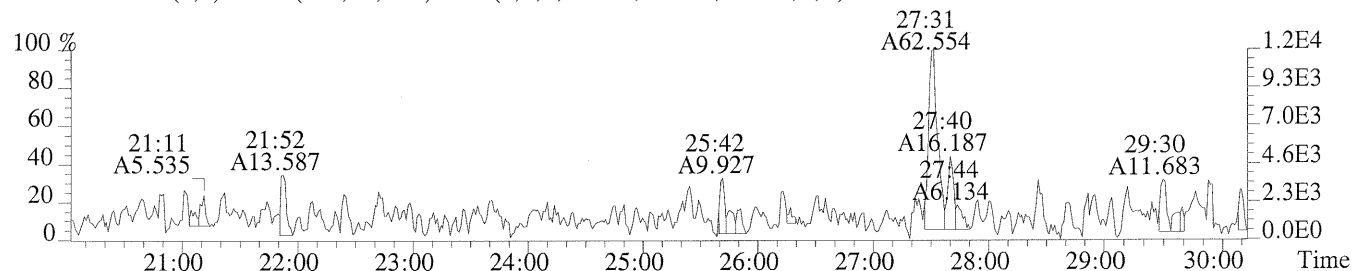
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

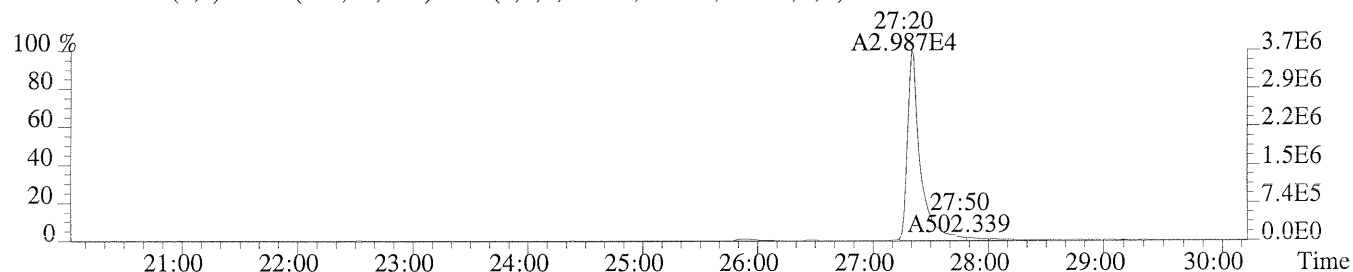
File:P230539 #1-640 Acq:15-AUG-2014 17:36:08 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-004  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



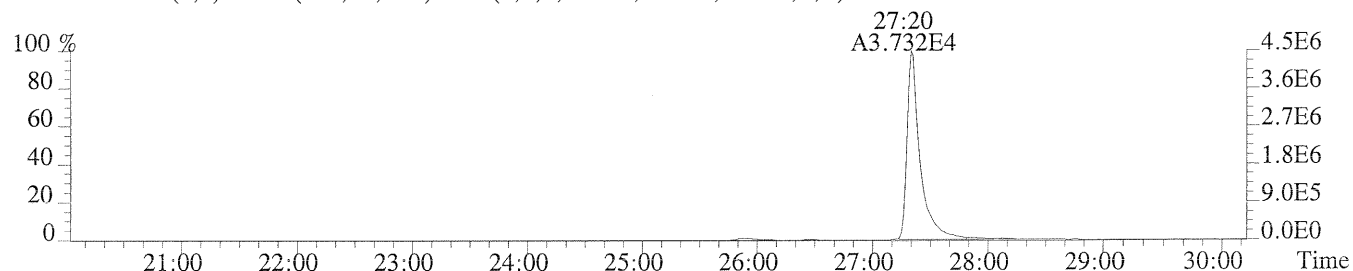
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



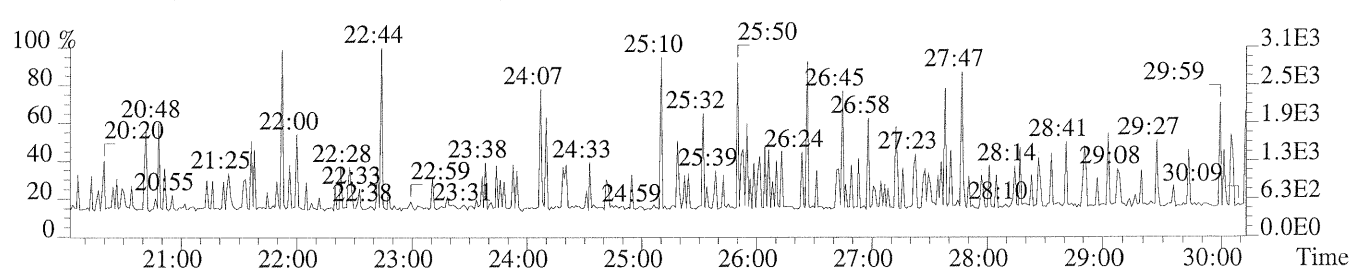
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3236.0,1.00%,F,T)



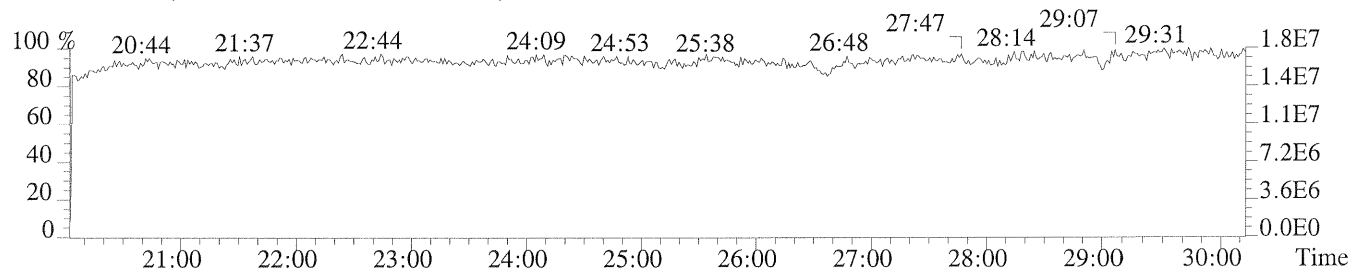
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



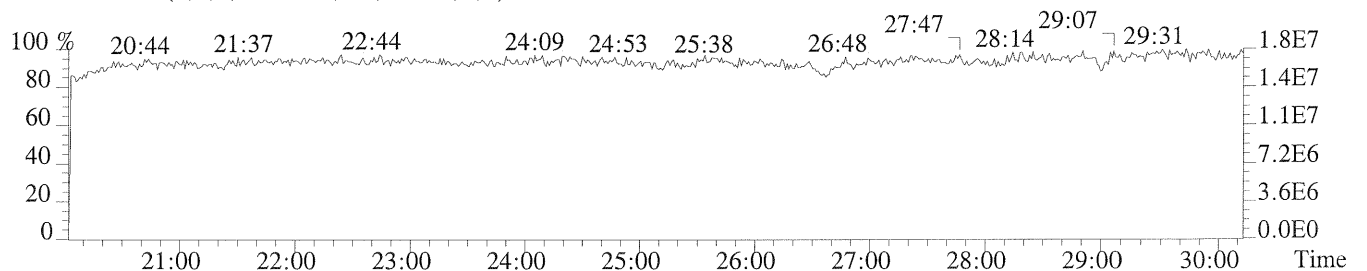
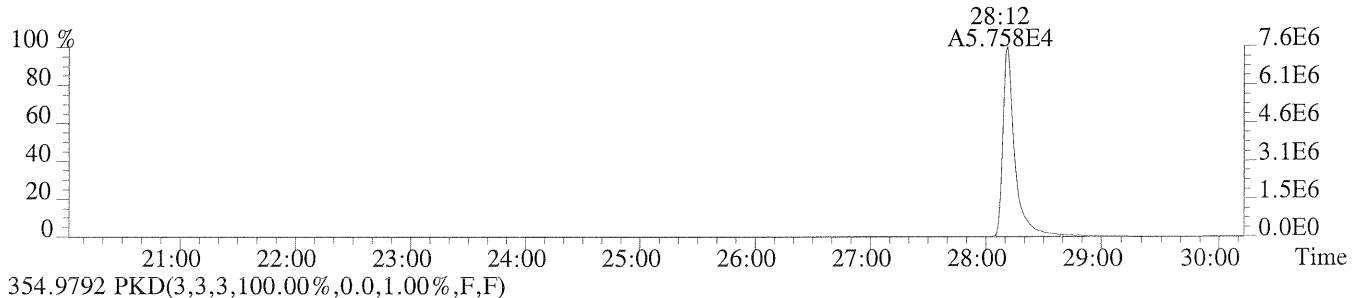
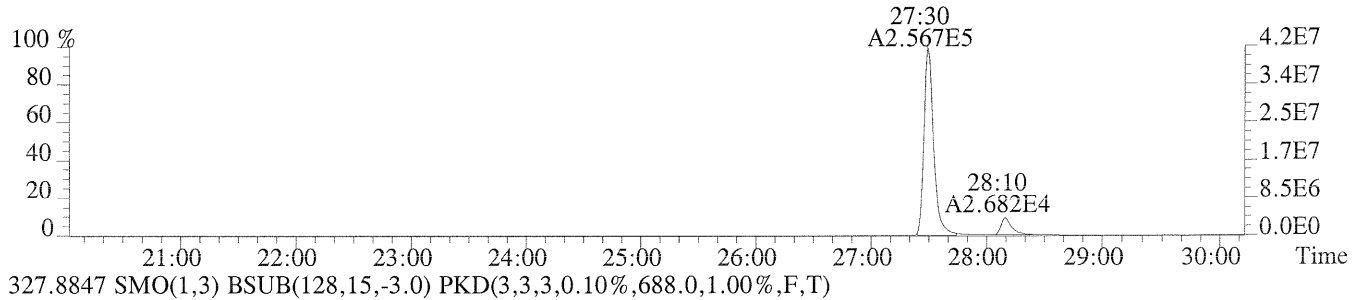
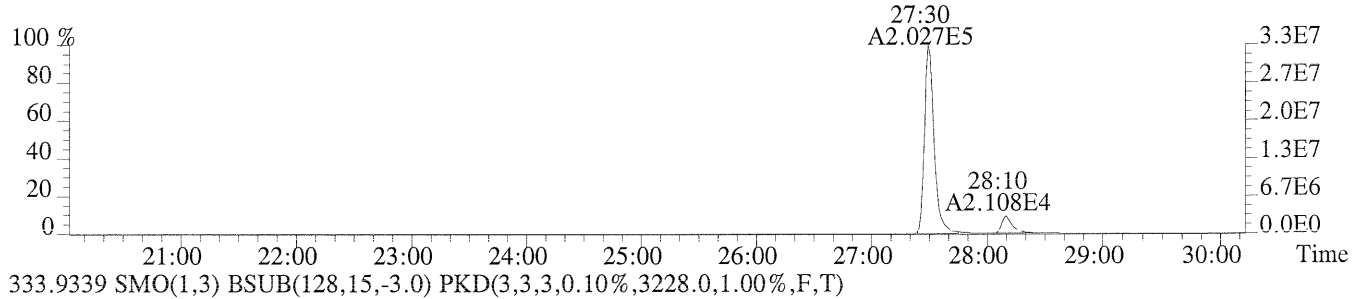
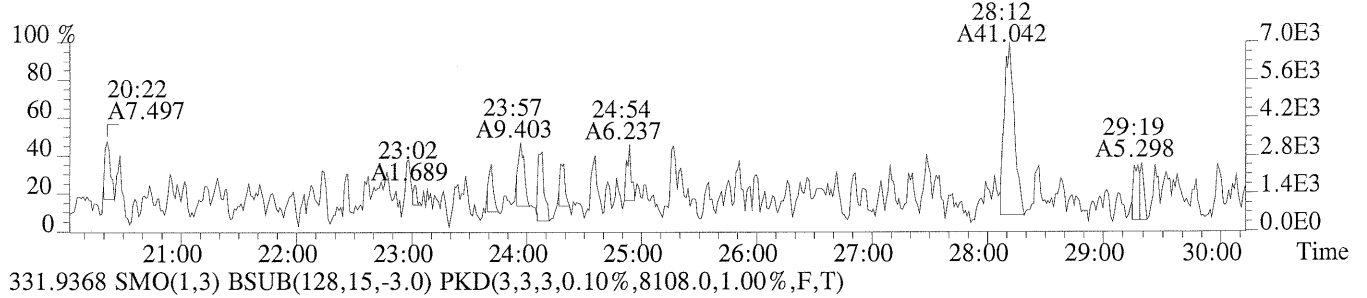
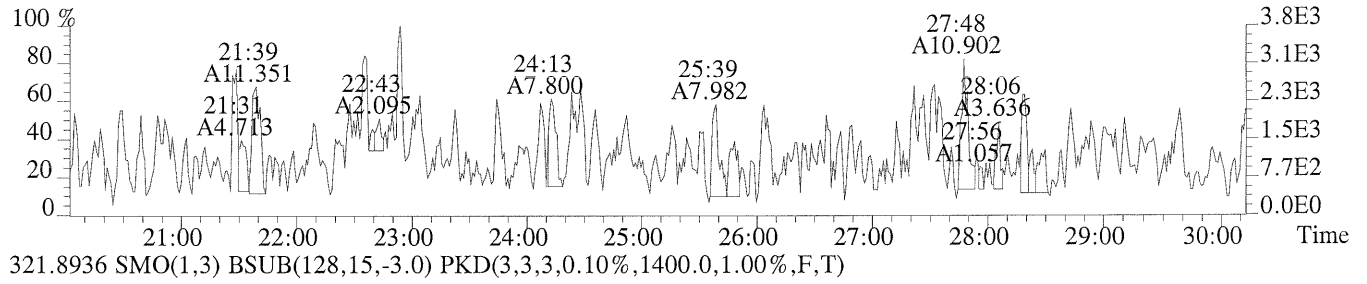
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



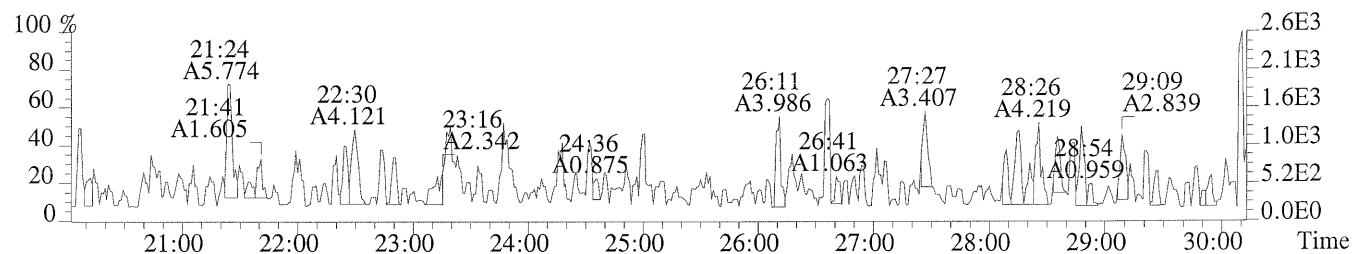
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



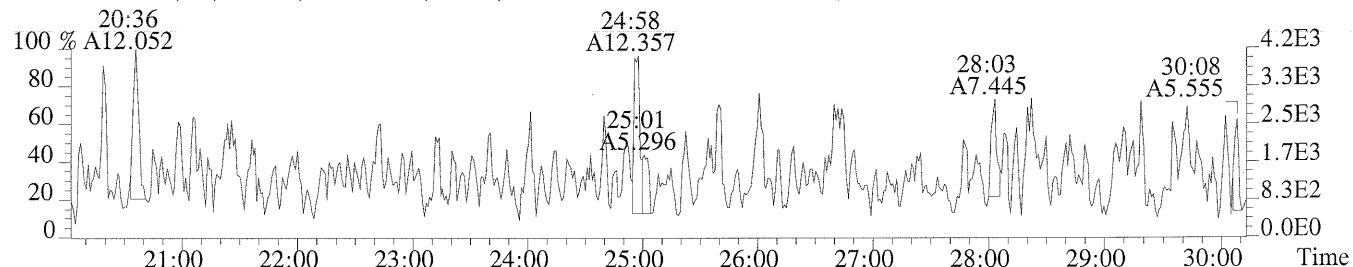
File:P230539 #1-640 Acq:15-AUG-2014 17:36:08 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-004  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



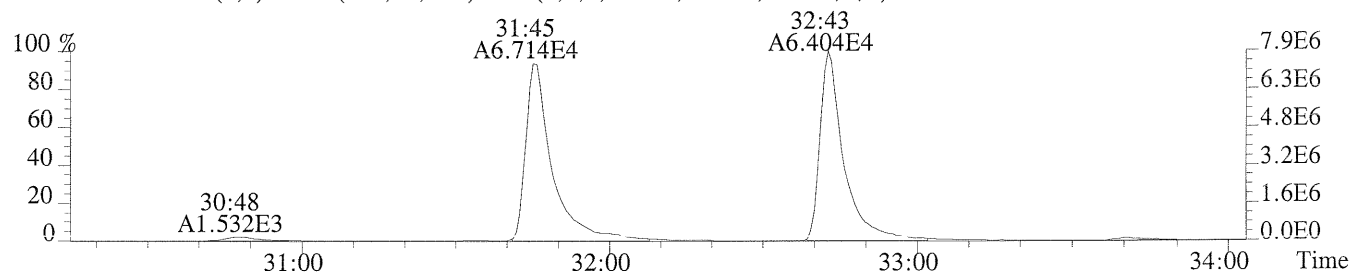
File:P230539 #1-640 Acq:15-AUG-2014 17:36:08 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-004  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



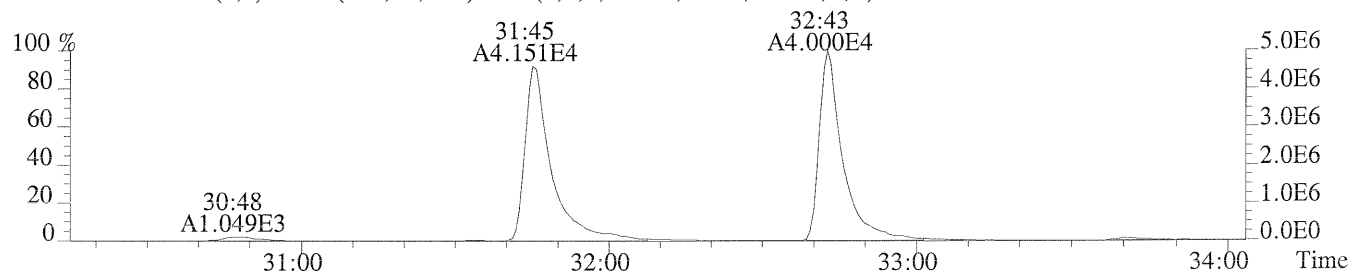
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



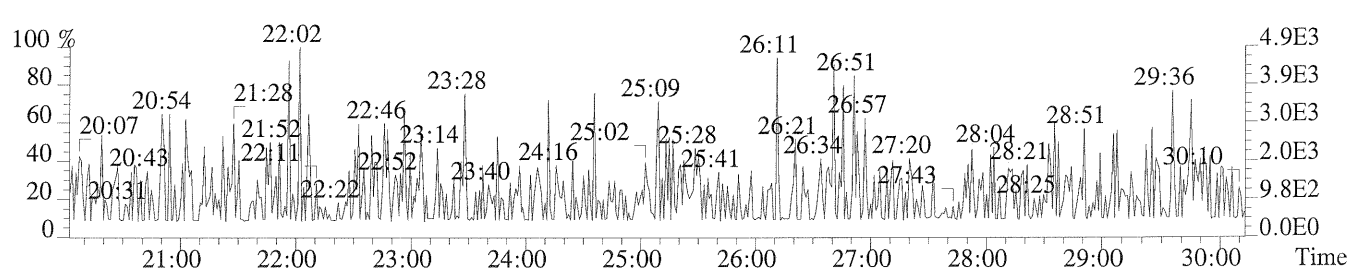
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3488.0,1.00%,F,T)



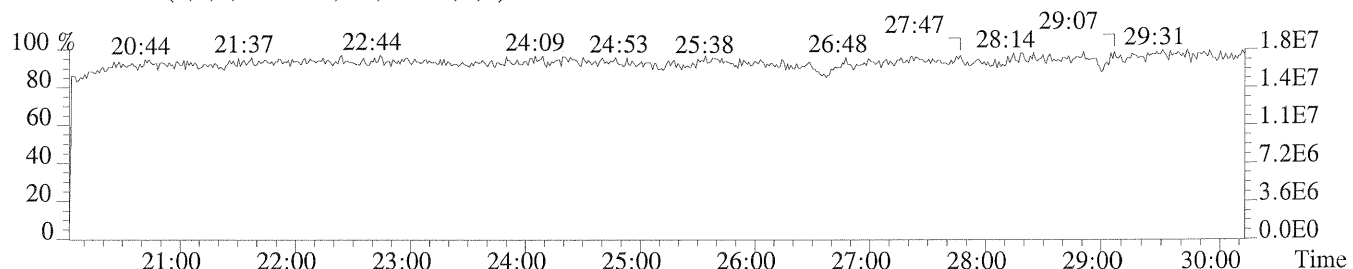
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



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

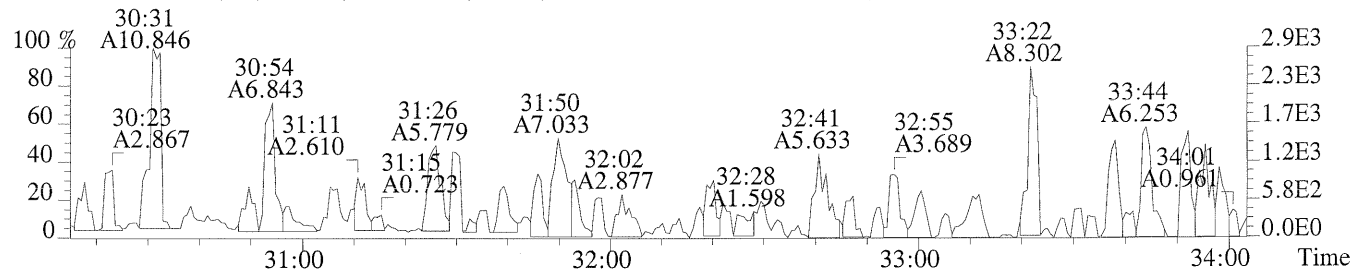


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

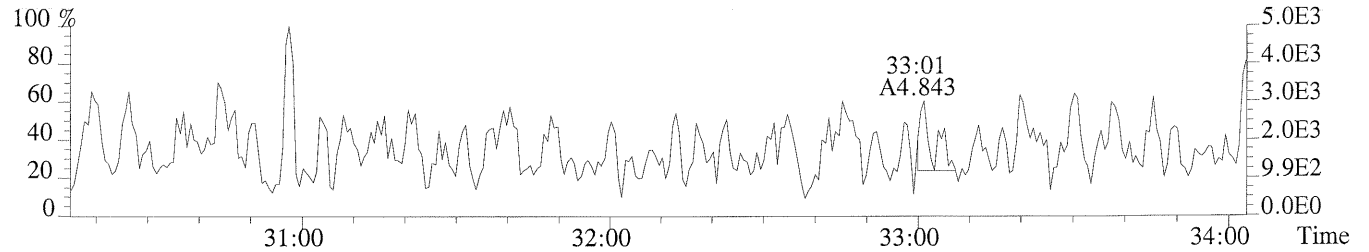




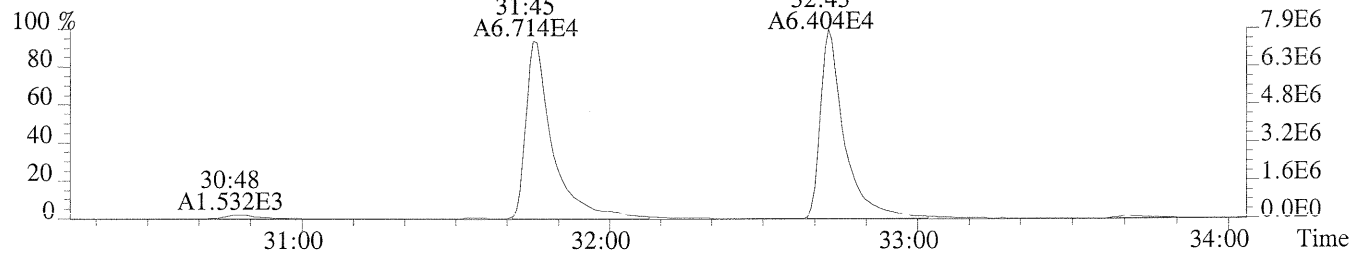
File:P230539 #1-346 Acq:15-AUG-2014 17:36:08 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-004  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



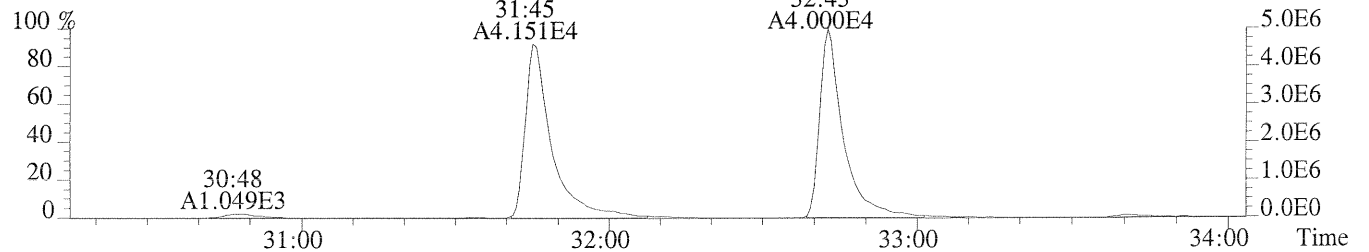
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



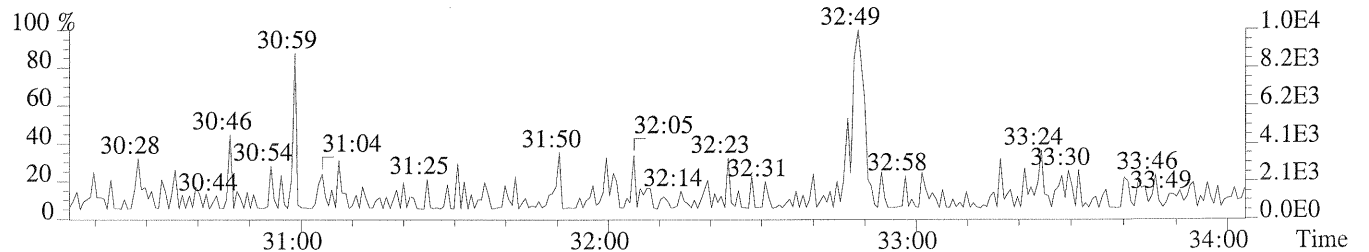
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3488.0,1.00%,F,T)



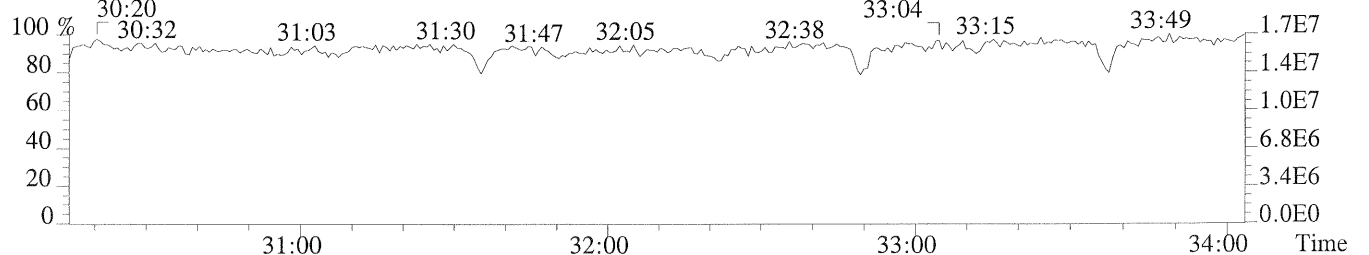
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)

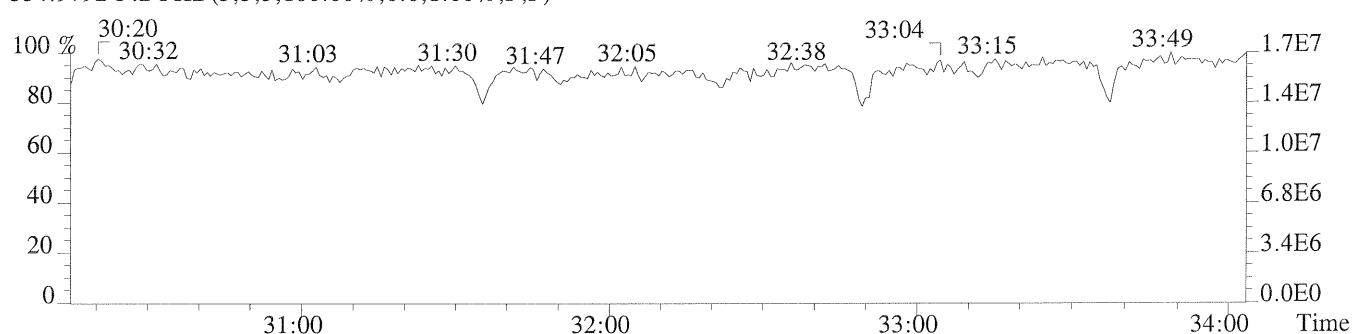
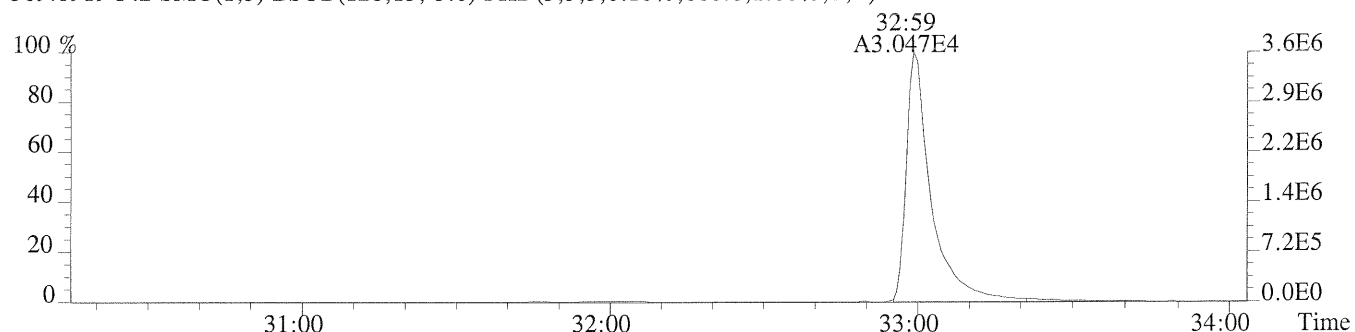
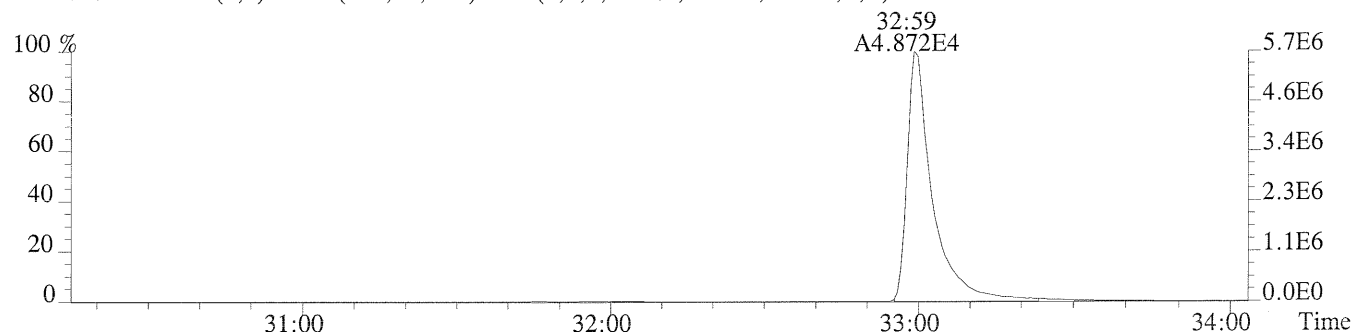
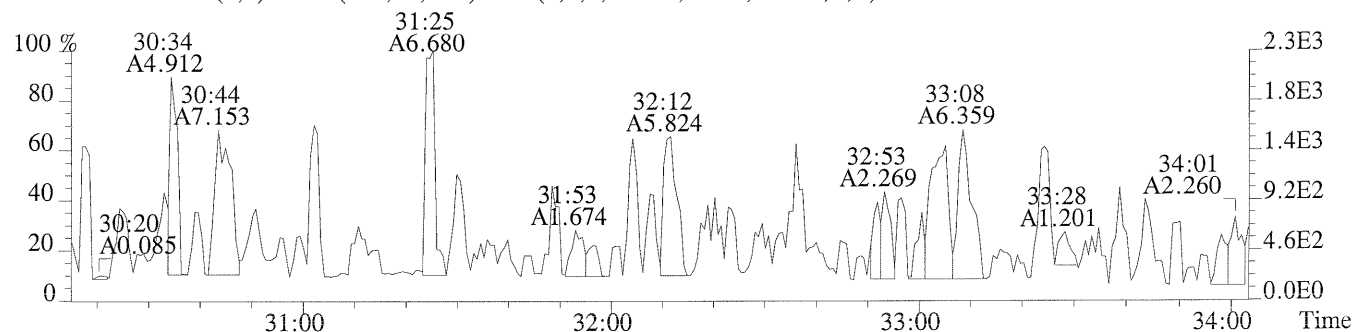
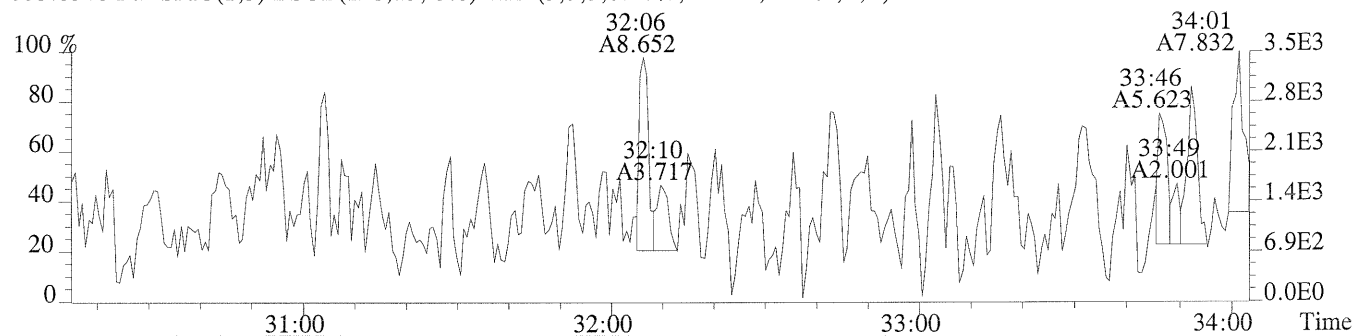


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

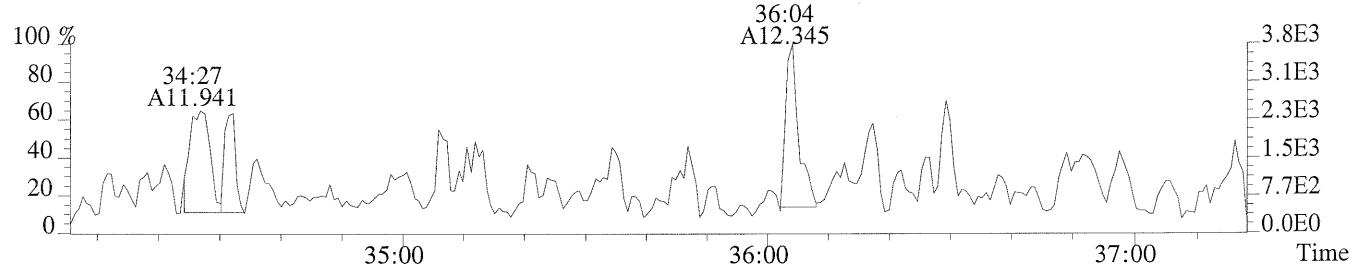


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

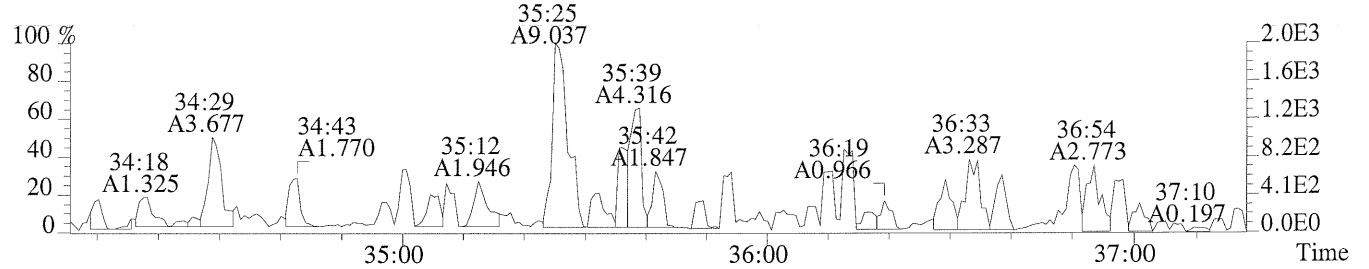




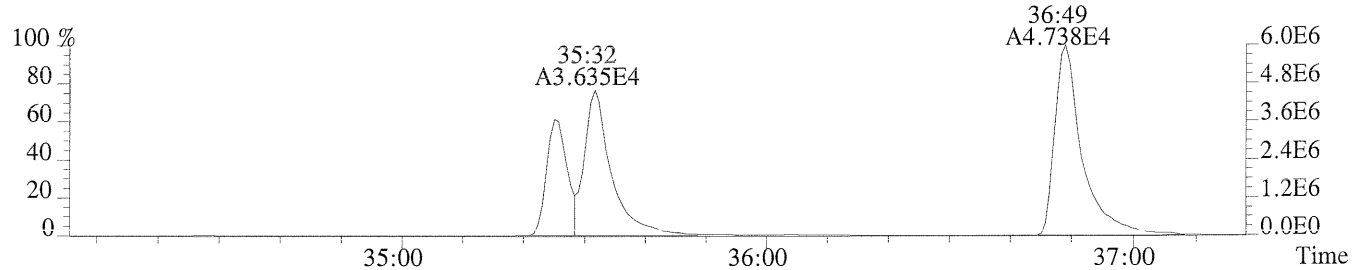
File:P230539 #1-292 Acq:15-AUG-2014 17:36:08 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-004  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



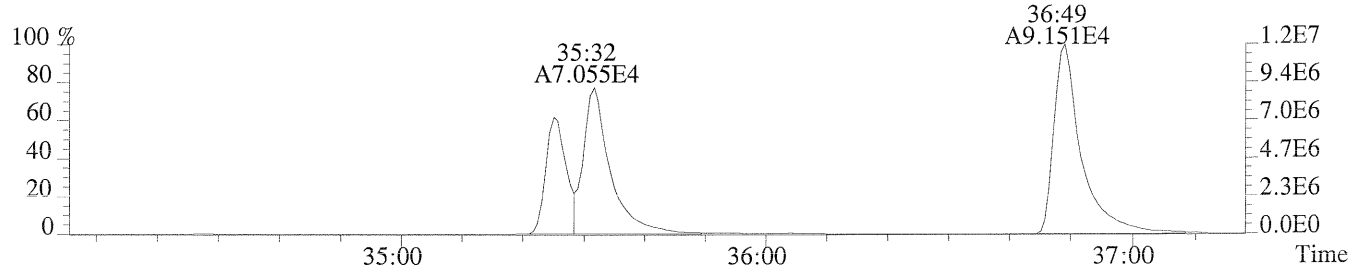
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



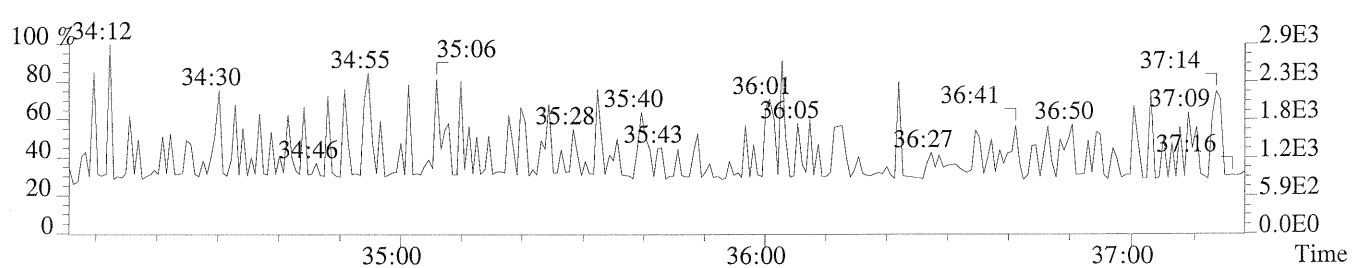
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



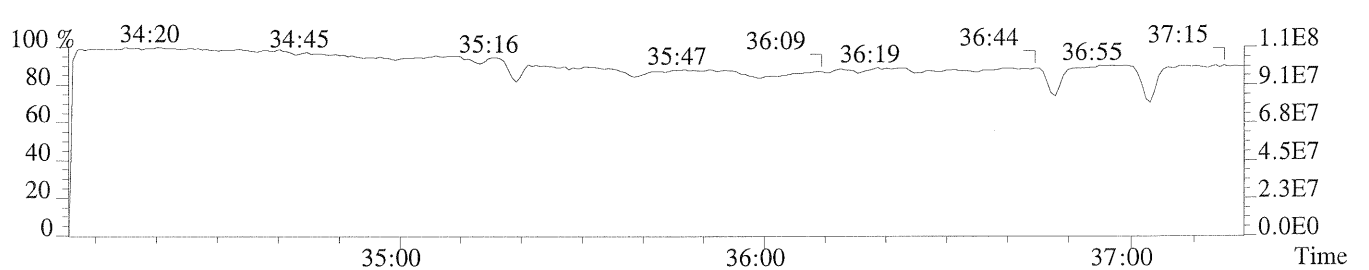
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2804.0,0.40%,F,T)



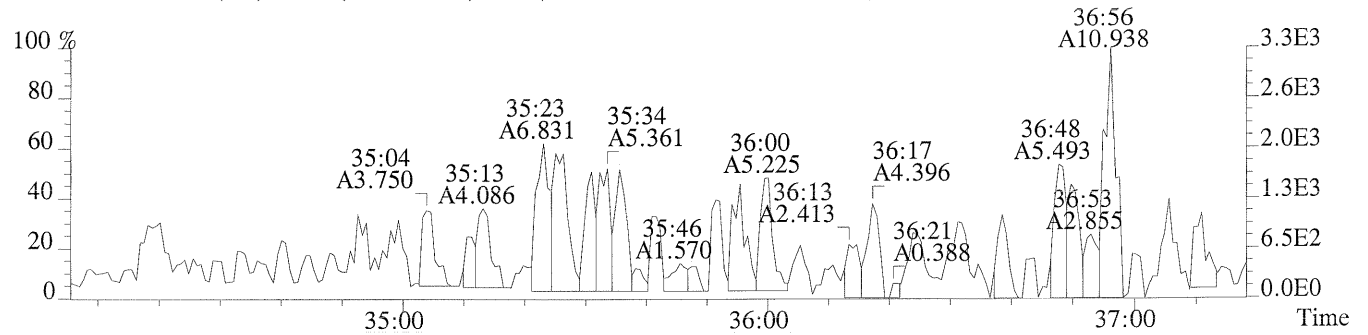
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



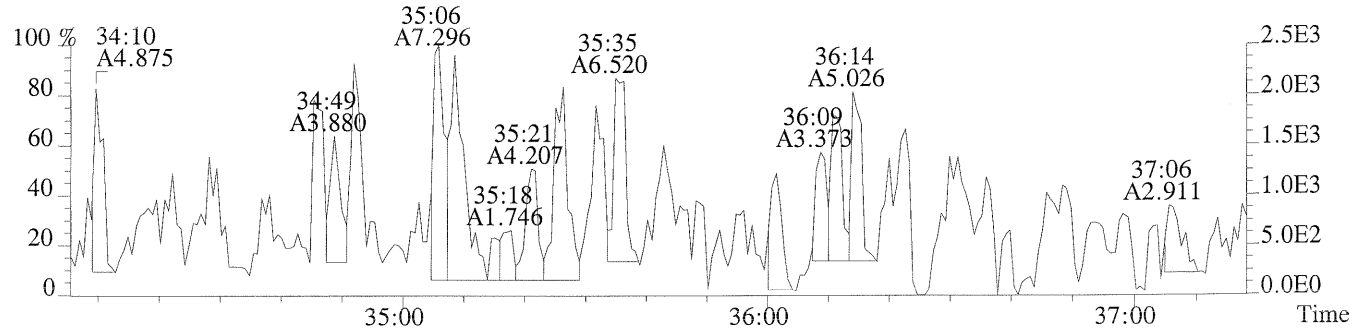
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



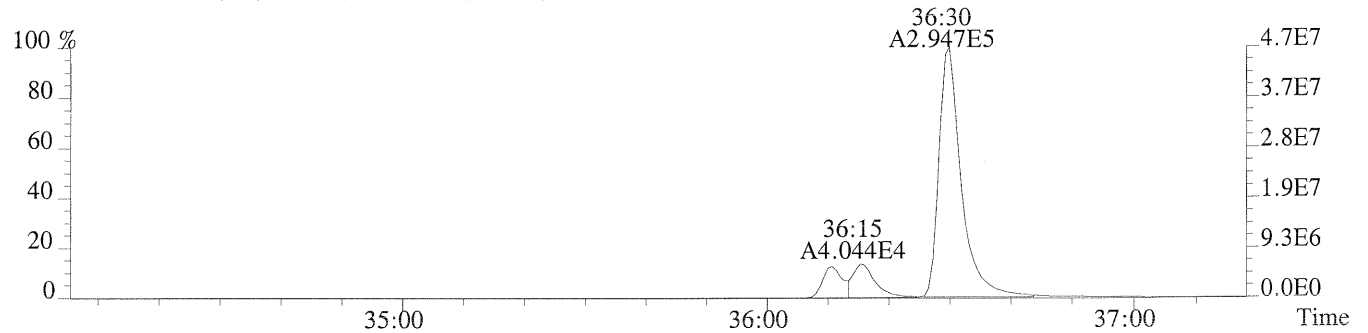
File:P230539 #1-292 Acq:15-AUG-2014 17:36:08 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-004  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



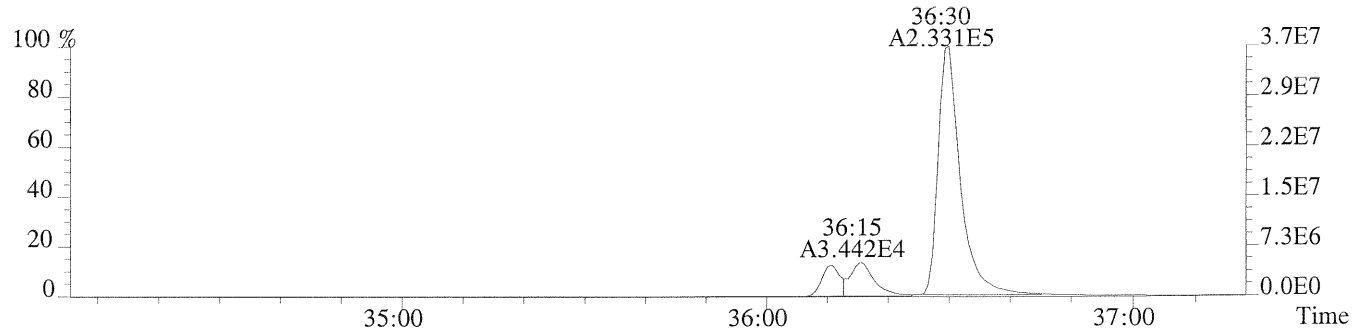
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



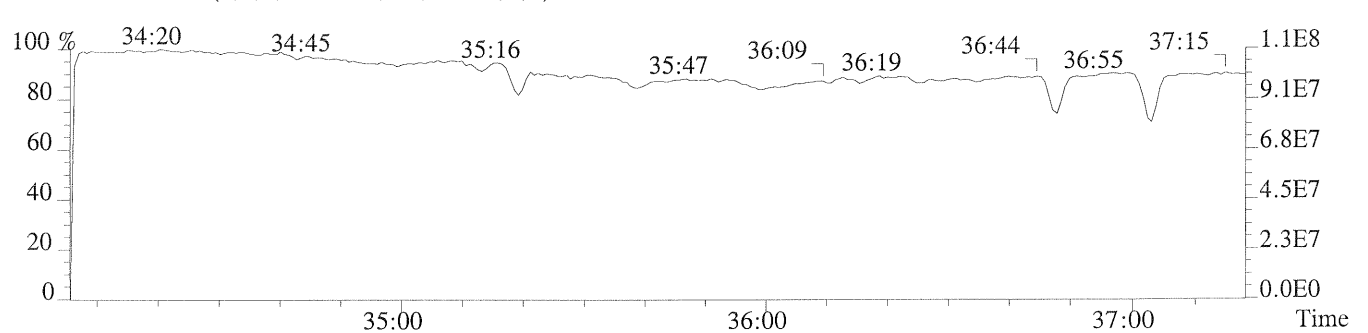
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.40%,F,T)



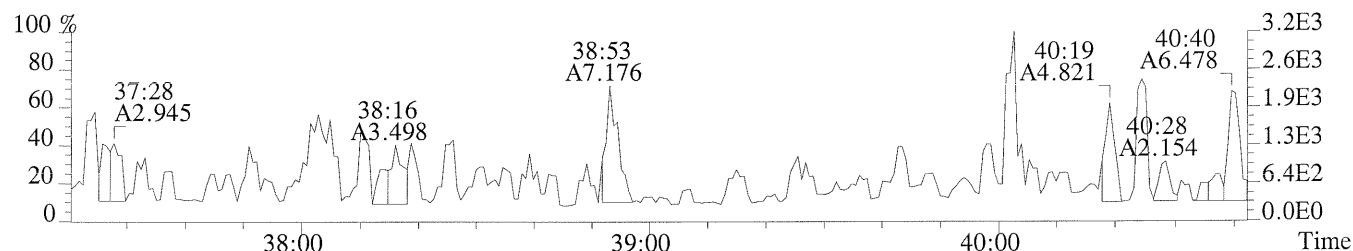
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



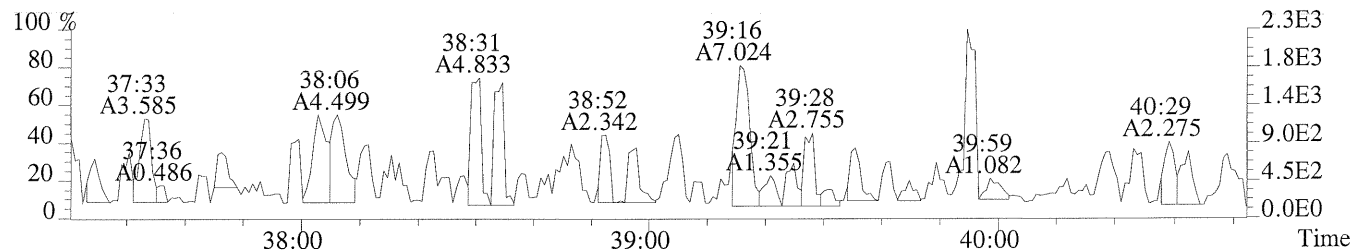
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



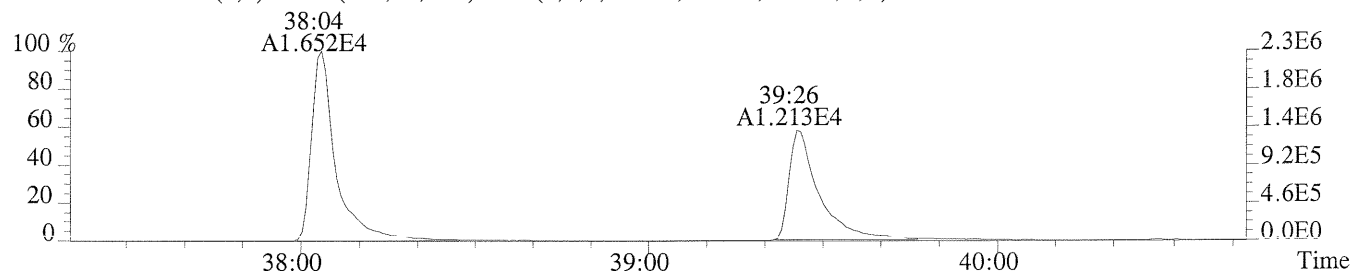
File:P230539 #1-306 Acq:15-AUG-2014 17:36:08 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-004  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.50%,F,T)



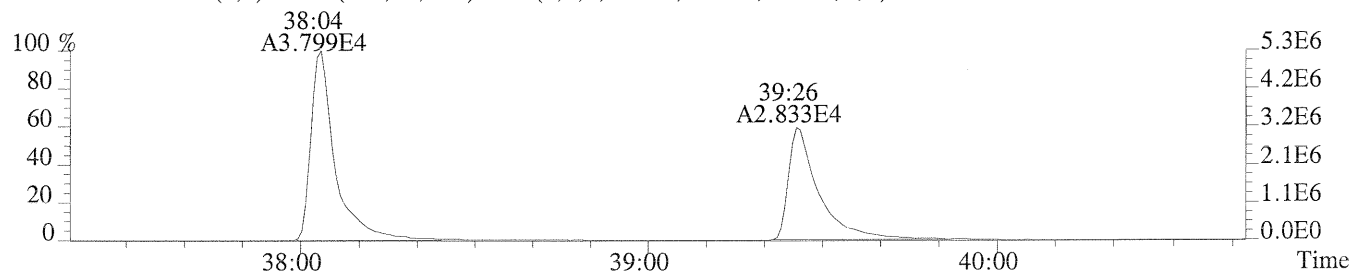
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.50%,F,T)



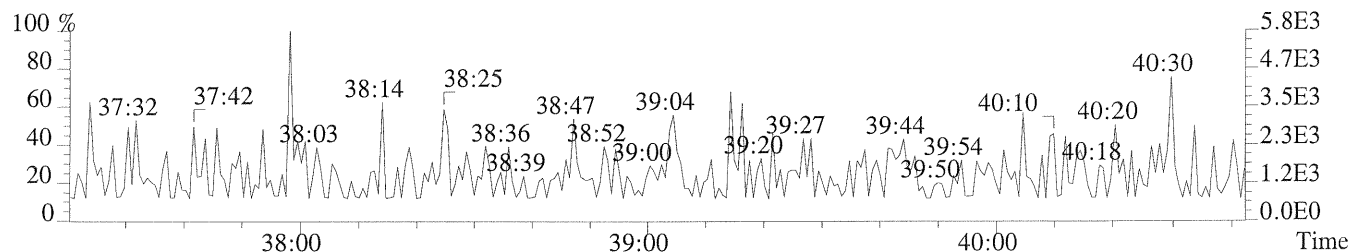
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1956.0,0.50%,F,T)



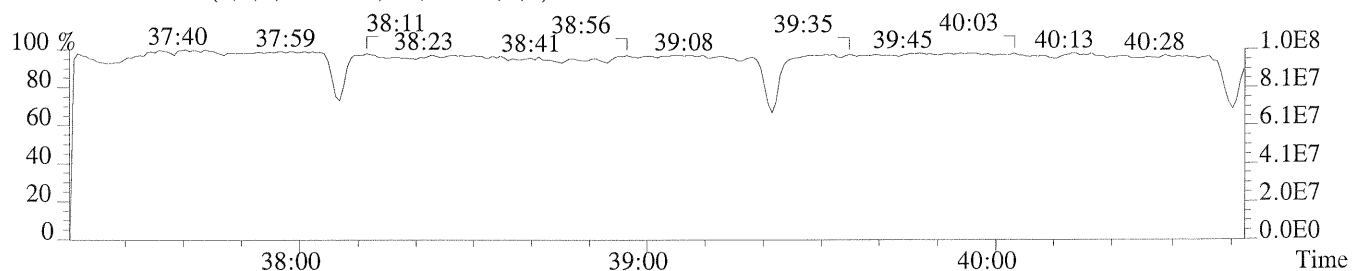
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.50%,F,T)

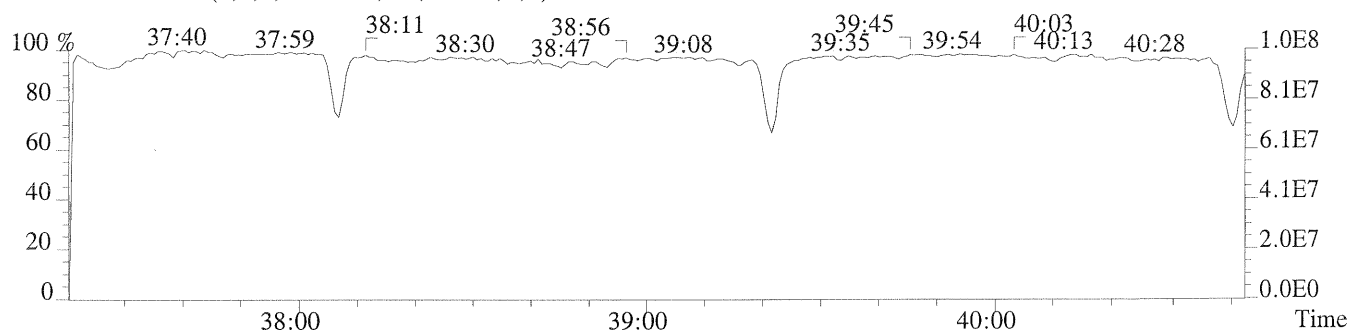
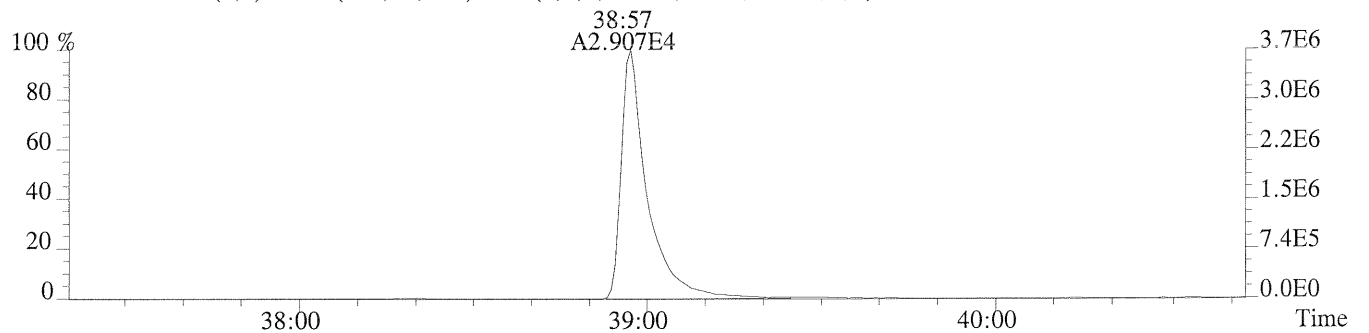
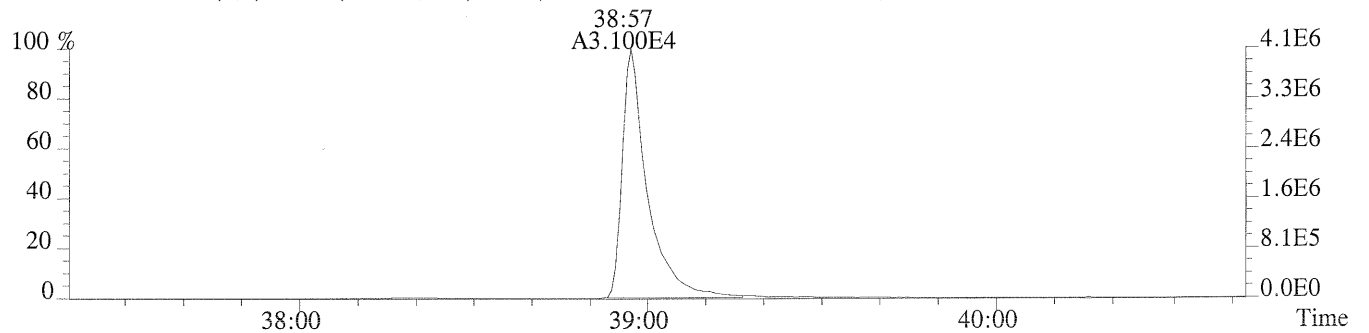
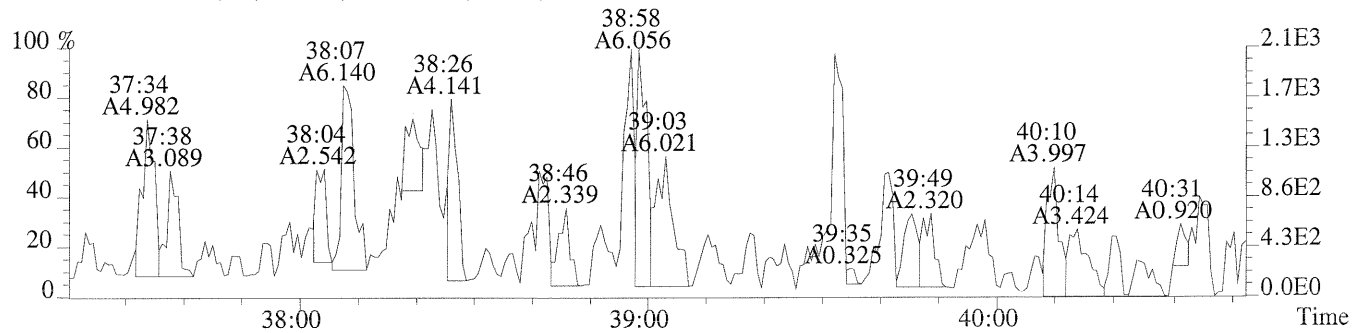
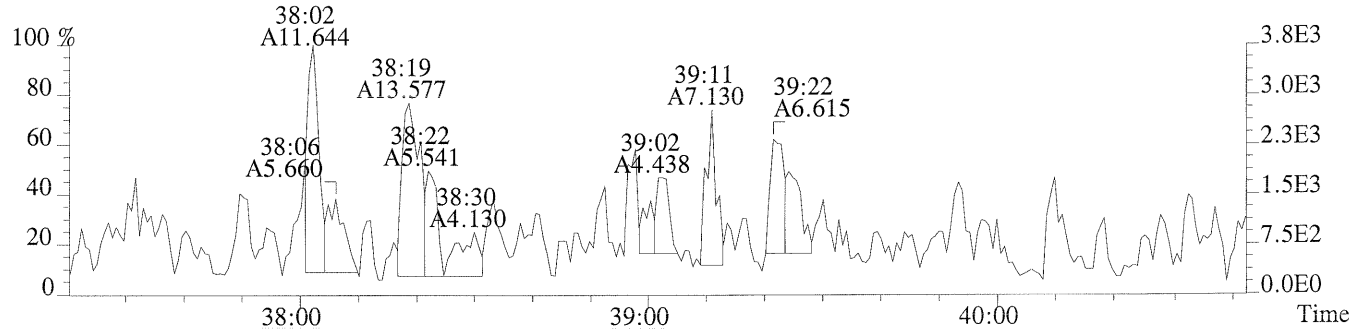


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

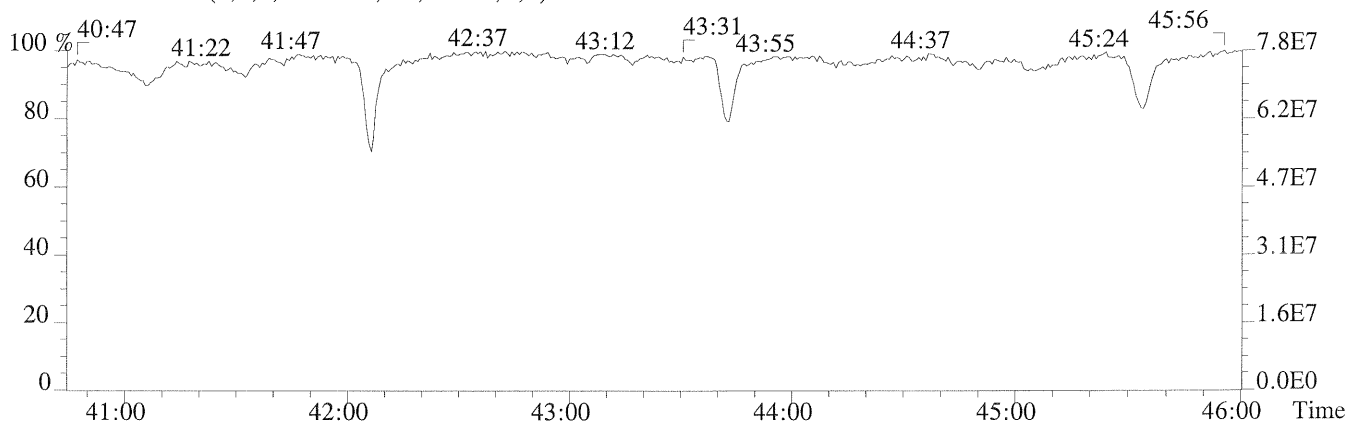
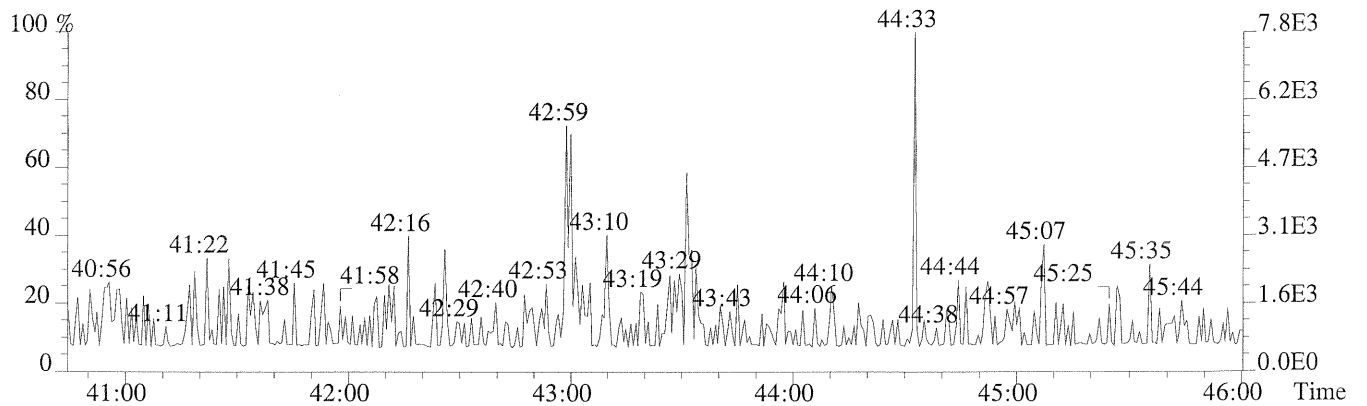
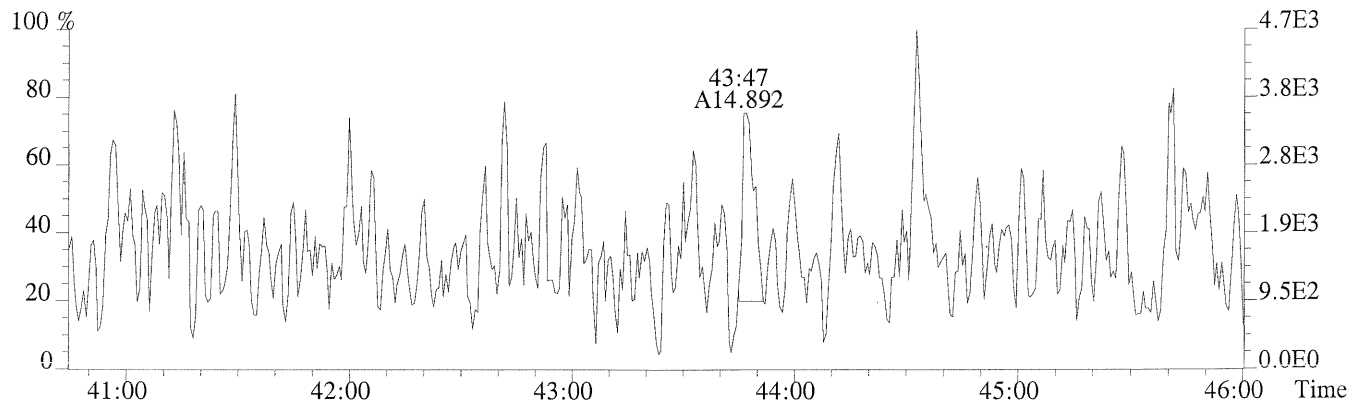
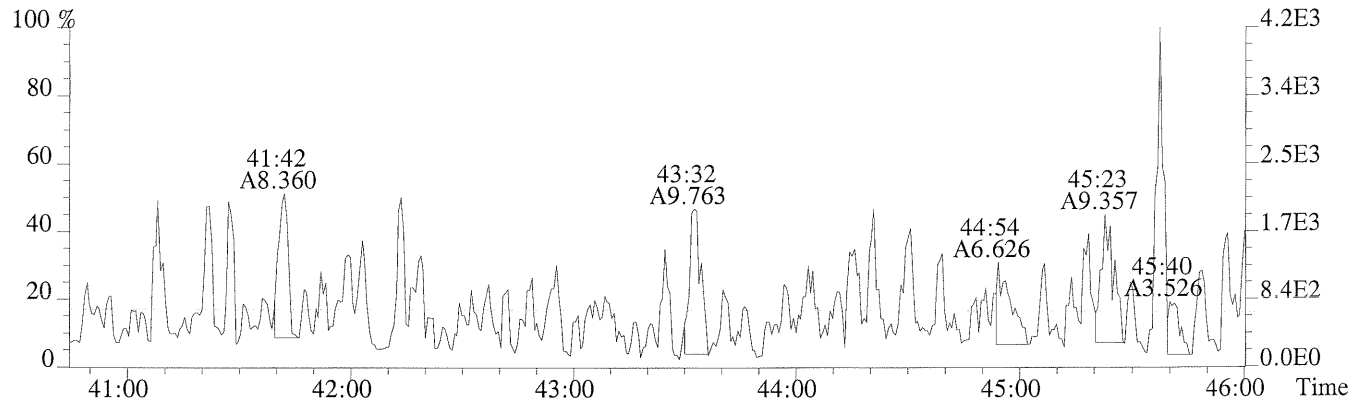


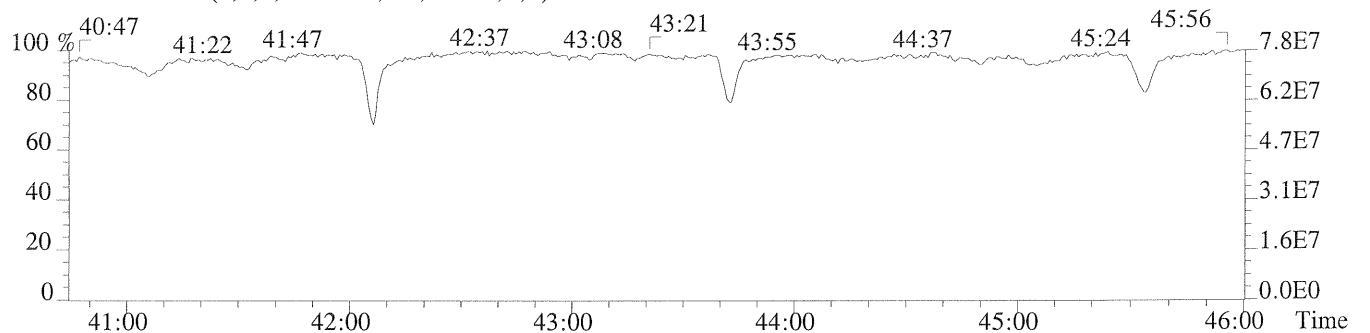
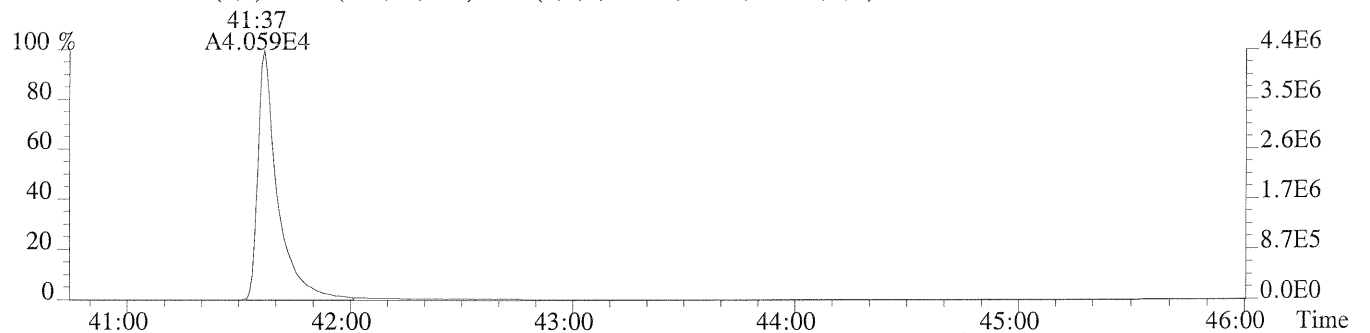
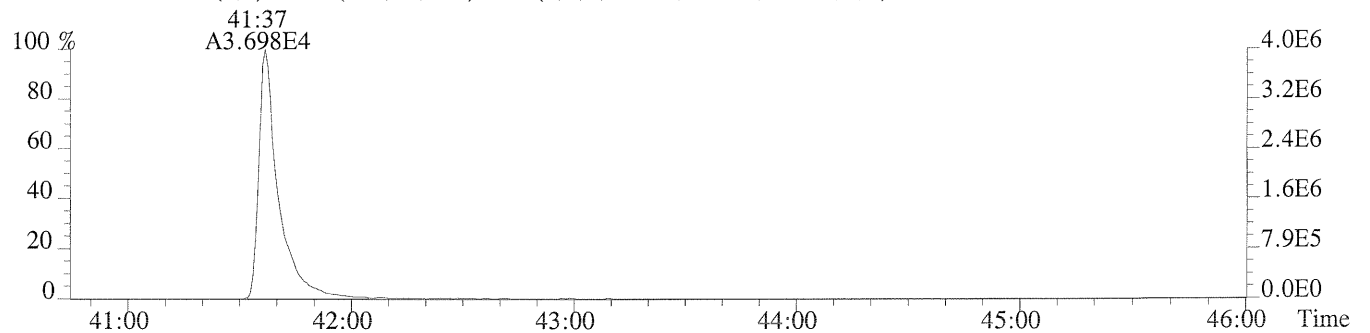
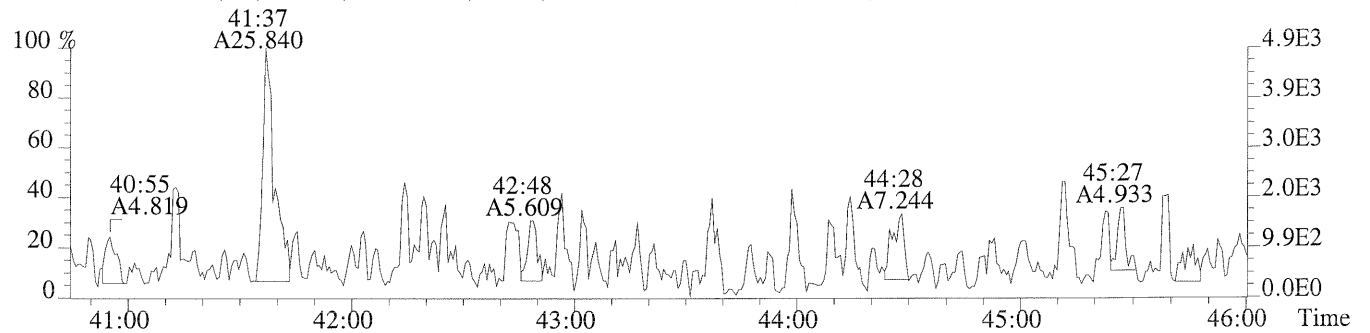
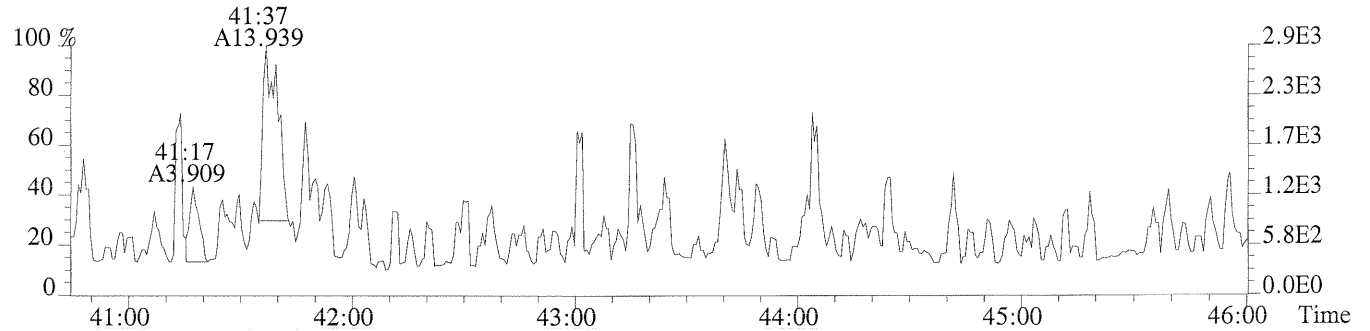
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



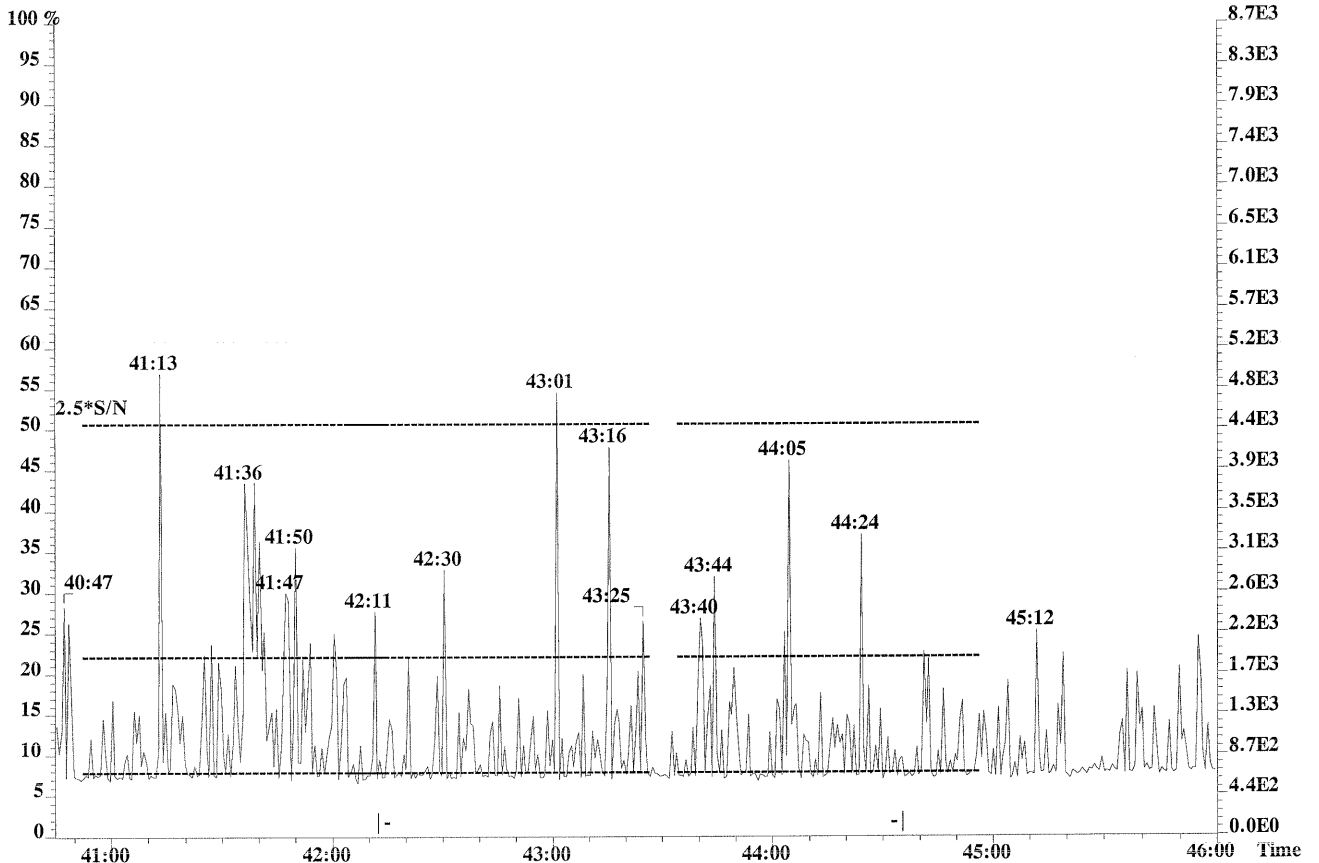


File:P230539 #1-484 Acq:15-AUG-2014 17:36:08 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-004  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)

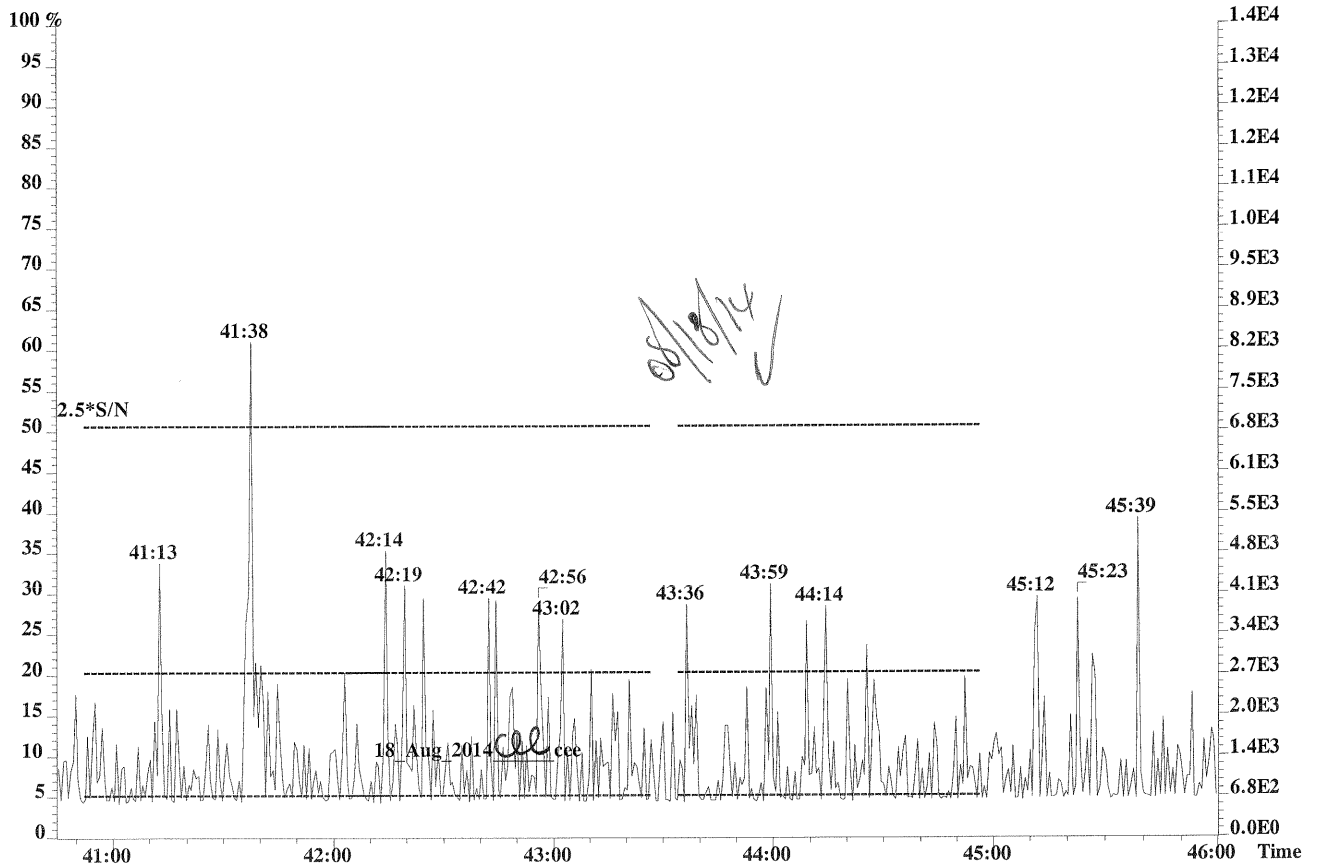








459.7348 F:5



Sample Response Summary

Run #14 Filename P230540 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 18:36:47  
Processed: 18-AUG-14 14:50:31 LAB. ID: P1403085-005

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.959
2 Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.955
3 Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	0.868
5 Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.157
6 Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	0.963
7 Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.113
10 Unk	OCDF	NotFnd	*	*	*	no	no	1.392
11 Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.981
12 Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.982
13 Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.916
14 Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.142
15 Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.104
17 Unk	OCDD	41:38	2.605e+01	2.326e+01	1.12	no	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:21	3.239e+04	4.084e+04	0.79	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:46	6.560e+04	4.155e+04	1.58	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	6.290e+04	3.909e+04	1.61	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:26	2.330e+04	4.558e+04	0.51	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	3.437e+04	6.540e+04	0.53	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:49	5.117e+04	9.796e+04	0.52	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	1.587e+04	3.636e+04	0.44	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:25	1.376e+04	3.329e+04	0.41	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:11	2.283e+04	2.924e+04	0.78	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	32:60	4.470e+04	2.808e+04	1.59	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:11	3.002e+04	2.384e+04	1.26	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:16	4.140e+04	3.221e+04	1.29	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	2.959e+04	2.800e+04	1.06	yes	no	0.925
32 IS	13C-OCDD	41:37	3.523e+04	3.880e+04	0.91	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:30	2.071e+05	2.619e+05	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:30	2.848e+05	2.239e+05	1.27	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:12	6.065e+04				no	0.960

OCDD =  $\frac{(2.605e+01 + 2.326e+01) \times (4000.0)}{(3.523e+04 + 3.880e+04) \times 1.181 \times 0.500} \times 1 = 4.51$  pg

08/18/14  
[Signature]

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
731sSQ-DF

Method M23

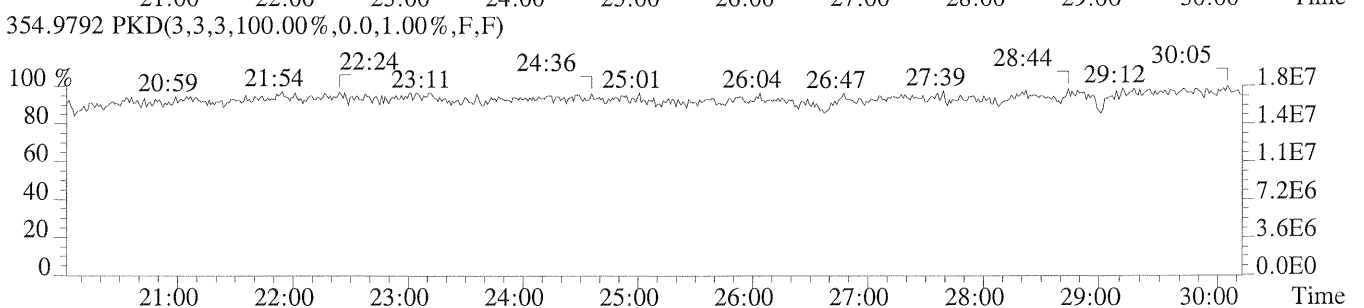
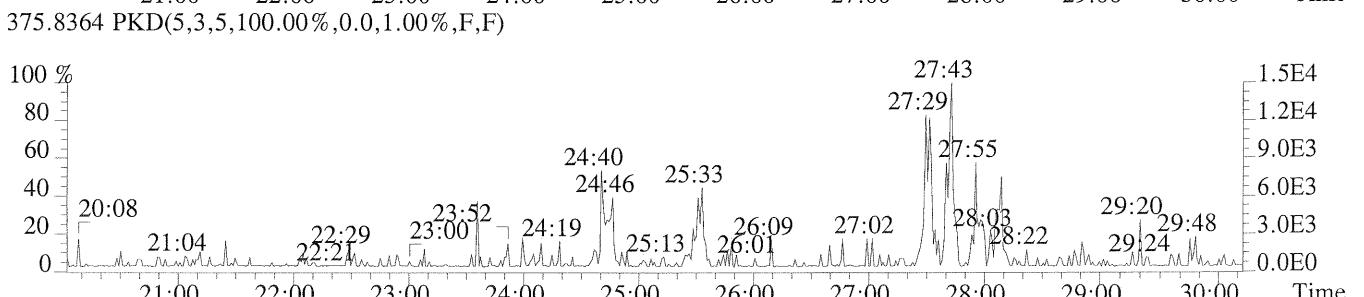
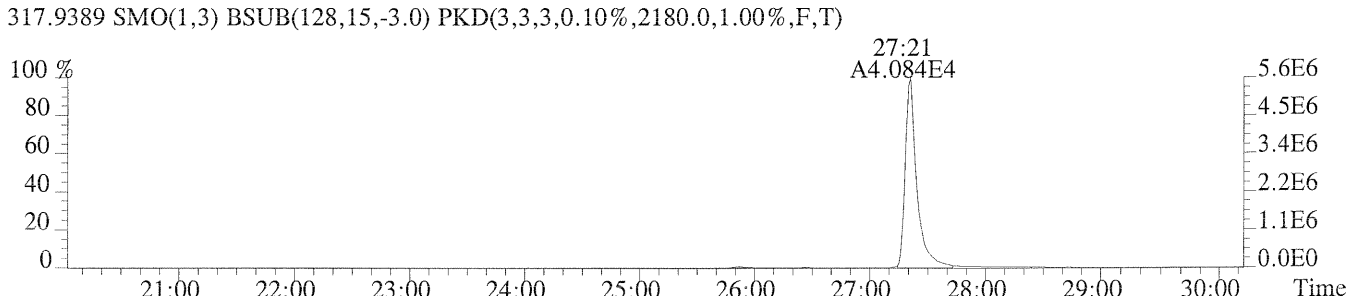
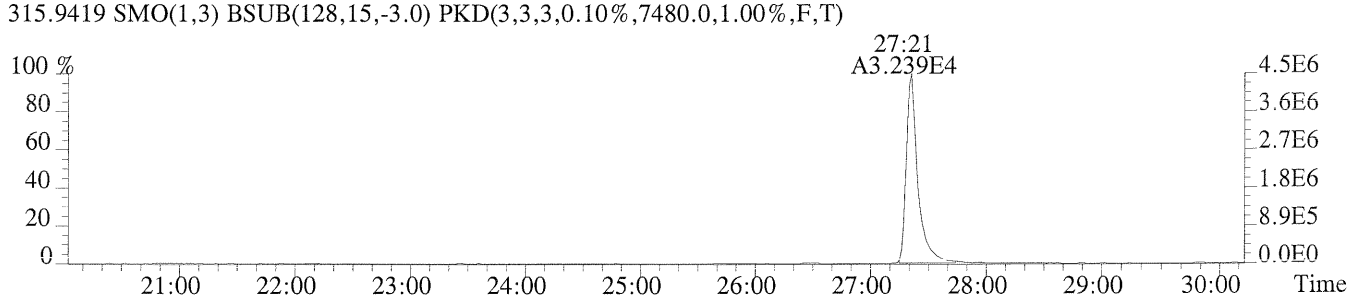
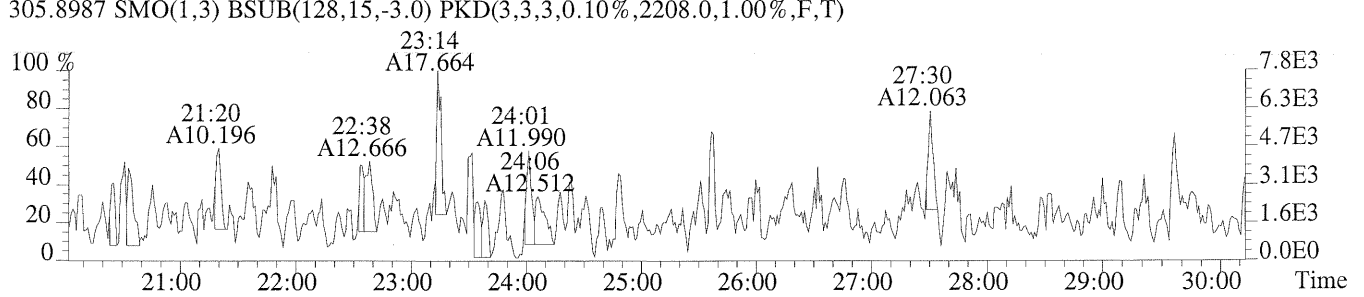
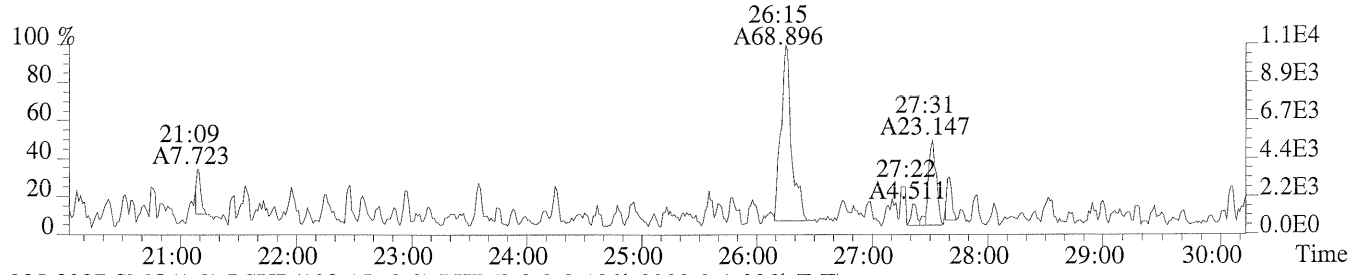
Run #14 Filename P230540 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 18:36:47  
Processed: 18-AUG-14 14:50:31 LAB. ID: P1403085-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.67e+03	*	*	2.21e+03	*
2	1,2,3,7,8-PeCDF	*	7.00e+02	*	*	1.76e+03	*
3	2,3,4,7,8-PeCDF	*	7.00e+02	*	*	1.76e+03	*
4	1,2,3,4,7,8-HxCDF	*	9.84e+02	*	*	6.92e+02	*
5	1,2,3,6,7,8-HxCDF	*	9.84e+02	*	*	6.92e+02	*
6	2,3,4,6,7,8-HxCDF	*	9.84e+02	*	*	6.92e+02	*
7	1,2,3,7,8,9-HxCDF	*	9.84e+02	*	*	6.92e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	8.68e+02	*	*	3.40e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.68e+02	*	*	3.40e+02	*
10	OCDF	*	7.32e+02	*	*	1.70e+03	*
11	2,3,7,8-TCDD	*	1.22e+03	*	*	1.69e+03	*
12	1,2,3,7,8-PeCDD	*	1.85e+03	*	*	5.44e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.44e+02	*	*	9.80e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.44e+02	*	*	9.80e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.44e+02	*	*	9.80e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	9.28e+02	*	*	5.92e+02	*
17	OCDD	4.33e+03	3.96e+02	1.1e+01	3.77e+03	4.76e+02	7.9e+00
18	13C-2,3,7,8-TCDF	4.44e+06	7.48e+03	5.9e+02	5.61e+06	2.18e+03	2.6e+03
19	13C-1,2,3,7,8-PeCDF	8.22e+06	1.46e+03	5.6e+03	5.21e+06	2.08e+03	2.5e+03
20	13C-2,3,4,7,8-PeCDF	8.58e+06	1.46e+03	5.9e+03	5.37e+06	2.08e+03	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	4.00e+06	1.34e+03	3.0e+03	7.72e+06	2.74e+03	2.8e+03
22	13C-1,2,3,6,7,8-HxCDF	4.75e+06	1.34e+03	3.5e+03	9.14e+06	2.74e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.53e+06	1.34e+03	4.9e+03	1.28e+07	2.74e+03	4.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.45e+06	1.87e+03	1.3e+03	5.57e+06	3.26e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.72e+06	1.87e+03	9.2e+02	4.08e+06	3.26e+03	1.3e+03
27	13C-2,3,7,8-TCDD	3.49e+06	7.68e+03	4.6e+02	4.52e+06	3.10e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	6.15e+06	1.43e+03	4.3e+03	3.84e+06	9.48e+02	4.0e+03
29	13C-1,2,3,4,7,8-HxCDD	5.76e+06	1.62e+03	3.6e+03	4.63e+06	1.32e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	6.18e+06	1.62e+03	3.8e+03	4.86e+06	1.32e+03	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.02e+06	1.50e+03	2.7e+03	3.76e+06	2.76e+02	1.4e+04
32	13C-OCDD	3.85e+06	4.19e+03	9.2e+02	4.26e+06	4.87e+03	8.8e+02
33	13C-1,2,3,4-TCDD	3.55e+07	7.68e+03	4.6e+03	4.51e+07	3.10e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	4.81e+07	1.62e+03	3.0e+04	3.81e+07	1.32e+03	2.9e+04
35	37Cl-2,3,7,8-TCDD	9.09e+06	1.18e+03	7.7e+03			

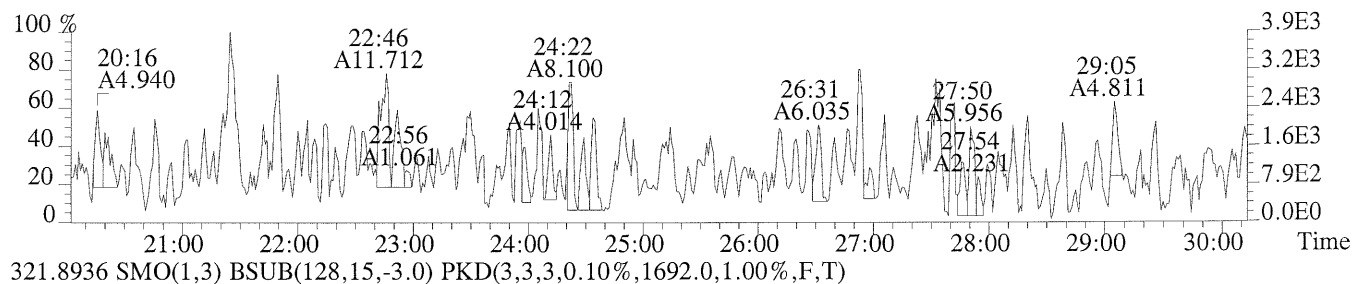
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

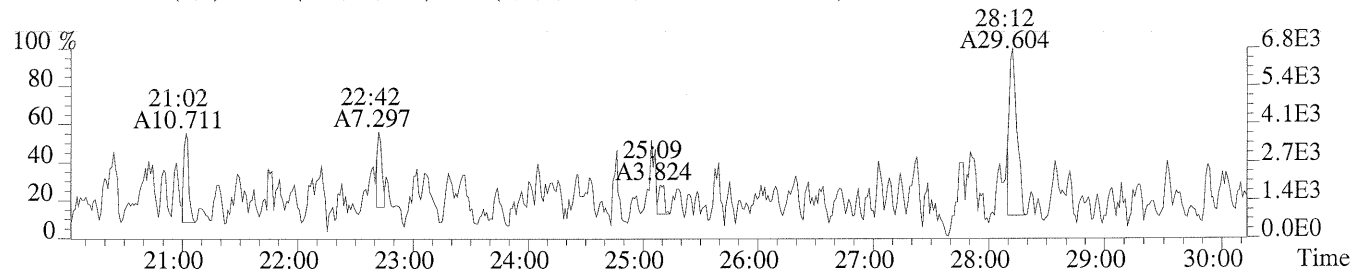
File:P230540 #1-640 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-005  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



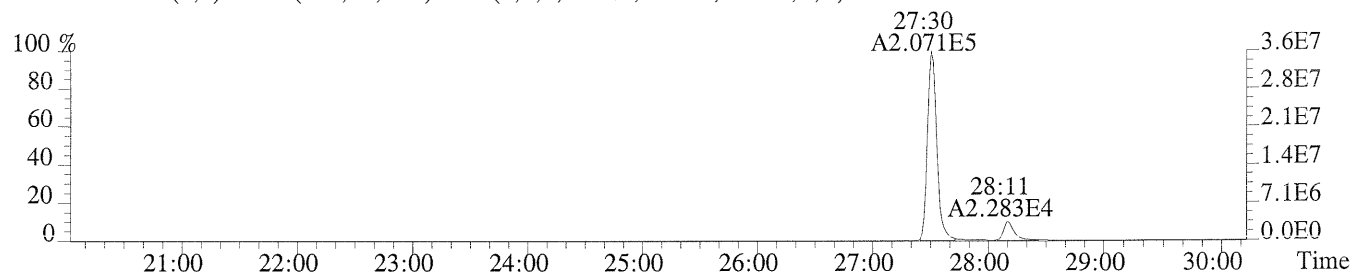
File:P230540 #1-640 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-005  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



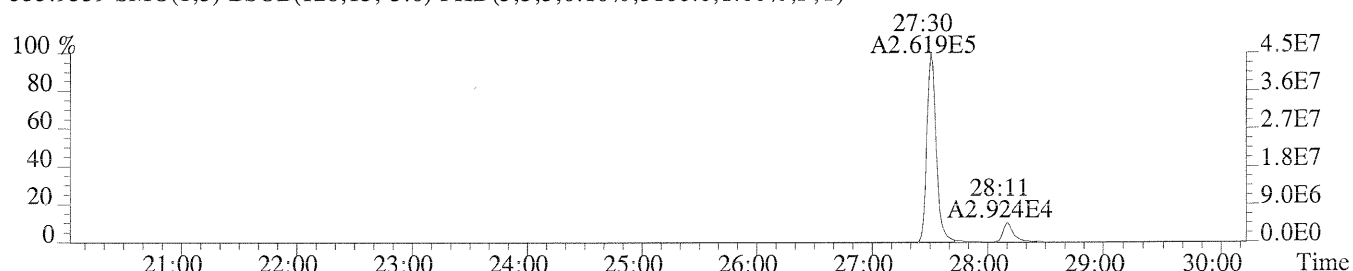
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



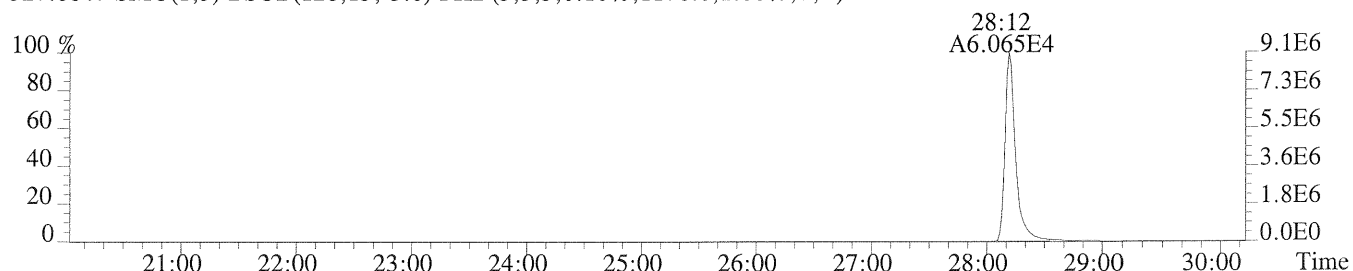
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7680.0,1.00%,F,T)



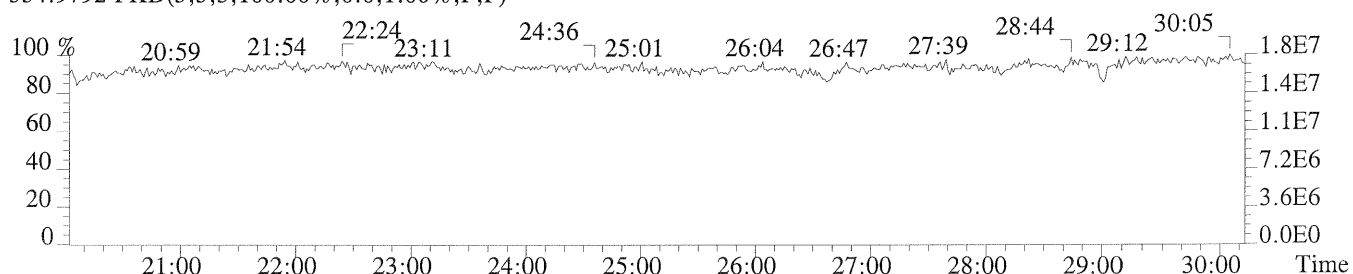
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



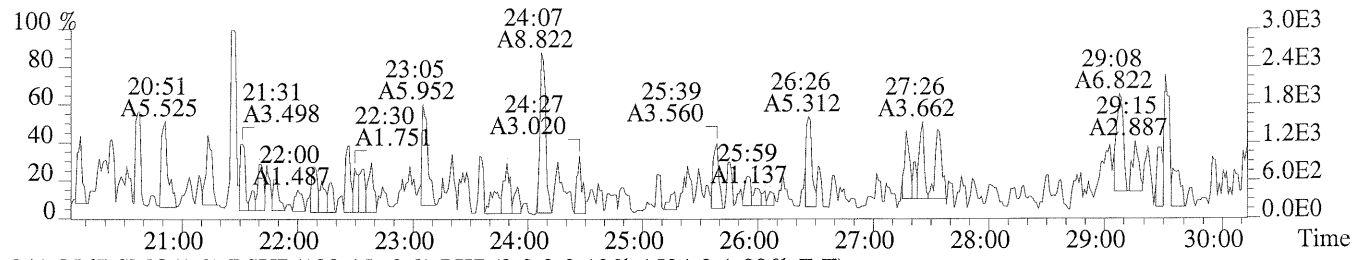
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



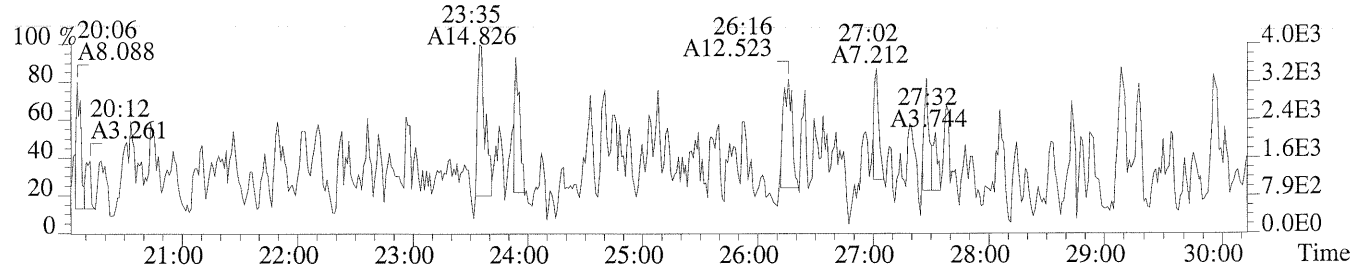
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



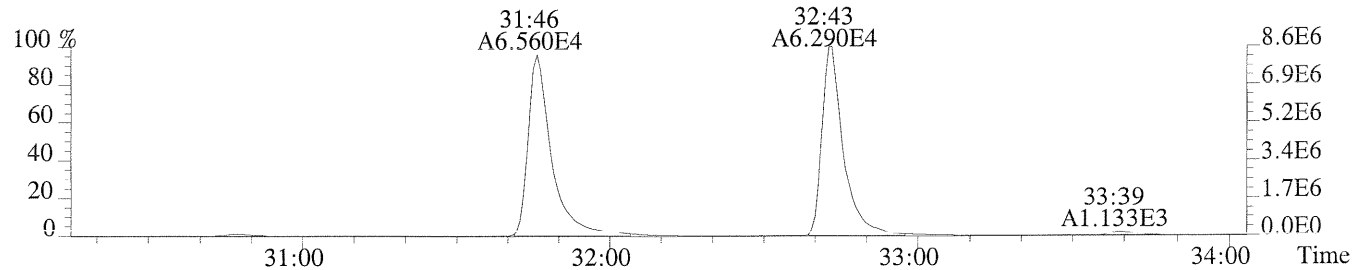
File:P230540 #1-640 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-005  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



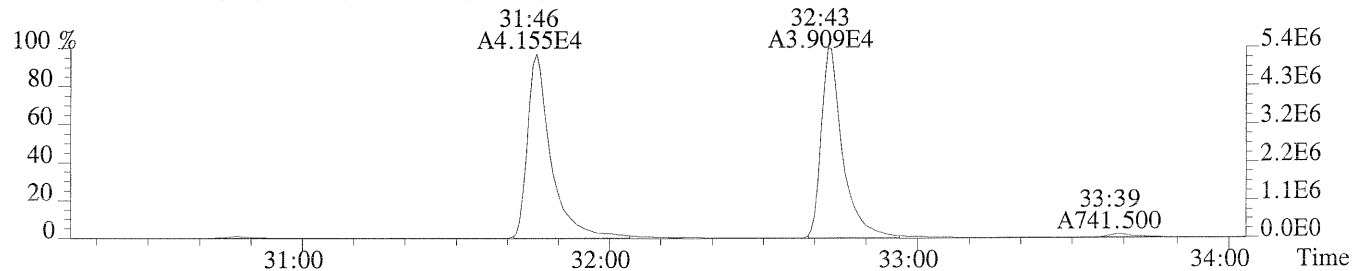
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



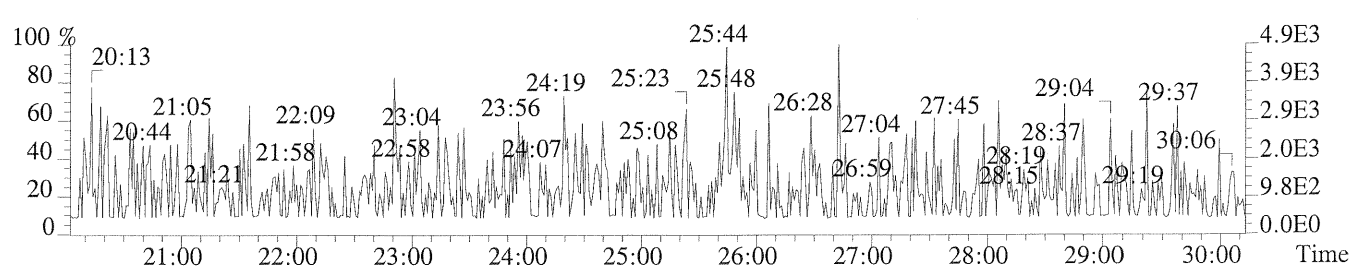
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



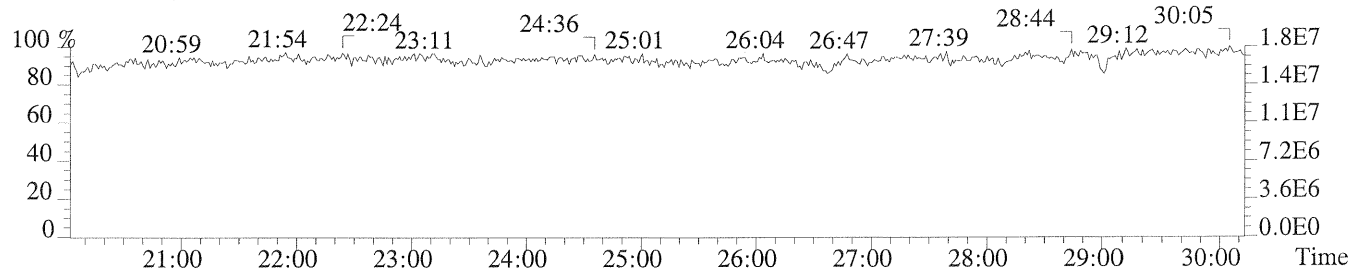
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



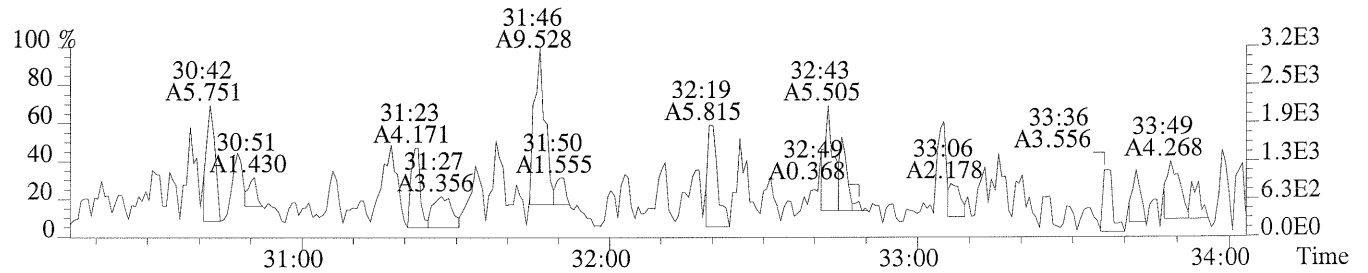
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



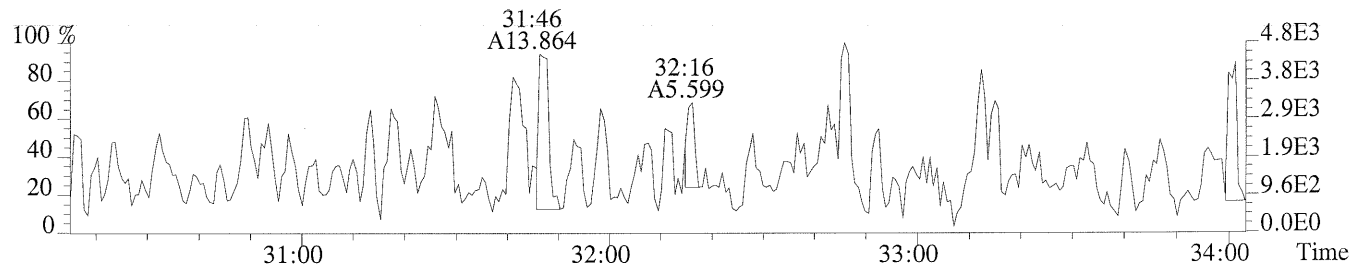
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



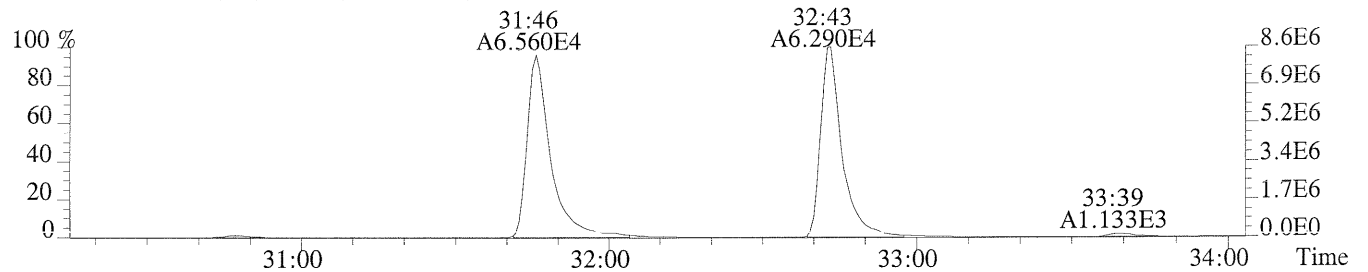
File:P230540 #1-346 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-005  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



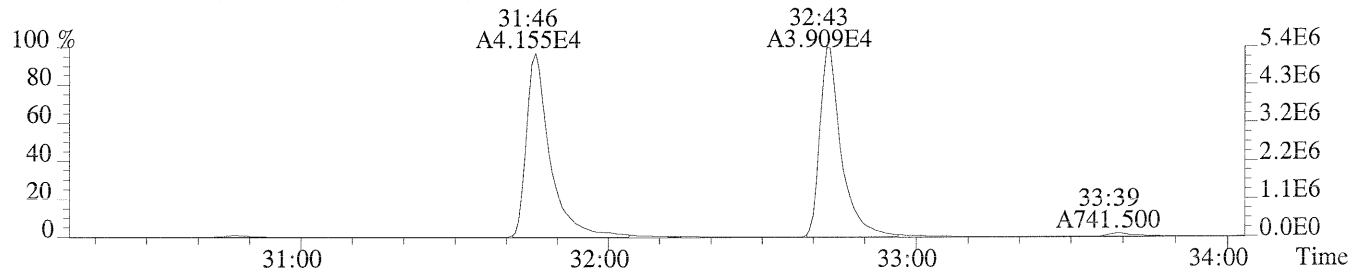
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



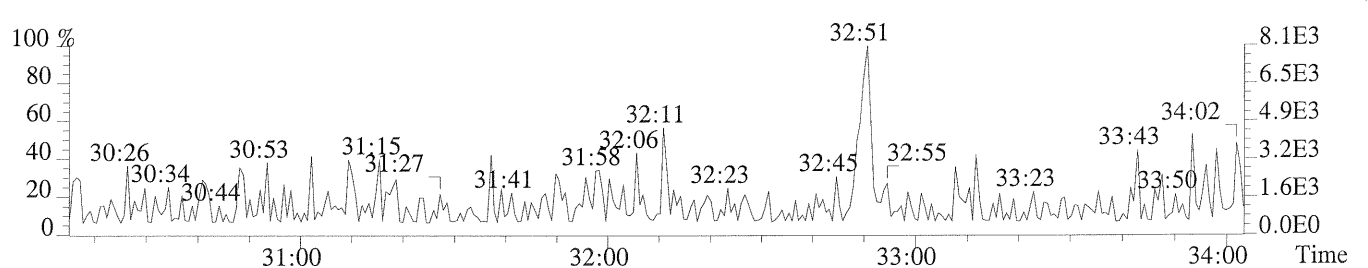
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



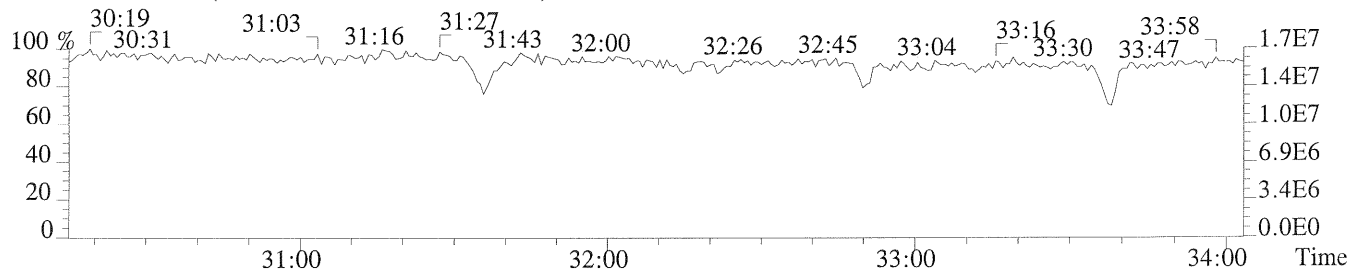
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



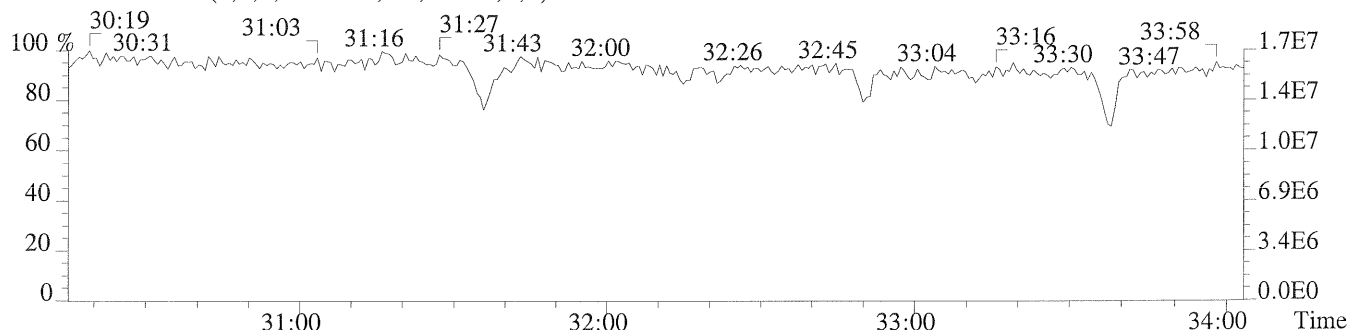
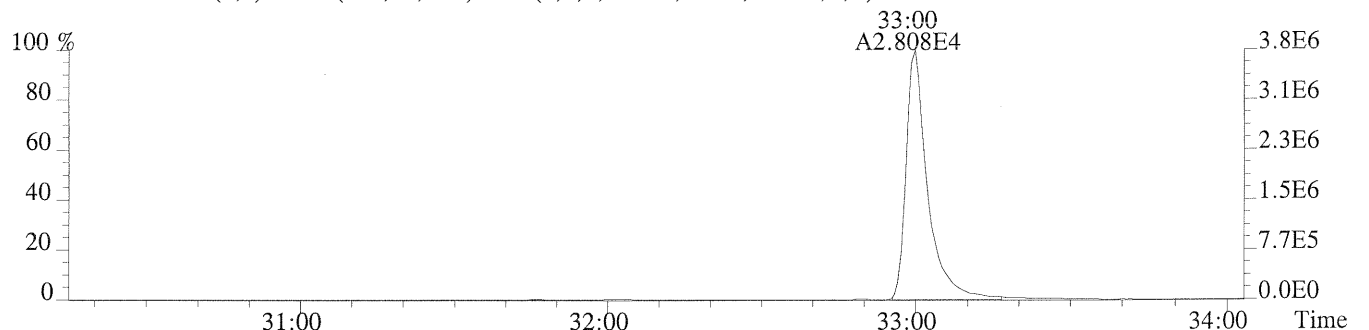
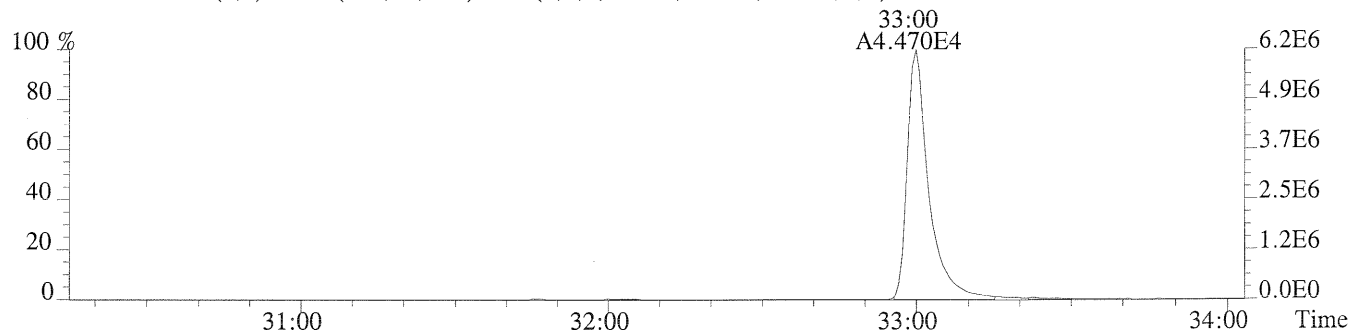
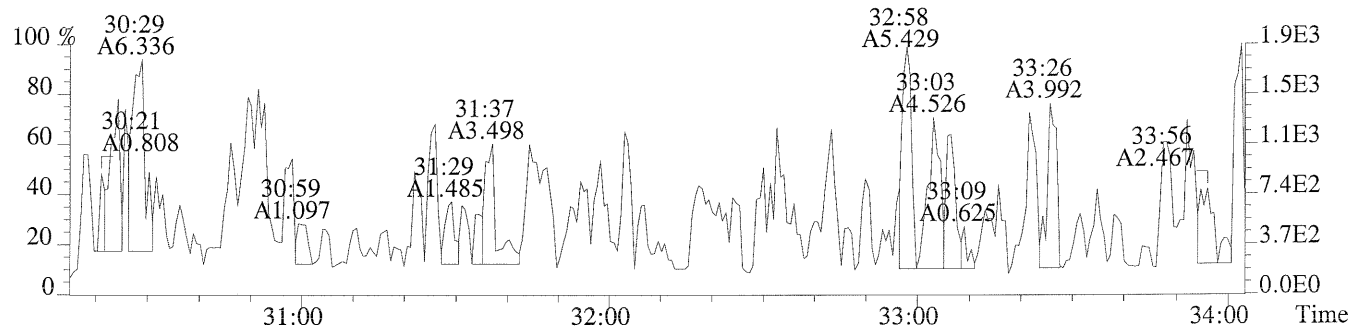
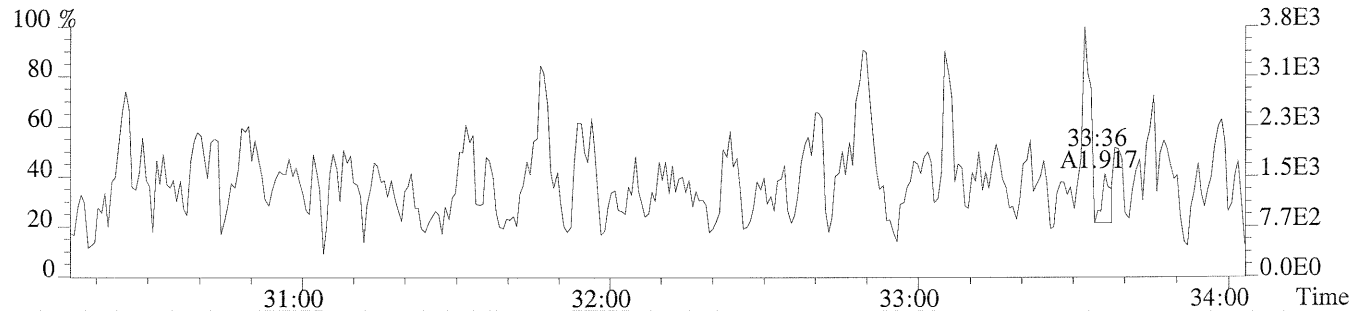
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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

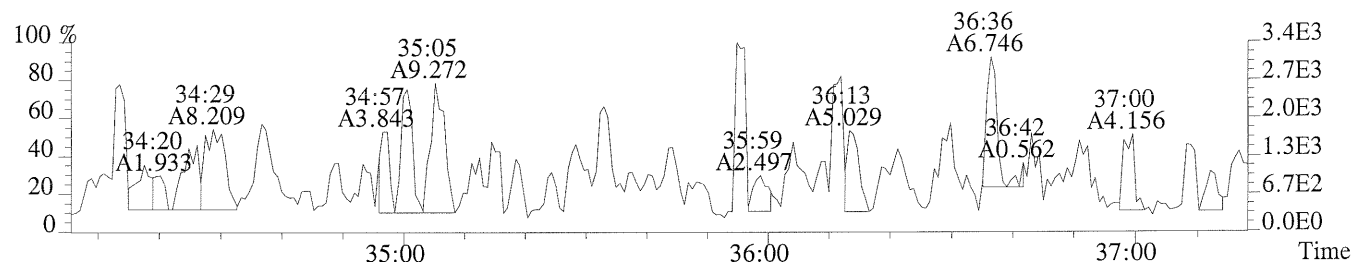


File:P230540 #1-346 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-005  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)

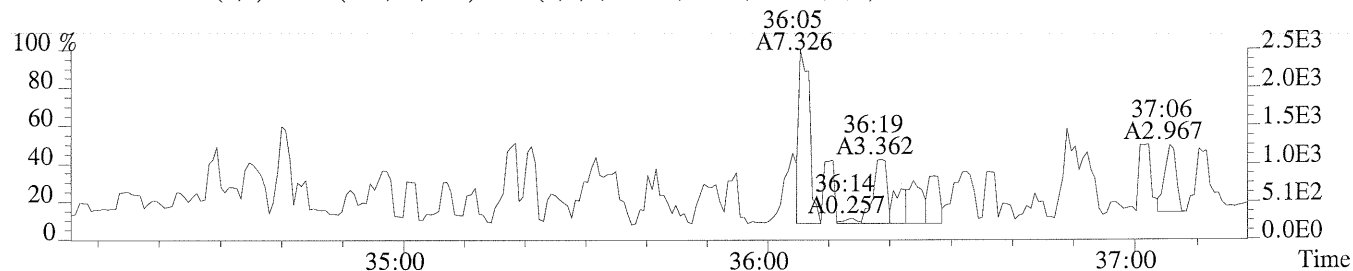




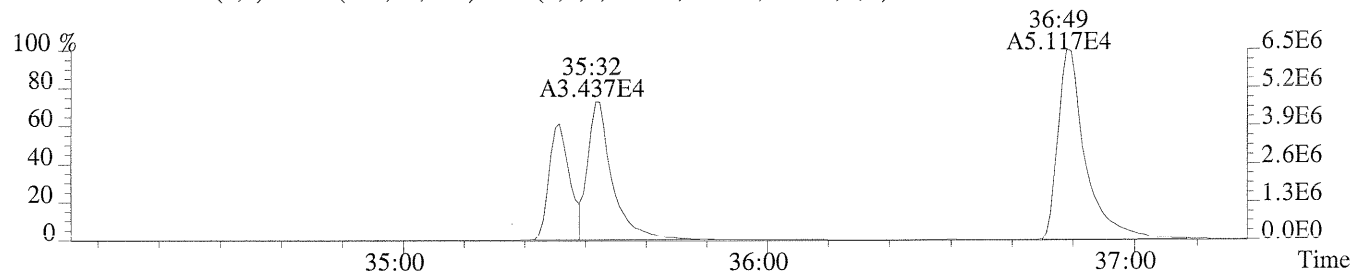
File:P230540 #1-292 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-005  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



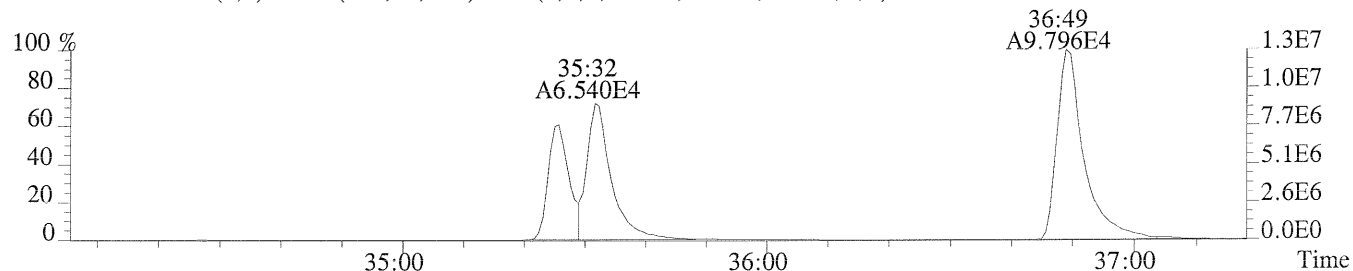
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



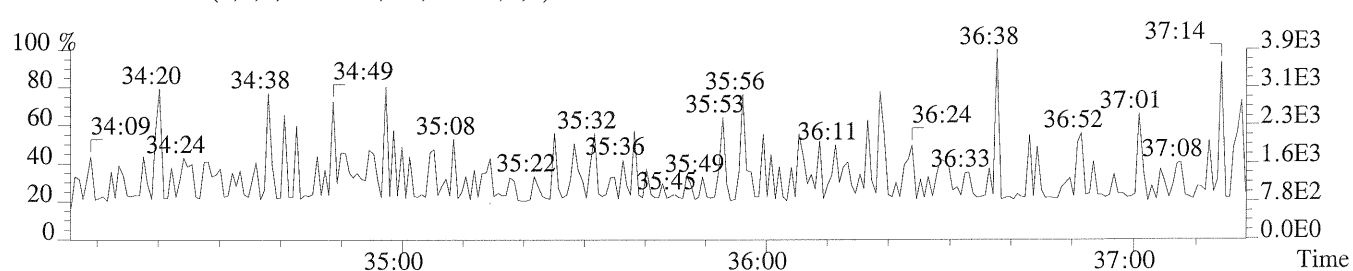
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1344.0,0.40%,F,T)



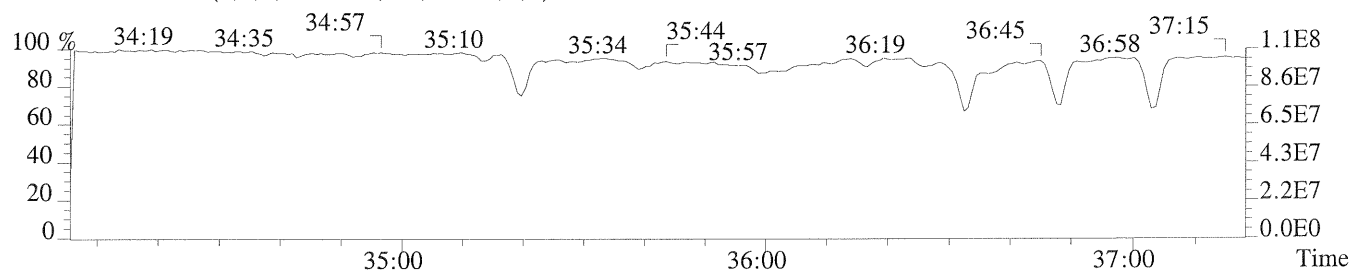
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2740.0,0.40%,F,T)



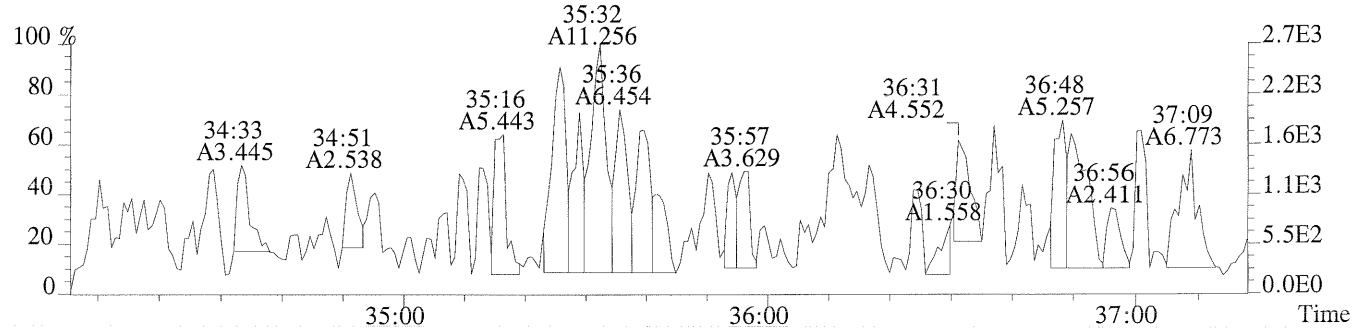
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



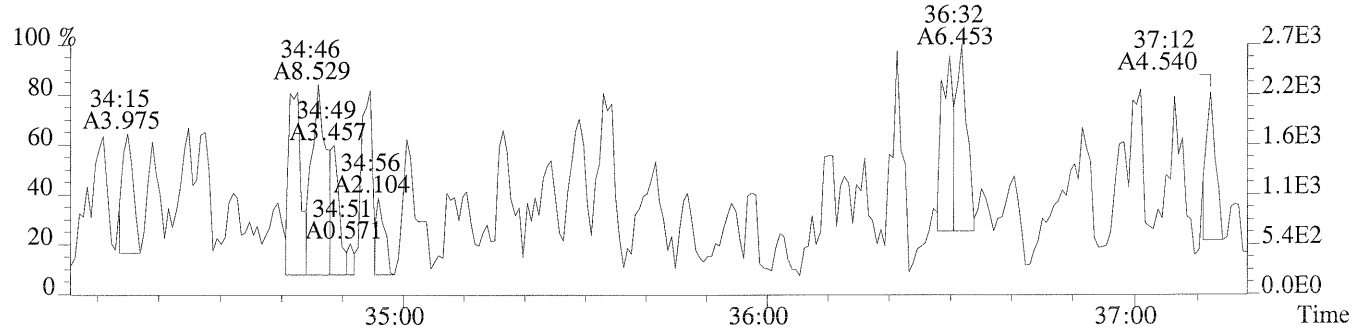
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



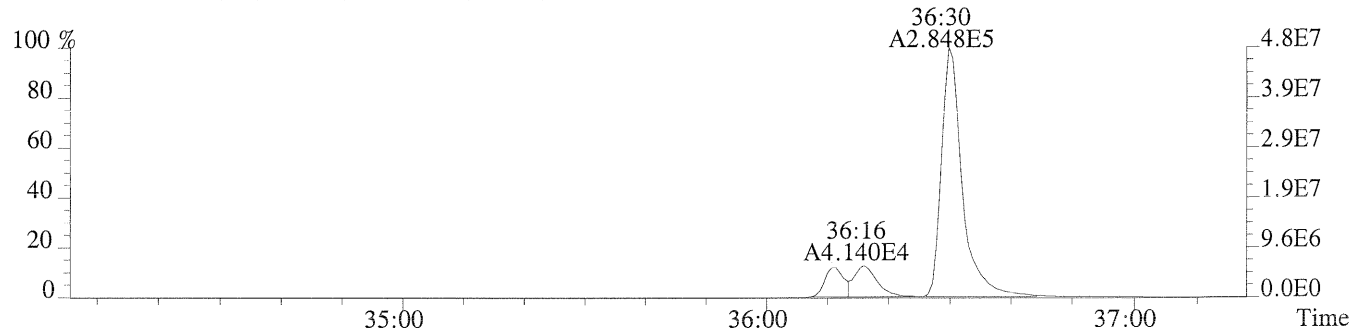
File:P230540 #1-292 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
 Sample#1 Exp:P1403085-005  
 389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



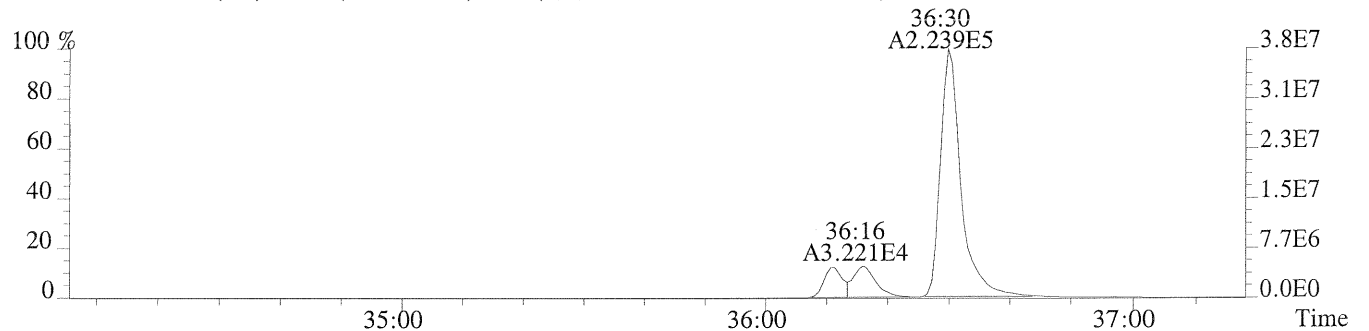
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



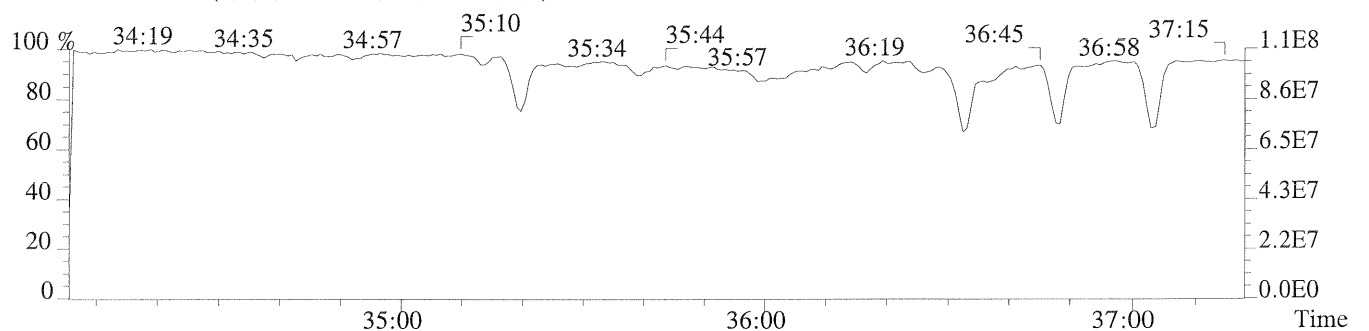
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1616.0,0.40%,F,T)



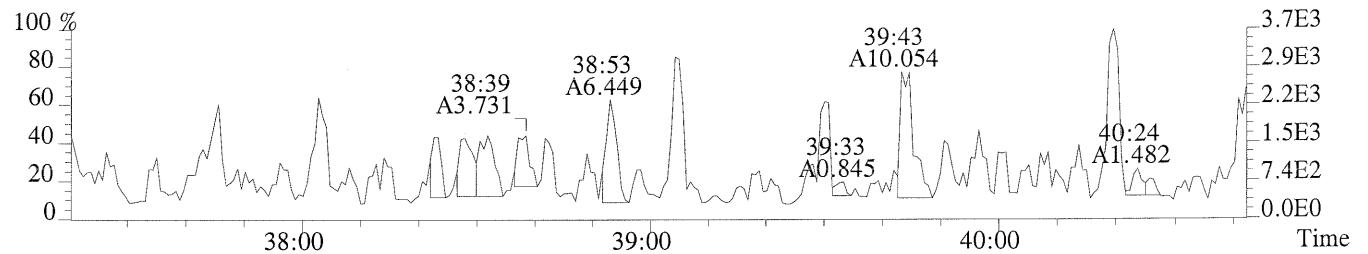
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



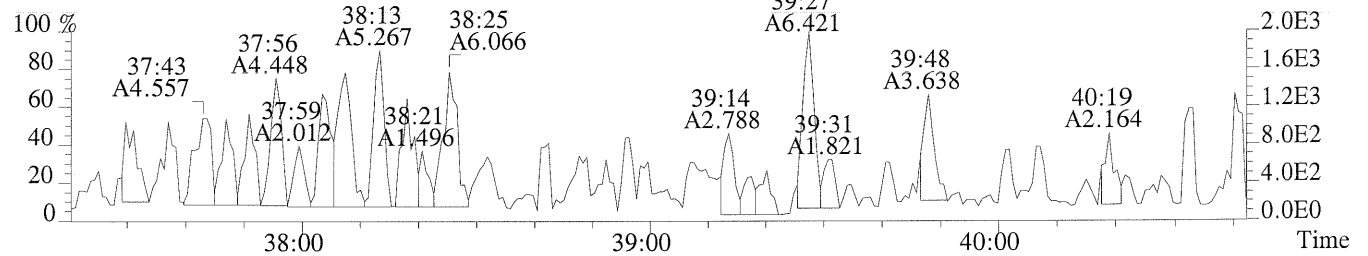
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



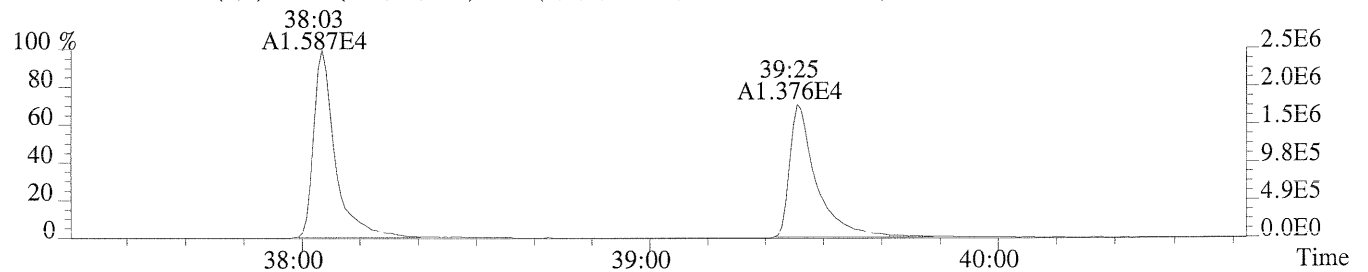
File:P230540 #1-306 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-005  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.50%,F,T)



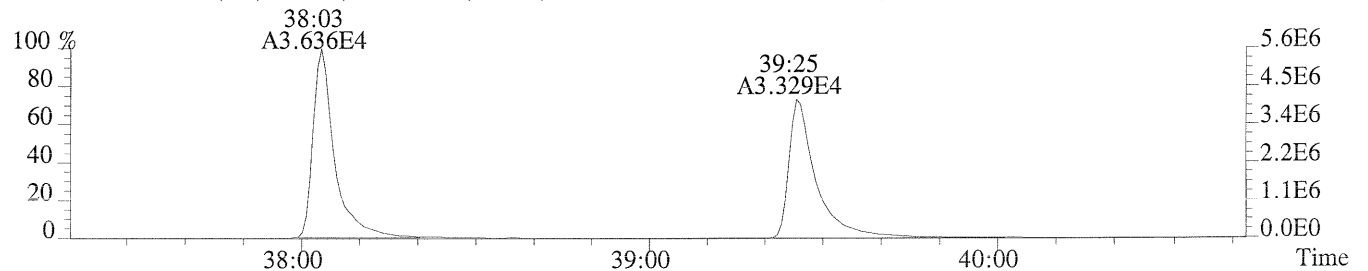
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.50%,F,T)



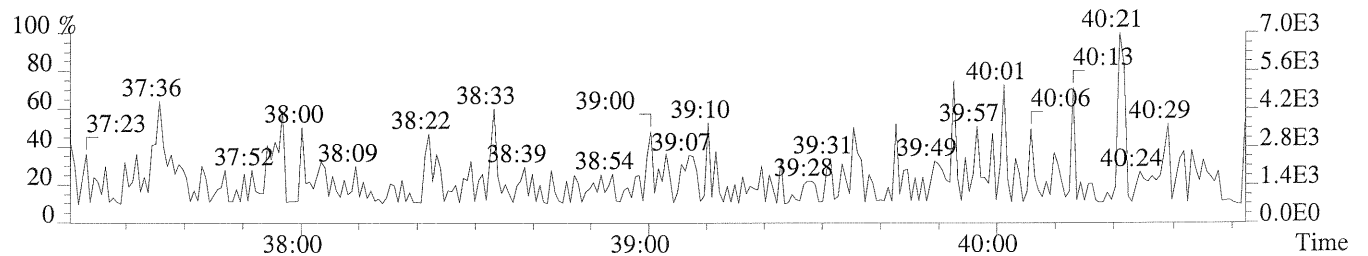
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1868.0,0.50%,F,T)



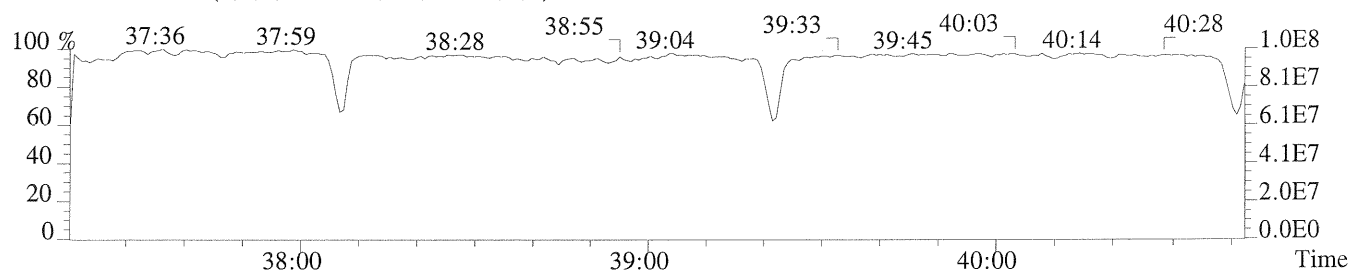
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3264.0,0.50%,F,T)



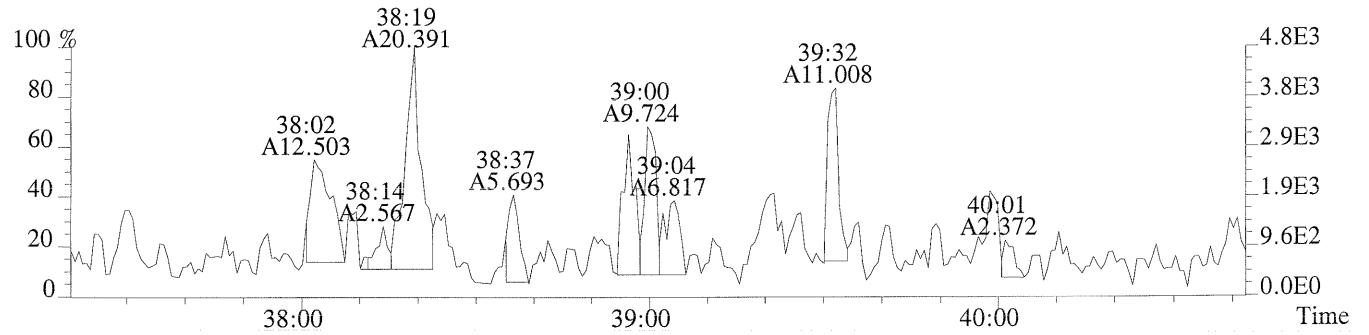
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



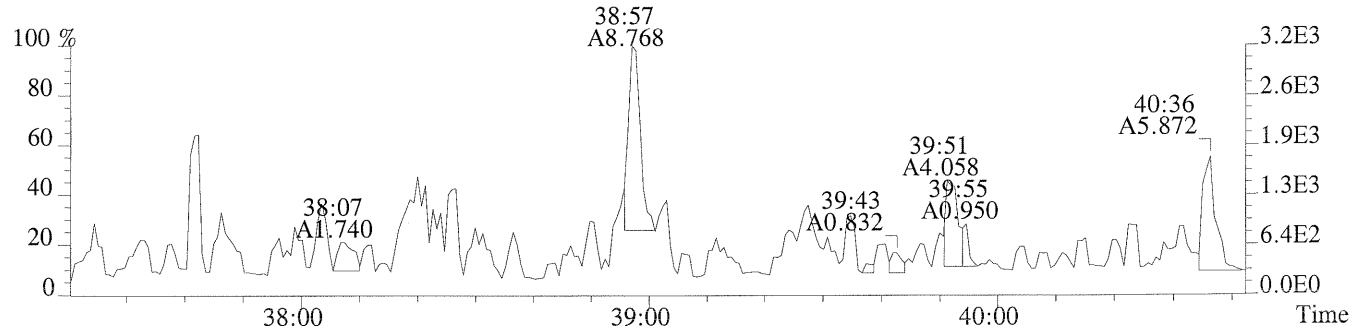
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



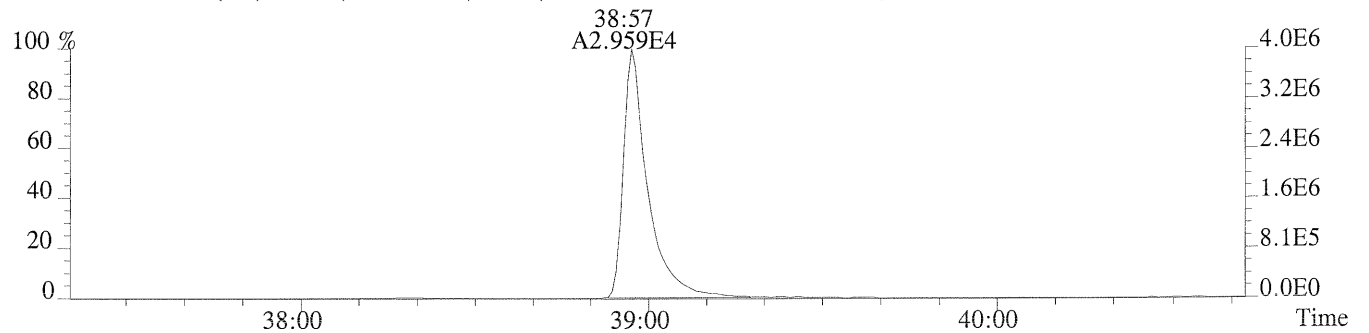
File:P230540 #1-306 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-005  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



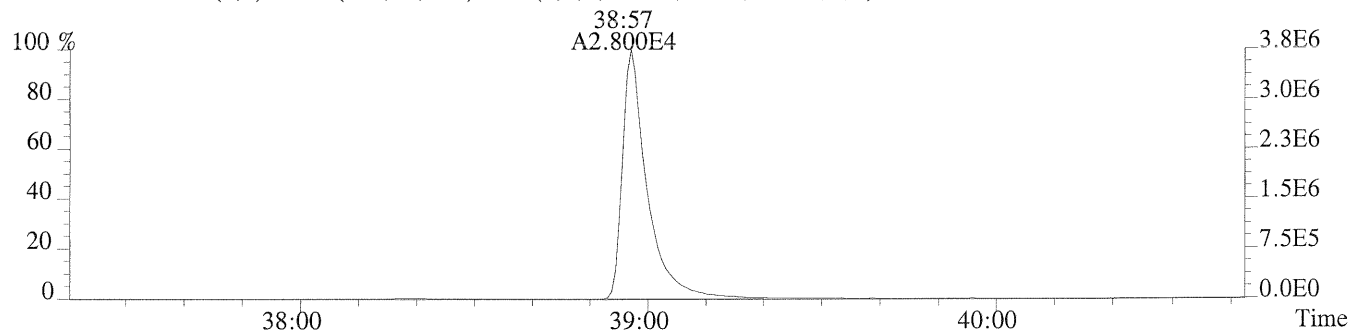
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



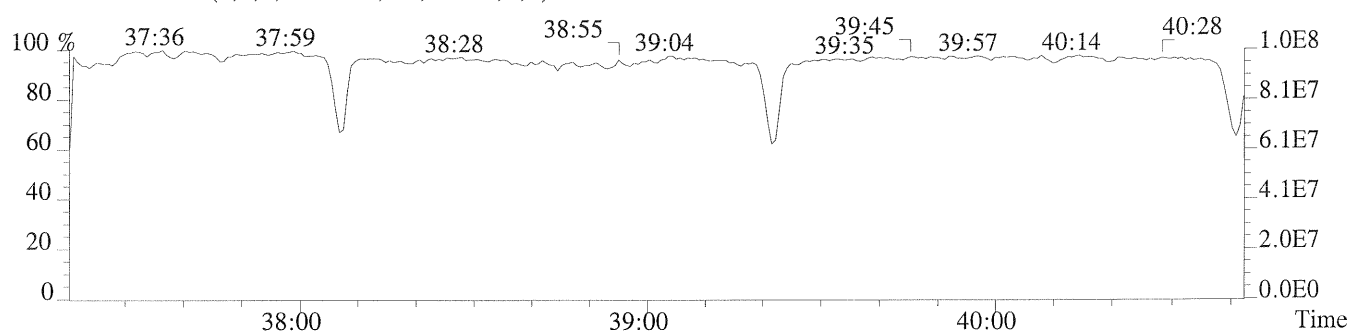
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



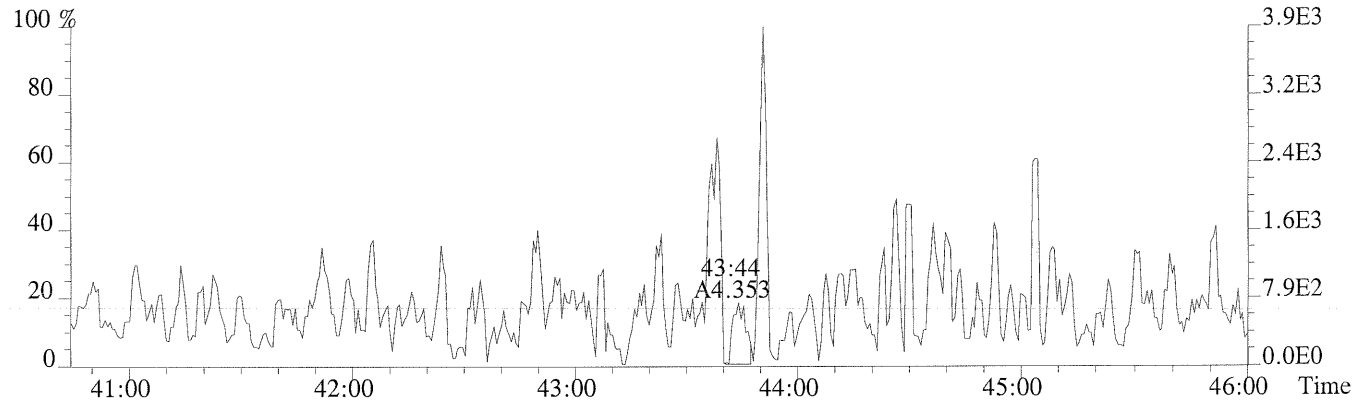
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



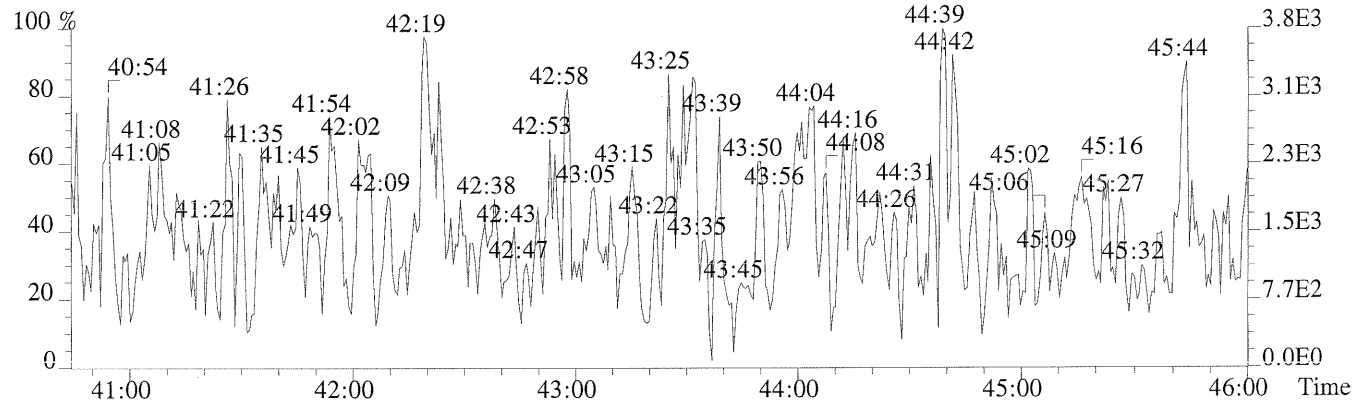
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



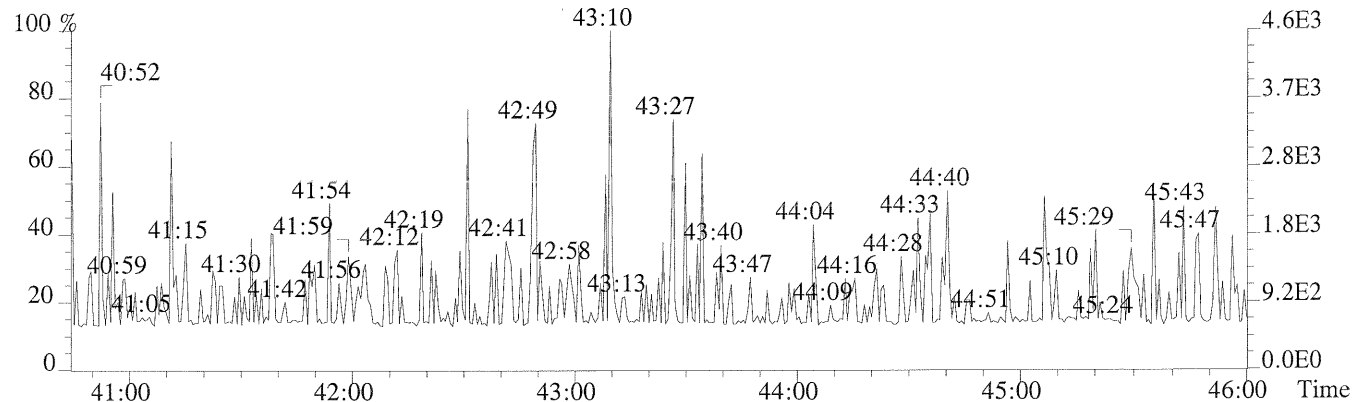
File:P230540 #1-484 Acq:15-AUG-2014 18:36:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-005  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



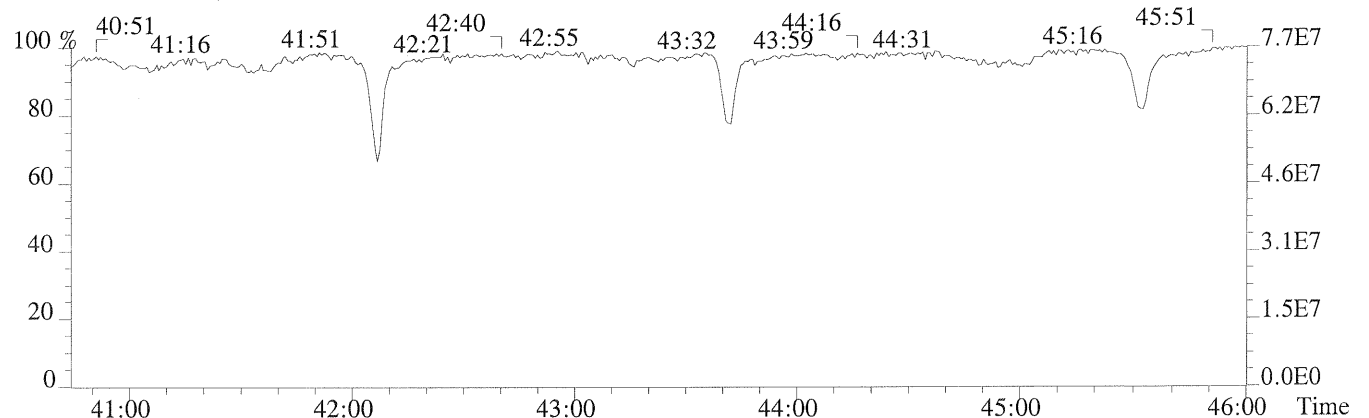
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1704.0,0.40%,F,T)

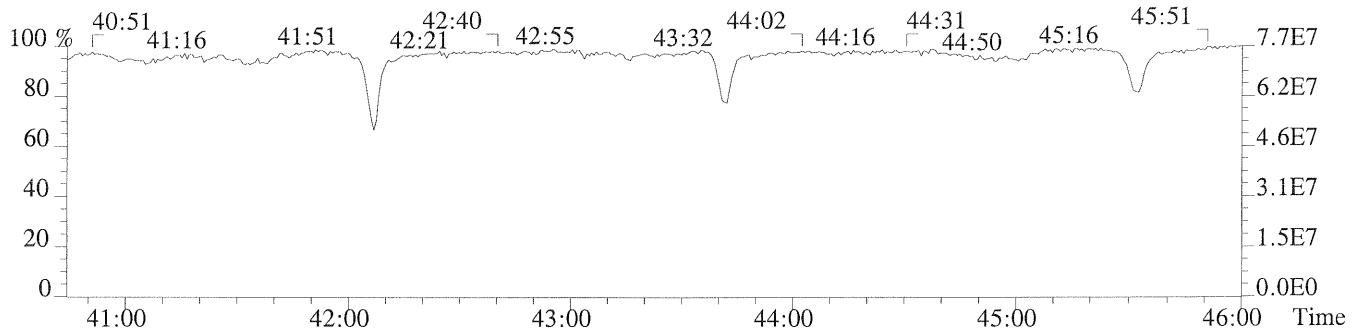
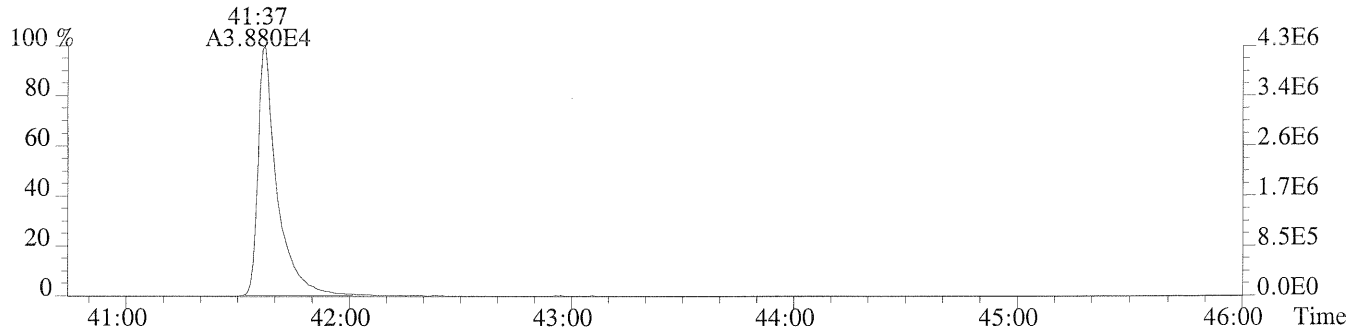
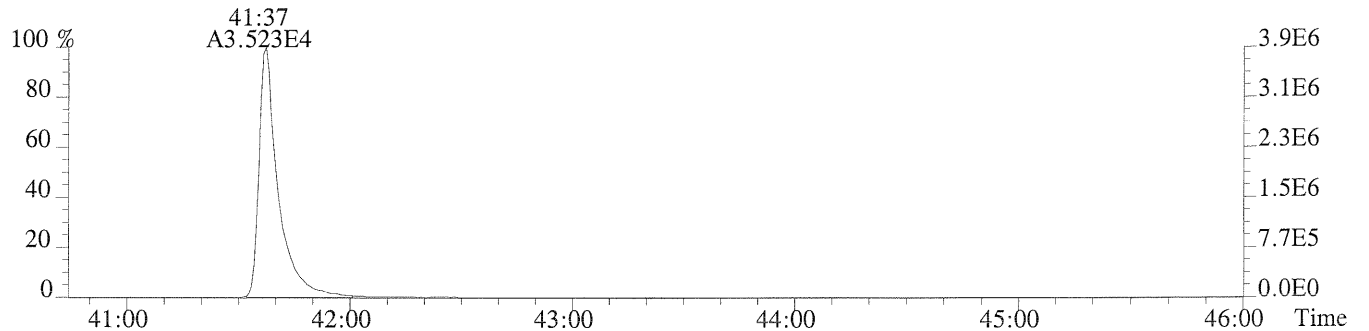
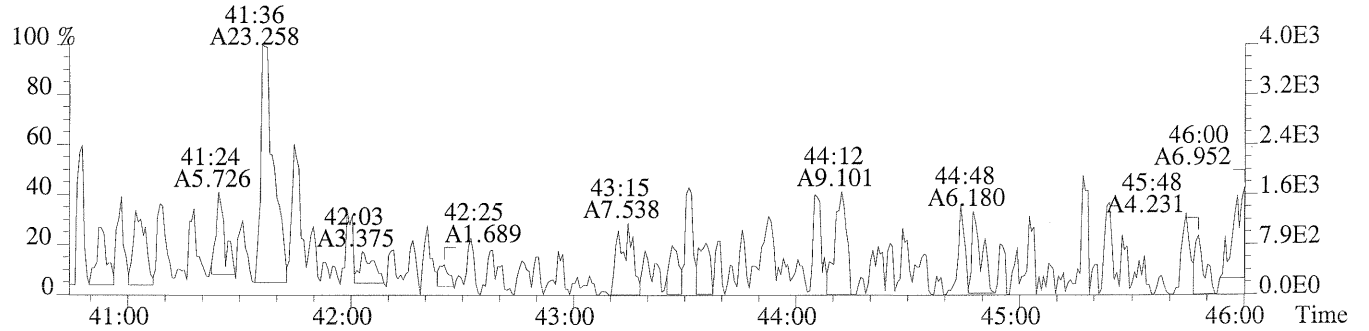
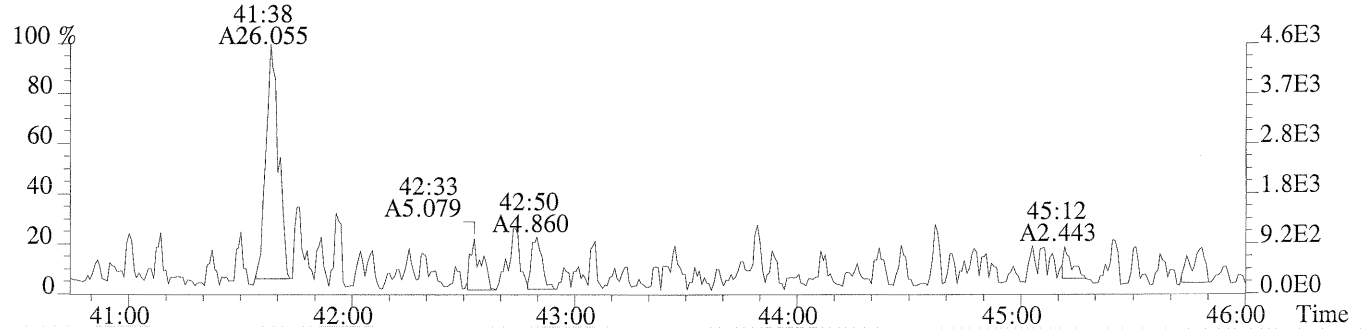


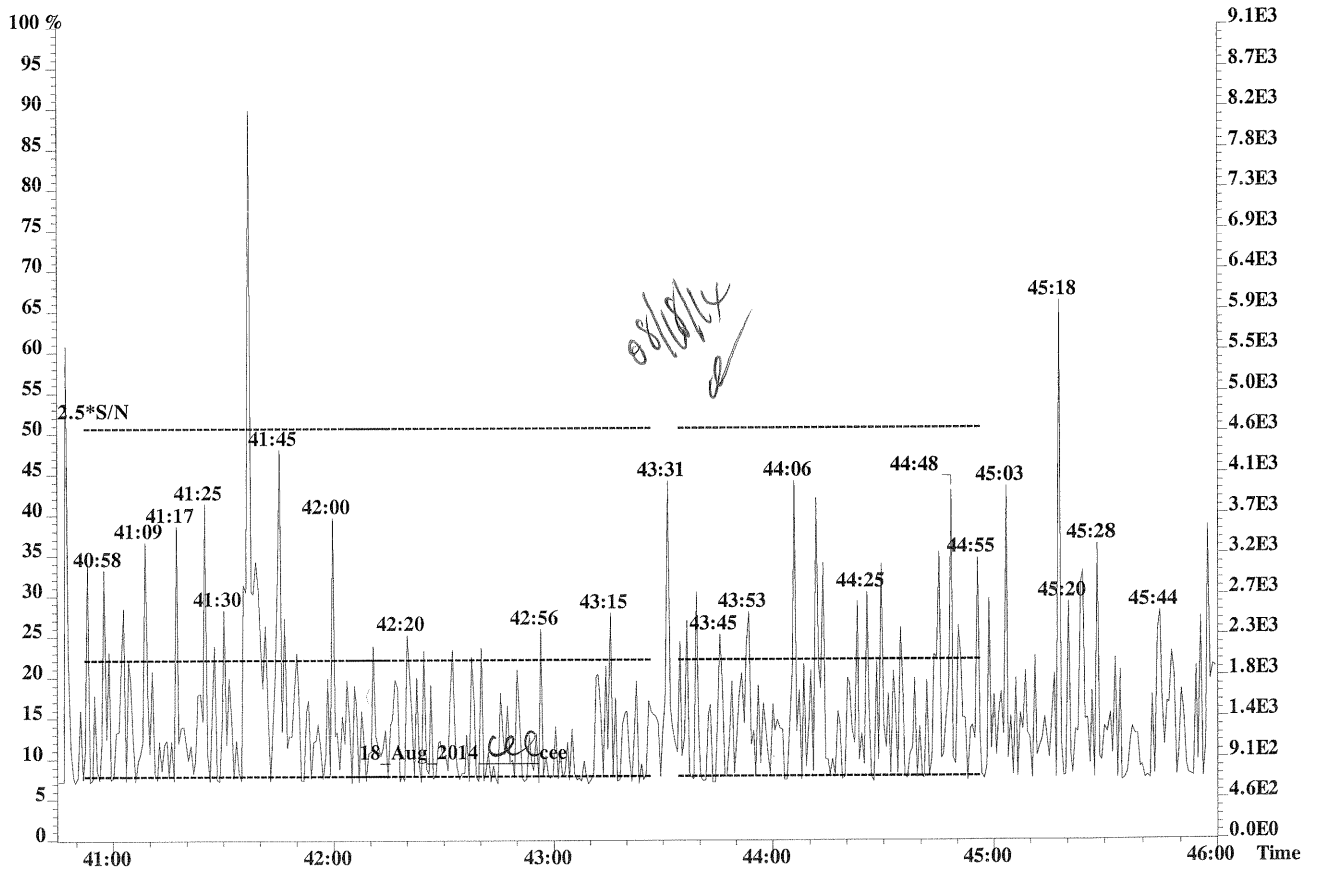
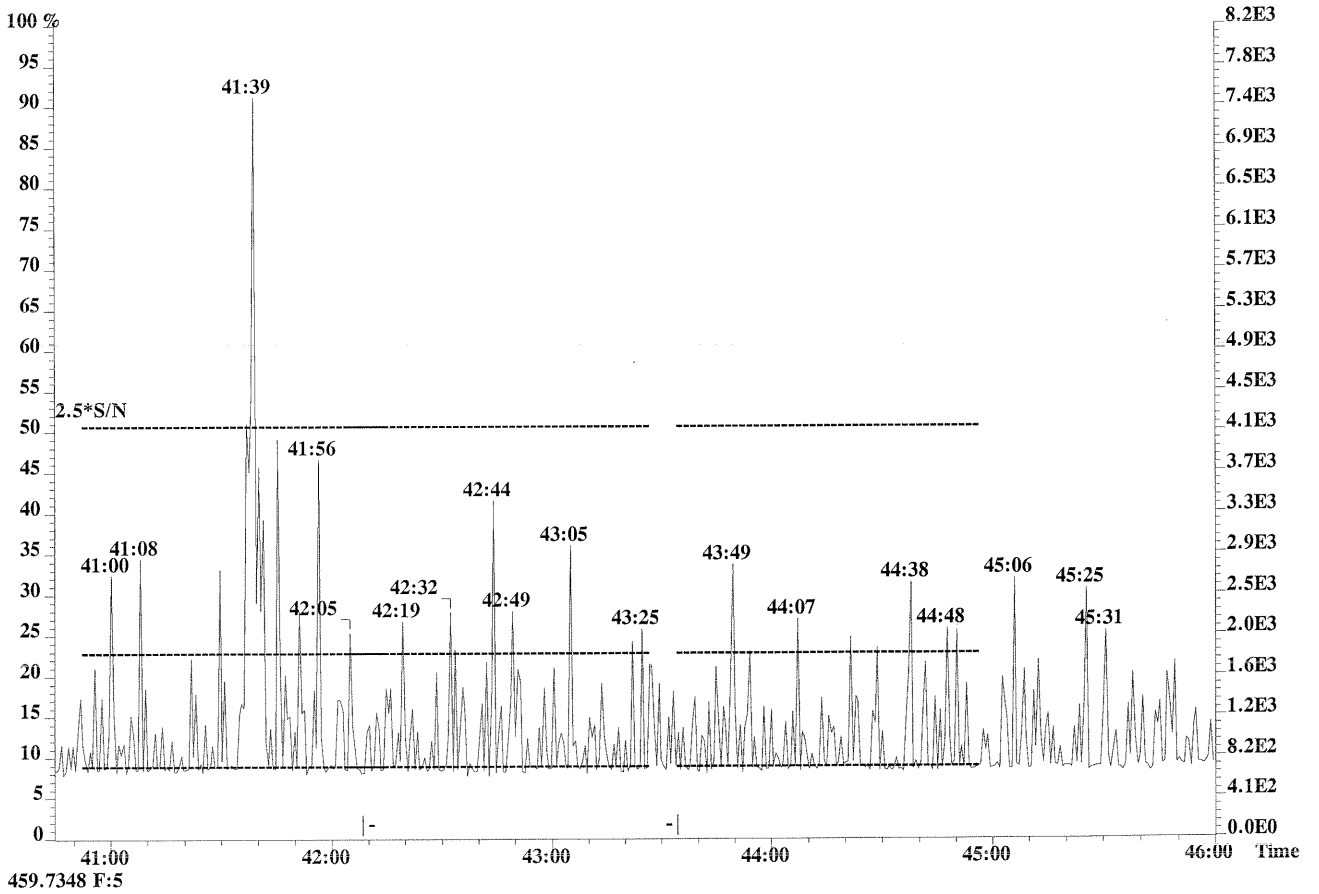
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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







Sample Response Summary

Run #15 Filename P230541 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 19:23:27  
Processed: 18-AUG-14 14:54:08 LAB. ID: P1403085-006

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.959
2 Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.955
3 Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	0.868
5 Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.157
6 Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	0.963
7 Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.113
10 Unk	OCDF	NotFnd	*	*	*	no	no	1.392
11 Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.981
12 Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.982
13 Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.916
14 Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.142
15 Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.104
17 Unk	OCDD	41:39	3.141e+01	3.106e+01	1.01	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:20	2.649e+04	3.302e+04	0.80	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:46	4.803e+04	2.993e+04	1.60	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	4.241e+04	2.610e+04	1.63	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:25	1.417e+04	2.720e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	3.072e+04	5.914e+04	0.52	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:49	4.227e+04	8.033e+04	0.53	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	1.331e+04	2.999e+04	0.44	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:26	5.773e+03	1.328e+04	0.43	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:10	1.761e+04	2.177e+04	0.81	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	32:60	3.550e+04	2.244e+04	1.58	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:11	2.514e+04	1.993e+04	1.26	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:15	3.340e+04	2.603e+04	1.28	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	2.499e+04	2.325e+04	1.07	yes	no	0.925
32 IS	13C-OCDD	41:36	3.053e+04	3.397e+04	0.90	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:29	2.050e+05	2.583e+05	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:30	2.993e+05	2.354e+05	1.27	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:11	4.706e+04				no	0.960

$$\text{OCDD} = \frac{(3.141e+01 + 3.106e+01 \times (4000.0)) \times 1}{(3.053e+04 + 3.397e+04) \times 1.181 \times 0.500} = 6.56 \text{ pg}$$

*Handwritten signature and date: 8/18/14*



ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
731sNQ-DF

Method M23

Run #15 Filename P230541 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 19:23:27  
Processed: 18-AUG-14 14:54:08 LAB. ID: P1403085-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.24e+02	*	*	1.71e+03	*
2	1,2,3,7,8-PeCDF	*	1.40e+03	*	*	1.68e+03	*
3	2,3,4,7,8-PeCDF	*	1.40e+03	*	*	1.68e+03	*
4	1,2,3,4,7,8-HxCDF	*	7.16e+02	*	*	1.44e+02	*
5	1,2,3,6,7,8-HxCDF	*	7.16e+02	*	*	1.44e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.16e+02	*	*	1.44e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.16e+02	*	*	1.44e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	7.08e+02	*	*	6.64e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	7.08e+02	*	*	6.64e+02	*
10	OCDF	*	7.48e+02	*	*	1.54e+03	*
11	2,3,7,8-TCDD	*	1.19e+03	*	*	1.56e+03	*
12	1,2,3,7,8-PeCDD	*	1.88e+03	*	*	4.64e+02	*
13	1,2,3,4,7,8-HxCDD	*	3.32e+02	*	*	1.06e+03	*
14	1,2,3,6,7,8-HxCDD	*	3.32e+02	*	*	1.06e+03	*
15	1,2,3,7,8,9-HxCDD	*	3.32e+02	*	*	1.06e+03	*
16	1,2,3,4,6,7,8-HpCDD	*	1.08e+03	*	*	4.48e+02	*
17	OCDD	4.56e+03	3.84e+02	1.2e+01	4.91e+03	7.20e+02	6.8e+00
18	13C-2,3,7,8-TCDF	3.11e+06	2.00e+03	1.6e+03	3.95e+06	1.24e+03	3.2e+03
19	13C-1,2,3,7,8-PeCDF	5.62e+06	1.68e+03	3.4e+03	3.48e+06	2.89e+03	1.2e+03
20	13C-2,3,4,7,8-PeCDF	5.11e+06	1.68e+03	3.0e+03	3.17e+06	2.89e+03	1.1e+03
21	13C-1,2,3,4,7,8-HxCDF	2.47e+06	1.54e+03	1.6e+03	4.76e+06	4.74e+03	1.0e+03
22	13C-1,2,3,6,7,8-HxCDF	3.84e+06	1.54e+03	2.5e+03	7.43e+06	4.74e+03	1.6e+03
24	13C-1,2,3,7,8,9-HxCDF	5.46e+06	1.54e+03	3.5e+03	1.03e+07	4.74e+03	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.84e+06	1.89e+03	9.7e+02	4.13e+06	3.59e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.26e+05	1.89e+03	3.3e+02	1.40e+06	3.59e+03	3.9e+02
27	13C-2,3,7,8-TCDD	2.57e+06	5.91e+03	4.3e+02	3.22e+06	2.44e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	4.30e+06	1.58e+03	2.7e+03	2.63e+06	5.92e+02	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	4.57e+06	8.72e+02	5.2e+03	3.58e+06	1.42e+03	2.5e+03
30	13C-1,2,3,6,7,8-HxCDD	4.97e+06	8.72e+02	5.7e+03	3.94e+06	1.42e+03	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.19e+06	1.71e+03	1.9e+03	2.97e+06	4.36e+02	6.8e+03
32	13C-OCDD	3.16e+06	4.64e+02	6.8e+03	3.62e+06	8.66e+03	4.2e+02
33	13C-1,2,3,4-TCDD	3.41e+07	5.91e+03	5.8e+03	4.29e+07	2.44e+03	1.8e+04
34	13C-1,2,3,7,8,9-HxCDD	4.75e+07	8.72e+02	5.4e+04	3.72e+07	1.42e+03	2.6e+04
35	37Cl-2,3,7,8-TCDD	6.32e+06	9.04e+02	7.0e+03			

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

ALS Form TO-9SN/M23SN.FRM

ALS ENVIRONMENTAL  
Peak List Summary

CLIENT ID.

---

731sNQ-DF

---

Entry: 44 Totals Name: Total Hepta-Dioxins

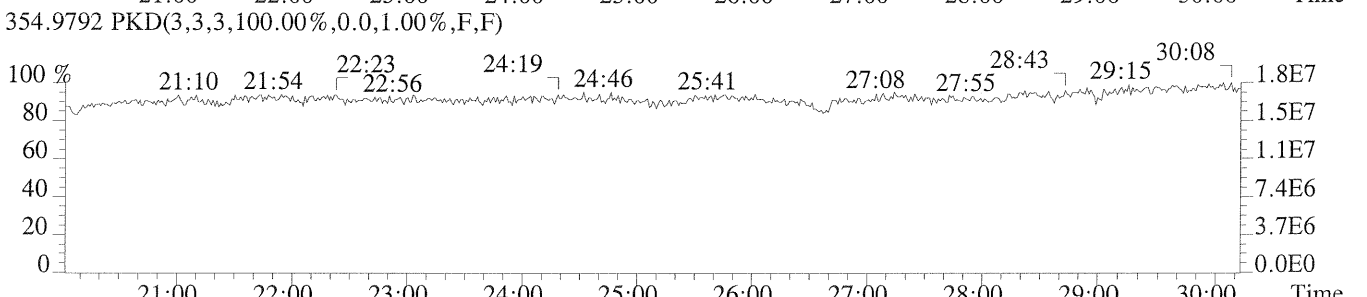
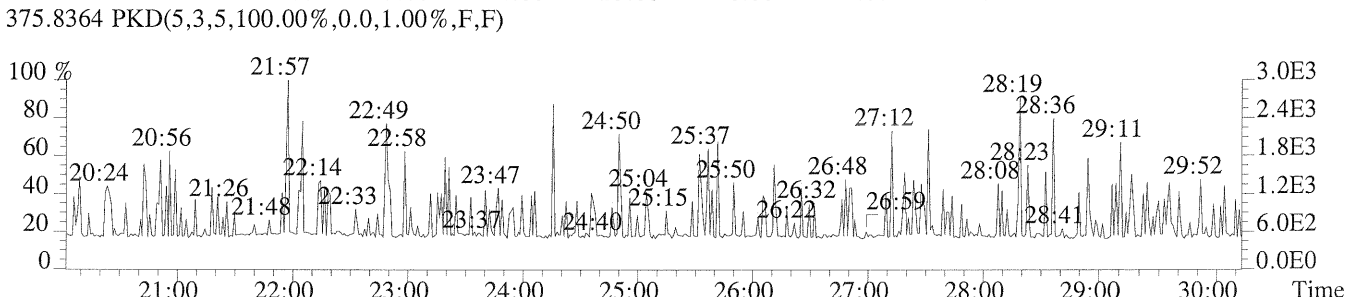
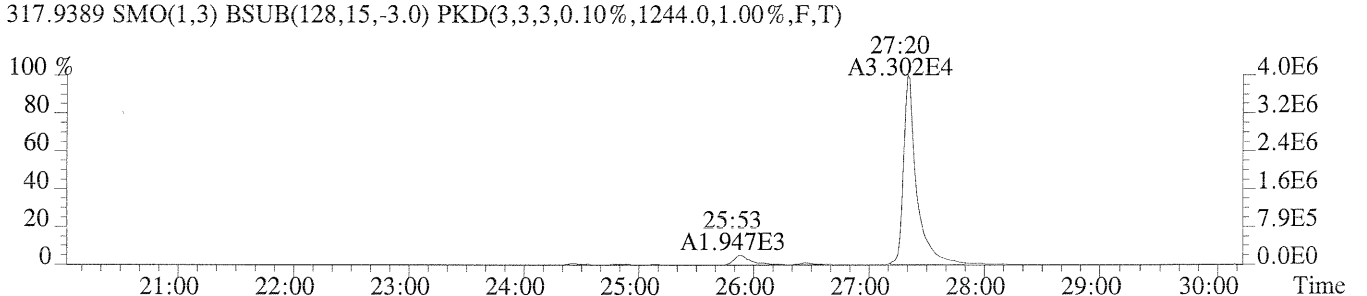
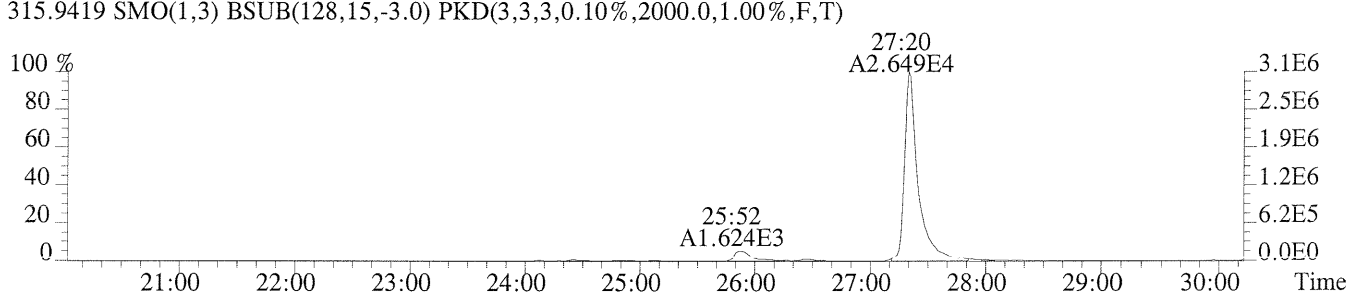
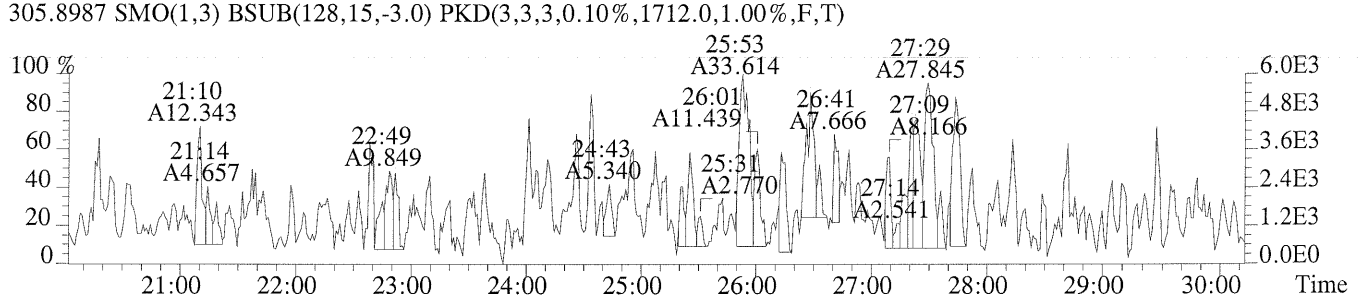
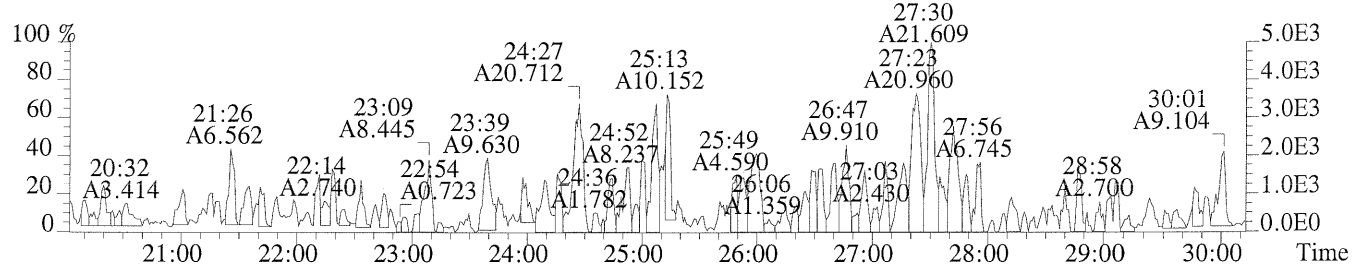
Run: 15 File: P230541 Sample: 1 Injection: 1 Function: 4  
Llim: 38:14 Ulim: 39:08  
Acquired: 15-AUG-14 19:23:27 Processed: 18-AUG-14 14:54:08  
Mass: 423.7770 425.7740 Tot Response: 5.21e+01 RRF: 1.104

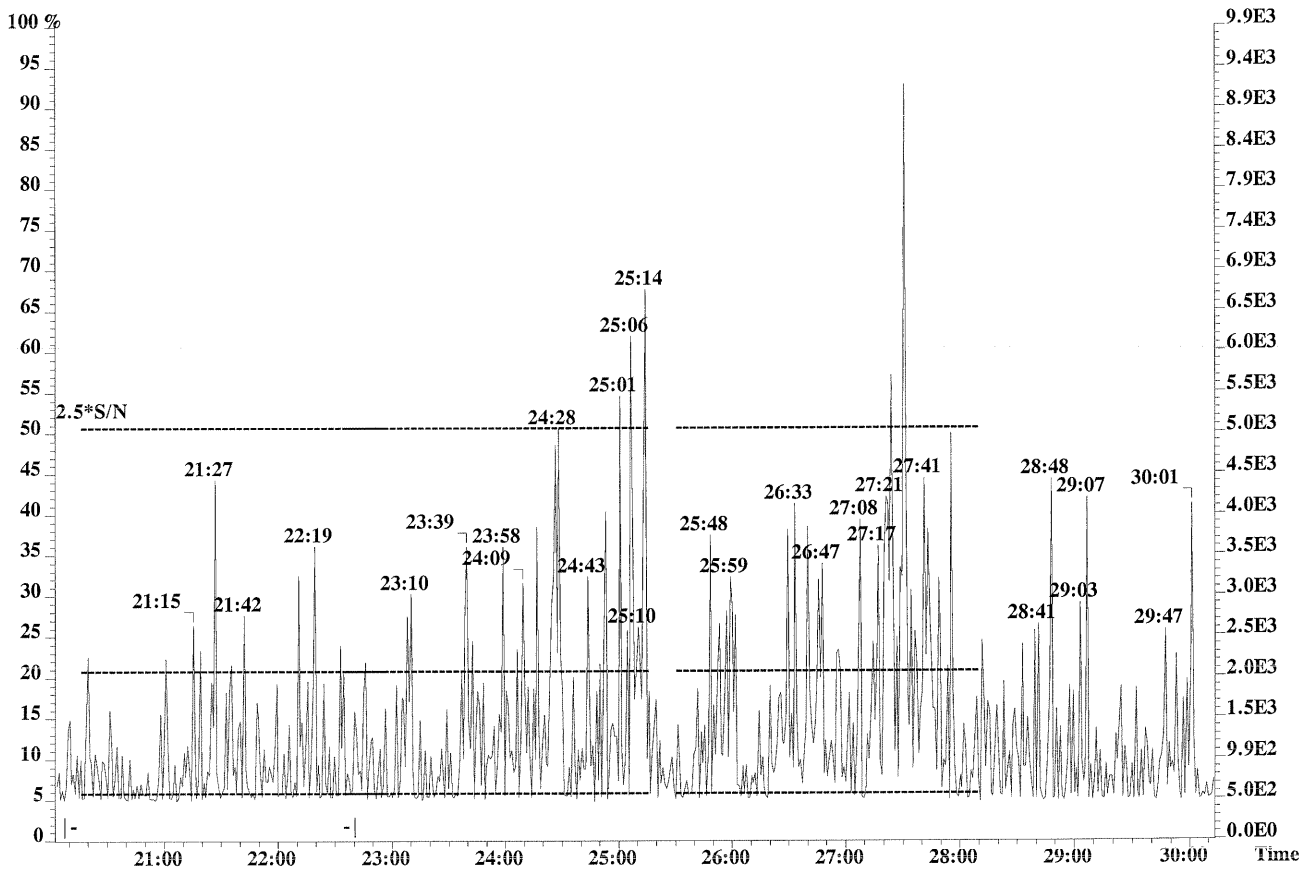
#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:19	2.71e+01	2.50e+01	1.08	yes	5.21e+01	n	n

---

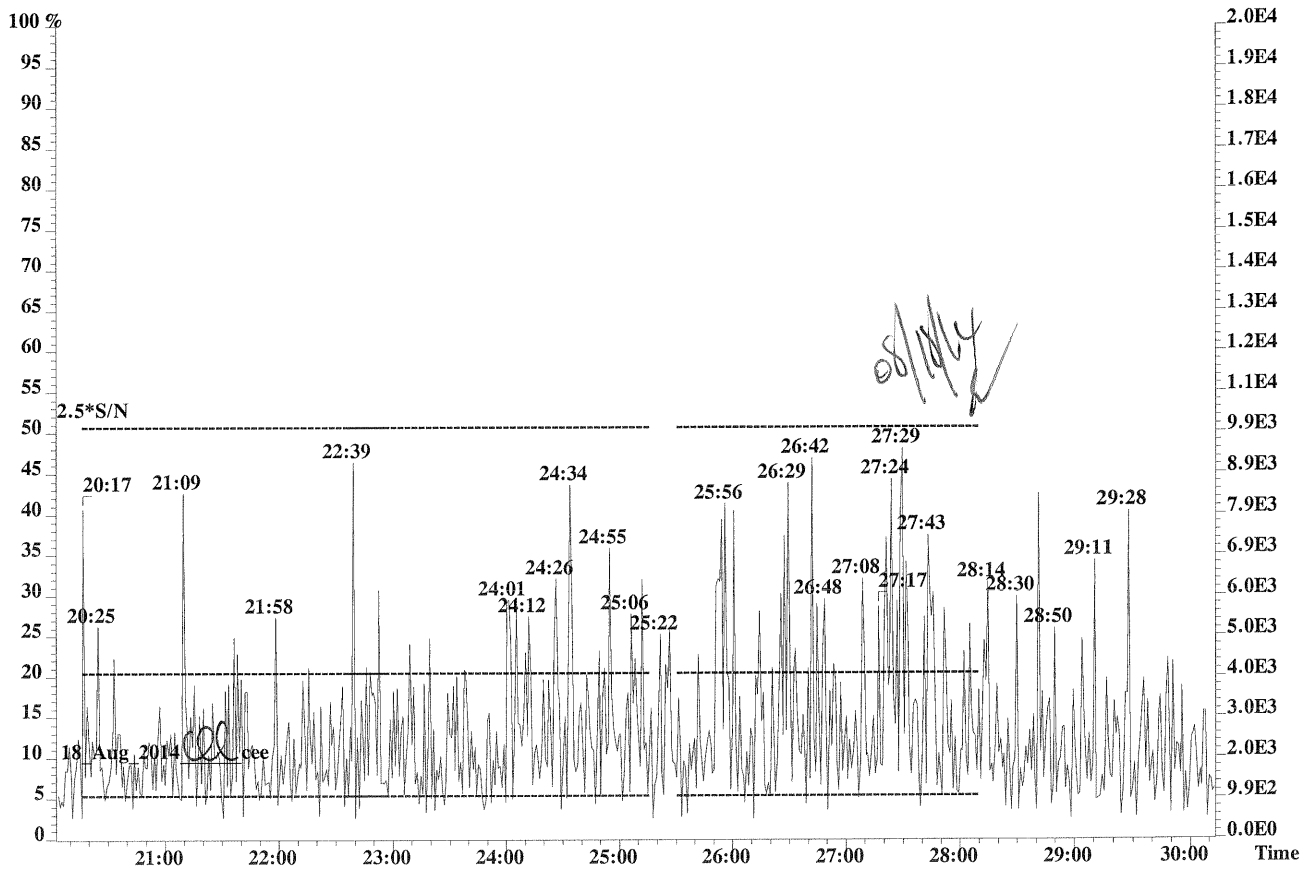
ALS ENVIRONMENTAL  
10450 Stancliff Rd., Suite 115  
Houston, TX 77099  
Office (713) 266-1599. Fax (713) 266-0130

File:P230541 #1-640 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)

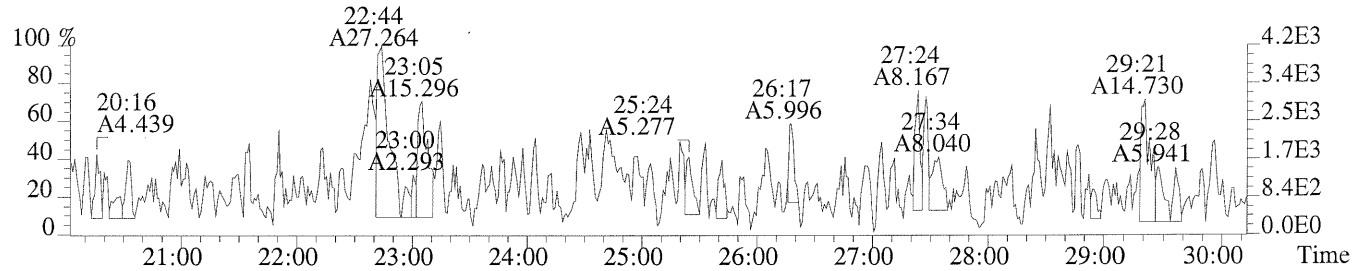




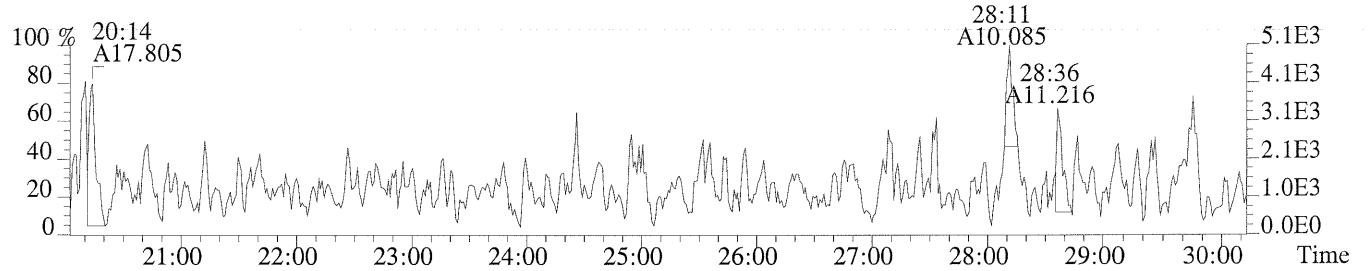
305.8987



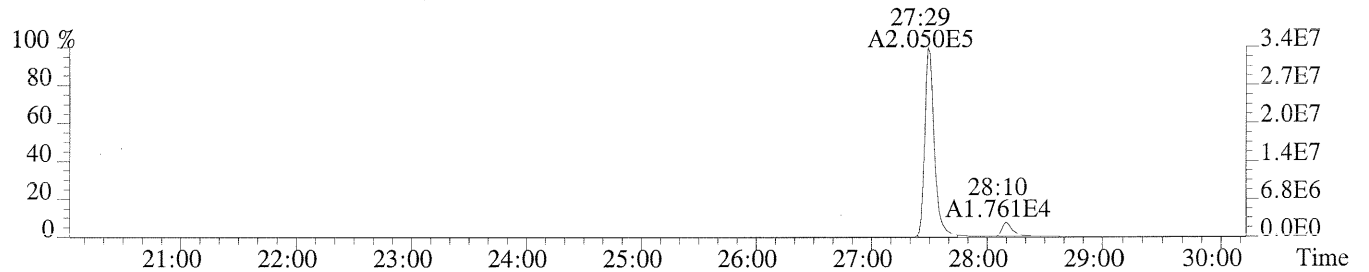
File:P230541 #1-640 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



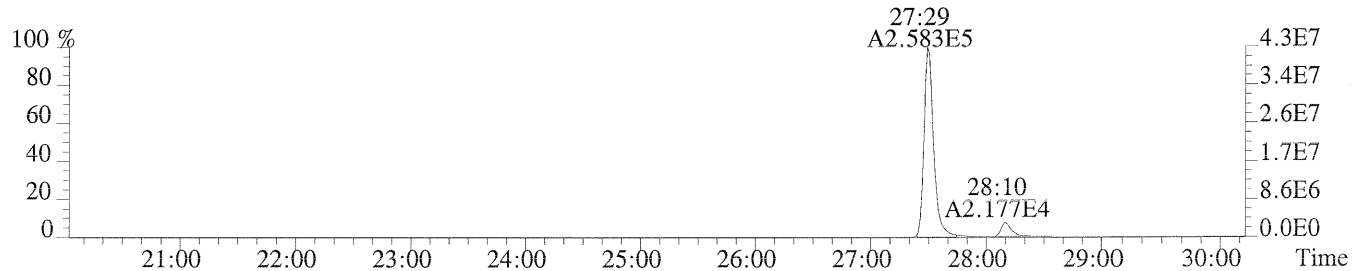
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



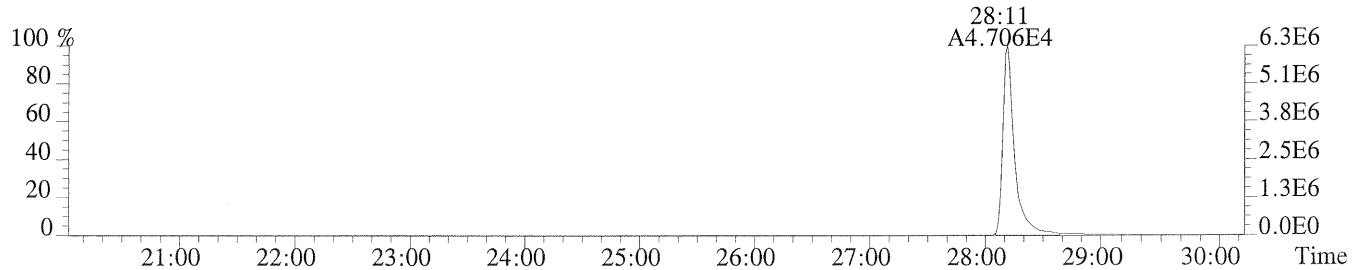
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5908.0,1.00%,F,T)



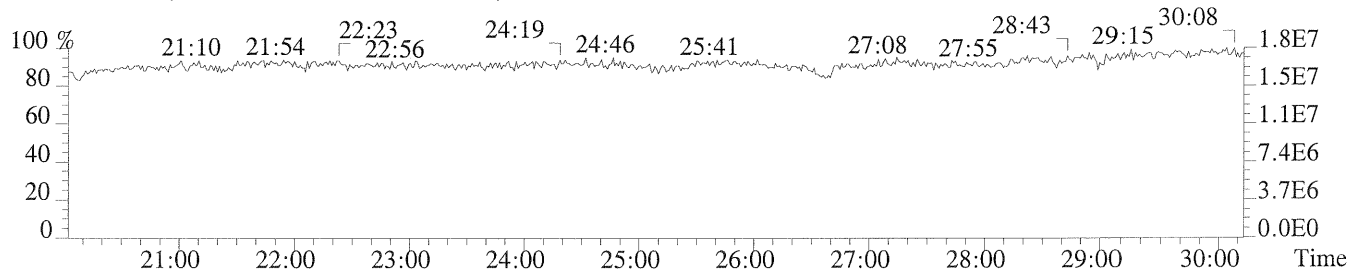
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2436.0,1.00%,F,T)



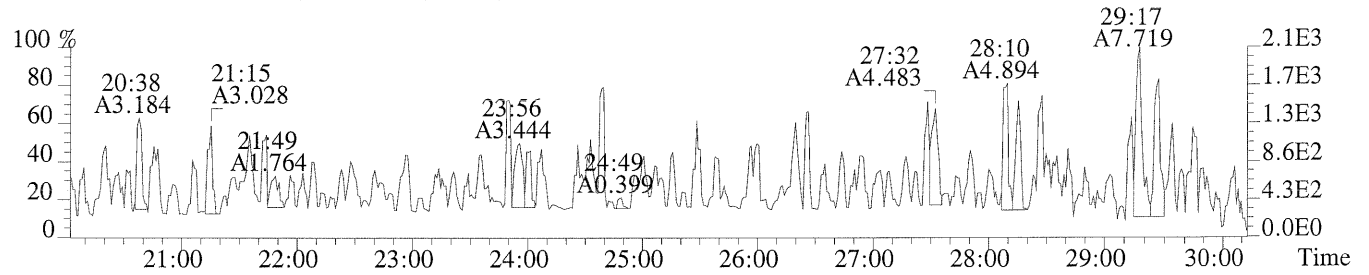
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



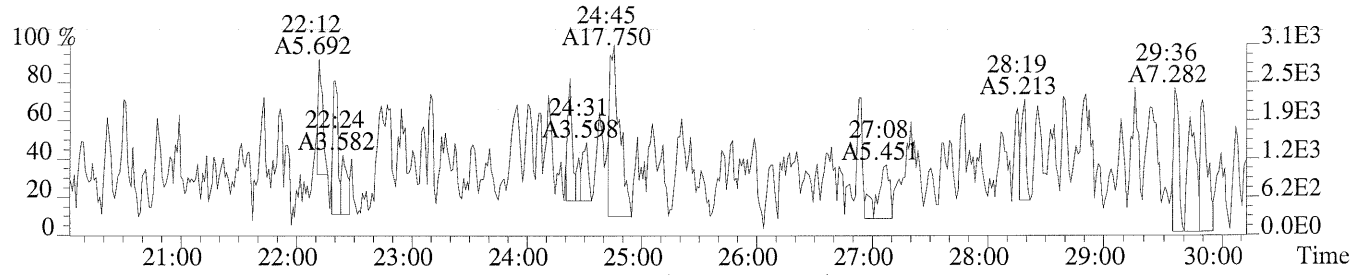
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



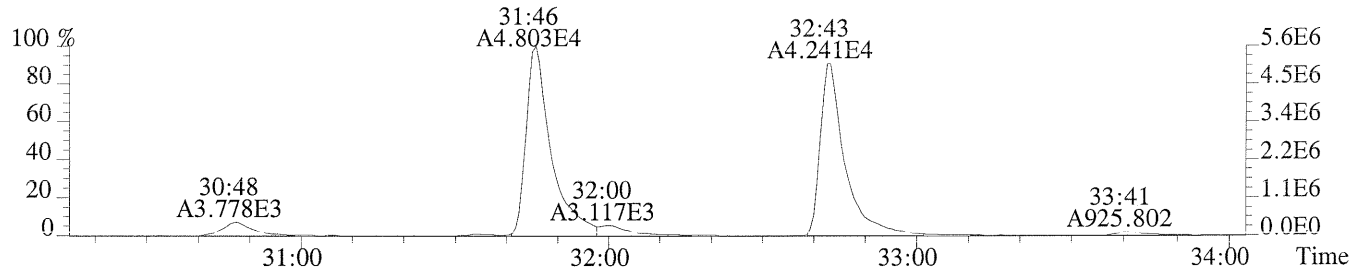
File:P230541 #1-640 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



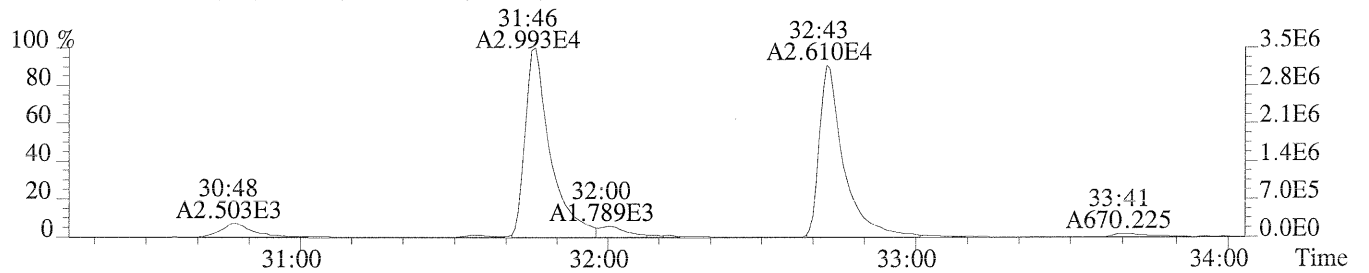
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



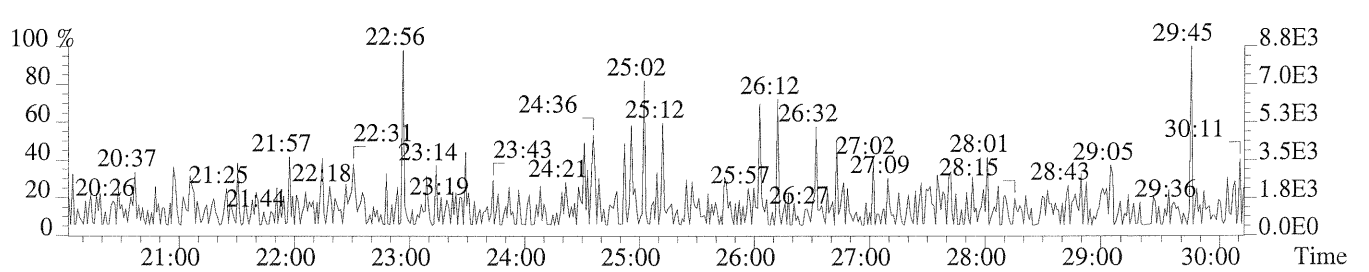
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



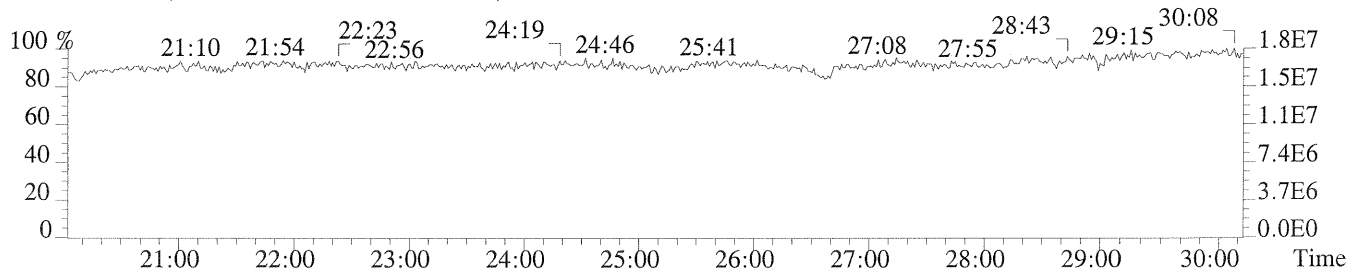
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2892.0,1.00%,F,T)



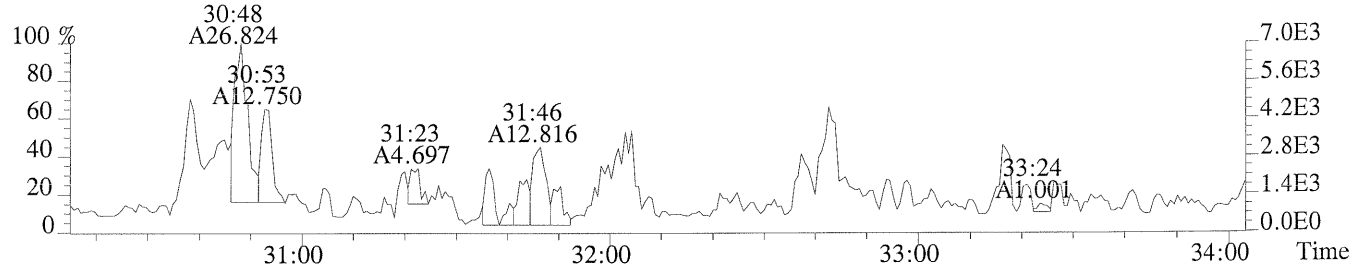
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



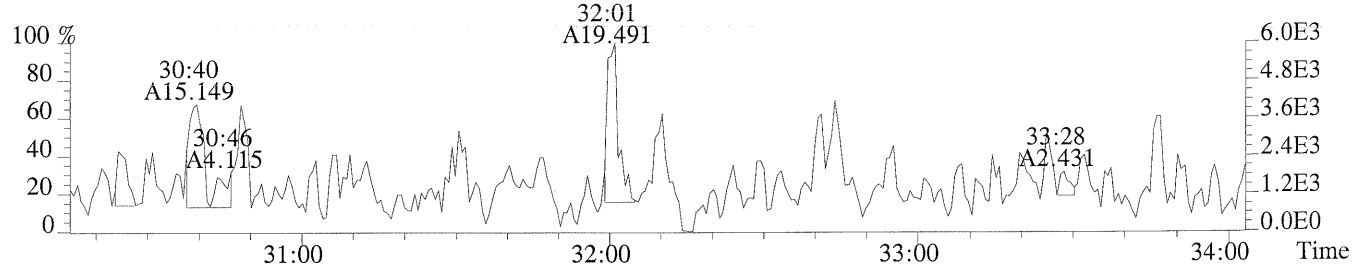
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



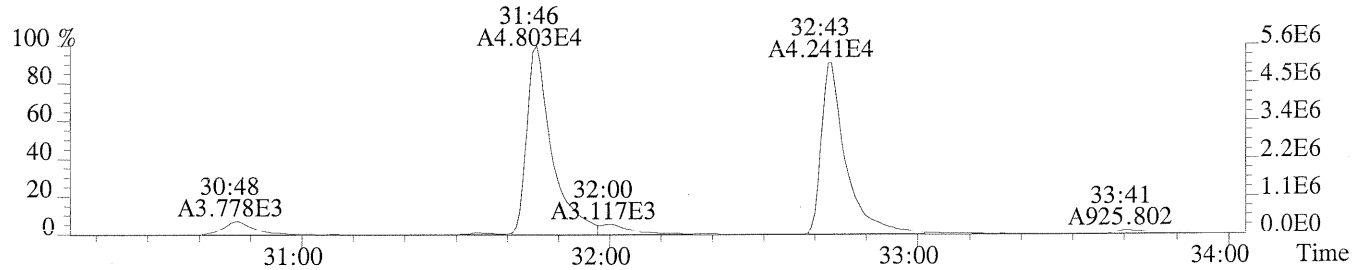
File:P230541 #1-346 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



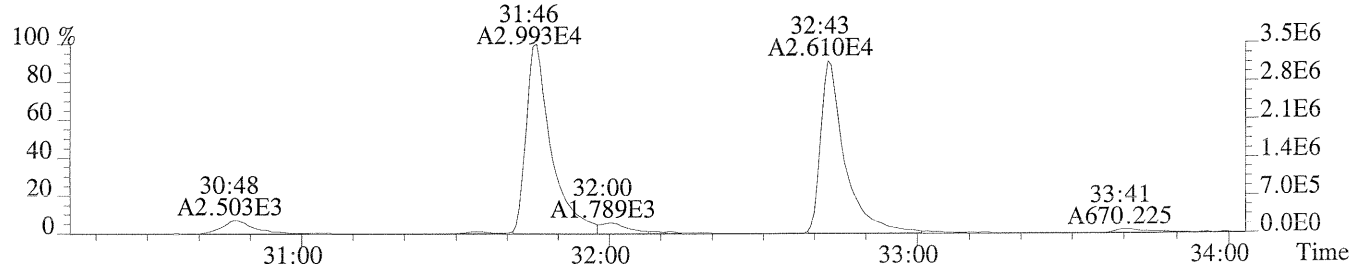
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



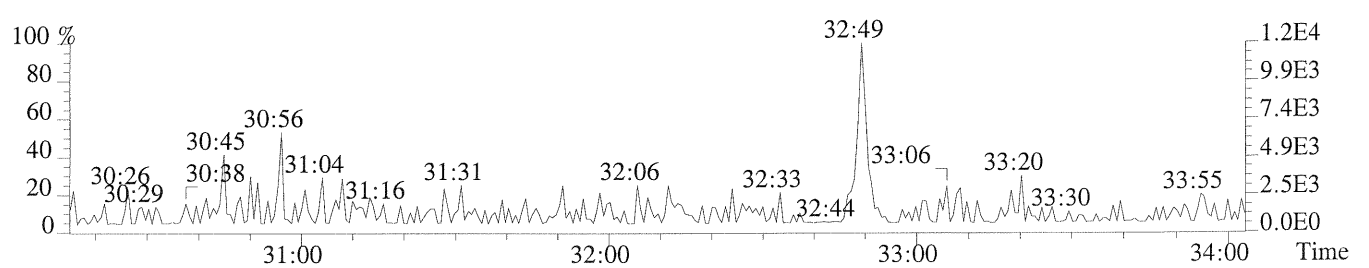
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



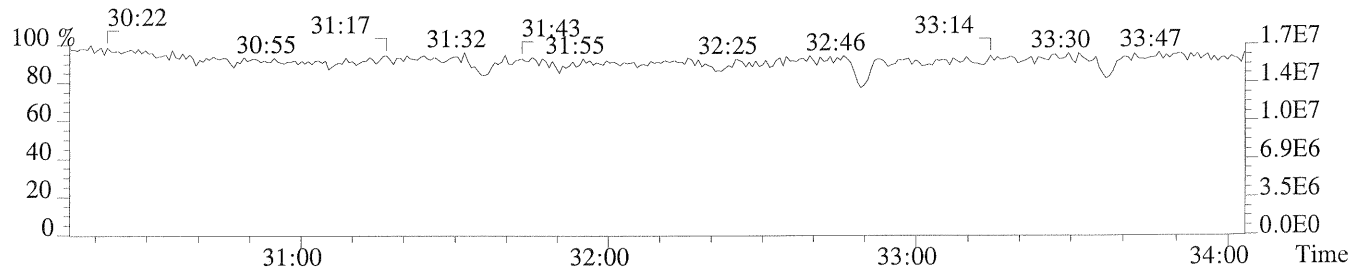
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2892.0,1.00%,F,T)



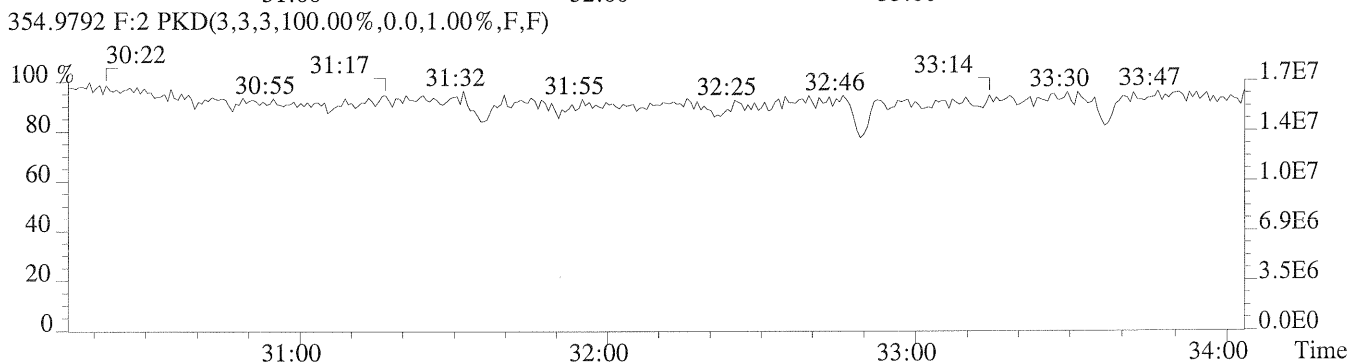
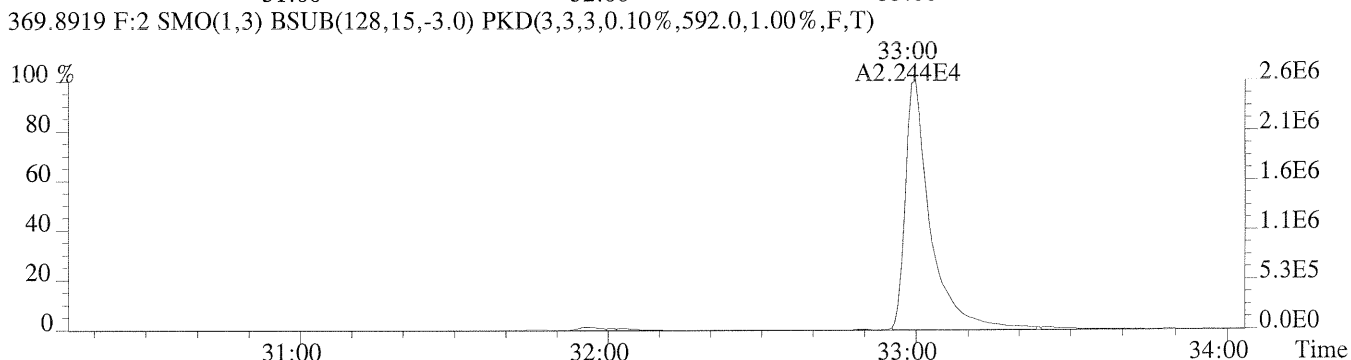
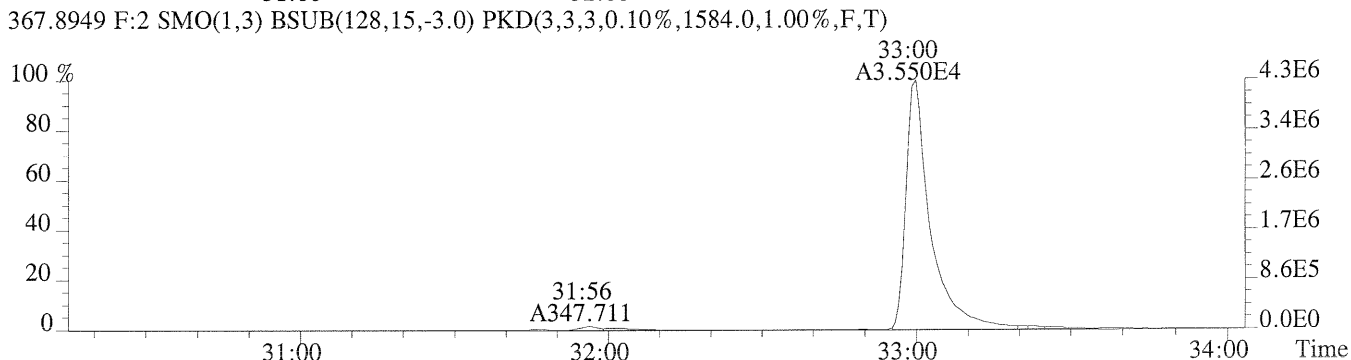
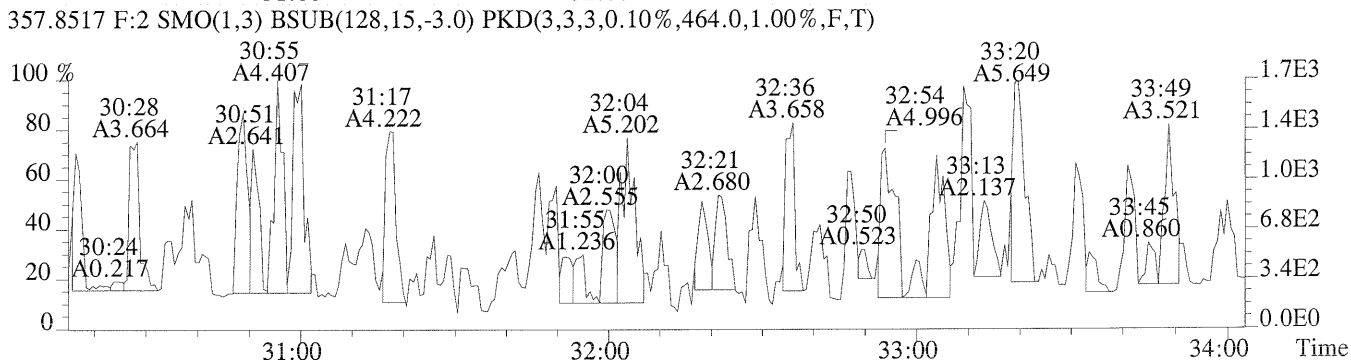
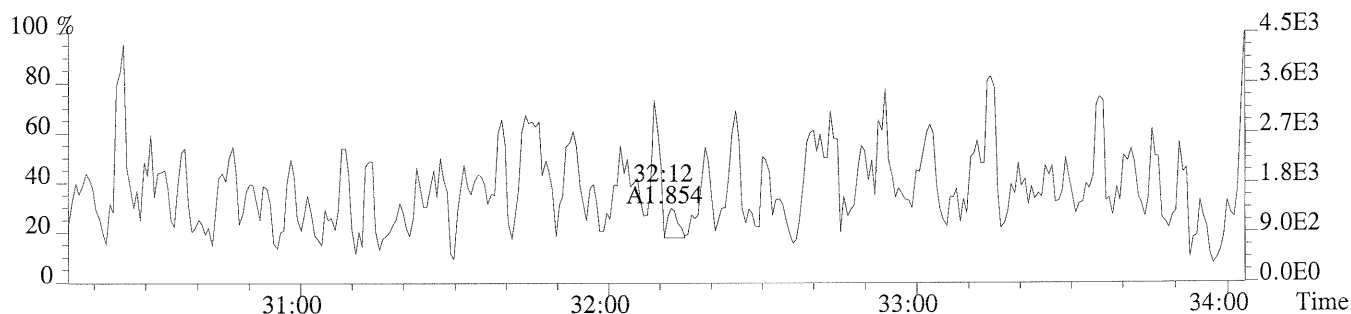
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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

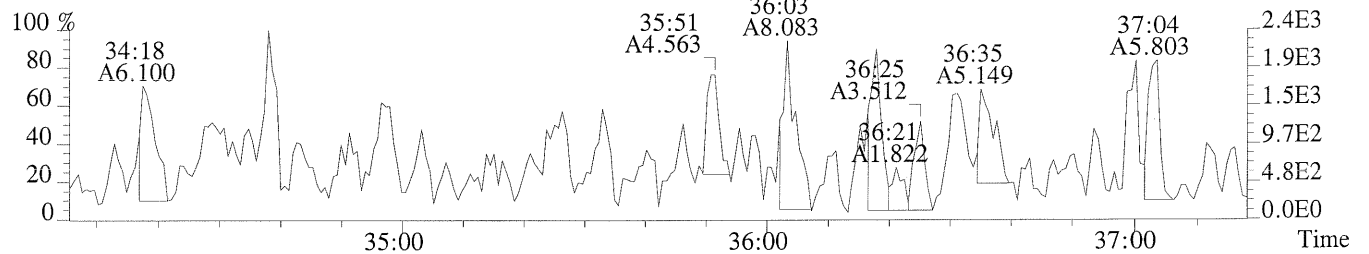


File:P230541 #1-346 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)

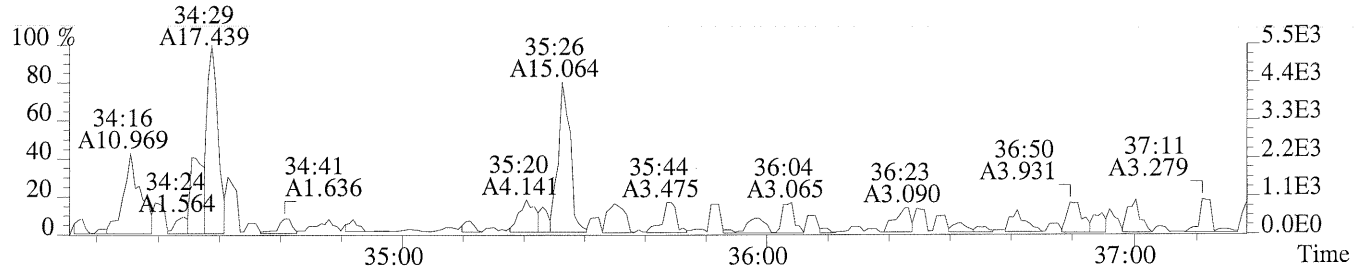




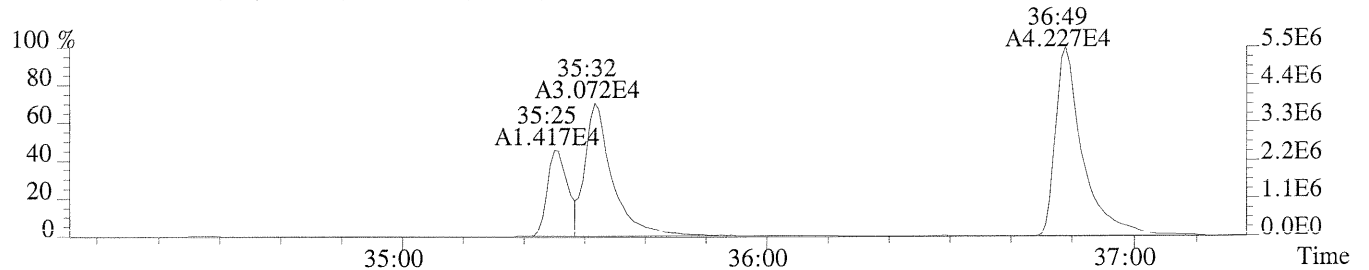
File:P230541 #1-292 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



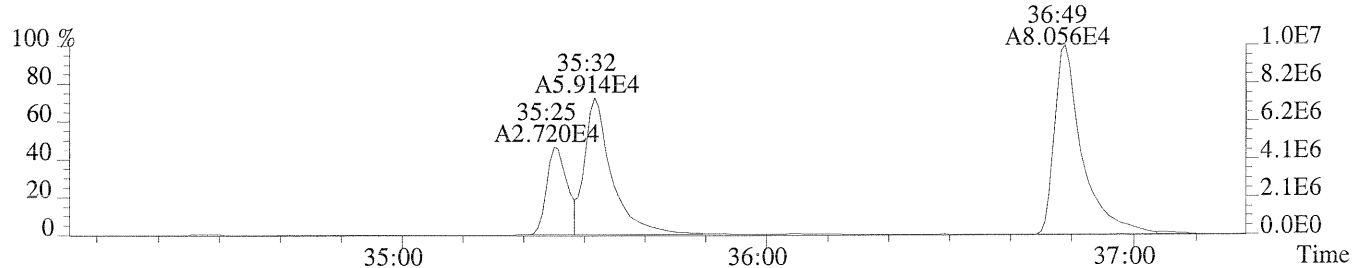
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,144.0,0.40%,F,T)



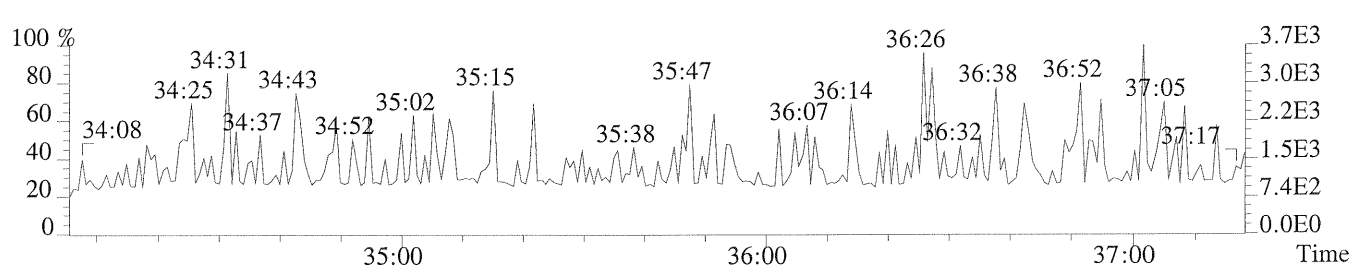
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.40%,F,T)



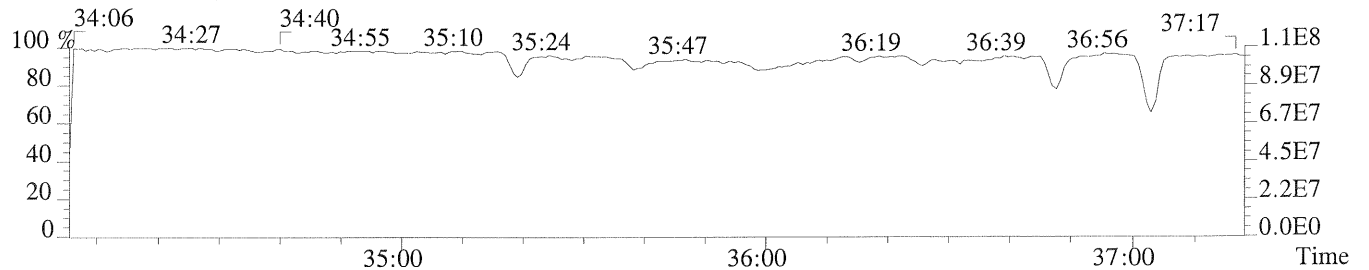
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4740.0,0.40%,F,T)



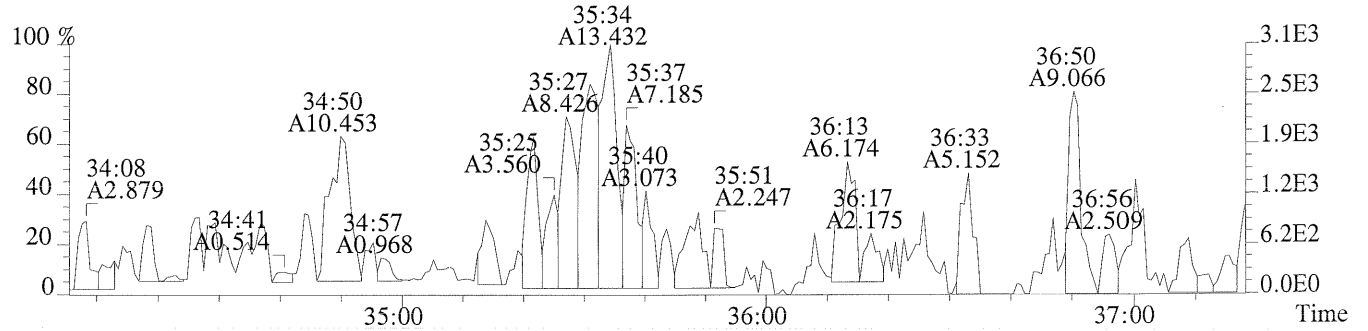
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



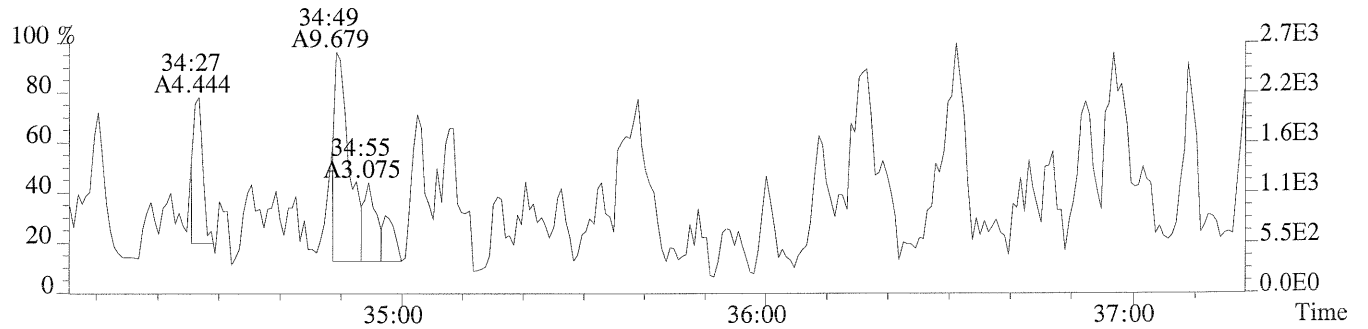
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



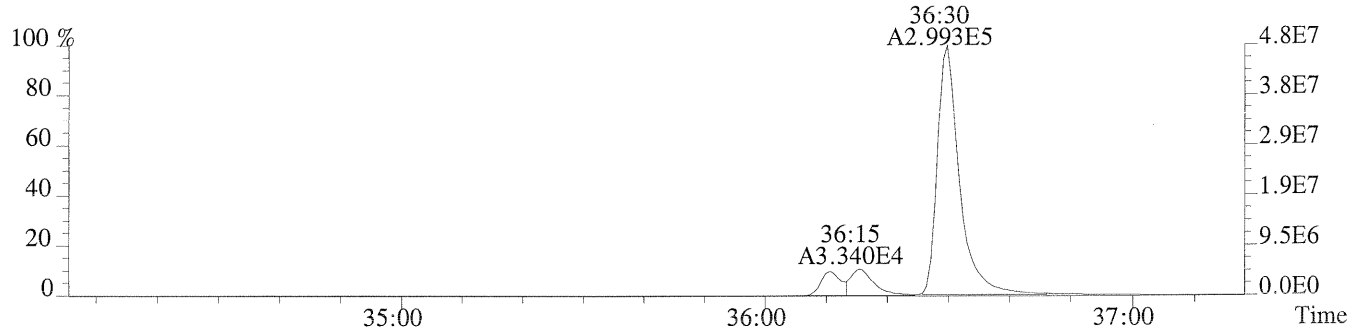
File:P230541 #1-292 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)



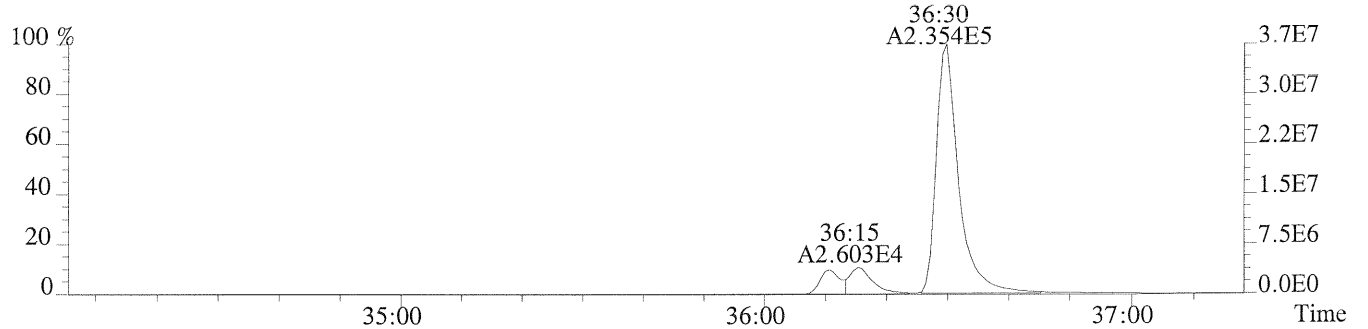
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



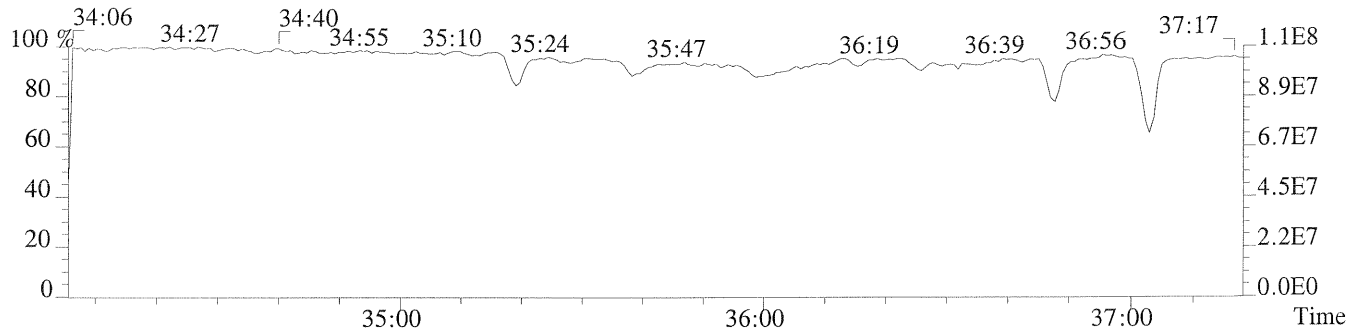
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



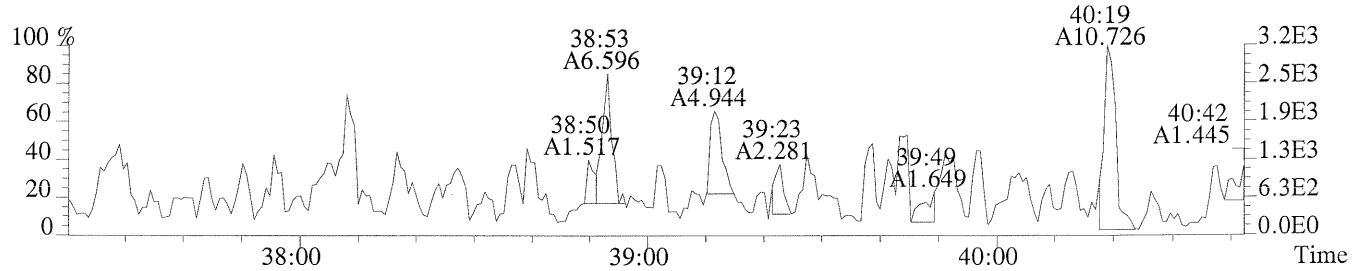
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.40%,F,T)



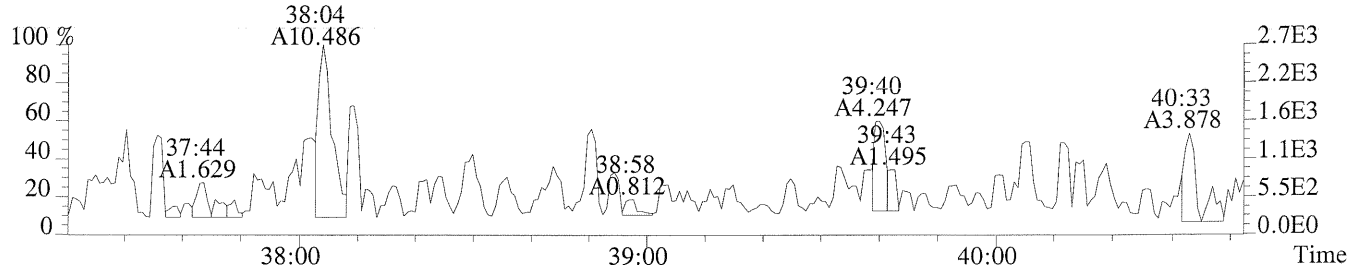
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



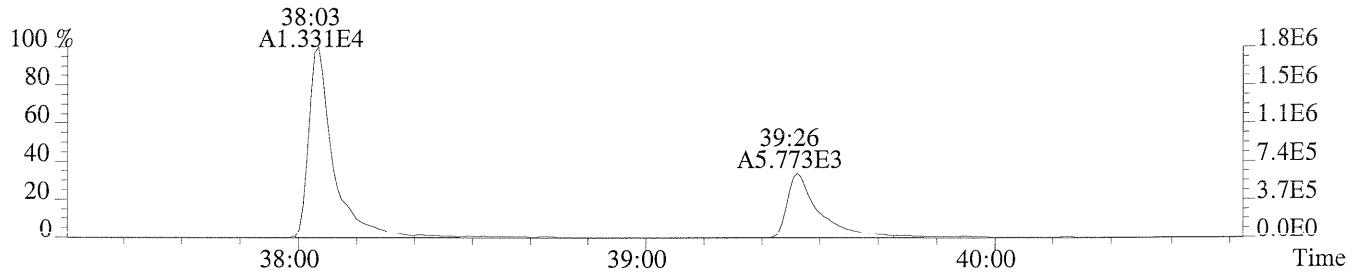
File:P230541 #1-306 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.50%,F,T)



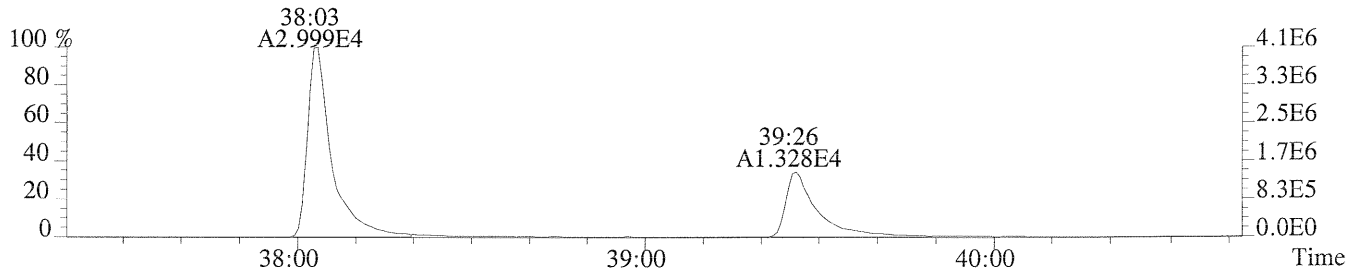
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.50%,F,T)



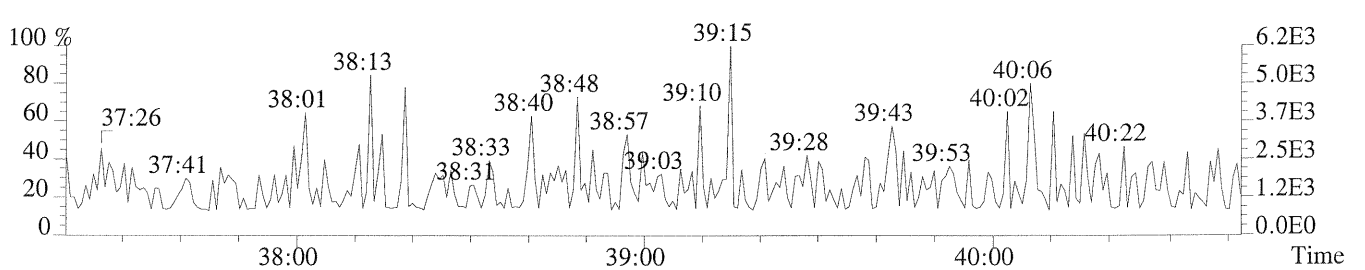
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1892.0,0.50%,F,T)



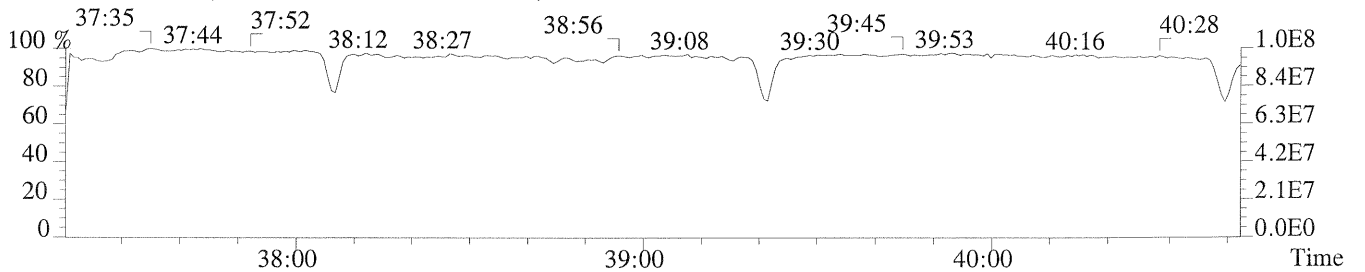
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3588.0,0.50%,F,T)



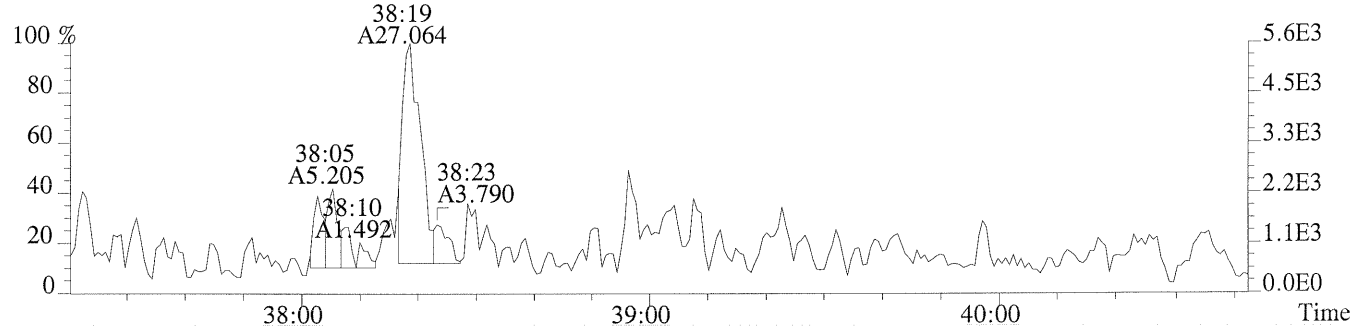
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



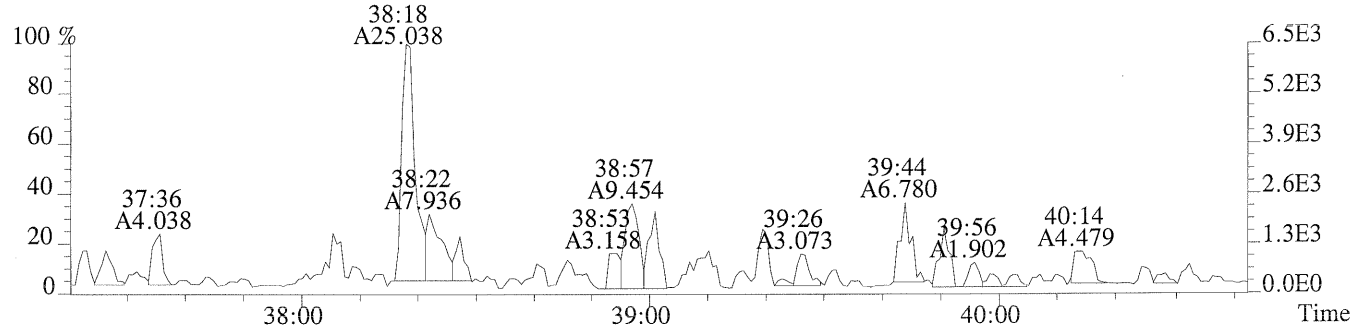
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



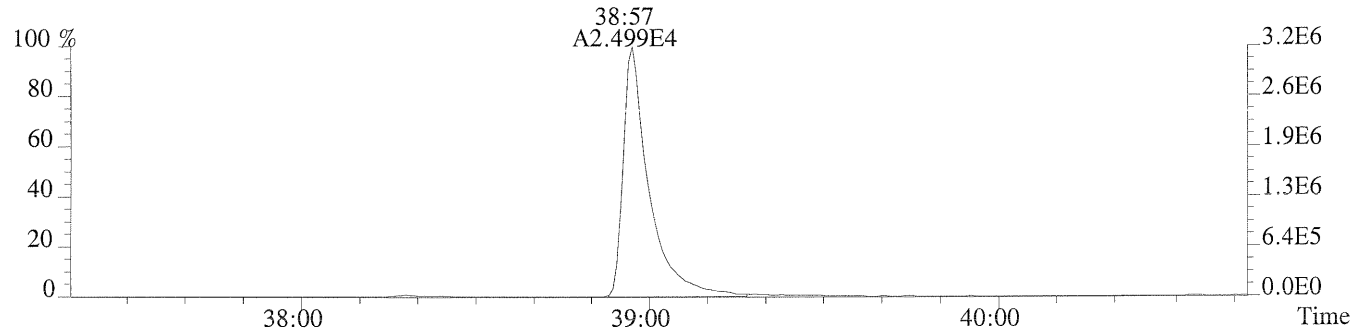
File:P230541 #1-306 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-006  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



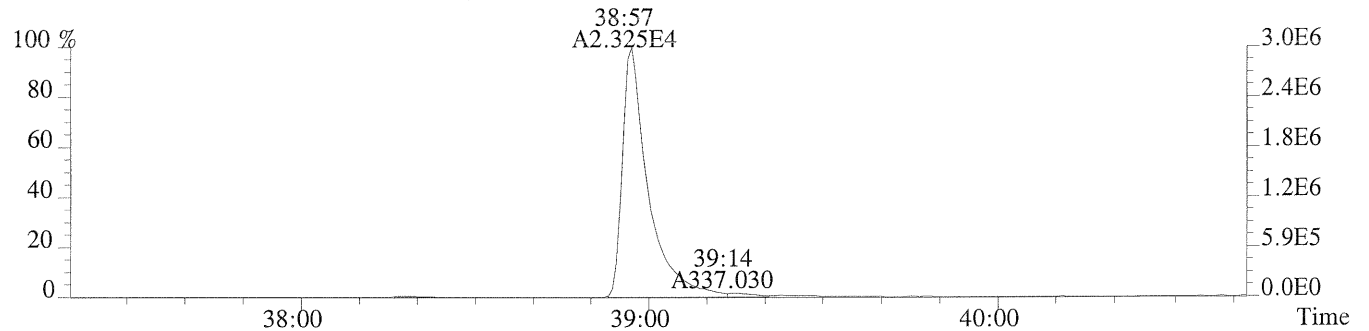
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



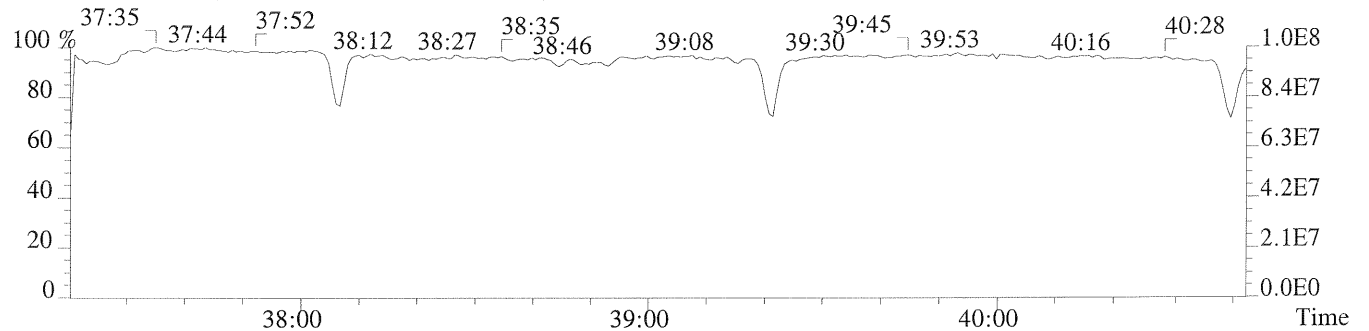
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



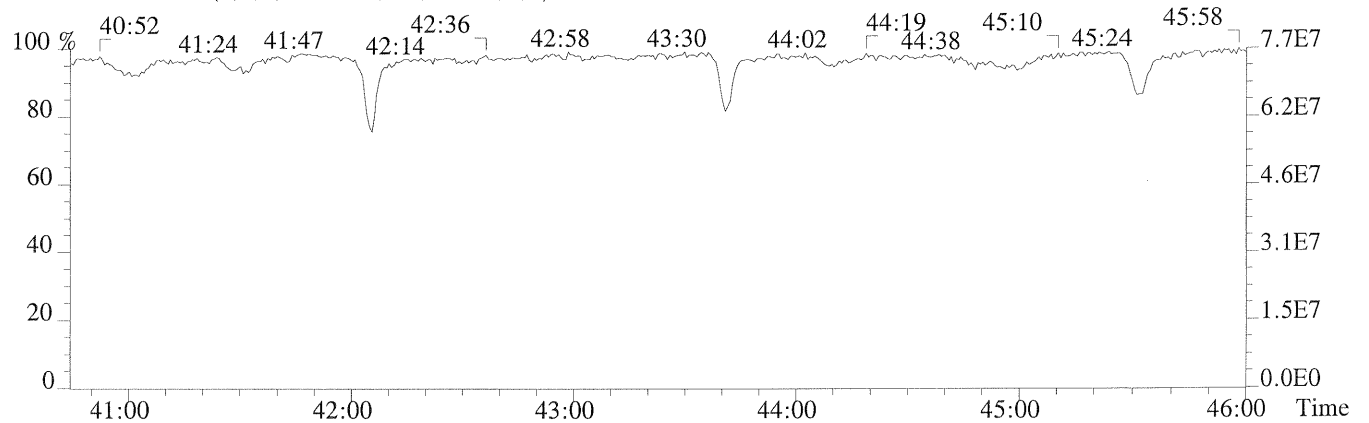
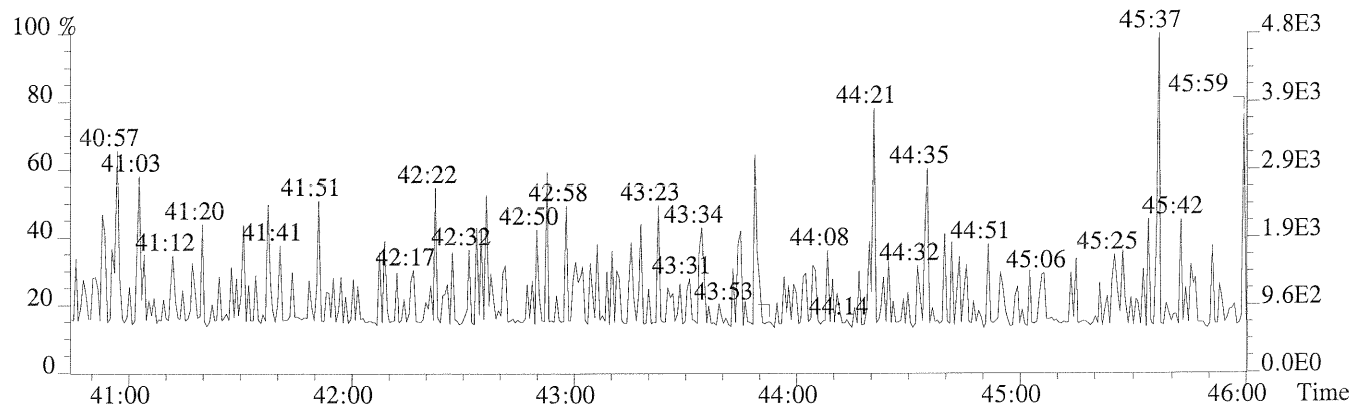
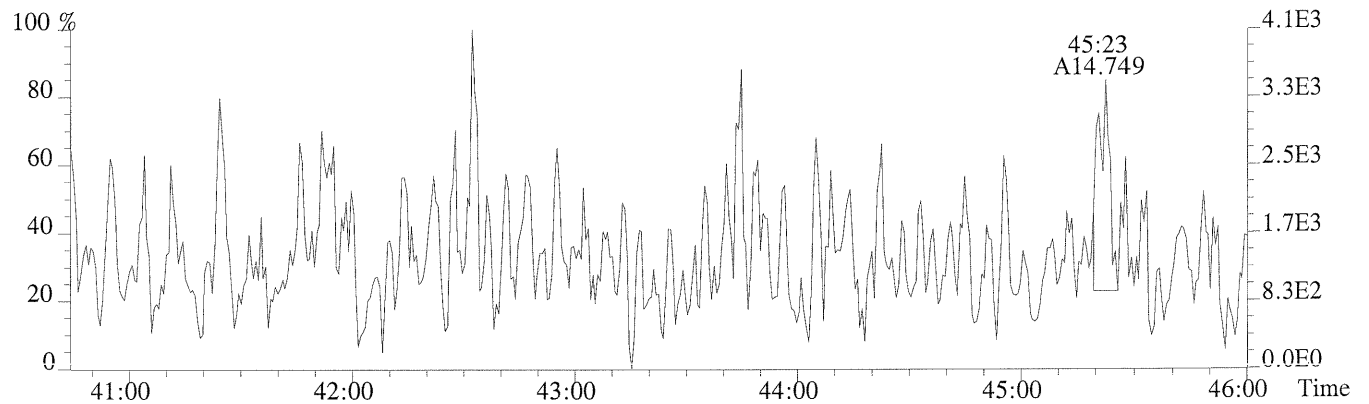
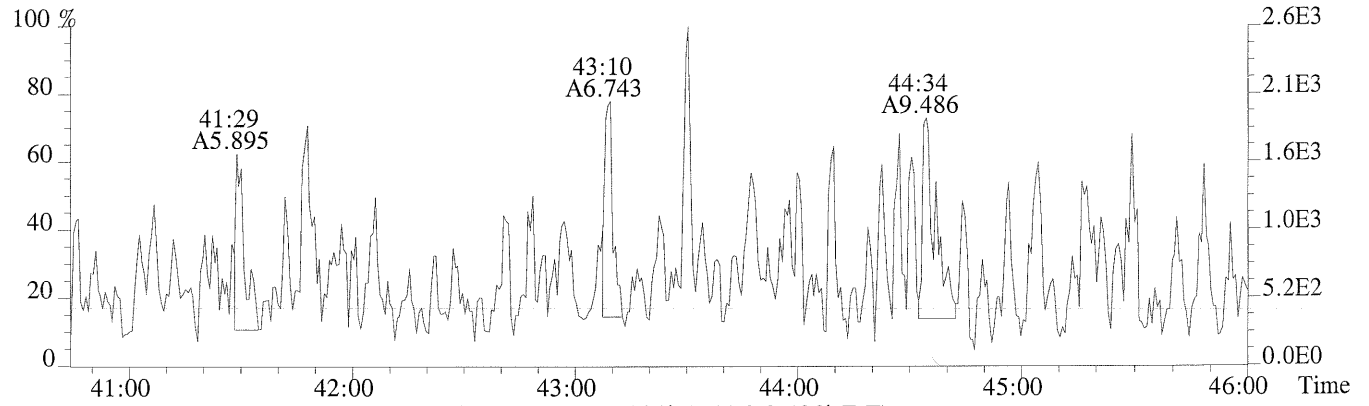
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



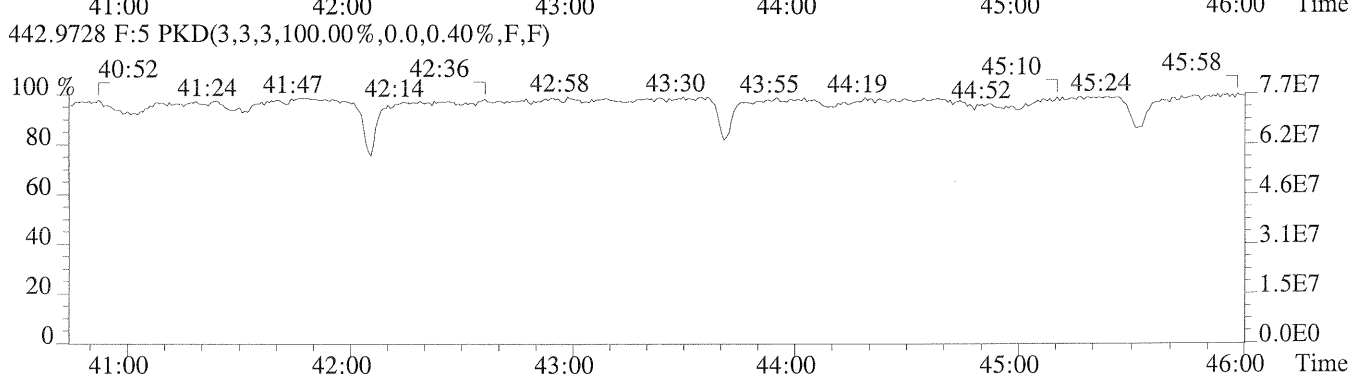
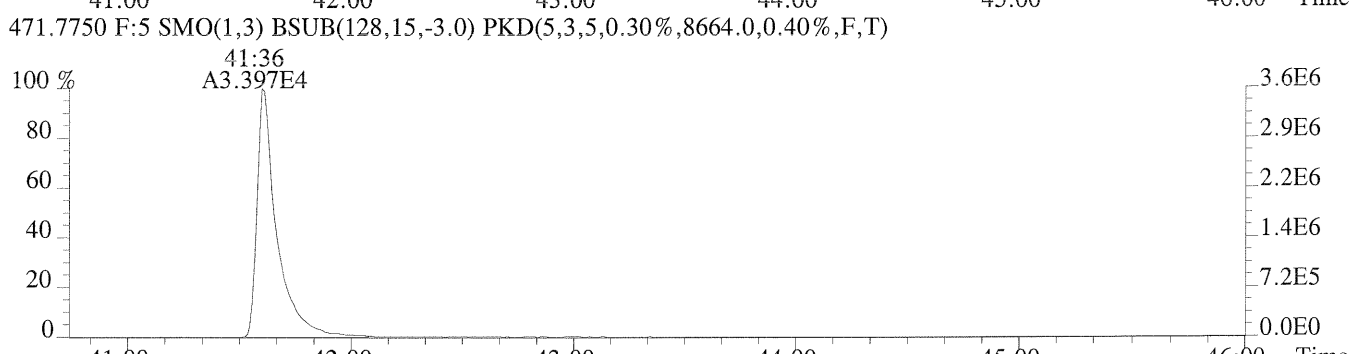
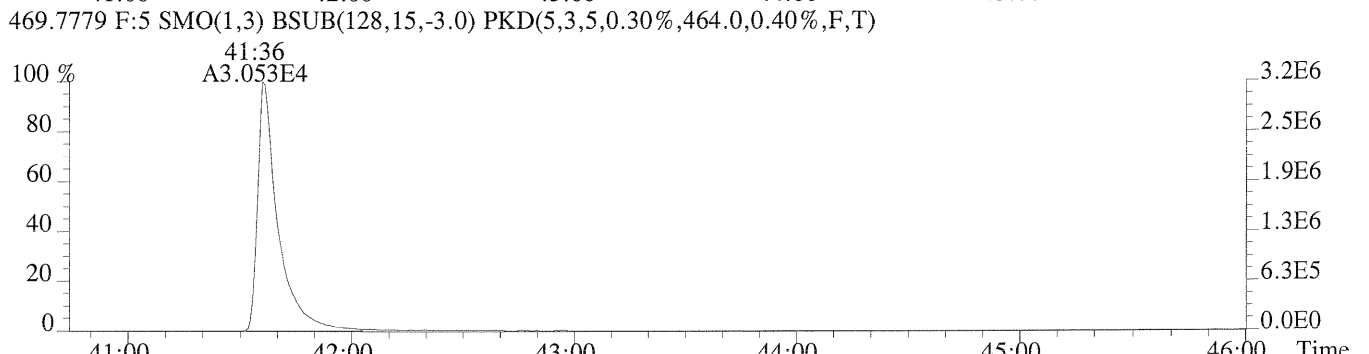
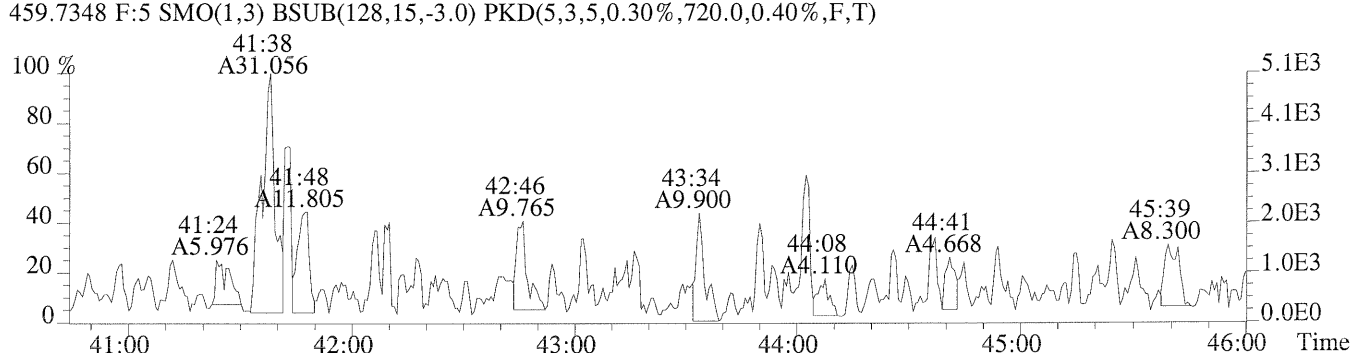
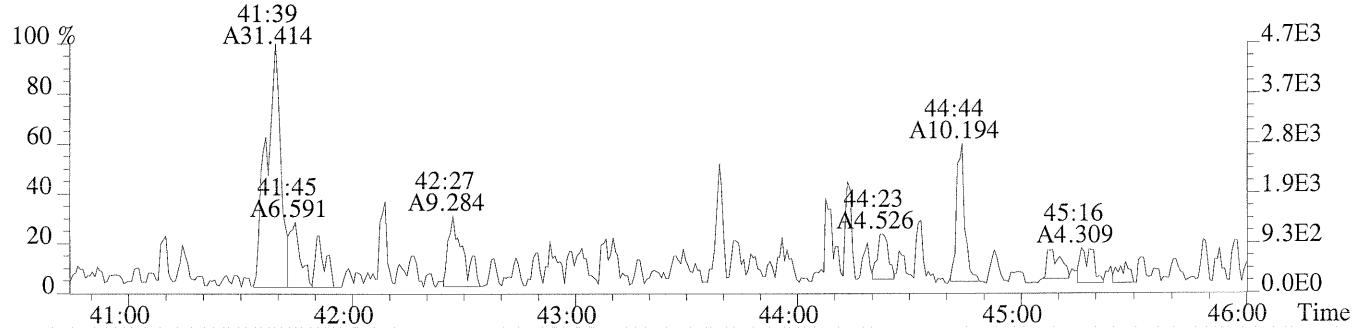
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

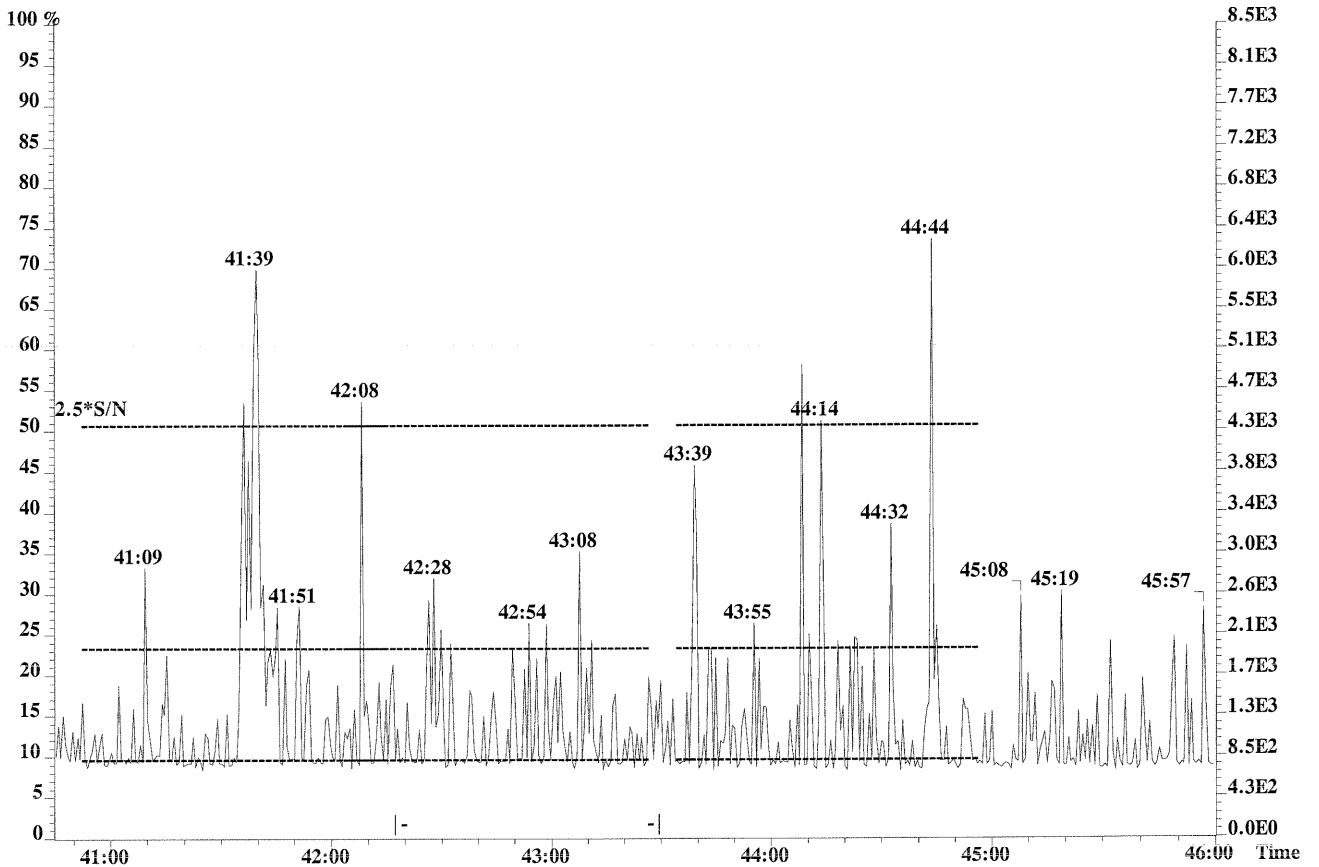


File:P230541 #1-484 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,F,T)

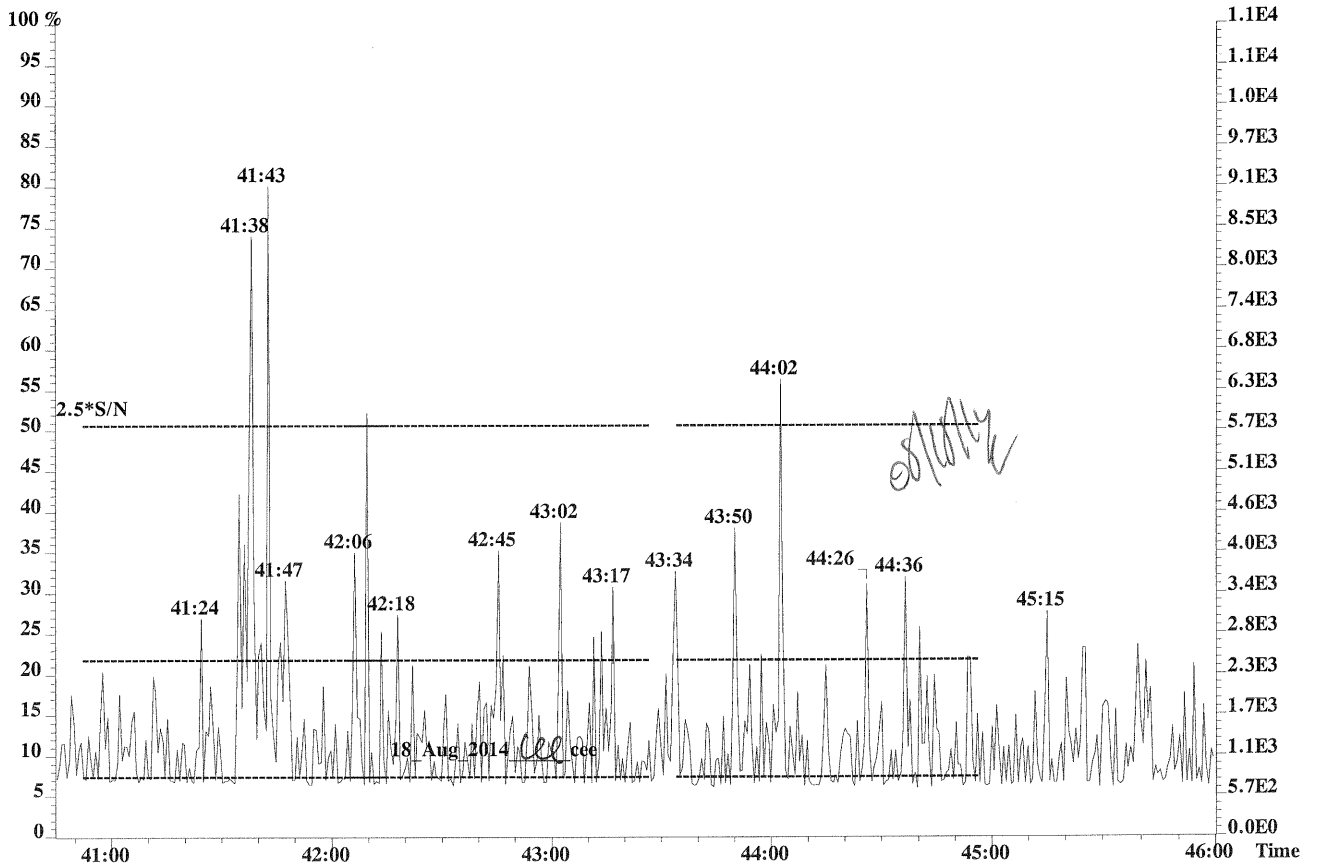


File:P230541 #1-484 Acq:15-AUG-2014 19:23:27 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-006  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)





459.7348 F:5



Sample Response Summary

Run #16 Filename P230542 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 20:11:14  
Processed: 18-AUG-14 14:58:32 LAB. ID: P1403085-007

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.959
2 Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.955
3 Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	0.868
5 Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.157
6 Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	0.963
7 Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.113
10 Unk	OCDF	NotFnd	*	*	*	no	no	1.392
11 Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.981
12 Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.982
13 Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.916
14 Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.142
15 Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.104
17 Unk	OCDD	41:37	2.359e+01	2.576e+01	0.92	yes	yes	1.181
18 IS	13C-2,3,7,8-TCDF	27:20	3.201e+04	4.007e+04	0.80	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:46	6.480e+04	4.050e+04	1.60	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	6.311e+04	3.907e+04	1.62	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:25	2.190e+04	4.243e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	3.613e+04	6.868e+04	0.53	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:49	5.195e+04	9.729e+04	0.53	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	1.629e+04	3.704e+04	0.44	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:25	1.553e+04	3.609e+04	0.43	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:10	2.330e+04	2.895e+04	0.80	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	32:60	4.539e+04	2.876e+04	1.58	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:11	3.306e+04	2.371e+04	1.39	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:15	4.176e+04	3.513e+04	1.19	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	3.038e+04	2.857e+04	1.06	yes	no	0.925
32 IS	13C-OCDD	41:36	3.657e+04	4.020e+04	0.91	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:29	2.027e+05	2.547e+05	0.80	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:30	2.984e+05	2.362e+05	1.26	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:11	6.227e+04				no	0.960

$$\text{OCDD} = \frac{(2.359e+01 + 2.576e+01) \times (4000.0)}{(3.657e+04 + 4.020e+04)} \times 1.181 \times 0.500 = 4.36 \text{ pg}$$

*Handwritten signature and initials*



ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
731BlankdDF

Method M23

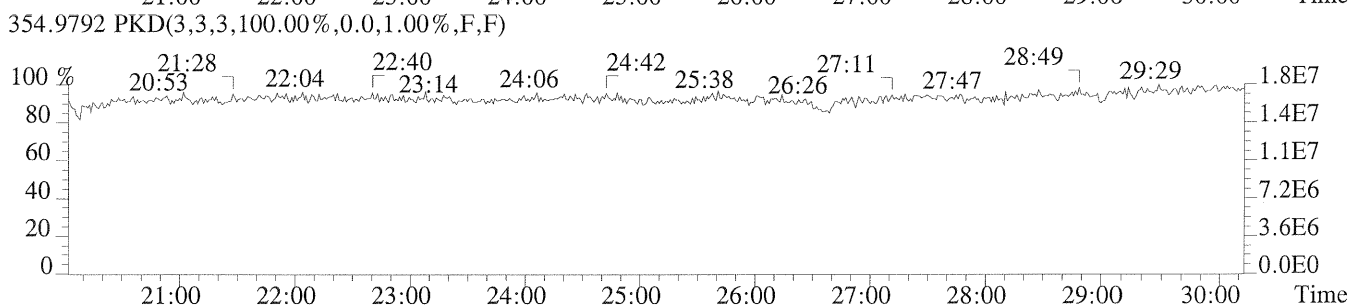
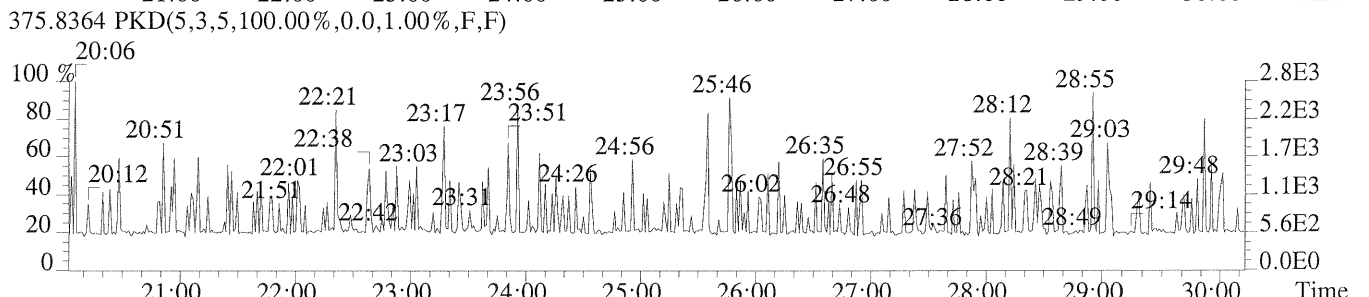
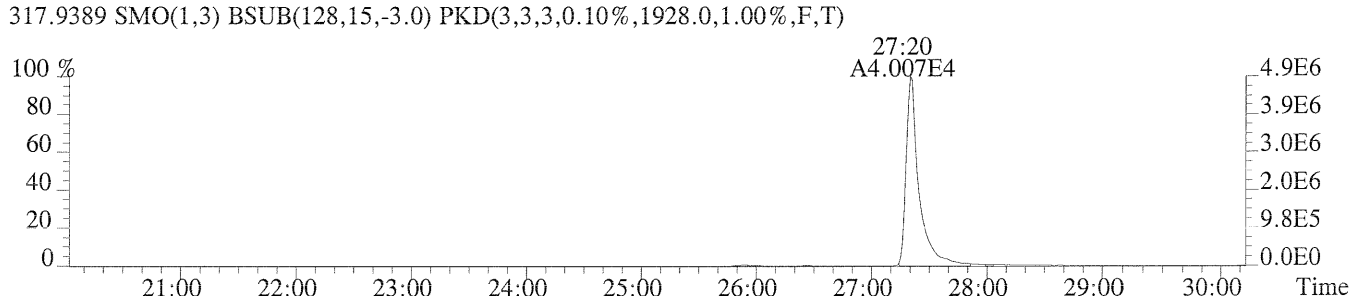
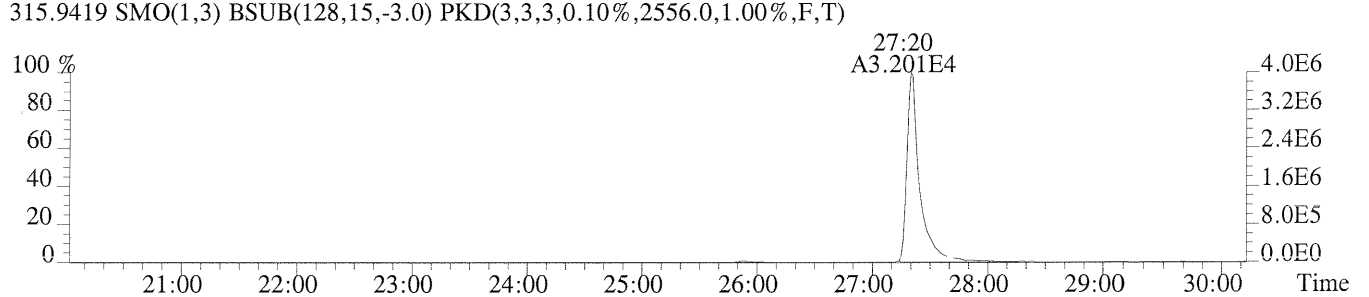
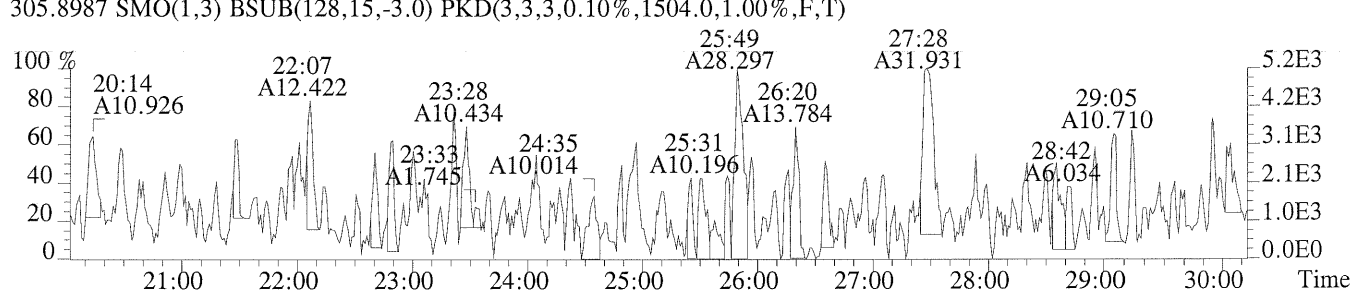
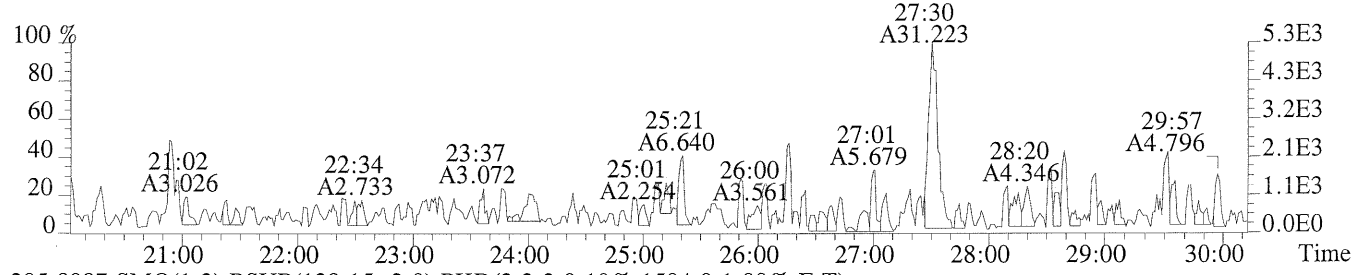
Run #16 Filename P230542 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 20:11:14  
Processed: 18-AUG-14 14:58:32 LAB. ID: P1403085-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.64e+02	*	*	1.50e+03	*
2	1,2,3,7,8-PeCDF	*	4.52e+02	*	*	1.41e+03	*
3	2,3,4,7,8-PeCDF	*	4.52e+02	*	*	1.41e+03	*
4	1,2,3,4,7,8-HxCDF	*	8.84e+02	*	*	2.64e+02	*
5	1,2,3,6,7,8-HxCDF	*	8.84e+02	*	*	2.64e+02	*
6	2,3,4,6,7,8-HxCDF	*	8.84e+02	*	*	2.64e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.84e+02	*	*	2.64e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	4.68e+02	*	*	3.00e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	4.68e+02	*	*	3.00e+02	*
10	OCDF	*	6.28e+02	*	*	1.56e+03	*
11	2,3,7,8-TCDD	*	1.44e+03	*	*	1.42e+03	*
12	1,2,3,7,8-PeCDD	*	1.46e+03	*	*	8.40e+01	*
13	1,2,3,4,7,8-HxCDD	*	5.20e+02	*	*	7.52e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.20e+02	*	*	7.52e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.20e+02	*	*	7.52e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	7.88e+02	*	*	5.00e+02	*
17	OCDD	2.69e+03	4.84e+02	5.6e+00	3.68e+03	7.36e+02	5.0e+00
18	13C-2,3,7,8-TCDF	3.98e+06	2.56e+03	1.6e+03	4.92e+06	1.93e+03	2.5e+03
19	13C-1,2,3,7,8-PeCDF	7.18e+06	2.05e+03	3.5e+03	4.44e+06	1.91e+03	2.3e+03
20	13C-2,3,4,7,8-PeCDF	7.87e+06	2.05e+03	3.8e+03	4.98e+06	1.91e+03	2.6e+03
21	13C-1,2,3,4,7,8-HxCDF	3.81e+06	1.52e+03	2.5e+03	7.33e+06	1.54e+03	4.8e+03
22	13C-1,2,3,6,7,8-HxCDF	4.60e+06	1.52e+03	3.0e+03	8.70e+06	1.54e+03	5.6e+03
24	13C-1,2,3,7,8,9-HxCDF	6.76e+06	1.52e+03	4.5e+03	1.25e+07	1.54e+03	8.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.30e+06	3.08e+03	7.5e+02	5.22e+06	2.40e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.77e+06	3.08e+03	5.7e+02	4.06e+06	2.40e+03	1.7e+03
27	13C-2,3,7,8-TCDD	3.38e+06	5.05e+03	6.7e+02	4.19e+06	2.64e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	5.48e+06	1.43e+03	3.8e+03	3.49e+06	8.44e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	5.95e+06	1.56e+03	3.8e+03	4.72e+06	1.28e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.32e+06	1.56e+03	4.1e+03	5.03e+06	1.28e+03	3.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.97e+06	1.39e+03	2.9e+03	3.68e+06	5.16e+02	7.1e+03
32	13C-OCDD	3.80e+06	9.14e+03	4.2e+02	4.22e+06	7.00e+03	6.0e+02
33	13C-1,2,3,4-TCDD	3.32e+07	5.05e+03	6.6e+03	4.17e+07	2.64e+03	1.6e+04
34	13C-1,2,3,7,8,9-HxCDD	4.74e+07	1.56e+03	3.0e+04	3.75e+07	1.28e+03	2.9e+04
35	37Cl-2,3,7,8-TCDD	8.52e+06	9.24e+02	9.2e+03			

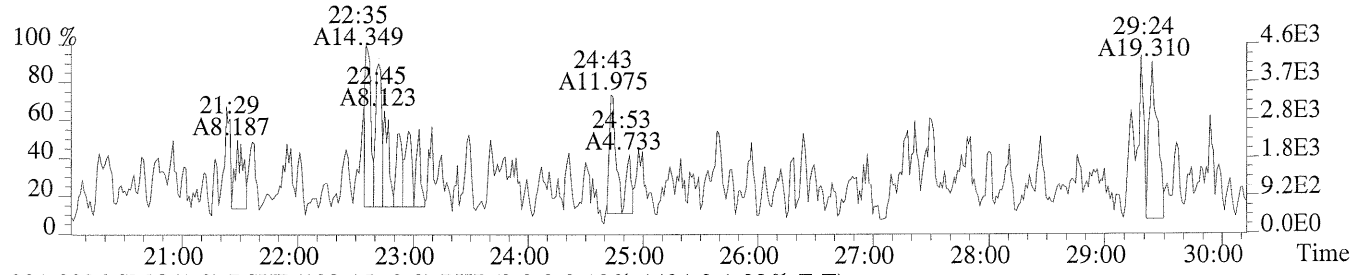
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

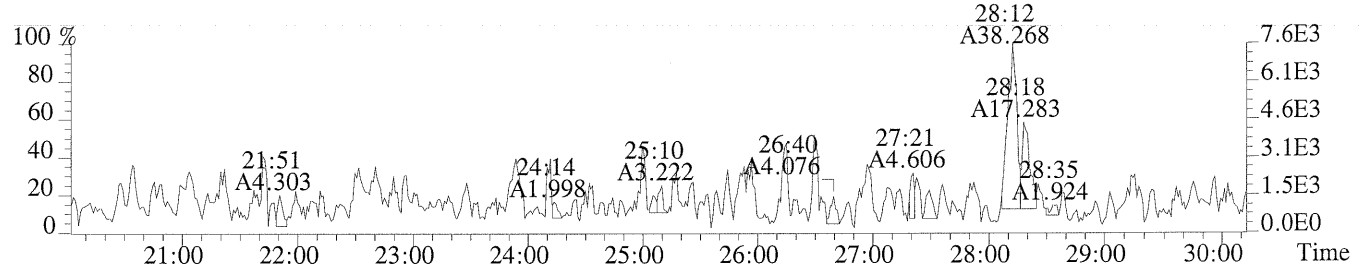
File:P230542 #1-640 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-007  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



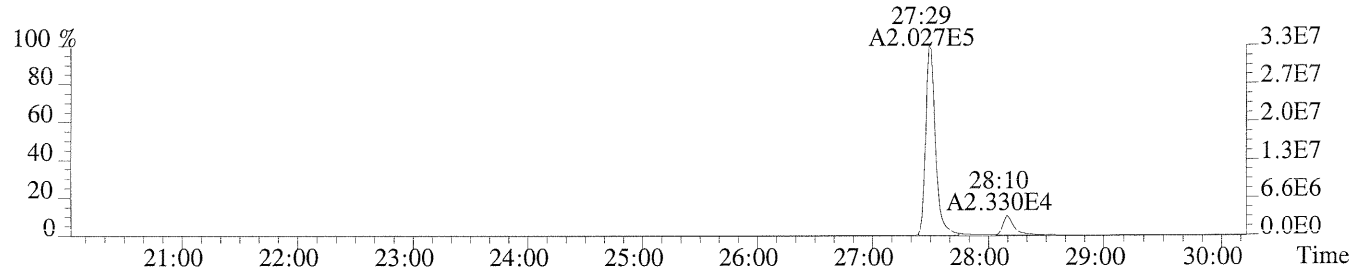
File:P230542 #1-640 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-007  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



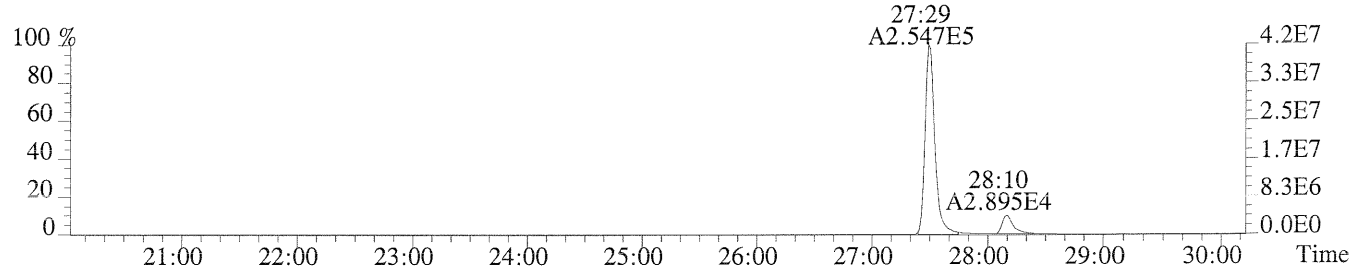
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



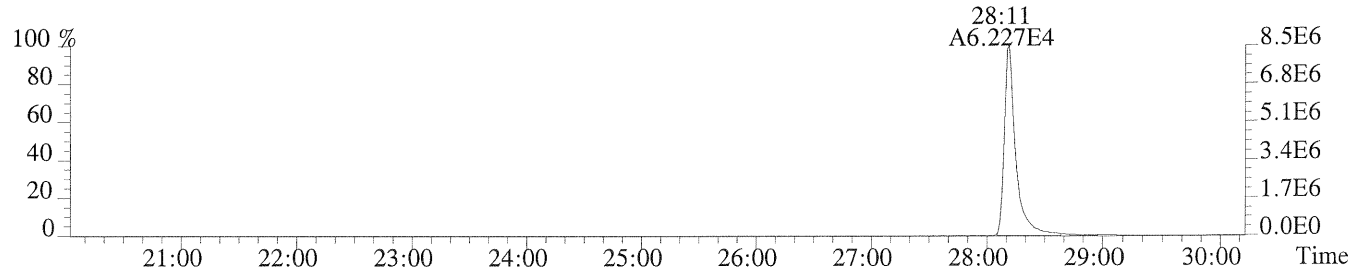
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5048.0,1.00%,F,T)



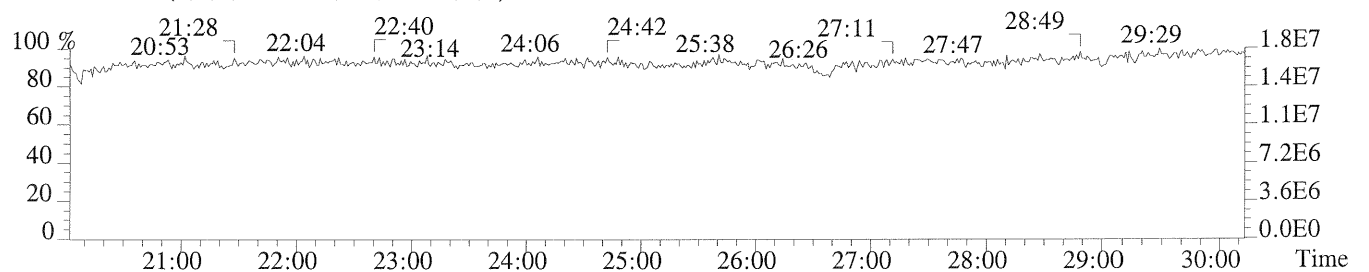
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2644.0,1.00%,F,T)



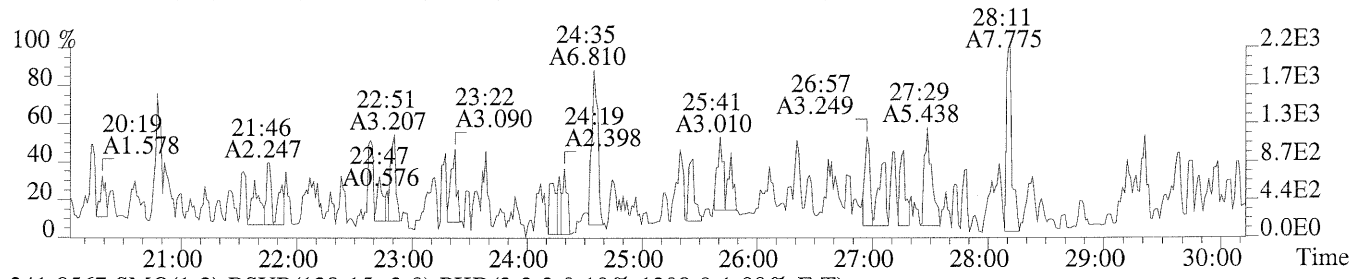
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



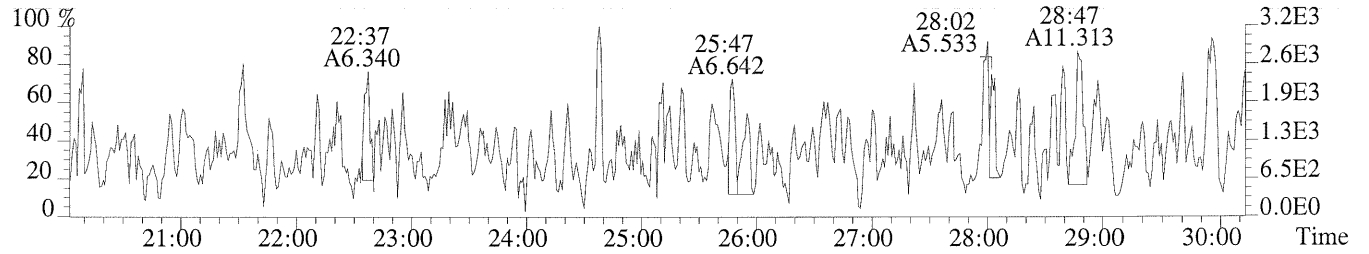
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



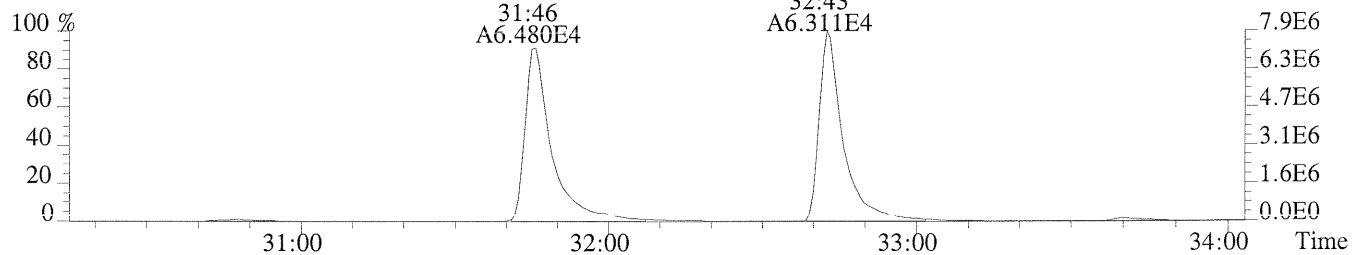
File:P230542 #1-640 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-007  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



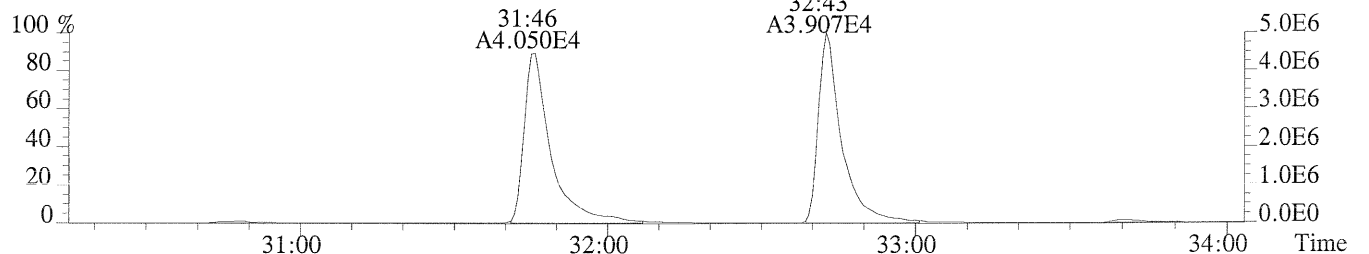
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



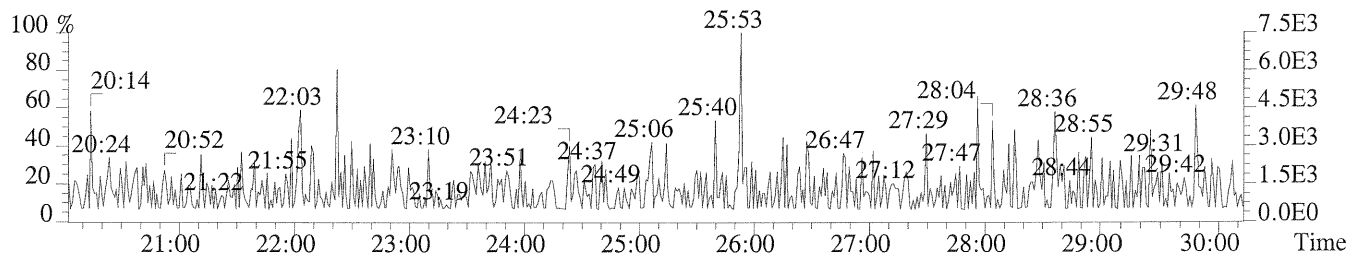
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2048.0,1.00%,F,T)



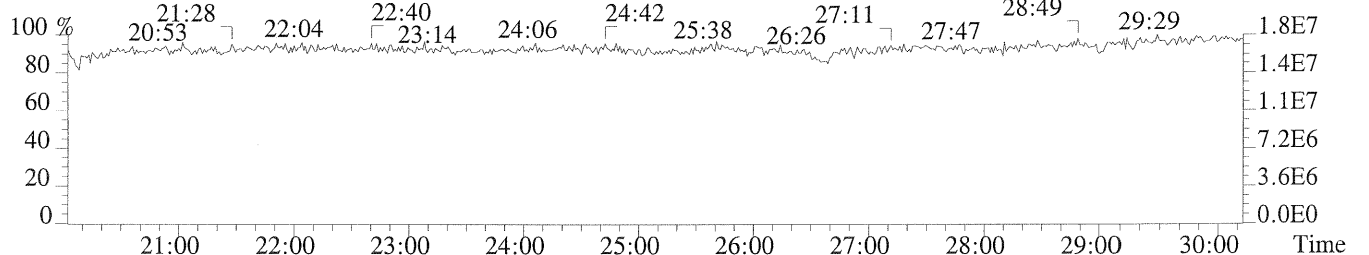
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



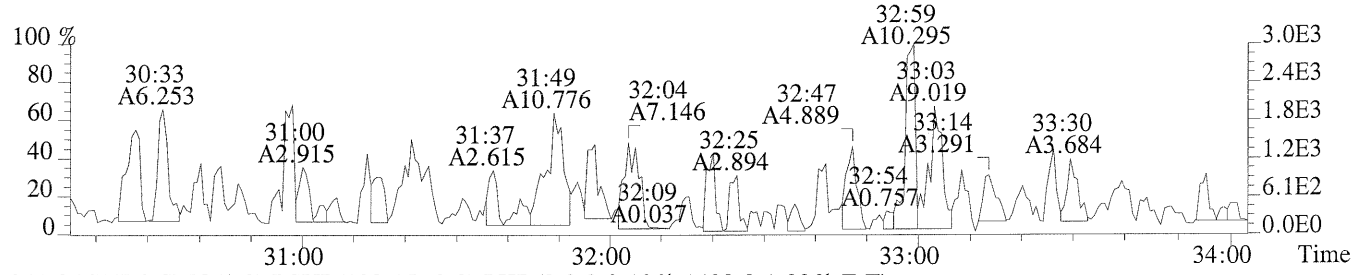
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



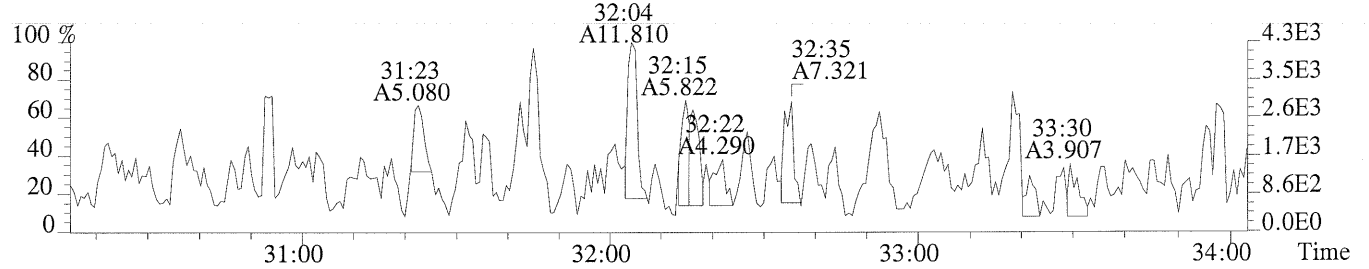
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



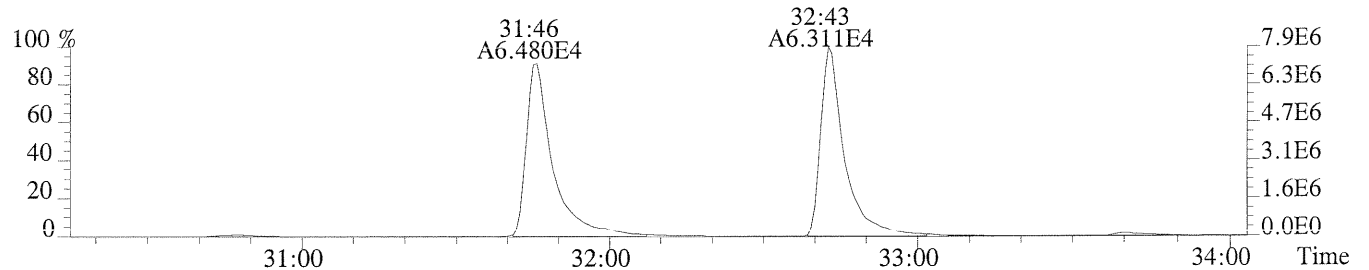
File:P230542 #1-346 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-007  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



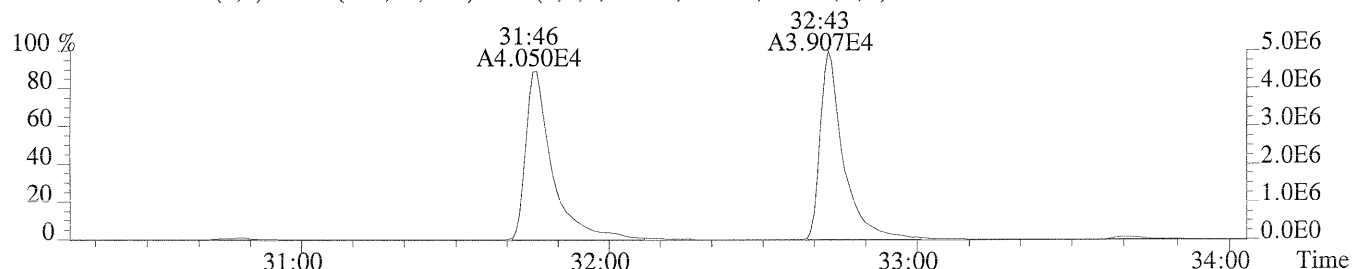
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



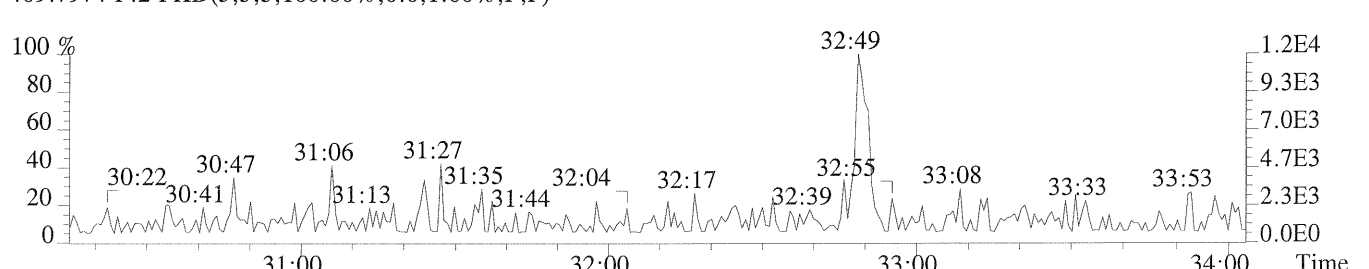
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2048.0,1.00%,F,T)



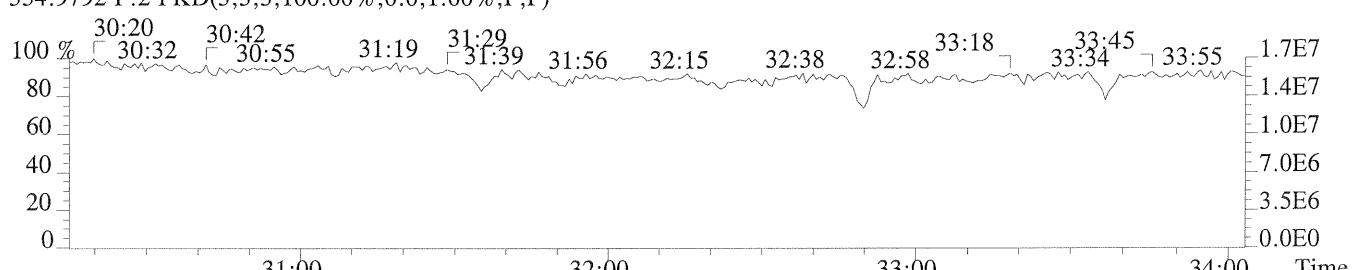
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



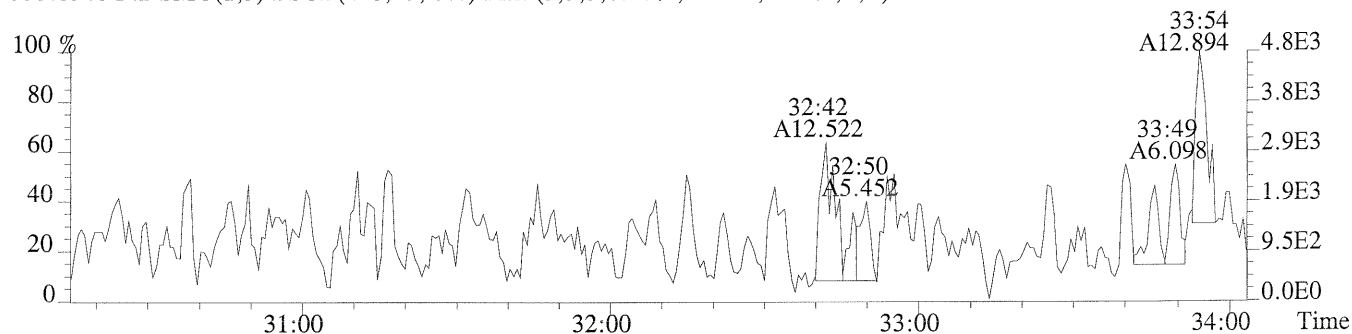
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



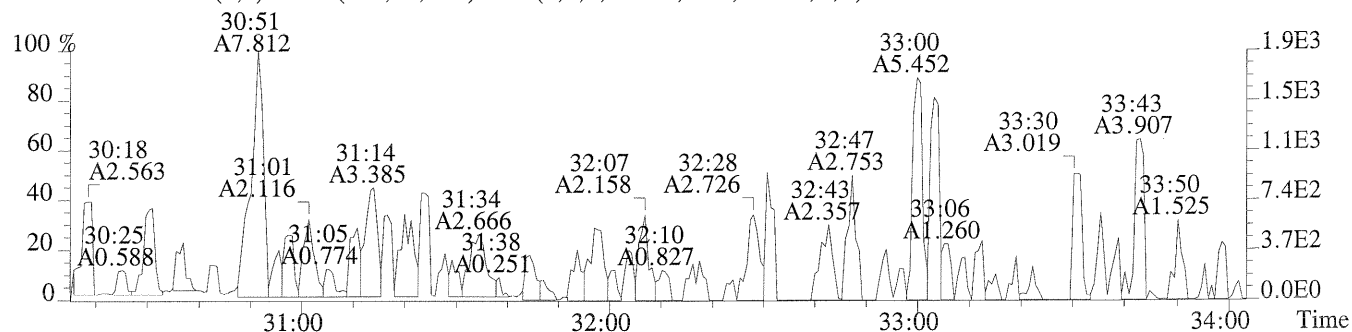
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



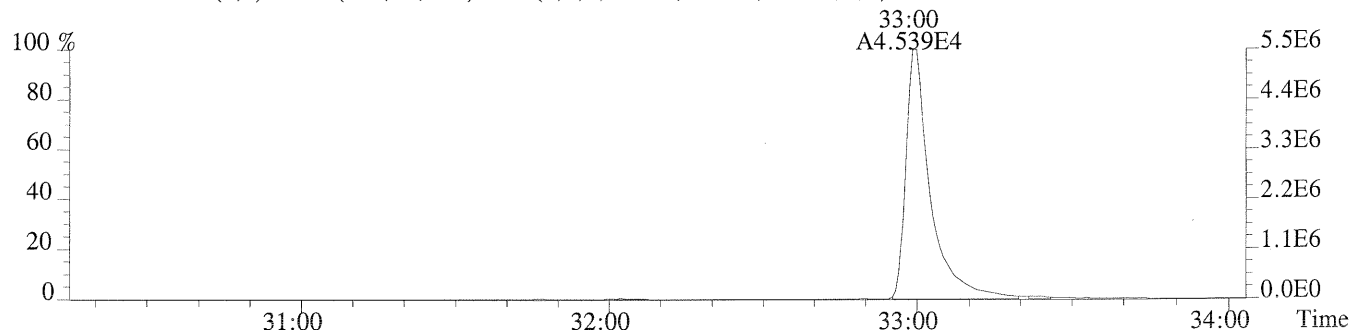
File:P230542 #1-346 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-007  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



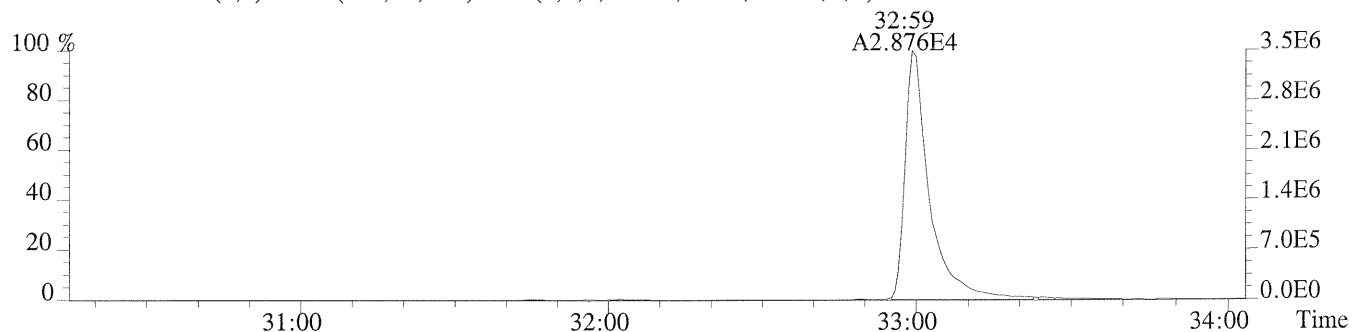
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,84.0,1.00%,F,T)



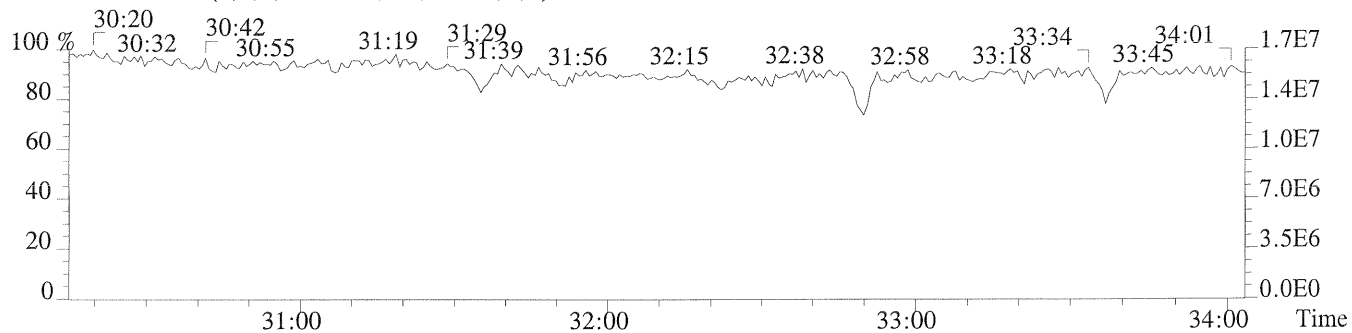
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



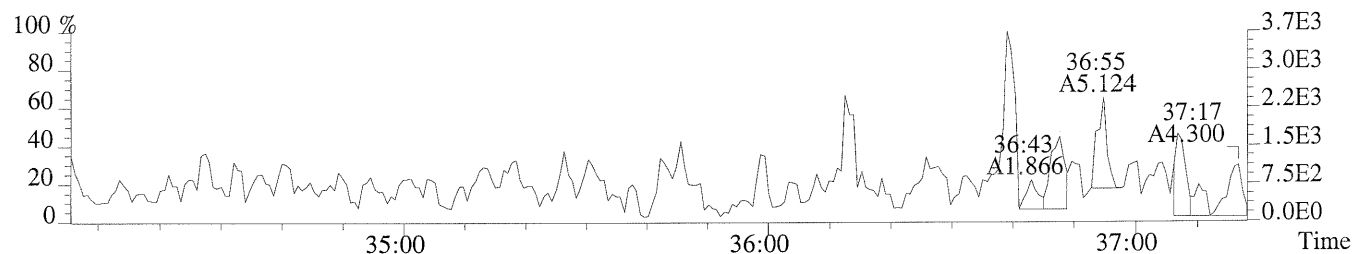
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



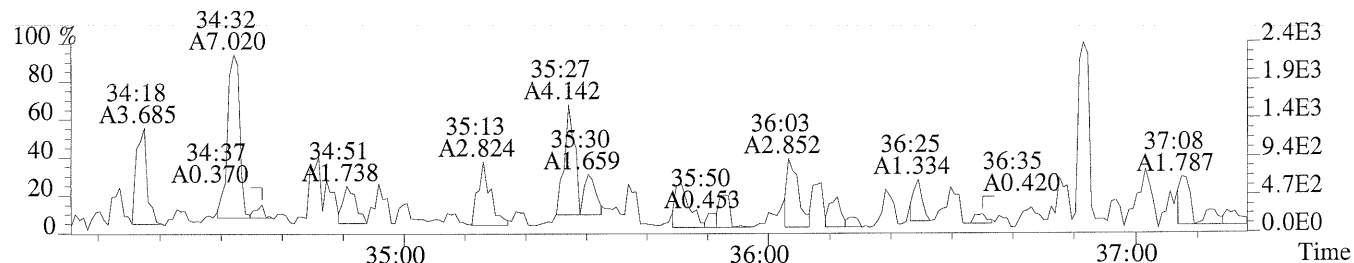
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



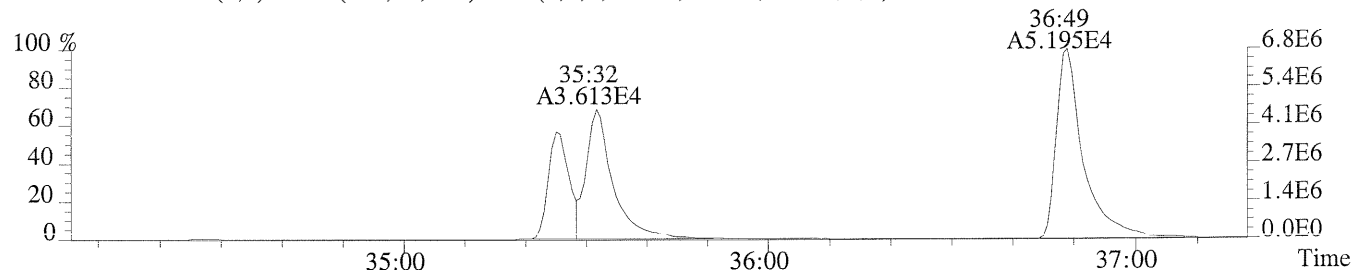
File:P230542 #1-292 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-007  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,884.0,0.40%,F,T)



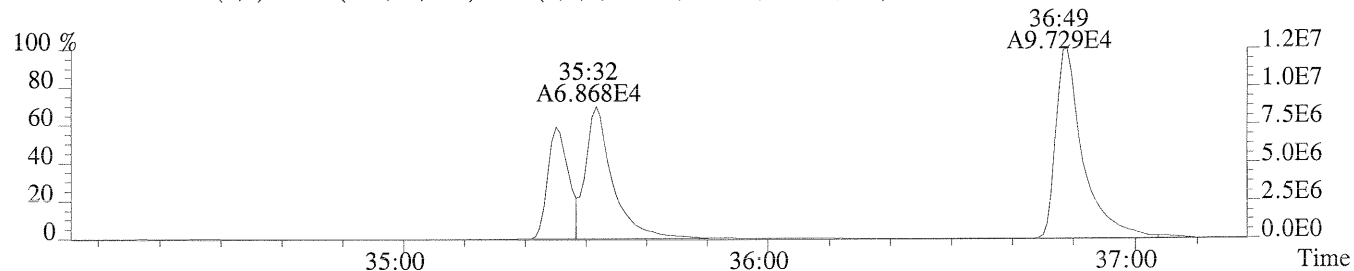
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



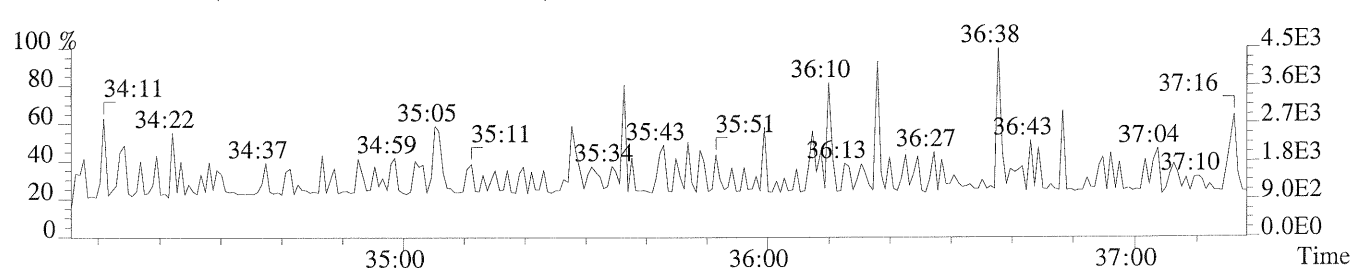
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



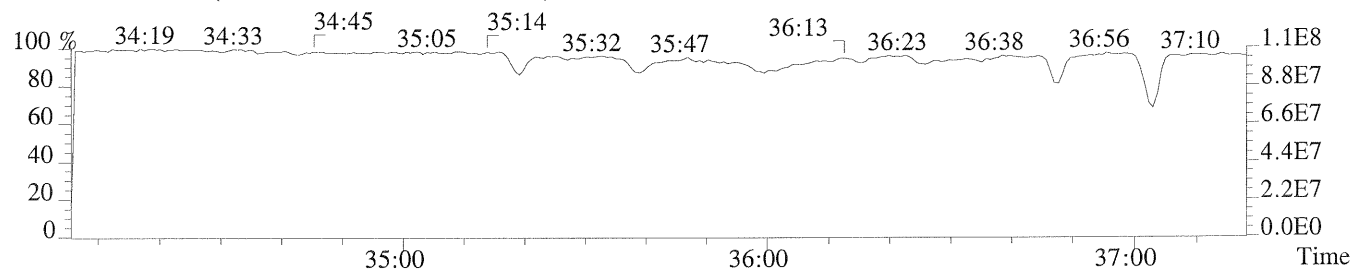
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.40%,F,T)



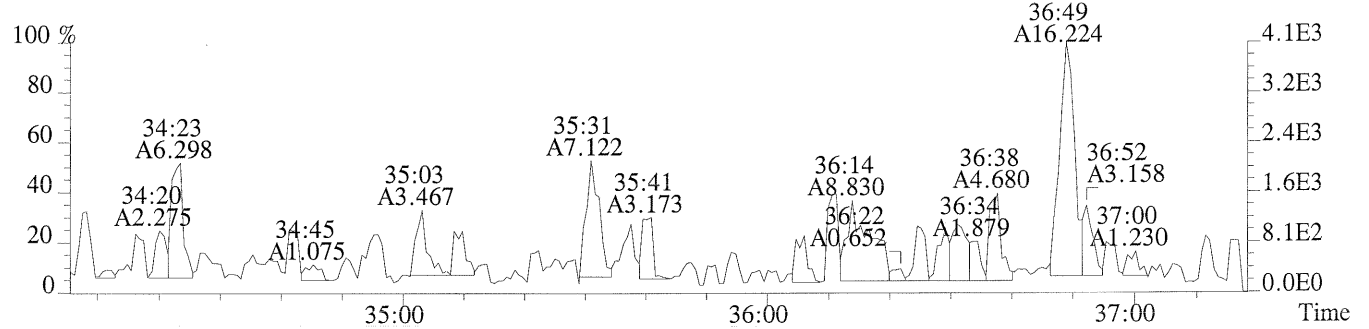
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



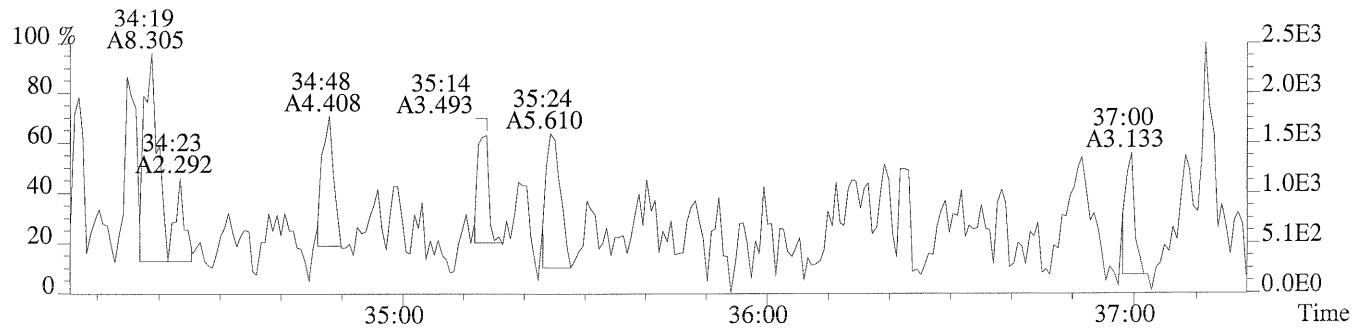
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



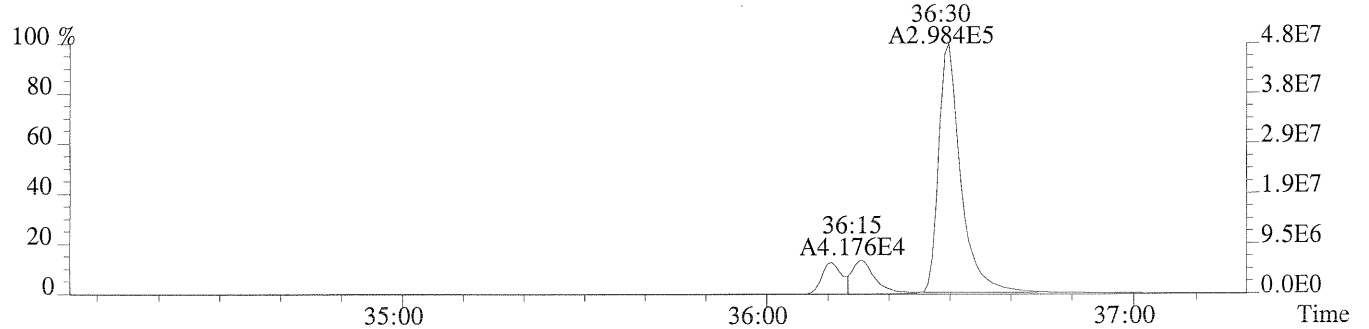
File:P230542 #1-292 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectr  
 Sample#1 Exp:P1403085-007  
 389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



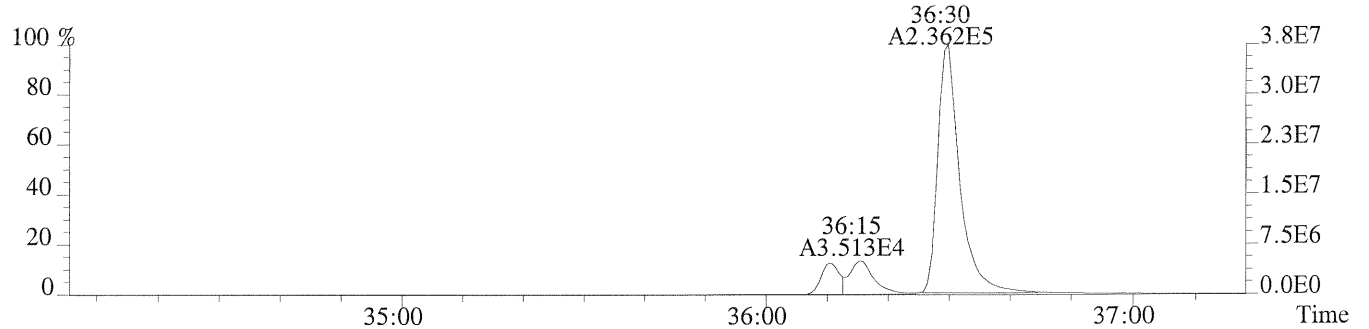
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



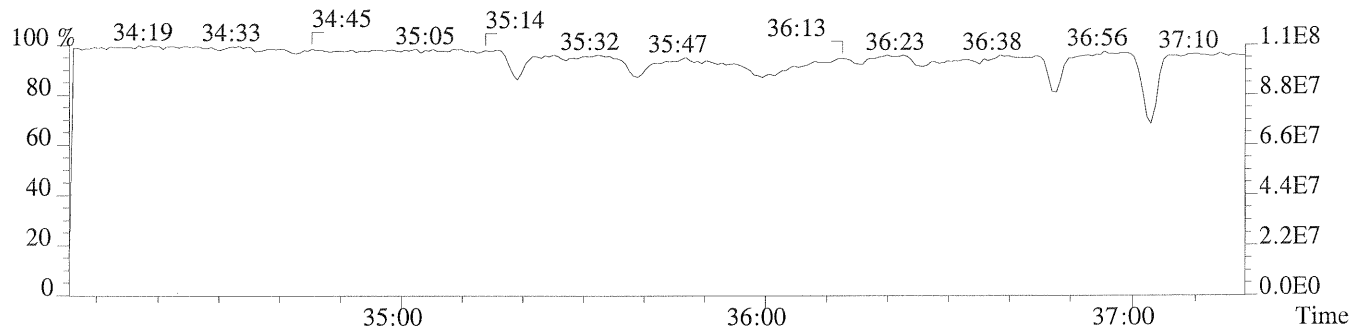
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)

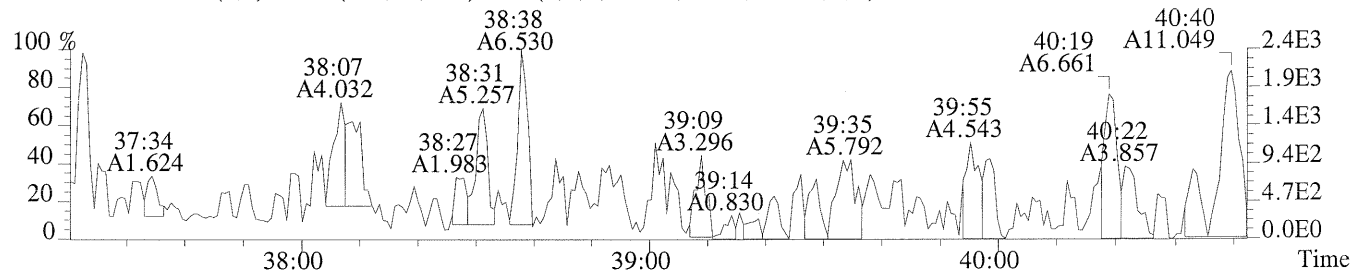


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

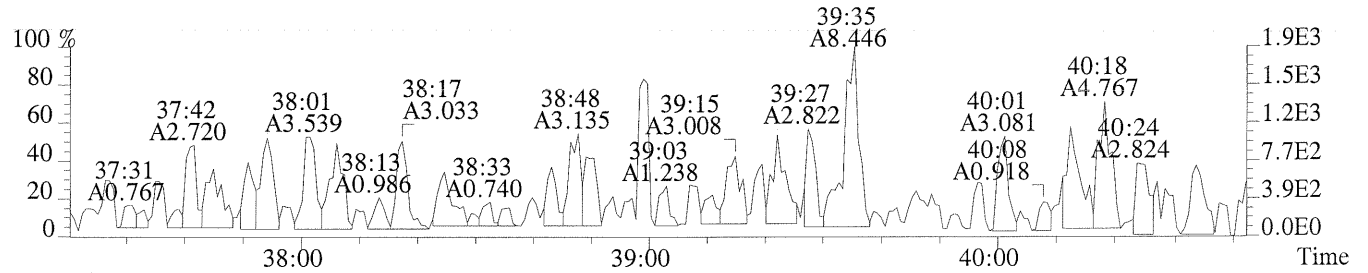




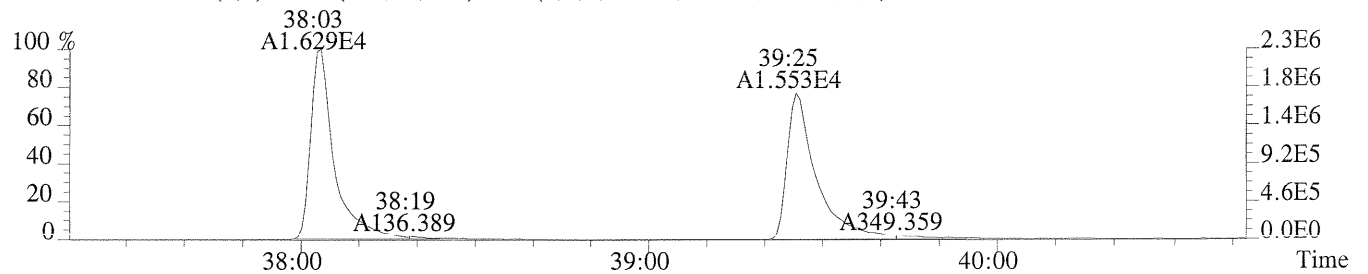
File:P230542 #1-306 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-007  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.50%,F,T)



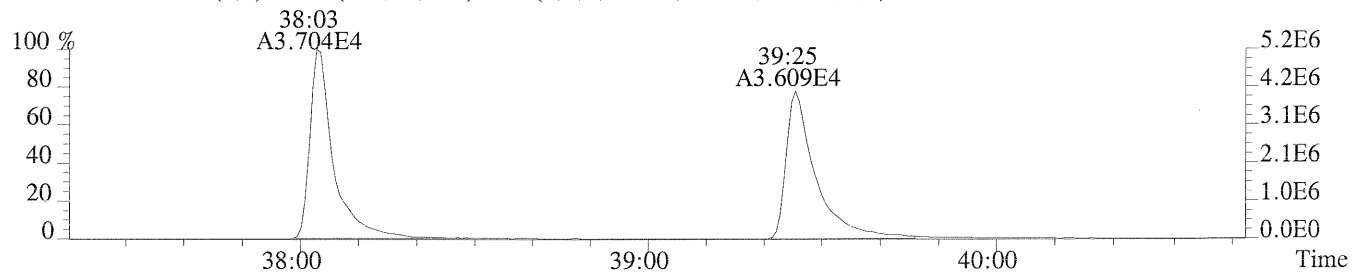
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.50%,F,T)



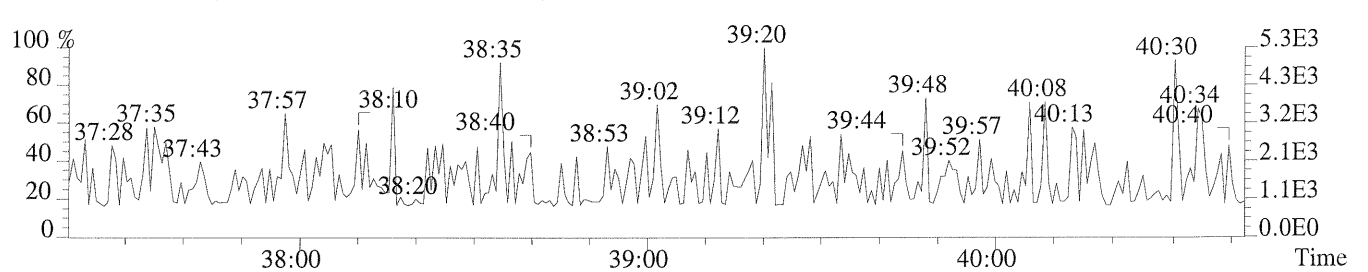
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3080.0,0.50%,F,T)



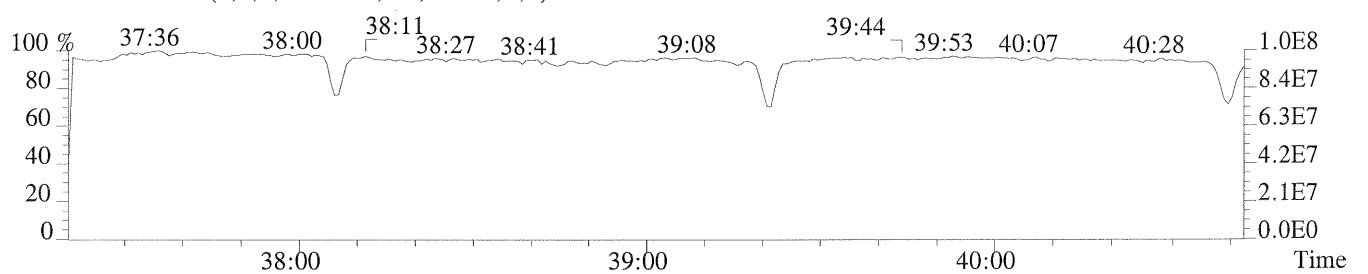
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2404.0,0.50%,F,T)

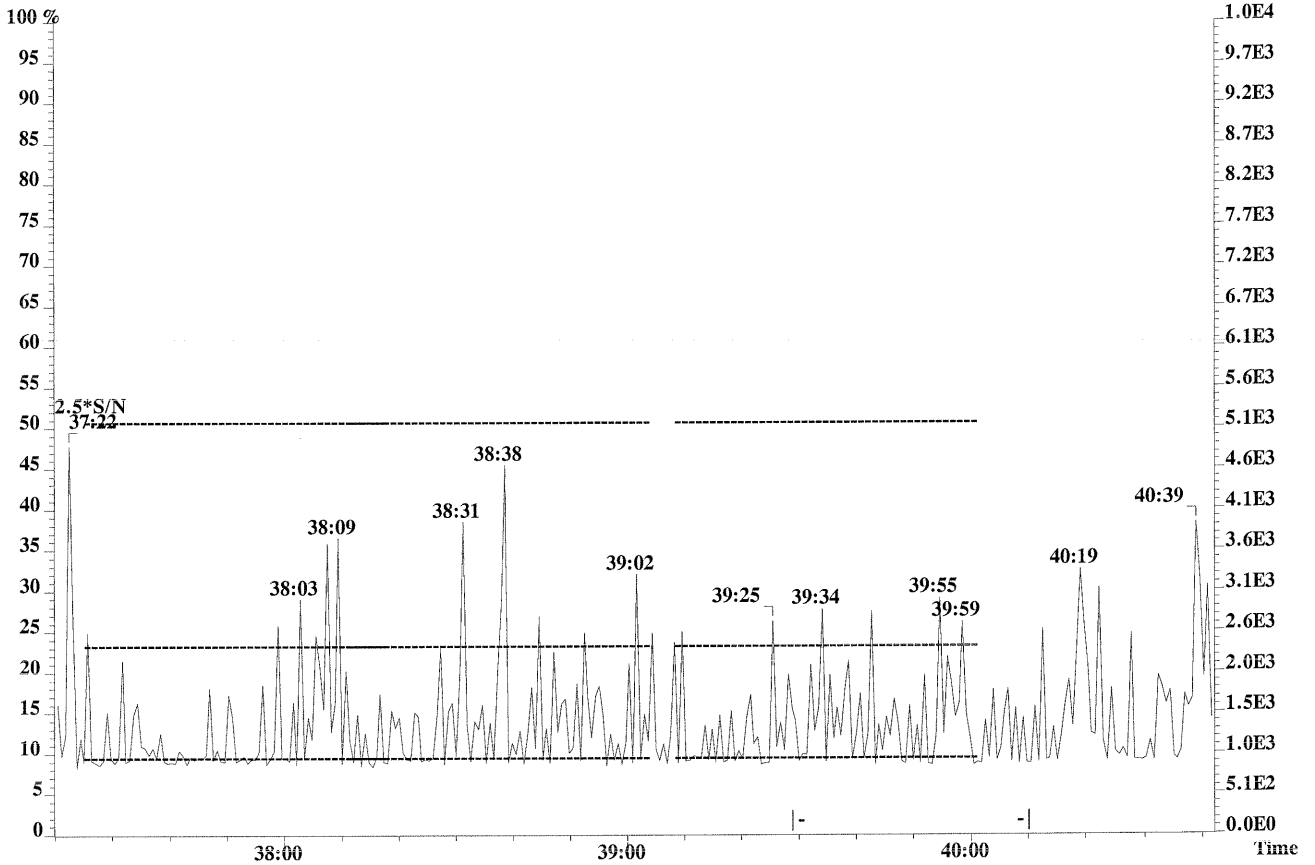


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

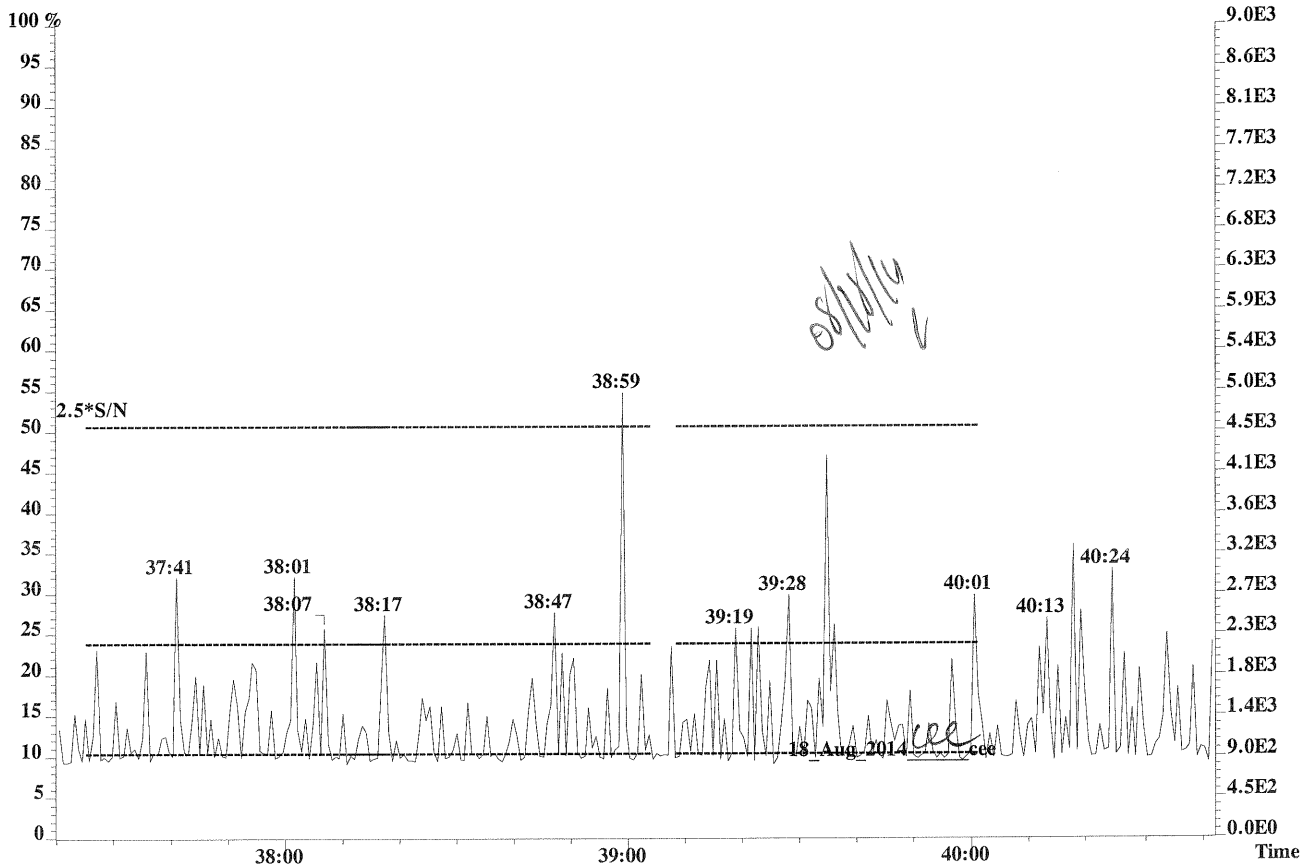


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

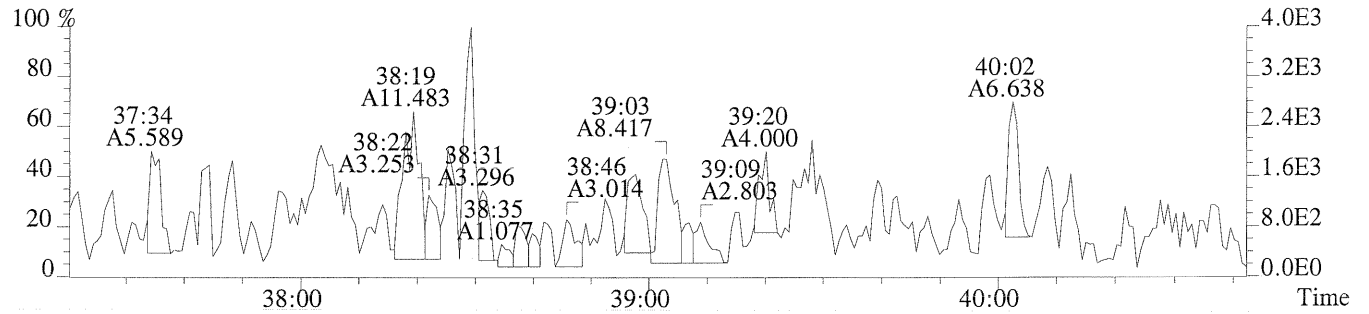




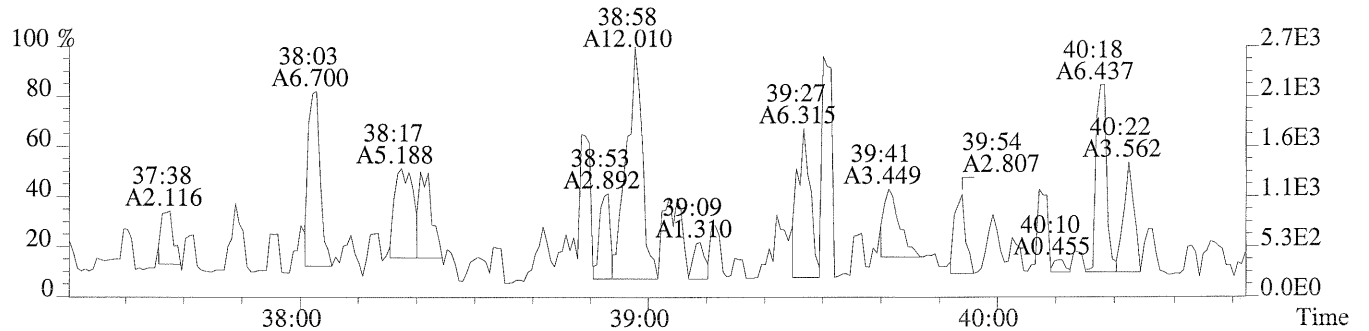
409.7789 F:4



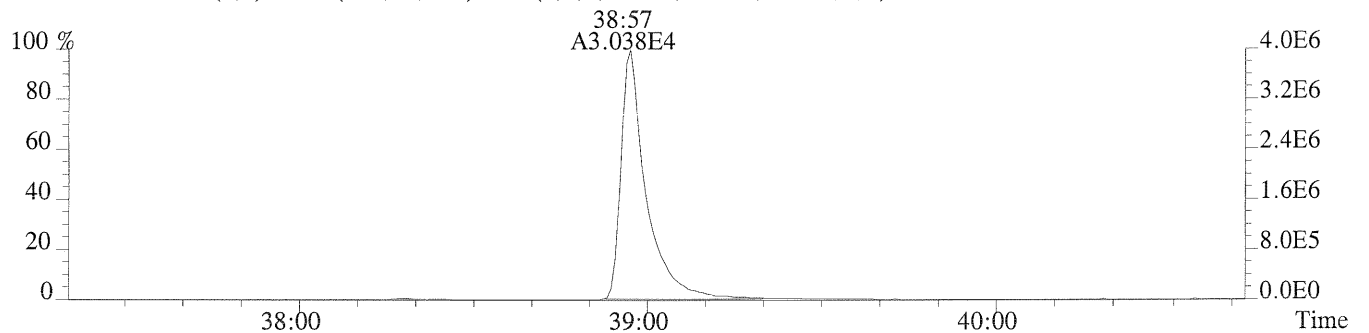
File:P230542 #1-306 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectf  
 Sample#1 Exp:P1403085-007  
 423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



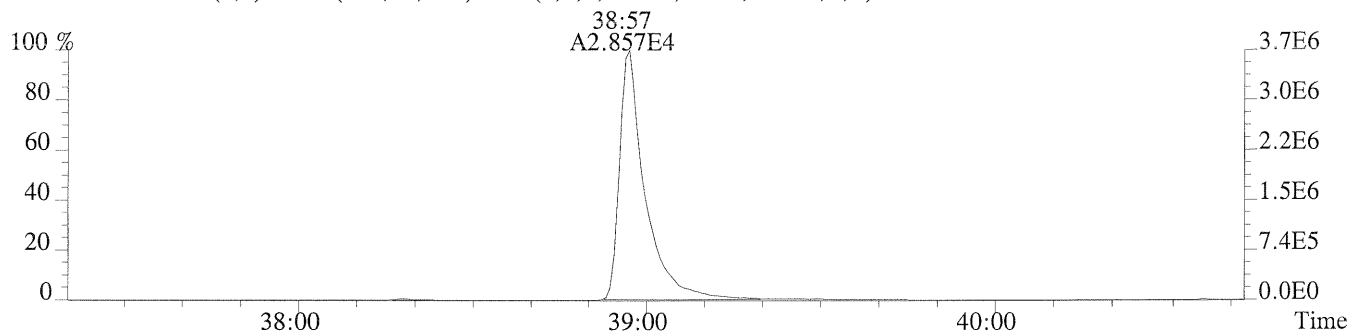
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



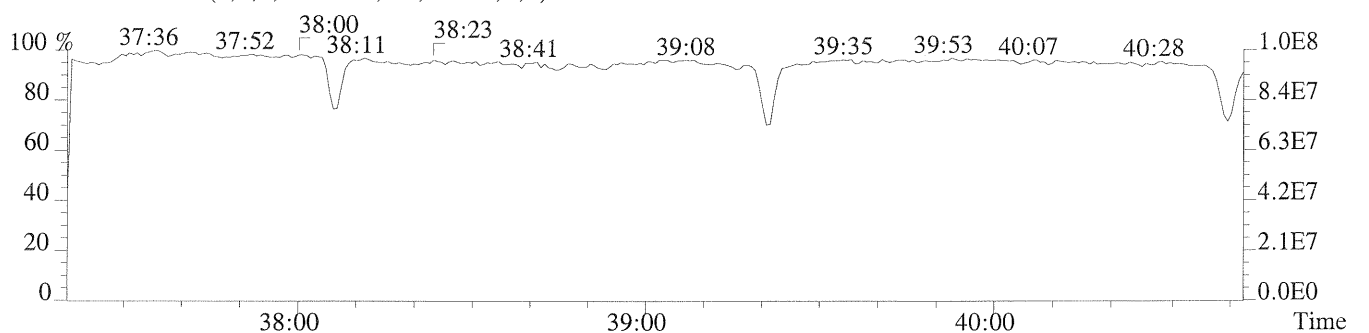
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



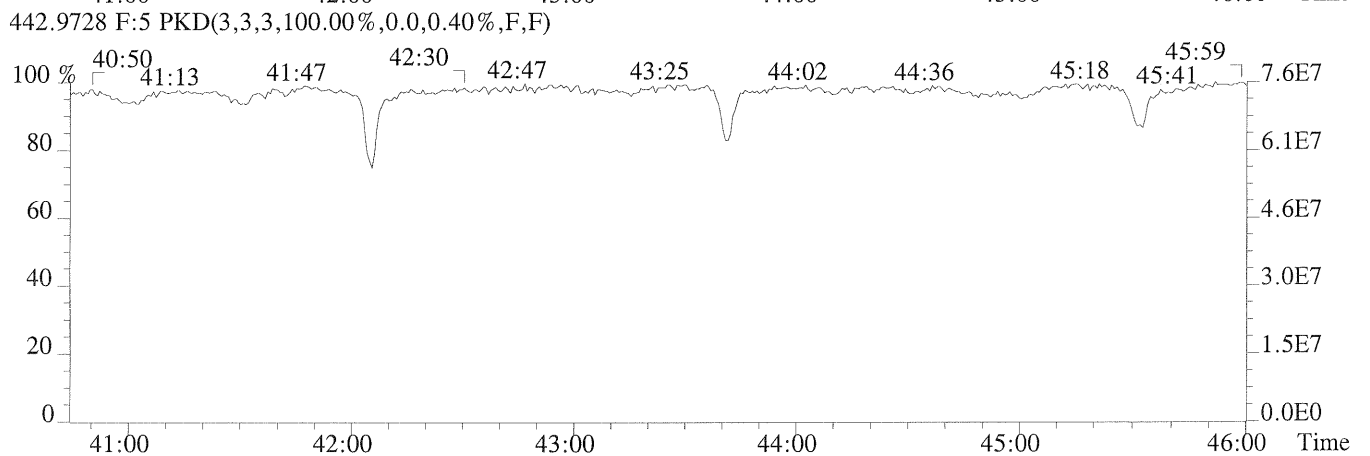
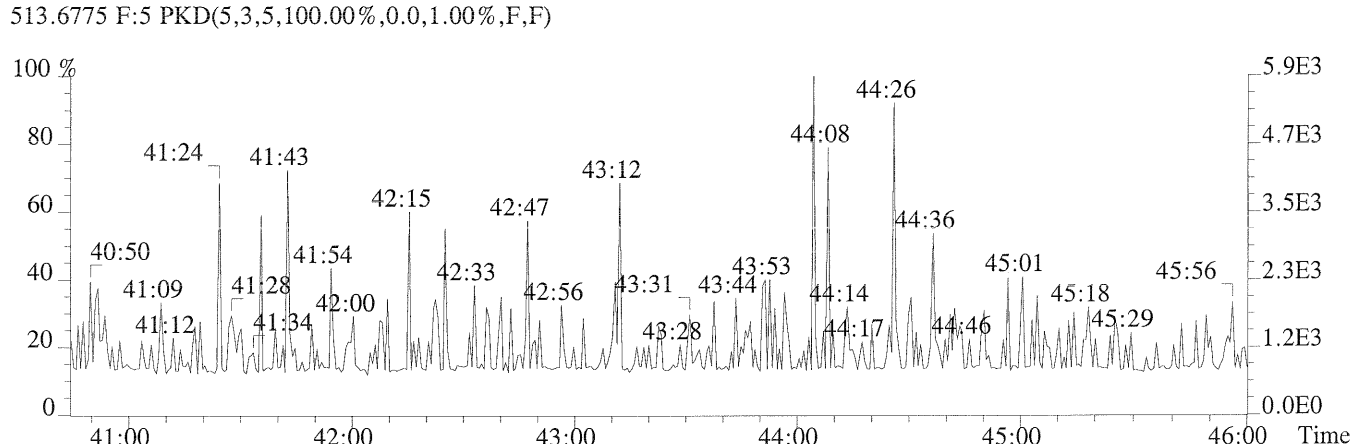
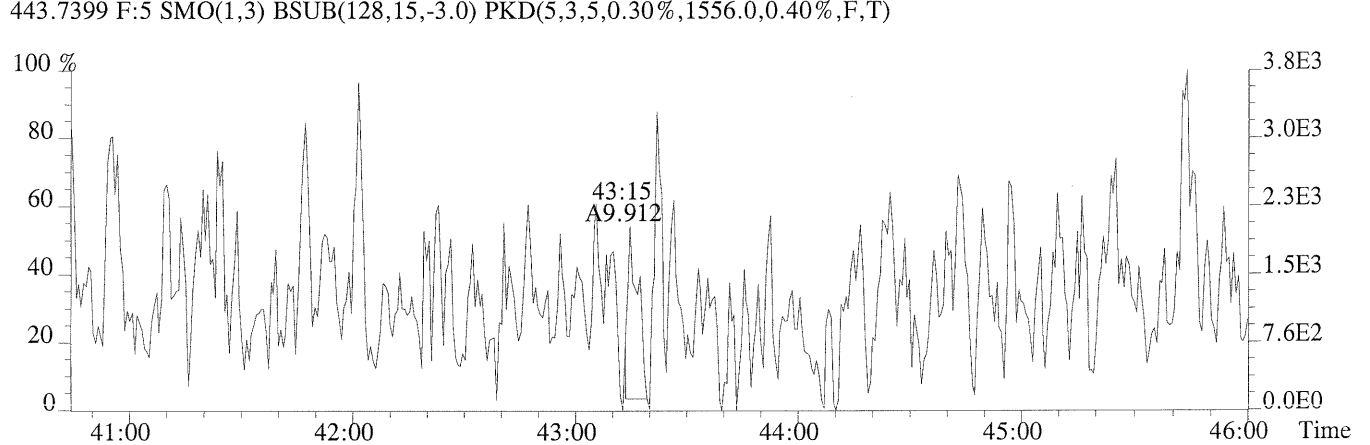
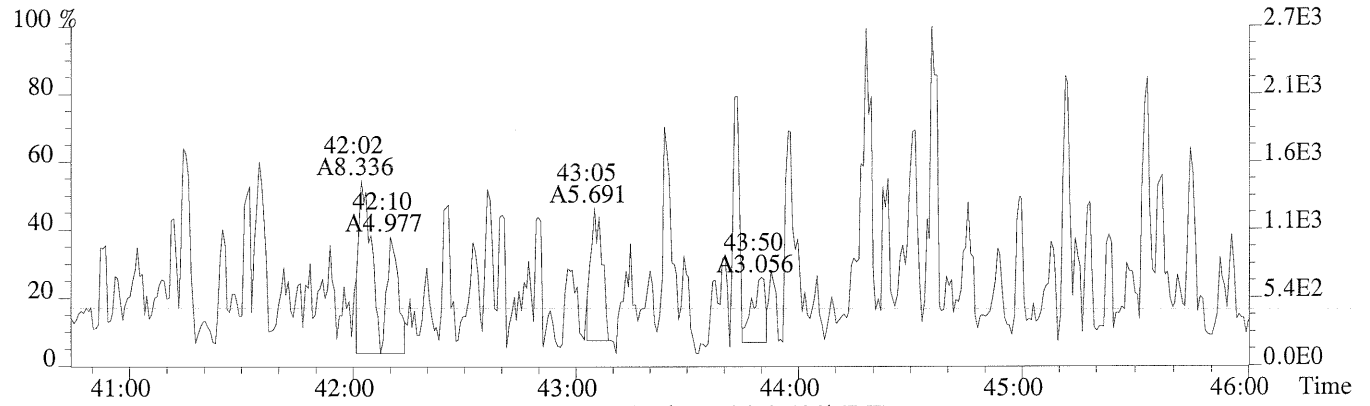
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



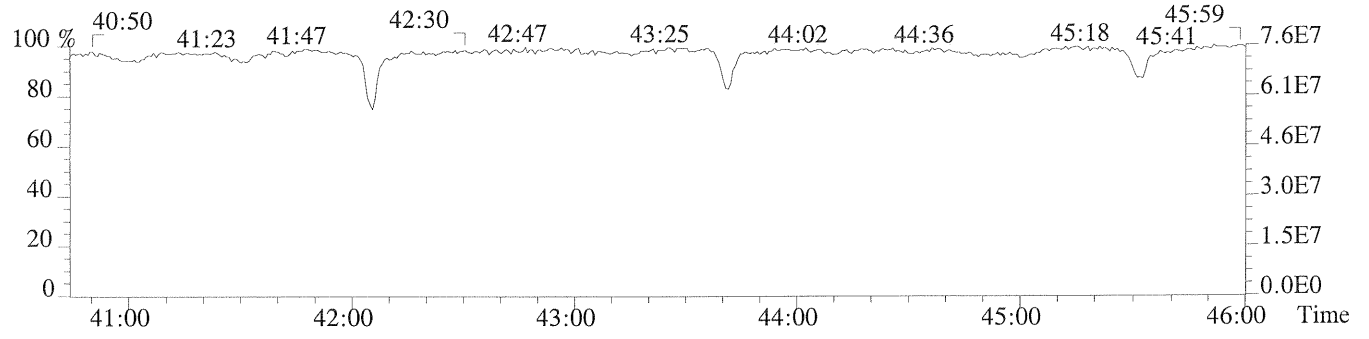
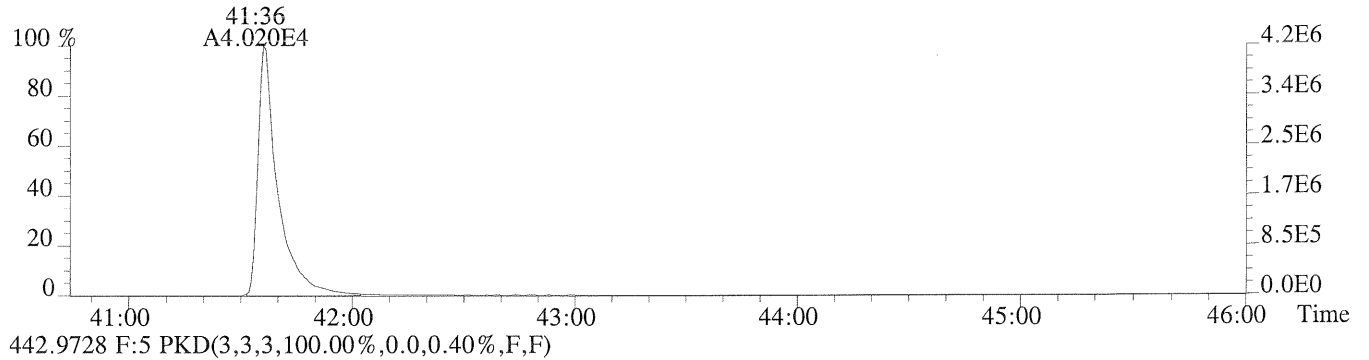
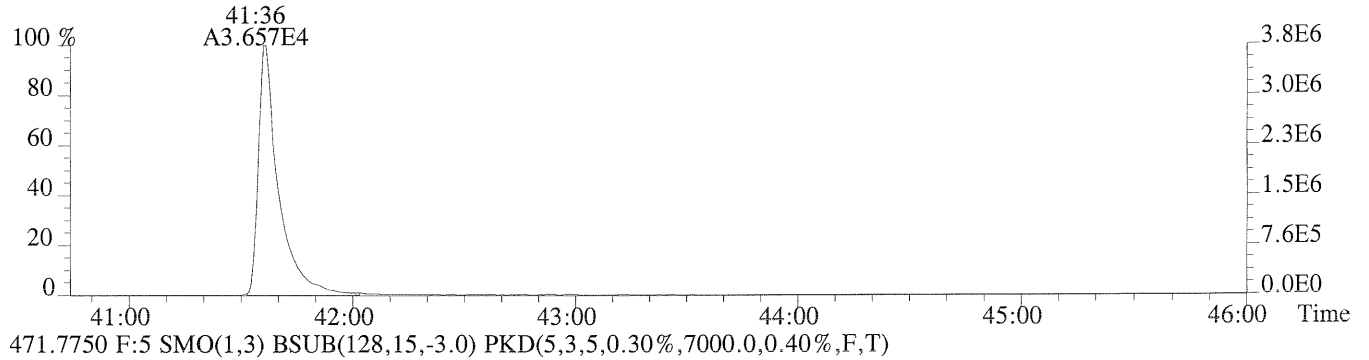
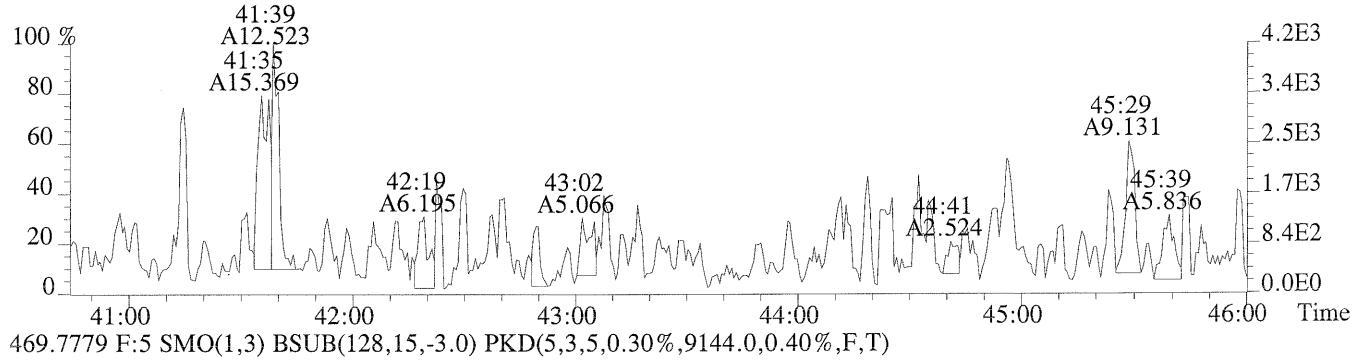
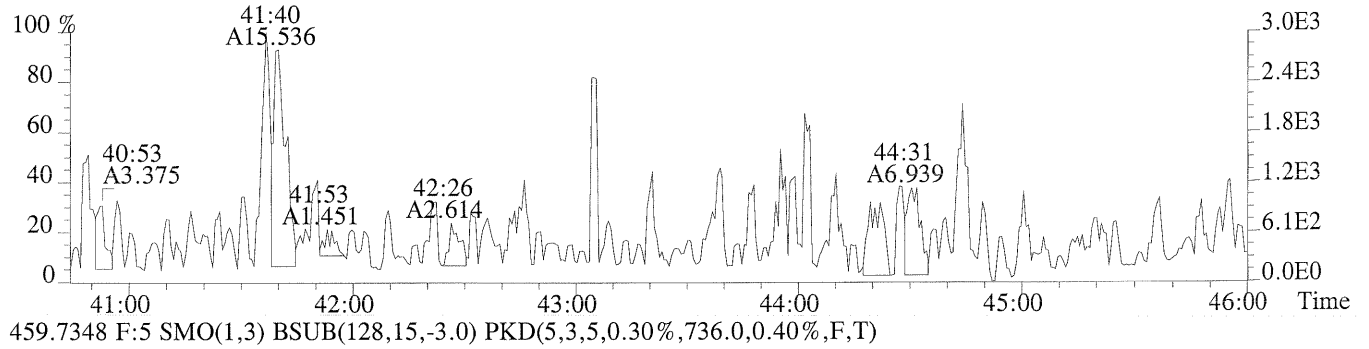
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

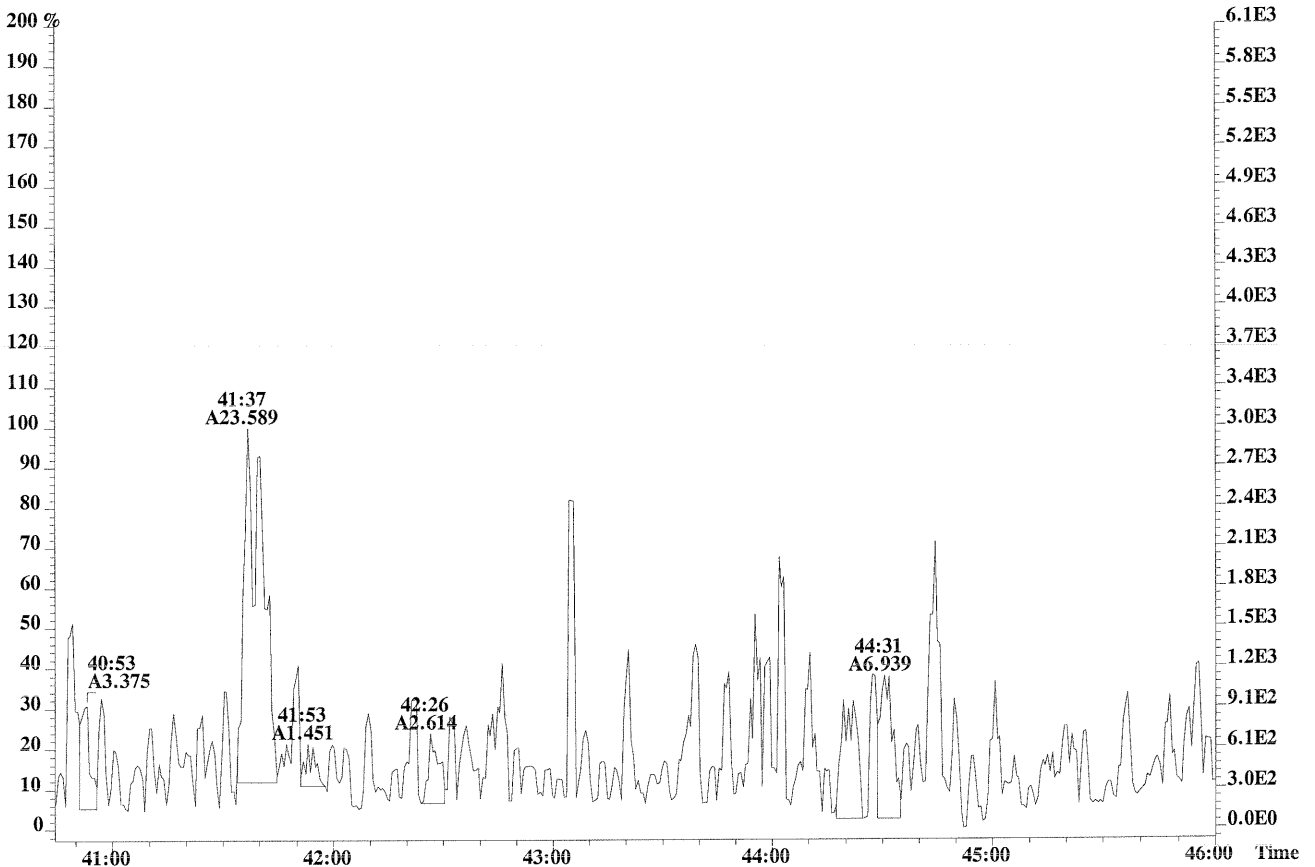


File:P230542 #1-484 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-007  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)

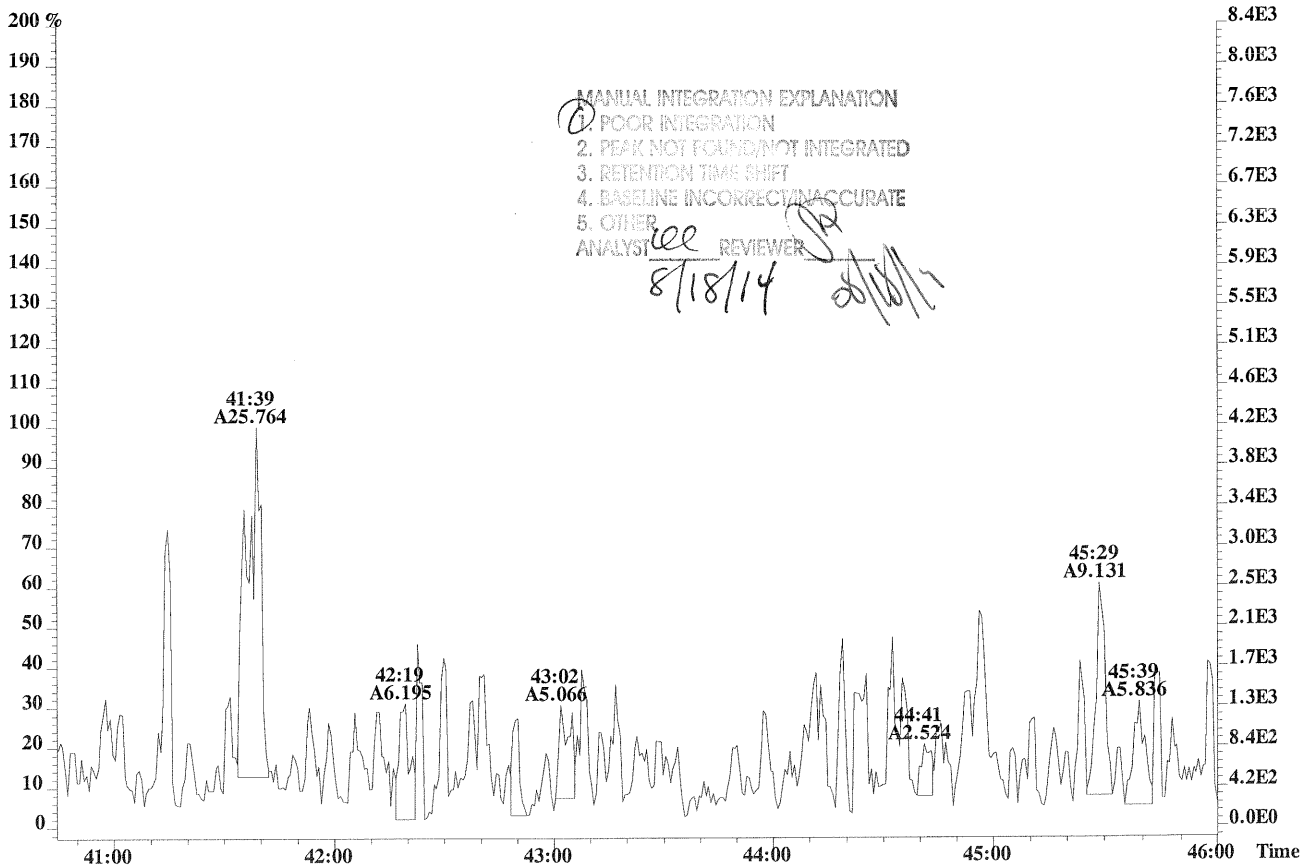


File:P230542 #1-484 Acq:15-AUG-2014 20:11:14 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-007  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,484.0,0.40%,F,T)





459.7348 F: 5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



Sample Response Summary

Run #17 Filename P230543 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 20:59:07  
 Processed: 18-AUG-14 15:01:39 LAB. ID: P1403085-008

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.959
2 Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.955
3 Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	0.868
5 Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.157
6 Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	0.963
7 Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.113
10 Unk	OCDF	NotFnd	*	*	*	no	no	1.392
11 Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.981
12 Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.982
13 Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.916
14 Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.142
15 Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.104
17 Unk	OCDD	NotFnd	*	*	*	no	yes	1.181
18 IS	13C-2,3,7,8-TCDF	27:21	3.415e+04	4.266e+04	0.80	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:46	6.781e+04	4.270e+04	1.59	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	6.485e+04	4.054e+04	1.60	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:26	2.314e+04	4.462e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	3.834e+04	7.340e+04	0.52	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:49	4.852e+04	9.317e+04	0.52	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	1.756e+04	4.087e+04	0.43	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:26	1.622e+04	3.721e+04	0.44	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:11	2.411e+04	3.109e+04	0.78	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	32:60	4.842e+04	3.014e+04	1.61	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:11	3.236e+04	2.529e+04	1.28	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:16	4.630e+04	3.598e+04	1.29	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	3.300e+04	3.088e+04	1.07	yes	no	0.925
32 IS	13C-OCDD	41:37	3.971e+04	4.404e+04	0.90	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:30	2.097e+05	2.666e+05	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:30	3.112e+05	2.468e+05	1.26	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:11	6.536e+04				no	0.960

$$\begin{aligned}
 & \text{OCDD} = \frac{(5.12e+02 + 9.72e+02) \times (4000.0)}{(3.971e+04 + 4.404e+04)} \times 1.181 \times 0.500 \\
 & \hspace{10em} = 2.85 \text{ pg}
 \end{aligned}$$

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
731BlankdDF

Method M23

Run #17 Filename P230543 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 20:59:07  
Processed: 18-AUG-14 15:01:39 LAB. ID: P1403085-008

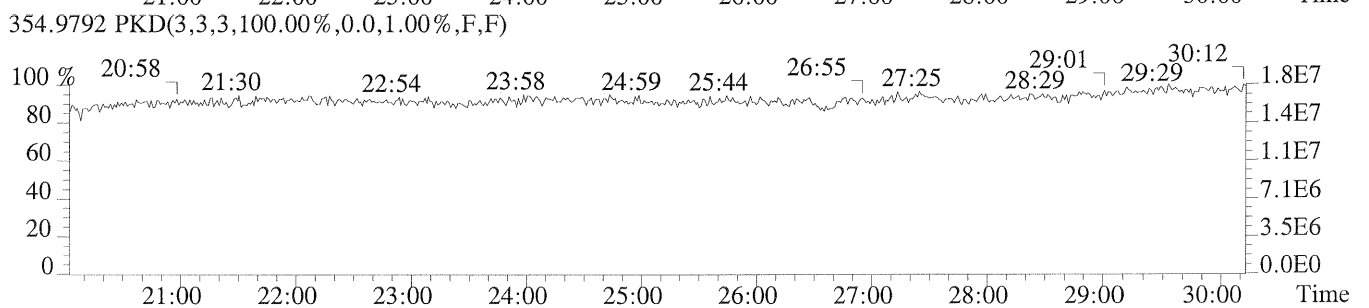
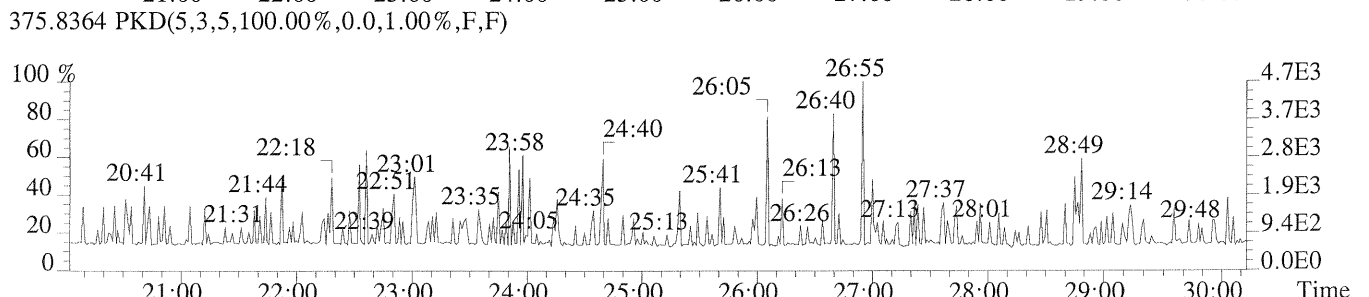
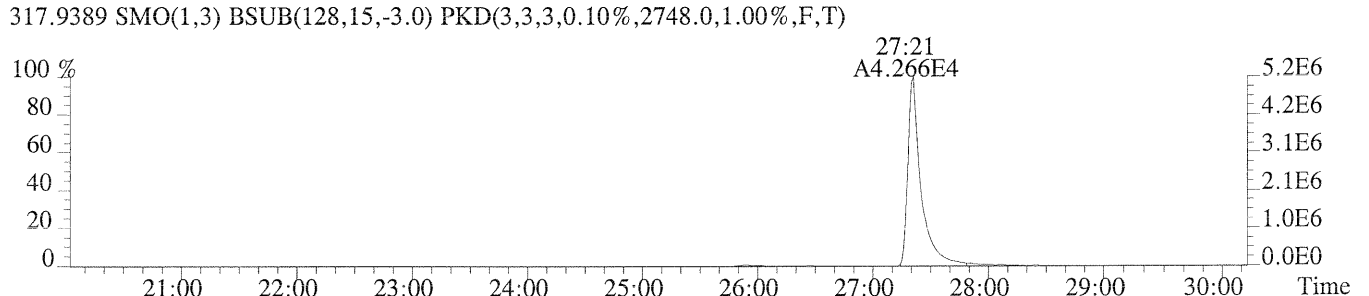
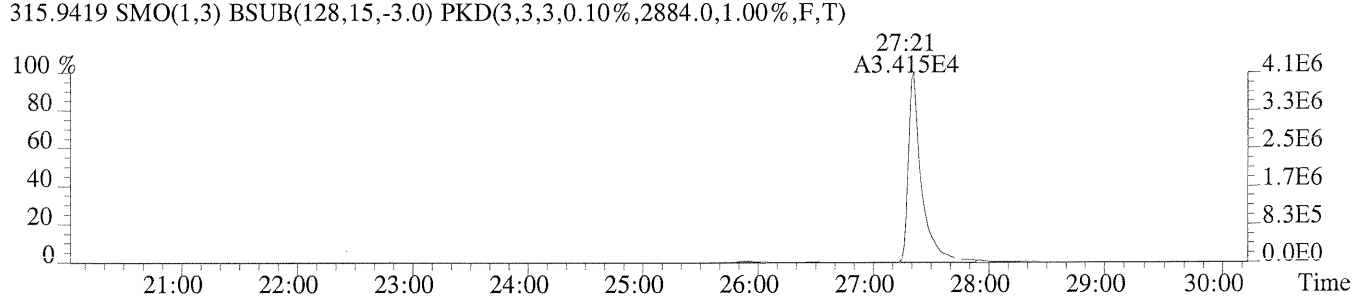
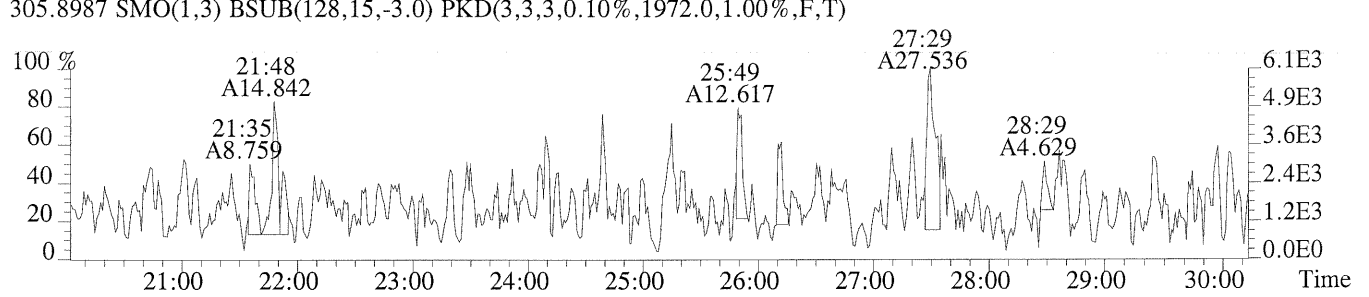
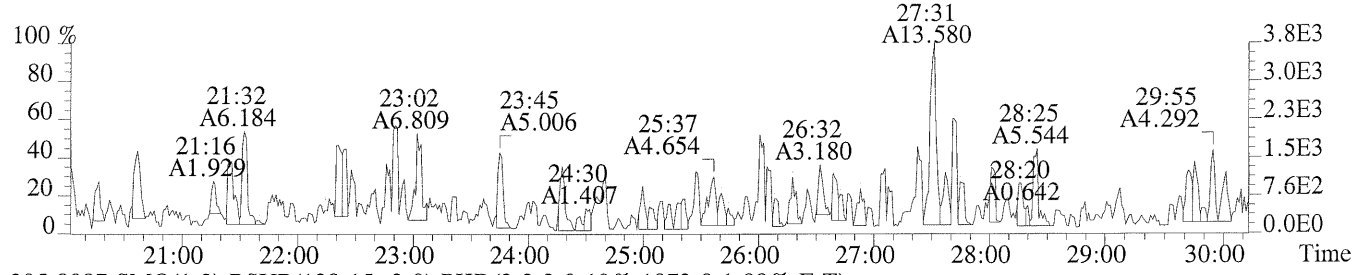
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.72e+02	*	*	1.97e+03	*
2	1,2,3,7,8-PeCDF	*	2.32e+02	*	*	1.44e+03	*
3	2,3,4,7,8-PeCDF	*	2.32e+02	*	*	1.44e+03	*
4	1,2,3,4,7,8-HxCDF	*	7.12e+02	*	*	2.80e+02	*
5	1,2,3,6,7,8-HxCDF	*	7.12e+02	*	*	2.80e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.12e+02	*	*	2.80e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.12e+02	*	*	2.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	6.12e+02	*	*	9.44e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	6.12e+02	*	*	9.44e+02	*
10	OCDF	*	4.12e+02	*	*	1.88e+03	*
11	2,3,7,8-TCDD	*	1.82e+03	*	*	1.63e+03	*
12	1,2,3,7,8-PeCDD	*	1.43e+03	*	*	5.08e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.36e+02	*	*	5.68e+02	*
14	1,2,3,6,7,8-HxCDD	*	7.36e+02	*	*	5.68e+02	*
15	1,2,3,7,8,9-HxCDD	*	7.36e+02	*	*	5.68e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	1.02e+03	*	*	5.32e+02	*
17	OCDD	*	5.12e+02	*	*	9.72e+02	*
18	13C-2,3,7,8-TCDF	4.14e+06	2.88e+03	1.4e+03	5.20e+06	2.75e+03	1.9e+03
19	13C-1,2,3,7,8-PeCDF	7.41e+06	1.60e+03	4.6e+03	4.68e+06	2.06e+03	2.3e+03
20	13C-2,3,4,7,8-PeCDF	7.89e+06	1.60e+03	4.9e+03	4.95e+06	2.06e+03	2.4e+03
21	13C-1,2,3,4,7,8-HxCDF	3.92e+06	1.03e+03	3.8e+03	7.47e+06	2.38e+03	3.1e+03
22	13C-1,2,3,6,7,8-HxCDF	4.79e+06	1.03e+03	4.6e+03	9.05e+06	2.38e+03	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.45e+06	1.03e+03	6.2e+03	1.20e+07	2.38e+03	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.47e+06	3.07e+03	8.1e+02	5.61e+06	6.14e+03	9.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	1.84e+06	3.07e+03	6.0e+02	4.16e+06	6.14e+03	6.8e+02
27	13C-2,3,7,8-TCDD	3.41e+06	7.01e+03	4.9e+02	4.35e+06	2.46e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	5.82e+06	1.32e+03	4.4e+03	3.69e+06	8.60e+02	4.3e+03
29	13C-1,2,3,4,7,8-HxCDD	6.15e+06	2.38e+03	2.6e+03	4.82e+06	1.40e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	6.81e+06	2.38e+03	2.9e+03	5.36e+06	1.40e+03	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.19e+06	1.72e+03	2.4e+03	3.96e+06	4.84e+02	8.2e+03
32	13C-OCDD	4.20e+06	8.84e+02	4.8e+03	4.60e+06	1.48e+03	3.1e+03
33	13C-1,2,3,4-TCDD	3.40e+07	7.01e+03	4.9e+03	4.33e+07	2.46e+03	1.8e+04
34	13C-1,2,3,7,8,9-HxCDD	4.91e+07	2.38e+03	2.1e+04	3.92e+07	1.40e+03	2.8e+04
35	37Cl-2,3,7,8-TCDD	8.79e+06	8.88e+02	9.9e+03			

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

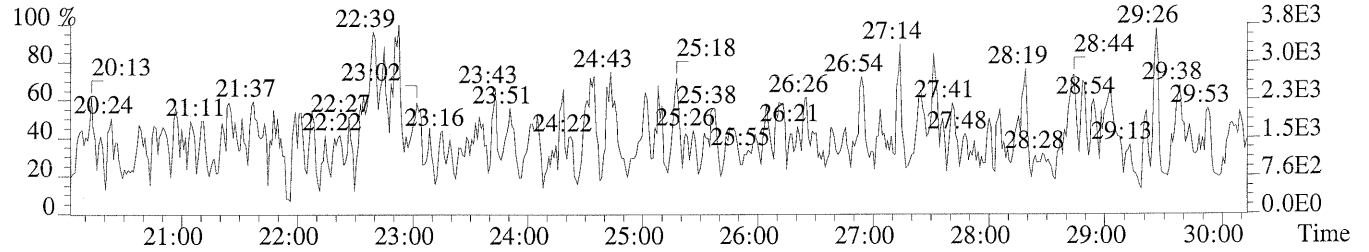
ALS Form TO-9SN/M23SN.FRM



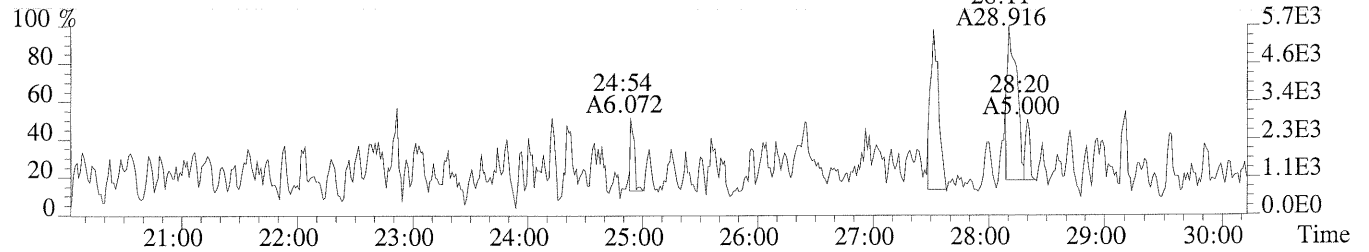
File:P230543 #1-640 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-008  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



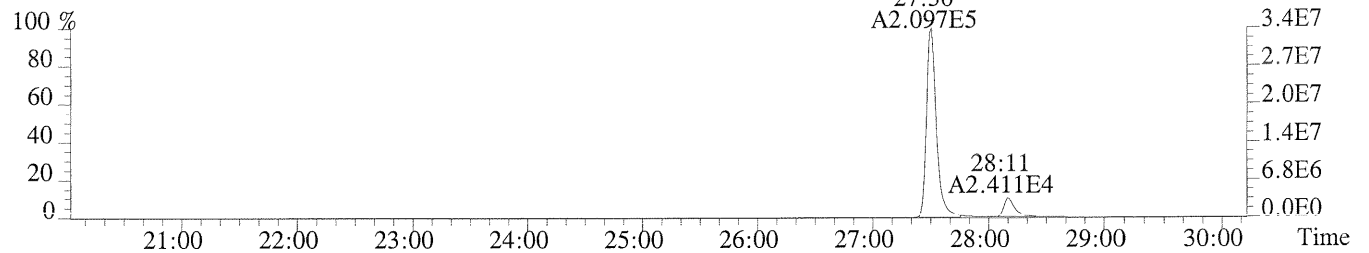
File:P230543 #1-640 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-008  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1820.0,1.00%,F,T)



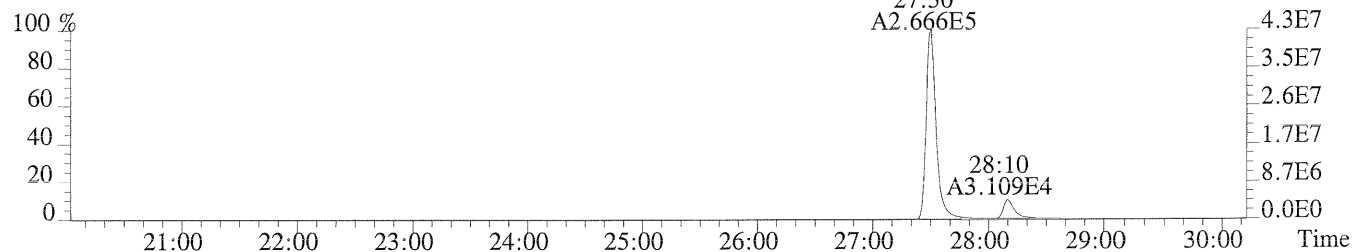
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



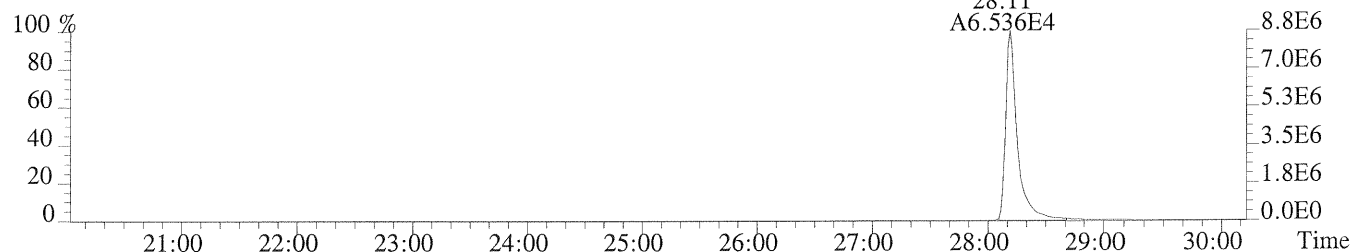
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7012.0,1.00%,F,T)



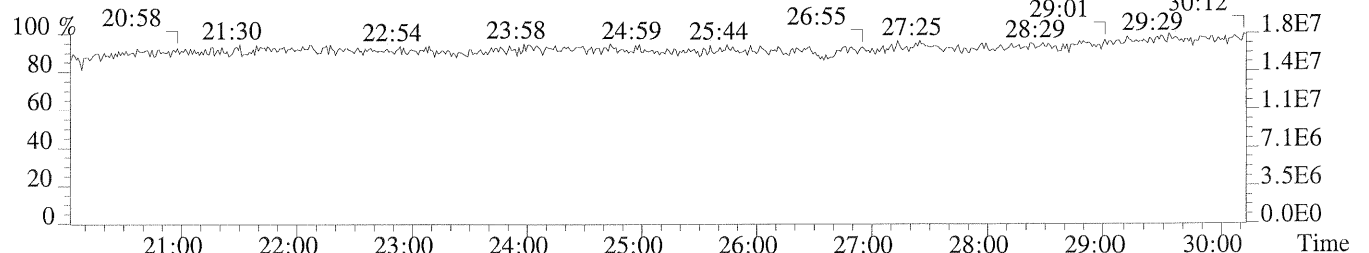
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



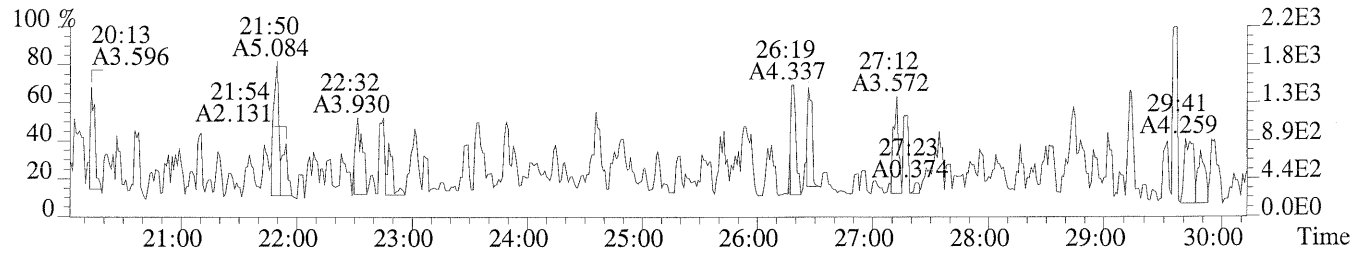
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



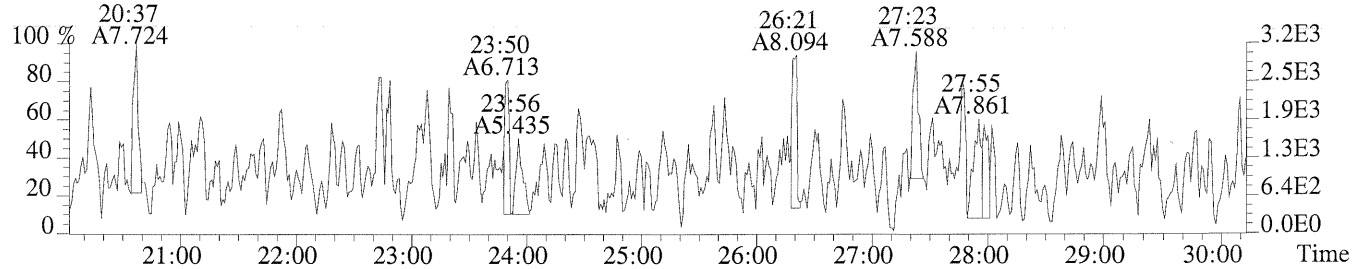
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



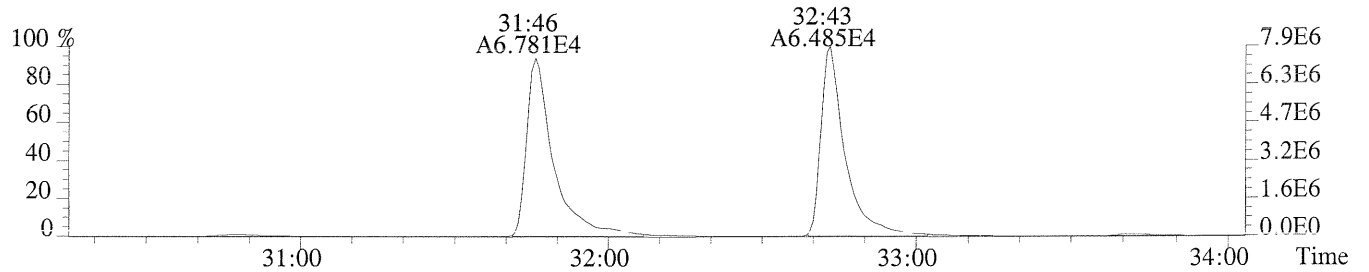
File:P230543 #1-640 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-008  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



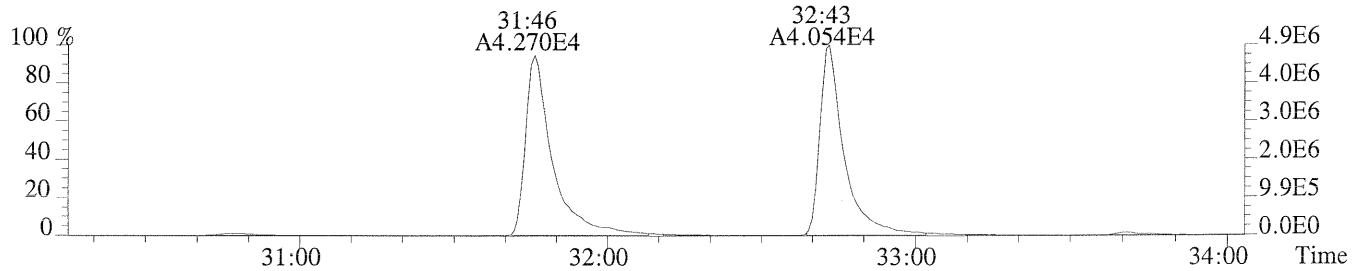
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



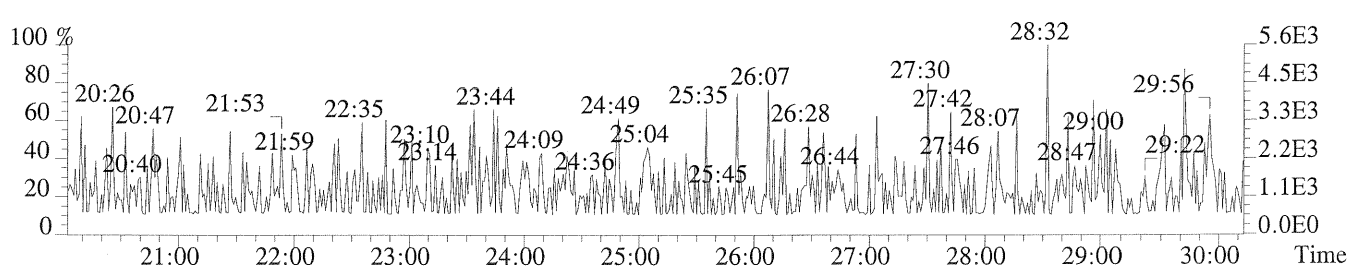
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



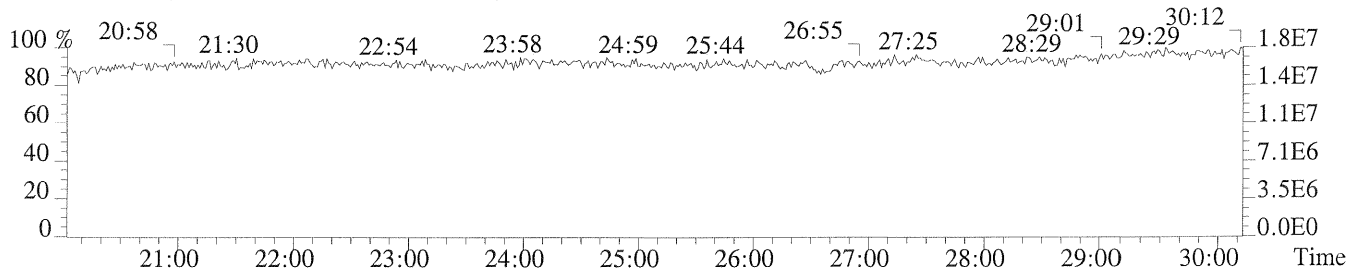
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2064.0,1.00%,F,T)



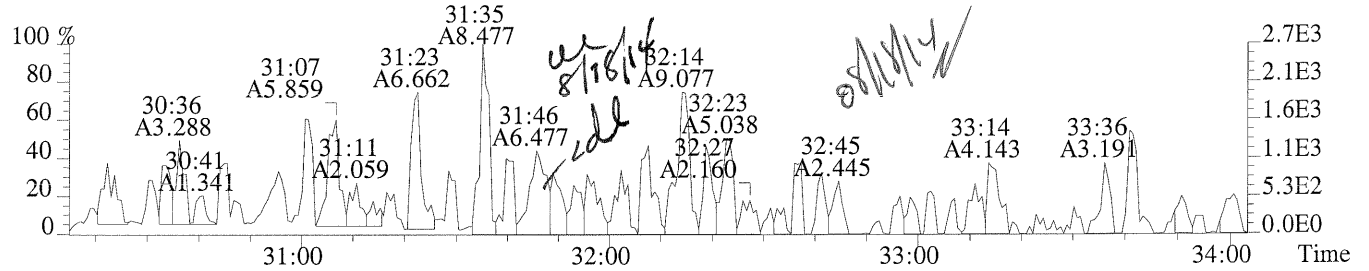
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



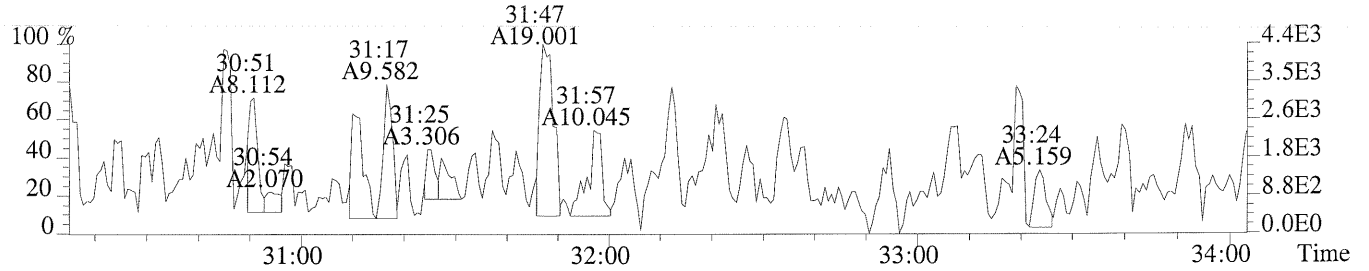
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



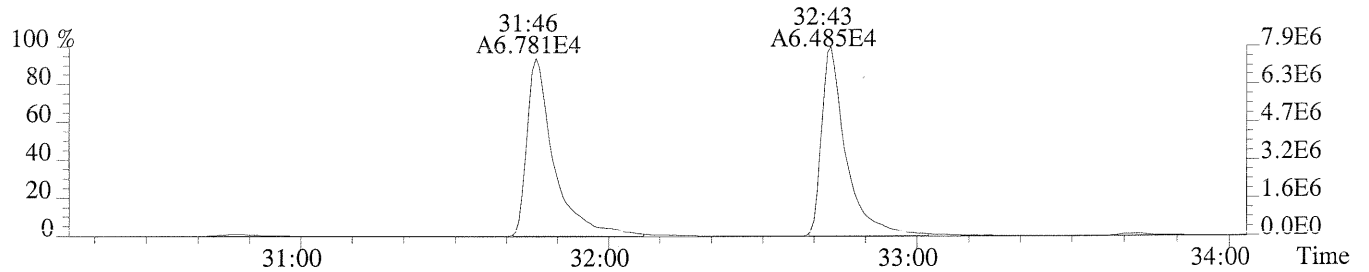
File:P230543 #1-346 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-008  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



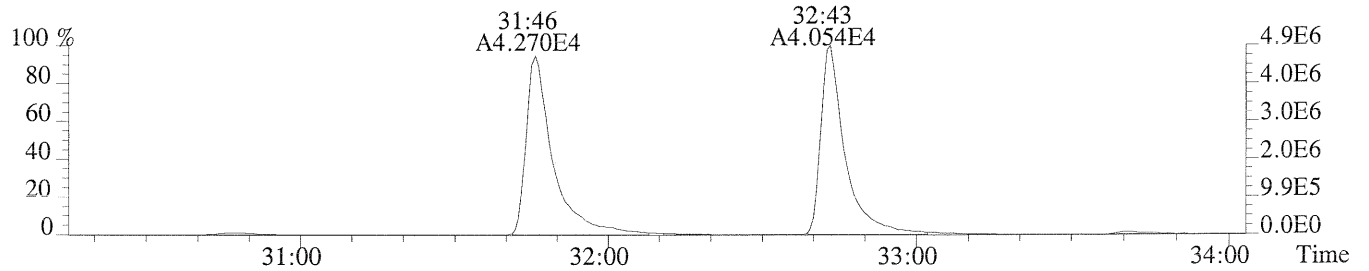
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



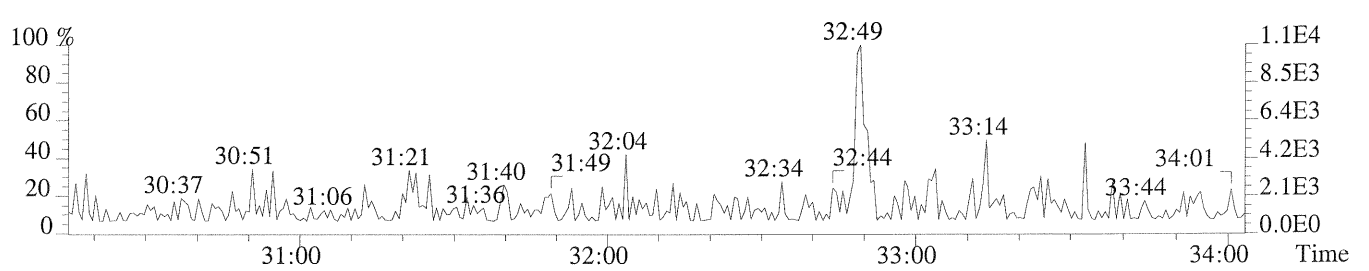
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



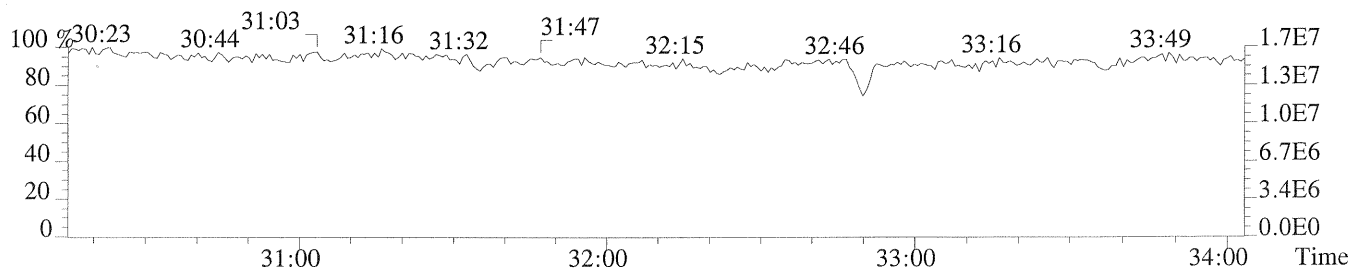
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2064.0,1.00%,F,T)



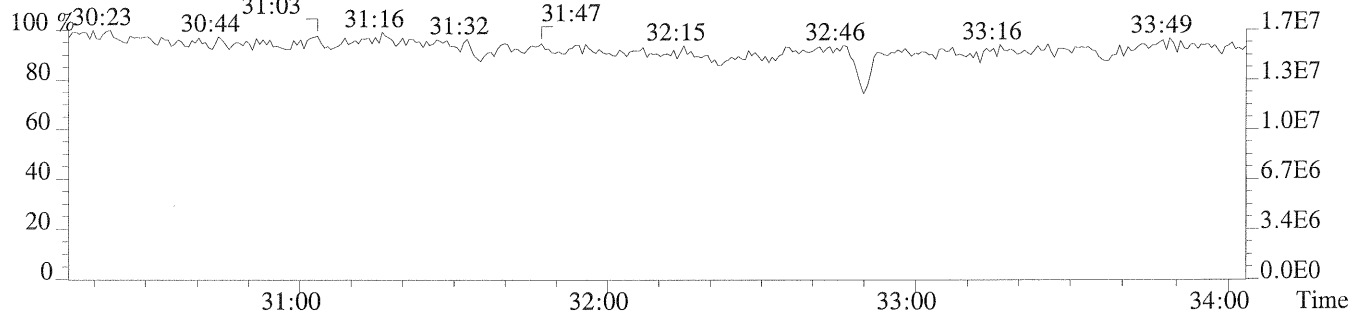
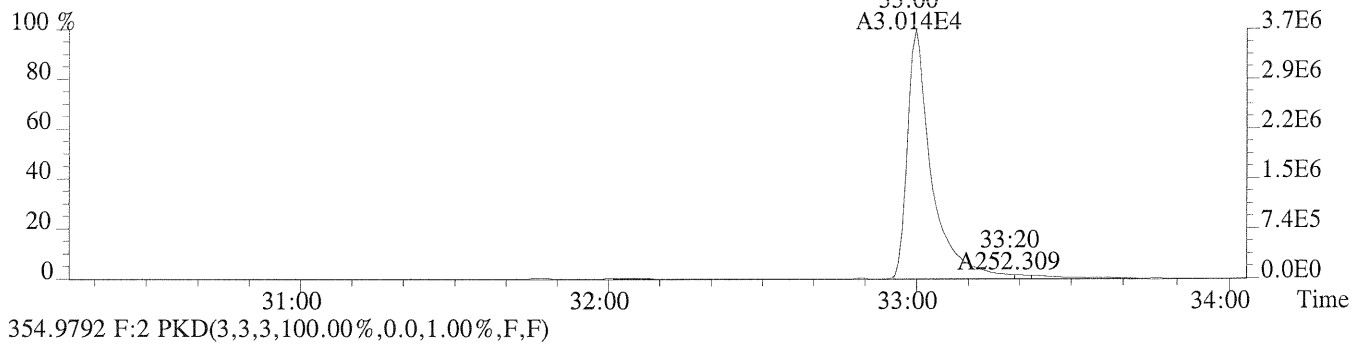
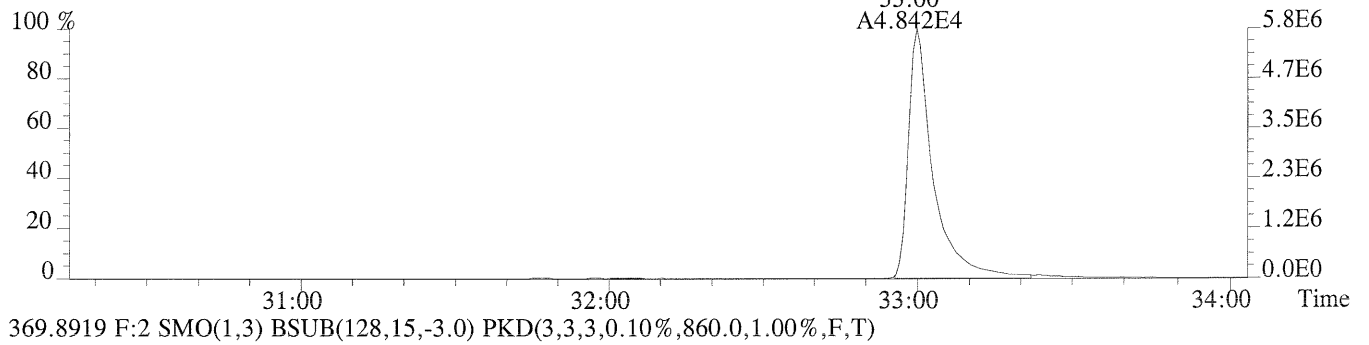
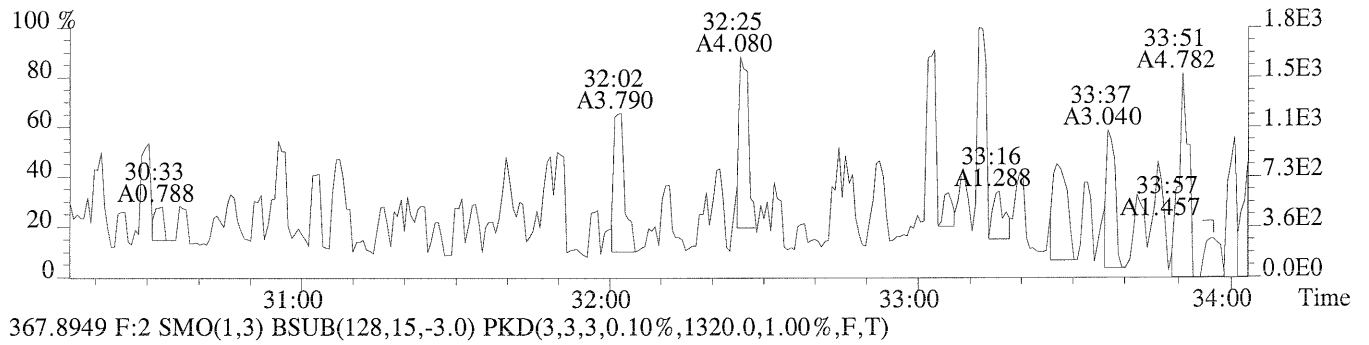
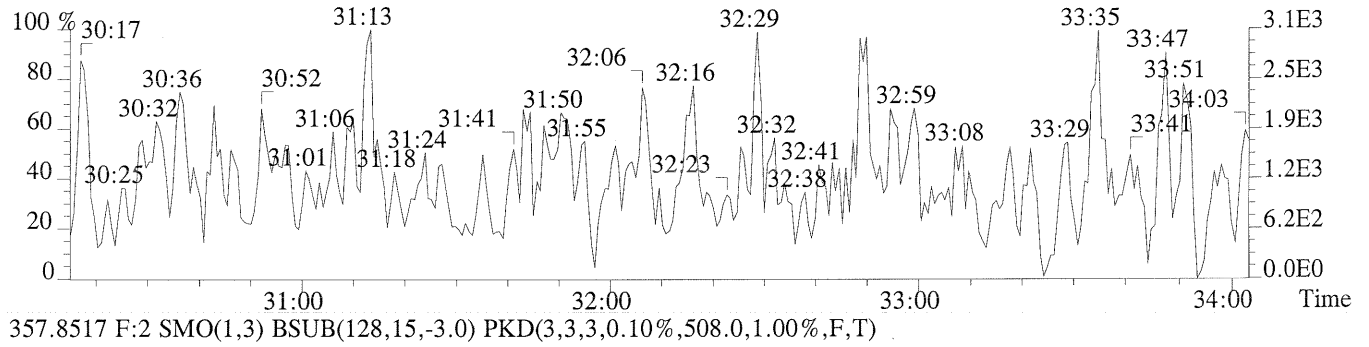
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



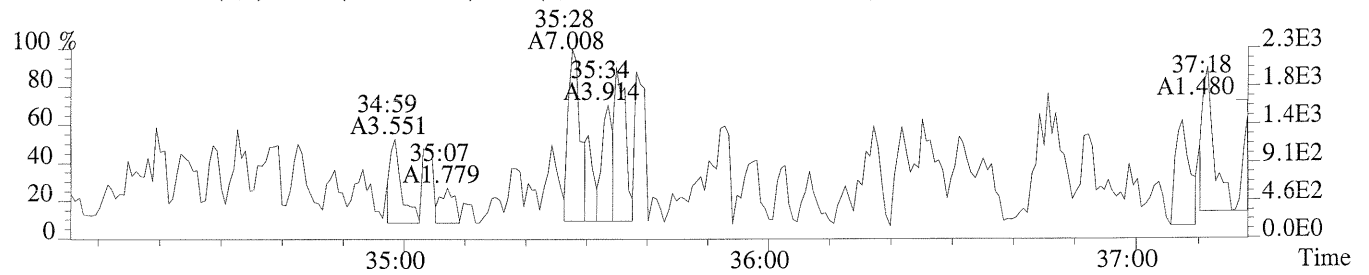
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



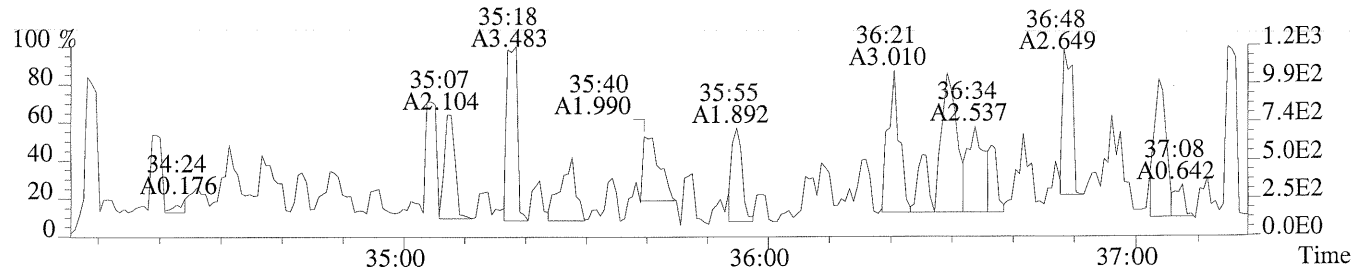
File:P230543 #1-346 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-008  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



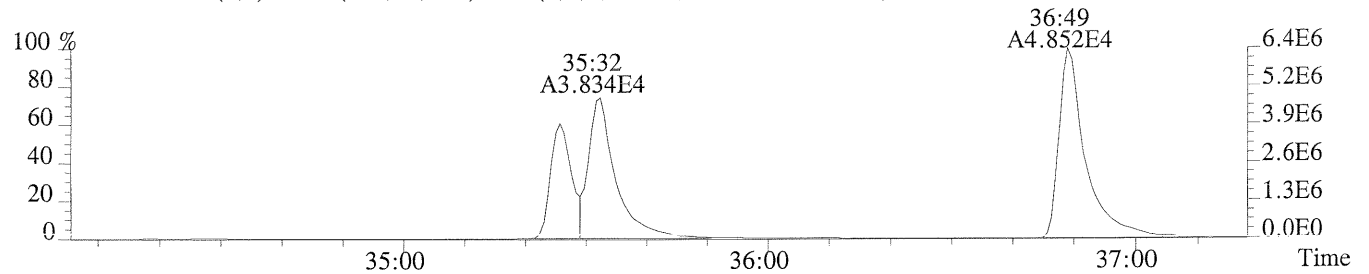
File:P230543 #1-292 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-008  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



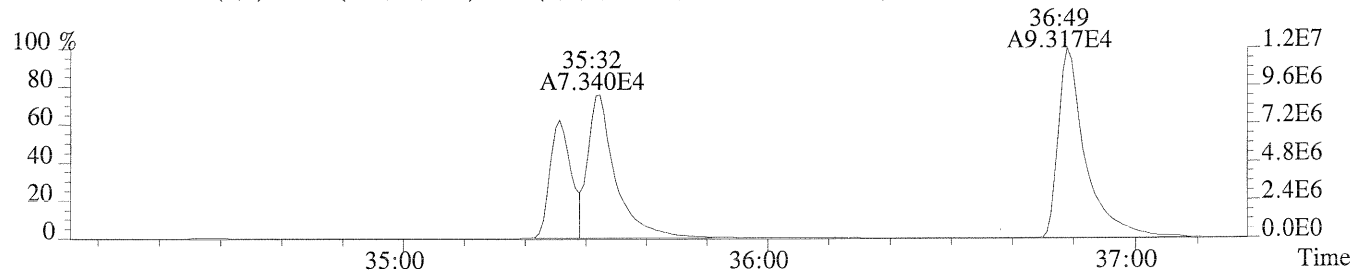
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,280.0,0.40%,F,T)



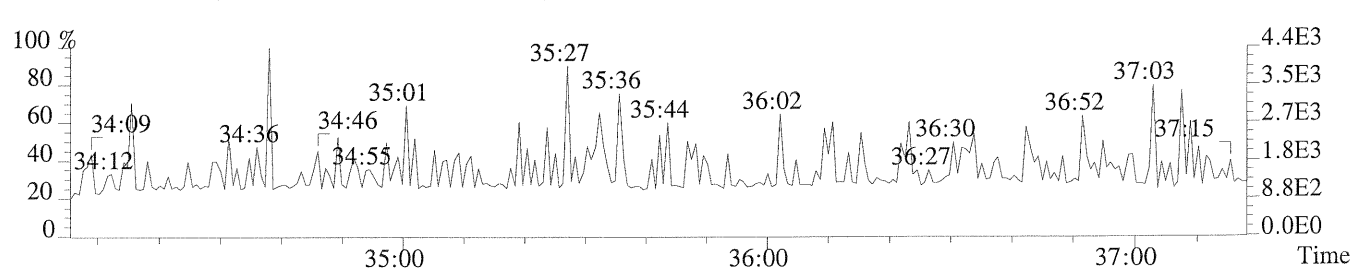
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



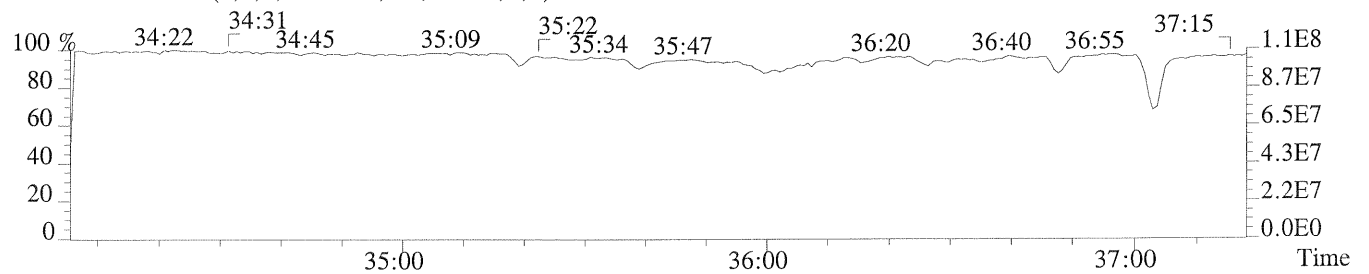
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)



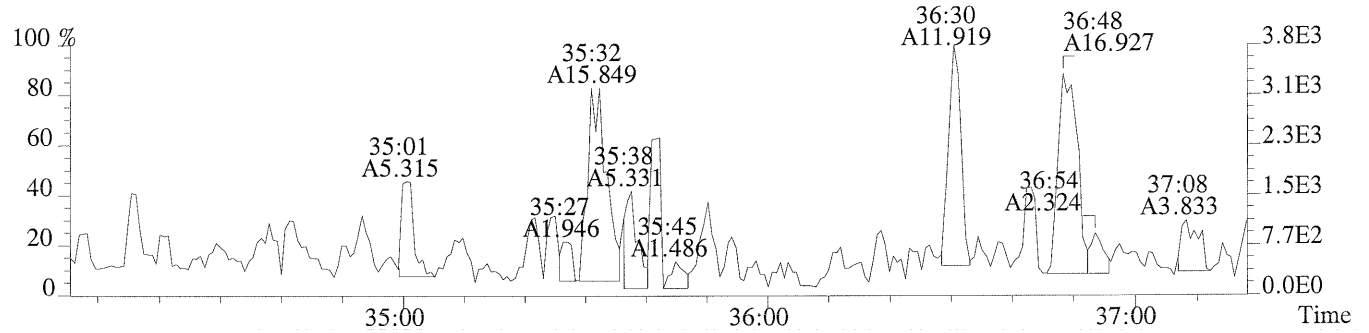
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



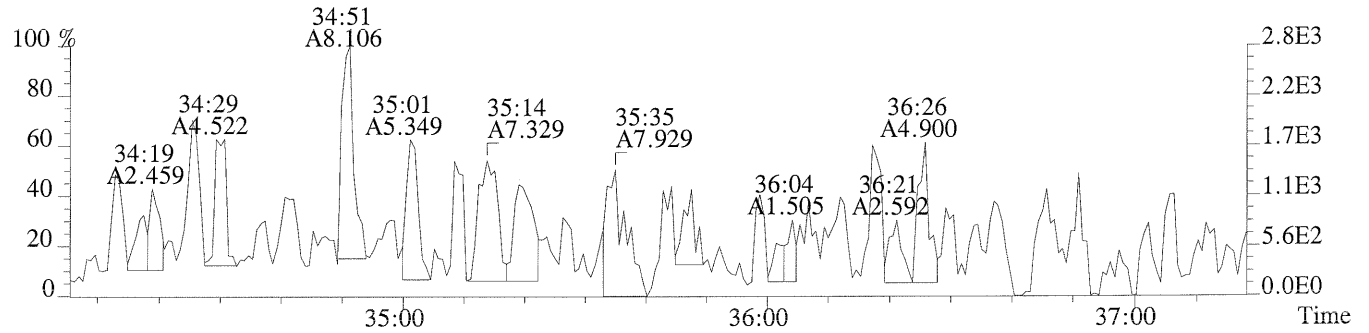
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



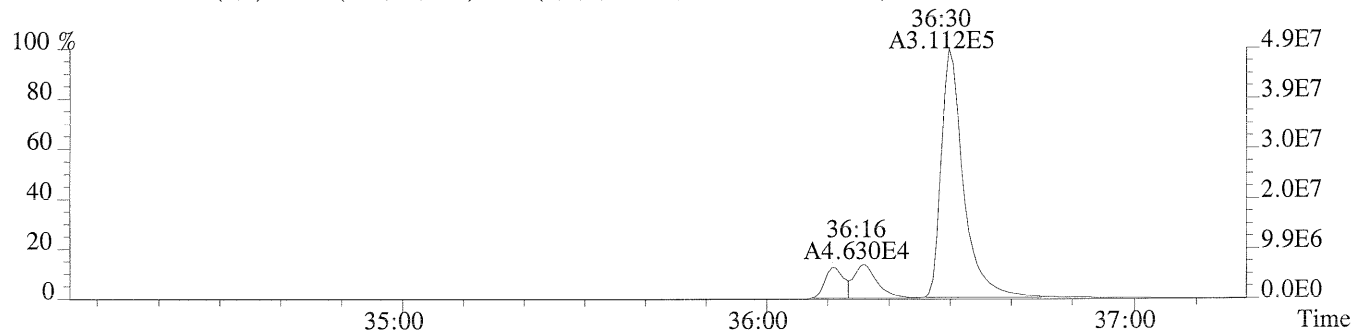
File:P230543 #1-292 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-008  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



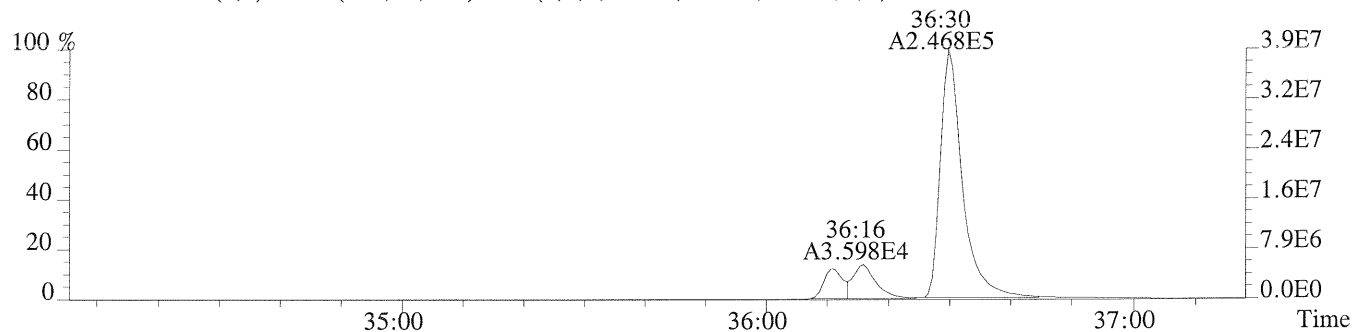
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



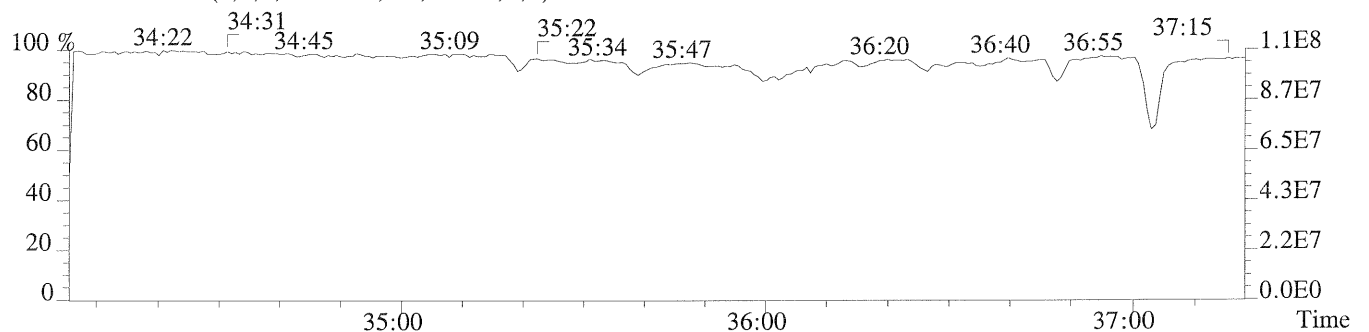
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2380.0,0.40%,F,T)



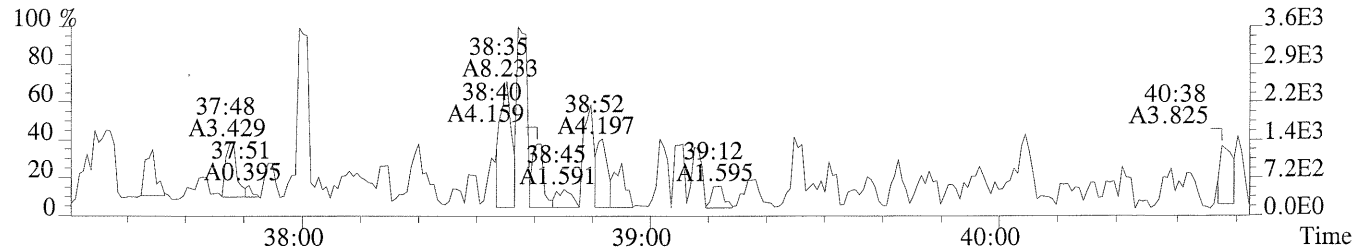
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



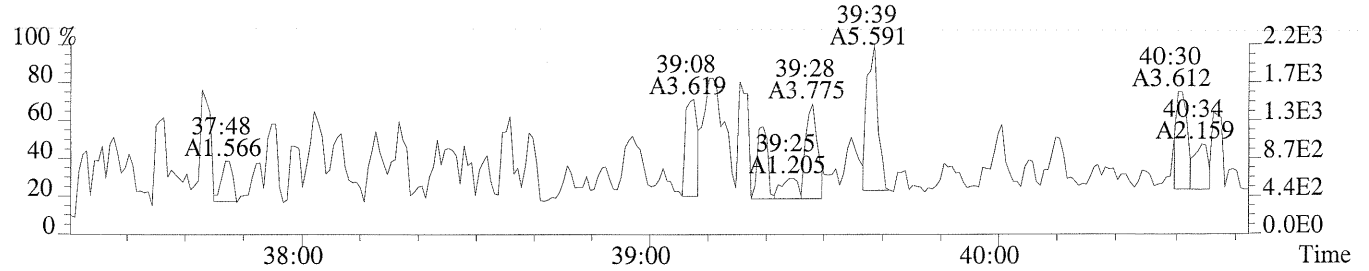
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



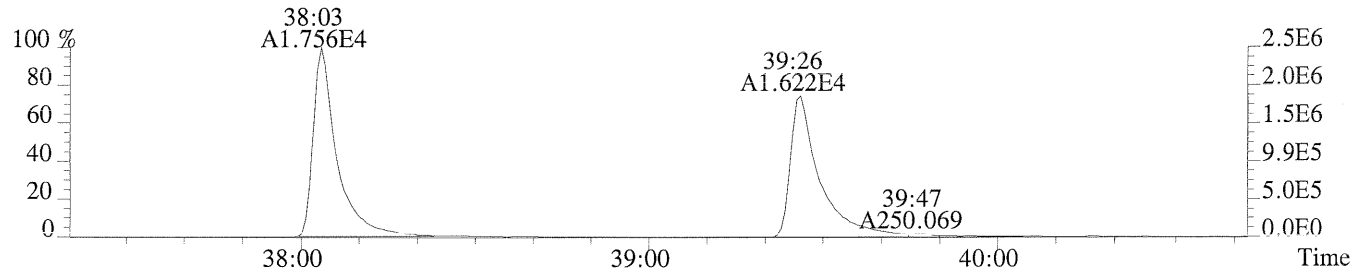
File:P230543 #1-306 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
 Sample#1 Exp:P1403085-008  
 407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.50%,F,T)



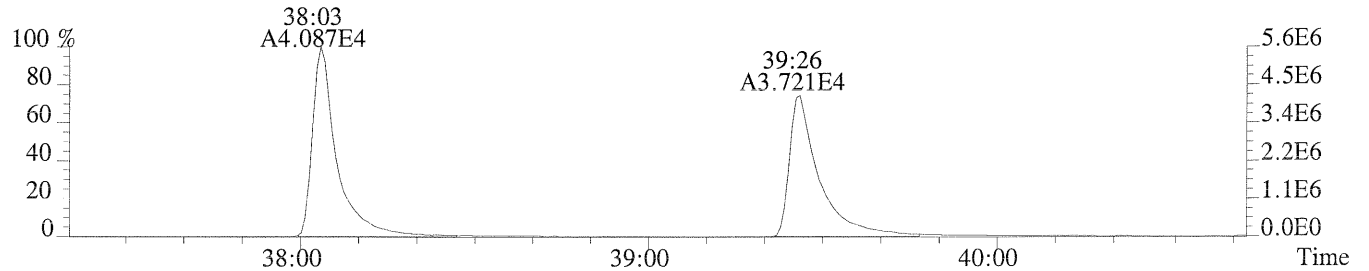
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.50%,F,T)



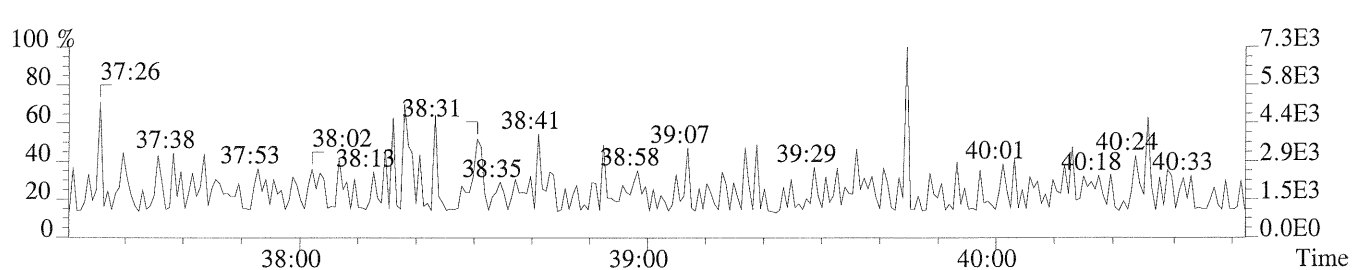
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3072.0,0.50%,F,T)



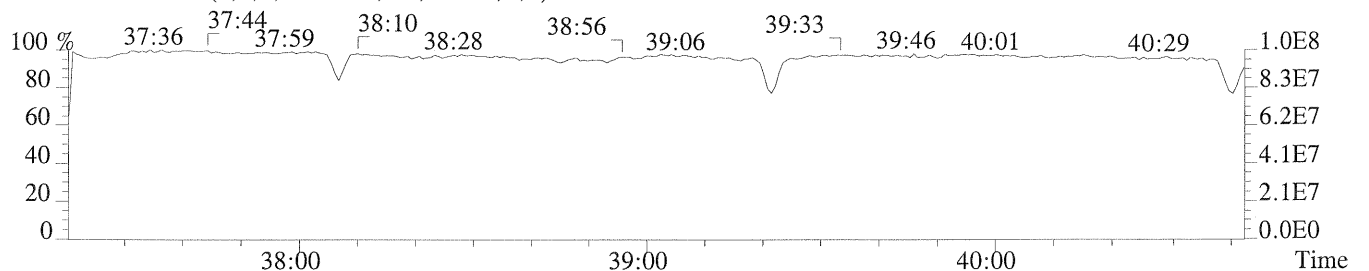
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6144.0,0.50%,F,T)



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

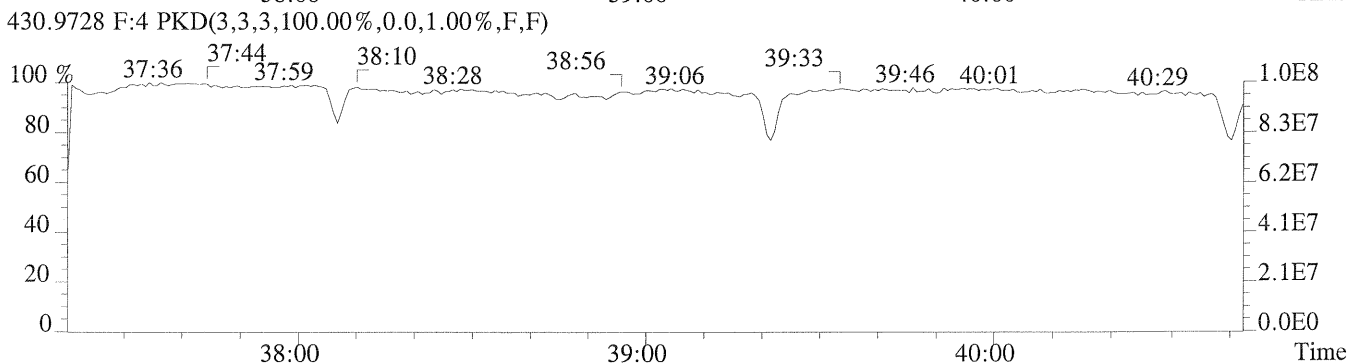
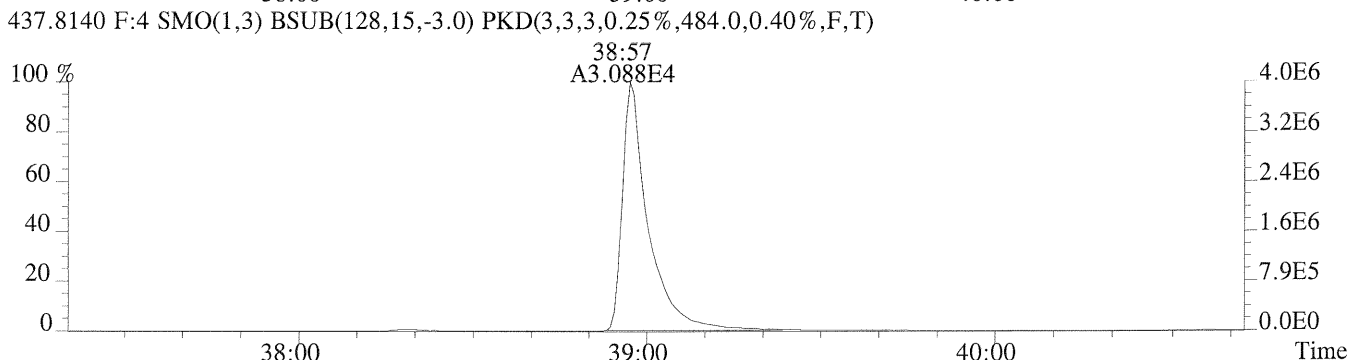
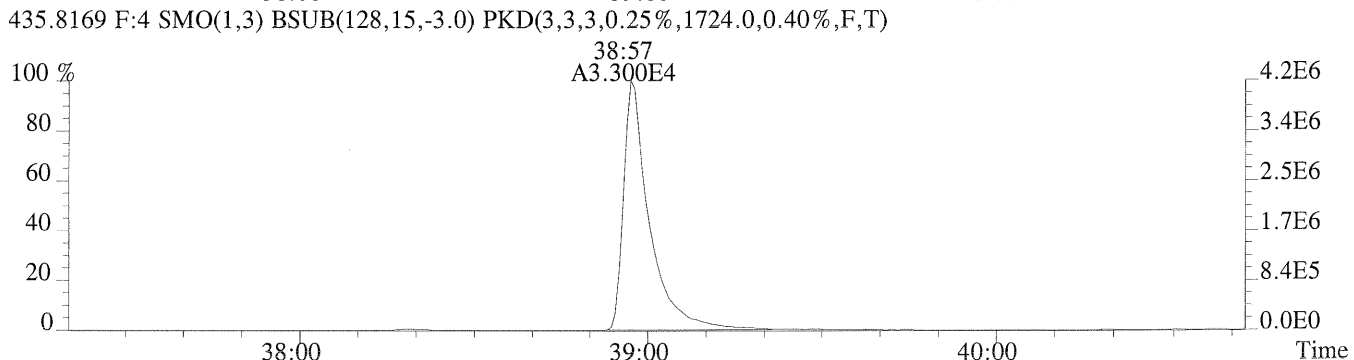
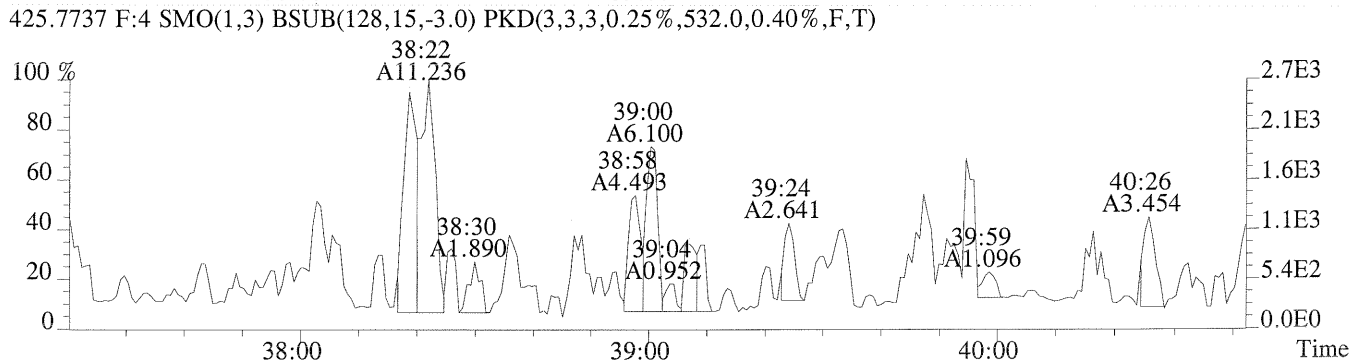
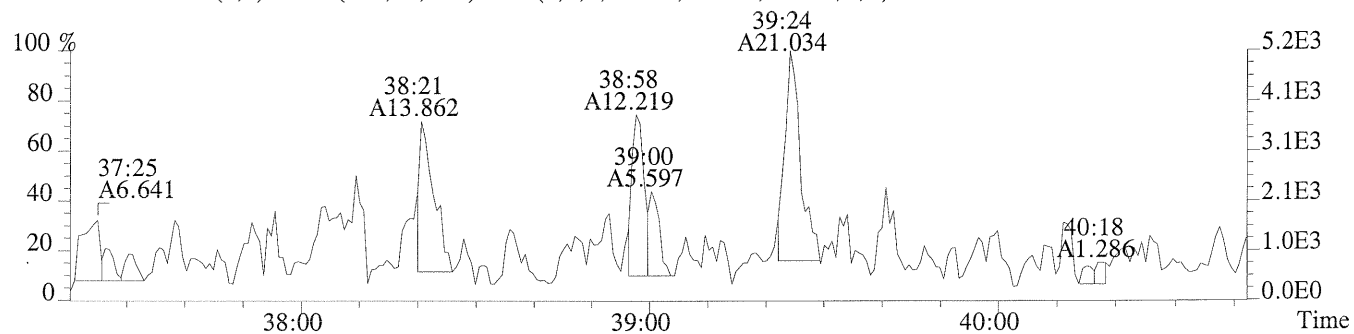


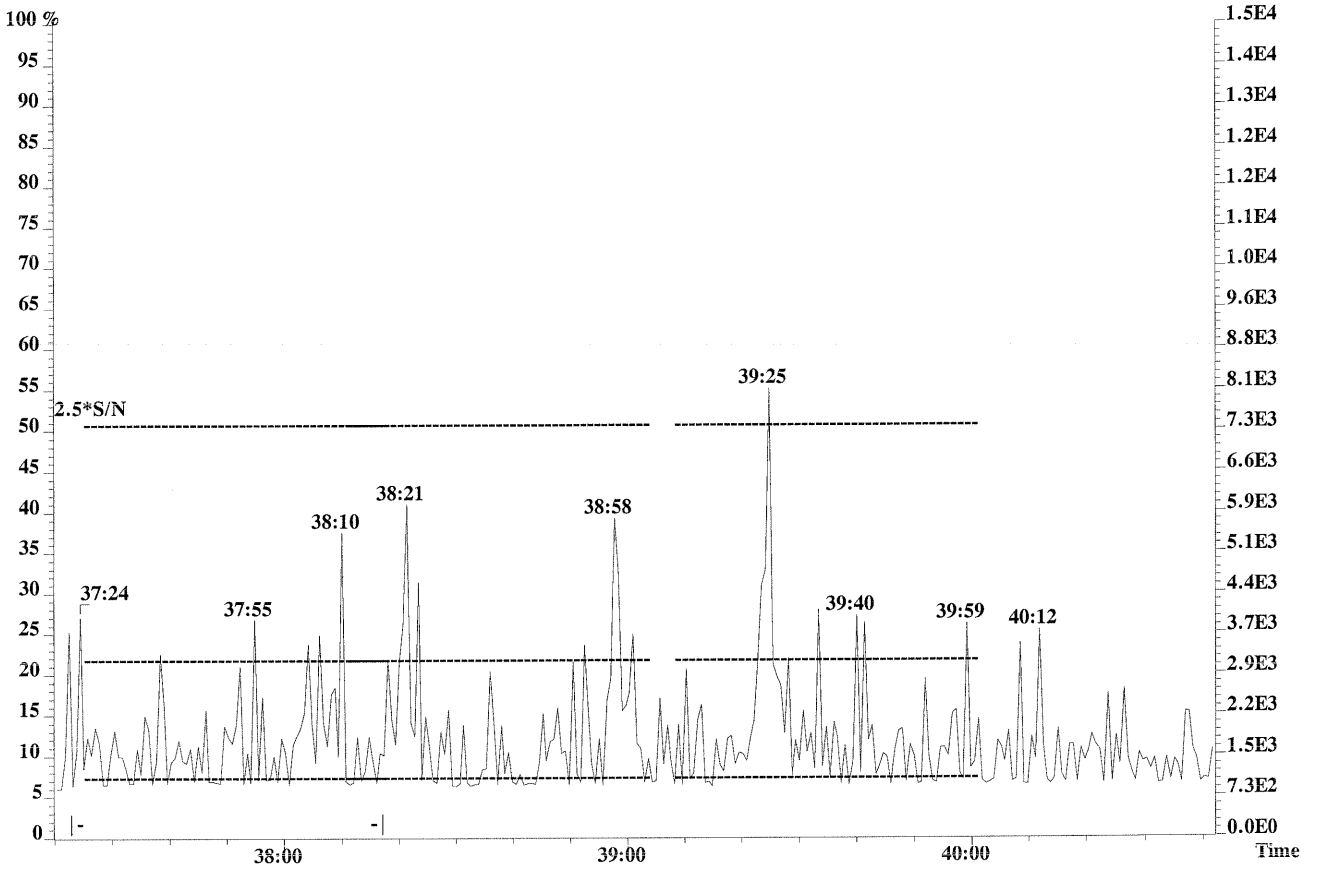
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



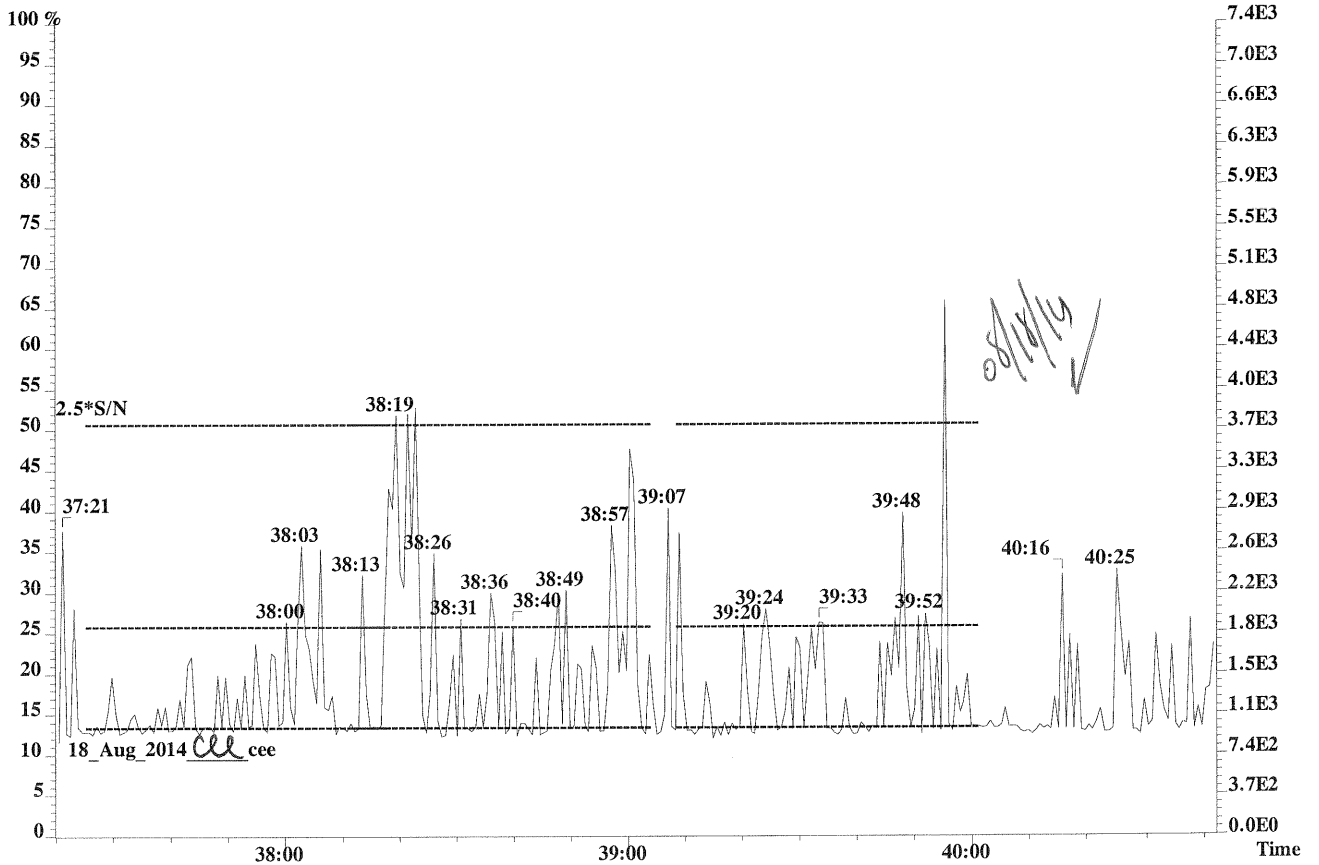


File:P230543 #1-306 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-008  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)

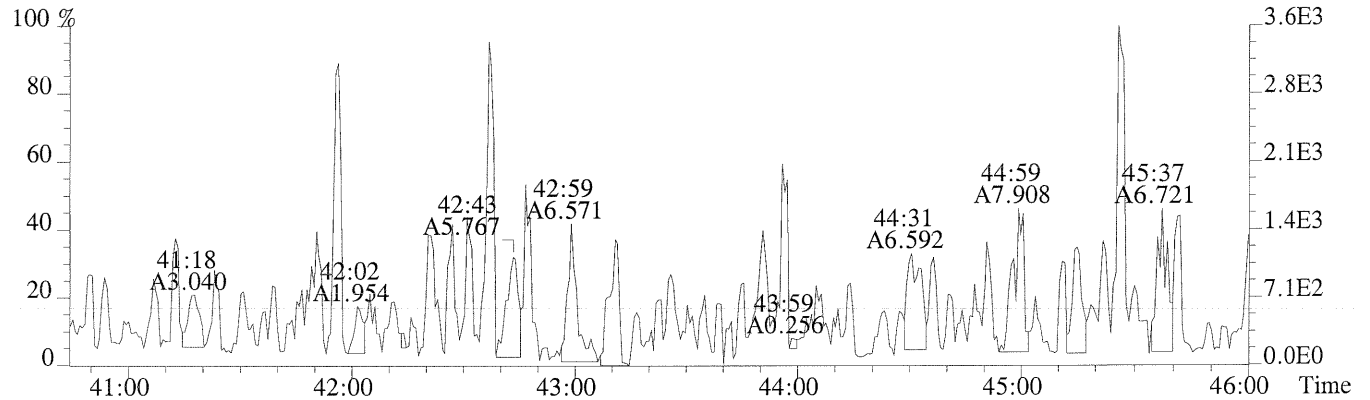




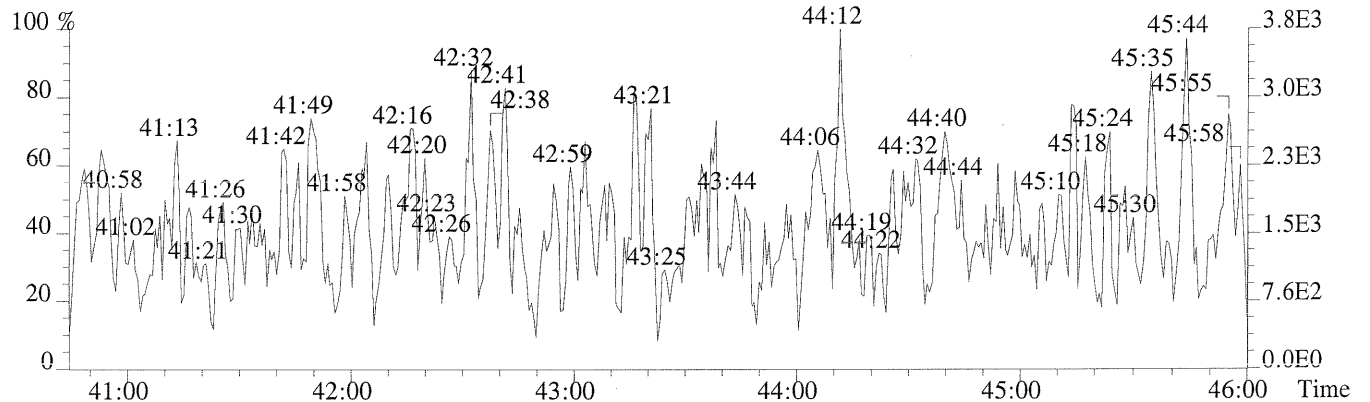
425.7737 F:4



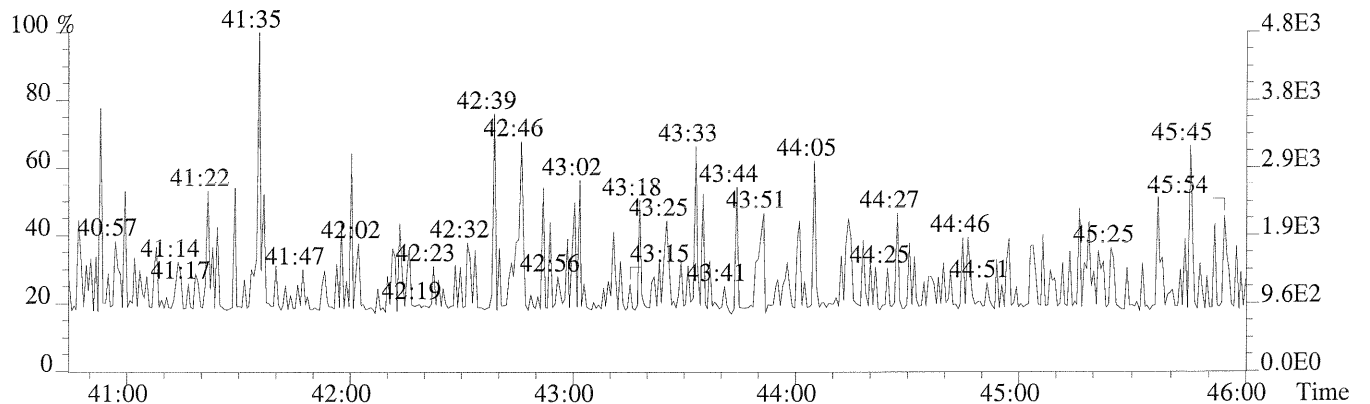
File:P230543 #1-484 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:P1403085-008  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



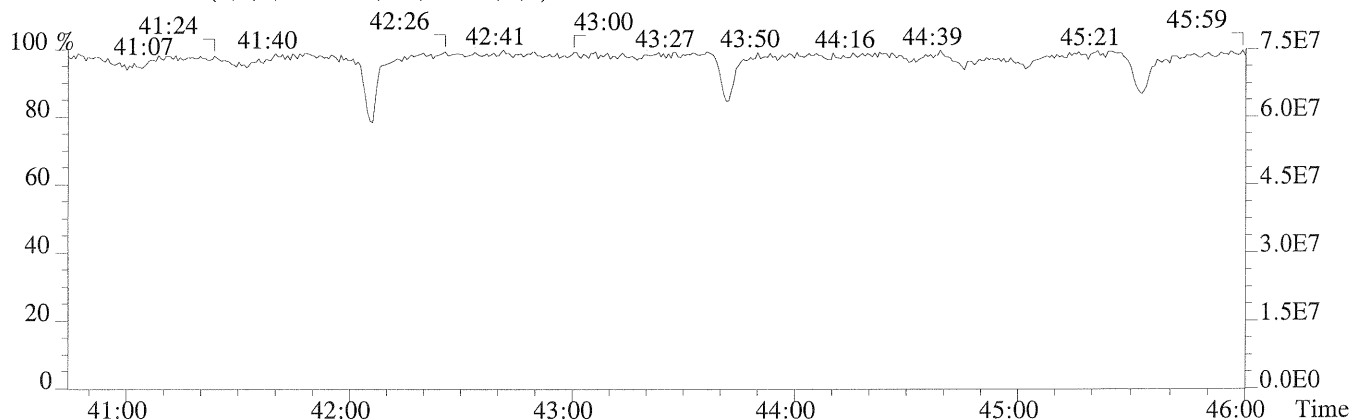
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1880.0,0.40%,F,T)



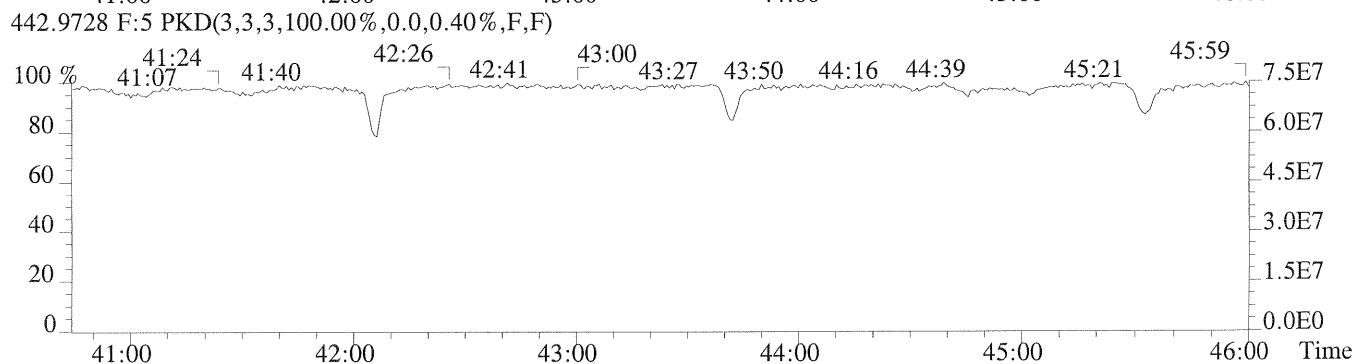
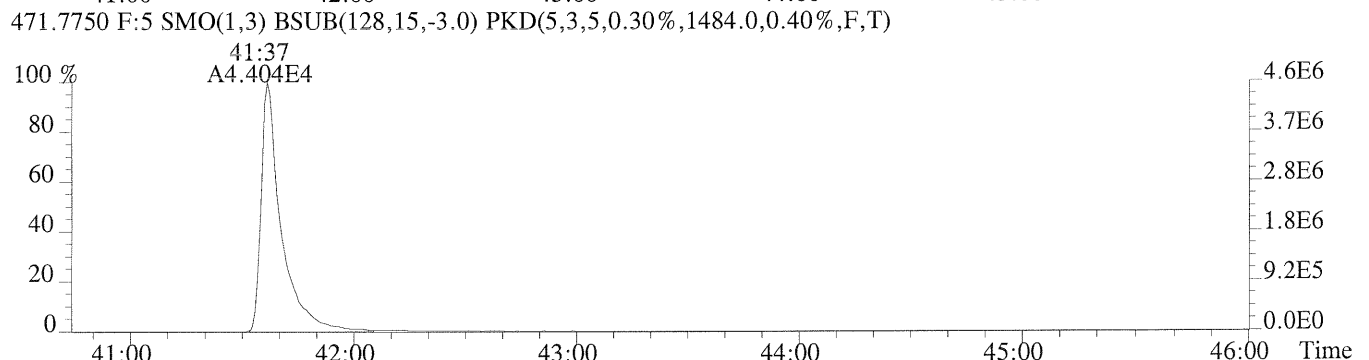
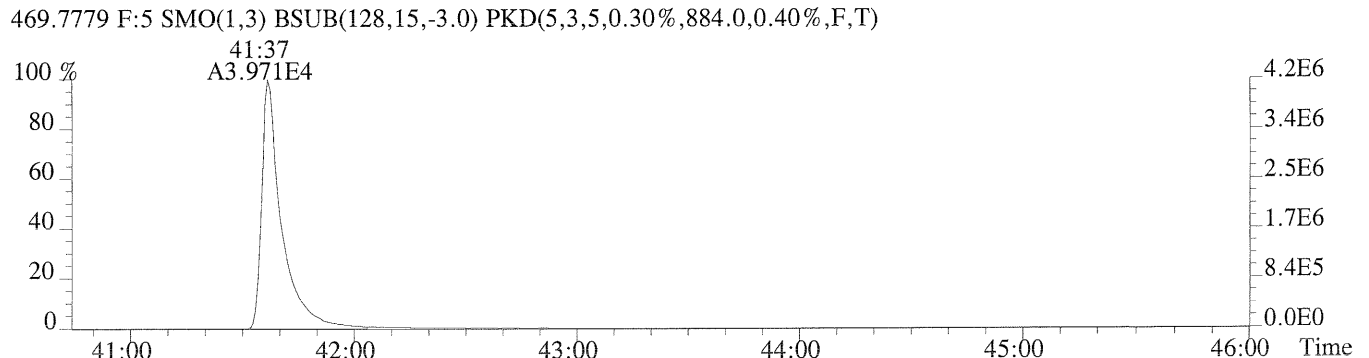
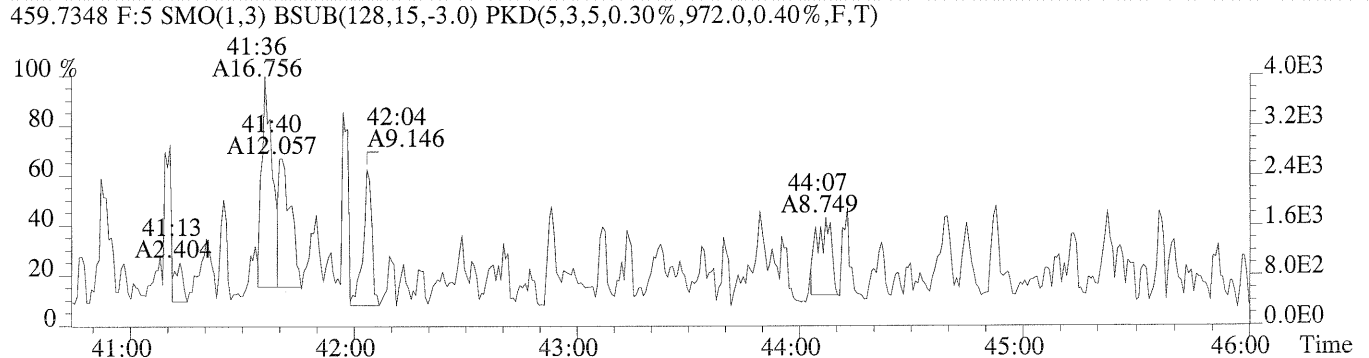
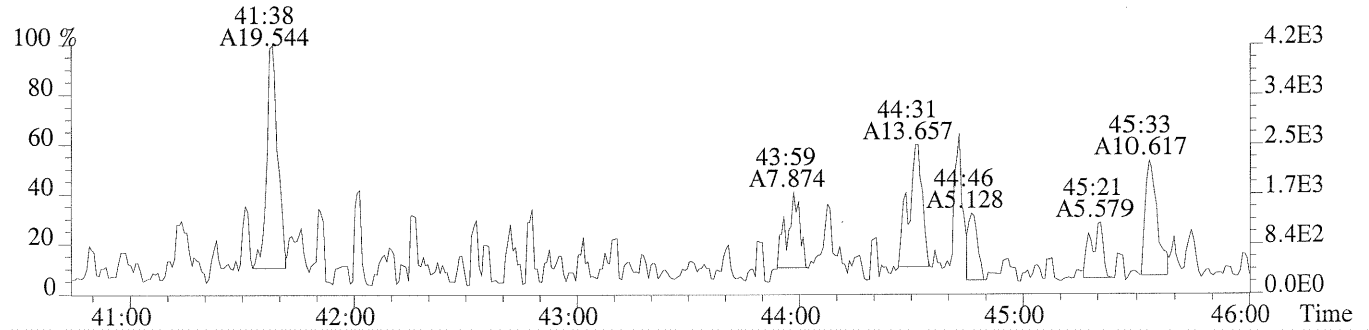
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

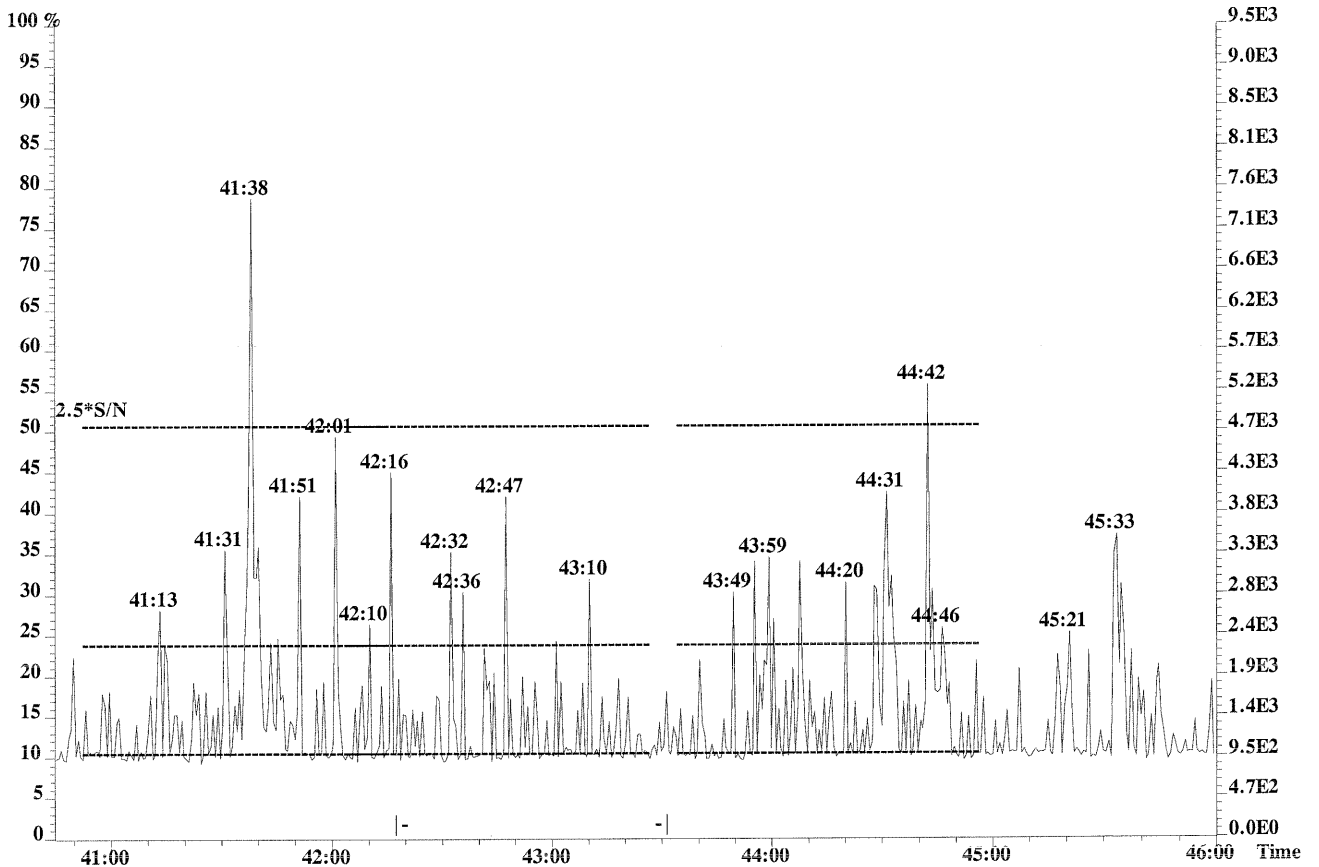


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

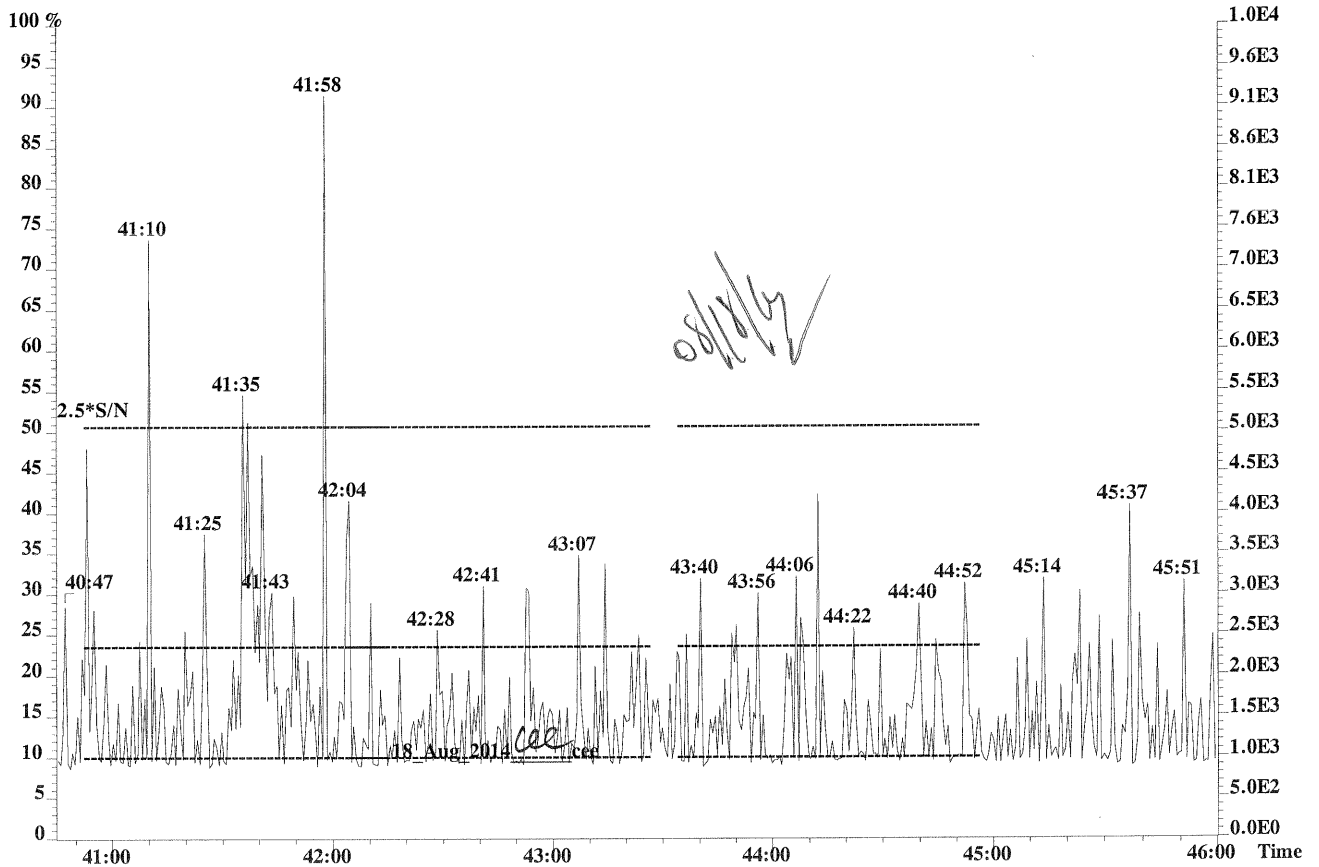


File:P230543 #1-484 Acq:15-AUG-2014 20:59:07 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:P1403085-008  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,512.0,0.40%,F,T)





459.7348 F:5



ALS ENVIRONMENTAL  
Method M23

CLIENT ID.  
METHOD BLANK

Sample Response Summary

Run #8    Filename P230534 #1    Samp: 1    Inj: 1    Acquired: 15-AUG-14 13:35:41  
Processed: 18-AUG-14 12:58:38    LAB. ID: EQ1400433-01

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.959
2 Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.955
3 Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	0.868
5 Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.157
6 Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	0.963
7 Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.113
10 Unk	OCDF	NotFnd	*	*	*	no	no	1.392
11 Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.981
12 Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.982
13 Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.916
14 Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.142
15 Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.104
17 Unk	OCDD	NotFnd	*	*	*	no	yes	1.181
18 IS	13C-2,3,7,8-TCDF	27:21	2.804e+04	3.560e+04	0.79	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:46	5.941e+04	3.701e+04	1.61	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	5.896e+04	3.667e+04	1.61	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:26	1.981e+04	3.772e+04	0.53	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	3.085e+04	5.861e+04	0.53	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:49	4.280e+04	8.055e+04	0.53	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	1.383e+04	3.162e+04	0.44	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:25	1.274e+04	3.050e+04	0.42	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:10	1.990e+04	2.617e+04	0.76	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	33:00	4.365e+04	2.702e+04	1.62	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:11	2.891e+04	2.276e+04	1.27	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:16	3.744e+04	2.916e+04	1.28	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	2.619e+04	2.433e+04	1.08	yes	no	0.925
32 IS	13C-OCDD	41:37	2.915e+04	3.223e+04	0.90	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:30	2.071e+05	2.627e+05	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:30	2.852e+05	2.249e+05	1.27	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:12	5.576e+04				no	0.960

OCDD =  $\frac{(* + * \times (8000.0) \times 1)}{(2.915e+04 + 3.223e+04) \times 1.181 \times 1.000}$  = pg

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
METHOD BLANK

Method M23

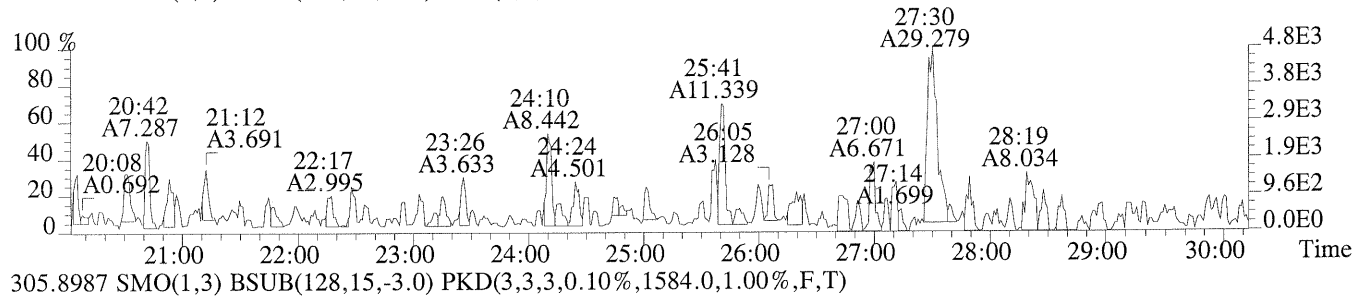
Run #8    Filename P230534    #1    Samp: 1    Inj: 1    Acquired: 15-AUG-14 13:35:41  
Processed: 18-AUG-14 12:58:38    LAB. ID: EQ1400433-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.04e+02	*	*	1.58e+03	*
2	1,2,3,7,8-PeCDF	*	3.56e+02	*	*	1.66e+03	*
3	2,3,4,7,8-PeCDF	*	3.56e+02	*	*	1.66e+03	*
4	1,2,3,4,7,8-HxCDF	*	7.64e+02	*	*	7.12e+02	*
5	1,2,3,6,7,8-HxCDF	*	7.64e+02	*	*	7.12e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.64e+02	*	*	7.12e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.64e+02	*	*	7.12e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	1.42e+03	*	*	5.84e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	1.42e+03	*	*	5.84e+02	*
10	OCDF	*	7.40e+02	*	*	1.87e+03	*
11	2,3,7,8-TCDD	*	1.63e+03	*	*	1.62e+03	*
12	1,2,3,7,8-PeCDD	*	1.69e+03	*	*	4.52e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.40e+02	*	*	1.12e+03	*
14	1,2,3,6,7,8-HxCDD	*	6.40e+02	*	*	1.12e+03	*
15	1,2,3,7,8,9-HxCDD	*	6.40e+02	*	*	1.12e+03	*
16	1,2,3,4,6,7,8-HpCDD	*	1.42e+03	*	*	6.92e+02	*
17	OCDD	*	5.28e+02	*	*	1.41e+03	*
18	13C-2,3,7,8-TCDF	3.44e+06	2.18e+03	1.6e+03	4.30e+06	1.94e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	6.59e+06	7.92e+02	8.3e+03	4.09e+06	2.25e+03	1.8e+03
20	13C-2,3,4,7,8-PeCDF	7.23e+06	7.92e+02	9.1e+03	4.55e+06	2.25e+03	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	3.31e+06	1.00e+03	3.3e+03	6.18e+06	2.26e+03	2.7e+03
22	13C-1,2,3,6,7,8-HxCDF	3.86e+06	1.00e+03	3.9e+03	7.45e+06	2.26e+03	3.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.49e+06	1.00e+03	5.5e+03	1.04e+07	2.26e+03	4.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.94e+06	3.06e+03	6.3e+02	4.41e+06	2.95e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.45e+06	3.06e+03	4.7e+02	3.38e+06	2.95e+03	1.1e+03
27	13C-2,3,7,8-TCDD	2.92e+06	6.39e+03	4.6e+02	3.82e+06	2.20e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	5.24e+06	1.49e+03	3.5e+03	3.26e+06	7.88e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	5.34e+06	1.60e+03	3.3e+03	4.16e+06	9.32e+02	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	5.53e+06	1.60e+03	3.4e+03	4.35e+06	9.32e+02	4.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.34e+06	9.20e+02	3.6e+03	3.14e+06	3.84e+02	8.2e+03
32	13C-OCDD	3.00e+06	8.52e+02	3.5e+03	3.37e+06	8.60e+02	3.9e+03
33	13C-1,2,3,4-TCDD	3.37e+07	6.39e+03	5.3e+03	4.28e+07	2.20e+03	1.9e+04
34	13C-1,2,3,7,8,9-HxCDD	4.52e+07	1.60e+03	2.8e+04	3.56e+07	9.32e+02	3.8e+04
35	37Cl-2,3,7,8-TCDD	7.64e+06	6.28e+02	1.2e+04			

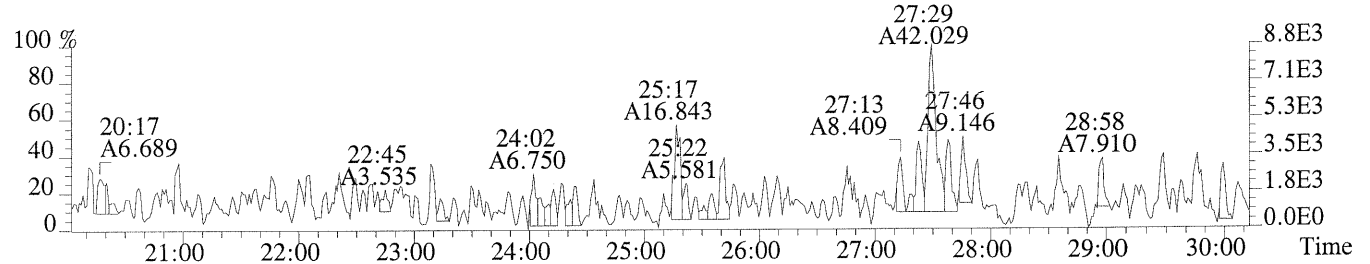
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

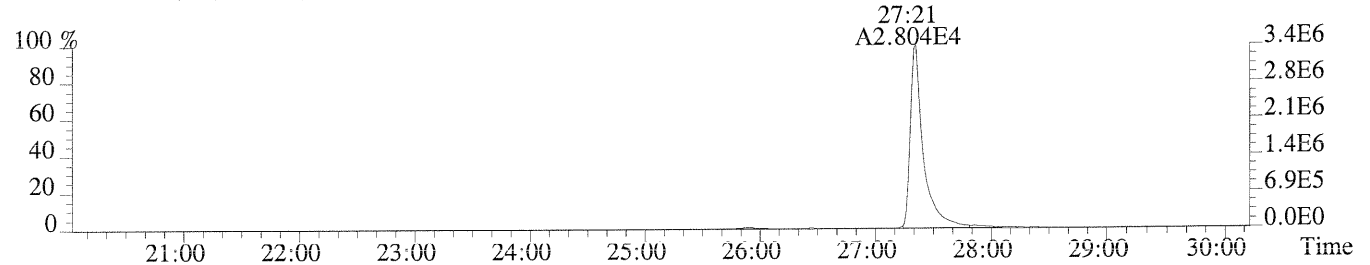
File:P230534 #1-640 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:EQ1400433-01  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



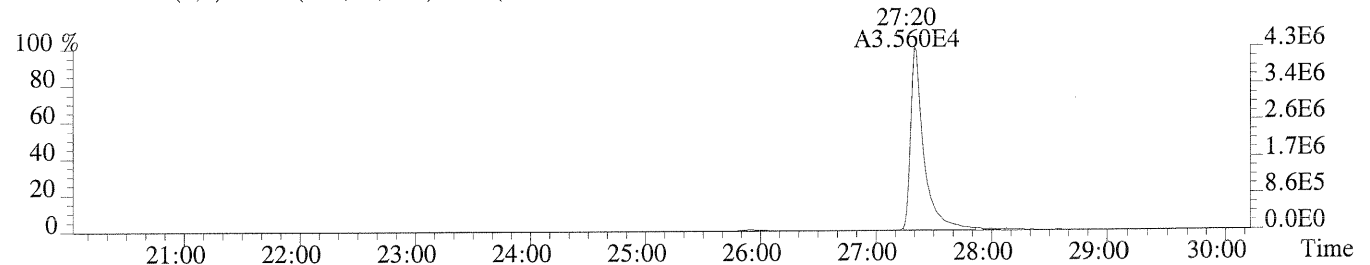
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1584.0,1.00%,F,T)



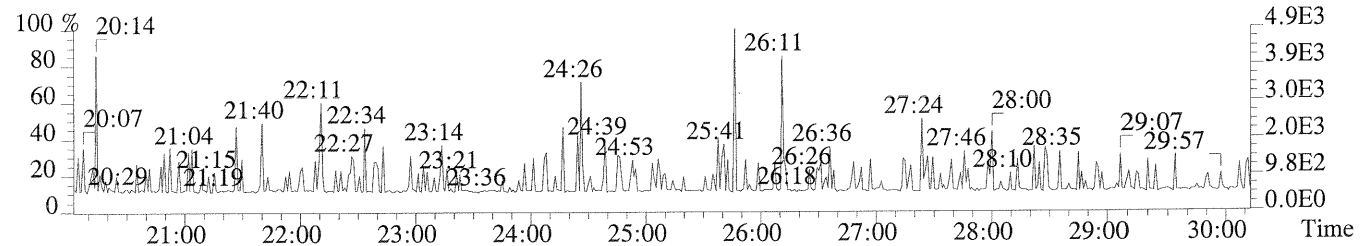
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



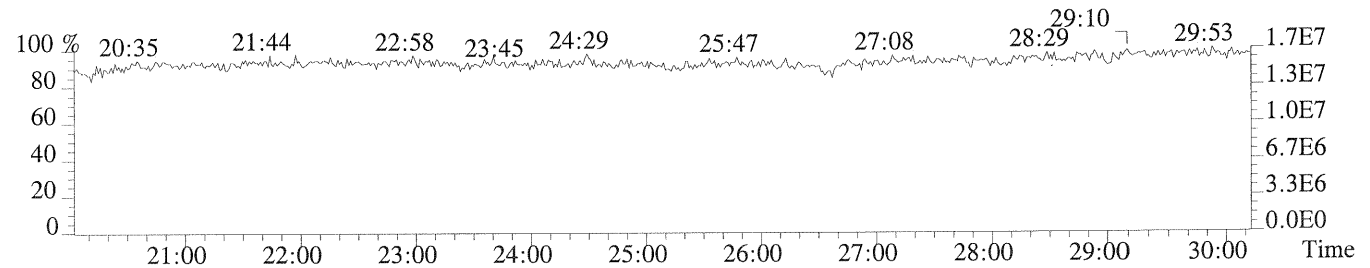
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



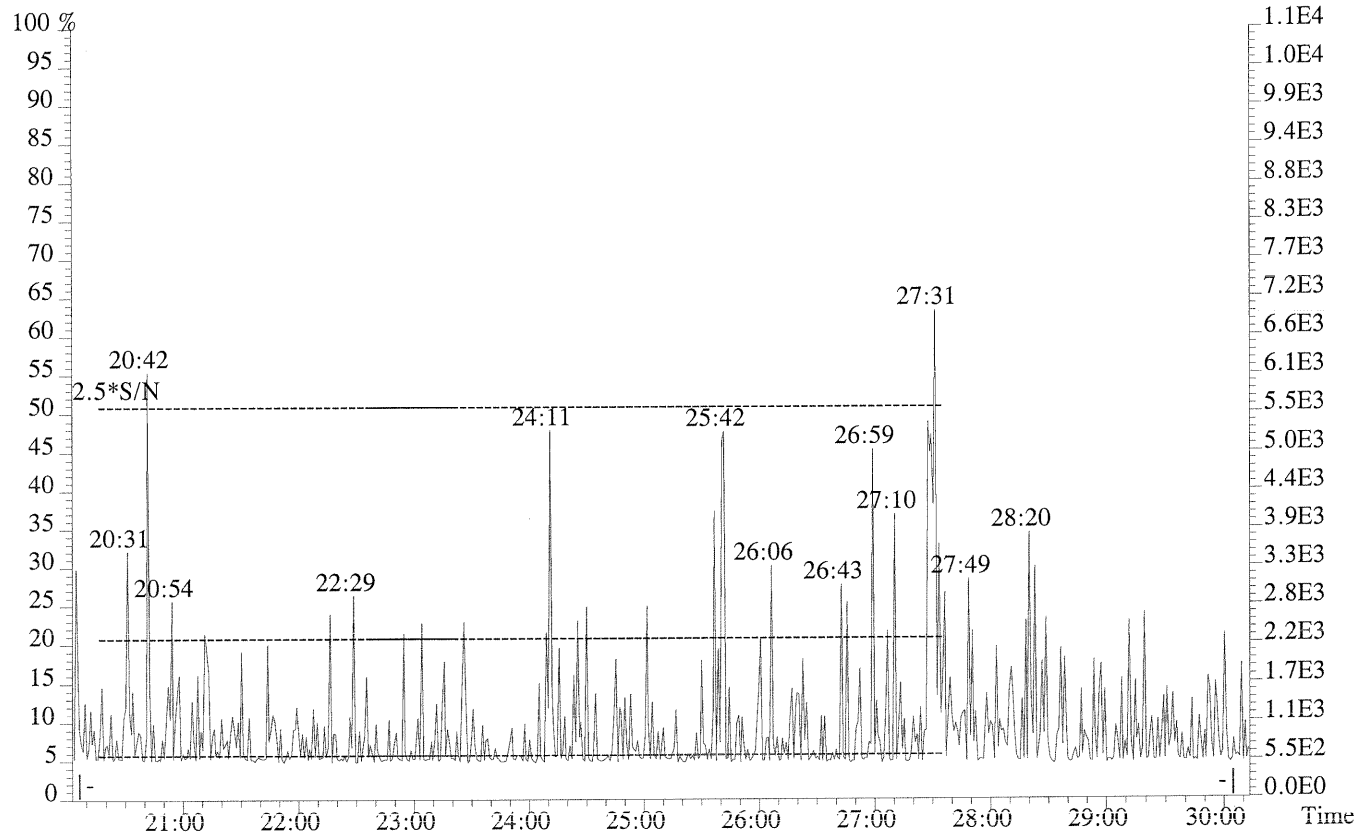
375.8364



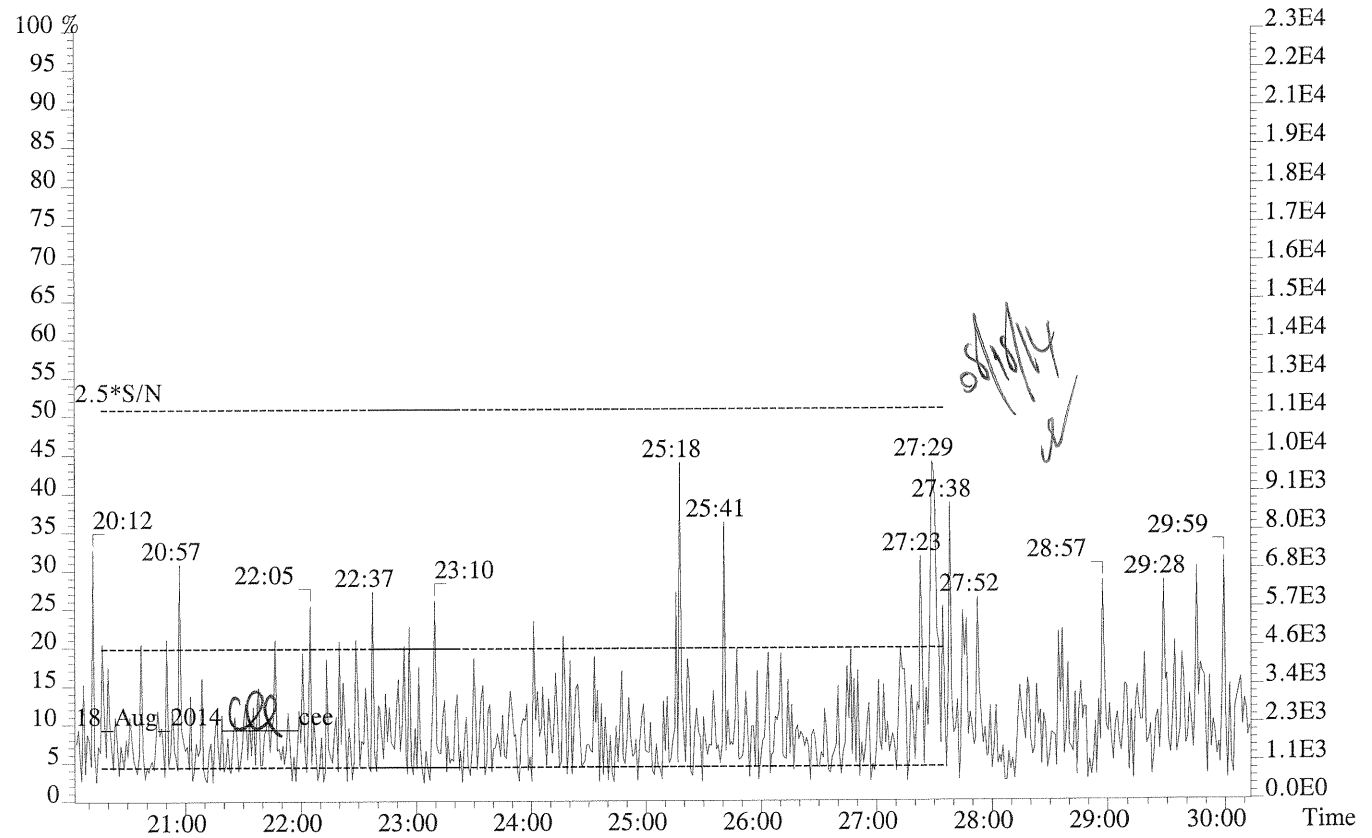
354.9792





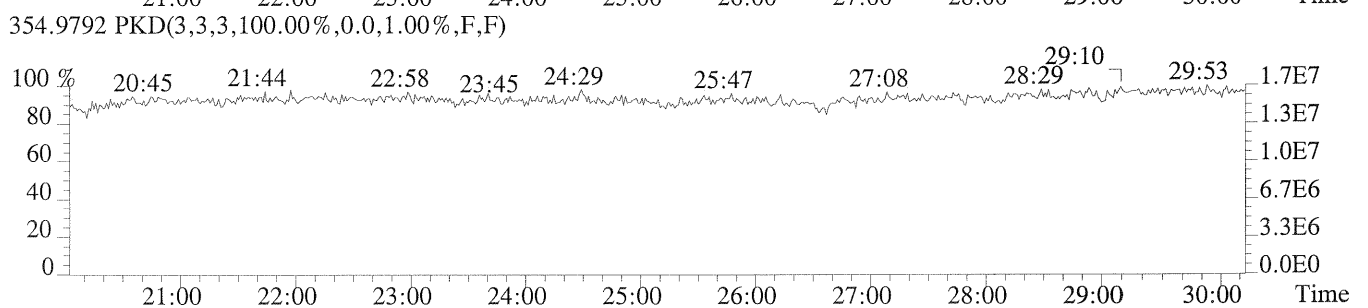
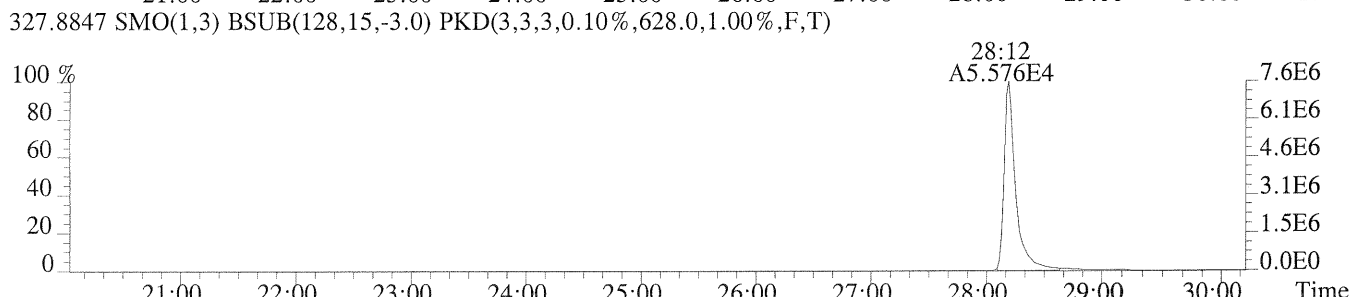
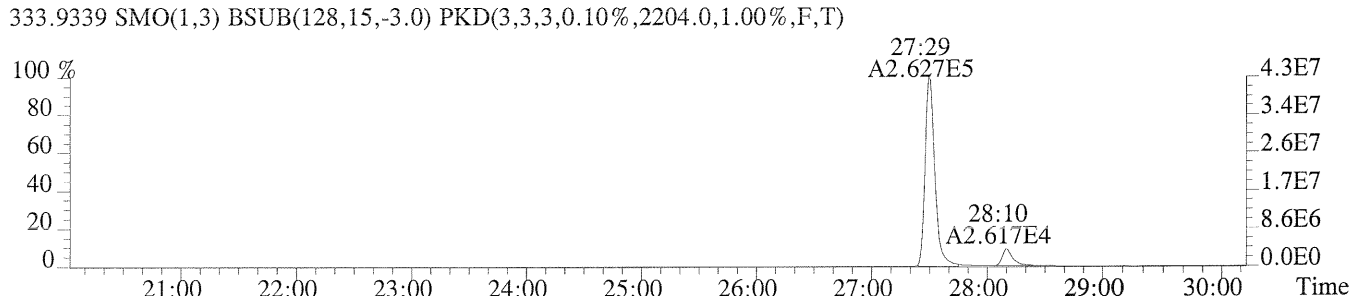
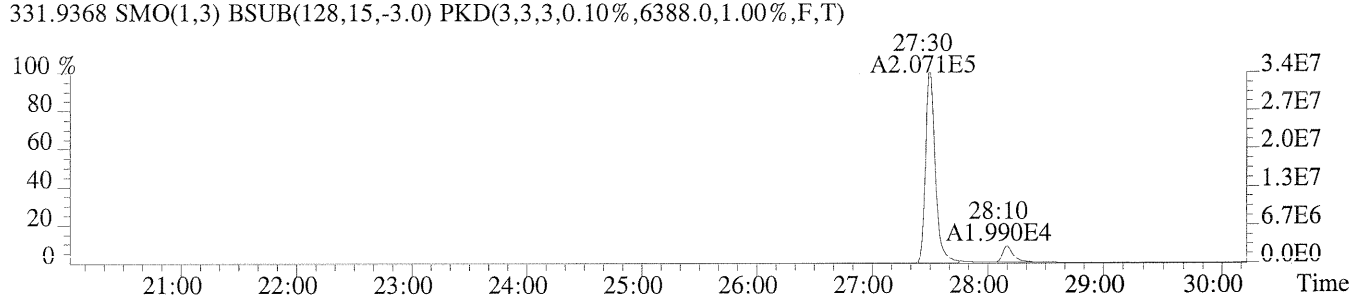
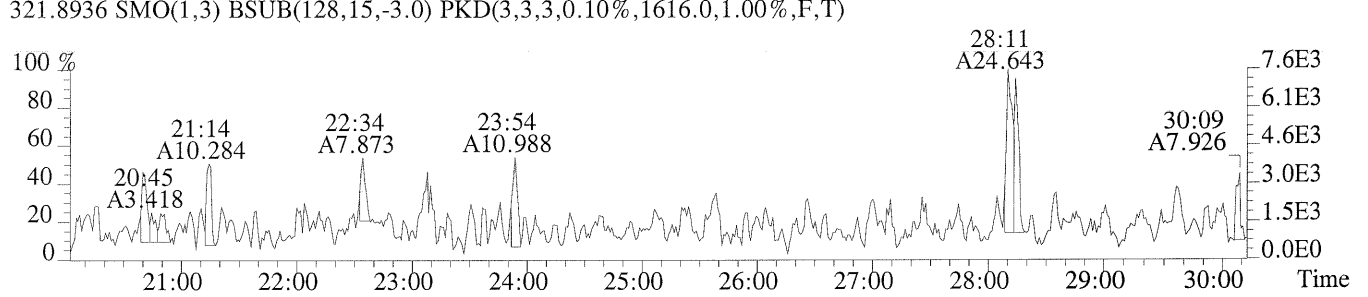
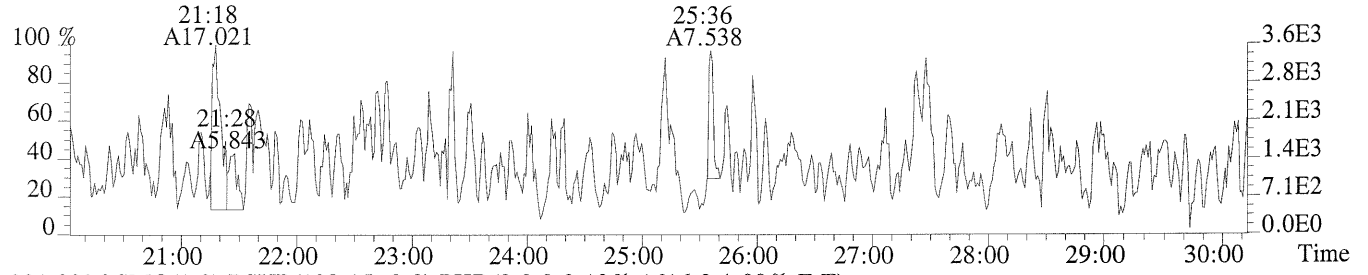


305.8987

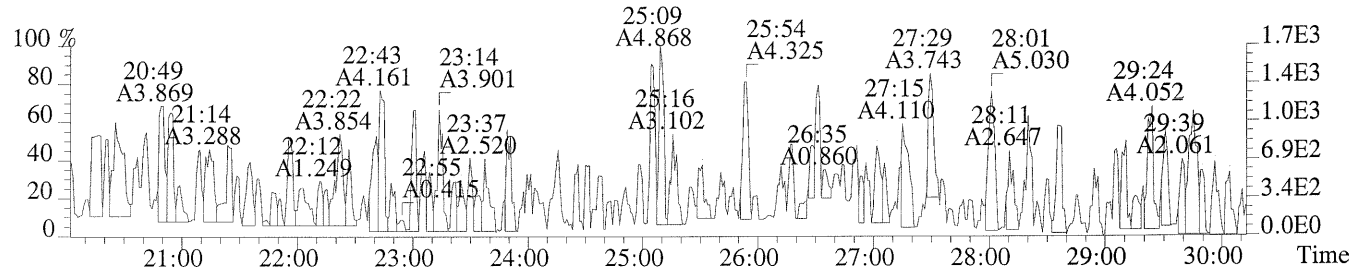


File:P230534 #1-640 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectr

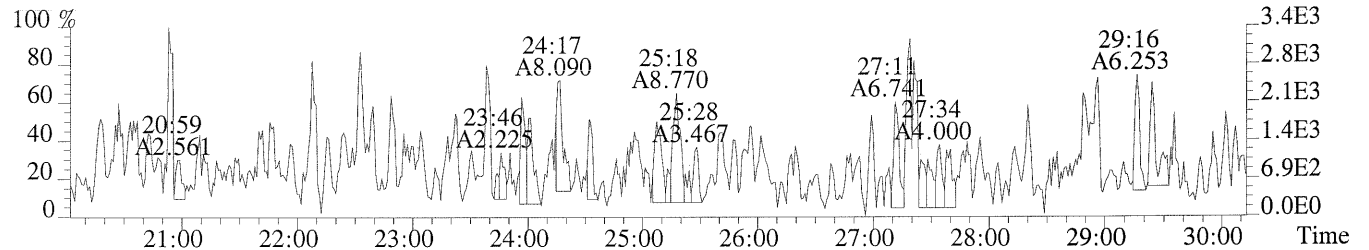
Sample#1 Exp:EQ1400433-01



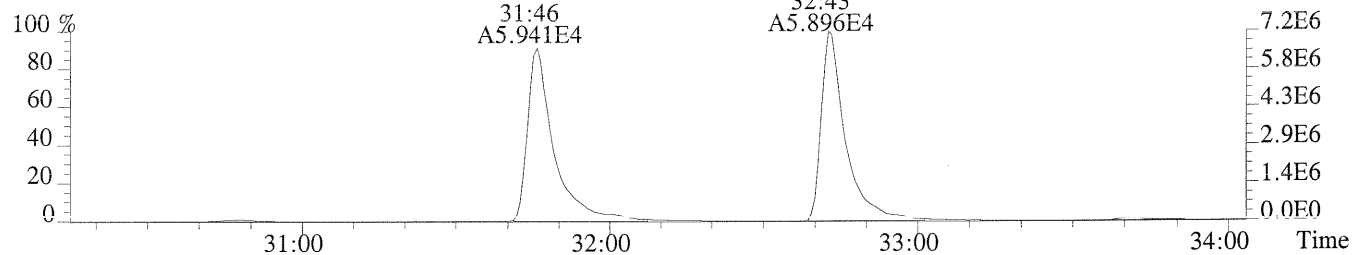
File:P230534 #1-640 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,340.0,1.00%,F,T)



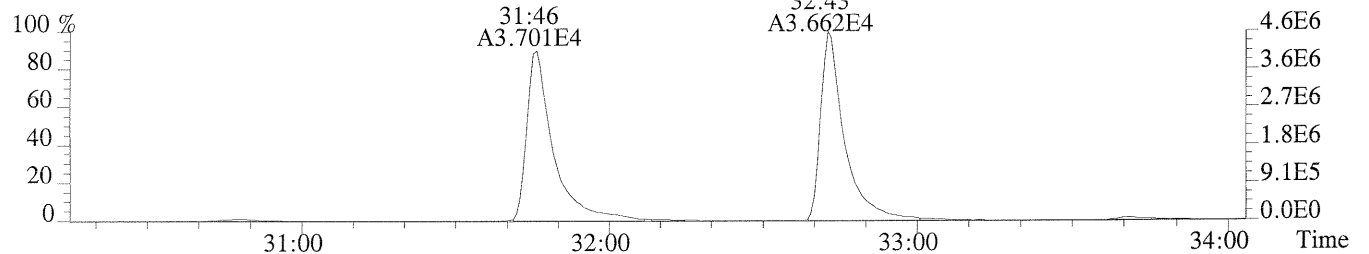
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



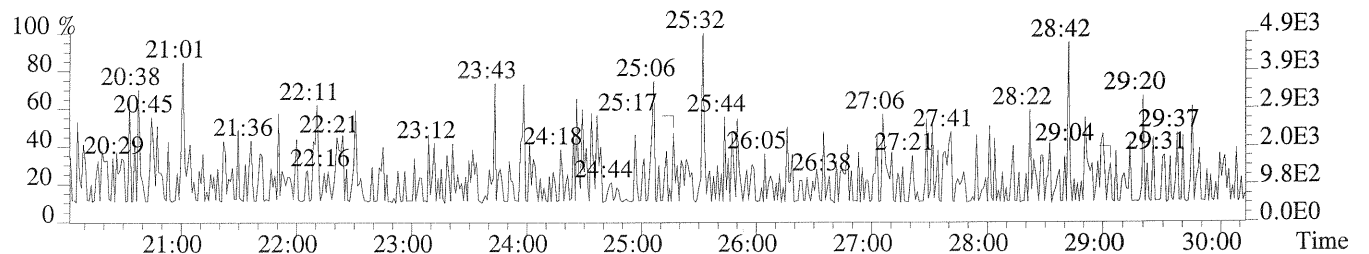
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



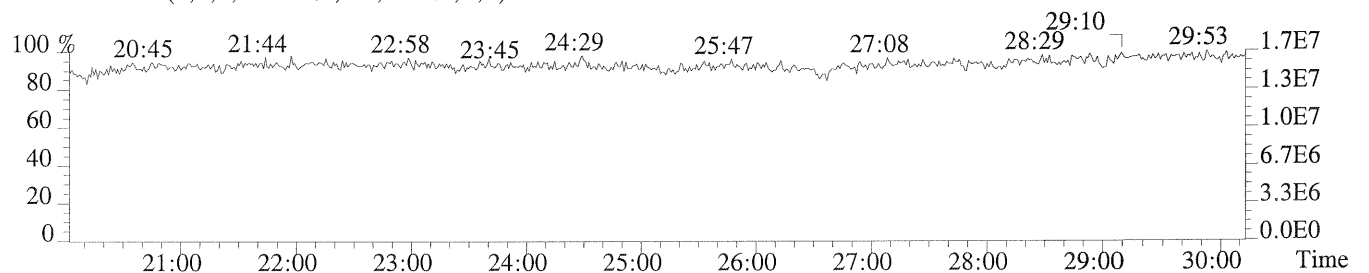
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



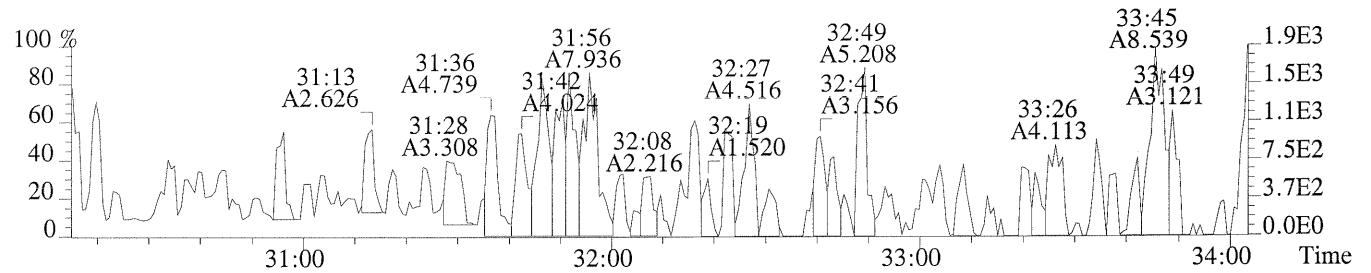
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



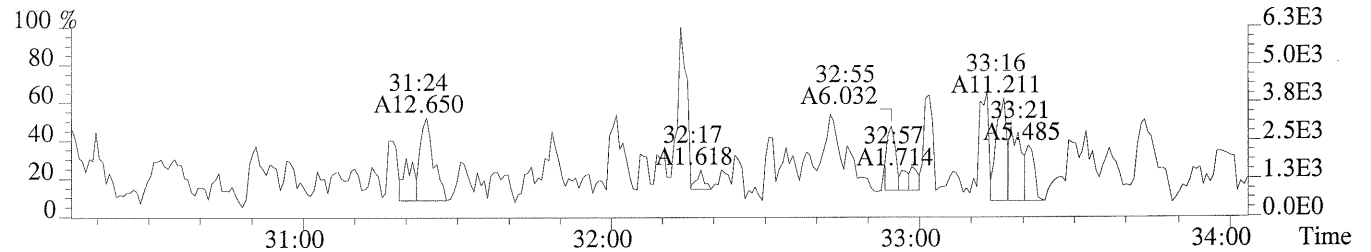
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



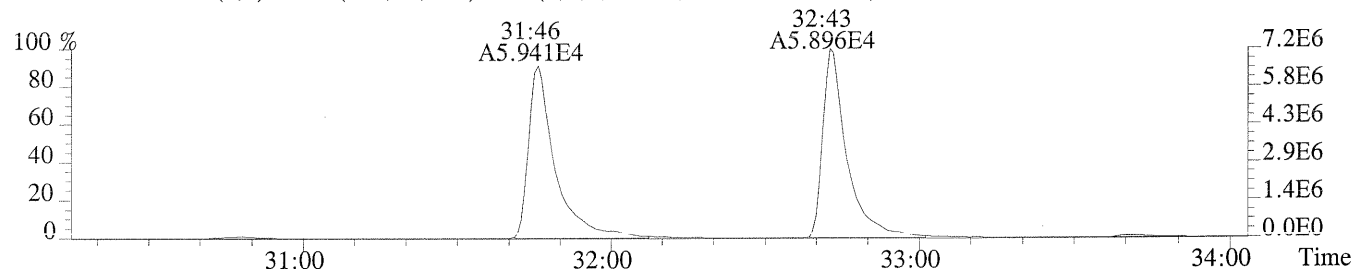
File:P230534 #1-346 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



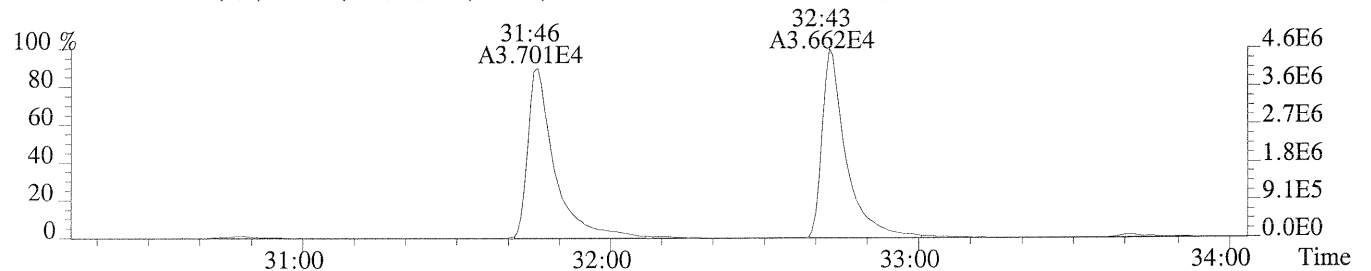
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



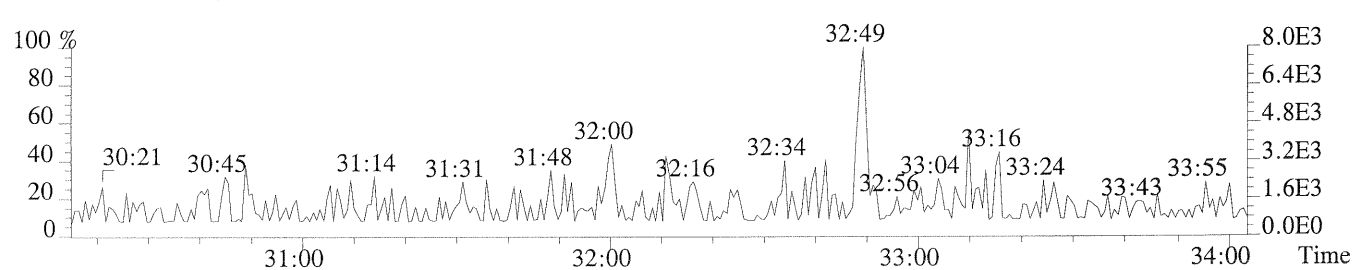
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



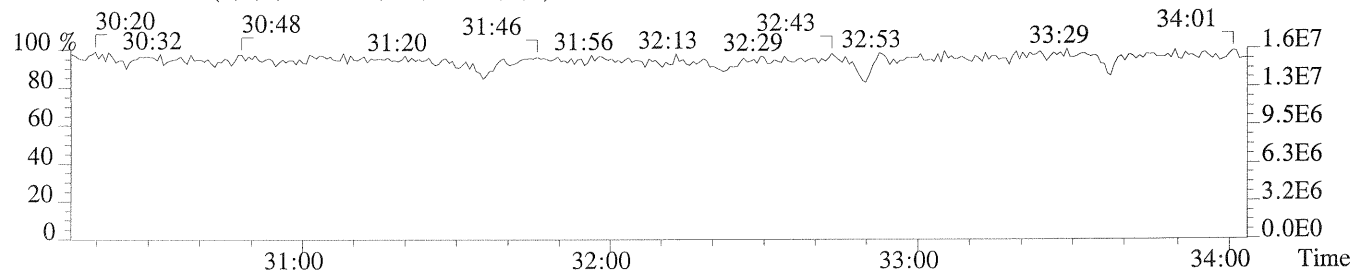
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



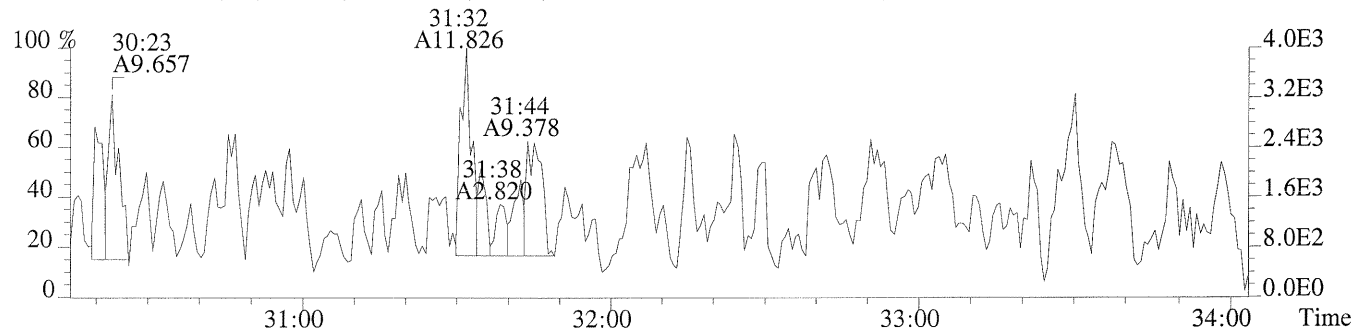
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



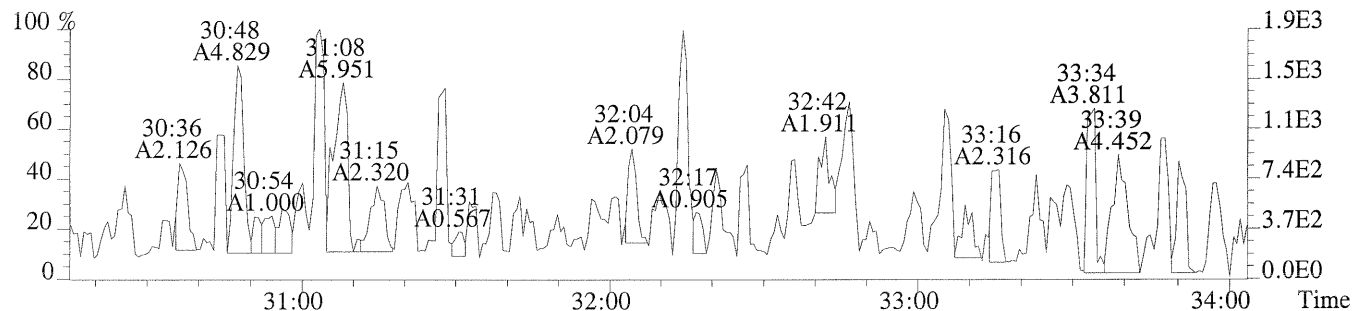
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



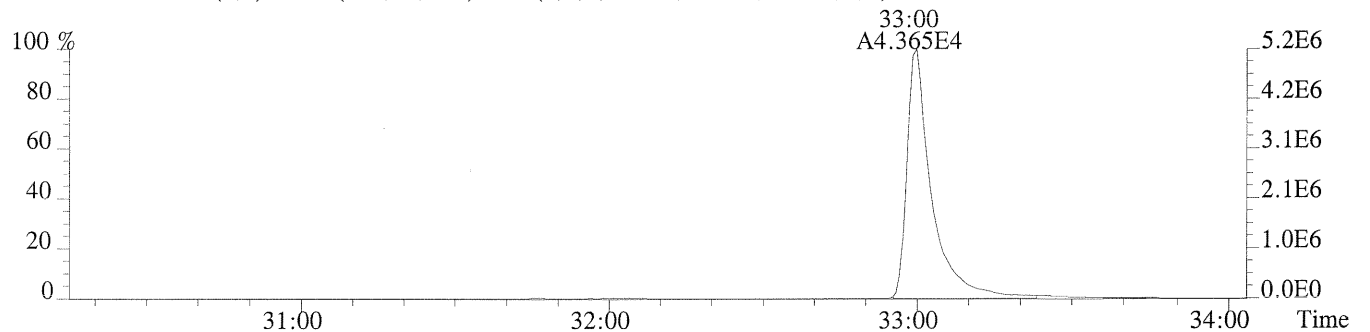
File:P230534 #1-346 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



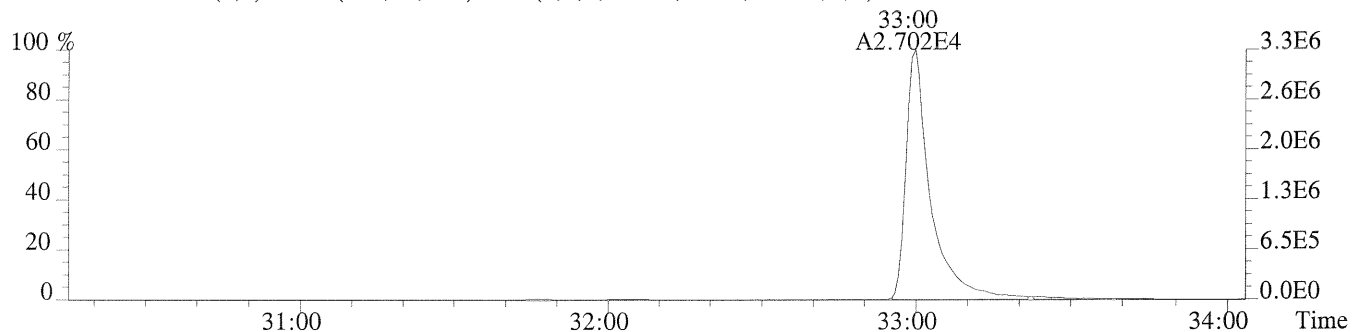
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



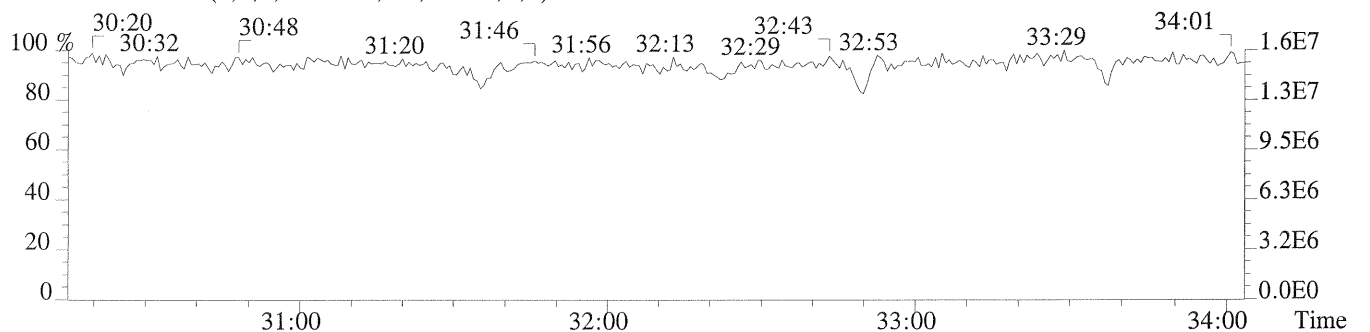
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1492.0,1.00%,F,T)



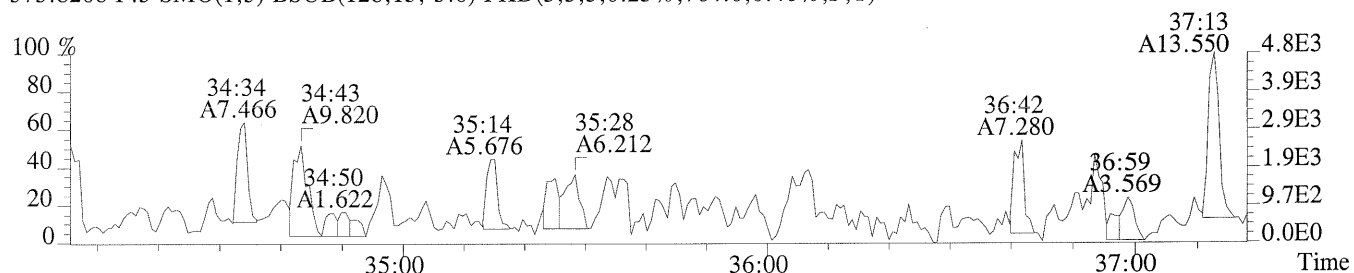
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



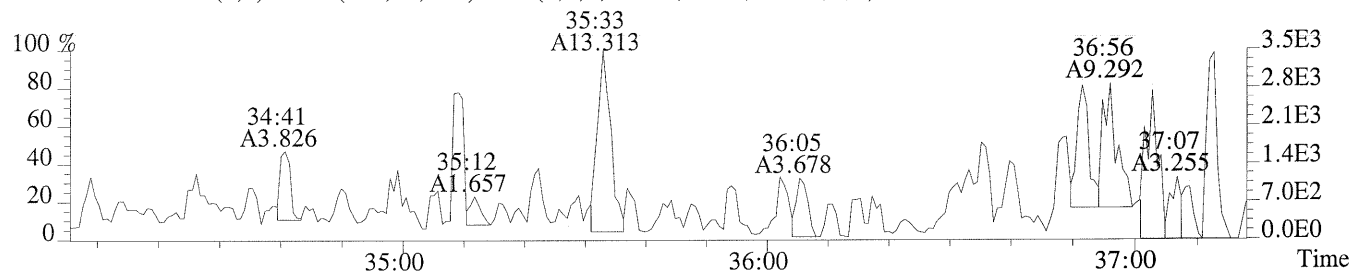
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



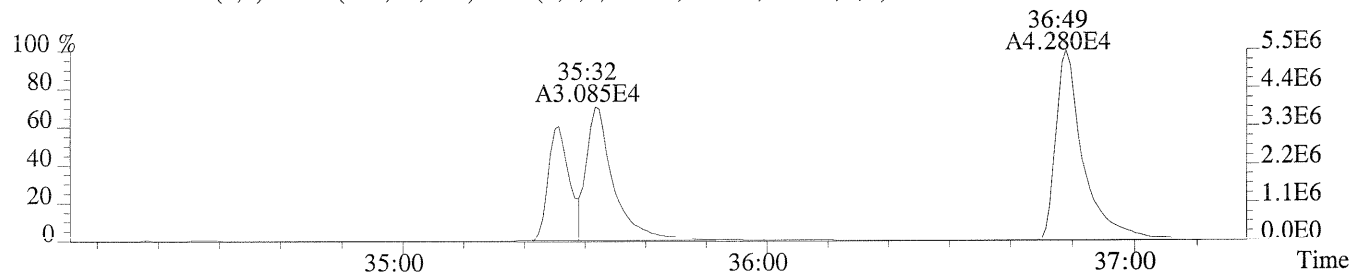
File:P230534 #1-292 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:EQ1400433-01  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



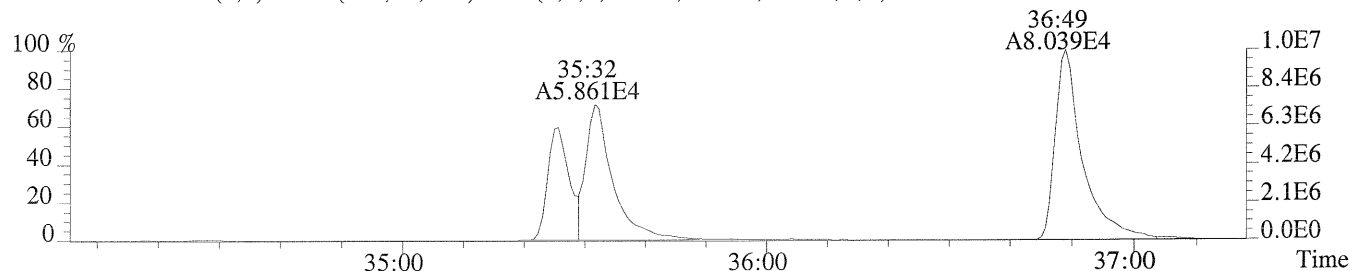
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



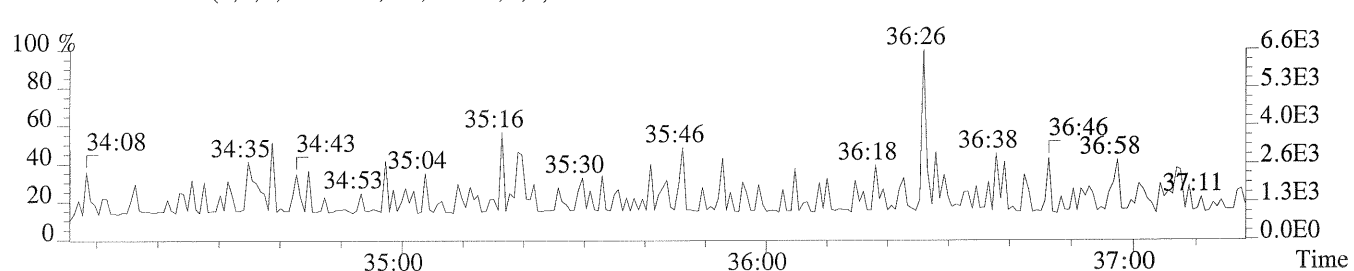
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



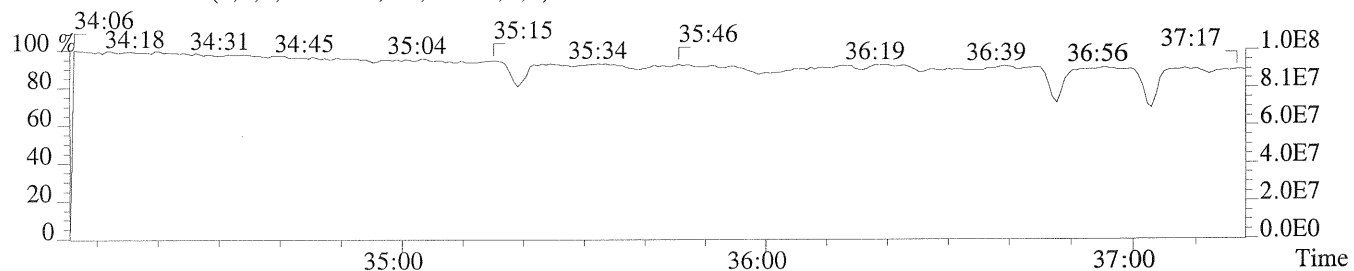
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2260.0,0.40%,F,T)



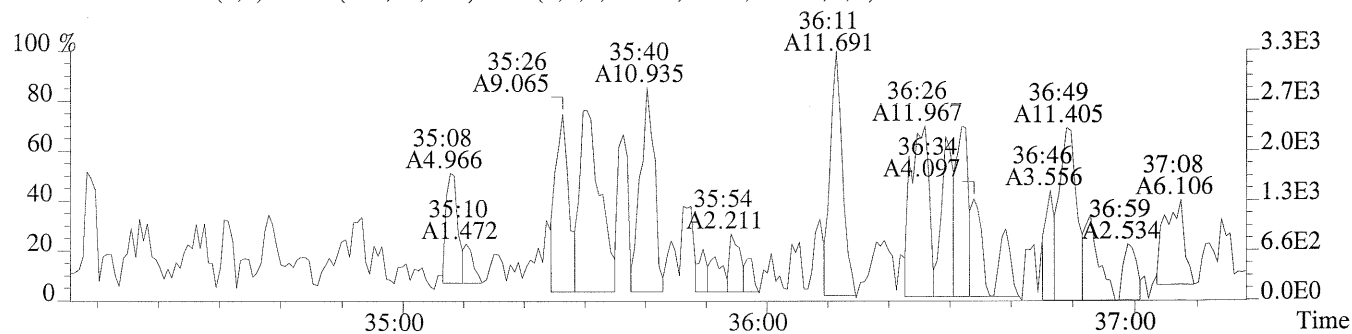
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



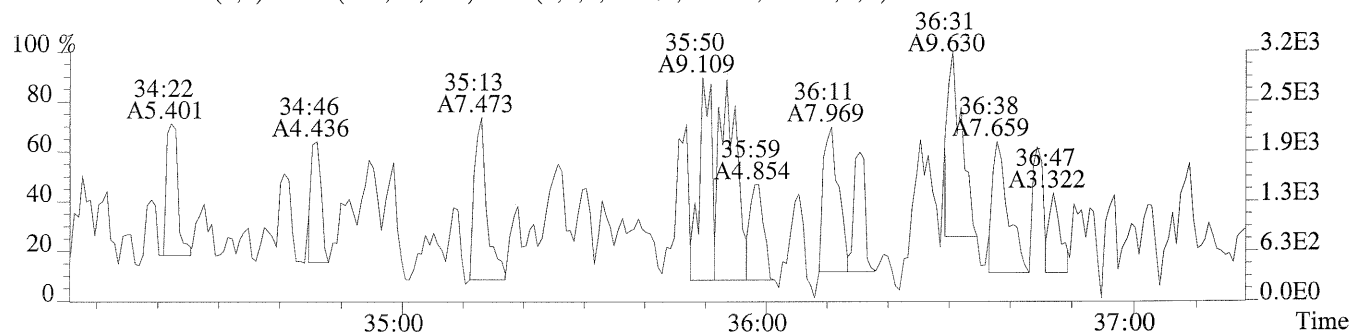
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



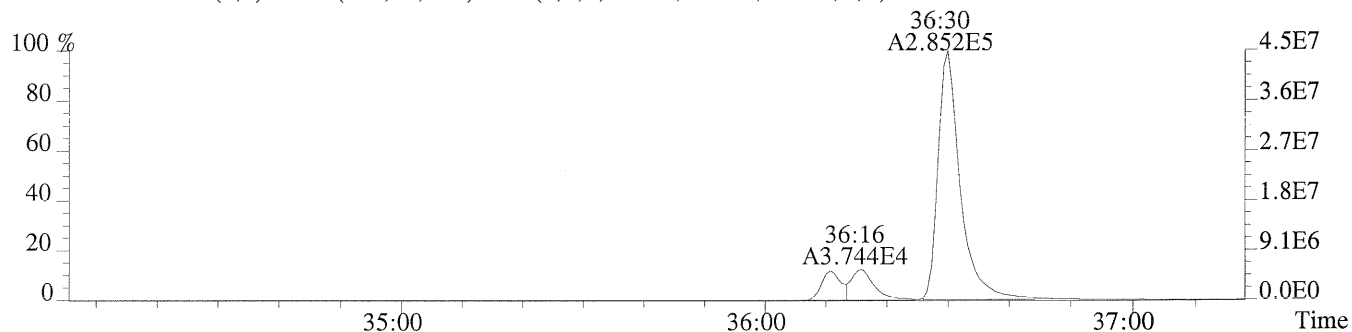
File:P230534 #1-292 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



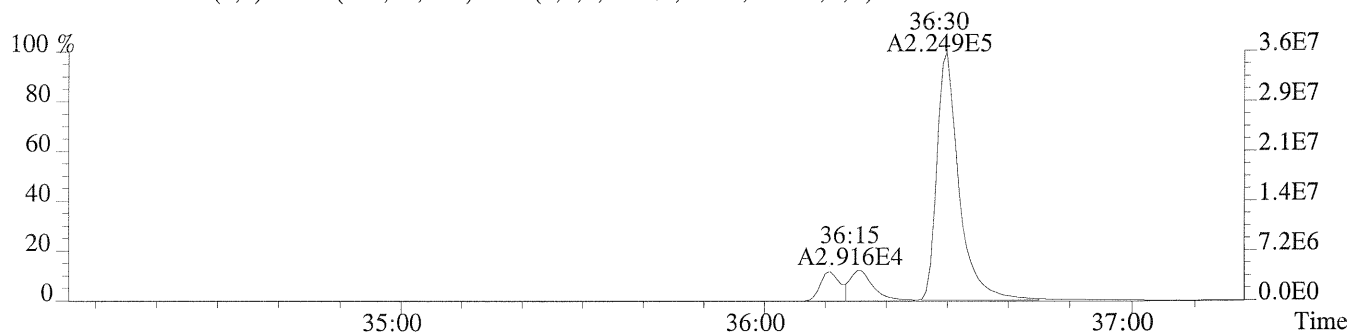
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



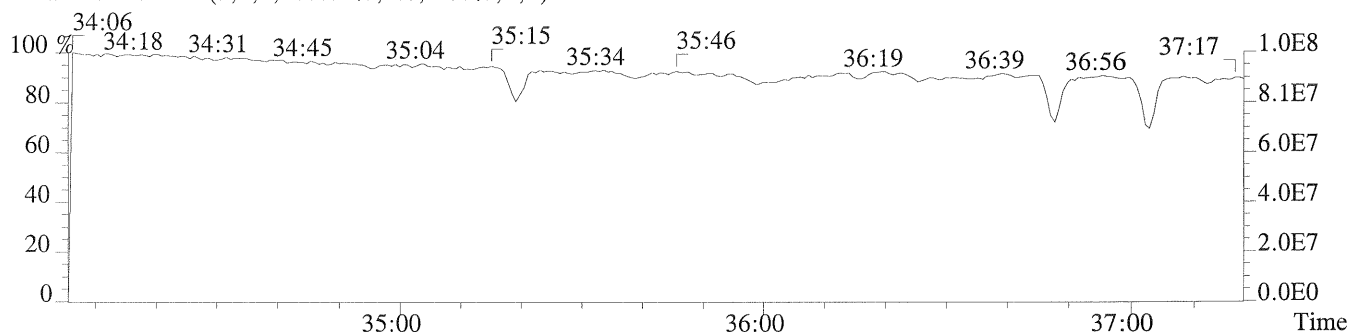
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)



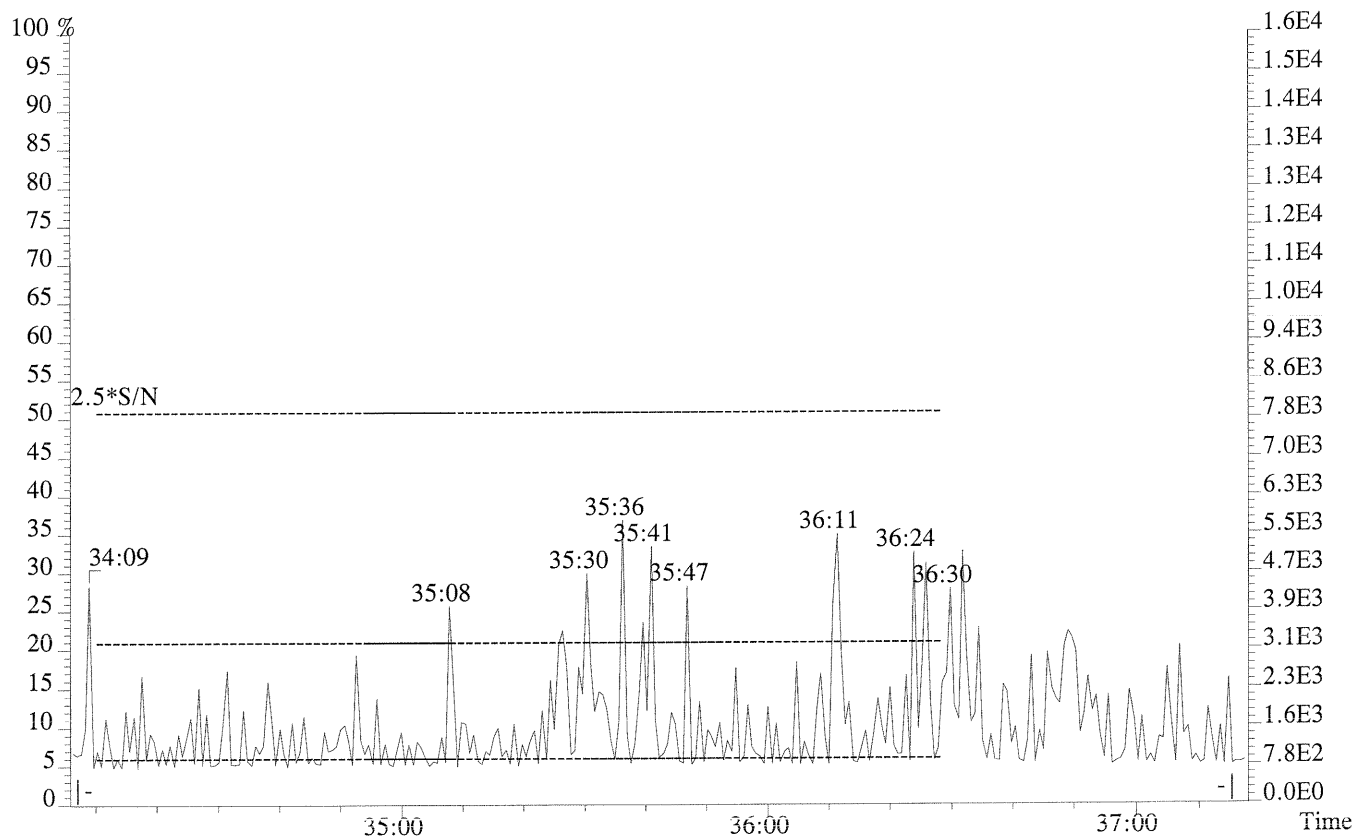
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



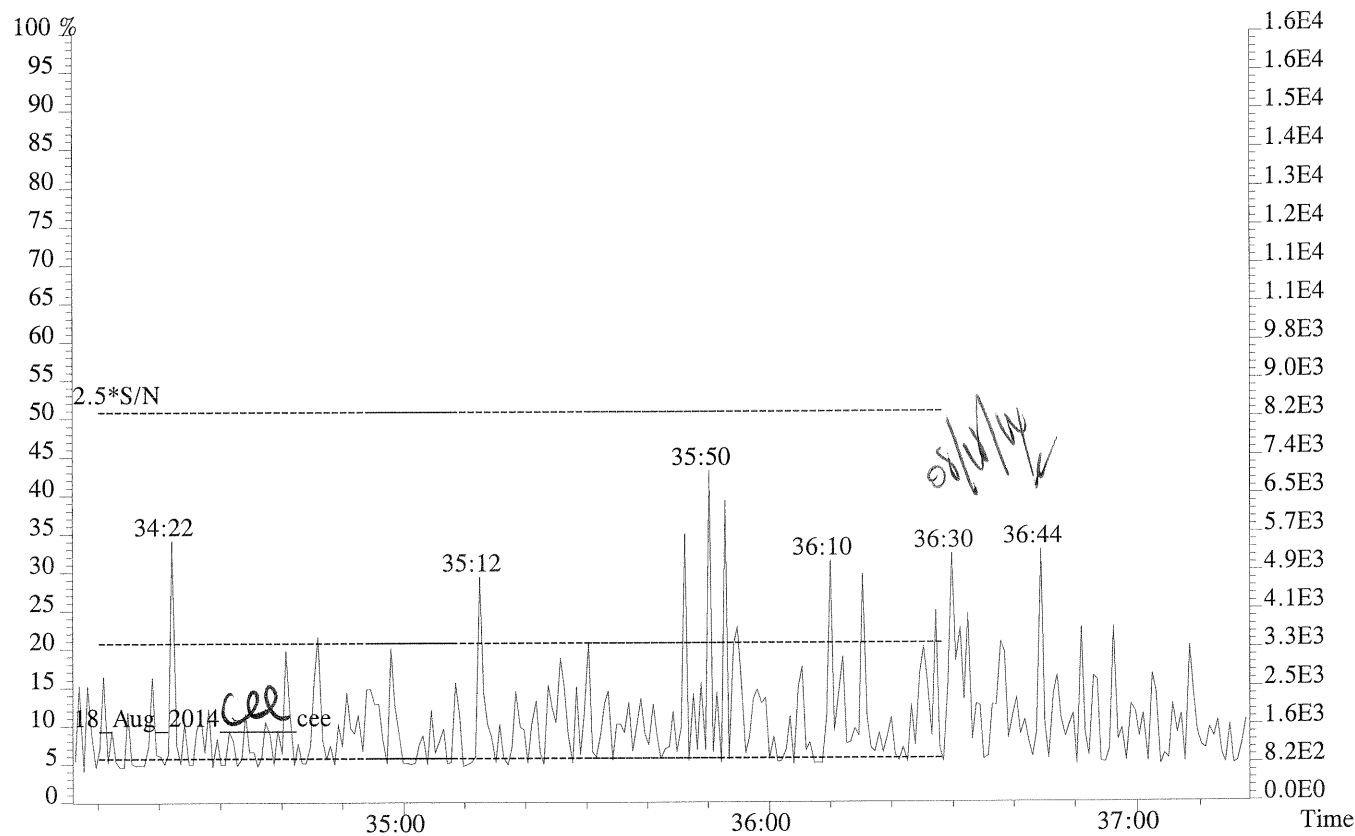
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P230534 #1-292 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:EQ1400433-01  
389.8157 F:3

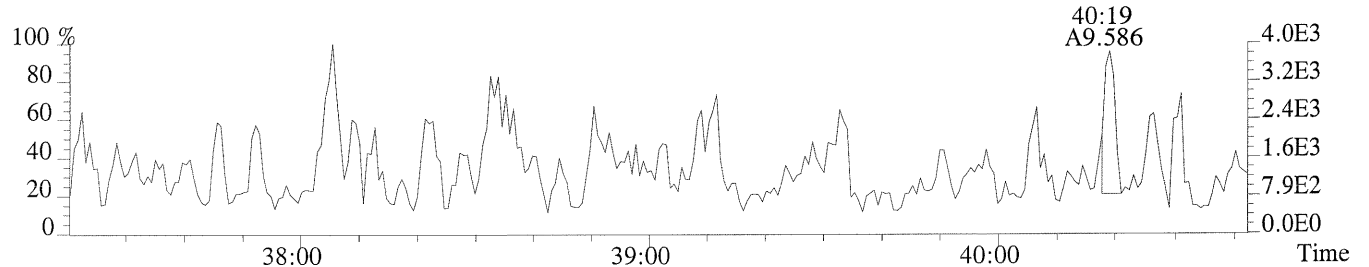


391.8127 F:3

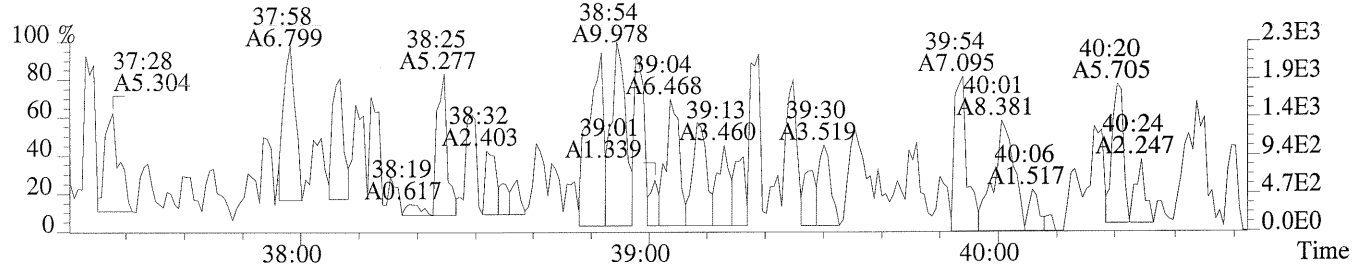




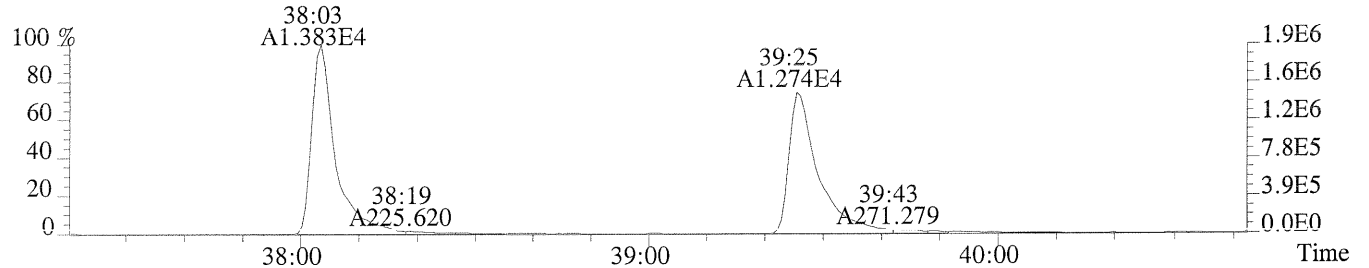
File:P230534 #1-306 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.50%,F,T)



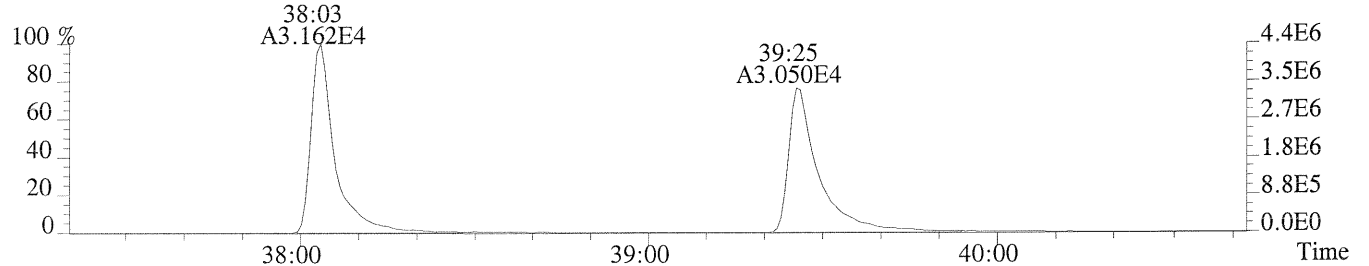
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.50%,F,T)



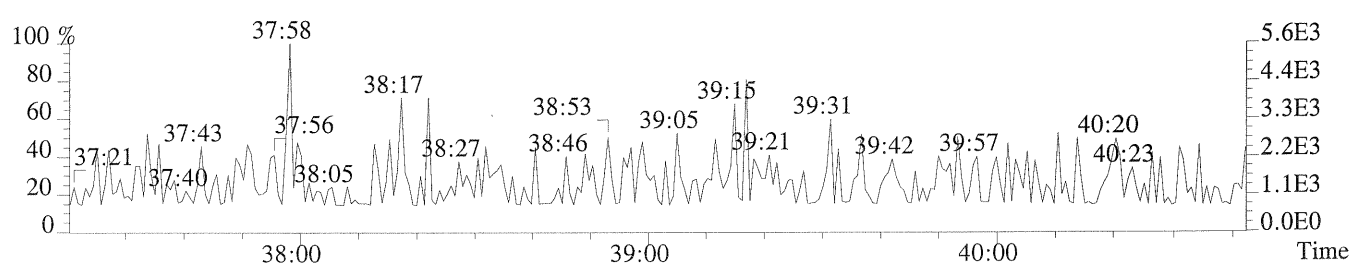
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3064.0,0.50%,F,T)



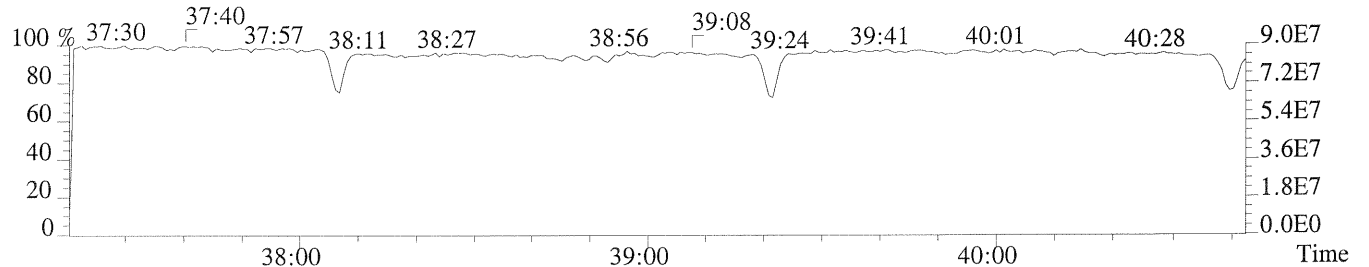
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2952.0,0.50%,F,T)



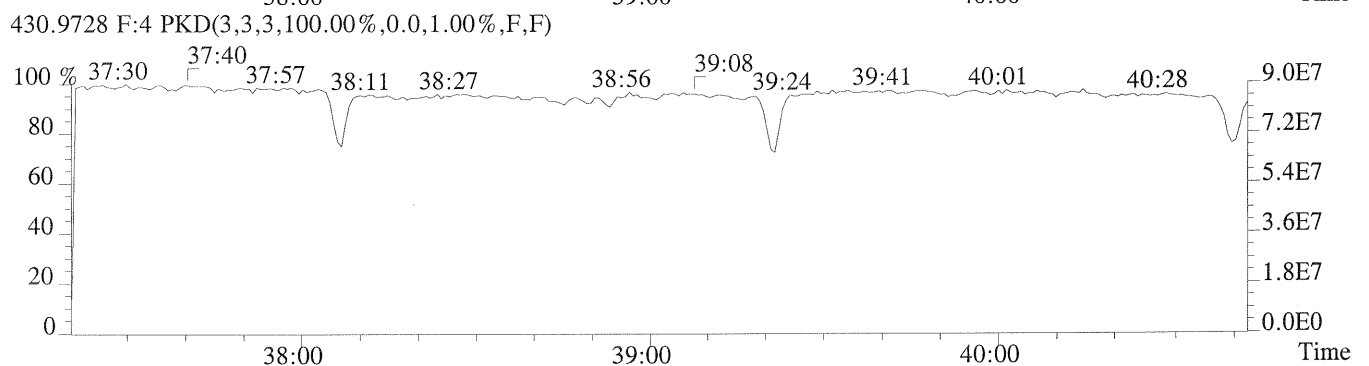
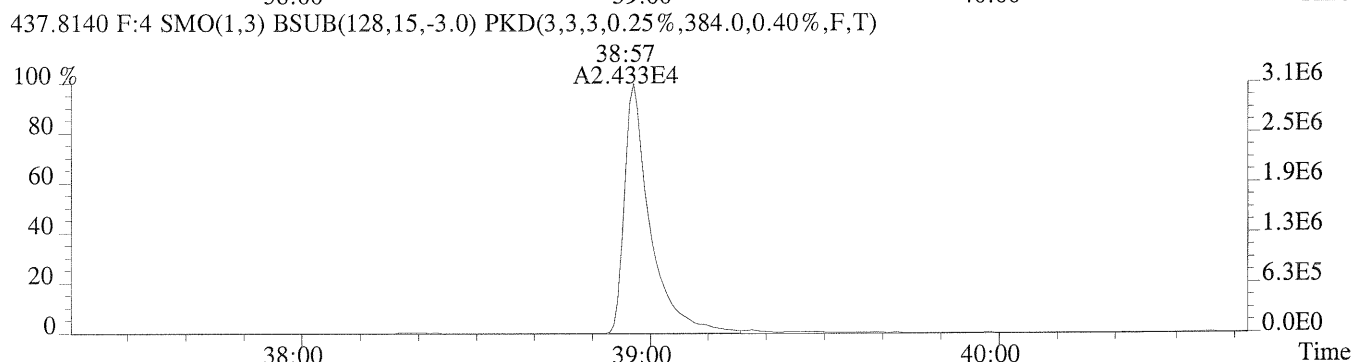
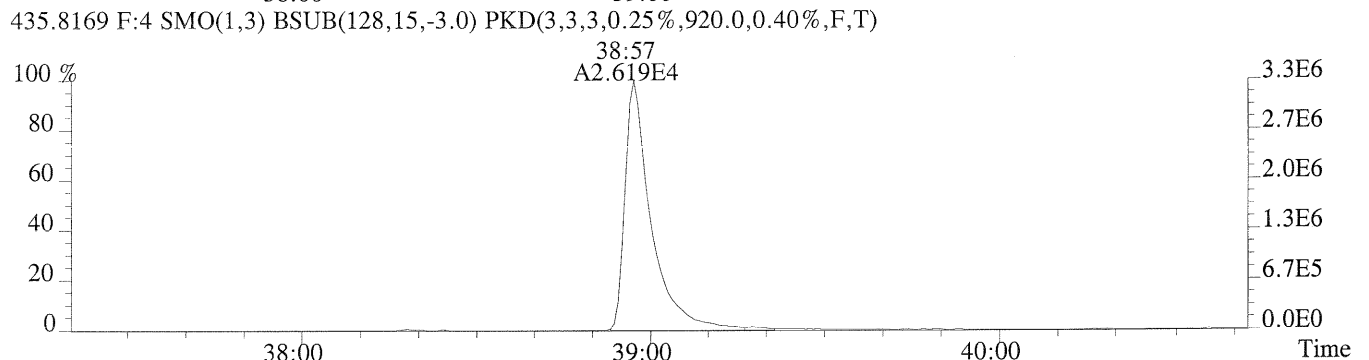
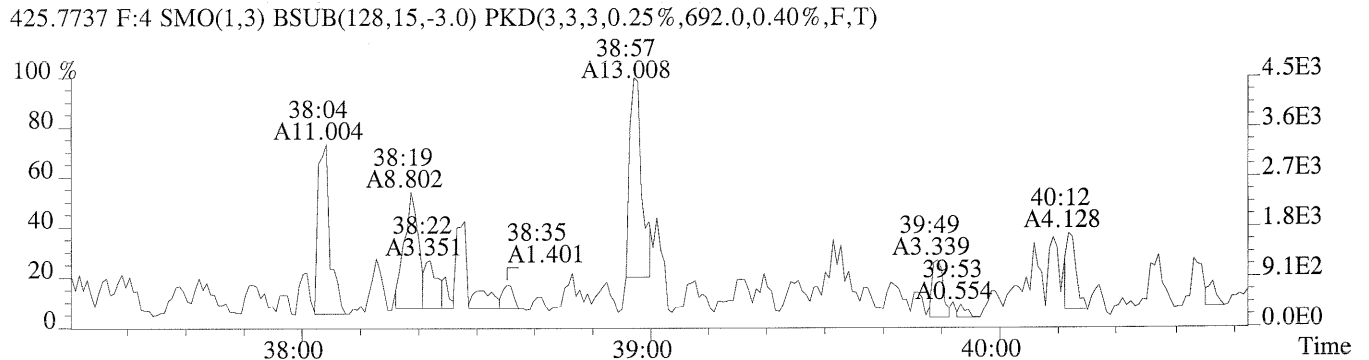
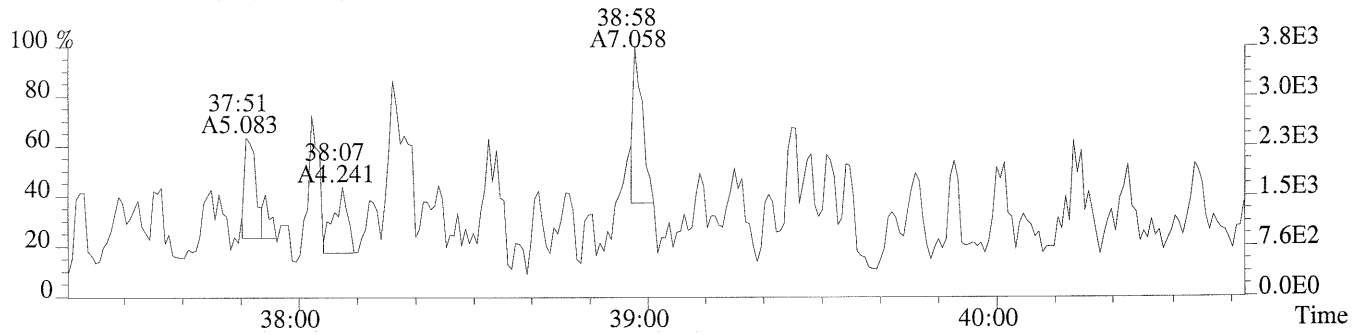
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

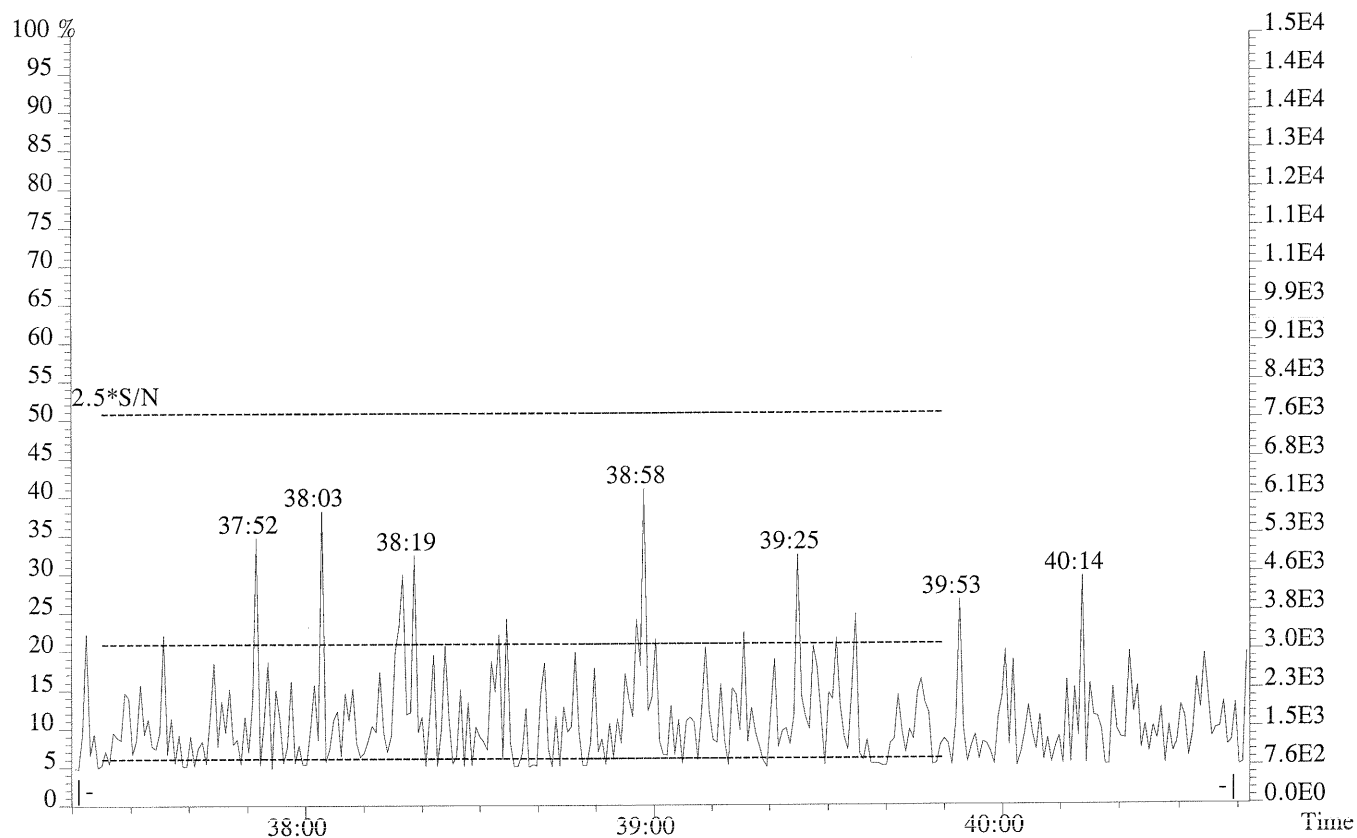


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

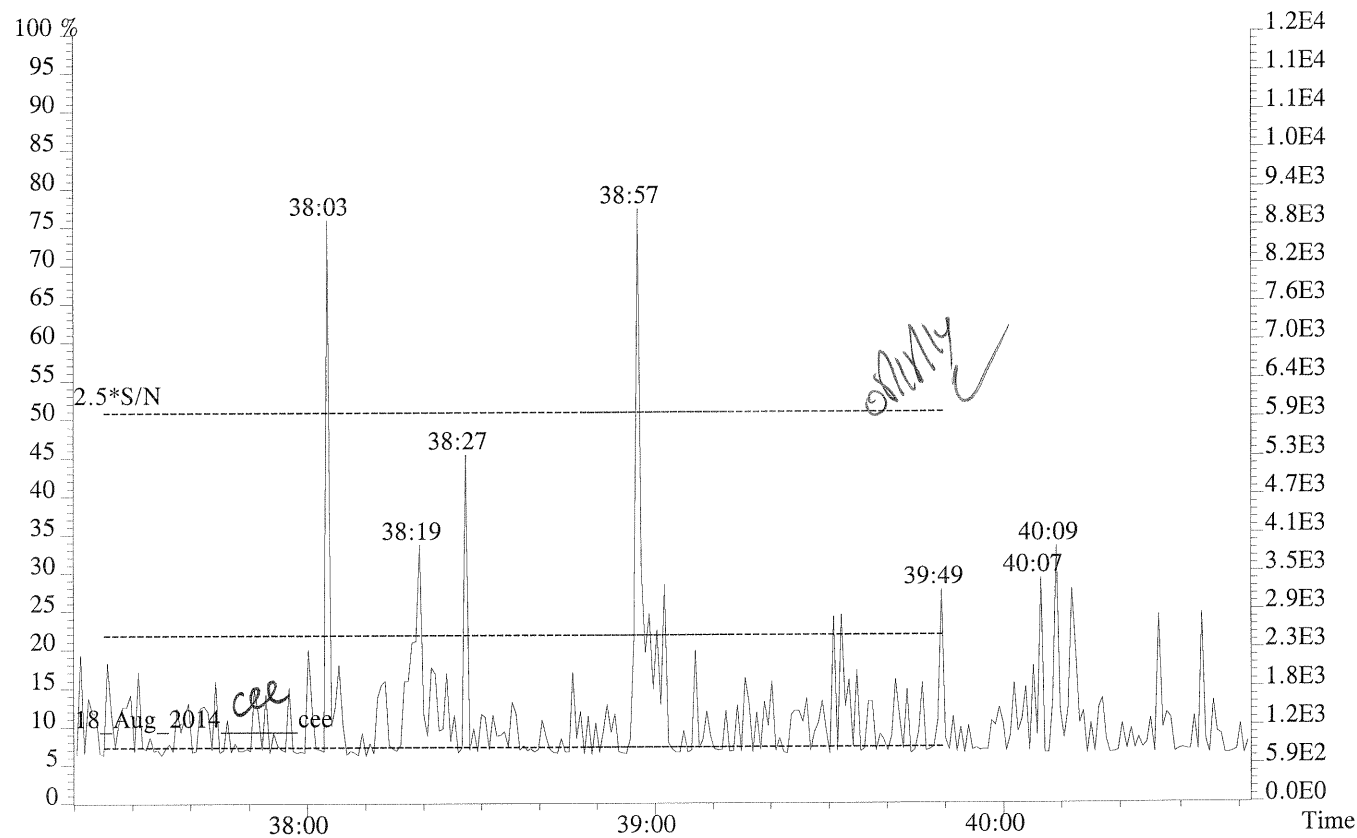


File:P230534 #1-306 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)

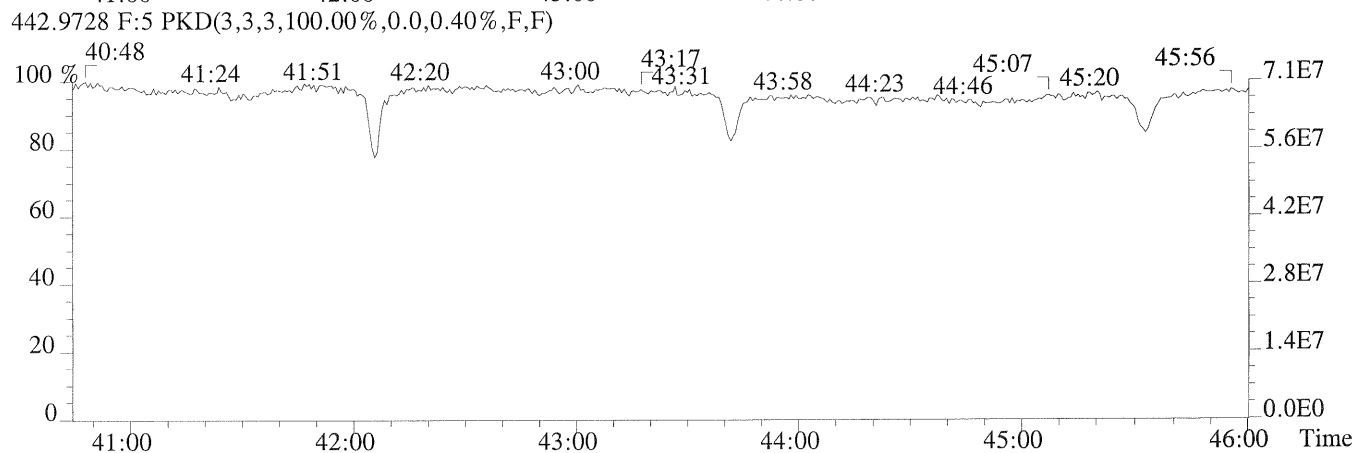
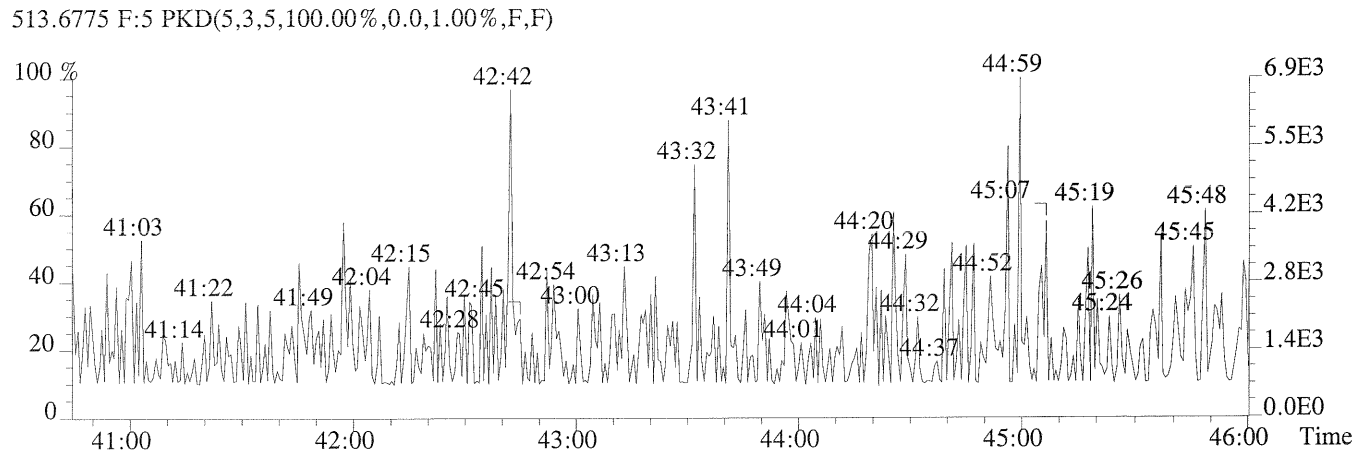
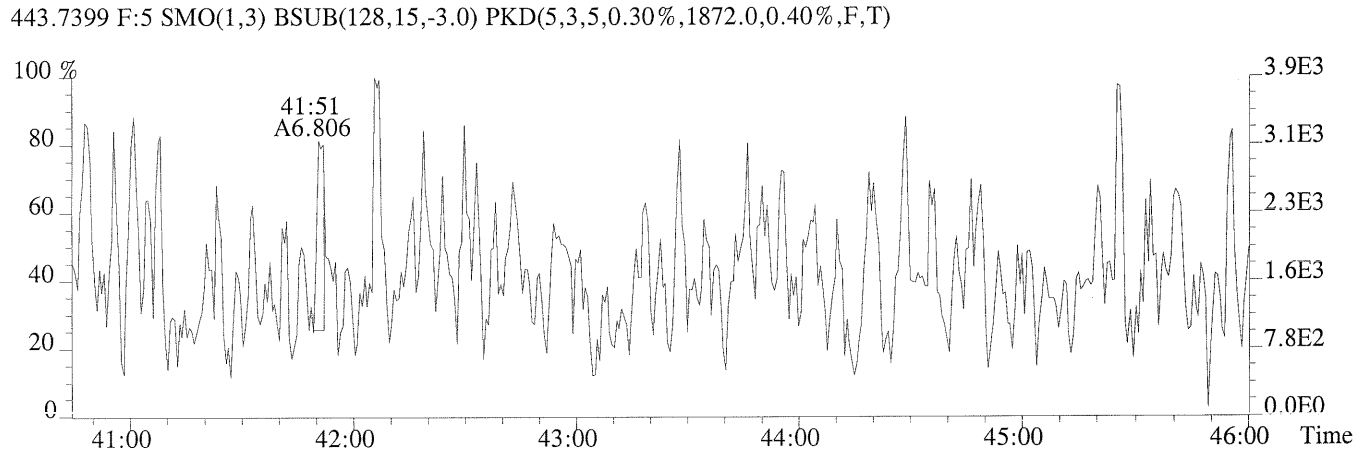
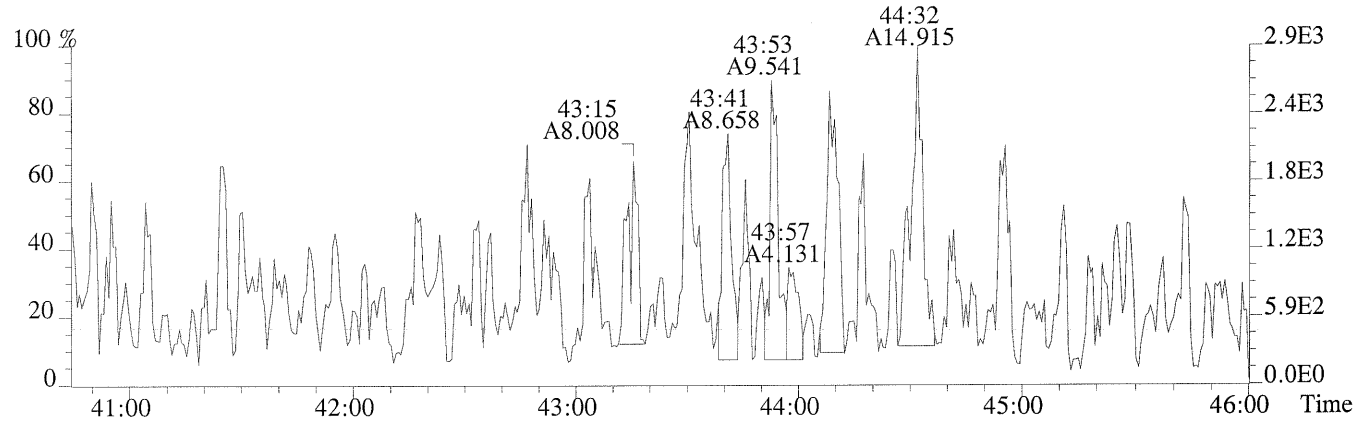




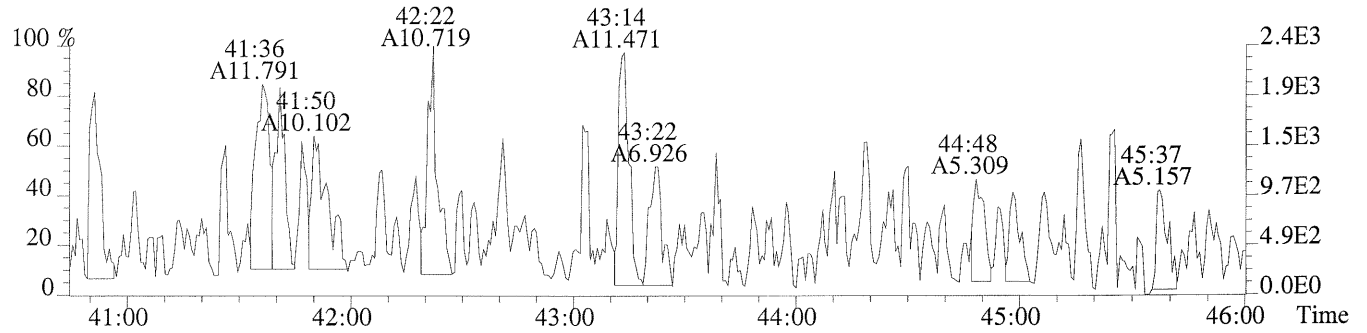
425.7737 F:4



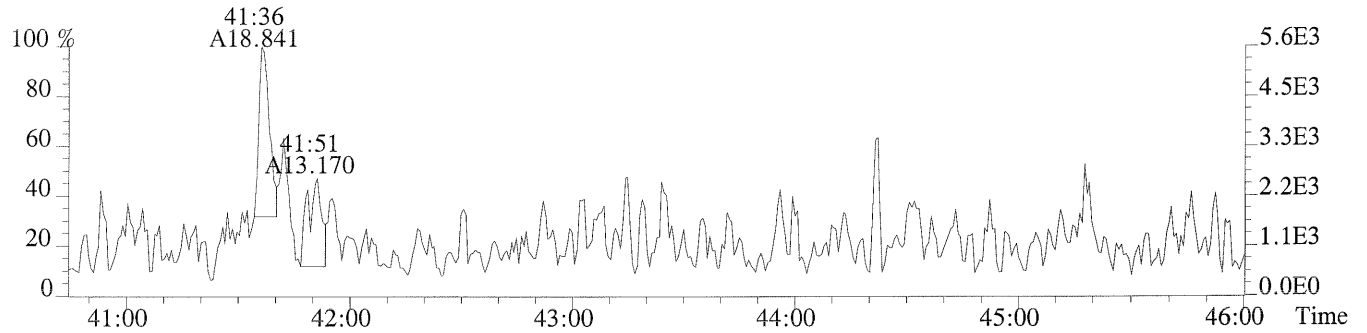
File:P230534 #1-484 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



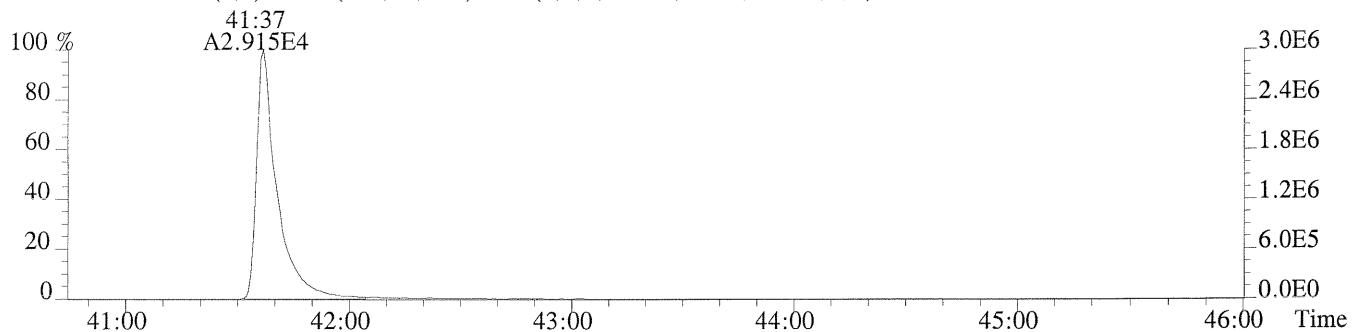
File:P230534 #1-484 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



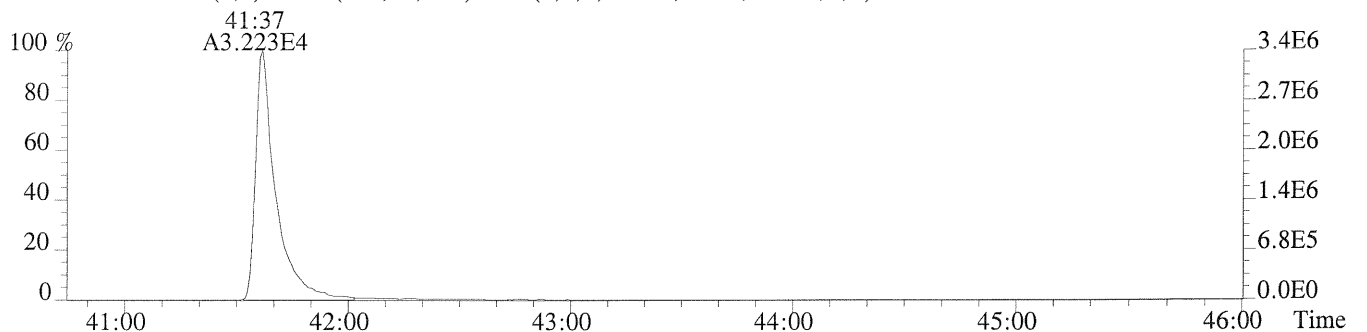
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1412.0,0.40%,F,T)



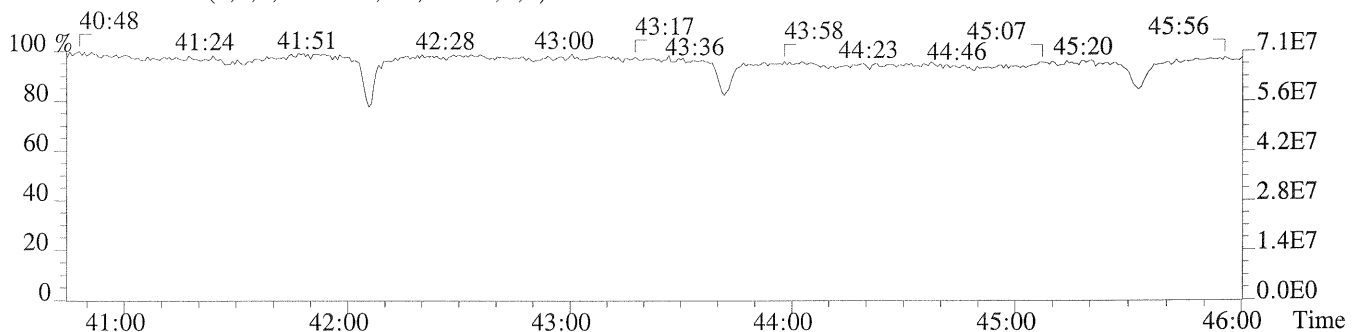
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,852.0,0.40%,F,T)



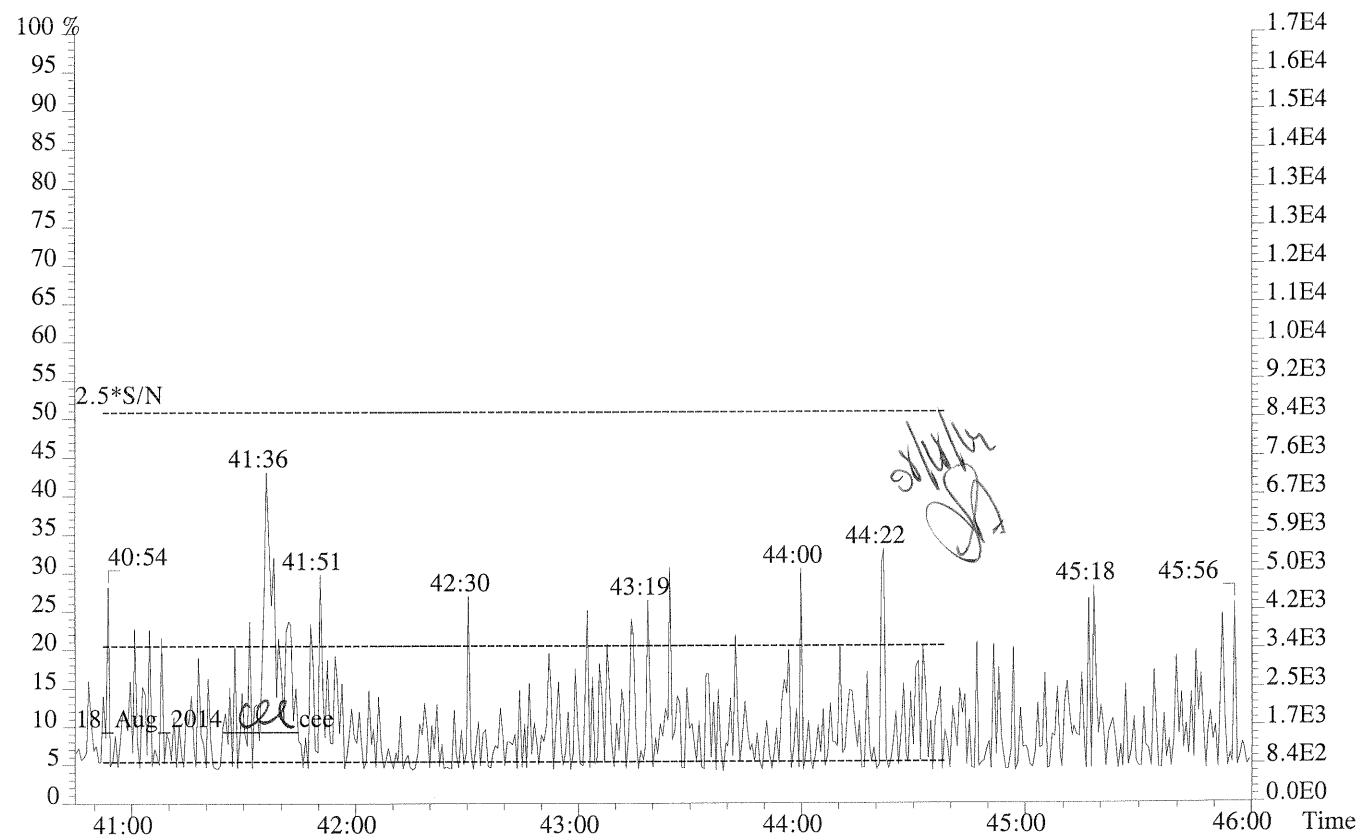
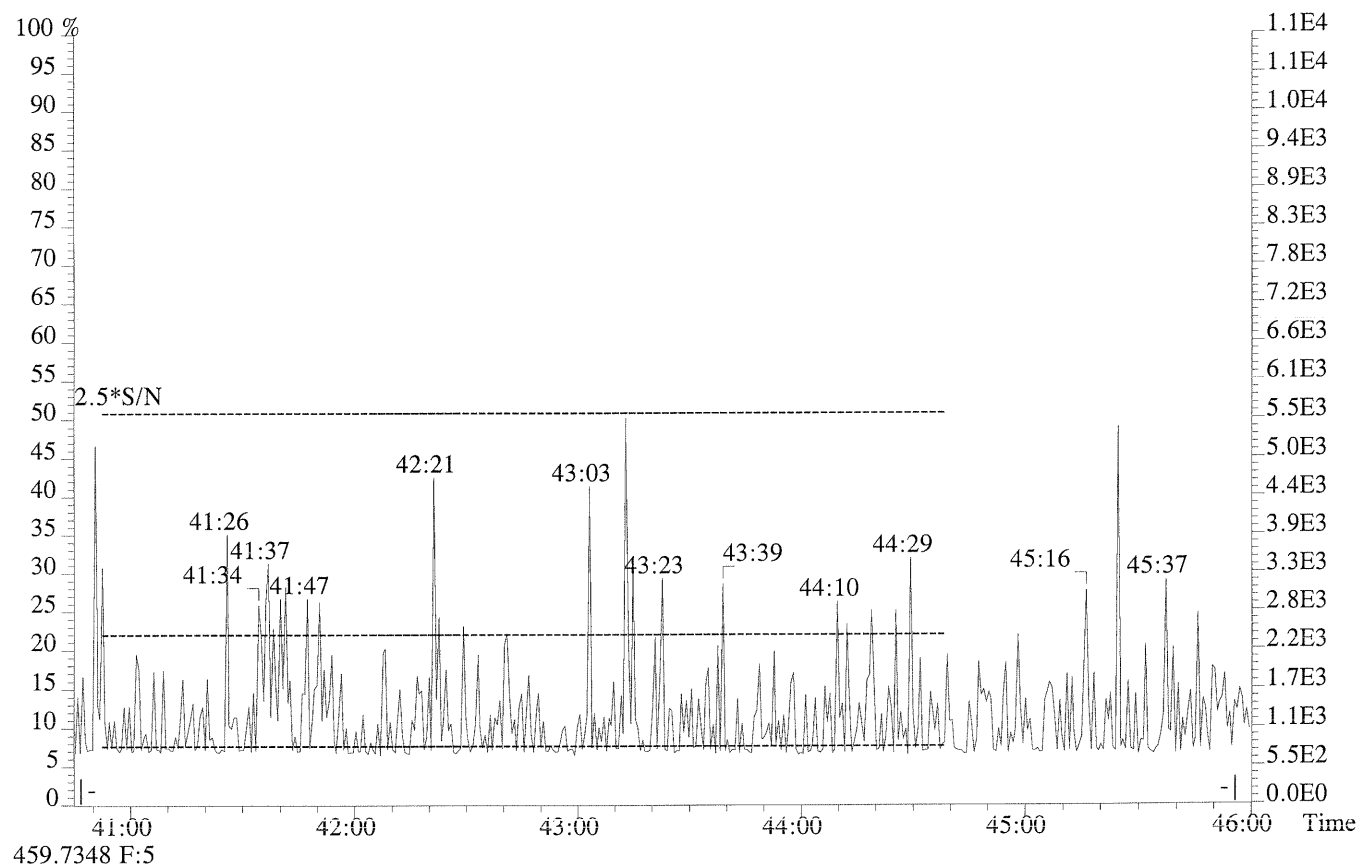
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



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



File:P230534 #1-484 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
457.7377 F:5



ALS ENVIRONMENTAL  
Method M23

CLIENT ID.  
LCS

Sample Response Summary

Run #9 Filename U150392 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 12:22:57  
Processed: 18-AUG-14 13:30:51 LAB. ID: EQ1400433-02

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:08	6.084e+02	8.130e+02	0.75	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:08	6.520e+03	4.084e+03	1.60	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	34:01	6.089e+03	4.004e+03	1.52	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:39	4.942e+03	4.067e+03	1.22	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:44	5.706e+03	4.707e+03	1.21	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:15	4.939e+03	4.108e+03	1.20	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	38:01	4.021e+03	3.263e+03	1.23	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:16	4.042e+03	3.843e+03	1.05	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:47	2.844e+03	2.805e+03	1.01	yes	no	0.959
10 Unk	OCDF	43:27	3.422e+03	3.809e+03	0.90	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:51	4.549e+02	5.672e+02	0.80	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:17	4.544e+03	2.858e+03	1.59	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:22	3.661e+03	2.933e+03	1.25	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:27	4.126e+03	3.314e+03	1.25	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:41	4.344e+03	3.392e+03	1.28	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:15	2.860e+03	2.588e+03	1.11	yes	no	1.102
17 Unk	OCDD	43:14	2.982e+03	3.401e+03	0.88	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:07	6.205e+03	7.467e+03	0.83	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:06	1.266e+04	8.088e+03	1.57	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	34:01	1.288e+04	8.068e+03	1.60	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:37	4.822e+03	9.479e+03	0.51	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:44	6.380e+03	1.226e+04	0.52	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:60	8.045e+03	1.525e+04	0.53	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:16	3.346e+03	7.575e+03	0.44	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.715e+03	5.937e+03	0.46	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:50	4.604e+03	5.708e+03	0.81	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:16	8.548e+03	5.384e+03	1.59	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:22	6.401e+03	5.190e+03	1.23	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:27	6.538e+03	5.448e+03	1.20	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	5.528e+03	5.161e+03	1.07	yes	no	0.845
32 IS	13C-OCDD	43:13	5.183e+03	5.688e+03	0.91	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:15	3.482e+04	4.526e+04	0.77	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:41	4.559e+04	3.551e+04	1.28	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:51	1.127e+04				no	0.975

$$\text{OCDD} = \frac{(2.982e+03 + 3.401e+03) \times (4000.0)}{(5.183e+03 + 5.688e+03) \times 1.329 \times 1.000} \times 1 \quad \text{pg}$$

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
LCS

Method M23

Run #9 Filename U150392 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 12:22:57  
Processed: 18-AUG-14 13:30:51 LAB. ID: EQ1400433-02

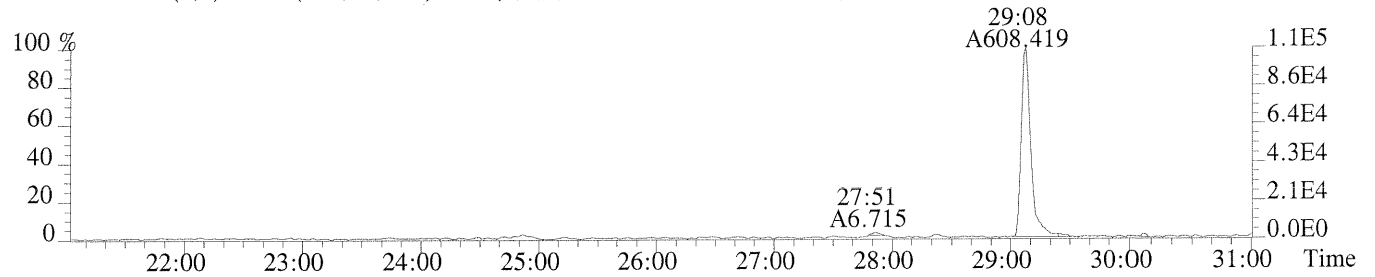
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.06e+05	1.03e+03	1.0e+02	1.46e+05	1.46e+03	1.0e+02
2	1,2,3,7,8-PeCDF	1.07e+06	1.45e+03	7.4e+02	6.78e+05	1.18e+03	5.7e+02
3	2,3,4,7,8-PeCDF	1.06e+06	1.45e+03	7.3e+02	7.15e+05	1.18e+03	6.1e+02
4	1,2,3,4,7,8-HxCDF	9.73e+05	1.02e+03	9.5e+02	7.83e+05	1.14e+03	6.9e+02
5	1,2,3,6,7,8-HxCDF	1.04e+06	1.02e+03	1.0e+03	8.37e+05	1.14e+03	7.3e+02
6	2,3,4,6,7,8-HxCDF	9.82e+05	1.02e+03	9.6e+02	8.02e+05	1.14e+03	7.0e+02
7	1,2,3,7,8,9-HxCDF	7.19e+05	1.02e+03	7.0e+02	5.72e+05	1.14e+03	5.0e+02
8	1,2,3,4,6,7,8-HpCDF	7.14e+05	1.04e+03	6.9e+02	6.94e+05	1.68e+03	4.1e+02
9	1,2,3,4,7,8,9-HpCDF	3.92e+05	1.04e+03	3.8e+02	3.91e+05	1.68e+03	2.3e+02
10	OCDF	4.37e+05	1.07e+03	4.1e+02	4.78e+05	1.31e+03	3.7e+02
11	2,3,7,8-TCDD	8.77e+04	9.40e+02	9.3e+01	1.06e+05	1.21e+03	8.8e+01
12	1,2,3,7,8-PeCDD	7.71e+05	9.80e+02	7.9e+02	4.76e+05	8.80e+02	5.4e+02
13	1,2,3,4,7,8-HxCDD	7.84e+05	1.01e+03	7.7e+02	6.11e+05	1.19e+03	5.1e+02
14	1,2,3,6,7,8-HxCDD	7.56e+05	1.01e+03	7.5e+02	5.91e+05	1.19e+03	5.0e+02
15	1,2,3,7,8,9-HxCDD	7.87e+05	1.01e+03	7.8e+02	5.94e+05	1.19e+03	5.0e+02
16	1,2,3,4,6,7,8-HpCDD	4.59e+05	1.30e+03	3.5e+02	4.30e+05	1.15e+03	3.7e+02
17	OCDD	4.14e+05	1.12e+03	3.7e+02	4.51e+05	1.30e+03	3.5e+02
18	13C-2,3,7,8-TCDF	1.10e+06	1.01e+03	1.1e+03	1.32e+06	1.33e+03	9.9e+02
19	13C-1,2,3,7,8-PeCDF	2.08e+06	9.52e+02	2.2e+03	1.36e+06	1.09e+03	1.2e+03
20	13C-2,3,4,7,8-PeCDF	2.26e+06	9.52e+02	2.4e+03	1.40e+06	1.09e+03	1.3e+03
21	13C-1,2,3,4,7,8-HxCDF	9.64e+05	1.13e+03	8.5e+02	1.92e+06	8.76e+02	2.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.11e+06	1.13e+03	9.8e+02	2.18e+06	8.76e+02	2.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.44e+06	1.13e+03	1.3e+03	2.72e+06	8.76e+02	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.97e+05	2.14e+03	2.8e+02	1.34e+06	9.04e+02	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.99e+05	2.14e+03	1.9e+02	8.93e+05	9.04e+02	9.9e+02
27	13C-2,3,7,8-TCDD	8.94e+05	2.38e+03	3.8e+02	1.14e+06	1.66e+03	6.9e+02
28	13C-1,2,3,7,8-PeCDD	1.49e+06	1.25e+03	1.2e+03	9.14e+05	1.00e+03	9.1e+02
29	13C-1,2,3,4,7,8-HxCDD	1.39e+06	1.20e+03	1.2e+03	1.07e+06	1.17e+03	9.2e+02
30	13C-1,2,3,6,7,8-HxCDD	1.27e+06	1.20e+03	1.1e+03	1.03e+06	1.17e+03	8.8e+02
31	13C-1,2,3,4,6,7,8-HpCDD	8.91e+05	1.24e+03	7.2e+02	8.25e+05	1.15e+03	7.2e+02
32	13C-OCDD	6.86e+05	1.25e+03	5.5e+02	7.41e+05	9.40e+02	7.9e+02
33	13C-1,2,3,4-TCDD	7.17e+06	2.38e+03	3.0e+03	9.33e+06	1.66e+03	5.6e+03
34	13C-1,2,3,7,8,9-HxCDD	8.40e+06	1.20e+03	7.0e+03	6.61e+06	1.17e+03	5.7e+03
35	37Cl-2,3,7,8-TCDD	2.17e+06	9.44e+02	2.3e+03			

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

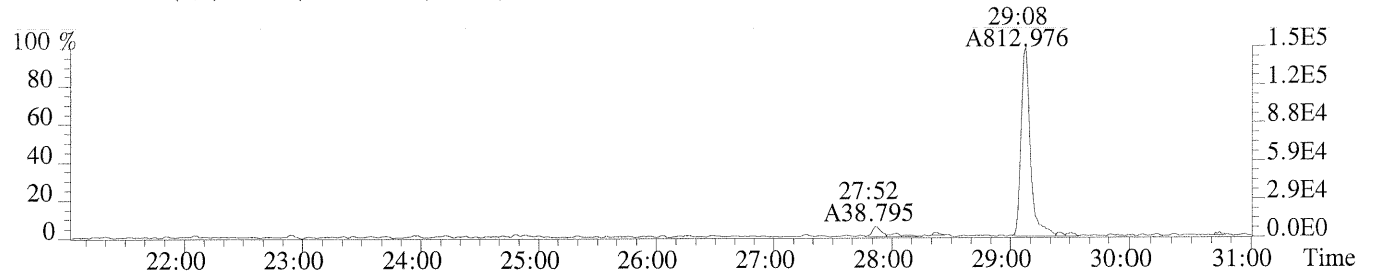
ALS Form TO-9SN/M23SN.FRM



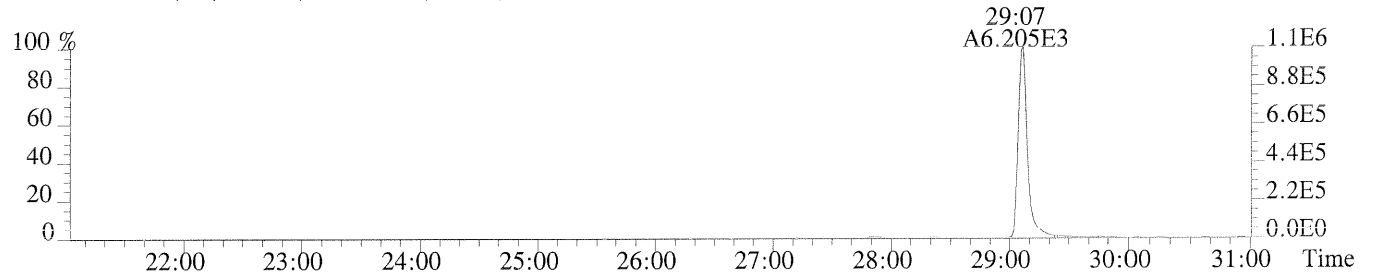
File:U150392 #1-627 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-02  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



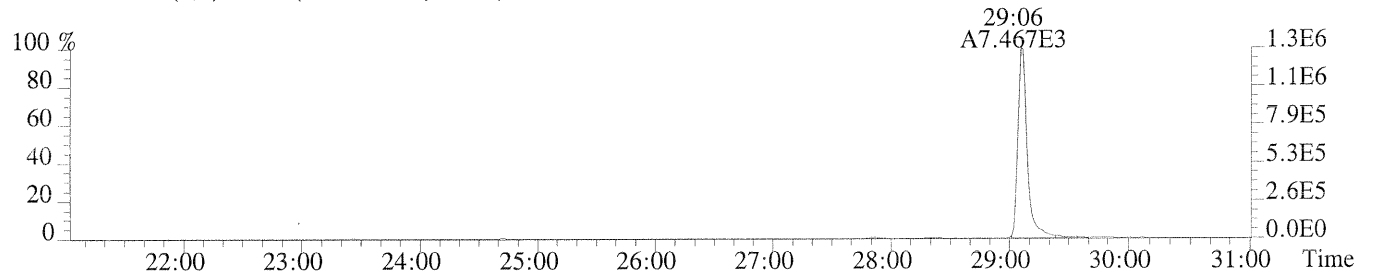
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



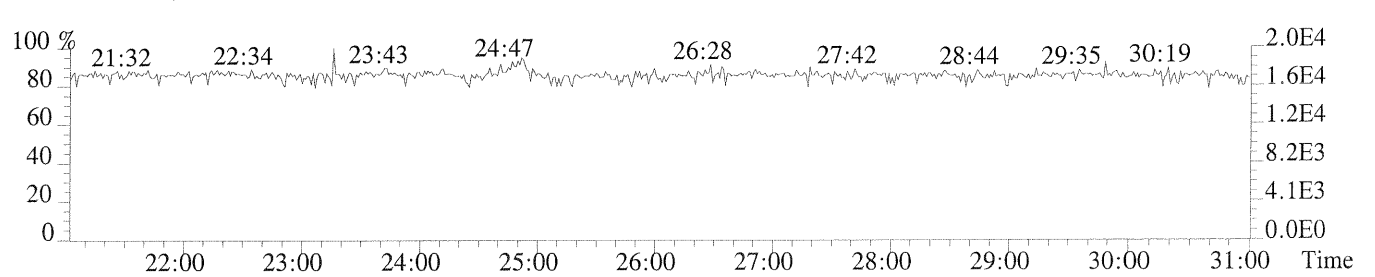
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



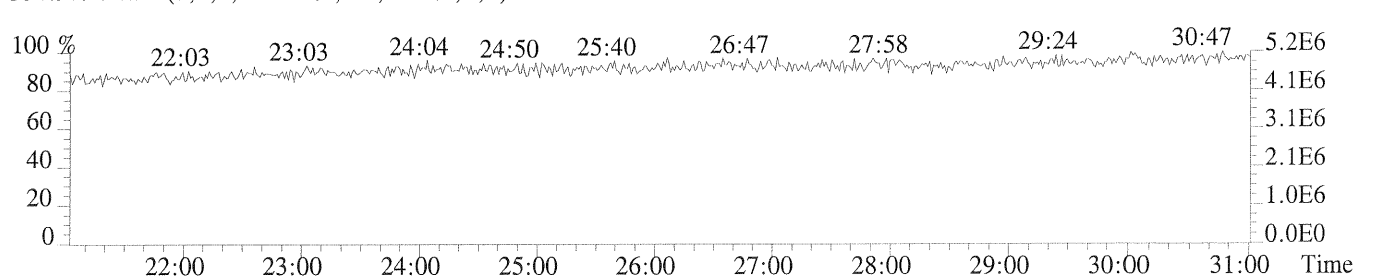
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)

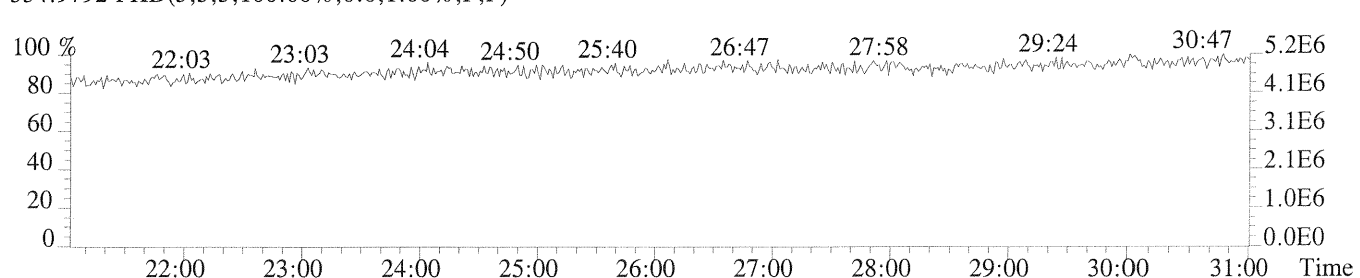
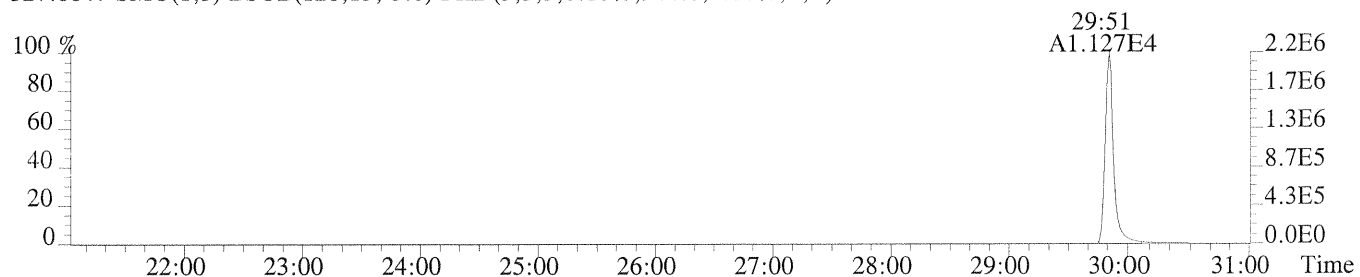
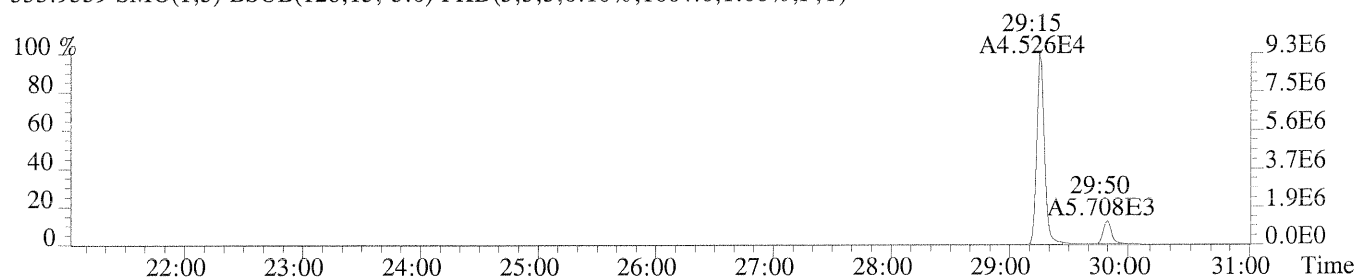
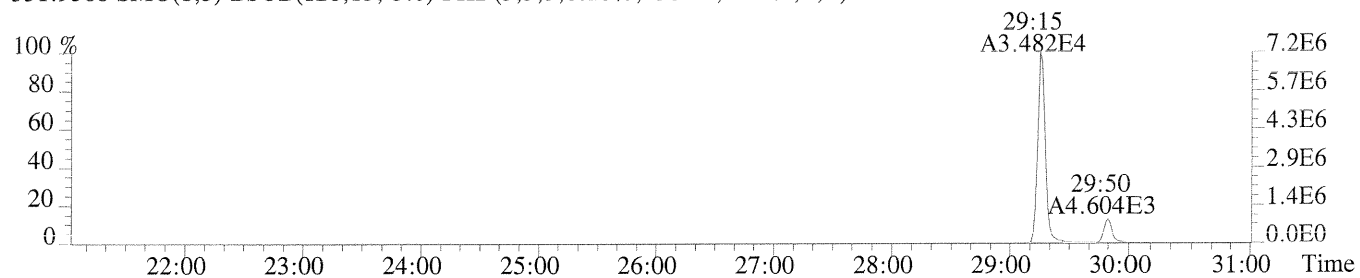
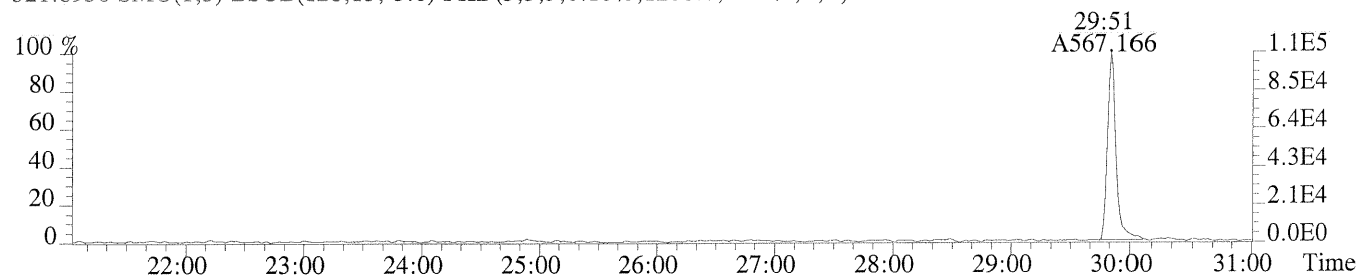
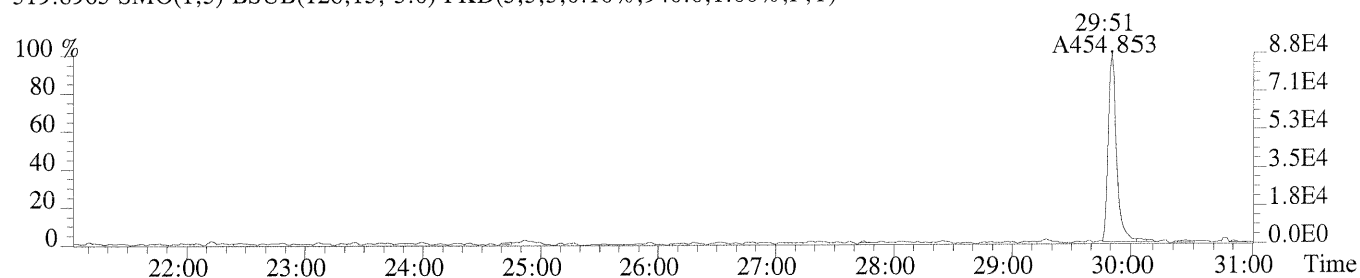


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

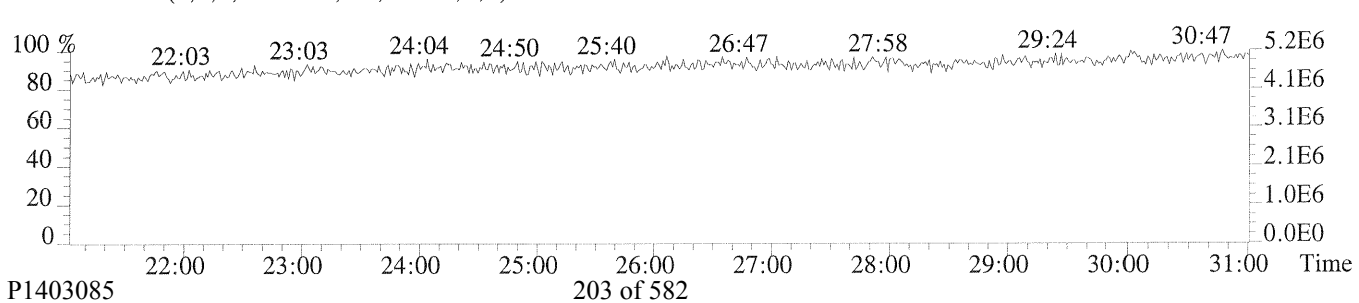
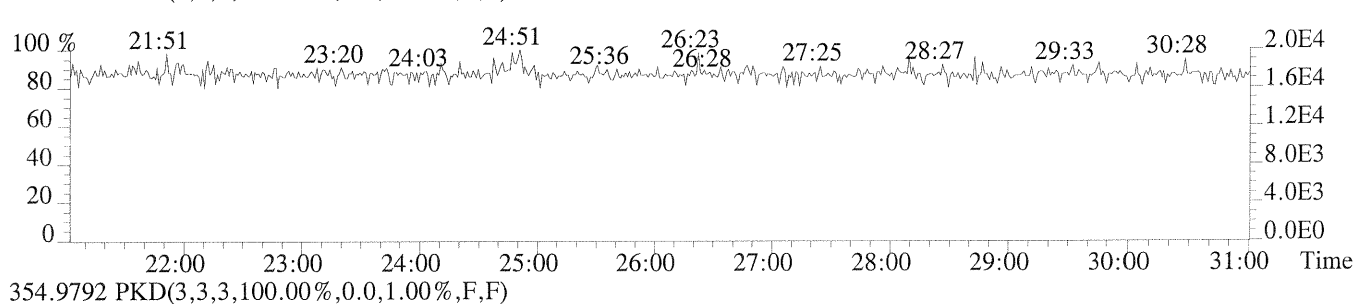
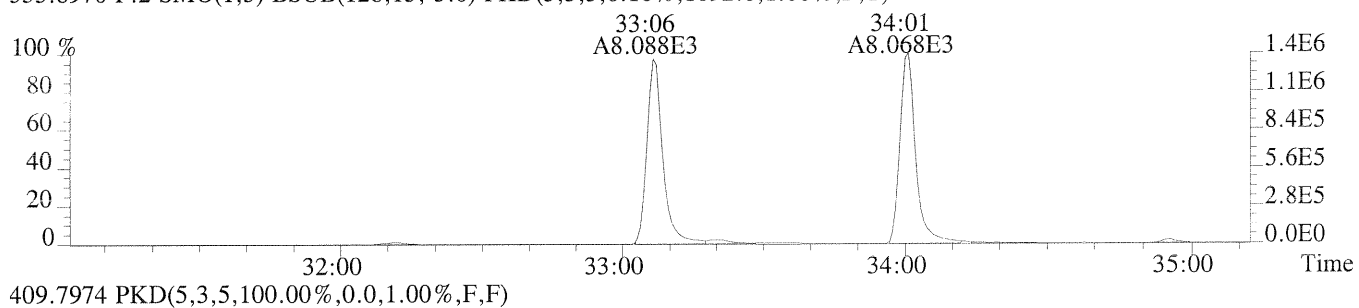
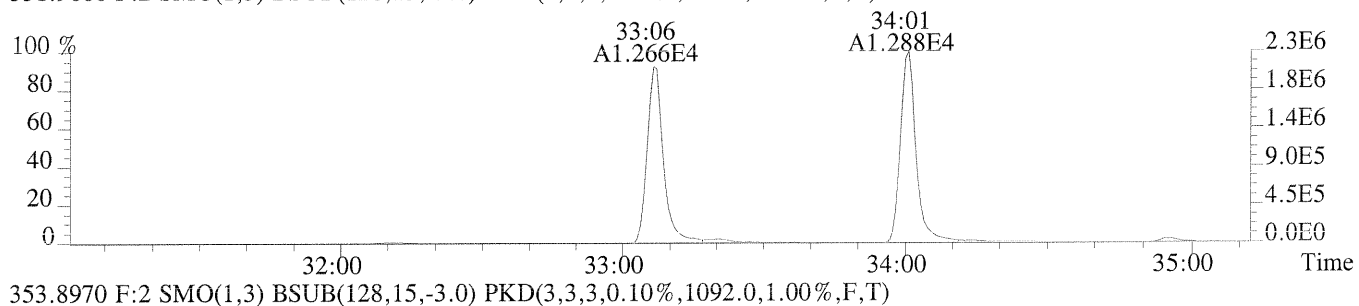
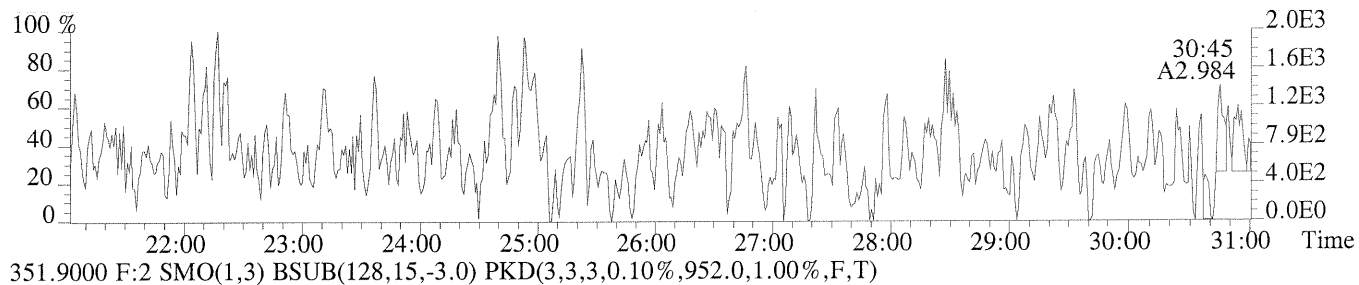
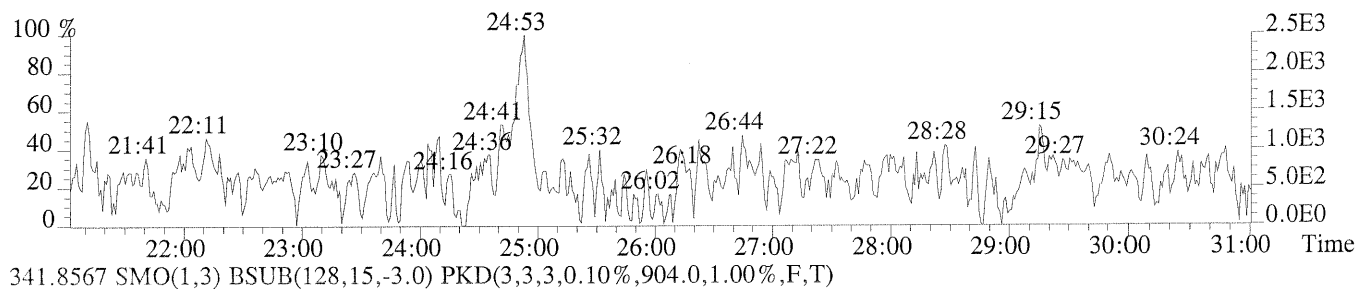


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



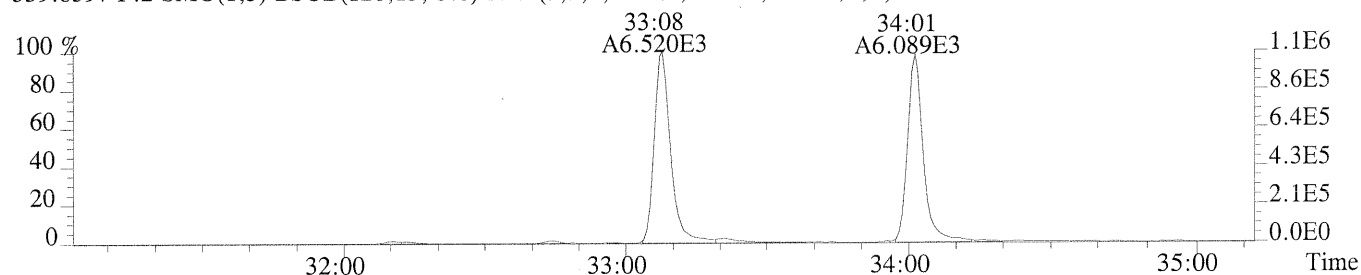


File:U150392 #1-627 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-02  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)

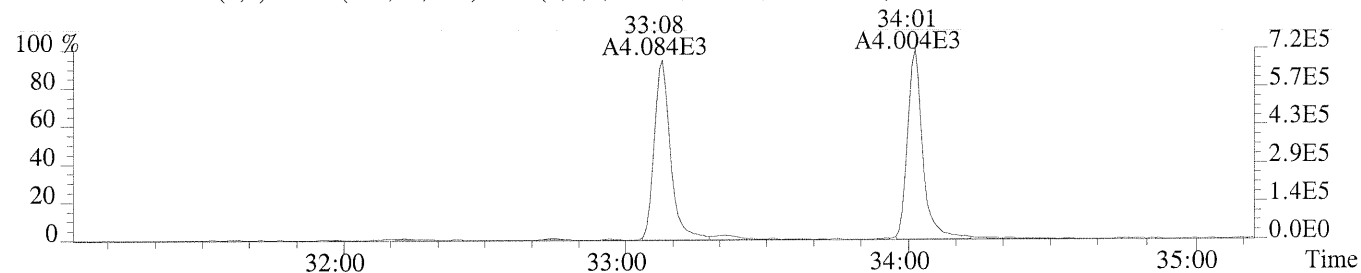


Sample#1 Exp:EQ1400433-02

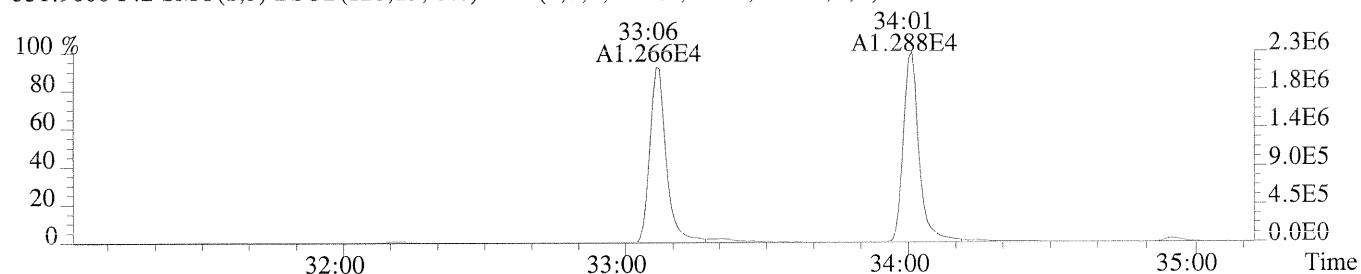
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



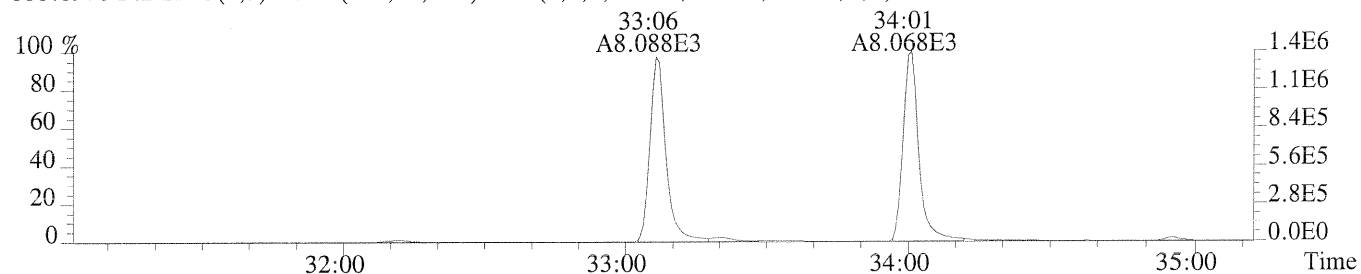
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



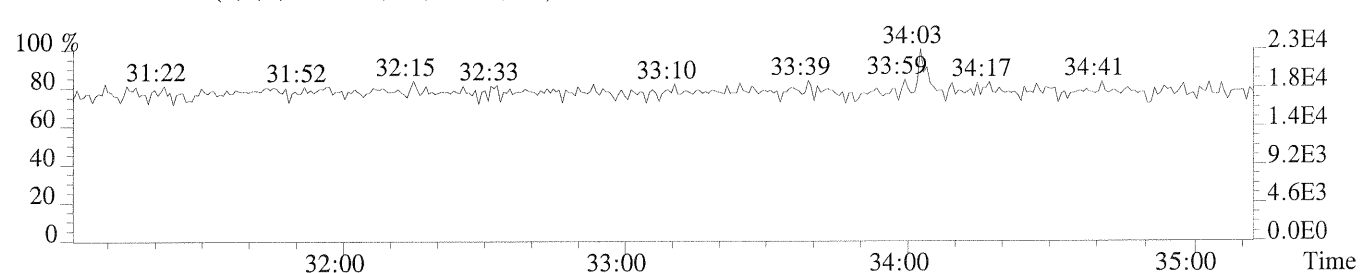
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



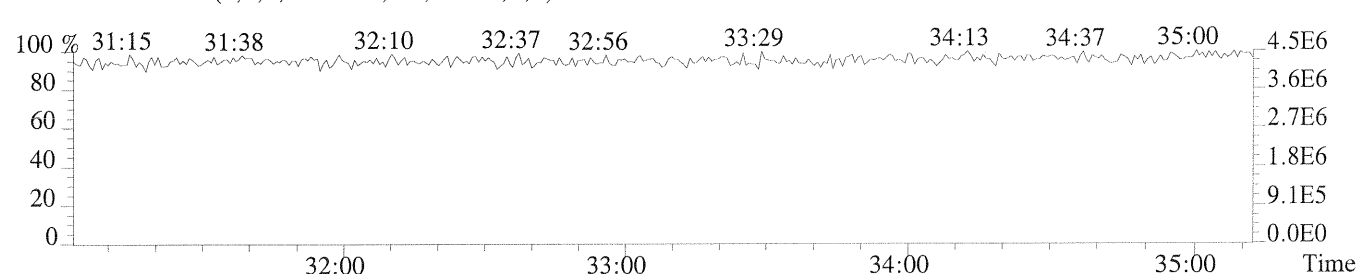
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



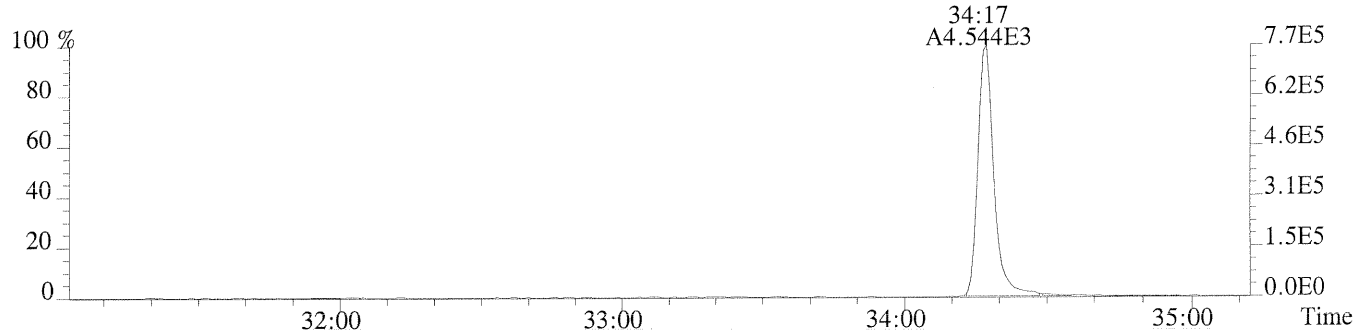
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



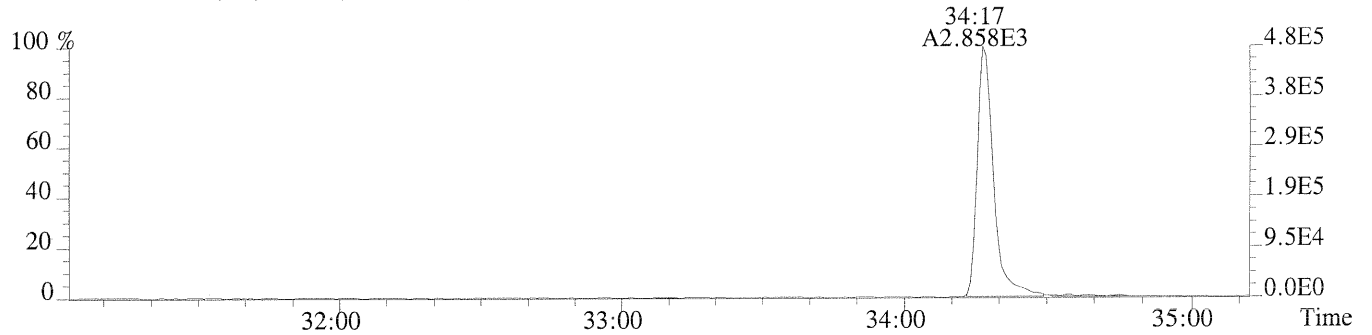
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



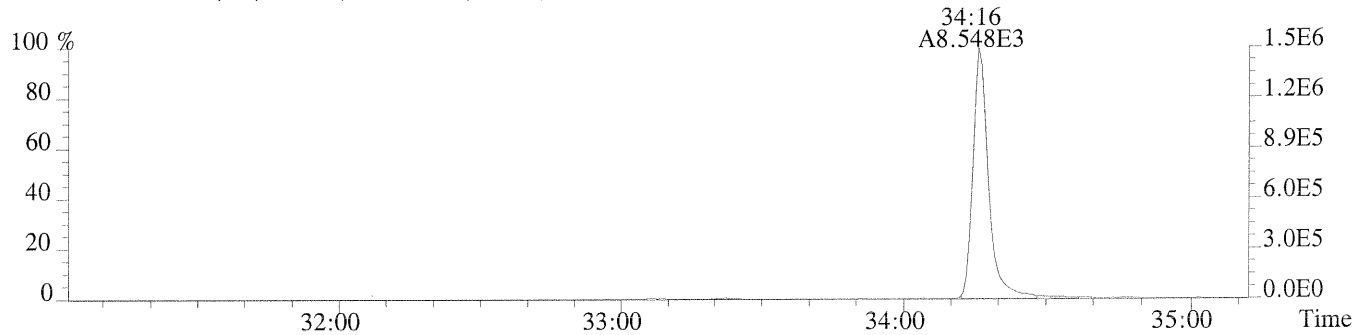
File:U150392 #1-378 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-02  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



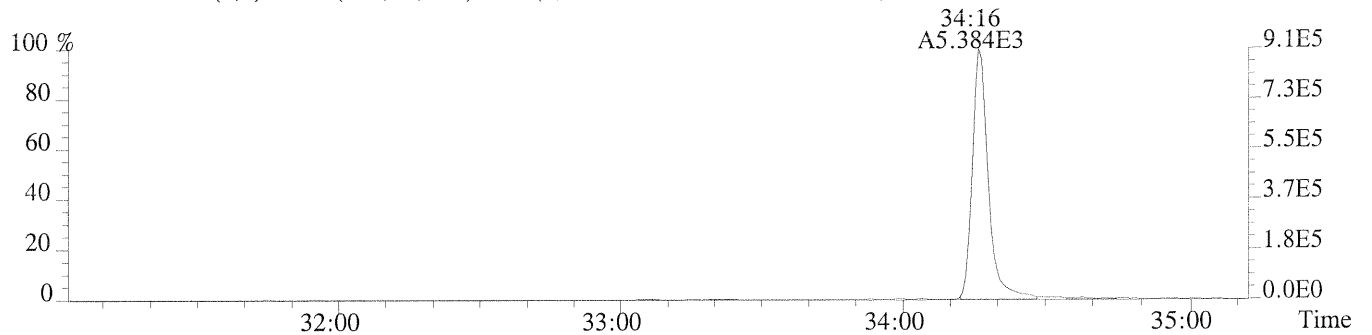
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



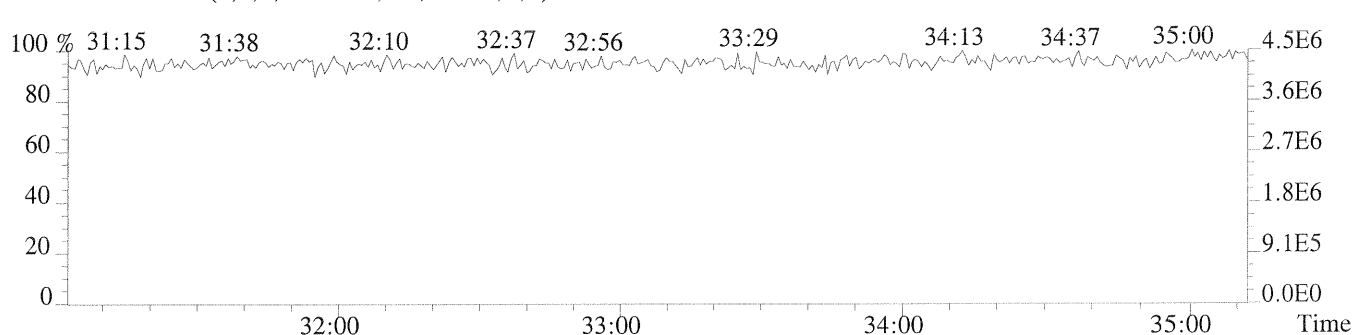
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



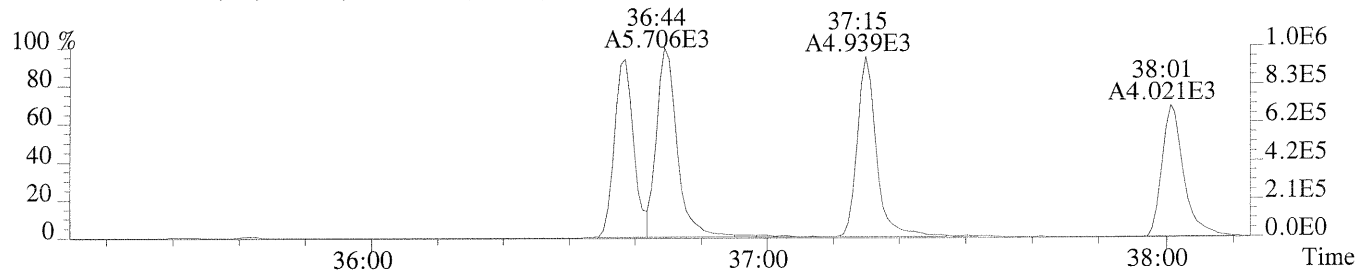
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



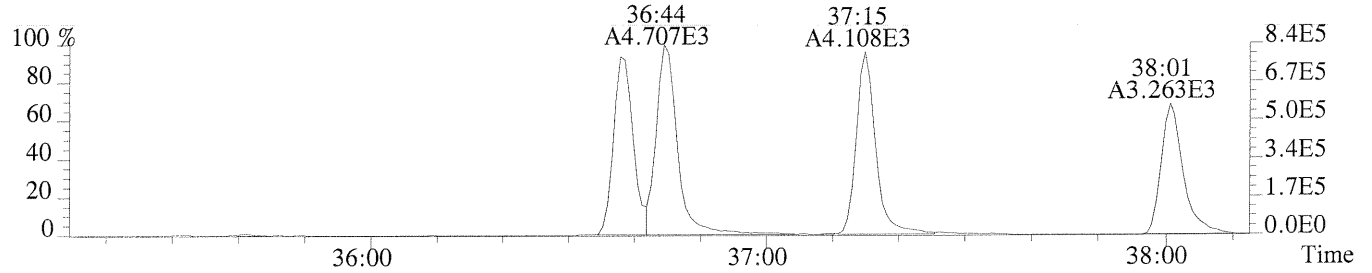
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



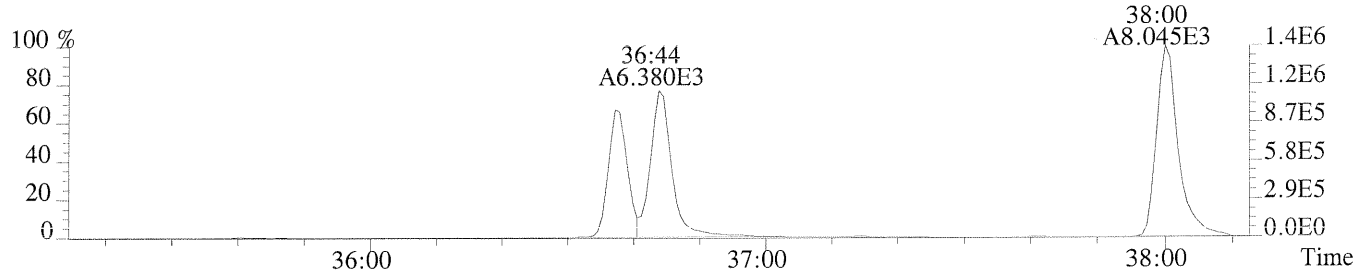
File:U150392 #1-270 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-02  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



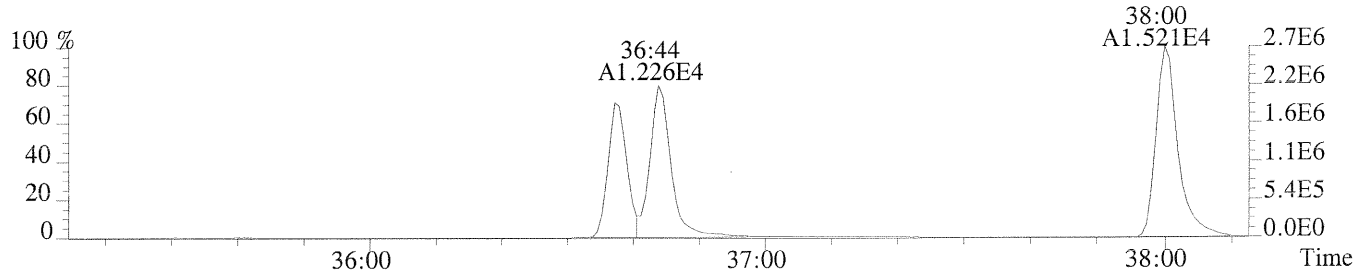
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



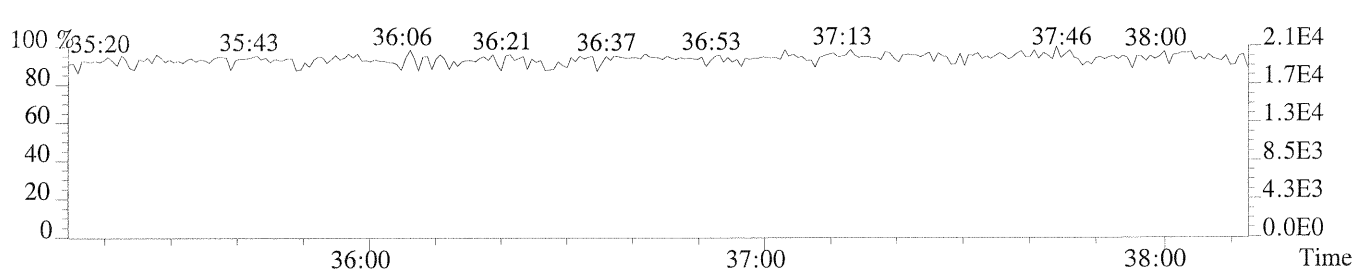
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



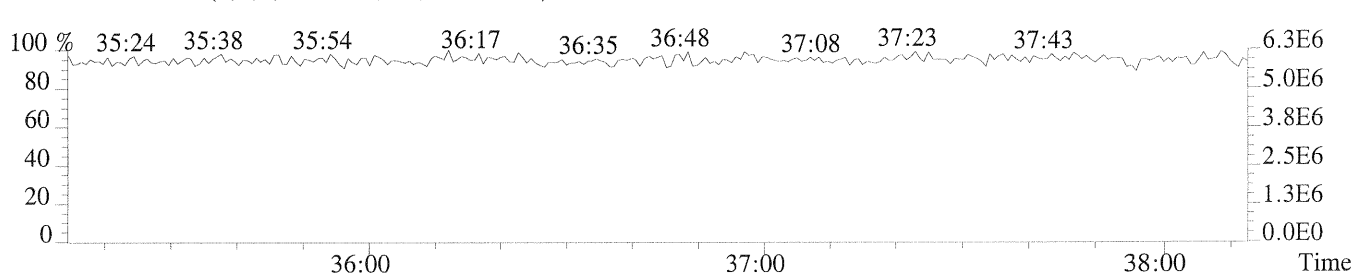
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



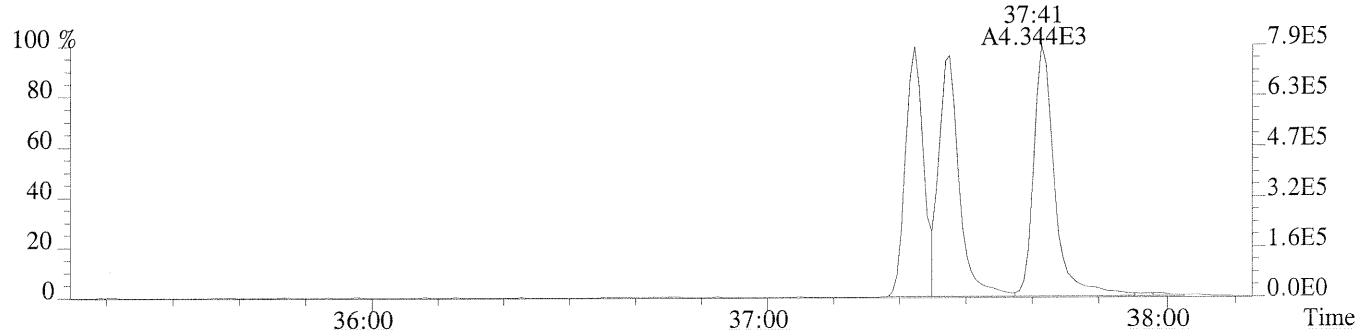
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



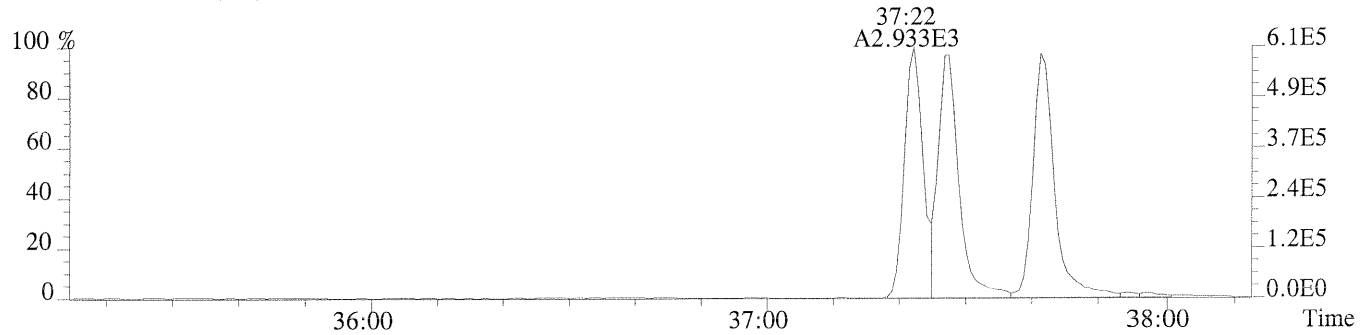
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



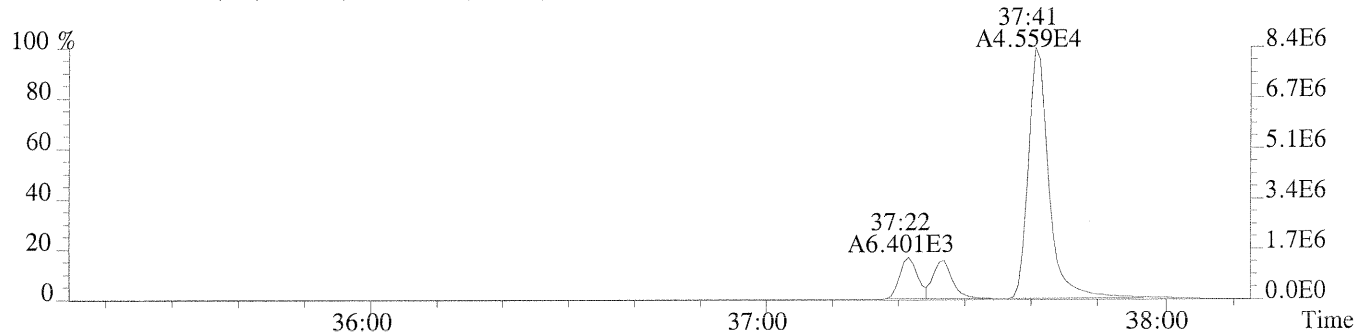
File:U150392 #1-270 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-02  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



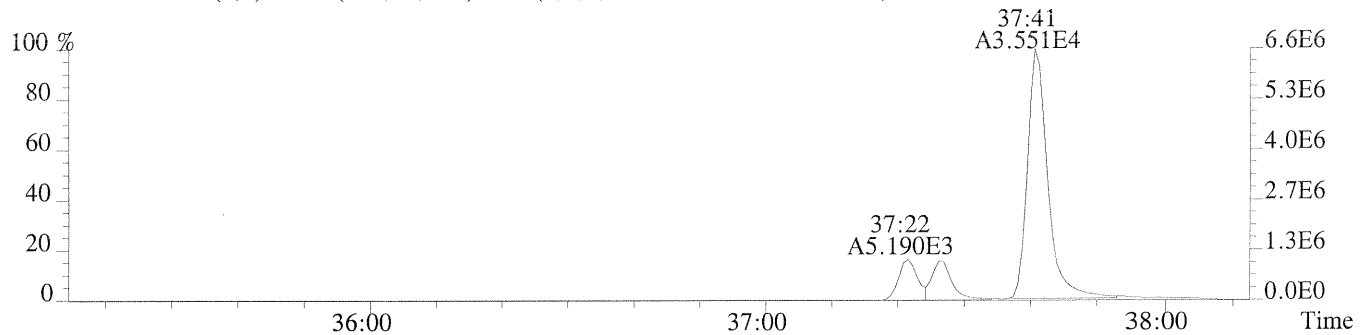
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



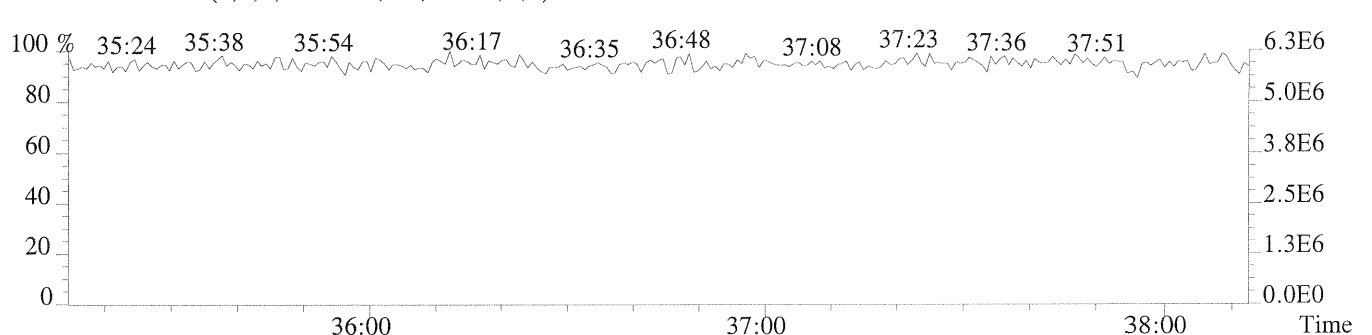
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



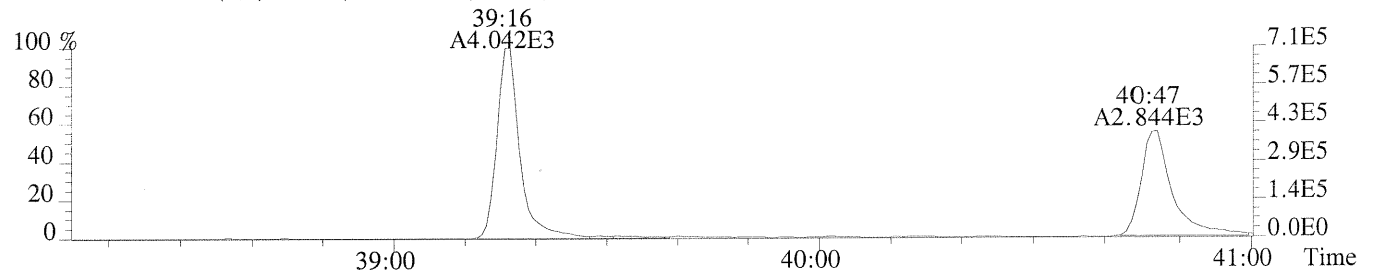
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



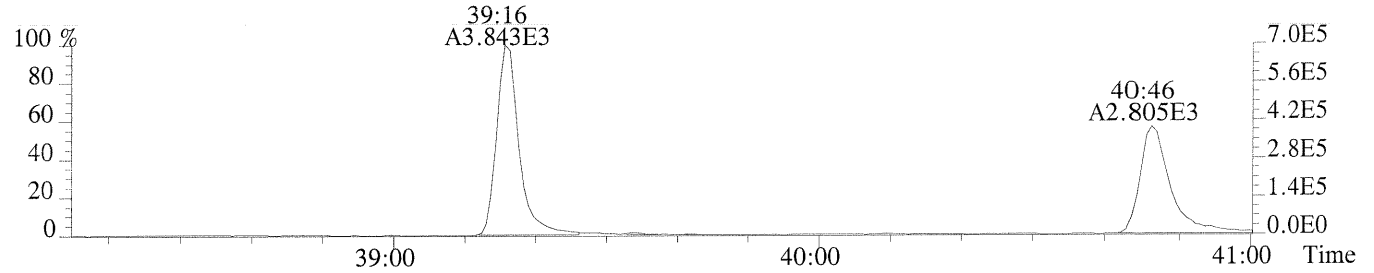
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



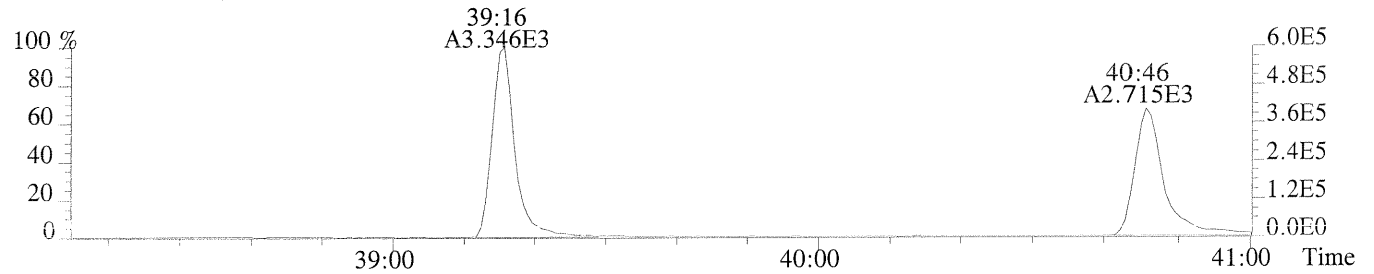
File:U150392 #1-251 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-02  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.50%,F,T)



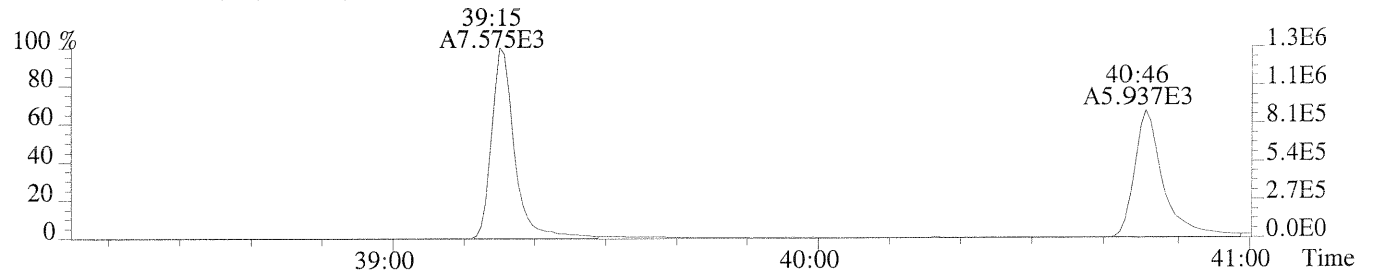
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.50%,F,T)



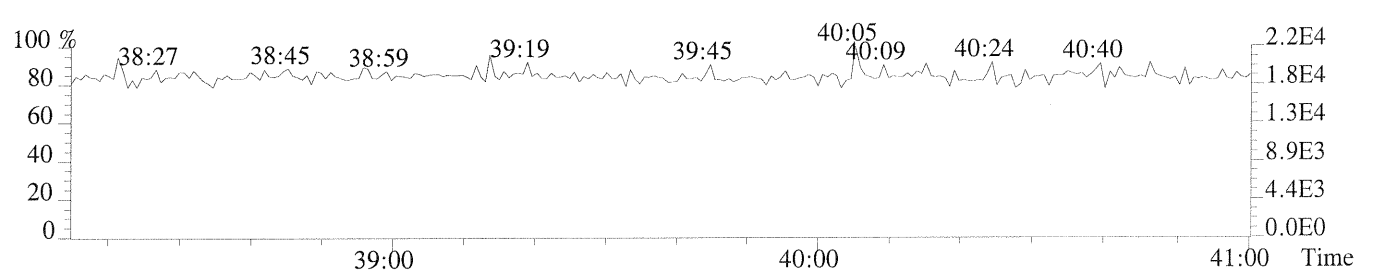
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2140.0,0.50%,F,T)



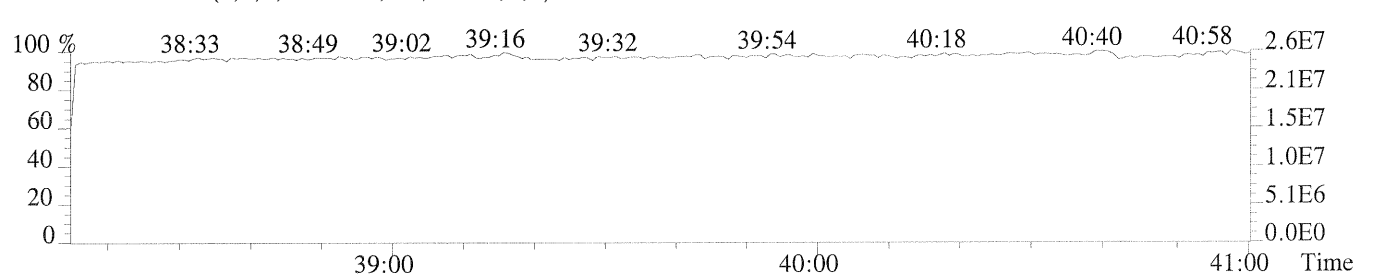
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.50%,F,T)



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

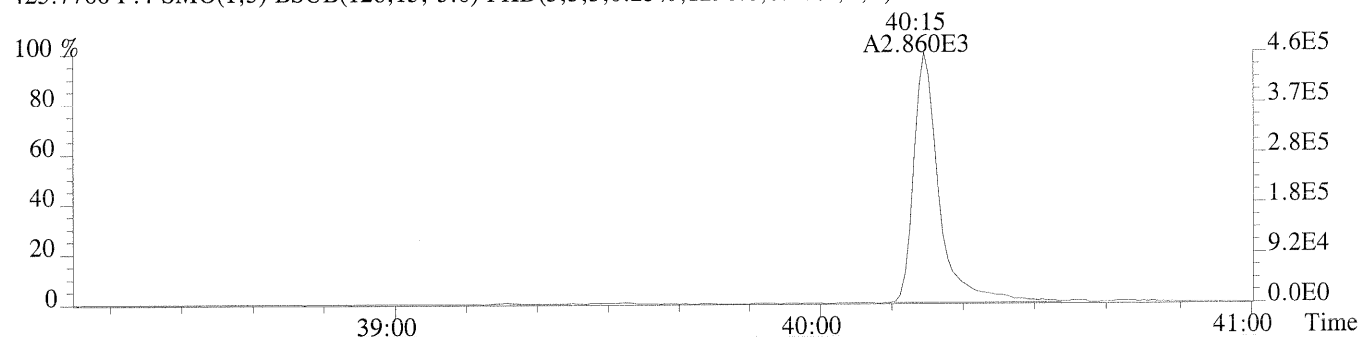


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

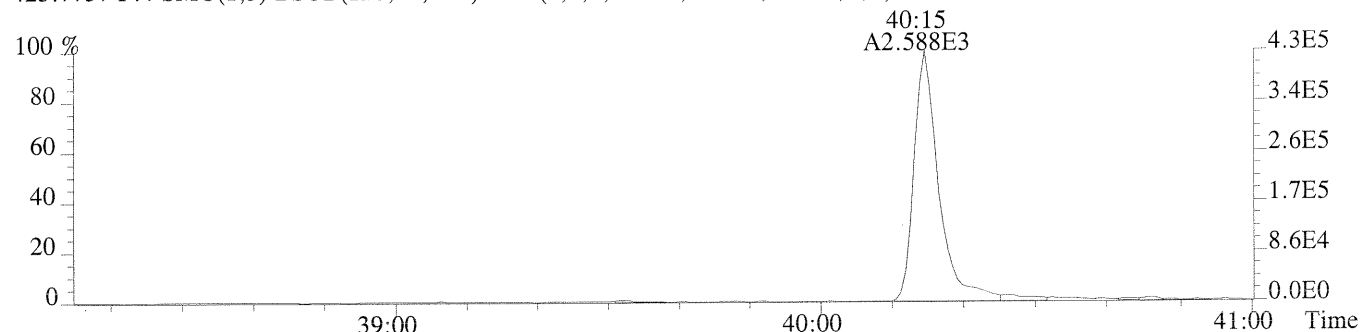




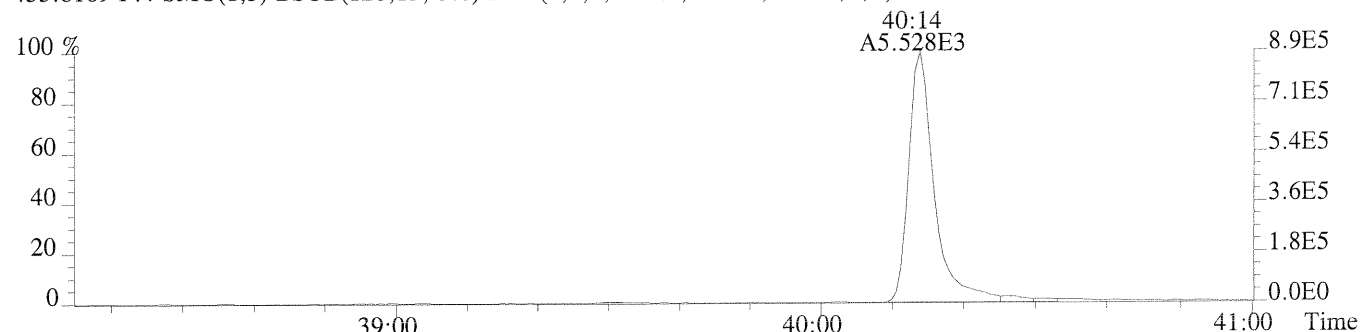
File:U150392 #1-251 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-02  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



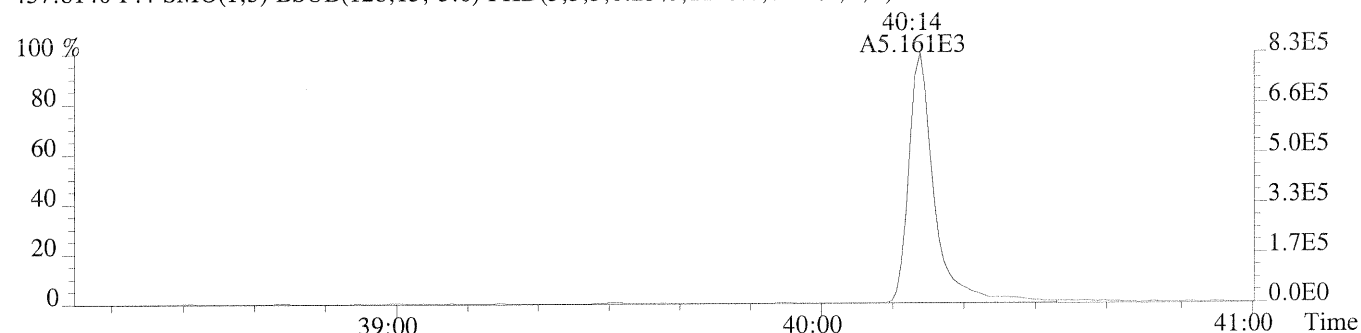
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



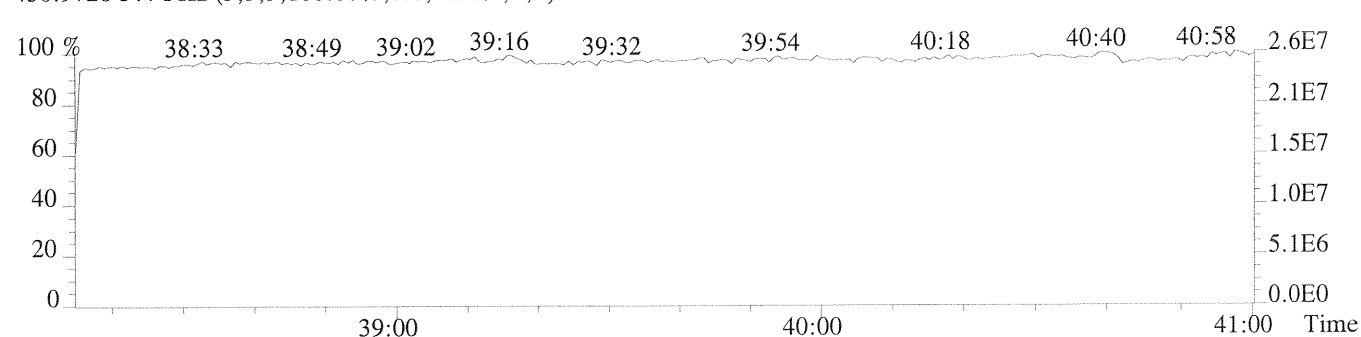
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)



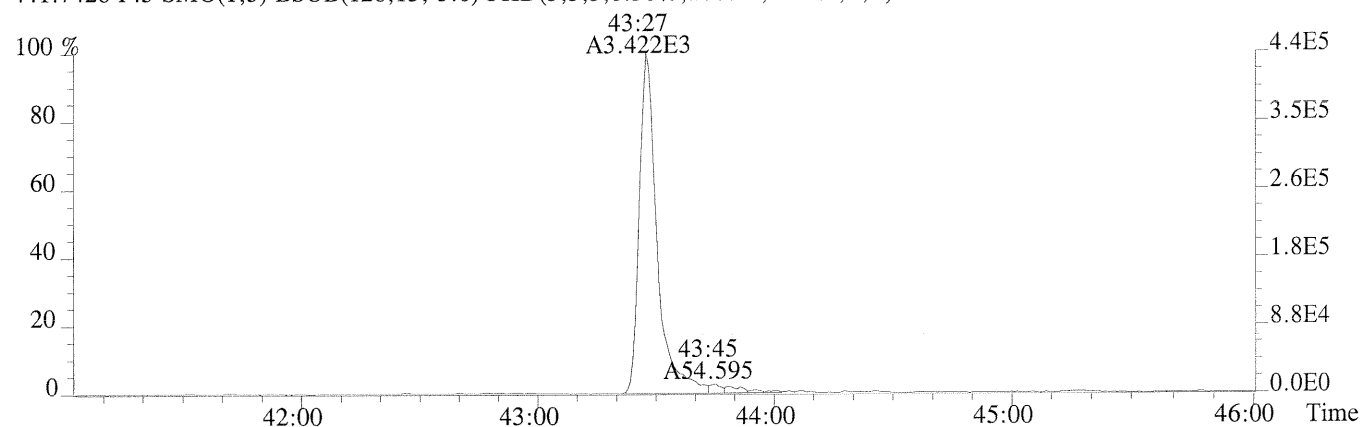
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



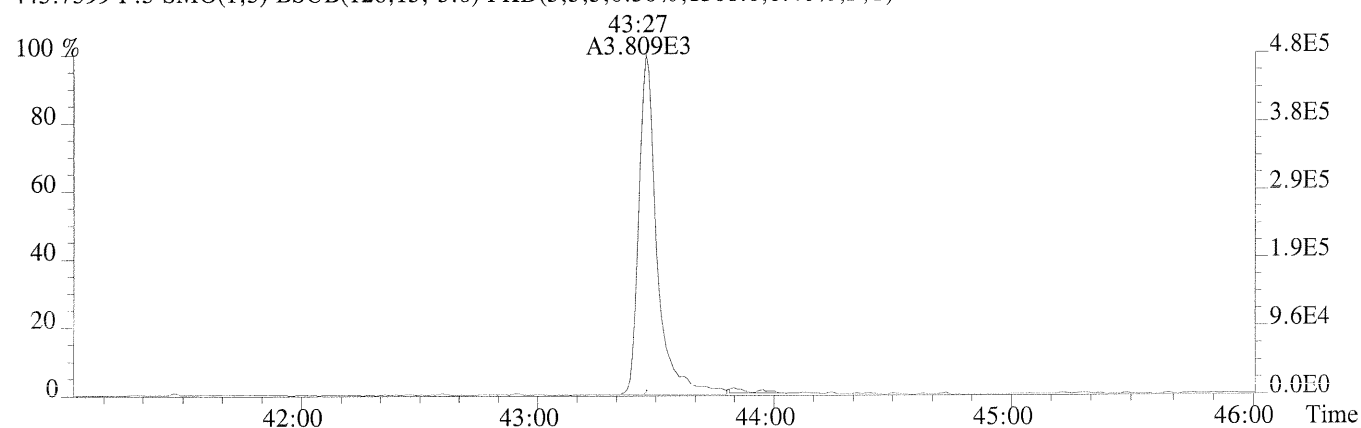
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



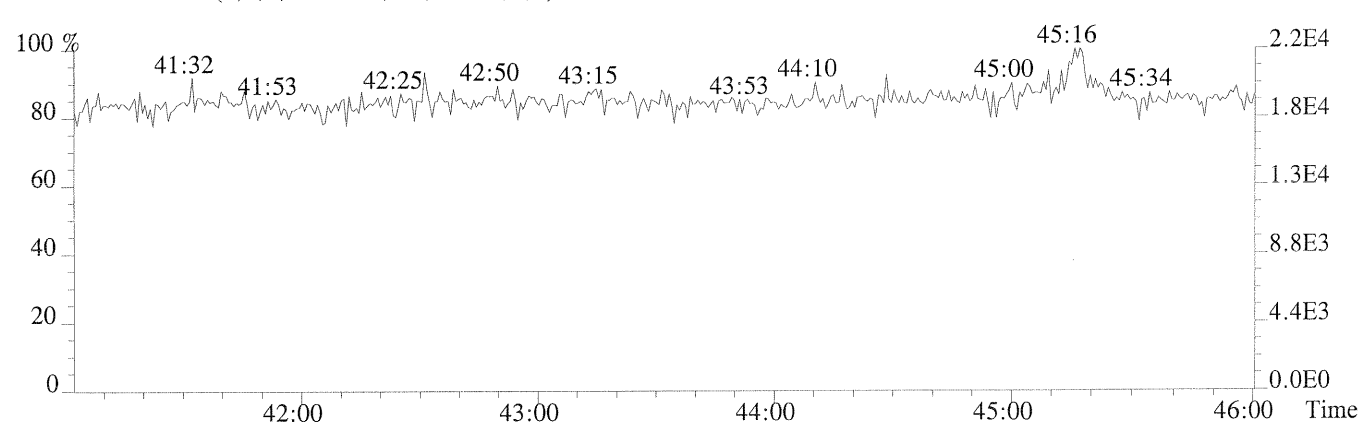
File:U150392 #1-451 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-02  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



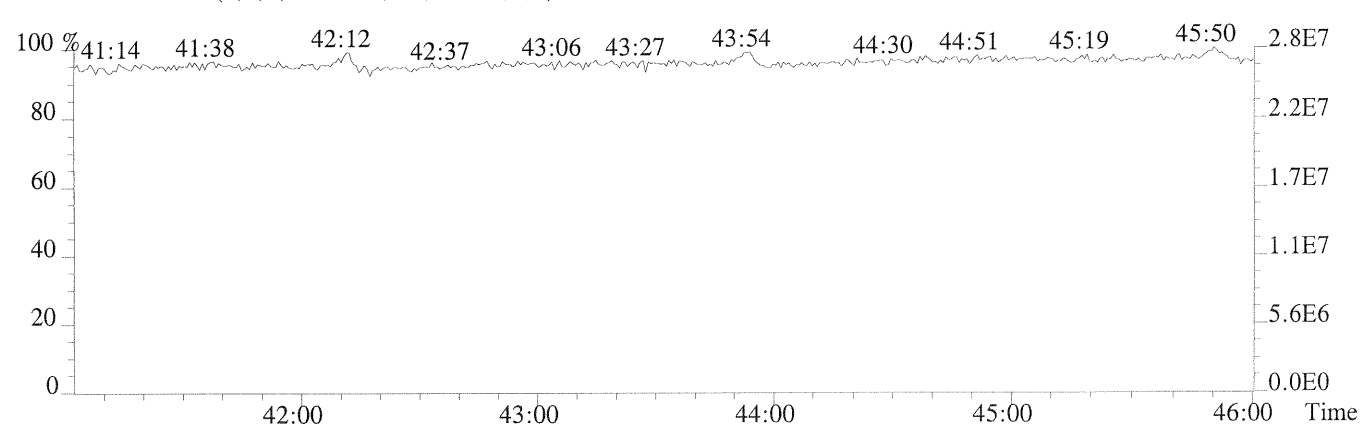
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



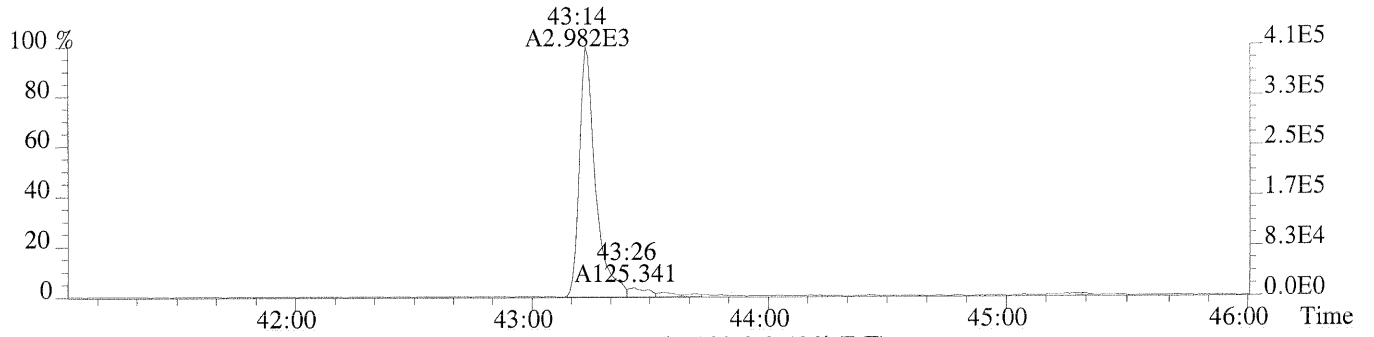
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



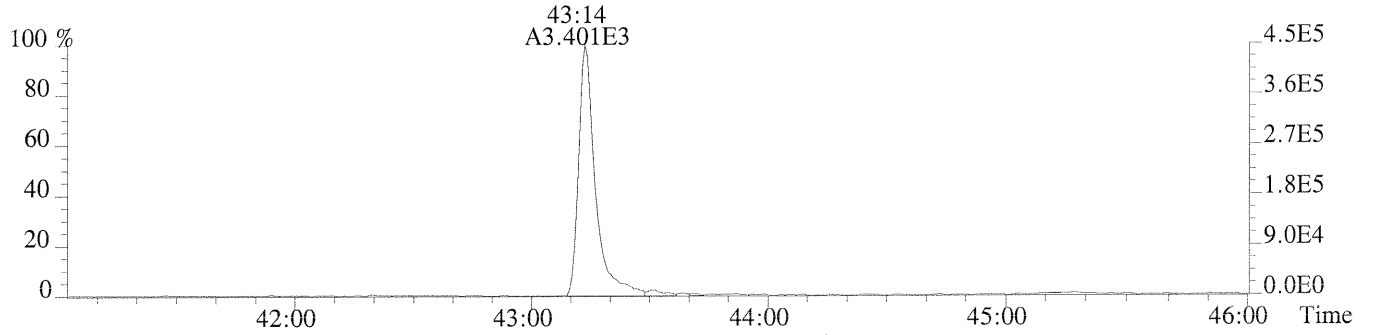
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



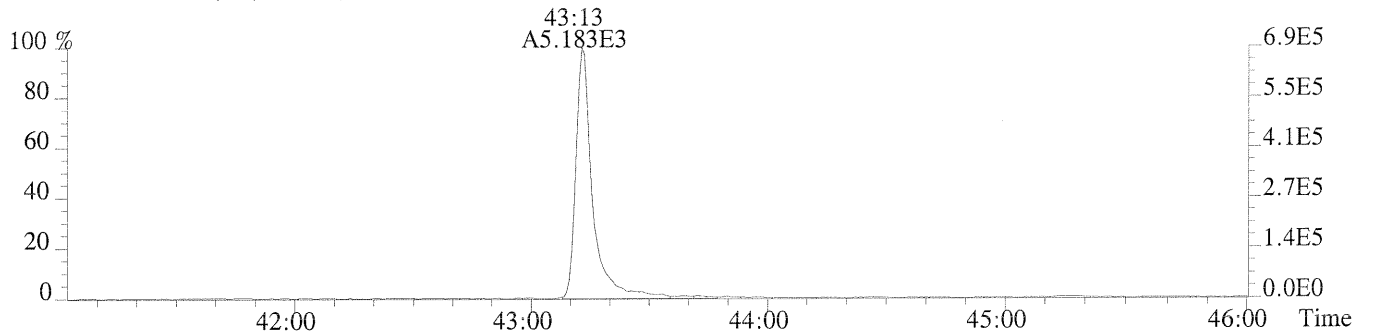
File:U150392 #1-451 Acq:15-AUG-2014 12:22:57 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:EQ1400433-02  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1116.0,0.40%,F,T)



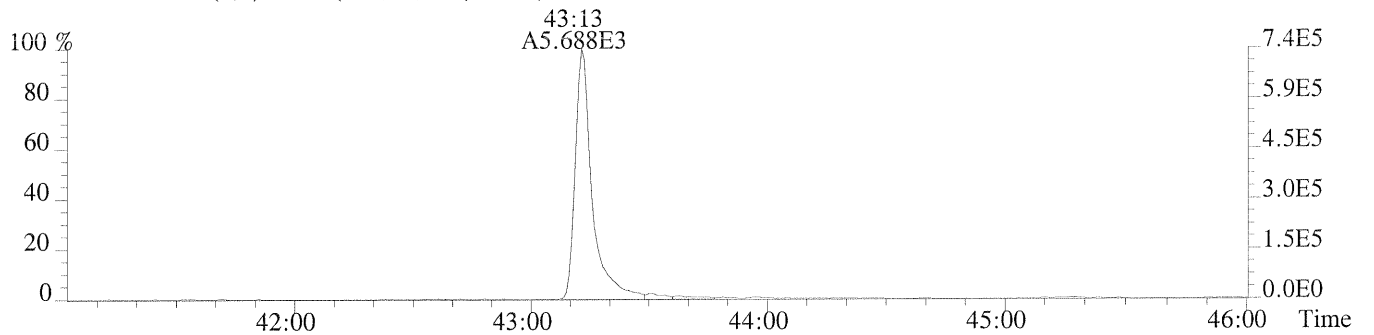
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



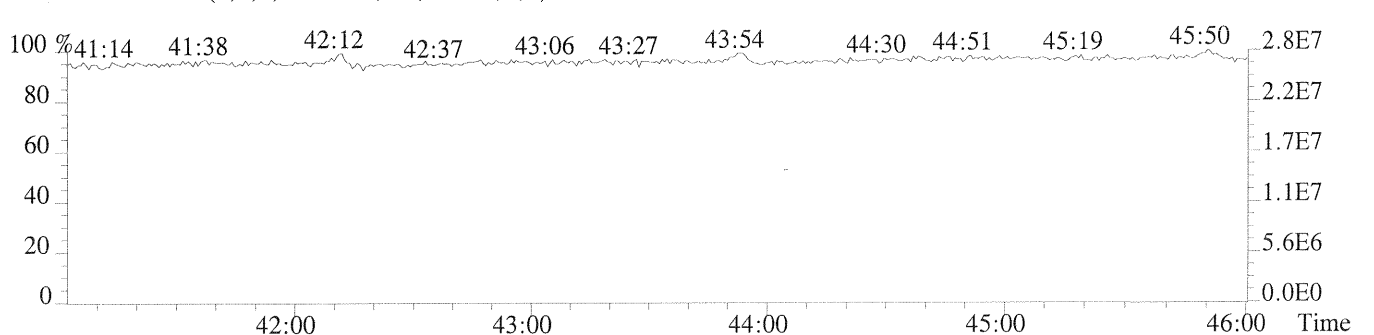
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,940.0,0.40%,F,T)



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



Sample Response Summary

Run #10 Filename U150374 #1 Samp: 1 Inj: 1 Acquired: 14-AUG-14 14:08:12  
 Processed: 15-AUG-14 10:18:59 LAB. ID: EQ1400433-03

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:06	3.012e+02	4.341e+02	0.69	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:06	3.544e+03	2.274e+03	1.56	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:60	3.453e+03	2.111e+03	1.64	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:37	2.818e+03	2.269e+03	1.24	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:43	3.355e+03	2.666e+03	1.26	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:13	2.889e+03	2.326e+03	1.24	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:60	2.173e+03	1.810e+03	1.20	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:15	2.373e+03	2.210e+03	1.07	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:45	1.630e+03	1.540e+03	1.06	yes	no	0.959
10 Unk	OCDF	43:27	1.929e+03	2.143e+03	0.90	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:50	2.436e+02	2.972e+02	0.82	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:16	2.340e+03	1.414e+03	1.66	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:21	1.981e+03	1.553e+03	1.28	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:26	2.422e+03	1.824e+03	1.33	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:40	2.322e+03	1.832e+03	1.27	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:13	1.555e+03	1.464e+03	1.06	yes	no	1.102
17 Unk	OCDD	43:12	1.724e+03	1.824e+03	0.95	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:05	2.987e+03	3.605e+03	0.83	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:06	6.465e+03	3.985e+03	1.62	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:59	6.437e+03	4.073e+03	1.58	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:36	2.662e+03	5.196e+03	0.51	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:43	3.425e+03	6.691e+03	0.51	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:59	5.402e+03	1.041e+04	0.52	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:14	1.851e+03	4.098e+03	0.45	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:44	1.384e+03	3.343e+03	0.41	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:48	2.016e+03	2.689e+03	0.75	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:15	4.334e+03	2.772e+03	1.56	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:20	3.297e+03	2.652e+03	1.24	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:25	3.748e+03	2.973e+03	1.26	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:12	2.850e+03	2.586e+03	1.10	yes	no	0.845
32 IS	13C-OCDD	43:11	2.707e+03	3.005e+03	0.90	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:14	2.332e+04	3.021e+04	0.77	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:40	3.358e+04	2.702e+04	1.24	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:50	5.369e+03				no	0.975

OCDD =  $\frac{(1.724e+03 + 1.824e+03) \times (4000.0)}{(2.707e+03 + 3.005e+03)} \times 1.329 \times 1.000$  pg

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
DLCS

Method M23

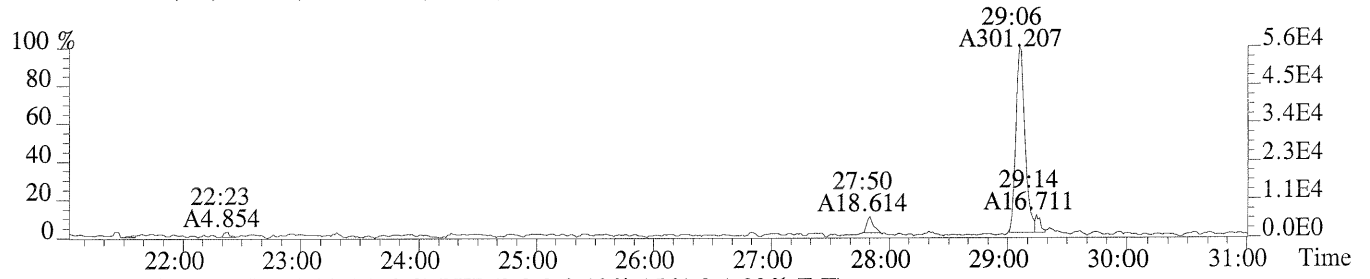
Run #10 Filename U150374 #1 Samp: 1 Inj: 1 Acquired: 14-AUG-14 14:08:12  
Processed: 15-AUG-14 10:18:59 LAB. ID: EQ1400433-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.51e+04	1.11e+03	5.0e+01	7.57e+04	1.56e+03	4.8e+01
2	1,2,3,7,8-PeCDF	5.80e+05	1.02e+03	5.7e+02	3.57e+05	1.20e+03	3.0e+02
3	2,3,4,7,8-PeCDF	5.65e+05	1.02e+03	5.6e+02	3.65e+05	1.20e+03	3.1e+02
4	1,2,3,4,7,8-HxCDF	5.70e+05	1.47e+03	3.9e+02	4.51e+05	8.00e+02	5.6e+02
5	1,2,3,6,7,8-HxCDF	5.83e+05	1.47e+03	4.0e+02	4.72e+05	8.00e+02	5.9e+02
6	2,3,4,6,7,8-HxCDF	5.34e+05	1.47e+03	3.6e+02	4.33e+05	8.00e+02	5.4e+02
7	1,2,3,7,8,9-HxCDF	3.78e+05	1.47e+03	2.6e+02	3.11e+05	8.00e+02	3.9e+02
8	1,2,3,4,6,7,8-HpCDF	4.16e+05	1.48e+03	2.8e+02	3.90e+05	8.40e+02	4.6e+02
9	1,2,3,4,7,8,9-HpCDF	2.52e+05	1.48e+03	1.7e+02	2.24e+05	8.40e+02	2.7e+02
10	OCDF	2.42e+05	7.80e+02	3.1e+02	2.78e+05	1.19e+03	2.3e+02
11	2,3,7,8-TCDD	4.62e+04	1.08e+03	4.3e+01	6.04e+04	1.18e+03	5.1e+01
12	1,2,3,7,8-PeCDD	3.85e+05	1.06e+03	3.6e+02	2.31e+05	1.27e+03	1.8e+02
13	1,2,3,4,7,8-HxCDD	4.31e+05	1.10e+03	3.9e+02	3.35e+05	1.18e+03	2.8e+02
14	1,2,3,6,7,8-HxCDD	4.37e+05	1.10e+03	4.0e+02	3.30e+05	1.18e+03	2.8e+02
15	1,2,3,7,8,9-HxCDD	3.97e+05	1.10e+03	3.6e+02	3.16e+05	1.18e+03	2.7e+02
16	1,2,3,4,6,7,8-HpCDD	2.43e+05	1.11e+03	2.2e+02	2.30e+05	8.16e+02	2.8e+02
17	OCDD	2.36e+05	9.76e+02	2.4e+02	2.44e+05	1.06e+03	2.3e+02
18	13C-2,3,7,8-TCDF	5.01e+05	8.88e+02	5.6e+02	6.16e+05	1.08e+03	5.7e+02
19	13C-1,2,3,7,8-PeCDF	1.04e+06	1.14e+03	9.2e+02	6.33e+05	1.07e+03	5.9e+02
20	13C-2,3,4,7,8-PeCDF	1.10e+06	1.14e+03	9.7e+02	6.88e+05	1.07e+03	6.4e+02
21	13C-1,2,3,4,7,8-HxCDF	5.31e+05	1.13e+03	4.7e+02	1.02e+06	1.17e+03	8.7e+02
22	13C-1,2,3,6,7,8-HxCDF	5.92e+05	1.13e+03	5.2e+02	1.17e+06	1.17e+03	1.0e+03
24	13C-1,2,3,7,8,9-HxCDF	9.00e+05	1.13e+03	8.0e+02	1.76e+06	1.17e+03	1.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.31e+05	1.52e+03	2.2e+02	7.16e+05	1.39e+03	5.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.01e+05	1.52e+03	1.3e+02	4.86e+05	1.39e+03	3.5e+02
27	13C-2,3,7,8-TCDD	3.65e+05	2.37e+03	1.5e+02	4.88e+05	1.15e+03	4.2e+02
28	13C-1,2,3,7,8-PeCDD	6.97e+05	1.23e+03	5.7e+02	4.48e+05	1.06e+03	4.2e+02
29	13C-1,2,3,4,7,8-HxCDD	7.12e+05	8.92e+02	8.0e+02	5.58e+05	1.03e+03	5.4e+02
30	13C-1,2,3,6,7,8-HxCDD	6.86e+05	8.92e+02	7.7e+02	5.28e+05	1.03e+03	5.1e+02
31	13C-1,2,3,4,6,7,8-HpCDD	4.56e+05	9.72e+02	4.7e+02	4.18e+05	1.34e+03	3.1e+02
32	13C-OCDD	3.51e+05	9.92e+02	3.5e+02	3.92e+05	9.72e+02	4.0e+02
33	13C-1,2,3,4-TCDD	4.63e+06	2.37e+03	2.0e+03	5.99e+06	1.15e+03	5.2e+03
34	13C-1,2,3,7,8,9-HxCDD	6.00e+06	8.92e+02	6.7e+03	4.75e+06	1.03e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	9.71e+05	1.15e+03	8.4e+02			

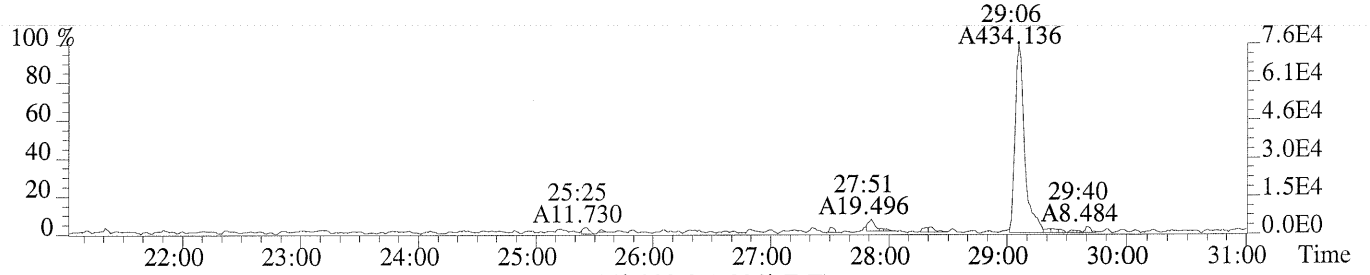
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713)266-1599. Fax: (713)266-0130

ALS Form TO-9SN/M23SN.FRM

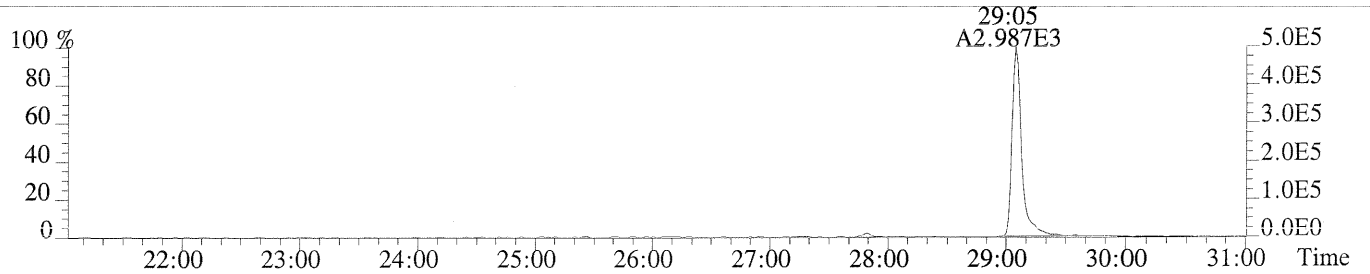
File:U150374 #1-627 Acq:14-AUG-2014 14:08:12 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-03  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



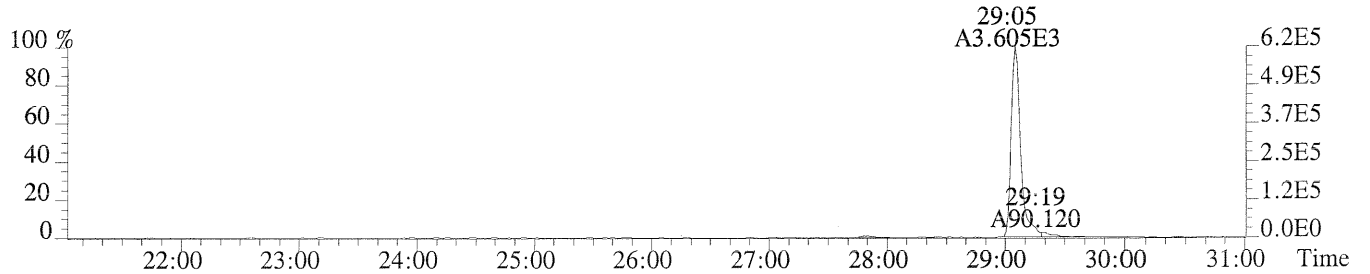
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



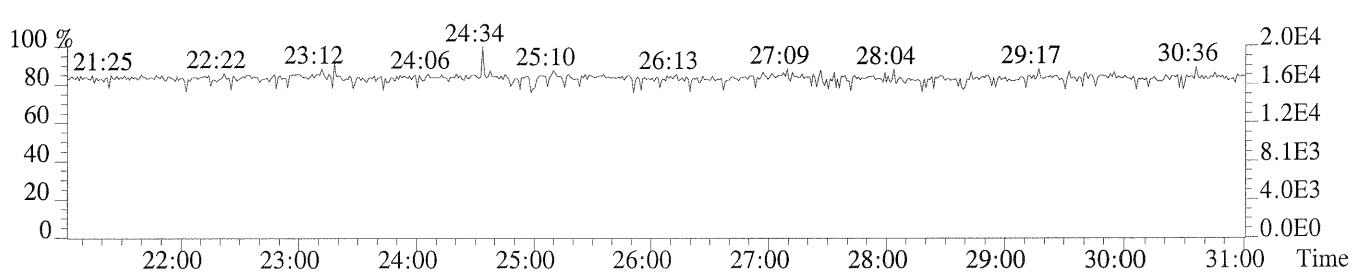
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



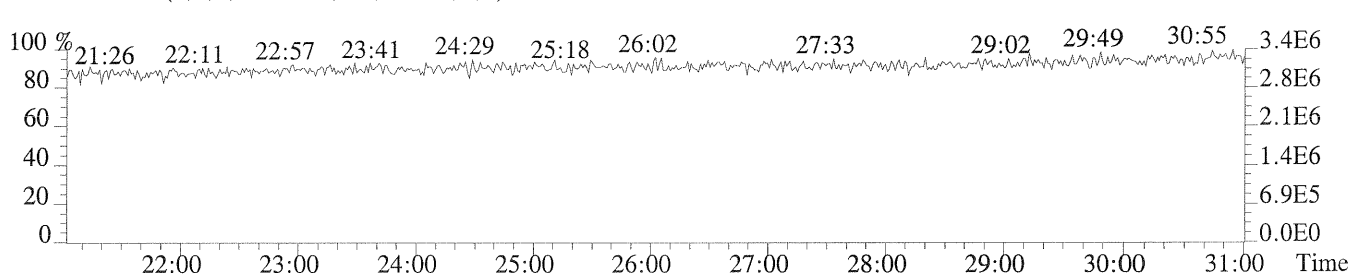
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



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

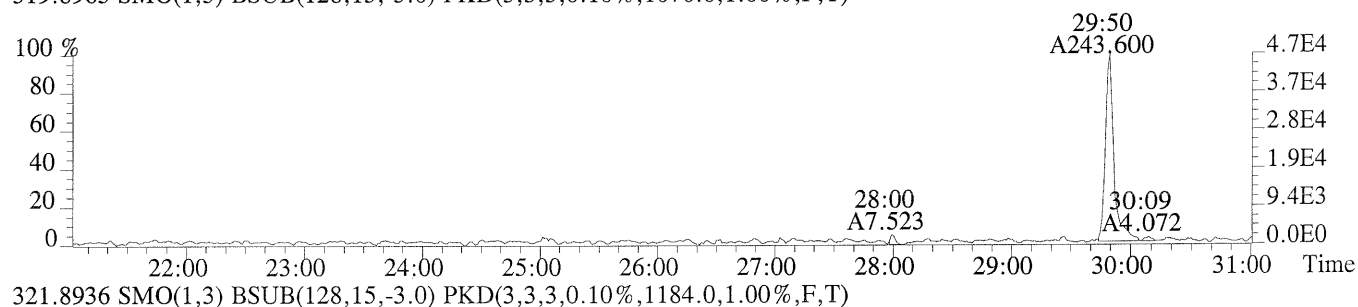


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

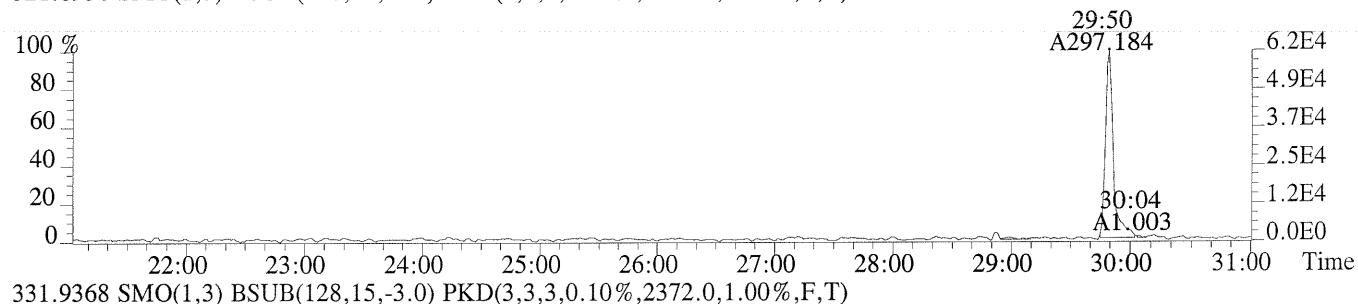


Sample#1 Exp:EQ1400433-03

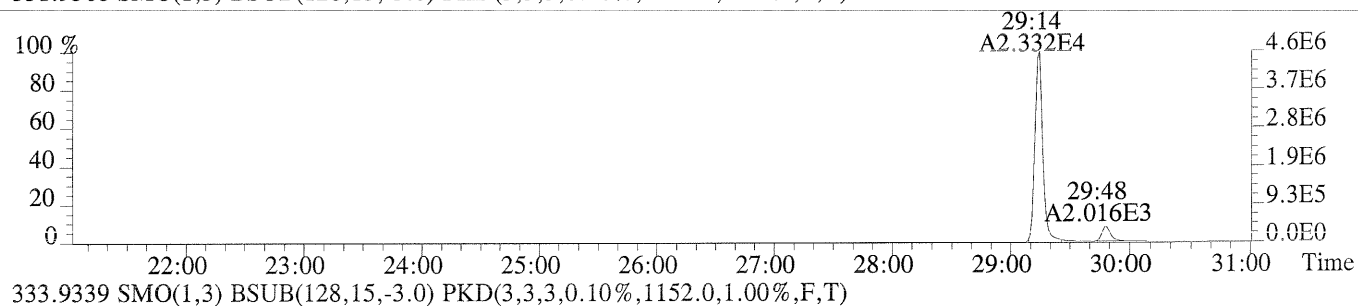
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



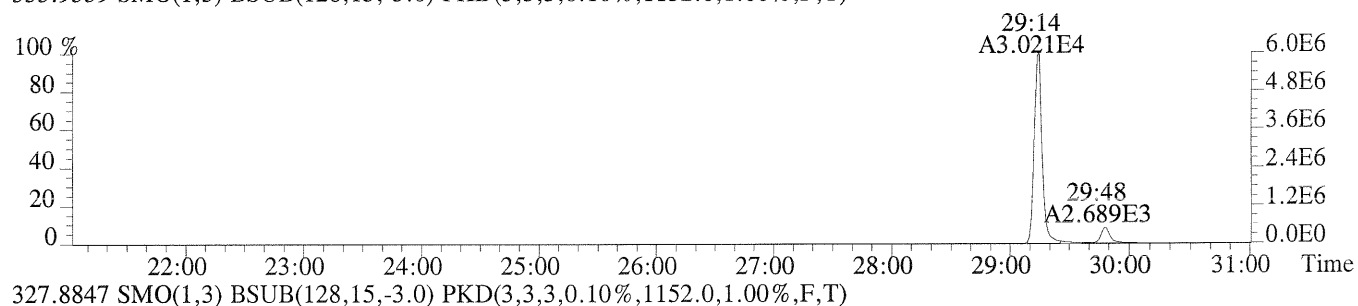
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



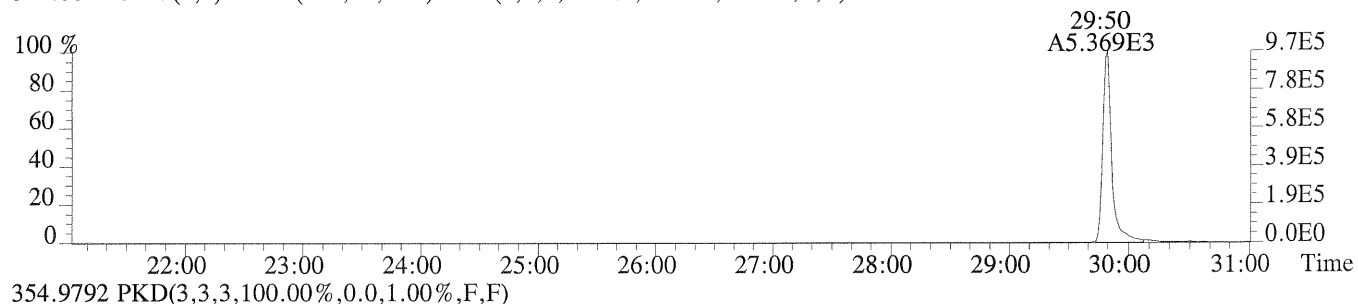
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



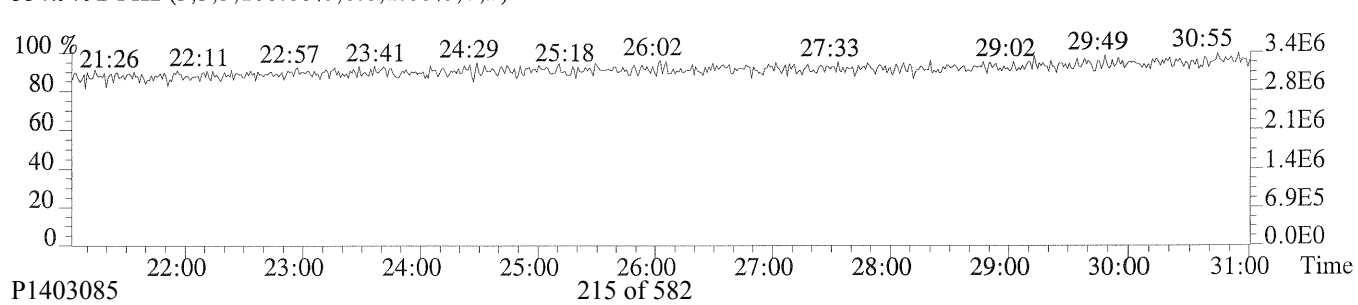
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



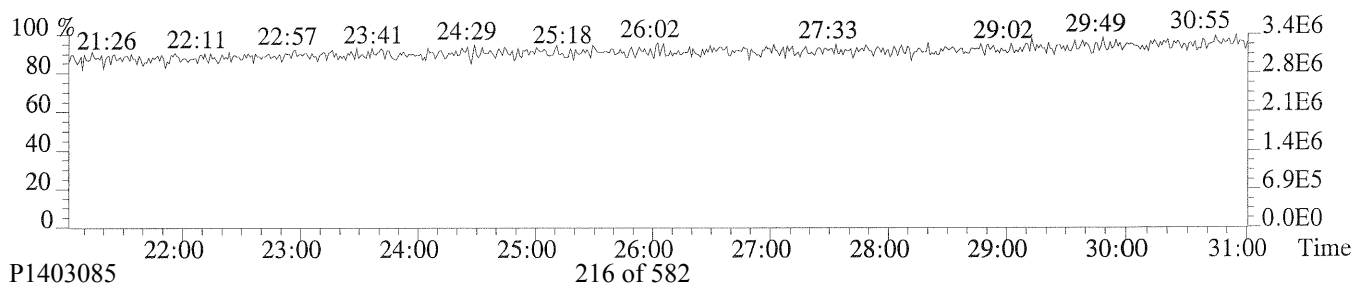
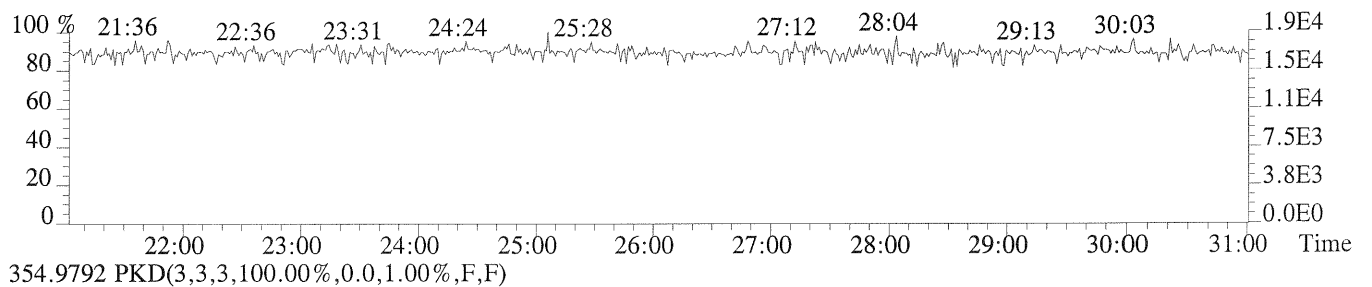
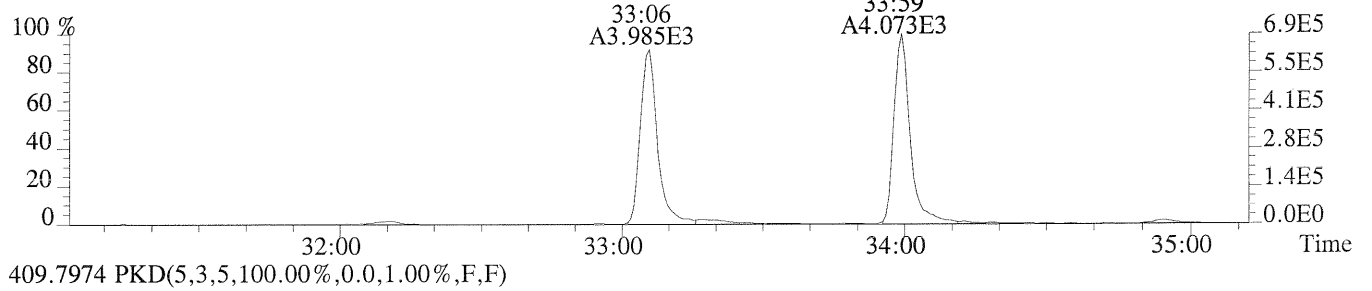
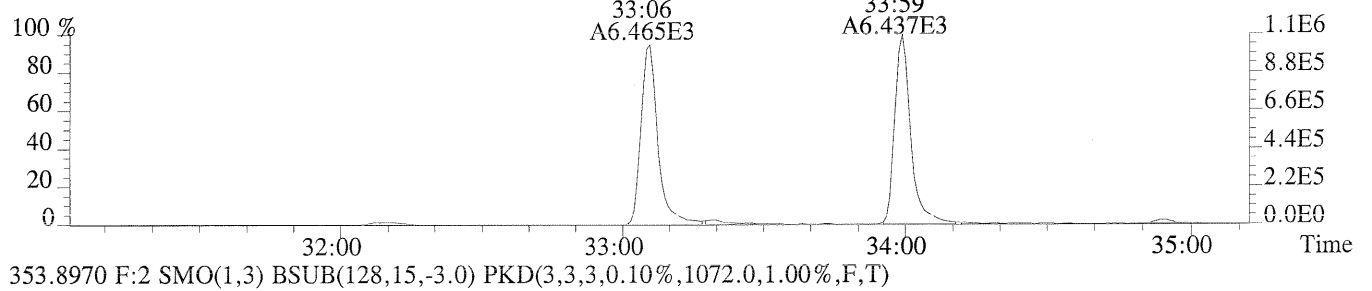
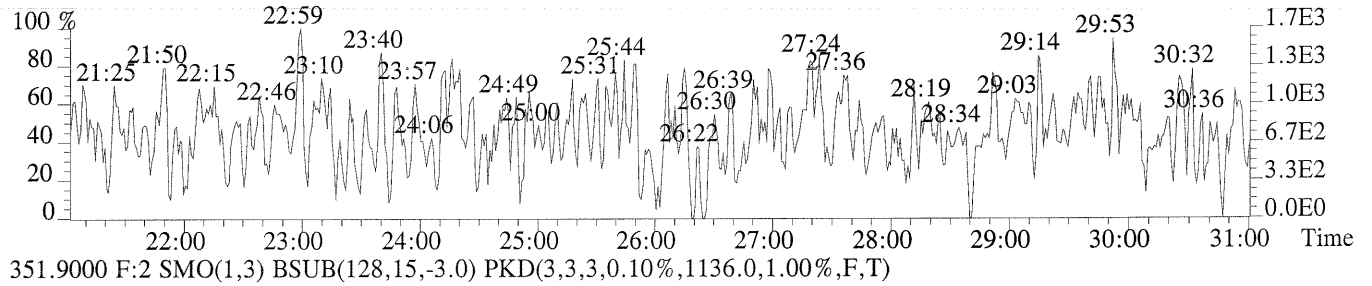
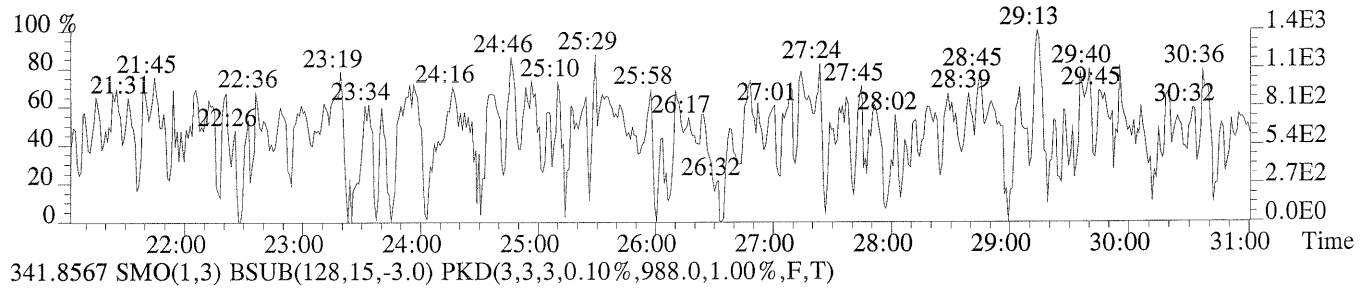
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



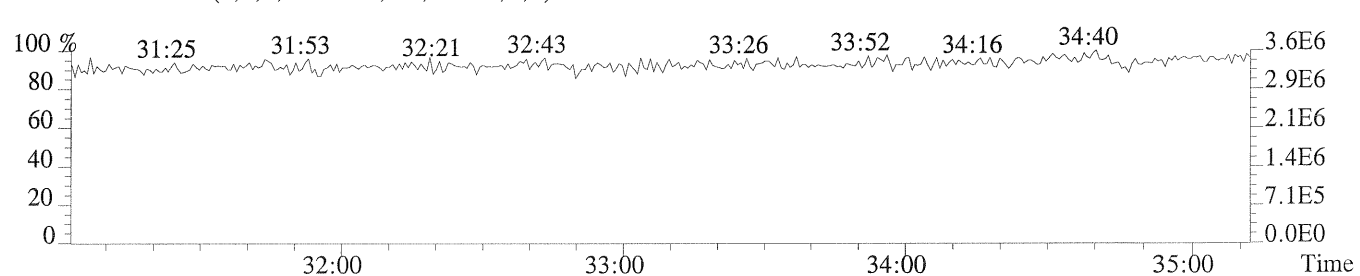
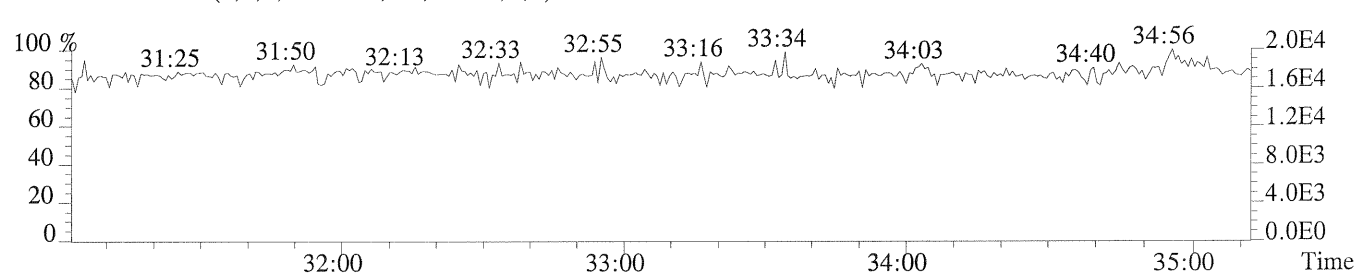
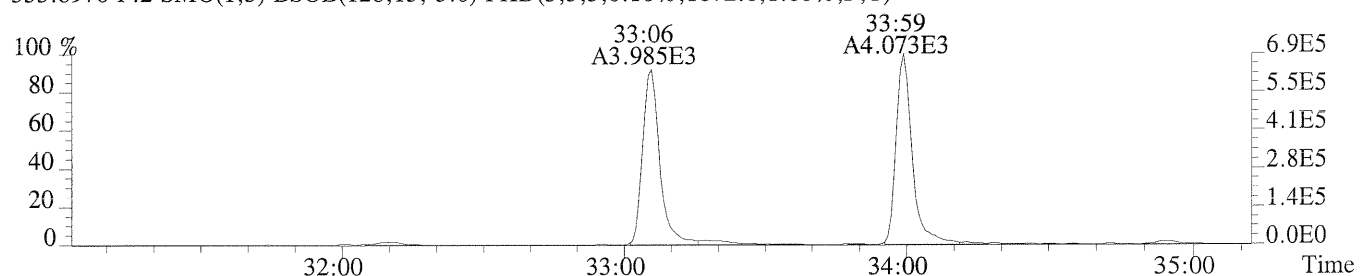
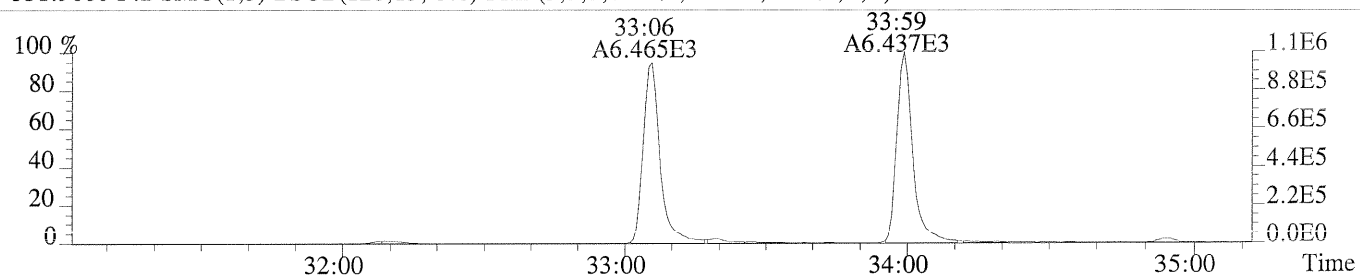
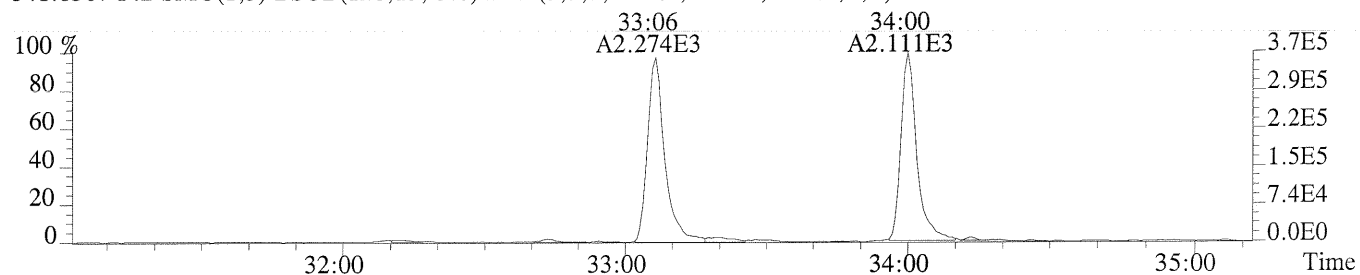
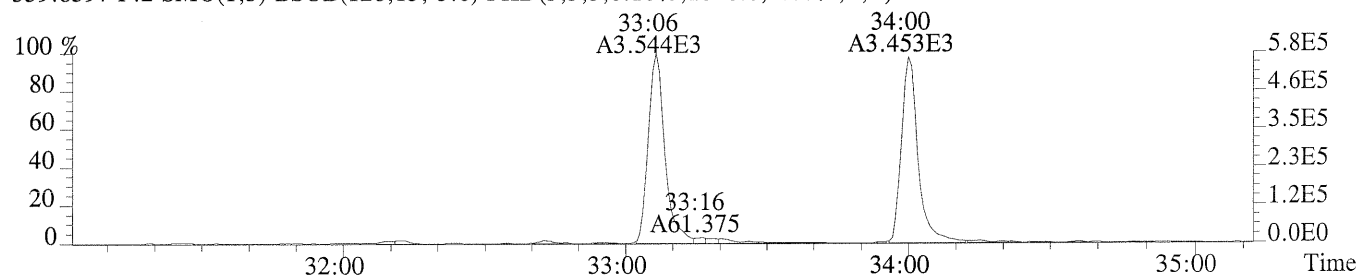
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



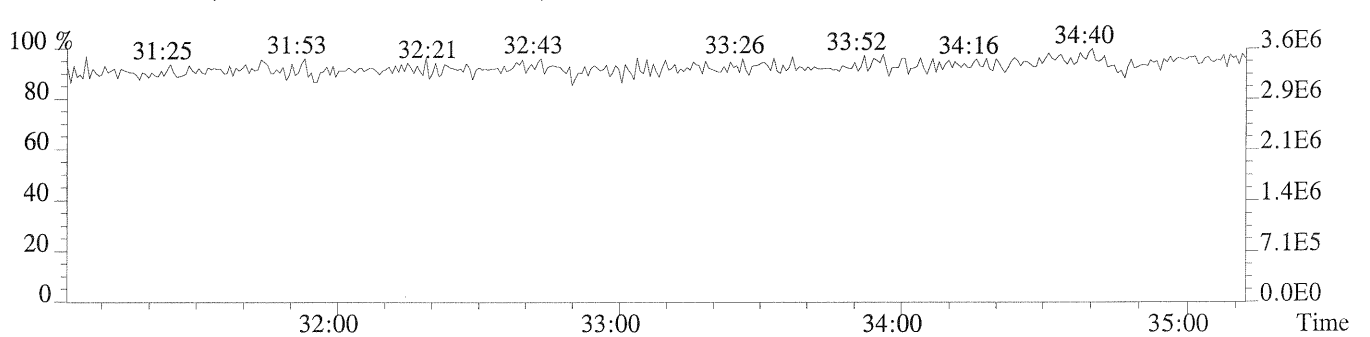
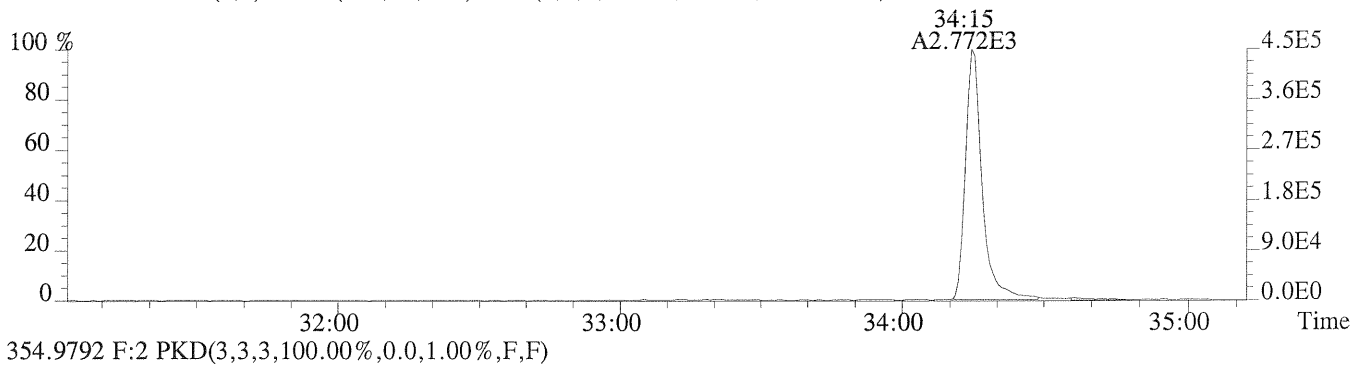
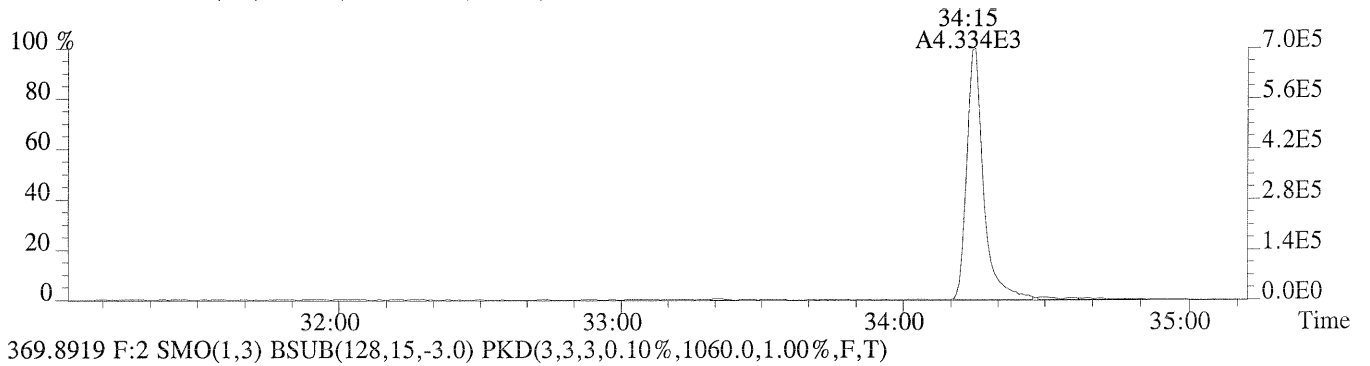
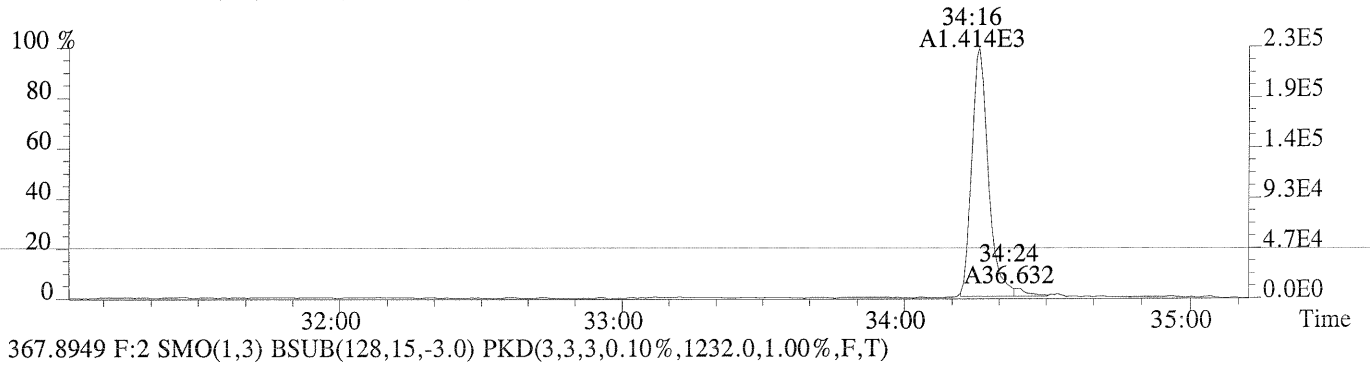
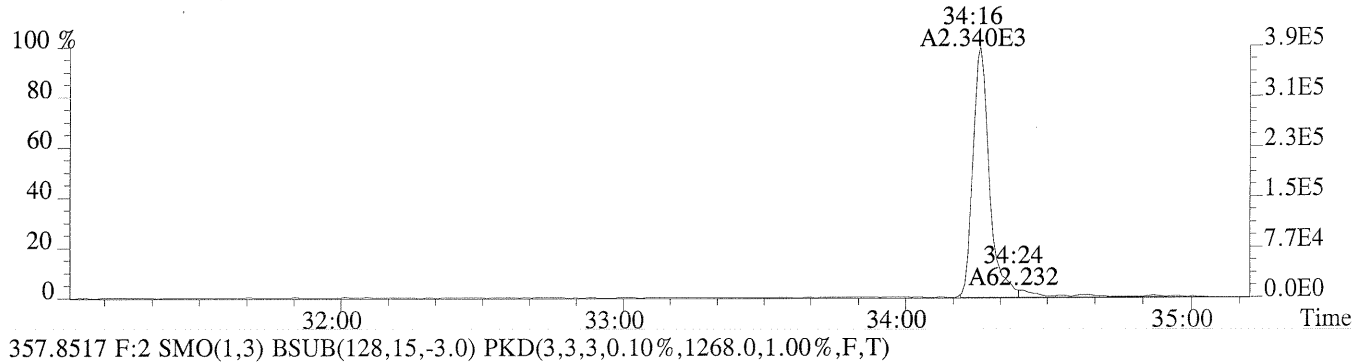
File:U150374 #1-627 Acq:14-AUG-2014 14:08:12 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-03  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



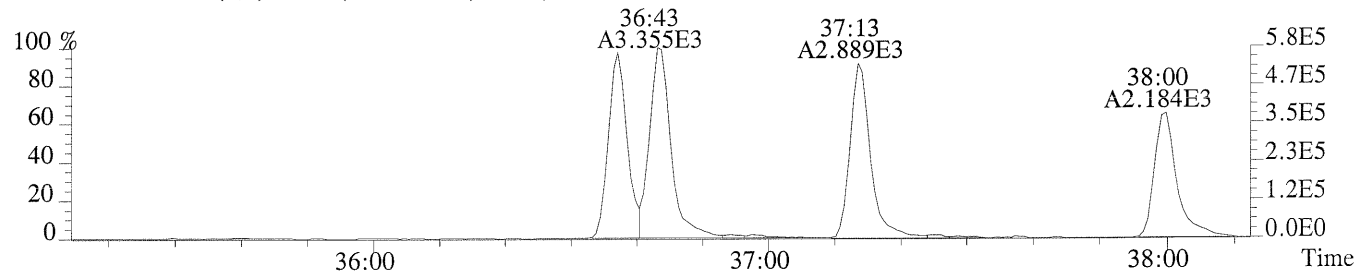




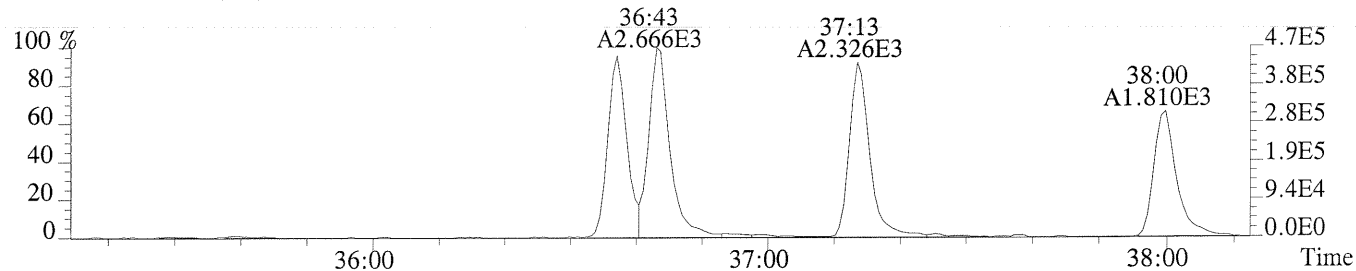
File:U150374 #1-378 Acq:14-AUG-2014 14:08:12 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-03  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



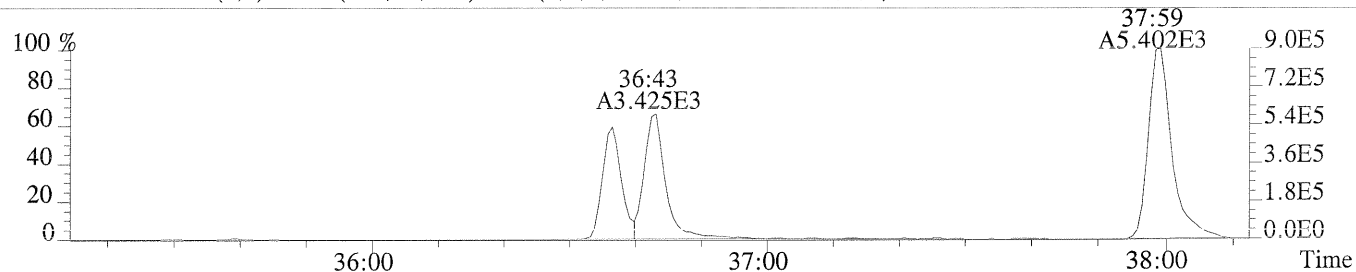
File:U150374 #1-270 Acq:14-AUG-2014 14:08:12 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-03  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



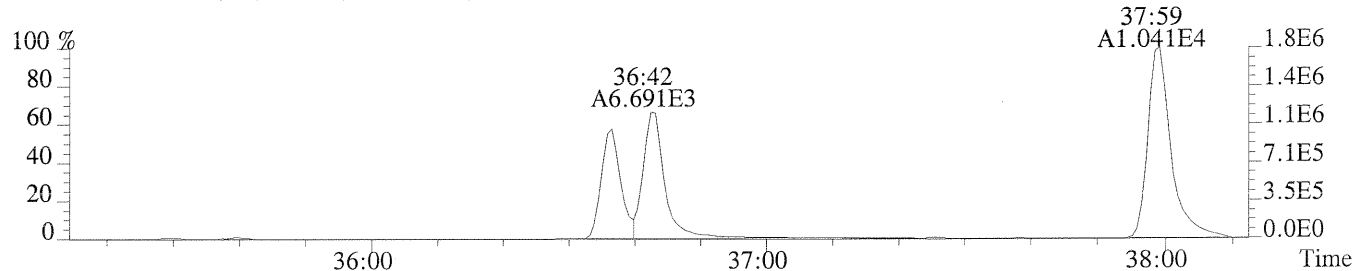
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



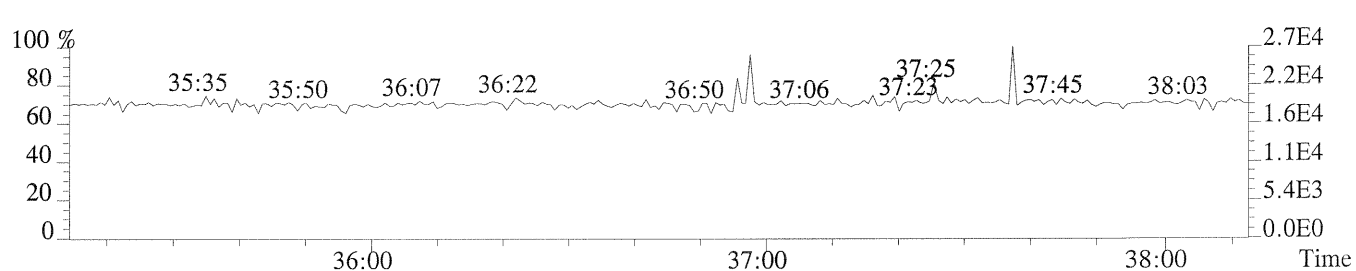
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



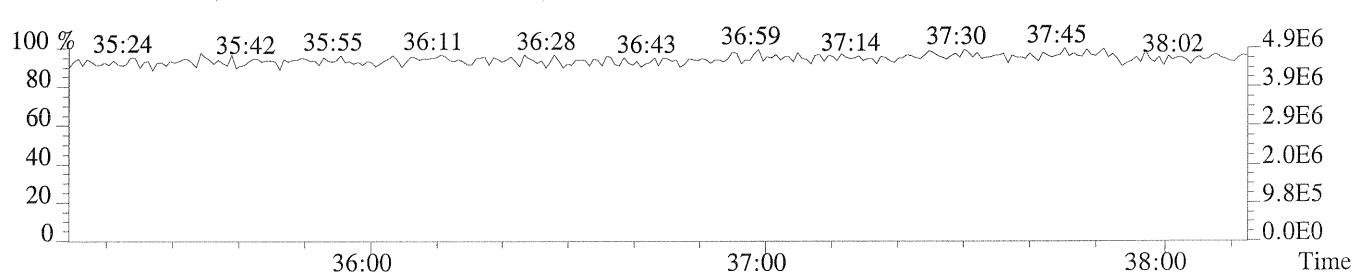
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



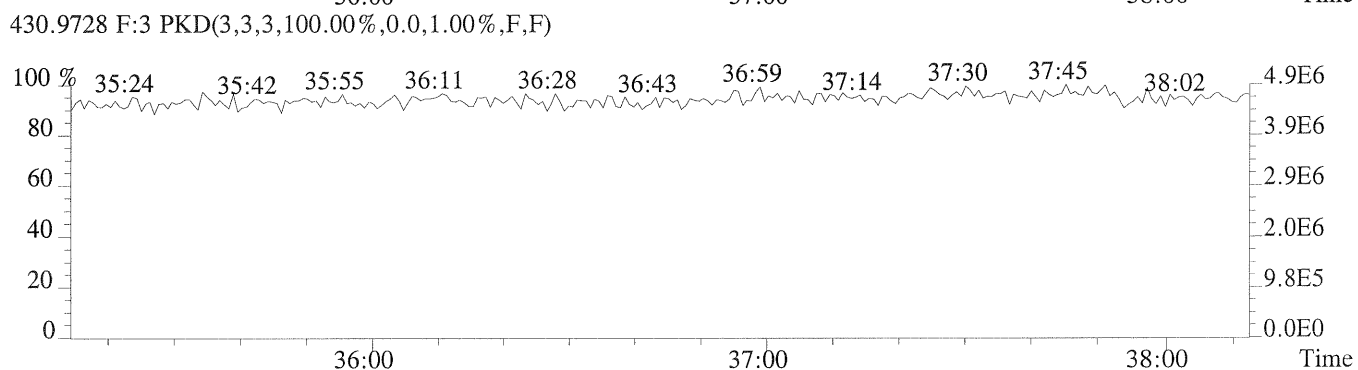
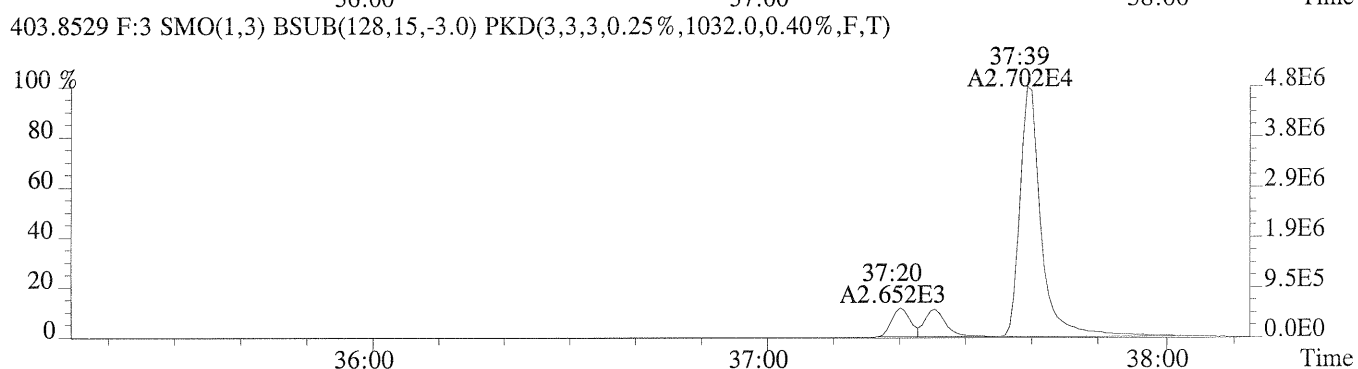
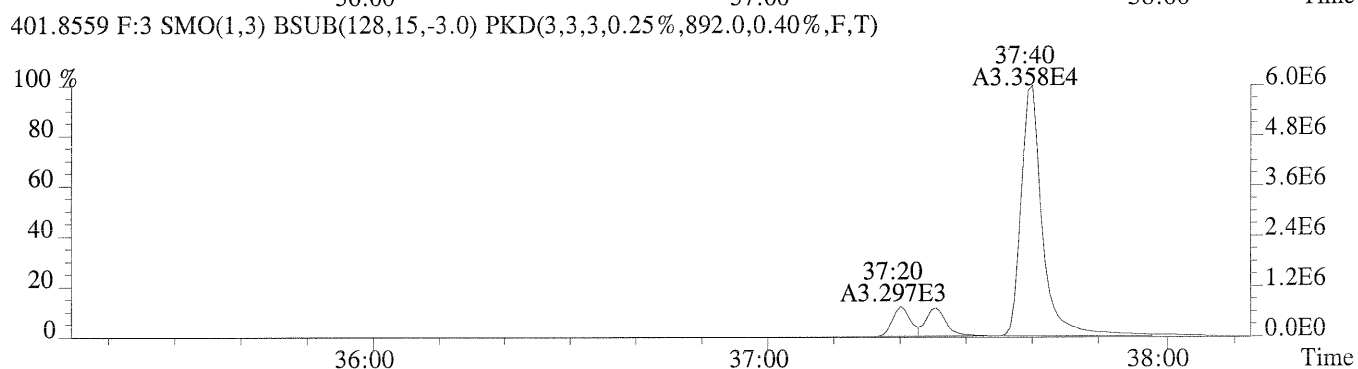
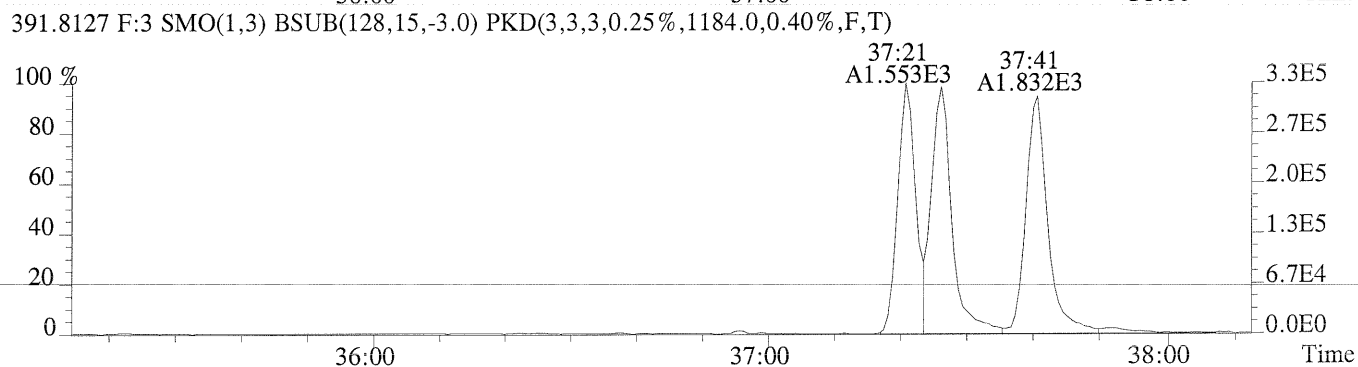
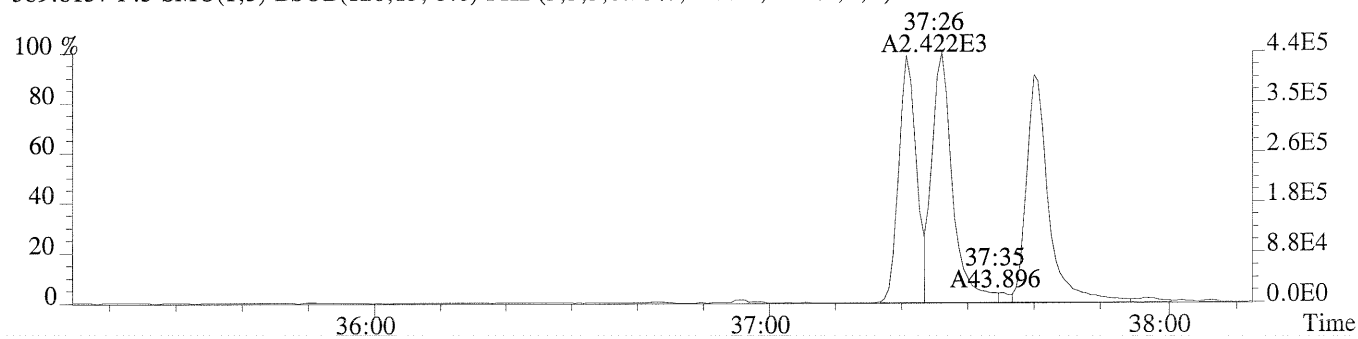
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

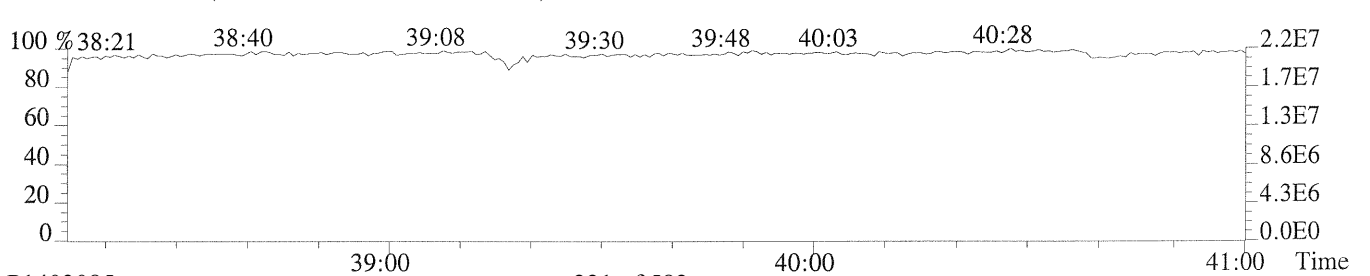
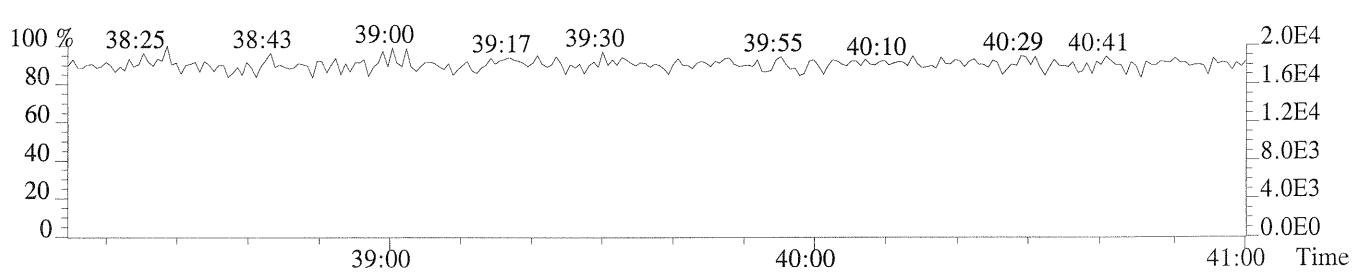
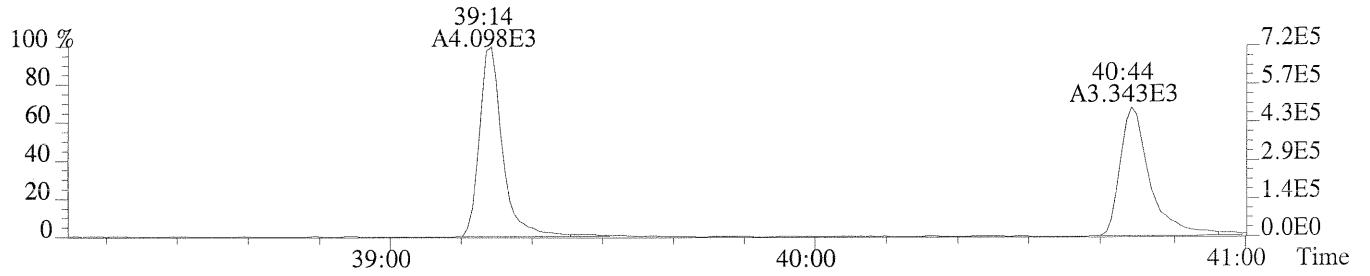
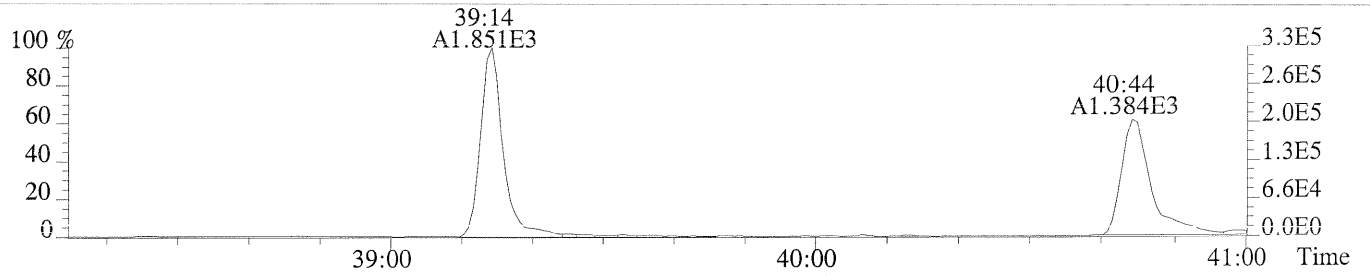
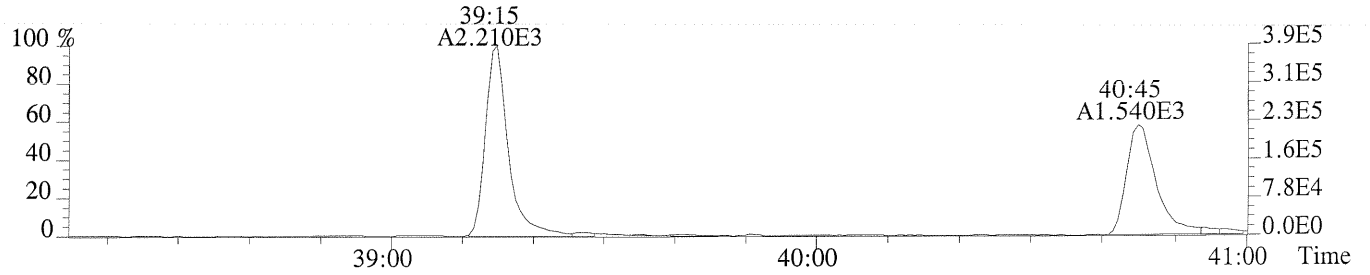
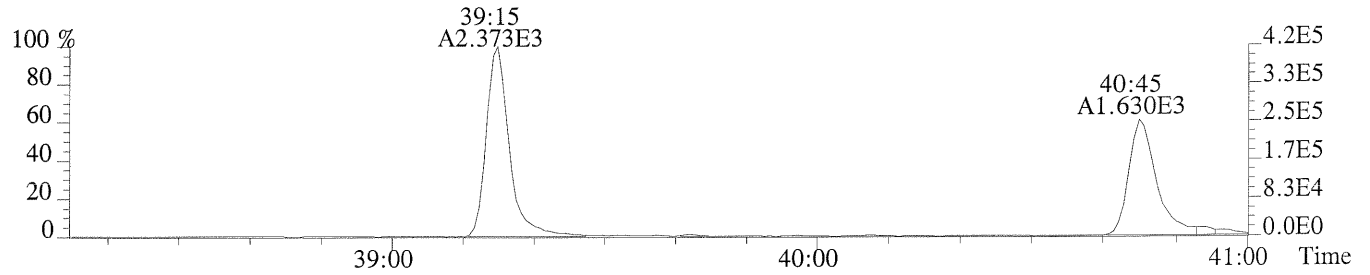


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

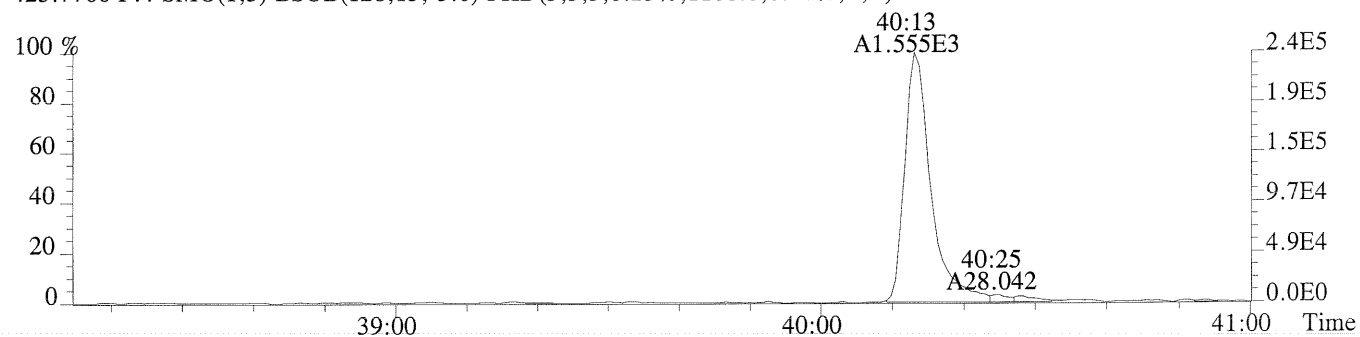


File:U150374 #1-270 Acq:14-AUG-2014 14:08:12 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-03  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)

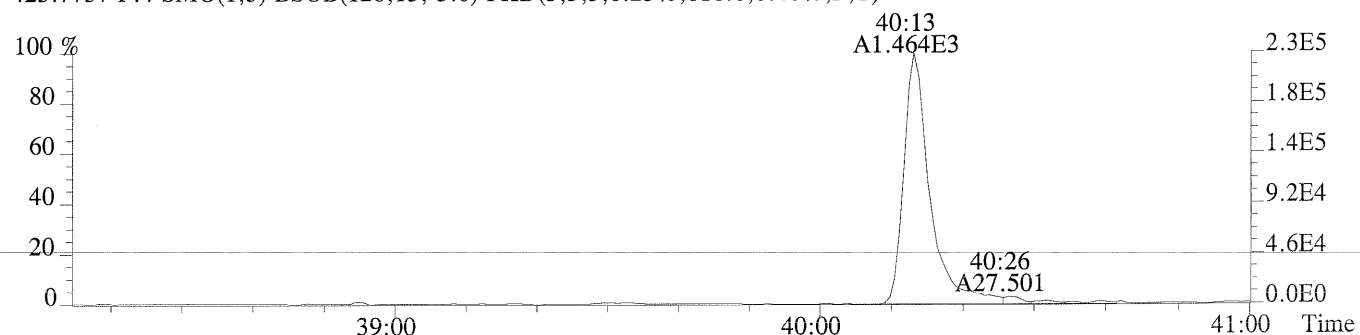




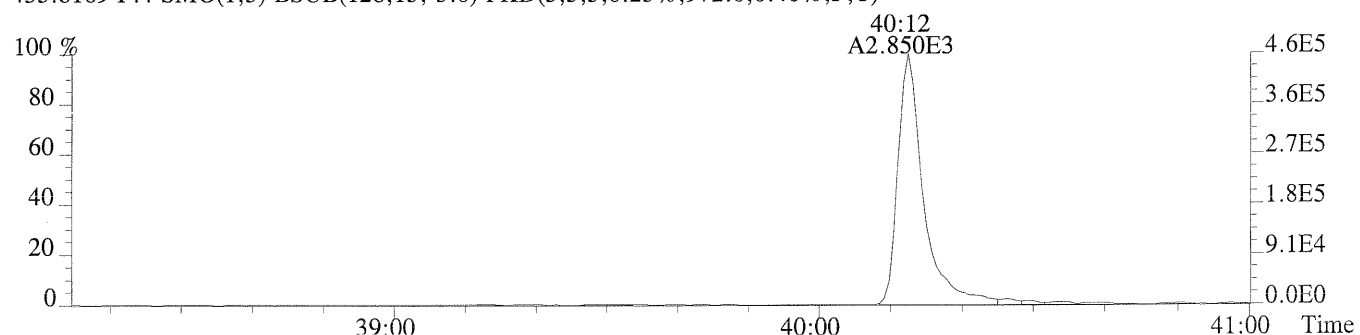
File:U150374 #1-251 Acq:14-AUG-2014 14:08:12 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-03  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



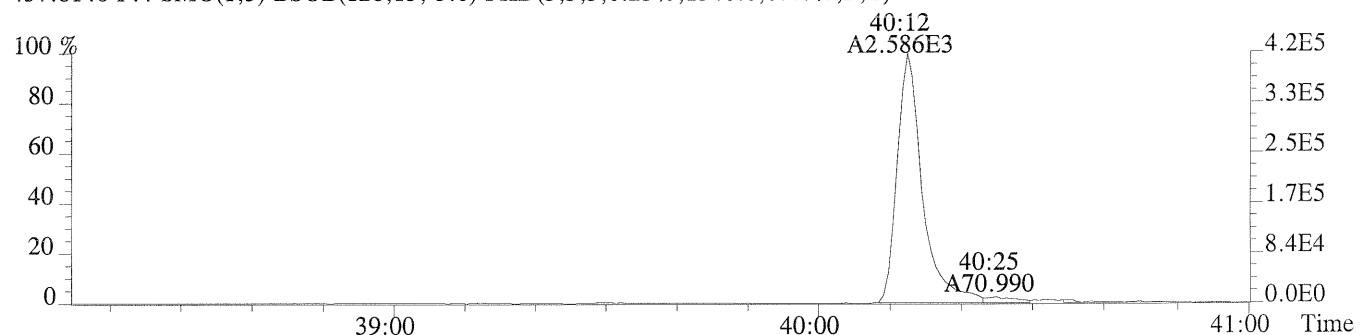
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



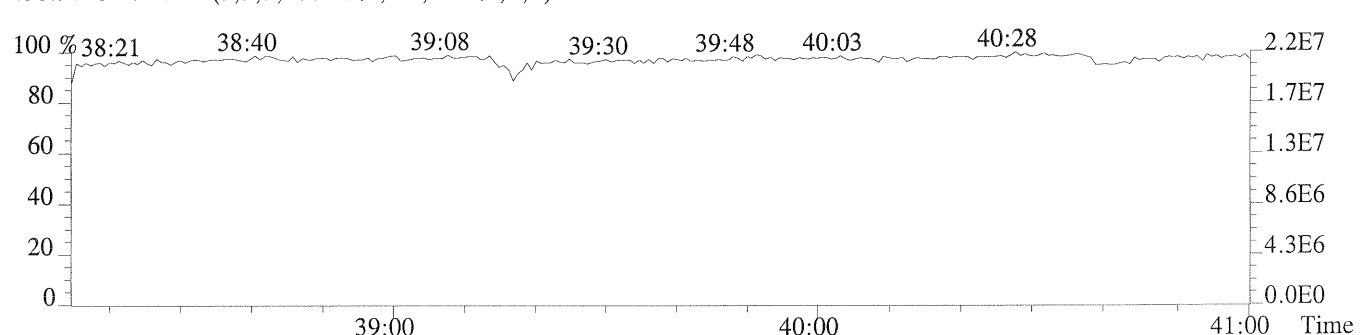
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)

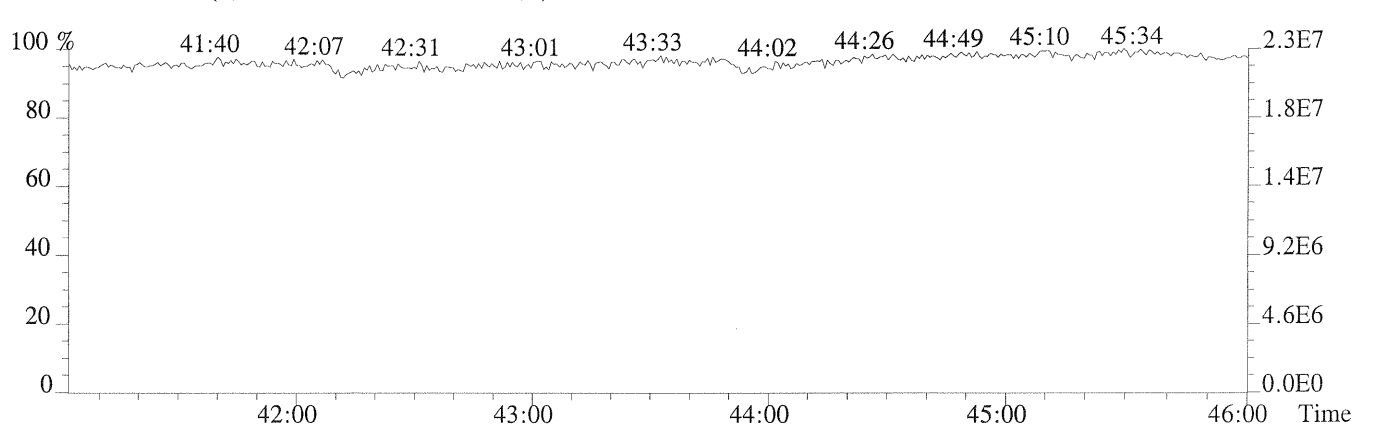
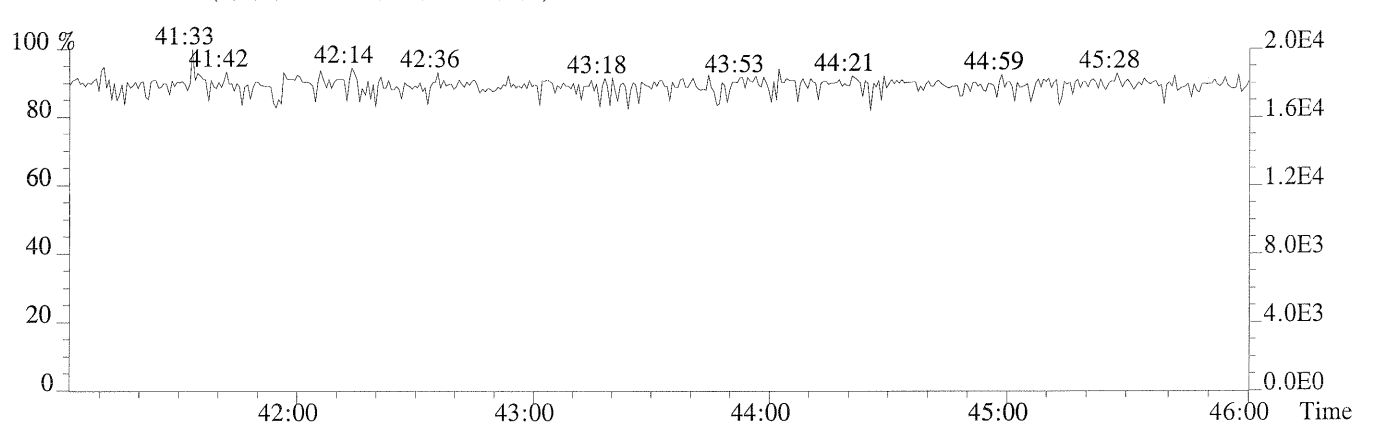
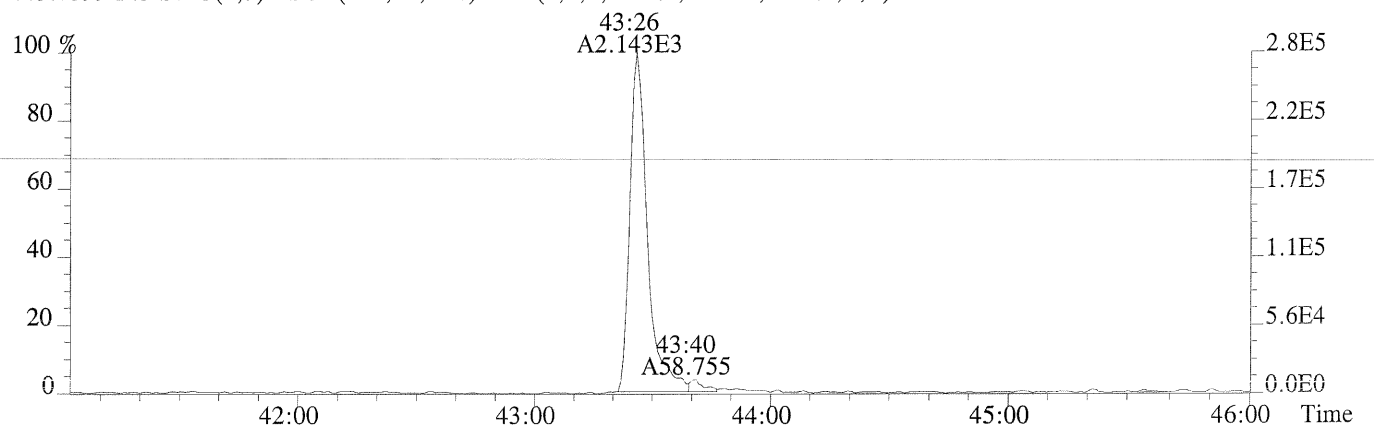
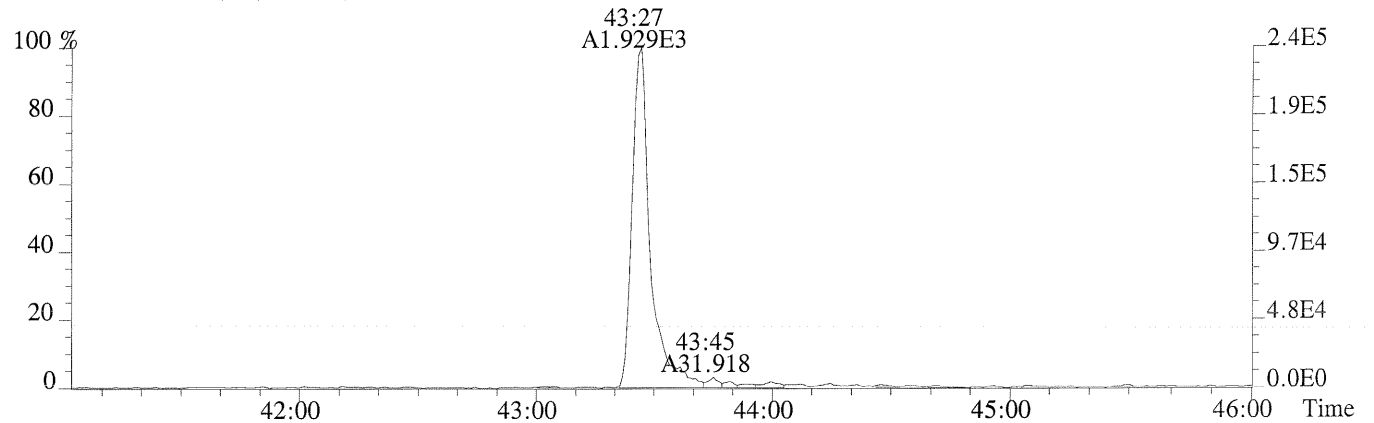


437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)

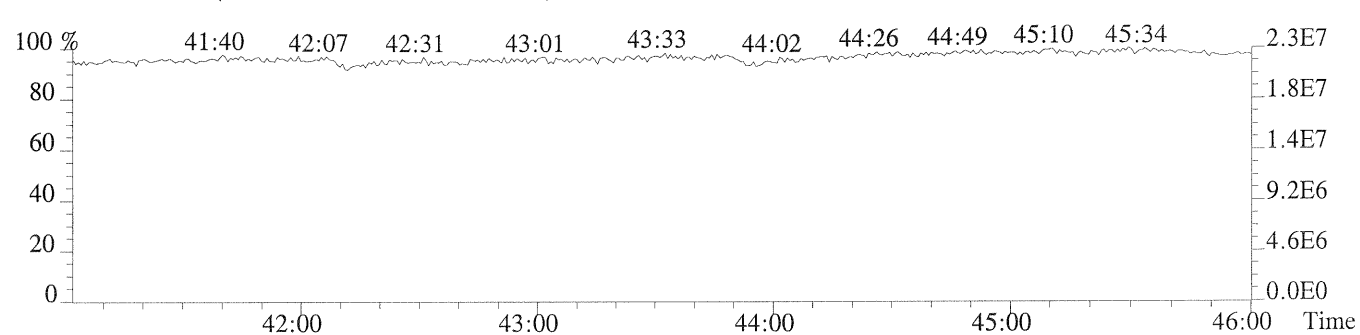
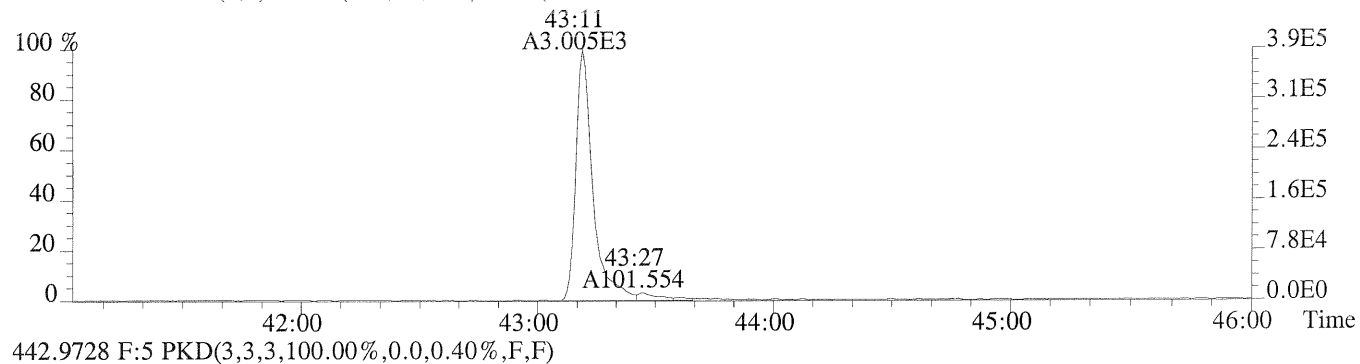
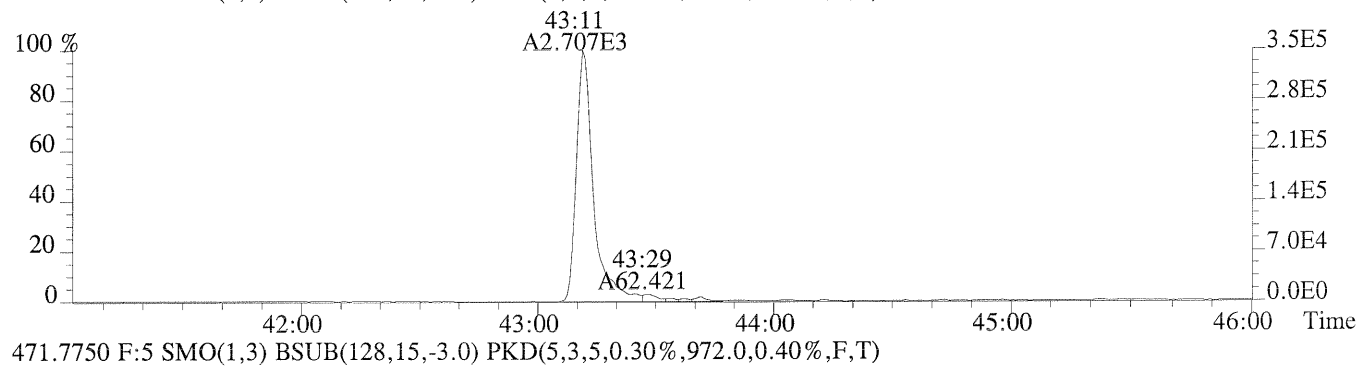
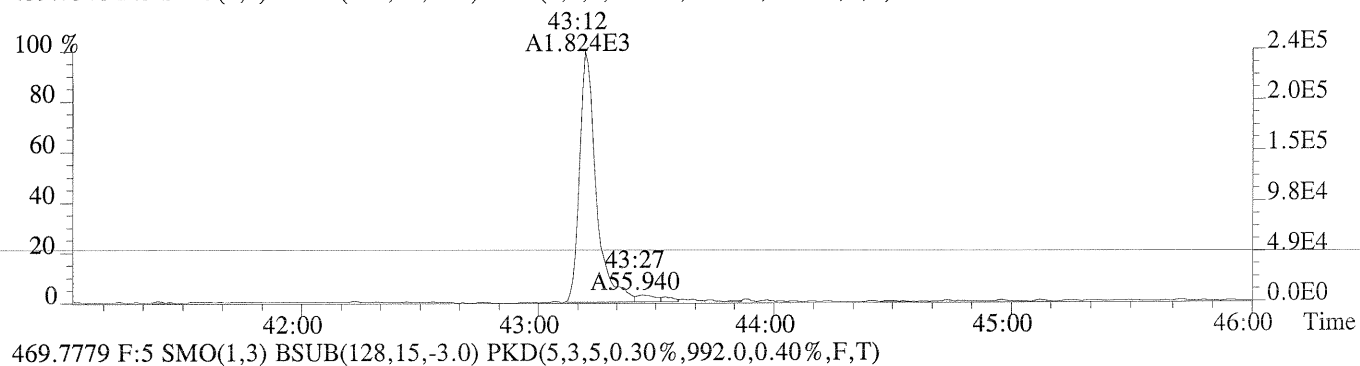
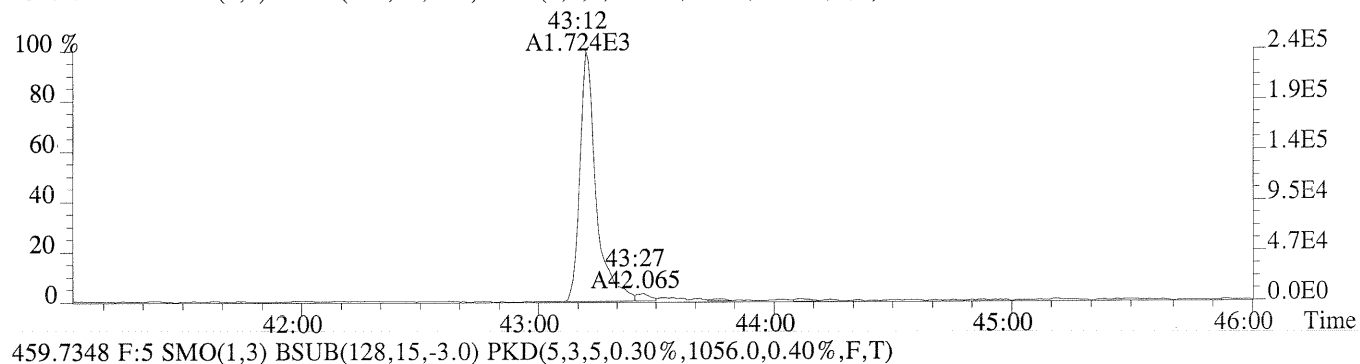


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)





File:U150374 #1-451 Acq:14-AUG-2014 14:08:12 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-03  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,976.0,0.40%,F,T)







# 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](http://www.alsglobal.com)

# CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P230532

Circle one: Beginning / Ending

Date: 15 Aug 14

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)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	NA	N/A

Analyst: lee

Second QC: OP

5DFC  
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental

Contract:

Lab Code: TX01411

Case No.:

SDG No.:

GC Column: DB-5 MSUI

ID: 0.25 (mm)

Instrument ID: E-HRMS-04

Init. Calib. Date: 08/11/14

Init. Calib. Times: 17:39:00

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	63680	P230531	15-AUG-14	11:07:41
CCAL CS3	72675	P230532	15-AUG-14	11:55:17
METHOD BLANK	EQ1400433-01	P230534	15-AUG-14	13:35:41
2069/14-RUN 5	E1400842-001	P230535	15-AUG-14	14:23:28
730U1-DF	P1403085-001	P230536	15-AUG-14	15:11:21
730D1-DF	P1403085-002	P230537	15-AUG-14	15:59:07
730F-DF	P1403085-003	P230538	15-AUG-14	16:48:38
731sN-DF	P1403085-004	P230539	15-AUG-14	17:36:08
731sSQ-DF	P1403085-005	P230540	15-AUG-14	18:36:47
731sNQ-DF	P1403085-006	P230541	15-AUG-14	19:23:27
731BlankdDF	P1403085-007	P230542	15-AUG-14	20:11:14
731BlankdDF	P1403085-008	P230543	15-AUG-14	20:59:07

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\IP2140815.SPL  
Last Modified: Friday, August 15, 2014 18:24:18 Central Daylight Time  
Printed: Friday, August 15, 2014 18:37:35 Central Daylight Time

C:\P230522 RES

Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	08/15/14	02:57	CS3	72675	XX	DO NOT USE	8290CAS
2	10:06	P230529 WINDOW DEFINE	WINDOW DEFINE	63680		DO NOT USE	8290CAS
3	11:07	P230530 WINDOW DEFINE	WINDOW DEFINE	63680		HRMS checks 10:01	8290CAS
4	11:55	P230531 CS3	CS3	72675			8290CAS
5	12:49	P230532 EQ1400433-01	EQ1400433-01	MB		BAD INJECTION M23	8290CAS
6	13:55	P230533 EQ1400433-01	EQ1400433-01	MB			8290CAS
7	14:23	P230534 E1400842-001	E1400842-001	E1400842-001			8290CAS
8	15:11	P230535 P1403085-001	P1403085-001	P1403085-001			8290CAS
9	15:59	P230536 P1403085-002	P1403085-002	P1403085-002			8290CAS
10	16:48	P230537 P1403085-003	P1403085-003	P1403085-003			8290CAS
11	17:36	P230538 P1403085-004	P1403085-004	P1403085-004			8290CAS
12	18:36	P230539 P1403085-005	P1403085-005	P1403085-005		HRMS check 18:27	8290CAS
13	19:23	P230540 P1403085-006	P1403085-006	P1403085-006			8290CAS
14	20:11	P230541 P1403085-007	P1403085-007	P1403085-007			8290CAS
15	20:59	P230542 P1403085-008	P1403085-008	P1403085-008			8290CAS
16	21:46	P230543 13615 LABELED	13615 LABELED	13615 LABELED		HRMS check 07:29	8290CAS
17							8290CAS
18							8290CAS
19							8290CAS
20							8290CAS
21							8290CAS
22							8290CAS
23							8290CAS
24							8290CAS
25							8290CAS
26							8290CAS
27							8290CAS
28							8290CAS
29							8290CAS
30							8290CAS
31							8290CAS
32							8290CAS
33							8290CAS
34							8290CAS
35							8290CAS
36							8290CAS
37							8290CAS
38							8290CAS
39							8290CAS

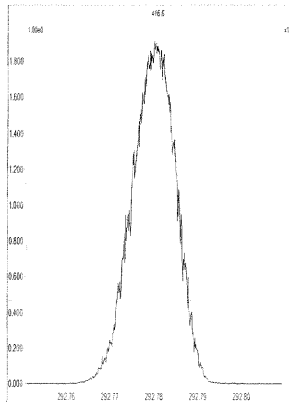
REVIEWED BY: cee  
8/18/14

XX  
08/15/14

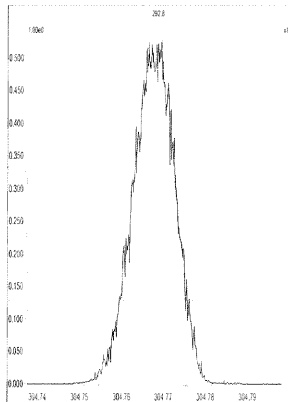
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 15, 2014 10:01:28 Central Daylight Time

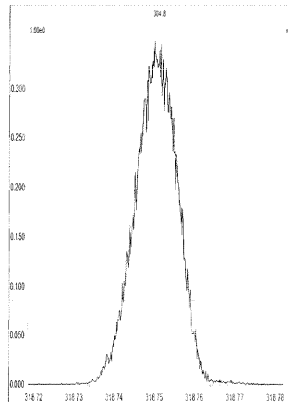
M 292.9824 R 13094



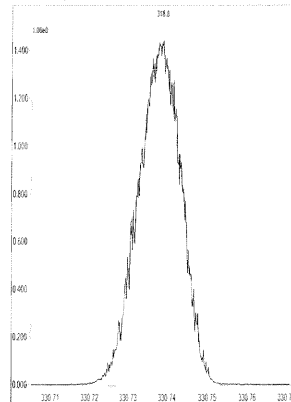
M 304.9824 R 13223



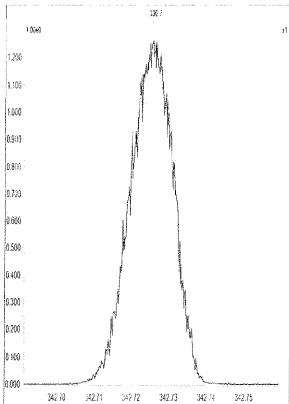
M 318.9792 R 13513



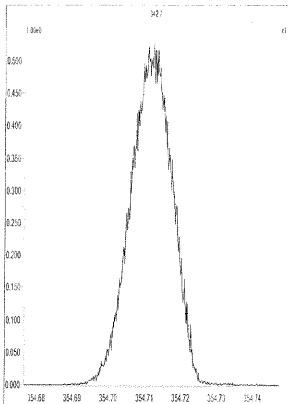
M 330.9792 R 13664



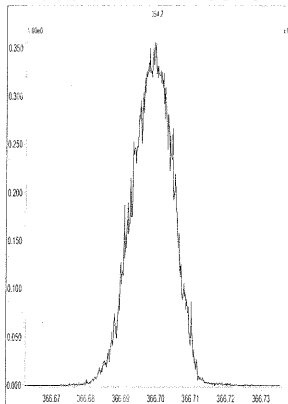
M 342.9792 R 14124



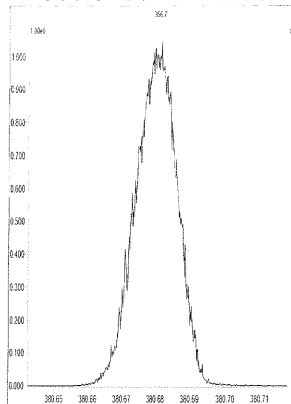
M 354.9792 R 13590



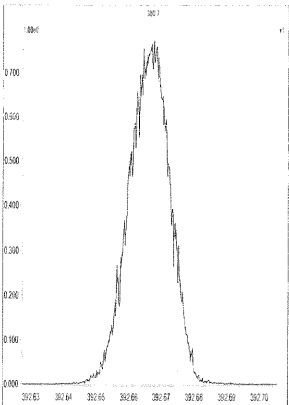
M 366.9792 R 13813



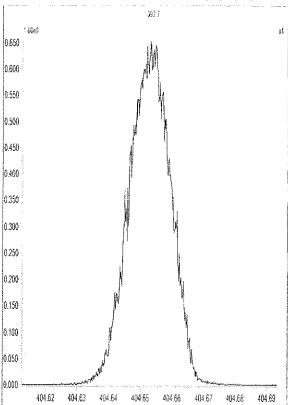
M 380.9760 R 14203



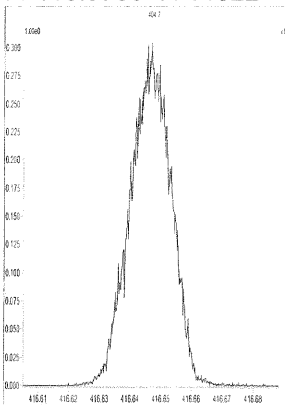
M 392.9760 R 14120



M 404.9760 R 13966



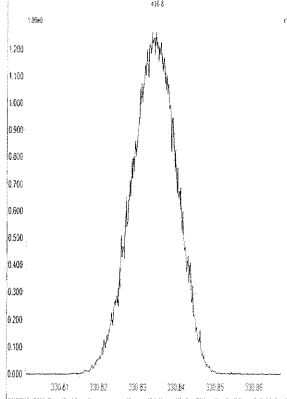
M 416.9760 R 14622



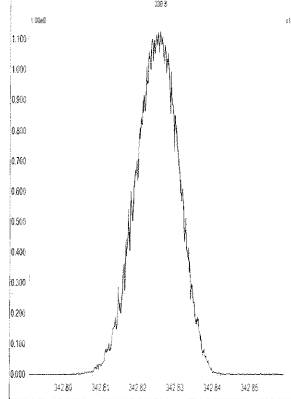
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 15, 2014 10:02:45 Central Daylight Time

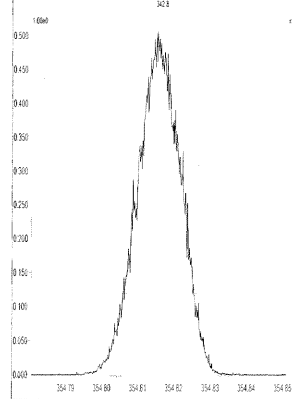
M 330.9792 R 12563



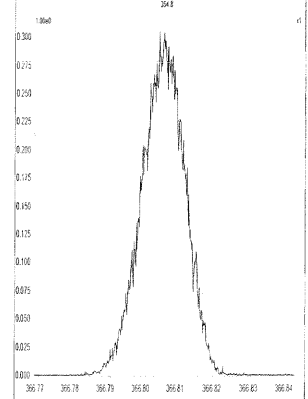
M 342.9792 R 12561



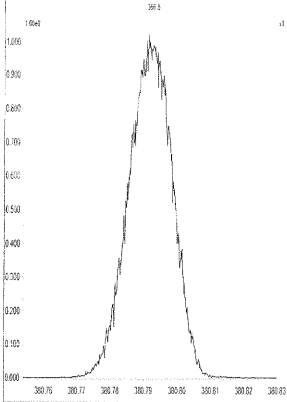
M 354.9792 R 13022



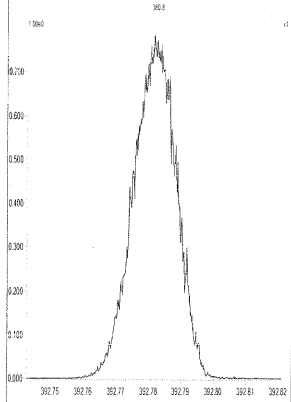
M 366.9792 R 13512



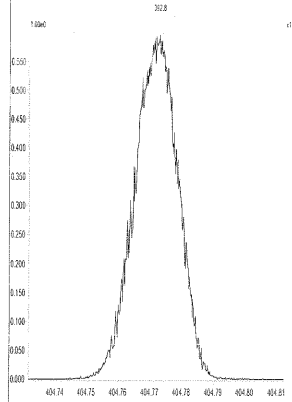
M 380.9760 R 13086



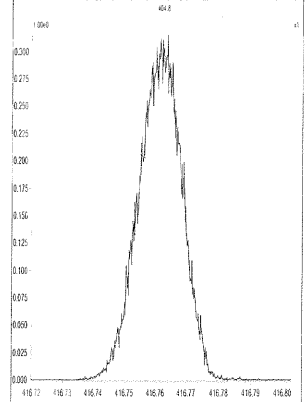
M 392.9760 R 13298



M 404.9760 R 13296



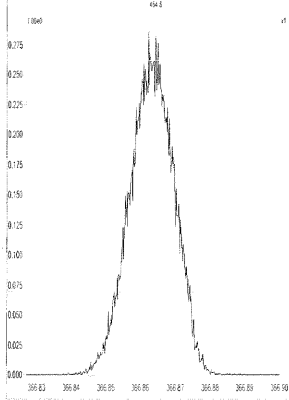
M 416.9760 R 13370



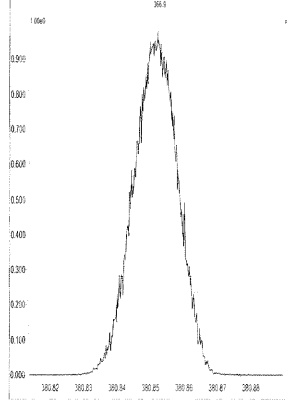
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 15, 2014 10:03:41 Central Daylight Time

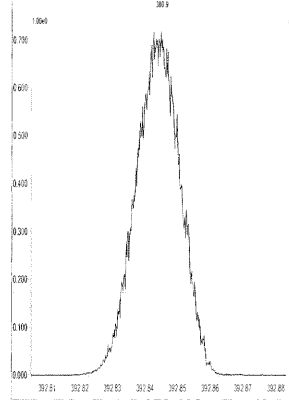
M 366.9792 R 12439



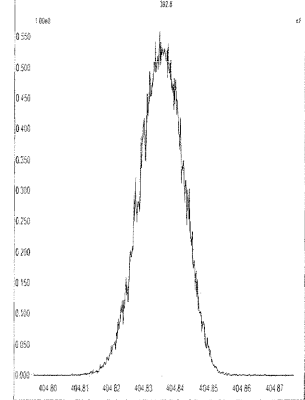
M 380.9760 R 12499



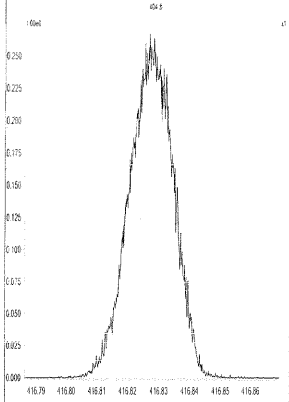
M 392.9760 R 12688



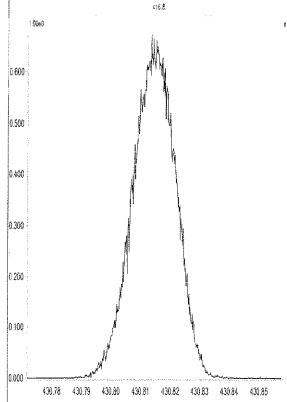
M 404.9760 R 12690



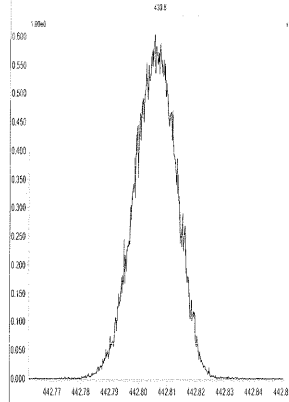
M 416.9760 R 13226



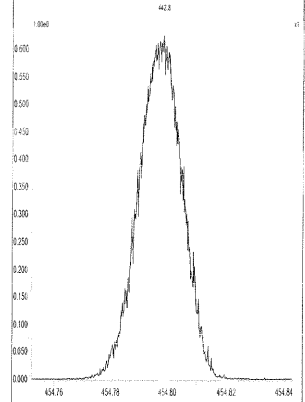
M 430.9728 R 12692



M 442.9728 R 12820



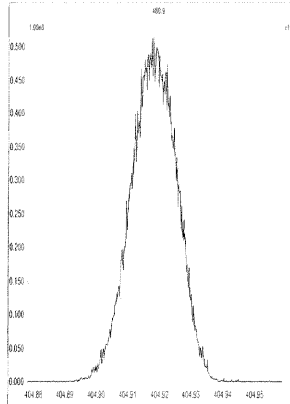
M 454.9728 R 13091



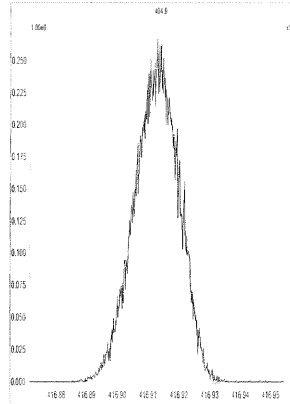
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 15, 2014 10:04:54 Central Daylight Time

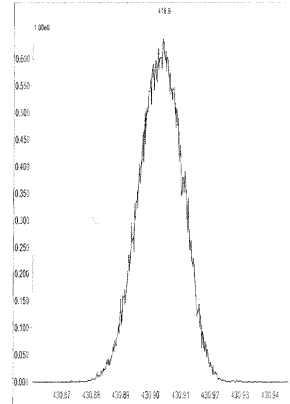
M 404.9760 R 12193



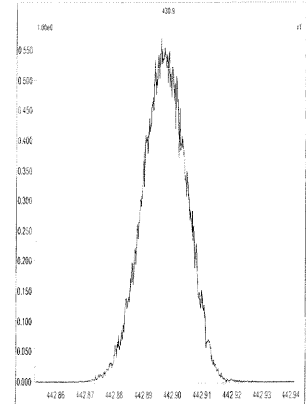
M 416.9760 R 12821



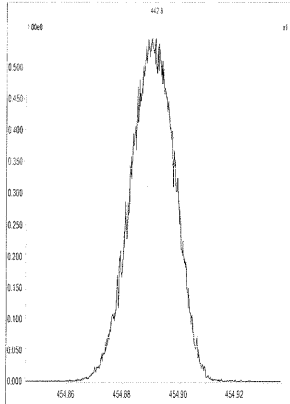
M 430.9728 R 12437



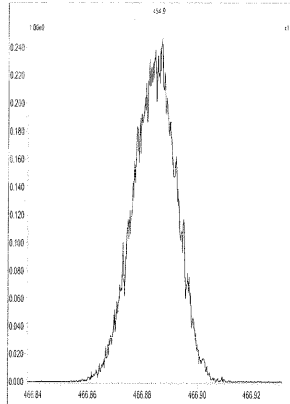
M 442.9728 R 12757



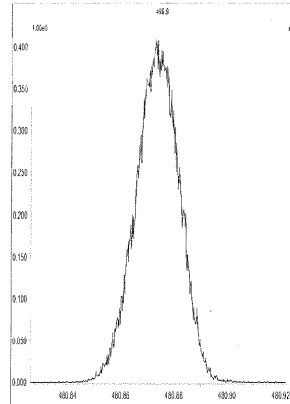
M 454.9728 R 12691



M 466.9728 R 12689



M 480.9696 R 12317

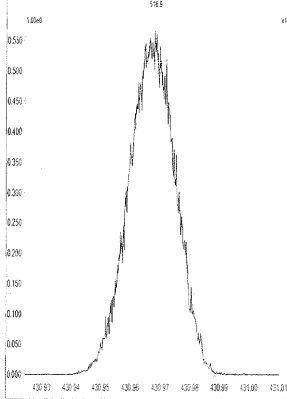




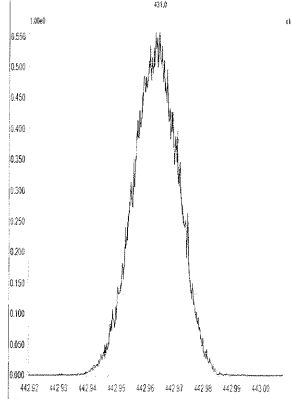
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 15, 2014 10:05:43 Central Daylight Time

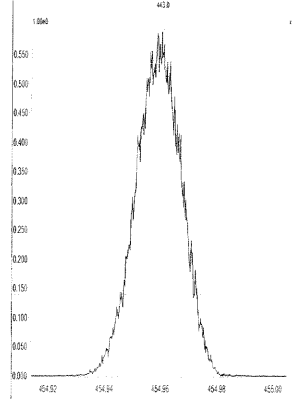
M 430.9728 R 12137



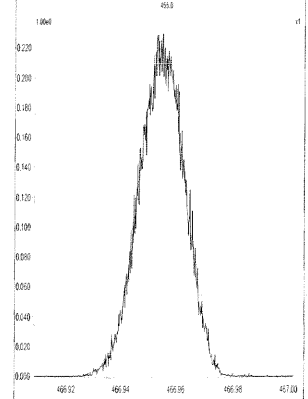
M 442.9728 R 12690



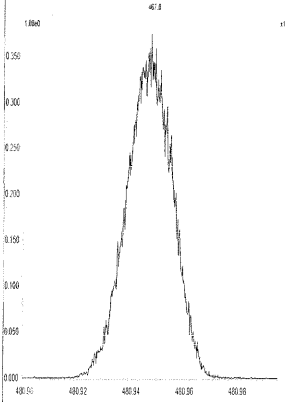
M 454.9728 R 12017



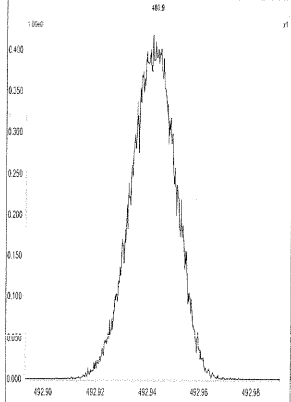
M 466.9728 R 12559



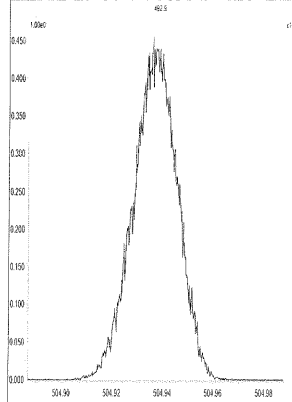
M 480.9696 R 12375



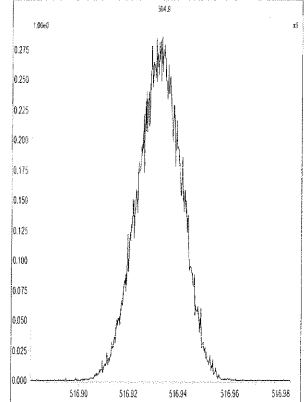
M 492.9696 R 12137



M 504.9696 R 12438



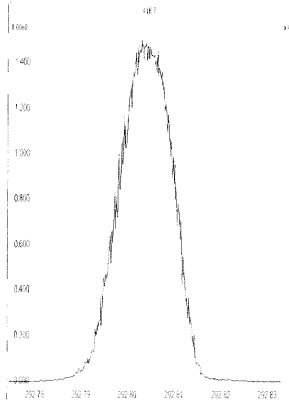
M 516.9697 R 12952



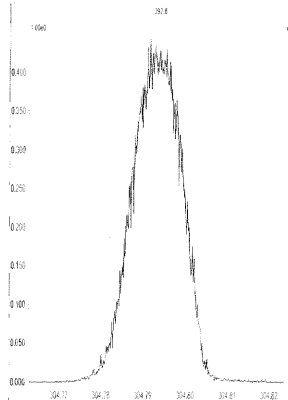
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 15, 2014 18:27:14 Central Daylight Time

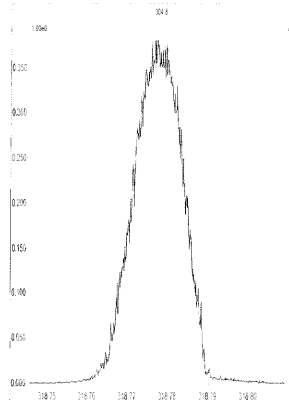
M 292.9824 R 12194



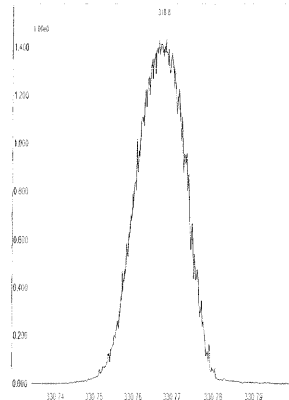
M 304.9824 R 12440



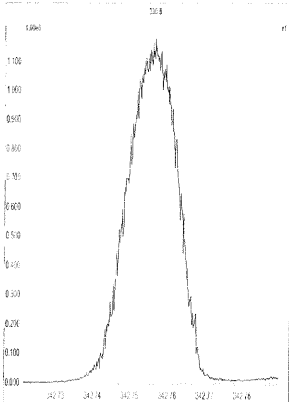
M 318.9792 R 12691



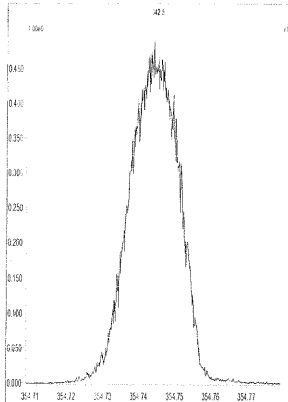
M 330.9792 R 12441



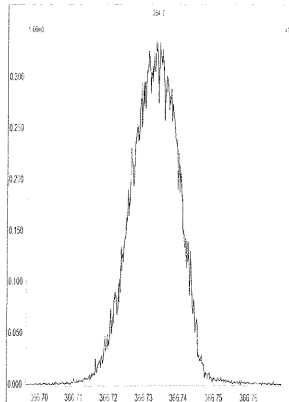
M 342.9792 R 12882



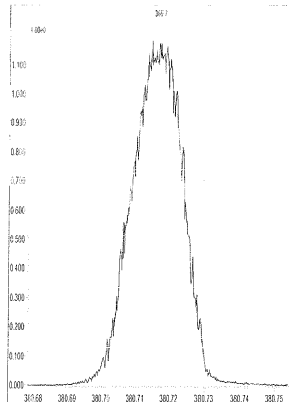
M 354.9792 R 12076



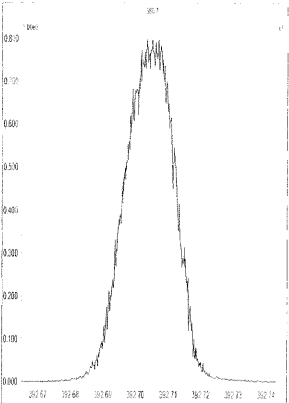
M 366.9792 R 12439



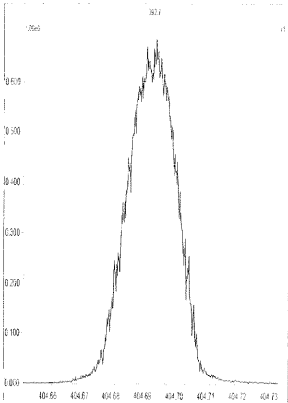
M 380.9760 R 12376



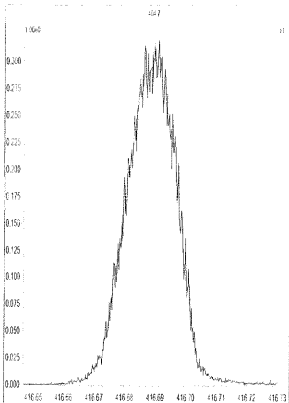
M 392.9760 R 12374



M 404.9760 R 12377



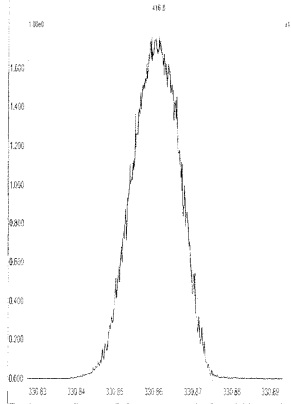
M 416.9760 R 12018



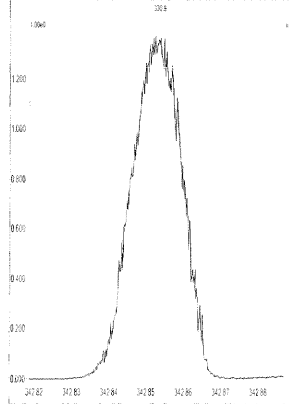
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 15, 2014 18:28:29 Central Daylight Time

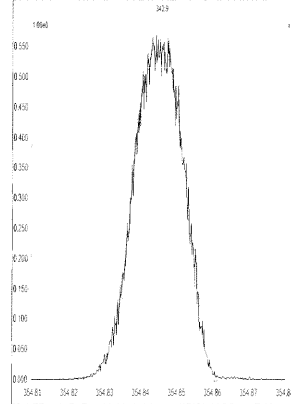
M 330.9792 R 12256



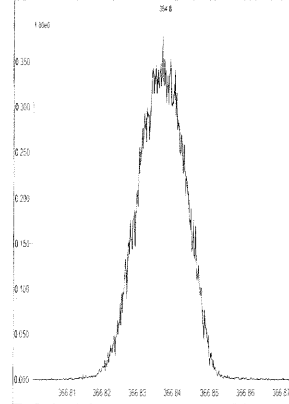
M 342.9792 R 12076



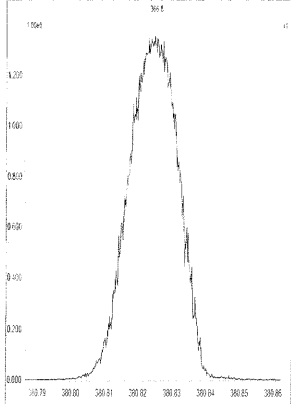
M 354.9792 R 12565



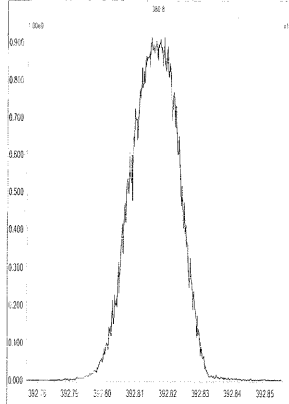
M 366.9792 R 12755



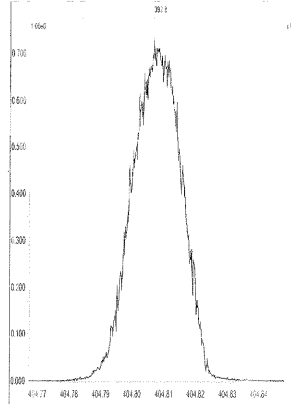
M 380.9760 R 12753



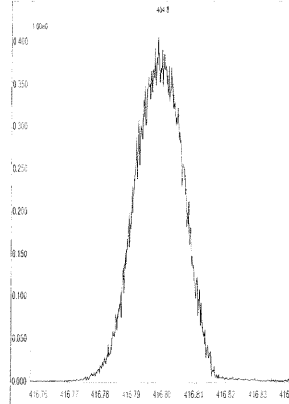
M 392.9760 R 12132



M 404.9760 R 12314



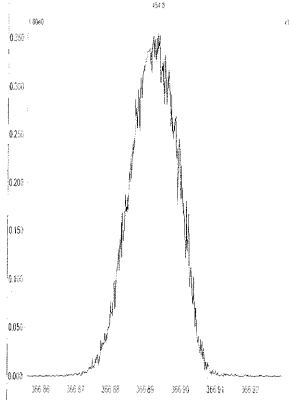
M 416.9760 R 12197



File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 15, 2014 18:29:50 Central Daylight Time

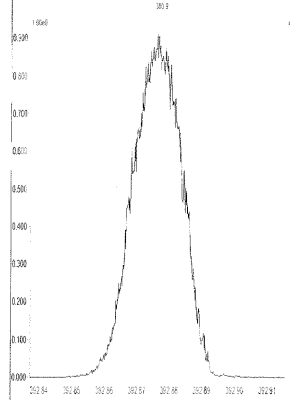
M 366.9792 R 12257



M 380.9760 R 12136



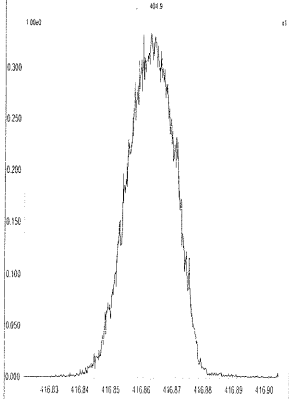
M 392.9760 R 11740



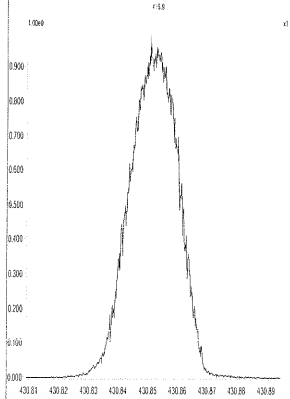
M 404.9760 R 12137



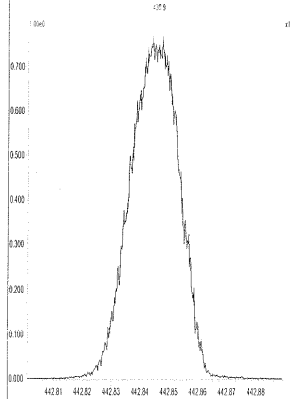
M 416.9760 R 12820



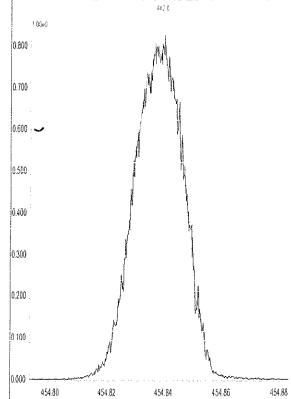
M 430.9728 R 12624



M 442.9728 R 12438



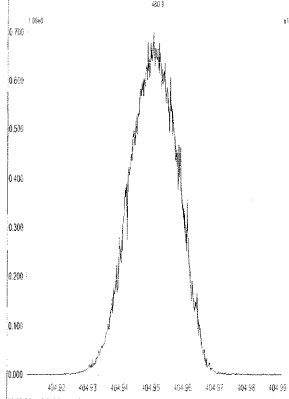
M 454.9728 R 12254



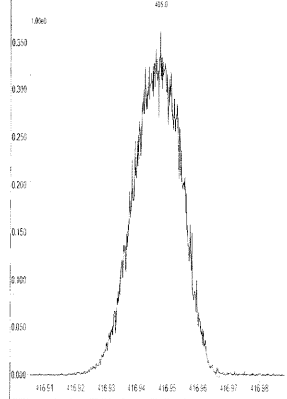
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 15, 2014 18:31:16 Central Daylight Time

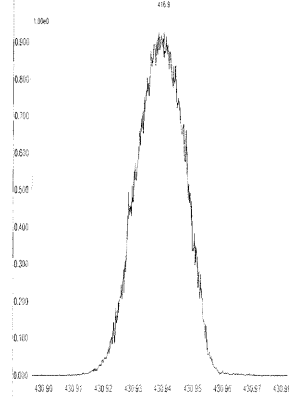
M 404.9760 R 12076



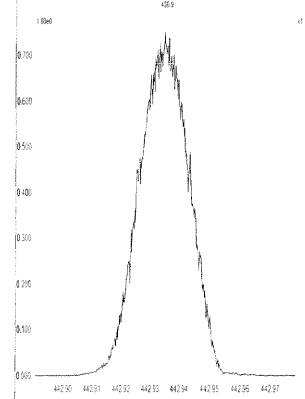
M 416.9760 R 12017



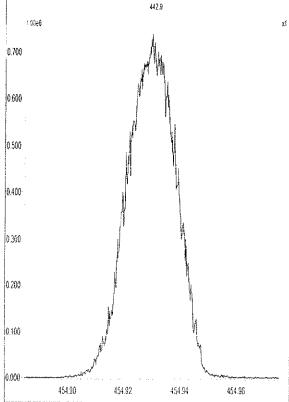
M 430.9728 R 12078



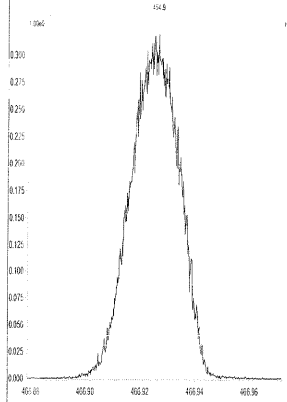
M 442.9728 R 12314



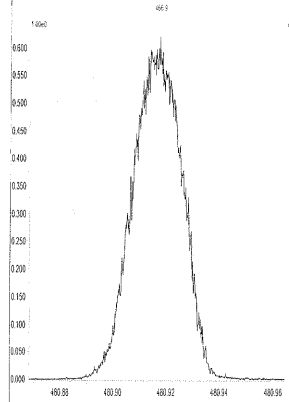
M 454.9728 R 12256



M 466.9728 R 12626



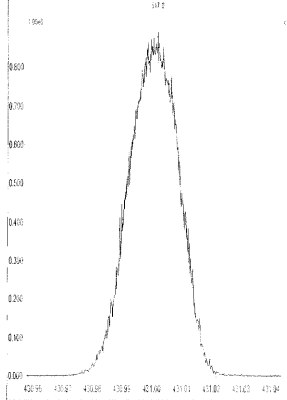
M 480.9696 R 12080



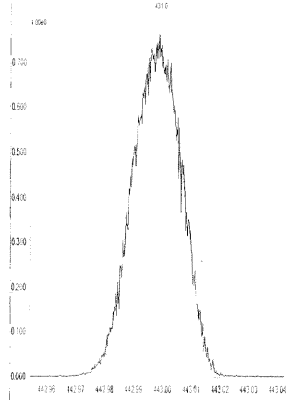
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 15, 2014 18:32:09 Central Daylight Time

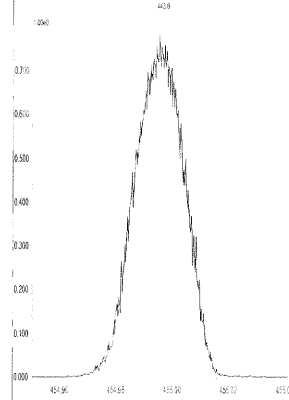
M 430.9728 R 11960



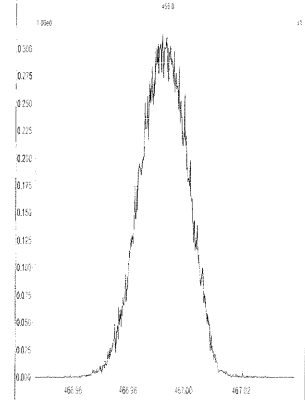
M 442.9728 R 11905



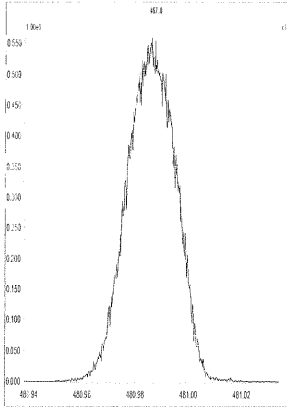
M 454.9728 R 12194



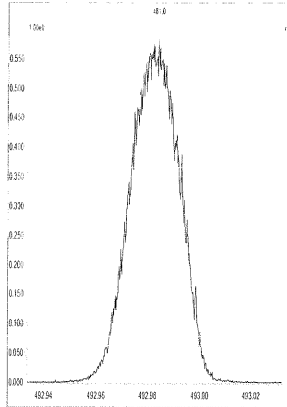
M 466.9728 R 12378



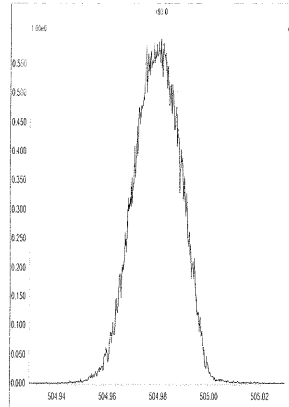
M 480.9696 R 12078



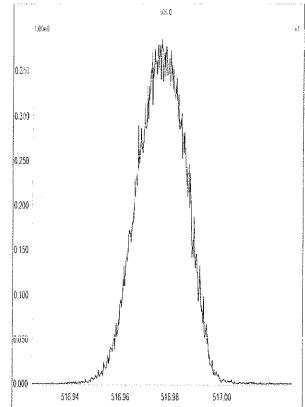
M 492.9696 R 12135



M 504.9696 R 12501

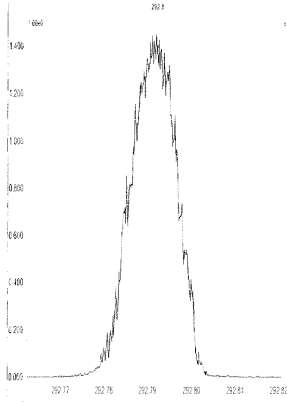


M 516.9697 R 12255

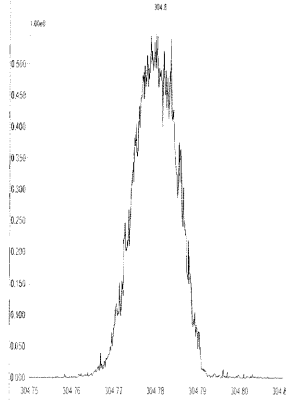


Printed: Saturday, August 16, 2014 07:29:37 Central Daylight Time

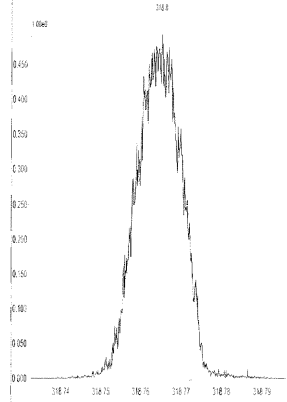
M 292.9824 R 13699



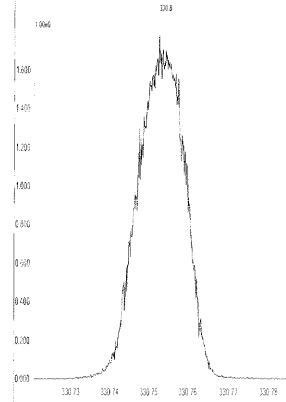
M 304.9824 R 13667



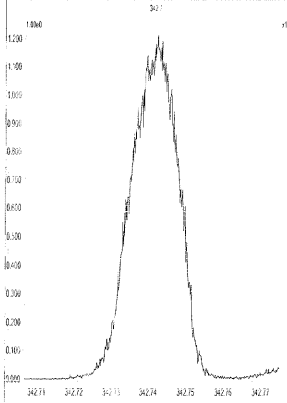
M 318.9792 R 14245



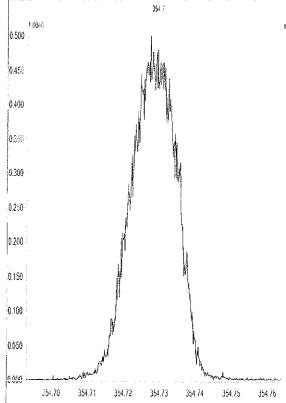
M 330.9792 R 13228



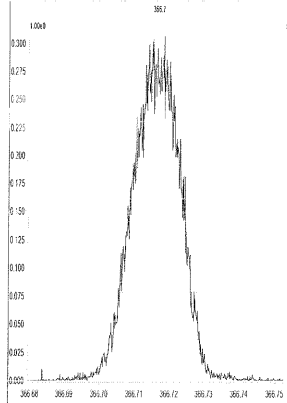
M 342.9792 R 13157



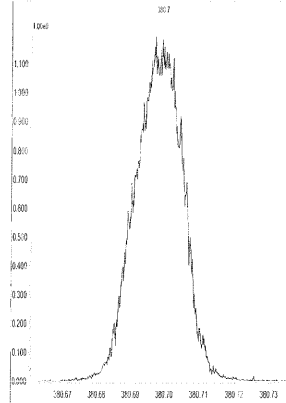
M 354.9792 R 13054



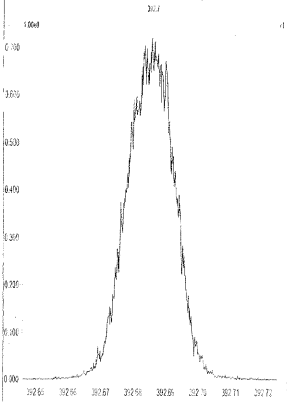
M 366.9792 R 12953



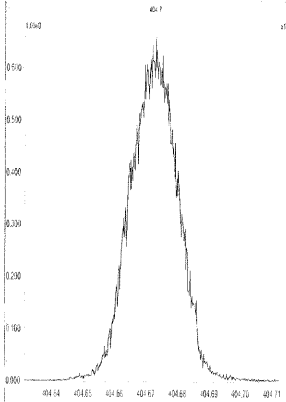
M 380.9760 R 12641



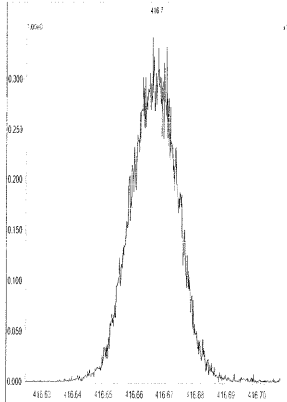
M 392.9760 R 12199



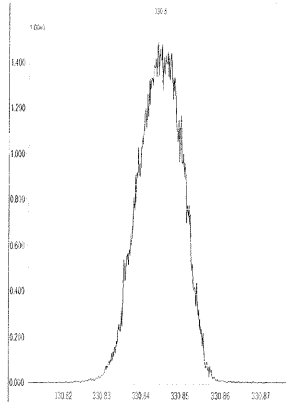
M 404.9760 R 12201



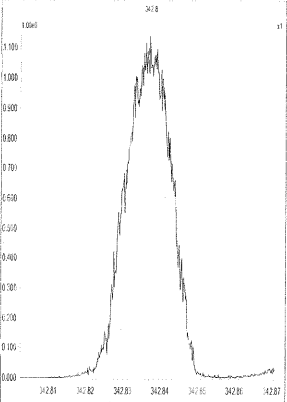
M 416.9760 R 12376



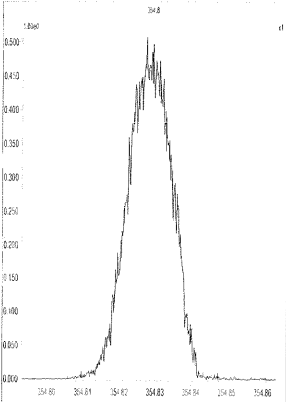
M 330.9792 R 13262



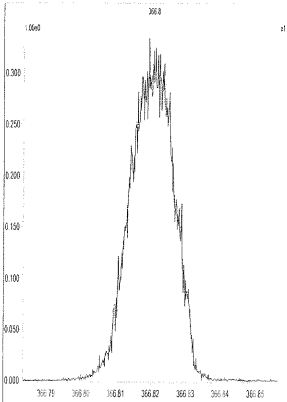
M 342.9792 R 13371



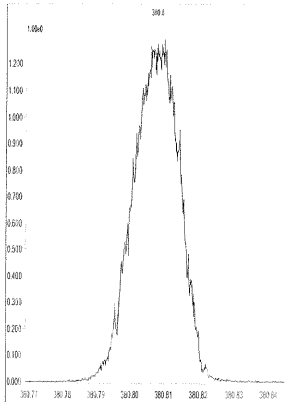
M 354.9792 R 13822



M 366.9792 R 13586

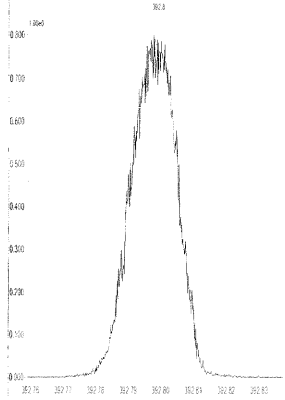


M 380.9760 R 13192

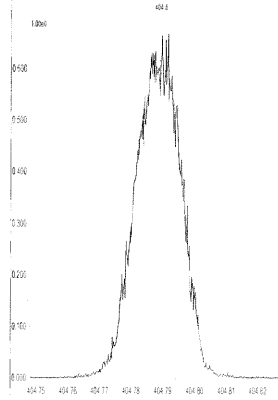


Printed: Saturday, August 16, 2014 07:29:37 Central Daylight Time

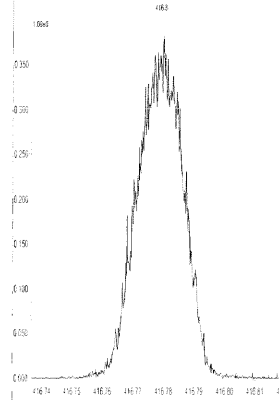
M 392.9760 R 13412



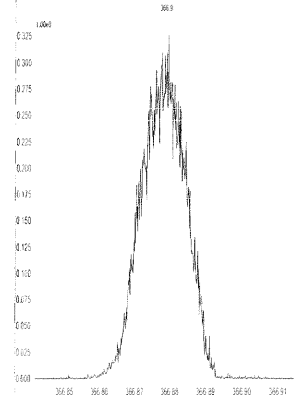
M 404.9760 R 13192



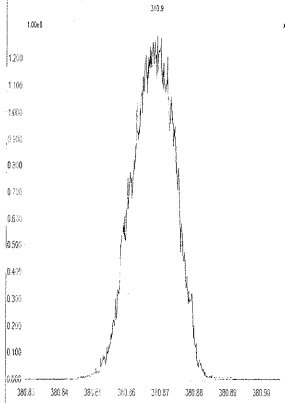
M 416.9760 R 13513



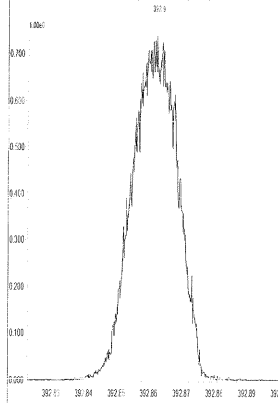
M 366.9792 R 13479



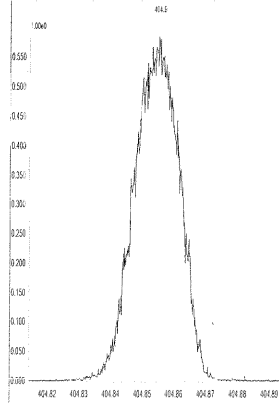
M 380.9760 R 13561



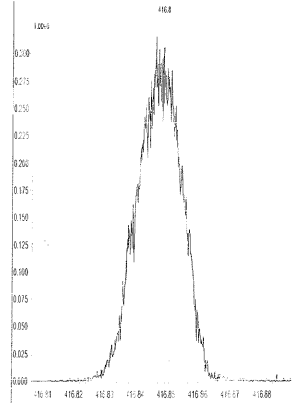
M 392.9760 R 13661



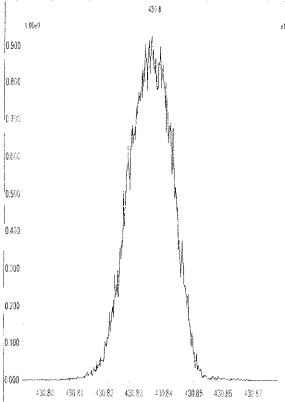
M 404.9760 R 13228



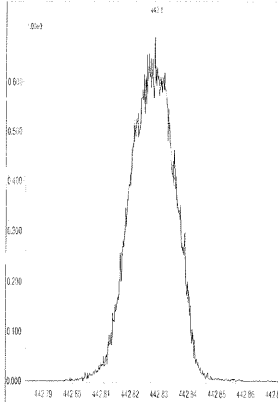
M 416.9760 R 13661



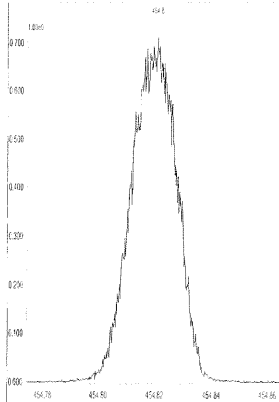
M 430.9728 R 13550



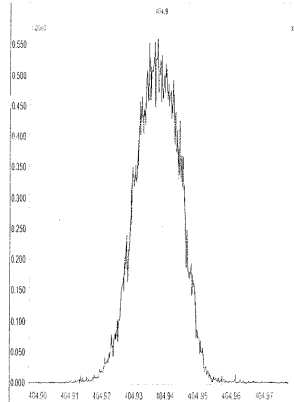
M 442.9728 R 13549



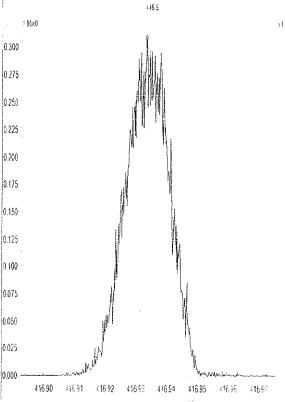
M 454.9728 R 13370



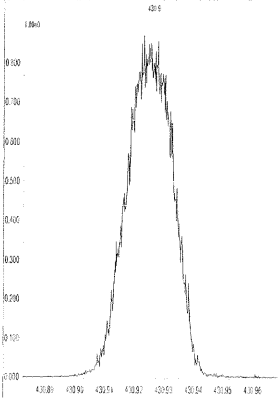
M 404.9760 R 13409



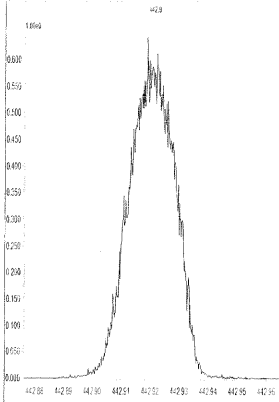
M 416.9760 R 13192



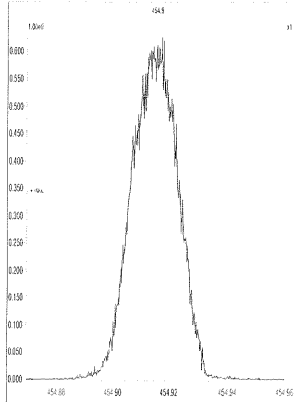
M 430.9728 R 13266



M 442.9728 R 13409



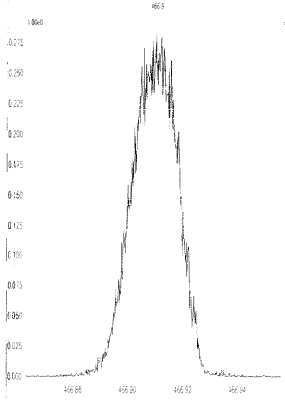
M 454.9728 R 13227



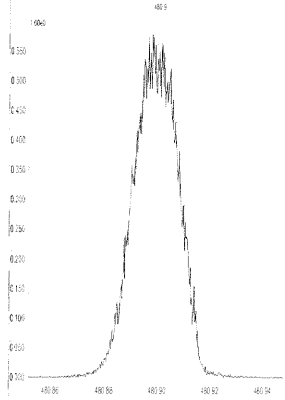


Printed: Saturday, August 16, 2014 07:29:37 Central Daylight Time

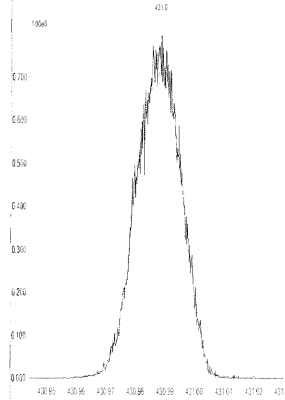
M 466.9728 R 12921



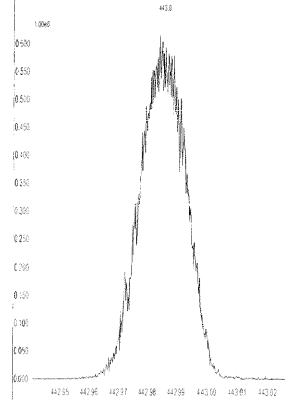
M 480.9696 R 13440



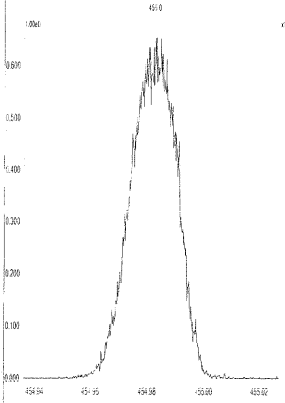
M 430.9728 R 12986



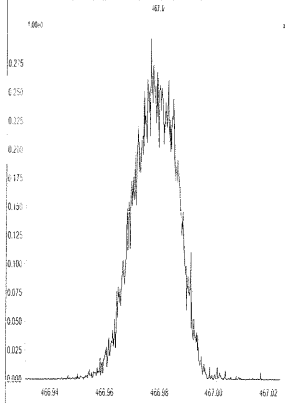
M 442.9728 R 12987



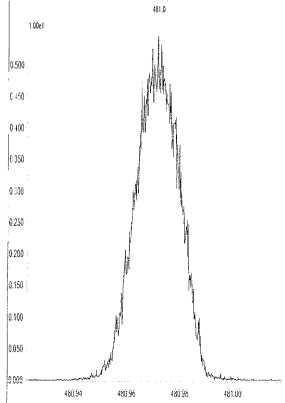
M 454.9728 R 13026



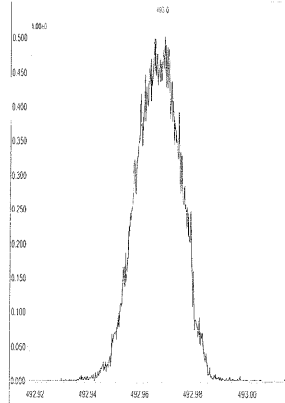
M 466.9728 R 13588



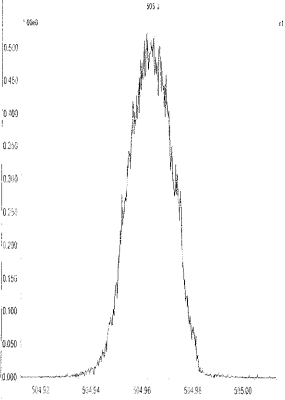
M 480.9696 R 13698



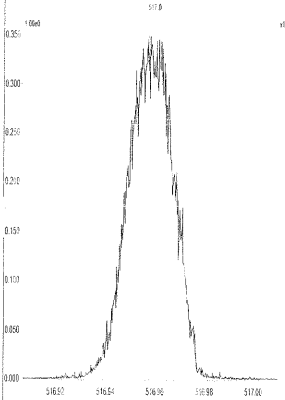
M 492.9696 R 13300



M 504.9696 R 13269



M 516.9697 R 13522



## 5DFA

## WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS ENVIRONMENTAL  
Lab Code: TX01411  
GC Column: DB-5msUI

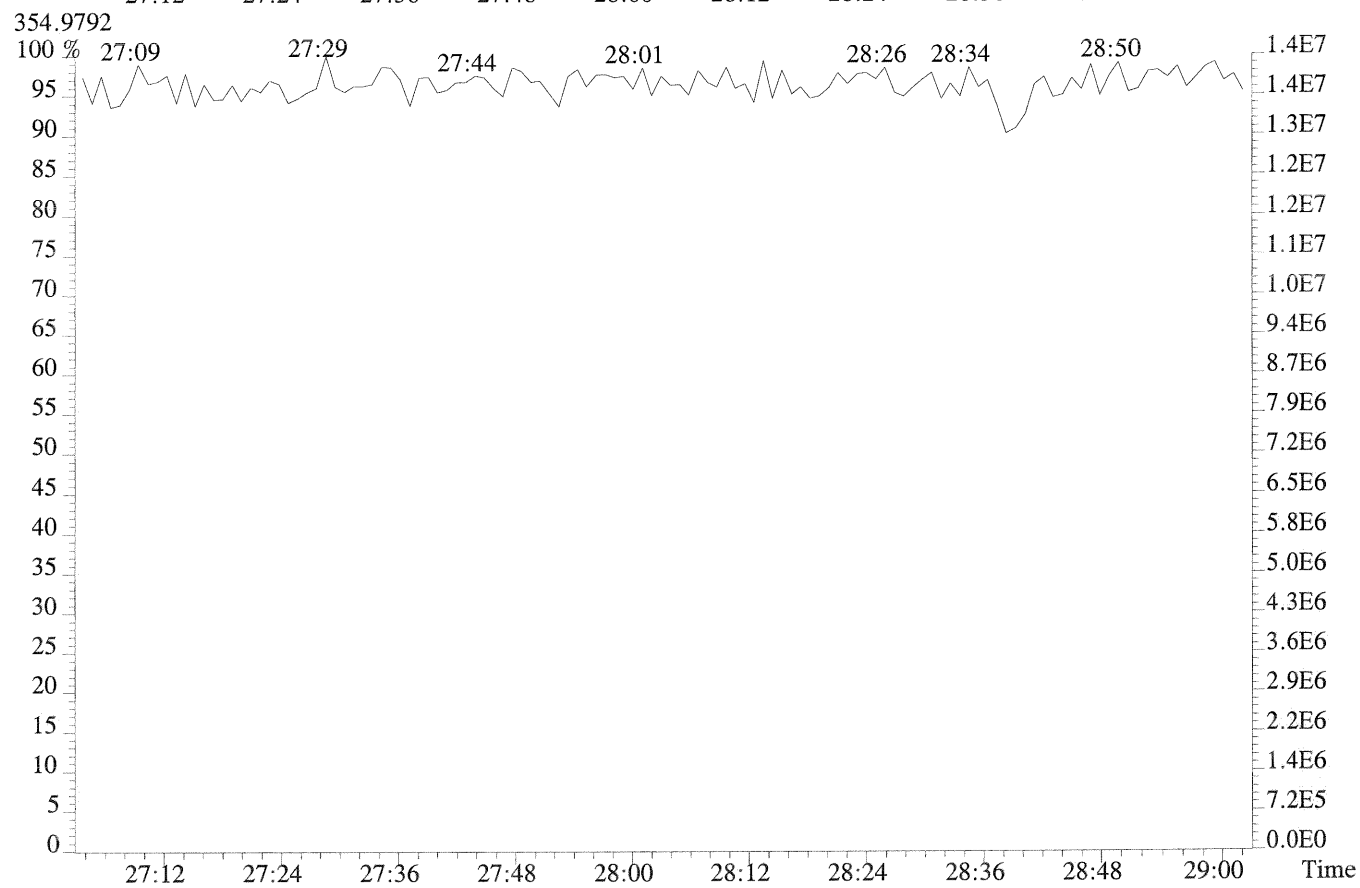
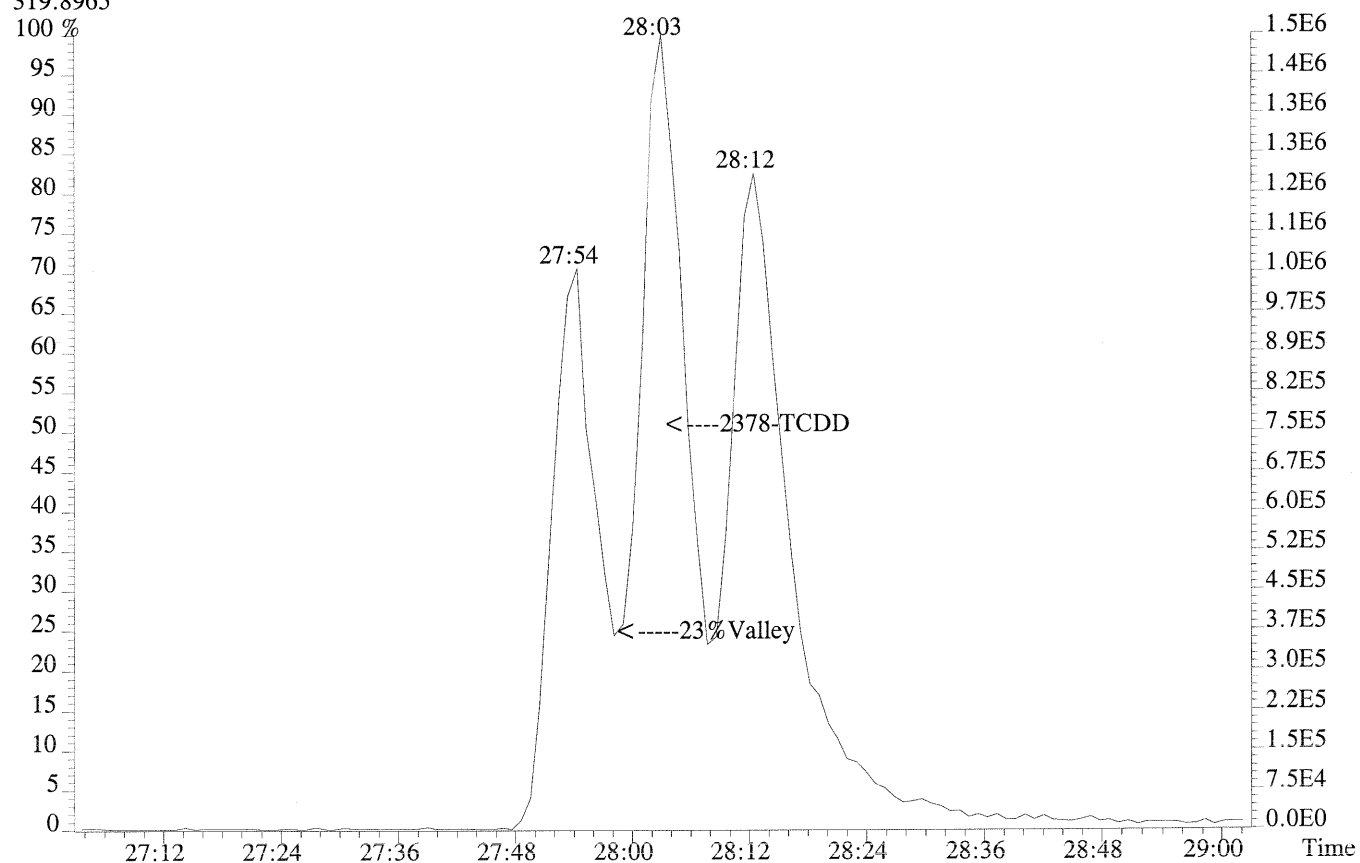
Case No.: \_\_\_\_\_ SDG No.:  
ID: 0.25 (mm) Lab File ID: P230531  
Date Analyzed: 15-AUG-2014  
Time Analyzed: 11:07:41

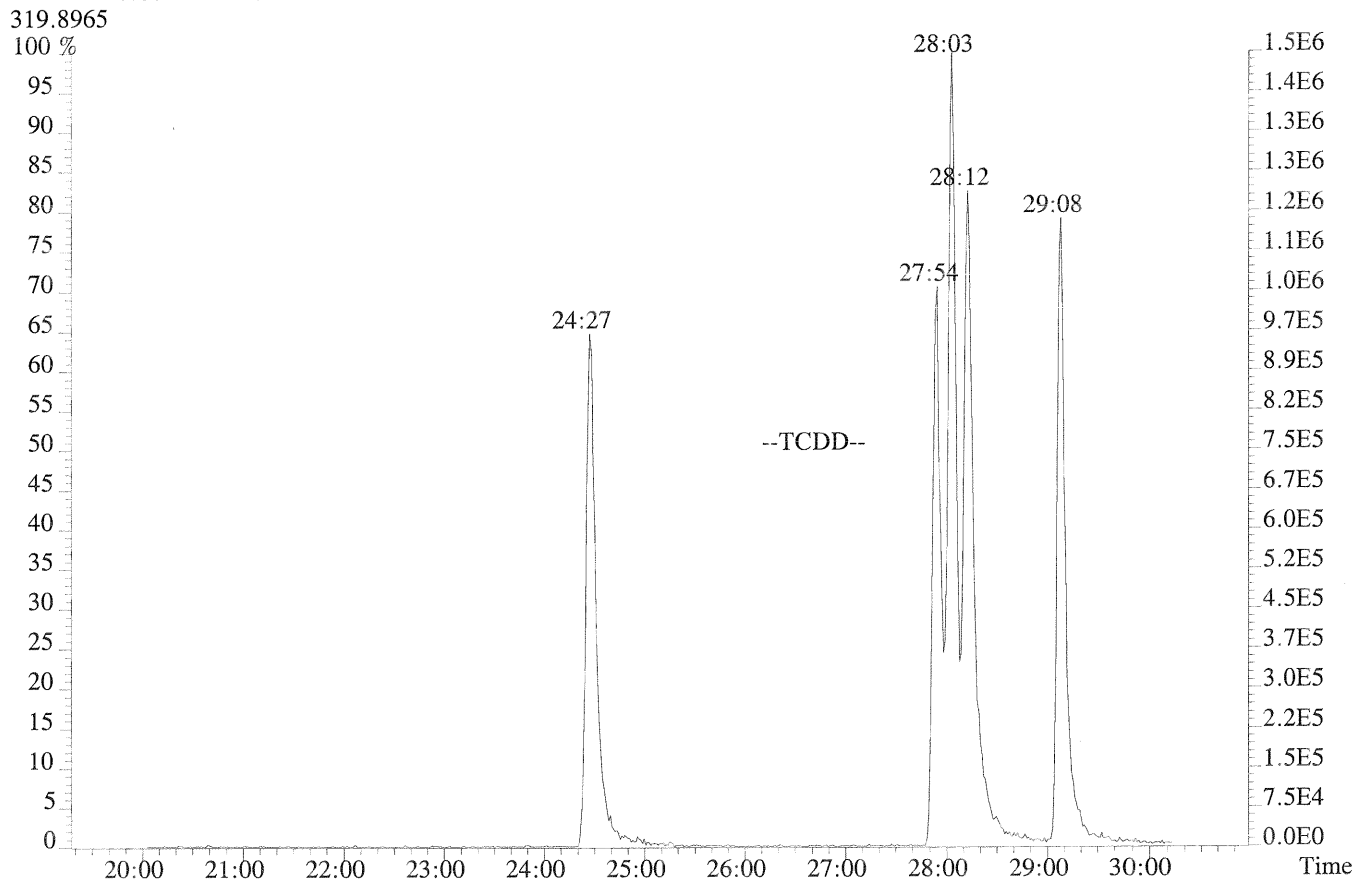
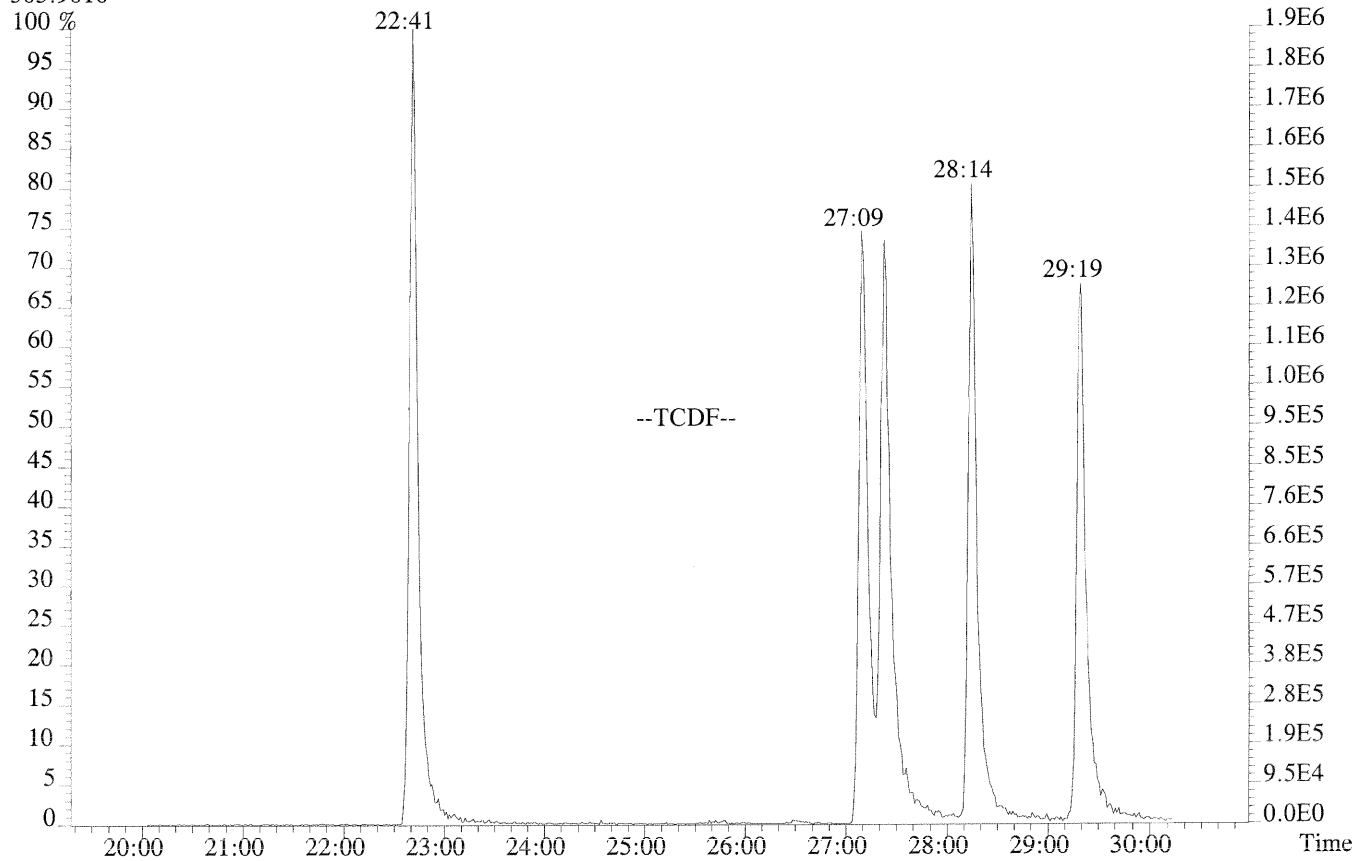
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:41	29:19
TCDD	24:27	29:08
PeCDF	29:14	33:41
PeCDD	30:51	33:24
HxCDF	34:18	36:52
HxCDD	34:50	36:27
HpCDF	38:04	39:27
HpCDD	38:19	38:58

% Valley 2378-TCDD:

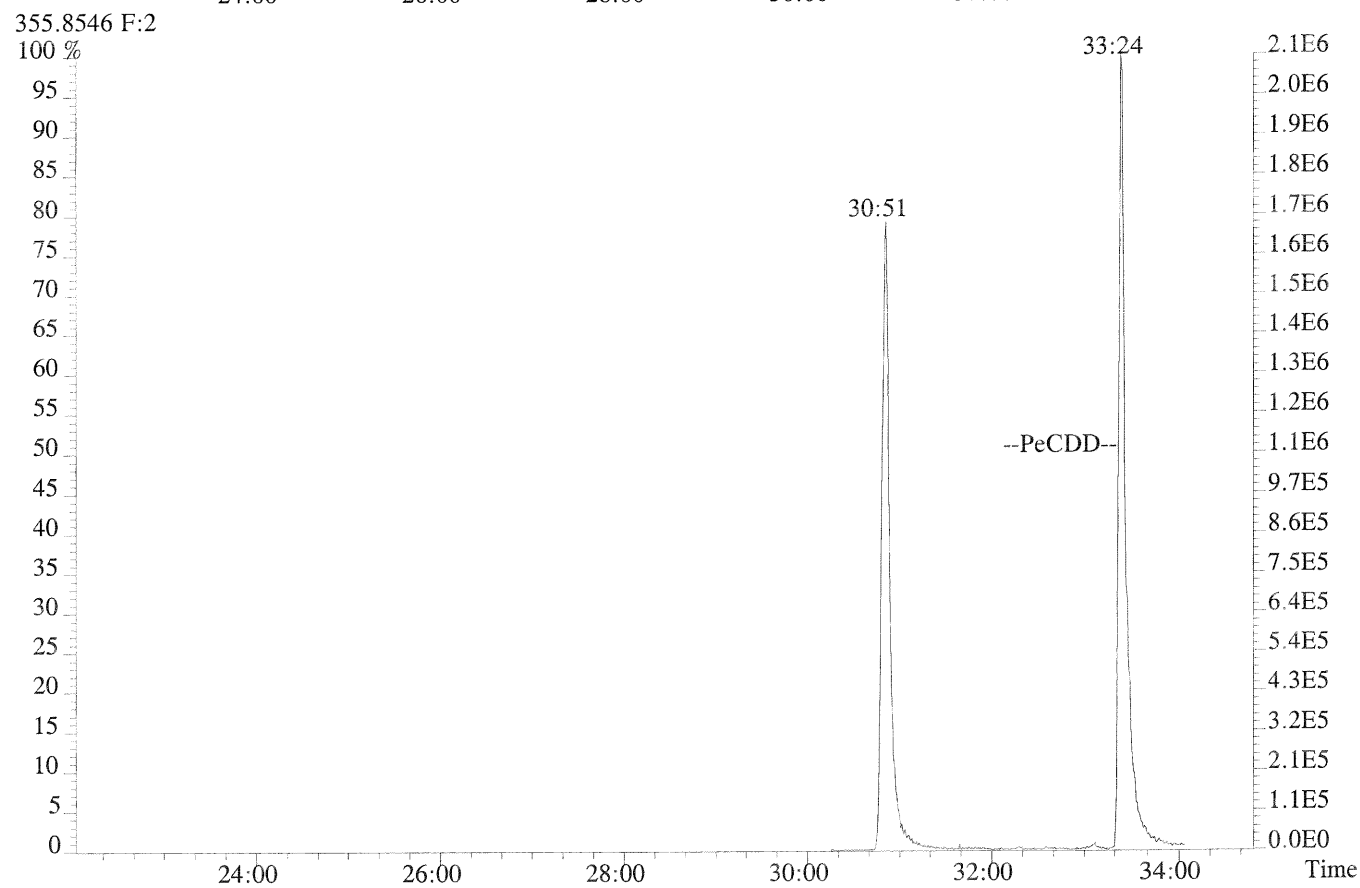
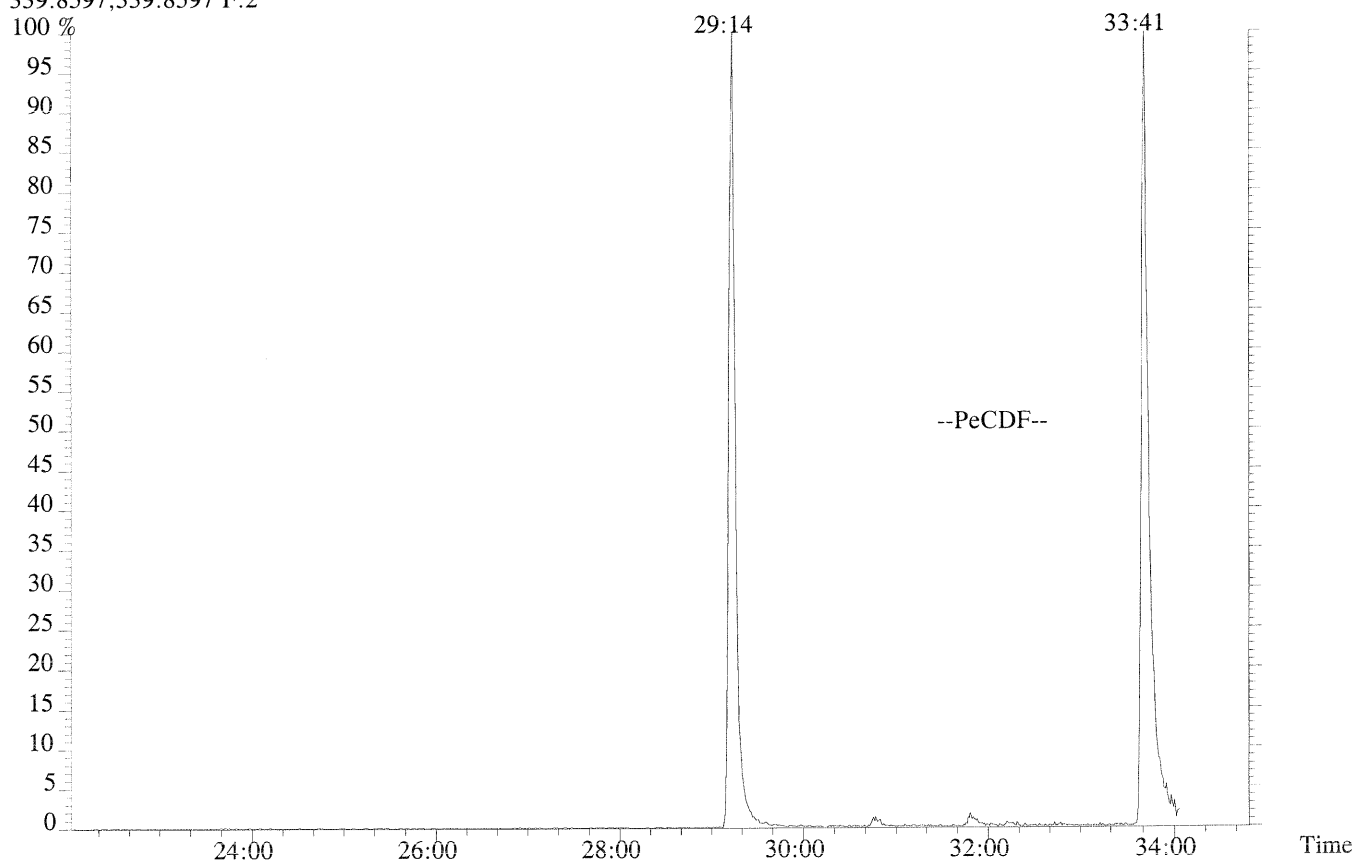
23 %

File:P230531 #1-640 Acq:15-AUG-2014 11:07:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
319.8965

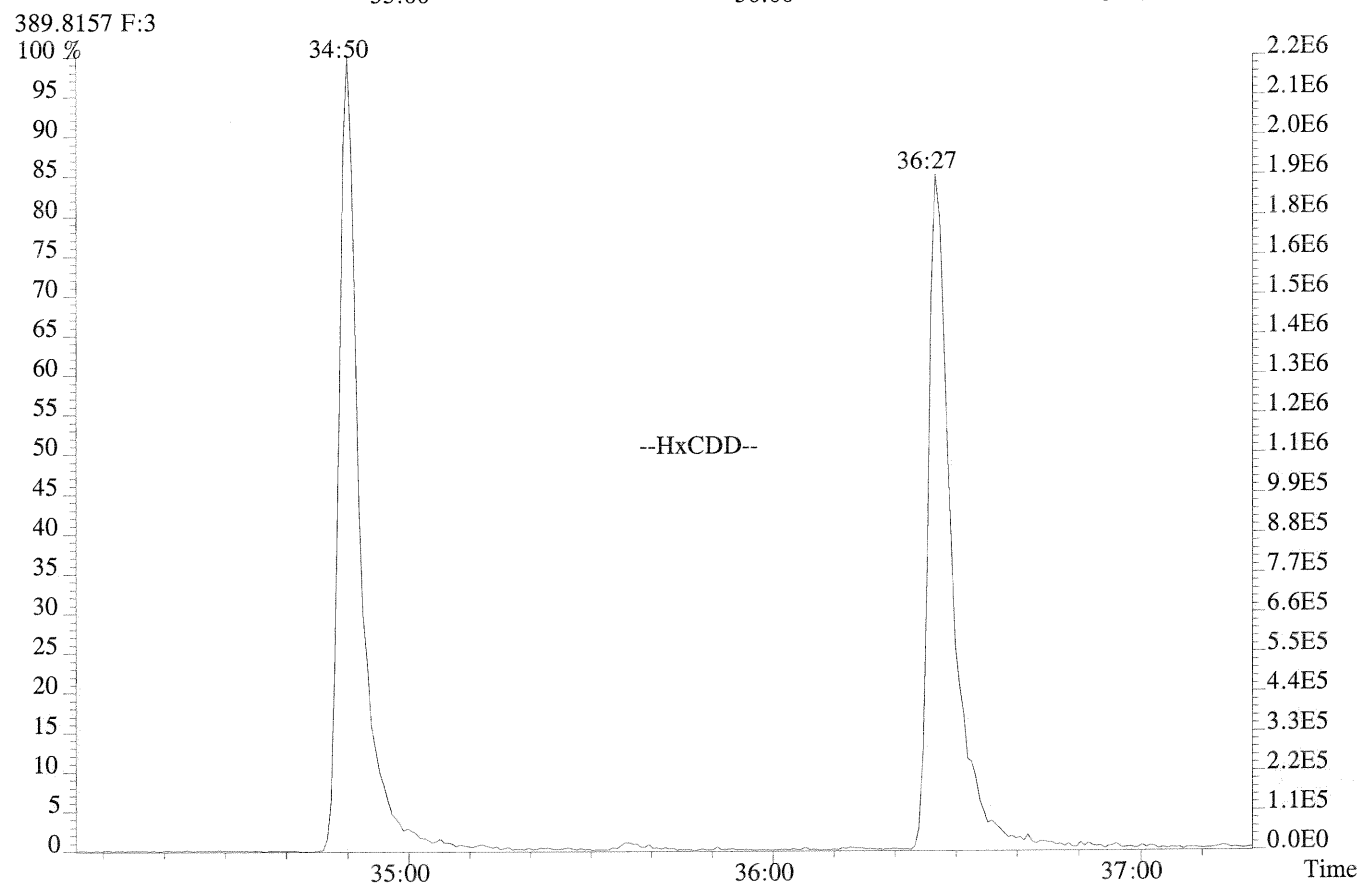
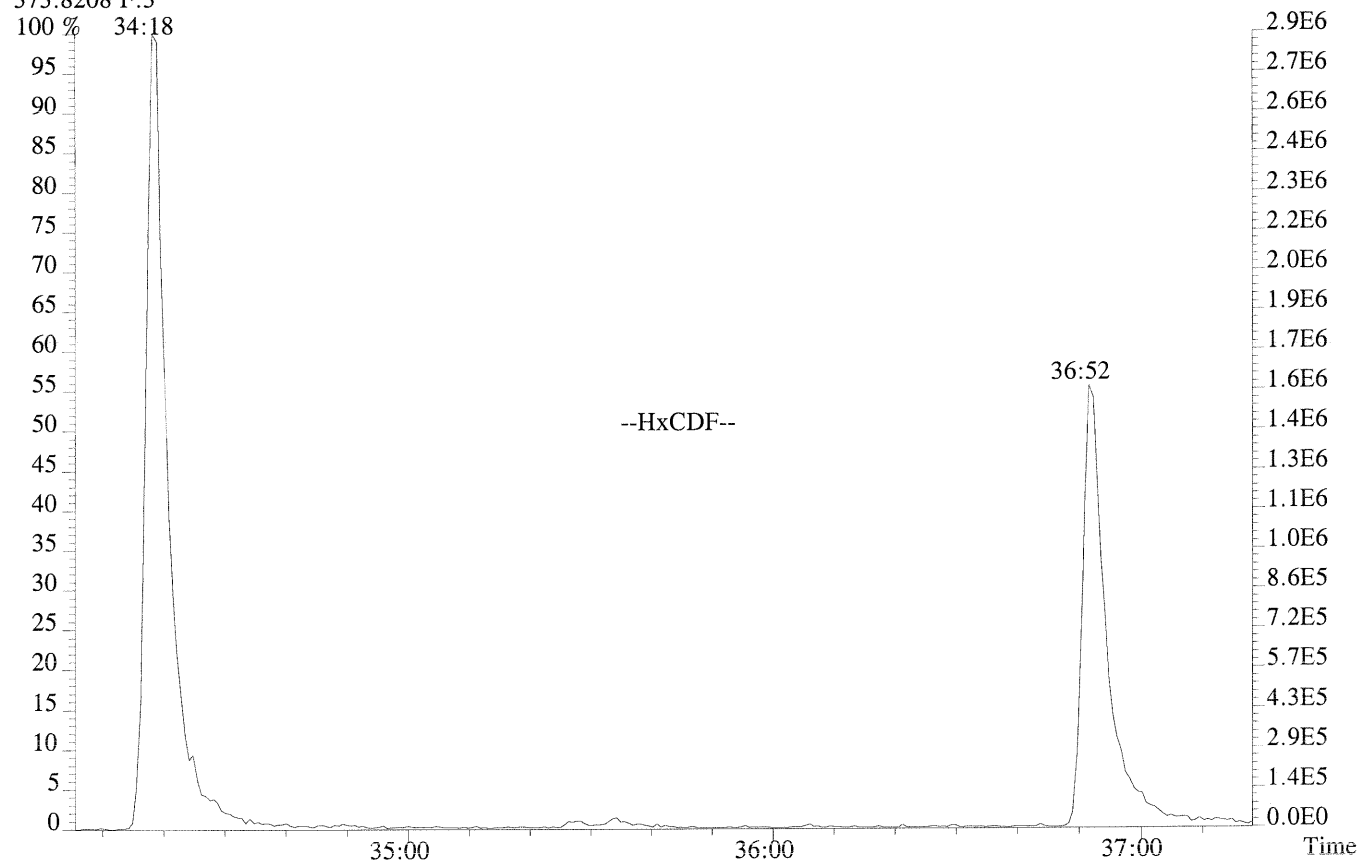




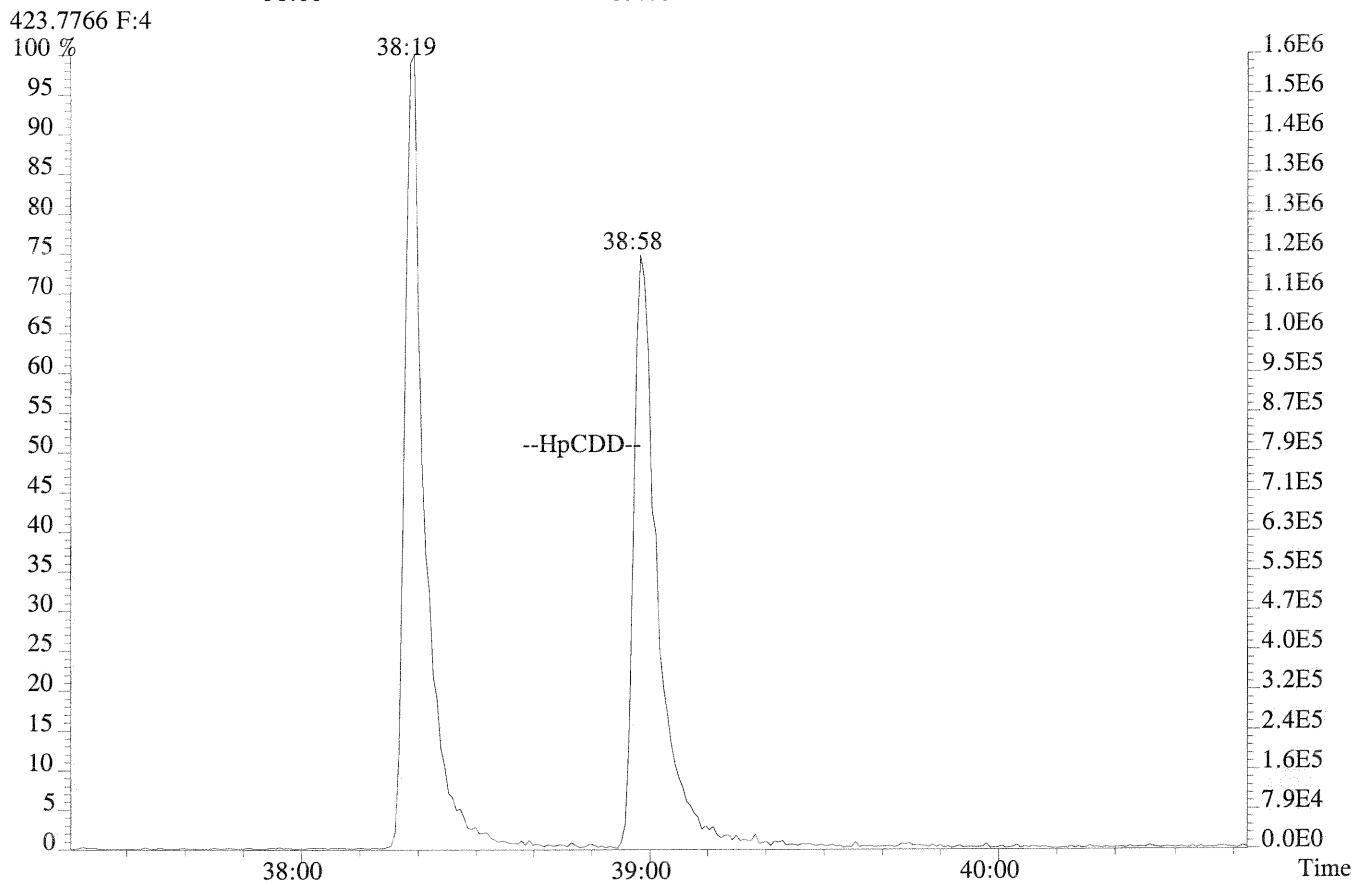
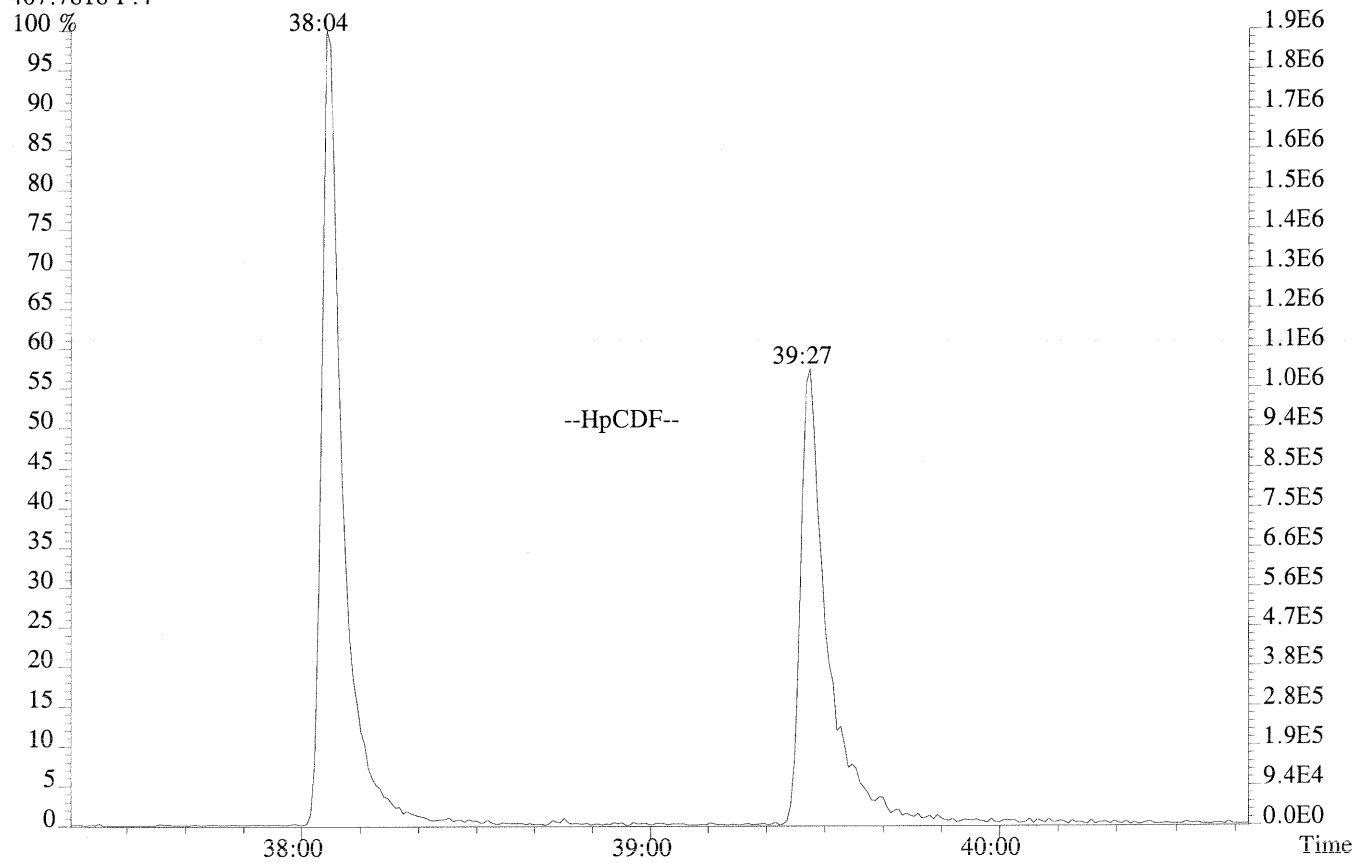
File:P230531 #1-640 Acq:15-AUG-2014 11:07:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
339.8597,339.8597 F:2



File:P230531 #1-292 Acq:15-AUG-2014 11:07:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
373.8208 F:3



File:P230531 #1-306 Acq:15-AUG-2014 11:07:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
407.7818 F:4



FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 08/11/14

METHOD M23

Instrument ID: E-HRMS-04

GC Column ID: DB-5 MSUI

VER Data Filename: P230532

Analysis Date: 15-AUG-14 Time: 11:55:17

	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	0.75	0.65-0.89	0.94	0.98	-4.16
1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	0.98	0.98	-0.24
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	0.81	0.92	-11.83
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	1.10	1.14	-3.99
1,2,3,7,8,9-HxCDD	M+2/M+4	1.29	1.05-1.43	1.08	1.15	-5.69
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	1.05	1.10	-4.56
OCDD	M+2/M+4	0.90	0.76-1.02	1.17	1.18	-1.30
2,3,7,8-TCDF	M/M+2	0.71	0.65-0.89	0.87	0.96	-8.88
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	0.98	0.95	2.54
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	0.92	0.90	1.43
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	0.85	0.87	-2.39
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	1.12	1.16	-3.11
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	0.82	0.86	-3.94
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	0.89	0.96	-7.46
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	1.35	1.39	-2.58
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.99	0.88-1.20	1.04	1.11	-6.86
OCDF	M+2/M+4	0.89	0.76-1.02	1.28	1.39	-7.84

(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: 08/11/14

METHOD M23

Instrument ID: E-HRMS-04

GC Column ID: DB-5 MSUI

VER Data Filename: P230532

Analysis Date: 15-AUG-14 Time: 11:55:17

	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	1.00	1.01	-0.84
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	1.32	1.26	4.96
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	0.97	0.98	-1.53
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	0.80	0.93	-13.08
13C-OCDD	M+2/M+4	0.91	0.76-1.02	0.59	0.71	-16.90
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	1.32	1.48	-11.15
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	1.86	1.97	-5.58
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	1.30	1.48	-11.98
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	0.84	1.03	-18.03
Surrogate Standards						
37Cl-2,3,7,8-TCDD				1.02	0.96	6.08
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	0.99	0.98	0.96
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	0.75	0.79	-5.31
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	0.72	0.72	-0.62
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	0.81	0.85	-5.02
Alternate Standard						
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	0.97	1.11	-13.30

(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  
Method M23

CLIENT ID.  
CCAL CS3

Sample Response Summary

Run #7 Filename P230532 #1  
Processed: 18-AUG-14 12:45:58

Samp: 1 Inj: 1  
LAB. ID: 72675

Acquired: 15-AUG-14 11:55:17

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	27:22	4.829e+03	6.843e+03	0.71	yes	no	0.959
2 Unk	1,2,3,7,8-PeCDF	31:47	5.628e+04	3.618e+04	1.56	yes	no	0.955
3 Unk	2,3,4,7,8-PeCDF	32:44	5.224e+04	3.426e+04	1.52	yes	no	0.903
4 Unk	1,2,3,4,7,8-HxCDF	35:26	3.903e+04	3.138e+04	1.24	yes	no	0.868
5 Unk	1,2,3,6,7,8-HxCDF	35:32	5.193e+04	4.121e+04	1.26	yes	no	1.157
6 Unk	2,3,4,6,7,8-HxCDF	36:03	4.075e+04	3.326e+04	1.23	yes	no	0.963
7 Unk	1,2,3,7,8,9-HxCDF	36:50	3.775e+04	3.072e+04	1.23	yes	no	0.858
8 Unk	1,2,3,4,6,7,8-HpCDF	38:03	3.673e+04	3.610e+04	1.02	yes	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	39:26	2.778e+04	2.795e+04	0.99	yes	no	1.113
10 Unk	OCDF	41:49	4.531e+04	5.067e+04	0.89	yes	no	1.392
11 Unk	2,3,7,8-TCDD	28:11	4.082e+03	5.438e+03	0.75	yes	no	0.981
12 Unk	1,2,3,7,8-PeCDD	33:00	4.052e+04	2.532e+04	1.60	yes	no	0.982
13 Unk	1,2,3,4,7,8-HxCDD	36:11	2.788e+04	2.198e+04	1.27	yes	no	0.916
14 Unk	1,2,3,6,7,8-HxCDD	36:17	3.788e+04	2.978e+04	1.27	yes	no	1.142
15 Unk	1,2,3,7,8,9-HxCDD	36:31	3.772e+04	2.917e+04	1.29	yes	no	1.150
16 Unk	1,2,3,4,6,7,8-HpCDD	38:58	2.752e+04	2.644e+04	1.04	yes	no	1.104
17 Unk	OCDD	41:37	4.122e+04	4.599e+04	0.90	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:21	5.980e+04	7.381e+04	0.81	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:46	1.159e+05	7.294e+04	1.59	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:43	1.144e+05	7.224e+04	1.58	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:25	4.059e+04	7.859e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:32	5.756e+04	1.086e+05	0.53	yes	no	1.483
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:49	4.202e+04	8.093e+04	0.52	yes	no	1.114
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:03	3.247e+04	7.507e+04	0.43	yes	no	1.030
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:25	2.654e+04	6.004e+04	0.44	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:11	4.430e+04	5.697e+04	0.78	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	32:60	8.230e+04	5.216e+04	1.58	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:11	5.152e+04	4.051e+04	1.27	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:16	6.901e+04	5.441e+04	1.27	yes	no	0.984
31 IS	13C-1,2,3,4,6,7,8-HpCDD	38:57	5.250e+04	4.988e+04	1.05	yes	no	0.925
32 IS	13C-OCDD	41:36	7.126e+04	7.840e+04	0.91	yes	no	0.707
33S/RT	13C-1,2,3,4-TCDD	27:31	4.511e+04	5.640e+04	0.80	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:30	7.129e+04	5.603e+04	1.27	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:12	1.031e+04				no	0.960

$$\text{OCDD} = \frac{(4.122e+04 + 4.599e+04 \times (200.0)) \times (7.126e+04 + 7.840e+04)}{1.181 \times 1.000} = \text{pg}$$

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CCAL CS3

Method M23

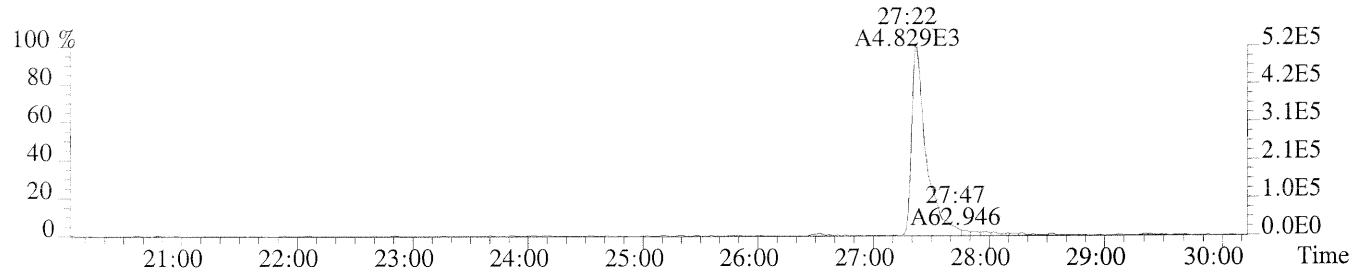
Run #7 Filename P230532 #1 Samp: 1 Inj: 1 Acquired: 15-AUG-14 11:55:17  
Processed: 18-AUG-14 12:45:58 LAB. ID: 72675

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.25e+05	3.56e+02	1.5e+03	7.18e+05	9.60e+02	7.5e+02
2	1,2,3,7,8-PeCDF	6.19e+06	1.06e+03	5.8e+03	3.95e+06	1.81e+03	2.2e+03
3	2,3,4,7,8-PeCDF	6.56e+06	1.06e+03	6.2e+03	4.26e+06	1.81e+03	2.4e+03
4	1,2,3,4,7,8-HxCDF	6.59e+06	1.49e+03	4.4e+03	5.22e+06	7.16e+02	7.3e+03
5	1,2,3,6,7,8-HxCDF	6.94e+06	1.49e+03	4.7e+03	5.65e+06	7.16e+02	7.9e+03
6	2,3,4,6,7,8-HxCDF	6.15e+06	1.49e+03	4.1e+03	5.03e+06	7.16e+02	7.0e+03
7	1,2,3,7,8,9-HxCDF	4.62e+06	1.49e+03	3.1e+03	3.79e+06	7.16e+02	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	5.45e+06	9.47e+03	5.8e+02	5.31e+06	8.84e+03	6.0e+02
9	1,2,3,4,7,8,9-HpCDF	3.45e+06	9.47e+03	3.6e+02	3.37e+06	8.84e+03	3.8e+02
10	OCDF	5.17e+06	8.36e+02	6.2e+03	5.68e+06	1.94e+03	2.9e+03
11	2,3,7,8-TCDD	4.96e+05	9.96e+02	5.0e+02	6.74e+05	1.25e+03	5.4e+02
12	1,2,3,7,8-PeCDD	4.99e+06	1.74e+03	2.9e+03	3.13e+06	6.32e+02	4.9e+03
13	1,2,3,4,7,8-HxCDD	5.27e+06	7.88e+02	6.7e+03	4.07e+06	1.38e+03	3.0e+03
14	1,2,3,6,7,8-HxCDD	5.80e+06	7.88e+02	7.4e+03	4.54e+06	1.38e+03	3.3e+03
15	1,2,3,7,8,9-HxCDD	5.22e+06	7.88e+02	6.6e+03	4.06e+06	1.38e+03	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	3.83e+06	1.90e+03	2.0e+03	3.66e+06	1.30e+03	2.8e+03
17	OCDD	4.98e+06	8.65e+03	5.8e+02	5.59e+06	8.68e+02	6.4e+03
18	13C-2,3,7,8-TCDF	6.62e+06	1.99e+03	3.3e+03	8.14e+06	1.80e+03	4.5e+03
19	13C-1,2,3,7,8-PeCDF	1.28e+07	1.49e+03	8.6e+03	8.12e+06	6.52e+03	1.2e+03
20	13C-2,3,4,7,8-PeCDF	1.42e+07	1.49e+03	9.5e+03	9.06e+06	6.52e+03	1.4e+03
21	13C-1,2,3,4,7,8-HxCDF	6.83e+06	1.78e+03	3.8e+03	1.32e+07	1.96e+03	6.7e+03
22	13C-1,2,3,6,7,8-HxCDF	7.95e+06	1.78e+03	4.5e+03	1.50e+07	1.96e+03	7.6e+03
24	13C-1,2,3,7,8,9-HxCDF	5.31e+06	1.78e+03	3.0e+03	1.02e+07	1.96e+03	5.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.72e+06	3.43e+03	1.4e+03	1.09e+07	9.27e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.39e+06	3.43e+03	9.9e+02	7.50e+06	9.27e+03	8.1e+02
27	13C-2,3,7,8-TCDD	5.49e+06	6.34e+03	8.7e+02	7.12e+06	2.40e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	1.50e+03	6.7e+03	6.37e+06	7.40e+02	8.6e+03
29	13C-1,2,3,4,7,8-HxCDD	9.86e+06	1.35e+03	7.3e+03	7.68e+06	1.49e+03	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.05e+07	1.35e+03	7.8e+03	8.23e+06	1.49e+03	5.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.45e+06	2.60e+03	2.9e+03	6.95e+06	8.20e+02	8.5e+03
32	13C-OCDD	8.68e+06	9.16e+02	9.5e+03	9.58e+06	6.48e+02	1.5e+04
33	13C-1,2,3,4-TCDD	6.38e+06	6.34e+03	1.0e+03	8.03e+06	2.40e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.35e+03	7.5e+03	7.96e+06	1.49e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	1.22e+06	9.36e+02	1.3e+03			

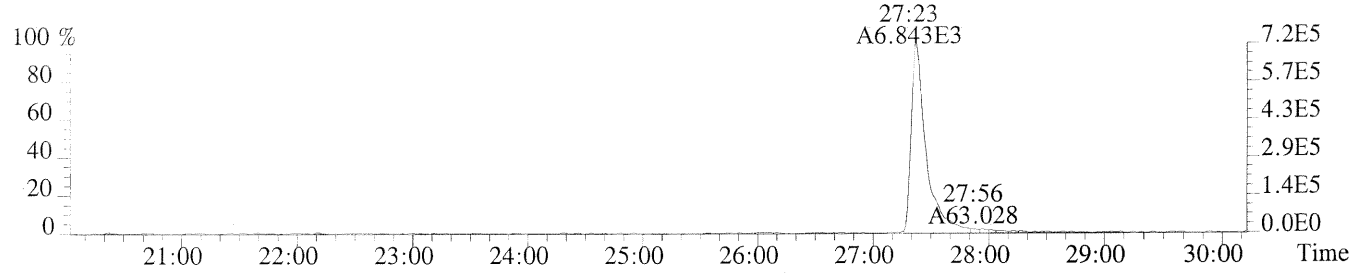
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713)266-1599. Fax: (713)266-0130

ALS Form TO-9SN/M23SN.FRM

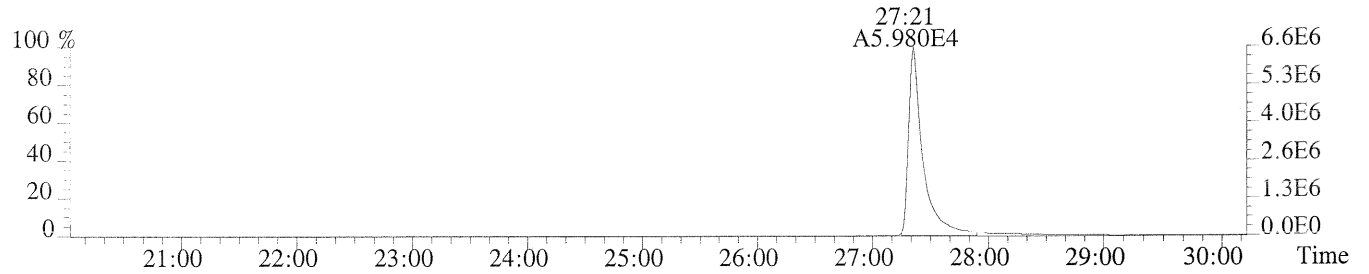
File:P230532 #1-640 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



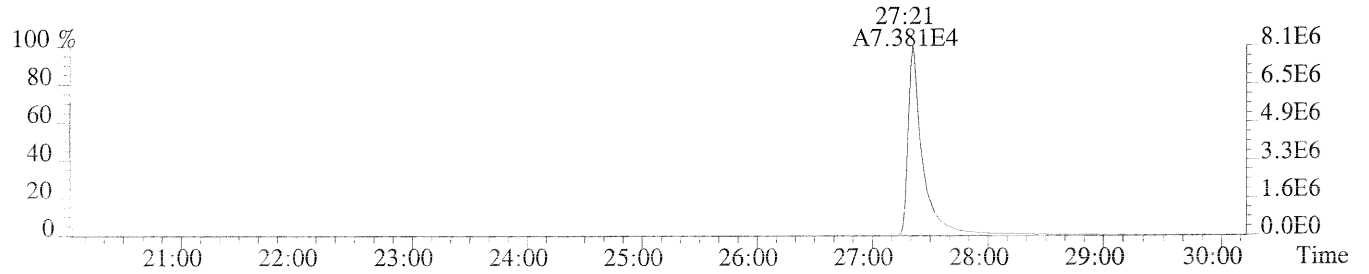
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



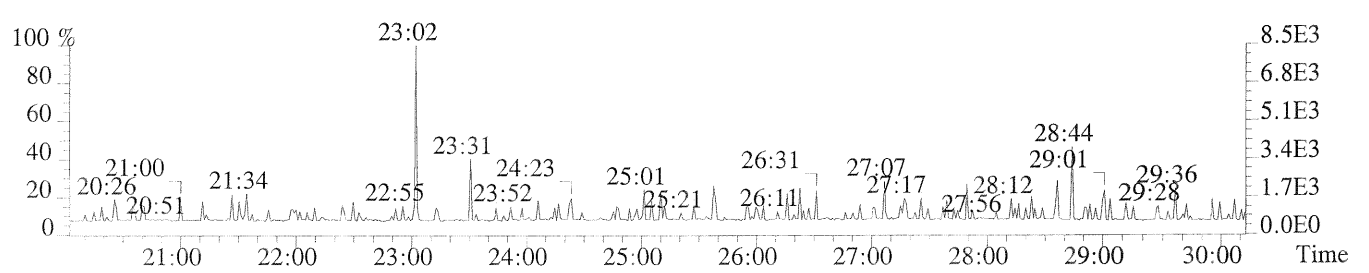
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



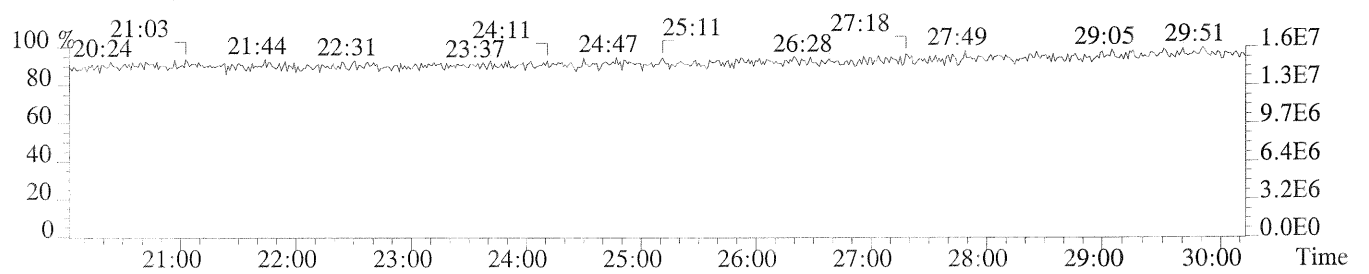
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



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

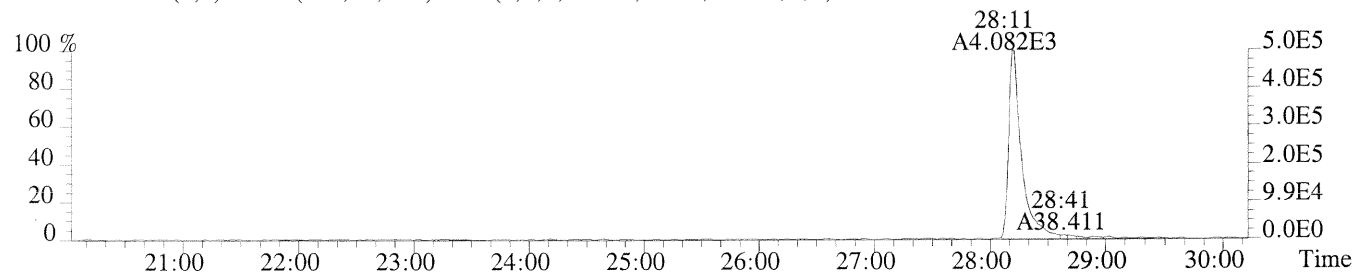


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

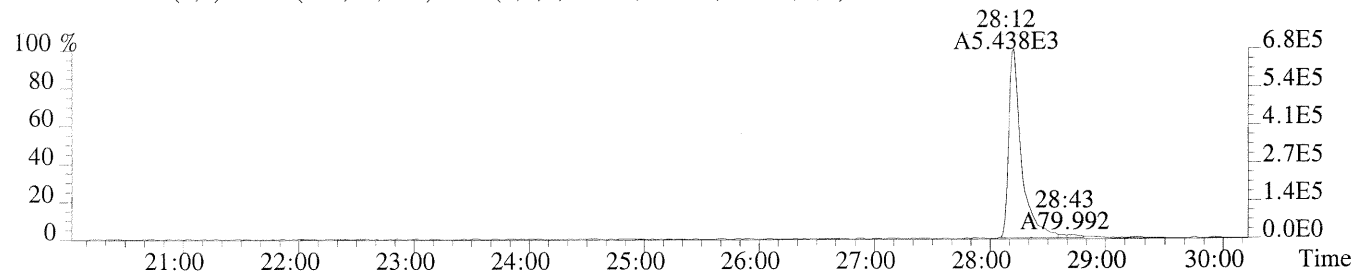


Sample#1 Exp:CS3

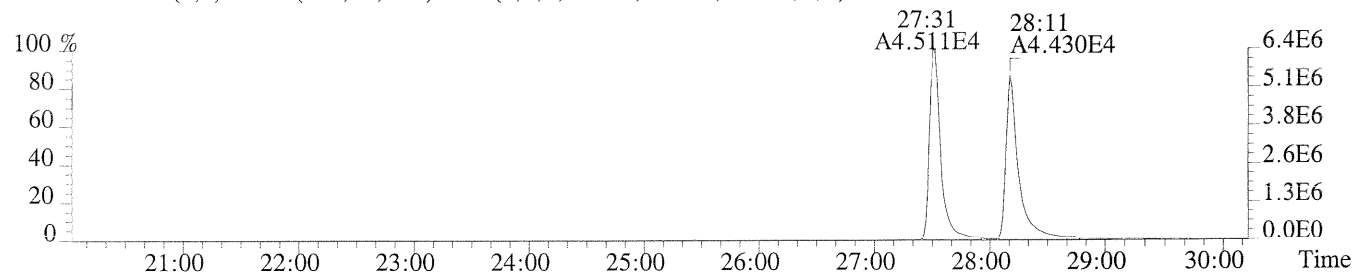
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



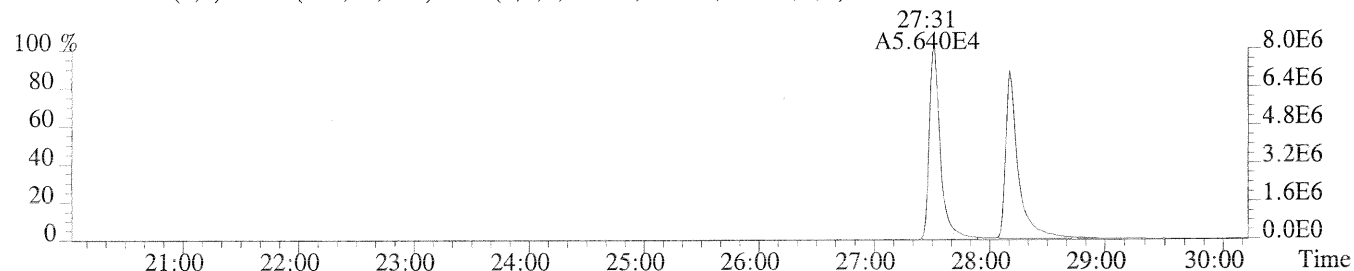
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



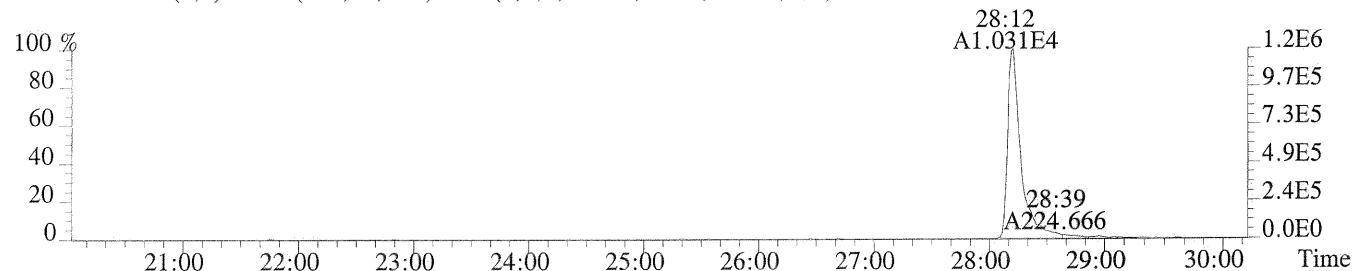
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6336.0,1.00%,F,T)



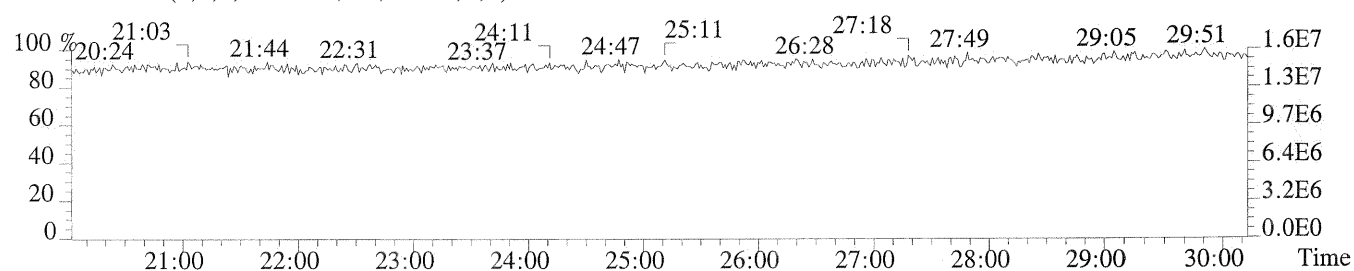
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2404.0,1.00%,F,T)



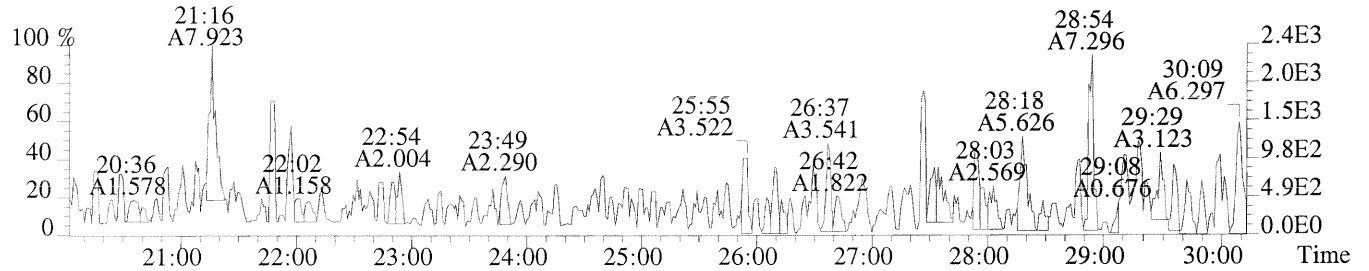
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



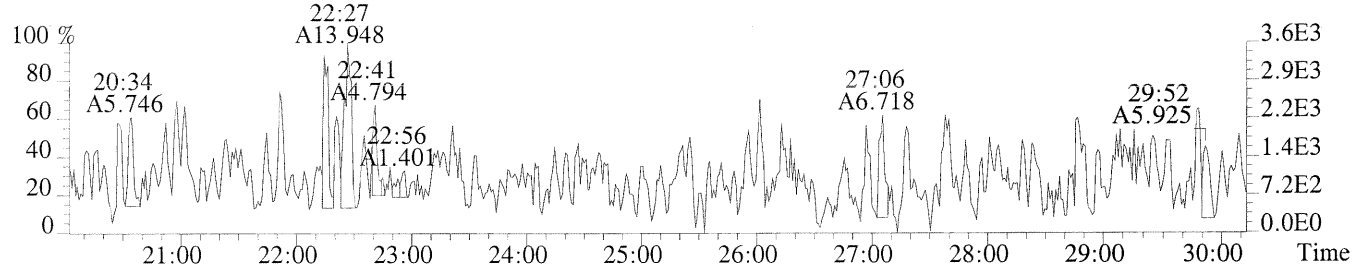
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



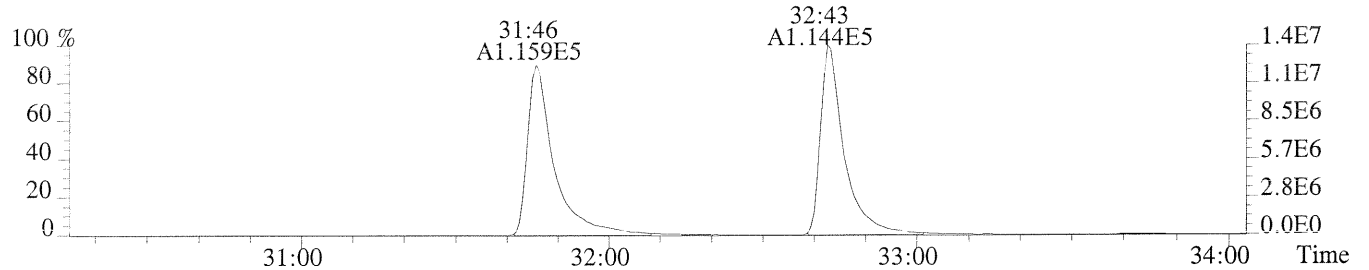
File:P230532 #1-640 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



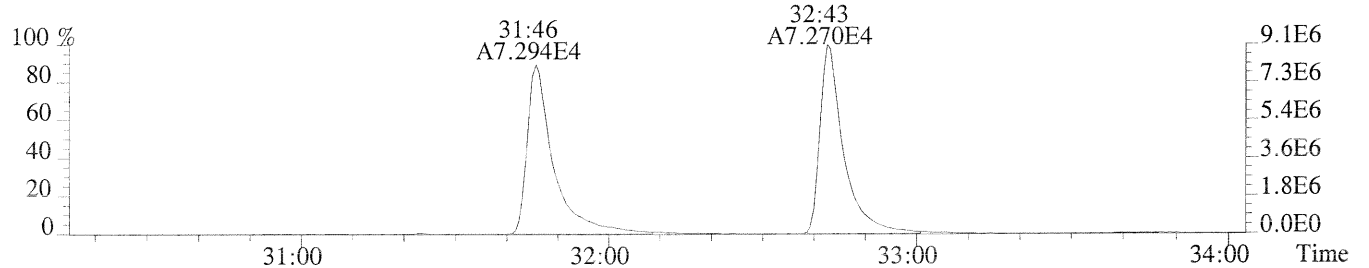
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



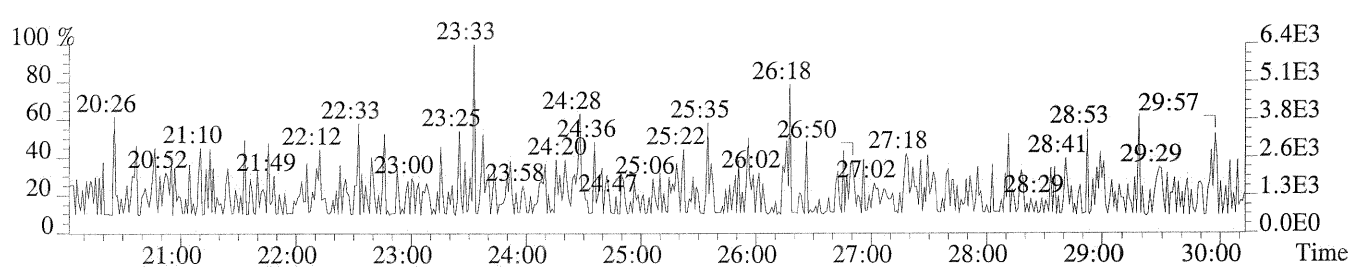
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1492.0,1.00%,F,T)



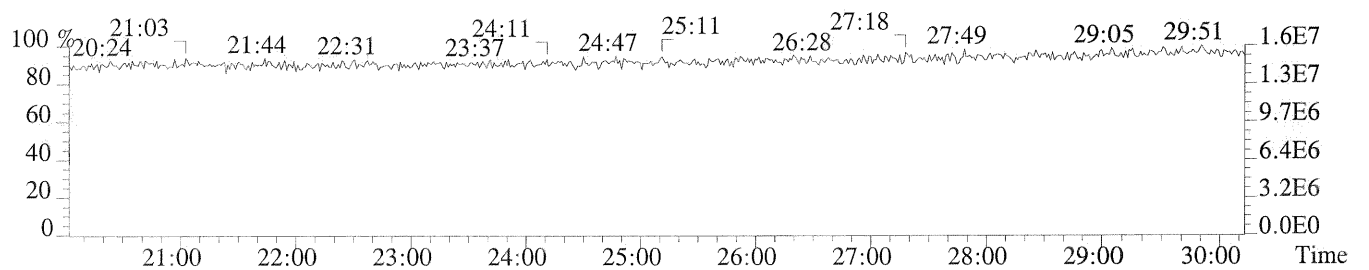
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6524.0,1.00%,F,T)



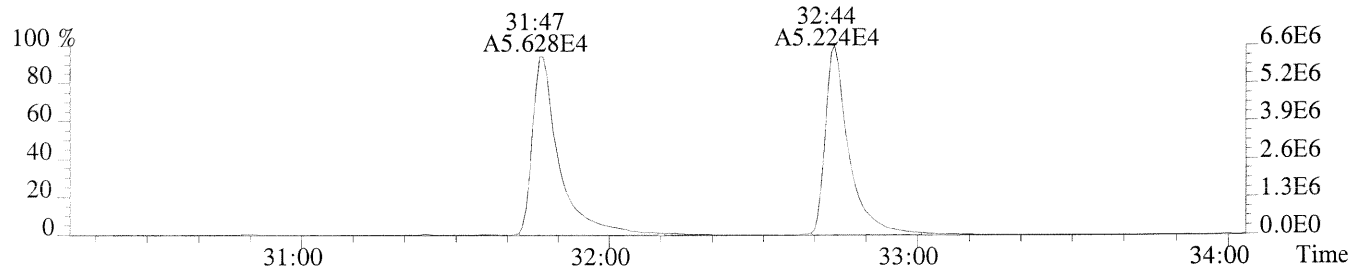
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



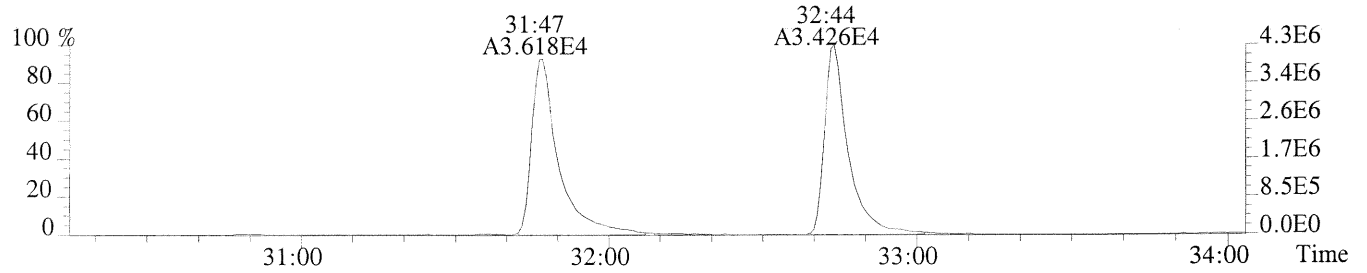
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



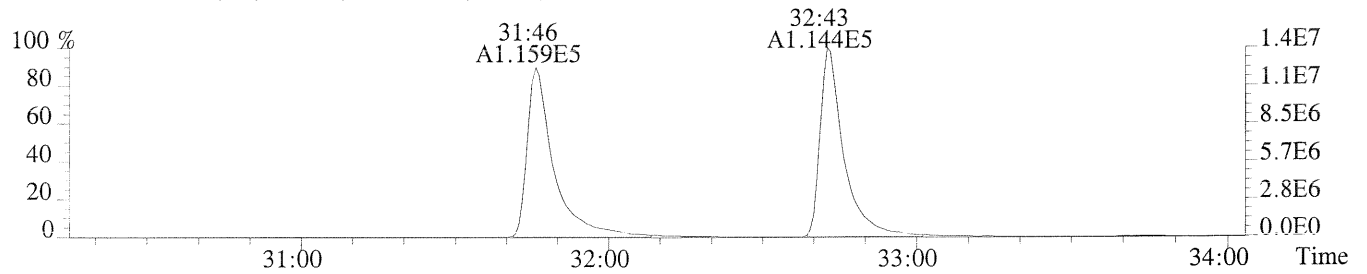
File:P230532 #1-346 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



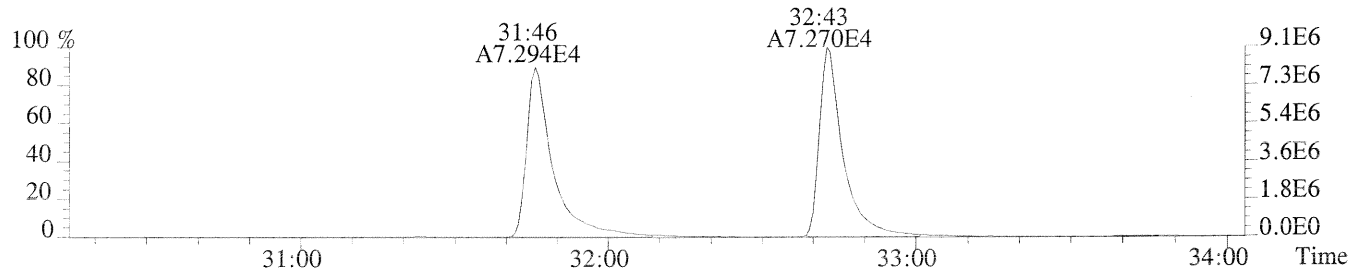
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



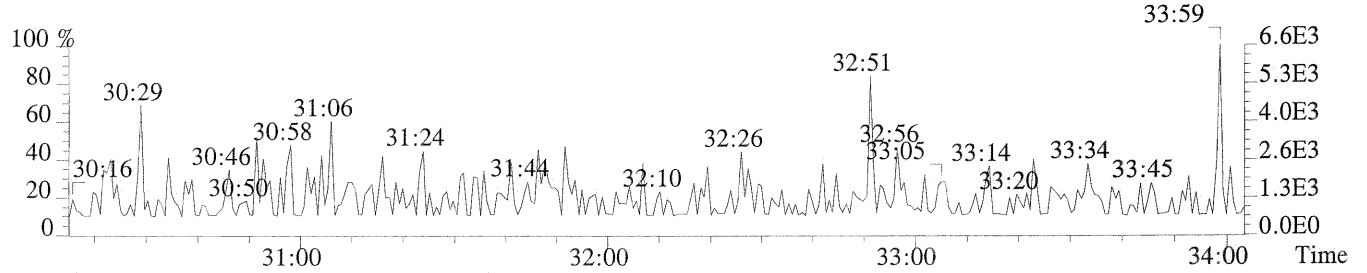
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1492.0,1.00%,F,T)



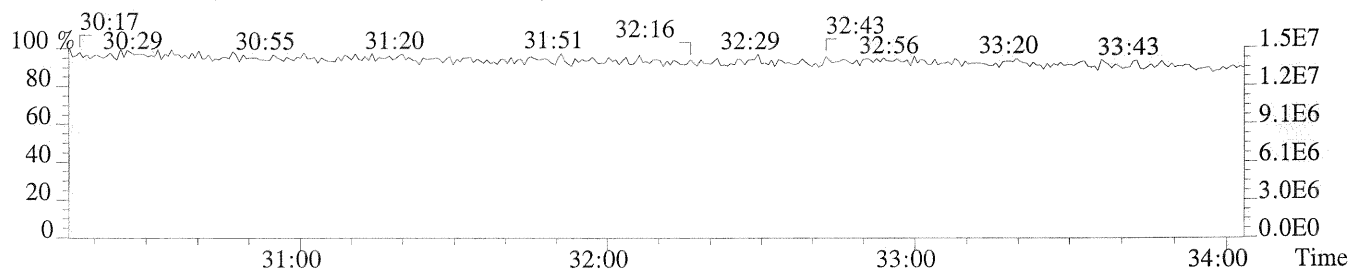
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6524.0,1.00%,F,T)



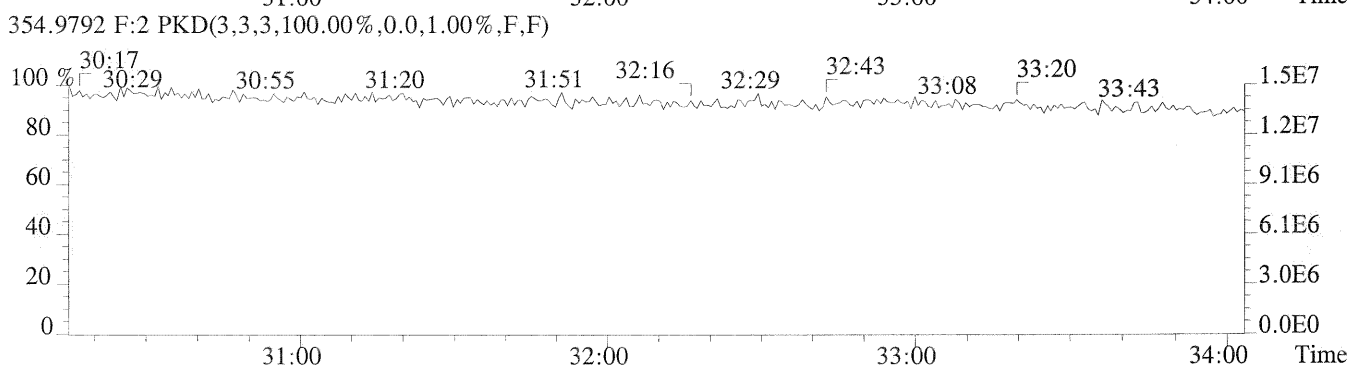
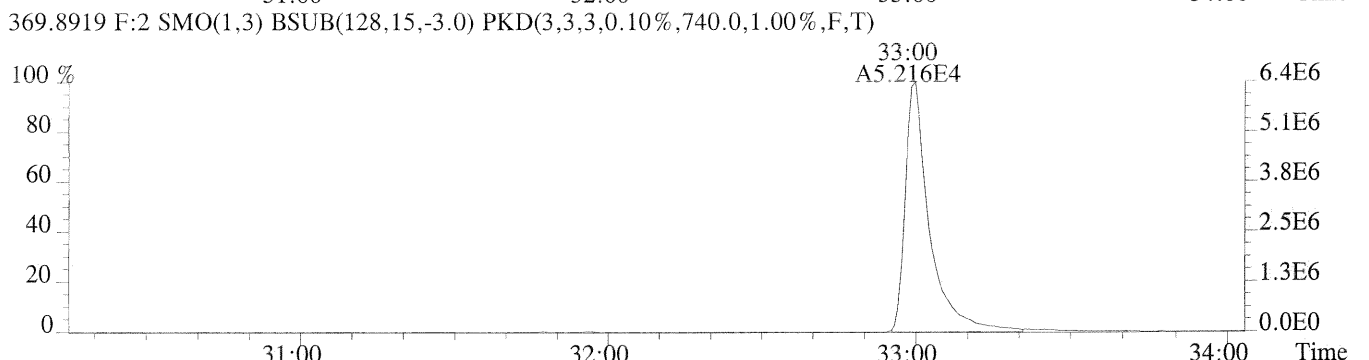
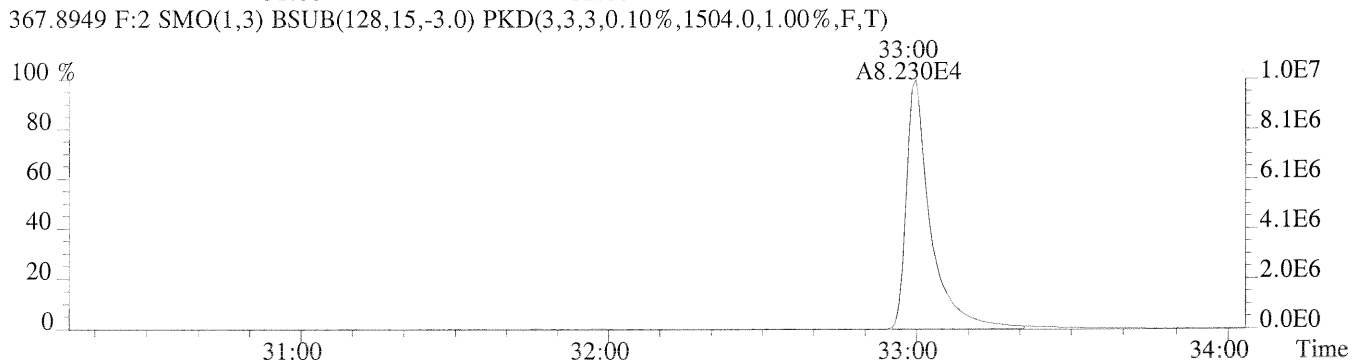
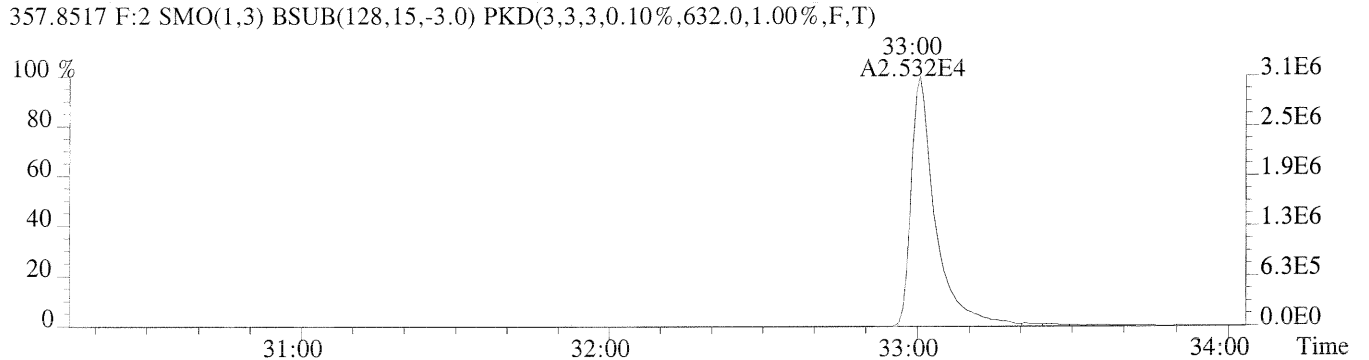
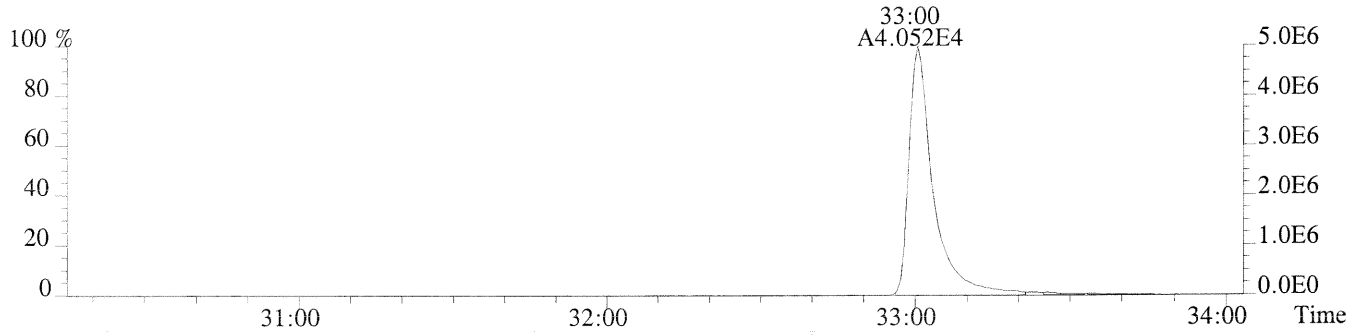
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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

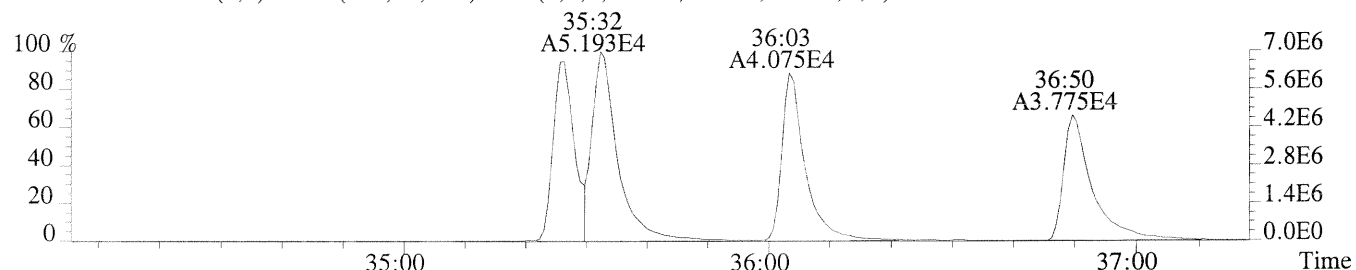


File:P230532 #1-346 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)

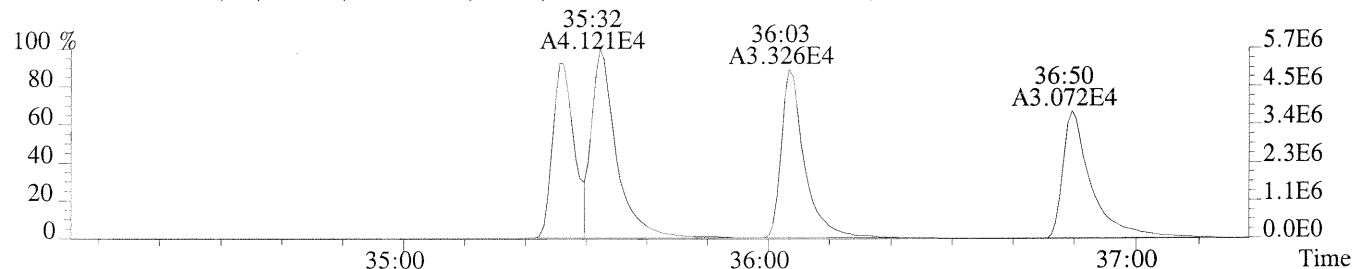




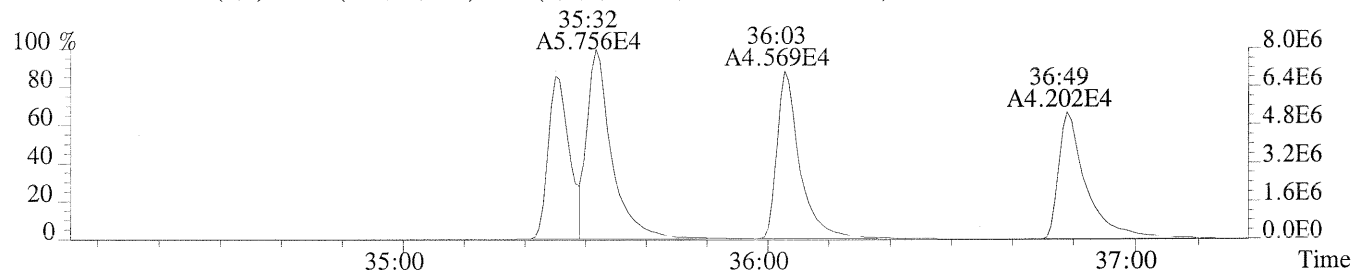
File:P230532 #1-292 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



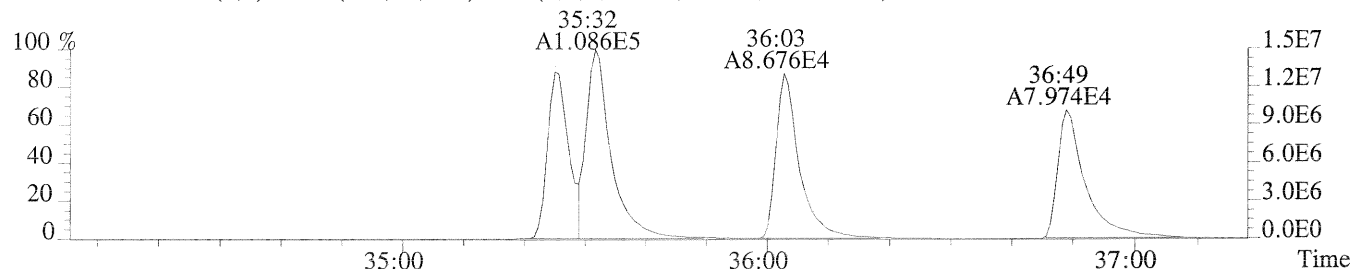
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



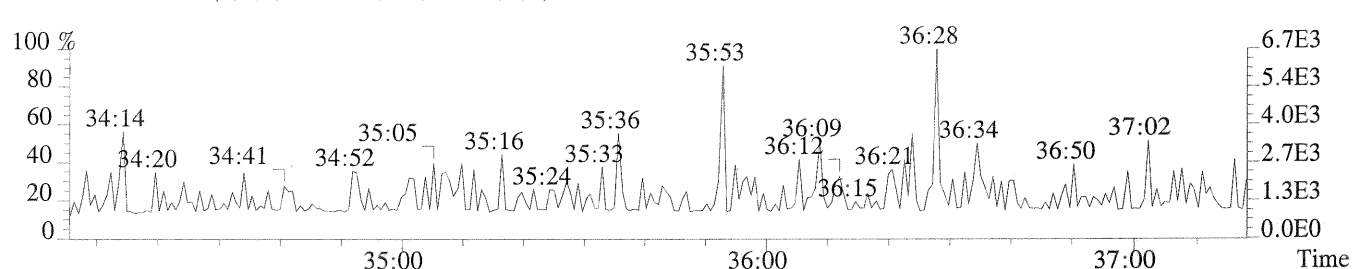
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1776.0,0.40%,F,T)



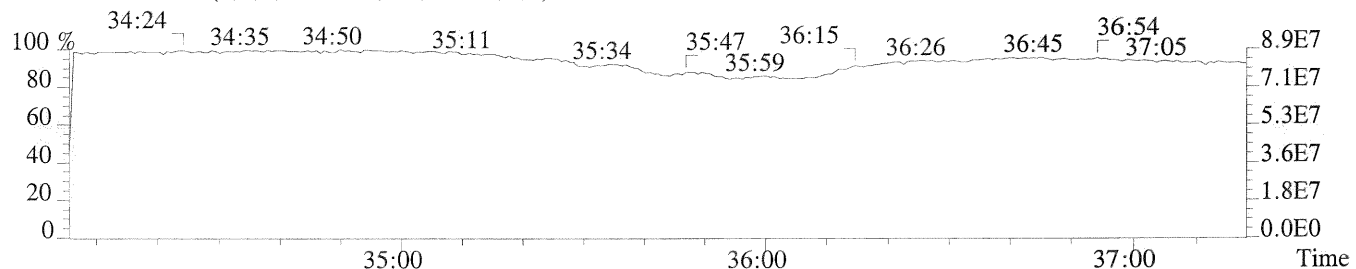
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1964.0,0.40%,F,T)



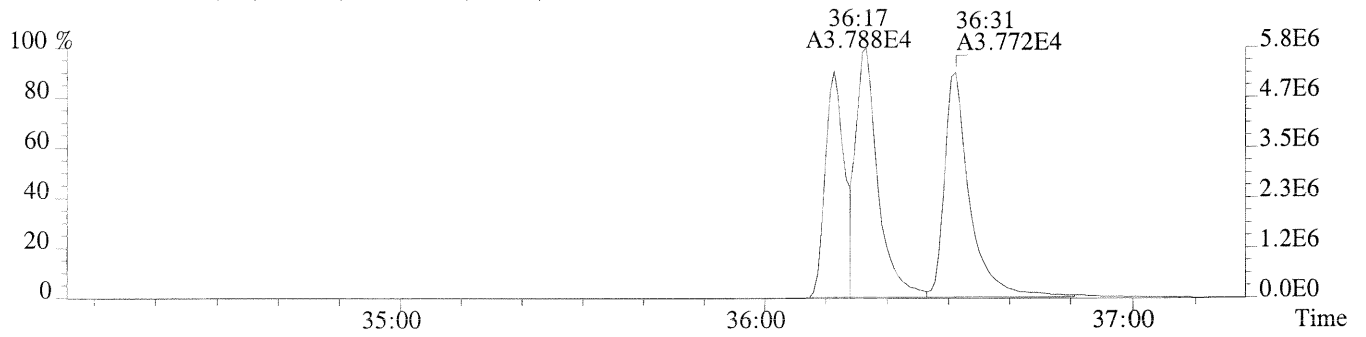
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



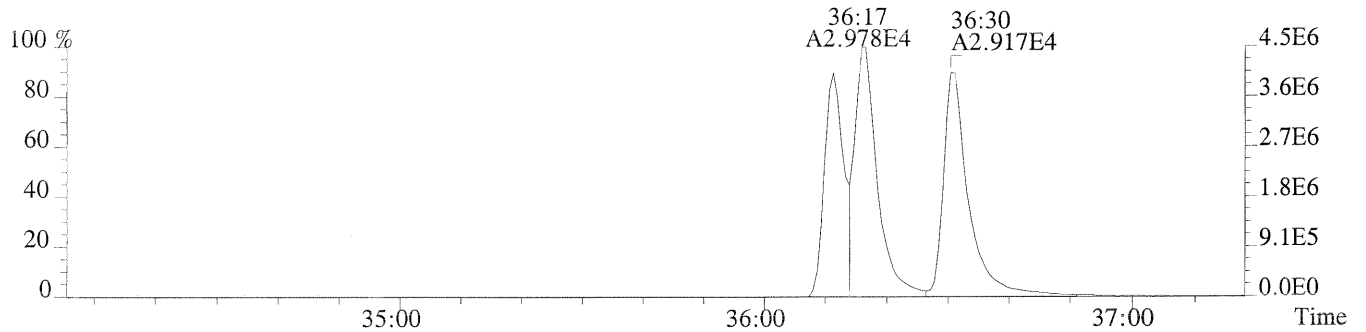
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



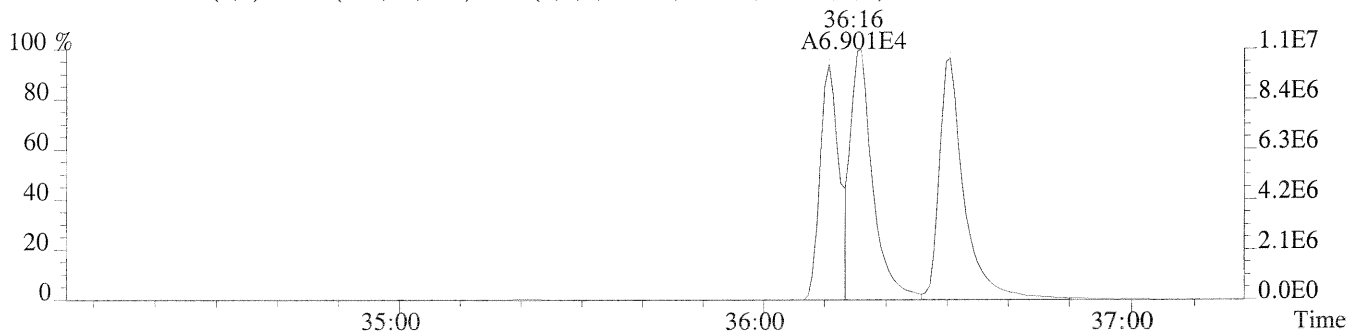
File:P230532 #1-292 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



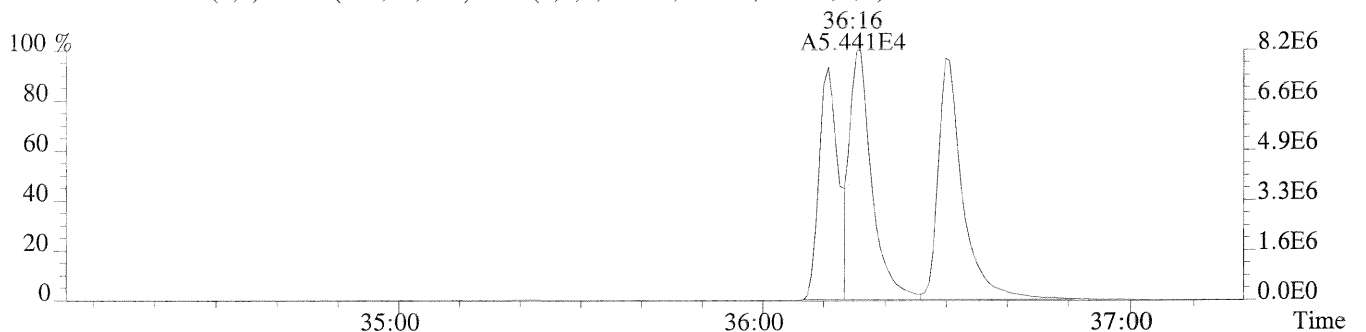
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



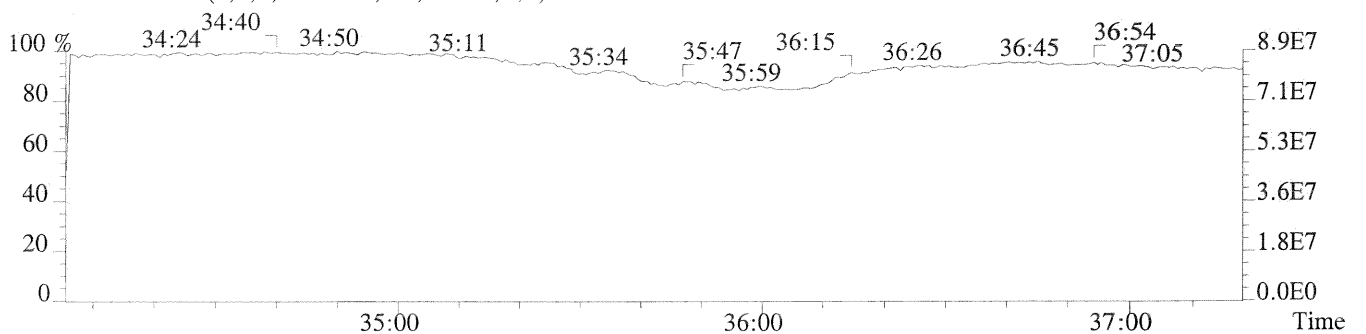
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



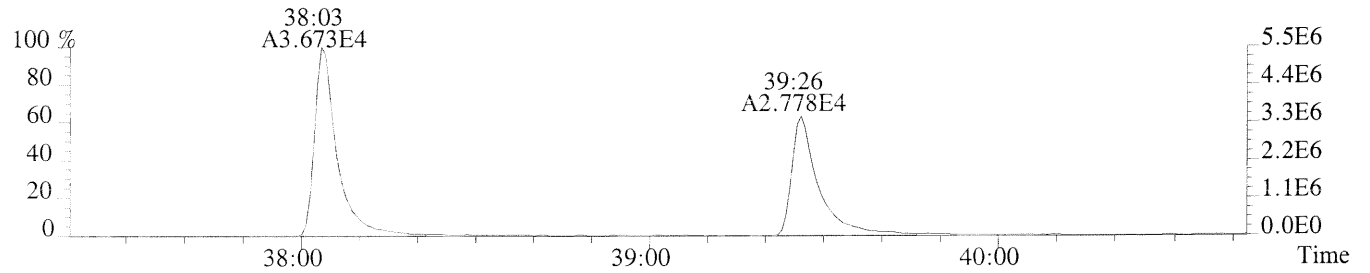
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



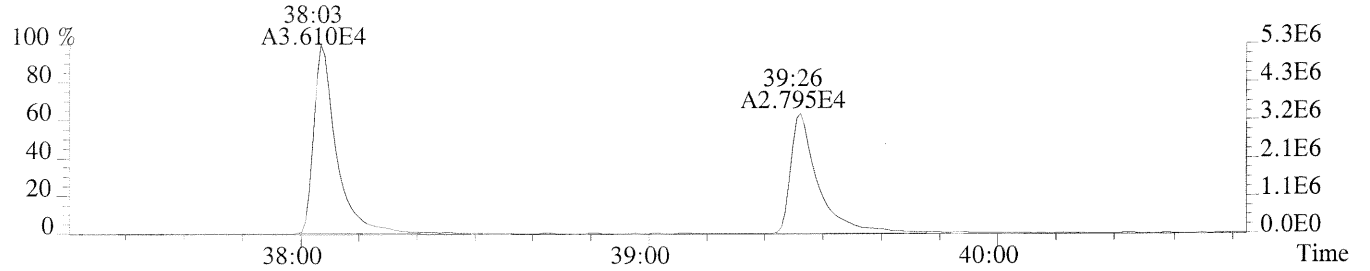
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



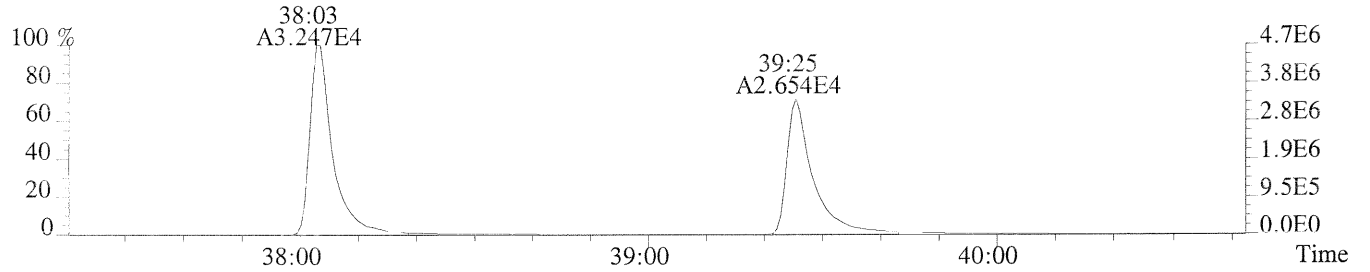
File:P230532 #1-306 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9468.0,0.50%,F,T)



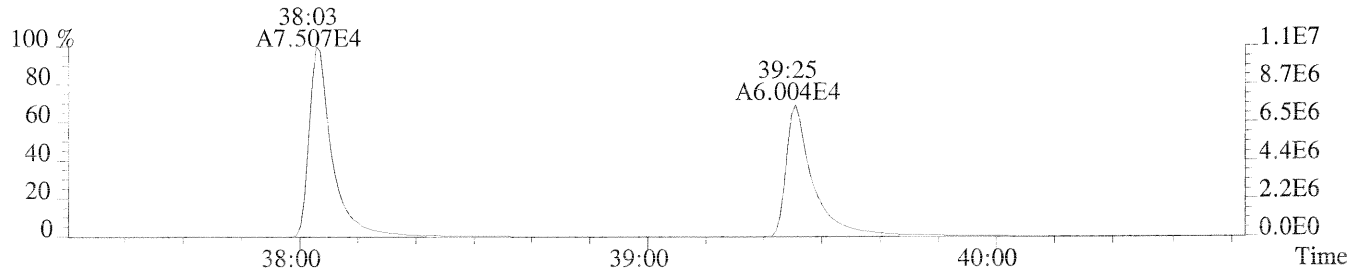
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8844.0,0.50%,F,T)



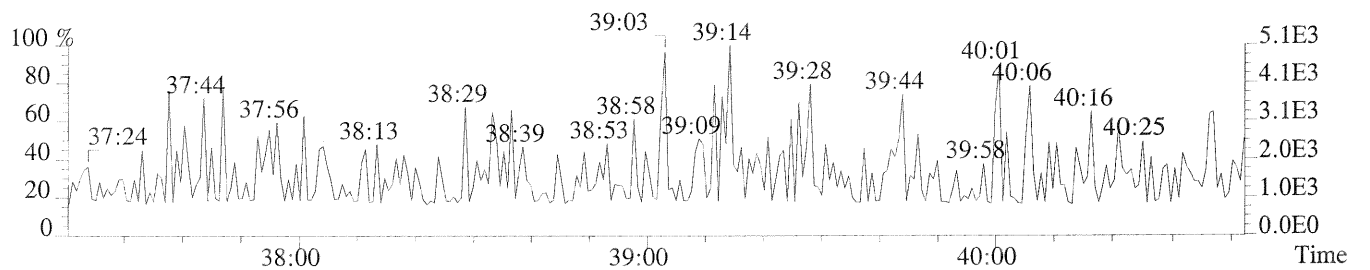
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



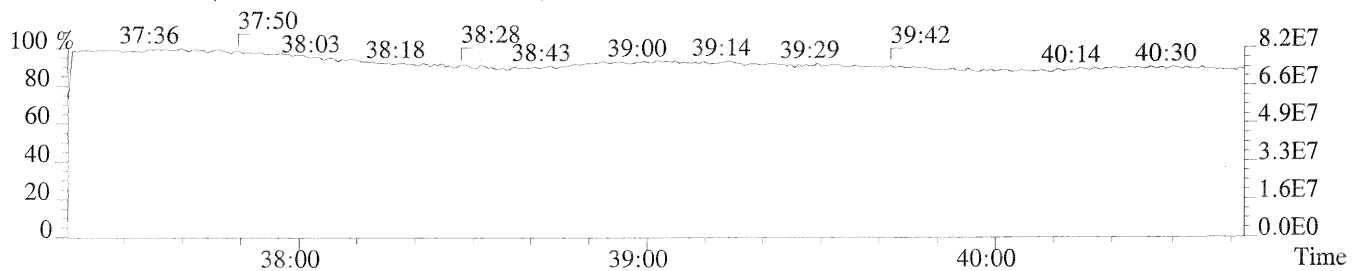
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9268.0,0.50%,F,T)



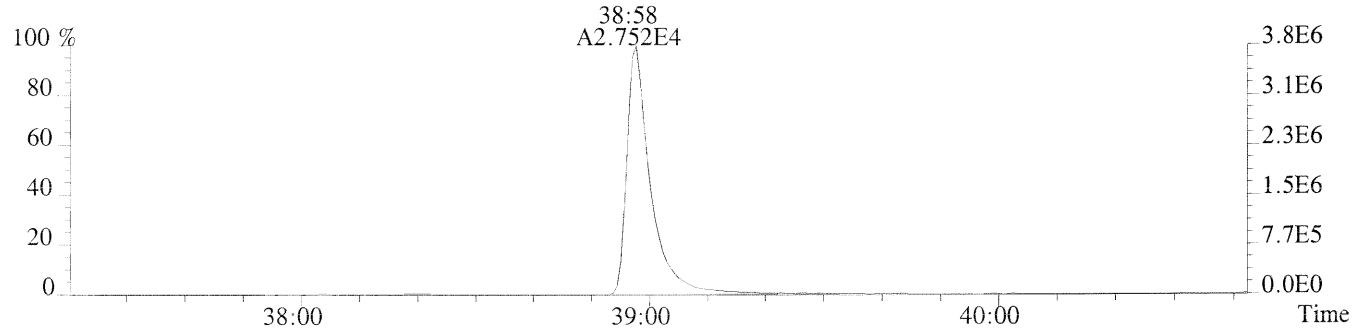
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



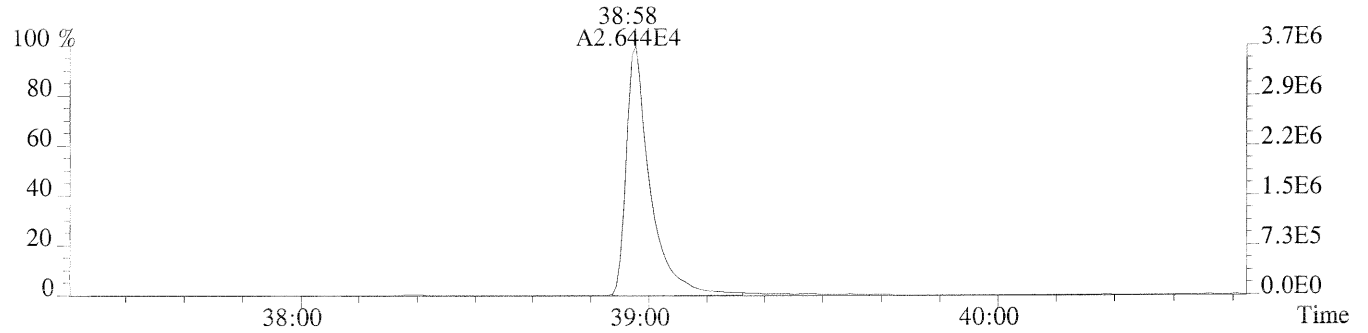
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



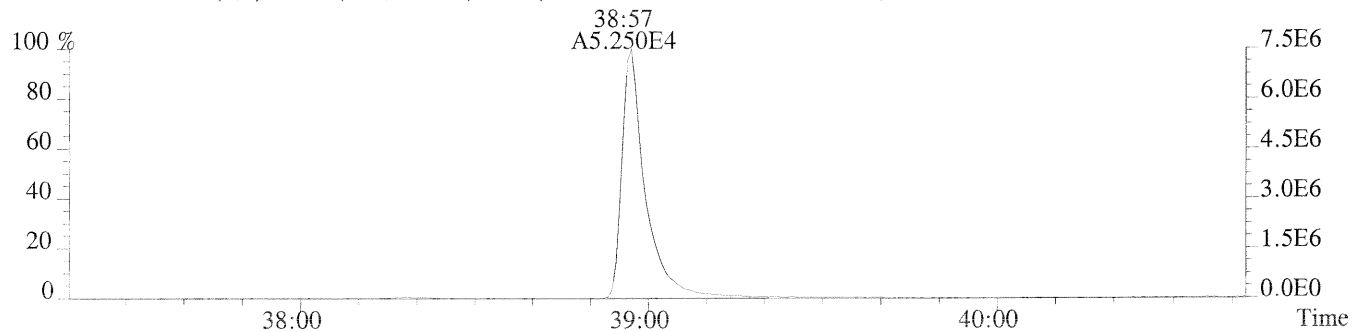
File:P230532 #1-306 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1900.0,0.40%,F,T)



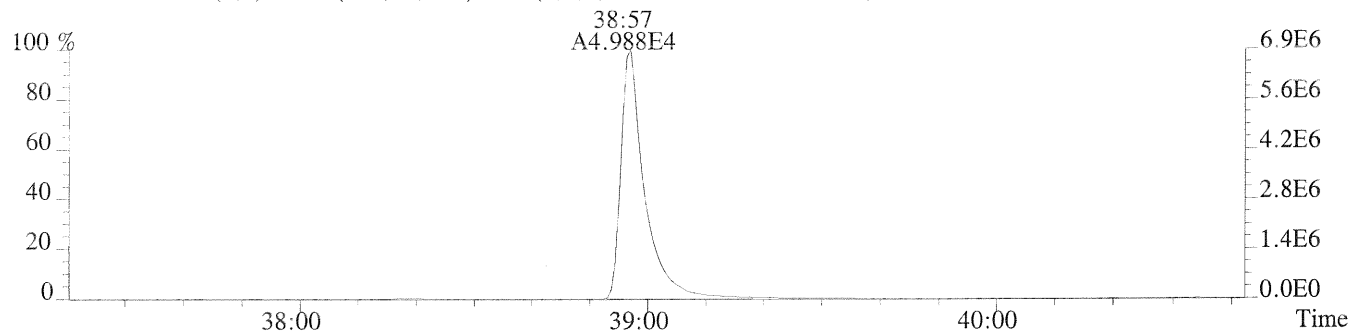
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



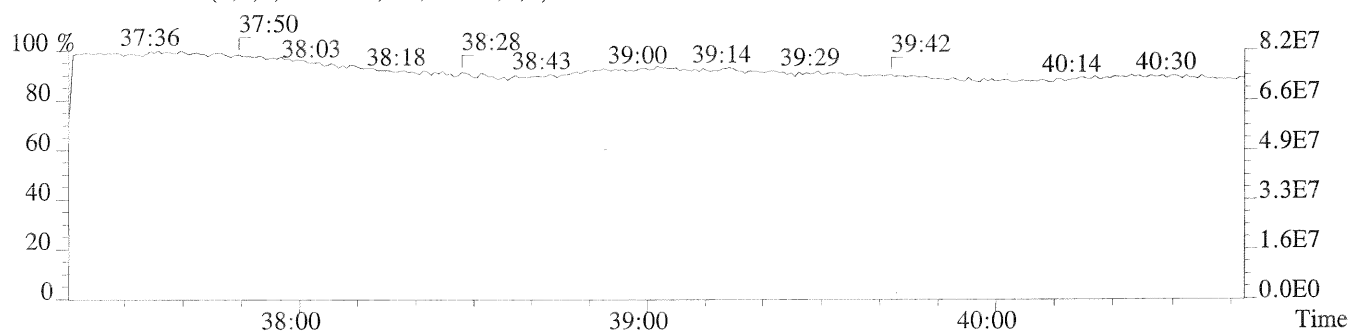
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2604.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



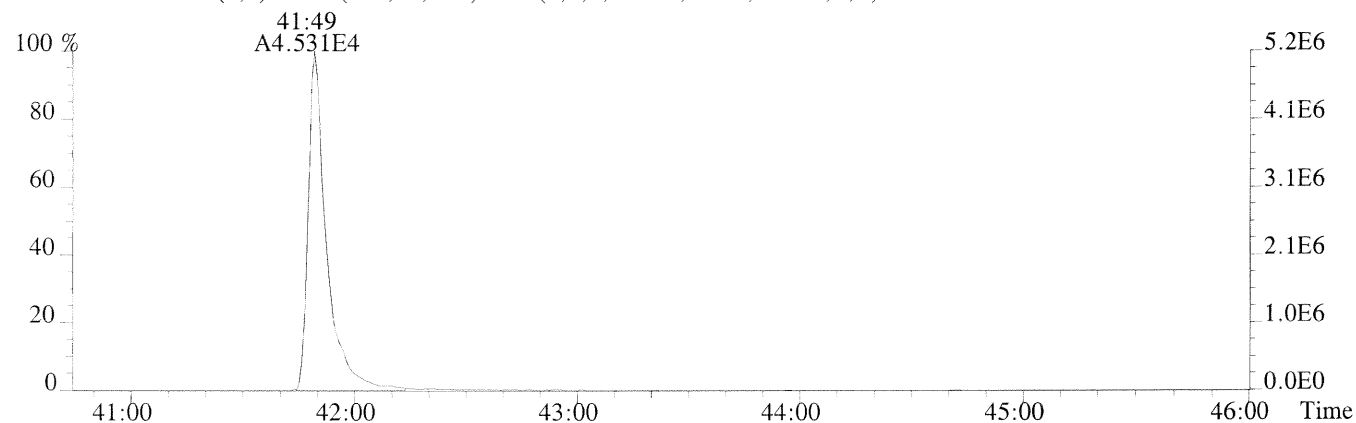
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



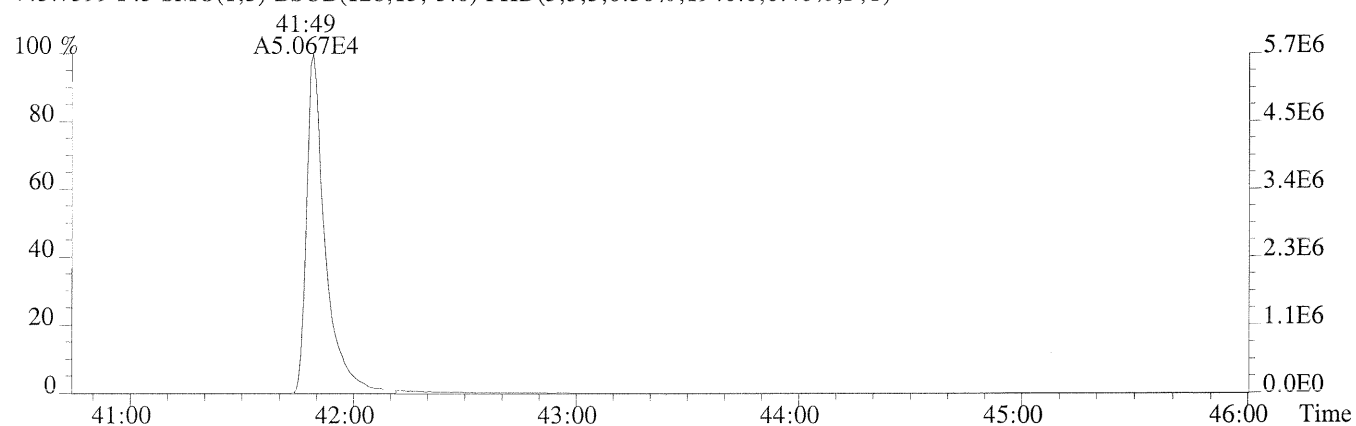
File:P230532 #1-484 Acq:15-AUG-2014 11:55:17 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS3

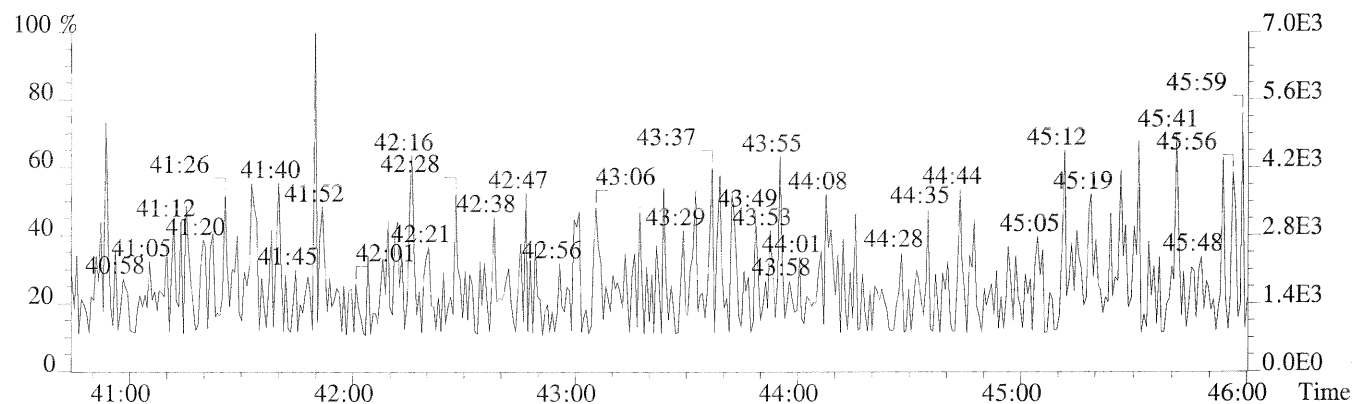
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



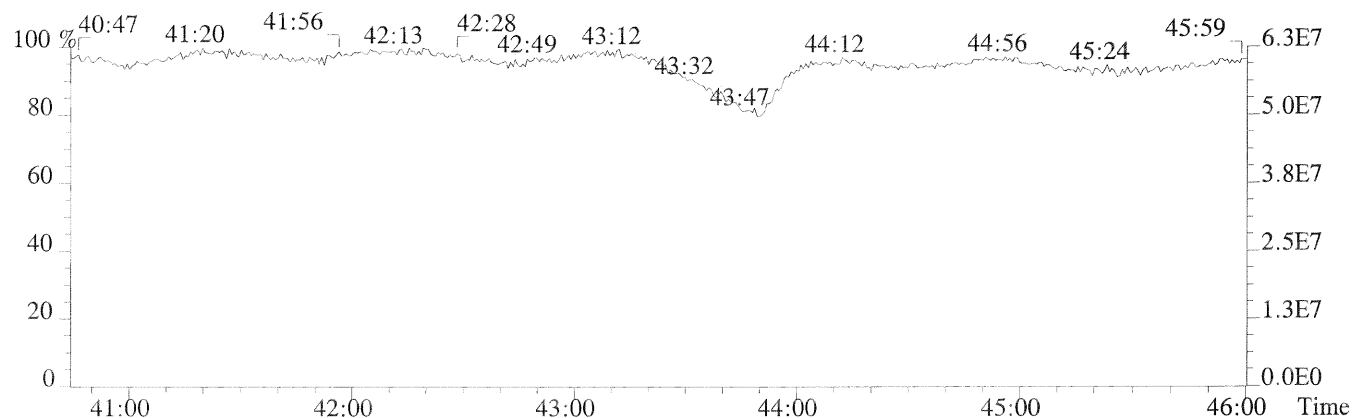
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1940.0,0.40%,F,T)



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

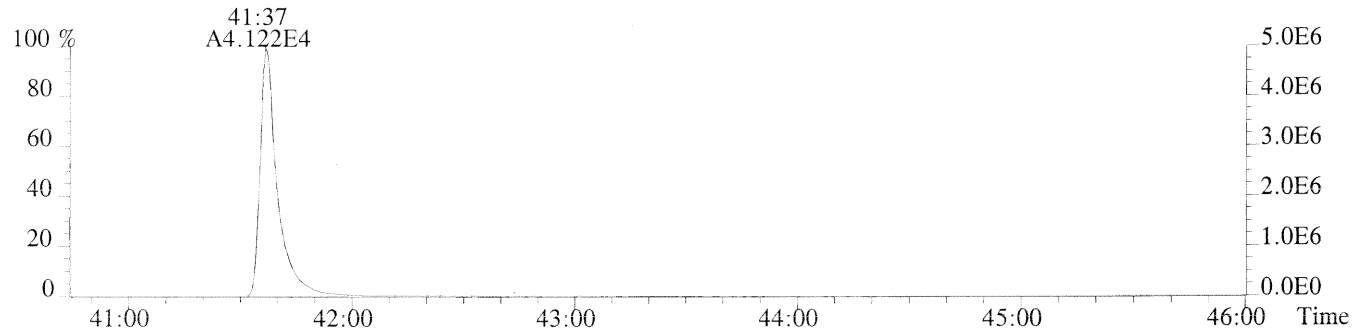


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

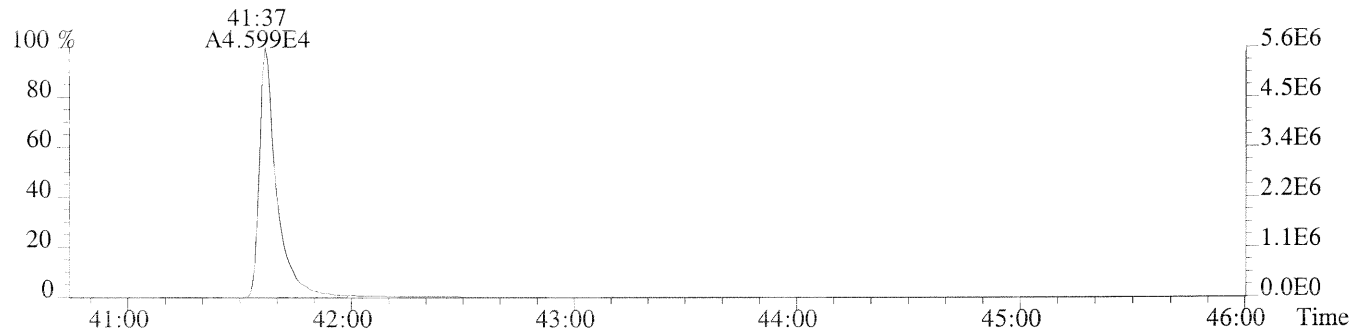


Sample#1 Exp:CS3

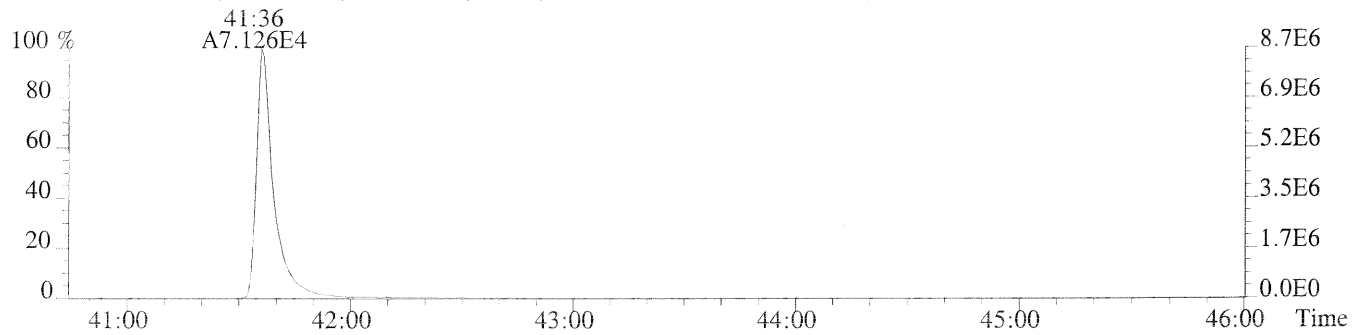
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8648.0,0.40%,F,T)



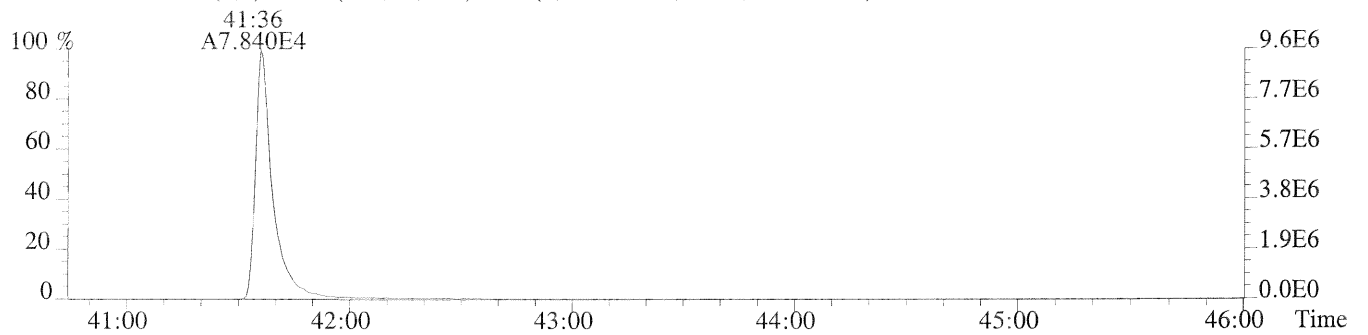
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,868.0,0.40%,F,T)



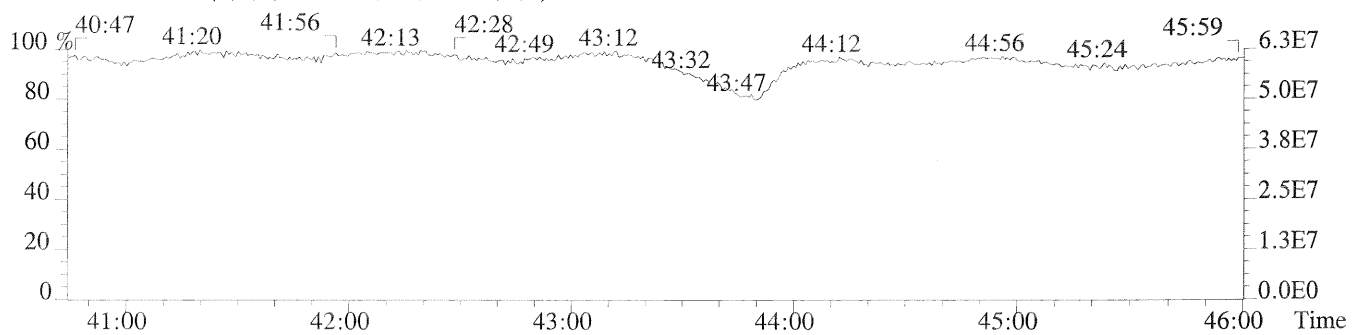
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,916.0,0.40%,F,T)



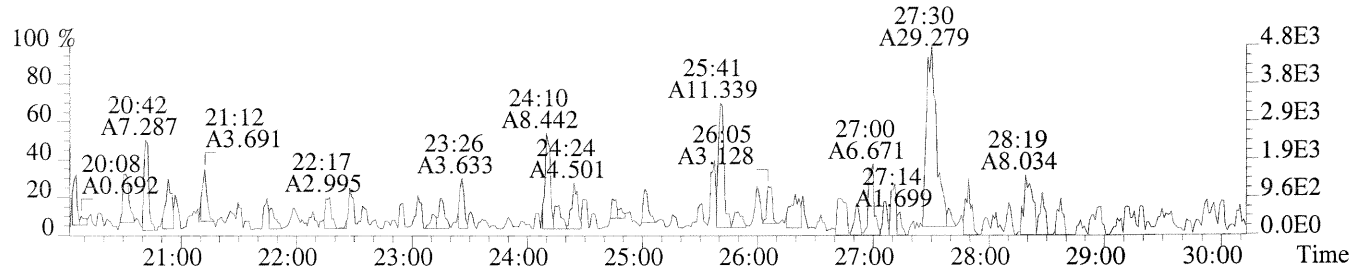
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



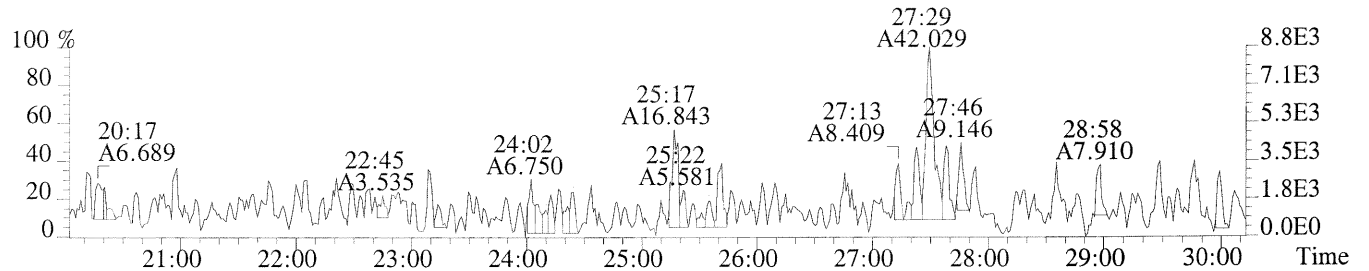
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



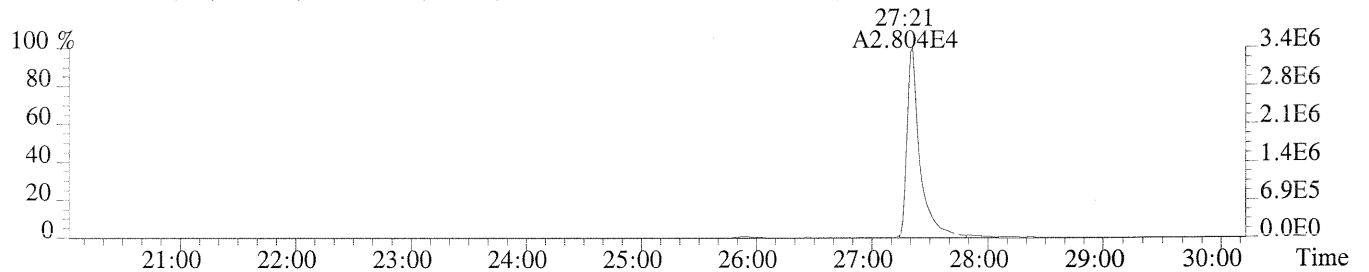
File:P230534 #1-640 Acq:15-AUG-2014 13:35:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:EQ1400433-01  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



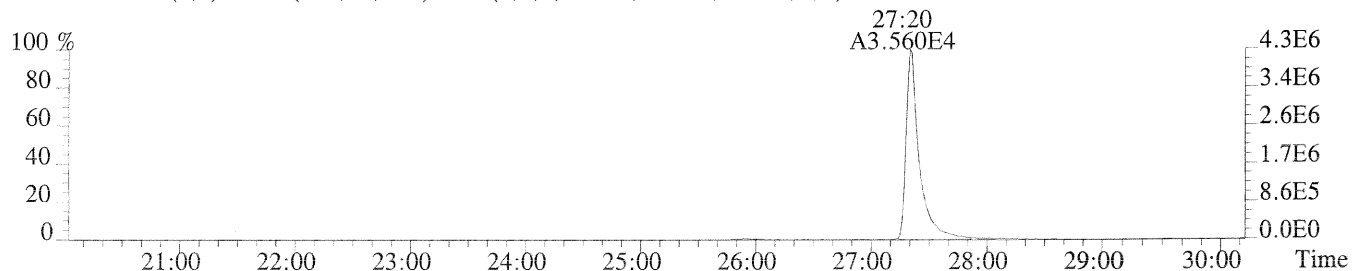
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1584.0,1.00%,F,T)



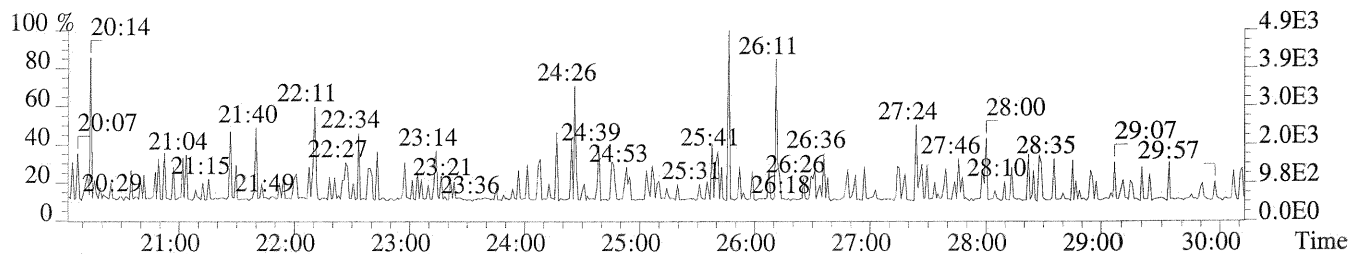
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



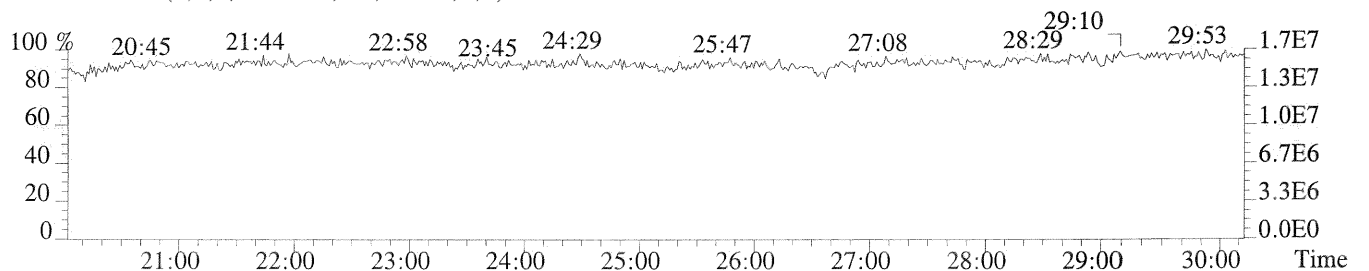
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



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)



# CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: 0150368

Circle one: Beginning / Ending

Date: 08/14/14

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)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	NA	N/A

Analyst: JL

Second QC: LKL



5DFC  
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL

Contract:

Lab Code:

Case No.:

Client No.:

SDG No.:

GC Column: DB5-MSUI

ID: 0.25 (mm)

Init. Calib. Date: 07/31/14

Init. Calib. Times: 12:13

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

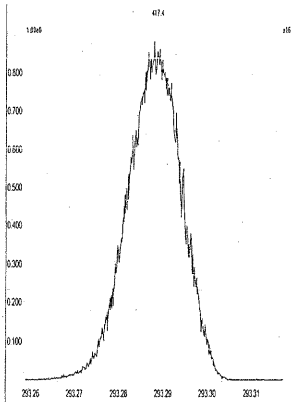
EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	U150369	14-AUG-14	09:08:44
61247	CCAL HRCC3/CS3	U150368	14-AUG-14	08:18:34
METHOD BLANK	DO NOT USE	U150370	14-AUG-14	10:33:17
LCS	EQ1400433-02	U150373	14-AUG-14	13:17:34
DLCS	EQ1400433-03	U150374	14-AUG-14	14:08:12



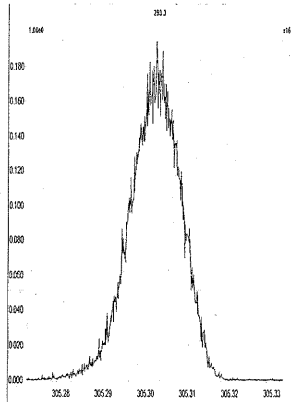
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, August 14, 2014 07:56:02 Central Daylight Time

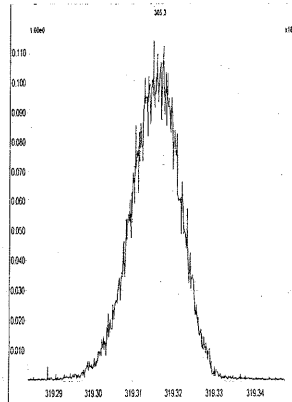
M 292.9824 R 10504



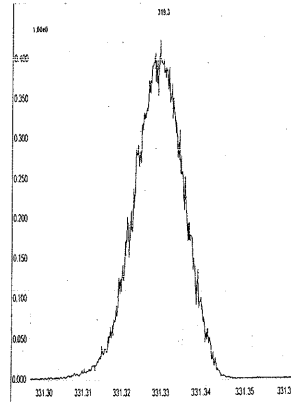
M 304.9824 R 11311



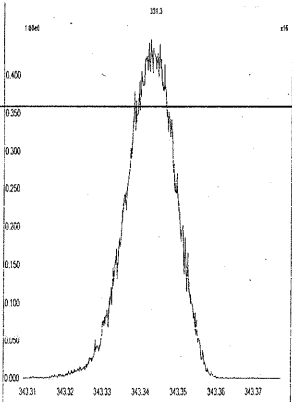
M 318.9792 R 11310



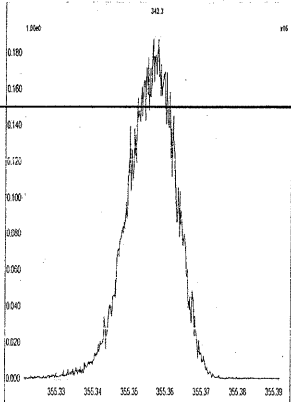
M 330.9792 R 11263



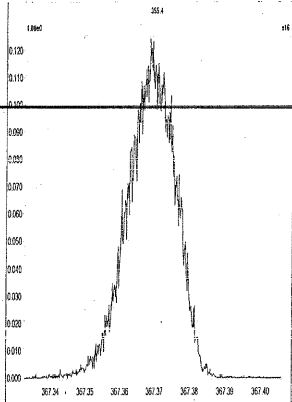
M 342.9792 R 11312



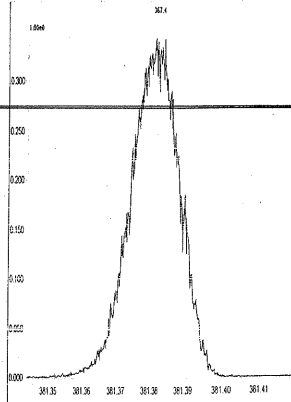
M 354.9792 R 11467



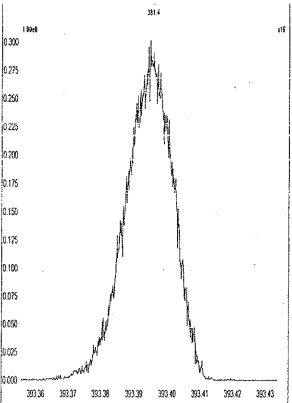
M 366.9792 R 12133



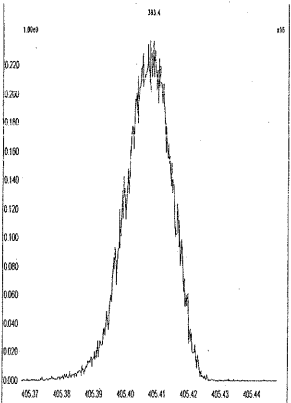
M 380.9760 R 11850



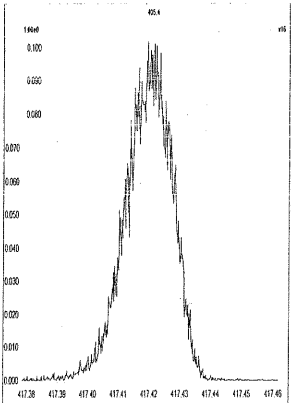
M 392.9760 R 11793



M 404.9760 R 12314



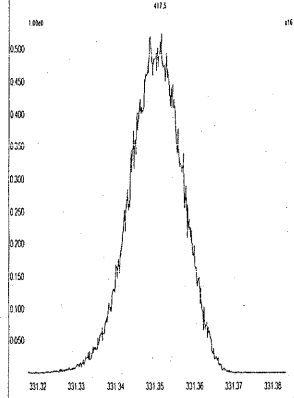
M 416.9760 R 12075



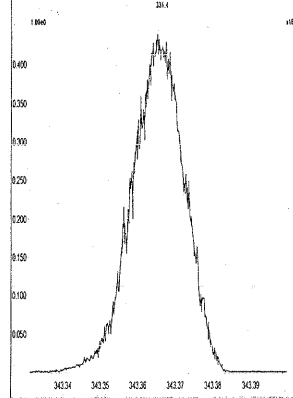
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, August 14, 2014 07:56:58 Central Daylight Time

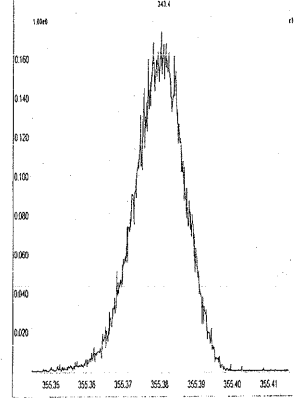
M 330.9792 R 10636



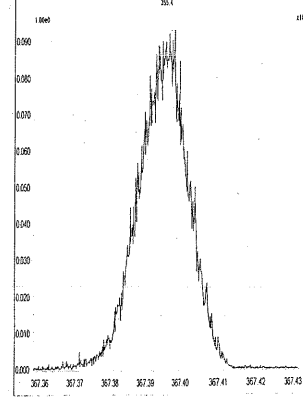
M 342.9792 R 11058



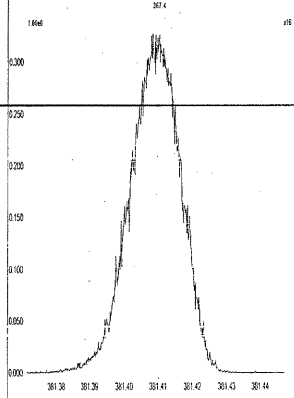
M 354.9792 R 11415



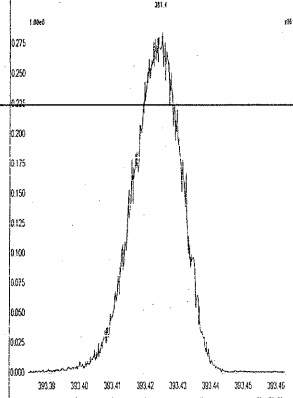
M 366.9792 R 11414



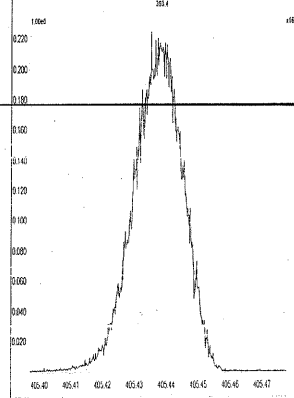
M 380.9760 R 11466



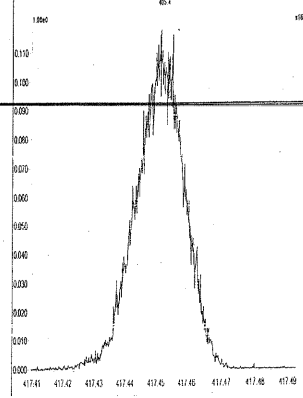
M 392.9760 R 11849



M 404.9760 R 11574



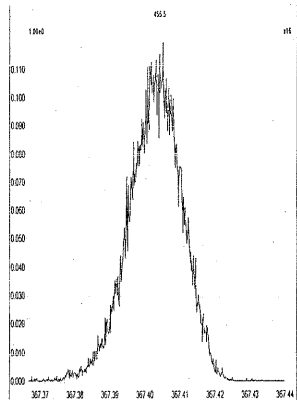
M 416.9760 R 11903



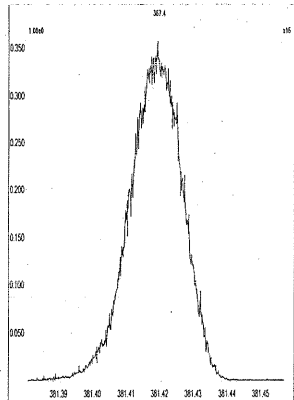
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, August 14, 2014 07:58:07 Central Daylight Time

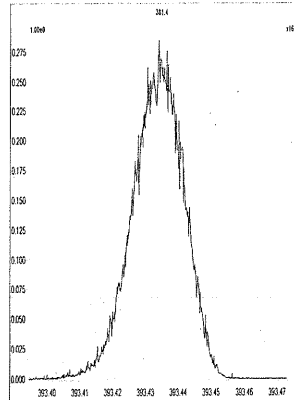
M 366.9792 R 10376



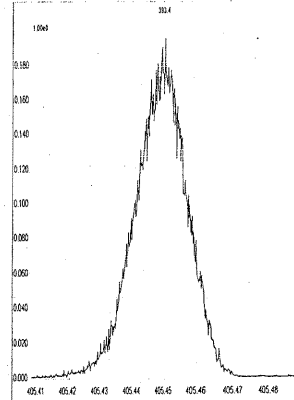
M 380.9760 R 10682



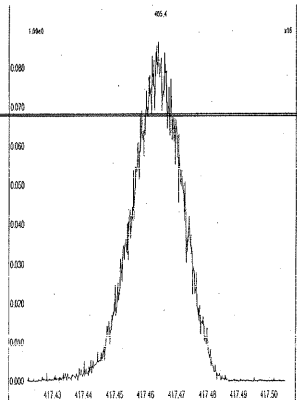
M 392.9760 R 11108



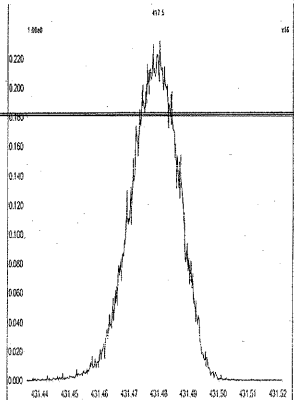
M 404.9760 R 11107



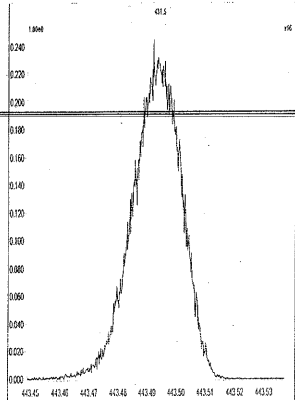
M 416.9760 R 10822



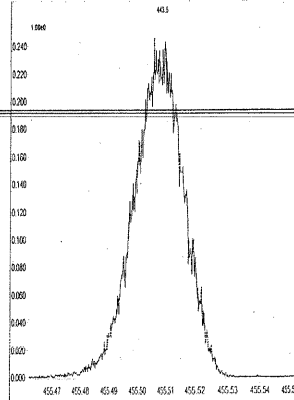
M 430.9728 R 11907



M 442.9728 R 11518



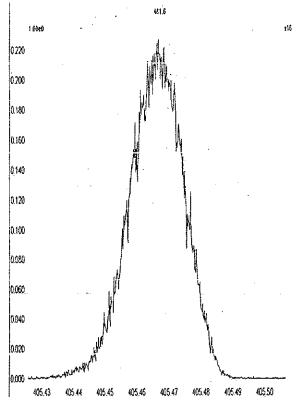
M 454.9728 R 11628



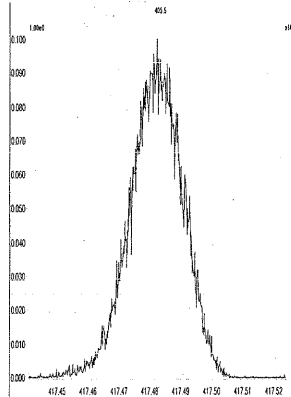
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, August 14, 2014 07:59:22 Central Daylight Time

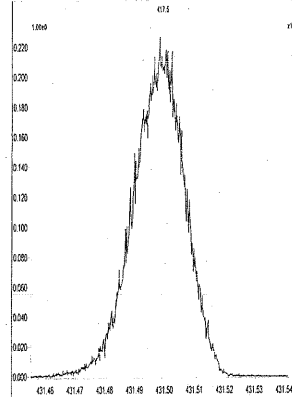
M 404.9760 R 10205



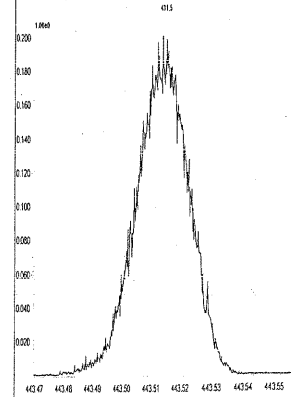
M 416.9760 R 10729



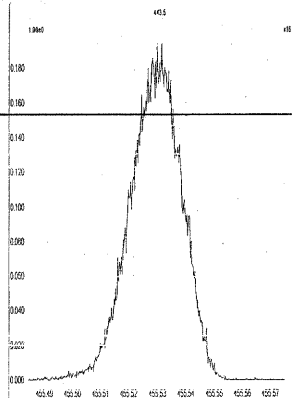
M 430.9728 R 10592



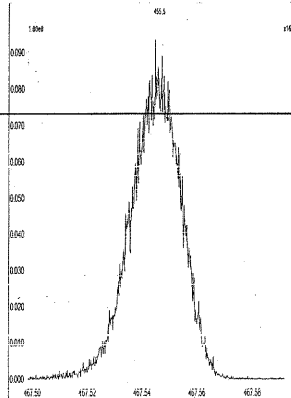
M 442.9728 R 11113



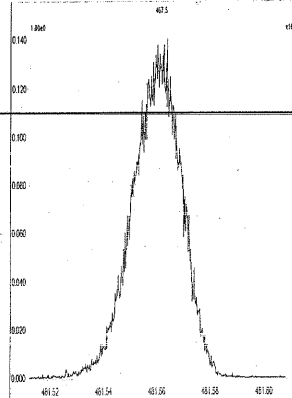
M 454.9728 R 11112



M 466.9728 R 11308



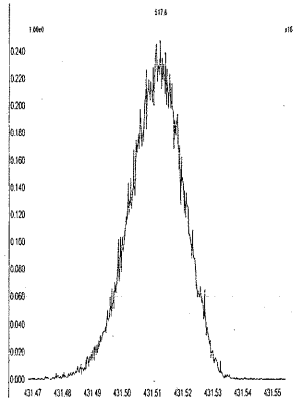
M 480.9696 R 11467



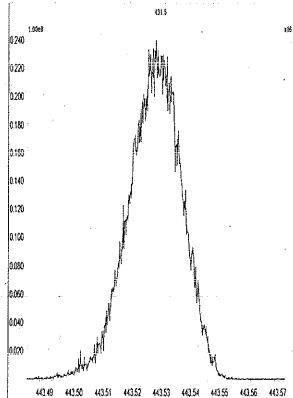
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, August 14, 2014 08:00:32 Central Daylight Time

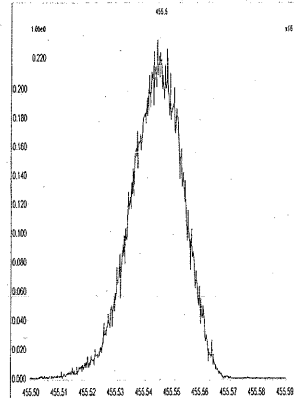
M 430.9728 R 10121



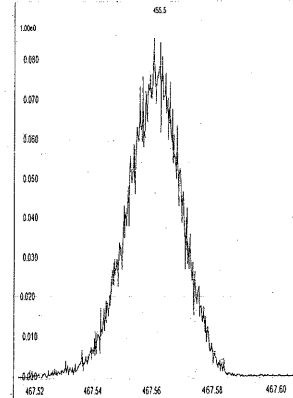
M 442.9728 R 11263



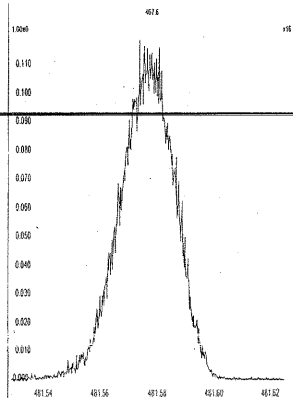
M 454.9728 R 10820



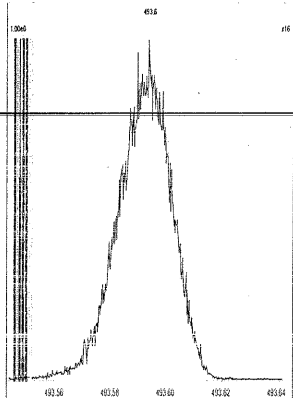
M 466.9728 R 11161



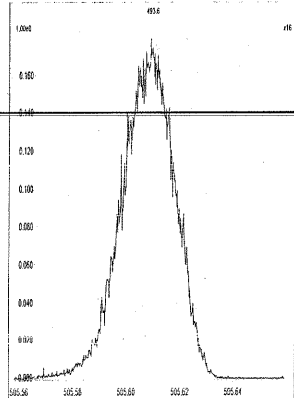
M 480.9696 R 11312



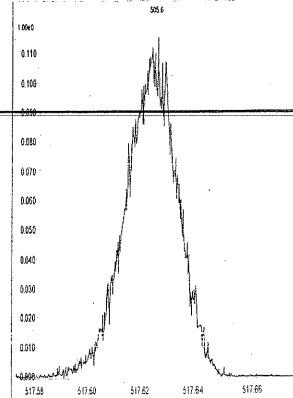
M 492.9696 R 11260



M 504.9696 R 11015



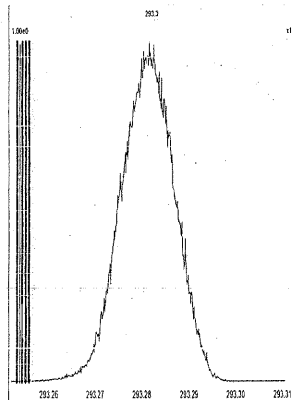
M 516.9697 R 12078



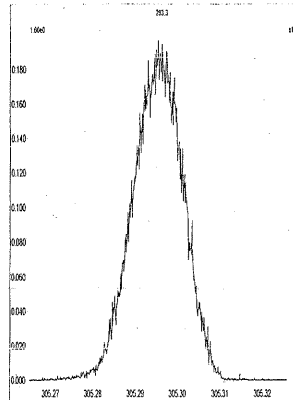
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, August 14, 2014 17:24:58 Central Daylight Time

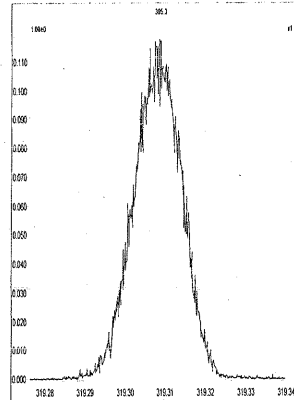
M 292.9824 R 11261



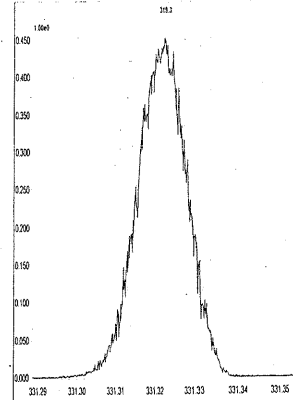
M 304.9824 R 11847



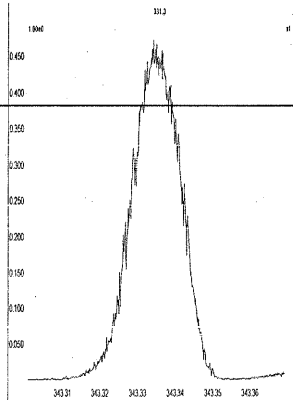
M 318.9792 R 11524



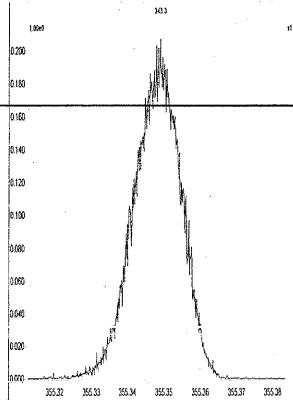
M 330.9792 R 11738



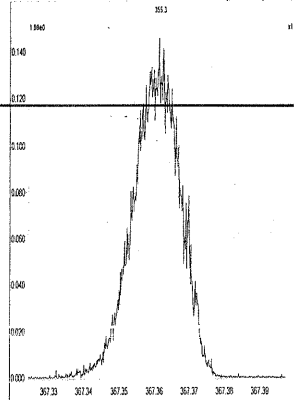
M 342.9792 R 11905



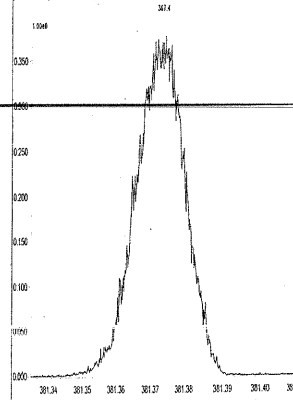
M 354.9792 R 12018



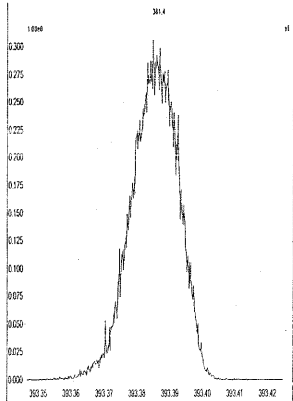
M 366.9792 R 12378



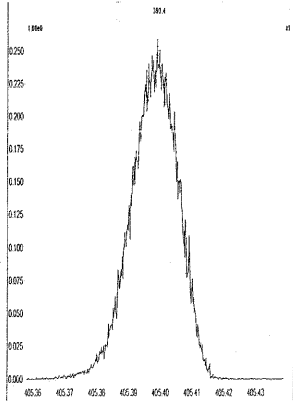
M 380.9760 R 11906



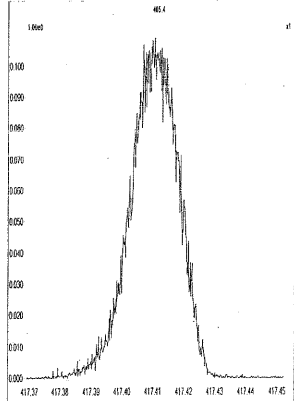
M 392.9760 R 12376



M 404.9760 R 11627



M 416.9760 R 11907

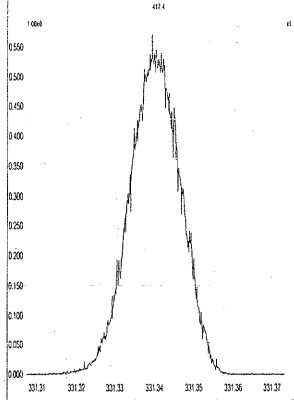




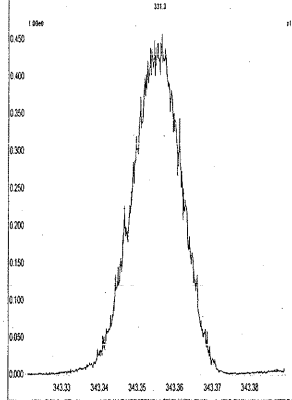
File: Experiment: 8290db5msuif1.exp Reference: pkf.ref Function: 2 @ 200 (ppm)

Printed: Thursday, August 14, 2014 17:26:10 Central Daylight Time

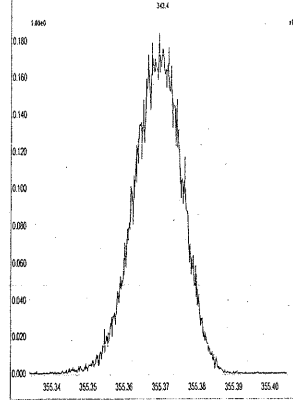
M 330.9792 R 11263



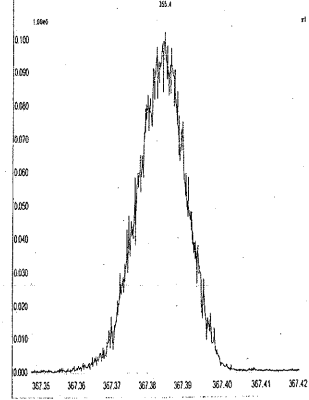
M 342.9792 R 11416



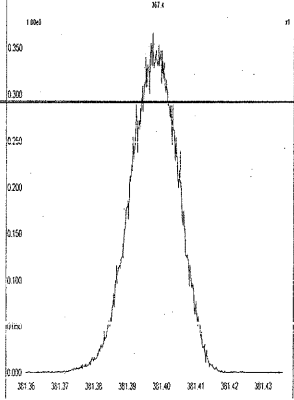
M 354.9792 R 11681



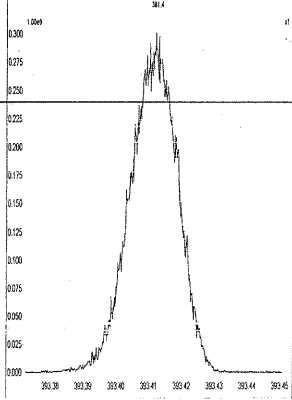
M 366.9792 R 12017



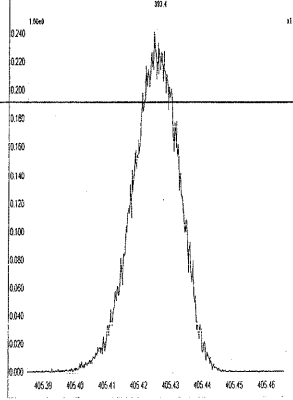
M 380.9760 R 11902



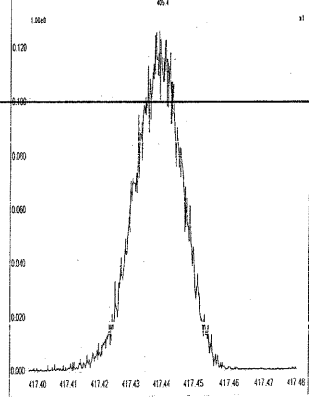
M 392.9760 R 11962



M 404.9760 R 11682



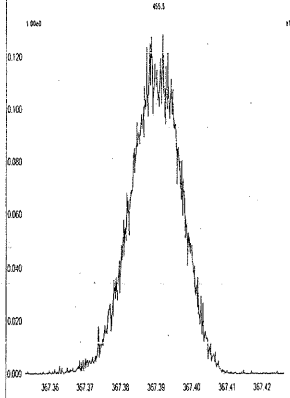
M 416.9760 R 11960



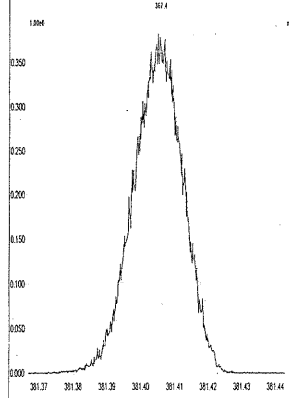
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, August 14, 2014 17:27:53 Central Daylight Time

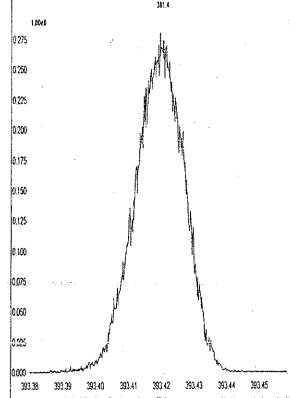
M 366.9792 R 11466



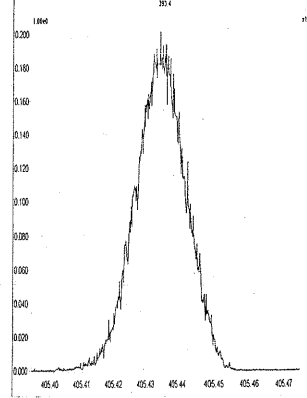
M 380.9760 R 11310



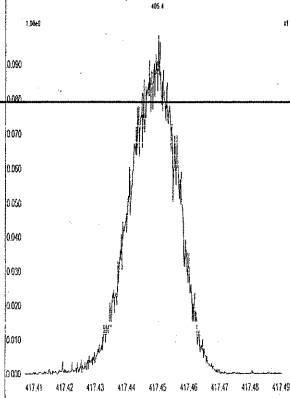
M 392.9760 R 11469



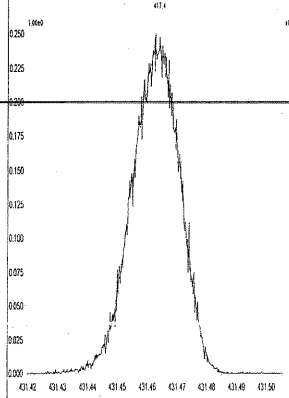
M 404.9760 R 11848



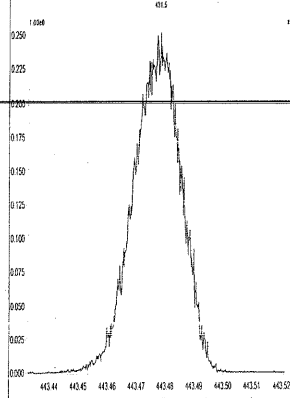
M 416.9760 R 11736



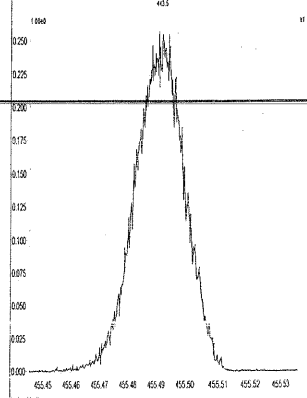
M 430.9728 R 12134



M 442.9728 R 12192



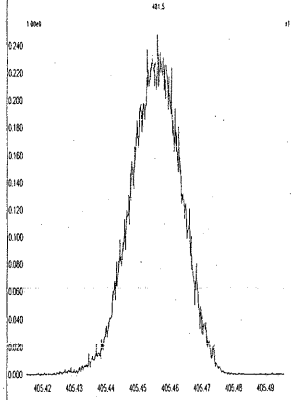
M 454.9728 R 12019



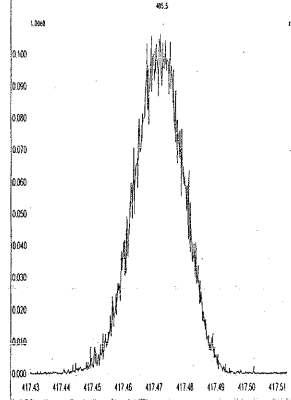
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, August 14, 2014 17:29:22 Central Daylight Time

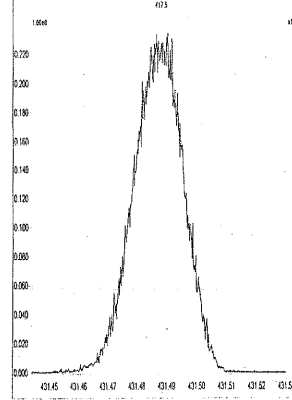
M 404.9760 R 10776



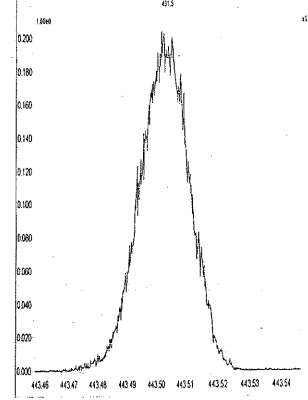
M 416.9760 R 11627



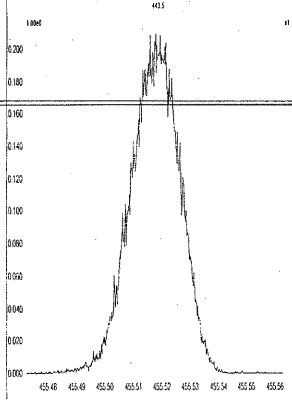
M 430.9728 R 11209



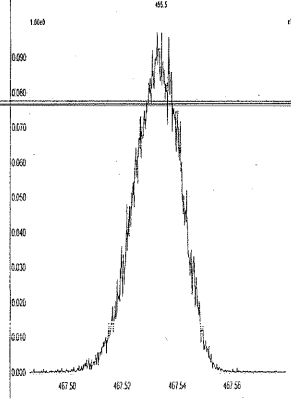
M 442.9728 R 11522



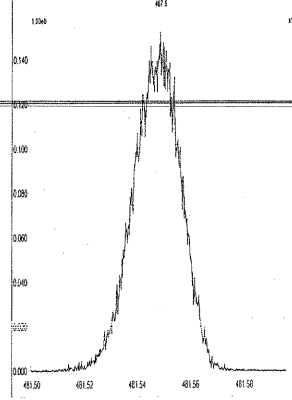
M 454.9728 R 12078



M 466.9728 R 11682



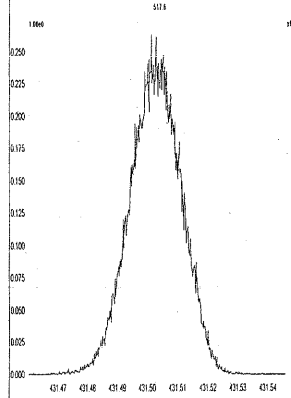
M 480.9696 R 11363



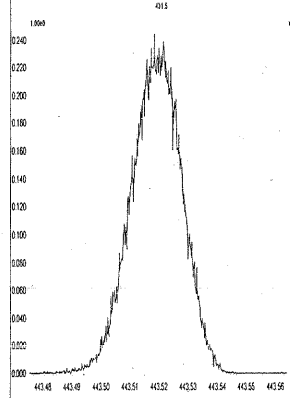
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, August 14, 2014 17:30:15 Central Daylight Time

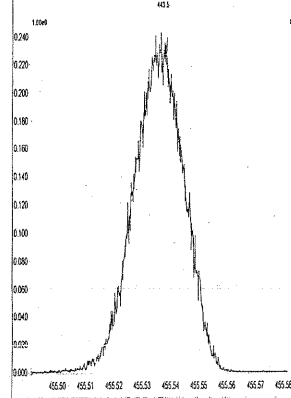
M 430.9728 R 11260



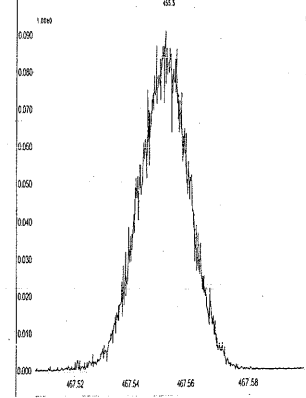
M 442.9728 R 11109



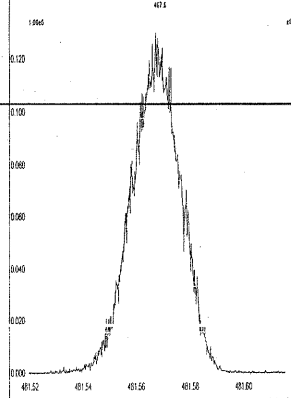
M 454.9728 R 11522



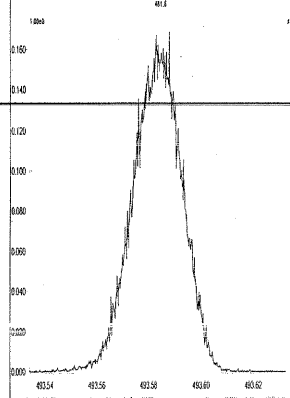
M 466.9728 R 11628



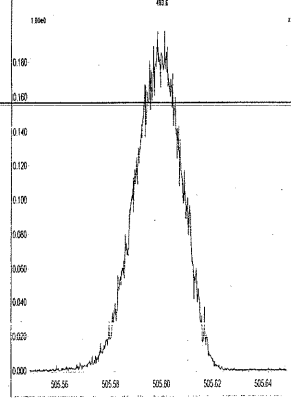
M 480.9696 R 11520



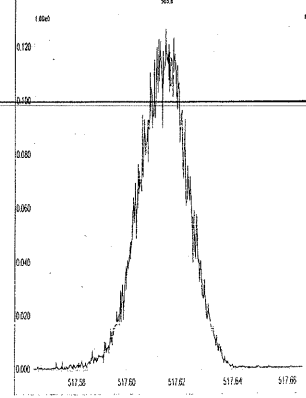
M 492.9696 R 11519



M 504.9696 R 11735



M 516.9697 R 11521



## 5DFA

## WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS ENVIRONMENTAL  
Lab Code: TX01411  
GC Column: DB-5msUI

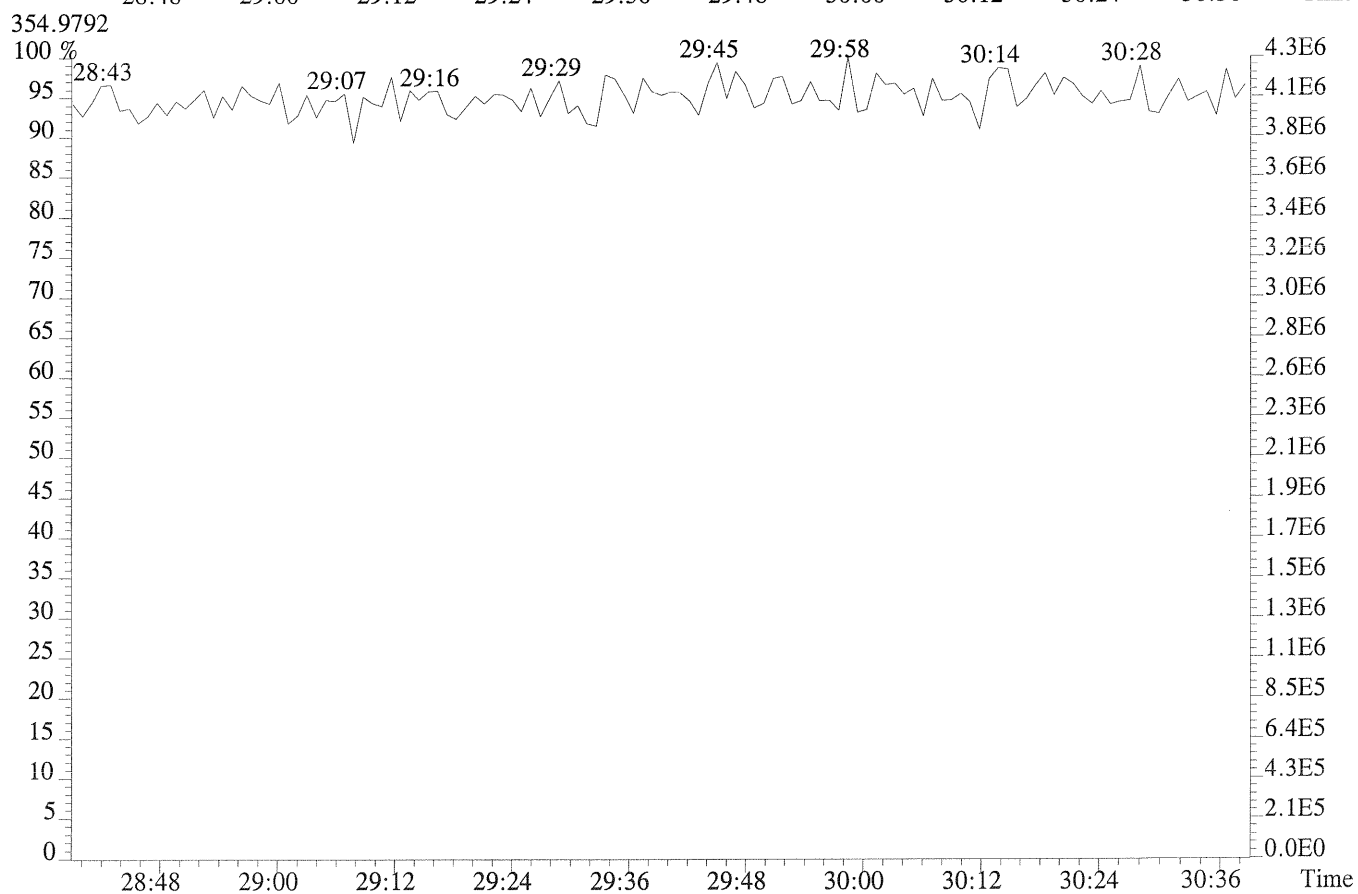
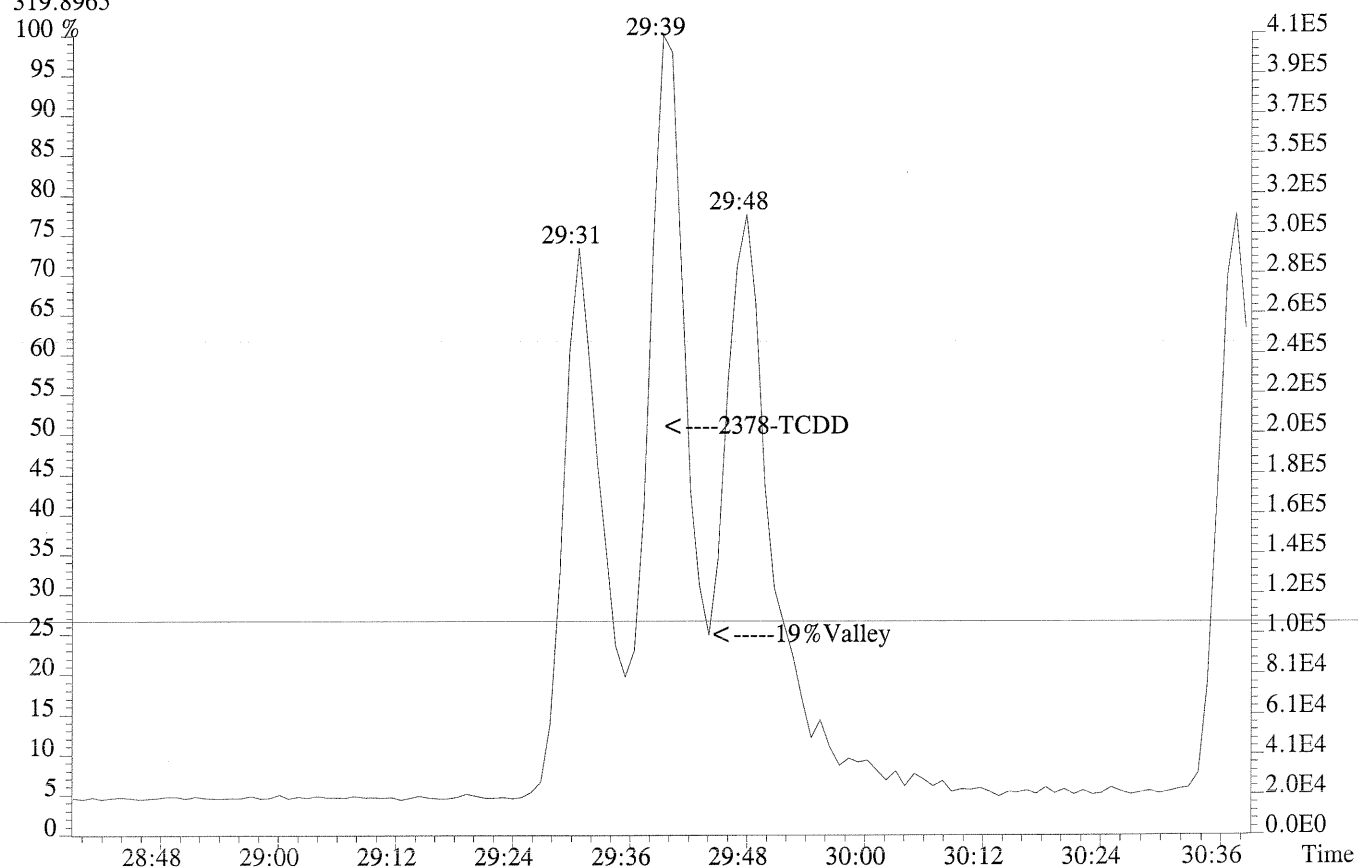
Case No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_  
ID: 0.25 (mm) Lab File ID: U150369  
Date Analyzed: 14-AUG-2014  
Time Analyzed: 09:08:44

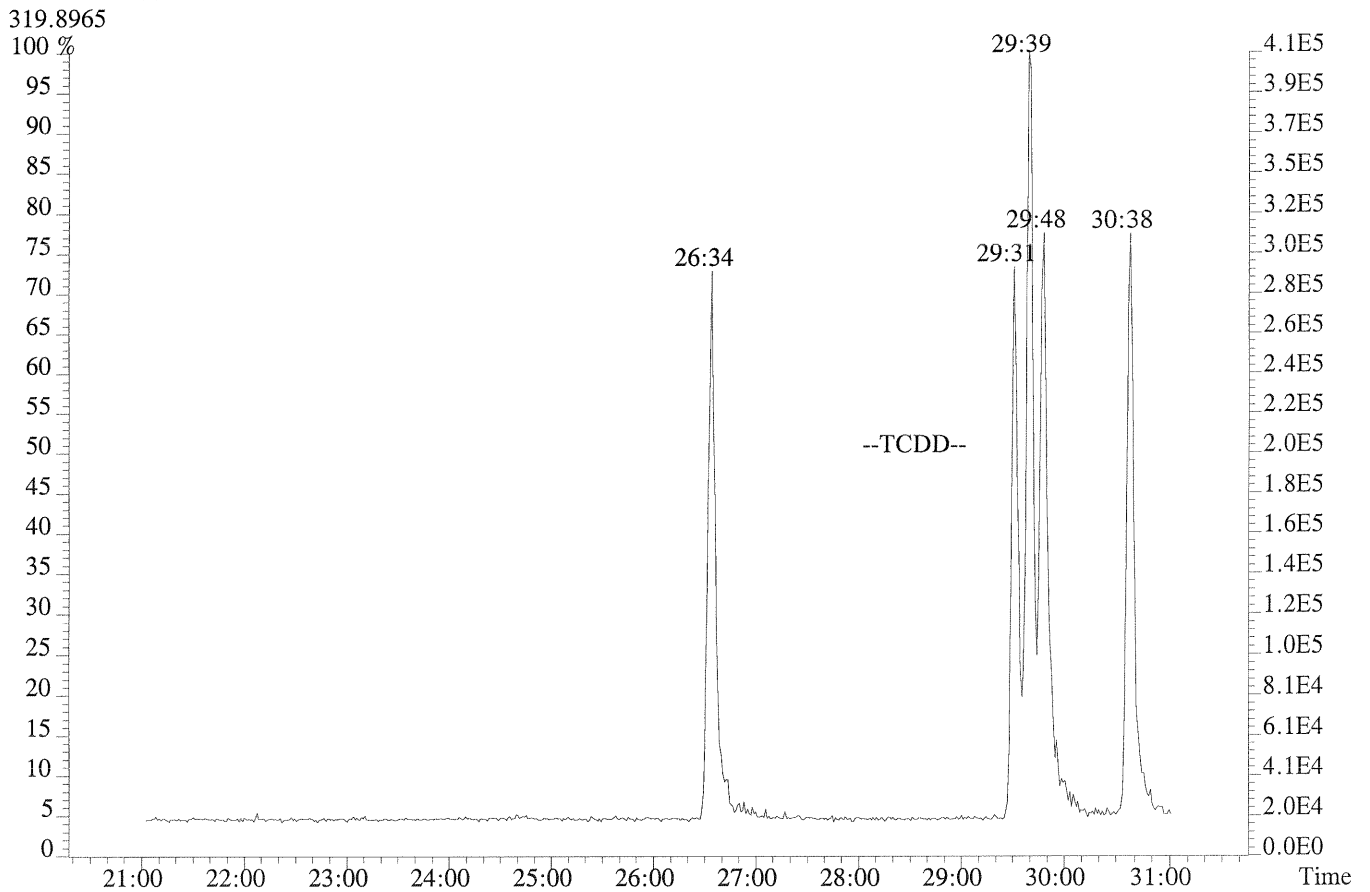
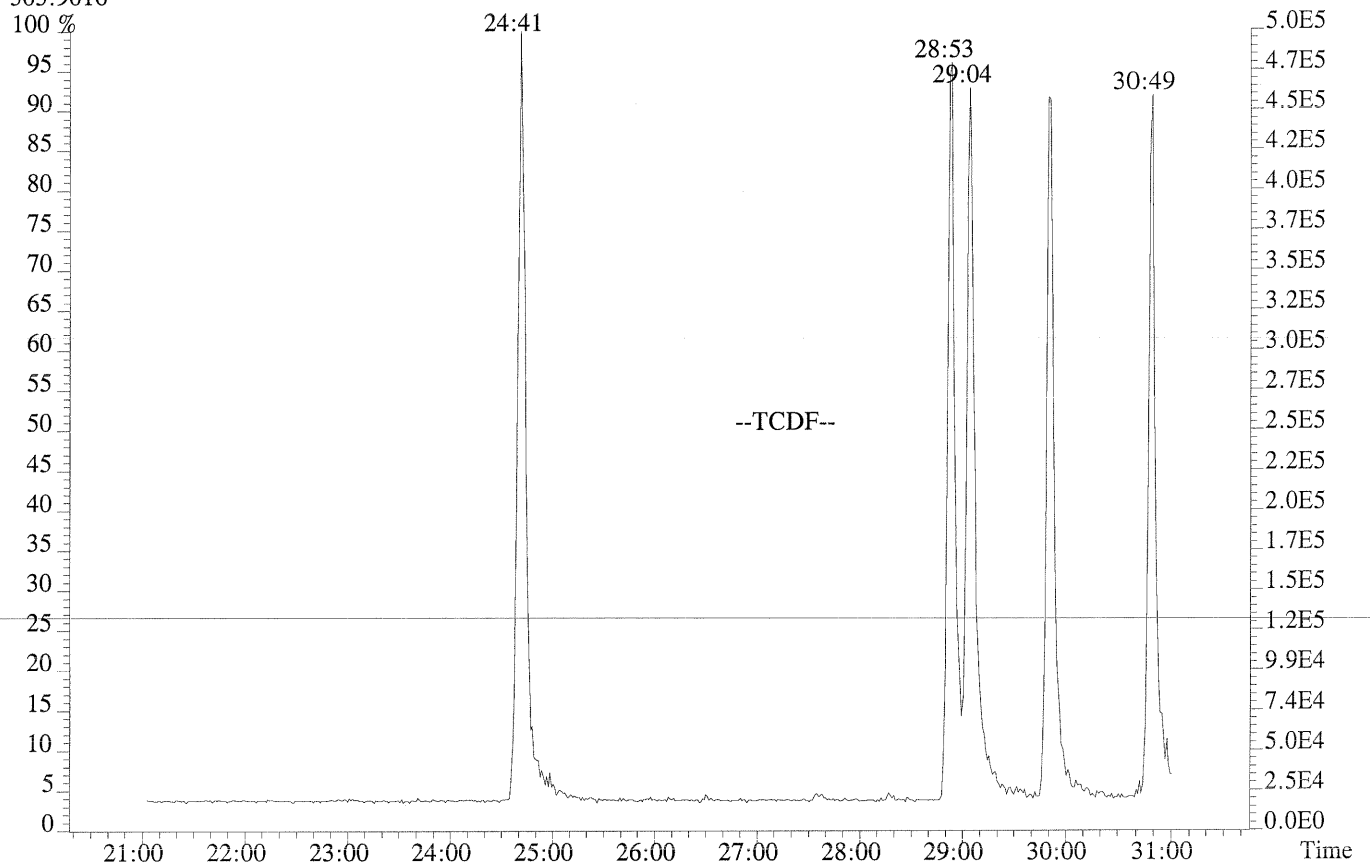
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:41	30:49
TCDD	26:34	30:38
PeCDF	30:42	34:53
PeCDD	32:11	34:36
HxCDF	35:29	38:00
HxCDD	36:00	37:35
HpCDF	39:14	40:44
HpCDD	39:29	40:12

% Valley 2378-TCDD:

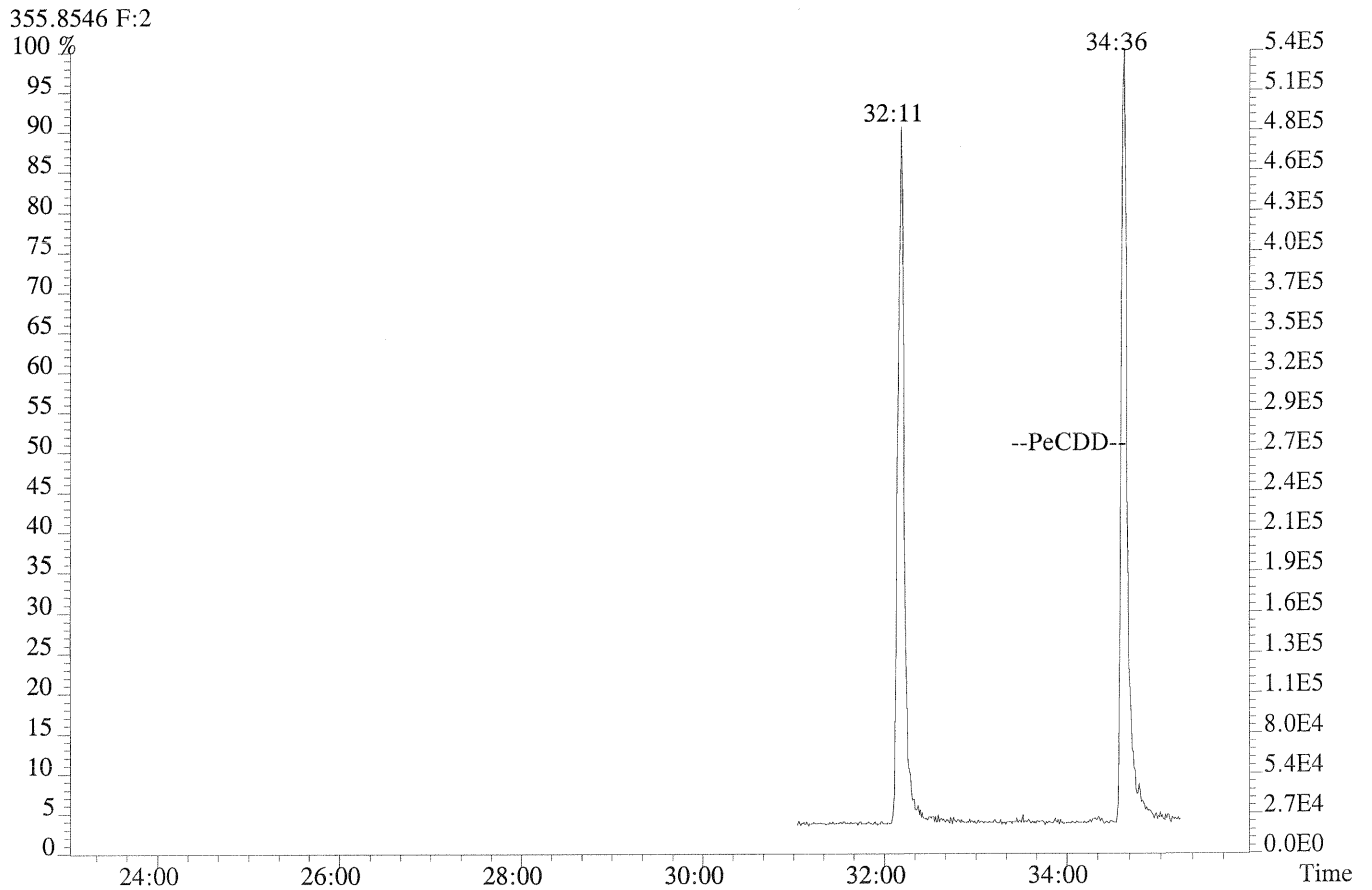
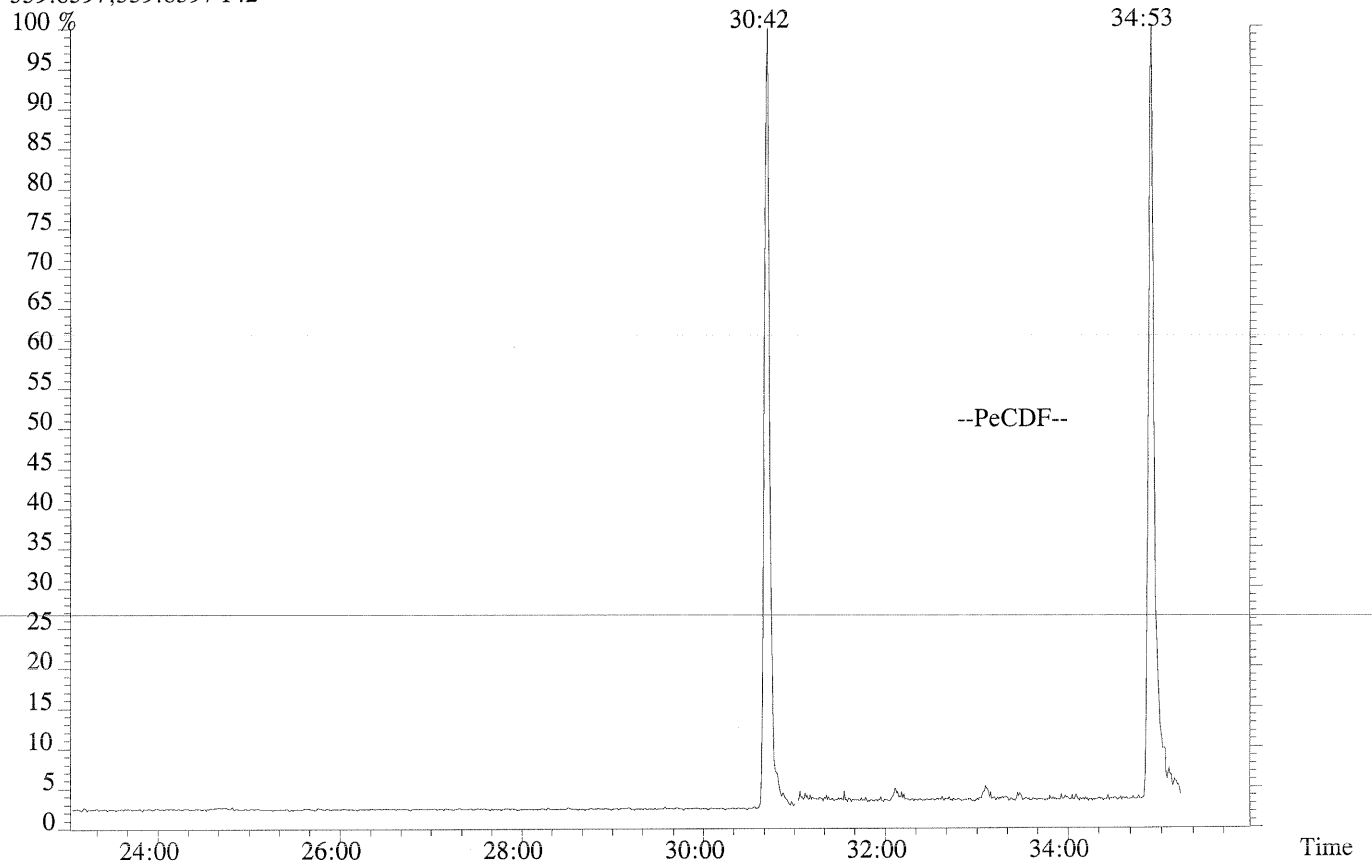
19 %

File:U150369 #1-627 Acq:14-AUG-2014 09:08:44 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
319.8965



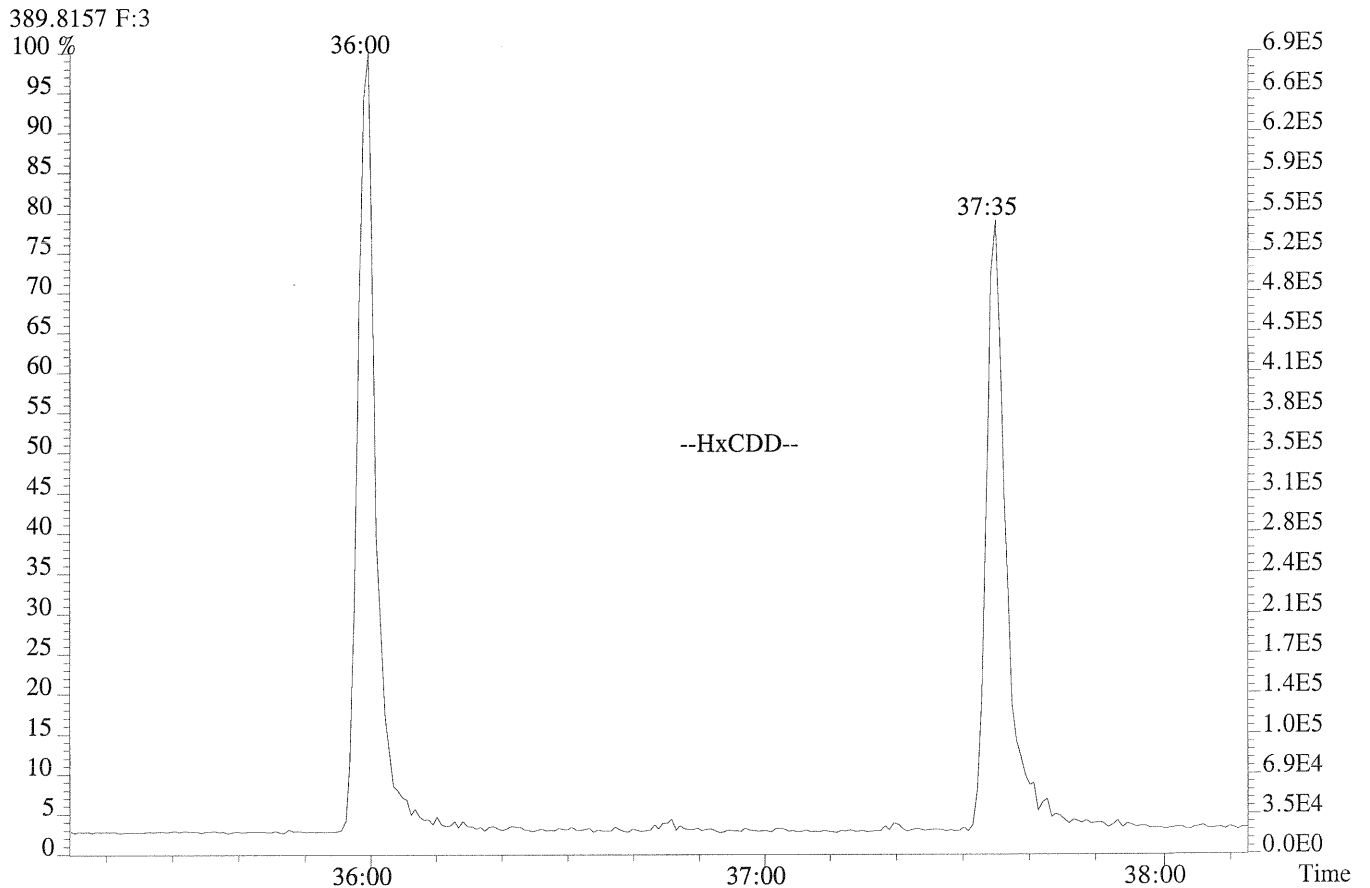
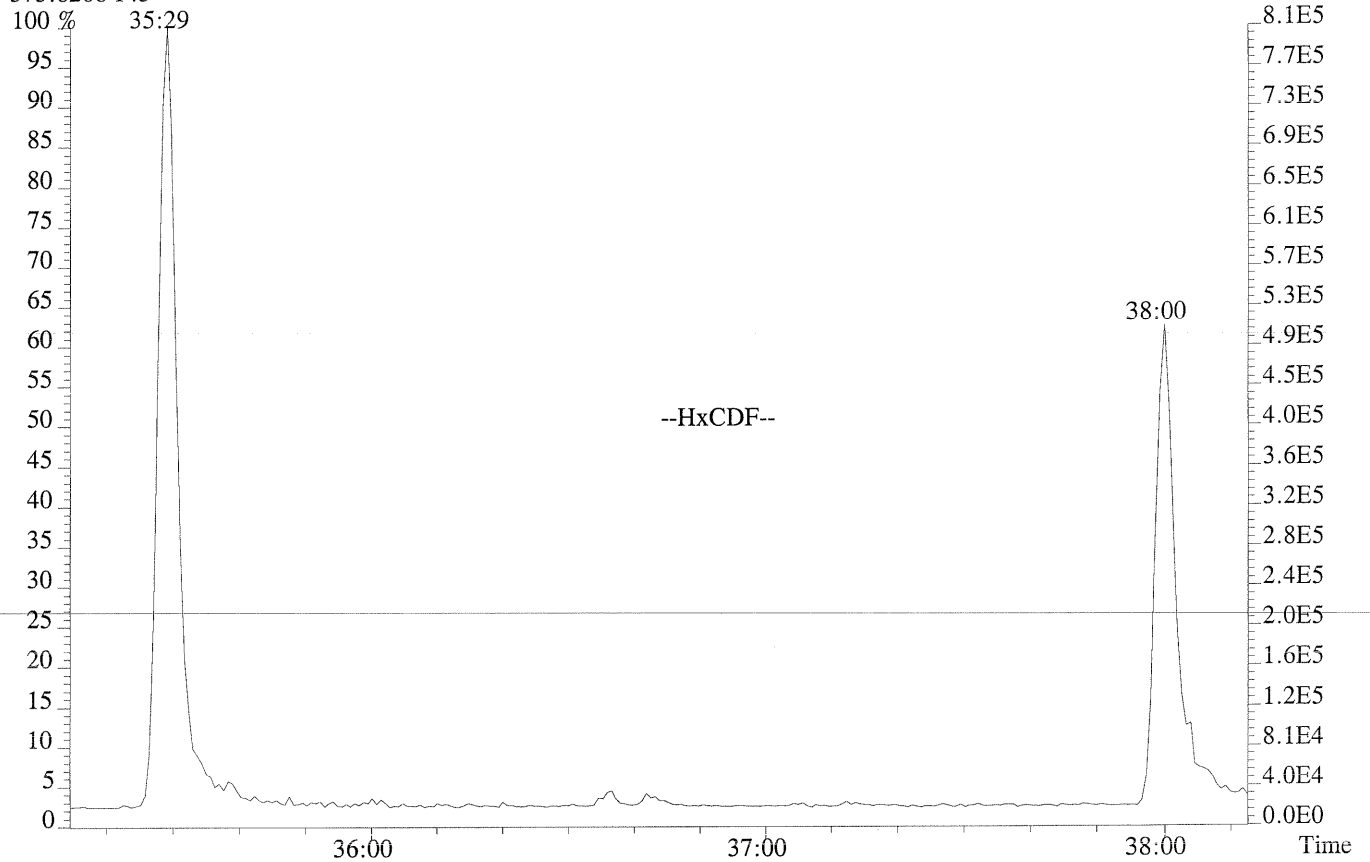


File:U150369 #1-627 Acq:14-AUG-2014 09:08:44 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
339.8597,339.8597 F:2

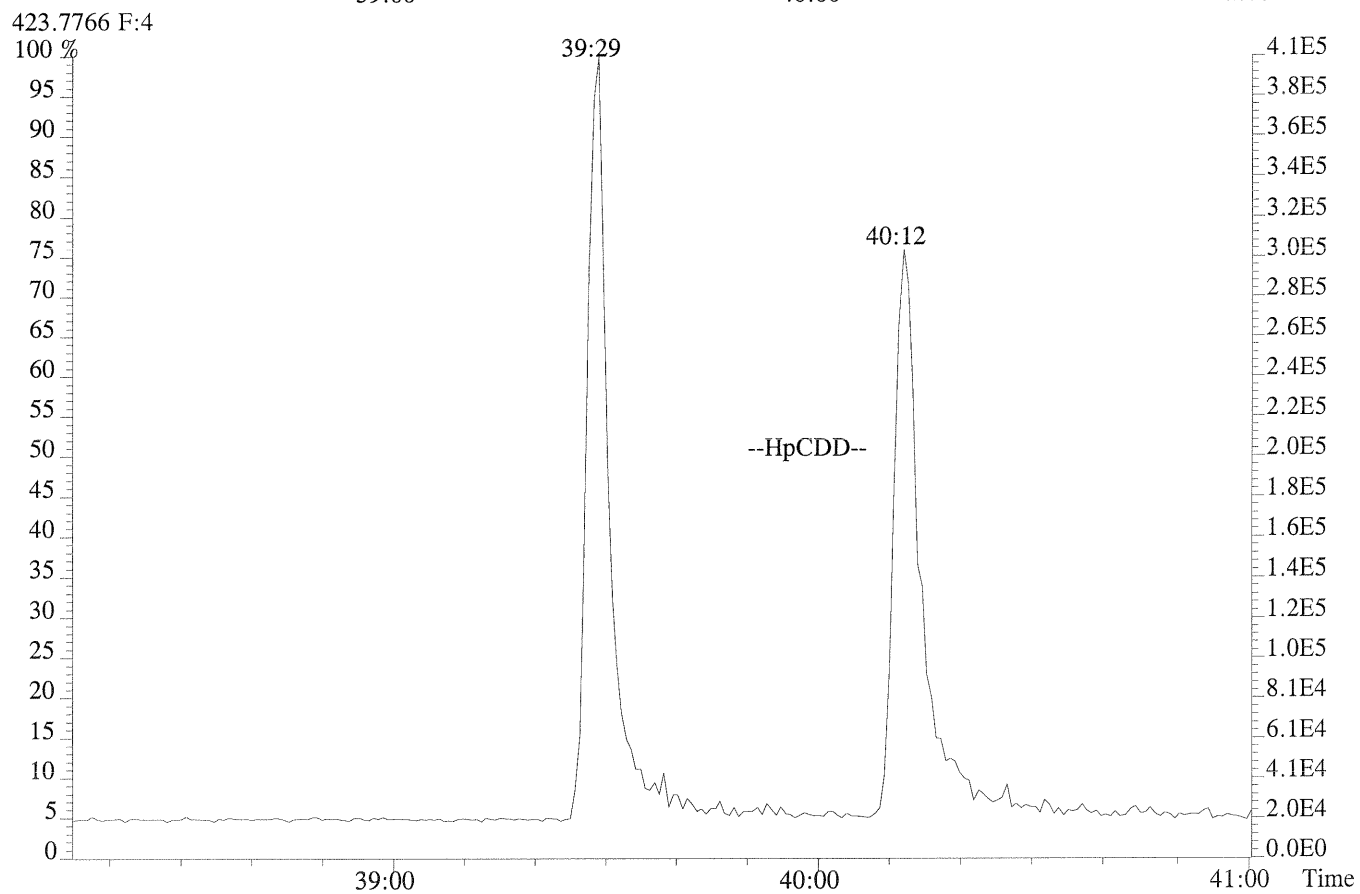
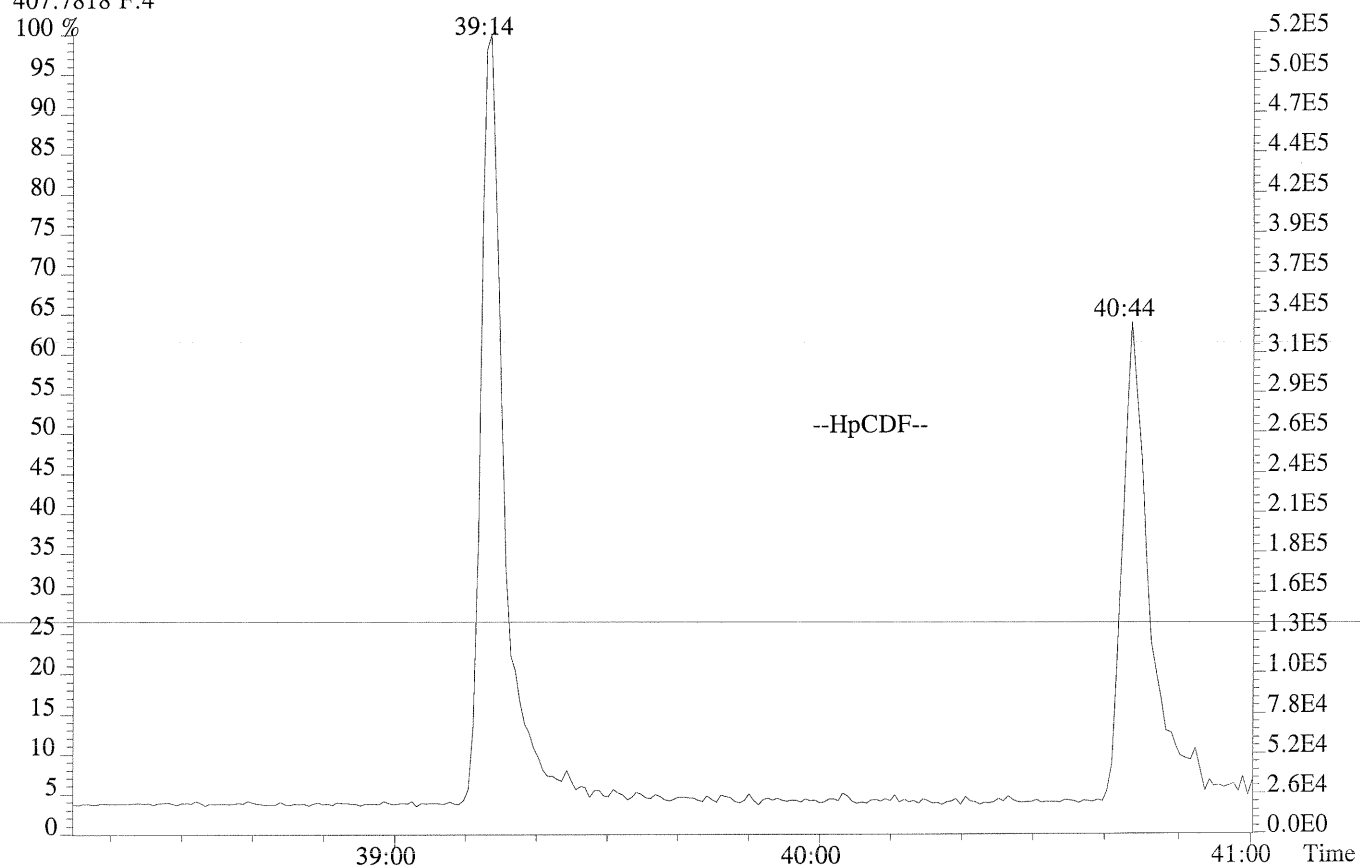




File:U150369 #1-270 Acq:14-AUG-2014 09:08:44 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
373.8208 F:3



File:U150369 #1-251 Acq:14-AUG-2014 09:08:44 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
407.7818 F:4



FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 07/31/14

Instrument ID: E-HRMS-01

GC Column ID: DB5-MSUI

VER Data Filename: U150368

Analysis Date: 14-AUG-14 Time: 08:18:34

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	0.77	0.65-0.89	0.98	0.97	0.63
1,2,3,7,8-PeCDD	M+2/M+4	1.64	1.32-1.78	1.03	1.12	-8.41
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.91	1.06	-13.28
1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	1.21	1.25	-2.98
1,2,3,7,8,9-HxCDD	M+2/M+4	1.29	1.05-1.43	1.20	1.25	-3.78
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	1.11	1.10	0.49
OCDD	M+2/M+4	0.85	0.76-1.02	1.35	1.33	1.46
2,3,7,8-TCDF	M/M+2	0.73	0.65-0.89	1.08	1.06	2.09
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	1.08	1.02	5.64
2,3,4,7,8-PeCDF	M+2/M+4	1.50	1.32-1.78	1.03	0.99	4.36
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	0.96	0.97	-1.07
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	1.22	1.15	6.14
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	0.79	0.81	-2.63
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.03	1.03	0.23
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	1.46	1.36	6.79
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.07	0.88-1.20	0.96	0.96	0.05
OCDF	M+2/M+4	0.88	0.76-1.02	1.50	1.47	2.19

(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: 07/31/14

Instrument ID: E-HRMS-01

GC Column ID: DB5-MSUI

VER Data Filename: U150368

Analysis Date: 14-AUG-14 Time: 08:18:34

	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	0.75	0.65-0.89	0.94	0.98	-4.53
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	1.19	1.07	11.09
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.98	0.97	0.39
<del>13C-1,2,3,4,6,7,8-HpCDD</del>	<del>M+2/M+4</del>	<del>1.17</del>	<del>0.88-1.20</del>	<del>0.77</del>	<del>0.85</del>	<del>-9.22</del>
13C-OCDD	M+2/M+4	0.89	0.76-1.02	0.50	0.50	-0.80
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	1.34	1.41	-4.60
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	1.85	1.87	-1.01
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.43	1.51	-5.48
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	0.95	1.01	-5.75
Surrogate Standards						
37Cl-2,3,7,8-TCDD				1.06	0.97	8.81
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	1.02	1.01	1.27
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.75	0.80	-5.77
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	0.74	0.78	-5.55
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	0.74	0.73	1.92
Alternate Standard						
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	0.94	1.04	-9.59

(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

Sample Response Summary

Run #7 Filename U150368 #1 Samp: 1 Inj: 1 Acquired: 14-AUG-14 08:18:34  
 Processed: 15-AUG-14 10:10:12 LAB. ID: CCAL HRCC3/CS3

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:04	7.403e+02	1.017e+03	0.73	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:04	7.337e+03	4.777e+03	1.54	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:59	6.962e+03	4.631e+03	1.50	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:36	5.409e+03	4.360e+03	1.24	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:42	6.960e+03	5.507e+03	1.26	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:12	5.815e+03	4.733e+03	1.23	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:58	4.530e+03	3.558e+03	1.27	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:13	4.941e+03	4.940e+03	1.00	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:43	3.359e+03	3.146e+03	1.07	yes	no	0.959
10 Unk	OCDF	43:24	4.988e+03	5.670e+03	0.88	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:48	4.837e+02	6.272e+02	0.77	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:14	4.619e+03	2.817e+03	1.64	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:19	3.554e+03	2.850e+03	1.25	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:25	4.792e+03	3.699e+03	1.30	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:39	4.754e+03	3.674e+03	1.29	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:12	3.166e+03	2.908e+03	1.09	yes	no	1.102
17 Unk	OCDD	43:11	4.415e+03	5.177e+03	0.85	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:03	7.305e+03	8.980e+03	0.81	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:04	1.384e+04	8.641e+03	1.60	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:57	1.412e+04	8.869e+03	1.59	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:35	5.173e+03	9.920e+03	0.52	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:42	6.965e+03	1.347e+04	0.52	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:58	4.616e+03	8.848e+03	0.52	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:12	4.125e+03	9.439e+03	0.44	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:43	3.167e+03	6.888e+03	0.46	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:46	4.862e+03	6.497e+03	0.75	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:13	8.909e+03	5.590e+03	1.59	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:19	5.806e+03	4.682e+03	1.24	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:24	7.754e+03	6.245e+03	1.24	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:11	5.929e+03	5.047e+03	1.17	yes	no	0.845
32 IS	13C-OCDD	43:09	6.718e+03	7.511e+03	0.89	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:12	5.276e+03	6.869e+03	0.77	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:39	7.984e+03	6.325e+03	1.26	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:48	1.205e+03				no	0.975

$$\text{OCDD} = \frac{(4.415e+03 + 5.177e+03) \times (200.0)}{(6.718e+03 + 7.511e+03)} \times 1.329 \times 1.000 = \text{pg}$$

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
61247

Method M23

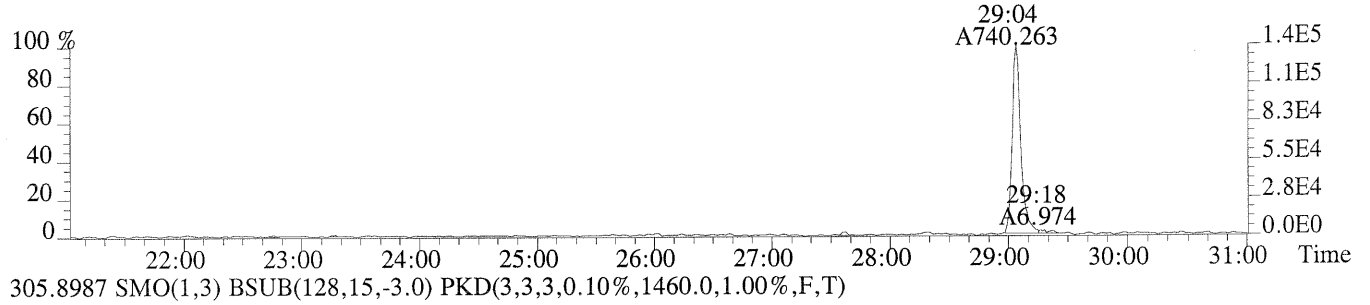
Run #7 Filename U150368 #1 Samp: 1 Inj: 1 Acquired: 14-AUG-14 08:18:34  
Processed: 15-AUG-14 10:10:12 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.36e+05	1.08e+03	1.3e+02	1.82e+05	1.46e+03	1.2e+02
2	1,2,3,7,8-PeCDF	1.14e+06	1.34e+03	8.5e+02	7.29e+05	1.40e+03	5.2e+02
3	2,3,4,7,8-PeCDF	1.14e+06	1.34e+03	8.5e+02	7.24e+05	1.40e+03	5.2e+02
4	1,2,3,4,7,8-HxCDF	1.03e+06	2.14e+03	4.8e+02	8.42e+05	3.11e+03	2.7e+02
5	1,2,3,6,7,8-HxCDF	1.10e+06	2.14e+03	5.1e+02	8.80e+05	3.11e+03	2.8e+02
6	2,3,4,6,7,8-HxCDF	1.02e+06	2.14e+03	4.7e+02	8.30e+05	3.11e+03	2.7e+02
7	1,2,3,7,8,9-HxCDF	7.06e+05	2.14e+03	3.3e+02	5.75e+05	3.11e+03	1.9e+02
8	1,2,3,4,6,7,8-HpCDF	7.84e+05	6.69e+03	1.2e+02	8.24e+05	9.75e+03	8.4e+01
9	1,2,3,4,7,8,9-HpCDF	4.69e+05	6.69e+03	7.0e+01	4.57e+05	9.75e+03	4.7e+01
10	OCDF	6.18e+05	1.55e+03	4.0e+02	6.93e+05	1.61e+03	4.3e+02
11	2,3,7,8-TCDD	9.16e+04	1.35e+03	6.8e+01	1.22e+05	9.08e+02	1.3e+02
12	1,2,3,7,8-PeCDD	7.20e+05	1.77e+03	4.1e+02	4.49e+05	1.14e+03	4.0e+02
13	1,2,3,4,7,8-HxCDD	7.24e+05	3.01e+03	2.4e+02	5.82e+05	2.27e+03	2.6e+02
14	1,2,3,6,7,8-HxCDD	7.55e+05	3.01e+03	2.5e+02	6.00e+05	2.27e+03	2.6e+02
15	1,2,3,7,8,9-HxCDD	7.12e+05	3.01e+03	2.4e+02	5.57e+05	2.27e+03	2.5e+02
16	1,2,3,4,6,7,8-HpCDD	4.83e+05	5.86e+03	8.2e+01	4.52e+05	4.91e+03	9.2e+01
17	OCDD	5.66e+05	1.01e+03	5.6e+02	6.50e+05	8.72e+02	7.5e+02
18	13C-2,3,7,8-TCDF	1.27e+06	1.22e+03	1.0e+03	1.55e+06	9.88e+02	1.6e+03
19	13C-1,2,3,7,8-PeCDF	2.15e+06	1.31e+03	1.6e+03	1.34e+06	1.14e+03	1.2e+03
20	13C-2,3,4,7,8-PeCDF	2.27e+06	1.31e+03	1.7e+03	1.44e+06	1.14e+03	1.3e+03
21	13C-1,2,3,4,7,8-HxCDF	1.01e+06	1.65e+03	6.1e+02	1.90e+06	2.83e+03	6.7e+02
22	13C-1,2,3,6,7,8-HxCDF	1.14e+06	1.65e+03	6.9e+02	2.19e+06	2.83e+03	7.7e+02
24	13C-1,2,3,7,8,9-HxCDF	7.32e+05	1.65e+03	4.4e+02	1.37e+06	2.83e+03	4.8e+02
25	13C-1,2,3,4,6,7,8-HpCDF	6.77e+05	2.78e+03	2.4e+02	1.54e+06	1.09e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.40e+05	2.78e+03	1.6e+02	9.67e+05	1.09e+03	8.9e+02
27	13C-2,3,7,8-TCDD	8.77e+05	2.19e+03	4.0e+02	1.16e+06	1.22e+03	9.6e+02
28	13C-1,2,3,7,8-PeCDD	1.40e+06	1.38e+03	1.0e+03	8.77e+05	1.33e+03	6.6e+02
29	13C-1,2,3,4,7,8-HxCDD	1.22e+06	3.96e+03	3.1e+02	9.58e+05	2.87e+03	3.3e+02
30	13C-1,2,3,6,7,8-HxCDD	1.24e+06	3.96e+03	3.1e+02	9.85e+05	2.87e+03	3.4e+02
31	13C-1,2,3,4,6,7,8-HpCDD	8.66e+05	1.62e+03	5.3e+02	7.70e+05	1.18e+03	6.5e+02
32	13C-OCDD	8.13e+05	1.21e+03	6.7e+02	9.13e+05	9.28e+02	9.8e+02
33	13C-1,2,3,4-TCDD	1.05e+06	2.19e+03	4.8e+02	1.38e+06	1.22e+03	1.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.19e+06	3.96e+03	3.0e+02	9.16e+05	2.87e+03	3.2e+02
35	37Cl-2,3,7,8-TCDD	2.20e+05	8.28e+02	2.7e+02			

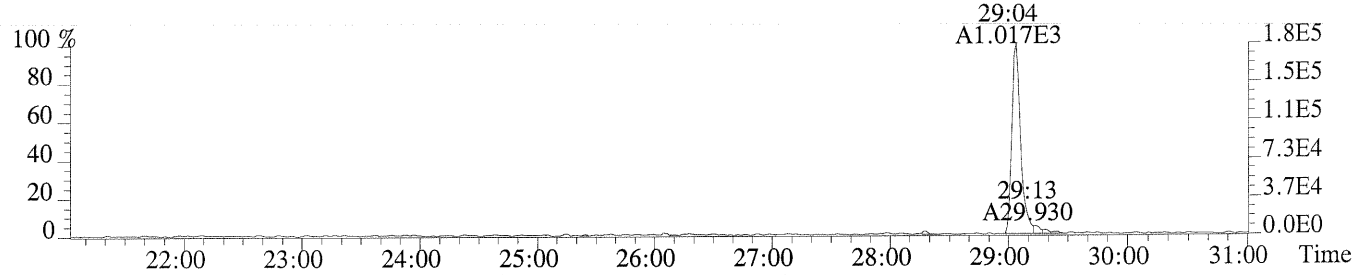
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

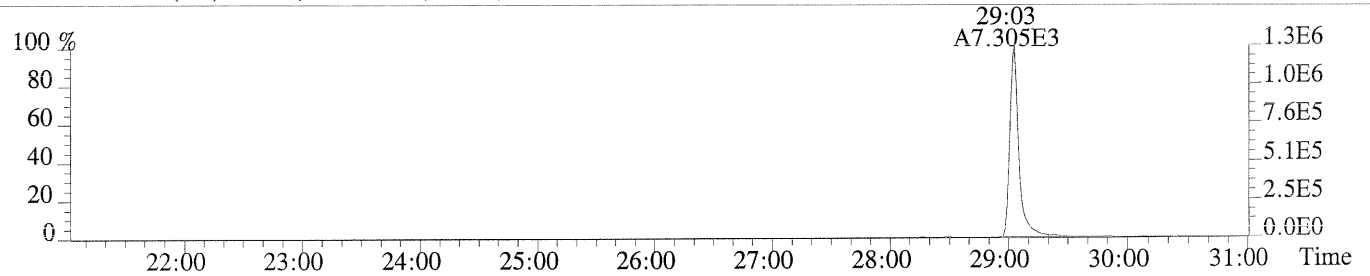
File:U150368 #1-627 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



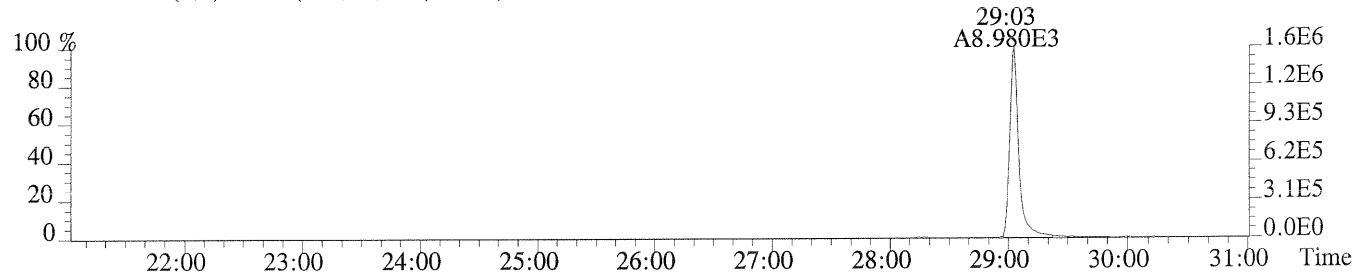
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



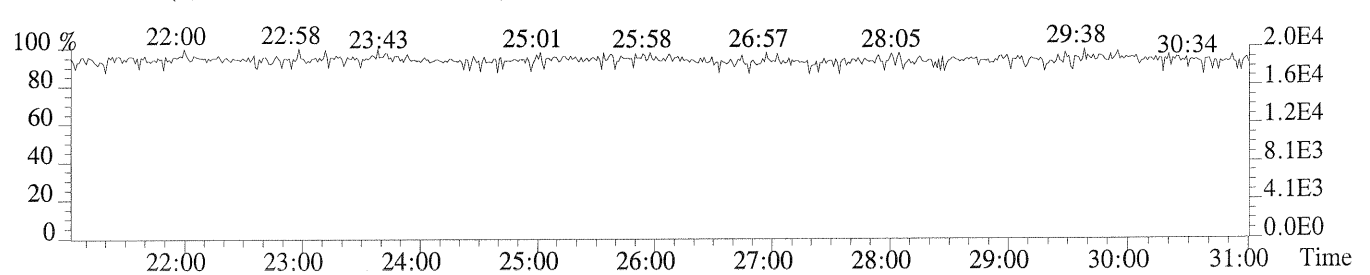
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



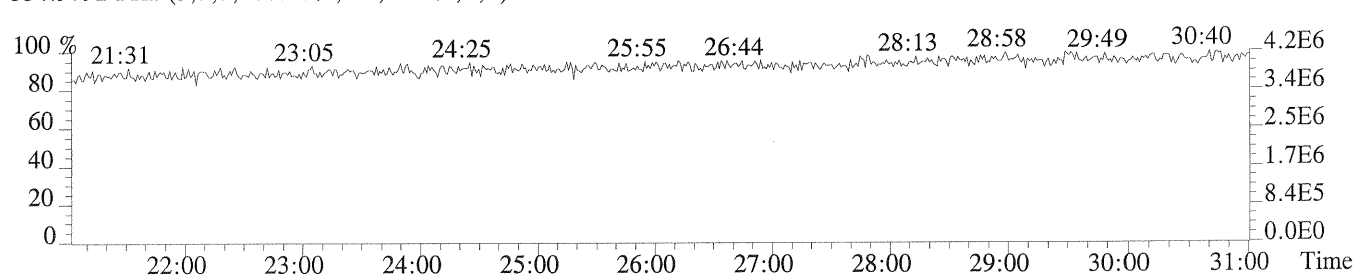
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)

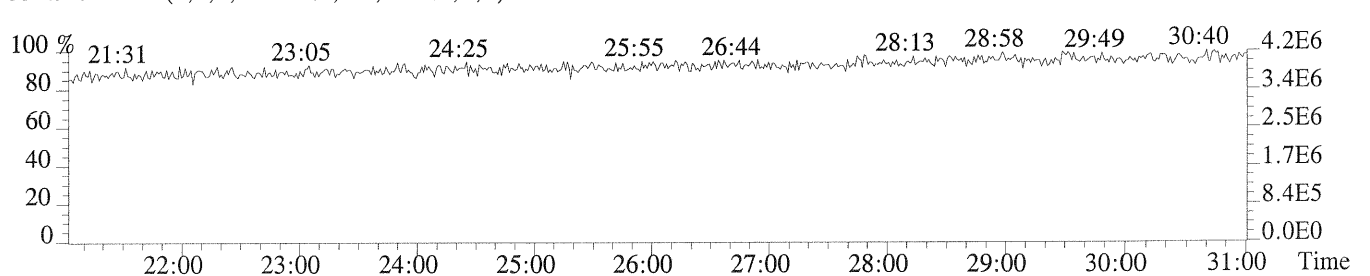
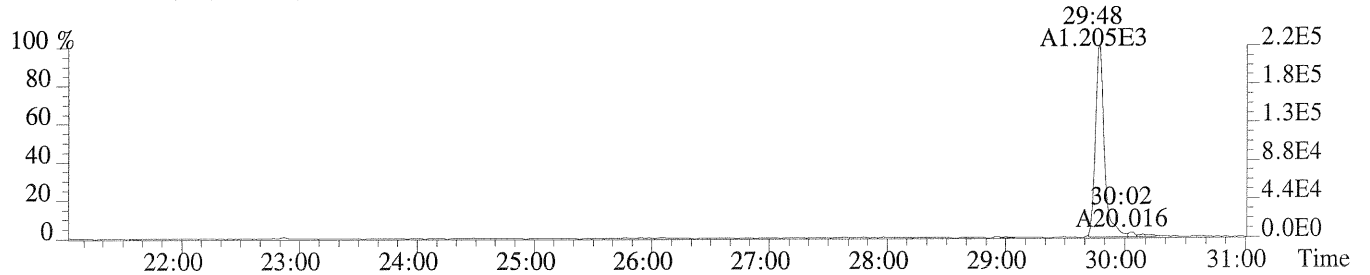
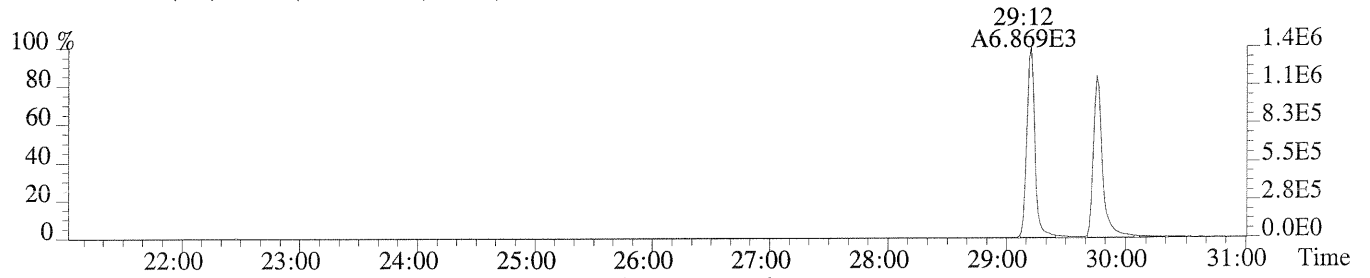
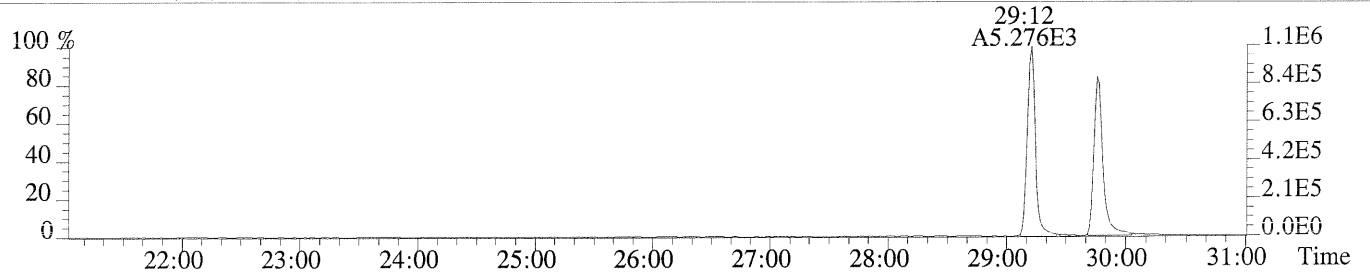
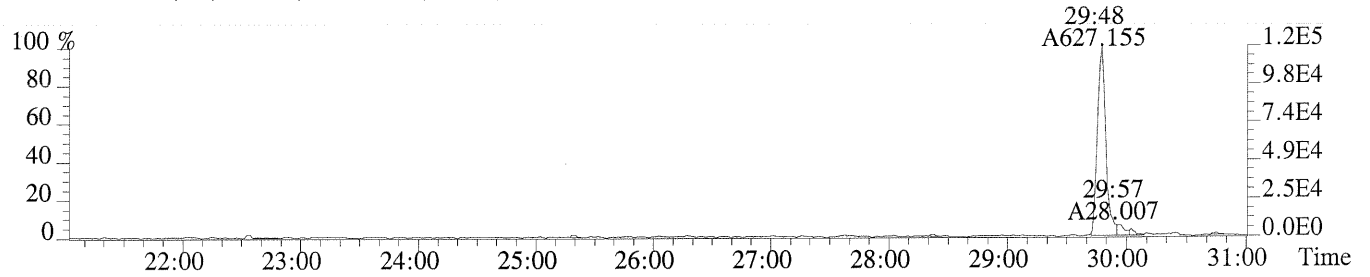
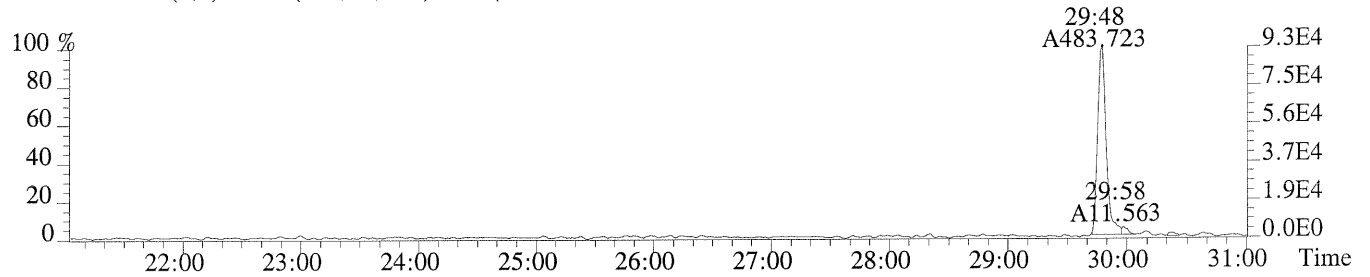


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



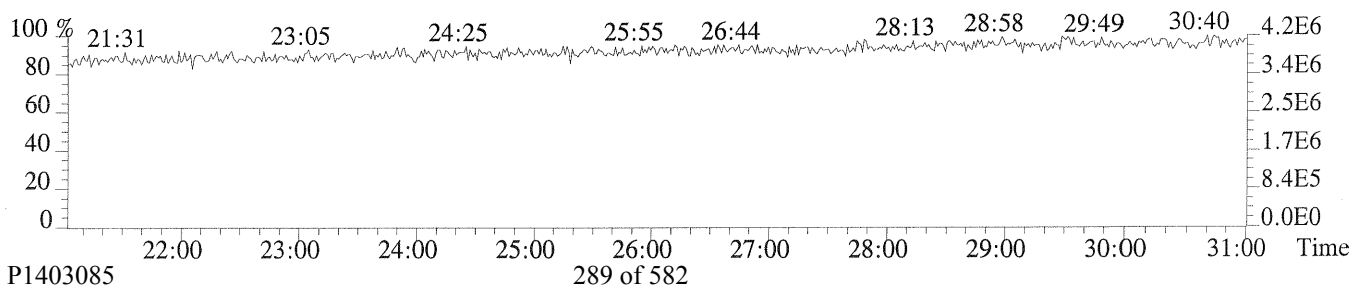
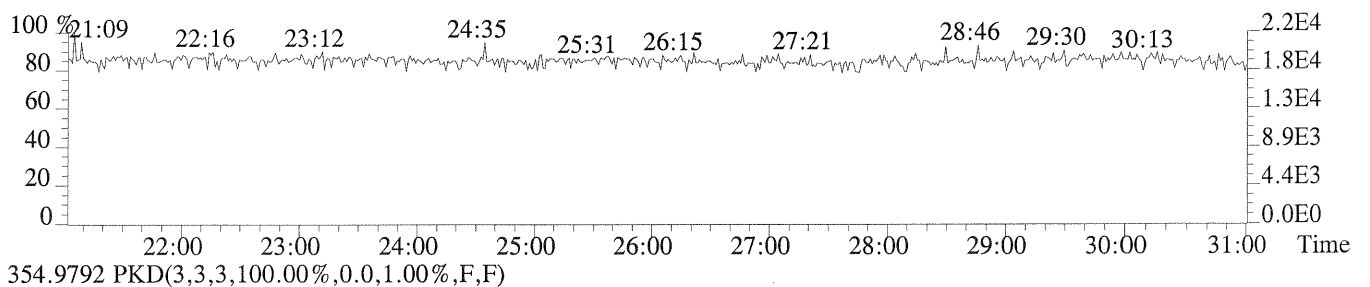
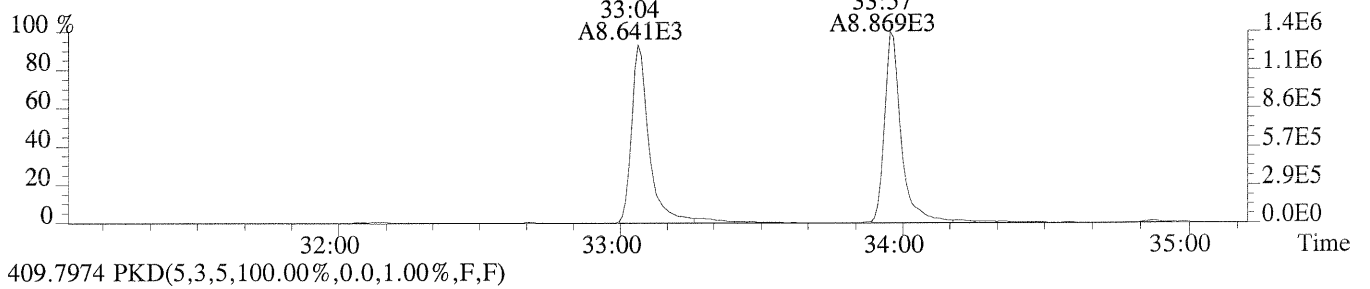
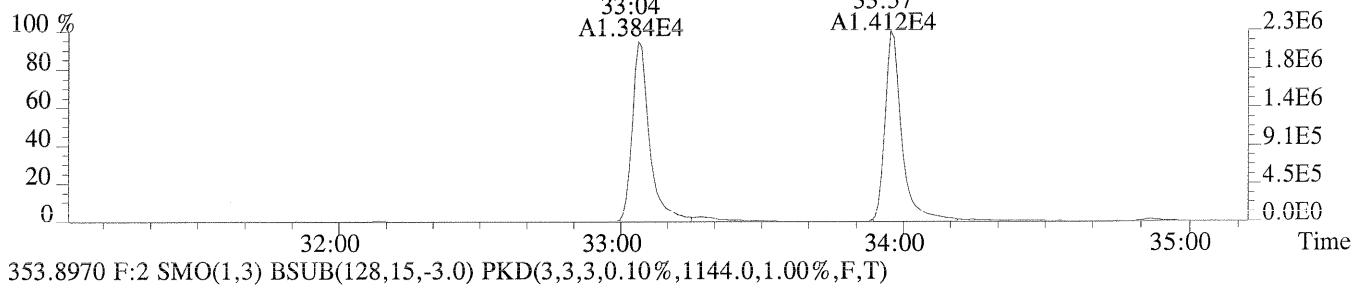
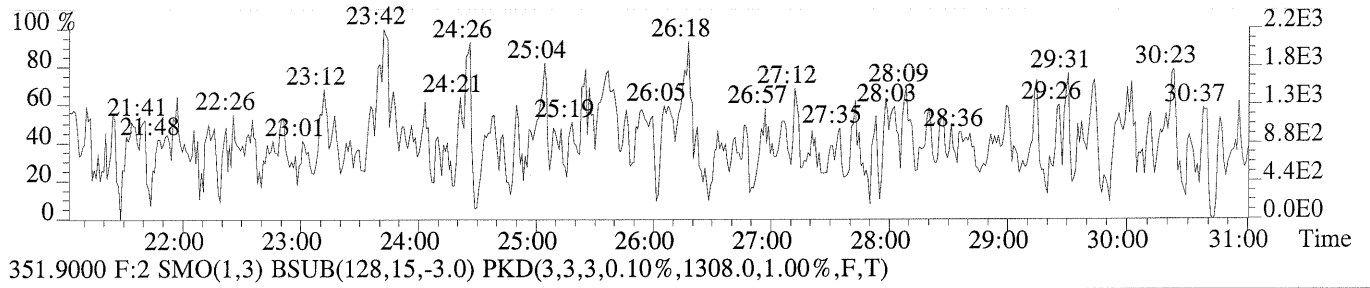
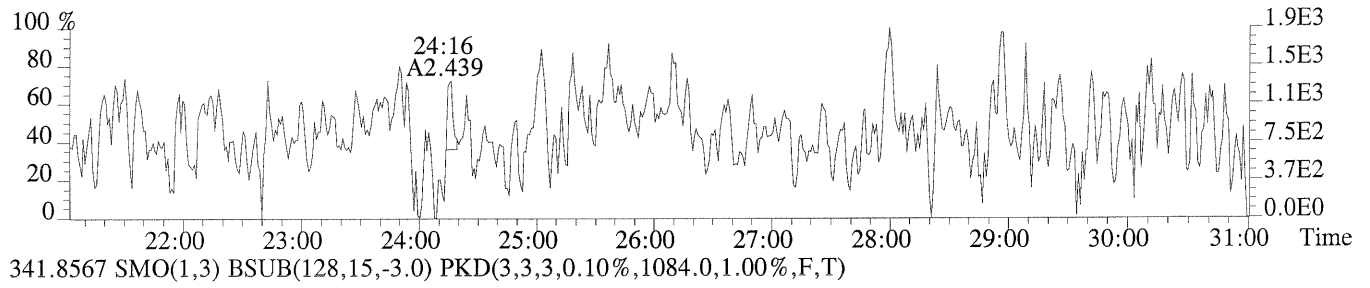
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



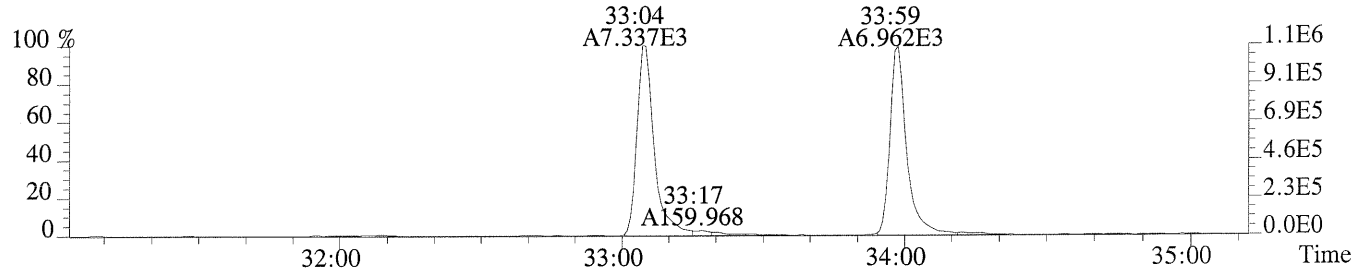




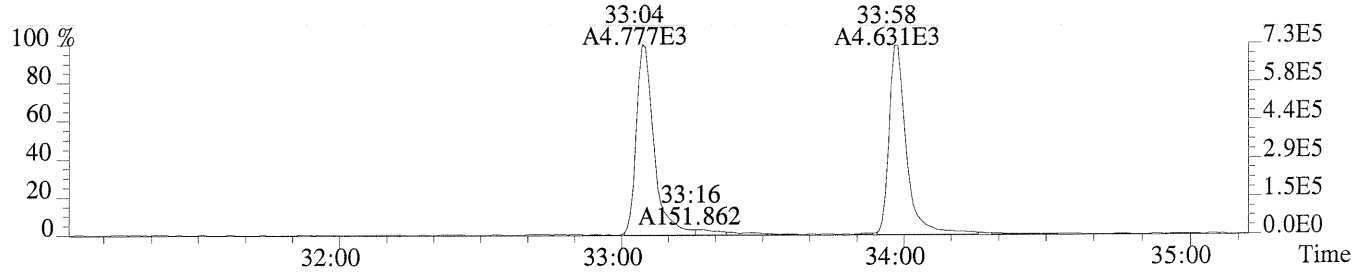
File:U150368 #1-627 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



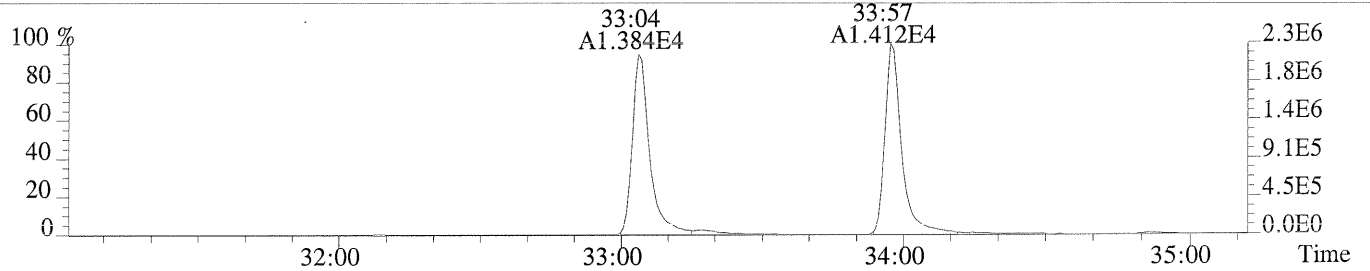
File:U150368 #1-378 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



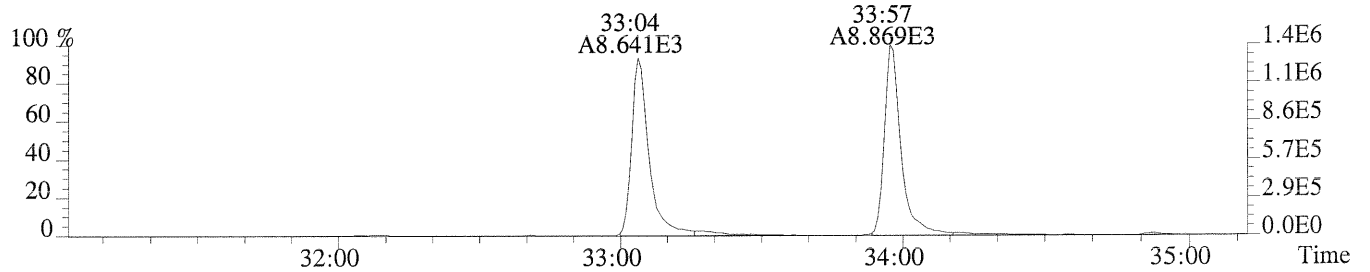
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



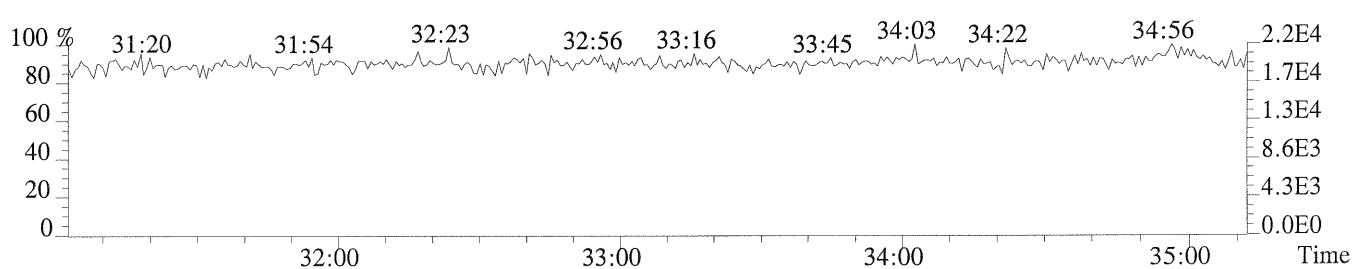
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



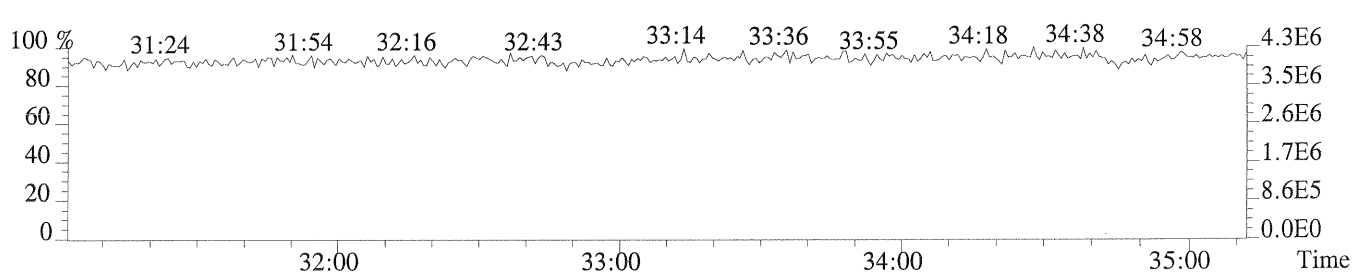
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



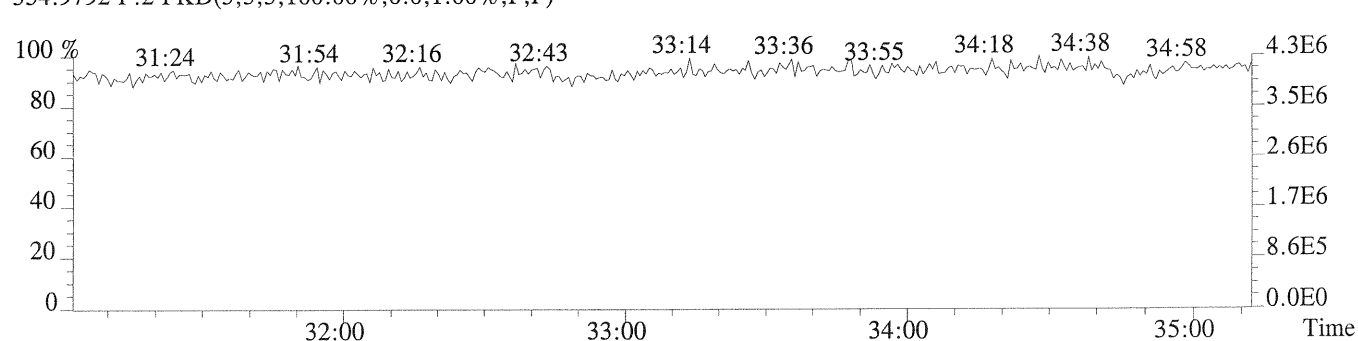
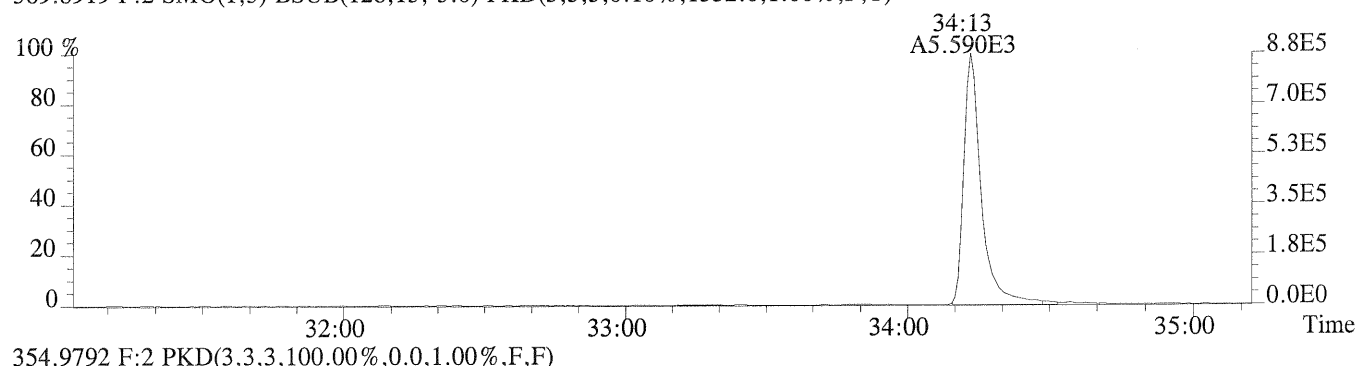
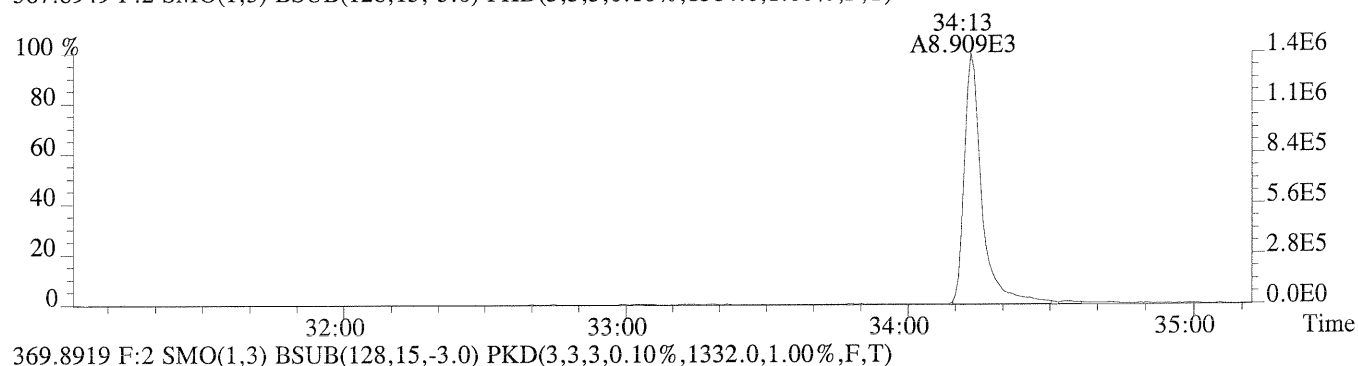
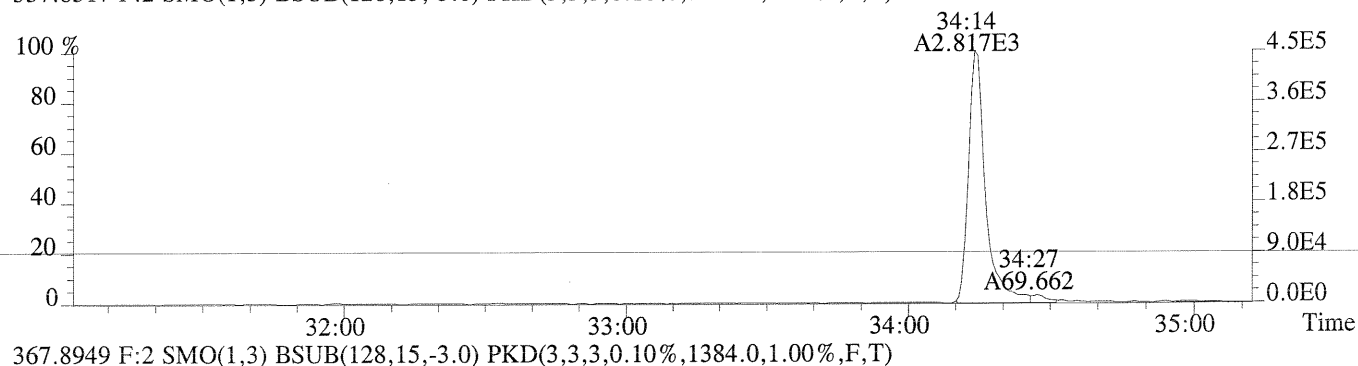
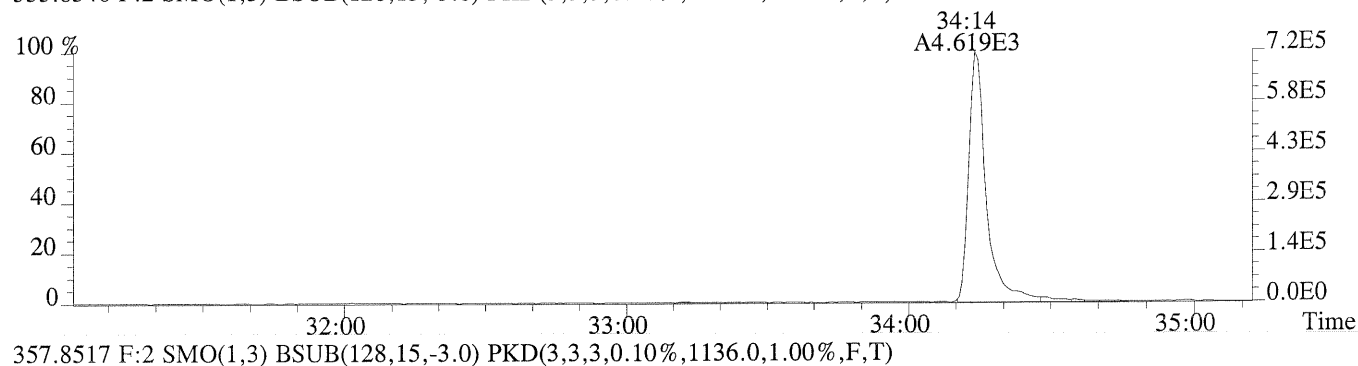
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



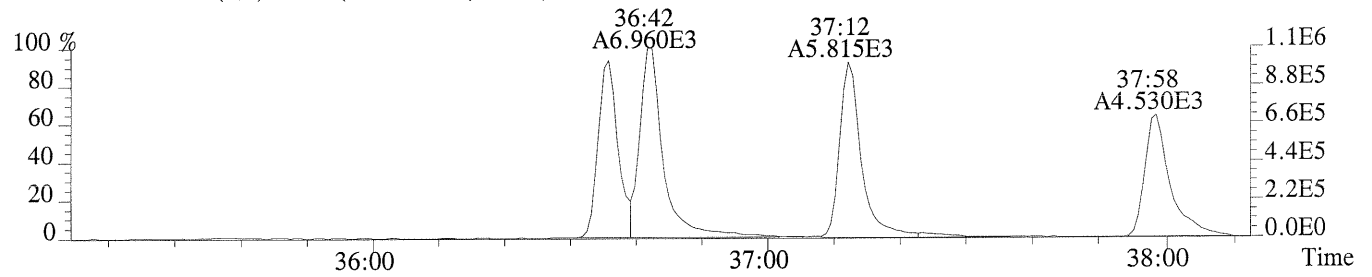
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



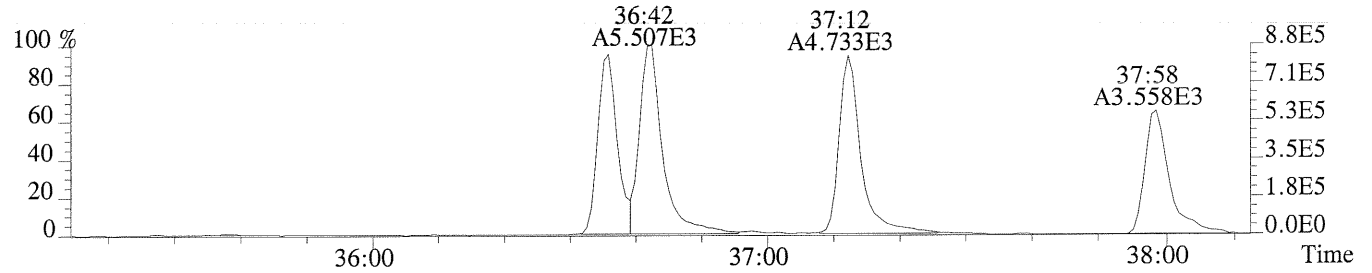
File:U150368 #1-378 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



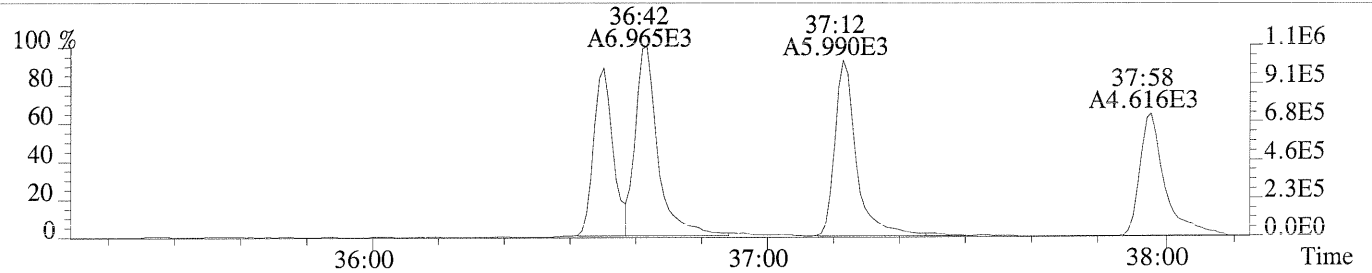
File:U150368 #1-270 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2144.0,0.40%,F,T)



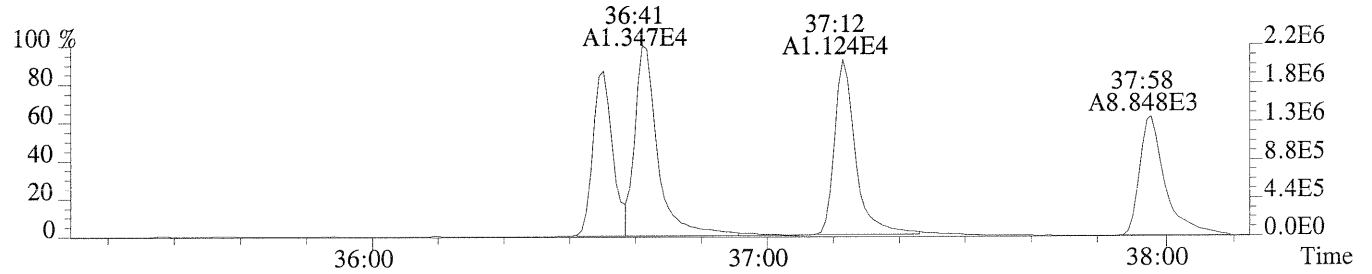
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3108.0,0.40%,F,T)



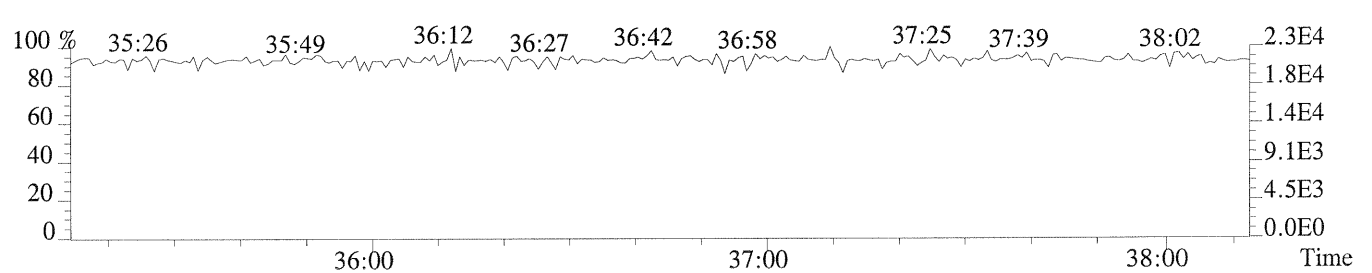
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1648.0,0.40%,F,T)



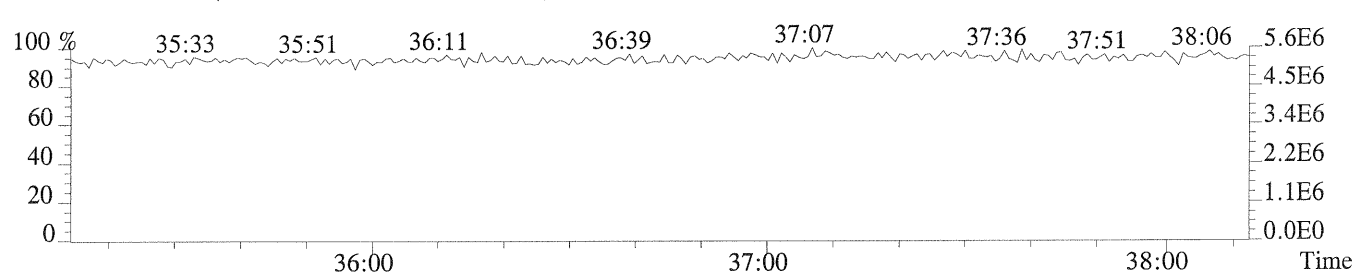
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2828.0,0.40%,F,T)



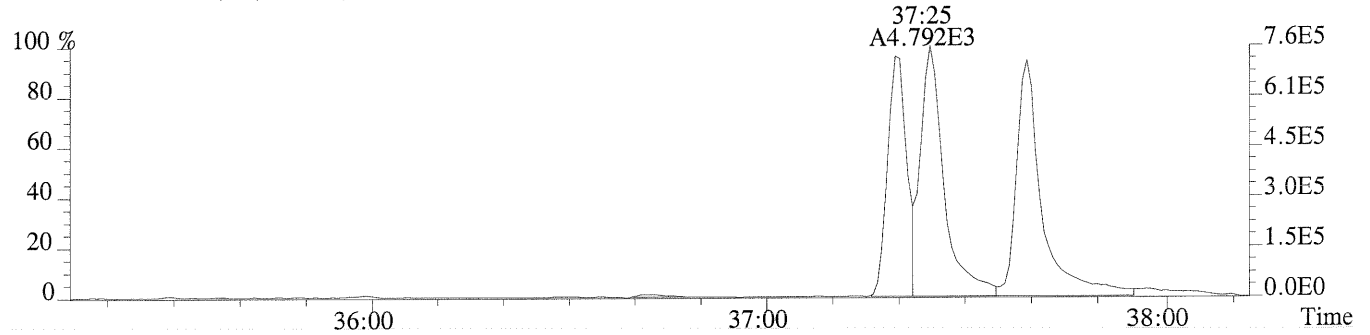
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



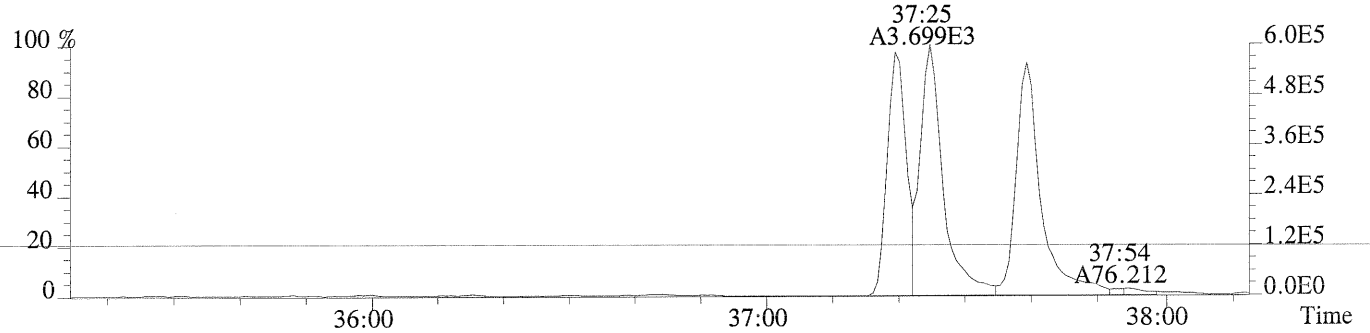
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



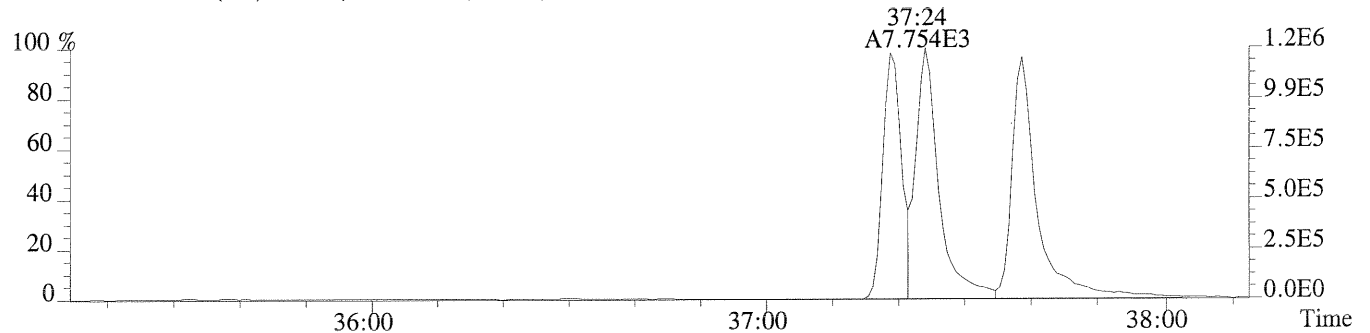
File:U150368 #1-270 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.40%,F,T)



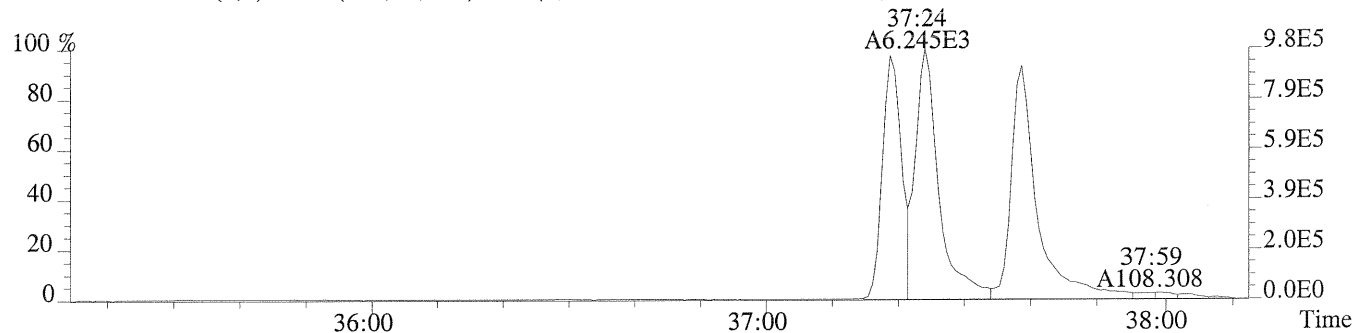
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2268.0,0.40%,F,T)



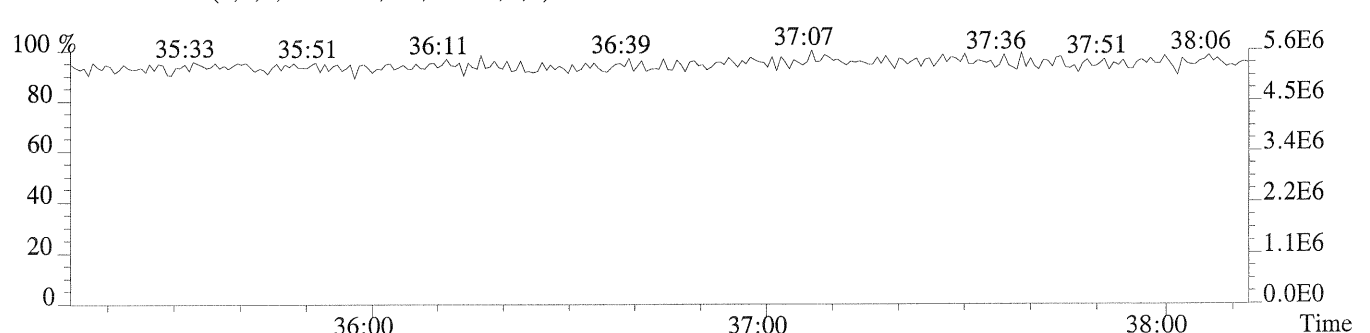
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3956.0,0.40%,F,T)



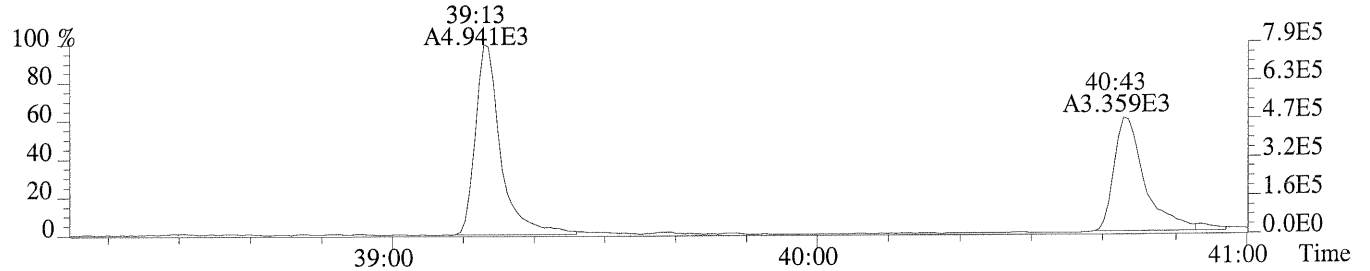
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2868.0,0.40%,F,T)



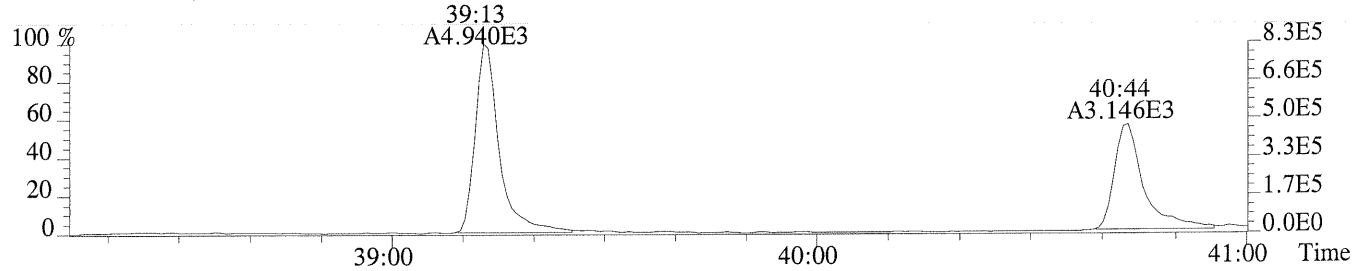
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



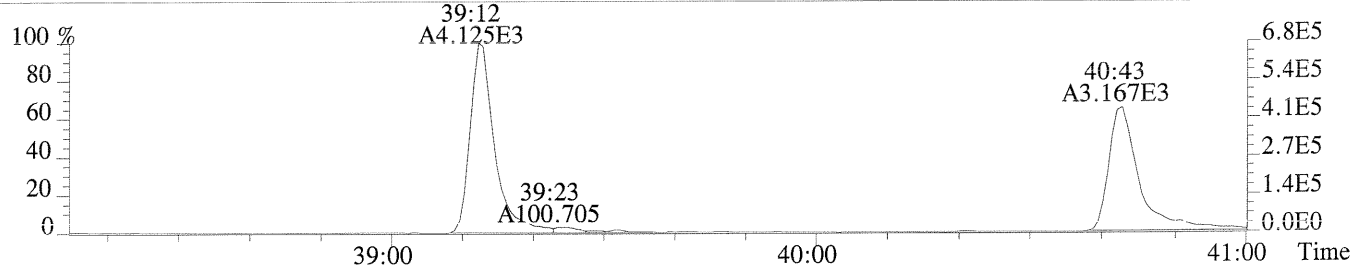
File:U150368 #1-251 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6692.0,0.50%,F,T)



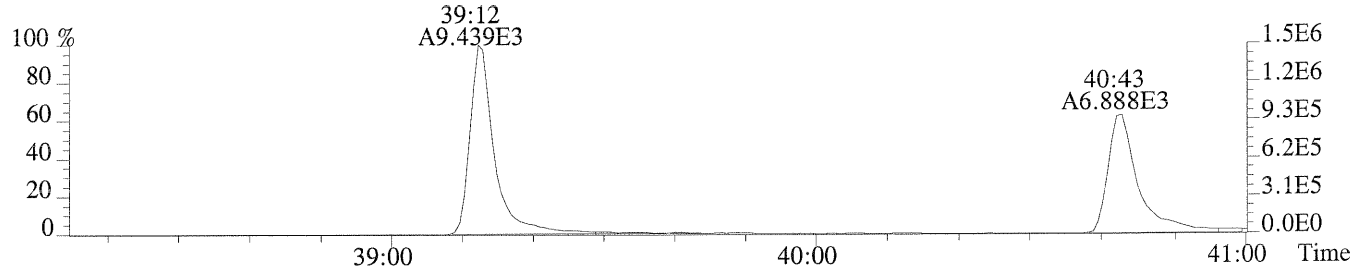
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9748.0,0.50%,F,T)



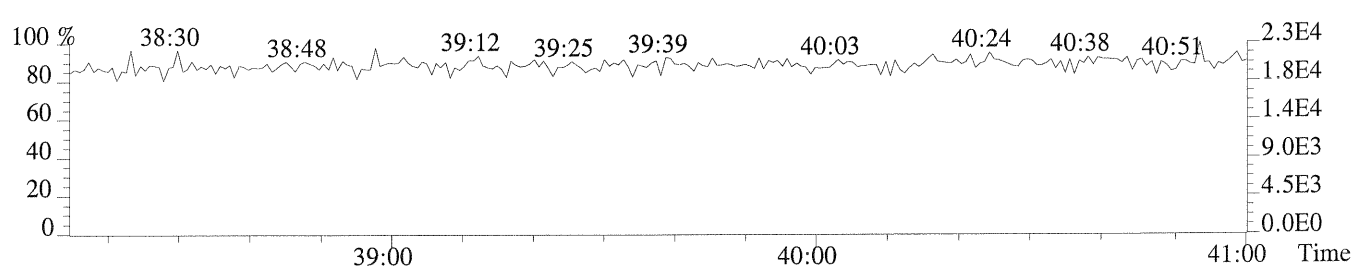
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2784.0,0.50%,F,T)



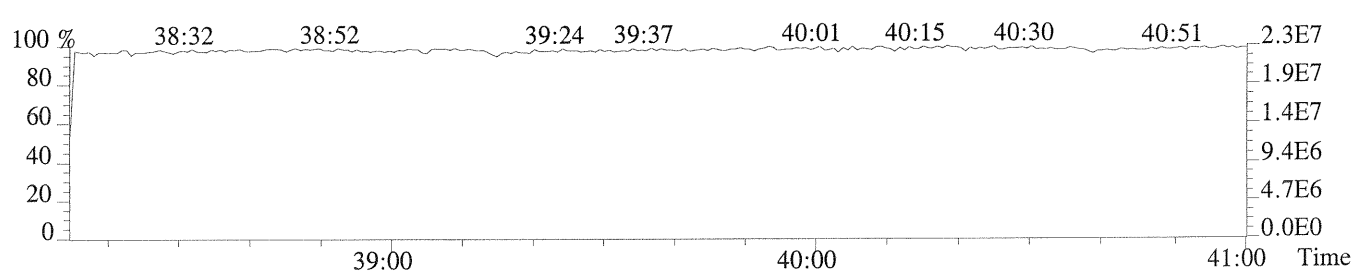
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.50%,F,T)



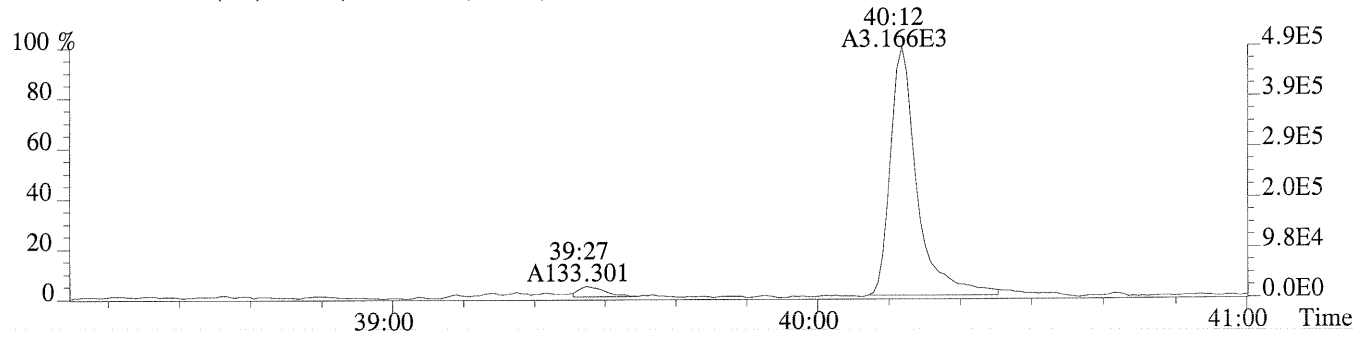
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



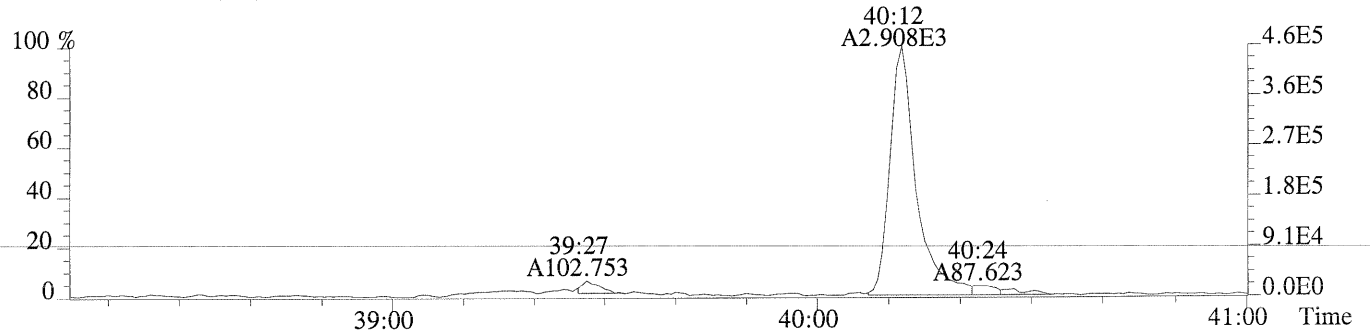
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



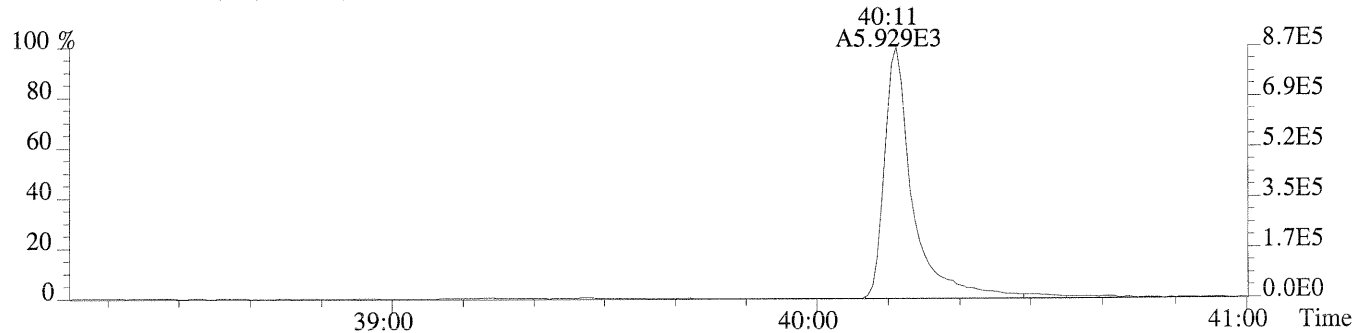
File:U150368 #1-251 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5860.0,0.40%,F,T)



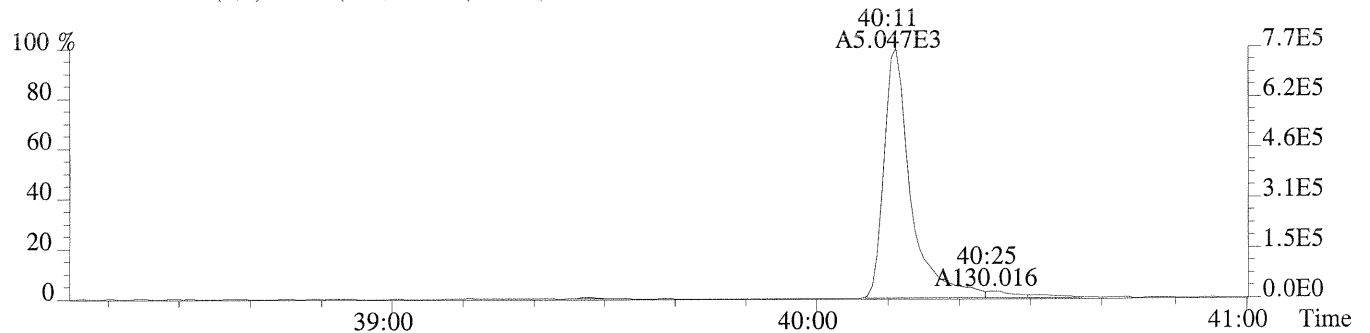
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4912.0,0.40%,F,T)



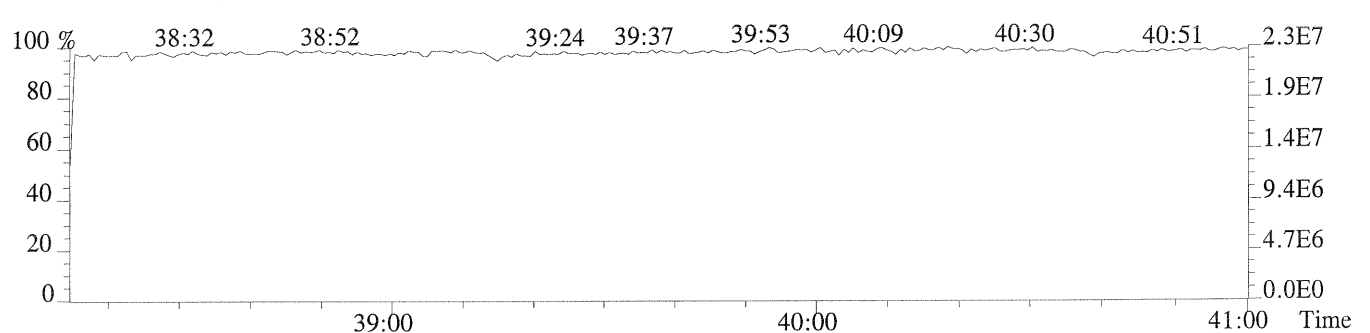
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.40%,F,T)



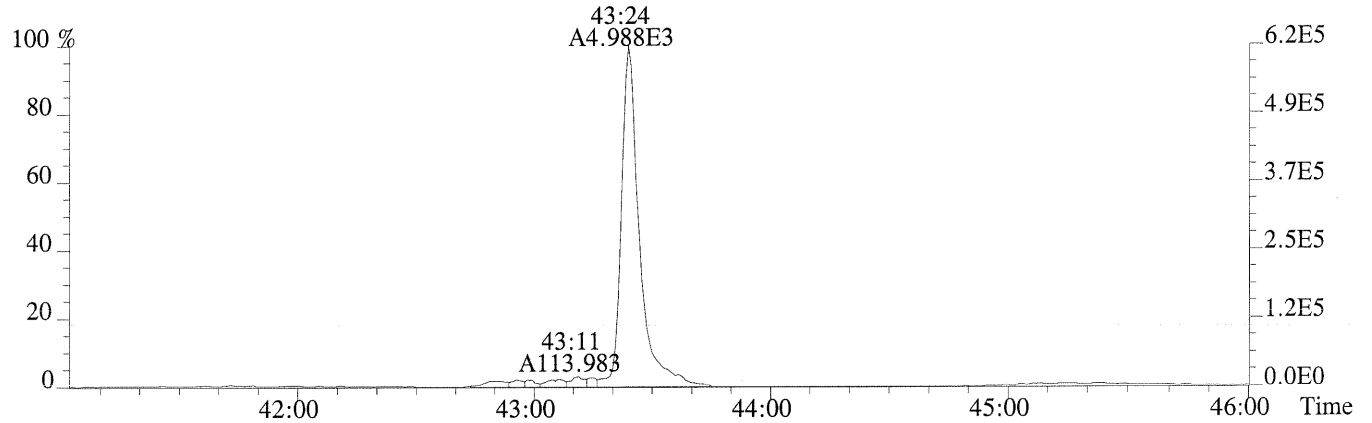
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



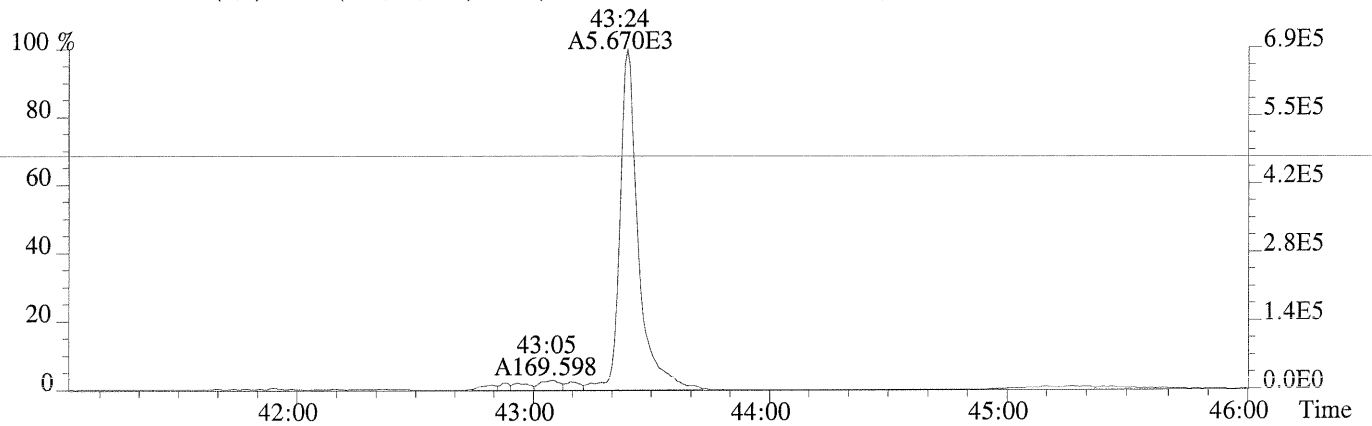
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



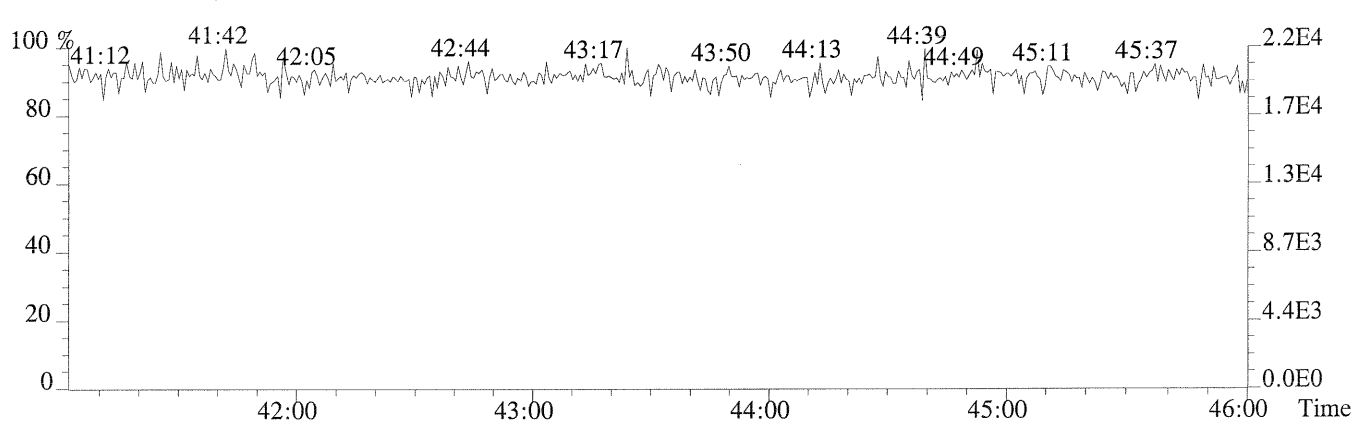
File:U150368 #1-451 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1548.0,0.40%,F,T)



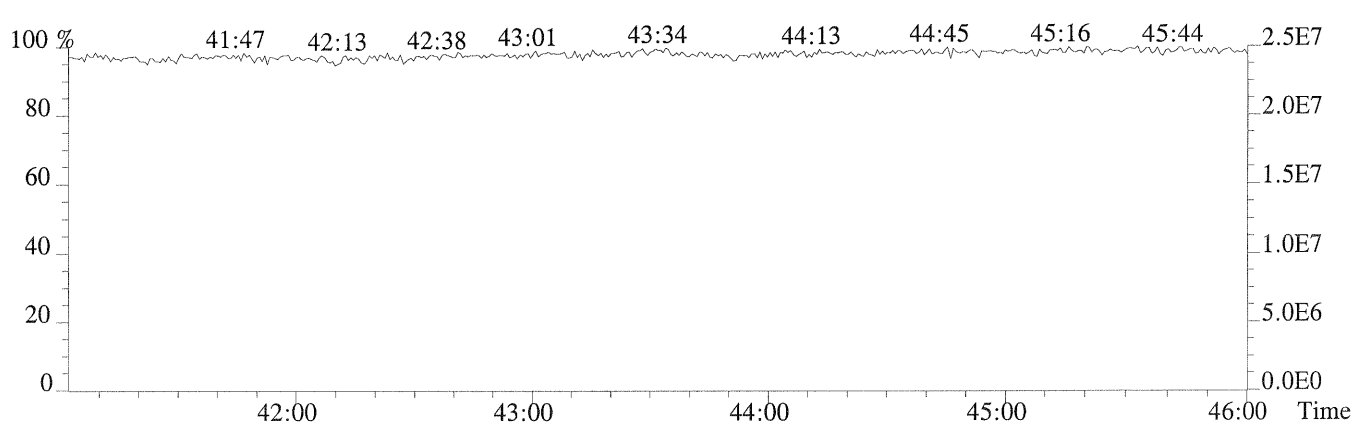
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1608.0,0.40%,F,T)



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

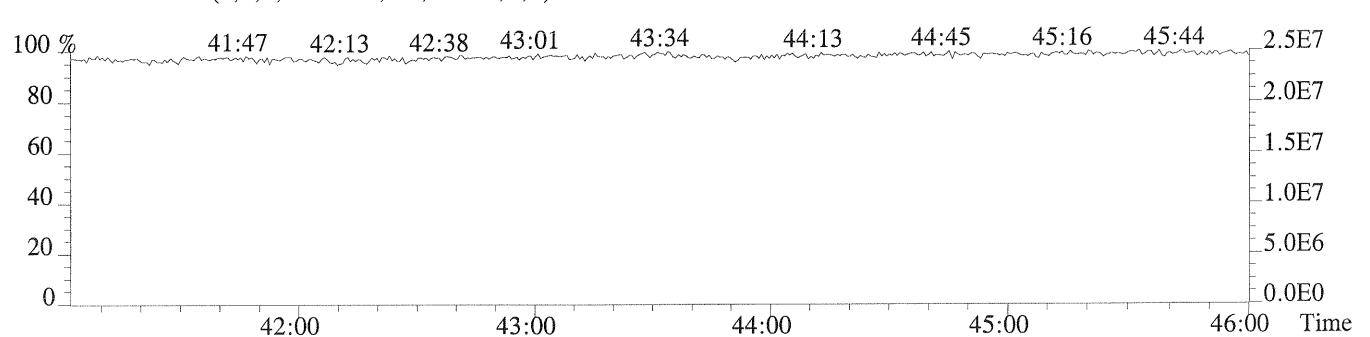
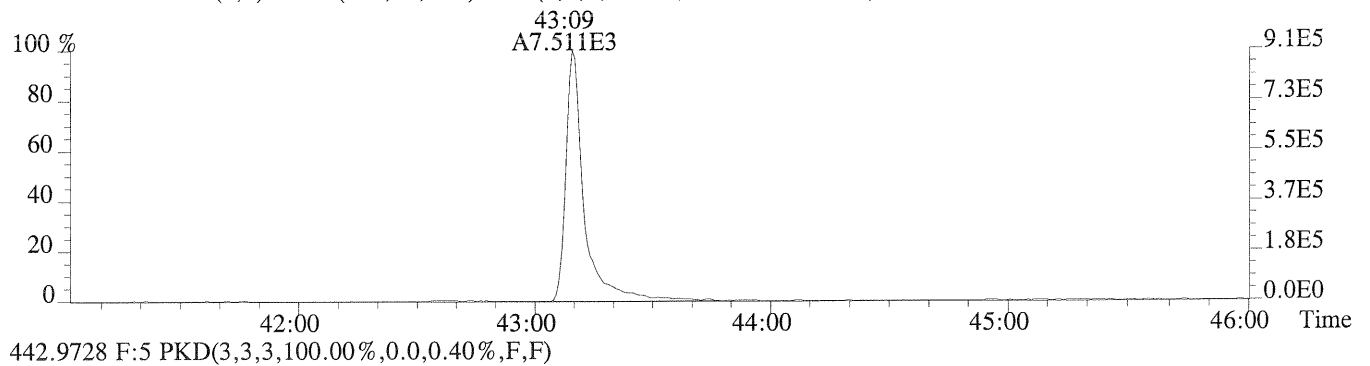
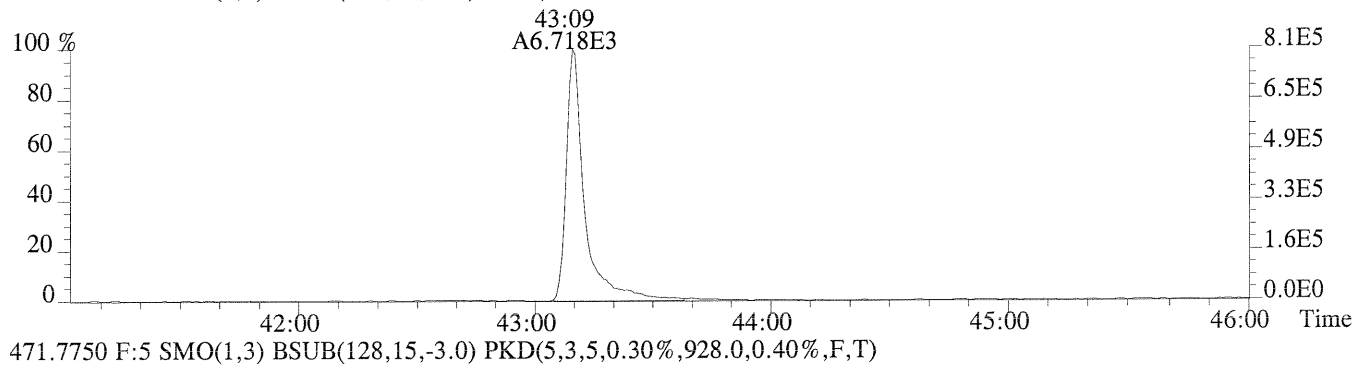
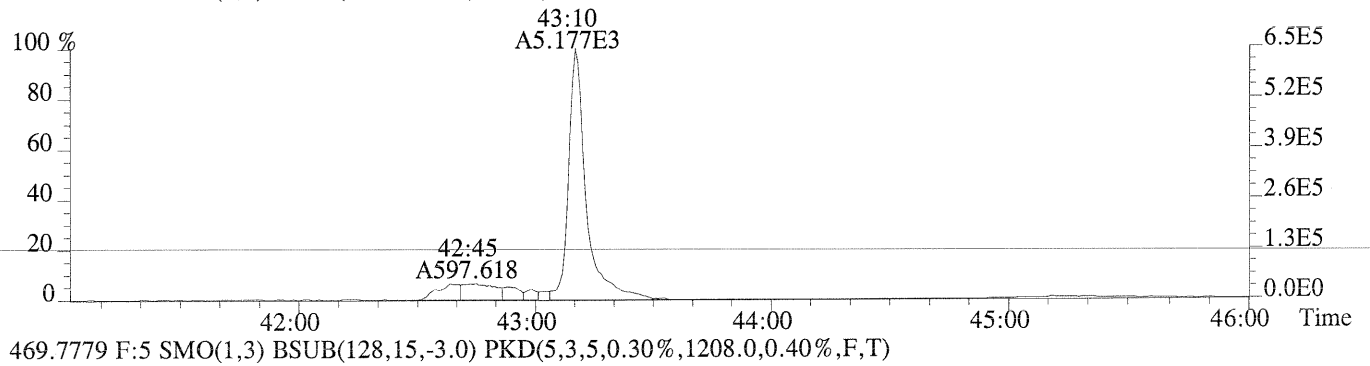
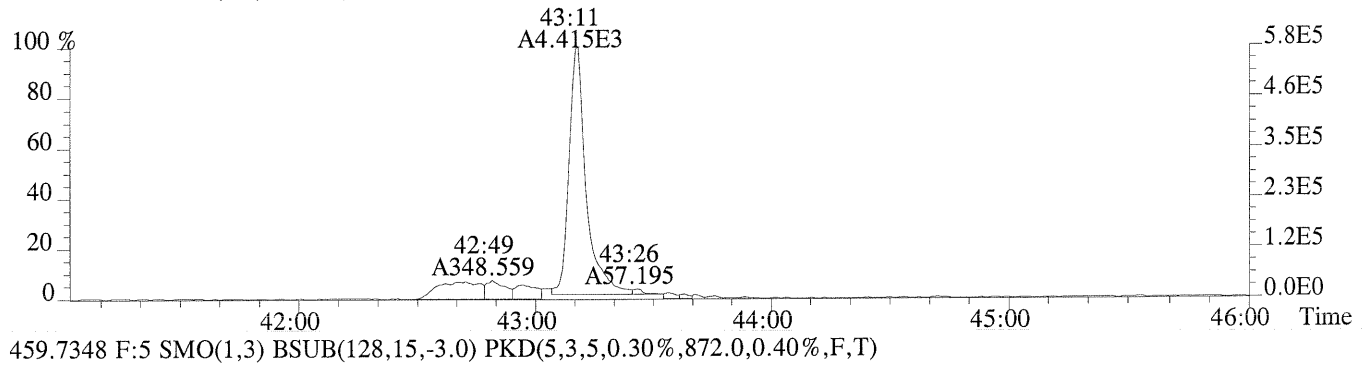


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)





File:U150368 #1-451 Acq:14-AUG-2014 08:18:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCAL HRCC3/CS3  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)



# CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: U150389

Beginning

Circle one:

Ending

Date: 08/15/14

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)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	NA	N/A

Analyst: JL

Second QC: OR

5DFC  
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL

Contract:

Lab Code:

Case No.:

Client No.:

SDG No.:

GC Column: DB5-MSUI

ID: 0.25 (mm)

Init. Calib. Date: 07/31/14

Init. Calib. Times: 12:13:20

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
63680	WINDOW DEFINE	U150390	15-AUG-14	09:56:59
61247	CS3	U150389	15-AUG-14	08:47:16
METHOD BLANK	DO NOT USE	U150391	15-AUG-14	11:36:10
LCS	EQ1400433-02	U150392	15-AUG-14	12:22:57
LCS	EQ1400452-02	U150399	15-AUG-14	18:12:40
DLCS	EQ1400452-03	U150400	15-AUG-14	19:01:10

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1140815.SPL

Page 1 of 4

Last Modified: Friday, August 15, 2014 17:13:29 Central Daylight Time

Printed: Friday, August 15, 2014 17:13:43 Central Daylight Time

Page Position (1, 1)

Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1 08/15/14	08:43	U150388	CS3	61247	DL	Do NOT USE	8290cas
2	08:47	U150389	CS3	61247		HRMS Check 08:42	8290cas
3	09:56	U150390	WINDOW DEFINE	63680			8290cas
4	11:26	U150391	EQ1400454-01	MB		HRMS Check 11:30	8290cas
5	12:26	U150392	EQ1400433-02	LCS			8290cas
6	13:01	U150393	EQ1400434-02	LCS			8290cas
7	13:59	U150394	EQ1400434-03	DLCS			8290cas
8	14:58	U150395	EQ1400454-02	LCS			8290cas
9	15:36	U150396	EQ1400454-03	LCS			8290cas
10	16:25	U150397	EQ1400454-04	LCS			8290cas
11	17:25	U150398	EQ1400454-05	LCS			8290cas
12	18:12	U150399	EQ1400452-02	LCS			8290cas
13	19:01	U150400	EQ1400452-03	DLCS			8290cas
14	19:49	U150401	TEST	TEST			8290cas
15	20:38	U150402	CS3	61247		HRMS check 08:30	8290cas
16							8290cas
17							8290cas
18							8290cas
19							8290cas
20							8290cas
21							8290cas
22							8290cas
23							8290cas
24							8290cas
25							8290cas
26							8290cas
27							8290cas
28							8290cas
29							8290cas
30							1668EPA
31							1668EPA
32							1668EPA
33							1668EPA
34							1668EPA
35							1668EPA
36							---
37							---
38							TCDFCAS
39							TCDFCAS

D:\U150389RESM

D:\U150389RES ac 08/19/14

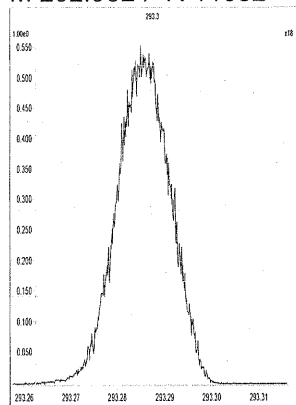
5c  
08/18/14

017

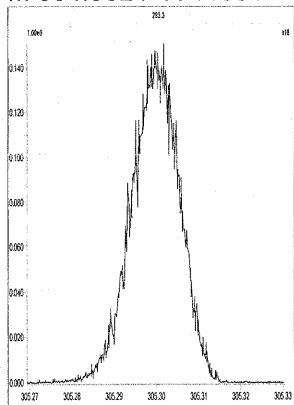
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 15, 2014 08:42:07 Central Daylight Time

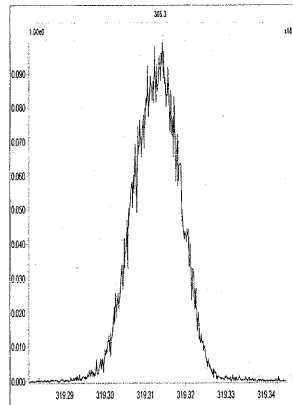
M 292.9824 R 11682



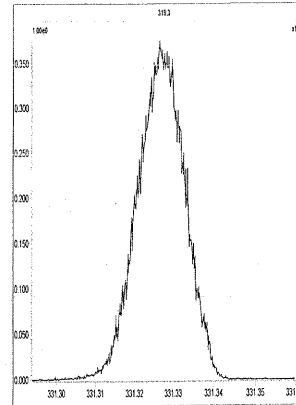
M 304.9824 R 11681



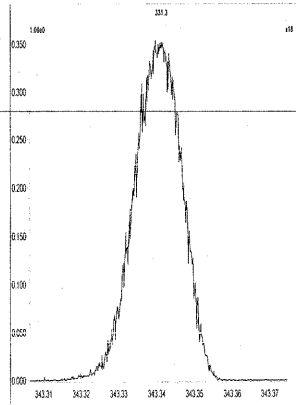
M 318.9792 R 12193



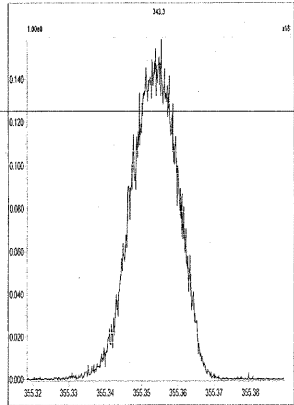
M 330.9792 R 12439



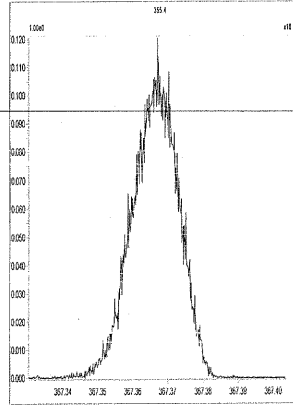
M 342.9792 R 12500



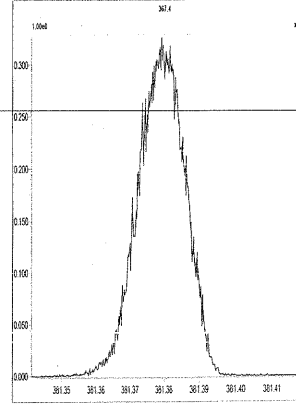
M 354.9792 R 13157



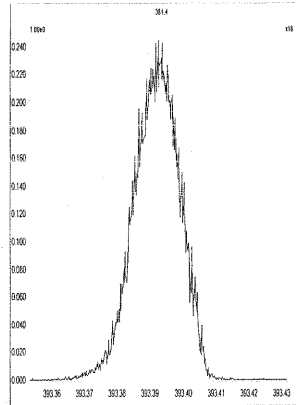
M 366.9792 R 12560



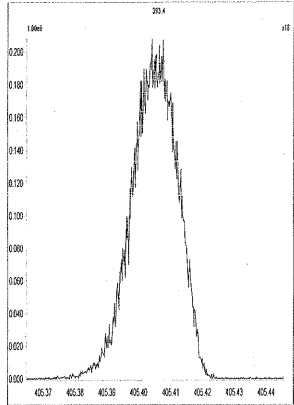
M 380.9760 R 12692



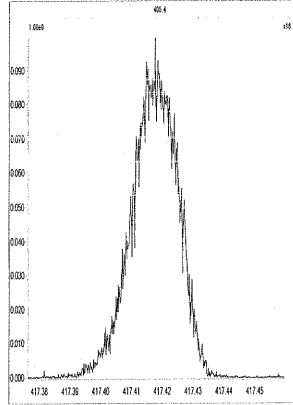
M 392.9760 R 12690



M 404.9760 R 12566



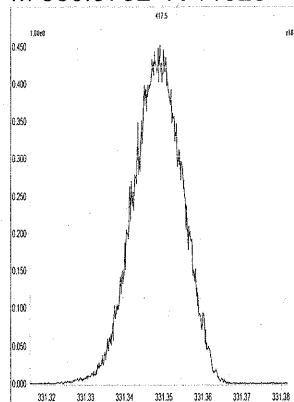
M 416.9760 R 12134



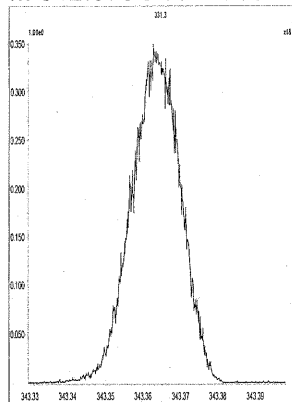
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 15, 2014 08:43:03 Central Daylight Time

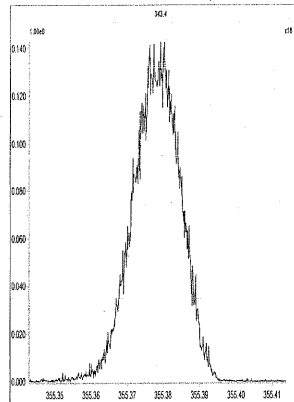
M 330.9792 R 11523



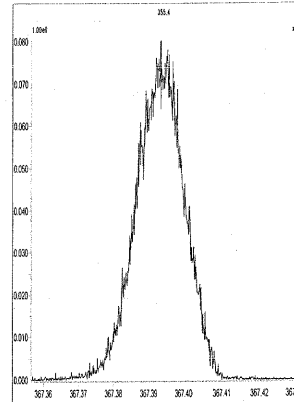
M 342.9792 R 11733



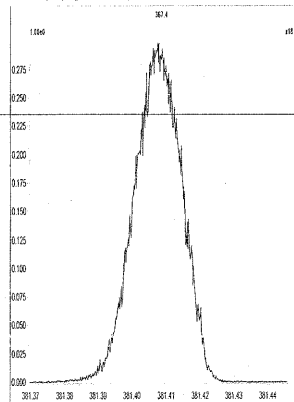
M 354.9792 R 12077



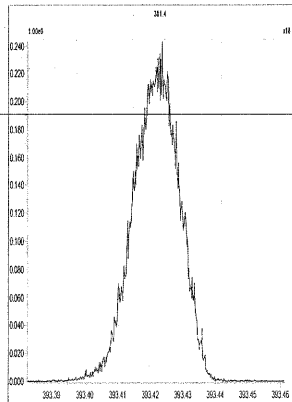
M 366.9792 R 12139



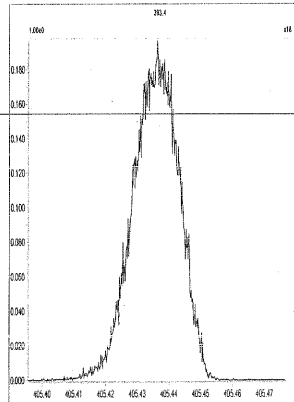
M 380.9760 R 12753



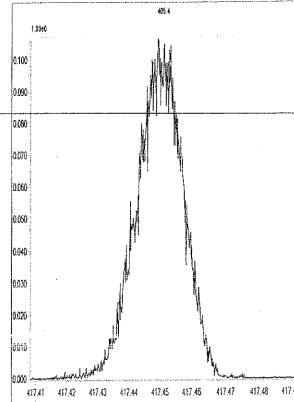
M 392.9760 R 12751



M 404.9760 R 12563



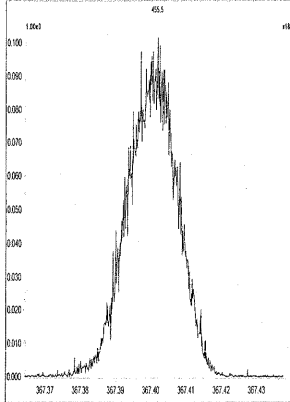
M 416.9760 R 12436



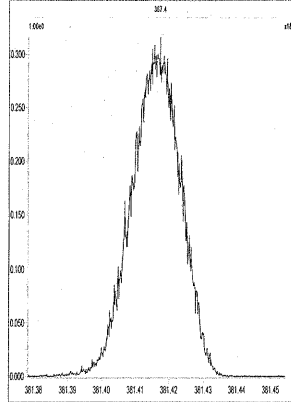
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 15, 2014 08:43:55 Central Daylight Time

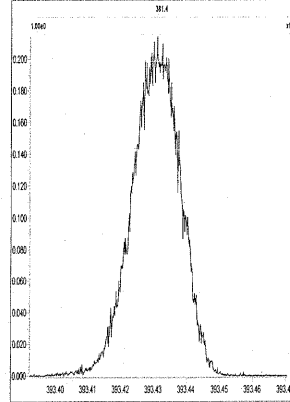
M 366.9792 R 11367



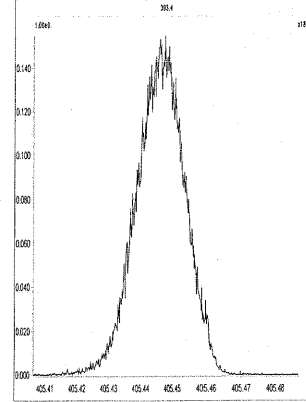
M 380.9760 R 11519



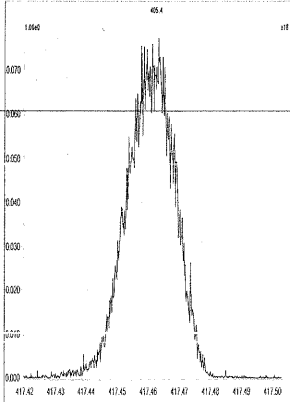
M 392.9760 R 11958



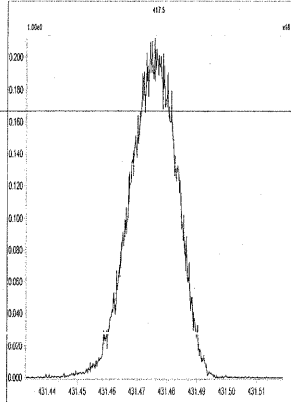
M 404.9760 R 12077



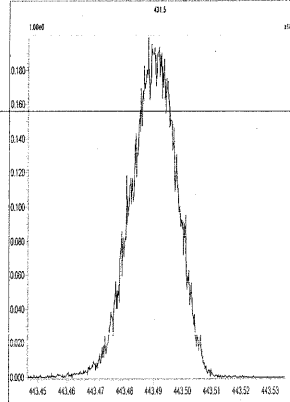
M 416.9760 R 12437



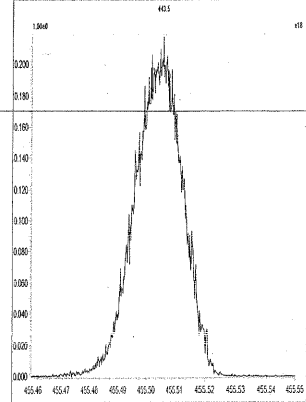
M 430.9728 R 11960



M 442.9728 R 12564



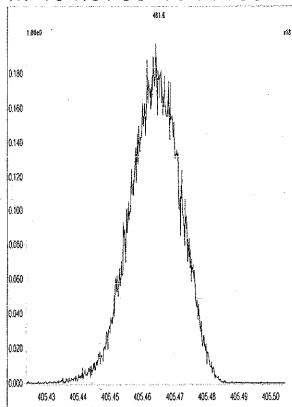
M 454.9728 R 12376



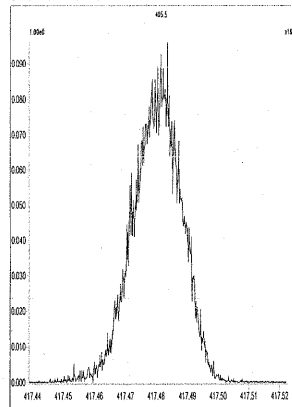
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 15, 2014 08:45:03 Central Daylight Time

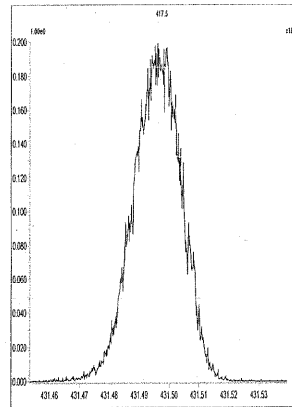
M 404.9760 R 11468



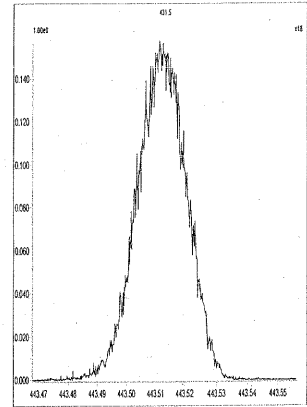
M 416.9760 R 12077



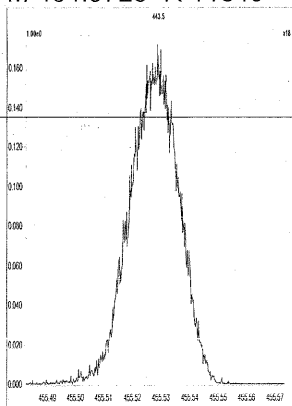
M 430.9728 R 12018



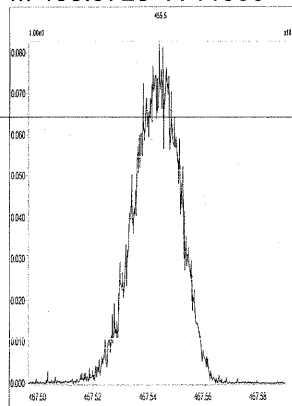
M 442.9728 R 12193



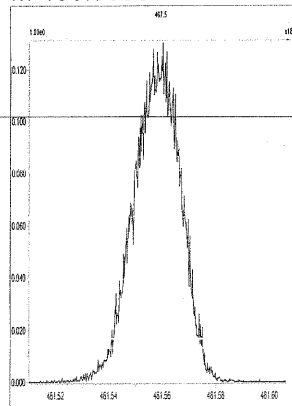
M 454.9728 R 11849



M 466.9728 R 11905



M 480.9696 R 12625

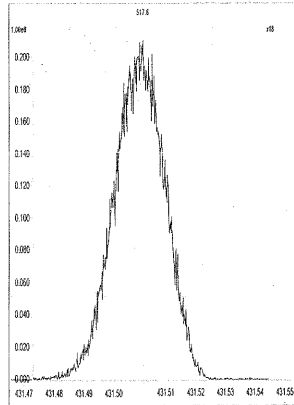




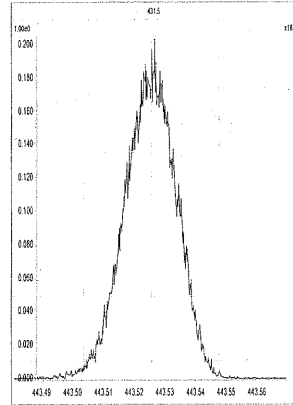
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 15, 2014 08:46:29 Central Daylight Time

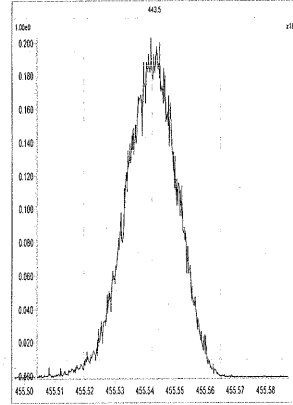
M 430.9728 R 11160



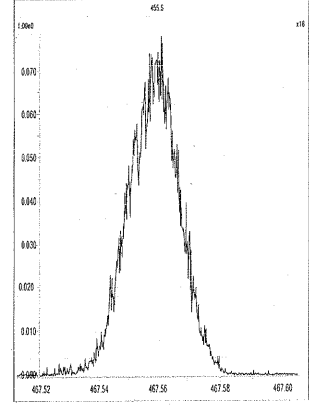
M 442.9728 R 11209



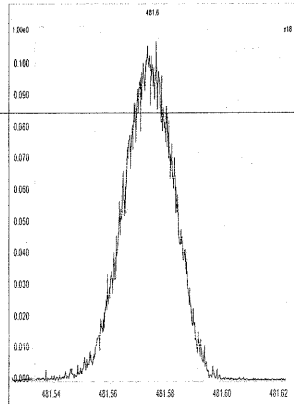
M 454.9728 R 11734



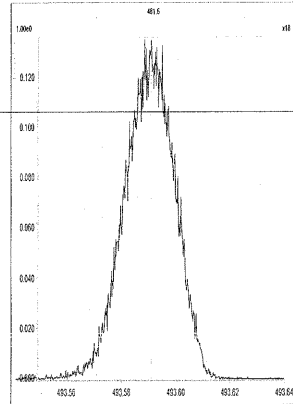
M 466.9728 R 11958



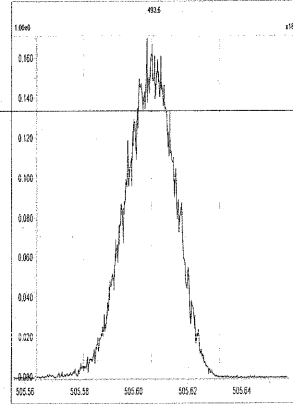
M 480.9696 R 11737



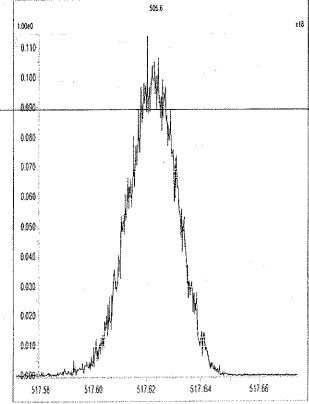
M 492.9696 R 12135



M 504.9696 R 12564



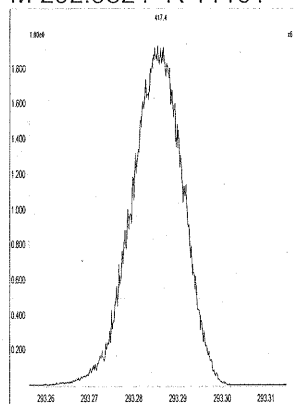
M 516.9697 R 12255



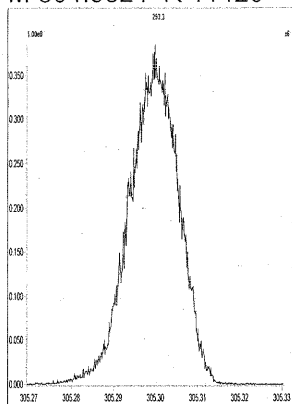
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 15, 2014 11:30:28 Central Daylight Time

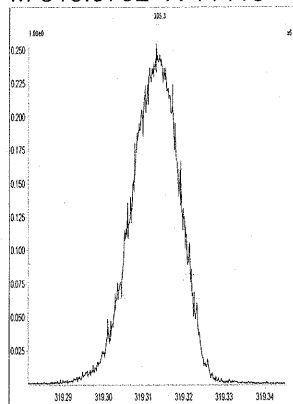
M 292.9824 R 11161



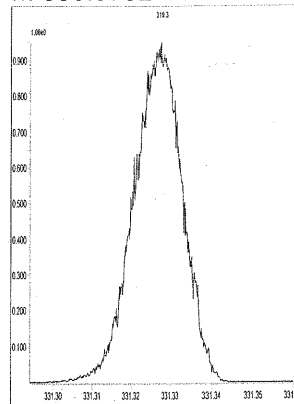
M 304.9824 R 11420



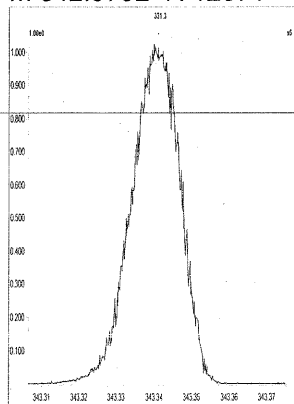
M 318.9792 R 11413



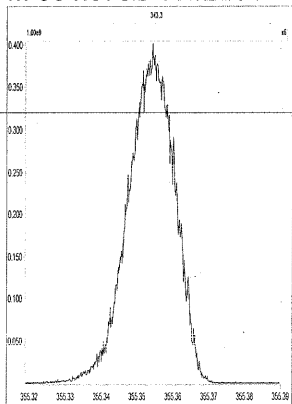
M 330.9792 R 11958



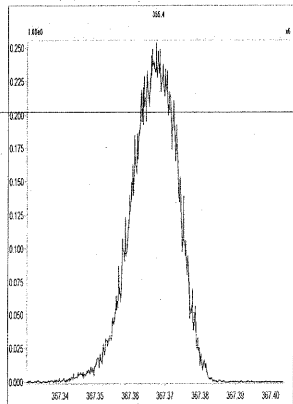
M 342.9792 R 12371



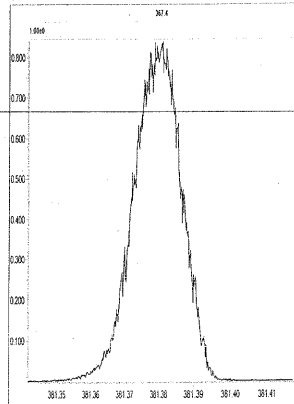
M 354.9792 R 12254



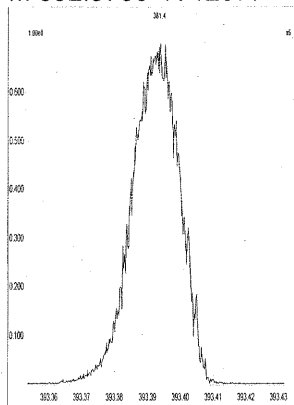
M 366.9792 R 12435



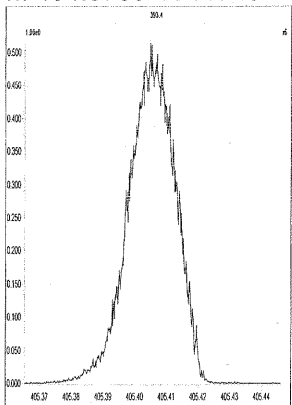
M 380.9760 R 12496



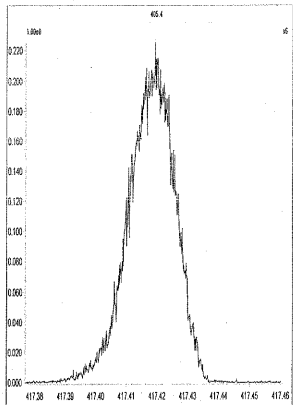
M 392.9760 R 12077



M 404.9760 R 11740



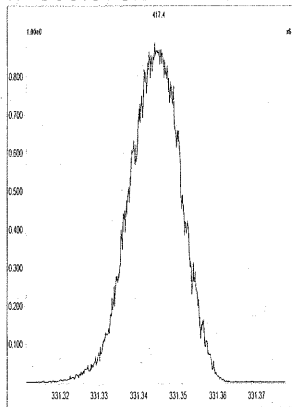
M 416.9760 R 11959



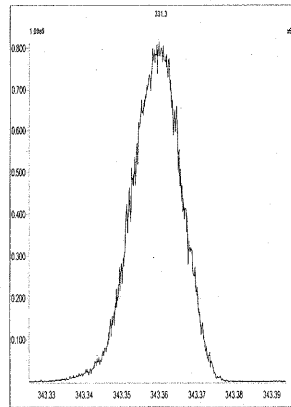
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 15, 2014 11:32:14 Central Daylight Time

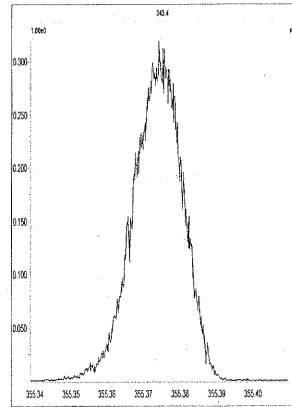
M 330.9792 R 11015



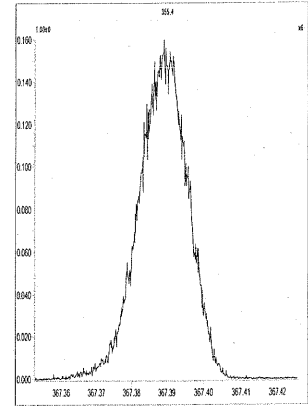
M 342.9792 R 11107



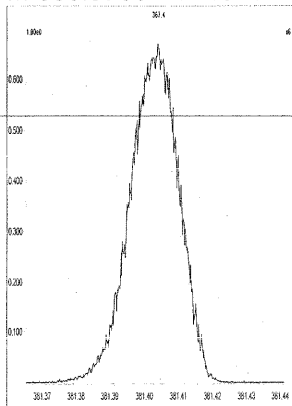
M 354.9792 R 11573



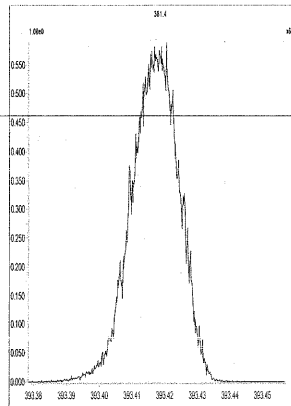
M 366.9792 R 12134



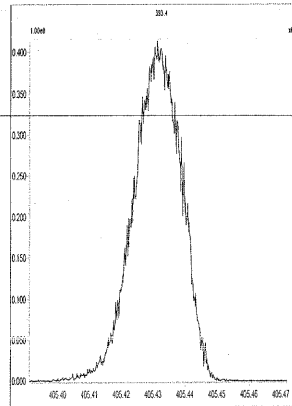
M 380.9760 R 11625



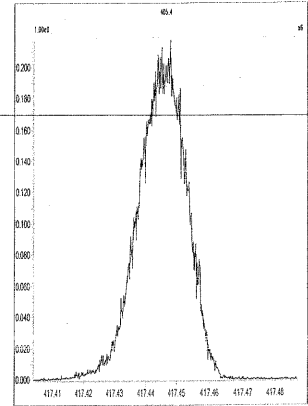
M 392.9760 R 12316



M 404.9760 R 12886



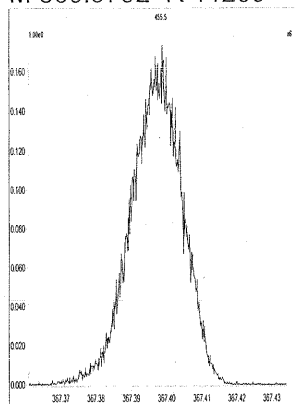
M 416.9760 R 11466



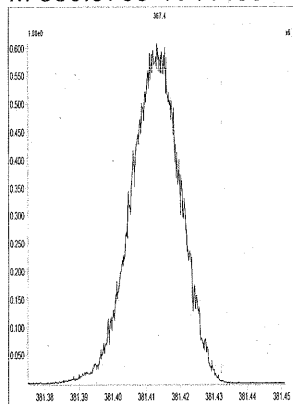
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 15, 2014 11:33:23 Central Daylight Time

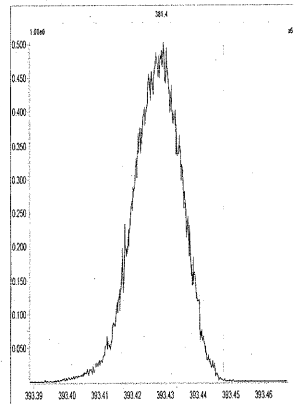
M 366.9792 R 11260



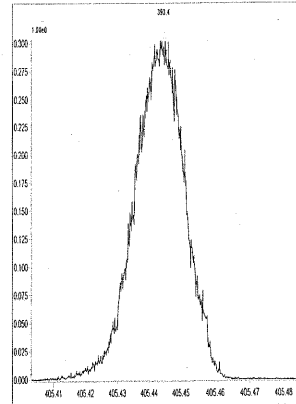
M 380.9760 R 11466



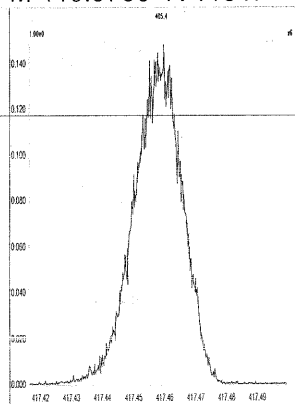
M 392.9760 R 11212



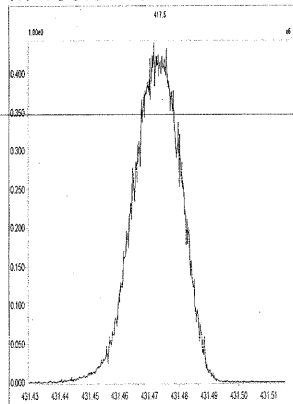
M 404.9760 R 11364



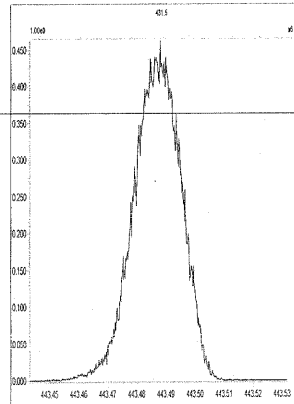
M 416.9760 R 11847



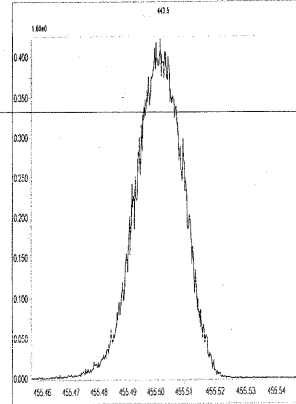
M 430.9728 R 12193



M 442.9728 R 12016



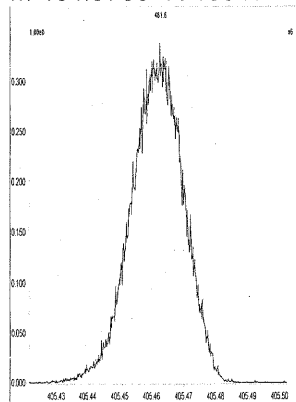
M 454.9728 R 11905



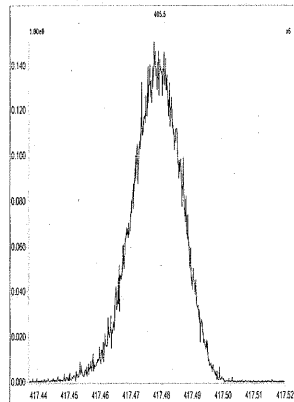
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 15, 2014 11:34:23 Central Daylight Time

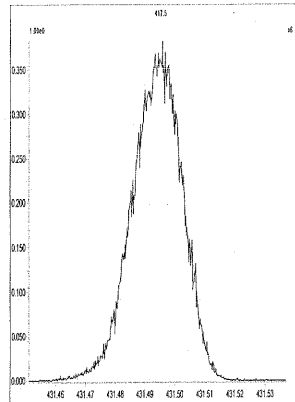
M 404.9760 R 10917



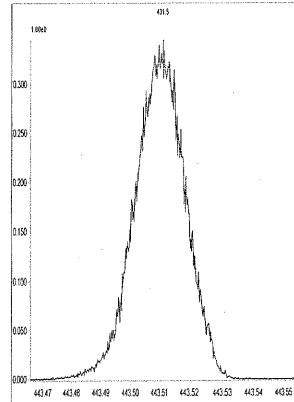
M 416.9760 R 11013



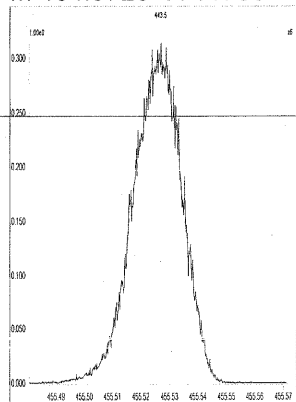
M 430.9728 R 11110



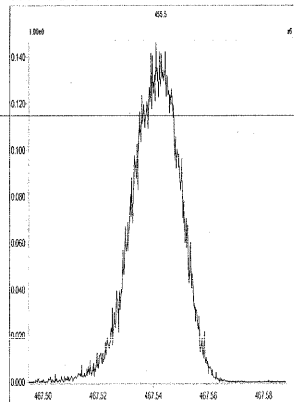
M 442.9728 R 11159



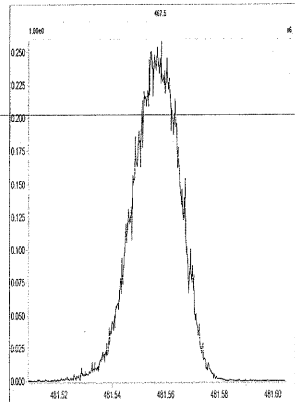
M 454.9728 R 11738



M 466.9728 R 11792



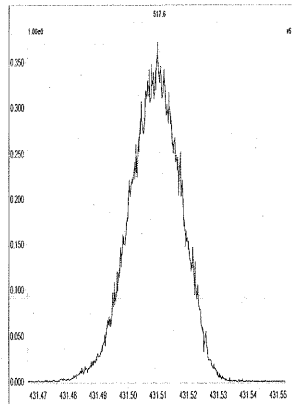
M 480.9696 R 12076



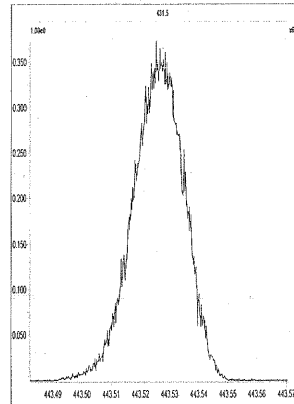
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 15, 2014 11:35:17 Central Daylight Time

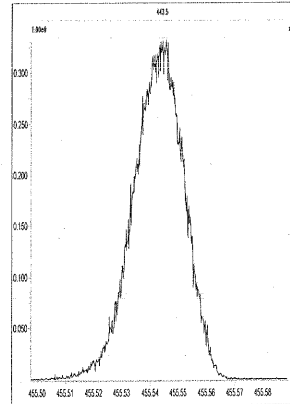
M 430.9728 R 10869



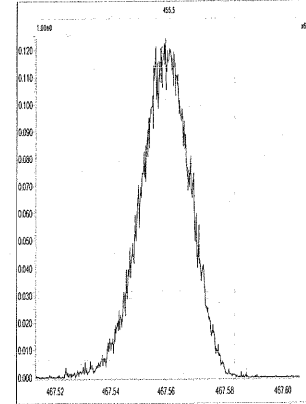
M 442.9728 R 10825



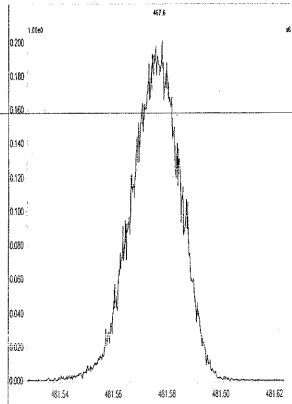
M 454.9728 R 11365



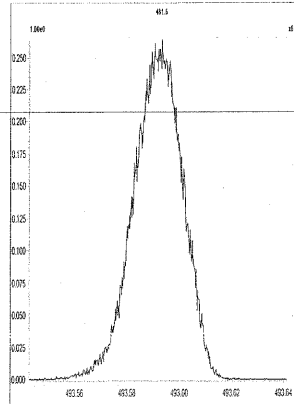
M 466.9728 R 11628



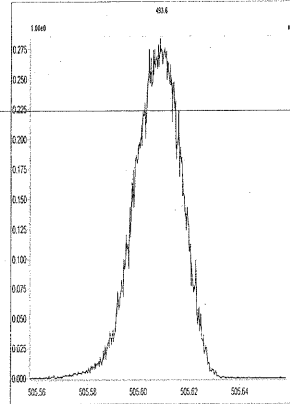
M 480.9696 R 11904



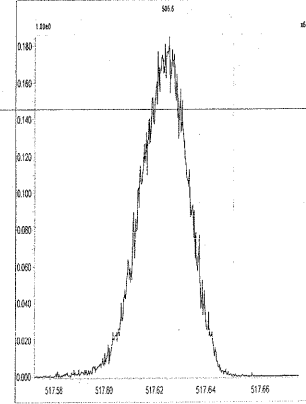
M 492.9696 R 11960



M 504.9696 R 12075



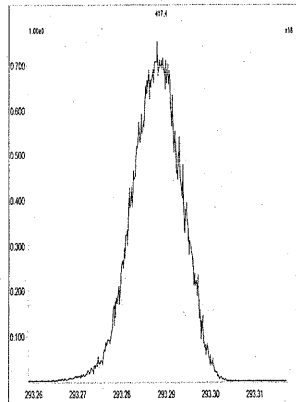
M 516.9697 R 12556



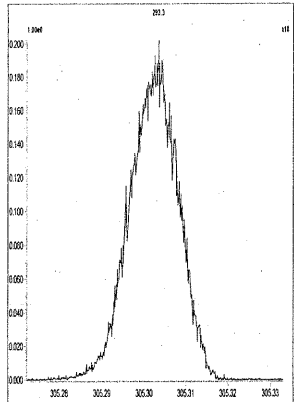
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, August 16, 2014 08:30:31 Central Daylight Time

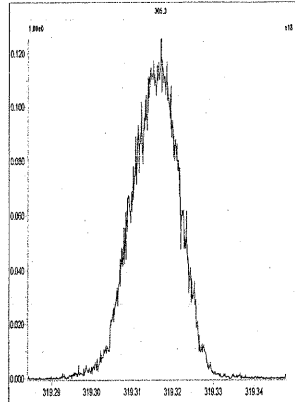
M 292.9824 R 11364



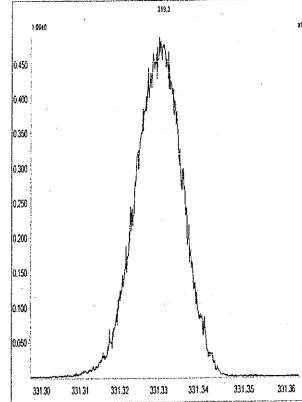
M 304.9824 R 11525



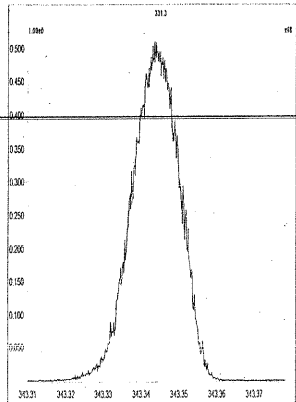
M 318.9792 R 11902



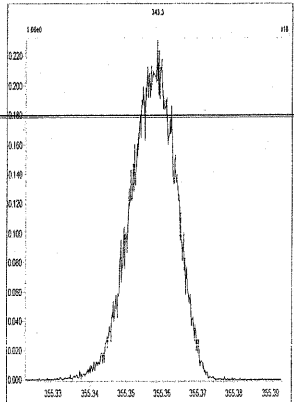
M 330.9792 R 11963



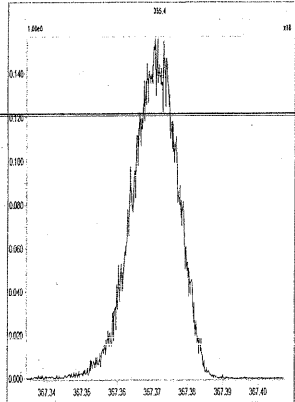
M 342.9792 R 12438



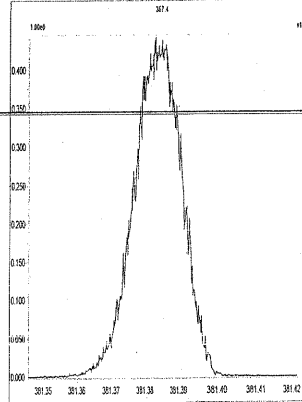
M 354.9792 R 12562



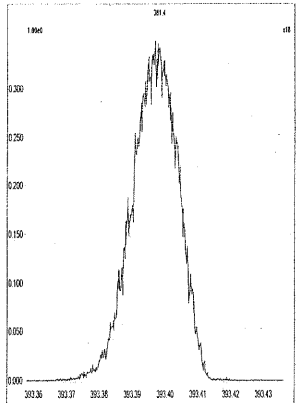
M 366.9792 R 12688



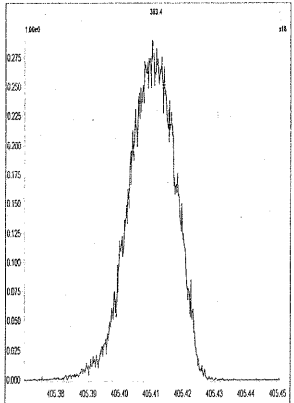
M 380.9760 R 12312



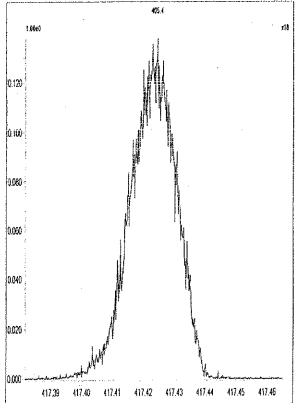
M 392.9760 R 12433



M 404.9760 R 12952



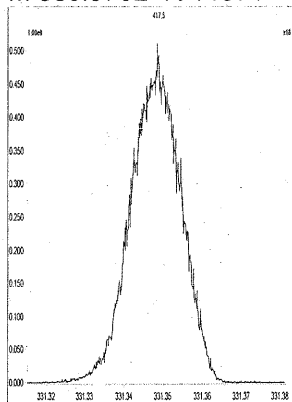
M 416.9760 R 12017



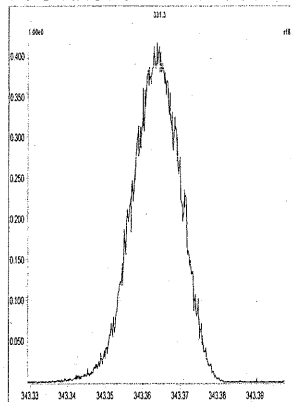
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, August 16, 2014 08:31:47 Central Daylight Time

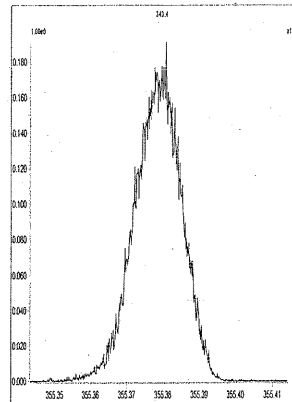
M 330.9792 R 11571



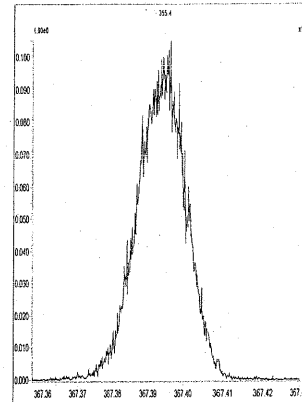
M 342.9792 R 11683



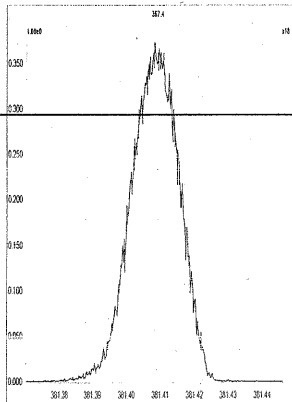
M 354.9792 R 12195



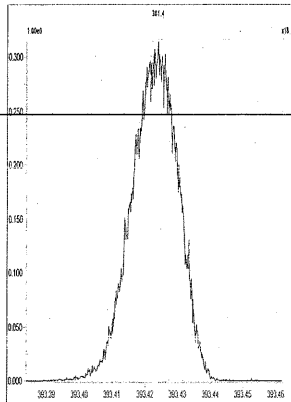
M 366.9792 R 11847



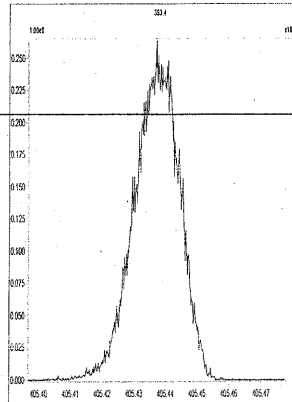
M 380.9760 R 12318



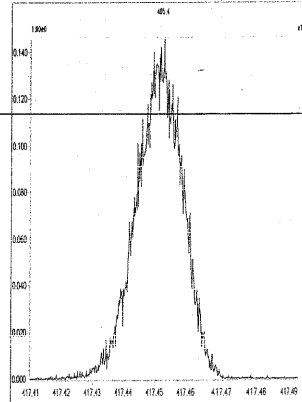
M 392.9760 R 12316



M 404.9760 R 12438



M 416.9760 R 13092

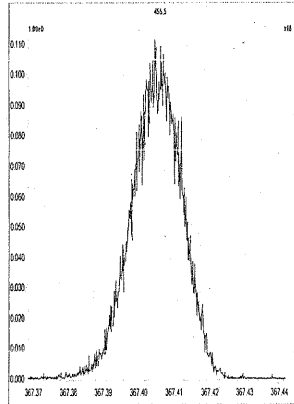




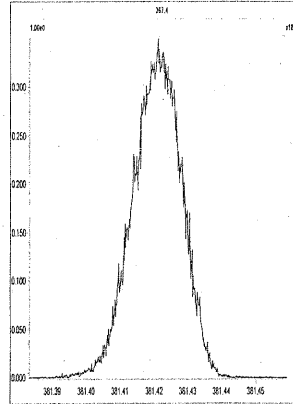
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, August 16, 2014 08:33:12 Central Daylight Time

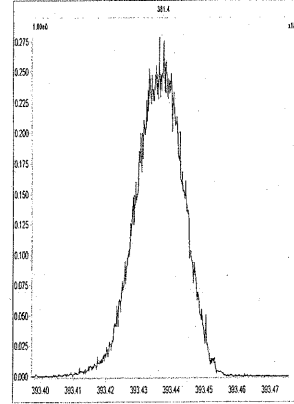
M 366.9792 R 11519



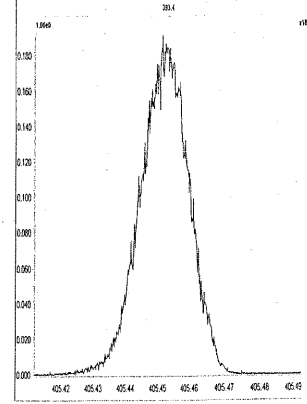
M 380.9760 R 12075



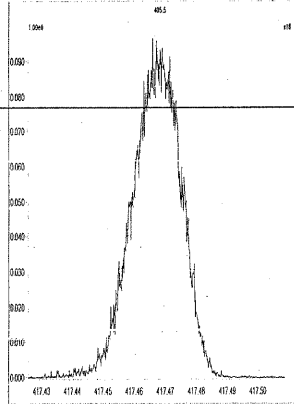
M 392.9760 R 12016



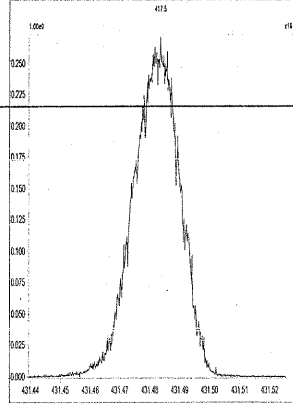
M 404.9760 R 11737



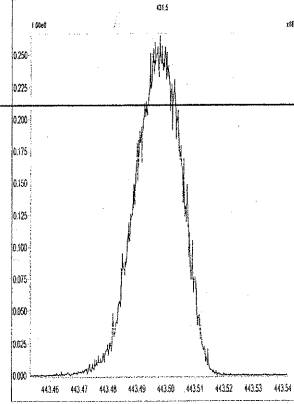
M 416.9760 R 12135



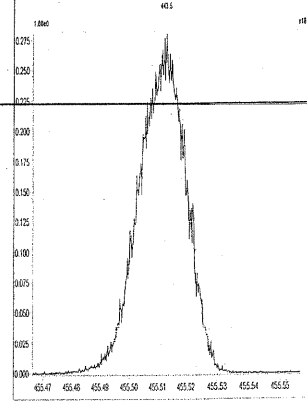
M 430.9728 R 12498



M 442.9728 R 12822



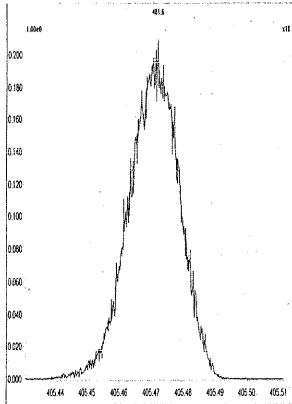
M 454.9728 R 12316



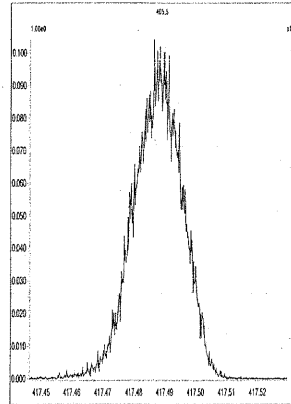
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, August 16, 2014 08:34:20 Central Daylight Time

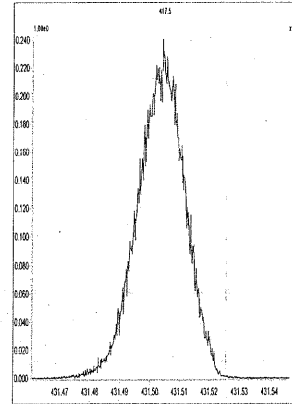
M 404.9760 R 11412



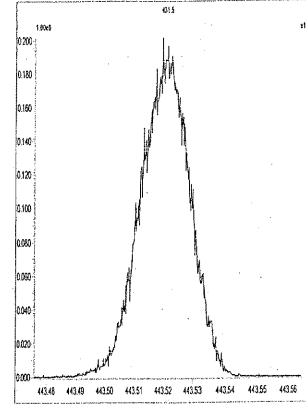
M 416.9760 R 11904



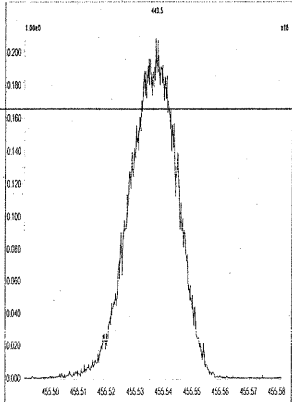
M 430.9728 R 11363



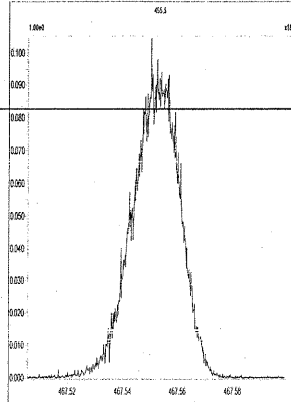
M 442.9728 R 12374



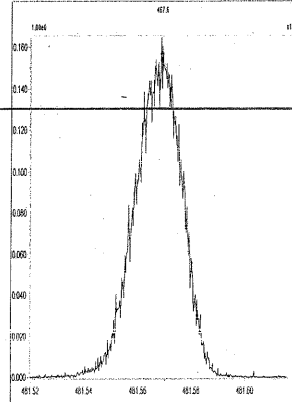
M 454.9728 R 11738



M 466.9728 R 12073



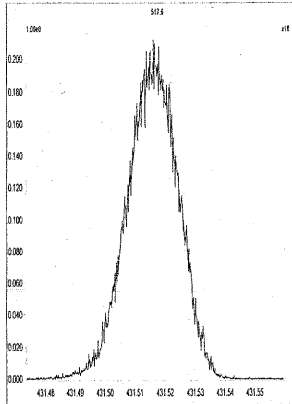
M 480.9696 R 12886



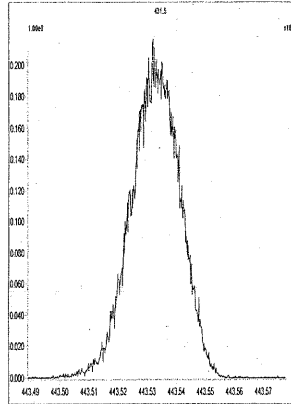
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, August 16, 2014 08:35:29 Central Daylight Time

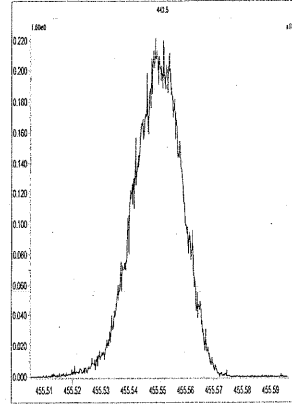
M 430.9728 R 11312



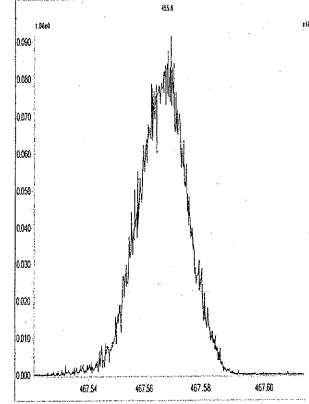
M 442.9728 R 11573



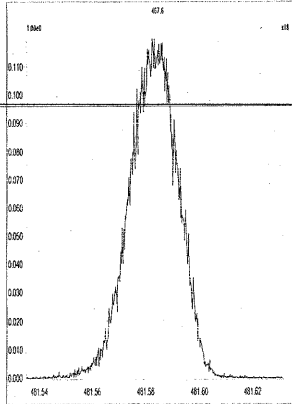
M 454.9728 R 11413



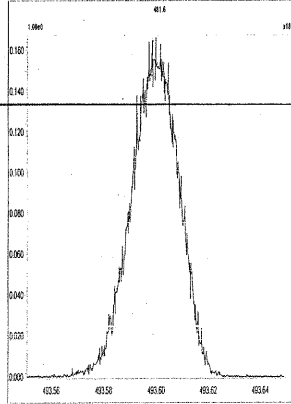
M 466.9728 R 12438



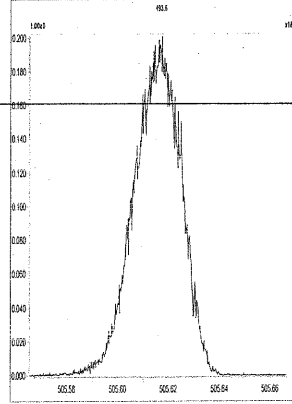
M 480.9696 R 12376



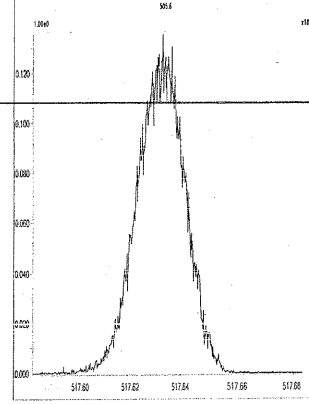
M 492.9696 R 12318



M 504.9696 R 12197



M 516.9697 R 12137



## 5DFA

## WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS ENVIRONMENTAL

Lab Code: TX01411

GC Column: DB-5msUI

Case No.: \_\_\_\_\_  
ID: 0.25 (mm)

SDG No.:

Lab File ID: U150390

Date Analyzed: 15-AUG-2014

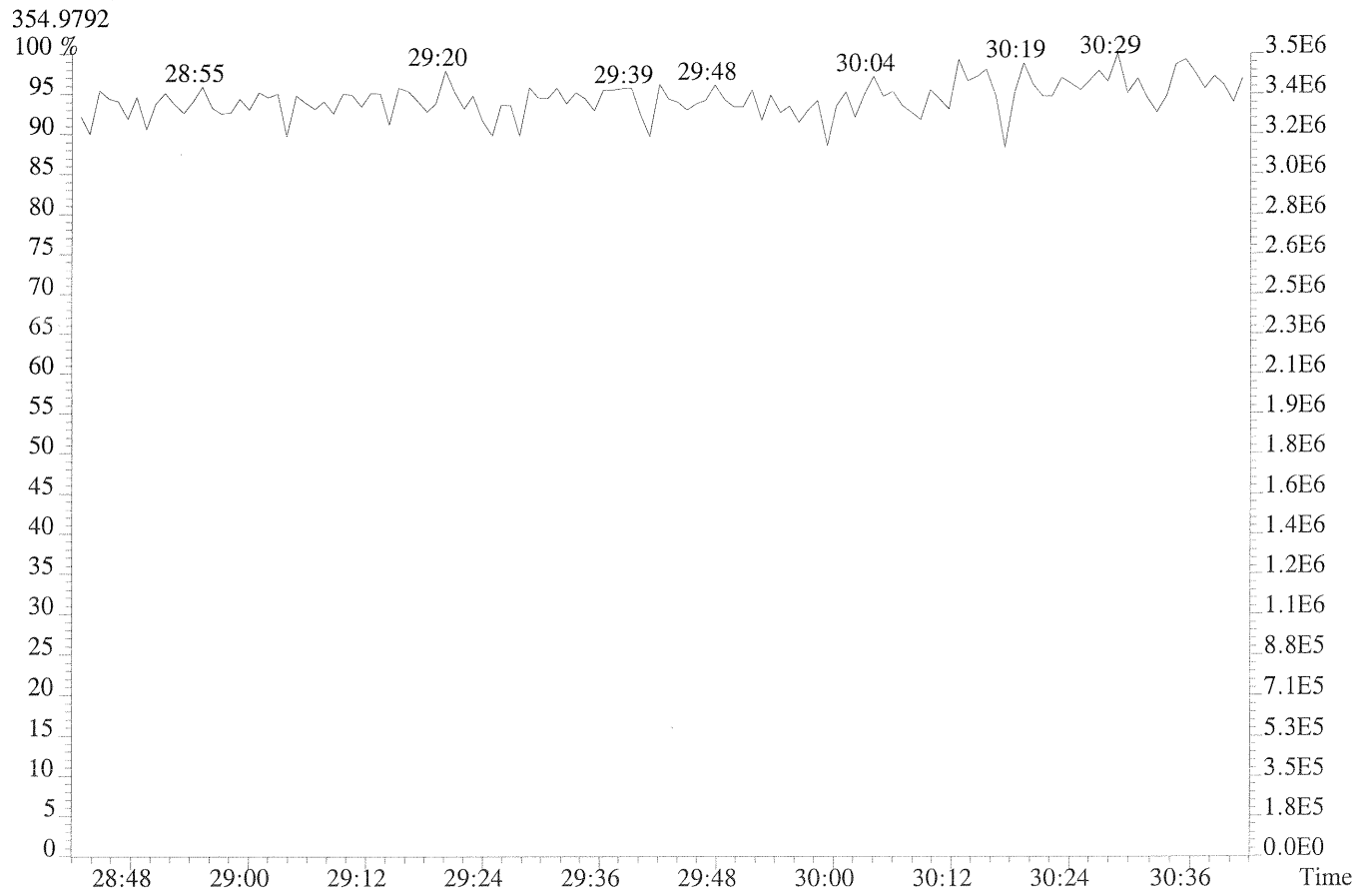
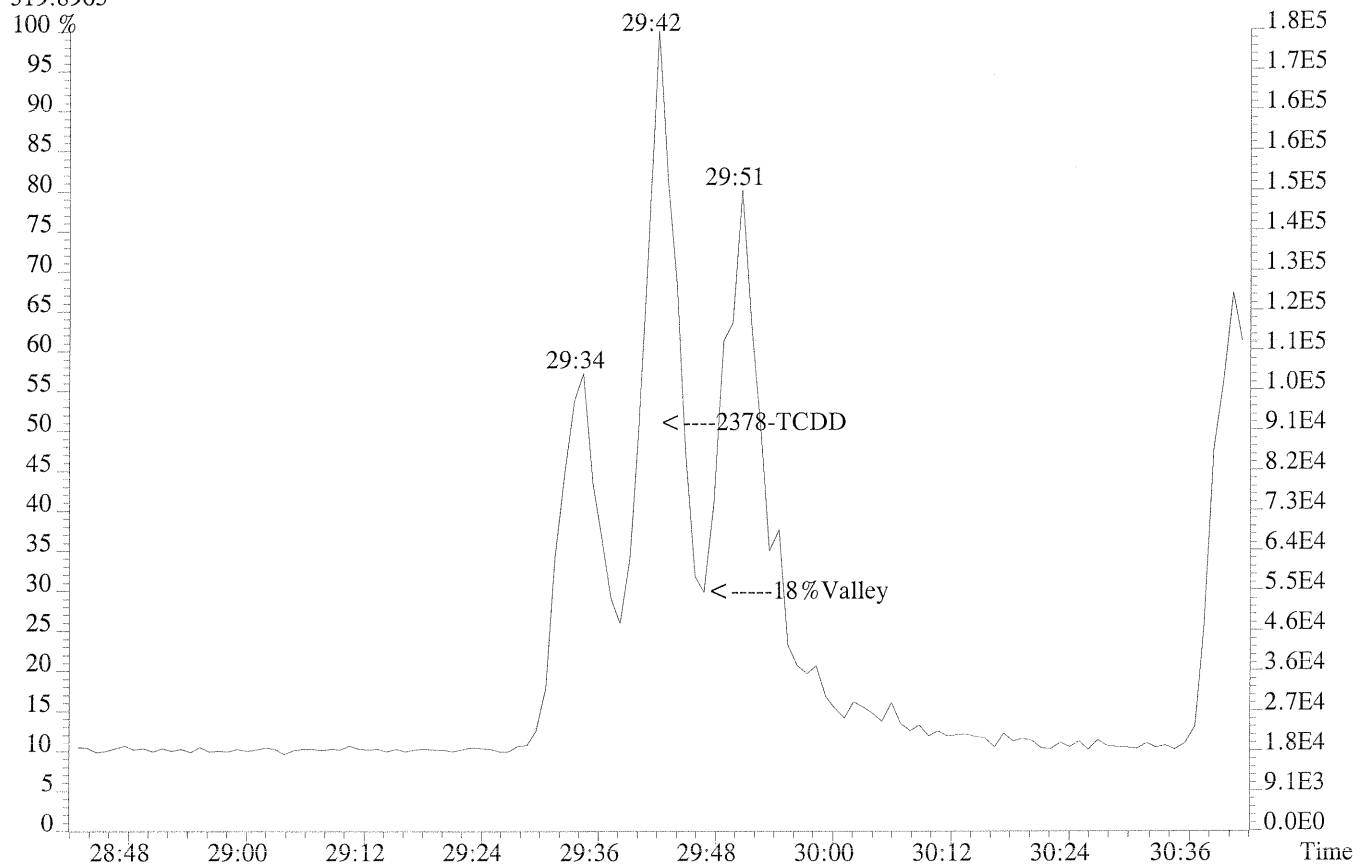
Time Analyzed: 09:56:59

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:45	30:51
TCDD	26:39	30:40
PeCDF	30:44	34:55
PeCDD	32:13	34:38
HxCDF	35:31	38:02
HxCDD	36:01	37:37
HpCDF	39:16	40:47
HpCDD	39:31	40:14

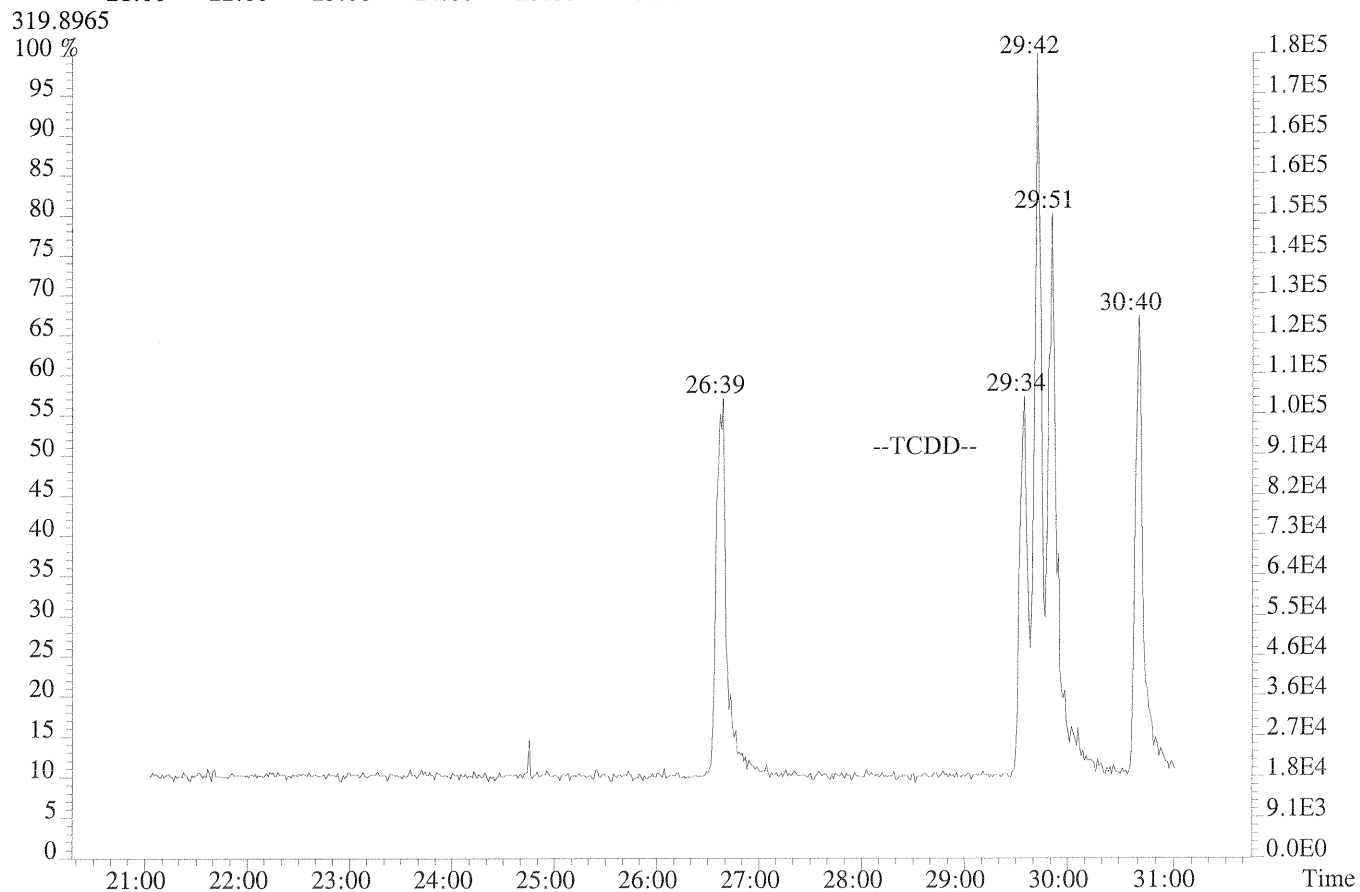
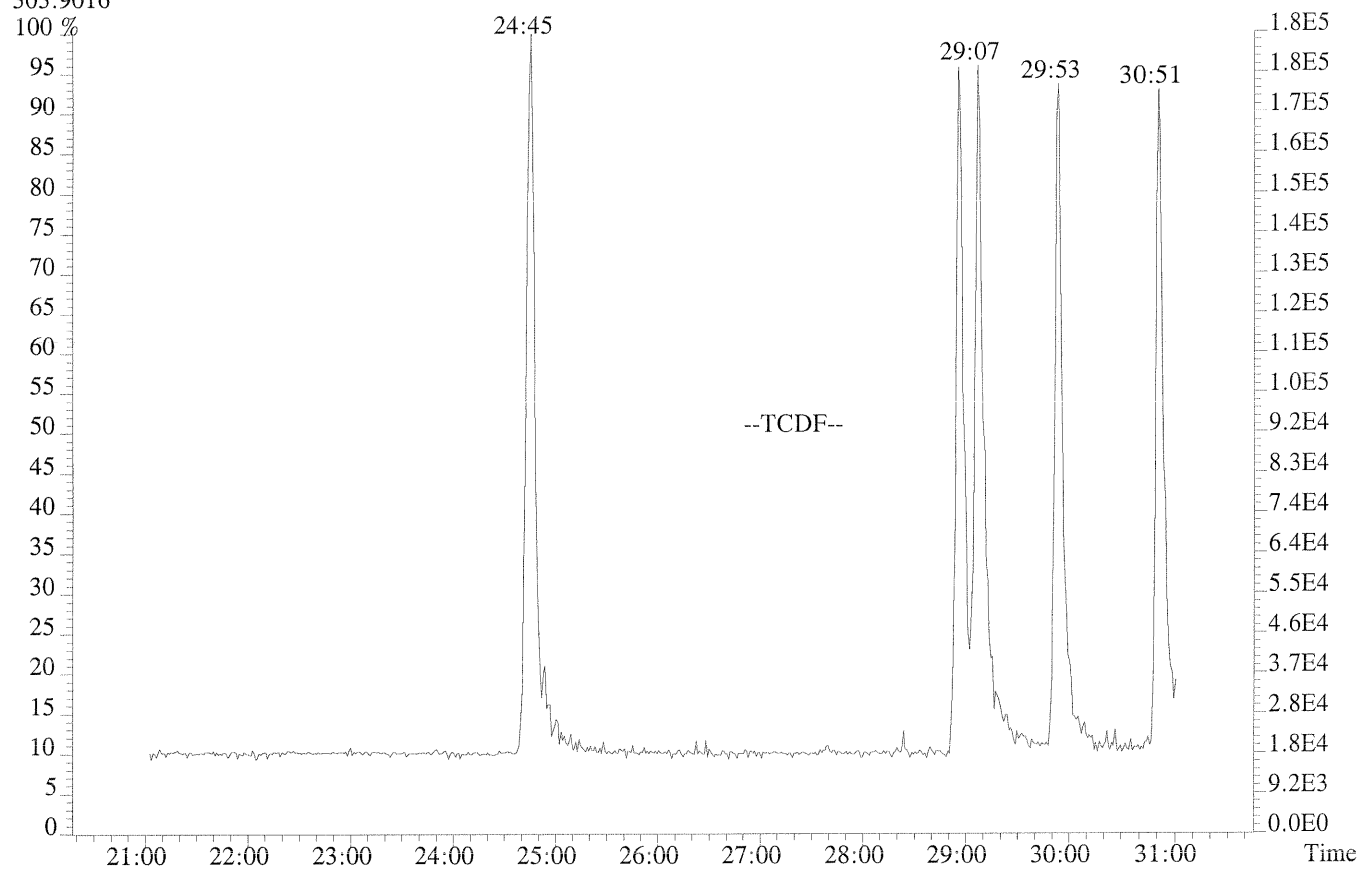
% Valley 2378-TCDD:

18 %

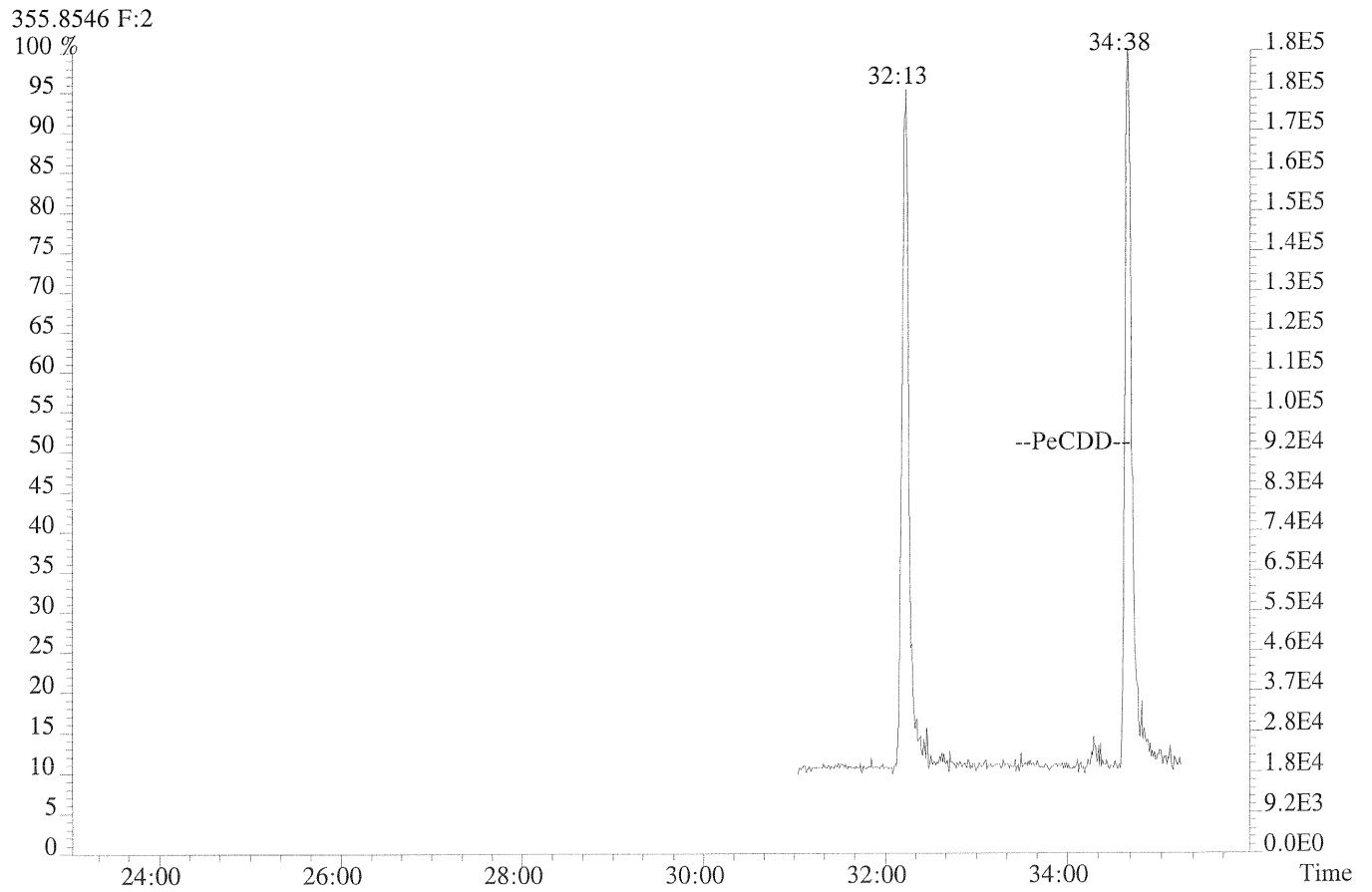
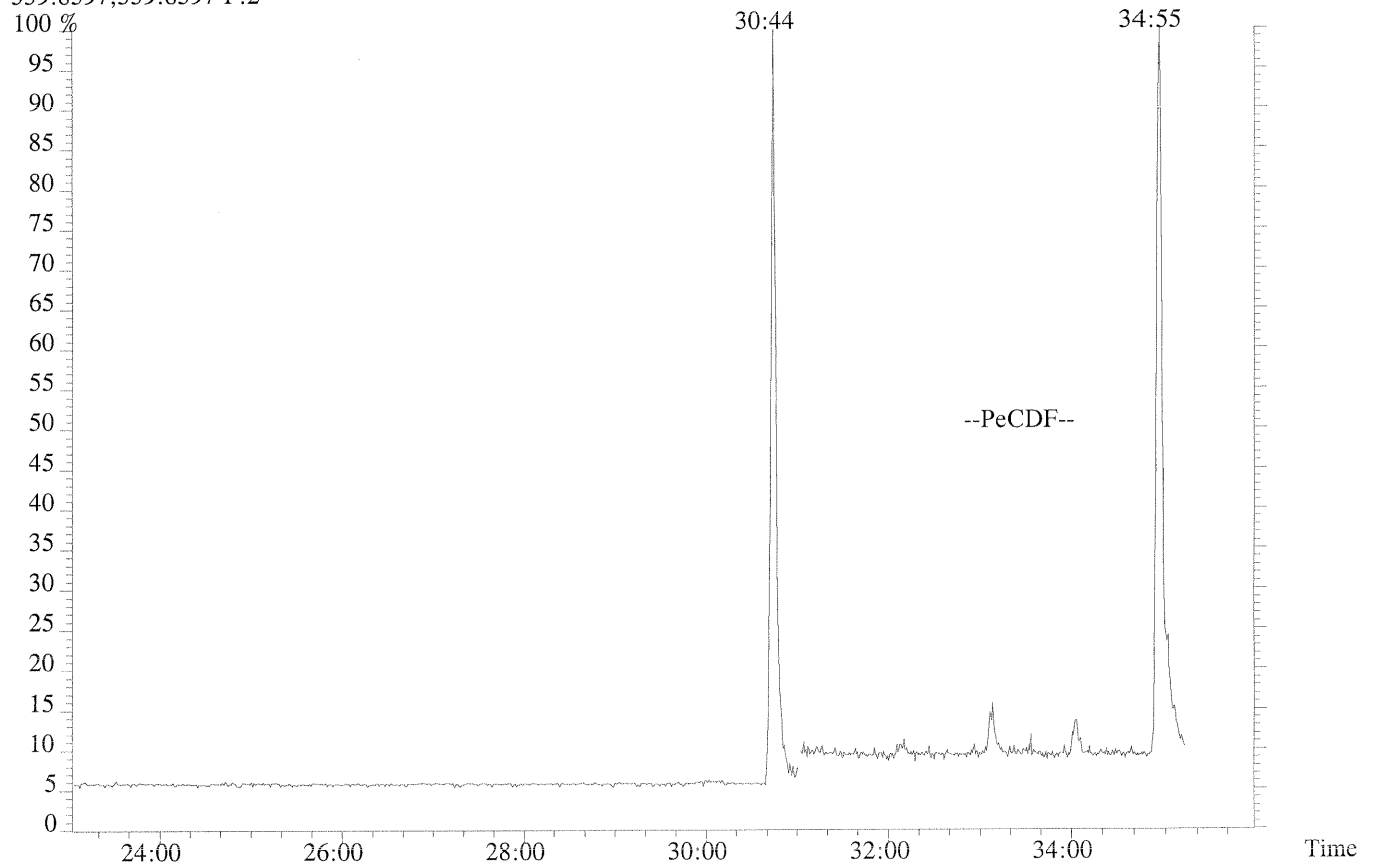
File:U150390 #1-627 Acq:15-AUG-2014 09:56:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
319.8965



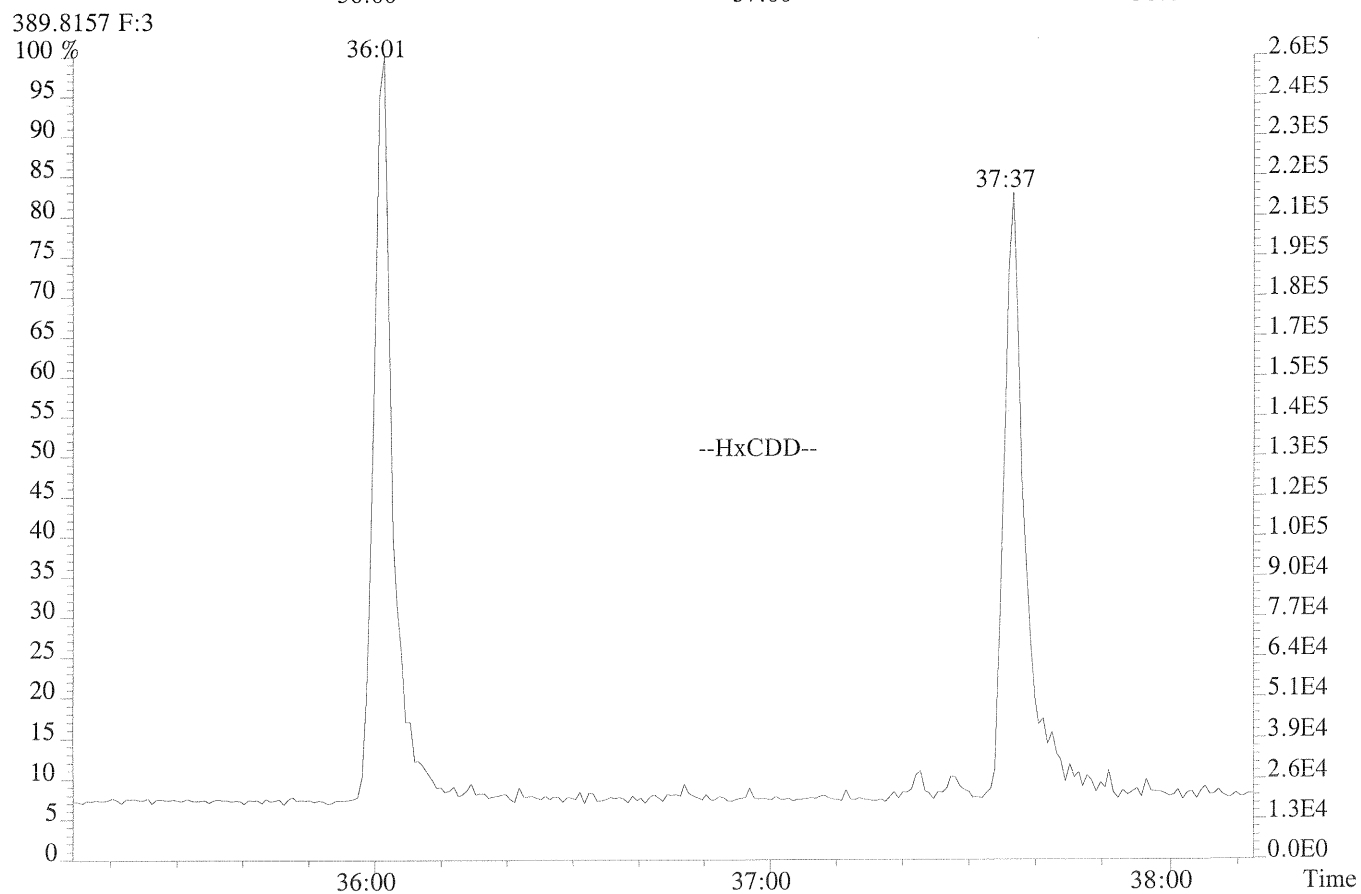
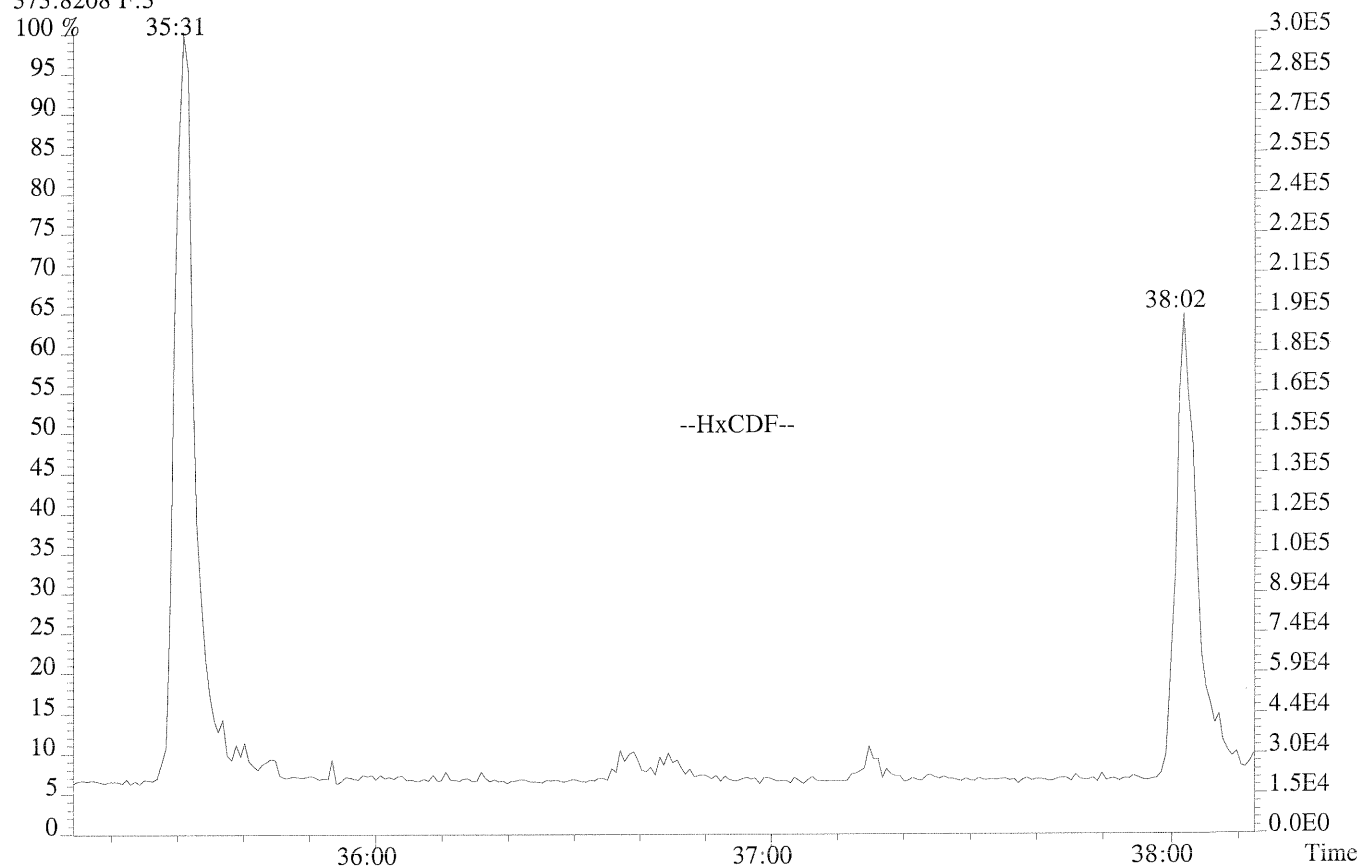
File:U150390 #1-627 Acq:15-AUG-2014 09:56:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
303.9016



File:U150390 #1-627 Acq:15-AUG-2014 09:56:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
339.8597,339.8597 F:2

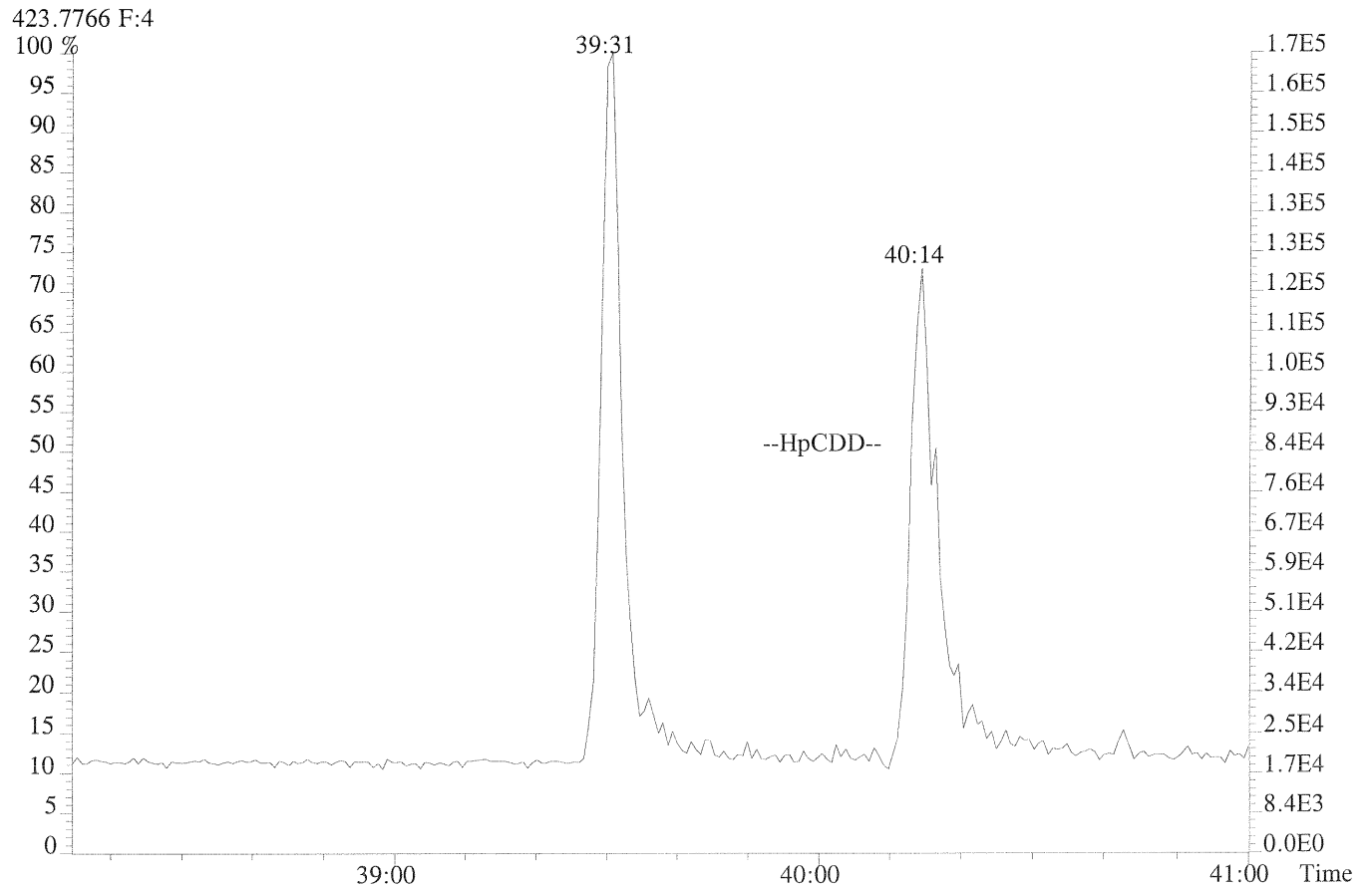
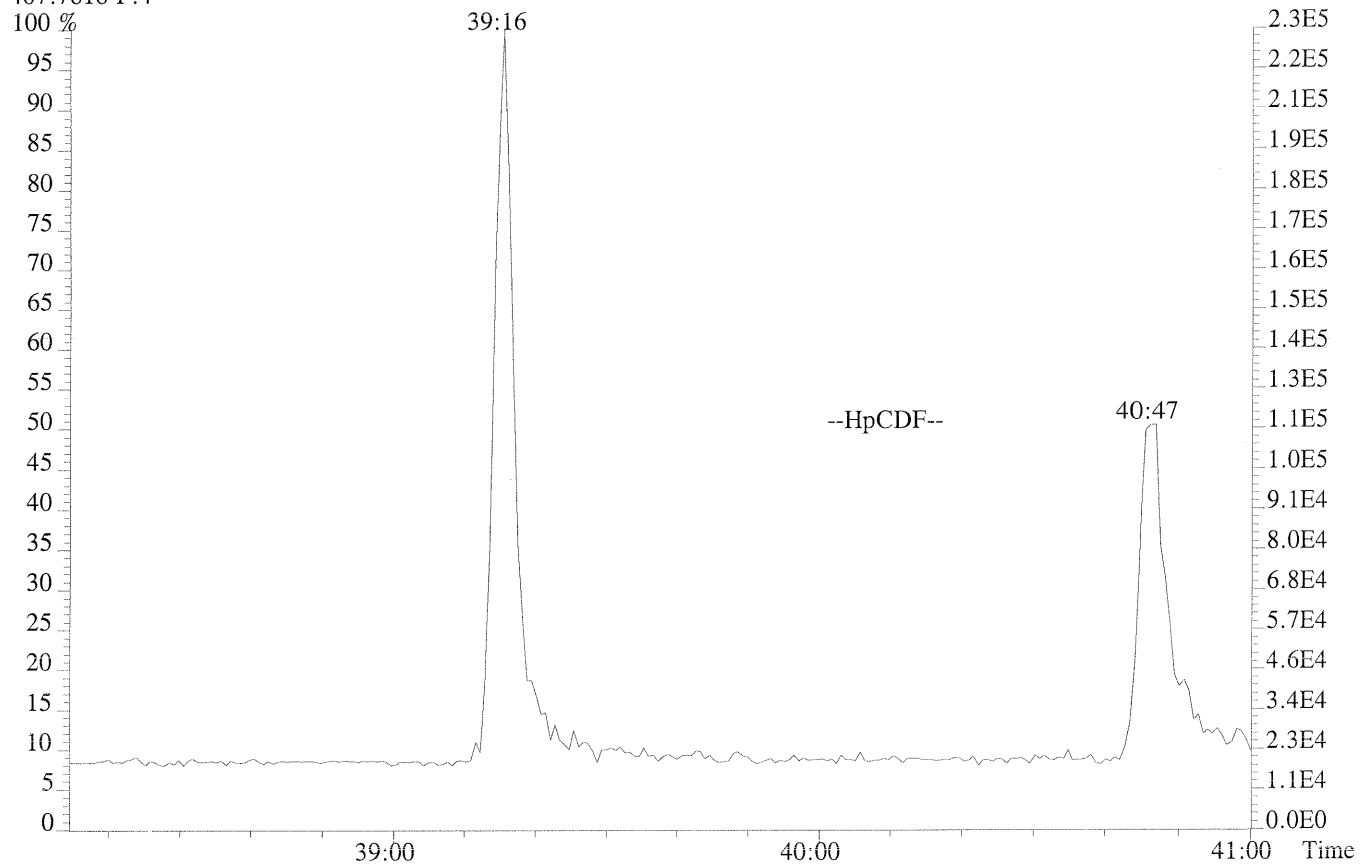


File:U150390 #1-270 Acq:15-AUG-2014 09:56:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
373.8208 F:3





File:U150390 #1-251 Acq:15-AUG-2014 09:56:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
407.7818 F:4



FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 07/31/14

Instrument ID: E-HRMS-01

GC Column ID: DB5-MSUI

VER Data Filename: U150389

Analysis Date: 15-AUG-14 Time: 08:47:16

	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	0.85	0.65-0.89	1.00	0.97	3.41
1,2,3,7,8-PeCDD	M+2/M+4	1.67	1.32-1.78	1.06	1.12	-5.03
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	1.07	1.06	0.95
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	1.23	1.25	-1.73
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	1.22	1.25	-2.30
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	1.09	1.10	-0.75
OCDD	M+2/M+4	0.92	0.76-1.02	1.31	1.33	-1.45
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	1.08	1.06	2.66
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	1.09	1.02	6.46
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	1.01	0.99	2.61
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	0.98	0.97	1.02
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	1.19	1.15	3.93
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	0.82	0.81	1.13
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	1.03	1.03	-0.31
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.09	0.88-1.20	1.48	1.36	8.35
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	0.99	0.96	3.21
OCDF	M+2/M+4	0.90	0.76-1.02	1.53	1.47	4.11

(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: 07/31/14

Instrument ID: E-HRMS-01

GC Column ID: DB5-MSUI

VER Data Filename: U150389

Analysis Date: 15-AUG-14 Time: 08:47:16

	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	0.77	0.65-0.89	0.96	0.98	-1.95
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	1.15	1.07	6.78
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	0.95	0.97	-2.11
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.11	0.88-1.20	0.83	0.85	-1.76
13C-OCDD	M+2/M+4	0.90	0.76-1.02	0.49	0.50	-3.15
13C-2,3,7,8-TCDF	M/M+2	0.82	0.65-0.89	1.36	1.41	-2.98
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	1.85	1.87	-1.06
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.53	1.51	1.53
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	0.99	1.01	-1.19
Surrogate Standards						
37Cl-2,3,7,8-TCDD				0.97	0.97	-0.20
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	1.00	1.01	-0.67
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	0.86	0.80	8.69
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	0.75	0.78	-3.93
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	0.75	0.73	2.71
Alternate Standard						
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	1.02	1.04	-2.31

(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  
Method M23

CLIENT ID.  
61247

Sample Response Summary

Run #7 Filename U150389 #1  
Processed: 18-AUG-14 13:21:57

Samp: 1 Inj: 1  
LAB. ID: CS3

Acquired: 15-AUG-14 08:47:16

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:06	1.028e+03	1.293e+03	0.79	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:06	9.531e+03	6.227e+03	1.53	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:59	9.002e+03	5.713e+03	1.58	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:36	7.079e+03	5.712e+03	1.24	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:43	8.725e+03	6.930e+03	1.26	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:14	7.465e+03	5.989e+03	1.25	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:59	6.017e+03	4.755e+03	1.27	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:14	6.538e+03	6.010e+03	1.09	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:45	4.250e+03	4.147e+03	1.02	yes	no	0.959
10 Unk	OCDF	43:27	5.982e+03	6.673e+03	0.90	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:49	6.977e+02	8.165e+02	0.85	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:15	5.988e+03	3.584e+03	1.67	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:21	4.888e+03	3.792e+03	1.29	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:26	5.598e+03	4.413e+03	1.27	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:41	5.501e+03	4.461e+03	1.23	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:13	4.005e+03	3.747e+03	1.07	yes	no	1.102
17 Unk	OCDD	43:13	5.201e+03	5.658e+03	0.92	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:04	9.632e+03	1.176e+04	0.82	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:05	1.775e+04	1.128e+04	1.57	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:59	1.787e+04	1.124e+04	1.59	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:36	6.761e+03	1.293e+04	0.52	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:42	8.944e+03	1.726e+04	0.52	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:59	5.922e+03	1.145e+04	0.52	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:14	5.244e+03	1.173e+04	0.45	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:44	3.985e+03	8.699e+03	0.46	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:48	6.540e+03	8.527e+03	0.77	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:15	1.099e+04	7.007e+03	1.57	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:20	7.916e+03	6.168e+03	1.28	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:25	9.052e+03	7.245e+03	1.25	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:12	7.460e+03	6.721e+03	1.11	yes	no	0.845
32 IS	13C-OCDD	43:12	7.845e+03	8.739e+03	0.90	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:13	6.777e+03	8.909e+03	0.76	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:40	9.599e+03	7.483e+03	1.28	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:49	1.466e+03				no	0.975

$$\text{OCDD} = \frac{(5.201e+03 + 5.658e+03) \times (200.0)}{(7.845e+03 + 8.739e+03) \times 1.329 \times 1.000} = \text{pg}$$

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
61247

Method M23

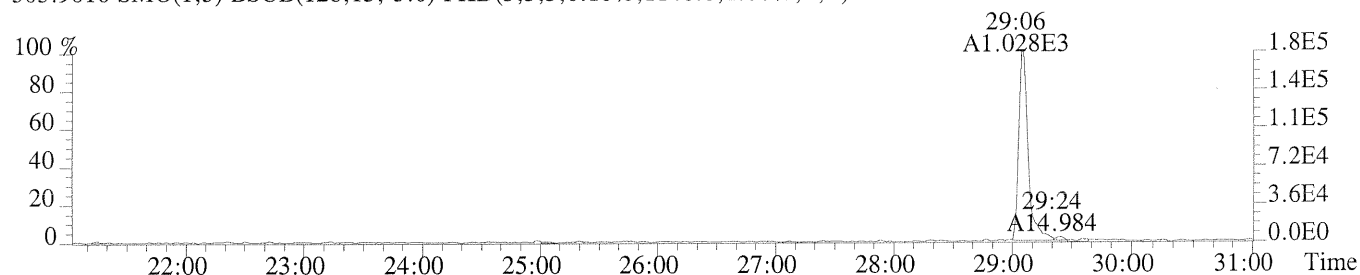
Run #7    Filename U150389    #1    Samp: 1    Inj: 1    Acquired: 15-AUG-14 08:47:16  
Processed: 18-AUG-14 13:21:57    LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.78e+05	1.14e+03	1.6e+02	2.31e+05	1.56e+03	1.5e+02
2	1,2,3,7,8-PeCDF	1.58e+06	1.58e+03	1.0e+03	1.03e+06	1.85e+03	5.6e+02
3	2,3,4,7,8-PeCDF	1.50e+06	1.58e+03	9.5e+02	9.52e+05	1.85e+03	5.2e+02
4	1,2,3,4,7,8-HxCDF	1.40e+06	2.53e+03	5.5e+02	1.13e+06	1.88e+03	6.0e+02
5	1,2,3,6,7,8-HxCDF	1.55e+06	2.53e+03	6.1e+02	1.22e+06	1.88e+03	6.5e+02
6	2,3,4,6,7,8-HxCDF	1.35e+06	2.53e+03	5.3e+02	1.09e+06	1.88e+03	5.8e+02
7	1,2,3,7,8,9-HxCDF	1.03e+06	2.53e+03	4.1e+02	8.06e+05	1.88e+03	4.3e+02
8	1,2,3,4,6,7,8-HpCDF	1.14e+06	2.24e+03	5.1e+02	1.04e+06	3.07e+03	3.4e+02
9	1,2,3,4,7,8,9-HpCDF	6.47e+05	2.24e+03	2.9e+02	6.31e+05	3.07e+03	2.1e+02
10	OCDF	7.49e+05	8.92e+02	8.4e+02	8.29e+05	1.32e+03	6.3e+02
11	2,3,7,8-TCDD	1.33e+05	1.03e+03	1.3e+02	1.55e+05	9.80e+02	1.6e+02
12	1,2,3,7,8-PeCDD	1.04e+06	1.13e+03	9.2e+02	6.25e+05	1.08e+03	5.8e+02
13	1,2,3,4,7,8-HxCDD	1.02e+06	1.02e+03	9.9e+02	7.78e+05	1.84e+03	4.2e+02
14	1,2,3,6,7,8-HxCDD	9.92e+05	1.02e+03	9.7e+02	7.85e+05	1.84e+03	4.3e+02
15	1,2,3,7,8,9-HxCDD	9.13e+05	1.02e+03	8.9e+02	7.25e+05	1.84e+03	3.9e+02
16	1,2,3,4,6,7,8-HpCDD	6.55e+05	1.43e+03	4.6e+02	6.14e+05	1.21e+03	5.1e+02
17	OCDD	6.49e+05	1.12e+03	5.8e+02	7.20e+05	1.12e+03	6.4e+02
18	13C-2,3,7,8-TCDF	1.74e+06	1.12e+03	1.6e+03	2.13e+06	1.27e+03	1.7e+03
19	13C-1,2,3,7,8-PeCDF	2.98e+06	2.02e+03	1.5e+03	1.85e+06	2.06e+03	9.0e+02
20	13C-2,3,4,7,8-PeCDF	3.11e+06	2.02e+03	1.5e+03	1.94e+06	2.06e+03	9.4e+02
21	13C-1,2,3,4,7,8-HxCDF	1.37e+06	1.75e+03	7.8e+02	2.59e+06	3.23e+03	8.0e+02
22	13C-1,2,3,6,7,8-HxCDF	1.57e+06	1.75e+03	9.0e+02	3.08e+06	3.23e+03	9.5e+02
24	13C-1,2,3,7,8,9-HxCDF	1.01e+06	1.75e+03	5.8e+02	1.92e+06	3.23e+03	5.9e+02
25	13C-1,2,3,4,6,7,8-HpCDF	9.26e+05	2.30e+03	4.0e+02	2.03e+06	1.88e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.14e+05	2.30e+03	2.7e+02	1.35e+06	1.88e+03	7.2e+02
27	13C-2,3,7,8-TCDD	1.24e+06	2.10e+03	5.9e+02	1.64e+06	1.20e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	1.89e+06	1.54e+03	1.2e+03	1.18e+06	1.11e+03	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.66e+06	1.14e+03	1.5e+03	1.28e+06	2.41e+03	5.3e+02
30	13C-1,2,3,6,7,8-HxCDD	1.60e+06	1.14e+03	1.4e+03	1.29e+06	2.41e+03	5.3e+02
31	13C-1,2,3,4,6,7,8-HpCDD	1.22e+06	1.02e+03	1.2e+03	1.08e+06	1.16e+03	9.3e+02
32	13C-OCDD	1.01e+06	1.13e+03	8.9e+02	1.10e+06	9.56e+02	1.1e+03
33	13C-1,2,3,4-TCDD	1.36e+06	2.10e+03	6.5e+02	1.79e+06	1.20e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.55e+06	1.14e+03	1.4e+03	1.22e+06	2.41e+03	5.1e+02
35	37Cl-2,3,7,8-TCDD	2.86e+05	1.11e+03	2.6e+02			

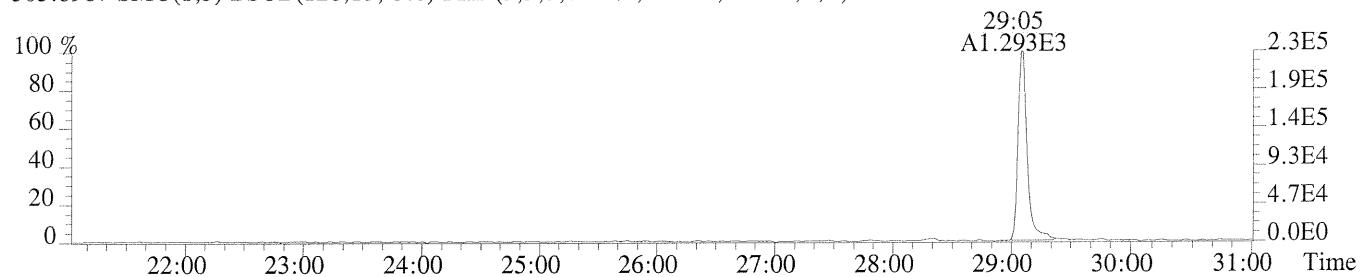
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713)266-1599. Fax: (713)266-0130

ALS Form TO-9SN/M23SN.FRM

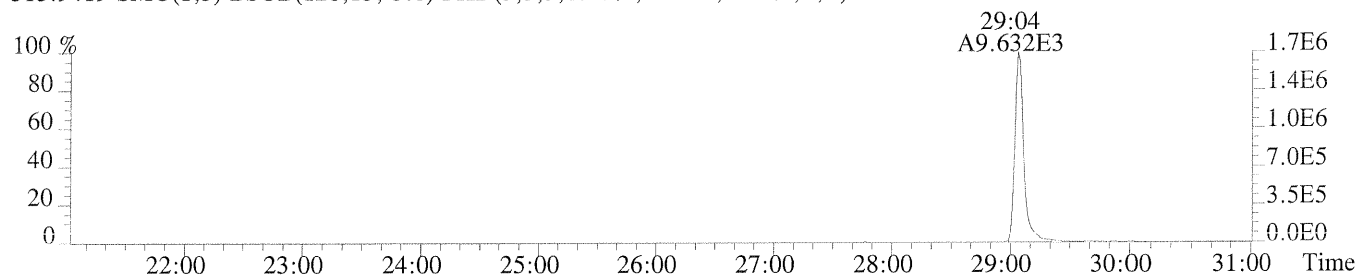
File:U150389 #1-627 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



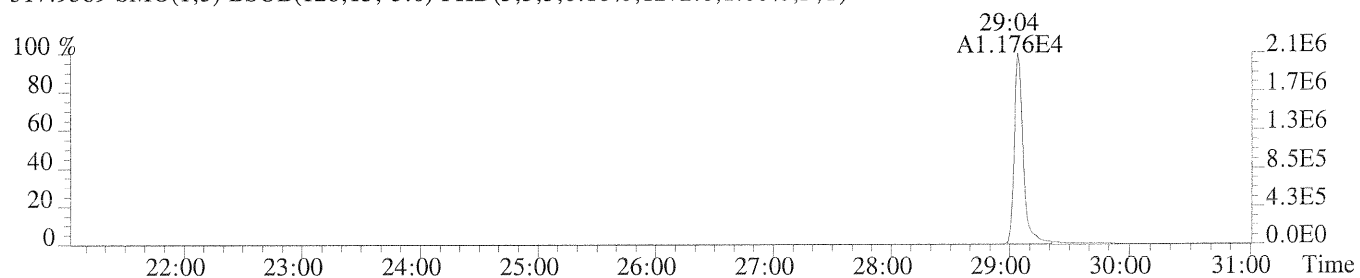
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



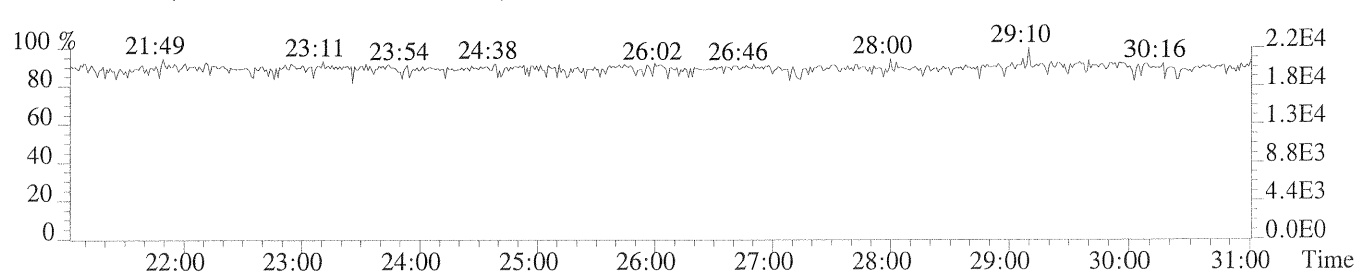
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



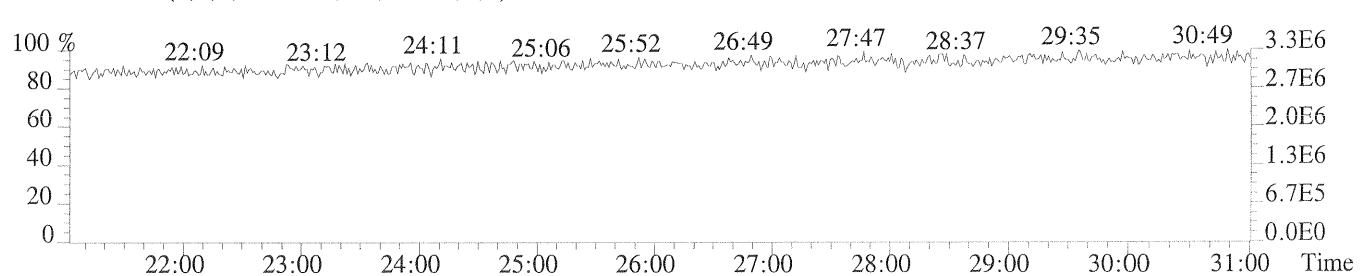
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



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

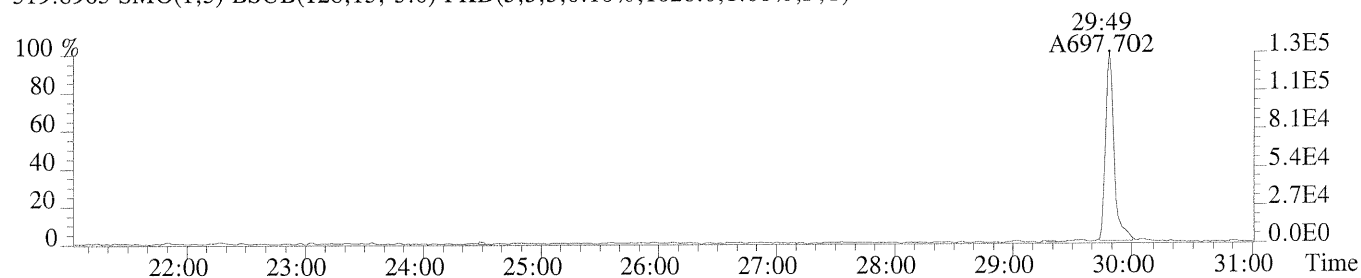


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

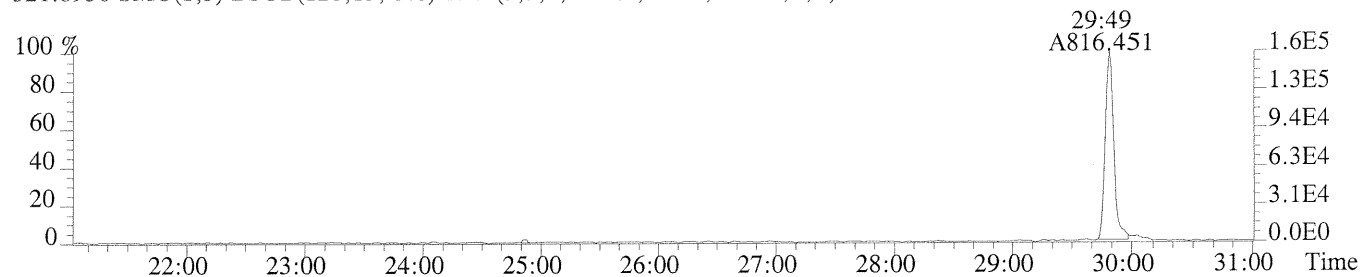


Sample#1 Exp:CS3

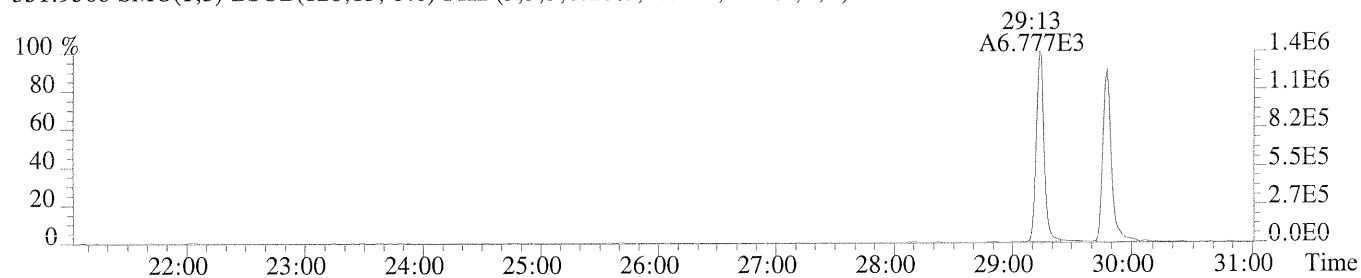
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



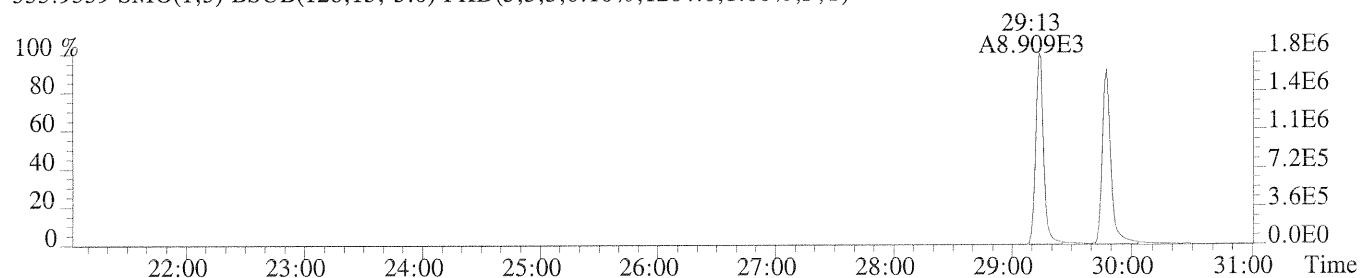
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



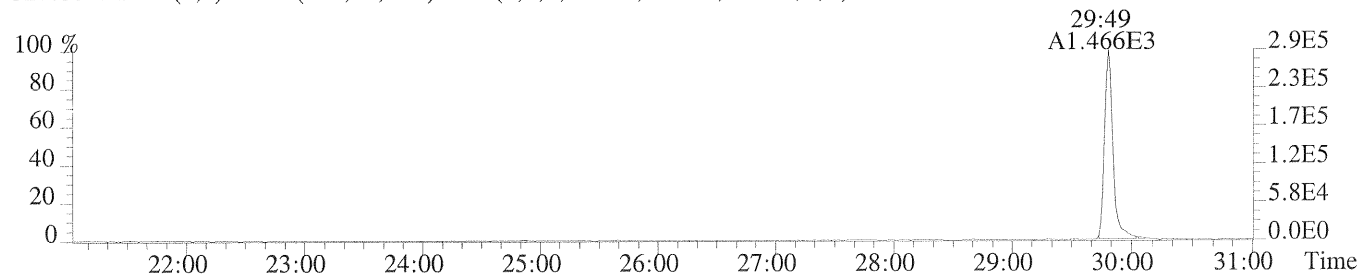
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



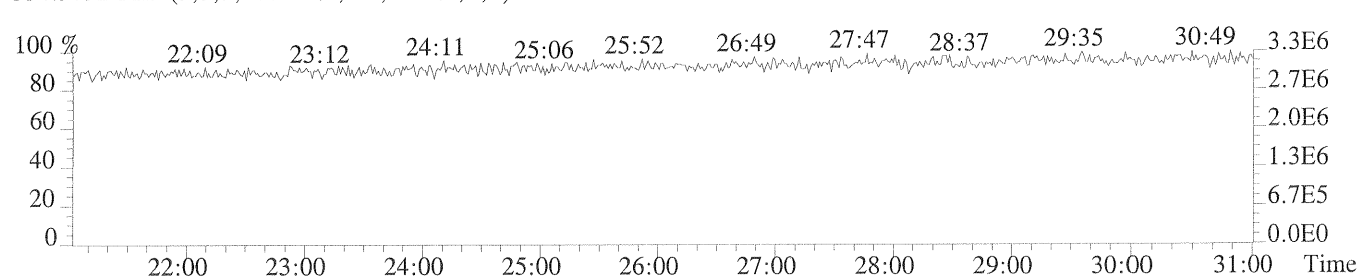
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



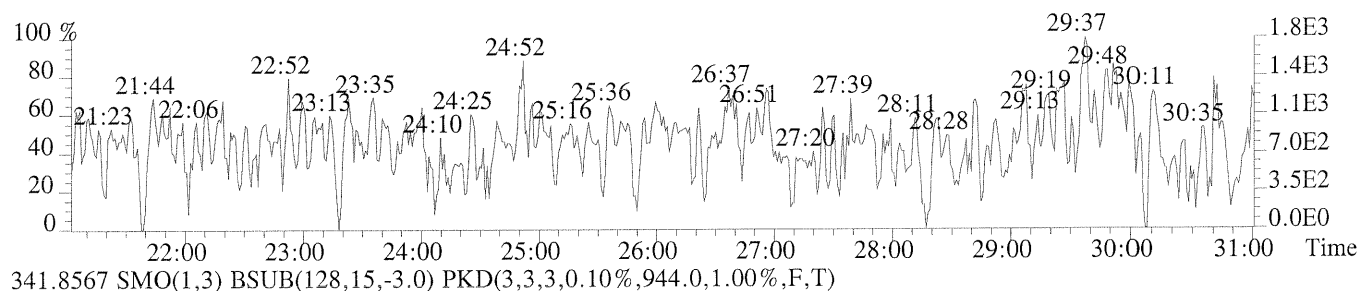
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



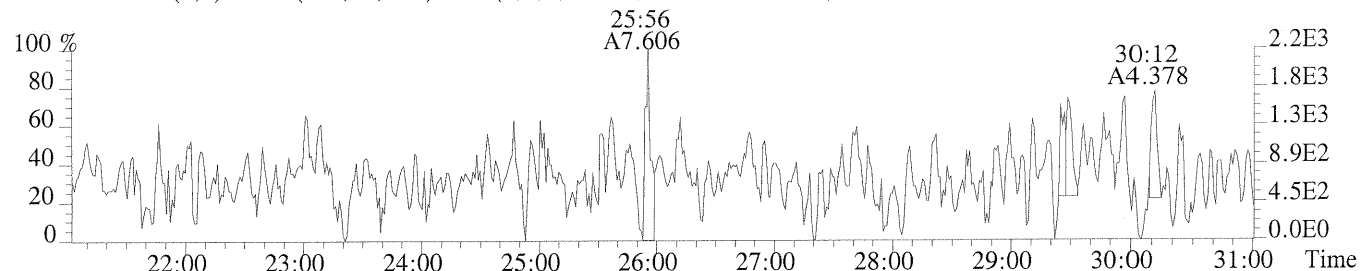
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



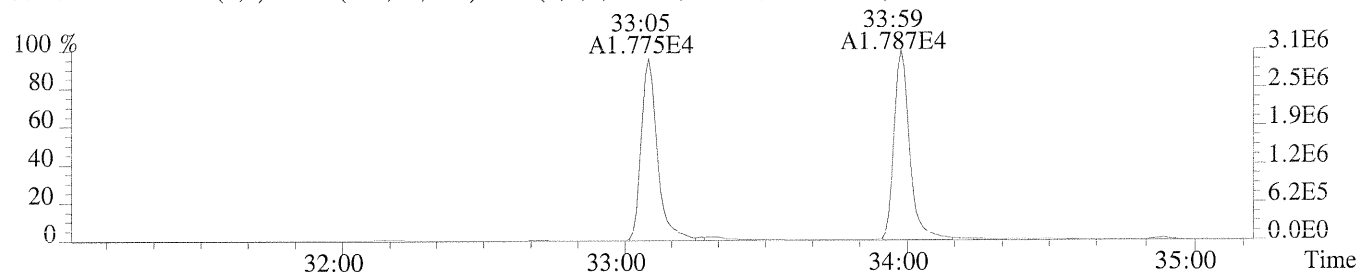
File:U150389 #1-627 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



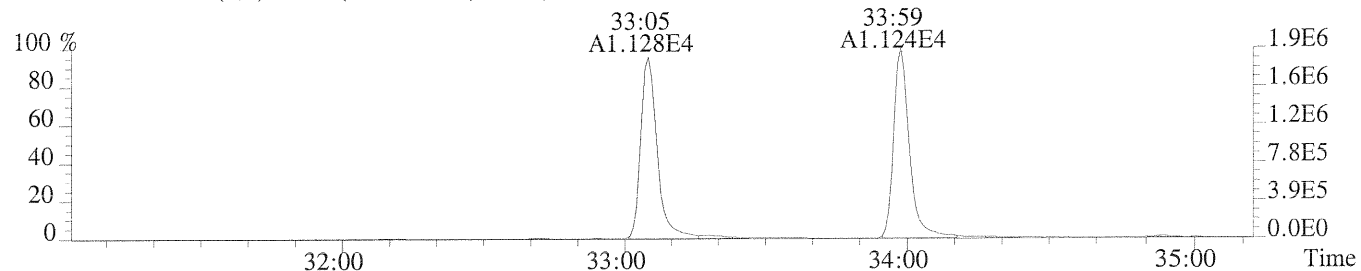
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



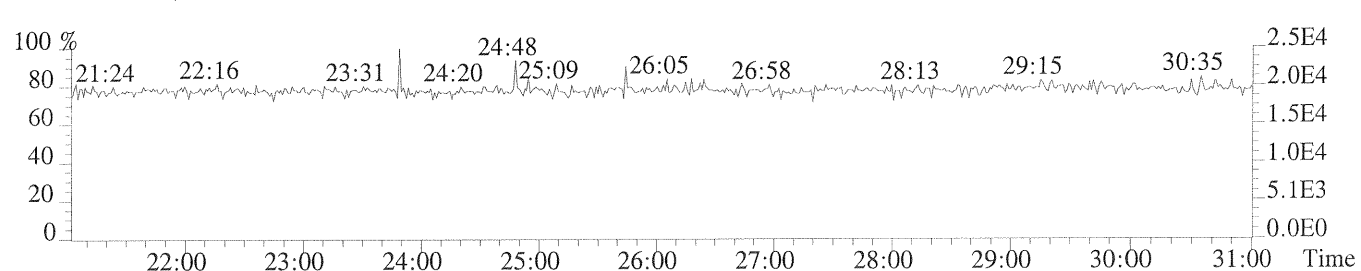
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



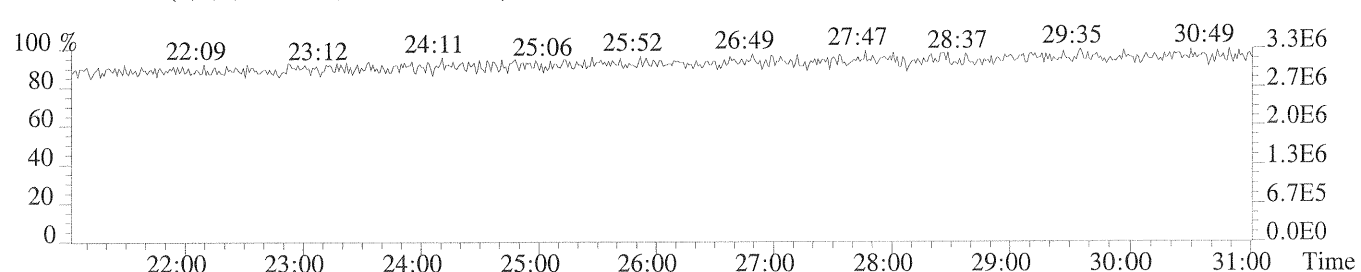
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



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

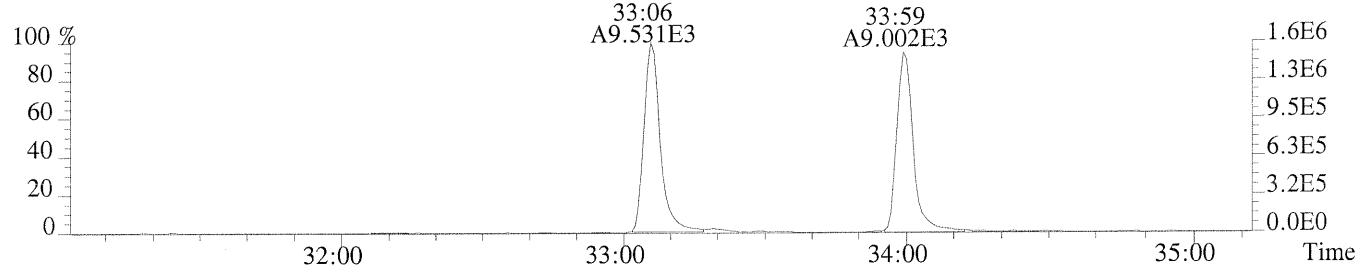


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

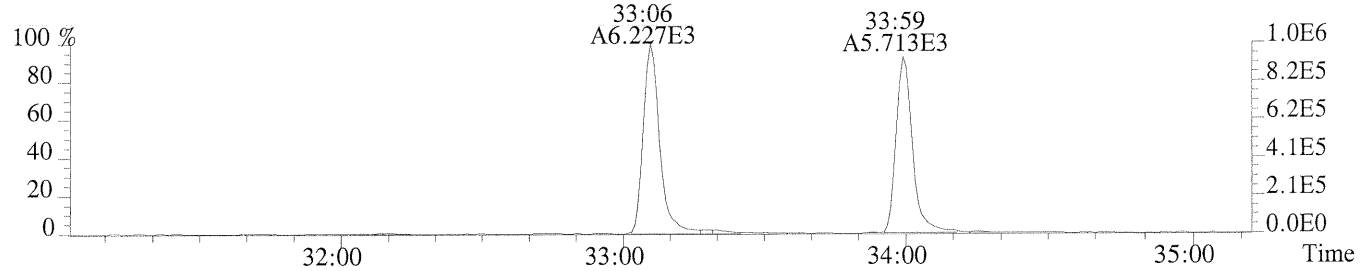




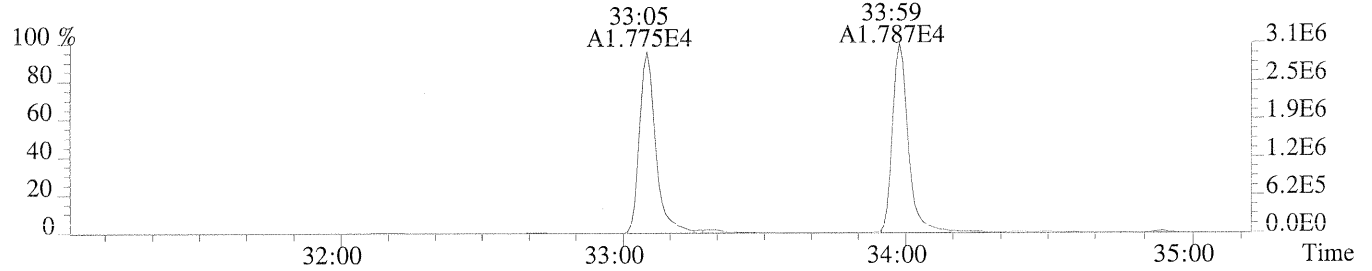
File:U150389 #1-378 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



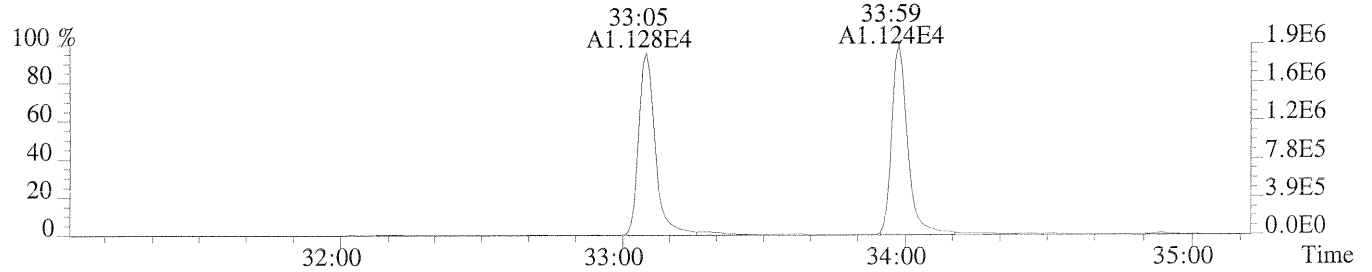
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1848.0,1.00%,F,T)



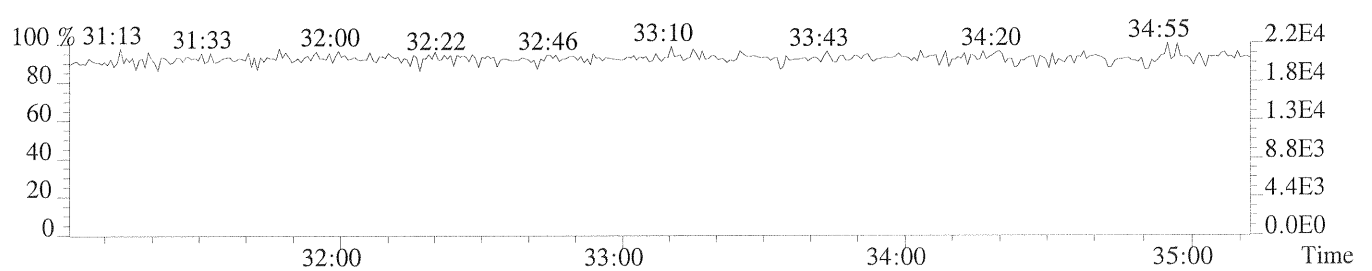
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



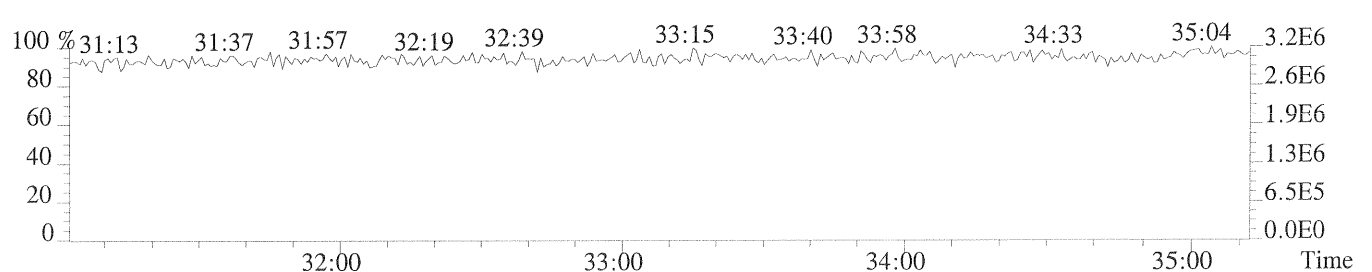
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



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

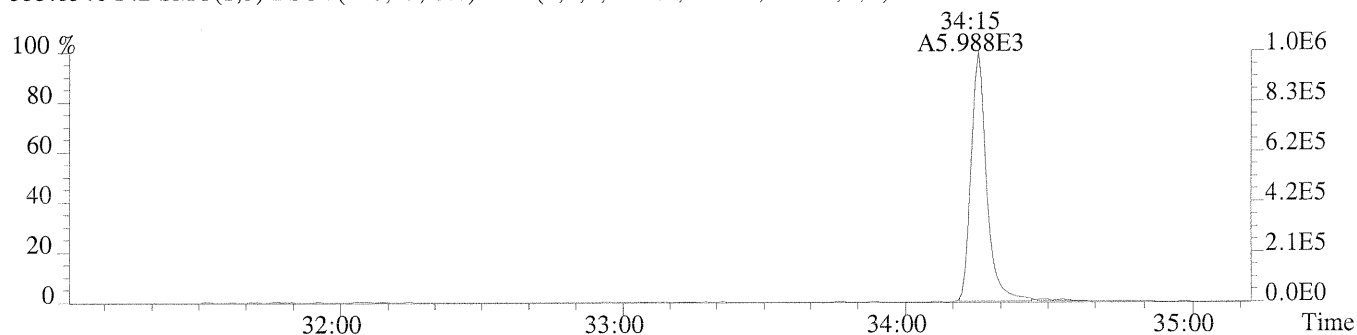


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

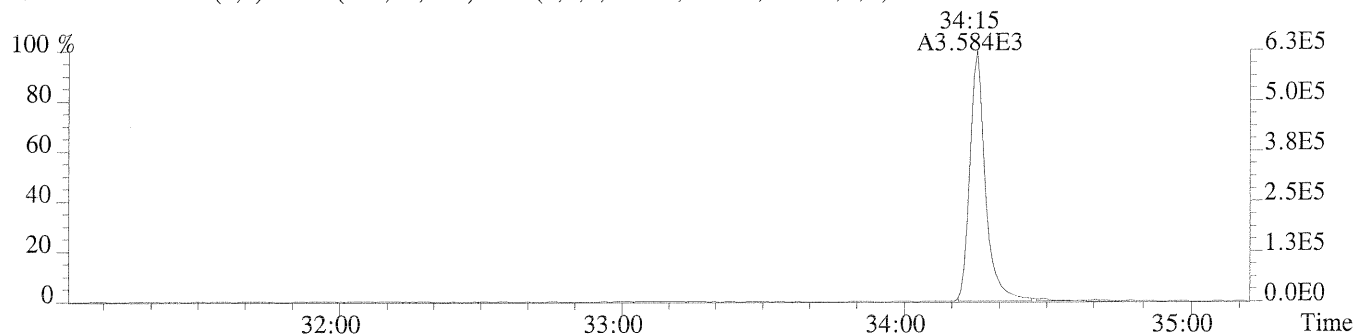


File:U150389 #1-378 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3

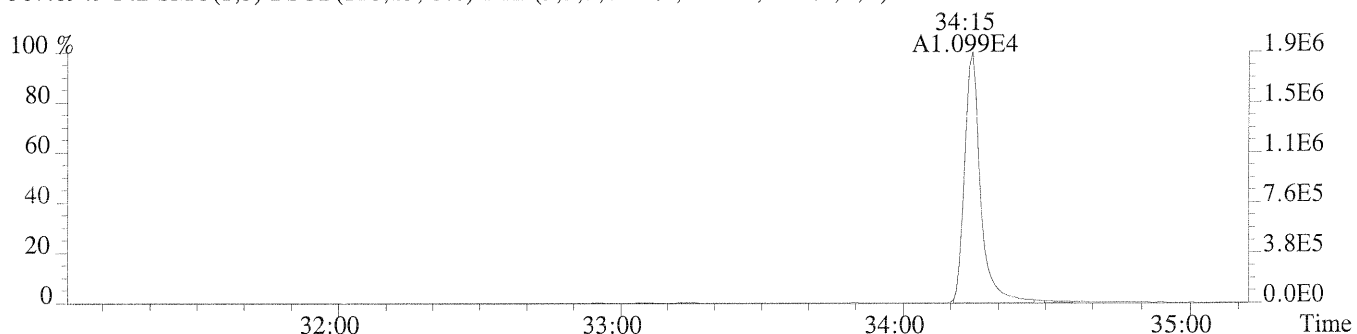
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



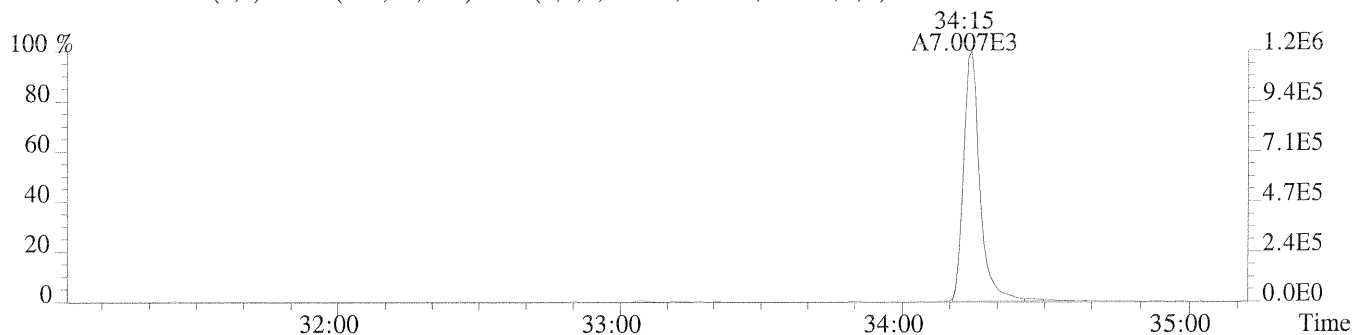
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



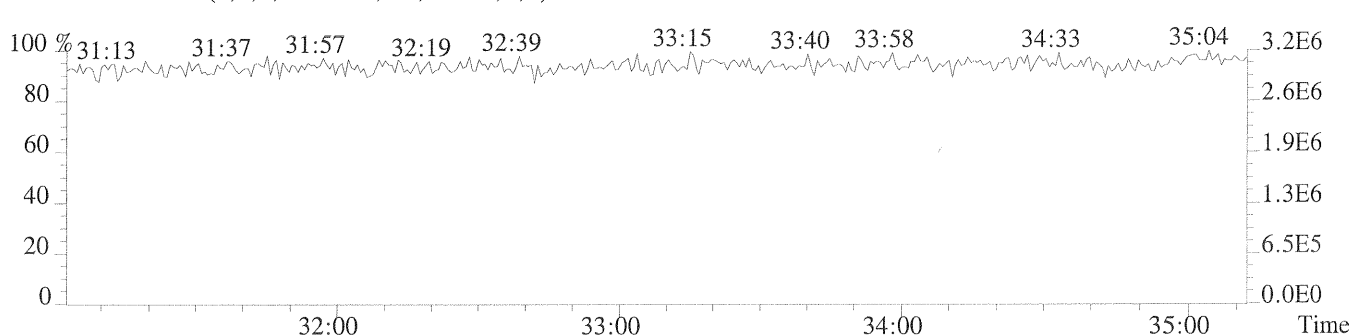
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



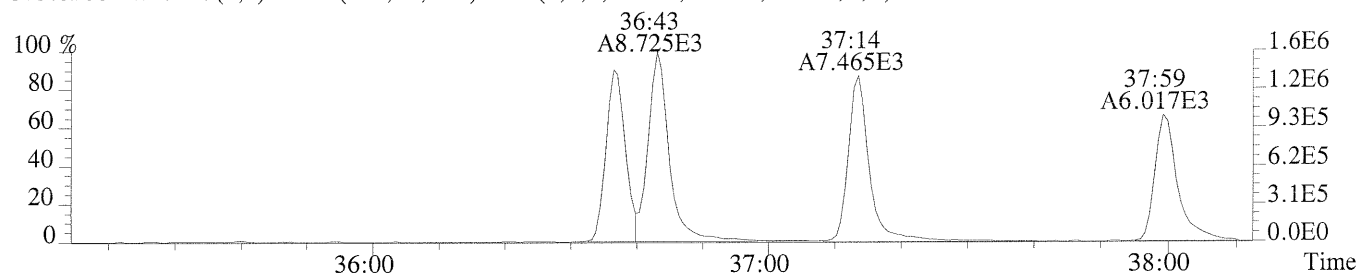
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



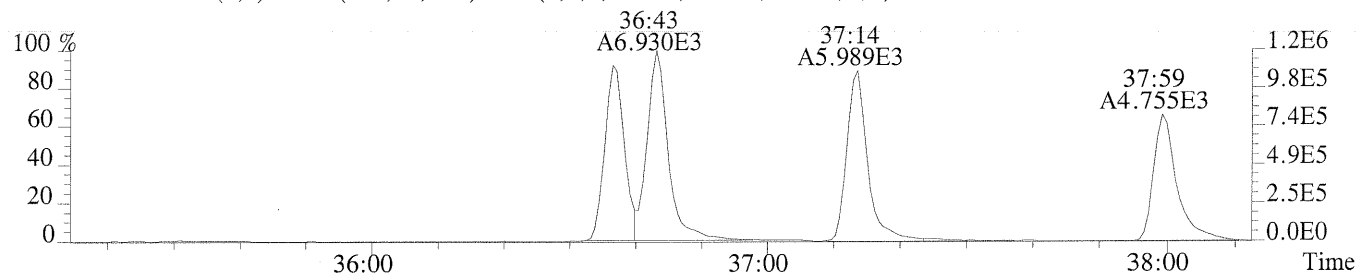
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



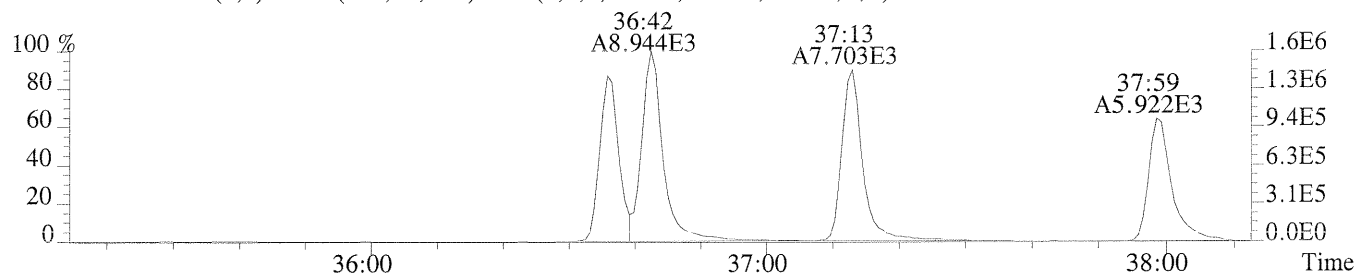
File:U150389 #1-270 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.40%,F,T)



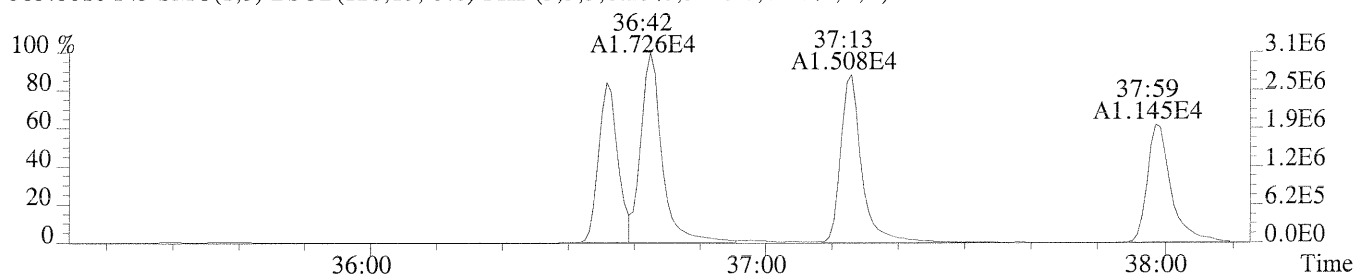
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1884.0,0.40%,F,T)



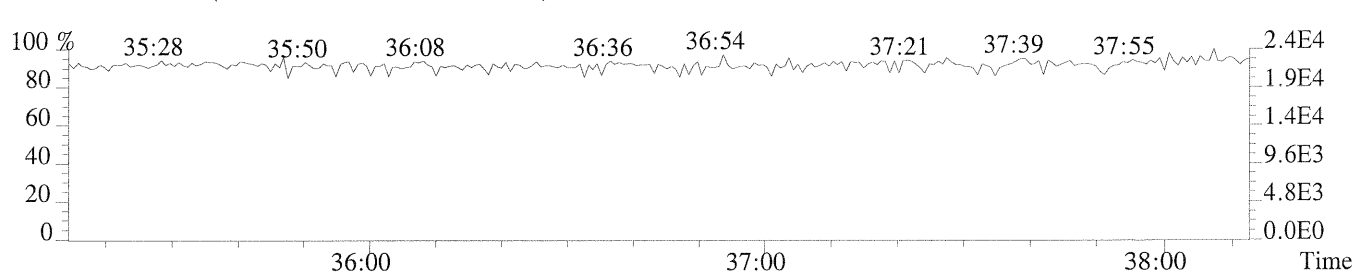
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1748.0,0.40%,F,T)



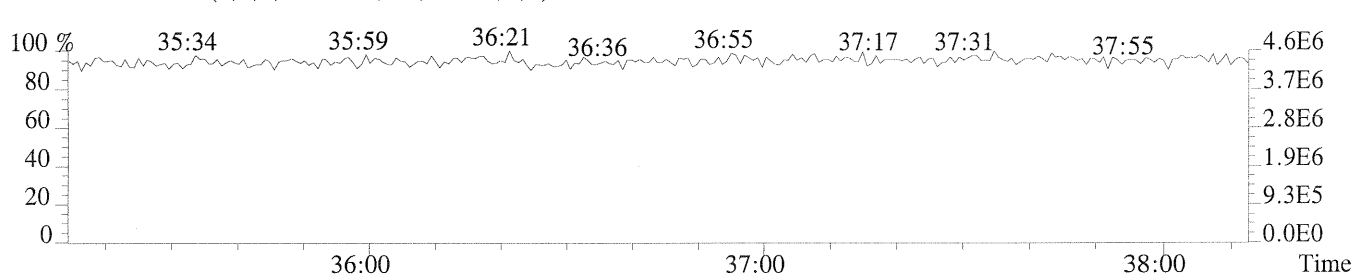
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3228.0,0.40%,F,T)



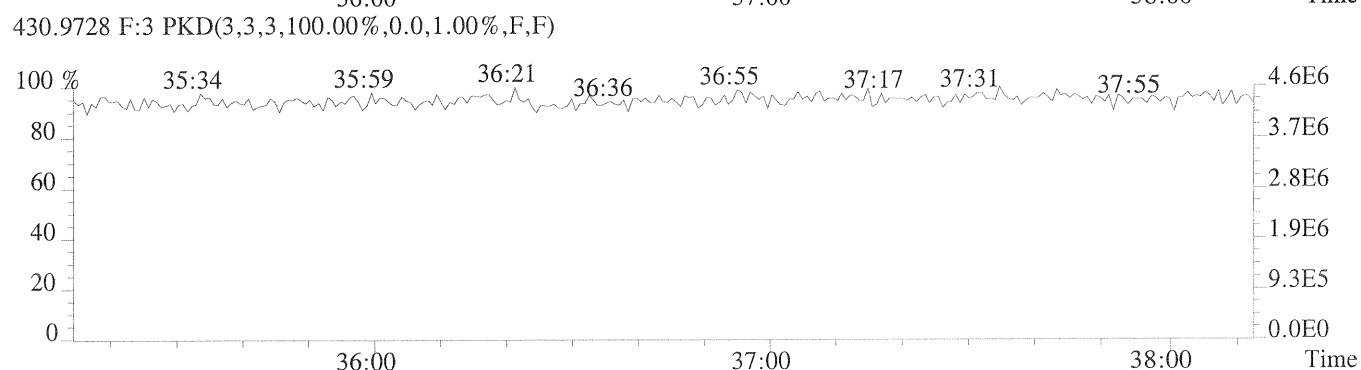
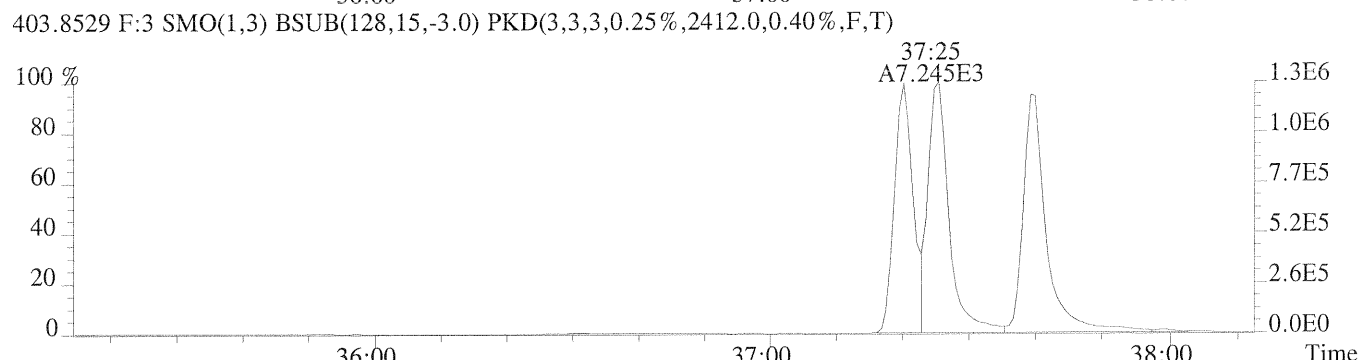
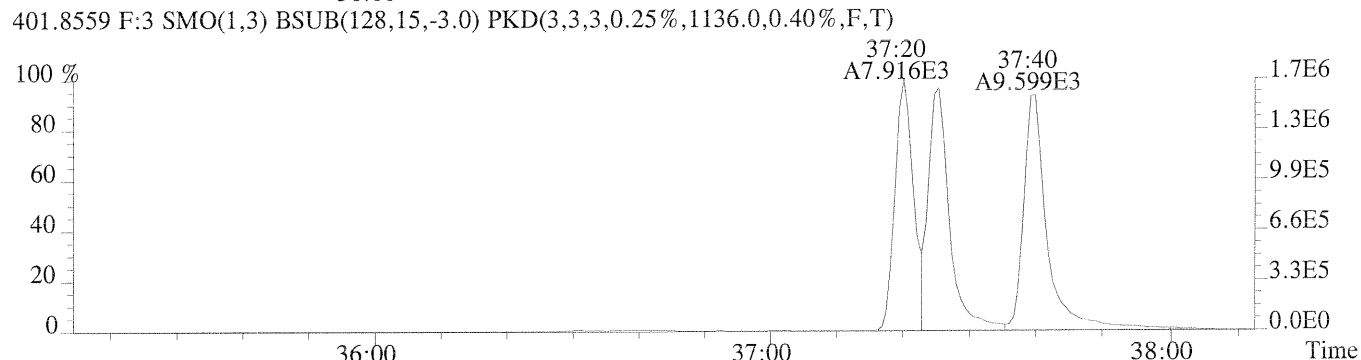
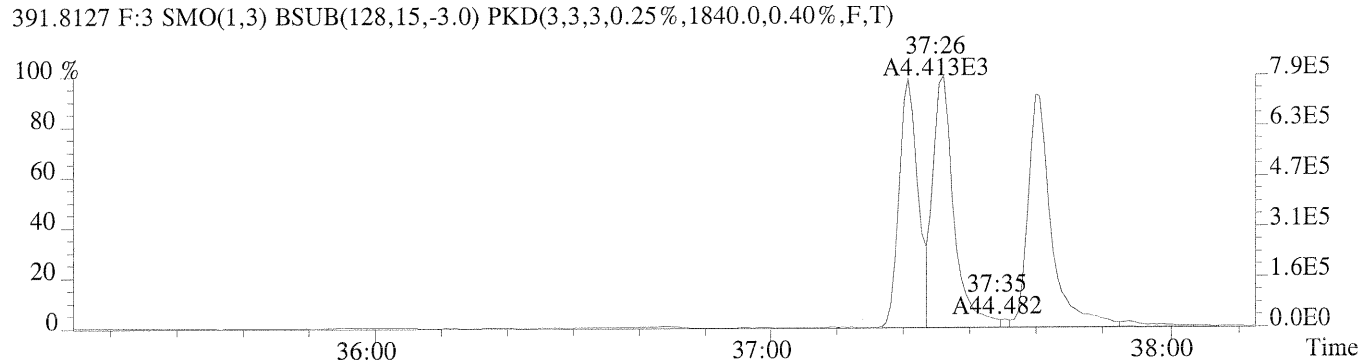
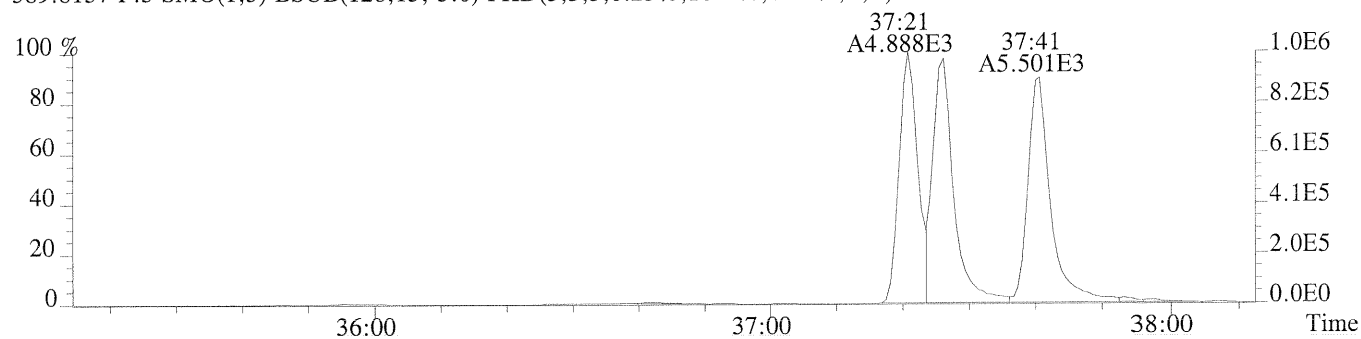
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



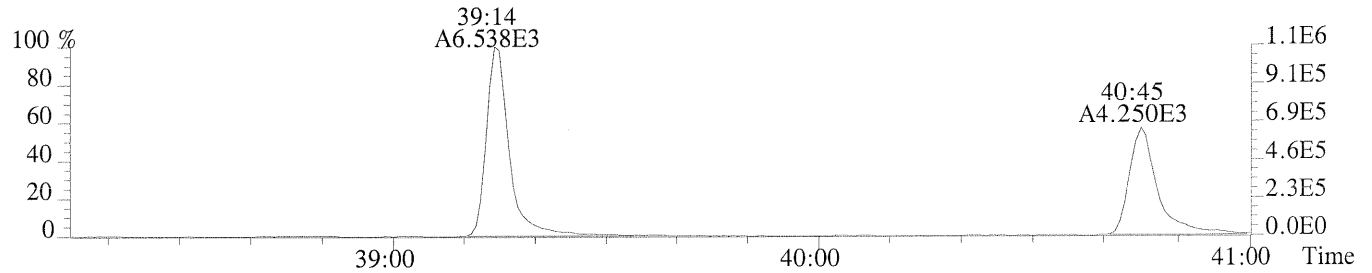
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



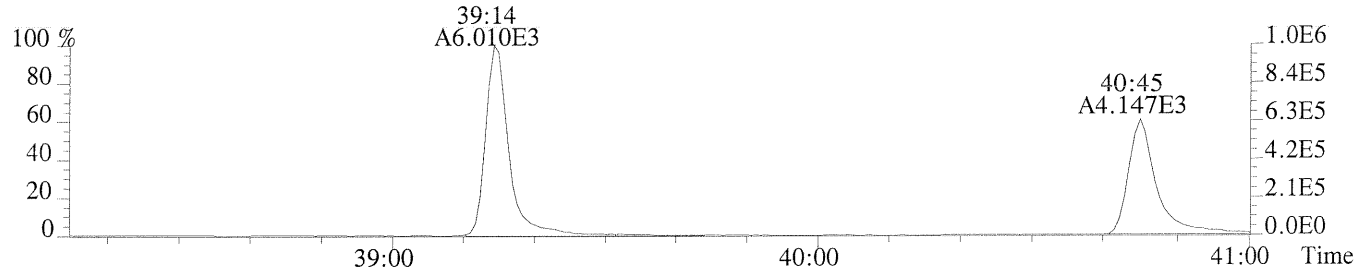
File:U150389 #1-270 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



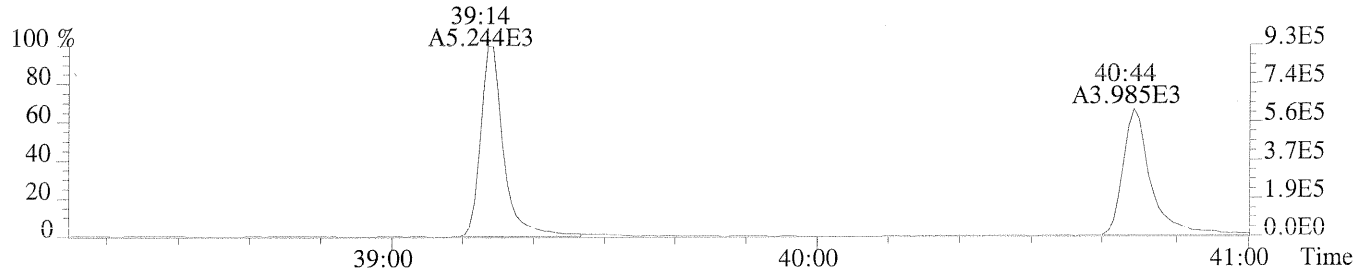
File:U150389 #1-251 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2244.0,0.50%,F,T)



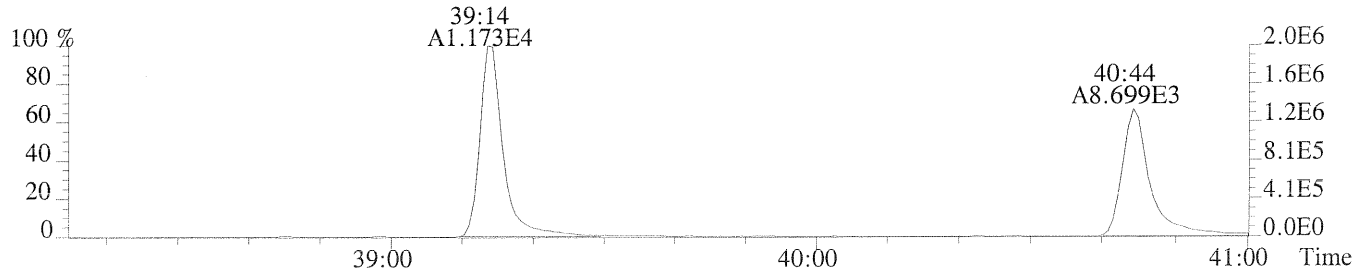
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3068.0,0.50%,F,T)



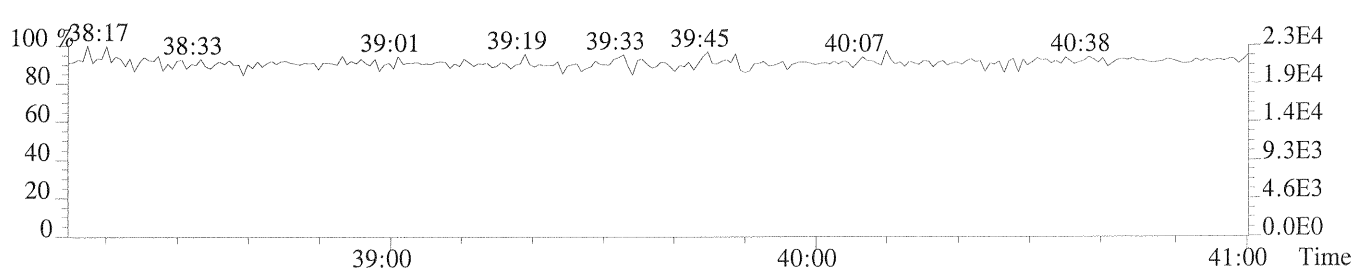
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.50%,F,T)



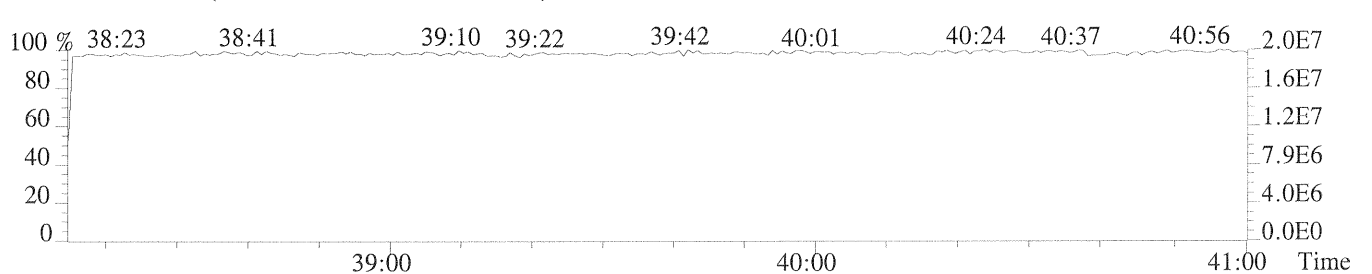
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.50%,F,T)



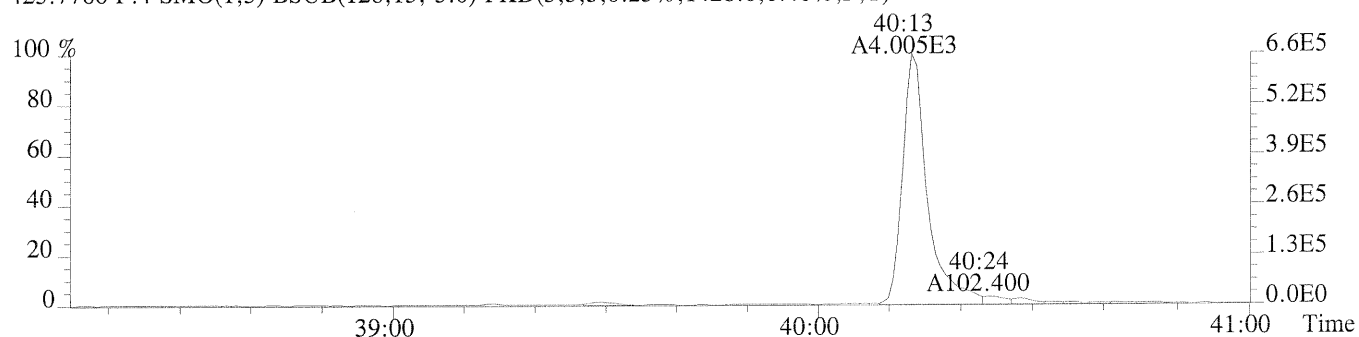
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



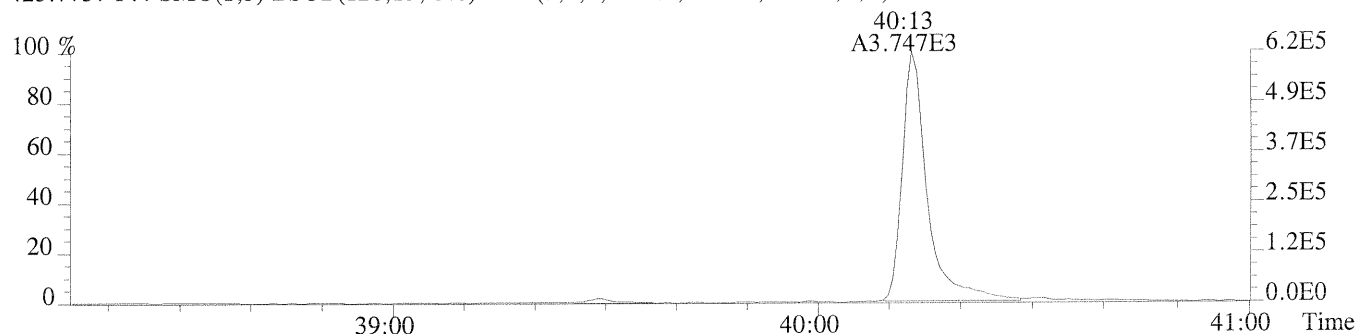
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



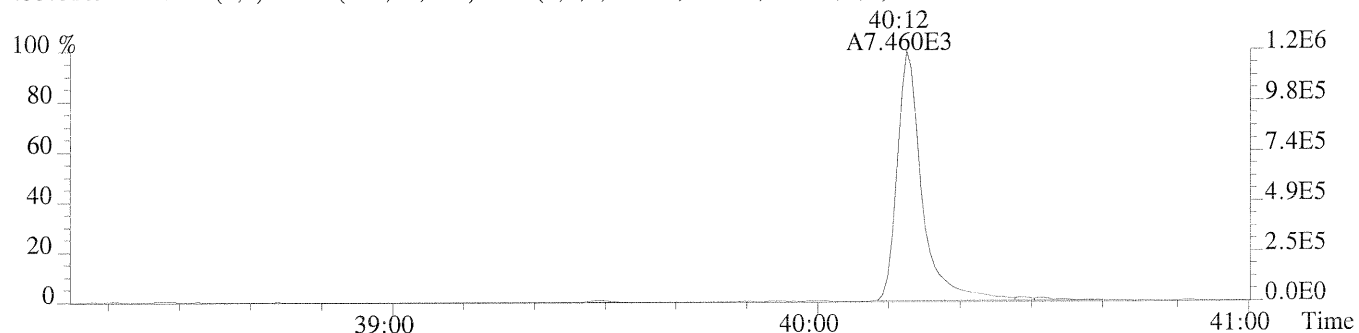
File:U150389 #1-251 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



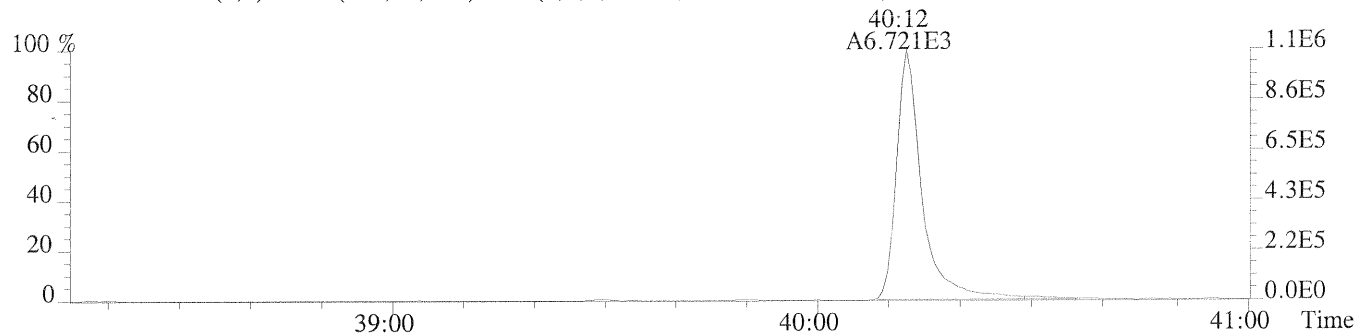
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



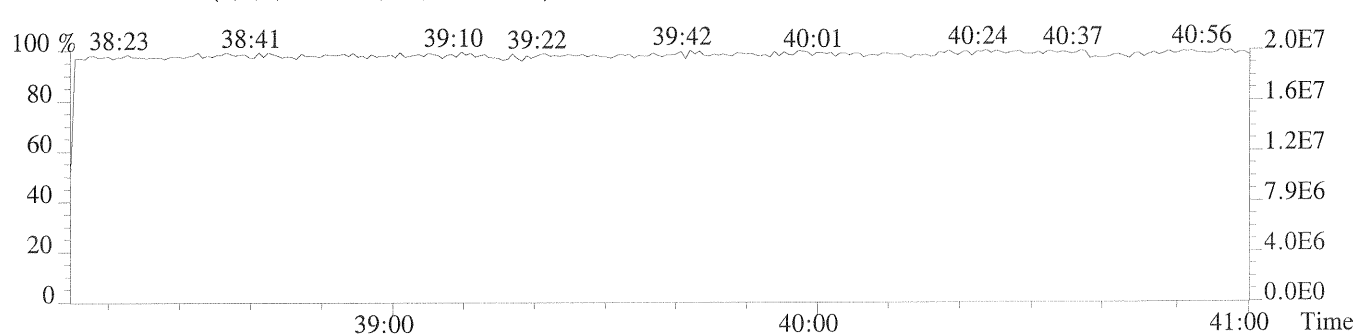
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



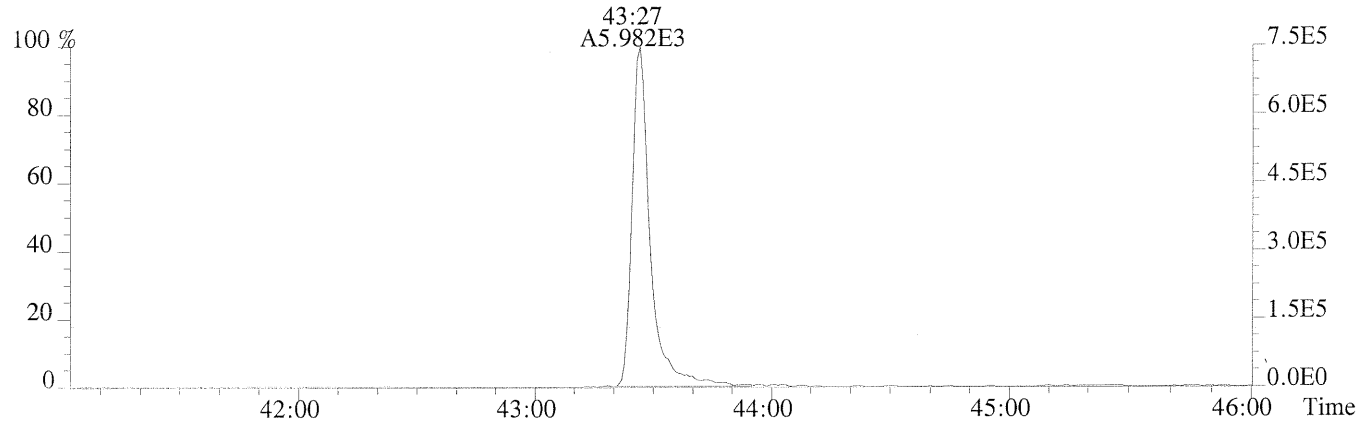
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



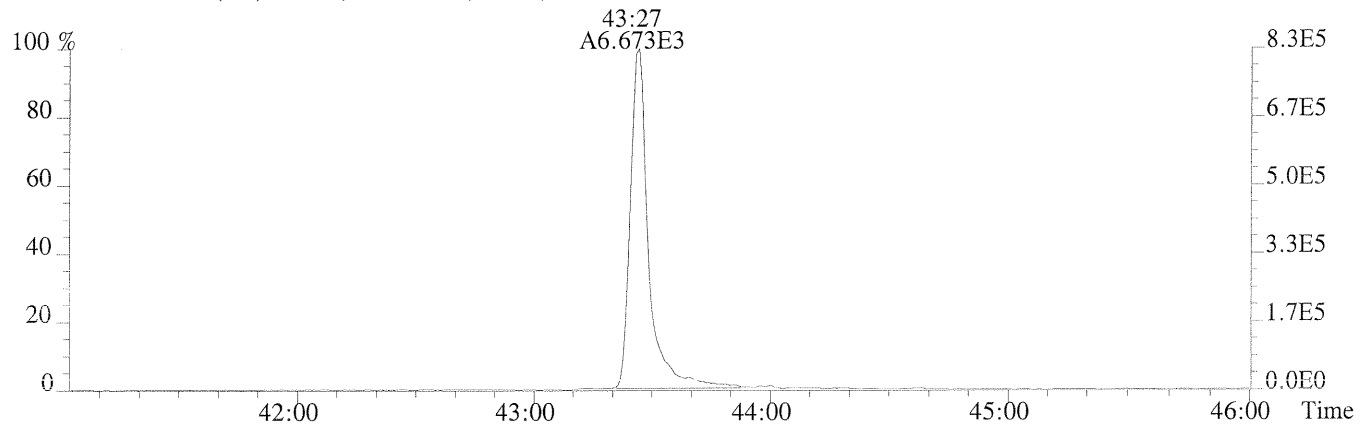
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



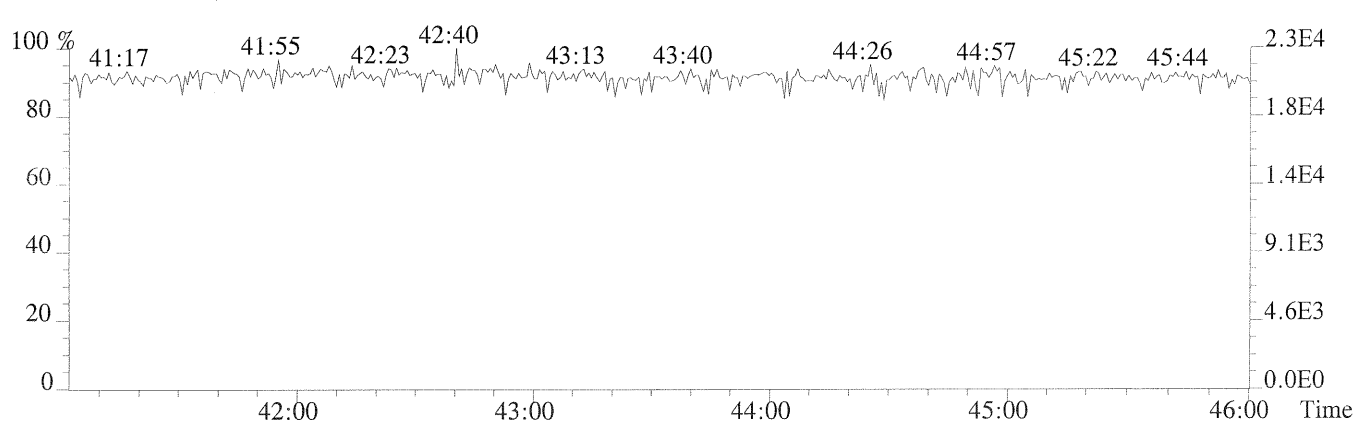
File:U150389 #1-451 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



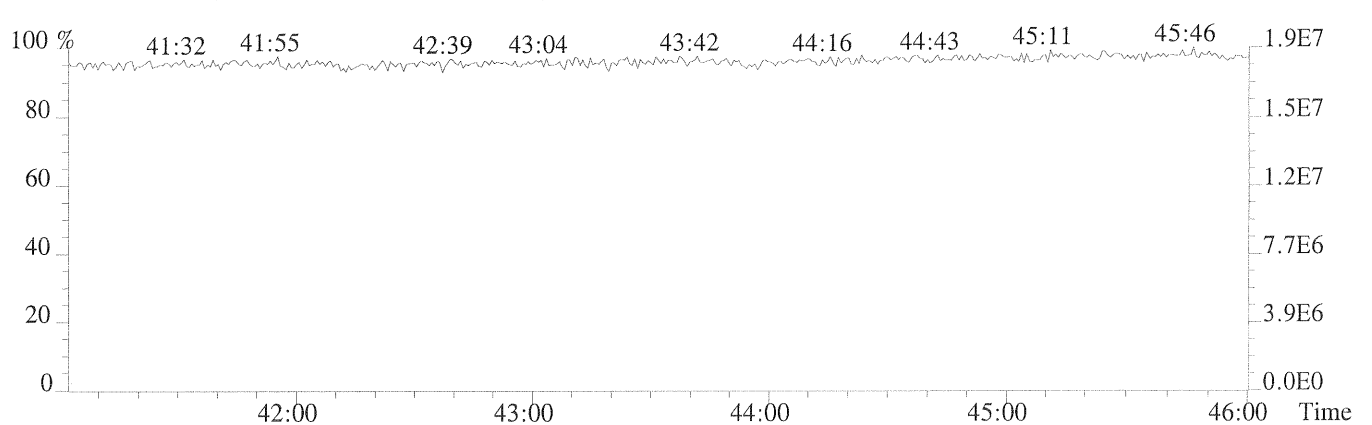
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1324.0,0.40%,F,T)



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

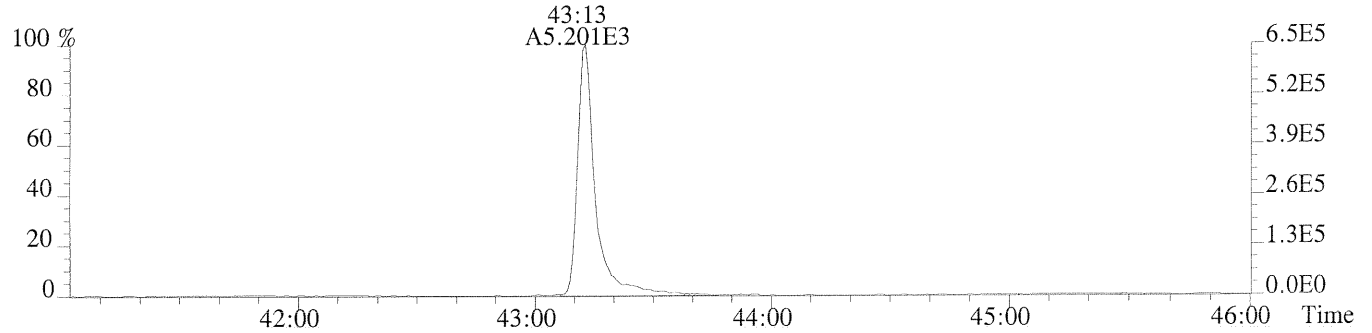


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

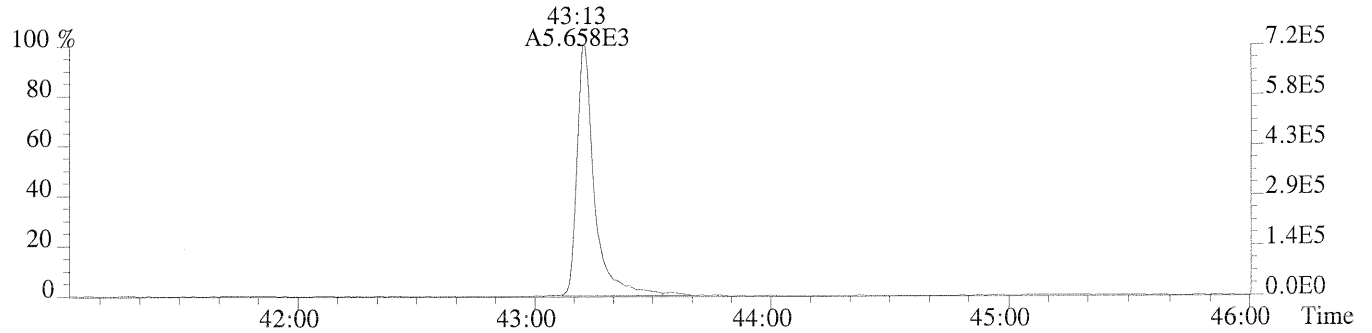


File:U150389 #1-451 Acq:15-AUG-2014 08:47:16 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3

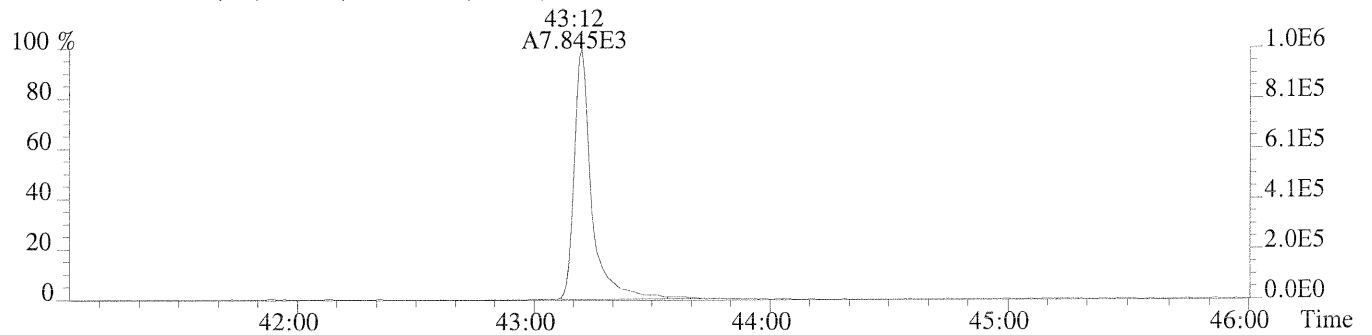
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1116.0,0.40%,F,T)



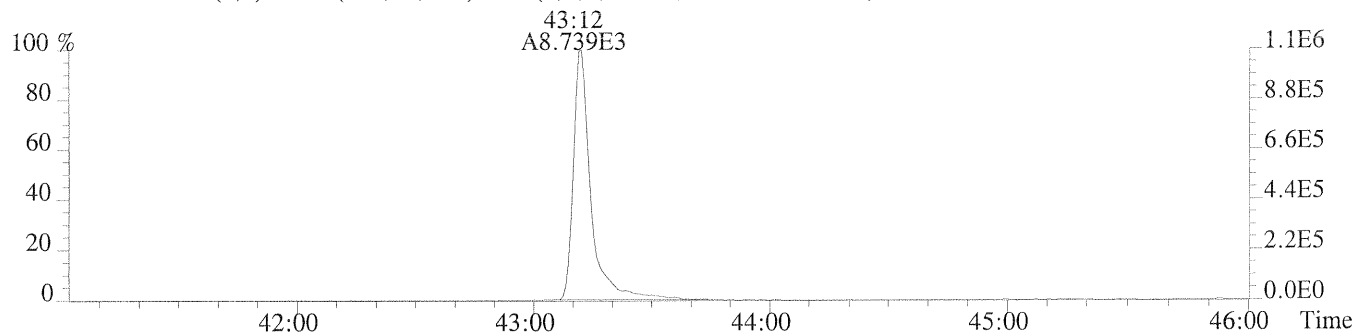
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1116.0,0.40%,F,T)



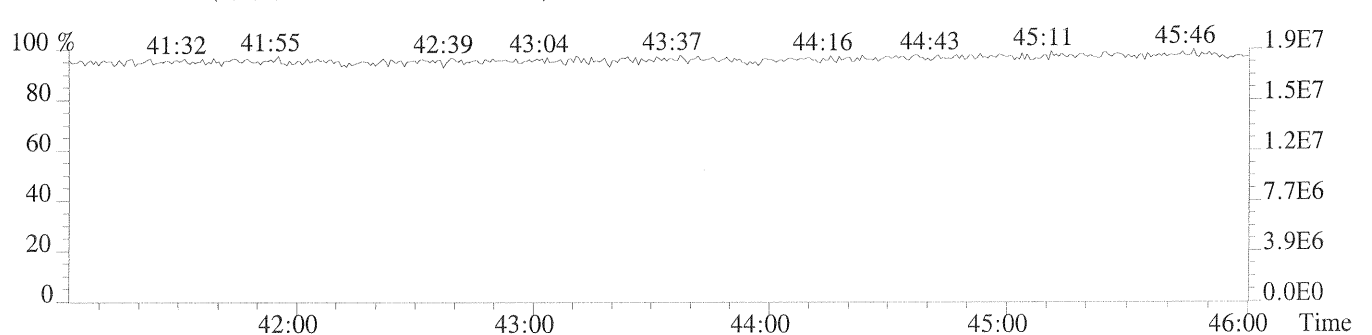
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1132.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,956.0,0.40%,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](http://www.alsglobal.com)

## Laboratory Review Checklist: HRMS Initial Calibration

Method: M23	Process Date: 08/12/2014				
Instrument Name: E-HRMS-04	Calibration File Name: P140811M23I				
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong				
Description	Yes	No	NA	NR	ER#
<b>Analytical Sequence</b>					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	X				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	X				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	X				
Were all calibration standards analyzed only once?	X				
Was the ICV analyzed after the ICAL, before analyzing samples?	X				
<b>Mass Resolution Check</b>					
Are beginning and ending resolution checks provided and legible?	X				
Were all target masses >10,000 resolving power at the beginning of the sequence?	X				
Were all target masses >10,000 resolving power at the end of the sequence?	X				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			X		
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?			X		
<b>Window Define/209</b>					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	X				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	X				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	X				
Were all first and last eluters adequately resolved in each function?	X				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			X		
Was the retention time of PCB 209 >55 min?			X		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			X		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			X		
<b>Calibration Standards</b>					
Were there at least 5 calibration standards analyzed?	X				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			X		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	X				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	X				

## Laboratory Review Checklist: HRMS Initial Calibration

Method: M23		Process Date: 08/12/2014				
Instrument Name: E-HRMS-04		Calibration File Name: P140811M23I				
Processor Name: Chris Elhardt		Reviewer Name: Loan Luong				
Description	Yes	No	NA	NR	ER#	
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	X				1	
Were area counts for the highest calibration standard below levels of saturation?	X					
Were manual integrations technically justified to correct for poor software integration?	X				2	
<b>Response Factors</b>						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	X					
Were all calibration standards used in determining response factors?	X					
Were relative response factors (RR) for each native analyte calculated at each calibration point?	X					
Did the RSD for RRFs for each native analyte meet method criteria?	X					
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	X					
Were RFs for each labeled compound calculated for each calibration point?	X					
Did the RSD for RF for each labeled compound meet method criteria?	X					
<b>Initial Calibration Verification</b>						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	X					
Did all analytes meet method criteria for the ICV.	X					

Laboratory Review Checklist: Initial Calibration	
Method: M23	
Process Date: 08/12/2014	
Instrument Name: E-HRMS-04	
Calibration File Name: P140811M23I	
Processor Name: Chris Elhardt	
Reviewer Name: Loan Luong	
ER#	Description
5	
1	TCDF/TCDD on CS0.5 did not meet method criteria for signal-to-noise ratios (S/N).
2	Manual Integration on CS0.5, CS1, CS2, CS3 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: P140811M23I

Date: 08/11/14

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 <u>DB-5MSVI</u>	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	<u>TCDD/TCDF on CS0.5</u>	<u>TCDD/TCDF on CS0.5</u>
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	<u>N/A</u>	<u>N/A</u>
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: cee

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-04

Init. Calib. Date: 08/11/14

Init. Calib. Times: 17:39:00

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

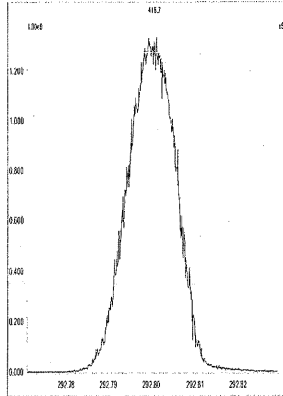
EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	63680	P230454	11-AUG-14	17:39:00
CS0.5	66807	P230455	11-AUG-14	18:27:35
CS1	66798	P230456	11-AUG-14	19:19:54
CS2	D12-90-3B	P230457	11-AUG-14	20:07:47
CS3	63383	P230458	11-AUG-14	20:55:34
CS4	D12-90-3D	P230459	11-AUG-14	21:43:25
CS5	66799	P230460	11-AUG-14	22:31:11
2ND SRC CCV	54819	P230461	11-AUG-14	23:19:03



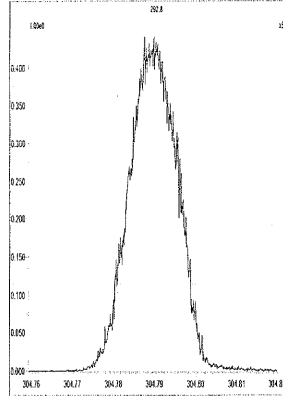
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, August 11, 2014 15:26:32 Central Daylight Time

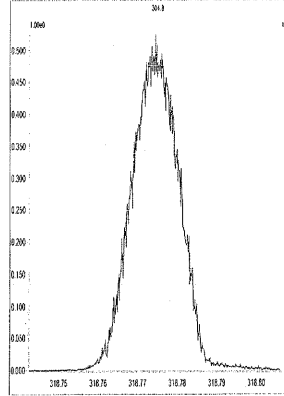
M 292.9824 R 12194



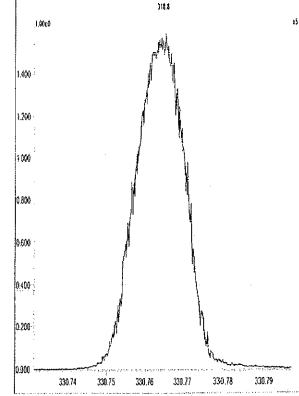
M 304.9824 R 12138



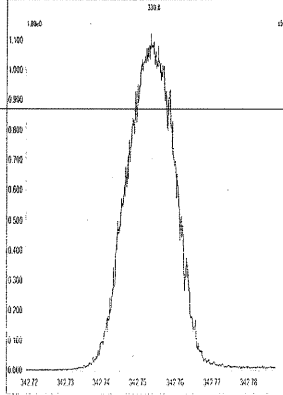
M 318.9792 R 12954



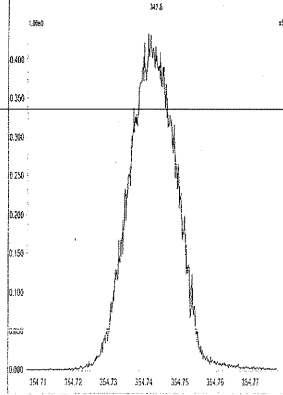
M 330.9792 R 12624



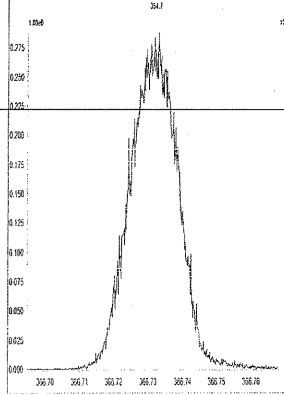
M 342.9792 R 12316



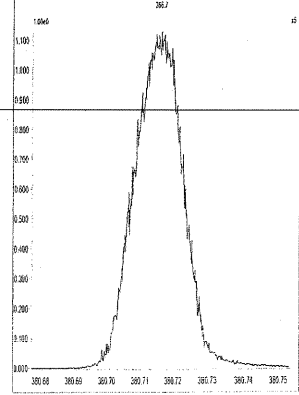
M 354.9792 R 12436



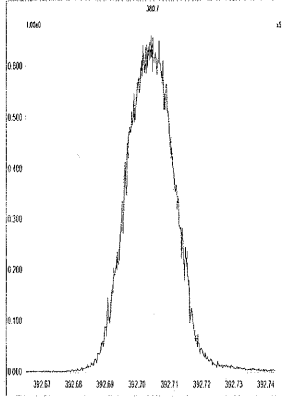
M 366.9792 R 12439



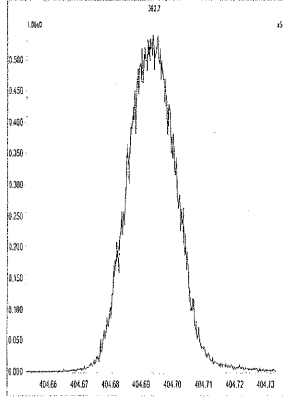
M 380.9760 R 12438



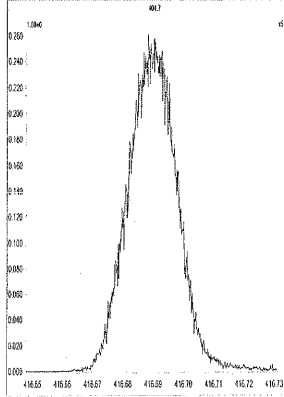
M 392.9760 R 11851



M 404.9760 R 11905



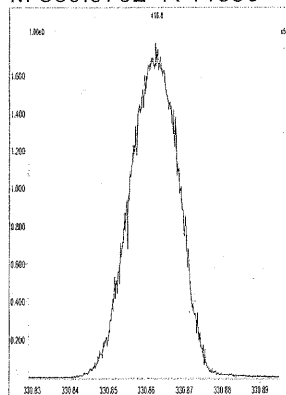
M 416.9760 R 11315



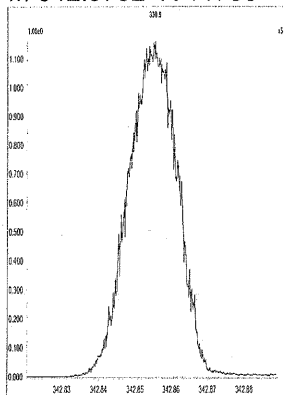
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, August 11, 2014 15:27:38 Central Daylight Time

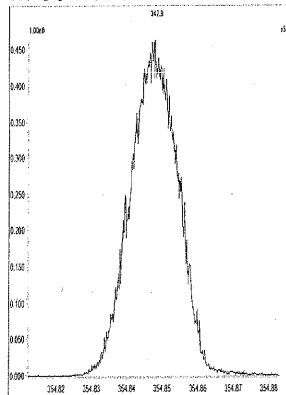
M 330.9792 R 11850



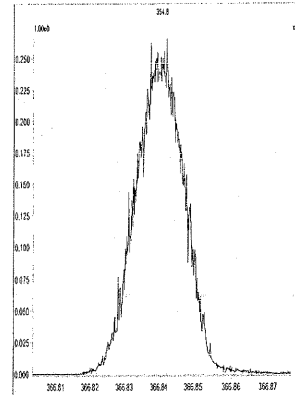
M 342.9792 R 11736



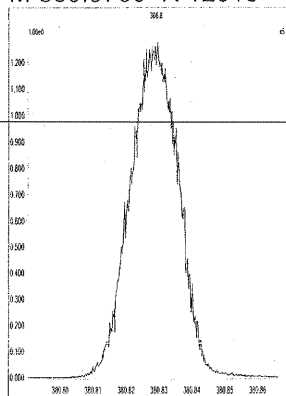
M 354.9792 R 12257



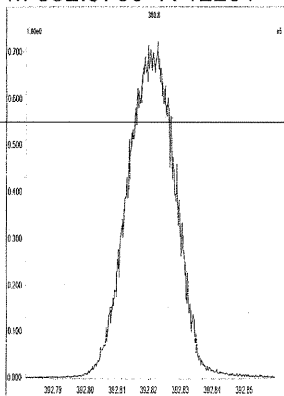
M 366.9792 R 11844



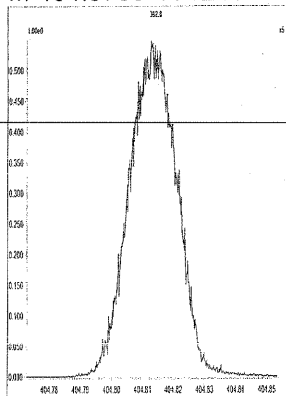
M 380.9760 R 12018



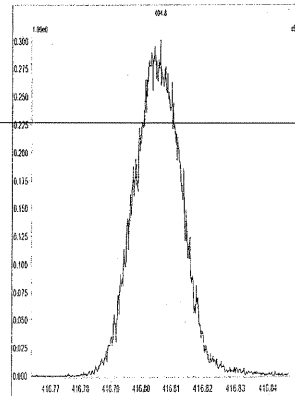
M 392.9760 R 12251



M 404.9760 R 12499



M 416.9760 R 12688

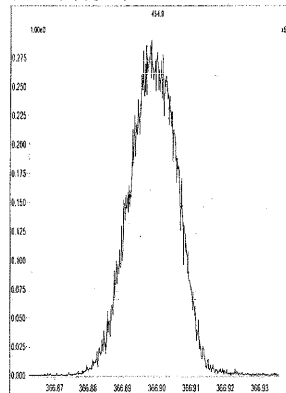




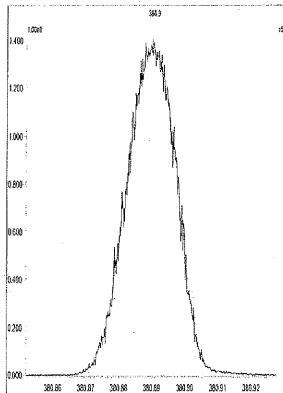
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, August 11, 2014 15:28:52 Central Daylight Time

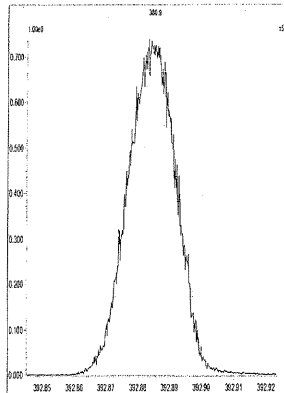
M 366.9792 R 11739



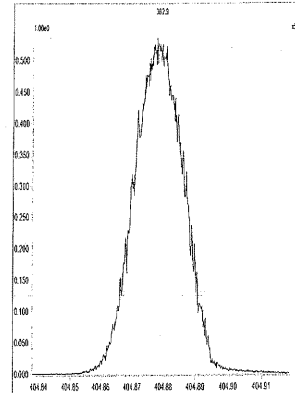
M 380.9760 R 11738



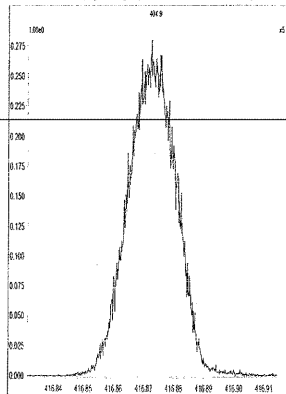
M 392.9760 R 12018



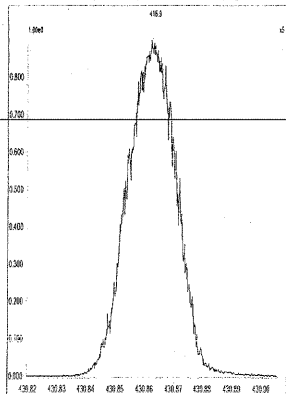
M 404.9760 R 12197



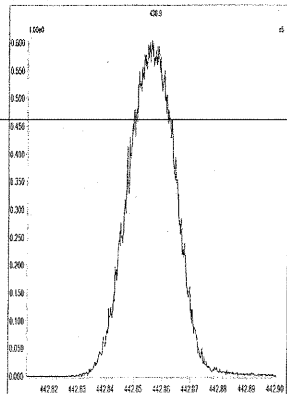
M 416.9760 R 12019



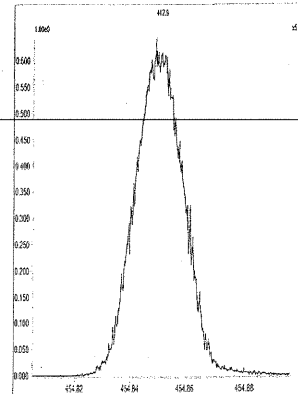
M 430.9728 R 11964



M 442.9728 R 11905



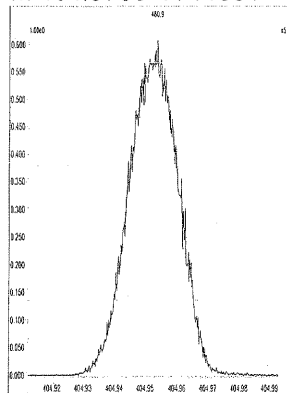
M 454.9728 R 12018



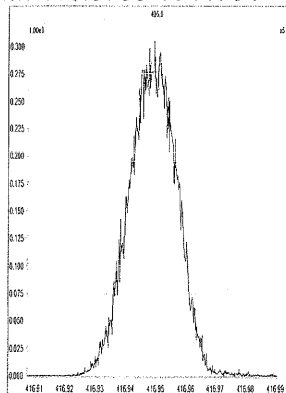
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, August 11, 2014 15:29:55 Central Daylight Time

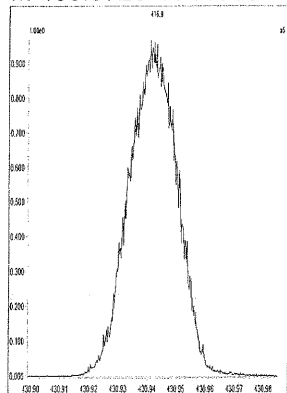
M 404.9760 R 11681



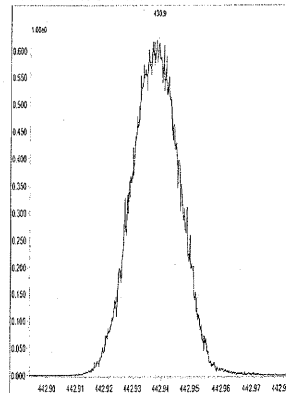
M 416.9760 R 11794



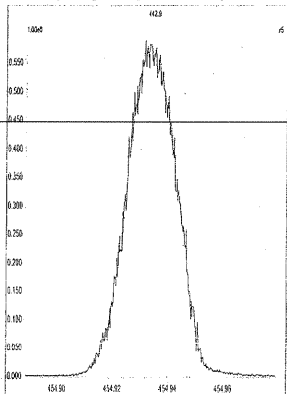
M 430.9728 R 11905



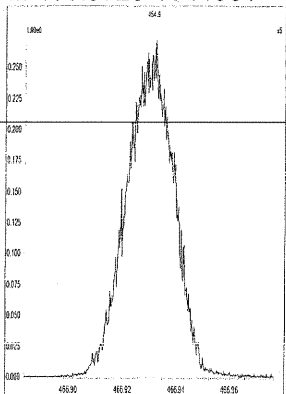
M 442.9728 R 11904



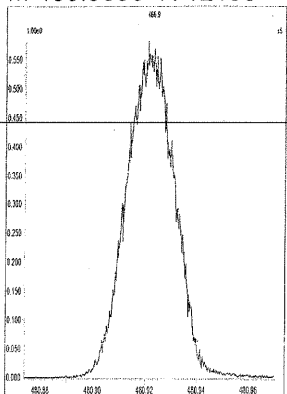
M 454.9728 R 12017



M 466.9728 R 11961



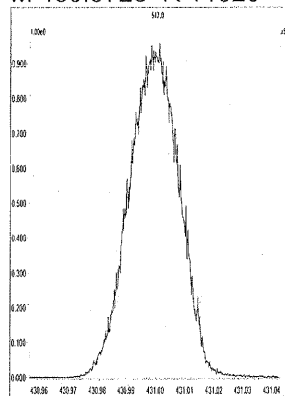
M 480.9696 R 12198



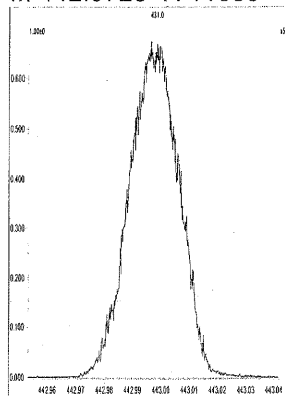
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, August 11, 2014 15:30:56 Central Daylight Time

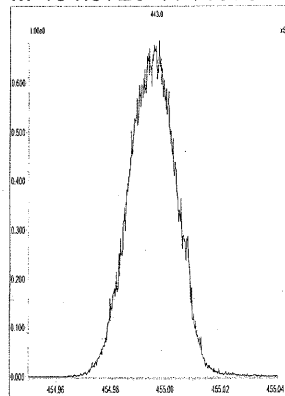
M 430.9728 R 11626



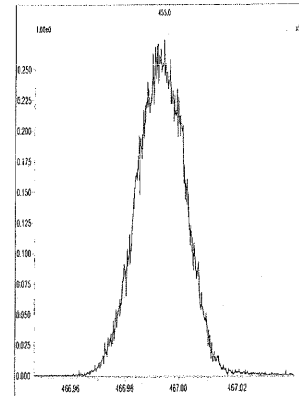
M 442.9728 R 11683



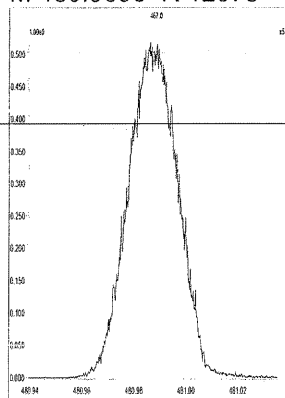
M 454.9728 R 11573



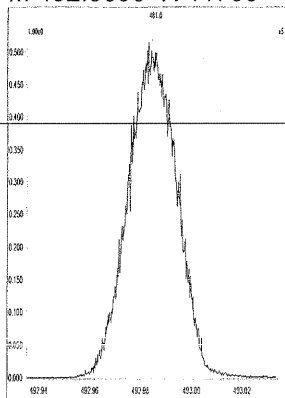
M 466.9728 R 11846



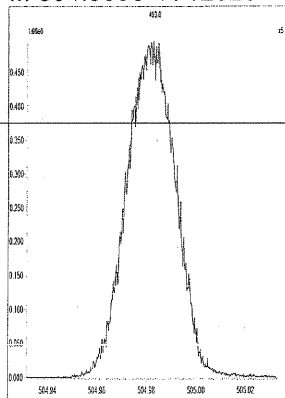
M 480.9696 R 12078



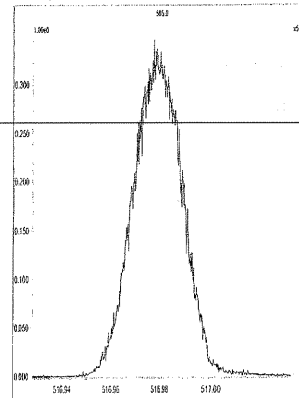
M 492.9696 R 11736



M 504.9696 R 12020

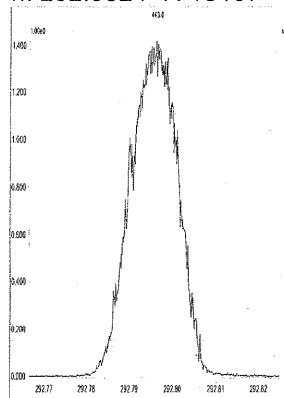


M 516.9697 R 11961

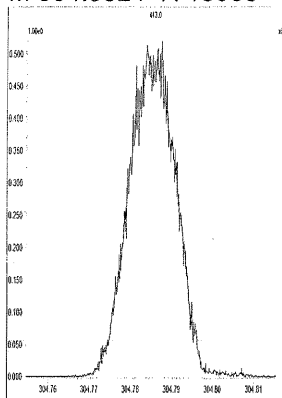


Printed: Tuesday, August 12, 2014 00:15:40 Central Daylight Time

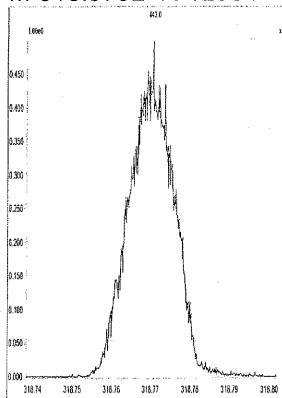
M 292.9824 R 13157



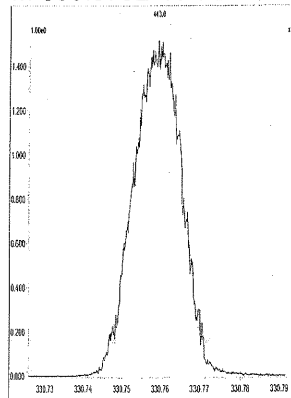
M 304.9824 R 13058



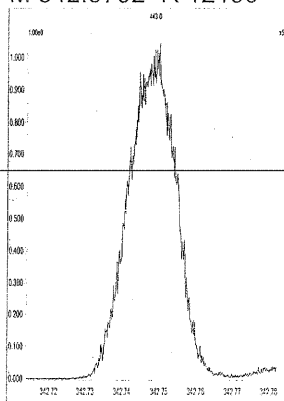
M 318.9792 R 12954



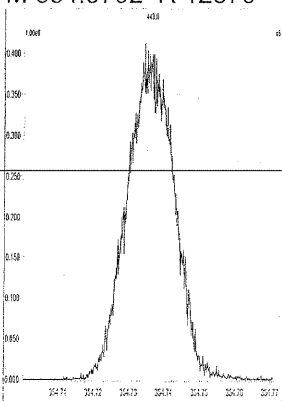
M 330.9792 R 12499



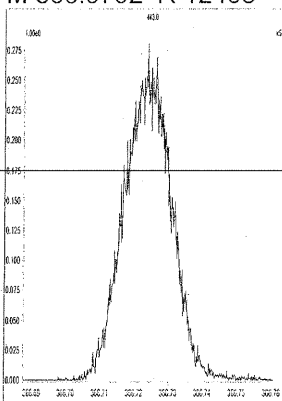
M 342.9792 R 12199



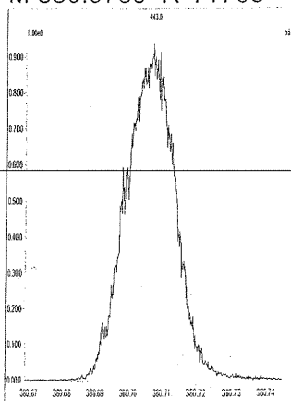
M 354.9792 R 12376



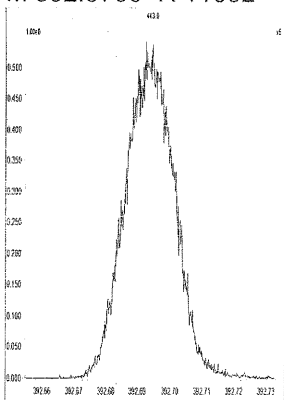
M 366.9792 R 12468



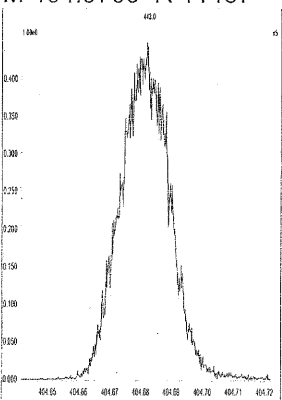
M 380.9760 R 11769



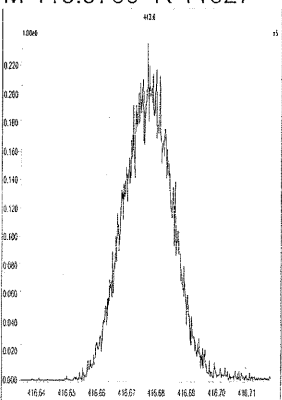
M 392.9760 R 11682



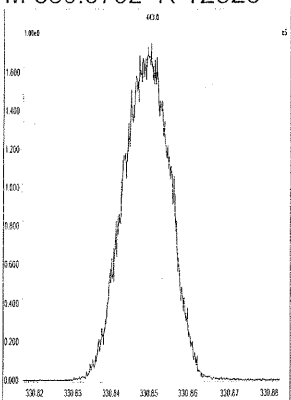
M 404.9760 R 11467



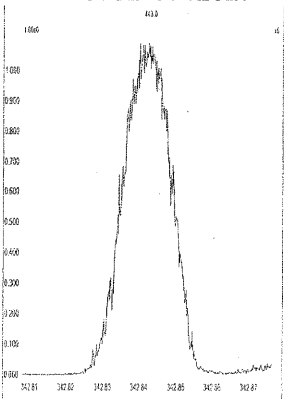
M 416.9760 R 11627



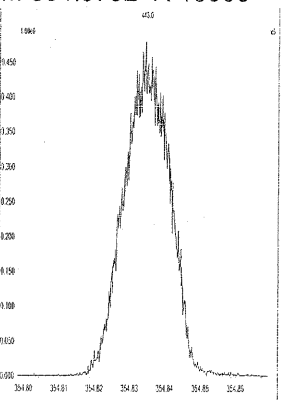
M 330.9792 R 12823



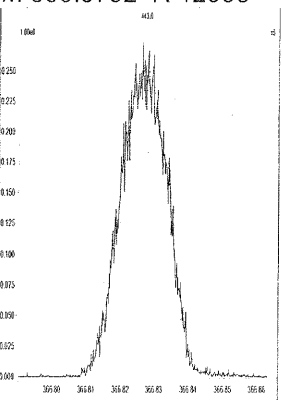
M 342.9792 R 12627



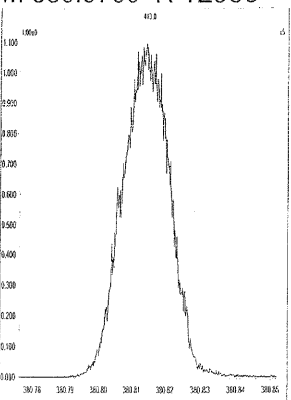
M 354.9792 R 13058



M 366.9792 R 12953

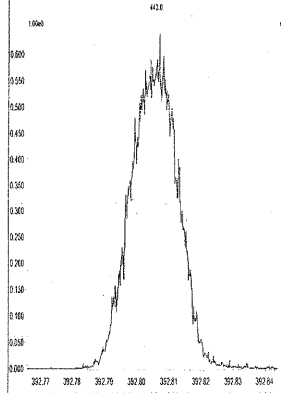


M 380.9760 R 12958

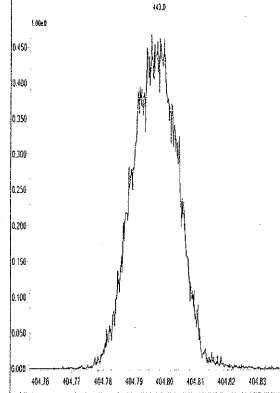


Printed: Tuesday, August 12, 2014 00:15:40 Central Daylight Time

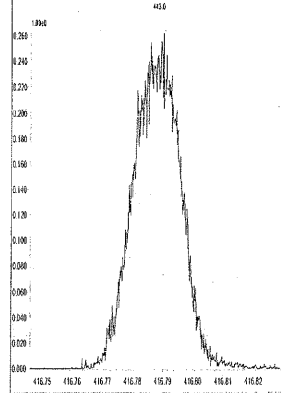
M 392.9760 R 12661



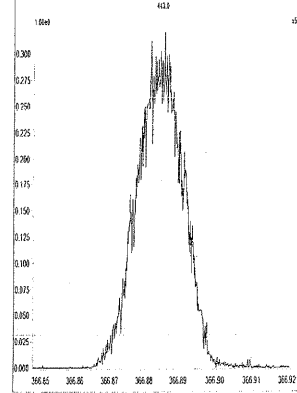
M 404.9760 R 12594



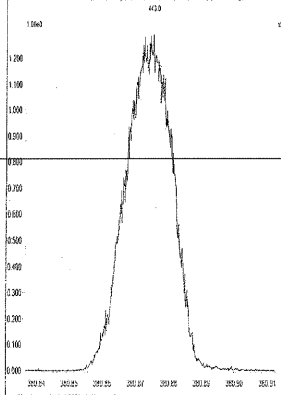
M 416.9760 R 12533



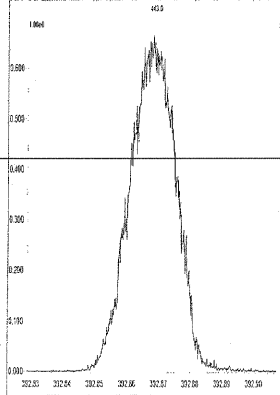
M 366.9792 R 13552



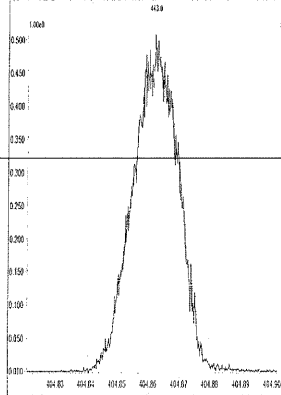
M 380.9760 R 12788



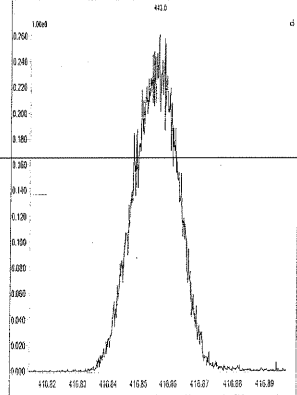
M 392.9760 R 12788



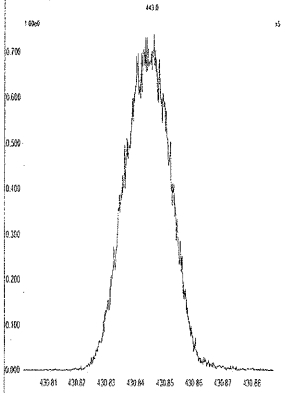
M 404.9760 R 12886



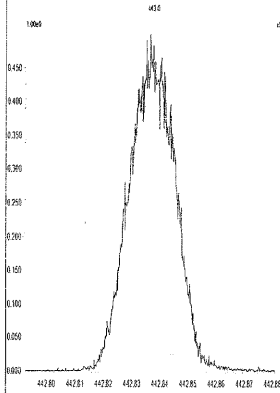
M 416.9760 R 12658



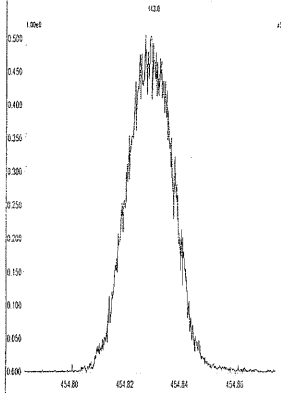
M 430.9728 R 12627



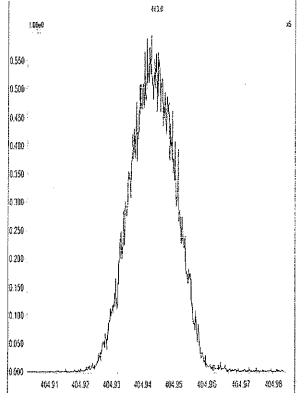
M 442.9728 R 12919



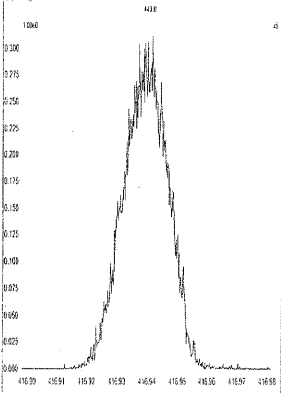
M 454.9728 R 12138



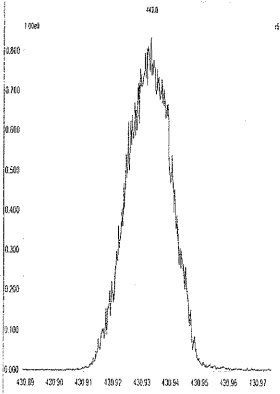
M 404.9760 R 12658



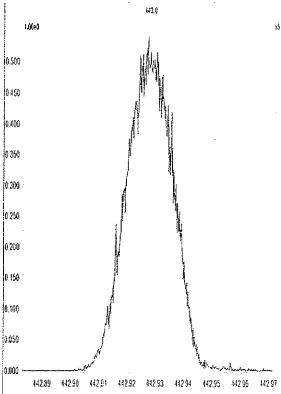
M 416.9760 R 12863



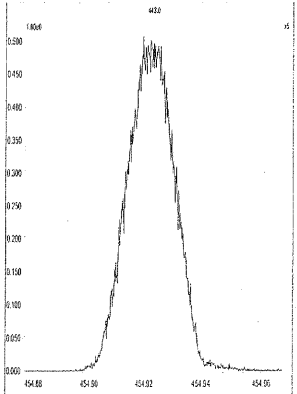
M 430.9728 R 12437



M 442.9728 R 12438

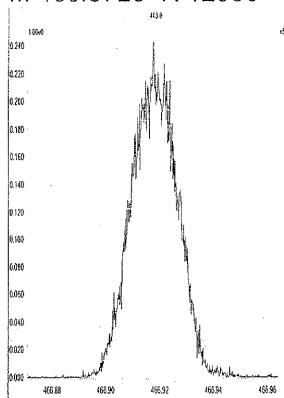


M 454.9728 R 12691

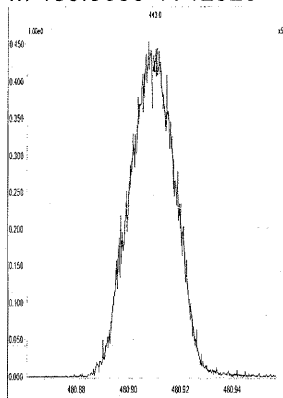


Printed: Tuesday, August 12, 2014 00:15:40 Central Daylight Time

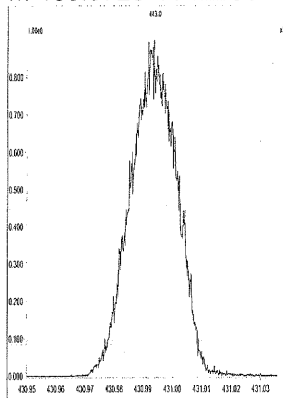
M 466.9728 R 12956



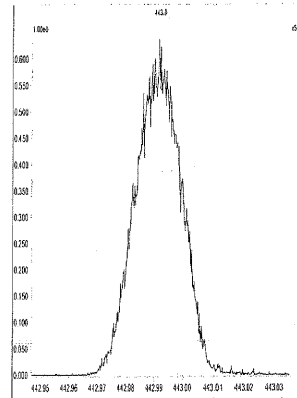
M 480.9696 R 12920



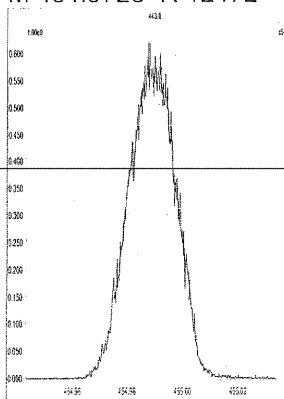
M 430.9728 R 12286



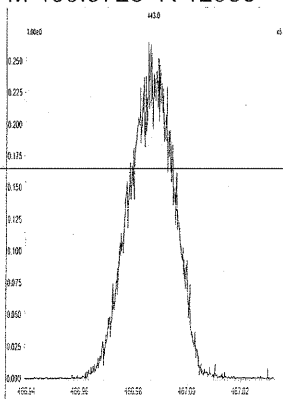
M 442.9728 R 12387



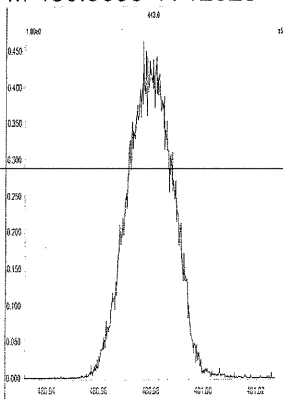
M 454.9728 R 12472



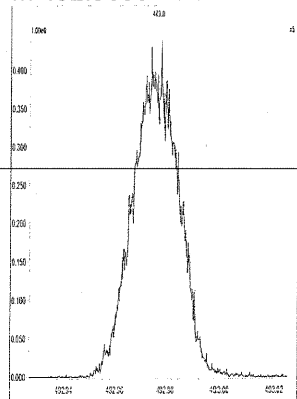
M 466.9728 R 12958



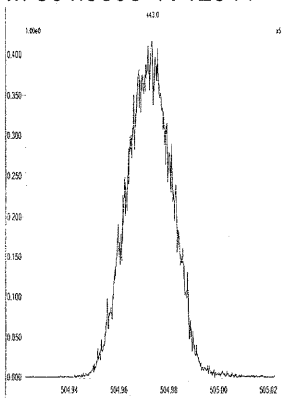
M 480.9696 R 12628



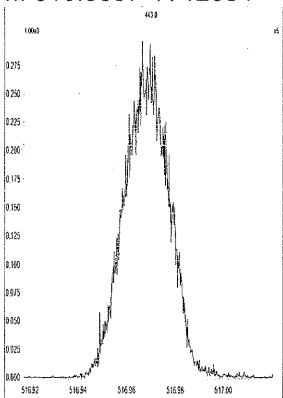
M 492.9696 R 12501



M 504.9696 R 12544



M 516.9697 R 12954



## 5DFA

## WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS ENVIRONMENTAL  
Lab Code: TX01411  
GC Column: DB-5msUI

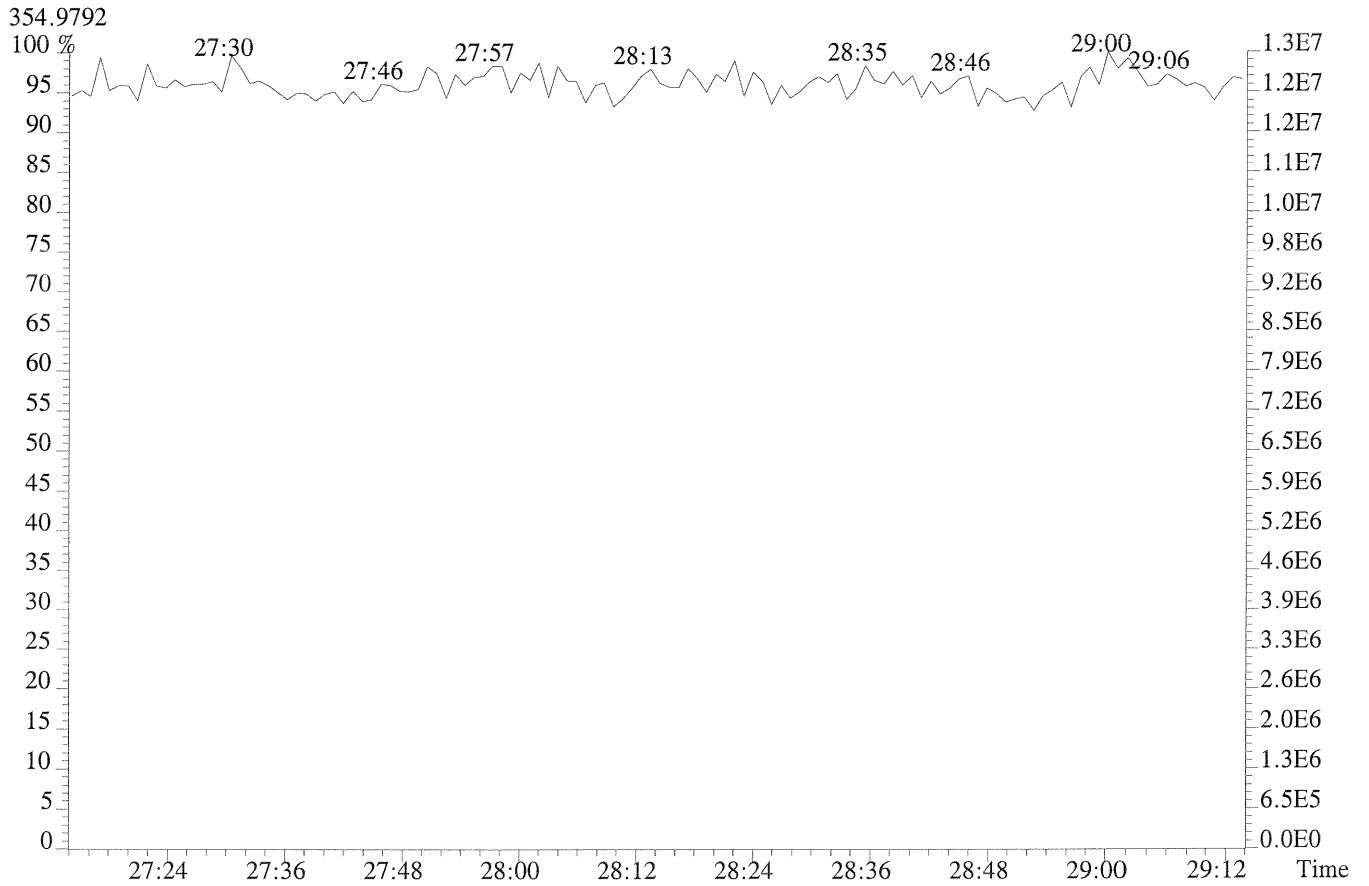
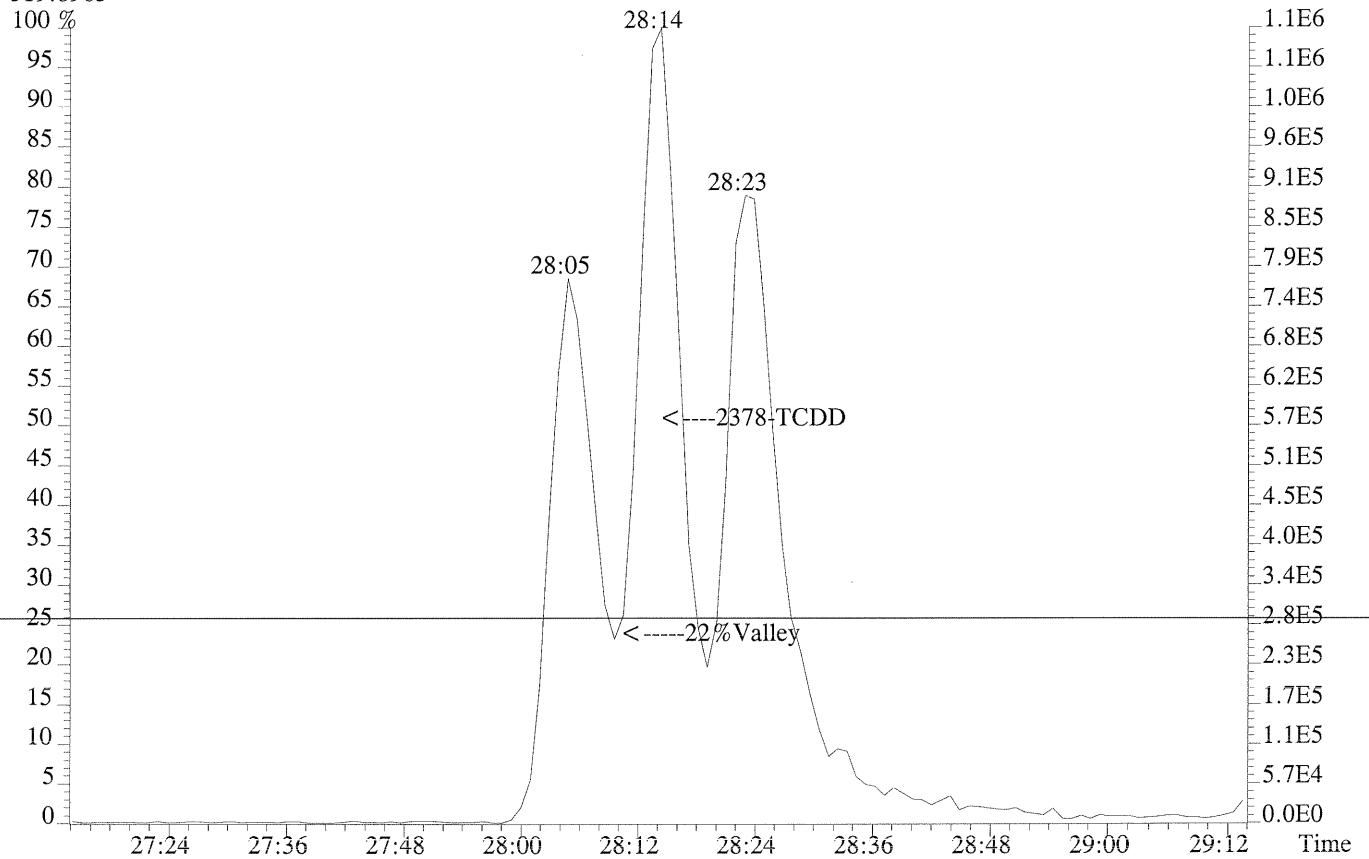
Case No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_  
ID: 0.25 (mm) Lab File ID: P230454  
Date Analyzed: 11-AUG-2014  
Time Analyzed: 17:39:00

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	22:54	29:30
TCDD	24:41	29:17
PeCDF	29:23	33:48
PeCDD	30:59	33:32
HxCDF	34:25	36:58
HxCDD	34:57	36:33
HpCDF	38:10	39:33
HpCDD	38:25	39:04

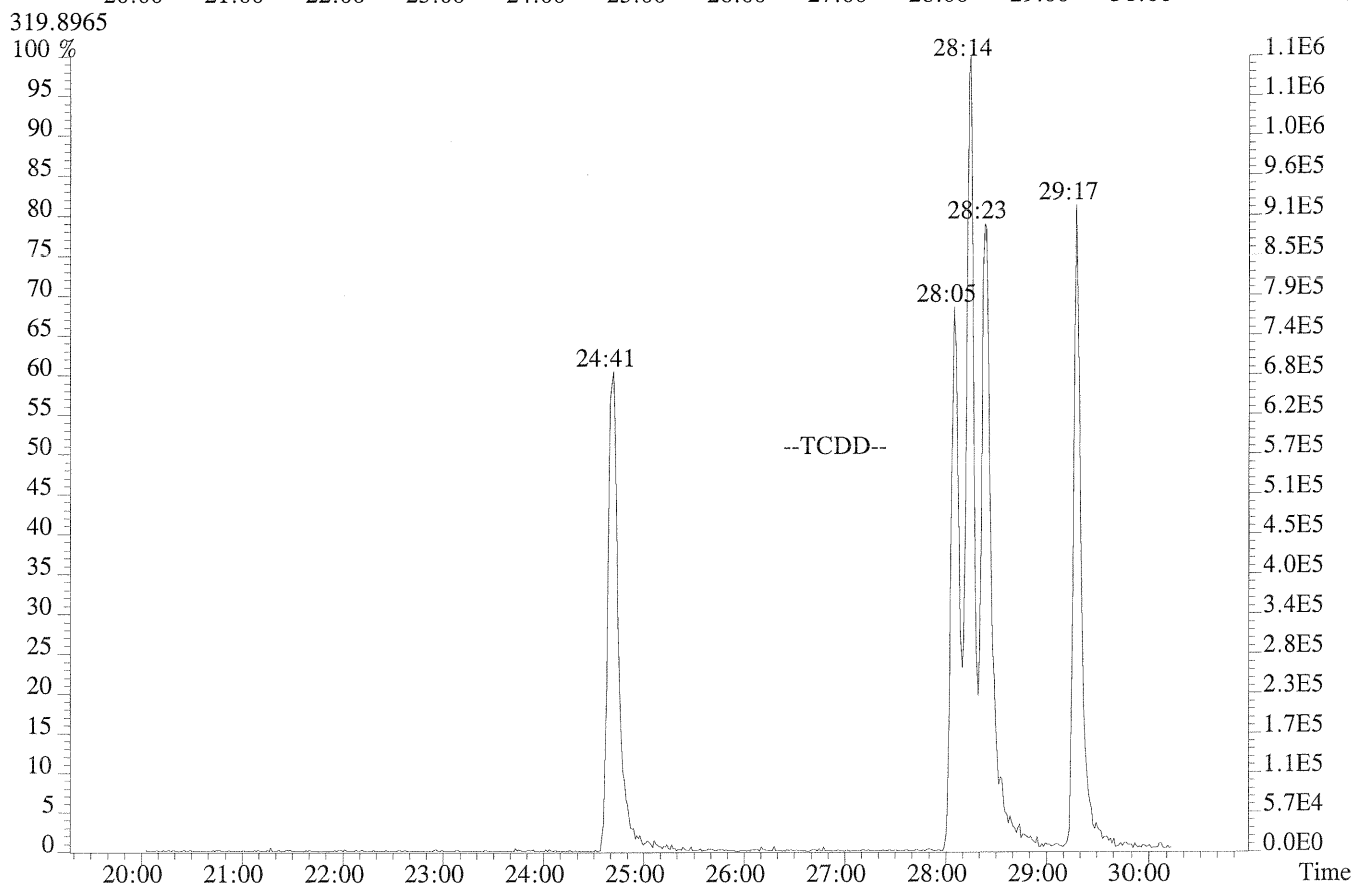
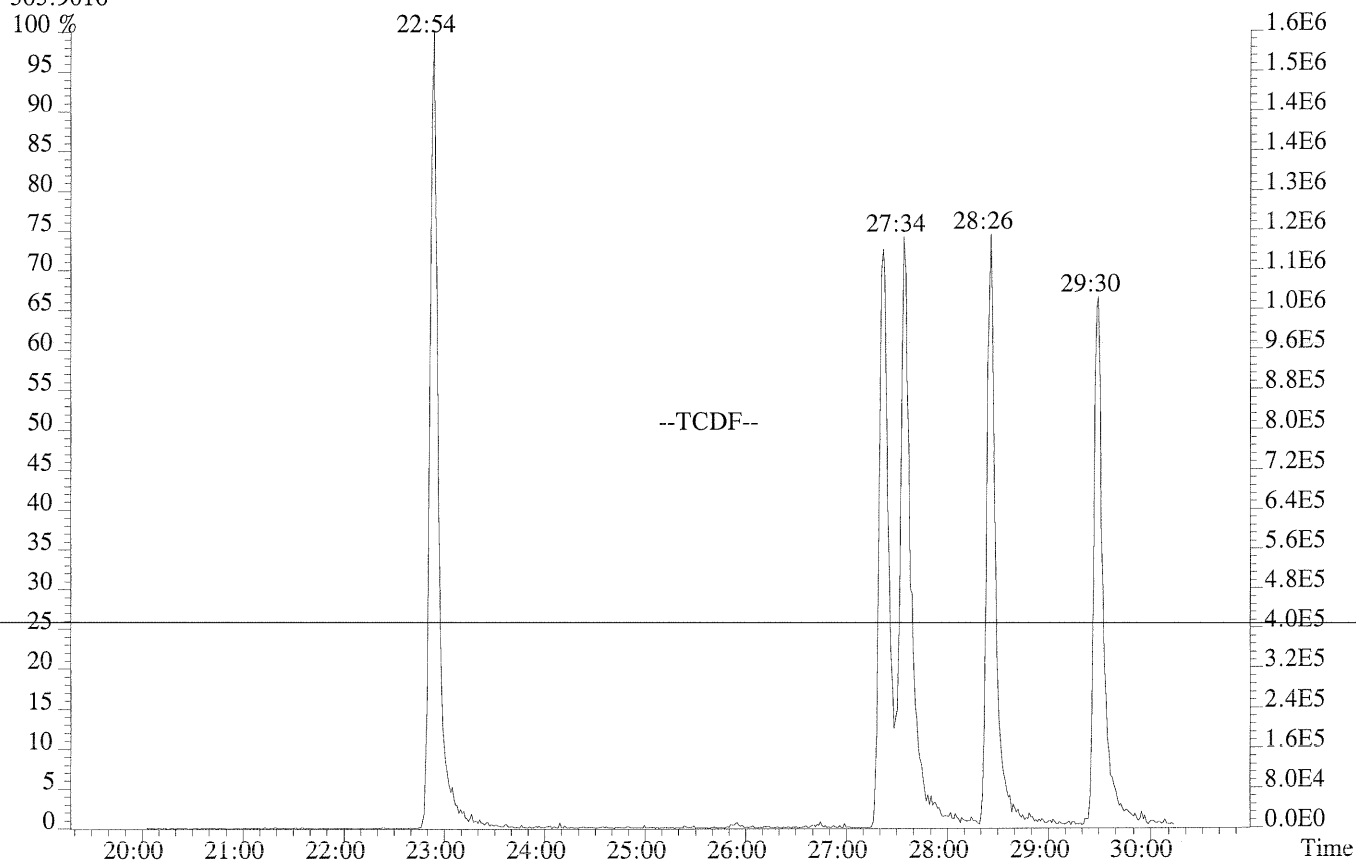
% Valley 2378-TCDD:

22 %

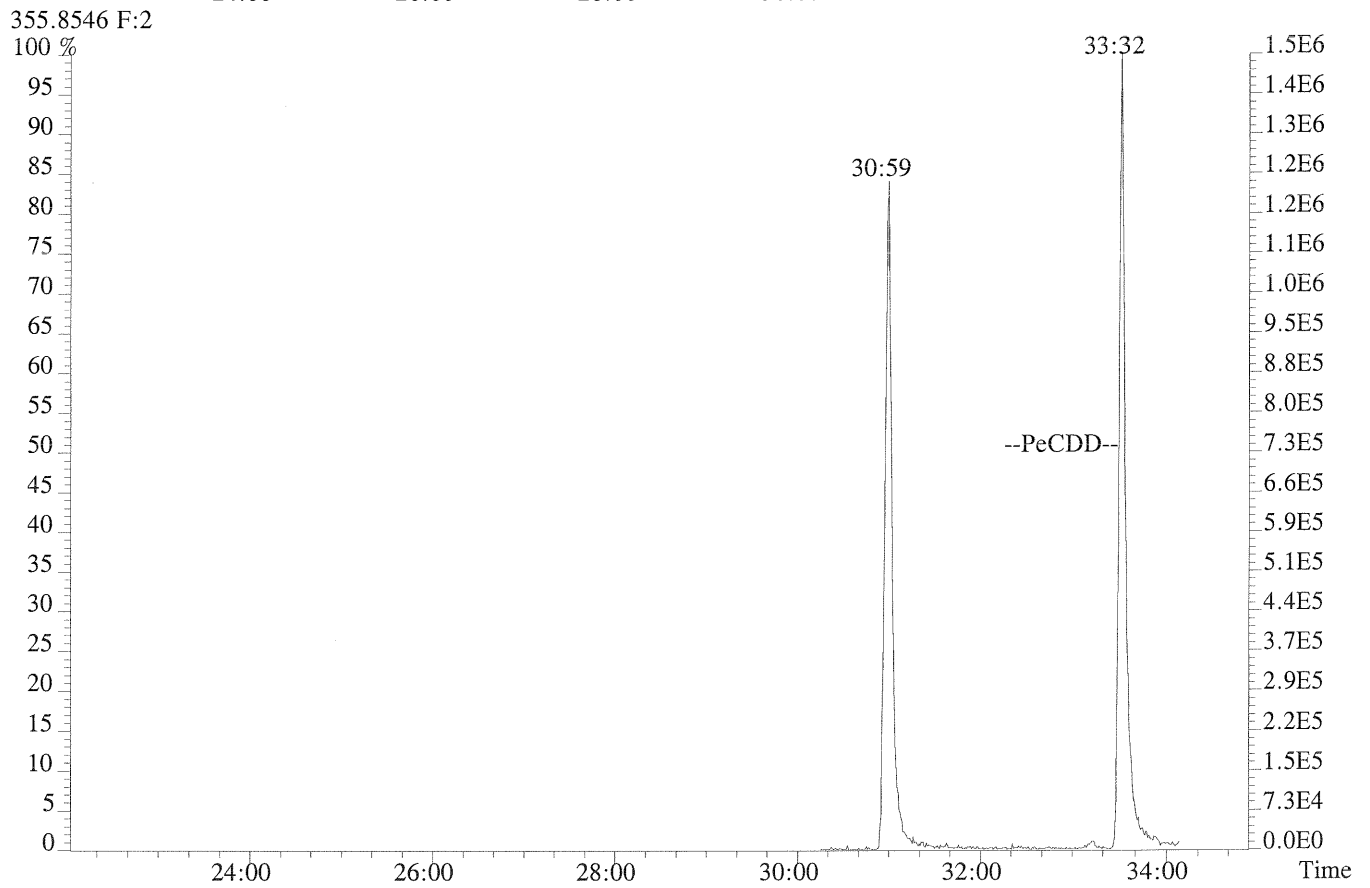
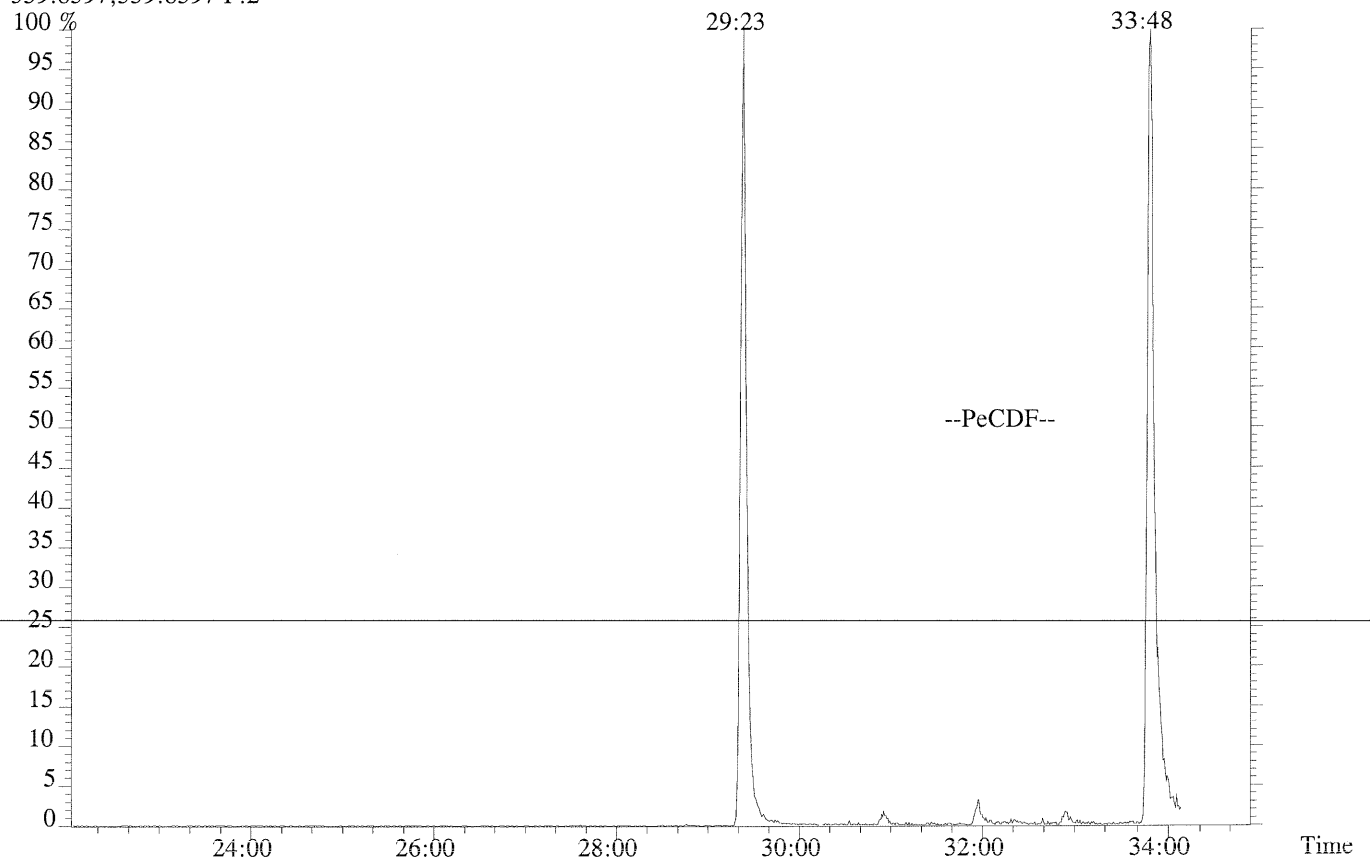
File:P230454 #1-640 Acq:11-AUG-2014 17:39:00 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:WINDOW DEFINE  
319.8965



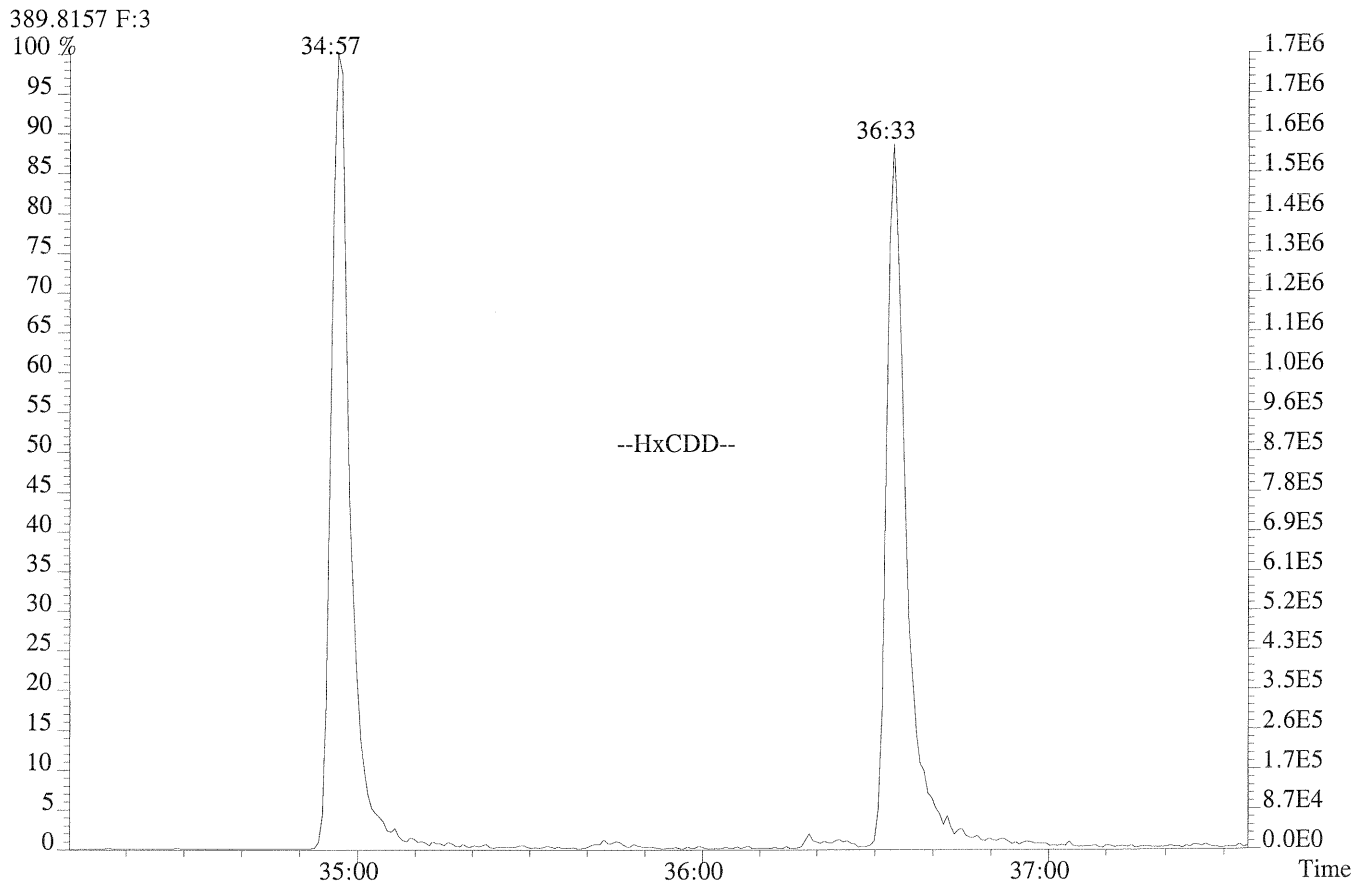
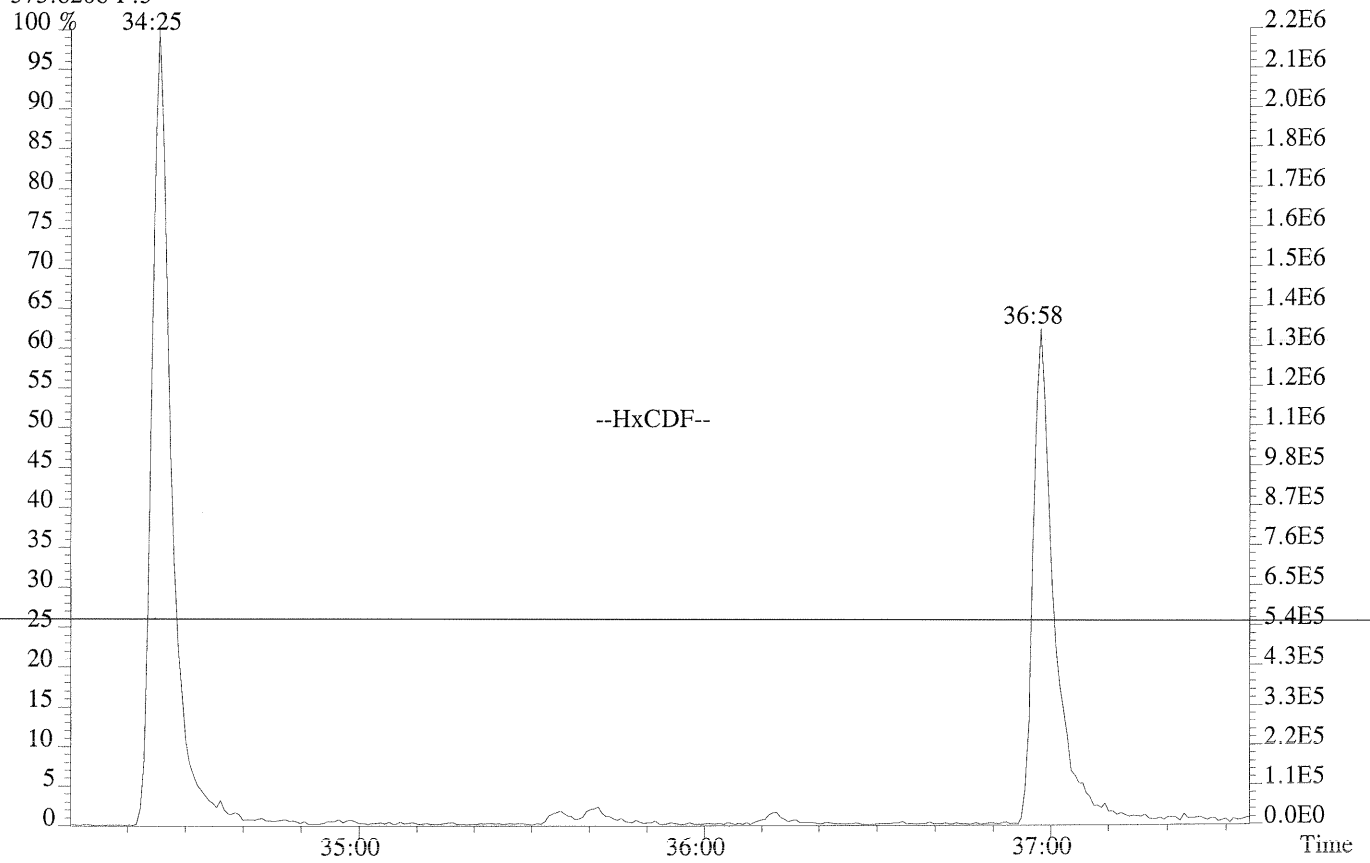




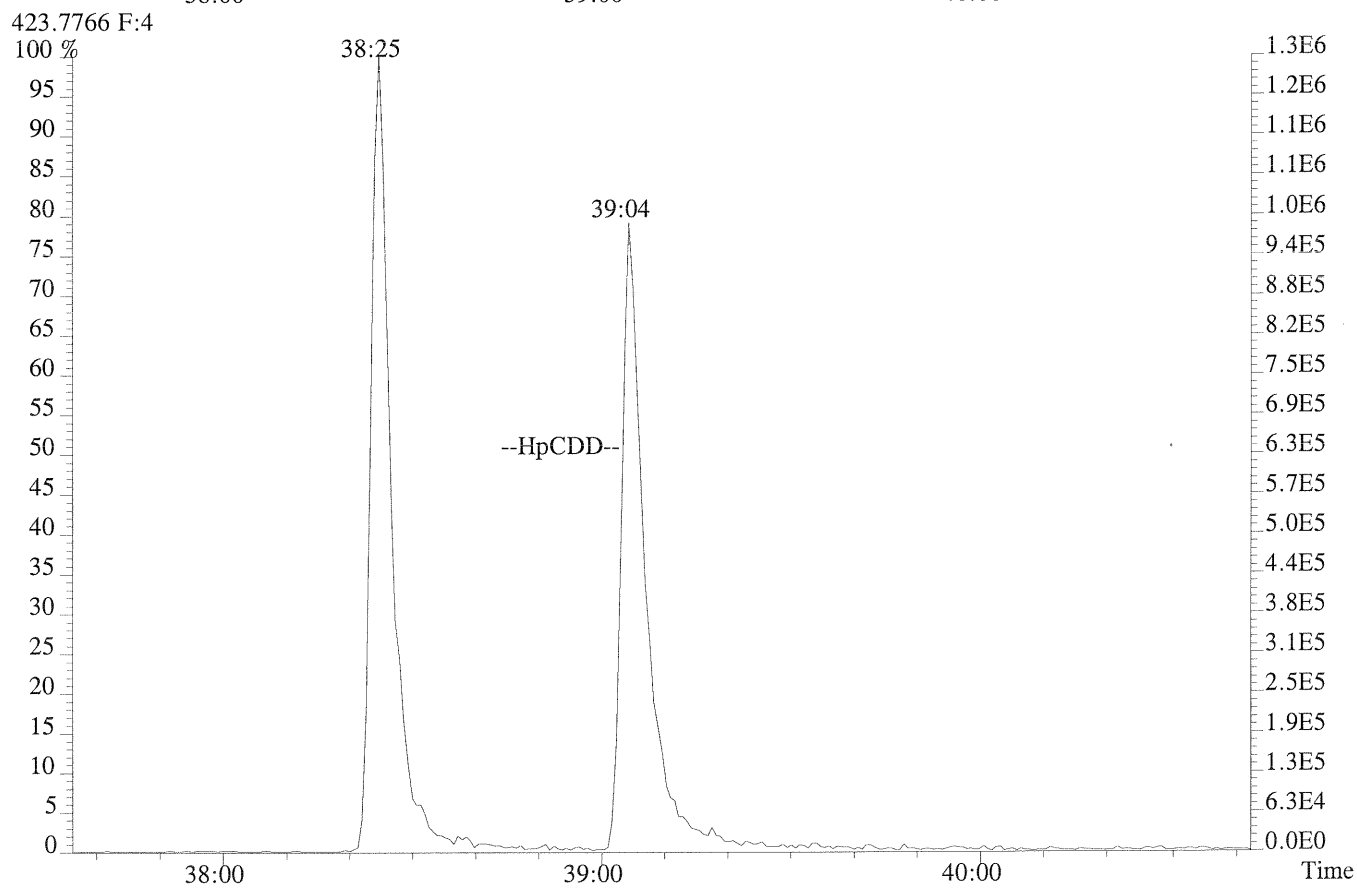
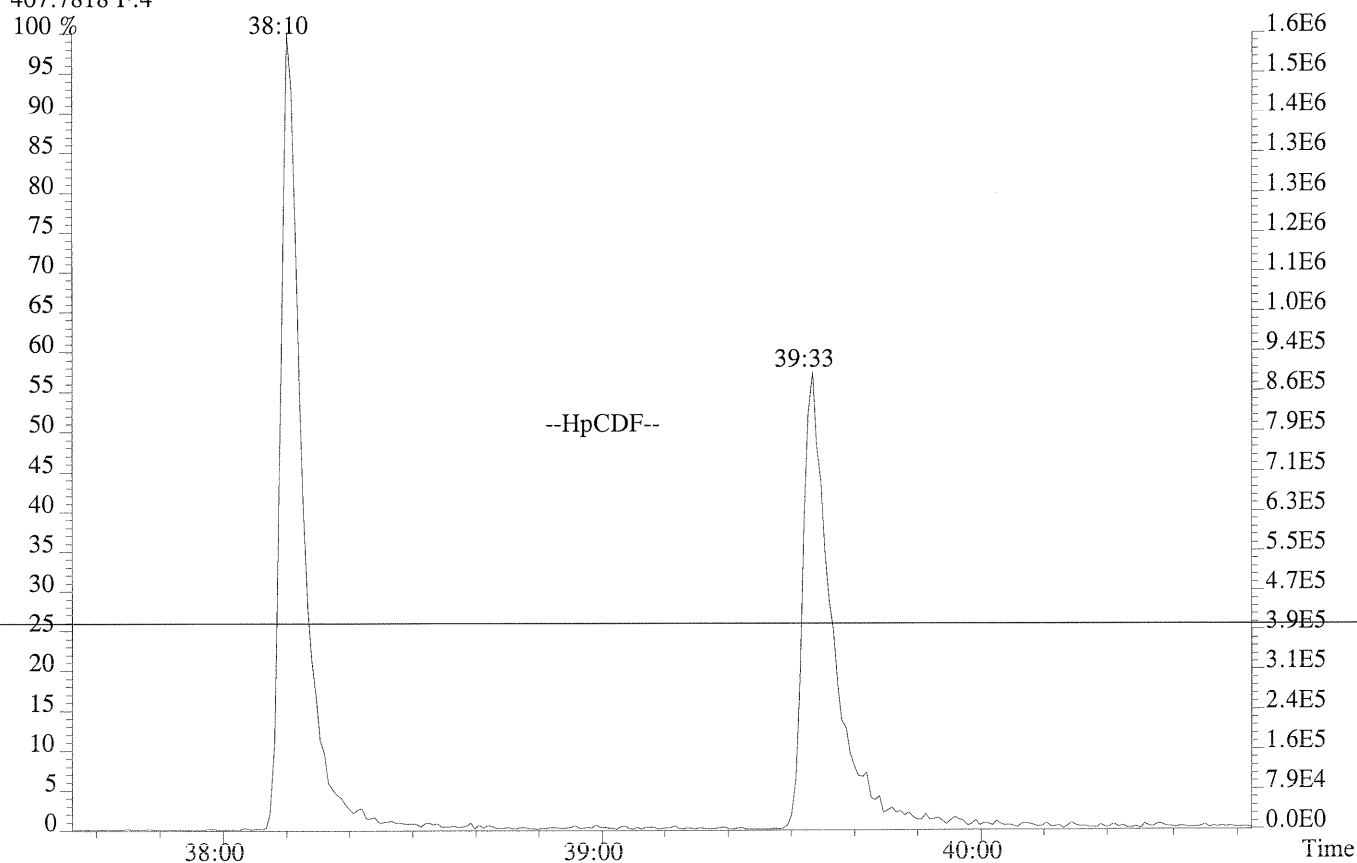
File:P230454 #1-640 Acq:11-AUG-2014 17:39:00 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
339.8597,339.8597 F:2



File:P230454 #1-309 Acq:11-AUG-2014 17:39:00 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
373.8208 F:3



File:P230454 #1-282 Acq:11-AUG-2014 17:39:00 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
407.7818 F:4



USEPA - CLP  
6DFA6  
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY  
HIGH RESOLUTION

Lab Name: ALS Environmental

Contract No.:

Lab Code: ALSTX

Case No.:

TO No.:

SDG No.:

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

Instrument ID: E-HRMS-4

Init. Calib. Date(s): 08/11/14

Analyte Table: M23PP

Init. Calib. Time.: 17:39:00

RR/RRF

Target Analytes							RR/RRF	MEAN	QC LIMITS
	CS0.5	CS1	CS2	CS3	CS4	CS5		%RSD	
2,3,7,8-TCDF	0.88	0.95	0.86	0.97	1.04	1.05	0.96	8.07	+/-20%
1,2,3,7,8-PeCDF	0.99	0.98	1.07	1.07	1.09	1.00	1.03	4.80	+/-20%
2,3,4,7,8-PeCDF	0.94	0.92	0.94	0.99	1.01	1.03	0.97	4.77	+/-20%
1,2,3,4,7,8-HxCDF	0.77	0.78	0.81	0.91	0.95	1.08	0.88	13.40	+/-20%
1,2,3,6,7,8-HxCDF	1.14	1.16	1.16	1.17	1.21	1.21	1.17	2.54	+/-20%
2,3,4,6,7,8-HxCDF	0.84	0.96	0.97	1.00	1.04	1.08	0.98	8.37	+/-20%
1,2,3,7,8,9-HxCDF	0.72	0.83	0.85	0.88	0.94	1.01	0.87	11.53	+/-20%
1,2,3,4,6,7,8-HpCDF	1.40	1.37	1.36	1.41	1.42	1.38	1.39	1.70	+/-20%
1,2,3,4,7,8,9-HpCDF	1.05	1.04	1.13	1.11	1.19	1.16	1.11	5.26	+/-20%
OCDF	1.32	1.37	1.41	1.45	1.49	1.32	1.39	5.00	+/-20%
2,3,7,8-TCDD	0.79	0.83	0.96	1.06	1.06	1.08	0.97	13.00	+/-20%
1,2,3,7,8-PeCDD	0.92	1.00	0.98	1.02	1.06	1.07	1.01	5.40	+/-20%
1,2,3,4,7,8-HxCDD	0.82	0.84	0.87	0.83	0.96	1.06	0.90	10.34	+/-20%
1,2,3,6,7,8-HxCDD	1.08	1.12	1.14	1.16	1.17	1.03	1.12	4.84	+/-20%
1,2,3,7,8,9-HxCDD	1.01	1.15	1.13	1.10	1.18	1.15	1.12	5.31	+/-20%
1,2,3,4,6,7,8-HpCDD	1.13	1.10	1.06	1.11	1.13	1.09	1.10	2.42	+/-20%
OCDD	1.15	1.21	1.19	1.22	1.22	1.09	1.18	4.42	+/-20%
13C-2,3,7,8-TCDF	1.47	1.48	1.47	1.47	1.49	1.51	1.48	0.98	+/-35%
13C-1,2,3,7,8-PeCDF	1.92	1.94	1.93	1.95	2.00	2.09	1.97	3.31	+/-35%
13C-2,3,4,7,8-PeCDF	0.98	0.98	0.98	1.00	0.99	0.95	0.98	1.61	+/-35%
13C-1,2,3,4,7,8-HxCDF	0.66	0.67	0.67	0.72	0.74	0.88	0.72	11.88	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.48	1.48	1.46	1.44	1.43	1.40	1.45	2.09	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.22	1.23	1.21	1.23	1.25	1.31	1.24	2.96	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.04	1.04	1.08	1.07	1.11	1.20	1.09	5.51	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.98	0.98	0.98	1.01	1.02	1.08	1.01	3.94	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.85	0.85	0.85	0.85	0.86	0.82	0.85	1.40	+/-35%
13C-2,3,7,8-TCDD	1.00	1.00	0.99	0.99	1.01	1.05	1.01	2.45	+/-35%
13C-1,2,3,7,8-PeCDD	1.23	1.23	1.23	1.25	1.29	1.33	1.26	3.15	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.76	0.78	0.78	0.74	0.82	0.85	0.79	5.01	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.98	0.98	0.96	0.99	0.97	1.03	0.98	2.69	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.88	0.87	0.89	0.90	0.91	0.98	0.90	4.39	+/-35%
13C-OCDD	0.65	0.66	0.67	0.67	0.69	0.80	0.69	7.90	+/-35%
13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	-
13C-1,2,3,7,8,9-HxCDD	-	-	-	-	-	-	-	-	-
37Cl-2,3,7,8-TCDD	0.83	0.81	0.96	1.03	1.07	1.06	0.96	12.05	+/-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-04

Init. Calib. Date(s): 08/11/14

Init. Calib. Time.: 17:39:00

ION ABUNDANCE RATIO

Target Analytes	SELECTED							FLAG	ION RATIO
	IONS	CS0.5	CS1	CS2	CS3	CS4	CS5		QC LIMITS
2,3,7,8-TCDF	304/306	0.76	0.86	0.72	0.77	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.50	1.68	1.54	1.56	1.58	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.49	1.54	1.60	1.58	1.52	1.56		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.25	1.25	1.25	1.27	1.24	1.25		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.26	1.20	1.24	1.25	1.25	1.26		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.32	1.27	1.26	1.28	1.24	1.24		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.36	1.21	1.24	1.25	1.26	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.00	1.05	1.05	1.04	1.02	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.06	1.08	1.02	1.02	1.04	1.03		0.88-1.20
OCDF	442/444	0.90	0.92	0.91	0.91	0.89	0.90		0.76-1.02
2,3,7,8-TCDD	320/322	0.79	0.69	0.82	0.77	0.77	0.79		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.43	1.48	1.65	1.55	1.58	1.60		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.22	1.23	1.27	1.29	1.29	1.27		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.24	1.32	1.26	1.30	1.28	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.32	1.27	1.32	1.28	1.27	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	1.14	1.02	1.05	1.07	1.06	1.05		0.88-1.20
OCDD	458/460	0.86	0.89	0.90	0.89	0.90	0.90		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.80	0.81	0.80	0.81	0.81	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.63	1.62	1.60	1.61	1.63	1.63		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.62	1.60	1.62	1.60	1.62	1.61		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.52	0.51	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.52	0.53	0.53	0.53	0.52		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.53	0.53	0.53	0.54	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.53	0.53	0.52	0.53	0.52	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.44	0.45	0.44	0.45	0.45	0.44		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.44	0.44	0.44	0.44	0.43	0.44		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.79	0.76	0.79	0.78	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.60	1.63	1.62	1.64	1.61	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.29	1.29	1.29	1.27	1.30	1.28		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.29	1.29	1.28	1.29	1.29	1.30		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.09	1.05	1.08	1.07	1.06	1.07		0.88-1.20
13C-OCDD	470/472	0.92	0.92	0.91	0.91	0.92	0.93		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.80	0.79	0.79	0.79	0.80	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.28	1.28	1.27	1.27	1.28	1.27		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.

Sample Response Summary

Run #1 Filename P230455 #1 Samp: 1 Inj: 1 Acquired: 11-AUG-14 18:27:35  
Processed: 13-AUG-14 13:53:22 LAB. ID: 66807

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	27:34	8.442e+01	1.114e+02	0.76	yes	no	0.959
2 Unk	1,2,3,7,8-PeCDF	31:56	8.563e+02	5.709e+02	1.50	yes	no	1.034
3 Unk	2,3,4,7,8-PeCDF	32:52	8.095e+02	5.450e+02	1.49	yes	no	0.972
4 Unk	1,2,3,4,7,8-HxCDF	35:34	6.411e+02	5.129e+02	1.25	yes	no	0.883
5 Unk	1,2,3,6,7,8-HxCDF	35:40	9.544e+02	7.576e+02	1.26	yes	no	1.175
6 Unk	2,3,4,6,7,8-HxCDF	36:11	7.185e+02	5.442e+02	1.32	yes	no	0.982
7 Unk	1,2,3,7,8,9-HxCDF	36:57	6.217e+02	4.574e+02	1.36	yes	no	0.871
8 Unk	1,2,3,4,6,7,8-HpCDF	38:10	6.964e+02	6.968e+02	1.00	yes	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	39:33	5.359e+02	5.060e+02	1.06	yes	no	1.113
10 Unk	OCDF	41:57	8.260e+02	9.167e+02	0.90	yes	no	1.392
11 Unk	2,3,7,8-TCDD	28:24	5.245e+01	6.624e+01	0.79	yes	yes	0.966
12 Unk	1,2,3,7,8-PeCDD	33:08	5.026e+02	3.511e+02	1.43	yes	yes	1.009
13 Unk	1,2,3,4,7,8-HxCDD	36:18	4.500e+02	3.685e+02	1.22	yes	no	0.896
14 Unk	1,2,3,6,7,8-HxCDD	36:23	5.930e+02	4.783e+02	1.24	yes	no	1.115
15 Unk	1,2,3,7,8,9-HxCDD	36:38	5.746e+02	4.338e+02	1.32	yes	no	1.122
16 Unk	1,2,3,4,6,7,8-HpCDD	39:04	5.345e+02	4.688e+02	1.14	yes	no	1.104
17 Unk	OCDD	41:45	7.021e+02	8.156e+02	0.86	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:33	3.946e+04	4.911e+04	0.80	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:55	7.137e+04	4.385e+04	1.63	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:51	6.963e+04	4.293e+04	1.62	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:32	2.724e+04	5.162e+04	0.53	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:39	4.162e+04	7.855e+04	0.53	yes	no	1.448
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:56	2.930e+04	5.480e+04	0.53	yes	yes	1.089
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.412e+04	5.525e+04	0.44	yes	no	1.008
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:32	2.046e+04	4.683e+04	0.44	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:22	2.645e+04	3.347e+04	0.79	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	33:08	4.570e+04	2.850e+04	1.60	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:17	3.421e+04	2.643e+04	1.29	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:23	4.493e+04	3.473e+04	1.29	yes	no	0.985
31 IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	3.706e+04	3.386e+04	1.09	yes	no	0.905
32 IS	13C-OCDD	41:44	5.061e+04	5.475e+04	0.92	yes	no	0.692
33S/RT	13C-1,2,3,4-TCDD	27:43	2.667e+04	3.343e+04	0.80	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:37	4.548e+04	3.557e+04	1.28	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:25	1.240e+02				no	0.960

$$\text{OCDD} = \frac{(7.021e+02 + 8.156e+02) \times (200.0)}{(5.061e+04 + 5.475e+04)} \times 1.181 \times 1.000 = \text{pg}$$

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS0.5

Method M23

Run #1 Filename P230455 #1 Samp: 1 Inj: 1 Acquired: 11-AUG-14 18:27:35  
Processed: 13-AUG-14 13:53:22 LAB. ID: 66807

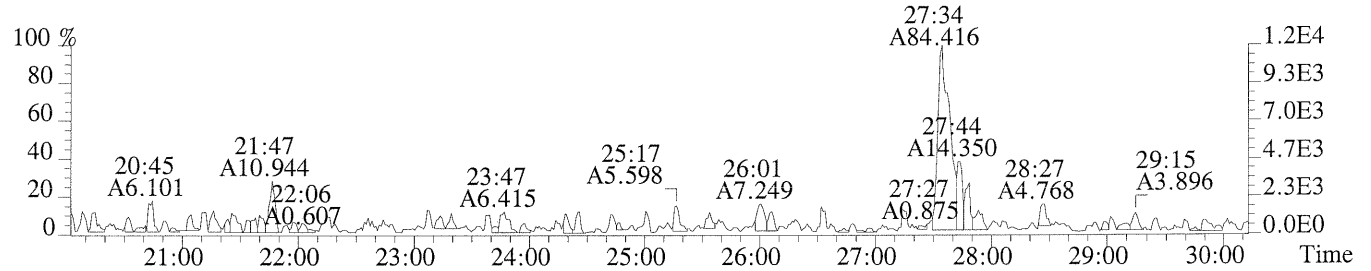
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.14e+04	5.04e+02	2.3e+01	1.49e+04	1.70e+03	8.8e+00
2	1,2,3,7,8-PeCDF	8.57e+04	5.60e+02	1.5e+02	6.86e+04	1.71e+03	4.0e+01
3	2,3,4,7,8-PeCDF	1.08e+05	5.60e+02	1.9e+02	6.18e+04	1.71e+03	3.6e+01
4	1,2,3,4,7,8-HxCDF	1.10e+05	7.28e+02	1.5e+02	9.60e+04	7.96e+02	1.2e+02
5	1,2,3,6,7,8-HxCDF	1.31e+05	7.28e+02	1.8e+02	9.92e+04	7.96e+02	1.2e+02
6	2,3,4,6,7,8-HxCDF	1.20e+05	7.28e+02	1.6e+02	8.63e+04	7.96e+02	1.1e+02
7	1,2,3,7,8,9-HxCDF	8.35e+04	7.28e+02	1.1e+02	6.52e+04	7.96e+02	8.2e+01
8	1,2,3,4,6,7,8-HpCDF	1.20e+05	9.72e+02	1.2e+02	1.07e+05	7.96e+02	1.3e+02
9	1,2,3,4,7,8,9-HpCDF	6.76e+04	9.72e+02	6.9e+01	6.59e+04	7.96e+02	8.3e+01
10	OCDF	9.81e+04	4.72e+02	2.1e+02	9.72e+04	1.19e+03	8.2e+01
11	2,3,7,8-TCDD	6.03e+03	1.23e+03	4.9e+00	9.56e+03	9.52e+02	1.0e+01
12	1,2,3,7,8-PeCDD	6.32e+04	1.27e+03	5.0e+01	4.53e+04	3.60e+01	1.3e+03
13	1,2,3,4,7,8-HxCDD	9.45e+04	1.88e+02	5.0e+02	6.89e+04	7.52e+02	9.2e+01
14	1,2,3,6,7,8-HxCDD	9.62e+04	1.88e+02	5.1e+02	7.68e+04	7.52e+02	1.0e+02
15	1,2,3,7,8,9-HxCDD	8.00e+04	1.88e+02	4.3e+02	6.60e+04	7.52e+02	8.8e+01
16	1,2,3,4,6,7,8-HpCDD	7.38e+04	4.28e+02	1.7e+02	6.80e+04	1.36e+02	5.0e+02
17	OCDD	8.61e+04	5.52e+02	1.6e+02	9.25e+04	9.68e+02	9.6e+01
18	13C-2,3,7,8-TCDF	4.28e+06	1.74e+03	2.5e+03	5.29e+06	1.73e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	7.89e+06	5.80e+02	1.4e+04	4.77e+06	9.60e+02	5.0e+03
20	13C-2,3,4,7,8-PeCDF	9.06e+06	5.80e+02	1.6e+04	5.58e+06	9.60e+02	5.8e+03
21	13C-1,2,3,4,7,8-HxCDF	4.84e+06	1.19e+03	4.1e+03	9.12e+06	2.19e+03	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	5.76e+06	1.19e+03	4.8e+03	1.08e+07	2.19e+03	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	3.67e+06	1.19e+03	3.1e+03	6.89e+06	2.19e+03	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.72e+06	7.25e+03	5.1e+02	8.48e+06	5.95e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.57e+06	7.25e+03	3.5e+02	5.79e+06	5.95e+03	9.7e+02
27	13C-2,3,7,8-TCDD	3.23e+06	5.79e+03	5.6e+02	4.05e+06	3.08e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	5.73e+06	1.11e+03	5.2e+03	3.58e+06	6.64e+02	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	6.65e+06	1.24e+03	5.4e+03	5.18e+06	6.40e+02	8.1e+03
30	13C-1,2,3,6,7,8-HxCDD	6.85e+06	1.24e+03	5.5e+03	5.31e+06	6.40e+02	8.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.23e+06	1.54e+03	3.4e+03	4.87e+06	3.80e+02	1.3e+04
32	13C-OCDD	6.25e+06	7.04e+02	8.9e+03	6.83e+06	7.20e+01	9.5e+04
33	13C-1,2,3,4-TCDD	4.04e+06	5.79e+03	7.0e+02	5.06e+06	3.08e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	6.57e+06	1.24e+03	5.3e+03	5.17e+06	6.40e+02	8.1e+03
35	37Cl-2,3,7,8-TCDD	1.77e+04	8.36e+02	2.1e+01			

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

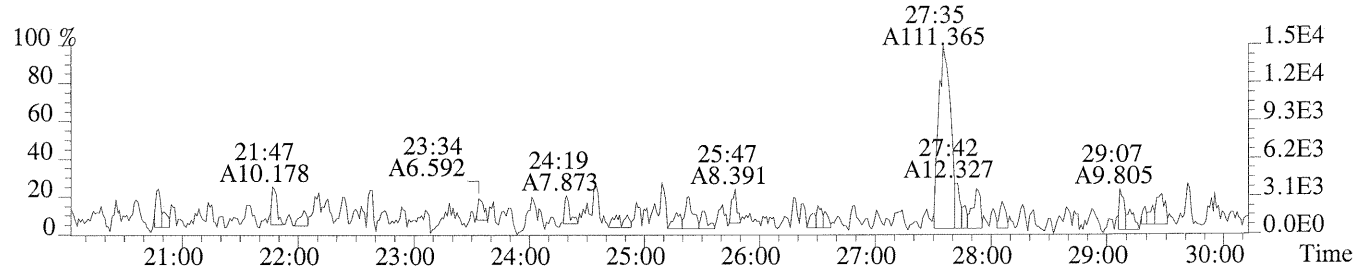
ALS Form TO-9SN/M23SN.FRM



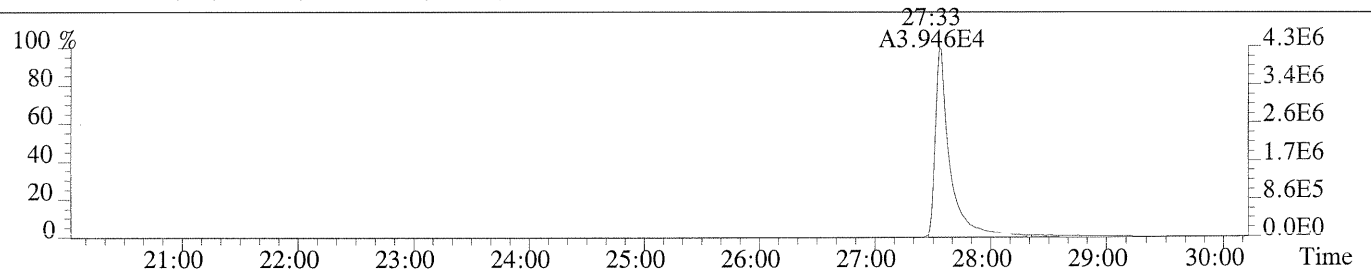
File:P230455 #1-640 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



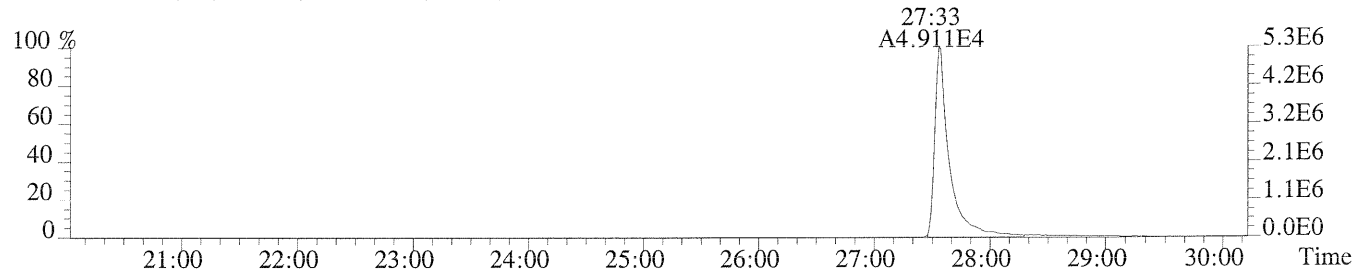
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



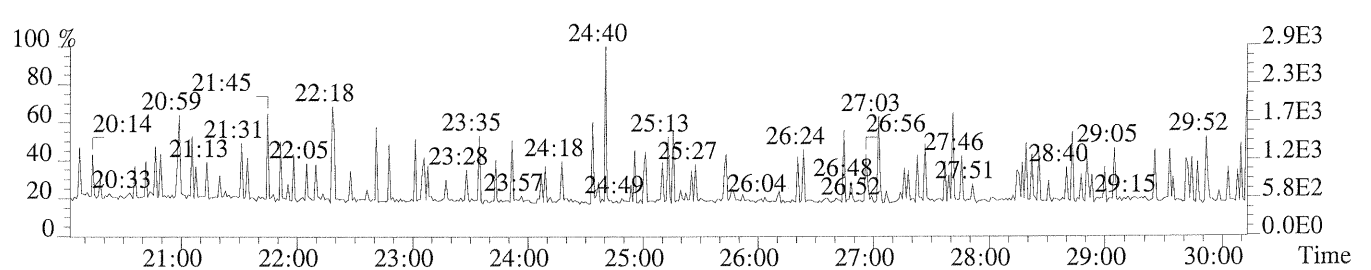
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



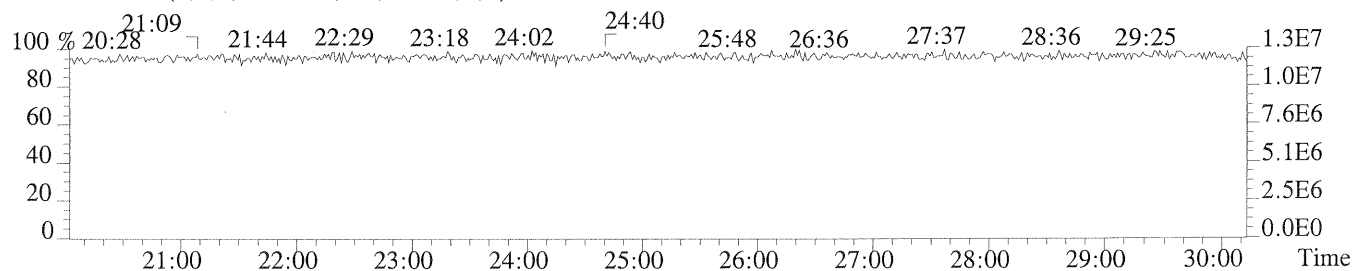
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1732.0,1.00%,F,T)



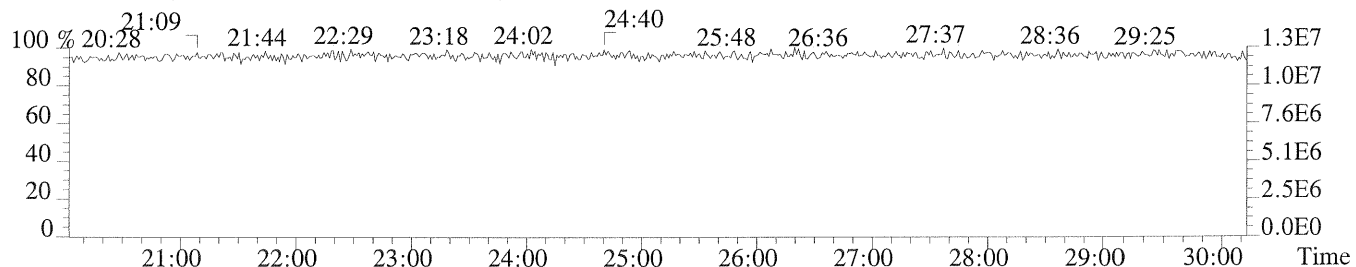
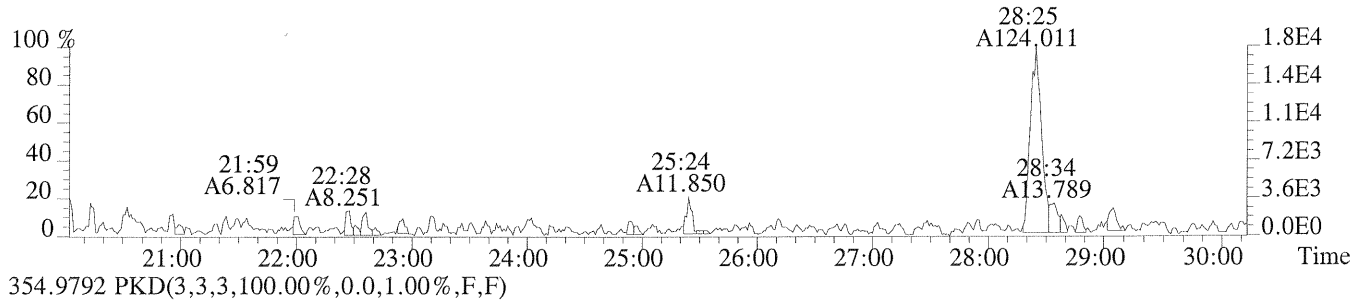
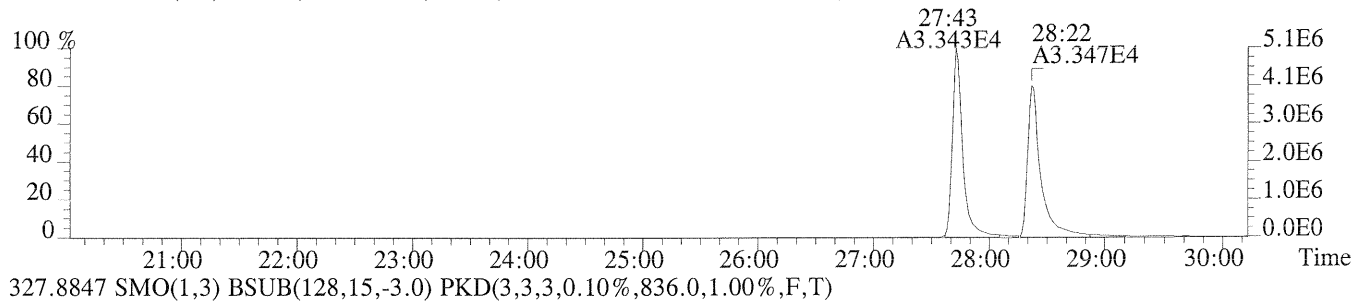
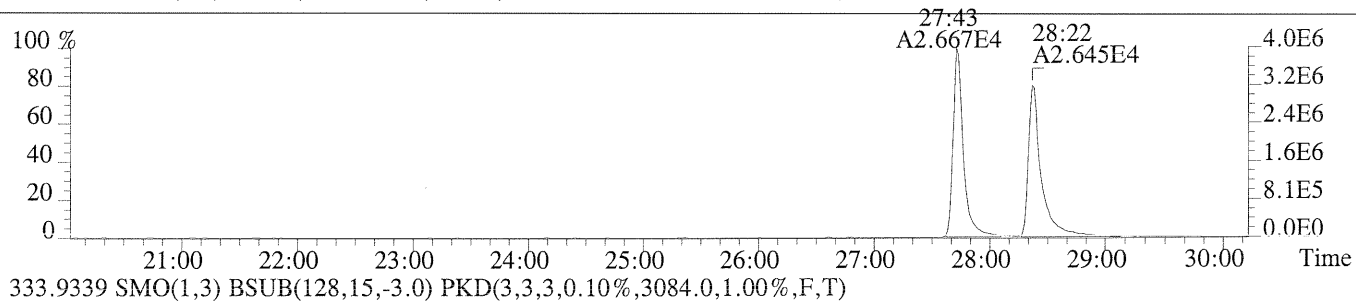
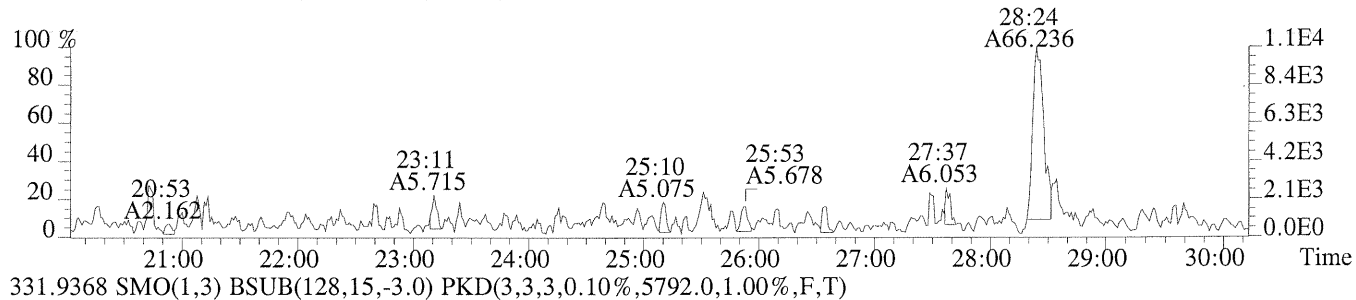
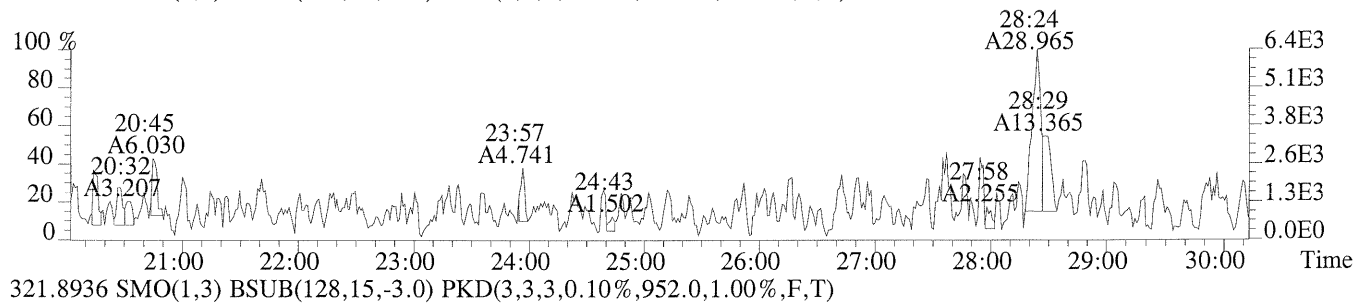
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



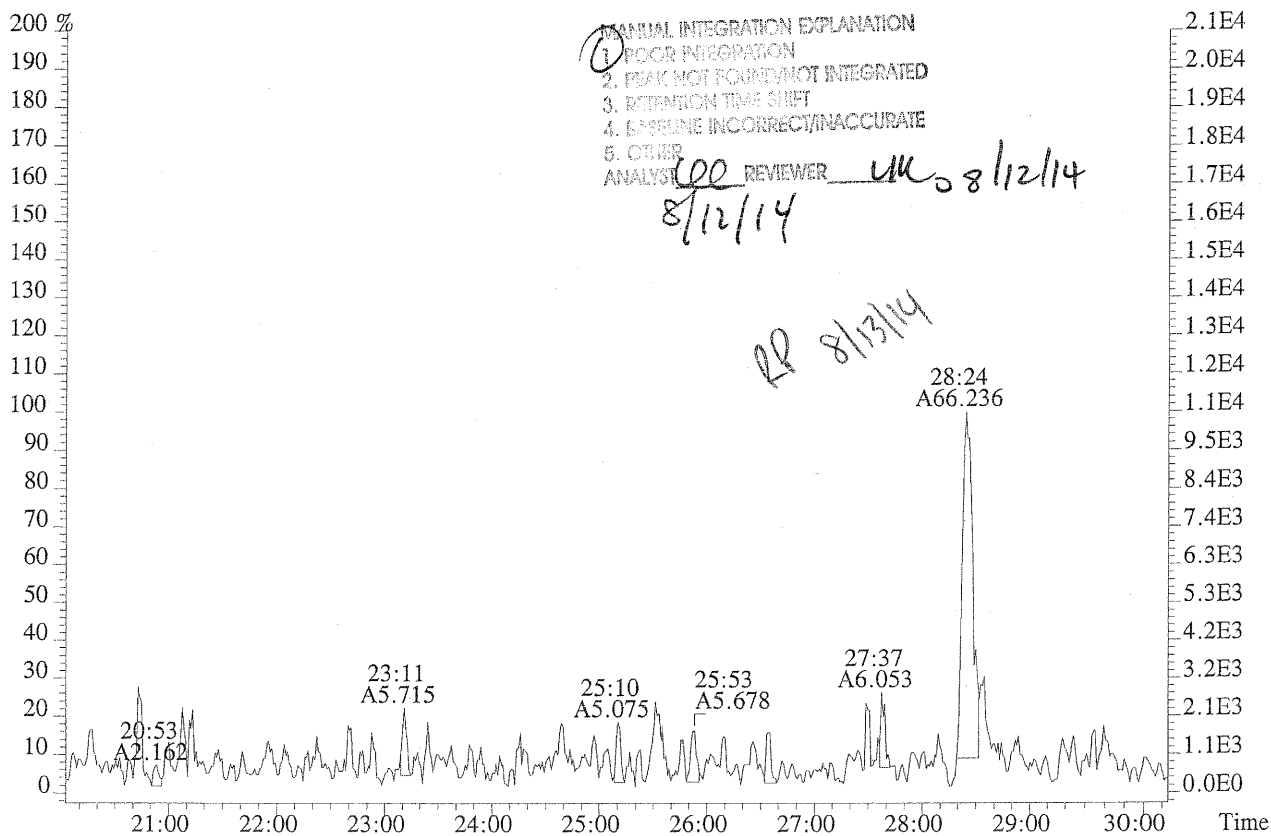
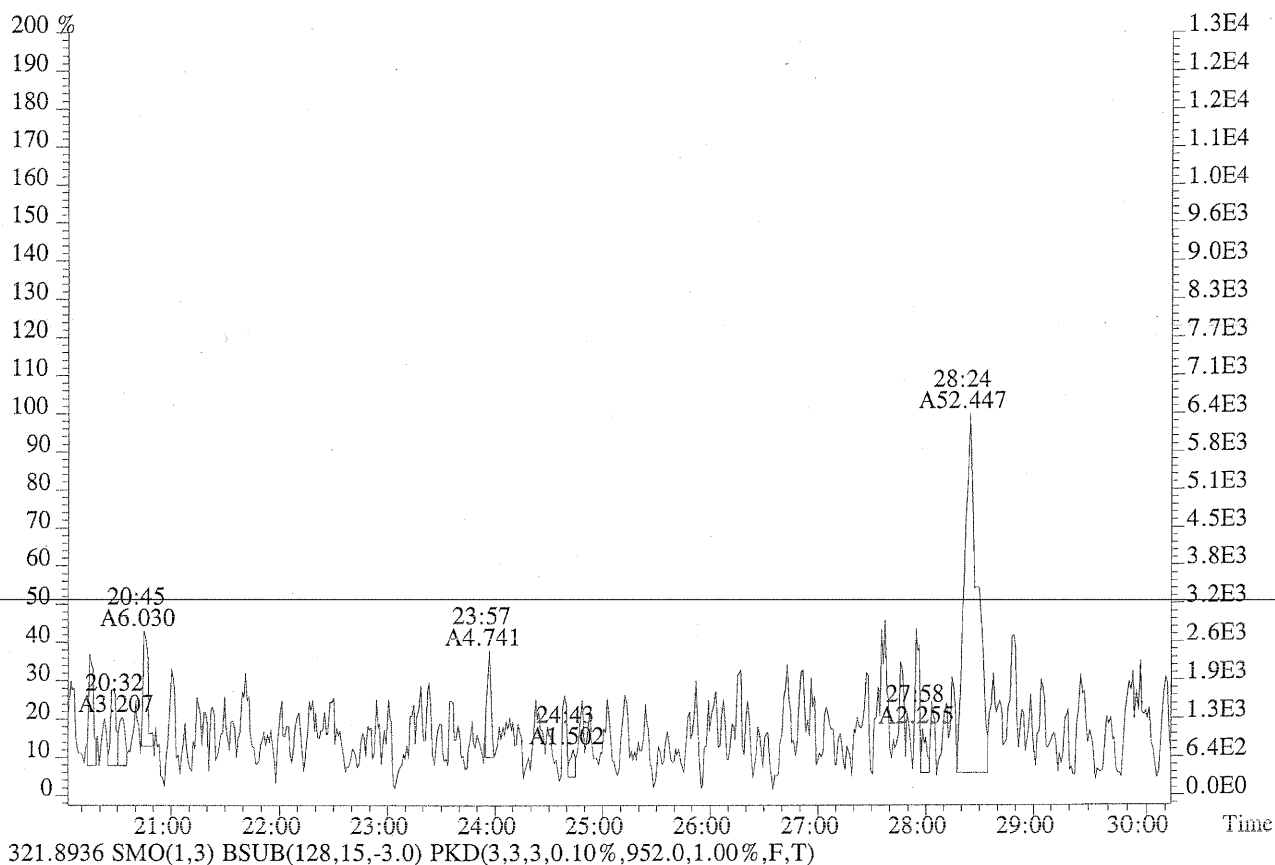
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



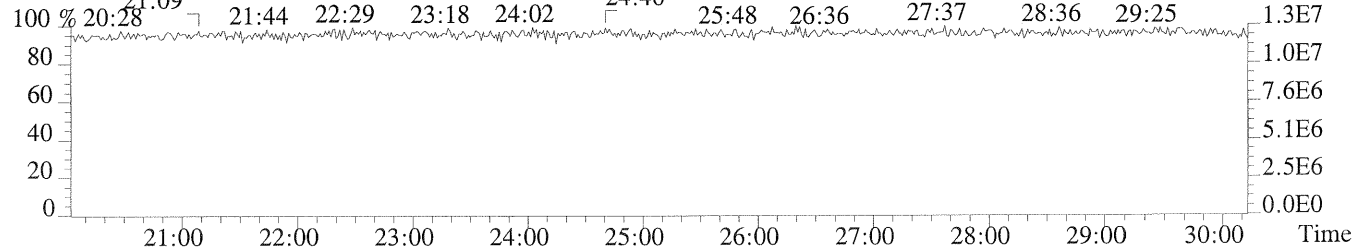
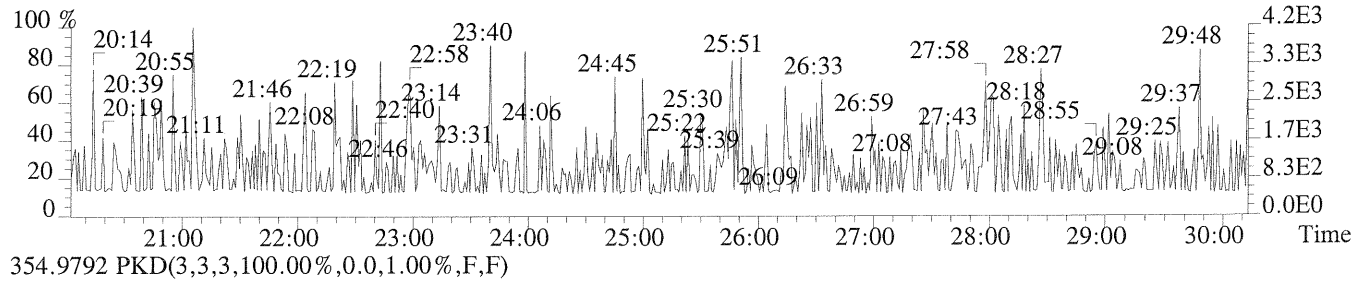
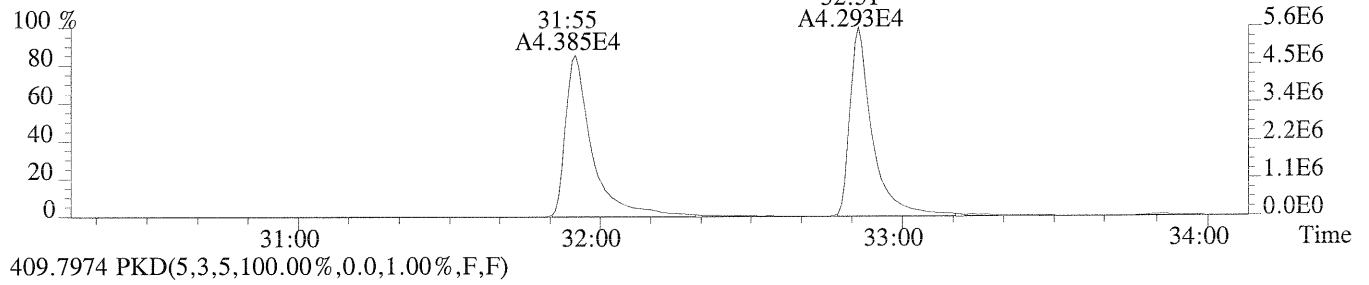
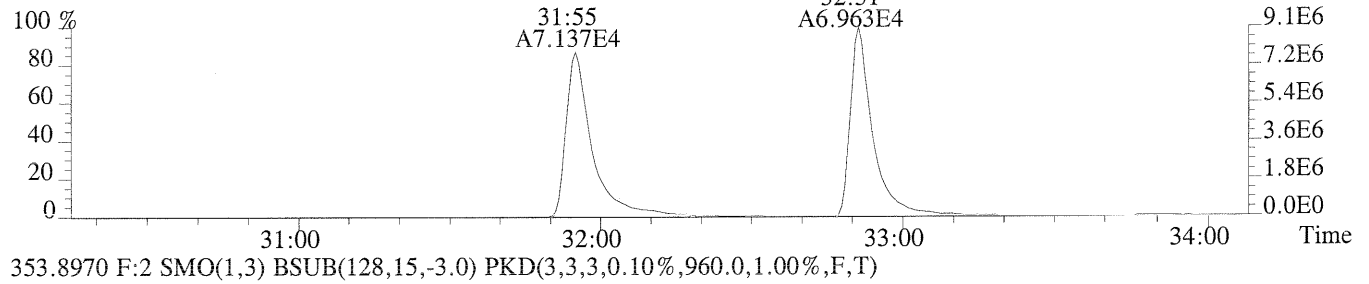
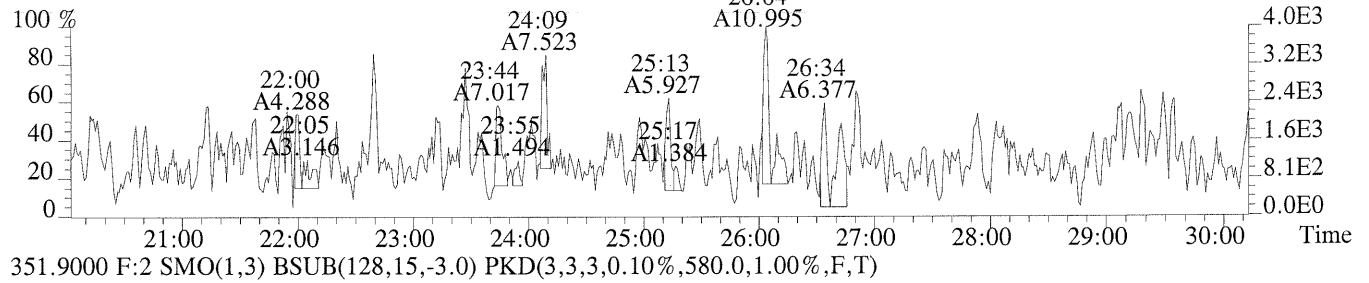
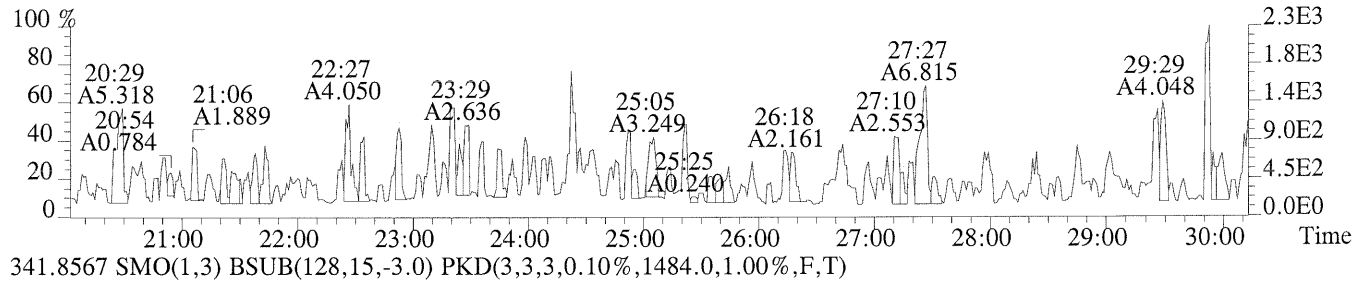
File:P230455 #1-640 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



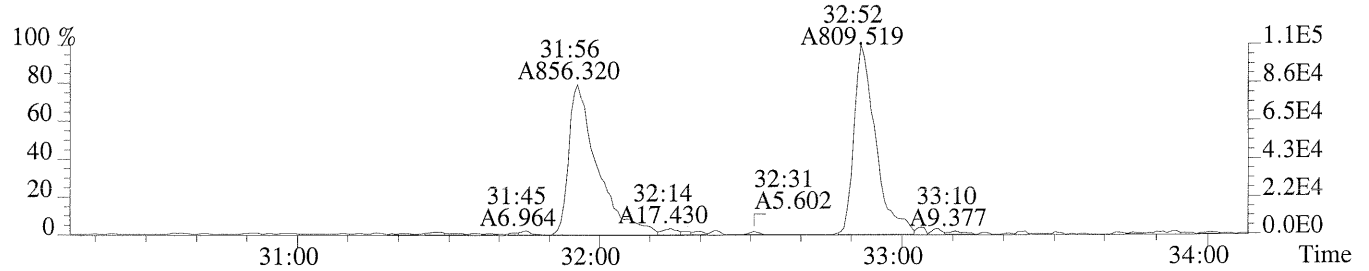
File:P230455 #1-640 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp:ICAL CS0.5  
 319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



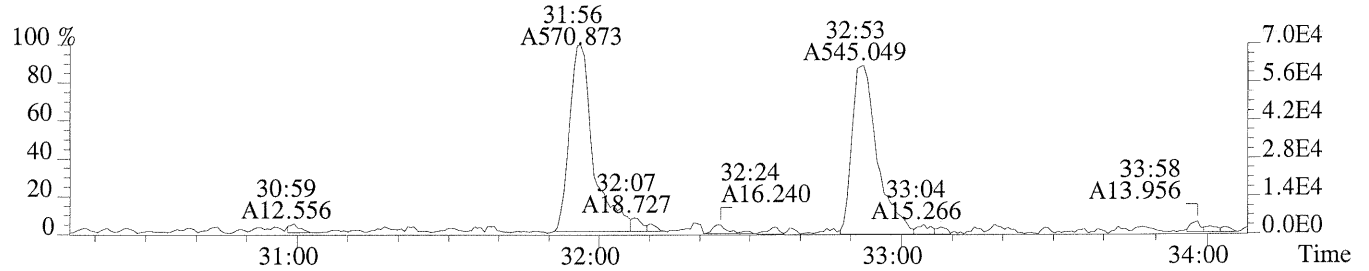
File:P230455 #1-640 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



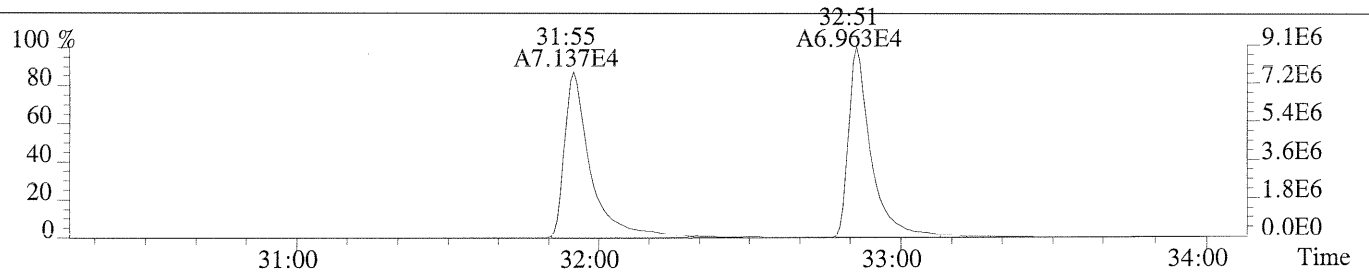
File:P230455 #1-353 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



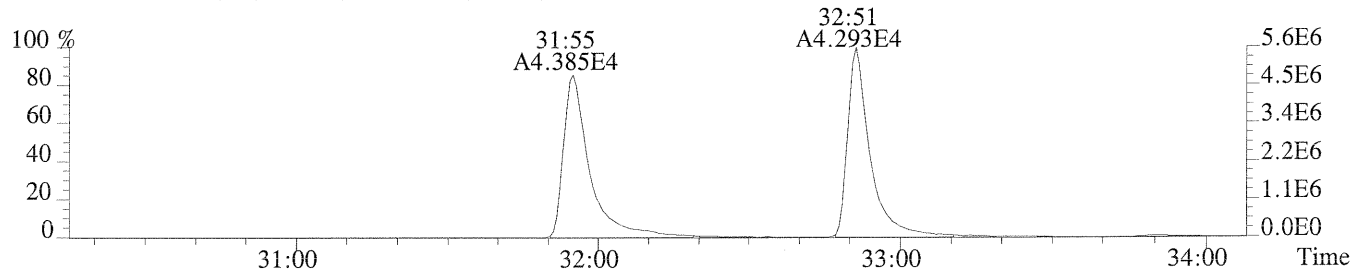
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)



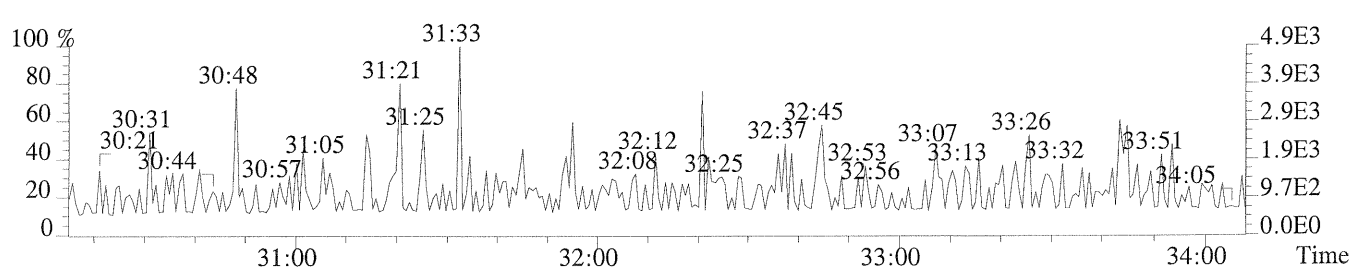
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



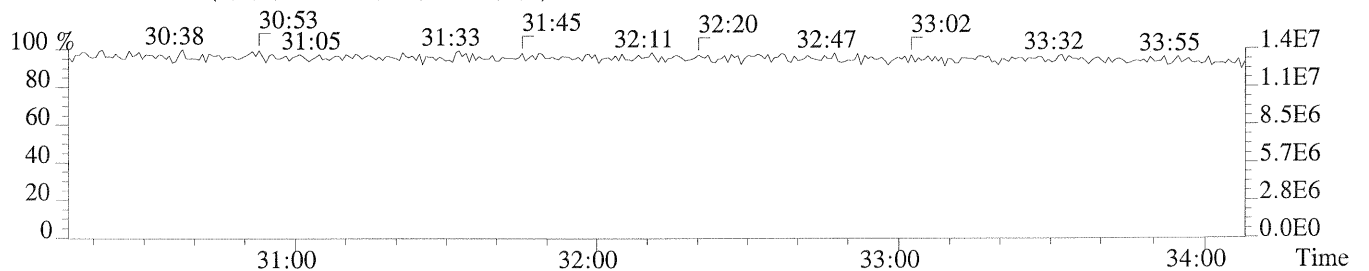
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



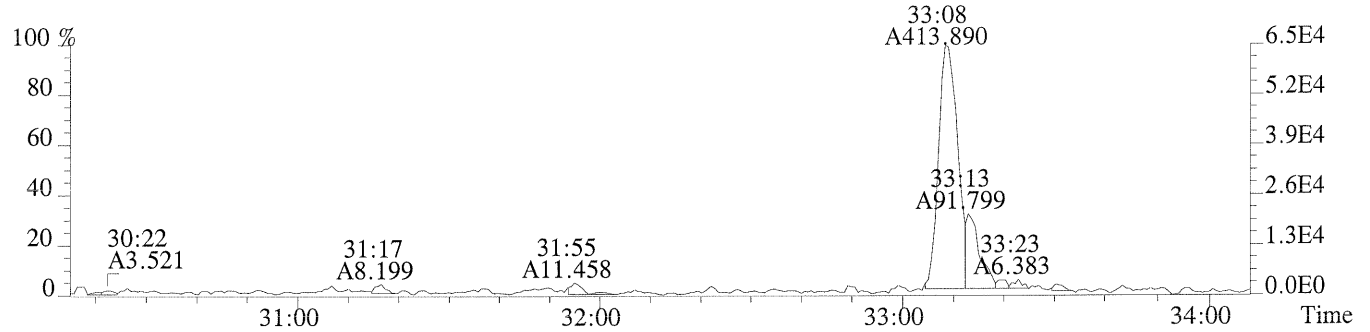
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



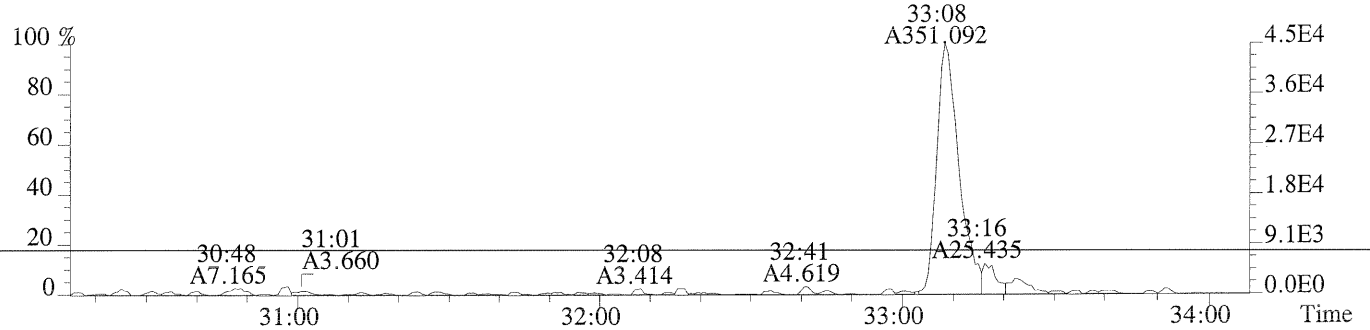
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



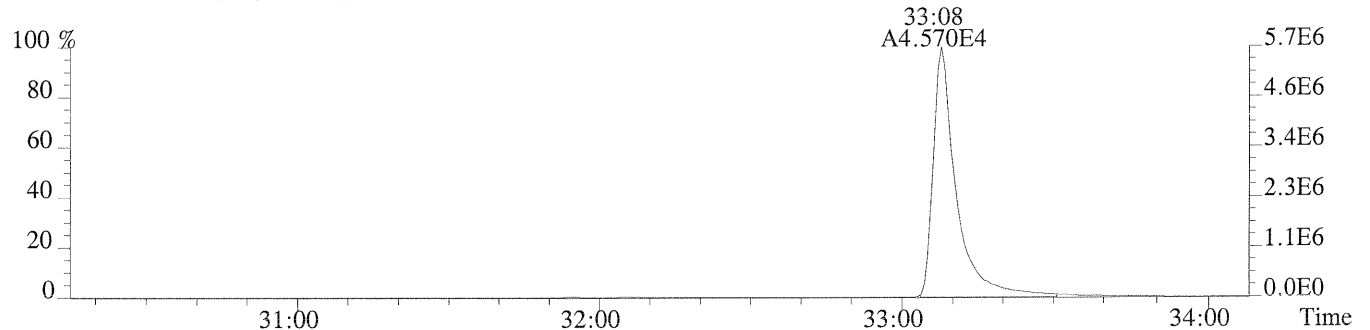
File:P230455 #1-353 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



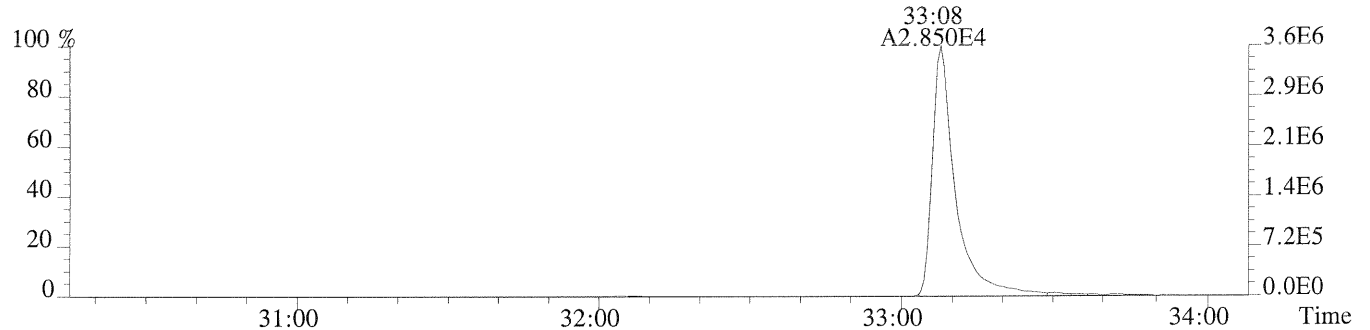
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,36.0,1.00%,F,T)



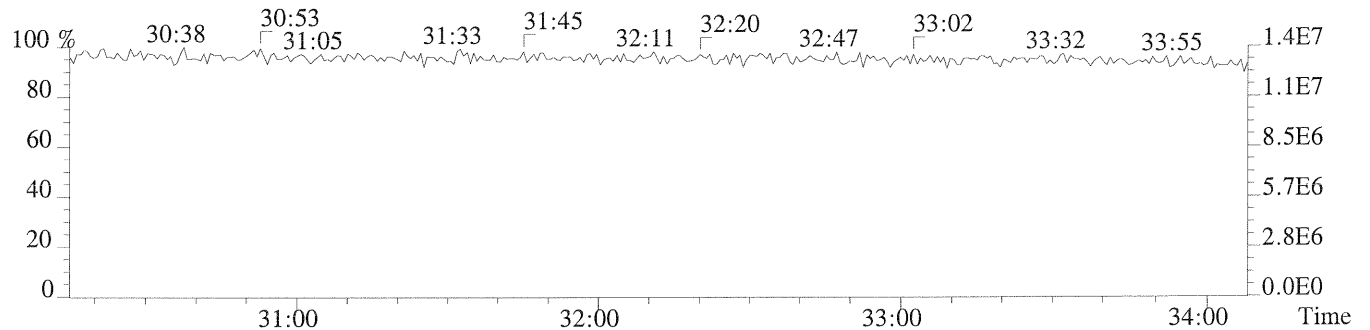
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



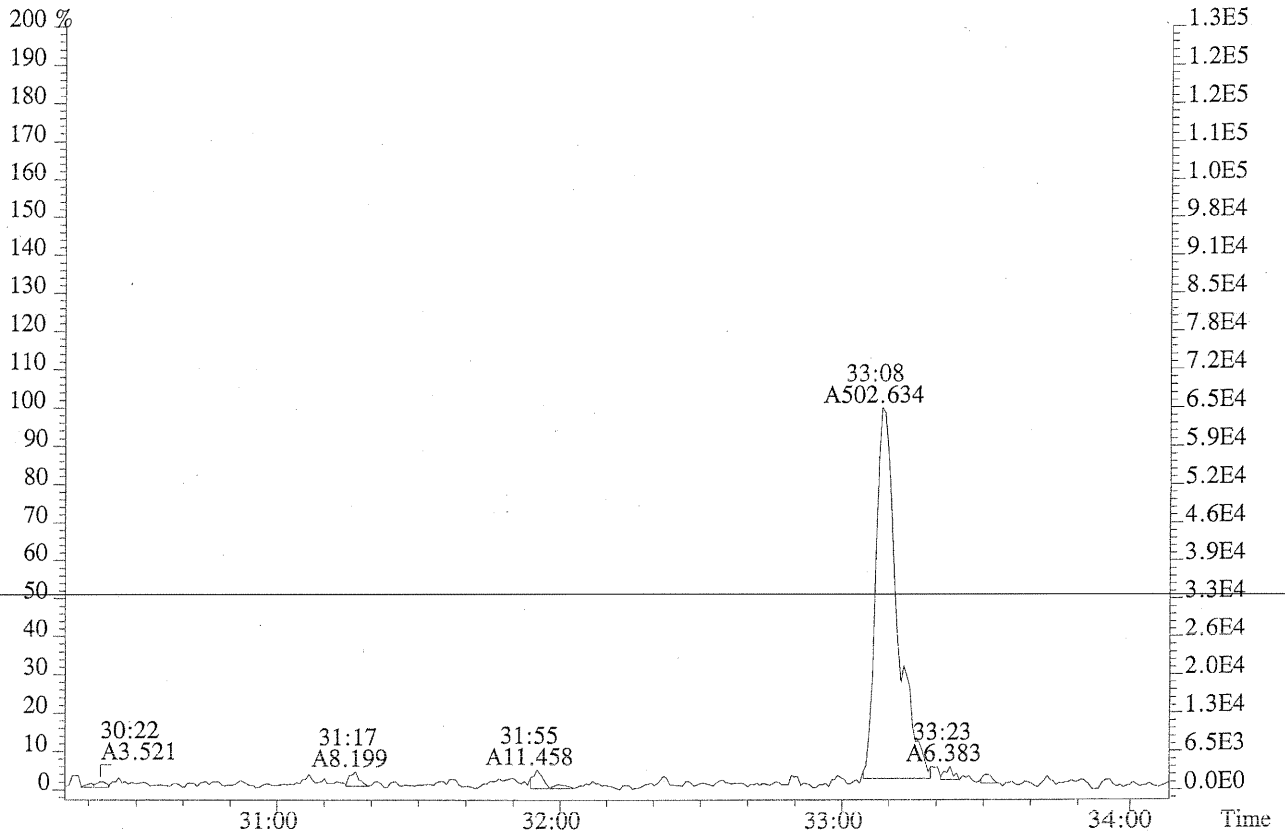
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



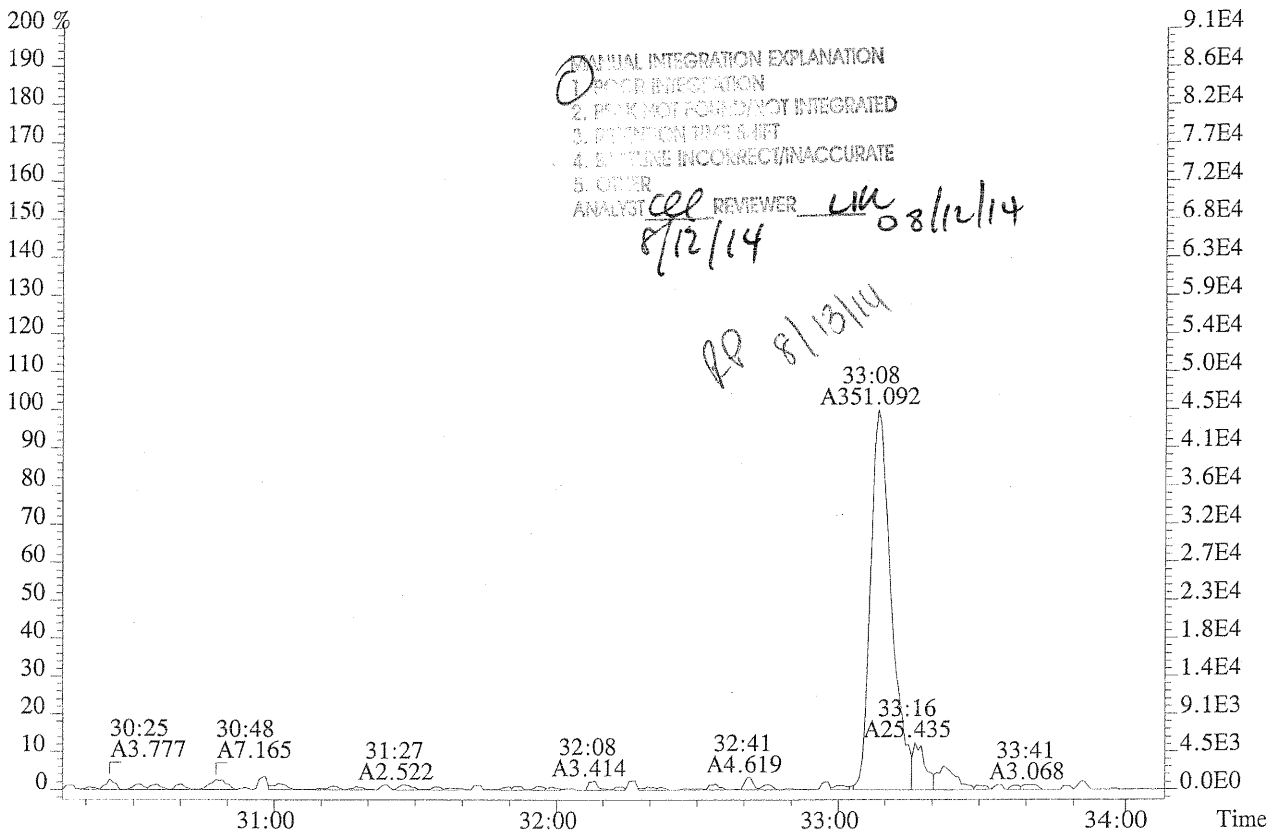
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



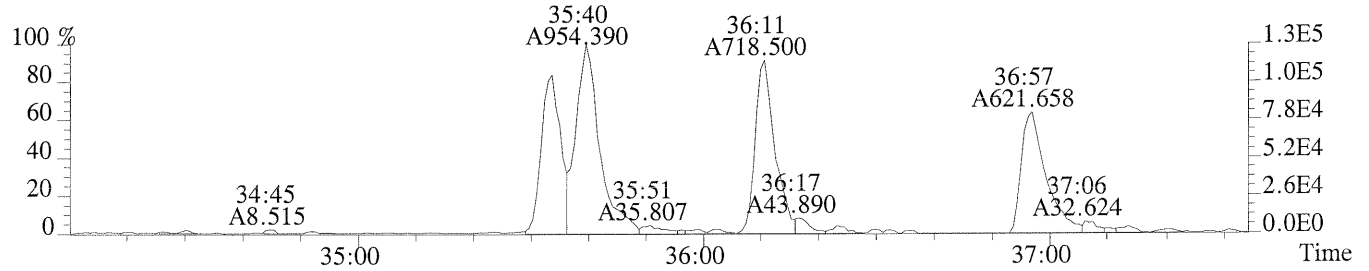
File:P230455 #1-353 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp:ICAL CS0.5  
 355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



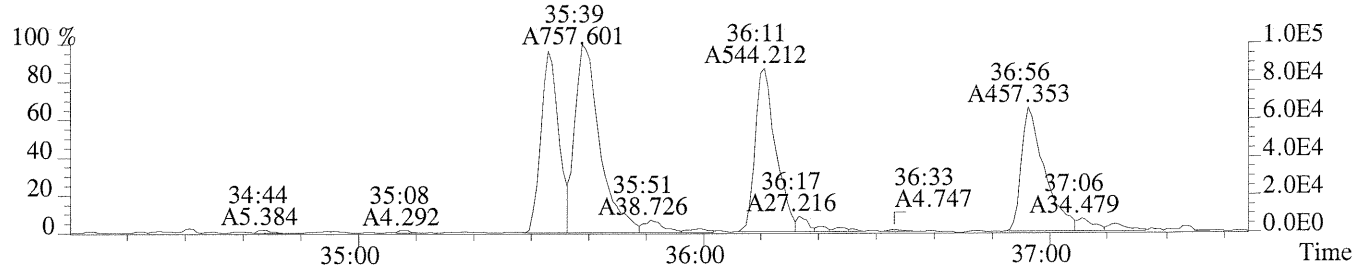
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,36.0,1.00%,F,T)



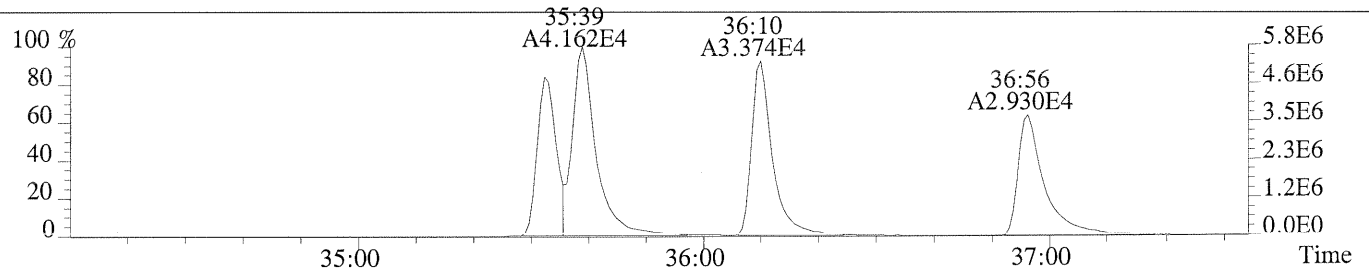
File:P230455 #1-309 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



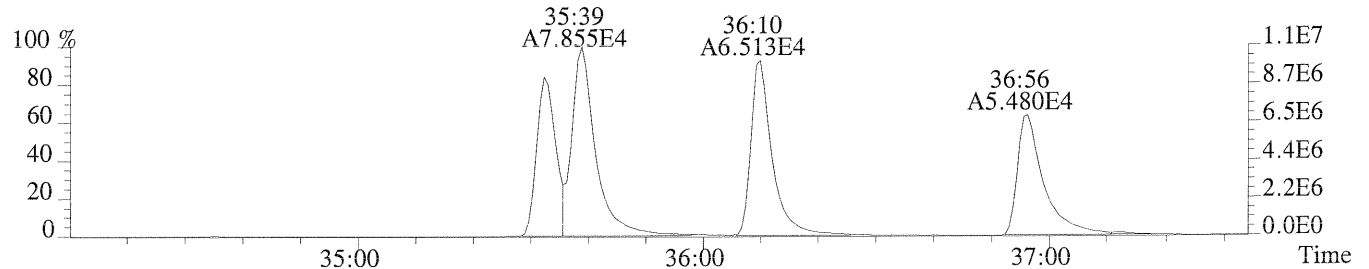
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



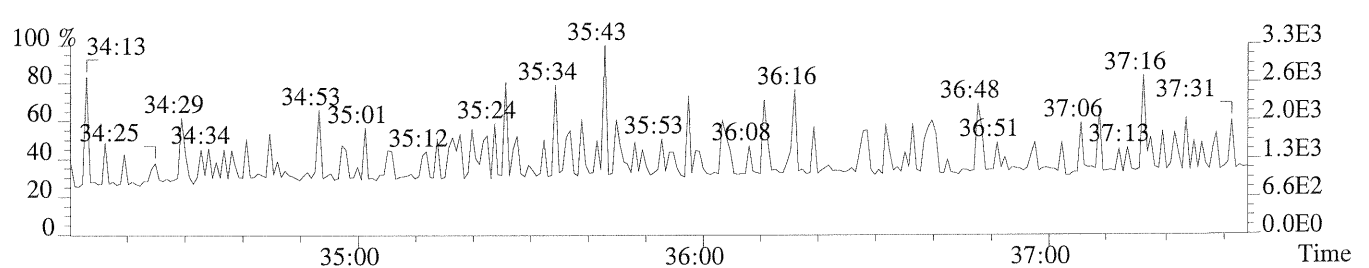
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



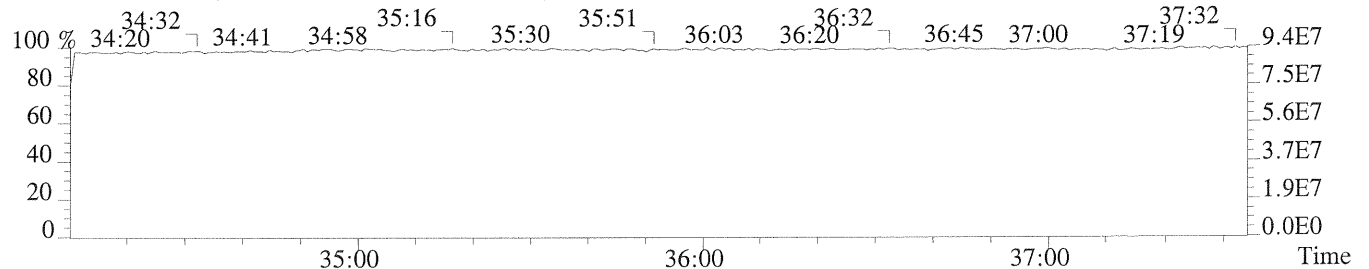
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



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

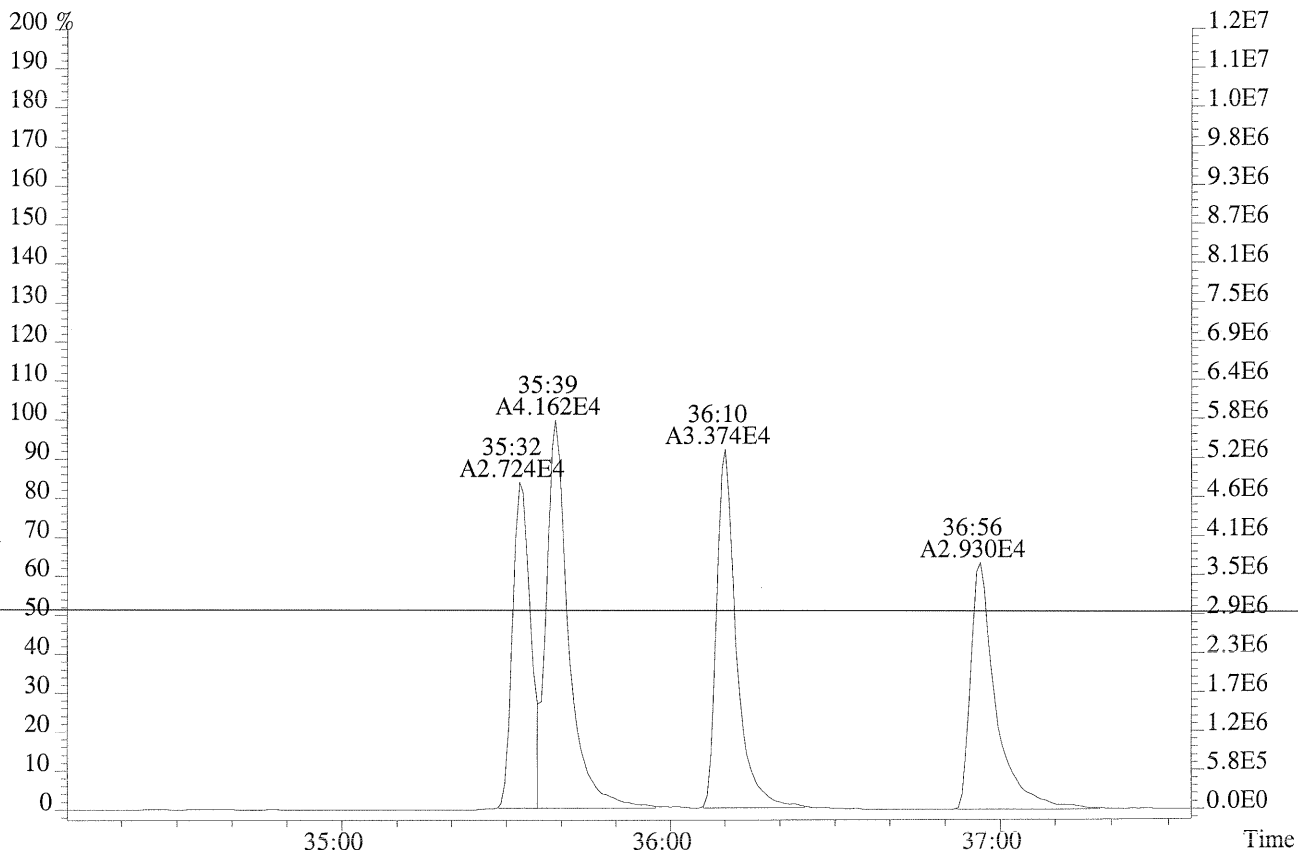


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

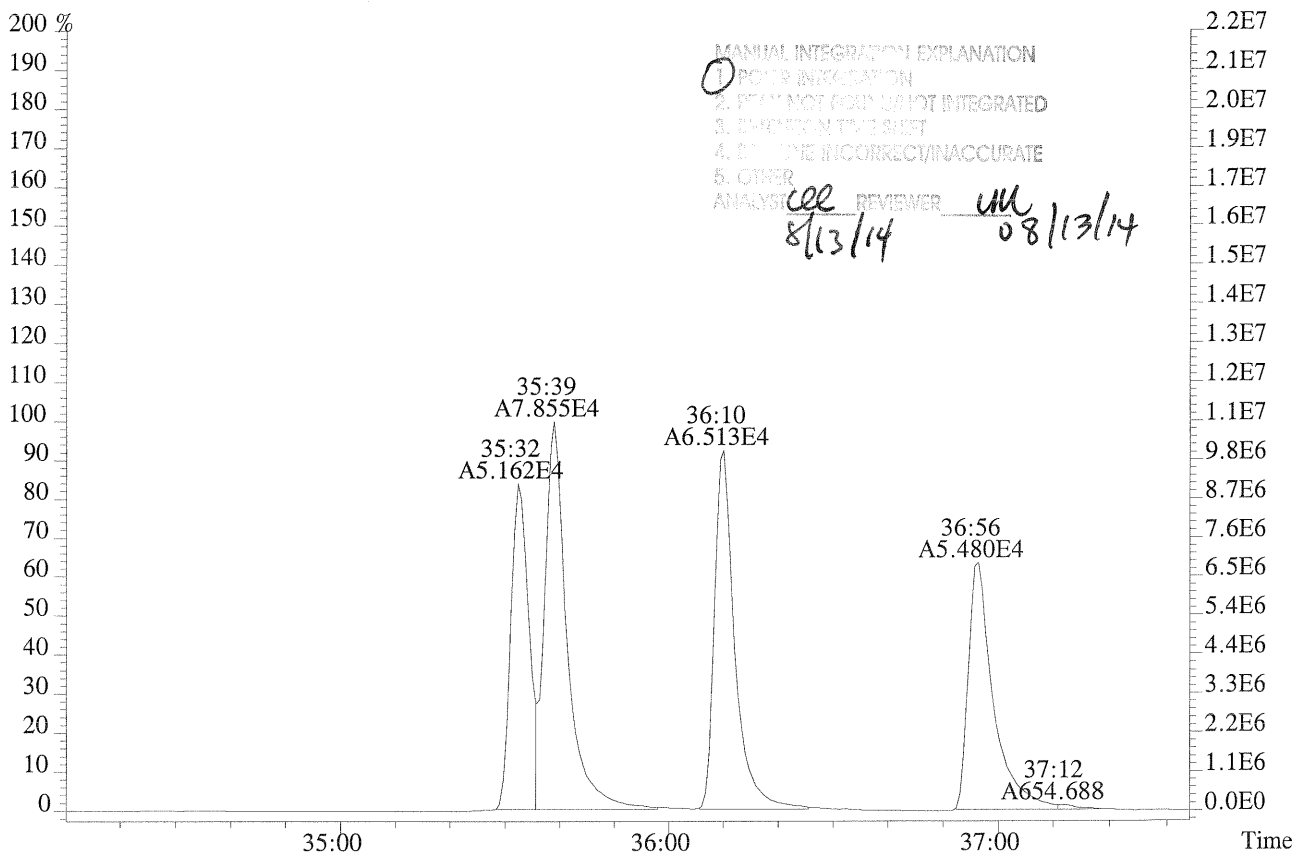




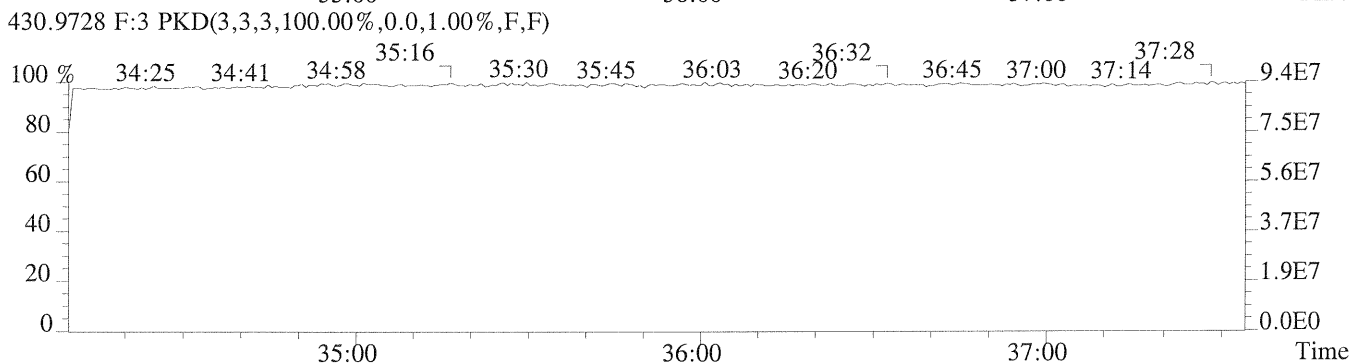
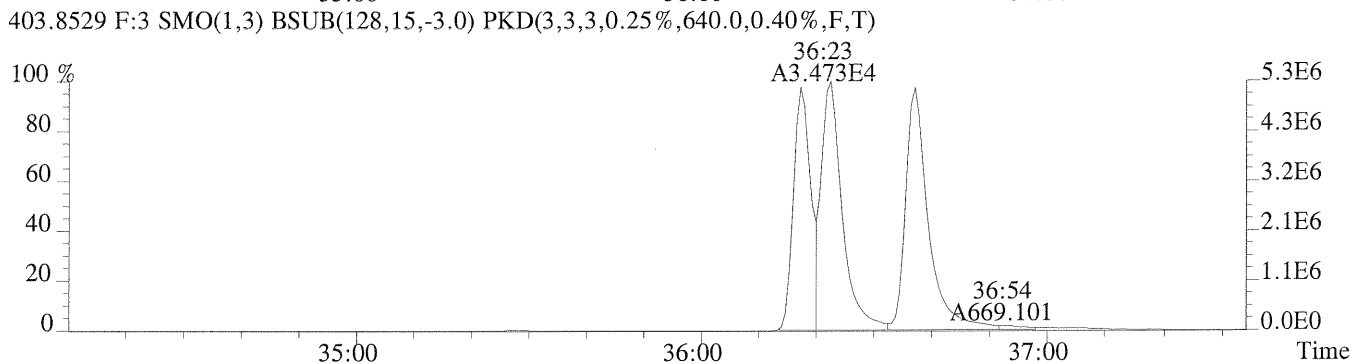
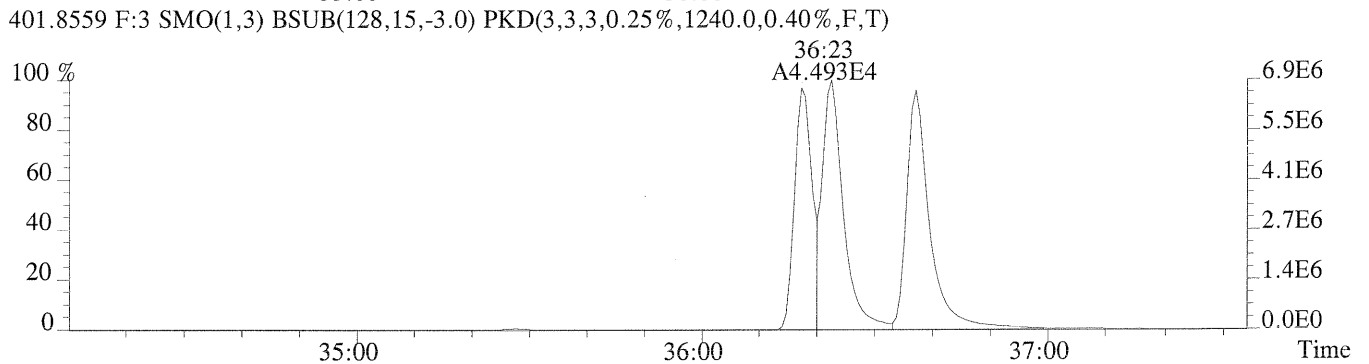
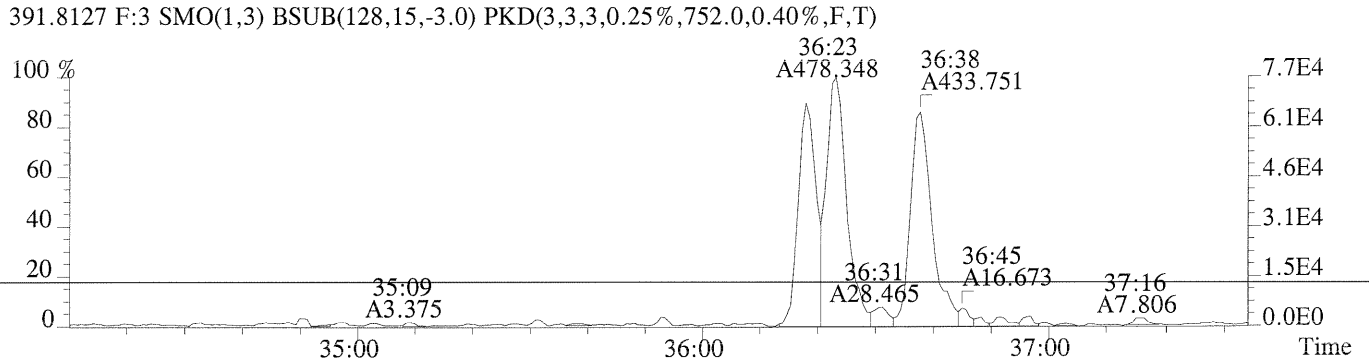
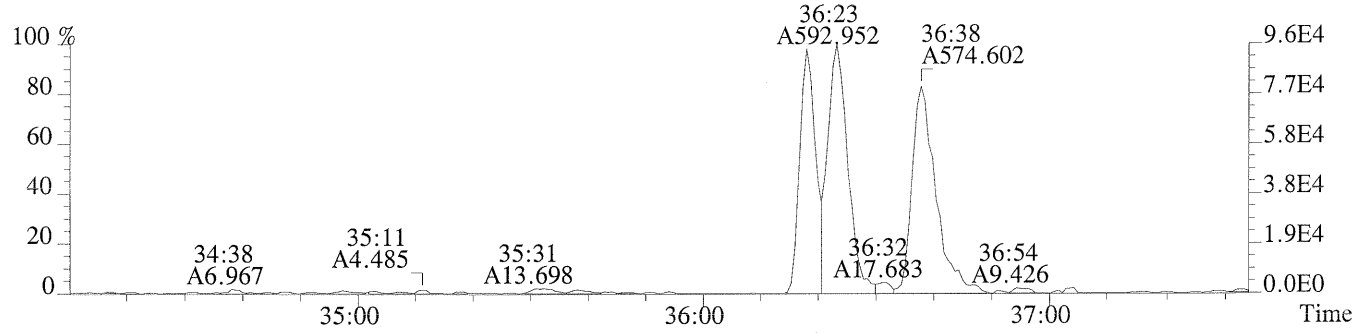
File:P230455 #1-309 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp:ICAL CS0.5  
 383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



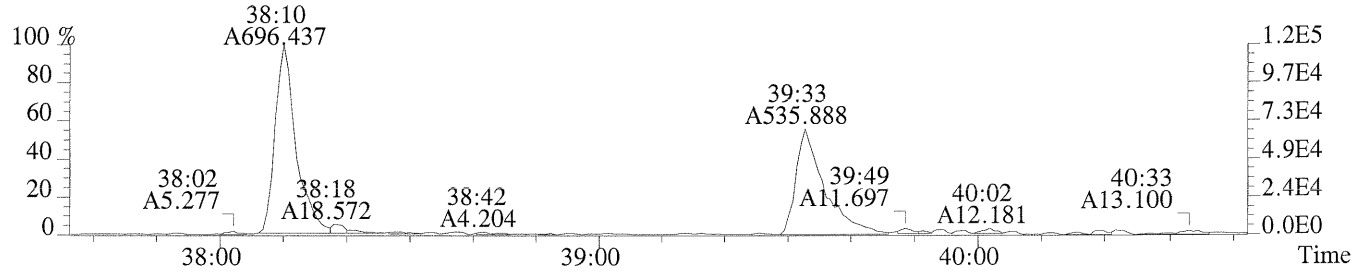
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



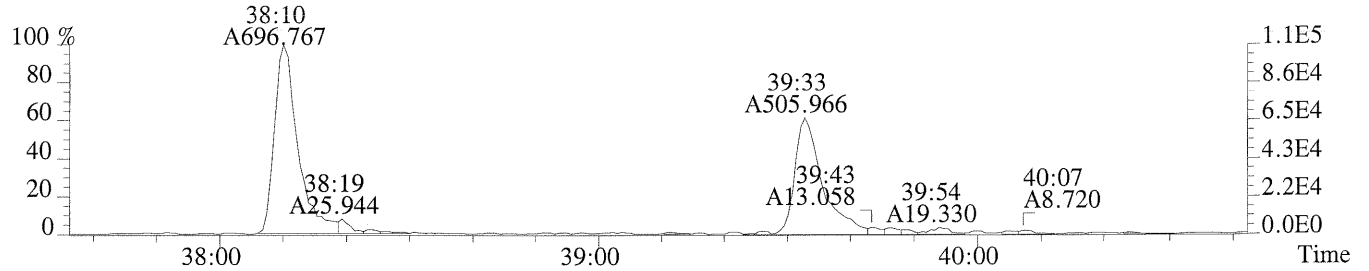
File:P230455 #1-309 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



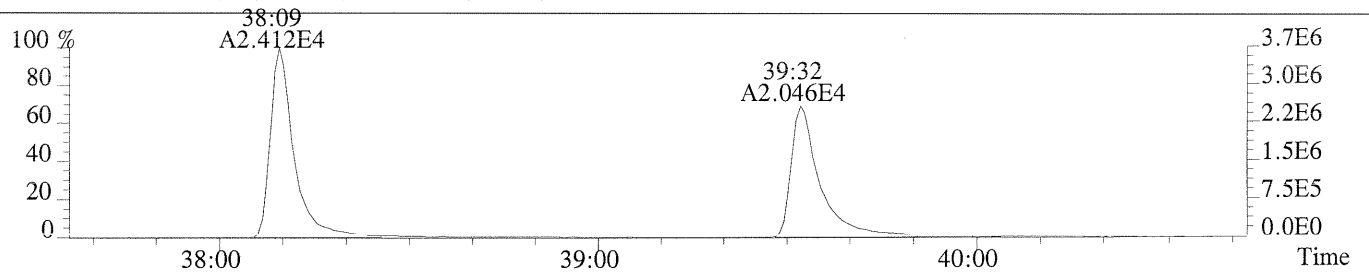
File:P230455 #1-282 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.50%,F,T)



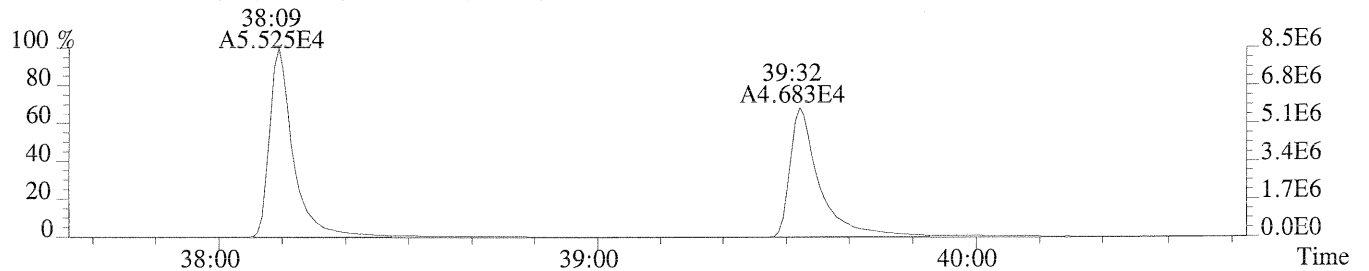
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.50%,F,T)



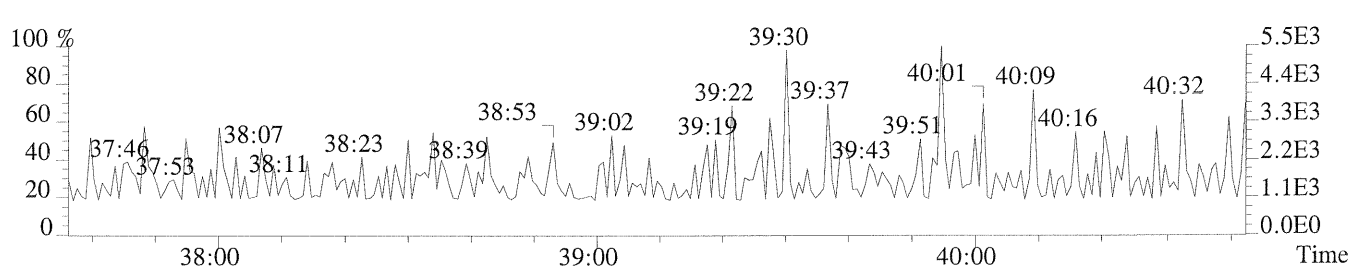
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7248.0,0.50%,F,T)



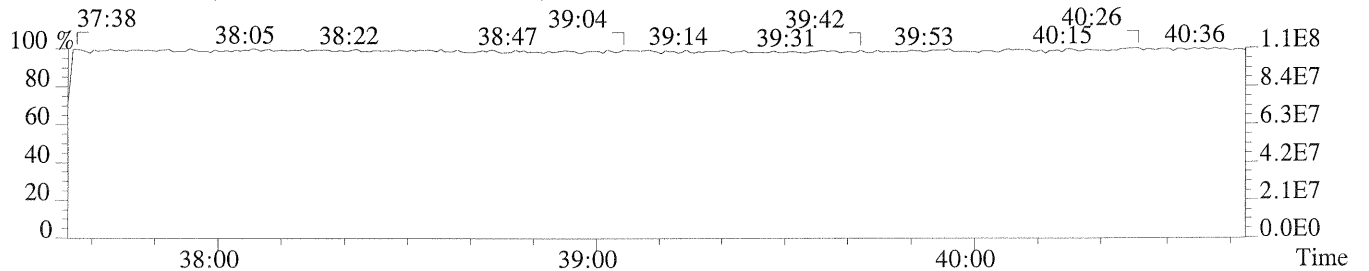
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5952.0,0.50%,F,T)



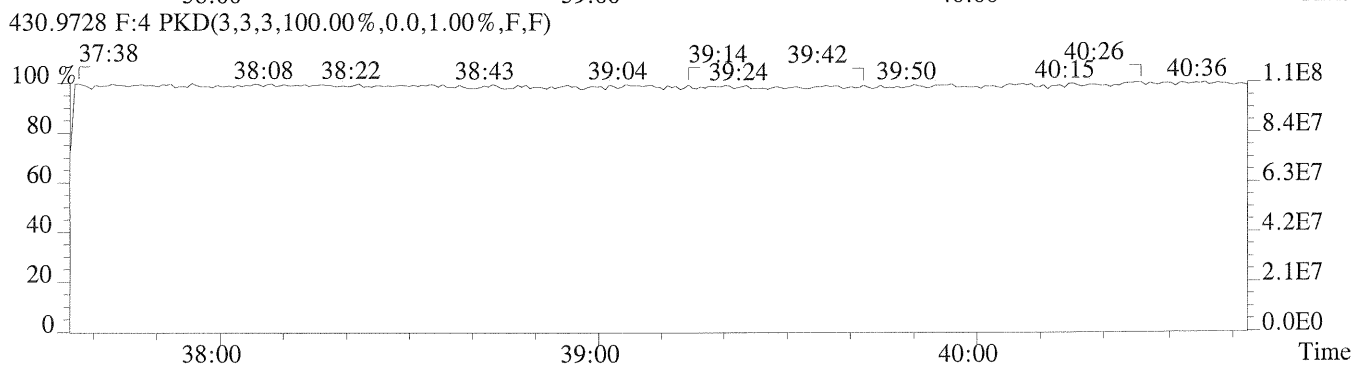
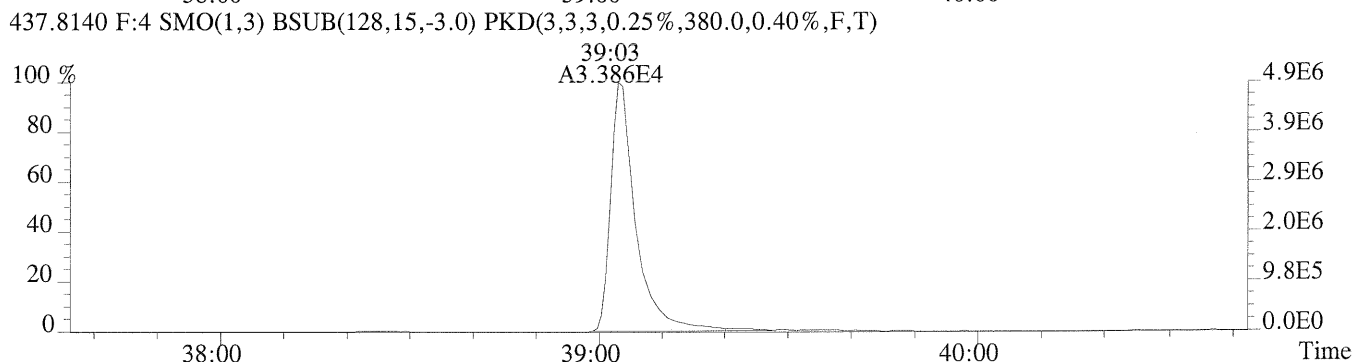
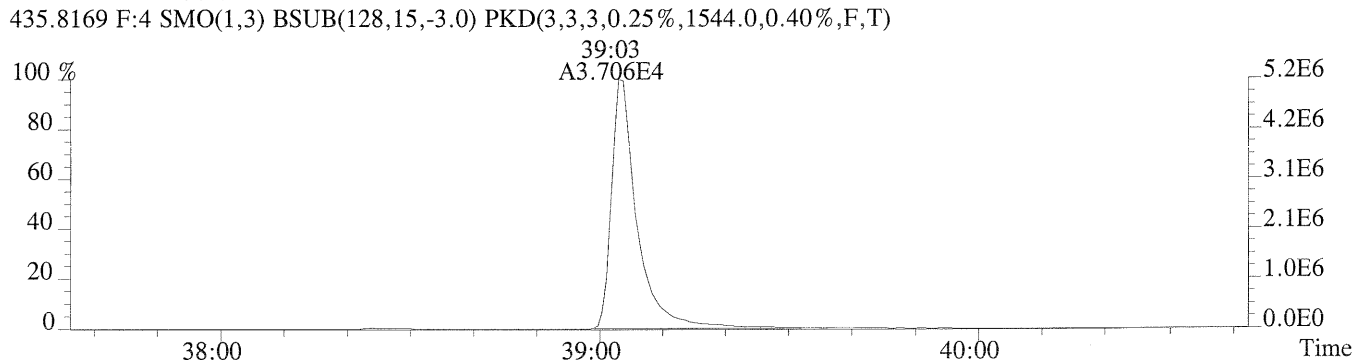
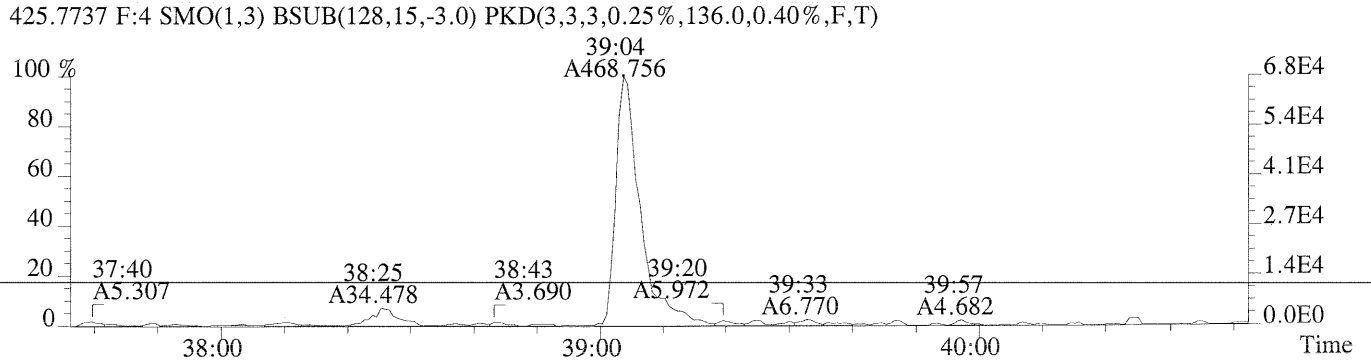
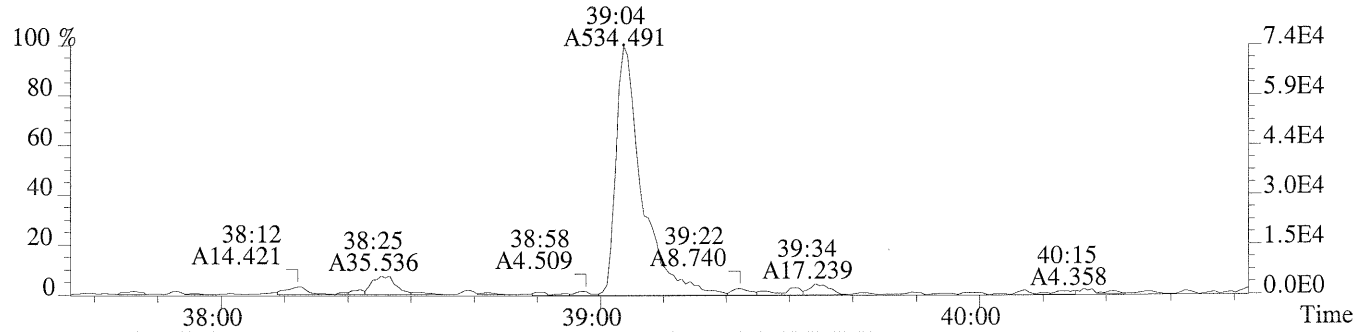
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



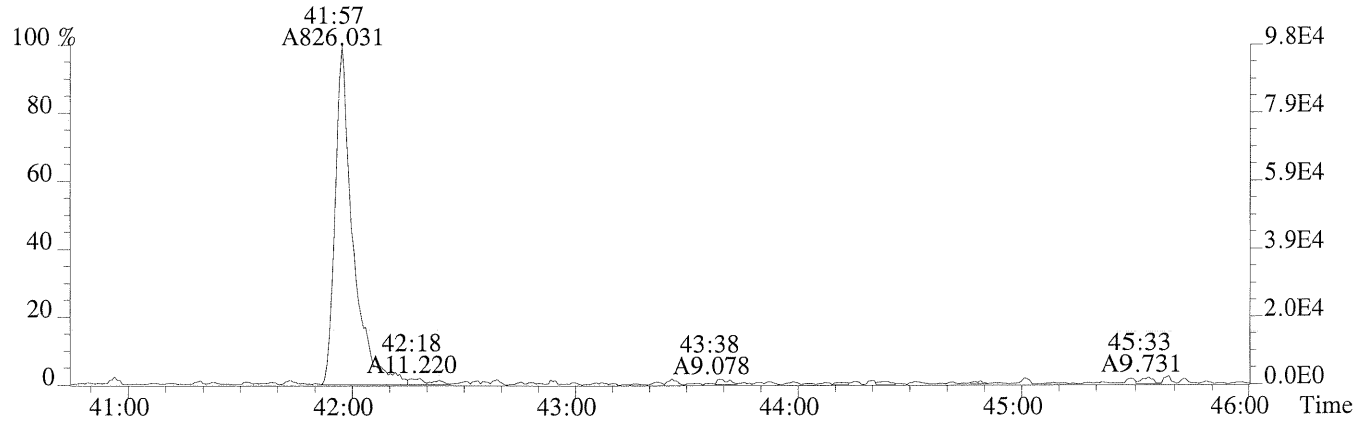
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



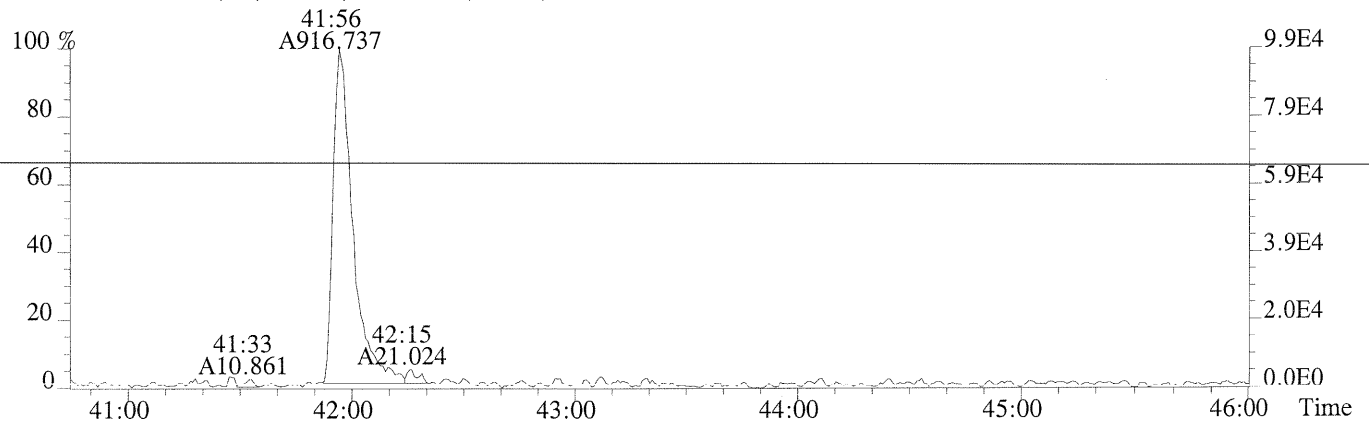
File:P230455 #1-282 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



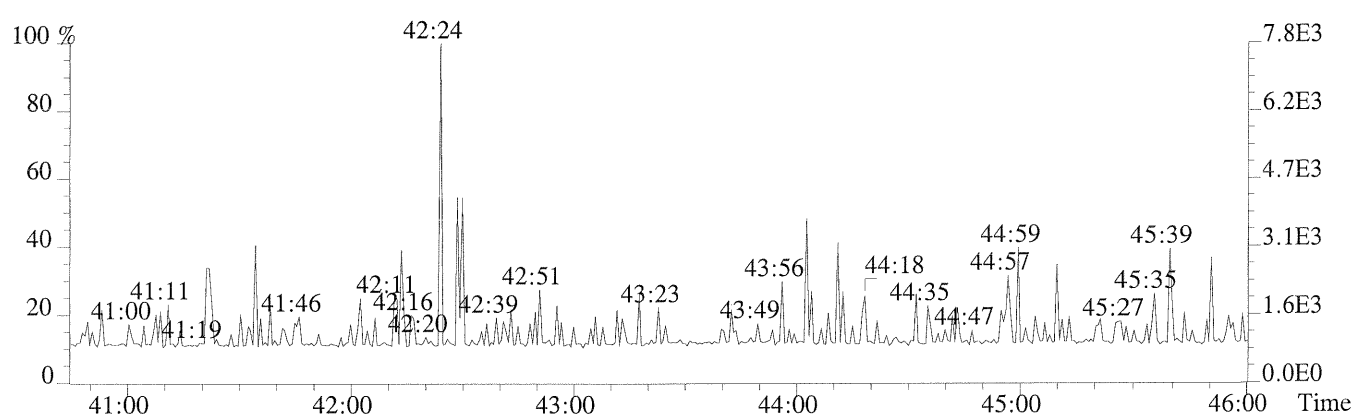
File:P230455 #1-484 Acq:11-AUG-2014 18:27:35 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS0.5  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



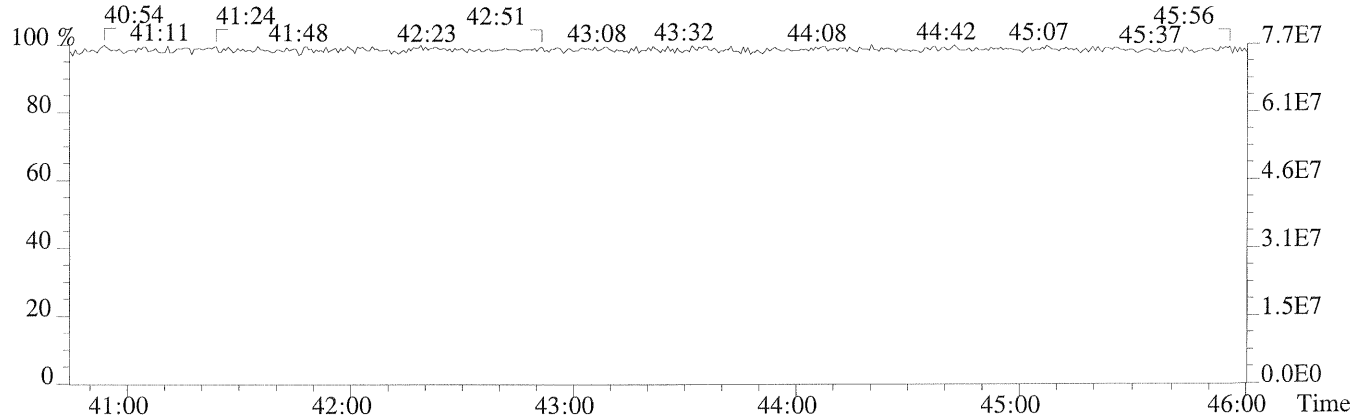
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1188.0,0.40%,F,T)

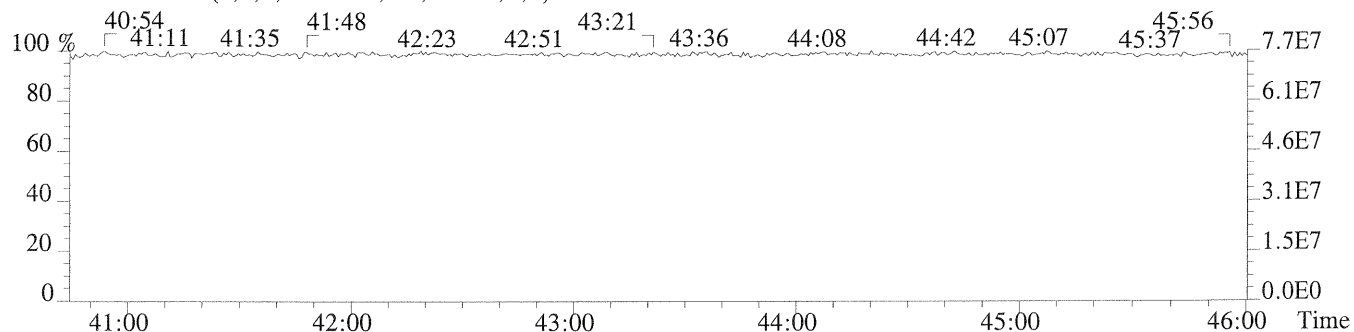
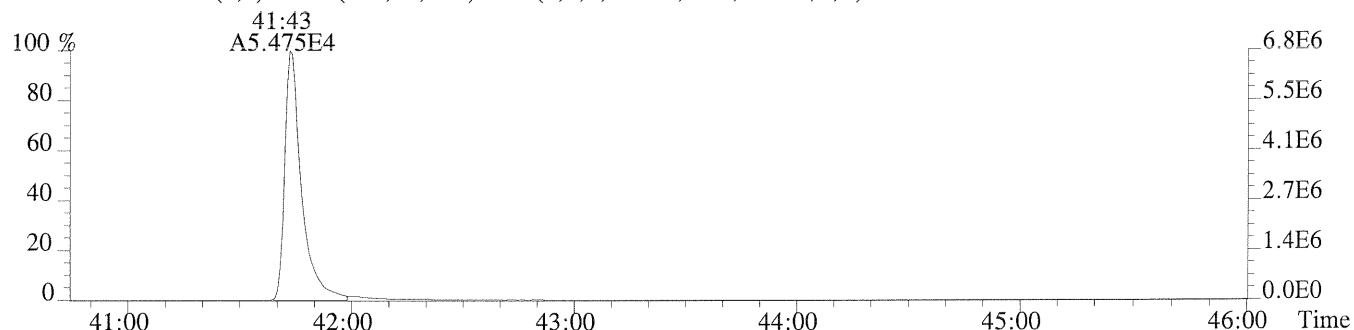
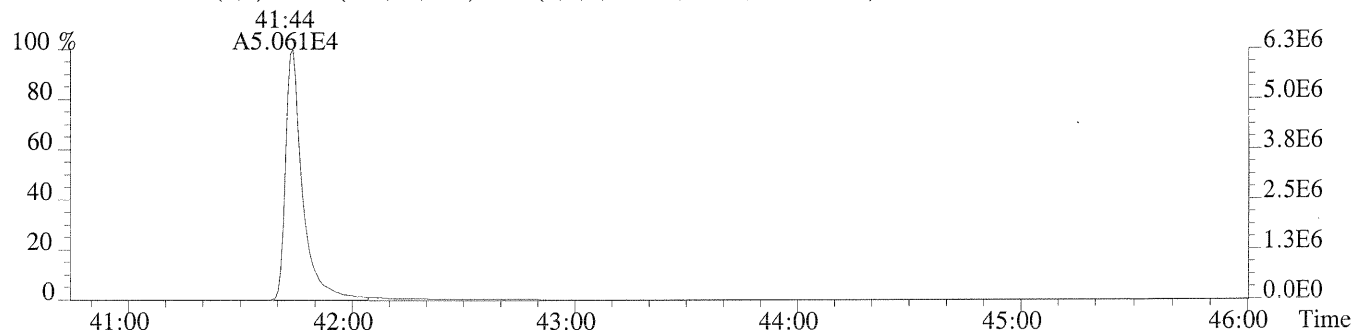
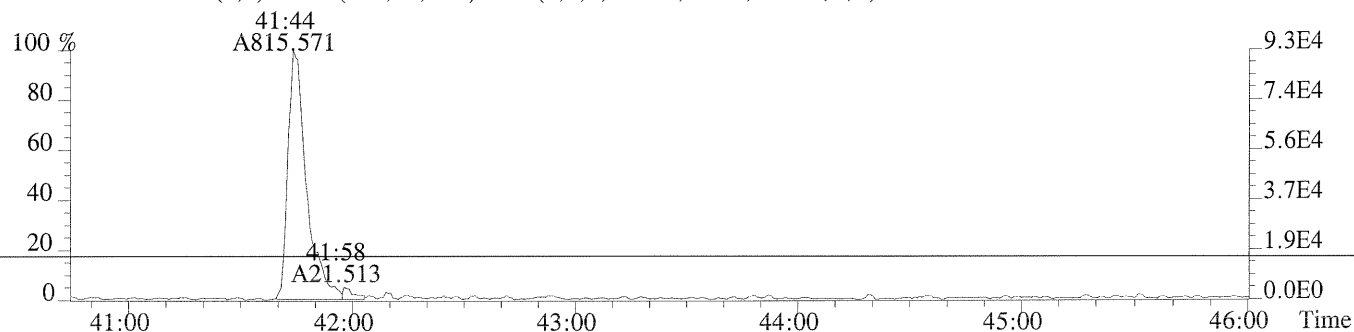
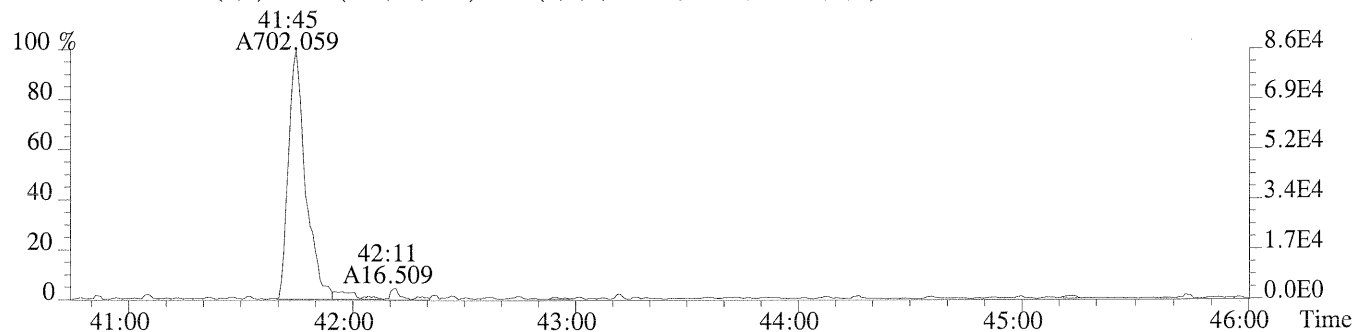


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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





Sample Response Summary

Run #2    Filename P230456 #1    Samp: 1    Inj: 1    Acquired: 11-AUG-14 19:19:54  
 Processed: 13-AUG-14 13:53:28    LAB. ID: 66798

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	27:33	2.138e+02	2.474e+02	0.86	yes	yes	0.959
2 Unk	1,2,3,7,8-PeCDF	31:55	1.947e+03	1.160e+03	1.68	yes	yes	1.034
3 Unk	2,3,4,7,8-PeCDF	32:51	1.776e+03	1.151e+03	1.54	yes	no	0.972
4 Unk	1,2,3,4,7,8-HxCDF	35:32	1.438e+03	1.150e+03	1.25	yes	yes	0.883
5 Unk	1,2,3,6,7,8-HxCDF	35:39	2.093e+03	1.746e+03	1.20	yes	yes	1.175
6 Unk	2,3,4,6,7,8-HxCDF	36:10	1.772e+03	1.401e+03	1.26	yes	yes	0.982
7 Unk	1,2,3,7,8,9-HxCDF	36:56	1.498e+03	1.243e+03	1.21	yes	yes	0.871
8 Unk	1,2,3,4,6,7,8-HpCDF	38:09	1.530e+03	1.458e+03	1.05	yes	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	39:32	1.178e+03	1.094e+03	1.08	yes	no	1.113
10 Unk	OCDF	41:56	1.940e+03	2.111e+03	0.92	yes	no	1.392
11 Unk	2,3,7,8-TCDD	28:23	1.123e+02	1.632e+02	0.69	yes	no	0.966
12 Unk	1,2,3,7,8-PeCDD	33:08	1.213e+03	8.212e+02	1.48	yes	no	1.009
13 Unk	1,2,3,4,7,8-HxCDD	36:17	1.009e+03	8.218e+02	1.23	yes	yes	0.896
14 Unk	1,2,3,6,7,8-HxCDD	36:23	1.391e+03	1.055e+03	1.32	yes	yes	1.115
15 Unk	1,2,3,7,8,9-HxCDD	36:37	1.403e+03	1.108e+03	1.27	yes	yes	1.122
16 Unk	1,2,3,4,6,7,8-HpCDD	39:04	1.086e+03	1.063e+03	1.02	yes	no	1.104
17 Unk	OCDD	41:43	1.697e+03	1.902e+03	0.89	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:32	4.374e+04	5.383e+04	0.81	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:54	7.875e+04	4.869e+04	1.62	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:51	7.668e+04	4.783e+04	1.60	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:32	2.988e+04	5.793e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:38	4.539e+04	8.659e+04	0.52	yes	no	1.448
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:56	3.233e+04	6.084e+04	0.53	yes	no	1.089
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.692e+04	6.030e+04	0.45	yes	no	1.008
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.251e+04	5.156e+04	0.44	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:21	2.854e+04	3.747e+04	0.76	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	33:07	5.031e+04	3.085e+04	1.63	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:17	3.818e+04	2.950e+04	1.29	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:22	4.913e+04	3.819e+04	1.29	yes	no	0.985
31 IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	3.998e+04	3.795e+04	1.05	yes	yes	0.905
32 IS	13C-OCDD	41:43	5.689e+04	6.180e+04	0.92	yes	no	0.692
33S/RT	13C-1,2,3,4-TCDD	27:42	2.901e+04	3.680e+04	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:36	5.021e+04	3.917e+04	1.28	yes	no	-
35 SS	37C1-2,3,7,8-TCDD	28:23	2.679e+02				no	0.960

$$\text{OCDD} = \frac{(1.697e+03 + 1.902e+03) \times (200.0)}{(5.689e+04 + 6.180e+04)} \times 1.181 \times 1.000 = \text{pg}$$

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS1

Method M23

Run #2    Filename P230456    #1    Samp: 1    Inj: 1    Acquired: 11-AUG-14 19:19:54  
Processed: 13-AUG-14 13:53:28    LAB. ID: 66798

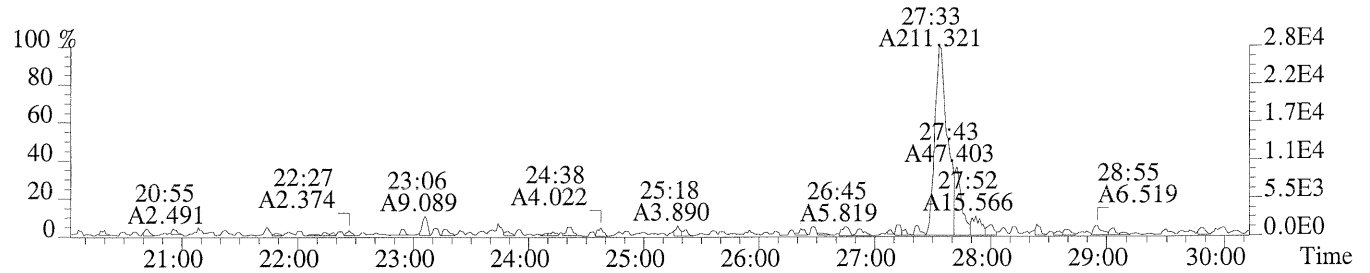
	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.72e+04	4.68e+02	5.8e+01	3.09e+04	1.68e+03	1.8e+01
2	1,2,3,7,8-PeCDF	2.13e+05	5.20e+02	4.1e+02	1.31e+05	1.80e+03	7.2e+01
3	2,3,4,7,8-PeCDF	2.30e+05	5.20e+02	4.4e+02	1.45e+05	1.80e+03	8.0e+01
4	1,2,3,4,7,8-HxCDF	2.60e+05	5.12e+02	5.1e+02	2.05e+05	4.52e+02	4.5e+02
5	1,2,3,6,7,8-HxCDF	2.88e+05	5.12e+02	5.6e+02	2.23e+05	4.52e+02	4.9e+02
6	2,3,4,6,7,8-HxCDF	2.76e+05	5.12e+02	5.4e+02	2.00e+05	4.52e+02	4.4e+02
7	1,2,3,7,8,9-HxCDF	1.89e+05	5.12e+02	3.7e+02	1.54e+05	4.52e+02	3.4e+02
8	1,2,3,4,6,7,8-HpCDF	2.26e+05	1.16e+03	1.9e+02	2.22e+05	1.44e+03	1.5e+02
9	1,2,3,4,7,8,9-HpCDF	1.49e+05	1.16e+03	1.3e+02	1.38e+05	1.44e+03	9.6e+01
10	OCDF	2.09e+05	5.80e+02	3.6e+02	2.41e+05	1.07e+03	2.3e+02
11	2,3,7,8-TCDD	1.84e+04	1.65e+03	1.1e+01	2.39e+04	8.52e+02	2.8e+01
12	1,2,3,7,8-PeCDD	1.53e+05	1.26e+03	1.2e+02	1.05e+05	3.64e+02	2.9e+02
13	1,2,3,4,7,8-HxCDD	2.00e+05	3.60e+02	5.6e+02	1.55e+05	6.56e+02	2.4e+02
14	1,2,3,6,7,8-HxCDD	2.13e+05	3.60e+02	5.9e+02	1.57e+05	6.56e+02	2.4e+02
15	1,2,3,7,8,9-HxCDD	2.14e+05	3.60e+02	6.0e+02	1.58e+05	6.56e+02	2.4e+02
16	1,2,3,4,6,7,8-HpCDD	1.46e+05	7.44e+02	2.0e+02	1.51e+05	3.28e+02	4.6e+02
17	OCDD	2.18e+05	1.07e+03	2.0e+02	2.38e+05	1.28e+03	1.9e+02
18	13C-2,3,7,8-TCDF	4.86e+06	2.12e+03	2.3e+03	5.98e+06	1.41e+03	4.2e+03
19	13C-1,2,3,7,8-PeCDF	8.62e+06	2.78e+03	3.1e+03	5.42e+06	2.14e+03	2.5e+03
20	13C-2,3,4,7,8-PeCDF	9.98e+06	2.78e+03	3.6e+03	6.07e+06	2.14e+03	2.8e+03
21	13C-1,2,3,4,7,8-HxCDF	5.34e+06	1.41e+03	3.8e+03	1.03e+07	2.92e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	6.40e+06	1.41e+03	4.5e+03	1.20e+07	2.92e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	4.02e+06	1.41e+03	2.9e+03	7.53e+06	2.92e+03	2.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.16e+06	6.49e+03	6.4e+02	9.28e+06	9.44e+03	9.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.72e+06	6.49e+03	4.2e+02	6.27e+06	9.44e+03	6.6e+02
27	13C-2,3,7,8-TCDD	3.56e+06	6.93e+03	5.1e+02	4.58e+06	2.26e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	6.20e+06	1.12e+03	5.6e+03	3.92e+06	8.52e+02	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	7.41e+06	2.19e+03	3.4e+03	5.73e+06	1.24e+03	4.6e+03
30	13C-1,2,3,6,7,8-HxCDD	7.62e+06	2.19e+03	3.5e+03	5.95e+06	1.24e+03	4.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.67e+06	2.71e+03	2.1e+03	5.28e+06	7.72e+02	6.8e+03
32	13C-OCDD	7.02e+06	6.00e+02	1.2e+04	7.67e+06	8.80e+02	8.7e+03
33	13C-1,2,3,4-TCDD	4.43e+06	6.93e+03	6.4e+02	5.61e+06	2.26e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	7.23e+06	2.19e+03	3.3e+03	5.61e+06	1.24e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	3.66e+04	1.54e+03	2.4e+01			

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

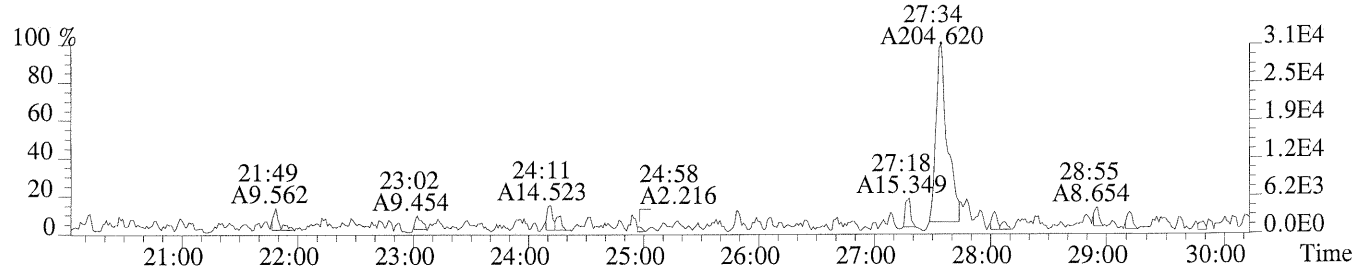
ALS Form TO-9SN/M23SN.FRM



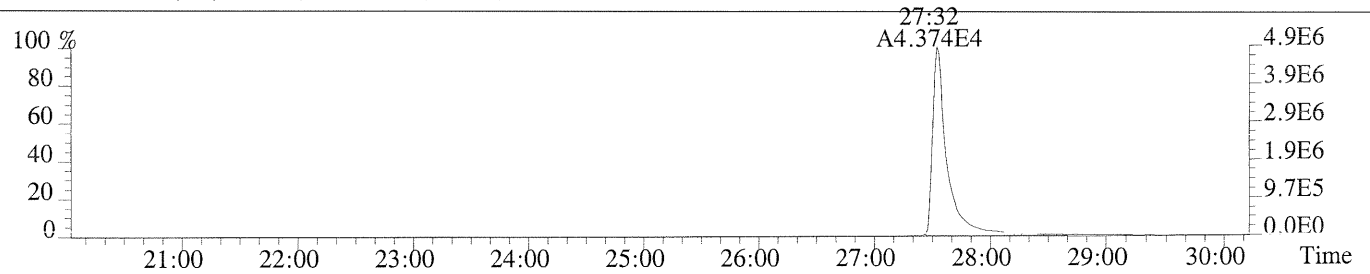
File:P230456 #1-640 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS1  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



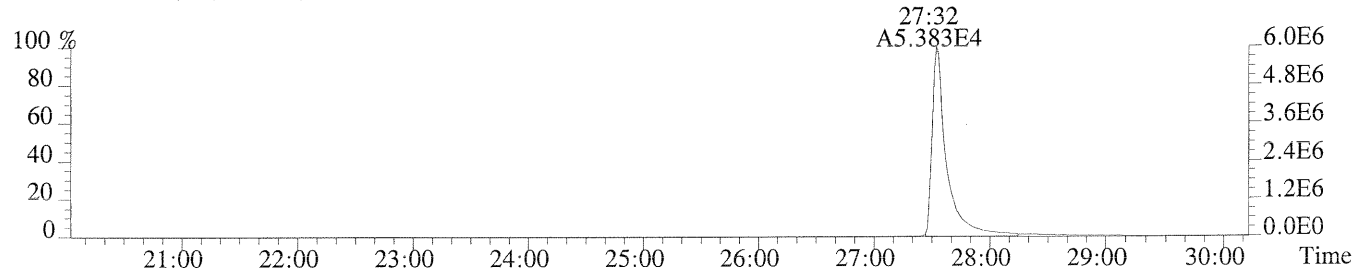
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



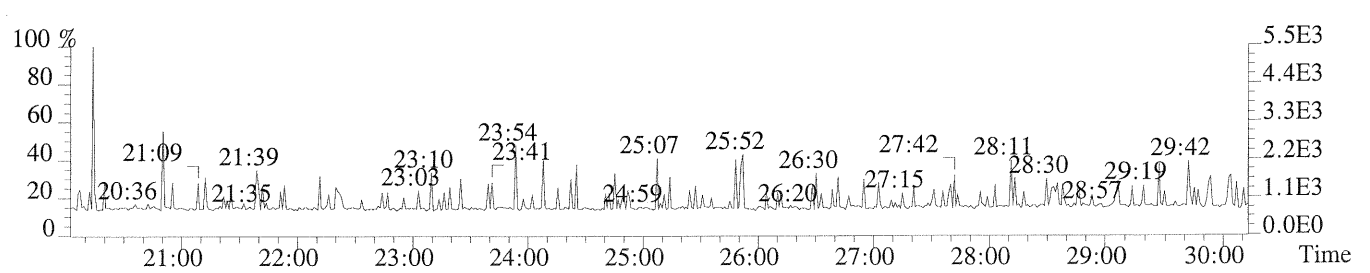
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



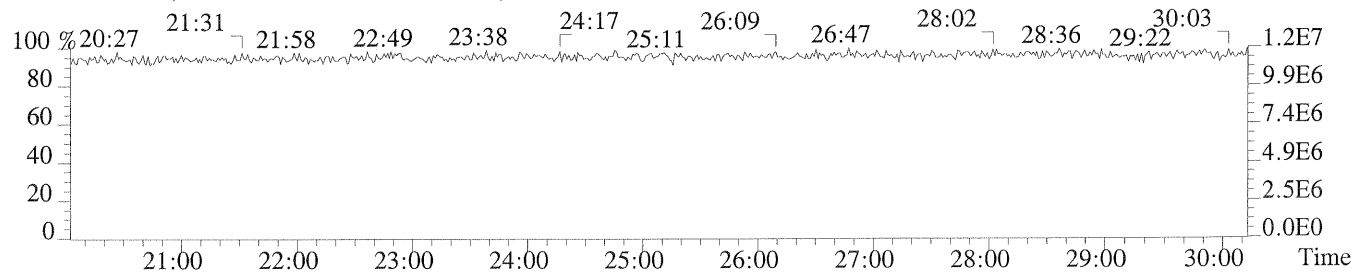
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



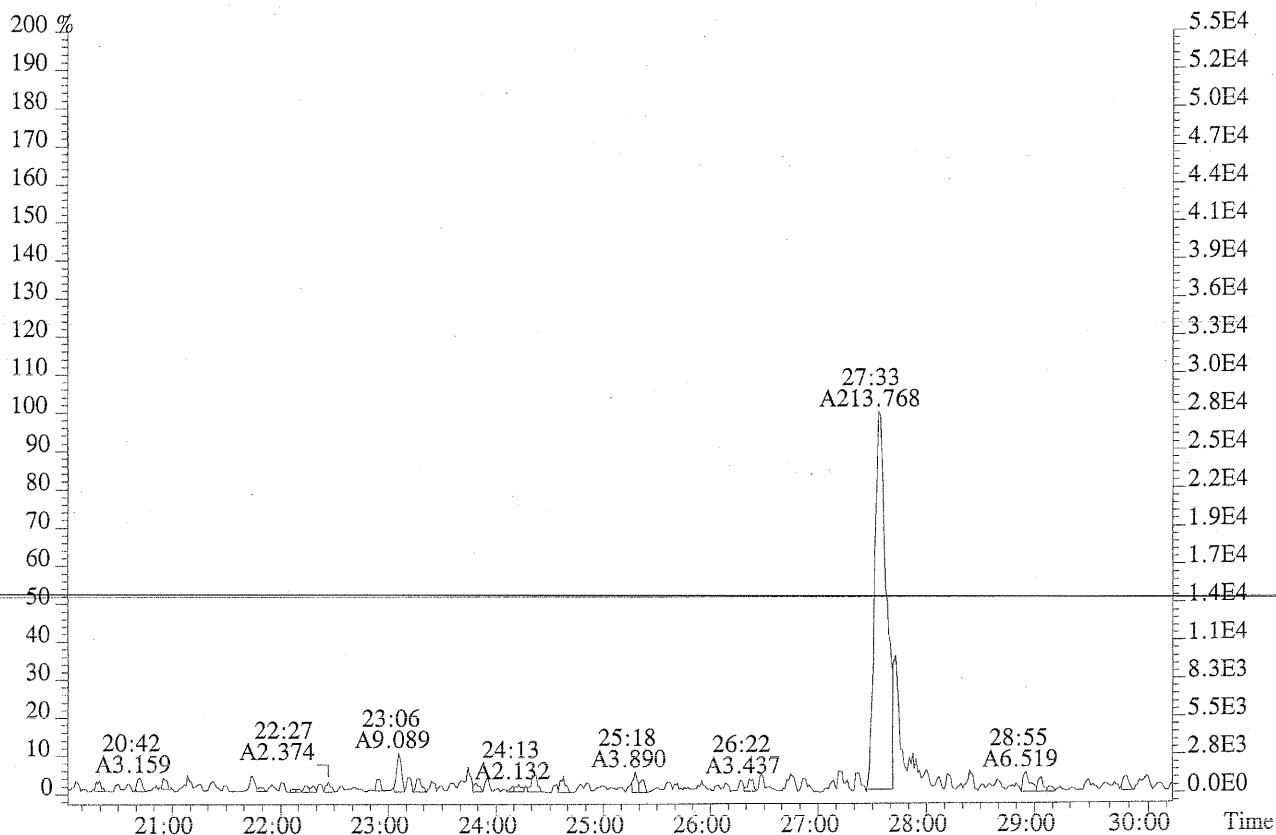
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



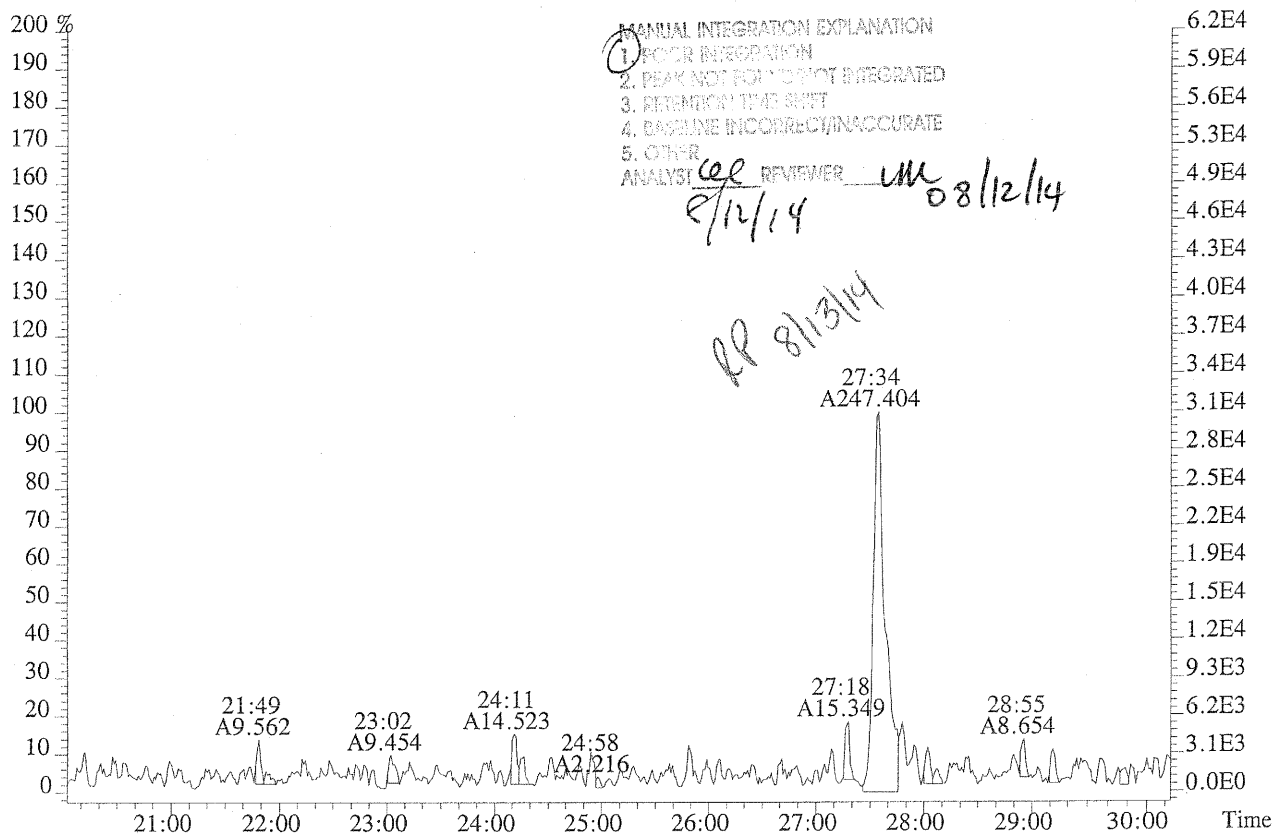
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P230456 #1-640 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp:ICAL CS1  
 303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,468.0,1.00%,F,T)



305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)

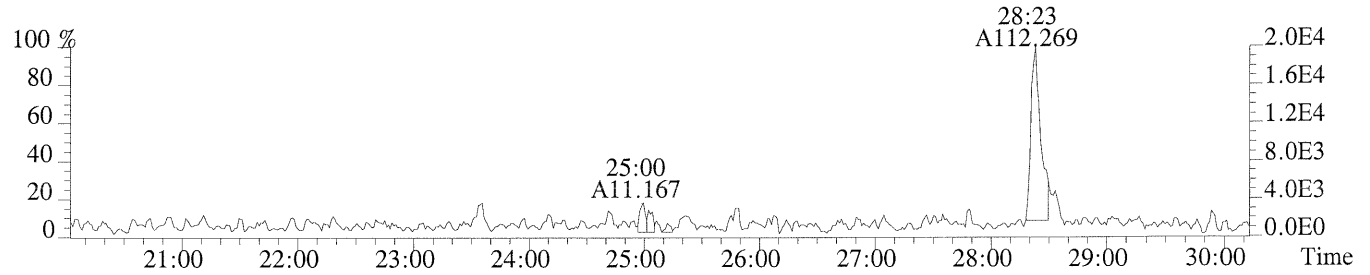


- MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
  2. PEAK NOT FOUND NOT INTEGRATED
  3. RETENTION TIME SHIFT
  4. BASELINE INCORRECT/INACCURATE
  5. OTHER

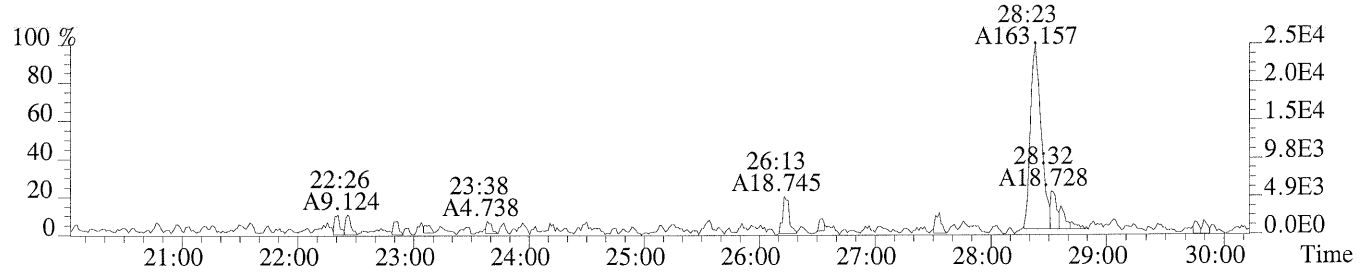
ANALYST *cel* REVIEWER *um* 08/12/14

*RP 8/13/14*

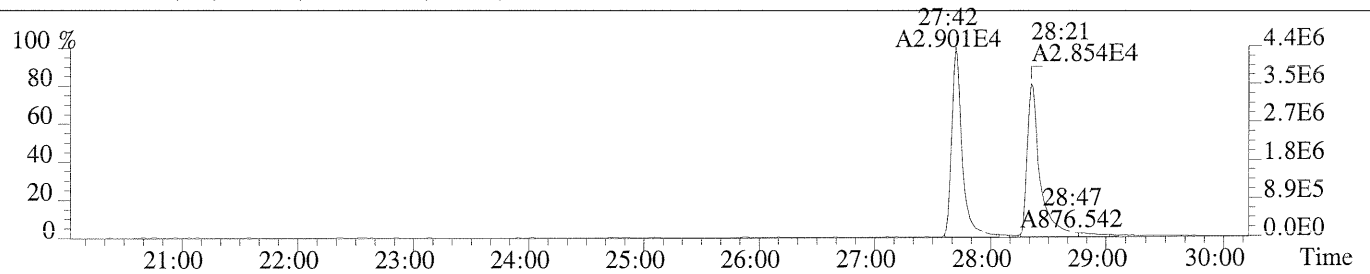
File:P230456 #1-640 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS1  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



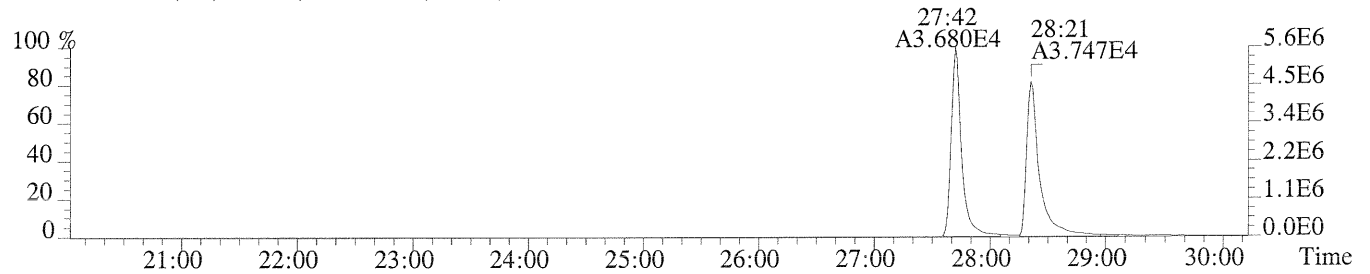
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



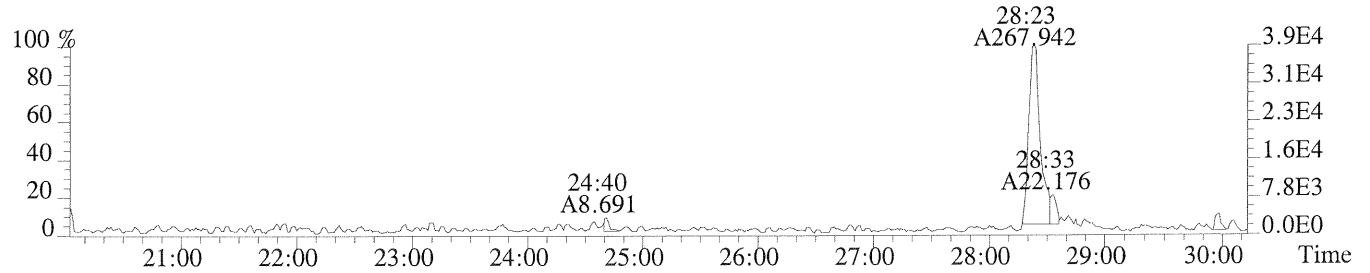
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6928.0,1.00%,F,T)



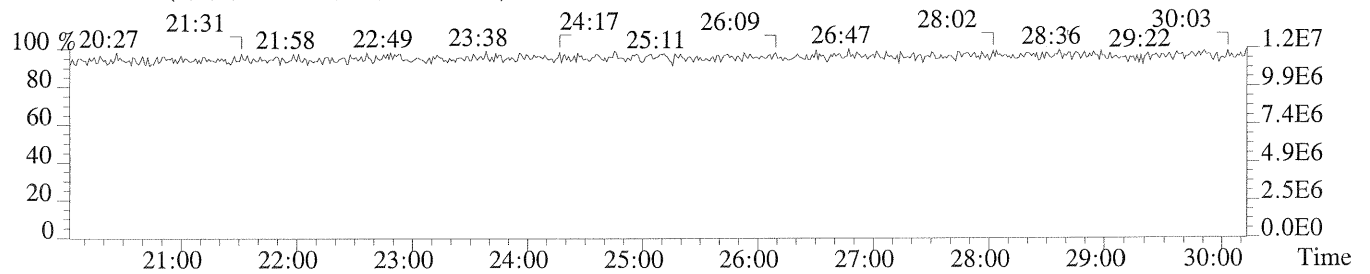
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2256.0,1.00%,F,T)

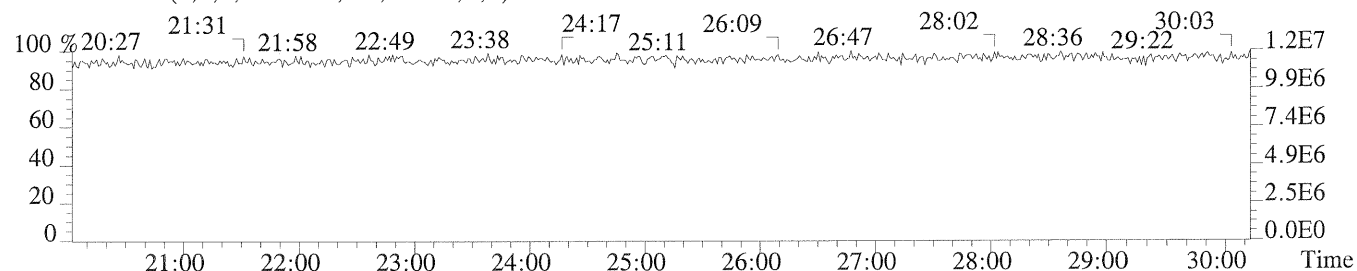
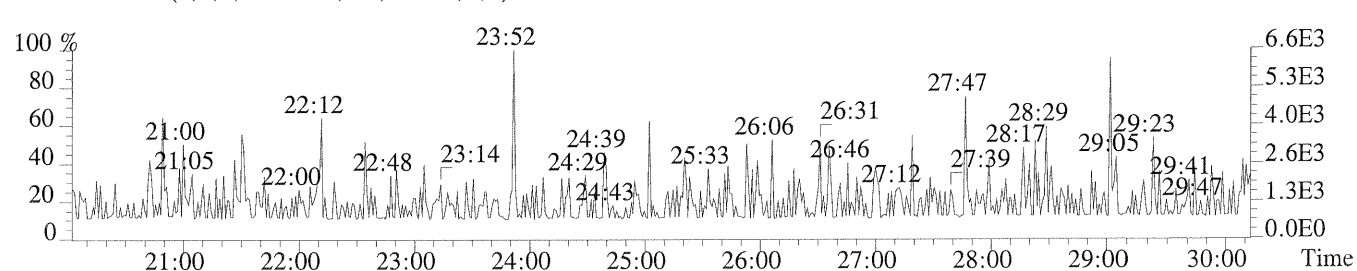
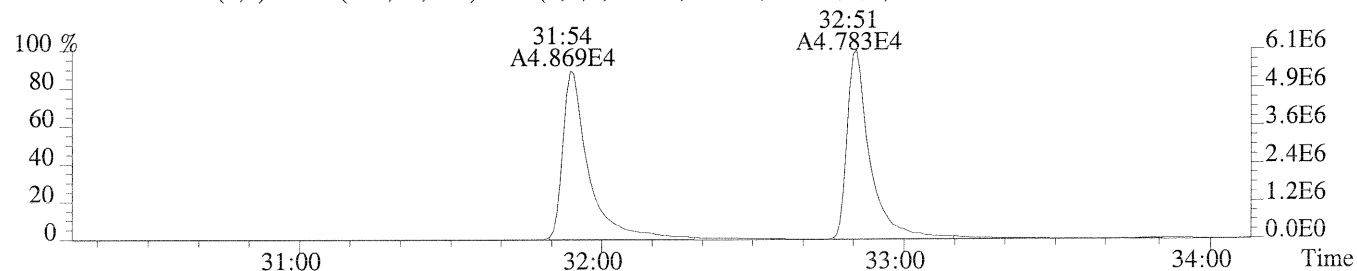
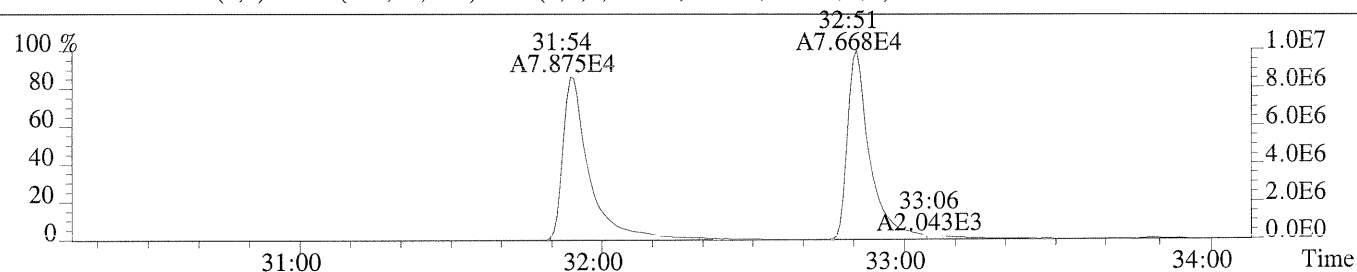
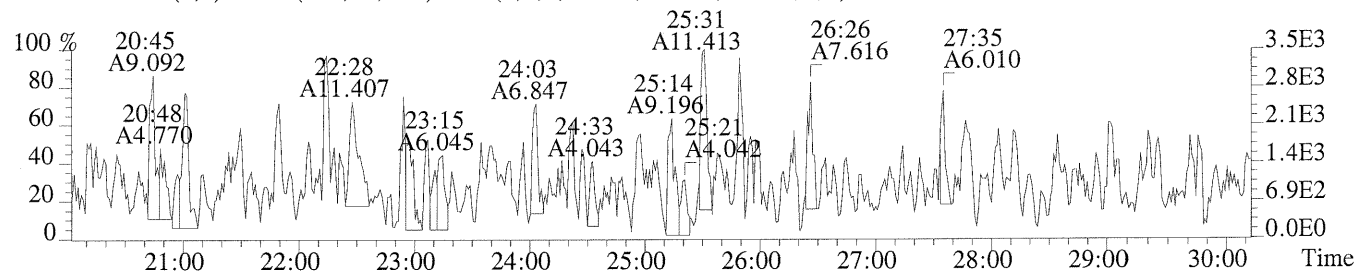
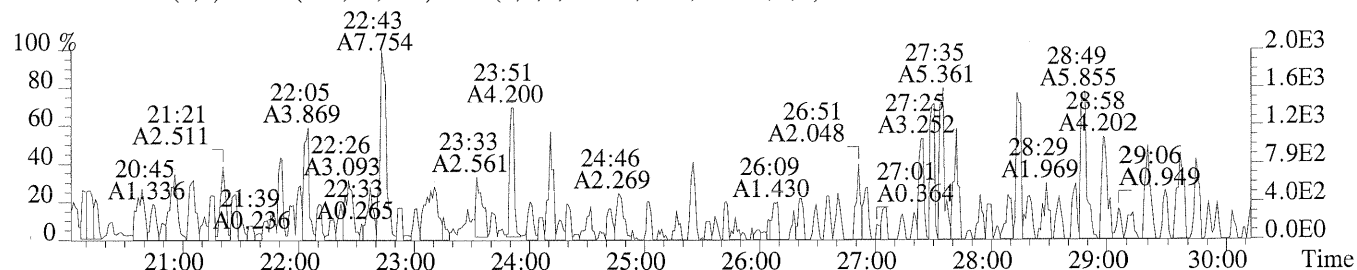


327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)

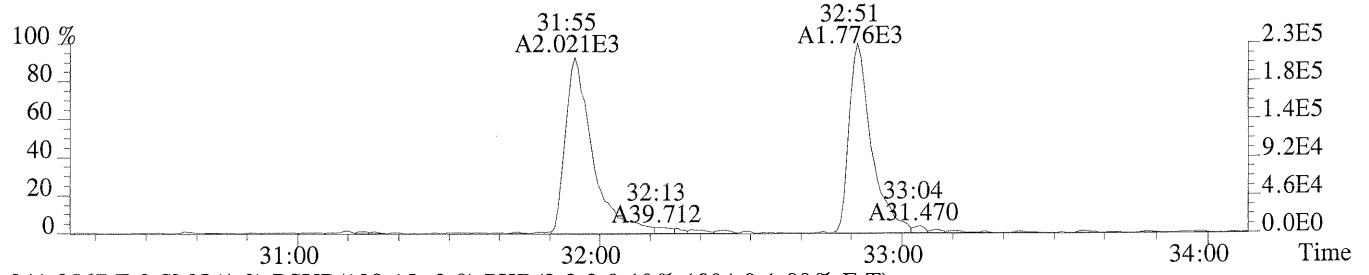


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

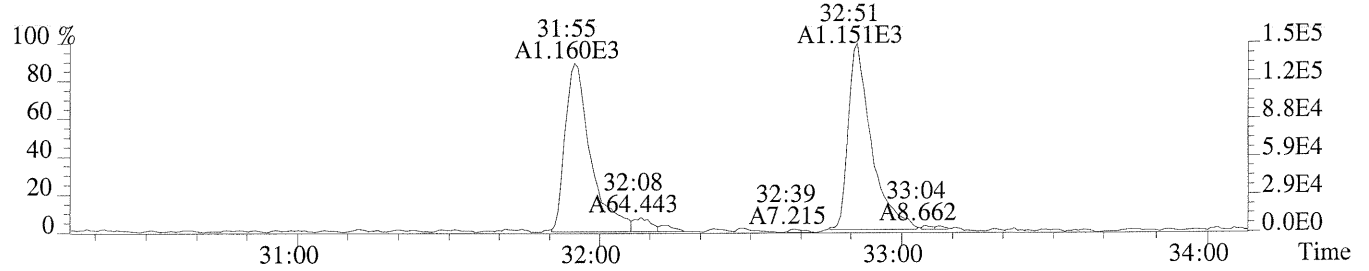




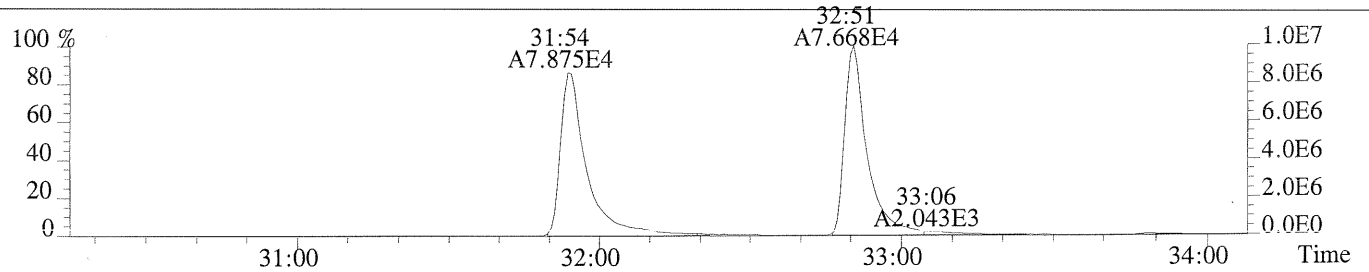
File:P230456 #1-353 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS1  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



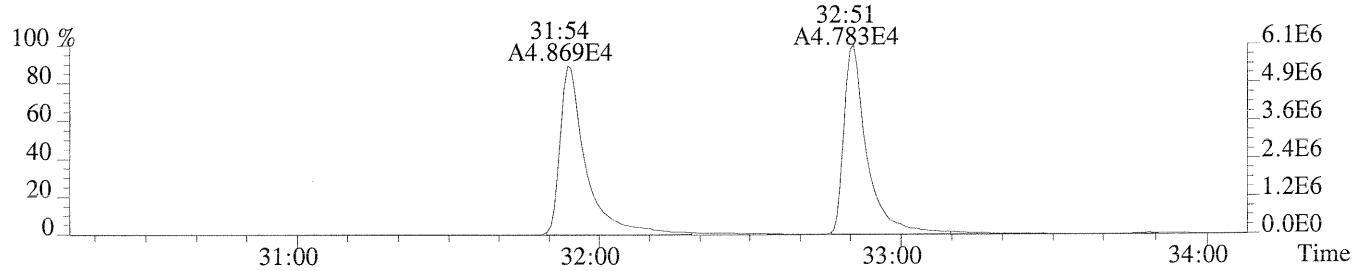
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



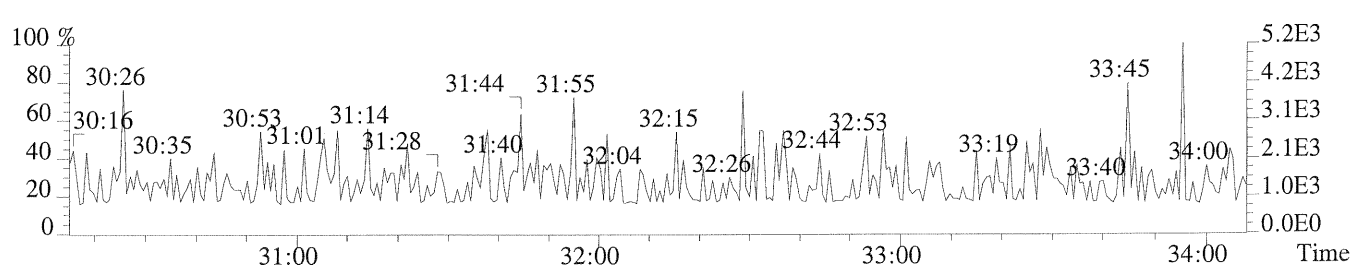
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2780.0,1.00%,F,T)



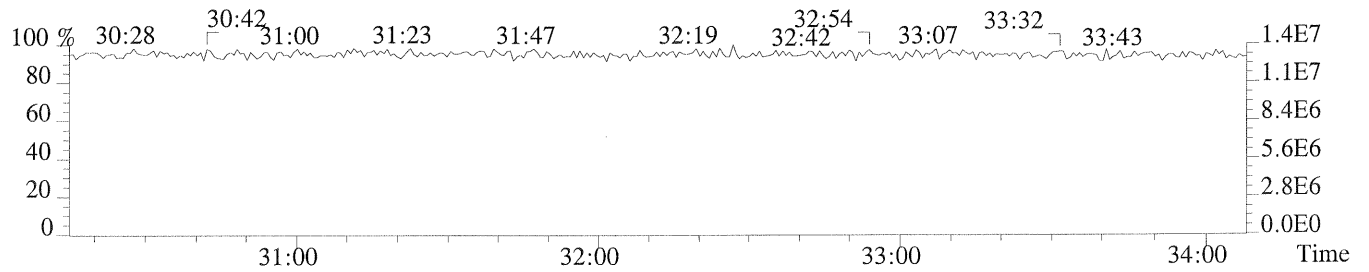
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



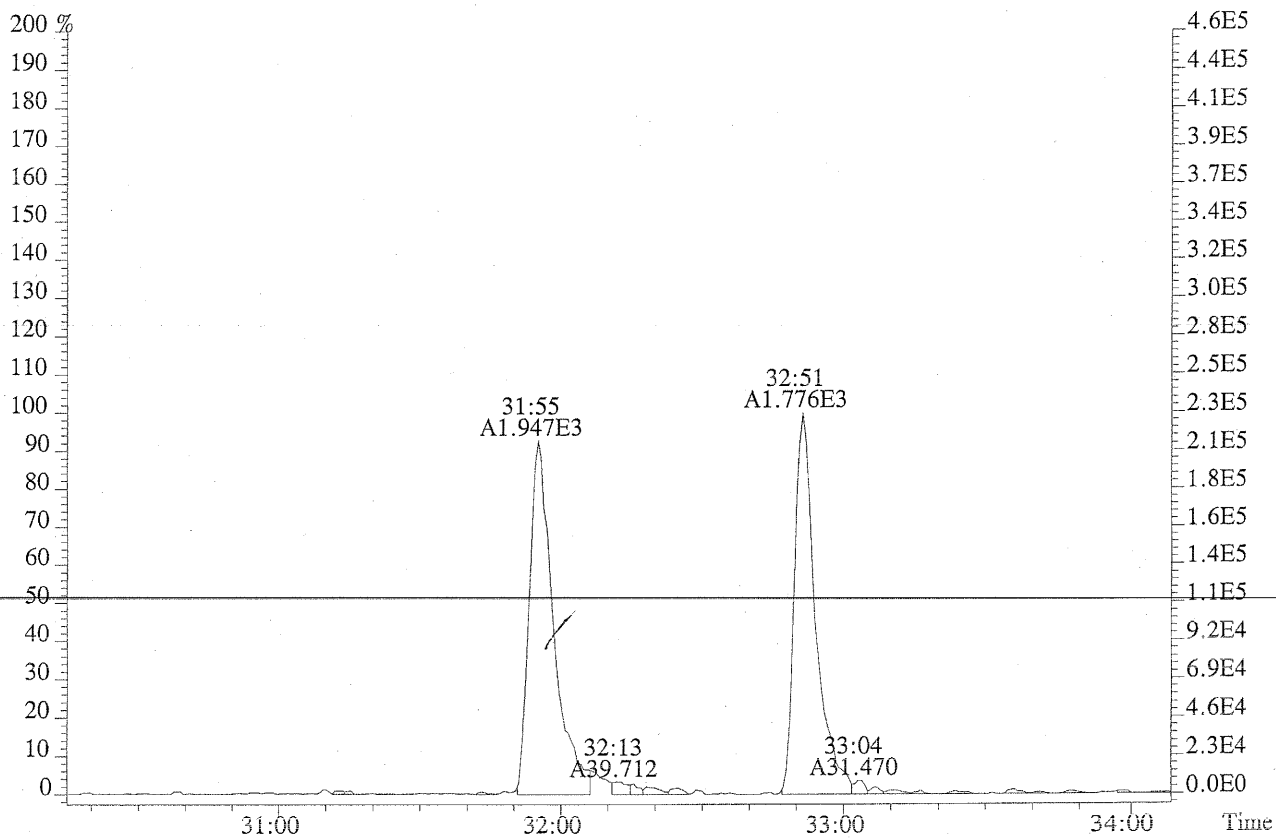
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



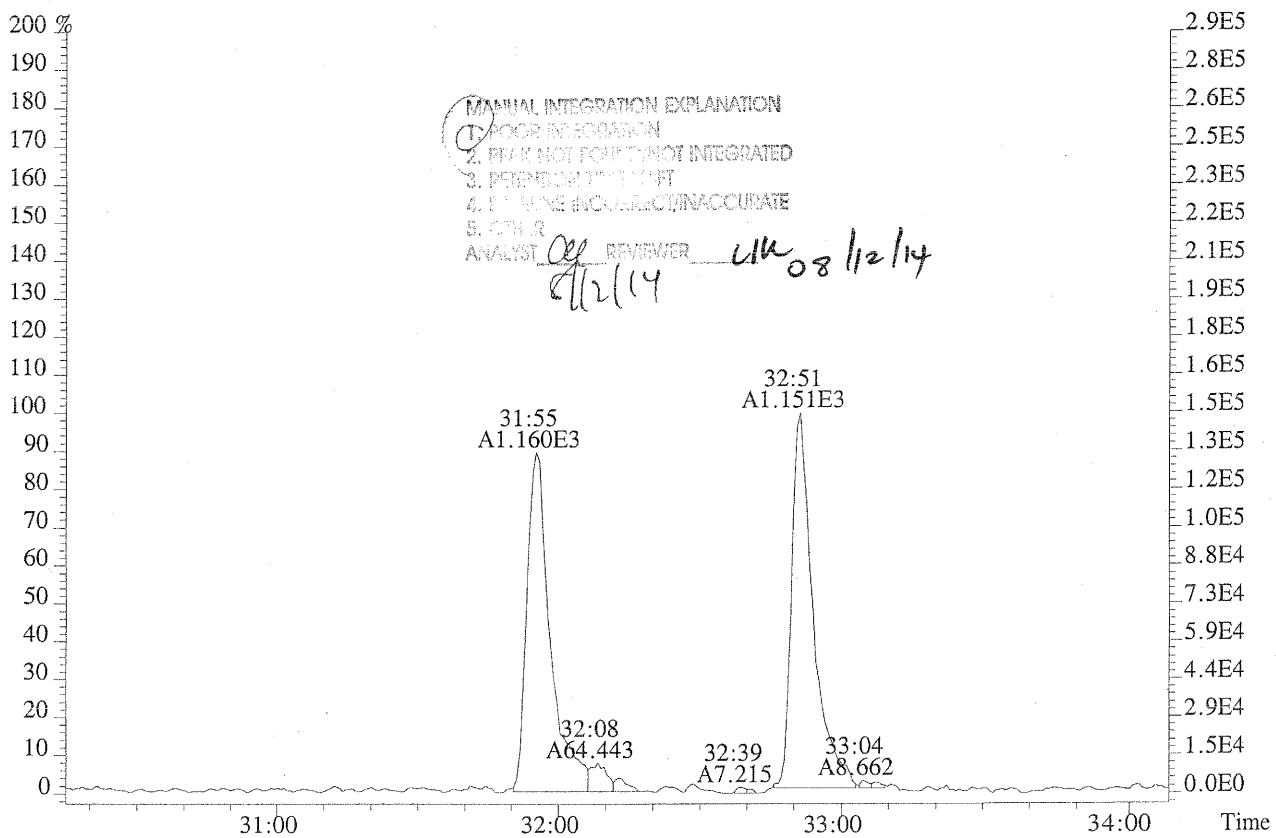
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



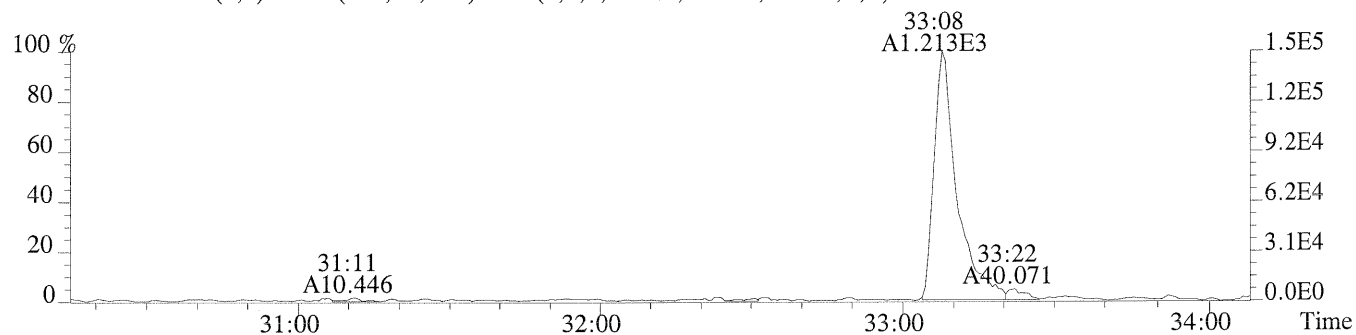
File:P230456 #1-353 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp:ICAL CS1  
 339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



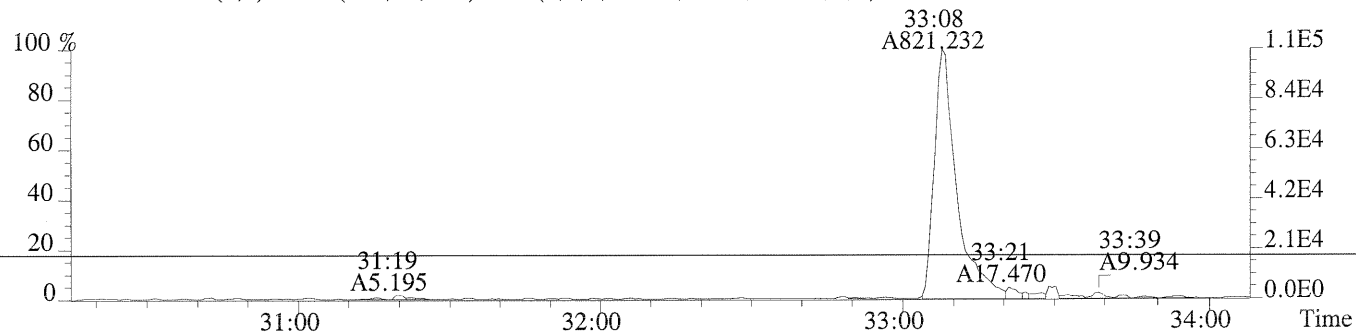
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



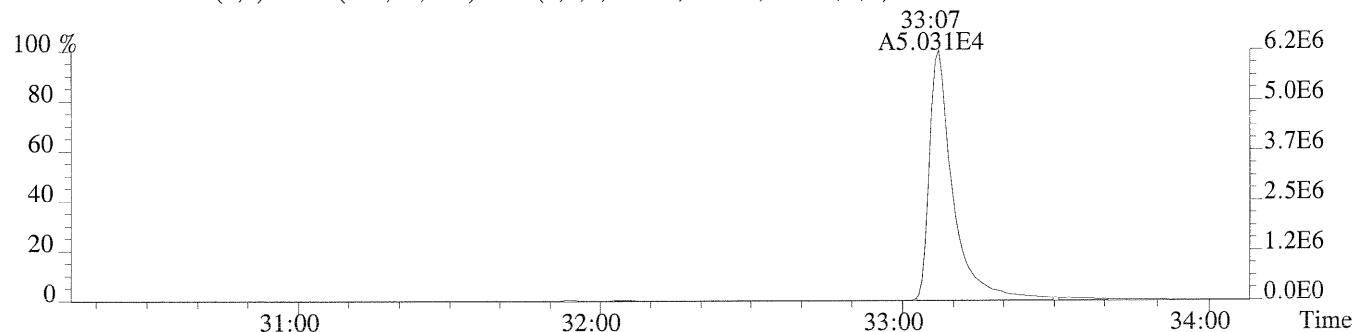
File:P230456 #1-353 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectr  
Sample#1 Exp:ICAL CS1  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



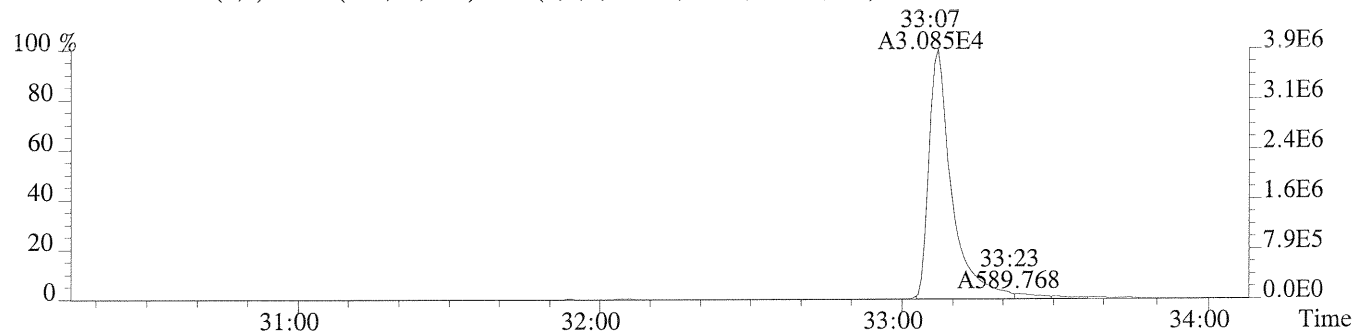
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



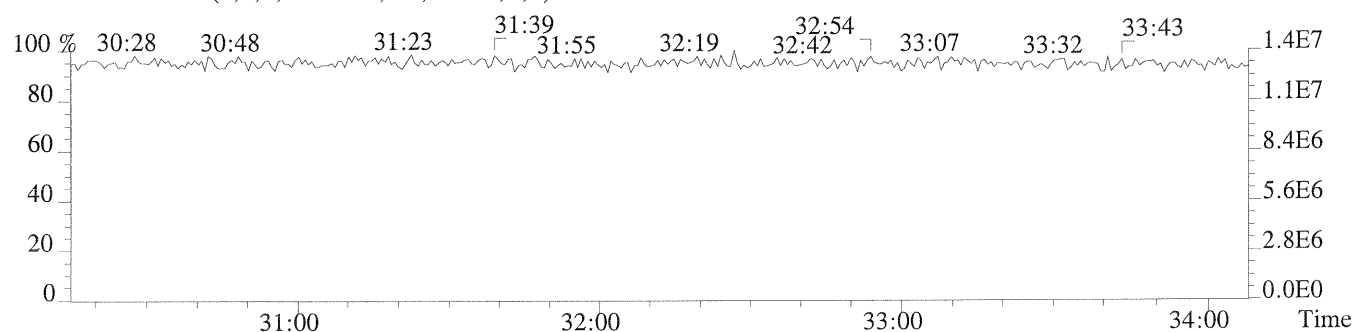
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



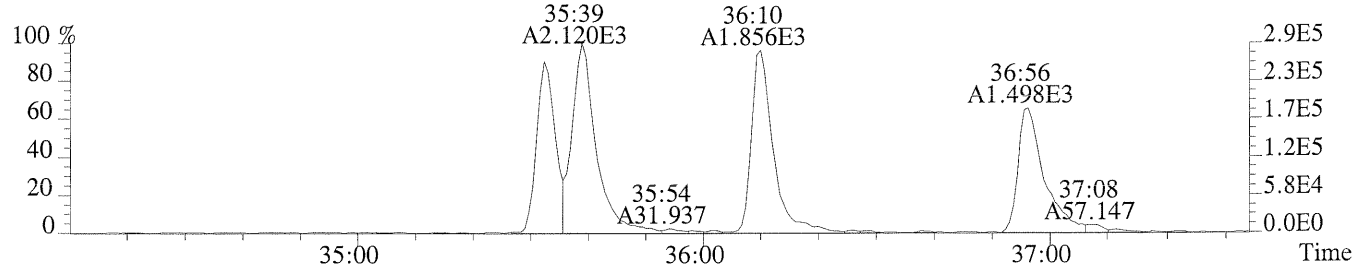
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



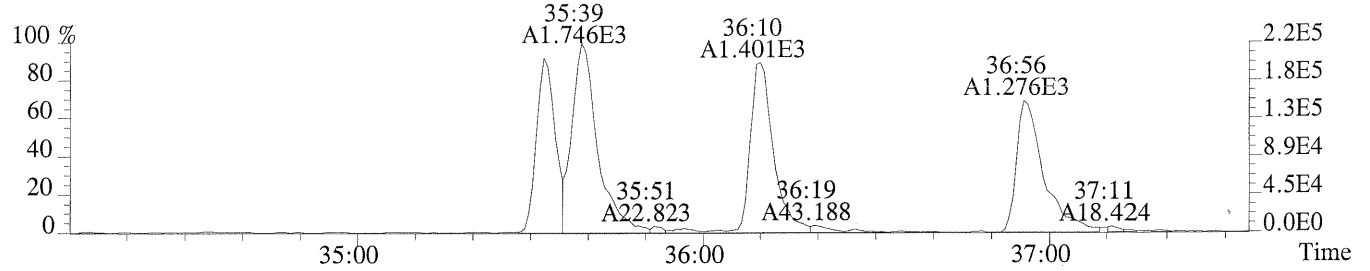
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



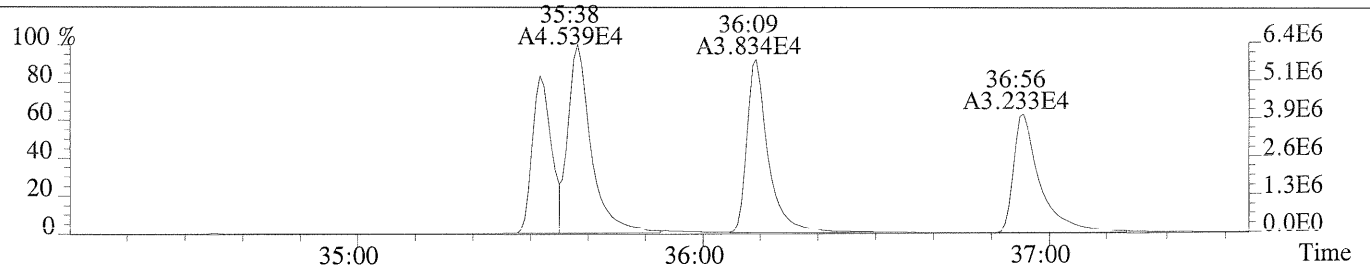
File:P230456 #1-309 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS1  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



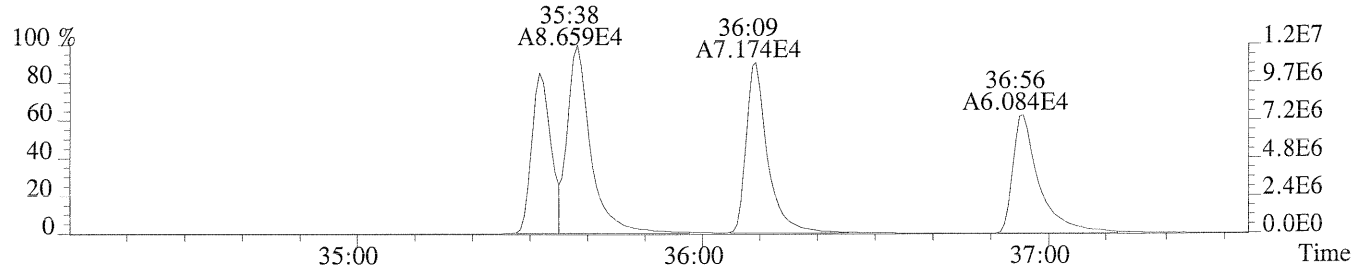
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



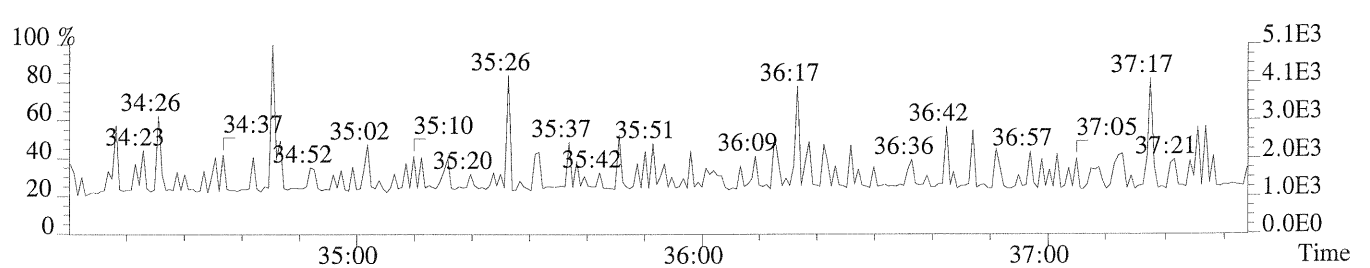
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.40%,F,T)



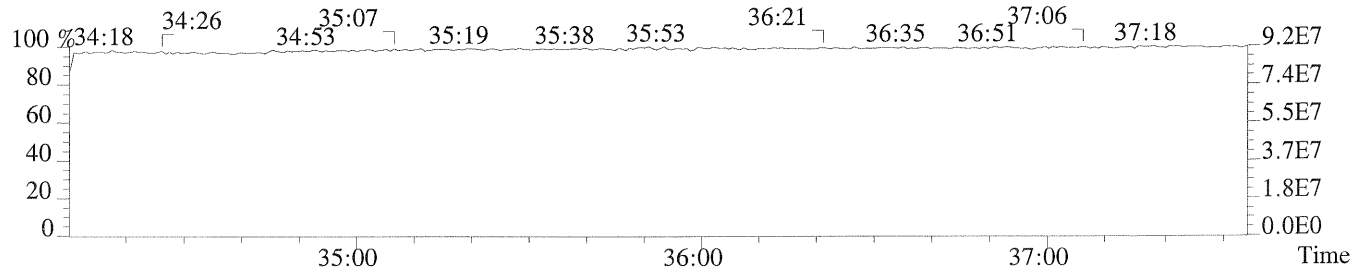
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2920.0,0.40%,F,T)



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

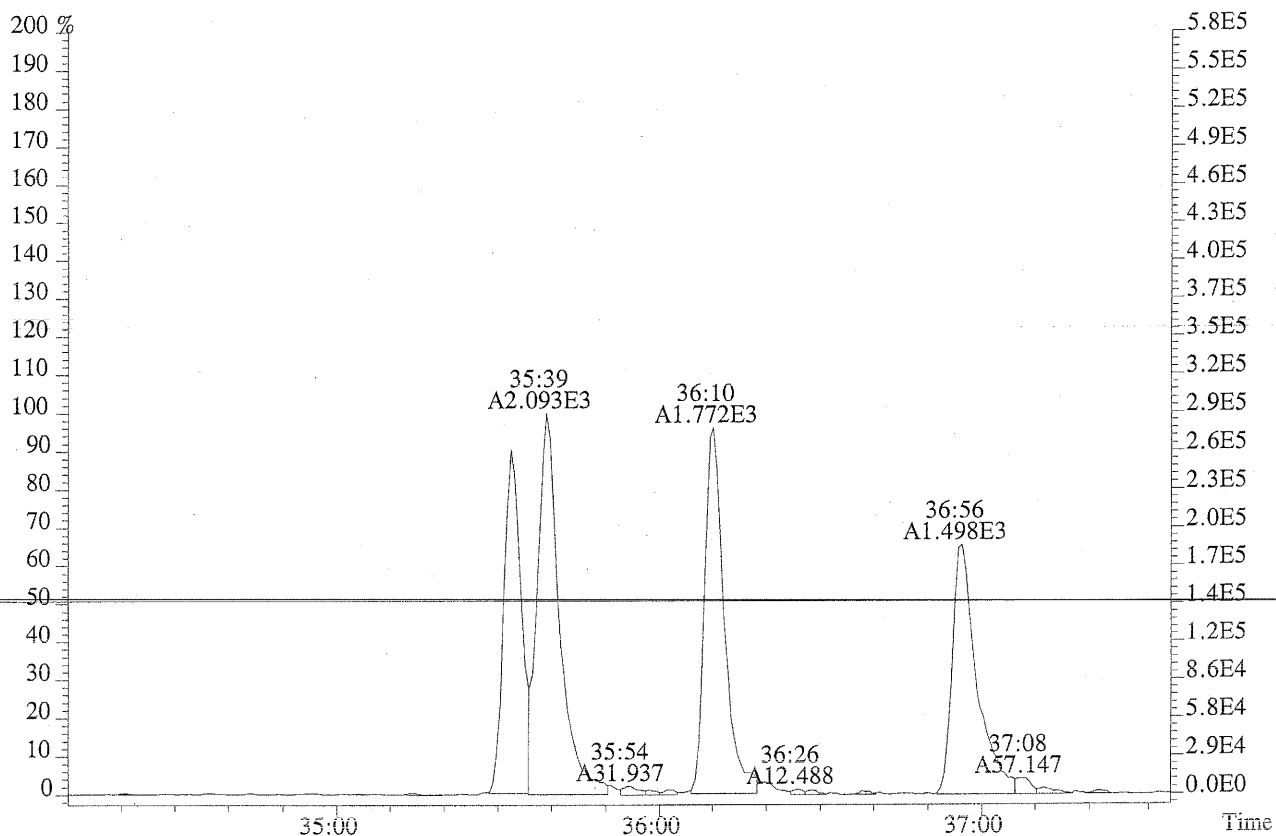


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

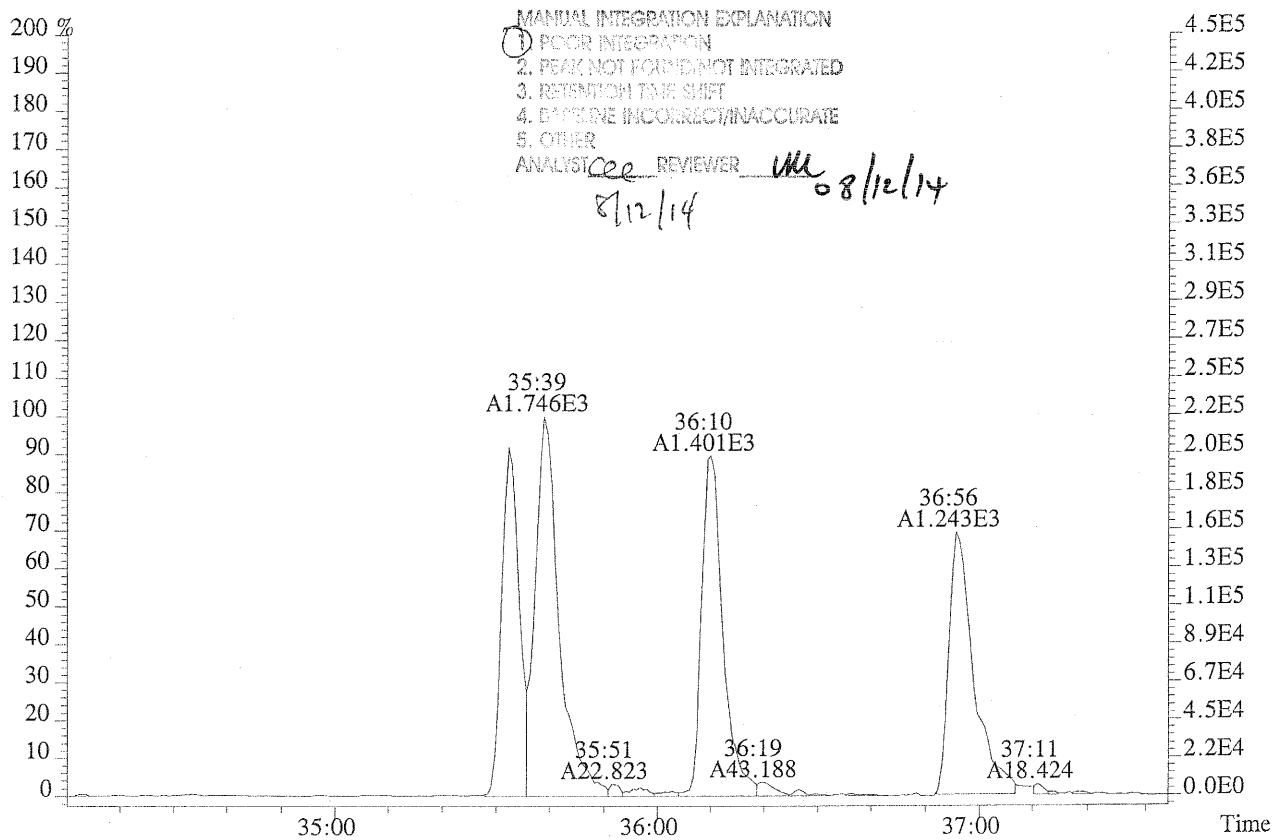




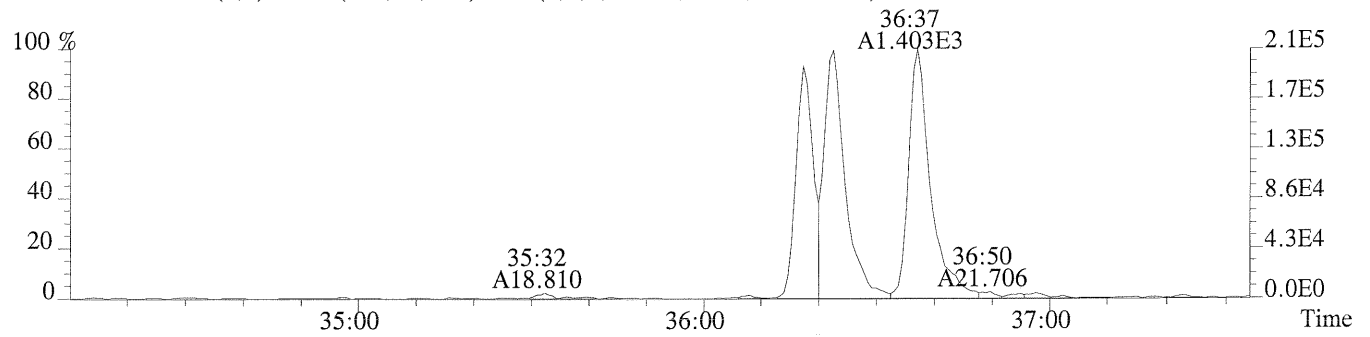
File:P230456 #1-309 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp:ICAL CS1  
 373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



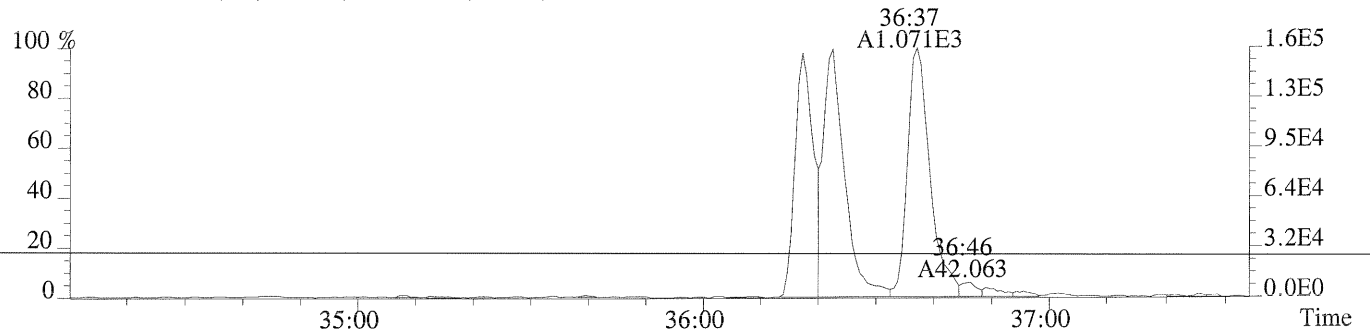
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



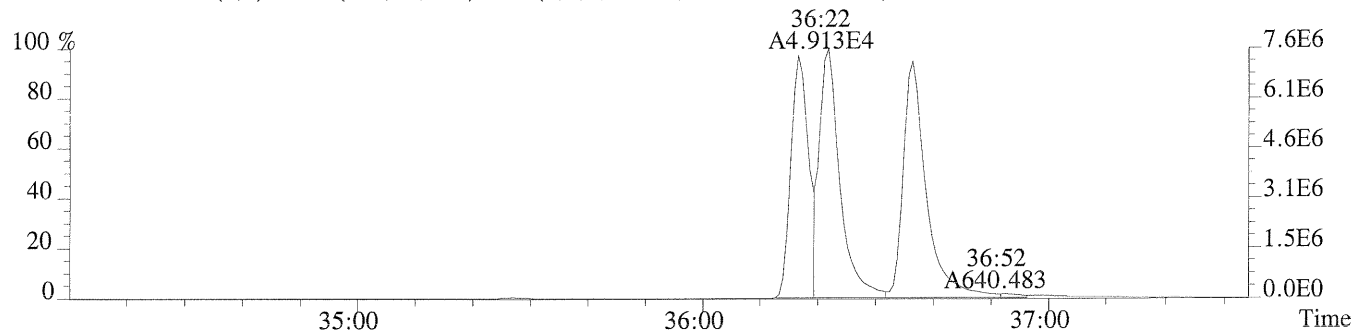
File:P230456 #1-309 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS1  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



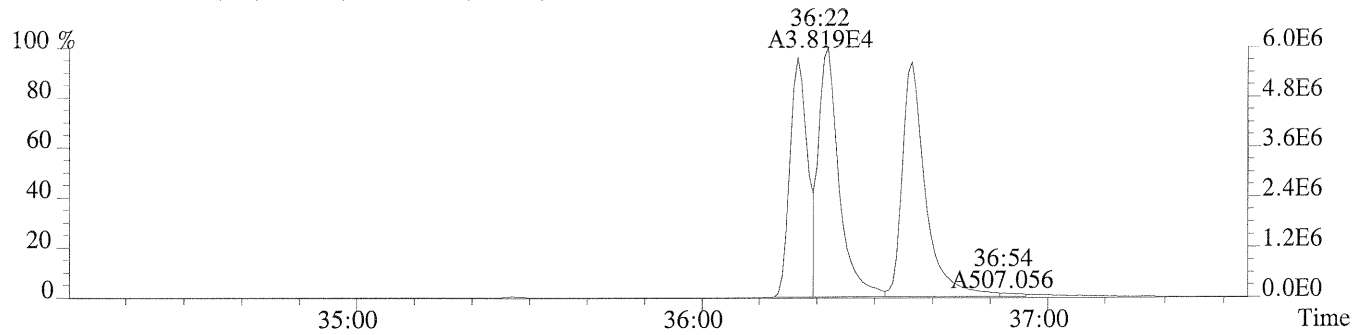
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



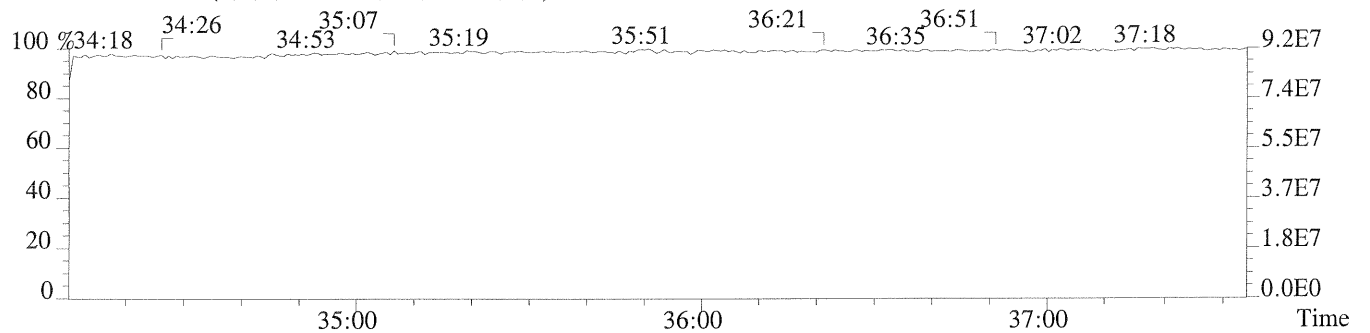
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



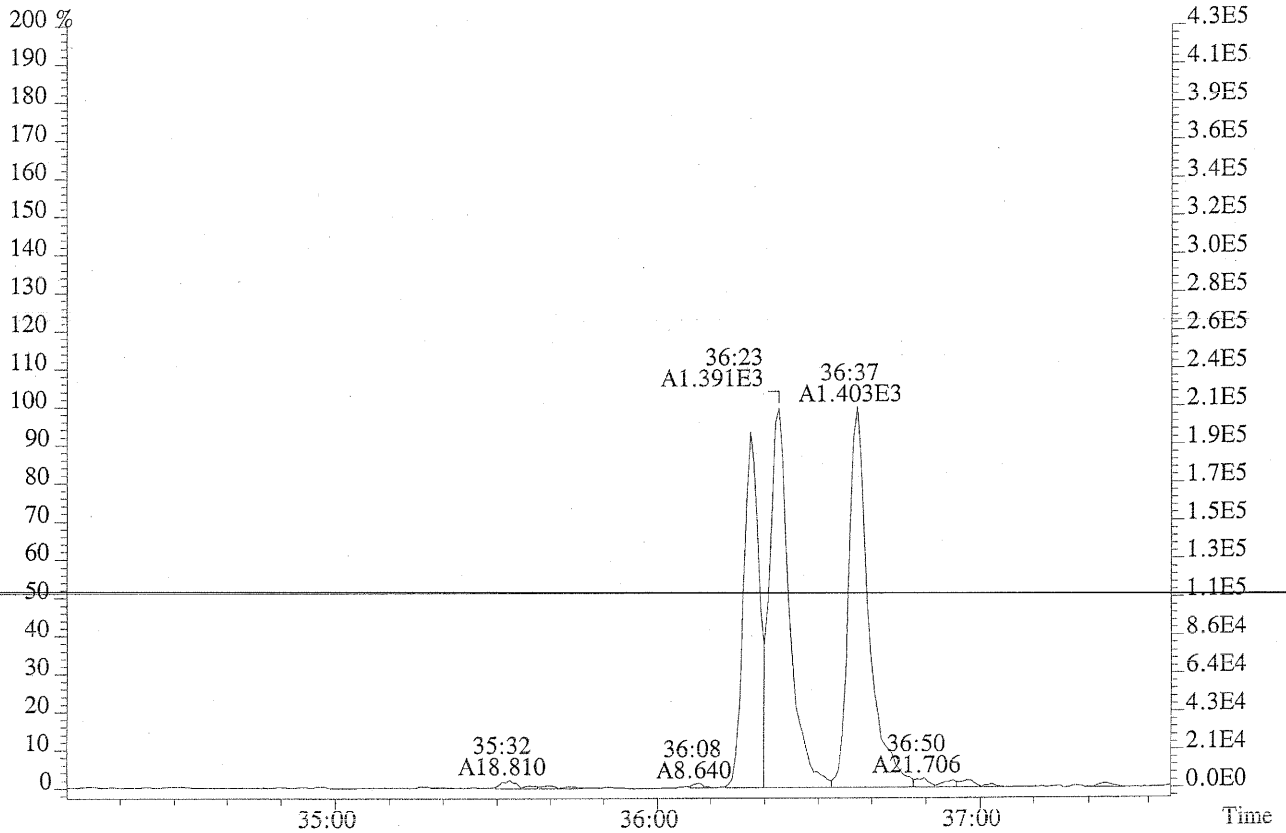
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)



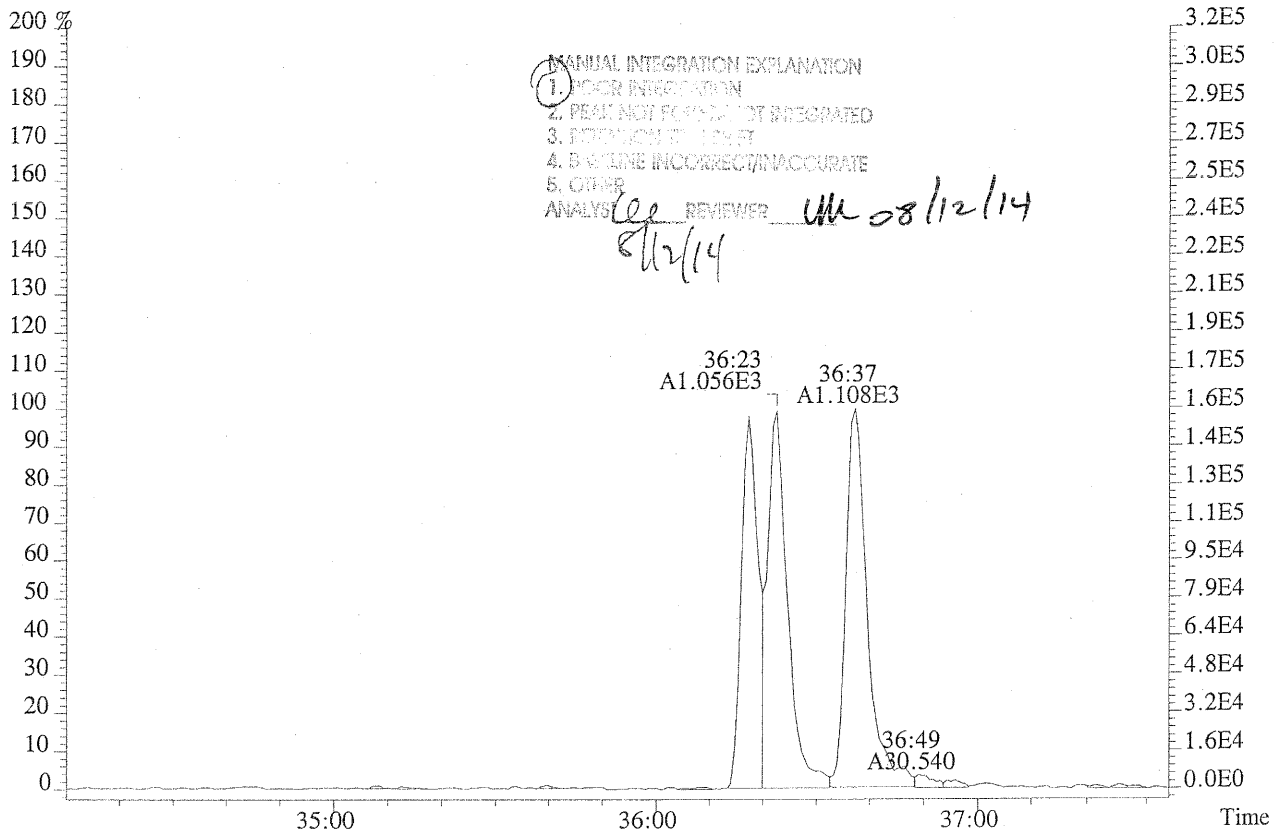
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



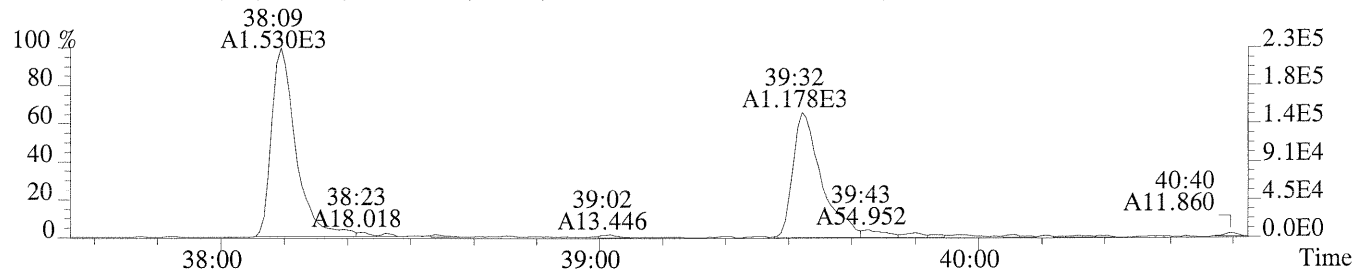
File:P230456 #1-309 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp:ICAL CS1  
 389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



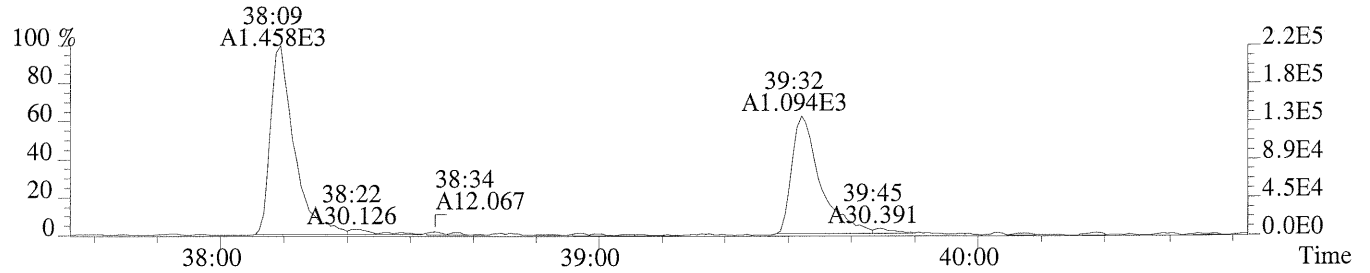
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



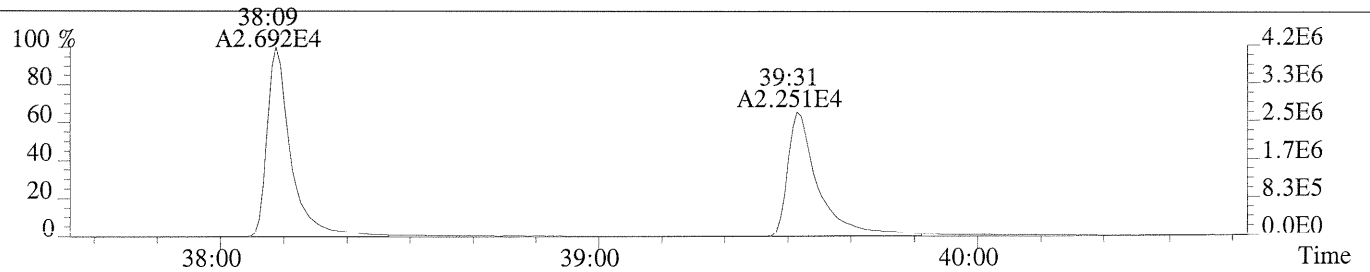
File:P230456 #1-282 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS1  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.50%,F,T)



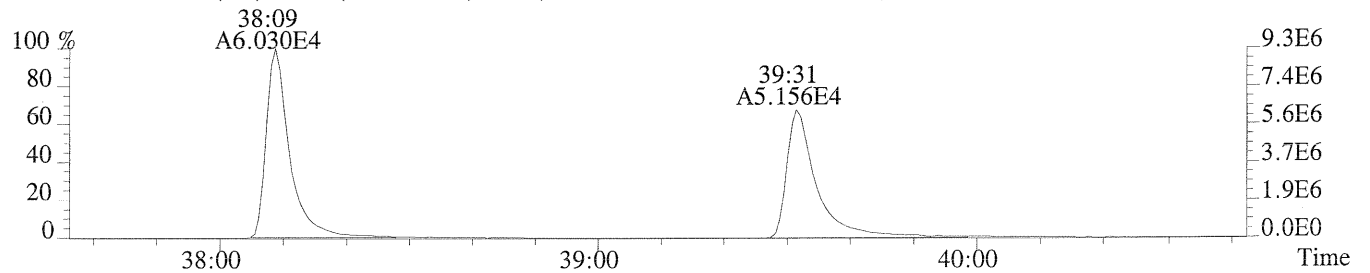
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1444.0,0.50%,F,T)



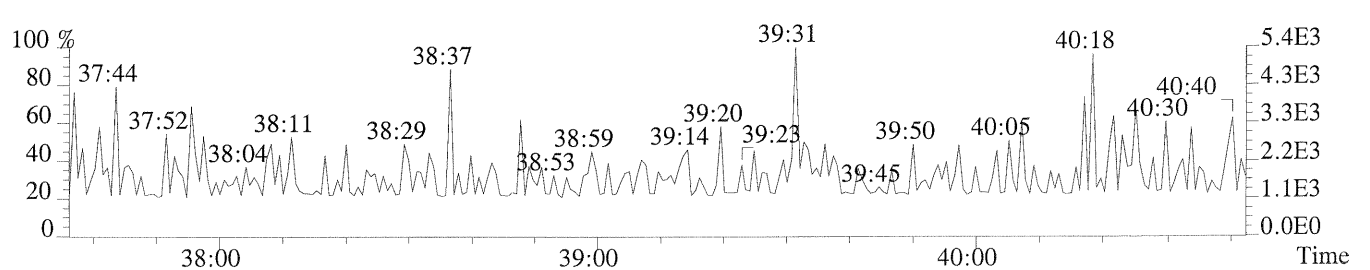
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6488.0,0.50%,F,T)



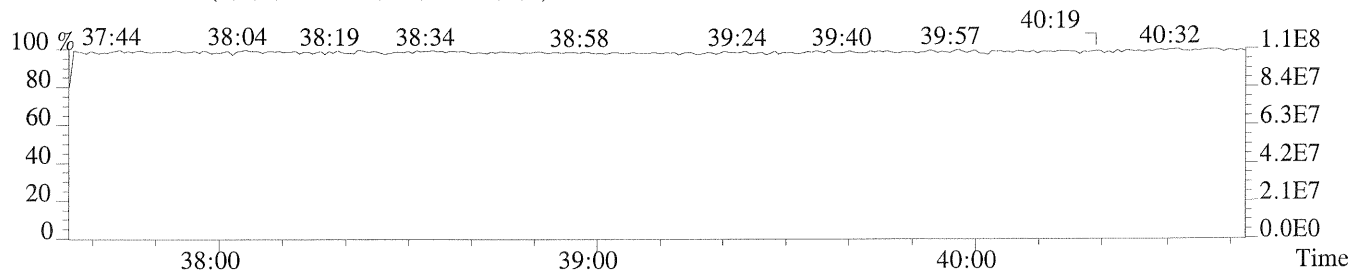
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9440.0,0.50%,F,T)



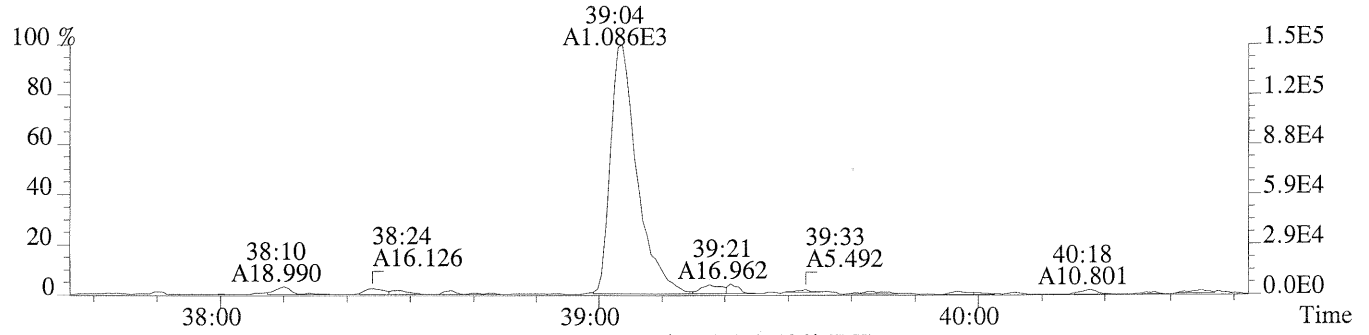
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



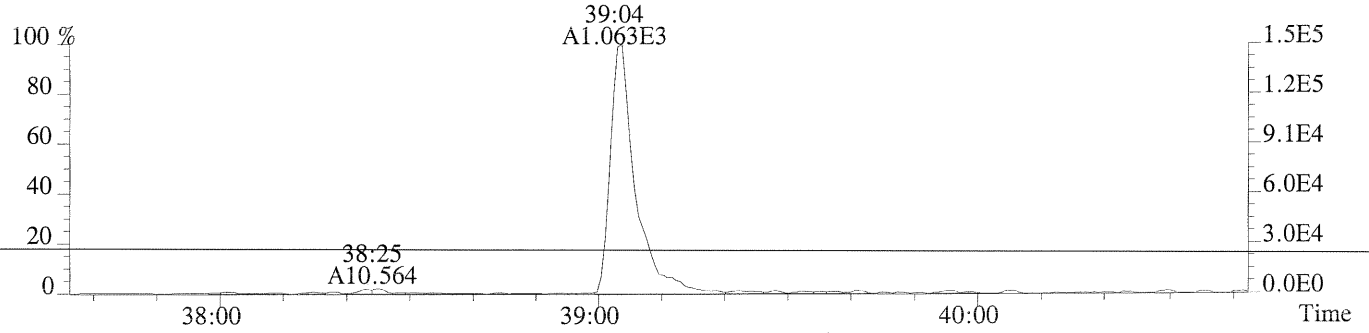
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



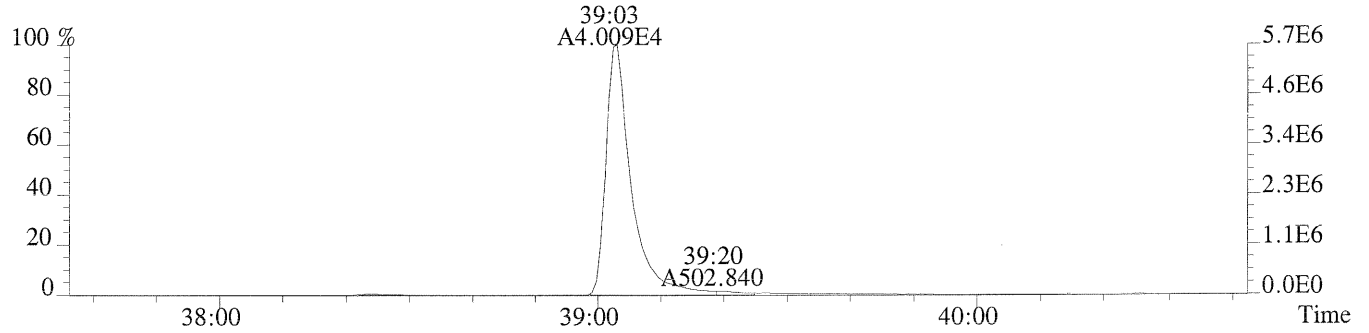
File:P230456 #1-282 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS1  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



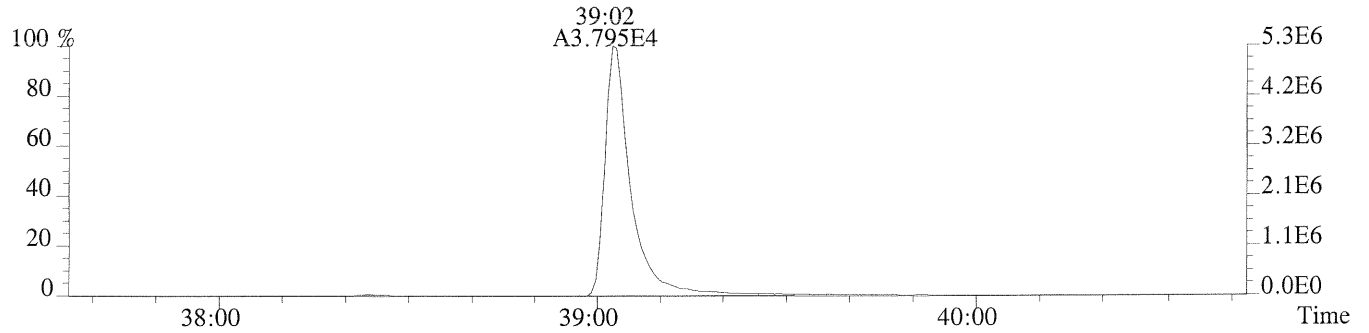
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



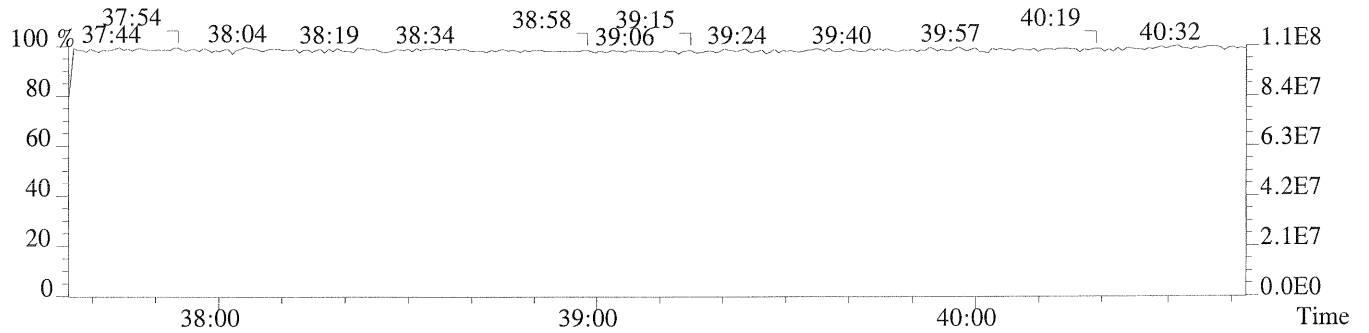
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2708.0,0.40%,F,T)



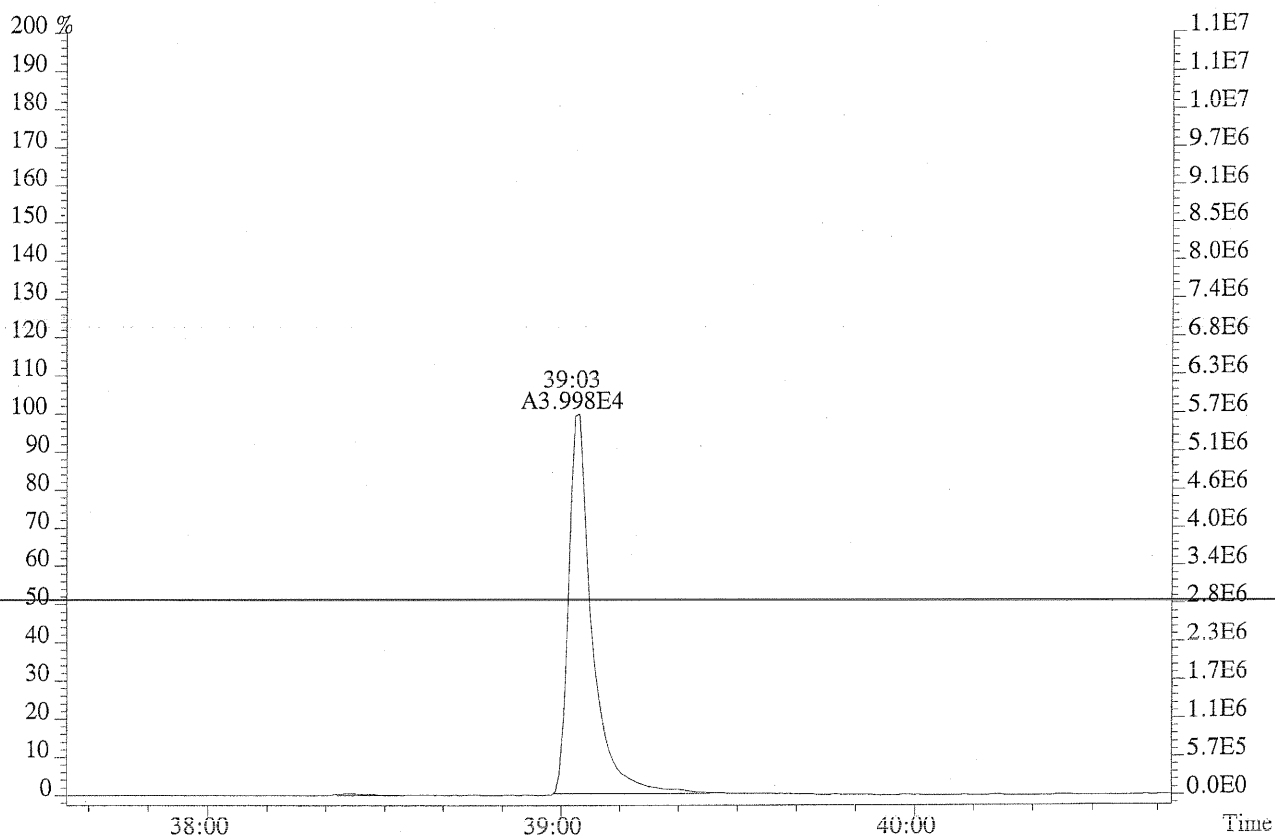
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



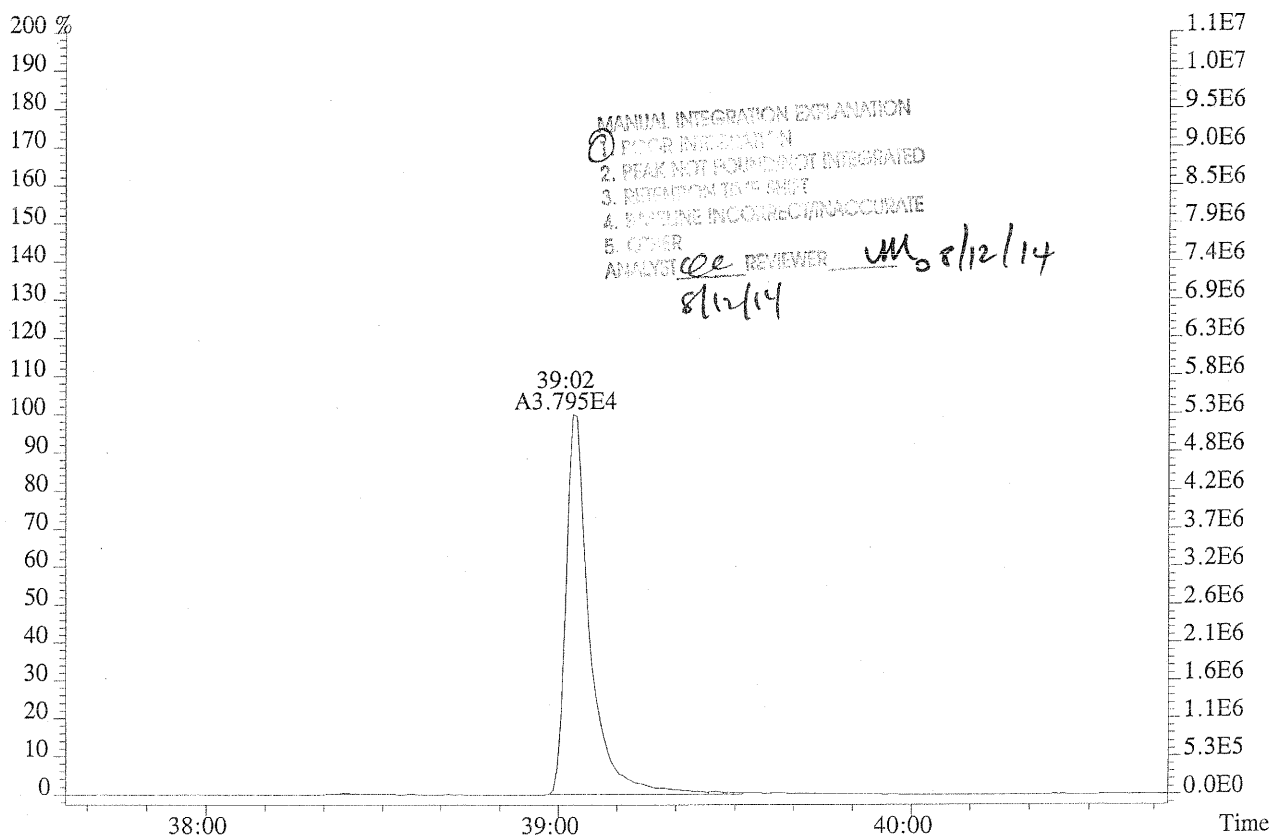
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



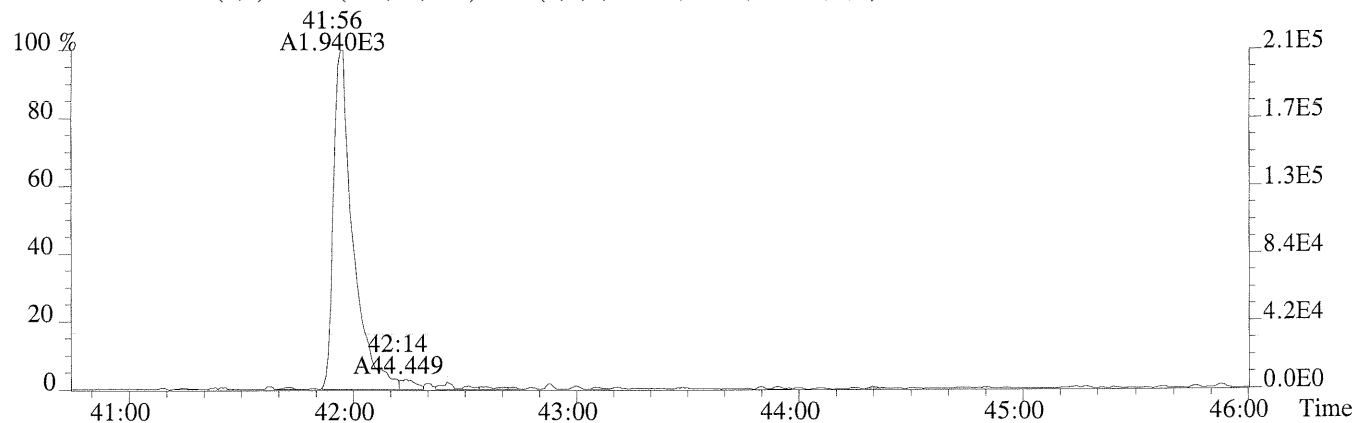
File:P230456 #1-282 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass sf  
Sample#1 Exp:ICAL CS1  
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2708.0,0.40%,F,T)



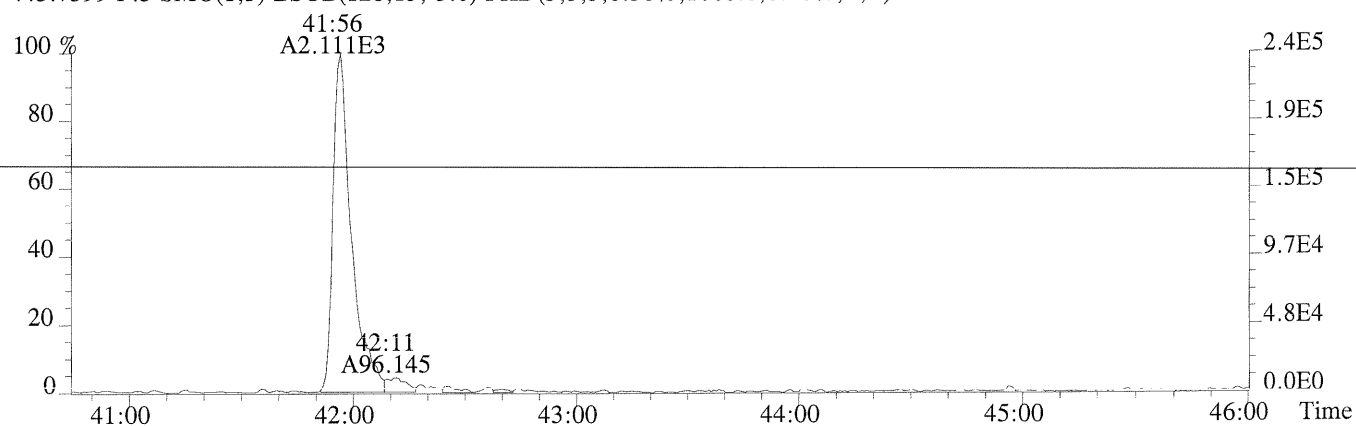
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



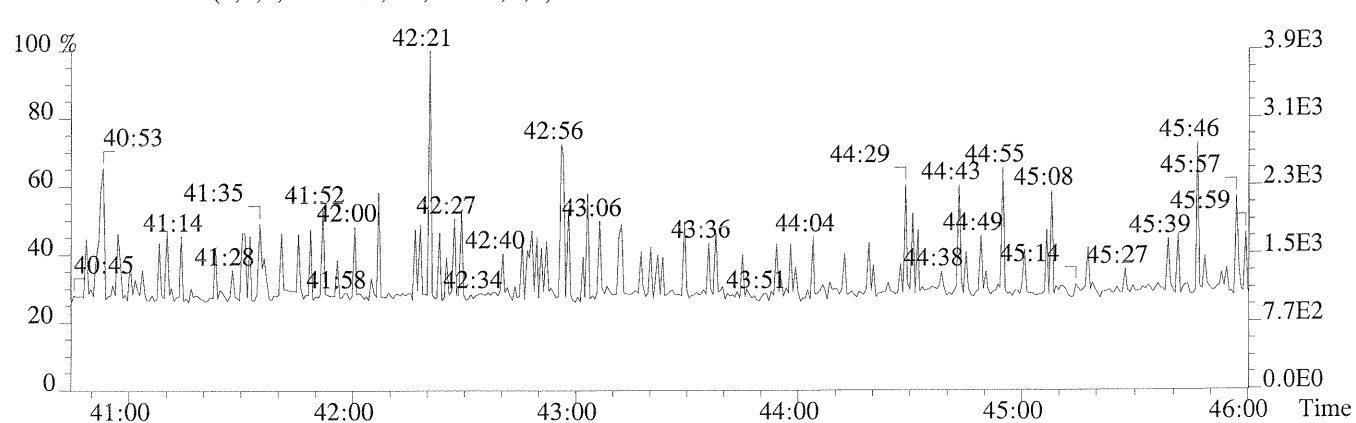
File:P230456 #1-484 Acq:11-AUG-2014 19:19:54 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS1  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



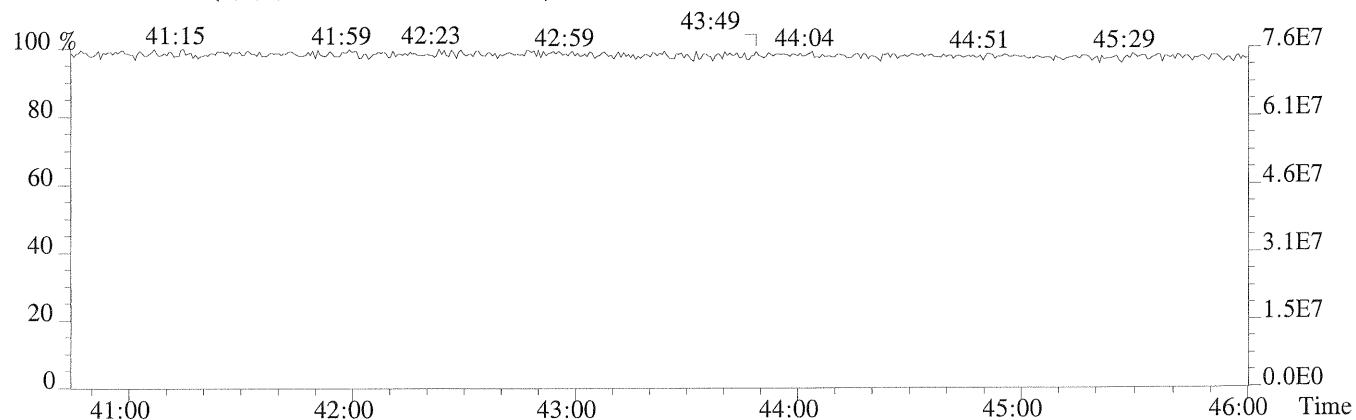
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



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

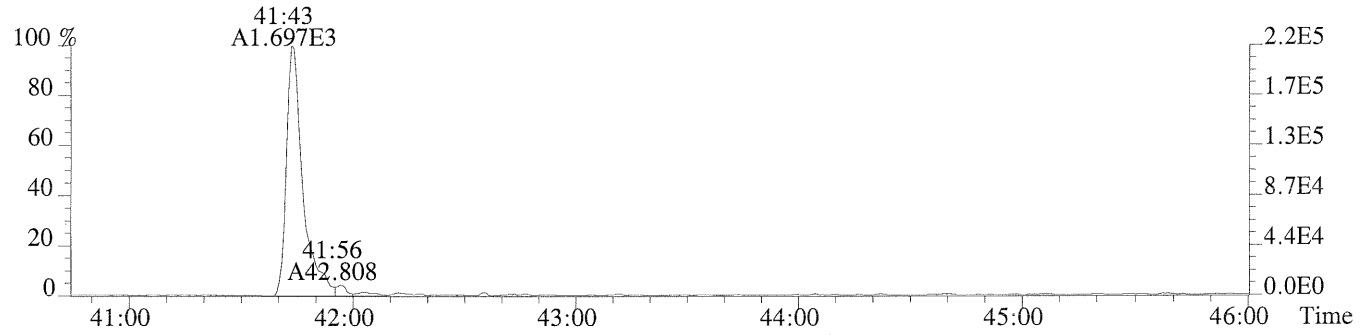


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

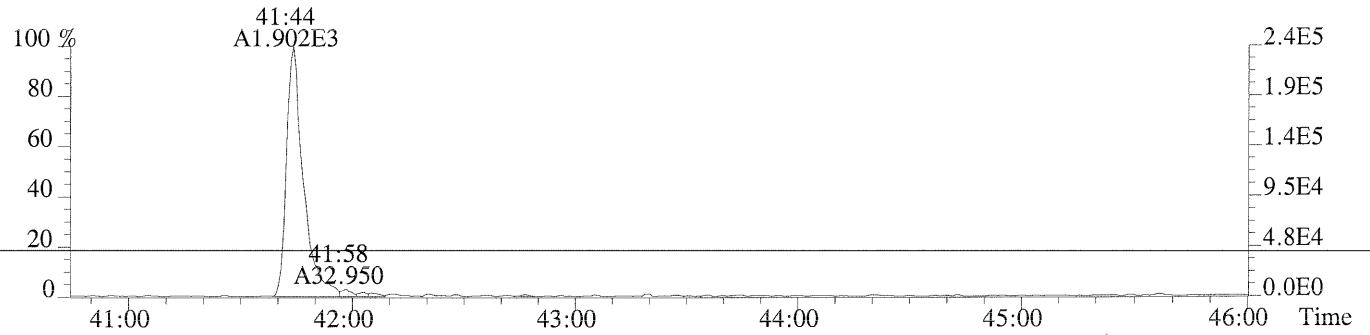


Sample#1 Exp:ICAL CS1

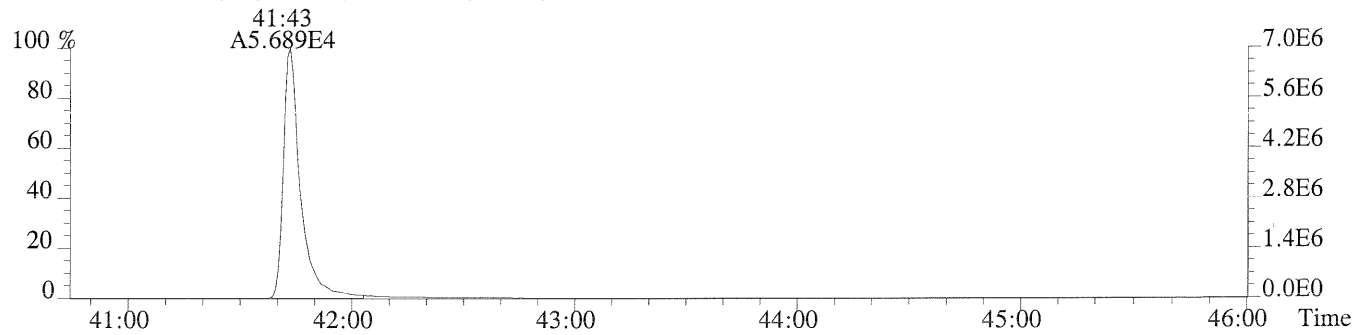
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



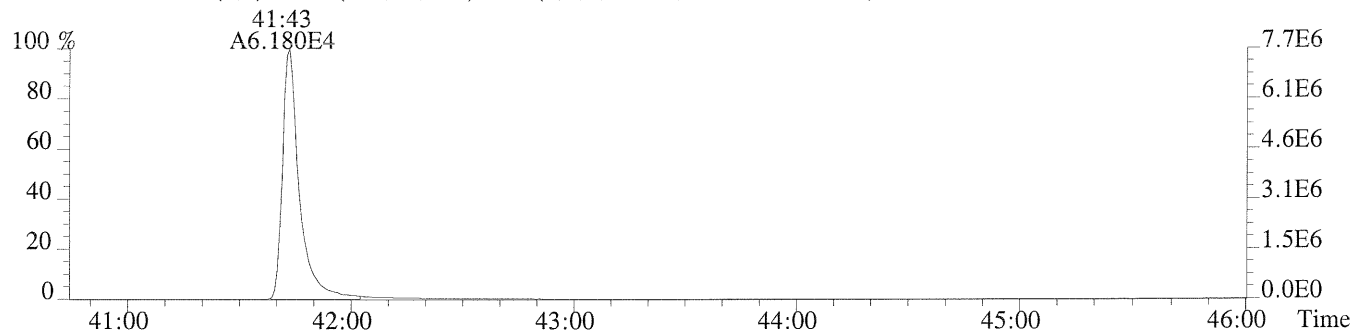
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1284.0,0.40%,F,T)



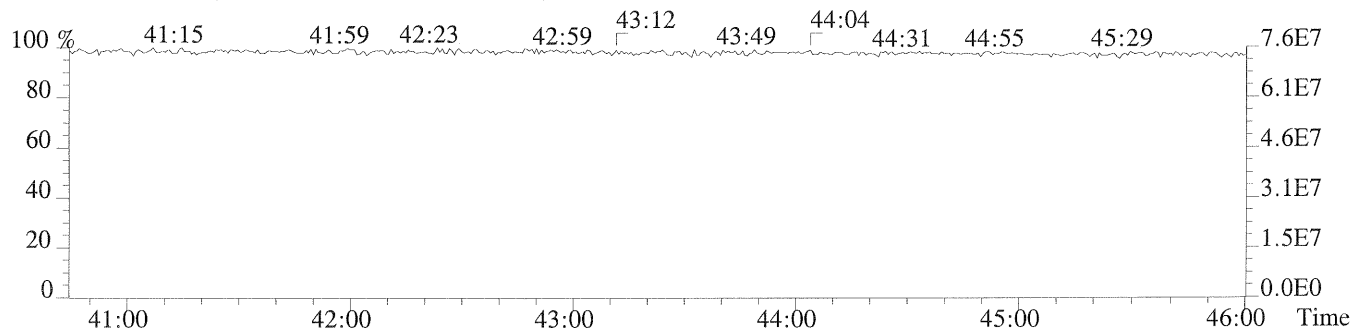
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



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





Sample Response Summary

Run #3 Filename P230457 #1 Samp: 1 Inj: 1 Acquired: 11-AUG-14 20:07:47  
Processed: 13-AUG-14 13:53:33 LAB. ID: D12-90-3B

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	27:34	6.605e+02	9.204e+02	0.72	yes	no	0.959
2 Unk	1,2,3,7,8-PeCDF	31:55	7.788e+03	5.058e+03	1.54	yes	yes	1.034
3 Unk	2,3,4,7,8-PeCDF	32:51	6.934e+03	4.346e+03	1.60	yes	yes	0.972
4 Unk	1,2,3,4,7,8-HxCDF	35:32	5.642e+03	4.496e+03	1.25	yes	no	0.883
5 Unk	1,2,3,6,7,8-HxCDF	35:39	7.989e+03	6.451e+03	1.24	yes	no	1.175
6 Unk	2,3,4,6,7,8-HxCDF	36:10	6.739e+03	5.350e+03	1.26	yes	no	0.982
7 Unk	1,2,3,7,8,9-HxCDF	36:56	5.860e+03	4.713e+03	1.24	yes	no	0.871
8 Unk	1,2,3,4,6,7,8-HpCDF	38:09	5.872e+03	5.601e+03	1.05	yes	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	39:32	4.805e+03	4.706e+03	1.02	yes	yes	1.113
10 Unk	OCDF	41:56	7.742e+03	8.543e+03	0.91	yes	no	1.392
11 Unk	2,3,7,8-TCDD	28:23	5.316e+02	6.493e+02	0.82	yes	no	0.966
12 Unk	1,2,3,7,8-PeCDD	33:08	4.690e+03	2.837e+03	1.65	yes	no	1.009
13 Unk	1,2,3,4,7,8-HxCDD	36:17	4.004e+03	3.164e+03	1.27	yes	no	0.896
14 Unk	1,2,3,6,7,8-HxCDD	36:23	5.228e+03	4.158e+03	1.26	yes	no	1.115
15 Unk	1,2,3,7,8,9-HxCDD	36:37	5.304e+03	4.005e+03	1.32	yes	no	1.122
16 Unk	1,2,3,4,6,7,8-HpCDD	39:04	4.145e+03	3.930e+03	1.05	yes	no	1.104
17 Unk	OCDD	41:44	6.517e+03	7.281e+03	0.90	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:32	4.063e+04	5.093e+04	0.80	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:54	7.410e+04	4.625e+04	1.60	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:51	7.271e+04	4.483e+04	1.62	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:32	2.823e+04	5.517e+04	0.51	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:38	4.314e+04	8.185e+04	0.53	yes	no	1.448
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:56	3.145e+04	6.103e+04	0.52	yes	no	1.089
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.596e+04	5.838e+04	0.44	yes	no	1.008
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:31	2.187e+04	5.012e+04	0.44	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:21	2.700e+04	3.428e+04	0.79	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	33:07	4.742e+04	2.935e+04	1.62	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:17	3.620e+04	2.810e+04	1.29	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:22	4.619e+04	3.597e+04	1.28	yes	no	0.985
31 IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	3.950e+04	3.654e+04	1.08	yes	no	0.905
32 IS	13C-OCDD	41:43	5.506e+04	6.078e+04	0.91	yes	no	0.692
33S/RT	13C-1,2,3,4-TCDD	27:42	2.738e+04	3.483e+04	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:36	4.800e+04	3.781e+04	1.27	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:23	1.174e+03				no	0.960

$$\text{OCDD} = \frac{(6.517e+03 + 7.281e+03) \times (200.0)}{(5.506e+04 + 6.078e+04)} \times 1.181 \times 1.000 = \text{pg}$$

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS2

Method M23

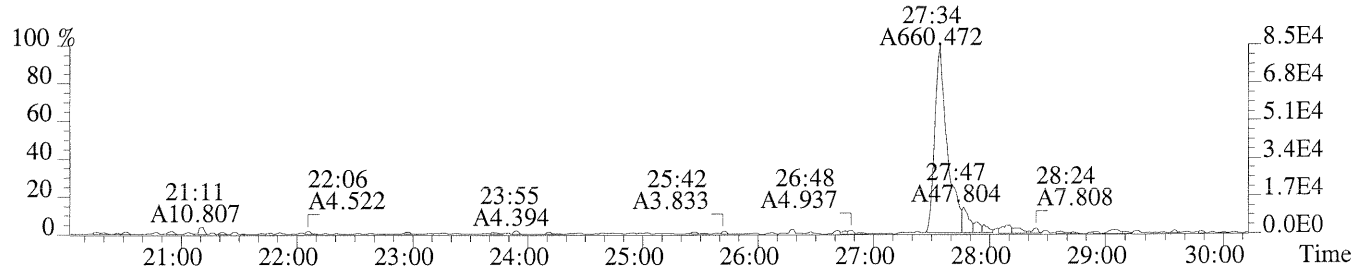
Run #3 Filename P230457 #1 Samp: 1 Inj: 1 Acquired: 11-AUG-14 20:07:47  
Processed: 13-AUG-14 13:53:33 LAB. ID: D12-90-3B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.45e+04	4.72e+02	1.8e+02	1.10e+05	1.76e+03	6.2e+01
2	1,2,3,7,8-PeCDF	8.74e+05	7.68e+02	1.1e+03	5.49e+05	1.42e+03	3.9e+02
3	2,3,4,7,8-PeCDF	8.59e+05	7.68e+02	1.1e+03	5.44e+05	1.42e+03	3.8e+02
4	1,2,3,4,7,8-HxCDF	1.03e+06	9.40e+02	1.1e+03	8.16e+05	1.60e+02	5.1e+03
5	1,2,3,6,7,8-HxCDF	1.10e+06	9.40e+02	1.2e+03	9.12e+05	1.60e+02	5.7e+03
6	2,3,4,6,7,8-HxCDF	1.01e+06	9.40e+02	1.1e+03	8.25e+05	1.60e+02	5.2e+03
7	1,2,3,7,8,9-HxCDF	7.05e+05	9.40e+02	7.5e+02	5.94e+05	1.60e+02	3.7e+03
8	1,2,3,4,6,7,8-HpCDF	9.07e+05	1.08e+03	8.4e+02	8.44e+05	2.61e+03	3.2e+02
9	1,2,3,4,7,8,9-HpCDF	6.15e+05	1.08e+03	5.7e+02	5.63e+05	2.61e+03	2.2e+02
10	OCDF	8.85e+05	6.64e+02	1.3e+03	9.78e+05	1.82e+03	5.4e+02
11	2,3,7,8-TCDD	7.41e+04	1.27e+03	5.8e+01	7.55e+04	1.00e+03	7.6e+01
12	1,2,3,7,8-PeCDD	6.13e+05	1.09e+03	5.6e+02	3.65e+05	5.68e+02	6.4e+02
13	1,2,3,4,7,8-HxCDD	7.75e+05	3.16e+02	2.5e+03	6.00e+05	5.52e+02	1.1e+03
14	1,2,3,6,7,8-HxCDD	8.06e+05	3.16e+02	2.6e+03	6.52e+05	5.52e+02	1.2e+03
15	1,2,3,7,8,9-HxCDD	7.72e+05	3.16e+02	2.4e+03	5.82e+05	5.52e+02	1.1e+03
16	1,2,3,4,6,7,8-HpCDD	5.94e+05	1.46e+03	4.1e+02	5.70e+05	3.24e+02	1.8e+03
17	OCDD	7.88e+05	4.04e+02	2.0e+03	8.74e+05	6.64e+02	1.3e+03
18	13C-2,3,7,8-TCDF	4.40e+06	1.95e+03	2.3e+03	5.54e+06	1.38e+03	4.0e+03
19	13C-1,2,3,7,8-PeCDF	8.09e+06	8.36e+02	9.7e+03	5.11e+06	1.36e+03	3.7e+03
20	13C-2,3,4,7,8-PeCDF	9.05e+06	8.36e+02	1.1e+04	5.59e+06	1.36e+03	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	5.14e+06	1.35e+03	3.8e+03	9.87e+06	2.10e+03	4.7e+03
22	13C-1,2,3,6,7,8-HxCDF	6.06e+06	1.35e+03	4.5e+03	1.14e+07	2.10e+03	5.4e+03
24	13C-1,2,3,7,8,9-HxCDF	4.00e+06	1.35e+03	3.0e+03	7.42e+06	2.10e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.99e+06	3.23e+03	1.2e+03	9.11e+06	8.63e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.78e+06	3.23e+03	8.6e+02	6.37e+06	8.63e+03	7.4e+02
27	13C-2,3,7,8-TCDD	3.30e+06	6.46e+03	5.1e+02	4.22e+06	2.27e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	5.81e+06	7.56e+02	7.7e+03	3.59e+06	7.08e+02	5.1e+03
29	13C-1,2,3,4,7,8-HxCDD	7.04e+06	1.66e+03	4.3e+03	5.49e+06	1.03e+03	5.3e+03
30	13C-1,2,3,6,7,8-HxCDD	7.22e+06	1.66e+03	4.4e+03	5.58e+06	1.03e+03	5.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.57e+06	8.56e+02	6.5e+03	5.16e+06	1.26e+03	4.1e+03
32	13C-OCDD	6.76e+06	3.84e+02	1.8e+04	7.42e+06	5.60e+02	1.3e+04
33	13C-1,2,3,4-TCDD	4.13e+06	6.46e+03	6.4e+02	5.30e+06	2.27e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	6.88e+06	1.66e+03	4.2e+03	5.36e+06	1.03e+03	5.2e+03
35	37Cl-2,3,7,8-TCDD	1.42e+05	1.15e+03	1.2e+02			

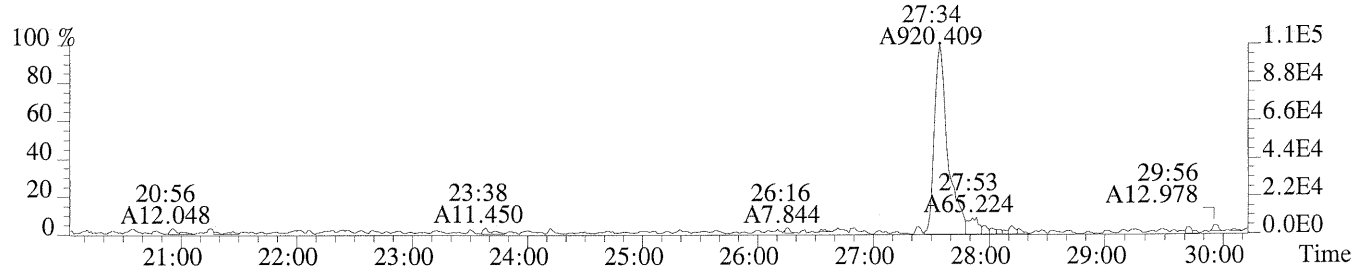
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713)266-1599. Fax: (713)266-0130

ALS Form TO-9SN/M23SN.FRM

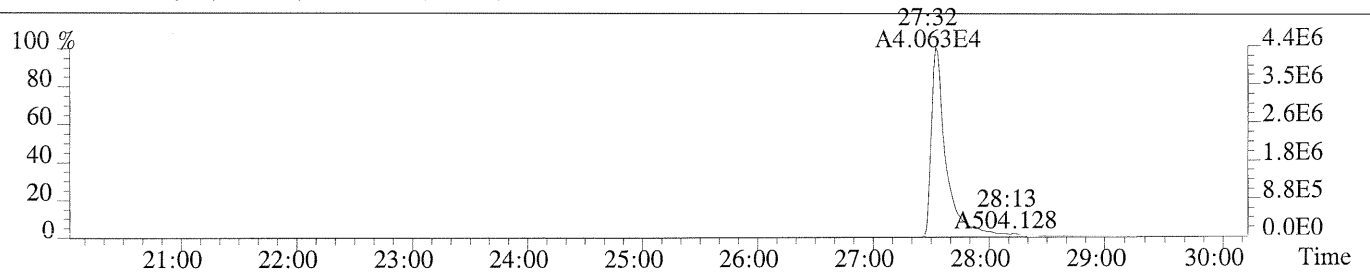
File:P230457 #1-640 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



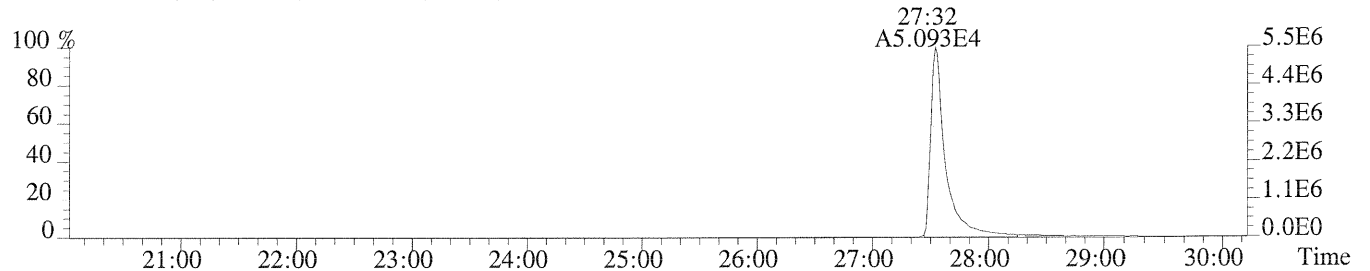
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



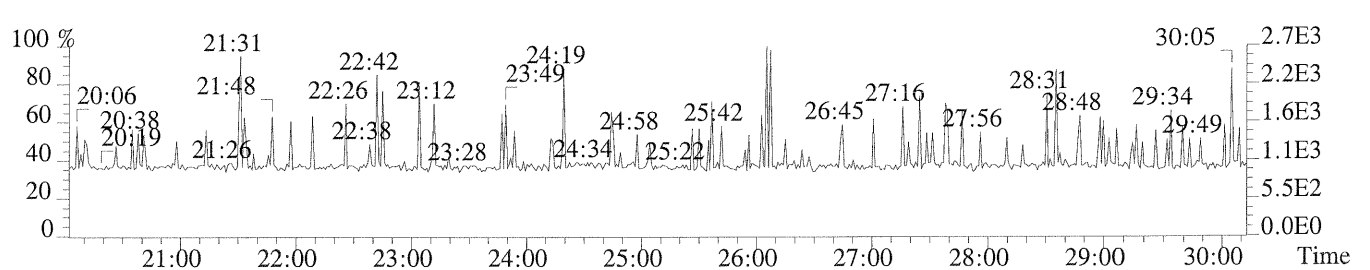
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



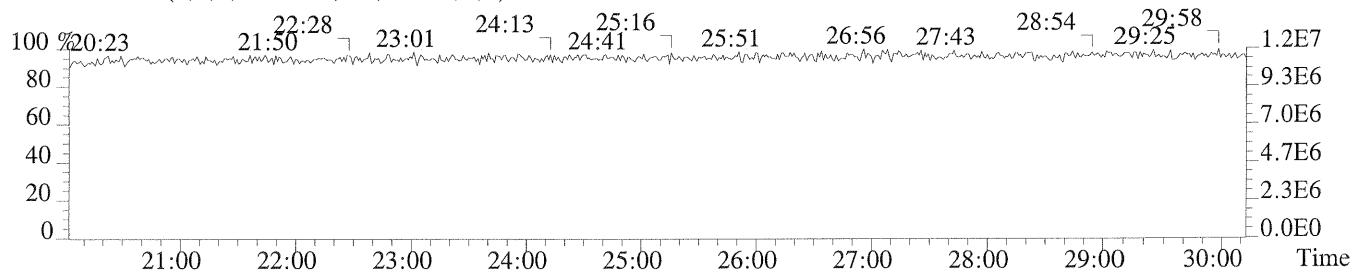
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



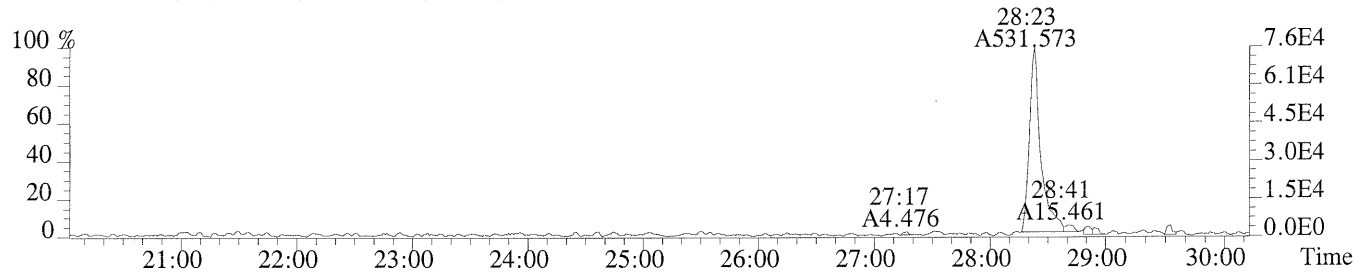
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



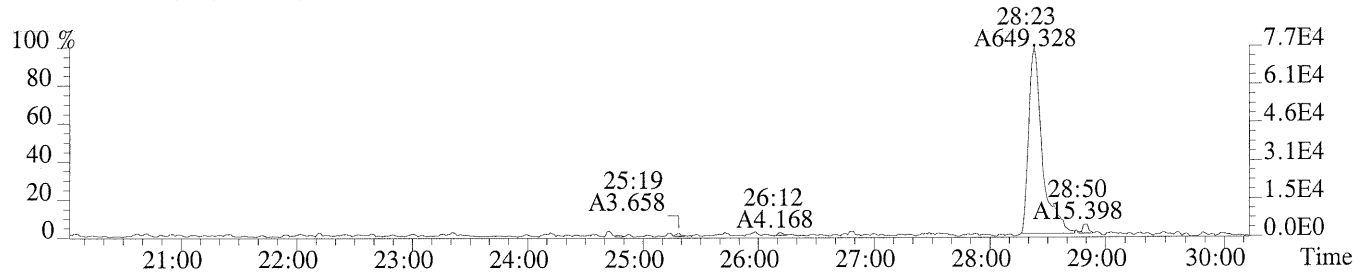
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



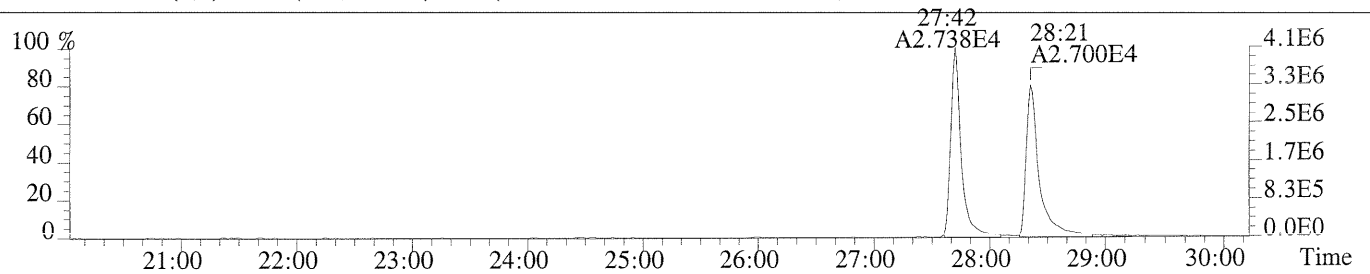
File:P230457 #1-640 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



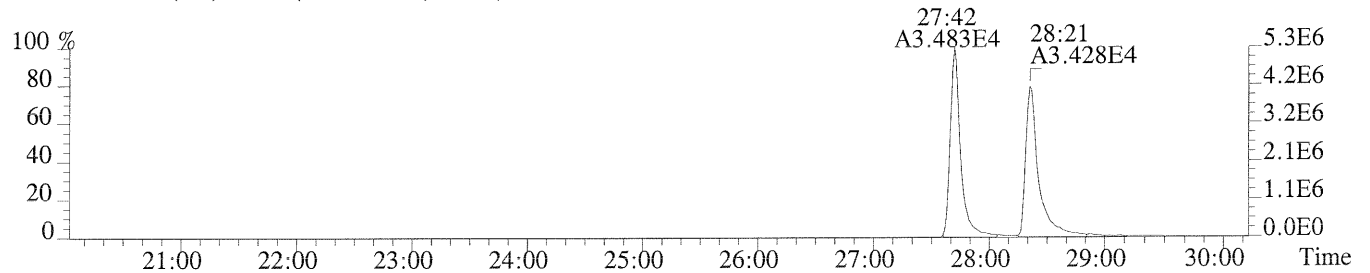
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



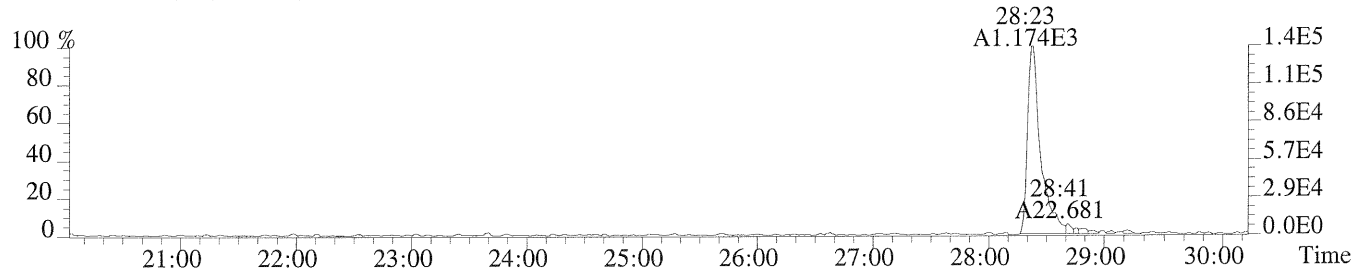
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6460.0,1.00%,F,T)



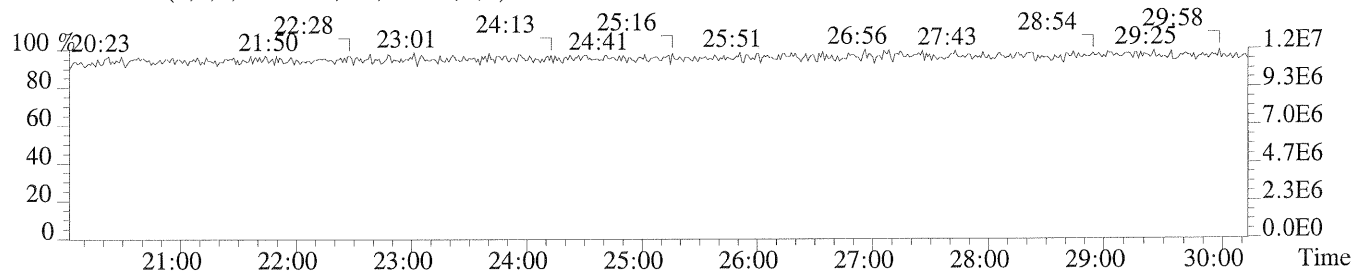
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



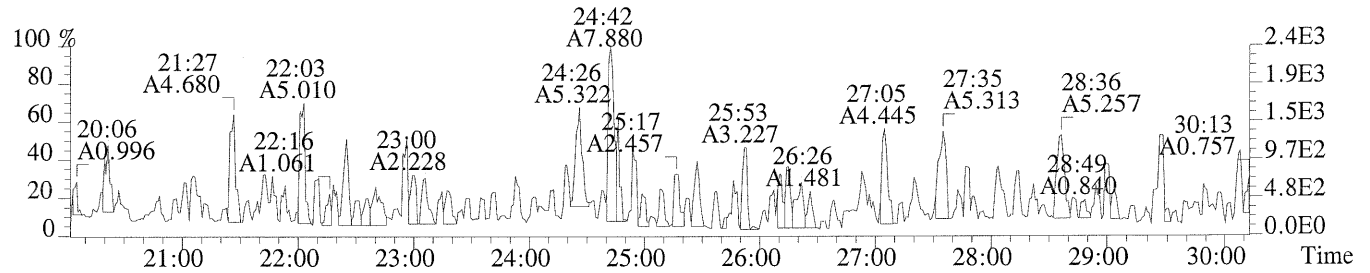
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



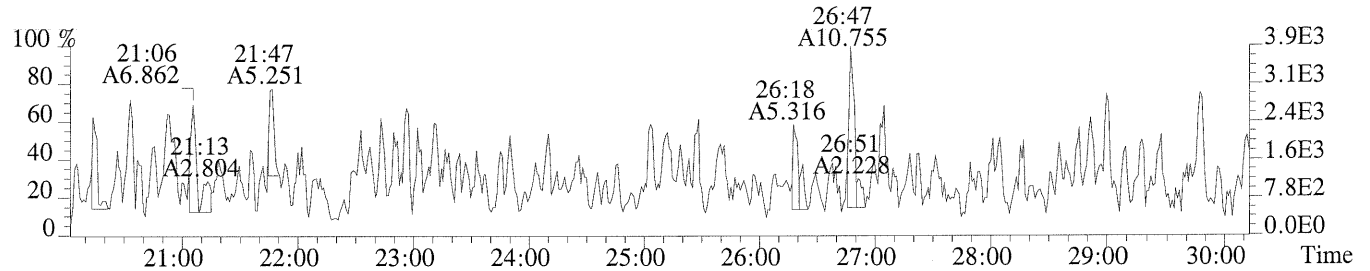
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



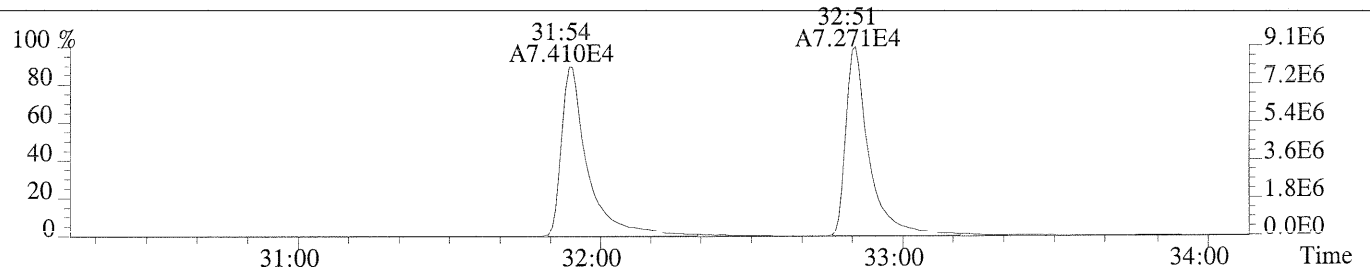
File:P230457 #1-640 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



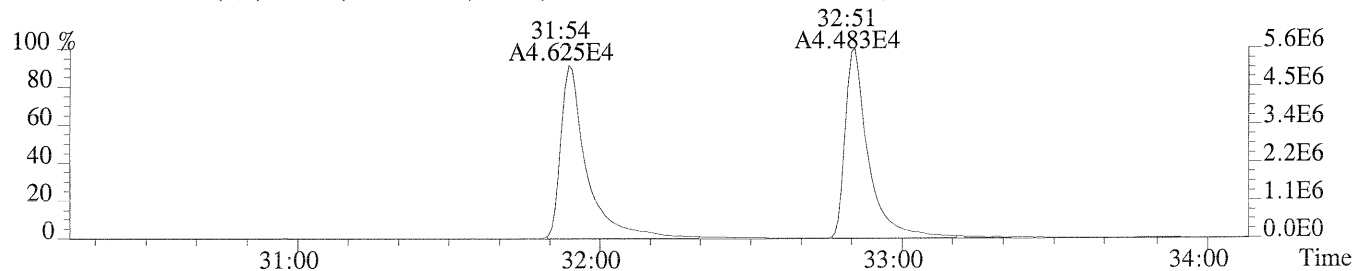
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



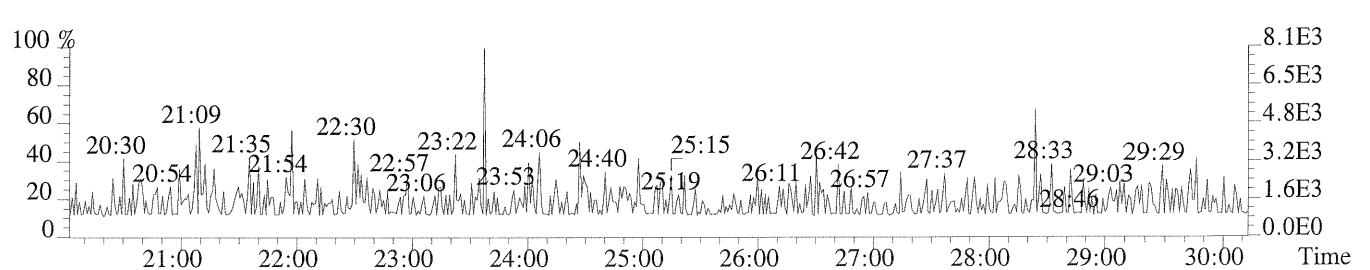
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



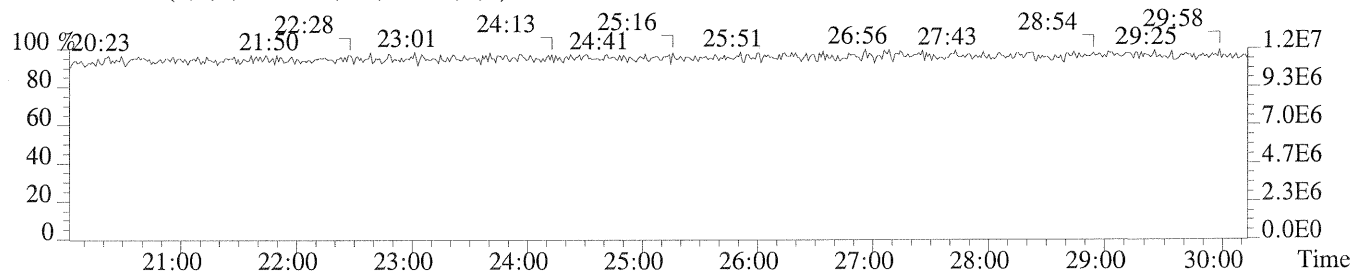
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



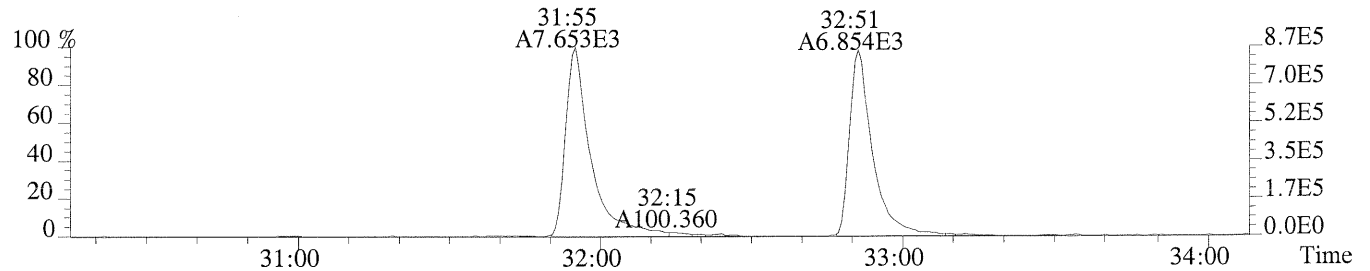
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



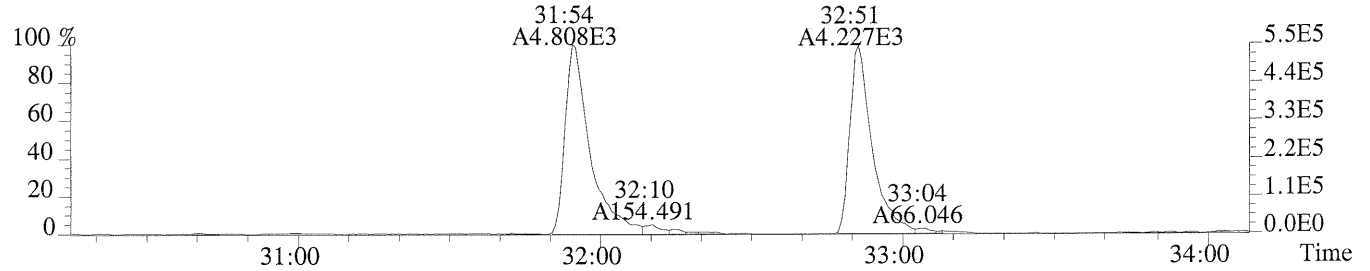
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



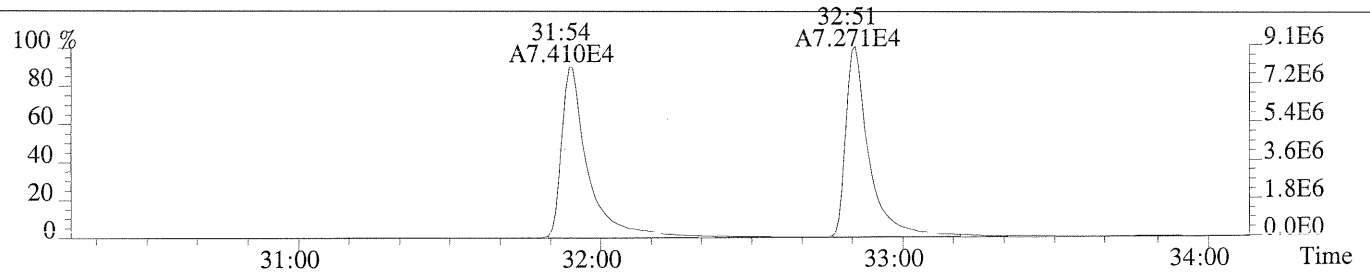
File:P230457 #1-353 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



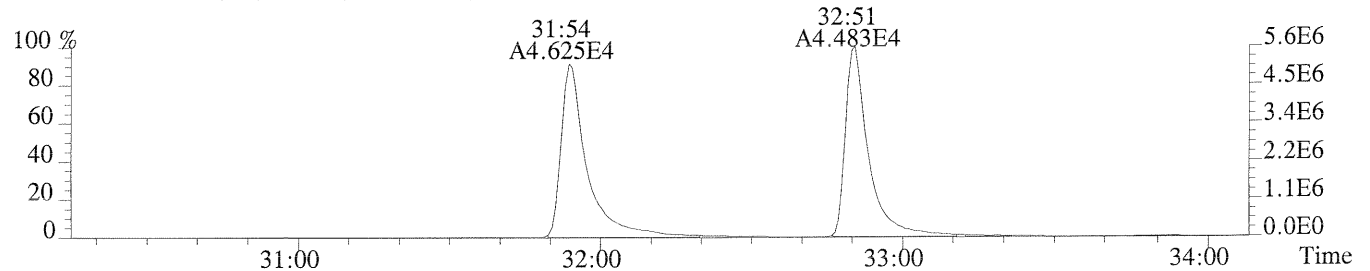
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



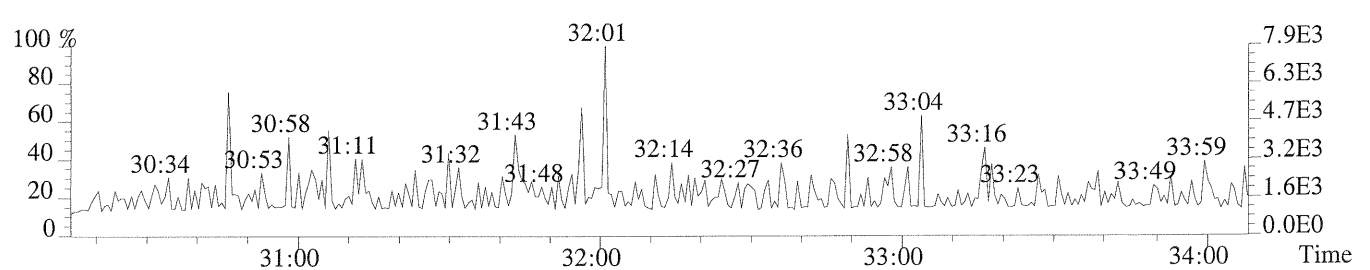
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



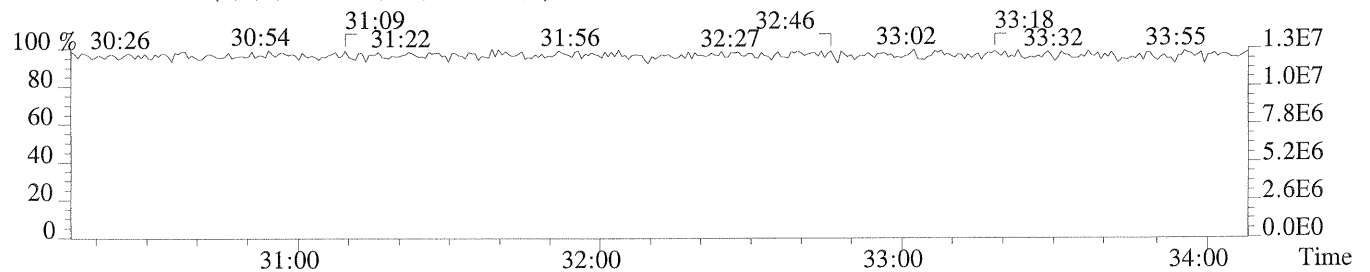
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



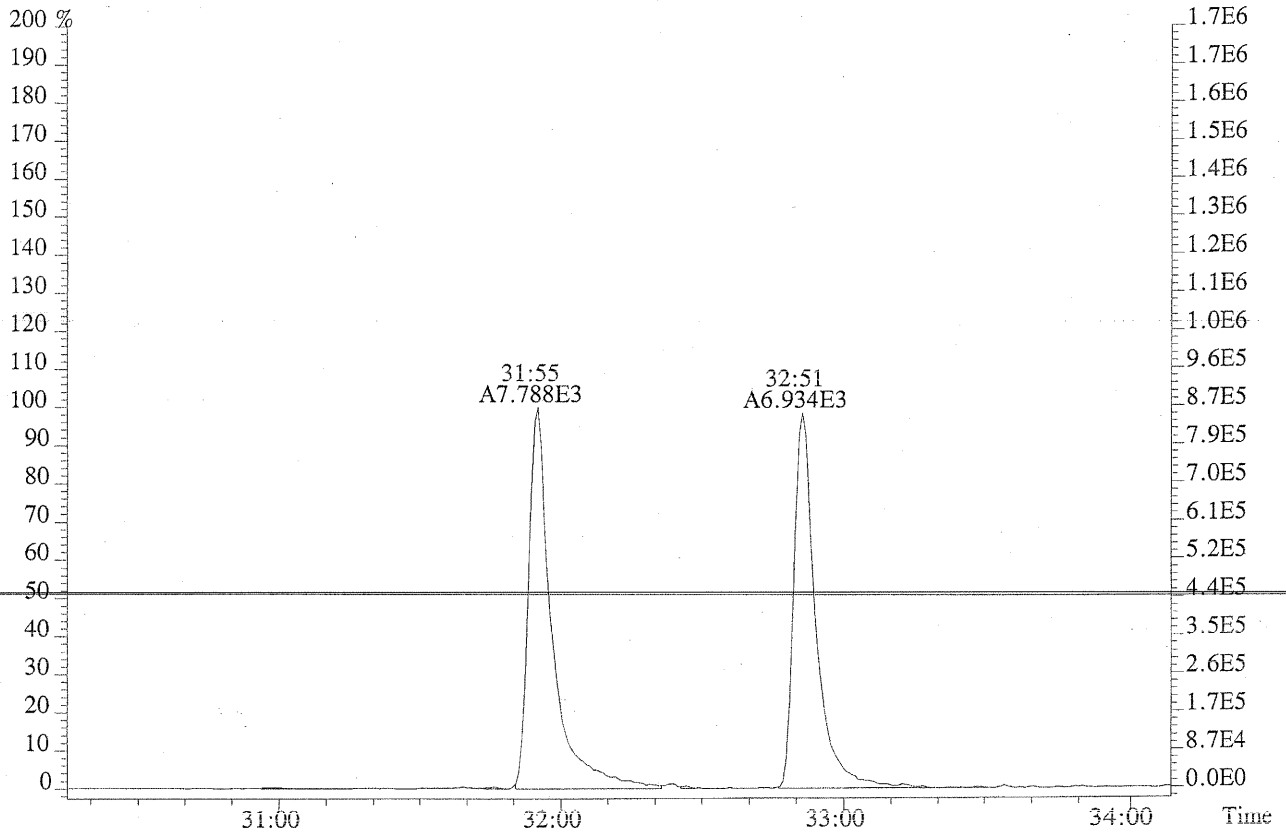
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



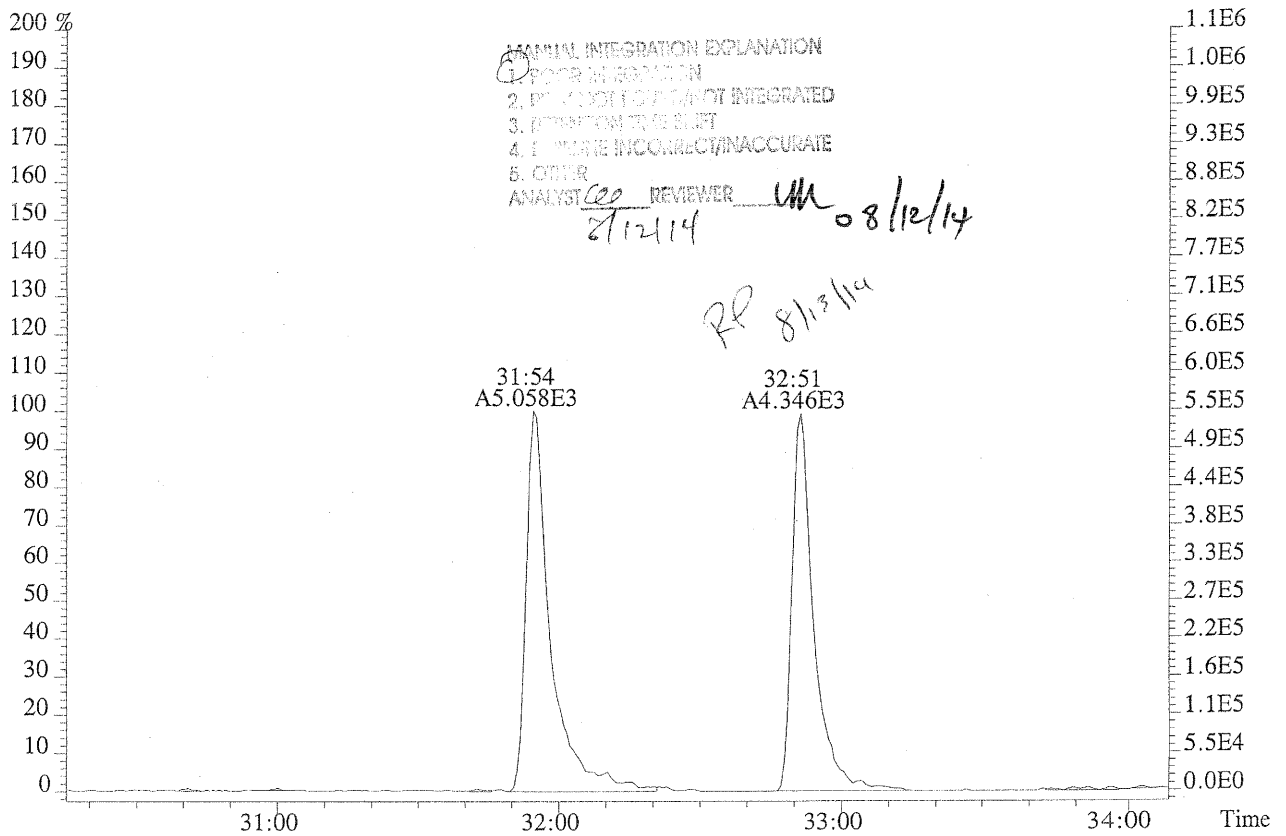
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



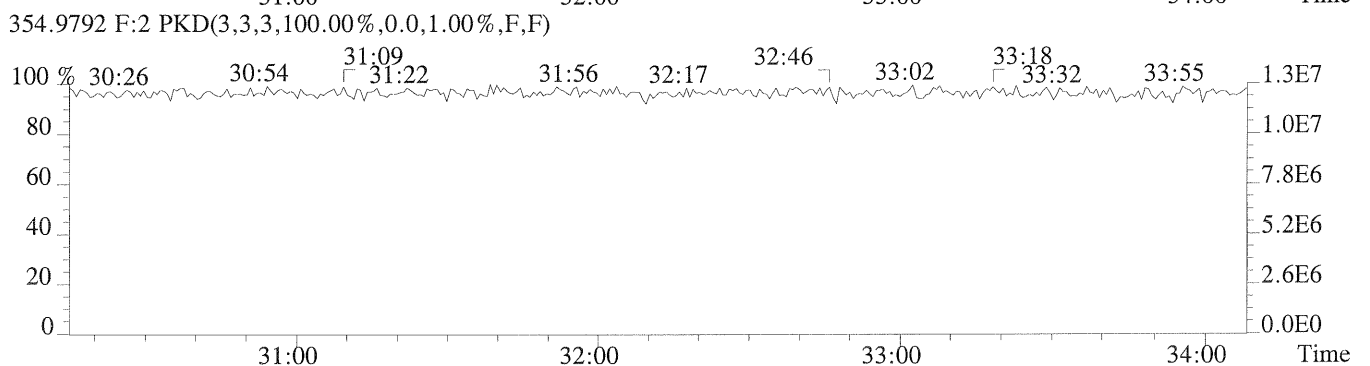
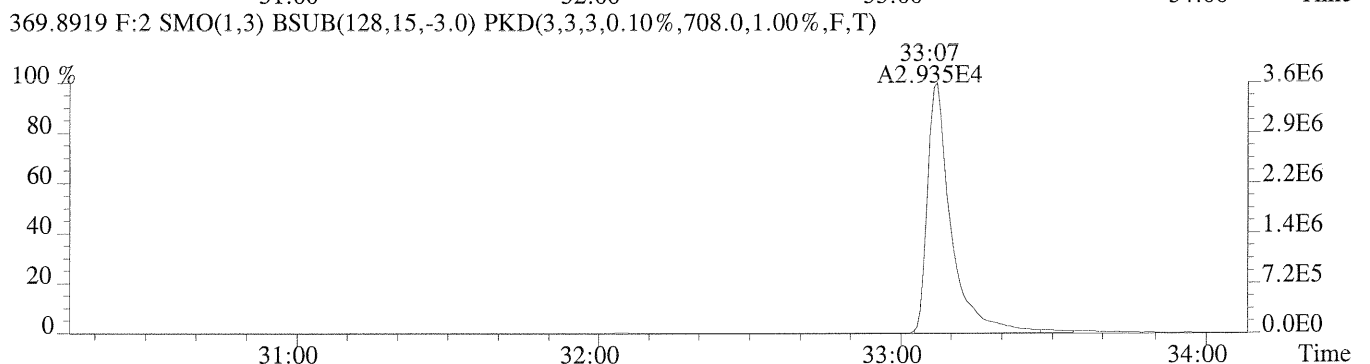
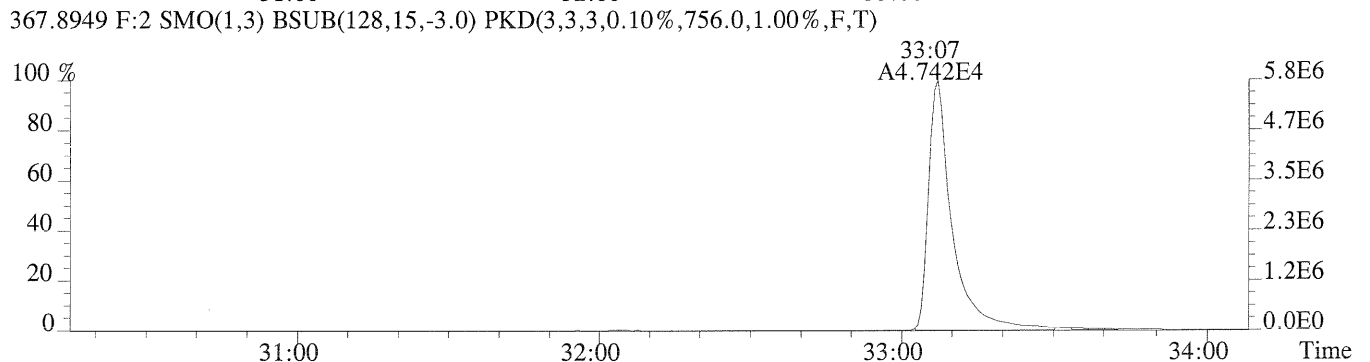
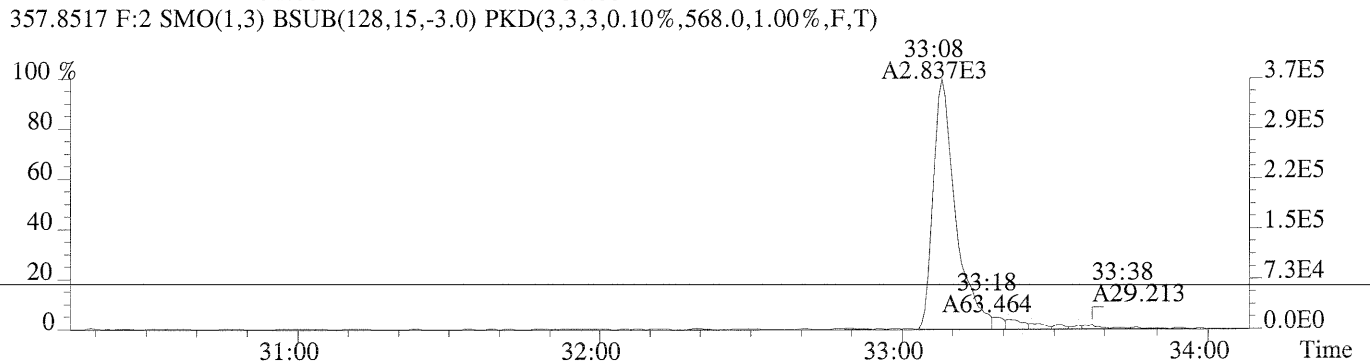
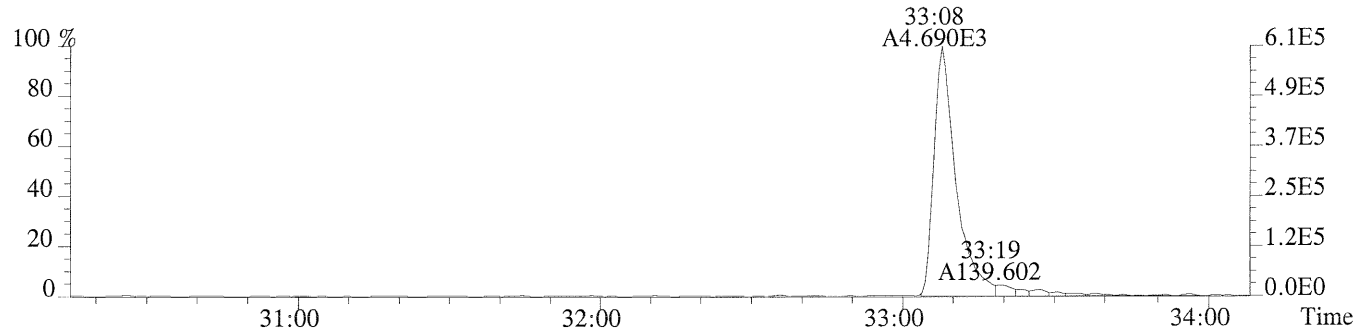
File: P230457 #1-353 Acq: 11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp: ICAL CS2  
 339.8597 F: 2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



341.8567 F: 2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)

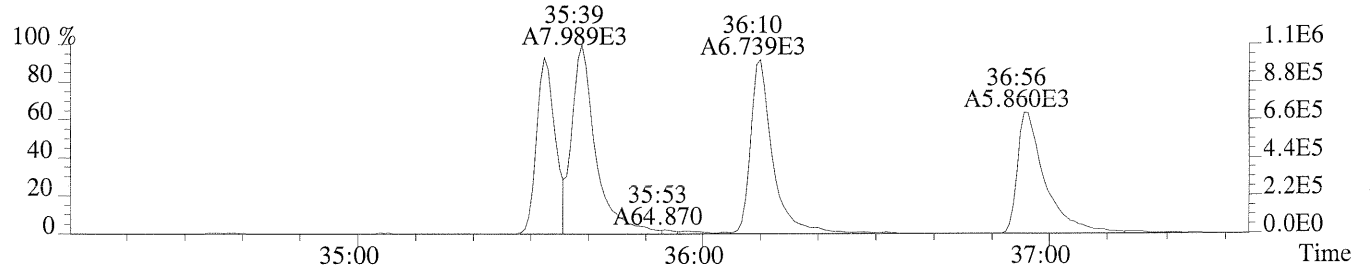


File:P230457 #1-353 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)

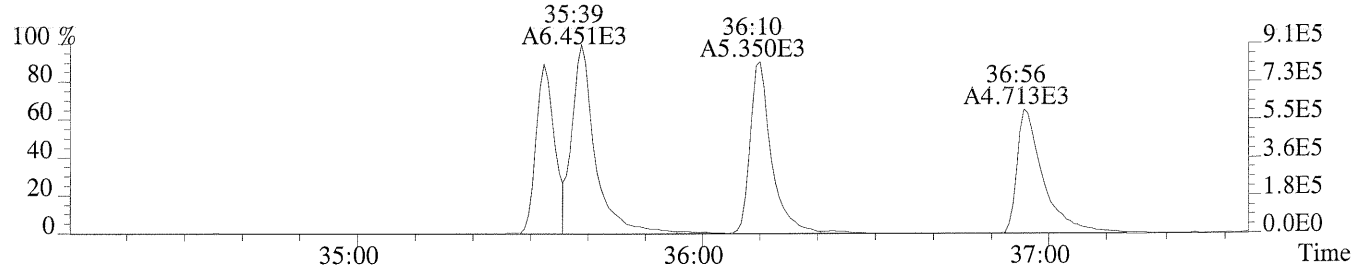




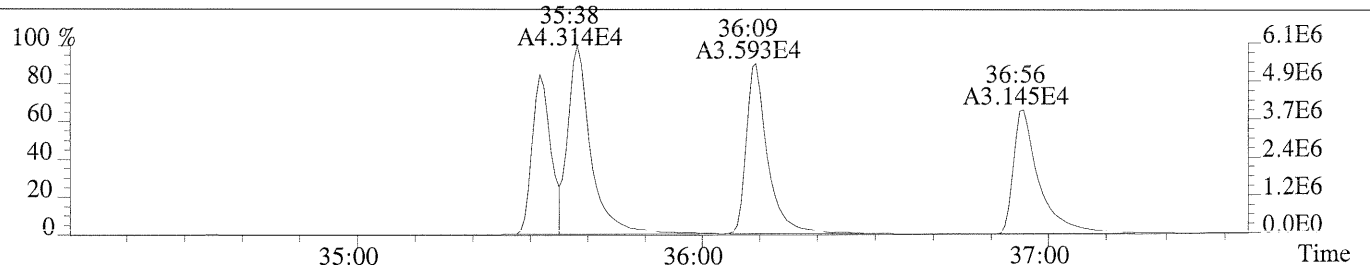
File:P230457 #1-309 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



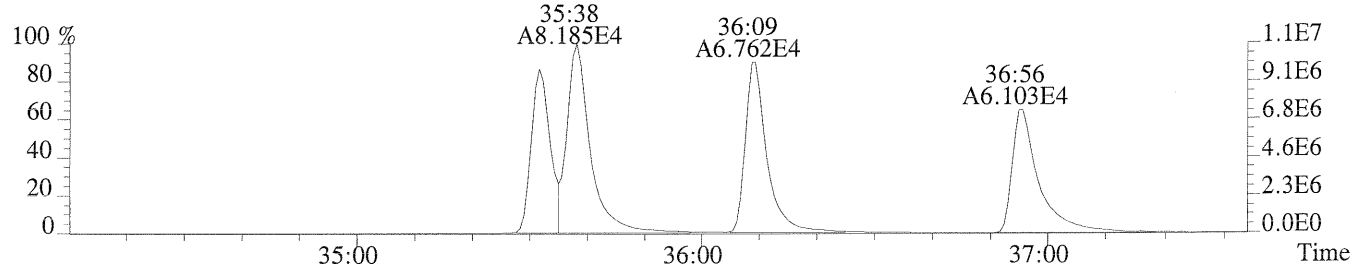
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,160.0,0.40%,F,T)



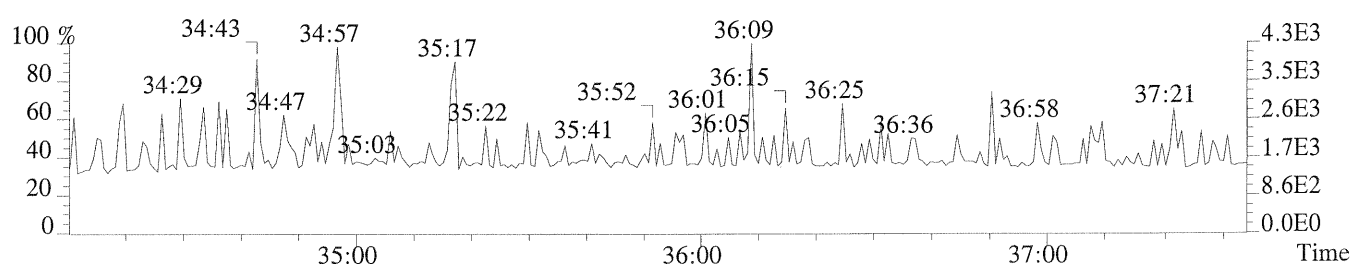
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



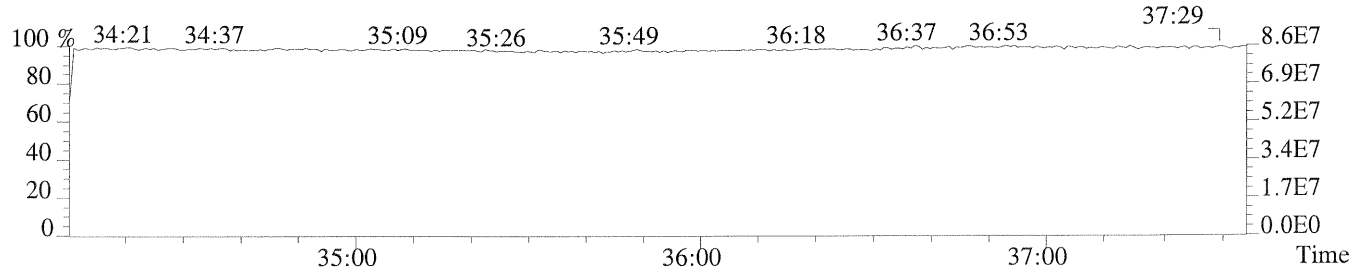
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2100.0,0.40%,F,T)

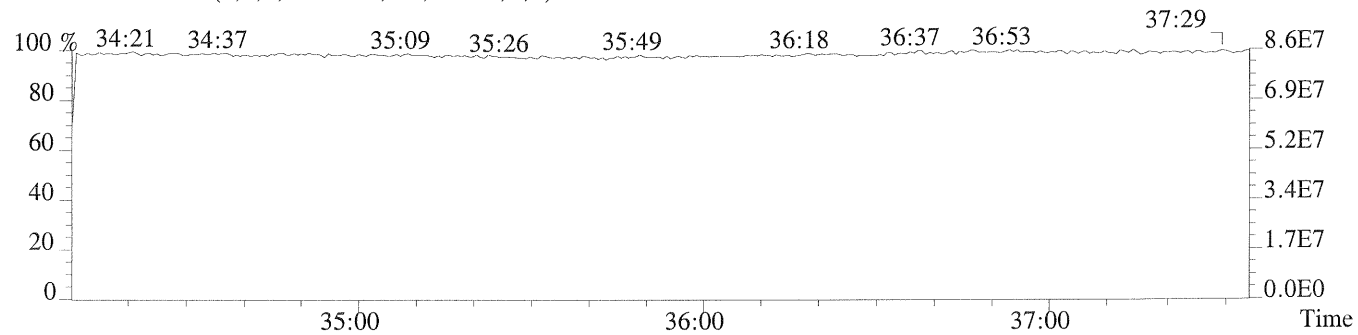
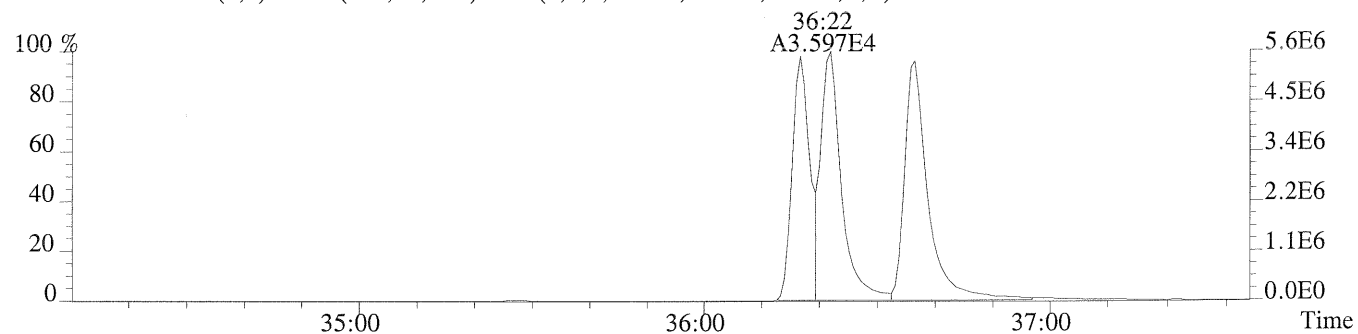
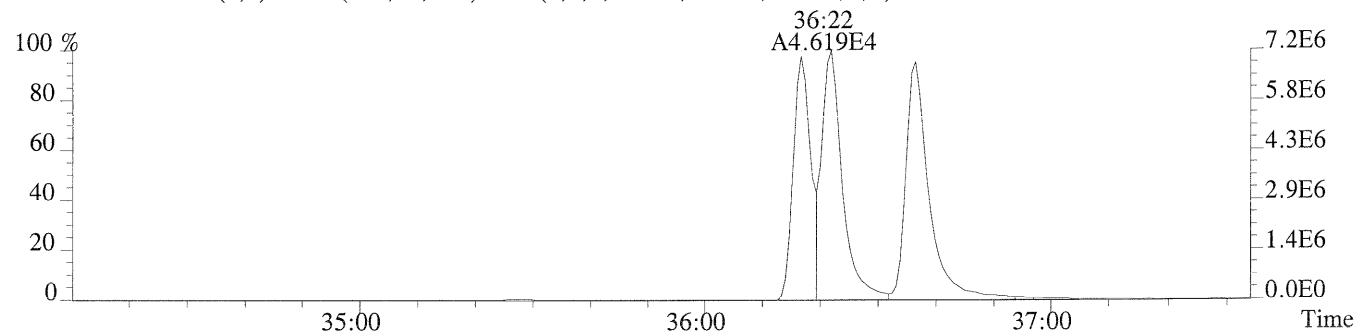
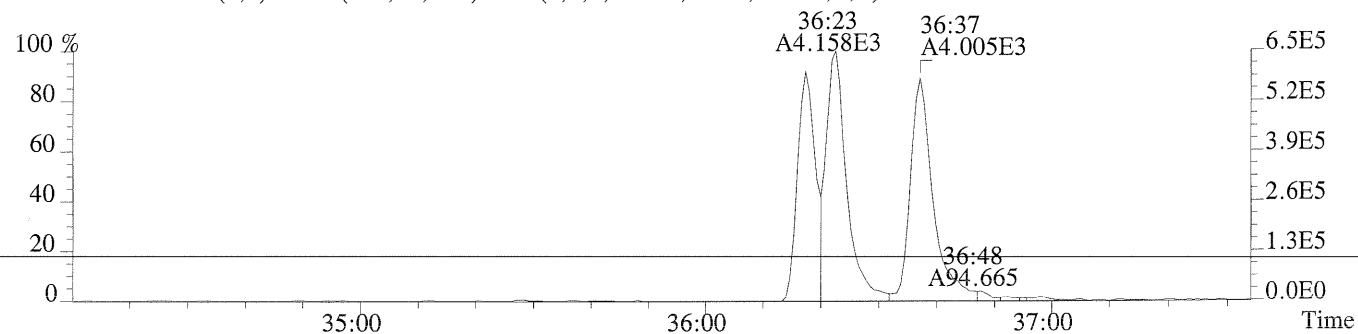
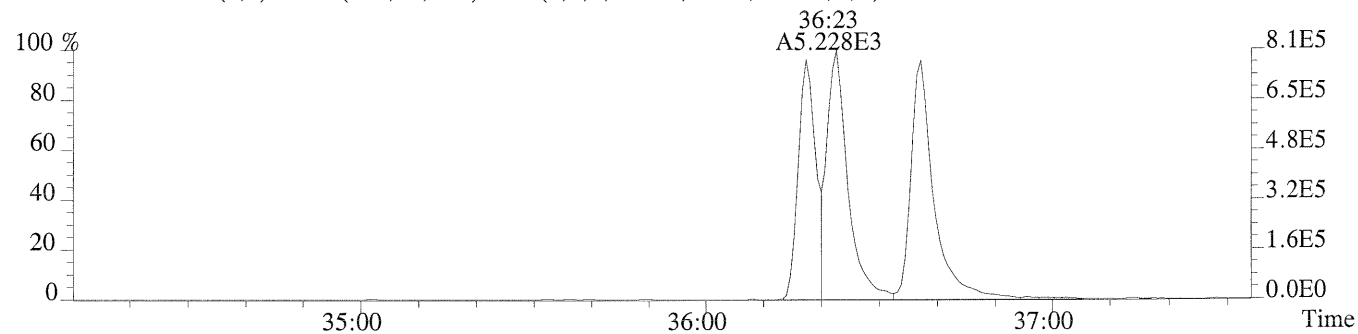


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

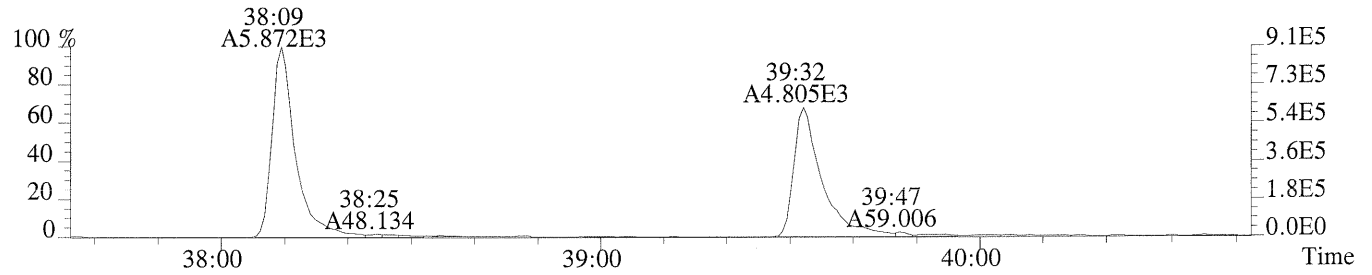


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

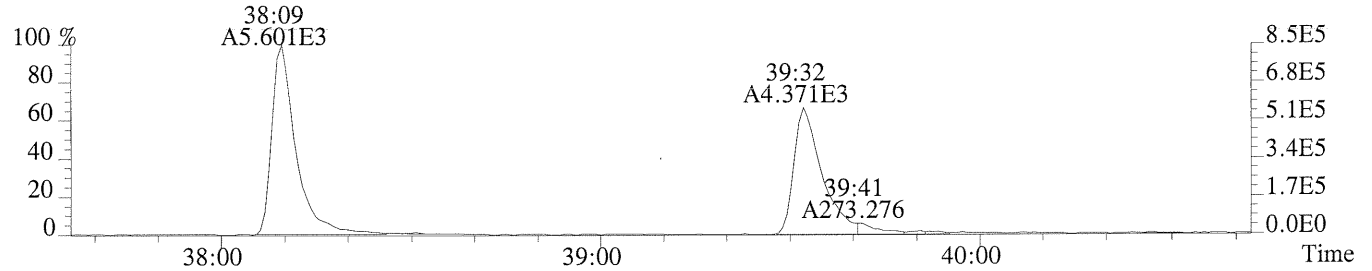




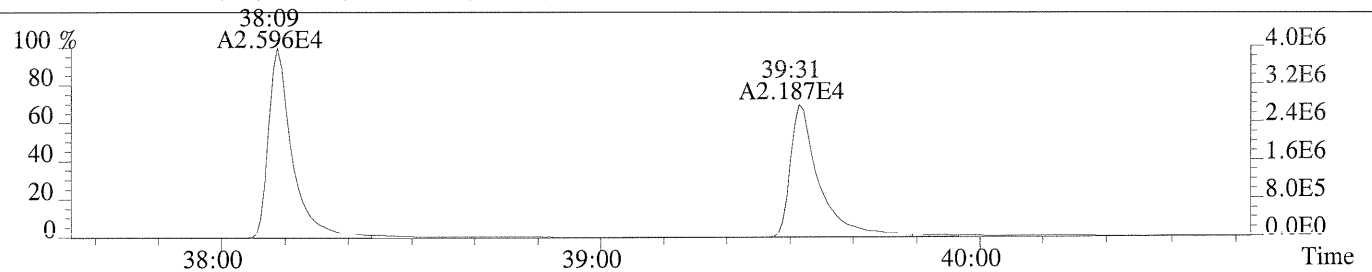
File:P230457 #1-282 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.50%,F,T)



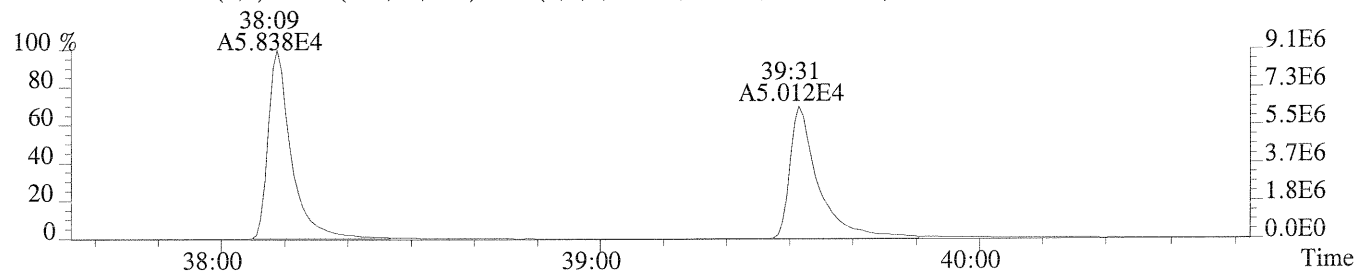
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.50%,F,T)



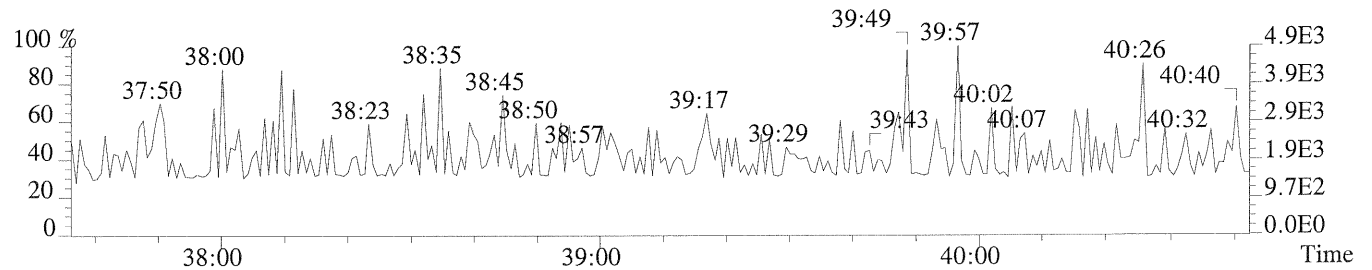
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3228.0,0.50%,F,T)



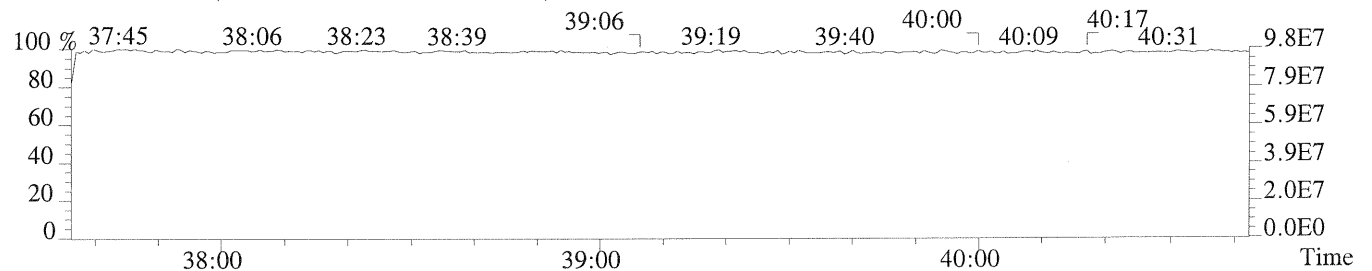
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8632.0,0.50%,F,T)



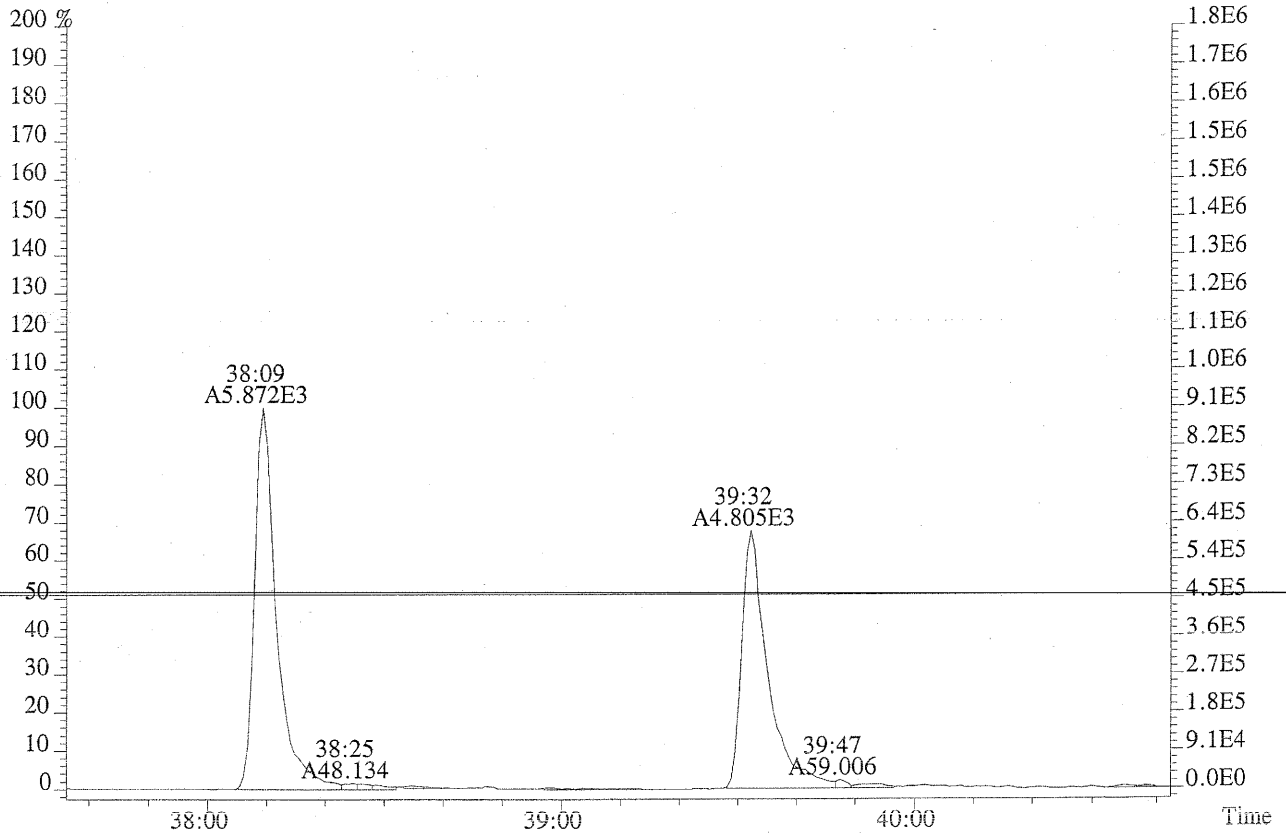
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



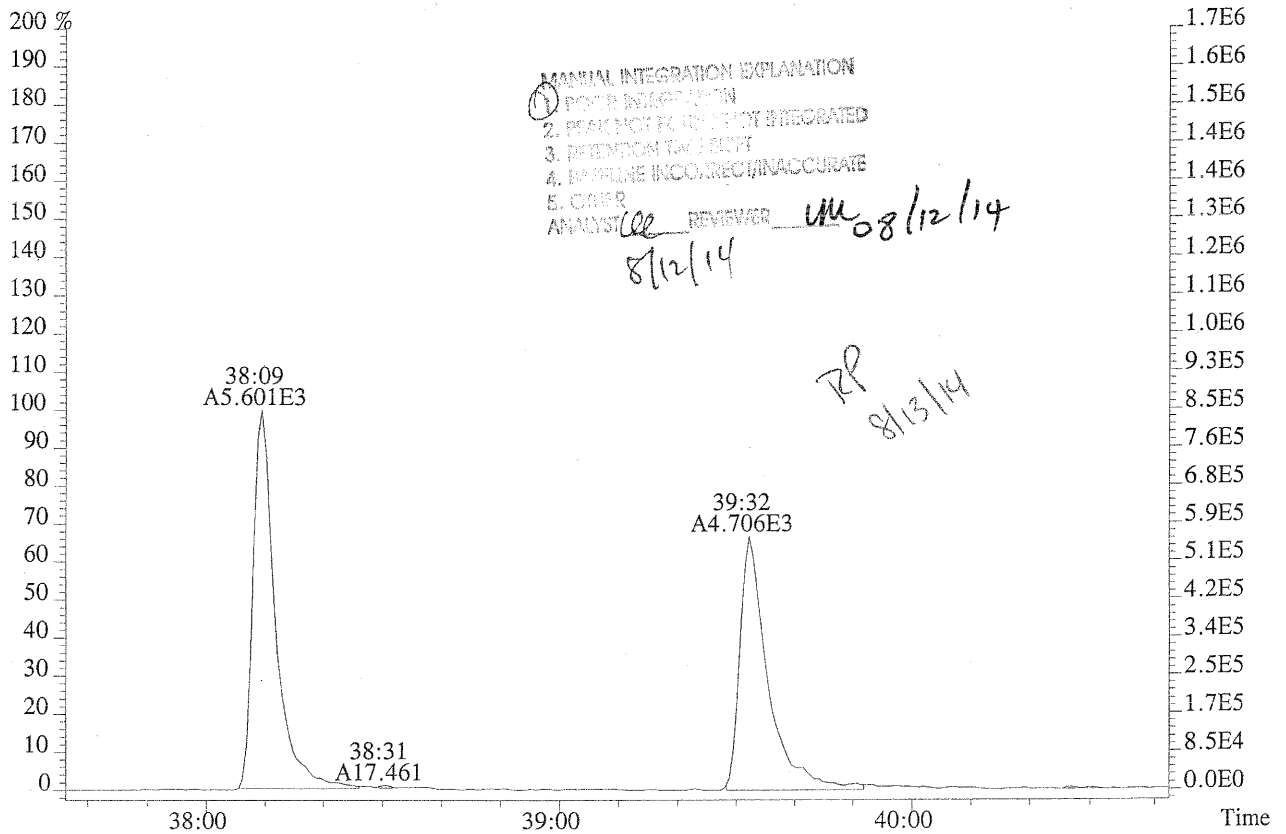
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P230457 #1-282 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass s£  
 Sample#1 Exp:ICAL CS2  
 407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.50%,F,T)



409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.50%,F,T)

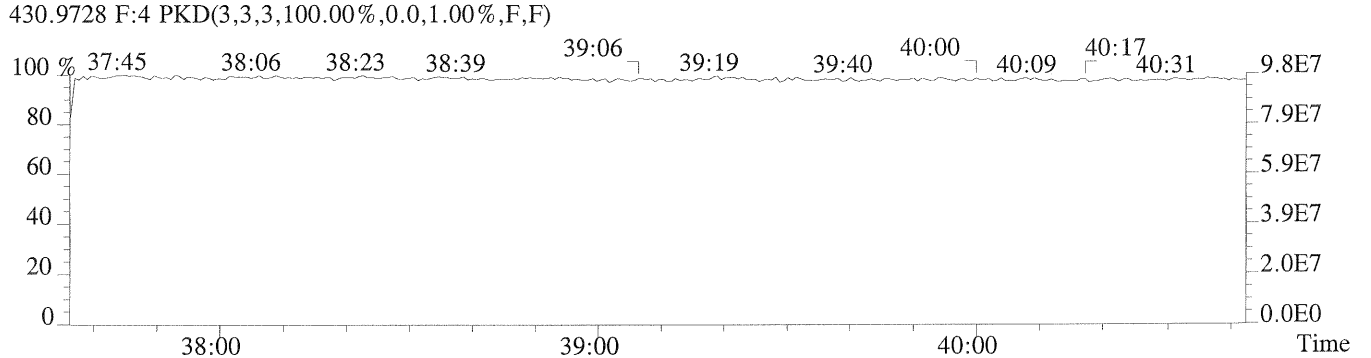
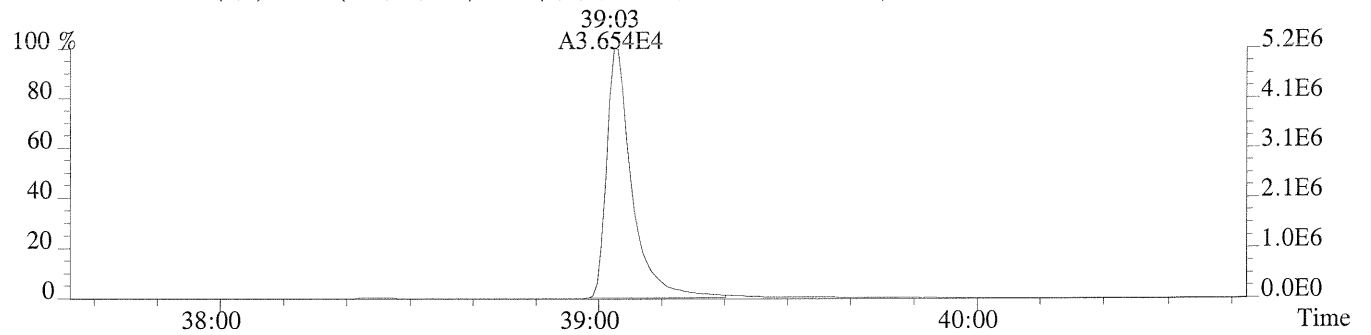
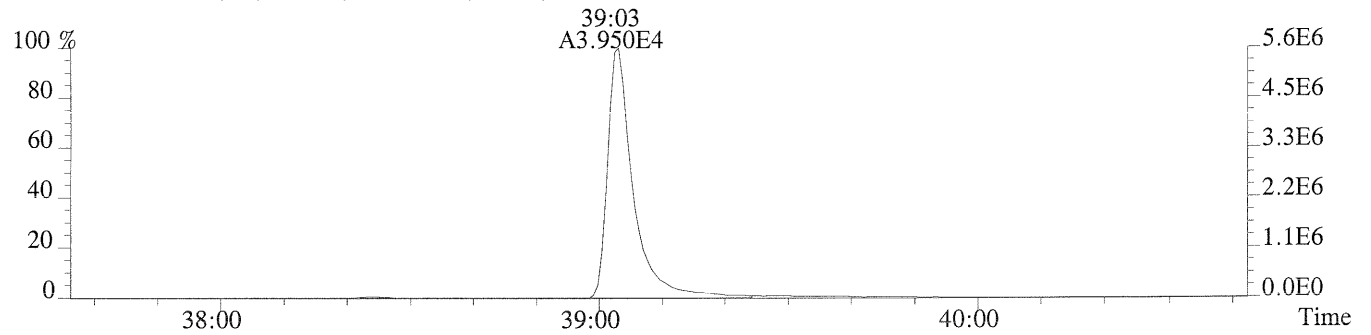
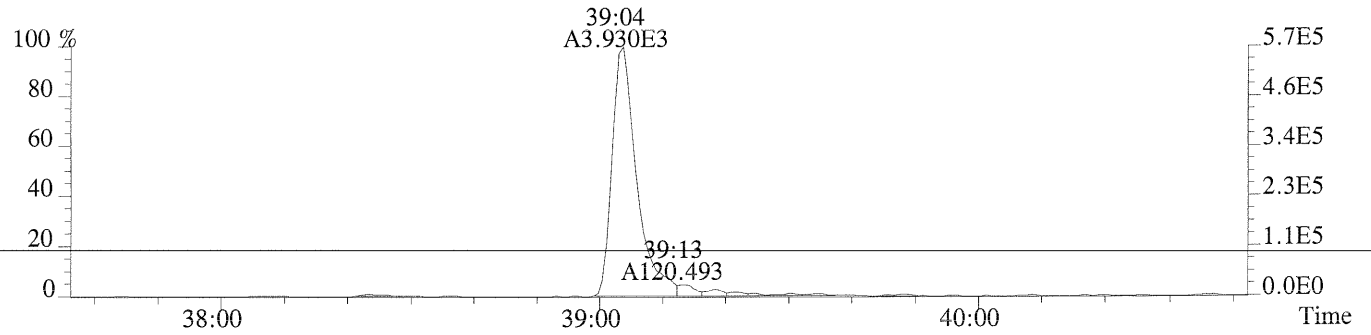
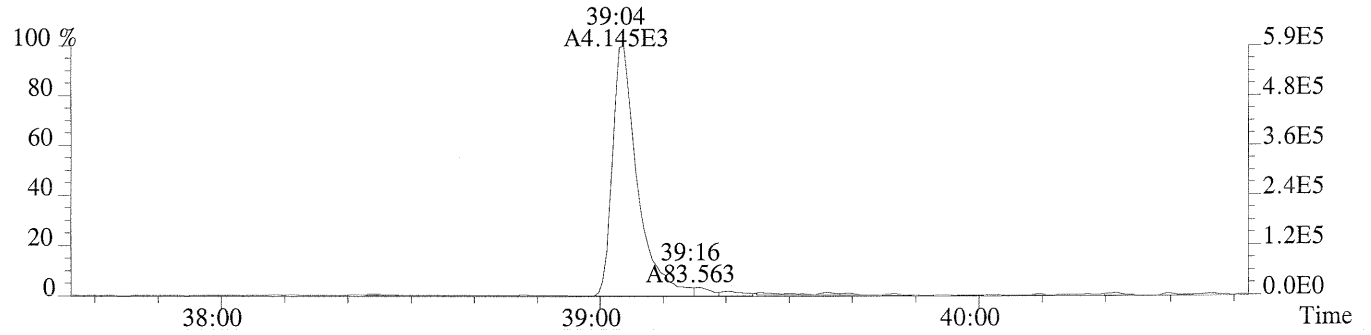


MANUAL INTEGRATION EXPLANATION  
 1. PEAK INTEGRATION  
 2. PEAK NOT FULLY INTEGRATED  
 3. INTEGRATION TWO PEAKS  
 4. INTEGRATION INCOMPLETE/INACCURATE  
 5. OTHER  
 ANALYST lee REVIEWER um 08/12/14

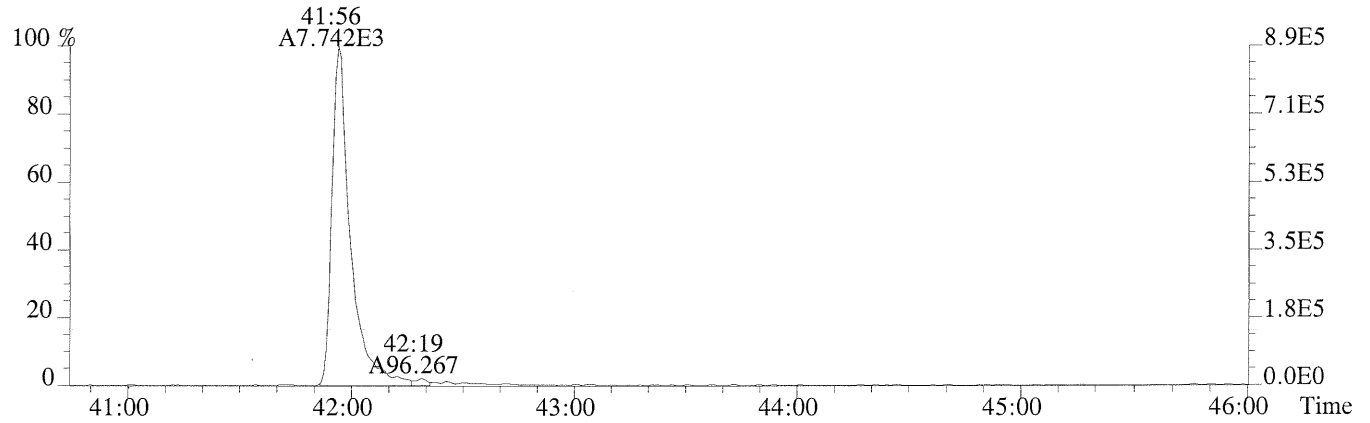
8/12/14

RP  
 8/13/14

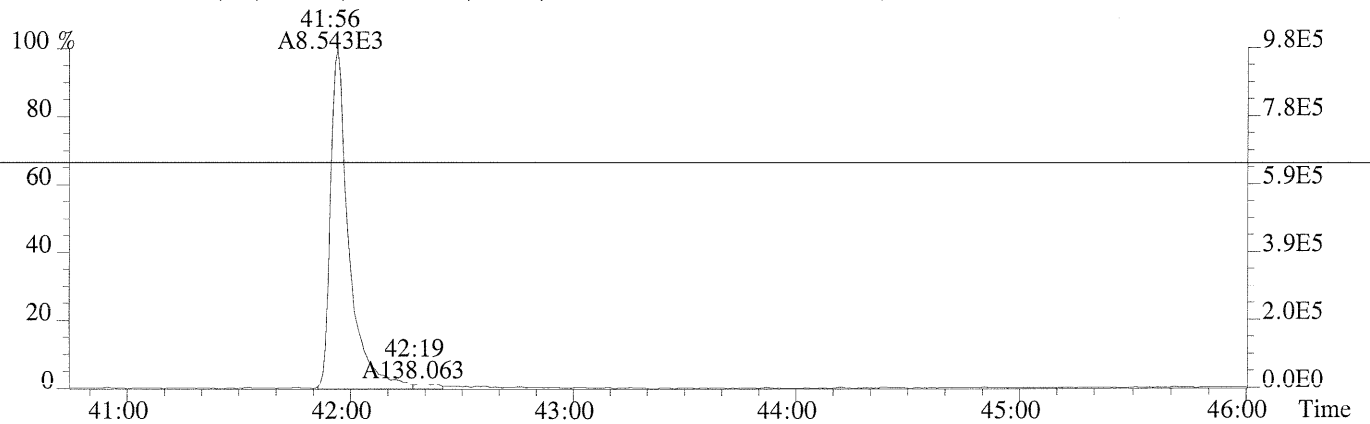
File:P230457 #1-282 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.40%,F,T)



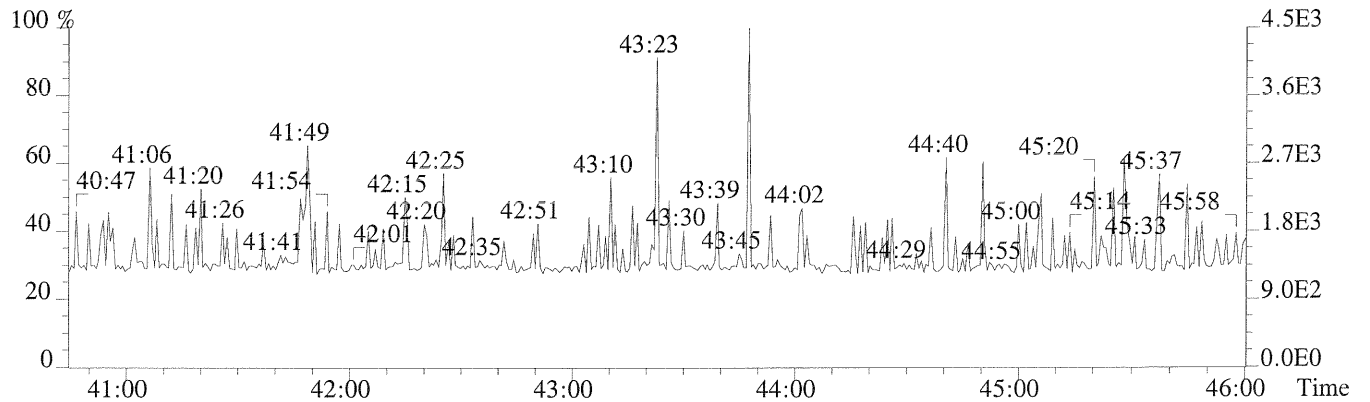
File:P230457 #1-484 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



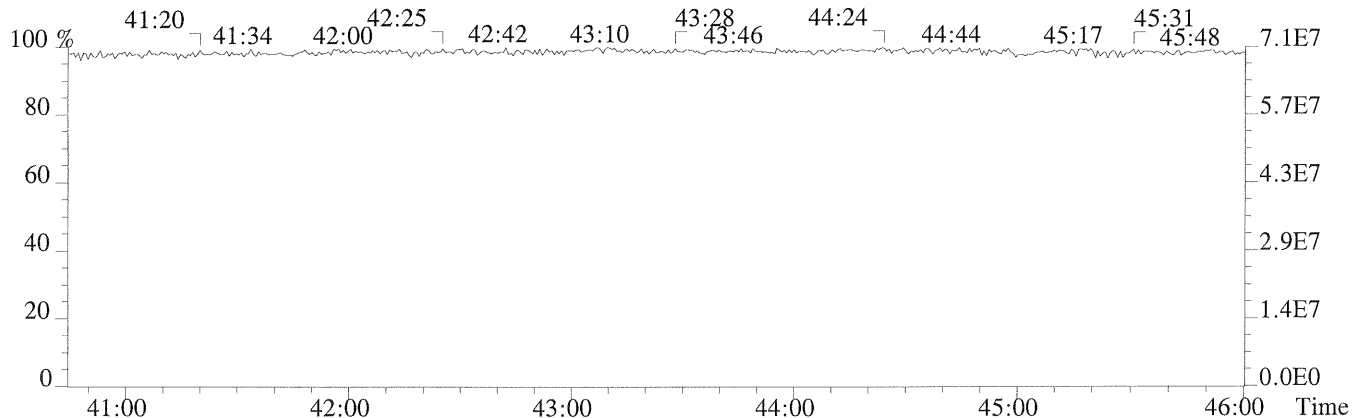
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



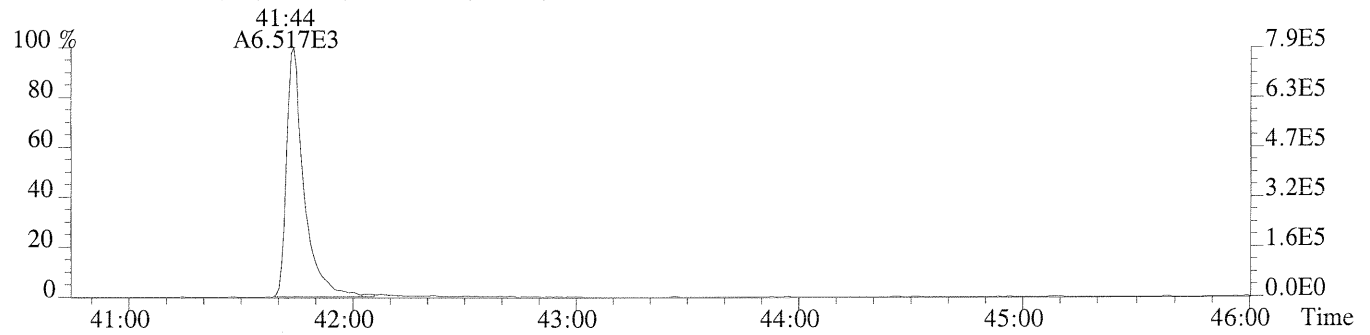
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



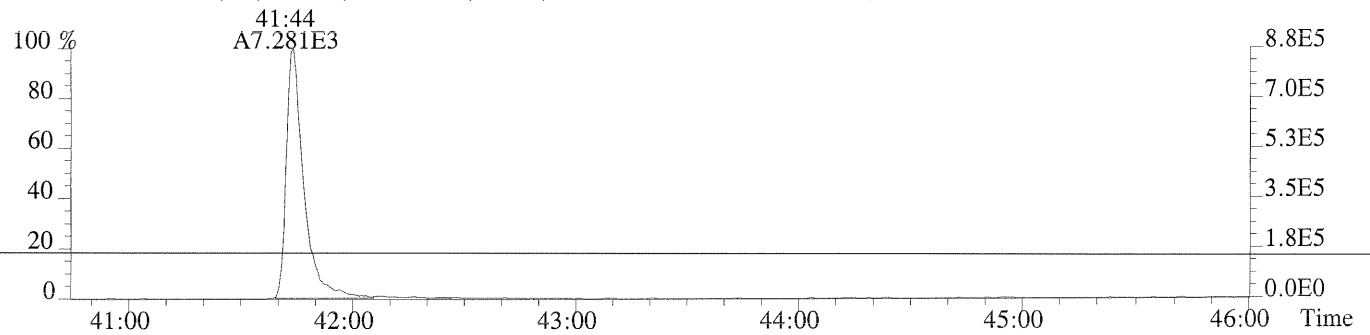
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



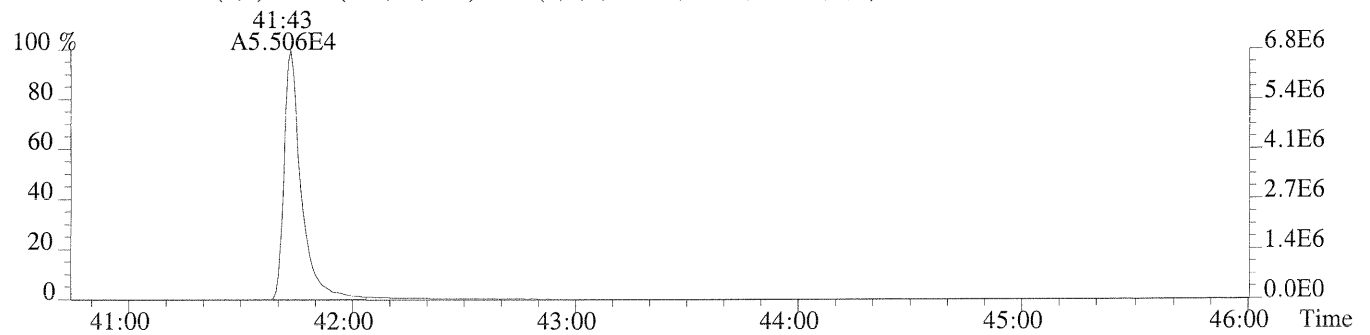
File:P230457 #1-484 Acq:11-AUG-2014 20:07:47 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS2  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



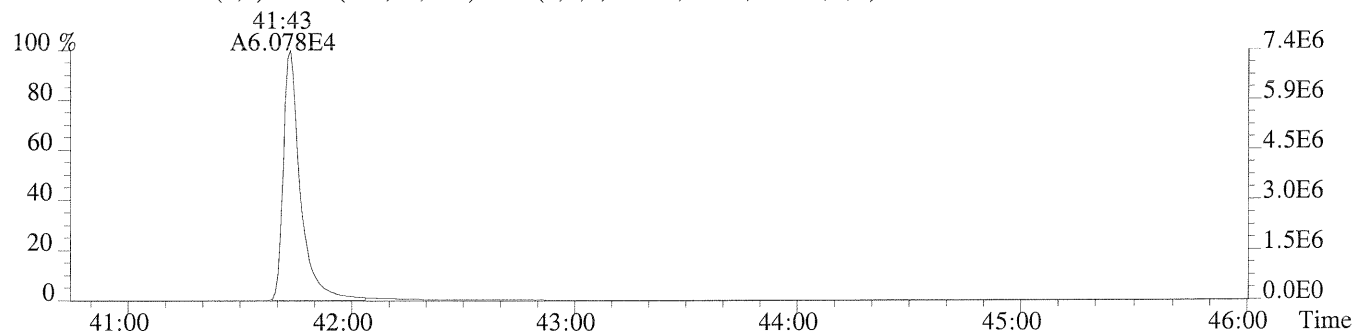
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



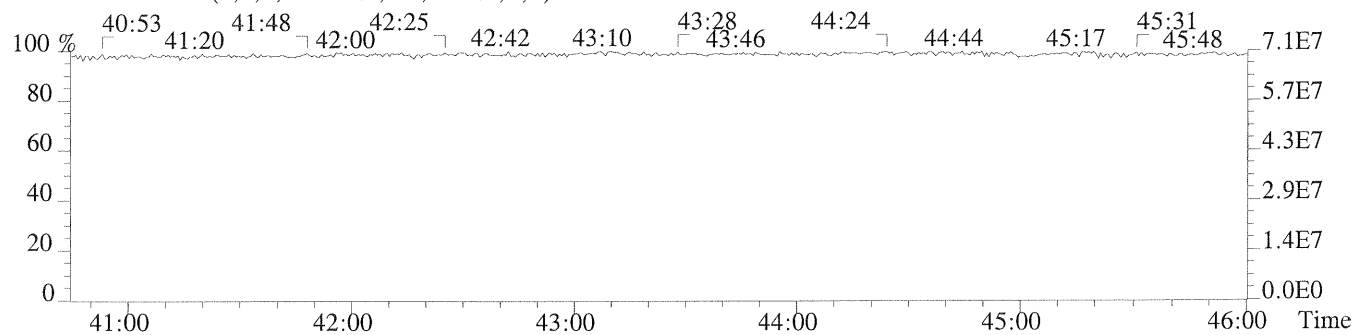
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



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



Sample Response Summary

Run #4    Filename P230458 #1    Samp: 1    Inj: 1    Acquired: 11-AUG-14 20:55:34  
 Processed: 13-AUG-14 13:53:39    LAB. ID: 63383

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	27:34	3.864e+03	5.015e+03	0.77	yes	no	0.959
2 Unk	1,2,3,7,8-PeCDF	31:55	3.979e+04	2.556e+04	1.56	yes	no	1.034
3 Unk	2,3,4,7,8-PeCDF	32:51	3.670e+04	2.319e+04	1.58	yes	no	0.972
4 Unk	1,2,3,4,7,8-HxCDF	35:33	3.154e+04	2.483e+04	1.27	yes	no	0.883
5 Unk	1,2,3,6,7,8-HxCDF	35:39	4.020e+04	3.204e+04	1.25	yes	no	1.175
6 Unk	2,3,4,6,7,8-HxCDF	36:10	3.479e+04	2.718e+04	1.28	yes	no	0.982
7 Unk	1,2,3,7,8,9-HxCDF	36:56	3.012e+04	2.418e+04	1.25	yes	no	0.871
8 Unk	1,2,3,4,6,7,8-HpCDF	38:09	3.116e+04	2.993e+04	1.04	yes	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	39:33	2.431e+04	2.383e+04	1.02	yes	no	1.113
10 Unk	OCDF	41:56	3.997e+04	4.415e+04	0.91	yes	no	1.392
11 Unk	2,3,7,8-TCDD	28:23	2.855e+03	3.694e+03	0.77	yes	yes	0.966
12 Unk	1,2,3,7,8-PeCDD	33:08	2.434e+04	1.566e+04	1.55	yes	no	1.009
13 Unk	1,2,3,4,7,8-HxCDD	36:18	1.995e+04	1.552e+04	1.29	yes	no	0.896
14 Unk	1,2,3,6,7,8-HxCDD	36:23	2.796e+04	2.148e+04	1.30	yes	no	1.115
15 Unk	1,2,3,7,8,9-HxCDD	36:37	2.645e+04	2.062e+04	1.28	yes	no	1.122
16 Unk	1,2,3,4,6,7,8-HpCDD	39:04	2.237e+04	2.095e+04	1.07	yes	no	1.104
17 Unk	OCDD	41:44	3.321e+04	3.721e+04	0.89	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:33	4.094e+04	5.070e+04	0.81	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:54	7.507e+04	4.653e+04	1.61	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:51	7.479e+04	4.672e+04	1.60	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:32	3.059e+04	5.848e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:38	4.314e+04	8.064e+04	0.53	yes	no	1.448
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:56	3.182e+04	6.014e+04	0.53	yes	no	1.089
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:09	2.676e+04	6.011e+04	0.45	yes	no	1.008
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:32	2.248e+04	5.145e+04	0.44	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:21	2.714e+04	3.476e+04	0.78	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	33:07	4.869e+04	2.961e+04	1.64	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:17	3.530e+04	2.787e+04	1.27	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:22	4.797e+04	3.729e+04	1.29	yes	no	0.985
31 IS	13C-1,2,3,4,6,7,8-HpCDD	39:03	4.031e+04	3.767e+04	1.07	yes	no	0.905
32 IS	13C-OCDD	41:43	5.518e+04	6.068e+04	0.91	yes	no	0.692
33S/RT	13C-1,2,3,4-TCDD	27:43	2.752e+04	3.498e+04	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:36	4.827e+04	3.793e+04	1.27	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:23	6.392e+03				no	0.960

$$\text{OCDD} = \frac{(3.321e+04 + 3.721e+04) \times (200.0)}{(5.518e+04 + 6.068e+04)} \times 1.181 \times 1.000 = \text{pg}$$

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

ALS Form TO9resp.frm



ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS3

Method M23

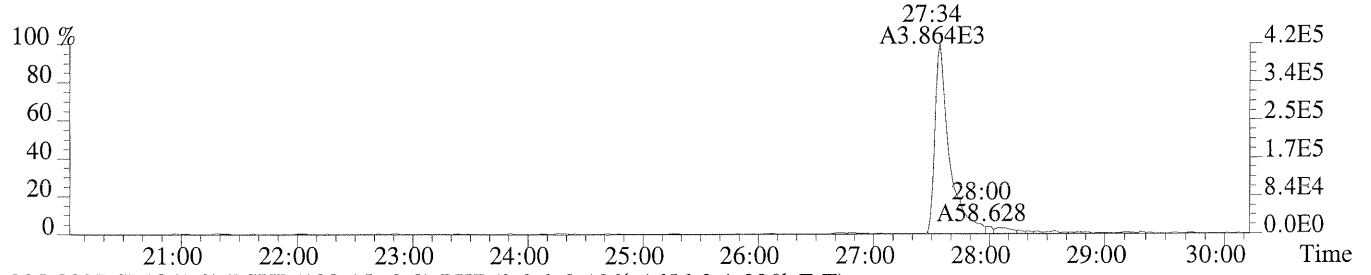
Run #4    Filename P230458    #1    Samp: 1    Inj: 1    Acquired: 11-AUG-14 20:55:34  
Processed: 13-AUG-14 13:53:39    LAB. ID: 63383

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.21e+05	3.12e+02	1.3e+03	5.60e+05	1.66e+03	3.4e+02
2	1,2,3,7,8-PeCDF	4.47e+06	6.80e+02	6.6e+03	2.92e+06	1.52e+03	1.9e+03
3	2,3,4,7,8-PeCDF	4.84e+06	6.80e+02	7.1e+03	3.10e+06	1.52e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	5.52e+06	9.92e+02	5.6e+03	4.30e+06	6.52e+02	6.6e+03
5	1,2,3,6,7,8-HxCDF	5.58e+06	9.92e+02	5.6e+03	4.56e+06	6.52e+02	7.0e+03
6	2,3,4,6,7,8-HxCDF	5.53e+06	9.92e+02	5.6e+03	4.41e+06	6.52e+02	6.8e+03
7	1,2,3,7,8,9-HxCDF	3.94e+06	9.92e+02	4.0e+03	3.13e+06	6.52e+02	4.8e+03
8	1,2,3,4,6,7,8-HpCDF	4.83e+06	1.31e+04	3.7e+02	4.62e+06	8.94e+03	5.2e+02
9	1,2,3,4,7,8,9-HpCDF	3.11e+06	1.31e+04	2.4e+02	2.96e+06	8.94e+03	3.3e+02
10	OCDF	4.82e+06	3.40e+02	1.4e+04	5.38e+06	2.30e+03	2.3e+03
11	2,3,7,8-TCDD	3.43e+05	1.28e+03	2.7e+02	4.38e+05	5.80e+02	7.6e+02
12	1,2,3,7,8-PeCDD	3.07e+06	1.01e+03	3.0e+03	1.94e+06	2.80e+02	6.9e+03
13	1,2,3,4,7,8-HxCDD	4.03e+06	4.12e+02	9.8e+03	3.04e+06	6.76e+02	4.5e+03
14	1,2,3,6,7,8-HxCDD	4.30e+06	4.12e+02	1.0e+04	3.30e+06	6.76e+02	4.9e+03
15	1,2,3,7,8,9-HxCDD	3.89e+06	4.12e+02	9.5e+03	3.04e+06	6.76e+02	4.5e+03
16	1,2,3,4,6,7,8-HpCDD	3.39e+06	1.02e+03	3.3e+03	3.13e+06	8.92e+02	3.5e+03
17	OCDD	4.25e+06	3.12e+02	1.4e+04	4.79e+06	7.44e+02	6.4e+03
18	13C-2,3,7,8-TCDF	4.38e+06	1.65e+03	2.7e+03	5.40e+06	1.58e+03	3.4e+03
19	13C-1,2,3,7,8-PeCDF	8.49e+06	2.78e+03	3.1e+03	5.22e+06	1.59e+03	3.3e+03
20	13C-2,3,4,7,8-PeCDF	9.80e+06	2.78e+03	3.5e+03	6.17e+06	1.59e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	5.41e+06	8.60e+02	6.3e+03	1.03e+07	3.32e+03	3.1e+03
22	13C-1,2,3,6,7,8-HxCDF	6.25e+06	8.60e+02	7.3e+03	1.17e+07	3.32e+03	3.5e+03
24	13C-1,2,3,7,8,9-HxCDF	4.17e+06	8.60e+02	4.8e+03	7.96e+06	3.32e+03	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.13e+06	6.83e+03	6.1e+02	9.19e+06	7.63e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.92e+06	6.83e+03	4.3e+02	6.40e+06	7.63e+03	8.4e+02
27	13C-2,3,7,8-TCDD	3.31e+06	4.31e+03	7.7e+02	4.22e+06	2.22e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	6.28e+06	8.52e+02	7.4e+03	3.92e+06	5.44e+02	7.2e+03
29	13C-1,2,3,4,7,8-HxCDD	7.11e+06	1.34e+03	5.3e+03	5.59e+06	5.76e+02	9.7e+03
30	13C-1,2,3,6,7,8-HxCDD	7.47e+06	1.34e+03	5.6e+03	5.85e+06	5.76e+02	1.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.03e+06	2.82e+03	2.1e+03	5.69e+06	9.24e+02	6.2e+03
32	13C-OCDD	7.22e+06	2.96e+02	2.4e+04	7.91e+06	6.68e+02	1.2e+04
33	13C-1,2,3,4-TCDD	4.08e+06	4.31e+03	9.5e+02	5.19e+06	2.22e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	7.22e+06	1.34e+03	5.4e+03	5.70e+06	5.76e+02	9.9e+03
35	37Cl-2,3,7,8-TCDD	7.95e+05	1.11e+03	7.2e+02			

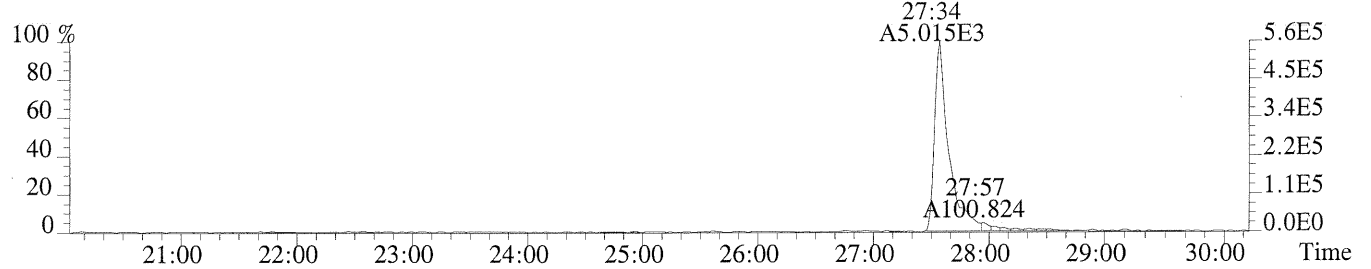
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

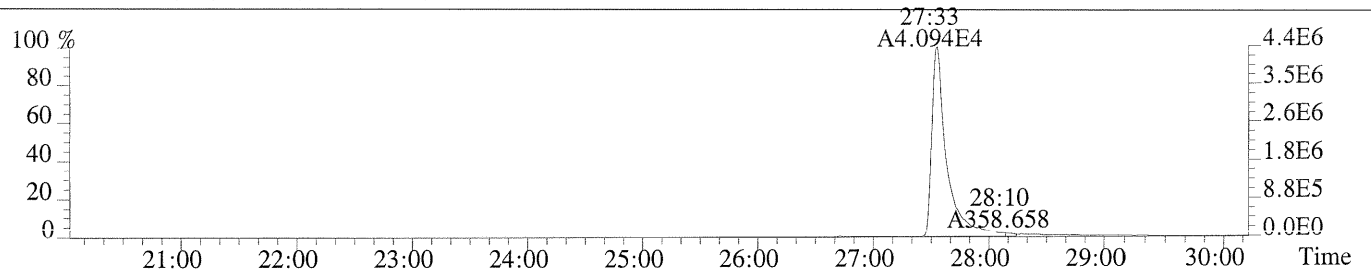
File:P230458 #1-640 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



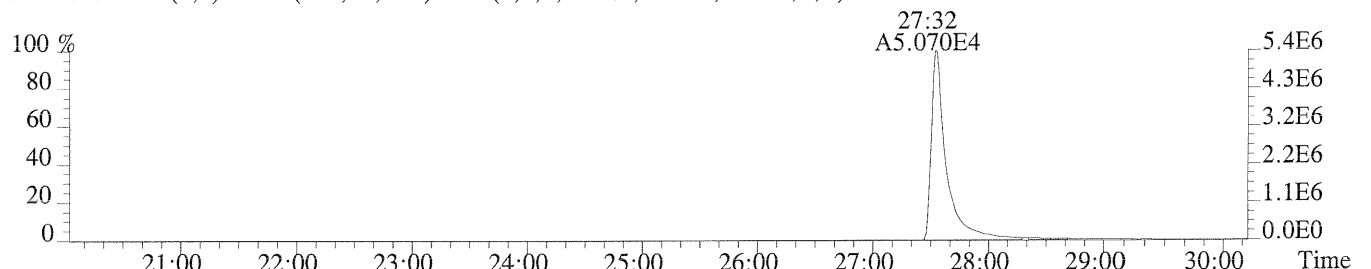
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



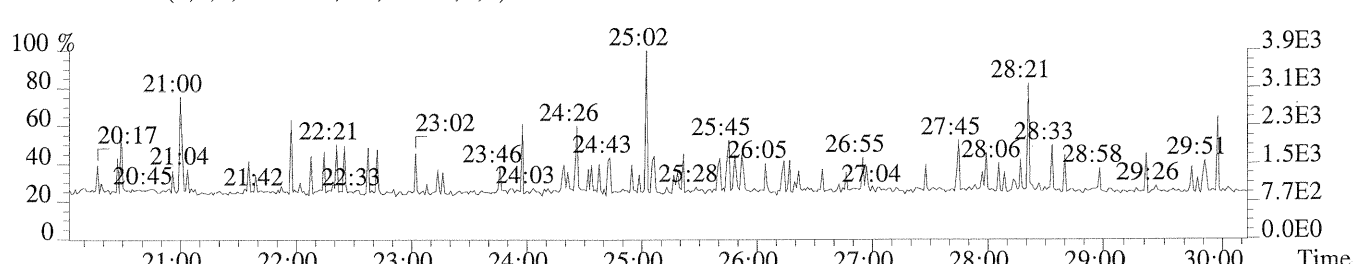
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



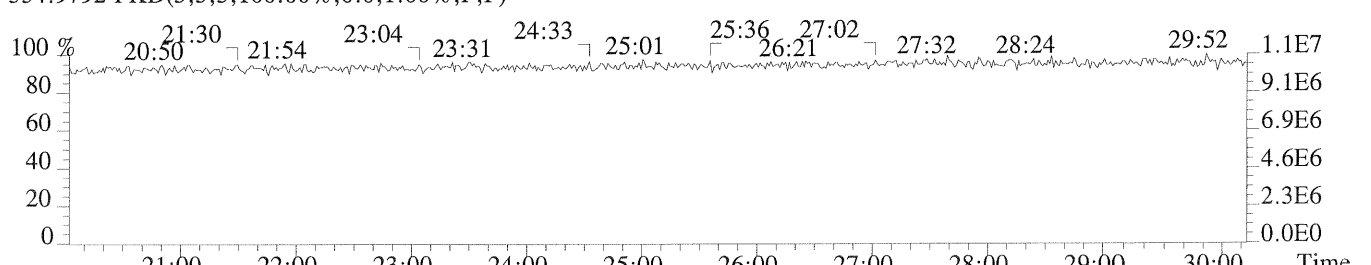
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1584.0,1.00%,F,T)



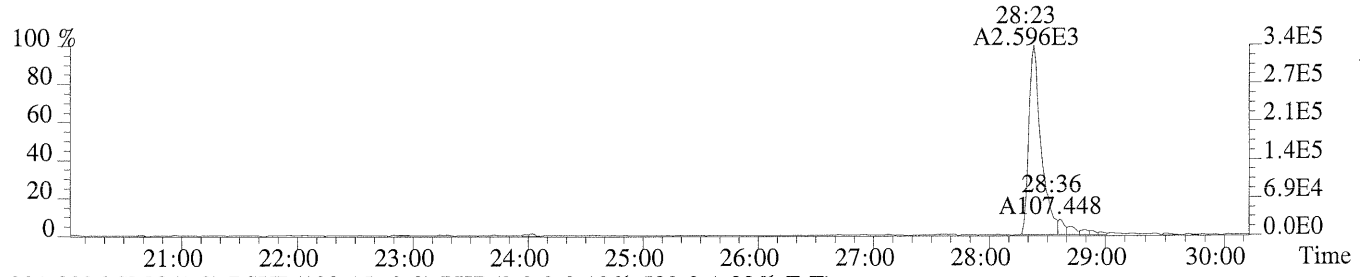
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



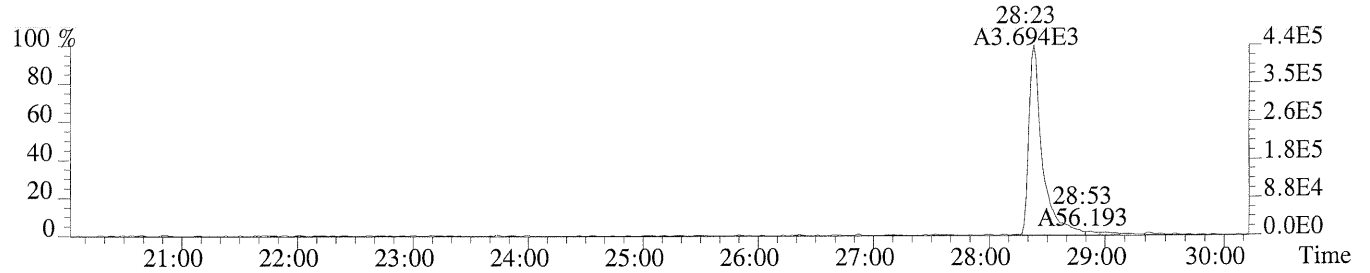
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



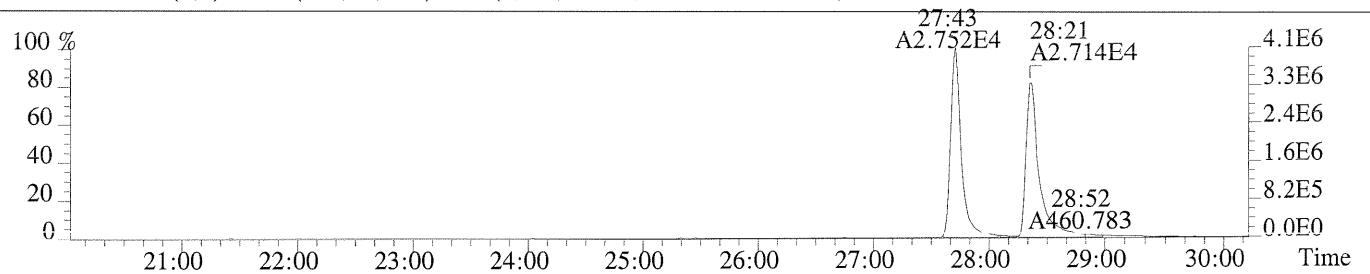
File:P230458 #1-640 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



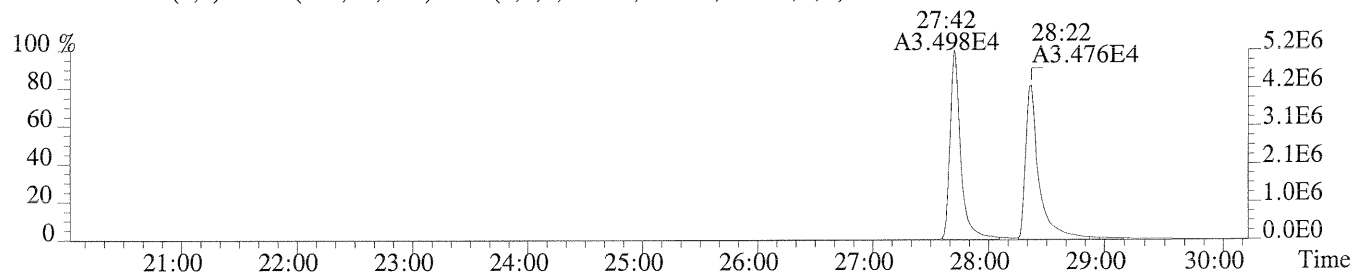
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



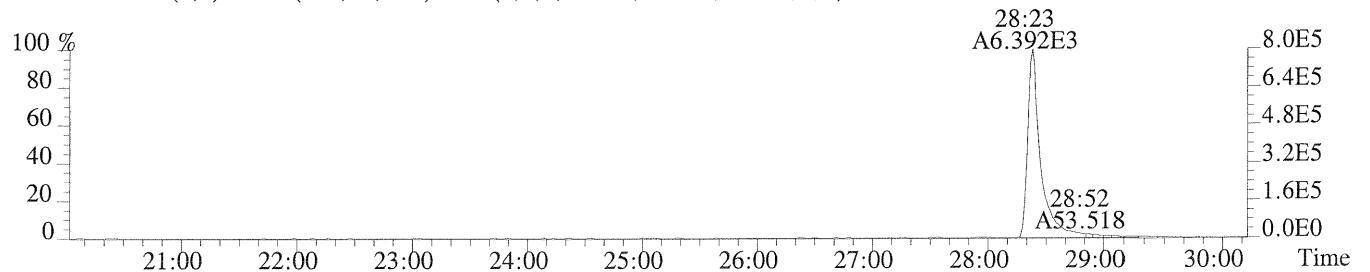
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4312.0,1.00%,F,T)



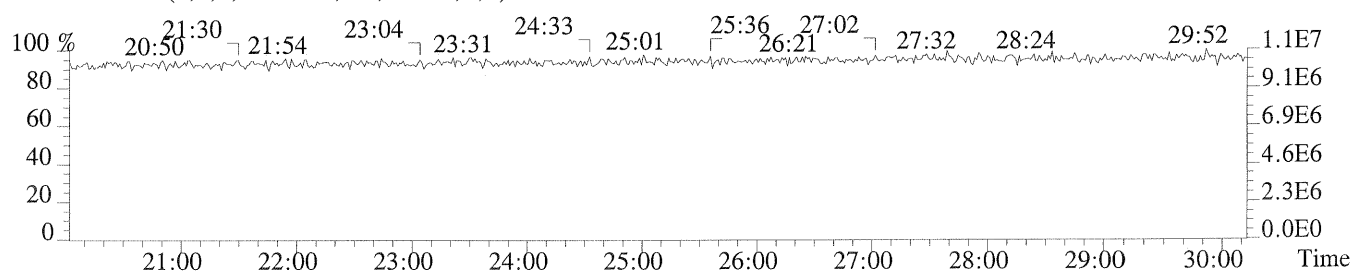
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



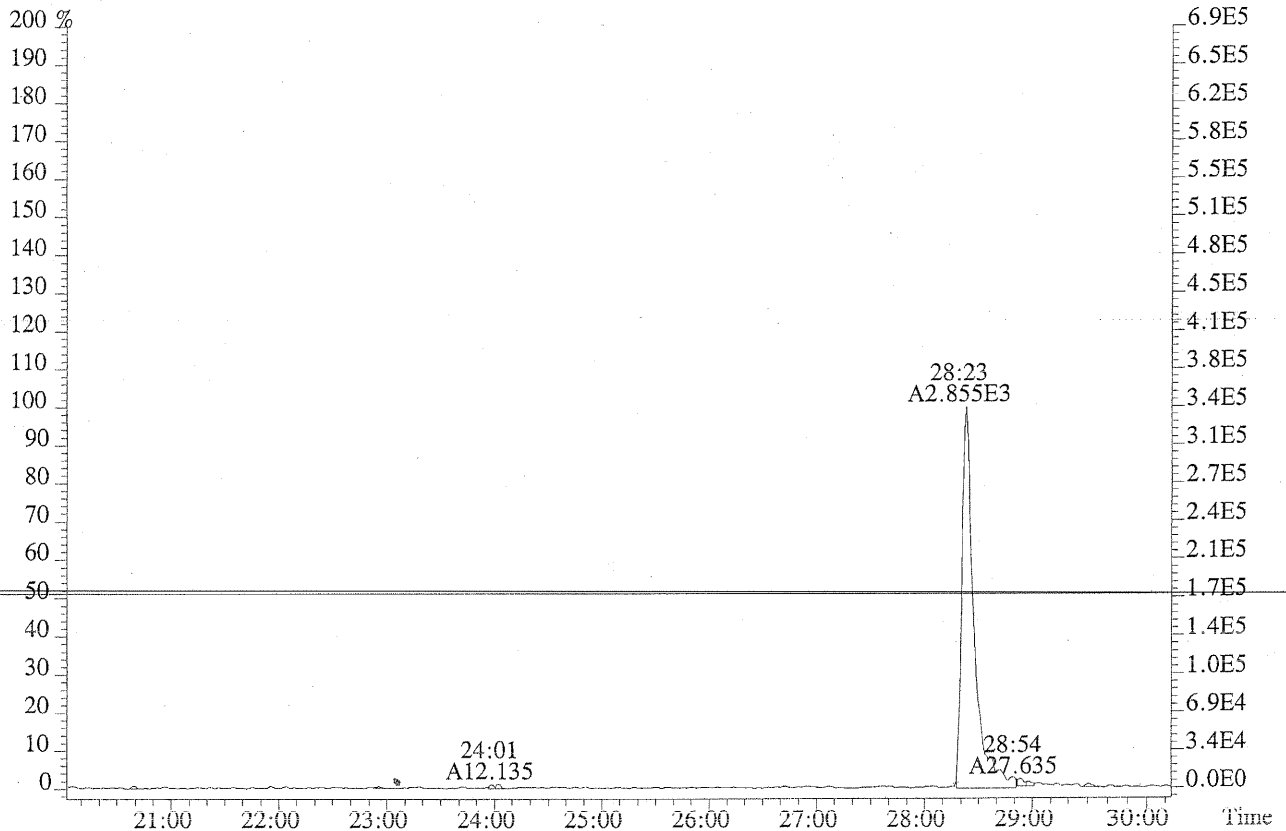
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



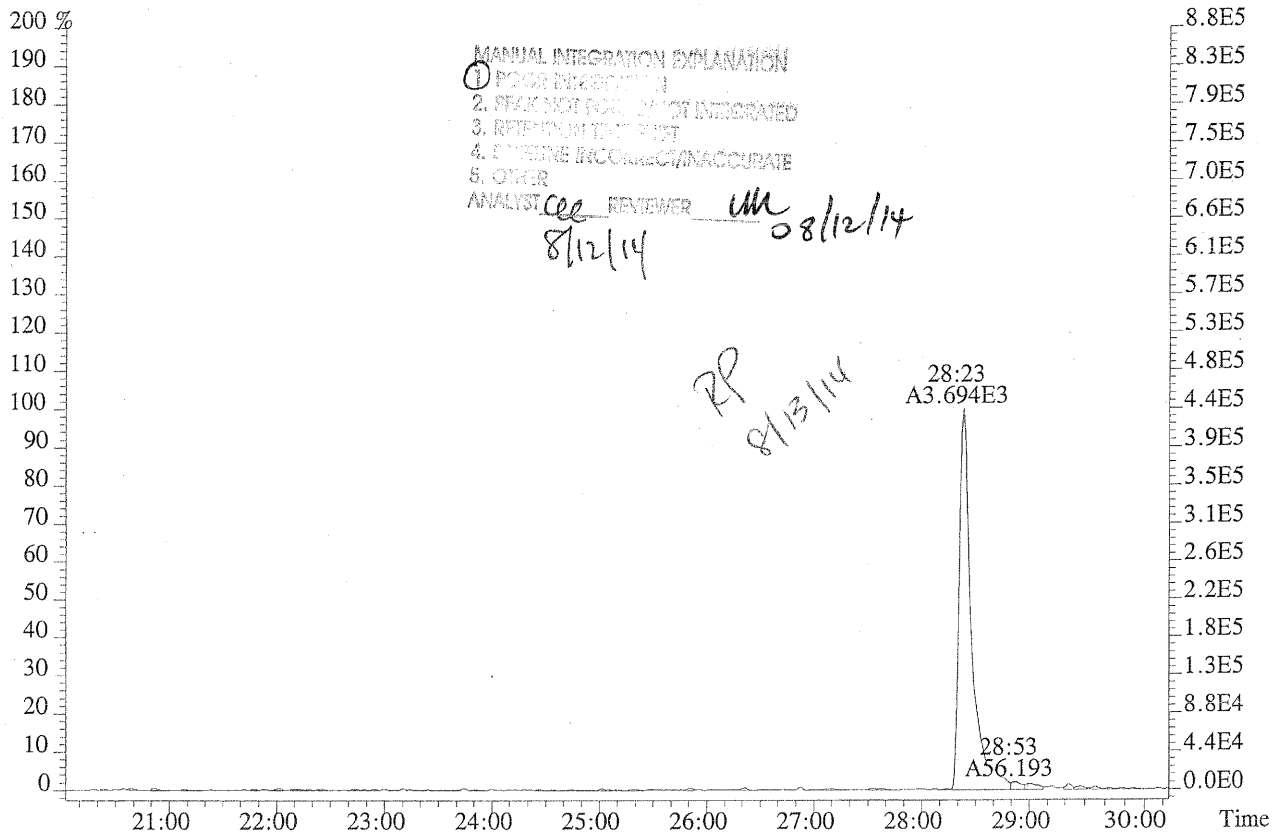
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



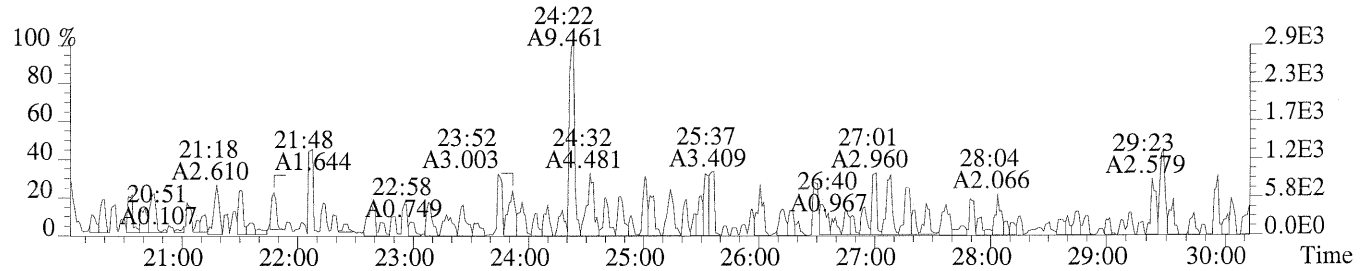
File: P230458 #1-640 Acq: 11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass sf  
 Sample#1 Exp: ICAL CS3  
 319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



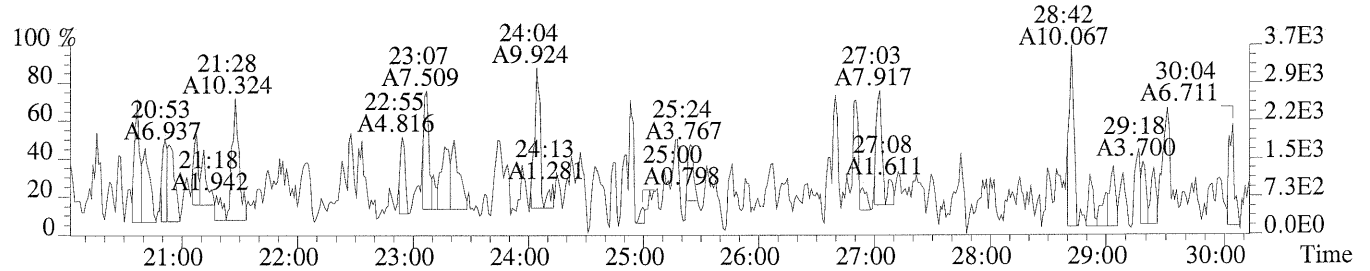
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



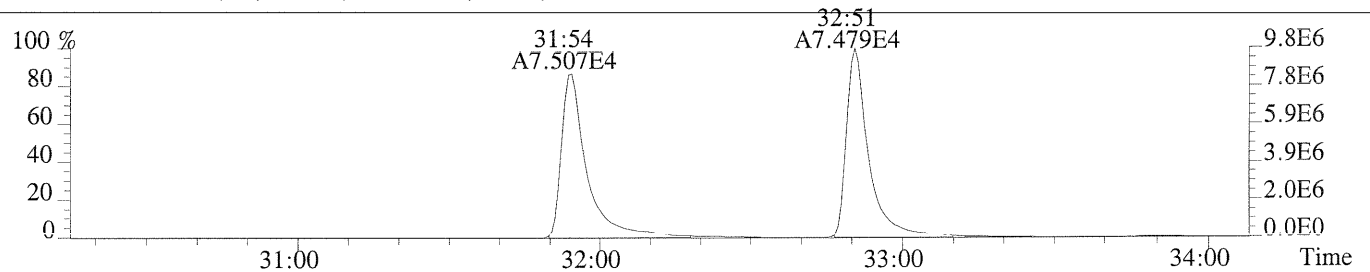
File:P230458 #1-640 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,120.0,1.00%,F,T)



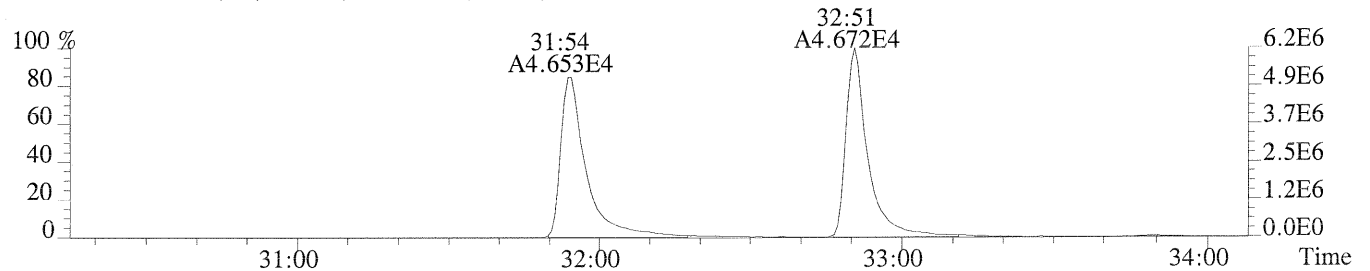
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



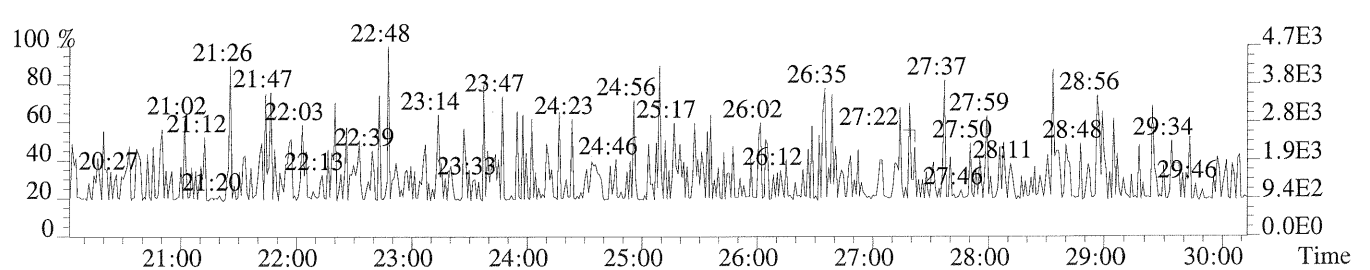
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2776.0,1.00%,F,T)



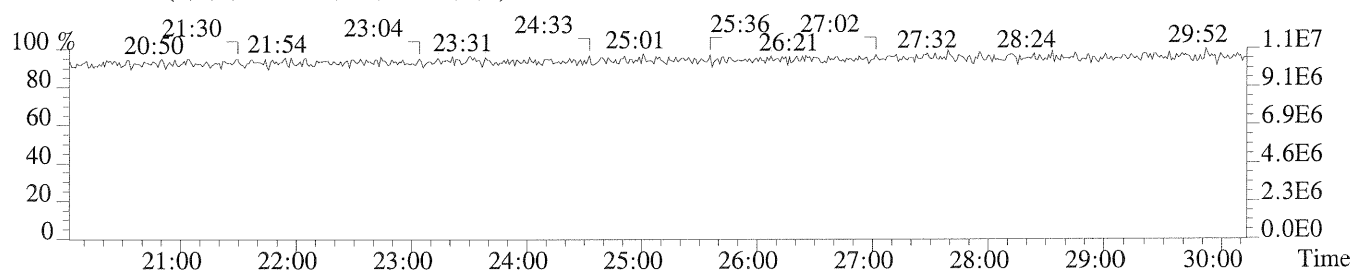
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)

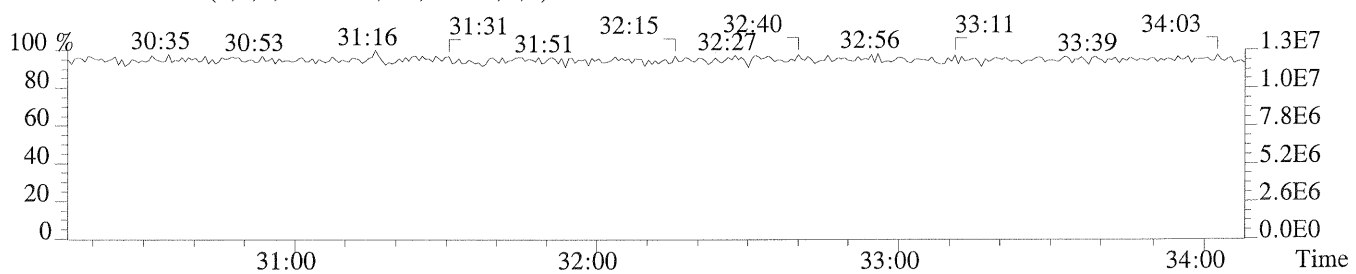
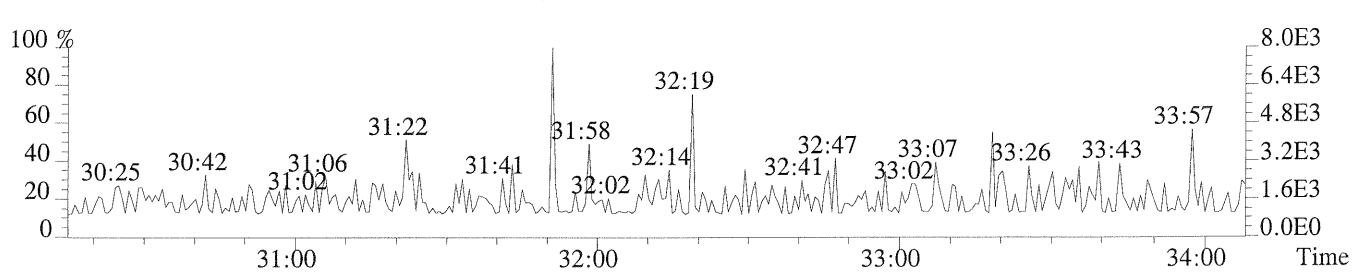
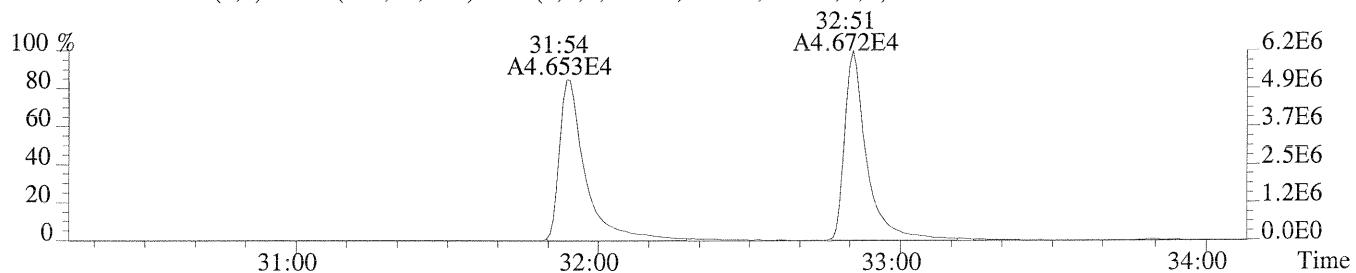
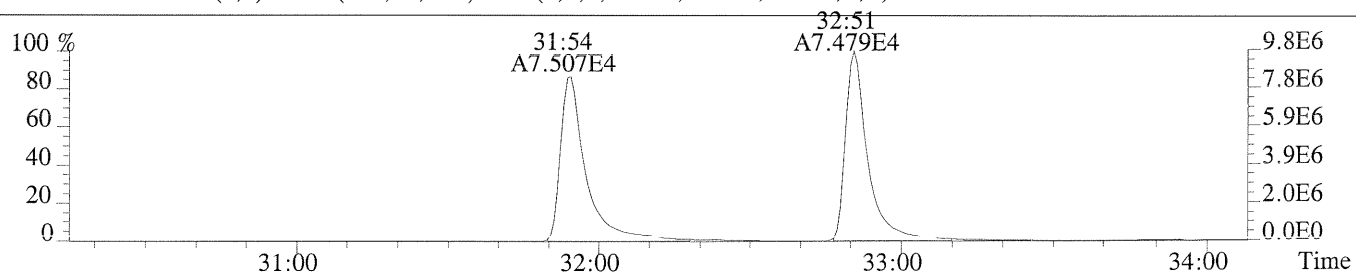
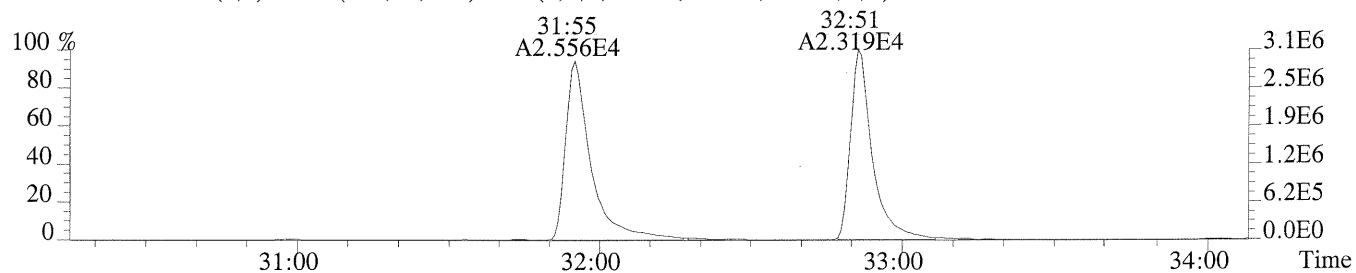
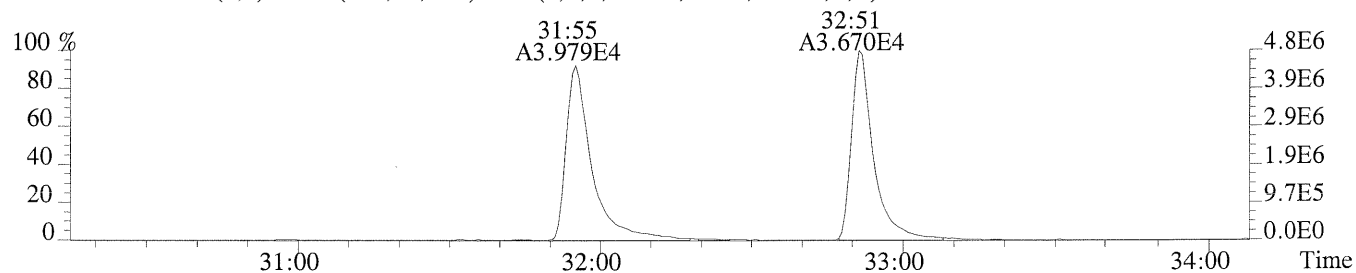


409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

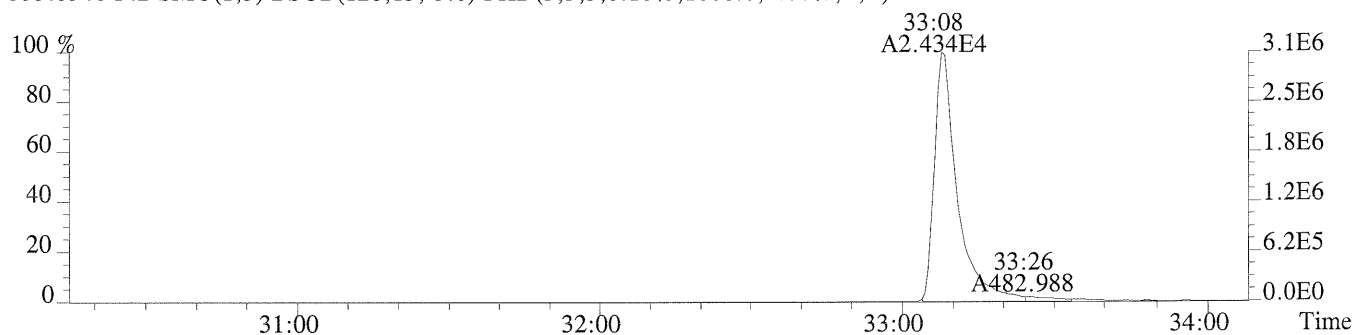


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

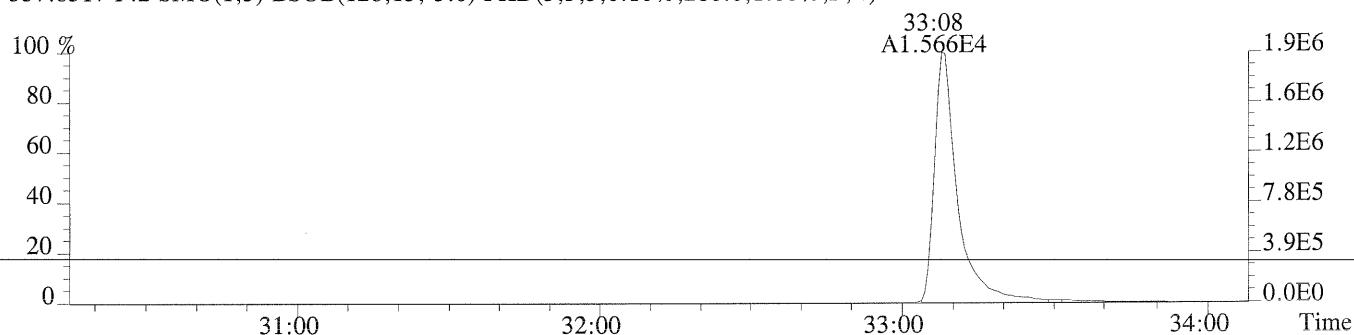




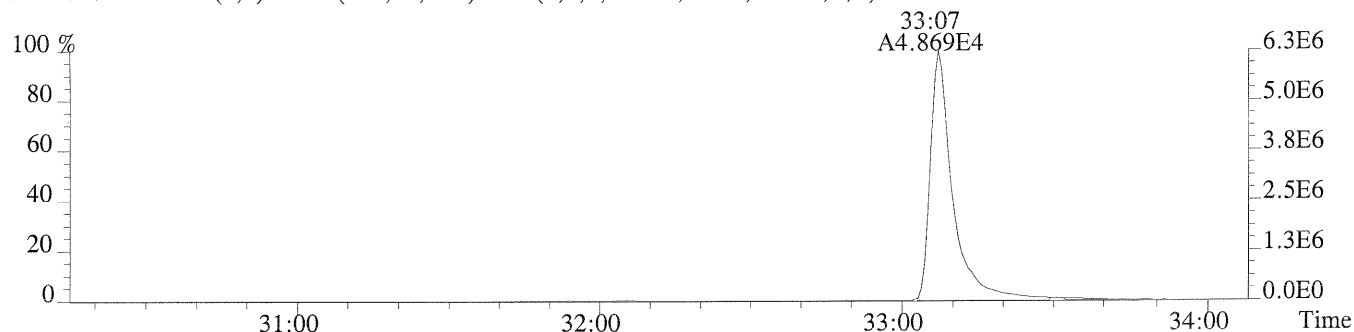
File:P230458 #1-353 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



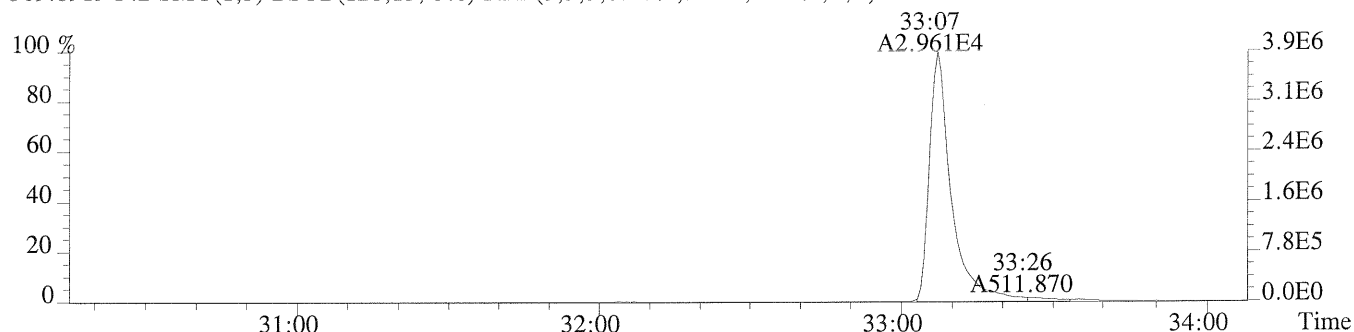
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,280.0,1.00%,F,T)



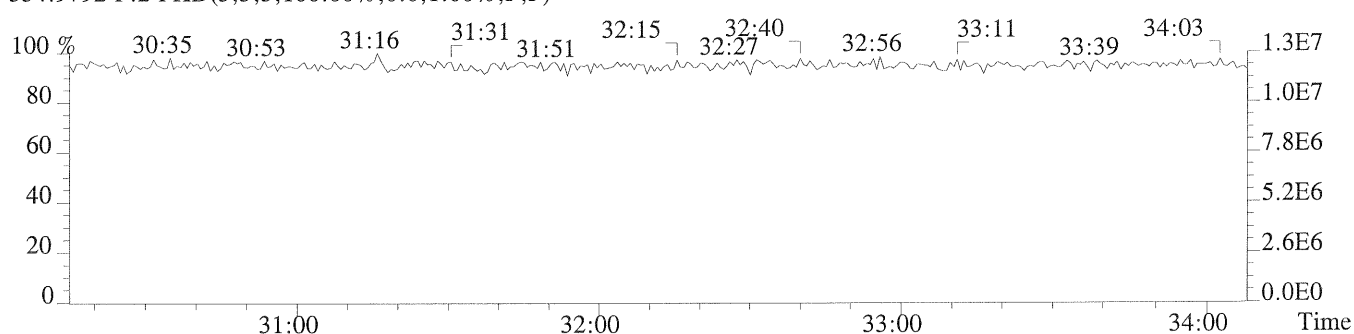
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



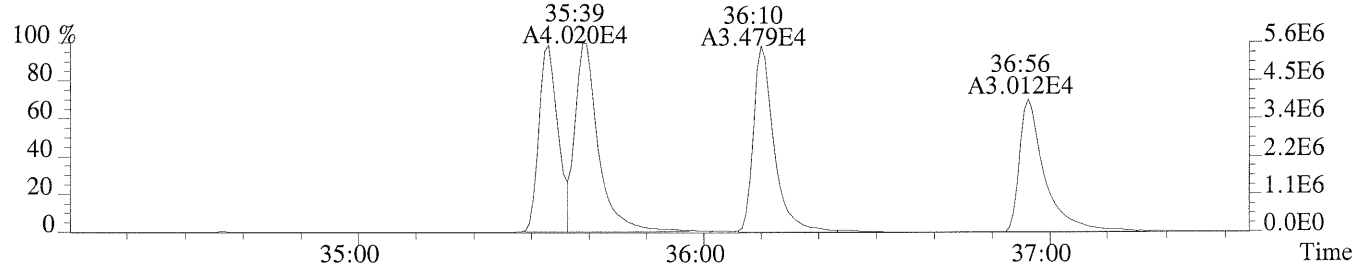
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



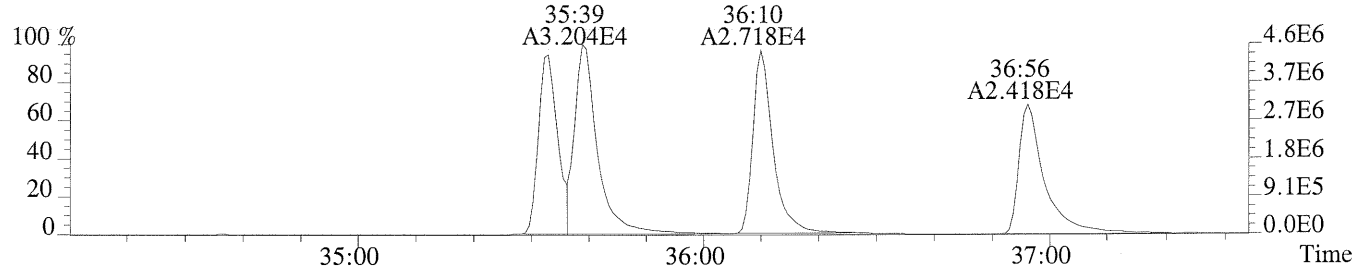
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



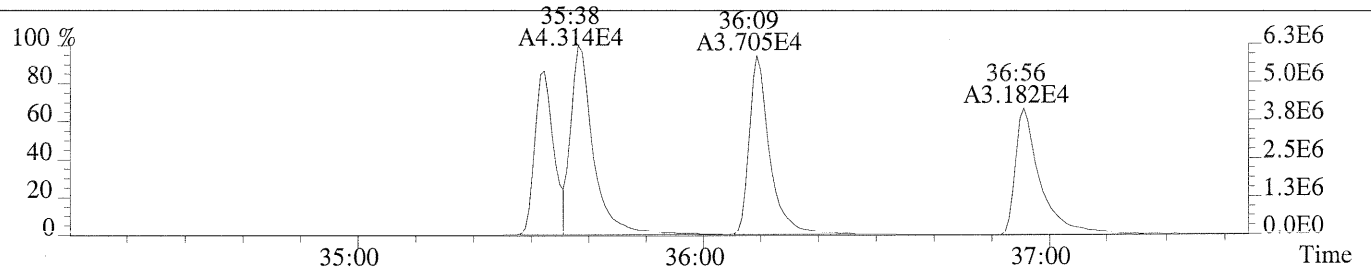
File:P230458 #1-309 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



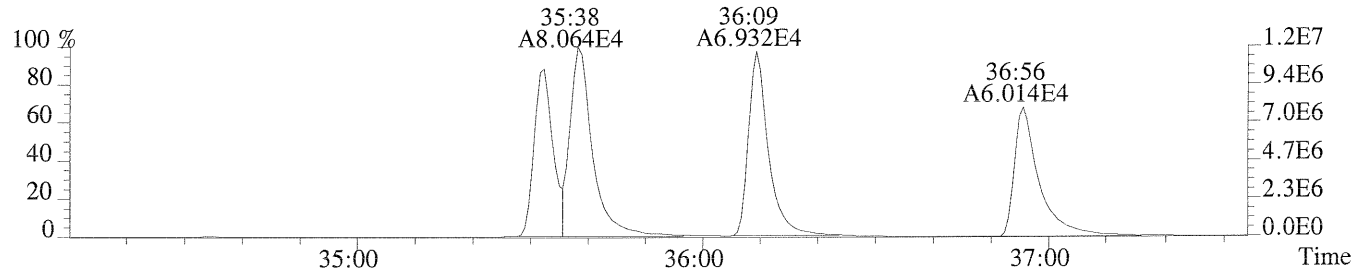
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



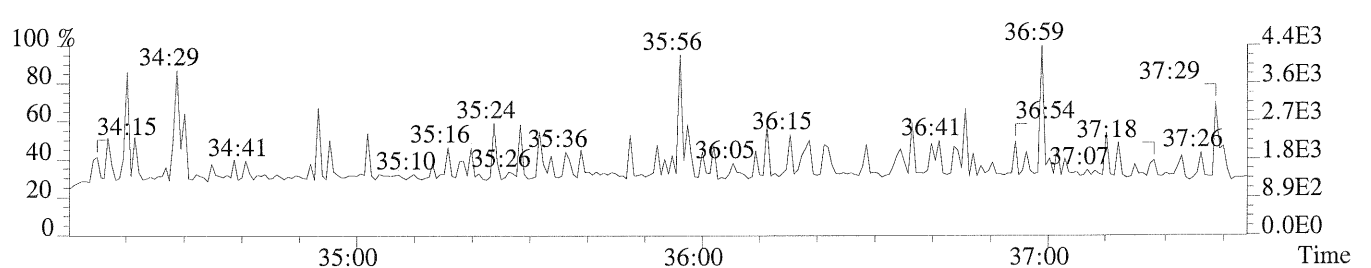
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



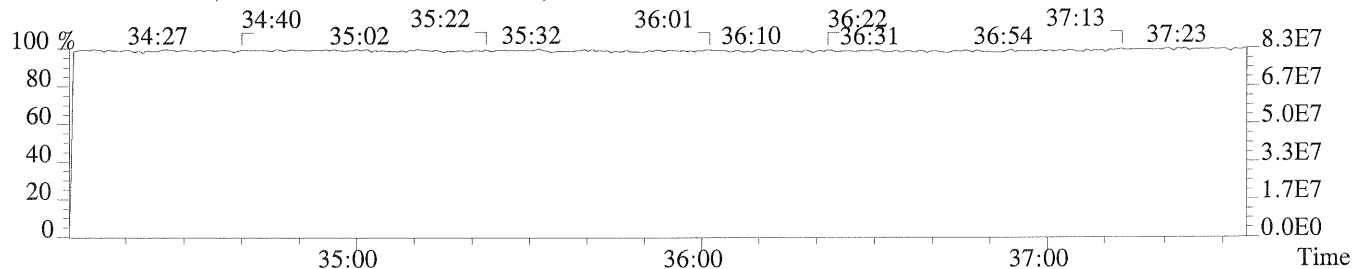
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3320.0,0.40%,F,T)



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



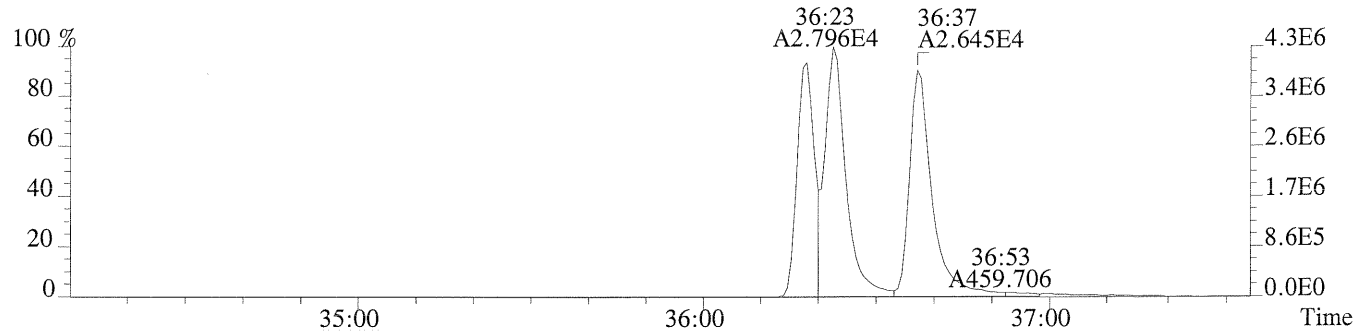
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



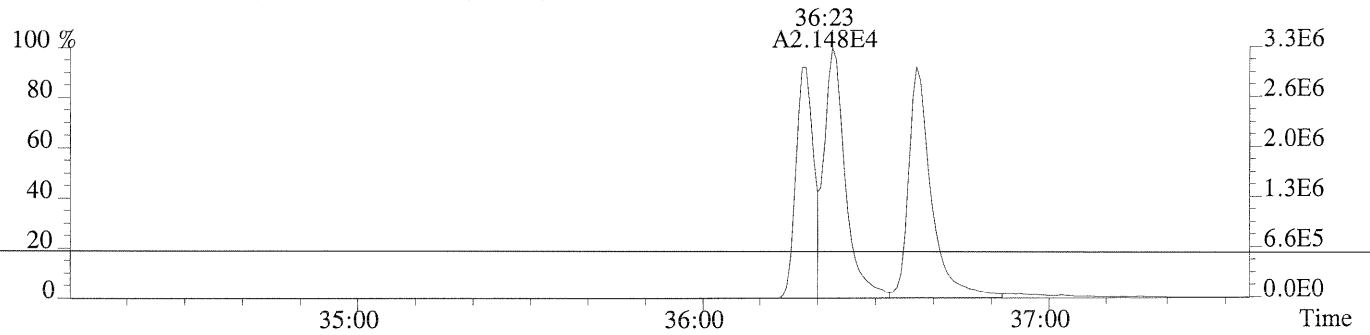


Sample#1 Exp:ICAL CS3

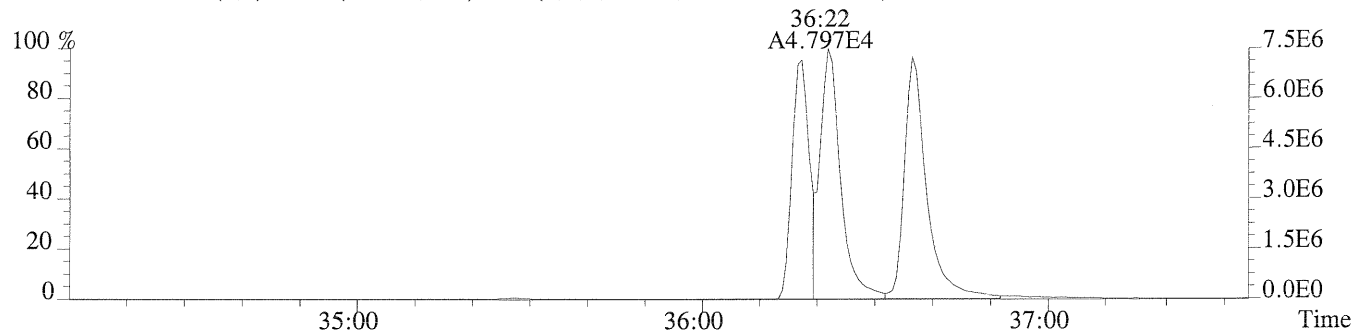
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)



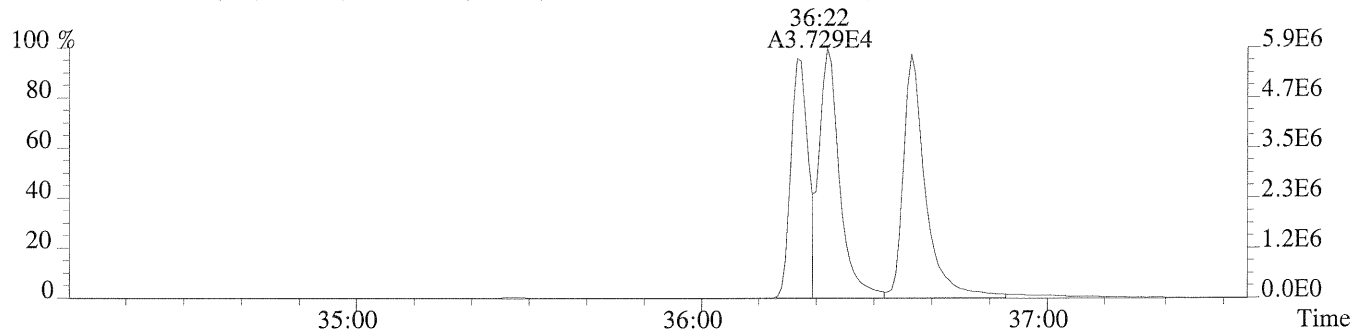
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



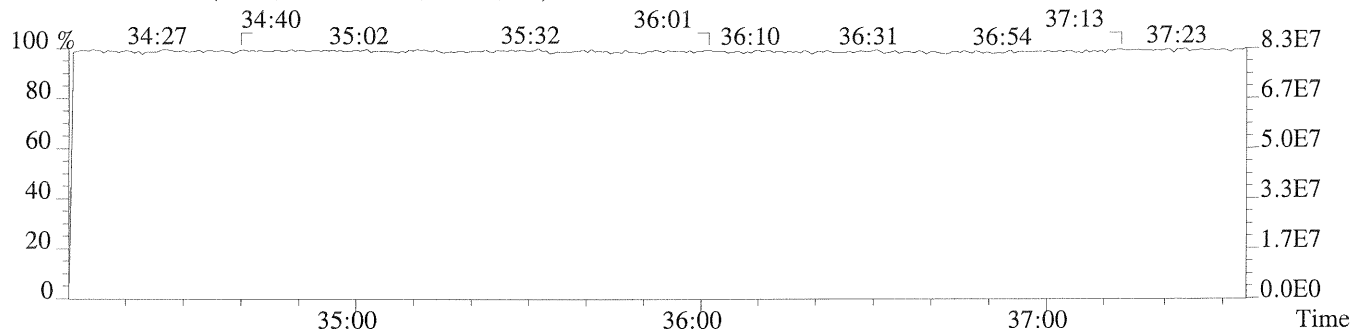
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1344.0,0.40%,F,T)



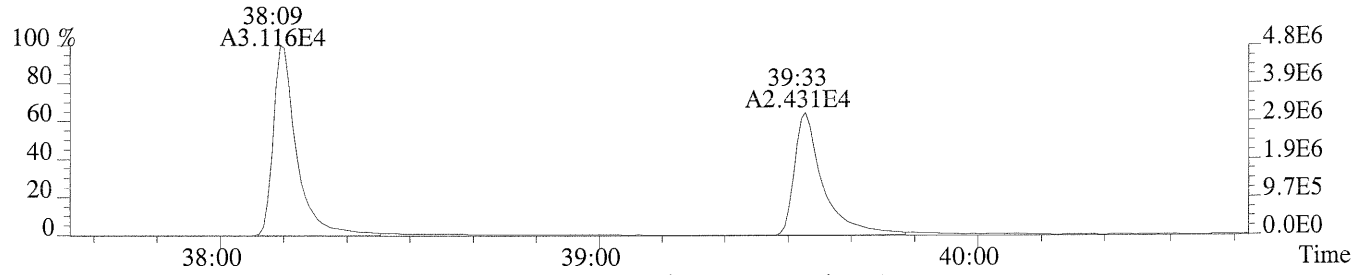
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



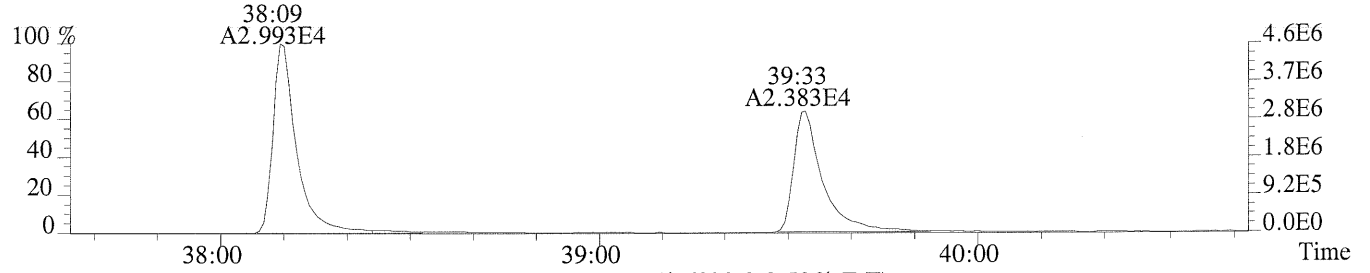
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



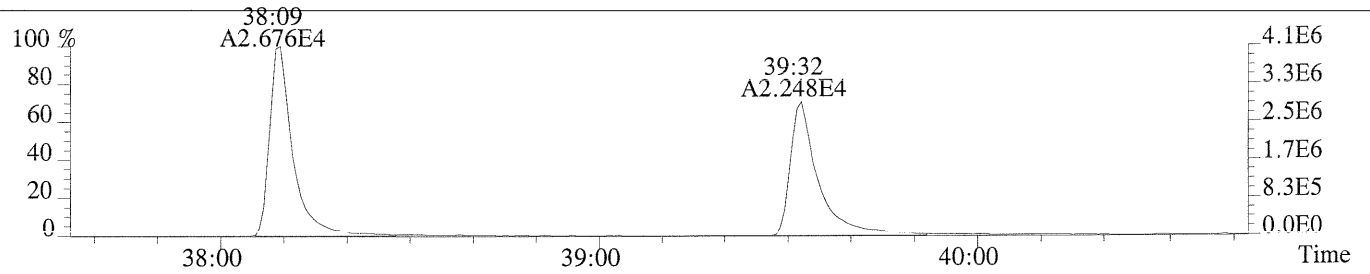
File:P230458 #1-282 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13120.0,0.50%,F,T)



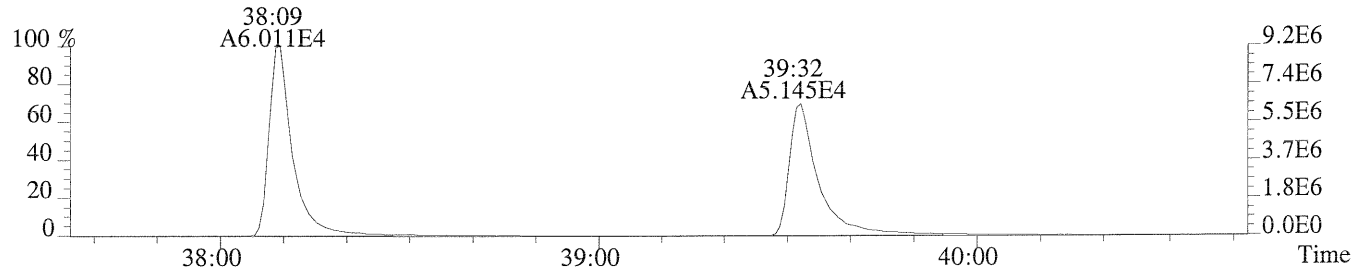
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8944.0,0.50%,F,T)



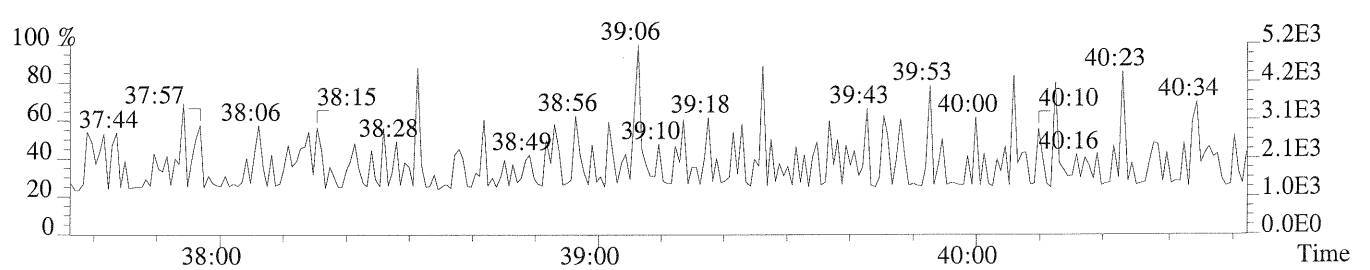
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6832.0,0.50%,F,T)



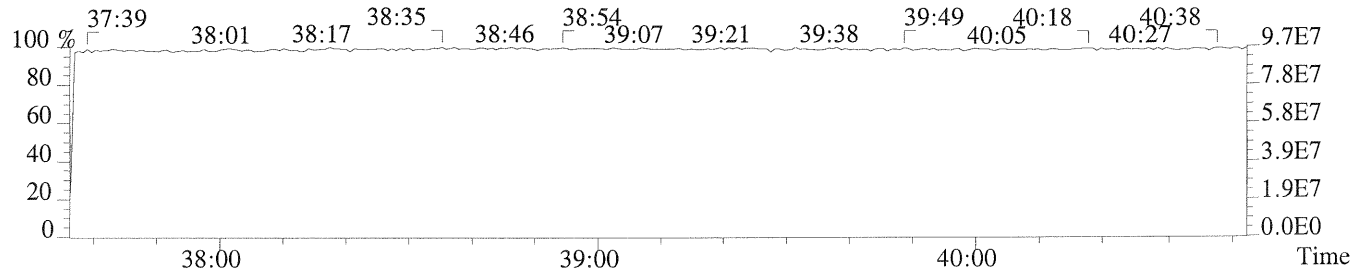
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7628.0,0.50%,F,T)



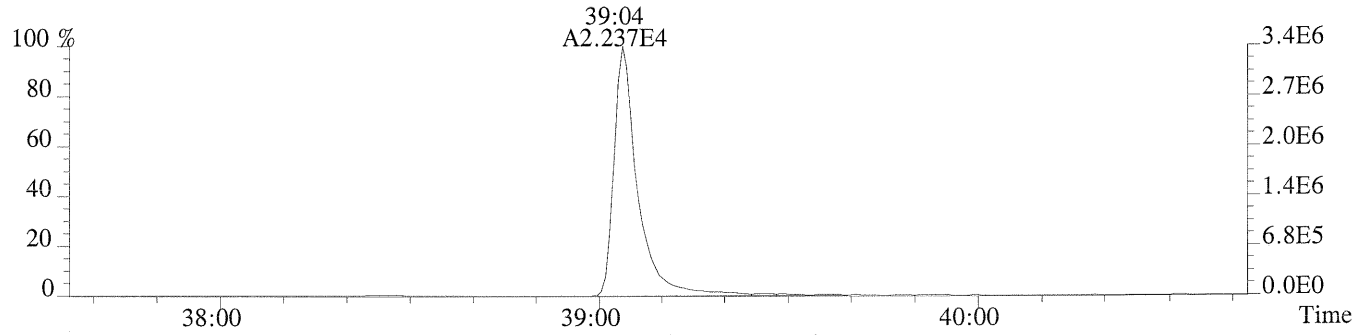
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



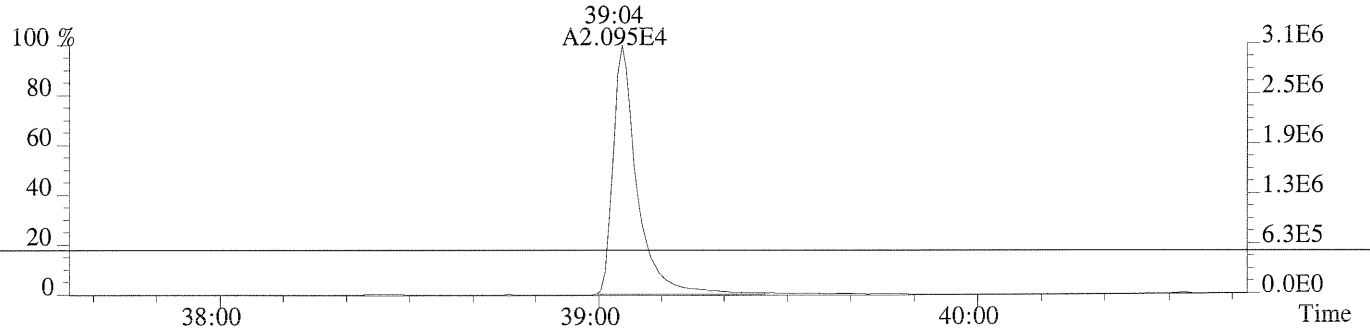
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



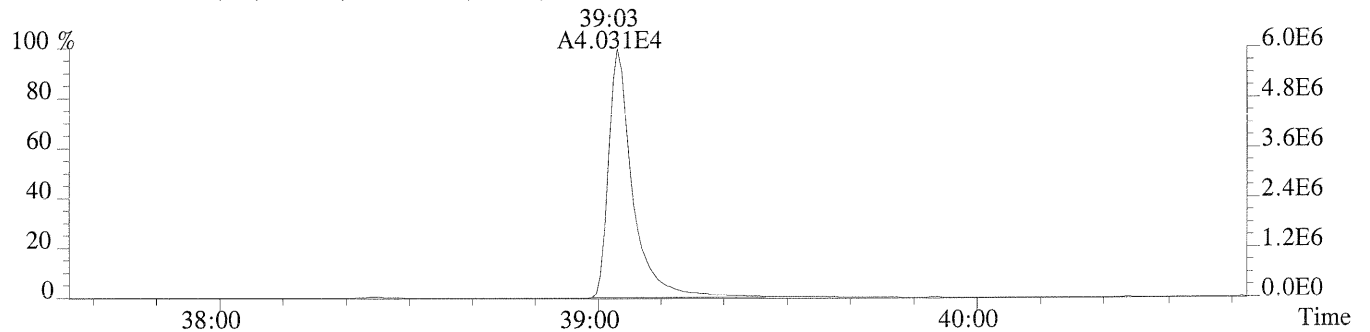
File:P230458 #1-282 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



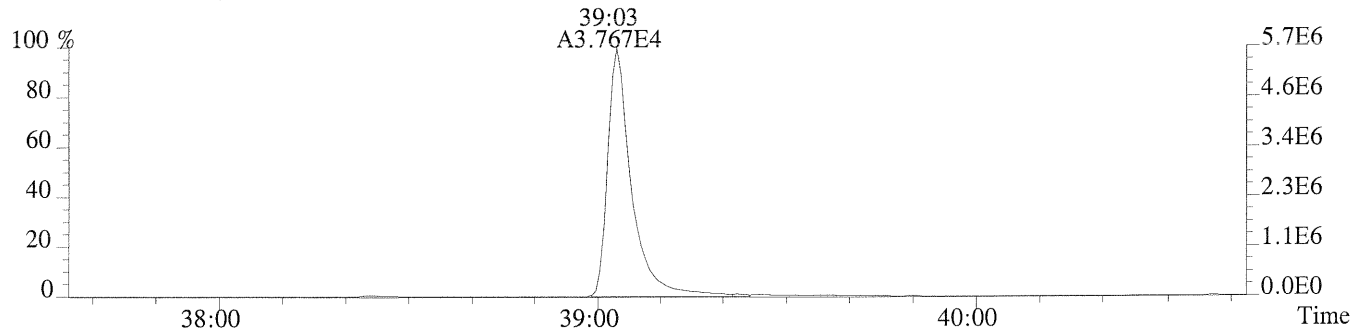
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



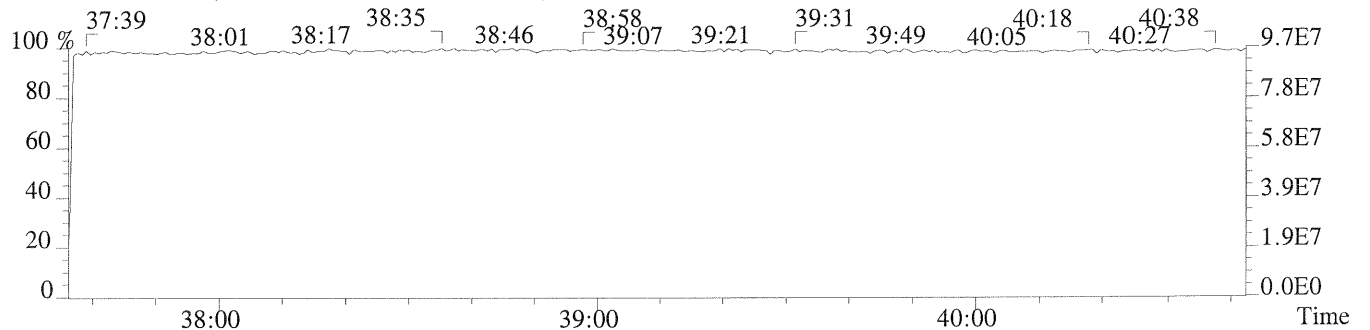
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2824.0,0.40%,F,T)



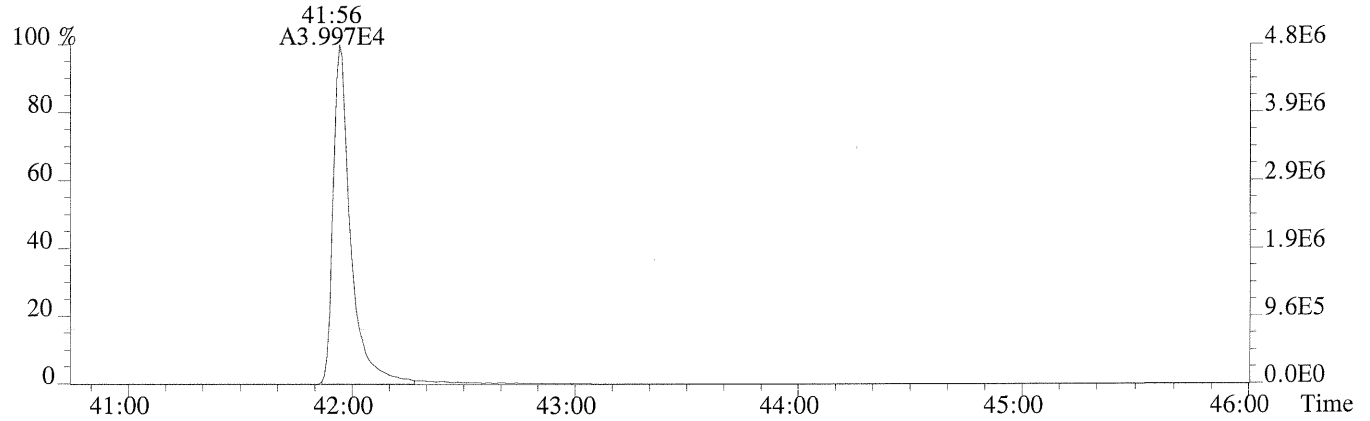
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



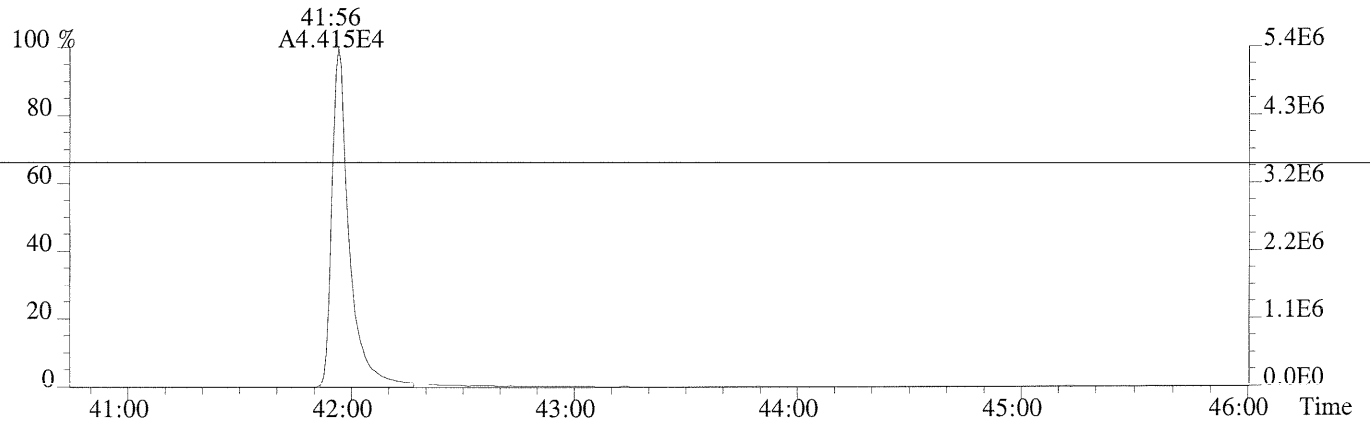
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



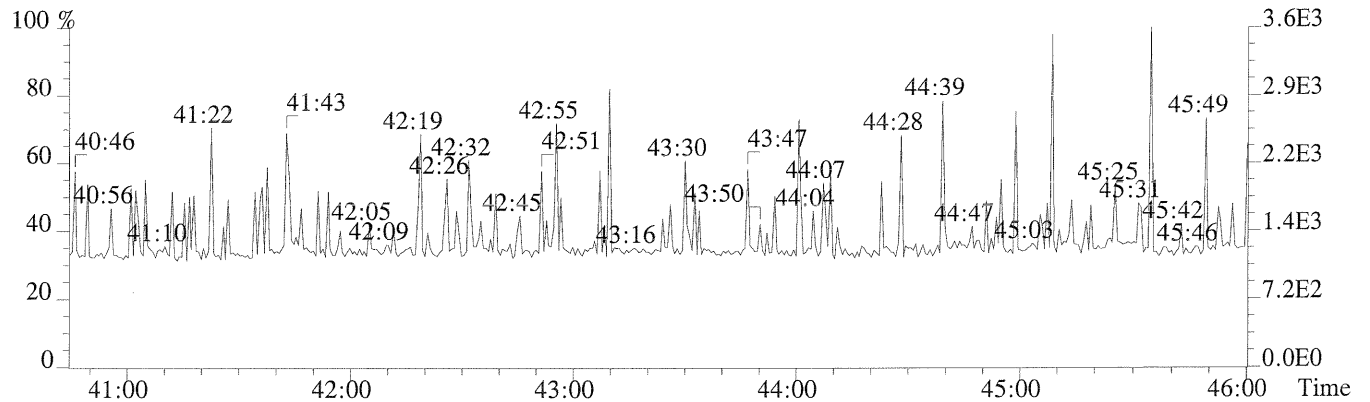
File:P230458 #1-484 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



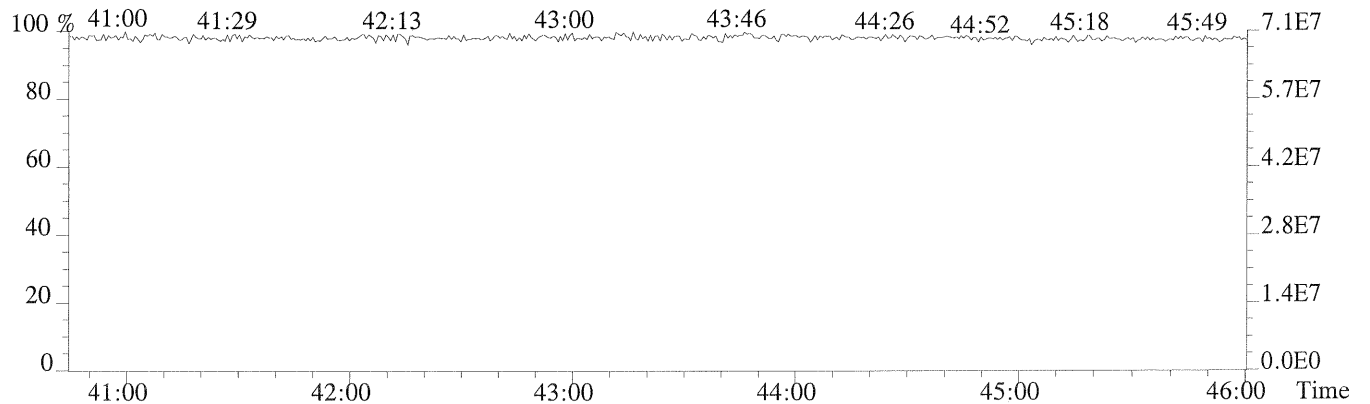
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2304.0,0.40%,F,T)



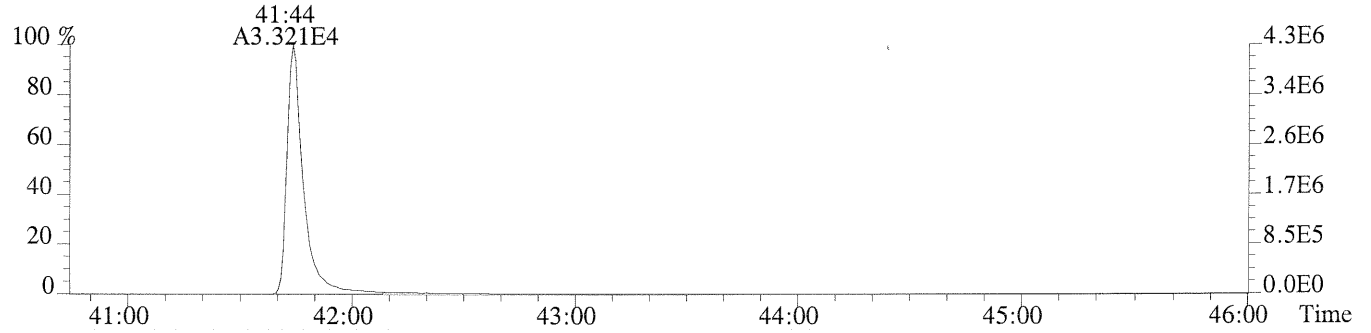
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



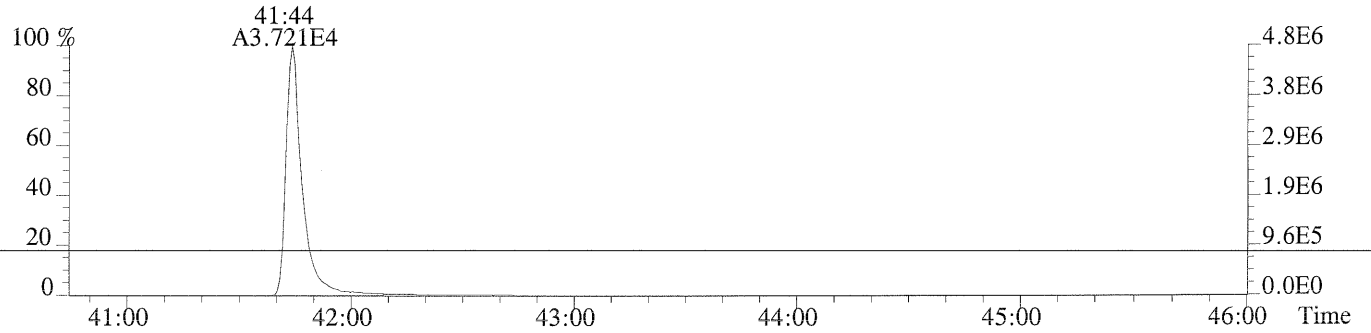
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



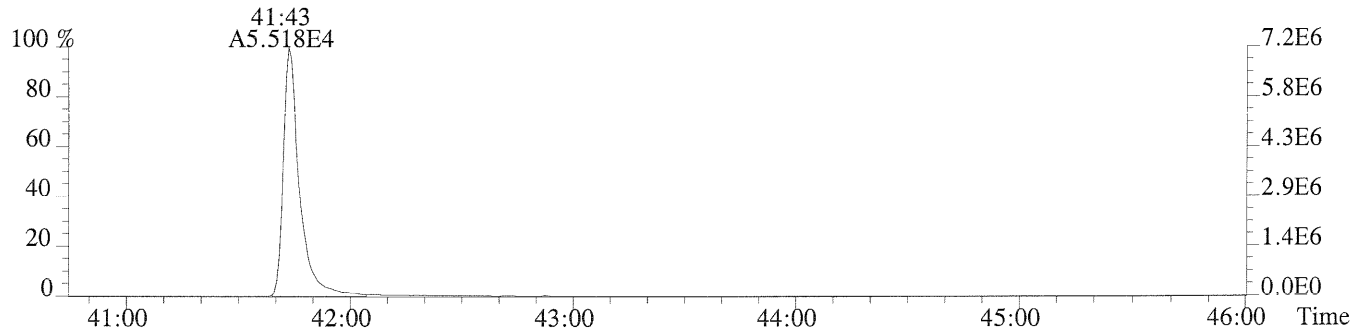
File:P230458 #1-484 Acq:11-AUG-2014 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS3  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,312.0,0.40%,F,T)



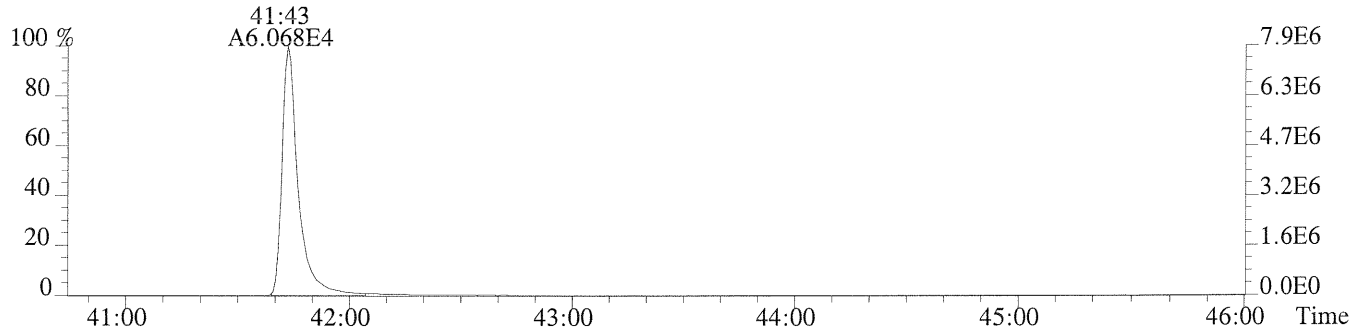
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



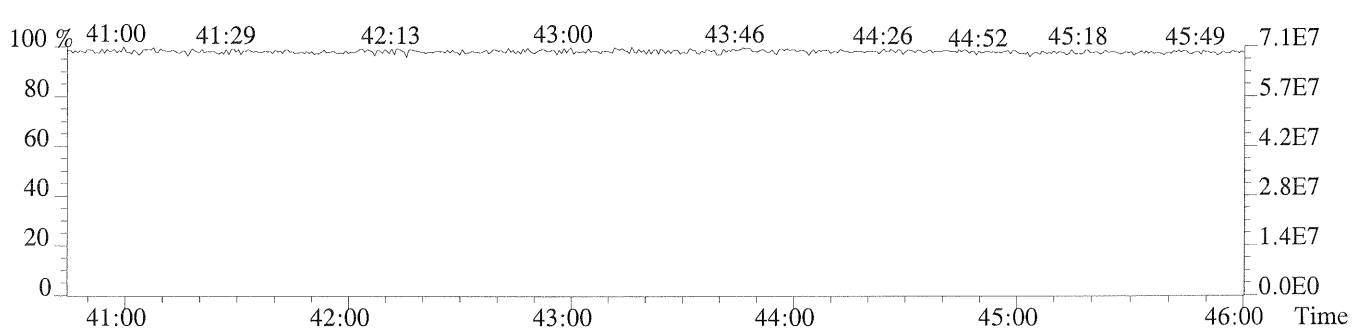
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



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



Sample Response Summary

Run #5 Filename P230459 #1 Samp: 1 Inj: 1 Acquired: 11-AUG-14 21:43:25
Processed: 13-AUG-14 13:53:45 LAB. ID: D12-90-3D

Table with columns: Typ, Name, RT-1, Resp 1, Resp 2, Ratio, Meet, Mod?, RRF. Rows include various chemical compounds like TCDF, PeCDF, HxCDF, HpCDF, TCDD, PeCDD, HxCDD, HpCDD, OCDD, and 13C-labeled compounds.

OCDD = (1.447e+05 + 1.603e+05 x ( 200.0 ) x ( 5.974e+04 + 6.478e+04 ) x 1.181 x 1.000 = pg

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS4

Method M23

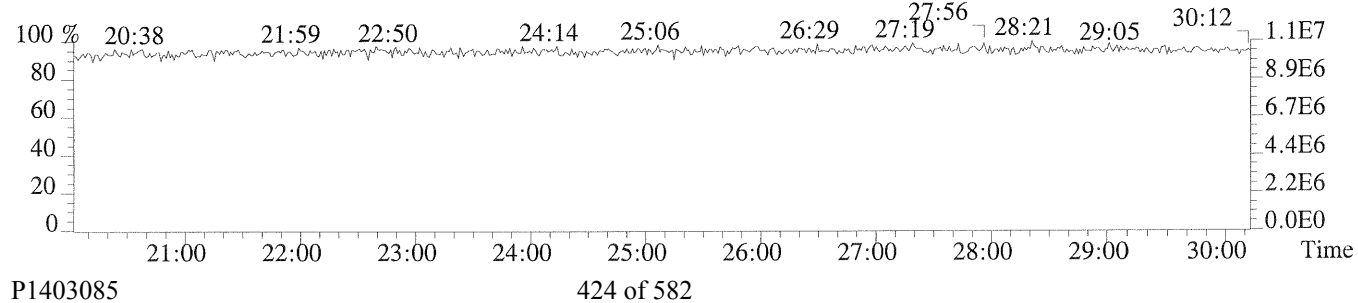
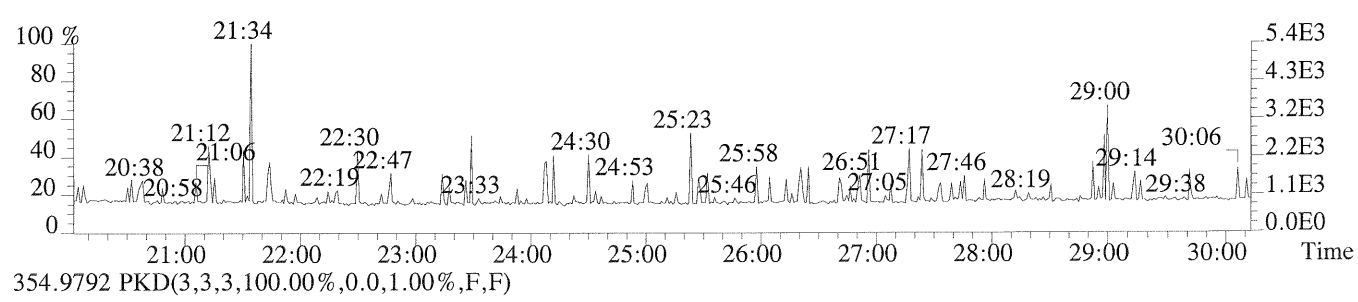
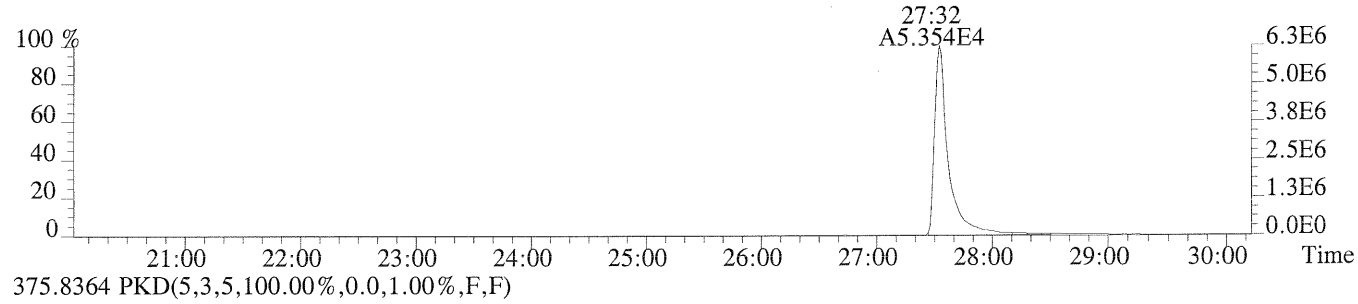
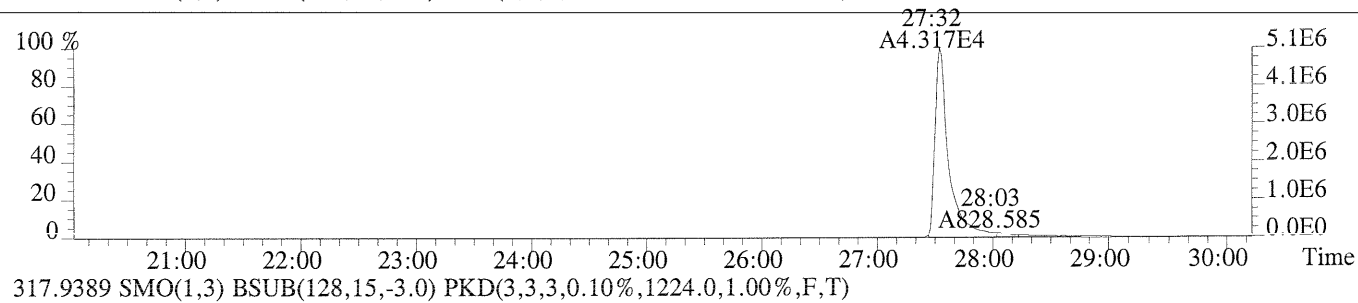
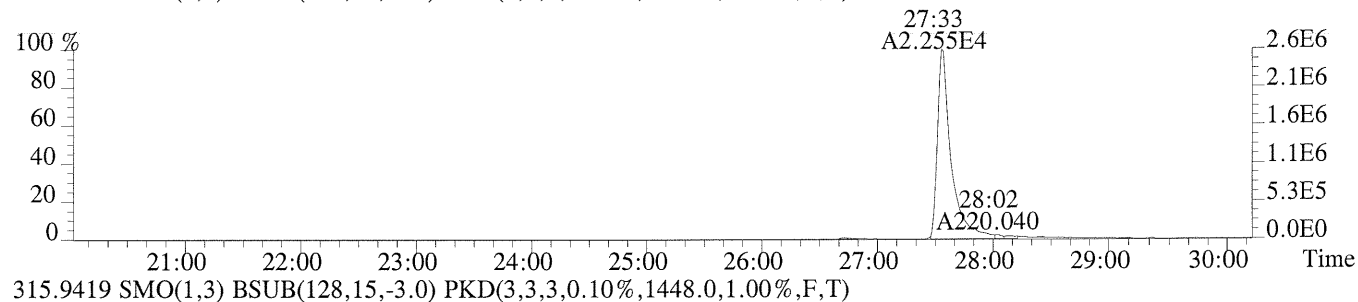
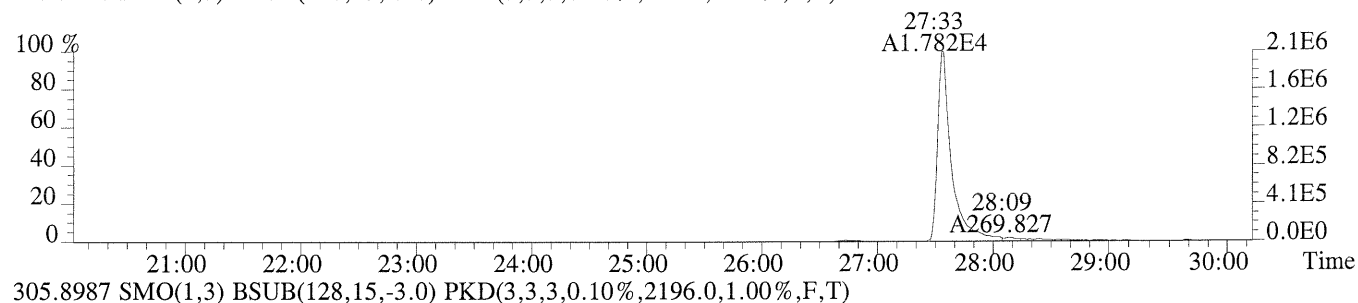
Run #5    Filename P230459    #1    Samp: 1    Inj: 1    Acquired: 11-AUG-14 21:43:25  
Processed: 13-AUG-14 13:53:45    LAB. ID: D12-90-3D

	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	5.64e+02	3.6e+03	2.63e+06	2.20e+03	1.2e+03
2	1,2,3,7,8-PeCDF	2.25e+07	7.48e+02	3.0e+04	1.46e+07	3.42e+03	4.3e+03
3	2,3,4,7,8-PeCDF	2.35e+07	7.48e+02	3.1e+04	1.51e+07	3.42e+03	4.4e+03
4	1,2,3,4,7,8-HxCDF	2.56e+07	1.32e+03	1.9e+04	2.07e+07	1.56e+03	1.3e+04
5	1,2,3,6,7,8-HxCDF	2.70e+07	1.32e+03	2.0e+04	2.14e+07	1.56e+03	1.4e+04
6	2,3,4,6,7,8-HxCDF	2.48e+07	1.32e+03	1.9e+04	1.98e+07	1.56e+03	1.3e+04
7	1,2,3,7,8,9-HxCDF	1.93e+07	1.32e+03	1.5e+04	1.55e+07	1.56e+03	9.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.21e+07	5.45e+04	4.0e+02	2.16e+07	4.51e+04	4.8e+02
9	1,2,3,4,7,8,9-HpCDF	1.58e+07	5.45e+04	2.9e+02	1.52e+07	4.51e+04	3.4e+02
10	OCDF	2.30e+07	6.52e+02	3.5e+04	2.57e+07	1.39e+03	1.8e+04
11	2,3,7,8-TCDD	1.63e+06	9.24e+02	1.8e+03	2.06e+06	9.20e+02	2.2e+03
12	1,2,3,7,8-PeCDD	1.53e+07	8.04e+02	1.9e+04	9.65e+06	3.08e+02	3.1e+04
13	1,2,3,4,7,8-HxCDD	1.90e+07	3.04e+02	6.3e+04	1.48e+07	4.44e+02	3.3e+04
14	1,2,3,6,7,8-HxCDD	1.91e+07	3.04e+02	6.3e+04	1.50e+07	4.44e+02	3.4e+04
15	1,2,3,7,8,9-HxCDD	1.90e+07	3.04e+02	6.3e+04	1.49e+07	4.44e+02	3.3e+04
16	1,2,3,4,6,7,8-HpCDD	1.50e+07	1.94e+03	7.7e+03	1.40e+07	5.44e+02	2.6e+04
17	OCDD	2.02e+07	6.28e+02	3.2e+04	2.24e+07	6.36e+02	3.5e+04
18	13C-2,3,7,8-TCDF	5.07e+06	1.45e+03	3.5e+03	6.25e+06	1.22e+03	5.1e+03
19	13C-1,2,3,7,8-PeCDF	1.05e+07	8.20e+02	1.3e+04	6.49e+06	9.00e+02	7.2e+03
20	13C-2,3,4,7,8-PeCDF	1.18e+07	8.20e+02	1.4e+04	7.38e+06	9.00e+02	8.2e+03
21	13C-1,2,3,4,7,8-HxCDF	6.20e+06	1.11e+03	5.6e+03	1.19e+07	2.54e+03	4.7e+03
22	13C-1,2,3,6,7,8-HxCDF	7.13e+06	1.11e+03	6.4e+03	1.33e+07	2.54e+03	5.2e+03
24	13C-1,2,3,7,8,9-HxCDF	5.14e+06	1.11e+03	4.6e+03	9.79e+06	2.54e+03	3.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.83e+06	5.56e+03	8.7e+02	1.09e+07	5.83e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.48e+06	5.56e+03	6.3e+02	7.97e+06	5.83e+03	1.4e+03
27	13C-2,3,7,8-TCDD	3.91e+06	5.62e+03	7.0e+02	4.95e+06	2.21e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	7.24e+06	8.60e+02	8.4e+03	4.64e+06	5.24e+02	8.9e+03
29	13C-1,2,3,4,7,8-HxCDD	8.33e+06	2.10e+03	4.0e+03	6.38e+06	5.92e+02	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	8.33e+06	2.10e+03	4.0e+03	6.44e+06	5.92e+02	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.83e+06	1.64e+03	4.2e+03	6.30e+06	7.72e+02	8.2e+03
32	13C-OCDD	8.46e+06	4.60e+02	1.8e+04	9.20e+06	2.59e+04	3.5e+02
33	13C-1,2,3,4-TCDD	4.45e+06	5.62e+03	7.9e+02	5.49e+06	2.21e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	8.50e+06	2.10e+03	4.0e+03	6.63e+06	5.92e+02	1.1e+04
35	37Cl-2,3,7,8-TCDD	3.68e+06	1.02e+03	3.6e+03			

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

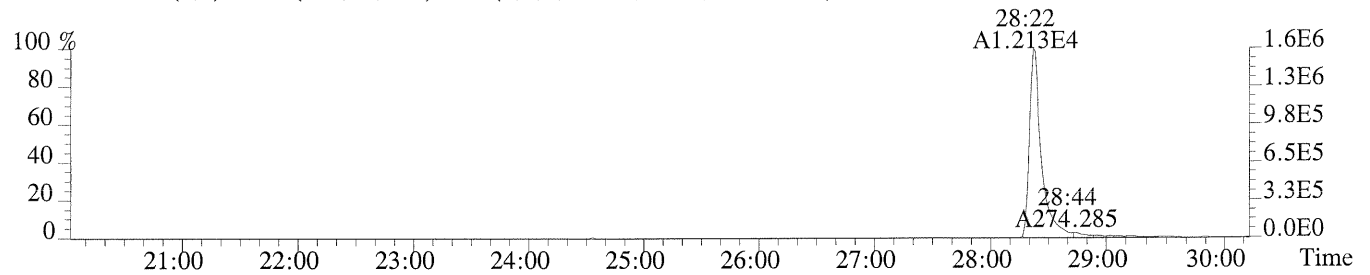
ALS Form TO-9SN/M23SN.FRM

File:P230459 #1-640 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)

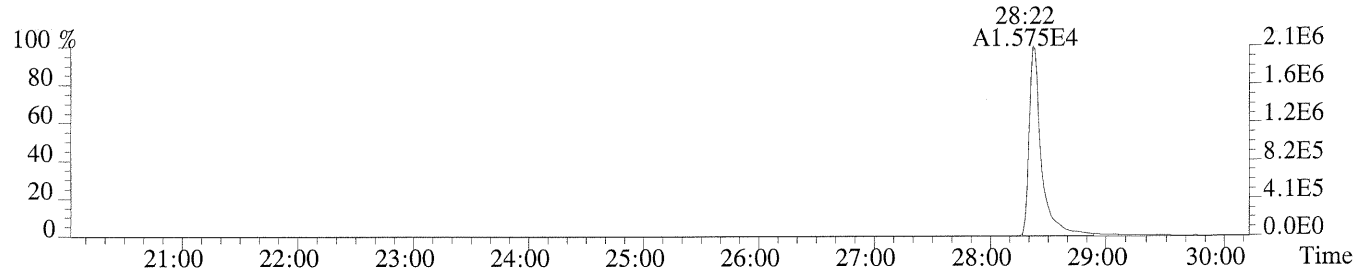




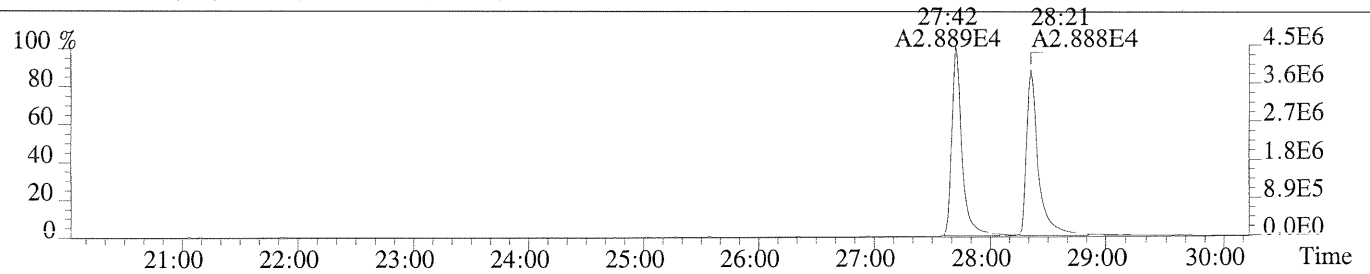
File:P230459 #1-640 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



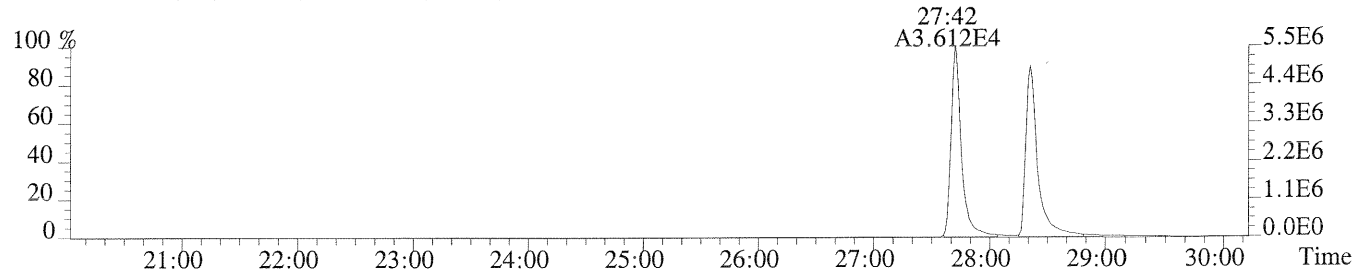
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



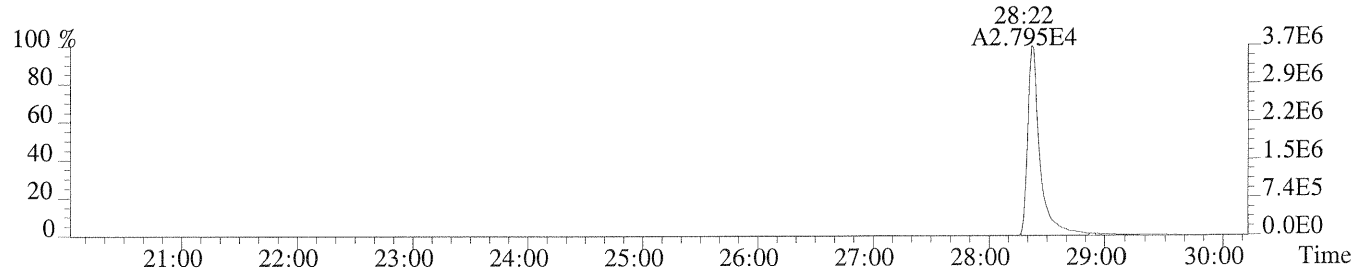
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5616.0,1.00%,F,T)



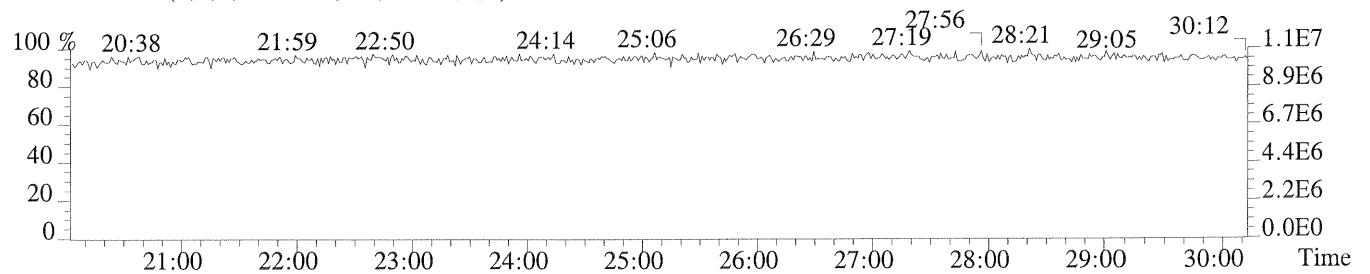
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2212.0,1.00%,F,T)



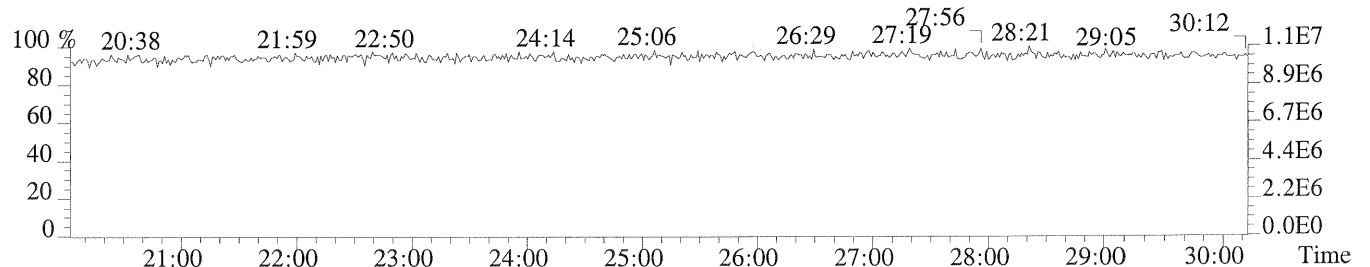
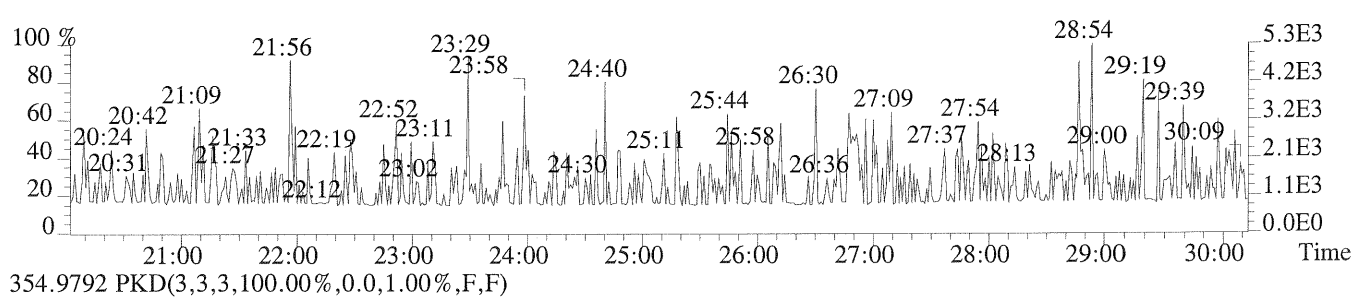
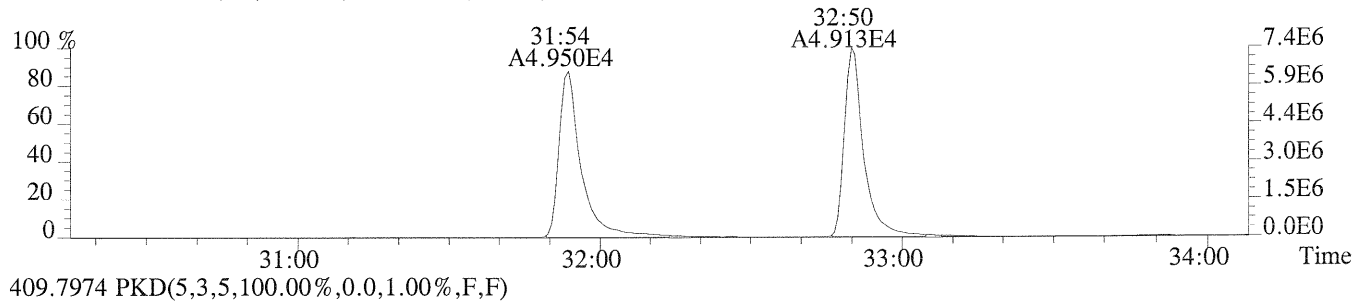
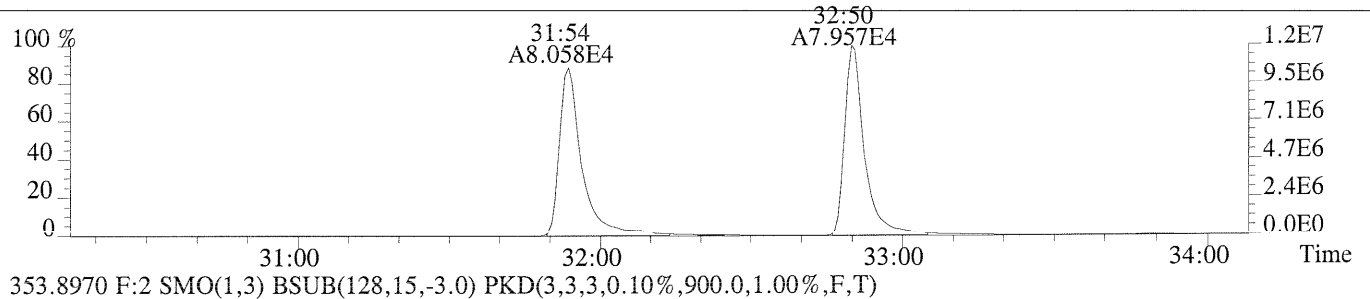
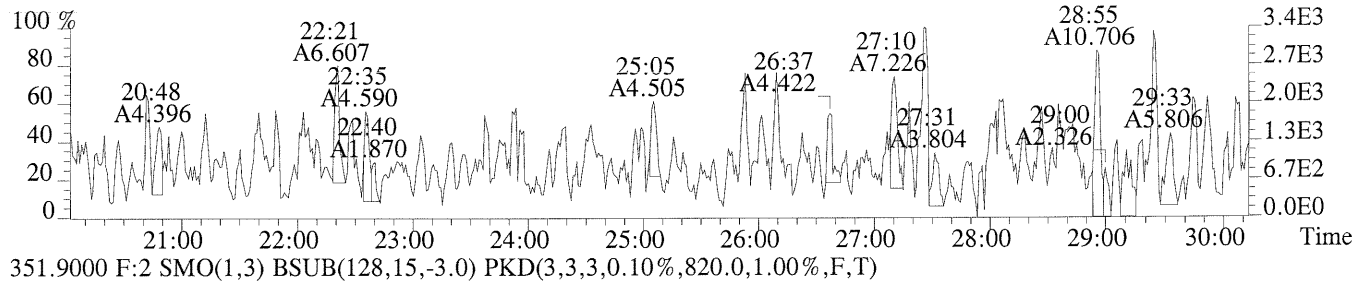
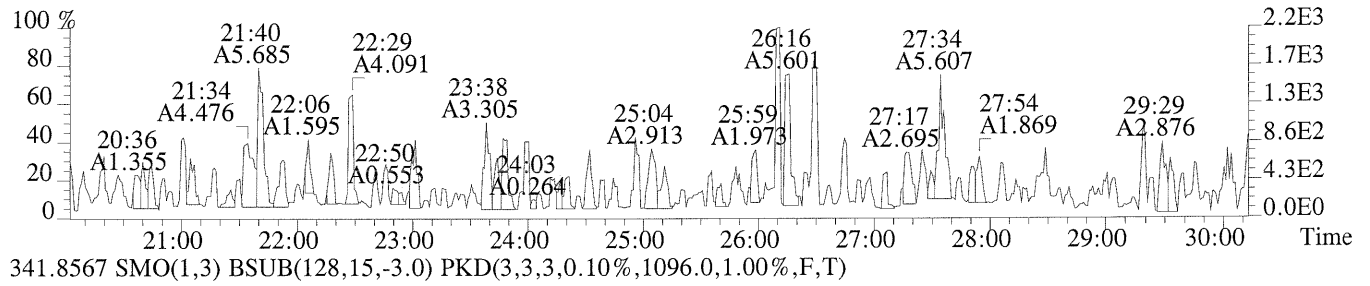
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)

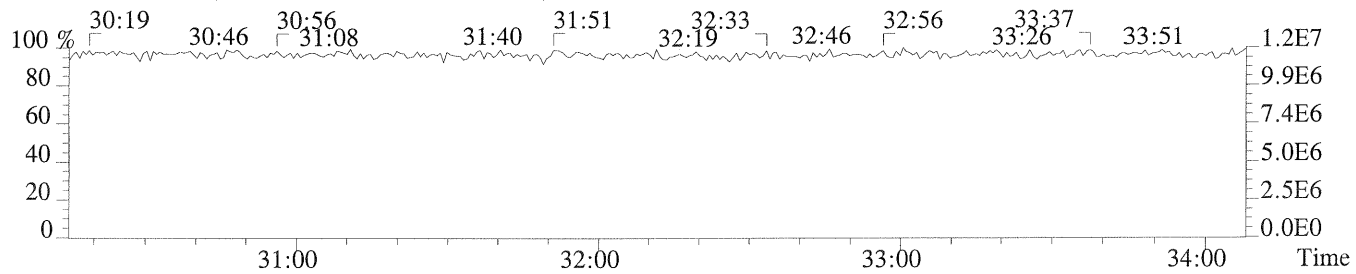
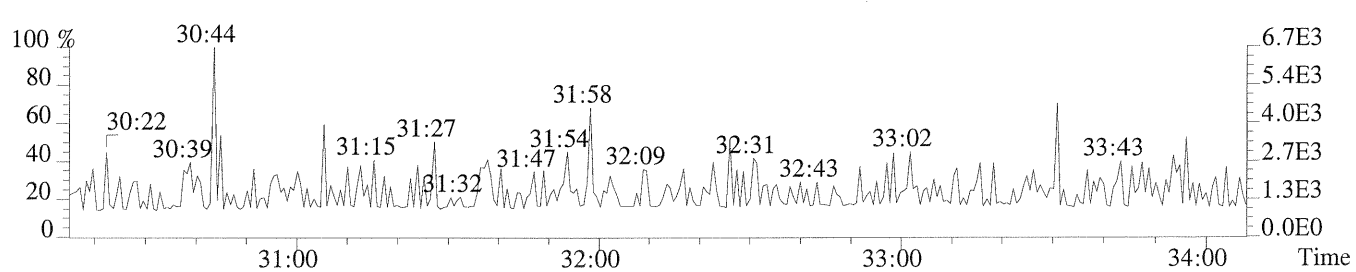
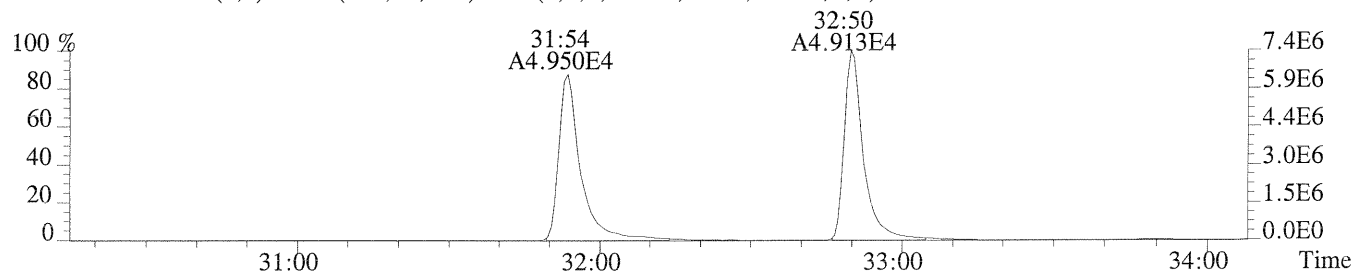
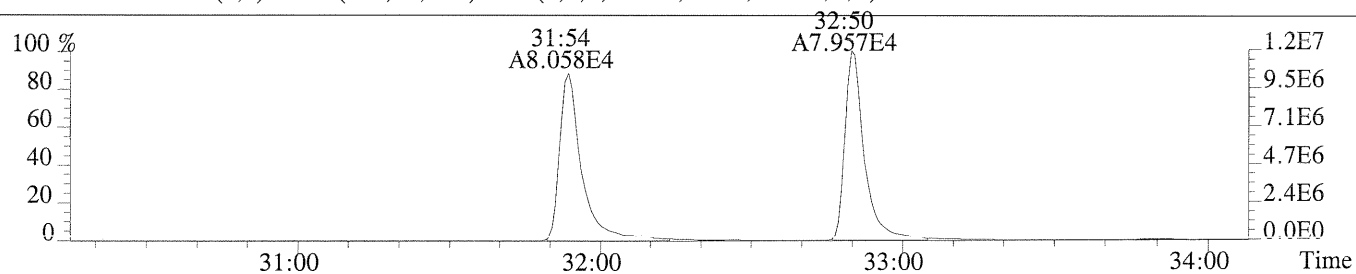
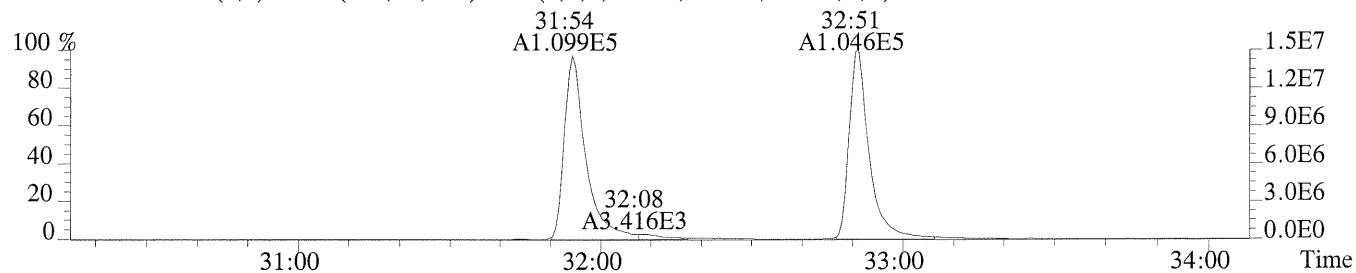
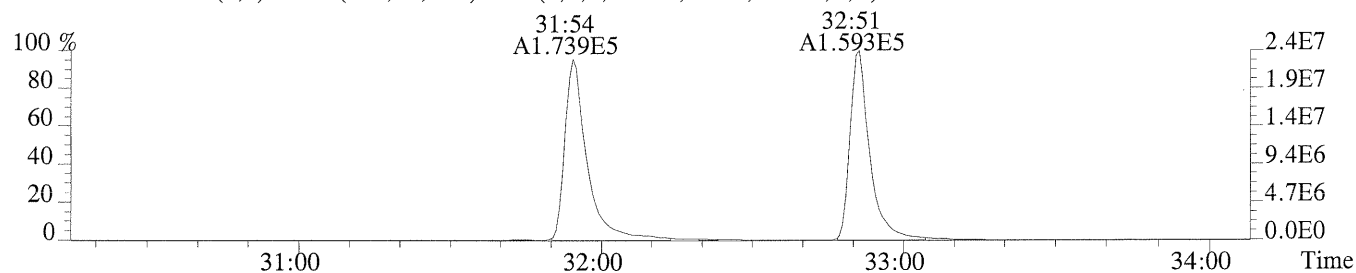


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

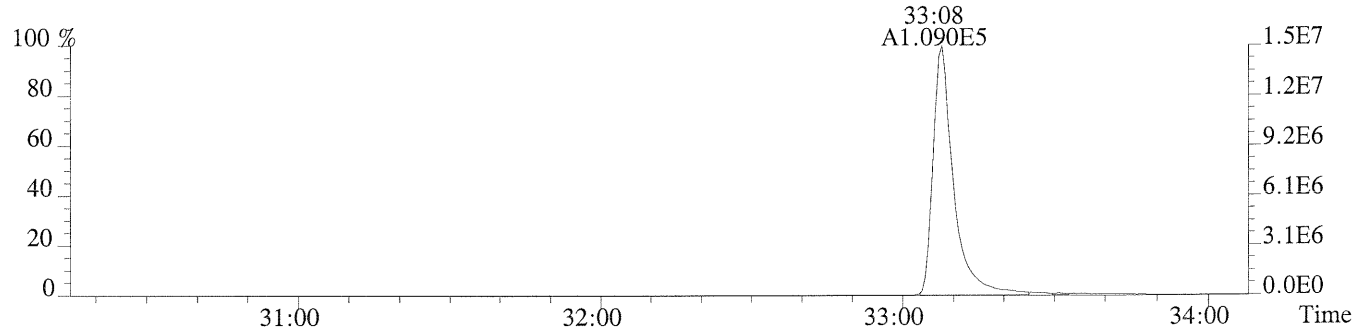


File:P230459 #1-640 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)

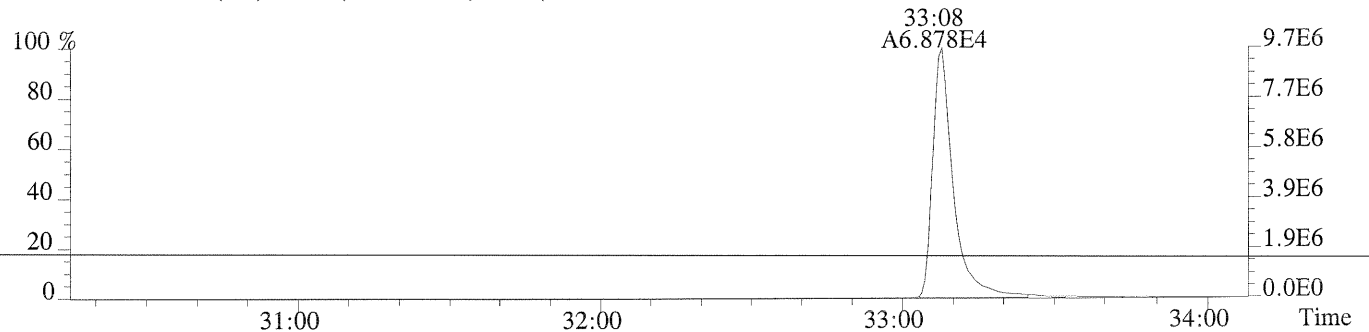




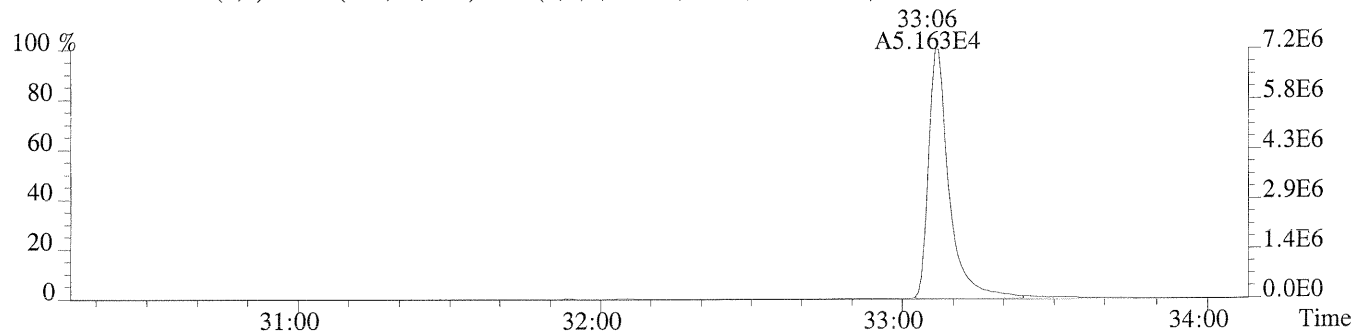
File:P230459 #1-353 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



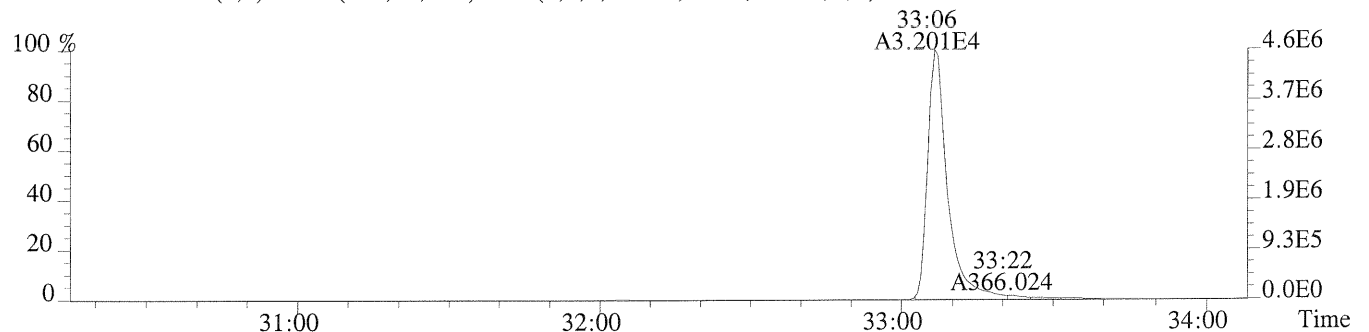
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



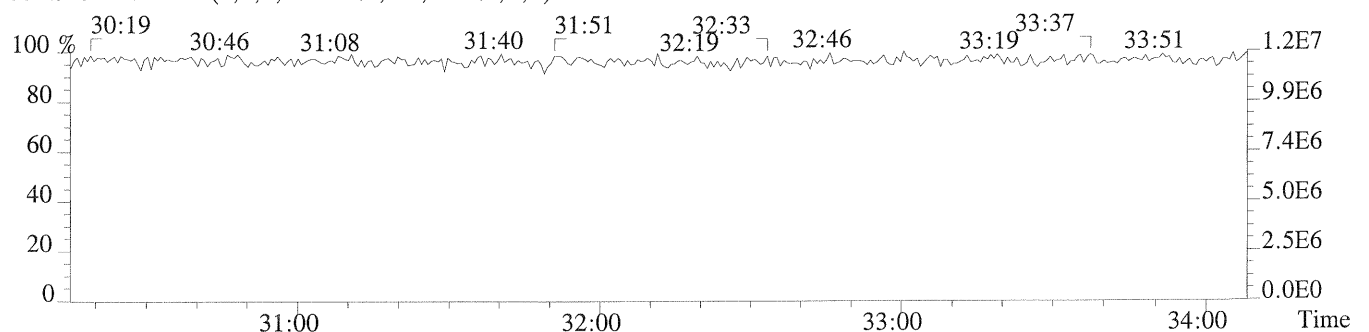
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



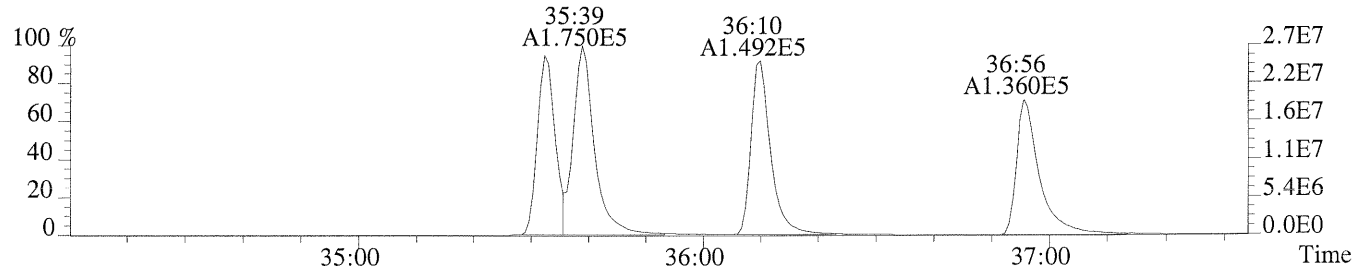
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



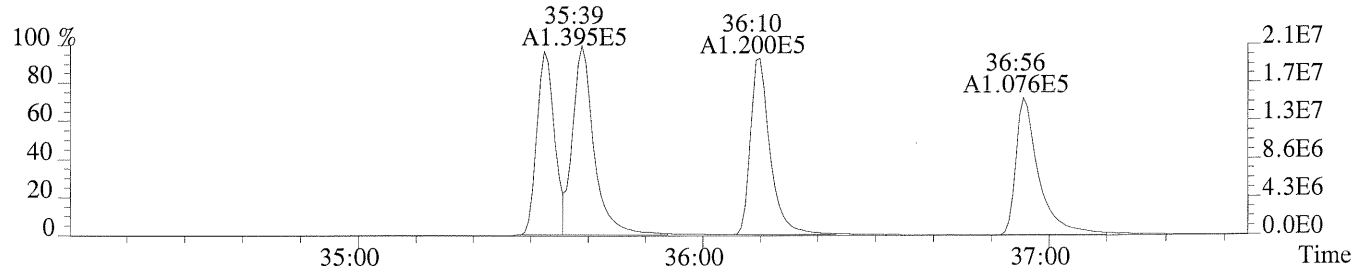
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



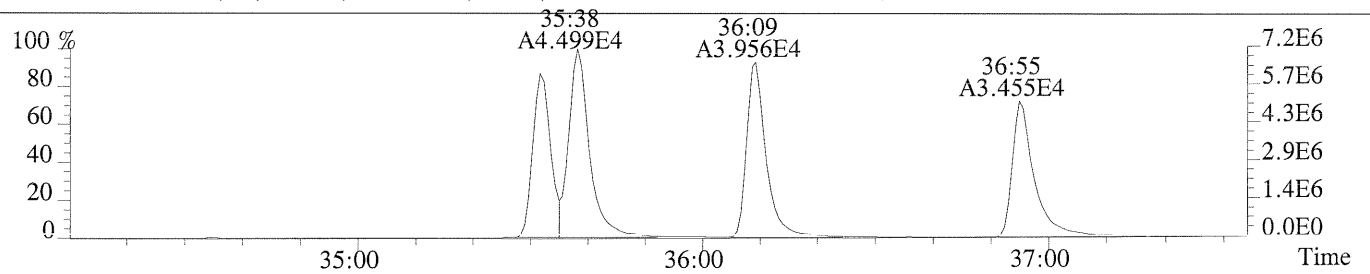
File:P230459 #1-309 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



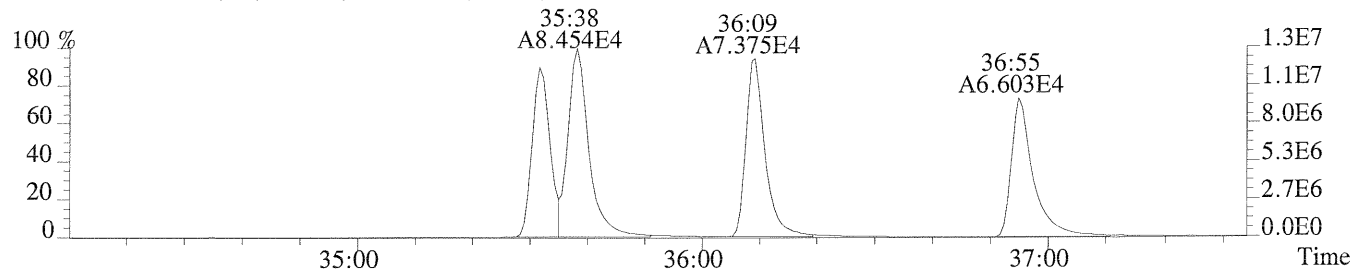
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



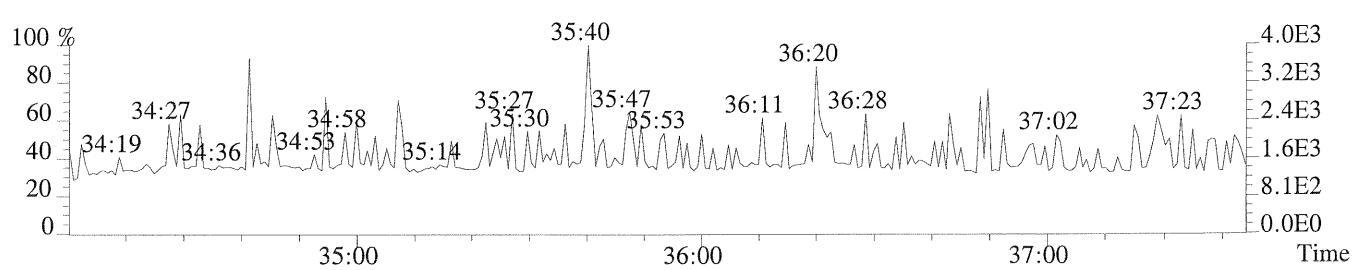
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



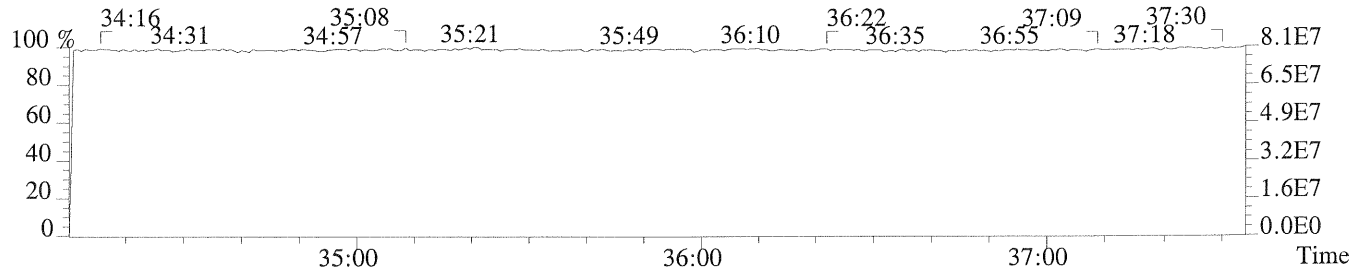
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2540.0,0.40%,F,T)

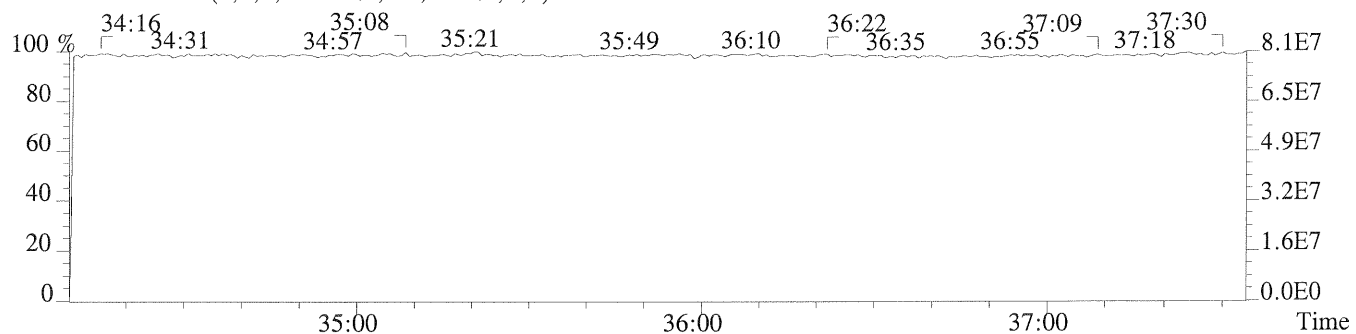
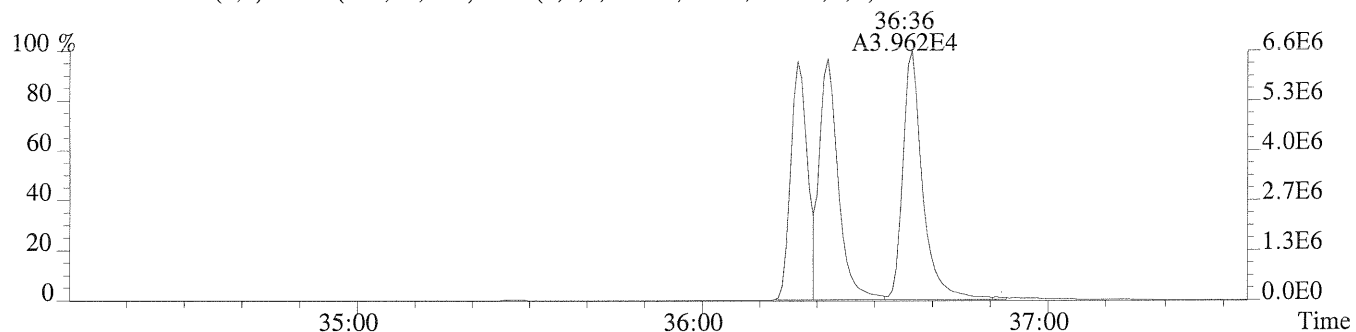
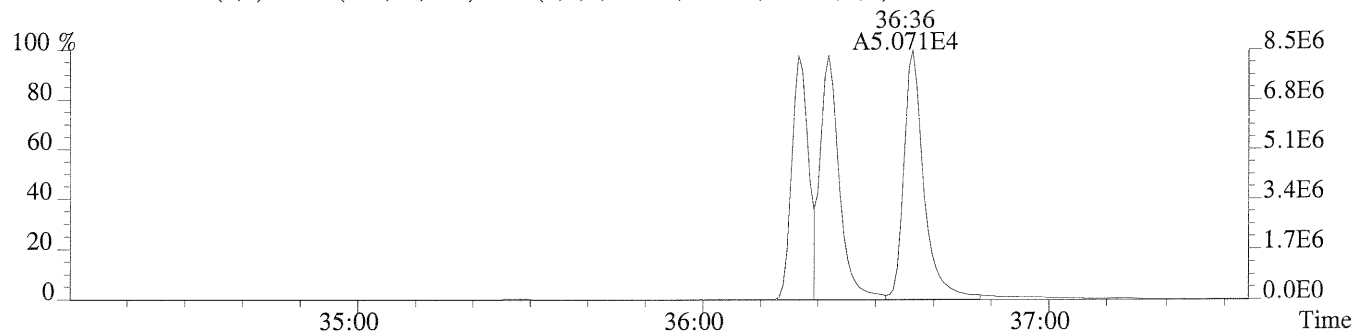
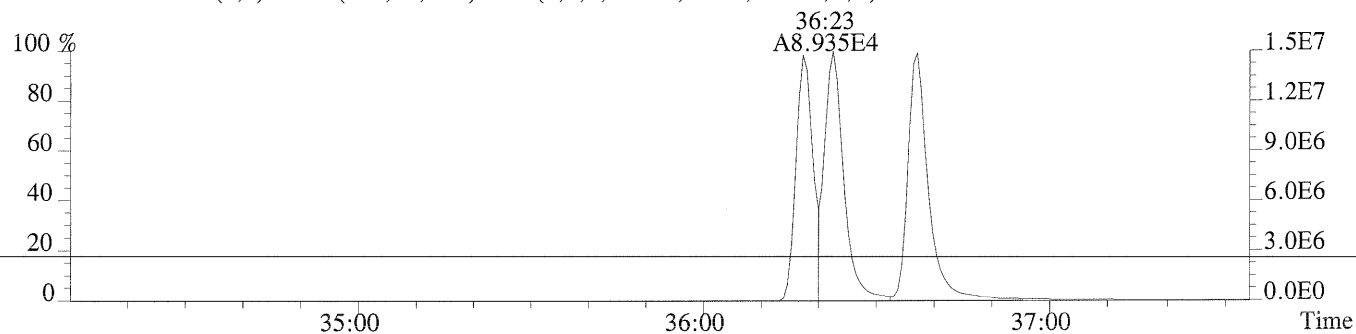
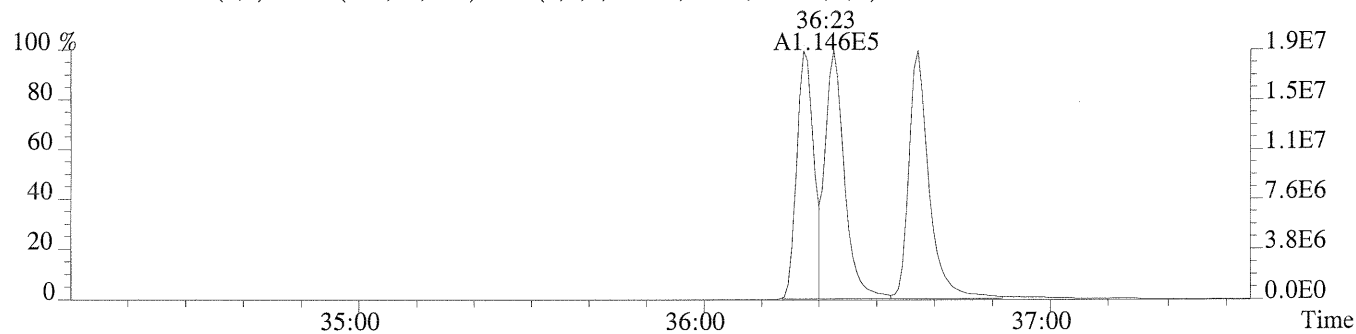


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

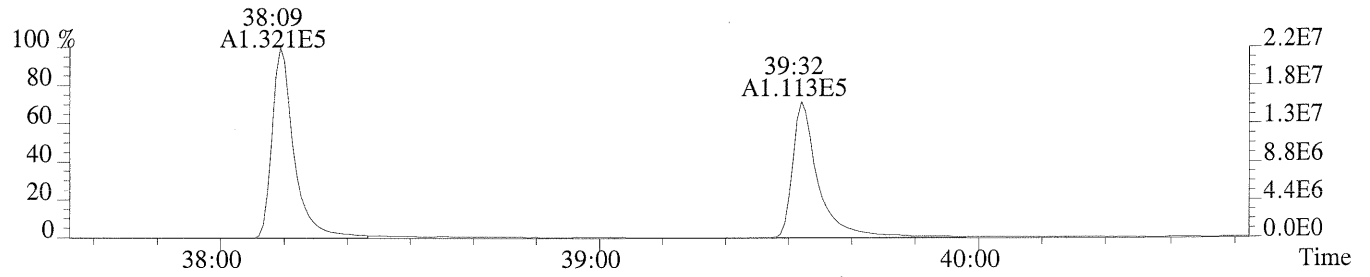


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

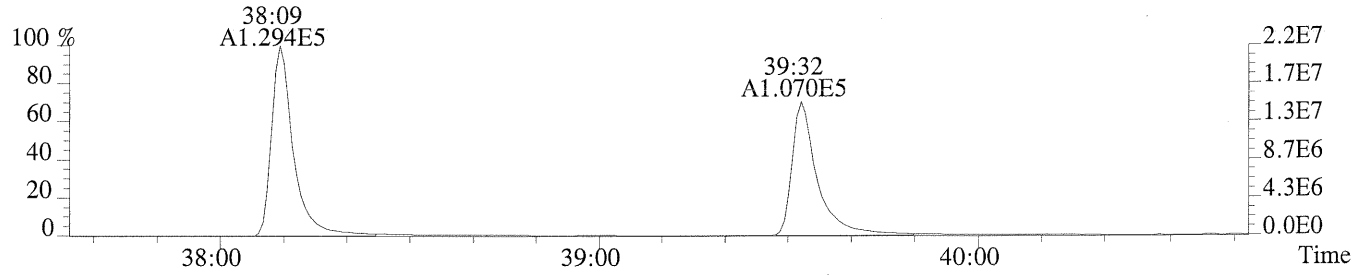




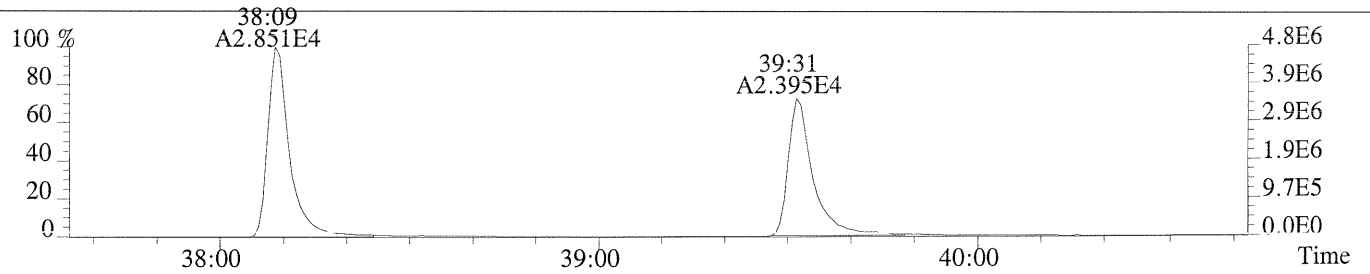
File:P230459 #1-282 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,54512.0,0.50%,F,T)



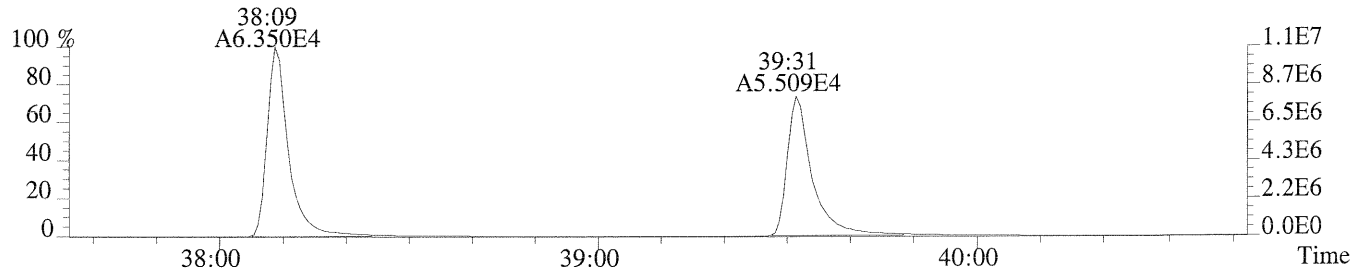
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,45056.0,0.50%,F,T)



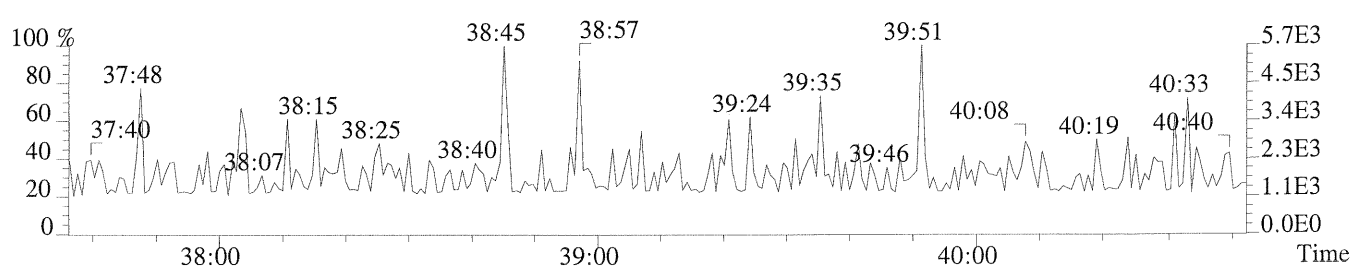
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5556.0,0.50%,F,T)



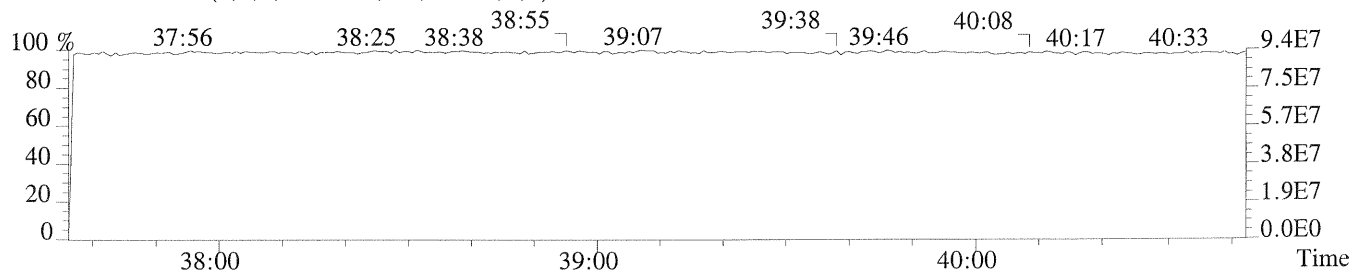
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5828.0,0.50%,F,T)



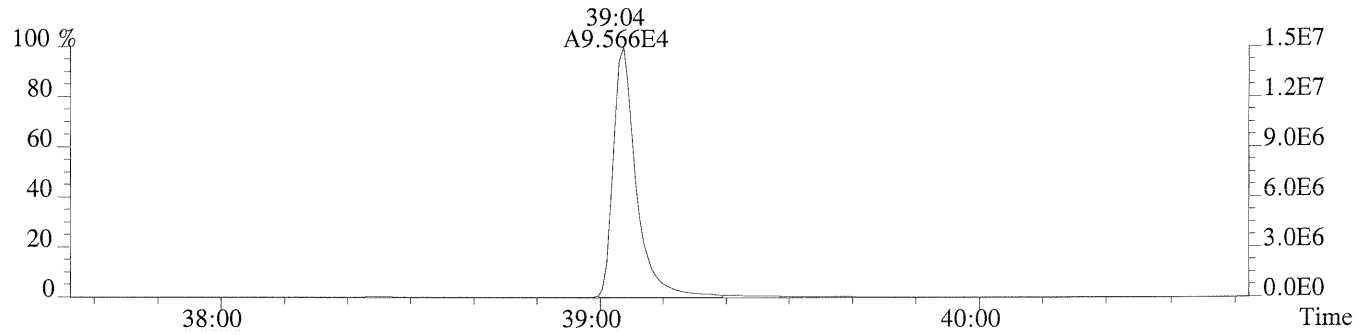
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



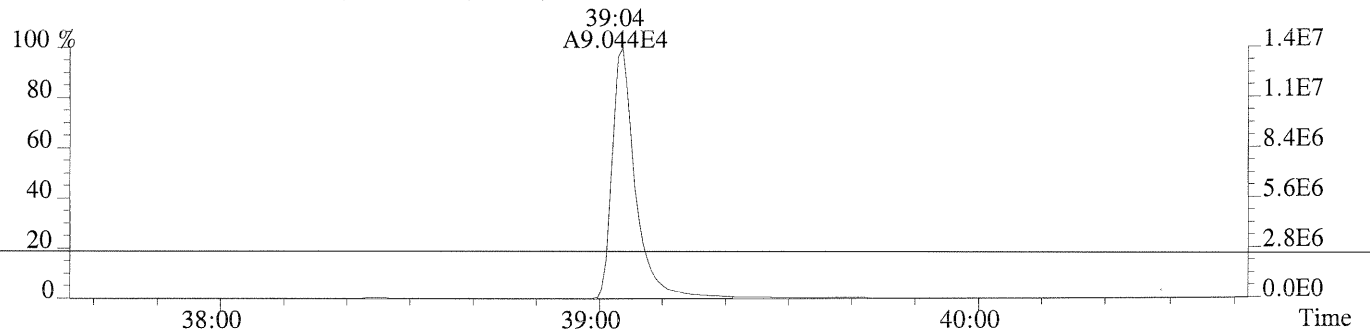
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



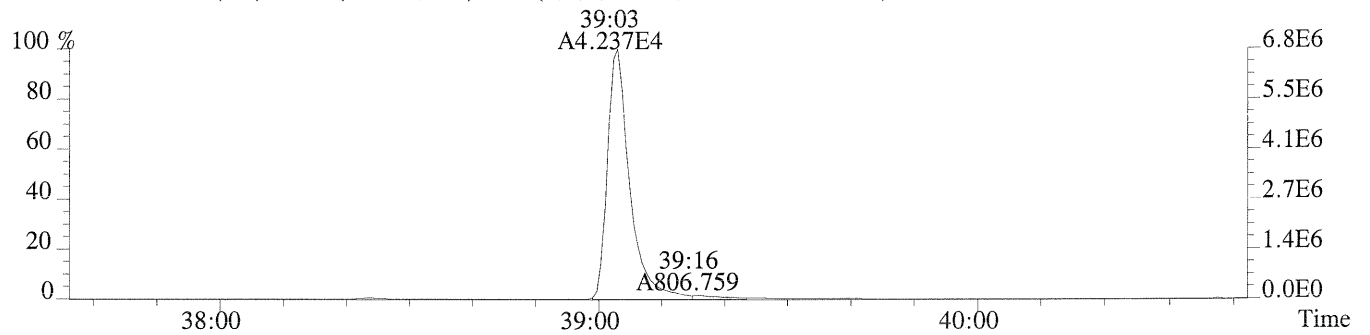
File:P230459 #1-282 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1940.0,0.40%,F,T)



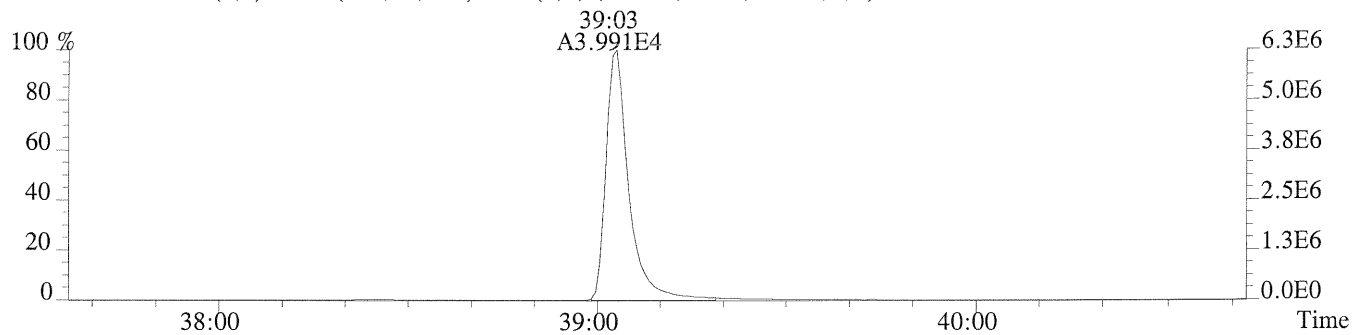
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



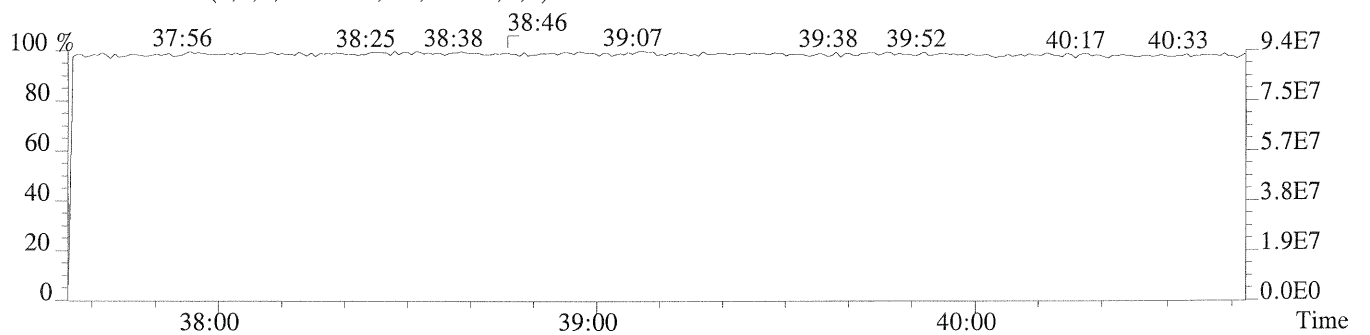
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1640.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)

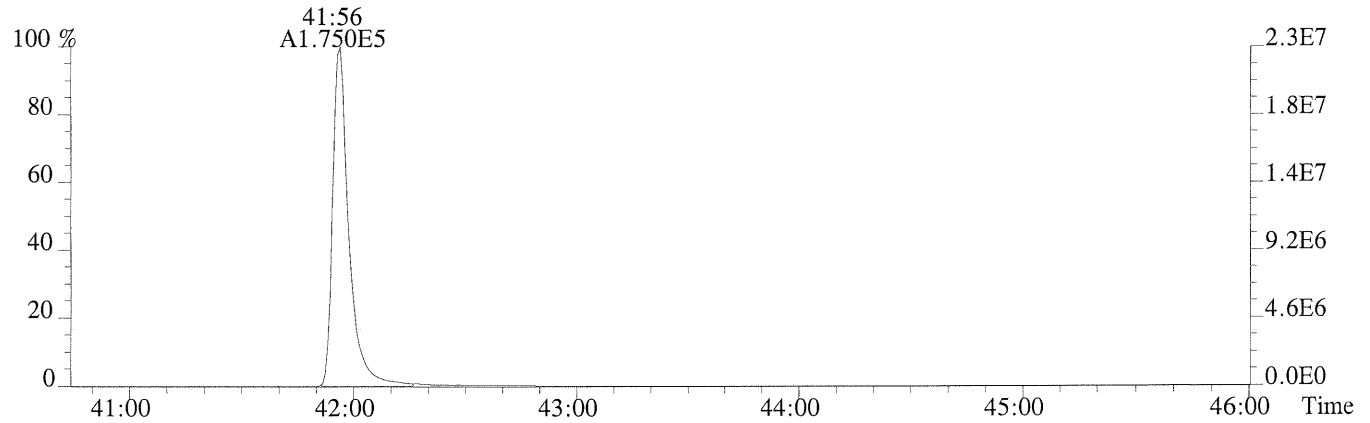


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

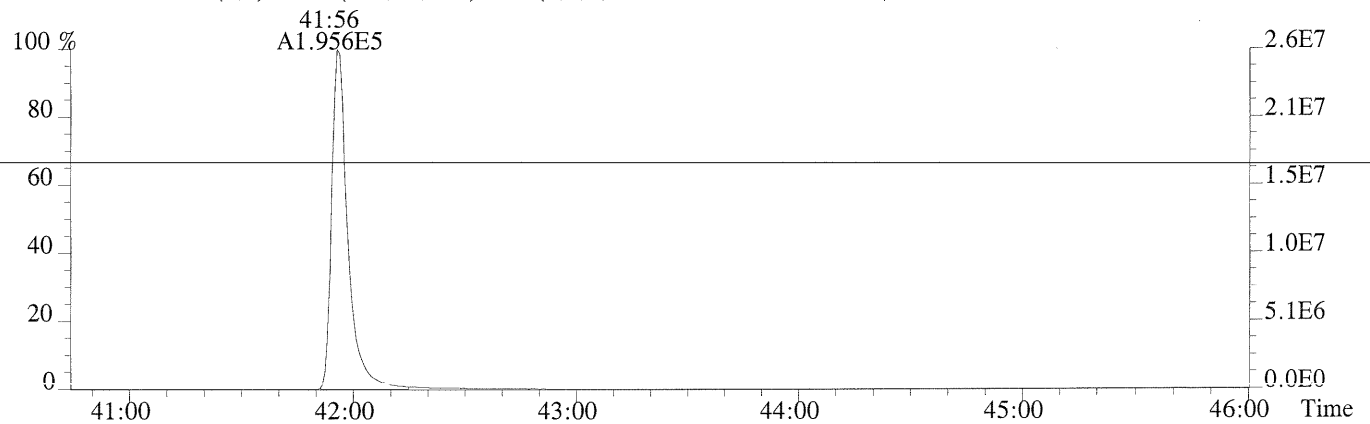




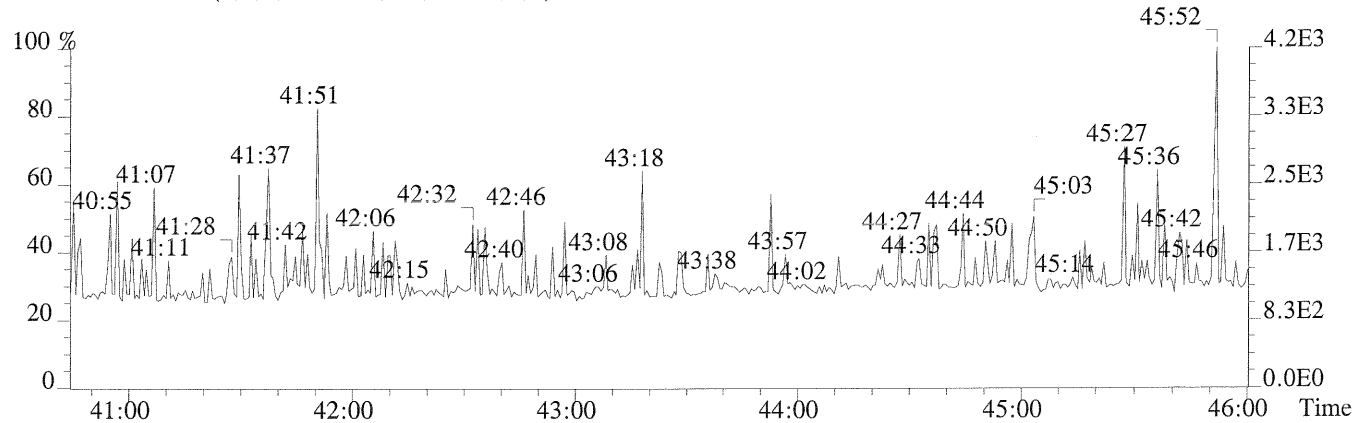
File:P230459 #1-484 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



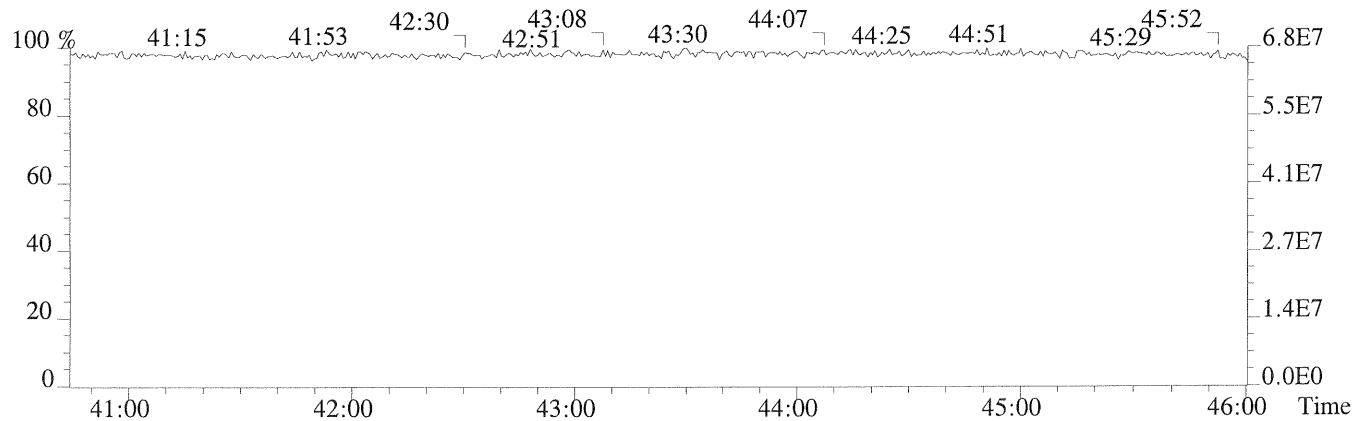
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1392.0,0.40%,F,T)



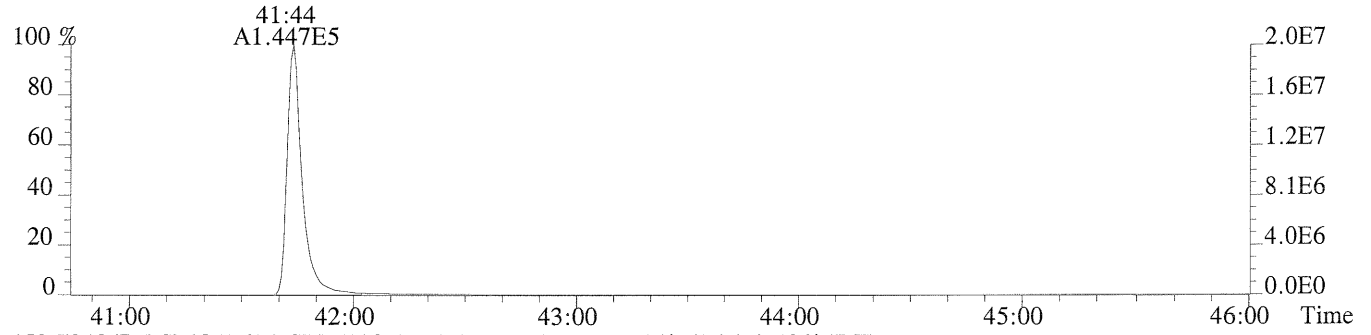
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



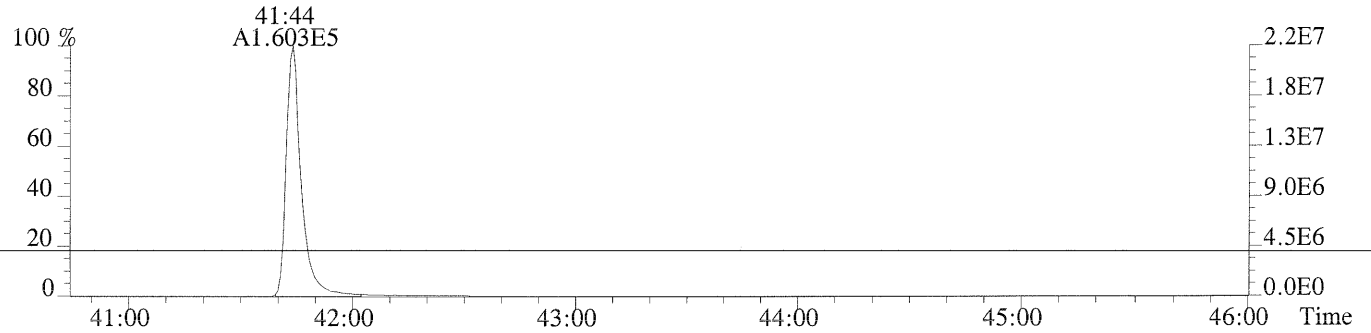
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



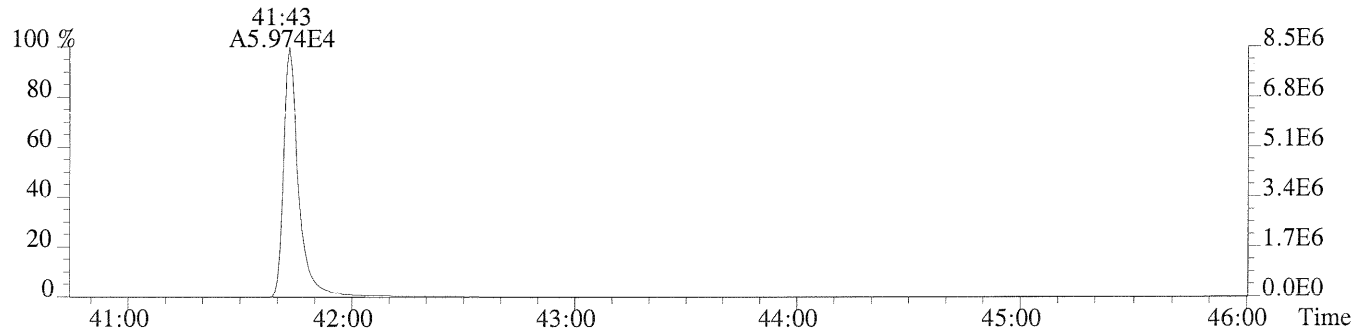
File:P230459 #1-484 Acq:11-AUG-2014 21:43:25 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS4  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



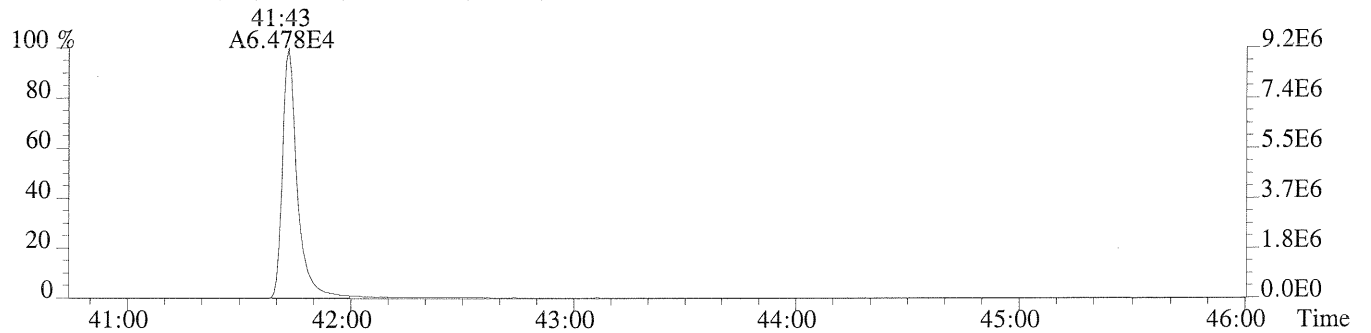
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



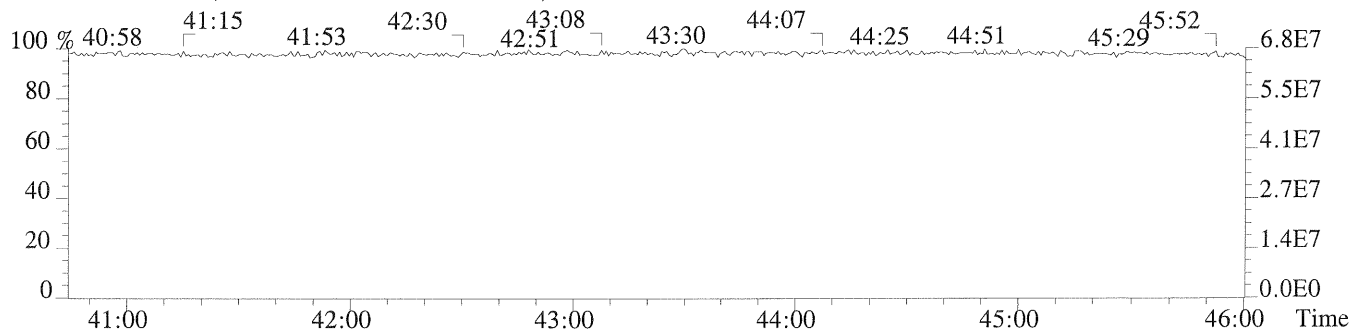
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,25936.0,0.40%,F,T)



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



Sample Response Summary

Run #6 Filename P230460 #1  
 Processed: 13-AUG-14 13:53:51

Samp: 1 Inj: 1  
 LAB. ID: 66799

Acquired: 11-AUG-14 22:31:11

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	27:32	8.872e+04	1.155e+05	0.77	yes	no	0.959
2 Unk	1,2,3,7,8-PeCDF	31:53	8.254e+05	5.323e+05	1.55	yes	no	1.034
3 Unk	2,3,4,7,8-PeCDF	32:49	8.516e+05	5.469e+05	1.56	yes	no	0.972
4 Unk	1,2,3,4,7,8-HxCDF	35:32	7.360e+05	5.907e+05	1.25	yes	no	0.883
5 Unk	1,2,3,6,7,8-HxCDF	35:38	8.296e+05	6.608e+05	1.26	yes	no	1.175
6 Unk	2,3,4,6,7,8-HxCDF	36:09	7.378e+05	5.930e+05	1.24	yes	no	0.982
7 Unk	1,2,3,7,8,9-HxCDF	36:54	6.971e+05	5.517e+05	1.26	yes	no	0.871
8 Unk	1,2,3,4,6,7,8-HpCDF	38:09	6.687e+05	6.429e+05	1.04	yes	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	39:31	5.609e+05	5.449e+05	1.03	yes	no	1.113
10 Unk	OCDF	41:55	8.794e+05	9.738e+05	0.90	yes	no	1.392
11 Unk	2,3,7,8-TCDD	28:20	6.507e+04	8.236e+04	0.79	yes	no	0.966
12 Unk	1,2,3,7,8-PeCDD	33:06	5.646e+05	3.538e+05	1.60	yes	no	1.009
13 Unk	1,2,3,4,7,8-HxCDD	36:17	5.374e+05	4.241e+05	1.27	yes	no	0.896
14 Unk	1,2,3,6,7,8-HxCDD	36:22	5.219e+05	4.128e+05	1.26	yes	no	1.115
15 Unk	1,2,3,7,8,9-HxCDD	36:36	5.826e+05	4.624e+05	1.26	yes	no	1.122
16 Unk	1,2,3,4,6,7,8-HpCDD	39:02	4.805e+05	4.566e+05	1.05	yes	no	1.104
17 Unk	OCDD	41:43	7.278e+05	8.044e+05	0.90	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:30	4.349e+04	5.405e+04	0.80	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:52	8.384e+04	5.152e+04	1.63	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:49	7.947e+04	4.944e+04	1.61	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:31	3.732e+04	7.158e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:37	4.214e+04	8.119e+04	0.52	yes	no	1.448
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:54	3.648e+04	6.899e+04	0.53	yes	no	1.089
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	2.900e+04	6.610e+04	0.44	yes	no	1.008
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:30	2.393e+04	5.451e+04	0.44	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:19	3.009e+04	3.812e+04	0.79	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	33:05	5.294e+04	3.329e+04	1.59	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:16	4.332e+04	3.386e+04	1.28	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:21	5.135e+04	3.962e+04	1.30	yes	no	0.985
31 IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	4.459e+04	4.158e+04	1.07	yes	no	0.905
32 IS	13C-OCDD	41:43	6.772e+04	7.309e+04	0.93	yes	no	0.692
33S/RT	13C-1,2,3,4-TCDD	27:41	2.855e+04	3.619e+04	0.79	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:35	4.931e+04	3.869e+04	1.27	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:20	1.451e+05				no	0.960

$$\text{OCDD} = \frac{(7.278e+05 + 8.044e+05) \times (200.0)}{(6.772e+04 + 7.309e+04) \times 1.181 \times 1.000} = \text{pg}$$

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS5

Method M23

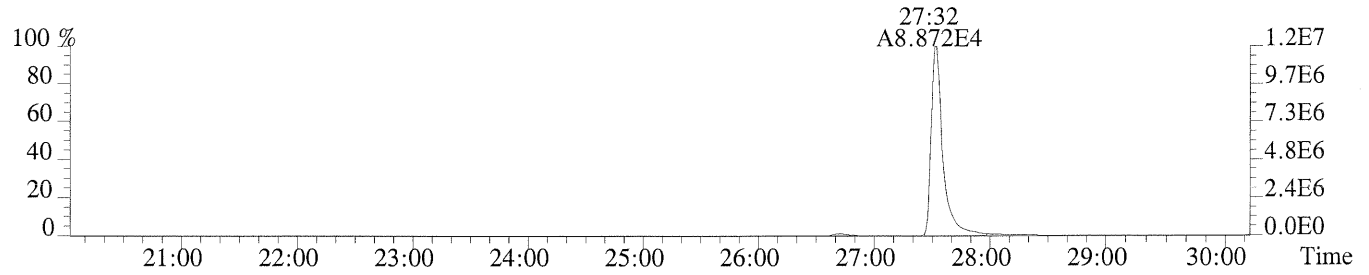
Run #6    Filename P230460    #1    Samp: 1    Inj: 1    Acquired: 11-AUG-14 22:31:11  
Processed: 13-AUG-14 13:53:51    LAB. ID: 66799

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.21e+07	6.12e+02	2.0e+04	1.59e+07	1.49e+03	1.1e+04
2	1,2,3,7,8-PeCDF	1.26e+08	3.87e+03	3.2e+04	8.11e+07	3.13e+03	2.6e+04
3	2,3,4,7,8-PeCDF	1.42e+08	3.87e+03	3.7e+04	9.21e+07	3.13e+03	2.9e+04
4	1,2,3,4,7,8-HxCDF	1.41e+08	5.54e+03	2.5e+04	1.12e+08	5.21e+03	2.1e+04
5	1,2,3,6,7,8-HxCDF	1.44e+08	5.54e+03	2.6e+04	1.16e+08	5.21e+03	2.2e+04
6	2,3,4,6,7,8-HxCDF	1.41e+08	5.54e+03	2.5e+04	1.14e+08	5.21e+03	2.2e+04
7	1,2,3,7,8,9-HxCDF	1.17e+08	5.54e+03	2.1e+04	9.35e+07	5.21e+03	1.8e+04
8	1,2,3,4,6,7,8-HpCDF	1.22e+08	9.38e+04	1.3e+03	1.16e+08	7.25e+04	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	9.12e+07	9.38e+04	9.7e+02	8.88e+07	7.25e+04	1.2e+03
10	OCDF	1.31e+08	5.60e+02	2.3e+05	1.47e+08	1.68e+03	8.7e+04
11	2,3,7,8-TCDD	1.01e+07	1.30e+03	7.8e+03	1.28e+07	1.02e+03	1.3e+04
12	1,2,3,7,8-PeCDD	9.31e+07	1.20e+03	7.8e+04	5.80e+07	3.12e+02	1.9e+05
13	1,2,3,4,7,8-HxCDD	1.10e+08	5.12e+02	2.1e+05	8.56e+07	5.52e+02	1.6e+05
14	1,2,3,6,7,8-HxCDD	9.69e+07	5.12e+02	1.9e+05	7.68e+07	5.52e+02	1.4e+05
15	1,2,3,7,8,9-HxCDD	1.10e+08	5.12e+02	2.1e+05	8.65e+07	5.52e+02	1.6e+05
16	1,2,3,4,6,7,8-HpCDD	8.60e+07	1.27e+04	6.8e+03	8.16e+07	8.44e+03	9.7e+03
17	OCDD	1.11e+08	5.52e+02	2.0e+05	1.22e+08	4.16e+02	2.9e+05
18	13C-2,3,7,8-TCDF	6.08e+06	1.61e+03	3.8e+03	7.67e+06	9.28e+02	8.3e+03
19	13C-1,2,3,7,8-PeCDF	1.27e+07	7.92e+02	1.6e+04	7.86e+06	1.71e+03	4.6e+03
20	13C-2,3,4,7,8-PeCDF	1.37e+07	7.92e+02	1.7e+04	8.57e+06	1.71e+03	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	7.16e+06	1.56e+03	4.6e+03	1.37e+07	2.00e+03	6.9e+03
22	13C-1,2,3,6,7,8-HxCDF	7.49e+06	1.56e+03	4.8e+03	1.45e+07	2.00e+03	7.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.36e+06	1.56e+03	4.1e+03	1.20e+07	2.00e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.45e+06	1.94e+03	2.8e+03	1.23e+07	8.04e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.85e+06	1.94e+03	2.0e+03	8.95e+06	8.04e+03	1.1e+03
27	13C-2,3,7,8-TCDD	4.90e+06	3.85e+03	1.3e+03	6.22e+06	2.48e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	8.88e+06	9.24e+02	9.6e+03	5.64e+06	5.36e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	8.81e+06	1.93e+03	4.6e+03	6.87e+06	9.92e+02	6.9e+03
30	13C-1,2,3,6,7,8-HxCDD	9.60e+06	1.93e+03	5.0e+03	7.58e+06	9.92e+02	7.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.08e+06	2.78e+03	2.9e+03	7.55e+06	8.60e+02	8.8e+03
32	13C-OCDD	1.04e+07	8.68e+02	1.2e+04	1.11e+07	7.96e+02	1.4e+04
33	13C-1,2,3,4-TCDD	4.56e+06	3.85e+03	1.2e+03	5.88e+06	2.48e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	9.57e+06	1.93e+03	5.0e+03	7.45e+06	9.92e+02	7.5e+03
35	37Cl-2,3,7,8-TCDD	2.27e+07	1.10e+03	2.1e+04			

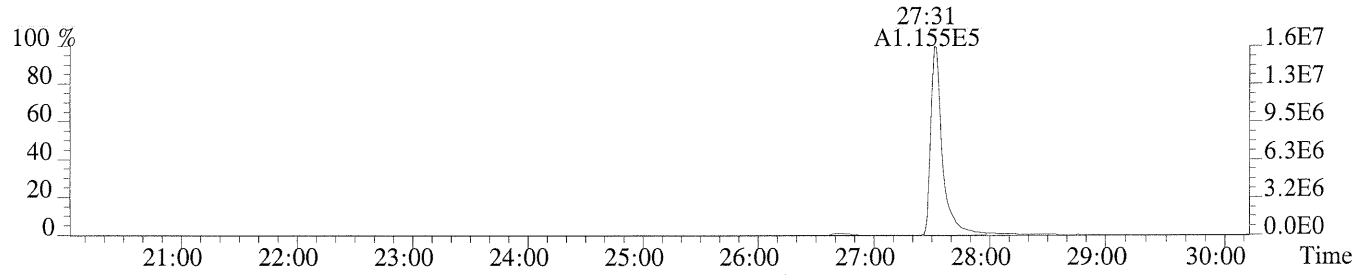
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

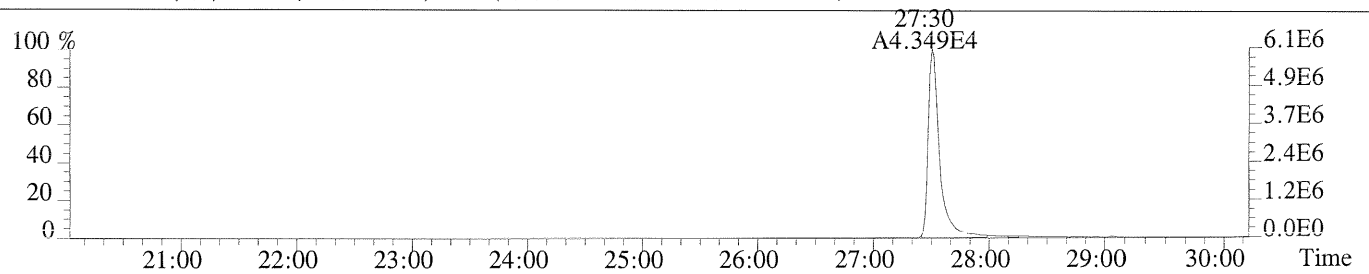
File:P230460 #1-640 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



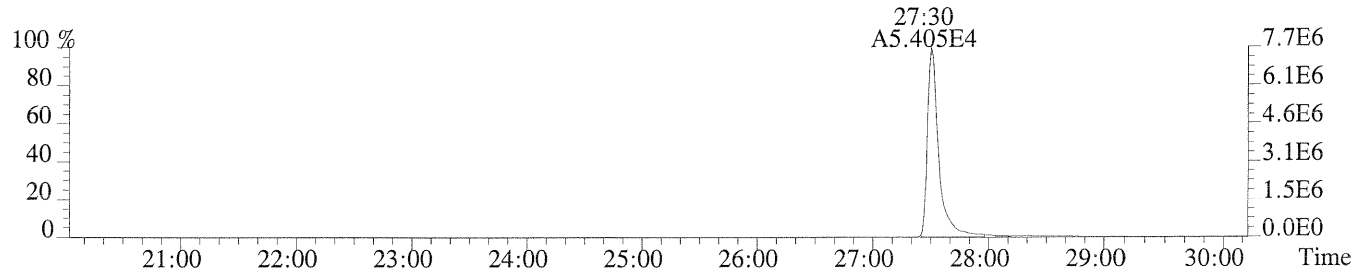
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



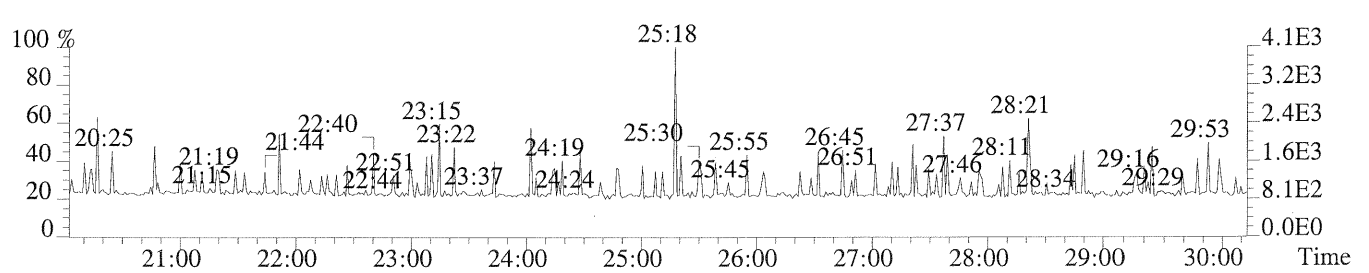
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



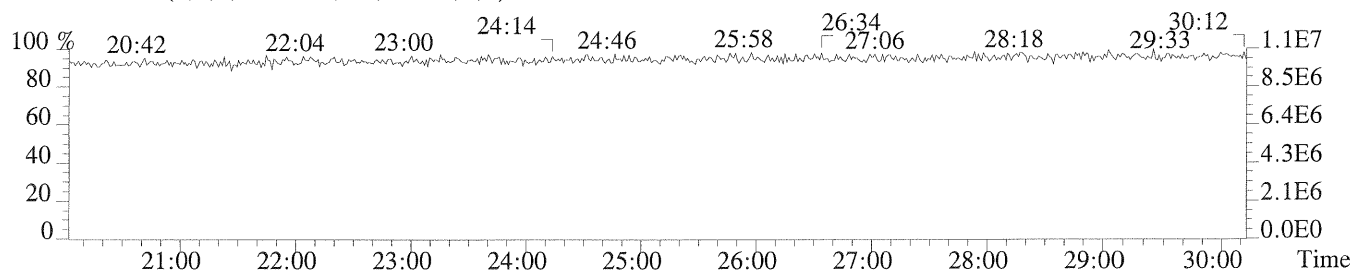
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



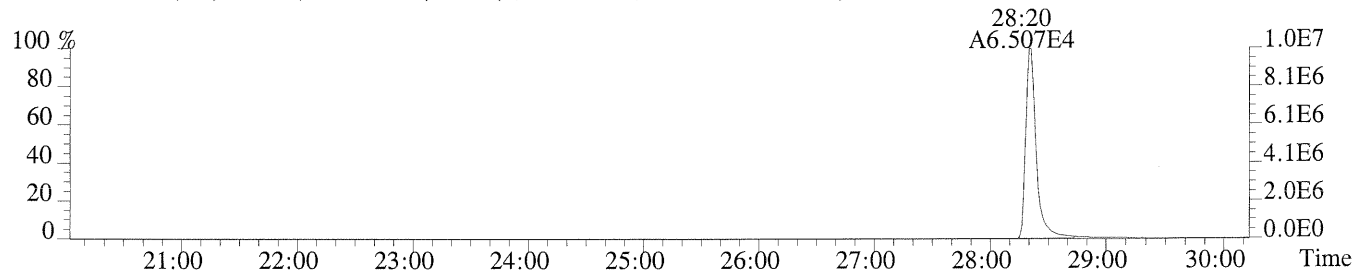
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



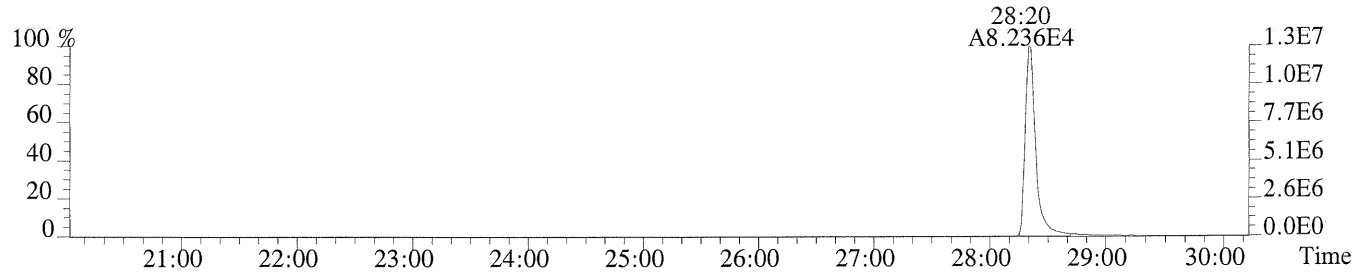
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



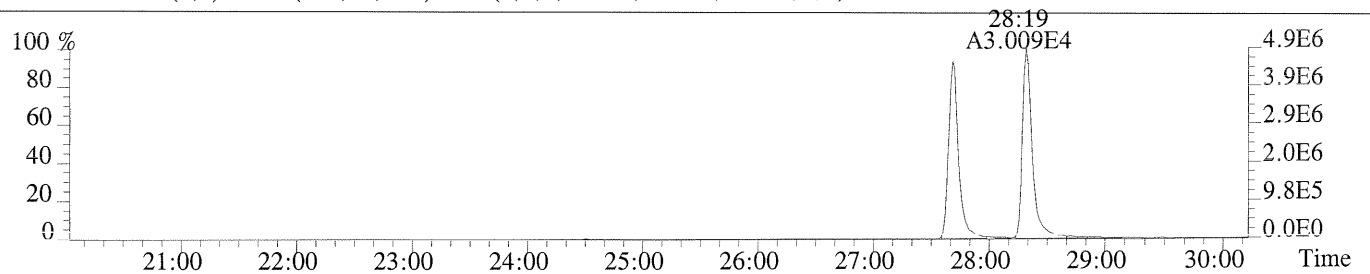
File:P230460 #1-640 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



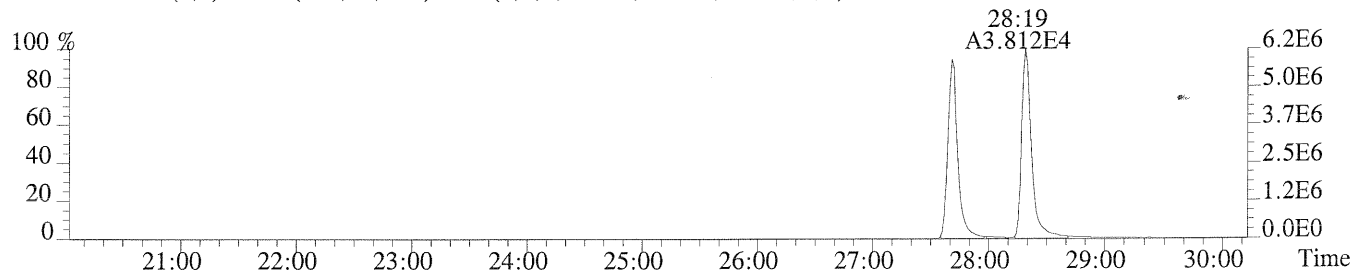
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



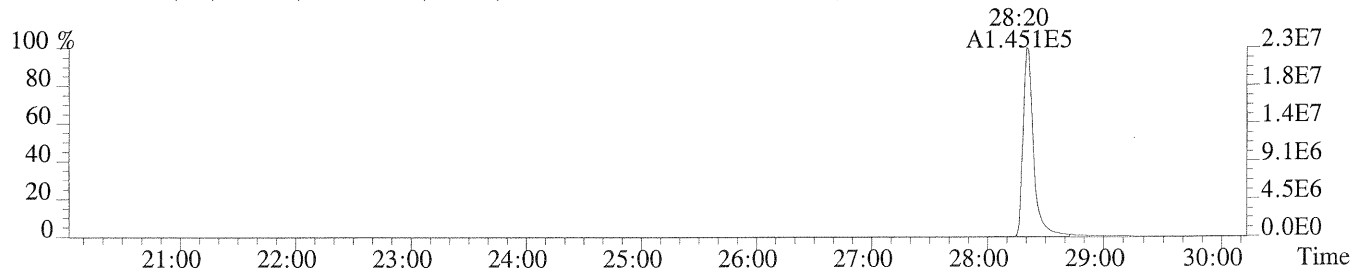
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3852.0,1.00%,F,T)



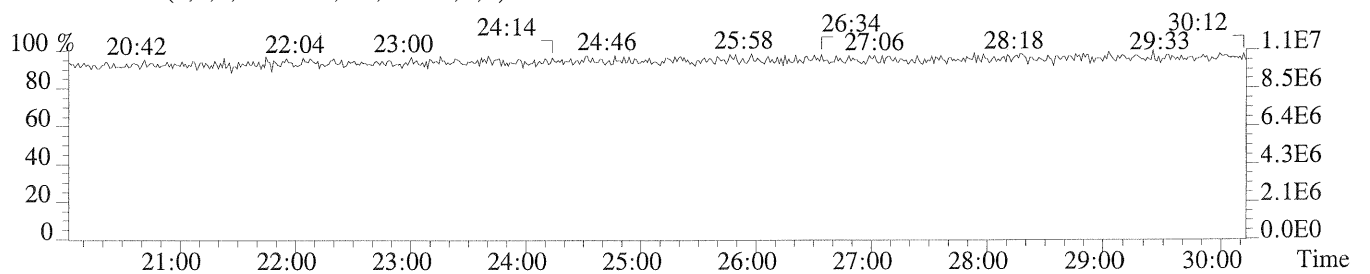
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2476.0,1.00%,F,T)



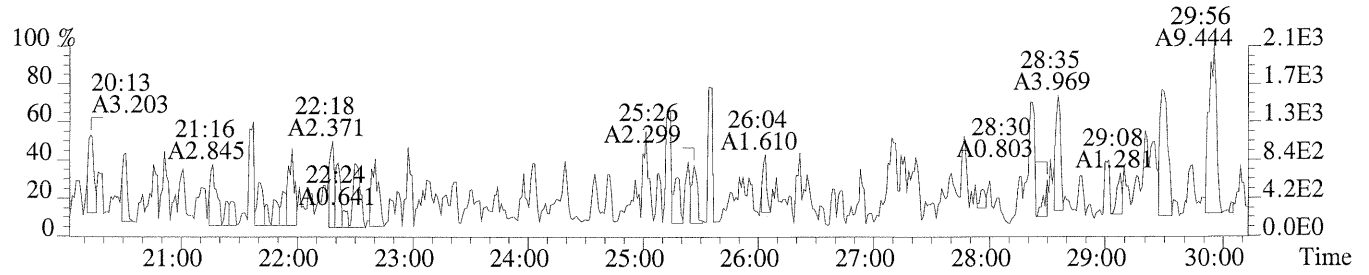
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



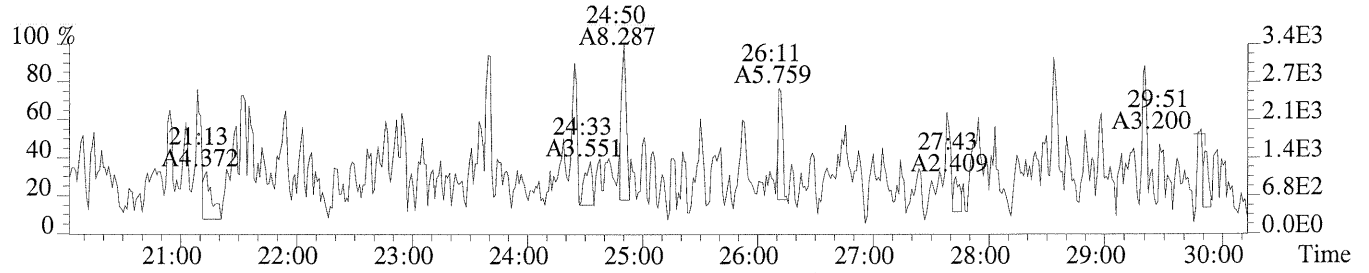
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



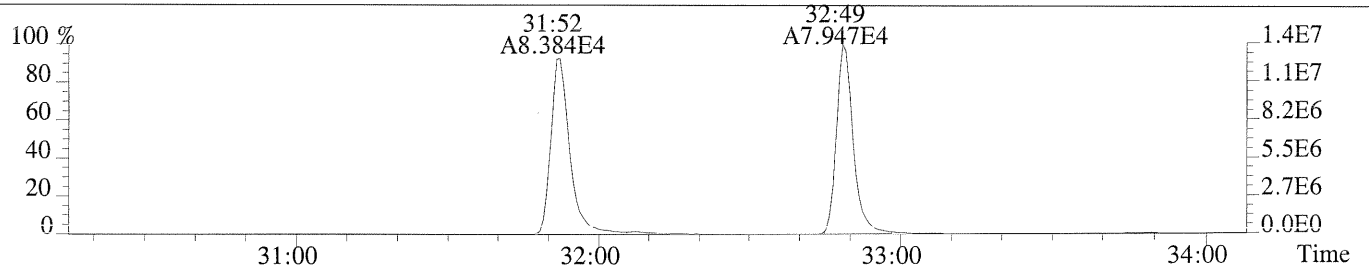
File:P230460 #1-640 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



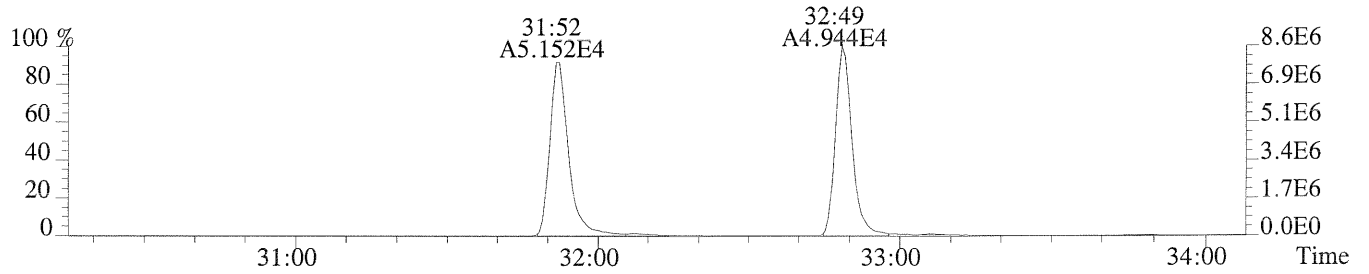
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



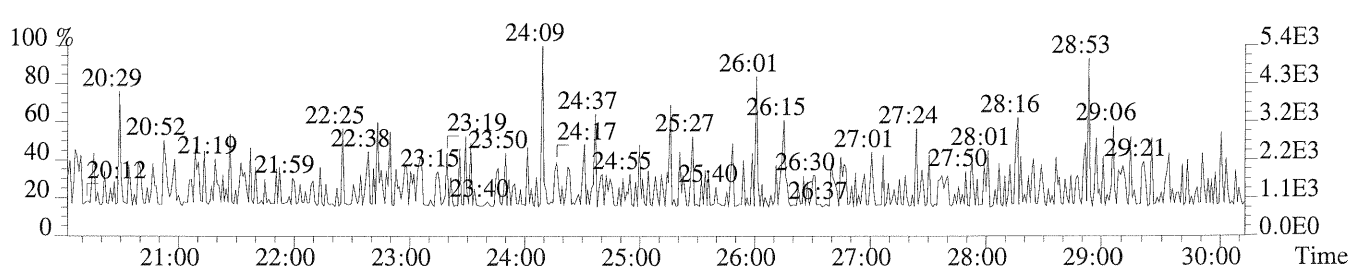
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



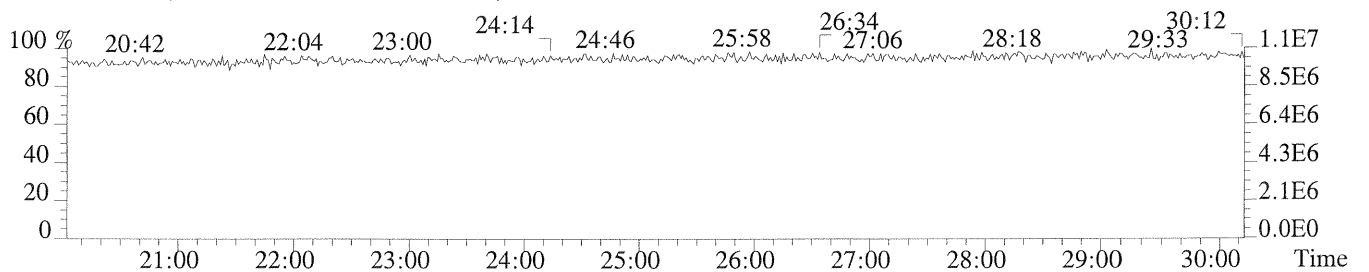
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



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

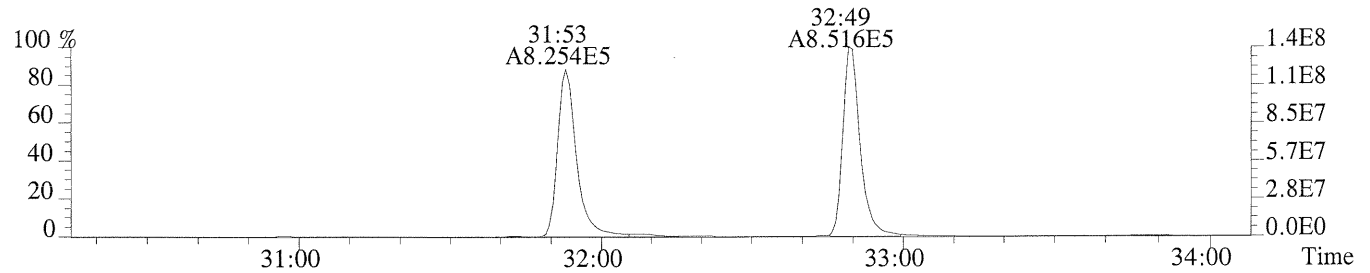


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

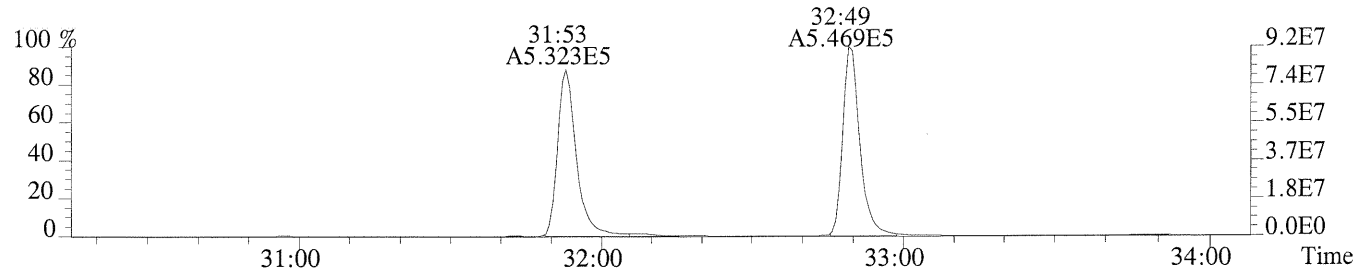


Sample#1 Exp:ICAL CS5

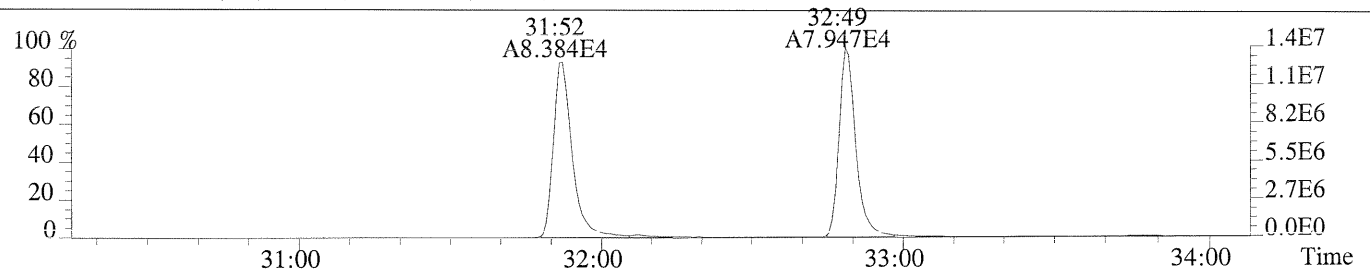
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3868.0,1.00%,F,T)



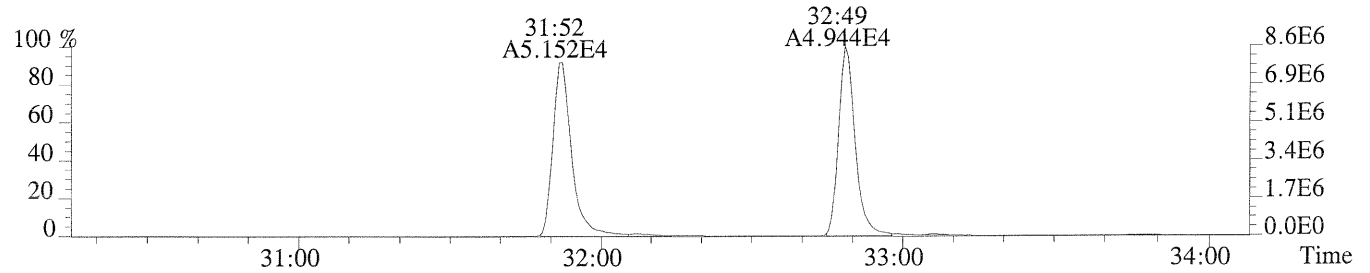
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3128.0,1.00%,F,T)



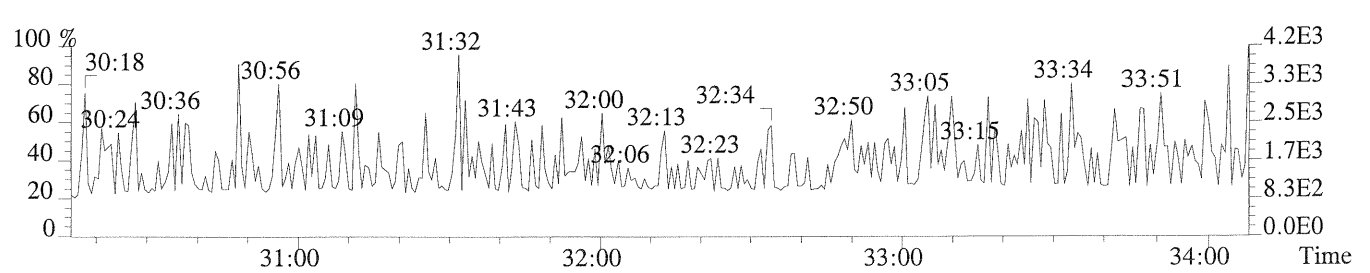
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



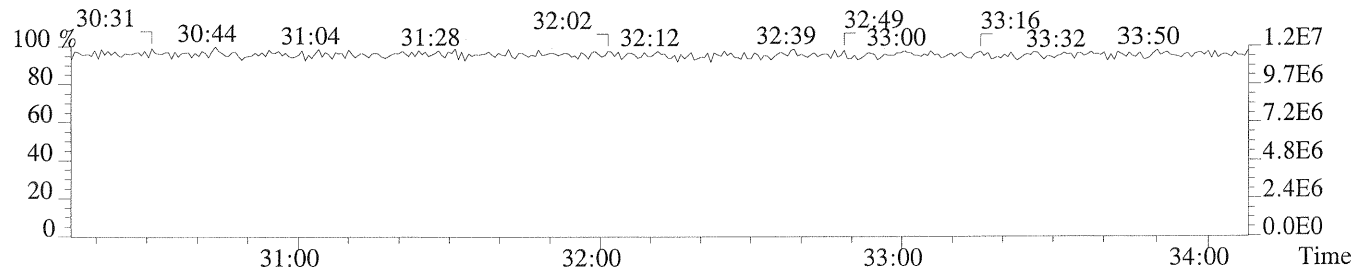
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



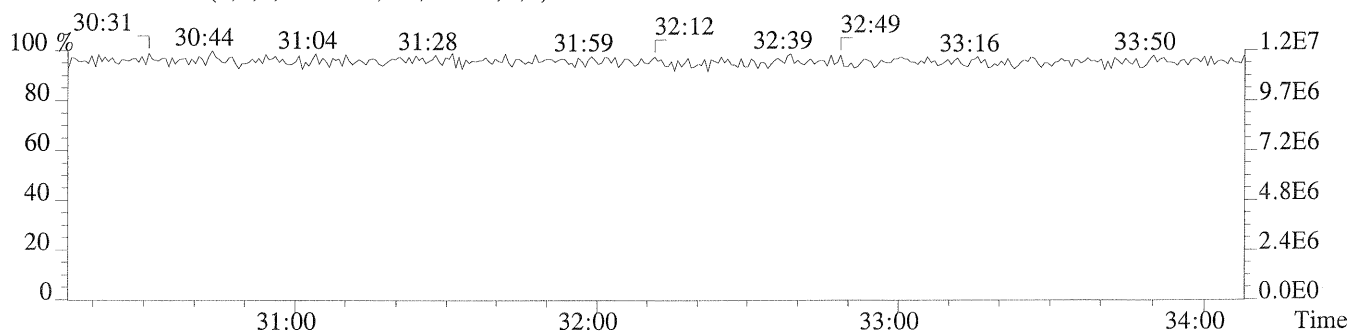
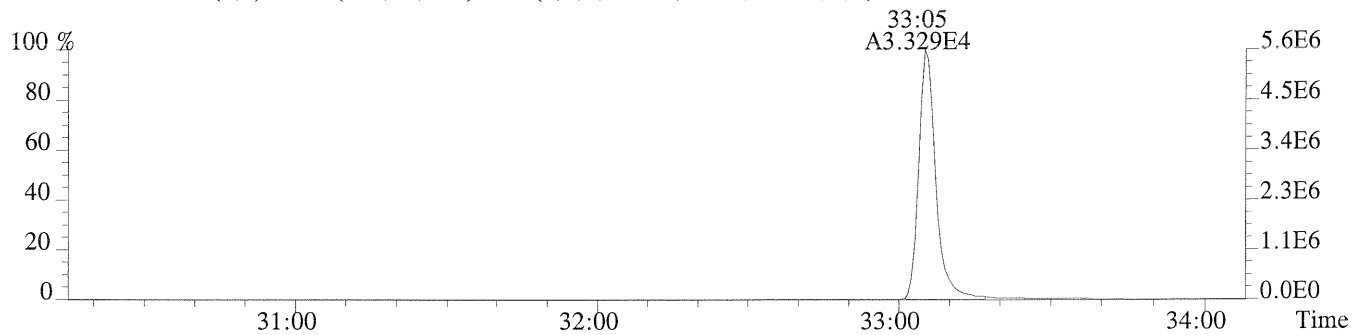
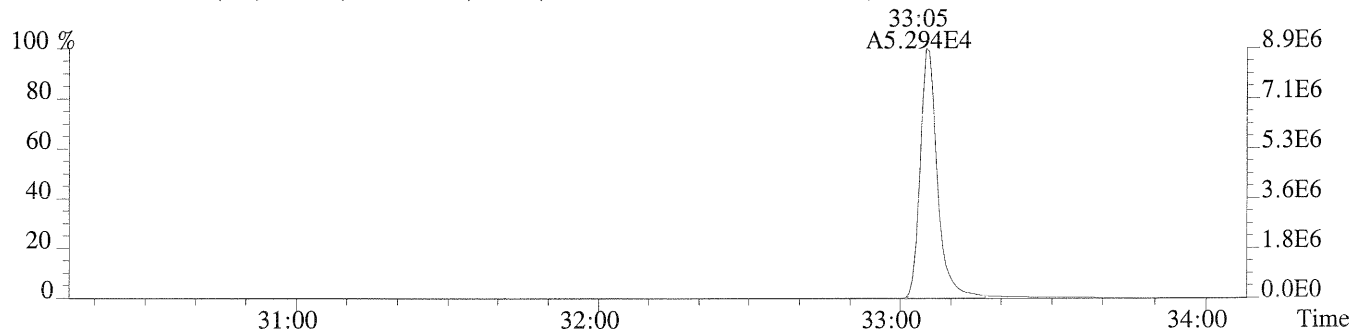
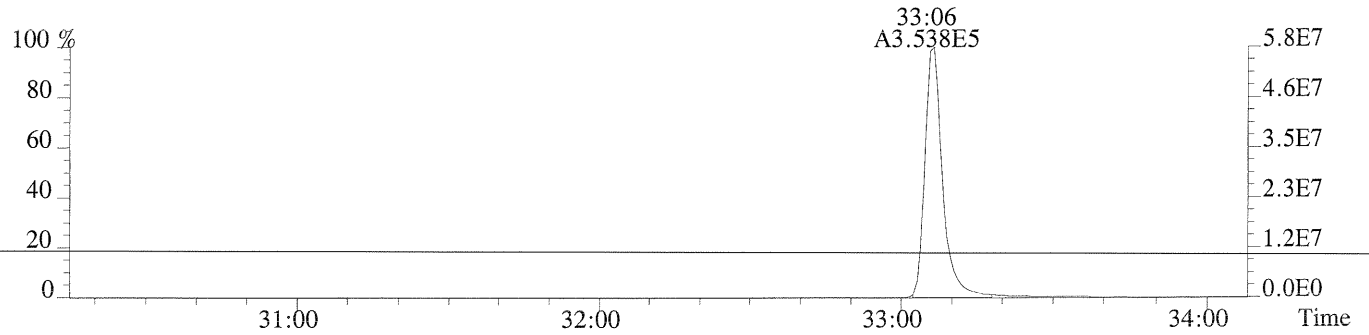
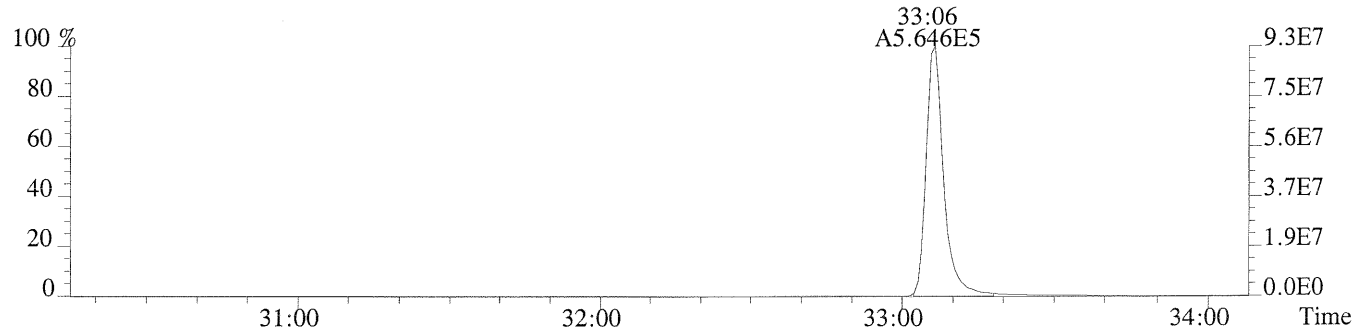
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



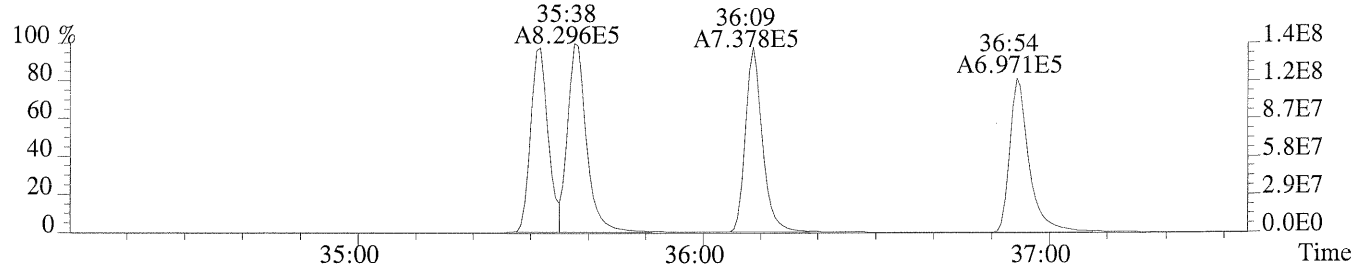
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



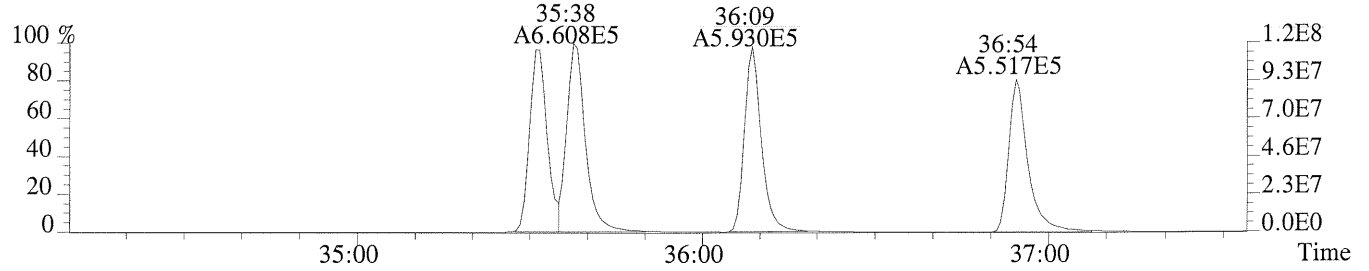




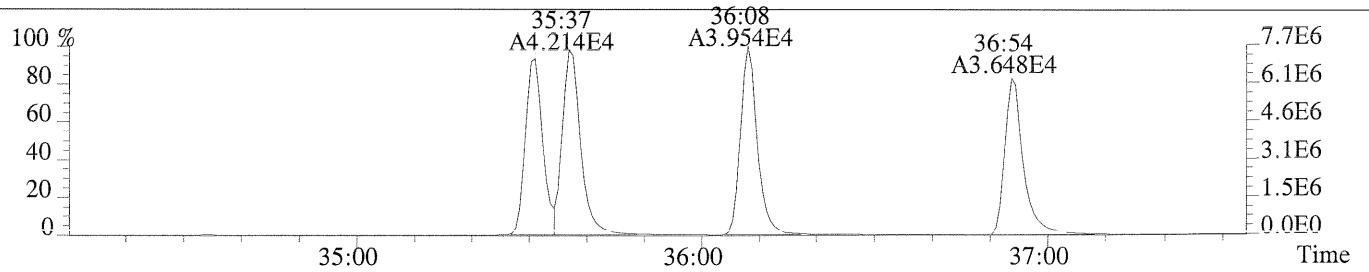
File:P230460 #1-309 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5540.0,0.40%,F,T)



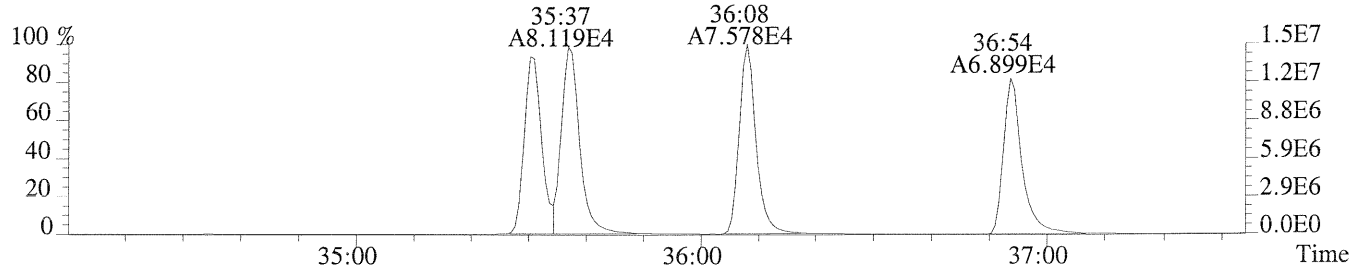
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5208.0,0.40%,F,T)



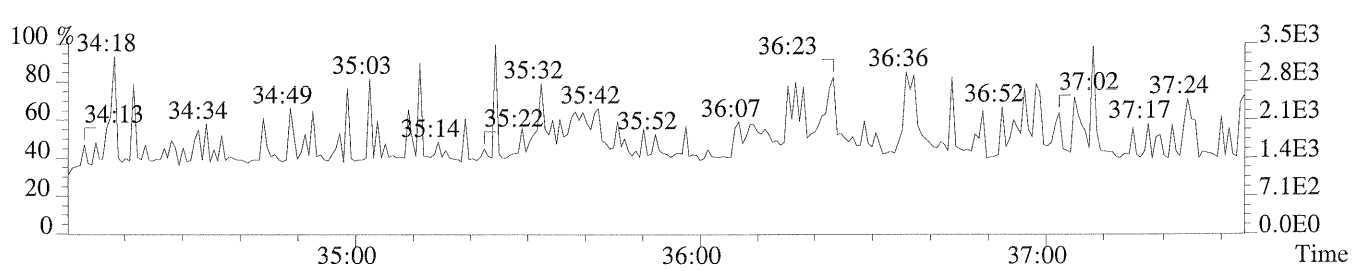
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1560.0,0.40%,F,T)



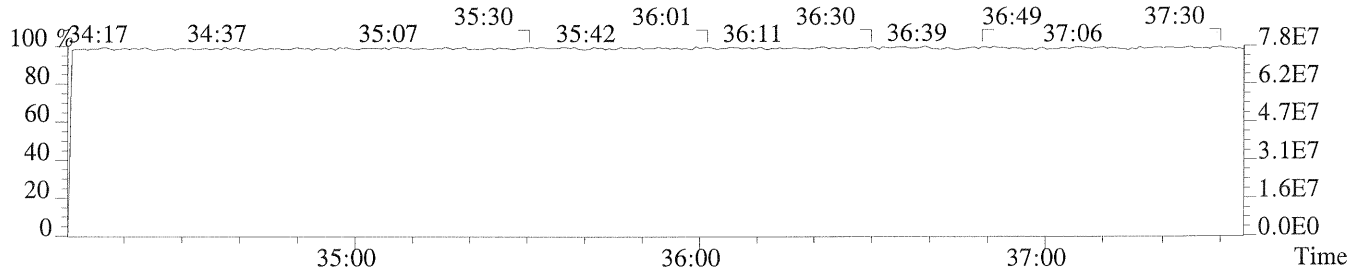
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



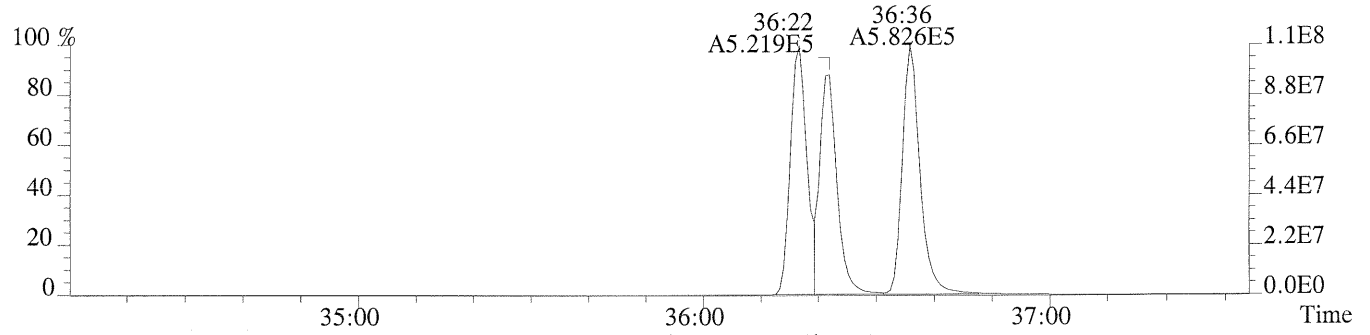
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



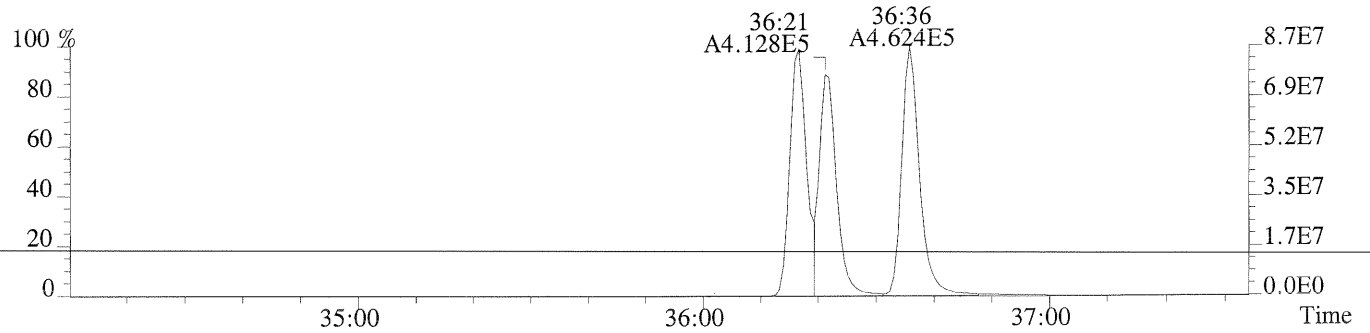
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



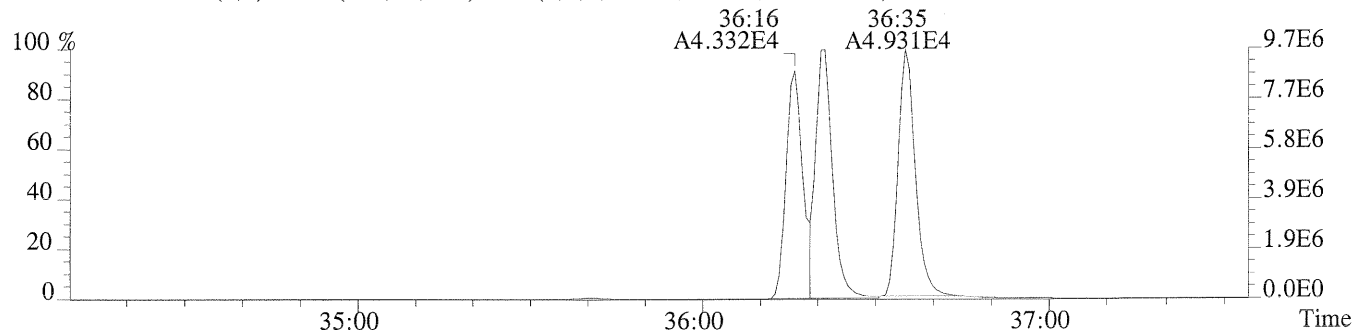
File:P230460 #1-309 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



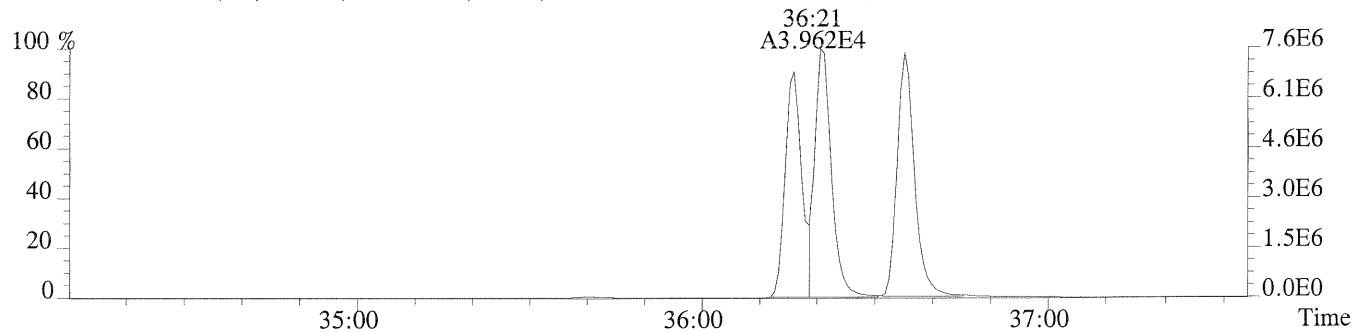
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



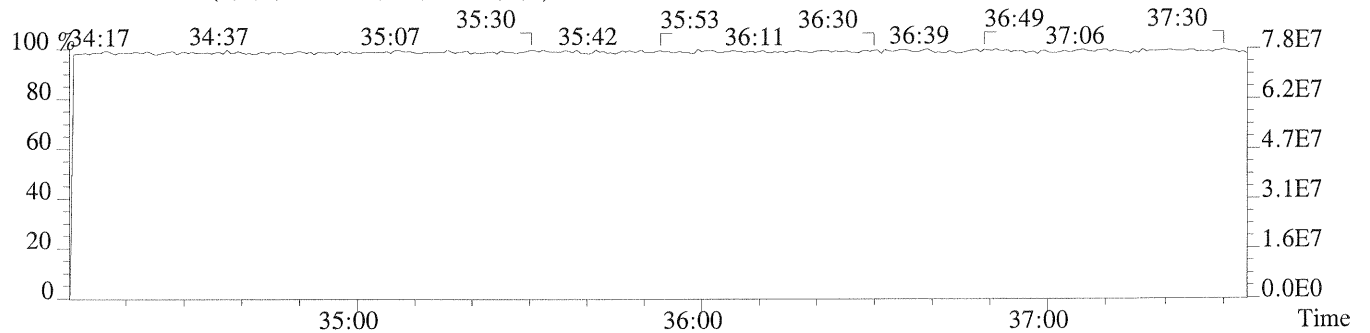
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)



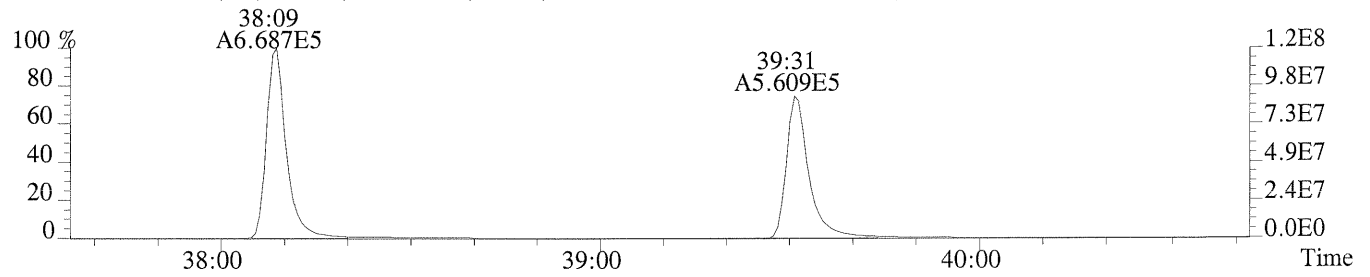
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



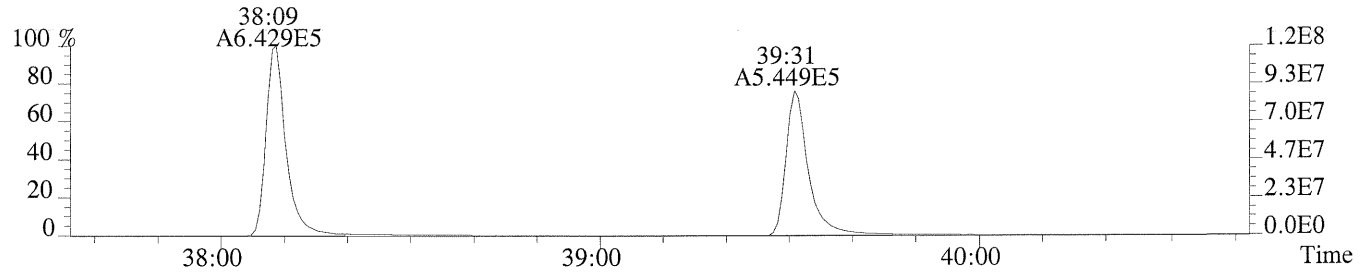
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



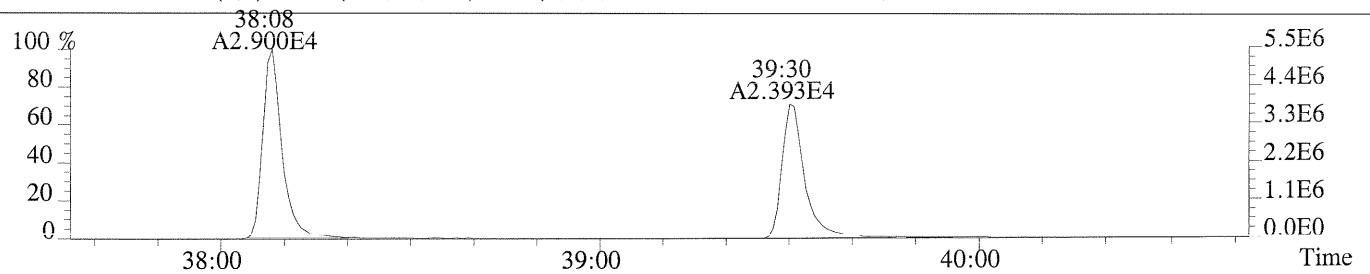
File:P230460 #1-282 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,93820.0,0.50%,F,T)



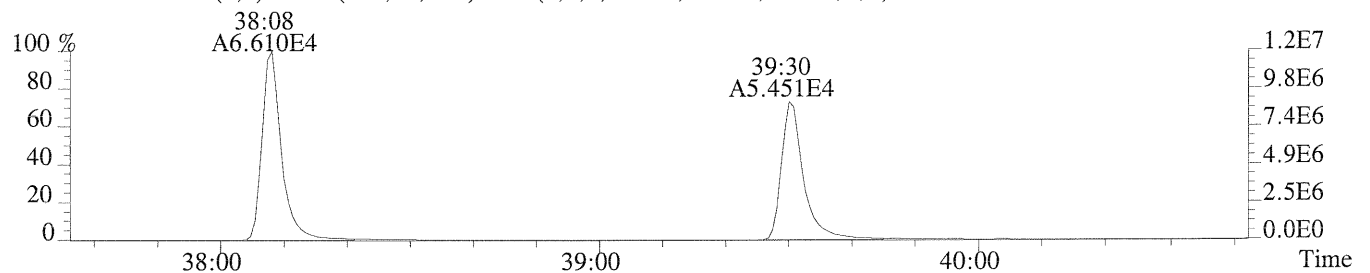
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72520.0,0.50%,F,T)



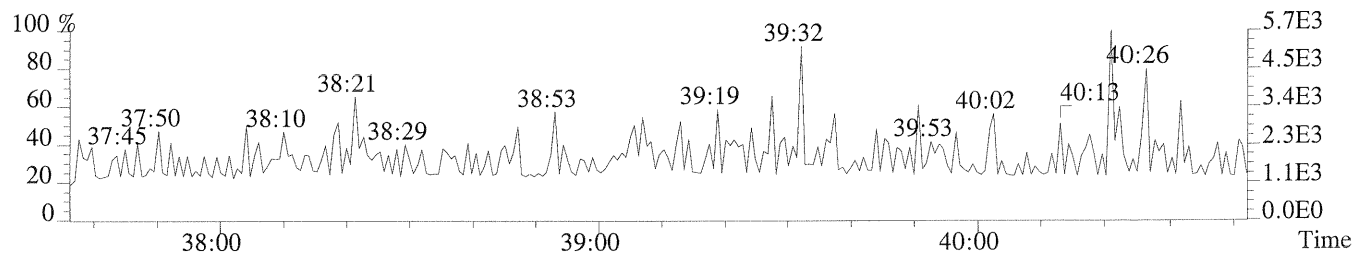
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1940.0,0.50%,F,T)



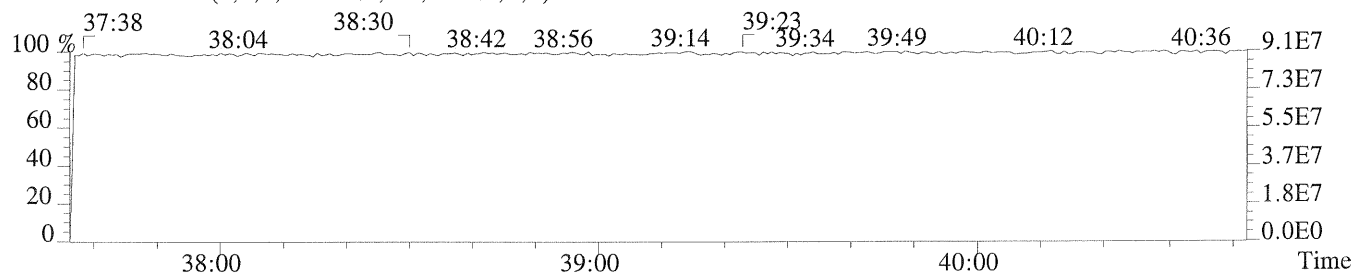
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8040.0,0.50%,F,T)



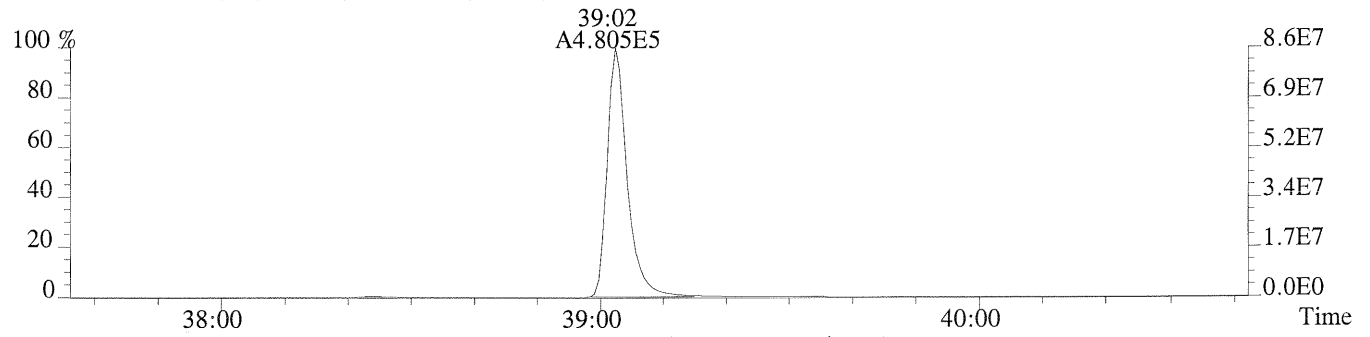
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



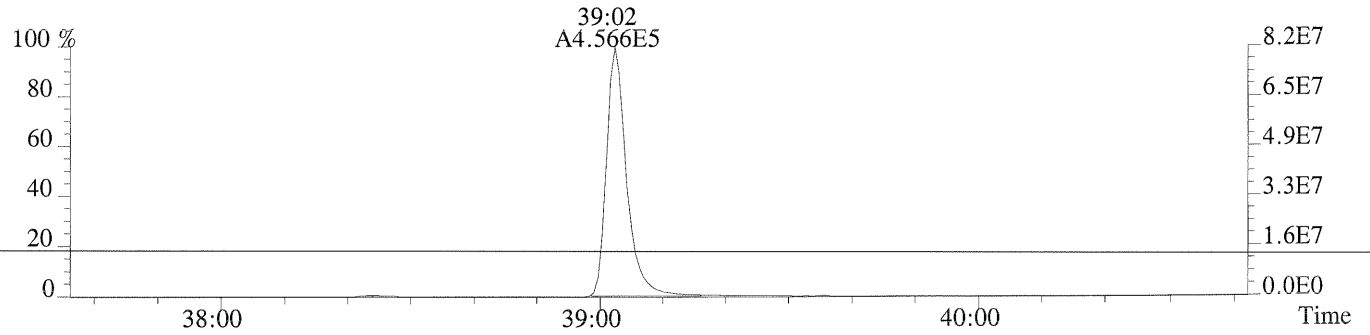
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



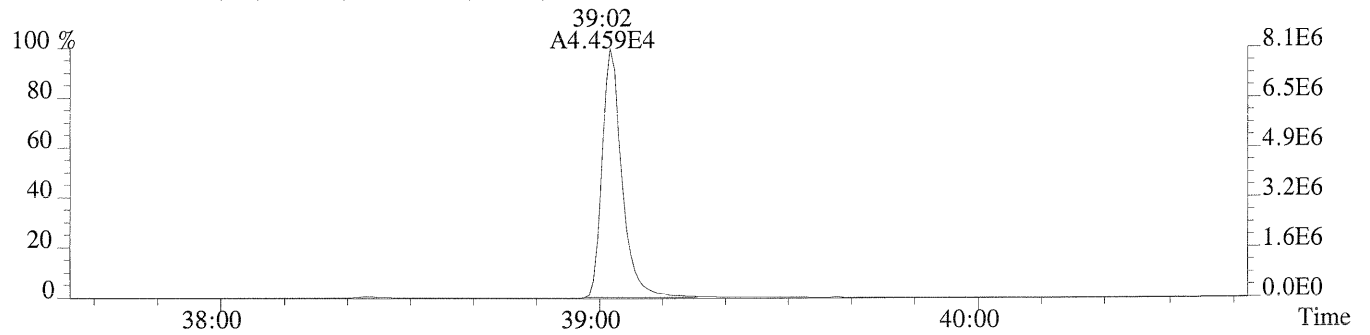
File:P230460 #1-282 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12720.0,0.40%,F,T)



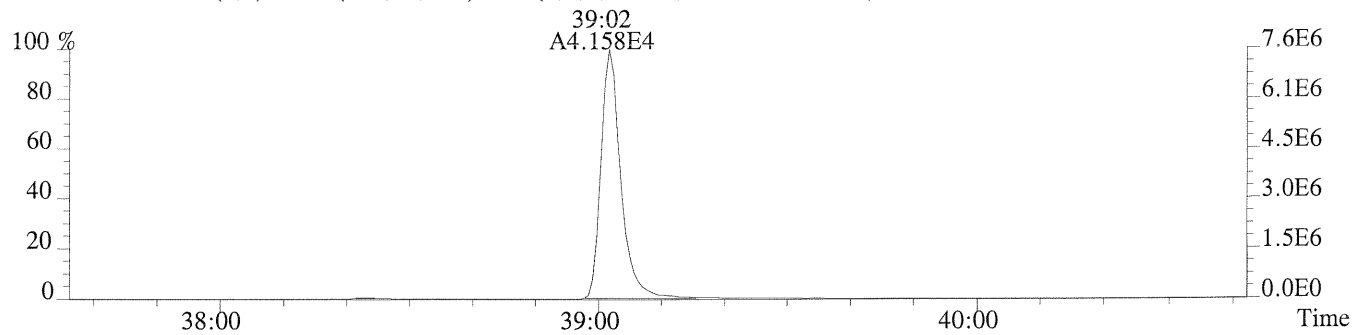
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8440.0,0.40%,F,T)



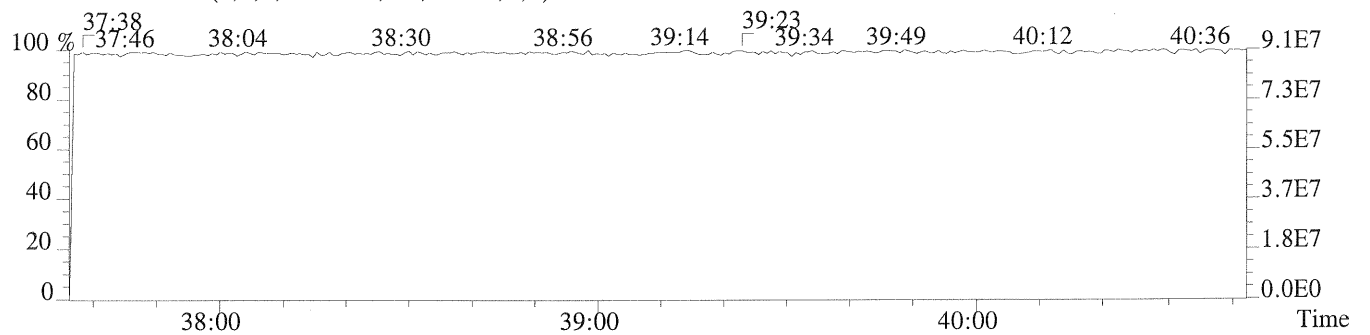
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2784.0,0.40%,F,T)



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

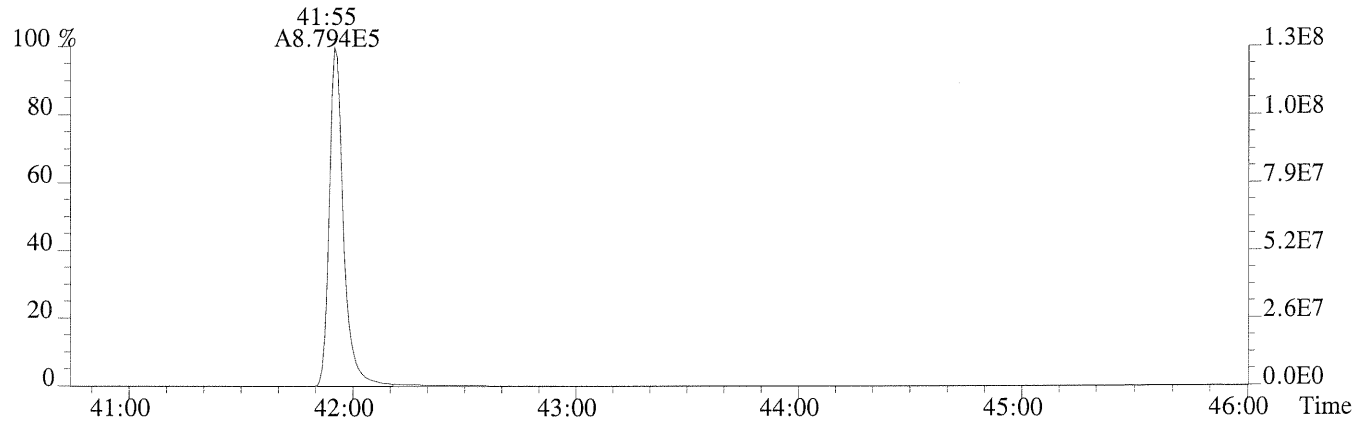


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

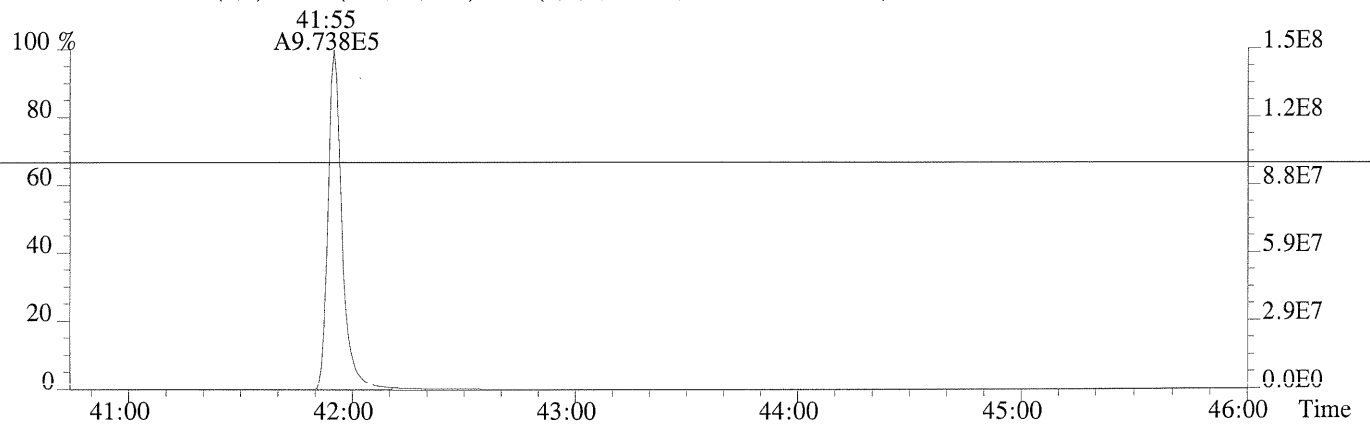


File:P230460 #1-484 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5

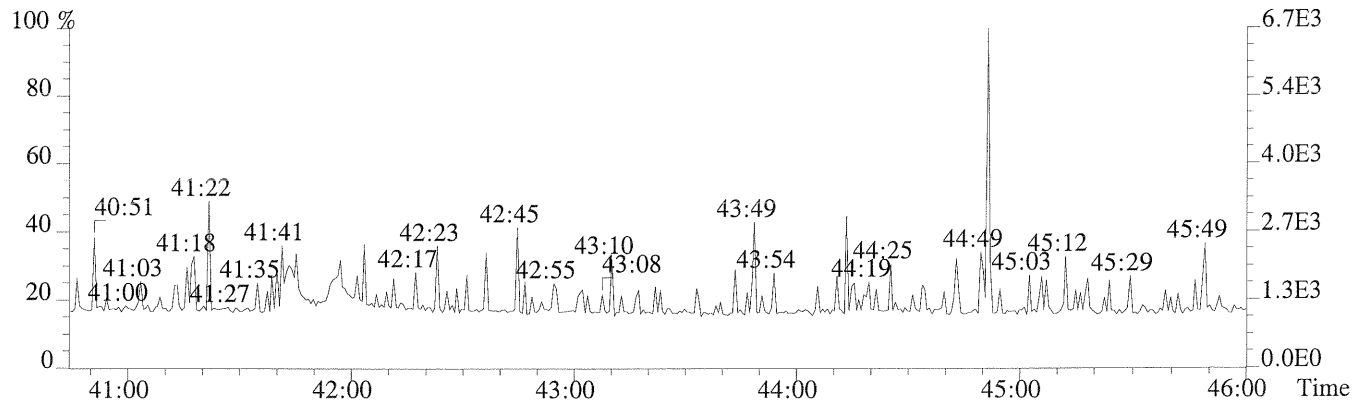
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



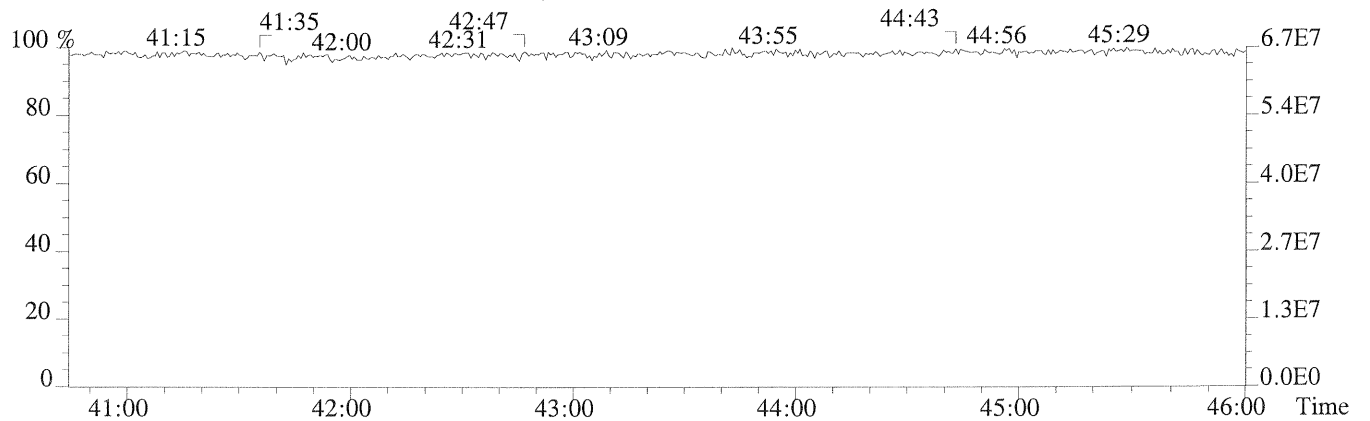
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1684.0,0.40%,F,T)



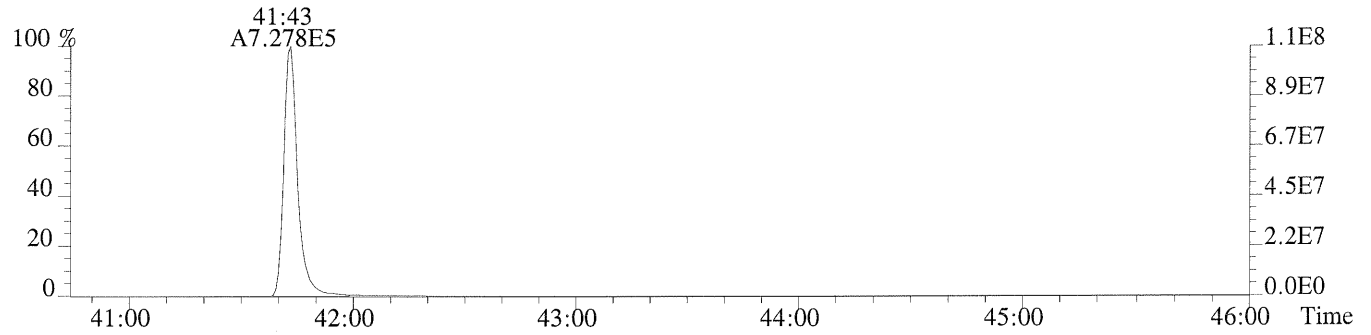
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



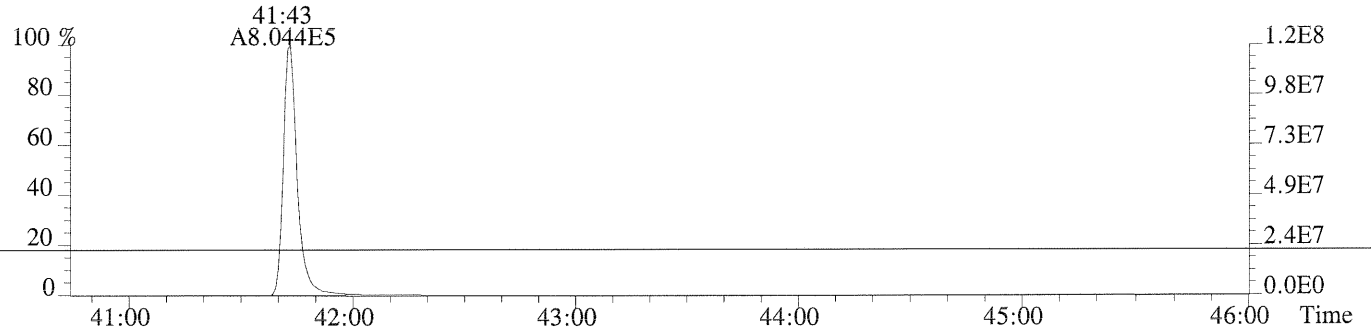
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



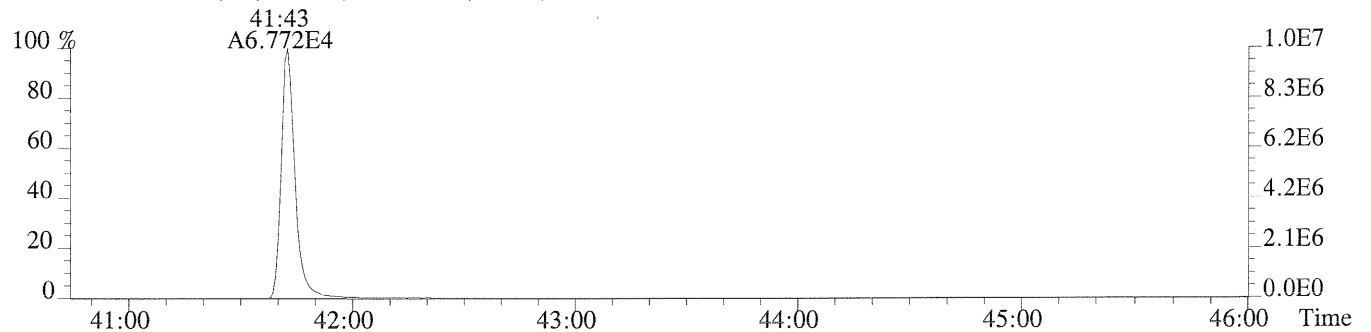
File:P230460 #1-484 Acq:11-AUG-2014 22:31:11 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:ICAL CS5  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



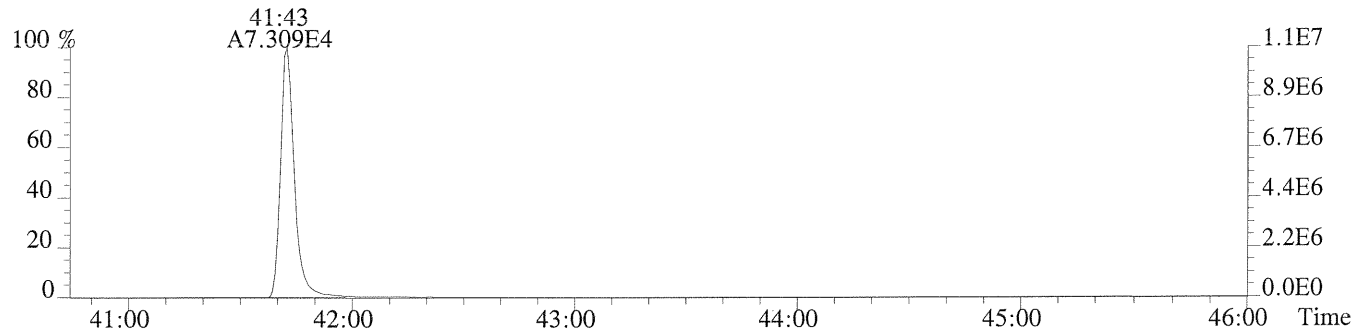
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,416.0,0.40%,F,T)



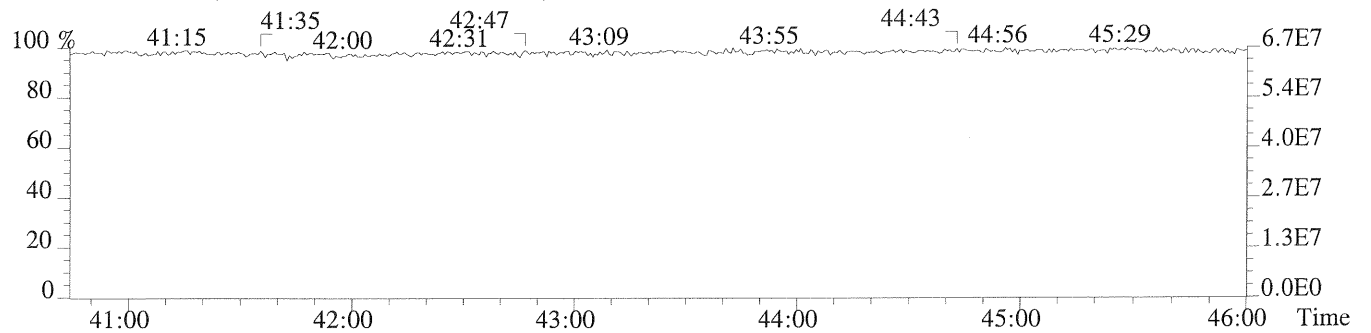
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,868.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,796.0,0.40%,F,T)



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



FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 08/11/14

METHOD M23

Instrument ID: E-HRMS-04

GC Column ID: DB-5MSUI

VER Data Filename: P230461

Analysis Date: 11-AUG-14 Time: 23:19:03

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	0.83	0.65-0.89	0.98	0.97	1.83
1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	1.01	1.01	0.37
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	0.83	0.90	-7.29
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	1.02	1.12	-8.27
1,2,3,7,8,9-HxCDD	M+2/M+4	1.31	1.05-1.43	1.06	1.12	-5.86
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	1.06	1.10	-4.27
OCDD	M+2/M+4	0.91	0.76-1.02	1.08	1.18	-8.88
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	0.93	0.96	-2.96
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	0.99	1.03	-4.55
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	0.97	0.97	0.26
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	0.86	0.88	-3.01
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	1.20	1.17	2.40
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	0.85	0.87	-2.21
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	0.98	0.98	-0.51
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	1.35	1.39	-2.99
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.07	0.88-1.20	1.12	1.11	0.56
OCDF	M+2/M+4	0.90	0.76-1.02	1.28	1.39	-8.38

(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: 08/11/14

METHOD M23

Instrument ID: E-HRMS-04

GC Column ID: DB-5MSUI

VER Data Filename: P230461

Analysis Date: 11-AUG-14 Time: 23:19:03

	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	0.77	0.65-0.89	1.01	1.01	0.51
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	1.25	1.26	-0.81
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	1.06	0.98	8.00
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	0.93	0.90	3.03
13C-OCDD	M+2/M+4	0.92	0.76-1.02	0.75	0.69	8.23
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	1.47	1.48	-0.96
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	2.00	1.97	1.46
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	1.46	1.45	0.91
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	1.03	1.01	1.93
Surrogate Standards						
37Cl-2,3,7,8-TCDD				0.95	0.96	-1.56
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.65	1.32-1.78	0.93	0.98	-4.65
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	0.69	0.79	-12.55
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	0.72	0.72	-0.51
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	0.81	0.85	-4.94
Alternate Standard						
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	1.06	1.09	-2.79

(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

Sample Response Summary

Run #13 Filename P230461 #1 Samp: 1 Inj: 1 Acquired: 11-AUG-14 23:19:03  
Processed: 13-AUG-14 14:01:40 LAB. ID: 54819

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	27:33	3.378e+03	4.479e+03	0.75	yes	no	0.959
2 Unk	1,2,3,7,8-PeCDF	31:54	3.452e+04	2.228e+04	1.55	yes	no	1.034
3 Unk	2,3,4,7,8-PeCDF	32:51	3.414e+04	2.193e+04	1.56	yes	yes	0.972
4 Unk	1,2,3,4,7,8-HxCDF	35:32	2.735e+04	2.212e+04	1.24	yes	no	0.883
5 Unk	1,2,3,6,7,8-HxCDF	35:38	3.846e+04	3.104e+04	1.24	yes	no	1.175
6 Unk	2,3,4,6,7,8-HxCDF	36:09	3.073e+04	2.570e+04	1.20	yes	no	0.982
7 Unk	1,2,3,7,8,9-HxCDF	36:56	2.726e+04	2.195e+04	1.24	yes	no	0.871
8 Unk	1,2,3,4,6,7,8-HpCDF	38:09	2.788e+04	2.689e+04	1.04	yes	no	1.390
9 Unk	1,2,3,4,7,8,9-HpCDF	39:32	2.348e+04	2.197e+04	1.07	yes	no	1.113
10 Unk	OCDF	41:56	3.584e+04	3.966e+04	0.90	yes	no	1.392
11 Unk	2,3,7,8-TCDD	28:22	2.604e+03	3.120e+03	0.83	yes	no	0.966
12 Unk	1,2,3,7,8-PeCDD	33:07	2.245e+04	1.404e+04	1.60	yes	no	1.009
13 Unk	1,2,3,4,7,8-HxCDD	36:17	1.948e+04	1.546e+04	1.26	yes	no	0.896
14 Unk	1,2,3,6,7,8-HxCDD	36:22	2.406e+04	1.897e+04	1.27	yes	no	1.115
15 Unk	1,2,3,7,8,9-HxCDD	36:37	2.521e+04	1.922e+04	1.31	yes	no	1.122
16 Unk	1,2,3,4,6,7,8-HpCDD	39:03	1.995e+04	1.902e+04	1.05	yes	no	1.104
17 Unk	OCDD	41:43	3.035e+04	3.336e+04	0.91	yes	no	1.181
18 IS	13C-2,3,7,8-TCDF	27:31	3.772e+04	4.675e+04	0.81	yes	no	1.481
19 IS	13C-1,2,3,7,8-PeCDF	31:53	7.114e+04	4.398e+04	1.62	yes	no	1.971
20 SS	13C-2,3,4,7,8-PeCDF	32:50	6.682e+04	4.060e+04	1.65	yes	no	0.979
21 SS	13C-1,2,3,4,7,8-HxCDF	35:31	2.844e+04	5.453e+04	0.52	yes	no	0.722
22 IS	13C-1,2,3,6,7,8-HxCDF	35:38	3.991e+04	7.564e+04	0.53	yes	no	1.448
24 ALT	13C-1,2,3,7,8,9-HxCDF	36:55	2.896e+04	5.480e+04	0.53	yes	yes	1.089
25 IS	13C-1,2,3,4,6,7,8-HpCDF	38:08	2.501e+04	5.621e+04	0.44	yes	no	1.008
26 SS	13C-1,2,3,4,7,8,9-HpCDF	39:31	1.928e+04	4.616e+04	0.42	yes	no	0.848
27 IS	13C-2,3,7,8-TCDD	28:20	2.525e+04	3.296e+04	0.77	yes	no	1.006
28 IS	13C-1,2,3,7,8-PeCDD	33:06	4.448e+04	2.759e+04	1.61	yes	no	1.262
29 SS	13C-1,2,3,4,7,8-HxCDD	36:16	3.259e+04	2.537e+04	1.28	yes	no	0.788
30 IS	13C-1,2,3,6,7,8-HxCDD	36:21	4.722e+04	3.689e+04	1.28	yes	no	0.985
31 IS	13C-1,2,3,4,6,7,8-HpCDD	39:02	3.818e+04	3.554e+04	1.07	yes	no	0.905
32 IS	13C-OCDD	41:43	5.665e+04	6.177e+04	0.92	yes	no	0.692
33S/RT	13C-1,2,3,4-TCDD	27:41	2.528e+04	3.228e+04	0.78	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	36:36	4.457e+04	3.452e+04	1.29	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	28:22	5.502e+03				no	0.960

$$\text{OCDD} = \frac{(3.035e+04 + 3.336e+04) \times (200.0)}{(5.665e+04 + 6.177e+04)} \times 1.181 \times 1.000 = \text{pg}$$

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
2ND SRC CCV

Method M23

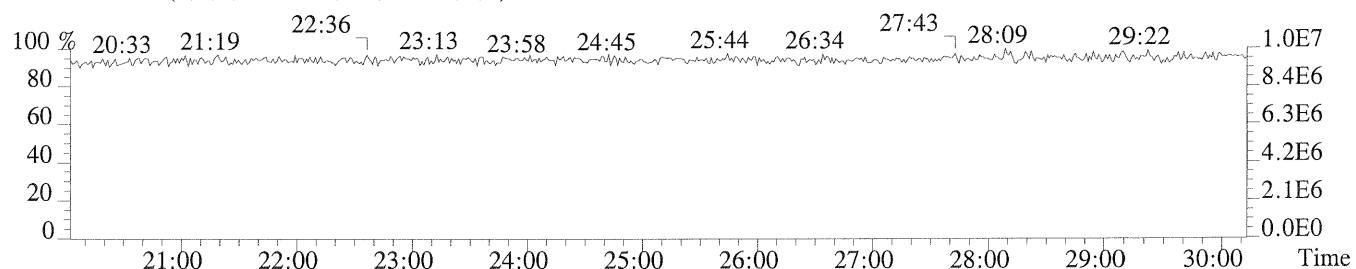
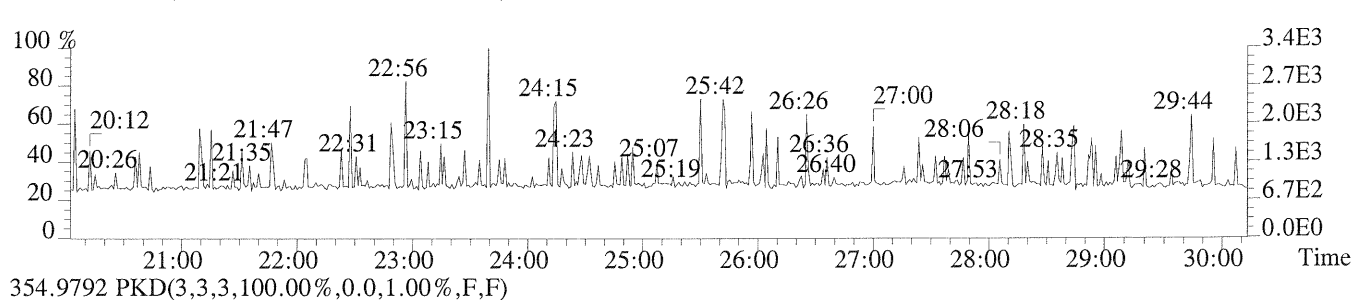
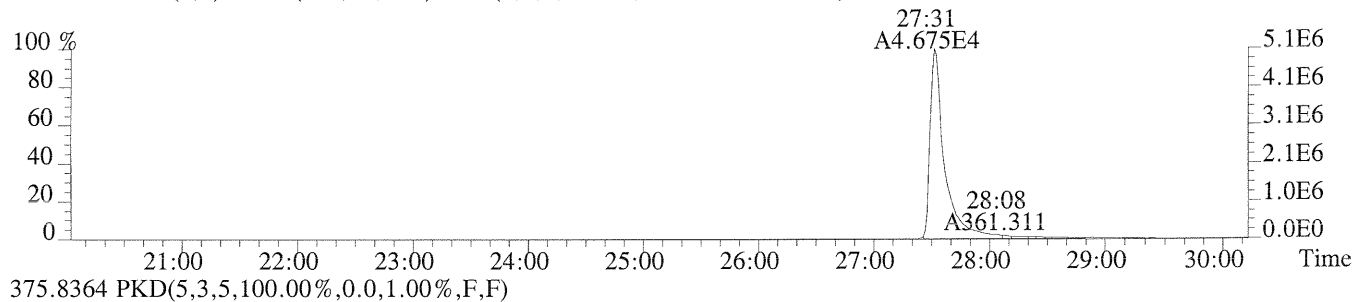
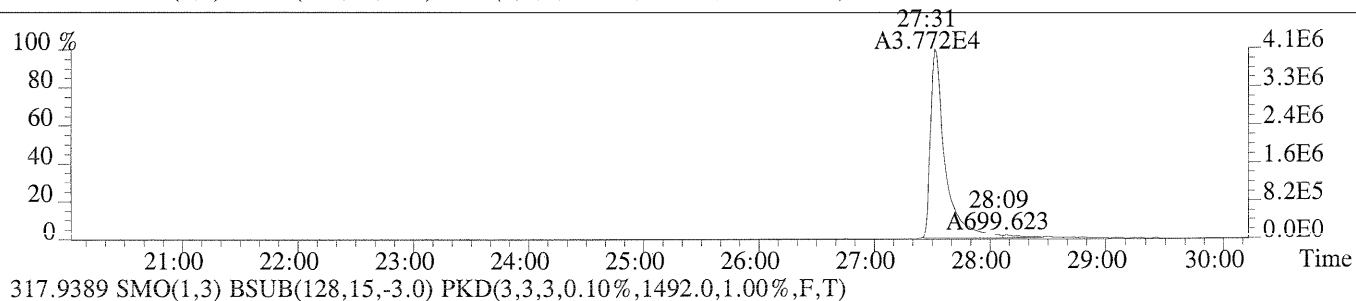
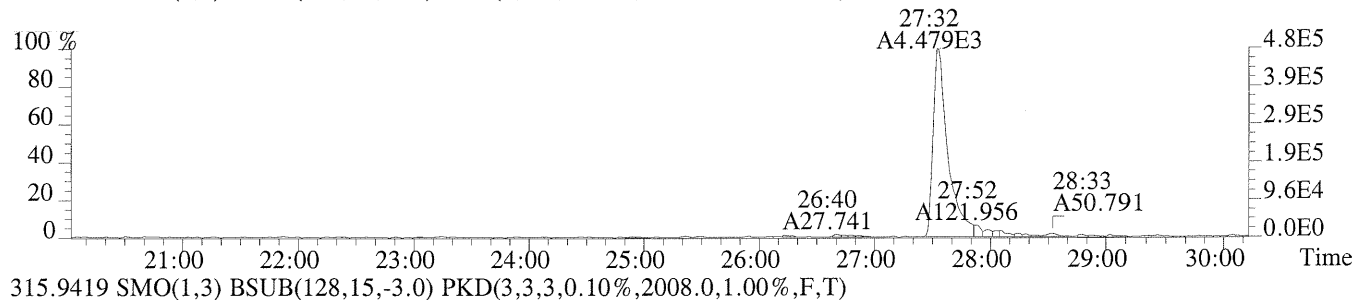
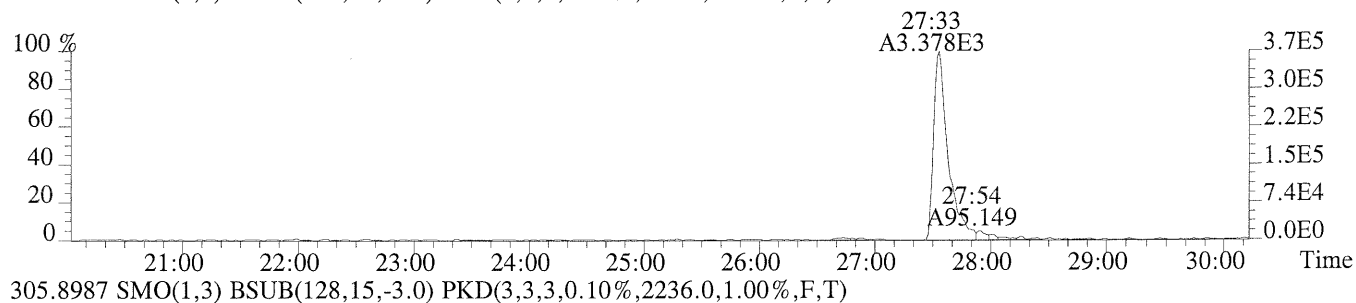
Run #13 Filename P230461 #1 Samp: 1 Inj: 1 Acquired: 11-AUG-14 23:19:03  
Processed: 13-AUG-14 14:01:40 LAB. ID: 54819

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.71e+05	9.16e+02	4.0e+02	4.80e+05	2.24e+03	2.1e+02
2	1,2,3,7,8-PeCDF	3.91e+06	2.49e+03	1.6e+03	2.53e+06	3.46e+03	7.3e+02
3	2,3,4,7,8-PeCDF	4.55e+06	2.49e+03	1.8e+03	2.88e+06	3.46e+03	8.3e+02
4	1,2,3,4,7,8-HxCDF	4.98e+06	3.98e+03	1.2e+03	3.97e+06	2.91e+03	1.4e+03
5	1,2,3,6,7,8-HxCDF	5.48e+06	3.98e+03	1.4e+03	4.33e+06	2.91e+03	1.5e+03
6	2,3,4,6,7,8-HxCDF	4.89e+06	3.98e+03	1.2e+03	3.98e+06	2.91e+03	1.4e+03
7	1,2,3,7,8,9-HxCDF	3.42e+06	3.98e+03	8.6e+02	2.76e+06	2.91e+03	9.5e+02
8	1,2,3,4,6,7,8-HpCDF	4.32e+06	1.17e+04	3.7e+02	4.27e+06	1.78e+04	2.4e+02
9	1,2,3,4,7,8,9-HpCDF	2.91e+06	1.17e+04	2.5e+02	2.80e+06	1.78e+04	1.6e+02
10	OCDF	4.19e+06	1.20e+03	3.5e+03	4.69e+06	1.84e+03	2.5e+03
11	2,3,7,8-TCDD	3.28e+05	9.52e+02	3.4e+02	3.94e+05	7.24e+02	5.4e+02
12	1,2,3,7,8-PeCDD	2.86e+06	1.28e+03	2.2e+03	1.82e+06	3.96e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	3.87e+06	7.72e+02	5.0e+03	3.08e+06	1.38e+03	2.2e+03
14	1,2,3,6,7,8-HxCDD	3.68e+06	7.72e+02	4.8e+03	2.96e+06	1.38e+03	2.1e+03
15	1,2,3,7,8,9-HxCDD	3.66e+06	7.72e+02	4.7e+03	2.79e+06	1.38e+03	2.0e+03
16	1,2,3,4,6,7,8-HpCDD	2.94e+06	8.24e+02	3.6e+03	2.79e+06	1.37e+03	2.0e+03
17	OCDD	3.88e+06	8.16e+02	4.8e+03	4.18e+06	1.02e+03	4.1e+03
18	13C-2,3,7,8-TCDF	4.07e+06	2.01e+03	2.0e+03	5.13e+06	1.49e+03	3.4e+03
19	13C-1,2,3,7,8-PeCDF	8.30e+06	1.24e+03	6.7e+03	5.18e+06	5.72e+02	9.1e+03
20	13C-2,3,4,7,8-PeCDF	8.73e+06	1.24e+03	7.0e+03	5.48e+06	5.72e+02	9.6e+03
21	13C-1,2,3,4,7,8-HxCDF	5.11e+06	1.58e+03	3.2e+03	9.93e+06	1.26e+03	7.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.69e+06	1.58e+03	3.6e+03	1.09e+07	1.26e+03	8.7e+03
24	13C-1,2,3,7,8,9-HxCDF	3.75e+06	1.58e+03	2.4e+03	7.16e+06	1.26e+03	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.92e+06	2.86e+03	1.4e+03	8.83e+06	1.01e+04	8.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.46e+06	2.86e+03	8.6e+02	5.65e+06	1.01e+04	5.6e+02
27	13C-2,3,7,8-TCDD	3.09e+06	5.23e+03	5.9e+02	3.97e+06	2.52e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	5.68e+06	8.92e+02	6.4e+03	3.48e+06	4.20e+02	8.3e+03
29	13C-1,2,3,4,7,8-HxCDD	6.40e+06	1.48e+03	4.3e+03	5.02e+06	9.48e+02	5.3e+03
30	13C-1,2,3,6,7,8-HxCDD	7.50e+06	1.48e+03	5.1e+03	5.88e+06	9.48e+02	6.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.59e+06	1.78e+03	3.1e+03	5.10e+06	1.60e+03	3.2e+03
32	13C-OCDD	7.17e+06	1.53e+03	4.7e+03	7.89e+06	4.20e+02	1.9e+04
33	13C-1,2,3,4-TCDD	3.84e+06	5.23e+03	7.4e+02	4.80e+06	2.52e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	6.53e+06	1.48e+03	4.4e+03	5.03e+06	9.48e+02	5.3e+03
35	37Cl-2,3,7,8-TCDD	7.05e+05	8.28e+02	8.5e+02			

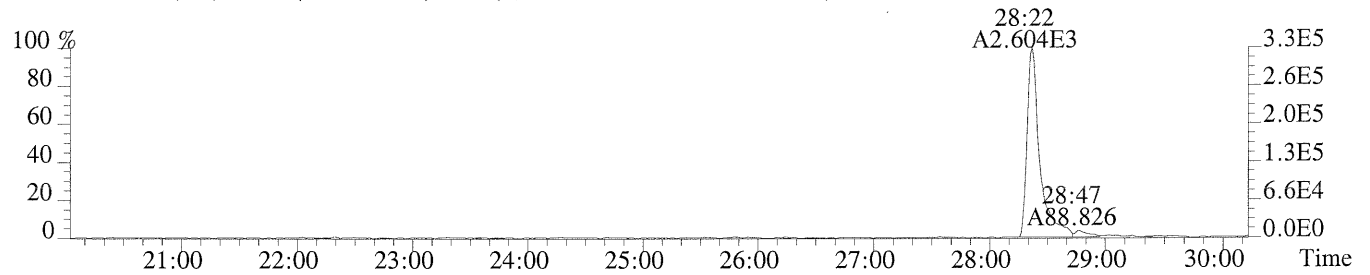
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713)266-1599. Fax: (713)266-0130

ALS Form TO-9SN/M23SN.FRM

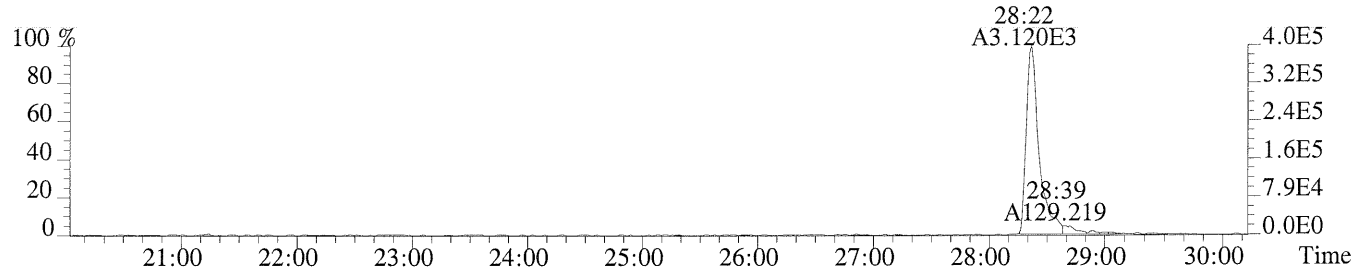
File:P230461 #1-640 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



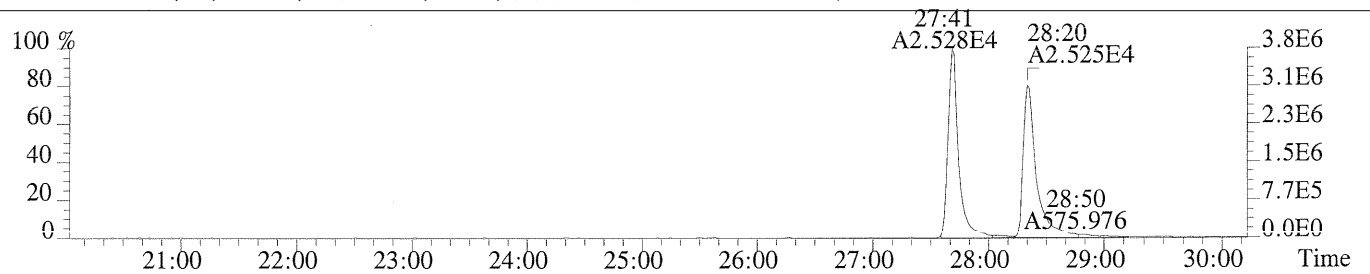
File:P230461 #1-640 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



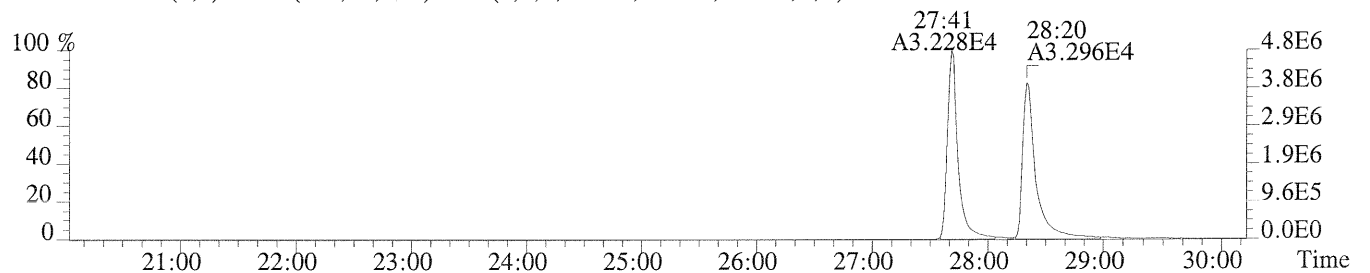
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



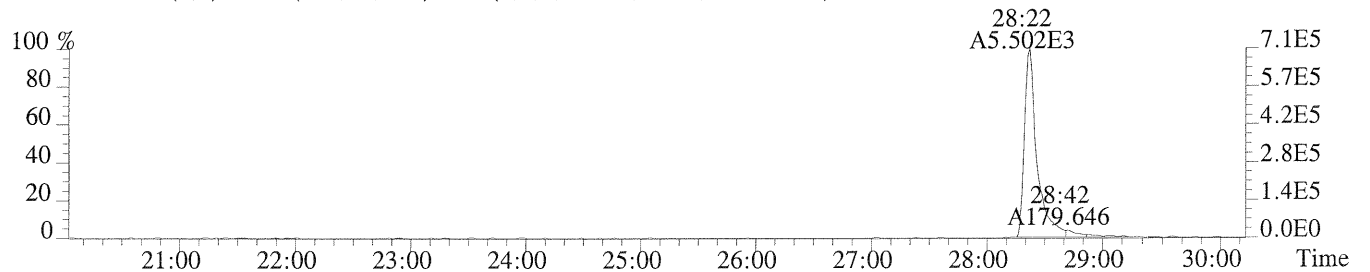
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5228.0,1.00%,F,T)



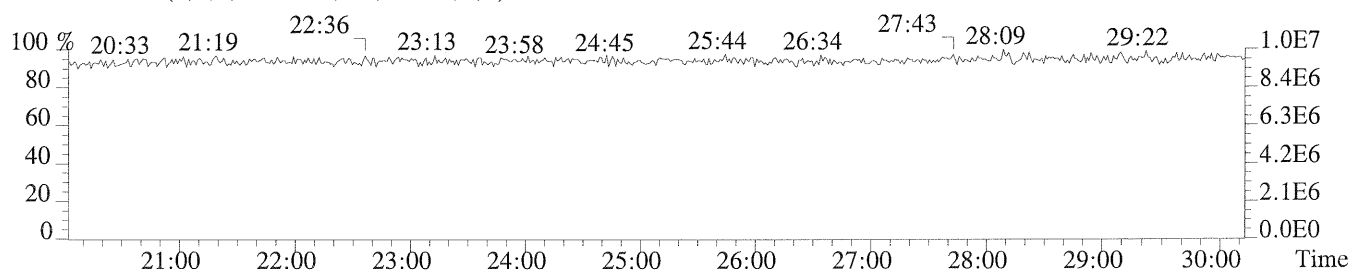
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2520.0,1.00%,F,T)



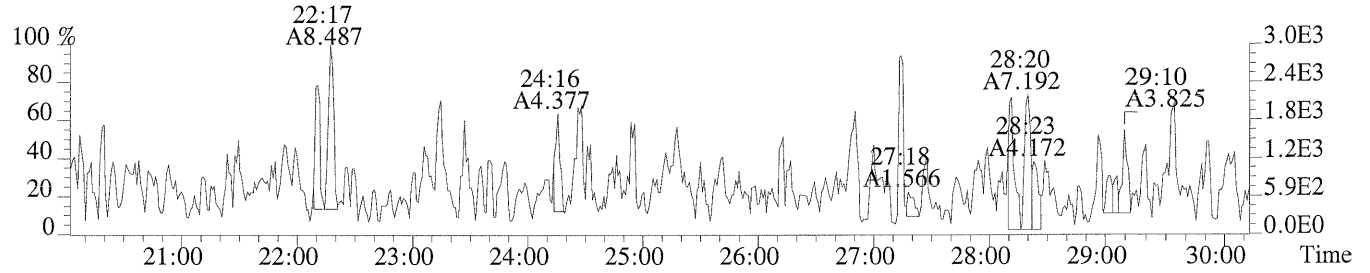
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



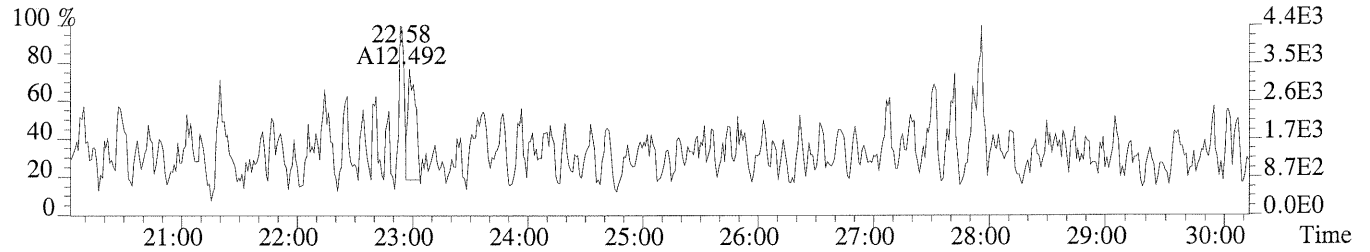
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



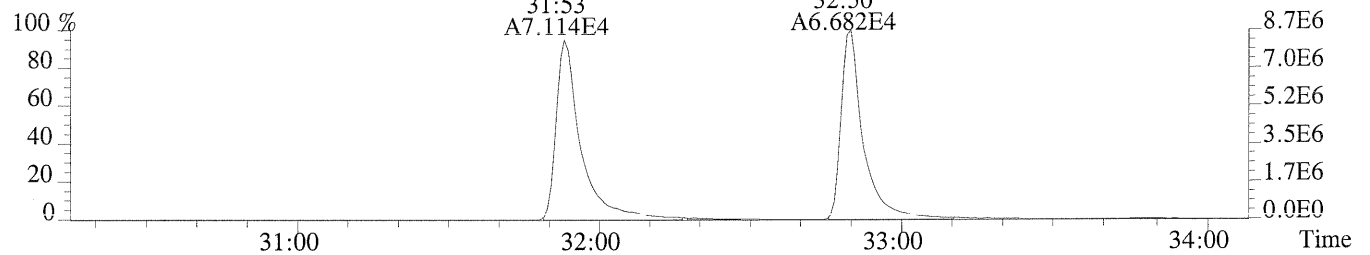
File:P230461 #1-640 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



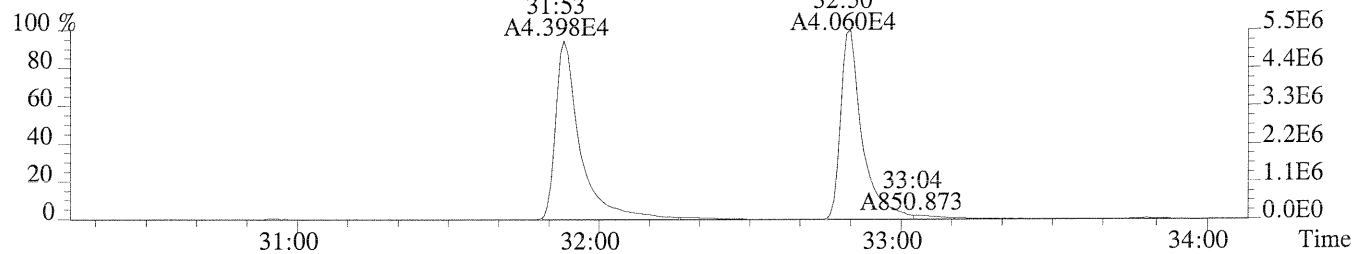
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



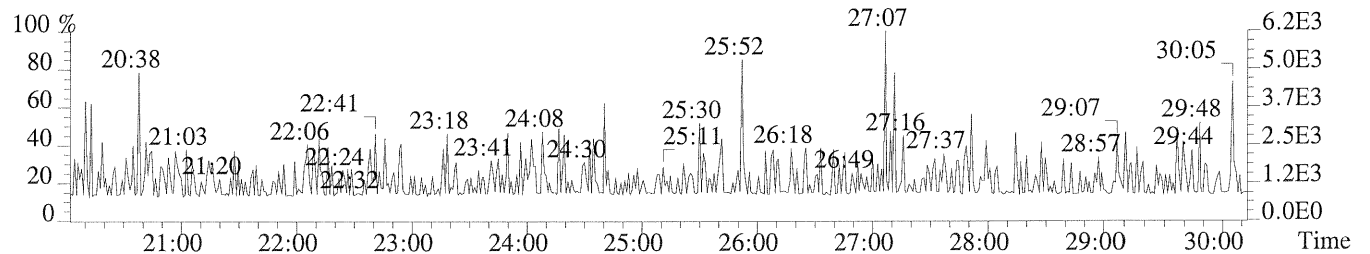
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



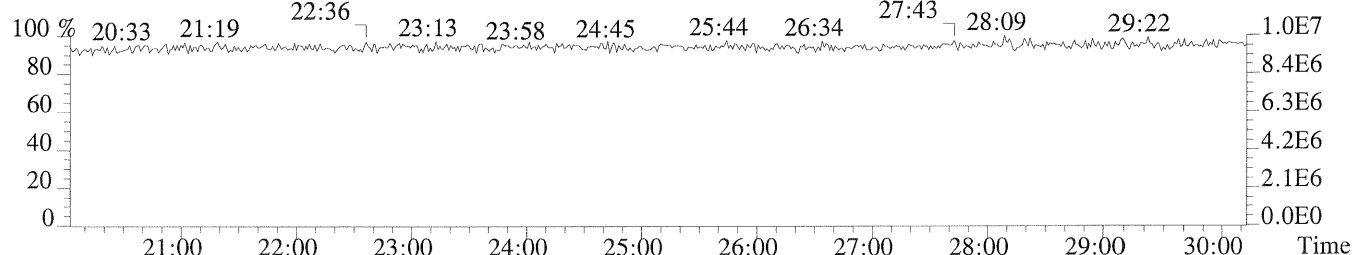
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



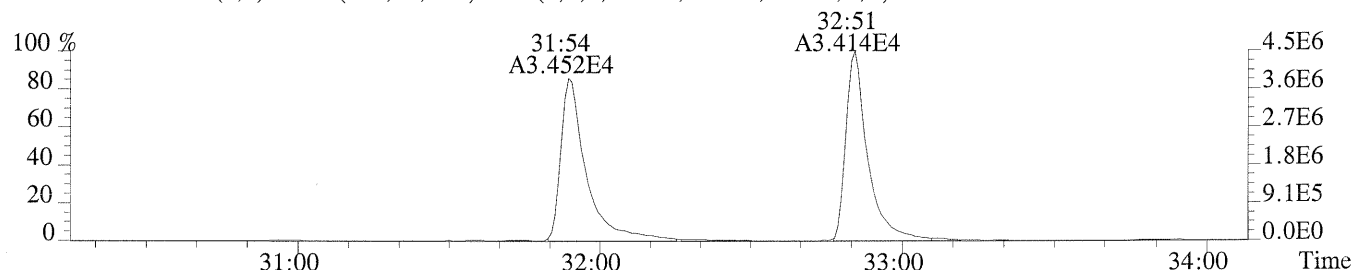
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



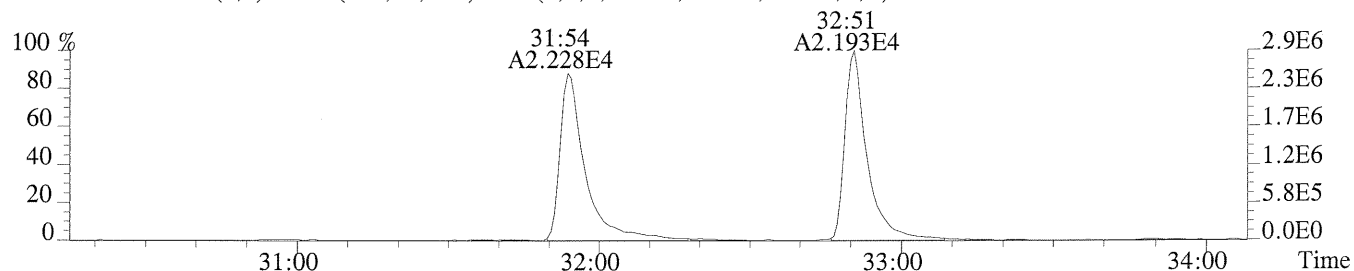
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



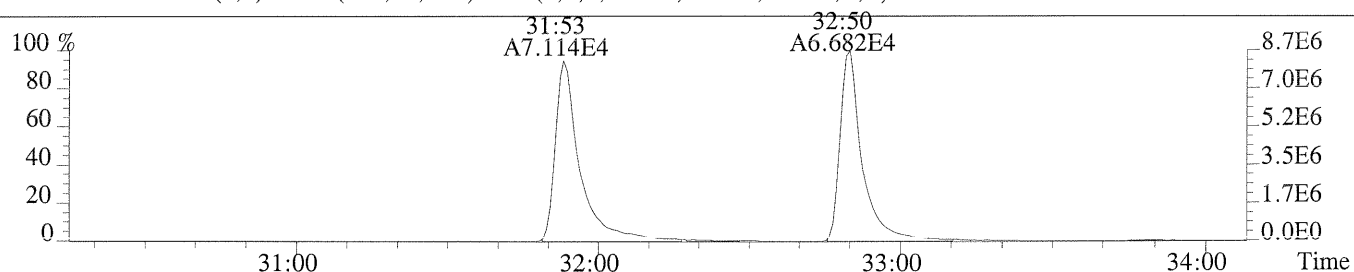
File:P230461 #1-353 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2492.0,1.00%,F,T)



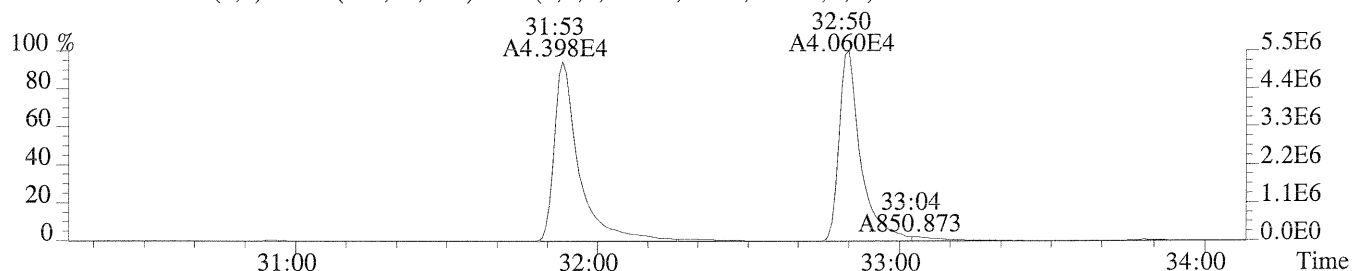
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3456.0,1.00%,F,T)



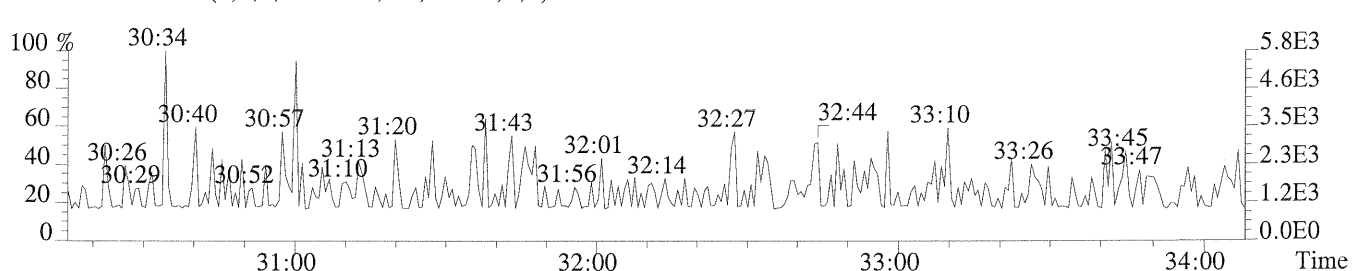
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



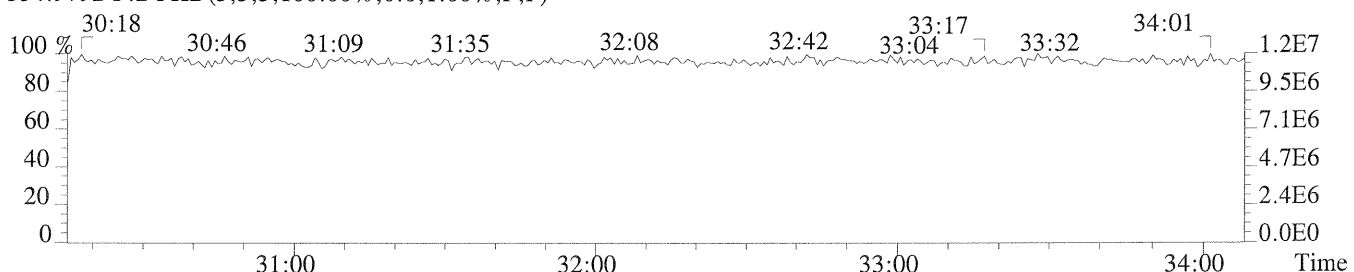
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



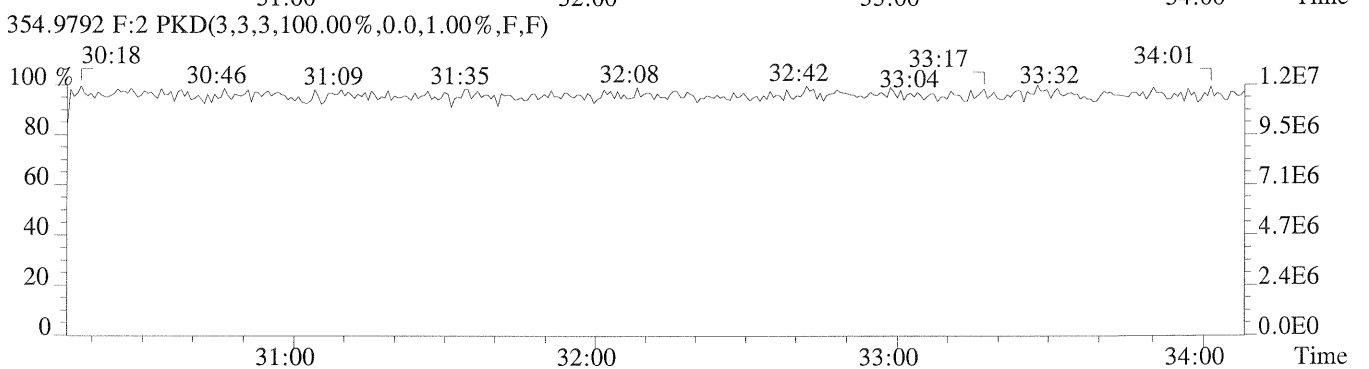
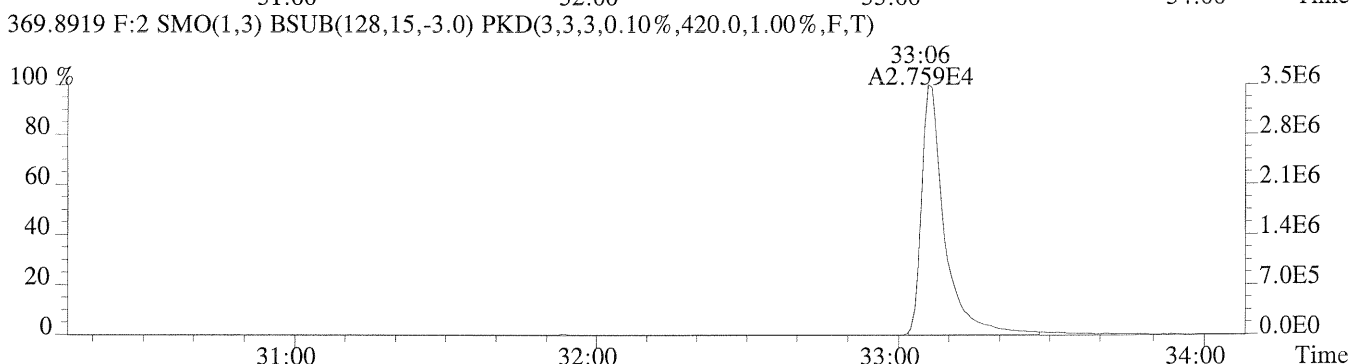
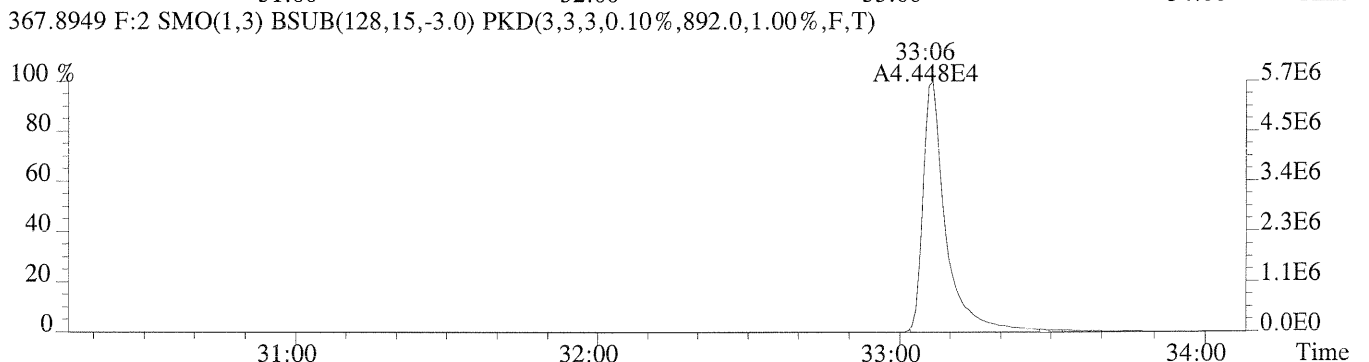
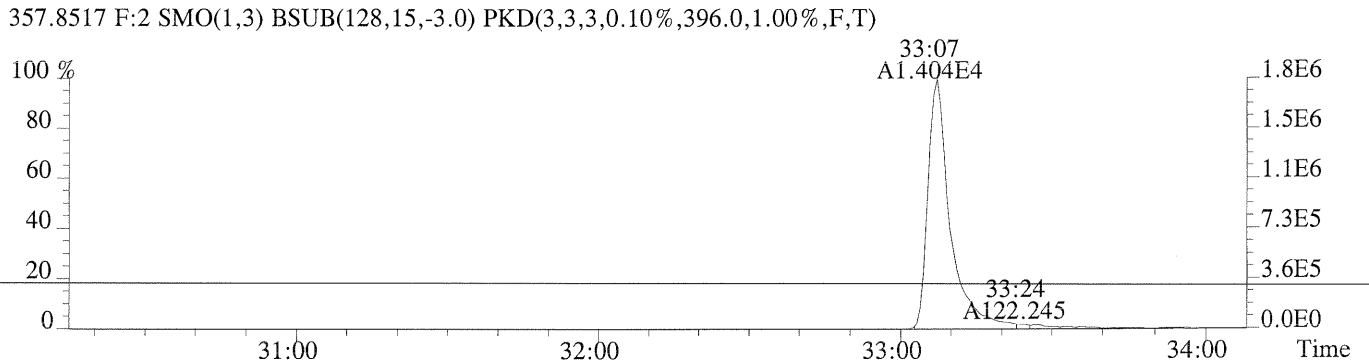
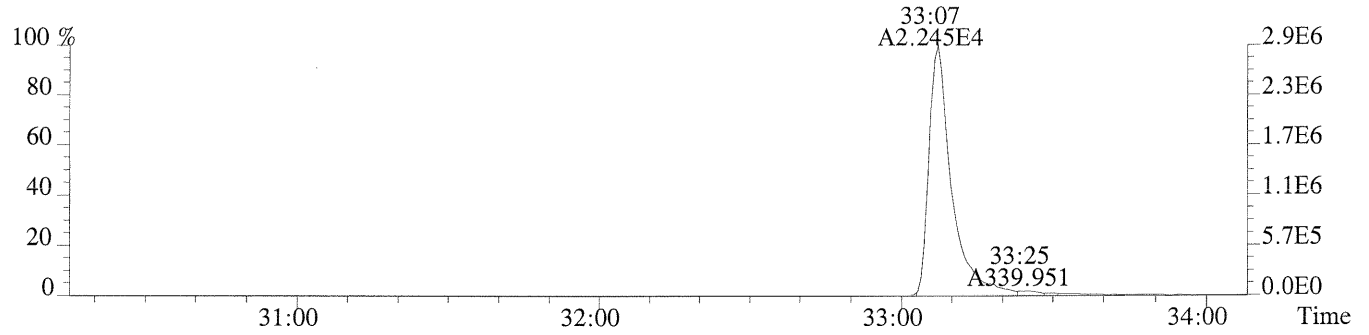
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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

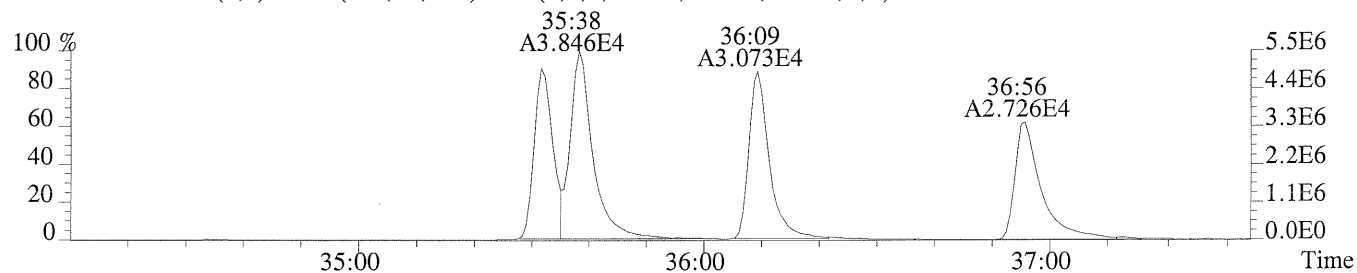


File:P230461 #1-353 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)

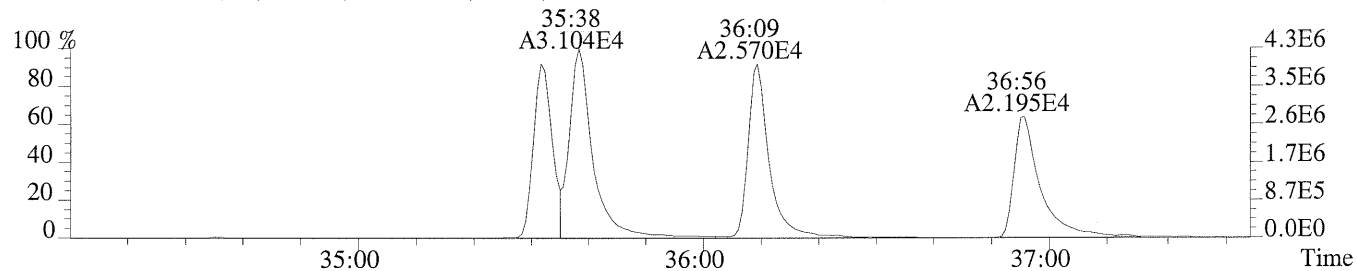




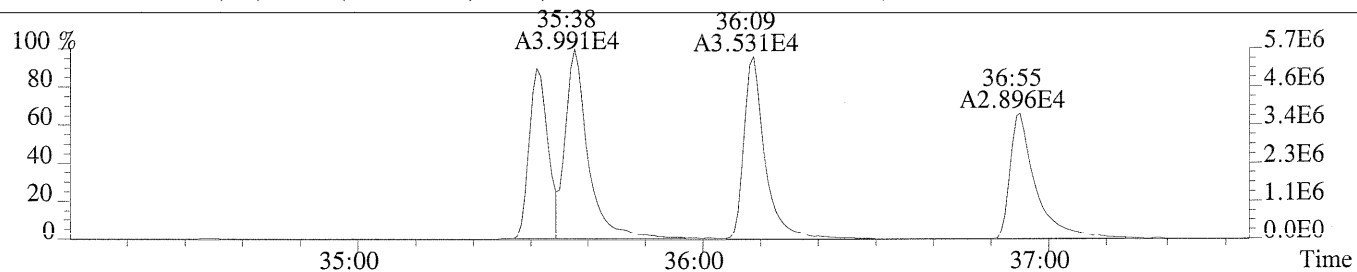
File:P230461 #1-309 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3984.0,0.40%,F,T)



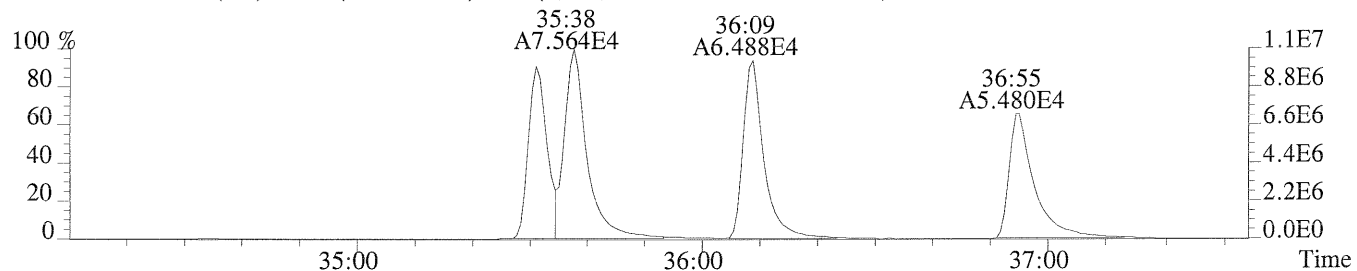
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2912.0,0.40%,F,T)



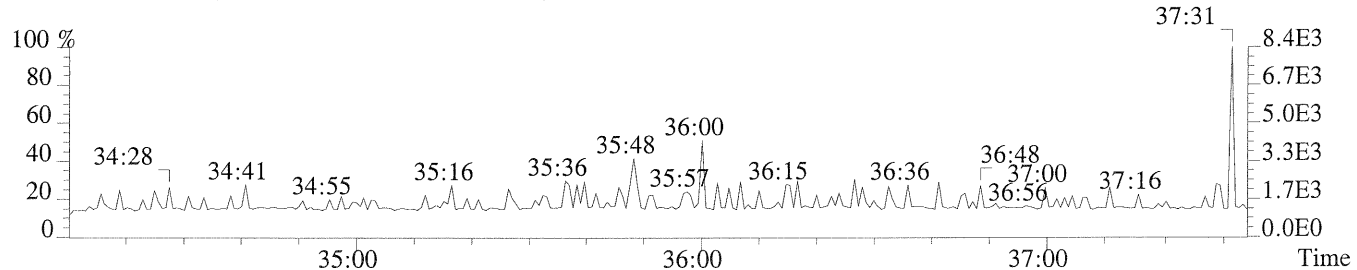
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1580.0,0.40%,F,T)



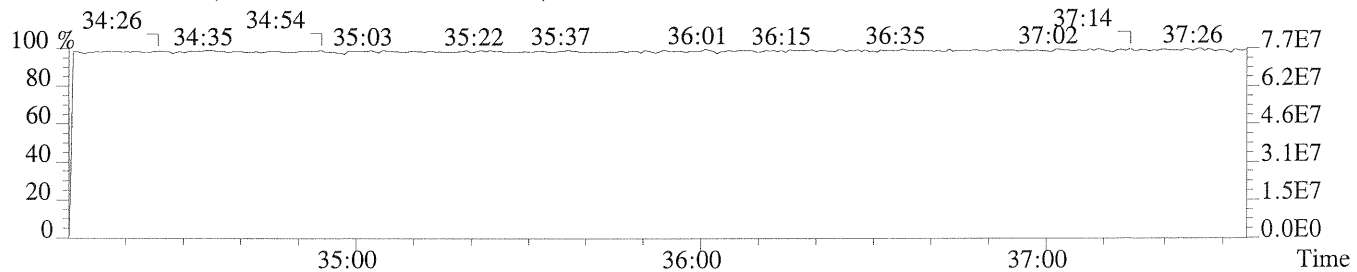
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



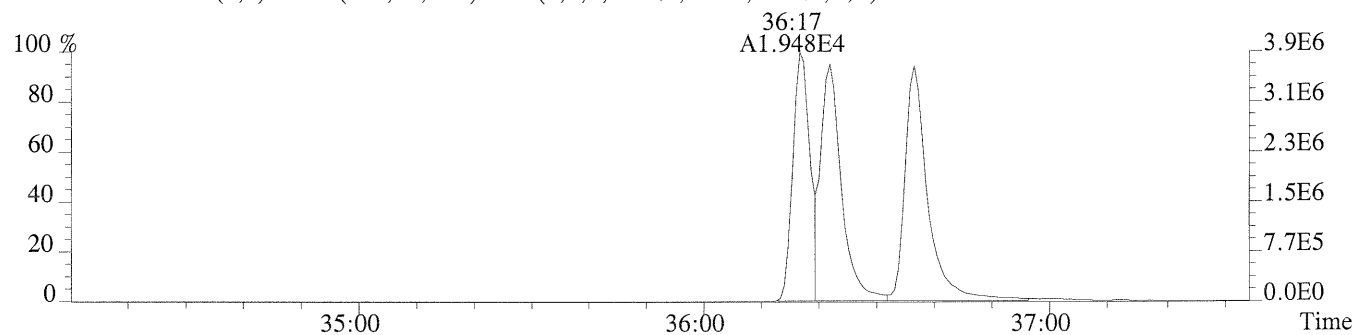
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



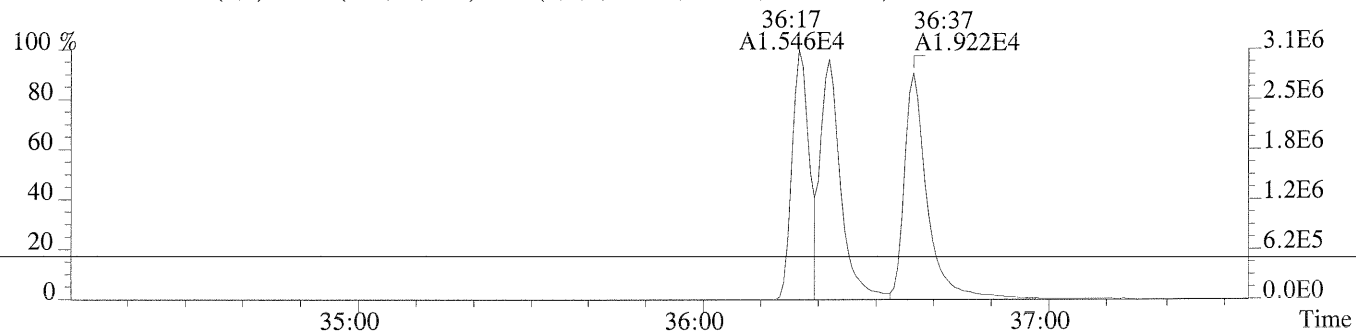
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



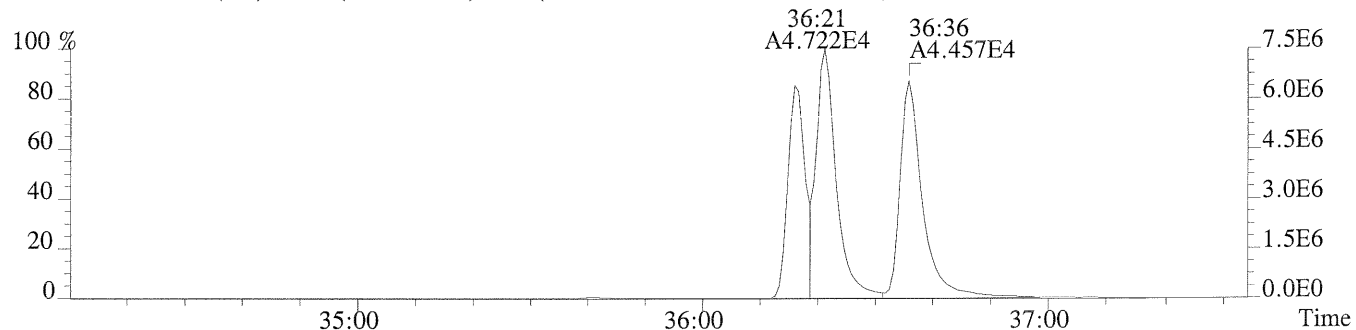
File:P230461 #1-309 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



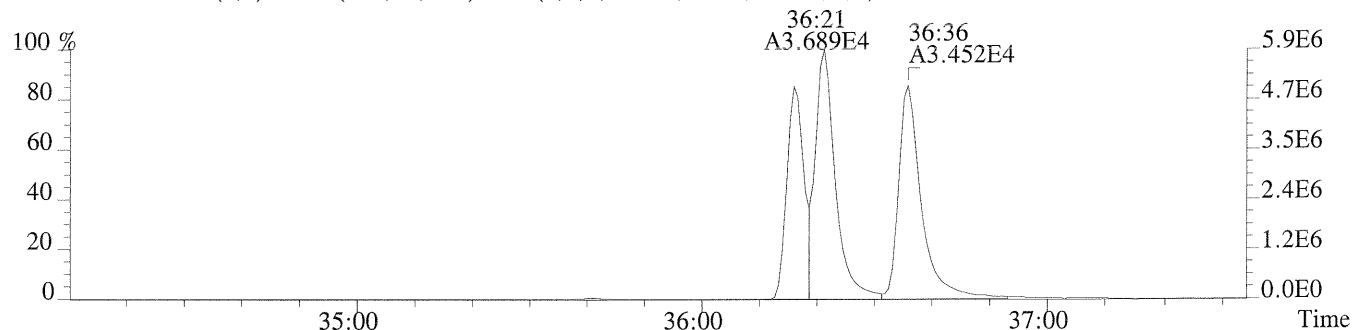
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



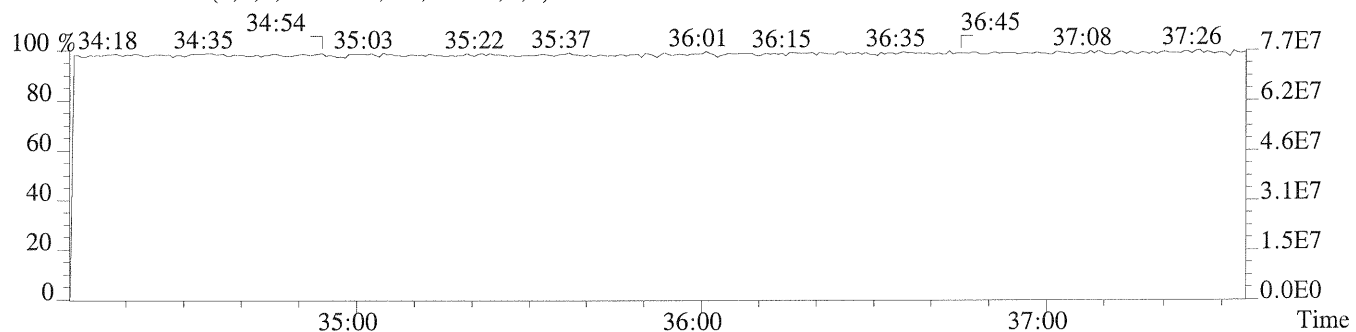
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1476.0,0.40%,F,T)



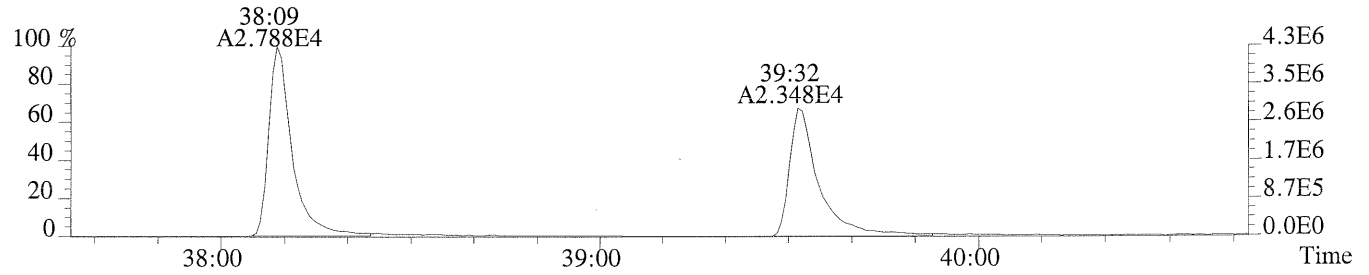
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



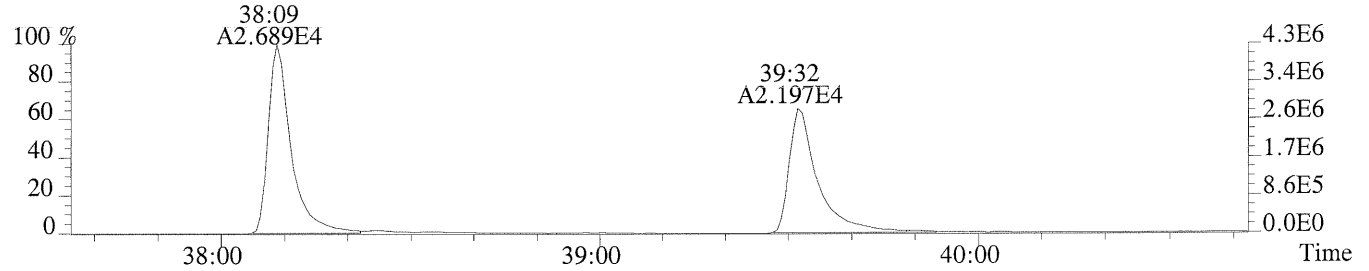
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



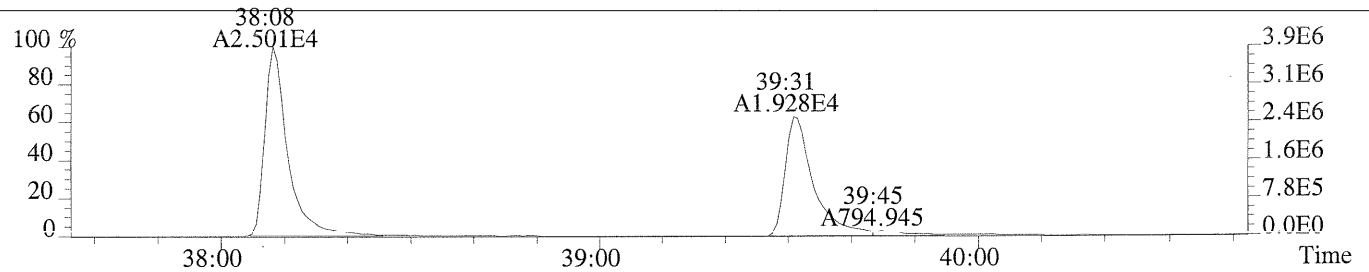
File:P230461 #1-282 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11652.0,0.50%,F,T)



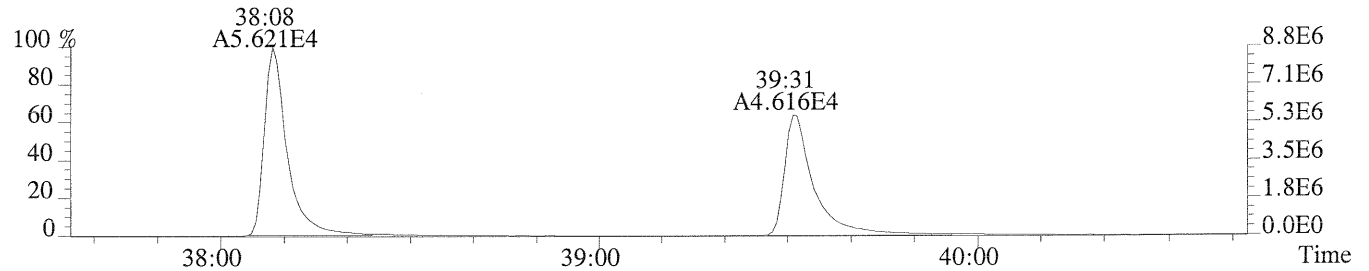
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17752.0,0.50%,F,T)



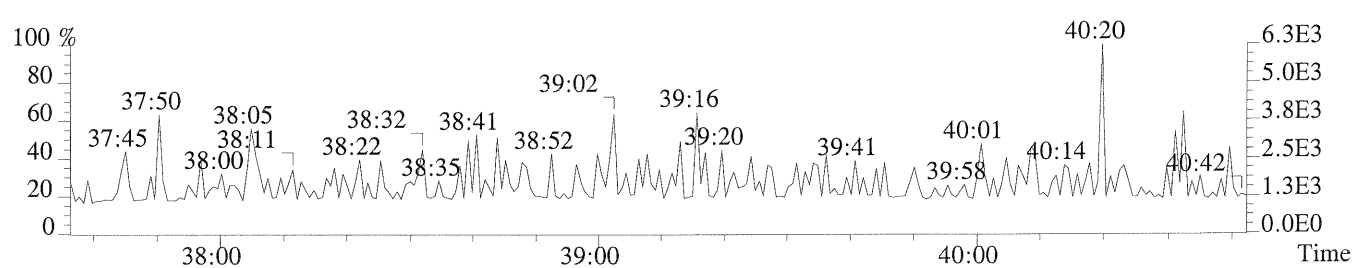
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2860.0,0.50%,F,T)



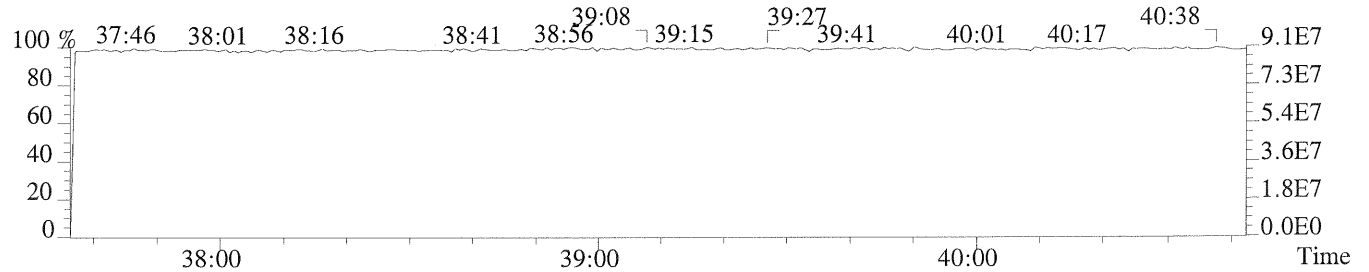
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10088.0,0.50%,F,T)



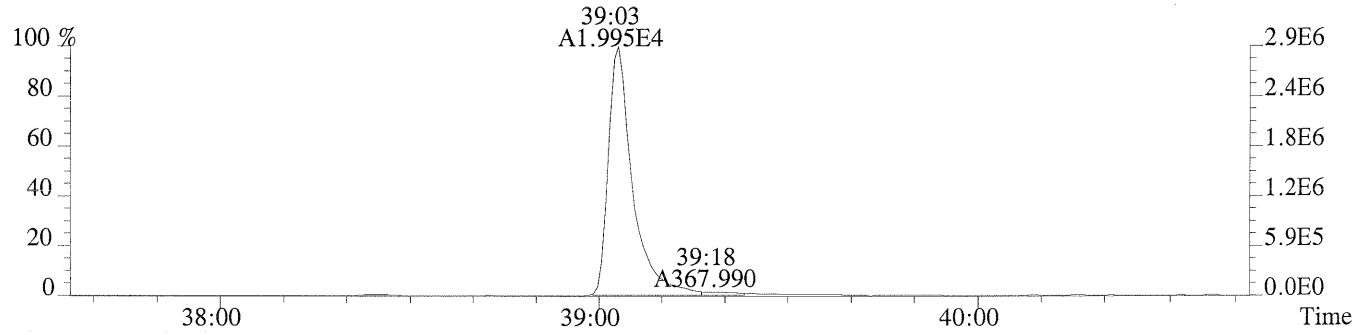
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



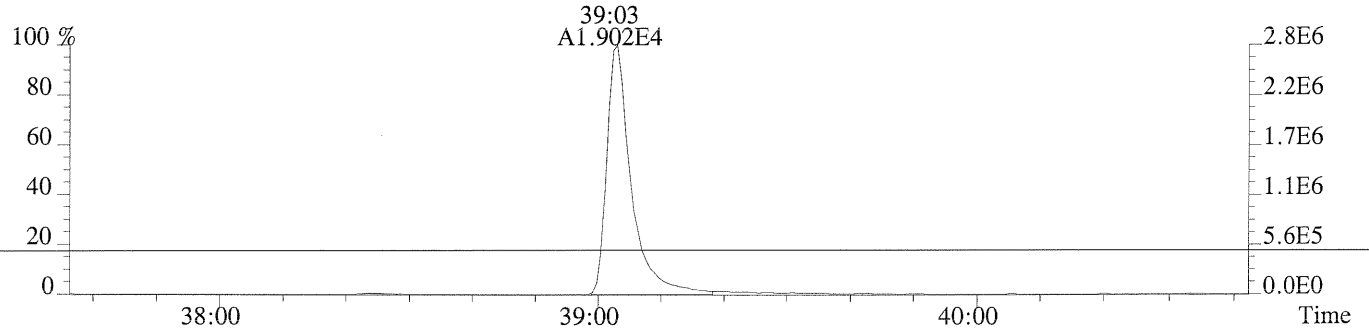
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



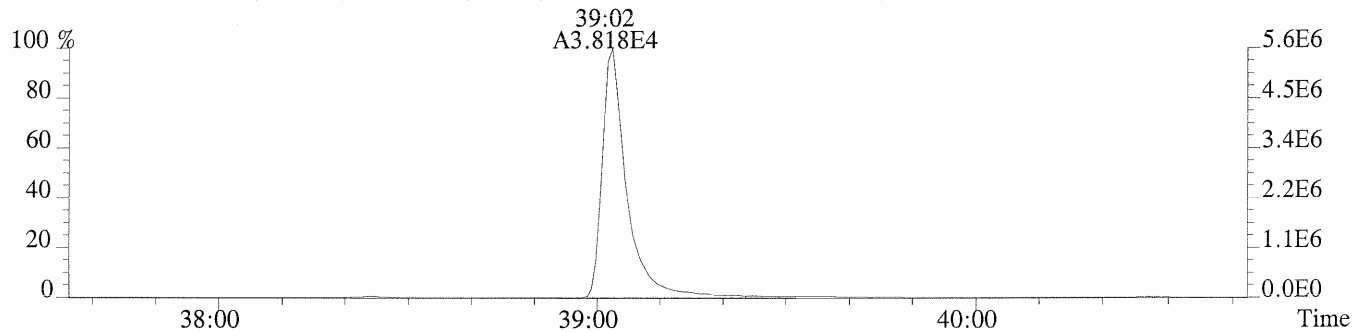
File:P230461 #1-282 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



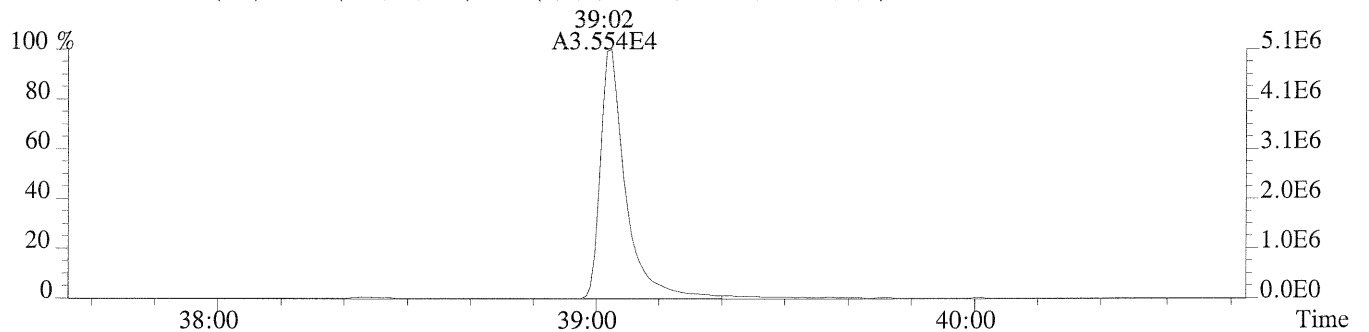
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



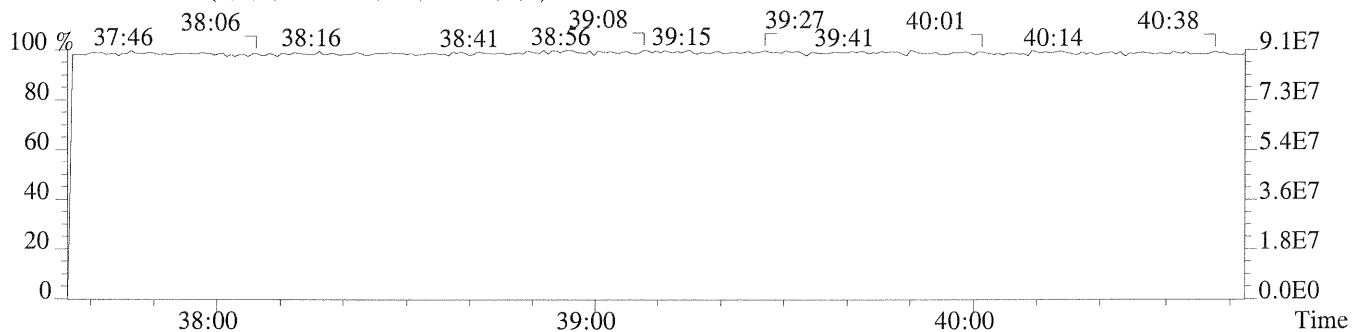
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1780.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)

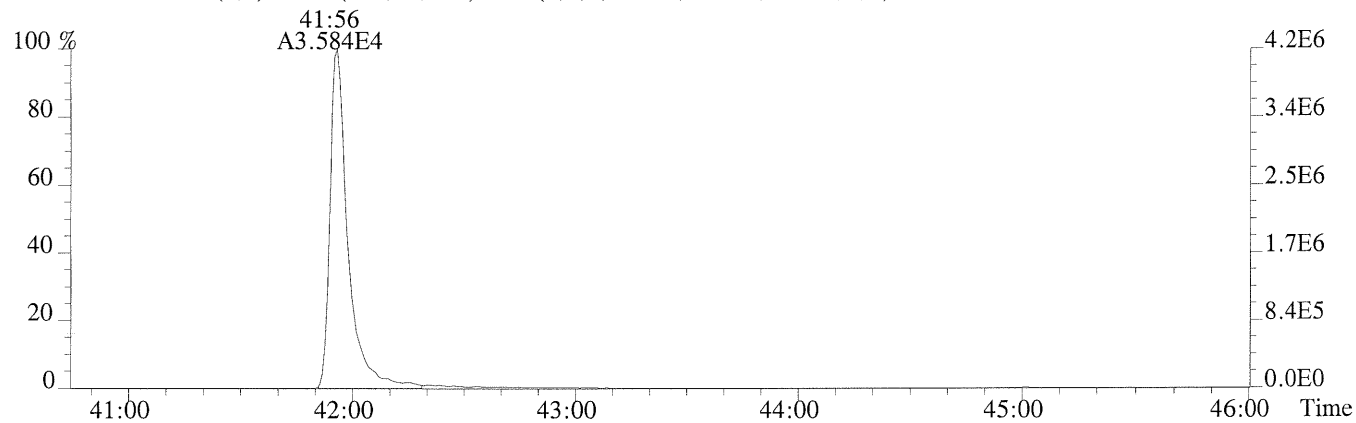


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

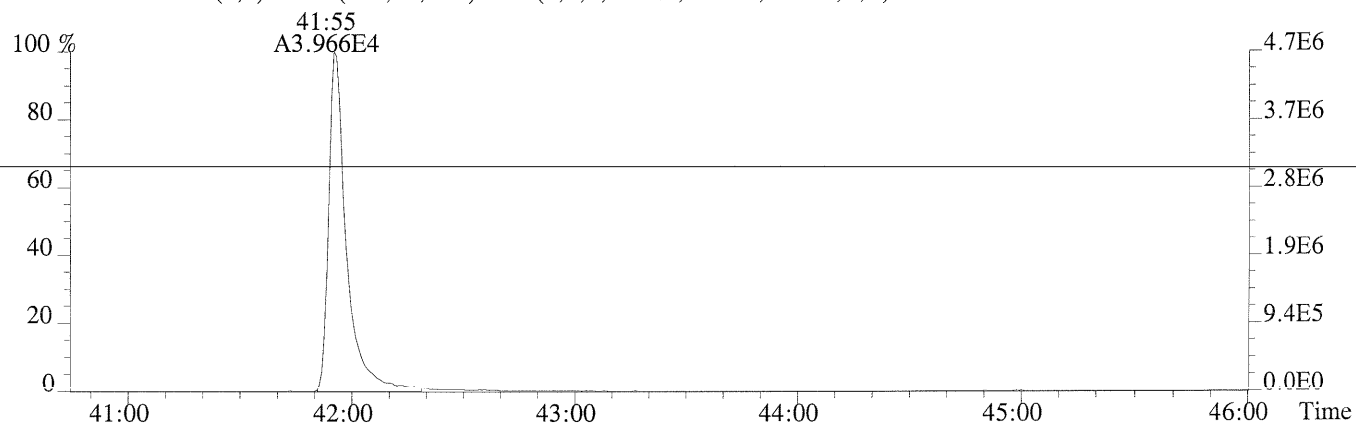


File:P230461 #1-484 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE

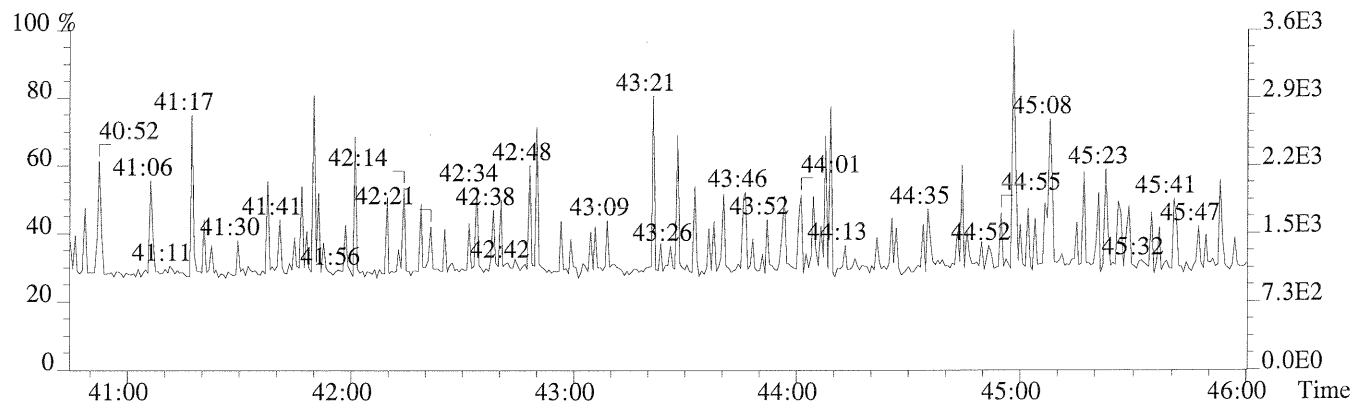
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1196.0,0.40%,F,T)



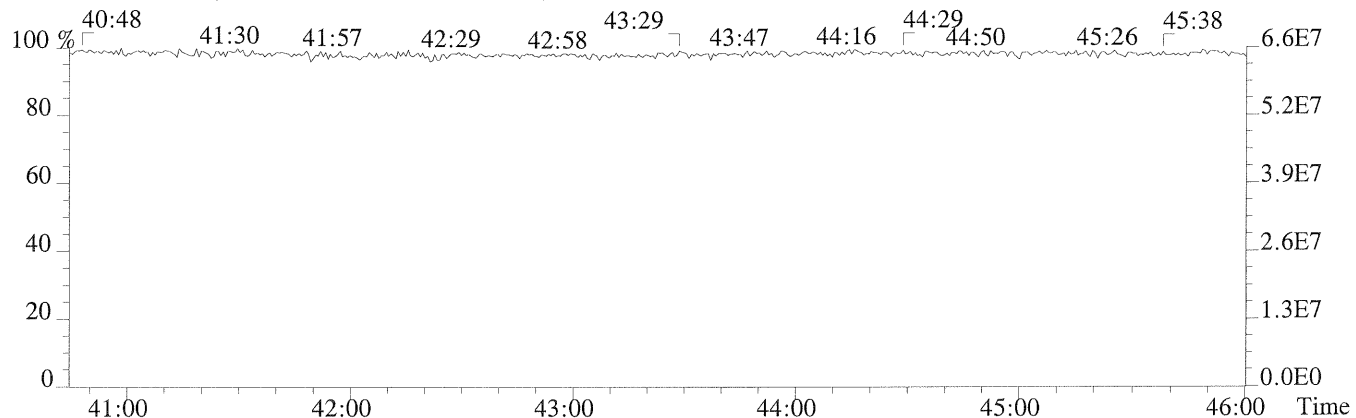
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1844.0,0.40%,F,T)



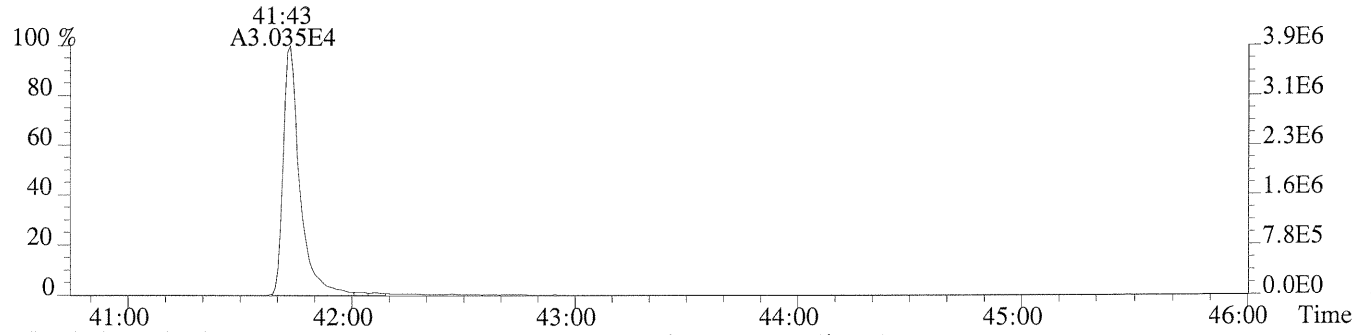
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



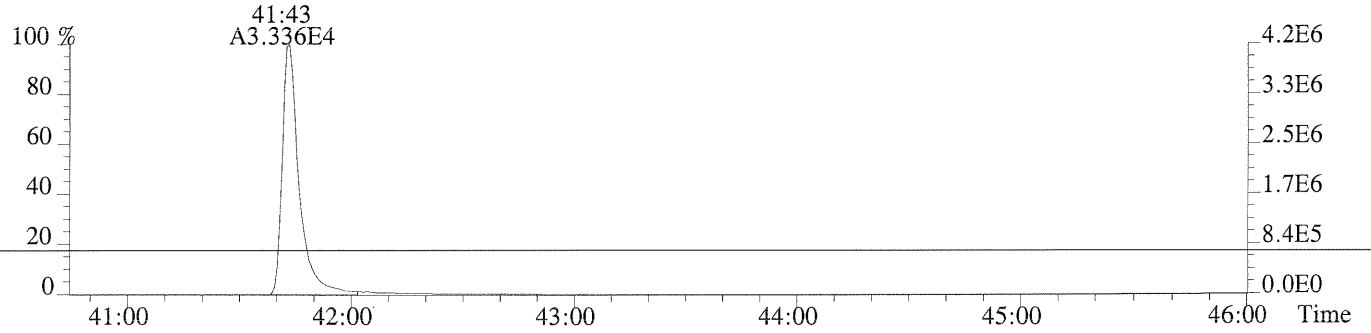
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



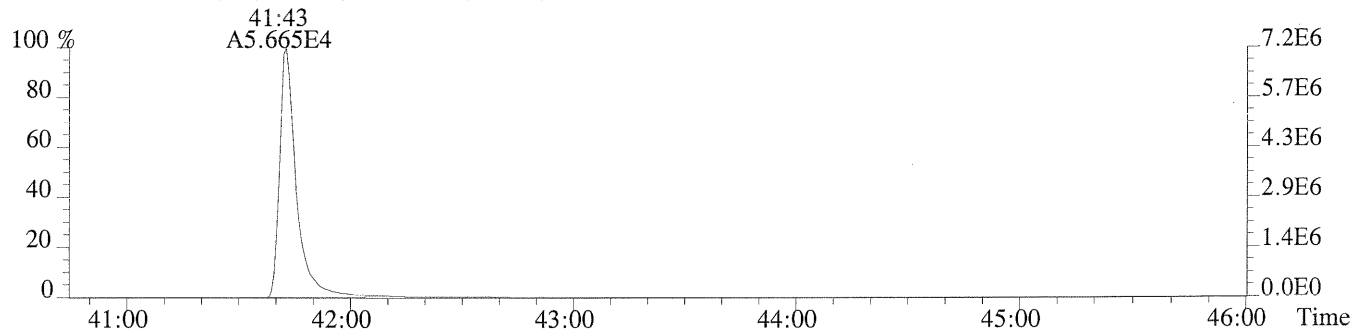
File:P230461 #1-484 Acq:11-AUG-2014 23:19:03 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CCV 2ND SOURCE  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,816.0,0.40%,F,T)



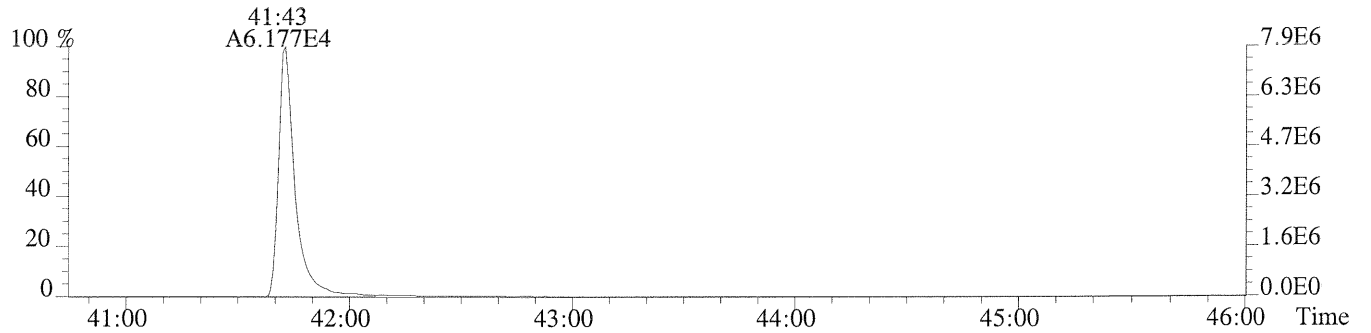
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1016.0,0.40%,F,T)



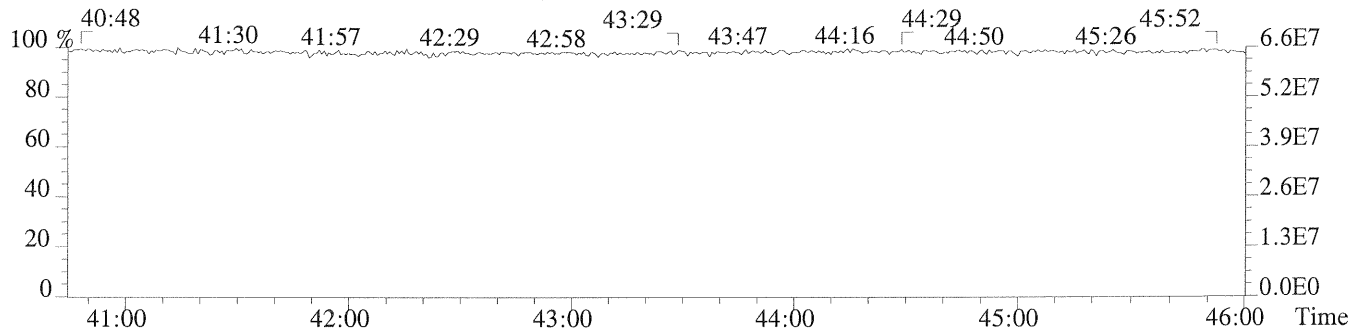
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,420.0,0.40%,F,T)



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



## Laboratory Review Checklist: HRMS Initial Calibration

Method: M23	Process Date: 08/01/2014				
Instrument Name: E-HRMS-01	Calibration File Name: U140731M23I				
Processor Name: Jimmy Chau	Reviewer Name: Loan Luong				
Description	Yes	No	NA	NR	ER#
<b>Analytical Sequence</b>					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	X				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	X				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	X				
Were all calibration standards analyzed only once?	X				
Was the ICV analyzed after the ICAL, before analyzing samples?	X				
<b>Mass Resolution Check</b>					
Are beginning and ending resolution checks provided and legible?	X				
Were all target masses >10,000 resolving power at the beginning of the sequence?	X				
Were all target masses >10,000 resolving power at the end of the sequence?	X				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			X		
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?			X		
<b>Window Define/209</b>					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	X				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	X				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	X				
Were all first and last eluters adequately resolved in each function?	X				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			X		
Was the retention time of PCB 209 >55 min?			X		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			X		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			X		
<b>Calibration Standards</b>					
Were there at least 5 calibration standards analyzed?	X				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			X		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	X				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	X				

## Laboratory Review Checklist: HRMS Initial Calibration

Method: M23		Process Date: 08/01/2014				
Instrument Name: E-HRMS-01		Calibration File Name: U140731M23I				
Processor Name: Jimmy Chau		Reviewer Name: Loan Luong				
Description	Yes	No	NA	NR	ER#	
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	X				1	
Were area counts for the highest calibration standard below levels of saturation?	X					
Were manual integrations technically justified to correct for poor software integration?	X				2	
<b>Response Factors</b>						
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	X					
Were all calibration standards used in determining response factors?	X					
Were relative response factors (RR) for each native analyte calculated at each calibration point?	X					
Did the RSD for RRFs for each native analyte meet method criteria?	X					
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	X					
Were RFs for each labeled compound calculated for each calibration point?	X					
Did the RSD for RF for each labeled compound meet method criteria?	X					
<b>Initial Calibration Verification</b>						
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	X					
Did all analytes meet method criteria for the ICV.	X					

Laboratory Review Checklist: Initial Calibration	
Method: M23	
Process Date: 08/01/2014	
Instrument Name: E-HRMS-01	
Calibration File Name: U140731M23I	
Processor Name: Jimmy Chau	
Reviewer Name: Loan Luong	
ER#	Description
5	
1	TCDF on CS0.5 did not meet method criteria for signal-to-noise ratios (S/N)
2	Manual Integration on CS0.5, CS1, CS2 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: V140731M23I

Date: 07/31/14

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 <u>1DB5-MSUI</u>	✓	✓
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: JL

Second QC: LKL

5DFC  
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL

Contract:

Lab Code:

Case No.:

Client No.:

SDG No.:

GC Column: DB5MSUI

ID: 0.25 (mm)

Init. Calib. Date: 07/31/14

Init. Calib. Times: 12:13:20

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

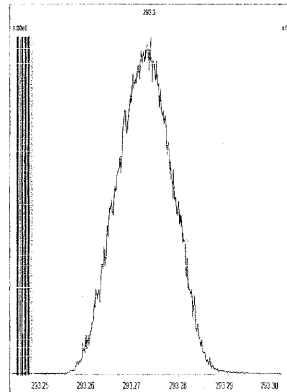
EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	63680	U150158	31-JUL-14	09:17:24
CS0.5	66807	U150166	31-JUL-14	19:08:59
CS1	66798	U150160	31-JUL-14	12:13:20
CS2	D12-90-3B	U150161	31-JUL-14	13:10:32
CS3	63383	U150162	31-JUL-14	14:16:41
CS4	D12-90-3D	U150163	31-JUL-14	15:18:57
CS5	66799	U150164	31-JUL-14	16:07:05
ICV 2ND SOURCE	54819	U150167	31-JUL-14	19:57:38



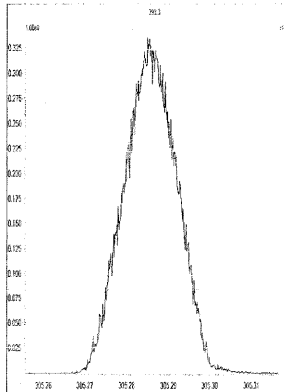
File: Experiment: 8290db5msuif1.exp Reference: pkf.ref Function: 1 @ 200 (ppm)

Printed: Thursday, July 31, 2014 09:13:02 Central Daylight Time

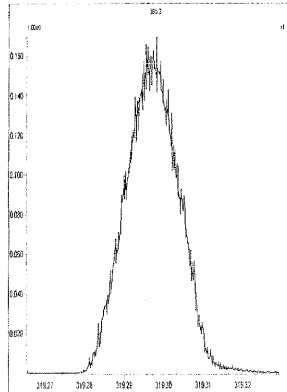
M 292.9824 R 10964



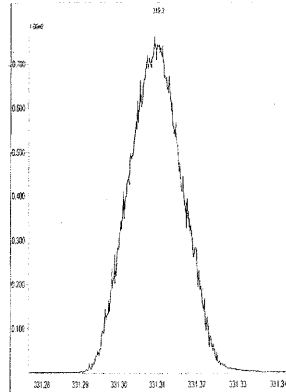
M 304.9824 R 10774



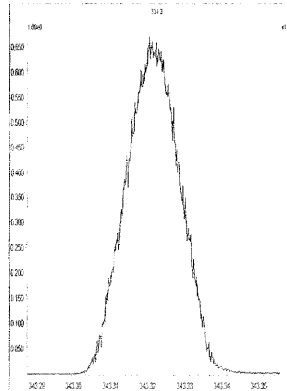
M 318.9792 R 10914



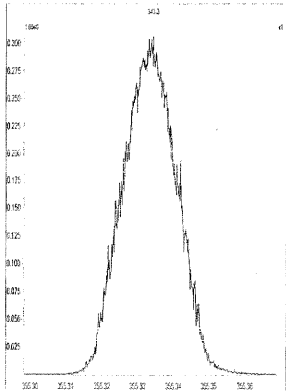
M 330.9792 R 11014



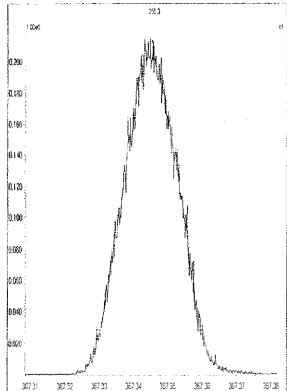
M 342.9792 R 11160



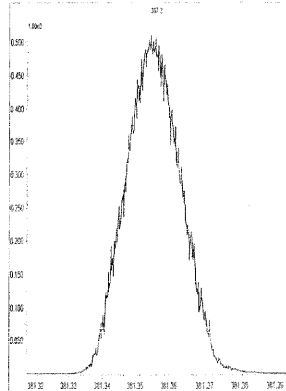
M 354.9792 R 11109



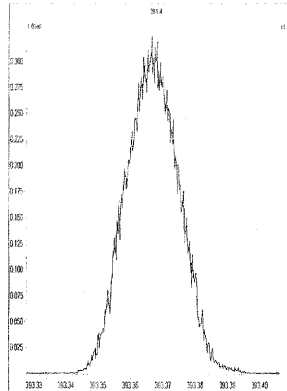
M 366.9792 R 10773



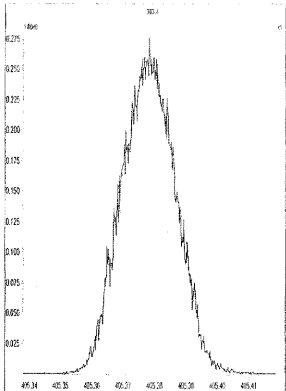
M 380.9760 R 10684



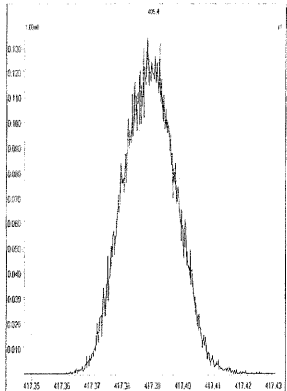
M 392.9760 R 11110



M 404.9760 R 10459



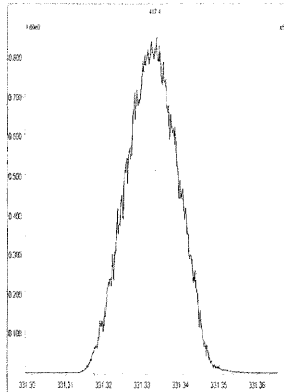
M 416.9760 R 10461



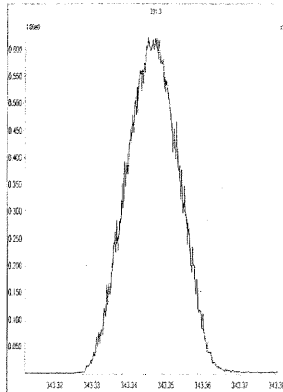
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, July 31, 2014 09:14:03 Central Daylight Time

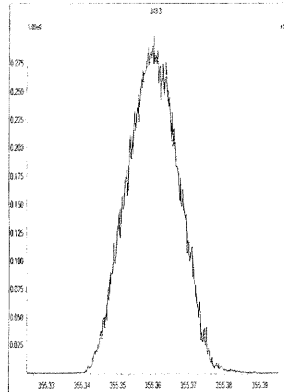
M 330.9792 R 10919



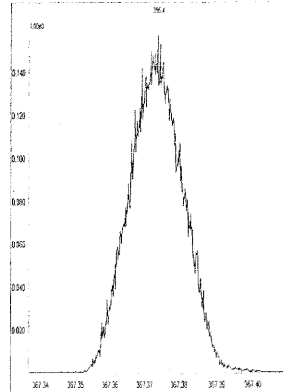
M 342.9792 R 10730



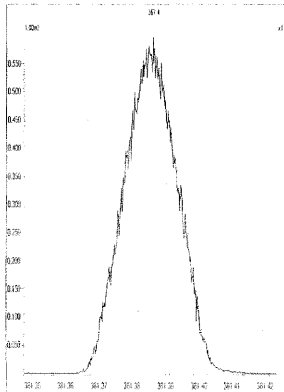
M 354.9792 R 10821



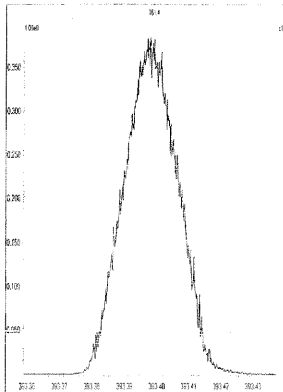
M 366.9792 R 10636



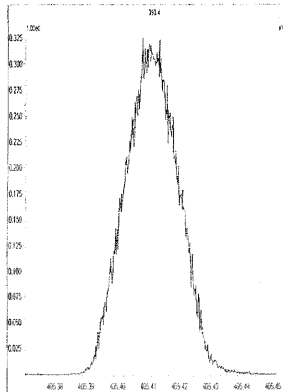
M 380.9760 R 10867



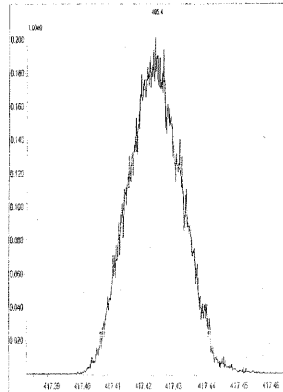
M 392.9760 R 11312



M 404.9760 R 11110



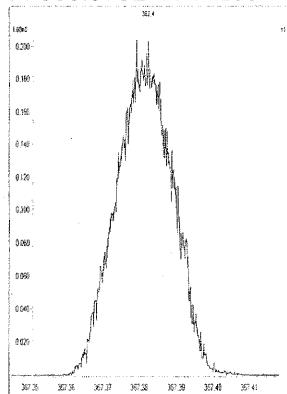
M 416.9760 R 11011



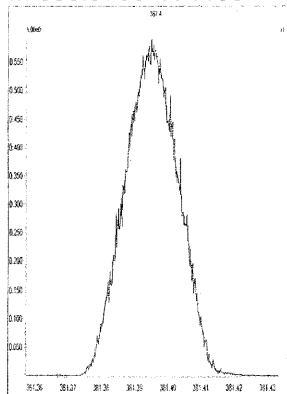
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, July 31, 2014 09:14:47 Central Daylight Time

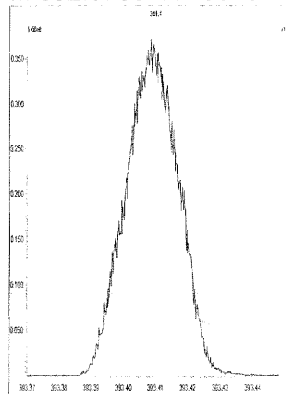
M 366.9792 R 11259



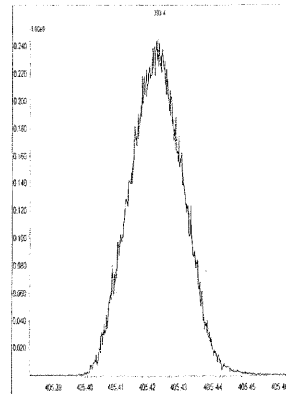
M 380.9760 R 11064



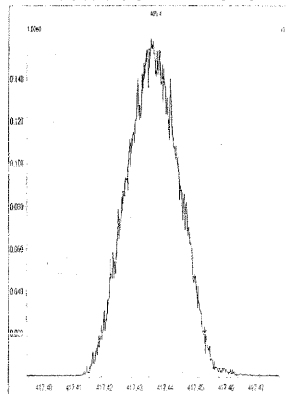
M 392.9760 R 10870



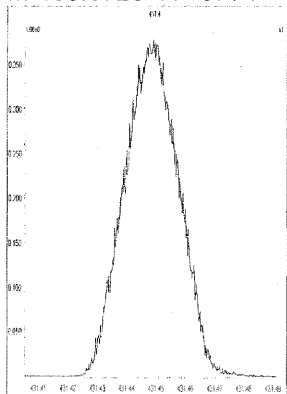
M 404.9760 R 10964



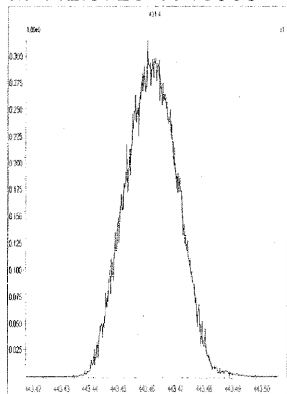
M 416.9760 R 11016



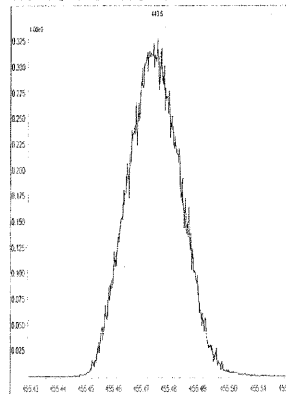
M 430.9728 R 10774



M 442.9728 R 10965



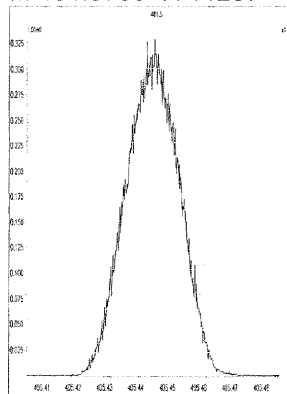
M 454.9728 R 11061



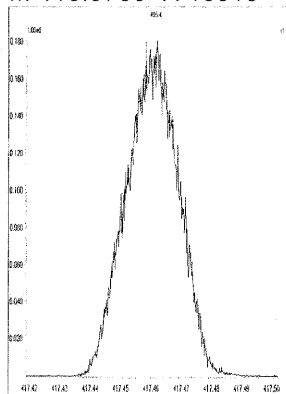
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, July 31, 2014 09:15:36 Central Daylight Time

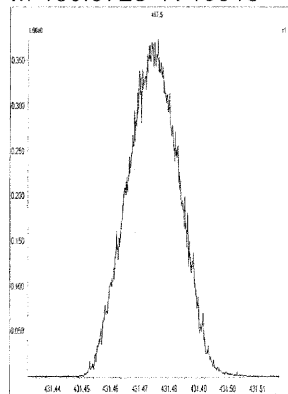
M 404.9760 R 11207



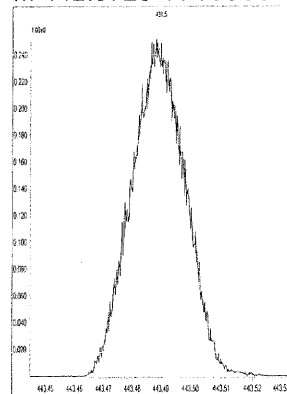
M 416.9760 R 10916



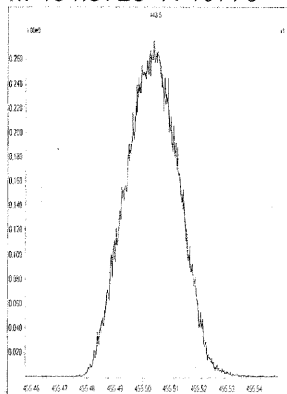
M 430.9728 R 10915



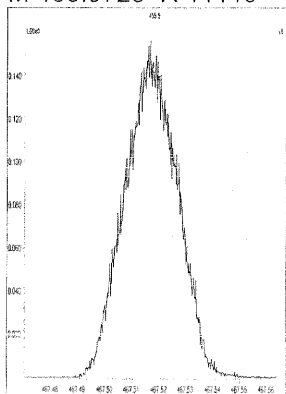
M 442.9728 R 10966



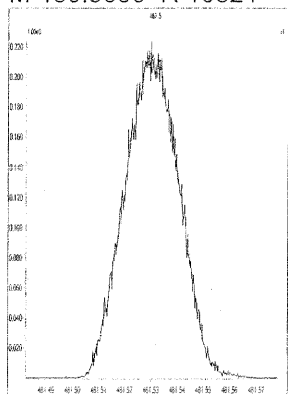
M 454.9728 R 10776



M 466.9728 R 11110



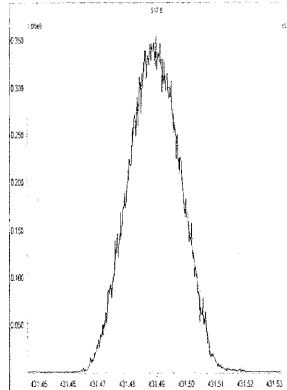
M 480.9696 R 10821



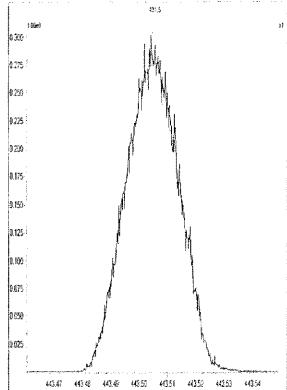
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, July 31, 2014 09:16:25 Central Daylight Time

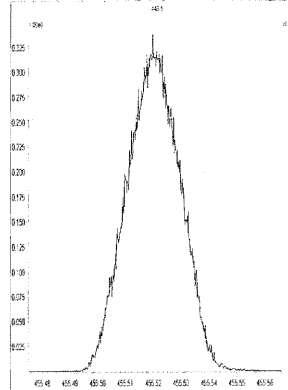
M 430.9728 R 10964



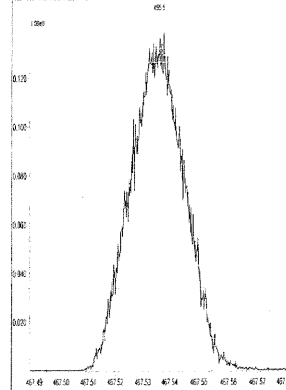
M 442.9728 R 10727



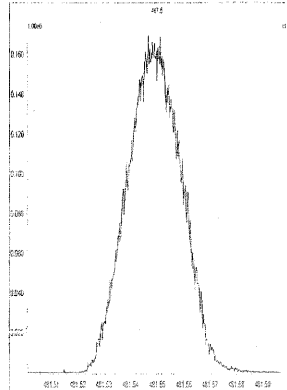
M 454.9728 R 10773



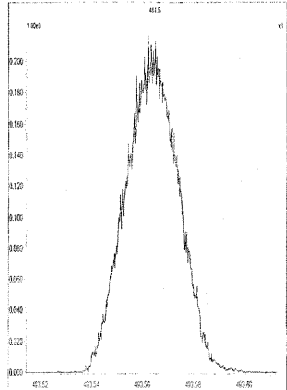
M 466.9728 R 10822



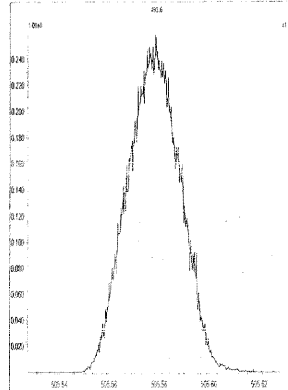
M 480.9696 R 10775



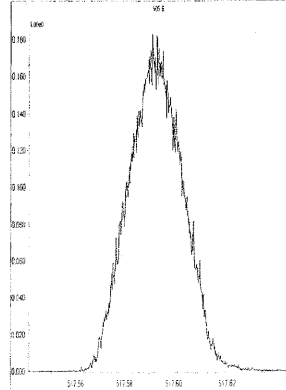
M 492.9696 R 10591



M 504.9696 R 10820



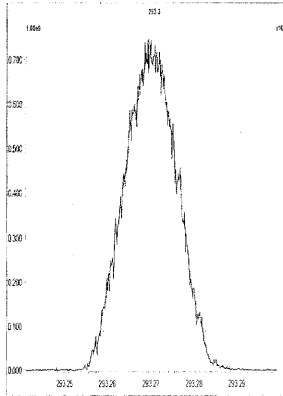
M 516.9697 R 10965



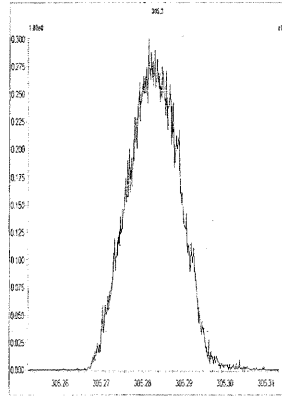


Printed: Thursday, July 31, 2014 20:54:53 Central Daylight Time

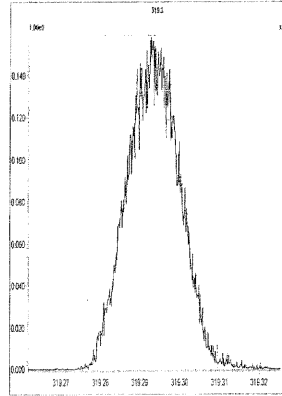
M 292.9824 R 11315



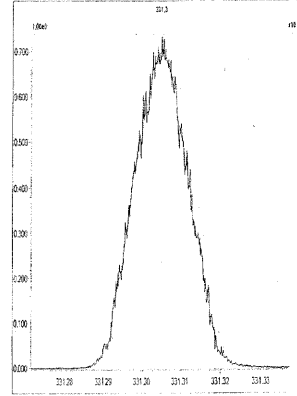
M 304.9824 R 11312



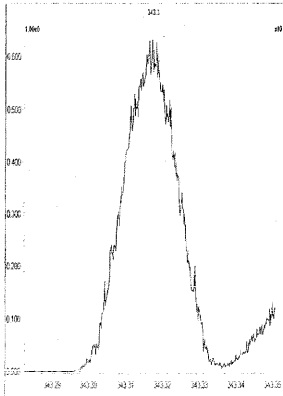
M 318.9792 R 11342



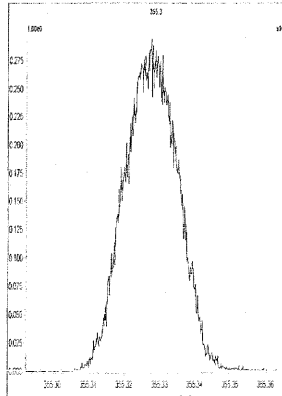
M 330.9792 R 11012



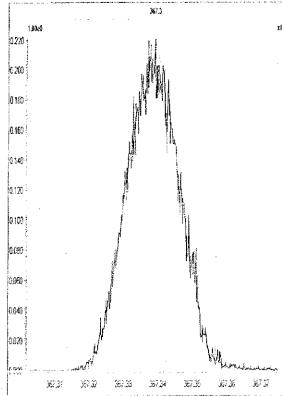
M 342.9792 R 10848



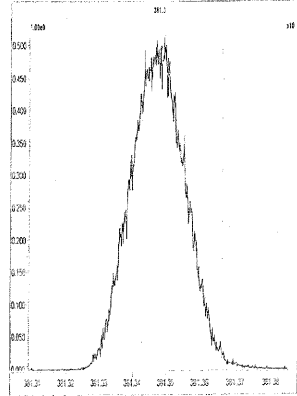
M 354.9792 R 11135



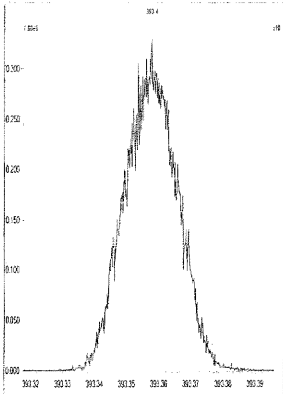
M 366.9792 R 11014



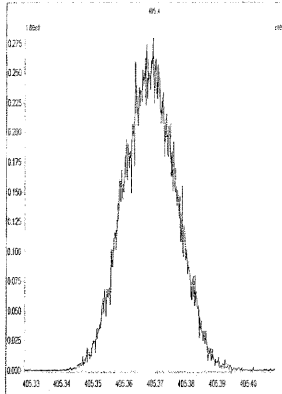
M 380.9760 R 10823



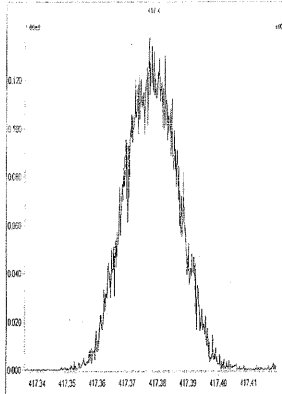
M 392.9760 R 10660



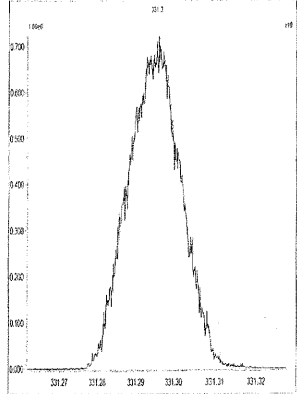
M 404.9760 R 10893



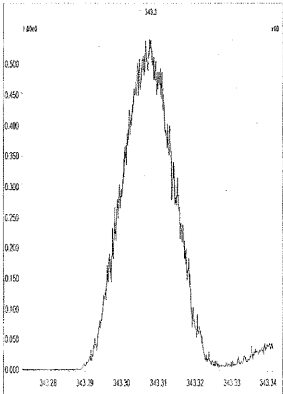
M 416.9760 R 10920



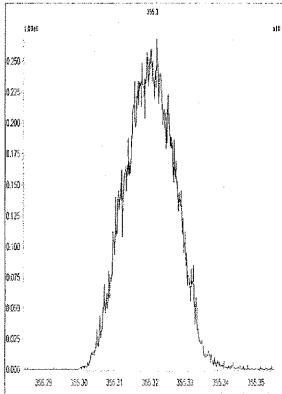
M 330.9792 R 11135



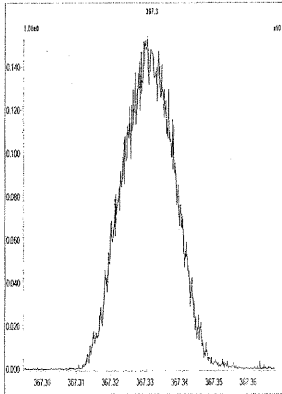
M 342.9792 R 11389



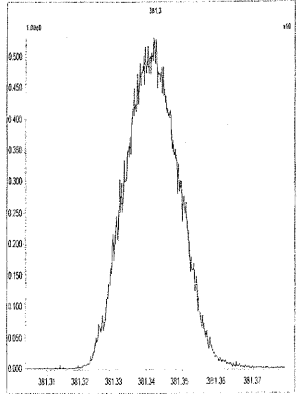
M 354.9792 R 11240



M 366.9792 R 10941

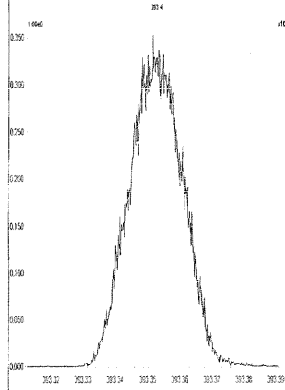


M 380.9760 R 11046

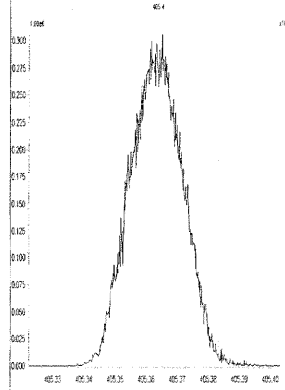


Printed: Thursday, July 31, 2014 20:54:53 Central Daylight Time

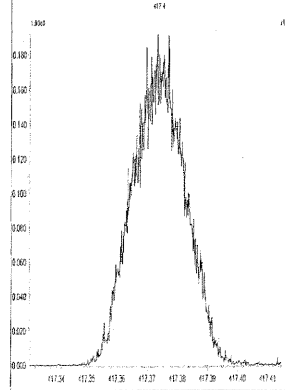
M 392.9760 R 11037



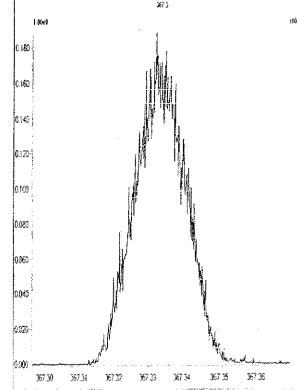
M 404.9760 R 11062



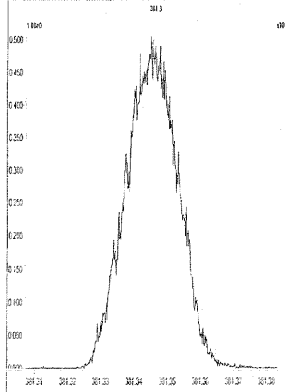
M 416.9760 R 10992



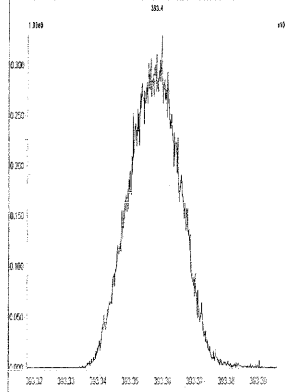
M 366.9792 R 11392



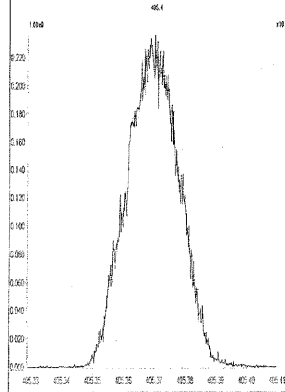
M 380.9760 R 11312



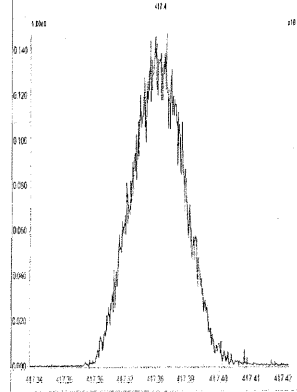
M 392.9760 R 11186



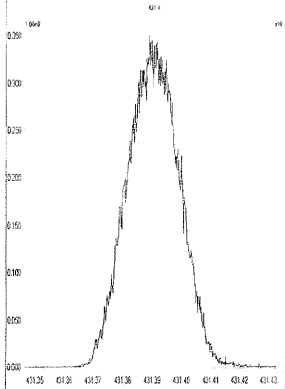
M 404.9760 R 11067



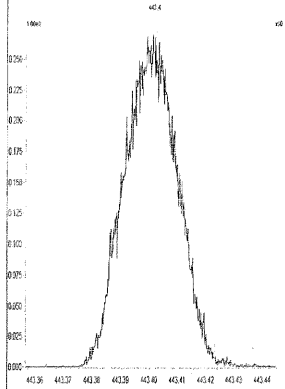
M 416.9760 R 11340



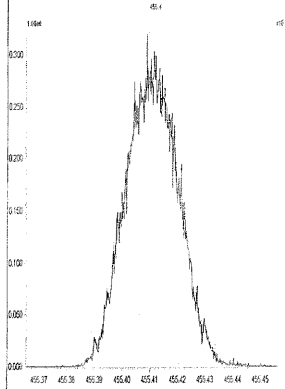
M 430.9728 R 10706



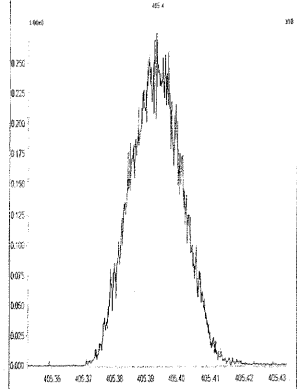
M 442.9728 R 11162



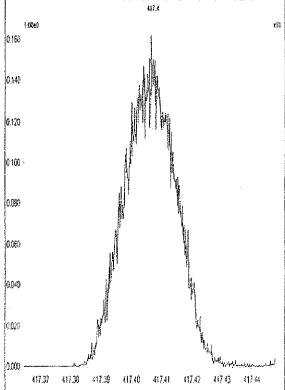
M 454.9728 R 10835



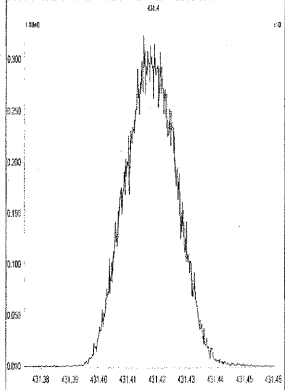
M 404.9760 R 11365



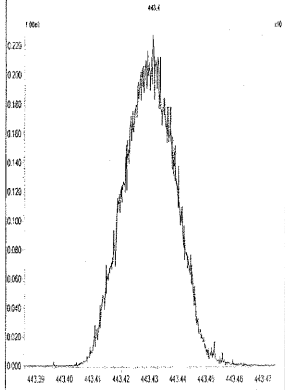
M 416.9760 R 10917



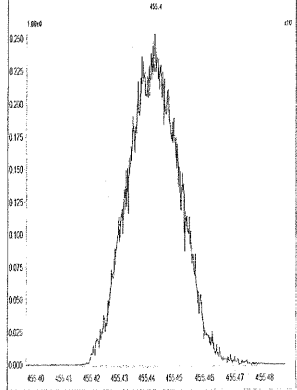
M 430.9728 R 11235



M 442.9728 R 11061

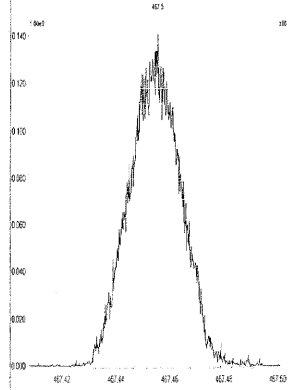


M 454.9728 R 10822

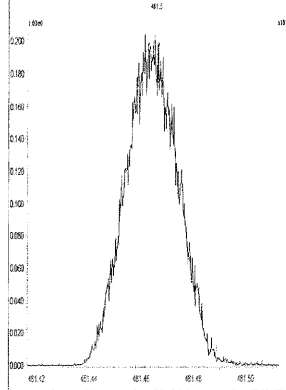


Printed: Thursday, July 31, 2014 20:54:53 Central Daylight Time

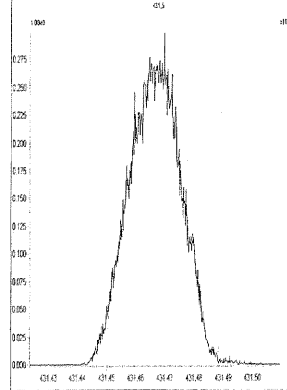
M 466.9728 R 11014



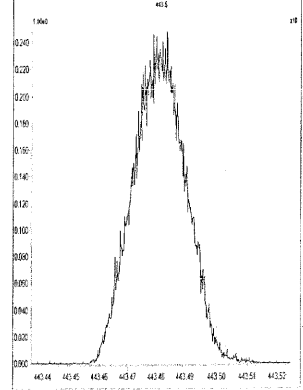
M 480.9696 R 10990



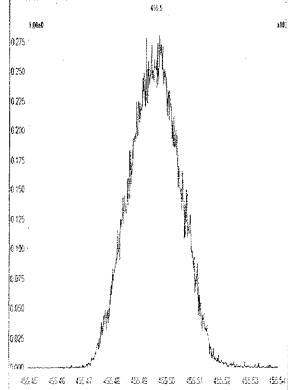
M 430.9728 R 11338



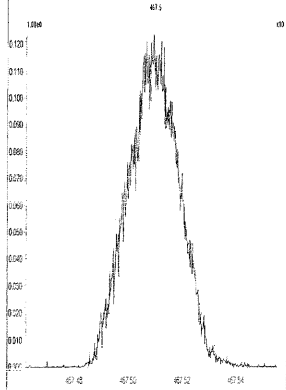
M 442.9728 R 10965



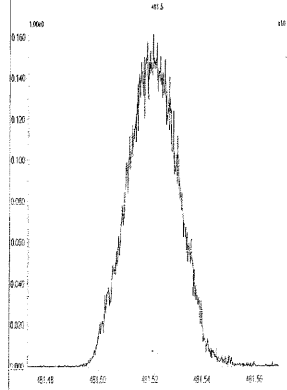
M 454.9728 R 11160



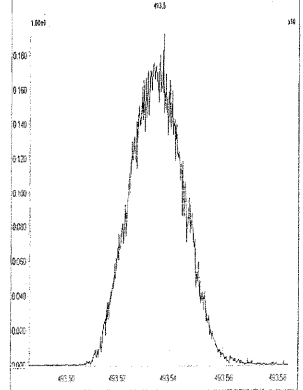
M 466.9728 R 11238



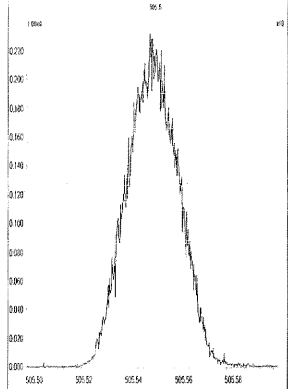
M 480.9696 R 11140



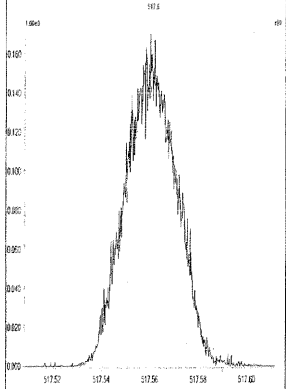
M 492.9696 R 11313



M 504.9696 R 11014



M 516.9697 R 11235



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS ENVIRONMENTAL  
Lab Code: TX01411  
GC Column: DB-5msUI

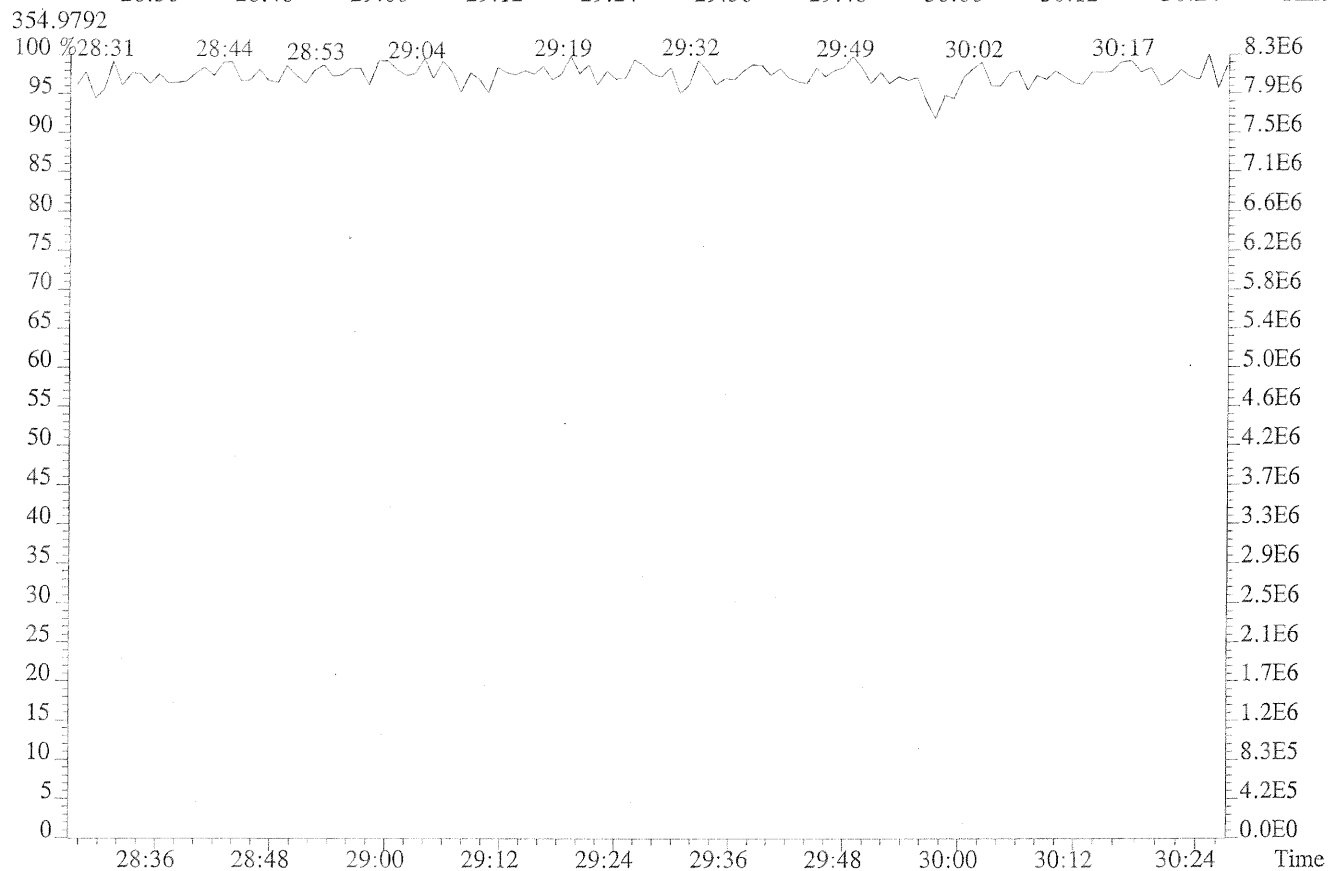
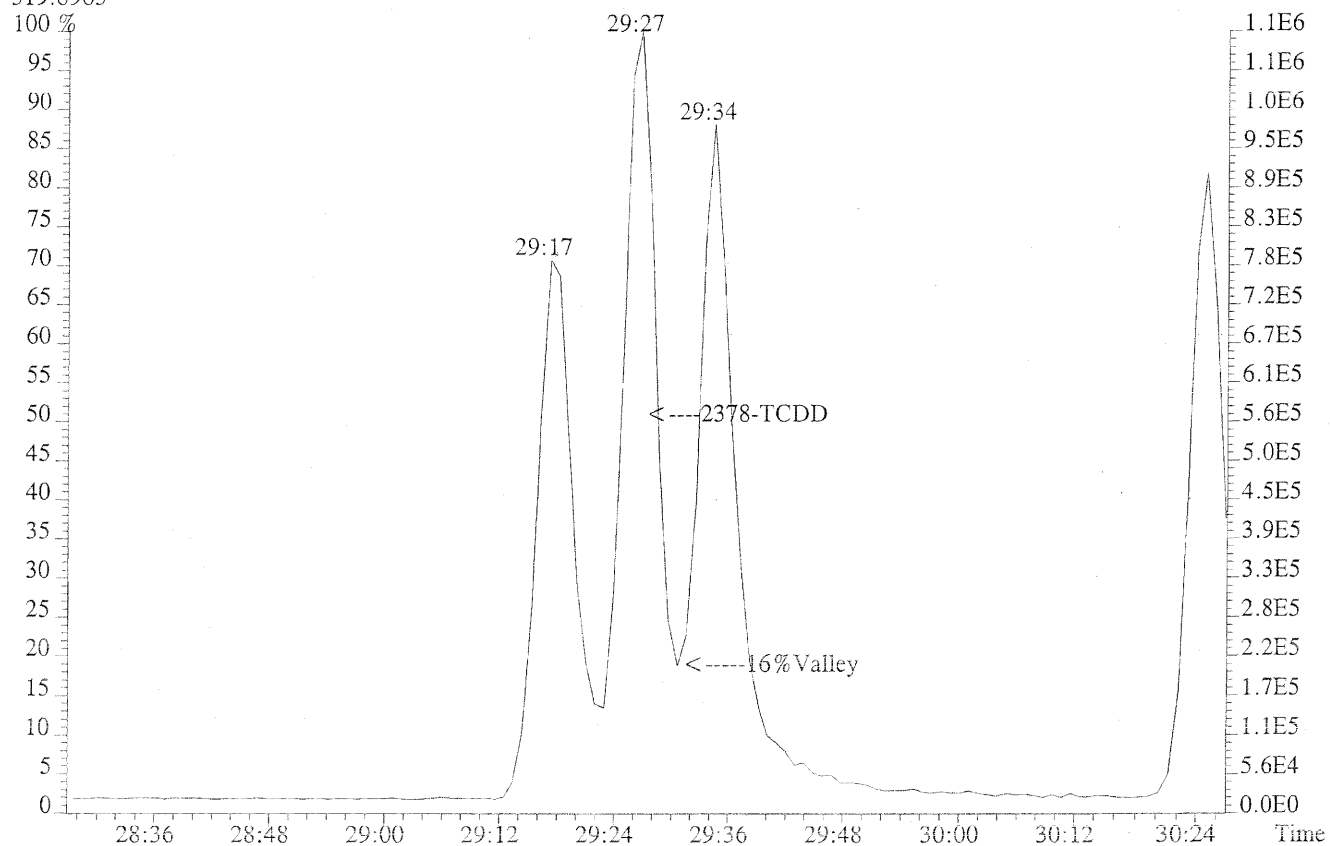
Case No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_  
ID: 0.25 (mm) Lab File ID: U150158  
Date Analyzed: 31-JUL-2014  
Time Analyzed: 09:17:24

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:23	30:35
TCDD	26:17	30:25
PeCDF	30:30	34:42
PeCDD	32:00	34:25
HxCDF	35:18	37:49
HxCDD	35:49	37:24
HpCDF	39:02	40:30
HpCDD	39:17	39:59

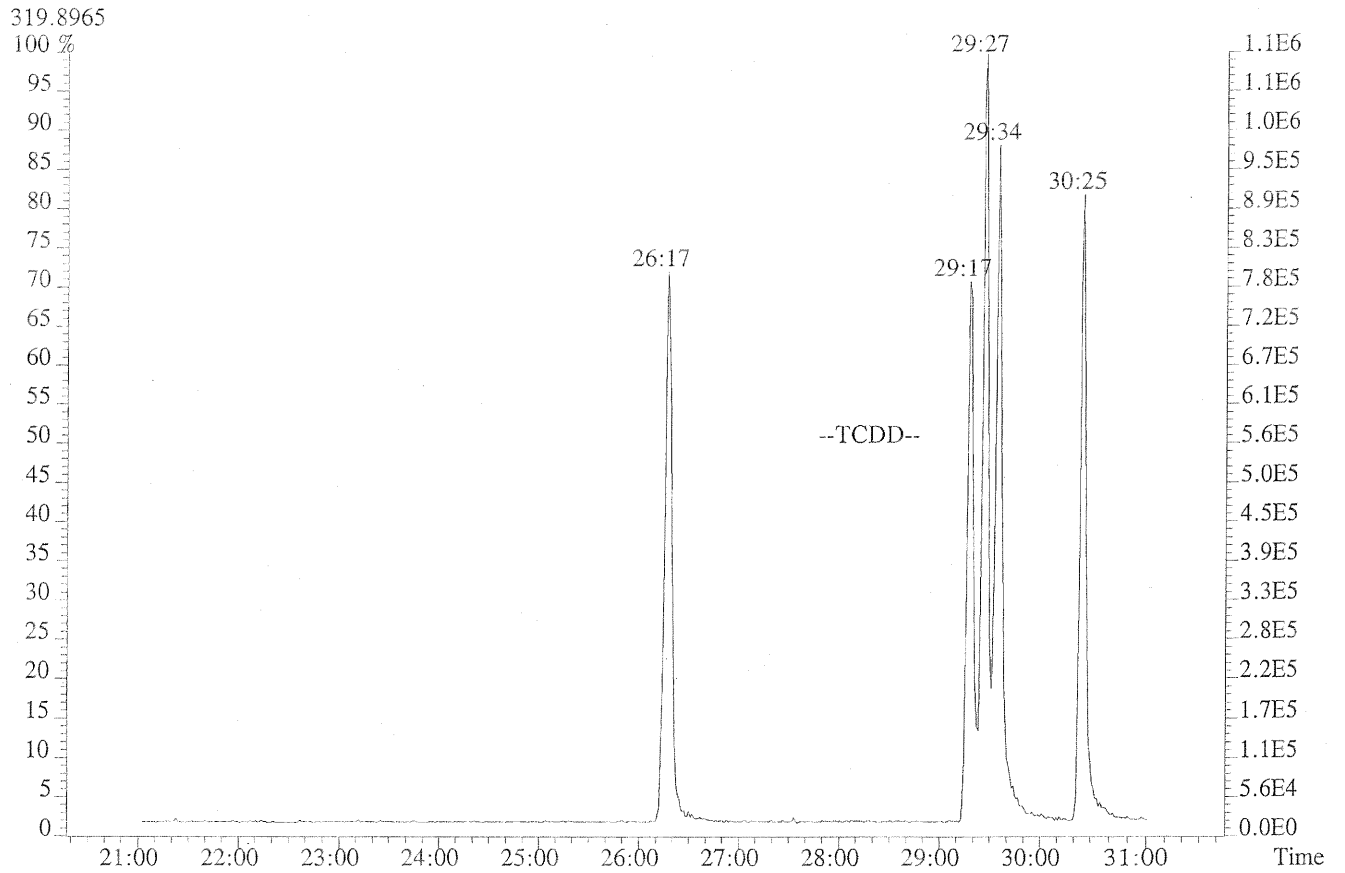
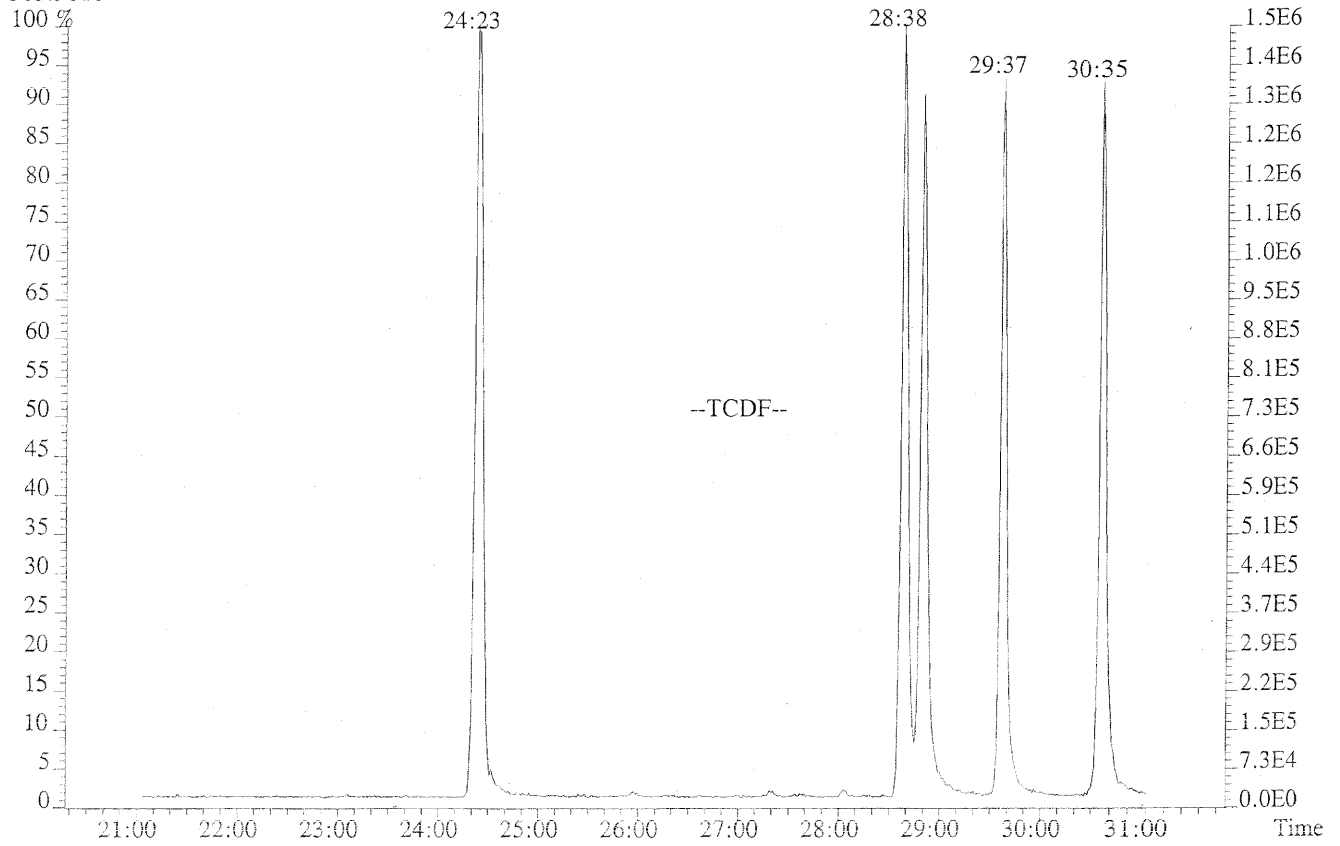
% Valley 2378-TCDD:

16 %

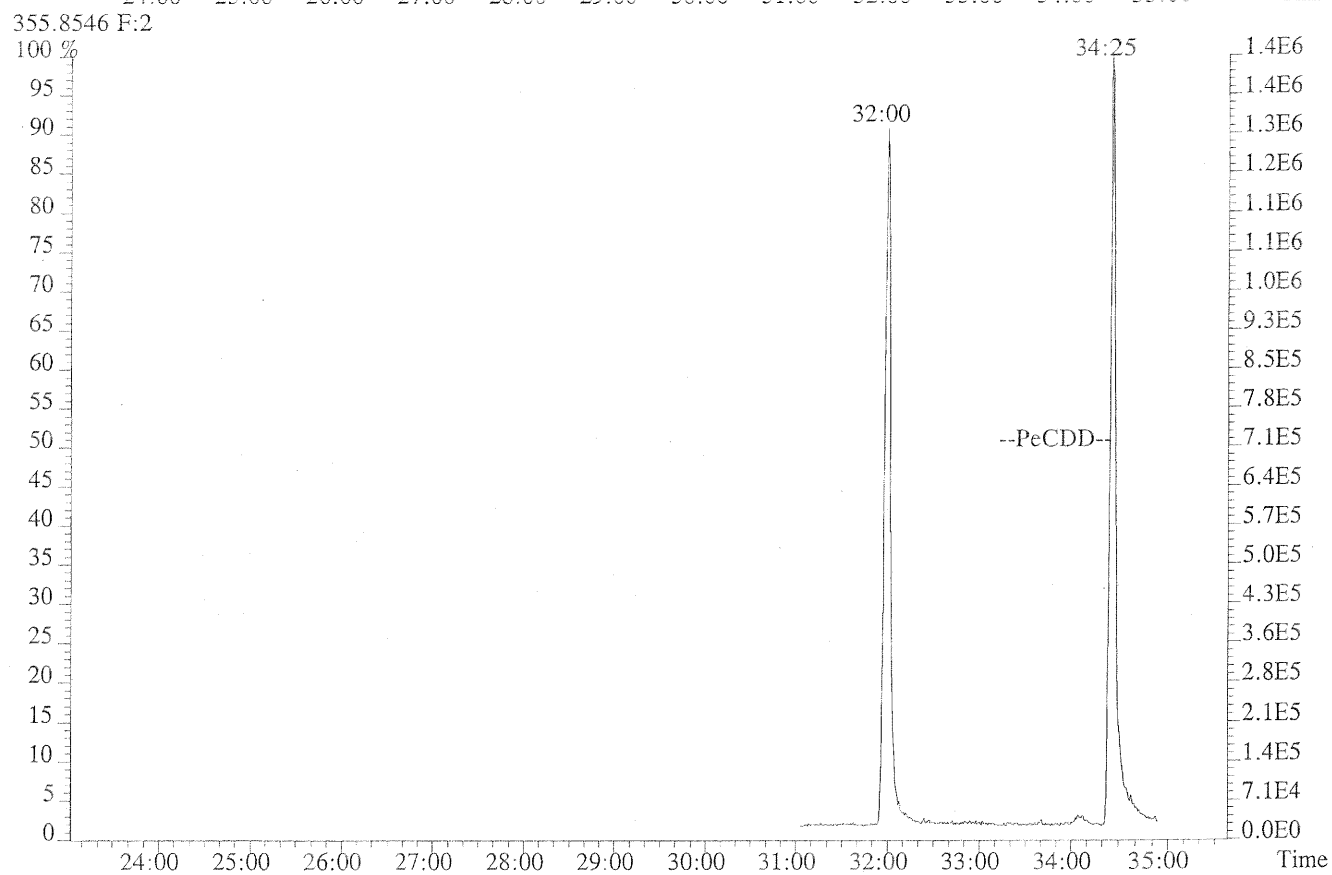
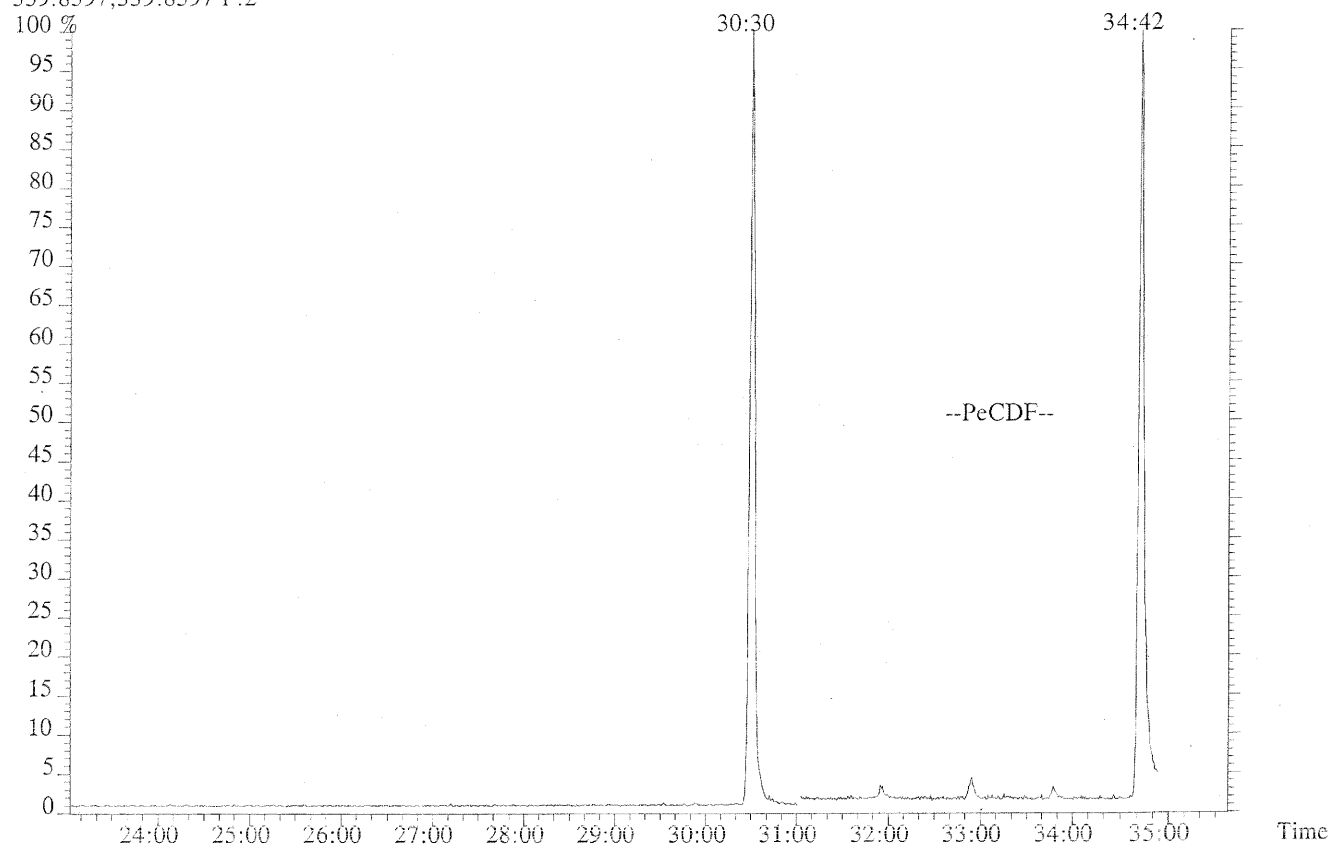
File:U150158 #1-627 Acq:31-JUL-2014 09:17:24 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
319.8965



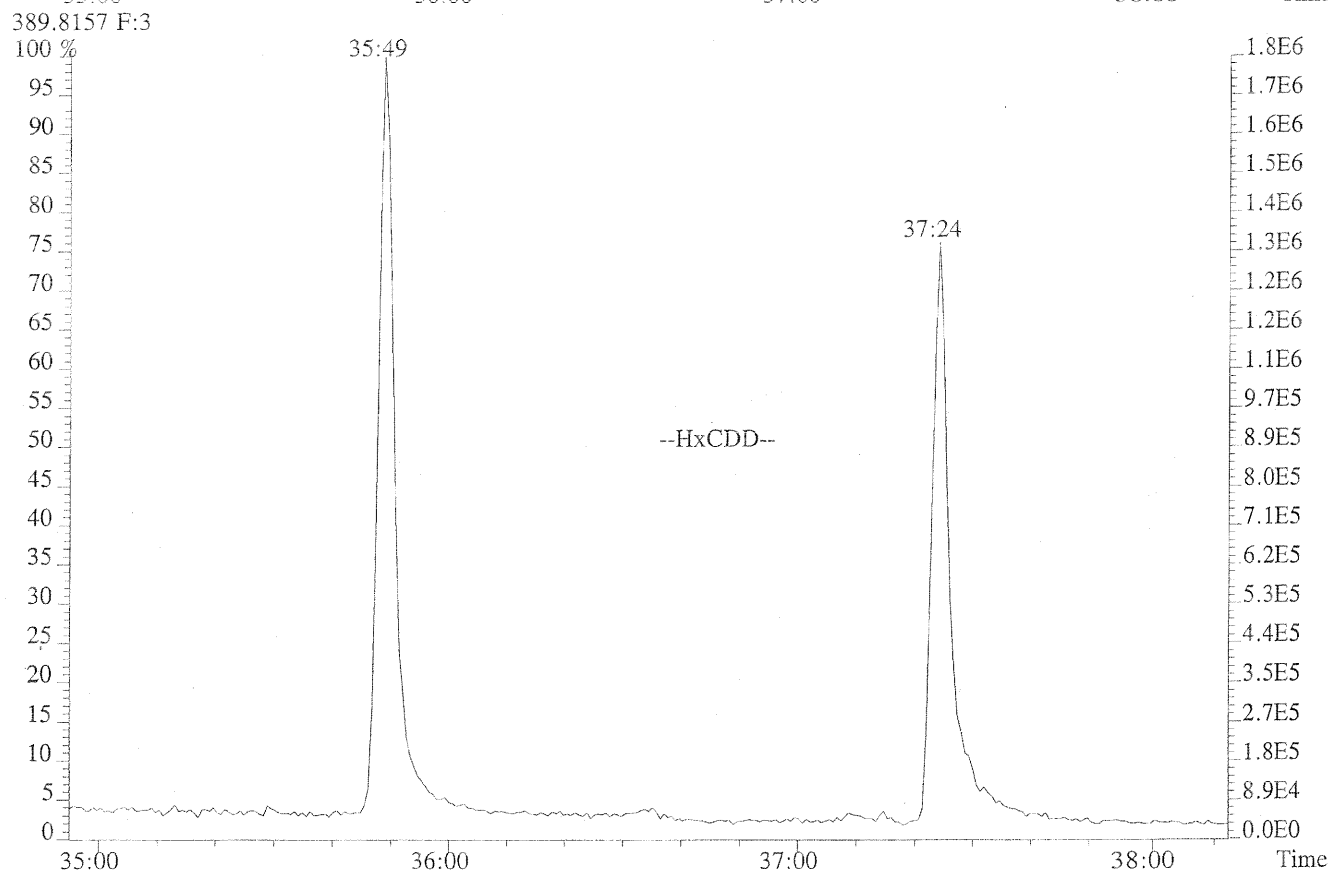
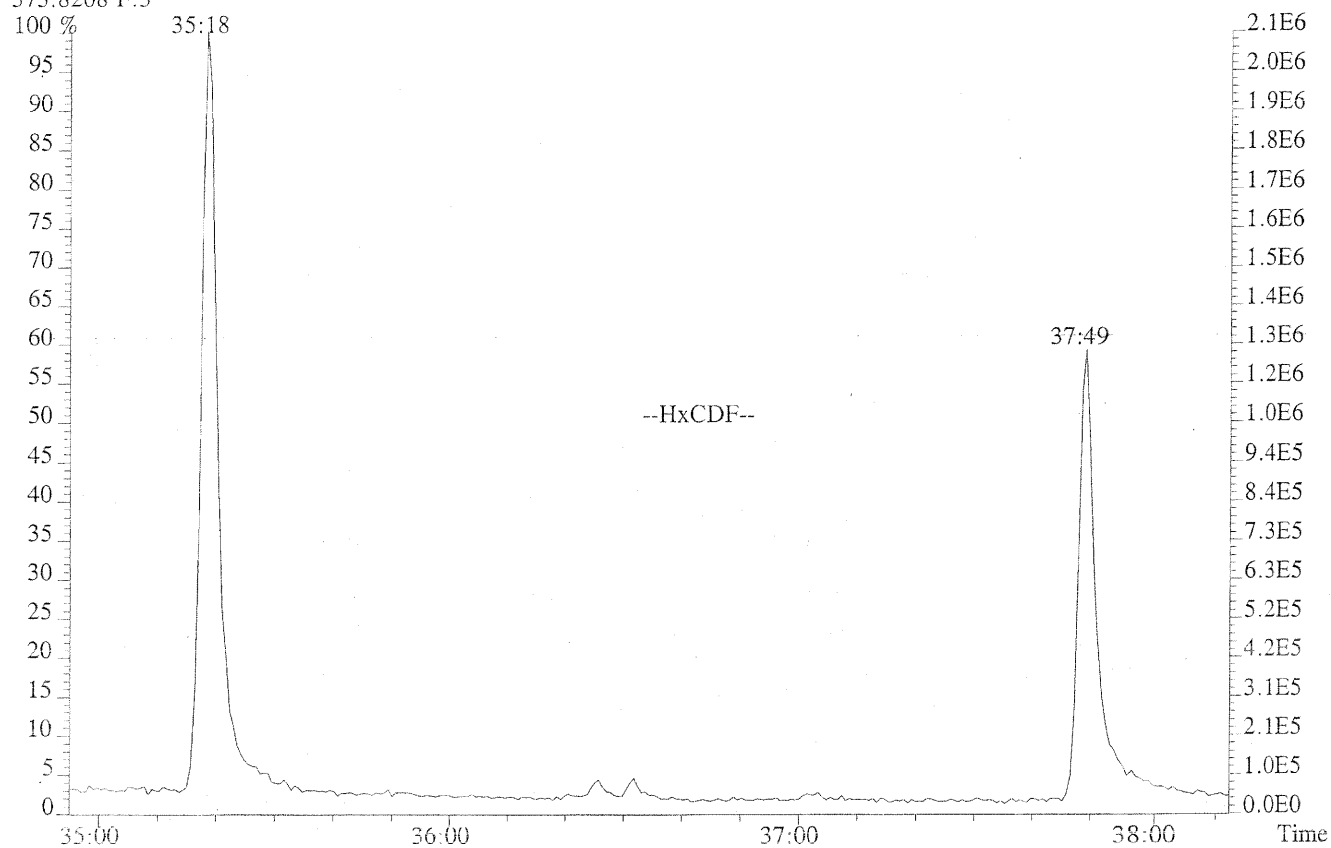
File:U150158 #1-627 Acq:31-JUL-2014 09:17:24 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
303.9016



File:U150158 #1-627 Acq:31-JUL-2014 09:17:24 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
339.8597,339.8597 F:2

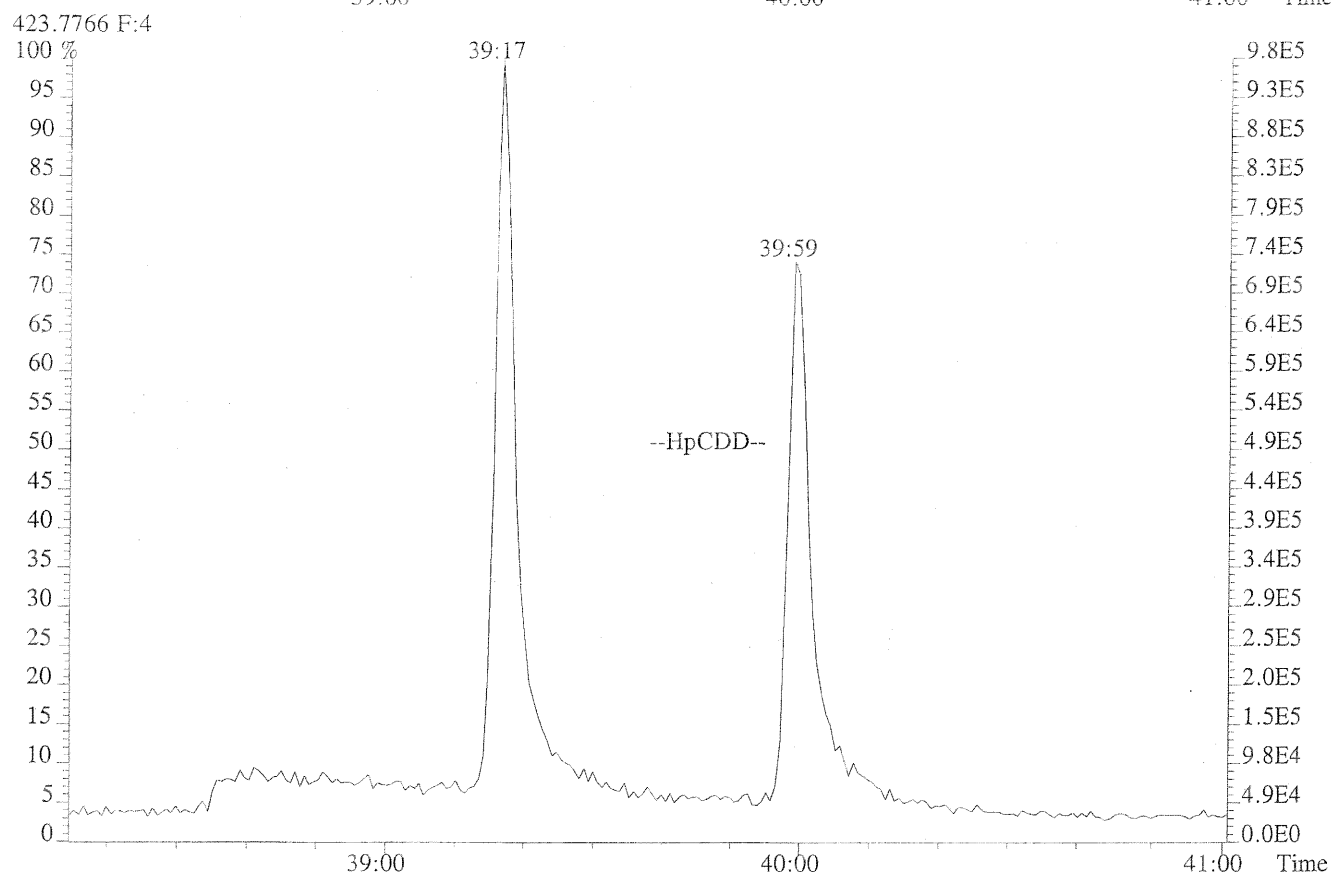
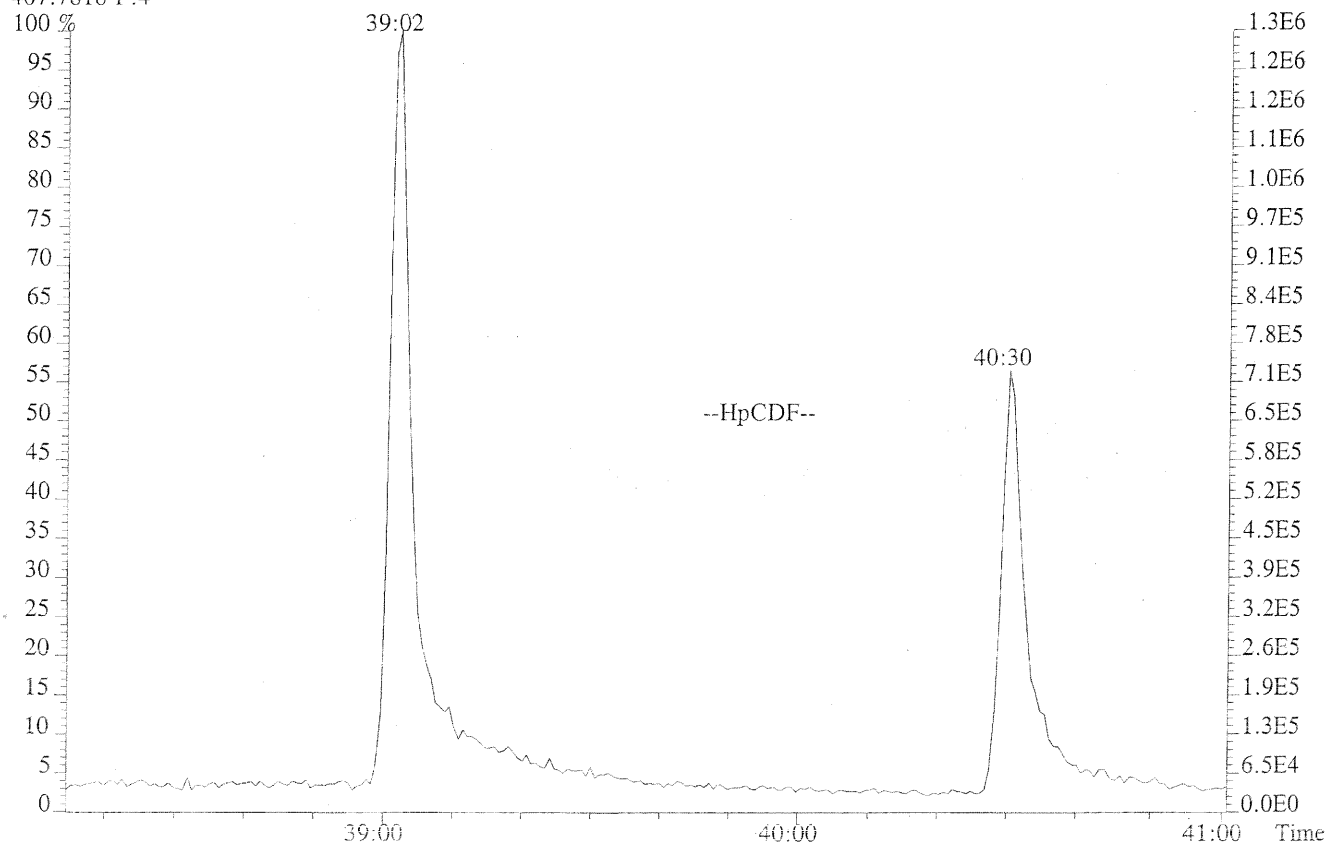


File:U150158 #1-299 Acq:31-JUL-2014 09:17:24 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
373.8208 F:3





File:U150158 #1-252 Acq:31-JUL-2014 09:17:24 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:WINDOW DEFINE  
407.7818 F:4



USEPA - CLP  
6DFA6  
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY  
HIGH RESOLUTION

Lab Name: ALS Environmental

Contract No.:

Lab Code: ALSTX

Case No.:

TO No.:

SDG No.:

GC Column: DB5MSUI ID: 0.25(mm)

Instrument ID: E-HRMS-01

Init. Calib. Date(s): 07/31/14

Analyte Table: M23U1

Init. Calib. Time.: 12:13:20

RR/RRF

Target Analytes	RR/RRF						MEAN		QC LIMITS
	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	
2,3,7,8-TCDF	1.14	1.07	1.02	1.01	1.04	1.05	1.06	4.24	+/-20%
1,2,3,7,8-PeCDF	1.06	1.06	1.01	1.01	1.02	0.96	1.02	3.54	+/-20%
2,3,4,7,8-PeCDF	1.03	0.99	0.96	0.97	0.98	1.00	0.99	2.58	+/-20%
1,2,3,4,7,8-HxCDF	0.99	0.93	0.94	0.94	0.99	1.01	0.97	3.56	+/-20%
1,2,3,6,7,8-HxCDF	1.06	1.18	1.16	1.15	1.16	1.18	1.15	3.86	+/-20%
2,3,4,6,7,8-HxCDF	1.06	1.02	1.01	1.01	1.03	1.05	1.03	2.02	+/-20%
1,2,3,7,8,9-HxCDF	0.88	0.76	0.75	0.78	0.83	0.87	0.81	6.78	+/-20%
1,2,3,4,6,7,8-HpCDF	1.35	1.37	1.33	1.40	1.39	1.34	1.36	1.97	+/-20%
1,2,3,4,7,8,9-HpCDF	0.98	0.84	0.94	0.94	1.01	1.04	0.96	7.25	+/-20%
OCDF	1.46	1.43	1.44	1.51	1.55	1.40	1.47	3.69	+/-20%
2,3,7,8-TCDD	1.05	0.94	0.94	0.96	0.97	0.97	0.97	4.22	+/-20%
1,2,3,7,8-PeCDD	1.09	1.14	1.13	1.12	1.12	1.12	1.12	1.69	+/-20%
1,2,3,4,7,8-HxCDD	1.11	1.03	1.01	1.02	1.07	1.08	1.06	3.87	+/-20%
1,2,3,6,7,8-HxCDD	1.23	1.35	1.29	1.28	1.28	1.07	1.25	7.62	+/-20%
1,2,3,7,8,9-HxCDD	1.19	1.30	1.25	1.28	1.31	1.18	1.25	4.50	+/-20%
1,2,3,4,6,7,8-HpCDD	1.07	1.19	1.07	1.10	1.10	1.07	1.10	4.08	+/-20%
OCDD	1.31	1.48	1.35	1.30	1.33	1.20	1.33	7.00	+/-20%
13C-2,3,7,8-TCDF	1.38	1.40	1.41	1.43	1.41	1.40	1.41	1.21	+/-35%
13C-1,2,3,7,8-PeCDF	1.85	1.79	1.82	1.86	1.89	2.01	1.87	4.19	+/-35%
13C-2,3,4,7,8-PeCDF	1.02	1.01	1.00	1.02	1.01	0.98	1.01	1.38	+/-35%
13C-1,2,3,4,7,8-HxCDF	0.78	0.74	0.76	0.77	0.79	0.85	0.78	4.77	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.48	1.54	1.56	1.52	1.49	1.48	1.51	2.18	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.32	1.34	1.37	1.34	1.35	1.37	1.35	1.45	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.00	0.98	1.03	1.03	1.06	1.14	1.04	5.26	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.98	0.97	1.00	0.99	1.02	1.08	1.01	3.78	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.73	0.67	0.69	0.74	0.78	0.75	0.73	5.53	+/-35%
13C-2,3,7,8-TCDD	0.97	0.97	0.97	0.98	0.98	1.01	0.98	1.53	+/-35%
13C-1,2,3,7,8-PeCDD	1.11	1.01	1.03	1.07	1.08	1.16	1.07	5.30	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.85	0.76	0.78	0.79	0.85	0.74	0.80	5.57	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.93	0.96	0.97	0.96	0.95	1.07	0.97	4.98	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.84	0.78	0.82	0.83	0.88	0.92	0.85	5.93	+/-35%
13C-OCDD	0.48	0.39	0.46	0.46	0.56	0.66	0.50	19.23	+/-35%
13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	-
13C-1,2,3,7,8,9-HxCDD	-	-	-	-	-	-	-	-	-
37Cl-2,3,7,8-TCDD	0.95	0.97	0.98	0.98	0.98	0.99	0.97	1.62	+/-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: DB5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-01  
 Init. Calib. Date(s): 07/31/14 Analyte Table: M23U1  
 Init. Calib. Time.: 12:13:20

ION ABUNDANCE RATIO

Target Analytes	SELECTED							FLAG	ION RATIO
	IONS	CS0.5	CS1	CS2	CS3	CS4	CS5		QC LIMITS
2,3,7,8-TCDF	304/306	0.85	0.78	0.76	0.81	0.76	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.52	1.62	1.59	1.57	1.55	1.56		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.46	1.43	1.54	1.55	1.54	1.55		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.14	1.16	1.24	1.20	1.23	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.32	1.20	1.20	1.21	1.24	1.23		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.15	1.22	1.20	1.20	1.20	1.23		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.25	1.30	1.23	1.25	1.23	1.23		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.97	0.98	1.05	1.05	1.04	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.17	0.98	1.07	1.02	1.08	1.03		0.88-1.20
OCDF	442/444	0.90	0.94	0.93	0.89	0.90	0.90		0.76-1.02
2,3,7,8-TCDD	320/322	0.86	0.81	0.75	0.82	0.82	0.81		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.77	1.56	1.70	1.68	1.68	1.65		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.22	1.19	1.23	1.27	1.25	1.25		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.22	1.18	1.25	1.27	1.25	1.26		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.17	1.21	1.24	1.23	1.28	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	1.08	0.99	1.00	1.05	1.03	1.05		0.88-1.20
OCDD	458/460	0.96	0.83	0.90	0.88	0.87	0.90		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.84	0.84	0.83	0.85	0.84	0.85		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.61	1.62	1.61	1.60	1.59	1.63		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.62	1.59	1.59	1.60	1.60		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.52	0.51	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.53	0.50	0.53	0.53	0.52		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.51	0.53	0.52	0.51	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.51	0.52	0.51	0.52	0.51	0.53		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.46	0.46	0.45	0.45	0.45		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.76	0.76	0.76	0.76	0.76	0.76		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.57	1.49	1.51	1.50	1.55	1.55		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.30	1.36	1.31	1.34	1.32	1.32		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.29	1.35	1.34	1.33	1.32	1.32		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.11	1.11	1.10	1.10	1.12	1.11		0.88-1.20
13C-OCDD	470/472	0.92	0.92	0.93	0.93	0.94	0.92		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.77	0.77	0.77	0.76	0.76	0.76		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.29	1.32	1.41	1.30	1.33	1.31		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.

## Sample Response Summary

Run #1 Filename U150166 #1  
Processed: 6-AUG-14 13:08:54Samp: 1 Inj: 1  
LAB. ID: 66807

Acquired: 31-JUL-14 19:08:59

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:02	8.715e+01	1.025e+02	0.85	yes	yes	1.057
2 Unk	1,2,3,7,8-PeCDF	33:03	7.126e+02	4.673e+02	1.52	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:57	6.791e+02	4.642e+02	1.46	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:34	5.269e+02	4.610e+02	1.14	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:40	6.046e+02	4.581e+02	1.32	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:10	5.690e+02	4.952e+02	1.15	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:56	4.882e+02	3.904e+02	1.25	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:10	4.430e+02	4.553e+02	0.97	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:40	3.517e+02	3.010e+02	1.17	yes	no	0.959
10 Unk	OCDF	43:20	4.469e+02	4.962e+02	0.90	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:47	5.670e+01	6.604e+01	0.86	yes	yes	0.972
12 Unk	1,2,3,7,8-PeCDD	34:13	4.620e+02	2.614e+02	1.77	yes	yes	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:18	3.877e+02	3.169e+02	1.22	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:23	4.291e+02	3.508e+02	1.22	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:37	4.064e+02	3.459e+02	1.17	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:09	3.158e+02	2.919e+02	1.08	yes	no	1.102
17 Unk	OCDD	43:06	4.155e+02	4.311e+02	0.96	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:01	3.042e+04	3.622e+04	0.84	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:03	5.483e+04	3.411e+04	1.61	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:56	5.566e+04	3.501e+04	1.59	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:33	2.146e+04	4.135e+04	0.52	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:39	2.726e+04	5.289e+04	0.52	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:55	1.844e+04	3.598e+04	0.51	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:10	1.638e+04	3.666e+04	0.45	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:40	1.205e+04	2.682e+04	0.45	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:45	2.024e+04	2.651e+04	0.76	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:12	3.253e+04	2.068e+04	1.57	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:17	2.428e+04	1.875e+04	1.30	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:22	2.858e+04	2.214e+04	1.29	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:08	2.386e+04	2.157e+04	1.11	yes	no	0.845
32 IS	13C-OCDD	43:05	2.469e+04	2.696e+04	0.92	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:12	2.095e+04	2.717e+04	0.77	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:36	3.053e+04	2.373e+04	1.29	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:46	1.108e+02				no	0.975

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS0.5

Method M23

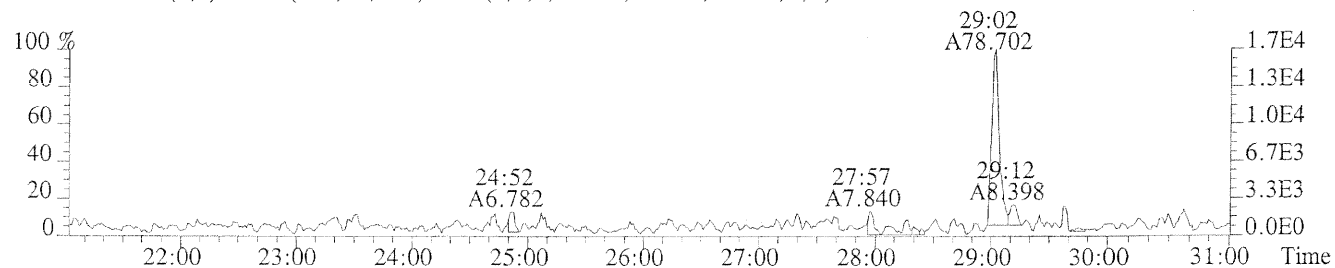
Run #1 Filename U150166 #1 Samp: 1 Inj: 1 Acquired: 31-JUL-14 19:08:59  
Processed: 6-AUG-14 13:08:54 LAB. ID: 66807

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.64e+04	1.05e+03	1.6e+01	1.69e+04	1.91e+03	8.9e+00
2	1,2,3,7,8-PeCDF	1.21e+05	1.26e+03	9.6e+01	7.89e+04	1.14e+03	6.9e+01
3	2,3,4,7,8-PeCDF	1.27e+05	1.26e+03	1.0e+02	7.88e+04	1.14e+03	6.9e+01
4	1,2,3,4,7,8-HxCDF	1.07e+05	1.12e+03	9.5e+01	8.90e+04	7.76e+02	1.1e+02
5	1,2,3,6,7,8-HxCDF	1.10e+05	1.12e+03	9.8e+01	8.81e+04	7.76e+02	1.1e+02
6	2,3,4,6,7,8-HxCDF	1.02e+05	1.12e+03	9.1e+01	9.01e+04	7.76e+02	1.2e+02
7	1,2,3,7,8,9-HxCDF	8.61e+04	1.12e+03	7.7e+01	6.47e+04	7.76e+02	8.3e+01
8	1,2,3,4,6,7,8-HpCDF	7.96e+04	1.38e+03	5.8e+01	7.53e+04	1.52e+03	5.0e+01
9	1,2,3,4,7,8,9-HpCDF	5.38e+04	1.38e+03	3.9e+01	4.37e+04	1.52e+03	2.9e+01
10	OCDF	5.45e+04	5.04e+02	1.1e+02	6.31e+04	1.23e+03	5.1e+01
11	2,3,7,8-TCDD	1.04e+04	6.84e+02	1.5e+01	1.31e+04	8.08e+02	1.6e+01
12	1,2,3,7,8-PeCDD	7.30e+04	1.24e+03	5.9e+01	4.05e+04	9.04e+02	4.5e+01
13	1,2,3,4,7,8-HxCDD	8.14e+04	9.76e+02	8.3e+01	6.49e+04	9.12e+02	7.1e+01
14	1,2,3,6,7,8-HxCDD	8.33e+04	9.76e+02	8.5e+01	6.67e+04	9.12e+02	7.3e+01
15	1,2,3,7,8,9-HxCDD	7.14e+04	9.76e+02	7.3e+01	6.00e+04	9.12e+02	6.6e+01
16	1,2,3,4,6,7,8-HpCDD	4.96e+04	7.88e+02	6.3e+01	4.91e+04	5.64e+02	8.7e+01
17	OCDD	5.78e+04	5.72e+02	1.0e+02	5.64e+04	8.92e+02	6.3e+01
18	13C-2,3,7,8-TCDF	5.29e+06	1.51e+03	3.5e+03	6.29e+06	1.04e+03	6.1e+03
19	13C-1,2,3,7,8-PeCDF	8.80e+06	1.24e+03	7.1e+03	5.46e+06	1.02e+03	5.4e+03
20	13C-2,3,4,7,8-PeCDF	9.44e+06	1.24e+03	7.6e+03	5.92e+06	1.02e+03	5.8e+03
21	13C-1,2,3,4,7,8-HxCDF	4.21e+06	9.72e+02	4.3e+03	8.00e+06	1.54e+03	5.2e+03
22	13C-1,2,3,6,7,8-HxCDF	4.84e+06	9.72e+02	5.0e+03	9.37e+06	1.54e+03	6.1e+03
24	13C-1,2,3,7,8,9-HxCDF	3.17e+06	9.72e+02	3.3e+03	6.22e+06	1.54e+03	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.85e+06	1.06e+03	2.7e+03	6.35e+06	6.92e+02	9.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.81e+06	1.06e+03	1.7e+03	3.99e+06	6.92e+02	5.8e+03
27	13C-2,3,7,8-TCDD	3.70e+06	2.86e+03	1.3e+03	4.82e+06	1.55e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	5.36e+06	1.32e+03	4.1e+03	3.37e+06	1.05e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.14e+06	1.53e+03	3.4e+03	3.93e+06	9.80e+02	4.0e+03
30	13C-1,2,3,6,7,8-HxCDD	4.99e+06	1.53e+03	3.3e+03	3.83e+06	9.80e+02	3.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.60e+06	9.48e+02	3.8e+03	3.25e+06	7.08e+02	4.6e+03
32	13C-OCDD	2.98e+06	8.40e+02	3.6e+03	3.28e+06	8.12e+02	4.0e+03
33	13C-1,2,3,4-TCDD	4.04e+06	2.86e+03	1.4e+03	5.24e+06	1.55e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	5.12e+06	1.53e+03	3.4e+03	3.92e+06	9.80e+02	4.0e+03
35	37Cl-2,3,7,8-TCDD	2.20e+04	1.35e+03	1.6e+01			

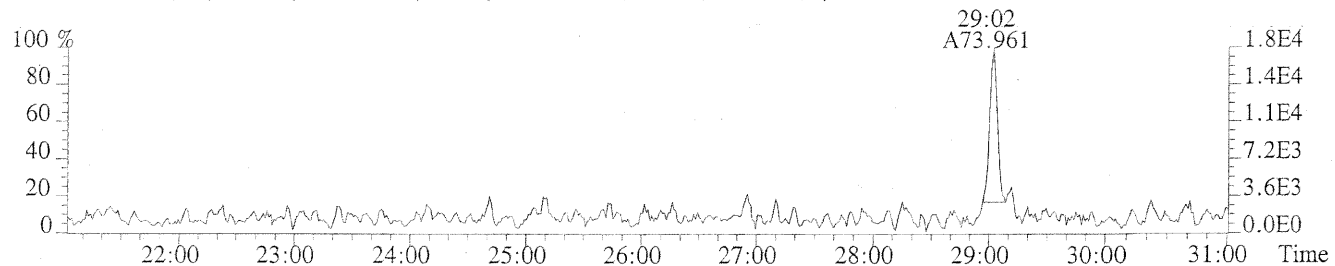
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

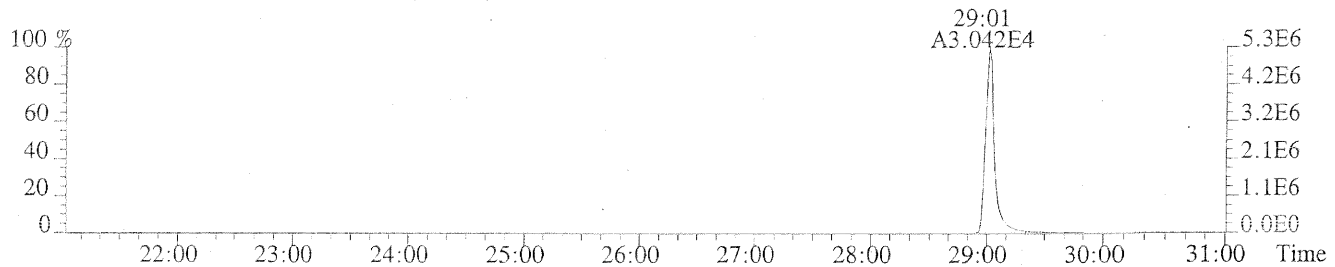
File:U150166 #1-627 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



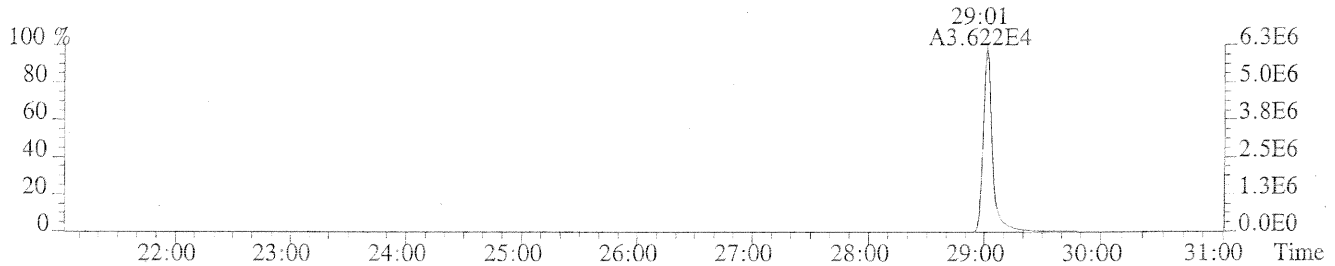
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



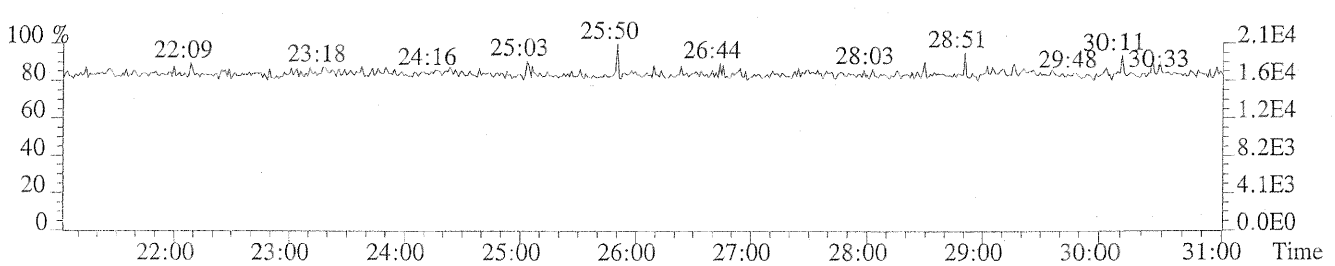
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



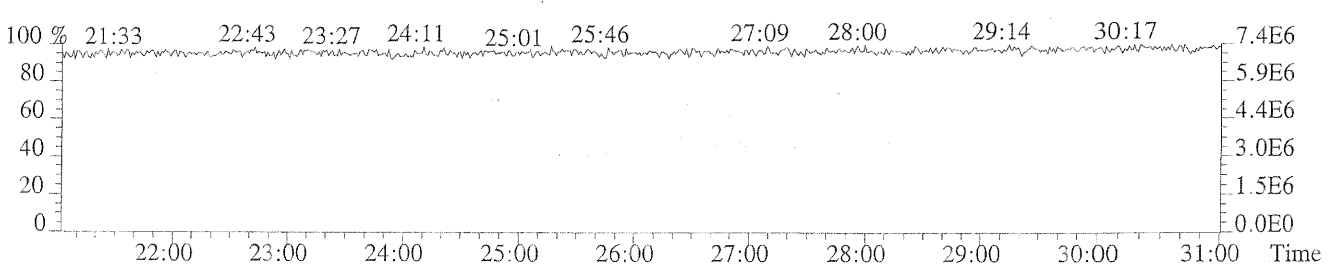
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



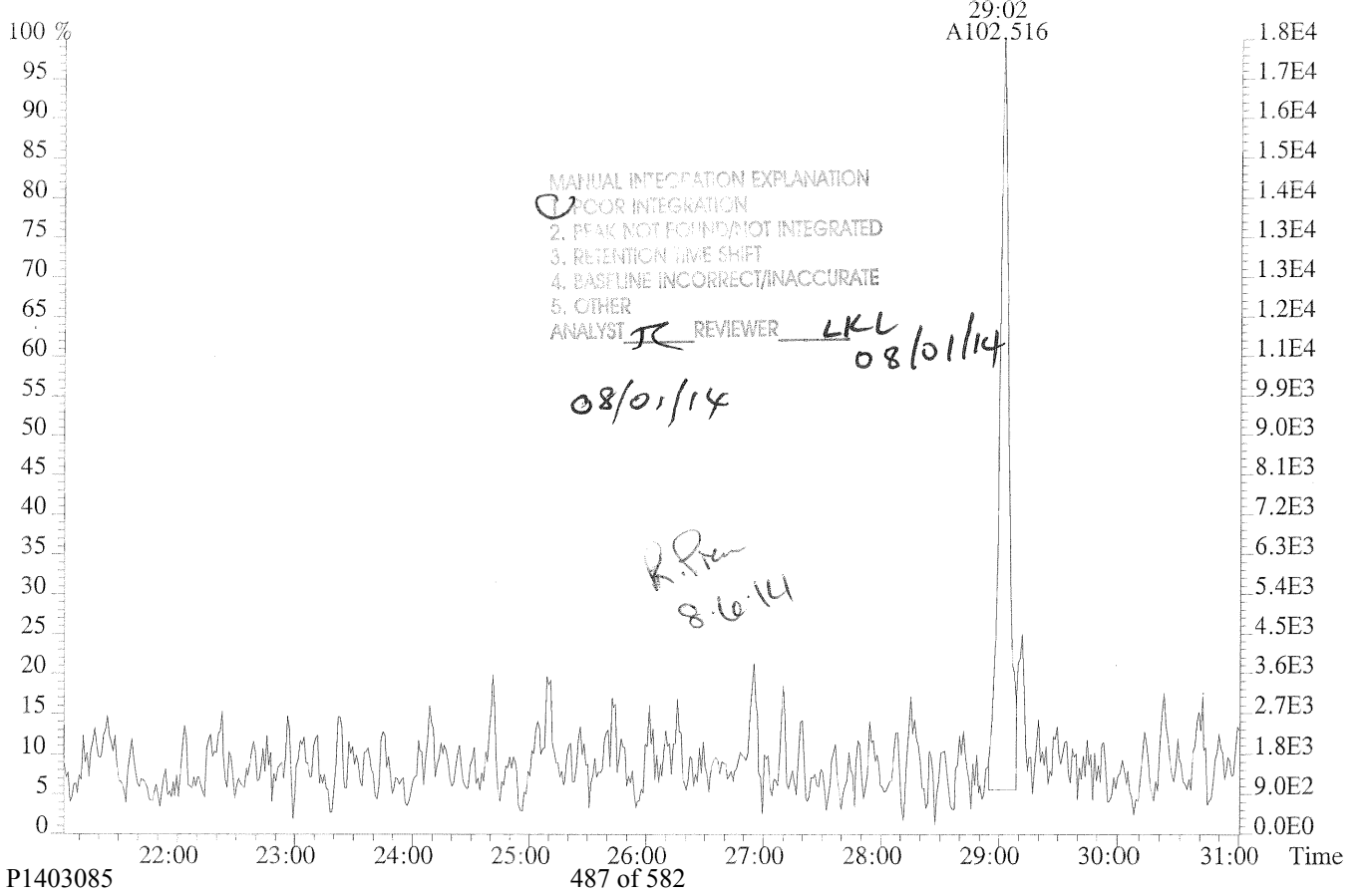
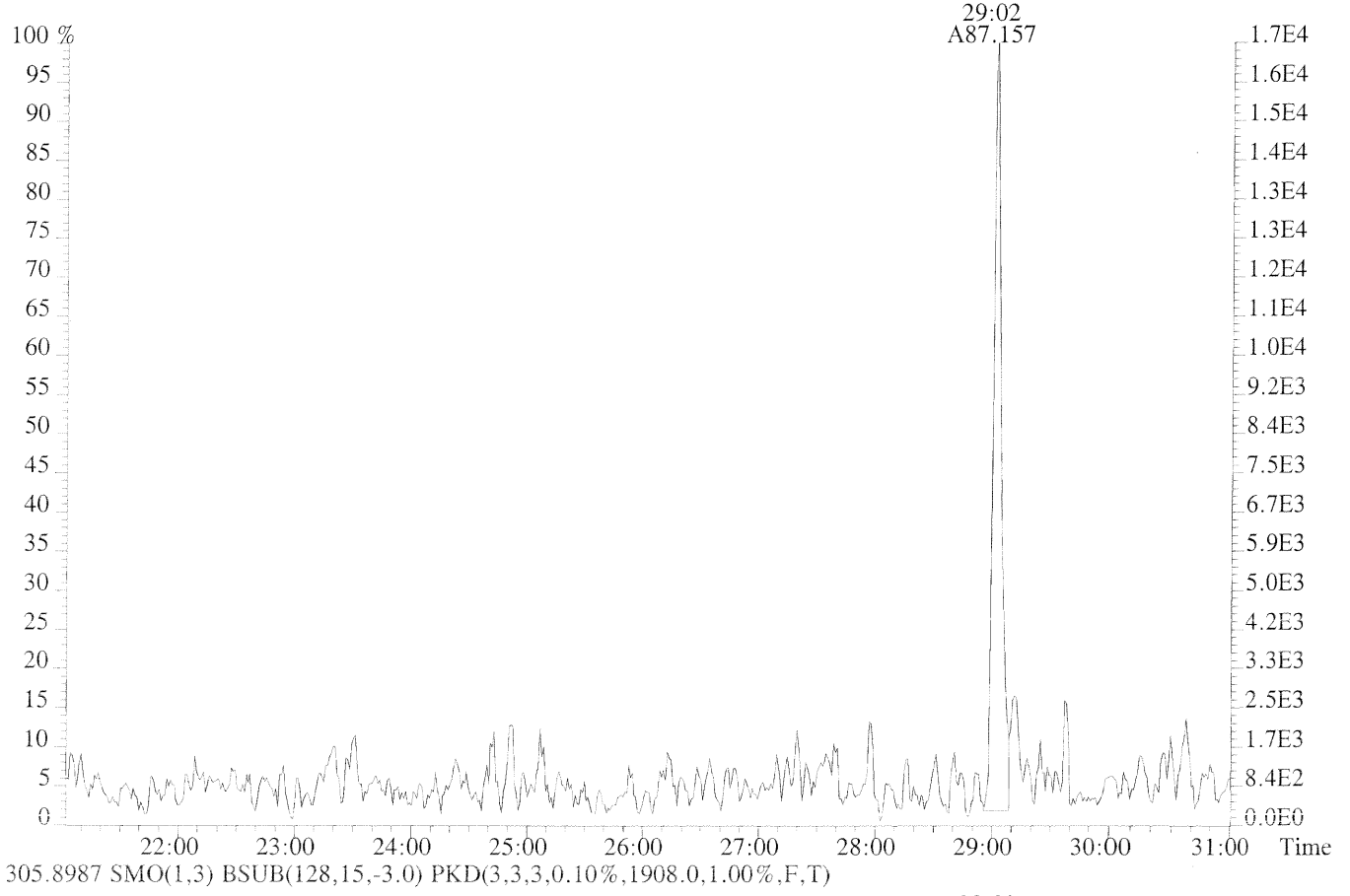
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



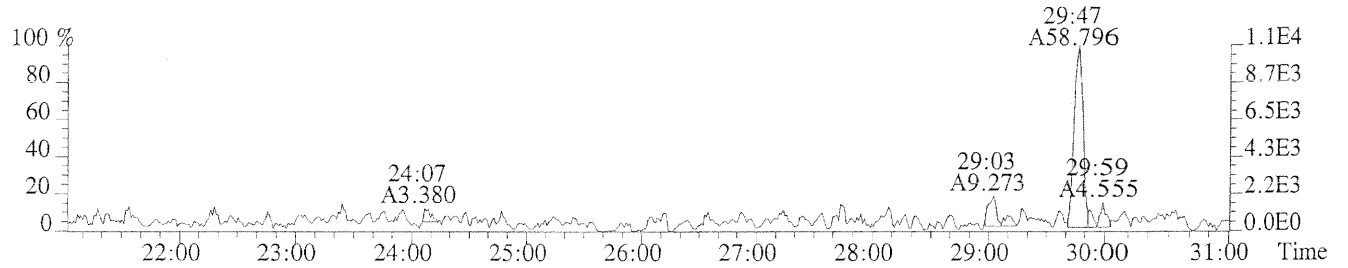
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



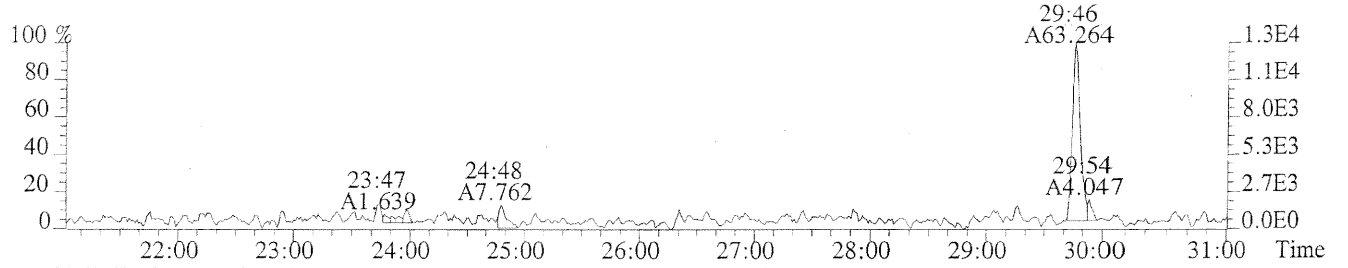
File:U150166 #1-627 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
303.9016 SMO(1,3) BSUB(128,15,-3.0)



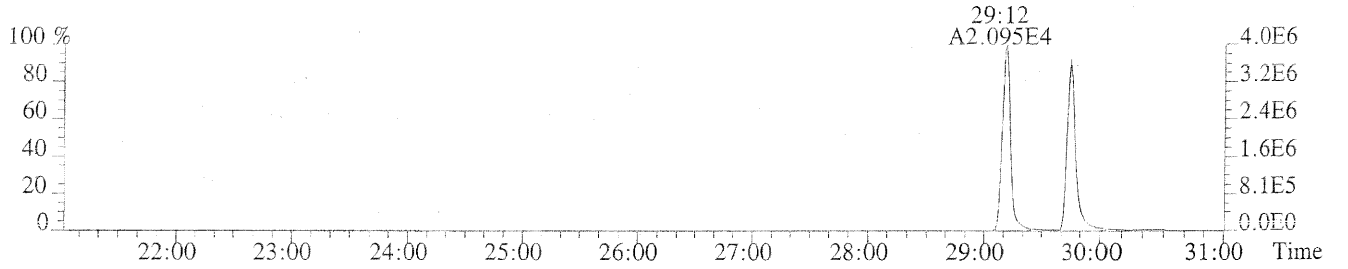
File:U150166 #1-627 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



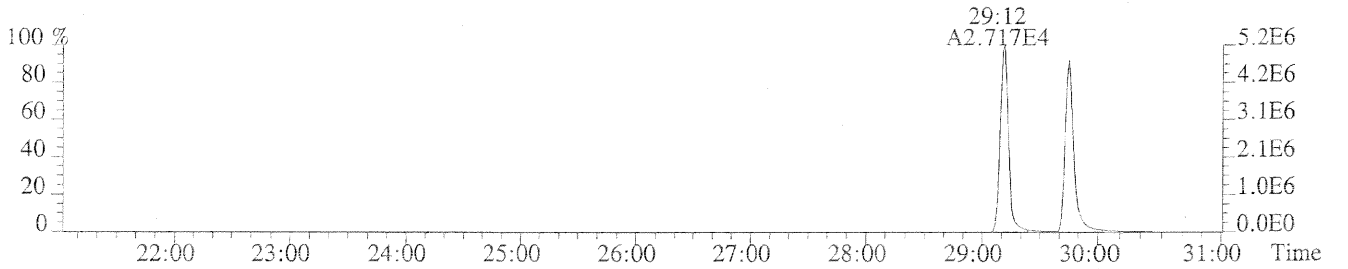
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



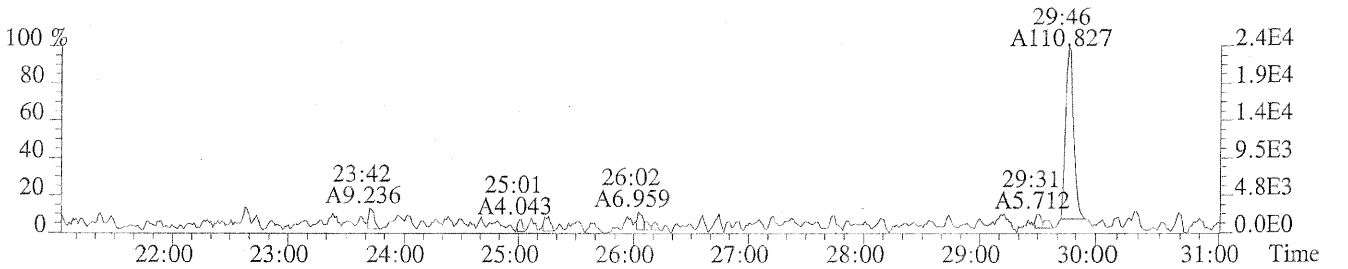
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2864.0,1.00%,F,T)



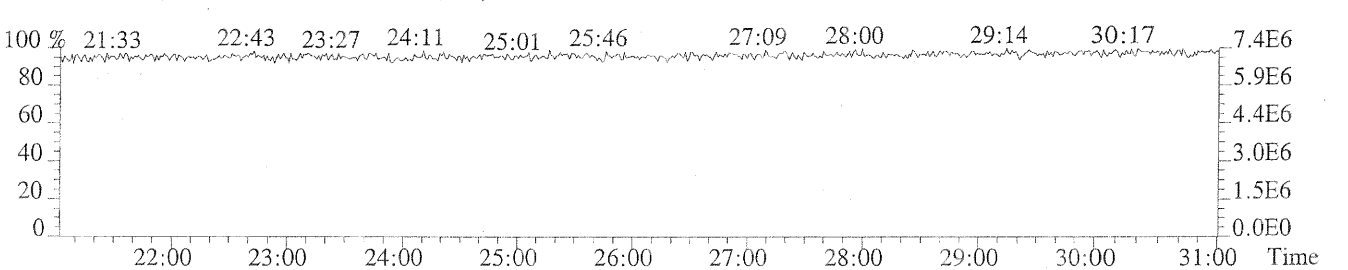
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)

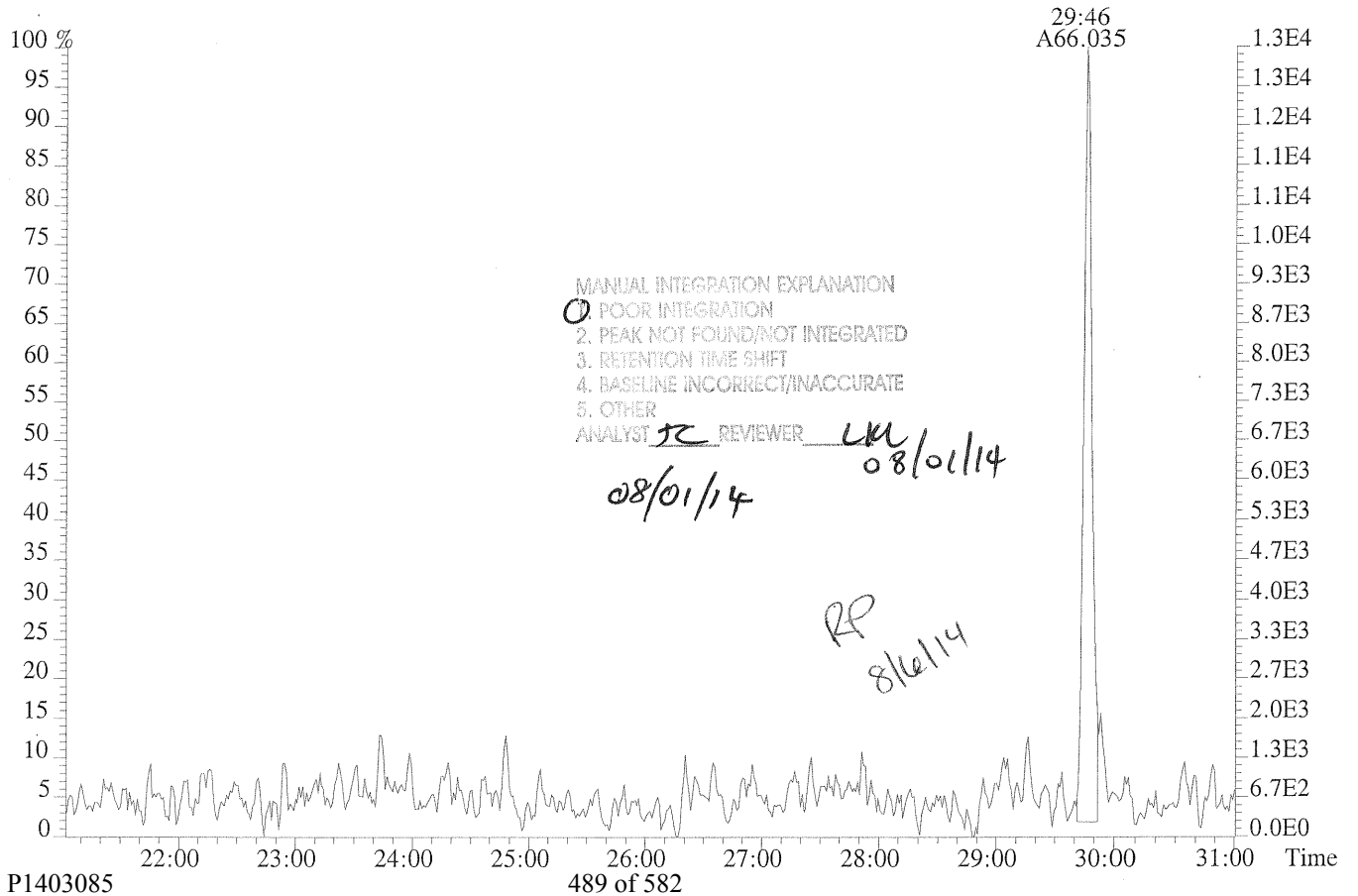
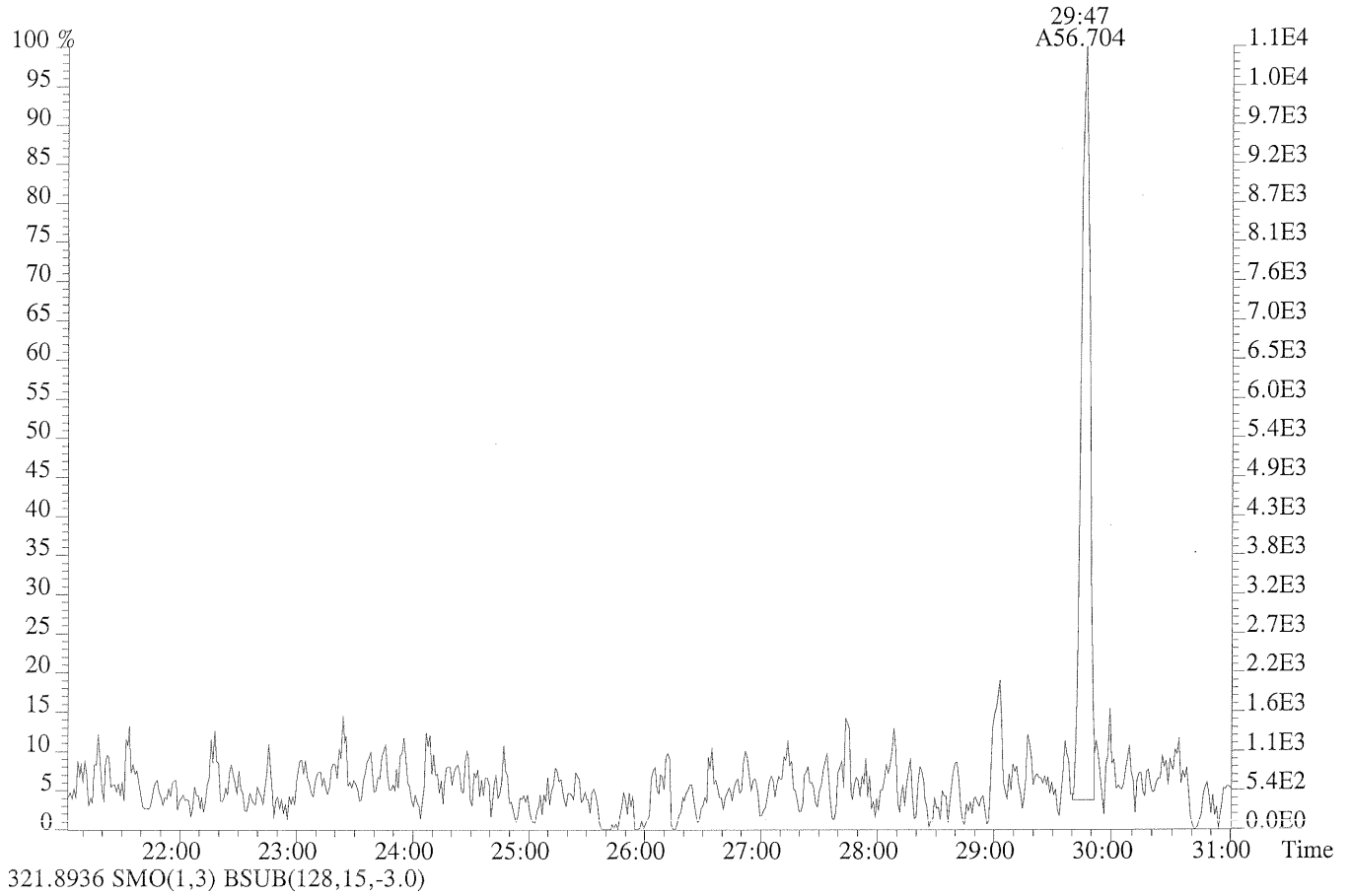


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



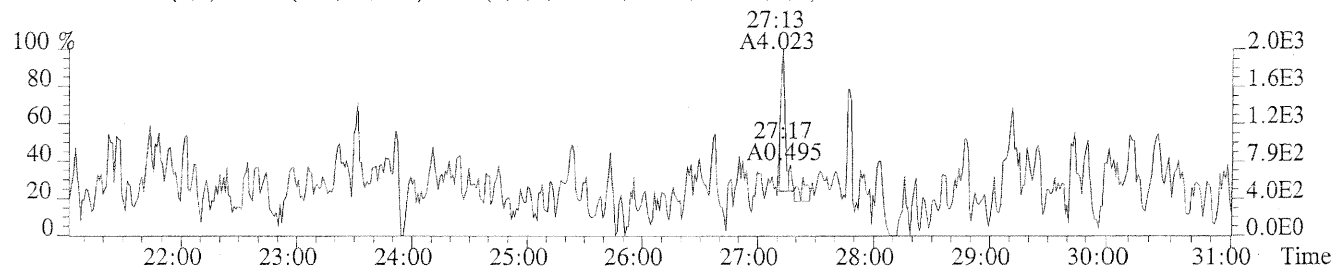


File:U150166 #1-627 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
319.8965 SMO(1,3) BSUB(128,15,-3.0)

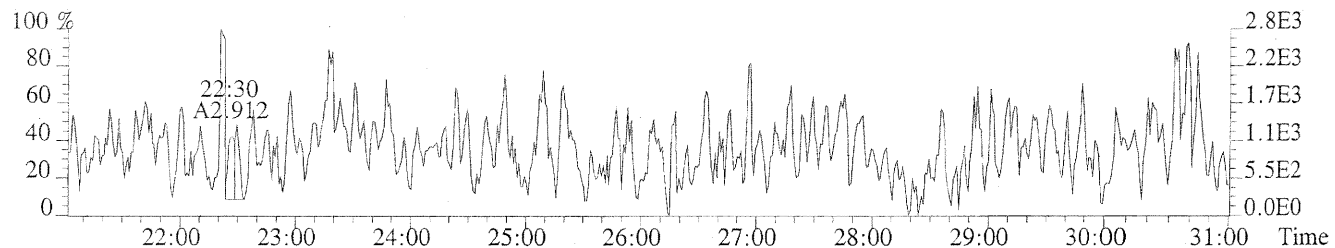


File:U150166 #1-627 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5

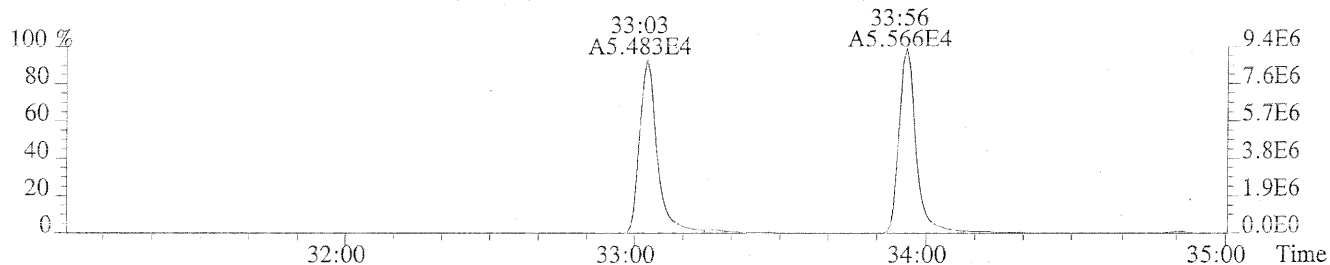
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



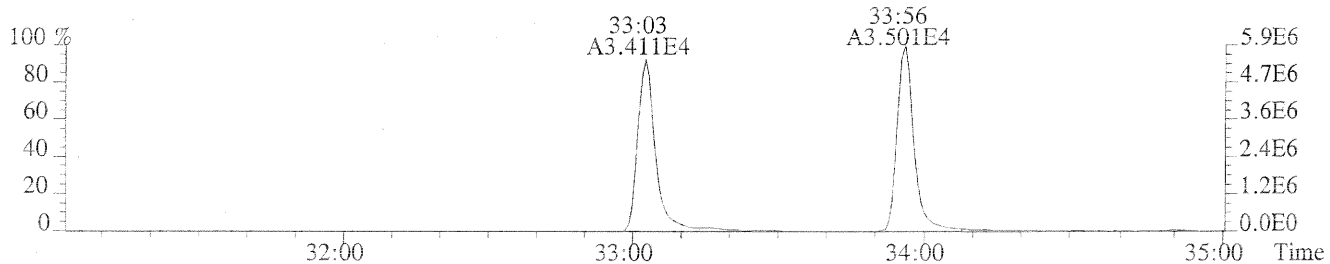
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



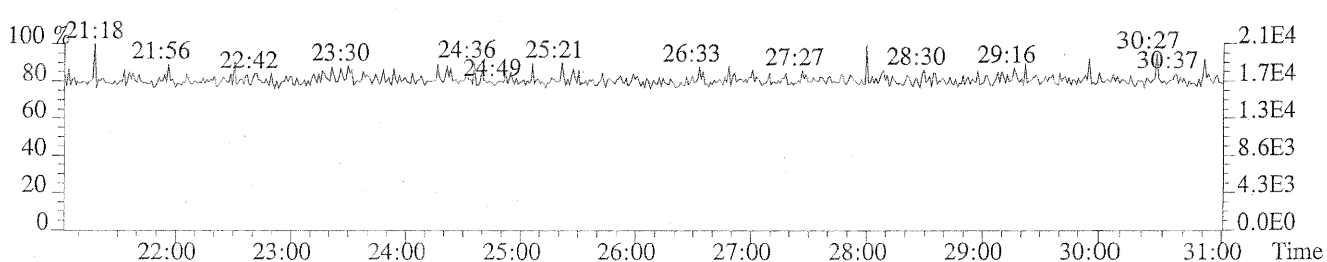
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



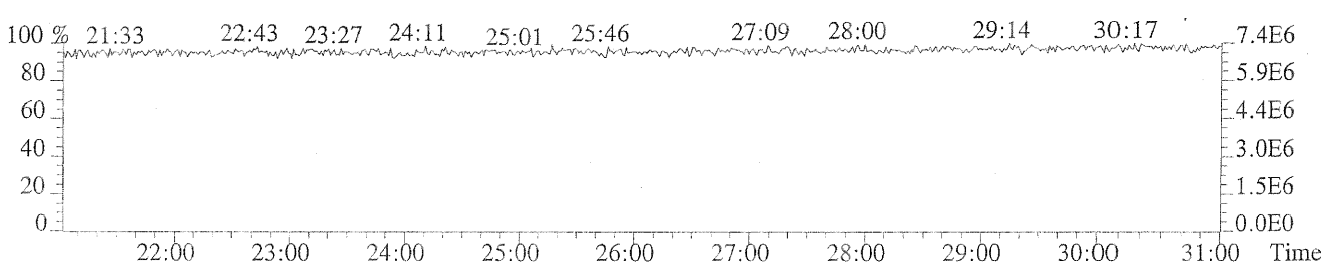
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



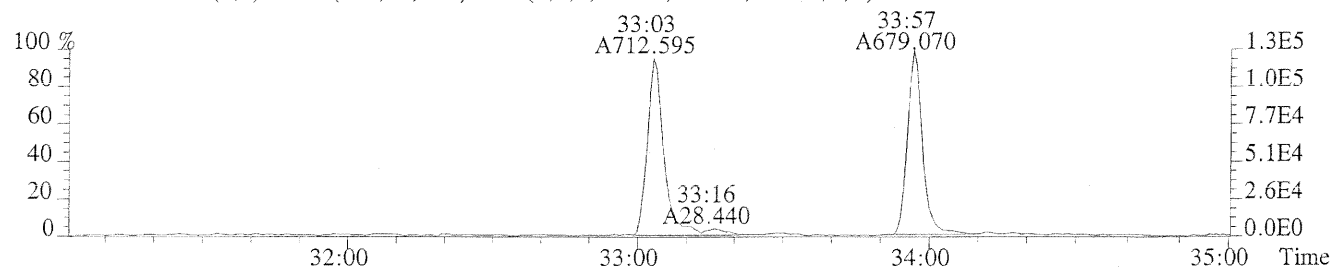
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



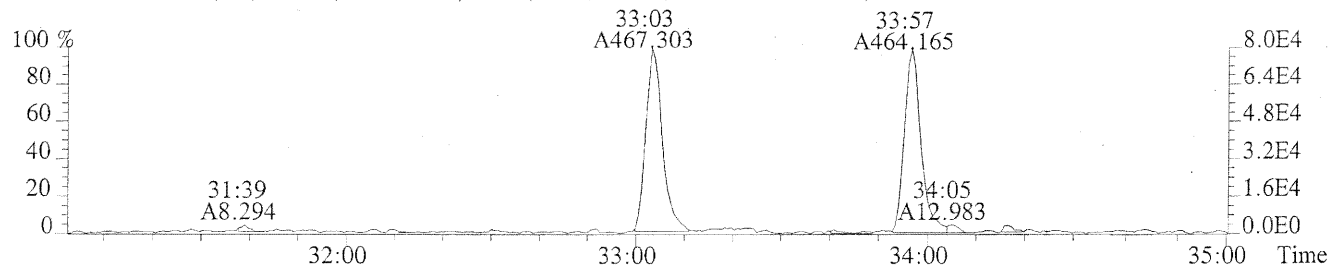
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



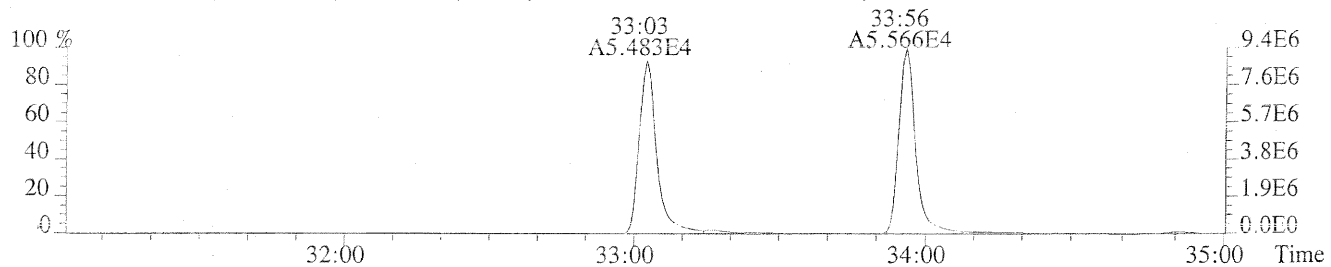
File:U150166 #1-360 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



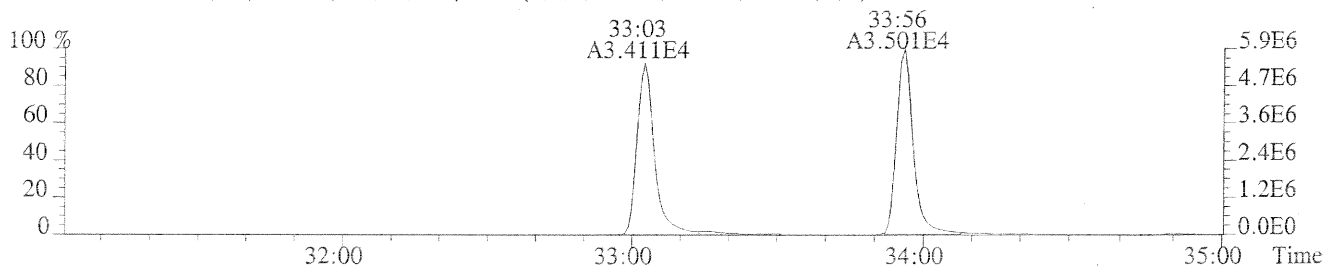
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



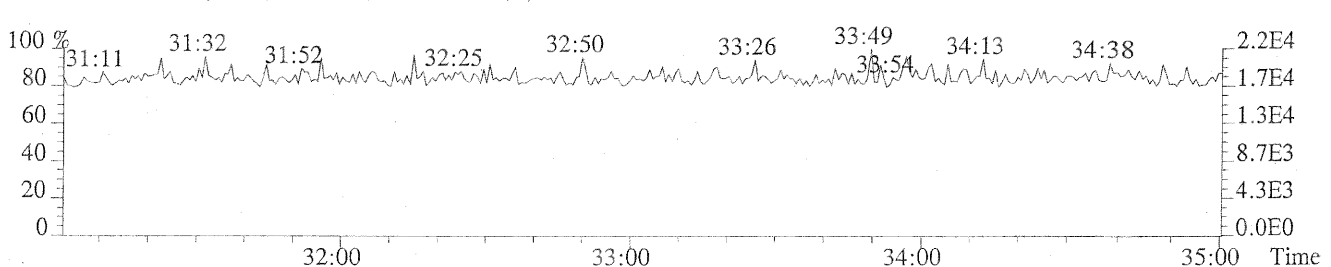
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



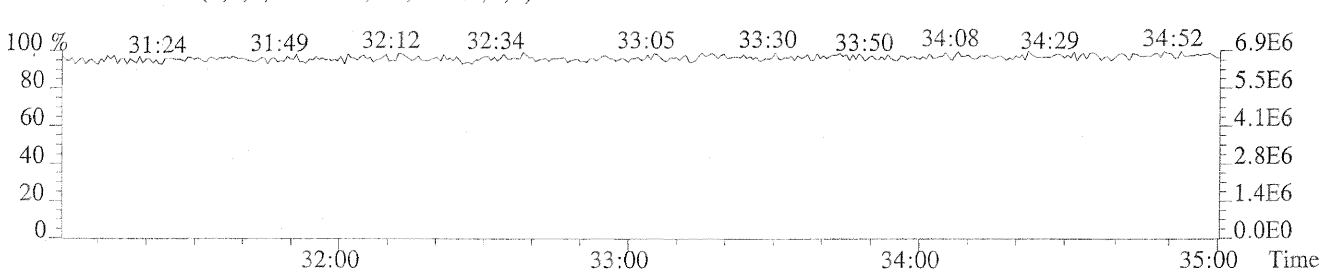
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



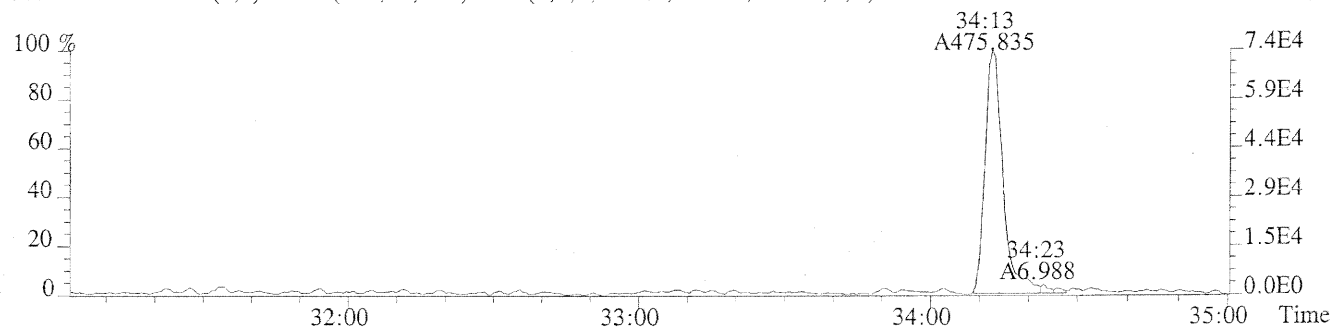
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



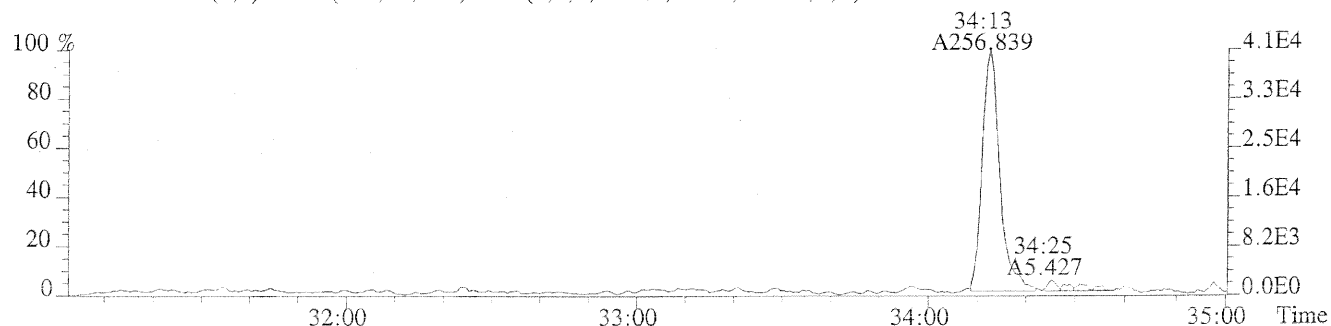
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



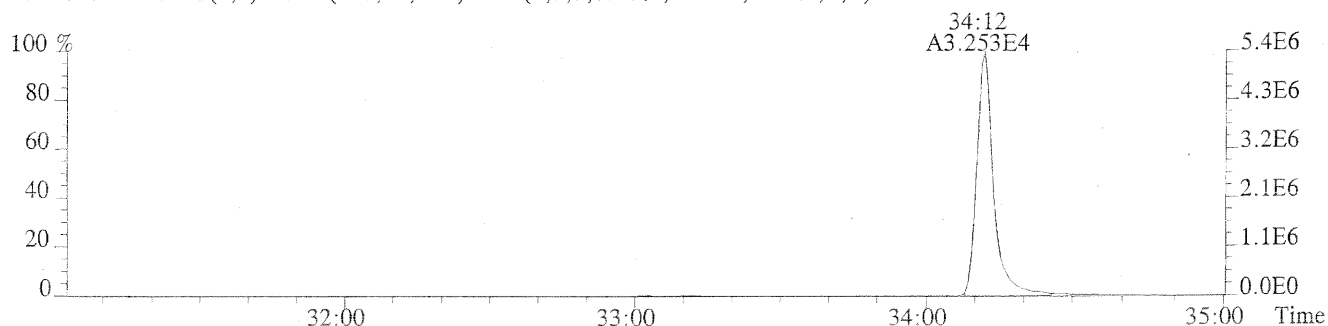
File:U150166 #1-360 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



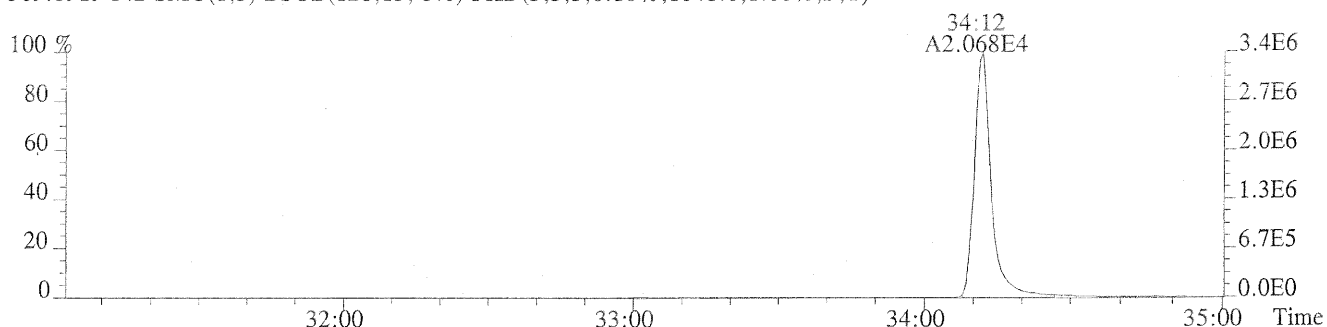
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



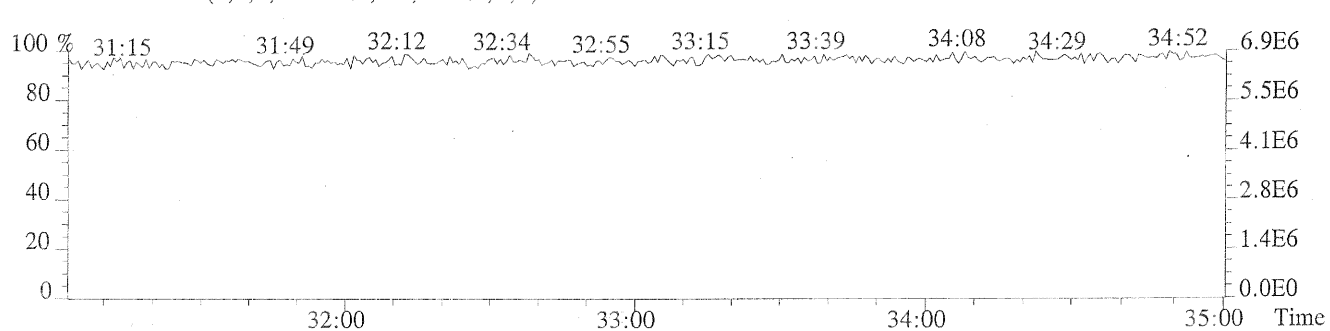
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



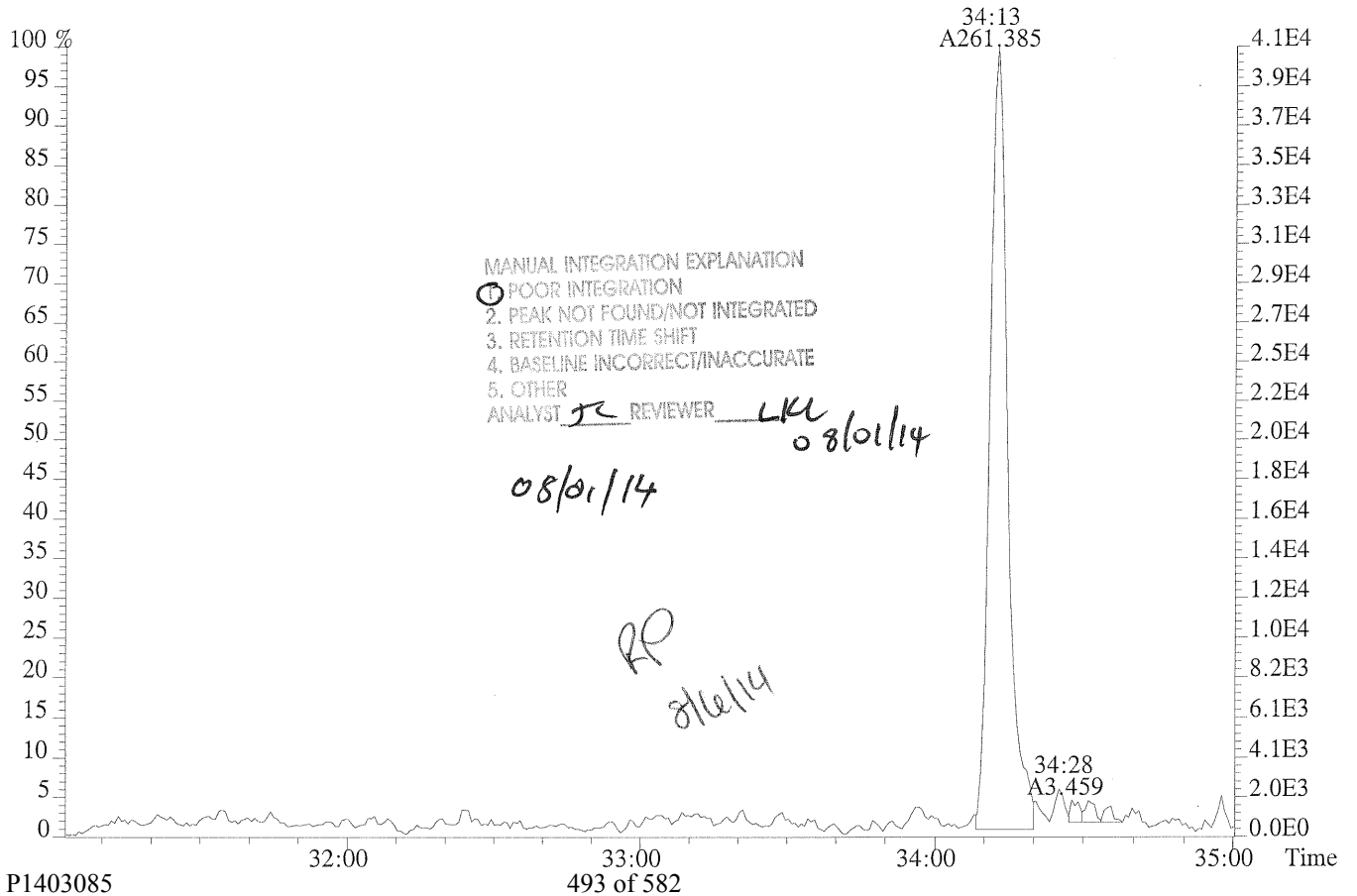
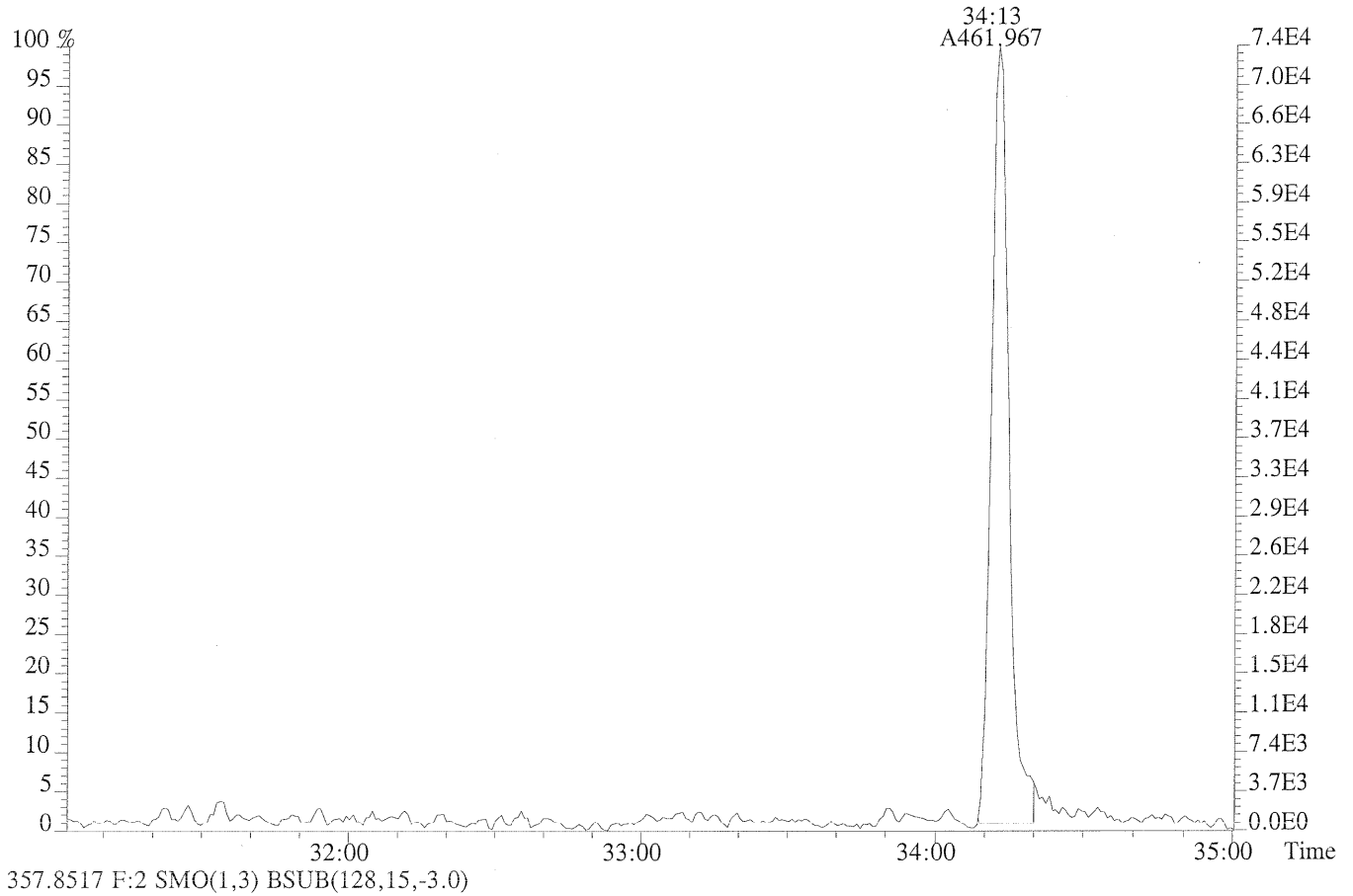
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



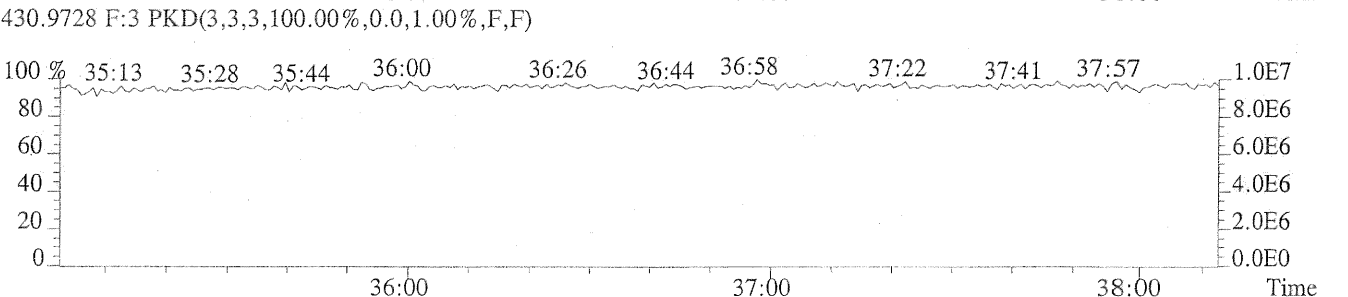
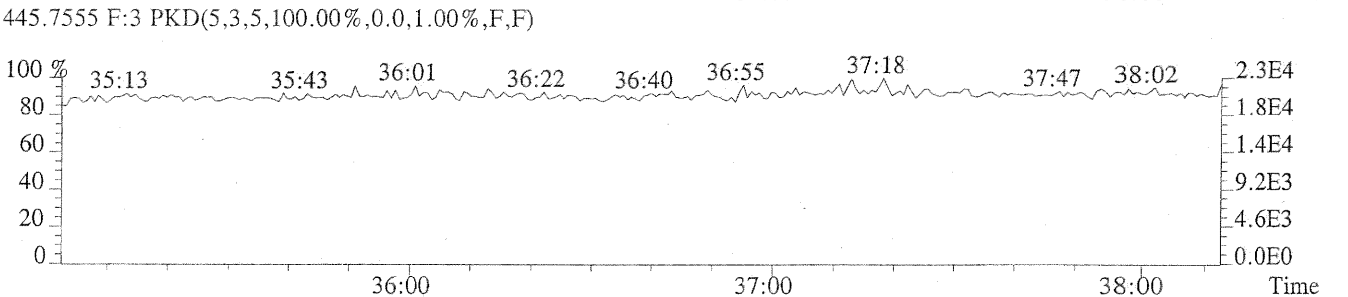
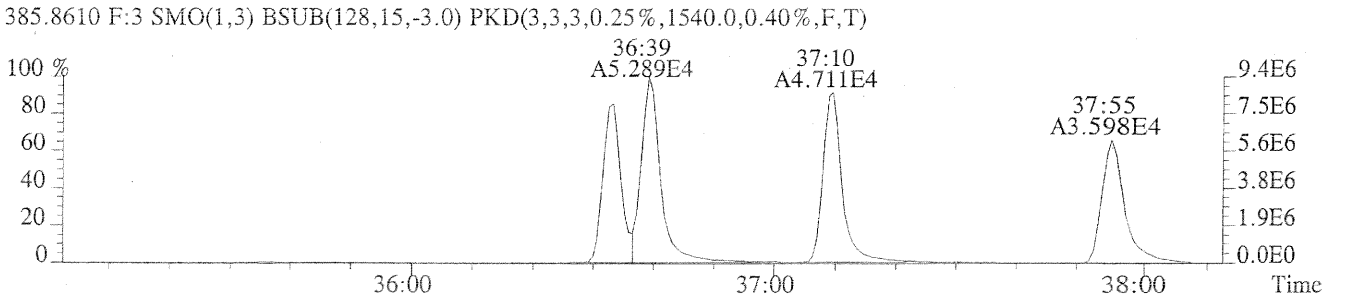
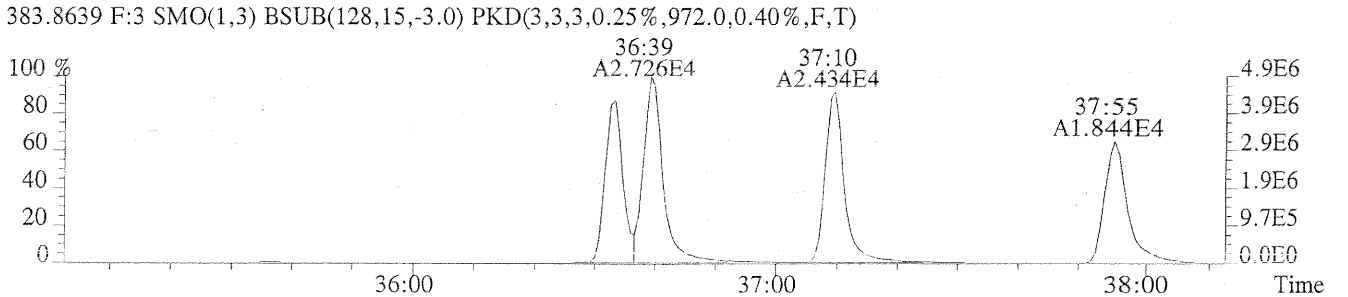
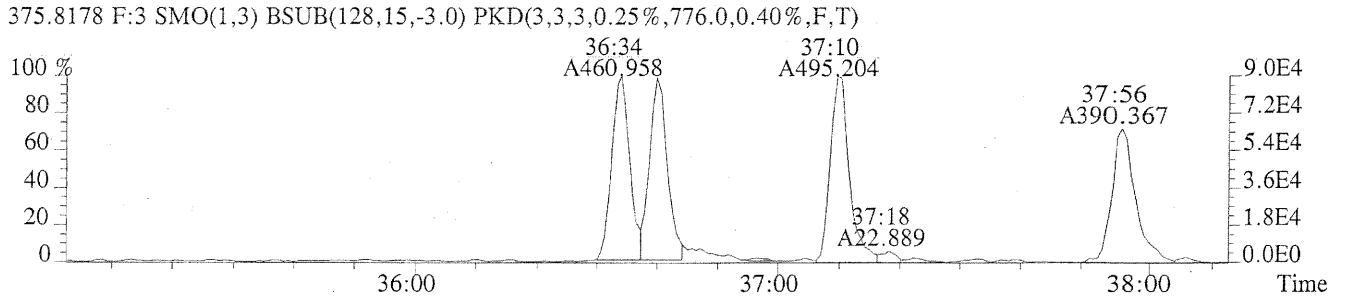
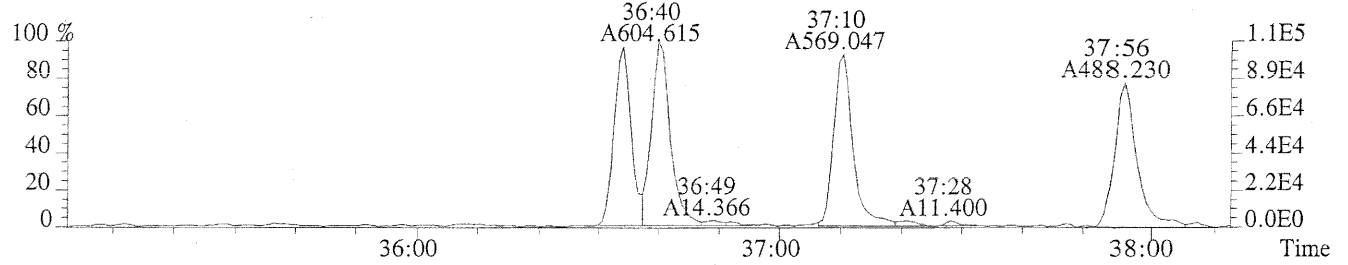
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



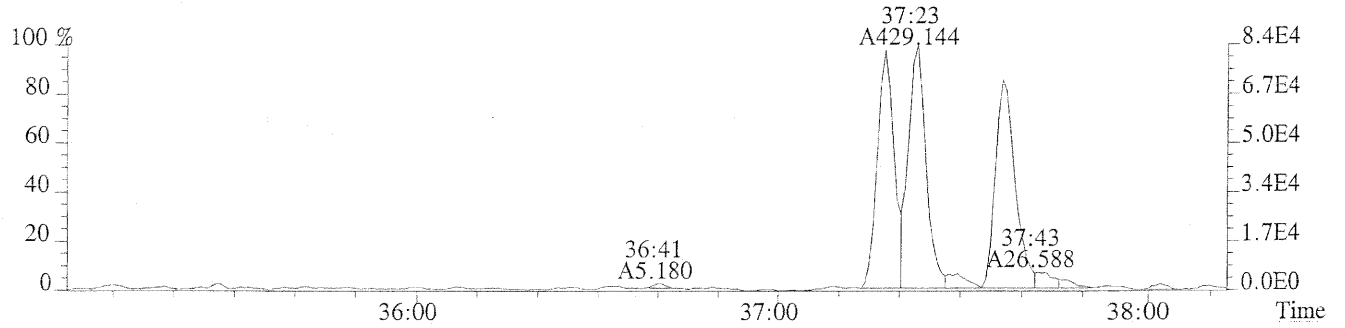
File:U150166 #1-360 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0)



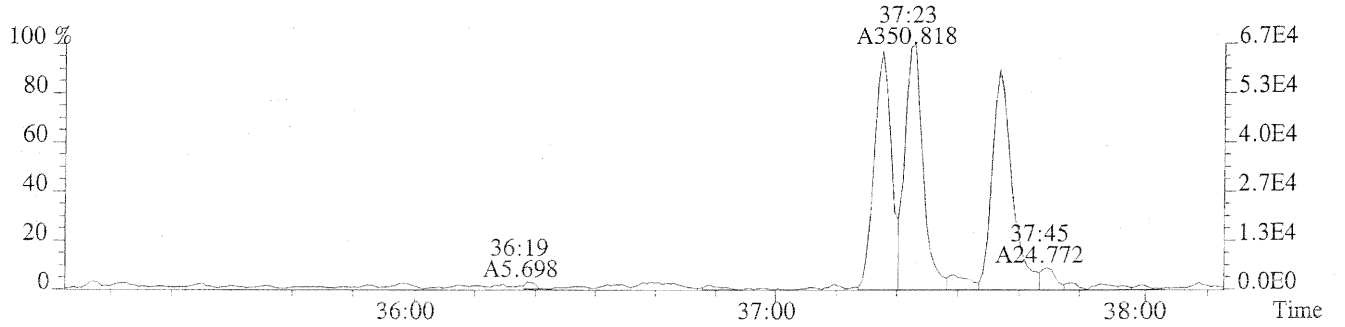
File:U150166 #1-288 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



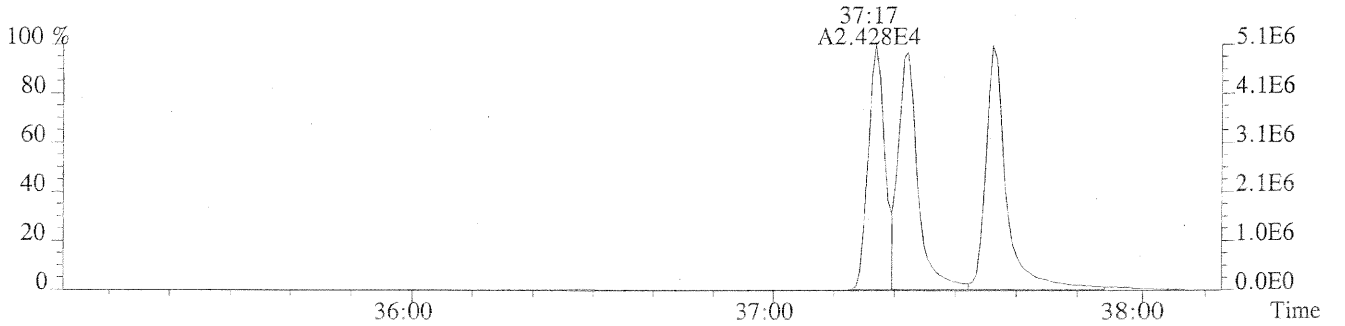
File:U150166 #1-288 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



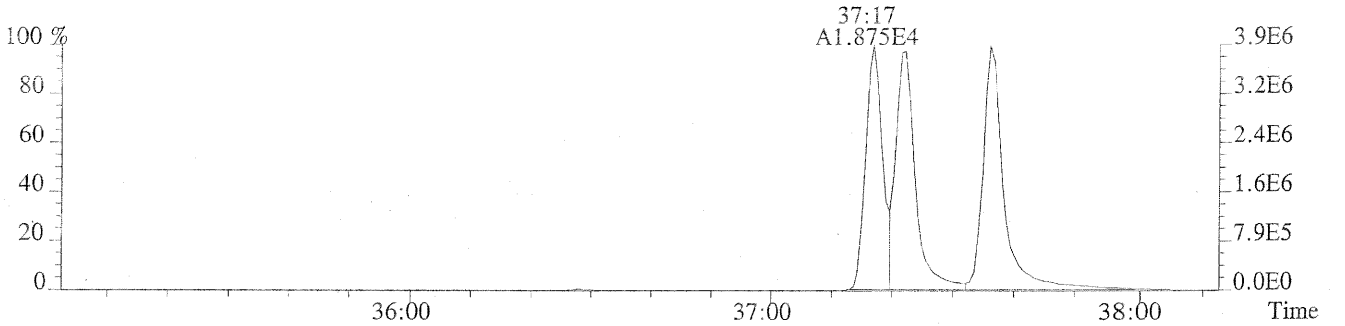
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



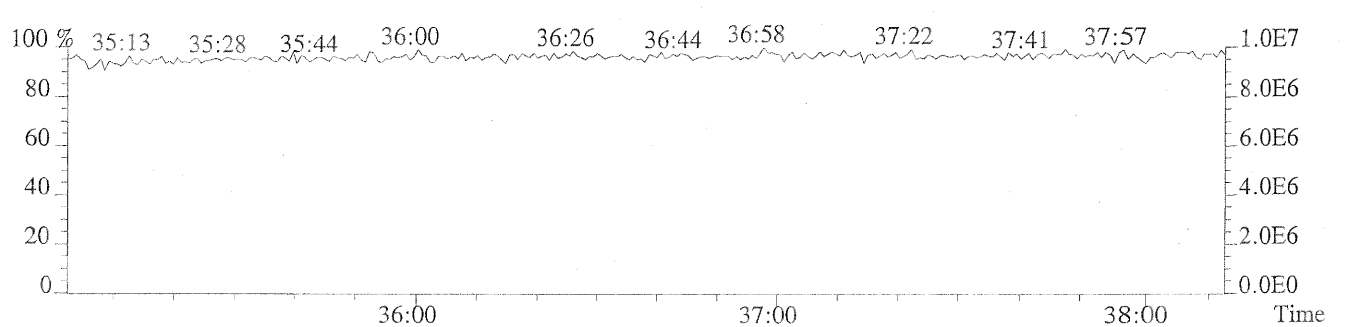
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



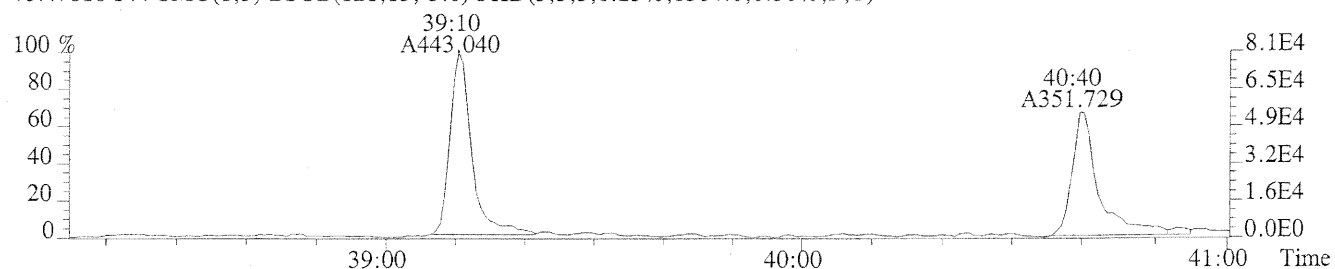
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



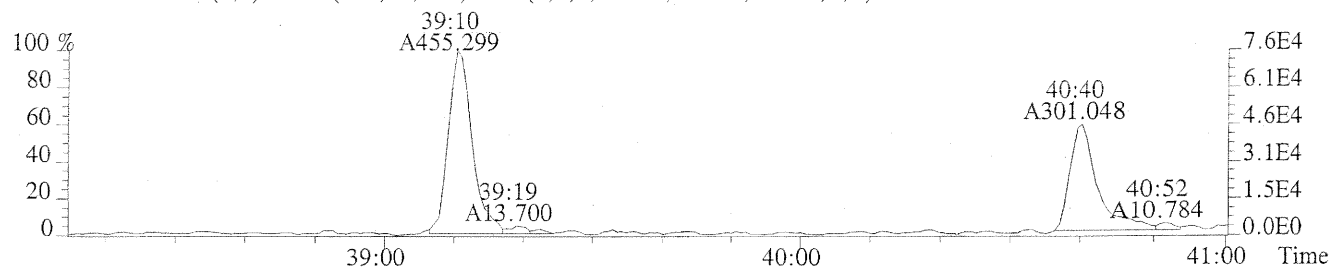
File:U150166 #1-251 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS0.5

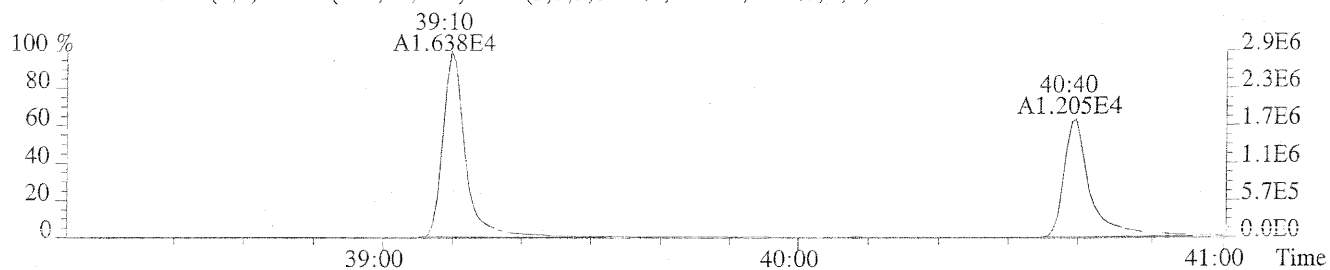
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.50%,F,T)



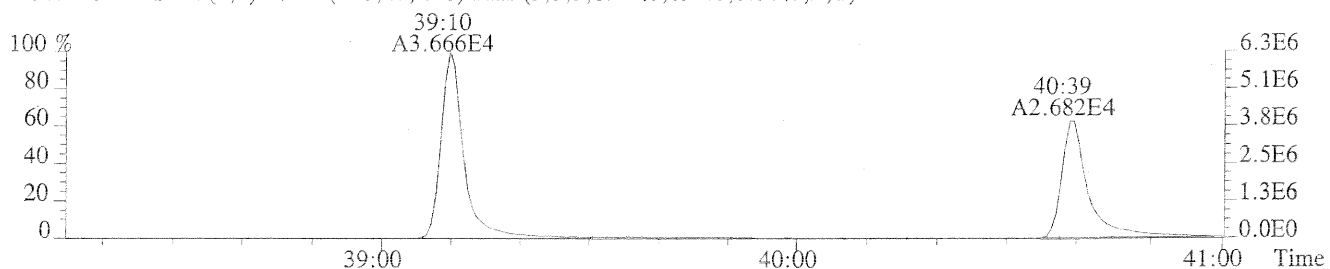
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.50%,F,T)



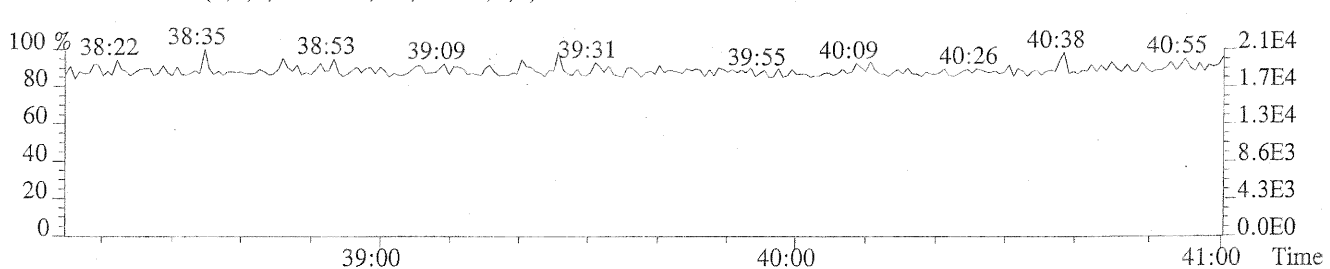
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.50%,F,T)



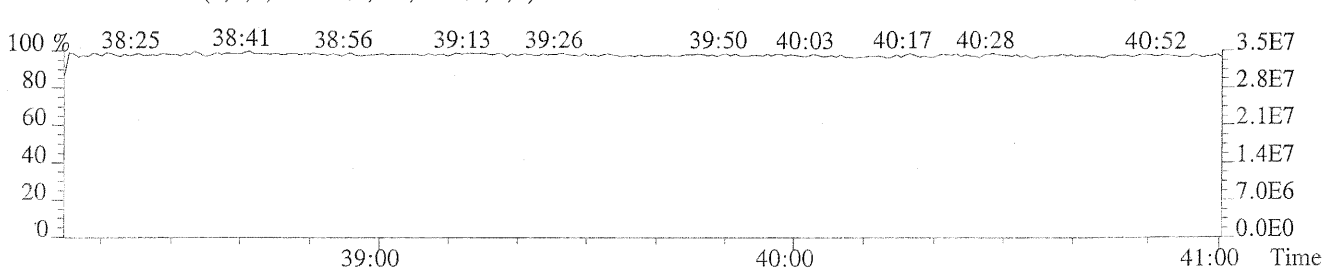
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.50%,F,T)



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)

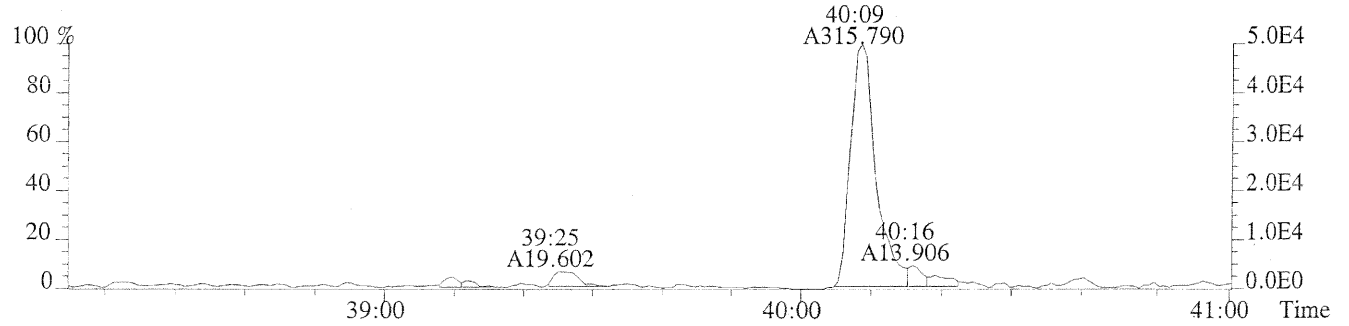




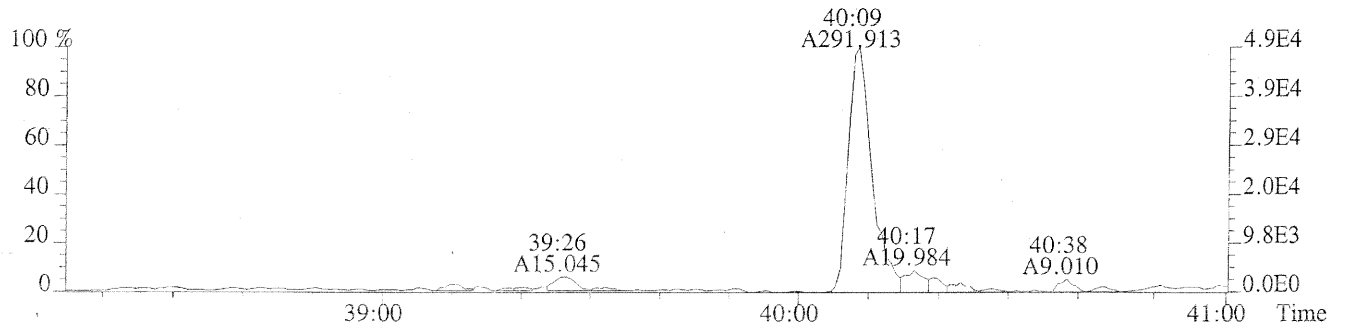
File:U150166 #1-251 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS0.5

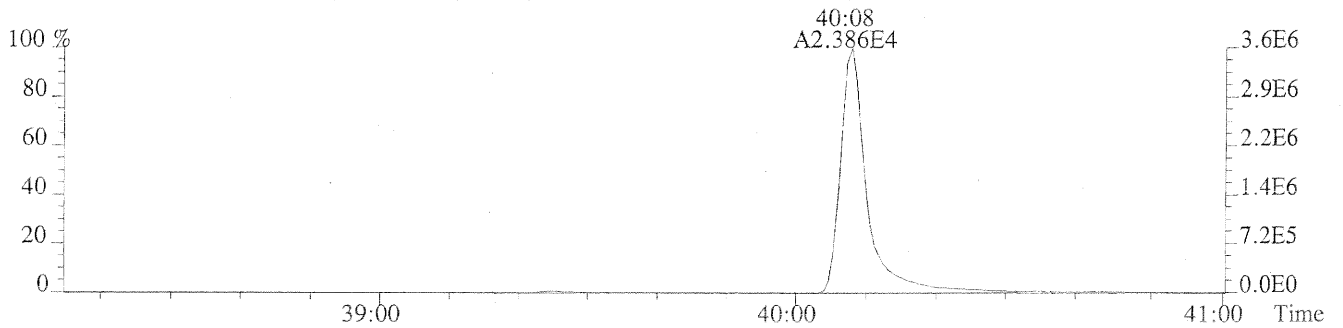
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



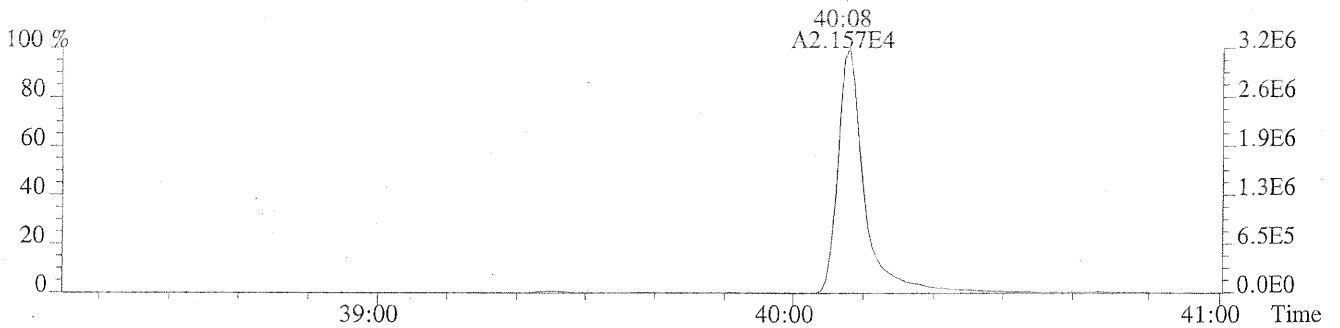
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



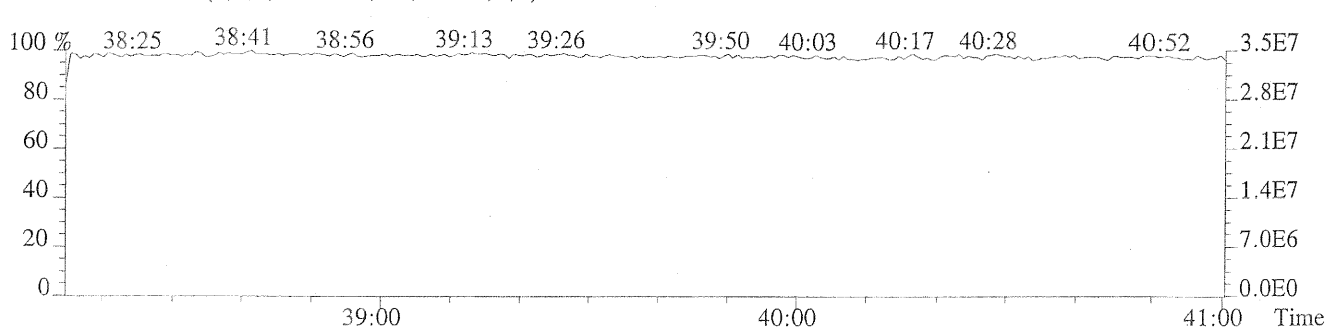
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



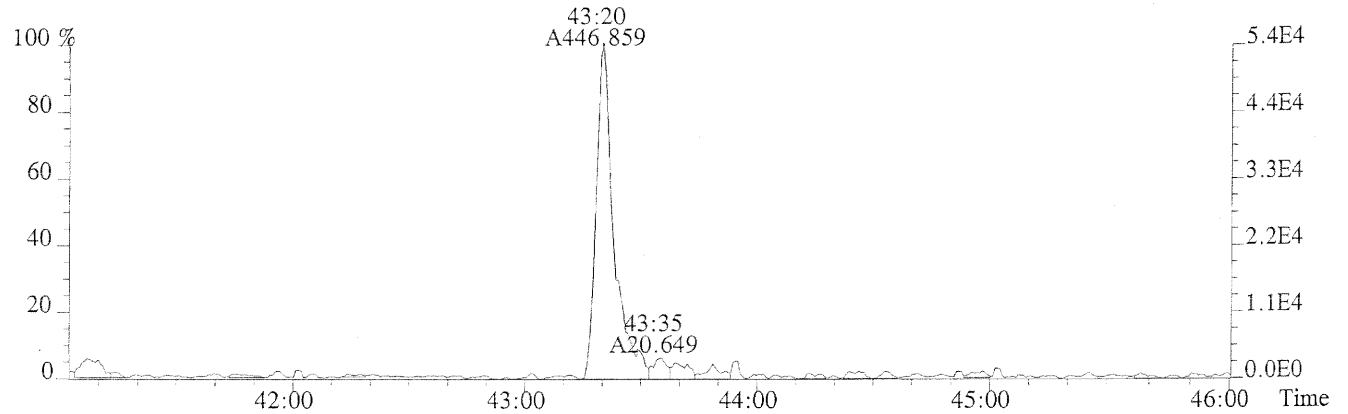
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



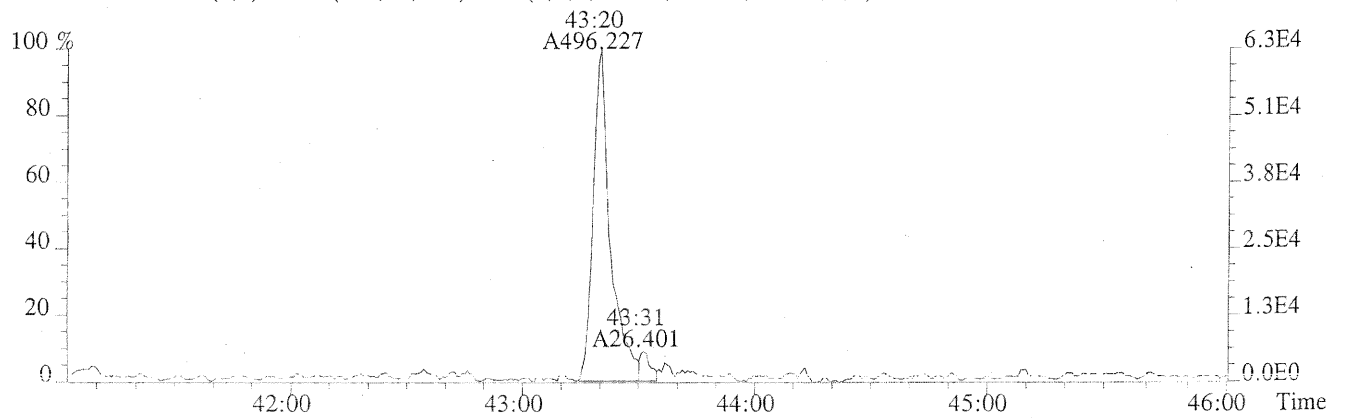
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



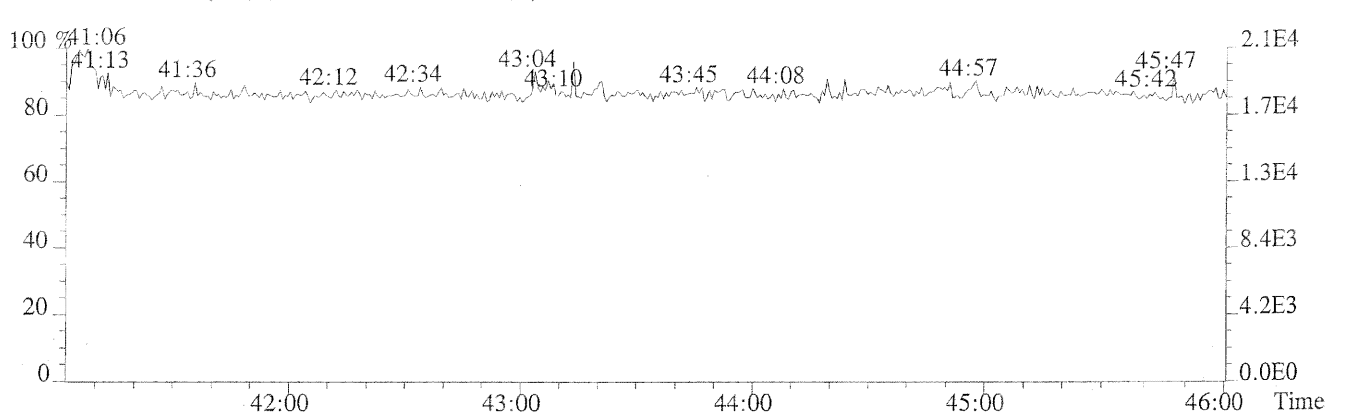
File:U150166 #1-451 Acq:31-JUL-2014 19:08:59 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS0.5  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



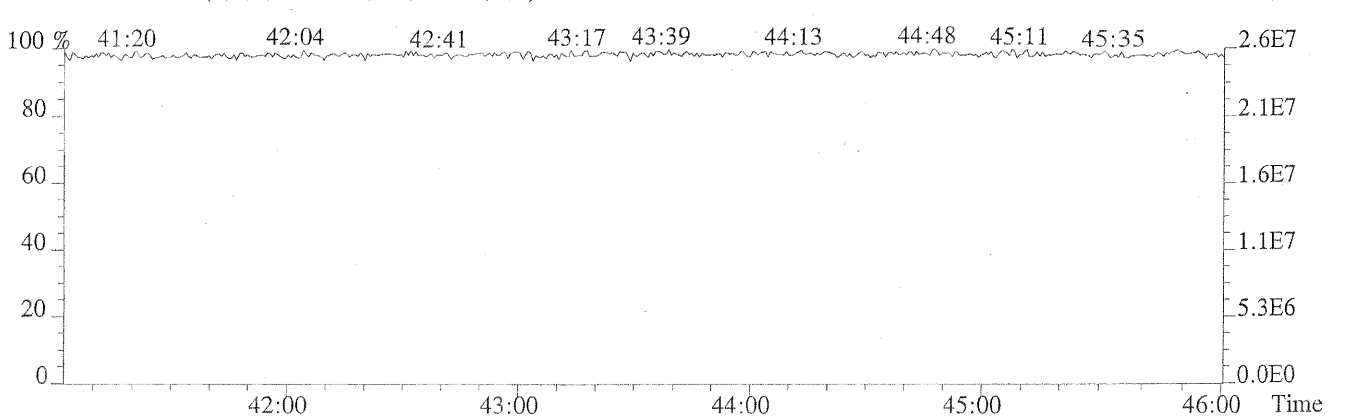
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,F,T)



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

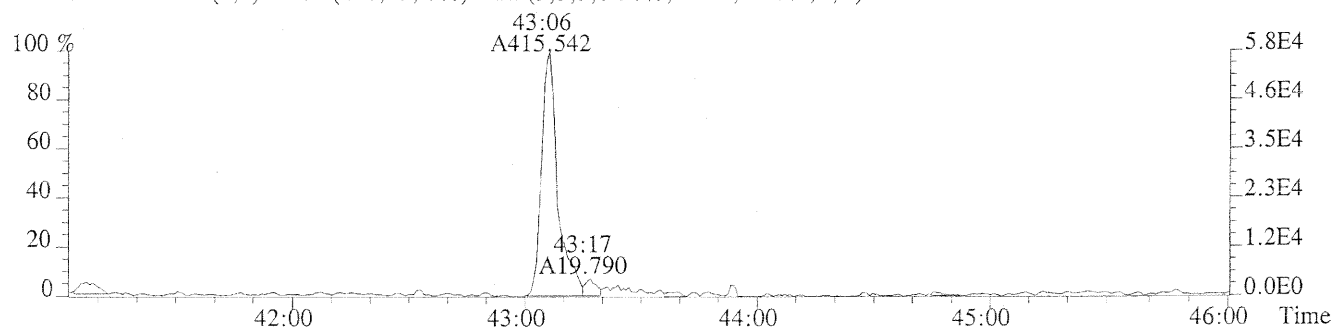


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

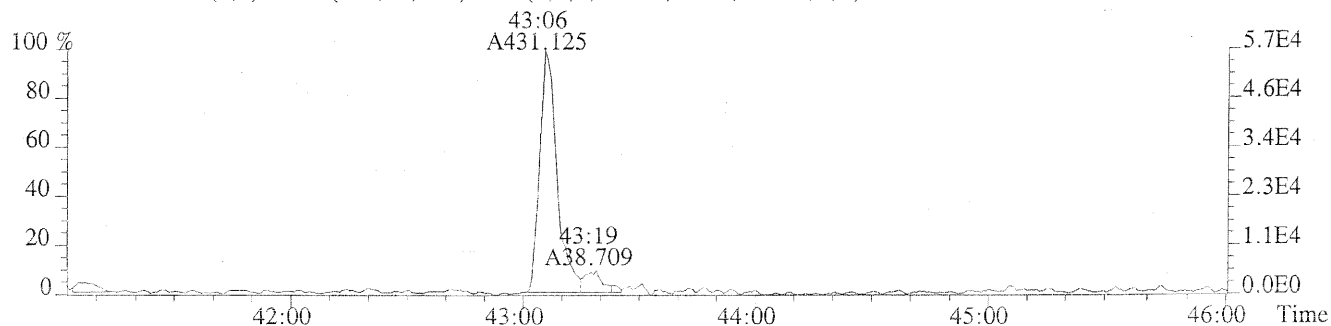


Sample#1 Exp:CS0.5

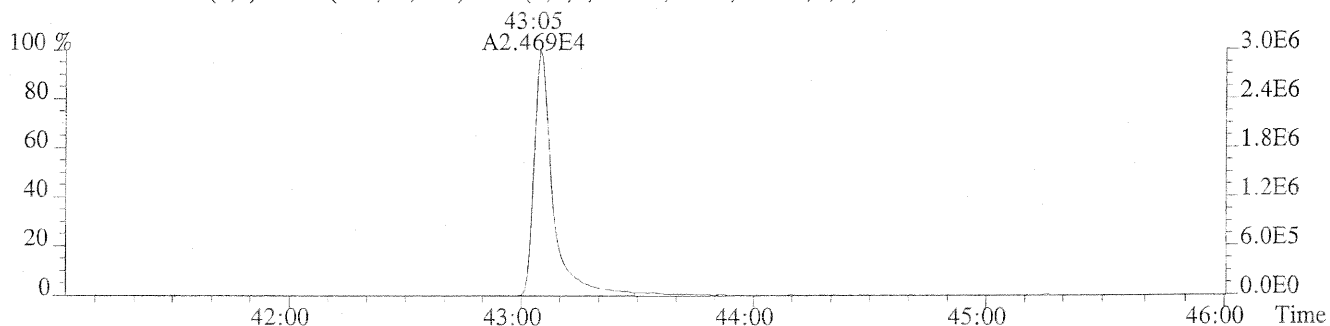
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



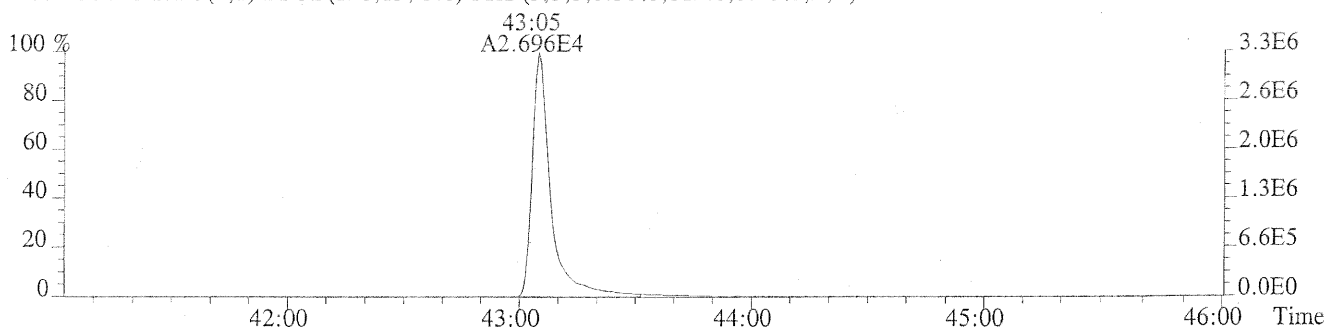
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



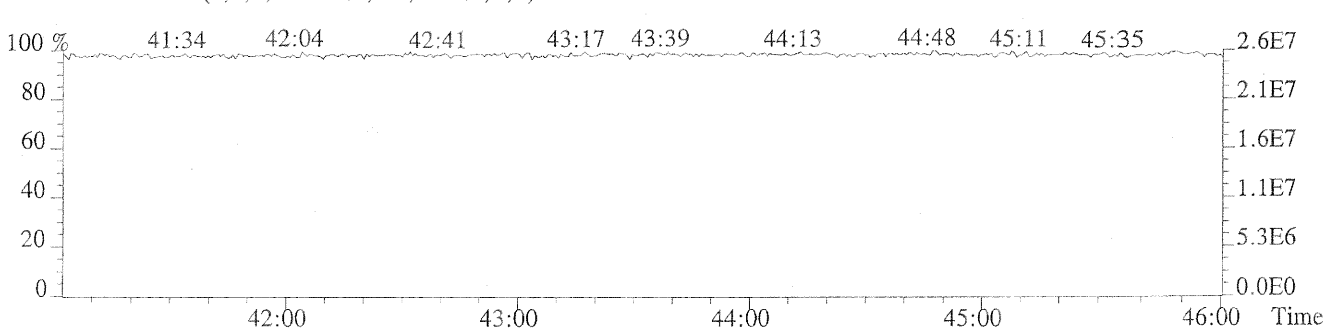
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,812.0,0.40%,F,T)



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



## Sample Response Summary

Run #2    Filename U150160 #1  
Processed: 6-AUG-14    13:10:12Samp: 1    Inj: 1  
LAB. ID: 66798

Acquired: 31-JUL-14 12:13:20

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	28:58	1.493e+02	1.903e+02	0.78	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:00	1.328e+03	8.220e+02	1.62	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:54	1.188e+03	8.293e+02	1.43	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:31	9.098e+02	7.812e+02	1.16	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:38	1.169e+03	9.759e+02	1.20	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:08	1.025e+03	8.404e+02	1.22	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:53	7.830e+02	6.033e+02	1.30	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:08	7.799e+02	7.926e+02	0.98	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:38	4.755e+02	4.867e+02	0.98	yes	no	0.959
10 Unk	OCDF	43:17	6.359e+02	6.786e+02	0.94	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:42	9.271e+01	1.144e+02	0.81	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:09	7.972e+02	5.109e+02	1.56	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:15	6.374e+02	5.353e+02	1.19	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:20	8.303e+02	7.024e+02	1.18	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:35	8.095e+02	6.701e+02	1.21	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:06	5.455e+02	5.496e+02	0.99	yes	yes	1.102
17 Unk	OCDD	43:03	6.185e+02	7.410e+02	0.83	yes	yes	1.329
18 IS	13C-2,3,7,8-TCDF	28:57	2.897e+04	3.448e+04	0.84	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	32:59	5.035e+04	3.112e+04	1.62	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:53	5.104e+04	3.155e+04	1.62	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:31	1.838e+04	3.518e+04	0.52	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:37	2.511e+04	4.776e+04	0.53	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:53	1.583e+04	3.057e+04	0.52	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:07	1.428e+04	3.164e+04	0.45	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:36	9.685e+03	2.103e+04	0.46	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:41	1.901e+04	2.507e+04	0.76	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:09	2.737e+04	1.834e+04	1.49	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:14	1.995e+04	1.471e+04	1.36	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:19	2.612e+04	1.931e+04	1.35	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:05	1.936e+04	1.750e+04	1.11	yes	no	0.845
32 IS	13C-OCDD	43:02	1.759e+04	1.906e+04	0.92	yes	yes	0.501
33S/RT	13C-1,2,3,4-TCDD	29:07	1.977e+04	2.568e+04	0.77	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:34	2.694e+04	2.035e+04	1.32	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:42	2.127e+02				no	0.975

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS1

Method M23

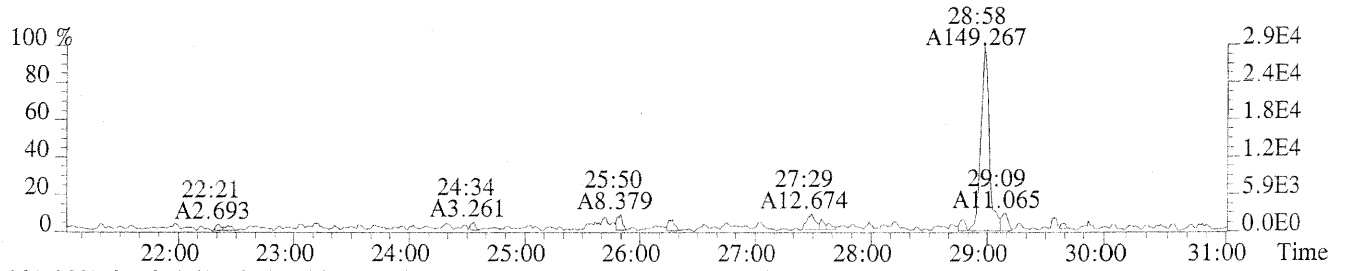
Run #2    Filename U150160    #1    Samp: 1    Inj: 1    Acquired: 31-JUL-14 12:13:20  
Processed: 6-AUG-14 13:10:12    LAB. ID: 66798

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.92e+04	8.04e+02	3.6e+01	3.77e+04	1.40e+03	2.7e+01
2	1,2,3,7,8-PeCDF	2.12e+05	1.08e+03	2.0e+02	1.34e+05	1.81e+03	7.4e+01
3	2,3,4,7,8-PeCDF	2.03e+05	1.08e+03	1.9e+02	1.40e+05	1.81e+03	7.8e+01
4	1,2,3,4,7,8-HxCDF	1.80e+05	1.46e+03	1.2e+02	1.53e+05	1.13e+03	1.4e+02
5	1,2,3,6,7,8-HxCDF	1.83e+05	1.46e+03	1.3e+02	1.58e+05	1.13e+03	1.4e+02
6	2,3,4,6,7,8-HxCDF	1.87e+05	1.46e+03	1.3e+02	1.44e+05	1.13e+03	1.3e+02
7	1,2,3,7,8,9-HxCDF	1.21e+05	1.46e+03	8.3e+01	9.70e+04	1.13e+03	8.6e+01
8	1,2,3,4,6,7,8-HpCDF	1.36e+05	1.65e+03	8.2e+01	1.33e+05	1.56e+03	8.6e+01
9	1,2,3,4,7,8,9-HpCDF	7.72e+04	1.65e+03	4.7e+01	7.40e+04	1.56e+03	4.8e+01
10	OCDF	7.84e+04	5.60e+02	1.4e+02	8.30e+04	1.22e+03	6.8e+01
11	2,3,7,8-TCDD	2.04e+04	8.92e+02	2.3e+01	2.24e+04	1.13e+03	2.0e+01
12	1,2,3,7,8-PeCDD	1.33e+05	1.35e+03	9.8e+01	8.11e+04	9.60e+02	8.4e+01
13	1,2,3,4,7,8-HxCDD	1.28e+05	9.44e+02	1.4e+02	1.13e+05	6.76e+02	1.7e+02
14	1,2,3,6,7,8-HxCDD	1.42e+05	9.44e+02	1.5e+02	1.21e+05	6.76e+02	1.8e+02
15	1,2,3,7,8,9-HxCDD	1.26e+05	9.44e+02	1.3e+02	1.06e+05	6.76e+02	1.6e+02
16	1,2,3,4,6,7,8-HpCDD	8.53e+04	1.04e+03	8.2e+01	8.51e+04	8.92e+02	9.5e+01
17	OCDD	7.69e+04	7.48e+02	1.0e+02	8.91e+04	7.80e+02	1.1e+02
18	13C-2,3,7,8-TCDF	5.28e+06	1.42e+03	3.7e+03	6.33e+06	8.08e+02	7.8e+03
19	13C-1,2,3,7,8-PeCDF	7.95e+06	1.00e+03	7.9e+03	4.89e+06	1.46e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	8.62e+06	1.00e+03	8.6e+03	5.38e+06	1.46e+03	3.7e+03
21	13C-1,2,3,4,7,8-HxCDF	3.66e+06	1.18e+03	3.1e+03	6.96e+06	1.40e+03	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.02e+06	1.18e+03	3.4e+03	7.76e+06	1.40e+03	5.5e+03
24	13C-1,2,3,7,8,9-HxCDF	2.54e+06	1.18e+03	2.1e+03	4.97e+06	1.40e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.35e+06	1.14e+03	2.1e+03	5.10e+06	9.32e+02	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.34e+06	1.14e+03	1.2e+03	2.94e+06	9.32e+02	3.2e+03
27	13C-2,3,7,8-TCDD	3.62e+06	2.49e+03	1.5e+03	4.77e+06	1.48e+03	3.2e+03
28	13C-1,2,3,7,8-PeCDD	4.44e+06	1.28e+03	3.5e+03	2.98e+06	9.84e+02	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	4.11e+06	1.88e+03	2.2e+03	3.03e+06	8.76e+02	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	4.29e+06	1.88e+03	2.3e+03	3.17e+06	8.76e+02	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.89e+06	1.22e+03	2.4e+03	2.57e+06	1.05e+03	2.4e+03
32	13C-OCDD	2.05e+06	9.32e+02	2.2e+03	2.17e+06	8.72e+02	2.5e+03
33	13C-1,2,3,4-TCDD	3.88e+06	2.49e+03	1.6e+03	5.03e+06	1.48e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	4.05e+06	1.88e+03	2.2e+03	2.97e+06	8.76e+02	3.4e+03
35	37Cl-2,3,7,8-TCDD	4.18e+04	1.38e+03	3.0e+01			

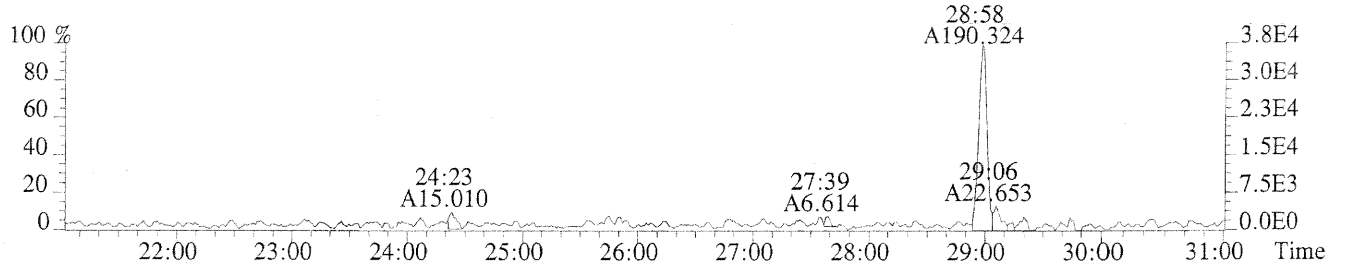
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

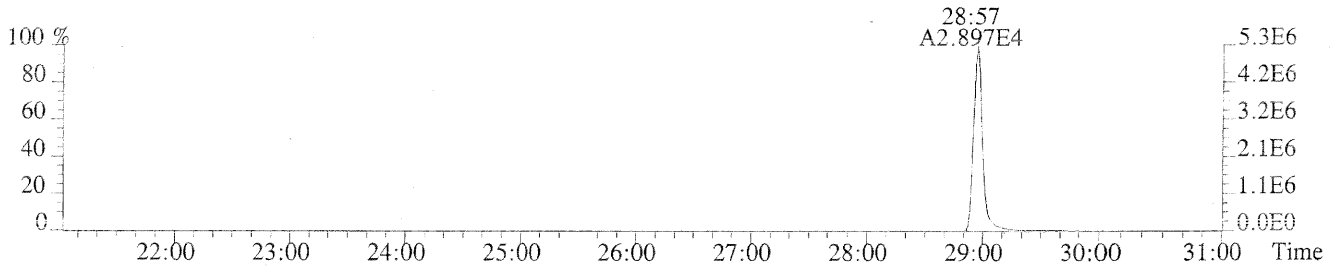
File:U150160 #1-627 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



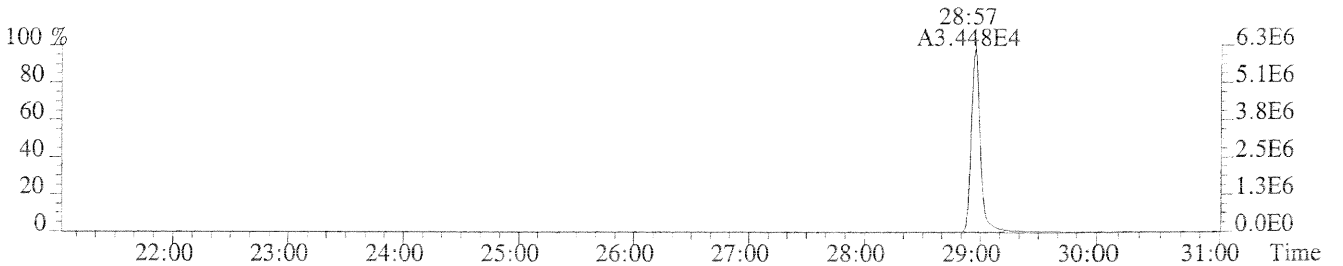
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



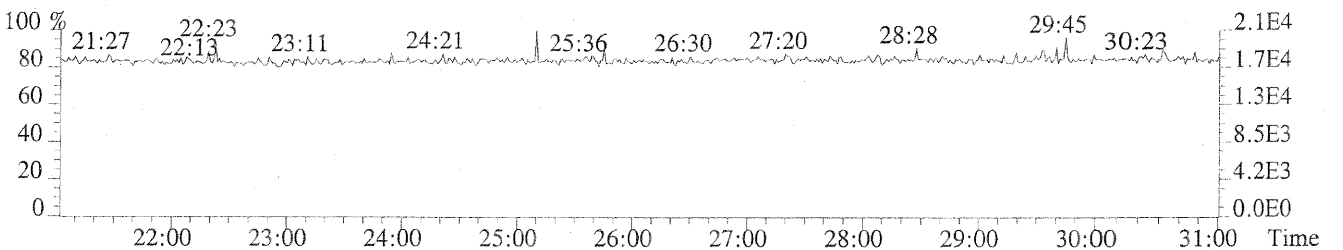
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



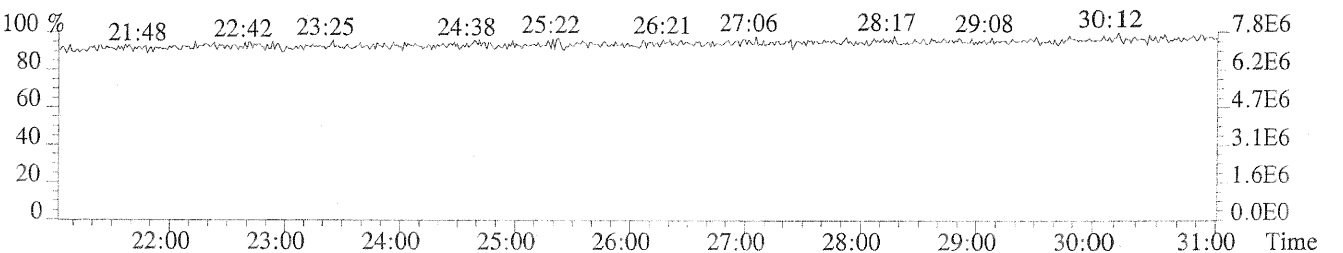
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



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



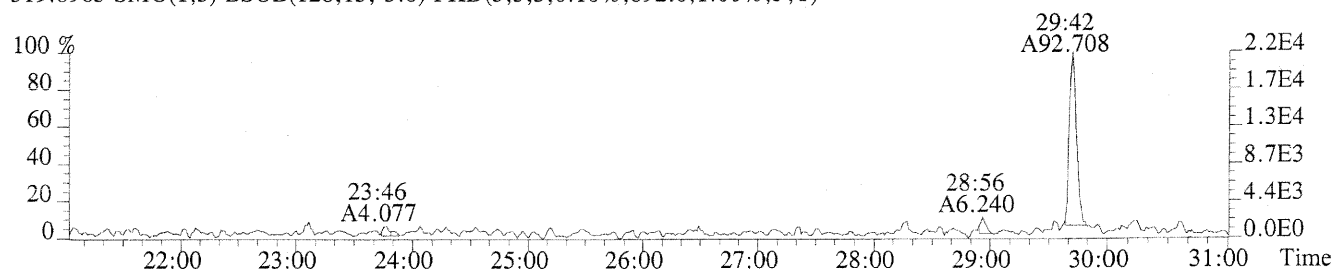
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



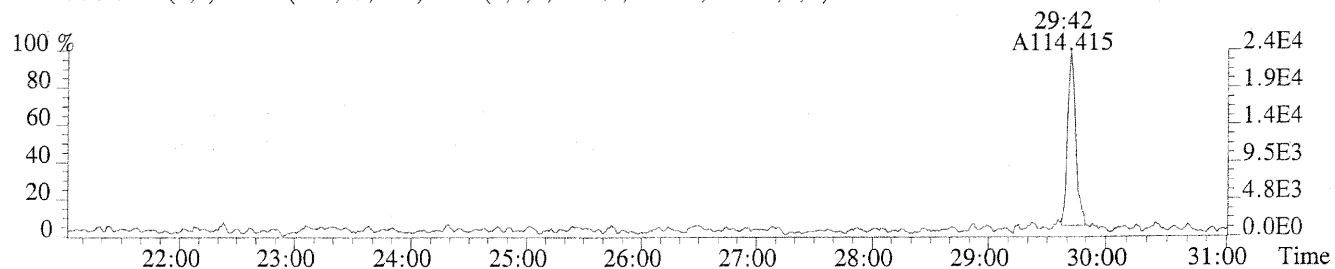
File:U150160 #1-627 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS1

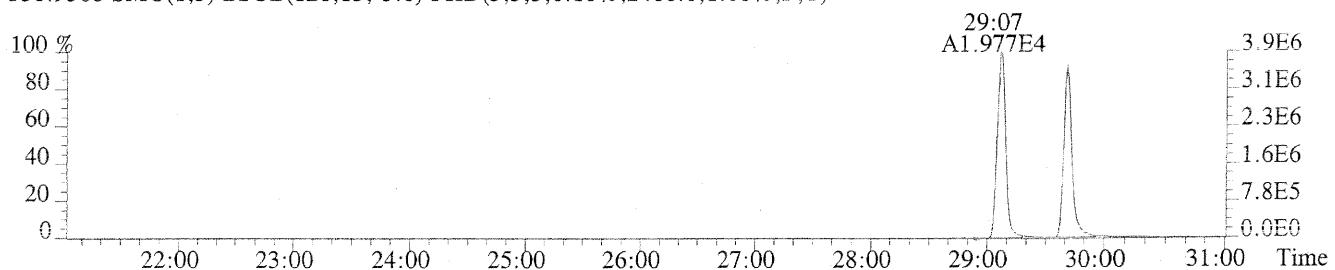
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



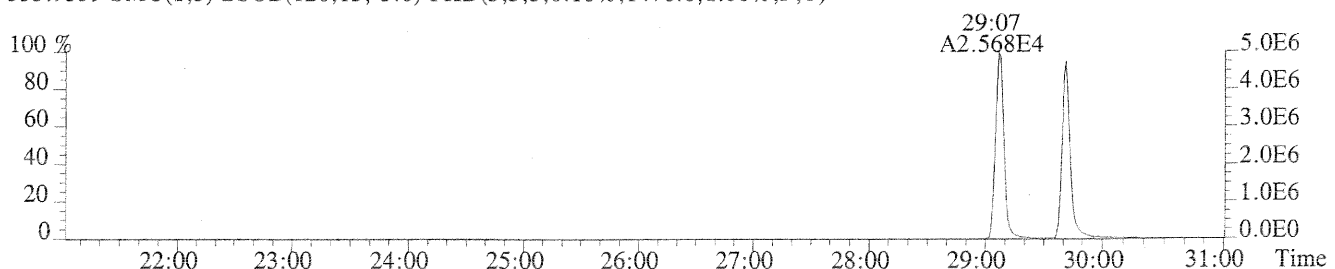
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



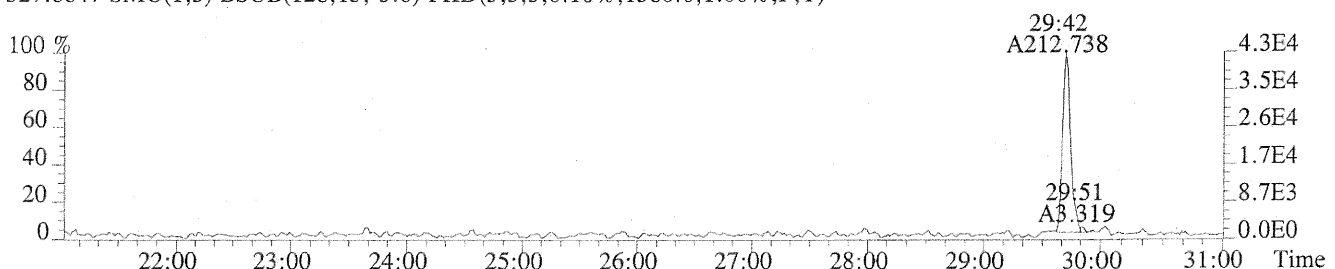
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2488.0,1.00%,F,T)



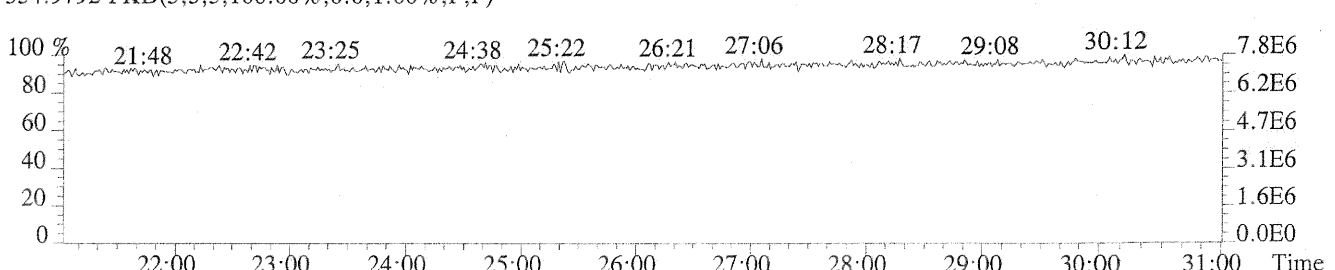
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



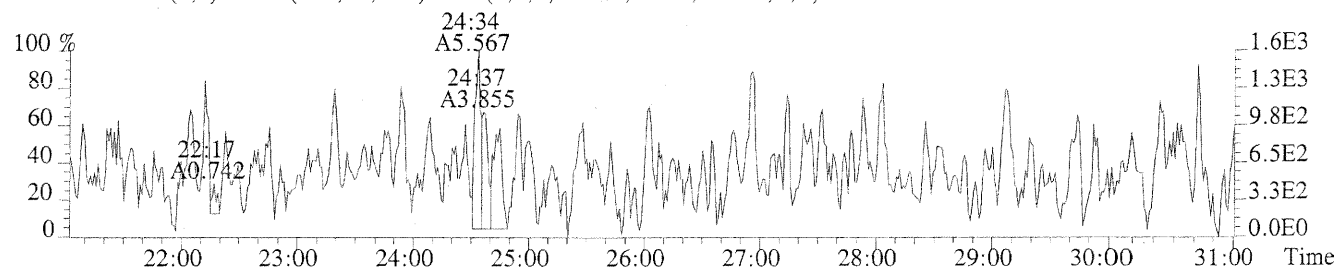
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



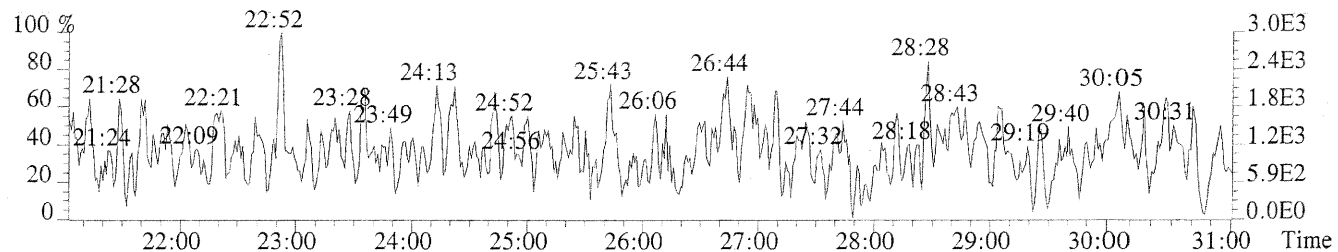
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



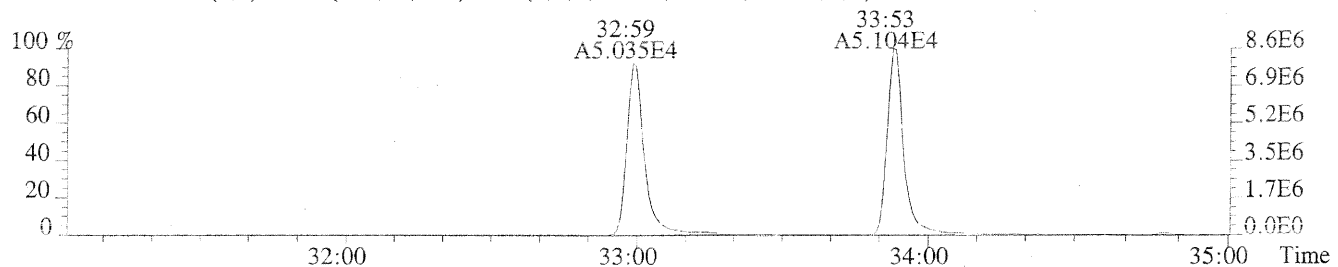
File:U150160 #1-627 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



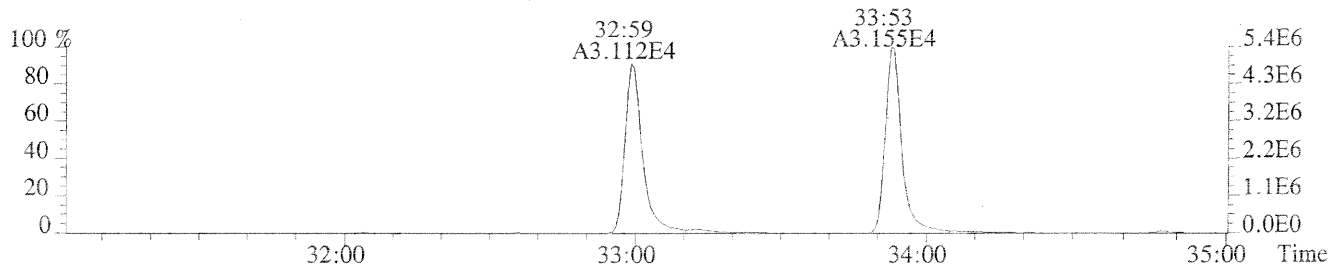
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1388.0,1.00%,F,T)



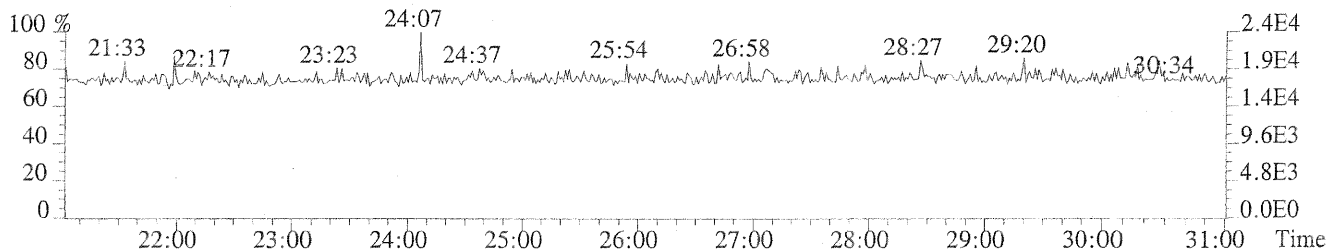
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



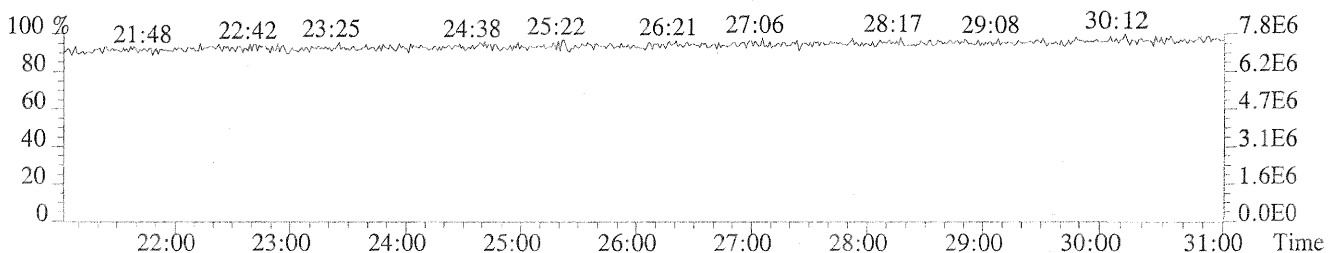
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



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

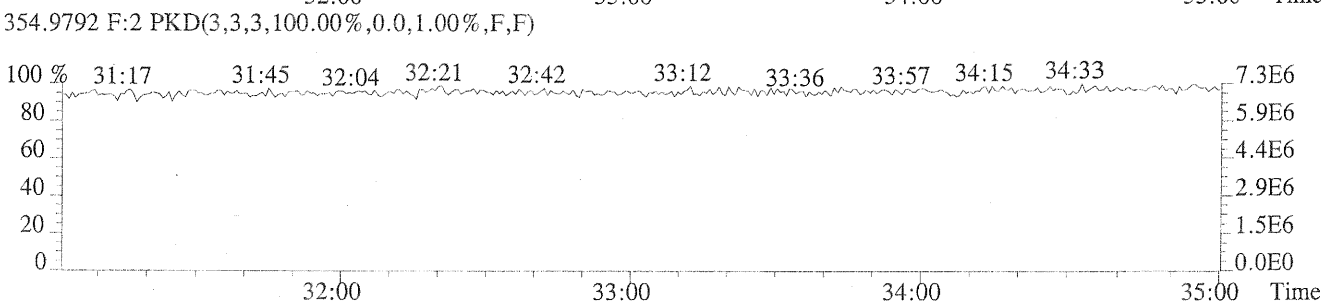
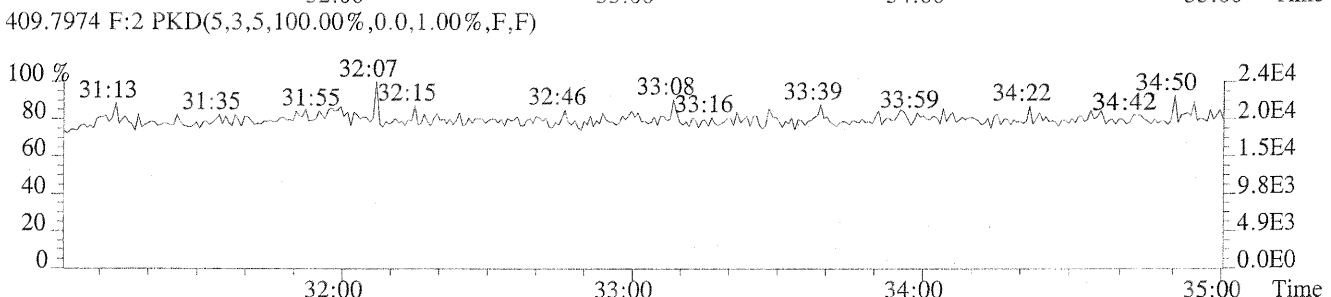
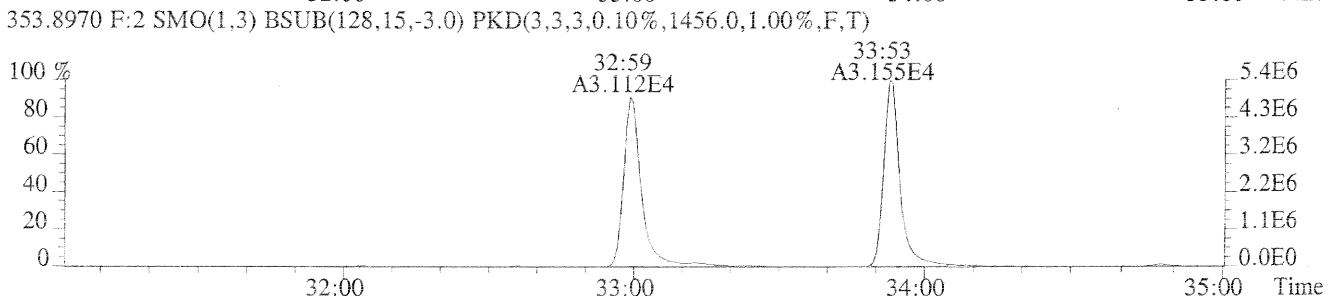
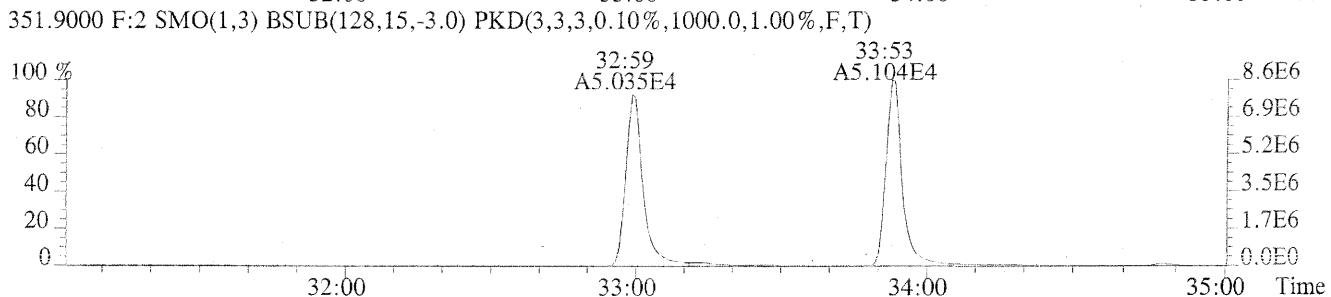
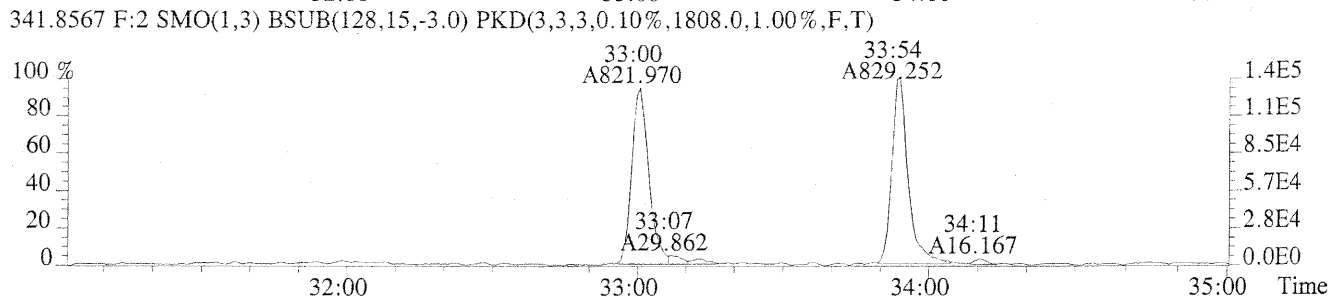
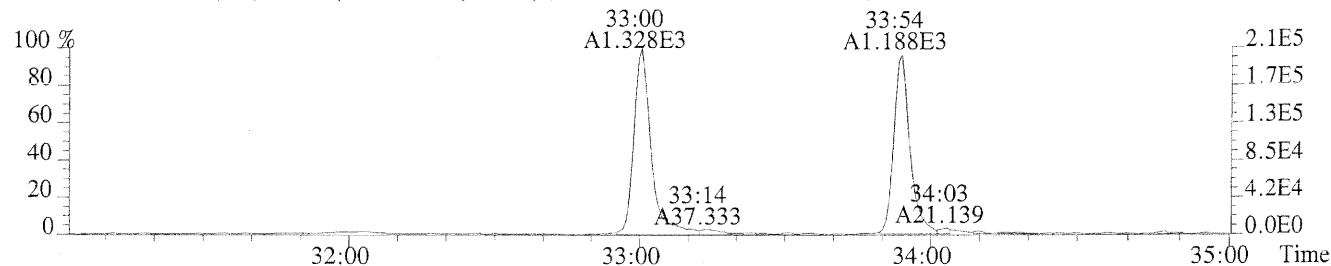


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

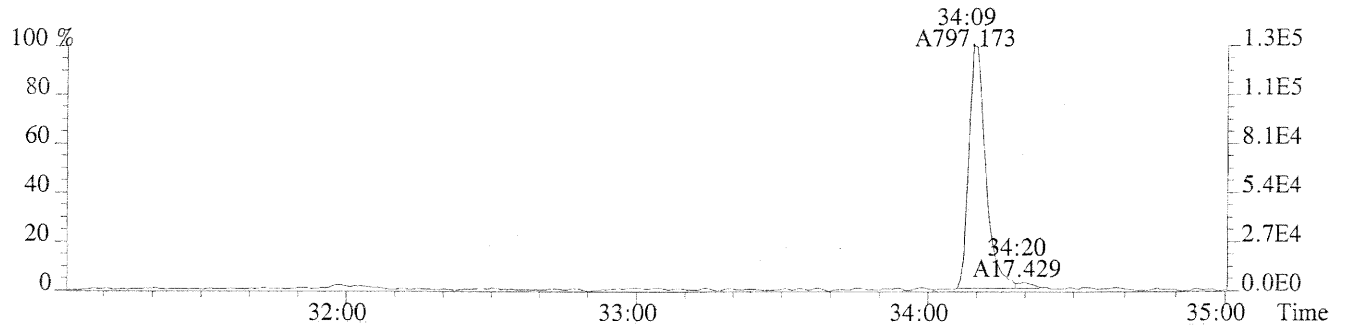




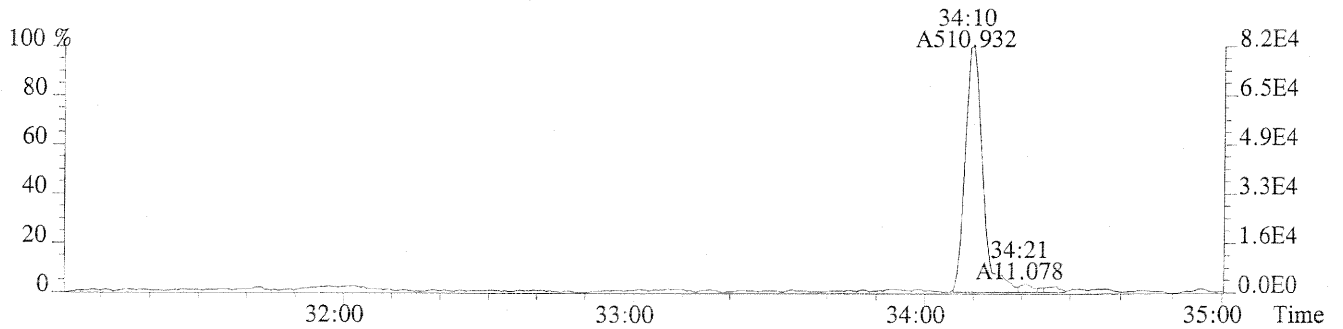
File:U150160 #1-360 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



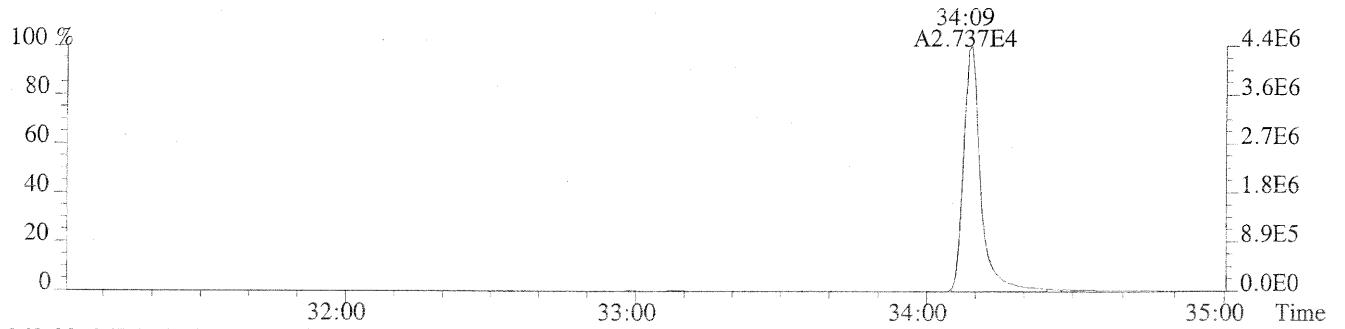
File:U150160 #1-360 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



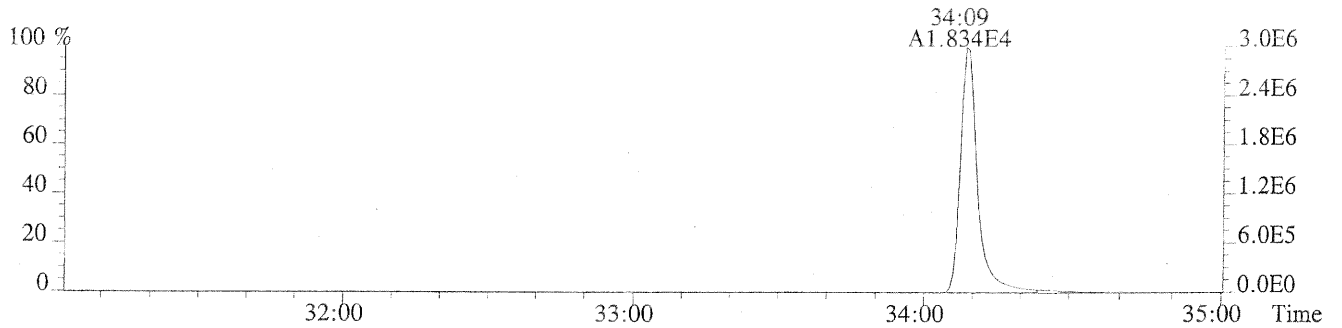
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



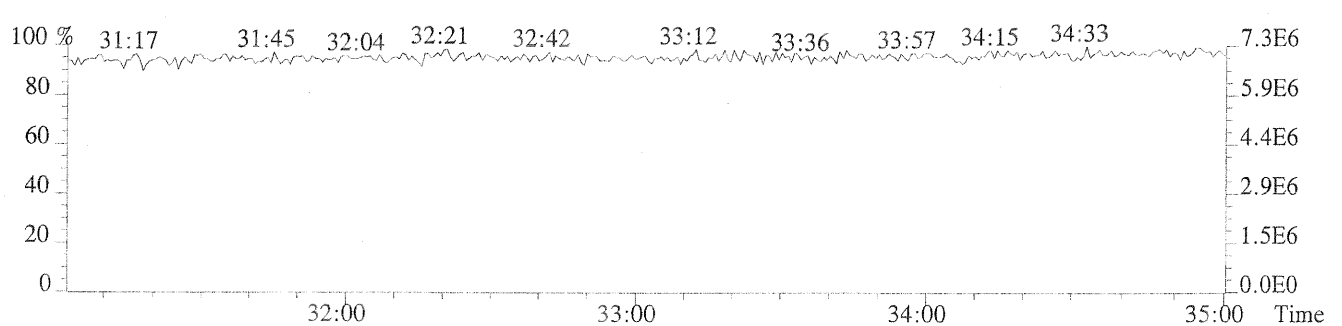
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)

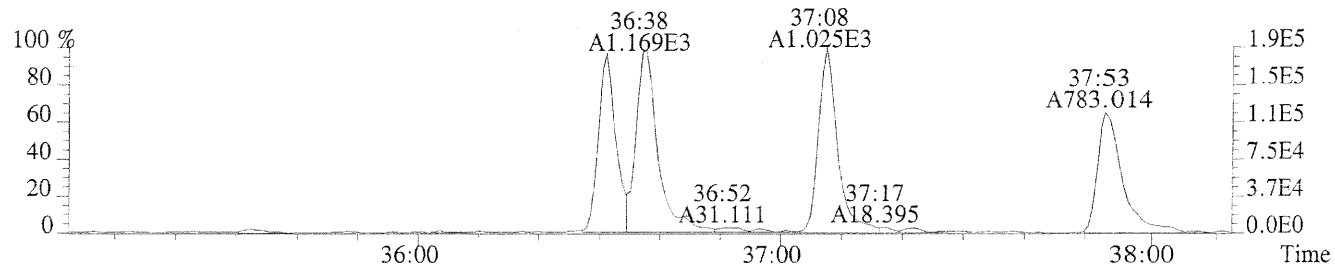


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

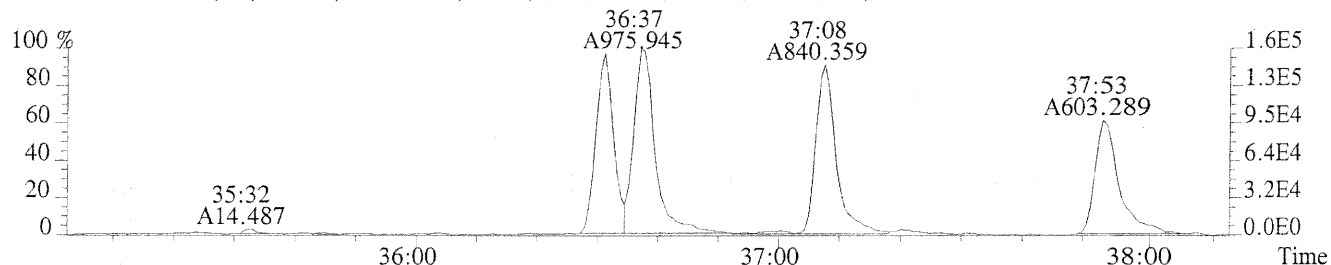


Sample#1 Exp:CS1

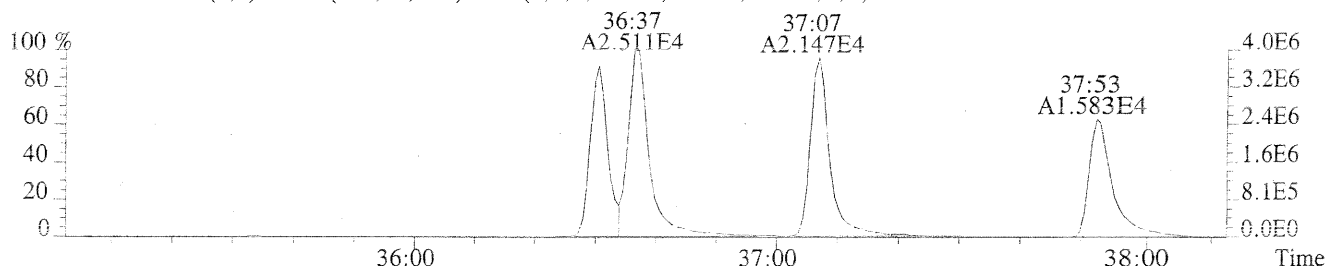
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



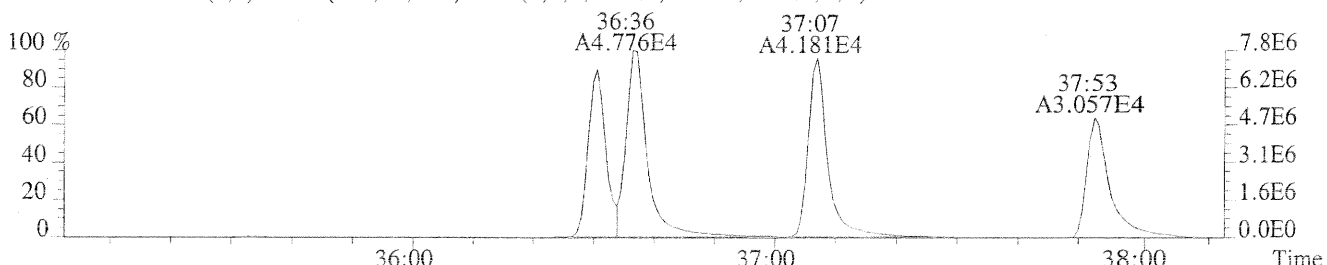
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



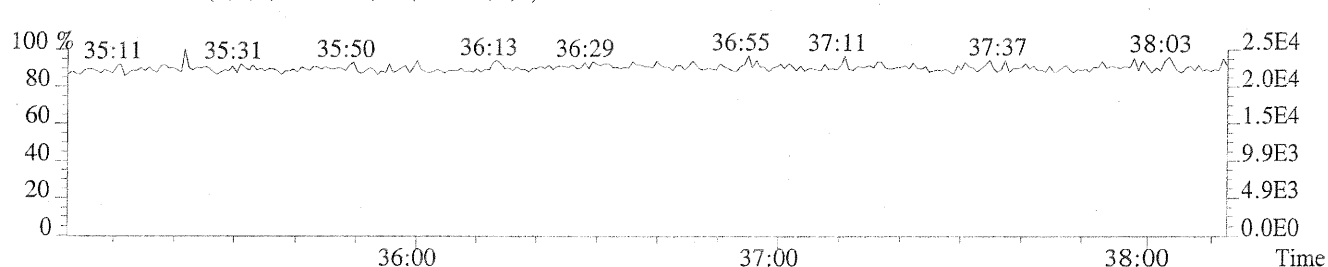
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



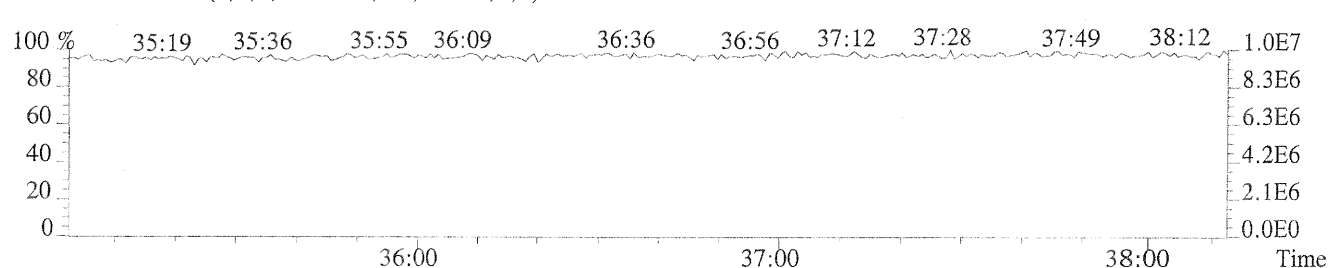
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.40%,F,T)



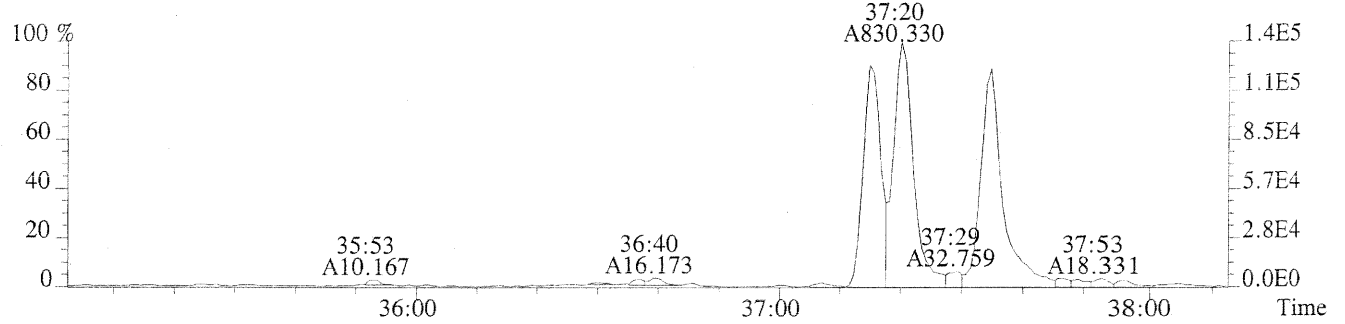
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



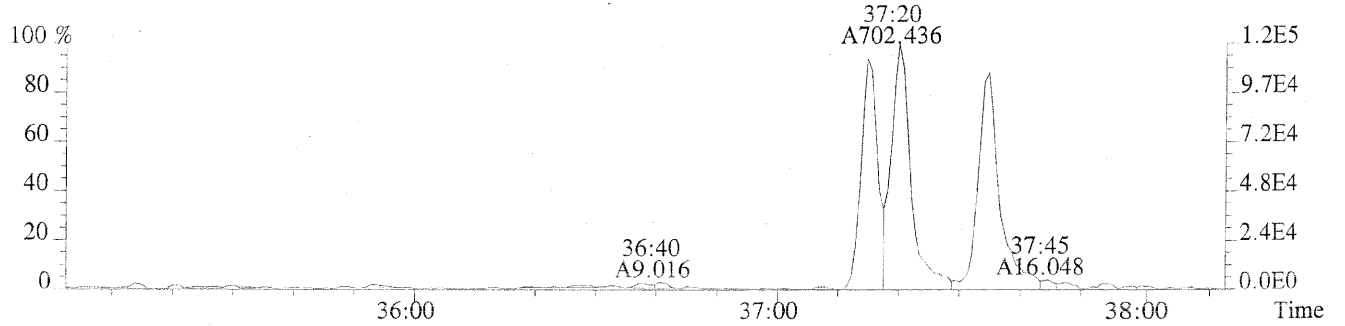
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



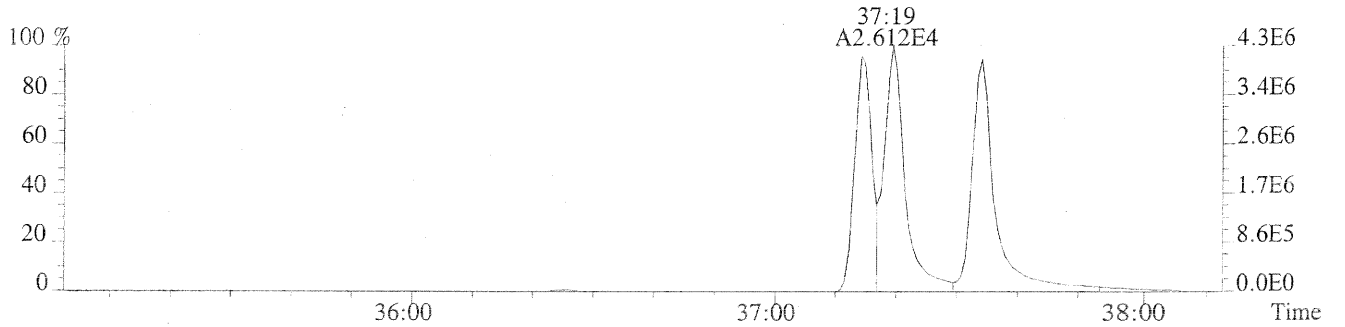
File:U150160 #1-288 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.40%,F,T)



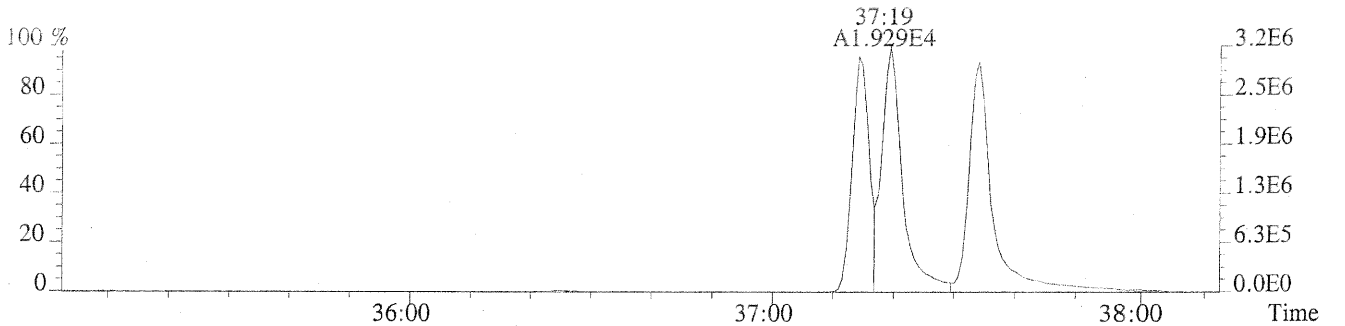
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



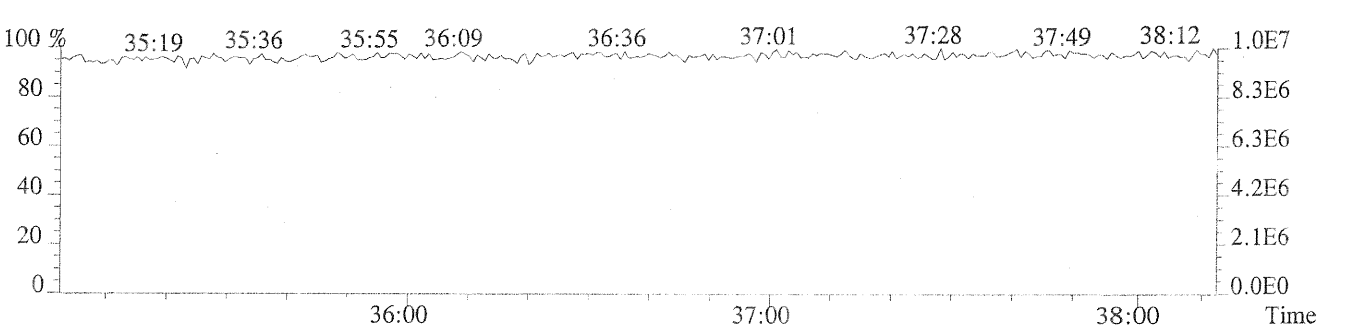
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



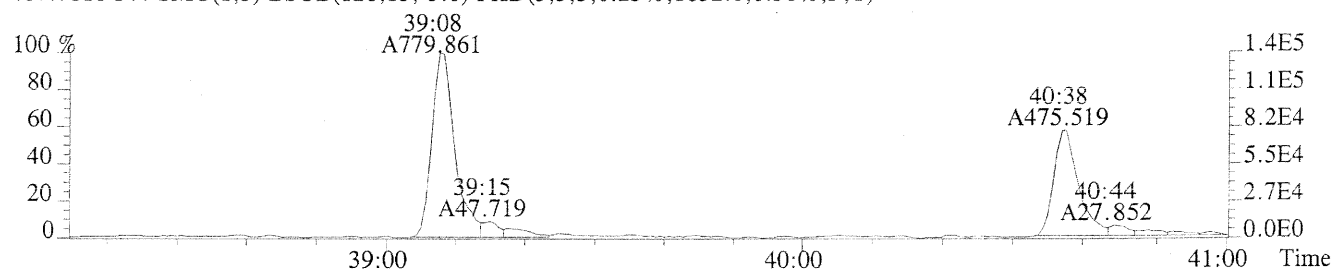
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



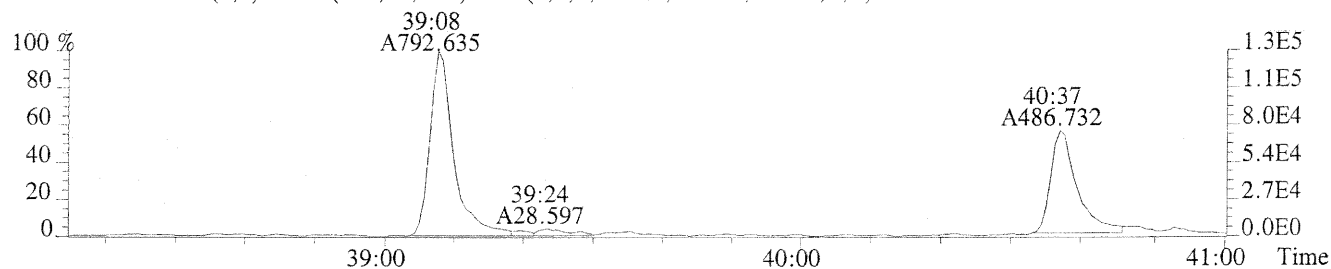
File:U150160 #1-251 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS1

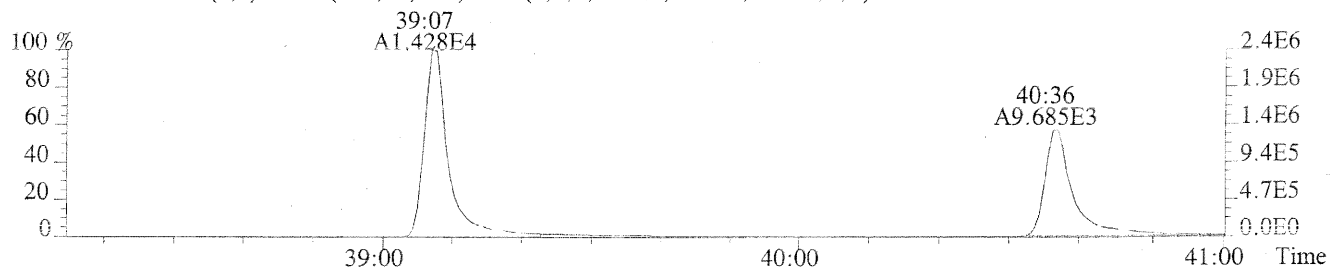
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.50%,F,T)



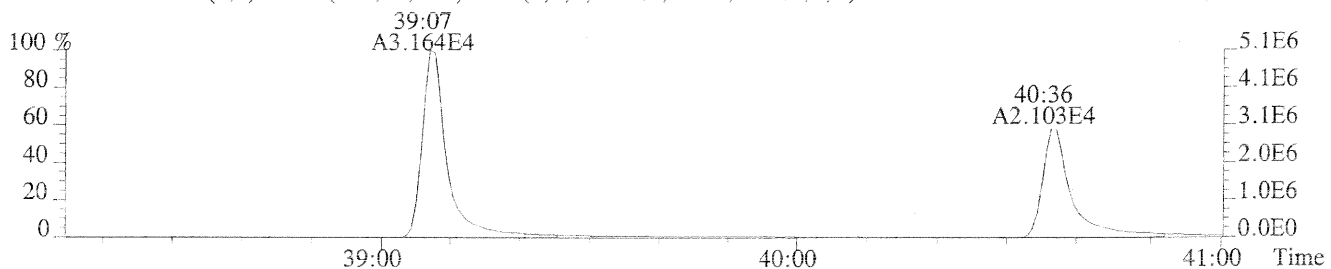
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.50%,F,T)



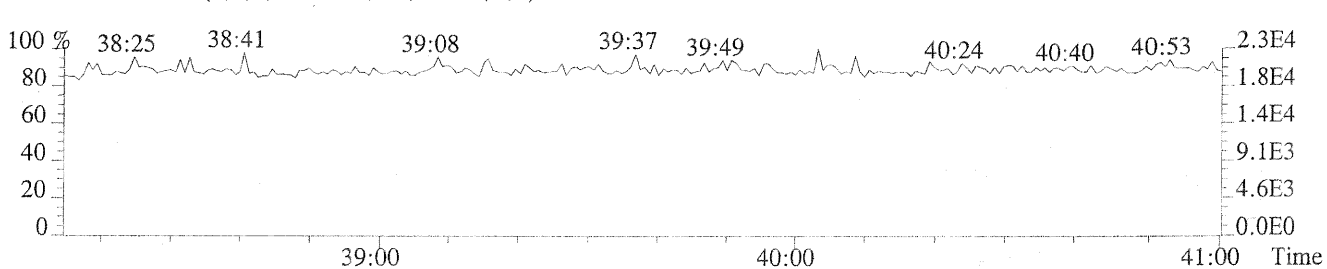
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.50%,F,T)



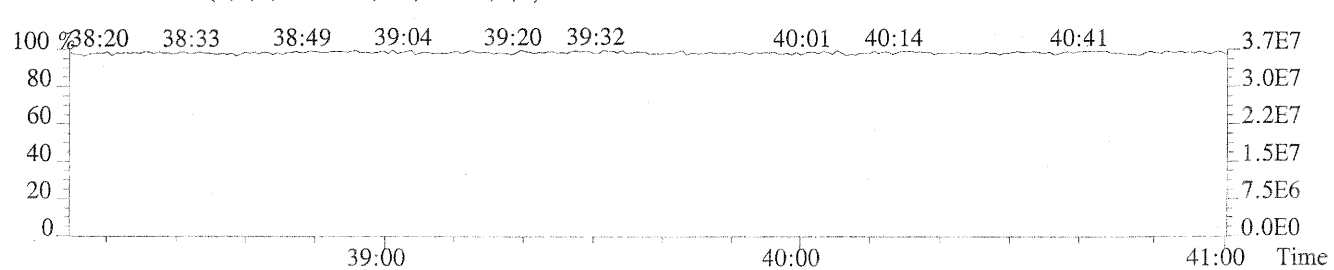
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.50%,F,T)



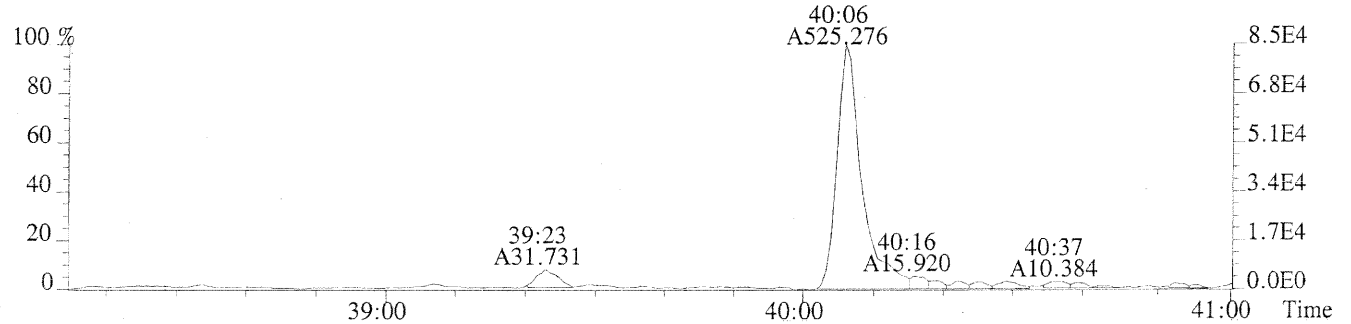
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



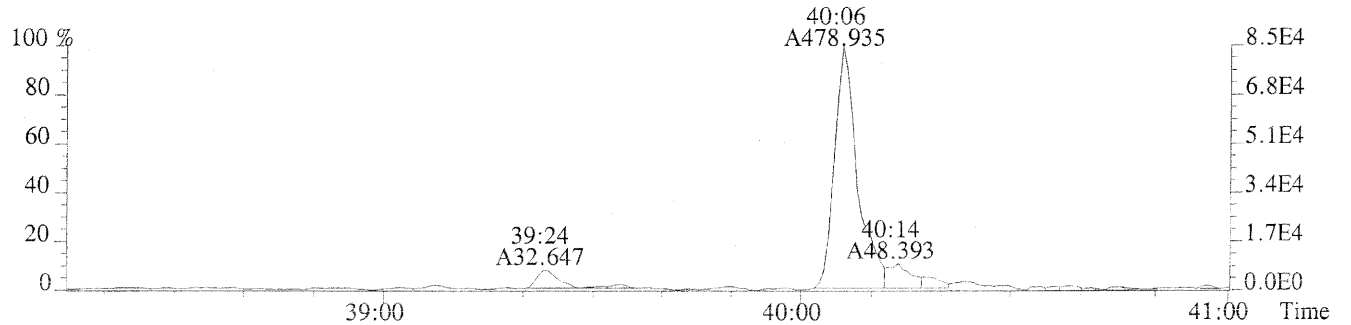
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



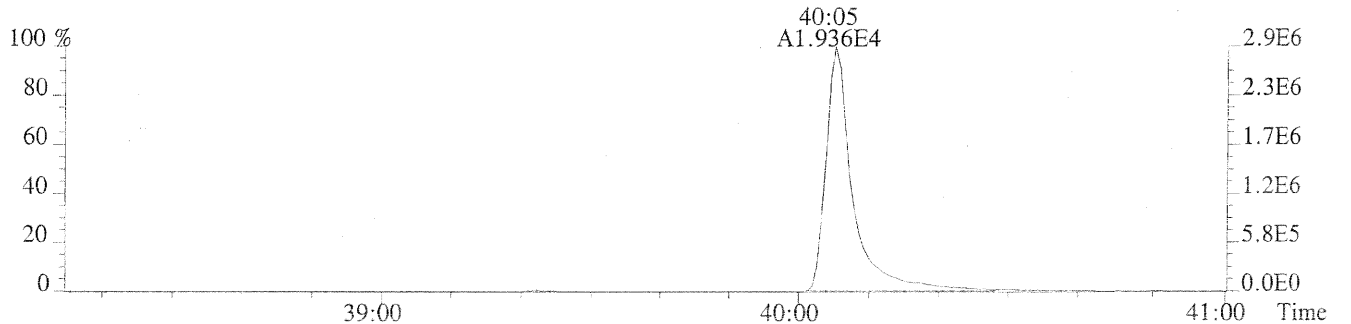
File:U150160 #1-251 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



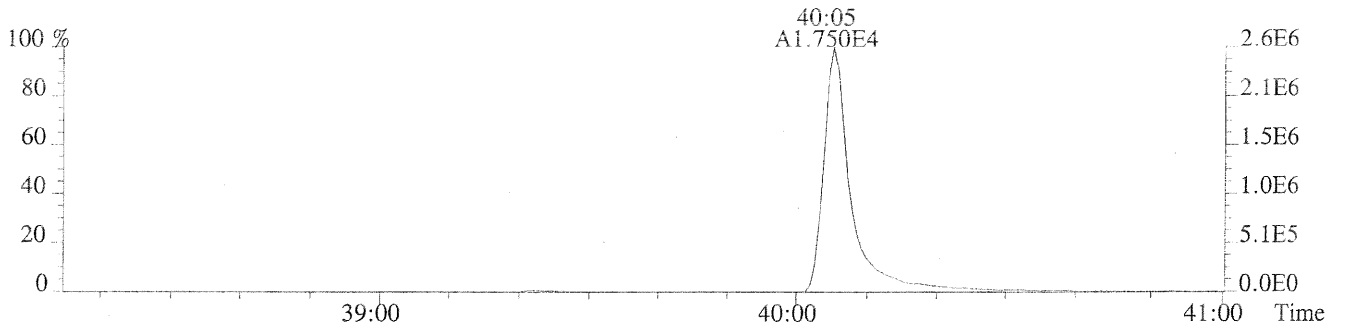
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



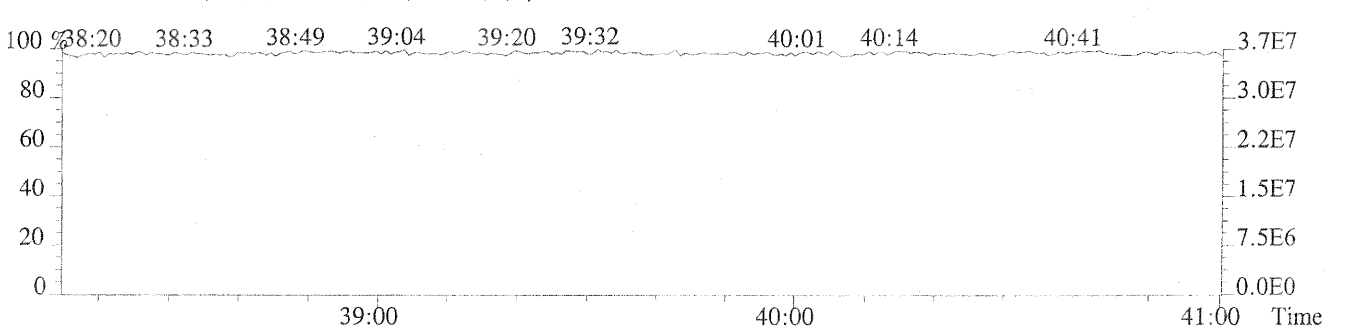
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



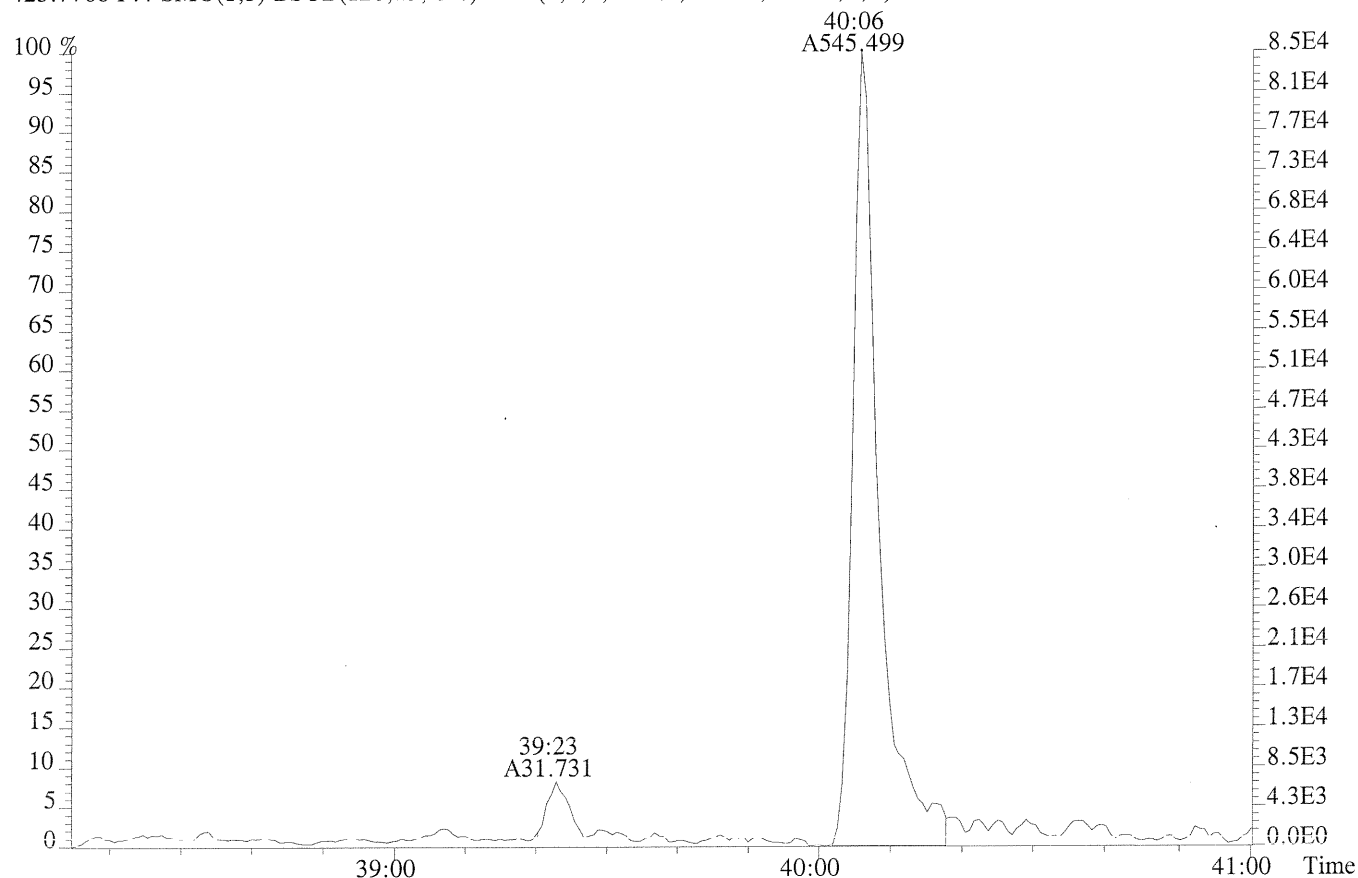
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



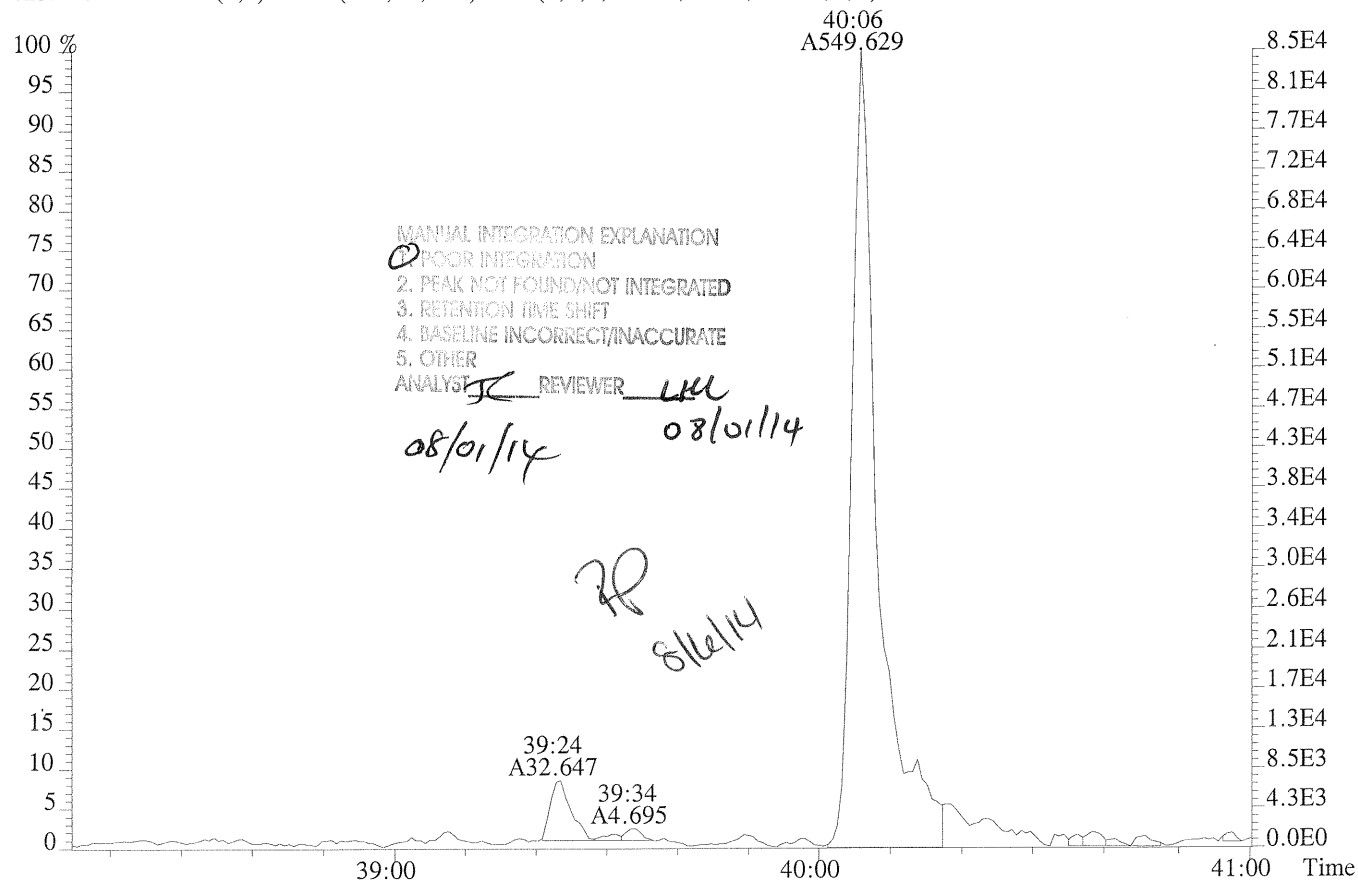
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



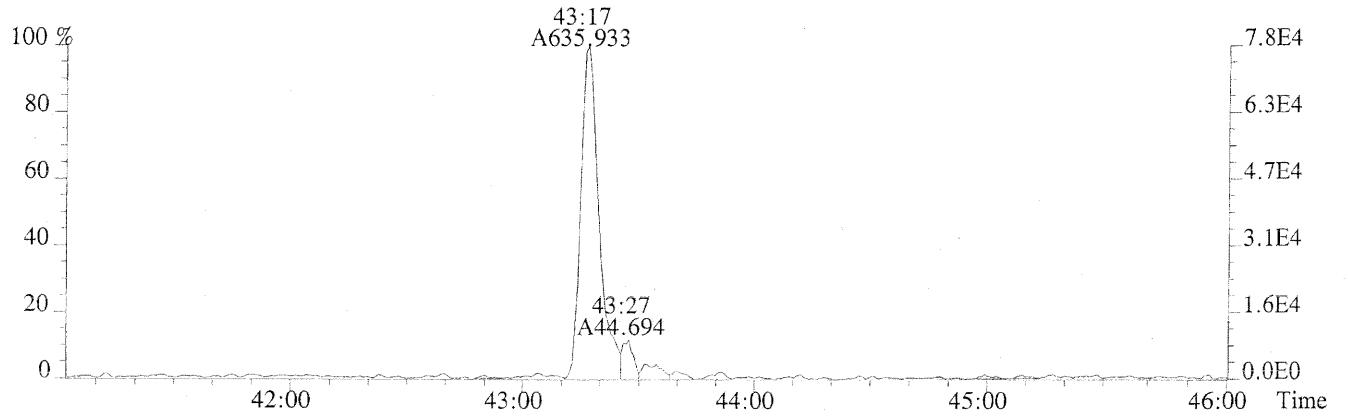
File:U150160 #1-251 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



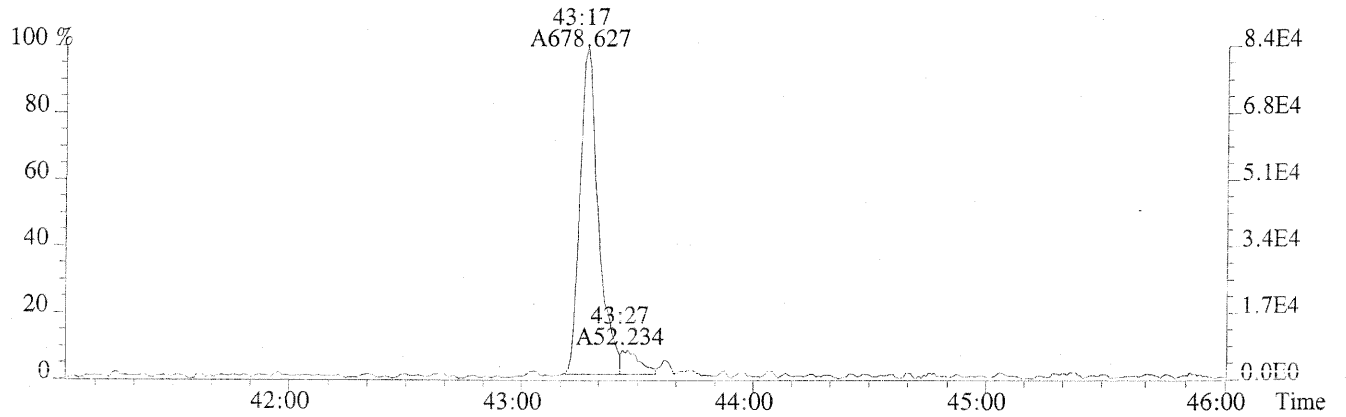
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



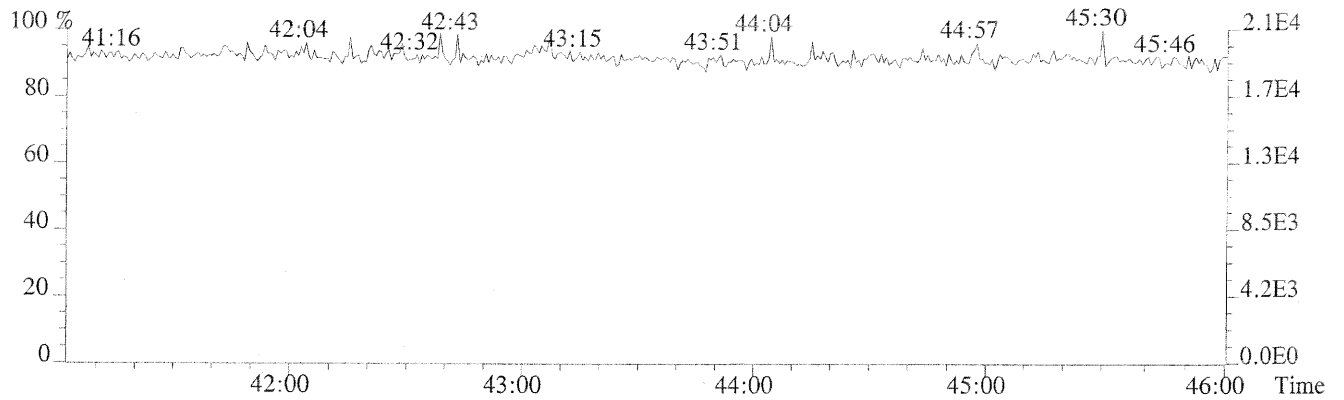
File:U150160 #1-451 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



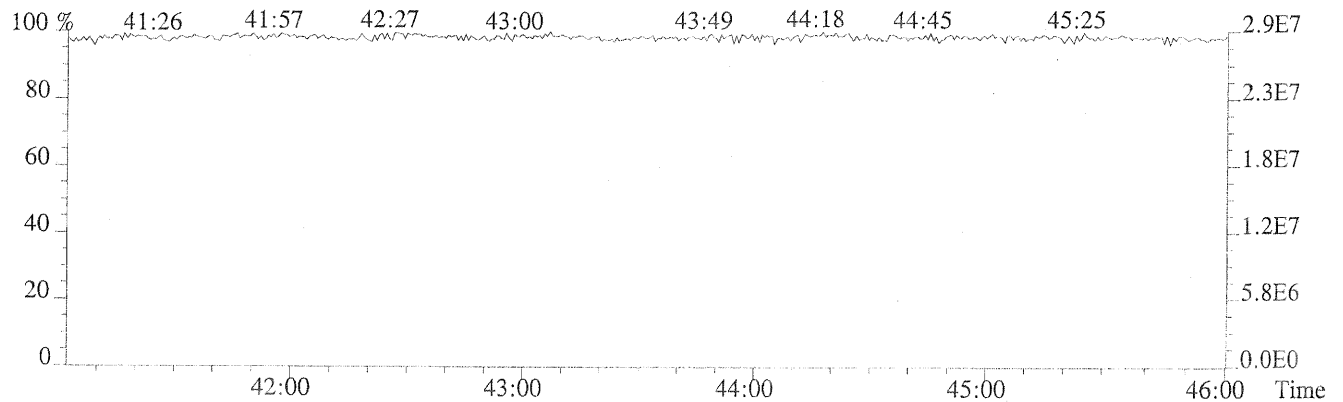
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1216.0,0.40%,F,T)



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



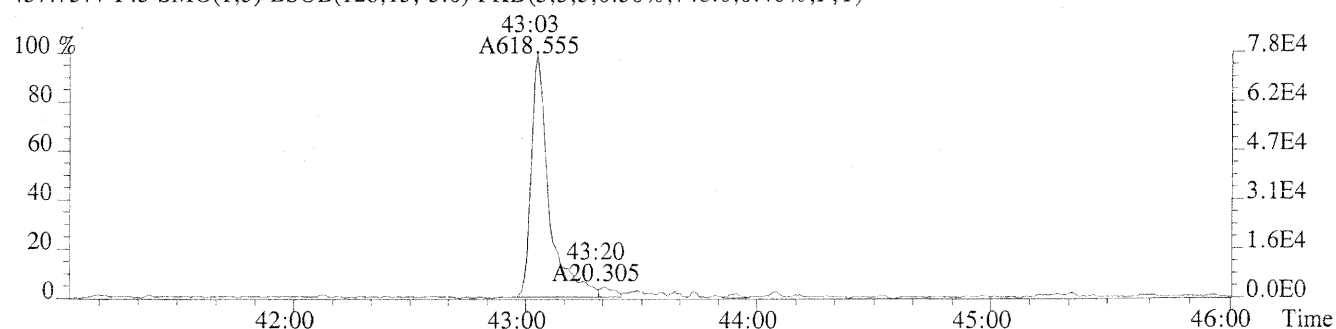
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



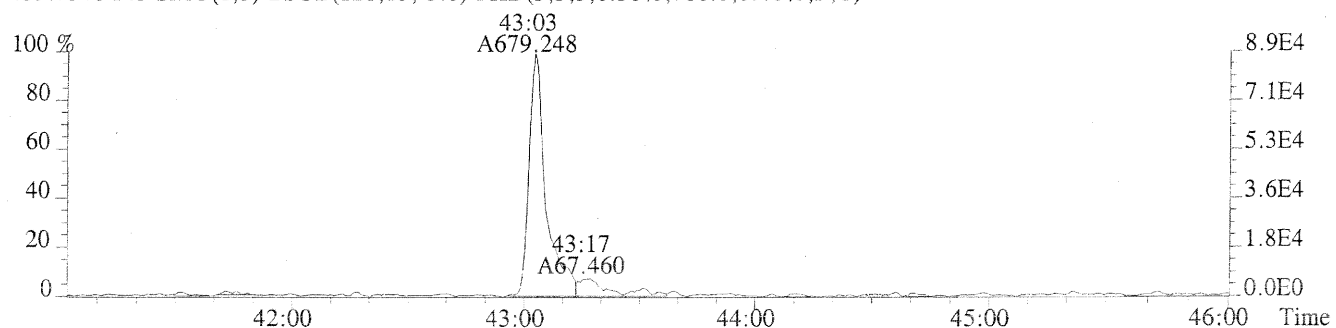


Sample#1 Exp:CS1

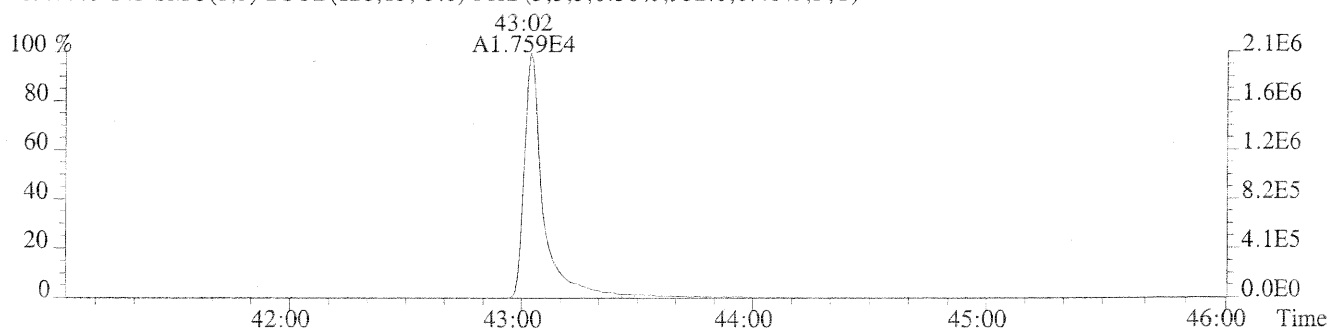
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,F,T)



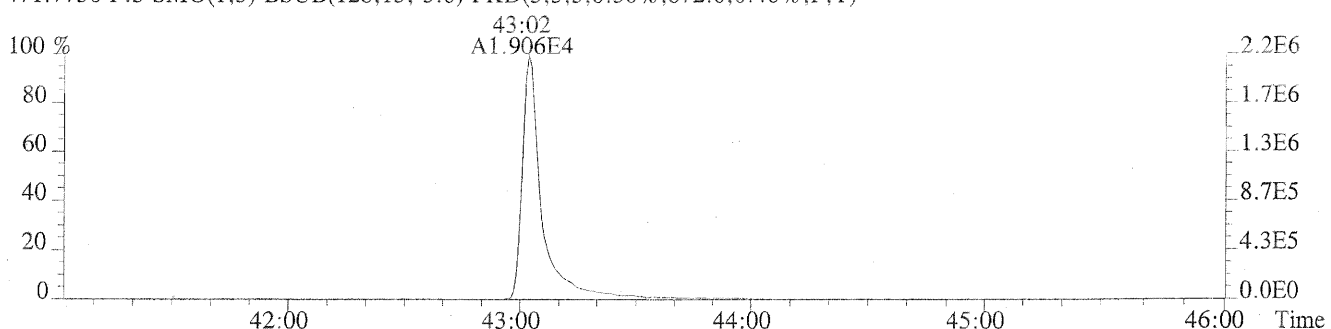
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,780.0,0.40%,F,T)



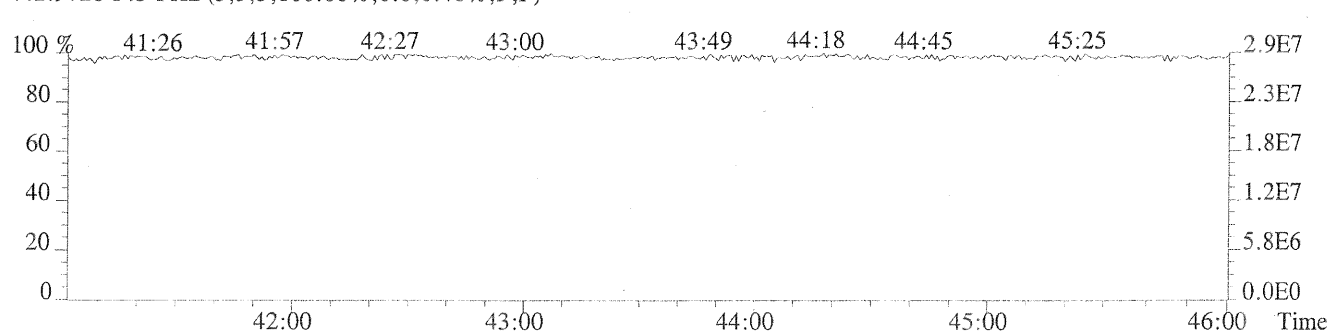
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



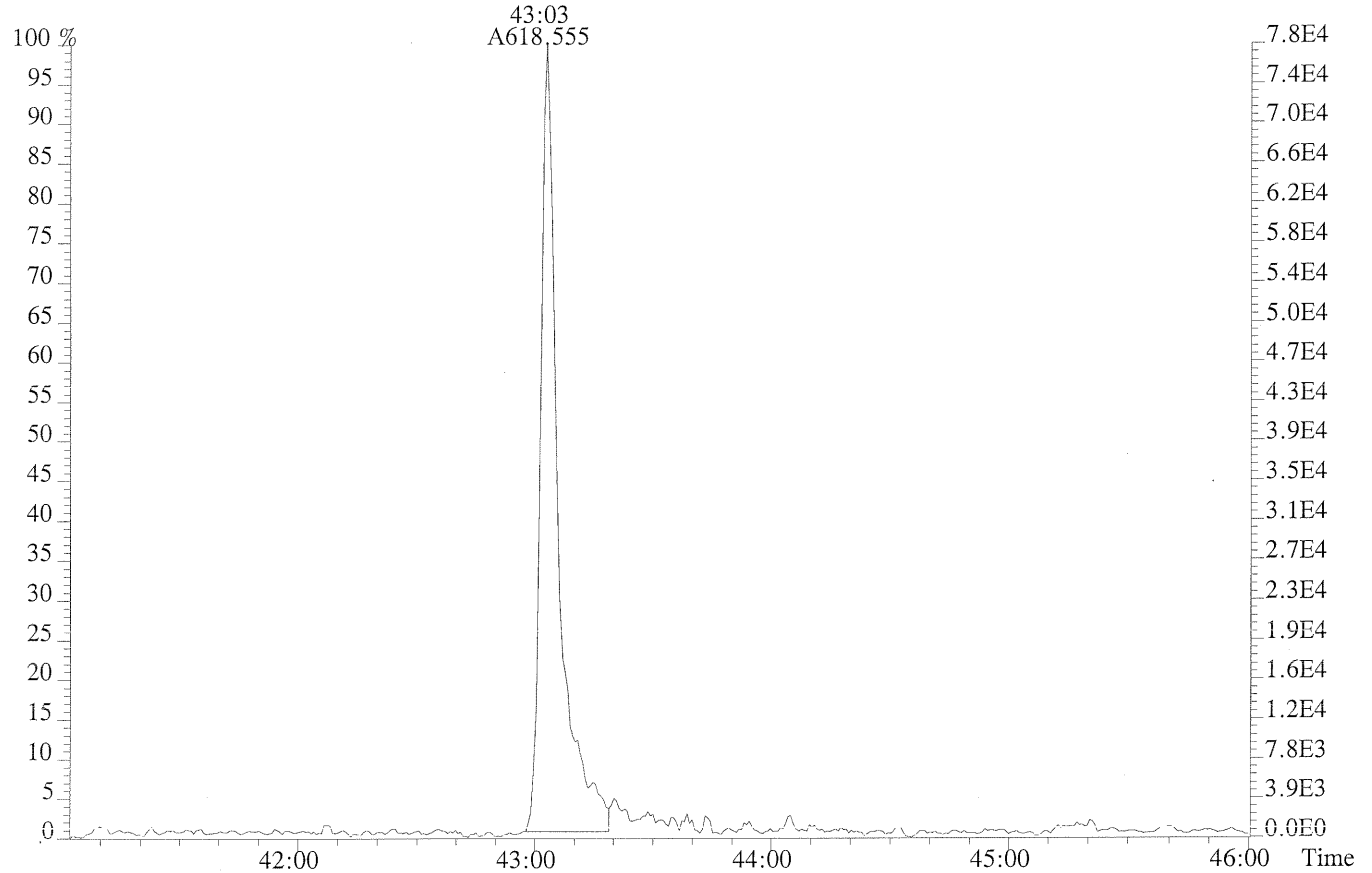
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



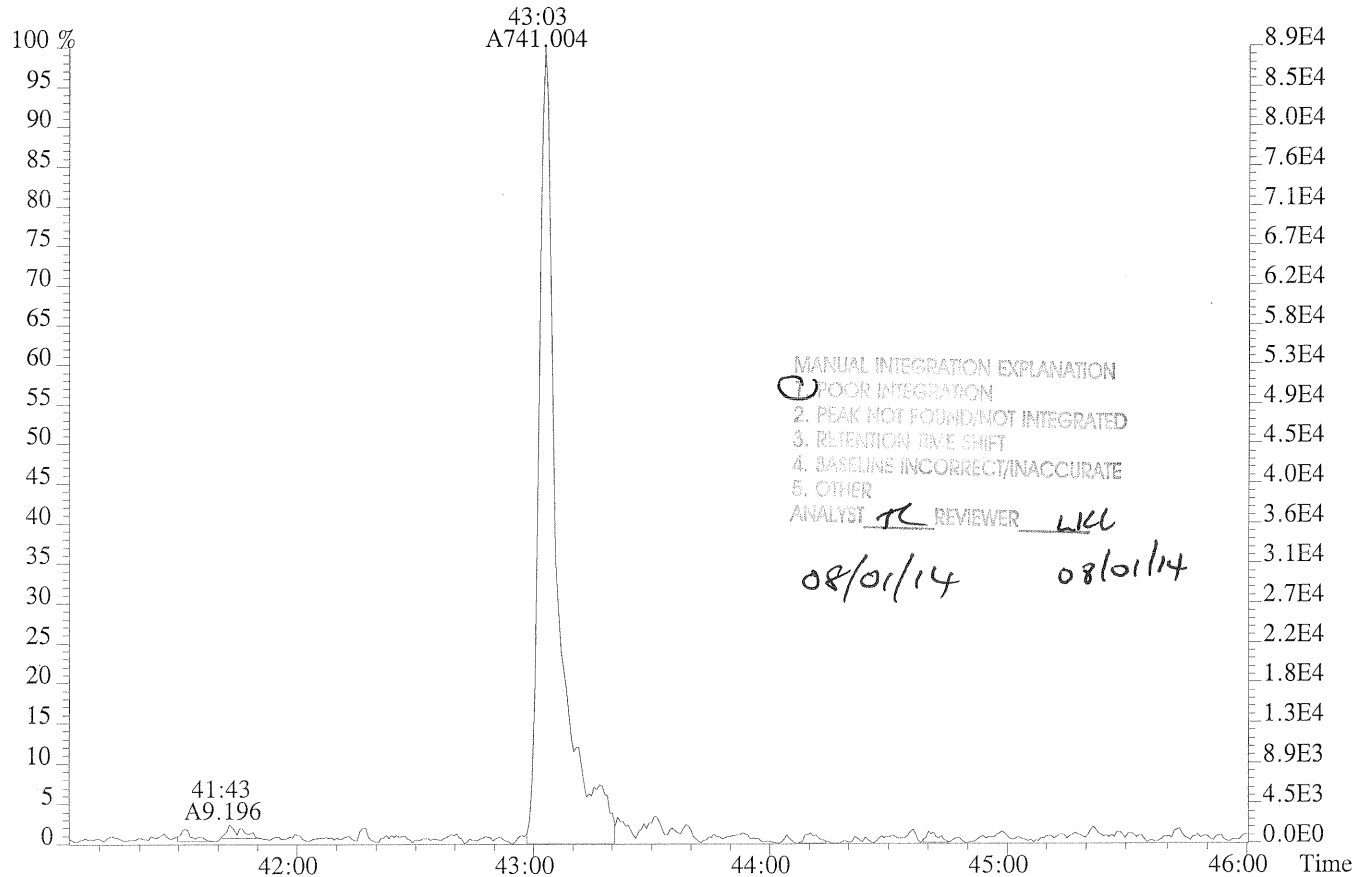
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:U150160 #1-451 Acq:31-JUL-2014 12:13:20 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS1  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,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)



## Sample Response Summary

Run #3 Filename U150161 #1 Samp: 1 Inj: 1 Acquired: 31-JUL-14 13:10:32  
 Processed: 6-AUG-14 13:12:25 LAB. ID: D12-90-3B

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:01	6.078e+02	8.036e+02	0.76	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:02	5.484e+03	3.458e+03	1.59	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:55	5.147e+03	3.337e+03	1.54	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:33	3.977e+03	3.204e+03	1.24	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:39	4.853e+03	4.049e+03	1.20	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:09	4.207e+03	3.499e+03	1.20	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:55	3.174e+03	2.585e+03	1.23	yes	yes	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:09	3.342e+03	3.191e+03	1.05	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:39	2.385e+03	2.230e+03	1.07	yes	no	0.959
10 Unk	OCDF	43:19	3.132e+03	3.367e+03	0.93	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:44	3.809e+02	5.076e+02	0.75	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:11	3.551e+03	2.090e+03	1.70	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:16	2.666e+03	2.176e+03	1.23	yes	yes	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:22	3.429e+03	2.752e+03	1.25	yes	yes	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:36	3.311e+03	2.663e+03	1.24	yes	yes	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:07	2.169e+03	2.173e+03	1.00	yes	no	1.102
17 Unk	OCDD	43:04	2.887e+03	3.219e+03	0.90	yes	yes	1.329
18 IS	13C-2,3,7,8-TCDF	28:59	3.126e+04	3.759e+04	0.83	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:01	5.465e+04	3.394e+04	1.61	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:55	5.463e+04	3.439e+04	1.59	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:32	1.968e+04	3.864e+04	0.51	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:39	2.562e+04	5.088e+04	0.50	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:54	1.702e+04	3.343e+04	0.51	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:08	1.523e+04	3.382e+04	0.45	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:38	1.076e+04	2.324e+04	0.46	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:43	2.039e+04	2.694e+04	0.76	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:11	3.005e+04	1.994e+04	1.51	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:16	2.126e+04	1.629e+04	1.31	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:21	2.740e+04	2.047e+04	1.34	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:07	2.120e+04	1.929e+04	1.10	yes	no	0.845
32 IS	13C-OCDD	43:04	2.180e+04	2.342e+04	0.93	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:10	2.121e+04	2.754e+04	0.77	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:35	2.872e+04	2.041e+04	1.41	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:44	9.292e+02				no	0.975

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS2

Method M23

Run #3    Filename U150161    #1    Samp: 1    Inj: 1    Acquired: 31-JUL-14 13:10:32  
Processed: 6-AUG-14 13:12:25    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	1.11e+05	8.24e+02	1.3e+02	1.39e+05	1.93e+03	7.2e+01
2	1,2,3,7,8-PeCDF	8.68e+05	1.31e+03	6.6e+02	5.39e+05	1.65e+03	3.3e+02
3	2,3,4,7,8-PeCDF	8.74e+05	1.31e+03	6.7e+02	5.66e+05	1.65e+03	3.4e+02
4	1,2,3,4,7,8-HxCDF	7.67e+05	9.08e+02	8.4e+02	6.19e+05	8.08e+02	7.7e+02
5	1,2,3,6,7,8-HxCDF	8.31e+05	9.08e+02	9.2e+02	6.71e+05	8.08e+02	8.3e+02
6	2,3,4,6,7,8-HxCDF	7.55e+05	9.08e+02	8.3e+02	6.27e+05	8.08e+02	7.8e+02
7	1,2,3,7,8,9-HxCDF	5.20e+05	9.08e+02	5.7e+02	4.31e+05	8.08e+02	5.3e+02
8	1,2,3,4,6,7,8-HpCDF	5.76e+05	1.47e+03	3.9e+02	5.62e+05	6.72e+02	8.4e+02
9	1,2,3,4,7,8,9-HpCDF	3.26e+05	1.47e+03	2.2e+02	3.08e+05	6.72e+02	4.6e+02
10	OCDF	3.61e+05	7.92e+02	4.6e+02	4.00e+05	1.16e+03	3.4e+02
11	2,3,7,8-TCDD	7.22e+04	9.00e+02	8.0e+01	9.42e+04	8.12e+02	1.2e+02
12	1,2,3,7,8-PeCDD	5.91e+05	1.18e+03	5.0e+02	3.58e+05	1.14e+03	3.1e+02
13	1,2,3,4,7,8-HxCDD	5.64e+05	7.32e+02	7.7e+02	4.49e+05	1.06e+03	4.2e+02
14	1,2,3,6,7,8-HxCDD	5.77e+05	7.32e+02	7.9e+02	4.56e+05	1.06e+03	4.3e+02
15	1,2,3,7,8,9-HxCDD	5.54e+05	7.32e+02	7.6e+02	4.14e+05	1.06e+03	3.9e+02
16	1,2,3,4,6,7,8-HpCDD	3.41e+05	9.52e+02	3.6e+02	3.50e+05	8.32e+02	4.2e+02
17	OCDD	3.51e+05	6.80e+02	5.2e+02	3.92e+05	7.84e+02	5.0e+02
18	13C-2,3,7,8-TCDF	5.59e+06	1.16e+03	4.8e+03	6.70e+06	8.12e+02	8.3e+03
19	13C-1,2,3,7,8-PeCDF	8.66e+06	1.30e+03	6.6e+03	5.33e+06	1.28e+03	4.2e+03
20	13C-2,3,4,7,8-PeCDF	9.40e+06	1.30e+03	7.2e+03	5.89e+06	1.28e+03	4.6e+03
21	13C-1,2,3,4,7,8-HxCDF	3.89e+06	1.07e+03	3.6e+03	7.59e+06	1.82e+03	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	4.34e+06	1.07e+03	4.1e+03	8.45e+06	1.82e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	2.81e+06	1.07e+03	2.6e+03	5.50e+06	1.82e+03	3.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.59e+06	1.04e+03	2.5e+03	5.74e+06	5.28e+02	1.1e+04
26	13C-1,2,3,4,7,8,9-HpCDF	1.54e+06	1.04e+03	1.5e+03	3.37e+06	5.28e+02	6.4e+03
27	13C-2,3,7,8-TCDD	3.85e+06	3.54e+03	1.1e+03	5.08e+06	1.77e+03	2.9e+03
28	13C-1,2,3,7,8-PeCDD	4.96e+06	1.14e+03	4.3e+03	3.34e+06	7.24e+02	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	4.44e+06	1.09e+03	4.1e+03	3.43e+06	1.04e+03	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	4.70e+06	1.09e+03	4.3e+03	3.50e+06	1.04e+03	3.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.24e+06	1.38e+03	2.4e+03	2.92e+06	5.60e+02	5.2e+03
32	13C-OCDD	2.62e+06	9.92e+02	2.6e+03	2.83e+06	1.04e+03	2.7e+03
33	13C-1,2,3,4-TCDD	4.24e+06	3.54e+03	1.2e+03	5.49e+06	1.77e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	4.38e+06	1.09e+03	4.0e+03	3.26e+06	1.04e+03	3.1e+03
35	37Cl-2,3,7,8-TCDD	1.72e+05	1.32e+03	1.3e+02			

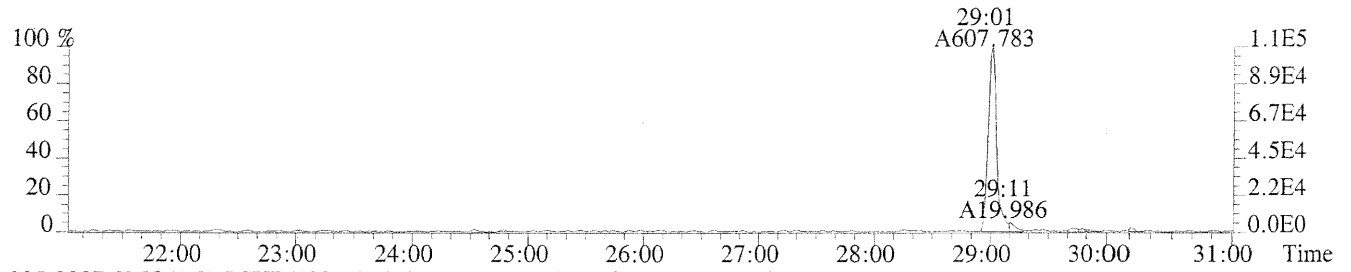
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

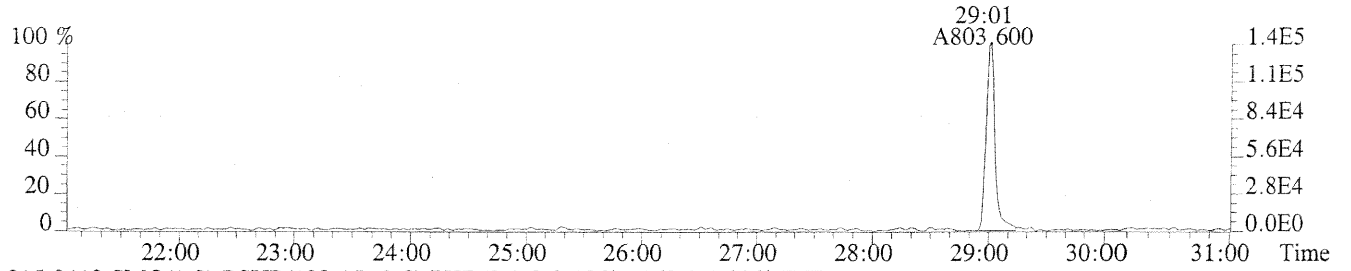
File:U150161 #1-627 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS2

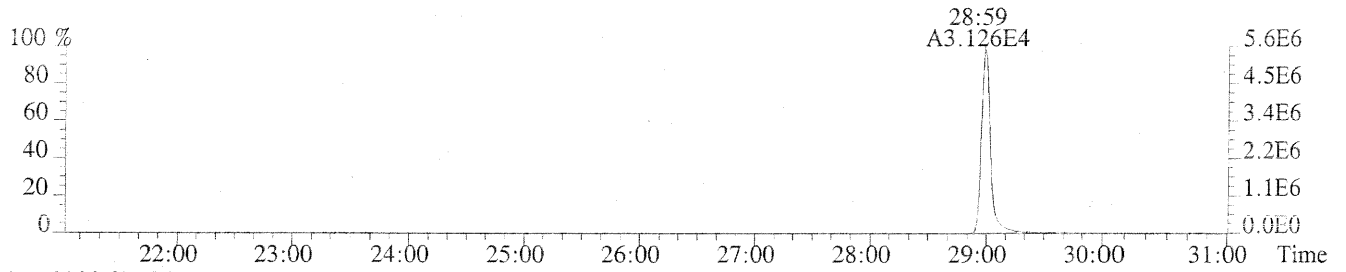
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



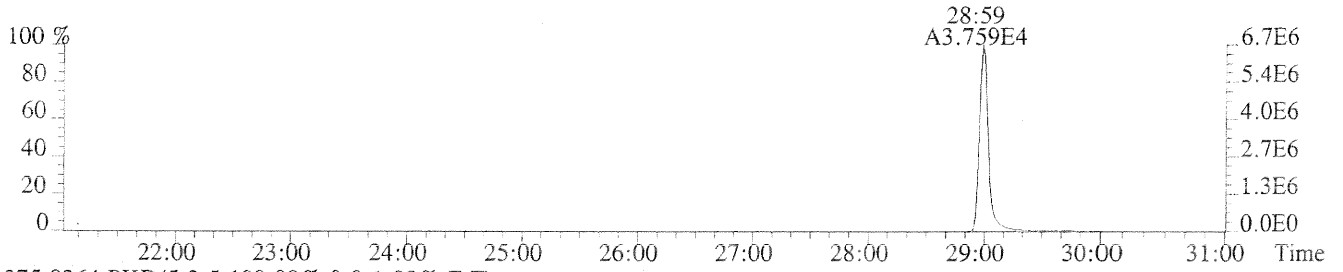
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1932.0,1.00%,F,T)



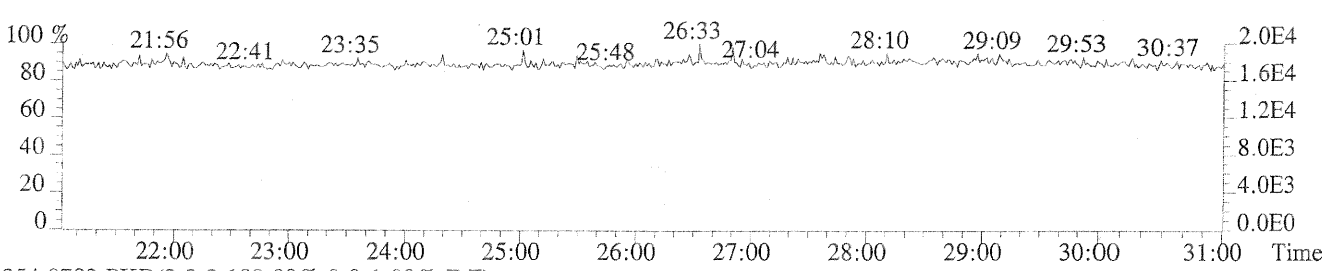
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1160.0,1.00%,F,T)



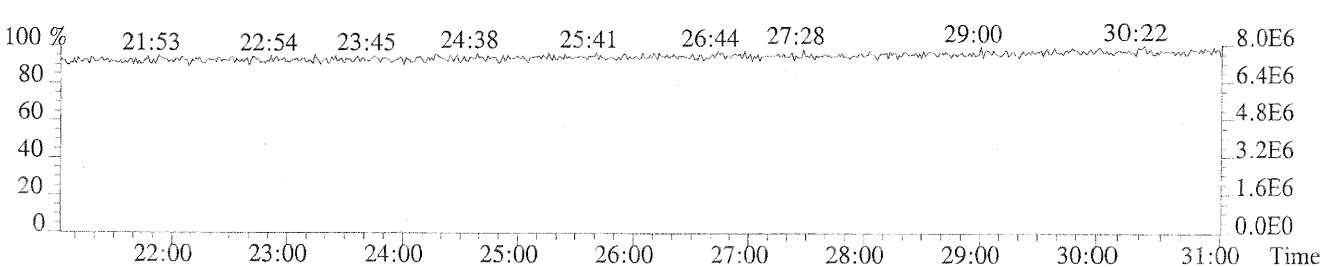
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



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



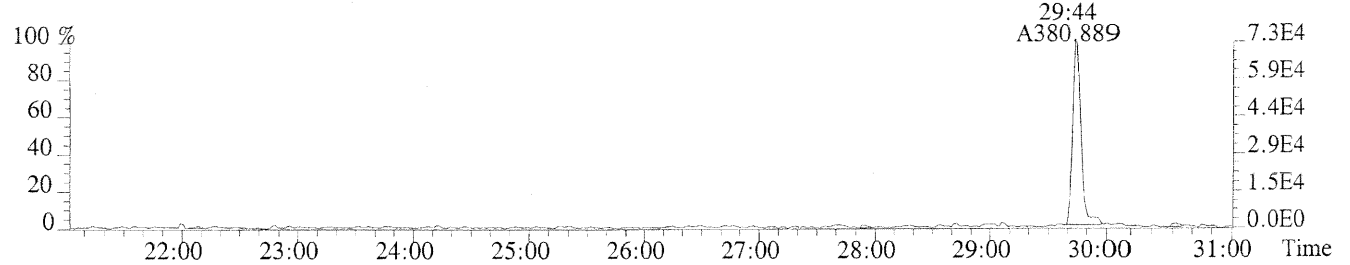
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



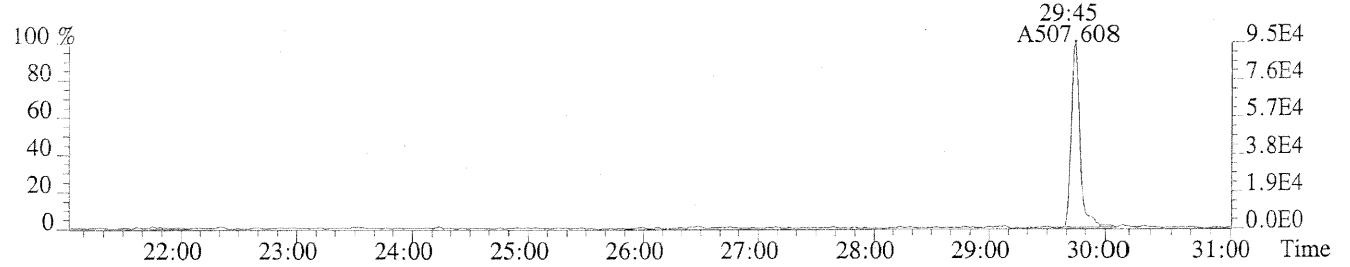
File:U150161 #1-627 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS2

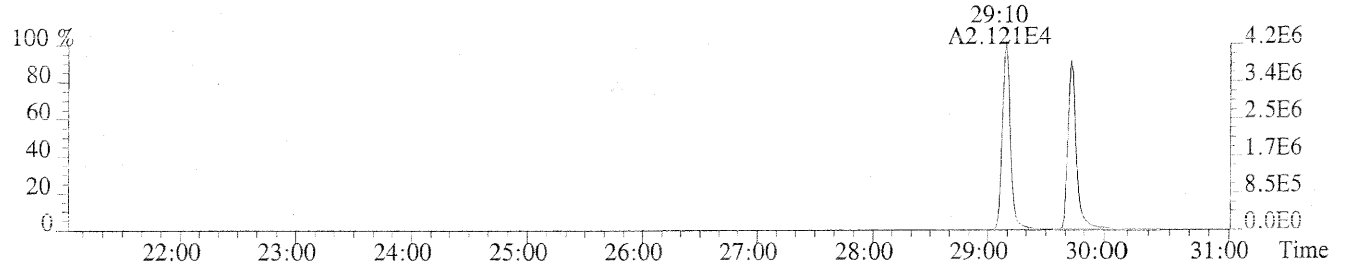
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



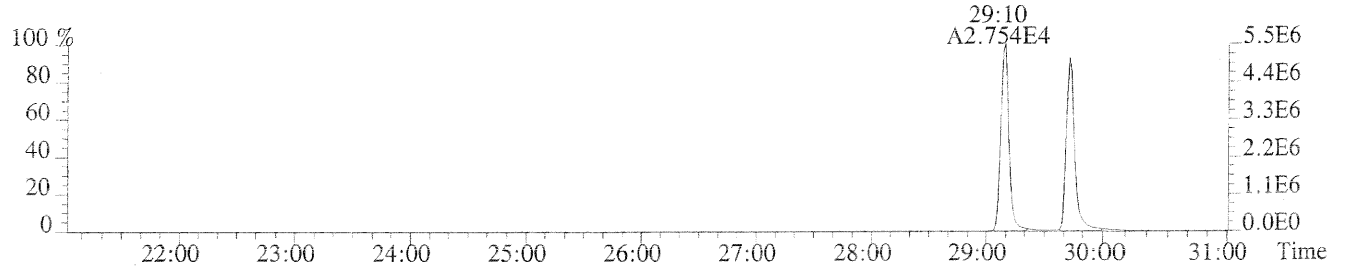
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



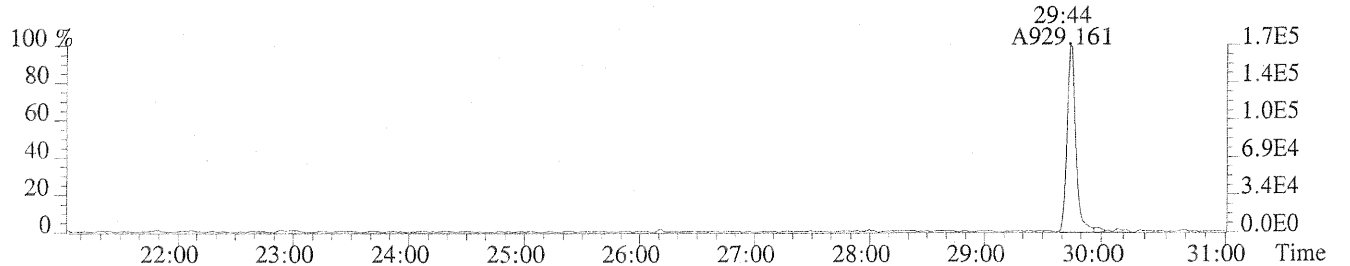
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)



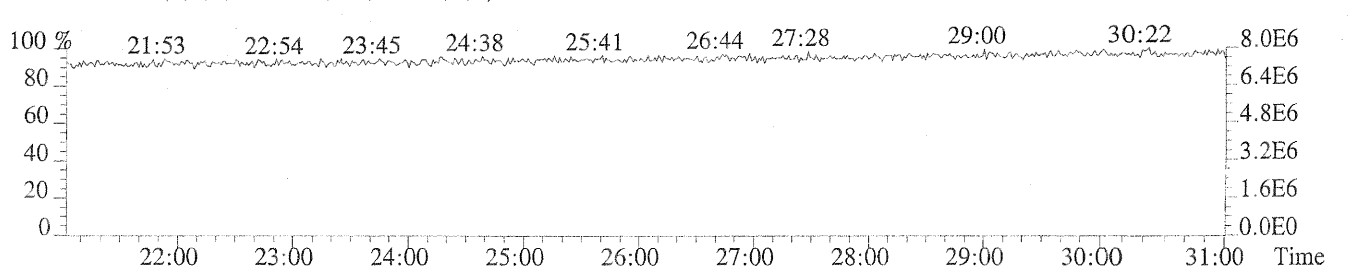
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



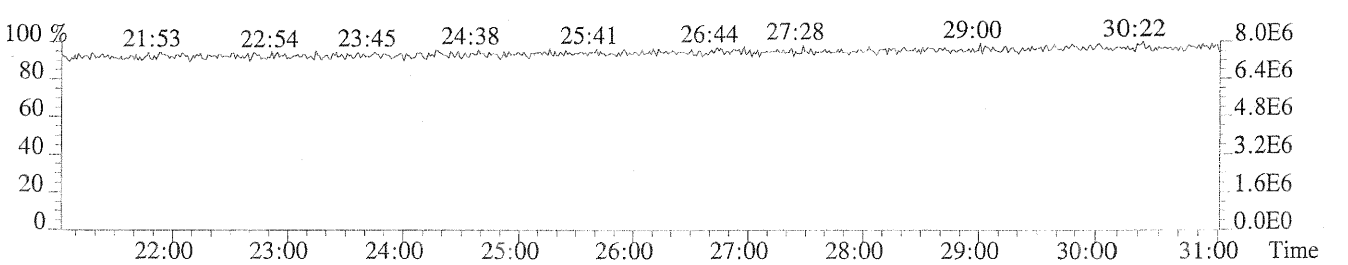
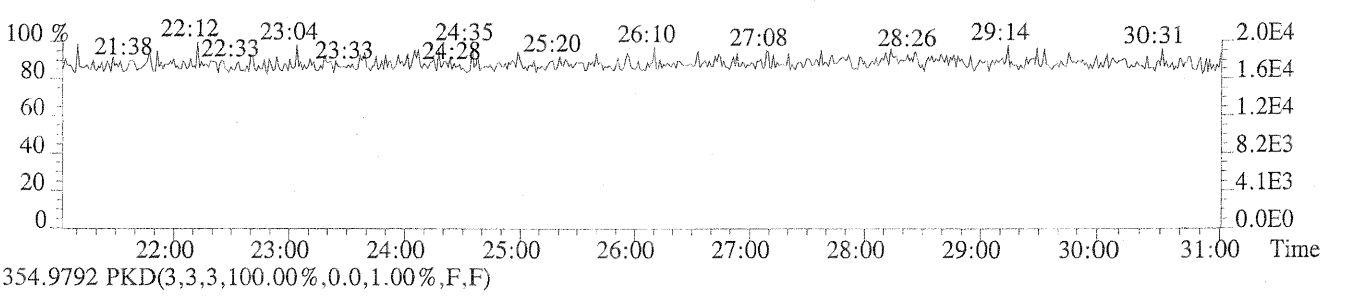
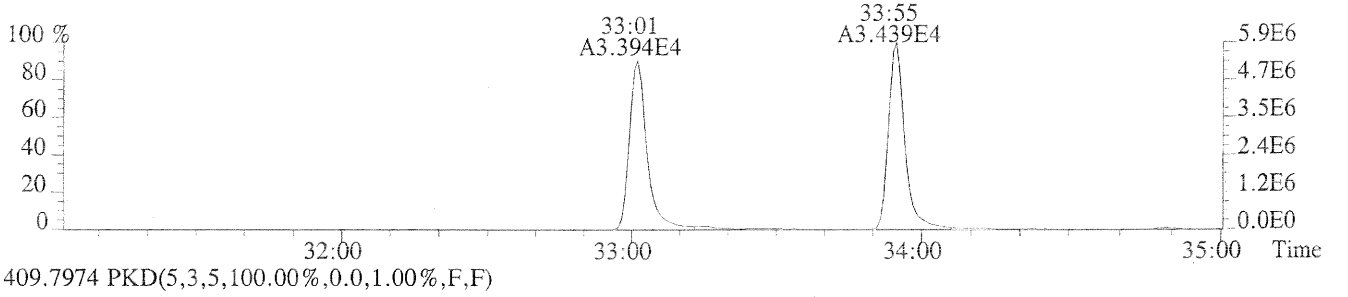
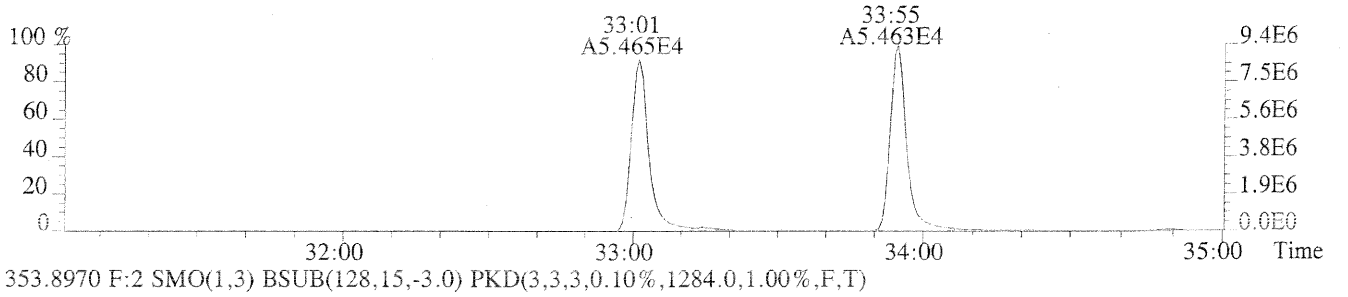
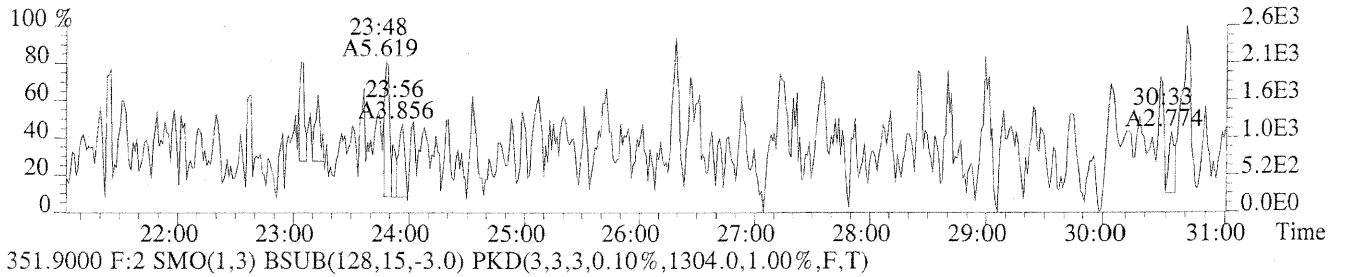
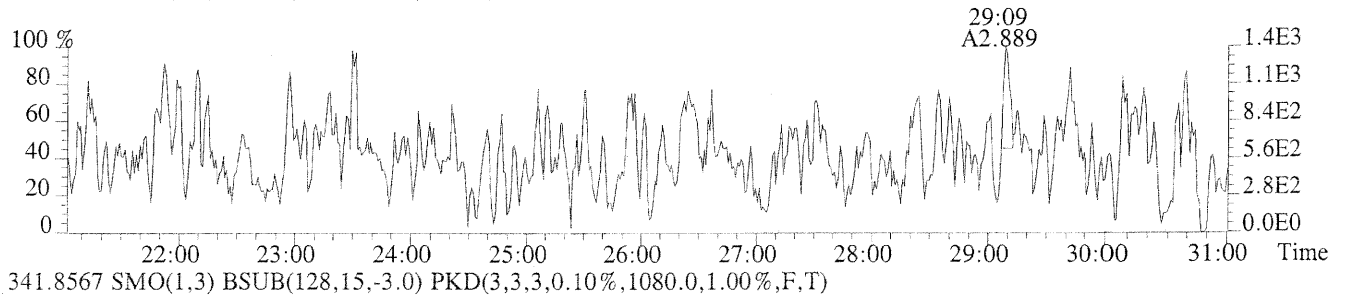
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



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

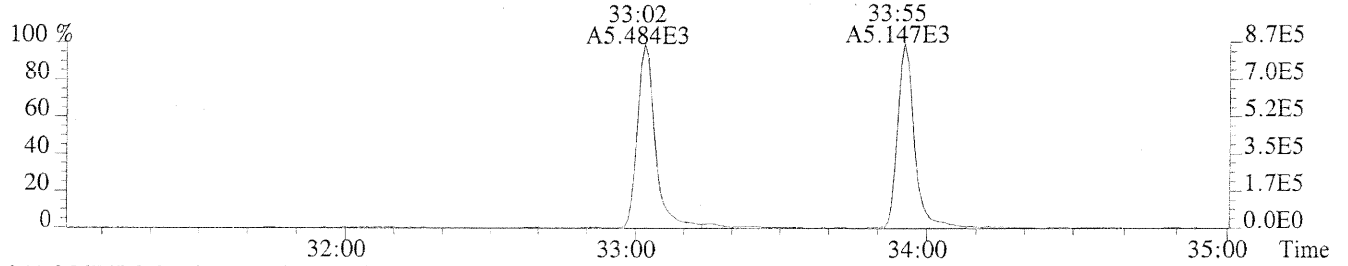


File:U150161 #1-627 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS2  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)

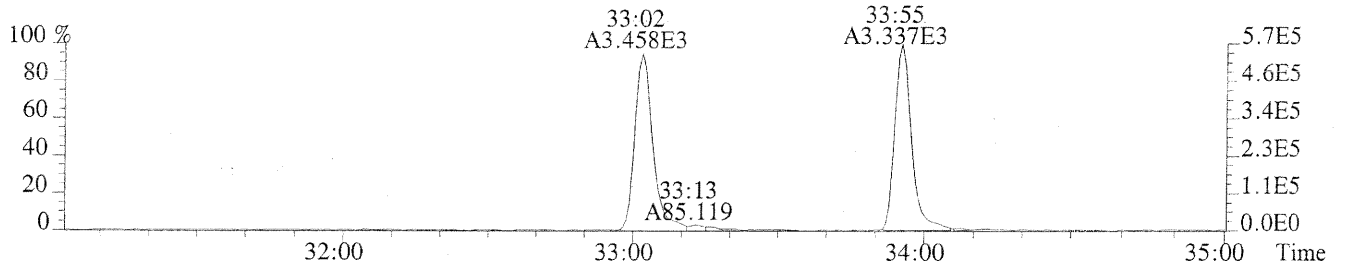


Sample#1 Exp:CS2

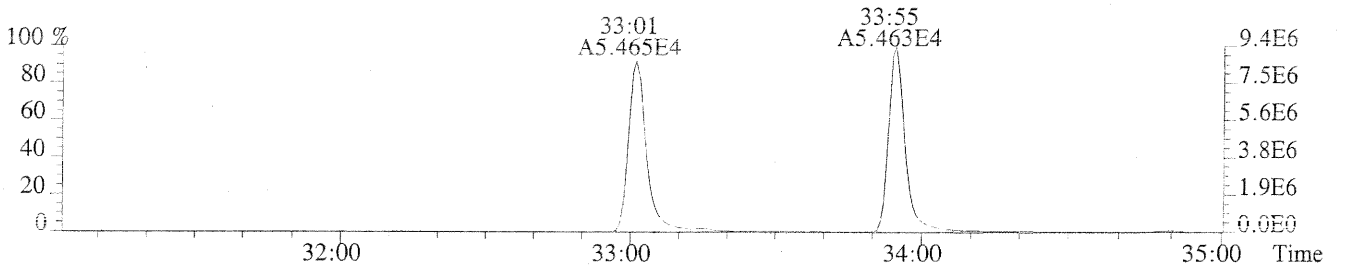
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



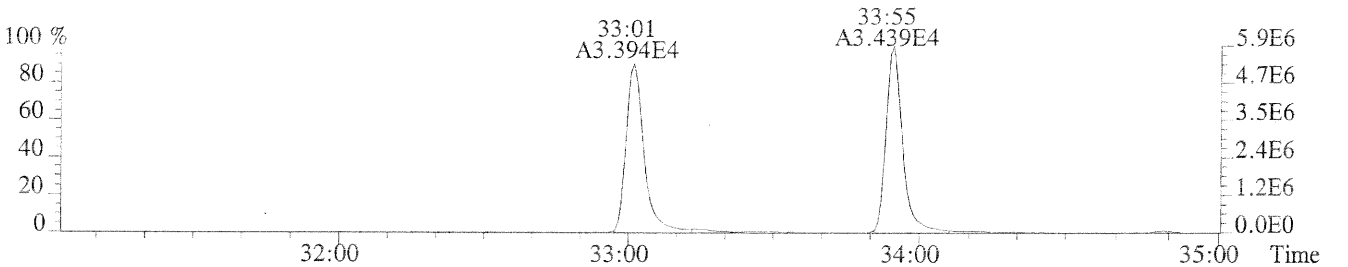
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



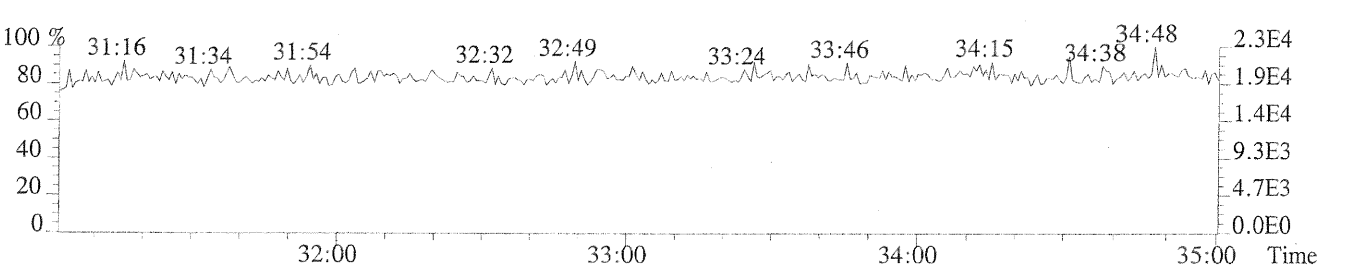
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



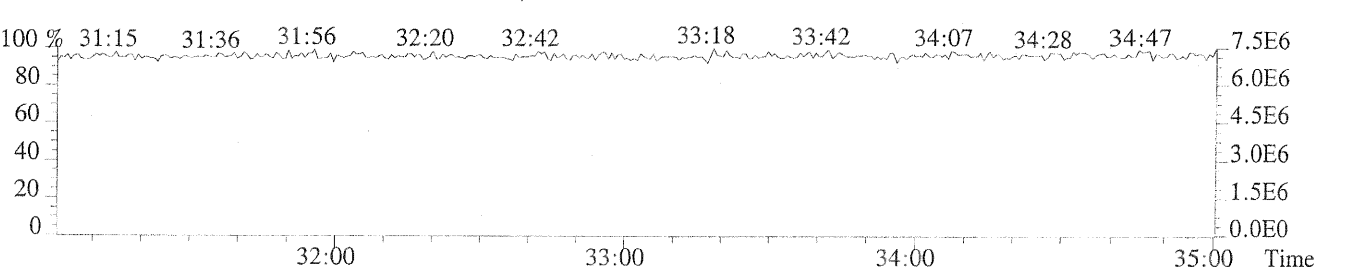
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



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)

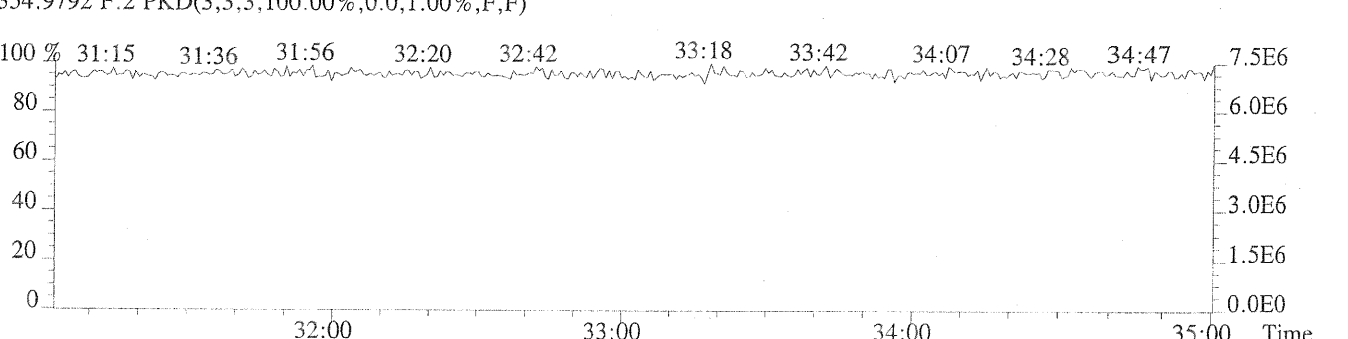
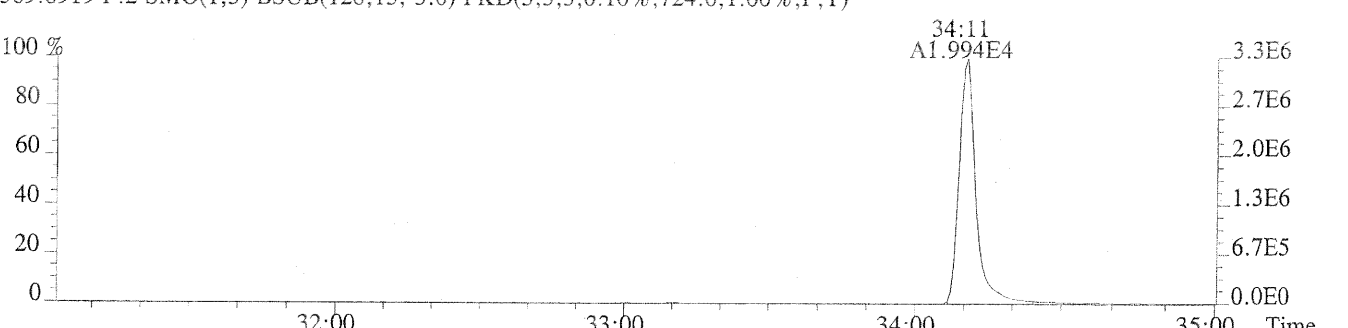
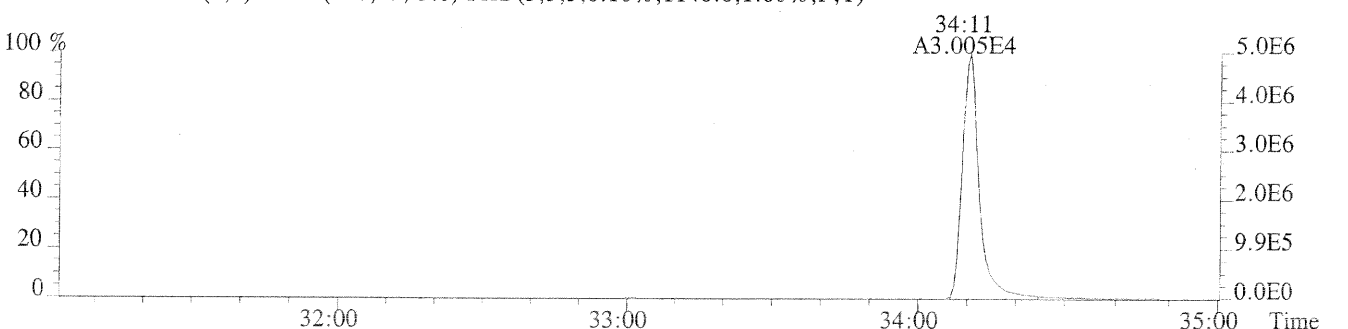
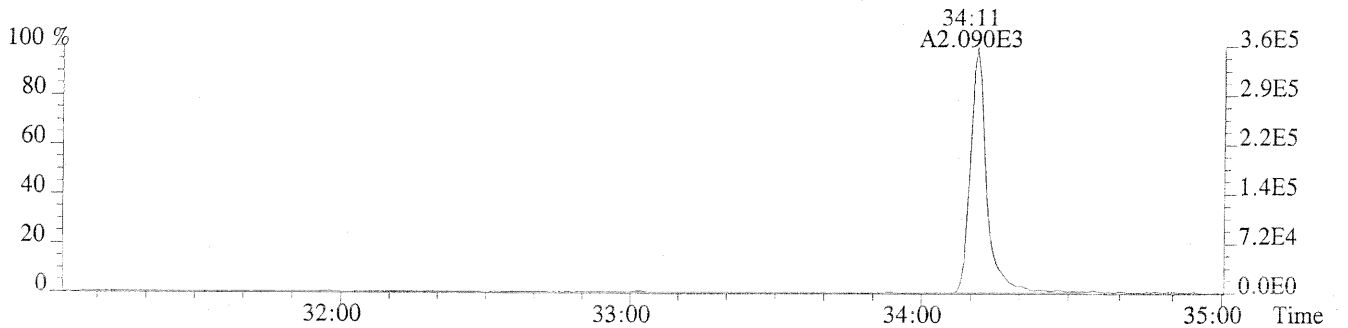
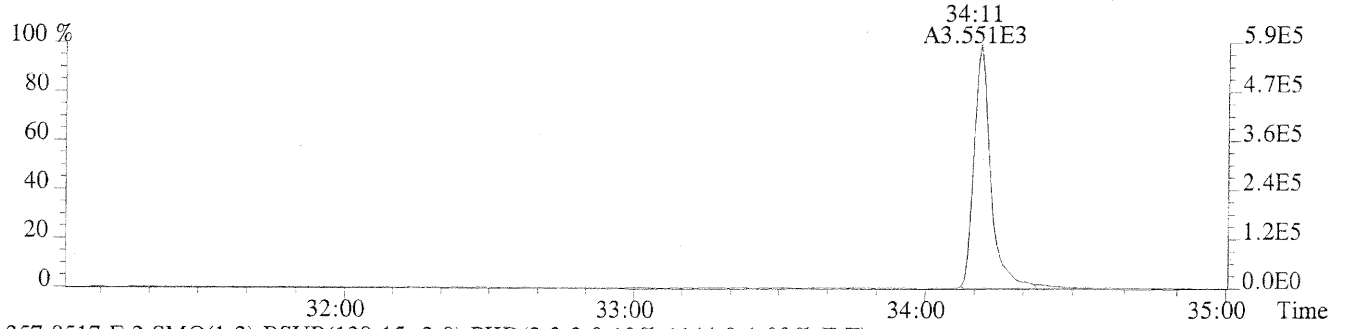




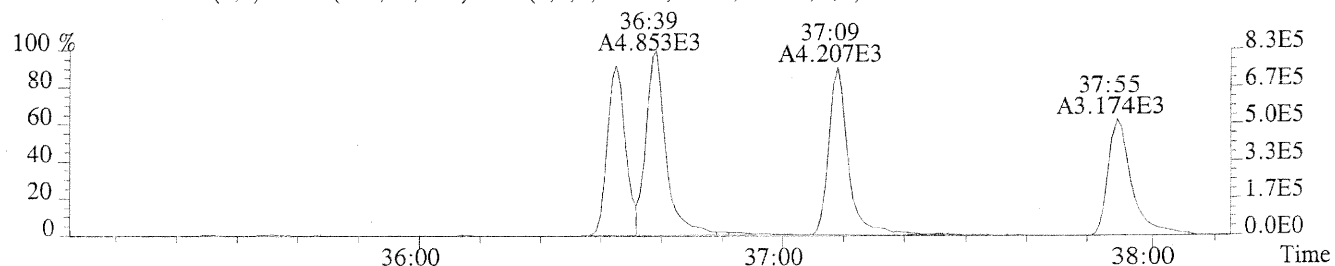
File:U150161 #1-360 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS2

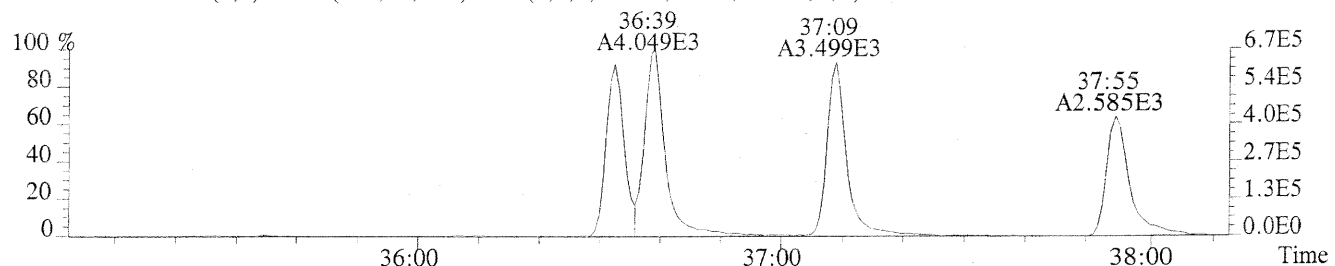
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



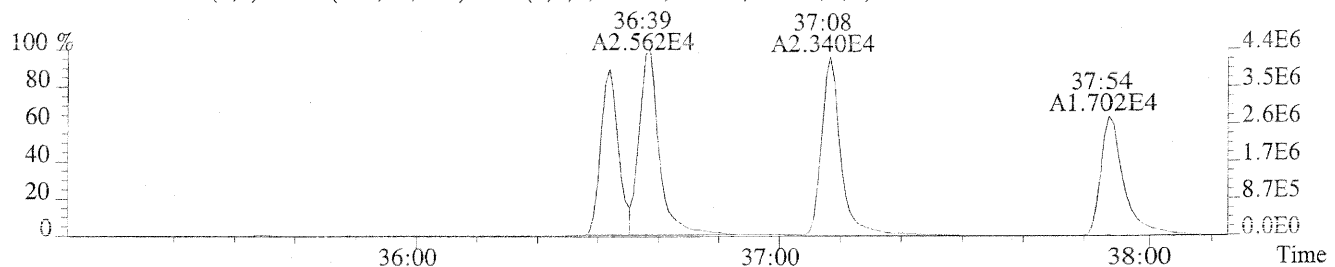
File:U150161 #1-288 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS2  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



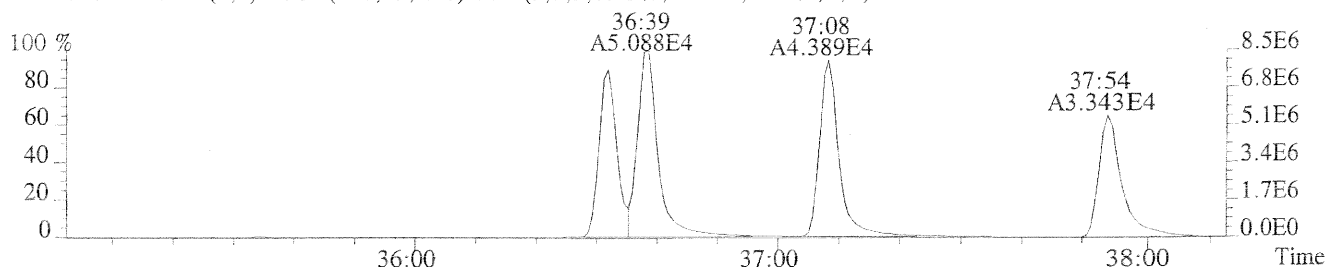
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



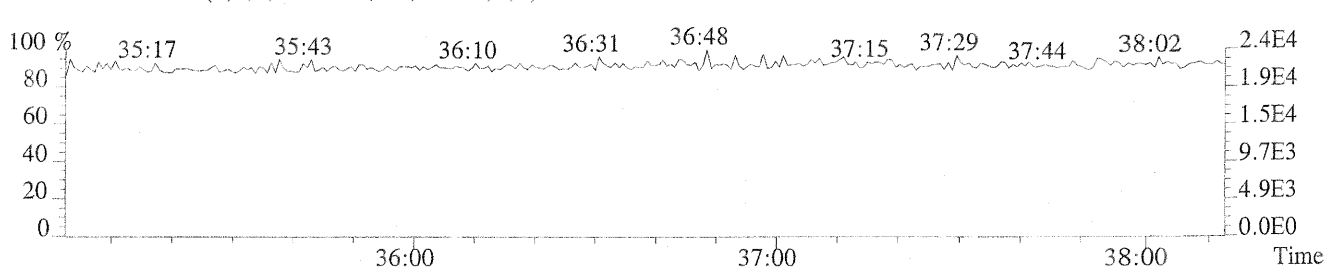
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



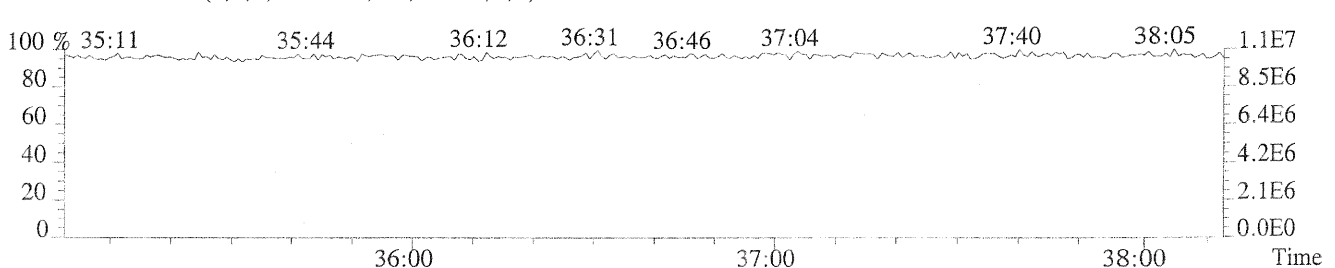
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1820.0,0.40%,F,T)



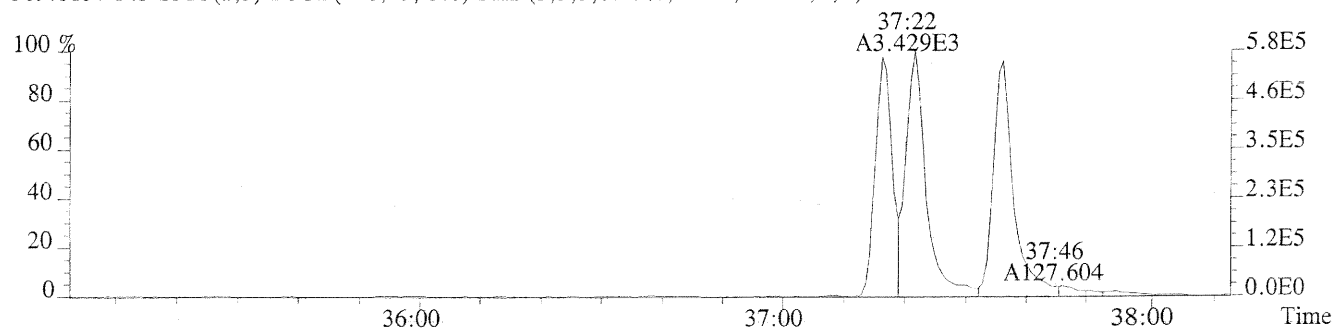
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



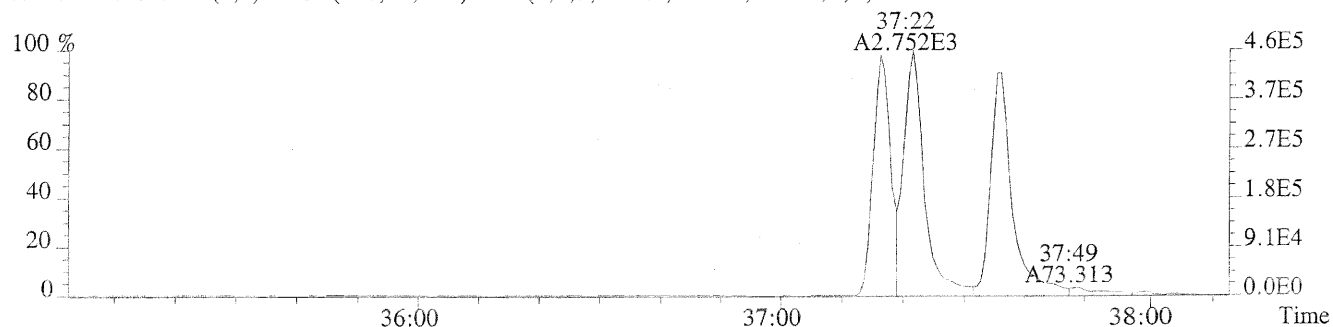
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



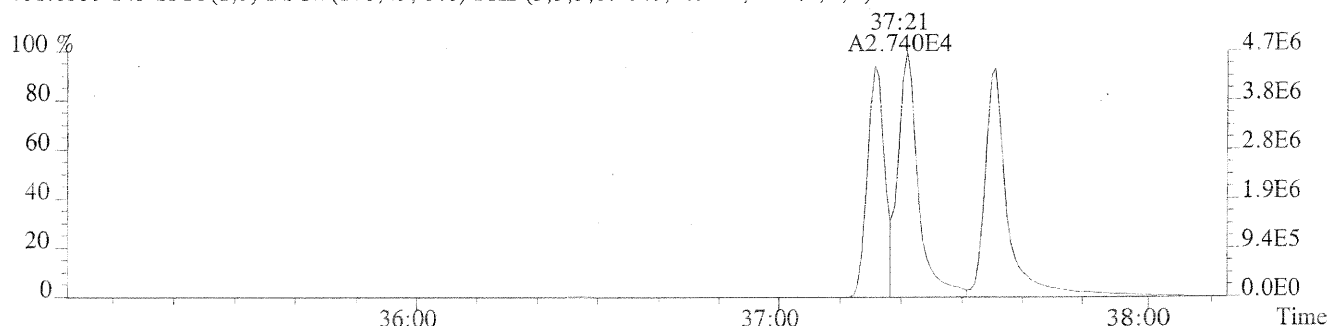
File:U150161 #1-288 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS2  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



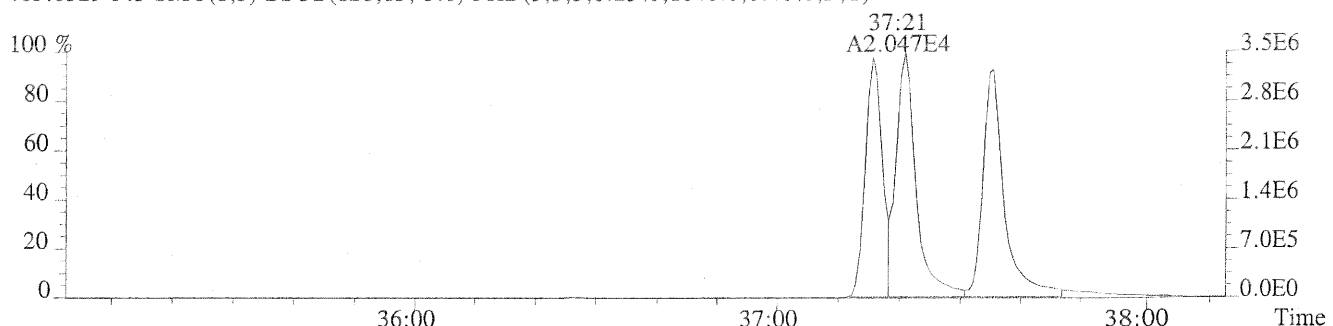
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



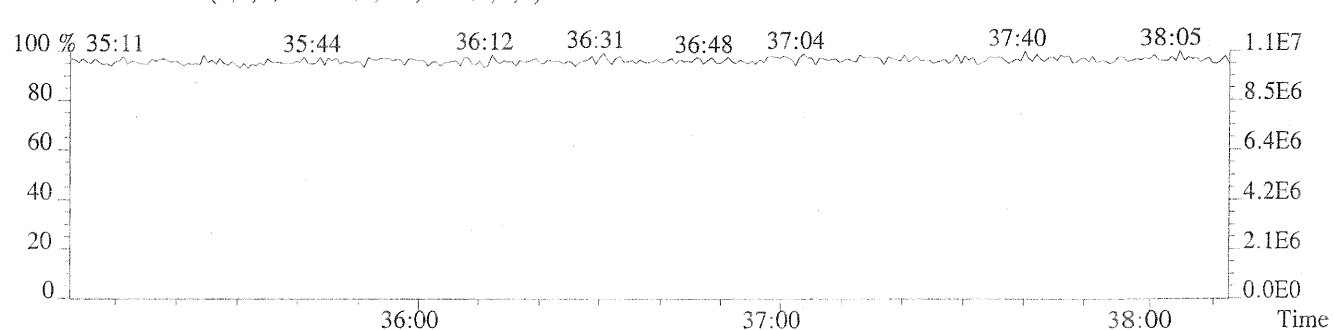
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



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



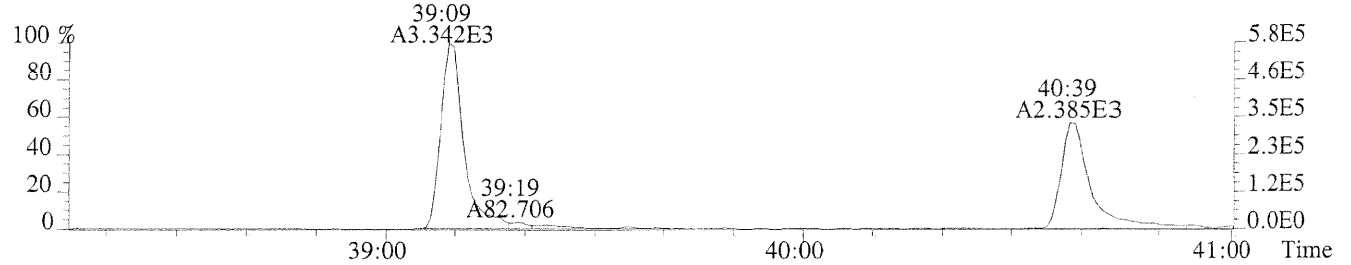
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



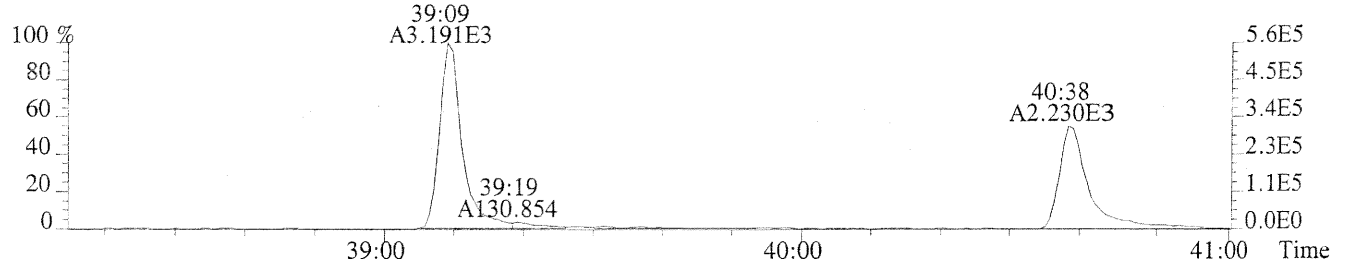
File:U150161 #1-251 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS2

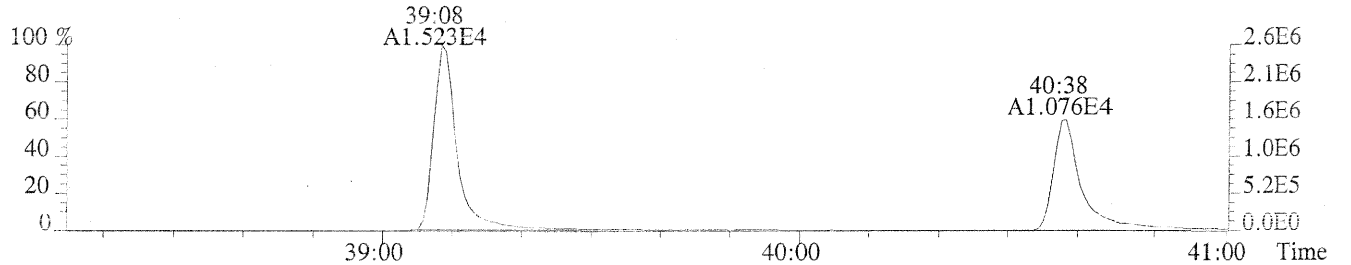
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1468.0,0.50%,F,T)



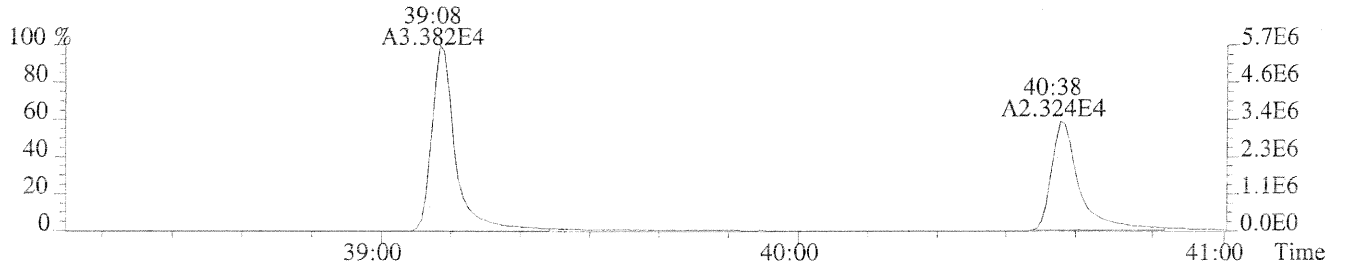
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.50%,F,T)



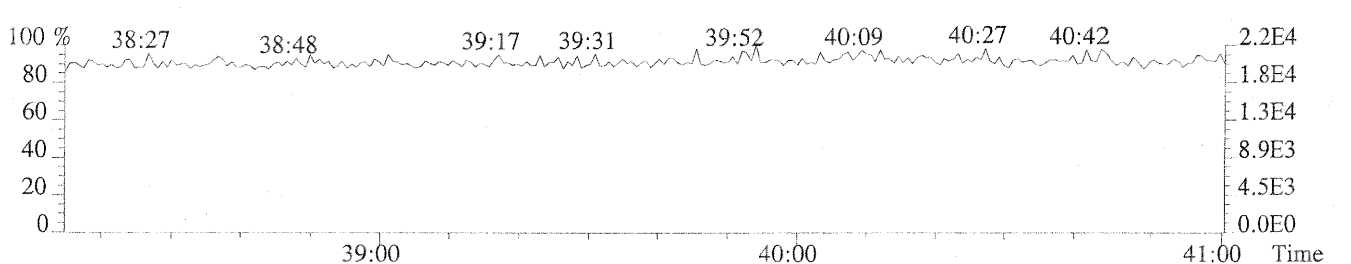
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.50%,F,T)



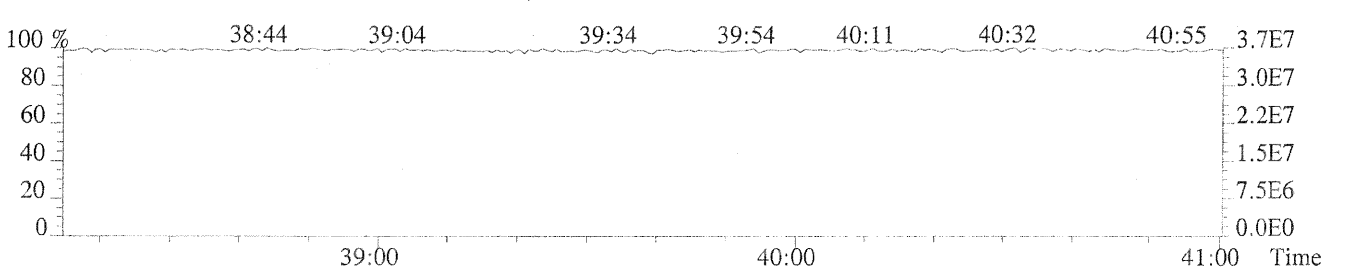
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.50%,F,T)



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

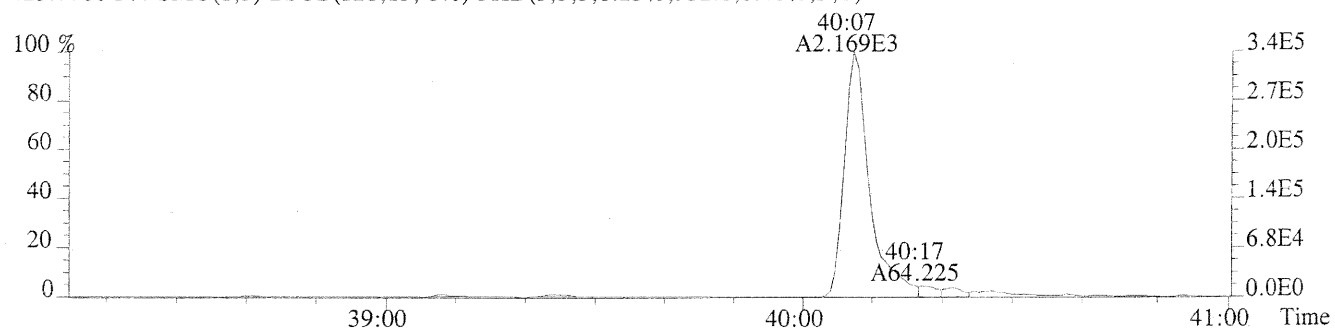


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

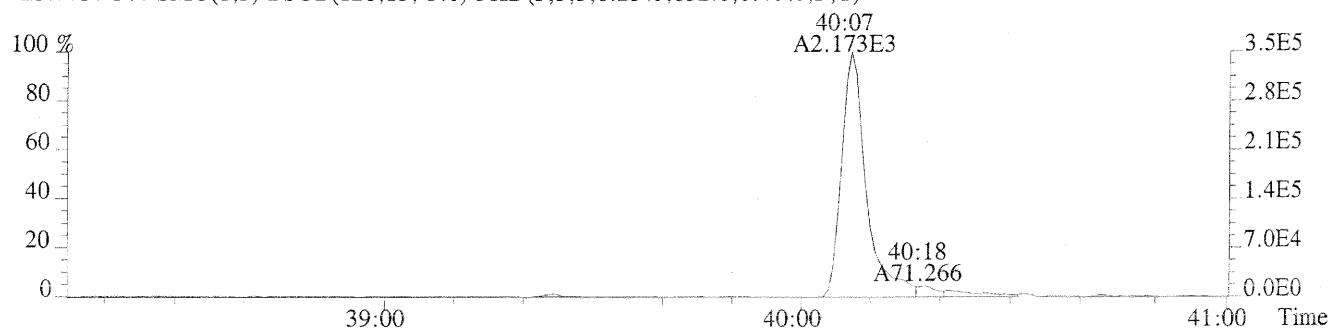


Sample#1 Exp:CS2

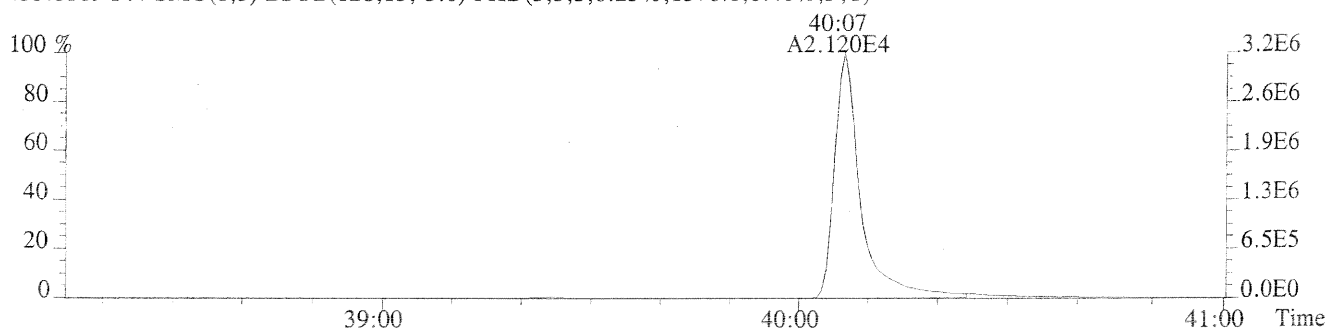
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



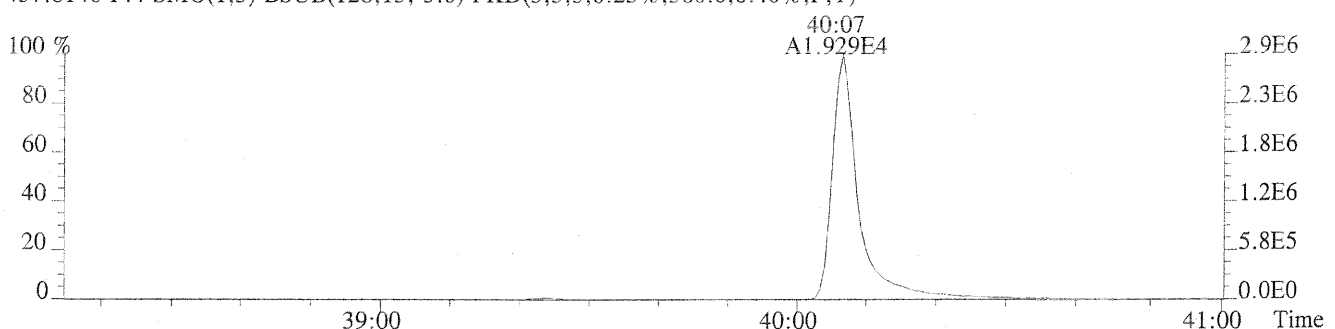
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



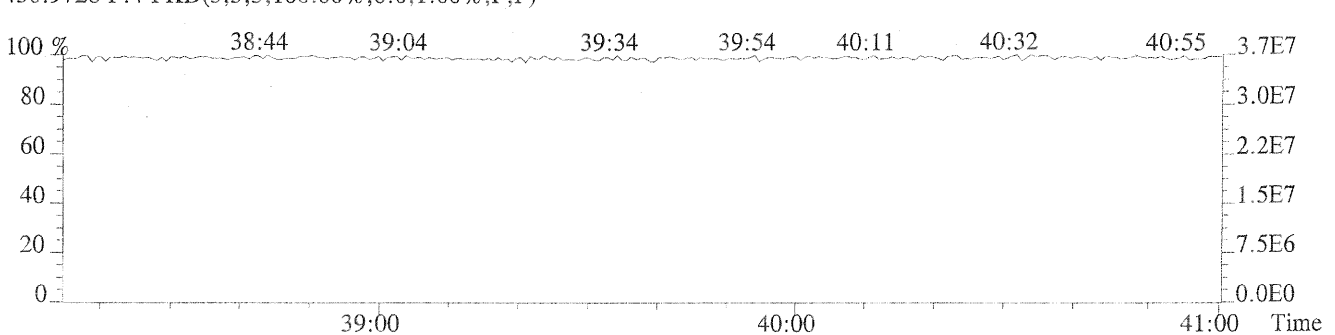
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



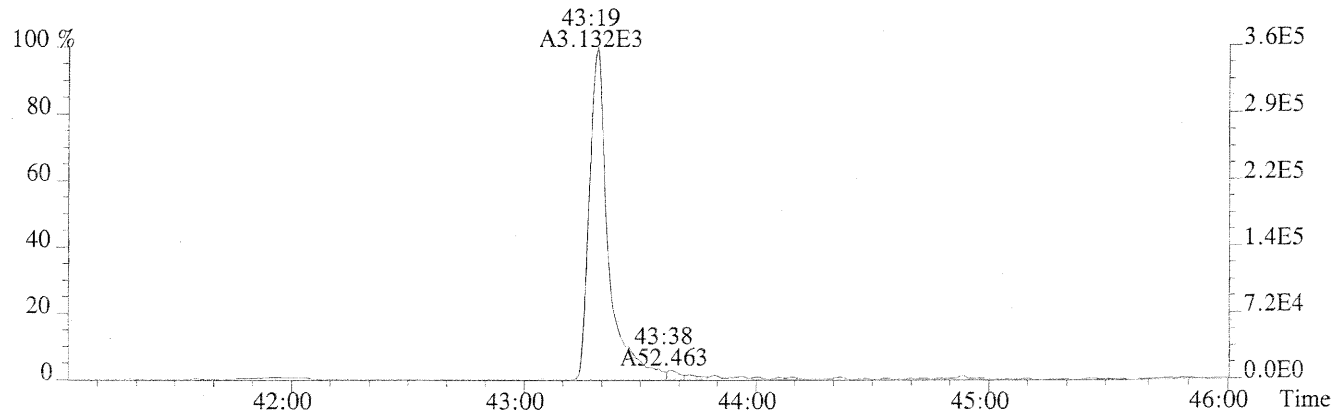
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



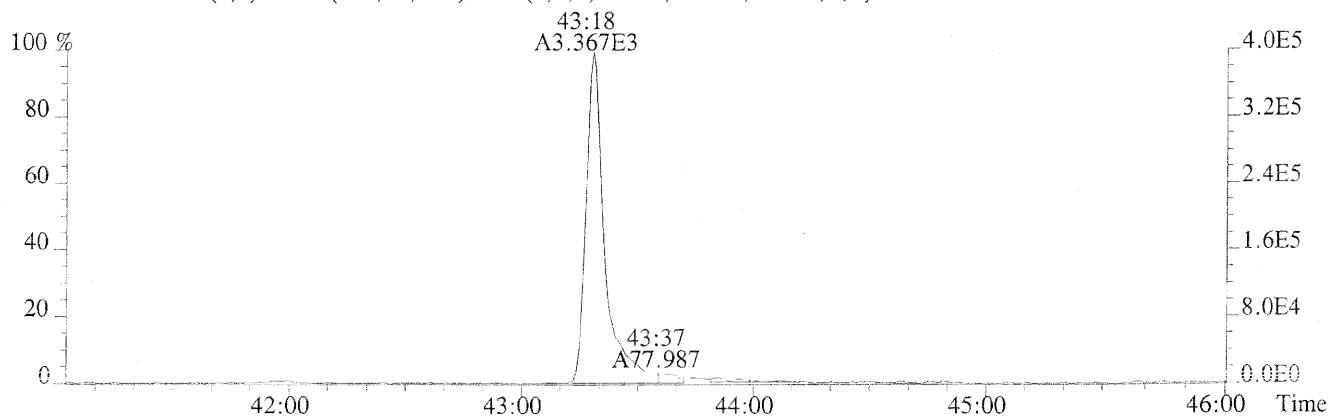
File:U150161 #1-451 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS2

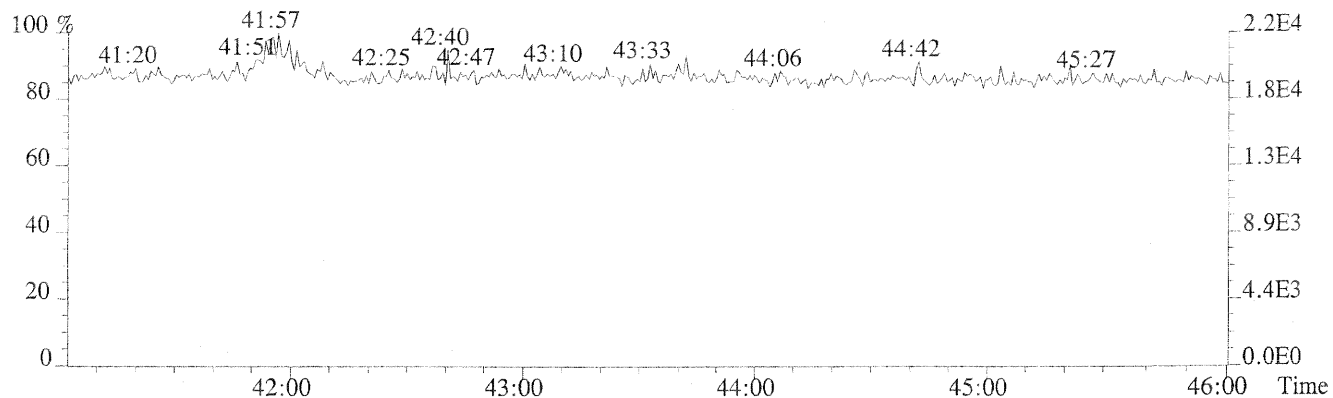
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



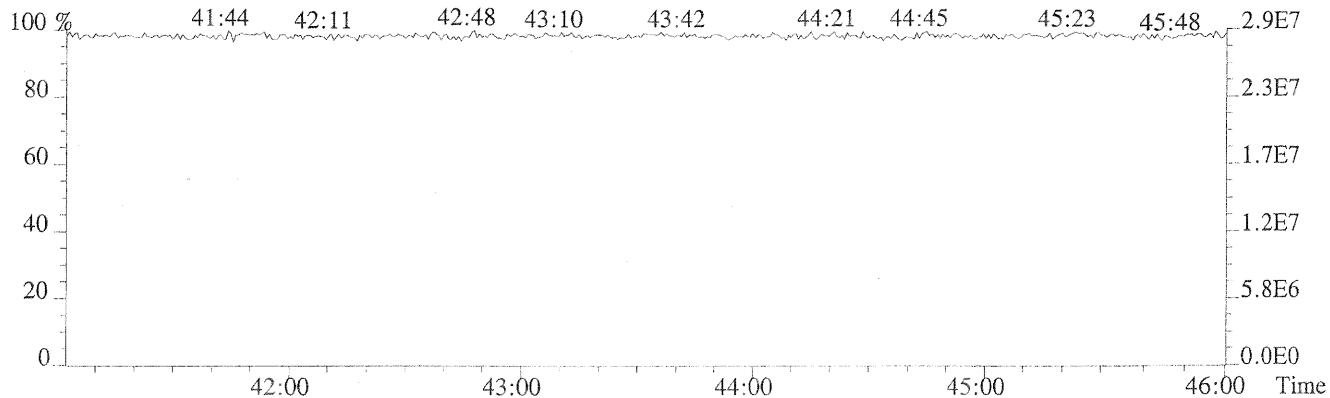
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1164.0,0.40%,F,T)



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

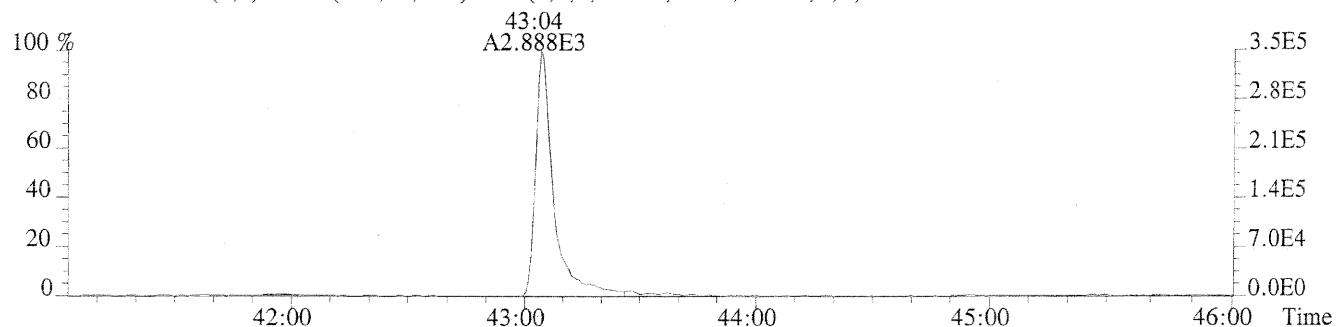


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

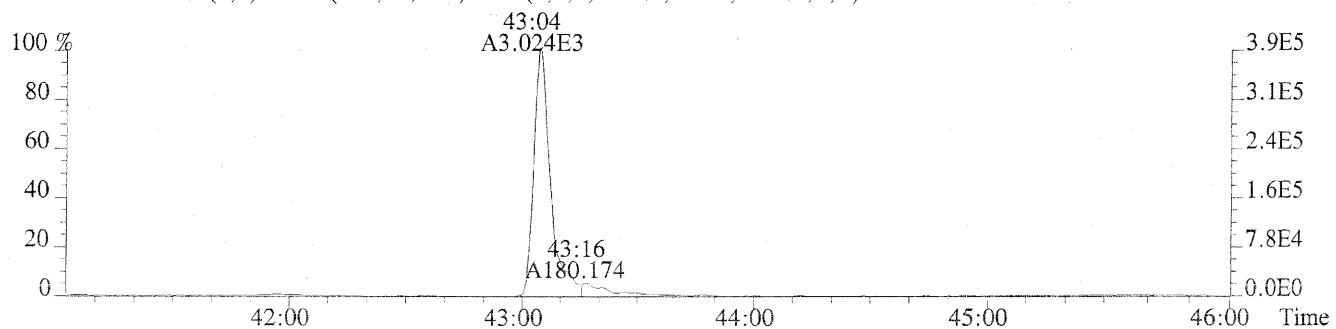


Sample#1 Exp:CS2

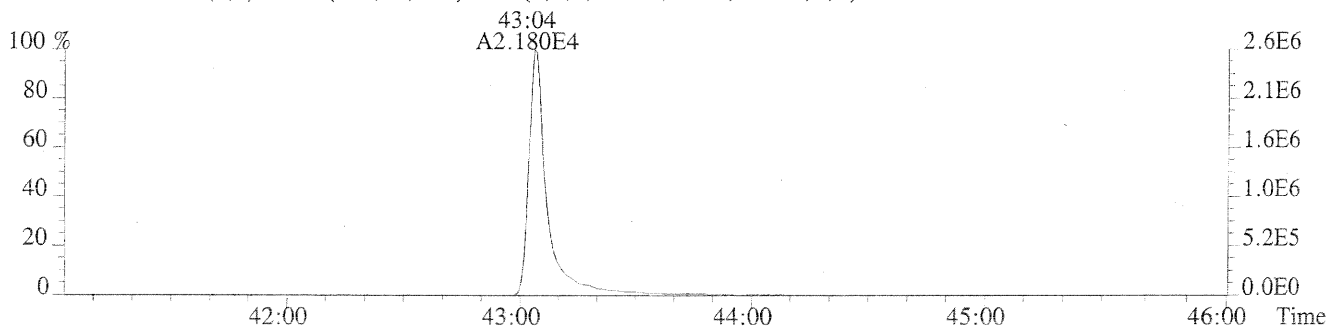
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



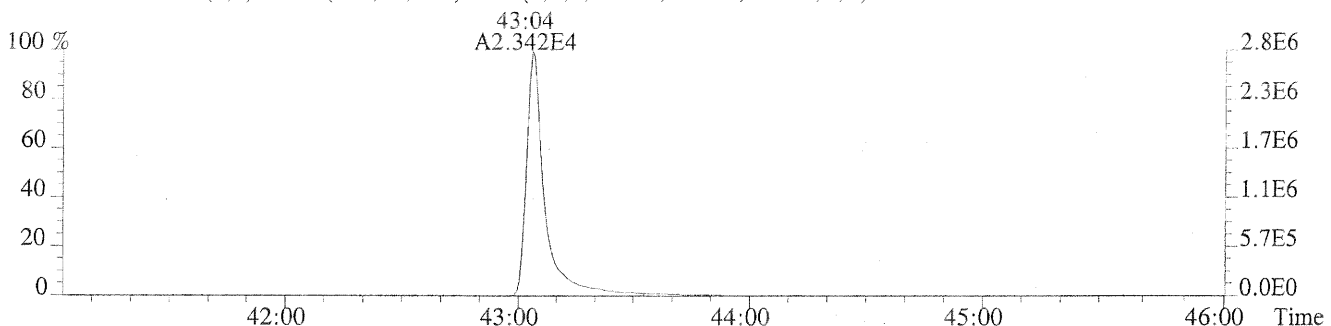
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



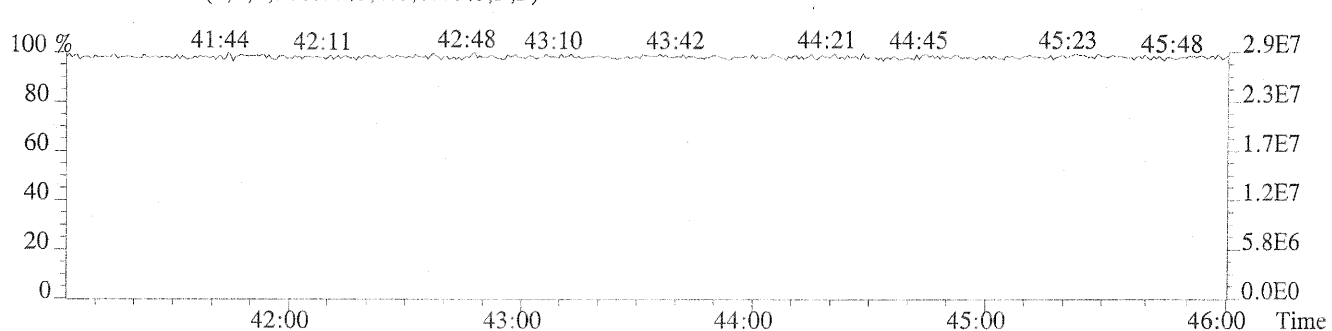
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,992.0,0.40%,F,T)



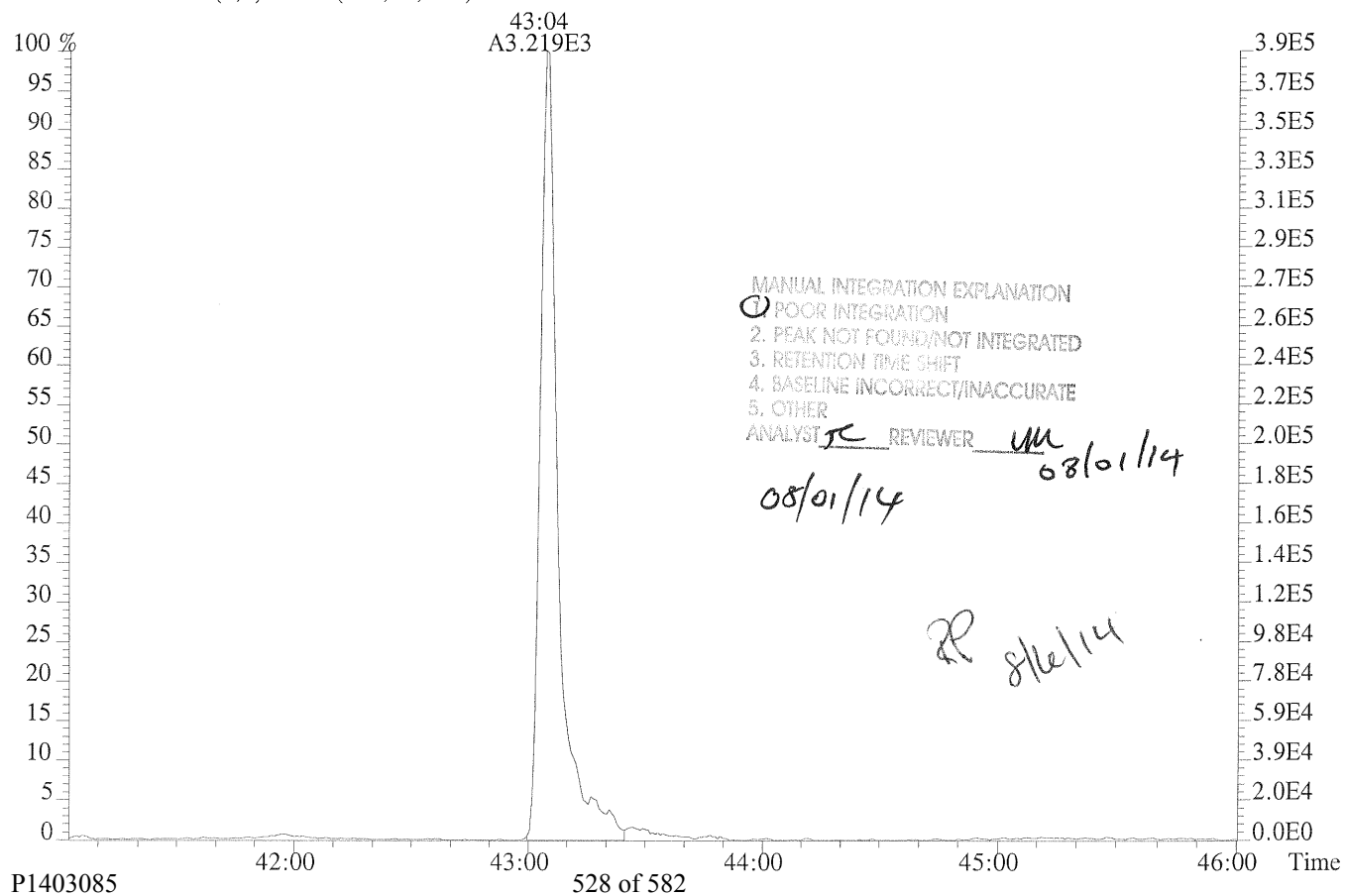
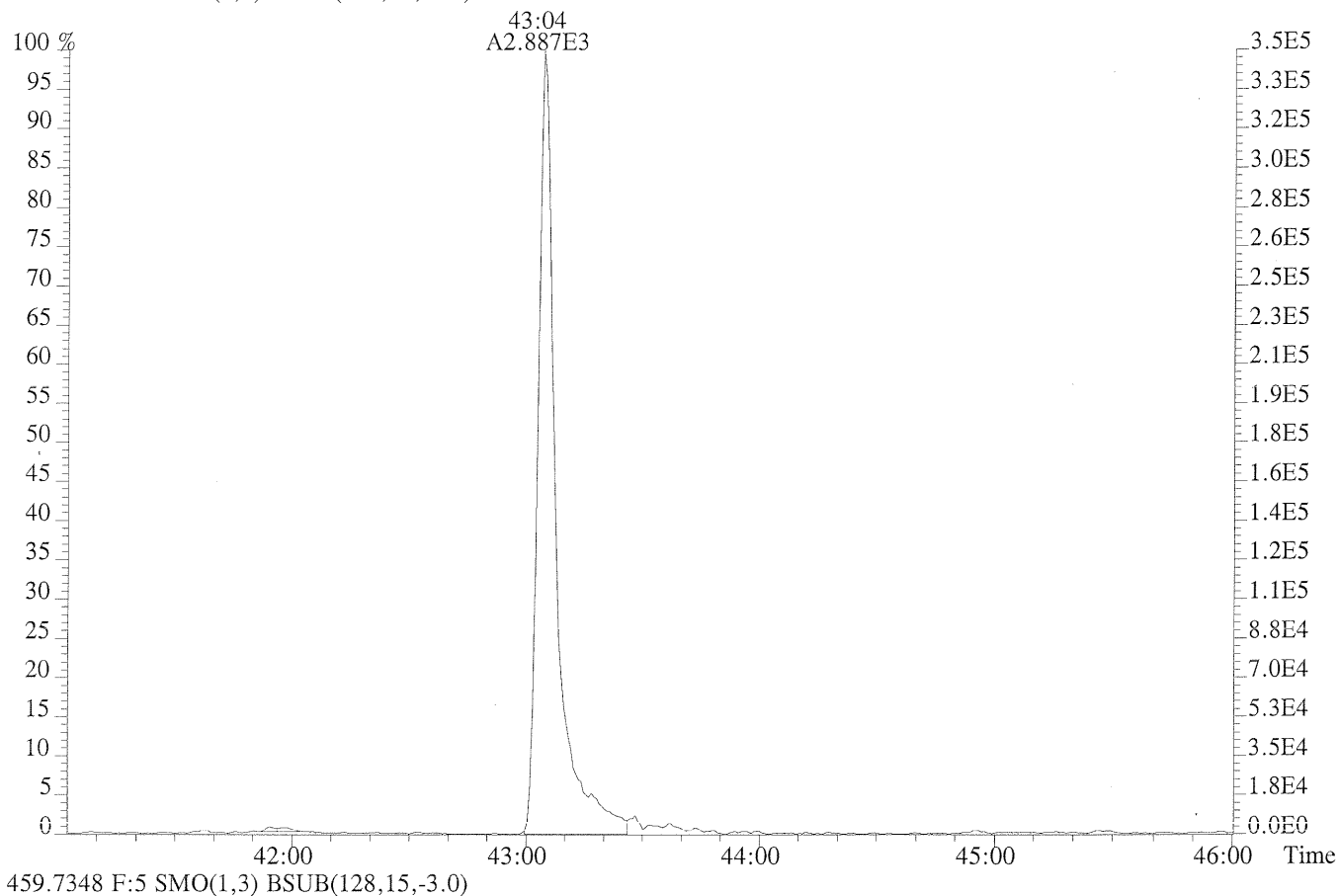
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1040.0,0.40%,F,T)



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



File:U150161 #1-451 Acq:31-JUL-2014 13:10:32 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS2  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0)





## Sample Response Summary

Run #4 Filename U150162 #1  
 Processed: 6-AUG-14 13:13:30

Samp: 1 Inj: 1  
 LAB. ID: 63383

Acquired: 31-JUL-14 14:16:41

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:01	3.097e+03	3.828e+03	0.81	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:03	2.737e+04	1.741e+04	1.57	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:56	2.619e+04	1.686e+04	1.55	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:33	2.022e+04	1.688e+04	1.20	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:40	2.485e+04	2.055e+04	1.21	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:10	2.175e+04	1.807e+04	1.20	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:55	1.717e+04	1.368e+04	1.25	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:10	1.838e+04	1.757e+04	1.05	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:40	1.229e+04	1.200e+04	1.02	yes	no	0.959
10 Unk	OCDF	43:19	1.699e+04	1.907e+04	0.89	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:46	2.019e+03	2.460e+03	0.82	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:12	1.777e+04	1.057e+04	1.68	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:17	1.417e+04	1.120e+04	1.27	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:22	1.785e+04	1.400e+04	1.27	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:37	1.761e+04	1.435e+04	1.23	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:08	1.205e+04	1.150e+04	1.05	yes	no	1.102
17 Unk	OCDD	43:05	1.455e+04	1.660e+04	0.88	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:00	3.134e+04	3.704e+04	0.85	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:02	5.450e+04	3.412e+04	1.60	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:55	5.574e+04	3.499e+04	1.59	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:33	2.090e+04	3.974e+04	0.53	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:39	2.721e+04	5.148e+04	0.53	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:55	1.822e+04	3.537e+04	0.52	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:09	1.608e+04	3.541e+04	0.45	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:39	1.185e+04	2.612e+04	0.45	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:44	2.014e+04	2.653e+04	0.76	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:11	3.051e+04	2.029e+04	1.50	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:16	2.254e+04	1.687e+04	1.34	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:22	2.847e+04	2.146e+04	1.33	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:07	2.237e+04	2.040e+04	1.10	yes	no	0.845
32 IS	13C-OCDD	43:04	2.306e+04	2.476e+04	0.93	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:11	2.058e+04	2.710e+04	0.76	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:36	2.931e+04	2.253e+04	1.30	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:46	4.575e+03				no	0.975

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS3

Method M23

Run #4    Filename U150162    #1    Samp: 1    Inj: 1    Acquired: 31-JUL-14 14:16:41  
Processed: 6-AUG-14    13:13:30    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	5.37e+05	1.20e+03	4.5e+02	6.70e+05	1.78e+03	3.8e+02
2	1,2,3,7,8-PeCDF	4.37e+06	8.68e+02	5.0e+03	2.87e+06	1.78e+03	1.6e+03
3	2,3,4,7,8-PeCDF	4.54e+06	8.68e+02	5.2e+03	2.94e+06	1.78e+03	1.6e+03
4	1,2,3,4,7,8-HxCDF	4.09e+06	1.10e+03	3.7e+03	3.37e+06	1.08e+03	3.1e+03
5	1,2,3,6,7,8-HxCDF	4.27e+06	1.10e+03	3.9e+03	3.47e+06	1.08e+03	3.2e+03
6	2,3,4,6,7,8-HxCDF	4.03e+06	1.10e+03	3.7e+03	3.32e+06	1.08e+03	3.1e+03
7	1,2,3,7,8,9-HxCDF	2.90e+06	1.10e+03	2.6e+03	2.33e+06	1.08e+03	2.1e+03
8	1,2,3,4,6,7,8-HpCDF	3.08e+06	8.68e+02	3.5e+03	3.03e+06	5.44e+02	5.6e+03
9	1,2,3,4,7,8,9-HpCDF	1.75e+06	8.68e+02	2.0e+03	1.71e+06	5.44e+02	3.1e+03
10	OCDF	2.07e+06	7.04e+02	2.9e+03	2.35e+06	1.02e+03	2.3e+03
11	2,3,7,8-TCDD	3.79e+05	1.00e+03	3.8e+02	4.64e+05	8.32e+02	5.6e+02
12	1,2,3,7,8-PeCDD	3.00e+06	9.76e+02	3.1e+03	1.79e+06	6.96e+02	2.6e+03
13	1,2,3,4,7,8-HxCDD	2.95e+06	5.84e+02	5.1e+03	2.34e+06	1.02e+03	2.3e+03
14	1,2,3,6,7,8-HxCDD	3.06e+06	5.84e+02	5.2e+03	2.37e+06	1.02e+03	2.3e+03
15	1,2,3,7,8,9-HxCDD	2.81e+06	5.84e+02	4.8e+03	2.25e+06	1.02e+03	2.2e+03
16	1,2,3,4,6,7,8-HpCDD	1.84e+06	5.64e+02	3.3e+03	1.80e+06	8.40e+02	2.1e+03
17	OCDD	1.83e+06	9.08e+02	2.0e+03	2.04e+06	7.48e+02	2.7e+03
18	13C-2,3,7,8-TCDF	5.61e+06	1.64e+03	3.4e+03	6.69e+06	1.12e+03	6.0e+03
19	13C-1,2,3,7,8-PeCDF	9.04e+06	8.52e+02	1.1e+04	5.68e+06	1.21e+03	4.7e+03
20	13C-2,3,4,7,8-PeCDF	9.76e+06	8.52e+02	1.1e+04	6.12e+06	1.21e+03	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	4.19e+06	1.52e+03	2.8e+03	7.98e+06	1.68e+03	4.8e+03
22	13C-1,2,3,6,7,8-HxCDF	4.71e+06	1.52e+03	3.1e+03	8.90e+06	1.68e+03	5.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.05e+06	1.52e+03	2.0e+03	6.00e+06	1.68e+03	3.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.74e+06	7.02e+03	3.9e+02	6.04e+06	6.08e+02	9.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.70e+06	7.02e+03	2.4e+02	3.74e+06	6.08e+02	6.1e+03
27	13C-2,3,7,8-TCDD	3.76e+06	3.35e+03	1.1e+03	5.02e+06	1.60e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	5.19e+06	1.18e+03	4.4e+03	3.43e+06	6.92e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	4.70e+06	1.36e+03	3.4e+03	3.55e+06	1.13e+03	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	4.85e+06	1.36e+03	3.6e+03	3.70e+06	1.13e+03	3.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.45e+06	1.39e+03	2.5e+03	3.12e+06	7.56e+02	4.1e+03
32	13C-OCDD	2.84e+06	1.18e+03	2.4e+03	3.09e+06	9.00e+02	3.4e+03
33	13C-1,2,3,4-TCDD	4.15e+06	3.35e+03	1.2e+03	5.40e+06	1.60e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	4.66e+06	1.36e+03	3.4e+03	3.54e+06	1.13e+03	3.1e+03
35	37Cl-2,3,7,8-TCDD	8.56e+05	1.36e+03	6.3e+02			

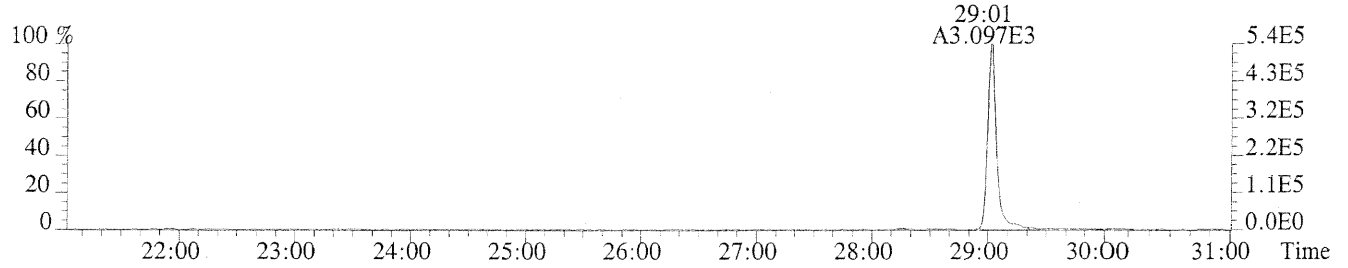
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

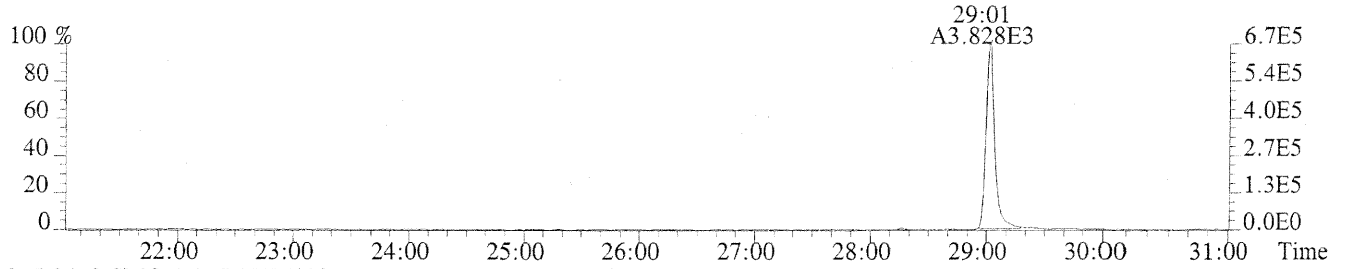
File:U150162 #1-627 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS3

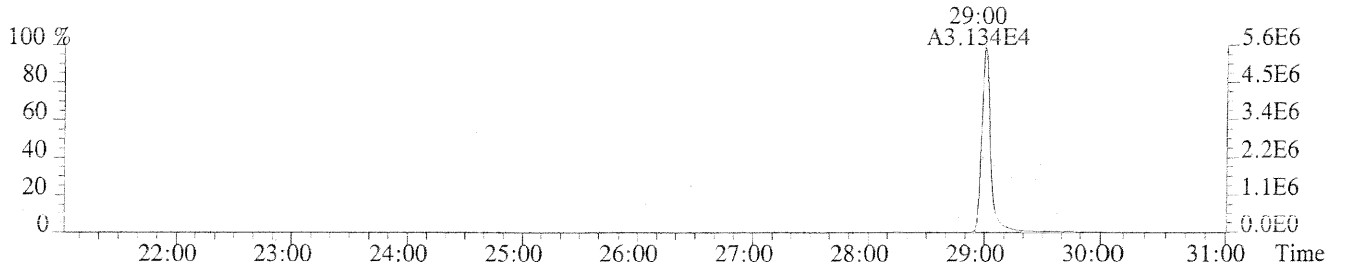
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



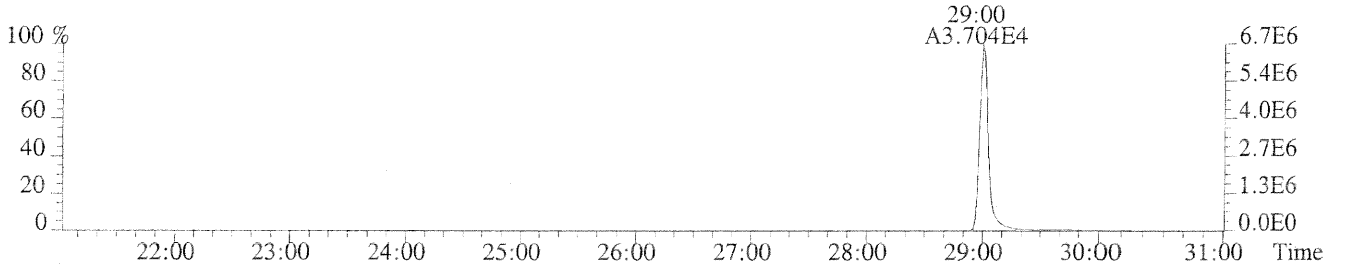
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



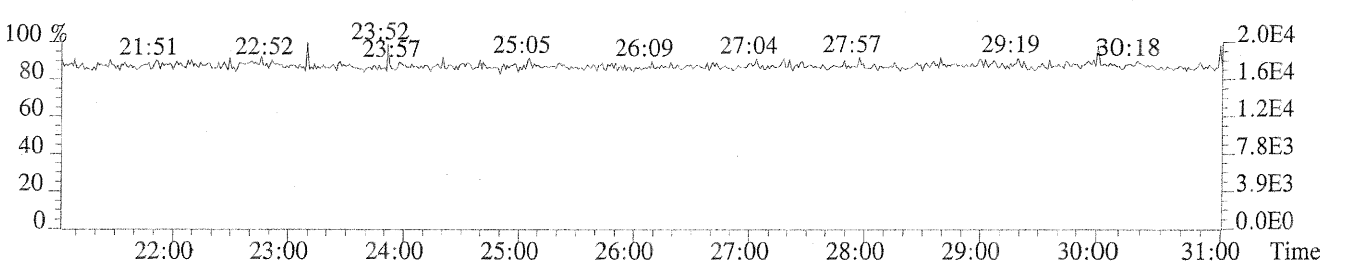
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



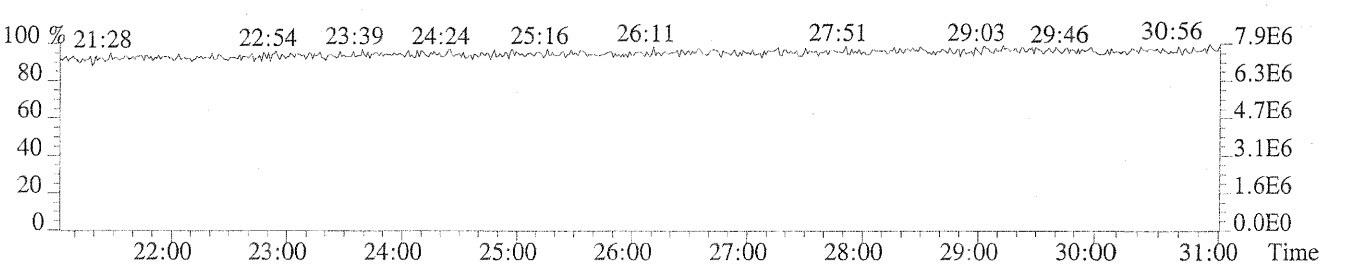
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



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



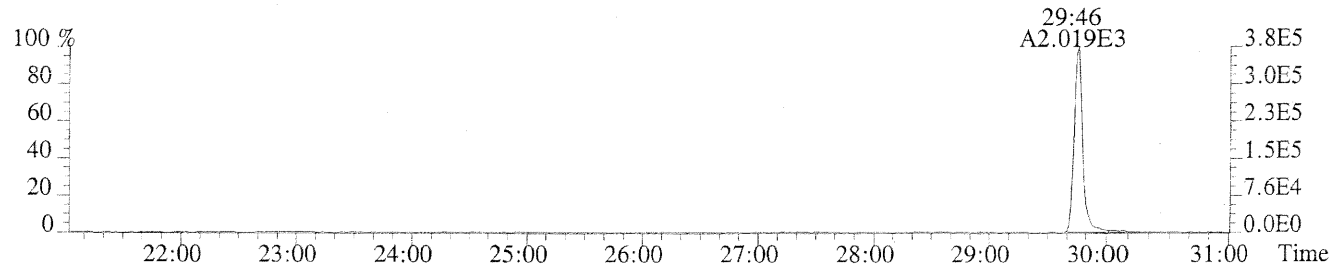
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



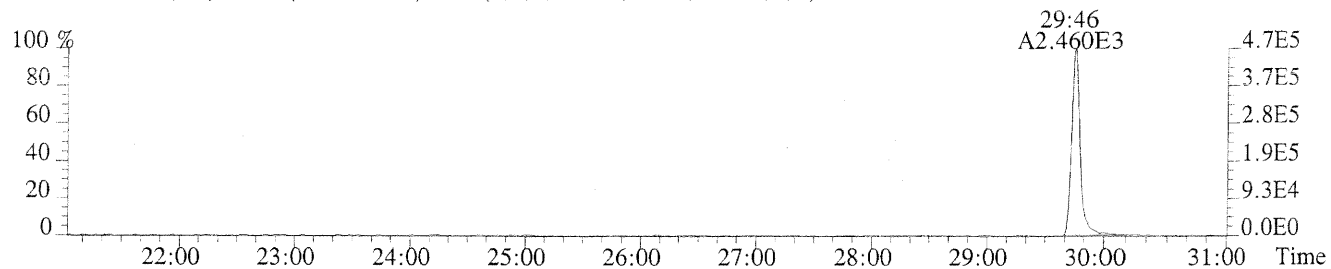
File:U150162 #1-627 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS3

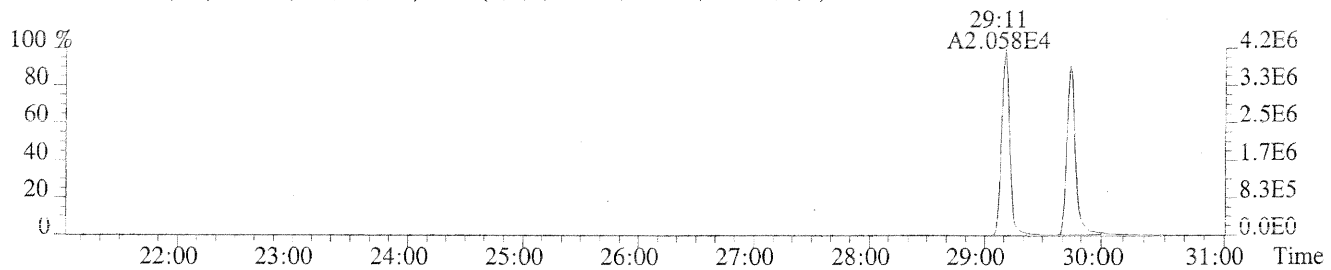
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



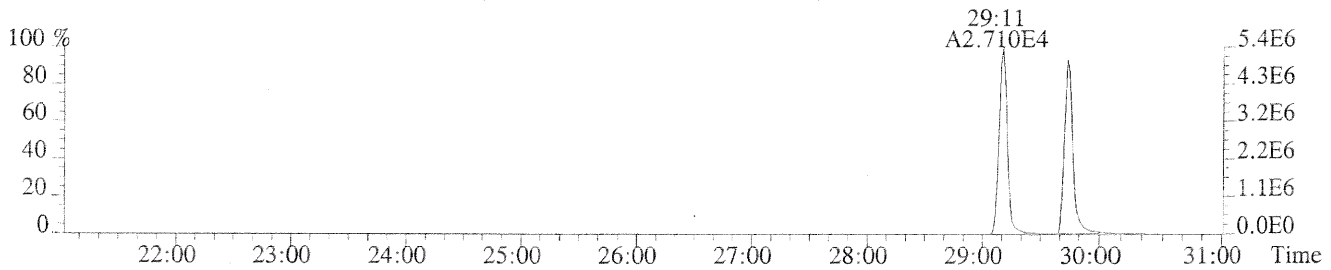
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



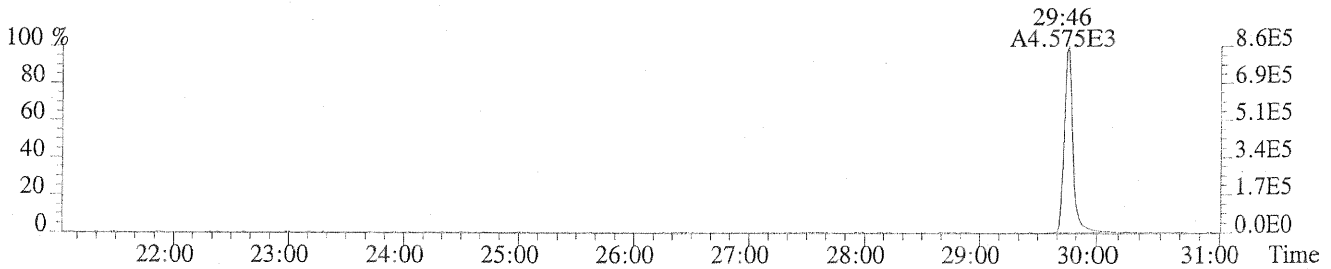
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3348.0,1.00%,F,T)



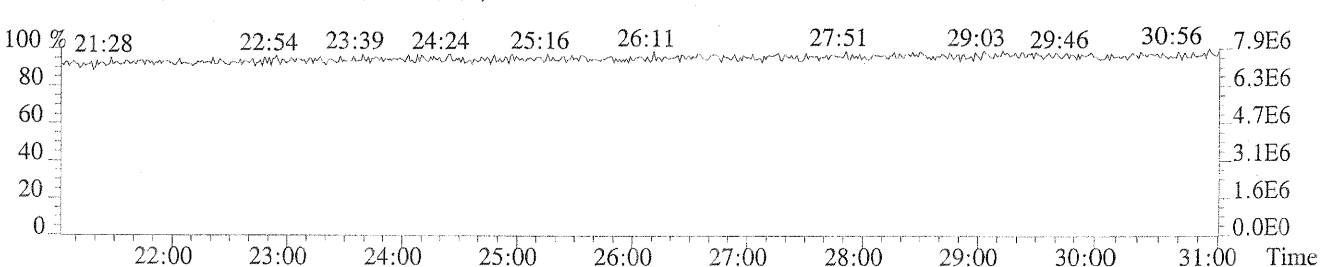
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1604.0,1.00%,F,T)



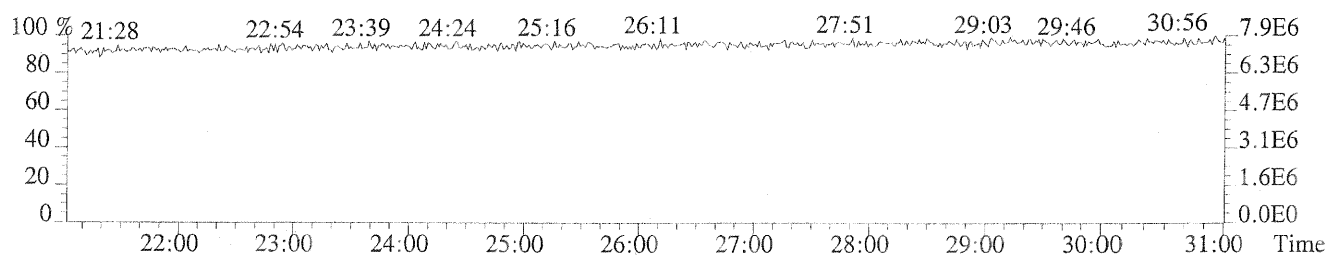
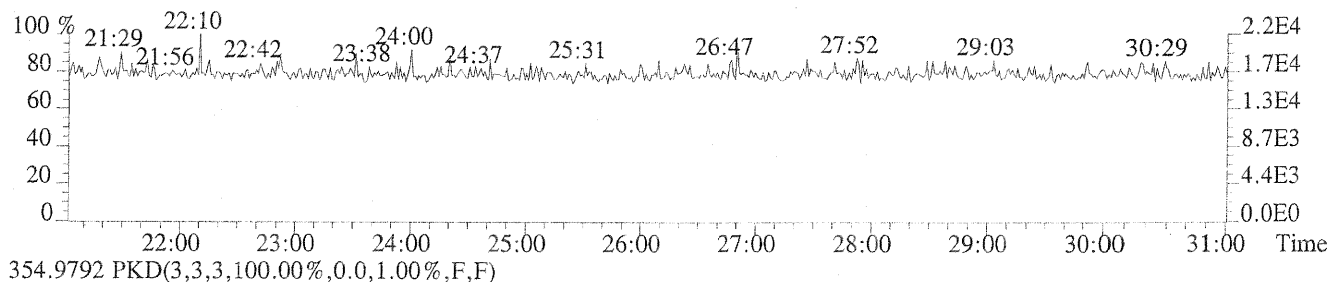
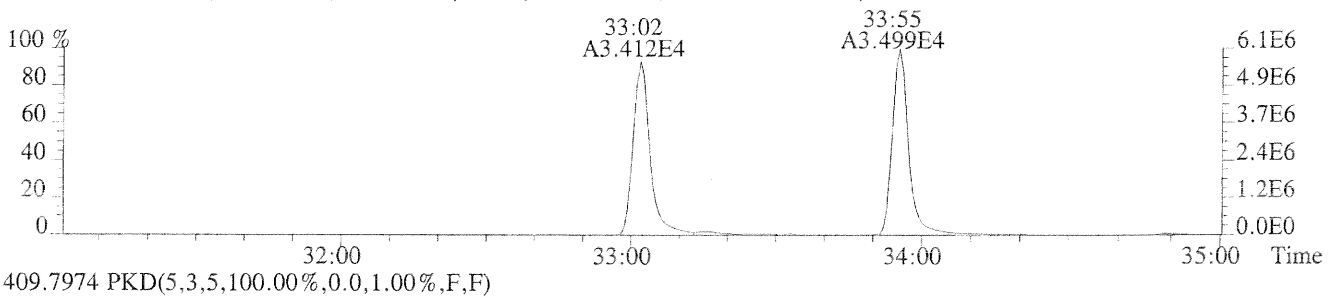
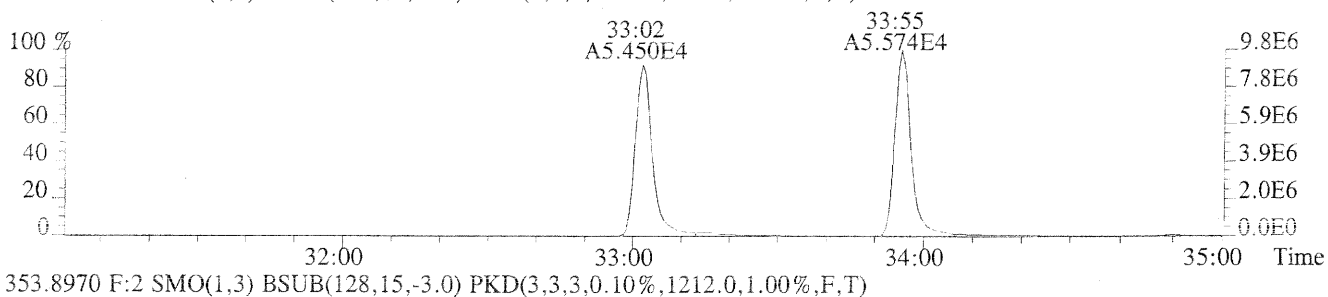
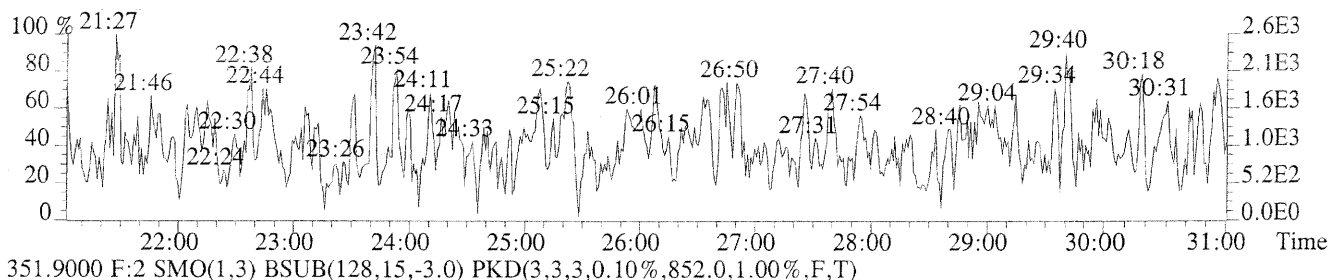
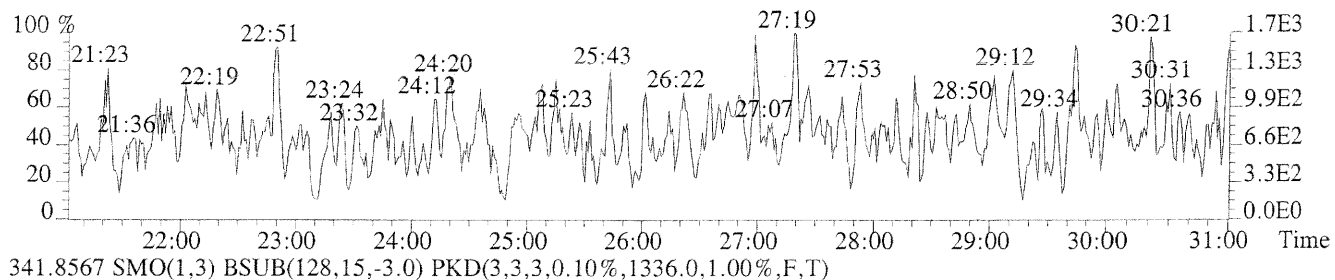
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1360.0,1.00%,F,T)



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



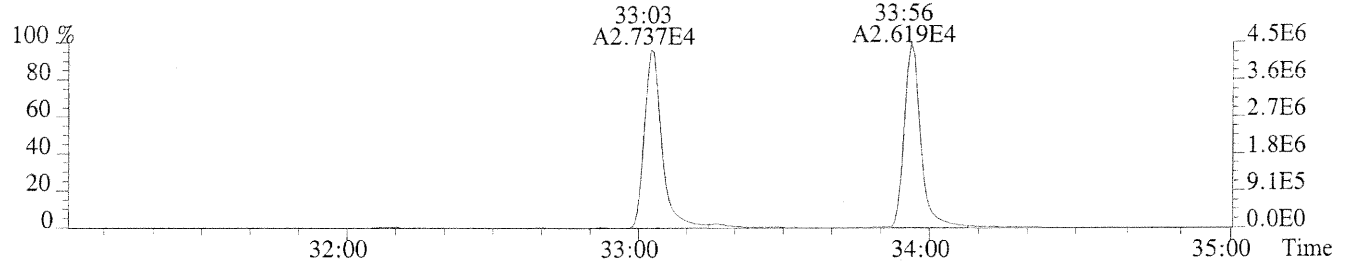
File:U150162 #1-627 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



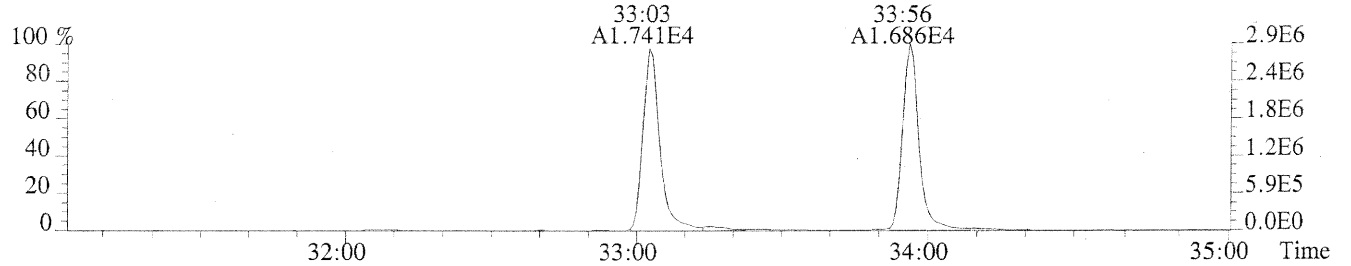
File:U150162 #1-360 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS3

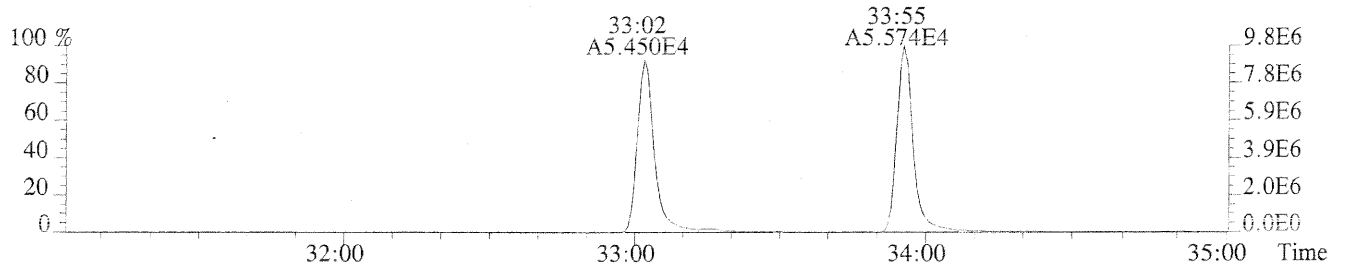
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



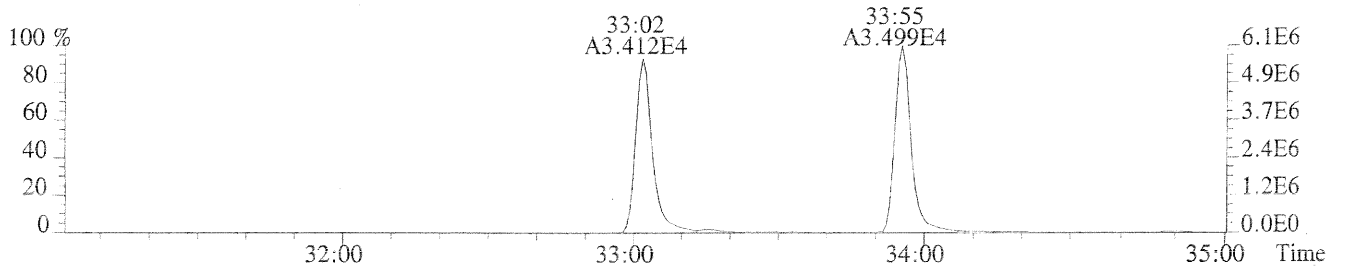
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



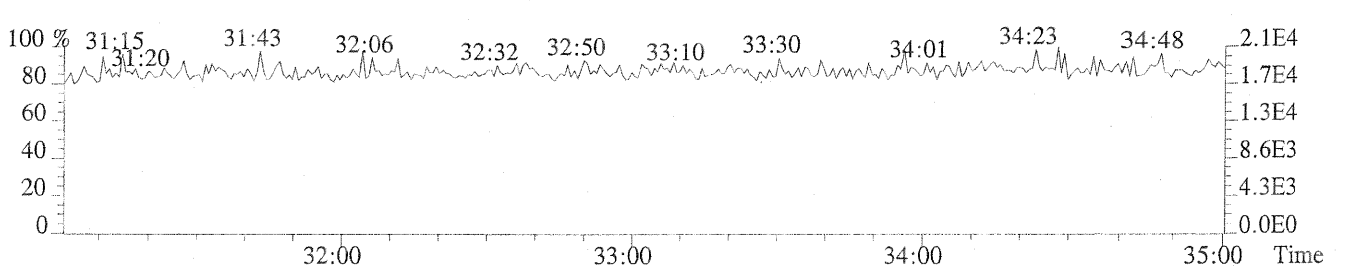
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



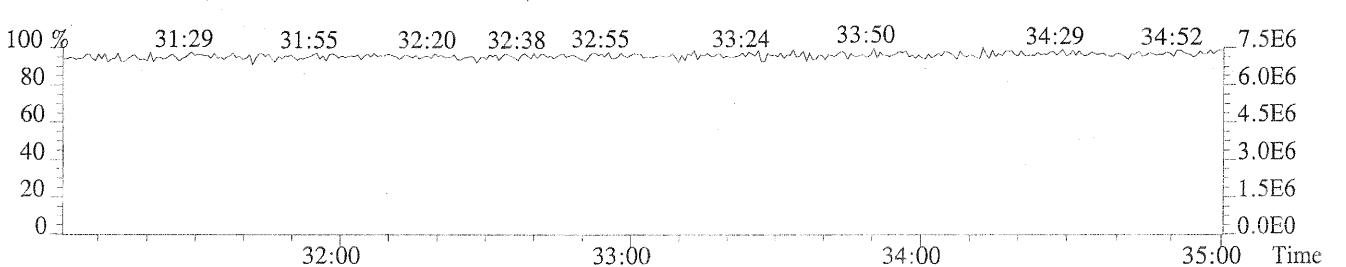
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



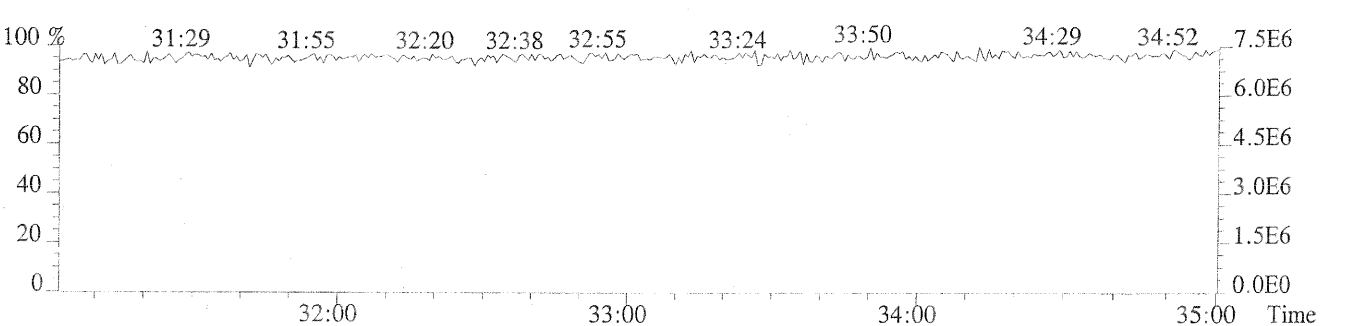
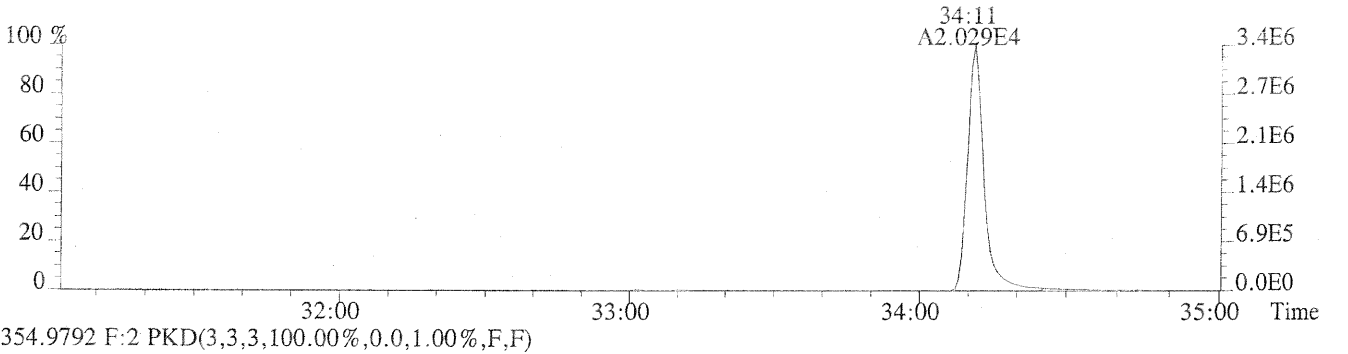
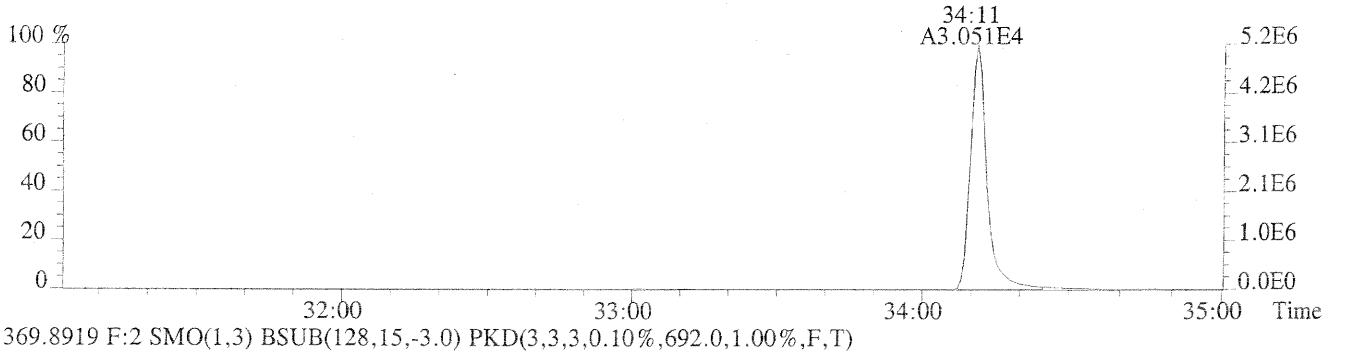
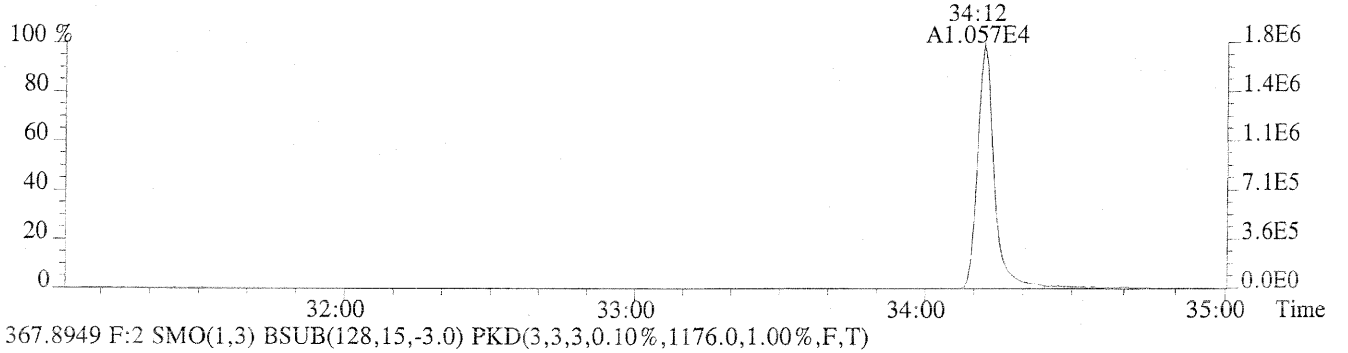
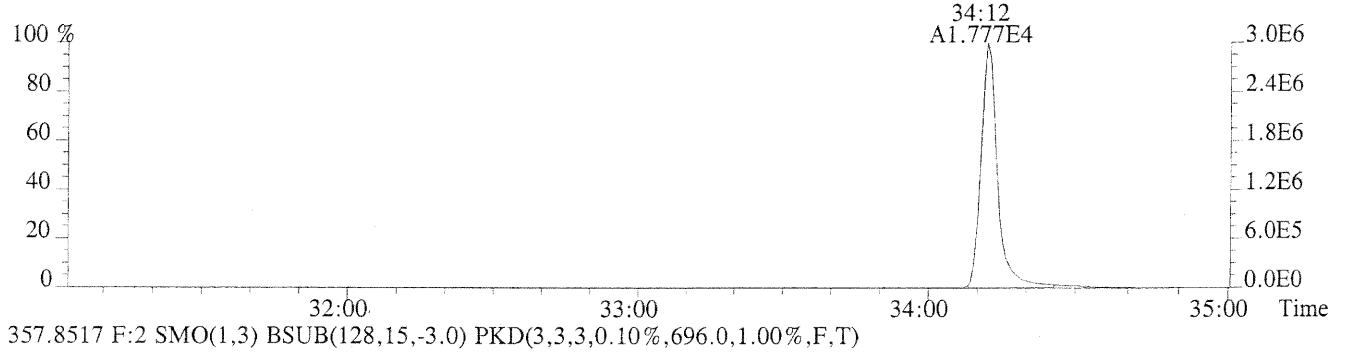
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



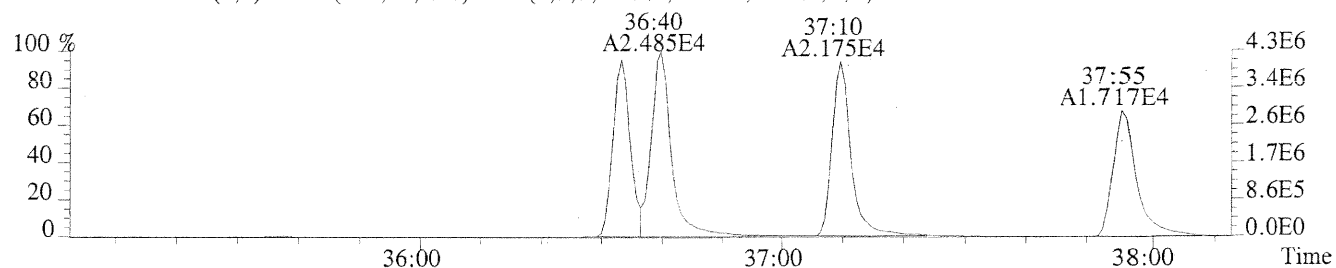
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



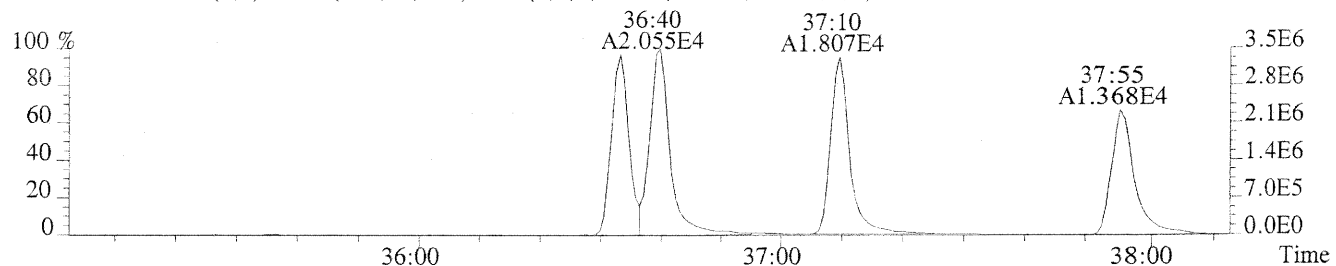
File:U150162 #1-360 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



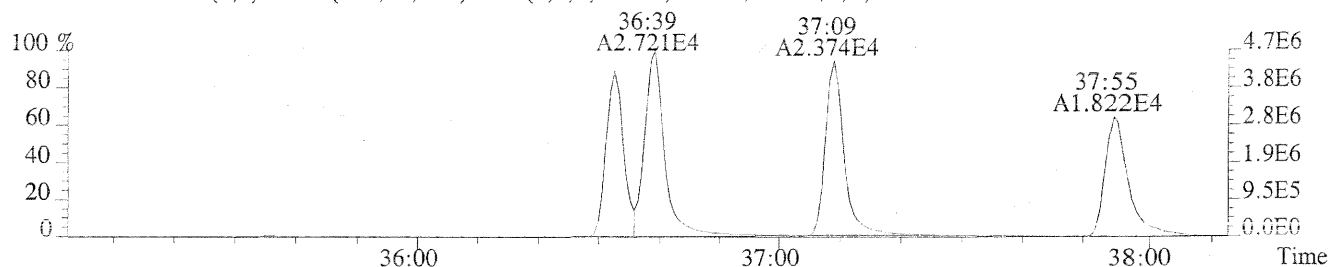
File:U150162 #1-288 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



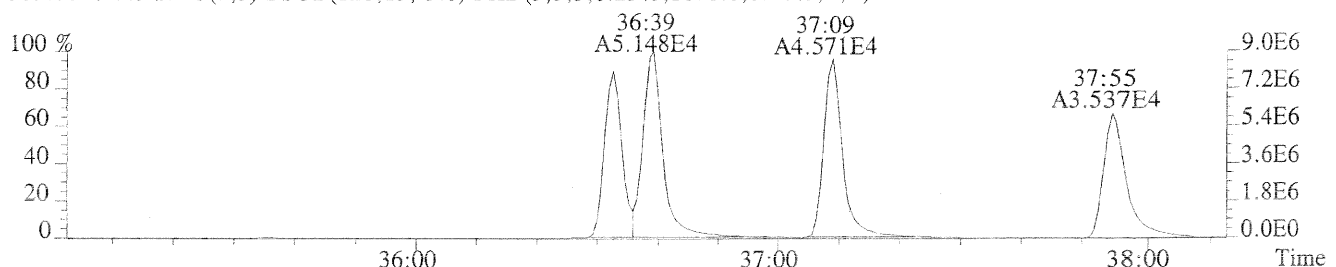
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.40%,F,T)



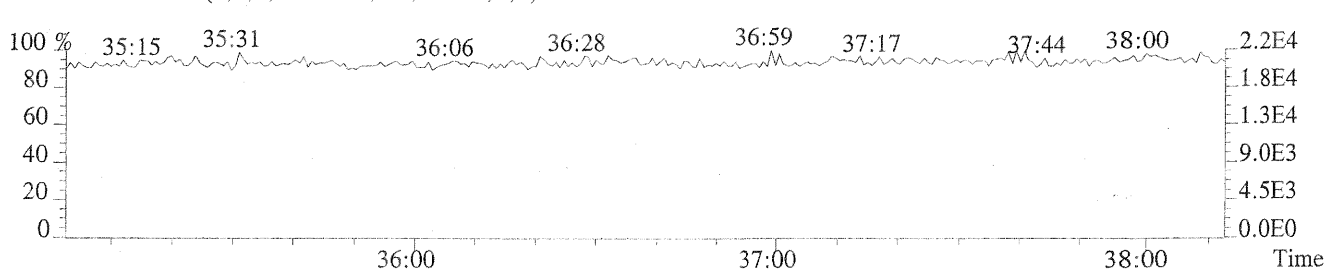
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



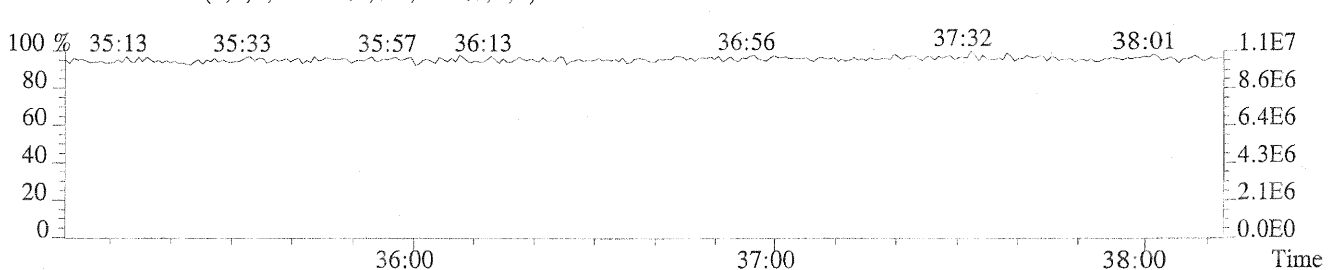
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1676.0,0.40%,F,T)



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

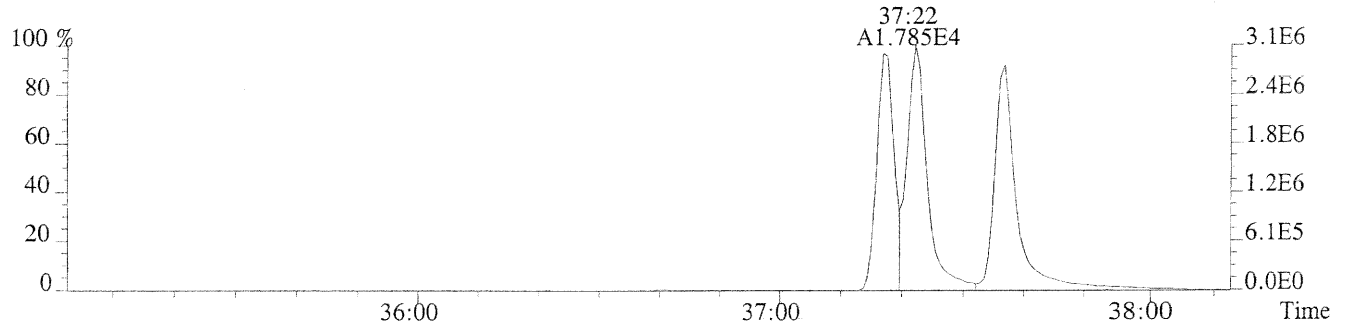


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

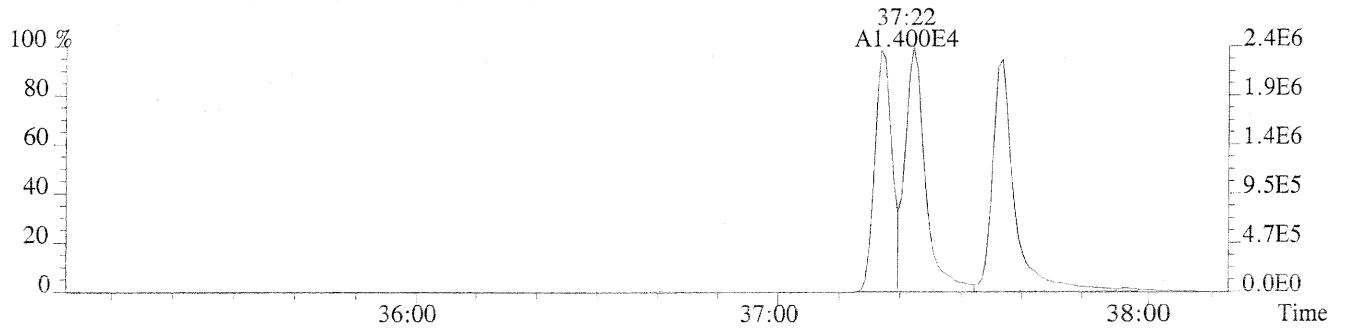




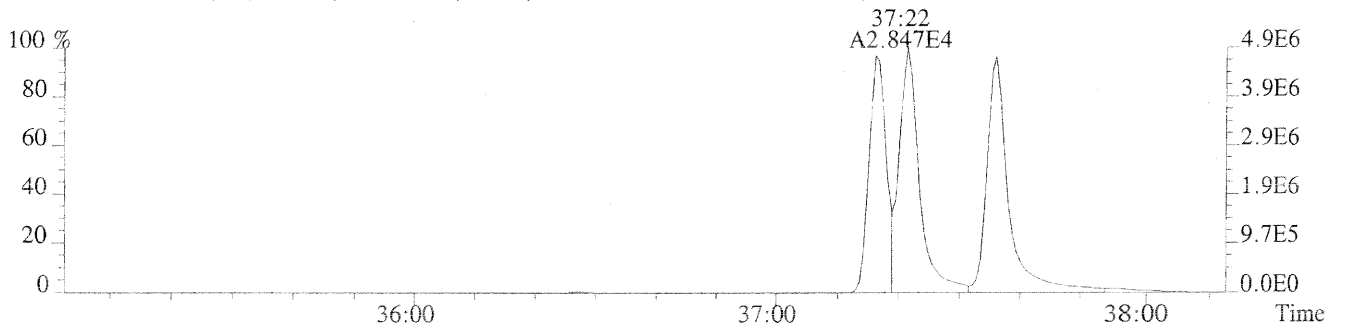
File:U150162 #1-288 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



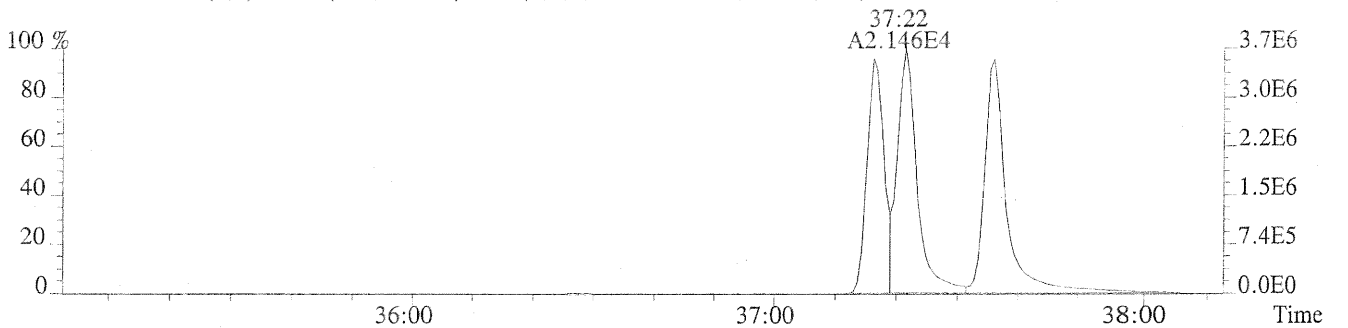
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



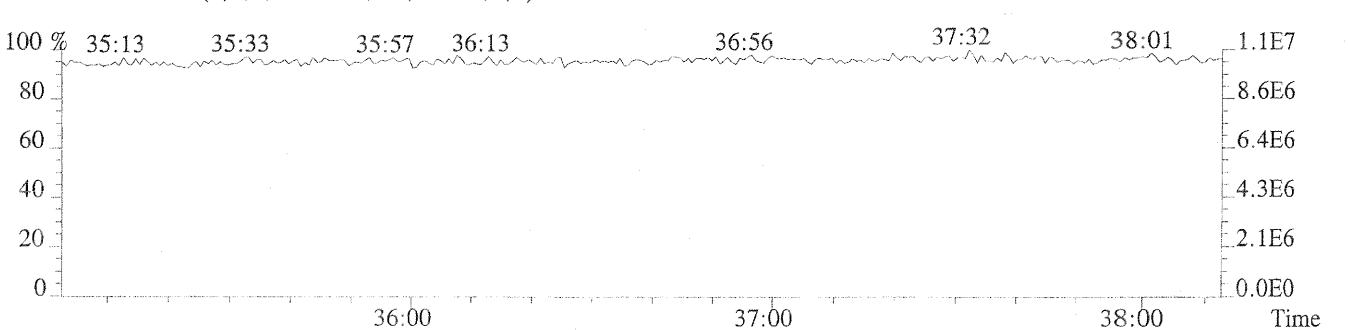
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



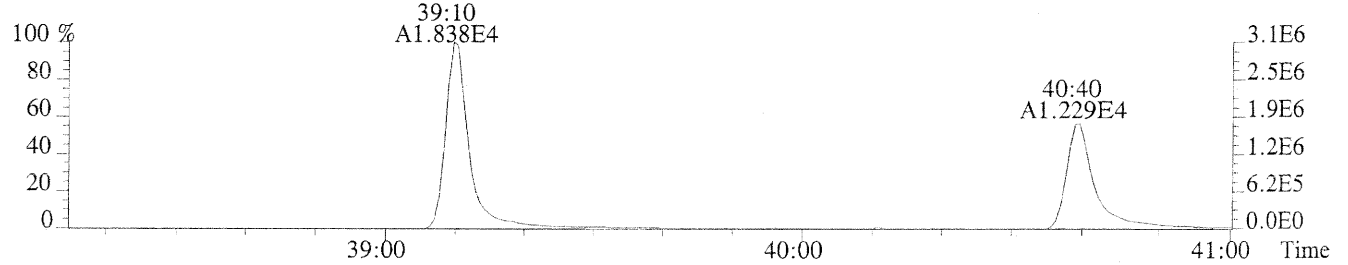
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



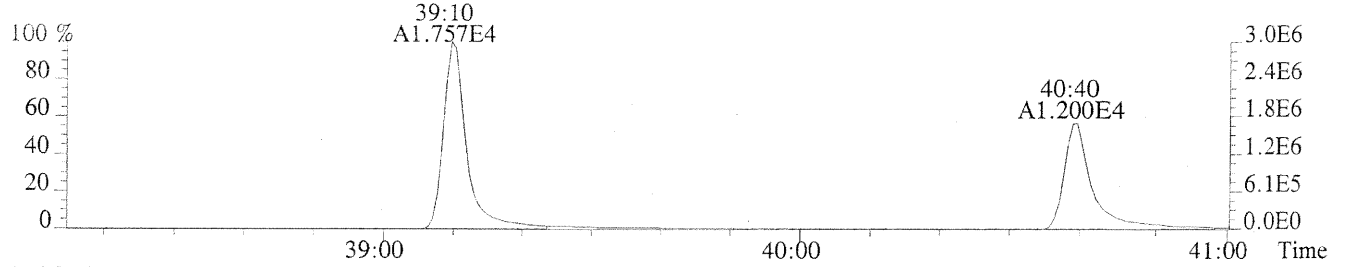
File:U150162 #1-251 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS3

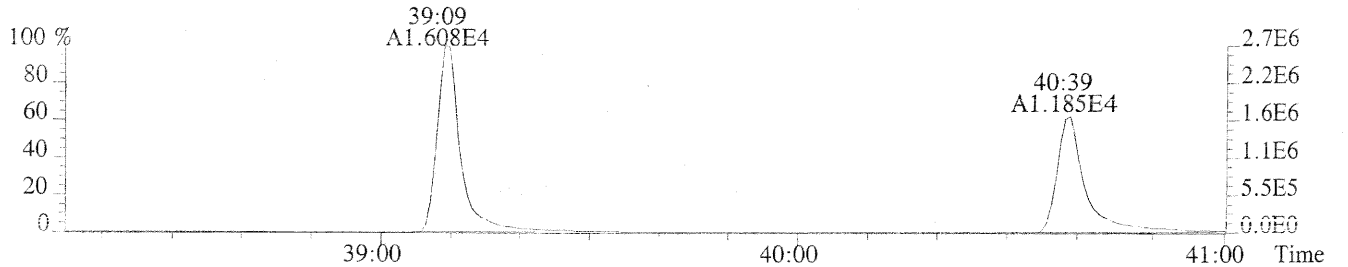
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.50%,F,T)



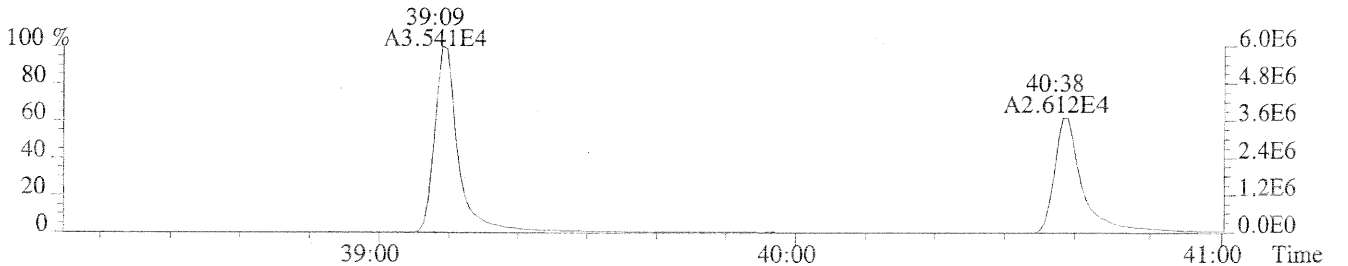
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.50%,F,T)



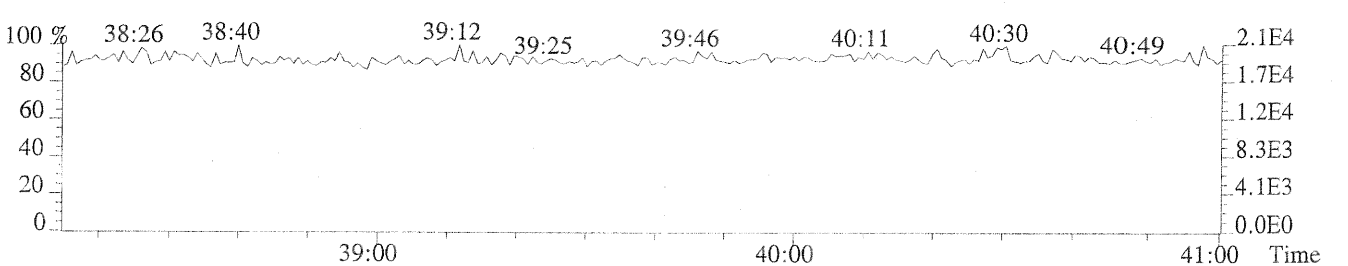
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7020.0,0.50%,F,T)



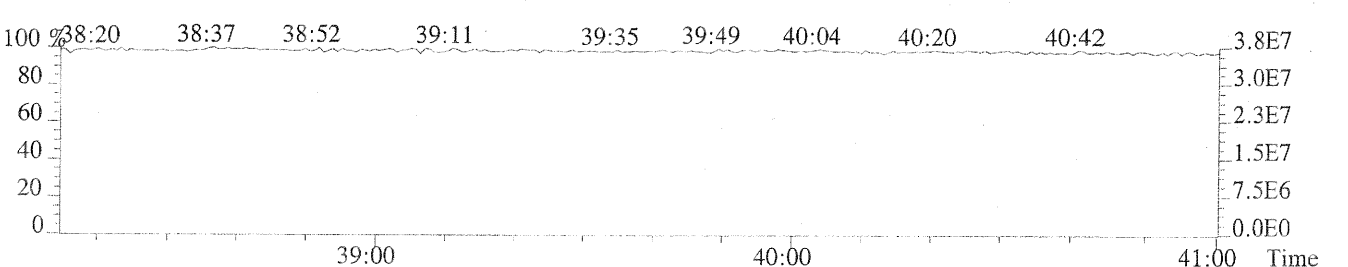
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.50%,F,T)



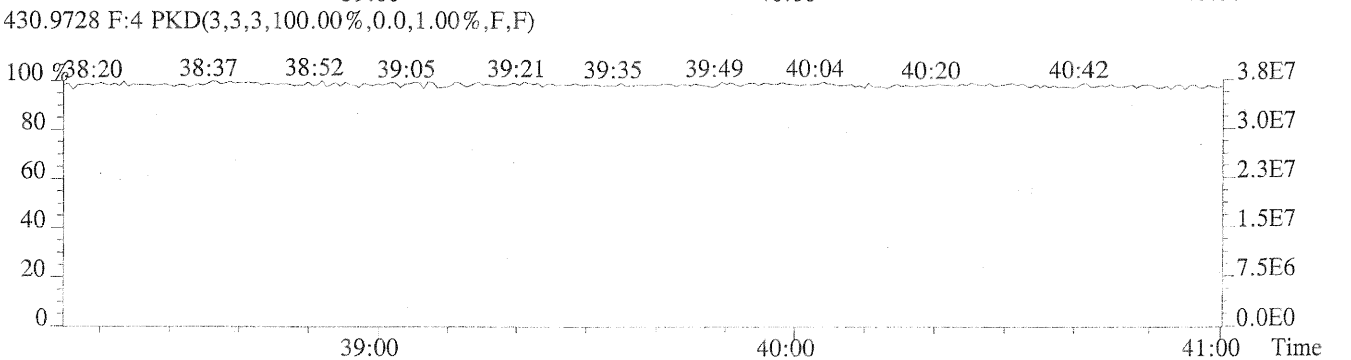
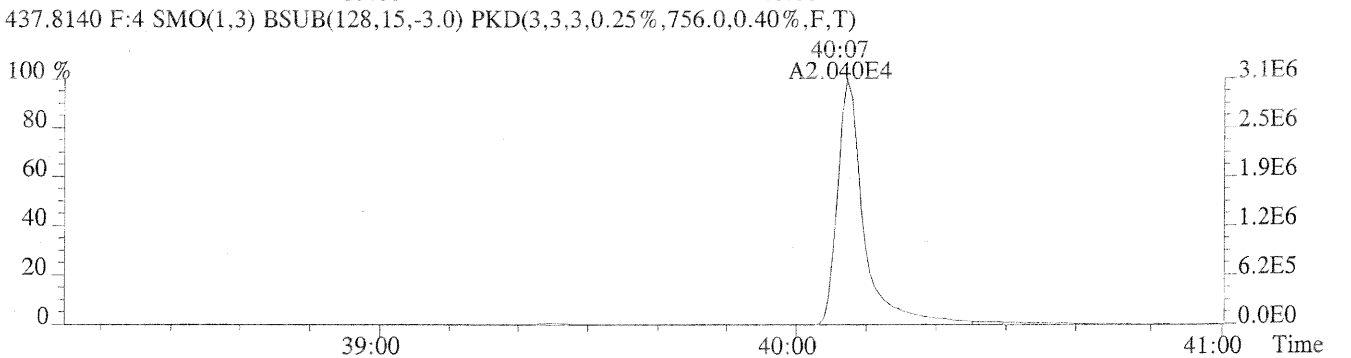
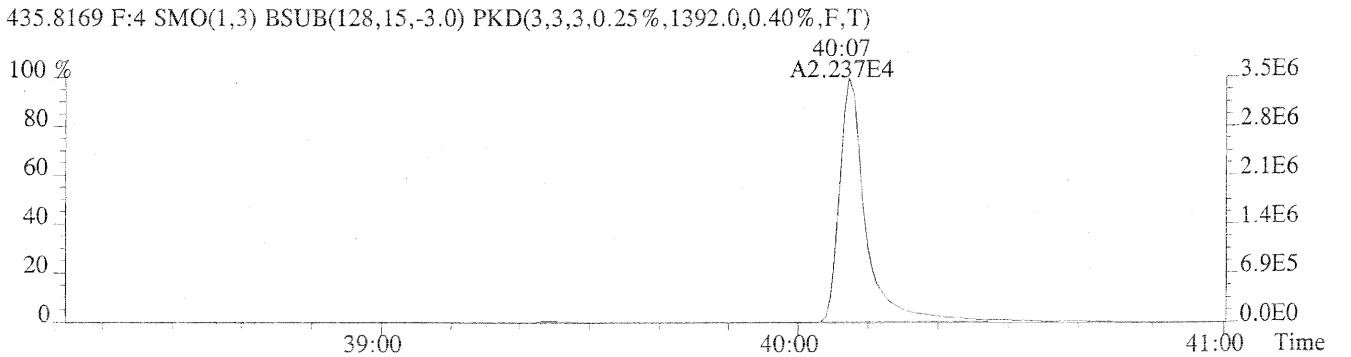
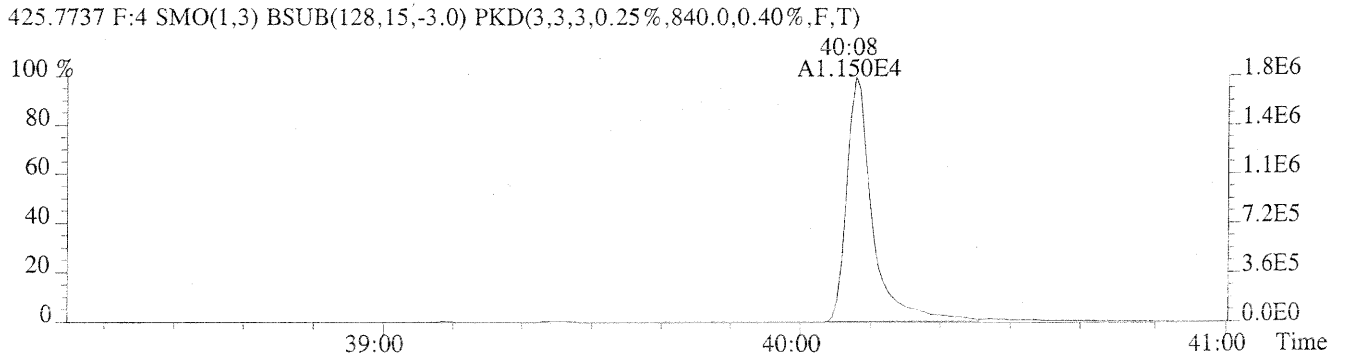
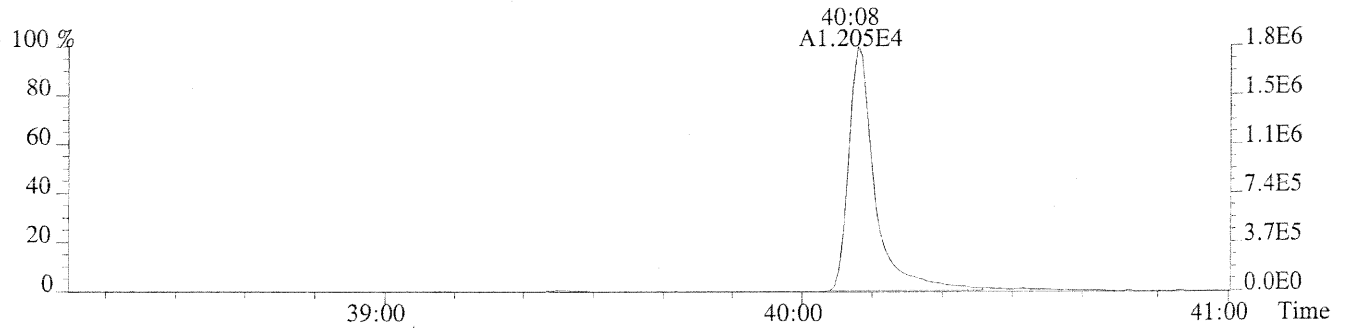
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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



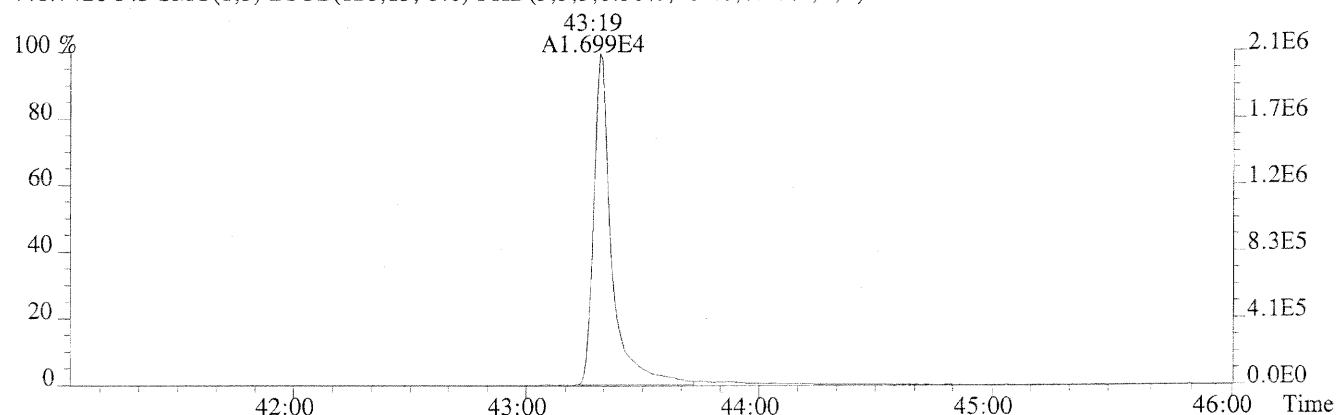
File:U150162 #1-251 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS3  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



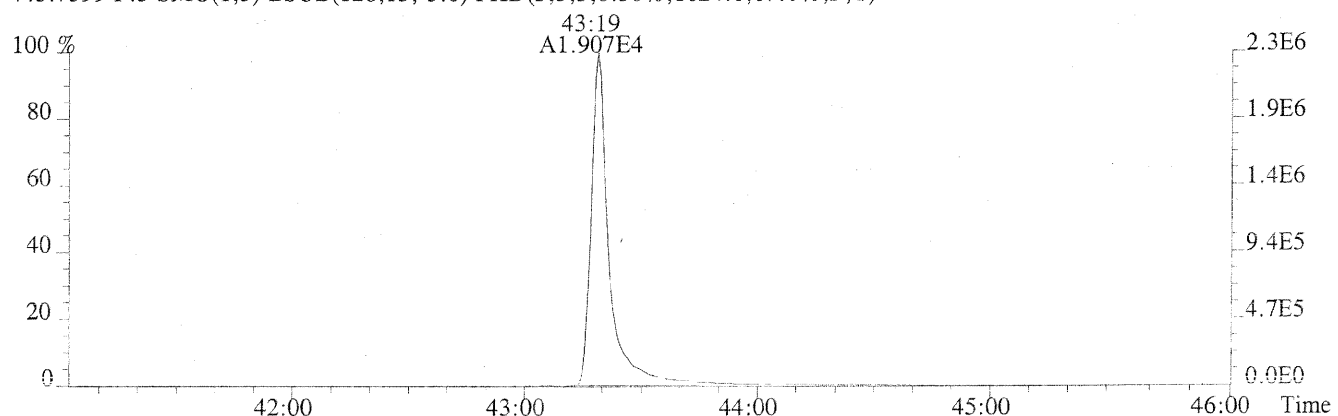
File:U150162 #1-451 Acq:31-JUL-2014 14:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS3

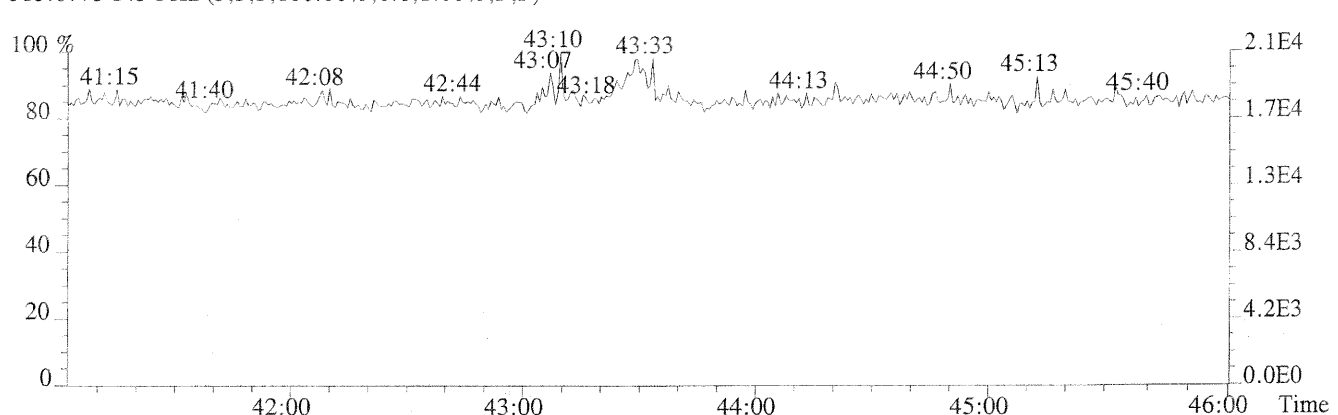
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,704.0,0.40%,F,T)



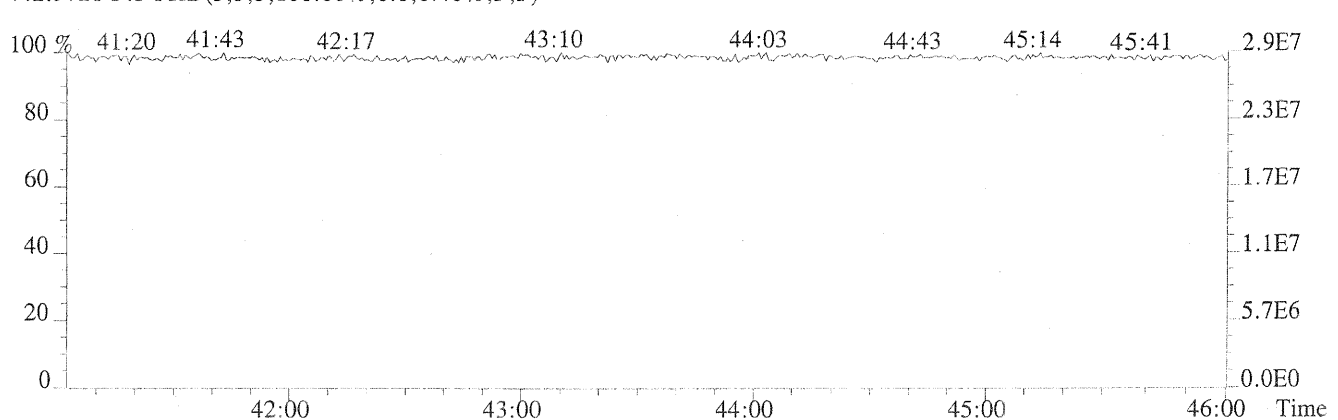
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



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

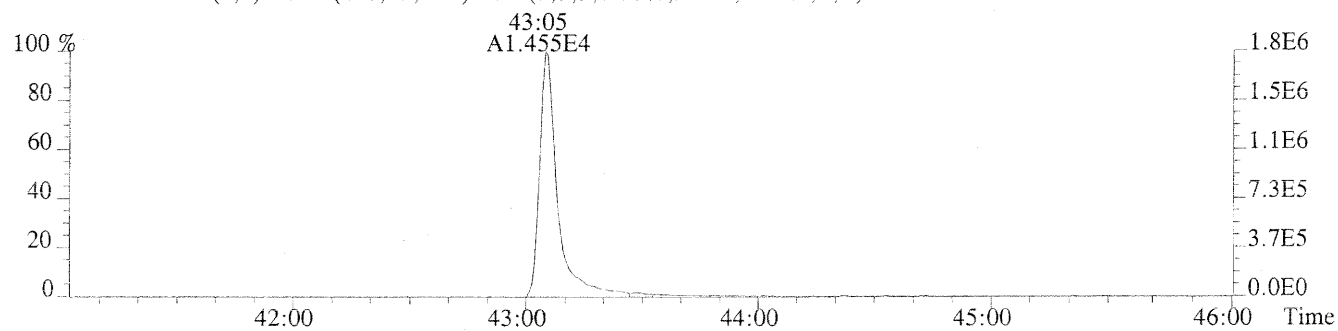


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

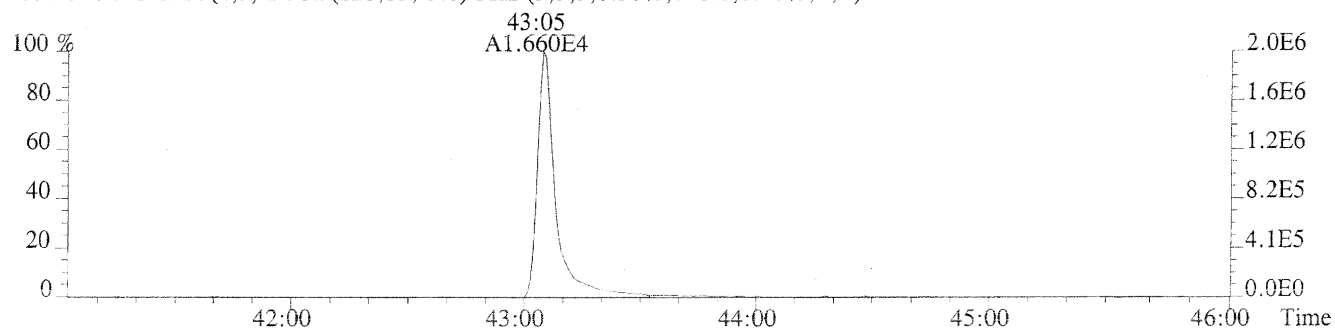


Sample#1 Exp:CS3

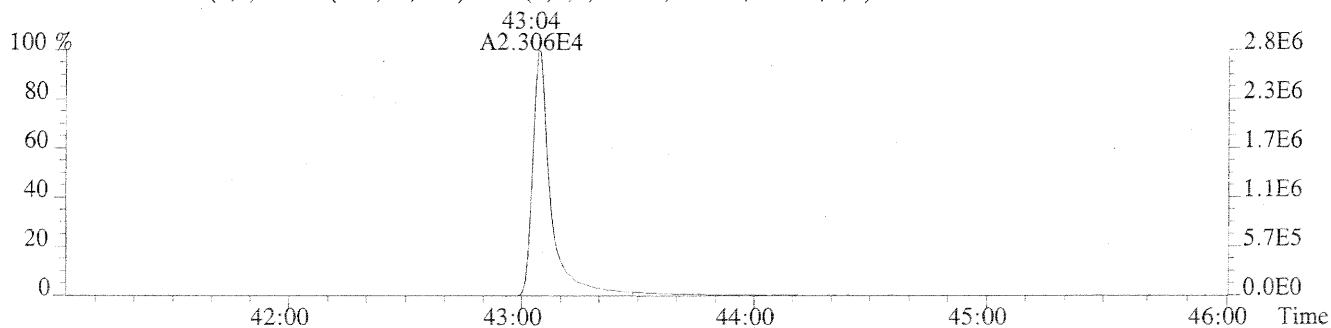
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,908.0,0.40%,F,T)



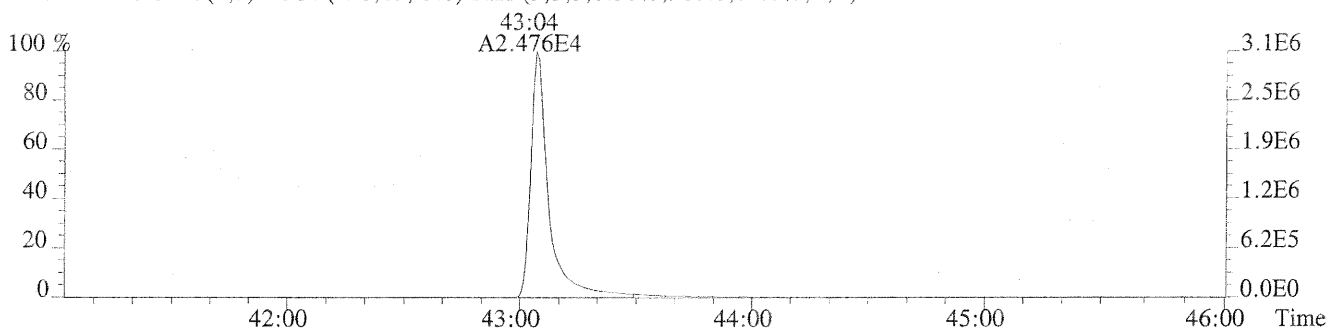
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,F,T)



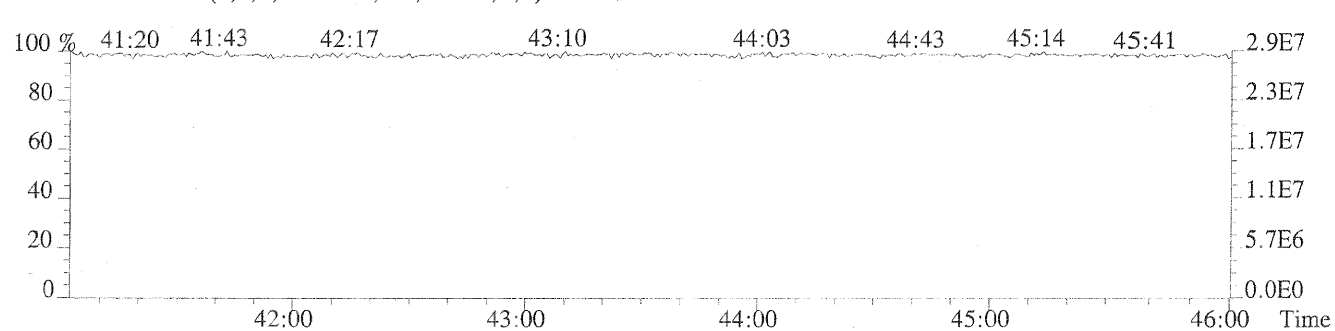
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1176.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



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



ALS ENVIRONMENTAL

CLIENT ID.

Method M23

CS4

## Sample Response Summary

Run #5 Filename U150163 #1

Samp: 1 Inj: 1

Acquired: 31-JUL-14 15:18:57

Processed: 6-AUG-14 13:14:25

LAB. ID: D12-90-3D

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:01	1.222e+04	1.605e+04	0.76	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:02	1.128e+05	7.280e+04	1.55	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:55	1.077e+05	6.977e+04	1.54	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:33	8.901e+04	7.223e+04	1.23	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:39	1.050e+05	8.497e+04	1.24	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:09	9.162e+04	7.624e+04	1.20	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:55	7.461e+04	6.068e+04	1.23	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:09	7.898e+04	7.626e+04	1.04	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:38	5.847e+04	5.393e+04	1.08	yes	no	0.959
10 Unk	OCDF	43:18	8.981e+04	9.983e+04	0.90	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:45	8.282e+03	1.005e+04	0.82	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:11	7.288e+04	4.342e+04	1.68	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:16	6.175e+04	4.922e+04	1.25	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:21	7.376e+04	5.880e+04	1.25	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:35	7.588e+04	5.934e+04	1.28	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:07	5.398e+04	5.231e+04	1.03	yes	no	1.102
17 Unk	OCDD	43:04	7.576e+04	8.669e+04	0.87	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:00	3.095e+04	3.679e+04	0.84	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:01	5.586e+04	3.507e+04	1.59	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:55	5.661e+04	3.542e+04	1.60	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:32	2.209e+04	4.277e+04	0.52	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:38	2.813e+04	5.352e+04	0.53	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:54	1.960e+04	3.848e+04	0.51	yes	yes	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:08	1.742e+04	3.831e+04	0.45	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:38	1.343e+04	3.007e+04	0.45	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:44	2.029e+04	2.672e+04	0.76	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:11	3.159e+04	2.045e+04	1.55	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:16	2.490e+04	1.882e+04	1.32	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:21	2.939e+04	2.227e+04	1.32	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:07	2.549e+04	2.271e+04	1.12	yes	no	0.845
32 IS	13C-OCDD	43:04	2.956e+04	3.159e+04	0.94	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:10	2.084e+04	2.726e+04	0.76	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:35	3.119e+04	2.346e+04	1.33	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:45	1.842e+04				no	0.975

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS4

Method M23

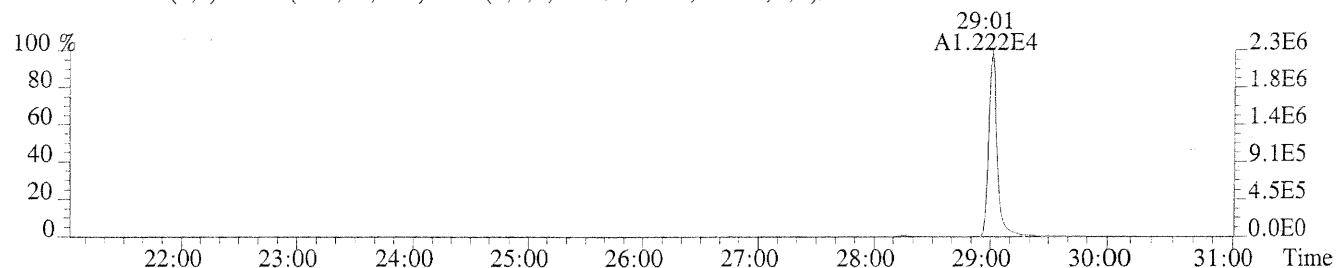
Run #5    Filename U150163    #1    Samp: 1    Inj: 1    Acquired: 31-JUL-14 15:18:57  
Processed: 6-AUG-14    13:14:25    LAB. ID: D12-90-3D

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.26e+06	8.64e+02	2.6e+03	3.00e+06	1.72e+03	1.7e+03
2	1,2,3,7,8-PeCDF	1.93e+07	1.83e+03	1.1e+04	1.25e+07	2.46e+03	5.1e+03
3	2,3,4,7,8-PeCDF	1.96e+07	1.83e+03	1.1e+04	1.26e+07	2.46e+03	5.1e+03
4	1,2,3,4,7,8-HxCDF	1.81e+07	1.94e+03	9.4e+03	1.46e+07	1.23e+03	1.2e+04
5	1,2,3,6,7,8-HxCDF	1.85e+07	1.94e+03	9.6e+03	1.52e+07	1.23e+03	1.2e+04
6	2,3,4,6,7,8-HxCDF	1.77e+07	1.94e+03	9.2e+03	1.45e+07	1.23e+03	1.2e+04
7	1,2,3,7,8,9-HxCDF	1.32e+07	1.94e+03	6.8e+03	1.07e+07	1.23e+03	8.7e+03
8	1,2,3,4,6,7,8-HpCDF	1.44e+07	3.12e+04	4.6e+02	1.39e+07	6.16e+02	2.3e+04
9	1,2,3,4,7,8,9-HpCDF	8.88e+06	3.12e+04	2.8e+02	8.53e+06	6.16e+02	1.4e+04
10	OCDF	1.21e+07	7.24e+02	1.7e+04	1.33e+07	1.34e+03	9.9e+03
11	2,3,7,8-TCDD	1.59e+06	9.12e+02	1.7e+03	1.93e+06	8.84e+02	2.2e+03
12	1,2,3,7,8-PeCDD	1.28e+07	9.80e+02	1.3e+04	7.60e+06	6.40e+02	1.2e+04
13	1,2,3,4,7,8-HxCDD	1.31e+07	1.01e+03	1.3e+04	1.05e+07	1.08e+03	9.7e+03
14	1,2,3,6,7,8-HxCDD	1.34e+07	1.01e+03	1.3e+04	1.07e+07	1.08e+03	9.9e+03
15	1,2,3,7,8,9-HxCDD	1.26e+07	1.01e+03	1.3e+04	1.02e+07	1.08e+03	9.4e+03
16	1,2,3,4,6,7,8-HpCDD	9.06e+06	1.76e+03	5.1e+03	8.68e+06	1.35e+03	6.4e+03
17	OCDD	1.02e+07	6.96e+02	1.5e+04	1.14e+07	8.48e+02	1.3e+04
18	13C-2,3,7,8-TCDF	5.76e+06	1.35e+03	4.3e+03	6.76e+06	1.09e+03	6.2e+03
19	13C-1,2,3,7,8-PeCDF	9.63e+06	8.28e+02	1.2e+04	6.02e+06	8.68e+02	6.9e+03
20	13C-2,3,4,7,8-PeCDF	1.03e+07	8.28e+02	1.2e+04	6.41e+06	8.68e+02	7.4e+03
21	13C-1,2,3,4,7,8-HxCDF	4.47e+06	7.32e+02	6.1e+03	8.64e+06	1.70e+03	5.1e+03
22	13C-1,2,3,6,7,8-HxCDF	4.99e+06	7.32e+02	6.8e+03	9.72e+06	1.70e+03	5.7e+03
24	13C-1,2,3,7,8,9-HxCDF	3.44e+06	7.32e+02	4.7e+03	6.77e+06	1.70e+03	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.17e+06	1.39e+03	2.3e+03	6.95e+06	9.92e+02	7.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.07e+06	1.39e+03	1.5e+03	4.59e+06	9.92e+02	4.6e+03
27	13C-2,3,7,8-TCDD	3.85e+06	2.68e+03	1.4e+03	5.03e+06	2.04e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	5.49e+06	9.68e+02	5.7e+03	3.57e+06	7.52e+02	4.7e+03
29	13C-1,2,3,4,7,8-HxCDD	5.28e+06	1.15e+03	4.6e+03	4.00e+06	9.12e+02	4.4e+03
30	13C-1,2,3,6,7,8-HxCDD	5.32e+06	1.15e+03	4.6e+03	4.07e+06	9.12e+02	4.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.21e+06	1.62e+03	2.6e+03	3.77e+06	1.26e+03	3.0e+03
32	13C-OCDD	3.91e+06	7.64e+02	5.1e+03	4.16e+06	9.12e+02	4.6e+03
33	13C-1,2,3,4-TCDD	4.20e+06	2.68e+03	1.6e+03	5.49e+06	2.04e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	5.18e+06	1.15e+03	4.5e+03	3.93e+06	9.12e+02	4.3e+03
35	37Cl-2,3,7,8-TCDD	3.54e+06	1.65e+03	2.1e+03			

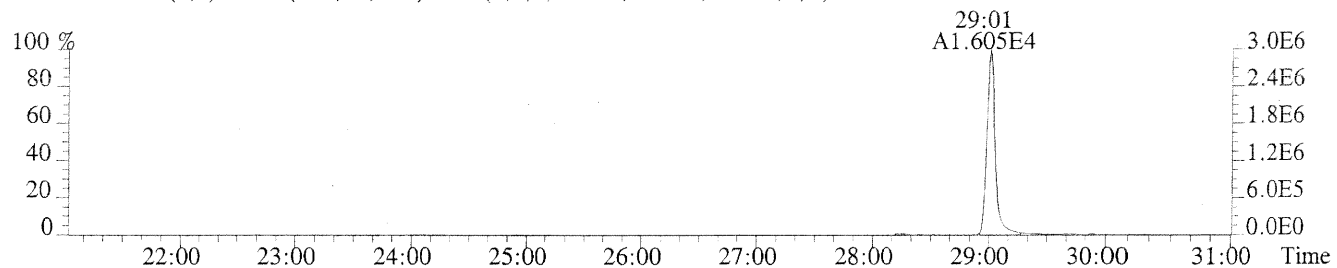
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713)266-1599. Fax: (713)266-0130

ALS Form TO-9SN/M23SN.FRM

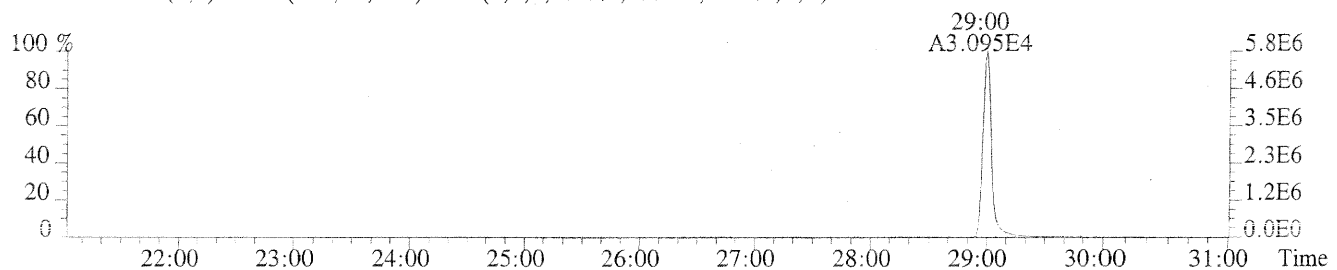
File:U150163 #1-627 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS4  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



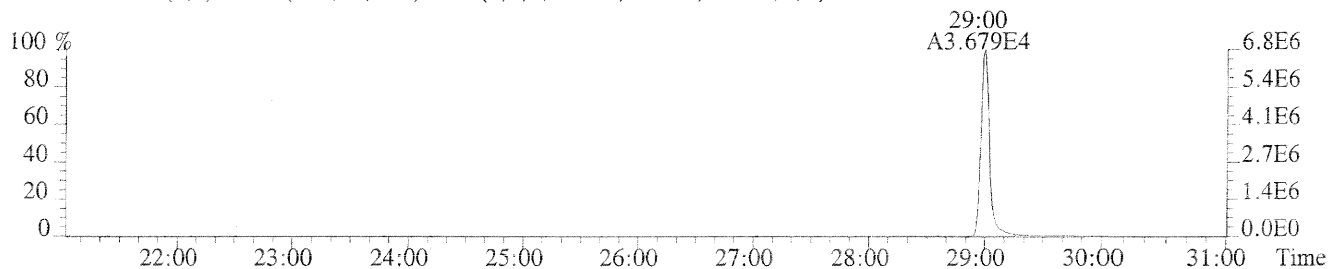
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



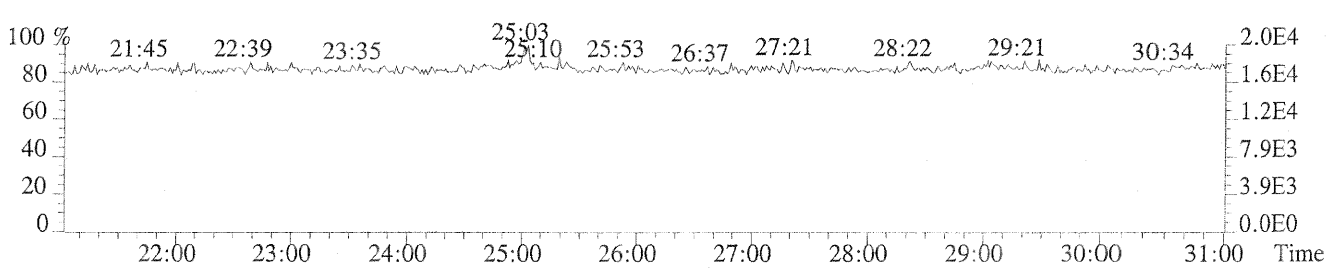
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



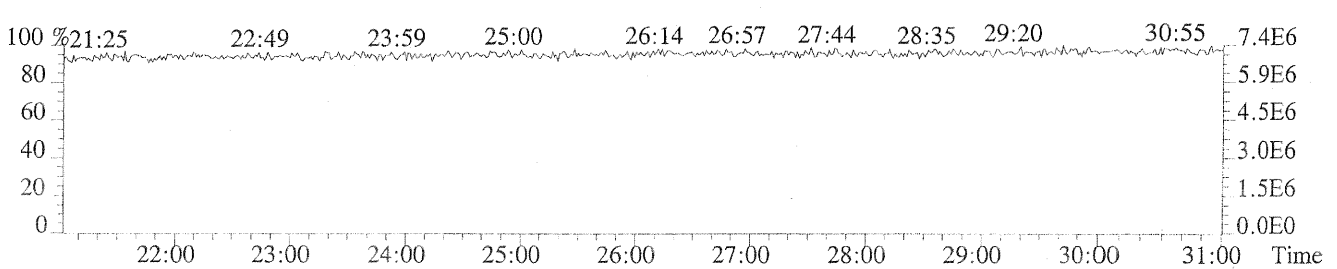
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



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)

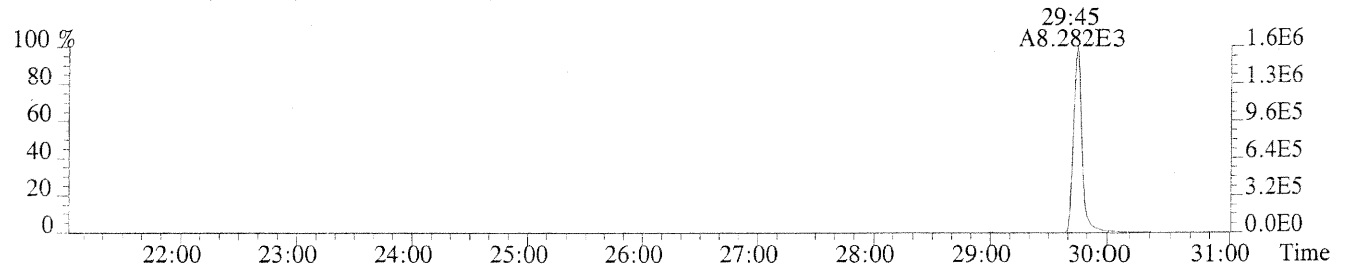




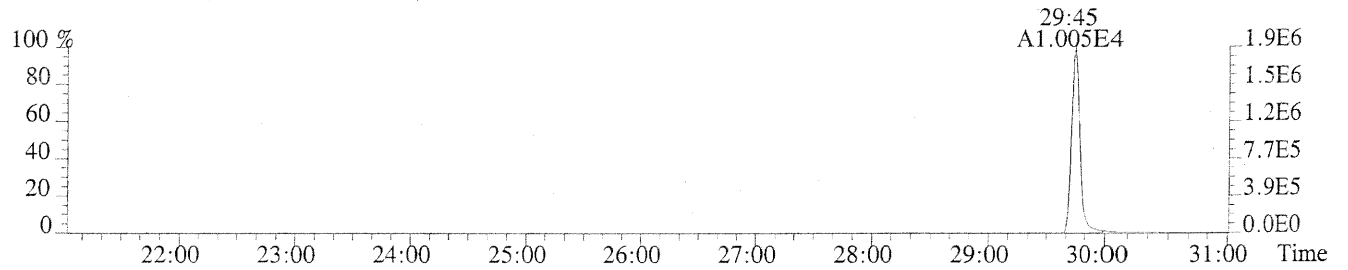
File:U150163 #1-627 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectr

Sample#1 Exp:CS4

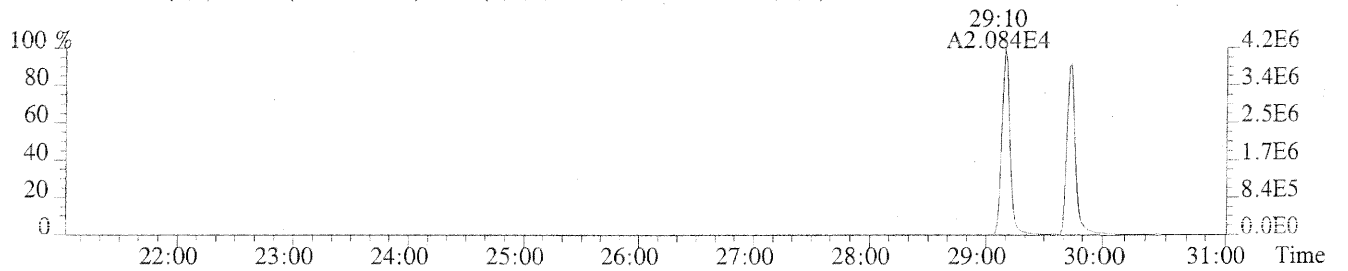
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



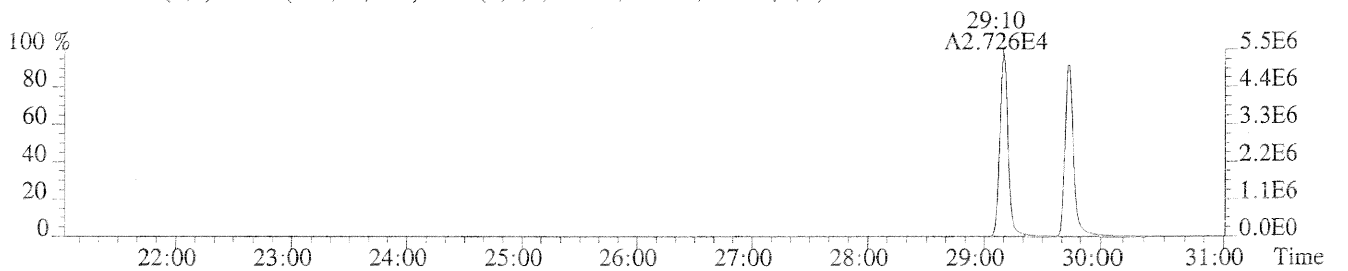
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



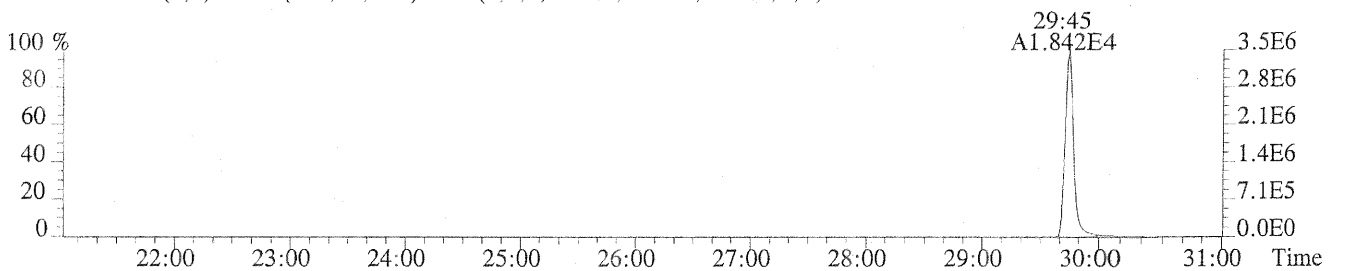
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2680.0,1.00%,F,T)



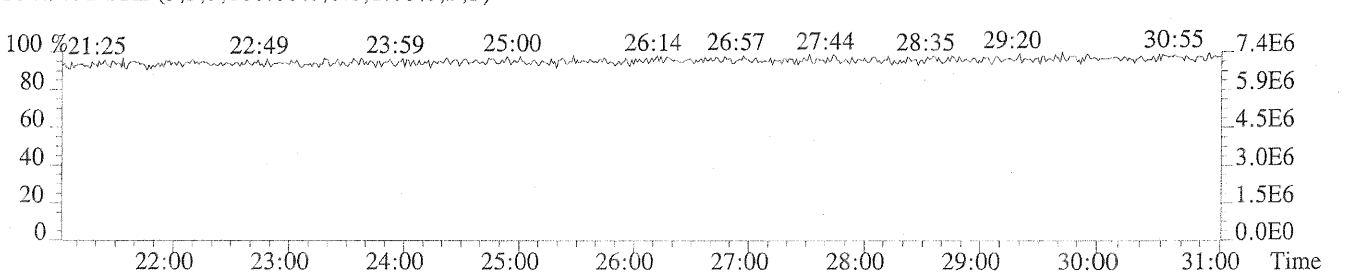
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2040.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



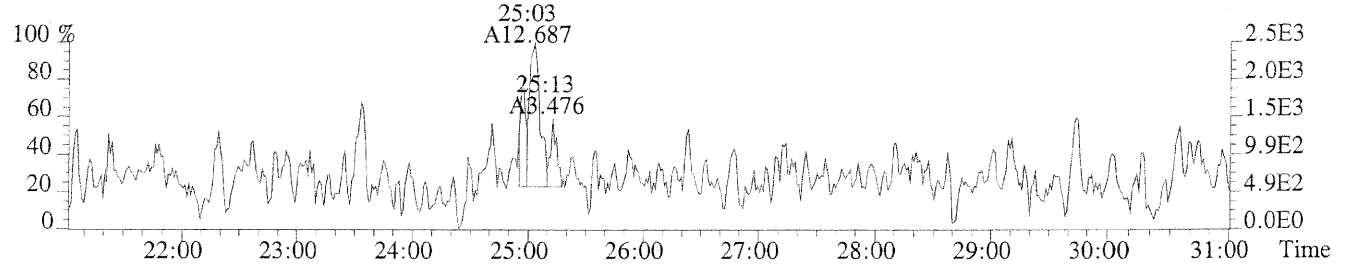
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



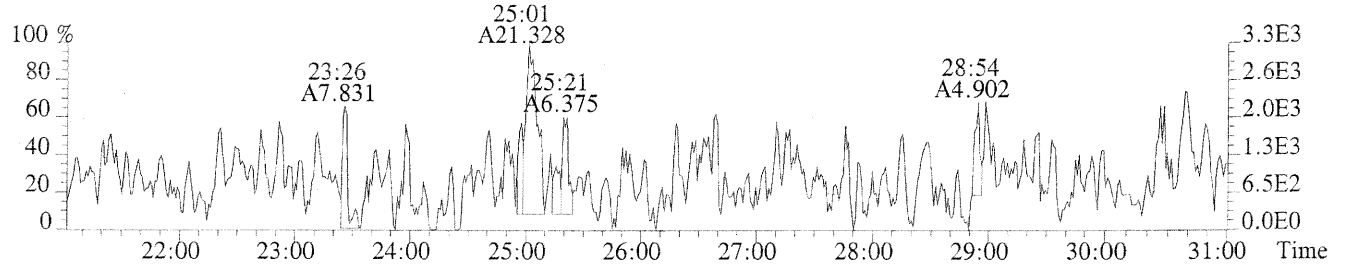
File:U150163 #1-627 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS4

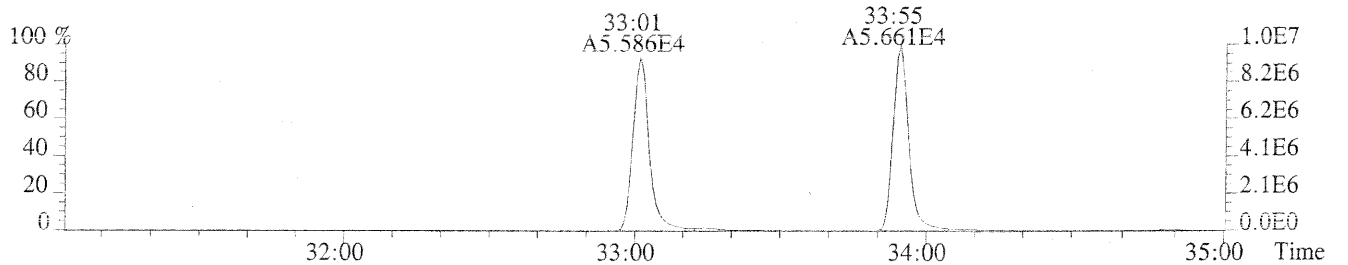
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



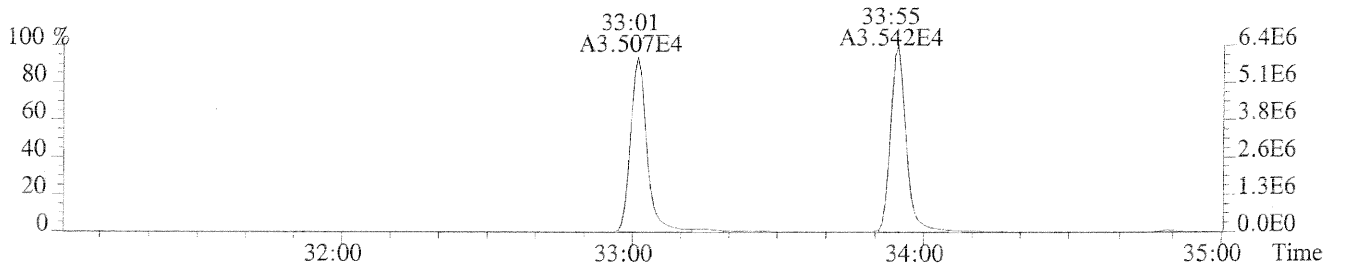
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1188.0,1.00%,F,T)



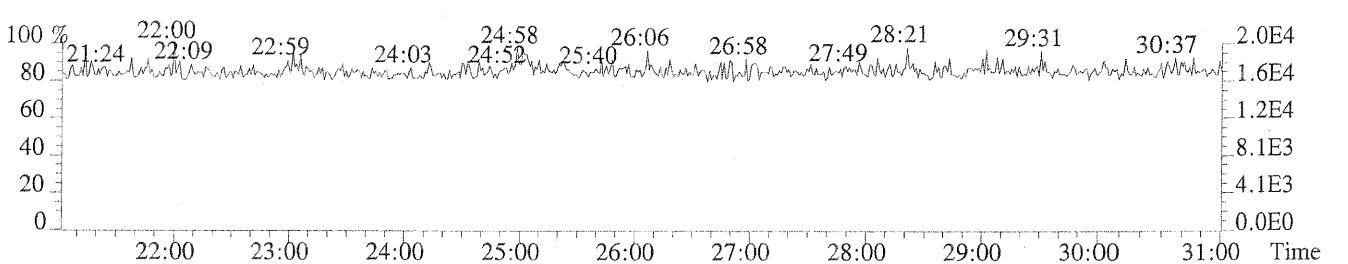
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



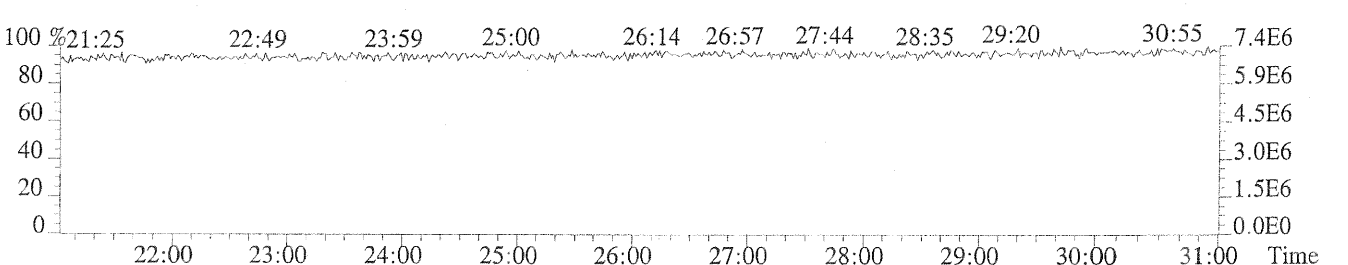
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



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



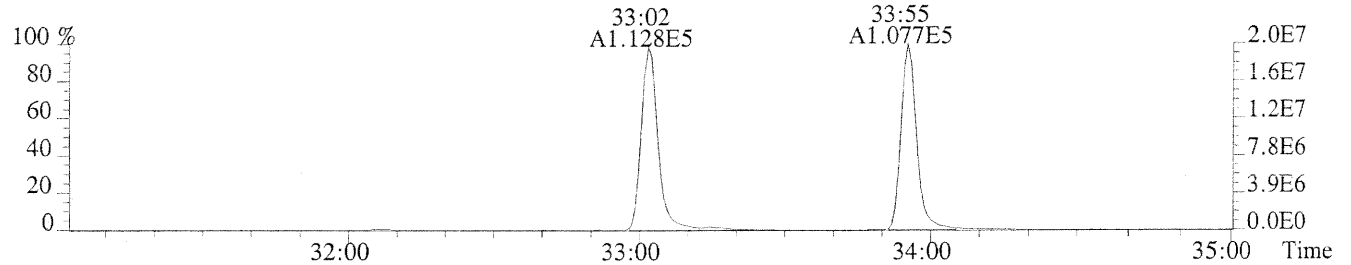
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



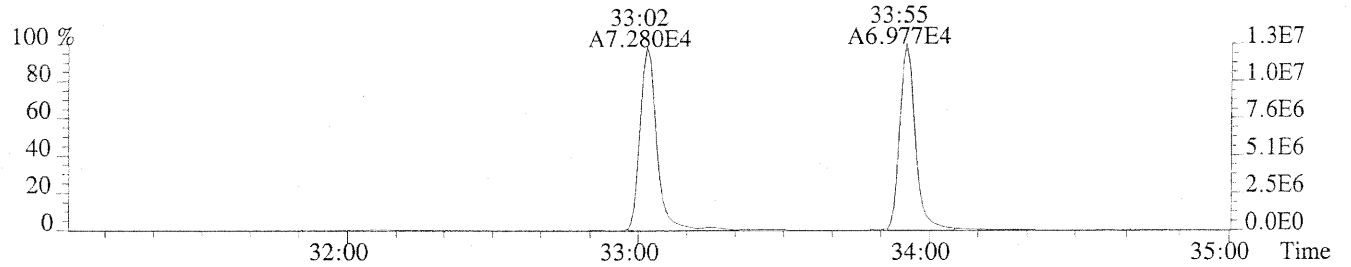
File:U150163 #1-360 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS4

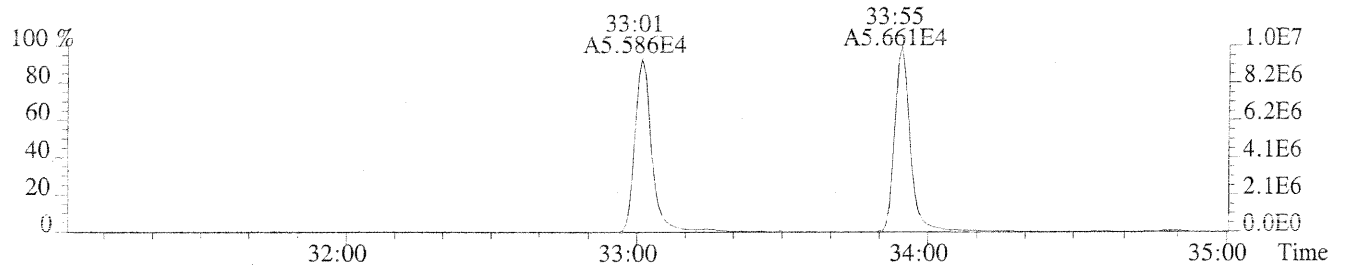
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



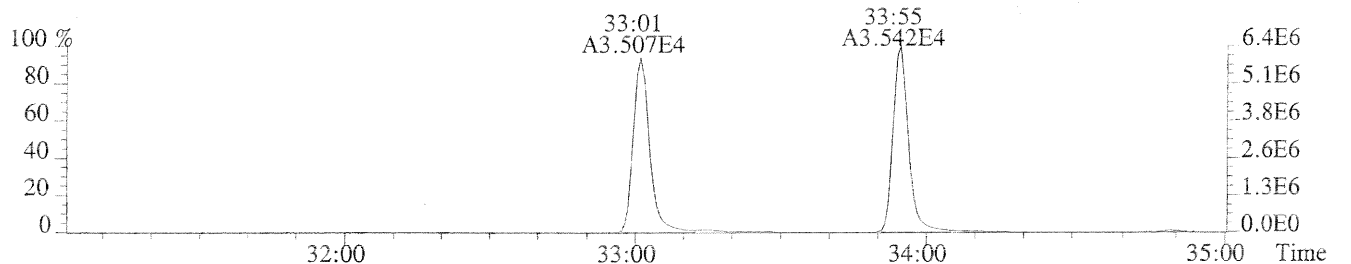
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



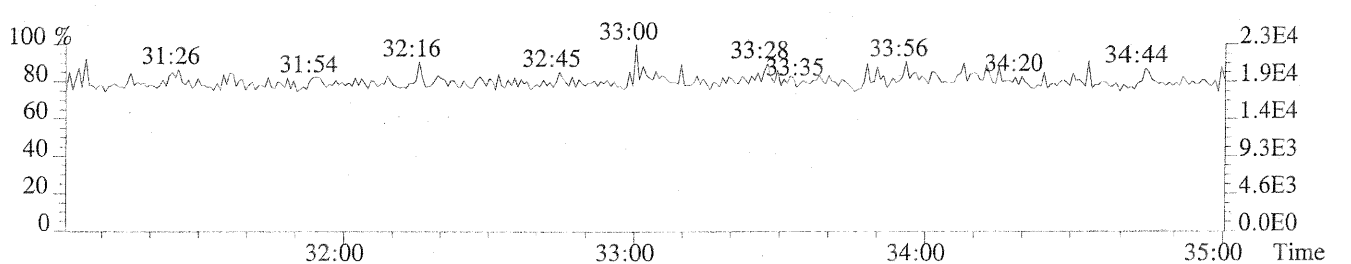
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



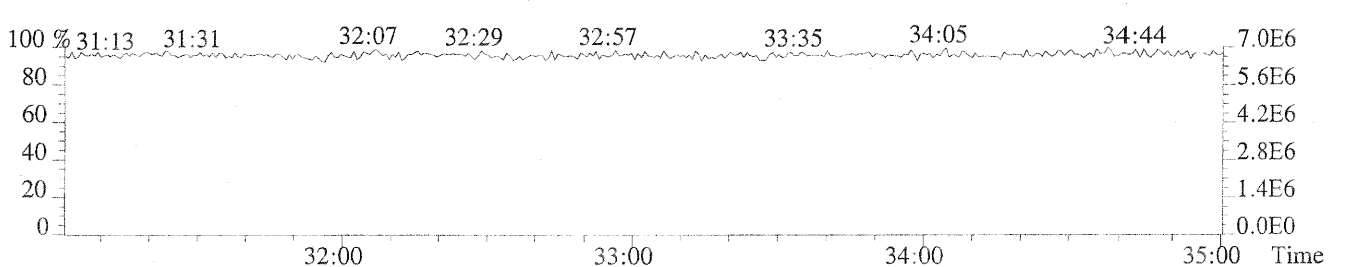
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



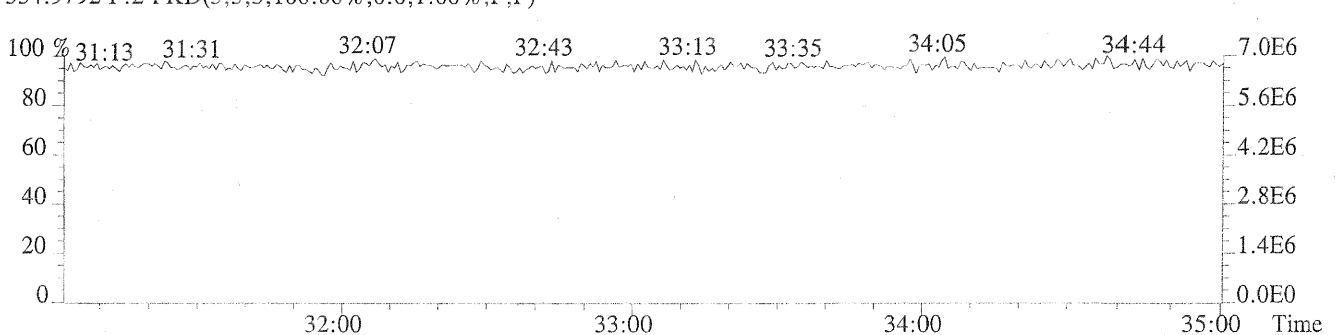
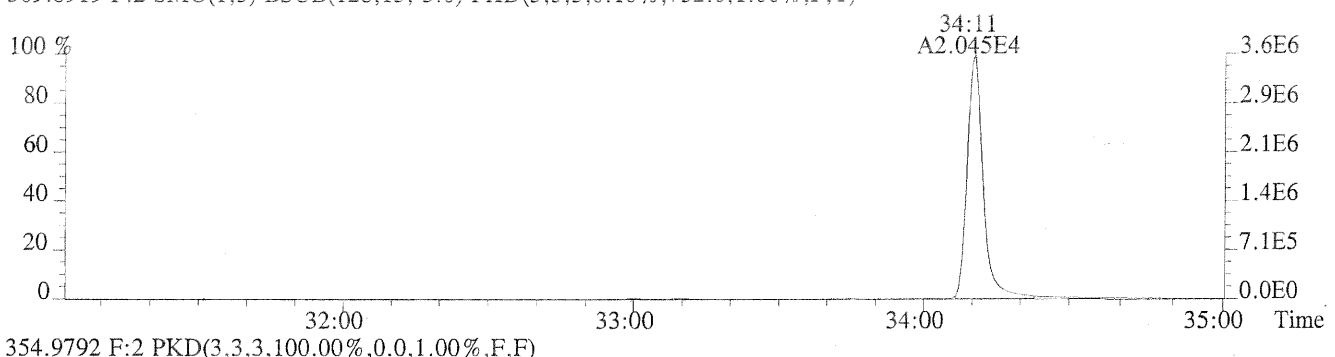
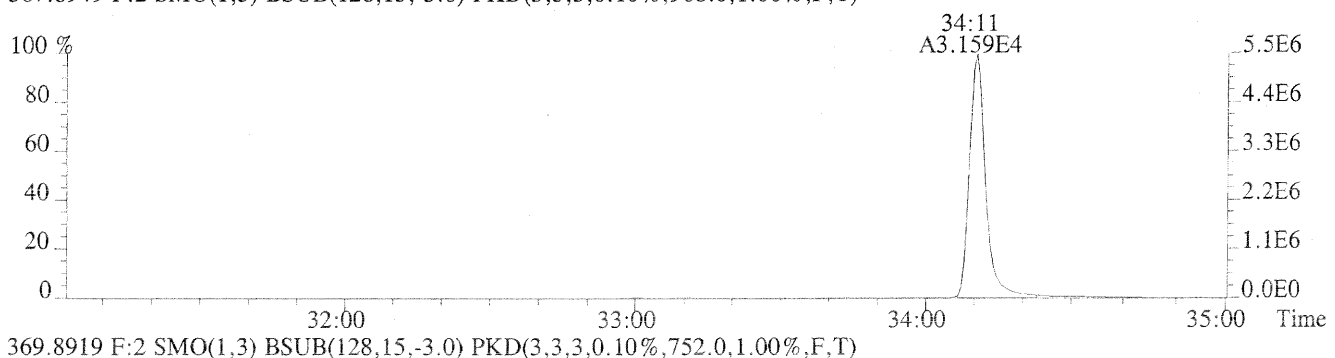
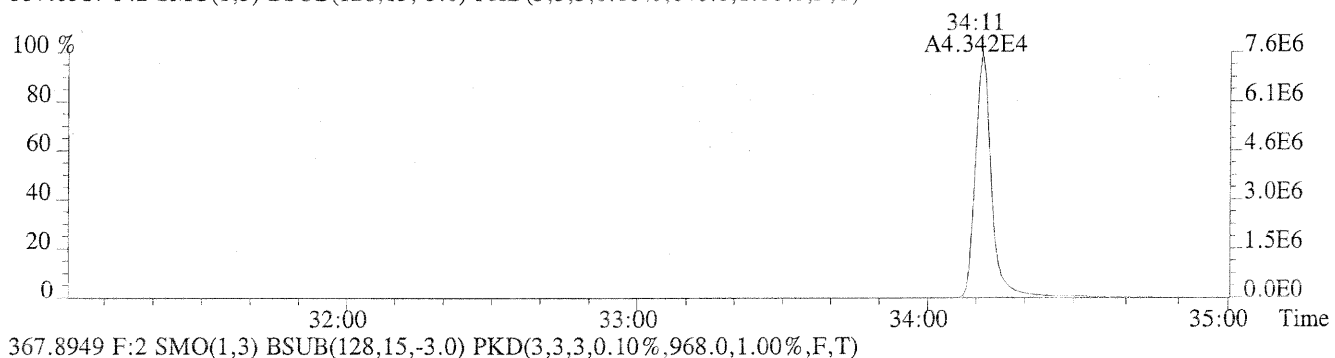
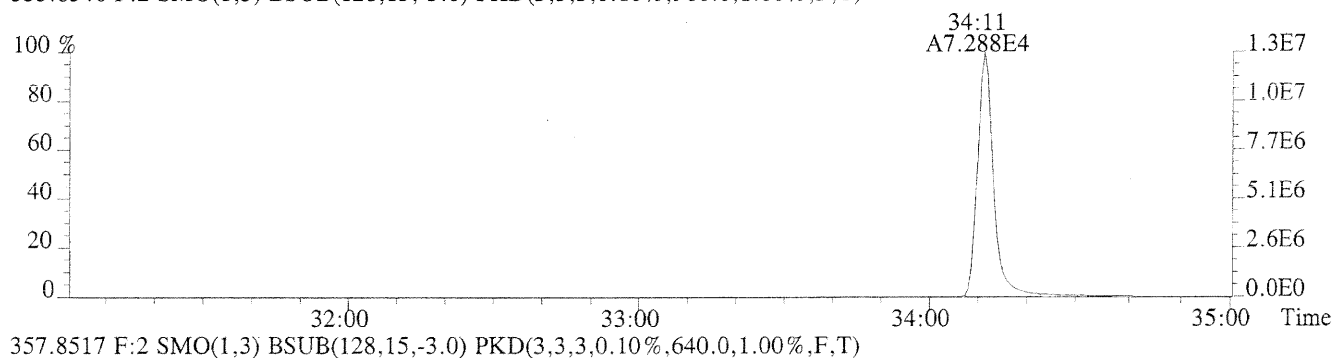
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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



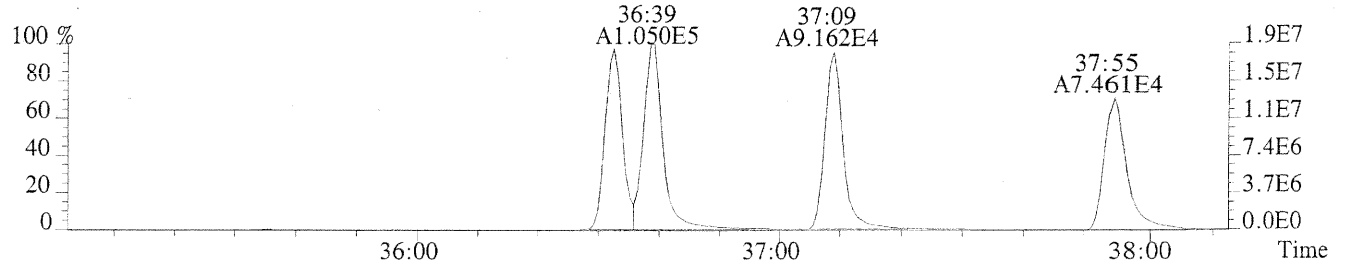
File:U150163 #1-360 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectrf  
Sample#1 Exp:CS4  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



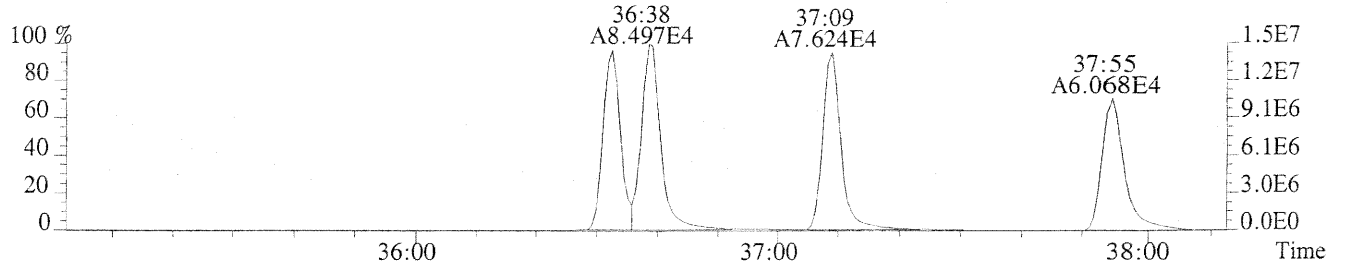
File:U150163 #1-288 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS4

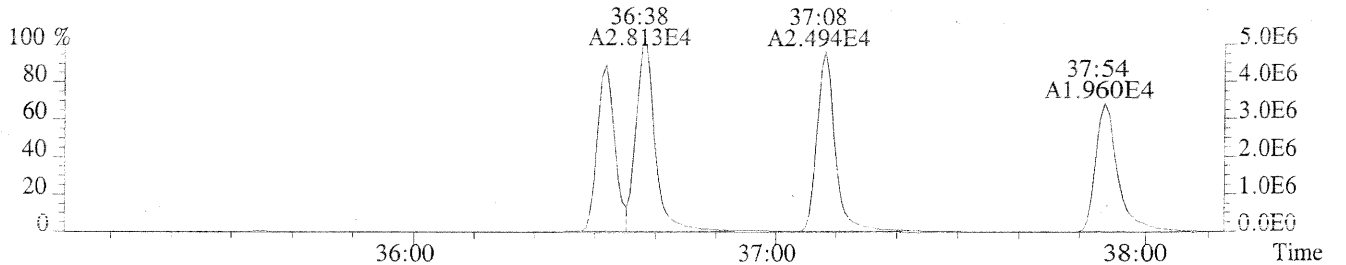
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.40%,F,T)



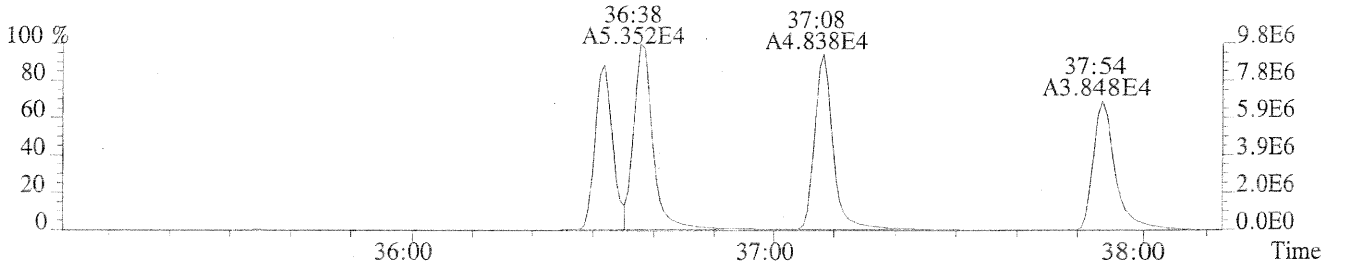
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



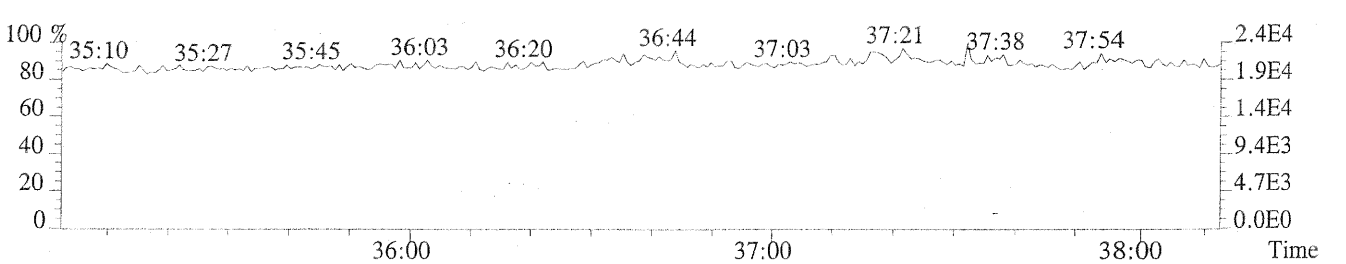
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



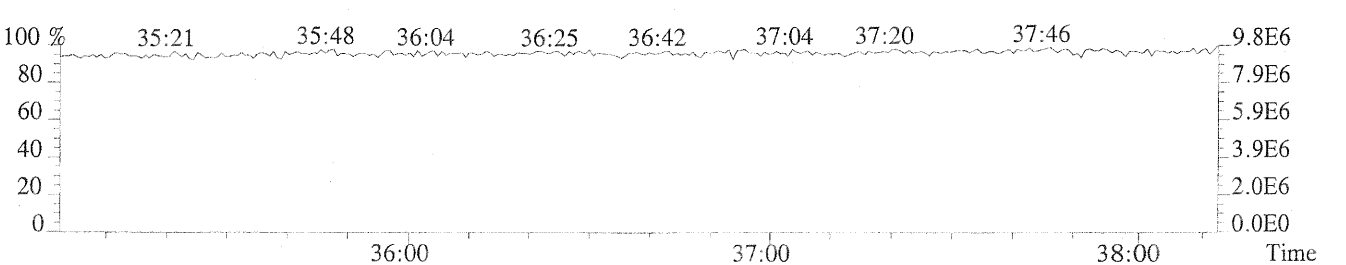
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1704.0,0.40%,F,T)



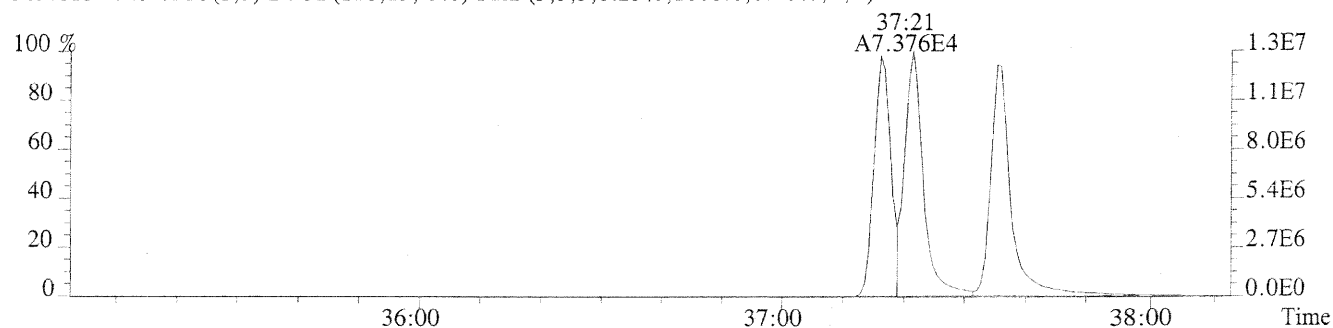
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



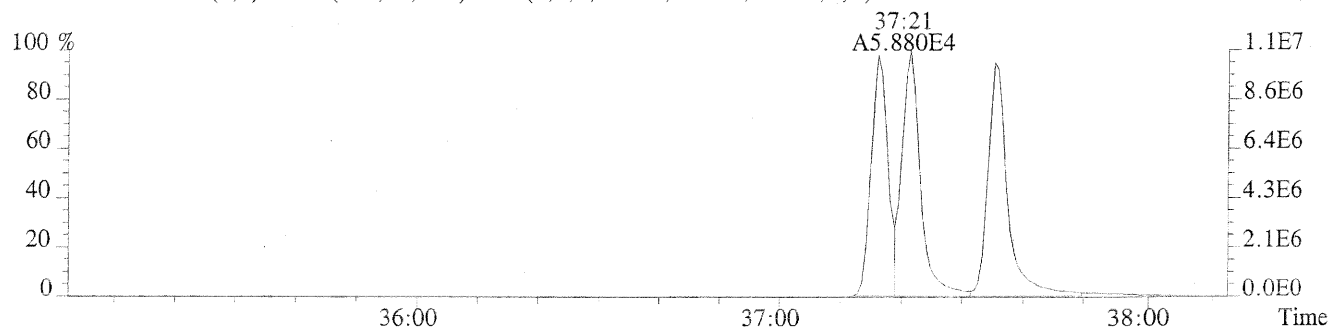
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



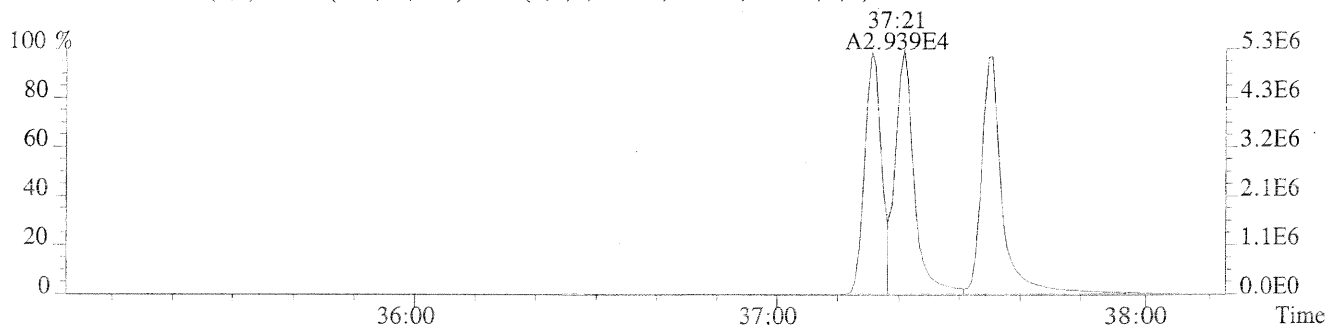
File:U150163 #1-288 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS4  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



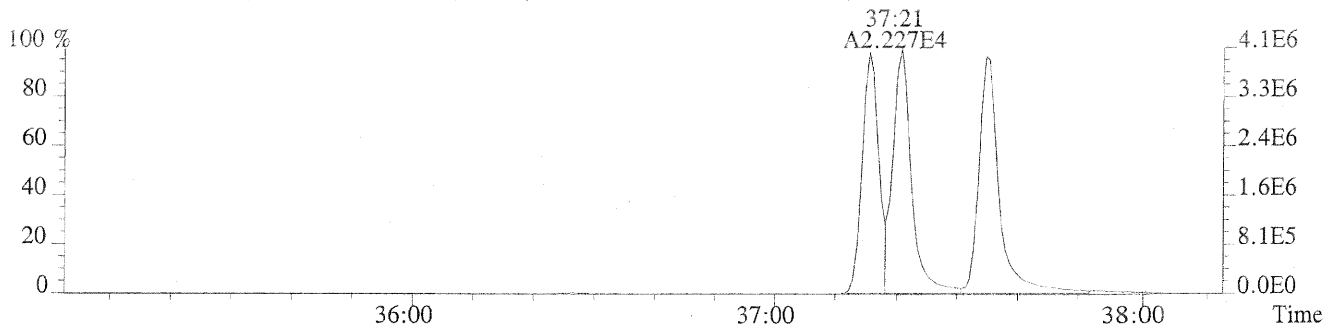
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



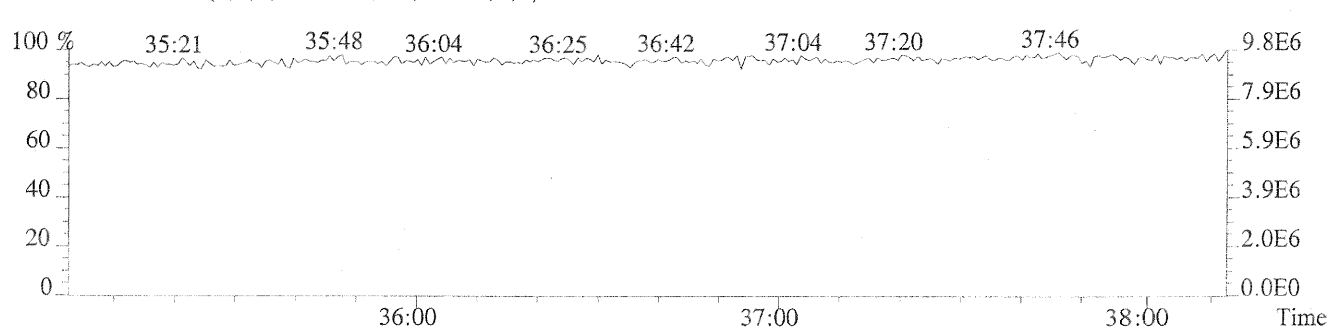
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



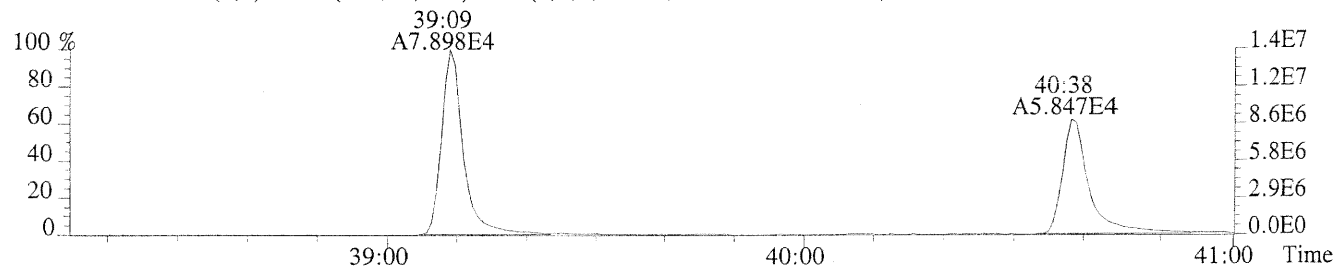
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



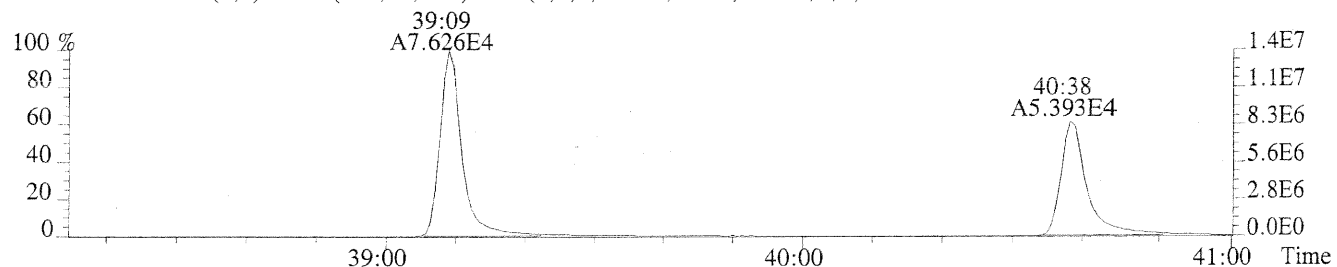
File:U150163 #1-251 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectrf

Sample#1 Exp:CS4

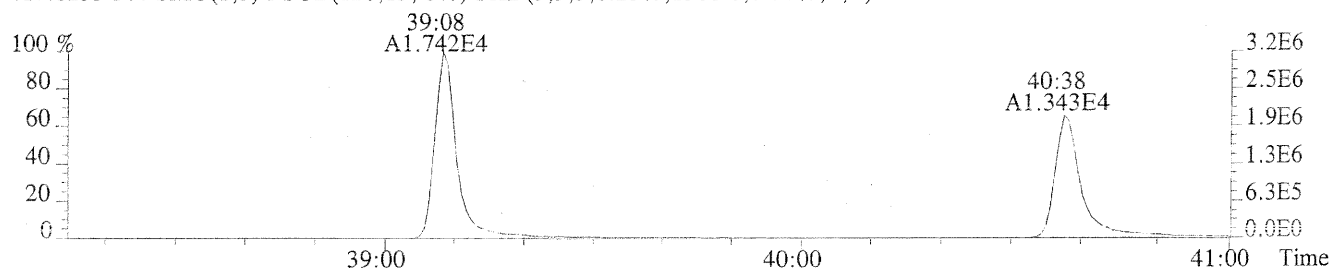
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,31184.0,0.50%,F,T)



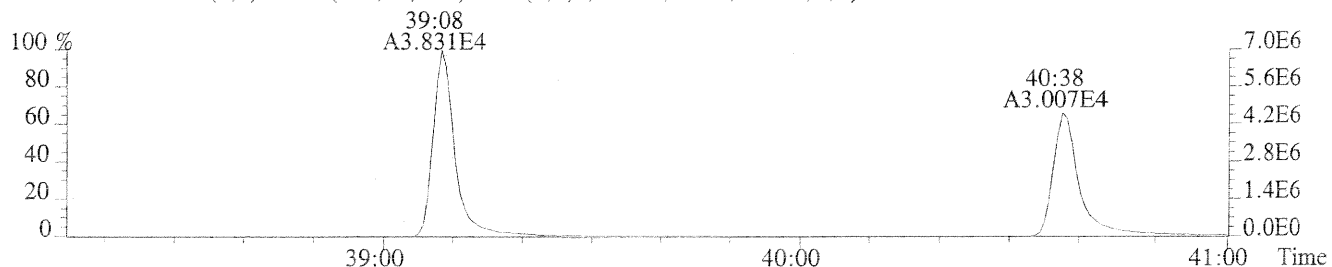
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.50%,F,T)



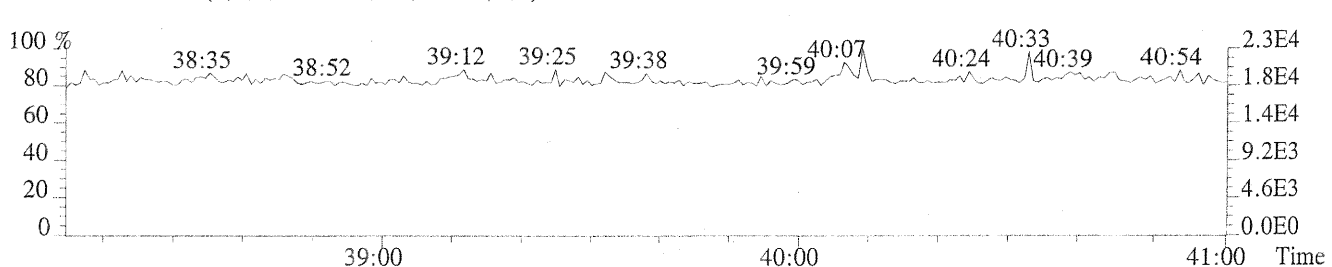
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.50%,F,T)



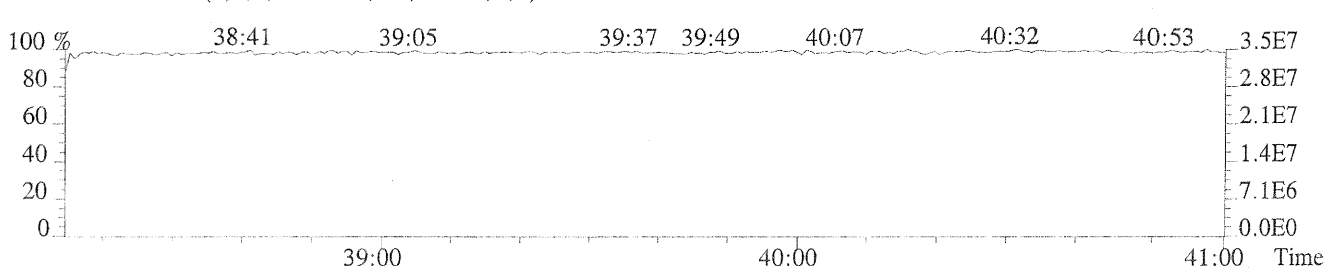
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.50%,F,T)



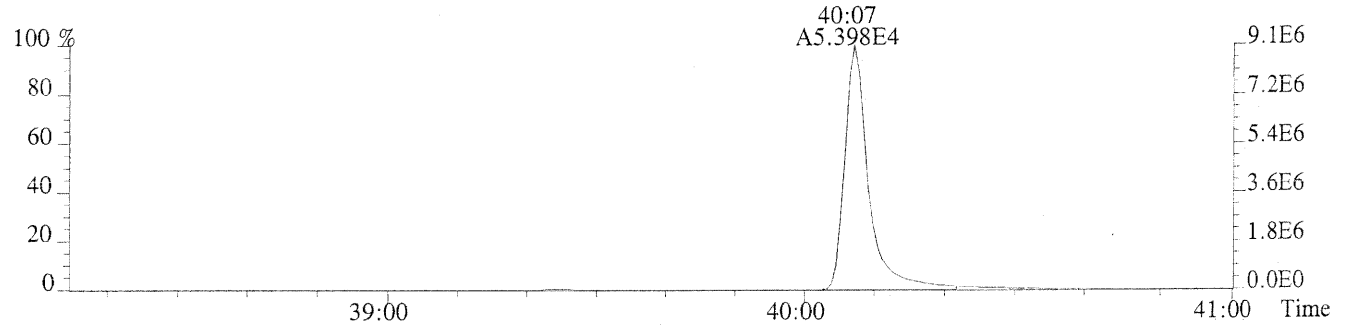
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



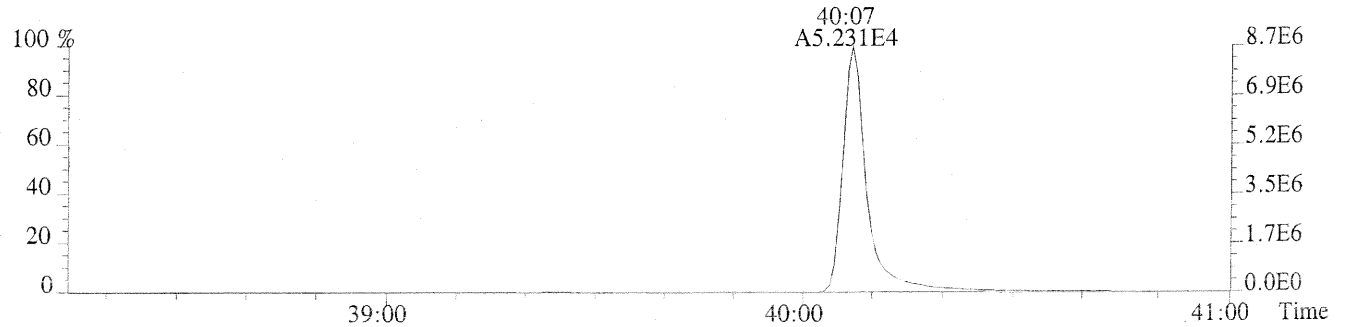
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



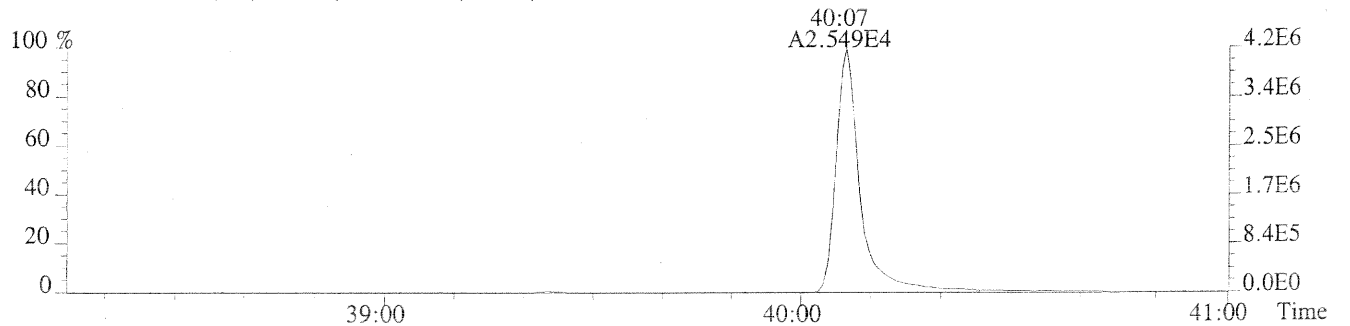
File:U150163 #1-251 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS4  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1764.0,0.40%,F,T)



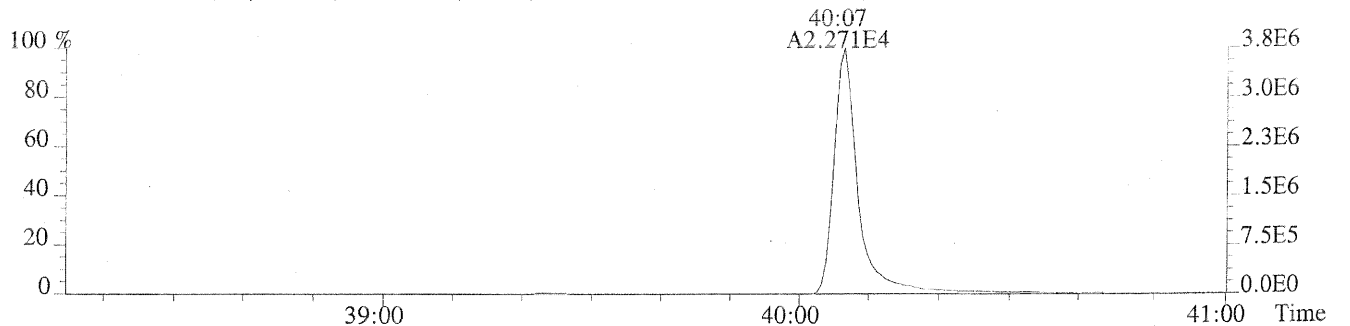
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



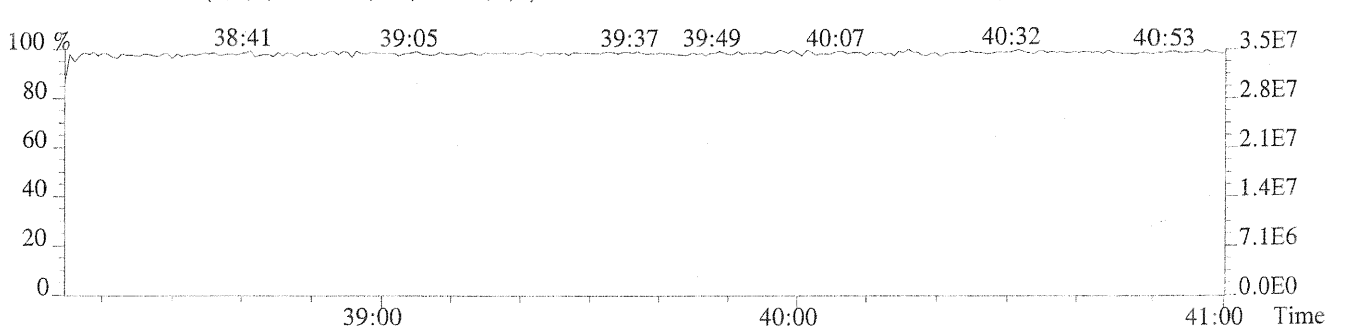
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)

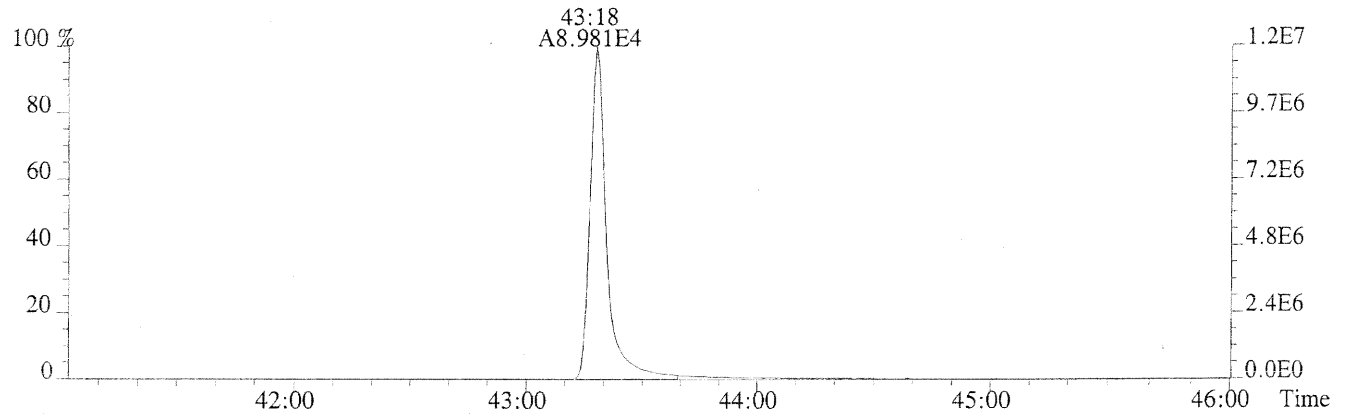


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

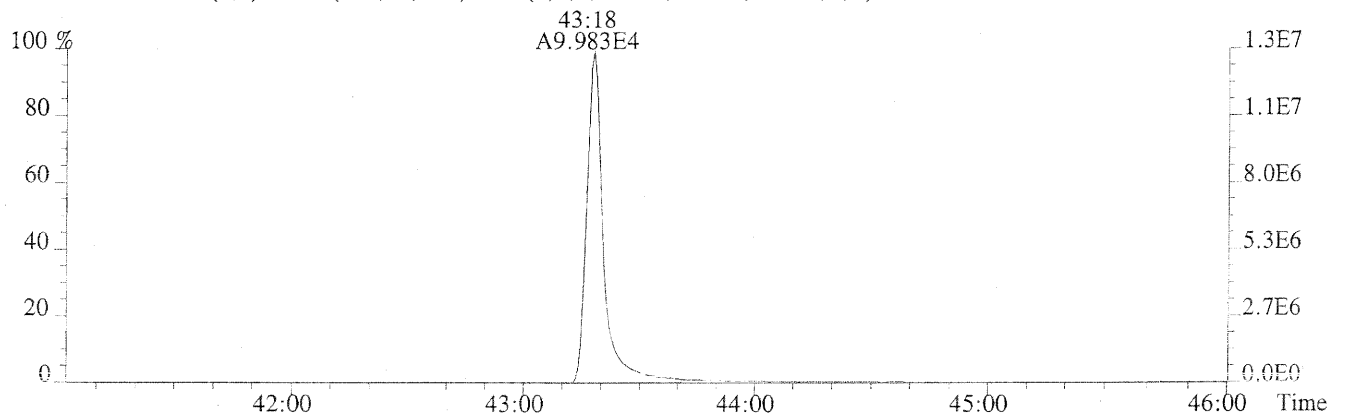




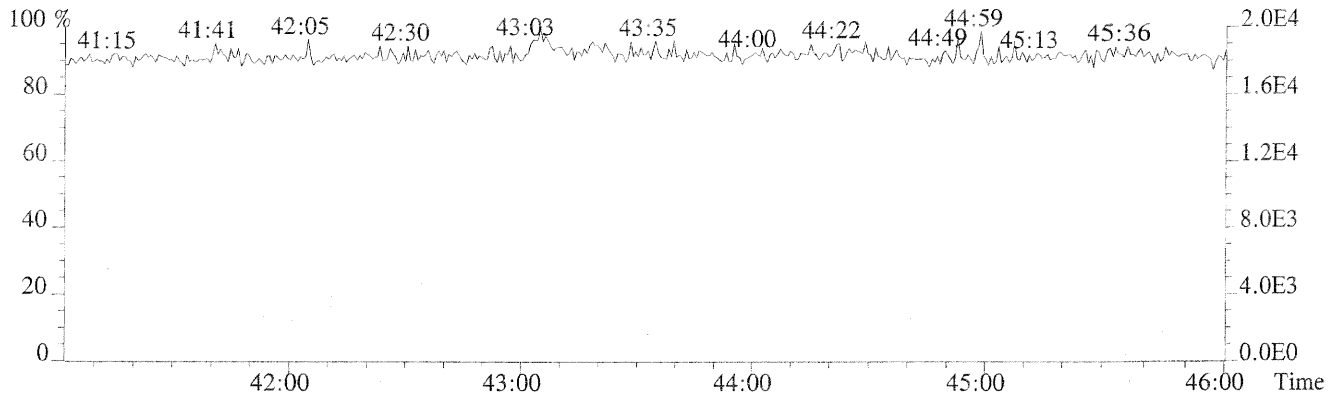
File:U150163 #1-451 Acq:31-JUL-2014 15:18:57 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS4  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



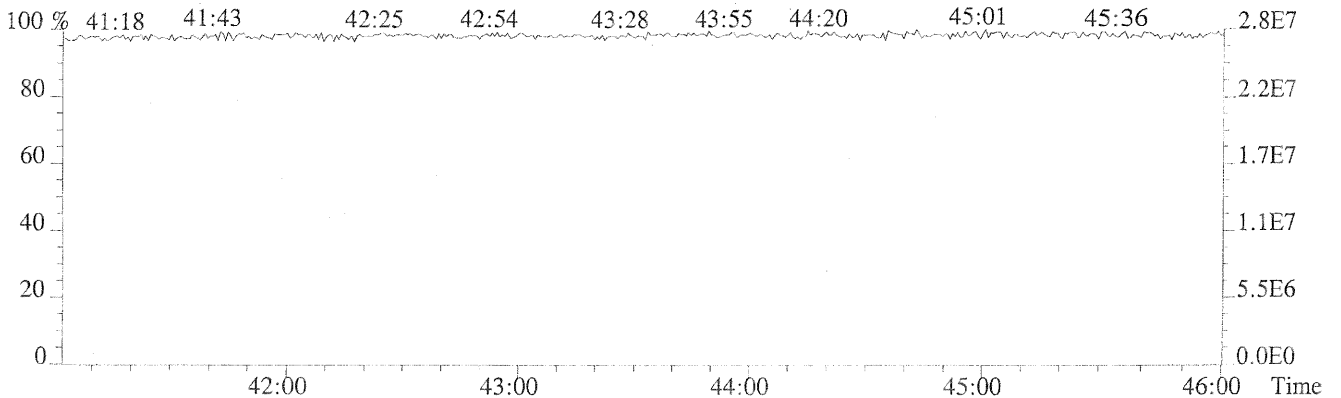
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1340.0,0.40%,F,T)



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

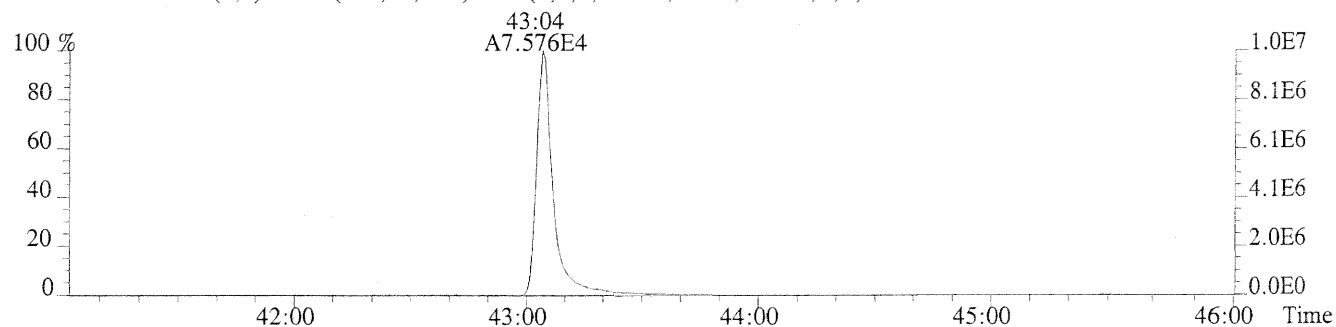


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

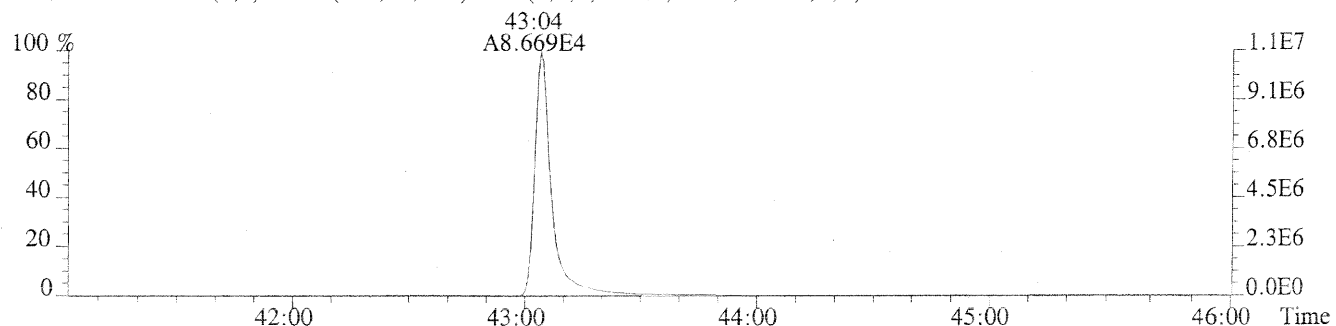


Sample#1 Exp:CS4

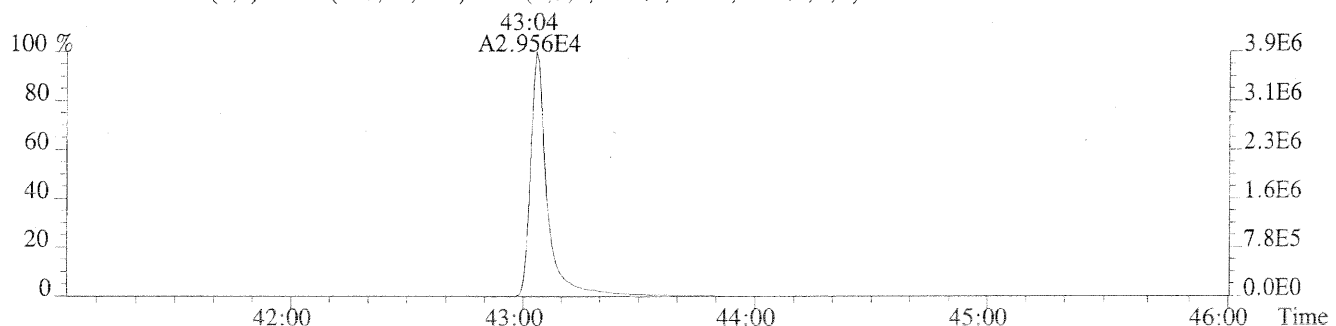
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



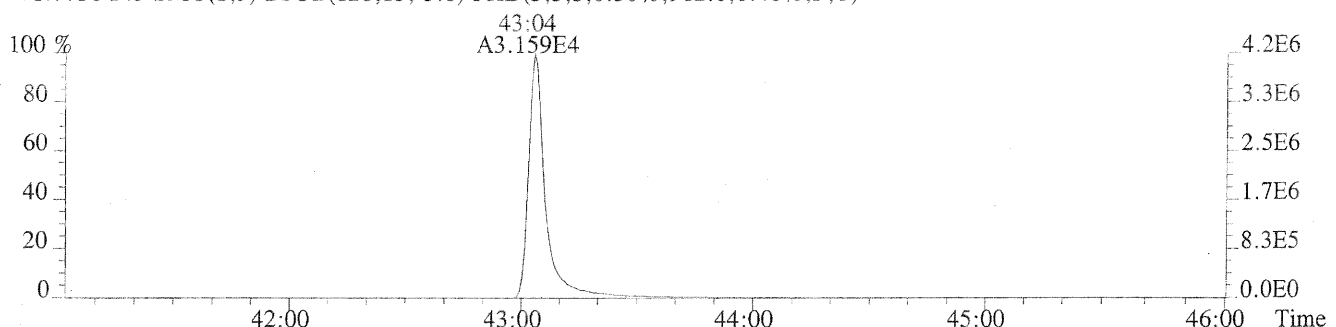
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



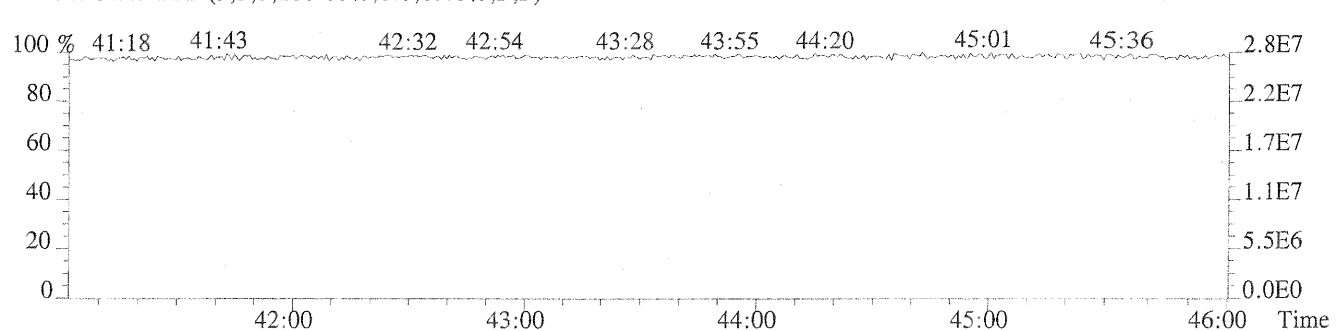
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,764.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



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



ALS ENVIRONMENTAL  
Method M23

CLIENT ID.  
CS5

Sample Response Summary

Run #6 Filename U150164 #1 Samp: 1 Inj: 1 Acquired: 31-JUL-14 16:07:05  
Processed: 6-AUG-14 13:15:26 LAB. ID: 66799

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:02	6.287e+04	8.186e+04	0.77	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:02	5.818e+05	3.739e+05	1.56	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:56	6.069e+05	3.913e+05	1.55	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:33	4.978e+05	4.051e+05	1.23	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:40	5.789e+05	4.690e+05	1.23	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:09	5.135e+05	4.169e+05	1.23	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:55	4.295e+05	3.483e+05	1.23	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:10	4.405e+05	4.254e+05	1.04	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:40	3.392e+05	3.304e+05	1.03	yes	no	0.959
10 Unk	OCDF	43:19	5.312e+05	5.883e+05	0.90	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:45	4.307e+04	5.334e+04	0.81	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:12	4.024e+05	2.433e+05	1.65	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:17	3.882e+05	3.095e+05	1.25	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:22	3.844e+05	3.051e+05	1.26	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:37	4.224e+05	3.375e+05	1.25	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:08	3.052e+05	2.908e+05	1.05	yes	no	1.102
17 Unk	OCDD	43:05	4.504e+05	5.028e+05	0.90	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:00	3.161e+04	3.735e+04	0.85	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:02	6.151e+04	3.783e+04	1.63	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:55	6.012e+04	3.769e+04	1.60	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:32	2.577e+04	4.952e+04	0.52	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:39	3.063e+04	5.837e+04	0.52	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:54	2.358e+04	4.478e+04	0.53	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:10	2.047e+04	4.418e+04	0.46	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:39	1.513e+04	3.341e+04	0.45	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:44	2.157e+04	2.821e+04	0.76	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:11	3.493e+04	2.247e+04	1.55	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:17	2.701e+04	2.051e+04	1.32	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:21	3.660e+04	2.772e+04	1.32	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:07	2.920e+04	2.626e+04	1.11	yes	no	0.845
32 IS	13C-OCDD	43:05	3.825e+04	4.149e+04	0.92	yes	yes	0.501
33S/RT	13C-1,2,3,4-TCDD	29:11	2.136e+04	2.796e+04	0.76	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:36	3.410e+04	2.603e+04	1.31	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:45	9.886e+04				no	0.975

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
CS5

Method M23

Run #6    Filename U150164    #1    Samp: 1    Inj: 1    Acquired: 31-JUL-14 16:07:05  
Processed: 6-AUG-14    13:15:26    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	1.21e+07	1.04e+03	1.2e+04	1.57e+07	1.99e+03	7.9e+03
2	1,2,3,7,8-PeCDF	1.04e+08	3.77e+03	2.8e+04	6.69e+07	2.57e+03	2.6e+04
3	2,3,4,7,8-PeCDF	1.17e+08	3.77e+03	3.1e+04	7.57e+07	2.57e+03	2.9e+04
4	1,2,3,4,7,8-HxCDF	1.05e+08	5.18e+03	2.0e+04	8.55e+07	3.48e+03	2.5e+04
5	1,2,3,6,7,8-HxCDF	1.11e+08	5.18e+03	2.1e+04	9.05e+07	3.48e+03	2.6e+04
6	2,3,4,6,7,8-HxCDF	1.04e+08	5.18e+03	2.0e+04	8.44e+07	3.48e+03	2.4e+04
7	1,2,3,7,8,9-HxCDF	8.22e+07	5.18e+03	1.6e+04	6.69e+07	3.48e+03	1.9e+04
8	1,2,3,4,6,7,8-HpCDF	8.44e+07	1.05e+03	8.1e+04	8.12e+07	1.36e+03	6.0e+04
9	1,2,3,4,7,8,9-HpCDF	5.57e+07	1.05e+03	5.3e+04	5.41e+07	1.36e+03	4.0e+04
10	OCDF	7.78e+07	8.12e+02	9.6e+04	8.60e+07	1.05e+03	8.2e+04
11	2,3,7,8-TCDD	8.62e+06	8.48e+02	1.0e+04	1.07e+07	1.13e+03	9.5e+03
12	1,2,3,7,8-PeCDD	7.57e+07	1.38e+03	5.5e+04	4.61e+07	9.64e+02	4.8e+04
13	1,2,3,4,7,8-HxCDD	8.28e+07	9.20e+02	9.0e+04	6.50e+07	9.96e+02	6.5e+04
14	1,2,3,6,7,8-HxCDD	7.51e+07	9.20e+02	8.2e+04	6.03e+07	9.96e+02	6.1e+04
15	1,2,3,7,8,9-HxCDD	7.88e+07	9.20e+02	8.6e+04	6.26e+07	9.96e+02	6.3e+04
16	1,2,3,4,6,7,8-HpCDD	5.31e+07	7.76e+02	6.8e+04	5.03e+07	7.52e+02	6.7e+04
17	OCDD	6.57e+07	6.20e+02	1.1e+05	7.35e+07	5.68e+02	1.3e+05
18	13C-2,3,7,8-TCDF	6.12e+06	1.68e+03	3.6e+03	7.20e+06	1.00e+03	7.2e+03
19	13C-1,2,3,7,8-PeCDF	1.12e+07	1.54e+03	7.3e+03	6.88e+06	1.08e+03	6.4e+03
20	13C-2,3,4,7,8-PeCDF	1.15e+07	1.54e+03	7.5e+03	7.29e+06	1.08e+03	6.8e+03
21	13C-1,2,3,4,7,8-HxCDF	5.43e+06	9.12e+02	6.0e+03	1.04e+07	1.30e+03	8.0e+03
22	13C-1,2,3,6,7,8-HxCDF	5.82e+06	9.12e+02	6.4e+03	1.11e+07	1.30e+03	8.5e+03
24	13C-1,2,3,7,8,9-HxCDF	4.40e+06	9.12e+02	4.8e+03	8.48e+06	1.30e+03	6.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.88e+06	1.04e+03	3.7e+03	8.44e+06	9.12e+02	9.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.46e+06	1.04e+03	2.4e+03	5.44e+06	9.12e+02	6.0e+03
27	13C-2,3,7,8-TCDD	4.46e+06	3.48e+03	1.3e+03	5.84e+06	2.06e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	6.65e+06	1.14e+03	5.9e+03	4.27e+06	9.64e+02	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	6.07e+06	1.58e+03	3.8e+03	4.54e+06	8.96e+02	5.1e+03
30	13C-1,2,3,6,7,8-HxCDD	6.79e+06	1.58e+03	4.3e+03	5.17e+06	8.96e+02	5.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.00e+06	2.16e+03	2.3e+03	4.55e+06	1.15e+03	4.0e+03
32	13C-OCDD	5.50e+06	8.20e+02	6.7e+03	5.94e+06	9.84e+02	6.0e+03
33	13C-1,2,3,4-TCDD	4.44e+06	3.48e+03	1.3e+03	5.75e+06	2.06e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.29e+06	1.58e+03	4.0e+03	4.74e+06	8.96e+02	5.3e+03
35	37Cl-2,3,7,8-TCDD	2.00e+07	1.78e+03	1.1e+04			

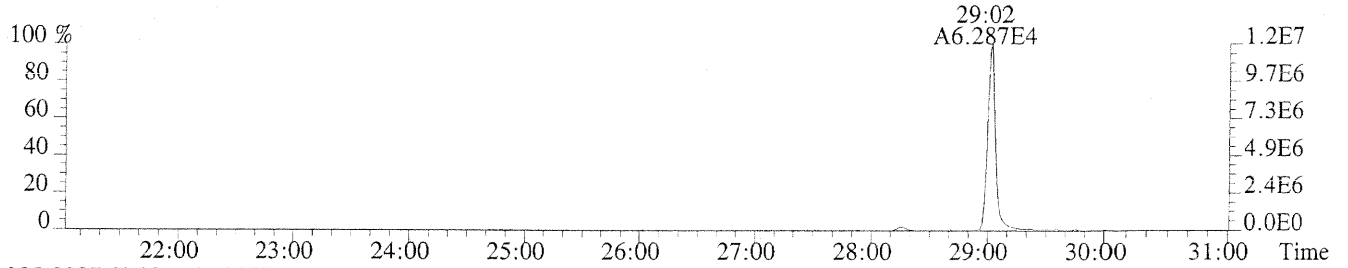
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713)266-1599. Fax: (713)266-0130

ALS Form TO-9SN/M23SN.FRM

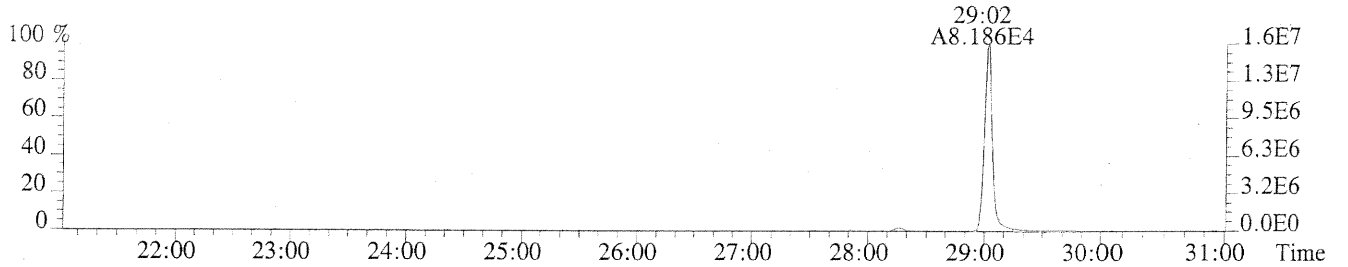
File:U150164 #1-627 Acq:31-JUL-2014 16:07:05 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS5

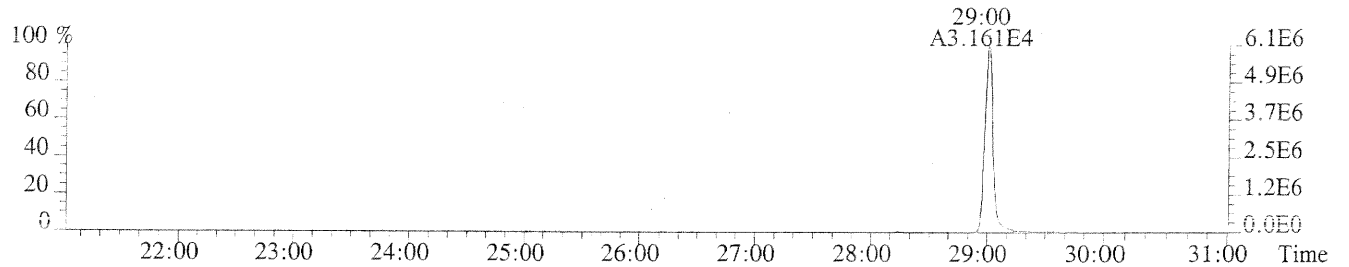
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



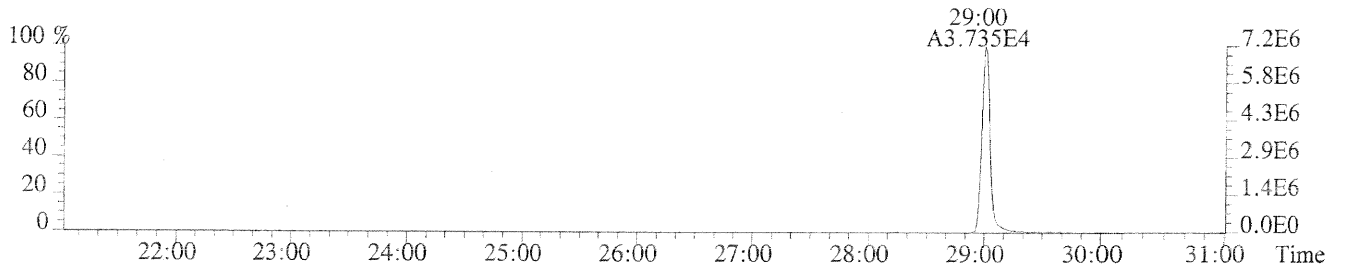
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



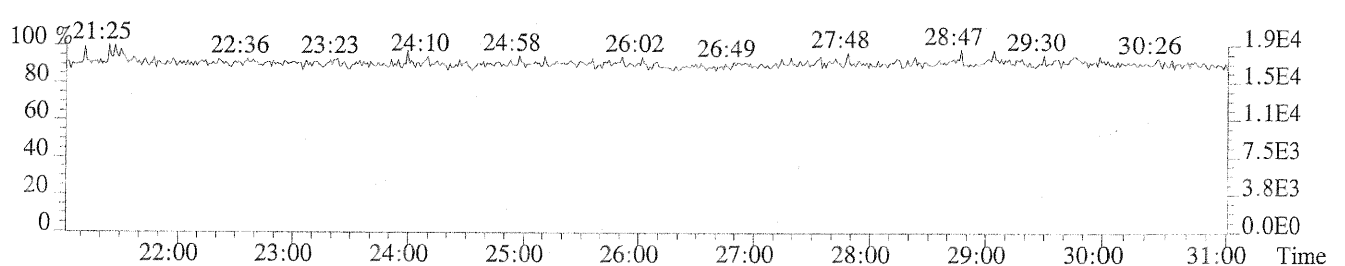
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



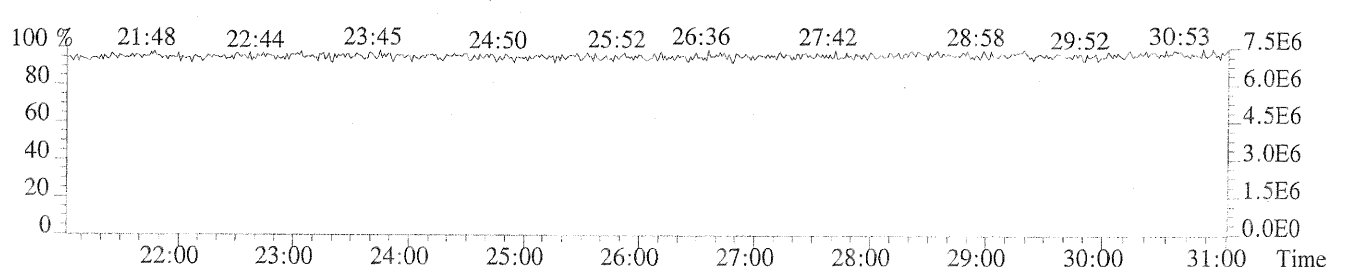
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



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

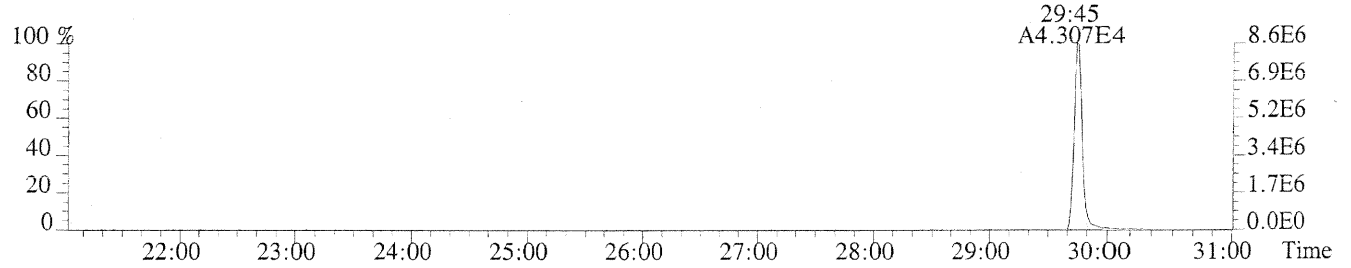


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

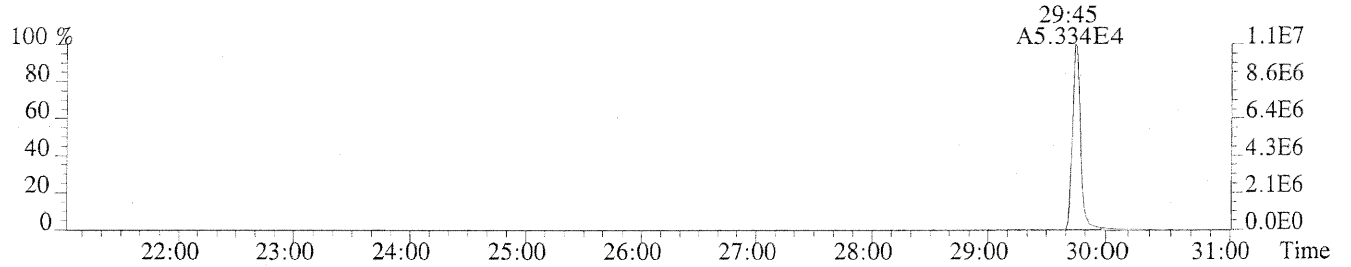


Sample#1 Exp:CS5

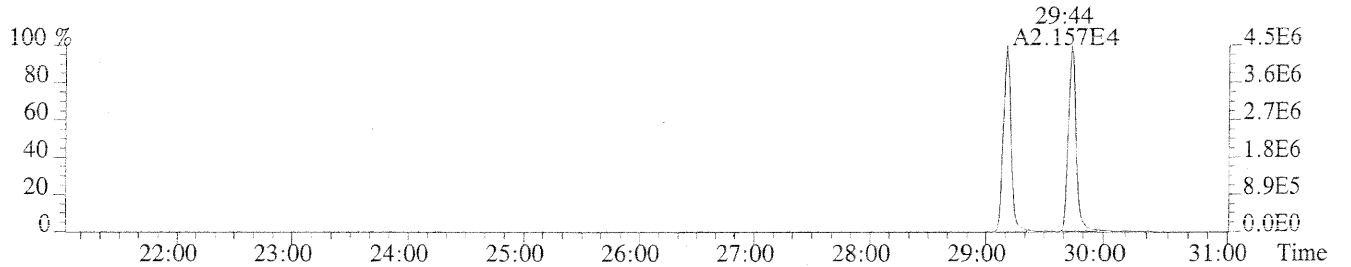
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



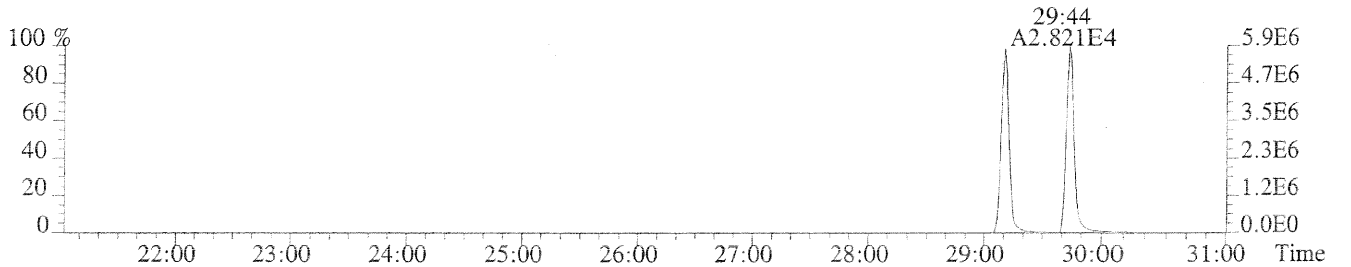
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



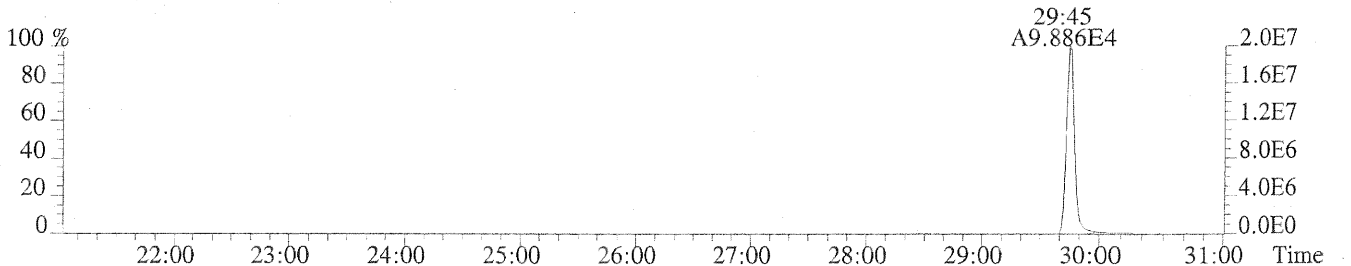
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3480.0,1.00%,F,T)



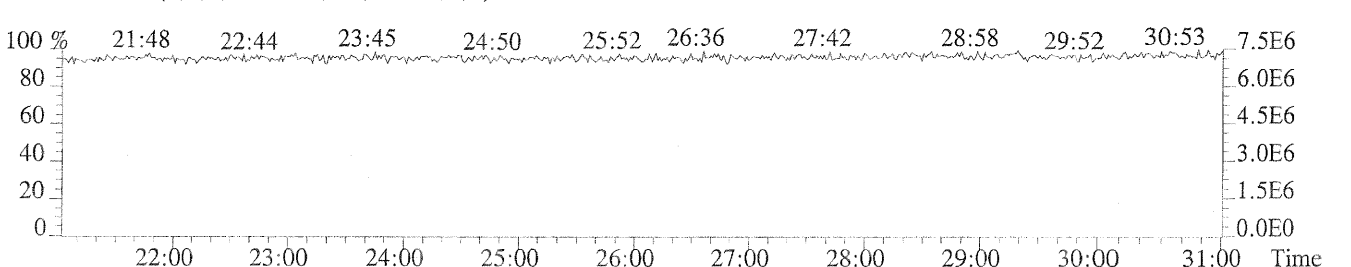
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



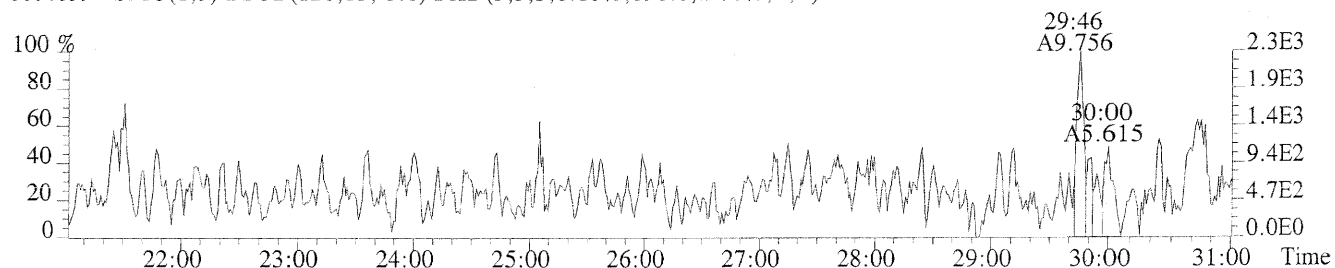
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



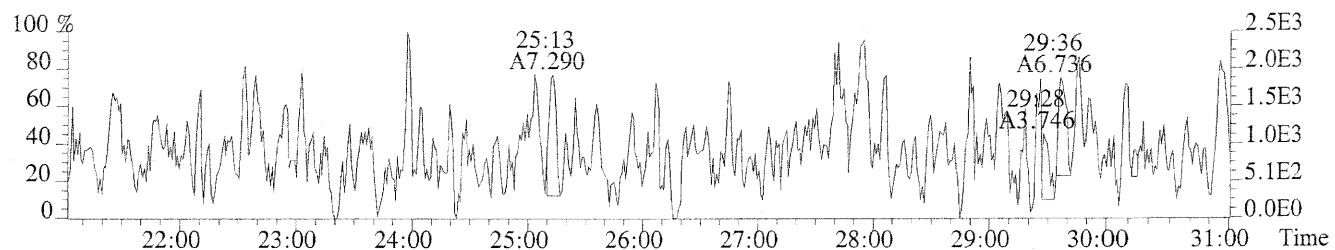
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



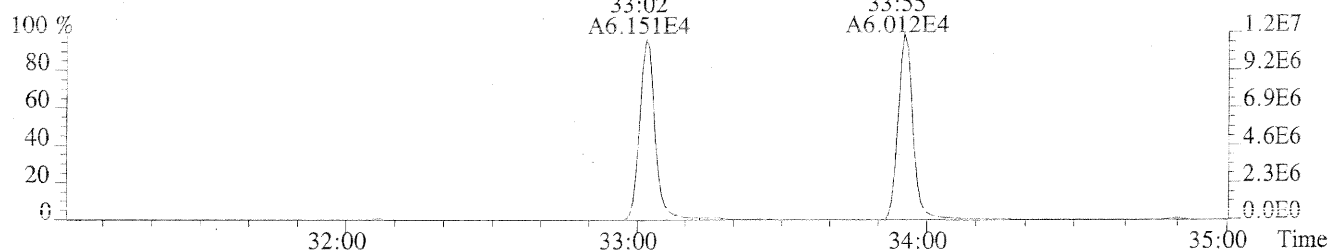
File:U150164 #1-627 Acq:31-JUL-2014 16:07:05 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS5  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



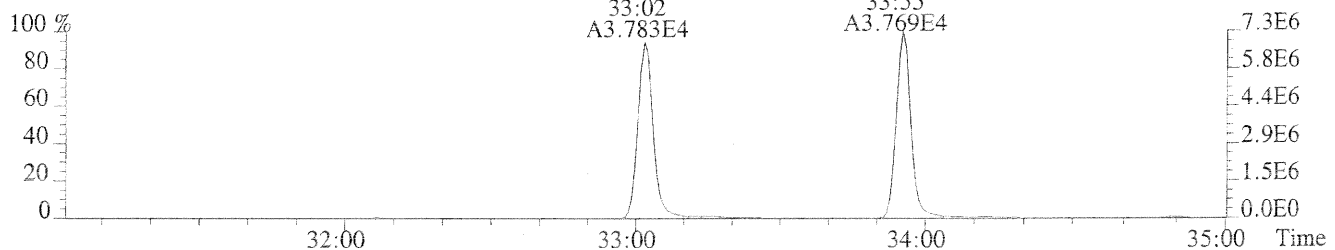
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



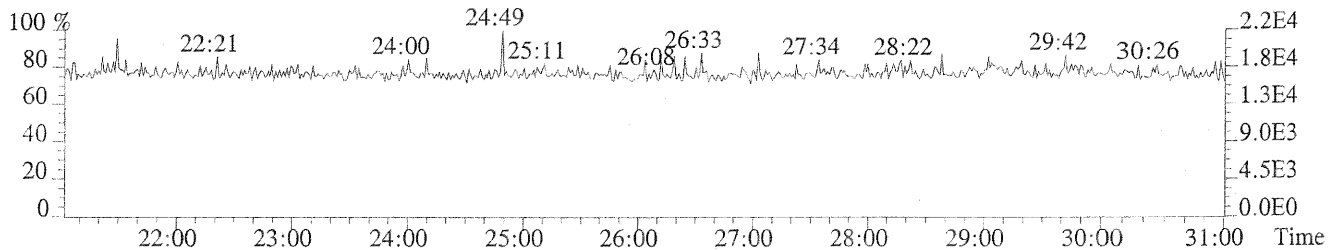
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



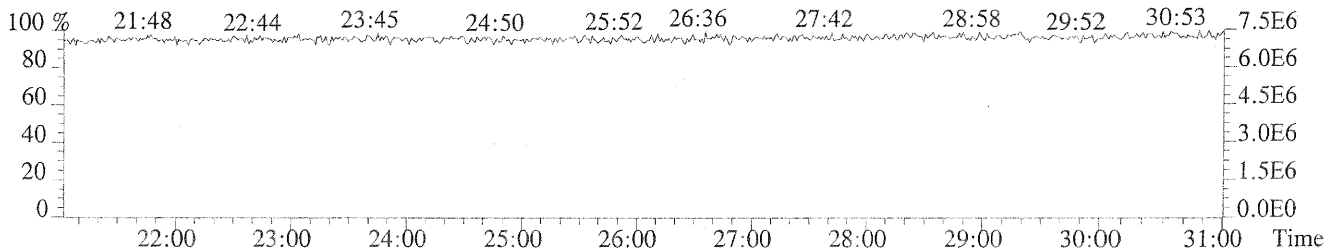
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



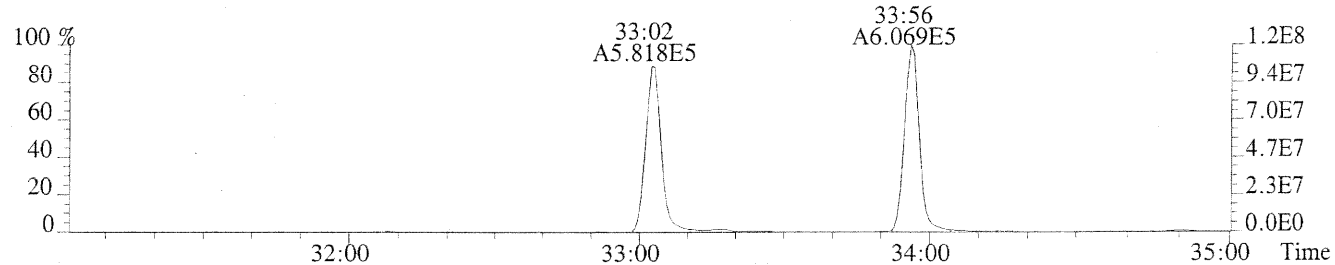
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



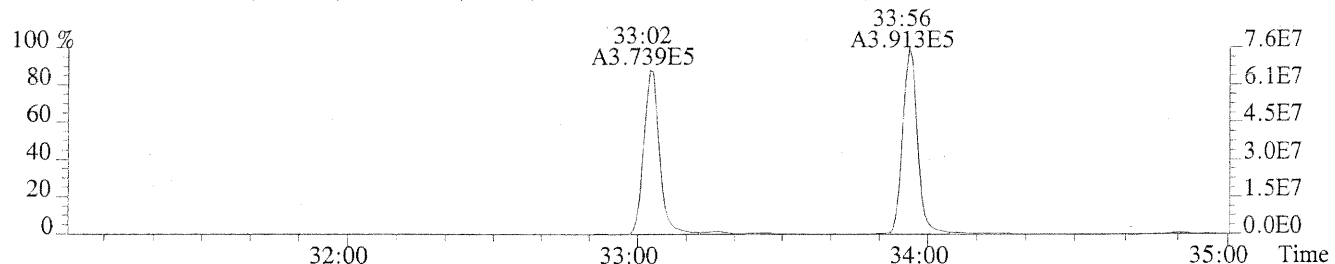
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



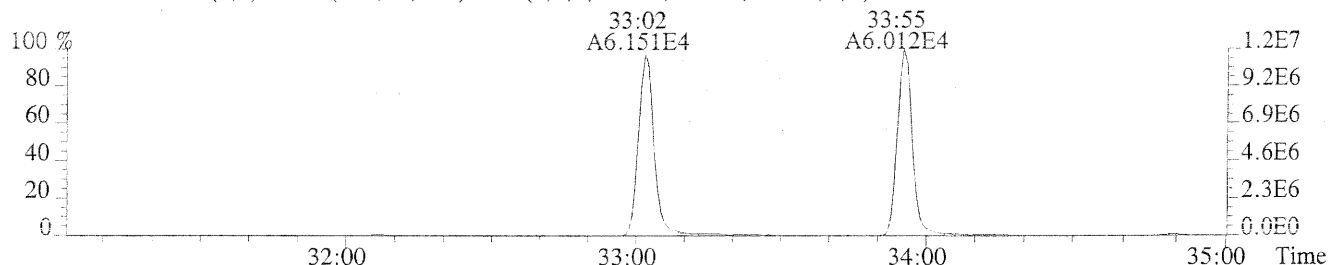
File:U150164 #1-360 Acq:31-JUL-2014 16:07:05 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:CS5  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3768.0,1.00%,F,T)



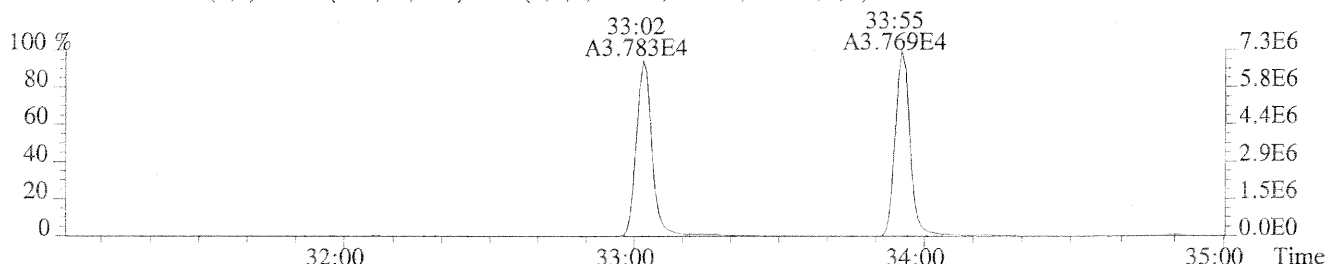
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



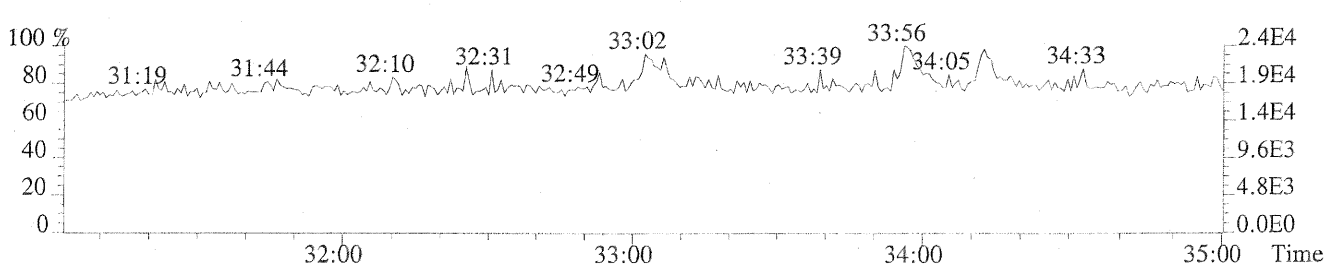
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)



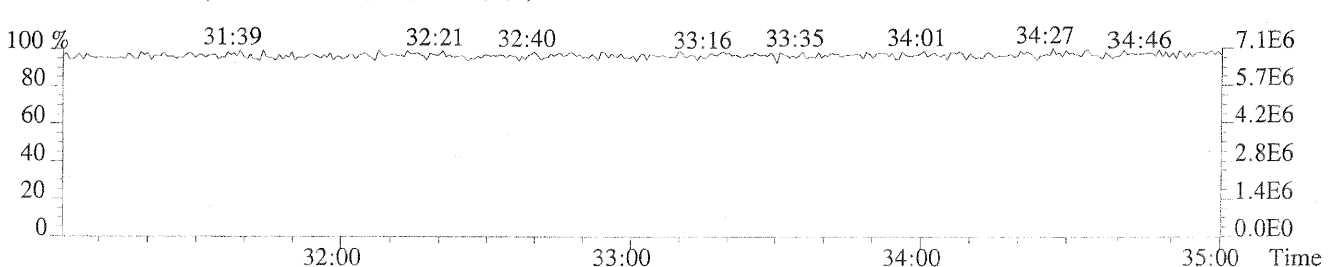
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



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



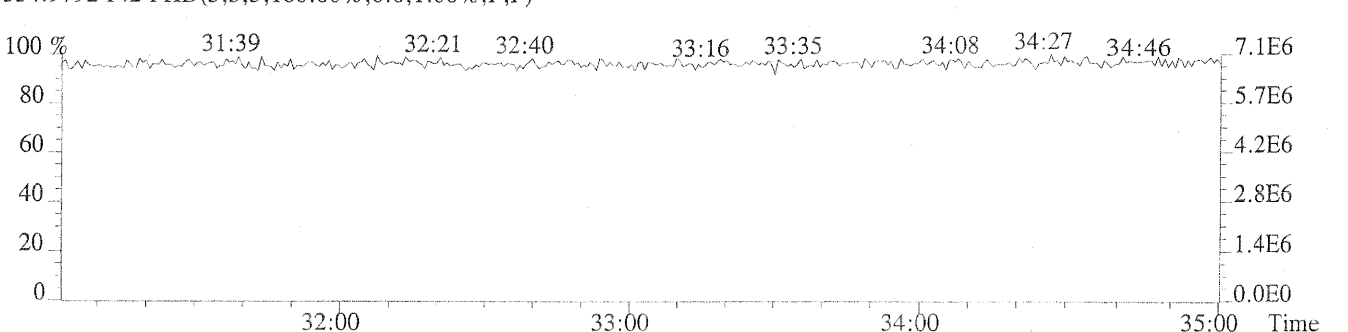
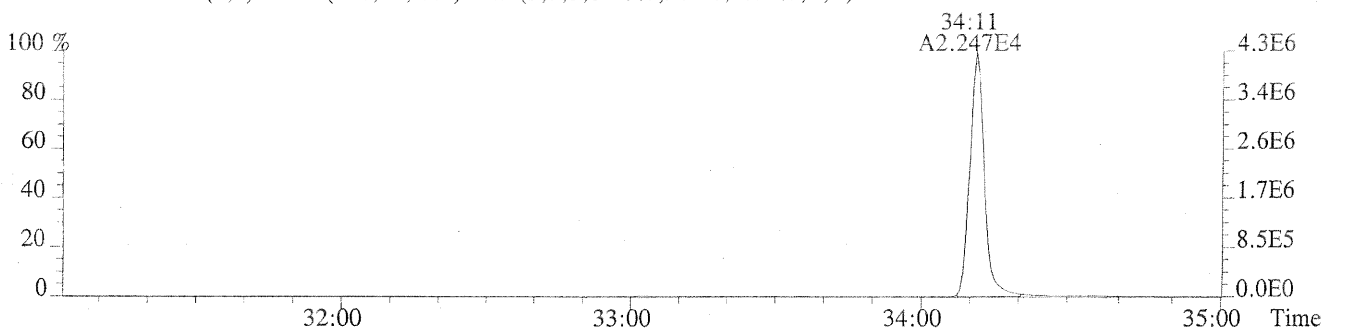
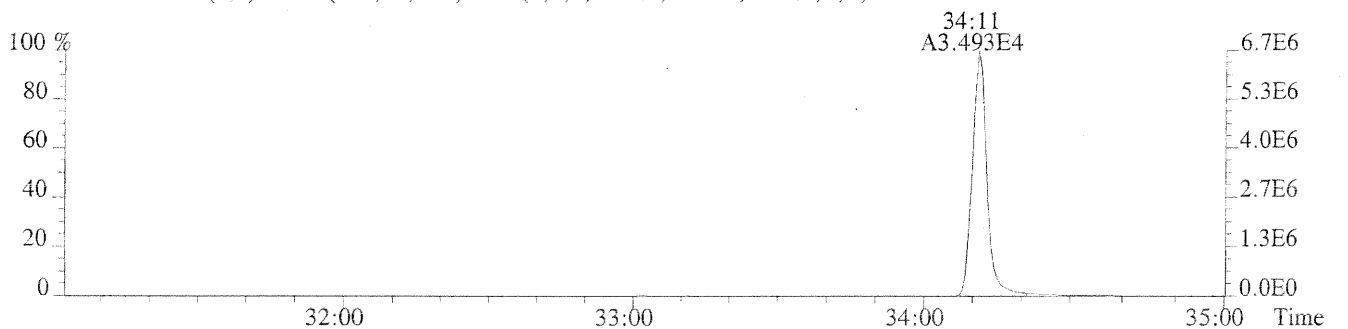
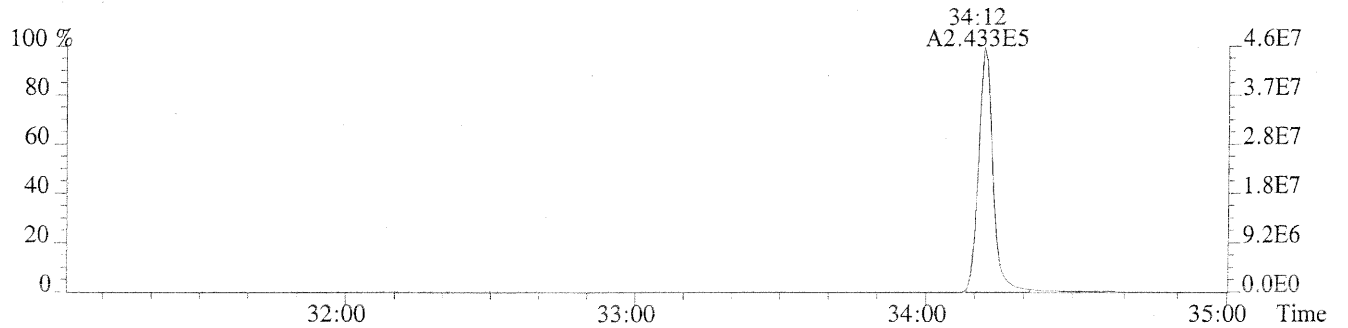
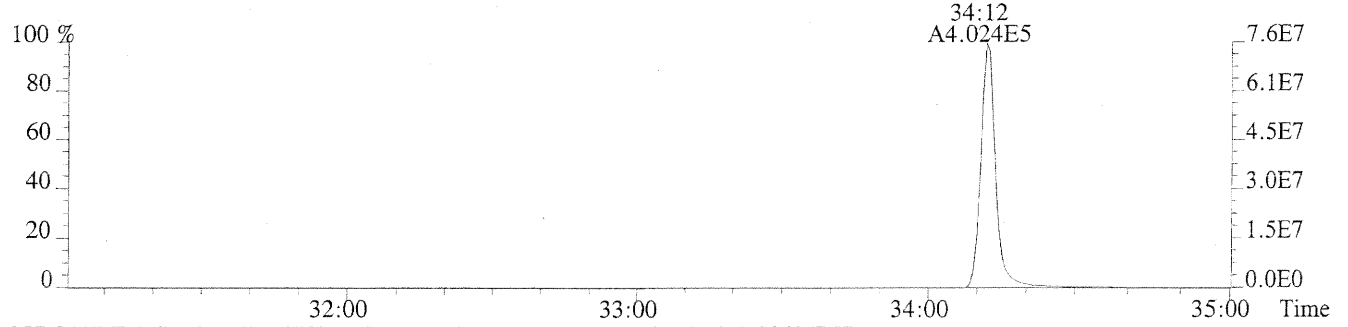
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)





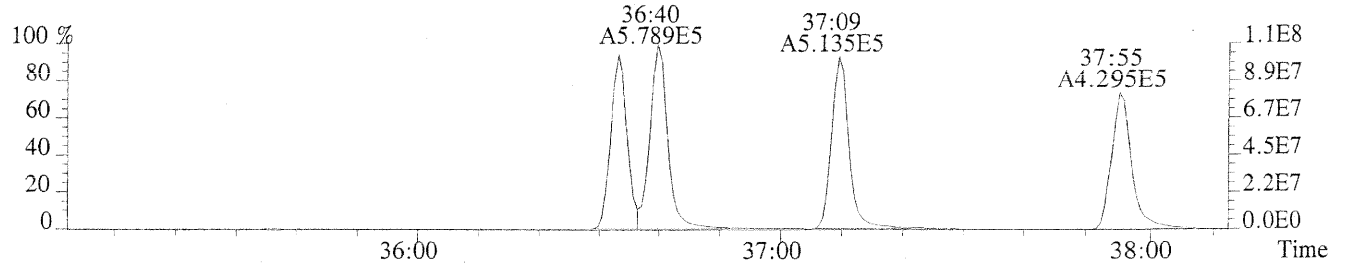
Sample#1 Exp:CS5

355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)

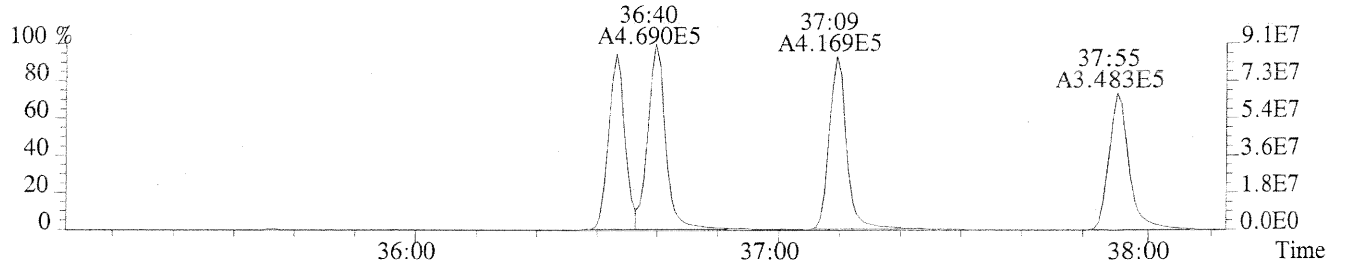


Sample#1 Exp:CS5

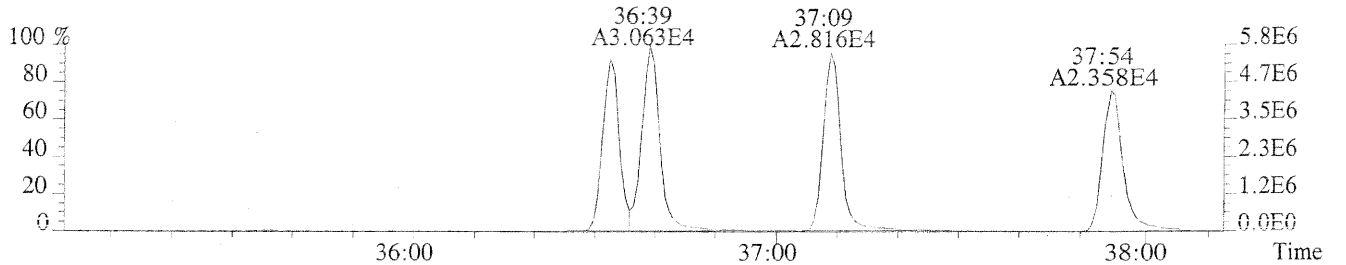
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5184.0,0.40%,F,T)



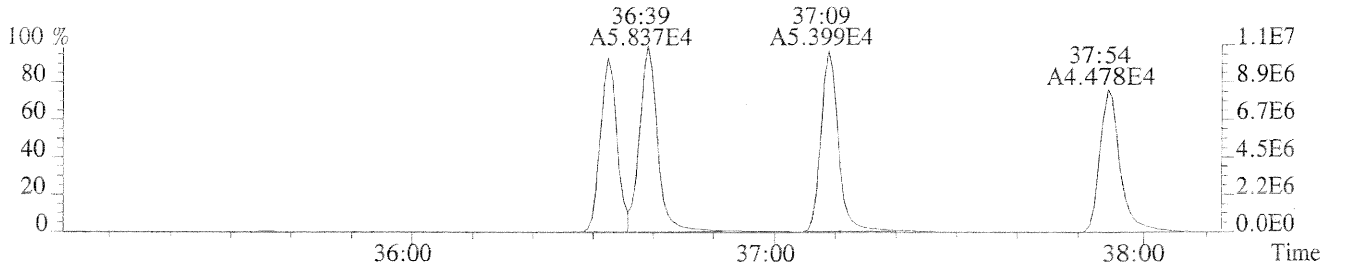
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3484.0,0.40%,F,T)



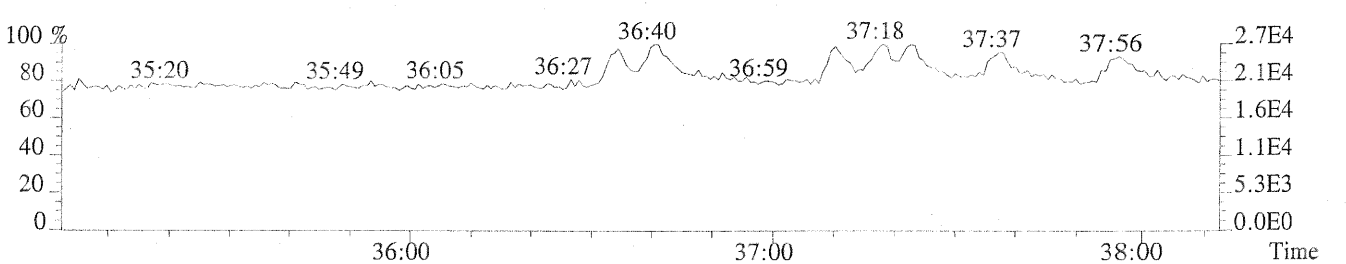
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



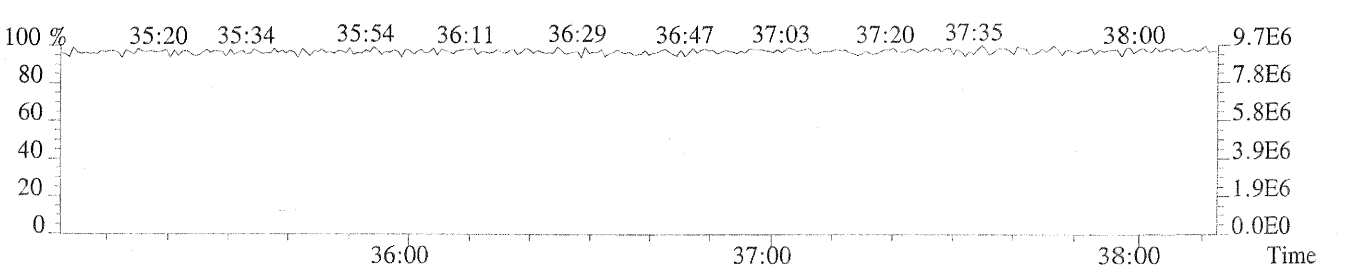
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1304.0,0.40%,F,T)



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



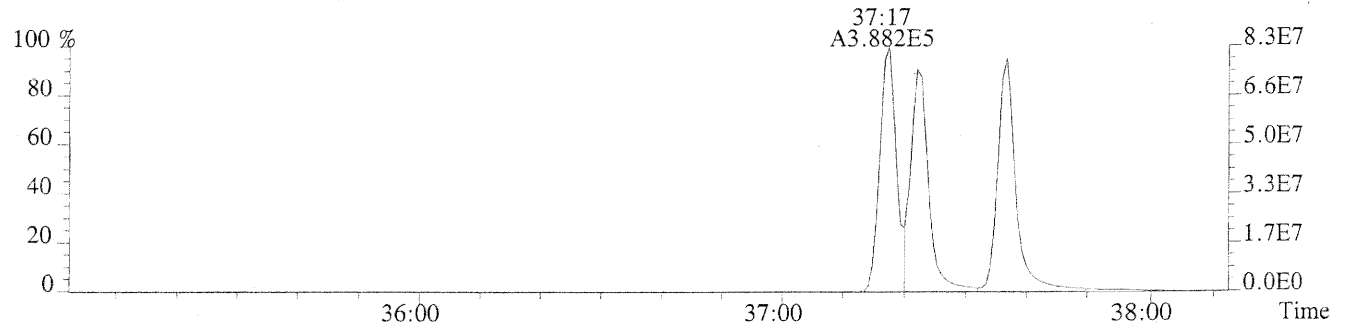
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



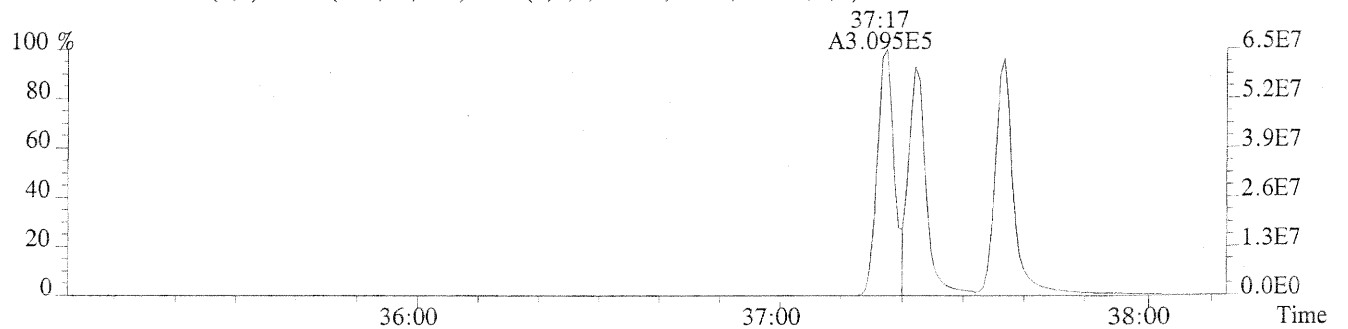
File:U150164 #1-288 Acq:31-JUL-2014 16:07:05 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS5

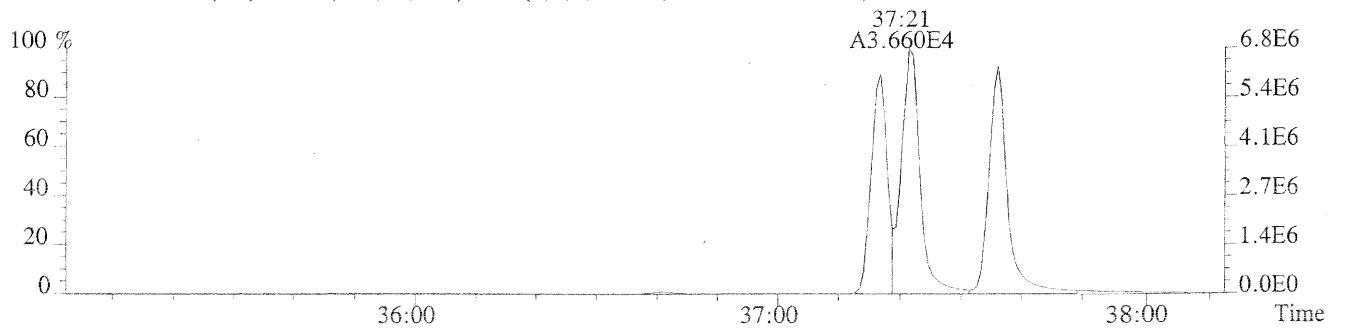
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



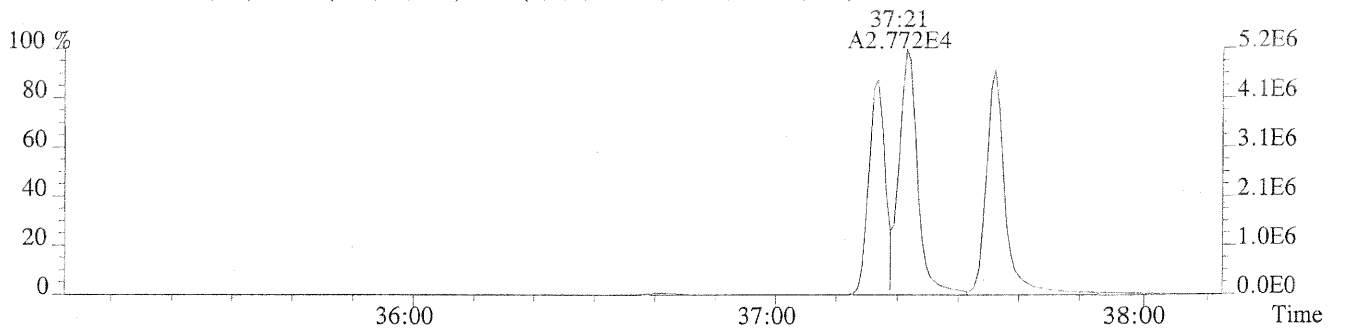
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



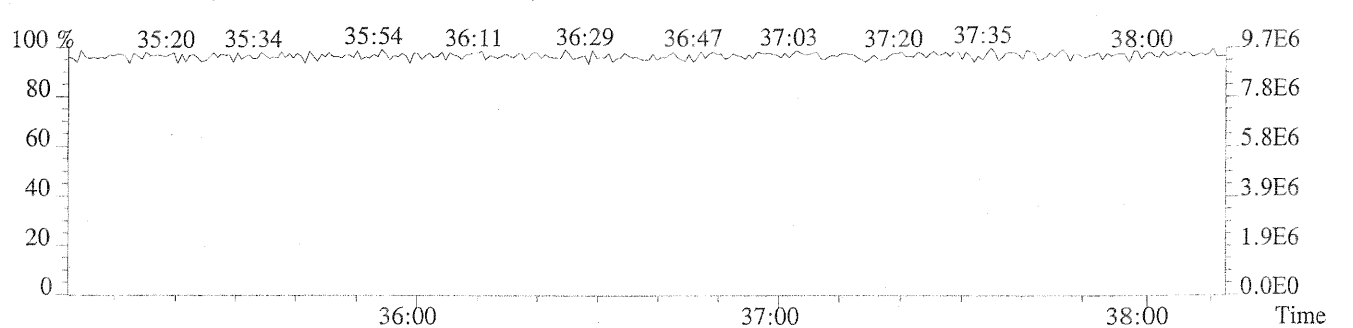
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1580.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



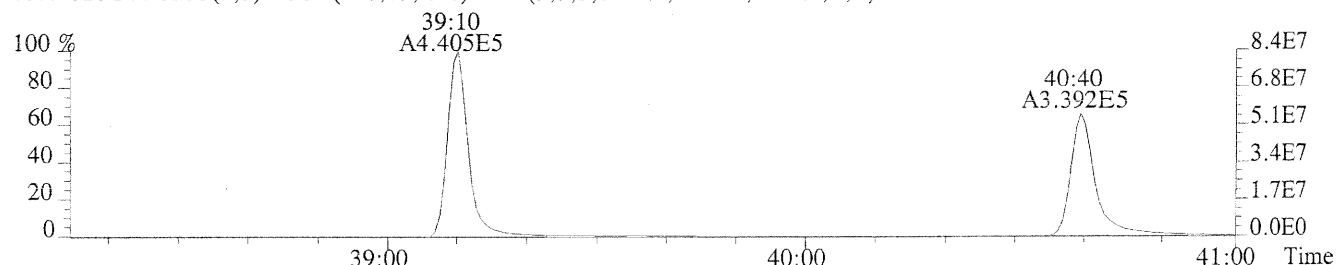
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



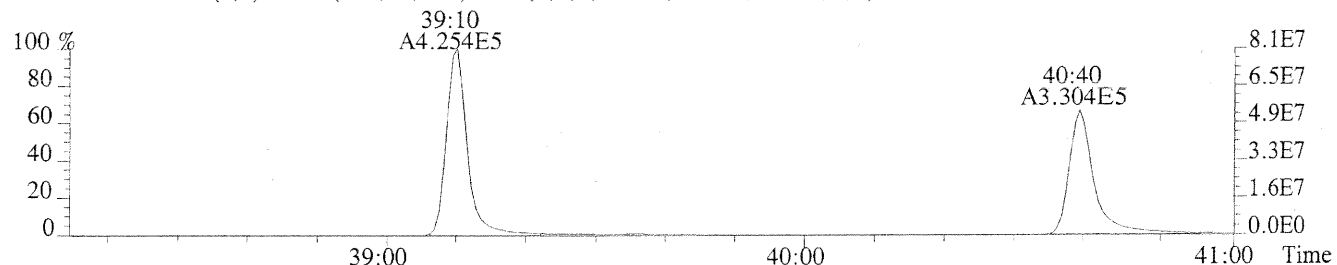
File:U150164 #1-251 Acq:31-JUL-2014 16:07:05 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS5

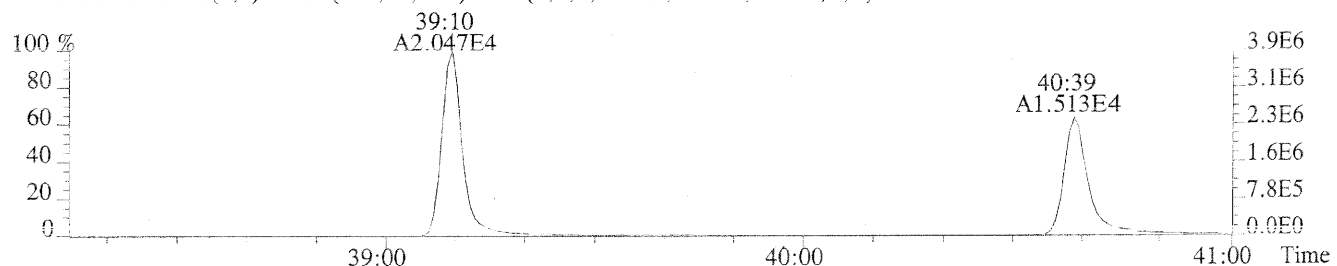
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.50%,F,T)



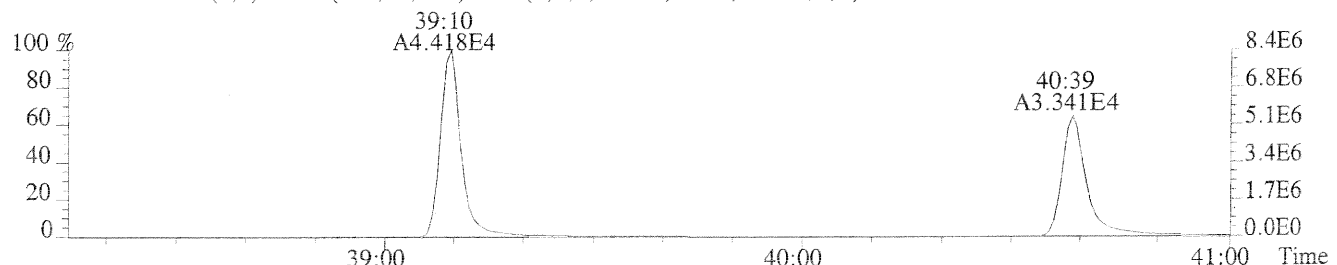
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.50%,F,T)



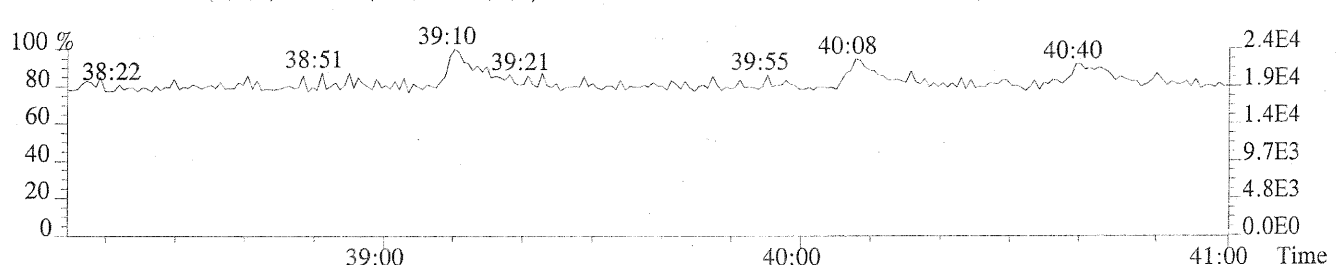
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.50%,F,T)



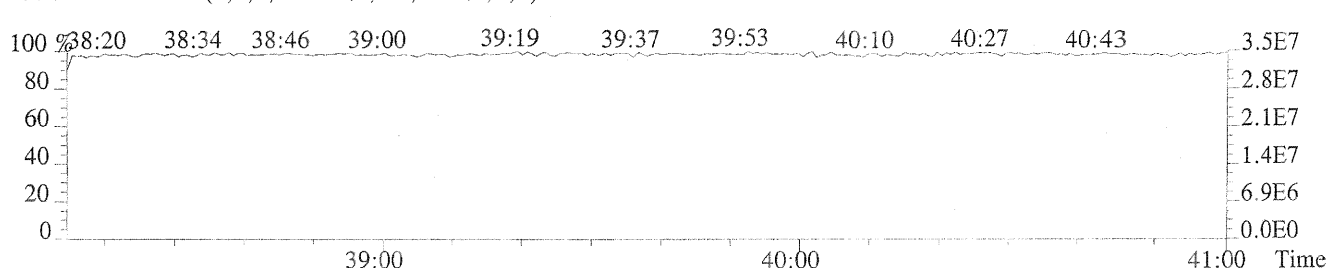
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.50%,F,T)



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

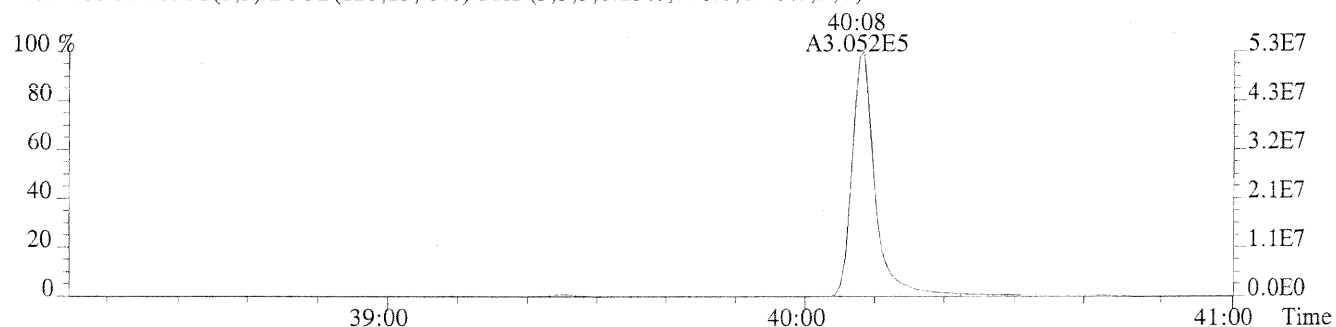


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

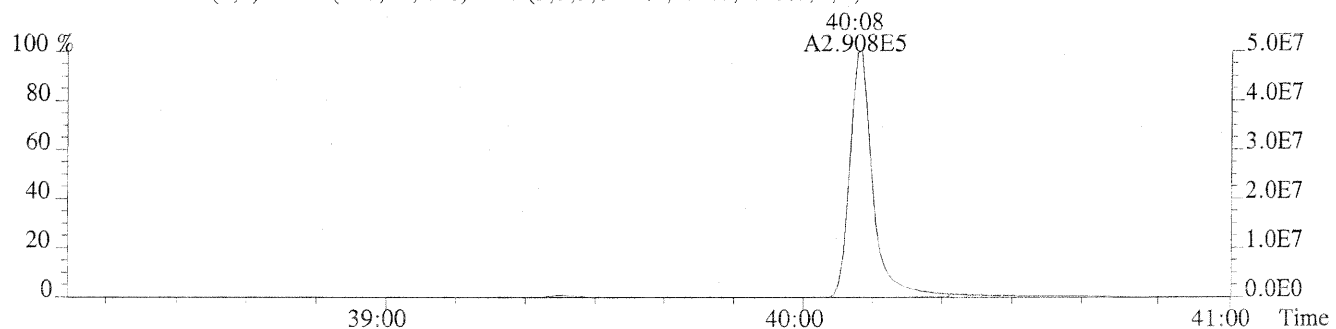


Sample#1 Exp:CS5

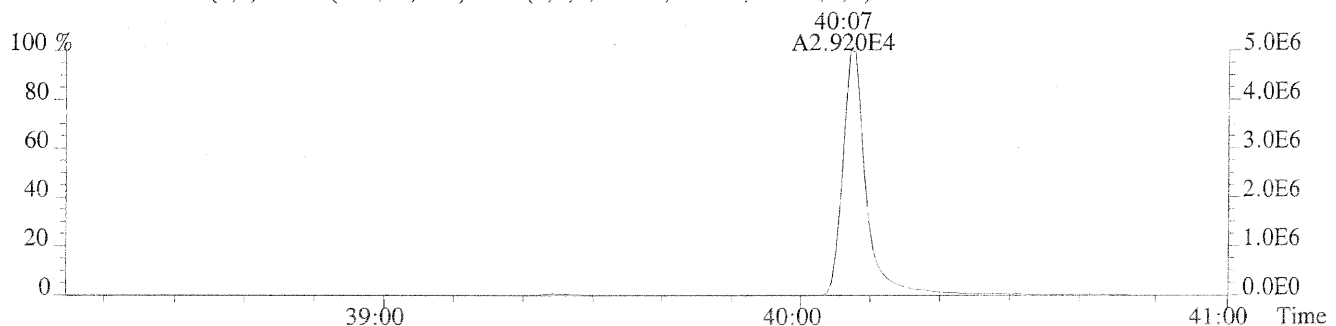
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



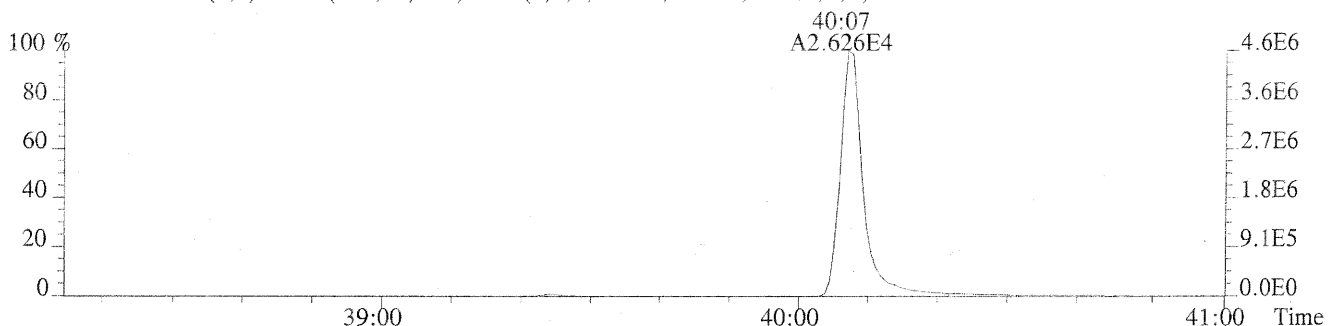
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



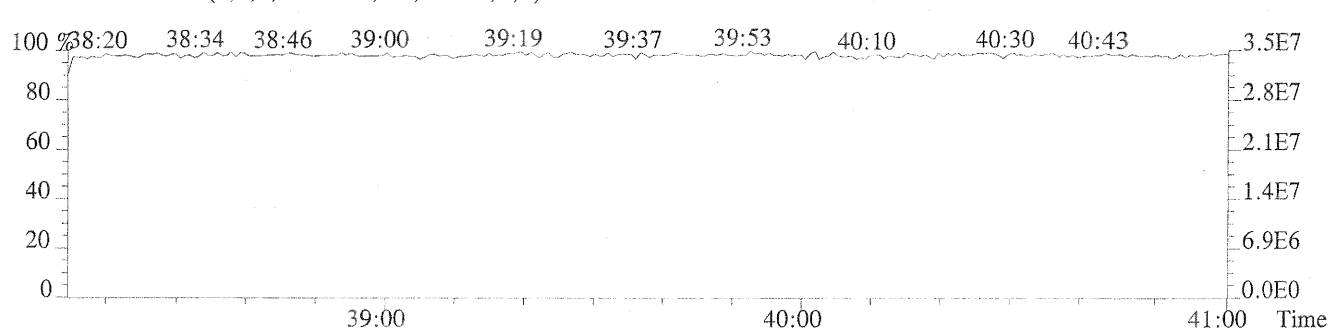
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



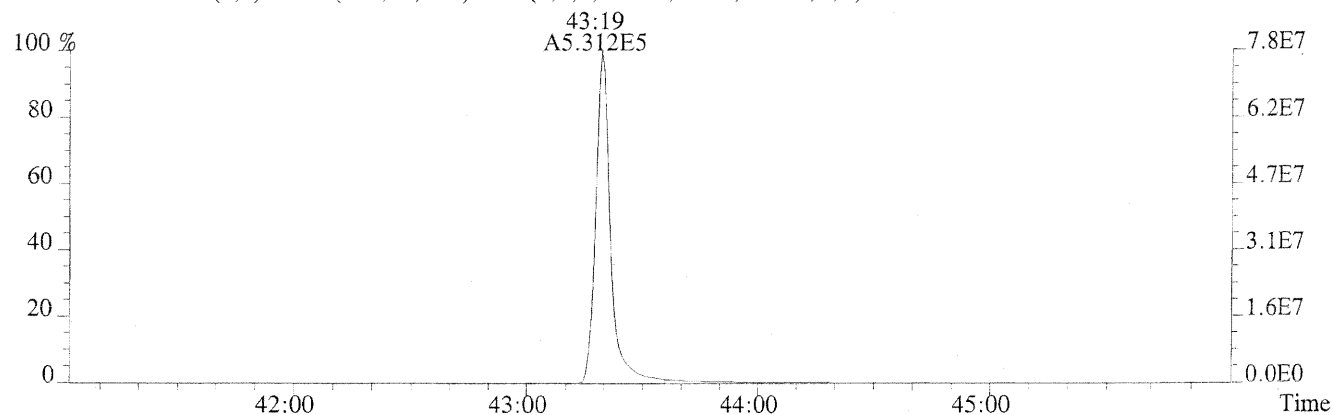
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



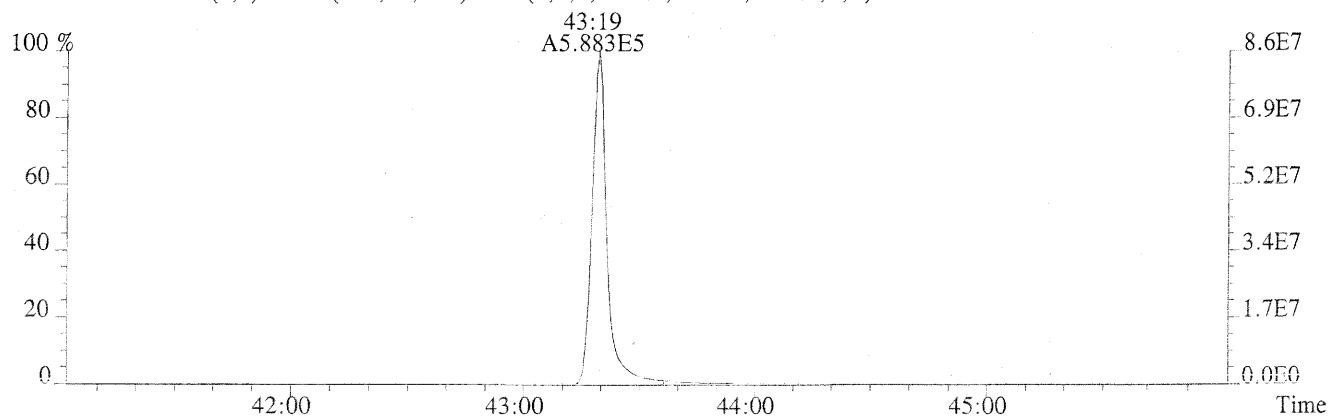
File:U150164 #1-451 Acq:31-JUL-2014 16:07:05 Probe EI+ Magnet SIR VG BioTech Mass spectf

Sample#1 Exp:CS5

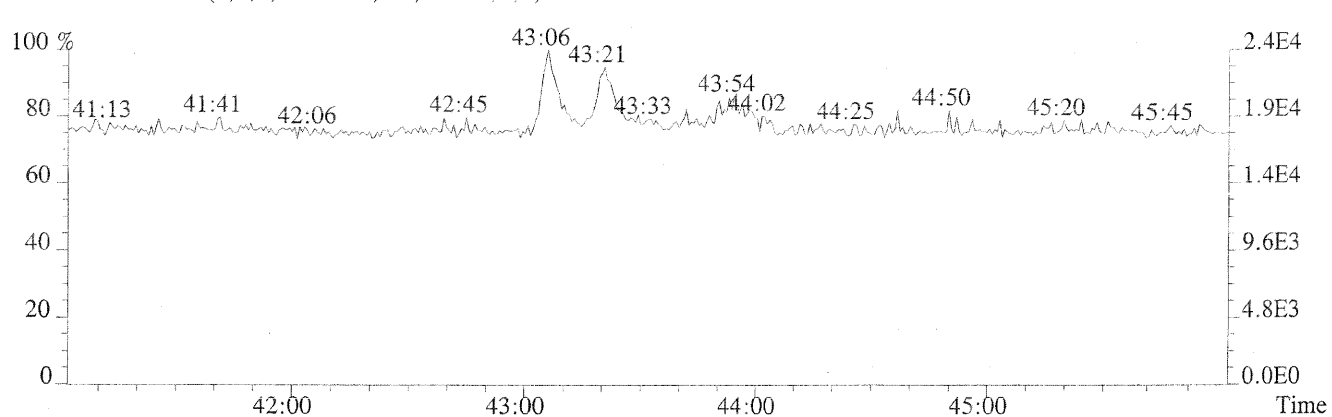
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,812.0,0.40%,F,T)



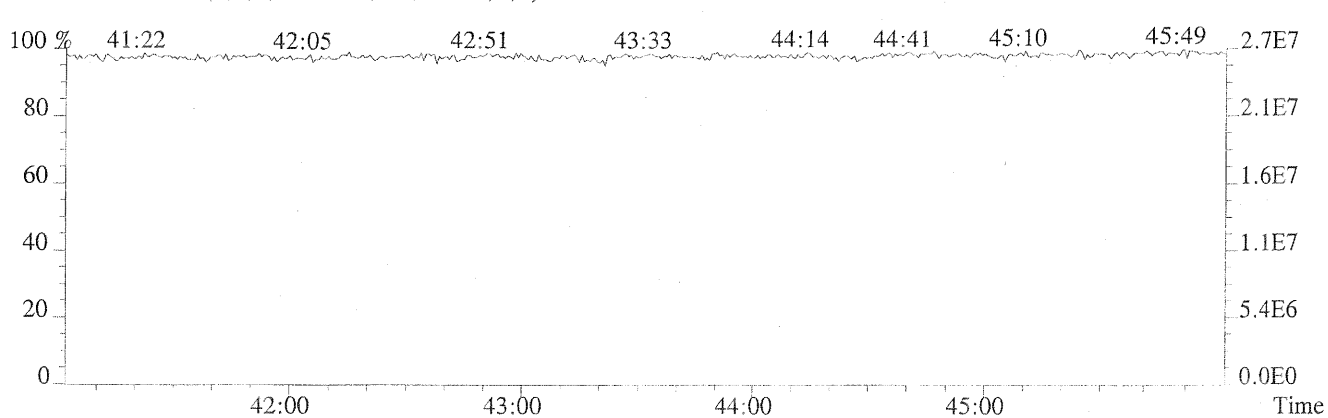
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1048.0,0.40%,F,T)



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

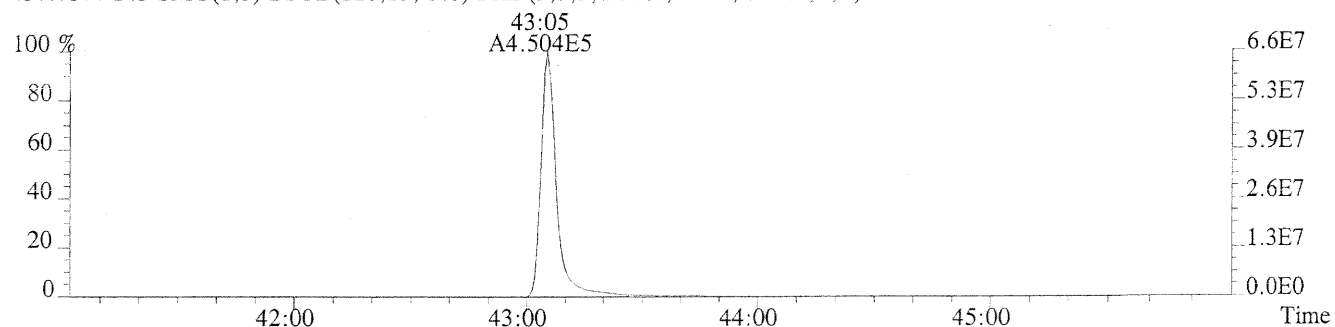


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

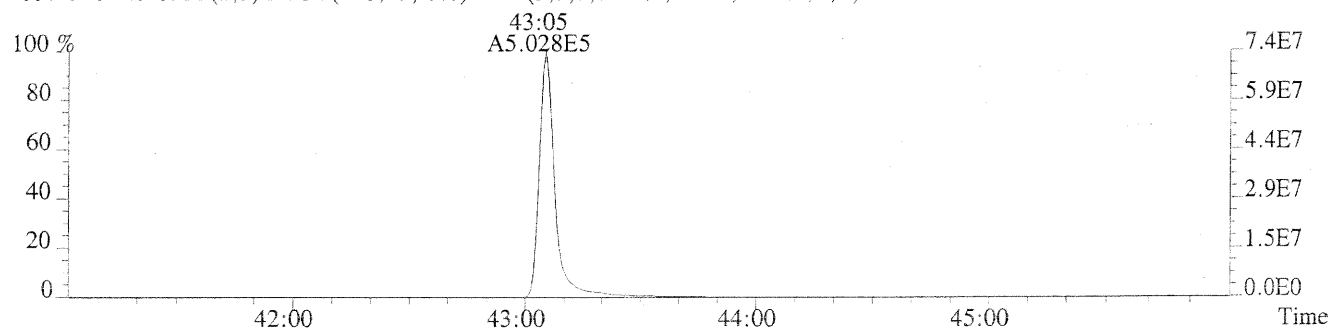


Sample#1 Exp:CS5

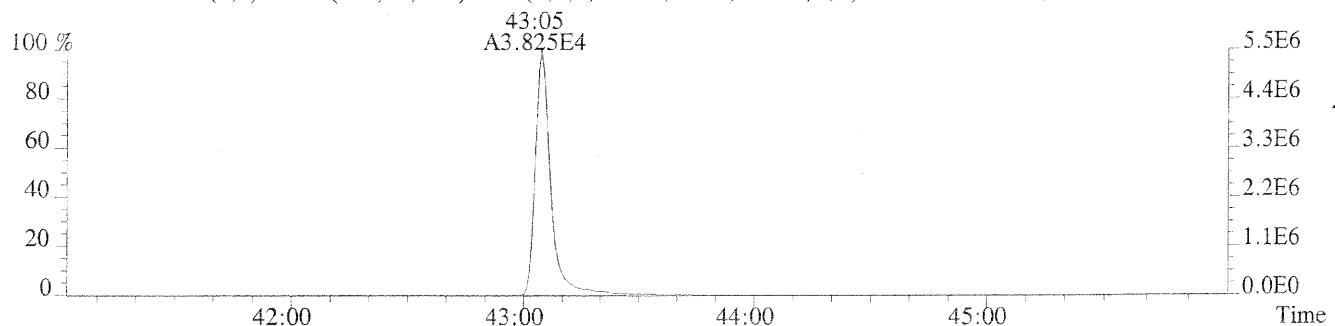
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



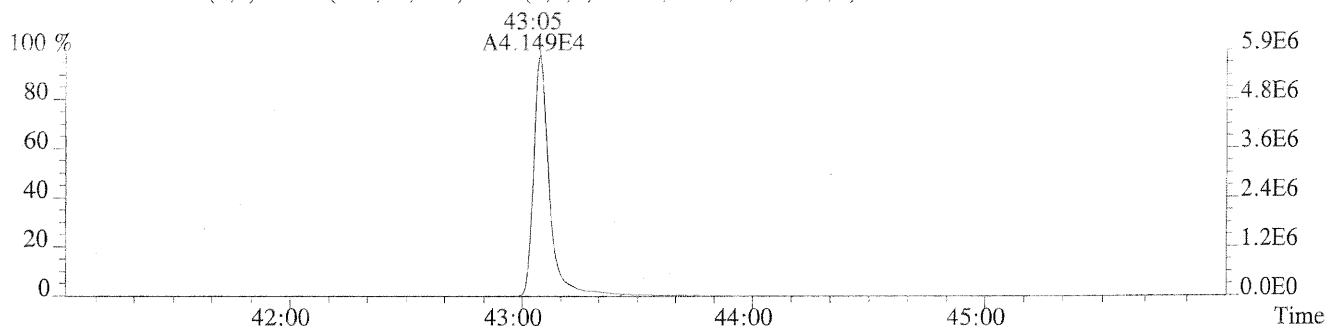
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



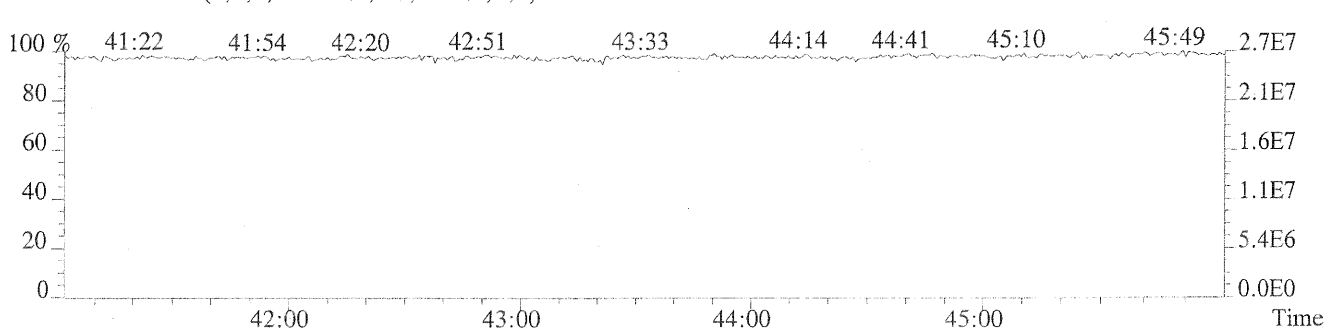
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,984.0,0.40%,F,T)



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



FORM 4A  
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL

Episode No.:

Contract No.:

SAS No.:

Initial Calibration Date: 07/31/14

METHOD M23

Instrument ID: E-HRMS-01

GC Column ID: DB5MSUI

VER Data Filename: U150167

Analysis Date: 31-JUL-14 Time: 19:57:38

	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	0.82	0.65-0.89	0.95	0.97	-2.41
1,2,3,7,8-PeCDD	M+2/M+4	1.64	1.32-1.78	1.06	1.12	-5.43
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	0.98	1.06	-7.51
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	1.11	1.25	-11.50
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	1.17	1.25	-6.70
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	1.06	1.10	-4.12
OCDD	M+2/M+4	0.89	0.76-1.02	1.15	1.33	-13.68
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	1.01	1.06	-4.17
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	0.93	1.02	-9.27
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	0.96	0.99	-2.59
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	0.96	0.97	-1.10
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	1.15	1.15	-0.38
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	0.76	0.81	-6.15
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	0.99	1.03	-3.52
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	1.31	1.36	-3.87
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	0.92	0.96	-4.22
OCDF	M+2/M+4	0.94	0.76-1.02	1.25	1.47	-14.75

(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: 07/31/14

METHOD M23

Instrument ID: E-HRMS-01

GC Column ID: DB5MSUI

VER Data Filename: U150167

Analysis Date: 31-JUL-14 Time: 19:57:38

	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	0.77	0.65-0.89	0.98	0.98	-0.20
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	1.07	1.07	-0.65
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	1.06	0.97	8.74
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.11	0.88-1.20	0.87	0.85	2.54
13C-OCDD	M+2/M+4	0.92	0.76-1.02	0.54	0.50	8.10
13C-2,3,7,8-TCDF	M/M+2	0.84	0.65-0.89	1.38	1.41	-1.93
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	1.82	1.87	-2.49
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	1.49	1.51	-1.62
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	1.01	1.01	0.38
Surrogate Standards						
37Cl-2,3,7,8-TCDD				0.97	0.97	-0.66
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	0.98	1.01	-3.31
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	0.74	0.80	-7.46
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	0.83	0.78	6.01
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	0.68	0.73	-6.11
Alternate Standard						
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	1.03	1.04	-1.34

(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  
Method M23

CLIENT ID.  
2nd SOURCE

Sample Response Summary

Run #7 Filename U150167 #1 Samp: 1 Inj: 1 Acquired: 31-JUL-14 19:57:38  
Processed: 7-AUG-14 12:01:38 LAB. ID: 2nd SOURCE

Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1 Unk	2,3,7,8-TCDF	29:02	2.879e+03	3.688e+03	0.78	yes	no	1.057
2 Unk	1,2,3,7,8-PeCDF	33:03	2.424e+04	1.546e+04	1.57	yes	no	1.020
3 Unk	2,3,4,7,8-PeCDF	33:56	2.498e+04	1.631e+04	1.53	yes	no	0.988
4 Unk	1,2,3,4,7,8-HxCDF	36:33	1.936e+04	1.580e+04	1.23	yes	no	0.966
5 Unk	1,2,3,6,7,8-HxCDF	36:40	2.327e+04	1.885e+04	1.23	yes	no	1.149
6 Unk	2,3,4,6,7,8-HxCDF	37:10	2.023e+04	1.632e+04	1.24	yes	no	1.030
7 Unk	1,2,3,7,8,9-HxCDF	37:55	1.544e+04	1.263e+04	1.22	yes	no	0.813
8 Unk	1,2,3,4,6,7,8-HpCDF	39:10	1.647e+04	1.629e+04	1.01	yes	no	1.364
9 Unk	1,2,3,4,7,8,9-HpCDF	40:40	1.169e+04	1.124e+04	1.04	yes	no	0.959
10 Unk	OCDF	43:19	1.625e+04	1.726e+04	0.94	yes	no	1.466
11 Unk	2,3,7,8-TCDD	29:46	1.963e+03	2.399e+03	0.82	yes	no	0.972
12 Unk	1,2,3,7,8-PeCDD	34:12	1.653e+04	1.006e+04	1.64	yes	no	1.120
13 Unk	1,2,3,4,7,8-HxCDD	37:17	1.417e+04	1.143e+04	1.24	yes	no	1.055
14 Unk	1,2,3,6,7,8-HxCDD	37:22	1.625e+04	1.276e+04	1.27	yes	no	1.250
15 Unk	1,2,3,7,8,9-HxCDD	37:37	1.696e+04	1.365e+04	1.24	yes	no	1.251
16 Unk	1,2,3,4,6,7,8-HpCDD	40:08	1.161e+04	1.104e+04	1.05	yes	no	1.102
17 Unk	OCDD	43:05	1.448e+04	1.627e+04	0.89	yes	no	1.329
18 IS	13C-2,3,7,8-TCDF	29:01	2.969e+04	3.516e+04	0.84	yes	no	1.406
19 IS	13C-1,2,3,7,8-PeCDF	33:02	5.292e+04	3.288e+04	1.61	yes	no	1.870
20 SS	13C-2,3,4,7,8-PeCDF	33:55	5.135e+04	3.241e+04	1.58	yes	no	1.010
21 SS	13C-1,2,3,4,7,8-HxCDF	36:33	2.104e+04	3.995e+04	0.53	yes	no	0.782
22 IS	13C-1,2,3,6,7,8-HxCDF	36:39	2.526e+04	4.831e+04	0.52	yes	no	1.511
24 ALT	13C-1,2,3,7,8,9-HxCDF	37:55	1.736e+04	3.346e+04	0.52	yes	no	1.041
25 IS	13C-1,2,3,4,6,7,8-HpCDF	39:09	1.572e+04	3.424e+04	0.46	yes	no	1.006
26 SS	13C-1,2,3,4,7,8,9-HpCDF	40:39	1.037e+04	2.375e+04	0.44	yes	no	0.727
27 IS	13C-2,3,7,8-TCDD	29:44	2.006e+04	2.593e+04	0.77	yes	no	0.980
28 IS	13C-1,2,3,7,8-PeCDD	34:11	3.074e+04	1.948e+04	1.58	yes	no	1.075
29 SS	13C-1,2,3,4,7,8-HxCDD	37:16	2.167e+04	1.692e+04	1.28	yes	no	0.795
30 IS	13C-1,2,3,6,7,8-HxCDD	37:21	2.962e+04	2.283e+04	1.30	yes	no	0.975
31 IS	13C-1,2,3,4,6,7,8-HpCDD	40:07	2.258e+04	2.031e+04	1.11	yes	no	0.845
32 IS	13C-OCDD	43:05	2.572e+04	2.791e+04	0.92	yes	no	0.501
33S/RT	13C-1,2,3,4-TCDD	29:11	2.045e+04	2.660e+04	0.77	yes	no	-
34S/RT	13C-1,2,3,7,8,9-HxCDD	37:36	2.800e+04	2.149e+04	1.30	yes	no	-
35 SS	37Cl-2,3,7,8-TCDD	29:46	4.454e+03				no	0.975

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

ALS Form TO9resp.frm

ALS ENVIRONMENTAL  
Signal/Noise Height Ratio Summary

CLIENT ID.  
2nd SOURCE

Method M23

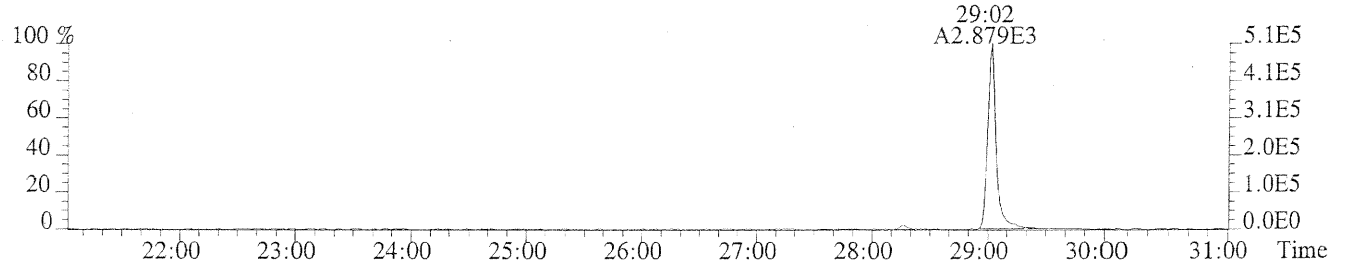
Run #7 Filename U150167 #1 Samp: 1 Inj: 1 Acquired: 31-JUL-14 19:57:38  
Processed: 7-AUG-14 12:01:38 LAB. ID: 2nd SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.11e+05	9.04e+02	5.7e+02	6.56e+05	2.02e+03	3.3e+02
2	1,2,3,7,8-PeCDF	3.91e+06	1.06e+03	3.7e+03	2.50e+06	1.75e+03	1.4e+03
3	2,3,4,7,8-PeCDF	4.25e+06	1.06e+03	4.0e+03	2.77e+06	1.75e+03	1.6e+03
4	1,2,3,4,7,8-HxCDF	3.94e+06	1.05e+03	3.8e+03	3.25e+06	1.20e+03	2.7e+03
5	1,2,3,6,7,8-HxCDF	4.09e+06	1.05e+03	3.9e+03	3.30e+06	1.20e+03	2.7e+03
6	2,3,4,6,7,8-HxCDF	3.80e+06	1.05e+03	3.6e+03	3.10e+06	1.20e+03	2.6e+03
7	1,2,3,7,8,9-HxCDF	2.62e+06	1.05e+03	2.5e+03	2.18e+06	1.20e+03	1.8e+03
8	1,2,3,4,6,7,8-HpCDF	2.89e+06	8.24e+02	3.5e+03	2.89e+06	7.72e+02	3.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.75e+06	8.24e+02	2.1e+03	1.67e+06	7.72e+02	2.2e+03
10	OCDF	2.15e+06	6.08e+02	3.5e+03	2.28e+06	1.20e+03	1.9e+03
11	2,3,7,8-TCDD	3.59e+05	8.04e+02	4.5e+02	4.33e+05	7.44e+02	5.8e+02
12	1,2,3,7,8-PeCDD	2.79e+06	1.11e+03	2.5e+03	1.72e+06	1.08e+03	1.6e+03
13	1,2,3,4,7,8-HxCDD	3.02e+06	7.60e+02	4.0e+03	2.45e+06	7.24e+02	3.4e+03
14	1,2,3,6,7,8-HxCDD	2.85e+06	7.60e+02	3.8e+03	2.24e+06	7.24e+02	3.1e+03
15	1,2,3,7,8,9-HxCDD	2.82e+06	7.60e+02	3.7e+03	2.23e+06	7.24e+02	3.1e+03
16	1,2,3,4,6,7,8-HpCDD	1.83e+06	1.02e+03	1.8e+03	1.79e+06	7.72e+02	2.3e+03
17	OCDD	1.77e+06	7.40e+02	2.4e+03	1.99e+06	9.24e+02	2.2e+03
18	13C-2,3,7,8-TCDF	5.19e+06	2.00e+03	2.6e+03	6.07e+06	1.30e+03	4.7e+03
19	13C-1,2,3,7,8-PeCDF	8.65e+06	1.11e+03	7.8e+03	5.41e+06	9.44e+02	5.7e+03
20	13C-2,3,4,7,8-PeCDF	8.94e+06	1.11e+03	8.0e+03	5.65e+06	9.44e+02	6.0e+03
21	13C-1,2,3,4,7,8-HxCDF	4.36e+06	1.30e+03	3.4e+03	8.16e+06	2.23e+03	3.7e+03
22	13C-1,2,3,6,7,8-HxCDF	4.47e+06	1.30e+03	3.4e+03	8.48e+06	2.23e+03	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.98e+06	1.30e+03	2.3e+03	5.78e+06	2.23e+03	2.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.73e+06	7.88e+02	3.5e+03	6.03e+06	8.08e+02	7.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.55e+06	7.88e+02	2.0e+03	3.48e+06	8.08e+02	4.3e+03
27	13C-2,3,7,8-TCDD	3.67e+06	3.24e+03	1.1e+03	4.75e+06	2.35e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	5.31e+06	1.19e+03	4.5e+03	3.34e+06	1.01e+03	3.3e+03
29	13C-1,2,3,4,7,8-HxCDD	4.66e+06	1.39e+03	3.4e+03	3.61e+06	1.18e+03	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	5.28e+06	1.39e+03	3.8e+03	4.13e+06	1.18e+03	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.64e+06	1.33e+03	2.7e+03	3.31e+06	8.24e+02	4.0e+03
32	13C-OCDD	3.21e+06	7.40e+02	4.3e+03	3.48e+06	6.08e+02	5.7e+03
33	13C-1,2,3,4-TCDD	4.07e+06	3.24e+03	1.3e+03	5.31e+06	2.35e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.67e+06	1.39e+03	3.4e+03	3.56e+06	1.18e+03	3.0e+03
35	37Cl-2,3,7,8-TCDD	8.00e+05	1.24e+03	6.4e+02			

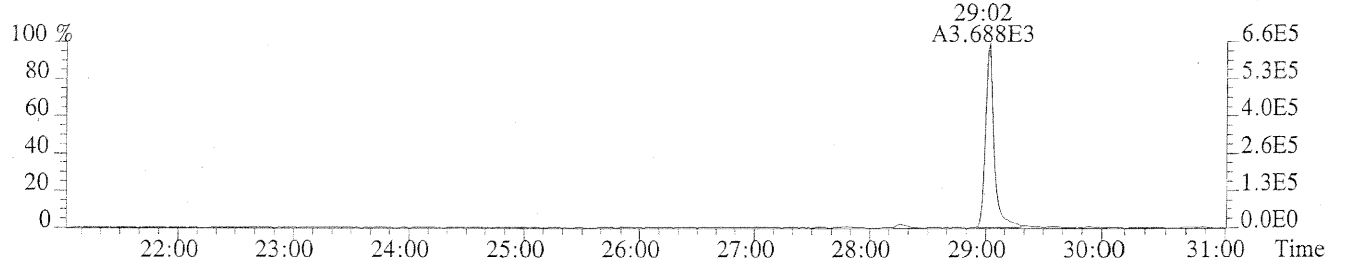
ALS ENVIRONMENTAL  
10450 Stancliff Rd. Suite 115  
Houston, TX 77099  
Office: (713) 266-1599. Fax: (713) 266-0130

ALS Form TO-9SN/M23SN.FRM

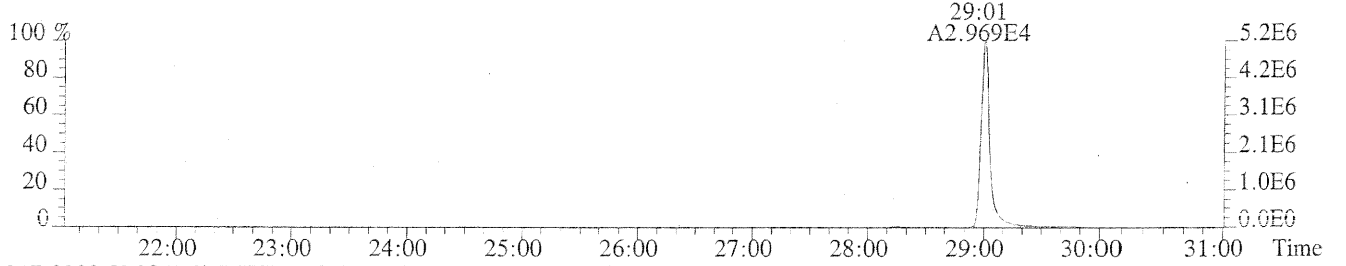
File:U150167 #1-627 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



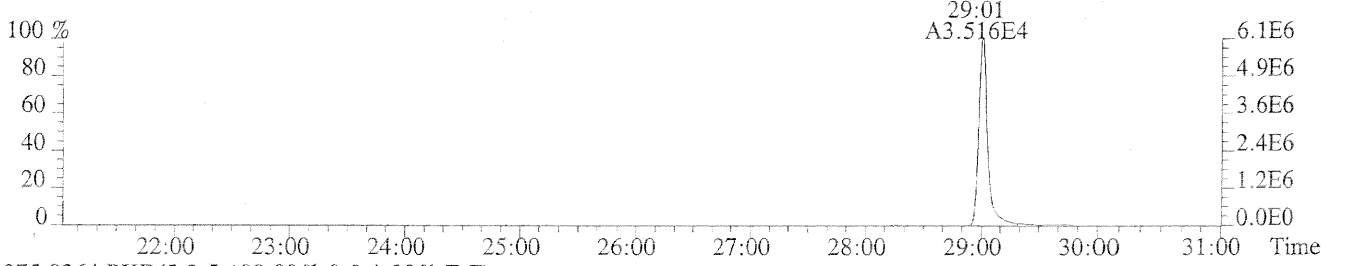
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



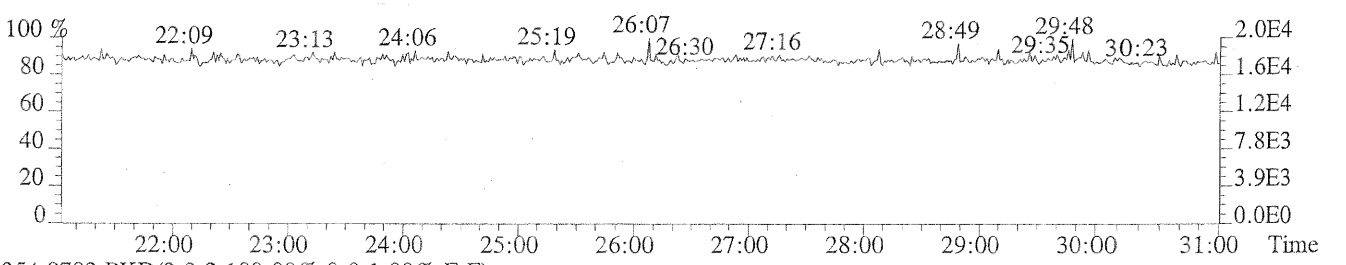
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



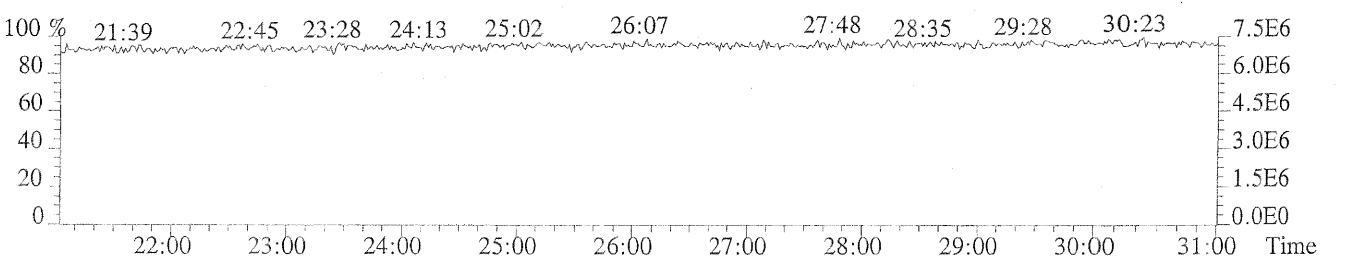
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



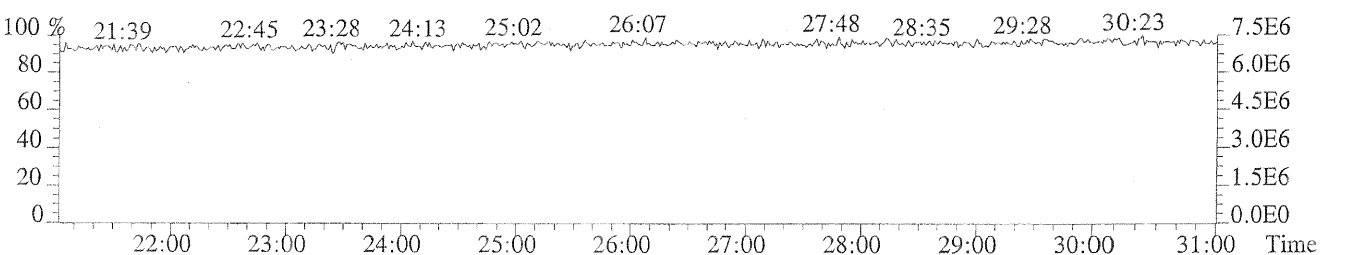
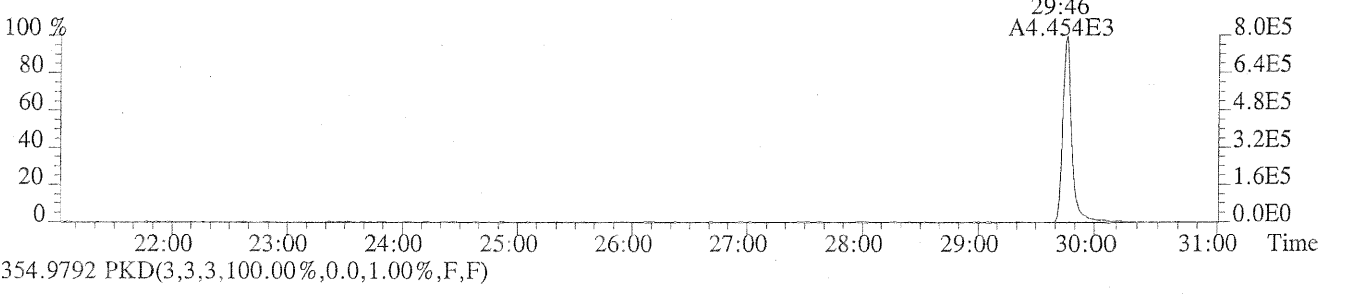
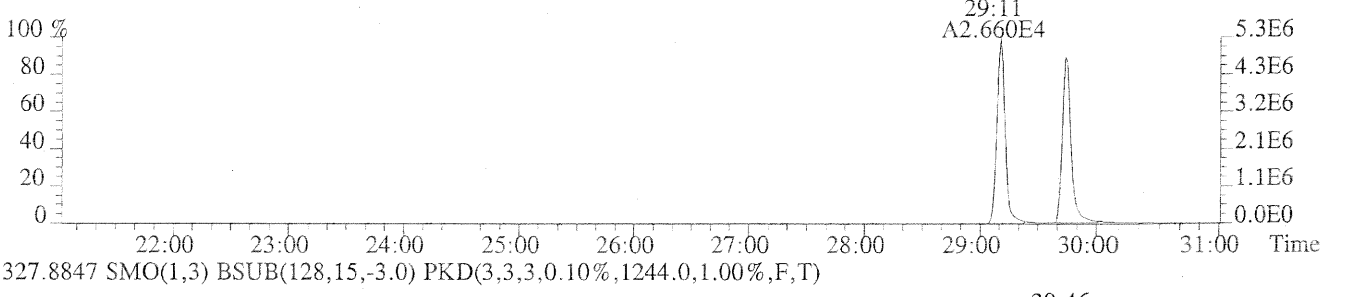
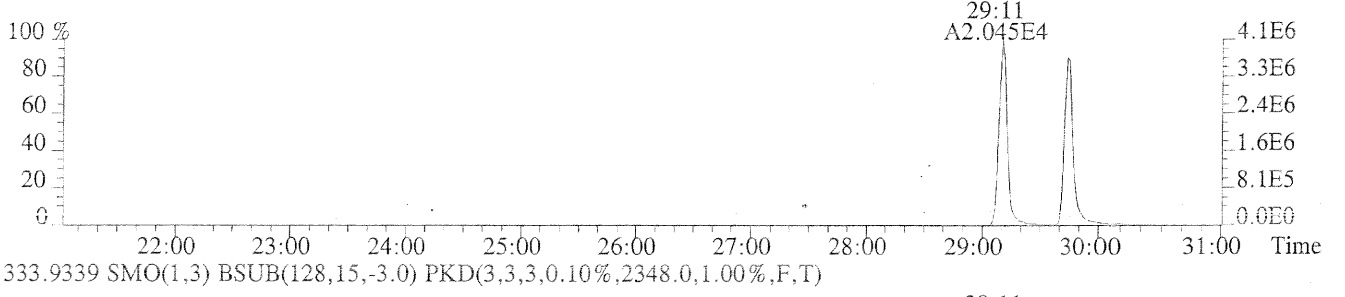
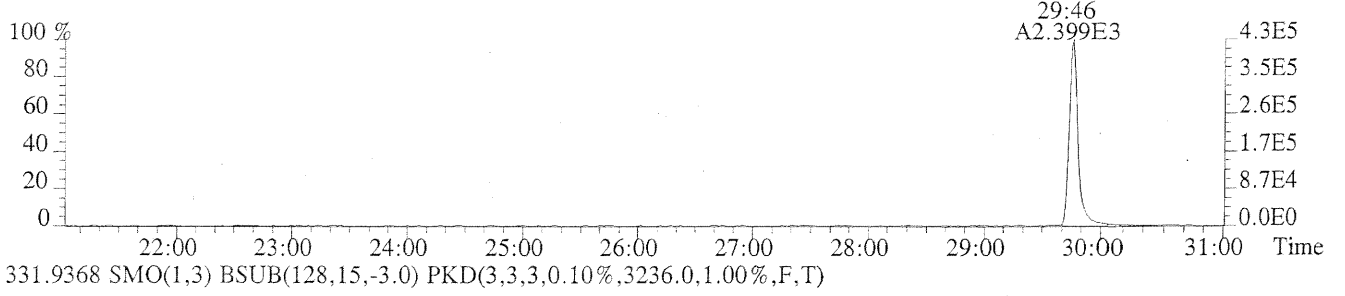
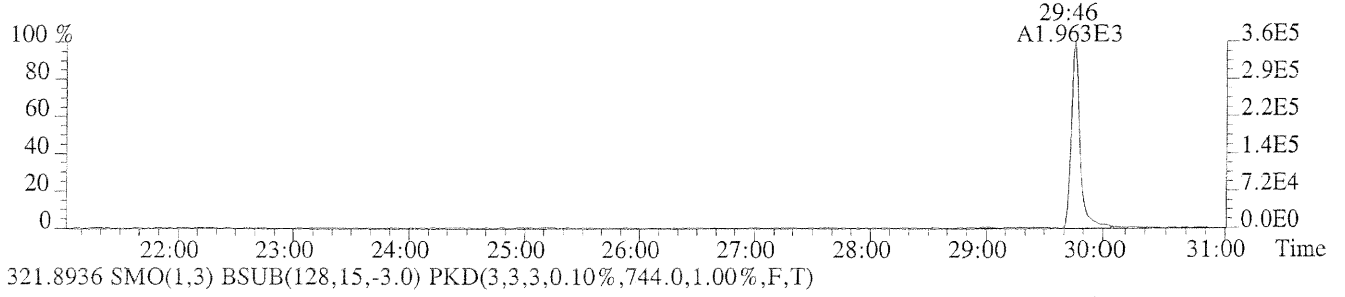
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



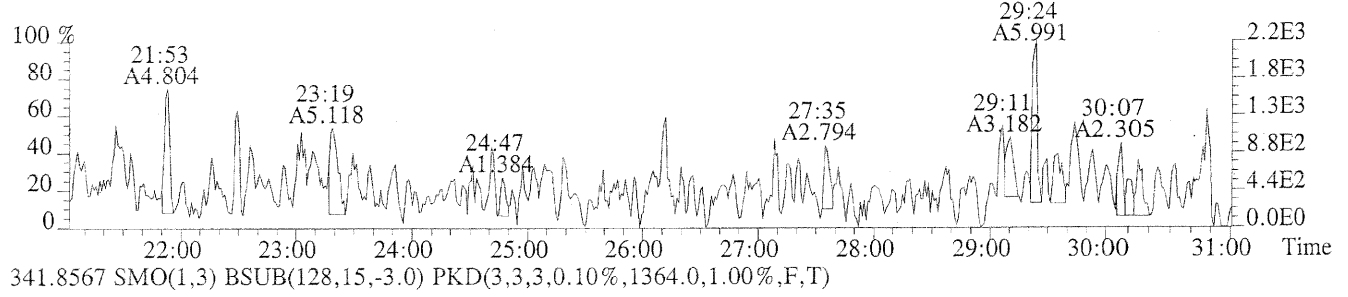
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



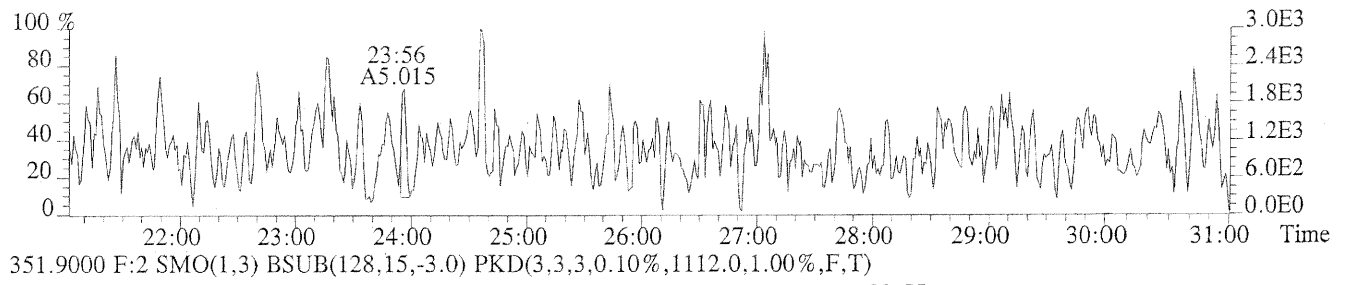
File:U150167 #1-627 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



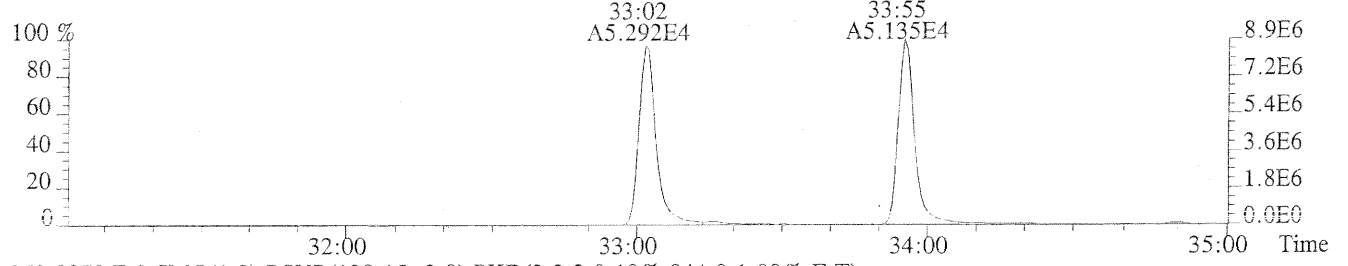
File:U150167 #1-627 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



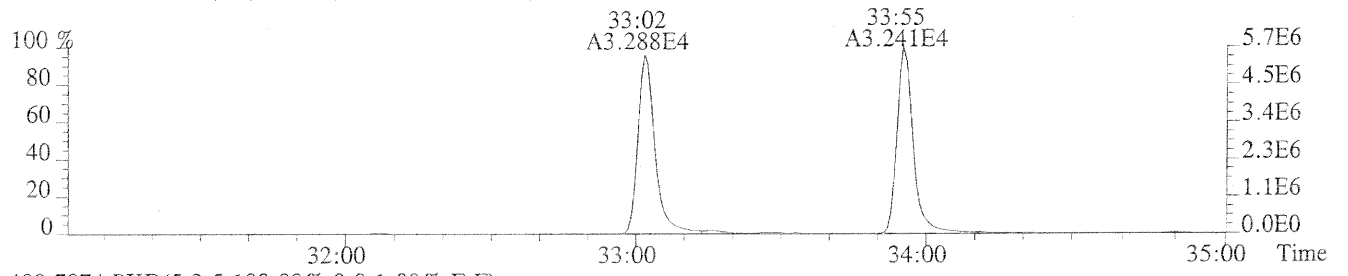
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



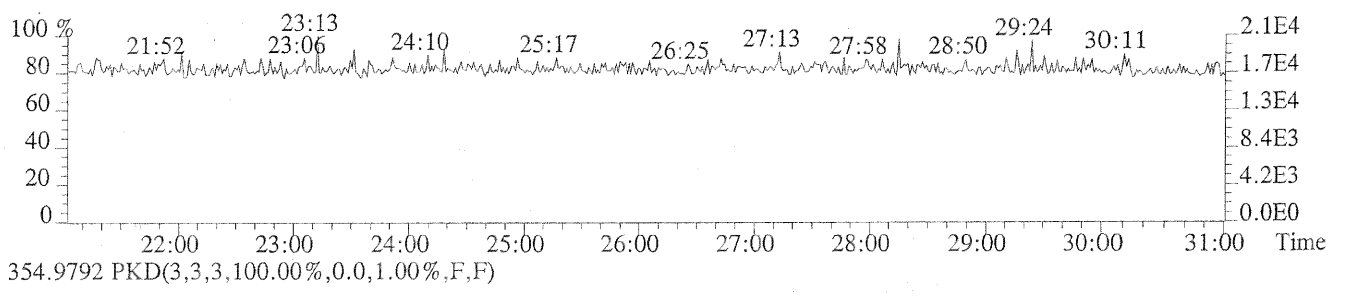
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



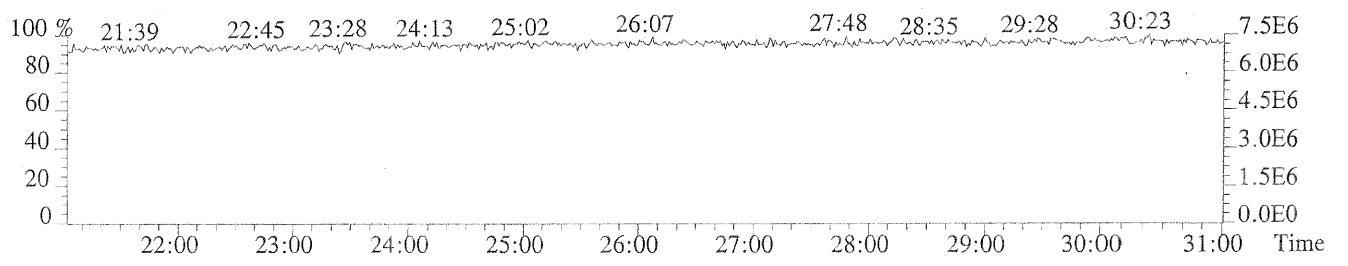
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



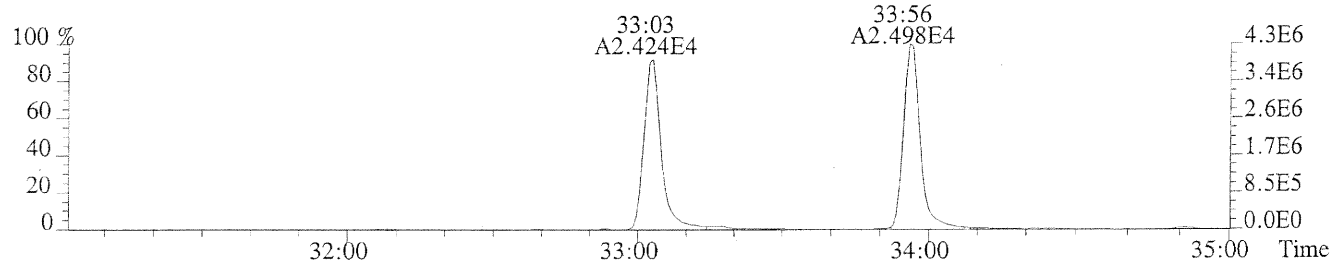
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



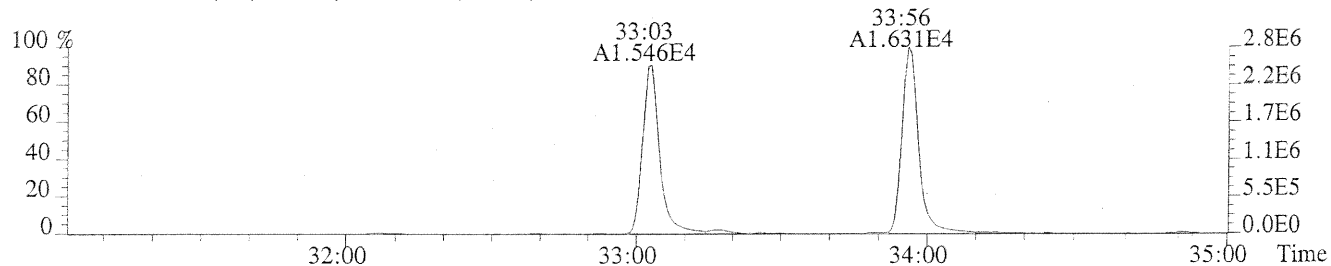
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



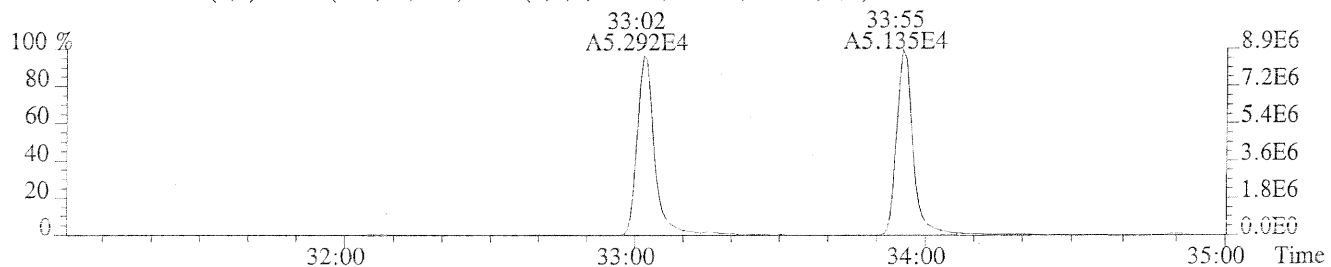
File:U150167 #1-360 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



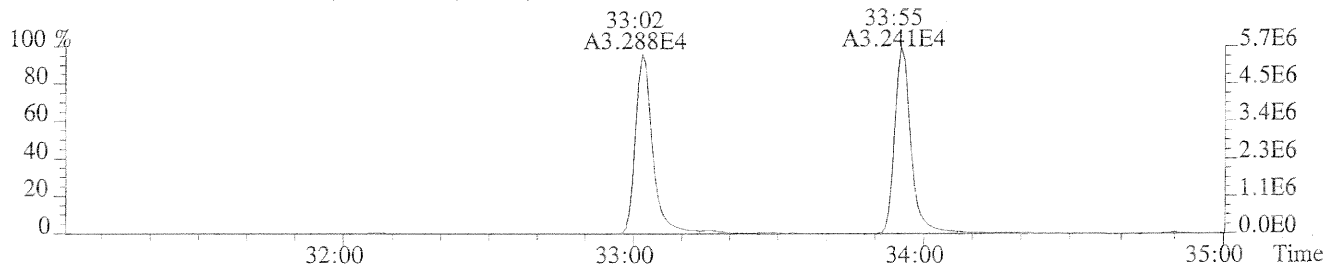
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



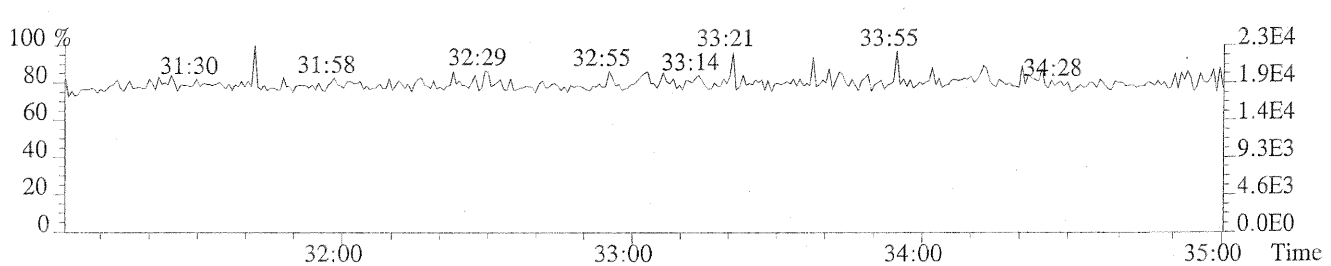
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



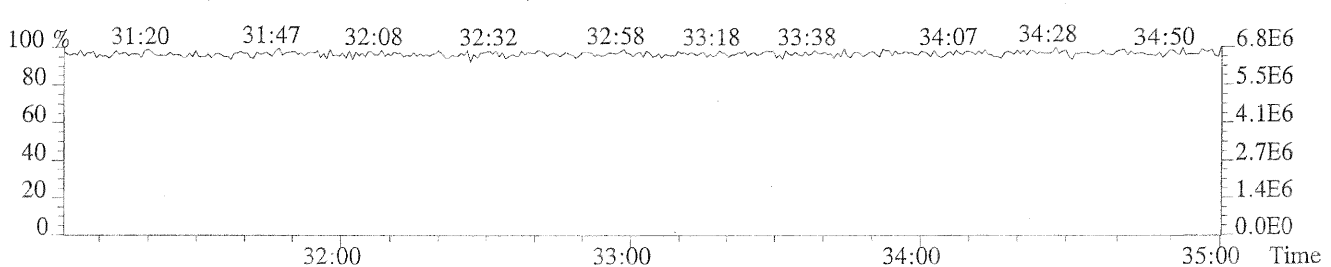
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



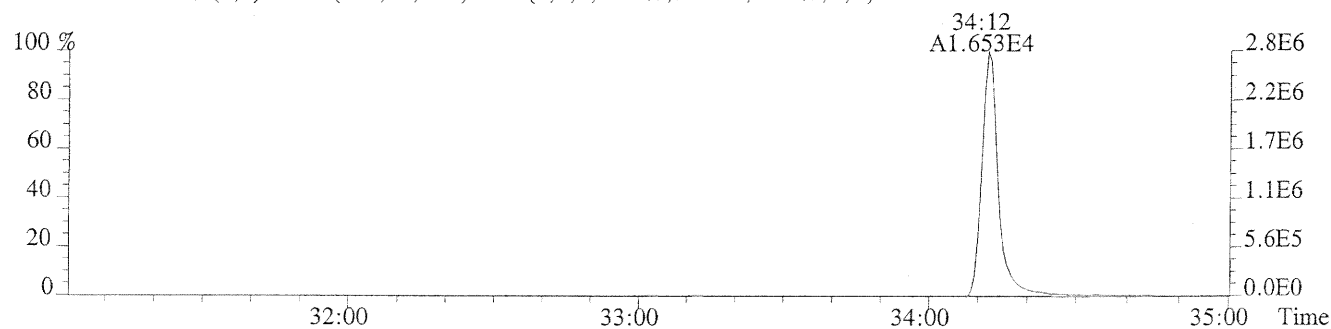
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



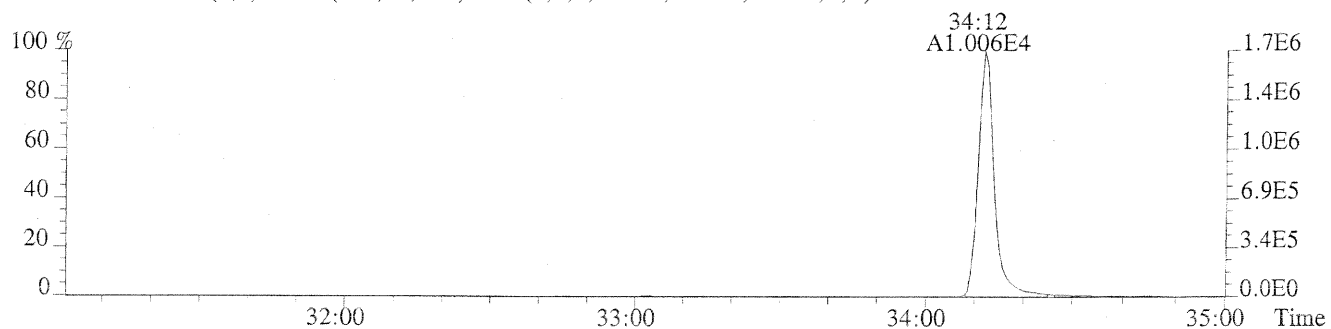
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



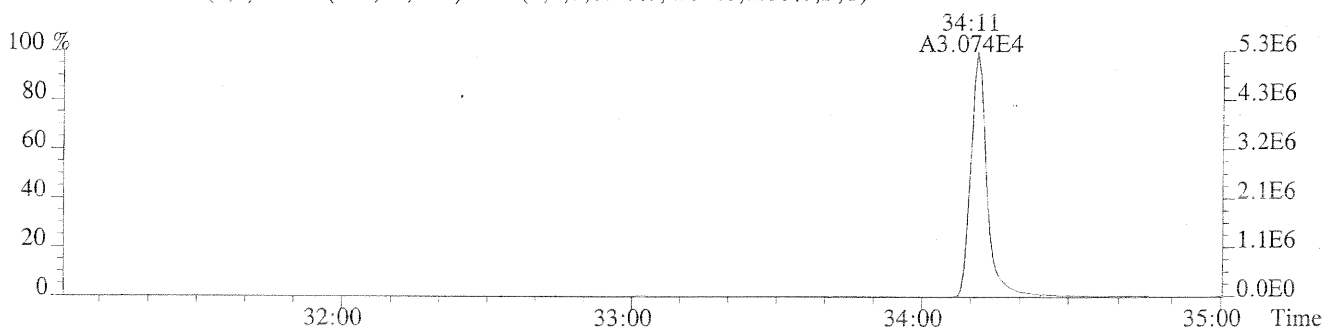
File:U150167 #1-360 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



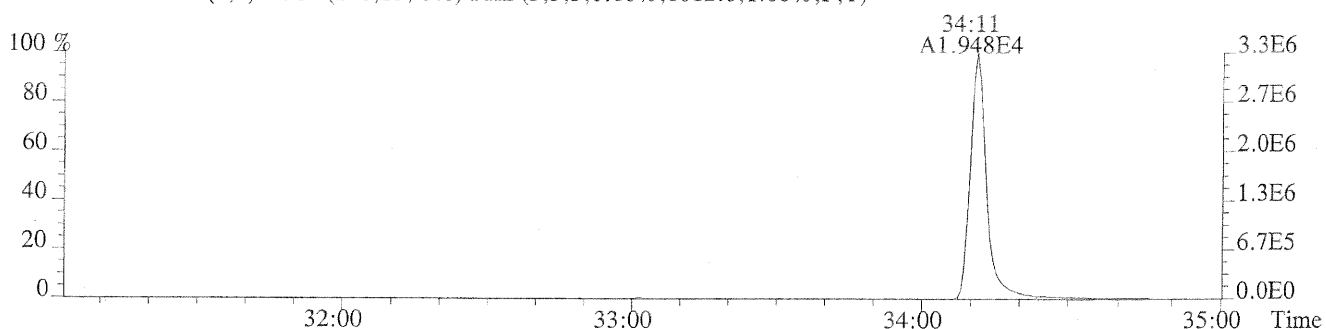
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



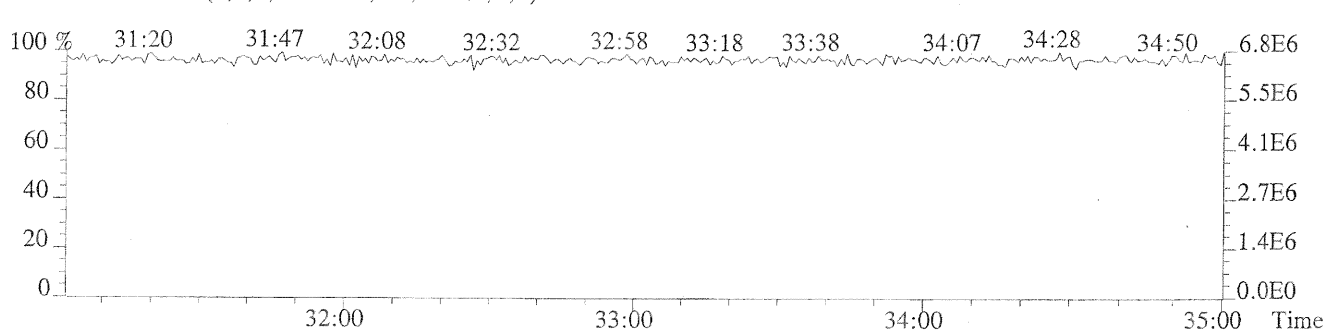
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)

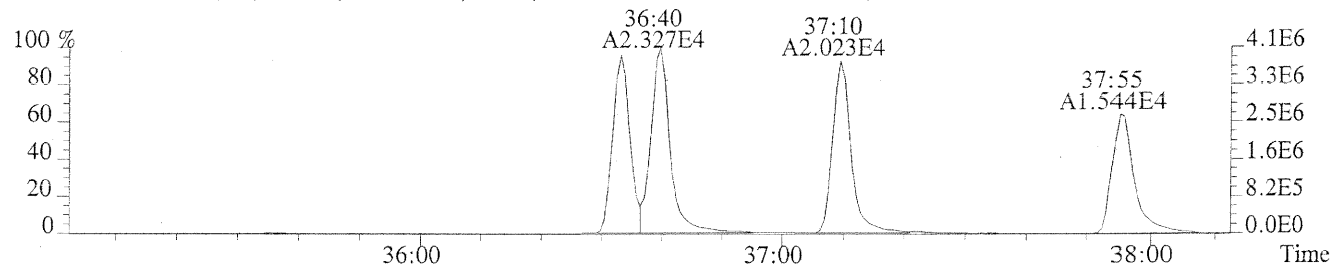


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

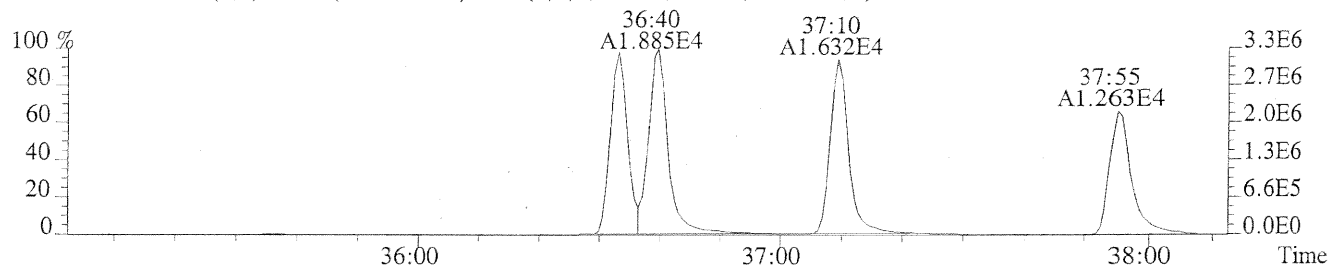




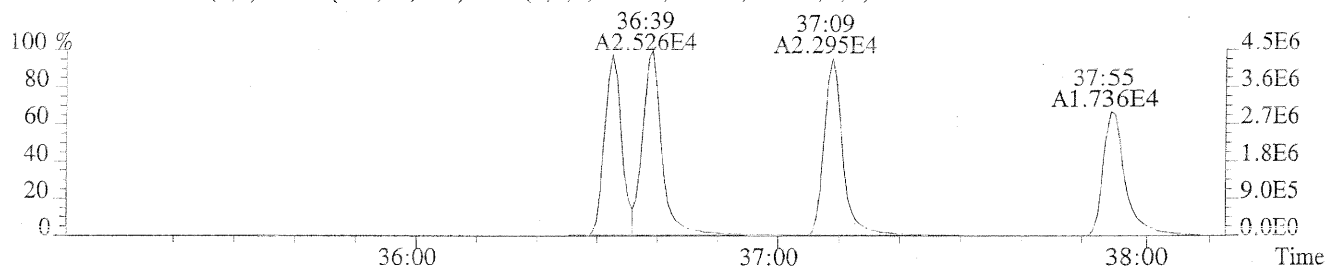
File:U150167 #1-288 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



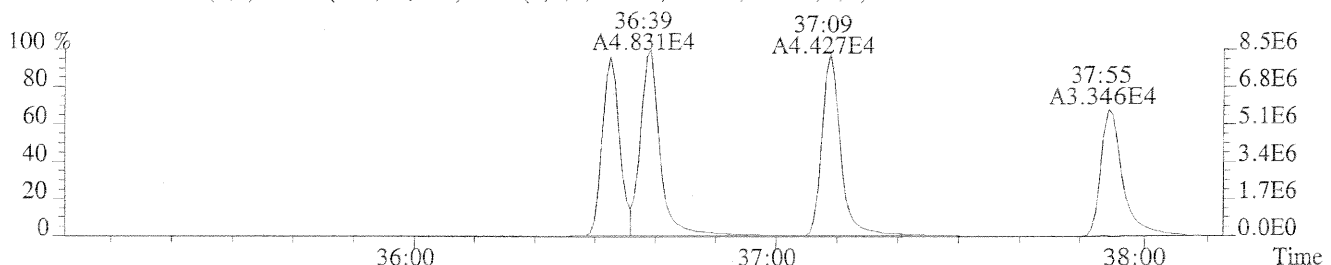
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



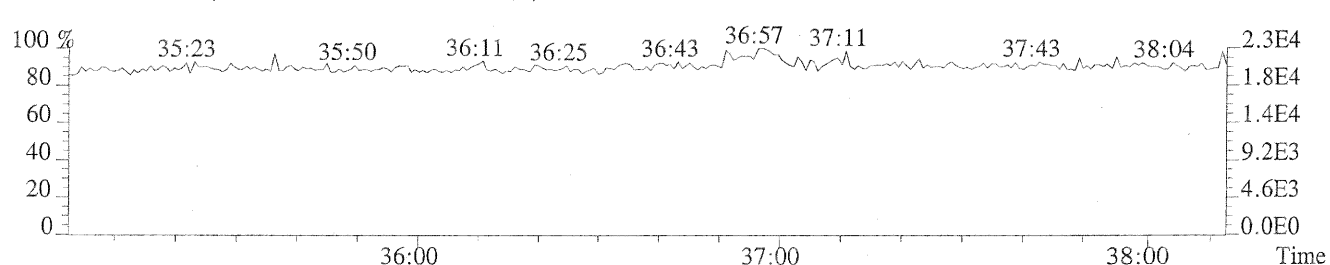
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



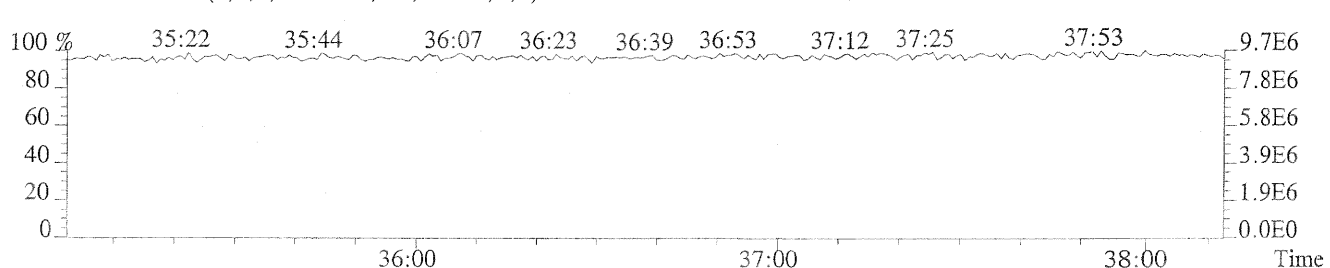
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2228.0,0.40%,F,T)



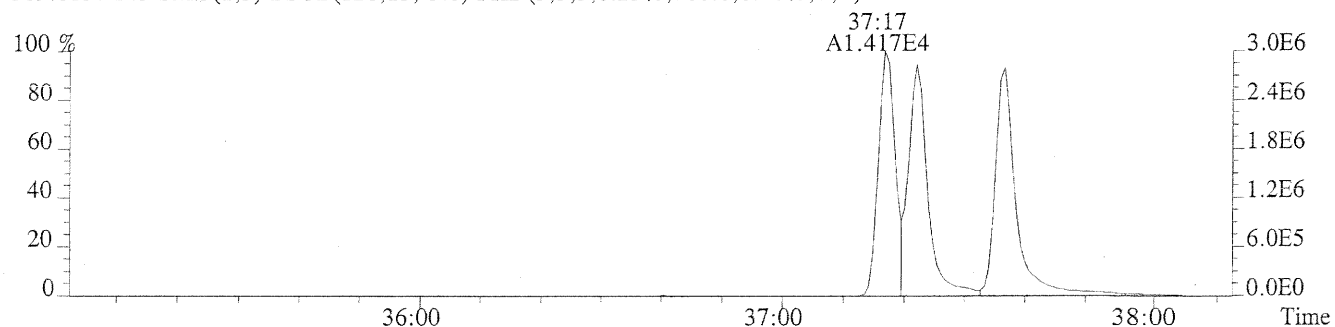
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



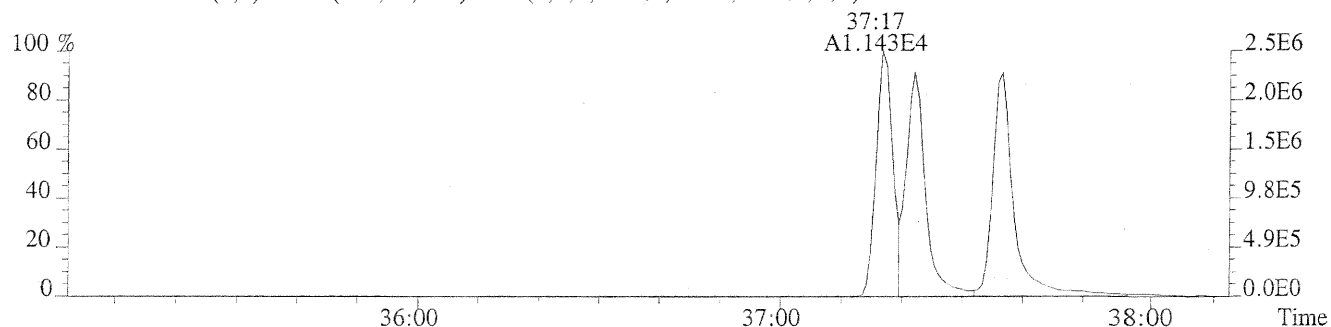
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



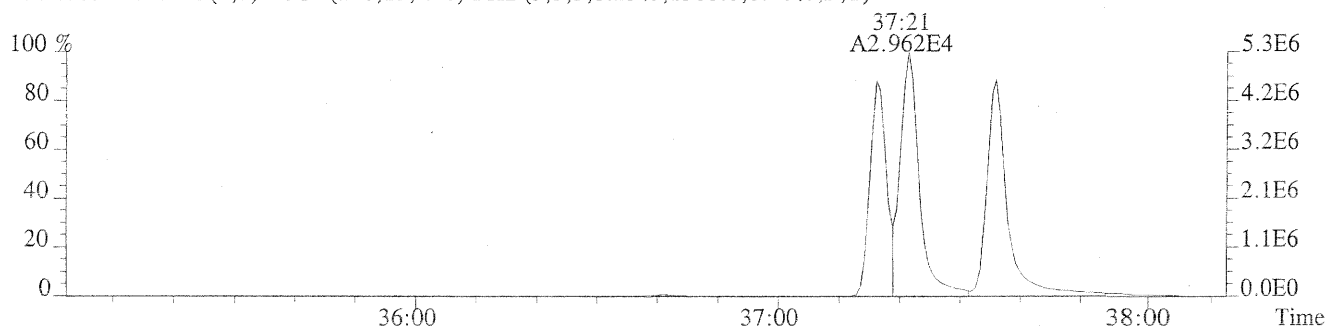
File:U150167 #1-288 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



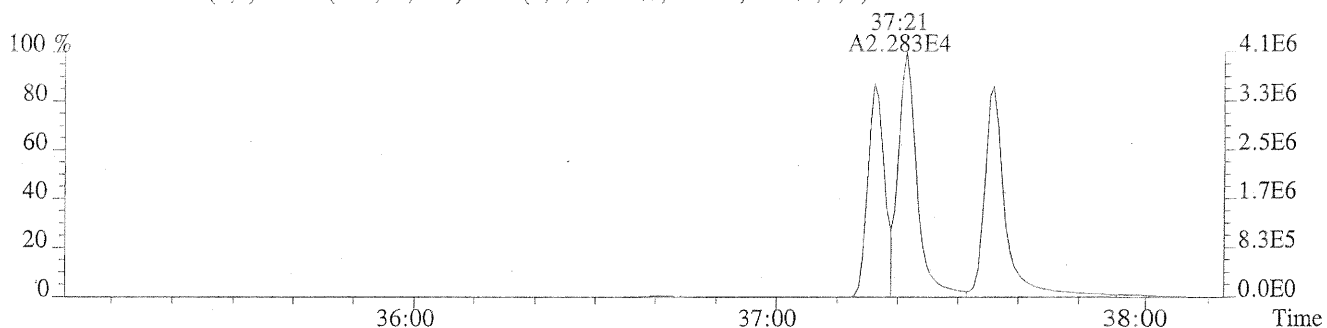
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



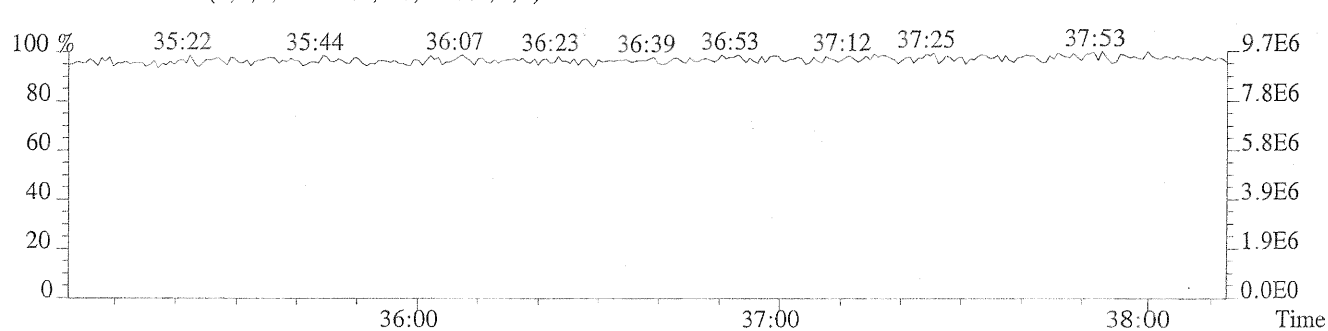
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.40%,F,T)



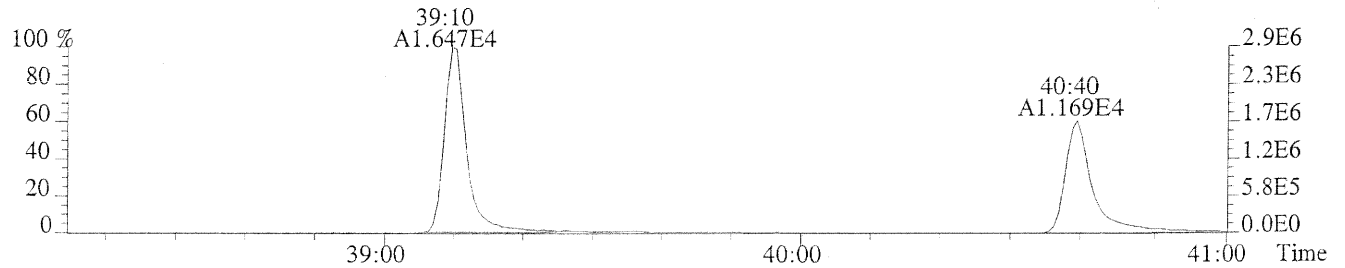
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



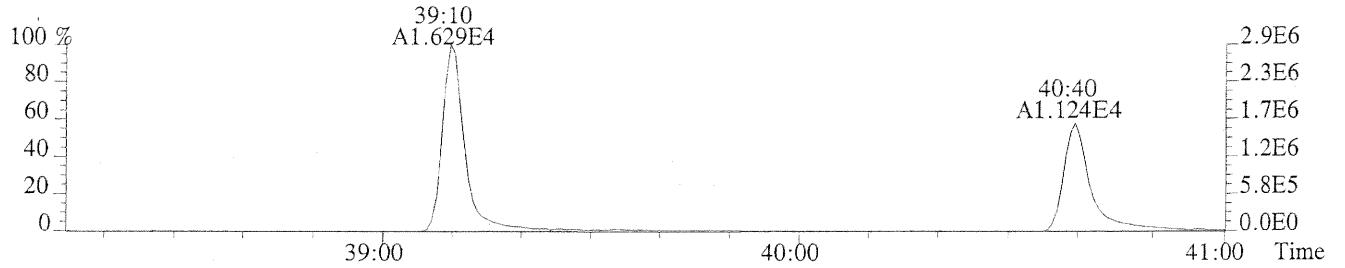
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



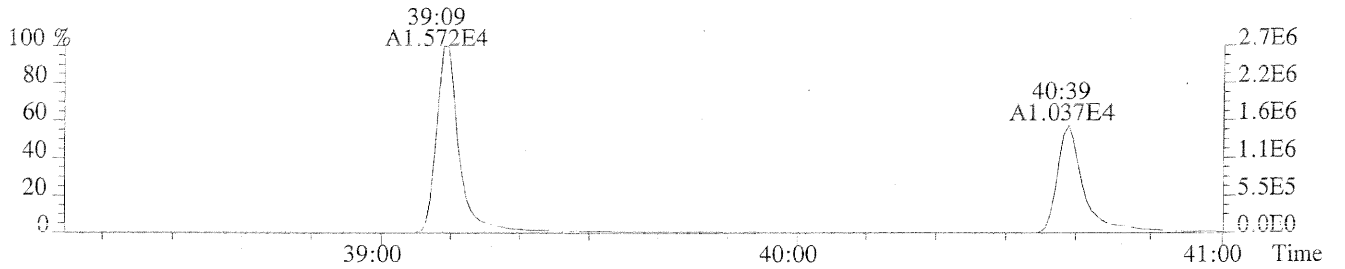
File:U150167 #1-251 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.50%,F,T)



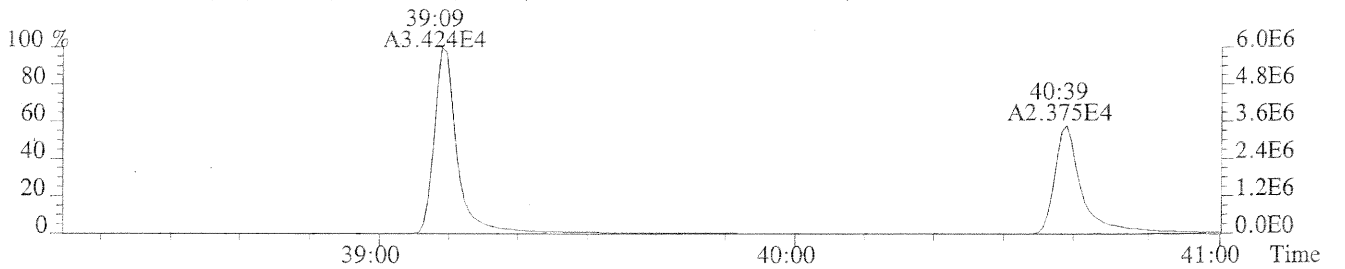
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.50%,F,T)



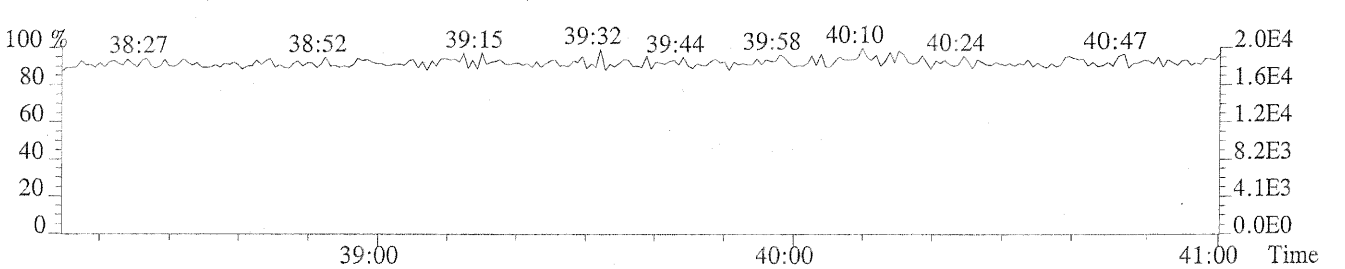
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.50%,F,T)



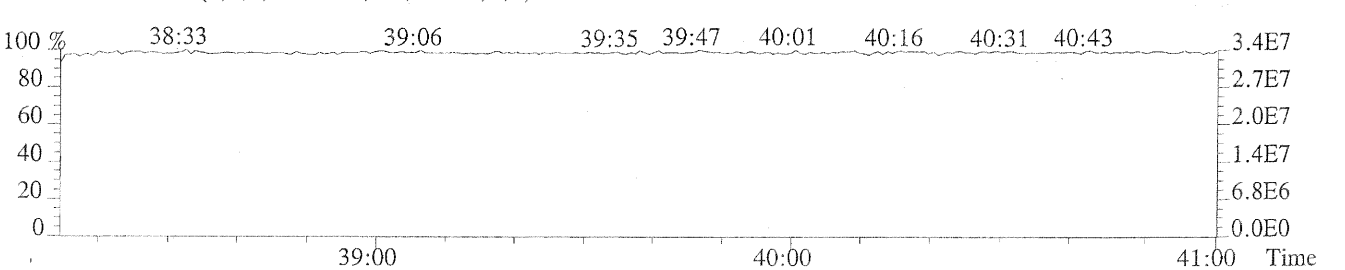
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.50%,F,T)



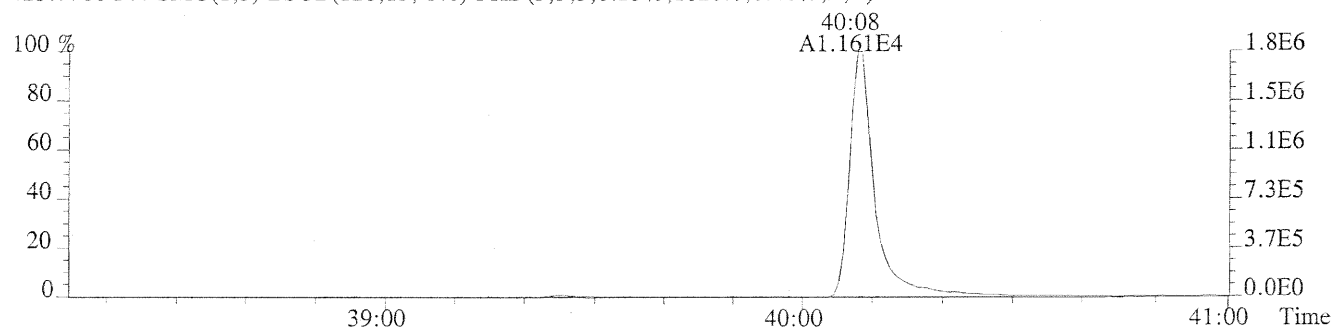
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



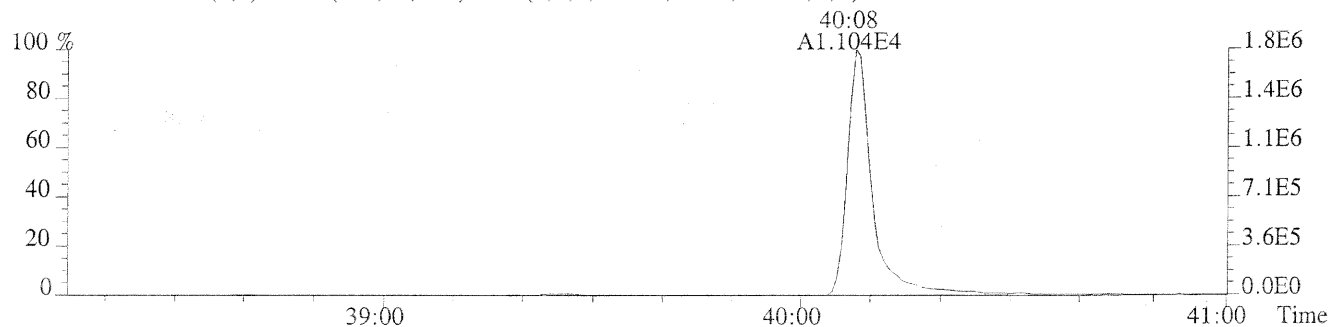
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



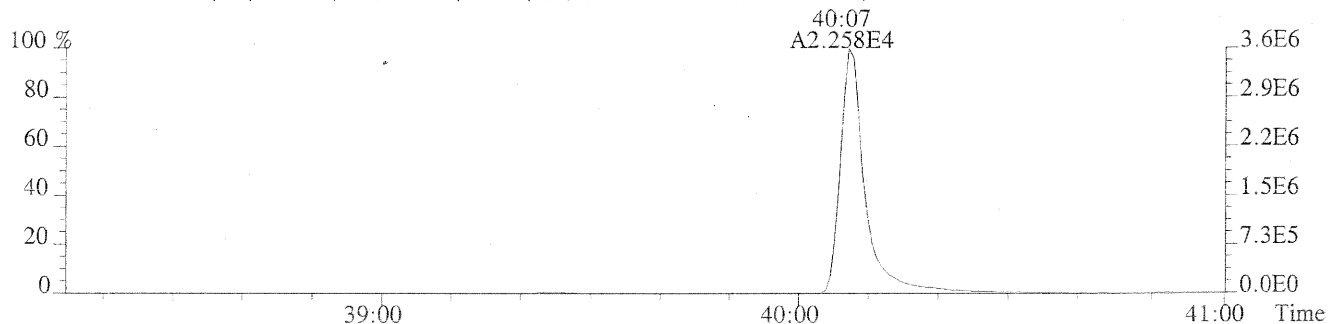
File:U150167 #1-251 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



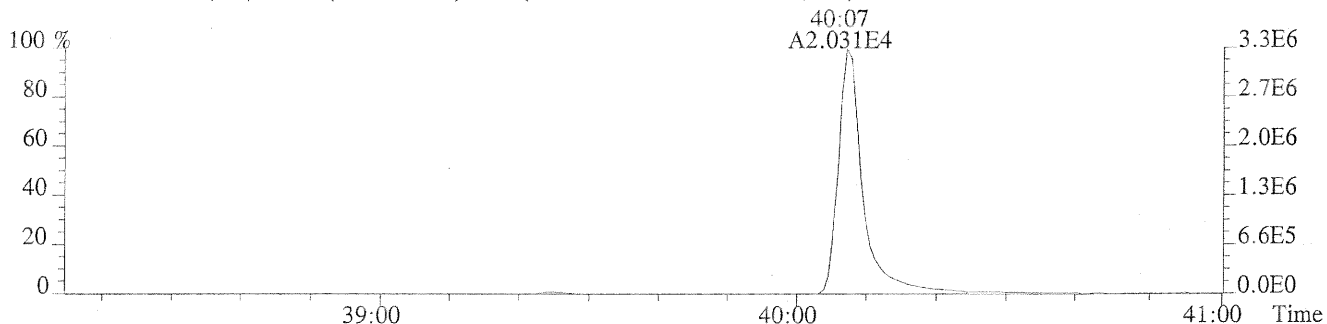
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



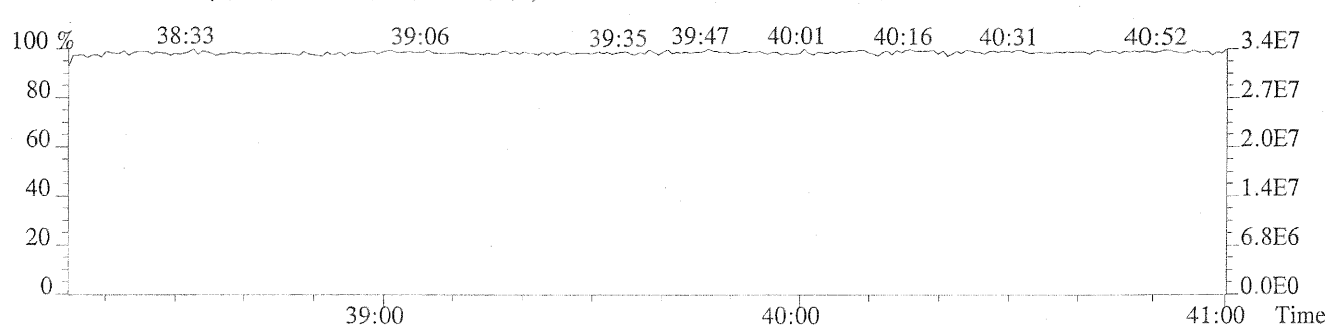
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



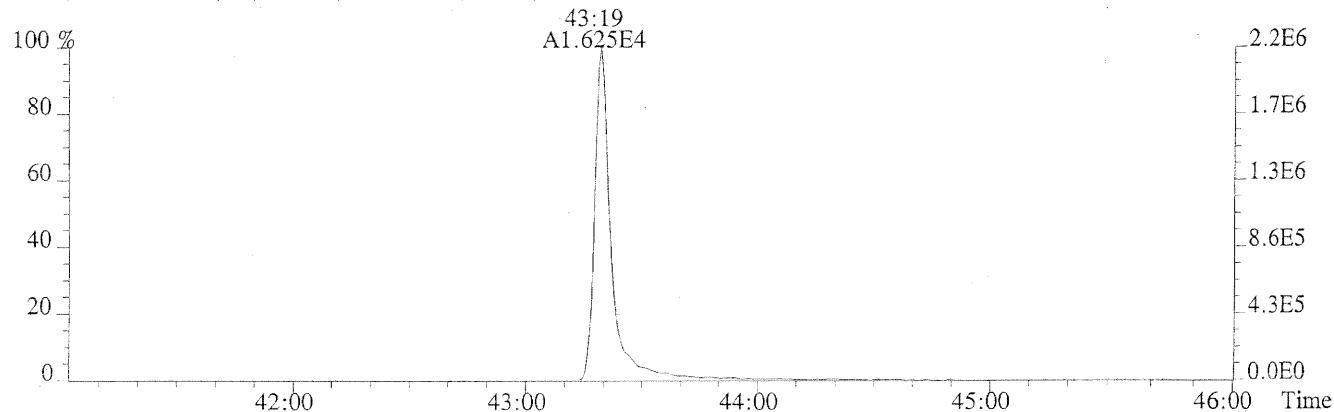
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



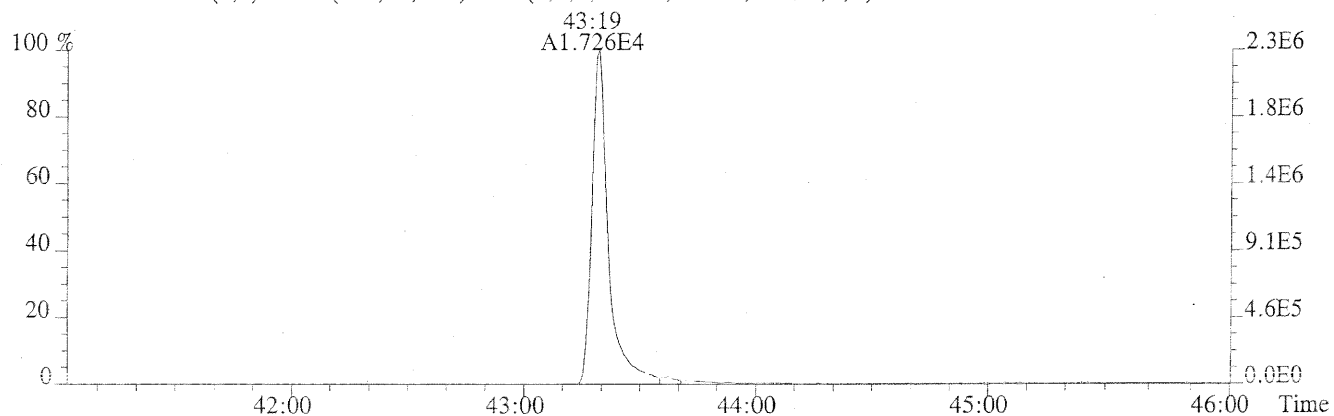
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



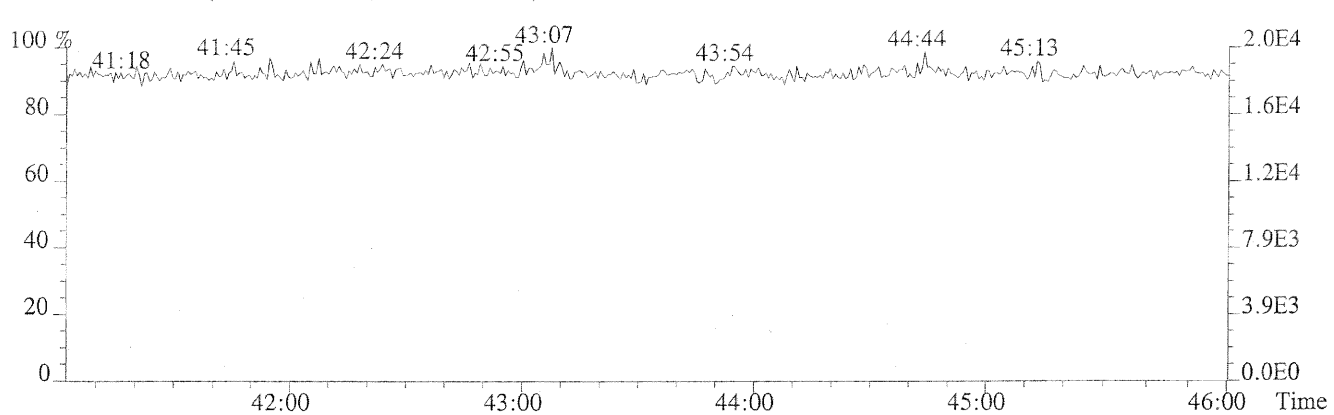
File:U150167 #1-451 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



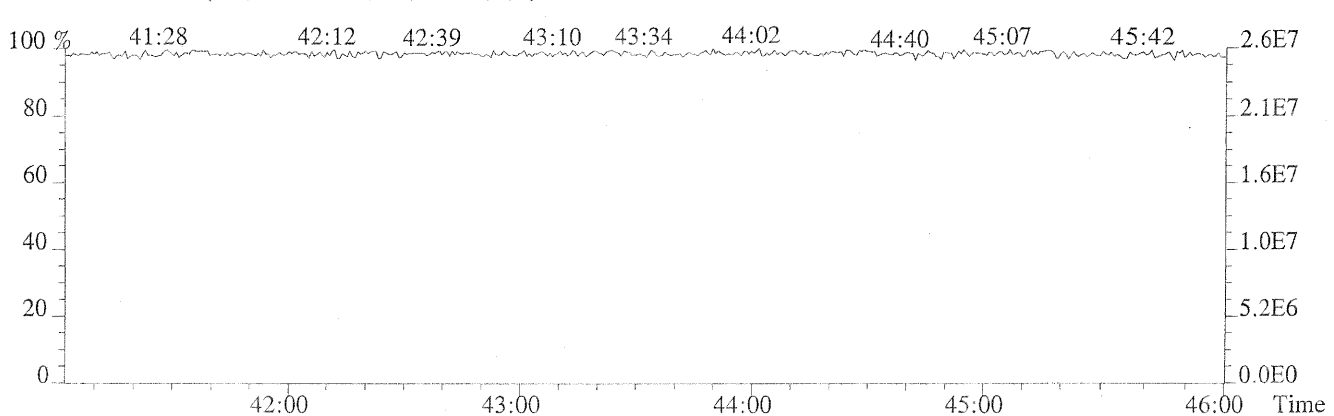
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1200.0,0.40%,F,T)



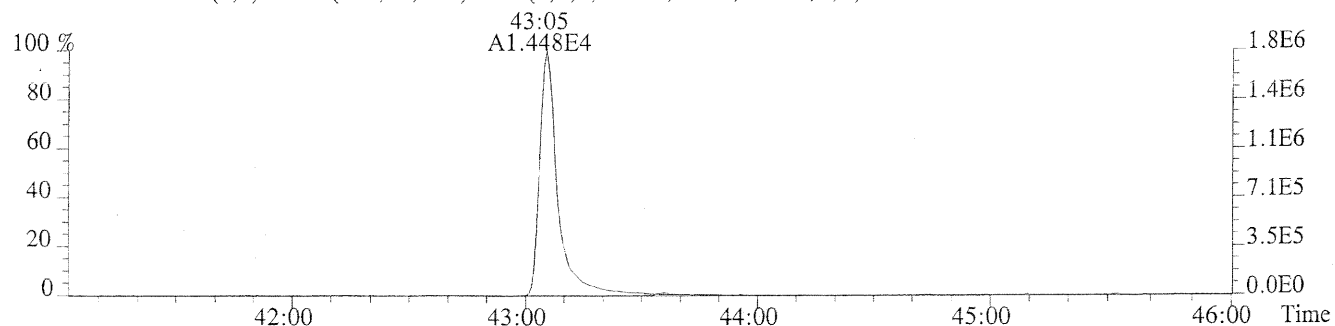
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



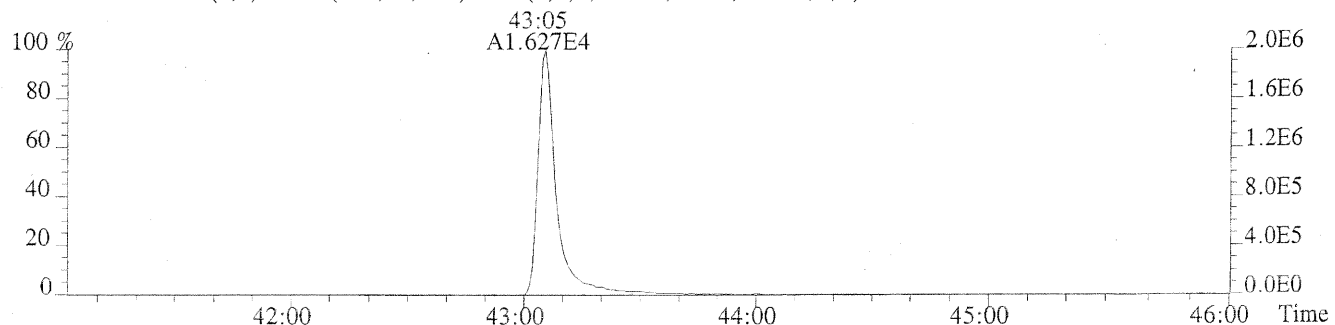
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



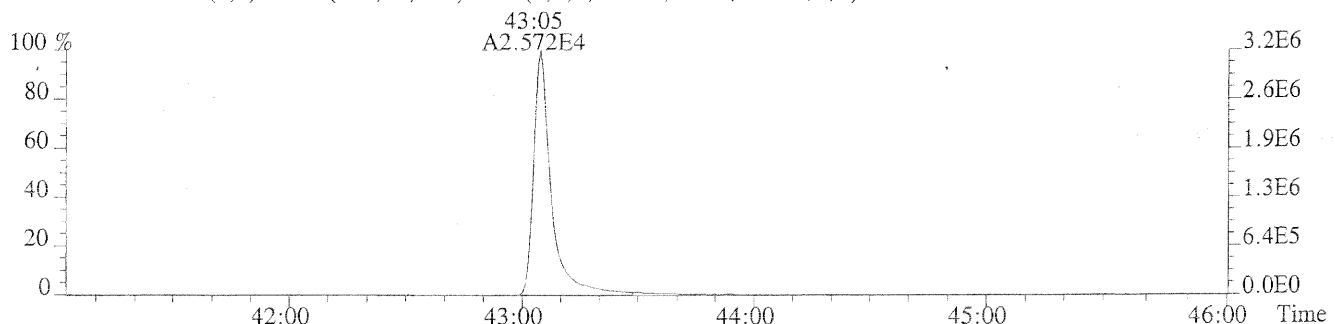
File:U150167 #1-451 Acq:31-JUL-2014 19:57:38 Probe EI+ Magnet SIR VG BioTech Mass spectf  
Sample#1 Exp:2ND SOURCE CCV  
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



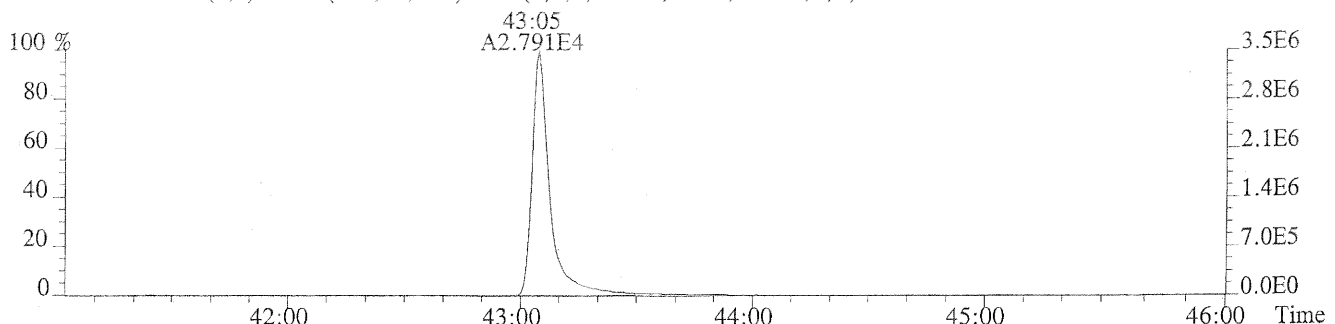
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



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

